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Remedial, Enforcement Oversight, and
Non-Time Critical Removal Activities at Sites of Release or
Threatened Release of Hazardous Substances in Region 5

REMEDIAL INVESTIGATION REPORT—OPERABLE UNIT 2

PMC Groundwater Site, Petoskey, Michigan
WA No. 243-RICO-0554/Contract No. EP-S5-06-01

July 2019

This document has been redacted to protect personally identifiable information.

PREPARED FOR

U.S. Environmental Protection Agency

PREPARED BY

ch2m

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Remedial Investigation Report – Operable Unit 2

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Executive Summary

This remedial investigation (RI) report was prepared for the U.S. Environmental Protection Agency (EPA) Region 5. It presents the results of the RI activities of Operable Unit 2 (OU2) completed at the Petoskey Manufacturing Company (PMC) Groundwater Superfund Site in Petoskey, Michigan (site) to assess the potential vapor intrusion (VI) risks from site-related contaminants. Contamination at the site was first discovered in September 1981 when water samples collected from a municipal water supply well (Ingalls Street Well) showed detections of trichloroethene (TCE), cis 1,2-dichloroethene (DCE), and trihalomethanes. Two records of decision (RODs) were signed by EPA to address contamination in soil and groundwater. Components of the final 1998 ROD include soil excavation, soil vapor extraction, establishment of institutional controls, and long-term monitoring of groundwater. During the third five-year review for the site in 2014, VI was identified as a potential issue. OU2 was established by EPA in 2017. OU2 includes VI risks at the site as well as the surrounding residential and commercial properties (study area).

This report has been prepared for Work Assignment No. 243-RICO-0554, under Contract No. EP-S5-06-01 in accordance with the Quality Assurance Project Plan (QAPP) (CH2M 2018a). The objectives of the RI are to characterize the source area for VI, update the VI conceptual site model, and provide information to support a remedial alternatives assessment. The primary objective of this RI is to characterize the VI pathway.

Conceptual Site Model

TCE at the site is present in vadose zone and saturated intervals of weathered limestone and sand/gravel deposits overlying more competent limestone bedrock. TCE was historically released from the former PMC property and was identified in a municipal supply well located to the northwest of the site near the shore of the Traverse Bay of Lake Michigan. The TCE plume originates beneath the former PMC site and is present in both shallow and deep groundwater. Groundwater elevations at the site are flat, and gradient reversals are caused by fluctuations in the stage of Lake Michigan. This results in virtually no net advective flow.

Natural attenuation of the plume appears to be limited. The presence of cis-1,2-DCE and vinyl chloride was seen in only a few wells historically, and they were not detected in 2018. The aquifer is generally aerobic; therefore, intrinsic bioremediation via reductive dechlorination is very limited. An evaluation of the time-series trends of TCE indicate that TCE concentrations are generally stable, although some wells show decreasing trends. Attenuation is primarily occurring through volatilization and dispersion. As a result, the plume is generally at quasi-equilibrium. The presence of TCE in vadose and the saturated zone is acting as an ongoing source to groundwater, contributing to the slow attenuation and persistence of the plume.

Because TCE is attenuating via volatilization, some of these vapors have migrated under buildings (subslab) and in some cases into those buildings. Both vadose-zone soil and groundwater have been identified as contributors to soil vapor concentrations. However, groundwater is the primary source, in particular, at downgradient and adjacent properties where contaminant vapors have been identified. Subslab depressurization systems have been installed by EPA to mitigate these vapors at some of the properties.

Summary of Remedial Investigation Activities

RI field activities and previous VI investigation activities were conducted in the study area in October 2016 through November 2018 with several rounds of exterior soil vapor, sewer gas, subslab soil vapor,

and indoor air sampling. There are properties where sampling was recommended but access has not been granted. The field activities summarized below were completed following the procedures and quality assurance requirements documented in the 2018 QAPP (CH2M):

- Subslab soil vapor samples and sewer samples were collected in January 2017. Near-slab and/or subslab soil vapor, crawlspace air, indoor air, and outdoor air samples were also collected in May through July 2017 and February 2018. These property-specific VI assessment activities are described in more detail in appendix B.
- Fifteen borings were advanced in May 2018 to provide lithologic information to support the CSM, collect soil samples, collect groundwater grab samples, and select vapor probe locations, as follows:
  - Soil samples were collected from 10 of the borings for analysis of VOCs to support the RI, and percent moisture, permanganate natural oxidant demand, and total organic carbon to support the focused feasibility study.
  - Groundwater grab samples were collected from nine of the borings and analyzed for VOCs.
  - Fifteen multi-depth (up to three depth intervals) soil vapor probes were installed throughout the study area and sampled for VOCs.
- Two monitoring wells were installed using rotosonic drilling methods in May 2018 to delineate groundwater within the former PMC property boundary due to a data gap caused by two wells that were removed in 2004 during building demolition. Vertical profile groundwater grab samples were collected at four intervals (15 to 20 feet below ground surface [bgs], 20 to 25 feet bgs, 40 to 45 feet bgs, and 45 to 50 feet bgs) from one of the borings and analyzed for VOCs.
- Sewer gas samples were collected at nine locations (five from sanitary sewers and four from storm sewers) in June 2018.
- Twenty-five existing and new monitoring wells were gauged and sampled in June 2018 and analyzed for VOCs. In addition, six wells were selected for analysis of perfluorinated compounds to address a request from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).[1]
- Two rounds of instantaneous differential pressure readings were collected at 15 exterior soil vapor probes in June and July, and October and November 2018, as well as long-term differential pressure readings from June to July 2018 at five select exterior soil vapor probe locations.
- Exterior soil vapor samples were collected at 15 locations in October and November 2018.
- Concurrent indoor air, outdoor air, crawlspace air, and subslab soil vapor samples were collected from 15 residential properties in October and November 2018.
- Sewer gas samples were collected at 12 locations (6 from sanitary sewers and 6 from storm sewers) in October 2018.

Although data collection was focused on investigating the nature and extent of TCE impacts, EPA requested that samples be analyzed for the Target Compound List of VOCs using EPA Method SW-846 8260B for both groundwater and soil. Vapor samples were analyzed for VOCs via method TO-15. Perfluorinated compounds were analyzed by HPLC-MS-MS.

[1] Effective April 22, 2019, the Michigan Department of Environmental Quality (MDEQ) reorganized into the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Historical references to MDEQ occur throughout this document.

Summary of Remedial Investigation Results

Physical Characteristics of the Site

The study area rests on fill underlain by permeable, friable limestone with unconsolidated lacustrine gravel (including boulder and cobble size) and sand. A beach face or foreshore depositional regressive sequence, identified by a top-to-bottom sequence of varying grain-size deposits, including sand and shale, is also identified under the limestone within the former PMC property boundary. The thickness of the friable limestone and unconsolidated deposits ranges from 20 to approximately 40 feet bgs overlying more competent limestone.

The more competent limestone bedrock that underlies the weathered limestone is generally described on the boring logs as consisting of or containing clay, interbedded with thin shale layers and slightly fossiliferous (Charlevoix Limestone). Fractures are described as containing fine to medium sand with some silt. However, the distinction of the interfaces between the friable limestone, unconsolidated deposits, and Charlevoix Limestone is difficult to determine.

The unconsolidated surficial deposits and shallow limestone bedrock underlying the site compose a single unconfined water table aquifer. Hydraulic conductivity based on historical slug testing ranges from 7.67 x 10^{-4} centimeters per second (2.16 feet per day) to 2.11 x 10^{-3} centimeters per second (5.98 feet per day). The groundwater seepage velocity calculated using the June 2018 groundwater surface elevation map and range of hydraulic conductivity was estimated between 0.0002 to 0.0006 feet per day. Vertical hydraulic gradients calculated for five well pairs indicate that there is virtually no vertical gradient, and only a slight upward vertical gradient was noted at one well pair.

Water levels in the study area range from 5 to 19 feet bgs (June 2018) with the shallowest groundwater levels closer to Lake Michigan in the vicinity of Bayview Park and the [redacted] However, the hydraulic gradient across the site is virtually flat and reversals in gradient caused by fluctuations in lake stage indicate that there is no net advective flow across the site. However, for the purposes of conservative assessment of these environmental investigation results, groundwater flow within this evaluation is interpreted to be generally towards Lake Michigan. The local reversals of the groundwater flow direction in the nearshore area noted in previous hydraulic studies likely enhance dispersion and volatilization of the plume. Seasonal temperatures are moderated by Lake Michigan (Appendix A).

Nature and Extent of Contamination

Development of Site-Specific Contaminants of Concern

Chloroform was only detected in one groundwater sample and is a common by-product that forms when chlorine or other disinfectants are added to drinking water; it is not listed as a chemical of potential concern (COPC) for OU1 in the 1998 ROD, nor is it considered site-related for OU2.

Groundwater Investigation Results

Only two VOCs were detected above SLs in groundwater—TCE and chloroform. TCE was detected above the EPA Residential Groundwater vapor intrusion screening level (VISL), and the Michigan Department of Environmental Quality (MDEQ) Residential Volatilization to Indoor Air Criteria (VIAC). The highest concentrations of TCE were detected in groundwater within the footprint of the former PMC facility, and concentrations above SLs were detected extending from the former facility to the northwest towards the lake.

Time-series concentration trends of TCE indicate stable trends in five of the wells evaluated and decreasing trends in three of the wells. Trends in the source area wells were stable, although TCE was

not detected in deep well PS-104 during the last two events, and concentrations in this well historically have been less than 10 micrograms per liter. Near the shoreline, trends are decreasing in the shallow well evaluated (PS-11) and increasing in nearby deeper well (PS-106), indicating a slight change in plume shape over time. No TCE degradation products were detected in 2018, indicating that intrinsic bioremediation via reductive dechlorination is not occurring. Attenuation of TCE thus appears limited and localized. Volatilization and dispersion are expected to be the primary attenuation mechanisms at the site.

Perfluorinated compounds were detected in four of the six wells sampled. None of the concentrations exceeded respective SLs.

Soil Investigation Results

TCE, benzene, ethylbenzene, and tetrachloroethene (PCE) were each detected above SLs. TCE was detected above the VIAC in most of the samples. The highest concentrations of TCE were detected in soil in the western portion of the footprint of the former PMC property both above and below the water table.

Benzene and ethylbenzene were detected above their respective VIAC SLs also primarily along the western half of the former PMC property. This area is where the highest concentrations of TCE are noted, and where historical releases likely occurred. These chemicals were identified in collocated soil vapor samples but were not identified in groundwater above SLs.

One metal, arsenic, was detected above the EPA Residential Soil Regional Screening Level. Exceedances were detected outside of and within the site boundary, below the water table, and at similar concentrations.

Sewer Gas Investigation Results

Sewer gas analytical results from January 2017, June 2018, and October 2018 indicated that TCE exceeded the EPA Residential Soil Vapor VISL at three sanitary sewer locations during one or both sampling events. These locations are within the footprint of the TCE soil vapor impacts. Current results of sewer gas sampling indicate that concentrations in sewer gas do not generally exceed the adjacent soil vapor concentrations.

Three other VOCs (acrolein, bromodichloromethane, and chloroform) exceeded EPA and MDEQ screening levels (SLs) in sewer gas. However, none of these chemicals are considered site-related. Both bromodichloromethane and chloroform are considered present due to drinking water and/or use of bleach in cleaning agents. Acrolein is ubiquitous in the environment from cooked foods and is widely found in human urine.

Exterior Soil Vapor Investigation Results

TCE was detected in 59 of the 62 soil vapor samples and exceeded SLs (EPA Residential Soil Vapor VISL [Target Cancer Risk = 1 x 10-6 and Target Hazard Quotient =1]) in 35 of the samples. Detections of TCE were similar in concentrations from June to October/November 2018, but were generally slightly more elevated during the June 2018 sampling event. Although TCE was detected in most samples, concentrations exceeding SLs were located within or adjacent to the shallow TCE groundwater plume footprint, suggesting the groundwater plume as the source of the vapor concentrations beyond the PMC site. This conclusion is supported by results of the mass partitioning analysis. The analysis evaluated the extent that TCE mass in the saturated and unsaturated zones contributes to soil vapor concentrations. The evaluation concluded that although both vadose zone soil and groundwater contribute to TCE in soil vapor at the former PMC property, the TCE source strength appears greater from groundwater both beneath the former property and in the study area.

Benzene was detected above SLs in 11 samples from nine locations. At the location with the highest benzene concentration (PMC-SVB-09-06), chemicals were detected that suggest a release of solvents,

including petroleum-based solvents. Based on these data and location of the detections, these chemicals are potentially present due to a site-related release. Benzene and ethylbenzene appear to be observed primarily within the boundary of the former PMC property and associated with those locations where TCE was noted. As a result, benzene and ethylbenzene have been considered in the human health risk assessment (HHRA) as potential site-related compounds and will be evaluated further for potential risk.

PCE was detected above soil vapor SLs in four samples collected from three locations. The highest concentration was detected at the deepest sample interval in boring SVB-10. Two borings indicated concentrations increasing with depth and two indicated concentrations decreasing with depth. No samples collected from or near these locations presented concentrations of PCE above SLs in soil or groundwater. The presence of PCE in the study area is sporadic, which could suggest multiple small releases or reworking of the soils during redevelopment.

Fate and Transport

TCE released from a former aboveground storage tank and waste-handling practices at the site migrated from soil to groundwater. Once dissolved, aqueous-phase TCE migrated toward the former municipal supply well during active pumping, resulting in the plume extending to Lake Michigan. When the Ingalls Municipal well was abandoned, flow conditions returned to non-pumping conditions. Advective migration of TCE in groundwater is very low due to the flat hydraulic gradient and flow reversals caused by fluctuations in lake stage. However, these conditions likely enhance dispersion and volatilization of the plume.

TCE is attenuating primarily through volatilization and dispersion, as degradation products were not identified. However, aqueous TCE concentration trends indicate that attenuation processes are likely matched by back diffusion from the matrix; most of the wells evaluated show stable trends. Soil vapor results indicate that groundwater is the primary source of TCE vapor concentrations, although residual TCE in vadose zone soil also contribute to vapor concentrations at the former PMC property.

Attenuation of vapors is noted as a decrease in vapor concentrations away from the source. Beneath the former PMC property, some soil vapor concentrations were higher in shallow samples than near the groundwater table. This indicates that concentrations in both groundwater and soil are contributing to the concentrations observed in soil vapor. Downgradient of the former PMC property and at adjacent properties, higher concentrations were generally noted in deeper samples closer to the water table, indicating groundwater as the primary source of vapor concentrations.

Once in soil vapor, TCE diffuses toward the surface through the porous media beneath the site and potentially migrates into buildings through advection caused by differences in temperatures inside and outside of the building or through operation of fans that can create driving forces for soil vapor entry, for example. Fluctuations in groundwater levels due to changes in lake stage also likely enhances volatilization. Potential vapor migration into buildings is discussed in more detail in Appendix B which includes a detailed evaluation of sewer gas samples collected in June and October 2018. The results indicate the presence of VOCs at relatively low concentrations, that are either below or comparable to concentrations observed in multi-level soil vapor samples collected at the site. Utility lines can potentially play a role in transport across the building envelope. However, as presented within this RI and in the attached VI technical memorandum, there is no evidence that the sewer network is currently acting as a preferential pathway to surrounding buildings.

Risk Assessment Results

The HHRA evaluated the potential current and future risks to human health posed by detected chemicals at the site. Indoor air, crawlspace air, subslab and exterior soil vapor, and soil were evaluated, where applicable, at properties included in the RI investigation. Groundwater data was not used in the quantitative risk assessment of the VI pathway since an extensive network of soil vapor sampling

locations is available for the site and is more extensive than the groundwater monitoring network. Groundwater as a source of mass storage and transport for VI is considered in the conceptual site model and in the nature and extent sections of the RI, and in the upcoming feasibility study.

- Potential current indoor air risk estimates based on indoor air/crawlspace air were within EPA-acceptable levels (target risk range of 1×10^{-6} to 1×10^{-4} and noncancer threshold of 1) at the residential properties that have not yet been mitigated.
- Potential current/future indoor air risk estimates based on exterior soil vapor (migrating to indoor air) were within EPA-acceptable levels at residential properties.
- Potential future indoor air risk estimates based on subslab soil vapor (migrating to indoor air) were:
  - Within EPA-acceptable levels for six residential properties.
  - Within EPA's acceptable target risk range at four residential properties.
  - Above EPA's noncancer threshold at four residential properties; the primary risk driver is TCE. Therefore, TCE was identified as a chemical of concern (COC) for inhalation of indoor air (based on subslab soil vapor data).

Residential and commercial properties with existing operational subslab depressurization systems or other vapor intrusion mitigation systems (VIMS) were not evaluated in the HHRA. Operation of the SSD systems and other VIMS components are currently operated and maintained by EGLE. The systems are expected to remain in place and operational until site remediation is achieved.

The ecological risk assessment was prepared following EPA guidance for Superfund sites (EPA 1997, EPA 1998). Habitat in the study area was identified as landscaped yards and public spaces with maintained lawns and small to medium trees and shrubs and Bay Front Park West that includes the Lake Michigan shoreline. Groundwater mixing with the water of Lake Michigan constitutes Groundwater to Surface Water Interaction and is part of the conceptual site model. The TCE plume is well below water quality criteria next to Lake Michigan; therefore, there is no significant pathway to aquatic receptors from groundwater. The soil vapor exposure pathway to ecological receptors is considered complete but insignificant due to the lack of habitat.

The evaluation of per- and polyfluoroalkyl substances (PFAS) in groundwater was conducted in accordance with the MDEQ-approved QAPP, and the results indicate that PFAS are not COCs at the PMC site and therefore do not impact remedy selection. As shown in Table 4-1 of the RI report, there were no exceedances of the EPA Tap Water RSLs, MDEQ residential drinking water criteria or MDEQ groundwater/surface water interface in the collected groundwater samples. Therefore, no further investigation of PFAS is proposed for OU2. Confirmatory PFAS sampling can be requested as part of the OU1 five-year review.

Conclusions

TCE is widespread in shallow soils at the site. PCE, benzene, and ethylbenzene are present in localized areas on the site. A groundwater TCE plume is present at the site due to releases at the former PMC property and has migrated primarily through historical operation of a municipal supply well toward Lake Michigan. TCE concentrations are relatively stable in groundwater, as documented during the third five-year review (2014) and confirmed by the lack of degradation products and mostly stable concentration trends. However, TCE is attenuating through volatilization, diffusion, and dispersion. Therefore, concentrations of TCE in soil vapor resulted in the creation of OU2 and investigation of VI potential. In addition to groundwater, residual soil mass beneath the former PMC property is contributing to soil vapor concentrations. The utilities in the soil source area can contribute to migration into buildings overlying the impacted soil vapor, but do not appear to be significantly expanding the area

of impacted soil vapor or transporting soil vapors to off-site properties. Downgradient and adjacent to the former PMC property, groundwater is the primary source of TCE in soil vapor.

VI has been observed in some buildings on or near the former PMC property and is being addressed in some cases with mitigation systems. Since EPA's Final VI Guidance (2015) requires that mitigation only be used as an interim step, remedial options to remove the source material causing this VI must be considered.

CH2M recommends that the following tasks be accomplished:

- Develop Remedial Action Objectives.
- Conduct a feasibility study to select an appropriate remedy.
- Install preemptive mitigation in a limited number of additional structures with elevated subslab concentrations.
- Continue to attempt to obtain access to properties that have not yet provided access for interior VI sampling (subslab soil vapor, crawlspace air, and/or indoor air).

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Acronyms and Abbreviations

°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
asl	above sea level
bgs	below ground surface
CEM	conceptual exposure model
CH2M	CH2M HILL, Inc.
COC	chemical of concern
CSM	conceptual site model
DCE	dichloroethene
DNAPL	dense nonaqueous phase liquid
DO	dissolved oxygen
EC&S	Environmental Consultants & Services Inc.
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
EGLE	Michigan Department of Environment, Great Lakes, and Energy
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
MDEQ	Michigan Department of Environmental Quality
mg/L	milligrams per liter
mL/min	milliliters per minute
MS	matrix spike
MSD	matrix spike duplicate
ORP	oxidation-reduction potential
OU2	Operable Unit 2
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCE	tetrachloroethene
PFAS	Per- and Polyfluoroalkyl Substances
PFC	perfluorinated compound
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid

PID	photoionization detector
PMC	Petoskey Manufacturing Company
ppb	parts per billion
QAPP	quality assurance project plan
QC	quality control
RI	remedial investigation
RML	removal management level
ROD	Record of Decision
RSL	regional screening levels
site	Petoskey Manufacturing Company Groundwater Superfund Site in Petoskey, Michigan
SL	screening level
SLERA	screening-level ecological risk assessment
SSD	subslab depressurization
TCE	trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCR	Target Cancer Risk
TDL	target detection limit
THQ	Target Hazard Quotient
UFP	Uniform Federal Policy
USDA	U.S. Department of Agriculture
VI	vapor intrusion
VIAC	Volatilization To Indoor Air Criteria
VIMS	vapor intrusion mitigation systems
VISL	vapor intrusion screening level
VOC	volatile organic compound

SECTION 1

Introduction

CH2M HILL, Inc. (CH2M) has conducted a remedial investigation (RI) of Operable Unit 2 (OU2) at the Petoskey Manufacturing Company (PMC) Groundwater Superfund Site in Petoskey, Michigan (site) to assess the potential vapor intrusion (VI) risks from site-related contaminants. This data will be used to develop and evaluate remedial alternatives, and to prepare a focused feasibility study to be submitted after this RI report. The RI activities included herein are based on the recommendations presented in the *Technical Memorandum-Proposed Approach to Complete Nature and Extent Delineation of the PMC Groundwater Site, Emmet County, Michigan* (CH2M 2017a), the *Quality Assurance Project Plan, PMC Groundwater Superfund Site, Operable Unit 2* (CH2M 2018a), and additional correspondence and teleconferences between the U.S. Environmental Protection Agency (EPA) Work Assignment Manager, Michigan Department of Environment, Great Lakes, and Energy (EGLE),[2] and CH2M.

OU2 was established by EPA in 2017 to determine the nature and extent of vapor migration from the former PMC manufacturing facility through an analysis of historical data and subsurface investigations. OU2 includes VI risks at the site as well as the surrounding residential and commercial properties (study area). OU2 geographically overlays the earlier OU1 for which the primary risk pathway was groundwater ingestion that has proceeded through a Record of Decision (ROD).

This RI report summarizes the soil, groundwater, sewer gas, indoor air, crawlspace air, outdoor air, subslab soil vapor, near-slab soil vapor, and exterior soil vapor data collected by CH2M within the study area in from October 2016 to November 2018 and thus incorporates historical data from before the RI to define the nature and extent of contamination and refine the conceptual site model (CSM). This RI also presents a human health and ecological risk assessment (ERA) and an evaluation of mass partitioning and storage between vadose and saturated zones.

1.1 Background

The former Petoskey Manufacturing Company was located at 200 West Lake Street, Petoskey, Emmet County, Michigan (Figure 1-1). The site has been redeveloped as a condominium complex (Water Street Condominiums) and is located approximately 500 feet south of Little Traverse Bay of Lake Michigan. It is bordered to the north by another condominium complex, to the east and south by residential structures, and to the west by the Bay Front Park access easement and a parking lot associated with a commercial structure. Additional single-family residential structures lie to the west and south (Figure 1-2). Bear River, which drains into Little Traverse Bay, is located approximately 500 feet east of the site. Immediately south of Lake Street (behind a row of homes) is a steep bluff running approximately parallel to the shoreline.

1.1.1 Objectives

To establish the RI objectives, CH2M completed a Quality Assurance Project Plan (QAPP) (2018a) that presents information regarding site setting; methods used in evaluating the nature and extent of contamination, and fate and transport of site-related chemicals; and the approach to evaluate risk to

[2] Effective April 22, 2019, the Michigan Department of Environmental Quality (MDEQ) reorganized into the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Historical references to MDEQ occur throughout this document.

human health and the environment. This information is presented in Worksheets #10 and #11 of the Uniform Federal Policy (UFP)-QAPP and briefly described as follows:

- Refinement of the source area delineation for VI OU2:
  - Saturated zone: further define spatially and temporally the volatile organic compound (VOC) concentrations in groundwater to evaluate current and future VI pathways and in support of the remedy evaluation.
  - Vadose zone: further delineate VOCs in exterior soil vapor horizontally and vertically.
- Update of the VI CSM:
  - Refine the CSM to better understand the predominant transport mechanisms for VOCs in the subsurface, evaluate VOC mass storage, and evaluate remedial alternatives.
- Provide information in support of a remedial alternatives assessment that will include both vadose and saturated zones:
  - Provide physical and chemical characterization of the site soil to understand how it may be storing VOCs and transmitting them toward structures.

1.2 Approach

Activities performed during the RI were conducted in accordance with the UFP-QAPP. Evaluations in this report are based on data collected during the investigation and applicable data from previous investigations.

The following methods were used to evaluate the investigation results:

- Assembly and review of data
- Evaluation of the nature and extent of contamination
- Evaluation of the fate and transport of contamination
- Assessment of human health risk
- Assessment of ecological risk

Following evaluation of the results, the report presents recommendations for a path forward.

1.3 Pre-OU2 Remedial Investigations

The former PMC facility was a small fabricating operation that was active from 1946 to 2000. Activities included die casting, plating, and painting small automotive trim parts. The facility used trichloroethene (TCE) and xylene as solvents; TCE was stored in a 1,000-gallon aboveground storage tank (Figure 1-3), which was determined to have leaked while the plant was active (Environmental Consultants & Services Inc. [EC&S] 2001). There were likely multiple points of discharge at the facility as observed during a 2001 site inspection (EC&S 2001) and summarized as follows:

- The concrete floor had cracks, and some areas were covered with oil and metal chips.
- There was a paint and drum storage room off the northwestern part of the building.
- Casting machines, finishing machines, and paint operations were onsite.
- A concrete pit that housed the municipal water connections was observed with floor sweepings, but the integrity of the bottom was not discernable.

- Several drains and trenches that potentially discharged to the city sewer were noted, including the following:
  - An open trench that ran the length of the eastern part of the plant to divert cooling water and water-soluble quenching liquids
  - A truck well drain
  - A former trench with concrete bottom and sides that went to a clean out pit before discharging
  - Two additional floor drains
- Patched concrete floors were noted where a roto-finish machine was located.
- Spent soap solution was reportedly emptied into a drain in the floor.

ECS (2001) also describes the existence of a 1,000-gallon TCE aboveground storage tank that the Michigan Department of Environmental Quality (MDEQ) determined had leaked.

1.3.1 Subsurface Contamination Discovery and Listing on the National Priorities List (1980–1983)

Contamination at the site was first discovered in September 1981 when analytical data from water samples collected from a municipal water supply well (Ingalls Street Well) showed detections of TCE, cis-1,2-dichloroethene (DCE), and trihalomethanes. The City of Petoskey requested assistance from the Michigan Department of Natural Resources to conduct a hydrogeological investigation to identify the source of the contamination and to aid in identifying responsible parties.

Results from the MDEQ soil and groundwater sampling indicated elevated concentrations of several VOCs, including xylene, toluene, TCE, and ethylbenzene near the site, which was attributed to PMC. MDEQ subsequently asked PMC to determine the extent of the contaminated soil, and to remove and dispose of the impacted material. In 1982, PMC, under the direction of MDEQ, completed a partial soil removal from the west side of the building to a depth ranging from 2 to 5 feet. Subsequently, the site was proposed for the National Priorities List and listed in 1983.

1.3.2 Site Investigation Activities and Records of Decision (1984–2000)

In 1984, EPA negotiated a removal administrative order on consent by PMC. This order required PMC to conduct further hydrogeological studies. PMC completed the work under the direction of EPA and MDEQ. In 1987, EPA and PMC signed another administrative order on consent agreeing to conduct a full RI and feasibility study to determine the nature and extent of contamination and investigate appropriate remedial alternatives to address the contamination. In 1990, EPA relieved PMC of conducting further RI and feasibility study work, and entered into the State Cooperative Agreement with MDEQ, with the state agreeing to perform the RI and feasibility study with funding provided by EPA.

In 1992, MDEQ retained first EDER Associates and then Malcom-Pirnie, Inc. to complete site investigation activities. Concurrently with the state-led RI, EPA began a focused feasibility study to examine the impact of site-related contamination on the Ingalls Well.

The first ROD document was signed in 1995, which called for air stripping of water from the Ingalls Street well. In addition, pilot testing of a soil vapor extraction system was performed in September 1995. TCE concentrations ranged from 2 to 9 parts per billion (ppb) and decreased throughout the first test. Concentrations decreased to near nondetectable concentrations during the second test. In 1997, the State of Michigan and the EPA provided funding for an alternative remedy that consisted of removing the Ingalls Street well and constructing an alternative municipal supply well.

A second ROD was signed in 1998 to address the remaining soil and groundwater contamination. The major components of the selected remedy as described in the 1998 ROD included the following:

- **Soil Excavation.** In November 1999, a total of 2,740 tons of contaminated soil was excavated in the areas shown on Figure 1-3 and disposed of offsite. Soil was excavated from the northern portion of the site to a depth of up to 15 feet below ground surface (bgs). Deeper contaminated soil was left in place, to a depth of approximately 17 feet below grade.
- **Soil Vapor Extraction.** The second soil vapor extraction system, located at the northwest corner of the PMC building, operated intermittently in 1999 and 2000, and removed in 2000. Overall operation of the soil vapor extraction system removed 753 grams of TCE from the subsurface.
- **Monitored Natural Attenuation of the Groundwater.** This included the development of a groundwater monitoring plan, followed by installation of a monitoring well network, and an initial 3-year period of monitoring, followed by long-term monitoring.
- **Establishment deed restrictions** on and around the former PMC property that restrict excavation and the use of groundwater. A restrictive covenant on the former PMC parcel has been in place since 2005. The Petoskey Groundwater Protection ordinance applies to the entire area of the site and is reproduced as Attachment 6 to the 2009 five-year review for this site. It prohibits obtaining any water service other than that provided by the city without a permit from the city or MDEQ (now EGLE).
- **Establishment of a Contingency Plan** in the Long-Term Monitoring Plan that will be implemented if natural attenuation is not occurring sufficiently or at an acceptable rate. Potential contingency remedies were considered in the *Memorandum Technical Impracticability of Groundwater Restoration Petoskey Manufacturing Company Superfund Site* (CH2M 2013) and will be further developed in the groundwater portion of the feasibility study for OU2, currently in preparation.

1.3.3 Additional Site Investigation Activities and Sale of the PMC Facility (2001–2009)

A soil removal was conducted in fall 2000 to remove an 8-foot by 10-foot area of soil stained from hydraulic fluid leaking from a compressor in the northwest corner of the building. Soil samples were collected in November 2001 through the floor of the facility at depths of 1 to 6 feet. TCE was detected in about half of the samples analyzed above the method detection limit of 50 micrograms per kilogram (µg/kg); the maximum concentration detected was 1,300 µg/kg.

The former PMC facility was sold in April 2003 to a developer, and the PMC building was demolished in July 2004. Additional rounds of soil samples were collected as the slab was removed, and additional soil excavation was completed in 2004 in conjunction with construction activities. The construction of the residential condominium complex started in September 2004, and by 2008, 10 of the planned 16 residences were completed. In fall 2009, the property was in foreclosure because the developer went bankrupt. Construction for the remaining six units was completed by 2014 by a subsequent developer.

It is reported that a barrier consisting of a polyvinyl chloride membrane was placed beneath a portion of the complex in five of the units (EC&S 2004), which left 12 units either partially or completely without an engineered barrier; however, a final report was not issued on this work due to lack of payment. A polyvinyl chloride membrane in this western half of the property “to prevent storm water infiltration and storm water contact with impacted soils” was reported as observed by EPA in the September 21, 2004, site inspection report (EPA 2005). The incomplete installation likely limits the barrier’s effectiveness. A piece of thick black plastic was encountered at 4 feet below ground surface (bgs) when drilling at SVB-10 that could be evidence for the continued existence of this barrier over part of the site. This barrier is not believed to provide effective protection from VI but could affect the flow of liquids or gasses during remedy implementation.

EPA finalized a groundwater monitoring plan in 2006 and began quarterly monitoring. However, groundwater monitoring ceased in 2007 for 1 year until wells damaged during a park reconstruction project in 2005 were replaced or repaired by the City of Petoskey. The groundwater monitoring required by the 1998 ROD was then conducted in 2009, and the results were presented in the second five-year review, which was signed on December 23, 2009. Additional long-term groundwater monitoring activities were later completed as discussed in the following sections.

1.3.4 Groundwater and Vapor Intrusion Investigation Activities by CH2M (2011–2018)

Sampling activities were initiated by CH2M in 2011 to support the long-term groundwater monitoring as described in the ROD for the groundwater OU1.

1.3.4.1 July 2011 Monitoring Well Sampling

In July 2011, groundwater samples were collected for analysis of VOCs from 20 monitoring wells. Groundwater samples were also collected for total and dissolved zinc from three wells to determine if galvanized steel casings contributed to historically detected zinc concentrations. Details of this sampling event are presented in *Technical Memorandum Groundwater Monitoring Report for Long-Term Monitoring Activities – July 2011* (CH2M 2011a).

EPA completed the third five-year review in 2014. VI was identified as a potential issue at the former PMC source area.

1.3.4.2 Pre-OU2 Remedial Investigation Activities

In 2016, CH2M prepared a QAPP (CH2M 2016a) for soil, groundwater, and VI screening sampling. Following agency discussions and review of the QAPP, an agreement was reached between the agencies to implement the QAPP and to include recommendations as presented in *Revised Sampling Approach Technical Memorandum-PMC Groundwater Superfund Site, Petoskey, Michigan* (CH2M 2016b), including adding metals, dissolved gases, and 1,4-dioxane to the groundwater analytical parameters.

In October 2016, groundwater samples were collected for analysis of VOCs, general chemistry, dissolved gases, total and dissolved metals, and 1,4-dioxane from 21 monitoring wells. The general chemistry and dissolved gas analyses were used to support an evaluation of monitored natural attenuation. Metals analysis was used to evaluate whether well construction materials are contributing to elevated concentrations of metals in groundwater. 1,4-Dioxane analysis was added because of its status as an emerging contaminant and potential chemical of concern (COC). Details of this sampling event are presented in *Long-Term Groundwater Monitoring Activities, PMC Groundwater Superfund Site* (CH2M 2017b). MDEQ requested that future groundwater sampling at the site include analysis of per- and polyfluoroalkyl substances (PFAS) because of the potential for historical activities at the site to have used these chemicals.

In 2016, CH2M installed subslab soil vapor sample probes in garages at the Water Street Condominiums (most of the living space of the condominiums directly overlies the garages) and attempted to complete the installation of multidepth subsurface soil vapor probes. However, the subsurface lithology prevented the use of the planned drilling method (direct-push) for the multidepth soil vapor probes due to refusal from what is interpreted as large boulders or blocks of weathered bedrock. In January 2017, samples were collected from the 22 subslab soil vapor probes at the Water Street Condominiums for VOC analysis. Analytical results demonstrated that TCE concentrations exceeded the EPA VI screening level (VISL). Based on these results, EPA's Removal Program initiated rapid response activities, including additional subslab soil vapor probe installation, subslab soil vapor and indoor air sampling, and installation of subslab depressurization (SSD) systems to mitigate the VI pathway in 11 of the 17 units of the Water Street Condominiums. Results of these response activities are presented as an appendix to

the *Technical Memorandum Vapor Intrusion Investigation – PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018b).

Also, in January 2017, sewer gas samples were collected from one sanitary sewer and two storm sewer lines. Analytical results demonstrated that only one storm sewer sample had a chloroform exceedance. Chloroform is considered to be a common by-product that forms when chlorine or other disinfectants are added to drinking water.

While response activities were being conducted, CH2M implemented a VI assessment at a commercial building and residences surrounding the Water Street Condominiums. These activities were completed in May, June, and July 2017, and February 2018, and included subslab, near-slab, and exterior soil vapor probe installation and sampling, and indoor air sampling. The data collected by CH2M is presented in *Technical Memorandum Vapor Intrusion Investigation – PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018b).

1.4 OU2 Remedial Investigation

In 2017, EPA established a new VI OU, OU2. The scope of investigation for OU2 was defined in the *Quality Assurance Project Plan, PMC Groundwater Superfund Site, Operable Unit 2* (CH2M 2018a). In May and June 2018, soil and groundwater samples were collected, sewer gas samples were collected, and exterior soil vapor probes and monitoring wells were installed and sampled. In October and November 2018, the soil vapor probes were sampled, and additional residential indoor air, crawlspace air, outdoor air, sewer gas, and soil vapor sampling was completed. Results for the property specific VI investigations from October 2016 to November 2018 are summarized in this RI and discussed in further detail in the VI Technical Memorandum, included as Appendix B to this report.

1.5 Report Organization

This report is organized as follows:

- **Section 1 – Introduction.** Presents a discussion of the objectives of this RI, the site setting, a summarized site history, and a summary of the document organization.
- **Section 2 – Remedial Investigation Activities.** Describes RI activities at the site and study area performed during Event 1, completed in May and June 2018, and Event 2, completed in October and November 2018.
- **Section 3 – Site Geology and Hydrology.** Summarizes subsurface conditions at the site and study area based on observations made during RI activities and historical investigations.
- **Section 4 – Nature and Extent of Contamination.** Presents the nature and extent of contamination observed at the site as a result of data collected during Event 1, conducted in May and June, and Event 2, conducted in October and November 2018
- **Section 5 – Conceptual Site Model.** Provides contaminant fate and transport, routes of migration, and a CSM.
- **Section 6 – Baseline Risk Assessment.** Presents the approach, results, and conclusions of the human health and ERAs.
- **Section 7 – Summary and Conclusions.** Provides a summary and conclusions for the RI conducted of OU2 at the former PMC site and study area.
- **Section 8 – References.** Lists references used in preparation of this document.

SECTION 2

Remedial Investigation Activities

This report primarily details the RI activities at PMC that were performed over two sampling events. Event 1 was completed in May and June 2018. Event 2 was completed in October and November 2018. Details on previous investigation activities conducted in 2011, 2016, 2017, and 2018 can be found in the following documents:

- *Long-Term Groundwater Monitoring Plan, PMC Groundwater Site, Emmet County, MI* (CH2M 2011b)
- *Uniform Federal Policy–Quality Assurance Project Plan, PMC Groundwater Site, Emmet County, MI* (CH2M 2016a)
- *Technical Memorandum Groundwater Monitoring Report for Long-Term Monitoring Activities – July 2011* (CH2M 2011a)
- *Long-Term Groundwater Monitoring Activities, PMC Groundwater Superfund Site* (CH2M 2017b)
- *Technical Memorandum Vapor Intrusion Investigation – PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018b); The portions of this document covering the field activities and building specific sampling activities have been updated and are presented as Appendix B of the current report under the revised title "Individual Property Vapor Intrusion Investigations PMC Groundwater Site, Emmet County, Michigan".
- *Quality Assurance Project Plan, PMC Groundwater Superfund Site, Operable Unit 2, Petoskey, Michigan* (CH2M 2018a)

Previously collected data were evaluated and used to design the 2018 sampling approach. Those data are used in this report to evaluate the nature and extent of contamination, and for human health and environmental risk assessments.

RI activities conducted at PMC included:

- Event 1, May and June 2018: drilling and installation of monitoring wells, surface and subsurface soil sampling, exterior soil vapor probe installation and sampling, groundwater sampling, collection of instant and long-term differential pressure data at exterior soil vapor probes, and sewer gas sampling
- Event 2, October and November 2018: installation and sampling of subslab soil vapor probes, indoor air and crawlspace air sampling, sewer gas sampling, collection of instant and long-term differential pressure data at exterior soil vapor probes, and exterior soil vapor probe sampling

Details of each sampling event are described in the following subsections. The investigation included other associated field activities, such as investigation-derived waste characterization, transport, and disposal. Figure 2-1 shows the investigation sampling locations. Appendix B contains details of five field events conducted for evaluation of VI at individual properties. Appendix C contains site photographs taken during the site reconnaissance and investigation activities.

2.1 Site Reconnaissance

Site reconnaissance was conducted before intrusive activities to assess the accessibility and proximity of proposed sample locations to the desired site features to be evaluated. Proposed monitoring wells, subslab soil vapor, and exterior soil vapor sample locations were marked in the field with a pin flag or spray paint (exterior locations) or non-permanent chalk/markers (interior locations) to assist in identifying the sample location during the utility locate clearance. The exterior soil vapor locations were

used for collecting soil samples, grab groundwater samples, and exterior soil vapor samples from multiple depths. Borings were located and adjusted, if needed, because of utilities and obstructions. During the May 2018 installation activities, there were four deviations greater than 10 feet from the proposed locations presented in the UFP-QAPP due to the presence of subsurface utilities (SVB-01, SVB-03, SVB-04, and SVB-13). One location (SVB-13) was not installed in the offset location due to the property owner revoking access.

During the October/November 2018 activities, installation of proposed basement soil vapor probes at three residential properties was not completed for various reasons, including the inability to access enough ground surface to complete a thorough utility locate survey, inability to penetrate the soil greater than 5 feet bgs based on groundwater infiltration, and/or refusal. At these locations, indoor air samples were deployed near the ground surface in attempts to capture potential vapors penetrating the exposed basement ground.

2.2 Utility Clearance

The Michigan one-call service (MISS DIG) was contacted to mark out public utilities around the proposed drilling locations. Additionally, a private utility locator (GPRS, Inc.) was subcontracted to identify and mark out underground utilities where monitoring wells and exterior soil vapor probes would be installed, and within the buildings where subslab soil vapor probes would be installed. GPRS, Inc. used ground-penetrating radar, electromagnetics, and a magnetometer as necessary to verify and mark the presence of underground utilities or other potential subsurface objects that could be damaged by intrusive work. GPRS also identified and marked out rebar and other anomalies within and under the building slabs. Four proposed drilling locations were adjusted in May 2018 due to subsurface utilities. Two proposed drilling locations were unable to be scanned in October 2018 as the ground surface encountered at these residences was inaccessible due to storage maintained in the basements that could not be readily rearranged.

2.3 Soil, Groundwater Grab, and Exterior Soil Vapor Sampling

In May 2018, soil borings were advanced with a rotosonic drill rig to just below the water table (approximately 12 to 16 feet bgs) at 15 of the 16 planned locations (Figure 2-1); SVB-13 was not completed because access to the boring location was revoked. Groundwater grab and soil samples were collected, and then permanent exterior multidepth soil vapor probes were installed (Table 2-1). Groundwater grab samples could only be collected at 9 of the 15 locations because the drill encountered refusal before groundwater.

Attempts were made to install triple-depth soil vapor probes at each location with screens set at approximately 5, 10, and 15 feet bgs. However, the actual number of screens and the screen depths were adjusted at each location depending on the soil types and depth to groundwater and/or saturated soils observed in the soil borings; 31 screens were installed across 15 boreholes (Table 2-1; Appendix D).

The soil vapor probe screens were placed in the more porous soils observed in the soil borings if possible. The bottom of the deepest probe screen was placed at least 1 foot above observed saturated soils. The top of the shallowest probe screen was placed at least 5 feet bgs, unless it was beneath an impervious layer (i.e., asphalt), in which case, it may be 4 feet bgs. There is at least 2.5 feet between the screen intervals to avoid crossover of the volumes sampled (that is, the assumed sphere of influence around the screen where the soil vapor sample is collected). The following subsections presents additional details for each of these activities.

2.3.1 Soil Sampling

Fifteen borings were advanced in May 2018 where permanent soil vapor probes were to be installed (Figure 2-1). Soil cores were continuously logged and screened by a CH2M geologist in accordance with the QAPP (CH2M 2018a) to provide lithologic information to support the CSM and to guide soil vapor probe installation depth. Soil cores were screened using a photoionization detector (PID) and inspected for discoloration, staining, and odors.

Soil samples were collected from 10 of the 15 borings for VOCs, percent moisture, permanganate natural oxidant demand, and total organic carbon analysis (Table 2-1). Samples were not collected from all borings because excessive heating of the soil occurred while advancing some borings due to the rotosonic drilling method (discussed in more detail in Section 4). Samples were shipped to the analytical laboratory under chain of custody and temperature control for overnight delivery. Nondisposable sample tooling and equipment were decontaminated between sample intervals.

2.3.2 Grab Groundwater Sampling

Grab groundwater sampling was completed in May 2018 at 9 of the 15 soil boring locations, where water was encountered (Table 2-1). Appendix D presents the grab groundwater sampling forms. The grab samples were collected at the groundwater table, where the boring encountered groundwater, after installation of a temporary 1-inch-diameter polyvinyl chloride well with 5-foot-long slotted screens. Depth to water was collected prior to grab groundwater sampling. Groundwater was purged using a peristaltic pump and collected in accordance with Field Operating Procedure #8, included in the UFP-QAPP (CH2M 2018a). Water quality parameters (including temperature, conductivity, dissolved oxygen [DO], pH, oxidation-reduction potential [ORP], and turbidity) were recorded. Grab groundwater samples were shipped to the analytical laboratory under chain of custody for VOC analysis and temperature control for overnight delivery. Nondisposable sample equipment was decontaminated between wells. After collection of the grab samples, the borehole was then completed as soil vapor sampling location.

Grab groundwater samples were also collected to vertically profile groundwater prior to installation of monitoring well CMW-01. Grab groundwater samples were collected for analysis of TCE using the techniques described above from four 5-foot intervals, as determined in the field based on the presence of groundwater observed in the soil logs: 15 to 20, 20 to 25, 40 to 45, and 45 to 50 feet bgs. The TCE results were used to determine the screened depth for this well. Soils between 25 and 35 feet were described as dry to damp. Grab groundwater samples were shipped to the analytical laboratory under chain of custody for TCE analysis and temperature control for overnight delivery.

2.3.3 Exterior Soil Vapor Probe Installation

In May 2018, after soil and groundwater grab sampling was completed in each of the 15 soil borings, permanent exterior multi-depth soil vapor probes were installed. The soil vapor probe installation diagrams are presented in Appendix D.

After determining the target depths of the soil vapor probe screens at each location, dry bentonite and/or sand was added to the boring to bring the depth up to the appropriate location and absorb any residual groundwater if necessary. The soil vapor probe, consisting of a 6-inch-long, 0.5-inch-outer-diameter stainless-steel wire mesh screen attached to 0.25-inch-outer-diameter Teflon tubing extending to ground surface, was placed with a sand pack to 4 to 6 inches above the screen. Approximately 6 inches of dry granular bentonite were then placed above the filter sand, and the borehole was filled with granular bentonite hydrated in lifts until the bottom depth of the next shallower probe screen was reached. Subsequent shallower probe screens were then installed in a similar manner, and the borehole was filled with granular bentonite hydrated in lifts to the ground surface. Approximately 2 inches of sand was placed on top of the bentonite before installing shallower interval screens to prevent the bentonite

from clogging the screens. The probes were completed with 6-inch-diameter locking traffic-rated flush-mount covers that are secured within a cement pad.

2.3.4 Exterior Soil Vapor Sampling

Exterior soil vapor sampling was performed at the 15 multidepth probes in June 2018 and October/November 2018 (Table 2-1). Appendix D contains the soil vapor sampling logs. The subsurface at each exterior soil vapor probe was allowed to equilibrate for at least 2 weeks after installation was completed in May 2018 prior to purging, leak-checking, and sample collection. A helium-leak check was performed on each probe by placing a shroud flooded with helium gas around the surface of the probe to confirm it was installed correctly such that ambient air would not be drawn into the sample. A vacuum air pump and sampling manifold (consisting of stainless-steel Swagelok gas-tight valves and fittings) was used to purge 3 dead volumes (volume within the probe screen, sand pack, and probe tubing) of soil vapor into a Tedlar bag at a rate of 200 milliliters per minute (mL/min).

Helium concentrations in the shroud and the purged soil vapor were measured with a Dielectric MGD-2002 Helium Detector. The soil vapor probe passed the leak check if the helium concentration in the purged soil vapor was less than 5 percent of the concentration present in the shroud. Each of the soil vapor probes passed the helium-leak check prior to soil vapor sample collection. The Tedlar bags were also screened using a ppbRAE PID for total VOCs and a LandTec GEM Landfill Gas Meter for oxygen, carbon dioxide, and methane. The measurements were recorded on the sampling logs provided in Appendix D.

Soil vapor samples were collected in 1-liter bottle vacs equipped with flow controllers set to 200 mL/min for a 5-minute sample time. A digital vacuum gauge was used to measure the vacuum in the bottle vac before and after sampling. The samples were shipped under chain of custody to the analytical laboratory for VOC analysis by EPA Method TO-15.

2.4 Monitoring Well Installation and Sampling

Two monitoring wells were installed in May 2018 to further delineate groundwater impacts. Wells CMW-01 and CMW-02 were installed within the former PMC property boundary to address a data gap where wells were removed during building demolition in 2004 (Figure 2-1). The wells were installed using rotosonic drilling methods within the shallow interval of the aquifer. Wells were completed with 2-inch-inner-diameter polyvinyl chloride riser and 5 feet of 0.01-slot screen with a #1 sand filter pack. Appendix C contains the well completion logs.

Following the well installation, the newly installed and existing monitoring wells were sampled in June 2018 (Table 2-2). Prior to monitoring well sampling activities, depth to water was measured from the monitoring wells. In addition, surface water elevation was measured from the established point at Petoskey City Marina. Groundwater samples were then collected for VOCs from 25 monitoring wells using a peristaltic pump and low-flow techniques. Six wells were also sampled for PFAS analysis at the request of MDEQ for OU1 but were not included in this sampling effort for efficiency. Additional precautions and procedures were followed when collecting samples for PFAS analysis in accordance with the UFP-QAPP FOP #12, Groundwater Sampling for Perfluorinated Compounds (PFCs) (CH2M 2018a). This FOP provides specifics of what materials may and may not be used when sampling for PFCs.

For all analyses except PFCs, groundwater samples were collected from monitoring wells using a peristaltic pump with clean disposable tubing. Water quality parameters (including temperature, conductivity, DO, pH, ORP, and turbidity) were recorded. Samples were shipped to the analytical laboratory under chain of custody and temperature control for overnight delivery. Nondisposable sample equipment was decontaminated between wells. PFCs were collected using approved equipment and material, as outlined in the FOP. Field personnel were instructed to avoid bringing certain items

onsite, including weather-proof log books, Teflon tubing, and new clothing. Samples were collected under similar low-flow conditions as the other analytes, but caution was exercised with regard to equipment used and kept onsite during the time of sampling. Appendix C contains the well sampling forms.

An obstruction was encountered that prevented sampling well PS-105D.

2.5 Sewer Gas Sampling

Sewer gas samples were collected in January 2017 (pre-OU2 RI) and June and October 2018, as follows:

- January 2017: One sanitary sewer sample and two storm sewer samples
- June 2018: Five sanitary sewer samples and four storm sewer samples
- October 2018: Six sanitary sewer samples and six storm sewer samples

Appendix D contains the sewer gas sampling logs. The depth to water, flow direction, approximate depth of water, and approximate sizes and locations of connecting pipes within the sewer manholes were recorded on the sampling logs.

The January 2017 sewer gas samples were collected using slightly different procedures from those used in June and October 2018. The manhole covers were removed, and the opening was covered with plastic sheeting secured to the ground. This was left in place for at least 30 minutes to allow the sewer conditions to equilibrate before field readings and samples were collected. Tubing was lowered into the manhole through the plastic sheeting; this tubing was used for field screening and sample collection. Field screening of the sewer gas was performed using a MultiRAE for total VOCs, hydrogen sulfide, oxygen, carbon monoxide and lower explosive limit, and a LandTec GEM Landfill Gas Meter for oxygen, carbon dioxide, and methane. The sewer gas samples were collected in 6-liter evacuated canisters equipped with flow controllers set to 200 mL/min for a 30-minute sample time. A digital vacuum gauge was used to measure the vacuum in the canister before and after sampling. The samples were shipped under chain of custody to the analytical laboratory for VOC analysis by EPA Method TO-15.

The June and October 2018 sewer gas samples were collected by removing the manhole cover, collecting field readings, and then placing an evacuated canister into the sewer to collect for 24 hours. Field screening of the sewer gas was performed using a LandTec GEM Landfill Gas Meter for oxygen, carbon dioxide, and methane attached to the end of Teflon tubing that was lowered into the manhole. Immediately after screening, sewer gas samples were collected by lowering a 6-liter evacuated canister into the sewer manhole and securing it with rope so that the sample inlet was several feet above the observed water surface. The manhole was then replaced, and the samples collected for 24 hours. After retrieval, samples were shipped to the analytical laboratory under chain of custody. A digital vacuum gauge was used to measure the vacuum in the canister before and after sampling. The samples were shipped under chain of custody to the analytical laboratory for VOC analysis by EPA method TO-15 SIM.

2.6 Vapor Intrusion Investigation

The VI investigation was completed across five sampling events in 2017 and 2018. A total of 25 properties was sampled, which included two properties with multiple residences, one commercial property, and 22 residential properties with single-family or duplex houses. Field investigation activities consisted of collecting indoor, crawlspace, and outdoor air samples and subslab or near-slab soil vapor samples at the individual properties. Appendix B contains details of this investigation.

2.7 Investigation-Derived Waste

The waste generated during a field investigation is known as investigation-derived waste. Investigation-derived waste includes soil cuttings from soil boring activities and decontamination water from

decontamination of drilling equipment. Solid wastes described above were containerized in clean 55-gallon drums, labeled appropriately with waterproof labels, and temporarily stored in a staging area located in the parking lot of the commercial property west of the site. Appendix D contains the manifest and associated documentation.

2.8 Sample Analysis

The various media samples were collected and sent to an analytical laboratory to be analyzed for the following:

- Groundwater:
  - Target Compound List (TCL) VOCs via method SW-846 8260B
  - Perfluorooctanoic acid (PFOA)/perfluorooctanesulfonic acid (PFOS) via method perfluoroalkyl substances by HPLC-MS-MS
- Soil:
  - TCL VOCs via method SW-846 8260B
  - Total organic carbon via method Walkley Black
  - Target Analyte List metals (minus cyanide) via methods SW-846 6010C, 6020A, and 7471B
  - Permanganate natural oxidant demand via method permanganate natural oxidant demand
- Exterior Soil Vapor and Sewer Gas:
  - Exterior Soil Vapor: VOCs via method TO-15
  - Sewer Gas: VOCs via method TO-15 and TO-15 SIM
- Indoor air, crawlspace air, outdoor air, and subslab soil vapor:
  - VOCs via method TO-15 and TO-15 SIM
- Investigation-Derived Waste, Soil:
  - Toxicity Characteristic Leaching Procedure (TCLP) VOCs via method SW-846 5035A and SW-846 8260B
  - TCLP semivolatile organic compounds and total polychlorinated biphenyls via methods SW-846 3510C, 3546, 8270C, and 8082
  - TCLP metals (including mercury) via methods SW-846 5035A, 6010C, 6020A, and 7471A
- Investigation-Derived Waste, Aqueous:
  - Total VOCs via method SW-846 8260B
  - Total semivolatile organic compounds via methods SW-846 3510C and 8270C
  - Total polychlorinated biphenyls via methods SW-846 3511 and 8082
  - Total Resource Conservation and Recovery Act metals (including mercury) via methods SW-846 3005A, 6010C, 6020A, and 7470A

Appendix E contains laboratory data packages.

2.9 Quality Assurance/Quality Control Sampling

Field quality assurance/quality control (QC) samples were collected according to the following:

- Matrix spike (MS)/matrix spike duplicates (MSD)—An MS/MSD sampling set was collected for at least every 20 field samples collected per matrix (groundwater and soil) per parameter.
- Field duplicates—A field duplicate sample was collected for at least every 10 samples collected per matrix.
- Equipment Blanks—Equipment blanks associated with groundwater and soil samples were collected of laboratory-grade deionized water certified to be free of PFOA/PFOS poured into, over, or pumped through sampling equipment when nondisposable equipment was used.
- Trip blanks—A trip blank accompanied each cooler, including groundwater or soil samples shipped for VOC analyses.

  QA/QC results are discussed in Appendix F. Results of individual QA/QC samples are available in Appendix E; cross reference information between field and laboratory sample numbers are in the database submitted to EPA.

2.10 Data Quality Assessment

CH2M performed data review, verification, and validation as described in the UFP-QAPP for the samples collected for the RI. The data analytical result quality was assessed from soil and surface water collected during the field investigation. The following data quality indicators were reviewed:

- Data set narrative, to identify issues that the lab reported in the data deliverable
- Sample integrity (sample collection, preservation, and holding times)
- Basic QC measurements used to assess the accuracy, precision, and representativeness of data, including QC blanks, laboratory control samples, MS/MSDs, internal standard and surrogate recoveries, when applicable, and field or laboratory duplicate results
- Sample results, TCLs, and detection limits, to verify that project analytical requirements are met
- Initial and continuing calibration data
- Precision between the two columns or detectors for methods that employ second column detector confirmation
- Initiation of corrective actions, as necessary, based on data review findings

Analytical results were evaluated using precision, accuracy, representativeness, comparability, and completeness (PARCC) criteria. The PARCC evaluation determined that the data can be used for project decisions, while considering the validation flags applied to some samples to reflect data usability limitations. Data review, verification, and validation efforts are documented in the data quality evaluation report (Appendix F).

SECTION 3

Site Geology and Hydrogeology

3.1 Surface Features

The study area of this RI includes the footprint of the former PMC facility and the surrounding neighborhood. Built on the same property as the former PMC facility is the 200 West Lake Street Condominiums (aka Water Street Condominiums), which consist of four buildings, each housing a total of 16 single-family condominium units and one commercial property, none of which have basements. The surrounding neighborhood consists of multiple single-family residences (with a few duplexes and small apartments) and one commercial property, most of which have stone foundations, and a crawlspace-turned-basement ("Michigan-style" basement) with or without concrete poured flooring.

North of the former PMC facility is [redacted], [redacted] Northeast and northwest of the former PMC facility, surrounding the [redacted], are park spaces, connected by a bike path. These park spaces front the Little Traverse Bay of Lake Michigan.

Northwest of the former PMC facility is a [redacted] property with a finished basement and poured concrete foundation. This facility is occupied primarily during standard daytime business hours.

3.2 Climate

Seasonal temperatures are moderated by Lake Michigan. The average annual temperature in Petoskey is 44 degrees Fahrenheit (°F). The warmest month, on average, is July, with an average temperature of 66.4°F. The coolest month, on average, is January, with an average temperature of 20.0°F. Historically recorded maximum and minimum temperatures are 99°F and –25°F, respectively.

The average amount of precipitation is 33 inches per year. There is an average of 158 days of precipitation per year and 123 inches of snow, with the most snow occurring in December and January. Appendix A contains weather data for the city of Petoskey.

Based on data from the nearby city of Charlevoix, winds are expected to be primarily westerly to northwesterly with a substantial frequency of winds over 10 miles per hour. This suggests the potential for somewhat higher than typical differential pressure and air exchange rate variation (Song, et al. 2014 and 2018).

3.3 Topography

Generally, the topography of the city of Petoskey rises away from the lake towards the south and southeast. The topography is divided in two by Bear River, which is oriented approximately northeast-southwest, and drains into the Little Traverse Bay. The elevation to the south peaks at around 900 feet above sea level (asl), and the elevation to the southeast peaks around 800 feet asl.

Topography within the study area also increases away from the lake from approximately 578 feet asl along the waterfront to approximately 595 feet asl along West Lake Street (Figure 1-2). Roughly parallel to the waterfront, the elevation increases approximately 25 feet at a bluff between West Lake Street and West Jefferson Street.[3]

[3] Contour map data obtained from http://contourmapcreator.urgr8.ch/. Accessed October 31, 2018.

3.4 Regional Geology

Surficial geology of the Petoskey, Michigan, area consists of coarse-grained glacial till, glacial outwash sand and gravel, postglacial alluvium, and lacustrine sand and gravel underlain by the Devonian-age Traverse Group (Michigan Geological Survey 2018). Although these unconsolidated lacustrine deposits are reported of various thicknesses (5 to 200 feet) overlying weathered bedrock (Seller, et al. 2018), based on outcrops located close to the site, this layer is very thin within the study area (Kesling, Segal and Sorensen 1974). The glacial lithologies cannot be regionally correlated in the subsurface due to the lateral and vertical heterogeneity that resulted from a complex depositional history (USGS 2007). Although the thickness of the of most of the glacial deposits in Emmet County range from 201 to 800 feet thick, they have been noted as not present or thin to the north (Western Michigan University, Department of Geology 1981).

The Traverse Group, present beneath the lacustrine sand and gravel, consists of five formations: the Gravel Point Formation, overlain by the Charlevoix Limestone, overlain by the Petoskey Formation, overlain by the Whiskey Creek Formation, overlain by the Jordan River Formation. Near Petoskey, Michigan, the Gravel Point Formation, Charlevoix Limestone, and the Petoskey Formation are exposed (Milstein 1987). The Gravel Point Formation consists of "a grey to brown, fine to cryptocrystalline, dense, lithographic limestone" containing shale beds up to 2 feet thick, and "zones of chert nodules and petroliferous biohermal masses." The Charlevoix Limestone consists of a "grey to brown, fine to coarsely crystalline, slightly argillaceous, shaley limestone, commonly interbedded with coquina." The Petoskey Formation overlays the Charlevoix Limestone and is a "pale buff to greyish brown, fine-grained, arenaceous limestone, containing zones of porous, friable limestone with a strong petroliferous odor." The Traverse Group exhibits extensive fossils, and the state stone, the Petoskey Stone (consisting of fossilized coral colonies) originates from the Petoskey Formation. Within the PMC study area, the Charlevoix and Petoskey Formations are present (Milstein 1987).

3.4.1 Surface Water Hydrology

The two main surface water bodies near the site are Lake Michigan (Little Traverse Bay) located approximately 400 feet north of the site, and Bear River, which runs north-south approximately 500 feet east of the site.

3.4.2 Regional Hydrogeology

In southern Emmet County, Michigan, Traverse Group forms the bedrock surface. The Traverse Group is a regional saline aquifer, underlain by the Bell shale, which serves as a confining unit separating the Traverse Group from lower aquifers (Ellis 2013). In some areas of Emmet County, the Traverse Group has been highly fractured leading to localized areas of very high permeability within the group (U.S. Geological Survey 2007).

3.5 Site-specific Geology

To evaluate the site-specific geology, three cross-sections were developed at the locations shown in Figure 3-1. The cross-sections, presented in Figures 3-2 through 3-4, incorporate historical well installation logs, as well as recent well installation and boring logs. The study area rests on dark brown to black fill that ranges from 3 to 5 feet in thickness, composed of fine-grained sand with gravel and occasional trace clay. The fill beneath the approximate footprint of former PMC building, currently the Water Street Condominiums, is underlain by friable limestone with unconsolidated lacustrine gravel (including boulder and cobble size) and sand. Additionally, within the friable limestone layers, locally discontinuous layers of gravel, silt sand with gravel, and gravelly silty clay are seen at CMW-01 (Figure 3-2). These layers are similar to beach face or foreshore deposits (Schuster & Nutz 2018); in particular, they indicate a regressive

sequence (coarsing upward) likely associated with post-glacial deposition caused by changes in historical Lake Michigan stage levels.

During the construction of mitigation systems in the Water Street Condominiums [redacted], cavities were hand dug beneath the slab and vacuum excavated. The materials removed were described as “foundation sand and a little bit of gravel” (Posavatz 2018).

The friable limestone and unconsolidated deposits are present over the more competent fractured limestone bedrock described as shaley and slightly argillaceous (Charlevoix Limestone). The friable limestone and unconsolidated deposits are typically identified to approximately 40 feet bgs (see PS-2 and PS-106 on the cross-sections) overlying the more competent Charlevoix Limestone. However, at some borings, such as CMW-01 (Figure 3-2), the Charlevoix Limestone was not identified (Appendix C). Because of poor recovery during drilling, the strata over the Charlevoix Limestone is not well defined; therefore, the interface between the layers are generalized in each cross-section.

The Charlevoix Limestone bedrock that underlies the unconsolidated deposits is generally described as interbedded with thin shale layers and slightly fossiliferous. Fractures are described as containing fine to medium sand with some silt. Due to the presence of boulders and limestone that impacted drilling recovery, logs frequently describe the pieces of the rock that are brought to the surface making distinction of the interface between the unconsolidated lacustrine and limestone deposits, and Charlevoix Limestone difficult to determine.

3.6 Site-specific Hydrogeology

The unconsolidated surficial deposits and shallow limestone bedrock underlying the site compose a single unconfined table aquifer. Water levels in the study area range from 5 to 19 feet bgs in June 2018 (Table 3-1). Depth to water at the former PMC property averages about 13 feet bgs. Specifically, upgradient of the site along Lake Street, depth to water averages about 15 feet bgs, downgradient of the site near the commercial property, the average depth to water is about 12 feet bgs. Groundwater is shallower near the shore as noted at well PS-10A, at [redacted] where depth to water averages 9 feet bgs.

An evaluation of the hydrogeologic characteristics of the site were presented in the *Technical Memorandum Technical Impracticability of Groundwater Restoration Petoskey Manufacturing Company Superfund Site, Petoskey, Michigan* (CH2M 2013) and are summarized in this section. Historical RIs and groundwater elevation monitoring are included to help understand the dynamics of groundwater movement at the site. Conclusions of past hydrogeologic studies indicate the following:

- There is a lag time in aquifer response to changes in the lake water elevations (lake stage) resulting in local reversals of the groundwater flow direction nearshore, i.e., when lake elevation is low, groundwater flow is towards the lake; when lake elevation rises, groundwater flow is towards the site (away from the lake), resulting in highly variable flow direction based on frequent short-term changes in lake stage.
- Slug and pump test results indicated that the hydraulic conductivities (k) at the site range from 7.67×10^{-4} centimeters per second (2.16 feet per day) at well MW-105D to 2.11×10^{-3} centimeters per second (5.98 feet per day) at well MW-201S. Pumping tests indicated that Lake Michigan exerts a high degree of influence on the water levels; groundwater elevations in observation wells rose and fell throughout the pump test even though a constant pumping rate was maintained (Malcolm Pirnie 1998).
- Equilibrium hydrogeologic conditions, the basis for static water level measurement and potentiometric maps, do not exist near the lake; therefore, developing accurate groundwater flow maps is challenging for the site.

- Continuous water level measurements collected every 30 minutes over 3 months in 2004 concluded the following (MDEQ 2005):
  - The horizontal hydraulic gradient is generally flat across the site.
  - There is a high degree of hydraulic connection vertically within the aquifer.
  - When lake stage is higher than the groundwater elevations, the head differential between the lake and the groundwater causes the normally (continually) flowing groundwater to back up (mound) until an equilibrium was reached.
  - Groundwater flow was to the north/northwest for most of the study period.

Figure 3-5 shows the groundwater elevation map generated from groundwater elevations measured during the June 1, 2018, sampling event and provides a snapshot of the groundwater conditions on that day. This figure indicates that some of the groundwater anomalies described above are present, as noted by the flat hydraulic gradient. Groundwater elevations, with one exception (MW-105S), vary by less than 0.5 foot across the study area. Because there is not enough elevation change, contours are not presented on the figure. Although net advective flow is not a condition at the site, for the purposes of conservative assessment of these environmental investigation results, groundwater flow within this evaluation is interpreted to be generally towards Lake Michigan.

To estimate the seepage velocity at the site, the June 1, 2018, groundwater surface elevation map and the following equation from Darcy's Law, was used:

$$V = ki/n_e$$

Where:

V = Groundwater seepage velocity (feet per day)
k = Hydraulic conductivity (feet per day)
i = Groundwater hydraulic gradient (feet per feet)
n_e = Effective porosity (estimated as 0.3)

The effective porosity value used here is the same as has been previously used at this site (CH2M 2013) and is well within the ranges widely stated for limestone formations (USGS 1963, Duffield 2018). The hydraulic conductivity values used (2.16 to 5.98 feet per day) represent the range of values reported in the Phase II RI The hydraulic gradient of 0.00003 was calculated between CMW-1 and COP-3 (Figure 3-5), and an assumed effective porosity of 0.3 was used. The groundwater flow velocity calculated using June 1, 2018, groundwater elevation data was between 0.0002 to 0.0006 foot per day or 0.08 to 0.22 foot per year.

To evaluate how groundwater migrates vertically at the site, vertical hydraulic gradients were calculated for five well pairs (Table 3-2). Virtually no vertical gradient was noted at four of the five pairs. Although, the deeper wells at three of these pairs had a slightly higher head value (0.01 to 0.09 feet) than the shallower wells, indicating an upward vertical gradient. At the PS-105S/PS-105D pair, a downward vertical gradient of 0.12 (unitless) was noted.

SECTION 4

Nature and Extent of Contamination

This section discusses the nature and extent of contamination observed in the study area from samples collected in 2018. The discussion is broken into soil, groundwater, and soil vapor results. Appendix B contains additional property-specific VI investigation results. Appendix E contains the analytical data packages for the data discussed in this section. Appendix F contains the associated data quality evaluation report.

4.1 Screening Levels

To define the nature and extent of contamination at the site, conservative screening levels (SLs) for VI were selected using state and federal guidance documents and media described in the following subsections.

4.1.1 Groundwater Screening Levels

SLs for groundwater samples are presented in Worksheets #15-3 and #15-4 of the UFP-QAPP (CH2M 2018a), and are summarized as follows:

- The EPA tap water regional screening levels (RSLs; EPA, November 2017) are based on a Target Cancer Risk (TCR) of 1×10^{-6} and a Target Hazard Quotient (THQ) of 1.
- The EPA residential groundwater VISLs were developed from the EPA VISL calculator using the November 2017 EPA RSLs. The VISLs were calculated based on a TCR of 1×10^{-6} and a THQ of 1.
- For chemicals without published RSLs, appropriate surrogate chemicals with RSLs were identified and their RSLs used. Appropriate surrogates were identified based on similar chemical and toxicological properties and include the following:

Compound	Surrogate
Methylcyclohexane	Cyclohexane
trans-1,3-Dichloropropene	1,3-Dichloropropene
m&p-Xylene	Total xylenes
o-Xylene	

- The MDEQ Residential Volatilization To Indoor Air Criteria (VIAC) are unrestricted site-specific criteria that apply to a residential house with a basement located in Emmet County, site-specific depth to groundwater of 13 feet, and U.S. Department of Agriculture (USDA) soil type of sand.

4.1.2 Soil Screening Levels

SLs for soil samples are presented in Worksheets #15-1 and #15-2 of the UFP-QAPP (CH2M 2018a), and are summarized as follows:

- The EPA Residential Soil RSLs (EPA, November 2017) are based on a TCR of 1 × 10-6 and a THQ of 1.
- The MDEQ Residential VIAC are unrestricted site-specific criteria that apply to a residential house with a basement located in Emmet County, site-specific depth to groundwater of 13 feet, and USDA soil type of sand. Site-specific criterion may be below target detection limits (TDL). In accordance when the TDL for a hazardous substance is greater than the developed cleanup criterion, the criterion is the TDL. The use of the TDL in lieu of the VIAC is applicable for benzene, ethylbenzene, TCE, and PCE (MDEQ 2018).

4.1.3 Subslab Soil Vapor, Soil Vapor, and Sewer Gas Screening Levels

SLs for subslab soil vapor, soil vapor, and sewer gas samples are presented in Worksheets #15-5 and #15-6 of the UFP-QAPP (CH2M 2018a) and summarized as follows:

- The EPA residential soil vapor VISLs were developed from the EPA VISL Calculator using the November 2017 EPA RSLs. The VISLs were calculated based on a TCR of 1 x 10^{-6} and a THQ of 1.
  - The EPA default soil-vapor-to-indoor-air attenuation factor of 0.3 is used to calculate the soil vapor VISLs. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) versus overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor.
  - These EPA VISLs differ from those used in the VI technical memorandum (Appendix B) because EPA elected to use VISLs based on a TCR of 1 x 10^{-5} and a THQ of 1 for risk management decisions at the site.
- The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA RSLs. The RMLs were calculated based on a TCR of 1 x 10^{-4} and a THQ of 3, except for TCE, where a THQ of 1 was used.
- The MDEQ Residential VIAC are unrestricted site-specific criteria that apply to a residential house with a basement located in Emmet County, site-specific depth to groundwater of 13 feet, and USDA soil type of sand. Within Appendix B, the VIACs were not utilized, as they were either identical to or less stringent when compared to the RIASL for soil vapor contaminants of concern at this site. As a result, the VI technical memorandum does not screen against the VIACs.

4.1.4 Indoor Air and Crawlspace Screening Levels

VISLs for indoor air and crawlspace air samples are presented in Worksheets #15-5 and #15-6 of the UFP-QAPP (CH2M 2018a) and summarized as follows. Outdoor air was not screened against any criteria, as this data set was used as a screening tool in the MLE to be included with the human health risk assessment (HHRA) in the final RI:

- The EPA residential indoor air VISLs were developed from the EPA VISL Calculator using the November 2017 EPA regional SLs. The VISLs were calculated based on a TCR = 1 x 10^{-6} and a THQ = 1. These EPA VISLs differ from those used in the VI technical memorandum (Appendix B) because EPA elected to use VISLs based on a TCR of 1 x 10^{-5} and a THQ of 1 for risk management decisions at the site.
- The EPA residential indoor air RMLs were developed from the EPA VISL Calculator using the November 2017 EPA RSLs. The RMLs were calculated based on a TCR = 1 x 10^{-4} and a THQ = 3, except for TCE where a THQ = 1 was used.
- The MDEQ residential indoor air media-specific volatilization to indoor air interim action SLs (August 2017), otherwise known as the recommended interim action SLs.

The MDEQ time-sensitive residential indoor air media-specific volatilization to indoor air interim action SLs (August 2017), otherwise known at the time-sensitive recommended interim action SLs.

4.1.5 Development of Site-Specific Contaminants of Potential Concern Based on Multiple Lines of Evidence

The volatile site-specific constituents of potential concern were defined in the 1998 ROD for OU1 as:

- Acetone
- 1,2-DCE (total)
- Ethylbenzene
- Methylene Chloride
- Tetrachloroethene (PCE)
- Toluene
- TCE
- Vinyl Chloride
- Xylenes (total)

A formal evaluation of chemicals of potential concern (COPCs) for OU2 is presented in Section 6.1 and associated tables. That evaluation begins with the indoor air detections above SLs, and then evaluates on a building-specific basis whether there is evidence for indoor or subsurface sources. The following VOCs were considered COPCs in one or more units or exposure scenarios:

- TCE
- Benzene
- Naphthalene
- 1,3-Dichlorobenzene

Several other constituents were evaluated in this process and not selected as COPCs for the following reasons. Additional VOCs were detected in soil and/or groundwater samples but did not exceed the VI screening criteria. Two VOCs not listed on the COPC list (acrolein and bromodichloromethane) exceeded EPA and MDEQ SLs in sewer gas. However, none of these chemicals is considered site-related.

- Acrolein
  - Acrolein is ubiquitous in the environment from cooked foods and is widely found in human urine (Stevens and Maier 2008). Thus, the appearance of acrolein in sewer gas is to be expected.
- Bromodichloromethane
  - Bromodichloromethane is considered present in part due to disinfected drinking water and is also found in most cleaning products where bleach is an ingredient and, thus, is highly likely to be discharged to sewers (Odabasi 2008 and 2014).
- Chloroform
  - Chloroform was only detected in one groundwater sample and is a common by-product that forms when chlorine or other disinfectants are added to drinking water. Chloroform is not listed as a COPC for OU1 in the 1998 ROD.
  - Chloroform exceeded the SL of 10^{-5}, hazard quotient (HQ)=1 used in the building-specific data evaluation in several of the indoor air samples collected at three residential properties in June 2017 and one residential property in February 2018. The chloroform concentrations observed in indoor air are within the 95th percentile range observed at other U.S. residences where VI is not suspected (The sole exception is one sample in a [redacted] building [redacted] that slightly exceeds the reported 95th percentile [EPA 2011]).
  - The most common source of chloroform in indoor air is shower water (Nuckols, et al. 2005) in which chloroform is present as a by-product of the disinfection process. The group of chemicals

for which chloroform is the most common representative (total trihalomethanes) is known to be present at low levels in the City of Petoskey drinking water (City of Petoskey 2015). Chloroform is also found in very high concentrations in numerous household cleaners that contain bleach as an ingredient (Odabasi 2008 and 2014). It is highly likely to be discharged to sewers (Odabasi 2008 and 2014). Very substantial discharges of chloroform to municipal systems have been reported from residential washing machines (Shephard 1996).

- Only one residential building had a subslab soil vapor result with chloroform exceeding the 10^{-5}, HQ=1 SL. That distribution is not consistent with the location of the major solvent-using activities of the former PMC facility (Figure 1-3).
- McHugh and Beckley (2018) sampled 103 manholes and stated that the frequency of detection of chloroform in sewer gas at locations not expected to be impacted by environmental sites is 82 percent, with a median concentration of 26 micrograms per cubic meter (µg/m^3) and a 90th percentile of 360 µg/m^3. The concentrations observed in sewer gas samples at the site (median 67.5 µg/m^3; maximum 150 µg/m^3) are well within this range.

In addition, trihalomethane was observed in sewer gas samples. However, the exceedances were only observed in sanitary sewer samples, which is consistent with the attribution to drinking water or household cleaning.

4.2 Groundwater Results

Groundwater sampling results presented in this section include the site monitoring wells and grab groundwater samples. Tables 4-1 and 4-2 summarize the results of the monitoring well and grab samples, respectively. An obstruction was encountered that prevented sampling of well PS-105D.

4.2.1 Groundwater Sampling

Two VOCs were detected above SLs—TCE and chloroform. TCE was detected in 11 of the 25 monitoring wells sampled and 9 of the 13 grab samples collected from 10 locations. Detections of TCE in monitoring wells exceeded the EPA Tap Water RSL and the EPA Residential Groundwater VISL at 11 of 25 locations, and exceeded the MDEQ site-specific VIAC at 5 locations. Detections of TCE in monitoring wells exceeded the EPA Tap Water RSL and the EPA Residential Groundwater VISL at 11 of 25 locations and exceeded the MDEQ site-specific VIAC at 5 locations. Detections of TCE in grab groundwater samples exceeded EPA Tap Water RSL and the EPA Residential Groundwater VISL in 8 of 13 samples collected from seven locations and exceeded the MDEQ site-specific VIAC in one sample. The highest concentration of TCE (36 micrograms per liter [µg/L]) was detected at monitoring well PS-4 (Figure 4-1). The highest concentrations of TCE were detected in groundwater near the footprint of the former PMC facility, and concentrations above SLs were detected extending from the former facility to the northwest towards the lake.

Table 4-3 summarizes the field parameter data. There were a few locations where the recorded ORP and DO do not appear to be in agreement or equilibrium, including CMW1, MW205D-R, MW402D, and PS104. The field instruments were calibrated daily. It is well known that in samples that have not fully reached biogeochemical equilibrium that ORP measurements can not agree with other indicators of biogeochemical conditions. It is also understood that interferences or errors can effect an ampermetric DO sensor in the field in a way that would not necessarily be revealed by normal calibration procedures (USGS 2013).

PFAS were sampled from six wells and detected in four of these wells. PFAS results were compared to the criteria in the approved QAPP (Table 15-4; CH2M 2018a): EPA tap water RSLs, MDEQ residential drinking water criteria, and state groundwater/surface water interface criteria (MDEQ 2018). Three PFCs

(perfluorobutanoate, PFOS, and perfluorooctyl sulfonate) were detected at CMW-01, and one of these compounds (perfluorobutanoate) was also detected in CMW-02; however, none of the compounds were detected in downgradient well pair PS-4/PS-104. Further downgradient, perfluorobutanesulfonic acid was identified at MW-402S. Perfluorooctyl sulfonate was detected at PS-BS. None of the PFC concentrations exceeded respective SLs.

4.2.2 Natural Attenuation Evaluation

The selected remedy for groundwater based on the 1998 ROD is monitored natural attenuation. To evaluate whether natural attenuation is acting to reduce plume concentrations, TCE time-series trend charts were prepared for selected wells with a minimum of four sampling events. Figure 4-2A shows trends at source area wells PS-4 and PS-104. Figure 4-2B shows trends at wells located downgradient but near the source area, and Figure 4-2C shows trends at downgradient wells. Section 5.3 discusses mechanisms that act to naturally attenuate TCE in groundwater. A review of the trend charts indicates that concentrations of TCE in the source area wells are generally stable (Figure 4-2A). Although the last two samples collected from PS-104 (deep well) did not detect TCE, TCE concentrations in this well historically have been less than 10 µg/L, indicating a lack of vertical migration near the source area. Trends at near-source wells PS-CD and MW-402S are generally decreasing, but PS-CS and COP-5R are generally stable (Figure 4-2B). Trends in downgradient well PS-106 initially increased but are stable since approximately 2008, but trends in PS-11 are decreasing (Figure 4-2C). These data indicate that trends are localized and stable to decreasing.

In addition to time-series trends, the presence of degradation products of TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride are used to evaluate whether reductive dechlorination is occurring. This is the primary degradation pathway of chlorinated VOCs, such as TCE, that occurs under reducing conditions. Based on the DO and ORP values recorded during June 2018 groundwater sampling (Table 4-3), the aquifer is generally aerobic. In addition, no degradation products were identified in groundwater in 2018, indicating little to no reductive dechlorination of TCE.

4.3 Soil Results

Table 4-4 summarizes the soil sampling results for detected chemicals. The EPA views bulk soil sampling for VI as a supporting line of evidence that can be used to establish potential locations of source zones, but which cannot be used to rule out VI because it is subject to false negatives (EPA 2015). At this site, the soil samples were frequently hot (> 212 ◦F) due the difficult drilling and thus are expected to underestimate actual VOC concentrations. The hottest temperature samples were those collected from the vadose zone below the first encounter with the crushed rock/rock fragments which is noted as “hard drilling” or “hot, hard drilling” on some of the boring logs. Samples collected below the water table were somewhat cooler than those in the “hard drilling” portions of the vadose zone.

4.3.1 Soil Sample Results

TCE was detected above the MDEQ site-specific VIAC TDL of 50 µg/kg and/or the EPA Residential Soil RSL of 940 µg/kg in 7 samples collected from 4 soil borings at concentrations ranging from 110 µg/kg at SVB-7 (4 to 5 feet bgs) to 2,700 µg/kg at SVB-10 (19 to 20 feet bgs). Concentrations of TCE in soil found above SLs appear to fall primarily within the western portion of the former PMC property. The highest concentrations of TCE were detected in soil in the western portion of the footprint of the former PMC property both above (SVB-12 1.5 to 2.5 feet bgs at 1,100 µg/kg; SVB-10 3 to 4 feet bgs at 200 µg/kg) and below (SVB-12 14 to 15 feet bgs at 1,600 µg/kg; SVB-10 19.5 to 20 feet bgs at 2,700 µg/kg) the water table (Figure 4-3). Although these data suggest that mass is present in both the vadose and saturated zones, it may not reflect an accurate profile of mass with depth because samples were not collected from every proposed location.

Benzene and ethylbenzene (associated with gasoline and other lighter hydrocarbon-derived products) were detected above the TDL of the MDEQ site-specific VIAC (but not EPA Residential Soil RSL) in one location in the western half of the former PMC property (SVB-07), where the highest concentrations of TCE are noted and where historical releases likely occurred; these chemicals were identified in collocated soil vapor samples (as discussed in Section 4.4.3); however, these chemicals were not identified in groundwater above SLs. Figure 4-4 shows the distribution of these data. Other VOCs were detected, but concentrations did not exceed SLs.

One metal, arsenic, was detected above the EPA Residential Soil RSL (0.68 µg/kg) in samples collected from SVB-05 (14.5 to 15 feet bgs) at 1.2 µg/kg and CMW-02 (29 to 30 feet bgs) at 1.1 µg/kg. These exceedances were detected outside of and within the site boundary, respectively, both below the water table, and at similar concentrations. Given that arsenic is a naturally occurring metal, was not detected in associated shallow sample at SVB-05, and concentrations are similar at both locations, these exceedances are not considered site-related contamination. Figure 4-5 shows the distribution of these data.

Total organic carbon is an indicator of the capacity of the soils natural organic matter to sorb VOCs. The total organic concentrations in sampled soils were generally low (<0.5 percent by weight), with the exception of the shallow samples at SVB-05, SVB-12, and SVB-15 where concentrations were between 1 and 4 percent by weight (Table 4-4).

4.4 Sewer Gas, Exterior Soil Vapor, and Subslab Soil Vapor Results

This section presents the results of the sewer gas, exterior soil vapor, and subslab soil vapor sampling and analysis conducted as part of this RI. A more detailed evaluation of the structure specific VI activities completed at the site is included in the VI technical memorandum (Appendix B).

4.4.1 Sewer Gas Sampling

Sewer gas was sampled in January 2017 as part of the pre-OU2 RI VI investigation activities reported in Appendix B and again in June and October 2018 as part of the RI. Sewer gas sampling methods were described in Section 2.5.1. Additional information about the construction and condition of the sewers at the site was obtained from records provided by the City of Petoskey.

Sewer gas analytical results during the RI can be summarized as follows:

- For the June 2018 sampling event, TCE was observed above the EPA Residential Soil Vapor VISL of 16 µg/m^3 at sanitary sewer locations SA-07 (55 µg/m^3) and SA-03 (19 µg/m^3)[4] (Table 4-5).
- For the October 2018 sampling event, TCE was observed above the EPA Residential Soil Vapor VISL at sanitary sewer locations SA-07 (39 µg/m^3) and SA-01 (19 µg/m^3) (Table 4-5).

TCE was detected in seven sewer gas samples located within the plume extent; two of these are located on the former PMC property. The remaining samples collected within the footprint of the TCE plume did not present elevated levels of TCE. The concentrations of sewer gas do not exceed the adjacent soil vapor concentrations (presented in Section 4.4.2). Sewer gas analytical results were screened against EPA Residential Soil Vapor VISL, EPA Residential Soil Vapor RML, and MDEQ site-specific VIAC.

Other VOCs were observed in the samples collected but did not exceed the SLs.

[4] This sample was initially inadvertently reported as storm sewer sample ST-04; however, review of the June 2018 sampling records indicates that this sample was actually collected at sanitary sewer location SA-03 (with the SA-03 results corresponding to sample ST-04). This review is further supported by the presence of trihalomethanes in the actual sample for SA-03 (which would not generally be expected in a storm water sample) and its consistency with the October 2018 sampling data.

Section 5.2.3 provides additional discussion of the importance of utilities in the CSM.

4.4.2 Exterior Soil Vapor Investigation

The following subsections summarize the exterior soil vapor investigation activities.

4.4.2.1 May and June 2018

TCE was detected in all but one soil vapor sample during sampling of all 15 exterior soil vapor locations. TCE exceeded SLs in 22 of the samples collected from 12 of 15 locations. The highest concentration was detected at 7,500 µg/m^3 at SVB-12 (5 feet bgs) (Figure 4-8). Spatially, TCE above SLs was identified within or adjacent to the shallow groundwater TCE plume, with the highest concentrations of TCE in soil vapor occurring within the western and northern portion of the footprint of the former PMC facility. Concentrations are higher in shallow soil vapor compared to deeper samples collected within the former PMC property boundary (Figure 4-8), indicating the presence of residual mass in soil that may be acting as a source to soil vapor (as well as groundwater). Exceedances of the EPA Residential Soil Vapor RML and the MDEQ site-specific VIAC, occur in all but two locations (SVB-02 and SVB-03). However locations SVB-02 and SVB-03 have exceedances for other VOCs such as benzene and ethylbenzene.

4.4.2.2 October and November 2018

Thirty-one exterior soil vapor samples were collected from 16 soil vapor probes (SVB-01 through SVB-12, and SVB-14 through SVB-16). TCE was detected in all but one sample (SG-50). Of the samples with detections, TCE exceeded VISLs in 19. The highest concentration was detected at 15,000 µg/m^3 at SVB-12 (5 feet bgs), which is higher than the concentration detected in May and June 2018 (Figure 4-8). This increased detection could be due in part to the heavy rains and/or snow received prior to sample collection, elevating the shallow groundwater and displacing the vapors upward.

Spatially, TCE above VISLs was identified in a similar pattern when compared to the May and June 2018 results, where detections were within or adjacent to the shallow groundwater TCE plume, with the highest concentrations of TCE in soil vapor occurring within the western portion of the footprint of the former PMC facility. Concentrations continued to be higher in shallow soil vapor when compared to deeper samples collected within the former PMC property boundary (Figure 4-8), indicating the presence of residual mass in soil that may be acting as a source to soil vapor (as well as groundwater). TCE exceedances of the EPA Residential Soil Vapor RML (70 µg/m^3) and the MDEQ site-specific VIAC (67 µg/m^3), occur in nine soil vapor probe locations.

4.4.2.3 Summary of 2018 Soil Vapor Results

The distribution of TCE in shallow soil vapor beyond the former PMC property boundary is consistent with historical exterior soil vapor sample results which showed the greatest offsite extension north of Lake Street and west of the former PMC manufacturing site (CH2M 2018b). Concentrations are presented in Table 4-6 and shown in Figures 4-8 and 4-9. Exterior soil vapor with the highest concentrations of TCE were located along the western and northern portions of the former PMC property and near sanitary sewer lines on East Lake Street (SVB-01 at 13.5-14 feet bgs; SVB-04 at 5.5-6, 8.5-9, and 12-12.5 feet bgs; SVB-07 at 5-5.5, 11.5-12; SVB-08 at 6.5-7; and SVB-09 at 5.5-6, 9.5-10). However, as the depth of the sanitary sewer near these samples is approximately 5 to 6.5 feet, and the TCE concentrations within sanitary sewer samples collected in this area (Table 4-5) were orders of magnitude lower than concentrations in the exterior soil vapor, it is unlikely that the sanitary sewer is currently acting as a preferential pathway for offsite transport.

Six additional VOCs (1,3-butadiene, benzene, bromodichloromethane, chloroform, ethylbenzene, and PCE) were detected above SLs in soil vapor (Table 4-6). 1,3-Butadiene and bromodichloromethane were each detected above their respective SL at only one location each (SVB-09 and SVB-11, respectively), as presented in Figure 4-9. Chloroform was detected above SLs in at least one sample at SVB-09, SVB-10,

and SVB-12. All these locations are close either to a water line, sanitary sewer line, or both (Figure 4-9). The maximum chloroform concentration observed was 8.5 µg/m^3. The presence of chloroform and bromodichloromethane and not considering these constituents as site-related COCs is discussed in more detail in Section 4.5.

Benzene and ethylbenzene are both typical of gasoline and other lighter hydrocarbon-derived products and were observed during Events 1 and 2 with the following trends in exterior soil vapor samples:

- May and June 2018: Benzene was detected above SLs in 10 exterior soil vapor locations, with the highest concentration (250 µg/m^3) detected at SVB-09 at 6 feet bgs. Of those 10 locations where benzene was noted, six were identified to be within the former PMC property. Ethylbenzene was detected above SLs at three locations; two within the western portion of the former PMC facility and 1 west of the commercial property, with the highest concentration of ethylbenzene detected near the commercial property (60 µg/m^3) at SVB-02 at 6 feet bgs. Ethylbenzene exceedances were co-located with benzene exceedances (Figure 4-9).
- October and November 2018: Benzene detections were observed in eight exterior soil vapor locations, with one exceedance noted at SVB-12 (27 J µg/m^3), a location within the former PMC property. At SVB-12, ethylbenzene was not detected in the October 2018 sample. However, the highest exterior soil vapor detection of TCE (15,000 µg/m^3) was observed in the same sample.

Based on these data and location of the detections, these chemicals are potentially present due to a site-related release. Benzene and ethylbenzene appear to be observed primarily within the boundary of the former PMC property and associated with those locations where TCE was noted. As a result, benzene and ethylbenzene have been considered in the HHRA and associated MLE table as potential site-related compounds and will be evaluated further for potential risk. Benzene concentrations were generally lower in October and November 2018 then in June 2018, suggesting a seasonal effect.

PCE was detected above SLs in four May and June samples collected from three locations (SVB-10 through 12), and three October and November samples collected from two locations (SVB-10 and SVB-12), with the highest concentration (990 µg/m^3) detected at SVB-10 at 10 feet bgs in October 2018. Three samples were collected at SVB-10, and concentrations increased with depth during the May and June sampling, but were similar concentrations at the 10- and 15.6-foot-bgs depths in October 2018. An increasing trend of PCE with depth was noted at SVB-04 and SVB-12 (Table 4-7 and Figure 4-9). Differences in the depth pattern of TCE and PCE could reflect mass storage of PCE in the groundwater and partial dichlorination in the vadose zone.

PCE detections above SLs in soil vapor fall within the western portion of the footprint of the former PMC facility. No samples collected from these locations or nearby locations presented concentrations of PCE above SLs in soil or groundwater. The presence of PCE in the study area is sporadic and does not appear to have an obvious source, although two of the highest concentrations are near the drum storage area as shown in Figure 1-3.

4.5 Specific Building Vapor Intrusion Investigation

A detailed VI technical memorandum has been prepared for all property-specific VI investigation activities that have been conducted at the site to date and is intended to supplement the RI investigation information presented herein (Appendix B).

4.6 Mass Partitioning Analysis

To evaluate the extent that TCE mass in the saturated and unsaturated zones contributes to soil vapor concentrations in the study area, an equilibrium partitioning analysis, or mass partitioning analysis, was conducted. The analysis used Henry's law equilibrium to estimate partitioning from VOCs in

groundwater and a 3-phase equilibrium partitioning model to estimate potential soil vapor concentrations from VOCs in soil. Calculated concentrations were then compared to measured concentrations. Appendix F contains the technical memorandum documenting the evaluation process, calculations, and quantitative results.

The evaluation concluded that although both vadose-zone soil and groundwater contribute to TCE in soil vapor at the former PMC property, the TCE source strength appears greater from groundwater. A strong groundwater contribution is also noted downgradient of the former PMC property near the [redacted] property. However, both the saturated and unsaturated zones at this site contain sufficient mass of TCE to each independently produce subslab soil vapor concentrations that are elevated above VI SLs. This suggests that alternatives to rapidly remediate the site would need to address both media.

In addition, TCE vapor transport from groundwater appears to be more attenuated in the vadose zone than indicated by agency default attenuation factors. The EPA (2015) default attenuation factor for subslab soil vapor and "near-source" exterior soil vapor is identical; therefore, the default attenuation factors do not rely on attenuation in the soil column observed here. Although this conclusion is uncertain, it is supported by data collected for this investigation and reported in the literature (Provoost, et al. 2011). As a result, a cleanup level protective of VI using the EPA default attenuation factor is likely to be conservative.

4.7 Differential Pressure Measurement

The differential pressure between shallow soil vapor and ambient air was recorded on four dates during the RI investigation (Figure 4-10). In many cases, multiple measurements were taken to estimate temporal variability. As expected, low vacuums or low positive pressures were observed at soil vapor locations distant from any known SSD systems. Consistent vacuums stronger than 0.015 inches of water (3.7 Pascals) were interpreted as probable evidence of an extended vacuum field extension influence from the mitigation systems at the Water Street Condominiums or the [redacted] building. These measurements were made to provide qualitative insights to how vacuum fields extend in the shallow soils at the site, in support of the upcoming feasibility study.

4.8 Deviations from the QAPP

During the implementation of the RI field activities, deviations from the QAPP occurred. The tasks and deviation notes are summarized in the following table.

Task	Deviation Notes
Permanent monitoring well sampling	An obstruction was noted in monitoring well PS-105D at the time of groundwater sampling. The obstruction was unable to be freed, and tubing could not be deployed. As a result, sampling of this monitoring well could not be completed.
Soil vapor probe installation location	SV-03 and SV-13 could not be installed in the originally proposed locations due to the presence of underground utilities. When attempting to relocate these probes, the adjacent property declined access and ultimately would not allow installation of SV-13.
Soil vapor probe installation sampling	Soil vapor probes were proposed to be installed within the capillary fringe of groundwater plume at PMC. Due to difficult subsurface conditions encountered (i.e., refusal, high water table, etc.), probes were installed to the deepest possible depths when installation could achieve a minimum of 2 feet bgs. If 2 feet or greater could not be achieved, a proposed probe was not installed. The depths of the soil vapor probes were determined by the water table/capillary fringe. If it was less than 15 feet bgs, then 3 depths of soil vapor probes would not be installed. The number and depth of soil vapor probe screens was ultimately based on the observed soil types and depth to groundwater. Attempts were made to place three screen intervals at each location.

Task	Deviation Notes
Grab soil sampling	Material encountered in the subsurface prevented sample collection at select proposed locations (including gravel/cobbles and no recovery of material while drilling).
Grab groundwater sampling	The QAPP proposed grab groundwater samples every 10 feet during logging of the two newly installed monitoring wells. This activity was completed successfully at CMW-1. However, this task was not completed at CMW-2. MDEQ expressed concern over potentially impacting the deeper aquifer through vertical contamination and requested that this activity not be completed.

SECTION 5

Conceptual Site Model

The CSM was updated to include soil, groundwater, sewer gas, and soil vapor sampling data collected in 2018. The area where groundwater concentrations of TCE are detected extends from the site to approximately 700 feet northwest towards the City of Petoskey's former Ingalls municipal water supply well and Lake Michigan. TCE continues to be detected in this area above the EPA Residential Groundwater VISL, as well as the MDEQ site-specific VIAC. TCE in groundwater appears to be the primary source of TCE in soil vapor off the former PMC property; the highest concentrations were located within or adjacent to the aqueous TCE plume. Migration and mass storage also may have occurred in the vadose zone, for example in the eastern part of the Water Street Condominiums and in the area north of West Lake Street and west of the site. However, shallow vadose-zone sources are likely also present and are important contributors to soil vapor concentrations within the former PMC property boundary.

5.1 Contaminant Fate and Transport

This section summarizes the physical properties of TCE, the chemical released from the former PMC property that is present over the largest aerial extent and in highest concentrations in groundwater and soil vapor. TCE was also identified as a primary target for remediation in the OU1 ROD. These physical properties are used to assess the movement and partitioning of TCE in the environment. They can estimate the potential TCE to migrate through a medium and how long TCE will remain in the environment.

Notable physical properties of TCE include the following:

- Density greater than water at 1.4642 grams per cubic centimeter.
- Solubility of 1,280 milligrams per liter (mg/L).
- High volatility based on vapor pressure (69 millimeters of mercury) and Henry's Law Constant (0.00985 atmosphere-cubic meters per mole); volatilization is ongoing based on soil vapor sampling results.

5.2 Routes of Migration

To evaluate potential routes of migration, this section summarizes an assessment of the release of TCE to groundwater and subsequent aqueous and vapor-phase transport. Transport occurs via advection, volatilization, dispersion, and retardation once VOCs have dissolved in groundwater and via advection and diffusion once volatilized. Transport of volatiles in the vadose zone can also occur through diffusion or advection; either in the bulk soils or in preferential flow pathways such as utilities.

5.2.1 Release Mechanisms

The presence of TCE at the site is attributed to releases from primarily the western portion of the former PMC property, where the former aboveground storage tank was located (Figure 1-3) and historical waste handling occurred. TCE, when initially released from the storage tank or disposed of on the ground, would have likely been present as dense nonaqueous phase liquid (DNAPL) that may have migrated primarily vertically, as governed by bedding planes and fractures, through the vadose zone to groundwater (Figure 5-1). However, additional releases may have occurred as dissolved-phase TCE from washwater or other diluted mixtures. Figure 1-3 shows potential locations of solvent release such as a former drum storage area, a former paint storage area, and process water trench. As DNAPL, TCE is

denser than groundwater, enhancing vertical migration until TCE dissolved. Once dissolved, chemical transport and volatilization occurred as described in the following sections.

During migration, DNAPL can become trapped in the unsaturated zone as "disconnected blobs and ganglia of organic liquid" (Kueper 2003). Those trapped DNAPL elements will continue to both volatilize into soil vapor and dissolve into groundwater during infiltration events (Kueper 2003). In fractured rock, there is a higher probability of DNAPL becoming entrained. Soil and aqueous concentration data at this site suggest that DNAPL is not currently present at this site, rather TCE is only present in groundwater and sorbed to soil. The presence of residual mass makes plumes like that at the site difficult to remediate (Kueper 2003).

Additional releases of TCE in dissolved form, for example as washwater, or even mixed in with a petroleum-based solvent as a light nonaqueous phase liquid could possibly have occurred based on the limited information available about site operations. Historical soil data (shown in Figure 5 in CH2M 2018a) suggest that TCE, and in some cases PCE, was released to shallow soils in eastern and southern parts of the site. Not all of the areas with these soil releases were excavated; some were assumed to be capped by the foundations, and others passed the standards that prevailed at the time. Historical bulk soil standards would not be considered to be protective of the VI pathway today.

5.2.2 Dissolution

Aqueous solubility is defined as the concentration of a chemical dissolved in water when the pure chemical (DNAPL in the case of TCE) is in contact and in equilibrium with water. To evaluate whether TCE is potentially present as residual DNAPL, the maximum concentration is compared to its solubility (1,280 mg/L) with a typical rule of thumb being DNAPL indicated at 1 percent of solubility. The highest concentration of TCE in groundwater, 0.055 mg/L, is several orders of magnitude below this value, indicating that residual DNAPL is not present in the saturated zone.

A similar rule of thumb suggests that DNAPL is likely present if organic vapor concentrations in soil vapor exceed 100 to 1,000 parts per million. One-hundred parts per million of TCE is 537,000 $\mu g/m^3$ (EPA 1994). The maximum possible vapor-phase nonaqueous phase liquid concentration for TCE is 4.9×10^8 $\mu g/m^3$ (EPA 2014). The highest historically observed TCE concentrations at the site was approximately 15,000 $\mu g/m^3$ in subslab soil vapor (CH2M 2018b). This suggests that residual DNAPL is no longer present as a separate phase in the vadose zone. The mass present in the vadose zone is typically composed of a combination of mass diffused into the particle matrix, mass in soil vapor, and mass partitioned into the moisture layers on vadose zone soil particles (EPA 2014). The fraction in the moisture layer is often the largest (Carr, et al. 2017).

5.2.3 Volatility and Vapor Migration Routes

The partitioning of a molecule from aqueous phase to the vapor phase is termed volatilization. Depending on the Henry's Law Constant (a partitioning coefficient between adjacent water and air bodies), VOCs in groundwater can volatilize at the water table into the overlying soil. TCE easily partitions into the vapor phase, where it can migrate through air-filled soil pores via primarily diffusion along a concentration gradient. Volatilization is enhanced by changes in water levels, as are known to occur frequently at the PMC site (Ilangasekare, et al. 2013). A similar partitioning process occurs in the vadose zone between the soil vapor and the vadose-zone soil moisture.

In the standard VI CSM, diffusive transport dominates in the deeper portions of the vadose zone, and pressure-driven advective transport dominates in a zone within approximately 5 feet of the foundation (EPA 2012). The advective transport in VI is generally attributed to the stack effect in structures that couples to soil vapor; however, rising water tables can also force soil vapor upwards in a piston like effect (EPA 2012).

Diffusion through concrete slabs also occurs, which is driven by concentration differentials not pressure differentials (EPA 2012). Although advection is generally assumed to be the dominant process moving vapors through the building envelope, there are reportedly situations where diffusion across the building envelope becomes predominant. One such case was reported in two buildings directly over PCE source material in Fairbanks, Alaska (Barnes and McRae 2017).

The exterior soil vapor map indicates that TCE in soil vapor is primarily present where it is also present in groundwater and where TCE was identified in soil. However, the depth profiles show that the concentrations onsite typically decrease with depth while those offsite typically increase with depth. This supports the conclusion in Section 4.5 that the TCE source mass on the former PMC manufacturing facility appears to be stored in both the vadose and saturated zone. Downgradient, the VOC mass appears to be predominantly stored in the groundwater.

Vapors also can migrate via advection (and diffusion) along preferential subsurface pathways, such as a utility corridor or more porous zones of soil or rock, or beneath surface barriers that limit the direction(s) of vapor migration, such as frozen ground or asphalt. Current results of sewer gas sampling suggest that concentrations in sewer gas do not generally exceed the adjacent soil vapor concentrations.

Sewer gas samples were collected from the sanitary (SA) and storm (ST) sewers (Figure 2-1). The samples were collected during three separate events in January 2017, June 2018, and November 2018. The results, which are presented in Table 4-5, indicate the presence of VOCs at relatively low concentrations, that are either below or comparable to concentrations observed in multi-level soil vapor samples collected around the site. There is no evidence that either sewer network is currently acting as a preferential pathway to buildings beyond the site. However, a role for sewers in transporting gasses across the building envelope of individual structures within the area of impacted soil vapor cannot be ruled out.

Information obtained from the City of Petoskey and reviewed as part of the sewer pathway assessment also indicates that the sewer network is unlikely to currently act as a major preferential pathway to properties distant from the site due to the following:

- The depth of the catch basins and manholes where sewer gas samples were collected ranges from approximately 3.25 to 6.4 feet bgs, indicating that both storm and sanitary sewer utilities are at least 1.5 feet above the water table in the investigation area and that VOC-containing groundwater is therefore unlikely to directly infiltrate into either sewer network (since the capillary fringe is expected to be thin in this coarse material); and
- Based on information provided by the City of Petoskey, most of the sanitary and storm sewer network within the investigation area appears to have been removed and replaced with new piping, manholes, and catch basins circa 2005 as part of utility improvements (Northwest Design Group Consulting Engineers, 2005). The former PMC facility was sold to a developer in 2003 and was demolished in 2004. Thus, potential solvent discharge to the sewers as part of historical manufacturing activities would not be expected to directly contribute residual VOCs to the new sewer systems.

Review of utility information provided by the City of Petoskey also indicates the presence of a 14-inch-diameter sanitary sewer force main installed prior to 2005 (Northwest Design Group Consulting Engineers 2005). This line is approximately 7 feet deep and generally runs from west to east with sections found along the western and northern sides of the Water Street Condominiums. This utility line is not readily accessible through manholes and was not sampled; however, because it is located above the groundwater table and, as a force main, is not directly connected to surrounding properties, it is not expected to act as a preferential pathway for VI. Since force mains operate under positive pressure, flow would be expected to be outwards from the sewer rather than inwards as is common with gravity sewers. Also, given the positive pressurization, leaks in a force main should be readily identified by odor.

5.2.4 Advection

Advection occurs in both the aqueous and vapor phase. In the aqueous phase, advection refers to the movement of dissolved-phase contaminants caused by the flow of groundwater. Physical migration of TCE in groundwater is slowed by the flat hydraulic gradient at the site as noted by the low seepage velocity estimated to range from 0.08 to 0.22 foot per year and flow reversals caused by changes in lake stage. Historical migration resulted from pumping at the former municipal supply well. The shape of the TCE plume shown in Figure 4-1 confirms that dissolved-phase contamination is present in both the shallow and deeper portions of the aquifer and has migrated toward the lake. As discussed above the plume shape has recently shifted toward PS-106.

The combination of the very low seepage velocity with the observed periodic groundwater flow reversals inland of the shoreline contribute to slow advection of the TCE plume. However, there is expected to be an enhancement of dispersion processes at this site due to the cyclic effects of lake stage on the aquifer (Boutt and Fleming 2009).

The soil vapor data set suggest that the plume has migrated along the north side of West Lake Street, west of the site. Cross section A'-A (Figure 3-2) shows a layer of sand and gravel, primarily weathered limestone, at or below the water table running along this axis.

In the vapor phase, advection occurs in the vadose zone when bulk movement is induced by spatial differences in soil vapor pressure. The direction of advective vapor transport is always toward the direction of lower air pressure. Near the surface of the earth, vapor transport is, in part cyclic, due to barometric pumping. Near buildings, advection is generally expected to occur due to differences in temperature between the building interior and the subsurface environment or the operation of combustion units or fans that can create driving forces for soil vapor entry (stack effect). Advection may be hindered where extensive surface barriers, such as asphalt, concrete, or frozen soil are present (EPA 2015).

5.2.5 Dispersion and Diffusion in the Saturated Zone

Hydrodynamic dispersion is the process that spreads out a contaminant plume in three dimensions: parallel to the direction of migration (longitudinal), laterally (transverse), and vertically. The underlying processes are mechanical dispersion and molecular diffusion. Similar to advection, the magnitude of mechanical dispersion is generally proportional to instantaneous groundwater velocity. The result is spreading and mixing at the plume edges. This results in reduced concentration of the molecules in groundwater at the downgradient and lateral edges of the plume as at PMC, where concentrations are highest beneath the former PMC site and decrease downgradient. Based on the multidirectional flow of groundwater due to impacts of the lake, contaminants may disperse along the shoreline where they interact with porewater from the lake. Bout and Fleming describe the enhanced dispersion processes that occur in similar situations where the stage of a surface water body influences the groundwater as,

> "*Time-dependent variations in surface water stage in both fresh and salt water environments are acknowledged to strongly influence local groundwater flow….Variations in surface water stage can arise from many natural and anthropogenic sources including: precipitation and flood events, tidal oscillation, wave induced displacement, dam releases, and associated reservoir drawdown... Yim and Mohsen [1992] developed a 1-D numerical model to simulate mass transport from a contaminant plume to a tidal estuary. They compare models with and without tidal fluctuation and find that although concentrations near the interface are less in the simulation with tidal fluctuations, the velocity gradients are much greater, and allow more mass exchange from the aquifer to the estuary"* (Bout and Fleming 2009)

Because vapor-phase diffusion coefficients are about 10,000 times greater than water diffusion coefficients, vapor diffusion through the air-filled pores of the soil matrix is usually the dominant diffusion transport mechanism for VOCs in the unsaturated zone. However, the tendency for vapor-

phase VOCs to diffuse through soil depends on the chemical and physical properties (diffusion coefficients in air and water), soil porosity (higher porosity encourages diffusion), and the soil moisture content (high moisture content may provide a barrier to vapor diffusion) (EPA 2015). Soil porosity at the site is expected to be high in the unconsolidated materials given the high percentage of gravel and sand. In addition, the weathered limestone is fractured and interlayered with the sand and gravel creating pathways through the weathered limestone, although these pathways may not always be vertical and are likely circuitous.

5.2.6 Retardation

Retardation in groundwater flow primarily occurs in finer-grained units, because of dual-phase porosity and total organic carbon is usually higher in these intervals, resulting in higher sorption of chemicals onto soil particles. However, the aquifer in the study area is primarily characterized by coarser-grained sand and gravel or limestone boulders/blocks; therefore, retardation is limited. Locally discontinuous layers of gravel, silt sand with gravel, and gravelly silty clay are seen, for example at CMW-01 below 40 feet, which could provide some local retardation. This is also supported by the small amount of organic carbon present (average of 0.29 mg/kg; Table 4-4).

5.3 Fate of Chemicals

In addition to the volatilization of TCE from groundwater to soil vapor, attenuation processes act to reduce contaminant concentrations in groundwater. These include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in situ processes include degradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants.

An evaluation of historical groundwater trends indicates that TCE in groundwater is not attenuating significantly; only three of the eight wells evaluated reported decreasing concentration trends. Degradation products are also generally not present in groundwater, indicating that reductive dechlorination is not occurring. Because weathered limestone is a porous medium, some sorption of TCE into the limestone matrix has likely occurred as indicated by the presence of TCE in vadose-zone samples collected from the western portion of the former PMC property. Some sorption to the overlying fill layer, which is a fine-grained sand with gravel and occasional trace clay is also likely, although that layer is so thin that only a few of the shallowest soil vapor probes are installed in it (for example at SVB-11, SVB-15, and SVB-08). Residual mass in soil may continue to be a source of TCE to shallow groundwater through infiltration of precipitation, and to VI through volatilization. However, the mass equilibrium evaluation concluded that groundwater was likely a greater overall contributor to vapor concentrations than soil. The presence of TCE in soil vapor indicates that volatilization is occurring, although the stable trends noted in Section 4.2.3 indicate that this is not occurring at a rate that would effectively reduce contaminant concentration in the groundwater.

Regardless of source type, soil vapor concentrations emanating from a subsurface vapor source generally attenuate, or decrease, as the volatile chemicals move from the source through the soil to outdoor or indoor air. When this is not the case, other sources are indicated. This was noted during the mass partitioning evaluation beneath the former PMC property where higher concentrations in soil vapor were identified in shallower samples further from the groundwater table but where TCE is present in soil. The evaluation concluded that TCE in both soil and groundwater are contributing to VOC mass in soil vapor beneath the former PMC property. Downgradient of the former PMC property and at adjacent properties, groundwater appears to be the primary source of soil vapor, where the highest concentrations were in the deeper samples closest to the groundwater table.

5.4 Conceptual Site Model

Figure 5-1 graphically presents the CSM for the site. The site is in a primarily residential area. TCE at the site is present in vadose zone soil, soil vapor, and saturated intervals of permeable weathered limestone and sand and gravel deposits that overlie more competent limestone. TCE was historically released from the former PMC property and identified in a municipal supply well located to the northwest of the site near the shore of the Traverse Bay of Lake Michigan. The TCE plume originates beneath the former PMC site and is present in both shallow and deep groundwater. The TCE has volatilized from residual soil mass and groundwater to soil vapor that was identified within or near the source area and plume extent. Because of the influence of Lake Michigan onsite groundwater, there is virtually no current net advective flow. Historical plume movement was likely caused by the operation of the former supply well.

Based on historical TCE trends presented in Section 4.2.3, the plume is generally stable (at quasi-equilibrium). Stable trends were noted based on the time-series evaluation of TCE concentrations, although some wells show decreasing trends. The presence of TCE in the vadose and saturated zone is acting as an ongoing source to groundwater, as well as soil vapor, contributing to the persistence of the plume and soil vapor concentrations. Intrinsic bioremediation via reductive dechlorination of the plume appears to be limited. The presence of cis-1,2-DCE and vinyl chloride were present in only a few wells historically and were not detected in 2018. The TCE in groundwater is primarily attenuating through volatilization.

Both vadose-zone soil and groundwater have been identified as contributors to soil vapor concentrations, although groundwater is the primary source. In particular, groundwater is the primary source to vapor concentrations downgradient and adjacent to the site where contaminant vapors have been identified. These vapors have the potential to migrate under buildings (subslab) and in some cases into those buildings (Figure 5-1). Given the coarse lithology beneath the site, including sand, gravel, and weathered limestone, vapors are expected to diffuse readily and transport readily by advection when a driving force is present. However, vapor migration beneath a building is impacted by the lithology beneath it. Vapors will migrate differently through weathered bedrock compared to a fill that is primarily sand and gravel. The continuous extent of weathered bedrock beneath any one building is difficult to discern as it is comprised of highly weathered limestone.

VOC mass is stored in the vadose zone beneath and in groundwater both beneath and beyond the site. It is likely that, given the age of the release, a quasi-equilibrium has been reached, where the rate of diffusion out of the solid matrix and volatilization from the aqueous phases is balanced by dispersion at the horizontal edges of the plume and volatilization from the plume.

SECTION 6

Baseline Risk Assessment

6.1 Human Health Risk Assessment Summary

This section summarizes the HHRA for OU2 of the PMC Groundwater Superfund Site. Appendix H contains the complete HHRA.

The HHRA provides an evaluation of the potential current and future risks to human health posed by detected chemicals at the site, in accordance with EPA guidance for conducting HHRAs (EPA 1989, 2001, 2004, 2009). The HHRA consists of the following components:

- Data collection and evaluation, including identification of COPCs
- Exposure assessment
- Toxicity assessment
- Risk characterization

Condominium units and buildings with existing operational SSD systems or other vapor intrusion mitigation systems (VIMS) were not evaluated in the HHRA. SSD systems are installed at 12 residential properties. The systems are currently operated and maintained by EGLE and are expected to be in service until the site achieves remediation.

6.1.1 Conceptual Exposure Model

A human health conceptual exposure model (CEM) was developed that describes the contaminant sources, migration pathways, potential exposure media, receptors, and exposure routes. The CEM is presented graphically in Appendix H, Attachment H-1, Figure 1 and in Attachment H-2, Table 1.

Based on current and reasonably foreseeable future site conditions, the following potential current and future human receptors were identified and evaluated in the HHRA:

6.1.1.1 Current Exposure Scenarios

- Residents—Adults and children currently living in residential properties (apartment units, condominium units, houses) who may contact COPCs in indoor air and crawlspace air (that may be impacted by VOCs migrating from the subsurface).
  - Soil exposures to residents outside the site were not evaluated since soil contamination investigations at the site and immediate vicinity were conducted in the 1990s; a ROD was issued in 1995.
  - Soil contamination was found beneath the site after it was demolished in 2004. Exposures to soil beneath the facility were not evaluated in previous reports; however, soil exposures by residents at the Water Street Condominiums on the site are expected to be insignificant because residents will not have significant contact with soil due to the lack (or small size) of gardens in a condominium setting. Disturbance of soils at the site is also governed by an existing restrictive covenant agreement.
- Industrial/Commercial Workers—Two commercial units are present in the study area, and both have SSD systems. Therefore, industrial/commercial workers were not further evaluated in the HHRA.

6.1.1.2 Reasonably Foreseeable Future Exposure Scenarios

- Residents—Adults and children living in residential properties (apartment units, condominium units, houses) who may contact COPCs in indoor air (that may be impacted by VOCs migrating from the

subsurface). Soil exposures by residents at the condominium units are expected to be insignificant because residents will not have significant contact with soil due to the lack (or small size) of gardens in a condominium setting. Disturbance of soils at the site is also governed by an existing restrictive covenant agreement.

- Construction Workers—Construction workers who may contact COPCs in soil (via direct contact and air emissions from soil) while conducting intrusive soil activities such as building construction or utility maintenance in soil beneath the former PMC facility. Exposures to soil beneath the facility were not evaluated in previous reports; therefore, soil within the site was addressed in this HHRA.

6.1.2 Analytical Data

Indoor air, crawlspace air, subslab soil vapor, exterior soil vapor, and soil samples collected by CH2M in 2017 and 2018 were used in the HHRA. In addition, data collected in 2017 and 2018 by The Mannik & Smith Group, Inc. at the Water Street Condominiums and one additional residential property were used in the HHRA. Information regarding the Mannik & Smith data is presented in the VI investigation technical memorandum (Appendix B). Section 2 describes the data-collection activities for samples used in the HHRA. Groundwater data were not used in the quantitative risk assessment of the VI pathway, since an extensive network of soil vapor sampling locations is available for the site and is more extensive than the groundwater monitoring network. Groundwater as a source of mass storage and transport for VI is considered in the CSM and Section 4 of this RI, as well as in the upcoming feasibility study. For the properties with no indoor air, crawlspace air, or subslab data, indoor air risks were estimated using the nearest exterior soil vapor point to the associated property.

6.1.2.1 Indoor Air and Crawlspace Air

Indoor air samples collected in March through July, September, and November 2017, and January, February, and November 2018 were used in the HHRA. Crawlspace air samples collected in June 2017 and February and November 2018 were used in the HHRA. Indoor air samples were collected from 27 condominium units and 22 residential properties; crawlspace air samples were collected from 7 condominium units and 2 residential properties (Appendix H-3, Table 1); indoor air and crawlspace air data sets were evaluated separately for each property.

Under current conditions, residents could be exposed to COPCs in indoor air and crawlspace air.

6.1.2.2 Subslab Soil Vapor

Subslab soil vapor samples collected in January, April, July, September, and November 2017, and January, February, and November 2018 were used in the HHRA. The subslab soil vapor data were collected from 6 condominium units and 8 detached residential properties (Appendix H-3, Table 1); subslab soil vapor data sets were evaluated separately for each property.

Under future exposure scenarios, residents could be exposed to COPCs in subslab soil vapor if COPCs migrate to indoor air.

6.1.2.3 Exterior Soil Vapor

Exterior soil vapor samples collected in May, June, and July 2017, and February and June 2018 were used in the HHRA. The closest exterior soil vapor samples collected near the residential properties where no indoor air, crawlspace air, and/or subslab soil vapor samples were collected were used to evaluate the VI pathway. The exterior soil vapor data were used for the [redacted] (Appendix H-3, Table 1); exterior soil vapor data sets were evaluated separately for each property.

Under future exposure scenarios, residents could be exposed to COPCs in exterior soil vapor if COPCs migrate to indoor air. Exterior soil vapor data from one residential property was used to evaluate current conditions because indoor air and subslab soil vapor data were not collected at this property.

6.1.2.4 Soil

Soil samples collected from 1 to 10 feet bgs in May 2018 were used in the HHRA to evaluate direct-contact exposures to soil. The soil data were collected during the installation of 10 of 15 soil vapor probes adjacent to the Water Street Condominium units and were grouped into one exposure unit (Appendix H-3, Table 1). Samples were not collected from all borings because excessive heating of the soil occurred while advancing some borings as a result of the rotosonic drilling method. The data limitations of the samples that were collected are discussed in Section 7.2.1.

Under future exposure scenarios, construction workers could be exposed to COPCs in soil (1 to 10 feet bgs) via direct contact and emissions from soil in excavations. Soil exposures by residents at the condominium units are expected to be insignificant because residents will not extensively work in gardens or have significant soil exposure in a condominium setting.

6.1.3 Chemicals of Potential Concern

The COPCs are those chemicals that have the potential to cause adverse human health effects if receptors contact site media. The maximum detected concentration of each chemical in a data grouping was compared to its respective SL. If the maximum detected concentration exceeded its SL, it was retained as a COPC for the HHRA. Chemicals that were undetected in all samples within a medium/data grouping were not selected as COPCs for that medium.

The SLs used in the HHRA for indoor air and crawlspace air exposure via inhalation were the residential air *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites* (EPA 2019a).

Subslab and exterior soil vapor were evaluated for the potential VI pathway to indoor air. The SLs for soil vapor were calculated using the EPA *Vapor Intrusion Screening Level (VISL) Calculator* (EPA 2019b).

For indoor air, crawlspace air, and subslab and exterior soil vapor, a multiple lines of evidence evaluation was performed if the maximum detected concentration exceeded its VISL to evaluate whether the chemical is related to VI or potentially present because of background sources. If a chemical is related to VI, it was selected as a VI COPC.

The SLs used in the HHRA for soil exposure via direct contact and emissions from soil are the EPA industrial soil RSLs (EPA 2019a).

6.1.4 Exposure Evaluation

The potential exposure pathways for the site are identified graphically in Attachment H-1, Figure 1 and Attachment H-2, Table 1. The potentially complete exposure pathways quantified for each receptor group and the exposure media are presented in the table below. Indoor air exposure estimates were calculated only for the exposure pathways and properties with COPCs.

Table 6-1. Potentially Complete Exposure Pathways

Medium	Current Scenario - Residents (Condominiums)	Current Scenario - Residents (Residential Properties)	Current/Future Scenarios - Residents (Residential Properties)	Future Scenario - Residents (Condominiums)
Indoor air	X	X		
Crawlspace air				
Subslab soil vapor				X
Exterior soil vapor			X	

Because no COPCs were identified for soil, potential soil exposures were not quantified in the HHRA.

The exposure point concentrations (EPCs) are the concentrations of COPCs in a medium to which a receptor could be exposed at a specific location (the "exposure point"). The following is an overview of the EPCs used for each exposure medium:

- **Measured EPCs:**
  - Current Indoor Air/Crawlspace Air EPCs—The maximum detected indoor air/crawlspace air concentrations (where available) were used as the EPCs for current exposure scenarios.
- **Modeled EPCs:**
  - Current Indoor Air EPCs—Exterior soil vapor data were used to model indoor air EPCs for current exposure scenarios where indoor air/crawlspace air and/or subslab soil vapor data were not available. The maximum detected concentrations of COPCs in each exterior soil vapor data grouping were used in the model to calculate indoor air EPCs.
  - Future Indoor Air EPCs—Subslab soil vapor data (where available) were used to model indoor air EPCs for future exposure scenarios; where subslab soil vapor data were not available, exterior soil vapor data were used. The maximum detected concentrations of COPCs in each subslab soil vapor or exterior soil vapor data grouping were used in the model to calculate indoor air EPCs.

An RME scenario was quantified for potential receptors under current and future exposure scenarios (EPA 1989). The primary references for exposure factor values are the standard default exposure factors presented in the *Human Health Evaluation Manual, Update of Standard Default Exposure Factors* (EPA 2014).

6.1.5 Toxicity Assessment

Toxicity values were used in the HHRA to estimate potential health effects for COPCs. Health effects are divided into two broad groups: noncarcinogenic and carcinogenic. Toxicity values used in the HHRA were obtained from the EPA standard hierarchy of toxicity value sources (EPA 2003), as follows:

- Tier 1 Source—Integrated Risk Information System (EPA 2019c)
- Tier 2 Source—EPA Provisional Peer-Reviewed Toxicity Values
- Tier 3 Sources—Other peer-reviewed federal and state toxicity values
  - California EPA toxicity database (2019)

6.1.6 Risk Characterization

EPA's target range for carcinogenic risk associated with Superfund sites is one-in-ten thousand (1×10^{-4}) to one-in-a-million (1×10^{-6}). That is, the risk associated with the site should not exceed this target range. The threshold (acceptable) noncancer hazard index (HI) is 1 or less per target organ. HIs were calculated in a phased approach: (1) screening His were calculated by summing all HQs for a receptor, and (2) final HIs were calculated for each potential receptor by target organ (or critical effect or target system). Risk estimates were calculated for potential receptors and exposure pathways using conservative assumptions for exposure factors and EPCs.

Potential risks associated with exposures to COPCs in site media were quantified for RME scenarios. The estimated ELCRs are presented in Tables 7.1 through 7.15 in Appendix H, Attachment H-2 and summarized in Appendix H, Attachment H-2, Tables 9.1 through 9.15. Indoor air risk estimates were calculated on a building-specific basis where COPCs were identified. Soil risk estimates were not calculated since COPCs were not identified in soil.

6.1.7 Summary of Chemicals of Concern

Generally, remedial actions are not warranted for site media with an ELCR of 1 x 10^{-4} or below, or a HI of 1 or less, although it may be warranted if other EPA policies or site-specific information suggests to EPA risk managers that action is appropriate.

In general, COCs are identified when the potential ELCR or HI for a receptor group exceeds EPA threshold values (a total ELCR of 1 x 10^{-4} or a target organ-specific HI of 1) and concentrations are site-related. When a potential ELCR of 1 x 10^{-4} is exceeded for an exposure medium for a receptor group, the COPCs posing an individual ELCR greater than 1 x 10^{-6} in the environmental medium responsible for the unacceptable risks are identified as COCs. When a potential target organ-specific HI exceeds 1 for an exposure medium for a receptor group, the COPCs posing a HQ greater than 0.1 for that target organ in the environmental medium responsible for the unacceptable HI are identified as COCs. Factors such as nature of contamination source, laboratory contamination, and background levels are typically considered when identifying COCs.

COCs for site media and receptors are summarized in Table 6-2. The estimated ELCRs and HIs for the COCs for site media and receptors are presented in Tables 10.1 through 10.4 of Appendix H, Attachment H-2.

Table 6-2. Summary of Media/Receptor COCs

Location	ELCR COCs	Adult Target-Organ-Specific HI COCs	Child Target-Organ-Specific HI COCs
Resident—Future Indoor Air Exposures (from Subslab Soil Vapor)			
[redacted]	None	TCE (HIs = 6)	TCE (HIs = 6)
[redacted]	None	TCE (HIs = 4)	TCE (HIs = 4)
[redacted]	None	TCE (HIs = 2)	TCE (HIs = 2)
[redacted]	None	TCE (HIs = 4)	TCE (HIs = 4)

NA – not applicable

6.1.8 HHRA Summary and Conclusions

The HHRA was performed to evaluate potential current and future risks associated with detected constituents at OU2 of the PMC Groundwater Superfund Site. For the purposes of the HHRA, indoor air, crawlspace air, subslab and exterior soil vapor, and soil were evaluated.

Potential risks at the site were evaluated for the following potential exposure pathways:

- Current Exposure Scenarios
  - Indoor Air (Condominiums and Residential Properties)—Inhalation of COPCs in indoor air and crawlspace air.
- Current/Future Exposure Scenarios
  - Exterior Soil Vapor (Residential Properties)—Inhalation of COPCs in exterior soil vapor that potentially migrates to indoor air.
- Future Exposure Scenarios
  - Subslab Soil Vapor and Exterior Soil Vapor (Condominiums and Residential Properties)—Inhalation of COPCs in soil vapor that potentially migrates to indoor air.

Indoor air risk estimates were less than or within EPA's target risk range and HI threshold for current exposures at the condominiums and residential properties that have not yet been mitigated. That is, the

potential ELCRs for these exposure points were less than or within the target ELCR range of 1×10^{-6} to 1×10^{-4}, and the estimated target-organ-specific HIs did not exceed the threshold of 1.

Exterior soil vapor (migrating to indoor air) risk estimates for current/future exposures were less than or within EPA's target risk range and HI threshold at residential properties.

Subslab soil vapor (migrating to indoor air) risk estimates for potential future exposures were less than or within EPA's target risk range and HI threshold for six residential properties. Although risk estimates for potential future exposures at four of the properties were within EPA's acceptable ELCR range, the noncancer HI estimates exceed the HI threshold of 1, with TCE being the risk driver for the properties. Therefore, TCE was identified as a COC for inhalation of indoor air (based on subslab soil vapor migrating to indoor air). The estimated ELCRs and HIs for this COC (i.e., TCE) for the applicable properties are presented in Tables 10.1 through 10.4 of Appendix H-2.

The 12 residential properties with existing operational SSD systems or other VIMS were not evaluated in the HHRA.

6.2 Environmental Evaluation

The ERA was prepared for the study area site and was conducted consistent with the following guidance:

- *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1997)
- *Guidelines for Ecological Risk Assessment* (EPA 1998)

EPA guidance recommends an iterative approach that uses screening steps to focus the ERA on media, pathways, and receptors with the greatest potential to drive unacceptable risk. The area assessed consists of terrestrial area of the former PMC site and aquatic areas of Lake Michigan adjacent to the site. Ecological issues relevant to the soil and groundwater contamination of the site are discussed in the ROD and five-year review reports for OU1.

6.2.1 Screening Level Problem Formulation

The first step of the ERA process is the problem formulation for the site, which establishes the goals, scope, and focus of the screening-level ecological risk assessment (SLERA). It summarizes the site history and ecological setting of the site in terms of the habitats and biota known or likely to be present and the types of chemicals present in ecologically relevant media. The CEM provides an understanding of chemical sources, transport pathways, exposure media, exposure pathways and routes, and ecological receptors. If complete exposure pathways exist, then assessment endpoints are developed to identify receptors for which complete exposure pathways exist and to summarize methods that will be used to evaluate potential risks to those receptors.

6.2.2 Ecological Setting and Habitats

The study area includes the footprint of the former PMC facility (site), which includes the Water Street Condominiums consisting of four buildings, each housing three-story condominiums, and the surrounding neighborhood. North of the former PMC facility is a second condominium complex, consisting of two buildings of multiple three-story condominiums each, none of which have basements. Northeast and northwest of the former PMC facility are park spaces connected by a bike path. These park spaces front the Little Traverse Bay of Lake Michigan. The rest of the surrounding neighborhood consists of multiple single-family residences.

The site habitat includes landscaped yards and public spaces. These areas contain maintained lawns and small to medium trees and shrubs. The nearby Bay Front Park West is adjacent to Lake Michigan, with shoreline consisting of a mix of sand and riprap. No significant natural habitat areas are present.

6.2.3 Conceptual Ecological Exposure Model

The CEM relates potentially exposed receptor populations with potential source areas based on physical site characteristics and completed exposure pathways. Important components of the CEM are the identification of potential source areas, transport pathways, exposure media, exposure pathways and routes, and receptor groups. Actual or potential exposures of ecological receptors associated with a site are determined by identifying the most likely and relevant pathways of contaminant release and transport. A complete exposure pathway has the following three components: (1) a source of contaminants that results in a release to the environment, (2) a pathway of contaminant transport through an environmental medium, and (3) an exposure or contact point for an ecological receptor. The main objective of the CEM is to identify any complete and critical exposure pathways that may be present at the site. Figure 6-1 illustrates a diagrammatic CEM for the site. Key components of the CEM are discussed in the following subsections.

6.2.3.1 Source Areas

The former PMC facility was a small fabricating operation that was active from 1946 to 2000. Activities included die casting, plating, and painting small automotive trim parts. The facility used TCE and xylene as solvents; TCE was stored in a 1,000-gallon aboveground storage tank, which was determined to have leaked while the plant was active. Other releases of TCE, PCE, and potentially benzene are believed to have occurred.

6.2.3.2 Transport Pathways and Exposure Media

A transport pathway describes mechanisms by which site-related constituents, once released, might be transported from a source to ecologically relevant media (soil, sediment, surface water, and groundwater), where exposures might occur to ecological receptors. Figure 6-1 shows the transport pathways. Potential transport pathways can contribute to the spread of contamination from the site. Volatilization and exposure can occur via soil vapor. Constituents can be released from soil through infiltration and reach groundwater.

Section 3.5 details the hydraulic connection between surface water in Lake Michigan and the groundwater system. Groundwater sampling analytical results indicate the presence of a TCE plume with the highest concentration (which is only 36 µg/L) in the northwest corner of the former facility footprint, extending to the northwest to parking areas associated with the commercial property west of the site. The detections of TCE are observed migrating offsite to the northwest; however, further plume migration is mitigated by the periodic reversals in groundwater direction.

6.2.3.3 Exposure Pathways and Routes

An exposure pathway links a source with one or more receptors by one or more media and exposure routes. Exposure, and thus potential adverse effects, can occur only if a complete exposure pathway exists. Figure 6-1 shows the potentially complete exposure pathways to ecological receptors that are evaluated in this SLERA.

Groundwater does not act as a direct exposure media to terrestrial receptors. Therefore, there is no complete pathway. Discharge of groundwater to surface water can act as an exposure pathway to aquatic receptors. However, as discussed above, plume migration in shallow groundwater is mitigated by Lake Michigan, and both deep and shallow groundwater concentrations of TCE are well below water quality criteria (i.e., 200 µg/L). Therefore, surface water of Lake Michigan is not an exposure pathway. While the soil vapor exposure pathway is theoretically complete, the lack of habitat suggests that the

potential exposure to wildlife species is limited; therefore, the soil vapor exposure pathway is considered complete but insignificant.

6.2.3.4 Receptors and Assessment and Measurement Endpoints

Ecological risk endpoints define ecological attributes that are to be protected (assessment endpoints) and measurable characteristics of those attributes (measurement endpoints) that can be used to gauge the degree of impact that has occurred or could occur. Assessment endpoints most often relate to attributes of biological populations or communities and focus the risk assessment on components of the ecosystem that could be adversely affected by contaminants from a site (EPA 1997). Since no significant exposure pathway was identified for terrestrial receptors, assessment endpoints were not developed.

6.2.4 Scientific Management Decision Point

The CEM shows that no significant exposure pathways to ecological receptors are present at the former PMC site; therefore, no further risk analysis is warranted.

SECTION 7

Summary and Conclusions

7.1 Summary

The RI for OU2 at the PMC Groundwater Superfund Site in Petoskey, Michigan, was initiated to assess the potential VI pathway and associated risks from site-related contaminants. OU2 was established by EPA in 2017 to determine the extent of vapor migration from the former PMC manufacturing facility through an analysis of historical VI data, and subsurface and indoor air investigations. OU2 includes VI risks at the site and at the surrounding residential and commercial properties. OU2 geographically overlays the earlier OU1 for which the primary risk pathway was groundwater ingestion that has proceeded through a ROD.

RI activities included installation and sampling of borings for soil and grab groundwater, and installation and sampling of soil vapor probes. Two monitoring wells were installed. Groundwater samples were also collected from the new and existing monitoring wells. Sewer gas samples were collected from sanitary and storm sewers. Vapor, sewer gas, and groundwater grab samples were analyzed for VOCs. Monitoring well samples were analyzed for VOCs and PFCs. Soil was analyzed for VOCs, general chemistry, and metals.

Although other VOCs were detected at the site and are considered potential site-related compounds, TCE is the primary COC as indicated in the ROD and is present over the largest magnitude and extent of the site. TCE was identified in the vadose zone and saturated intervals of weathered limestone and permeable deposits that overlay more competent limestone. TCE was historically released from the former PMC property and was identified in a former municipal supply well located to the northwest of the site near the shore of the Traverse Bay of Lake Michigan, where plume migration was caused by active pumping. The TCE plume originates beneath the former PMC site and is present in both shallow and deep groundwater. Because of the influence of Lake Michigan, site groundwater flow gradient is low and impacted by gradient reversals that result in virtually no net advective flow across the site.

TCE was detected above SLs in soil vapor, sewer gas, groundwater, and soil. The extent of TCE above SLs has been delineated in groundwater, and there appears to be residual source mass in soil beneath the site contributing to both soil vapor and groundwater concentrations. The sewers do not appear to be a source of current vapor migration beyond the PMC facility. However, utilities can play a role in the intrusion of VOCs into individual structures. Human health risk estimates will also be summarized in the final RI after the analysis of the additional samples.

Data from pre-RI investigations and the historical data collected per the ROD and previous RIs were incorporated to formulate the conclusions presented in this report. TCE above SLs has been vertically and horizontally delineated in soil vapor and site groundwater. There are chemical concentrations in soil that are a potential ongoing source to groundwater and soil vapor. It is recommended that a feasibility study be prepared for this site to evaluate remedial alternatives. The VI risk and threat to groundwater from VOCs should both be considered when evaluating remedial alternatives since the spatial extent of the VOCs of concern largely overlaps.

7.1.1 Nature and Extent of Contamination

Although other VOCs were identified in site media, TCE is the primary COC as indicated in the ROD and is present over the largest magnitude and extent of the site where TCE was detected above the EPA Residential Groundwater VISL and the MDEQ site-specific VIAC. The highest concentrations of TCE were detected in groundwater within the footprint of the former PMC facility, and concentrations above SLs were detected extending from the former facility to the northwest towards the lake.

Time-series concentration trends of TCE indicate stable trends in five of the wells evaluated and decreasing trends in three of the wells. Trends in the source area wells were stable, although TCE was not detected in deep well PS-104 during the last two events, and concentrations in this well historically have been less than 10 µg/L. Near the shoreline, trends are decreasing in the shallow well evaluated (PS-11) and stable in the deeper well (PS-104) (Figure 4-2A). No TCE degradation products were detected in 2018. Attenuation of TCE appears limited and localized.

In soil, TCE was detected above the residential VIAC in most of the samples (Figure 4-3). The highest concentrations of TCE were detected in soil in the western portion of the footprint of the former PMC property both above and below the water table.

Sewer gas samples collected from the sanitary and storm sewers indicate the presence of VOCs at relatively low concentrations, that are either below or comparable to concentrations observed in multi-level soil vapor samples collected at the site (Figure 4-6). There is no evidence that either sewer network is currently acting as a preferential pathway to surrounding buildings beyond the former PMC manufacturing property. Information obtained from the City of Petoskey and reviewed as part of the sewer pathway assessment also indicates that the current sewer network is unlikely to act as a preferential pathway taking VOCs beyond the site based on the lack of contact with sitewide VOC-containing groundwater, and the apparent removal and replacement of most sanitary and sewer systems on the site (lines were replaced with new piping, manholes, and catch basins circa 2005 as part of utility improvements). The historical sewers were marked as “removed” as opposed to “abandon” in the engineering drawings for the 2005 project (Northwest Design Group 2005). As a result of the replacement of the systems, potential solvent discharge to the sewers as part of historical manufacturing activities would not be expected to directly contribute residual VOCs to the new sewer systems. In addition, the review of utility information provided by the City of Petoskey also indicates the presence of a sanitary sewer force main installed prior to 2005 running generally from west to east with sections found along the western and northern sides of the Water Street Condominiums. This utility line is not readily accessible through manholes and was not sampled; however, because it is located above the groundwater table and, as a force main, is not directly connected to surrounding properties, it is not expected to act as a preferential pathway for VI.

TCE vapor source strength[5] is found both in the vadose zone and in groundwater at the historical source area (Water Street Condominiums), though TCE source strength appears to be greater from groundwater (Appendix F). This conclusion is supported by the mass portioning analysis conducted. The analysis evaluated the extent that TCE mass in the saturated and unsaturated zones contributes to soil vapor concentrations. The evaluation concluded that although both vadose zone soil and groundwater contribute to TCE in soil vapor at the former PMC property, the TCE source strength appears greater from groundwater both beneath the former property and in the study area.
PCE concentrations are coincident with TCE in a limited area on the western side of the former PMC property. There is little evidence of PCE migration off the former PMC property.

Benzene and ethylbenzene were detected above their respective VIAC SLs in soil at one location along the western portion of the former PMC property. These chemicals were also identified in co-located soil vapor samples and several soil vapor samples to the west along East Lake Street. Based on the spatial pattern, the benzene and ethylbenzene concentrations observed are probably related at least in part to operations at the former PMC facility. Benzene and ethylbenzene were not identified in groundwater above SLs.

[5] The term “vapor source strength” here is used to refer to the capacity of an environmental media to produce and maintain elevated concentrations in soil vapor through equilibrium. In essence the vapor source strength of the groundwater is the deep soil vapor concentration that would be expected if there was no mass storage associated with the vadose zone soil particles. The vapor source strength of the vadose zone soil is measured by the soil vapor concentration that would be observed if there was no groundwater contamination.

7.1.2 Fate and Transport

TCE released from a former aboveground storage tank and various other locations migrated to groundwater. Once dissolved, aqueous-phase TCE migrated toward the former municipal supply well during active pumping, resulting in the plume extending to Lake Michigan. Advective migration of TCE in groundwater is virtually nonexistent currently due to the flat hydraulic gradient and flow reversals caused by fluctuations in lake stage. TCE migration in the vadose zone has probably occurred over short distances. Migration of TCE in the historical sewer lines that were removed in 2005 cannot be ruled out. However, these conditions likely enhance dispersion and volatilization of the plume.

TCE is attenuating primarily through volatilization and dispersion, as degradation products were not identified. However, aqueous TCE concentration trends indicate that this process is not rapidly reducing concentrations; most of the wells evaluated show stable trends. This suggests that back diffusion from the matrix largely balances the volatilization and dispersion loss mechanisms, thus the site is in a state of quasi-equilibrium. The mass balance evaluation indicates groundwater as the primary source of TCE vapor concentrations, although residual TCE in vadose-zone soil also contributes to vapor concentrations at the former PMC property.

Attenuation of vapors is noted as a decrease in vapor concentrations away from the source. Beneath the former PMC property, some soil vapor concentrations were higher in shallower samples further from the groundwater table and where TCE is present in soil. This indicates that concentrations in both groundwater and soil are contributing to the observed concentrations in shallow soil vapor. Downgradient of the former PMC property and at adjacent properties, higher soil vapor concentrations were generally noted in deeper samples closer to the water table indicating groundwater as the primary source of vapor concentrations.

Once in soil vapor, TCE diffuses toward the surface through the porous media beneath site and can migrate into buildings through advection caused by differences in temperatures inside and outside of the building or through operation of fans that can create driving forces for soil vapor entry, for example (a conventional VI pathway). Advective entry through the building envelope often occurs through preferential pathways, including those associated with utilities. Fluctuations in groundwater levels due to changes in lake stage also likely enhances volatilization.

7.1.3 Risk Assessment

The HHRA identified TCE as the only site-related COC at select residential and condominium properties. The HHRA included as Appendix H details the full assessment.

The ERA identified habitat in the study area as landscaped yards and public spaces with maintained lawns and small to medium trees and shrubs, and Bay Front Park, including the Lake Michigan shoreline. No significant natural areas were identified. Because groundwater is not a direct exposure pathway to receptors at this time, and the lake acts as a hydraulic barrier mitigating plume migration, there is no significant pathway to ecological receptors from groundwater. The soil vapor exposure pathway is considered complete but insignificant for ecological receptors due to the lack of habitat. Because no significant exposure pathways to ecological receptors are present, no further risk analysis is warranted.

7.2 Conclusions

TCE is widespread in shallow soil at the site. PCE, benzene, and ethylbenzene are present in localized areas and are not considered COCs. A groundwater TCE plume is present due to releases at the former PMC property and has migrated primarily through historical operation of a municipal supply well toward Lake Michigan. TCE concentrations are relatively stable, as documented during the third five-year review (2014) and confirmed by the lack of degradation products and mostly stable concentration trends presented in this report. TCE is attenuating through volatilization and dispersion.

Therefore, concentrations of TCE in soil vapor resulted in the creation of OU2 and investigation of VI potential. In addition to groundwater, residual soil mass beneath the former PMC property is contributing to soil vapor concentrations. Downgradient and adjacent to the former site, groundwater is the primary source of TCE in soil vapor.

7.2.1 Data Limitations

The following are the principle limitations of the data reported in this document:

- Heating of the soil occurred while advancing rotosonic borings due to the drilling method that was used. The rotosonic cores were advanced without the introduction of drilling fluids (water) to ensure that the soil vapor samples were not impacted by the introduction of fluids. This excessive heating may have reduced concentrations of VOCs observable in soil samples, or caused transport of VOCs within the cores. However, bulk soil samples are considered only a secondary line of evidence for VI. Time was allowed for the heat to dissipate before soil samples were collected so that the samples could be handled. Rotosonic cores were heated in excess of 212 °F. Long periods of time separated the drilling from the collection of soil vapor samples that would minimize the effect of this local heating on soil vapor data.
- Neither deep soil vapor borings nor groundwater wells were installed through the foundations of the existing Water Street Condominiums units. However, information is available on the concentrations beneath the foundation from the subslab samples reported in Appendix B.
- The shallow soils at the site have been partially excavated and most soils reworked during condominium construction and historical soil removals. Information collected from many of the 11 borings collected at the site are shown on the cross sections A-A’ and B-B’ (Figures 3-2 and 3-3). The sand and gravel fill and friable limestone with lacustrine sand and gravel depicted on the cross-sections are broadly consistent with the materials observed during construction of the mitigation systems and the pressure field extension observed from those mitigation systems.
- The ability of EPA to install monitoring wells or soil vapor probes in some areas, such as directly south of the Water Street Condominiums was limited by roads, utility corridors, and/or private property owners not providing access.

7.2.2 Recommendations for Future Work

CH2M recommends that the following tasks be completed:

- Develop remedial action objectives.
- Address data gaps that are relevant to the selected remedy either during remedy design or a staged remedy implementation.
- Conduct a feasibility study.
- Conduct preemptive interim mitigation on several properties.
- Continue to attempt to obtain access to properties that have not yet provided access for interior VI sampling (subslab soil vapor, crawlspace air, and/or indoor air) and obtain additional samples at certain additional properties as recommended in Appendix B.

SECTION 8

References

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Tables

Table 2-1. Summary of 2018 Samples Collected

PMC Groundwater Superfund Site, Emmet County, Michigan

		Groundwater Grab	Soil	Exterior Soil Vapor		Sewer Gas		Subslab Soil Vapor		Indoor Air		Crawlspace
Location ID	Depth Interval (feet bgs)	May/June		May/June	October/ November	May/June	October/ November	May/June	October/ November	May/June	October/ November	October/ November
CMW-01	15 - 20	x										
CMW-01	20 - 25	x										
CMW-01	35 - 36		x									
CMW-01	40 - 45	x										
CMW-01	45 - 50	x										
CMW-02	29 - 30		x									
SVB-01	6			x	x							
SVB-01	14			x	x							
SVB-02	6			x	x							
SVB-02	8.9 - 13.9	x										
SVB-02	11			x	x							
SVB-03	5.5			x	x							
SVB-03	10.5			x	x							
SVB-03	15			x	x							
SVB-04	6			x	x							
SVB-04	9			x	x							
SVB-04	12.5			x	x							
SVB-05	3.5 - 4		x									
SVB-05	4.5			x	x							
SVB-05	9.7 - 14.7	x										
SVB-05	10.5			x	x							
SVB-05	14.5 - 15		x									
SVB-06	5 - 10	x										
SVB-06	6			x	x							
SVB-07	4 - 5		x									
SVB-07	5.5			x	x							
SVB-07	10.7 - 15.7	x										
SVB-07	12			x	x							
SVB-07	15 - 16		x									
SVB-08	3 - 4		x									
SVB-08	7			x	x							
SVB-08	7.5 - 8		x									
SVB-08	9 - 10		x									
SVB-09	1 - 2		x									
SVB-09	6			x	x							
SVB-09	7.7 - 12.7	x										
SVB-09	10			x	x							
SVB-10	3 - 4		x									
SVB-10	6			x	x							
SVB-10	10			x	x							
SVB-10	12 - 13		x									
SVB-10	15.6			x	x							
SVB-10	19.5 - 20		x									
SVB-11	4.5 - 5.5		x									
SVB-11	5			x	x							
SVB-11	7.8 - 12.8	x										
SVB-11	10			x								

Table 2-1. Summary of 2018 Samples Collected

PMC Groundwater Superfund Site, Emmet County, Michigan

		Groundwater Grab	Soil	Exterior Soil Vapor		Sewer Gas		Subslab Soil Vapor		Indoor Air		Crawlspace
Location ID	Depth Interval (feet bgs)	May/June		May/June	October/ November	May/June	October/ November	May/June	October/ November	May/June	October/ November	October/ November
SVB-11	13 - 14		x									
SVB-11	18 - 19		x									
SVB-12	1.5 - 2.5		x									
SVB-12	5			x	x							
SVB-12	8 - 9		x									
SVB-12	8.5 - 13.5	x										
SVB-12	12			x	x							
SVB-12	12 - 13		x									
SVB-12	14 - 15		x									
SVB-13	Not installed (access denied)											
SVB-14	4.8			x	x							
SVB-14	9 - 10		x									
SVB-14	9.3 - 14.3	x										
SVB-14	9.5			x	x							
SVB-14	11 - 12		x									
SVB-14	12.5			x	x							
SVB-15	4 - 5		x									
SVB-15	4.8			x	x							
SVB-15	8.6 - 13.6	x										
SVB-15	10			x	x							
SVB-15	13.5 - 14		x									
SVB-16	8 - 8.8		x									
SVB-16	9			x	x							
SVB-16	10.5 - 11.5		x									
ST-01	--					x	x					
ST-03	--					x	x					
ST-04	--					x	x					
ST-05	--					x	x					
ST-06	--					x	x					
SA-01	--					x	x					
SA-02	--					x	x					
SA-03	--					x	x					
SA-04	--					x	x					
SA-05	--					x	x					
SA-06	--					x	x					
SA-07	--					x	x					
01-SS01									X			
01-SS02									X			
01-IN01											x	
01-IN02											x	
02-SS01									X			
02-SS02									X			
02-IN01											x	
02-IN02											x	
03-SS01									X			
03-SS02									X			
03-IN01											x	

Table 2-1. Summary of 2018 Samples Collected

PMC Groundwater Superfund Site, Emmet County, Michigan

	Groundwater Grab	Soil	Exterior Soil Vapor		Sewer Gas		Subslab Soil Vapor		Indoor Air		Crawlspace
Location ID	Depth Interval (feet bgs)	May/June	May/June	October/ November	May/June	October/ November	May/June	October/ November	May/June	October/ November	October/ November
03-IN02										x	
04-SS01								X			
04-IN01										x	
04-IN02										x	
05-SS01								X			
05-SS02								X			
05-IN01										x	
05-IN02										x	
06-SS01								X			
06-SS02								X			
06-IN01										x	
06-IN02										x	
09-SS01								x			
09-SS02								x			
09-IN01										x	
09-IN02										x	
09-IN03										x	
SS-05								x			
IN-05-01										x	
IN-05-02										x	
SS-07								x			
IN-07-01										x	
IN-07-02										x	
CS-07-01											x
CS-07-02											x
SS-36								x			
IN-36-01										x	
IN-36-02										x	
CS-36											x
SS-40								x			
IN-40										x	
IN-42-01										x	
IN-42-02										x	
IN-47-01										x	
IN-47-02										x	
SS-50								x			
SG-50				x							
IN-50-01										x	
IN-50-02										x	
IN-52-01										x	
IN-52-02										x	

Notes:

-- = No depth interval associated with sewer gas locations

bgs = below ground surface

All samples analyzed for VOCs except groundwater grab samples from CMW-01, which were analyzed for trichloroethene. Select soil samples were also analyzed for metals and general chemistry.

Table 2-2. Summary of Monitoring Well Sampling Analyses

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Well ID	Well Interval	VOCs	PFAS
COP-1	Shallow	x	
COP-3	Shallow	x	
COP-4	Shallow	x	
COP-5-R	Shallow	x	
MW-205S-R	Shallow	x	
MW-401S	Shallow	x	
MW-402S	Shallow	x	x
PS-1-R	Shallow	x	
PS-4	Shallow	x	x
PS-10A	Shallow	x	
PS-11	Shallow	x	
PS-BS	Shallow	x	x
PS-CS	Shallow	x	
CMW-1	Shallow	x	x
CMW-2	Shallow	x	x
MW-205D-R	Deep	x	
MW-401D	Deep	x	
MW-402D	Deep	x	x
PS-6	Deep	x	
PS-13	Deep	x	
PS-104	Deep	x	x
PS-105S	Deep	x	
PS-106	Deep	x	
PS-BD	Deep	x	
PS-CD	Deep	x	

Notes:

VOCs = volatile organic compounds

PFAS = perfluoroalkyl substances

TCE = trichloroethene

Table 3-1. Groundwater Elevations

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

			Groundwater Elevation (feet amsl)						Depth to water (feet below ground surface)					
ID	Well Depth	TOC Elevation (feet)[a]	7/1/2011	10/17/2016	10/24/2016	10/28/2016	11/17/2016	6/1/2018	7/1/2011	10/17/2016	10/24/2016	10/28/2016	11/17/2016	6/1/2018
CMW-1	20	592.98	-	-	-	-	-	580.83	-	-	-	-	-	12.15
CMW-2	26	594.72	-	-	-	-	-	580.84	-	-	-	-	-	13.88
COP-1	26.52	588.85	578.72	580.16	579.85	579.93	579.66	580.84	10.13	8.69	9.00	8.92	9.19	8.01
COP-3	8.8	585.91	575.40	580.13	579.84	579.95	579.68	580.81	10.51	5.78	6.07	5.96	6.23	5.10
COP-4	10.35	587.31	577.29	580.11	579.84	579.99	579.68	580.81	10.02	7.20	7.47	7.32	7.63	6.50
COP-5-R	15.08	591.45	577.44	580.09	579.82	579.97	579.63	580.85	14.01	11.36	11.63	11.48	11.82	10.60
Lake Michigan*	582.14	582.14	-	-	-	580.13	579.91	581.05	-	-	-	2.01	2.23	1.09
MW-205D-R	60.6	588.17	576.43	580.08	579.82	579.93	579.66	580.92	11.74	8.09	8.35	8.24	8.51	7.25
MW-205S-R	15.05	588.33	577.30	580.16	579.81	579.85	579.66	580.78	11.03	8.17	8.52	8.48	8.67	7.55
MW-401D	40.5	593.75	577.64	580.17	579.79	579.91	579.65	580.85	16.11	13.58	13.96	13.84	14.10	12.90
MW-401S	23.55	593.64	577.52	580.18	579.81	579.84	579.66	580.84	16.12	13.46	13.83	13.80	13.98	12.80
MW-402D	20.7	591.45	577.75	580.13	579.85	579.96	579.63	580.91	13.70	11.32	11.60	11.49	11.82	10.54
MW-402S	39.6	590.99	577.75	580.04	579.82	579.91	579.63	580.90	13.24	10.95	11.17	11.08	11.36	10.09
PS-104	42.07	593.65	578.04	580.13	579.85	579.92	579.66	580.85	15.61	13.52	13.80	13.73	13.99	12.80
PS-105D	77.8	591.66	577.74	-	-	-	-	580.65	13.92	-	-	-	-	11.01
PS-105S	34.55	591.90	578.24	-	579.90	580.04	579.68	583.59	13.66	-	12.00	11.86	12.22	8.30
PS-106	40.27	589.45	577.87	580.14	579.85	579.96	579.69	580.95	11.58	9.31	9.60	9.49	9.76	8.50
PS-10A	25.9	589.31	578.75	580.22	580.16	579.98	579.56	580.68	10.56	9.09	9.15	9.33	9.75	8.63
PS-11	30.04	585.99	577.79	580.14	579.90	579.96	579.73	580.85	8.20	5.85	6.09	6.03	6.26	5.14
PS-13	37.65	595.70	-	580.16	579.84	579.93	579.60	580.87	-	15.54	15.86	15.77	16.10	14.83
PS-1-R	42.07	595.59	-	580.09	579.82	579.91	579.61	580.81	-	15.50	15.77	15.68	15.98	14.78
PS-4	21.13	593.89	577.98	580.16	579.85	579.94	579.64	580.90	15.91	13.73	14.04	13.95	14.25	12.99
PS-6	26	598.34	-	-	-	-	-		-	-	-	-	-	-
PS-BD	44.3	591.00	576.29	580.17	579.90	579.96	579.65	580.82	14.71	10.83	11.10	11.04	11.35	10.18
PS-BS	17	591.02	577.83	580.13	579.87	579.94	579.61	580.81	13.18	10.89	11.15	11.08	11.41	10.21
PS-CD	41	592.45	-	-	-	579.91	579.60	580.85	-	-	-	12.54	12.85	11.60
PS-CS	18	592.47	-	-	-	579.92	579.60	580.85	-	-	-	12.55	12.87	11.62

Notes:

feet amsl = feet above mean sea level

*Lake elevation measured relative to benchmark at stilling well installed in City of Petoskey marina, Little Traverse Bay, Lake Michigan

Table 3-2. Vertical Hydraulic Gradient

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Well Pair	Groundwater Elevation (feet amsl)	Saturated Screen/Well Midpoint Elevation (feet amsl)	Vertical Hydraulic Gradient	Direction
MW-205S	580.78	575.83	0.00	None
MW-205D	580.92	530.67		
MW-401S	580.84	582.14	0.00	None
MW-401D	580.85	556.25		
PS-105S	583.59	580.40	0.12	Down
PS-105D	580.65	556.16		
PS-BS	580.81	576.52	0.00	None
PS-BD	580.82	580.50		
PS-CS	580.85	576.97	0.00	None
PS-CD	580.85	553.95		

Notes:

amsl = above mean sea level

Groundwater elevations measured June 2018.

Table 4-1. Monitoring Well Analytical Results - Detections Summary June 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

				Well ID:	**CMW-01**	**CMW-02**	**COP-1**	**COP-3**	**COP-4**	**COP-5-R**	**MW-205S-R**	**MW-205D-R**	**MW-401S**	**MW-401D**	**MW-402S**
				Sample ID:	**PMC-CMW-1-061318**	**PMC-CMW-2-061318**	**PMC-COP-1-061218**	**PMC-COP-3-061218**	**PMC-COP-4-061218**	**PMC-COP-5-R-061118**	**PMC-MW-205S-R-061118**	**PMC-MW-205D-R-062818**	**PMC-MW-401S-061118**	**PMC-MW-401D-061218**	**PMC-MW-402S-062718**
				Date Sampled:	**6/13/2018**	**6/13/2018**	**6/12/2018**	**6/12/2018**	**6/12/2018**	**6/11/2018**	**6/11/2018**	**6/28/2018**	**6/11/2018**	**6/12/2018**	**6/27/2018**
				Screened interval (feet below ground surface):	**15-20**	**21-26**	**19-24**	**4-9**	**7-12**	**10***	**10-15**	**55-60**	**9-14**	**35-40**	**9-14**
				Well Depth Designation:	**Shallow**	**Shallow**	**Shallow**	**Shallow**	**Shallow**	**Shallow**	**Shallow**	**Deep**	**Shallow**	**35-40**	**Shallow**
ANALYTE	**EPA Tap Water RSL (µg/L) [a]**	EPA Residential Groundwater VISL (µg/L) [b]	MDEQ Residential Shallow Groundwater RIASL (µg/L) [c]	UNITS											
VOCs															
Acetone	14,000	22,500,000	50,000	µg/l	7.2 J	3.5 J	1.7 J	13	1.4 J	1.8 J	1.9 J	9.4 J	2.8 J	2.9 J	19
Carbon Disulfide	810	1,240	--	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.22	0.814	0.49	µg/l	**0.8 J**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	36	--	3.4	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dichloromethane	11	763	79	µg/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	11	14.9	1.5	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	1 U
Toluene	1,100	19,200	300	µg/l	0.67 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	360	--	27	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethylene	0.49	1.19	0.073	µg/l	**8.8**	**2.6**	1 U	1 U	1 U	**3.3 J**	1 U	1 U	1 U	**4.1**	**14**
Vinyl Chloride	0.019	0.147	0.12	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals															
Barium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals Dissolved															
Barium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry															
Chloride	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate as N	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as CaCO3)	--	--	--	ng CaCO3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFOAS															
perfluorobutanesulfonic acid	400,000	--	--	ng/l	4.5 U	4.3 U	NA	NA	NA	NA	NA	NA	NA	NA	5.1
Perfluorobutanoate	--	--	--	ng/l	8.9	9.1	NA	NA	NA	NA	NA	NA	NA	NA	8.8 U
Perfluorooctanoic Acid	--	70	12,000	ng/l	3.3	1.7 U	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U
Perfluorooctyl sulfonate	--	70	12	ng/l	4.7	4.3 U	NA	NA	NA	NA	NA	NA	NA	NA	4.4 U

Table 4-1. Monitoring Well Analytical Results - Detections Summary June 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

				Well ID:	**MW-402D**	**PS-1R**	**PS-4**	**PS-6**	**PS-10A**	**PS-11**	**PS-13**	**PS-104**	**PS-105S**	**PS-106**	**PS-BS**
				Sample ID:	**PMC-MW-402D-061318**	**PMC-PS-1R-061218**	**PMC-PS-4-062718**	**PMC-PS-6-061218**	**PMC-PS-10A-062818**	**PMC-PS-11-061218**	**PMC-PS-13-061218**	**PMC-PS-104-062718**	**PMC-PS-105S-061318**	**PMC-PS-106-061218**	**PMC-PS-BS-062718**
				Date Sampled:	**6/13/2018**	**6/12/2018**	**6/27/2018**	**6/12/2018**	**6/28/2018**	**6/12/2018**	**6/12/2018**	**6/27/2018**	**6/13/2018**	**6/12/2018**	**6/27/2018**
				Screened interval (feet below ground surface):	**33-38**	**20***	**17.5-20**	**36***	**21.5-24**	**26.5-29**	**32-35**	**35-40**	**75***	**34-39**	**17***
				Well Depth Designation:	**33-38**	**Shallow**	**Shallow**	**Deep**	**Shallow**	**Shallow**	**Deep**	**Deep**	**Deep**	**Deep**	**Shallow**
ANALYTE	**EPA Tap Water RSL (µg/L) [a]**	EPA Residential Groundwater VISL (µg/L) [b]	MDEQ Residential Shallow Groundwater RIASL (µg/L) [c]	UNITS											
VOCs															
Acetone	14,000	22,500,000	50,000	µg/l	3.9 J	2 J	10 U	2 J	10 U	1.4 J	2.6 J	11	5.7 J	2.6 J	5.9 J
Carbon Disulfide	810	1,240	--	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.22	0.814	0.49	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	36	--	3.4	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.5	1 U
Dichloromethane	11	763	79	µg/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	11	14.9	1.5	µg/l	1 U	1 U	1 U	1 U	1 U	1.8	1 U	1 U	1 U	1 U	1 U
Toluene	1,100	19,200	300	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	360	--	27	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethylene	0.49	1.19	0.073	µg/l	1 U	1 U	**36**	1 U	1 U	**3.5**	1 U	1 U	**18**	**15**	1 U
Vinyl Chloride	0.019	0.147	0.12	µg/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Metals															
Barium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals Dissolved															
Barium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry															
Chloride	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate as N	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as CaCO3)	--	--	--	ng CaCO3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	--	--	--	µg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfide	--	--	--	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PFOAS															
perfluorobutanesulfonic acid	400,000	--	--	ng/l	NA	NA	4.4 U	NA	NA	NA	NA	4.5 U	NA	NA	4.4 U
Perfluorobutanoate	--	--	--	ng/l	NA	NA	8.8 U	NA	NA	NA	NA	8.9 U	NA	NA	8.8 U
Perfluorooctanoic Acid	--	70	12,000	ng/l	NA	NA	1.8 U	NA	NA	NA	NA	1.8 U	NA	NA	1.8 U
Perfluorooctyl sulfonate	--	70	12	ng/l	NA	NA	4.4 U	NA	NA	NA	NA	4.5 U	NA	NA	4.9

Table 4-1. Monitoring Well Analytical Results - Detections Summary June 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

					Well ID:	**PS-BD**	**PS-CS**	**PS-CD**
					Sample ID:	**PMC-PS-BD-061118**	**PMC-PS-CS-061218**	**PMC-PS-CD-062818**
					Date Sampled:	**6/11/2018**	**6/12/2018**	**6/28/2018**
					Screened interval (feet below ground surface):	**43***	**18***	**41***
					Well Depth Designation:	**Deep**	**Shallow**	**Deep**
ANALYTE	**EPA Tap Water RSL (µg/L) [a]**	EPA Residential Groundwater VISL (µg/L) [b]	MDEQ Residential Shallow Groundwater RIASL (µg/L) [c]	UNITS				
VOCs								
Acetone	14,000	22,500,000	50,000	µg/l		3.3 J	6 J	25 J
Carbon Disulfide	810	1,240	--	µg/l		1 U	1 U	1 U
Chloroform	0.22	0.814	0.49	µg/l		1 U	1 U	1 U
cis-1,2-Dichloroethene	36	--	3.4	µg/l		1 U	1 U	1 U
Dichloromethane	11	763	79	µg/l		5 U	5 U	5 U
Tetrachloroethene	11	14.9	1.5	µg/l		1 U	1 U	1 U
Toluene	1,100	19,200	300	µg/l		1 U	1 U	1 U
trans-1,2-Dichloroethene	360	--	27	µg/l		1 U	1 U	1 U
Trichloroethylene	0.49	1.19	0.073	µg/l		1 U	**6.8**	**6.9**
Vinyl Chloride	0.019	0.147	0.12	µg/l		1 U	1 U	1 U
Metals								
Barium	--	--	--	µg/l		NA	NA	NA
Calcium	--	--	--	µg/l		NA	NA	NA
Chromium	--	--	--	µg/l		NA	NA	NA
Cobalt	--	--	--	µg/l		NA	NA	NA
Copper	--	--	--	µg/l		NA	NA	NA
Cyanide	--	--	--	µg/l		NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l		NA	NA	NA
Iron	--	--	--	µg/l		NA	NA	NA
Lead	--	--	--	µg/l		NA	NA	NA
Magnesium	--	--	--	µg/l		NA	NA	NA
Manganese	--	--	--	µg/l		NA	NA	NA
Nickel	--	--	--	µg/l		NA	NA	NA
Potassium	--	--	--	µg/l		NA	NA	NA
Sodium	--	--	--	µg/l		NA	NA	NA
Zinc	--	--	--	µg/l		NA	NA	NA
Metals Dissolved								
Barium	--	--	--	µg/l		NA	NA	NA
Calcium	--	--	--	µg/l		NA	NA	NA
Chromium	--	--	--	µg/l		NA	NA	NA
Cobalt	--	--	--	µg/l		NA	NA	NA
Copper	--	--	--	µg/l		NA	NA	NA
Hardness as CaCO3	--	--	--	µg/l		NA	NA	NA
Iron	--	--	--	µg/l		NA	NA	NA
Lead	--	--	--	µg/l		NA	NA	NA
Magnesium	--	--	--	µg/l		NA	NA	NA
Manganese	--	--	--	µg/l		NA	NA	NA
Nickel	--	--	--	µg/l		NA	NA	NA
Potassium	--	--	--	µg/l		NA	NA	NA
Sodium	--	--	--	µg/l		NA	NA	NA
Zinc	--	--	--	µg/l		NA	NA	NA
General Chemistry								
Chloride	--	--	--	mg/l		NA	NA	NA
Nitrate as N	--	--	--	mg/l		NA	NA	NA
Nitrite (as N)	--	--	--	mg/l		NA	NA	NA
Sulfate	--	--	--	mg/l		NA	NA	NA
Alkalinity, Total (as CaCO3)	--	--	--	ŋg CaCO3/		NA	NA	NA
Total Organic Carbon	--	--	--	mg/l		NA	NA	NA
Methane	--	--	--	µg/l		NA	NA	NA
Sulfide	--	--	--	mg/l		NA	NA	NA
PFOAS								
perfluorobutanesulfonic acid	400,000	--	--	ng/l		NA	NA	NA
Perfluorobutanoate	--	--	--	ng/l		NA	NA	NA
Perfluorooctanoic Acid	--	70	12,000	ng/l		NA	NA	NA
Perfluorooctyl sulfonate	--	70	12	ng/l		NA	NA	NA

Table 4-1. Monitoring Well Analytical Results - Detections Summary June 2018
PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Notes:
µg/L = micrograms per liter
ng/L = nanograms per liter
mg/L = micrograms per liter
-- = no value available
EPA = U.S. Environmental Protection Agency
MDEQ = Michigan Department of Environmental Quality
NA = compound not reported by the laboratory
RL = reporting limit
MDL = method detection limit
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
[a] The EPA tap water regional screening levels (RSLs; EPA, November 2017) are based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are bold and underlined.
[b] The EPA residential groundwater vapor intrusion screening levels (VISLs) were developed from the EPA VISL calculator using the November 2017 EPA RSLs. The VISLs were calculated based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are shaded grey.
[c] The MDEQ residential shallow groundwater media-specific volatilization to indoor air recommended interim action screening levels (RIASLs; MDEQ, August 2017). Exceedances of this criteria are bold boxed.
* Where screened interval is not known, total depth of well is presented

Table 4-2. Grab Groundwater Analytical Results—Detections Summary

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

			Location ID:	CMW-01	CMW-01	CMW-01	CMW-01	SVB-02	SVB-05	SVB-06	SVB-07	SVB-09
				PMC-CMW-01-VAS/15.0-20.0-	PMC-CMW-01-VAS/20.0-25.0-	PMC-CMW-01-VAS/40.0-45.0-	PMC-CMW-01-VAS/45.0-50.0-	PMC-SVB-02-GW/8.9-13.9-	PMC-SVB-05-GW/9.7-14.7-	PMC-SVB-06-GW/5.0-10.0-	PMC-SVB-07-GW/10.7-15.7-	PMC-SVB-09-GW/7.7-12.7-
			Sample ID:	05221	05221	05221	05221	053018	052418	052418	051518	051518
			Date Sampled:	5/22/2018	5/22/2018	5/22/2018	5/22/2018	5/30/2018	5/24/2018	5/24/2018	5/15/2018	5/15/2018
			Sample interval (feet below ground surface):	15-20	20-25	40 - 45	45 - 50	8.9-13.9	9.7 - 14.7	5 - 10	10.7 - 15.7	7.7 - 12.7
ANALYTE	**EPA Tap Water RSL**[a]	EPA Residential Groundwater VISL[b]	Site-specific Volatilization to Indoor Air Criteria[c]									
1,1,1+B8:R19-Trichloroethane	8,000	7,420	--	NA	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.076	3.23	--	NA	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	0.28	5.21	--	NA	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
2-Butanone	5,600	2,240,000	--	NA	NA	NA	NA	1 J	5 U	5 U	5 U	5 U
Acetone	14,000	22,500,000	15,000,000	NA	NA	NA	NA	10 U	10 U	10 U	2.7 J	3.4 J
Benzene	0.46	1.59	16	NA	NA	NA	NA	1 U	1 U	0.44 J	1 U	1 U
cis-1,2-Dichloroethene	36	--	55	NA	NA	NA	NA	1 U	1 U	1 U	0.58 J	1 U
Ethylbenzene	1.5	3.49	52	NA	NA	NA	NA	0.36 J	1 U	1 U	1 U	1 U
Tetrachloroethene	11	14.9	110	NA	NA	NA	NA	1 U	1 U	1 U	1 U	1 U
Toluene	1,100	19,200	26000	NA	NA	NA	NA	1.1	1 U	0.95 J	1 U	1 U
Trichloroethylene	0.49	1.19	7.1	**3.9**	**2.3**	1 U	1 U	1 U	**5.4**	**2**	**6.4**	**0.74 J**
Xylene, o[d]	190	385	1400	NA	NA	NA	NA	0.26 J	1 U	1 U	1 U	1 U

Notes:

Concentrations presented in micrograms per liter.

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

NA = not analyzed

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

[a] The EPA tap water regional screening levels (RSLs; EPA, November 2017) are based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are bold and underlined

[b] The EPA residential groundwater vapor intrusion screening levels (VISLs) were developed from the EPA VISL calculator using the November 2017 EPA RSLs. The VISLs were calculated based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are shaded grey.

[c] The MDEQ Residential Volatilization to Indoor Air Criteria are unrestricted site-specific criteria that apply to a residential house with a basement in Emmet County, depth to groundwater

[d] The criteria for total xylenes were used.

Table 4-2. Grab Groundwater Analytical Results—Detections Summary

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

			Location ID:	**SVB-11**	**SVB-12**	**SVB-14**	**SVB-15**
			Sample ID:	**PMC-SVB-11-GW/7.8-12.8-051818**	**PMC-SVB-12-GW/8.5-13.5-051818**	**PMC-SVB-14-GW/9.3-14.3-051718**	**PMC-SVB-15-GW/8.6-13.6-051718**
			Date Sampled:	**5/18/2018**	**5/18/2018**	**5/17/2018**	**5/17/2018**
			Sample interval (feet below ground surface):	**7.8 - 12.8**	**8.5 - 13.5**	**9.3 - 14.3**	**8.6 - 13.6**
ANALYTE	**EPA Tap Water RSL**[a]	EPA Residential Groundwater VISL[b]	Site-specific Volatilization to Indoor Air Criteria[c]				
1,1,1+B8:R19-Trichloroethane	8,000	7,420	--	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.076	3.23	--	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	0.28	5.21	--	1 U	1 U	1 U	1 U
2-Butanone	5,600	2,240,000	--	5 UJ	0.88 J	5 U	5 U
Acetone	14,000	22,500,000	15,000,000	3.2 J	4.6 J	1.8 J	3.6 J
Benzene	0.46	1.59	16	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	36	--	55	1 U	1 U	1 U	1 U
Ethylbenzene	1.5	3.49	52	1 U	1 U	1 U	1 U
Tetrachloroethene	11	14.9	110	1 U	1 J	1 U	1 U
Toluene	1,100	19,200	26000	1 U	0.54 J	0.36 J	0.73 J
Trichloroethylene	0.49	1.19	7.1	**5.7**	**15**	1 U	**1.6**
Xylene, o[d]	190	385	1400	1 U	1 U	1 U	1 U

Notes:

Concentrations presented in micrograms per liter.

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

NA = not analyzed

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

[a] The EPA tap water regional screening levels (RSLs; EPA, November 2017) are based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are bold and underlined

[b] The EPA residential groundwater vapor intrusion screening levels (VISLs) were developed from the EPA VISL calculator using the November 2017 EPA RSLs. The VISLs were calculated based on a TCR of 1 × 10-6 and a THQ of 1. Exceedances of this criteria are shaded grey.

[c] The MDEQ Residential Volatilization to Indoor Air Criteria are unrestricted site-specific criteria that apply to a residential house with a basement in Emmet County, depth to groundwater

[d] The criteria for total xylenes were used.

Table 4-3. Groundwater Sampling Field Parameters

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Well ID	pH (S.U.)	DO (mg/L)	ORP (mV)	Specific Conductance (mS/cm)	Temp (^{o}C)	Turbidity (NTU)	Depth to Water (feet btoc)
CMW-1	7.33	7.88	-240.8	1.529	10.91	3.43	11.99
CMW-2	7.36	1.01	101.4	1.323	9.83	7.29	13.72
COP-1	7.87	8.17	97.2	2.521	14.80	0.76	8.02
COP-3	7.24	2.14	99.3	0.573	10.41	2.49	5.03
COP-4	7.47	2.48	121.2	0.867	11.13	2.88	6.51
COP-5R	7.41	1.87	-3.2	0.806	9.50	7.01	10.61
MW-205D-R	7.39	38.14	-28.1	0.784	13.60	11.00	10.61
MW-205SR	7.11	2.07	19.9	1.103	11.04	9.60	7.59
MW-401D	7.18	6.42	125.6	1.523	8.94	4.90	12.86
MW401S	7.14	2.01	41.3	1.461	9.47	9.20	12.89
MW-402D	8.06	5.53	-292.6	0.623	10.60	1.29	10.58
MW-402S	7.21	6.59	11.0	1.234	12.01	7.91	10.04
PS-104	7.70	4.63	-185.1	0.562	13.60	9.80	12.62
PS-105S	8.82	0.12	62.7	0.242	10.24	8.36	8.76
PS-106	7.55	0.28	-66.3	1.717	10.86	9.98	8.75
PS-10A	7.23	9.19	-20.3	2.196	13.14	4.55	8.56
PS-11	7.41	8.84	114.3	2.771	11.40	0.27	5.36
PS-13	7.23	4.55	50.4	3.500	13.01	9.65	14.81
PS-1R	7.31	0.59	94.3	0.602	10.61	9.51	14.75
PS-4	7.20	3.81	-14.5	1.275	12.35	1.19	12.89
PS-6	7.19	1.42	-73.4	1.608	11.22	9.40	19.70
PS-BD	7.56	0.08	-144.6	0.511	10.20	3.95	10.21
PS-BS	7.44	5.32	2.8	1.122	12.91	5.54	10.04
PS-CD	7.18	7.50	139.3	3.809	14.88	9.42	11.51
PS-CS	7.28	4.42	68.1	1.962	10.52	4.19	11.61

Notes:

btoc = below top of casing

^{o}C = degrees Celsius

mg/l = miligrams per liter

mS/cm = milisiemens per centimeter

mV = millivolts

S.U. = standard units

Table 4-4. Soil Analytical Results—Detections Summary May 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Parameter	EPA Residential Soil RSL [a]	MDEQ Residential RIASL [b]	UNITS	PMC-CMW-01-SO/35.0-36.0-052218 18CP02-45 5/22/2018 35 - 36	PMC-CMW-02-SO/29.0-30.0-052318 18CP02-46 5/23/2018 29 - 30	PMC-SVB-05-SO/3.5-4.0-052418 18CP02-51 5/24/2018 3.5 - 4	PMC-SVB-05-SO/14.5-15.0-052418 18CP02-52 5/24/2018 14.5 - 15	PMC-SVB-07-SO/4.0-5.0-051518 18CP02-01 5/15/2018 4 - 5	PMC-SVB-07-SO/15.0-16.0-051518 18CP02-02 5/15/2018 15 - 16	PMC-SVB-08-SO/3.0-4.0-051518 18CP02-04 5/15/2018 3 - 4	PMC-SVB-08-SO/7.5-8.0-051518 18CP02-05 5/15/2018 7.5 - 8	PMC-SVB-08-SO/9.0-10.0-051518 18CP02-06 5/15/2018 9 - 10	PMC-SVB-09-SO/1.0-2.0-051518 18CP02-07 5/15/2018 1 - 2	PMC-SVB-10-SO/3.0-4.0-051618 18CP02-09 5/16/2018 3 - 4	PMC-SVB-10-SO/12.0-13.0-051618 18CP02-11 5/16/2018 12 - 13	PMC-SVB-10-SO/19.5-20.0-051618 18CP02-12 5/16/2018 19.5 - 20
VOCs																
2-Butanone	27,000,000	--	µg/kg	8.7 U	NA	11 U	NA	230 U	81 J	270 U	240 U	240 U	240 U	260 U	230 U	230 U
2-Hexanone	200,000	--	µg/kg	4.3 U	NA	5.3 U	NA	34 U	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Acetone	61,000,000	260000	µg/kg	38	NA	120 U	NA	330	120 U	220	120 U	120 U	120 U	130 U	110 U	110 U
Benzene	1,200	1.7	µg/kg	1.8 J	NA	5.3 U	NA	60	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Carbon Disulfide	770,000	--	µg/kg	1.3 J	NA	5.3 U	NA	34 U	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Dichloromethane	57,000	130	µg/kg	4.3 U	NA	5.3 U	NA	34 U	36 U	45	37 U	36 U	37 U	39 U	34 U	34 U
Ethylbenzene	5,800	12	µg/kg	0.83 J	NA	5.3 U	NA	78	26 J	40 U	37 U	36 U	23 J	39 U	34 U	34 U
Isopropylbenzene	1,900,000	--	µg/kg	4.3 U	NA	5.3 U	NA	11 J	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Methyl Acetate	78,000,000	--	µg/kg	8.7 UJ	NA	11 UJ	NA	83 J	240 U	380	84 J	130 J	120 J	220 J	230 U	230 U
Methylcyclohexane	--	--	µg/kg	5 J	NA	11 UJ	NA	34 U	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Styrene	6,000,000	--	µg/kg	4.3 U	NA	5.3 U	NA	28 J	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Tetrachloroethene	24,000	6.2	µg/kg	4.3 U	NA	5.3 U	NA	34 U	36 U	40 U	37 U	36 U	37 U	39 U	34 U	34 U
Toluene	4,900,000	3700	µg/kg	4.2 J	NA	1 J	NA	140	28 J	40 U	37 U	18 J	37 U	39 U	34 U	27 J
Trichloroethylene	940	0.33	µg/kg	4.3 U	NA	3.4 J	NA	110	410	270	37 U	36 U	37 U	200	34 U	**2700**
Xylene, o	650,000	--	µg/kg	0.5 J	NA	2.7 U	NA	70	41	40 U	37 U	36 U	63	39 U	34 U	19 J
Xylenes, m & p	--	--	µg/kg	1.4 J	NA	2.7 U	NA	160	63 J	80 U	73 U	23 J	40 J	28 J	21 J	33 J
Xylenes, Total	--	280	µg/kg	1.9 J	NA	5.3 U	NA	230	100 J	120 U	110 U	110 U	100 J	120 U	100 U	52 J
General Chemistry																
Oxidant Demand (KMnO4)	--	--	g/kg	8.41	NA	NA	10.9	NA	9.93	NA	NA	24.3	NA	NA	NA	10.9
Total Organic Carbon	--	--	% by wt	0.13	NA	1.5	0.091	NA	0.11	NA	NA	0.29	NA	NA	NA	0.12
Moisture, percent	--	--	percent	8.9	5.5	11	9.8	6.3	8.5	14	10	8.5	9.9	11	3.6	6.4
Metals																
Arsenic	0.68	--	mg/kg	NA	**1.1**	NA	**1.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	--	0.027	mg/kg	NA	0.0049 J	NA	0.0049 J	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-4. Soil Analytical Results—Detections Summary May 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Parameter	EPA Residential Soil RSL [a]	MDEQ Residential RIASL [b]	UNITS	PMC-SVB-11-SO/4.5-5.5-051818	PMC-SVB-11-SO/13.0-14.0-051818	PMC-SVB-11-SO/18.0-19.0-051818	PMC-SVB-12-SO/1.5-2.5-051818	PMC-SVB-12-SO/8.0-9.0-051818	PMC-SVB-12-SO/12.0-13.0-051818	PMC-SVB-12-SO/14.0-15.0-051818	PMC-SVB-14-SO/9.0-10.0-051718	PMC-SVB-14-SO/11.0-12.0-051718	PMC-SVB-15-SO/4.0-5.0-051718	PMC-SVB-15-SO/13.5-14.0-051718	PMC-SVB-16-SO/10.5-11.5-051618	PMC-SVB-16-SO/8.0-8.8-051618
Address or Property ID:				SO/4.5-5.5-051818	SO/13.0-14.0-051818	SO/18.0-19.0-051818	SO/1.5-2.5-051818	SO/8.0-9.0-051818	SO/12.0-13.0-051818	SO/14.0-15.0-051818	SO/9.0-10.0-051718	SO/11.0-12.0-051718	SO/4.0-5.0-051718	SO/13.5-14.0-051718	SO/10.5-11.5-051618	SO/8.0-8.8-051618
Soil Vapor Probe ID:				18CP02-26	18CP02-27	18CP02-28	18CP02-31	18CP02-32	18CP02-33	18CP02-34	18CP02-15	18CP02-16	18CP02-18	18CP02-19	18CP02-14	18CP02-13
Sample ID:				5/18/2018	5/18/2018	5/18/2018	5/18/2018	5/18/2018	5/18/2018	5/18/2018	5/17/2018	5/17/2018	5/17/2018	5/17/2018	5/16/2018	5/16/2018
Sample Date:				4.5 - 5.5	13 - 14	18 - 19	1.5 - 2.5	8 - 9	12 - 13	14 - 15	9 - 10	11 - 12	4 - 5	13.5 - 14	10.5 - 11.5	8 - 8.8
VOCs																
2-Butanone	27,000,000	--	µg/kg	8.4 U	8.8 U	10 U	370 U	NA	10 U	230 U	8.1 U	9.3 U	8 J	8.4 U	230 U	230 U
2-Hexanone	200,000	--	µg/kg	4.2 U	4.4 U	5.2 U	55 UJ	NA	5 U	35 U	4 U	4.6 U	2 J	4.2 U	35 U	34 U
Acetone	61,000,000	260000	µg/kg	29	34	10 U	180 UJ	NA	110 U	120 U	27	55	59	8.4 U	120 U	110 U
Benzene	1,200	1.7	µg/kg	4.2 U	1.6 J	5.2 U	55 U	NA	0.79 J	35 U	4 U	4.6 U	0.71 J	4.2 U	35 U	34 U
Carbon Disulfide	770,000	--	µg/kg	4.2 U	4.4 U	5.2 U	55 UJ	NA	5 U	35 U	4 U	4.6 U	4.5 U	4.2 U	35 U	34 U
Dichloromethane	57,000	130	µg/kg	4.2 U	4.4 U	5.2 U	55 U	NA	5 U	42	4 U	0.8 J	4.5 U	2.8 J	35 U	34 U
Ethylbenzene	5,800	12	µg/kg	0.66 J	1.5 J	5.2 U	55 U	NA	0.92 J	35 U	4 U	4.6 U	0.6 J	4.2 U	35 U	34 U
Isopropylbenzene	1,900,000	--	µg/kg	4.2 U	4.4 U	5.2 U	55 UJ	NA	5 U	35 U	4 U	4.6 U	4.5 U	4.2 U	35 U	34 U
Methyl Acetate	78,000,000	--	µg/kg	8.4 U	8.8 U	10 U	370 UJ	NA	10 UJ	230 UJ	8.1 U	9.3 U	9 U	8.4 U	230 U	230 U
Methylcyclohexane	--	--	µg/kg	8.4 U	1.4 J	10 U	55 UJ	NA	10 UJ	35 UJ	8.1 U	9.3 U	9 U	8.4 U	35 U	34 U
Styrene	6,000,000	--	µg/kg	4.2 U	4.4 U	5.2 U	55 U	NA	5 U	35 U	4 U	4.6 U	4.5 U	4.2 U	35 U	34 U
Tetrachloroethene	24,000	6.2	µg/kg	4.2 U	1.5 J	1.3 J	35 J	NA	2.8 J	33 J	4 U	4.6 U	4.5 U	4.2 U	35 U	34 U
Toluene	4,900,000	3700	µg/kg	1.8 J	5.8	5.2 U	55 U	NA	2.7 J	35 U	0.61 J	0.68 J	2.1 J	0.8 J	22 J	34 U
Trichloroethylene	940	0.33	µg/kg	2 J	12	5.2 U	**1100 J**	NA	23	**1600**	4 U	4.6 U	2 J	2.6 J	35 U	34 U
Xylene, o	650,000	--	µg/kg	0.55 J	1.6 J	2.6 U	55 U	NA	0.95 J	35 U	2 U	2.3 U	0.47 J	2.1 U	35 U	34 U
Xylenes, m & p	--	--	µg/kg	1.4 J	4	2.6 U	110 U	NA	2 J	70 U	2 U	2.3 U	2.3 U	2.1 U	23 J	68 U
Xylenes, Total	--	280	µg/kg	1.9 J	5.5	5.2 U	170 U	NA	2.9 J	110 U	4 U	4.6 U	4.5 U	4.2 U	100 U	100 U
General Chemistry																
Oxidant Demand (KMnO4)	--	--	g/kg	NA	NA	4.98 J	NA	5.45 J	11.6	9.67	NA	7.56	NA	7.89	8.18	NA
Total Organic Carbon	--	--	% by wt	0.14	NA	0.047	3.8 J	0.24	0.1	0.07	0.1	0.084	1.3	0.08	0.11	NA
Moisture, percent	--	--	percent	6.5	6.3	7.7	23	1.2	5.1	7.8	5.4	5.8	9.1	8.6	7.5	6.2
Metals																
Arsenic	0.68	--	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	--	0.027	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-5. Sewer Gas Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Sewer ID:	SA-01		SA-03		SA-04		SA-05		SA-06		SA-07	
						Sample ID:	PMC-SA-01-011217	PMC-SA-01-100918	PMC-SA-03-062818	PMC-SA-03-100918	PMC-SA-04-062818	PMC-SA-04-100918	PMC-SA-05-062818	PMC-SA-05-100918	PMC-SA-06-062918	PMC-SA-06-100918	PMC-SA-07-062918	PMC-SA-07-101018
						Sample Date:	1/12/2017	10/9/2018	6/28/2018	10/9/2018	6/28/2018	10/9/2018	6/28/2018	10/9/2018	6/29/2018	10/9/2018	6/29/2018	10/10/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS												
1,1,1-Trichloroethane	71-55-6	170000	520000	170000	170000	µg/m3	0.42 U	0.043	0.13	0.22	0.084	0.32	0.082 J	0.25	0.083 J	0.3	0.28	0.45 J
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.52 UJ	0.012 U	0.036 U	0.012 U	0.052 J	0.012 U	0.05 U	0.012 U	0.024 U	0.012 U	0.044 U	0.011 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	µg/m3	0.42 UJ	0.013 U	0.04 U	0.013 U	0.025 U	0.013 U	0.055 U	0.013 U	0.027 U	0.013 U	0.048 U	0.012 U
1,1-Dichloroethane	75-34-3	58	5900	530	5300	µg/m3	0.31 UJ	0.015 J	0.051 J	0.085 J	0.038 J	0.08 J	0.042 U	0.052 J	0.026 J	0.065 J	0.041 J	0.24 U
1,1-Dichloroethene	75-35-4	7000	21000	7000	21000	µg/m3	0.3 U	0.029 J	0.11 J	0.082 J	0.057 J	0.11	0.06 U	0.07 J	0.33	0.11	0.2	0.42 J
1,2,3-Trimethyl Benzene	526-73-8	--	--	--	--	µg/m3		0.12 U	0.11 U	0.26 U	0.12 U	0.26 U	47	0.26 U	0.33 J	0.26 U	0.11 U	0.27 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	µg/m3	0.56 U	0.022 U	0.066 U	0.022 U	0.041 U	0.021 U	0.091 U	0.022 U	0.044 U	0.021 U	0.08 U	0.021 U
1,2,4-Trimethylbenzene	95-63-6	2100	6300	2100	6300	µg/m3	0.5	0.049 J	0.25 J	0.064 J	0.49	1.4	98	1.5	0.88	1.9	2.1	1.5
1,2-Dibromoethane	106-93-4	0.16	16	--	--	µg/m3	0.23 U	0.013 U	0.04 U	0.013 U	0.025 U	0.013 U	0.055 U	0.013 U	0.027 U	0.013 U	0.048 U	0.012 U
1,2-Dichlorobenzene	95-50-1	7000	21000	--	--	µg/m3	0.46 U	0.014 U	0.042 U	0.014 U	0.026 U	0.014 U	0.058 U	0.014 U	0.028 U	0.014 U	0.051 U	0.013 U
1,2-Dichloroethane	107-06-2	3.6	360	--	--	µg/m3	0.31 U	0.062	0.19	0.099 J	0.073 J	0.034 U	0.13 J	0.035 U	0.084	0.034 U	0.08 J	0.33 U
1,2-Dichloropropane	78-87-5	25	420	--	--	µg/m3	0.35 UJ	0.012 U	0.037 U	0.023 J	0.023 U	0.03 J	0.051 U	0.024 J	0.029 J	0.032 J	0.045 U	0.031 J
1,3,5-Trimethylbenzene	108-67-8	2100	6300	2100	6300	µg/m3	0.37 U	0.022 J	0.19 J	0.043 J	0.3 J	0.97	28	0.73	0.4	0.99	0.87	0.79
1,3-Butadiene	106-99-0	3.1	210	--	--	µg/m3	0.17 U	0.039 J	0.071 U	0.077 U	0.045 J	0.057 U	0.098 U	0.059 U	0.07 J	0.4	0.086 U	0.55 U
1,3-Dichlorobenzene	541-73-1	--	--	100	310	µg/m3	0.46 U	0.014 U	0.043 U	0.014 U	0.027 U	0.014 U	0.059 U	0.014 U	0.029 U	0.014 U	0.052 U	0.013 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	µg/m3	0.46 U	0.85	0.53	0.41	3.4	5.6	2.2	3.8	2.8	4.5	3.9	3.6
1,4-Dioxane	123-91-1	19	1900	--	--	µg/m3	0.27 U	0.014 U	0.043 U	0.014 U	0.027 U	0.014 U	0.059 U	0.014 U	0.029 U	0.014 U	0.052 U	0.013 U
2-Butanone	78-93-3	170000	520000	--	--	µg/m3	0.53	1.4 J	0.35 J	0.39 U	2.1	3 J	2.2	1.9 J	0.84 J	0.82 J	0.7 J	0.85 J
2-Hexanone	591-78-6	1000	3100	--	--	µg/m3	0.31 U	0.11 U	0.1 U	0.23 U	0.41 J	0.23 U	0.11 U	0.24 U	0.11 U	0.23 U	0.1 U	0.25 U
4-Methyl-2-Pentanone	108-10-1	100000	310000	--	--	µg/m3	0.31 U	0.12 U	0.11 U	0.26 U	0.12 U	0.26 U	0.12 U	0.26 U	0.12 U	0.26 U	0.11 U	0.27 U
Acetone	67-64-1	1100000	3200000	1000000	1000000	µg/m3	0.18 R	0.094 U	13 U	17	31	19	17 U	11	8.4 U	27	33	39 J
Acetonitrile	75-05-8	2100	6300	--	--	µg/m3		0.22 U	0.47 J	0.46 U	0.21 U	0.46 U	0.21 U	0.47 U	0.22 U	0.46 U	0.42 J	0.49 U
Acrolein	107-02-8	0.7	2.1	--	--	µg/m3	0.53	0.11 J	0.24 J	0.22 U	**2.2**	**0.79 J**	**1.4**	0.19 J	0.26 J	0.19 J	0.32 J	1.5 U
Benzene	71-43-2	12	1200	110	630	µg/m3	0.68	0.073 J	0.16 J	0.11 U	0.22 J	0.77	0.39 J	1.4	0.88	1.3	0.37 J	0.79 U
Bromodichloromethane	75-27-4	2.5	250	--	--	µg/m3	0.51 UJ	**2.9**	**25**	**35**	**13**	**19**	**17**	**16**	**9.1**	**20**	**13**	**19**
Bromoform	75-25-2	85	8500	--	--	µg/m3	0.79 U	0.18 U	1	2	0.41 J	0.79 J	0.59 J	0.73 J	0.36 J	0.81 J	0.5 J	0.71 J
Bromomethane	74-83-9	170	520	--	--	µg/m3	0.3 U	0.016 U	0.047 U	0.051 U	0.029 U	0.038 U	0.065 U	0.039 U	0.034 J	0.038 U	0.057 U	0.37 U
Carbon Disulfide	75-15-0	24000	73000	--	--	µg/m3	0.24 U	1.1 J	3.4	4.9	1.9	4	2.6	3.2 J	7.8	5.2	7.6	20
Chlorodifluoromethane	75-45-6	--	--	--	--	µg/m3		0.95	1.4	1.9	0.4 U	1.6 J	0.4 U	1.9	0.42 U	2	2.7	10
Chloroethane	75-00-3	350000	1000000	140000	420000	µg/m3	0.2 U	0.074	0.43	0.48	0.28	0.49	0.26	0.31	0.37	0.5	0.46	0.94 J
Chloroform	67-66-3	4.1	410	37	370	µg/m3	0.7	**13**	**72**	**74**	**45**	**81**	**42**	**61**	**71**	**79**	**80**	**150**
Chloromethane	74-87-3	3100	9400	3100	9400	µg/m3	1.17	0.098	0.62	0.31	0.47	1.4	0.68	1.3	0.5	1.6	1.1	2.1 J
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	µg/m3	0.3 U	0.046	1.6	0.068 J	0.029 U	0.037 U	0.071 J	0.039 U	0.031 U	0.037 U	7.5	0.99 J
cis-1,3-Dichloropropene[e]	10061-01-5	23	2100	--	--	µg/m3	0.35 U	0.01 U	0.031 U	0.01 U	0.02 U	0.01 U	0.043 U	0.01 U	0.021 U	0.01 U	0.038 U	0.0098 U
Cyclohexane	110-82-7	210000	630,00	--	--	µg/m3	0.52 U	1.6 J	0.34 J	0.53 U	0.77 J	28	2.6	29	1.6 J	30	2.2	0.74 J
Dichlorodifluoromethane	75-71-8	3500	10000	--	--	µg/m3	2.57 J	3.1	3.8	4.2	1.8	3.7	2.3	4.3	1.9	4	5	14
Ethanol	64-17-5	--	--	630000	630000	µg/m3		0.62 U	100	32	2300	41	480	3.8 J	9	53	2700	54
Ethylbenzene	100-41-4	37	3700	340	3400	µg/m3	0.33 U	0.04 J	0.4 J	0.54	0.42	0.97	15	1.2	1.2	1.2	1.7	1.6
Freon 113	76-13-1	--	--	--	--	µg/m3	0.59 J											
Isopropyl Alcohol (Isopropanol)	67-63-0	7000	21000	--	--	µg/m3		0.49 J	0.82 J	0.78 U	13	9.2	1.9 J	0.79 U	0.37 U	14	11	6.6 J
Methylene Chloride	75-09-2	3400	63000	21000	33000	µg/m3	0.26 UJ	2	3.3	2.4	2.3	2.7	1.9	2.2	2.5	2.5	13	900
n-Butanol	71-36-3	--	--	--	--	µg/m3		0.32 J	1 J	0.5 U	1.5 J	3 J	1.3 J	2.9 J	0.64 J	3.1 J	0.61 J	0.58 J
n-Hexane	110-54-3	24000	73000	24000	73000	µg/m3	0.81	4.1	0.81	0.58 J	2.9	180	3.1	190	8.4	190	1.5	1.7 J
Propene	115-07-1	100000	310000	--	--	µg/m3		0.68 J	2	2.2	5.9	6.1	1.8	4.1	3.5	6.8	5.7	4.4
Styrene	100-42-5	35000	100000	--	--	µg/m3	0.32 U	0.012 U	0.64	0.067 J	0.14 J	0.37	0.17 J	0.35	0.19 J	0.012 U	20	7.4
Tetrachloroethene	127-18-4	360	4200	1400	1400	µg/m3	1.39 J	26	28	13	0.33	2	1	2.2	0.25	2.1	90	120
Toluene	108-88-3	170000	520000	170000	250000	µg/m3	2.41	0.28	4.3	1.3	41	91	12	130	40	130	72	58
trans-1,3-Dichloropropene	10061-02-6	23	2100	--	--	µg/m3	0.35 U	0.0092 U	0.028 U	0.0091 U	0.017 U	0.009 U	0.038 U	0.0092 U	0.018 U	0.009 U	0.034 U	0.0087 U
Trichloroethylene	79-01-6	16	70	67	200	µg/m3	0.44	**19**	**19**	4.7	0.18	0.16	1.6	0.16	0.16	0.16	**55**	**39**
Trichlorofluoromethane	75-69-4	--	--	--	--	µg/m3	1.64	1.1	1.5	1.8	1.2	1.6	1.4	1.7	1.4	1.7	2	3.6
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	µg/m3		0.34	0.34	0.31	0.32	0.28	0.4	0.31	0.33	0.29	0.35	0.44 J
Vinyl Acetate	108-05-4	7000	21000	7000	21000	µg/m3		2 U	1.8 U	4.3 U	1.9 U	4.2 U	1.9 U	4.3 U	2 U	4.2 U	1.8 U	4.5 U
Vinyl Chloride	75-01-4	5.6	560	54	540	µg/m3	0.19 U	0.025 J	0.69	0.24	0.024 U	0.039 J	0.063 J	0.032 U	0.035 J	0.037 J	1.4	0.53 J
Xylene, o[f]	95-47-6	3500	10000	7600	23000	µg/m3	0.41	0.066 J	0.35 J	1.1	0.81	1.4	27	1.7	1.5	1.6	1.5	1.8
Xylenes, m & p[f]	179601-23-1	3500	10000	7600	23000	µg/m3	0.94	0.15 J	0.9	2.8	1.4	3.4	51	4.3	4.1	4.6	4.2	5

Table 4-5. Sewer Gas Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Sewer ID:	ST-01		ST-02		ST-03		ST-04		ST-05		ST-06	
						Sample ID:	PMC-ST-01-011217	PMC-ST-01-100918	PMC-ST-02-011317	PMC-ST-02-100918	PMC-ST-03-062818	PMC-ST-03-100918	PMC-ST-04-062818	PMC-ST-04-100918	PMC-ST-05-062918	PMC-ST-05-101018	PMC-ST-06-062918	PMC-ST-06-101018
						Sample Date:	1/12/2017	10/9/2018	1/13/2017	10/9/2018	6/28/2018	10/9/2018	6/28/2018	10/9/2018	6/29/2018	10/10/2018	6/29/2018	10/10/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS												
1,1,1-Trichloroethane	71-55-6	170000	520000	170000	170000	µg/m3	0.55 UJ	0.0097 U	0.42 UJ	0.0097 U	0.0097 J	0.0096 J	0.012 J	0.01 U	0.011 J	0.0091 U	0.01 J	0.0096 U
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.7 UJ	0.012 U	0.52 UJ	0.012 U	0.066	0.012 U	0.011 U	0.012 U	0.011 U	0.011 U	0.025 J	0.012 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	µg/m3	0.55 UJ	0.013 U	0.42 UJ	0.013 U	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.022 J	0.013 U
1,1-Dichloroethane	75-34-3	58	5900	530	5300	µg/m3	0.41 U	0.01 U	0.31 U	0.01 U	0.0092 U	0.0098 U	0.0092 U	0.01 U	0.0093 U	0.0094 U	0.0094 U	0.013 J
1,1-Dichloroethene	75-35-4	7000	21000	7000	21000	µg/m3	0.4 U	0.014 U	0.3 U	0.014 U	0.013 U	0.014 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U	0.014 U
1,2,3-Trimethyl Benzene	526-73-8	--	--	--	--	µg/m3		0.12 U		0.12 U	0.11 U	0.12 U	0.11 U	0.12 U	0.59 J	0.11 U	0.11 U	0.12 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	µg/m3	0.75 U	0.021 U	0.56 U	0.021 U	0.02 U	0.021 U	0.02 U	0.022 U	0.02 U	0.02 U	0.27 J	0.039 J
1,2,4-Trimethylbenzene	95-63-6	2100	6300	2100	6300	µg/m3	0.5 U	0.26	0.37 U	0.15 J	0.13 J	0.23	0.056 J	0.19	2.6	0.11 J	0.15 J	0.14 J
1,2-Dibromoethane	106-93-4	0.16	16	--	--	µg/m3	0.31 U	0.013 U	0.23 U	0.013 U	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.066 J	0.013 U
1,2-Dichlorobenzene	95-50-1	7000	21000	--	--	µg/m3	0.61 U	0.014 U	0.46 U	0.014 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.036 J	0.014 U
1,2-Dichloroethane	107-06-2	3.6	360	--	--	µg/m3	0.41 U	0.044	0.31 U	0.045	0.057	0.044	0.06	0.043	0.062	0.042	0.096 J	0.044
1,2-Dichloropropane	78-87-5	25	420	--	--	µg/m3	0.47 UJ	0.012 U	0.35 UJ	0.012 U	0.011 U	0.012 U	0.014 J	0.012 U	0.012 J	0.011 U	0.022 J	0.012 U
1,3,5-Trimethylbenzene	108-67-8	2100	6300	2100	6300	µg/m3	0.5 U	0.073 J	0.37 U	0.061 J	0.03 J	0.057 J	0.018 J	0.052 J	0.67	0.027 J	0.032 J	0.037 J
1,3-Butadiene	106-99-0	3.1	210	--	--	µg/m3	0.22 UJ	0.05 J	0.17 UJ	0.054 J	0.041 J	0.061 J	0.021 U	0.044 J	0.04 J	0.022 U	0.033 J	0.027 J
1,3-Dichlorobenzene	541-73-1	--	--	100	310	µg/m3	0.61 U	0.014 U	0.46 U	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.013 U	0.048 J	0.014 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	µg/m3	0.61 U	0.021 J	0.46 U	0.022 J	0.1	0.015 J	0.04	0.022 J	0.045	0.012 U	0.091 J	0.018 J
1,4-Dioxane	123-91-1	19	1900	--	--	µg/m3	0.37 U	0.014 U	0.27 U	0.014 U	0.013 U	0.014 U	0.013 U	0.014 U	0.013 U	0.019 J	0.018 J	0.014 U
2-Butanone	78-93-3	170000	520000	--	--	µg/m3	0.3 U	0.85 J	0.22 U	1.8	1.2 J	0.55 J	0.17 U	0.31 J	0.17 U	0.69 J	0.17 U	0.41 J
2-Hexanone	591-78-6	1000	3100	--	--	µg/m3	0.42 U	0.25 J	0.31 U	0.34 J	0.41 J	0.11 U	0.1 U	0.11 U	0.1 U	0.22 J	0.44 J	0.27 J
4-Methyl-2-Pentanone	108-10-1	100000	310000	--	--	µg/m3	0.42 U	0.13 J	0.31 U	0.12 U	0.11 U	0.12 U	0.11 U	0.12 U	0.11 U	0.11 U	0.11 U	0.12 U
Acetone	67-64-1	1100000	3200000	1000000	1000000	µg/m3	0.24 R	0.092 U	0.18 R	4.2	3.8 U	0.09 U	3.8 U	0.095 U	7.6	0.086 U	4 J	0.091 U
Acetonitrile	75-05-8	2100	6300	--	--	µg/m3		0.36 J		0.21 U	0.2 U	0.21 U	0.2 U	0.22 U	0.2 U	0.2 U	0.37 J	0.21 U
Acrolein	107-02-8	0.7	2.1	--	--	µg/m3	0.26	0.13 J	0.26	0.63	**1**	0.17 J	0.31	0.11 J	0.3 J	0.27 J	0.32 J	0.15 J
Benzene	71-43-2	12	1200	110	630	µg/m3	0.54	0.48	0.32	0.38	0.35	0.55	0.16	0.46	1.5	0.26	0.3 J	0.33
Bromodichloromethane	75-27-4	2.5	250	--	--	µg/m3	0.68 UJ	0.011 U	0.51 UJ	0.011 U	0.01 U	0.011 U	0.012 J	0.012 U	0.011 U	0.011 U	0.039 J	0.011 U
Bromoform	75-25-2	85	8500	--	--	µg/m3	1.05 U	0.19 U	0.79 U	0.18 U	0.17 U	0.18 U	0.17 U	0.19 U	0.17 U	0.17 U	0.17 U	0.18 U
Bromomethane	74-83-9	170	520	--	--	µg/m3	0.39 U	0.017 J	0.3 U	0.015 U	0.029 J	0.015 U	0.02 J	0.017 J	0.085	0.022 J	0.041 J	0.02 J
Carbon Disulfide	75-15-0	24000	73000	--	--	µg/m3	0.32 U	0.27 U	0.24 U	0.26 U	0.24 U	0.26 U	0.24 U	0.27 U	0.24 U	0.25 U	0.25 U	0.26 U
Chlorodifluoromethane	75-45-6	--	--	--	--	µg/m3		0.49 J		0.51 J	0.38 U	0.5 J	0.38 U	0.47 J	0.38 U	0.39 U	0.39 U	0.41 U
Chloroethane	75-00-3	350000	1000000	140000	420000	µg/m3	0.27 U	0.014 U	0.2 U	0.014 U	0.032 J	0.014 U	0.018 J	0.014 U	0.017 J	0.018 J	0.022 J	0.014 U
Chloroform	67-66-3	4.1	410	37	370	µg/m3	0.5 U	0.1 J	0.37 U	0.12 J	0.23	0.13 J	0.15 U	0.12 J	0.24	0.13 J	0.27 J	0.11 J
Chloromethane	74-87-3	3100	9400	3100	9400	µg/m3	0.36	0.22	0.45 J	0.13	0.22	0.19	0.11	0.2	0.25	0.24	0.22 J	0.25
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	µg/m3	0.4 U	0.015 U	0.3 U	0.015 U	0.014 U	0.015 U	0.014 U	0.016 U	0.014 U	0.014 U	0.047 J	0.015 U
cis-1,3-Dichloropropene[e]	10061-01-5	23	2100	--	--	µg/m3	0.46 U	0.01 U	0.35 U	0.01 U	0.0094 U	0.01 U	0.0094 U	0.011 U	0.0095 U	0.0095 U	0.054 J	0.01 U
Cyclohexane	110-82-7	210000	630,00	--	--	µg/m3	0.7 U	0.26 U	0.52 U	0.25 U	0.23 U	0.24 U	0.23 U	0.26 U	0.26 J	0.23 U	0.23 U	0.24 U
Dichlorodifluoromethane	75-71-8	3500	10000	--	--	µg/m3	1.82 J	2	2.36 J	2.1	2.2	2.2	2.4	2.1	2.3	2.2	2.6 J	2.2
Ethanol	64-17-5	--	--	630000	630000	µg/m3		2.4 J		4.1 J	8 U	1.8 J	8 U	2.4 J	8.1 U	1.8 J	8.2 U	1.7 J
Ethylbenzene	100-41-4	37	3700	340	3400	µg/m3	0.44 U	0.2	0.33 U	0.12 J	0.13 J	0.22	0.048 J	0.17 J	0.59	0.066 J	0.15 J	0.1 J
Freon 113	76-13-1	--	--	--	--	µg/m3	0.78 U		0.58 U									
Isopropyl Alcohol (Isopropanol)	67-63-0	7000	21000	--	--	µg/m3		5.2		0.52 J	0.54 J	0.35 U	0.33 U	0.41 J	5.7 J	1.3 J	0.34 U	0.4 J
Methylene Chloride	75-09-2	3400	63000	21000	33000	µg/m3	0.35 UJ	0.2	0.26 UJ	0.2	0.24	0.24	0.22	0.21	0.23	0.17	0.27 J	0.19
n-Butanol	71-36-3	--	--	--	--	µg/m3		0.89 J		1 J	1.3 J	0.64 J	0.21 U	0.27 J	0.3 J	0.87 J	0.73 J	0.37 J
n-Hexane	110-54-3	24000	73000	24000	73000	µg/m3	0.42	0.78 J	0.46	0.58 J	0.26 J	0.76 J	0.2 J	0.58 J	1.1	0.25 J	0.34 J	0.3 J
Propene	115-07-1	100000	310000	--	--	µg/m3		1.5		0.21 U	0.2 U	1.2	0.2 U	0.49 J	3.2	0.55 J	0.2 U	0.49 J
Styrene	100-42-5	35000	100000	--	--	µg/m3	0.43 U	0.067 J	0.32 U	0.039 J	0.16	0.055 J	0.036 J	0.084 J	0.083 J	0.054 J	0.11 J	0.076 J
Tetrachloroethene	127-18-4	360	4200	1400	1400	µg/m3	0.69 UJ	0.088	0.52 UJ	0.078	0.094	0.17	0.076	0.092	0.051	0.039	0.09 J	0.051
Toluene	108-88-3	170000	520000	170000	250000	µg/m3	2.3	1.1	0.52 J	0.68	0.69	1.4	0.45	1	2.2	0.48	1.1 J	0.79
trans-1,3-Dichloropropene	10061-02-6	23	2100	--	--	µg/m3	0.46 U	0.009 U	0.35 U	0.009 U	0.0083 U	0.0089 U	0.0083 U	0.0094 U	0.0084 U	0.0085 U	0.1 J	0.009 U
Trichloroethylene	79-01-6	16	70	67	200	µg/m3	0.54 U	0.034 J	0.41 U	0.039 J	0.033 J	0.027 J	1.4	0.03 J	0.096	0.013 U	0.054 J	0.014 U
Trichlorofluoromethane	75-69-4	--	--	--	--	µg/m3	1.36	1	1.4 J	1.1	1.1	1.1	1.2	1.1	1.2	1.1	1.2 J	1.1
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	µg/m3		0.35		0.37	0.42	0.37	0.41	0.38	0.43	0.37	0.43 J	0.38
Vinyl Acetate	108-05-4	7000	21000	7000	21000	µg/m3		2.1 U		6.5 J	1.8 U	1.9 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	2 U
Vinyl Chloride	75-01-4	5.6	560	54	540	µg/m3	0.26 U	0.012 U	0.19 U	0.012 U	0.011 U	0.012 U	0.011 U	0.013 U	0.012 U	0.012 U	0.013 J	0.012 U
Xylene, o[f]	95-47-6	3500	10000	7600	23000	µg/m3	0.44 U	0.27	0.33 U	0.25	0.13 J	0.33	0.063 J	0.24	0.86	0.099 J	0.19 J	0.13 J
Xylenes, m & p[f]	179601-23-1	3500	10000	7600	23000	µg/m3	0.83	0.71	0.33 U	0.42	0.32	0.68	0.13 J	0.54	2.4	0.2	0.45 J	0.31

Table 4-5. Sewer Gas Analytical Results—Detections Summary 2018
PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

Notes:

µg/m^3 = micrograms per cubic meter
-- = no value available
EPA = U.S. Environmental Protection Agency
MDEQ = Michigan Department of Environmental Quality
MDL = method detection limit
RL = reporting limit
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

[a] The EPA residential soil vapor vapor intrusion screening levels (VISLs) were developed from the EPA VISL Calculator using the November 2018 EPA regional screening levels. The VISLs were calculated based on a TCR = 1 x 10-6 and a THQ = 1. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are bold and underlined

[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2018 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Table 4-6. Exterior Soil Vapor Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

							[redacted]								[redacted]					
						Address or Property ID:														
						Soil Vapor Probe ID:	PMC-SVB-01				PMC-SVB-02				PMC-SVB-03					
						Sample ID:	PMC-SVB-01-14-062918	PMC-SVB-01-14-110518	PMC-SVB-01-5.8-062918	PMC-SVB-01-5.8-110518	PMC-SVB-02-06-062518	PMC-SVB-02-06-101018	PMC-SVB-02-11-062518	PMC-SVB-02-11-101018	PMC-SVB-03-10.5-062818	PMC-SVB-03-10.5-101118	PMC-SVB-03-15-062818	PMC-SVB-03-15-101118	PMC-SVB-03-5.5-062818	PMC-SVB-03-5.5-101118
						Sample Date:	6/29/2018	11/5/2018	6/29/2018	11/5/2018	6/25/2018	10/10/2018	6/25/2018	10/10/2018	6/28/2018	10/11/2018	6/28/2018	10/10/2018	6/28/2018	10/11/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS														
1,1,1-Trichloroethane	71-55-6	170,000	520,000	170,000	170,000	ug/m3	0.69 J	1.1 J	0.42 U	0.38 J	6.1 J	4.7	0.35 J	0.64 J	0.27 U	0.24 U	0.41 U	0.23 U	2.4 U	0.25 U
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.29 U	0.29 U	0.47 U	0.28 U	2.2 U	0.28 U	0.29 U	0.28 U	0.3 U	1.5 J	0.46 U	0.26 U	2.7 U	0.28 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	ug/m3	0.21 U	0.21 U	0.34 U	0.2 U	1.6 U	0.2 U	0.21 U	0.21 U	0.22 U	0.2 U	0.34 U	0.19 U	2 U	0.2 U
1,2,3-Trimethyl benzene	526-73-8	--	--	--	--	ug/m3	0.86 J	0.28 U	4.8	0.28 U	18	0.28 U	1.1 J	0.28 U	2.6	0.27 U	1.3 J	0.25 U	2.7 U	0.27 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	ug/m3	0.51 U	0.5 U	0.82 U	0.49 U	3.9 U	0.49 U	0.52 U	0.5 U	0.53 U	0.48 U	0.82 U	0.45 U	4.8 U	0.49 U
1,2,4-Trimethylbenzene	95-63-6	2,100	6,300	2,100	6,300	ug/m3	1.6 J	0.29 U	8.8	0.32 J	31	0.28 J	2.7	0.35 J	6.6	0.27 U	0.73 J	0.26 U	5.7 J	0.28 U
1,3,5-Trimethylbenzene	108-67-8	2,100	6,300	2,100	6,300	ug/m3	0.49 J	0.3 U	3.4	0.29 U	20	0.29 U	1 J	0.3 U	3.1	0.28 U	0.67 J	0.27 U	2.8 U	0.29 U
1,3-Butadiene	106-99-0	3.1	210	--	--	ug/m3	0.35 U	0.34 U	0.56 U	0.33 U	2.6 U	0.33 U	0.35 U	0.34 U	0.36 U	0.33 U	0.8 J	0.3 U	3.3 U	0.33 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	ug/m3	0.32 U	0.32 U	0.52 U	0.31 U	2.4 U	0.31 U	0.33 U	0.32 U	0.33 U	0.3 U	0.51 U	0.28 U	3 U	0.31 U
2-Butanone	78-93-3	170,000	520,000	--	--	ug/m3	0.82 J	0.51 J	0.7 U	0.71 J	3.3 U	0.52 J	1.1 J	0.48 J	0.45 U	0.41 U	0.69 U	0.38 U	4.1 U	0.41 U
2-Hexanone	591-78-6	1,000	3,100	--	--	ug/m3	0.26 U	0.26 U	0.42 U	0.87 J	2 U	0.25 U	0.26 U	0.25 U	0.27 U	0.24 U	0.41 U	0.23 U	2.4 U	0.25 U
4-Methyl-2-Pentanone	108-10-1	100,000	310,000	--	--	ug/m3	0.29 U	0.28 U	0.46 U	0.28 U	2.2 U	0.41 J	0.29 U	0.28 U	0.3 U	0.27 U	0.46 U	0.25 U	2.7 U	0.27 U
Acetone	67-64-1	1,100,000	3,200,000	1,000,000	1,000,000	ug/m3	5.8 J	10 J	7.6 U	16 J	36 U	4.5 U	10 J	4.6 U	9.7 J	4.4 U	7.5 U	4.1 U	44 U	4.5 U
Acetonitrile	75-05-8	2,100	6,300	--	--	ug/m3	0.51 U	0.5 U	0.82 U	0.49 U	3.9 U	0.49 U	0.56 J	0.5 U	0.53 U	0.48 U	0.82 U	0.45 U	4.8 U	0.49 U
Acrolein	107-02-8	0.7	2.1	--	--	ug/m3	0.59 U	0.58 U	0.95 U	0.57 U	4.5 U	0.57 U	0.6 U	0.58 U	0.61 U	0.56 U	0.94 U	0.52 U	5.6 U	0.56 U
Benzene	71-43-2	12	1,200	110	630	ug/m3	1.5 J	0.3 U	**29**	0.29 U	**34**	0.29 U	0.52 J	0.3 U	2.8	0.28 U	2.7 J	0.3 J	**49**	0.29 U
Bromodichloromethane	75-27-4	2.5	250	--	--	ug/m3	0.3 U	0.3 U	0.49 U	0.29 U	2.3 U	0.29 U	0.31 U	0.3 U	0.31 U	0.28 U	0.48 U	0.27 U	2.8 U	0.29 U
Carbon Disulfide	75-15-0	24,000	73,000	--	--	ug/m3	17	0.62 U	420	31 J	340	5	2.5 J	0.62 U	27	5.1	78	25	340	2.9 J
Chlorodifluoromethane	75-45-6	--	--	--	--	ug/m3	0.99 U	0.97 U	1.6 U	0.94 U	7.5 U	0.94 U	0.99 U	0.96 U	1 U	0.93 U	1.6 U	0.86 U	9.3 U	0.94 U
Chloroform	67-66-3	4.1	410	37	370	ug/m3	1.8 J	2.3	0.84 J	0.52 J	2.1 U	0.27 U	0.28 U	0.3 J	0.29 U	0.26 U	0.45 U	0.24 U	2.6 U	0.27 U
Chloromethane	74-87-3	3,100	9,400	3,100	9,400	ug/m3	0.34 U	0.33 U	0.54 U	0.32 U	2.6 U	0.42 J	0.34 U	0.98 J	0.35 U	0.32 U	0.54 U	0.3 U	3.2 U	0.32 U
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	ug/m3	0.45 J	0.39 J	0.47 U	0.28 U	2.2 U	0.28 U	0.3 U	0.29 U	0.3 U	0.28 U	0.47 U	0.26 U	2.8 U	0.28 U
Cyclohexane	110-82-7	210,000	630,00	--	--	ug/m3	1.1 J	0.58 U	39	0.99 J	13 J	0.57 U	0.6 U	0.58 U	1.5 J	0.56 U	3.3 J	0.52 U	35 J	0.56 U
Dichlorodifluoromethane	75-71-8	3,500	10,000	--	--	ug/m3	2.2	2.5	2.2 J	2.4	2.6 U	2.5	2.1	2.3	2.2	2.6	2.2 J	2.6	3.2 U	2.4
Ethanol	64-17-5	--	--	630,000	630,000	ug/m3	21 U	4.2 J	33 U	5.9 J	11 U	3.6 J	4.9 J	6 J	21 U	1.4 U	33 U	2.2 J	14 U	3.4 J
Ethylbenzene	100-41-4	37	3,700	340	3,400	ug/m3	1.5 J	0.29 U	8.8	0.33 J	**60**	0.28 U	1.2 J	0.29 U	6.5	0.28 U	1.9 J	0.26 U	10 J	0.28 U
Isopropyl Alcohol (Isopropanol)	67-63-0	7,000	21,000	--	--	ug/m3	0.87 U	1.8 J	1.4 U	0.83 U	6.6 U	0.83 U	1.3 J	1.2 J	0.89 U	0.81 U	1.4 U	0.76 U	8.1 U	0.83 U
Methylene Chloride	75-09-2	3,400	63,000	21,000	33,000	ug/m3	0.59 U	0.58 U	0.95 U	0.57 U	4.5 U	0.57 U	0.6 U	0.58 U	0.61 U	0.56 U	0.94 U	0.52 U	5.6 U	0.56 U
n-Butanol	71-36-3	--	--	--	--	ug/m3	2.2 J	17	0.88 U	1.4 J	4.2 U	1.1 J	3.1 J	1.8 J	5.9	0.52 U	1.5 J	0.89 J	5.2 U	1.3 J
n-Hexane	110-54-3	24,000	73,000	24,000	73,000	ug/m3	1 J	0.43 U	37	0.42 U	32	0.42 U	0.6 J	0.42 U	3.3	0.41 U	2.3 J	0.38 U	26	0.41 U
Propene	115-07-1	100,000	310,000	--	--	ug/m3	1.2 J	0.5 U	36	0.49 U	3.9 U	3.3	0.52 U	0.52 J	2.4	0.48 U	29	0.45 U	81	0.49 U
Tetrachloroethene	127-18-4	360	4,200	1,400	1,400	ug/m3	73	120	19	40	10 J	10	2.9	12	1.1 J	2.2	3.2 J	12	2.6 U	0.49 J
Toluene	108-88-3	170,000	520,000	170,000	250,000	ug/m3	3.9	1.3 J	75	2.7	190	0.92 J	2.9	1 J	19	0.86 J	7.6	1.2 J	99	1.2 J
Trichloroethylene	79-01-6	16	70	67	200	ug/m3	34	**54**	6.2	7.8	10 J	2.5	3.4	8.5	0.29 U	0.65 J	1.4 J	4.1	9.7 J	0.41 J
Trichlorofluoromethane	75-69-4	--	--	--	--	ug/m3	1.3 J	1.2 J	1.4 J	1 J	2.4 U	1.1 J	1.1 J	1.2 J	1.1 J	1.2 J	1 J	1.3 J	3 U	1.3 J
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	ug/m3	0.3 U	0.39 J	0.48 U	0.32 J	2.3 U	0.39 J	0.33 J	0.41 J	0.31 U	0.32 J	0.48 U	0.45 J	2.8 U	0.4 J
Xylene, o[f]	95-47-6	3,500	10,000	7,600	23,000	ug/m3	1.2 J	0.3 U	12	1 J	53	0.31 J	1.3 J	0.38 J	5.6	0.31 J	2.7 J	0.27 U	14 J	0.29 U
Xylenes, m & p[f]	179601-23-1	3,500	10,000	7,600	23,000	ug/m3	2.4 J	0.54 U	21	3 J	100	0.57 J	2.1 J	0.7 J	13	0.52 U	2.4 J	0.48 U	20 J	0.53 U

Notes:

µg/m3 = micrograms per cubic meter

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

MDL = method detection limit

RL = reporting limit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

[a] The EPA residential soil vapor vapor intrusion screening levels (VISLs) were developed from the EPA VISL Calculator using the November 2017 EPA regional screening levels. The VISLs were calculated based on a TCR = 1 x 10-6 and a THQ = 1. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are bold and underlined

[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Table 4-6. Exterior Soil Vapor Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Address or Property ID:	[redacted]						[redacted]				[redacted]		
						Soil Vapor Probe ID:	PMC-SVB-04						PMC-SVB-05				PMC-SVB-06		
						Sample ID:	PMC-SVB-04-06-062718	PMC-SVB-04-06-101118	PMC-SVB-04-09-062718	PMC-SVB-04-09-101118	PMC-SVB-04-12.5-062718	PMC-SVB-04-12.5-101118	PMC-SVB-05-10.5-062518	PMC-SVB-05-10.5-101018	PMC-SVB-05-4.5-062518	PMC-SVB-05-4.5-101018	PMC-SVB-06-06-062518	PMC-SVB-06-06-101018
						Sample Date:	6/27/2018	10/11/2018	6/27/2018	10/11/2018	6/27/2018	10/11/2018	6/25/2018	10/10/2018	6/25/2018	10/10/2018	6/25/2018	10/10/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL**[a]	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL*[d]	UNITS													
1,1,1-Trichloroethane	71-55-6	170,000	520,000	170,000	170,000	ug/m3	0.27 U	0.23 U	0.53 U	0.24 U	0.27 U	0.49 J	0.25 U	0.45 J	0.26 U	0.25 U	0.26 U	0.24 U
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.3 U	0.26 U	0.59 U	0.26 U	0.3 U	0.26 U	0.28 U	0.28 U	1 J	0.28 U	0.29 U	0.27 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	ug/m3	0.22 U	0.19 U	0.43 U	0.19 U	0.22 U	0.19 U	0.2 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U
1,2,3-Trimethyl benzene	526-73-8	--	--	--	--	ug/m3	7.6	0.25 U	10	0.26 U	0.91 J	0.26 U	0.39 J	0.27 U	0.29 U	0.27 U	0.45 J	0.27 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	ug/m3	0.53 U	0.45 U	1 U	0.46 U	0.53 U	0.46 U	0.49 U	0.48 U	0.51 U	0.49 U	0.69 J	0.48 U
1,2,4-Trimethylbenzene	95-63-6	2,100	6,300	2,100	6,300	ug/m3	6.4	0.26 U	6.4	0.26 U	1.7 J	0.26 U	0.66 J	0.28 U	0.51 J	0.31 J	0.58 J	0.3 J
1,3,5-Trimethylbenzene	108-67-8	2,100	6,300	2,100	6,300	ug/m3	1.2 J	0.27 U	5.1	0.28 U	0.58 J	0.27 U	0.32 J	0.29 U	0.3 U	0.29 U	0.3 U	0.28 U
1,3-Butadiene	106-99-0	3.1	210	--	--	ug/m3	0.36 U	0.31 U	0.7 U	0.31 U	0.36 U	0.31 UJ	0.33 U	0.33 U	0.35 U	0.33 U	0.34 U	0.33 UJ
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	ug/m3	0.34 U	0.28 U	0.66 U	0.29 U	0.34 U	0.29 U	0.31 U	0.31 U	0.32 U	0.31 U	0.32 U	0.3 U
2-Butanone	78-93-3	170,000	520,000	--	--	ug/m3	0.45 U	0.38 U	0.88 U	0.39 U	0.45 U	0.39 U	0.48 J	1.5 J	0.81 J	1 J	0.7 J	0.74 J
2-Hexanone	591-78-6	1,000	3,100	--	--	ug/m3	0.27 U	0.23 U	0.53 U	0.24 U	0.27 U	0.23 U	0.25 U	0.25 U	0.26 U	0.25 U	0.26 U	0.24 U
4-Methyl-2-Pentanone	108-10-1	100,000	310,000	--	--	ug/m3	0.3 U	0.25 U	0.58 U	0.26 U	0.3 U	0.26 U	0.28 U	0.75 J	0.29 U	0.27 U	0.28 U	0.27 U
Acetone	67-64-1	1,100,000	3,200,000	1,000,000	1,000,000	ug/m3	17 J	4.2 U	9.6 U	4.3 U	5.3 J	4.3 U	4.5 U	29	7.8 J	5.7 J	4.7 U	5.1 J
Acetonitrile	75-05-8	2,100	6,300	--	--	ug/m3	0.53 U	0.45 U	1 U	0.46 U	0.53 U	0.46 U	0.49 U	0.48 U	0.51 U	0.49 U	0.5 U	0.48 U
Acrolein	107-02-8	0.7	2.1	--	--	ug/m3	0.62 U	0.64 J	1.2 U	0.54 U	0.62 U	0.53 U	0.57 U	0.56 U	0.59 U	0.56 U	0.58 U	0.56 U
Benzene	71-43-2	12	1,200	110	630	ug/m3	5.7	0.28 J	**13**	0.44 J	0.82 J	0.27 U	0.87 J	0.29 U	2.2	0.29 U	3.8	0.28 U
Bromodichloromethane	75-27-4	2.5	250	--	--	ug/m3	0.32 U	0.27 U	0.62 U	0.28 U	0.32 U	0.27 U	0.29 U	0.29 U	0.3 U	0.29 U	0.3 U	0.28 U
Carbon Disulfide	75-15-0	24,000	73,000	--	--	ug/m3	37	1.8 J	140	15	7.3	0.67 J	1.1 J	0.6 U	15	0.6 U	17	0.59 U
Chlorodifluoromethane	75-45-6	--	--	--	--	ug/m3	1 U	0.87 U	2 U	0.89 U	1 U	0.89 U	0.94 U	0.93 U	2.2	1 J	0.97 U	0.93 U
Chloroform	67-66-3	4.1	410	37	370	ug/m3	1.3 J	0.76 J	1.4 J	0.99 J	0.66 J	0.95 J	0.48 J	0.92 J	0.39 J	0.53 J	0.28 U	0.26 U
Chloromethane	74-87-3	3,100	9,400	3,100	9,400	ug/m3	0.35 U	0.3 U	0.69 U	0.31 U	0.35 U	0.31 U	0.32 U	0.32 U	0.55 J	0.32 U	0.33 U	0.32 U
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	ug/m3	0.31 U	0.26 U	0.6 U	0.27 U	1.5 J	1.7 J	1.4 J	1.8 J	0.29 U	0.28 U	0.29 U	0.28 U
Cyclohexane	110-82-7	210,000	630,00	--	--	ug/m3	1.9 J	0.52 U	6.6 J	0.54 U	0.62 U	0.53 U	0.57 U	0.56 U	0.59 U	0.56 U	4.6	0.56 U
Dichlorodifluoromethane	75-71-8	3,500	10,000	--	--	ug/m3	2 J	2.4	2 J	2.3	2.2	5	2.1	2.3	2.4	2.3	4.9	2.9
Ethanol	64-17-5	--	--	630,000	630,000	ug/m3	22 U	3.4 J	42 U	2.5 J	22 U	1.3 U	1.7 J	6.1 J	6.7 J	3.8 J	5 J	1.4 U
Ethylbenzene	100-41-4	37	3,700	340	3,400	ug/m3	11	0.26 U	19	0.27 U	1.3 J	0.27 U	0.57 J	0.28 U	0.45 J	0.3 J	0.69 J	0.28 U
Isopropyl Alcohol (Isopropanol)	67-63-0	7,000	21,000	--	--	ug/m3	0.9 U	0.76 U	1.8 U	0.79 U	0.9 U	0.78 U	0.83 U	2.4 J	0.86 U	1.7 J	0.96 J	0.81 U
Methylene Chloride	75-09-2	3,400	63,000	21,000	33,000	ug/m3	0.62 U	0.52 U	1.2 U	0.54 U	0.62 U	0.53 U	0.57 U	0.56 U	0.59 U	0.56 U	0.58 U	0.56 U
n-Butanol	71-36-3	--	--	--	--	ug/m3	7.2 J	0.78 J	8 J	0.98 J	15	1 J	1.4 J	1.7 J	13	2.7 J	4 J	1.5 J
n-Hexane	110-54-3	24,000	73,000	24,000	73,000	ug/m3	1.9 J	0.38 U	11	0.39 U	0.54 J	0.39 U	0.47 J	0.41 U	0.43 U	0.41 U	1.1 J	0.41 U
Propene	115-07-1	100,000	310,000	--	--	ug/m3	3.2	0.45 U	10	0.46 U	0.76 J	0.46 U	0.49 U	0.75 J	2.9	0.55 J	2.6	0.48 U
Tetrachloroethene	127-18-4	360	4,200	1,400	1,400	ug/m3	21	16	30	52	160	170	13	13	7.9	3.4	0.69 J	0.79 J
Toluene	108-88-3	170,000	520,000	170,000	250,000	ug/m3	34	1.9	52	1.9 J	4.3	2.7	3	1.7 J	3.3	1.2 J	4.4	3.1
Trichloroethylene	79-01-6	16	70	67	200	ug/m3	**31**	8.9	**110**	**71**	***230***	***220***	***360***	***390***	**110**	**29**	1.7 J	0.58 J
Trichlorofluoromethane	75-69-4	--	--	--	--	ug/m3	1 J	1.3 J	1 J	1.2 J	1.1 J	1.7 J	1.1 J	1.2 J	1 J	1.2 J	1.7 J	1.4 J
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	ug/m3	0.31 U	0.47 J	0.61 U	0.39 J	0.32 J	0.37 J	0.32 J	0.34 J	0.3 U	0.4 J	0.62 J	0.38 J
Xylene, o[f]	95-47-6	3,500	10,000	7,600	23,000	ug/m3	14	0.27 U	22	0.28 U	1.4 J	0.27 U	0.71 J	0.42 J	0.97 J	0.42 J	0.92 J	0.28 U
Xylenes, m & p[f]	179601-23-1	3,500	10,000	7,600	23,000	ug/m3	12	0.49 U	17	0.5 U	1.7 J	0.5 U	1 J	0.85 J	1.5 J	0.78 J	1.3 J	0.54 J

Notes:

µg/m3 = micrograms per cubic meter

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

MDL = method detection limit

RL = reporting limit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

[a] The EPA residential soil vapor vapor intrusion screening levels (VISLs) were developed from the EPA VISL Calculator using the November 2017 EPA regional screening levels. The VISLs were calculated based on a TCR = 1 x 10-6 and a THQ = 1. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are bold and underlined

[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Table 4-6. Exterior Soil Vapor Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Address or Property ID:													
						Soil Vapor Probe ID:	PMC-SVB-07				PMC-SVB-08		PMC-SVB-09				PMC-SVB-10			
						Sample ID:	PMC-SVB-07-12-062518	PMC-SVB-07-12-111518	PMC-SVB-07-5.5-062518	PMC-SVB-07-5.5-111518	PMC-SVB-08-07-062618	PMC-SVB-08-07-111518	PMC-SVB-09-06-062818	PMC-SVB-09-06-101118	PMC-SVB-09-10-062518	PMC-SVB-09-10-101118	PMC-SVB-10-06-062618	PMC-SVB-10-06-101118	PMC-SVB-10-10-062618	PMC-SVB-10-10-101118
						Sample Date:	6/25/2018	11/15/2018	6/25/2018	11/15/2018	6/26/2018	11/15/2018	6/28/2018	10/11/2018	6/25/2018	10/11/2018	6/26/2018	10/11/2018	6/26/2018	10/11/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS													
1,1,1-Trichloroethane	71-55-6	170,000	520,000	170,000	170,000	ug/m3	0.84 J	1.1 J	1.5 U	0.33 J	29 J	31	6.9 U	0.22 U	0.25 U	0.23 U	8.4 J	2.5	2.2	2.5 J
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.29 U	0.27 U	1.7 U	0.28 U	4.4 U	3.7 U	7.7 U	0.25 U	0.28 U	0.26 U	1.2 U	0.28 U	0.28 U	1.1 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	ug/m3	0.21 U	0.2 U	1.2 U	0.27 J	3.2 U	2.7 U	5.6 U	0.18 U	0.2 U	0.19 U	0.87 U	0.21 U	0.2 U	0.78 U
1,2,3-Trimethyl benzene	526-73-8	--	--	--	--	ug/m3	0.57 J	0.27 U	7.1 J	0.27 U	4.4 U	3.7 U	39 J	0.25 U	0.27 U	0.26 U	6.6 J	0.28 U	6.3	1.1 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	ug/m3	0.5 U	0.47 U	2.9 U	0.49 U	7.7 U	6.6 U	14 U	0.44 U	0.49 U	0.46 U	2.1 U	0.49 U	0.48 U	1.9 U
1,2,4-Trimethylbenzene	95-63-6	2,100	6,300	2,100	6,300	ug/m3	1.4 J	0.27 U	7.7 J	0.28 U	4.4 U	3.7 U	24 J	0.25 U	0.54 J	0.26 U	4 J	0.28 U	5	1.1 U
1,3,5-Trimethylbenzene	108-67-8	2,100	6,300	2,100	6,300	ug/m3	0.63 J	0.28 U	8.5 J	0.29 U	4.6 U	3.9 U	25 J	0.26 U	0.29 U	0.27 U	4.5 J	0.29 U	4.4	1.1 U
1,3-Butadiene	106-99-0	3.1	210	--	--	ug/m3	0.34 U	0.32 U	2 U	0.33 U	5.2 U	4.5 U	**52 J**	0.3 U	0.33 U	0.31 U	1.4 U	0.33 U	0.33 U	1.3 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	ug/m3	0.32 U	0.3 U	1.9 U	0.31 U	4.9 U	4.2 U	8.5 U	0.28 U	0.31 U	0.29 U	1.3 U	0.31 U	0.31 U	1.2 U
2-Butanone	78-93-3	170,000	520,000	--	--	ug/m3	0.52 J	0.4 U	2.5 U	0.41 U	6.6 U	5.6 U	11 U	1.2 J	0.74 J	1.3 J	1.8 U	0.45 J	0.41 U	1.6 U
2-Hexanone	591-78-6	1,000	3,100	--	--	ug/m3	0.26 U	0.24 U	1.5 U	0.25 U	3.9 U	3.3 U	6.9 U	0.22 U	0.25 U	0.23 U	1.1 U	0.25 U	0.25 U	0.96 U
4-Methyl-2-Pentanone	108-10-1	100,000	310,000	--	--	ug/m3	0.28 U	0.27 U	1.6 U	0.27 U	4.4 U	3.7 U	7.6 U	0.25 U	0.27 U	0.26 U	1.2 U	0.28 U	0.27 U	1.1 U
Acetone	67-64-1	1,100,000	3,200,000	1,000,000	1,000,000	ug/m3	8.1 J	4.4 U	27 U	4.5 U	72 U	61 U	120 U	25	6.4 J	15 J	19 U	4.6 U	4.5 U	17 U
Acetonitrile	75-05-8	2,100	6,300	--	--	ug/m3	0.5 U	0.47 U	2.9 U	0.49 U	7.7 U	6.6 U	14 U	0.44 U	0.49 U	0.46 U	2.1 U	0.49 U	0.48 U	1.9 U
Acrolein	107-02-8	0.7	2.1	--	--	ug/m3	0.58 U	0.55 U	3.4 U	0.56 U	8.9 U	7.6 U	16 U	0.51 U	0.56 U	0.53 U	2.4 U	0.57 U	0.56 U	2.2 U
Benzene	71-43-2	12	1,200	110	630	ug/m3	0.82 J	0.28 U	**31**	0.29 J	**22 J**	3.9 U	**250**	0.7 J	1.7 J	0.27 U	**60**	0.43 J	2.8	1.8 J
Bromodichloromethane	75-27-4	2.5	250	--	--	ug/m3	0.3 U	0.28 U	1.7 U	0.29 U	4.6 U	3.9 U	8 U	0.26 U	0.29 U	0.27 U	1.2 U	0.29 U	0.29 U	1.1 U
Carbon Disulfide	75-15-0	24,000	73,000	--	--	ug/m3	10	5.2	58	15	33 J	10 J	310	0.94 J	3.2 J	0.77 J	250	0.76 J	24	2.3 U
Chlorodifluoromethane	75-45-6	--	--	--	--	ug/m3	0.97 U	0.91 U	5.6 U	0.94 U	15 U	13 U	26 U	0.85 U	0.94 U	0.88 U	4 U	0.95 U	0.93 U	3.6 U
Chloroform	67-66-3	4.1	410	37	370	ug/m3	1.5 J	3.3	3.7 J	3.9	4.2 U	3.6 U	7.4 U	**4.5**	1.1 J	1.5 J	3.4 J	**6**	2.6	3.8 J
Chloromethane	74-87-3	3,100	9,400	3,100	9,400	ug/m3	0.33 U	0.31 U	1.9 U	0.32 U	5.1 U	4.4 U	8.9 U	0.29 U	0.32 U	0.3 U	1.4 U	0.33 U	0.32 U	1.2 U
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	ug/m3	2.6	3.5	1.7 U	0.37 J	4.5 U	3.8 U	7.8 U	0.26 U	0.28 U	0.26 U	1.2 U	0.29 U	3.2	4 J
Cyclohexane	110-82-7	210,000	630,00	--	--	ug/m3	0.58 U	0.55 U	4.3 J	0.56 U	8.9 U	7.6 U	220	1.8 J	0.56 U	0.53 U	47	0.57 U	0.83 J	2.2 U
Dichlorodifluoromethane	75-71-8	3,500	10,000	--	--	ug/m3	2.2	2.6	2 J	2.4	5.2 U	4.4 U	9 U	2.4	2.1	2.4	2.8 J	2.5	3.3	8.5
Ethanol	64-17-5	--	--	630,000	630,000	ug/m3	3.7 J	2.1 J	8.4 U	3 J	22 U	19 U	38 U	3.7 J	1.4 U	3.4 J	16 J	3.3 J	20 U	5.4 U
Ethylbenzene	100-41-4	37	3,700	340	3,400	ug/m3	0.9 J	0.27 U	9.9 J	0.28 U	8.2 J	3.8 U	**42 J**	0.26 U	0.29 J	0.26 U	6.3 J	0.29 U	3.7	1.1 U
Isopropyl Alcohol (Isopropanol)	67-63-0	7,000	21,000	--	--	ug/m3	0.96 J	0.8 U	5 U	0.83 U	13 U	11 U	23 U	0.75 U	0.83 U	0.77 U	3.5 U	0.84 U	0.82 U	3.2 U
Methylene Chloride	75-09-2	3,400	63,000	21,000	33,000	ug/m3	0.58 U	0.55 U	3.4 U	0.56 U	8.9 U	7.6 U	16 U	0.51 U	0.96 J	0.53 U	2.4 U	0.57 U	0.56 U	2.2 U
n-Butanol	71-36-3	--	--	--	--	ug/m3	7.7	0.75 J	3.2 U	0.77 J	8.3 U	7.1 U	15 U	0.48 U	1.6 J	1.7 J	2.3 U	0.92 J	1.2 J	2.4 J
n-Hexane	110-54-3	24,000	73,000	24,000	73,000	ug/m3	0.97 J	0.4 U	4.4 J	0.41 U	6.6 U	5.6 U	580	0.66 J	1.1 J	0.39 U	6.5 J	0.42 U	1.6 J	1.6 U
Propene	115-07-1	100,000	310,000	--	--	ug/m3	1.1 J	0.47 U	2.9 U	0.49 U	7.7 U	6.6 U	410	0.44 U	0.82 J	0.46 U	76	0.49 U	3.2	1.9 U
Tetrachloroethene	127-18-4	360	4,200	1,400	1,400	ug/m3	11	49	23	12	77	100	**390**	5.5	7.4	6.7	21	52	**490**	**990**
Toluene	108-88-3	170,000	520,000	170,000	250,000	ug/m3	3.4	0.37 J	54	0.99 J	36	3.3 U	330	1.3 J	3.3	0.62 J	73	1.4 J	8.7	0.94 U
Trichloroethylene	79-01-6	16	70	67	200	ug/m3	***640***	***650***	***2100***	***820***	***5800***	***4800***	***280***	**69**	**85**	**110**	***1100***	***470***	***780***	***1100***
Trichlorofluoromethane	75-69-4	--	--	--	--	ug/m3	1.2 J	1.3 J	3.9 J	2.1	4.8 U	4.1 U	8.4 U	1.5 J	1.1 J	1.3 J	1.8 J	1.7 J	1.4 J	2.2 J
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	ug/m3	0.35 J	0.38 J	1.7 U	0.42 J	4.5 U	3.9 U	7.9 U	0.44 J	0.29 J	0.43 J	1.2 U	0.41 J	0.31 J	1.1 U
Xylene, o[f]	95-47-6	3,500	10,000	7,600	23,000	ug/m3	1.1 J	0.28 U	19	0.29 U	7.3 J	3.9 U	180	0.26 J	0.37 J	0.27 U	18	0.29 U	7	1.1 U
Xylenes, m & p[f]	179601-23-1	3,500	10,000	7,600	23,000	ug/m3	1.8 J	0.51 U	18 J	0.53 U	8.6 J	7.1 U	140	0.48 U	0.63 J	0.49 U	11 J	0.53 U	4.9	2 U

Notes:

µg/m3 = micrograms per cubic meter

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

MDL = method detection limit

RL = reporting limit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

[a] The EPA residential soil vapor vapor intrusion screening levels (VISLs) were developed from the EPA VISL Calculator using the November 2017 EPA regional screening levels. The VISLs were calculated based on a TCR = 1 x 10-6 and a THQ = 1. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are bold and underlined

[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Table 4-6. Exterior Soil Vapor Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Address or Property ID:	[redacted]													
						Soil Vapor Probe ID:	PMC-SVB-11					PMC-SVB-12				PMC-SVB-14				
						Sample ID:	PMC-SVB-10-15.6-062618	PMC-SVB-10-15.6-101118	PMC-SVB-11-05-062618	PMC-SVB-11-05-101118	PMC-SVB-11-10-062618	PMC-SVB-12-05-062618	PMC-SVB-12-05-101118	PMC-SVB-12-12-062618	PMC-SVB-12-12-101118	PMC-SVB-14-12.5-062618	PMC-SVB-14-12.5-111518	PMC-SVB-14-4.8-062618	PMC-SVB-14-4.8-111518	PMC-SVB-14-9.5-062618
						Sample Date:	6/26/2018	10/11/2018	6/26/2018	10/11/2018	6/26/2018	6/26/2018	10/11/2018	6/26/2018	10/11/2018	6/26/2018	11/15/2018	6/26/2018	11/15/2018	6/26/2018
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS														
1,1,1-Trichloroethane	71-55-6	170,000	520,000	170,000	170,000	ug/m3	0.98 J	1.5 J	5.4	3.7	1.6 U	30 J	30 J	2.2	3.2	0.3 J	0.24 U	0.7 J	0.33 J	0.25 J
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.29 U	0.27 U	0.61 U	0.27 U	1.8 U	7.2 U	11 U	0.28 U	0.28 U	0.27 U	0.27 U	0.57 U	0.27 U	0.28 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	ug/m3	0.21 U	0.2 U	0.45 U	0.19 U	1.3 U	5.2 U	7.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.42 U	0.2 U	0.21 U
1,2,3-Trimethyl benzene	526-73-8	--	--	--	--	ug/m3	0.29 U	0.27 U	0.6 U	0.26 U	1.8 J	7.1 U	10 U	0.53 J	0.27 U	0.27 U	0.27 U	1.4 J	0.26 U	3.6
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	ug/m3	0.52 U	0.48 U	1.1 U	0.47 U	3.1 U	13 U	18 U	0.49 U	0.48 U	0.47 U	0.48 U	1 U	0.47 U	0.5 U
1,2,4-Trimethylbenzene	95-63-6	2,100	6,300	2,100	6,300	ug/m3	0.68 J	0.27 U	0.76 J	0.27 U	1.8 U	13 J	11 U	0.74 J	0.28 U	0.3 J	0.27 U	0.86 J	0.27 U	1.8 J
1,3,5-Trimethylbenzene	108-67-8	2,100	6,300	2,100	6,300	ug/m3	0.31 J	0.28 U	0.64 U	0.28 U	1.8 U	7.4 U	11 U	0.47 J	0.29 U	0.28 U	0.28 U	0.78 J	0.28 U	4.2
1,3-Butadiene	106-99-0	3.1	210	--	--	ug/m3	0.35 U	0.33 U	0.73 U	0.32 U	2.1 U	8.5 U	12 U	0.33 U	0.33 U	0.32 U	0.33 U	0.68 U	0.32 U	0.34 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	ug/m3	0.33 U	0.3 U	0.68 U	0.3 U	2 U	7.9 U	**12 J**	0.31 U	0.31 U	0.3 U	0.3 U	0.64 U	0.3 U	0.31 U
2-Butanone	78-93-3	170,000	520,000	--	--	ug/m3	0.44 U	0.43 J	0.91 U	0.46 J	2.6 U	11 U	16 U	0.41 U	0.83 J	0.4 U	0.41 U	0.85 U	0.7 J	0.42 U
2-Hexanone	591-78-6	1,000	3,100	--	--	ug/m3	0.26 U	0.24 U	0.54 U	0.24 U	1.6 U	6.4 U	9.4 U	0.25 U	0.25 U	0.24 U	0.24 U	0.51 U	0.24 U	0.25 U
4-Methyl-2-Pentanone	108-10-1	100,000	310,000	--	--	ug/m3	0.29 U	0.27 U	0.6 U	0.26 U	1.7 U	7.1 U	10 U	0.27 U	0.27 U	0.27 U	0.27 U	0.57 U	0.26 U	0.28 U
Acetone	67-64-1	1,100,000	3,200,000	1,000,000	1,000,000	ug/m3	12 J	4.4 U	27 J	4.3 U	29 U	120 U	170 U	6.4 J	4.5 U	7.3 J	4.4 U	9.3 U	4.4 J	4.6 U
Acetonitrile	75-05-8	2,100	6,300	--	--	ug/m3	0.52 U	0.48 U	1.1 U	0.47 U	3.1 U	13 U	18 U	0.49 U	0.48 U	0.47 U	0.48 U	1 U	0.47 U	0.5 U
Acrolein	107-02-8	0.7	2.1	--	--	ug/m3	0.6 U	0.56 U	1.2 U	0.54 U	3.6 U	15 U	21 U	0.56 U	0.56 U	0.55 U	0.56 U	1.2 U	0.54 U	0.57 U
Benzene	71-43-2	12	1,200	110	630	ug/m3	0.31 U	0.28 U	0.82 J	0.28 U	1.8 U	**150**	**27 J**	0.48 J	0.29 U	0.41 J	0.28 U	5.7	0.28 U	1.2 J
Bromodichloromethane	75-27-4	2.5	250	--	--	ug/m3	0.31 U	0.28 U	0.64 U	0.28 U	**24**	7.4 U	11 U	0.29 U	0.29 U	0.28 U	0.28 U	0.6 U	0.28 U	0.29 U
Carbon Disulfide	75-15-0	24,000	73,000	--	--	ug/m3	1.5 J	0.63 J	3.4 J	0.58 U	5.4 J	580	23 U	5.2	0.6 U	0.58 U	14	84	9.3	62
Chlorodifluoromethane	75-45-6	--	--	--	--	ug/m3	0.99 U	0.93 U	2.1 U	0.94 J	6 U	24 U	36 U	0.94 U	1.2 J	0.91 U	0.93 U	1.9 U	0.91 U	0.96 U
Chloroform	67-66-3	4.1	410	37	370	ug/m3	3.1	**4.6**	0.59 U	0.49 J	1.7 U	**8.5 J**	10 U	1.5 J	3.5	0.85 J	0.31 J	0.63 J	0.26 U	0.27 U
Chloromethane	74-87-3	3,100	9,400	3,100	9,400	ug/m3	0.34 U	0.4 J	0.71 U	0.31 U	2 U	8.3 U	12 U	0.32 U	1.7 J	0.31 U	0.32 U	0.67 U	0.31 U	0.33 U
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	ug/m3	5.4	7.9	0.62 U	0.27 U	3.7 J	7.3 U	11 U	1.5 J	4.1	0.27 U	0.28 U	0.58 U	0.27 U	0.29 U
Cyclohexane	110-82-7	210,000	630,00	--	--	ug/m3	0.6 U	0.56 U	1.2 U	0.54 U	3.6 U	52 J	21 U	0.56 U	0.56 U	0.55 U	0.56 U	29	0.54 U	11
Dichlorodifluoromethane	75-71-8	3,500	10,000	--	--	ug/m3	3.8	10	2.3 J	2.7	3.6 J	8.4 U	12 U	5.1	9.5	4.2	3.9	2.7 J	2.8	3.8
Ethanol	64-17-5	--	--	630,000	630,000	ug/m3	4.7 J	2.5 J	3.6 J	3.4 J	8.8 U	36 U	53 U	5.9 J	2.5 J	19 U	1.9 J	41 U	2.9 J	20 U
Ethylbenzene	100-41-4	37	3,700	340	3,400	ug/m3	0.31 J	0.28 U	0.62 U	0.27 U	1.8 U	**38 J**	11 U	0.36 J	0.28 U	0.27 U	0.28 U	1.1 J	0.27 U	2.8
Isopropyl Alcohol (Isopropanol)	67-63-0	7,000	21,000	--	--	ug/m3	0.87 U	0.81 U	1.8 U	1.2 J	5.2 U	21 U	31 U	0.83 U	2 J	0.8 U	0.81 U	1.7 U	0.8 U	0.84 U
Methylene Chloride	75-09-2	3,400	63,000	21,000	33,000	ug/m3	0.6 U	0.56 U	1.2 U	0.54 U	3.6 U	15 U	21 U	0.56 U	0.56 U	0.55 U	0.56 U	1.2 U	0.54 U	0.57 U
n-Butanol	71-36-3	--	--	--	--	ug/m3	9.2 J	1.4 J	5.4 J	1.3 J	3.3 U	14 U	20 U	1.4 J	1.2 J	2.5 J	0.58 J	3.7 J	3 J	3.5 J
n-Hexane	110-54-3	24,000	73,000	24,000	73,000	ug/m3	0.44 U	0.41 U	0.91 U	0.4 U	2.6 U	41 J	16 U	0.5 J	0.41 U	0.4 U	0.41 U	10	0.4 U	2.9
Propene	115-07-1	100,000	310,000	--	--	ug/m3	0.52 U	0.48 U	1.7 J	0.47 U	3.1 U	63	18 J	0.58 J	0.48 U	0.47 U	0.48 U	32	0.47 U	12
Tetrachloroethene	127-18-4	360	4,200	1,400	1,400	ug/m3	**530**	**750**	190	170	**370**	73	270	310	**490**	75	110	320	150	76
Toluene	108-88-3	170,000	520,000	170,000	250,000	ug/m3	1 J	1.4 J	1.5 J	1.6 J	2.7 J	390	9.9 J	1.5 J	2	0.72 J	0.61 J	14	0.67 J	9.6
Trichloroethylene	79-01-6	16	70	67	200	ug/m3	***390***	***540***	***4900***	***1700***	***2400***	***7500***	***15000***	***1400***	***1400***	7.4	9.3	**21**	8	10
Trichlorofluoromethane	75-69-4	--	--	--	--	ug/m3	1.4 J	2.6	18	14	1.9 U	7.8 U	12 U	1.8 J	2.3	1.2 J	2.3	1.7 J	1.3 J	1.2 J
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	ug/m3	0.3 U	0.33 J	0.63 U	0.36 J	1.8 U	7.3 U	11 U	0.29 J	0.33 J	0.32 J	0.43 J	0.59 U	0.29 J	0.32 J
Xylene, o[f]	95-47-6	3,500	10,000	7,600	23,000	ug/m3	0.43 J	0.28 U	0.64 U	0.28 U	1.8 U	29 J	11 U	0.56 J	0.29 U	0.28 U	0.28 U	4 J	0.28 U	6.2
Xylenes, m & p[f]	179601-23-1	3,500	10,000	7,600	23,000	ug/m3	0.73 J	0.52 U	1.2 U	0.5 U	3.3 U	55 J	20 U	0.7 J	0.52 U	0.51 U	0.52 U	2.7 J	0.51 U	5.8

Notes:

µg/m3 = micrograms per cubic meter

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

MDL = method detection limit

RL = reporting limit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

[a] The EPA residential soil vapor vapor intrusion screening levels (VISLs) were developed from the EPA VISL Calculator using the November 2017 EPA regional screening levels. The VISLs were calculated based on a TCR = 1 x 10-6 and a THQ = 1. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are bold and underlined

[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Table 4-6. Exterior Soil Vapor Analytical Results—Detections Summary 2018

PMC Groundwater Superfund Site, Emmet County, Petoskey, Michigan

						Address or Property ID:							
						Soil Vapor Probe ID:	**PMC-SVB-15**					**PMC-SVB-16**	
						Sample ID:	**PMC-SVB-14-9.5-111518**	**PMC-SVB-15-10-062618**	**PMC-SVB-15-10-101218**	**PMC-SVB-15-4.8-062618**	**PMC-SVB-15-4.8-101218**	**PMC-SVB-16-09-062618**	**PMC-SVB-16-09-110518**
						Sample Date:	**11/15/2018**	**6/26/2018**	**10/12/2018**	**6/26/2018**	**10/12/2018**	**6/26/2018**	**11/5/2018**
ANALYTE	CAS	**EPA Residential Soil Vapor VISL[a]**	EPA Residential Soil Vapor RML[b]	MDEQ Residential Soil Vapor RIASL[c]	*MDEQ Residential Soil Vapor TSRIASL[d]*	UNITS							
1,1,1-Trichloroethane	71-55-6	170,000	520,000	170,000	170,000	ug/m3	0.27 J	0.26 U	0.5 J	8.3 J	1.3 J	0.41 J	0.55 J
1,1,2,2-Tetrachloroethane	79-34-5	1.6	160	--	--	µg/m3	0.27 U	0.29 U	0.25 U	2.2 U	0.26 U	0.29 U	0.27 U
1,1,2-Trichloroethane	79-00-5	5.8	21	--	--	ug/m3	0.2 U	0.21 U	0.18 U	1.6 U	0.19 U	0.21 U	0.2 U
1,2,3-Trimethyl benzene	526-73-8	--	--	--	--	ug/m3	0.27 U	0.36 J	0.25 U	9 J	0.26 U	0.37 J	0.27 U
1,2,4-Trichlorobenzene	120-82-1	70	210	70	210	ug/m3	0.48 U	0.52 U	0.44 U	3.9 U	0.46 U	0.5 U	0.47 U
1,2,4-Trimethylbenzene	95-63-6	2,100	6,300	2,100	6,300	ug/m3	0.38 J	0.63 J	0.25 U	5.2 J	0.26 U	0.44 J	0.27 U
1,3,5-Trimethylbenzene	108-67-8	2,100	6,300	2,100	6,300	ug/m3	0.28 U	0.31 U	0.26 U	4.7 J	0.28 U	0.3 U	0.28 U
1,3-Butadiene	106-99-0	3.1	210	--	--	ug/m3	0.33 U	0.35 U	0.3 U	2.6 U	0.31 U	0.34 U	0.32 U
1,4-Dichlorobenzene	106-46-7	8.5	850	220	2200	ug/m3	0.3 U	0.33 U	0.28 U	2.5 U	0.29 U	0.32 U	0.3 U
2-Butanone	78-93-3	170,000	520,000	--	--	ug/m3	0.41 U	0.44 U	0.92 J	3.3 U	0.64 J	0.43 U	0.89 J
2-Hexanone	591-78-6	1,000	3,100	--	--	ug/m3	0.24 U	0.26 U	0.22 U	2 U	0.24 U	0.26 U	0.24 U
4-Methyl-2-Pentanone	108-10-1	100,000	310,000	--	--	ug/m3	0.27 U	0.29 U	0.25 U	2.2 U	0.26 U	0.28 U	0.27 U
Acetone	67-64-1	1,100,000	3,200,000	1,000,000	1,000,000	ug/m3	4.4 U	4.8 J	18 J	36 U	6.8 J	6 J	9 J
Acetonitrile	75-05-8	2,100	6,300	--	--	ug/m3	0.48 U	0.52 U	0.44 U	3.9 U	0.46 U	0.5 U	0.47 U
Acrolein	107-02-8	0.7	2.1	--	--	ug/m3	0.56 U	0.6 U	0.51 U	4.5 U	0.54 U	0.58 U	0.55 U
Benzene	71-43-2	12	1,200	110	630	ug/m3	0.28 U	0.31 U	0.26 U	**61**	1.1 J	0.61 J	0.28 U
Bromodichloromethane	75-27-4	2.5	250	--	--	ug/m3	0.28 U	0.31 U	0.26 U	2.3 U	0.28 U	0.3 U	0.28 U
Carbon Disulfide	75-15-0	24,000	73,000	--	--	ug/m3	21	1.2 J	0.83 J	250	1.3 J	6.2	18
Chlorodifluoromethane	75-45-6	--	--	--	--	ug/m3	0.93 U	0.99 U	0.84 J	7.5 U	0.89 U	0.97 U	0.91 U
Chloroform	67-66-3	4.1	410	37	370	ug/m3	0.27 J	0.28 U	0.86 J	3.5 J	2.4	0.28 U	0.43 J
Chloromethane	74-87-3	3,100	9,400	3,100	9,400	ug/m3	0.32 U	0.34 U	0.29 U	2.6 U	0.31 U	0.33 U	0.31 U
cis-1,2-Dichloroethene	156-59-2	--	--	280	830	ug/m3	0.28 U	0.3 U	0.25 U	2.3 U	0.31 J	0.29 U	0.27 U
Cyclohexane	110-82-7	210,000	630,00	--	--	ug/m3	0.56 U	0.6 U	0.51 U	48	0.54 U	0.58 U	0.55 U
Dichlorodifluoromethane	75-71-8	3,500	10,000	--	--	ug/m3	3.5	3	2.6	2.9 J	2.7	2.1	2.5
Ethanol	64-17-5	--	--	630,000	630,000	ug/m3	2 J	21 U	4.3 J	11 U	1.3 U	21 U	2.5 J
Ethylbenzene	100-41-4	37	3,700	340	3,400	ug/m3	0.28 U	0.3 U	0.25 U	6.6 J	0.27 U	0.51 J	0.27 U
Isopropyl Alcohol (Isopropanol)	67-63-0	7,000	21,000	--	--	ug/m3	0.81 U	0.87 U	0.74 U	6.6 U	0.79 U	0.85 U	2.8 J
Methylene Chloride	75-09-2	3,400	63,000	21,000	33,000	ug/m3	0.56 U	0.6 U	0.51 U	4.5 U	0.54 U	0.58 U	0.55 U
n-Butanol	71-36-3	--	--	--	--	ug/m3	0.74 J	1.7 J	1.6 J	4.2 U	2.3 J	4.1 J	2.5 J
n-Hexane	110-54-3	24,000	73,000	24,000	73,000	ug/m3	0.41 U	0.44 U	0.37 U	6.5 J	0.39 U	0.71 J	0.4 U
Propene	115-07-1	100,000	310,000	--	--	ug/m3	0.48 U	0.52 U	0.44 U	76	0.46 U	0.82 J	0.47 U
Tetrachloroethene	127-18-4	360	4,200	1,400	1,400	ug/m3	110	62	110	22	140	110	190
Toluene	108-88-3	170,000	520,000	170,000	250,000	ug/m3	0.78 J	0.81 J	1.2 J	78	1.4 J	1.6 J	0.87 J
Trichloroethylene	79-01-6	16	70	67	200	ug/m3	9.5	**40**	**58**	***1100***	***970***	**17**	**21**
Trichlorofluoromethane	75-69-4	--	--	--	--	ug/m3	2.3	1.4 J	1.6 J	2.4 U	2.3	1.5 J	1.2 J
Trichlorotrifuoroethane	26523-64-8	--	--	--	--	ug/m3	0.45 J	0.35 J	0.41 J	2.3 U	0.5 J	0.39 J	0.38 J
Xylene, o[f]	95-47-6	3,500	10,000	7,600	23,000	ug/m3	0.28 U	0.35 J	0.26 U	21	0.28 U	0.45 J	0.28 U
Xylenes, m & p[f]	179601-23-1	3,500	10,000	7,600	23,000	ug/m3	0.52 U	0.56 U	0.47 U	12 J	0.5 U	0.67 J	0.51 U

Notes:

µg/m3 = micrograms per cubic meter

-- = no value available

EPA = U.S. Environmental Protection Agency

MDEQ = Michigan Department of Environmental Quality

MDL = method detection limit

RL = reporting limit

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

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[b] The EPA residential soil vapor removal management levels (RMLs) were developed from the EPA VISL Calculator using the November 2017 EPA Regional Screening Levels. The RMLs were calculated based on a TCR = 1 x 10-4 and a THQ = 3, except for TCE where a THQ =1 was used. Use of an attenuation factor of 0.03 for screening sewer gas is a default in the absence of established guidance, and is based on the assumption that similar ratio of soil vapor entry rate (Qsoil) vs. overall building ventilation rate (QB) would hold similarly for sewer gas and for subslab soil vapor. Exceedances of this criteria are shaded grey.

[c] The MDEQ residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the recommended interim action screening levels (RIASLs). Exceedances of this criteria are bold boxed.

[d] The MDEQ time-sensitive residential soil vapor media-specific volatilization to indoor air interim action screening levels (August 2017), otherwise known at the time-sensitive recommended interim action screening levels (TSRIASLs). Exceedances of this criteria are italicized.

[e] The criteria for 1,3-dichloropropene was used.

[f] The criteria for total xylenes was used

Figures

Figure 1-1
Site Location Map
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

N

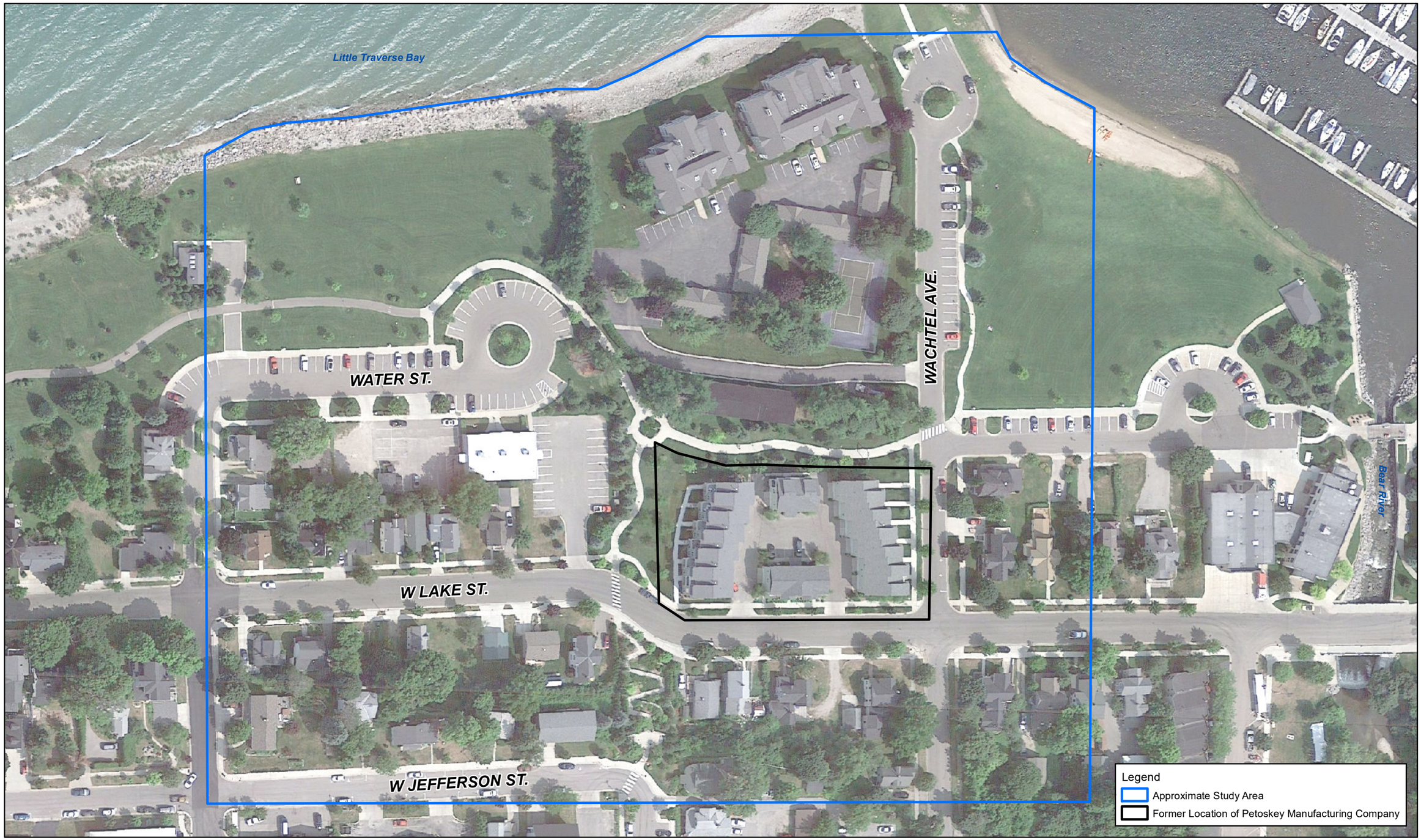
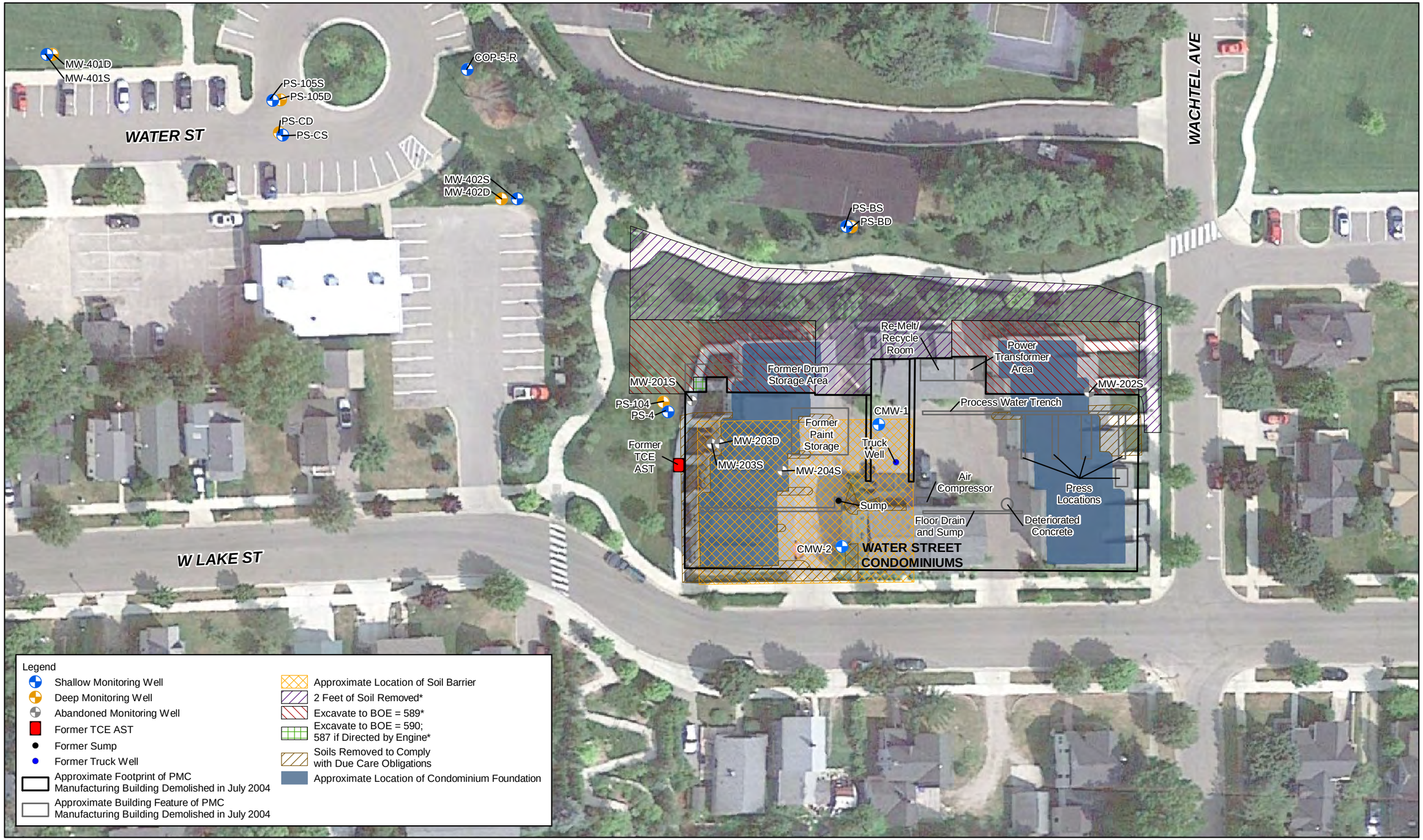


Figure 1-2
Study Area
Remedial Investigation
PMC Groundwater Superfund Site Petoskey, Michigan



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Feet

Notes:
1. Abandoned monitoring well locations and "soils to be removed to comply with due care obligations" based on *Due Care and Demolition Summary Report* (Perazza Products, LLC. November 2004).
2. *Soil areas based on *Soil Excavation Plan* (Tetra Tech EM Inc. July 1999).
3. Former TCE AST based on page 23 of *BEA* (EC&S, Inc. November 2003).
4. Condominium foundation area based on *200 W. Lake Street Condominiums* foundation plan (Oppenhuizen Architects, August 2013).
5. Features within Former PMC Building based on *Soil Sample Location Map* (Environmental Solutions Inc., December 13, 2001) and table in Section 4 Report (December 14, 2001).
6. Locations are approximate.
7. TCE = Trichloroethene
8. AST = Above-ground Storage Tank

Figure 1-3
Excavation History and Former Building Features Overlaid on Current Buildings
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

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\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\E\EPA\407664_PMC\MAPFILES\2018_REQUESTS\RI_REPORT\MAPS\REPORT\FINAL_11052018\FIG01-03_PMC_EXCAVATION HISTORY AND FORMER BUILDING FEATURES OVERLAID ON CURRENT BUILDINGS.MXD MPETERSH 11/5/2018 2:04:27 PM

Figure 2-1 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 3-1 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

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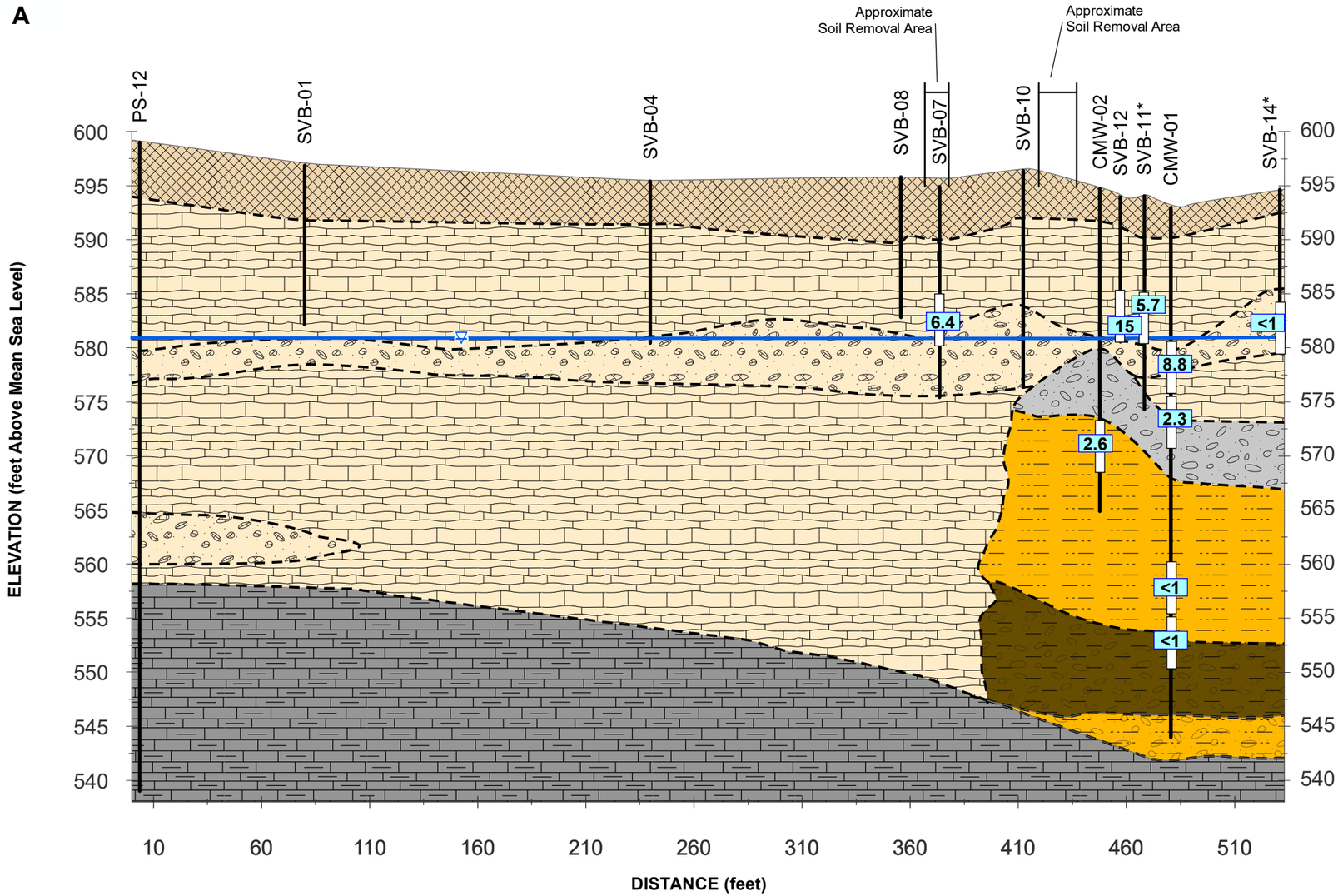
EAST
A'



Potentiometric Surface
Approximate Groundwater Elevation June 1, 2018
Inferred Geology Contact
Well Screen or Sample Interval
5.7 TCE Concentrations (µg/L)

Fill - Dark brown to black fine grained sand with gravel and occasional trace clay
Friable limestone with lacustrine sand and gravel
Sand and gravel, primarily weathered limestone
Gravel
Silty sand
Gravelly silt and clay
Silt and sand with gravel
Limestone bedrock

Notes:
1. Vertical exaggeration: 1 foot = 5 feet
2. Ground surface elevations from borehole locations may differ from the current grade as locations that may be a distance from the line are projected, and ground surface elevations may have changed since the time of drilling for historical locations.
3. TCE - trichloroethene
4. µg/L - microgams per liter
5. * - Sample interval is approximate.

Figure 3-2
Cross Section A-A'
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m:

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\E\EPA\407664_PMC\MAPFILES\2018_REQUESTS\QAPP_XSECT\CROSSSECTIONA.MXD SCYR 11/8/2018 4:35:00 PM

NORTHWEST
B

SOUTHEAST
B'

Approximate Soil Removal Area

PS-106 PS105S PS-CS/CD MW402S* SVB-09 SVB-11** CMW-01 SVB-15 SVB-16 SVB-14**

ELEVATION (feet Above Mean Sea Level)

595 590 585 580 575 570 565 560 555 550 545 540 520 515

15 14 6.8 6.8 18 7.4 J 5.7 8.8 2.8 <1 1.6 <1 <1

10 60 110 160 210 260 310 360 410 460 510 560

DISTANCE (feet)

Potentiometric Surface
Approximate Groundwater Elevation June 1, 2018
Inferred Geology Contact
Well Screen or Sample Interval
5.7 TCE Concentration (µg/L)
Break in Axis

Fill - Dark brown to black fine grained sand with gravel and occasional trace clay
Friable limestone with lacustrine sand and gravel
Sand and gravel, primarily weathered limestone
Gravel
Silty sand
Gravelly silt and clay
Silt and sand with gravel
Limestone bedrock

Notes:
1. Vertical exaggeration: 1 foot = 5 feet
2. Ground surface elevations from borehole locations may differ from the current grade as locations that may be a distance from the line are projected, and ground surface elevations may have changed since the time of drilling for historical locations.
3. Boring PS-106 terminated at 105 feet below ground surface.
4. * boring log not available
5. TCE - trichloroethene
6. µg/L - micrograms per liter
7. ** - Sample interval is approximate.

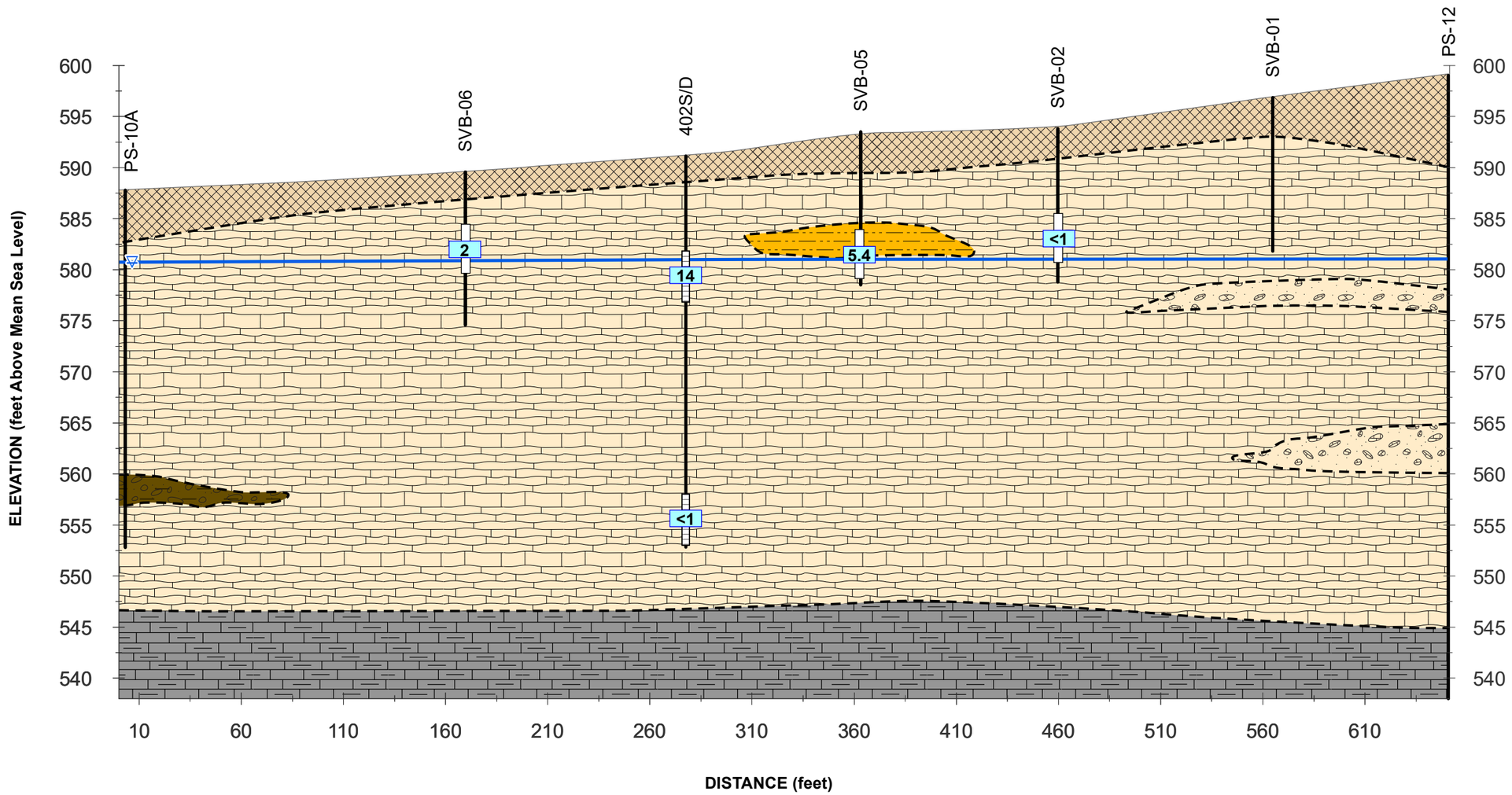
Figure 3-3
Cross Section B-B'
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m:

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\E\EPA\407664_PMC\MAPFILES\2018_REQUESTS\QAPP_XSECT\CROSSSECTIONB.MXD SCYR 11/13/2018 10:09:36 AM

NORTHEAST
C

SOUTHWEST
C'



Potentiometric Surface
Approximate Groundwater Elevation June 1, 2018
Inferred Geology Contact
Well Screen or Sample Interval
5.4 TCE Concentration (µg/L)

Fill - Dark brown to black fine grained sand with gravel and occasional trace clay
Friable limestone with lacustrine sand and gravel
Sand and gravel, primarily weathered limestone
Silty sand
Gravelly silt and clay
Limestone bedrock

Notes:
1. Vertical exaggeration: 1 foot = 5 feet
2. Ground surface elevations from borehole locations may differ from the current grade as locations that may be a distance from the line are projected, and ground surface elevations may have changed since the time of drilling for historical locations.
3. Boring PS-12 terminated at 80 feet below ground surface.
4. TCE - trichloroethene
5. µg/L - micrograms per liter

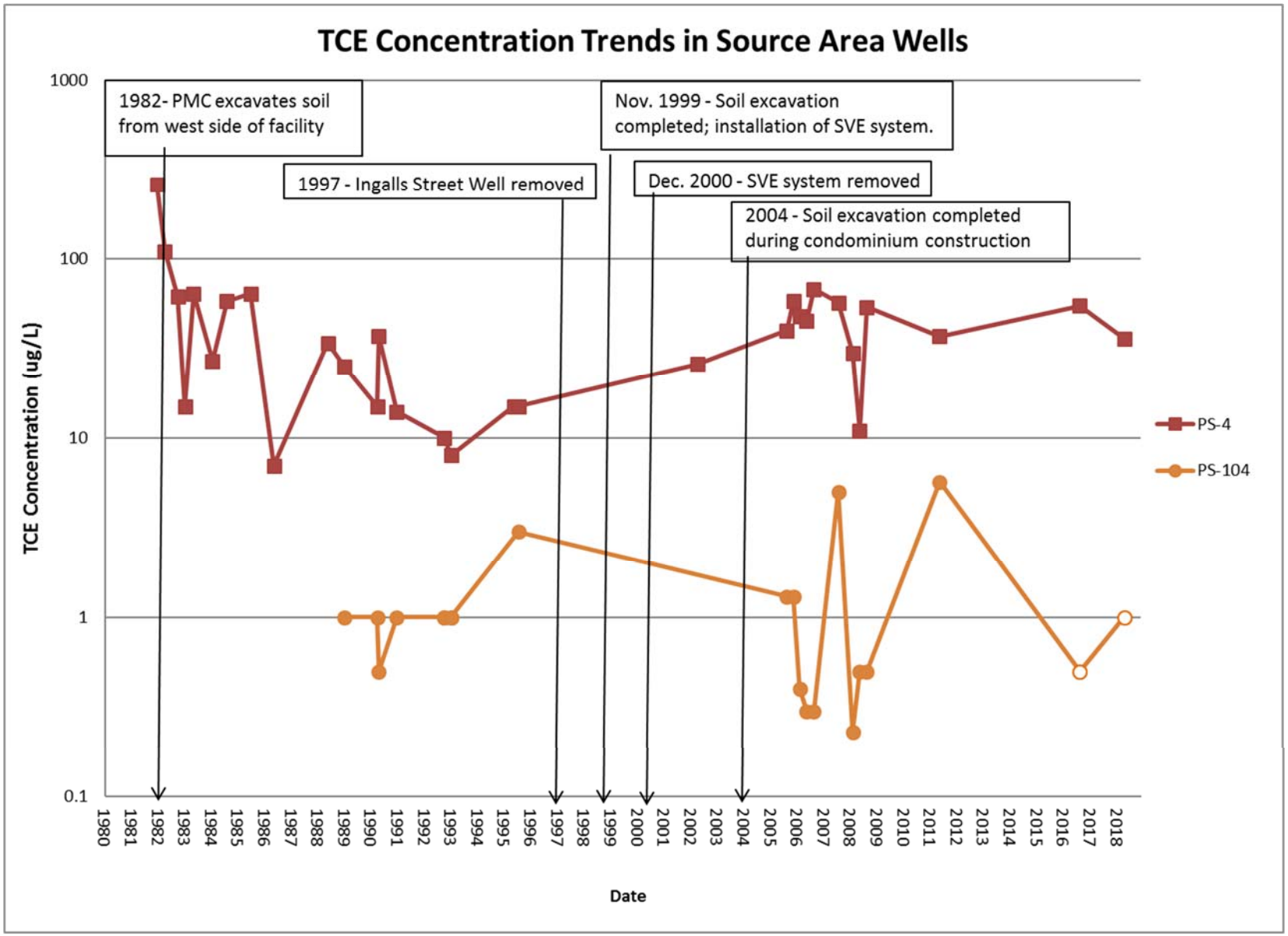
Figure 3-4
Cross Section C-C'
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m.

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\E\EPA\407664_PMC\MAPFILES\2018_REQUESTS\QAPP_XSECT\CROSSSECTIONC.MXD SCYR 11/13/2018 10:21:32 AM

Figure 3-5 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-1 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.



Note:
White filled circles indicate TCE was not detected.

Figure 4-2A
Source Area Well Trends
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m:

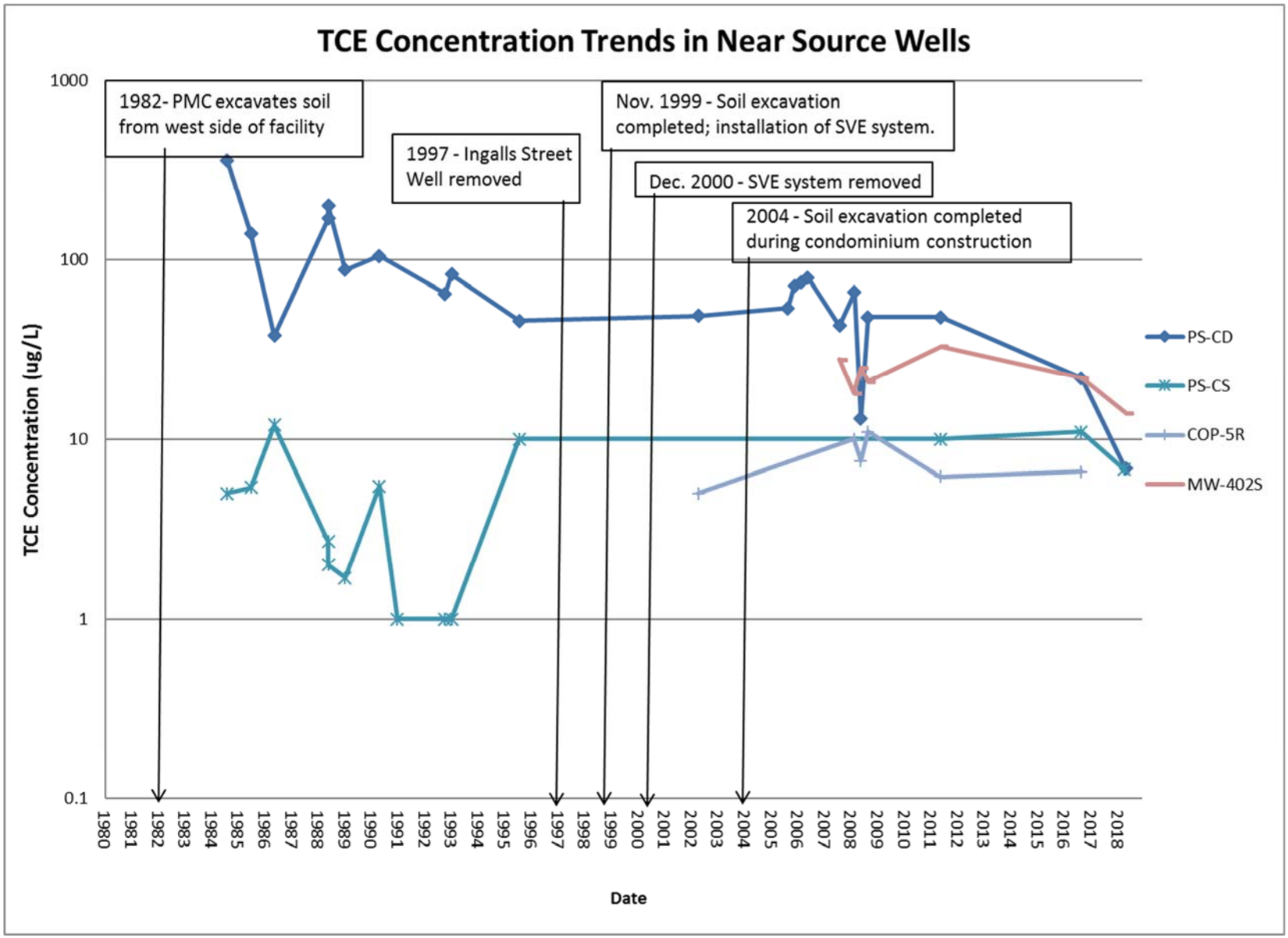


Figure 4-2B
Near-Source Well Trends
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m

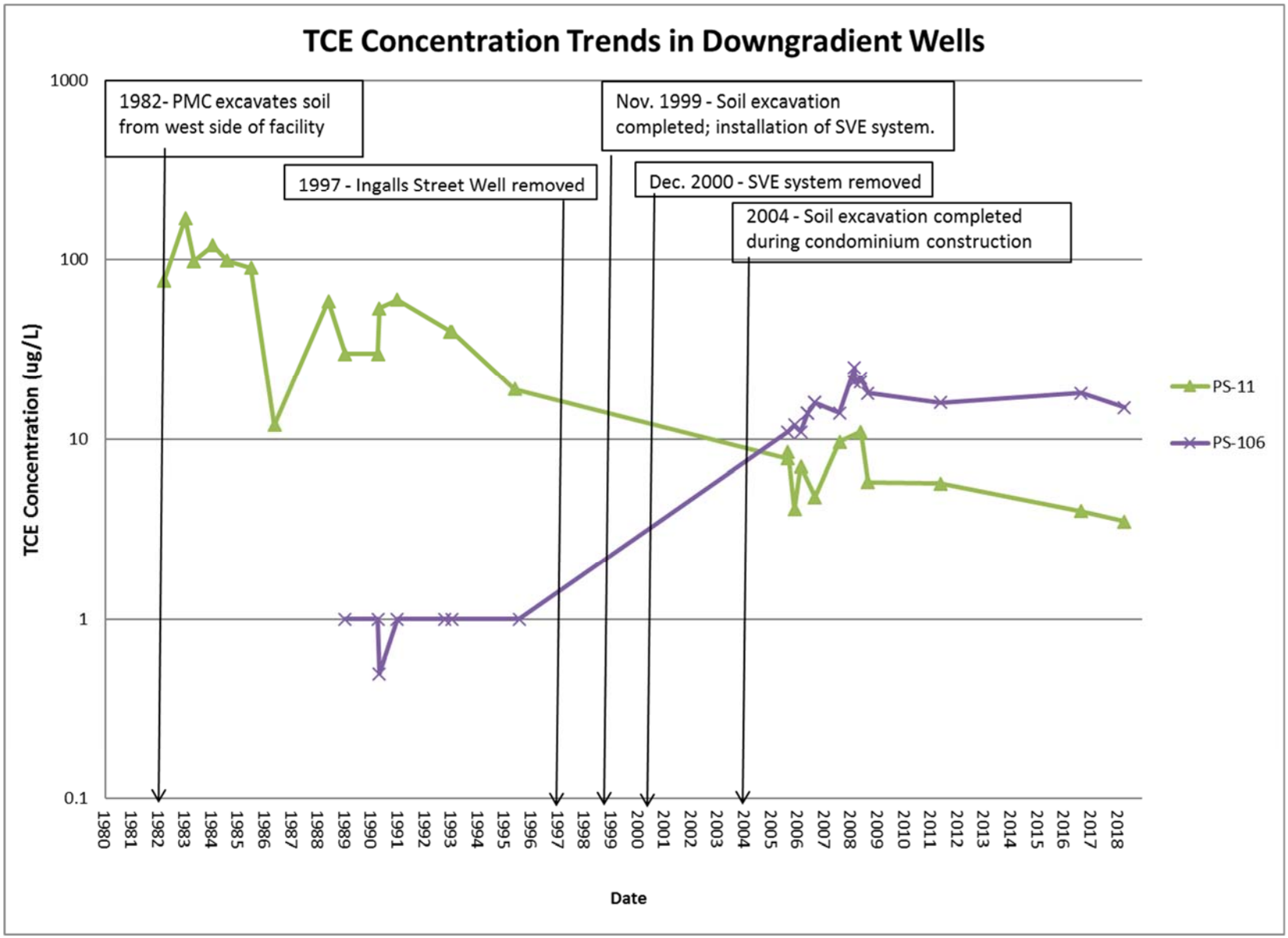


Figure 4-2C
Downgradient Well Trends
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

ch2m

Figure 4-3 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-4 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-5 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-6 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

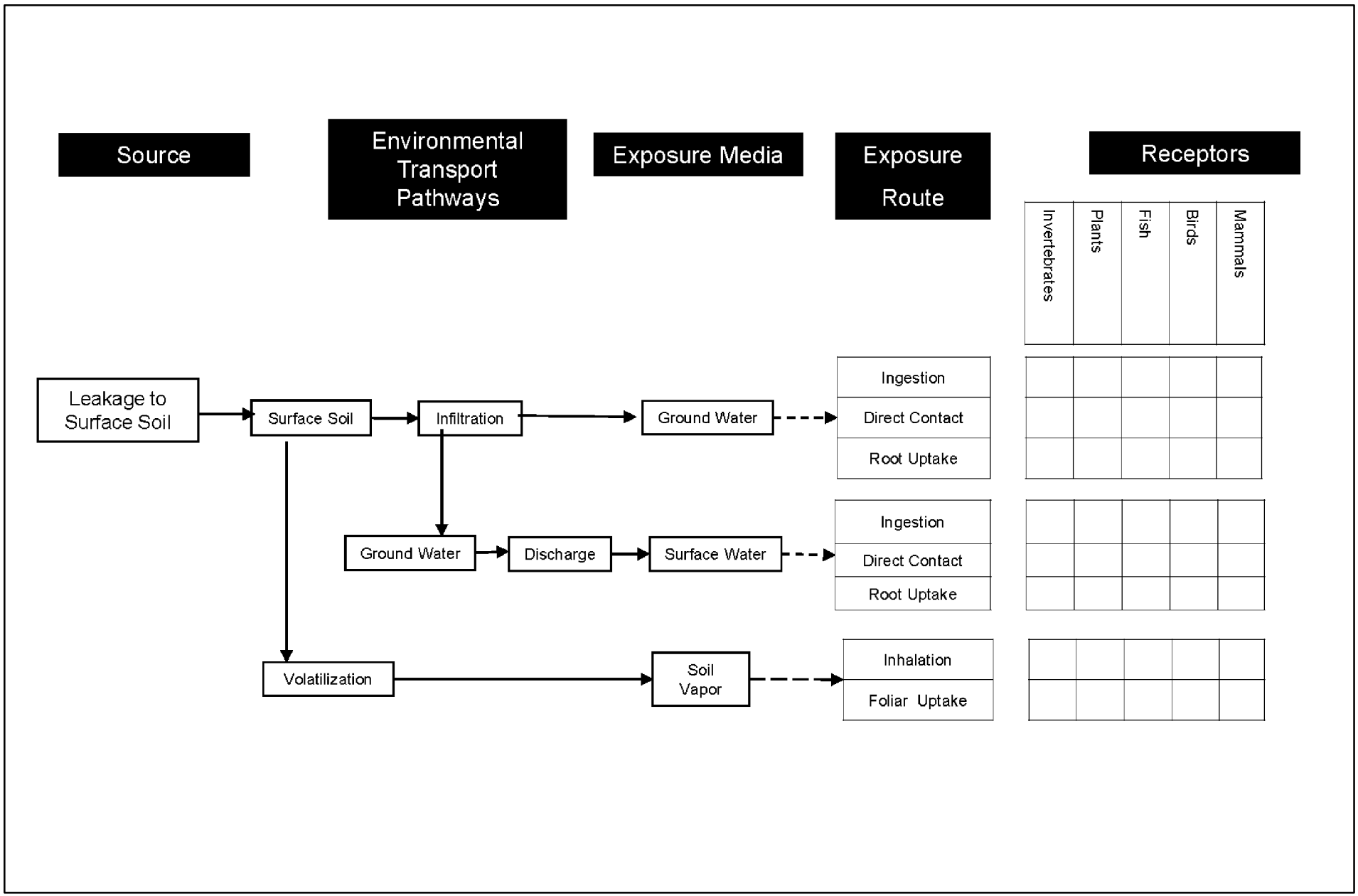
Figure 4-7 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-8 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-9 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 4-10 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Figure 5-1 has been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.



Pathway complete

Pathway incomplete

Figure 6-1
Ecological Risk Assessment
Remedial Investigation
PMC Groundwater Superfund Site
Petoskey, Michigan

Appendix A
Weather Data for
The City of Petoskey, Michigan

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 748 ft. Lat: 45.3613° N Lon: -84.9512° W

Station: **PETOSKEY NCMC, MI US USC00206510**

Temperature (°F)

Mean							Cooling Degree Days Base (above)						Heating Degree Days Base (above)				Mean Number of Days					
Month	Daily Max	Daily Min	Mean	Long Term Max Std Dev	Long Term Min Std Dev	Long Term Avg Std Dev	55	57	60	65	70	72	55	57	60	65	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
01	27.0	12.9	20.0				0	0	0	0	0	0	1086	1148	1241	1396	0.0	0.0	0.0	20.1	30.3	3.1
02	28.8	11.4	20.1				0	0	0	0	0	0	976	1032	1116	1256	0.0	0.0	0.3	19.0	27.7	2.3
03	36.8	18.0	27.4				-7777	0	0	0	0	0	855	917	1010	1165	0.0	0.0	3.0	8.3	29.7	3.0
04	50.4	31.4	40.9				7	4	1	-7777	0	0	430	487	575	724	0.0	0.0	14.3	3.0	14.3	0.0
05	62.6	41.7	52.2				63	46	29	11	3	1	151	196	272	410	0.0	0.0	27.7	0.0	2.3	0.0
06	72.3	51.1	61.7				229	183	122	43	10	5	28	43	72	143	0.0	0.0	30.0	0.0	0.0	0.0
07	76.2	56.6	66.4				354	293	208	91	22	11	1	2	10	49	0.0	0.7	31.0	0.0	0.0	0.0
08	75.4	55.4	65.4				325	264	183	76	16	8	3	5	16	65	0.0	0.3	31.0	0.0	0.0	0.0
09	68.4	49.2	58.8				144	103	57	18	5	3	31	49	94	205	0.0	0.0	30.0	0.0	0.0	0.0
10	57.2	38.2	47.7				14	7	3	-7777	0	0	240	296	384	536	0.0	0.0	25.3	0.0	4.7	0.0
11	43.6	30.8	37.2				3	2	-7777	0	0	0	538	596	685	834	0.0	0.0	7.2	1.5	17.2	0.0
12	31.9	19.6	25.8				0	0	0	0	0	0	906	968	1061	1216	0.0	0.0	0.0	15.1	30.2	1.0
Summary	52.6	34.7	43.6	0.0	0.0	0.0	1139	902	603	239	56	28	5245	5739	6536	7999	0.0	1.0	199.8	67.0	156.4	9.4

-7777: a non-zero value that would round to zero

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 748 ft. Lat: 45.3613° N Lon: -84.9512° W

Station: **PETOSKEY NCMC, MI US USC00206510**

Precipitation (in.)								
	Totals	**Mean Number of Days**				**Precipitation Probabilities Probability that precipitation will be equal to or less than the indicated amount**		
	Means	**Daily Precipitation**				**Monthly Precipitation vs. Probability Levels**		
Month	**Mean**	**>= 0.01**	**>= 0.10**	**>= 0.50**	**>= 1.00**	**0.25**	**0.50**	**0.75**
01	2.54							
02	1.61							
03	1.70							
04	2.53							
05	2.96							
06	2.80							
07	2.60							
08	3.44							
09	3.69							
10	3.70							
11	2.90							
12	2.49							
Summary	32.96	0.0	0.0	0.0	0.0	0.00	0.00	0.00

-7777: a non-zero value that would round to zero

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 748 ft. Lat: 45.3613° N Lon: -84.9512° W

Station: **PETOSKEY NCMC, MI US USC00206510**

Growing Degree Units (Monthly)

Base	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	-7777	1	11	123	379	650	818	787	563	247	53	1
45	0	0	4	63	241	501	663	632	414	129	21	-7777
50	0	0	2	24	137	357	508	477	270	50	8	0
55	0	0	-7777	7	63	229	354	325	144	14	3	0
60	0	0	0	1	29	122	208	183	57	3	-7777	0
Growing Degree Units for Corn (Monthly)												
50/86	-7777	1	8	75	211	386	512	486	306	123	24	-7777

Growing Degree Units (Accumulated Monthly)

Base	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	0	1	12	135	514	1164	1982	2769	3332	3579	3632	3633
45	0	0	4	67	308	809	1472	2104	2518	2647	2668	2668
50	0	0	2	26	163	520	1028	1505	1775	1825	1833	1833
55	0	0	0	7	70	299	653	978	1122	1136	1139	1139
60	0	0	0	1	30	152	360	543	600	603	603	603
Growing Degree Units for Corn (Monthly Accumulated)												
50/86	0	1	9	84	295	681	1193	1679	1985	2108	2132	2132

Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86.

-7777: a non-zero value that would round to zero.

Empty or blank cells indicate data is missing or insufficient occurrences to compute value.

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals
1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 599 ft. Lat: 45.3725° N Lon: -84.9766° W

Station: **PETOSKEY, MI US USC00206507**

Temperature (°F)

Mean							Cooling Degree Days Base (above)						Heating Degree Days Base (above)				Mean Number of Days					
Month	Daily Max	Daily Min	Mean	Long Term Max Std Dev	Long Term Min Std Dev	Long Term Avg Std Dev	55	57	60	65	70	72	55	57	60	65	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
01	27.2	14.4	20.8	4.3	5.7	4.9	0	0	0	0	0	0	1060	1122	1215	1370	0.0	0.0	-7777	21.5	30.1	3.3
02	28.5	13.1	20.8	4.3	5.4	4.7	-7777	0	0	0	0	0	957	1013	1097	1237	0.0	0.0	0.5	18.4	27.0	3.8
03	36.8	20.2	28.5	3.5	3.7	3.5	1	-7777	-7777	-7777	0	0	822	884	976	1131	0.0	0.0	3.3	9.5	27.3	1.4
04	49.4	32.5	40.9	3.9	2.9	3.3	13	9	5	1	-7777	0	435	491	576	722	0.0	0.0	12.7	1.4	14.2	0.0
05	59.9	42.5	51.2	4.1	2.9	3.5	58	40	22	5	1	1	175	220	295	433	0.0	-7777	25.5	0.0	1.5	0.0
06	69.7	53.1	61.4	3.2	3.0	3.0	216	171	113	46	15	8	25	39	71	154	0.0	0.3	29.7	0.0	0.0	0.0
07	74.9	59.1	67.0	3.0	2.4	2.7	373	312	226	108	37	21	1	3	9	46	0.0	0.5	31.0	0.0	0.0	0.0
08	74.3	58.3	66.3	2.8	2.3	2.5	351	291	206	92	28	15	1	3	11	52	0.0	0.4	31.0	0.0	0.0	0.0
09	67.7	51.3	59.5	3.0	2.1	2.4	175	135	85	32	8	4	40	60	100	197	0.0	0.0	29.5	0.0	0.2	0.0
10	55.4	40.5	48.0	3.1	2.6	2.8	31	21	11	3	1	-7777	250	302	384	531	0.0	0.0	21.6	0.0	3.8	0.0
11	43.4	31.2	37.3	3.4	3.1	3.2	2	1	-7777	0	0	0	533	592	681	831	0.0	0.0	7.4	2.9	16.1	0.0
12	32.4	21.7	27.1	4.5	4.8	4.6	-7777	0	0	0	0	0	866	928	1021	1176	0.0	0.0	0.8	14.3	27.1	0.6
Summary	51.6	36.5	44.1	3.6	3.4	3.4	1220	980	668	287	90	49	5165	5657	6436	7880	0.0	1.2	193.0	68.0	147.3	9.1

-7777: a non-zero value that would round to zero

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 599 ft. Lat: 45.3725° N Lon: -84.9766° W

Station: **PETOSKEY, MI US USC00206507**

Precipitation (in.)								
	Totals	Mean Number of Days				Precipitation Probabilities Probability that precipitation will be equal to or less than the indicated amount		
	Means	Daily Precipitation				Monthly Precipitation vs. Probability Levels		
Month	Mean	>= 0.01	>= 0.10	>= 0.50	>= 1.00	0.25	0.50	0.75
01	2.03	17.4	7.3	0.5	0.1	1.41	1.85	2.26
02	1.39	12.9	4.4	0.4	0.0	0.80	1.32	2.05
03	1.88	11.0	4.8	0.9	0.1	1.04	1.87	2.62
04	2.53	10.9	6.1	1.5	0.4	1.59	2.35	3.30
05	2.89	11.2	6.6	1.8	0.4	1.66	2.67	3.91
06	2.81	11.6	6.6	1.6	0.6	1.82	2.63	3.79
07	2.63	9.6	5.1	1.5	0.6	1.73	2.17	3.69
08	3.41	11.3	6.6	2.1	0.9	2.64	3.26	4.02
09	3.60	12.6	7.7	2.6	0.6	2.95	3.48	4.65
10	3.77	15.4	9.3	2.4	0.5	2.47	3.27	5.17
11	2.63	15.7	8.0	1.1	0.2	1.69	2.70	3.37
12	2.39	18.2	8.3	0.8	0.2	1.73	2.37	3.04
Summary	31.96	157.8	80.8	17.2	4.6	21.53	29.94	41.87

-7777: a non-zero value that would round to zero

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 599 ft. Lat: 45.3725° N Lon: -84.9766° W

Station: **PETOSKEY, MI US USC00206507**

Snow (in.)

	Totals	Mean Number of Days									Snow Probabilities Probability that snow will be equal to or less than the indicated amount		
	Means	Snowfall >= Thresholds					Snow Depth >= Thresholds				Monthly Snow vs. Probability Levels Values derived from the incomplete gamma distribution.		
Month	**Snowfall Mean**	**0.01**	**1.0**	**3.0**	**5.00**	**10.00**	**1**	**3**	**5**	**10**	**.25**	**.50**	**.75**
01	36.6	14.6	12.2	5.3	2.1	0.1					24.9	40.0	46.0
02	24.5	10.6	8.7	3.4	1.1	0.1					15.0	24.3	32.5
03	11.5	5.9	4.4	1.5	0.6	0.1					5.0	12.0	15.5
04	2.0	1.9	1.2	0.5	0.2	0.0					0.0	1.0	3.8
05	0.2	0.1	0.1	0.0	0.0	0.0					0.0	0.0	0.0
06	0.0	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0
07	0.0	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0
08	0.0	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0
09	0.0	0.0	0.0	0.0	0.0	0.0					0.0	0.0	0.0
10	0.3	0.4	0.3	-7777	0.0	0.0					0.0	0.0	0.0
11	9.1	4.9	3.4	1.2	0.3	0.0					2.0	5.2	13.5
12	38.6	14.0	11.9	5.3	2.4	0.4					25.5	31.7	50.8
Summary	122.8	52.4	42.2	17.2	6.7	0.7	0.0	0.0	0.0	0.0	72.4	114.2	162.1

-7777: a non-zero value that would round to zero

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
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Summary of Monthly Normals 1981-2010

Generated on 10/19/2018

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Current Location: Elev: 599 ft. Lat: 45.3725° N Lon: -84.9766° W

Station: **PETOSKEY, MI US USC00206507**

Growing Degree Units (Monthly)												
Base	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
40	-7777	2	20	121	353	642	837	815	585	261	59	6
45	-7777	-7777	8	63	224	492	682	660	437	149	21	2
50	0	-7777	2	30	124	347	527	505	297	73	6	-7777
55	0	-7777	1	13	58	216	373	351	175	31	2	-7777
60	0	0	-7777	5	22	113	226	206	85	11	-7777	0
Growing Degree Units for Corn (Monthly)												
50/86	-7777	1	13	69	175	363	527	508	323	114	21	2

Growing Degree Units (Accumulated Monthly)												
Base	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
40	0	2	22	143	496	1138	1975	2790	3375	3636	3695	3701
45	0	0	8	71	295	787	1469	2129	2566	2715	2736	2738
50	0	0	2	32	156	503	1030	1535	1832	1905	1911	1911
55	0	0	1	14	72	288	661	1012	1187	1218	1220	1220
60	0	0	0	5	27	140	366	572	657	668	668	668
Growing Degree Units for Corn (Monthly Accumulated)												
50/86	0	1	14	83	258	621	1148	1656	1979	2093	2114	2116

Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86.

-7777: a non-zero value that would round to zero.

Empty or blank cells indicate data is missing or insufficient occurrences to compute value.

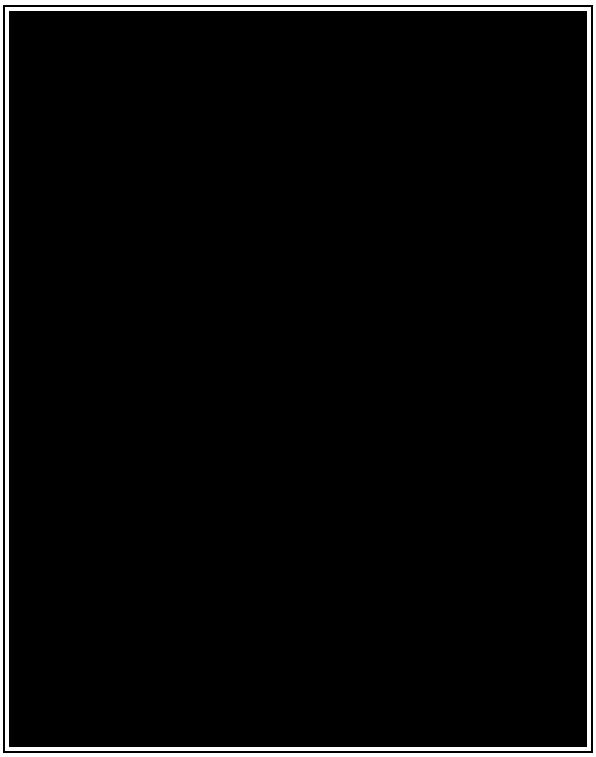
Appendix B
Vapor Intrusion Technical Memorandum

Provided Separately

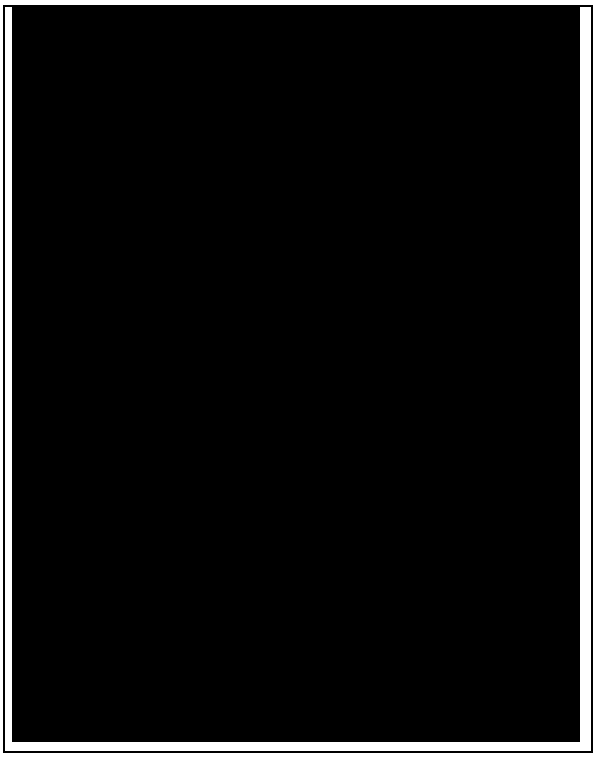
Appendix C
Site Photographs

APPENDIX C

Site Photographs



- 5/9/2018 – Example utility markout



- 5/9/2018 – Example utility markout

- 5/18/2019 – Example soil boring (SVB-11)

- 5/18/2019 – Example soil boring (SVB-11)

- 5/18/2019 – Example soil boring (SVB-11)

- 5/18/2019 – Example soil boring (SVB-11)

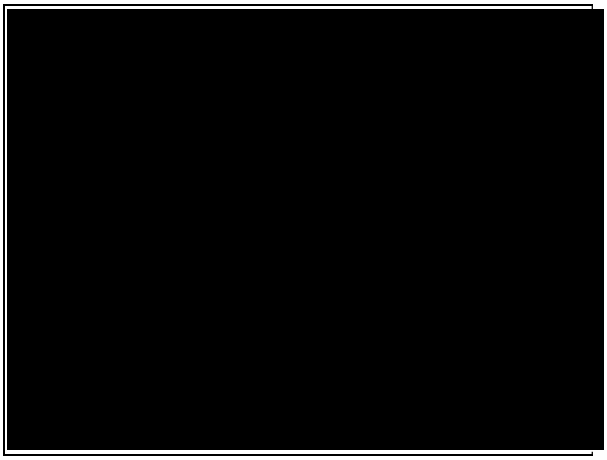
- 5/15/2018 – Example of fossils found in subsurface.

- 5/21/2018 – Example of gravel and cobbles found in subsurface (CMW-01).

- 5/21/2018 – Example of limestone found in subsurface (CMW-01)

- 5/31/2018 – IDW staging area.

- 8/1/2018 – IDW staging area restoration



- 7/31/2018 – Monitoring well PS6

Appendix D
Field Documentation

Boring Logs and Well Completion Diagrams

PROJECT NUMBER:	BORING NUMBER: CMW-01 SHEET 1 OF 3

JACOBS

SOIL BORING LOG AND WELL COMPLETION DIAGRAM

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/21/18 13:20 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS	WELL DIAGRAM
		2.7 / 4.0		**Asphalt** 0.0-0.5'				ID of well 2"
				Sand 0.5-2.5' - dark brown, dry, Asphalt (4-6") (Loamy Sand)		0.2	hard drilling, hot	Sand 0.5-2'
				Sand with gravel (SW) 2.5-3.0' - light brown, damp, with fine gravel (Loamy Sand)		0.3	hot	dry Bentonite 2-4'
	4.0			**Crushed Rock** 3.0-4.0' - dry		0.1	inferred competent limestone hot	
5		3.2 / 6.0		**Crushed/Powdered Rock** 4.0-10.0' - powder size up to 4" diameter, trace fossils		0.2		
						0.3		Portland Grout 4-11'
10	10.0			**Crushed/Powdered Rock** 10.0-14.0' - powder size up to 4" diameter, trace fossils		0.2		
		3.8 / 5.0				0.1		Hyrdrated Bentonite 11-12'
						0.2		Fine/Choker Sand #00 12-13'
				Weathered Bedrock 14.0-14.5' - damp, darker in color, very fine, small fragments		0		
15	15.0			**Powdered Rock** 14.5-15.0' - some fragments		0	water at 15'	
		0.5 / 5.0		15.0-20.0' - only 6-8" of recovery in sampler, large piece of limestone stuck in sampling core barrel, large gravel 1-2" diameter, wet, no sand or silt				Filter Sand #1 13-20'
								Slot PVC Screen 15-20'
20	20.0							

PROJECT NUMBER:	BORING NUMBER: CMW-01 SHEET 2 OF 3

JACOBS

SOIL BORING LOG AND WELL COMPLETION DIAGRAM

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/21/18 13:20 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS	WELL DIAGRAM
	20.0	4.2 / 5.0		**Gravel (GW)** 20.0-23.0' - wet, fine grained with some coarse grained at 20.5', some fine to coarse sand				
				Gravel (GW) 23.0-25.0' - wet, fine grained with some coarse grained, some fine to coarse sand, coarser gravel up to 2-3" diameter with some silt				
25	25.0	4.9 / 5.0		**Silty Sand (SM)** 25.0-30.0' - gray, damp to moist, fine grained, some gravel, wet at top - likely drilling water, trace clay, dry at bottom, conglomerate (Loam)		0 0.1 0.1 0.1		
30	30.0	5.0 / 5.0		**Silty Sand (SM)** 30.0-35.0' - gray, dry to damp, fine grained, some gravel, trace clay (Sandy Loam)		0.1 0.1 0.1 0.1 0.1		
35	35.0	2.5 / 5.0		**Silty Sand (SM)** 35.0-40.0' - damp to moist, fine grained, some gravel, gravelly at bottom of sampler, silty, becoming moist to wet (Sandy Loam)		0.1 1.8 1.2 0.1	End of boring on 5/21/18 14' if water accumulated in bottom of hole overnight, likely drilling water. Hole is cased off with 6" casing to 35'. Resume drilling 5/22/18	
40	40.0							

JACOBS®

PROJECT NUMBER:	BORING NUMBER: CMW-01 SHEET 3 OF 3

SOIL BORING LOG AND WELL COMPLETION DIAGRAM

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/21/18 13:20 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS	WELL DIAGRAM
	40.0			**Gravel (GW)** 40.0-41.5' - wet, fine to coarse grained, sub angular to sub rounded, trace sand		0.1		
		5.0 5.0		**Silt with gravel (ML)** 41.5-42.5' - white to light gray, wet, very fine grained gravel up to 4" (Silt Loam)		0.1		
				Clay with gravel (CL) 42.5-43.5' - light gray to white, moist, soft to hard, medium plasticity, fine grained gravel up to 3-4" (Clay)		0		
				Silty with angular gravel (ML) 43.5-45.0' - black, moist to wet, trace clay, gravel with silt at bottom, fine grained gravel up to 3-4" (Silty Loam)		0		
45	45.0			**Gravel (GW)** 45.0-47.0' - dark gray, wet, small to large ~ 1/4" up to ~3", with some silt and trace clay from 46-47', approximately 4" layer of black sandy silt with some gravel from 46-46.4', dry		0 0		
		5.0 5.0		**Silt with sand (ML)** 47.0-49.0' - gray, moist to wet, some gravel, around 4" loss from 48-48.4' (Silty Loam)		0 0 0		
50	50.0			**Silt with gravel (ML)** 49.0-50.0' - damp to dry, trace clay, some fine grained sand (Silty Loam)				
				Bottom of Boring at 50.0 ft below ground surface		0		
55								
60								

JACOBS

PROJECT NUMBER:	BORING NUMBER: CMW-02 SHEET 1 OF 2

SOIL BORING LOG AND WELL COMPLETION DIAGRAM

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/23/18 10:05 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS	WELL DIAGRAM
		3.6 / 5.0		**Sand (SP)** 0.0-3.0' - dark brown, dry, asphalt approximately 4", fine grained, some gravel (Sandy Loam)		0 0		ID of well 2"
				Crushed Rock and Rock Fragments 3.0-5.0' - light gray to white, dry		0 0	inferred competent limestone	
5	5.0							
		3.1 / 5.0		**Crushed Rock and Rock Fragments** 5.0-10.0' - light gray to white, dry				Portland Grout 1-6'
10	10.0							
		5.0 / 5.0		**Powdered Rock and Rock Fragments** 10.0-12.0' - dry				
				Weathered Rock and Rock Fragments 12.0-14.0' - damp				
				Silty Sand (SM) 14.0-15.0' - moist to wet, some gravel and trace cobbles (Sandy Loam)				
15	15.0							
		3.9 / 5.0		**Gravel (GW)** 15.0-17.5' - wet, fine to coarse (up to ~2"), trace to some sand - fine grained (mainly coarse and fairly well sorted)			wet at 15'	Hydrated Bentonite Chips 16-19'
				Rock Core with silt 17.5-19.0' - trace gravel				
				Gravel (GW) 19.0-20.0' - wet, fine to medium grained, some to trace fine sand and silt, fairly well sorted				
20	20.0							

PROJECT NUMBER:	BORING NUMBER: CMW-02 SHEET 2 OF 2

SOIL BORING LOG AND WELL COMPLETION DIAGRAM

PROJECT : PMC | LOCATION : Petoskey, MI

ELEVATION : | DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- | START : 5/23/18 10:05 | END : | LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS	WELL DIAGRAM
	20.0	3.6 / 5.0		**Gravel (GP)** 20.0-24.0' - wet, small, well sorted, trace fine sand and silt, trace cobbles, sub round to sub angular		0 0 0		Filter Sand #1 19-28' 2" 7 slot PVC screen 21-26'
25	25.0	4.3 / 5.0		**Gravel and Rock Fragments** 24.0-25.0' - wet, coarse grained, fragments up to 4", angular to sub rounded **Gravel and Rock Fragments** 25.0-26.0' - wet, coarse grained, fragments up to 4", angular to sub rounded **Silt Sand (SM)** 26.0-30.0' - gray, dry to damp, stiff to hard, fine grained, trace gravel, trace clay (Sandy Loam)		0 0 0 0 0		Bentonite Chip 28-30'
30	30.0			Bottom of Boring at 30.0 ft below ground surface		0		
35								
40								

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/29/18 16:05 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.75/4.0		**Grass/Topsoil (OL)** 0.0-1.5' - dark brown - black, dry, trace gravel/cobbles, fine grained (Loam)		0.1	
				Dirt/Organic topsoil (OL) 1.5-3.0' - black, dry, fine grained, trace gravel/cobble, trace roots (Loam)		0.3	
	4.0			**Silty Sand (SM)** 3.0-4.0' - brown/white-gray, dry, crushed rock at 4' (Silt Loam)		0.2	
5		4.2/6.0		**Crushed/Powdered Rock/Rock Fragments** 4.0-10.0' - white, Inferred Comp or Weathered LS		0.2	Inferred competent limestone Hard drilling Hot cores No PIDs due to heated cores
10	10.0			**Crushed/Powdered Rock/Rock Fragments** 10.0-14.0' - white gray			Inferred competent limestone
		3.9/5.0					
15	15.0			**Crushed stone** 14.0-15.0' - gray, dry, with gravel/broken stone fragments			Inferred competent limestone
				Bottom of Boring at 15.0 ft below ground surface			
20							

PROJECT NUMBER:	BORING NUMBER: SVB-02 SHEET 1 OF 1

JACOBS

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/30/18 08:00 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
				Asphalt 0.0-1.5' - dark brown, dry, fill sand with some gravel, medium to fine grained		0.1	
		3.3 4.0		**Fill Sand** 1.5-3.0' - black to light brown, damp, fill sand with some gravel and some silt, medium to fine grained		0.1	
	4.0			**Rock** 3.0-4.0' - dry, crushed with fragments and powder		0.1	Inferred competent limestone
5		1.7 4.0		**Powdered Rock/Rock Fragments** 4.0-8.0' - dry		0.1	Inferred competent limestone hot, hard drilling Inferred competent limestone no PIDs due to core temps
	8.0						
10		3.5 7.0		**Powdered Rock/Rock Fragments** 8.0-15.0' - dry to wet at 15'			Inferred competent limestone
15	15.0			Bottom of Boring at 15.0 ft below ground surface			▼ wet at 15'
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/29/2018 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
				Grass/Topsoil 0.0-1.5' - black, damp, some sand, trace roots (Loam)		0	
		2.5 4.0		**Sand** 1.5-3.0' - reddish brown, damp, fine to medium grained (Sandy Loam)		0	
				Sand 3.0-3.5' - moist, with some silt, fine grained		0	
	4.0			**Crushed Rock/Rock Fragments** 3.5-4.0'		0	Inferred competent limestone Inferred competent limestone
5		3.0 4.0		**Crushed Rock/Rock Fragments** 4.0-8.0'			no PIDs due to core temps
	8.0			**Crushed Rock/Rock Fragments** 8.0-15.0'			Inferred competent limestone hot, hard drilling
10		3.7 7.0					
15	15.0			Bottom of Boring at 15.0 ft below ground surface			
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/24/18 13:05 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.5 / 4.0		**Topsoil** 0.0-3.5' - brown-black, dry, grass, trace gravel		0 0 0	
	4.0			**Topsoil** 3.5-4.0' - brown-black, dry, grass, trace gravel, sandy (Sandy Loam)		0	Inferred competent limestone hot
5		3.75 / 6.0		**Crushed/Powdered Rock and Rock Fragments** 4.0-10.0'			
10	10.0			**Crushed/Powdered Rock and Rock Fragments** 10.0-13.5'			Inferred competent limestone hot
		3.8 / 5.0		**Sand (SW)** 13.5-14.5' - dark brown, dry to damp, fine grained, with some rock fragments and gravel (Sandy Loam)		0	13.5 - 15' - possibly weathered bedrock or fractures
15	15.0			**Silty Sand (SW)** 14.5-15.0' - moist to wet, with gravel and trace clay, fine grained (Sandy Loam) Bottom of Boring at 15.0 ft below ground surface		0	▼ water at 14.5'
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-05 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/24/18 11:00 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.5/4.0		**Asphalt Fill** 0.0-3.5' - brown, damp, sand with some gravel, fine grained (~4" of asphalt)		0.1 0.5 0.3	
	4.0			**Sand** 3.5-4.0' - black, dry, fine grained, trace gravel		1.1	hot
5		3.7/6.0		**Crushed Rock and Rock Fragments** 4.0-9.0'		1.1	
10	10.0			**Silty Sand (SM)** 9.0-10.0' - dry, with some gravel, fine grained (Sandy Loam)			
		4.1/5.0		**Sand (SP)** 10.0-12.0' - brown, damp, some gravel, some black, fine grained (Sandy Loam)		0	
				Rock and Rock Fragments 12.0-13.5' - gray, wet, fossils observed		0 0	▼ water at 12'
				Rock and Rock Fragments 13.5-14.5' - gray, wet, fossils observed and silty		0	
15	15.0			**Silty Sand with gravel (SM)** 14.5-15.0' - gray, wet, rock fragments (Loam) Bottom of Boring at 15.0 ft below ground surface		0	
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-06 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/24/18 08:50 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		3.0 / 4.0		**Topsoil** 0.0-0.5' - black, damp, trace roots			
				Sand (SW) 0.5-1.5' - black, some gravel, fine grained (Sandy Loam)		0.1	
				Sand (SW) 1.5-3.0' - brown, damp, some gravel up to ~ 2", fine grained (Sandy Loam)		0.1	
				Crushed/Powdered Rock and Rock Fragments 3.0-4.0' - white			Inferred competent limestone hot
	4.0						
		3.0 / 4.0		**Crushed/Powdered Rock and Rock Fragments** 4.0-8.0' - white to gray, rock up to 6"			Inferred competent limestone
5							
	8.0						
		2.7 / 3.0		**Crushed/Powdered Rock and Rock Fragments** 8.0-11.0' - white to gray, rock up to 6"			Inferred competent limestone
10							
	11.0						
		3.0 / 4.0		**Rock Cuttings** 11.0-12.0' - gray, wet, with fragments, silty			Inferred competent limestone ▼ wet at 11'
				Rock Cuttings 12.0-13.0' - gray, wet, with more fragments, silty and clayey			Inferred competent limestone
				Rock Cuttings 13.0-15.0' - gray, wet, with more fragments, silty and clayey (gravelly 14.5-15.0')			Inferred competent limestone
15	15.0						
				Bottom of Boring at 15.0 ft below ground surface			
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-07 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/15/18 12:55 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		1.5 / 2.0		**Grass/Topsoil** 0.0-0.5' - black, some roots and sand **Sand (SW)** 0.5-2.0' - dark brown, damp, fine grained, some gravel, trace cobbles (Loamy Sand)		0	
	2.0						
		0.0 / 2.0		2.0-4.0' - no recovery		0	
	4.0						
5				**Sand (SW)** 4.0-5.0' - dark brown, dry to damp, fine grained, some gravel - angular (Loamy Sand)			Hard drilling
				Gravel, Powdered Rock 5.0-10.0' - white to very light, dry, some fragments with fossils, solid fragments are gray		1.8	Inferred competent limestone
		3.0 / 6.0				0.6	
						0.4	
						0	
						0	
10	10.0						
				Gravel, Powdered Rock 10.0-15.0' - white to very light, dry, some fragments with fossils, solid fragments are gray		0	Inferred competent limestone
		2.0 / 5.0				0.1	
						0.2	
						0.3	
						0.1	
15	15.0						
				Gravelly Sand (GP) 15.0-20.0' - wet, trace cobbles, some silt, gravel angular to sub angular, cobbles are rounded, less silt from 16-20' (Sandy Loam)		0.2	▼ wet at 15' bgs
		3.0 / 5.0				0	
						0	
						0	
						0	
20	20.0						
				Bottom of Boring at 20.0 ft below ground surface		0	

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-08 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/15/18 15:35 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		3.7 / 4.0		**Grass/Topsoil** 0.0-0.5'			
				Sand 0.5-1.5' - dark brown, moist, fine grained, trace to some gravel, trace cobbles (Loam Sand)		0	
				Sand 1.5-2.0' - black, damp, trace to some gravel (Loam Sand)		0	
				Sand 2.0-2.5' - very dark brown, moist, trace gravel, fine grained (Loam Sand)		0	
	4.0						
				Sand 2.5-4.0' - black, moist, very fine grained, some silt, trace gravel and cobbles, metal piece in soil ~ 6" long - maybe a spring (Sandy Loam)		0.1	
5		4.0 / 4.0		**Silty Sand (SM)** 4.0-6.0' - brown, wet, fine to very fine grained, trace clay (Loam)		0	
				Sand (SP) 6.0-6.5' - brown, damp, fine to medium grained, trace gravel and silt (Sand)		0	
	8.0			**Powdered Rock** 6.5-7.5' - very fine grained, with some gravel, trace cobbles (Loam)		0	Hot, hard drilling
				Silty Sand (SM) 7.5-8.0' - brown to dark brown, moist to wet, very fine grained (Loam)		0	
10		1.6 / 5.0		**Powdered Rock** 8.0-9.0'		0	
				Silty Sand (SM) 9.0-10.0' - brown to dark brown, moist, fine grained		0	
				Powdered Rock 10.0-13.0' - gravel and trace cobbles, limestone cobble lodged in tip of sampler		0	
	13.0						
				Bottom of Boring at 13.0 ft below ground surface		0	Refusal at 13'
15							
20							

PROJECT NUMBER:	BORING NUMBER: SVB-09 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/15/18 08:30 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft) / RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
	3.5 / 3.5		**Topsoil/Grass** 0.0-0.5'		0	
			Sand (SP) 0.5-1.0' - dark reddish brown, damp, trace gravel, fine to medium grained (Loamy Sand)		0	
			Sand (SP) 1.0-2.0' - black, moist, some gravel, fine to medium grained (Sandy Loam)		0.1	
			Sand (SW) 2.0-3.5' - brown to gray, damp to dry, with gravel and cobbles (Sand)		0	hot, hard drilling Inferred competent limestone
5	4.0 / 4.5		**Crushed/Powdered Rock and Rock Fragments** 3.5-8.0' - brown to gray, damp to dry, crushed bedrock, boulder, gravel and cobbles - rounded		0	
8.0					0	
	3.5 / 7.0		**Crushed/Powdered Rock and Rock Fragments** 8.0-15.0' - brown to gray, damp to dry, crushed bedrock, trace cobbles - rounded, moist at 13', more silty at 13', fossils observed, silver shell embedded in bedrock - chert/siltstone		0	hot, hard drilling Inferred competent limestone
10					0	
					0	
					0	
					0	
					0	
15					0	
15.0					0	Inferred competent limestone ▼ water at 15'
	3.5 / 5.0		**Weathered Bedrock** 15.0-20.0' - wet, some cobbles, gravelly, fine to medium silt at bottom, angular		0	
					0	
					0	
					0	
20					0	
20.0			Bottom of Boring at 20.0 ft below ground surface		0	

PROJECT NUMBER:	BORING NUMBER: SVB-10 SHEET 1 OF 2

JACOBS

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/16/18 09:15 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		1.4 / 4.0		**Topsoil/Grass** 0.0-0.5' **Sand** 0.5-4.0' - dark brown to black, moist, fine grained, some gravel, trace clay, trace cobbles, black plastic liner observed at bottom of sample core at 4' (Sandy Loam)		0.1	
	4.0					0.1	
5		2.0 / 5.0		**Sand** 4.0-4.5' - dark brown, moist to wet, fine grained, trace gravel and cobble, trace clay (Sandy Loam) **Bedrock (Limestone)** 4.5-10.0' - dry, powerdered rock and rock fragments		0.1	hot, hard drilling Inferred competent limestone
	9.0						
10		2.7 / 5.0		**Bedrock (Limestone)** 10.0-12.0' - dry, powerdered rock and rock fragments			Inferred competent limestone
				Silty Sand (SM) 12.0-13.0' - dry to damp, very fine grained, some gravel, trace cobbles (Loam)			
	14.0			**Limestone/Bedrock Fragments** 13.0-14.0' - powdered rock, fossils observed in fragments, limestone stuck in sampler		0.2	hot, hard drilling
15		1.9 / 6.0		**Limestone/Bedrock Fragments** 14.0-19.5' - powdered rock, fossils observed in fragments			
20	20.0			**Sand (SW)** 19.5-20.0' - damp, fine grained, with gravel, trace cobbles, conglomerate stuck in core sampler (Sandy Loam)		0.1	

JACOBS®

PROJECT NUMBER:	BORING NUMBER: SVB-10 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/16/18 09:15 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft) / RECOVERY (ft) / SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		Bottom of Boring at 20.0 ft below ground surface			
25					
30					
35					
40					

PROJECT NUMBER:	BORING NUMBER: SVB-11 SHEET 1 OF 1

JACOBS

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/18/18 08:45 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		1.7 / 4.0		**Asphalt** 0.0-0.5'			
				Sand 0.5-4.0' - brown to dark brown from 3.5-4', damp, fine grained, some gravel (Sandy Loam)		0	
						0	
	4.0						
				Sand 4.0-4.5' - dark brown, damp, fine grained, some gravel (Sandy Loam)		0	hard drilling, hot
5				**Silty Sand with gravel (SM)** 4.5-5.5' - brown, damp to moist			Inferred competent limestone
		3.5 / 6.0		**Powdered Rock and Fragments** 5.5-10.0'			
10	10.0						
		2.7 / 5.0		**Powdered Rock and Fragments** 10.0-13.5'			Inferred competent limestone
				Sand with silt (SM) 13.5-15.0' - damp to moist, some gravel, trace cobbles (Sandy Loam)		0.3	
15	15.0						
		3.2 / 5.0		**Gravel with sand (GM)** 15.0-17.5' - wet, coarse grained some fine grained gravel, sub rounded, ~6" pieces of limestone in between		0.4	▼ wet at 15'
						0	
						0	
				Gravel with sand (GM) 17.5-20.0' - wet, fine gravel (smaller than pea gravel), fine gravel to coarse sand, sub angular, some fine sand/silt		0	
						0	
20	20.0						
				Bottom of Boring at 20.0 ft below ground surface		0	

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-12 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/18/18 10:05 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		3.6 / 4.0		**Asphalt** 0.0-0.5'			
				Sand 0.5-1.5' - brown, dry, fine grained, some gravel			
				Sand (SM) 1.5-2.5' - black, moist, very fine grained, trace gravel, some silt (Sandy Loam)		0.1	
				Sand (SM) 2.5-3.0' - brown, moist, very fine grained, trace gravel, some silt (Sandy Loam)		0.1	hot Inferred competent limestone
	4.0			**Powdered Rock and Rock Fragments** 3.0-4.0'			hot Inferred competent limestone
5		1.2 / 3.5		**Powdered Rock and Rock Fragments** 4.0-7.5'			
	7.5			**Powdered Rock and Rock Fragments** 7.5-10.0'			hot Inferred competent limestone
10	10.0	3.2 / 2.5		**Powdered Rock and Rock Fragments** 10.0-12.0'			Inferred competent limestone
		3.4 / 5.0		**Sand** 12.0-13.0' - damp, fine grained, some gravel, may be weathered bedrock (Sandy Loam)			Inferred weathered limestone
				Rock Fragments 13.0-13.4' - limestone and cobbles, granite		0.2	Inferred weathered limestone ▼ water at 13'
				Silty Gravel (GM) 13.4-15.0' - brown, wet, trace cobbles and limestone fragments		1.7	
15	15.0			Bottom of Boring at 15.0 ft below ground surface			
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-14 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/17/18 10:15 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.75/4.0		**Asphalt** 0.0-0.5'			
				Sand 0.5-2.5' - dark brown, damp to dry, fine grained, some gravel		1	
				Powdered Rock and Crushed Rock Fragments 2.5-4.0' - dry			hot, hard drilling Inferred competent limestone
	4.0						
5		3.8/6.0		**Powdered Rock and Crushed Rock Fragments** 4.0-9.0' - dry			hot, hard drilling Inferred competent limestone
				Sand (SM) 9.0-10.0' - light gray, dry to damp, fine grained, some silt and some gravel, conglomerate (Sandy Loam)			
10	10.0						
				Powdered Rock 10.0-11.0'		1.5	hot, hard drilling
		3.6/5.0		**Sand with gravel (SM)** 11.0-13.0' - brown, moist, some silt, trace cobbles - angular to rounded, conglomerate (Loam)		0.4	
				Sandy Gravel (SW) 13.0-15.0' - gray, wet, trace silt, trace cobbles (Sandy Loam)		0.1	▼ wet at 13'
						0.2	
15	15.0			Bottom of Boring at 15.0 ft below ground surface		0.1	
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-15 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/17/18 08:20 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		1.3 / 4.0		**Asphalt** 0.0-4.0' - dry, powdered rock and fragments of rock from small up to 4" diameter asphalt encountered at the top of the second core barrel (4-10')			very hot, melted sample bag Inferred competent limestone
	4.0			**Sand** 4.0-5.0' - dark brown, damp, fine grained, some gravel (Loamy Sand)			
5				**Powdered Rock Fragments** 5.0-10.0' - dry, with fragments of rock varying in size from powder up to 4"x6", limestone		1.3	Inferred competent limestone
		3.8 / 6.0					
10	10.0			**Powdered Rock Fragments** 10.0-13.5' - dry, with fragments of rock varying in size from powder up to 4"x6", limestone			Inferred competent limestone
		1.7 / 5.0					
				Sand with silt (SM) 13.5-15.0' - wet, fine grained, with gravel, trace cobbles (limestone), gravelly sand and some silt at 14-15', large rock stuck in sampler at 15' - granite (Loam)			▼ water at 13.5'
15	15.0			Bottom of Boring at 15.0 ft below ground surface		1.1	
20							

JACOBS

PROJECT NUMBER:	BORING NUMBER: SVB-16 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : PMC LOCATION : Petoskey, MI

ELEVATION : DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT : Mini Sonic-Geoprobe 8140 DT

WATER LEVELS : --- START : 5/16/18 15:05 END : LOGGER : R. Sleeper

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		1.7 / 4.0		**Asphalt/Fill** 0.0-0.5' **Sand** 0.5-1.0' - dark brown, dry, some gravel, fine grained **Powdered Rock Fragments** 1.0-4.0' - dry, fragments of cored rock from small up to 4"		0.2	Inferred competent limestone
	4.0						
5		1.25 / 3.0		**Powdered Rock Fragments** 4.0-7.0' - dry, fragments of cored rock from small up to 4"			Inferred competent limestone
	7.0						
		2.9 / 3.0		**Powdered Rock Fragments** 7.0-8.0' - dry, fragments of cored rock from small up to 4" **Sand (SM)** 8.0-8.8' - dry, silty with some gravel, small to large, conglomerate (Sandy Loam) **Powdered Rock Fragments** 8.8-10.0'		0.3	Inferred competent limestone
10	10.0						
		2.1 / 5.0		**Powdered Rock Fragments** 10.0-10.5' - dry, fragments of cored rock up to 4", metal fragment observed (Loam) **Silty Sand (SM)** 10.5-15.0' - brown, moist to wet at 14', some gravel, trace clay and cobbles, trace black (Loam)			▼ wet at 14' bgs
15	15.0						
		3.1 / 5.0		**Gravel with fine sand and silt (GM)** 15.0-20.0' - wet, (Loam)		0	
20	20.0						
				Bottom of Boring at 20.0 ft below ground surface			

Clean Harbor WPS – Soil and Water Disposal – RI 2018

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1684506

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # *NONEREQUIRED* GENERATOR NAME: *USEPA*

GENERATOR CODE (Assigned by Clean Harbors) *US31534* CITY *Petoskey* STATE/PROVINCE *MI* ZIP/POSTAL CODE *49770*

ADDRESS *200 West Lake Street* PHONE: (720) 286-4107

CUSTOMER CODE (Assigned by Clean Harbors) *CA59174* CUSTOMER NAME: *Cascade Drilling*

ADDRESS *22722 29th Drive SE, Suite 228* CITY *Bothell* STATE/PROVINCE *WA* ZIP/POSTAL CODE *98021*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *Non-Hazardous Waste Solid (Soil)*

PROCESS GENERATING WASTE: **Investigation Derived Waste from Soil Gas Probe and Monitoring Well Installations at former Petoskey Manufacturing Comp.**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- [x] SOLID WITHOUT FREE LIQUID
- [ ] POWDER
- [ ] MONOLITHIC SOLID
- [ ] LIQUID WITH NO SOLIDS
- [ ] LIQUID/SOLID MIXTURE
- [ ] % FREE LIQUID
- [ ] % SETTLED SOLID
- [ ] % TOTAL SUSPENDED SOLID
- [ ] SLUDGE
- [ ] GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 2 3

% BY VOLUME (Approx.)
- TOP *0.00*
- MIDDLE *0.00*
- BOTTOM *0.00*

VISCOSITY (If liquid present)
- [ ] 1 - 100 (e.g. Water)
- [ ] 101 - 500 (e.g. Motor Oil)
- [ ] 501 - 10,000 (e.g. Molasses)
- [ ] > 10,000

COLOR: *Brown*

ODOR
- [x] NONE
- [ ] MILD
- [ ] STRONG

Describe:

BOILING POINT °F (°C)
- [ ] <= 95 (<=35)
- [ ] 95 - 100 (35-38)
- [ ] 101 - 129 (38-54)
- [ ] >= 130 (>54)

MELTING POINT °F (°C)
- [ ] < 140 (<60)
- [ ] 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- [ ] 1-9%
- [ ] >= 10%

FLASH POINT °F (°C)
- [ ] < 73 (<23)
- [ ] 73 - 100 (23-38)
- [ ] 101 -140 (38-60)
- [ ] 141 -200 (60-93)
- [ ] > 200 (>93)

pH
- [ ] <= 2
- [ ] 2.1 - 6.9
- [x] 7 (Neutral)
- [ ] 7.1 - 12.4
- [ ] >= 12.5

SPECIFIC GRAVITY
- [ ] < 0.8 (e.g. Gasoline)
- [ ] 0.8-1.0 (e.g. Ethanol)
- [ ] 1.0 (e.g. Water)
- [ ] 1.0-1.2 (e.g. Antifreeze)
- [x] > 1.2 (e.g. Methylene Chloride)

ASH
- [x] < 0.1
- [ ] 0.1 - 1.0
- [ ] 1.1 - 5.0
- [ ] 5.1 - 20.0
- [ ] > 20
- [ ] Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- [ ] 2,000-5,000 (4.6-11.6)
- [ ] 5,000-10,000 (11.6-23.2)
- [ ] > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
2-BUTANONE	17.0000000	--	17.0000000	PPB
BARIUM	0.3300000	--	0.3300000	PPM
CADMIUM	0.0010000	--	0.0010000	PPM
GRAVEL	0.0000000	--	5.0000000	%
LEAD	0.0060000	--	0.0060000	PPM
SOIL	95.0000000	--	100.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [ ] NO [x]

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [ ] NO [x]

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [ ] NO [x]

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G43* SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W301*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑
	VOLATILE COMPOUNDS					
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
	SEMI-VOLATILE COMPOUNDS					
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
	PESTICIDES AND HERBICIDES					
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

☑ NONE
< 1000 PPM
>= 1000 PPM

PCBs

☑ NONE
< 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	☑ OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: *Not subject to LDR*
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

☑ YES NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NOT REGULATED BY DOT, (CONTAMINATED SOIL)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☑ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

☑ CONTAINERIZED

8-8 CONTAINERS/SHIPMENT

STORAGE CAPACITY: *20*

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER:

DRUM SIZE: *55*

BULK LIQUID

GALLONS/SHIPMENT: *0 Min -0 Max* GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: *0 Min - 0 Max*

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

CNO. Must go to Grassy Mountain Landfill. CERCLA. No Incineration.

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
Syed Quadri	Syed M. Quadri	Remedial Project Manager	7/17/18

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1684523

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # *NONEREQUIRED* GENERATOR NAME: *USEPA*

GENERATOR CODE (Assigned by Clean Harbors) *US31534* CITY *Petoskey* STATE/PROVINCE *MI* ZIP/POSTAL CODE *49770*

ADDRESS *200 West Lake Street* PHONE: *(720) 286-4107*

CUSTOMER CODE (Assigned by Clean Harbors) *CA59174* CUSTOMER NAME: *Cascade Drilling*

ADDRESS *22722 29th Drive SE, Suite 228* CITY *Bothell* STATE/PROVINCE *WA* ZIP/POSTAL CODE *98021*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *Non-Hazardous Waste Liquid (Groundwater)*

PROCESS GENERATING WASTE: **Investigation Derived Waste from soil gas probe and monitoring well installations at former Petoskey Manufacturing Comp**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
  - % FREE LIQUID *90.00 - 100.00*
  - % SETTLED SOLID *0.00 - 10.00*
  - % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 [x] 2 3

% BY VOLUME (Approx.): TOP *90.00*; MIDDLE *0.00*; BOTTOM *10.00*

VISCOSITY (If liquid present)
- [x] 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR: *Brown*

ODOR
- [x] NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- [x] 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- [x] < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
2-BUTANONE	2.0000000	--	2.0000000	PPB
ACETONE	10.0000000	--	10.0000000	PPB
GROUNDWATER	90.0000000	--	100.0000000	%
SOIL	0.0000000	--	10.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [x] NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G43* SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W113*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑

	VOLATILE COMPOUNDS		
D018	BENZENE	0.5	
D019	CARBON TETRACHLORIDE	0.5	
D021	CHLOROBENZENE	100.0	
D022	CHLOROFORM	6.0	
D028	1,2-DICHLOROETHANE	0.5	
D029	1,1-DICHLOROETHYLENE	0.7	
D035	METHYL ETHYL KETONE	200.0	
D039	TETRACHLOROETHYLENE	0.7	
D040	TRICHLOROETHYLENE	0.5	
D043	VINYL CHLORIDE	0.2	
	SEMI-VOLATILE COMPOUNDS		
D023	o-CRESOL	200.0	
D024	m-CRESOL	200.0	
D025	p-CRESOL	200.0	
D026	CRESOL (TOTAL)	200.0	
D027	1,4-DICHLOROBENZENE	7.5	
D030	2,4-DINITROTOLUENE	0.13	
D032	HEXACHLOROBENZENE	0.13	
D033	HEXACHLOROBUTADIENE	0.5	
D034	HEXACHLOROETHANE	3.0	
D036	NITROBENZENE	2.0	
D037	PENTACHLOROPHENOL	100.0	
D038	PYRIDINE	5.0	
D041	2,4,5-TRICHLOROPHENOL	400.0	
D042	2,4,6-TRICHLOROPHENOL	2.0	
	PESTICIDES AND HERBICIDES		
D012	ENDRIN	0.02	
D013	LINDANE	0.4	
D014	METHOXYCHLOR	10.0	
D015	TOXAPHENE	0.5	
D016	2,4-D	10.0	
D017	2,4,5-TP (SILVEX)	1.0	
D020	CHLORDANE	0.03	
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008	

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

☑ NONE

< 1000 PPM

>= 1000 PPM

PCBs

☑ NONE

< 50 PPM

>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

☑ YES NO DO ANY STATE WASTE CODES APPLY?

029LC

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: Not subject to LDR

VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

☑ YES NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NOT REGULATED BY DOT, (GROUNDWATER)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☑ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

☑ CONTAINERIZED

8-8 CONTAINERS/SHIPMENT

STORAGE CAPACITY: 20

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER:

DRUM SIZE: 55

BULK LIQUID

GALLONS/SHIPMENT: 0 Min -0 Max GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: 0 Min - 0 Max

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

CNOS. Grassy Mountain only. CERCLA. No incineration.

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
[signature]	Syed M. Quadri	Remedial Project Manager	7/17/18

Groundwater Sampling Forms
June 2018

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: CMW-1 Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC-Rhoskey MI Field Conditions:

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	Acceptable	Not Acceptable	Explain: No Lock
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/13 Time: 915 Method: LF

Total Well Depth (ft) =

Depth to Water (ft): = 11.97

Water Column (ft): =

1 volume

Comments:

OBSERVATIONS

Odor: None , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
925		~150	7.02	8.93	-245.1	1.565	11.90	—	—
930			7.04	8.11	-245.9	1.554	11.59	7.30	11.96
935			7.12	8.27	-191.3	1.544	11.59	5.53	11.96
940			7.19	7.68	-225.9	1.536	11.61	3.91	11.97
945			7.23	7.59	-241.8	1.536	11.37	—	—
950			7.23	7.65	-260.6	1.535	10.95	3.83	11.98
1000			7.30	7.73	-240.2	1.534	10.96	3.56	11.98
1005			7.31	7.79	-236.5	1.533	10.91	3.19	11.99
1010			7.33	7.88	-240.8	1.529	10.91	3.43	11.99

SAMPLING

Date: 6/13/18 Time: 1015

Sample ID: PMC-CMW-1-061318 Method of Sample Collection: GI=

Analytical Parameters: VOCs + PFCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters: NA

Trash picked up? Y Well Locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-CMW-2-061318 Field Crew: S, Graughman Purpose of Sampling:

Site: PMC-Pocatello Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2" PVC
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061318 Time: 0925 Method:

Total Well Depth (ft) =

Depth to Water (ft): = 13.70

Water Column (ft): =

Comments: 1 volume

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
0935	—	~150	7.19	1.41	199.7	1.336	9.88	215	13.71
0940	—		7.25	1.39	214.1	1.326	9.64	78.9	13.71
0945	—		7.28	1.20	202.4	1.324	9.82	38.9	13.71
0950	—		7.31	1.15	186.3	1.344	10.46	23.7	13.72
0955	—		7.30	0.93	180.8	1.316	9.47	13.4	13.72
1000	—		7.33	0.99	176.1	1.315	9.52	11.0	13.72
1005	—		7.33	0.99	166.4	1.315	9.52	9.96	13.72
1010	—		7.34	0.95	155.9	1.314	9.51	8.12	13.72
1015	—		7.34	0.98	134.3	1.325	9.80	8.36	13.72
1020	—		7.34	0.97	129.9	1.323	9.66	8.02	13.72
1025	—		7.36	1.03	105.3	1.322	9.84	7.89	13.72
1030	—		7.36	1.08	102.7	1.323	9.81	7.54	13.72
~~1035~~	4/5mL	✓	~~7.36~~	~~1.01~~	~~101.4~~	~~1.323~~	9.83	~~7.29~~	~~13.72~~

SAMPLING

Date: 061318 Time: 1037

Sample ID: PMC-CMW-2-061318 Method of Sample Collection:

Analytical Parameters:

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: COP-1 Field Crew: R. Sleeper Purpose of Sampling:

Site: PM Field Conditions: 80°F Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: ~~6/11/18~~ 6/12/18 Time: 1430 Method: LF

Total Well Depth (ft) = 26.52

Depth to Water (ft): = 7.95

Water Column (ft): = 18.57 × 3 = 3.03 (1 volume)

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1440		~150	7.90	8.63	111.4	2.536	12.96	3.91	7.95
1450			7.89	7.26	106.9	2.528	13.52	1.51	7.95
1455			7.87	7.94	103.7	2.521	13.37	0.97	7.98
1500			7.90	8.00	100.1	2.518	13.90	0.91	8.00
1505			7.91	7.72	98.4	2.523	14.00	1.24	8.02
1510	~2 gal		7.87	8.17	97.2	2.521	14.80	0.76	8.02

SAMPLING

Date: 6/12/18 Time: 1515

Sample ID: PMC-COP-1-061218 Method of Sample Collection: LF

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: NA

Q.C. Parameters: NA

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-COP-3-061218 Field Crew: S. Braughman Purpose of Sampling:

Site: PMC-Pefoskey MI Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061218 Time: 1545 Method:

Total Well Depth (ft) = 8.80

Depth to Water (ft): = 5.0

Water Column (ft): = 3.80 0.62 (1 volume)

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1555	–	~150	7.61	0.94	85.8	0.595	10.19	16.2	5.01
1600	–	|	7.50	1.26	88.2	0.595	10.76	9.36	5.04
1605	–	|	7.41	1.52	88.8	0.594	11.08	6.71	5.03
1610	–	|	7.34	1.92	85.6	0.590	11.08	4.73	5.03
1615	–	|	7.31	2.03	86.9	0.573	10.03	3.28	5.03
1620	–	|	7.29	2.08	92.8	0.572	10.28	3.08	5.03
1625	–	|	7.26	2.12	98.4	0.572	10.31	2.27	5.03
1630	3.06AL	|	7.24	2.14	99.3	0.573	10.41	2.49	5.03

SAMPLING

Date: 6/12/18 Time: 1632

Sample ID: PMC-COP-3-061218 Method of Sample Collection:

Analytical Parameters:

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: COP-4 Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC Field Conditions: 80°F Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush Mount
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/12/18 Time: 1635 Method: LF

Total Well Depth (ft) = 10.35

Depth to Water (ft): = 6.51

Water Column (ft): = 3.84 0.63 (1 volume)

Comments:

OBSERVATIONS

Odor: None , Low , High , H_2S , Fuel Like , Other:

Comments:

*ReCal DO 3x Prior to taking readings

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1645		~100	7.74	3.94	127.2	0.921	11.73	9.81	6.55
1650			7.53	2.90	128.9	0.883	11.16	6.84	6.51
1655			7.52	2.80	125.7	0.878	11.16	4.25	6.52
1700			7.50	2.69	123.5	0.874	11.11	2.70	6.53
1705			7.46	2.50	123.3	0.869	10.99	3.35	6.53
1710			7.47	2.48	121.2	0.867	11.13	2.88	6.51

SAMPLING

Date: 6/12/18 Time: 1715

Sample ID: PMC-COP-4-061218 Method of Sample Collection: LF

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: PMC-COP-4-061218-FD

Q.C. Parameters: VOCs

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-COP-5-R-061118 Field Crew: Purpose of Sampling:

Site: Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2"SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 6-11-18 Time: 1940 Method: LF

Total Well Depth (ft) = 15.08

Depth to Water (ft): = 10.60

Water Column (ft): = 4.48 0.73 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1850	–	~150	7.67	2.22	26.8	0.792	9.87	24.1	10.63
1855	–	|	7.53	2.03	29.0	0.799	9.46	12.9	10.64
1900	–	|	7.47	1.96	15.6	0.801	9.38	11.6	10.61
1905	–	|	7.42	1.95	5.4	0.801	9.22	7.05	10.60
1910	–	|	7.40	1.89	5.5	0.799	9.41	7.00	10.61
1915	–	|	7.41	1.89	4.9	0.804	9.40	7.04	10.61
1917	3.5GAL	V	7.41	1.87	-3.2	0.806	9.50	7.01	10.61

SAMPLING

Date: 6-11-18 Time: 1917

Sample ID: PMC-COP-5-R-061118 Method of Sample Collection:

Analytical Parameters: VOC

Q.C. Sample Type: (MS/MSD) Duplicate Duplicate Sample ID: PMC-COP-5-R-061118 MS/MSD

Q.C. Parameters: L/H

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: MW-205S-R Field Crew: BS Boughman Purpose of Sampling:

Site: FMC-Peroskia MI Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flushmount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 6-11-18 Time: 1525 Method: LF

Total Well Depth (ft) = 15.05

Depth to Water (ft): = 7.55

Water Column (ft): = 7.50 1.22 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) --
1535	—	~150	7.09	1.96	-14.6	1.017	10.49	179	7.60
1540	—		7.04	2.11	-6.4	1.058	10.59	92.0	7.58
1545	—		7.02	2.17	0.5	1.089	10.80	55.6	7.57
1550	—		7.03	2.09	3.0	1.108	11.12	56.0	7.55
1555	—		7.06	2.08	3.0	1.100	10.28	60.0	7.55
1600	—		7.06	2.04	7.4	1.123	10.38	36.0	7.55
1610	—		7.08	2.18	8.0	1.103	10.76	30.0	7.59
1620	—		7.09	2.14	12.5	1.094	11.01	23.0	7.59
1630	—		7.10	2.10	13.2	1.102	10.94	16.4	7.59
1640	—		7.11	2.06	19.6	1.098	11.53	13.2	7.59
1650	4.5GAL		7.11	2.07	19.9	1.103	11.04	9.6	7.59

SAMPLING

Date: 6-11-18 Time: 1653

Sample ID: PMC-MW-205S-R-061118 Method of Sample Collection:

Analytical Parameters: VOC

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-MW-401D-061218 Field Crew: Purpose of Sampling:

Site: PMC - Petersburg Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061218 Time: 0815 Method: LF

Total Well Depth (ft) = 40.50

Depth to Water (ft): = 12.90

Water Column (ft): = 27.60 × 4.50 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
0825	~	~150	7.04	6.42	128.0	1.496	8.49	69.7	12.85
0830	~		7.09	6.58	173.1	1.496	8.51	38.1	12.86
0835	~		7.11	6.71	237.6	1.497	8.54	23.7	12.85
0840	~		7.13	6.86	226.4	1.504	8.79	16.6	12.86
0850	~		7.14	6.81	201.8	1.532	9.55	10.0	12.86
0855	~		7.15	6.82	175.2	1.541	9.45	7.89	12.86
0900	~		7.16	6.64	135.8	1.534	9.38	6.58	12.86
0905	~		7.17	6.53	130.6	1.532	9.29	5.92	12.86
0910	4.0 Gal		7.18	6.42	125.6	1.523	8.94	4.90	12.86

SAMPLING

Date: 6-12-18 Time: 0912

Sample ID: PMC-MW-401D-061218 Method of Sample Collection: LF

Analytical Parameters:

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: MW-401S Field Crew: S. Brougham Purpose of Sampling:

Site: PMC - Petoskey MI Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: NA Flushmount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 6-11-18 Time: 1145 Method: Low Flow

Total Well Depth (ft) = 23.55

Depth to Water (ft): = 12.80

Water Column (ft): = 10.75

1.75
1 volume

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1155	-	~150	7.08	6.9%	6.2	1.420	8.92	171	12.84
1200	-	|	7.07	6.5%	4.8	1.419	9.12	151	12.84
1205	-	|	7.09	6.8%	4.5	1.431	9.23	97.0	12.85
1210	-	|	7.09	7.9%	13.7	1.437	9.95	67.4	12.86
1215	-	|	7.10	103 mg/L	19.0	1.442	10.02	61.5	12.88
1220	-	|	7.11	1.21 mg/L	22.8	1.446	10.18	47.2	12.89
1225	-	|	7.13	1.45 mg/L	19.7	1.449	10.73	45.8	12.89
1230	-	|	7.13	1.73 mg/L	26.2	1.456	9.28	38.5	12.89
1235	-	|	7.13	1.76 mg/L	31.8	1.456	9.20	27.6	12.89
1240	-	|	7.13	1.98 mg/L	36.5	1.457	9.36	25.8	12.89
1250	-	|	7.14	2.20 mg/L	41.4	1.460	9.44	14.2	12.88
1255	~3.5 gal	|	7.14	2.01 mg/L	41.3	1.461	9.47	9.2	12.89

SAMPLING

Date: 6/11/18 Time: 1300

Sample ID: PMC-MW-401S-061118 Method of Sample Collection:

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: NA

Q.C. Parameters: NA

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: MW-402D Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC Field Conditions: 60's Cloudy

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain:
Locking Cap	Acceptable	Not Acceptable	Explain:
Well Label	Acceptable	Not Acceptable	Explain:

PURGE METHOD

Date: 6/13/18 Time: 1050 Method: LF

Total Well Depth (ft) = 20.70

Depth to Water (ft): = 10.49

Water Column (ft): = 10.21 1.66 (1 volume)

Comments:

OBSERVATIONS

Odor: None , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) -	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) -
1100	1	~150	9.09	7.37	-166.9	0.583	10.99	4.29	10.65
1110	1	1	8.25	5.63	-297.5	0.616	10.75	1.16	10.66
1115	1	1	8.13	5.34	-295.6	0.624	10.57	0.80	10.65
1120	1	1	8.08	5.47	-297.8	0.624	10.59	0.80	10.65
1125	~2gal	1	8.06	5.53	-292.6	0.623	10.60	1.29	10.58

SAMPLING

Date: 6/13/18 Time: 1130

Sample ID: PMC-MW-402D-061318 Method of Sample Collection: LF

Analytical Parameters: VOCs + PFOs

Q.C. Sample Type: NA MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters:

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-MS-BD-061118 Field Crew: S. Braghman Purpose of Sampling:

Site: PMC-Fetzkey Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: yes
Well Label	Acceptable	Not Acceptable	Explain: yes

PURGE METHOD

Date: 6-11-18 Time: 1720 Method: LF

Total Well Depth (ft) = 44.30

Depth to Water (ft): = 10.21

Water Column (ft): = 34.09 5.56

1 volume

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1730	—	150	7.83	0.33	-140.1	0.486	9.89	33.3	10.24
1735	—		7.75	0.27	-140.7	0.491	10.05	25.4	10.25
1740	—		7.68	0.17	-138.7	0.498	9.99	18.0	10.20
1750	—		7.61	0.14	-142.2	0.507	9.92	9.44	10.22
1755	—		7.58	0.11	-144.2	0.506	10.36	5.68	10.21
1800	—		7.56	0.09	-144.5	0.511	10.18	3.99	10.21
1805	~4 gal		7.56	0.08	-144.6	0.511	10.20	3.95	10.21

SAMPLING

Date: 6-11-18 Time: 1807

Sample ID: PMC-MS-BD-061118 Method of Sample Collection:

Analytical Parameters: 8260 VOC

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-PS-CS-061218 Field Crew: S. Broughman Purpose of Sampling:

Site: FMC-Pocatello ME Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: GOOD
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2' SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 6/12 Time: 0955 Method: LF

Total Well Depth (ft) = 16.08

Depth to Water (ft): = 11.61

Water Column (ft): = 4.47 0.73 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1005	—	~150	7.36	2.91	103.7	2.069	10.60	26.0	11.62
1010	—	|	7.30	3.53	87.8	2.034	10.82	16.6	11.61
1015	—	|	7.31	3.60	79.9	1.997	10.51	16.0	11.61
1020	—	|	7.31	3.80	66.3	1.993	10.61	11.3	11.61
1025	—	|	7.30	3.99	63.7	1.980	10.78	7.64	11.61
1030	—	|	7.29	4.28	66.6	1.970	10.76	6.45	11.61
1035	—	|	7.29	4.34	67.1	1.969	10.68	5.31	11.61
1040	—	|	7.29	4.40	67.6	1.964	10.57	4.29	11.61
1045	3.5GAL	V	7.28	4.42	68.1	1.962	10.52	4.19	11.61

SAMPLING

Date: 061218 Time: 1048

Sample ID: PMC-PS-CS-061218 Method of Sample Collection:

Analytical Parameters:

Q.C. Sample Type: MS/MSD (Duplicate) Duplicate Sample ID: PMC-PS-CS-061218-FD

Q.C. Parameters:

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-PS-1R-061218 Field Crew: S. Broughton Purpose of Sampling:

Site: PMC- Pelosky MI Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: N/A Rusted
Protective Casing	Acceptable	Not Acceptable	Explain: Good
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 6/12 Time: 1236 Method: LF

Total Well Depth (ft) = 42.07

Depth to Water (ft): = 14.73

Water Column (ft): = 27.34 4.46 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1240	—	~150	7.44	0.33	84.5	0.570	9.96	36.0	14.75
1245	—		7.40	0.55	89.1	0.568	9.80	10.7	14.75
1250	—		7.36	0.52	91.1	0.574	9.84	7.45	14.75
1255	—		7.33	0.44	93.2	0.580	9.97	6.72	14.74
1300	—		7.31	0.50	94.2	0.591	10.01	4.23	14.75
1305	—		7.31	0.55	94.6	0.599	10.58	5.85	14.75
1310	350mL		7.31	0.59	94.3	0.602	10.61	9.51	14.75

SAMPLING

Date: 061218 Time: 1312

Sample ID: PMC-PS-1R-061218 Method of Sample Collection: N/A

Analytical Parameters: VOC

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-PS-6-061218 Field Crew: S. Broughman Purpose of Sampling:

Site: PMC-Petoskey MS Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: N/A Risen
Protective Casing	Acceptable	Not Acceptable	Explain: Good
Well Casing	Acceptable	Not Acceptable	Explain: 1.5" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061218 Time: 1355 Method: LF

Total Well Depth (ft) = 27.4

Depth to Water (ft): = 19.44

Water Column (ft): = 7.96

1.30 (1 volume)

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1405	—	~150	7.12	0.44	-124.2	1.565	10.68	365	19.78
1415	—		7.16	1.43	-93.4	1.594	11.00	121	19.69
1420	—		7.16	1.12	-91.4	1.590	10.88	62.8	19.70
1430	—		7.17	1.12	-83.2	1.590	10.93	26.6	19.70
1435	—		7.18	1.27	-77.8	1.594	11.00	19.7	19.70
1440	—		7.18	1.24	-75.8	1.595	10.98	15.9	19.70
1445	—		7.19	1.30	-73.4	1.600	11.19	11.1	19.70
1450	—		7.19	1.37	-72.6	1.611	11.47	10.4	19.69
1455	—		7.18	1.40	-73.6	1.605	11.64	9.8	19.69
1500	4.0 GAL	V	7.19	1.42	-73.4	1.608	11.22	9.4	19.70

SAMPLING

Date: 061218 Time: 1502

Sample ID: PMC-PS-6-061218 Method of Sample Collection:

Analytical Parameters: VOC

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-11 Field Crew: K. Sleeper Purpose of Sampling:

Site: PMC Field Conditions: 80°F Sunny

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: NA
Well Casing	Acceptable	Not Acceptable	Explain:
Locking Cap	Acceptable	Not Acceptable	Explain:
Well Label	Acceptable	Not Acceptable	Explain:

PURGE METHOD

Date: 6/12/18 Time: 1525 Method: LF

Total Well Depth (ft) = 30.04

Depth to Water (ft): = 5.15

Water Column (ft): = 24.89 × 4.05 = 1 volume

Comments:

OBSERVATIONS

Odor: None, Low, High, H_2S, Fuel Like, Other:

Comments:

* D.O. seems odd (making strange fluctuations)

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO * (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1535		~150	8.00	8.89	116.1	2.717	11.72	1.50	5.38
1540		|	7.78	6.95	114.1	2.732	11.07	—	—
1545		|	7.66	7.40	113.2	2.764	11.19	1.25	5.38
1550		|	7.51	7.88	113.9	2.769	11.19	0.72	5.35
1555		|	7.49	8.34	113.6	2.769	11.31	0.93	5.36
1600		|	7.45	8.48	113.7	2.771	11.37	1.22	5.36
1605	~2.5gal	|	7.41	8.84	114.3	2.771	11.40	0.27	5.36

SAMPLING

Date: 6/12/18 Time: 1610

Sample ID: PMC-PS-11-061218 Method of Sample Collection: LF

Analytical Parameters:

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters:

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER: Ryan Shea

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-13 Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC Field Conditions: 80°F Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	(Acceptable)	Not Acceptable	Explain:
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/12/18 Time: 1230 Method: LF

Total Well Depth (ft) = 37.65

Depth to Water (ft): = 14.83

Water Column (ft): = 22.82 × 3 = 3.72 (1 volume)

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1240		~175	7.25	3.72	-12.5	3.525	12.61	31.6	14.86
1245			7.24	3.61	2.8	3.537	12.62	31.3	14.87
1255			7.23	3.67	22.9	3.559	12.76	25.5	14.86
1305			7.22	3.57	33.6	3.558	12.59	28.1	14.86
1310			7.24	4.14	40.9	3.536	12.63	29.2	14.86
1315			7.22	3.68	39.5	3.539	12.73	21.1	14.86
1320			7.22	3.79	41.5	3.527	12.92	18.7	14.81
1325			7.22	3.63	44.2	3.527	12.95	16.9	14.82
1330			7.22	3.78	45.1	3.522	13.02	13.9	14.81
1335			7.22	4.60	47.1	3.530	12.97	10.7	14.80
1340	↓		7.21	4.34	51.0	3.527	12.88	8.54	14.81
1345	4.5gal		7.23	4.55	50.4	3.500	13.01	9.65	14.81

SAMPLING

Date: 6/12/18 Time: ~~1350~~ 1350

Sample ID: PMC-~~BS~~PS-13-061218 Method of Sample Collection: LF

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: NA

Q.C. Parameters: ~~VOCs~~ NA

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER: Ryan Shu

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-PS-1055-061318 Field Crew: S. Boughman Purpose of Sampling:

Site: PMC - Pelosky Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: GOOD
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flushmount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061318 Time: 1120 Method: 2F

Total Well Depth (ft) = 34.54

Depth to Water (ft): = 8.15

Water Column (ft): = 26.39 × 4.30 = 1 volume

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1130			9.06	1.26	82.8	0.238	10.70	18.0	8.61
1135			8.79	0.56	83.1	0.223	10.57	18.2	8.65
1140			8.76	0.38	82.7	0.224	10.43	15.6	8.70
1145			8.76	0.40	83.7	0.223	10.36	11.7	8.76
1150			8.78	0.48	82.8	0.222	10.30	7.55	8.76
1200			8.74	0.39	78.9	0.224	10.44	5.12	8.76
1210			8.77	0.28	78.2	0.232	10.03	4.35	8.76
1220			8.80	0.15	72.3	0.236	9.74	4.30	8.76
1230			8.81	0.09	65.6	0.240	10.13	1.99	8.76
1235			8.80	0.13	64.1	0.240	10.33	1.16	8.76
1240			8.81	0.14	63.8	0.242	10.28	0.994	8.76
1245			8.82	0.12	62.7	0.242	10.24	0.836	8.76

SAMPLING

Date: 061318 Time: 1247

Sample ID: PMC-PS-1055-061318 Method of Sample Collection: N/A

Analytical Parameters:

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

34.5

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PMC-PS-106-061218 Field Crew: S. Braughman Purpose of Sampling:

Site: PMC-Peloskey MI Field Conditions:

WELL CONDITION

Well Pad	Acceptable	Not Acceptable	Explain: Good
Protective Casing	Acceptable	Not Acceptable	Explain: N/A Flush Mount
Well Casing	Acceptable	Not Acceptable	Explain: 2" SS
Locking Cap	Acceptable	Not Acceptable	Explain: YES
Well Label	Acceptable	Not Acceptable	Explain: YES

PURGE METHOD

Date: 061218 Time: 1655 Method: LF

Total Well Depth (ft) = 40.27

Depth to Water (ft): = 8.65

Water Column (ft): = 31.62 5.15 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1705	—	~150	7.56	0.29	24.5	1.656	10.01	36.9	8.80
1710	—	|	7.58	0.27	-15.9	1.651	10.03	24.3	8.81
1715	—	|	7.59	0.28	-51.8	1.662	10.49	15.4	8.75
1720	—	|	7.58	0.31	-60.6	1.670	10.56	11.6	8.75
1725	—	|	7.57	0.30	-63.0	1.725	11.88	9.36	8.74
1730	3.5 gal	✓	7.55	0.28	-66.3	1.717	10.86	9.98	8.75

SAMPLING

Date: Time: 1732

Sample ID: PMC-PS-106-061218 Method of Sample Collection: NA

Analytical Parameters: VOC

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: N/A

Q.C. Parameters: N/A

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: MW-205D-R Field Crew: R. Skeper Purpose of Sampling:

Site: PMC-Petoskey MI Field Conditions: 70s Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/28/18 Time: 1535 Method: LF

Total Well Depth (ft) = 60.60

Depth to Water (ft): = 7.25

Water Column (ft): = 9.70 (1 volume)

Comments:

OBSERVATIONS

Odor: None , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1545	—	1	7.55	11.89	143.9	0.775	14.76	19.2	8.25
1555	—	150	7.50	12.38	135.5	0.753	14.85	19.3	9.03
1600	—	|	7.48	15.22	129.8	0.749	14.68	17.4	9.44
1605	—	|	7.48	15.81	126.8	0.749	14.93	16.0	9.56
1615	—	|	7.46	26.31	118.4	0.751	14.70	24.3	9.83
1625	—	|	7.43	36.14	110.0	0.751	14.69	29.0	10.04
1635	—	|	7.39	40.53	94.9	0.771	14.59	18.8	10.26
1640	—	|	7.39	41.99	87.8	0.782	14.65	16.5	10.33
1645	—	|	7.38	42.12	78.1	0.791	14.27	16.0	10.43
1655	—	|	7.37	35.96	55.0	0.791	14.02	14.1	10.60
1700	—	|	7.37	36.95	46.7	0.789	14.08	13.0	10.65
1705		V	7.39	37.38	34.0	0.787	14.62	13.1	—

SAMPLING

Date: 6/28/18 Time: 1740

X Continued on Back

Sample ID: PMC-MW-205D-R-062818 Method of Sample Collection: LF

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters:

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

MW-205D-R Continued

Time	Volume	Rate	pH	DO	ORP	Specific Conductivity	Temp	Turbidity	DTW
1710		150	7.39	34.99	22.0	0.787	14.70	16.2	10.54
1720		|	7.39	36.85	-5.7	0.785	14.30	20.1	10.55
		|	7.38	36.45	-19.5	0.782	14.00	16.0	10.39
1725		|	7.39	39.01	-21.6	0.780	14.41	13.1	10.50
1730	~ 5 gal	|	7.37	38.14	-28.1	0.784	13.60	11.0	10.61

Sample @ 1740

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: MW-402S Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC - Retortsky MF Field Conditions: 70's Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/27/18 Time: 1515 Method: LF

Total Well Depth (ft) = 20.61

Depth to Water (ft): = 10.02

Water Column (ft): = 10.59 × 1.73 = 1 volume

Comments:

OBSERVATIONS

Odor: None , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1525	–	150	7.12	14.01	-28.8	1.300	12.38	263	10.02
1530	–		7.13	12.43	-22.1	1.261	12.46	91.4	10.02
1545	–		7.20	6.56	-9.7	1.242	12.13	31.4	10.03
1550	–		7.20	6.36	-6.0	1.239	11.89	13.5	10.03
1555	–		7.21	5.97	-1.6	1.232	11.89	10.4	10.03
1600	–		7.21	4.20	3.3	1.230	12.07	10.8	10.04
1605	–		7.21	3.95	7.5	1.229	12.40	7.93	10.04
1610	–		7.21	6.91	8.6	1.230	12.58	8.04	10.04
1615	–		7.21	6.68	12.0	1.235	12.53	8.13	10.04
1620	–	~2.5	7.21	6.59	11.0	1.234	12.01	7.91	10.04

SAMPLING

Date: 6/27/18 Time: 1630

Sample ID: PMC-MW-402S-~~062518~~ PS 062718 Method of Sample Collection: LF

Analytical Parameters: VOC & PFOS

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters: NA

Trash picked up? Y Well locked? NA

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-BS Field Crew: R-Sleeper Purpose of Sampling:

Site: PMC-Petoskey MI Field Conditions: 70s Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/27/18 Time: 1700 Method: LF

Total Well Depth (ft) = 17.68

Depth to Water (ft) = 10.05

Water Column (ft) = 7.63

1.24
1 volume

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1710	—	150	7.62	9.37	81.6	1.130	12.20	—	10.07
1715	—	"	7.59	7.80	64.6	1.123	12.47	—	10.06
1720	—	"	7.57	7.22	31.8	1.124	12.53	6.39	10.04
1725	—	"	7.52	4.80	10.8	1.127	12.30	7.14	10.04
1730	—	"	7.49	5.12	2.2	1.125	12.48	4.96	10.04
1735	—	"	7.46	5.39	0.9	1.122	12.59	5.28	10.04
1740	2gal	"	7.44	5.32	2.8	1.122	12.91	5.54	10.04

SAMPLING

Date: 6/27/18 Time: 1750

Sample ID: PMC-PS-BS-062718 Method of Sample Collection: LF

Analytical Parameters: VOCs & PFOS

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters:

Trash picked up? Y Well locked? NA

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-CD | Field Crew: R Sleeper | Purpose of Sampling:

Site: PMC-Rotosheet | Field Conditions: 70's Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain: no locks
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/28/18 Time: ~~PS~~ 945 Method: LF

Total Well Depth (ft) = ~~16.34~~ 16.11

Depth to Water (ft): = 11.53

Water Column (ft): = 4.58 × 0.75 = 1 volume

Comments:

OBSERVATIONS

Odor: (None), Low, High, H_2S, Fuel Like, Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
955	–	150	7.23	9.62	147.8	3.973	14.82	36.0	11.51
1005	–	|	7.19	7.29	142.1	3.912	14.68	14.5	11.49
1010	–	|	7.19	7.32	141.6	3.869	14.79	10.5	11.51
1015	–	|	7.18	7.28	139.5	3.834	14.72	9.98	11.51
1020	~1.5 gal	|	7.18	7.50	139.3	3.809	14.88	9.42	11.51

SAMPLING

Date: 6/28/18 Time: 1025

Sample ID: PMC-PS-CD-062818 Method of Sample Collection: LF

Analytical Parameters:

Q.C. Sample Type: (MS/MSD) Duplicate Duplicate Sample ID:

Q.C. Parameters: VOCs

Trash picked up? Y Well locked? NA

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-4 Field Crew: R. Sheppard Purpose of Sampling:

Site: PMC - Petoskey Field Conditions: 70's Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 6/27/18 Time: 1130 Method: LF

Total Well Depth (ft) = 21.13

Depth to Water (ft): = 12.82

Water Column (ft): = 8.31 × 1.35 = 1 volume

Comments:

OBSERVATIONS

Odor: (None) Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) --	Rate (mL/min) --	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) --
1140	—	+	7.36	8.67	45.6	1.256	13.34	7.87	12.85
1150	—	150	7.29	7.31	-28.3	1.264	12.41	6.40	12.88
1155	—	|	7.25	6.31	-22.2	1.265	12.27	—	12.88
1200	—	|	7.23	6.07	-19.7	1.266	12.38	2.56	12.89
1205	—		7.21	3.88	-18.5	1.272	12.35	1.20	12.89
1210	—		7.21	3.90	-15.1	1.274	12.30	0.81	12.89
1215	~2 gal		7.20	3.81	-14.5	1.275	12.35	1.19	12.89

SAMPLING

Date: 6/27/18 Time: 1225

Sample ID: PMC-PS-4-062718 Method of Sample Collection: LF

Analytical Parameters: VOCs + PFOS

Q.C. Sample Type: (NA) MS/MSD Duplicate Duplicate Sample ID:

Q.C. Parameters:

Trash picked up? Y Well locked? NA

SIGNED/SAMPLER: Ryan Shea

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-10A Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC - Petoskey MI Field Conditions: 70s Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	(Acceptable)	Not Acceptable	Explain:
Well Casing	(Acceptable)	Not Acceptable	Explain:
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	(Acceptable)	Not Acceptable	Explain:

PURGE METHOD

Date: 8/28/18 Time: 1405 Method: LF

Total Well Depth (ft) = 25.90

Depth to Water (ft): = 8.36

Water Column (ft): = 17.54 × 2.86 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) , Low , High , H_2S , Fuel Like , Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1415	—	1	7.33	10.86	-84.1	2.268	15.06	22.7	8.57
1420	—	150	7.28	8.36	-71.6	2.218	13.81	19.5	8.60
1425	—		7.26	6.65	-51.3	2.216	13.58	14.1	8.60
1435	—		7.24	5.53	-30.9	2.197	13.04	7.95	8.56
1440	—		7.23	8.96	-28.3	2.196	13.15	6.23	8.54
1445	—		7.23	9.34	-23.5	2.195	13.21	5.60	8.55
1450	—		7.23	9.51	-18.4	2.195	13.29	4.89	8.57
1455	1.5 gal		7.23	9.19	-20.3	2.196	13.14	4.55	8.56

SAMPLING

Date: 6/28/18 Time: 1505

Sample ID: PMC-PS-10A-062818 Method of Sample Collection:

Analytical Parameters: VOCs

Q.C. Sample Type: MS/MSD Duplicate Duplicate Sample ID: FD [PMC-PS-10A-062818-FD]

Q.C. Parameters:

Trash picked up? Y Well locked? Y

SIGNED/SAMPLER:

Monitoring Well

Field Data Sheet - PMC Groundwater Site

Well Number: PS-~~4~~ 4S 104 Field Crew: R. Sleeper Purpose of Sampling:

Site: PMC Field Conditions: 70's Sunny

WELL CONDITION

Well Pad	(Acceptable)	Not Acceptable	Explain:
Protective Casing	Acceptable	Not Acceptable	Explain: Flush
Well Casing	(Acceptable)	Not Acceptable	Explain: 2" Galvanized
Locking Cap	(Acceptable)	Not Acceptable	Explain:
Well Label	Acceptable	(Not Acceptable)	Explain:

PURGE METHOD

Date: 6/27/18 Time: 955 Method: LF

Total Well Depth (ft) = 42.07

Depth to Water (ft): = 12.58

Water Column (ft): = 29.49 4.81 (1 volume)

Comments:

OBSERVATIONS

Odor: (None) Low High H_2S Fuel Like Other:

Comments:

FIELD PARAMETERS

Time	Volume (gal) –	Rate (mL/min) –	pH (s.u.) +/- 0.1 s.u.	DO (mg/L) +/- 10%	ORP (mV) +/- 10 mV	Specific Conductance (mS/cmc) +/- 3%	Temp (°C) +/- 3%	Turbidity (NTU) <10 NTU	Depth to water (feet) –
1005	—	~150	7.92	9.62	-131.6	0.534	12.97	21.5	12.59
1010	—		7.98	4.80	-153.0	0.533	13.06	22.5	12.61
1015	—		8.02	3.70	-167.7	0.535	12.86	23.5	12.62
1025	—		7.93	7.87	-195.7	0.538	12.70	23.5	12.62
1030	—		7.82	7.98	-186.1	0.546	12.81	14.9	12.63
1035	—		7.79	4.32	-178.7	0.548	13.12	16.0	12.61
1040	-		7.75	4.43	-163.4	0.552	13.79	13.9	12.61
1045	—		7.73	4.44	-185.5	0.559	13.63	11.7	12.61
1050	—		7.71	4.61	-186.2	0.560	13.51	10.6	12.62
1055	~2gal		7.70	4.63	-185.1	0.562	13.60	9.8	12.62

SAMPLING

Date: 6/27/18 Time: 1105

Sample ID: PMC-PS-~~4~~ 4-062718 Method of Sample Collection: LF

Analytical Parameters: VOCs + PFOs

Q.C. Sample Type: NA MS/MSD Duplicate Duplicate Sample ID: NA

Q.C. Parameters: NA

Trash picked up? Y Well locked? NA

SIGNED/SAMPLER:

Groundwater Site Survey Report 2018

Jacobs

PMC Groundwater Site, Petoskey - Surveying Services

Surveyor's Report

Project Understanding

Establish Horizontal Coordinates and Vertical Elevations on three monitor wells and 15 soil vapor probes as directed by Jacobs. Verify horizontal and vertical control points on site as previously established. Create a report detailing the field and office work completed, provide coordinates and elevations of the wells and provide quality control measures taken.

Methodology

With the base at both CP #1 and CP#2 observations were taken at all monitor wells. Control points were observed multiple times with RTK GPS. Once we received the OPUS solution for each control point, we adjusted all data to the Michigan State Plane Coordinate System, Central Zone based on the North American Datum of 1983 (2011). The redundancy at each monitor well allowed us to validate the locations of all monitor wells and control points. For elevations on site, we collected static data at CP #1 and sent that data to OPUS. A second OPUS solution was obtained at CP #2 as a redundant check. We ran a closed level loop from CP #1 through all control points and top of casings. We were able to validate the elevations of the monitor wells and control points by means of a closed level loop. A least squares adjustment report of all level loops is included.

Initial Project Control

Horizontal Datum

All coordinates for this project are on the Michigan State Plane Coordinate System, Central Zone based on the North American Datum of 1983 (2011) from control points 1, 2 and 3 that were established in 2016 on this site. These three points were recovered in good condition and their locations and elevations were verified. An analysis of the horizontal accuracies attained is attached.

Control Monuments Established – Horizontal and Vertical Control:

- CP #1 - Set 5/8" x 3' long rebar w/Spicer Traverse cap

Northing:	751310.8760	Standard Deviation 0.024 at 95% confidence level
Easting:	19531323.1660	Standard Deviation 0.020 at 95% confidence level
Elevation:	594.432	Standard Deviation 0.023 at 95% confidence level

Witnesses:

South 13'	Northerly edge of E-W sidewalk
East 22'	4" Ornamental tree
S42°E 17.5'	Garbage can mount
N47°W 37'	Light Pole

- CP #2 - Set 5/8" x 3' long rebar w/Spicer Traverse cap

Northing:	751381.0750	Standard Deviation 0.008 at 95% confidence level
Easting:	19531418.0710	Standard Deviation 0.029 at 95% confidence level
Elevation:	591.001	Standard Deviation 0.010 at 95% confidence level

Witnesses

South 5'	Northerly edge of sidewalk
South 27'	4" Maple
S60°E 20'	Light Pole
S49°W 54'	Light Pole

- CP #3 - Set 5/8" x 3' long rebar w/Spicer Traverse cap

Northing:	751313.5250	Standard Deviation 0.012 at 95% confidence level
Easting:	19531208.7930	Standard Deviation 0.011 at 95% confidence level
Elevation:	593.480	Standard Deviation 0.001 at 95% confidence level

Witnesses:

South 15'	Northerly edge of E-W sidewalk
S64°W 16'	Bayfront Park West Sign (Center of Sign)
S38°E 20'	Garbage can mount
N13°E 20.5'	4" Maple

Vertical Datum

All elevations for this project are based on NAVD'88 from control points 1, 2 & 3 as established on site in 2016. All three points were included in the level loop that was run this year and the elevations previously established were confirmed. A least squares adjustment of the level loop is included in the project deliverables.

Equipment Used

For this project we used three different Surveying instruments. We used a Leica GS14 GNSS base/rover RTK system to collect horizontal positions for the project. The same Leica GS14 base was used to collect static GPS data at Control Point #1 and #2 that was later processed through OPUS. We also used a Leica DNA 10 digital level to establish elevations for all project monitoring wells. Finally, we used a Leica TS15 robotic total station to locate the building corners of the condominium complex. All of Spicer Group's digital levels and total stations are calibrated on an annual basis so that no instrument is ever more than 11 months out of calibration

Deliverables

Spreadsheet for Monitoring Wells & Soil Vapor Probes:
A spreadsheet containing the X, Y and Z coordinates of each monitoring well, including a ground elevation and top of inner casing elevation as well as each soil vapor probe including the elevation at the top of the metal.

Finished Floor elevations and spot grades:
The locations and elevations of the garage floors at the condominium units were surveyed as part of this project and are included in the ASCII file of all points included in this survey.

Miscellaneous Files:
Least squares adjustment report, horizontal control point assessment, and project field notes.

Certification

I hereby certify, as a Professional Surveyor Licensed in Michigan, that all surveying work performed has been performed in accordance with the specifications listed in the Scope of Work, and that all accuracies referenced in said Scope of Work have been achieved.

Patrick Bentley

Patrick Bentley, PS #47944

8-9-18

Date

Sewer Gas Sampling Forms
January 2017

Intrusion Best Practices
Gas Sampling Log - Canister Method

Project Info

Project Name: PMC Petoskey **Project #:**

Sampler Name: **Date:** 1/12/17

Structure

Identification:

Manhole Location: NW corner of Unit #8

Sewer Gas Sampling Log

Sample location	Storm Sewer Outside NW Corner of Garage #8
Sample Identification	PMC-ST-01-011217

Set up Information	Manhole removal time	1515
	Field Analysis time (30 min equilibration period)	1615
Field Analysis MultiRae PID	Total VOCs (ppmv)	0
Field Analysis LandTec GEM	O2 (%)	20.9
	CO2 (%)	0.3
	CH4 (%)	<
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	0802
	Flow controller ID	03751
	Sampling rate or period (mL/min)	100
	Sample start date and time	1/12/17 @ 1633
	Initial canister pressure (" Hg)	-30.15
	Sampling vacuum (" Hg)	
	Sample completion date and time	01/12/17 16:58
	Final canister pressure (" Hg)	-3.03

Weather conditions during sampling: cold, snowy

O_2 = 20.6

Observations and Comments: 4.86 ft to slushy icy water CO 0

Slotted (open air) cover H_2S 0.0

NW MultiRae C-105207 from CH4% LEL 0%

tubing inlet 3.5 ft bgs

ch2m:

Vapor Intrusion Best Practices
ewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA R5 PMC Petoskey MI	Project # :	
Sampler Name:	Jenn Simms, Ryan Sleeper	Date:	01/13/17

Structure	
Identification:	
Manhole Location:	

Sewer Gas Sampling Log

Sample location	Sanitary
Sample Identification	PMC-SA-02

Set up Information	Manhole removal time (Plastic sheeting in place)	09:17
	Field Analysis time (30 min equilibration period)	09:47
Field Analysis MultiRae PID	Total VOCs (ppmv)	see below
Field Analysis LandTec GEM	O2 (%)	21.7
	CO2 (%)	0.3
	CH4 (%)	<<<<
	~~CH4 (%) with carbon filter~~	

Canister Sampling			
	Canister ID	0637	Dup 0489
	Flow controller ID	02310	05157
	Sampling rate or period (mL/min)	100	
	Sample start date and time	01/13/17 0956	
	Initial canister pressure (" Hg)	-30.07	-28.63
	~~Sampling vacuum (" Hg)~~		
	Sample completion date and time	1/13/17	1014
	Final canister pressure (" Hg)	-2.45	-8.52

Weather conditions during sampling:

Observations and Comments: Pipes coming in from N and West
Main lake diameter 24-inches

water level 4.1 ft bgs
tubing inlet 2.5 ft bgs

MultiRAE readings
O_2 20.9%, CO 0 ppm, H_2S 0.0 ppm, LEL 0%
VOCs 0.0 ppm

ch2m:

Vapor Intrusion Best Practices
ewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA RS PMC Petoskey MI	Project # :	419714. ET.08
Sampler Name:	Jenn Simms and Ryan Sleeper	Date:	01/12/17

Structure	
Identification:	Sanitary sewer Manhole
Manhole Location:	West side Unit 1 (by garage)

Sewer Gas Sampling Log

Sample location	Sanitary sewer west side of Unit 1
Sample Identification	PMC-SA-01-011217

Set up Information	Manhole removal time	15:35
	Field Analysis time (30 min equilibration period)	1703
Field Analysis MultiRae PID	Total VOCs (ppmv)	0.0
Field Analysis LandTec GEM	O2 (%)	~~20.9~~ 21.2
	CO2 (%)	0.3
	CH4 (%)	<
	CH4 (%) with carbon filter	—

Canister Sampling		
	Canister ID	1913
	Flow controller ID	01692
	Sampling rate or period (mL/min)	100
	Sample start date and time	1/12/17 0 1711
	Initial canister pressure (" Hg)	-30.14
	Sampling vacuum (" Hg)	—
	Sample completion date and time	01/12/17 17:35
	Final canister pressure (" Hg)	-2.25

Weather conditions during sampling: 15°F Windy Cold

Observations and Comments: 4.82' to yucky water

15:35 plastic sheeting secured in place

MultiRae O_2=20.9, CO=0 ppm, H_2S 0.0ppm, LEL 0%, VOC=0.0ppm

tubing inlet 3.5 ft bgs

Sewer Gas Sampling Forms June 2018

ch2m.

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: EPA R5 PMC Petoskey MI Project #: 699973
Sampler Name: Jenn Simms & Ryan Sleeper Date: 06/27/18

Structure

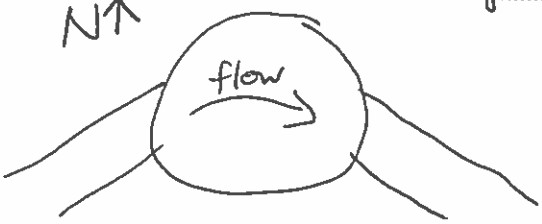
Identification: SA-03
Manhole or Cleanout Location: sanitary sewer, north side of W. Lake St at the SW corner of the condo bldg in grass between sidewalk & street

Sample location		SA-03
Sample Identification		PMC-SA-03-062818
Set up Information	Manhole removal time	18:45
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	21.7
	CO2 (%)	0.1
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	A501276
	Flow controller ID	FCR00182
	Sampling rate or period ~~(ml/min)~~	24 hr
	Sample start date and time	06/27/18 18:47
	Initial canister pressure (" Hg)	-29.03
	Sample completion date and time	06/28/18 17:53
	Final canister pressure (" Hg)	-5.34
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50s to 70s °F

Observations and Comments: 71 inches to water surface from ground
two 6-inch diameter pipes
2 inches of water
Solid manhole cover (no holes)



ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA RS PMC Petoskey, MI	Project #:	699973
Sampler Name:	Jenn Simms & Ryan Skeeper	Date:	06/27/18

Structure	
Identification:	SA-04
Manhole or Cleanout Location:	Sanitary sewer on walking trail at NW corner of condo building NE side of Circle

Sewer Gas Sampling Log

Sample location		SA-04
Sample Identification		PMC-SA-04-062818
Set up Information	Manhole removal time	19:03
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	22.6
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02162
	Flow controller ID	FCR00327
	Sampling rate or period ~~(mL/min)~~	24 hr
	Sample start date and time	06/27/18 19:15
	Initial canister pressure (" Hg)	-29.02
	Sample completion date and time	06/28/18 18:01
	Final canister pressure (" Hg)	-6.11
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50s to 70s °F

Observations and Comments: 58 inches ground to water
flowing water about 2 inches deep
2 18-inch diameter pipes

ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA RS PMC Petoskey MI	Project #:	699973
Sampler Name:	Jenn Simms & Ryan Sleeper	Date:	06/27/18

Structure	
Identification:	SA-05
Manhole or Cleanout Location:	sanitary sewer on Lake St (in Street) east of Ingalls Ave

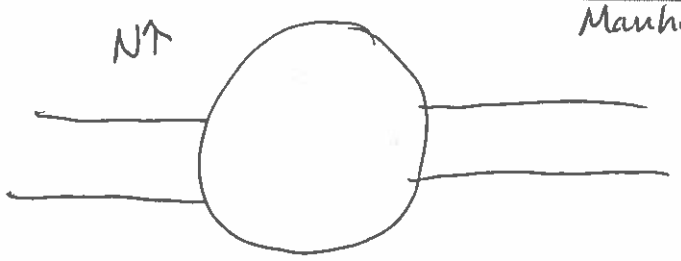
Sewer Gas Sampling Log

Sample location		SA-05
Sample Identification		PMC-SA-05-062818
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	19.9
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02065
	Flow controller ID	FCR00037
	Sampling rate or period ~~(mL/min)~~	24 hr
	Sample start date and time	06/27/18 19:36
	Initial canister pressure (" Hg)	-29.04
	Sample completion date and time	06/28/18 17:46
	Final canister pressure (" Hg)	-6.46
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50s to 70s °F

Observations and Comments: Manhole lid is covered in fresh tar from today (06/27/18)
approx 5.5 to 6 ft to water from road surface
Manhole cover is solid, no notes



ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA R5 PMC Petoskey, MI	Project #:	699973
Sampler Name:	Jenn Simms & Ryan Sleeper	Date:	06/28/18

Structure	
Identification:	SA-06
Manhole or Cleanout Location:	Middle of Water St near intersection with Isgalls Ave (east of intersection)

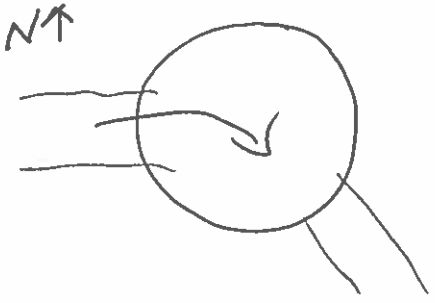
Sewer Gas Sampling Log

Sample location		SA-06
Sample Identification		PMC-SA-06-062918
Set up Information	Manhole removal time	12:15
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	21.9
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC01870
	Flow controller ID	FCR00222
	Sampling rate or period (~~mL/min~~)	24 hr
	Sample start date and time	06/28/18 12:17
	Initial canister pressure (" Hg)	-29.08
	Sample completion date and time	06/29/18 10:43
	Final canister pressure (" Hg)	-7.51
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50s to 70s °F

Observations and Comments: Flowing water about 2 inches deep. 42 inches from road surface to water



ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: EPA R5 PMC Petoskey, MI Project #: 699973
Sampler Name: Jenn Simms & Ryan Sleeper Date: 06/28/18

Structure

Identification: SA-07
Manhole or Cleanout Location: Sanitary Sewer on NE corner of 200 W. Lake St property, south of bike trail west of sidewalk

Sewer Gas Sampling Log

Sample location		SA-07
Sample Identification		PMC-SA-07-062918
Set up Information	Manhole removal time	11:51
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	22.1
	CO2 (%)	0.1
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02199
	Flow controller ID	FCR00051
	Sampling rate or period (mL/min)	24 hr
	Sample start date and time	06/28/18 11:54
	Initial canister pressure (" Hg)	-29.12
	Sample completion date and time	06/29/18 10:33
	Final canister pressure (" Hg)	-5.47
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50° to 70° F

Observations and Comments: Flowing water (2 inches deep) 37 inches below ground surface

ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: EPA RS PMC Petoskey, MI Project #: 699973
Sampler Name: Jenn Simms & Ryan Sleeper Date: 06/27/18

Structure

Identification: JS ~~Sanitary Sewer~~ ST-03
Manhole or Cleanout Location: Storm sewer, north side of West Lake St at the SW corner of the condo bldg

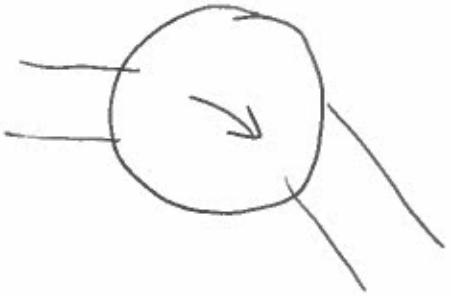
Sewer Gas Sampling Log

Sample location		ST-03
Sample Identification		PMC-ST-03-062818
Set up Information	Manhole removal time	18:50
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	22.4
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC01049
	Flow controller ID	FCR00349
	Sampling rate or period ~~(mL/min)~~	24 hour
	Sample start date and time	06/27/18 18:55
	Initial canister pressure (" Hg)	-28.98
	Sample completion date and time	06/28/18 17:58
	Final canister pressure (" Hg)	-4.91
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50° to 70° F

Observations and Comments: 55 inches to water from ground
almost no water
two 12-inch diameter pipes



ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	EPA RS PMC Petoskey MI	Project # :	699973
Sampler Name:	Jenn Shums & Ryan Sleeper	Date:	06/27/18

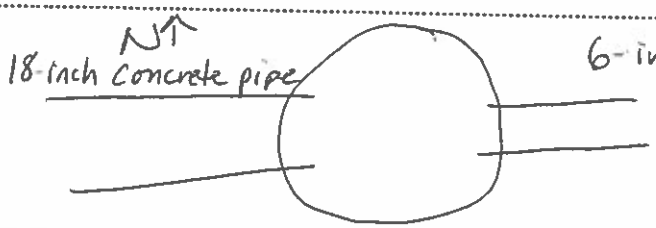
Structure	
Identification:	ST-04
Manhole or Cleanout Location:	Storm sewer on walking trail at NW corner of condo bldg South side of walking trail

Sample location		ST-04
Sample Identification		PMC-ST-04-062818
Set up Information	Manhole removal time	19:02
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	19.9
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AC01868
	Flow controller ID	FCR00109
	Sampling rate or period ~~(mL/min)~~	24 hr
	Sample start date and time	06/27/18 19:05
	Initial canister pressure (" Hg)	-28.99
	Sample completion date and time	06/28/18 18:05
	Final canister pressure (" Hg)	-4.63
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50s to 70s °F

Observations and Comments: 2 inches standing water below pipe bottom
37 inches to water from ground



ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: EPA RS PMC Petoskey, MI
Project #: 699973
Sampler Name: Jenn Simms & Ryan Skeeper
Date: 06/28/18

Structure

Identification: ST-05
Manhole or Cleanout Location: in Wachtel St at intersection with Water St. Storm Sewer

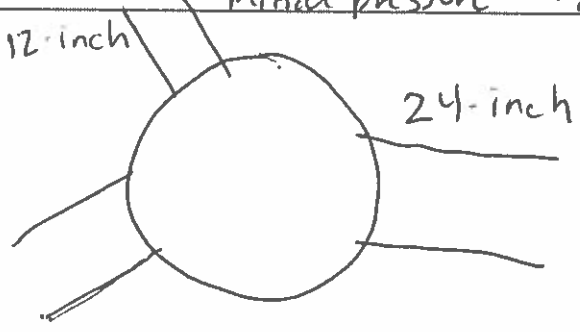
Sewer Gas Sampling Log

Sample location		ST-05
Sample Identification		PMC-ST-05-062918
Set up Information	Manhole removal time	11:37
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	22.6
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	A500609
	Flow controller ID	FCR00313
	Sampling rate or period ~~(mL/min)~~	24 hr
	Sample start date and time	06/28/18 11:40
	Initial canister pressure (" Hg)	-29.04
	Sample completion date and time	06/29/18 10:24
	Final canister pressure (" Hg)	-4.92
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain, temps 50° to 70° °F

Observations and Comments: Duplicate sample
Can ID AC01876 FC ID FCR00041
Initial pressure -29.08 "Hg Final pressure -6.14 "Hg



dump on the bottom
55 inches from road to bottom

ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: EPA R5 PMC Petoskey, MI Project #: 699973
Sampler Name: Jenn Simms & Ryan Sleeper Date: 06/28/18

Structure

Identification: ST-06
Manhole or Cleanout Location: storm drain on NW corner of Lake St and Wachtel Ave

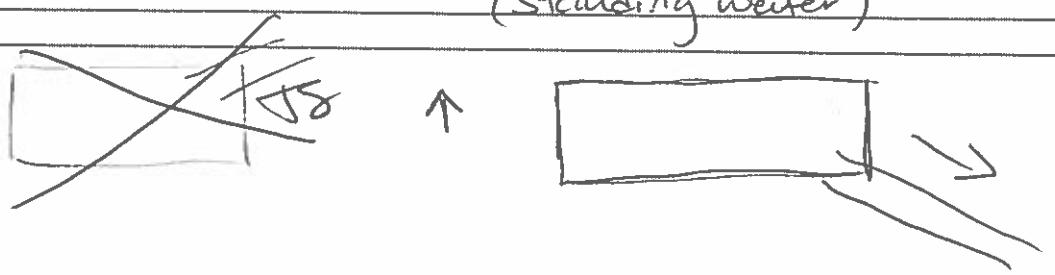
Sewer Gas Sampling Log

Sample location		ST-06
Sample Identification		PMC-ST-06-062918
Set up Information	Manhole removal time	12:02
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	22.0
	CO2 (%)	0
	CH4 (%)	0
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02314
	Flow controller ID	FCR00053
	Sampling rate or period ~~(mL/min)~~	24 hr
	Sample start date and time	06/28/18 12:04
	Initial canister pressure (" Hg)	-29.13
	Sample completion date and time	06/29/18 10:35
	Final canister pressure (" Hg)	-5.79
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Sunny, no rain. temps 50° to 70° F

Observations and Comments: 45 inches from road surface to water (Standing water)



Sewer Gas Sampling Forms
October 2018

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC **Project #:** 699973

Sampler Name: R. Sleeper / S. Chumney **Date:** 10/8/18

Structure

Identification: SA-01

Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		SA-01
Sample Identification		PMC-SA-01-100918
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	21.0
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AC02266
	Flow controller ID	FCR00228
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1700
	Initial canister pressure (" Hg)	-29.61
	Sample completion date and time	10/9/18 - 1545
	Final canister pressure (" Hg)	-8.12
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: Scattered Rain ~70's

Observations and Comments: Appears to be a storm not a Sanitary

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Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC
Project #: 699973
Sampler Name: R. Sleeper / S. Chumney
Date: 10/8/18

Structure

Identification: ST-01
Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		ST-01
Sample Identification		PMC-ST-01-100918
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.9
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AS00629
	Flow controller ID	FCR 00179
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1640
	Initial canister pressure (" Hg)	-29.63
	Sample completion date and time	10/9/18 - 1539
	Final canister pressure (" Hg)	-7.66
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 70's Cloudy Scattered Rain

Observations and Comments:

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC **Project #:** 699973

Sampler Name: R. Sleeper / S. Chumney **Date:** 10/8/18

Structure

Identification: SA-02

Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		SA-02
Sample Identification		PMC-SA-02-100918
Set up Information	Manhole removal time	1520
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.5
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AC02147
	Flow controller ID	FCR00092
	Sampling rate or period (mL/min)	24/hr
	Sample start date and time	10/8/18 - 1610
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/9/18 - 1521
	Final canister pressure (" Hg)	-7.72
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 70's Cloudy Scattered Rain

Observations and Comments: Appears to be a storm Not a Sanitary Sewer

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC
Project # : 699973
Sampler Name: R. Sleeper / S. Chumney
Date: 10/8/18

Structure

Identification: SA-03
Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location	SA-03	
Sample Identification	PMC-SA-03-100918	
Set up Information	Manhole removal time	1510
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID (collected 10/9/18 @ pick up)	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.3
	CO2 (%)	0.1
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC01850
	Flow controller ID	FCR00339
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1555
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/9/18 1511
	Final canister pressure (" Hg)	
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	10/9/18 1511

Weather conditions during sampling: 70's Cloudy Southwest Rain

Observations and Comments:

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	PMC	Project # :	699973
Sampler Name:	R. Sleeper / S. Chumney	Date:	10/8/18

Structure	
Identification:	ST-03
Manhole or Cleanout Location:	

Sewer Gas Sampling Log

Sample location		ST-03
Sample Identification		PMC-ST-03-100918
Set up Information	Manhole removal time	1513
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.4
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC01848 / AS01008
	Flow controller ID	FCR00282 / FCR00315
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1600
	Initial canister pressure (" Hg)	-29.65 / -29.66
	Sample completion date and time	10/9/18 - 1515
	Final canister pressure (" Hg)	-7.28 / ~~-7.28~~ -7.73
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 70's Cloudy Scattered Rain

Observations and Comments: Dup deployed

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Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC
Project #: 699973
Sampler Name: R. Sleeper / S. Chumney
Date: 10/8/18

Structure

Identification: SA-04
Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		SA-04
Sample Identification		PMC-SA-04-100918
Set up Information	Manhole removal time	1523
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.4
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02126
	Flow controller ID	FCR00046
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1615
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/9/18 1525
	Final canister pressure (" Hg)	-7.59
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 70's cloudy Scattered Rain

Observations and Comments:

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	PMC	**Project # :**	699973
Sampler Name:	R. Sleeper / S. Chumney	**Date:**	10/8/18

Structure	
Identification:	ST-04
Manhole or Cleanout Location:	

Sewer Gas Sampling Log

Sample location		ST-04
Sample Identification		PMC-ST-04-100918
Set up Information	Manhole removal time	1530 hr
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.6
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AS00330
	Flow controller ID	FCR00043
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1620
	Initial canister pressure (" Hg)	-29.65
	Sample completion date and time	10/9/18 - 1530
	Final canister pressure (" Hg)	-8.41
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 60's Cloudy Scattered Rain

Observations and Comments:

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC
Project #: 699973
Sampler Name: R. Sleeper / S. Chumney
Date: 10/8/18

Structure

Identification: SA-05
Manhole or Cleanout Location: North Side of E Lake st, South of FOE

Sewer Gas Sampling Log

Sample location		SA-05
Sample Identification		PMC-SA-05-100918
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.7
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AS01018
	Flow controller ID	FCR00044
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1705
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/9/18 - 1556
	Final canister pressure (" Hg)	-8.16
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 60's Cloudy Saturated Env.

Observations and Comments:

ch2m:

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC
Project #: 699973
Sampler Name: R. Sleeper / S. Chumney
Date: 10/9/18

Structure

Identification: ST-05
Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		ST-05
Sample Identification		PMC-ST-05-101018
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.7
	CO2 (%)	0.0
	CH4 (%)	0.1
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AS00949
	Flow controller ID	FCR00342
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/9/18 - 1255
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/10/18 - 1227
	Final canister pressure (" Hg)	-5.59
Passive Sampling	Sample device type or ID	
	Sample start date and time	~~10/9/18~~ 1251
	Sample end date and time	

Weather conditions during sampling: Sunny, partly cloudy 65°

Observations and Comments:

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Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info			
Project Name:	PMC	Project # :	699973
Sampler Name:	R. Sleeper / S. Chumney	Date:	10/8/18

Structure	
Identification:	SA-06
Manhole or Cleanout Location:	Middle of East Lake, South of FOE

Sewer Gas Sampling Log

Sample location		SA-06
Sample Identification		PMC-SA-06-100918
Set up Information	Manhole removal time	
	Field Analysis time (If applicable - 30 min equilibration period)	
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.9
	CO2 (%)	0.0
	CH4 (%)	~~0.0~~ 0.1
	CH4 (%) with carbon filter	

Canister Sampling	Canister ID	AS00766
	Flow controller ID	FCR00011
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/8/18 - 1710
	Initial canister pressure (" Hg)	-29.63
	Sample completion date and time	10/9/18 - 1603
	Final canister pressure (" Hg)	-7.70
Passive Sampling	Sample device type or ID	
	Sample start date and time	
	Sample end date and time	

Weather conditions during sampling: 60's cloudy Scattered Rain

Observations and Comments:

ch2m

Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC **Project #:** 699973

Sampler Name: R. Sleeper / S. Chumney **Date:** 10/9/18

Structure

Identification: ST-06

Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		ST-06
Sample Identification		PMC-ST-06-101018
Set up Information	Manhole removal time	1240
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.8
	CO2 (%)	0.0
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AC02293
	Flow controller ID	FCR00353
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/9/18 - 1243
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/10/18 - 1222
	Final canister pressure (" Hg)	-6.65
Passive Sampling	Sample device type or ID	
	Sample start date and time	~~10/9/18 1243~~
	Sample end date and time	

Weather conditions during sampling: sunny partly cloudy, 65°

Observations and Comments: DTW ≈ 3.65' below grade / grate

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Vapor Intrusion Best Practices
Sewer Gas Sampling Log - Canister Method

Project Info

Project Name: PMC **Project #:** 699973

Sampler Name: R. Sleeper / S. Chumney **Date:** 10/9/18

Structure

Identification: SA-07

Manhole or Cleanout Location:

Sewer Gas Sampling Log

Sample location		SA-07
Sample Identification		PMC-SA-07-101018
Set up Information	Manhole removal time	1247
	Field Analysis time (If applicable - 30 min equilibration period)	—
Optional Field Analysis MultiRae PID	O2 (%)	
	CO (ppm)	
	H2S (ppm)	
	LEL (%)	
	Total VOCs (ppmv)	
Optional Field Analysis LandTec GEM	O2 (%)	20.3
	CO2 (%)	6.3
	CH4 (%)	0.2
	CH4 (%) with carbon filter	—

Canister Sampling	Canister ID	AS00260
	Flow controller ID	FCR00319
	Sampling rate or period (mL/min)	24hr
	Sample start date and time	10/9/18 - 1248
	Initial canister pressure (" Hg)	-29.66
	Sample completion date and time	10/10/18 - 1225
	Final canister pressure (" Hg)	-6.36
Passive Sampling	Sample device type or ID	
	Sample start date and time	~~10/9/18~~ 1248
	Sample end date and time	

Weather conditions during sampling: Sunny partly cloudy 65°

Observations and Comments: DTW / ~~sewage~~ Sewage ≈ 2.8' Below grade

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

-29.18

Project: PMC

~~Building~~: Sewer Sampling October 2018

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PMC-ST-06-101018	ST-06	AC02293	FCR00353	-29.66	10/9/18	1243			10/10/18	1222	-6.65
PMC-ST-05-101018	ST-05	~~AC02294~~ AS00949	FCR00342	-29.66	10/8/18	1255			10/10/18	1227	-5.59
PMC-SA-07-101018	SA-07	AS00260	FCR00319	-29.66	10/8/18	1248			10/10/18	1225	-6.36
PMC-SA-03-100918	SA-03	AC01850	FCR00339	-29.66	10/8/18	1555			10/9/18	1511	-8.00
PMC-ST-03-100918	ST-03	AS01008	FCR00315	-29.66	10/8/18	1600			10/9/18	1515	-7.28
PMC-SA-04-100918	SA-04	AC02126	FCR00046	-29.66	10/8/18	1615			10/9/18	1525	-7.59
PMC-ST-04-100918	ST-04	AS00330	FCR00045	-29.65	10/8/18	1620			10/9/18	1530	-8.41
PMC-ST-01-100918	ST-01	AS00629	FCR00179	-29.63	10/8/18	1640			10/8/18	1539	-7.66
PMC-SA-01-100918	SA-01	AC02266	FCR00228	-29.61	10/8/18	1700			10/9/18	1545	-8.12
PMS-SA-05-100918	SA-05	AS01018	FCR00044	-29.66	10/8/18	1705			10/9/18	1556	-8.16

F

Weather Conditions

General weather conditions: Sunny to partly cloudy 50-70°

Temperature Range (indoor and outdoor): 50-70° F

Was there significant precipitation within 12 hours prior to (or during) the sampling event? .75"

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

Project: PMC

~~Building:~~ Sewer Sampling - October 2018

	Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
	PMC-SA-06-100918	SA-06	AS00766	FCR00011	-29.63	10/8/18	1710			10/9/18	1603	-7.70
FD	PMC-ST-03-100918-FD	ST-03	AC01848 ~~AS01008~~	FCR00282	-29.65	10/8/18	1600			10/9/18	1515	-7.73
	PMC-SA-02-100918	SA-02	AC02147	FCR00092	-29.66	10/8/18	1610			10/9/18	1521	-7.72

Weather Conditions

General weather conditions: _____

_____

Temperature Range (indoor and outdoor): _____

Was there significant precipitation within 12 hours prior to (or during) the sampling event? _____

Soil Vapor Probe Diagrams June 2018

PROJECT NUMBER	PROBE NUMBER SVB-01
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

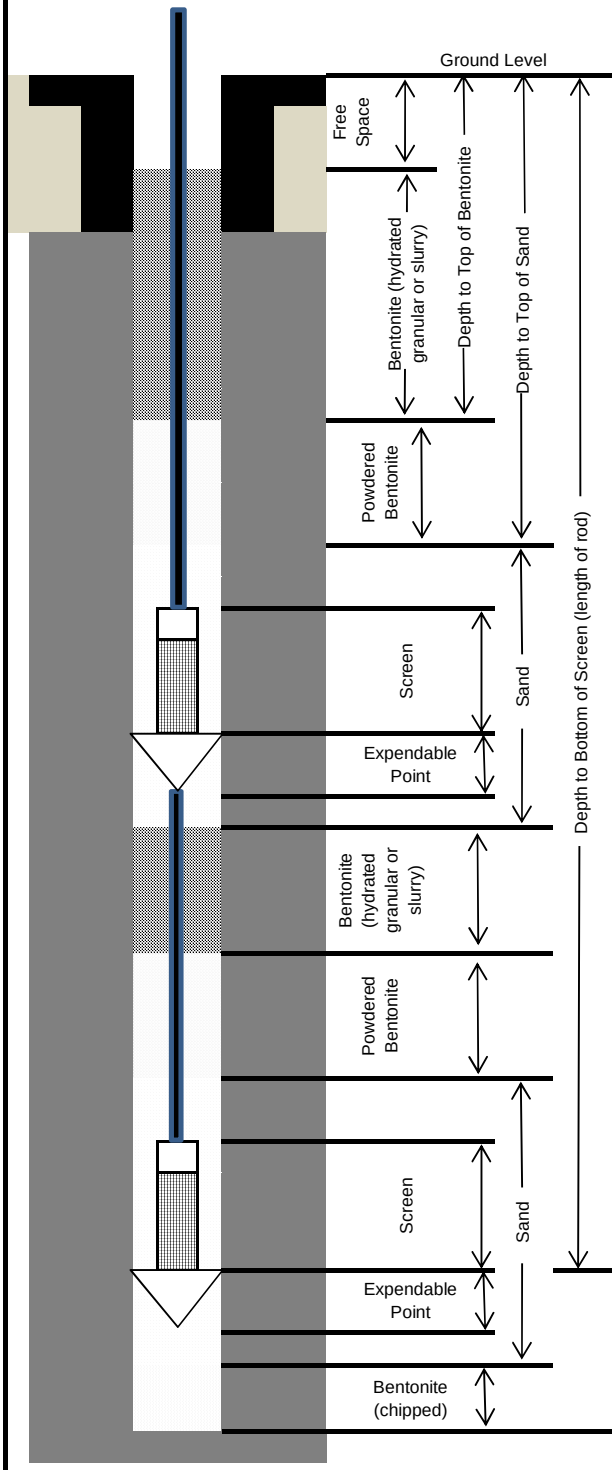
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/30/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	5.83 ft, 14 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.5 ft, 2 ft
Depth to Top of Sand (ft)	4.83 ft, 13 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	4.33 ft, 12.5 ft
Length of Bentonite (ft)	3.33 ft, 4 ft
Depth to Top of Bentonite (ft)	1 ft, 6.33 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-02
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

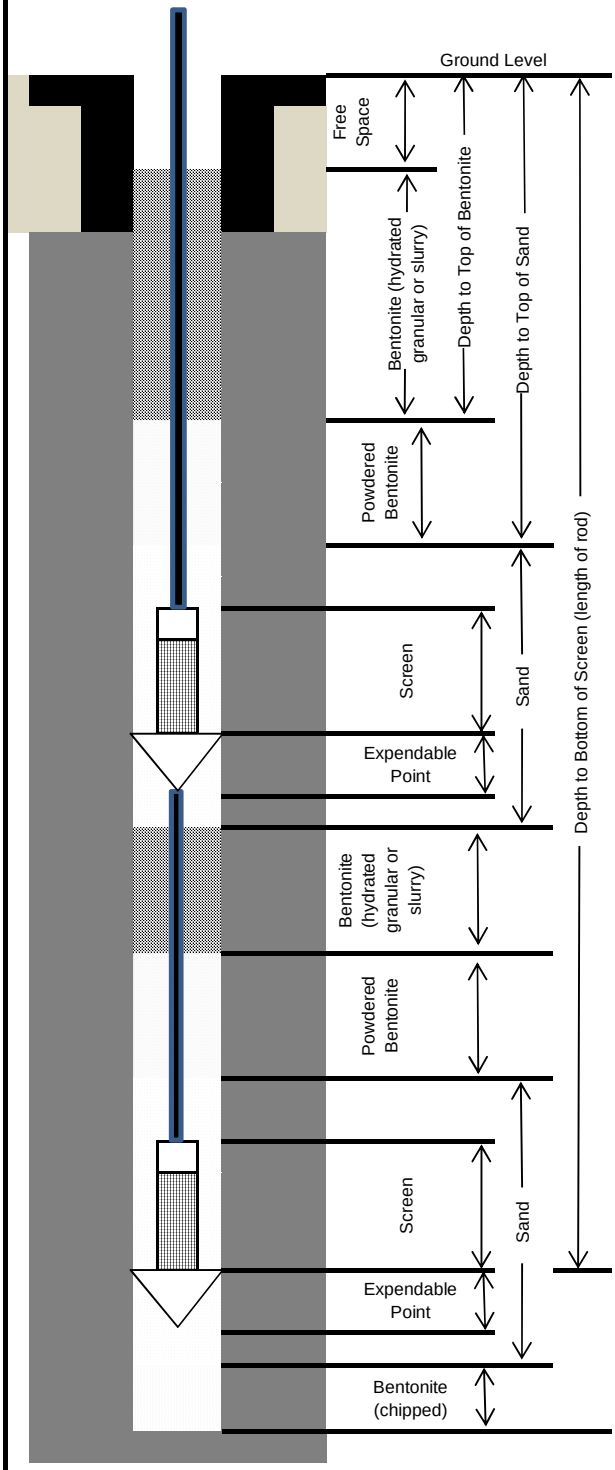
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/30/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	6 ft, 11 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.5 ft, 2 ft
Depth to Top of Sand (ft)	5 ft, 10 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	4.5 ft, 9.5 ft
Length of Bentonite (ft)	3.5 ft, 5 ft
Depth to Top of Bentonite (ft)	1 ft, 6.5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-03
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

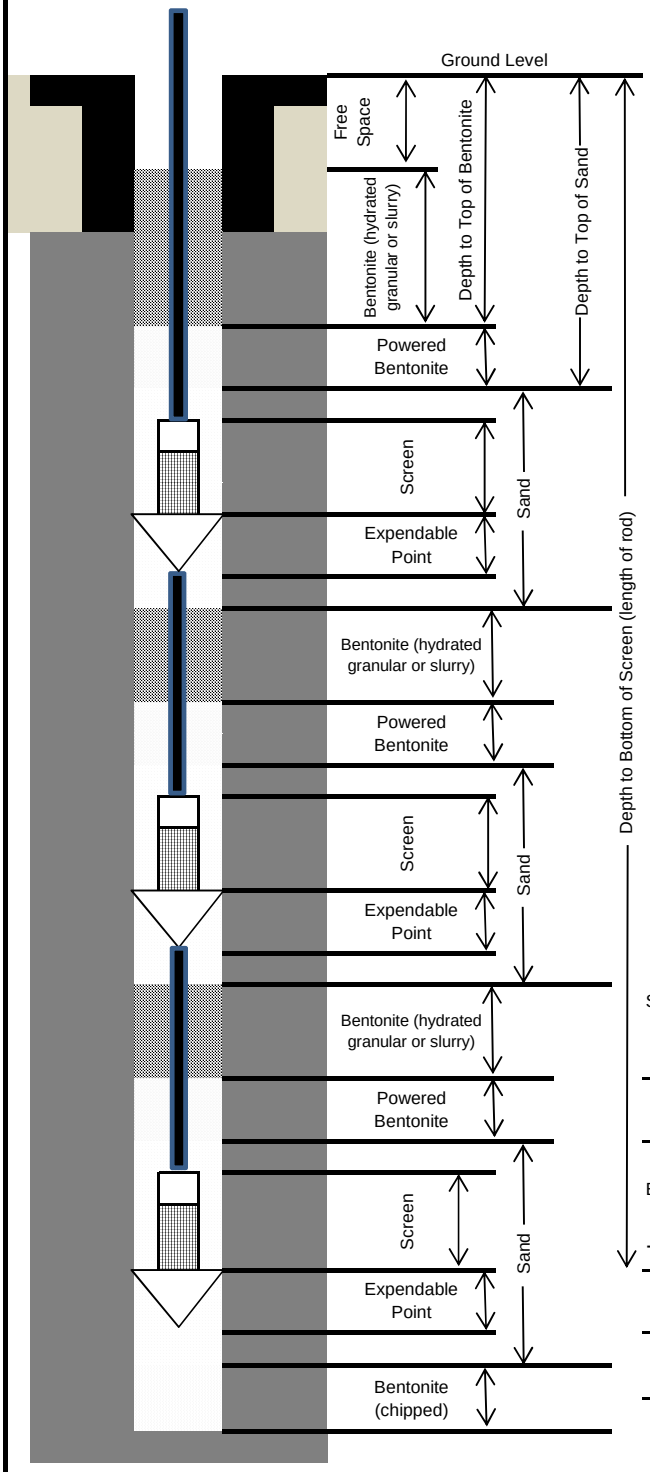
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/30/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	5.5 ft, 10.5 ft, 15 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	1 ft, 1 ft, 1.11 ft
Depth to Top of Sand (ft)	4.5 ft, 9.5 ft, 14 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	4 ft, 9 ft, 13.5 ft
Length of Bentonite (ft)	3 ft, 3.67 ft, 2.67 ft
Depth to Top of Bentonite (ft)	1 ft, 5.83 ft, 10.83 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-04
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

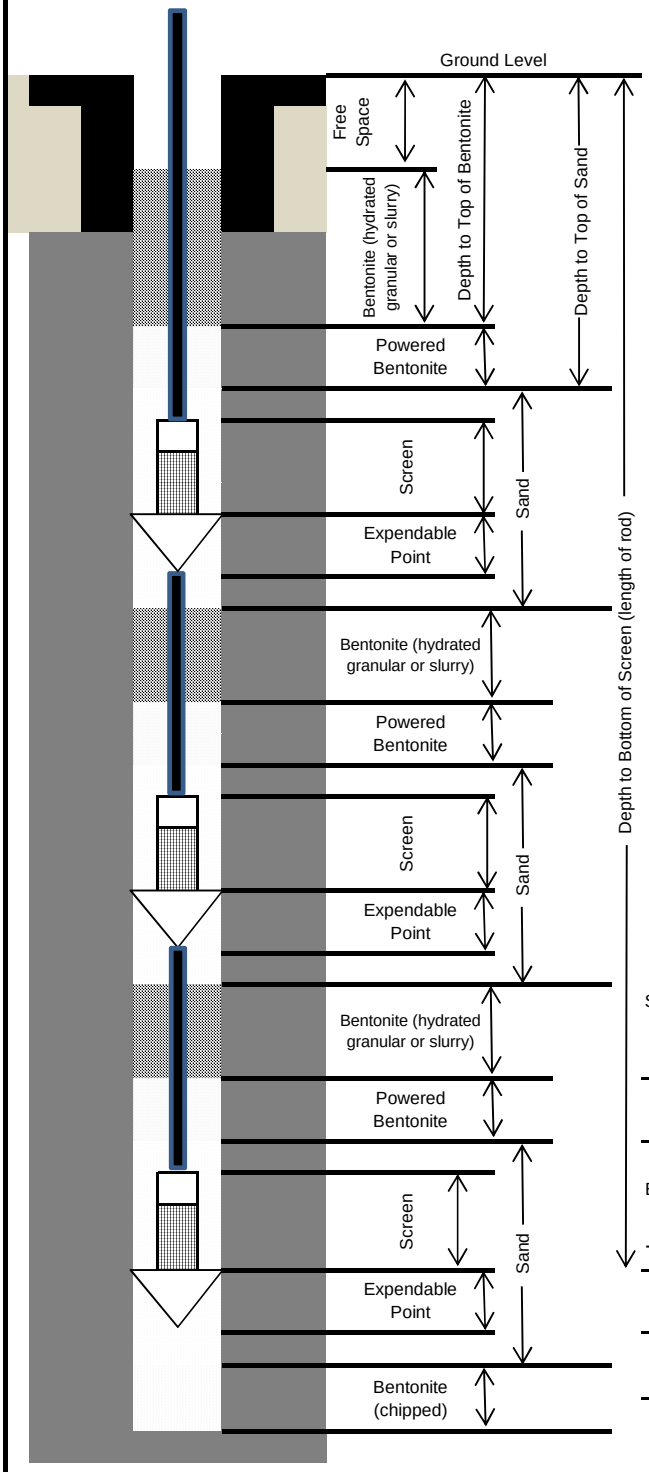
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/24/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	6 ft, 9 ft, 12.5 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	1.5 ft, 1.5 ft, 3.1 ft
Depth to Top of Sand (ft)	5 ft, 8 ft, 11.5 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	4.5 ft, 7.5 ft, 11 ft
Length of Bentonite (ft)	3.5 ft, 1 ft, 1.5 ft
Depth to Top of Bentonite (ft)	1 ft, 6.5 ft, 9.5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-05
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

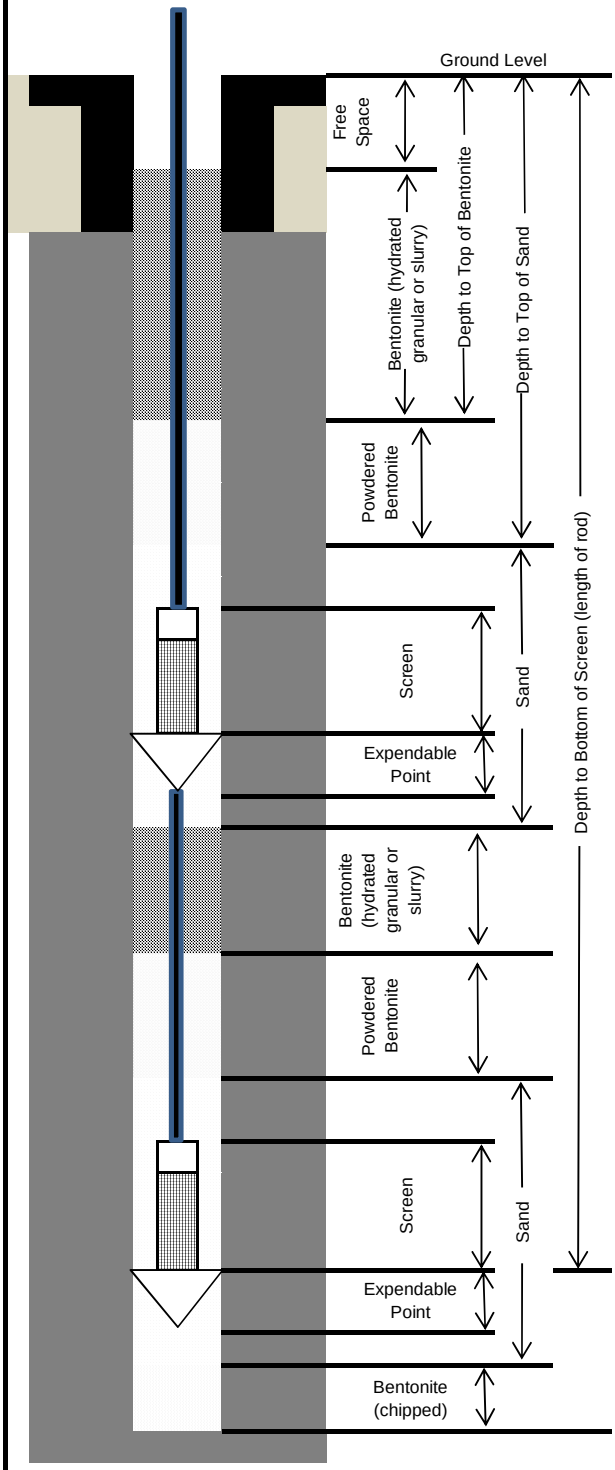
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/24/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	4.5 ft, 10.5 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.3 ft, 1.3 ft
Depth to Top of Sand (ft)	3.5 ft, 9.5 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	3 ft, 9 ft
Length of Bentonite (ft)	2 ft, 4 ft
Depth to Top of Bentonite (ft)	1 ft, 5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-06
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

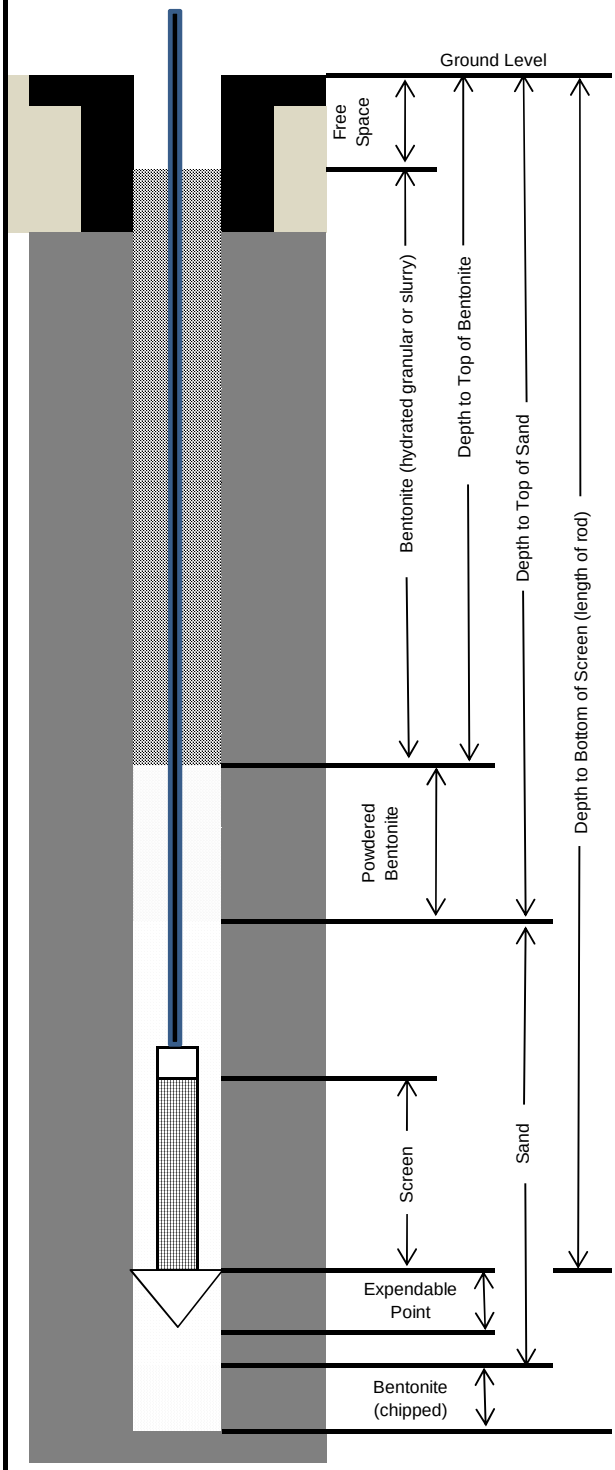
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/24/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	6 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	3.8 ft
Depth to Top of Sand (ft)	5 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	4.5 ft
Length of Bentonite (ft)	3.5 ft
Depth to Top of Bentonite (ft)	1 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-07
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

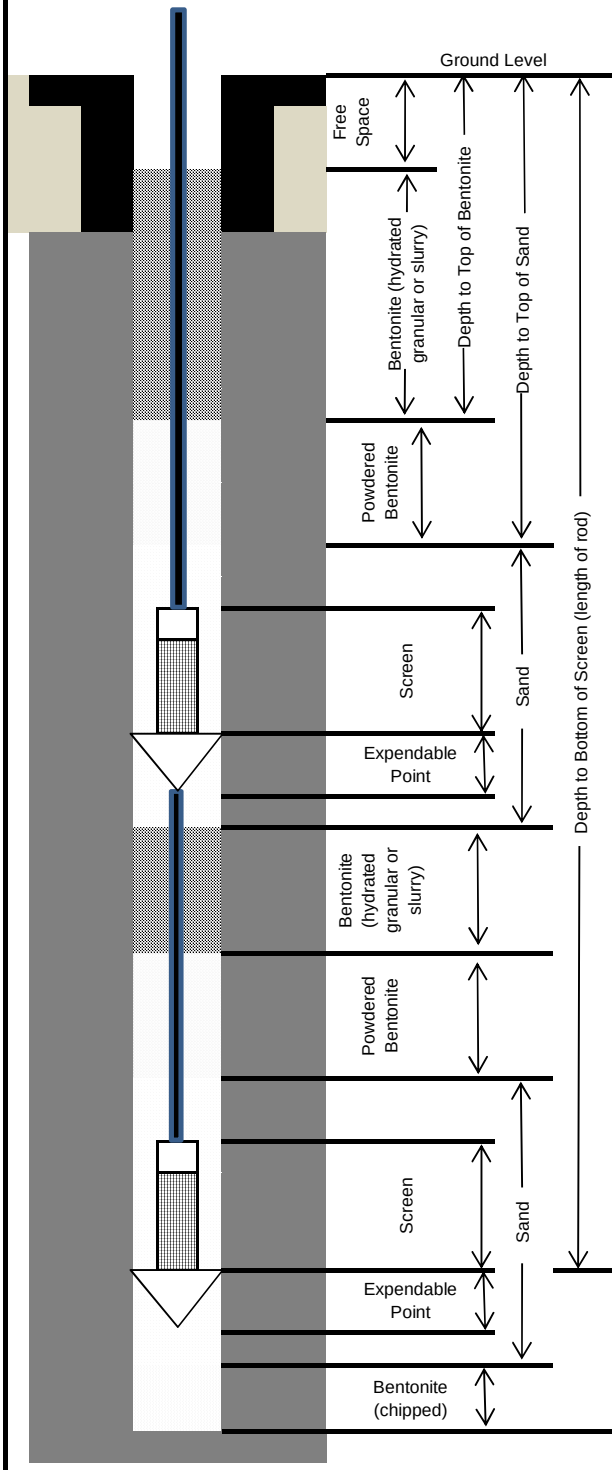
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/16/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	5.5 ft, 12 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.3 ft, 2 ft
Depth to Top of Sand (ft)	4.5 ft, 11 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	4 ft, 10.5 ft
Length of Bentonite (ft)	4 ft, 4.92 ft
Depth to Top of Bentonite (ft)	0 ft, 5.58 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-08
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

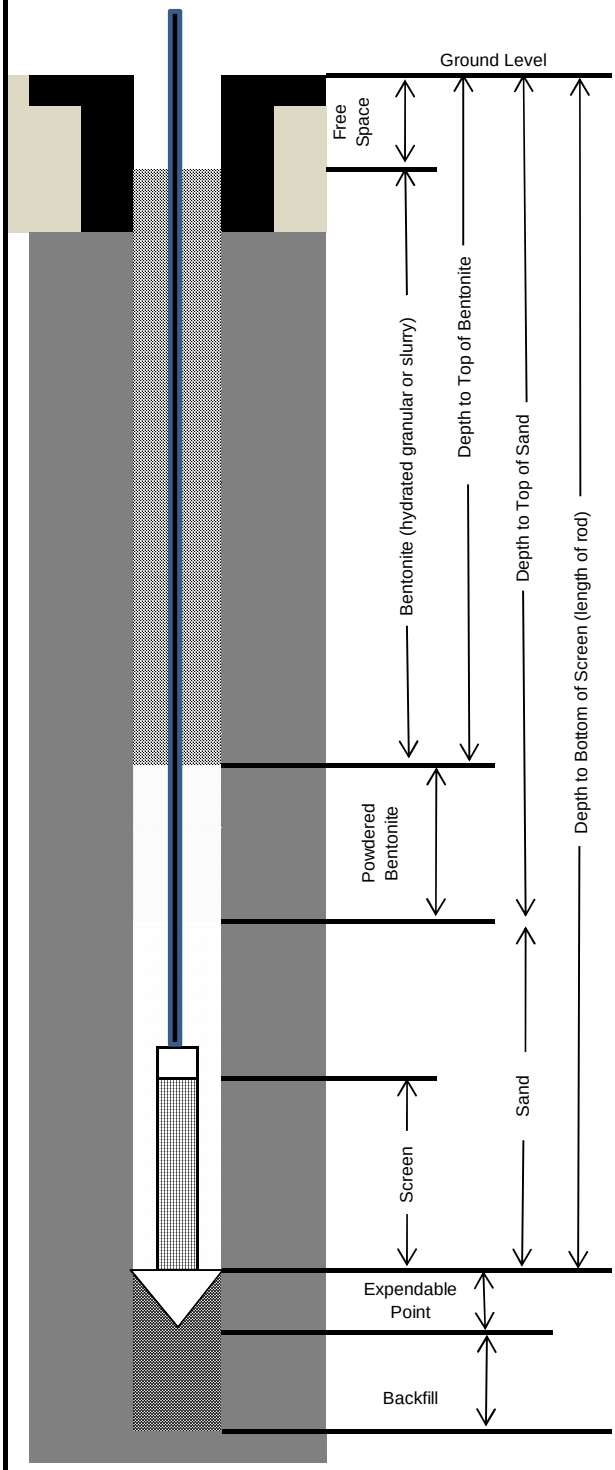
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/16/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	7 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	3.4 ft
Depth to Top of Sand (ft)	6 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	5.5 ft
Length of Bentonite (ft)	5.5 ft
Depth to Top of Bentonite (ft)	0 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-09
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

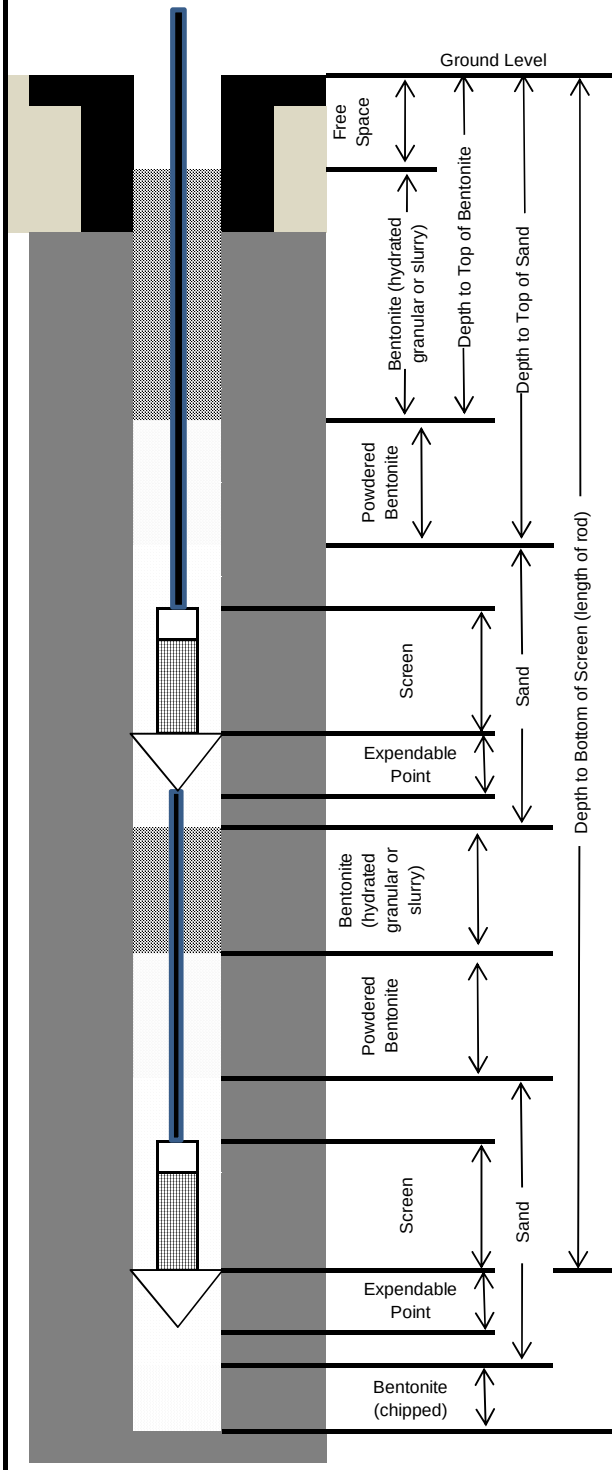
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/24/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	6 ft, 10 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.5 ft, 1.2 ft
Depth to Top of Sand (ft)	4.5 ft, 9 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	4 ft, 8.5 ft
Length of Bentonite (ft)	4ft, 4.5 ft
Depth to Top of Bentonite (ft)	0 ft, 6 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-10
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

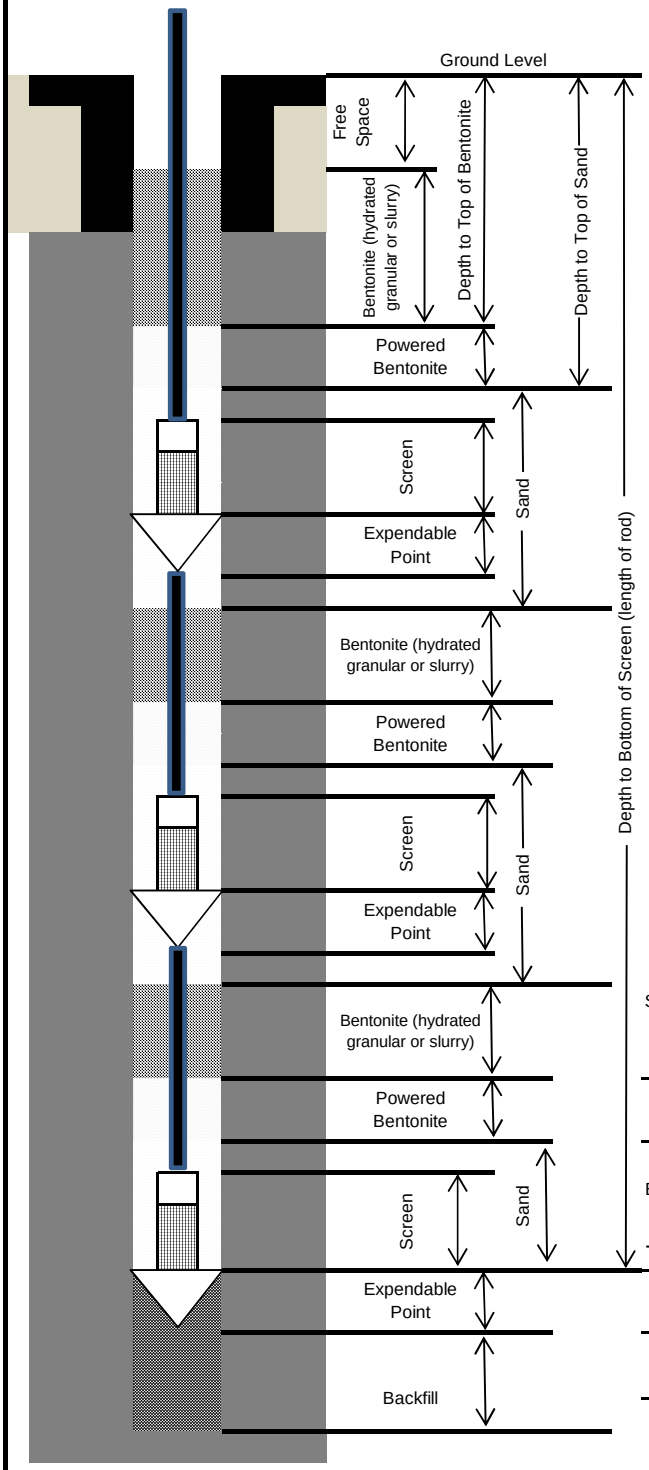
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/16/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	6 ft, 10 ft, 15.58 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	1.5 ft, 1.5 ft, 1 ft
Depth to Top of Sand (ft)	5 ft, 9 ft, 14.58 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	4.5 ft, 8.5 ft, 14.08 ft
Length of Bentonite (ft)	4.5 ft, 2 ft, 5.5 ft
Depth to Top of Bentonite (ft)	0 ft, 6.5 ft, 10.5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-11
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

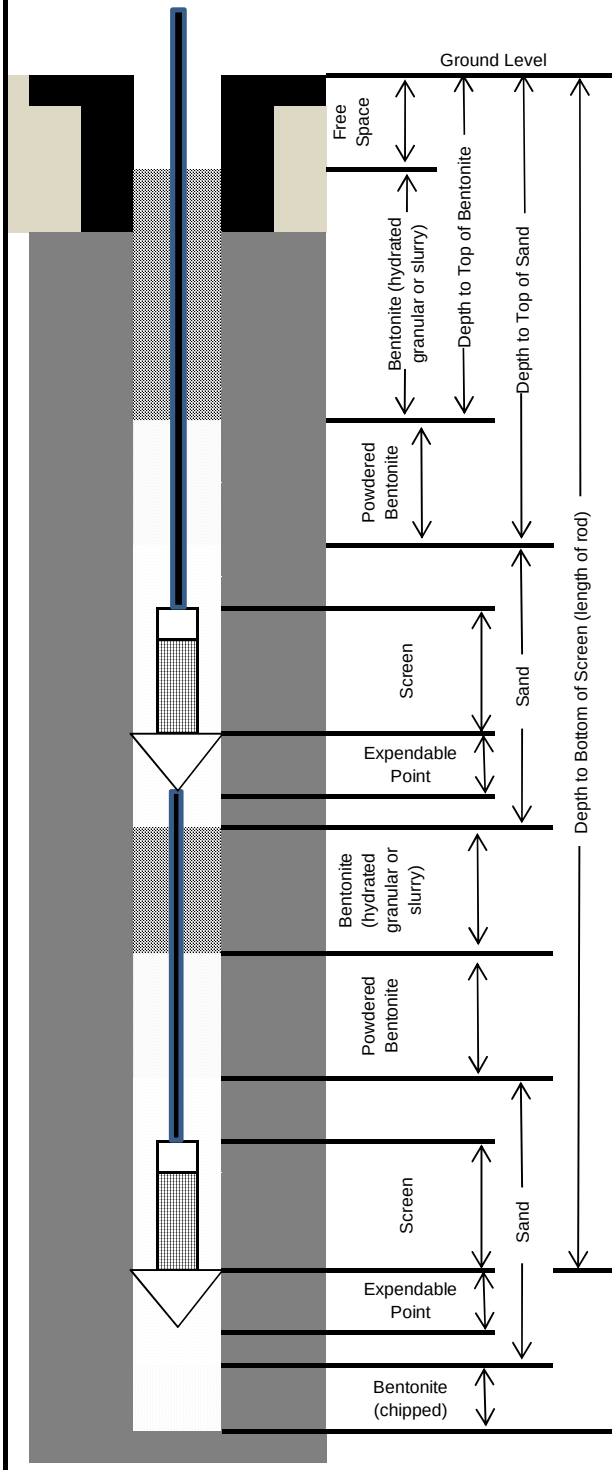
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/24/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	5 ft, 10 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.5 ft, 2 ft
Depth to Top of Sand (ft)	4 ft, 9 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	3.5 ft, 8.5 ft
Length of Bentonite (ft)	3.5 ft, 3 ft
Depth to Top of Bentonite (ft)	0 ft, 5.5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-12
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

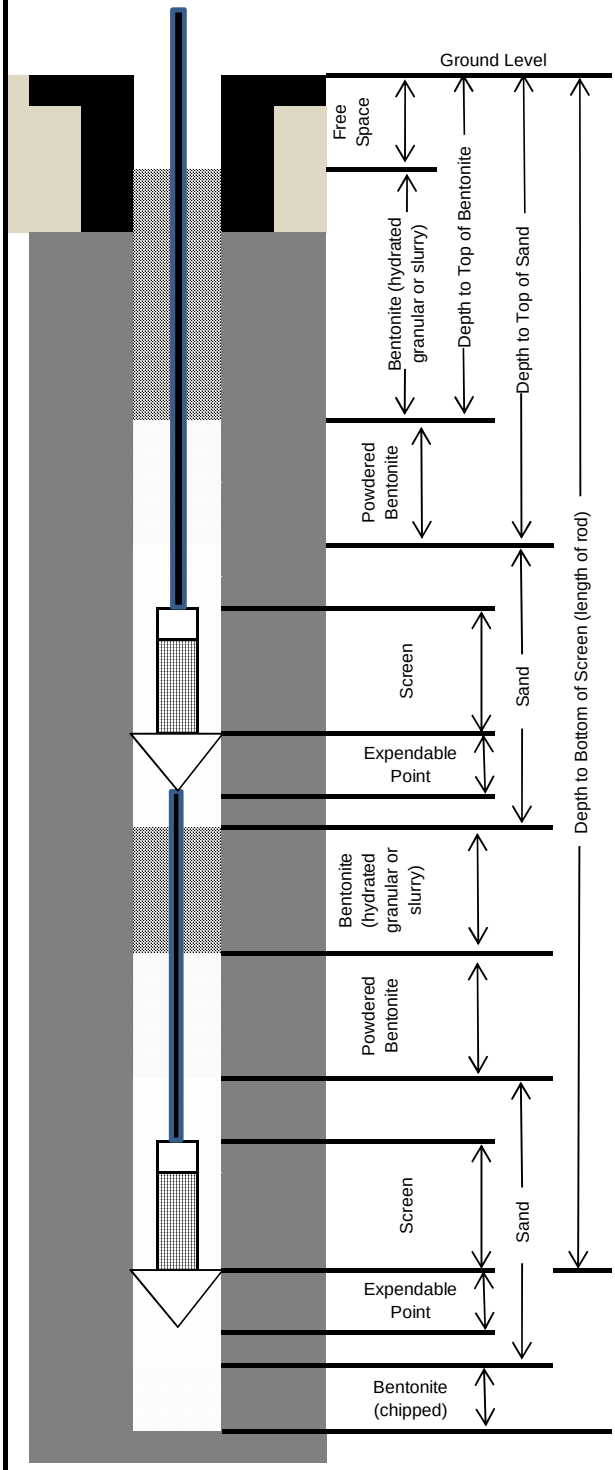
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/18/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	5 ft, 12 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1.5 ft, 1.92 ft
Depth to Top of Sand (ft)	4 ft, 11 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	3.5 ft, 10.5 ft
Length of Bentonite (ft)	2 ft, 5 ft
Depth to Top of Bentonite (ft)	0 ft, 5.5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-14
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

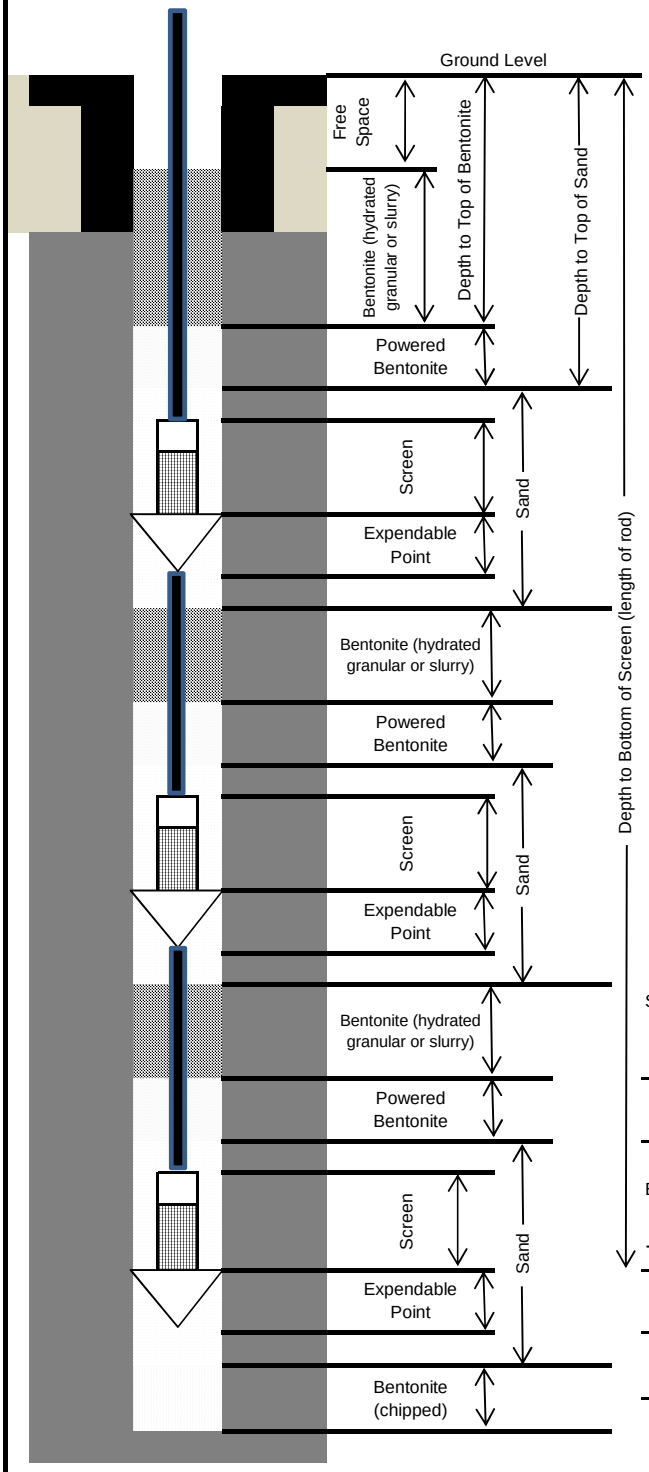
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/17/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	4.83 ft, 9.5 ft, 12.5 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	1.17 ft, 1.5 ft, 2.16 ft
Depth to Top of Sand (ft)	4 ft, 8.5 ft, 11.5 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	3.5 ft, 8 ft, 11 ft
Length of Bentonite (ft)	3.5 ft, 3 ft, 1 ft
Depth to Top of Bentonite (ft)	0 ft, 5 ft, 10 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-15
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

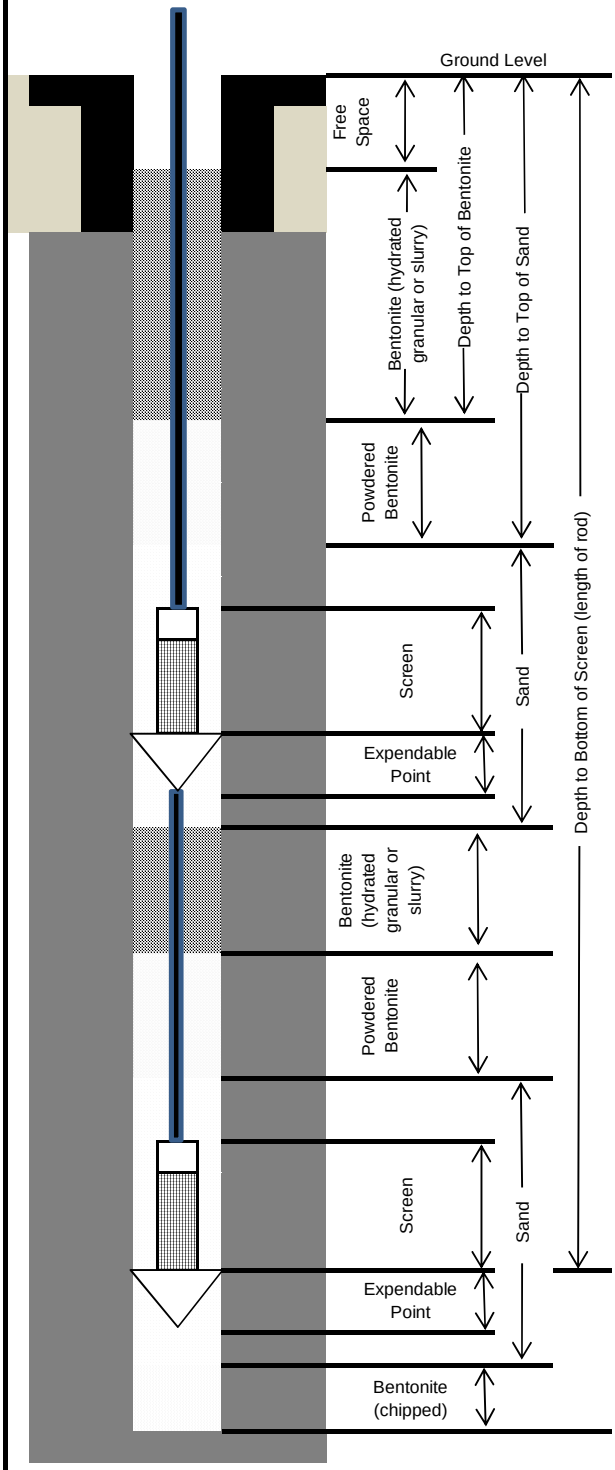
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/17/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screens (ft)	4.8 ft, 10 ft
Length of Expendable Points (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Packs (ft.)	1 ft, 1.5 ft
Depth to Top of Sand (ft)	4 ft, 9 ft
Length of Powdered Bentonite Seal (in.)	6 in, 6 in
Depth to Top of Powdered Bentonite (ft)	3.5 ft, 8.5 ft
Length of Bentonite (ft)	3.5 ft, 3.5 ft
Depth to Top of Bentonite (ft)	0 ft, 5 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

PROJECT NUMBER	PROBE NUMBER SVB-16
699973.FI.01	SHEET 1 OF 1 DATE: 5/16/2018

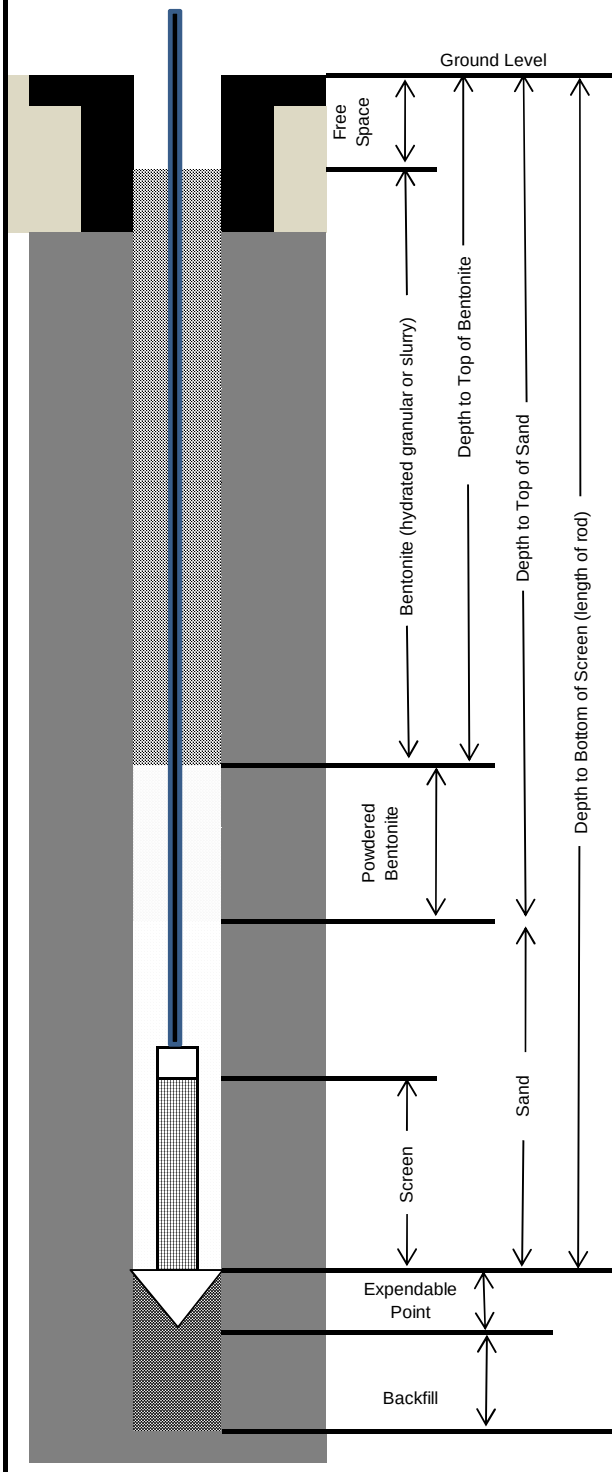
Soil Vapor Probe Diagram

PROJECT : EPA Region 5 PMC LOCATION : Petoskey, MI

DRILLING CONTRACTOR : Mateco

DRILLING METHOD AND EQUIPMENT USEI Rotosonic drilling with 4.5-inch OD single core barrel - Geoprobe 8140DT

START : 5/16/2018 END 5/17/2018 Installer :



Outer Diameter of Rod (in.)	4.5 in
Depth to Bottom of Screen (ft)	9 ft
Length of Expendable Point (in.)	2 in
Screen Diameter (in.) / Length (in.)	.05 in/6 in
Screen Mesh (in.)	0.006 in
Teflon Tubing Outer Diameter (in.)	0.25 in
Length of Sand Pack (ft.)	3.5 ft
Depth to Top of Sand (ft)	8 ft
Length of Powdered Bentonite Seal (in.)	6 in
Depth to Top of Powdered Bentonite (ft)	7.5 ft
Length of Bentonite (ft)	7.5 ft
Depth to Top of Bentonite (ft)	0 ft
Length of Free Space (in.)	
Flush Mount Diameter.	

Specifications (Type)

Sand: K&E Well Gravel (silica sand)

Bentonite: All types were Haliburton brand.

Three types used: powdered, granular, and chipped.

Soil Vapor Sampling Forms June 2018

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-01-5.8 Sample ID: PMC-SVB-01-5.8-062918

Sample Location Description: North side of W. Lake St (btwn sidewalk & street)

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 12:06	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0

Start Time: 12:07 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 33.7%, 34.3%, 20.4%, 35.8% = 31.1%

End Time: 12:34

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5L, so purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 29.5 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 18.8

CO2 (%): 0.8

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 Initial Pressure (" Hg): -29.10

Container ID: IBV 11890 Start Date and Time: 06/29/18 12:36

Flow Controller ID: GA01062 End Date and Time: 06/29/18 12:41

Sampling Rate (mL/min) hours): 200 Final Pressure (" Hg): -4.35

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L): Start Date and Time:

Sampling Rate (mL/min): End Date and Time:

Sorbent Tube

Sorbent Tube type and size: Start Date and Time:

Sorbent Tube ID: End Date and Time:

Initial Flow Rate (mL/min): Final Flow Rate (mL/min)

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny, clear temps 70s °F

Additional Notes:

1st 1L purge bag 31.6 ppm

2nd 1L purge bag 38.7 ppm

3rd 1L purge bag 36.1 ppm

4th 1L purge bag 33.4 ppm

5th 1L purge bag 29.5 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey, Mi

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-01-14 Sample ID: PMC-SVB-01-14-062918

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 11:17	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0ppm

Start Time: 11:19 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 35.3%, 19.7%, 27.9%, 44.0%, 20.4%, 46.2%

End Time: 11:54

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 2.0L, so Purge 6.0L

→ 32.3% Avg

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): _____ O_2 (%): _____

H_2S (ppm): _____ LEL (%): _____

CO (ppm): _____

LandTec GEM Landfill Gas Meter

O2 (%): 20.4

CO2 (%): 1.2

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 Initial Pressure (" Hg): -29.10

Container ID: IBV11888 Start Date and Time: 06/29/18 11:55

Flow Controller ID: OA00628 End Date and Time: 06/29/18 12:00

Sampling Rate (mL/min) hours): 200 Final Pressure (" Hg) -3.97

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L): _____ Start Date and Time: _____

Sampling Rate (mL/min): _____ End Date and Time: _____

Sorbent Tube

Sorbent Tube type and size: _____ Start Date and Time: _____

Sorbent Tube ID: _____ End Date and Time: _____

Initial Flow Rate (mL/min): _____ Final Flow Rate (mL/min) _____

Calculated Sampling Volume: _____

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny, clear temps 70s °F

Additional Notes:

1st 1L purge bag 6.0ppm

2nd 1L purge bag 6.7 ppm

3rd 1L purge bag 7.5 ppm

4th 1L purge bag 8.1 ppm

5th 1L purge bag 9.2 ppm

6th 1L purge bag 9.9 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: asphalt parking lot

Location ID: SVB-02-06 Sample ID: PMC-SVB-02-06-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 18:00	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 18:06

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 62.4%, 43.3%, 37.7% = 47.8%

End Time: 18:36

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

Dead volume is 1.5 L, so purge 4.5 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	10.5	O_2 (%):	O2 (%):	19.9
H_2S (ppm):		LEL (%):	CO2 (%):	0.2
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: 1BV11898

Flow Controller ID: 0401131

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.04

Start Date and Time: 06/25/18 18:39

End Date and Time: 06/25/18 18:44

Final Pressure (" Hg): -3.17

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s °F sunny, clear

Additional Notes:

1st purge bag 6.8 ppm

2nd purge bag 10.4 ppm

3rd purge bag 11.1 ppm

4th purge bag 11.5 ppm

5th purge bag 10.5 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt parking lot

Location ID: SVB-02-11 Sample ID: PMC-SVB-02-11-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 16:52

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 16:57

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 41.7%, 27.1%, 47.1%, 36.7%, 32.5%, 28.9%

End Time: 17:38

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 2L, so purge 6L = Average helium 35.7%

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 1.9 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 19.9

CO2 (%): 0.2

CH4 (%): 0

Sampling Information

(Evacuated Canister) or Bottle-Vac

Container Size (L): 1

Container ID: IBV11885

Flow Controller ID: OA00868

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 9

Initial Pressure (" Hg): -30.23

Start Date and Time: 06/25/18 17:47

End Date and Time: 06/25/18 17:52

Final Pressure (" Hg): -4.57

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s °F sunny, clear

Additional Notes:

1st 1L purge bag - 2.4ppm

2nd 1L purge bag - 2.1 ppm

3rd 1L purge bag 2.0 ppm

4th 1L purge bag 2.0 ppm

5th 1L purge bag 1.9 ppm

6th 1L purge bag 1.9 ppm

Soil Vapor Sampling Log

ch2m:

Project: ~~PMC~~ ~~JNS~~ EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: grass

Location ID: SVB-03-5.5 Sample ID: PMC-SVB-03-5.5-062818 * Duplicate Sample ID Below

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
15:25	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 15:27

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 33.5%, 22.9% = 28.2%

End Time: 15:43

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1L, so purge 3L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	25.7	O_2 (%):	O2 (%):	22.3
H_2S (ppm):		LEL (%):	CO2 (%):	0
CO (ppm):			CH4 (%):	0

Sampling Information

Parent / Duplicate — (Evacuated Canister or Bottle-Vac) — Parent / Duplicate

Container Size (L):	1	Initial Pressure (" Hg):	-29.17 / -29.21
Container ID:	1BV11896 / 1BV11864	Start Date and Time:	06/28/18 15:53
Flow Controller ID:	Shared 0A00707	End Date and Time:	06/28/18 16:03
Sampling Rate (mL/min, hours):	200	Final Pressure (" Hg):	-3.19 / -3.32
Sampling Vacuum ("Hg):			

~~Tedlar Bag~~

~~Tedlar Bag size (L):~~ ~~Start Date and Time:~~

~~Sampling Rate (mL/min):~~ ~~End Date and Time:~~

~~Sorbent Tube~~

~~Sorbent Tube type and size:~~ ~~Start Date and Time:~~

~~Sorbent Tube ID:~~ ~~End Date and Time:~~

~~Initial Flow Rate (mL/min):~~ ~~Final Flow Rate (mL/min)~~

~~Calculated Sampling Volume:~~

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s °F

Additional Notes:
1st purge bag 18.8 ppm
2nd purge bag 25.1 ppm
3rd purge bag 25.7 ppm

* PMC-SVB-03-5.5-062818-FD

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: grass

Location ID: SVB-03-10.5 Sample ID: PMC-SVB-03-10.5-062818

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 14:52	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 14:54

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 47.6%, 31.1%, 22.4% = 33.8%

End Time: 15:11

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1L, so purge 3L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	3.0	O_2 (%):		O2 (%):	22.1
H_2S (ppm):		LEL (%):		CO2 (%):	0.1
CO (ppm):				CH4 (%):	0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: 1BV11881

Flow Controller ID: OA01347

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -29.19

Start Date and Time: 06/28/18 15:13

End Date and Time: 06/28/18 15:18

Final Pressure (" Hg): -5.08

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s of

Additional Notes:

1st purge bag 3.4 ppm

2nd purge bag 3.3 ppm

3rd purge bag 3.0 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: grass

Location ID: SVB-03-15 Sample ID: PMC-SVB-03-15-062818

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 14:15	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0 ppm

Start Time: 14:16 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 22.9%, 48.4%, 36.4%, 37.1% = 36.2%

End Time: 14:38

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.2 L, so purge 3.6 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	6.0	O_2 (%):	O2 (%):	21.6
H_2S (ppm):		LEL (%):	CO2 (%):	0.2
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 Initial Pressure (" Hg): -29.25

Container ID: 1BV11886 Start Date and Time: 06/28/18 14:41

Flow Controller ID: OA00807 End Date and Time: 06/28/18 14:46

Sampling Rate (mL/min, hours): 200 Final Pressure (" Hg): -4.27

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L): Start Date and Time:

Sampling Rate (mL/min): End Date and Time:

Sorbent Tube

Sorbent Tube type and size: Start Date and Time:

Sorbent Tube ID: End Date and Time:

Initial Flow Rate (mL/min): Final Flow Rate (mL/min)

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s °F

Additional Notes:

1st purge bag 4.8 ppm

2nd purge bag 5.8 ppm

3rd purge bag 6.2 ppm

4th purge bag 6.0 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-04-06 Sample ID: PMC-SVB-04-06-062718 / and duplicate see notes

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 12:30	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None (T-connector attached)

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 12:31

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 125 ppm

Calculated leak percentage: not significant

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 24.6%, 40.6%, 26.9%, 52.2% = 36.1%

End Time: 12:57

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5L, so purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	3.9	O_2 (%):		O2 (%):	21.5
H_2S (ppm):		LEL (%):		CO2 (%):	0.2
CO (ppm):				CH4 (%):	0

Sampling Information

Parent / Duplicate Evacuated Canister or (Bottle-Vac) Parent / Duplicate

Container Size (L):	1	Initial Pressure (" Hg):	-28.94 / -28.95
Container ID:	IBV11893 / IBV11895	Start Date and Time:	06/27/18 12:59
Flow Controller ID:	OA1142 (shared)	End Date and Time:	06/27/18 13:09
Sampling Rate (mL/min, hours):	200	Final Pressure (" Hg):	-4.31 / -4.01
Sampling Vacuum ("Hg):	0		

Tedlar Bag

Tedlar Bag size (L):		Start Date and Time:	
Sampling Rate (mL/min):		End Date and Time:	

Sorbent Tube

Sorbent Tube type and size:		Start Date and Time:	
Sorbent Tube ID:		End Date and Time:	
Initial Flow Rate (mL/min):		Final Flow Rate (mL/min)	
Calculated Sampling Volume:			

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 70s °F

Additional Notes: Duplicate sample ID PMC-SVB-04-06-062718-FD

1st purge bag 2.4 ppm

2nd purge bag 3.0 ppm

3rd purge bag 2.8 ppm

4th purge bag 3.9 ppm

5th purge bag 3.9 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler:

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-04-09 Sample ID: PMC-SVB-04-09-062718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 11:01	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 11:05

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 22.4%, 49.1%, 35.7% = 35.7%

End Time: 11:35

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

1 d and volume is 1.5L, so purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 9.0 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 21.0

CO2 (%): 0.2

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: IBV11892

Flow Controller ID: OA00915

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.96

Start Date and Time: 06/27/18 11:38

End Date and Time: 06/27/18 11:43

Final Pressure (" Hg): -4.04

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s °F

Additional Notes:

1st purge bag 7.2 ppm

2nd purge bag 10.4 ppm

3rd purge bag 9.3 ppm

4th purge bag 9.4 ppm

5th purge bag 9.0 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-04-12.5 Sample ID: PMC-SVB-04-125-062718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 09:52

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 09:56

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 35.8%, 53.2%, 34.7%, 41.2%, 31.3%, 27.2 = 37.2%

End Time: 10:43

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 3.1 L, so purge 9.3 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	1.8	O_2 (%):		O2 (%):	22.2
H_2S (ppm):		LEL (%):		CO2 (%):	0.3
CO (ppm):				CH4 (%):	6

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: 1BV11897

Flow Controller ID: 0A02052

Sampling Rate (mL/min) hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.76

Start Date and Time: 06/27/18 10:44

End Date and Time: 06/27/18 10:49

Final Pressure (" Hg): -4.80

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s °F

Additional Notes:

1st 1L purge bag 2.3 ppm
2nd 1L purge bag 2.0 ppm
3rd 1L purge bag 1.8 ppm
4th 1L purge bag 1.8 ppm
5th 1L purge bag 1.8 ppm

6th 1L purge bag 1.8 ppm
7th 1L purge bag 1.6 ppm
8th 1L purge bag 1.9 ppm
9th 1L purge bag 1.8 ppm
also purged 0.3L

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Roboskey MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-05-4.5 Sample ID: PMC-SVB-05-4.5-062514

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: N/A

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1731

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 1475 ppm

Calculated leak percentage: 0.56 %

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 29.2%, 32%, 41.6, 25.9 = 32.2% average

End Time: 1752

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 Dead Volume is 1.3 L, So Purge 3.9 L.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.5	O_2 (%):	—	O2 (%):	19.9
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	0.1
CO (ppm):	—			CH4 (%):	0.0

Sampling Information

Evacuated Canister or Bottle-Vac RS

Container Size (L): 1L

Container ID: IBV11911

Flow Controller ID: OAO1931

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): ~~-25.93~~ -28.61

Start Date and Time: 6/25/18 @ 1806

End Date and Time: 6/25/18 @ 1810

Final Pressure (" Hg): -4.35

Tedlar Bag

Tedlar Bag Size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling:

Additional Notes:

			Helium in Bag	/ Should
1st	1 L Purge Bag	= 1.0	950 ppm	29.2%
2nd	"	= 0.6	1125 ppm	32%
3rd	"	= 1.3	1225 ppm	41.6%
4th	"	= 0.5	1475	25.9

3. Leak 0.56%

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: R Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-05-10.5 Sample ID: PMC-SVB-05-10.5-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start Time: 1622

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 23.8%, 21.8%, 22.9%, 32.2%, 45.1% = 29.2% average

End Time: 1655

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): 1.2	O_2 (%):		O2 (%):	21.3%
H_2S (ppm):	LEL (%):		CO2 (%):	0.6%
CO (ppm):			CH4 (%):	0.0%

1 Dead volume is 1.4 L, so Purge 4.2 L,

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1L

Container ID: 1BV11880

Flow Controller ID: OA00084

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.26

Start Date and Time: 6/25/18 @ 1702

End Date and Time: 6/25/18 @ 1707

Final Pressure (" Hg): -3.12

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70's Sunny/Clear

Additional Notes:

1st 1L Purge bag = 10.0 PPM ↓ (Switched to a New bag)

2nd 1" = 0.7 PPM

3rd 1" = 7.1 PPM

4th 1" = 1.2 PPM

5th 1" 1.2 PPM

Purge ~5L

Soil Vapor Sampling Log

ch2m

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: grass

Location ID: SVB-06-06 Sample ID: PMC-SVB-06-06-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 14:40	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 14:54

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 40.5%, 55.4%, 42.2%, 28.9%, 32.2%, 48.7%, 32.6%

End Time: 16:03

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 3.6L, so purge 10.8L → 25.7%

Avg = 38.3%

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): 3.4	O_2 (%):		O2 (%):	21.3
H_2S (ppm):	LEL (%):		CO2 (%):	0.5
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV11879

Flow Controller ID: OA02091

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.49

Start Date and Time: 06/25/18 16:06

End Date and Time: 06/25/18 16:11

Final Pressure (" Hg): -3.57

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s °F, Sunny, clear

Additional Notes:

1st 1L purge bag 4.1 ppm
2nd 1L purge bag 4.5 ppm
3rd 1L purge bag 4.5 ppm
4th 1L purge bag 4.6 ppm
5th 1L purge bag 4.4 ppm
6th 1L purge bag 3.8 ppm
7th 1L purge bag 3.7 ppm
8th 1L purge bag 3.6 ppm
9th 1L purge bag 3.3 ppm
10th 1L purge bag 3.4 ppm
11th 1L purge bag 3.4 ppm

Soil Vapor Sampling Log

ch2m

Project: EPA RS PMC Petoskey, MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-07-5.5 Sample ID: PMC-SVB-07-5.5-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 13:17	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: replaced leaking flow controller OA01104

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 13:22

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 40%, 25%, 25.5%, 25.7% = 29.1%

End Time: 13:47

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

dead volume is 1.2 L, so purge 3.6 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 3.8 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 22.4

CO2 (%): 0.2

CH4 (%): 0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV11887

Flow Controller ID: OA01732

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.15

Start Date and Time: 06/25/18 13:51

End Date and Time: 06/25/18 13:56

Final Pressure (" Hg): -4.79

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s °F, sunny, clear

Additional Notes:
1st 1L purge bag - 3 ppm
2nd 1L purge bag - 3.6 ppm
3rd 1L purge bag - 4.0 ppm
4th 1L purge bag - 3.8 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey, MT

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-07-12 Sample ID: PMC-SVB-07-12-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 10:27	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0%

Start Time: 10:37 Calculated leak percentage: 0

Purge Vacuum ("Hg): -1 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 23.7%, 32%, 35%, 36.5%, 38.4%, = 33.1%

End Time: 11:19

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 2L, so purge 6L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	2.2	O_2 (%):	O2 (%):	19.9
H_2S (ppm):		LEL (%):	CO2 (%):	0.5
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 Initial Pressure (" Hg): -29.23

Container ID: IBV11884 Start Date and Time: 06/25/18 12:47

Flow Controller ID: OA01368 End Date and Time: 06/25/18 12:52

Sampling Rate (mL/min) hours): 200 Final Pressure (" Hg): -4.70

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L): Start Date and Time:

Sampling Rate (mL/min): End Date and Time:

Sorbent Tube

Sorbent Tube type and size: Start Date and Time:

Sorbent Tube ID: End Date and Time:

Initial Flow Rate (mL/min): Final Flow Rate (mL/min)

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 60s °F, sunny, clear

Additional Notes:
1st 1L purge bag - 0.7NS 1.2ppm
2nd 1L purge bag - 1.1 ppm
3rd 1L purge bag - 1.2ppm
4th 1L purge bag - 1.4 ppm
5th 1L purge bag - 1.8 ppm
6th 1L purge bag - 2.2 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC - Petoskey MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-05-07 Sample ID: PMC-SVB-08-07-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 1131	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1135

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 23.7, 27.9, 24.5, 27.2, 35.5, 24, 30.7

End Time: 1250

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

1 Dead Volume = 3.3L
So purge 9.9 L.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	9.8	O_2 (%):	—	O2 (%):	20.6
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	1.35
CO (ppm):	—			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID: 1BV11909

Flow Controller ID: OA02006

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.51

Start Date and Time: 6/26/18 @ 1252

End Date and Time: 6/26/18 @ 1300

Final Pressure (" Hg): -1.59

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70's Sunny

Additional Notes: (VOCs)

1st 1L purge Bag = 5.8 ppm

2nd " = 8.1 ppm

3rd " = 9.2 ppm

4th " = 9.6 ppm

5th " = 4.7 ppm

6th " = 9.8 ppm

7th " = 9.2 ppm

8th " = 9.5 ppm

9th " = 10.2 ppm

10th " = 9.8 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Rotosky MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-09-06 Sample ID: PMC-SVB-09-06-062518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 13:28	Pass	Fail
	X (RS)	X

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1337

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: ~~NVI~~ 2.7%

Calculated leak percentage: ~9%

Probe Leak Check Result*: Pass (Fail)

Avg. Helium Conc. in the Enclosure: 31.5%, 38.3%, 31.1%, 29.8%. Avg = 32.7%

End Time: 1420

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 Rand Volume = 1.5L, so purge 4.5 L.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): 53.5	O_2 (%):		O2 (%):	21.1
H_2S (ppm):	LEL (%):		CO2 (%):	0
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID:

Flow Controller ID:

Sampling Rate (mL/min, hours):

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): Not collected on 6/25 due to leak test fail - will collect at later date

Start Date and Time:

End Date and Time:

Final Pressure (" Hg):

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s of Sunny clear

Additional Notes:

			Helium Conc in Smoke/Shroud
1st	1L Purge bag	= 56.6 PPM	—
2nd	" "	= 75.7 PPM	1475PPM / 38.3%
3rd	" "	= 68.0 PPM	6675 / 45.4% (1.5%)
4th	" "	= 63.7 PPM	175000 / 54.3% (3.1% leak)
5th	" "	= 53.5 PPM	2.7% / 29.8%

SAMPLE NOT COLLECTED DUE TO LEAK

Purge ~ 5 L

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey, MI

Sampler: Jenn Simons

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-09-06 Sample ID: PMC-SVB-09-06-062818

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 10:11	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0 ppm

Start Time: 10:12 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 45.6%, 32%, 43.1%, 28.4%, 22.5% = 34.3%

End Time: 10:58

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]. Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) / MultiRAE Photoionization Detector

Total VOCs (ppm): 2.8 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 20.1

CO2 (%): 0

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 Initial Pressure (" Hg): -29.20

Container ID: 1BV11883 Start Date and Time: 06/28/18 10:59

Flow Controller ID: OA00276 End Date and Time: 06/28/18 11:05

Sampling Rate (mL/min) hours): 200 Final Pressure (" Hg): -4.30

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L): Start Date and Time:

Sampling Rate (mL/min): End Date and Time:

Sorbent Tube

Sorbent Tube type and size: Start Date and Time:

Sorbent Tube ID: End Date and Time:

Initial Flow Rate (mL/min): Final Flow Rate (mL/min)

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Clear, sunny 60s °F

Additional Notes:

1st purge bag - ~~1.9 ppm~~	2.1 ppm
2nd purge bag -	2.2 ppm
3rd purge bag	2.1 ppm
4th purge bag	2.5 ppm
5th purge bag	2.8 ppm

1 dead volume is 1.5L, so purge 4.5L

Soil Vapor Sampling Log

ch2m:

Project: EPA R5

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-09-10 Sample ID: PMC-SVB-09-10 ~~-10~~ 062518

Sample Location Description: [redacted]

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 1130	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1136

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0%

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 24%, 65%, 36.2%, 22% Avg = 36.8%

End Time: 1200

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.2L, so purge 3.6L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)

Total VOCs (ppm): 1.0 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 21.4%

CO2 (%): 1.0 %

CH4 (%): 0.0 %

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1L

Container ID: 1BV11877

Flow Controller ID: ~~OA0007~~ 8 OA0007 8

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.45

Start Date and Time: 6/25/18 @ 1313

End Date and Time: 6/25/18 @ 1319

Final Pressure (" Hg): ~~OA000718~~ -3.75 RS

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70's Sunny/Clear

Additional Notes:

1st 1L Purge bag = 1.2 ppm

2nd 1L Purge bag = 0.5 PPM

3rd 1L Purge bag = 0.0 PPM

4th 1L Purge Bag = 1.0 PPM

Purge ~ 4L

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-10-06 Sample ID: PMC-SVB-10-06-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 14:51	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 14:53

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 26.4%, 44.1%, 46.6, 40.7%, 37.5% = 39.1%

End Time: 15:23

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5L, so purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	6.2	O_2 (%):	O2 (%):	22.1
H_2S (ppm):		LEL (%):	CO2 (%):	0
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: IBV 11891

Flow Controller ID: OA00205

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.00

Start Date and Time: 06/26/18 15:25

End Date and Time: 06/26/18 15:30

Final Pressure (" Hg): -3.87

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 70s °F

Additional Notes:

1st 1L Purge bag 5.1 ppm

2nd 1L Purge bag 5.9 ppm

3rd 1L Purge bag 5.4 ppm

4th 1L Purge bag 5.6 ppm

5th 1L Purge bag 6.2 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-10-10 Sample ID: PMC-SVB-10-10-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 12:11

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 12:13

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 34.6%, 42.1% Avg = 38.4%

End Time: 12:46

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5L, so purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 2.9 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 22.1

CO2 (%): 0.3

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: 1BV11894

Flow Controller ID: 6A00889

Sampling Rate (mL/min) hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.23

Start Date and Time: 06/26/18 12:50

End Date and Time: 06/26/18 12:56

Final Pressure (" Hg): -4.57

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60S to 70S °F

Additional Notes:

1st 1L purge bag - 2.5 ppm

2nd 1L purge bag - 3.0 ppm

3rd 1L purge bag - 2.9 ppm

4th 1L purge bag - 2.9 ppm

5th 1L purge bag - 2.9 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey, MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: dirt grass

Location ID: SVB-10-~~T556~~ 15.6 Sample ID: PMC-SVB-10-15.6-062618

Sample Location Description: [redacted]

* Duplicate sample ID below

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 11:18

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: tighten connection btwn manifold & flow controller

I dead volume is 1.1 L, so purge 3.3L

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 11:20

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 51.4%, 28.0% Avg = 39.7%

End Time: 11:47

*The soil vapor probe passes the leaktest if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 2.0 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 22.1

CO2 (%): 0.4

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: 1BV11861 / 1BV1912

Flow Controller ID: ~~OA00889~~ **

Sampling Rate (mL/min) hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.43 / -29.85

Start Date and Time: 06/26/18 11:53

End Date and Time: 06/26/18 12:03

Final Pressure (" Hg): -3.90 / -3.65

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny, clear sky 60s °F

Additional Notes:
1st 1L purge bag - 3.4 ppm
2nd 1L purge bag - 2.8 ppm
3rd 1L purge bag - 2.2 ppm
4th 1L purge bag - 2.0 ppm

* Duplicate sample PMC-SVB-10-15.6-062618-FD

** Flow controller switched to OA02047

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC - Petoskey MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-11-5 Sample ID: PMC-SVB-11-5-062618

Sample Location Description: [redacted]

FD ID: PMC-SVB-11-05-0626 FD

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 957

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1001

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 24.6%, 35.5%, 27.9%, 43.6, 26.9% = 31.7% average

End Time: 1037

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

1 Dead Volume is 1.5 L, So Purge 4.5 L.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 3.1 O_2 (%): —

H_2S (ppm): — LEL (%): —

CO (ppm): —

LandTec GEM Landfill Gas Meter

O2 (%): 20.8

CO2 (%): ~~Gas~~ 1.0

CH4 (%): 0.0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID: 1BV11903 / 1BV11910

Flow Controller ID: 8A01458

Sampling Rate (mL/min/hours): 200 mL/mn

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.56 / -28.64

Start Date and Time: 6/26/18 @ 1042

End Date and Time: 6/26/18 @ 1050

Final Pressure (" Hg): -5.28 / -5.39

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 60's Clear / Sunny

Additional Notes:

1st - 1L purge Bag = 4.6 ppm (Pump Battery died)

2nd - " = 3.2 ppm Sump Batteries

3rd - " = 3.5 ppm

4th - " = 3.6 ppm

6th - " = 3.1

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC - Pelosky MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB - 11 - 10 Sample ID: PMC-SVB-11-10-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 851	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 855

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0.0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 39.3%, 23.2%, 52.2%, 49.2, 40.7%, 21.6% = 37.7% average

End Time: 939

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 Dead Volume is 2 L, so Purge 6 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) / MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	4.8	O_2 (%):	–	O2 (%):	20.9
H_2S (ppm):	–	LEL (%):	–	CO2 (%):	1.5
CO (ppm):	–			CH4 (%):	0.0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1 L

Container ID: IBV11905

Flow Controller ID: OA01454

Sampling Rate (mL/min) hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.61

Start Date and Time: 6/26/18 @ 941

End Date and Time: 6/26/18 @ 947

Final Pressure (" Hg): -2.56

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 55°F Sunny / Clear

Additional Notes:

			VOCs
1st	1L	Purge Bag	= 5.3 PPM
2nd	1L	Purge Bag	= 5.0 PPM
3rd	1L	Purge Bag	= 5.2 PPM
4th	1L	Purge Bag	= 5.2 PPM
5th	1L	Purge Bag	= 5.0 PPM
6th	1L	Purge Bag	= 4.8 PPM

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt (good condition)

Location ID: SVB-12-05 Sample ID: PMC-SVB-12-05-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 09:53

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 09:56

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 25.6%, 15%, 21.1%, 55.3%, 38.7%, 29.5%

End Time: 10:27

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5 L, so purge 4.5 L

Avg 30.9%

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	8.1	O_2 (%):	O2 (%):	22.2
H_2S (ppm):		LEL (%):	CO2 (%):	0.1
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: 1BV11908

Flow Controller ID: ~~0A02158~~ ~~0A02047~~ (NS)

Sampling Rate (mL/min) hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.03

Start Date and Time: 06/26/18 10:30

End Date and Time: 06/26/18 10:35

Final Pressure (" Hg): -2.75

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: overcast but sunny, 60s °F

Additional Notes:

1st 1L purge bag 6.4 ppm

2nd 1L purge bag 8.4 ppm

3rd 1L purge bag 7.8 ppm

4th 1L purge bag 8.9 ppm

5th 1L purge bag 8.1 ppm

* Flow controller 0A02158 used

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt parking lot

Location ID: SVB-12-12 Sample ID: PMC-SVB-12-12-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 08:47	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 08:54

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0 ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 42.7%, 29.3%, 28.9%, 26.5%, 27.1%, 23.9%, 55.2%

End Time: 09:39

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.9L, so purge 5.7L

Avg = 33.4%

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 1.7 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 20.1

CO2 (%): 0.5

CH4 (%): 0%

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV11904

Flow Controller ID: OA01088

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -30.09

Start Date and Time: 06/26/18 09:40

End Date and Time: 06/26/18 09:45

Final Pressure (" Hg): -3.55

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 50s °F Some clouds, some sun

Additional Notes:

1st 1L purge bag - 2.0 ppm

2nd 1L purge bag - 1.8 ppm

3rd 1L purge bag - 1.8 ppm

4th 1L purge bag - 1.8 ppm

5th 1L purge bag - 1.7 ppm

6th 1L purge bag - 1.7 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5- PMC- Petoskey MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-14-4.8 Sample ID: PMC-SVB-14-4.8-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 1807	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1809

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 23.1, 34.1, 21.9, 20.1, 21.2 Avg = 24.2 %

End Time: 1839

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)]. Do NOT collect a soil vapor sample if the leak check fails.

1 dead Volume = 1.2

So Purge 3.6L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	26.9	O_2 (%):	—	O2 (%):	19.5 %
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	0.9 %
CO (ppm):	—			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID: 1BV11878

Flow Controller ID: 0A00339

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.41

Start Date and Time: 6/26/18 @ 1842

End Date and Time: 6/26/18 @ 1848

Final Pressure (" Hg): -4.07

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling:

VOC

Additional Notes:

1st 1L purge Bag = 72.4 ppm

2nd " = 47.8 ppm

3rd " = 32.2 ppm

4th " = 26.9 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 - AMC Rehoboth MI

Sampler: R Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-14-9.5 Sample ID: AMC-SVB-14-9.5-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 1713

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1715

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 20, 19.9, 4.7, 29.2 Avg = 27.7%

End Time: 1743

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 load Volume = 1.5.
So Purge 4.5L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	32.0	O_2 (%):	—	O2 (%):	20.1
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	1.2
CO (ppm):	—			CH4 (%):	0.0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID: 1BV11907

Flow Controller ID: OA01067

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.42

Start Date and Time: 6/26/18 @ 1746

End Date and Time: 6/26/18 @ 1752

Final Pressure (" Hg): -3.32

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s Sun + Clouds

Additional Notes: VOC

1st 1L Purge Bag = 59.1

2nd " = 64.4

3rd " = 48.3

4th " = 38.9

5th " = 32.0ppm

Soil Vapor Sampling Log

ch2m

Project: EPA R5 - PMC - Petoskey MI

Sampler: R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-14-12.5 Sample ID: PMC-SVB-14-12.5-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 1550	Pass	Fail
	✓	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start Time: 1553

Purge Vacuum ("Hg): 0

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: 0

Probe Leak Check Result*: Pass Fail

Avg. Helium Conc. in the Enclosure: 46.3, 29.8, 20.1, 22.3%, 20.9 (27.9%)

End Time: 1642

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

1 Dead Volume = 2.2 L so purge 6.6L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	1.7	O_2 (%):	—	O2 (%):	20.4 %
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	1.3 %
CO (ppm):	—			CH4 (%):	0.0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L

Container ID: 1BV11901

Flow Controller ID: 0A01597

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.42

Start Date and Time: 6/26/18 @ 1647

End Date and Time: 6/26/18 @ 1654

Final Pressure (" Hg): -2.24

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s Sun + Clouds

Additional Notes:

1st 1 L purge Bag	= 3.8 PPM (VOC)	5th "	= 2.1 PPM
2nd "	= 1.7 PPM	6th "	= 3.2 PPM
3rd "	= 1.6 PPM	7th "	= 1.7 PPM
4th "	= 1.6 PPM		

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt (good condition)

Location ID: SVB-15-4.8 Sample ID: PMC-SVB-15-4.8-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 17:26	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0 ppm

Start Time: 17:29 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 35.4%, 41.8% = 38.6 average

End Time: 17:42

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.0L, so purge 3L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	9.6	O_2 (%):	O2 (%):	22.4
H_2S (ppm):		LEL (%):	CO2 (%):	0
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L):	1	Initial Pressure (" Hg):	-28.65
Container ID:	IBV1906	Start Date and Time:	06/26/18 17:45
Flow Controller ID:	OA00016	End Date and Time:	06/26/18 17:50
Sampling Rate (mL/min) hours):	200	Final Pressure (" Hg):	-2.71
Sampling Vacuum ("Hg):	0		

Tedlar Bag

Tedlar Bag size (L):		Start Date and Time:	
Sampling Rate (mL/min):		End Date and Time:	

Sorbent Tube

Sorbent Tube type and size:		Start Date and Time:	
Sorbent Tube ID:		End Date and Time:	
Initial Flow Rate (mL/min):		Final Flow Rate (mL/min)	
Calculated Sampling Volume:			

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 60s °F

Additional Notes:
1st 1L purge bag 6.2 ppm
2nd 1L purge bag ~~8.8 ppm~~ 8.8 ppm
3rd 1L purge bag 9.6 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA R5 PMC Petoskey MI

Sampler: Jenn Simms

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt + good condition

Location ID: SVB-15-10 Sample ID: PMC-SVB-15-10-062618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 15:52	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 15:54

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 31%, 27.5%, 40.8%, 34.0%, 29.4%, 26.8%=

End Time: 16:24

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: 0%

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 1.5 L, so purge 4.5 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE) or MultiRAE Photoionization Detector

Total VOCs (ppm): 1.8 O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 22.3

CO2 (%): 0.2

CH4 (%): 0

Sampling Information

Evacuated Canister or (Bottle-Vac)

Container Size (L): 1

Container ID: IBV11902

Flow Controller ID: OA00799

Sampling Rate (mL/min) hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -29.22

Start Date and Time: 06/26/18 16:26

End Date and Time: 06/26/18 16:33

Final Pressure (" Hg): -4.34

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 70s °F

Additional Notes:

1st 1L purge bag 2.8 ppm

2nd 1L purge bag 2.6 ppm

3rd 1L purge bag 1.9 ppm

4th 1L purge bag 1.9 ppm

5th 1L purge bag 1.8 ppm

Soil Vapor Sampling Log

ch2m:

Project: EPA RS PMC Petoskey MI

Sampler: JENN SIMMS

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt (good condition)

Location ID: SVB-16-09 Sample ID: PMC-SVB-16-09-062618

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact. 18:23	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 Helium Conc. in the Purged Vapor: 0ppm

Start Time: 18:27 Calculated leak percentage: 0%

Purge Vacuum ("Hg): 0 Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 49.7%, 38.2%, 30.8%, 31.4%, 24.1%, 47.4% = 36.9% → average

End Time:

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

1 dead volume is 3.4L, so purge 10.2 L

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

(MiniRAE or MultiRAE Photoionization Detector)			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	1.7	O_2 (%):	O2 (%):	22.4
H_2S (ppm):		LEL (%):	CO2 (%):	0.3
CO (ppm):			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L):	1	Initial Pressure ("Hg):	-29.17
Container ID:	1BV11900	Start Date and Time:	06/26/18 19:17
Flow Controller ID:	OA02171	End Date and Time:	06/26/18 19:23
Sampling Rate (mL/min hours):	200	Final Pressure ("Hg):	-3.78
Sampling Vacuum ("Hg):	0		

Tedlar Bag

Tedlar Bag size (L):		Start Date and Time:	
Sampling Rate (mL/min):		End Date and Time:	

Sorbent Tube

Sorbent Tube type and size:		Start Date and Time:	
Sorbent Tube ID:		End Date and Time:	
Initial Flow Rate (mL/min):		Final Flow Rate (mL/min)	
Calculated Sampling Volume:			

Weather Conditions and Additional Notes

Weather Conditions During Sampling:

Additional Notes:

1st 1L purge bag - 3.1 ppm
2nd 1L purge bag - 2.2 ppm
3rd 1L purge bag - 2.0 ppm
4th 1L purge bag - 2.0 ppm
5th 1L purge bag - 1.8 ppm
6th 1L purge bag - 1.8 ppm
7th 1L purge bag - 1.7 ppm
8th 1L purge bag - 1.7 ppm
9th 1L purge bag - 1.8 ppm
10th 1L purge bag 1.7 ppm
also purge 0.2L more

Soil Vapor Sampling Forms
October 2018

Soil Vapor Sampling Log

ch2m:

Project: PMC Petoskey, MI

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-05-4.5 Sample ID: PMC-SVB-05-4.5-101018

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1051

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 18%, 15%, 16%, 49%, 35%

End Time: 1111

Helium Conc. in the Purged Vapor: 0.0, 0.0, 0.0, 0.0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.1	O_2 (%):		O2 (%):	20.3
H_2S (ppm):		LEL (%):		CO2 (%):	0.1
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12850

Flow Controller ID: OA02127

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.16

Start Date and Time: 10/10/18 1112

End Date and Time: 10/10/18 1117

Final Pressure (" Hg): -3.08

Tedlar Bag

Tedlar Bag size (L): 1

Sampling Rate (mL/min): 200 / 5min

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: ~70°F, Mostly Sunny

Additional Notes: Bag 1 = 0.1 ppm VOCs

Bag 2 = 0.1 ppm

Bag 3 = 0.1 ppm

Bag 4 = 0.1 ppm

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt pkng lot

Location ID: SVB-05-~~MB~~ 10.5

Sample ID: PMC-SVB-05-~~MB~~ 10.5-101018

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: None

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 0948

Purge Vacuum ("Hg): 0.0

Avg. Helium Conc. in the Enclosure: 20%, 21%, 25%, 29% = 23.75%

End Time: 1012

Helium Conc. in the Purged Vapor: 0.0, 0.0, 0.0, 0.0

Calculated leak percentage: 0

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.1	O_2 (%):		O2 (%):	21.2
H_2S (ppm):		LEL (%):		CO2 (%):	1.0
CO (ppm):				CH4 (%):	0.2

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12852

Flow Controller ID: OA01787

Sampling Rate (mL/min, hours): 200 ml/min 5 m

Sampling Vacuum ("Hg): 0.0

Initial Pressure (" Hg): -29.22

Start Date and Time: 10/10/18 ~~1000~~ 1020

End Date and Time: 10/10/18 1025

Final Pressure (" Hg): -2.68

Tedlar Bag

Tedlar Bag size (L): 1

Sampling Rate (mL/min): 200

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: ~70°F Mostly Sunny

Additional Notes: 1st 1L purge bag = 0.1 ppm 5th bag = 0.0

2nd = 0.1 ppm

3rd = 0.1 ppm

4th = 0.1 ppm

Soil Vapor Sampling Log

ch2m:

Project: PMC

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: grassy

Location ID: SVB-06-6 Sample ID: PMC-SVB-06-6-101018

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1708

Purge Vacuum ("Hg): Ø

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 22%, 16%, 34%, 23%, 19%, 19%, 20%

End Time: 1802

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):		O2 (%):	18.7
H_2S (ppm):		LEL (%):		CO2 (%):	2.3
CO (ppm):				CH4 (%):	0.6

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: 1BV12870 / 1BV12875 (dup)

Flow Controller ID: OA01883 / OA00628 (dup)

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.83 / -28.98 (dup)

Start Date and Time: 10/10/18 1803

End Date and Time: 10/10/18 1809

Final Pressure (" Hg): -2.188 / -2.185

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70s Sunny

Additional Notes:

Bag 1 = 310 ppb Bag 5 = 755 ppb Bag 9 = 537

Bag 2 = 540 ppb Bag 6 = 715 ppb Bag 10 = 783

Bag 3 = 515 ppb Bag 7 = 508 ppb Bag 11 = 818

Bag 4 = 479 ppb Bag 8 = 503 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC Pocatello, MT

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: PMC-SVB-02-6 Sample ID: PMC-SVB-02-6-101018

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1236

Purge Vacuum ("Hg): Ø

Helium Conc. in the Purged Vapor: 0,0,0,0,0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 27%, 18%, 18%, 22%, 24% → Ave = 22%

End Time: 1259

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.2	O_2 (%):	✓	O2 (%):	20.0
H_2S (ppm):	✓	LEL (%):	✓	CO2 (%):	1.7
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12878

Flow Controller ID: OAC1879

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.18

Start Date and Time: 10/10/18 1301

End Date and Time: 10/10/18 1307

Final Pressure (" Hg): -3.15

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70's Sunny

Additional Notes: Bag #1 = 0.2 Bag #5 = 0.1
Bag #2 = 0.1
Bag #3 = 0.1
Bag #4 = 0.1

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey, MI

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-02 ~~mid~~-11 Sample ID: PMC-SVB-02-11-101018

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1138

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 30%, 23%, 20%, 22%, 19 %

End Time: 1208

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):	/	O2 (%):	20.1
H_2S (ppm):	/	LEL (%):	/	CO2 (%):	0.9
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12877

Flow Controller ID: OA Ø2131

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.16

Start Date and Time: 10/10/18 1208

End Date and Time: 10/10/18 1213

Final Pressure (" Hg): ~~-3.08~~

Tedlar Bag

Tedlar Bag size (L): 1

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 70's Sunny

Additional Notes: Bzy 1 = 0.1 ppm
Bzy 2 = 0.1 ppm
Bzy 3 = 0.1 ppm
Bzy 4 = 0.1 ppm
Bzy 5 = 0.1
Bzy 6 = 0.1

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler: Chumney, Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grassy

Location ID: SVB-03-5.5 Sample ID: PMC-SVB-03-5.5-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 1

Start Time: 1143

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 27%, 28%

End Time: 1159

Helium Conc. in the Purged Vapor: 0,0,0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	see add notes	CO_2 (%):	✓	O2 (%):	21.0
H_2S (ppm):	✓	LEL (%):	✓	CO2 (%):	1.0
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12874

Flow Controller ID: OAØ1435

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.00

Start Date and Time: 10/11/18 - 1159

End Date and Time: 10/11/18 - 1205

Final Pressure (" Hg): -3.50

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's, overcast, windy light mist of rain

Additional Notes: Bag 1 = 88 ppb
Bag 2 = 375 ppb
Bag 3 = 311 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey, MI

Sampler: Chumney, Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass

Location ID: SVB-03-10.5 Sample ID: PMC-SVB-03-10.5-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1117

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 29%, 25%, 16%

End Time: 1134

Helium Conc. in the Purged Vapor: 0,0,0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):	/	O2 (%):	21.5
H_2S (ppm):	/	LEL (%):	/	CO2 (%):	1.3
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12880

Flow Controller ID: CA00750

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.89

Start Date and Time: 10/11/18 - 1134

End Date and Time: 10/11/18 - 1139

Final Pressure (" Hg): -3.19

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: windy, overcast misting rain, 40's

Additional Notes: Bag 1 = 440 ppb
Bag 2 = 381 ppb
Bag 3 = 177 ppb

Soil Vapor Sampling Log

ch2m:

Project: PMC

Sampler: Chumney, Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-03-15 Sample ID: PMC-SVB-03-15-101118

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1043

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 15%, 15%, 18%, 27%

End Time: 1106

Helium Conc. in the Purged Vapor: 0,0,0,0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):		O2 (%):	21.5
H_2S (ppm):		LEL (%):		CO2 (%):	1.7
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: 1BV12881

Flow Controller ID: OA01347

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.94

Start Date and Time: 10/11/18 - 1106

End Date and Time: 10/11/18 - 1112

Final Pressure (" Hg): -1.95

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's, overcast, light mist of rain, windy

Additional Notes:

Bag 1 = 75 ppb Bag 3 = 70 ppb

Bag 2 = 47 ppb Bag 4 = 80 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC

Sampler: Sleeper, Chumney

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Grass

Location ID: SVB-04-6

Sample ID: PMC-SVB-04-6-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 0955

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 34%, 32%, 30%, 31%

End Time: 1022

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):	✓	O2 (%):	21.4
H_2S (ppm):	✓	LEL (%):	✓	CO2 (%):	1.2
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12855

Flow Controller ID: CA01888

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.92

Start Date and Time: 10/11/18 - 1023

End Date and Time: 10/11/18 - 1030

Final Pressure (" Hg): -1.72

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Windy, overcast light rain-mist 49°

Additional Notes: Bag 1 = 0.1 ppm Bag 4 = 0.1 ppm

Bag 2 = 0.1 Bag 5 = 0.1 ppm

Bag 3 = 0.1

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area:

Location ID: PMC-SVB-04-9 Sample ID: PMC-SVB-04-9-101118

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 0915

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 18%, 20%, 22%

End Time: 938

Helium Conc. in the Purged Vapor: 0.0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): O_2 (%):

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 21.3

CO2 (%): 1.4

CH4 (%): 0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: 113V12871

Flow Controller ID: OA01774

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.96

Start Date and Time: 10/11/18 - 0939

End Date and Time: 10/11/18 - 0945

Final Pressure (" Hg): -2.69

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 49°, Windy, Overcast, light Rain

Additional Notes: Bag 1 = 0.2 Bag 5 = 0.1

Bag 2 = 0.1

Bag 3 = 0.1

Bag 4 = 0.1

Soil Vapor Sampling Log

ch2m

Project: PMC

Sampler: K Sleeper

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Grass

Location ID: SVB-04-12.5 Sample ID: PMC-SVB-04-12.5-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 0812

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 18%, 21%, 15%, 22%, 15%

End Time: 0903

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):		O_2 (%):	✓	O2 (%):	~~20.3~~ < 20.5
H_2S (ppm):	✓	LEL (%):	✓	CO2 (%):	~~1.0~~ < 2.0
CO (ppm):				CH4 (%):	~~0.6~~ < 0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12873

Flow Controller ID: OA01250

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.89

Start Date and Time: 10/11/18 - 0904

End Date and Time: 10/11/18 - 0910

Final Pressure (" Hg): -2.75

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Overcast, cold 40s, windy

Additional Notes:

Bag 1 = 0.2 Bag 5 = 0.1 Bag 9 = 0.1

Bag 2 = 0.2 Bag 6 = 0.1 Bag 10 = 0.1

Bag 3 = 0.2 Bag 7 = 0.1

Bag 4 = 0.1 Bag 8 = 0.1

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-09-6 Sample ID: PMC-SVB-09-6-101118

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) / Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start and End Times: 1742 - 1806

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 28%, 25%, 30%

Total Volume Purged (L):

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) / Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	See add. Notes	O_2 (%):	✓	O2 (%):	~~12.2~~ 11.5
H_2S (ppm):	✓	LEL (%):	✓	CO2 (%):	0.9
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1

Canister ID: IB ~~0609~~ 12894

Flow Controller ID: OA01784

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.04

Start Date and Time: 10/11/18 - 1806

End Date and Time: 10/11/18 - 1813

Final Pressure (" Hg): -2.16

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Sampling Date:

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Windy / Cold 40's Cloudy

Additional Notes: Bag 1 = 0.2 ppm, Bag 2 = 0.1 ppm, Bag 3 = 0.1 ppm, Bag 4 = 0.1 ppm
Bag 5 = 0

Soil Vapor Sampling Log

ch2m

1712

Project: PMC Petoskey

Sampler: Sleeper / Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-09-10 Sample ID: PMC-SVB-09-10-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1712

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 23%, 38%

End Time: 1731

Helium Conc. in the Purged Vapor: 0,0,0,0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	See add. Notes	O_2 (%):	—	O2 (%):	21.1
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	1.7
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV 12895

Flow Controller ID: OA00939

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.98

Start Date and Time: 10/11/18 - 1731

End Date and Time: 10/11/18 - ~~1736~~ 1737

Final Pressure (" Hg): -3.00

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Windy, cold 40s, overcast

Additional Notes: Bag 1 = 102 ppb Bag 4 = 95 ppb
Bag 2 = 104 ppb
Bag 3 = 98 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC Potosley, MT

Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-10-6

Sample ID: PMC-SUB-10-6-101118 / FD

Sample Location Description: PMC-SUB-10-6-101118-FD

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.

Pass	Fail
X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1621

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 40%, 32%, 28%, 29%

End Time: 1648

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector		LandTec GEM Landfill Gas Meter
Total VOCs (ppm): SCC add notes	O_2 (%): —	O2 (%):
H_2S (ppm): —	LEL (%): —	CO2 (%):
CO (ppm):		CH4 (%):

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 Liter

Container ID: 1BV12900 / 1BV12909 FD

Flow Controller ID: OAØ1266 / OAØØ145

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.03 / -28.85 (Dup)

Start Date and Time: 10/11/18 - 1652

End Date and Time: 10/11/18 - 1654

Final Pressure (" Hg): -4.29 / -4.58

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Cold 40s, windy, overcast

Additional Notes:

Bzg 1 = 613 ppb

Bzg 2 = 585 ppb

Bzg 3 = 508 ppb

Bzg 4 = 430 ppb

Bzg 5 = 402 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grassy

Location ID: SVB-10-10 Sample ID: PMC-SVB-10-10-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1530

Purge Vacuum ("Hg): Ø

Helium Conc. in the Purged Vapor: 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

Avg. Helium Conc. in the Enclosure: 35%, 38%, 32% 36%, 28%

End Time: 1554

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	see add	O_2 (%):	—	O2 (%):	20.8
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	2.2
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: 1BV129Ø2

Flow Controller ID: 0A ØØ339

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): ~~-29.02~~ -28.57

Start Date and Time: 10/11/18 - 1558

End Date and Time: 10/11/18 - 1603

Final Pressure (" Hg): -3.20

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: windy, 40s, overcast

Additional Notes: Bag 1 = 478 ppb Bag 5 = 0.2
Bag 2 = 378 ppb
Bag 3 = 354 ppb
Bag 4 = 0.2 ppm

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler:

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass

Location ID: SVB-10-15.6 Sample ID: PMC-SVB-10-15.6-101118

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	*Pass*	*Fail*
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1448

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 38%, 34%

End Time: 1513

Helium Conc. in the Purged Vapor: 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) *Fail*

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): see add notes	O_2 (%):		O2 (%):	
H_2S (ppm):	LEL (%):		CO2 (%):	
CO (ppm):			CH4 (%):	

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV1289C

Flow Controller ID: OAØ2Ø47

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.91

Start Date and Time: 10/11/18 - 1513

End Date and Time: 10/11/18 - 1519

Final Pressure (" Hg): -3.20

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's, Windy, Overcast

Additional Notes: Bag 1 = 572 ppb Bag 4 = 419 ppb
Bag 2 = 661 ppb
Bag 3 = 551 ppb

Soil Vapor Sampling Log

ch2m:

Project: PMC Petoskey

Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-11-~~0~~5 Sample ID: PMC-SVB-11-~~0~~5-101118

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: ~~1220~~ 1227

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 28%, 27%, 24%

End Time: 1252

Helium Conc. in the Purged Vapor: 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): Scc	O_2 (%): ✓		O2 (%):	20.8
H_2S (ppm): ✓	LEL (%): ✓		CO2 (%):	1.9
CO (ppm):			CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12854

Flow Controller ID: OA01384

Sampling Rate (mL/min, hours): 5mn

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.92

Start Date and Time: 10/11/18 - 1253

End Date and Time: 10/11/18 - 1258

Final Pressure (" Hg): -2.98

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's, Overcast, Windy. Scattered Rain

Additional Notes: Bag 1 = ~~0~~650 ppb Bag 4 = 351 ppb

Bag 2 = 724 Bag 5 = 604 ppb

Bag 3 = 654 Bag 6 =

Soil Vapor Sampling Log

ch2m

Project: PMC Peterskey

Sampler: Chuma

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-12-5 Sample ID: PMC-SVB-12-5-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1351

Purge Vacuum ("Hg): Ø

Helium Conc. in the Purged Vapor: 0, 0, 0, 0, 0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 24%, 25%, 30%, 32%, 34%

End Time: 1423

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	5cc add more	O_2 (%):	—	O2 (%):	19.2
H_2S (ppm):	—	LEL (%):	—	CO2 (%):	2.9
CO (ppm):				CH4 (%):	0.0

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12897

Flow Controller ID: OA02069

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -28.98

Start Date and Time: 10/11/18 - 1424

End Date and Time: 10/11/18 - 1432

Final Pressure (" Hg): -2.22

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's, Overcast, Misting Rain, Windy

Additional Notes:

PPB

Bag 1 = 6,233 ppb Bag 4 = 6,970 ppb

Bag 2 = 6,789 Bag 5 = 6,781 ppb

Bag 3 = 7,011

Soil Vapor Sampling Log

ch2m

Project: PMC Pcteskey

Sampler: Chumney / Sleepen

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt

Location ID: SVB-12-12 Sample ID: PMC-SVB-12-12-101118

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1308

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 17% 28%

End Time: 1339

Helium Conc. in the Purged Vapor: 0,0,0,0,0,0

Calculated leak percentage:

Probe Leak Check Result*: Pass Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): See add notes	O_2 (%): —		O2 (%):	20.4
H_2S (ppm): —	LEL (%): —		CO2 (%):	2.6
CO (ppm):			CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12872

Flow Controller ID: OA Ø1ØØ5

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.00

Start Date and Time: 10/11/18 - ~~1359~~ 1340

End Date and Time: 10/11/18 - 1346

Final Pressure (" Hg): -3.93

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40s, overcast, misting rain, windy

Additional Notes:

Bag 1 = 777 ppb Bag 4 = 880 ppb

Bag 2 = 866 ppb Bag 5 = 845 ppb

Bag 3 = 850 ppb Bag 6 = 832 ppb

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: asphalt PMC-

Location ID: SVB-15-4.8 Sample ID: SVB-15-4.8-101218 / FD

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) / Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start and End Times: 1238 - 1256

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 35%, 38%

Total Volume Purged (L):

Helium Conc. in the Purged Vapor: 0,0,0

Calculated leak percentage:

Probe Leak Check Result*: Pass / Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): See add Notes O_2 (%): —

H_2S (ppm): — LEL (%): —

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%): 21.4

CO2 (%): 0.4

CH4 (%): 0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1

Canister ID: 1BV12898 / 1BV12905 (FD)

Flow Controller ID: OAØ1153 / OAØ2113 (FD)

Sampling Rate (mL/min, hours): 5min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.15 / -29.20 (FD)

Start Date and Time: 10/12/18 - 1256

End Date and Time: 10/12/18 - 1303

Final Pressure (" Hg): -3.65 / -3.16

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Cold 40°, overcast, breezy

Additional Notes: Bag 1 = 0.3ppm Bag 2 = 0.2ppm Bag 3 = 0.2ppm

Duplicate Collected

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey Sampler: Chumney / Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-15-10 Sample ID: PMC-SVB-15-10-101218

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start and End Times: 1149 - 1218

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 40% 32%, 30% 31%

Total Volume Purged (L):

Helium Conc. in the Purged Vapor: 0,0,0,0,0

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): see add notes		O_2 (%):	/	O2 (%):	21.0
H_2S (ppm):	/	LEL (%):	/	CO2 (%):	2.0
CO (ppm):				CH4 (%):	0.1

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1

Canister ID: IBV 12904

Flow Controller ID: OA01906

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.18

Start Date and Time: 10/12/18 - 1218

End Date and Time: 10/12/18 - 1229

Final Pressure (" Hg): -1.83

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Sampling Date:

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: switch to multirae (PPB rec ↓ battery died)

Additional Notes: Bag 1 = 54 ppb, Bag 2 = 30 ppb, Bag 3 = 0.0 ppm Bag 4 = 0.1 Bag 5 = 0.1

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

Project: PMC Petoskey

Building: SVB probes - sheet 1 of 3

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
~~PMC-SVB-10.5-101018~~ PMC-SVB-05-10.5-101018	SVB-05-10.5	IBV12852 ~~0A01787~~	0A01787	-29.22	10/10/18	1020			10/10/18	1025	-2.68
PMC-SVB-05-4.5-101018	SVB-05-4.5	IBV12850	0A02127	-29.16	10/10/18	1112			10/10/18	1117	-3.08
PMC-SVB-02-11-101018	SVB-02-11	IBV12877	0A02131	-29.16	10/10/18	1208			10/10/18	1213	-3.51
PMC-SVB-02-6-101018	SVB-02-6	IBV12878	0A01879	-29.18	10/10/18	1301			10/10/18	1307	-3.25
PMC-SVB-06-6-101018	SVB-06-6	IBV12870	0A01883	-28.83	10/10/18	1803			10/10/18	1809	-2.88
FD PMC-SVB-06-6-101018-FD	SVB-06-6	IBV12875	0A01628	-28.98	10/10/18	1803			10/10/18	1809	-2.85
PMC-SVB-04-12.5-101118	SVB-04-12.5	IBV12873	0A01250	-28.89	10/11/18	0904			10/11/18	0910	-2.75
PMC-SVB-04-9-101118	SVB-04-9	IBV12871	0A01774	-28.96	10/11/18	0939			10/11/18	0945	-2.69
PMS-SVB-04-6-101118	SVB-04-6	IBV12855 ~~IBV12885~~	0A01888	-28.92	10/11/18	1023 ~~1030~~			10/11/18	1030	-1.72
PMC-SVB-03-15-101118	SVB-03-15	IBV12881	0A01347	-28.74	10/11/18	1106			10/11/18	1112	-1.95

Weather Conditions

General weather conditions:

Temperature Range (indoor and outdoor):

Was there significant precipitation within 12 hours prior to (or during) the sampling event?

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

Project: PMC Petaluma

Building: SVB probes 2 of 3

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PMC-SVB-03-10.5-101118	SVB-03-10.5	1BV12880	0A00756	-28.89	10/11/18	1134			10/11/18	1139	-3.18
PMC-SVB-03-5.5-101118	SVB-03-5.5	1BV12874	0A00435	-29.00	10/11/18	1159			10/11/18	1205	-3.50
PMC-SVB-11-10-101118 (water in line)	SVB-11-10		0A0.384		10/11/18				10/11/18		
PMC-SVB-11-5-101118	SVB-11-5	1BV12854	0A01384	-28.92	10/11/18	1253			10/11/18	1258	-2.98
PMC-SVB-12-12-101118	SVB-12-12	1BV12872	0A01445	-29.00	10/11/18	1340			10/11/18	1346	-3.83
PMC-SVB-12-5-101118	SVB-12-5	1BV12897	0A02069	-28.98	10/11/18	1424			10/11/18	1432	-2.22
PMC-SVB-10-15.6-101118	SVB-10-15.6	1BV12896	0A00247	-28.71	10/11/18	1513			10/11/18	1519	-3.20
PMC-SVB-10-10-101118	SVB-10-10	1BV12902	0A00339	-28.57 -29.02	10/11/18	1558			10/11/18	1603	-3.20
PMC-SVB-10-6-101118	SVB-10-6	1BV12900	0A01266	-29.03	10/11/18	1652			10/11/18	1658	-4.29
PMC-SVB-10-6-101118-FD	SVB-10-6	1BV12899	0A00443	-28.85	10/11/18	1652			10/11/18	1658	-4.58

Weather Conditions

General weather conditions: _____

Temperature Range (indoor and outdoor): _____

Was there significant precipitation within 12 hours prior to (or during) the sampling event? _____

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

Project: PMC Petoskey

Building: SVB Probes 3 of 3

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr)		End Date	End Time	Final Pressure ("Hg)
							Time	Pressure ("Hg)			
PMC-SVB-09-10-101118	SVB-09-10	IBV12895	OA0[illegible]739	-28.78	10/11/18	1731			10/11/18	1737	-3.00
PMC-SVB-09-6-101118	SVB-09-6	IBV12894	OA01784	-29.04	10/11/18	1806			10/11/18	1813	-2.16
PMC-SVB-15-10-101218	SVB-15-10	IBV12904	OA01906	-29.18	10/12/18	1218			10/12/18	1224 ~~1218~~	-1.83
PMC-SVB-15-4.8-101218	SVB-15-4.8	IBV12898	OA01153	-29.15	10/12/18	1256			10/12/18	1303	-3.65
PMC-SVB-15-4.8-101218-FD	SVB-15-4.8	IBV12905	OA02113	-29.20	10/12/18	1256			10/12/18	1303	-3.16

Weather Conditions

General weather conditions: _____

_____

Temperature Range (indoor and outdoor): _____

Was there significant precipitation within 12 hours prior to (or during) the sampling event? _____

Soil Vapor Sampling Forms
November 2018

Soil Vapor Sampling Log

ch2m:

Project: PMC Sampler: R. Sleeper / D. Christian

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Grass

Location ID: SVB-01-5.3-5.8 Sample ID: PMC-SVB-01-5.8-110518

Sample Location Description: PMC - SVB-01-5.8-110518-FD

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 1407 - 1430

Purge Vacuum ("Hg): 0"

Avg. Helium Conc. in the Enclosure: 18.6 %

Total Volume Purged (L): ~5L

Helium Conc. in the Purged Vapor: 0%

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	19.8%	O2 (%):	21.4%
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	2.5%
CO (ppm):	0 ppm			CH4 (%):	0.0%

Sampling Information

Evacuated Canister or Bottle-Vac

Dup

Canister Size (L): 1L Dup

Canister ID: 1BV13294 / 1BV11749

Flow Controller ID: OA Φ1436

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.99 / -28.94

Start Date and Time: 11/5/18 @ 1458

End Date and Time: 11/5/18 @ 1508

Final Pressure (" Hg): -4.01 / -4.03

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Sampling Date:

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40s Light rain

Additional Notes: VOCs

1st Purge Bag = 0.0 ppm

2nd " = 0.0 ppm

3rd " = 0.0 ppm

4th " = 0.0 ppm

5th " = 0.0 ppm

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m:

Project: PMC Sampler: R. Sleeper / D. Christian

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Grass

Location ID: PMC-SVB-01-13.5-14 Sample ID: PMC-SVB-01-14-110518

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 1517 - 1547

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 11.6%

Total Volume Purged (L): 6 L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	19.7 %	O2 (%):	21.0 %
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	2.7 %
CO (ppm):	0 ppm			CH4 (%):	0.0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11751

Flow Controller ID: OAD1527

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -29.03

Start Date and Time: 11/5/18 @ 1549

End Date and Time: 11/5/18 @ 1554

Final Pressure (" Hg): -4.48

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's cloudy

Additional Notes: VOCs

1st Bag = 0.0

2nd " = 0.0

3rd = 0.0

4th = 0.0

5th = 0.0

6th = 0.0

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey -WA243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass w/ 2-3" snow cover

Location ID: SVB-07-5.5 Sample ID: PMC-SVB-07-5.5-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1151

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 32%

End Time: 1209

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 0.3 O_2 (%): 20.2

H_2S (ppm): LEL (%):

CO (ppm):

LandTec GEM Landfill Gas Meter

O2 (%):

CO2 (%):

CH4 (%):

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle vac

Container ID: IBV13469

Flow Controller ID: OA Ø1671

Sampling Rate (mL/min, hours): 5min / 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.41

Start Date and Time: 11/15/18 - 1210

End Date and Time: 11/15/18 - 1216

Final Pressure (" Hg): -3.94

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Cold 28°, sunny

Additional Notes: He in shroud: Bag 1 = 35%, Bag 2 = 32%, Bag 3 = 28%, Bag 4 = 33%

He in purge bags: Bags 1-4 = Ø %

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey - WA 243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass w/ 2-3" snow cover

Location ID: SVB-07-12 Sample ID: PMC-SVB-07-12-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1102

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 23 %

End Time: 1133

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.1	O_2 (%):	20.5	O2 (%):	
H_2S (ppm):		LEL (%):		CO2 (%):	
CO (ppm):				CH4 (%):	

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L bottle voc

Container ID: IBV13467

Flow Controller ID: OA01228

Sampling Rate (mL/min, hours): 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.41

Start Date and Time: 11/15/18 - 1134

End Date and Time: 11/15/18 - 1139

Final Pressure (" Hg): -3.52

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: cold, 25° sunny

Additional Notes: He Shroud: Bag 1 = 17% Bag 2 = 23%, Bag 3 = 25%
Bag 4 = 26%, Bag 5 = 22%, Bag 6 = 24%
He bags: Bag 1 - Bag 6 = Ø%

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey - WA 243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Grass w/ 2-3" snow cover

Location ID: SVB-08-7 Sample ID: PMC-SVB-08-07-111518

Sample Location Description: [redacted]

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1240

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 28 %

End Time: 1332

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.8	O_2 (%):	19.5	O2 (%):	
H_2S (ppm):		LEL (%):		CO2 (%):	
CO (ppm):				CH4 (%):	

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle vac

Container ID: IBV13482

Flow Controller ID: OA ØØ 333

Sampling Rate (mL/min, hours): 5 min / 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.49

Start Date and Time: 11/15/18 - 1333

End Date and Time: 11/15/18 - 1338

Final Pressure (" Hg): -4.19

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 30°

Additional Notes: He in Shroud - bags 1 through 10: 21%, 28%, 30%, 25%, 29%, 31%, 30%, 29%, 31%, 26%

He in purge bags: Bags 1-10: Ø %

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey - WA243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Ashphalt - good condition

Location ID: SVB-14-4.8 Sample ID: PMC-SVB-14-4.8-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1523

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 28 %

End Time: 1541

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.1	O_2 (%):	19.5	O2 (%):	
H_2S (ppm):	/	LEL (%):	/	CO2 (%):	
CO (ppm):	/			CH4 (%):	

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle Vac

Container ID: 1BV13477

Flow Controller ID: OA ØØ739

Sampling Rate (mL/min, hours): 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.30

Start Date and Time: 11/15/18 - 1544

End Date and Time: 11/15/18 - 1551

Final Pressure (" Hg): -3.06

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 33°

Additional Notes: He % in shroud, Bags 1-4: 15%, 18%, 29%, 32%

He % in purge bags 1-4: Ø%

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey -WA 243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: ~~Grass~~ Asphalt

Location ID: SVB-14-9.5 Sample ID: PMC-SVB-14-9.5-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1447

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 25%

End Time: 1510

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 0.1 O_2 (%): 19.3

H_2S (ppm): / LEL (%): /

CO (ppm): /

LandTec GEM Landfill Gas Meter

O2 (%):

CO2 (%):

CH4 (%):

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle Vac

Container ID: IBV13487

Flow Controller ID: OAØ2Ø52

Sampling Rate (mL/min, hours): 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.49

Start Date and Time: 11/13/18 - 1510

End Date and Time: 11/15/18 - 1516

Final Pressure (" Hg): -4.11

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 35°

Additional Notes: H_2% in shroud - Bags 1 through 5 : 15%, 18%, 29%, 32%, 30%

H_2% in purge bags 1-5 = Ø %

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey - WA 243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-14-12.5 Sample ID: PMC-SVB-14-12.5-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1356

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 27%

End Time: 1429

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 0.1 O_2 (%): 19.6

H_2S (ppm): / LEL (%): /

CO (ppm): /

LandTec GEM Landfill Gas Meter

O2 (%):

CO2 (%):

CH4 (%):

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle VOC

Container ID: IBV13471

Flow Controller ID: OAØØ265

Sampling Rate (mL/min, hours): 5min / 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.38

Start Date and Time: 11/15/18 - 1430

End Date and Time: 11/15/18 - 1435

Final Pressure (" Hg): -3.50

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny 34°

Additional Notes: He % in shroud - Bags 1 through 7: 17%, 25%, 31%, 29%, 30%, 30%, 29%

He % in purge bags: 1 through 7 = Ø%

✓

Soil Vapor Sampling Log

ch2m

Project: PMC

Sampler: R. Sleeper / D. Christian

Sample Location Information

Property ID/Address:

Condition of ground in the surrounding area: Asphalt

Location ID: SVB-16-8.5-9

Sample ID: PMC-SVB-16-~~[illegible]~~ 09 110518

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Helium Conc. in the Purged Vapor: 0

Start and End Times: 1607 →

Calculated leak percentage: NA

Purge Vacuum ("Hg): 0

Probe Leak Check Result*: (Pass) Fail

Avg. Helium Conc. in the Enclosure: 15.5%

Total Volume Purged (L): ~10.5 L

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.2%	O2 (%):	21.6 %
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	1.7 %
CO (ppm):	0 ppm			CH4 (%):	0.0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Initial Pressure (" Hg): -29.04

Canister ID: 1BV13424

Start Date and Time: 11/5/18 1708

Flow Controller ID: ~~AVG04701~~ OA02127

End Date and Time: 11/5/18 1713

Sampling Rate (mL/min, hours): 200 mL/min

Final Pressure (" Hg): -3.39

Sampling Vacuum ("Hg): 0

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Sampling Date:

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sampling Date:

Sorbent Tube ID:

Sampling Start and End Times:

Initial Flow Rate (mL/min):

Final Flow Rate (mL/min):

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Cloudy

Additional Notes: VOCs

1st bag = 0.0 ppm 4th = 0.0 7th = 0.0 10th = 0.0

2nd = 0.0 5th = 0.0 8th = 0.0

3rd = 0.0 6th = 0.0 9th = 0.0

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey - WA243

Sampler: S. Chumney

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: grass & snow (3")

Location ID: SG-50 Sample ID: PMC-SG-50-111518

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1627

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 28 %

End Time: 1635

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0.0	O_2 (%):	20.5	O2 (%):	
H_2S (ppm):	/	LEL (%):	/	CO2 (%):	
CO (ppm):	/			CH4 (%):	

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1 L Bottle Used

Container ID: FD - 1BV13483 / 1BV13472

Flow Controller ID: OAØØ275 / OAØØ628

Sampling Rate (mL/min, hours): 5 min / 200 ml/min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): FD -29.28 / -29.29

Start Date and Time: 11/15/18 - 1636

End Date and Time: 11/15/18 - 1641

Final Pressure (" Hg): FD -3.24 / -3.52

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Sunny, 29°

Additional Notes: Collected Field Dup

He in Shroud = 28%

in purge bags = Ø %

Subslab Indoor Crawl Outdoor Air Sampling Forms November 2018

Subslab
~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: R. Skaper / D. Christman

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: [redacted] Sample ID: PMC-SS-05-110618

Sample Location Description:

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 1021 -> 1026

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 23.4%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 25 ppm

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 0.0 ppm O_2 (%): 20.5

H_2S (ppm): 0.0 ppm LEL (%): 0%

CO (ppm): 2 ppm

LandTec GEM Landfill Gas Meter

O2 (%): 21.5 %

CO2 (%): 0.8 %

CH4 (%): 0.0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11741

Flow Controller ID: OAC01254

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.36

Start Date and Time: 11/6/18 - 1029

End Date and Time: 11/6/18 - 1034

Final Pressure (" Hg): -3.99

Tedlar Bag

~~Tedlar Bag size (L):~~

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

~~Sampling Date:~~

~~Sampling Start and End Times:~~

~~Final Flow Rate (mL/min):~~

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Subslab
Soil ~~Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS, DC, KM

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-07 Sample ID: PMC-SS-07-110618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: ~~1100 → 1105~~ 1102-71107

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 25.1%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 9800 ppm

Calculated leak percentage: 3.90%

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.4 %	O2 (%):	20.8 %
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	0.3 %
CO (ppm):	0 ppm			CH4 (%):	6%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11747

Flow Controller ID: ~~0A0135~~ 0A01041

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.05

Start Date and Time: 11/6/18 - 1112

End Date and Time: 11/6/18 - 1117

Final Pressure (" Hg): -3.37

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

~~Sorbent Tube~~

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Subslab

~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS / DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-36 Sample ID: PMC-SS-36-110618

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 1453 -> 1458

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 40.6%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: ~~40.6%~~ RS 100ppm

Calculated leak percentage: 0.02%

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.5%	O2 (%):	21.2 %
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	0.2 %
CO (ppm):	0 ppm			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV13488

Flow Controller ID: OAØ1774

Sampling Rate (mL/min, hours): 20mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.60

Start Date and Time: 11/06/18 - 1500

End Date and Time: 11/06/18 - 1505

Final Pressure (" Hg): -4.67

~~***Tedlar Bag***~~

~~Tedlar Bag size (L):~~ ~~Sampling Rate (mL/min):~~

~~Sampling Date:~~ ~~Sampling Start and End Times:~~

~~***Sorbent Tube***~~

~~Sorbent Tube type and size:~~ ~~Sampling Date:~~

~~Sorbent Tube ID:~~ ~~Sampling Start and End Times:~~

~~Initial Flow Rate (mL/min):~~ ~~Final Flow Rate (mL/min):~~

~~Calculated Sampling Volume:~~

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Subslab Soil Vapor Sampling Log

ch2m:

Project: PMC

Sampler: Kaitlin Ma + Gwen Buckley

Sample Location Information

Property ID/Address: [redacted]

Condition of slab in the surrounding area: 0 dirt/gravel

Location ID: 042 Sample ID: PMC-SS-40-110718

Sample Location Description (Room Name/Number and surrounding, identifying features):

Subslab Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact.	Pass	Fail
	✓	

Describe corrective measures taken to pass the manifold leak test: needle valve FC regulator

Subslab Soil Vapor Probe Water Dam Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1256

Purge Vacuum ("Hg): 0

End Time: 1301

Probe Leak Check Result*:

Pass	Fail
✓ 40ppm shroud - 10% Helium 5% → 500ppm	

*The subslab soil vapor probe passes the water dam leak check if there are no bubbles observed and the water level does not draw down during purge. Do NOT collect a subslab soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector

Total VOCs (ppm): 0 O_2 (%): 21.2

H_2S (ppm): 0 LEL (%): 0

CO (ppm): 0

LandTec GEM Landfill Gas Meter

O2 (%): 20.2

CO2 (%): 0.4

CH4 (%): 0.2

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1L

Container ID: 05128

Flow Controller ID: ~~0A0004H~~ ABG04850 (km)

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -28.80

Start Date and Time: 11/7/18 @ 1306

End Date and Time: 11/7/18 @ 1311

Final Pressure (" Hg): -5.10

Tedlar Bag

Tedlar Bag size (L): 1L

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min)

(KM)

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 35°F Rainy-Snow

Additional Notes:

Scanned with CamScanner

Subslab

Soil Vapor Sampling Log

ch2m.

Project: PMC Sampler: RS / DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-50 Sample ID: PMC-SS-50-110718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 1240 -> 1245

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 12.8%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	19.97	O2 (%):	20.7 %
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	1.8 %
CO (ppm):	0 ppm			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11745

Flow Controller ID: OA00804

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -28.82

Start Date and Time: 11/7/18 - 1247

End Date and Time: 11/7/18 - 1252

Final Pressure (" Hg): -4.46

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain / Snow

Additional Notes:

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-01-01 Sample ID: PMC-01-SSM01-110718

Sample Location Description: [redacted] PMC-01-SSM01-110718-FD

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200ML/min

Start and End Times: 1539-7 1544

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 19.6%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9	O2 (%):	21.6%
H_2S (ppm):	0 ppm	LEL (%):	0	CO2 (%):	0.2%
CO (ppm):	0 ppm			CH4 (%):	0%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L Dup

Canister ID: 1BV13480 / 1BV11748

Flow Controller ID: 0A02407

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.12 / -29.14 Dup

Start Date and Time: 11/7/18 - 1548

End Date and Time: 11/7/18 - 1558

Final Pressure (" Hg): -5.18 / -5.18

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Sampling Date:

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Sbslab

~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: ~~SS~~ PMC-01-SSO2 Sample ID: PMC-01-SSO2-110718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 1605 -> 1613

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 15.7%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9%	O2 (%):	21.8%
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	0.5%
CO (ppm):	0 ppm			CH4 (%):	0%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11743

Flow Controller ID: 0A00515

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.05

Start Date and Time: 11/7/18 - 1614

End Date and Time: 11/7/18 - 1619

Final Pressure (" Hg): -4.94

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40s Rain

Additional Notes:

Scanned with CamScanner

Subslab
~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: 02-SS01 Sample ID: PMC-02-SS01-110518

Sample Location Description: [redacted] PMC-02-SS01-110518-FD

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 927 - 932

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 31.3 %

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0	O_2 (%):	20.9%	O2 (%):	22.2%
H_2S (ppm):	0	LEL (%):	0 %	CO2 (%):	0.3%
CO (ppm):	0			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L DUP

Canister ID: IBV13428 / IBV13475

Flow Controller ID: OA01142

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure ("Hg): -29.73 / -29.76 DUP

Start Date and Time: 11/8/18 - 933

End Date and Time: 11/8/18 - 943

Final Pressure ("Hg): -4.20 / -4.20

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 30's Cloudy Light Rain/Snow

Additional Notes: DP ~ -0.60726" Water Column

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-02-02 Sample ID: PMC 02 - SS02 - 110818

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 953 -> 958

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 33.3%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.5 %	O2 (%):	22.2 %
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	0.6 %
CO (ppm):	0 ppm			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV1137

Flow Controller ID: 0A01148

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.49

Start Date and Time: 11/8/18 - 959

End Date and Time: 11/8/18 - 1004

Final Pressure (" Hg): -3.24

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 30's Snow

Additional Notes: DP = -0.0103" H_2O Column

Scanned with CamScanner

Subslab
~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-03-01 Sample ID: PMC-03-SS01-110718

Sample Location Description: [redacted] PMC-03-SS01-110718-FD

Soil Vapor Probe Leak Checking and Sampling Log SS01

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 1444 -> 1449

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 13.8%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9%	O2 (%):	21.5%
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	0.2 %
CO (ppm):	0 ppm			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L Dup

Canister ID: 1BV11736 / 1BV13427

Flow Controller ID: OA01250

Sampling Rate (mL/min, hours): 200

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -29.05 / -29.14 Dup

Start Date and Time: 11/7/18 - 1451

End Date and Time: 11/7/18 - 1501

Final Pressure (" Hg): -4.62 / -4.56

Tedlar Bag

~~Tedlar Bag size (L):~~ Sampling Rate (mL/min):

Sampling Date: Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size: Sampling Date:

Sorbent Tube ID: Sampling Start and End Times:

Initial Flow Rate (mL/min): Final Flow Rate (mL/min):

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Subslab
~~Soil Vapor~~ Sampling Log

ch2m

Project:	PMC	Sampler:	RS / DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-03-02 Sample ID: PMC-03-~~SS-02~~ SS02-110718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. Pass Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min):	200mL/min	Helium Conc. in the Purged Vapor:	0
Start and End Times:	1512 -> 1517	Calculated leak percentage:	NA
Purge Vacuum ("Hg):	0	Probe Leak Check Result*:	Pass Fail
Avg. Helium Conc. in the Enclosure:	17.4%		
Total Volume Purged (L):	1L		

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0	O_2 (%):	20.9	O2 (%):	21.6%
H_2S (ppm):	0	LEL (%):	0	CO2 (%):	0.1
CO (ppm):	0			CH4 (%):	0

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L):	1L	Initial Pressure (" Hg):	-29.12
Canister ID:	1BV13479	Start Date and Time:	11/7/18 - 1519
Flow Controller ID:	~~TBRS~~ OA01256	End Date and Time:	11/7/18 - 1524
Sampling Rate (mL/min, hours):	200mL/min	Final Pressure (" Hg):	-4.73
Sampling Vacuum ("Hg):			

Tedlar Bag

Tedlar Bag size (L):		Sampling Rate (mL/min):	
Sampling Date:		Sampling Start and End Times:	

Sorbent Tube

Sorbent Tube type and size:		Sampling Date:	
Sorbent Tube ID:		Sampling Start and End Times:	
Initial Flow Rate (mL/min):		Final Flow Rate (mL/min):	
Calculated Sampling Volume:			

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain

Additional Notes:

Scanned with CamScanner

Subslab
~~Soil Vapor~~ Sampling Log

ch2m

Project: PMC Sampler: ES/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-04-01 Sample ID: PMC-04-SS01-110F18

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/mm

Start and End Times: 823 → 828

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 24.0%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.5	O2 (%):	0 %
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	0.3 %
CO (ppm):	0 ppm			CH4 (%):	21.8 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV117746

Flow Controller ID: 0A01770

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.45

Start Date and Time: 11/8/18 - 830

End Date and Time: 11/8/18 - 835

Final Pressure (" Hg): -3.71

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 30's Cloudy

Additional Notes: DP = -0.00216" Water Column

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Subslab
~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS / DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-05-01 Sample ID: PMC-05-5501-110818

Sample Location Description [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200 mL/min

Start and End Times: 846 - 851

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 29.5%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9 %	O2 (%):	22.5 %
H_2S (ppm):	0 ppm	LEL (%):	0 %	CO2 (%):	0.0 %
CO (ppm):	0 ppm			CH4 (%):	0 %

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11735

Flow Controller ID: OAC01384

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg): 0

Initial Pressure (" Hg): -29.72

Start Date and Time: 11/8/18 - 852

End Date and Time: 11/8/18 - 857

Final Pressure (" Hg): -3.96

Tedlar Bag

Tedlar Bag size (L): _____ Sampling Rate (mL/min): _____

Sampling Date: Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size: _____ Sampling Date: _____

Sorbent Tube ID: _____ Sampling Start and End Times: _____

Initial Flow Rate (mL/min): _____ Final Flow Rate (mL/min): _____

Calculated Sampling Volume:

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 30's Cloudy

Additional Notes: DP= -0.0139

Scanned with CamScanner

Subslab
~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-05-02 Sample ID: PMC-05-SS02-110818

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 905-910

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 22.39%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 25ppm

Calculated leak percentage:

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0	O_2 (%):	20.9	O2 (%):	22.8%
H_2S (ppm):	0	LEL (%):	0	CO2 (%):	0.0%
CO (ppm):	0			CH4 (%):	0.0%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV1753

Flow Controller ID: OAO 0942

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.77

Start Date and Time: 11/8/18 - 911

End Date and Time: 11/8/18 - 916

Final Pressure (" Hg): -4.27

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 30's Cloudy Light Snow/Rain

Additional Notes: DP = -0.0145

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Subslab

~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: RS/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: ~~SV~~ SS-06-01 Sample ID: PMC-~~SS-06-NSAV~~110718 RS

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 1343-1348

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 19.8%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0ppm

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9%	O2 (%):	21.8%
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	0%
CO (ppm):	0 ppm			CH4 (%):	0%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: 1BV11733

Flow Controller ID: OA0675

Sampling Rate (mL/min, hours): 200mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): ~~-29.10~~ RS -29.03

Start Date and Time: 11/7/18 - 1352

End Date and Time: 11/7/18 - 1357

Final Pressure (" Hg): -5.09

Tedlar Bag

~~Tedlar Bag size (L):~~

~~Sampling Date:~~

~~Sampling Rate (mL/min):~~

~~Sampling Start and End Times:~~

Sorbent Tube

~~Sorbent Tube type and size:~~

~~Sorbent Tube ID:~~

~~Initial Flow Rate (mL/min):~~

~~Calculated Sampling Volume:~~

~~Sampling Date:~~

~~Sampling Start and End Times:~~

~~Final Flow Rate (mL/min):~~

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40's Rain/Snow

Additional Notes:

Scanned with CamScanner

Subslab

~~Soil Vapor~~ Sampling Log

ch2m:

Project: PMC Sampler: ES/DC

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-06-02 Sample ID: PMC-~~SS-06-02~~ SS 06-SS02 -110718

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact. (Pass) Fail

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200mL/min

Start and End Times: 1405-1410

Purge Vacuum ("Hg): 0

Avg. Helium Conc. in the Enclosure: 17.9%

Total Volume Purged (L): 1L

Helium Conc. in the Purged Vapor: 0

Calculated leak percentage: NA

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

MiniRAE or MultiRAE Photoionization Detector				LandTec GEM Landfill Gas Meter	
Total VOCs (ppm):	0 ppm	O_2 (%):	20.9%	O2 (%):	21.4%
H_2S (ppm):	0 ppm	LEL (%):	0%	CO2 (%):	0%
CO (ppm):	0 ppm			CH4 (%):	0%

Sampling Information

Evacuated Canister or Bottle-Vac

Canister Size (L): 1L

Canister ID: IBV11742

Flow Controller ID: OA07865

Sampling Rate (mL/min, hours): 200 mL/min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -29.03

Start Date and Time: 11/7/18 - 1411

End Date and Time: 11/7/18 - 1416

Final Pressure (" Hg): -4.82

Tedlar Bag

Tedlar Bag size (L):

Sampling Date:

Sampling Rate (mL/min):

Sampling Start and End Times:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Sampling Date:

Sampling Start and End Times:

Final Flow Rate (mL/min):

Weather Conditions and Additional Notes

Weather Conditions During Sampling: 40° Rain

Additional Notes:

Scanned with CamScanner

Soil Vapor Sampling Log

ch2m

Project: PMC Petoskey

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete

Location ID: SS-09-01 Sample ID: PMC-09-SS01-101018

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are in-tact.	Pass	Fail
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1458

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 17%

End Time: 1503

Helium Conc. in the Purged Vapor: Ø

Calculated leak percentage: Ø

Probe Leak Check Result*: (Pass) Fail

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% [0.23/35*100 = 0.66%]). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

~~MiniRAE or MultiRAE Photoionization Detector~~ PPB Rae		LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): .828 climbing	O_2 (%): —	O2 (%):	21.0
H_2S (ppm): —	LEL (%): —	CO2 (%):	0.0
CO (ppm):		CH4 (%):	0.2

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IBV12879

Flow Controller ID: OA01487

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg): Ø

Initial Pressure (" Hg): -29.12

Start Date and Time: 10/10/18 ~~1458~~ 1505

End Date and Time: 10/10/18 1510

Final Pressure (" Hg): -4.98

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: overcast, humid 70°

Additional Notes:

Soil Vapor Sampling Log

ch2m

Project: PMC Petaluma

Sampler: S. Chumney & R. Sleeper

Sample Location Information

Property ID/Address: [redacted]

Condition of ground in the surrounding area: Concrete slab

Location ID: PMC-09-SSO2 Sample ID: PMC-09-SSO2-101018

Sample Location Description: [redacted]

Soil Vapor Probe Leak Checking and Sampling Log

Manifold Leak Check

Manifold leak check (procedure: ensure manifold holds pressure at -10 "Hg for 30 seconds). If using a pelican-case pump, open the lid during leak check to ensure all interior pieces are intact.	*Pass*	*Fail*
	X	

Describe corrective measures taken to pass the manifold leak test: NA

Soil Vapor Probe Helium Leak Check and Purge Results

Purge rate (mL/Min): 200

Start Time: 1520

Purge Vacuum ("Hg): Ø

Avg. Helium Conc. in the Enclosure: 24%, 22%

End Time: 1525

Helium Conc. in the Purged Vapor: 225 ppm

Calculated leak percentage:

Probe Leak Check Result*: (Pass) *Fail*

*The soil vapor probe passes the leak test if the helium concentration in the purged soil vapor is less than 5% of what it was in the helium enclosure during purging. For example, if the helium concentration in the purged soil vapor is 2,300 ppm that is 0.23%, and the average helium concentration in the enclosure was 35%, then the percentage leak is 0.66% (0.23/35*100 = 0.66%)). Do NOT collect a soil vapor sample if the leak check fails.

Field Analysis (required readings are determined on a project-specific basis. Fill in all that are necessary):

~~MiniRAE or MultiRAE Photoionization~~ Detector PPB RAE			LandTec GEM Landfill Gas Meter	
Total VOCs (ppm): .791	O_2 (%): —		O2 (%):	20.9
H_2S (ppm): ✓	LEL (%): ✓		CO2 (%):	0.0
CO (ppm):			CH4 (%):	.2

Sampling Information

Evacuated Canister or Bottle-Vac

Container Size (L): 1

Container ID: IDV12876

Flow Controller ID: OA01142

Sampling Rate (mL/min, hours): 5 min

Sampling Vacuum ("Hg):

Initial Pressure (" Hg): -24.05

Start Date and Time: 10/10/18 1529

End Date and Time: 10/10/18 1534

Final Pressure (" Hg): -4.26

Tedlar Bag

Tedlar Bag size (L):

Sampling Rate (mL/min):

Start Date and Time:

End Date and Time:

Sorbent Tube

Sorbent Tube type and size:

Sorbent Tube ID:

Initial Flow Rate (mL/min):

Calculated Sampling Volume:

Start Date and Time:

End Date and Time:

Final Flow Rate (mL/min

Weather Conditions and Additional Notes

Weather Conditions During Sampling: Overcast 70°, humid

Additional Notes:

Indoor, Outdoor, Crawlspace Air Sampling Log - Canister Method

Project: PMC Petoskey, MI

Building: [redacted]

ch2m:

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)	
PMC-09-IA01-101018	PMC-09-IAØ1	ASØ1129	FCR00241	-29.35	10/10/18	1436			10/11/18	1328	-8.94	
PMC-09-IA02-101018	PMC-09-IA02	ACØ2290	FCR00006	-29.38	10/10/18	1434			10/11/18 ~~1329~~	1327	-8.03	
PMC-09-IA03-101018	PMC-09-IA03	ACØ0343	FCR00234	-29.39	10/10/18	1430			10/11/18	1326	-8.28	
PMC-09-IA03-101018-FD	PMC-09-IA03	ACO2191	FCR00328	-29.38	10/10/18	1430			10/11/18	1326	-8.42	
PMC-09-OA01-101018	PMC-09-OA01	ACO2158	FCR00379	-29.35	10/10/18	1441			10/11/18	1333	-8.91	
PMC-09-SS01-101018	PMC-09-SS01	IBV12879	OA 01487	-29.12	10/10/18	1505			10/10/18	1510	-4.98	Subslab
PMC-09-SS02-101018	PMC-09-SS02	IBV12876 ~~OA01487~~	OA01142	-29.05	10/10/18	1529			10/10/18	1534	-4.26	Subslab

Weather Conditions

General weather conditions: _____

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PMC-IN-05-110618	[redacted]	AS01372	FCR00120	-29.60	11/5/18	1107			11/6/18	1007	-1.83
PMC-IN-05-02-110618		AS01353	FCR00258	-29.70	11/5/18	1111			11/6/18	1010	-7.48
PMC-IN-07-01-110618		AS01355	FCR00112	-29.57	11/5/18	1141			11/6/18	1046	-9.62
PMC-IN-07-02-110618		AS00920	FCR00213	-29.72	11/5/18	1143			11/6/18	1048	-6.49
PMC-OA-01-110618		AC02320	FCR00222	-29.70	11/5/18	1155			11/6/18	1039	-6.59
PMC-IN-42-01-110718		AC02161	FCR00038	-28.5 (analog)	11/6/18	1443			11/7/18	1340	-8.00 (analog)
PMC-IN-42-02-110718		AS00735	FCR00109	-29.0 (analog)	11/6/18	1447			11/7/18	1341	-8.05 (analog)
PMC-IN-47-01-110818		AS00791	FCR00011	-28.5 (analog)	11/7/18	1425			11/8/18	1242	-9.05
PMC-IN-47-02-110818		AS00958	FCR00349	-30.0 (analog)	11/7/18	1420			11/8/18	1242	-9.40
(FD) PMC-IN-47-02-110818-FD		AS00599	SFC00085	-30.0 (analog)	11/7/18	1420			11/8/18	1242	-8.37

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Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PMC-CS-36-110718	[redacted]	AC01250	FCR00246 ~~2938~~ (LM)	-29.38	11/6/18	1514	—	—	11/7/18	1355	-9.0 (analog)
PMC-IN-CS-36-01-110718		AS 01354	FCR 00334	-29.26	11/6/18	1523	—	—	11/7/18	1352	-9.0 (analog)
PMC-IN-36-02-110718		AS01259	FCR00030	-28.49	11/6/18	1522	—	—	11/7/18	1353	-8.0 (analog)
PMC-OA-01-110718		AS01292	FCR 00048	-29.15	11/6/18	1528	—	—	11/7/18	1351	-8.0 (analog)
PMC-CS-07-01-110718		AS01091	FCR 00361 ~~FRC~~	-28.5 (analog)	11/6/18	1602	—	—	11/7/18	1518	-7.5 (analog)
PMC-CS-07-02-110718		AS00338	FCR00043	-29.0 (analog)	11/6/18	1602	—	—	11/7/18	1519	-6.5 (analog)
PMC-IN-40-110818		AC01860	SFC00227	-29.5 (analog)	11/7/18	1325	—	—	11/8/18	@1230	-6.26
PMC-OA-01-110818		AS00864	SFC00015	-30 (analog)	11/7/18	1333	—	—	11/8/18	1231	-7.55
PMC-IN-SD2-01-110818		AS00758	SFC00278	-29.0 Analog	11/7/18	1817	—	—	11/8/18	1805	-7.98
PMC-IN-S2-02-110818		AS01303	SFC00332	-29.0 Analog	11/7/18	1830	—	— (LM)	11/8/18	1808	-7.50

Scanned with CamScanner

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PAC-IN-50-01-1108	[redacted]	AC02820	SFC00182	-29.59	11/7	1301			11/8	1235	-6.85
C-IN-50-02-110818		AC02258	SFC00216	-29.36	11/7	1305			11/8	1236	-6.65
C-06-IN01-110818		AS00683	SFC00210	-29.84	11/7	1640			11/8	1541	-8.71
C-06-IN02-110818		AC02323	SFC00297	-29.79	11/7	1641			11/8	1540	-8.33
C-03-IN01-110818		AC02078	SFC00268	-29.70	11/7	1636			11/8	1551	-7.83
C-03-IN02-110818		AC01044	SFC00326	-29.69	11/7	1635			11/8	1550	-5.01
PAC-01-IN01-110818		AC02015	SFC00304	-29.47	11/7	1621			11/8	1556	-6.64
PAC-01-IN02-110818		AS00974	SFC00043	-29.79	11/7	1620			11/8	1558	-7.71

Weather Conditions

General weather conditions: 4/8s Rain / Snow

Temperature Range (indoor and outdoor):

Was there significant precipitation within 12 hours prior to (or during) the sampling event?

Scanned with CamScanner

Field Sample ID	Location	Canister ID	Flow Controller ID	Initial Pressure ("Hg)	Start Date	Start Time	Check (6/20 hr) Time	Check (6/20 hr) Pressure ("Hg)	End Date	End Time	Final Pressure ("Hg)
PMC-04-IN01-110918	[redacted]	AC02075	06453	-30.37	11/8/18	0939	—	—	11/9/18	0923	-7.48
PMC-04-IN01-110918-FD (FD)		AS0368	FCR00037	-30.46	11/8/18	0939	—	—	11/9/18	0923	-5.55
PMC-04-IN02-110918		AC02304	FS0056	-30.47	11/8/18	0940	—	—	11/9/18	0926	-7.06
PMC-05-IN01-110918		AC02221	03418 04 (A)	-30.40	11/8/18	0944	—	—	11/9/18	0935	-6.30
PMC-05-IN01-110918-FD (FD)		AS00790	06538	-30.40	11/8/18	0944	—	—	11/9/18	0935	-6.85
PMC-05-IN02-110918		AS01260	05025	-30.14	11/8/18	0942	—	—	11/9/18	0937	-7.16
PMC-02-IN01-110918		AC00943	FCR00071	-30.31	11/8/18	0935	—	—	11/9/18	915	-8.24 ~~-8.27~~
PMC-02-IN02-110918		AC02287	FCR00105	-32.80	11/8/18	0934	—	—	11/9/18	914	-8.27
PMC-OA-01-110918		AC02188	SFC00080	-30.30	11/8/18	0956	—	—	11/9/18	0930	-6.48

Weather Conditions

General weather conditions: 35°F Rainy/snow

Temperature Range (indoor and outdoor):

Was there significant precipitation within 12 hours prior to (or during) the sampling event?

Scanned with CamScanner

Appendix E
Laboratory Data Packages

ALS Environmental

Work Order: 1806126

Project Name:

PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

13-Jul-2018

NELAP ACCREDITED LABORATORY

Certificate No: MI: 0022

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185
ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

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Section I

CASE NARRATIVE

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ALS Group, USA

Date: 13-Jul-18

Client: Jacobs
Project: PMC
Work Order: 1806126

Case Narrative

Samples for the above noted Work Order were received on 06/01/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

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ALS Group, USA

Date: 13-Jul-18

Client: Jacobs
Project: PMC
Work Order: 1806126

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1806126-01	18CP02-54	Groundwater		5/30/2018 10:45	6/1/2018 10:00	☐
1806126-02	18CP02-55	Soil		5/30/2018 13:10	6/1/2018 10:00	☐
1806126-03	18CP02-55	Tclp Extract		5/30/2018 13:10	6/1/2018 10:00	☐
1806126-04	18CP02-56	Water		5/30/2018 17:20	6/1/2018 10:00	☐
1806126-05	18CP02-57	Wastewater		5/30/2018 17:00	6/1/2018 10:00	☐

18061126

USEPA CLP COC (LAB COPY)
DateShipped: 5/30/2018
CarrierName: FedEx
AirbillNo: 7811 1892 5418

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-053018-132725-0009
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-SVB-02-GW/8.9-13.9-053018	18CP02-54	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-02	05/30/2018 10:45	
PMC-IDW-01-SO-053018	18CP02-55	Solid Waste/ CH2M	Grab	TCLP VOC(5), TCLP SVOC(5), TCLP Metals(5), PCBs(5)	A (None), B (None), C (None), D (None), E (None) (5)	PMC-IDW	05/30/2018 13:10	
PMC-TB-11-053018	18CP02-56	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/30/2018 17:20	
PMC-IDW-01-W-053018	18CP02-57	Waste Water/ CH2M	Grab	VOC(21)	A, B, C (3)	PMC-IDW	05/30/2018 17:00	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC=TCL VOCs (groundwater), TCLP VOC=TCLP Volatile Organic Compounds, TCLP SVOC=TCLP Semivolatile Organic Compounds, TCLP Metals=TCLP Resource Conservation and Recovery Act Metals, PCBs=Polychlorinated Biphenyls, VOC_s=TCL VOCs (soil)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature]	5/31/18 1000	FedEx [signature]	6/1/18 1000	

(A) 582 3.0°c

ALS Group, USA

Sample Receipt Checklist

Client Name: JACOBS - MILWAUKEE Date/Time Received: 01-Jun-18 10:00

Work Order: 1806126 Received by: KRW

Checklist completed by Chad Whelton (eSignature) 05-Jun-18 (Date) Reviewed by: Chad Whelton (eSignature) 05-Jun-18 (Date)

Matrices: Water, Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0/3.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/2/2018 10:14:15 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

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Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-55DL

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-03A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 20.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
75-35-4	1,1-Dichloroethene	20	UD
107-06-2	1,2-Dichloroethane	20	UD
78-93-3	2-Butanone	17	JD
71-43-2	Benzene	20	UD
56-23-5	Carbon tetrachloride	20	UD
108-90-7	Chlorobenzene	20	UD
67-66-3	Chloroform	20	UD
127-18-4	Tetrachloroethene	20	UD
79-01-6	Trichloroethene	20	UD
75-01-4	Vinyl chloride	20	UD

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-54

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-01A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	1.0	J
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	6.2	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-54

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-01A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	0.36	J
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	0.26	J
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.1	
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-56

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-04A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	2.6	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	0.62	J
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-56

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-04A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-57

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	1.8	J
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-57

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Analyzed: 6/6/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.1	
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

ALS Group, USA

Date: 13-Jul-18

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-180605-R237372** Units: µg/L Analysis Date: **6/5/2018 11:41 PM**

Client ID: Run ID: **VMS8_180605B** SeqNo: **5074561** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

Methylene chloride	U	5.0					
o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*21.91*	0	*20*	0	*110*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.42*	0	*20*	0	*97.1*	*80-110*	0
Surr: Dibromofluoromethane	*20.57*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*20.41*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: VLCSW3-180605-R237372			Units: µg/L			Analysis Date: 6/5/2018 11:09 PM			
Client ID:	Run ID: VMS8_180605B			SeqNo: 5074560		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.51	1.0	20	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	22.04	1.0	20	0	110	75-130	0			
1,1,2-Trichloroethane	19.1	1.0	20	0	95.5	75-125	0			
1,1-Dichloroethane	20.44	1.0	20	0	102	68-142	0			
1,1-Dichloroethene	21.56	1.0	20	0	108	70-145	0			
1,2,3-Trichlorobenzene	21.02	1.0	20	0	105	70-140	0			
1,2,4-Trichlorobenzene	20.84	1.0	20	0	104	70-135	0			
1,2-Dibromo-3-chloropropane	18.03	1.0	20	0	90.2	60-130	0			
1,2-Dibromoethane	21.67	1.0	20	0	108	67-155	0			
1,2-Dichlorobenzene	21.82	1.0	20	0	109	70-130	0			
1,2-Dichloroethane	19.99	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	19.6	1.0	20	0	98	75-125	0			
1,3-Dichlorobenzene	21.82	1.0	20	0	109	75-130	0			
1,3-Dichloropropane	20.21	1.0	20	0	101	75-125	0			
1,4-Dichlorobenzene	22.24	1.0	20	0	111	75-130	0			
2-Butanone	17.97	5.0	20	0	89.8	55-150	0			
2-Hexanone	19.78	5.0	20	0	98.9	60-135	0			
4-Methyl-2-pentanone	30.48	1.0	20	0	152	77-178	0			
Acetone	19.41	10	20	0	97	60-160	0			
Benzene	20.88	1.0	20	0	104	85-125	0			
Bromochloromethane	20.26	1.0	20	0	101	72-141	0			
Bromodichloromethane	19.45	1.0	20	0	97.2	75-125	0			
Bromoform	18.29	1.0	20	0	91.4	60-125	0			
Bromomethane	30.81	1.0	20	0	154	30-185	0			
Carbon disulfide	20	1.0	20	0	100	60-165	0			
Carbon tetrachloride	20.14	1.0	20	0	101	65-140	0			
Chlorobenzene	20.61	1.0	20	0	103	80-120	0			
Chloroethane	17.38	1.0	20	0	86.9	50-140	0			
Chloroform	20.31	1.0	20	0	102	80-130	0			
Chloromethane	20.02	1.0	20	0	100	46-148	0			
cis-1,2-Dichloroethene	21.31	1.0	20	0	107	75-134	0			
Dibromochloromethane	18.1	1.0	20	0	90.5	60-115	0			
Dichlorodifluoromethane	17.88	1.0	20	0	89.4	20-120	0			
Ethylbenzene	20.83	1.0	20	0	104	76-123	0			
Isopropylbenzene	19.99	1.0	20	0	100	80-127	0			
m,p-Xylene	41.33	2.0	40	0	103	75-130	0			
Methyl tert-butyl ether	23.53	1.0	20	0	118	68-129	0			
Methylene chloride	19.22	5.0	20	0	96.1	75-140	0			
o-Xylene	20.26	1.0	20	0	101	76-127	0			
Styrene	21.16	1.0	20	0	106	83-137	0			
Tetrachloroethene	21.75	1.0	20	0	109	68-166	0			
Toluene	20.98	1.0	20	0	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372**	Instrument ID **VMS8**		Method: **SW8260C**				
trans-1,2-Dichloroethene	20.98	1.0	20	0	105	80-140	0
trans-1,3-Dichloropropene	19.05	1.0	20	0	95.2	56-132	0
Trichloroethene	19.84	1.0	20	0	99.2	84-130	0
Trichlorofluoromethane	15.93	1.0	20	0	79.6	60-140	0
Vinyl chloride	20.39	1.0	20	0	102	50-136	0
Xylenes, Total	61.59	3.0	60	0	103	76-127	0
Surr: 1,2-Dichloroethane-d4	*21.61*	0	*20*	0	*108*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.27*	0	*20*	0	*96.4*	*80-110*	0
Surr: Dibromofluoromethane	*20.68*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*20.45*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **1806057-01A MS** Units: **µg/L** Analysis Date: **6/6/2018 04:24 AM**
Client ID: Run ID: **VMS8_180605B** SeqNo: **5074576** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	206	10	200	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	204.4	10	200	0	102	75-130	0			
1,1,2-Trichloroethane	178.2	10	200	0	89.1	75-125	0			
1,1-Dichloroethane	181.1	10	200	0	90.6	68-142	0			
1,1-Dichloroethene	214.9	10	200	0	107	70-145	0			
1,2,3-Trichlorobenzene	180.7	10	200	0	90.4	70-140	0			
1,2,4-Trichlorobenzene	176.3	10	200	0	88.2	70-135	0			
1,2-Dibromo-3-chloropropane	168.5	10	200	0	84.2	60-130	0			
1,2-Dibromoethane	198.3	10	200	0	99.2	67-155	0			
1,2-Dichlorobenzene	199.5	10	200	0	99.8	70-130	0			
1,2-Dichloroethane	173.4	10	200	0	86.7	78-125	0			
1,2-Dichloropropane	182.1	10	200	0	91	75-125	0			
1,3-Dichlorobenzene	197.7	10	200	0	98.8	75-130	0			
1,3-Dichloropropane	183.1	10	200	0	91.6	75-125	0			
1,4-Dichlorobenzene	200.5	10	200	0	100	75-130	0			
2-Butanone	143.4	50	200	0	71.7	55-150	0			
2-Hexanone	171.7	50	200	0	85.8	60-135	0			
4-Methyl-2-pentanone	261	10	200	0	130	77-178	0			
Acetone	184.9	100	200	29.2	77.8	60-160	0			
Benzene	200.9	10	200	0	100	85-125	0			
Bromochloromethane	176.9	10	200	0	88.4	72-141	0			
Bromodichloromethane	177.2	10	200	0	88.6	75-125	0			
Bromoform	175	10	200	0	87.5	60-125	0			
Bromomethane	434.7	10	200	0	217	30-185	0			S
Carbon disulfide	199.3	10	200	0	99.6	60-165	0			
Carbon tetrachloride	201.7	10	200	0	101	65-140	0			
Chlorobenzene	194.1	10	200	0	97	80-120	0			
Chloroethane	174.8	10	200	0	87.4	50-140	0			
Chloroform	183.3	10	200	0	91.6	80-130	0			
Chloromethane	130.4	10	200	0	65.2	46-148	0			
cis-1,2-Dichloroethene	203.7	10	200	0	102	75-134	0			
Dibromochloromethane	168.7	10	200	0	84.4	60-115	0			
Dichlorodifluoromethane	200.4	10	200	0	100	20-120	0			
Ethylbenzene	196.5	10	200	0	98.2	76-123	0			
Isopropylbenzene	193.4	10	200	0	96.7	80-127	0			
m,p-Xylene	396.2	20	400	3.5	98.2	75-130	0			
Methyl tert-butyl ether	195.5	10	200	0	97.8	68-129	0			
Methylene chloride	165.1	50	200	0	82.6	75-140	0			
o-Xylene	190.7	10	200	0	95.4	76-127	0			
Styrene	194.9	10	200	0	97.4	83-137	0			
Tetrachloroethene	228.6	10	200	0	114	68-166	0			
Toluene	196.1	10	200	3.5	96.3	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372**	Instrument ID **VMS8**		Method: **SW8260C**				
trans-1,2-Dichloroethene	187.8	10	200	0	93.9	80-140	0
trans-1,3-Dichloropropene	165.6	10	200	0	82.8	56-132	0
Trichloroethene	204.5	10	200	0	102	84-130	0
Trichlorofluoromethane	196.9	10	200	0	98.4	60-140	0
Vinyl chloride	155.9	10	200	0	78	50-136	0
Xylenes, Total	586.9	30	600	0	97.8	76-127	0
Surr: 1,2-Dichloroethane-d4	*192.9*	0	*200*	0	*96.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*186*	0	*200*	0	*93*	*80-110*	0
Surr: Dibromofluoromethane	*198.7*	0	*200*	0	*99.4*	*85-115*	0
Surr: Toluene-d8	*191.6*	0	*200*	0	*95.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **1806057-01A MSD** Units: µg/L Analysis Date: **6/6/2018 04:40 AM**
Client ID: Run ID: **VMS8_180605B** SeqNo: **5074577** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	208.9	10	200	0	104	75-130	206	1.4	30	
1,1,2,2-Tetrachloroethane	207.3	10	200	0	104	75-130	204.4	1.41	30	
1,1,2-Trichloroethane	183.4	10	200	0	91.7	75-125	178.2	2.88	30	
1,1-Dichloroethane	181.3	10	200	0	90.6	68-142	181.1	0.11	30	
1,1-Dichloroethene	214.6	10	200	0	107	70-145	214.9	0.14	30	
1,2,3-Trichlorobenzene	202.7	10	200	0	101	70-140	180.7	11.5	30	
1,2,4-Trichlorobenzene	202.2	10	200	0	101	70-135	176.3	13.7	30	
1,2-Dibromo-3-chloropropane	173.3	10	200	0	86.6	60-130	168.5	2.81	30	
1,2-Dibromoethane	199.3	10	200	0	99.6	67-155	198.3	0.503	30	
1,2-Dichlorobenzene	218.9	10	200	0	109	70-130	199.5	9.27	30	
1,2-Dichloroethane	180.2	10	200	0	90.1	78-125	173.4	3.85	30	
1,2-Dichloropropane	182	10	200	0	91	75-125	182.1	0.0549	30	
1,3-Dichlorobenzene	214.1	10	200	0	107	75-130	197.7	7.97	30	
1,3-Dichloropropane	189.9	10	200	0	95	75-125	183.1	3.65	30	
1,4-Dichlorobenzene	212.7	10	200	0	106	75-130	200.5	5.91	30	
2-Butanone	147.4	50	200	0	73.7	55-150	143.4	2.75	30	
2-Hexanone	177.8	50	200	0	88.9	60-135	171.7	3.49	30	
4-Methyl-2-pentanone	267.5	10	200	0	134	77-178	261	2.46	30	
Acetone	191.5	100	200	29.2	81.2	60-160	184.9	3.51	30	
Benzene	204.8	10	200	0	102	85-125	200.9	1.92	30	
Bromochloromethane	193.1	10	200	0	96.6	72-141	176.9	8.76	30	
Bromodichloromethane	184.2	10	200	0	92.1	75-125	177.2	3.87	30	
Bromoform	183.5	10	200	0	91.8	60-125	175	4.74	30	
Bromomethane	427.9	10	200	0	214	30-185	434.7	1.58	30	S
Carbon disulfide	206.4	10	200	0	103	60-165	199.3	3.5	30	
Carbon tetrachloride	211.3	10	200	0	106	65-140	201.7	4.65	30	
Chlorobenzene	204.8	10	200	0	102	80-120	194.1	5.36	30	
Chloroethane	216.5	10	200	0	108	50-140	174.8	21.3	30	
Chloroform	185.4	10	200	0	92.7	80-130	183.3	1.14	30	
Chloromethane	126.1	10	200	0	63	46-148	130.4	3.35	30	
cis-1,2-Dichloroethene	187	10	200	0	93.5	75-134	203.7	8.55	30	
Dibromochloromethane	180.2	10	200	0	90.1	60-115	168.7	6.59	30	
Dichlorodifluoromethane	200.6	10	200	0	100	20-120	200.4	0.0998	30	
Ethylbenzene	200	10	200	0	100	76-123	196.5	1.77	30	
Isopropylbenzene	203.1	10	200	0	102	80-127	193.4	4.89	30	
m,p-Xylene	405.7	20	400	3.5	101	75-130	396.2	2.37	30	
Methyl tert-butyl ether	206.1	10	200	0	103	68-129	195.5	5.28	30	
Methylene chloride	170.5	50	200	0	85.2	75-140	165.1	3.22	30	
o-Xylene	204.5	10	200	0	102	76-127	190.7	6.98	30	
Styrene	206	10	200	0	103	83-137	194.9	5.54	30	
Tetrachloroethene	239.2	10	200	0	120	68-166	228.6	4.53	30	
Toluene	204.7	10	200	3.5	101	76-125	196.1	4.29	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	196.4	10	200	0	98.2	80-140	187.8	4.48	30
trans-1,3-Dichloropropene	169.8	10	200	0	84.9	56-132	165.6	2.5	30
Trichloroethene	209.7	10	200	0	105	84-130	204.5	2.51	30
Trichlorofluoromethane	202.7	10	200	0	101	60-140	196.9	2.9	30
Vinyl chloride	160.9	10	200	0	80.4	50-136	155.9	3.16	30
Xylenes, Total	610.2	30	600	0	102	76-127	586.9	3.89	30
Surr: 1,2-Dichloroethane-d4	*196.6*	0	*200*	0	*98.3*	*75-120*	192.9	*1.9*	*30*
Surr: 4-Bromofluorobenzene	*186.5*	0	*200*	0	*93.2*	*80-110*	186	*0.268*	*30*
Surr: Dibromofluoromethane	*204.7*	0	*200*	0	*102*	*85-115*	198.7	*2.97*	*30*
Surr: Toluene-d8	*195.6*	0	*200*	0	*97.8*	*85-110*	191.6	*2.07*	*30*

The following samples were analyzed in this batch: 1806126-01A 1806126-04A 1806126-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VLCS03	103	108	102	96	0
02	VBLK02	103	110	102	97	0
03	1806057-01A	100	101	101	99	0
04	18CP02-54	103	110	101	96	0
05	18CP02-56	100	98	99	98	0
06	18CP02-57	102	113	100	97	0
07	1806057-01AM	99	96	96	93	0
08	1806057-01AM	102	98	98	93	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01261 Case No.: _____ SAS No.: _____ SDG No.: 1806126

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS01	110	112	94	100	0
02	VBLK01	101	102	100	101	0
03	1806019-02A	103	107	104	102	0
04	18CP02-55	101	108	101	98	0
05	1806019-02AM	101	108	102	101	0
06	1806019-02AM	102	107	104	99	0

				QC LIMITS
SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK02

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 05JUN37.D Lab Sample ID: VBLKW2-180605

Date Analyzed: 6/5/2018 Time Analyzed: 23:41

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCS03	VLCSW3-180605	05JUN35.D	23:09
02	1806057-01A	1806057-01A DF10	05JUN40.D	0:28
03	18CP02-54	1806126-01A	05JUN45.D	1:47
04	18CP02-56	1806126-04A	05JUN46.D	2:03
05	18CP02-57	1806126-05A	05JUN47.D	2:19
06	1806057-01AMS	1806057-01A MS DF10	05JUN55.D	4:24
07	1806057-01AMSD	1806057-01A MSD DF10	05JUN56.D	4:40

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 06JUN11.D Lab Sample ID: VBLKW1-180606

Date Analyzed: 6/6/2018 Time Analyzed: 12:01

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSW1-180605	06JUN08.D	11:13
02	1806019-02A	1806019-02A DF10	06JUN18.D	13:55
03	18CP02-55	1806126-03A DF20	06JUN22.D	15:01
04	1806019-02AMS	1806019-02A MS DF10	06JUN35.D	19:06
05	1806019-02AMSD	1806019-02A MSD DF10	06JUN36.D	19:21

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 05JUN31.D BFB Injection Date: 6/5/2018

Instrument ID: VMS8 BFB Injection Time: 22:06

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.1
75	30.0 - 66.0% of mass 95	42.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	1.0 (1.1)1
174	50.0 - 120.0% of mass 95	89.4
175	4.0 - 9.0% of mass 174	7.1 (7.9)1
176	93.0 - 101.0% of mass 174	85.8 (95.9)1
177	5.0 - 9.0% of mass 176	5.4 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD02	VCCV2-180605	05JUN32.D	6/5/2018	22:21
02	VLCS03	VLCSW3-180605	05JUN35.D	6/5/2018	23:09
03	VBLK02	VBLKW2-180605	05JUN37.D	6/5/2018	23:41
04	1806057-01A	1806057-01A DF10	05JUN40.D	6/6/2018	0:28
05	18CP02-54	1806126-01A	05JUN45.D	6/6/2018	1:47
06	18CP02-56	1806126-04A	05JUN46.D	6/6/2018	2:03
07	18CP02-57	1806126-05A	05JUN47.D	6/6/2018	2:19
08	1806057-01AMS	1806057-01A MS DF10	05JUN55.D	6/6/2018	4:24
09	1806057-01AMSD	1806057-01A MSD DF1	05JUN56.D	6/6/2018	4:40

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 06JUN06.D BFB Injection Date: 6/6/2018

Instrument ID: VMS8 BFB Injection Time: 10:05

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.3
75	30.0 - 66.0% of mass 95	41.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.3 (0.4)1
174	50.0 - 120.0% of mass 95	89.7
175	4.0 - 9.0% of mass 174	7.1 (8.0)1
176	93.0 - 101.0% of mass 174	86.3 (96.3)1
177	5.0 - 9.0% of mass 176	5.9 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180606	06JUN07.D	6/6/2018	10:46
02	LCS01	VLCSW1-180605	06JUN08.D	6/6/2018	11:13
03	VBLK01	VBLKW1-180606	06JUN11.D	6/6/2018	12:01
04	1806019-02A	1806019-02A DF10	06JUN18.D	6/6/2018	13:55
05	18CP02-55	1806126-03A DF20	06JUN22.D	6/6/2018	15:01
06	1806019-02AMS	1806019-02A MS DF10	06JUN35.D	6/6/2018	19:06
07	1806019-02AMSD	1806019-02A MSD DF1	06JUN36.D	6/6/2018	19:21

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID (Standard): 06JUN07.D Date Analyzed: 6/6/2018

Instrument ID: VMS8 Time Analyzed: 10:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	273383	4.71	411187	5.99	386449	8.73
	UPPER LIMIT	546766	5.21	822374	6.49	772898	9.23
	LOWER LIMIT	136692	4.21	205594	5.49	193225	8.23
	EPA SAMPLE NO.						
01	LCS01	282650	4.71	401867	6.00	384091	8.73
02	VBLK01	261195	4.71	375755	6.00	359915	8.73
03	1806019-02A	273944	4.72	402557	6.00	355158	8.73
04	18CP02-55	271056	4.72	409837	6.00	360487	8.73
05	1806019-02A	290247	4.71	439628	6.00	389631	8.73
06	1806019-02A	275117	4.71	405305	6.00	367619	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID (Standard): 06JUN07.D Date Analyzed: 6/6/2018

Instrument ID: VMS8 Time Analyzed: 10:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	198437	10.05				
	UPPER LIMIT	396874	9.55				
	LOWER LIMIT	99219	10.55				
	EPA SAMPLE NO.						
01	LCS01	206054	10.05				
02	VBLK01	183427	10.05				
03	1806019-02A	177706	10.05				
04	18CP02-55	180652	10.05				
05	1806019-02A	201926	10.05				
06	1806019-02A	188396	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01261 Case No.: _____ SAS No.: _____ SDG No.: 1806126

Lab File ID (Standard): 06JUN07.D Date Analyzed: 6/6/2018

Instrument ID: VMS8 Time Analyzed: 10:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	273383	4.71	411187	5.99	386449	8.73
	UPPER LIMIT	546766	5.21	822374	6.49	772898	9.23
	LOWER LIMIT	136692	4.21	205594	5.49	193225	8.23
	EPA SAMPLE NO.						
01	LCS01	282650	4.71	401867	6.00	384091	8.73
02	VBLK01	261195	4.71	375755	6.00	359915	8.73
03	1806019-02A	273944	4.72	402557	6.00	355158	8.73
04	18CP02-55	271056	4.72	409837	6.00	360487	8.73
05	1806019-02A	290247	4.71	439628	6.00	389631	8.73
06	1806019-02A	275117	4.71	405305	6.00	367619	8.73

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IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01261 Case No.: SAS No.: SDG No.: 1806126

Lab File ID (Standard): 06JUN07.D Date Analyzed: 6/6/2018

Instrument ID: VMS8 Time Analyzed: 10:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	198437	10.05				
	UPPER LIMIT	396874	9.55				
	LOWER LIMIT	99219	10.55				
	EPA SAMPLE NO.						
01	LCS01	206054	10.05				
02	VBLK01	183427	10.05				
03	1806019-02A	177706	10.05				
04	18CP02-55	180652	10.05				
05	1806019-02A	201926	10.05				
06	1806019-02A	188396	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN22.D
Acq On : 6 Jun 2018 3:01 pm
Operator : EMR
Sample : 1806126-03A DF20
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 06 15:13:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	271056	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	409837	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	360487	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	180652	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	109548	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	143301	20.16	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.80%				
45) 1,2-Dichloroethane-d4	5.164	65	149073	21.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.70%				
64) Toluene-d8	7.671	98	476710	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	167655	19.65	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	2.492	43	5874m	0.71	ug/L		
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	3.961	43	5445	0.86	ug/L	#	52
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN22.D
Acq On : 6 Jun 2018 3:01 pm
Operator : EMR
Sample : 1806126-03A DF20
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 06 15:13:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	5117m	0.20 ug/L	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	8.344	43	7298m	0.50 ug/L	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	9.140	104	30428	1.69 ug/L	99
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN22.D
Acq On : 6 Jun 2018 3:01 pm
Operator : EMR
Sample : 1806126-03A DF20
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 06 15:13:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

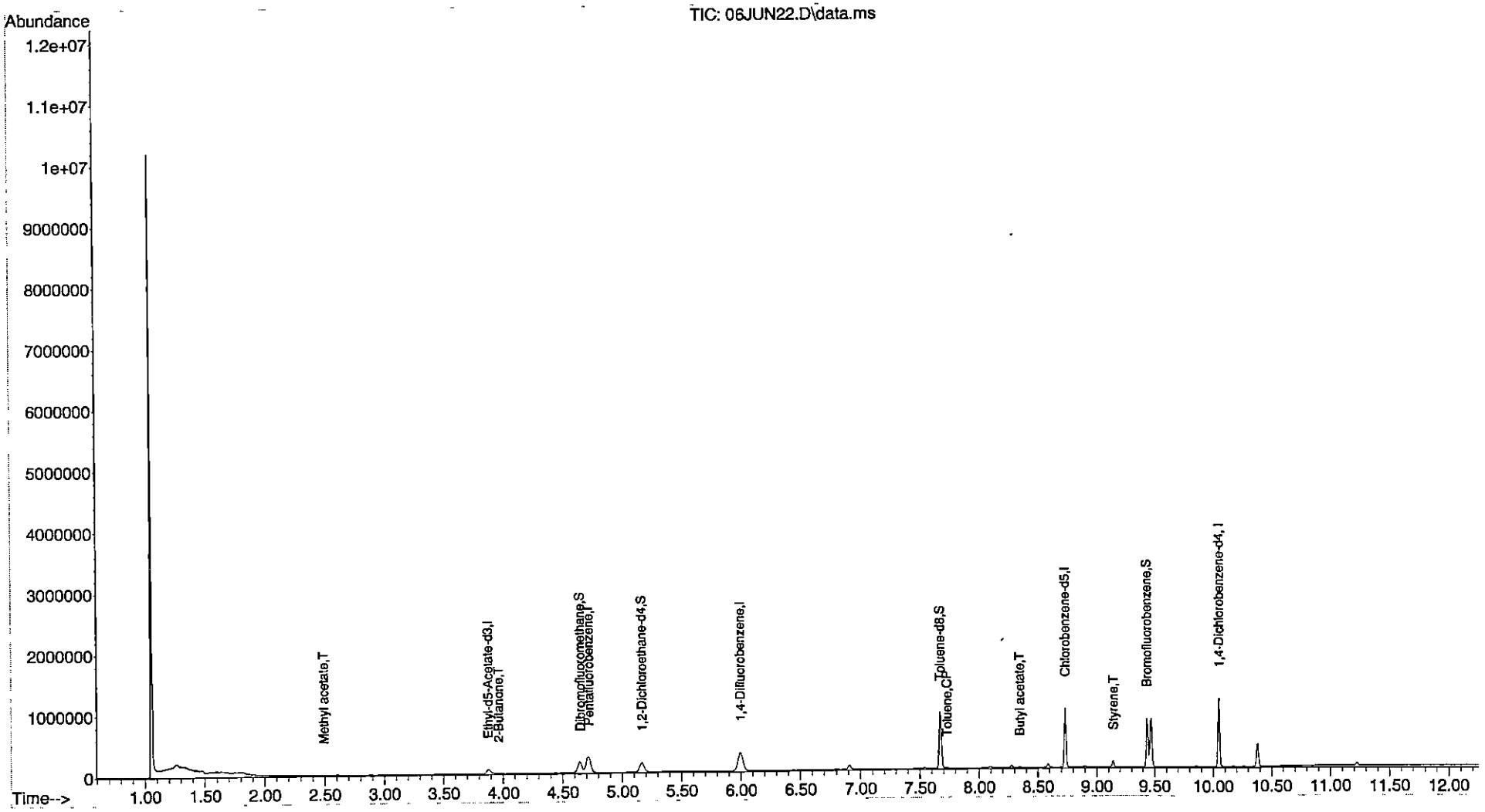
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.	d	
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

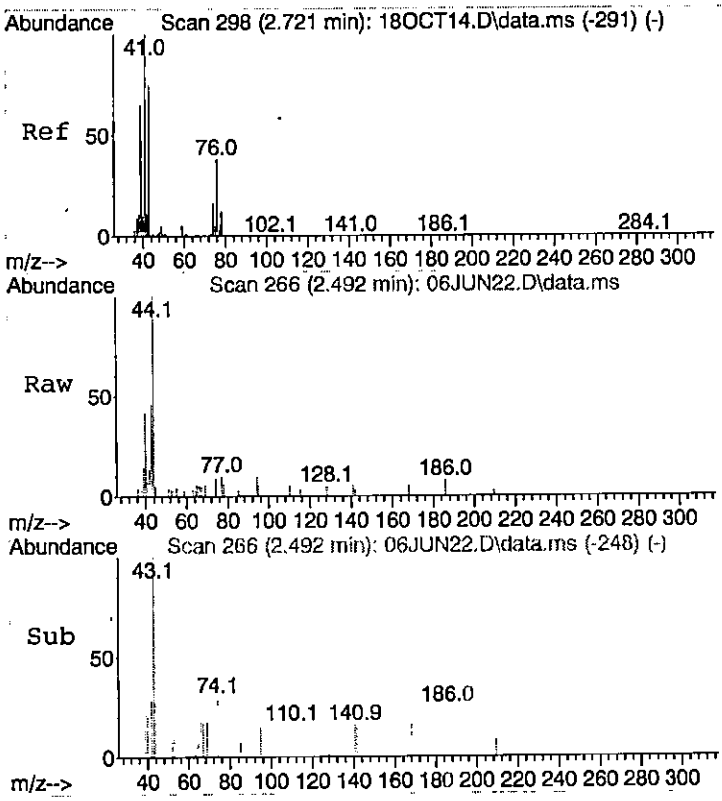
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN22.D
Acq On : 6 Jun 2018 3:01 pm
Operator : EMR
Sample : 1806126-03A DF20
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 06 15:13:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

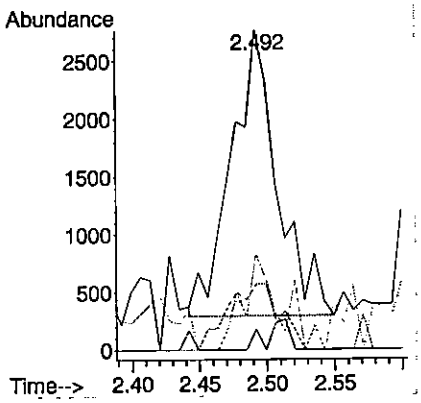


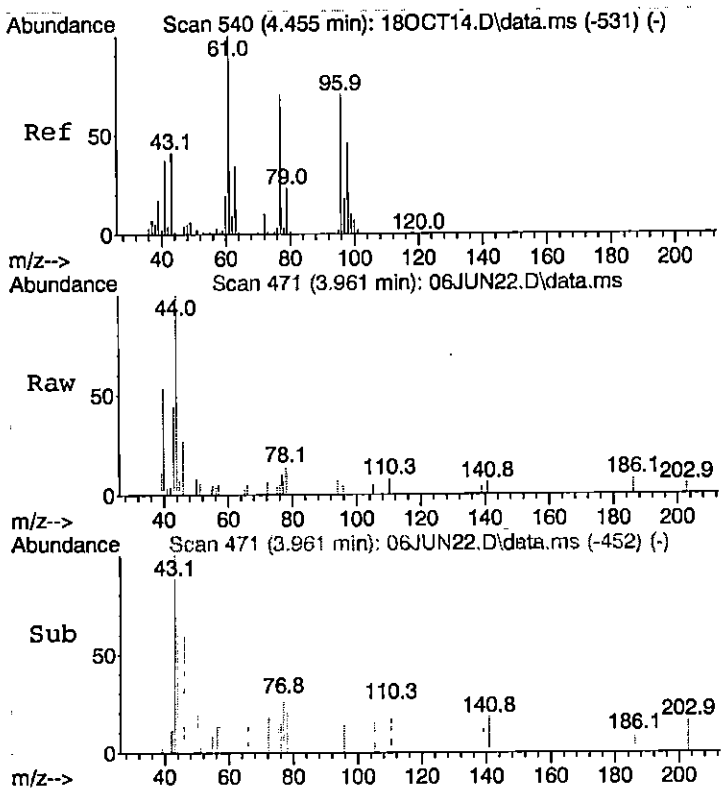


#17
Methyl acetate
Concen: 0.71 ug/L m
RT: 2.492 min Scan# 266
Delta R.T. 0.007 min
Lab File: 06JUN22.D
Acq: 6 Jun 2018 3:01 pm

Tgt Ion: 43 Resp: 5874

Ion	Ratio	Lower	Upper
43	100		
74	26.3	18.2	27.4
42	0.0	10.8	16.2#
59	0.0	6.2	9.2#

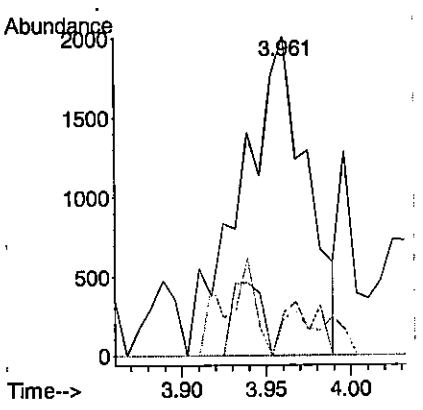




#31
2-Butanone
Concen: 0.86 ug/L
RT: 3.961 min Scan# 471
Delta R.T. 0.015 min
Lab File: 06JUN22.D
Acq: 6 Jun 2018 3:01 pm

Tgt Ion: 43 Resp: 5445

Ion	Ratio	Lower	Upper
43	100		
72	0.0	9.5	49.5#
57	0.0	0.0	28.0



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN45.D
Acq On : 6 Jun 2018 1:47 am
Operator : WH
Sample : 1806126-01A
Misc : IS/SS 200-20081
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Jun 06 02:00:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	269249	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	401192	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	361709	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	179372	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	111391	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	144012	20.70	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.50%				
45) 1,2-Dichloroethane-d4	5.164	65	149461	22.06	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 110.30%				
64) Toluene-d8	7.671	98	477988	20.25	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.25%				
85) Bromofluorobenzene	9.433	95	164375	19.20	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.575	64	8453	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.227	43	22691	6.16	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	3.954	43	6622m	1.05	ug/L		
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN45.D
Acq On : 6 Jun 2018 1:47 am
Operator : WH
Sample : 1806126-01A
Misc : IS/SS 200-20081
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Jun 06 02:00:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D. d	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.729	91	28554	1.10 ug/L #	94
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.817	91	10179m	0.36 ug/L	
79) m/p-Xylene	8.896	91	10379	0.49 ug/L	97
80) Styrene	0.000		0	N.D.	
81) o-Xylene	9.125	91	5924m	0.26 ug/L	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN45.D
Acq On : 6 Jun 2018 1:47 am
Operator : WH
Sample : 1806126-01A
Misc : IS/SS 200-20081
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Jun 06 02:00:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

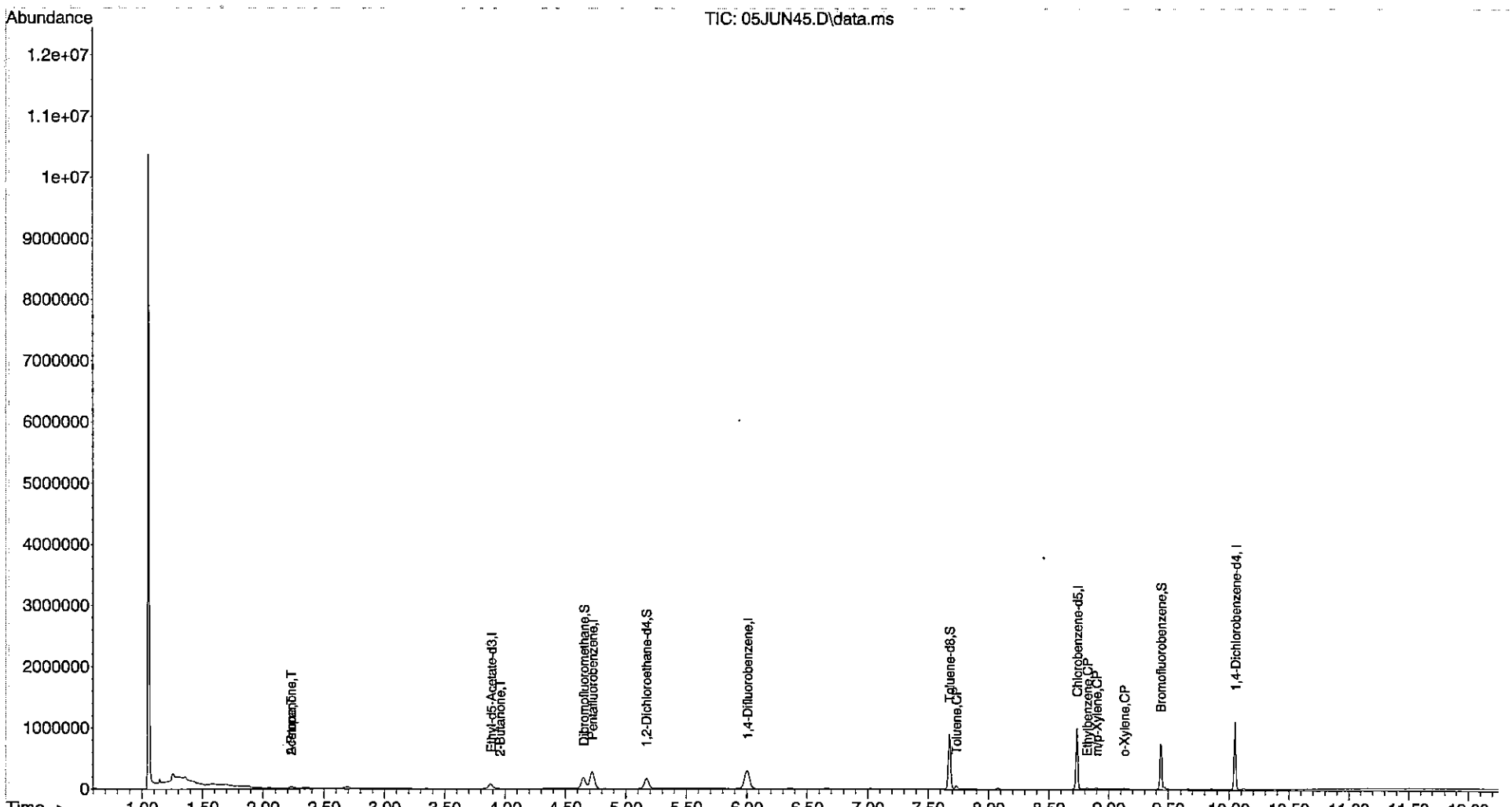
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	d	
96) sec-Butylbenzene	0.000		0	N.D.	d	
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.227	43	22691	4.54	ug/L	95
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

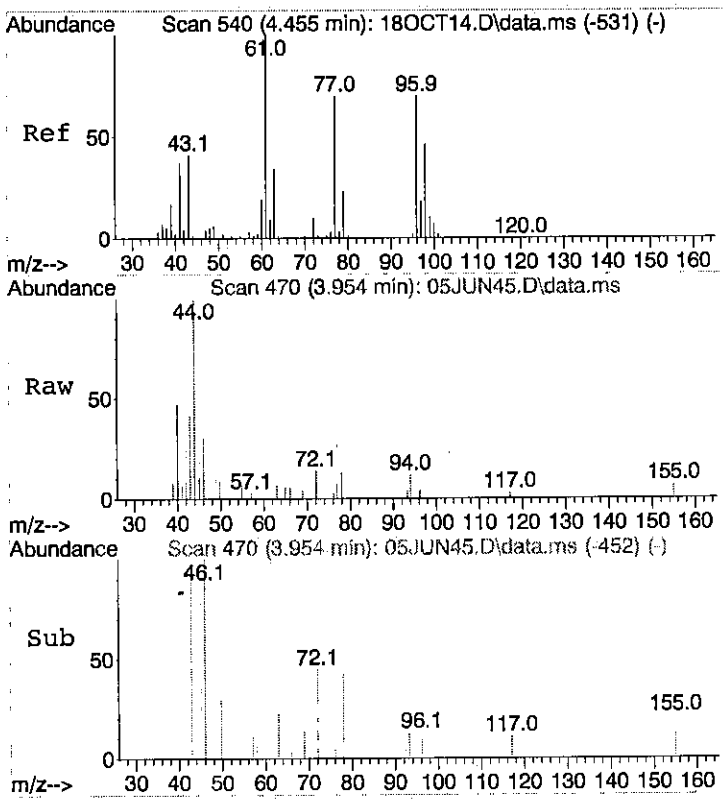
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN45.D
Acq On : 6 Jun 2018 1:47 am
Operator : WH
Sample : 1806126-01A
Misc : IS/SS 200-20081
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Jun 06 02:00:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

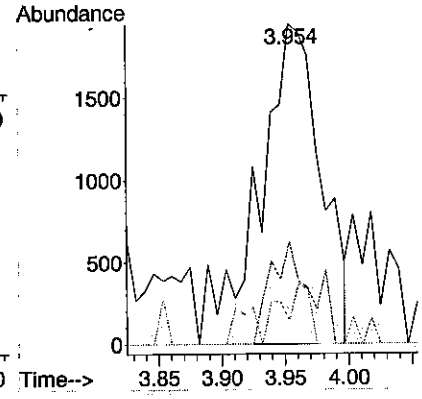


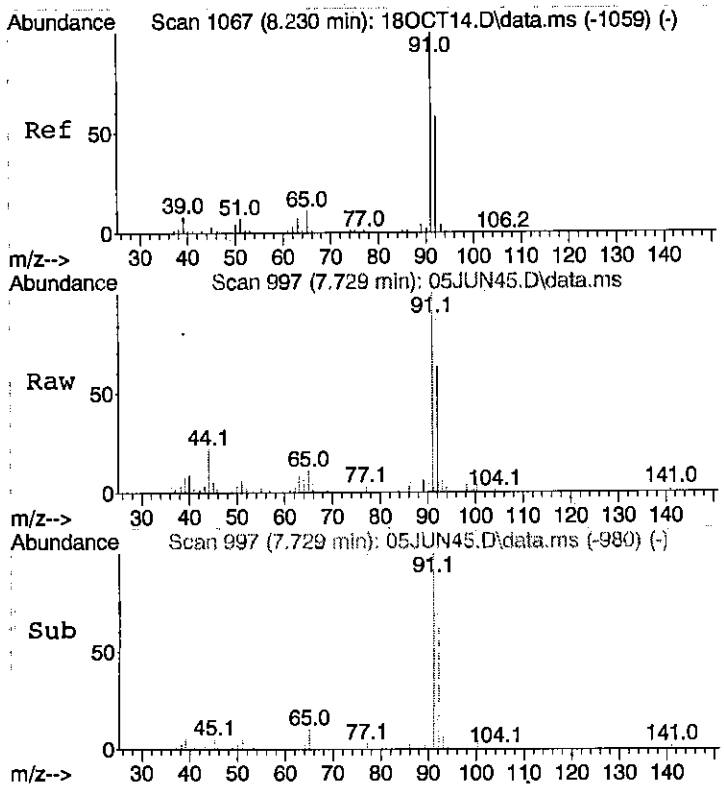


#31
2-Butanone
Concen: 1.05 ug/L m
RT: 3.954 min Scan# 470
Delta R.T. 0.008 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 43 Resp: 6622

Ion	Ratio	Lower	Upper
43	100		
72	20.6	9.5	49.5
57	0.0	0.0	28.0

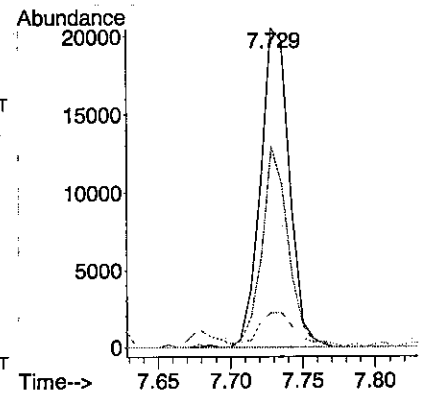


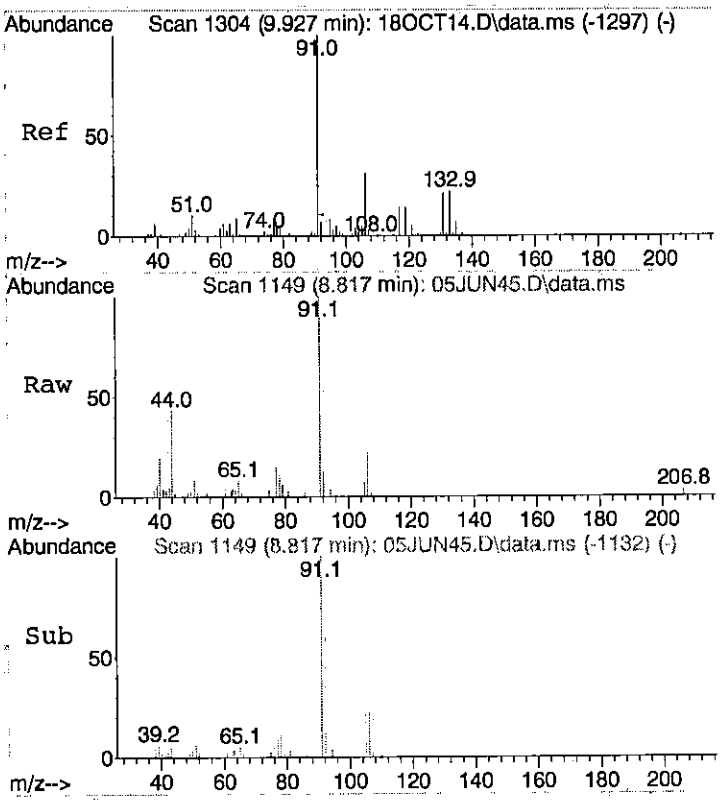


#65
Toluene
Concen: 1.10 ug/L
RT: 7.729 min Scan# 997
Delta R.T. 0.001 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 91 Resp: 28554

Ion	Ratio	Lower	Upper
91	100		
92	57.9	39.2	79.2
65	0.0	0.0	30.7

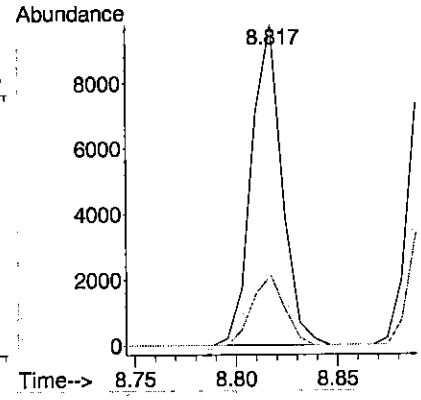


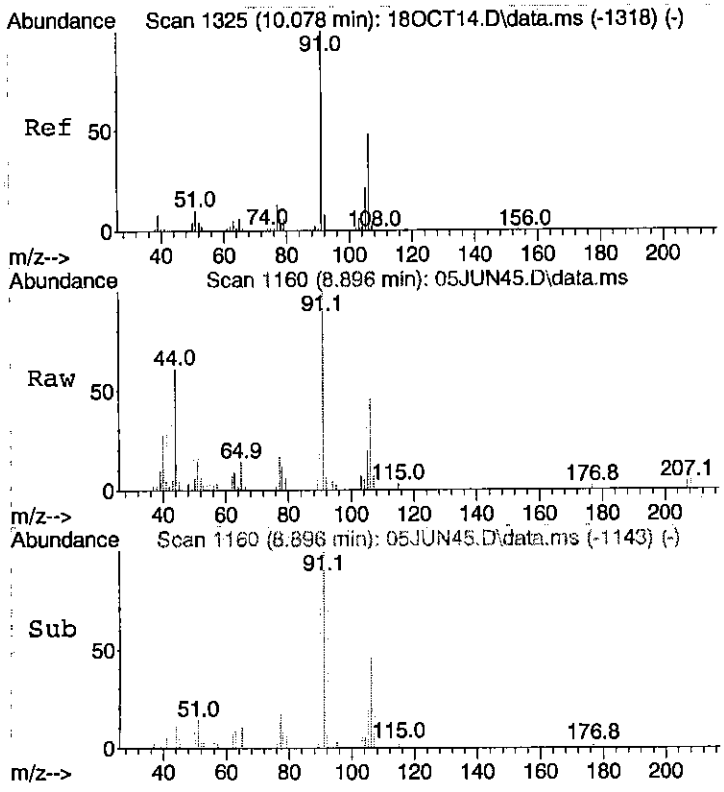


#78
Ethylbenzene
Concen: 0.36 ug/L m
RT: 8.817 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 91 Resp: 10179

Ion	Ratio	Lower	Upper
91	100		
106	23.2	11.1	51.1

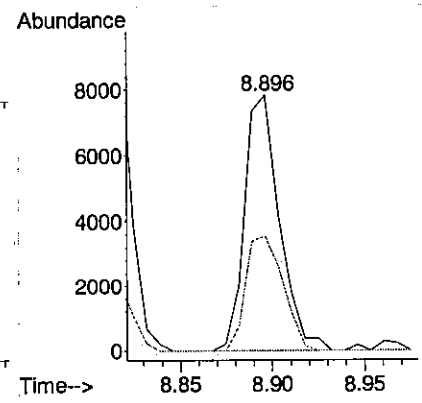


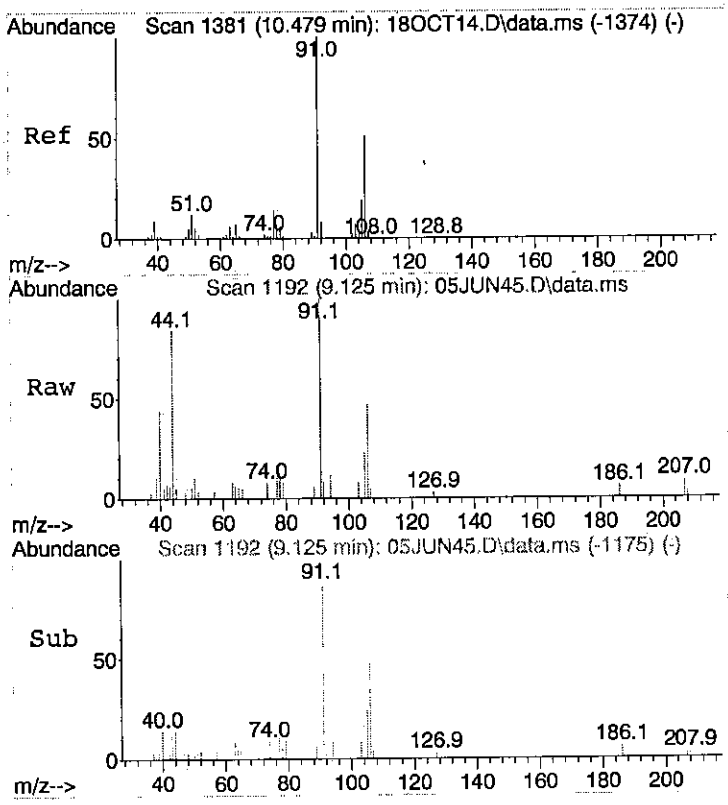


#79
m/p-Xylene
Concen: 0.49 ug/L
RT: 8.896 min Scan# 1160
Delta R.T. 0.000 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 91 Resp: 10379

Ion	Ratio	Lower	Upper
91	100		
106	48.4	30.2	70.2

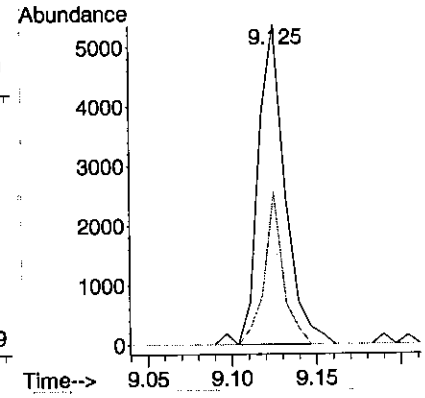


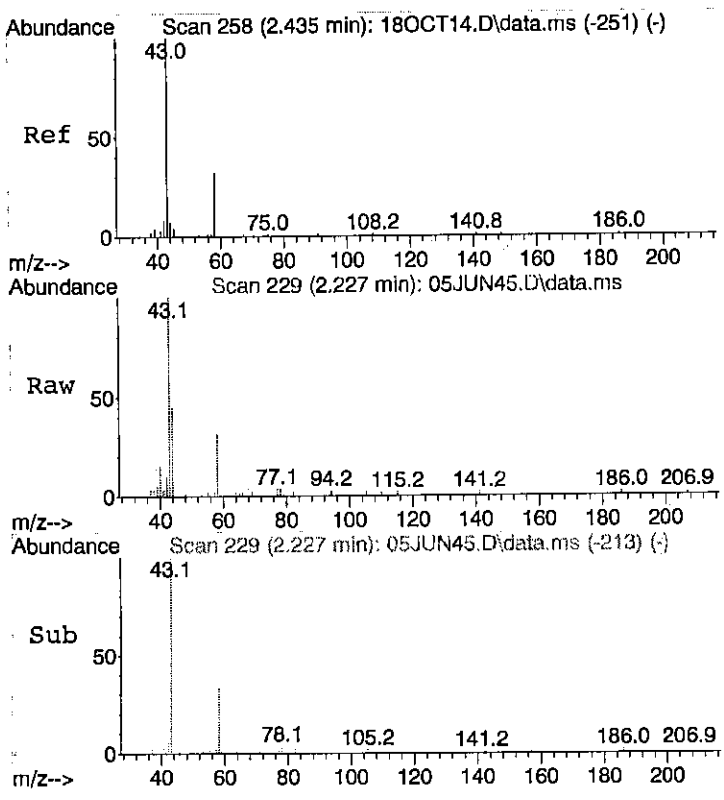


#81
o-Xylene
Concen: 0.26 ug/L m
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 91 Resp: 5924

Ion	Ratio	Lower	Upper
91	100		
106	33.4	27.9	67.9

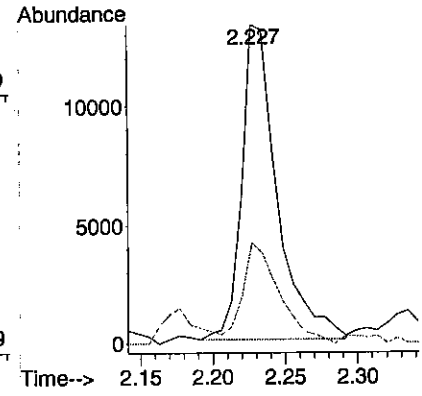




#115
2-Propanone
Concen: 4.54 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 05JUN45.D
Acq: 6 Jun 2018 1:47 am

Tgt Ion: 43 Resp: 22691

Ion	Ratio	Lower	Upper
43	100		
58	33.0	28.6	43.0



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN46.D
Acq On : 6 Jun 2018 2:03 am
Operator : WH
Sample : 1806126-04A
Misc : IS/SS 200-20081
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jun 06 02:15:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.720	168	277140	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	6.002	114	412809	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	379855	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183815	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	108506	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	142864	19.95 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.75%		
45) 1,2-Dichloroethane-d4	5.164	65	136618	19.60 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.00%		
64) Toluene-d8	7.671	98	493250	19.89 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.45%		
85) Bromofluorobenzene	9.433	95	176256	19.61 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.05%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D. d	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.234	43	10028m	2.65 ug/L	
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	0.000		0	N.D.	
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D. d	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN46.D
Acq On : 6 Jun 2018 2:03 am
Operator : WH
Sample : 1806126-04A
Misc : IS/SS 200-20081
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jun 06 02:15:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	4.419	83	7733	0.62 ug/L #	84
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN46.D
Acq On : 6 Jun 2018 2:03 am
Operator : WH
Sample : 1806126-04A
Misc : IS/SS 200-20081
ALS Vial : 45 Sample Multiplier: 1

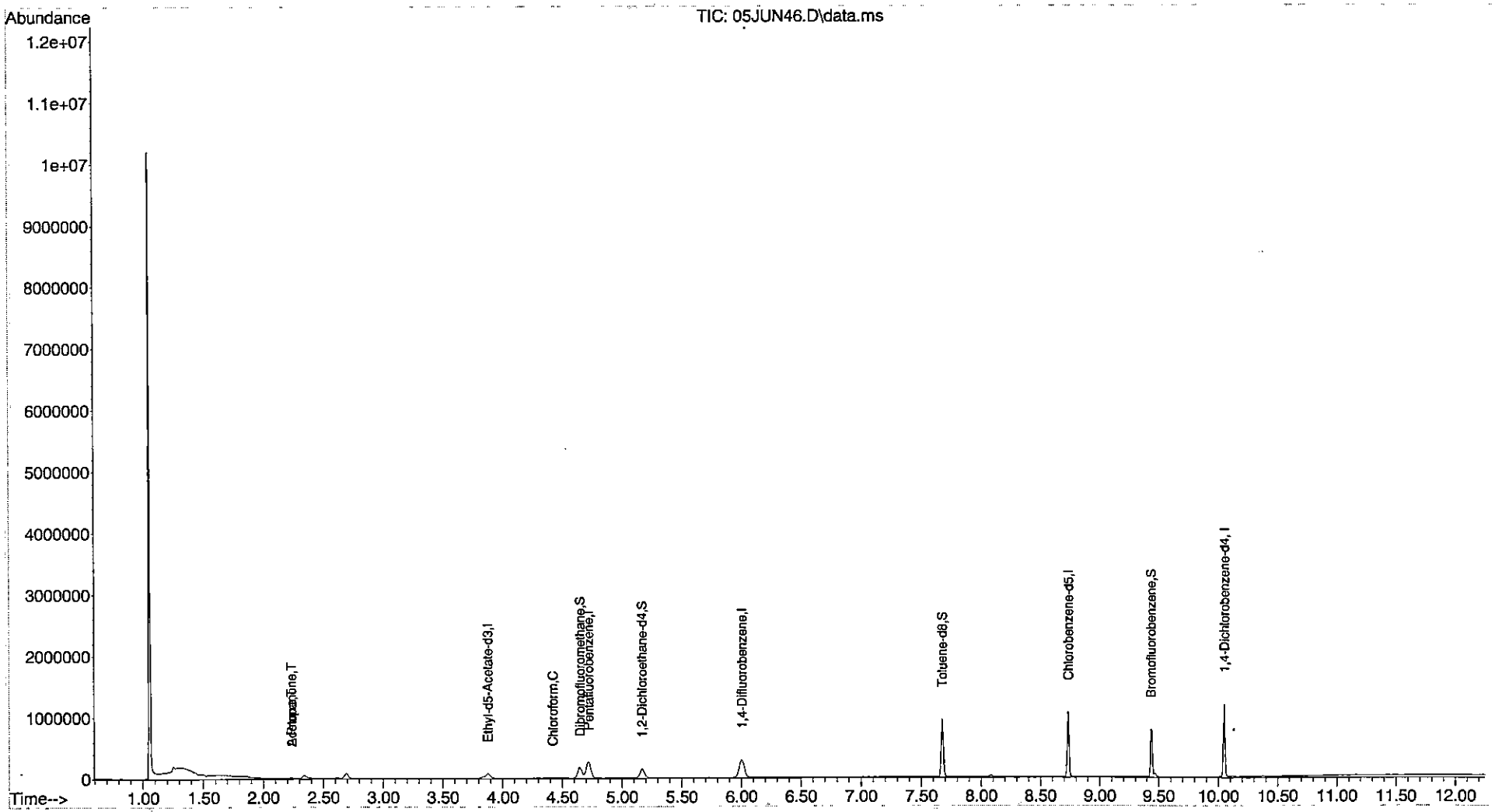
Quant Time: Jun 06 02:15:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

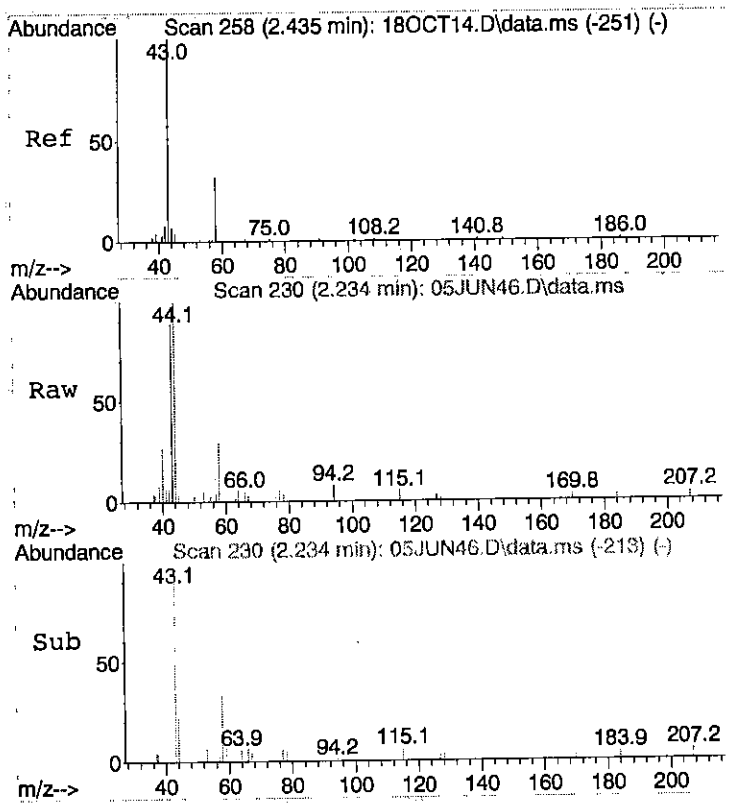
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92)	4-Chlorotoluene	0.000		0	N.D.		
93)	1,3,5-Trimethylbenzene	0.000		0	N.D.		
94)	tert-Butylbenzene	0.000		0	N.D.		
95)	1,2,4-Trimethylbenzene	0.000		0	N.D.		
96)	sec-Butylbenzene	0.000		0	N.D.		
98)	1,3-Dichlorobenzene	0.000		0	N.D.		
99)	p-Isopropyltoluene	0.000		0	N.D.		
100)	1,4-Dichlorobenzene	0.000		0	N.D.		
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.		
102)	Benzyl chloride	0.000		0	N.D.		
103)	1,2-Dichlorobenzene	0.000		0	N.D.		
104)	n-Butylbenzene	0.000		0	N.D.		
105)	Hexachloroethane	0.000		0	N.D.		
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.		
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.		
109)	Hexachlorobutadiene	0.000		0	N.D.		
110)	Naphthalene	0.000		0	N.D.		
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.		
112)	2-Methylnaphthalene	0.000		0	N.D.		
113)	1-Methylnaphthalene	0.000		0	N.D.		
115)	2-Propanone	2.234	43	10028m	2.06	ug/L	
116)	Acetic Ether	0.000		0	N.D.		
117)	Isopropyl Acetate	0.000		0	N.D.		
118)	Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN46.D
Acq On : 6 Jun 2018 2:03 am
Operator : WH
Sample : 1806126-04A
Misc : IS/SS 200-20081
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jun 06 02:15:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

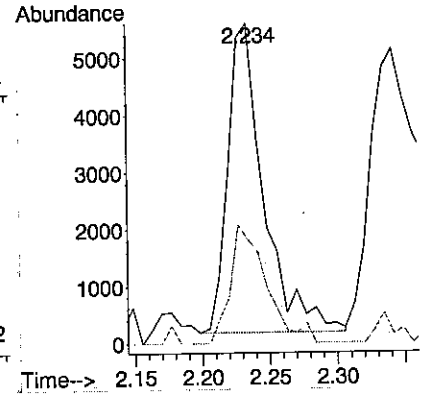


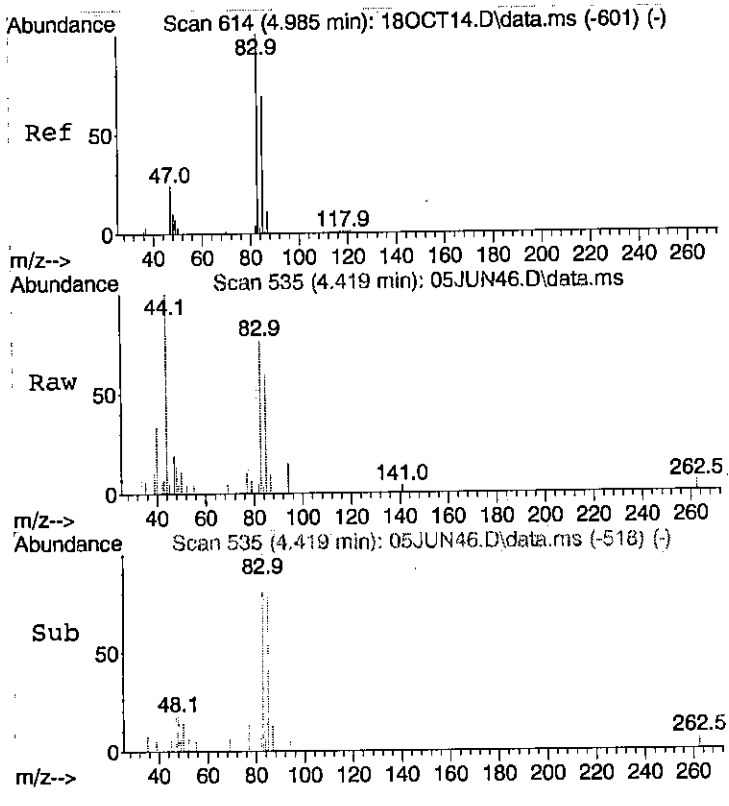


#13
Acetone
Concen: 2.65 ug/L m
RT: 2.234 min Scan# 230
Delta R.T. 0.000 min
Lab File: 05JUN46.D
Acq: 6 Jun 2018 2:03 am

Tgt Ion: 43 Resp: 10028

Ion	Ratio	Lower	Upper
43	100		
58	38.9	15.8	55.8

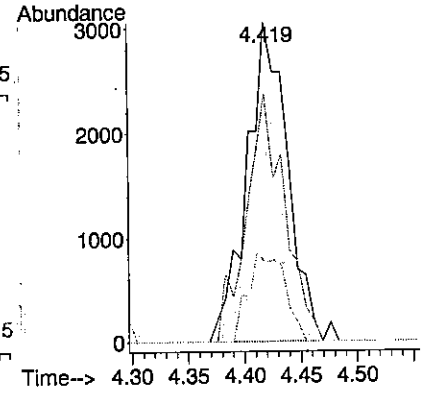




#38
Chloroform
Concen: 0.62 ug/L
RT: 4.419 min Scan# 535
Delta R.T. -0.000 min
Lab File: 05JUN46.D
Acq: 6 Jun 2018 2:03 am

Tgt Ion: 83 Resp: 7733

Ion	Ratio	Lower	Upper
83	100		
85	72.5	46.7	86.7
47	0.0	0.6	40.6#



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN47.D
Acq On : 6 Jun 2018 2:19 am
Operator : WH
Sample : 1806126-05A
Misc : IS/SS 200-20081
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Jun 06 02:31:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	280880	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	424079	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	382662	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	188382	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	121797	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	149977	20.39	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.95%				
45) 1,2-Dichloroethane-d4	5.171	65	162395	22.68	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 113.40%				
64) Toluene-d8	7.671	98	499894	20.01	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.05%				
85) Bromofluorobenzene	9.440	95	176065	19.44	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.582	64	9054	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.234	43	39463	10.28	ug/L		99
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.	d		
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	3.953	43	11884m	1.80	ug/L		
32) Ethyl Acetate	0.000		0	N.D.	d		
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN47.D
Acq On : 6 Jun 2018 2:19 am
Operator : WH
Sample : 1806126-05A
Misc : IS/SS 200-20081
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Jun 06 02:31:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D. d	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.735	91	30085	1.09 ug/L #	93
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.817	91	5821m	0.20 ug/L	
79) m/p-Xylene	8.896	91	8143m	0.36 ug/L	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN47.D
Acq On : 6 Jun 2018 2:19 am
Operator : WH
Sample : 1806126-05A
Misc : IS/SS 200-20081
ALS Vial : 46 Sample Multiplier: 1

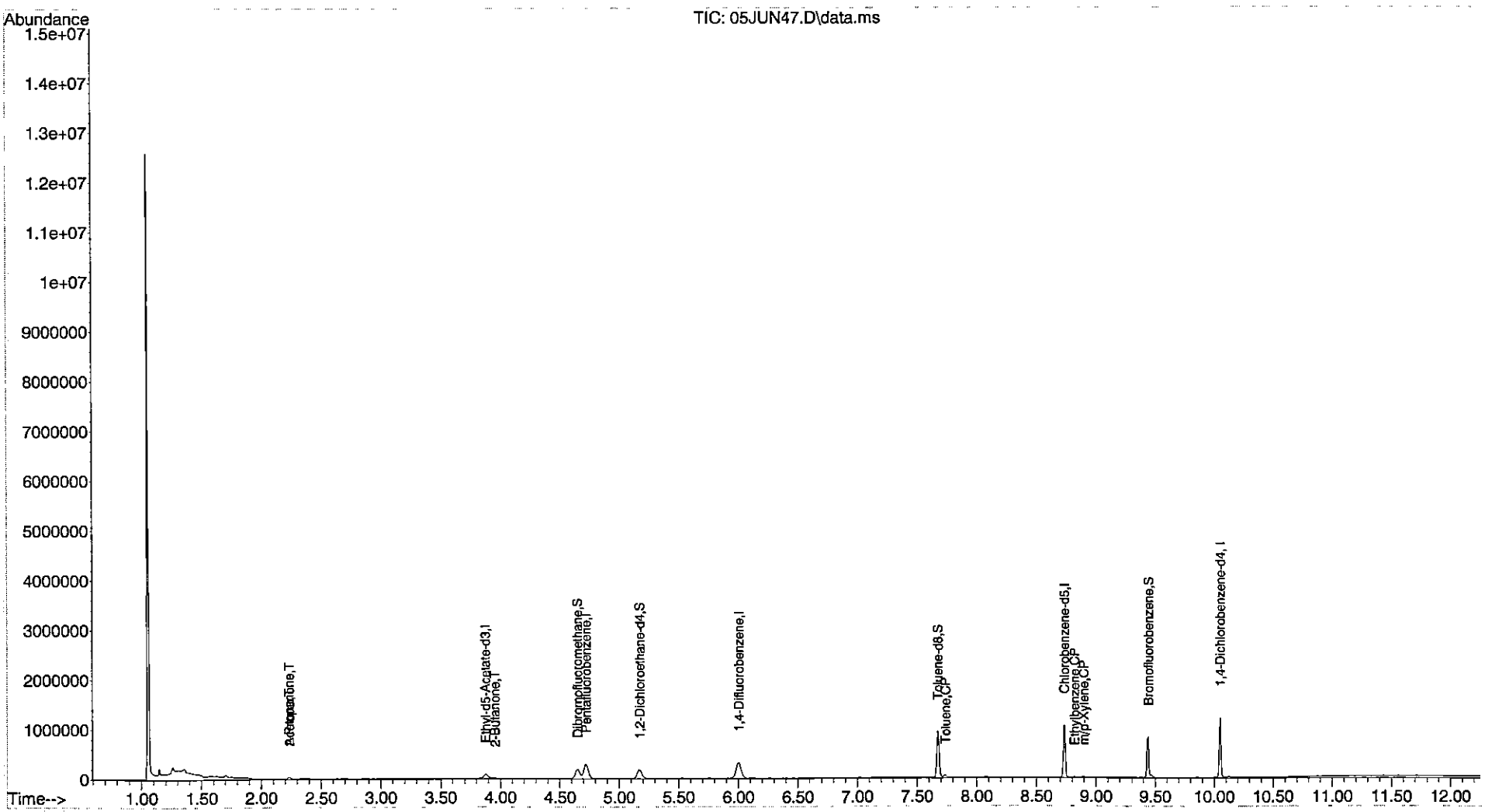
Quant Time: Jun 06 02:31:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

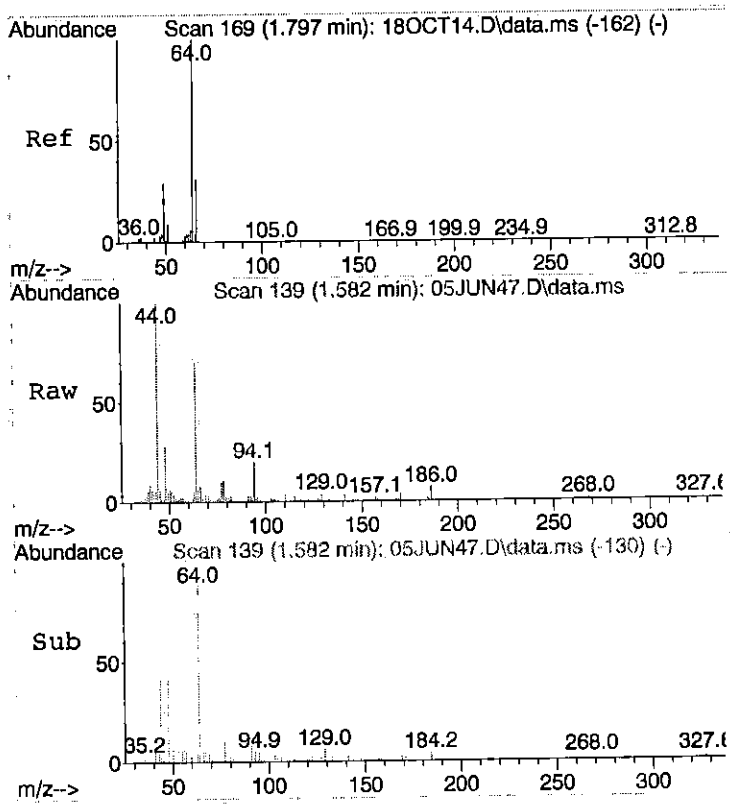
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	39463	7.22 ug/L	99
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN47.D
Acq On : 6 Jun 2018 2:19 am
Operator : WH
Sample : 1806126-05A
Misc : IS/SS 200-20081
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Jun 06 02:31:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

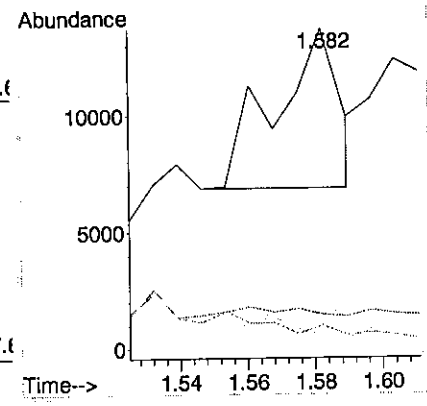


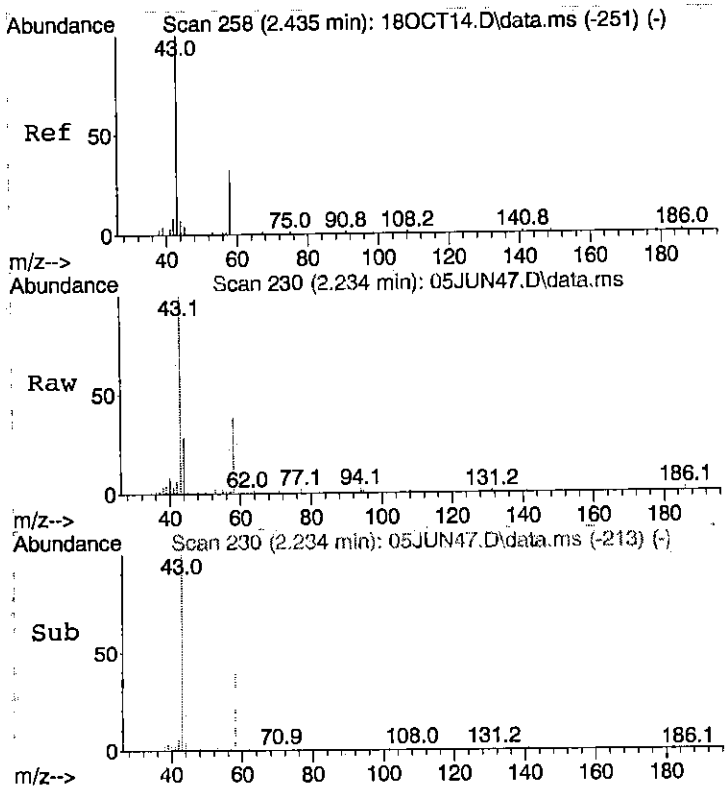


#6
Chloroethane
Concen: Below Cal
RT: 1.582 min Scan# 139
Delta R.T. -0.058 min
Lab File: 05JUN47.D
Acq: 6 Jun 2018 2:19 am

Tgt Ion: 64 Resp: 9054

Ion	Ratio	Lower	Upper
64	100		
66	0.0	10.8	50.8#
49	0.0	0.0	37.2

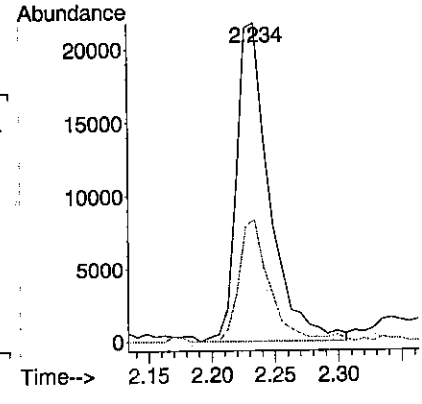


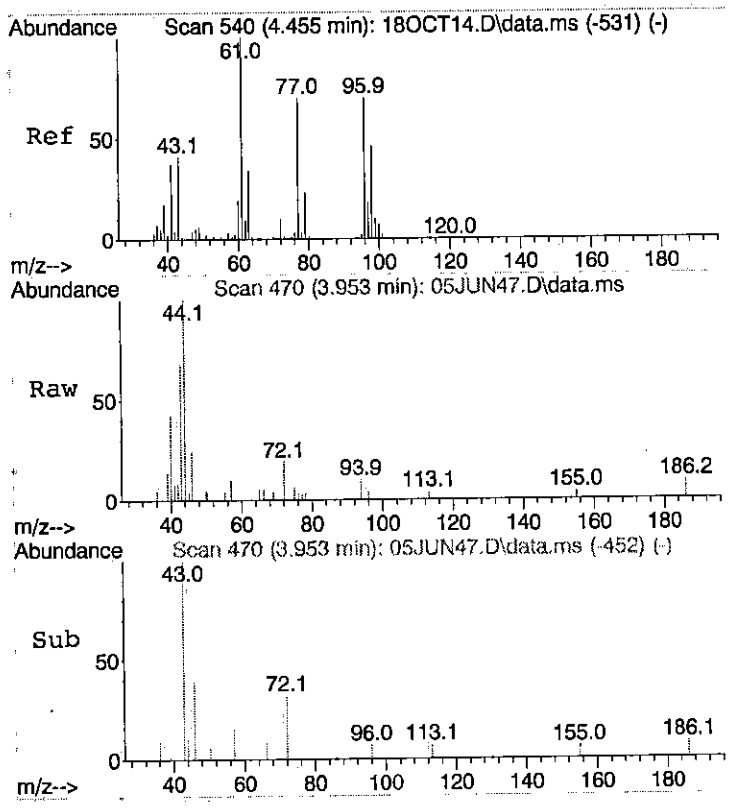


#13
Acetone
Concen: 10.28 ug/L
RT: 2.234 min Scan# 230
Delta R.T. 0.000 min
Lab File: 05JUN47.D
Acq: 6 Jun 2018 2:19 am

Tgt Ion: 43 Resp: 39463

Ion	Ratio	Lower	Upper
43	100		
58	35.1	15.8	55.8

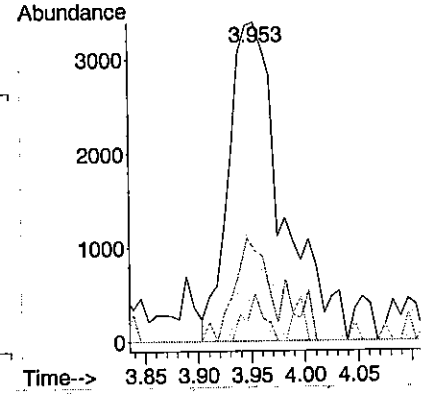


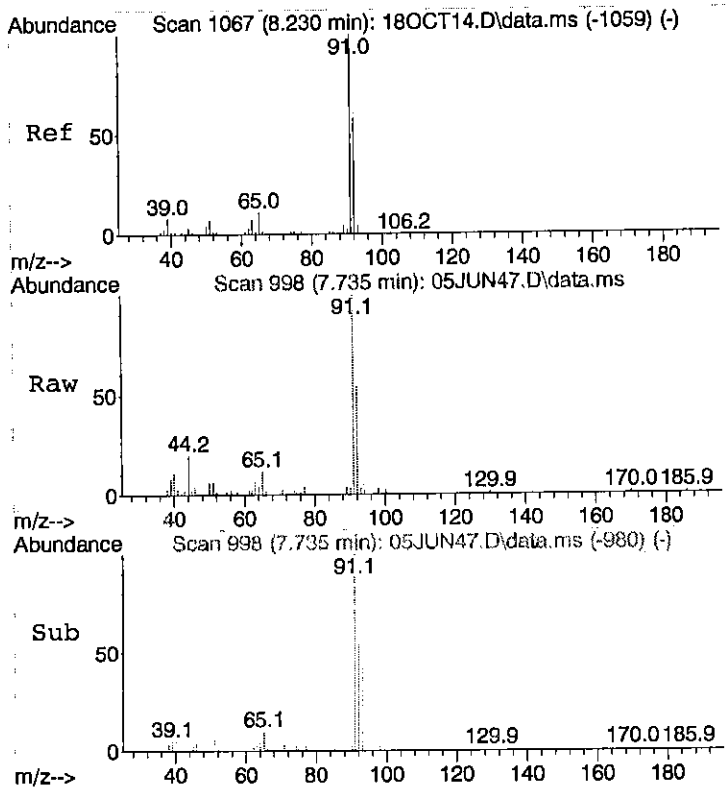


#31
2-Butanone
Concen: 1.80 ug/L m
RT: 3.953 min Scan# 470
Delta R.T. 0.007 min
Lab File: 05JUN47.D
Acq: 6 Jun 2018 2:19 am

Tgt Ion: 43 Resp: 11884

Ion	Ratio	Lower	Upper
43	100		
72	25.1	9.5	49.5
57	0.0	0.0	28.0

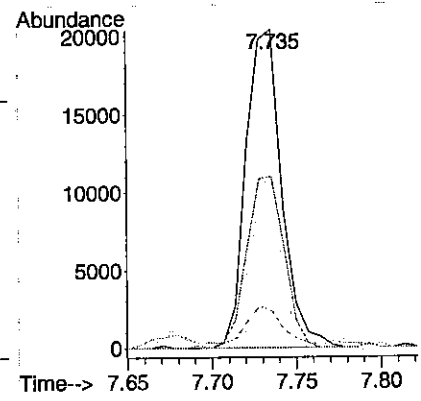




#65
Toluene
Concen: 1.09 ug/L
RT: 7.735 min Scan# 998
Delta R.T. 0.007 min
Lab File: 05JUN47.D
Acq: 6 Jun 2018 2:19 am

Tgt Ion: 91 Resp: 30085

Ion	Ratio	Lower	Upper
91	100		
92	56.4	39.2	79.2
65	0.0	0.0	30.7



Response Factor Report VMS8

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY35.D 2 =15MAY36.D 3 =15MAY37.D 4 =15MAY38.D 5 =15MAY39.D 6 =15MAY40.D 7 =15MAY41.D
8 =15MAY42.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...	0.552	0.462	0.476	0.448	0.449	0.388	0.404	0.407	0.448	11.65
3)	P	Chloromethane			0.832	0.691	0.659	0.632	0.637	0.614	0.678	11.87
4)	C	Vinyl chloride	0.636	0.593	0.497	0.536	0.524	0.490	0.494	0.480	0.531	10.49
5)	T	Bromomethane		0.538	0.285	0.227	0.197	0.158	0.149	0.152	0.244	56.84
6)	T	Chloroethane			0.676	0.563	0.338	0.268	0.234	0.227	0.384	49.39
7)	T	Trichlorofluor...	0.601	0.628	0.560	0.544	0.509	0.512	0.547	0.512	0.552	7.94
8)	T	Ethyl ether	0.421	0.539	0.424	0.385	0.386	0.381	0.369	0.355	0.408	14.25
9)	T	Acrolein	0.147	0.152	0.122	0.105	0.103	0.075	0.078	0.083	0.108#	27.87
10)	C	1,1-Dichloroet...	0.657	0.637	0.653	0.585	0.590	0.581	0.567	0.548	0.602	6.84
11)	T	1,1,2-Trichlor...	0.407	0.370	0.314	0.328	0.309	0.295	0.297	0.294	0.327	12.46
12)	T	Methyl iodide	0.777	0.601	0.472	0.407	0.344	0.295	0.281	0.283	0.433	41.05
13)	T	Acetone			0.359	0.261	0.316	0.240	0.233	0.233	0.273	19.11
14)	T	Chloroprene	0.569	0.623	0.653	0.645	0.614	0.601	0.589	0.579	0.609	5.01
15)	T	Carbon disulfide	1.630	1.193	1.388	1.289	1.238	1.250	1.236	1.218	1.305	11.03
16)	T	Allyl chloride	0.862	0.759	0.684	0.694	0.682	0.671	0.643	0.618	0.702	10.96
17)	T	Methyl acetate			0.685	0.654	0.595	0.614	0.560	0.562	0.612	8.21
18)	T	Acetonitrile	0.862	0.729	0.684	0.694	0.682	0.671	0.643	0.618	0.698	10.66
19)	T	Methylene chlo...		0.818	0.685	0.613	0.602	0.601	0.585	0.562	0.638	13.82
20)	T	trans-1,2-Dich...	0.698	0.708	0.678	0.646	0.638	0.640	0.625	0.608	0.655	5.44
21)	T	t-Butanol		0.128	0.163	0.138	0.140	0.138	0.129	0.128	0.138#	8.92
22)	T	Acrylonitrile	0.344	0.279	0.306	0.310	0.303	0.302	0.296	0.289	0.304	6.36
23)	CP	Methyl tert-bu...	1.212	1.240	1.269	1.307	1.262	1.295	1.229	1.211	1.253	2.89#
24)	T	Hexane	0.697	0.560	0.539	0.468	0.468	0.436	0.446	0.441	0.507	17.67
25)	P	1,1-Dichloroet...	1.009	0.892	0.962	0.884	0.883	0.873	0.848	0.810	0.895	7.03
26)	CP	Diisopropyl ether	1.426	1.339	1.370	1.334	1.301	1.320	1.245	1.224	1.320	4.93#
27)	T	Vinyl acetate		0.115	0.098	0.080	0.082	0.075	0.081	0.078	0.087#	16.52
28)	CP	Ethyl tert but...	1.283	1.454	1.364	1.297	1.308	1.292	1.216	1.217	1.304	5.93#
29)	T	2,2-Dichloropr...		0.794	0.650	0.627	0.622	0.603	0.595	0.572	0.638	11.51
30)	T	cis-1,2-Dichlo...	0.935	0.831	0.728	0.757	0.752	0.760	0.754	0.726	0.780	9.00
31)	T	2-Butanone			0.639	0.502	0.462	0.419	0.397	0.396	0.469	19.80
32)	T	Ethyl Acetate		0.618	0.868	0.797	0.781	0.792	0.773	0.768	0.771	9.77
33)	T	Methyl acrylate	0.758	0.806	0.724	0.704	0.732	0.755	0.732	0.722	0.742	4.20
34)	T	Propionitrile			0.061	0.065	0.043	0.041	0.042	0.041	0.049#	22.41
35)	T	Bromochloromet...	0.451	0.475	0.395	0.401	0.395	0.400	0.392	0.380	0.411	8.13
36)	T	Tetrahydrofuran			0.281	0.283	0.276	0.285	0.282	0.277	0.281	1.25
37)	T	Methacrylonitrile	0.348	0.403	0.519	0.427	0.457	0.465	0.448	0.446	0.439	11.33
38)	C	Chloroform	1.055	0.975	0.947	0.866	0.860	0.872	0.854	0.829	0.907	8.52

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

39)	T	Cyclohexane		0.903	0.749	0.710	0.653	0.650	0.635	0.717		14.11
40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.469	0.478	0.488	0.472	0.455	0.446	0.441	0.464	3.73
42)	S	Dibromofluorom...	0.342	0.351	0.346	0.345	0.350	0.353	0.342	0.345	0.347	1.19
43)	T	Carbon tetrach...	0.442	0.333	0.418	0.401	0.387	0.407	0.396	0.404	0.398	7.81
44)	T	1,1-Dichloropr...	0.597	0.396	0.453	0.450	0.415	0.401	0.384	0.397	0.437	15.96
45)	S	1,2-Dichloroet...	0.338	0.342	0.345	0.336	0.333	0.336	0.330	0.342	0.338	1.51
46)	T	1,2-Dichloroet...	0.576	0.504	0.438	0.418	0.416	0.407	0.395	0.399	0.444	14.32
47)	CP	Benzene	1.479	1.271	1.289	1.272	1.216	1.265	1.204	1.209	1.276	6.94#
48)	CP	Tertiaryamylme...	0.675	0.910	0.901	0.857	0.849	0.846	0.785	0.802	0.828	9.09#
49)	T	Isobutyl Alcohol	0.221	0.271	0.363	0.312	0.261	0.253	0.235	0.239	0.269	17.40
50)	T	Heptane	0.292	0.419	0.317	0.286	0.266	0.244	0.240	0.247	0.289	20.47
51)	T	1,4-Dioxane	0.007	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007#	6.01
52)	T	Methylcyclohexane	0.478	0.528	0.406	0.449	0.422	0.406	0.399	0.413	0.438	10.31
53)	T	n-Butanol			0.022	0.022	0.021	0.025	0.024	0.025	0.023#	7.39
54)	T	Trichloroethene	0.388	0.407	0.382	0.344	0.343	0.345	0.332	0.331	0.359	8.10
55)	C	1,2-Dichloropr...		0.441	0.397	0.375	0.338	0.345	0.330	0.329	0.365	11.50
56)	T	Dibromomethane	0.204	0.354	0.266	0.295	0.256	0.261	0.249	0.248	0.266	16.32
57)	T	Methyl methacr...	0.447	0.464	0.424	0.409	0.402	0.383	0.378	0.379	0.411	7.81
58)	T	Bromodichlorom...	0.445	0.478	0.486	0.469	0.463	0.467	0.449	0.454	0.464	3.06
59)	T	2-Chloroethyl ...			0.205	0.164	0.176	0.160	0.158	0.154	0.169#	11.33
60)	T	2-Nitropropane		0.227	0.193	0.181	0.169	0.160	0.157	0.160	0.178#	14.26
61)	T	cis-1,3-Dichlo...	0.551	0.563	0.568	0.546	0.550	0.557	0.531	0.545	0.551	2.10
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...	0.629	0.782	0.563	0.668	0.586	0.586	0.590	0.568	0.622	11.82
64)	S	Toluene-d8	1.319	1.292	1.306	1.290	1.292	1.295	1.341	1.308	1.305	1.33
65)	CP	Toluene	1.508	1.354	1.452	1.490	1.430	1.439	1.470	1.368	1.439	3.80
66)	T	trans-1,3-Dich...	0.574	0.599	0.598	0.574	0.579	0.556	0.575	0.560	0.577	2.70
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.578	0.773	0.648	0.609	0.594	0.581	0.577	0.564	0.615	11.17
69)	T	1,1,2-Trichlor...	0.562	0.512	0.422	0.389	0.386	0.377	0.379	0.369	0.425	17.06
70)	T	Tetrachloroethene	0.382	0.374	0.382	0.389	0.379	0.363	0.375	0.361	0.376	2.54
71)	T	1,3-Dichloropr...	0.596	0.705	0.596	0.579	0.582	0.575	0.587	0.552	0.597	7.72
72)	T	2-Hexanone		0.608	0.481	0.464	0.473	0.476	0.466	0.451	0.488	10.93
73)	T	Chlorodibromom...	0.497	0.421	0.490	0.446	0.443	0.462	0.458	0.450	0.458	5.47
74)	T	Butyl acetate	0.958	0.906	0.792	0.818	0.757	0.781	0.761	0.742	0.814	9.51
75)	T	1,2-Dibromoethane	0.462	0.411	0.491	0.437	0.423	0.430	0.434	0.415	0.438	6.06
76)	P	Chlorobenzene	0.978	0.959	1.040	0.984	0.951	0.956	0.961	0.937	0.971	3.26
77)	T	1,1,1,2-Tetrac...	0.435	0.363	0.396	0.366	0.363	0.356	0.369	0.351	0.375	7.43
78)	CP	Ethylbenzene	1.571	1.470	1.623	1.557	1.508	1.546	1.591	1.517	1.548	3.15
79)	CP	m/p-Xylene	1.242	1.061	1.201	1.206	1.150	1.178	1.211	1.138	1.173	4.84#
80)	T	Styrene	1.078	0.948	1.031	0.995	0.979	0.995	1.001	0.973	1.000	3.98
81)	CP	o-Xylene	1.359	1.172	1.255	1.251	1.240	1.232	1.254	1.199	1.245	4.38#
82)	T	Cyclohexanone		0.204	0.093	0.059	0.043	0.040	0.038	0.037	0.073#	82.88
83)	P	Bromoform	0.327	0.315	0.343	0.341	0.353	0.360	0.368	0.361	0.346	5.23
84)	T	Isopropylbenzene	1.637	1.408	1.452	1.502	1.438	1.435	1.463	1.381	1.465	5.34

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

85)	S	Bromofluoroben...	0.466	0.470	0.474	0.465	0.473	0.481	0.481	0.476	0.473	1.30
86)	T	Bromobenzene	0.773	1.026	0.937	0.934	0.913	0.918	0.942	0.900	0.918	7.61
87)	P	1,1,2,2-Tetrac...	0.603	0.702	0.666	0.668	0.658	0.647	0.674	0.642	0.658	4.34
88)	T	1,2,3-Trichlor...	0.226	0.203	0.168	0.183	0.169	0.166	0.164	0.164	0.180#	12.64
89)	T	trans-1,4-Dich...	0.208	0.194	0.218	0.174	0.163	0.164	0.169	0.163	0.182#	12.07
90)	T	n-Propylbenzene	1.649	1.567	1.765	1.713	1.685	1.695	1.751	1.677	1.688	3.67
91)	T	2-Chlorotoluene	0.934	1.024	1.082	1.021	1.001	1.009	1.036	0.982	1.011	4.21
92)	T	4-Chlorotoluene	1.165	1.251	1.164	1.214	1.169	1.167	1.186	1.152	1.183	2.80
93)	T	1,3,5-Trimethy...	1.058	1.198	1.203	1.231	1.132	1.152	1.174	1.125	1.159	4.73
94)	T	tert-Butylbenzene	0.801	0.727	0.677	0.689	0.669	0.659	0.673	0.646	0.693	7.18
95)	T	1,2,4-Trimethy...	1.287	1.198	1.272	1.241	1.216	1.217	1.254	1.194	1.235	2.77
96)	T	sec-Butylbenzene	1.559	1.350	1.390	1.398	1.341	1.364	1.417	1.356	1.397	5.04
97)	I	1,4-Dichlorobenzen...	----------ISTD----------									
98)	T	1,3-Dichlorobe...	1.377	1.377	1.422	1.476	1.396	1.472	1.425	1.383	1.416	2.84
99)	T	p-Isopropyltol...	2.403	2.110	2.389	2.288	2.269	2.324	2.257	2.190	2.279	4.30
100)	T	1,4-Dichlorobe...	1.439	1.387	1.462	1.503	1.439	1.470	1.450	1.402	1.444	2.57
101)	T	1,2,3-Trimethy...	2.393	2.323	2.402	2.474	2.409	2.459	2.392	2.286	2.392	2.62
102)	T	Benzyl chloride	1.817	2.053	1.998	1.881	1.818	1.921	1.831	1.801	1.890	4.95
103)	T	1,2-Dichlorobe...	1.322	1.353	1.378	1.477	1.417	1.453	1.410	1.337	1.393	3.98
104)	T	n-Butylbenzene	2.141	2.184	2.116	2.106	1.965	2.089	1.976	1.942	2.065	4.40
105)	T	Hexachloroethane	0.572	0.561	0.520	0.491	0.467	0.508	0.493	0.490	0.513	7.18
106)	T	1,2-Dibromo-3-...	0.450	0.417	0.428	0.411	0.362	0.382	0.378	0.373	0.400	7.65
107)	T	1,3,5-Trichlor...	0.913	0.902	1.001	1.018	0.906	0.984	0.954	0.922	0.950	4.85
108)	T	1,2,4-Trichlor...	1.097	0.887	0.978	0.986	0.964	0.967	0.976	0.934	0.974	6.10
109)	T	Hexachlorobuta...	0.336	0.312	0.332	0.347	0.319	0.321	0.317	0.318	0.325	3.67
110)	T	Naphthalene	3.706	3.329	3.593	3.625	3.548	3.696	3.501	3.582	3.572	3.37
111)	T	1,2,3-Trichlor...	0.921	0.888	0.989	0.965	0.932	1.009	0.955	0.917	0.947	4.26
112)	T	2-Methylnaphth...	1.715	1.759	1.786	1.840	1.801	1.934	1.922	1.931	1.836	4.62
113)	T	1-Methylnaphth...	1.547	1.661	1.655	1.660	1.713	1.833	1.825	1.793	1.711	5.84
114)	I	Ethyl-d5-Acetate-d3	----------ISTD----------									
115)	T	2-Propanone			1.204	0.840	1.007	0.838	0.737	0.755	0.897	19.88
116)	T	Acetic Ether		2.167	2.915	2.725	2.490	2.583	2.437	2.484	2.543	9.25
117)	T	Isopropyl Acetate		1.267	1.343	1.132	1.108	1.099	1.016	1.048	1.145	10.31
118)	T	Amyl Acetate	3.219	4.118	3.305	3.109	3.208	3.164	2.999	3.066	3.274	10.83

(#) = Out of Range

Partial Calibration Report VMS8

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY35 2 =15MAY36 3 =15MAY37 4 =15MAY38 5 =15MAY39 6 =15MAY40
7 =15MAY41 8 =15MAY42

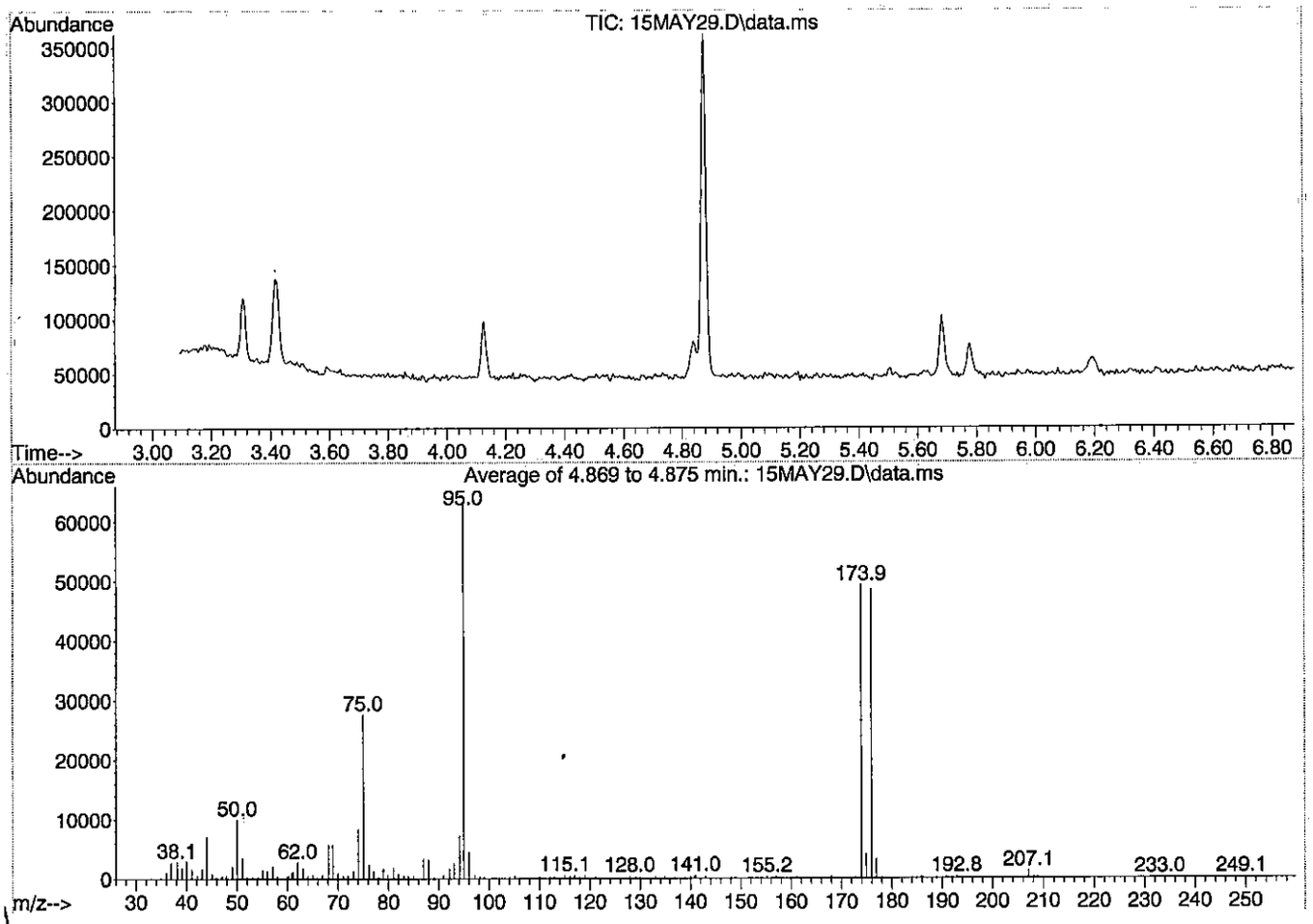
		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	T	Bromomethane	Lin	0.0115	0.1595	-----	0.9936
6)	T	Chloroethane	Quad	0.0477	0.2576	-0.0086	0.9966
9)	T	Acrolein	Lin	0.0110	0.0802	-----	0.9940
12)	T	Methyl iodide	Quad	0.0103	0.3126	-0.0073	0.9983
34)	T	Propionitrile	Lin	0.0023	0.0410	-----	0.9996
40)	I	1,4-Difluorobenzene		----------ISTD----------			
50)	T	Heptane	Lin	0.0035	0.2444	-----	0.9985
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0267	0.0360	-----	0.9994
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			

BFB

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY29.D
Acq On : 15 May 2018 5:56 pm
Operator : EMR
Sample : VBFB7-180515
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0502.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 11:00:13 2018



Spectrum Information: Average of 4.869 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.9	10004	PASS
75	95	30	60	43.9	27608	PASS
95	95	100	100	100.0	62836	PASS
96	95	5	9	7.2	4503	PASS
173	174	0.00	2	0.3	125	PASS
174	95	50	100	78.3	49232	PASS
175	174	5	9	8.4	4114	PASS
176	174	95	101	98.6	48536	PASS
177	176	5	9	6.6	3201	PASS

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	362356	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	542314	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	476055	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	241467	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	108075	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	185610	19.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.70%				
45) 1,2-Dichloroethane-d4	5.164	65	183484	20.34	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.70%				
64) Toluene-d8	7.671	98	627892	20.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.55%				
85) Bromofluorobenzene	9.433	95	221780	20.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4000	0.46	ug/L	#	68
3) Chloromethane	1.282	50	11435	0.68	ug/L	#	61
4) Vinyl chloride	1.353	62	4606m	0.39	ug/L		
5) Bromomethane	1.568	96	4640	0.03	ug/L	#	79
6) Chloroethane	1.668	64	15493	Below Cal			81
7) Trichlorofluoromethane	1.819	101	4357	0.37	ug/L	#	71
8) Ethyl ether	2.019	59	3053	0.42	ug/L		99
9) Acrolein	2.127	56	5327m	Below Cal			
10) 1,1-Dichloroethene	2.198	61	4759m	0.48	ug/L		
11) 1,1,2-Trichlorotrifluo...	2.198	151	2947	0.53	ug/L	#	82
12) Methyl iodide	2.320	142	5631	0.80	ug/L		72
13) Acetone	2.234	43	3835	Below Cal			81
14) Chloroprene	3.373	53	4120	0.38	ug/L	#	91
15) Carbon disulfide	2.392	76	11810	0.56	ug/L		96
16) Allyl chloride	2.492	41	6250	0.48	ug/L	#	79
17) Methyl acetate	2.485	43	5158	0.35	ug/L	#	74
18) Acetonitrile	2.492	41	6250	0.48	ug/L	#	69
19) Methylene chloride	2.614	49	7595	0.61	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	5060	0.46	ug/L	#	72
21) t-Butanol	2.707	59	8426	2.83	ug/L	#	86
22) Acrylonitrile	2.822	53	2496	0.53	ug/L		86
23) Methyl tert-butyl ether	2.850	73	8782	0.34	ug/L		81
24) Hexane	3.137	57	5052m	0.66	ug/L		
25) 1,1-Dichloroethane	3.294	63	7314m	0.49	ug/L		
26) Diisopropyl ether	3.337	45	10337	0.36	ug/L	#	35
27) Vinyl acetate	3.301	86	881m	2.18	ug/L		
28) Ethyl tert butyl ether	3.753	59	9297	0.35	ug/L		94
29) 2,2-Dichloropropane	3.968	77	7677m	0.79	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	6774m	0.48	ug/L		
31) 2-Butanone	3.953	43	10025	0.79	ug/L		95
32) Ethyl Acetate	4.011	43	9022m	0.52	ug/L		
33) Methyl acrylate	4.068	55	5491	0.42	ug/L	#	83
34) Propionitrile	4.763	54	774	0.90	ug/L	#	1

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	3268	0.44 ug/L	89
36) Tetrahydrofuran	4.290	42	1396	0.26 ug/L #	51
37) Methacrylonitrile	4.226	41	2521	0.28 ug/L #	71
38) Chloroform	4.426	83	7644	0.48 ug/L	85
39) Cyclohexane	4.720	56	13134m	0.89 ug/L	
41) 1,1,1-Trichloroethane	4.627	97	9572m	0.80 ug/L	
43) Carbon tetrachloride	4.849	117	4796	0.73 ug/L	84
44) 1,1-Dichloropropene	4.885	75	6479	0.58 ug/L #	63
46) 1,2-Dichloroethane	5.293	62	6250	0.53 ug/L	84
47) Benzene	5.178	78	16047	0.46 ug/L	61
48) Tertiaryamylmethylether	5.450	73	7321	0.30 ug/L #	87
49) Isobutyl Alcohol	5.436	43	2397	0.29 ug/L #	75
50) Heptane	5.758	43	3165m	0.48 ug/L	
51) 1,4-Dioxane	6.826	88	8007	36.56 ug/L #	31
52) Methylcyclohexane	6.647	83	5183	0.46 ug/L	96
53) n-Butanol	6.374	56	2527m	4.20 ug/L	
54) Trichloroethene	6.353	130	4211	0.39 ug/L #	81
55) 1,2-Dichloropropane	6.697	63	5801m	0.60 ug/L	
56) Dibromomethane	6.797	93	2211m	0.32 ug/L	
57) Methyl methacrylate	6.826	41	4845	0.44 ug/L #	73
58) Bromodichloromethane	7.019	83	4830	0.42 ug/L #	52
59) 2-Chloroethyl vinyl ether	7.334	43	1749	0.46 ug/L #	25
60) 2-Nitropropane	7.241	43	3105	0.77 ug/L #	75
61) cis-1,3-Dichloropropene	7.456	75	5972	0.45 ug/L	76
63) 4-Methyl-2-pentanone	7.592	43	5990m	0.37 ug/L	
65) Toluene	7.728	91	14362	0.43 ug/L	91
66) trans-1,3-Dichloropropene	7.943	75	5461	0.45 ug/L #	33
67) Chloropicrin	0.000		0	N.D. d	
68) Ethyl methacrylate	8.000	69	5503	0.41 ug/L #	82
69) 1,1,2-Trichloroethane	8.086	97	5349	0.58 ug/L #	79
70) Tetrachloroethene	8.129	166	3641	0.39 ug/L	89
71) 1,3-Dichloropropane	8.201	76	5672	0.41 ug/L #	55
72) 2-Hexanone	8.251	43	6949	0.55 ug/L	73
73) Chlorodibromomethane	8.351	129	4733	0.47 ug/L	83
74) Butyl acetate	8.344	43	9119	0.44 ug/L #	90
75) 1,2-Dibromoethane	8.430	107	4397	0.43 ug/L #	63
76) Chlorobenzene	8.753	112	9315	0.41 ug/L #	40
77) 1,1,1,2-Tetrachloroethane	8.810	131	4143	0.50 ug/L	89
78) Ethylbenzene	8.817	91	14959	0.41 ug/L	98
79) m/p-Xylene	8.896	91	23658	0.89 ug/L	94
80) Styrene	9.139	104	10268	0.45 ug/L	95
81) o-Xylene	9.125	91	12935	0.45 ug/L	86
82) Cyclohexanone	9.390	55	11280	8.08 ug/L #	90
83) Bromoform	9.247	173	3112	0.38 ug/L	94
84) Isopropylbenzene	9.333	105	15584	0.47 ug/L	92
86) Bromobenzene	9.512	77	7363	0.33 ug/L	97
87) 1,1,2,2-Tetrachloroethane	9.512	83	5743	0.38 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2155m	0.50 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	1979	0.51 ug/L	91
90) n-Propylbenzene	9.562	91	15696	0.39 ug/L	88
91) 2-Chlorotoluene	9.612	91	8897	0.36 ug/L	86

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

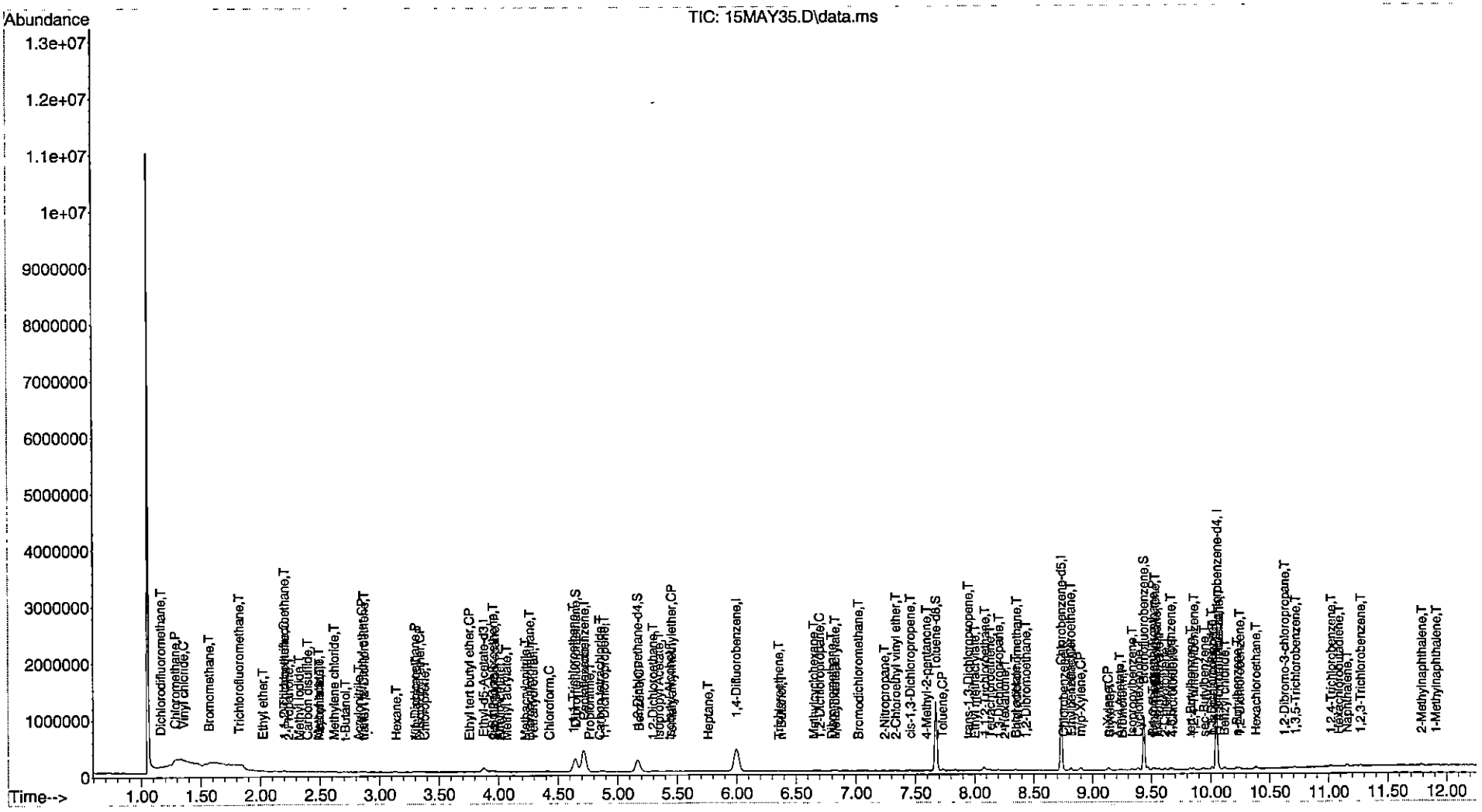
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	11092	0.41	ug/L		98
93) 1,3,5-Trimethylbenzene	9.662	105	10074	0.38	ug/L		90
94) tert-Butylbenzene	9.827	91	7622	0.48	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	12251	0.43	ug/L		92
96) sec-Butylbenzene	9.942	105	14839	0.47	ug/L		92
98) 1,3-Dichlorobenzene	10.006	146	6650	0.37	ug/L		87
99) p-Isopropyltoluene	10.013	119	11607	0.45	ug/L		88
100) 1,4-Dichlorobenzene	10.063	146	6951m	0.38	ug/L		
101) 1,2,3-Trimethylbenzene	10.063	105	11556	0.40	ug/L		95
102) Benzyl chloride	10.114	91	8773	0.65	ug/L		94
103) 1,2-Dichlorobenzene	10.242	146	6385	0.36	ug/L		91
104) n-Butylbenzene	10.221	91	10341m	0.45	ug/L		
105) Hexachloroethane	10.379	117	2764m	0.48	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2171	0.50	ug/L	#	67
107) 1,3,5-Trichlorobenzene	10.715	180	4409	0.36	ug/L	#	92
108) 1,2,4-Trichlorobenzene	11.016	180	5300	0.43	ug/L		94
109) Hexachlorobutadiene	11.081	225	1625	0.41	ug/L	#	81
110) Naphthalene	11.152	128	17898	0.43	ug/L		89
111) 1,2,3-Trichlorobenzene	11.267	180	4447	0.36	ug/L		99
112) 2-Methylnaphthalene	11.783	142	8281	0.43	ug/L		91
113) 1-Methylnaphthalene	11.904	142	7473	0.39	ug/L		85
115) 2-Propanone	2.234	43	5168m	0.25	ug/L		
116) Acetic Ether	4.011	43	11118m	0.55	ug/L		
117) Isopropyl Acetate	5.343	61	718m	0.10	ug/L		
118) Amyl Acetate	9.225	43	6957	0.32	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	345310	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	515573	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	467514	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233707	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	98455	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181076	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery =	101.30%			
45) 1,2-Dichloroethane-d4	5.164	65	176535	20.58	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery =	102.90%			
64) Toluene-d8	7.671	98	603853	20.28	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery =	101.40%			
85) Bromofluorobenzene	9.433	95	219602	20.74	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery =	103.70%			
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4787m	0.58	ug/L		
3) Chloromethane	1.282	50	10899m	0.68	ug/L		
4) Vinyl chloride	1.353	62	6139	0.55	ug/L	#	1
5) Bromomethane	1.568	96	5570m	0.17	ug/L		
6) Chloroethane	1.640	64	11699m	Below Cal			
7) Trichlorofluoromethane	1.812	101	6510	0.57	ug/L		90
8) Ethyl ether	2.019	59	5583	0.81	ug/L		87
9) Acrolein	2.127	56	7885	Below Cal		#	60
10) 1,1-Dichloroethene	2.199	61	6603	0.70	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	3831	0.72	ug/L		91
12) Methyl iodide	2.327	142	6226	0.90	ug/L		98
13) Acetone	2.234	43	3840	0.02	ug/L		67
14) Chloroprene	3.373	53	6459	0.63	ug/L	#	87
15) Carbon disulfide	2.392	76	12358	0.62	ug/L		45
16) Allyl chloride	2.499	41	7862	0.64	ug/L	#	80
17) Methyl acetate	2.485	43	13185m	0.93	ug/L		
18) Acetonitrile	2.499	41	7548m	0.61	ug/L		
19) Methylene chloride	2.607	49	8475	0.71	ug/L		90
20) trans-1,2-Dichloroethene	2.858	61	7336	0.69	ug/L		93
21) t-Butanol	2.700	59	6622	2.34	ug/L	#	65
22) Acrylonitrile	2.836	53	2890m	0.62	ug/L		
23) Methyl tert-butyl ether	2.850	73	12843	0.52	ug/L		93
24) Hexane	3.130	57	5801m	0.79	ug/L		
25) 1,1-Dichloroethane	3.302	63	9239	0.65	ug/L		84
26) Diisopropyl ether	3.330	45	13874	0.51	ug/L	#	57
27) Vinyl acetate	3.309	86	1195	2.61	ug/L	#	18
28) Ethyl tert butyl ether	3.753	59	15061	0.60	ug/L		97
29) 2,2-Dichloropropane	3.961	77	8226m	0.88	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	8607m	0.64	ug/L		
31) 2-Butanone	3.968	43	15629	1.50	ug/L		94
32) Ethyl Acetate	4.011	43	6401	0.39	ug/L		98
33) Methyl acrylate	4.075	55	8346	0.68	ug/L	#	69
34) Propionitrile	4.741	54	593	0.72	ug/L	#	1

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	4924	0.69 ug/L	85
36) Tetrahydrofuran	4.290	42	6345	1.23 ug/L #	75
37) Methacrylonitrile	4.219	41	4179	0.49 ug/L #	55
38) Chloroform	4.419	83	10099	0.66 ug/L	98
39) Cyclohexane	4.720	56	12704m	0.91 ug/L	
41) 1,1,1-Trichloroethane	4.641	97	7259	0.64 ug/L #	73
43) Carbon tetrachloride	4.863	117	5153	0.79 ug/L #	61
44) 1,1-Dichloropropene	4.885	75	6130	0.58 ug/L	78
46) 1,2-Dichloroethane	5.293	62	7790	0.70 ug/L	86
47) Benzene	5.178	78	19660	0.59 ug/L	72
48) Tertiaryamylmethylether	5.451	73	14077	0.60 ug/L #	72
49) Isobutyl Alcohol	5.451	43	4184m	0.53 ug/L	
50) Heptane	5.773	43	6485m	1.03 ug/L	
51) 1,4-Dioxane	6.826	88	9467	45.47 ug/L	93
52) Methylcyclohexane	6.647	83	8165	0.76 ug/L	89
53) n-Butanol	6.332	56	1220m	2.13 ug/L	
54) Trichloroethene	6.360	130	6299	0.62 ug/L	94
55) 1,2-Dichloropropane	6.697	63	6821m	0.74 ug/L	
56) Dibromomethane	6.804	93	5481	0.83 ug/L #	79
57) Methyl methacrylate	6.826	41	7181	0.68 ug/L	92
58) Bromodichloromethane	7.026	83	7390	0.67 ug/L #	86
59) 2-Chloroethyl vinyl ether	7.334	43	5262	1.47 ug/L #	66
60) 2-Nitropropane	7.248	43	3515	0.92 ug/L #	70
61) cis-1,3-Dichloropropene	7.456	75	8714m	0.69 ug/L	
63) 4-Methyl-2-pentanone	7.592	43	10970	0.69 ug/L	94
65) Toluene	7.728	91	18987	0.58 ug/L	93
66) trans-1,3-Dichloropropene	7.943	75	8402m	0.70 ug/L	
67) Chloropicrin	7.943	117	791	No Calib	
68) Ethyl methacrylate	8.001	69	10840	0.82 ug/L	90
69) 1,1,2-Trichloroethane	8.087	97	7186	0.79 ug/L #	82
70) Tetrachloroethene	8.130	166	5245	0.58 ug/L	91
71) 1,3-Dichloropropane	8.201	76	9893	0.73 ug/L	92
72) 2-Hexanone	8.251	43	8521m	0.69 ug/L	
73) Chlorodibromomethane	8.352	129	5905	0.60 ug/L #	80
74) Butyl acetate	8.344	43	12702	0.62 ug/L #	89
75) 1,2-Dibromoethane	8.430	107	5761	0.57 ug/L	81
76) Chlorobenzene	8.753	112	13453m	0.60 ug/L	
77) 1,1,1,2-Tetrachloroethane	8.810	131	5086	0.62 ug/L #	84
78) Ethylbenzene	8.817	91	20617	0.58 ug/L	93
79) m/p-Xylene	8.896	91	29748	1.14 ug/L	88
80) Styrene	9.140	104	13290	0.59 ug/L	100
81) o-Xylene	9.125	91	16437	0.58 ug/L	92
82) Cyclohexanone	9.390	55	14288	10.42 ug/L	95
83) Bromoform	9.254	173	4420	0.55 ug/L	84
84) Isopropylbenzene	9.333	105	19744	0.61 ug/L	99
86) Bromobenzene	9.512	77	14391	0.66 ug/L	86
87) 1,1,2,2-Tetrachloroethane	9.512	83	9841	0.67 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2844m	0.67 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	2720	0.72 ug/L	87
90) n-Propylbenzene	9.562	91	21983	0.56 ug/L	97
91) 2-Chlorotoluene	9.612	91	14363m	0.59 ug/L	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

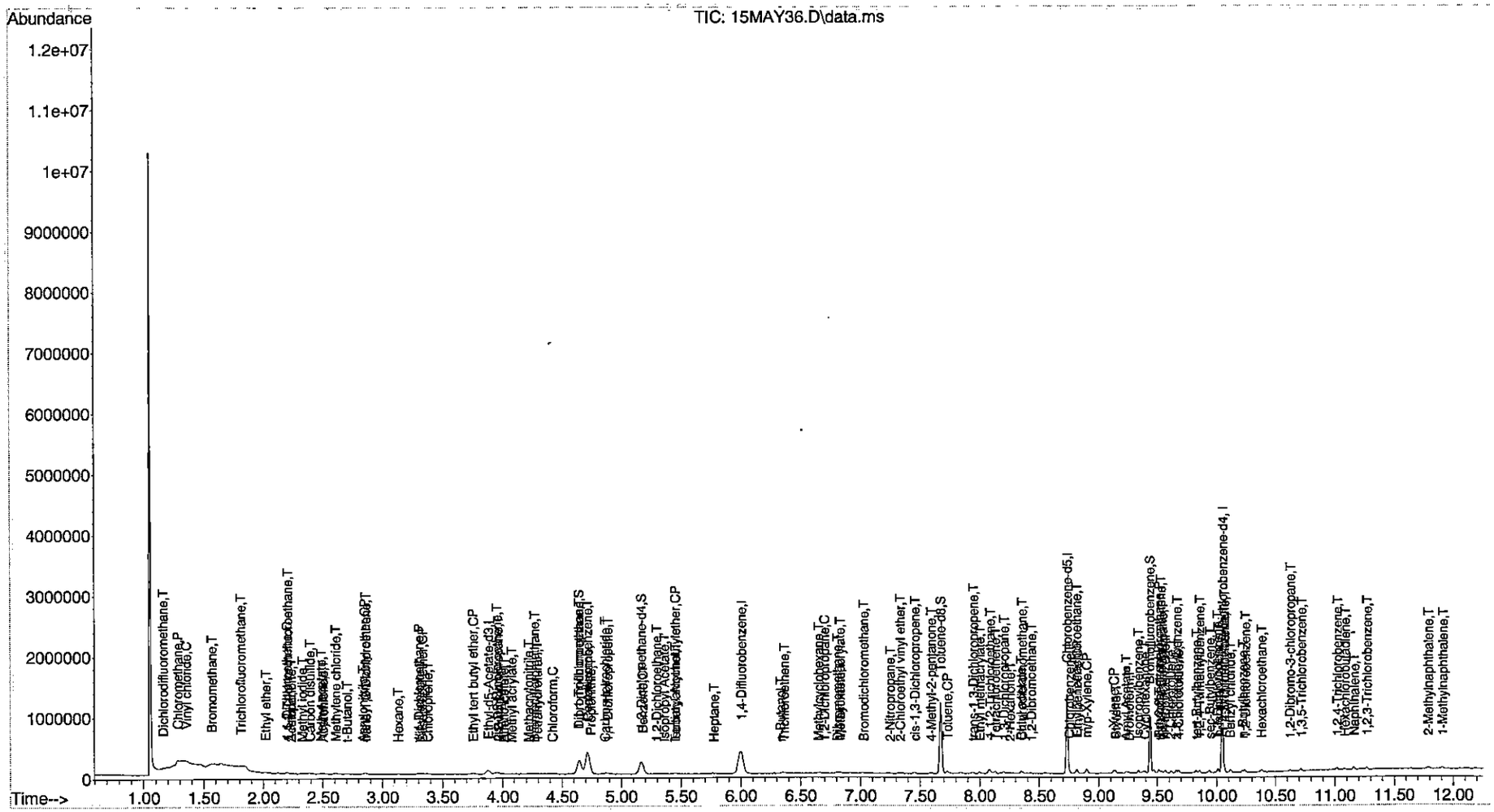
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	17542	0.65	ug/L		93
93) 1,3,5-Trimethylbenzene	9.662	105	16806	0.65	ug/L		91
94) tert-Butylbenzene	9.827	91	10190	0.66	ug/L		82
95) 1,2,4-Trimethylbenzene	9.856	105	16805	0.60	ug/L		97
96) sec-Butylbenzene	9.942	105	18937	0.61	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	9653	0.55	ug/L		94
99) p-Isopropyltoluene	10.013	119	14791	0.59	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	9726m	0.55	ug/L		
101) 1,2,3-Trimethylbenzene	10.064	105	16288	0.58	ug/L		95
102) Benzyl chloride	10.114	91	14397m	1.10	ug/L		
103) 1,2-Dichlorobenzene	10.243	146	9485	0.55	ug/L		90
104) n-Butylbenzene	10.221	91	15309	0.68	ug/L		96
105) Hexachloroethane	10.379	117	3935m	0.70	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2921	0.70	ug/L		88
107) 1,3,5-Trichlorobenzene	10.715	180	6327	0.54	ug/L		95
108) 1,2,4-Trichlorobenzene	11.016	180	6221	0.52	ug/L		90
109) Hexachlorobutadiene	11.081	225	2187	0.56	ug/L	#	88
110) Naphthalene	11.160	128	23337	0.58	ug/L		94
111) 1,2,3-Trichlorobenzene	11.267	180	6224	0.53	ug/L		85
112) 2-Methylnaphthalene	11.783	142	12334	0.65	ug/L		96
113) 1-Methylnaphthalene	11.904	142	11647	0.63	ug/L		98
115) 2-Propanone	2.234	43	6529m	0.55	ug/L		
116) Acetic Ether	4.011	43	6401	0.35	ug/L	#	81
117) Isopropyl Acetate	5.357	61	3741m	0.55	ug/L		
118) Amyl Acetate	9.225	43	12164	0.61	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341663	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	510208	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	459357	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233694	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	101741	20.00	ug/L		-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	176770	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%				
45) 1,2-Dichloroethane-d4	5.164	65	175827	20.71	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.55%				
64) Toluene-d8	7.671	98	600091	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.60%				
85) Bromofluorobenzene	9.433	95	217812	20.94	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	16254	1.99	ug/L		94
3) Chloromethane	1.282	50	28443	1.80	ug/L		93
4) Vinyl chloride	1.353	62	16967	1.53	ug/L	#	60
5) Bromomethane	1.568	96	9751	0.68	ug/L	#	27
6) Chloroethane	1.633	64	23107	Below Cal		#	72
7) Trichlorofluoromethane	1.819	101	19126	1.71	ug/L		92
8) Ethyl ether	2.019	59	14499m	2.13	ug/L		
9) Acrolein	2.127	56	20791	9.56	ug/L		91
10) 1,1-Dichloroethene	2.199	61	22302	2.39	ug/L		92
11) 1,1,2-Trichlorotrifluo...	2.206	151	10738	2.05	ug/L		93
12) Methyl iodide	2.328	142	16131m	2.06	ug/L		
13) Acetone	2.242	43	12253	1.58	ug/L		78
14) Chloroprene	3.373	53	22327	2.19	ug/L	#	93
15) Carbon disulfide	2.385	76	47429	2.39	ug/L		95
16) Allyl chloride	2.499	41	23371	1.91	ug/L		88
17) Methyl acetate	2.485	43	23390	1.67	ug/L	#	90
18) Acetonitrile	2.499	41	23371	1.91	ug/L	#	86
19) Methylene chloride	2.607	49	23407	1.98	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	23150	2.21	ug/L		97
21) t-Butanol	2.729	59	27826	9.92	ug/L	#	87
22) Acrylonitrile	2.822	53	10448	1.96	ug/L		94
23) Methyl tert-butyl ether	2.850	73	43359	1.77	ug/L		98
24) Hexane	3.130	57	18410	2.54	ug/L	#	78
25) 1,1-Dichloroethane	3.295	63	32867	2.35	ug/L		95
26) Diisopropyl ether	3.337	45	46820	1.74	ug/L	#	15
27) Vinyl acetate	3.295	86	3336	5.24	ug/L	#	31
28) Ethyl tert butyl ether	3.746	59	46588	1.88	ug/L		96
29) 2,2-Dichloropropane	3.961	77	22212	2.41	ug/L		93
30) cis-1,2-Dichloroethene	3.954	61	24889	1.86	ug/L		95
31) 2-Butanone	3.954	43	21848	2.25	ug/L		88
32) Ethyl Acetate	4.011	43	29654	1.81	ug/L		98
33) Methyl acrylate	4.068	55	24748	2.03	ug/L	#	88
34) Propionitrile	4.749	54	2077	2.56	ug/L	#	1

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	13503	1.92	ug/L		96
36) Tetrahydrofuran	4.290	42	9602	1.88	ug/L		76
37) Methacrylonitrile	4.226	41	17748	2.11	ug/L		90
38) Chloroform	4.419	83	32339	2.15	ug/L		97
39) Cyclohexane	4.727	56	30864	2.23	ug/L	#	79
41) 1,1,1-Trichloroethane	4.634	97	24366	2.16	ug/L		95
43) Carbon tetrachloride	4.863	117	21310	2.34	ug/L		95
44) 1,1-Dichloropropene	4.885	75	23127	2.22	ug/L		88
46) 1,2-Dichloroethane	5.293	62	22372	2.03	ug/L		96
47) Benzene	5.186	78	65749	2.00	ug/L		94
48) Tertiaryamylmethylether	5.451	73	45975	1.98	ug/L	#	91
49) Isobutyl Alcohol	5.443	43	18503	2.39	ug/L	#	58
50) Heptane	5.759	43	16149	2.59	ug/L		95
51) 1,4-Dioxane	6.826	88	37712	183.02	ug/L		97
52) Methylcyclohexane	6.654	83	20710m	1.95	ug/L		
53) n-Butanol	6.382	56	11429m	20.20	ug/L		
54) Trichloroethene	6.353	130	19494	1.93	ug/L		96
55) 1,2-Dichloropropane	6.697	63	20251	2.23	ug/L		93
56) Dibromomethane	6.797	93	13565	2.06	ug/L		90
57) Methyl methacrylate	6.826	41	21614	2.07	ug/L	#	88
58) Bromodichloromethane	7.019	83	24814	2.27	ug/L		93
59) 2-Chloroethyl vinyl ether	7.334	43	10479	2.95	ug/L	#	82
60) 2-Nitropropane	7.241	43	9866	2.61	ug/L	#	91
61) cis-1,3-Dichloropropene	7.449	75	28961	2.31	ug/L		88
63) 4-Methyl-2-pentanone	7.592	43	25870	1.67	ug/L		93
65) Toluene	7.728	91	66695	2.06	ug/L		96
66) trans-1,3-Dichloropropene	7.943	75	27490	2.32	ug/L		91
67) Chloropicrin	7.950	117	729	No Calib			
68) Ethyl methacrylate	8.001	69	29786	2.31	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	19396	2.17	ug/L		99
70) Tetrachloroethene	8.130	166	17532	1.96	ug/L		90
71) 1,3-Dichloropropane	8.201	76	27398	2.06	ug/L		93
72) 2-Hexanone	8.251	43	22109	1.83	ug/L		93
73) Chlorodibromomethane	8.352	129	22518	2.32	ug/L		99
74) Butyl acetate	8.344	43	36363	1.82	ug/L	#	90
75) 1,2-Dibromoethane	8.423	107	22535	2.27	ug/L		94
76) Chlorobenzene	8.753	112	47771	2.18	ug/L		93
77) 1,1,1,2-Tetrachloroethane	8.810	131	18207	2.26	ug/L		92
78) Ethylbenzene	8.817	91	74547	2.13	ug/L		100
79) m/p-Xylene	8.896	91	110316	4.29	ug/L		100
80) Styrene	9.140	104	47340	2.14	ug/L		96
81) o-Xylene	9.125	91	57643	2.07	ug/L		96
82) Cyclohexanone	9.390	55	21381	15.87	ug/L		92
83) Bromoform	9.247	173	15750	1.98	ug/L		100
84) Isopropylbenzene	9.333	105	66713	2.10	ug/L		98
86) Bromobenzene	9.512	77	43059	2.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	30581	2.11	ug/L		96
88) 1,2,3-Trichloropropane	9.541	110	7695	1.83	ug/L		89
89) trans-1,4-Dichloro-2-b...	9.526	53	10014	2.68	ug/L		82
90) n-Propylbenzene	9.562	91	81080	2.11	ug/L		97
91) 2-Chlorotoluene	9.612	91	49680	2.09	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

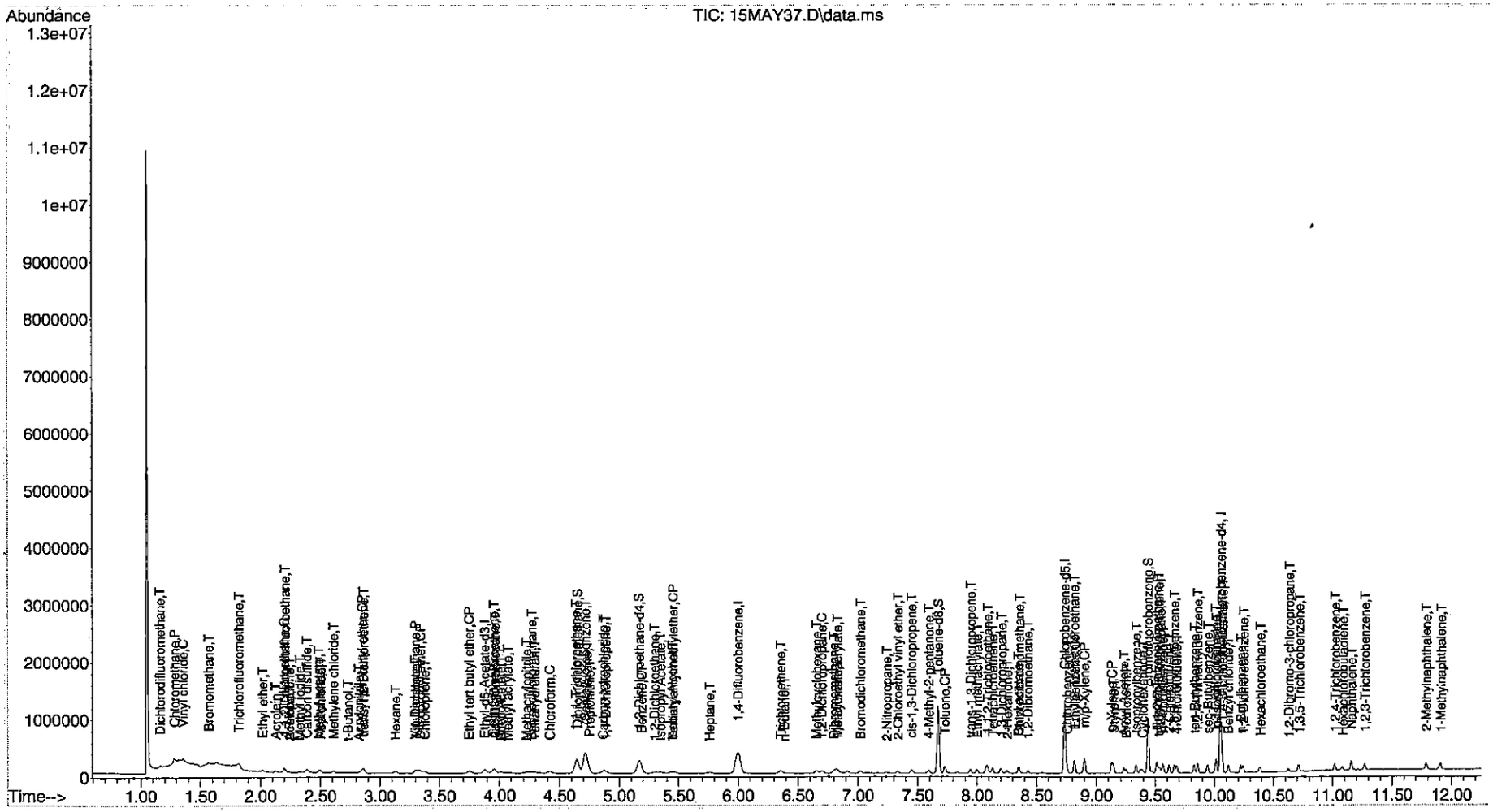
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	53475	2.03	ug/L		99
93) 1,3,5-Trimethylbenzene	9.655	105	55251	2.18	ug/L		96
94) tert-Butylbenzene	9.827	91	31106	2.05	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	58428	2.11	ug/L		94
96) sec-Butylbenzene	9.942	105	63838	2.08	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	33229	1.91	ug/L		97
99) p-Isopropyltoluene	10.013	119	55838	2.25	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	34169	1.93	ug/L		91
101) 1,2,3-Trimethylbenzene	10.064	105	56130	2.00	ug/L		96
102) Benzyl chloride	10.114	91	46703	3.58	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	32202	1.87	ug/L		91
104) n-Butylbenzene	10.221	91	49453	2.21	ug/L		100
105) Hexachloroethane	10.386	117	12149	2.17	ug/L		92
106) 1,2-Dibromo-3-chloropr...	10.629	157	9991	2.40	ug/L		99
107) 1,3,5-Trichlorobenzene	10.715	180	23403	2.00	ug/L		100
108) 1,2,4-Trichlorobenzene	11.016	180	22850	1.90	ug/L		99
109) Hexachlorobutadiene	11.081	225	7764	2.00	ug/L		92
110) Naphthalene	11.152	128	83966	2.09	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	23116	1.95	ug/L		94
112) 2-Methylnaphthalene	11.783	142	41741	2.22	ug/L		96
113) 1-Methylnaphthalene	11.904	142	38682	2.09	ug/L		97
115) 2-Propanone	2.242	43	12253	1.42	ug/L	#	77
116) Acetic Ether	4.011	43	29654	1.55	ug/L	#	81
117) Isopropyl Acetate	5.343	61	13666	1.93	ug/L	#	75
118) Amyl Acetate	9.226	43	33626	1.64	ug/L		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	352448	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	529324	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	477074	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	237433	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109613	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182632	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	177885	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	615517	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	221934	20.54	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	31607	3.74	ug/L		99
3) Chloromethane	1.282	50	48735	2.99	ug/L		90
4) Vinyl chloride	1.353	62	37796	3.31	ug/L	#	38
5) Bromomethane	1.568	96	16036	1.39	ug/L		90
6) Chloroethane	1.640	64	39671	1.21	ug/L	#	61
7) Trichlorofluoromethane	1.812	101	38338	3.31	ug/L		97
8) Ethyl ether	2.019	59	27155	3.86	ug/L		97
9) Acrolein	2.127	56	37040	31.38	ug/L		92
10) 1,1-Dichloroethene	2.199	61	41216	4.28	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.206	151	23118	4.27	ug/L		98
12) Methyl iodide	2.327	142	28724	3.45	ug/L		95
13) Acetone	2.234	43	18409	2.60	ug/L		95
14) Chloroprene	3.373	53	45447	4.31	ug/L		99
15) Carbon disulfide	2.392	76	90839	4.44	ug/L		98
16) Allyl chloride	2.499	41	48925	3.88	ug/L		87
17) Methyl acetate	2.485	43	46105	3.19	ug/L	#	95
18) Acetonitrile	2.499	41	48925	3.88	ug/L		89
19) Methylene chloride	2.607	49	43239	3.55	ug/L		92
20) trans-1,2-Dichloroethene	2.858	61	45556	4.21	ug/L		97
21) t-Butanol	2.729	59	48671	16.82	ug/L	#	76
22) Acrylonitrile	2.822	53	21858	3.87	ug/L		91
23) Methyl tert-butyl ether	2.850	73	92128	3.64	ug/L		97
24) Hexane	3.130	57	32991	4.41	ug/L		94
25) 1,1-Dichloroethane	3.294	63	62323	4.33	ug/L		96
26) Diisopropyl ether	3.337	45	94027	3.38	ug/L	#	23
27) Vinyl acetate	3.302	86	5659	7.82	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	91455	3.59	ug/L		96
29) 2,2-Dichloropropane	3.961	77	44197	4.66	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	53356	3.87	ug/L		99
31) 2-Butanone	3.953	43	35378	3.71	ug/L		90
32) Ethyl Acetate	4.011	43	56163	3.33	ug/L	#	94
33) Methyl acrylate	4.068	55	49635	3.94	ug/L		96
34) Propionitrile	4.741	54	4584	5.47	ug/L	#	81

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.261	49	28260	3.89	ug/L		95
36) Tetrahydrofuran	4.283	42	19978	3.79	ug/L		96
37) Methacrylonitrile	4.226	41	30082	3.47	ug/L	#	92
38) Chloroform	4.412	83	61043	3.93	ug/L		99
39) Cyclohexane	4.734	56	52815	3.69	ug/L	#	88
41) 1,1,1-Trichloroethane	4.634	97	51689	4.41	ug/L		90
43) Carbon tetrachloride	4.863	117	42414	4.20	ug/L		97
44) 1,1-Dichloropropene	4.878	75	47608	4.40	ug/L		97
46) 1,2-Dichloroethane	5.293	62	44292	3.87	ug/L		97
47) Benzene	5.186	78	134612	3.96	ug/L		95
48) Tertiaryamylmethylether	5.451	73	90754	3.76	ug/L		94
49) Isobutyl Alcohol	5.451	43	33041	4.11	ug/L		93
50) Heptane	5.759	43	30311	4.68	ug/L		96
51) 1,4-Dioxane	6.826	88	73339	343.07	ug/L		88
52) Methylcyclohexane	6.654	83	47485	4.30	ug/L		97
53) n-Butanol	6.360	56	22872	38.96	ug/L	#	71
54) Trichloroethene	6.360	130	36432	3.48	ug/L		96
55) 1,2-Dichloropropane	6.704	63	39705m	4.22	ug/L		
56) Dibromomethane	6.797	93	31188	4.57	ug/L		91
57) Methyl methacrylate	6.826	41	43259	3.99	ug/L		99
58) Bromodichloromethane	7.019	83	49614	4.37	ug/L		97
59) 2-Chloroethyl vinyl ether	7.327	43	17369	4.72	ug/L		90
60) 2-Nitropropane	7.241	43	19148	4.88	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	57823	4.44	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	63747	3.95	ug/L		95
65) Toluene	7.728	91	142128	4.23	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	54813	4.46	ug/L		86
67) Chloropicrin	7.950	117	896	No Calib		#	
68) Ethyl methacrylate	8.001	69	58066	4.33	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	37097	4.00	ug/L		99
70) Tetrachloroethene	8.130	166	37079	3.99	ug/L		97
71) 1,3-Dichloropropane	8.201	76	55249	3.99	ug/L		95
72) 2-Hexanone	8.251	43	44283	3.53	ug/L		92
73) Chlorodibromomethane	8.352	129	42511	4.22	ug/L		96
74) Butyl acetate	8.344	43	78027	3.75	ug/L	#	96
75) 1,2-Dibromoethane	8.423	107	41675	4.05	ug/L		98
76) Chlorobenzene	8.753	112	93850	4.12	ug/L		94
77) 1,1,1,2-Tetrachloroethane	8.810	131	34887	4.17	ug/L		97
78) Ethylbenzene	8.817	91	148591	4.08	ug/L		99
79) m/p-Xylene	8.896	91	230052	8.61	ug/L		98
80) Styrene	9.140	104	94891	4.13	ug/L		95
81) o-Xylene	9.125	91	119371	4.13	ug/L		100
82) Cyclohexanone	9.390	55	28261	20.19	ug/L		95
83) Bromoform	9.247	173	32567	3.94	ug/L		93
84) Isopropylbenzene	9.333	105	143269	4.34	ug/L		100
86) Bromobenzene	9.512	77	89162	4.02	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	63732	4.23	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	17461	4.00	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	16630	4.29	ug/L		96
90) n-Propylbenzene	9.562	91	163425	4.10	ug/L		96
91) 2-Chlorotoluene	9.612	91	97397	3.94	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

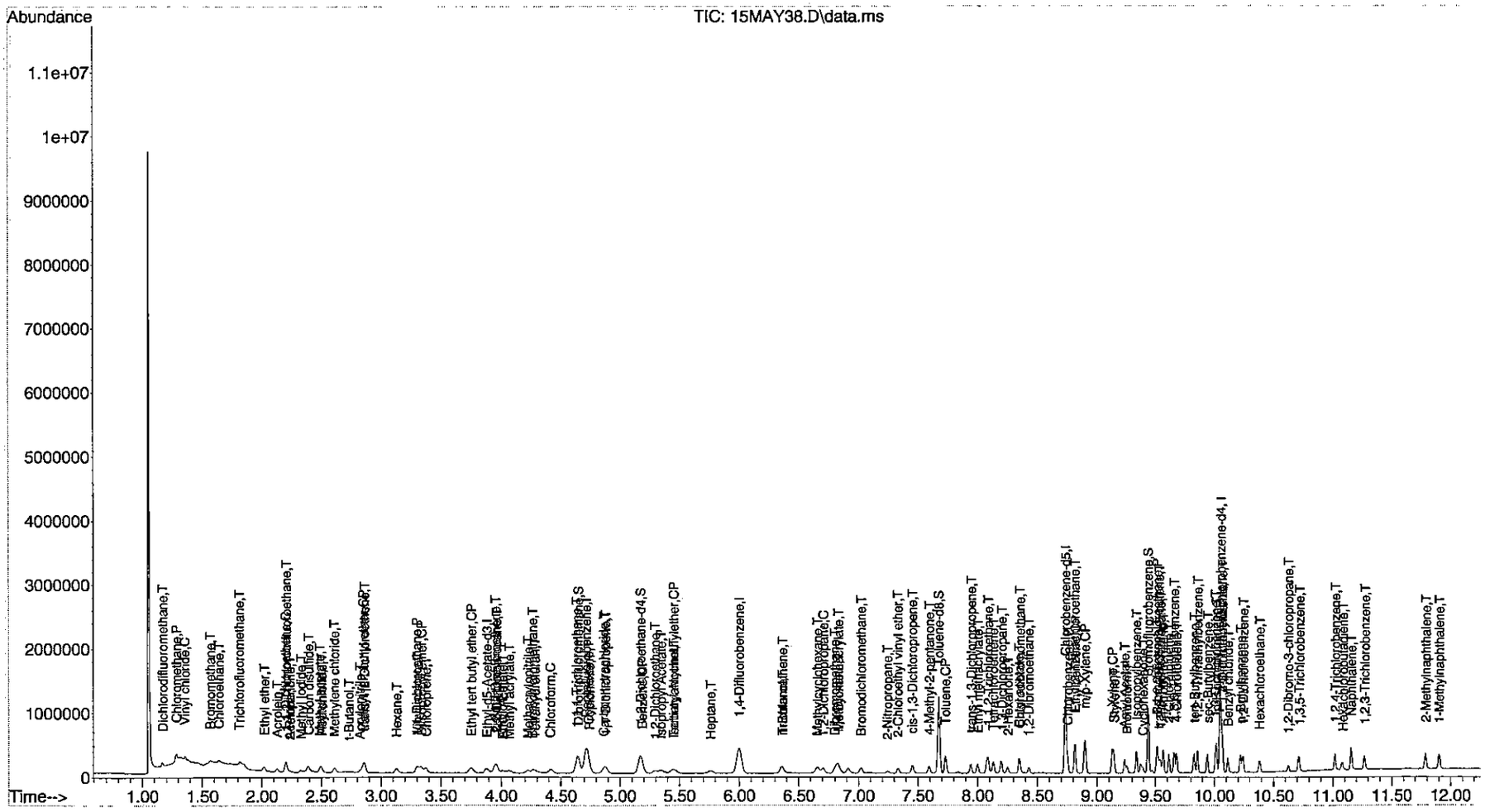
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	115808	4.23	ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	117494	4.46	ug/L	97
94) tert-Butylbenzene	9.827	91	65724	4.17	ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	118426	4.12	ug/L	98
96) sec-Butylbenzene	9.942	105	133408	4.19	ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	70068	3.96	ug/L	99
99) p-Isopropyltoluene	10.013	119	108637	4.30	ug/L	97
100) 1,4-Dichlorobenzene	10.064	146	71386	3.98	ug/L	96
101) 1,2,3-Trimethylbenzene	10.064	105	117499	4.12	ug/L	99
102) Benzyl chloride	10.114	91	89346	6.73	ug/L	99
103) 1,2-Dichlorobenzene	10.243	146	70158	4.02	ug/L	97
104) n-Butylbenzene	10.221	91	100030	4.40	ug/L	99
105) Hexachloroethane	10.379	117	23315	4.09	ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.622	157	19528	4.62	ug/L	96
107) 1,3,5-Trichlorobenzene	10.715	180	48362	4.06	ug/L	95
108) 1,2,4-Trichlorobenzene	11.016	180	46830	3.84	ug/L	99
109) Hexachlorobutadiene	11.081	225	16475	4.18	ug/L	98
110) Naphthalene	11.152	128	172129	4.21	ug/L	100
111) 1,2,3-Trichlorobenzene	11.267	180	45843	3.81	ug/L	97
112) 2-Methylnaphthalene	11.783	142	87362	4.57	ug/L	98
113) 1-Methylnaphthalene	11.897	142	78822	4.19	ug/L	96
115) 2-Propanone	2.234	43	18409	2.19	ug/L	93
116) Acetic Ether	4.011	43	59749m	2.89	ug/L	
117) Isopropyl Acetate	5.343	61	24808	3.26	ug/L	95
118) Amyl Acetate	9.225	43	68161	3.09	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	340633	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	517885	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	468070	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	240783	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	106804	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181506	20.21	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.05%				
45) 1,2-Dichloroethane-d4	5.164	65	172360	20.00	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.00%				
64) Toluene-d8	7.671	98	604887	20.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.50%				
85) Bromofluorobenzene	9.433	95	221410	20.89	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	76432	9.36	ug/L		96
3) Chloromethane	1.282	50	112231	7.12	ug/L		96
4) Vinyl chloride	1.353	62	89186	8.08	ug/L		71
5) Bromomethane	1.568	96	33561	3.61	ug/L		97
6) Chloroethane	1.640	64	57603	4.42	ug/L		92
7) Trichlorofluoromethane	1.819	101	86710	7.76	ug/L		99
8) Ethyl ether	2.019	59	65726	9.68	ug/L		93
9) Acrolein	2.127	56	87651	102.52	ug/L		97
10) 1,1-Dichloroethene	2.198	61	100483	10.79	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.198	151	52662	10.07	ug/L		97
12) Methyl iodide	2.320	142	58645	7.20	ug/L		99
13) Acetone	2.234	43	53777m	9.23	ug/L		
14) Chloroprene	3.373	53	104594	10.27	ug/L		99
15) Carbon disulfide	2.385	76	210877	10.67	ug/L		98
16) Allyl chloride	2.499	41	116161	9.54	ug/L		94
17) Methyl acetate	2.485	43	101331	7.25	ug/L	#	94
18) Acetonitrile	2.499	41	116161	9.54	ug/L	#	95
19) Methylene chloride	2.607	49	102482	8.71	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	108673	10.40	ug/L		96
21) t-Butanol	2.721	59	119445m	42.70	ug/L		
22) Acrylonitrile	2.822	53	51538	9.29	ug/L		94
23) Methyl tert-butyl ether	2.850	73	214910	8.80	ug/L		100
24) Hexane	3.130	57	79672	11.01	ug/L		96
25) 1,1-Dichloroethane	3.301	63	150448	10.81	ug/L		98
26) Diisopropyl ether	3.330	45	221540	8.24	ug/L	#	17
27) Vinyl acetate	3.294	86	13926	17.71	ug/L	#	1
28) Ethyl tert butyl ether	3.746	59	222810	9.04	ug/L		100
29) 2,2-Dichloropropane	3.961	77	106004	11.56	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	128063	9.61	ug/L		97
31) 2-Butanone	3.953	43	78637	8.93	ug/L		98
32) Ethyl Acetate	4.011	43	132948	8.16	ug/L		95
33) Methyl acrylate	4.068	55	124673	10.24	ug/L	#	96
34) Propionitrile	4.741	54	7327	9.05	ug/L	#	71

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	67233	9.59	ug/L		99
36) Tetrahydrofuran	4.290	42	46966	9.22	ug/L		92
37) Methacrylonitrile	4.218	41	77818	9.28	ug/L		95
38) Chloroform	4.419	83	146546	9.76	ug/L		99
39) Cyclohexane	4.734	56	120921	8.75	ug/L		96
41) 1,1,1-Trichloroethane	4.634	97	122214	10.67	ug/L		98
43) Carbon tetrachloride	4.863	117	100287	9.73	ug/L		98
44) 1,1-Dichloropropene	4.877	75	107449	10.14	ug/L		98
46) 1,2-Dichloroethane	5.293	62	107657	9.61	ug/L		97
47) Benzene	5.178	78	314962	9.46	ug/L		99
48) Tertiaryamylmethylether	5.458	73	219892	9.31	ug/L		98
49) Isobutyl Alcohol	5.450	43	67516	8.59	ug/L		99
50) Heptane	5.758	43	68974	10.88	ug/L		95
51) 1,4-Dioxane	6.826	88	192256	919.22	ug/L		92
52) Methylcyclohexane	6.654	83	109298	10.13	ug/L		98
53) n-Butanol	6.367	56	55250	96.20	ug/L	#	95
54) Trichloroethene	6.353	130	88762	8.67	ug/L		99
55) 1,2-Dichloropropane	6.704	63	87483	9.51	ug/L		98
56) Dibromomethane	6.797	93	66312	9.94	ug/L		99
57) Methyl methacrylate	6.819	41	104038	9.82	ug/L		98
58) Bromodichloromethane	7.019	83	119836	10.80	ug/L		96
59) 2-Chloroethyl vinyl ether	7.334	43	45490	12.63	ug/L		99
60) 2-Nitropropane	7.241	43	43718	11.39	ug/L	#	94
61) cis-1,3-Dichloropropene	7.449	75	142406	11.17	ug/L		98
63) 4-Methyl-2-pentanone	7.592	43	137218	8.68	ug/L		98
65) Toluene	7.728	91	334782	10.16	ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	135420	11.23	ug/L		99
67) Chloropicrin	7.950	117	1907	No Calib		#	
68) Ethyl methacrylate	8.000	69	138970	10.56	ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	90318	9.91	ug/L		99
70) Tetrachloroethene	8.129	166	88639	9.72	ug/L		97
71) 1,3-Dichloropropane	8.201	76	136286	10.04	ug/L		97
72) 2-Hexanone	8.251	43	110634	8.98	ug/L		96
73) Chlorodibromomethane	8.351	129	103601	10.48	ug/L		98
74) Butyl acetate	8.344	43	177057	8.68	ug/L		96
75) 1,2-Dibromoethane	8.423	107	98887	9.79	ug/L		96
76) Chlorobenzene	8.753	112	222506	9.95	ug/L		96
77) 1,1,1,2-Tetrachloroethane	8.810	131	85054	10.35	ug/L		98
78) Ethylbenzene	8.817	91	353024	9.89	ug/L		100
79) m/p-Xylene	8.896	91	538211	20.52	ug/L		99
80) Styrene	9.139	104	229206	10.16	ug/L		96
81) o-Xylene	9.125	91	290111	10.23	ug/L		96
82) Cyclohexanone	9.390	55	50345	36.67	ug/L		96
83) Bromoform	9.247	173	82555	10.17	ug/L		95
84) Isopropylbenzene	9.333	105	336657	10.40	ug/L		98
86) Bromobenzene	9.512	77	213637	9.81	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	154100	10.43	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	39605	9.25	ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	38105	10.02	ug/L		93
90) n-Propylbenzene	9.562	91	394365	10.08	ug/L		97
91) 2-Chlorotoluene	9.612	91	234330	9.67	ug/L		93

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

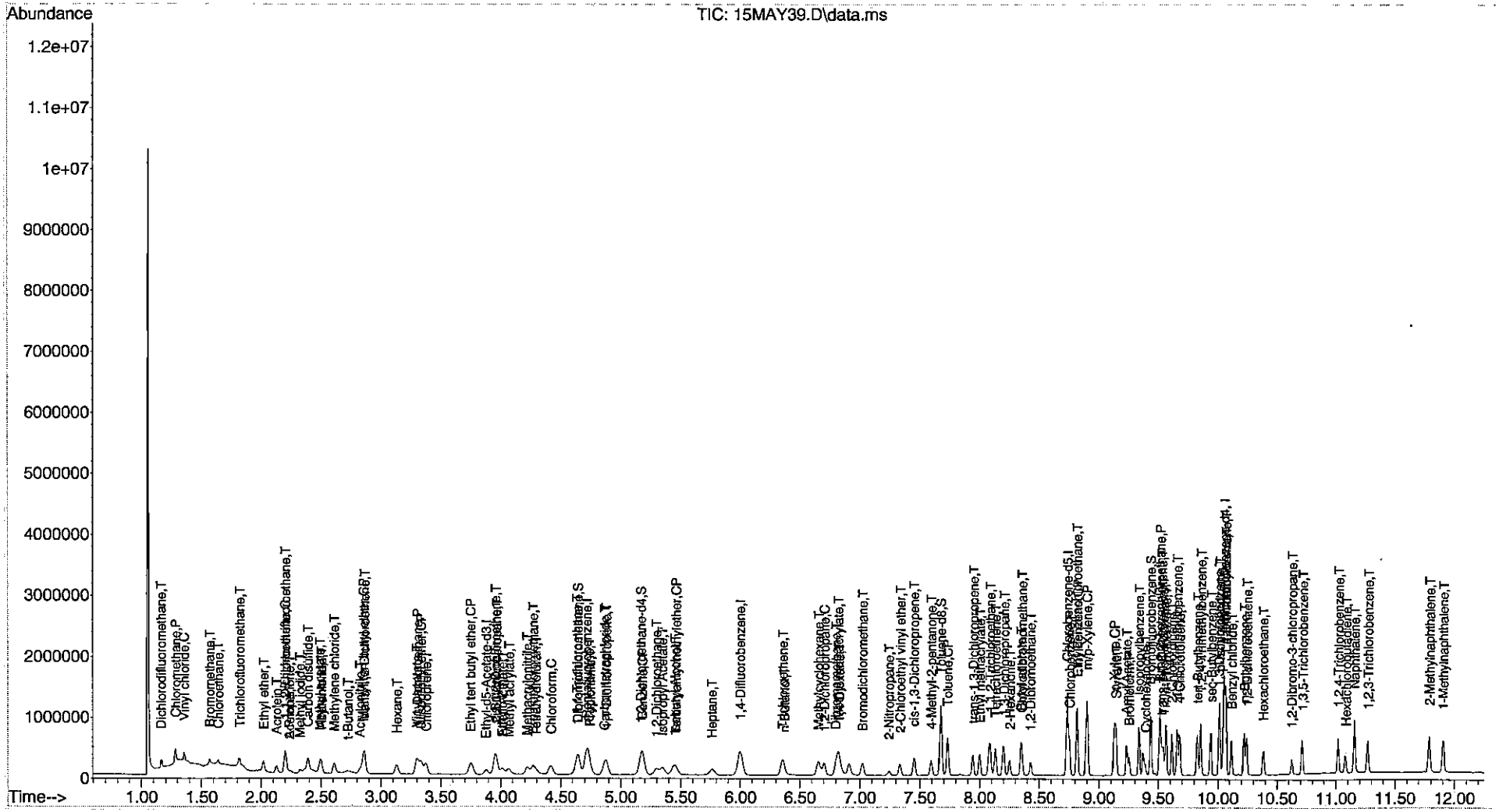
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	273644	10.18	ug/L		95
93) 1,3,5-Trimethylbenzene	9.655	105	264836	10.25	ug/L		99
94) tert-Butylbenzene	9.827	91	156481	10.12	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	284569	10.09	ug/L		95
96) sec-Butylbenzene	9.942	105	313863	10.04	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	168012	9.37	ug/L		99
99) p-Isopropyltoluene	10.013	119	273147	10.66	ug/L		98
100) 1,4-Dichlorobenzene	10.063	146	173185	9.52	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	290064	10.03	ug/L		97
102) Benzyl chloride	10.114	91	218901	16.27	ug/L		99
103) 1,2-Dichlorobenzene	10.242	146	170636	9.63	ug/L		99
104) n-Butylbenzene	10.221	91	236523	10.26	ug/L		99
105) Hexachloroethane	10.379	117	56186	9.72	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.622	157	43607	10.17	ug/L		94
107) 1,3,5-Trichlorobenzene	10.715	180	109119	9.03	ug/L		97
108) 1,2,4-Trichlorobenzene	11.016	180	116016	9.37	ug/L		99
109) Hexachlorobutadiene	11.081	225	38354	9.60	ug/L		99
110) Naphthalene	11.152	128	427113	10.30	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	112225	9.19	ug/L		99
112) 2-Methylnaphthalene	11.783	142	216787	11.17	ug/L		99
113) 1-Methylnaphthalene	11.897	142	206205	10.80	ug/L		97
115) 2-Propanone	2.234	43	53777m	7.60	ug/L		
116) Acetic Ether	4.011	43	132948	6.61	ug/L	#	98
117) Isopropyl Acetate	5.343	61	59190	7.97	ug/L		96
118) Amyl Acetate	9.225	43	171320	7.97	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341042	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	514805	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	466588	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	235133	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	104617	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181633	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.164	65	172998	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	604432	20.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.70%				
85) Bromofluorobenzene	9.433	95	224637	21.26	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	264461	32.36	ug/L		98
3) Chloromethane	1.282	50	431373	27.34	ug/L		98
4) Vinyl chloride	1.353	62	333899	30.23	ug/L		96
5) Bromomethane	1.568	96	107875	13.04	ug/L		97
6) Chloroethane	1.640	64	182788m	25.43	ug/L		
7) Trichlorofluoromethane	1.819	101	349400	31.22	ug/L		99
8) Ethyl ether	2.019	59	260201	38.27	ug/L		99
9) Acrolein	2.127	56	256116	302.57	ug/L		100
10) 1,1-Dichloroethene	2.199	61	396546	42.55	ug/L		94
11) 1,1,2-Trichlorotrifluo...	2.206	151	201533	38.49	ug/L		99
12) Methyl iodide	2.327	142	201505m	26.45	ug/L		
13) Acetone	2.234	43	163480	29.39	ug/L		100
14) Chloroprene	3.373	53	409693	40.19	ug/L		99
15) Carbon disulfide	2.385	76	852539	43.10	ug/L		98
16) Allyl chloride	2.499	41	457352	37.52	ug/L		96
17) Methyl acetate	2.485	43	418992	29.94	ug/L		98
18) Acetonitrile	2.499	41	457352	37.52	ug/L	#	98
19) Methylene chloride	2.607	49	409920	34.78	ug/L		97
20) trans-1,2-Dichloroethene	2.857	61	436320	41.70	ug/L		98
21) t-Butanol	2.721	59	469103m	167.51	ug/L		
22) Acrylonitrile	2.815	53	205871	36.74	ug/L		99
23) Methyl tert-butyl ether	2.850	73	883042	36.10	ug/L		99
24) Hexane	3.130	57	297389	41.05	ug/L		97
25) 1,1-Dichloroethane	3.294	63	595288	42.71	ug/L		98
26) Diisopropyl ether	3.330	45	900154	33.46	ug/L	#	23
27) Vinyl acetate	3.294	86	51291	56.67	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	881030	35.70	ug/L		100
29) 2,2-Dichloropropane	3.961	77	411371	44.80	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	518043	38.83	ug/L		98
31) 2-Butanone	3.946	43	285553	33.22	ug/L		98
32) Ethyl Acetate	4.011	43	540376	33.11	ug/L	#	98
33) Methyl acrylate	4.061	55	515083	42.24	ug/L		99
34) Propionitrile	4.727	54	28092	34.67	ug/L	#	81

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	272530	38.82	ug/L		98
36) Tetrahydrofuran	4.283	42	194100	38.04	ug/L		97
37) Methacrylonitrile	4.218	41	317453	37.80	ug/L		96
38) Chloroform	4.419	83	595101	39.59	ug/L		100
39) Cyclohexane	4.734	56	445159	32.18	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	468714	41.16	ug/L		97
43) Carbon tetrachloride	4.863	117	418577	39.88	ug/L		98
44) 1,1-Dichloropropene	4.877	75	412685	39.18	ug/L		99
46) 1,2-Dichloroethane	5.293	62	419522	37.67	ug/L		98
47) Benzene	5.178	78	1302054	39.34	ug/L		100
48) Tertiaryamylmethylether	5.443	73	871552	37.12	ug/L		99
49) Isobutyl Alcohol	5.443	43	260509	33.34	ug/L		99
50) Heptane	5.759	43	251230	39.86	ug/L		96
51) 1,4-Dioxane	6.826	88	730024	3511.30	ug/L		90
52) Methylcyclohexane	6.654	83	418506	39.01	ug/L		96
53) n-Butanol	6.346	56	257409	450.88	ug/L	#	94
54) Trichloroethene	6.353	130	354970	34.87	ug/L		99
55) 1,2-Dichloropropane	6.704	63	355458	38.86	ug/L		98
56) Dibromomethane	6.797	93	268426	40.47	ug/L		97
57) Methyl methacrylate	6.819	41	394600	37.45	ug/L		97
58) Bromodichloromethane	7.019	83	480420	43.55	ug/L		95
59) 2-Chloroethyl vinyl ether	7.334	43	164604	45.99	ug/L		93
60) 2-Nitropropane	7.241	43	164250	43.06	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	573516	45.27	ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	546854	34.69	ug/L		98
65) Toluene	7.728	91	1342864	40.90	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	518884	43.16	ug/L		99
67) Chloropicrin	7.943	117	35830	No Calib		#	
68) Ethyl methacrylate	8.001	69	541732	41.28	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	351563	38.72	ug/L		99
70) Tetrachloroethene	8.129	166	339156	37.31	ug/L		98
71) 1,3-Dichloropropane	8.201	76	536613	39.65	ug/L		97
72) 2-Hexanone	8.251	43	444478	36.19	ug/L		96
73) Chlorodibromomethane	8.352	129	431353	43.78	ug/L		99
74) Butyl acetate	8.344	43	729024	35.85	ug/L		98
75) 1,2-Dibromoethane	8.423	107	400863	39.81	ug/L		99
76) Chlorobenzene	8.753	112	892014	40.02	ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	331852	40.52	ug/L		98
78) Ethylbenzene	8.817	91	1442302	40.52	ug/L		99
79) m/p-Xylene	8.896	91	2198523	84.09	ug/L		99
80) Styrene	9.139	104	928801	41.31	ug/L		97
81) o-Xylene	9.125	91	1149546	40.65	ug/L		98
82) Cyclohexanone	9.390	55	188808	137.95	ug/L		96
83) Bromoform	9.247	173	335758	41.51	ug/L		98
84) Isopropylbenzene	9.333	105	1339417	41.50	ug/L		100
86) Bromobenzene	9.512	77	856759	39.48	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	604051	41.03	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	154912	36.31	ug/L		96
89) trans-1,4-Dichloro-2-b...	9.526	53	152996	40.37	ug/L		93
90) n-Propylbenzene	9.562	91	1581314	40.53	ug/L		99
91) 2-Chlorotoluene	9.612	91	941697	38.99	ug/L		96

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

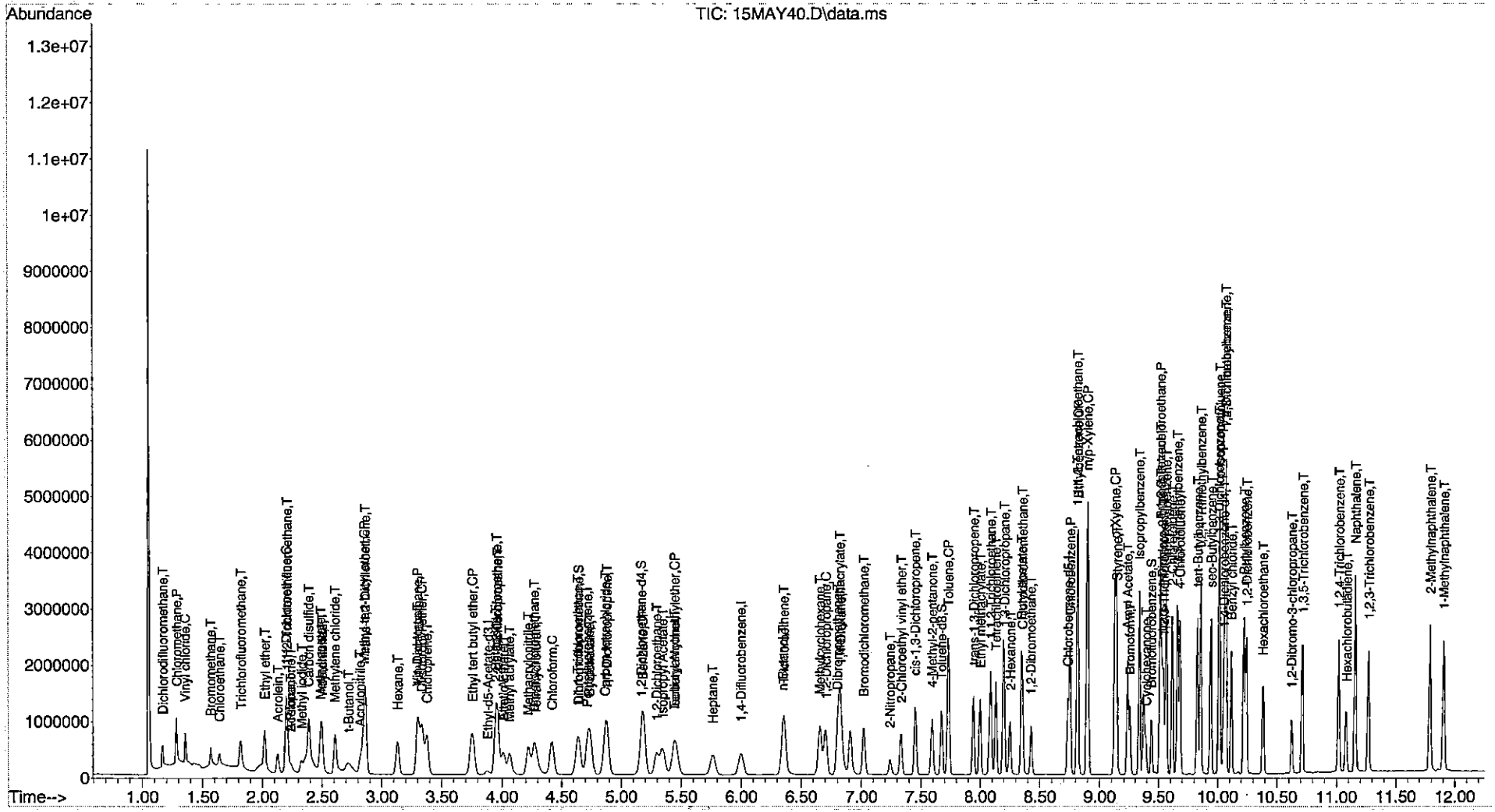
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1088923	40.63	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1074792	41.72	ug/L		99
94) tert-Butylbenzene	9.827	91	615392	39.91	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	1135887	40.42	ug/L		98
96) sec-Butylbenzene	9.942	105	1272781	40.84	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	692240	39.53	ug/L		98
99) p-Isopropyltoluene	10.013	119	1093083	43.68	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	691504	38.92	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	1156396	40.94	ug/L		99
102) Benzyl chloride	10.114	91	903207	68.73	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	683110	39.49	ug/L		99
104) n-Butylbenzene	10.221	91	982336	43.64	ug/L		100
105) Hexachloroethane	10.379	117	238723	42.29	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	179820	42.93	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	462739	39.22	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	454723	37.62	ug/L		99
109) Hexachlorobutadiene	11.081	225	151025	38.71	ug/L		99
110) Naphthalene	11.152	128	1737952	42.90	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	474629	39.80	ug/L		99
112) 2-Methylnaphthalene	11.783	142	909577	48.01	ug/L		99
113) 1-Methylnaphthalene	11.897	142	862197	46.25	ug/L		97
115) 2-Propanone	2.234	43	175322m	26.51	ug/L		
116) Acetic Ether	4.011	43	540376	27.41	ug/L	#	98
117) Isopropyl Acetate	5.343	61	230031	31.63	ug/L		97
118) Amyl Acetate	9.225	43	661940	31.44	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	352748	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	538528	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	464547	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	247861	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	111377	20.00	ug/L		#-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	184248	19.73	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%				
45) 1,2-Dichloroethane-d4	5.164	65	177505	19.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.05%				
64) Toluene-d8	7.671	98	622745	21.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.25%				
85) Bromofluorobenzene	9.433	95	223431	21.24	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	498675	59.00	ug/L		99
3) Chloromethane	1.282	50	785848	48.16	ug/L		97
4) Vinyl chloride	1.353	62	609541	53.36	ug/L		97
5) Bromomethane	1.568	96	183748	22.43	ug/L		100
6) Chloroethane	1.640	64	288871m	41.81	ug/L		
7) Trichlorofluoromethane	1.812	101	675653m	58.37	ug/L		
8) Ethyl ether	2.019	59	455604	64.79	ug/L		99
9) Acrolein	2.127	56	479389	508.14	ug/L		100
10) 1,1-Dichloroethene	2.199	61	699504	72.56	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.199	151	367043	67.78	ug/L		97
12) Methyl iodide	2.320	142	347481m	49.31	ug/L		
13) Acetone	2.234	43	287382	50.41	ug/L		97
14) Chloroprene	3.373	53	727249	68.97	ug/L		99
15) Carbon disulfide	2.385	76	1526157	74.60	ug/L		100
16) Allyl chloride	2.499	41	793388	62.93	ug/L		95
17) Methyl acetate	2.485	43	691136	47.75	ug/L		97
18) Acetonitrile	2.499	41	793388	62.93	ug/L	#	98
19) Methylene chloride	2.607	49	722014m	59.23	ug/L		
20) trans-1,2-Dichloroethene	2.857	61	771709	71.31	ug/L		98
21) t-Butanol	2.729	59	797655	275.38	ug/L		96
22) Acrylonitrile	2.815	53	365170	62.93	ug/L		97
23) Methyl tert-butyl ether	2.850	73	1516761	59.96	ug/L		98
24) Hexane	3.130	57	550302	73.43	ug/L		95
25) 1,1-Dichloroethane	3.294	63	1046582	72.60	ug/L		98
26) Diisopropyl ether	3.330	45	1537078	55.23	ug/L	#	16
27) Vinyl acetate	3.294	86	99780	96.84	ug/L	#	2
28) Ethyl tert butyl ether	3.753	59	1501703	58.82	ug/L		99
29) 2,2-Dichloropropane	3.961	77	734173	77.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	930982	67.47	ug/L		99
31) 2-Butanone	3.946	43	490334	55.36	ug/L		98
32) Ethyl Acetate	4.011	43	954504	56.55	ug/L	#	98
33) Methyl acrylate	4.061	55	903784	71.66	ug/L		99
34) Propionitrile	4.741	54	51691	61.68	ug/L	#	87

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	483631	66.60 ug/L		97
36) Tetrahydrofuran	4.290	42	348457	66.03 ug/L		97
37) Methacrylonitrile	4.226	41	553120	63.68 ug/L		95
38) Chloroform	4.419	83	1054933	67.85 ug/L		98
39) Cyclohexane	4.734	56	802422	56.08 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	840034	70.52 ug/L		98
43) Carbon tetrachloride	4.863	117	747250	67.84 ug/L		98
44) 1,1-Dichloropropene	4.877	75	723963	65.71 ug/L		98
46) 1,2-Dichloroethane	5.293	62	744154	63.87 ug/L		98
47) Benzene	5.178	78	2270113	65.57 ug/L		99
48) Tertiaryamylmethylether	5.451	73	1478878	60.21 ug/L		98
49) Isobutyl Alcohol	5.451	43	442205	54.10 ug/L		98
50) Heptane	5.759	43	451783	68.53 ug/L		95
51) 1,4-Dioxane	6.826	88	1345358	6185.90 ug/L		91
52) Methylcyclohexane	6.654	83	751822	66.99 ug/L		96
53) n-Butanol	6.346	56	451461	755.94 ug/L	#	95
54) Trichloroethene	6.353	130	625592	58.75 ug/L		99
55) 1,2-Dichloropropane	6.704	63	621073	64.91 ug/L		97
56) Dibromomethane	6.797	93	468488	67.52 ug/L		98
57) Methyl methacrylate	6.819	41	713046	64.69 ug/L		96
58) Bromodichloromethane	7.019	83	845547	73.28 ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	297005	79.32 ug/L		92
60) 2-Nitropropane	7.241	43	295491	74.05 ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1000261	75.48 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	960026	61.16 ug/L		98
65) Toluene	7.728	91	2390402	73.12 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	935489	78.15 ug/L		99
67) Chloropicrin	7.943	117	475300	No Calib	#	
68) Ethyl methacrylate	8.001	69	938963	71.86 ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	616256	68.16 ug/L		99
70) Tetrachloroethene	8.130	166	610385	67.44 ug/L		97
71) 1,3-Dichloropropane	8.201	76	954823	70.86 ug/L		95
72) 2-Hexanone	8.251	43	757709	61.97 ug/L		97
73) Chlorodibromomethane	8.352	129	744243	75.87 ug/L		98
74) Butyl acetate	8.344	43	1237166	61.11 ug/L		97
75) 1,2-Dibromoethane	8.423	107	705715	70.40 ug/L		98
76) Chlorobenzene	8.753	112	1563236	70.45 ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	599990	73.58 ug/L		97
78) Ethylbenzene	8.817	91	2586877	72.99 ug/L		98
79) m/p-Xylene	8.896	91	3939460	151.35 ug/L		98
80) Styrene	9.139	104	1627340	72.69 ug/L		97
81) o-Xylene	9.125	91	2038599	72.41 ug/L		98
82) Cyclohexanone	9.390	55	305153	223.93 ug/L		97
83) Bromoform	9.247	173	598318	74.30 ug/L		97
84) Isopropylbenzene	9.333	105	2378514	74.01 ug/L		100
86) Bromobenzene	9.512	77	1531131	70.86 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	1096044	74.77 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	266704	62.78 ug/L		95
89) trans-1,4-Dichloro-2-b...	9.526	53	274997	72.87 ug/L		94
90) n-Propylbenzene	9.562	91	2847403	73.31 ug/L		99
91) 2-Chlorotoluene	9.612	91	1684565	70.05 ug/L		96

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

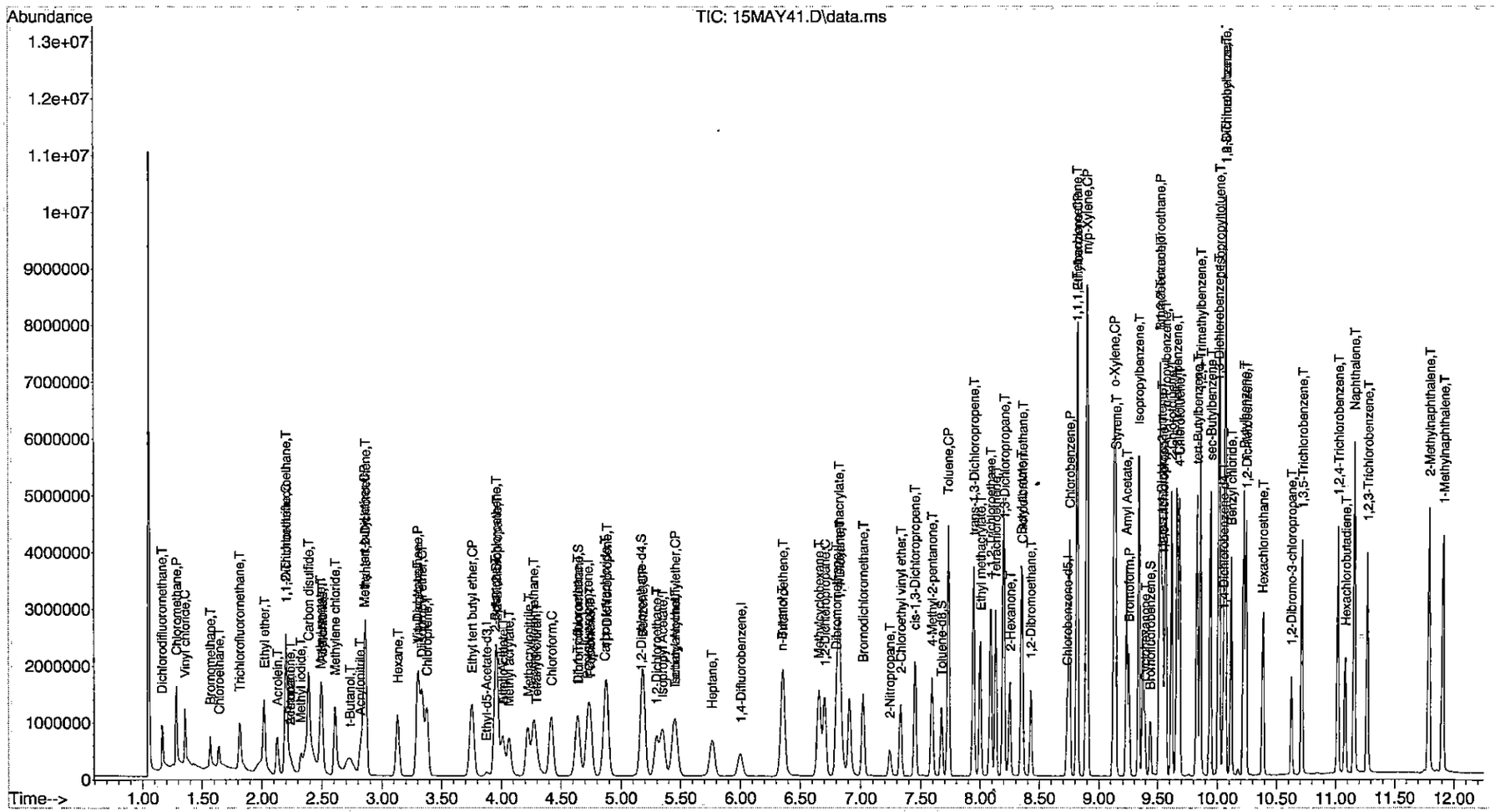
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1928540	72.28	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1908207	74.39	ug/L		99
94) tert-Butylbenzene	9.827	91	1094943	71.33	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2038547	72.85	ug/L		96
96) sec-Butylbenzene	9.942	105	2304509	74.26	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1235868	66.96	ug/L		98
99) p-Isopropyltoluene	10.013	119	1957985	74.23	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1257959	67.16	ug/L		97
101) 1,2,3-Trimethylbenzene	10.064	105	2075226	69.70	ug/L		99
102) Benzyl chloride	10.114	91	1588701	114.69	ug/L		100
103) 1,2-Dichlorobenzene	10.243	146	1222973	67.07	ug/L		99
104) n-Butylbenzene	10.221	91	1714310	72.25	ug/L		99
105) Hexachloroethane	10.379	117	427660	71.86	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	327705	74.21	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	828033	66.58	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	846645	66.44	ug/L		100
109) Hexachlorobutadiene	11.081	225	275124	66.90	ug/L		98
110) Naphthalene	11.152	128	3036904	71.11	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	828579	65.92	ug/L		99
112) 2-Methylnaphthalene	11.783	142	1667628	83.50	ug/L		99
113) 1-Methylnaphthalene	11.904	142	1583542	80.59	ug/L		97
115) 2-Propanone	2.234	43	287382	41.10	ug/L		95
116) Acetic Ether	4.011	43	950130	45.28	ug/L	#	99
117) Isopropyl Acetate	5.343	61	396213	51.17	ug/L		99
118) Amyl Acetate	9.225	43	1169241	52.17	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	355168	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	528490	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	478748	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	251853	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109405	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182207	19.88	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.40%				
45) 1,2-Dichloroethane-d4	5.164	65	180608	20.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.70%				
64) Toluene-d8	7.671	98	626338	20.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.75%				
85) Bromofluorobenzene	9.433	95	227873	21.02	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	721976	84.84	ug/L		100
3) Chloromethane	1.282	50	1089610	66.32	ug/L		98
4) Vinyl chloride	1.353	62	851896	74.07	ug/L		99
5) Bromomethane	1.568	96	270530	34.29	ug/L		98
6) Chloroethane	1.640	64	402774m	60.25	ug/L		
7) Trichlorofluoromethane	1.819	101	909320m	78.02	ug/L		
8) Ethyl ether	2.019	59	630493	89.05	ug/L		100
9) Acrolein	2.127	56	733803	712.86	ug/L		100
10) 1,1-Dichloroethene	2.199	61	972841	100.23	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	522594	95.84	ug/L		98
12) Methyl iodide	2.328	142	503062	90.98	ug/L		99
13) Acetone	2.234	43	413119	72.27	ug/L		97
14) Chloroprene	3.373	53	1027463	96.78	ug/L		100
15) Carbon disulfide	2.385	76	2162401	104.98	ug/L		100
16) Allyl chloride	2.499	41	1096821	86.40	ug/L		92
17) Methyl acetate	2.485	43	997353	68.44	ug/L		98
18) Acetonitrile	2.499	41	1096821	86.40	ug/L	#	97
19) Methylene chloride	2.607	49	997313	81.26	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	1080017	99.12	ug/L		98
21) t-Butanol	2.721	59	1136109	389.56	ug/L		97
22) Acrylonitrile	2.815	53	512540	87.69	ug/L		99
23) Methyl tert-butyl ether	2.850	73	2151294	84.46	ug/L		98
24) Hexane	3.130	57	783747	103.87	ug/L		95
25) 1,1-Dichloroethane	3.295	63	1438757	99.12	ug/L		98
26) Diisopropyl ether	3.330	45	2173870	77.58	ug/L	#	16
27) Vinyl acetate	3.302	86	139251	126.16	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	2161889	84.11	ug/L		100
29) 2,2-Dichloropropane	3.961	77	1015750	106.23	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	1288532	92.75	ug/L		99
31) 2-Butanone	3.946	43	703995	79.07	ug/L		99
32) Ethyl Acetate	4.011	43	1364082	80.26	ug/L	#	99
33) Methyl acrylate	4.061	55	1282725	101.01	ug/L		99
34) Propionitrile	4.741	54	73671	87.31	ug/L	#	87

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	674571	92.26	ug/L		99
36) Tetrahydrofuran	4.290	42	492252	92.64	ug/L		98
37) Methacrylonitrile	4.219	41	792631	90.63	ug/L		97
38) Chloroform	4.419	83	1472361	94.05	ug/L		99
39) Cyclohexane	4.734	56	1127861	78.29	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	1165891	99.74	ug/L		98
43) Carbon tetrachloride	4.863	117	1067303	98.60	ug/L		98
44) 1,1-Dichloropropene	4.878	75	1048902	97.01	ug/L		98
46) 1,2-Dichloroethane	5.293	62	1054076	92.20	ug/L		98
47) Benzene	5.186	78	3195853	94.06	ug/L		99
48) Tertiaryamylmethylether	5.451	73	2119484	87.94	ug/L		98
49) Isobutyl Alcohol	5.443	43	630977	78.66	ug/L		99
50) Heptane	5.766	43	652580	100.87	ug/L		96
51) 1,4-Dioxane	6.826	88	1903822	8919.96	ug/L		90
52) Methylcyclohexane	6.654	83	1090186	98.98	ug/L		97
53) n-Butanol	6.346	56	667985	1139.74	ug/L	#	95
54) Trichloroethene	6.353	130	874547	83.68	ug/L		99
55) 1,2-Dichloropropane	6.704	63	869642	92.62	ug/L		98
56) Dibromomethane	6.797	93	655158	96.22	ug/L		99
57) Methyl methacrylate	6.819	41	1002306	92.67	ug/L		96
58) Bromodichloromethane	7.019	83	1199177	105.90	ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	405960	110.48	ug/L		90
60) 2-Nitropropane	7.241	43	422932	108.00	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1441089	110.81	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	1359185	84.02	ug/L		98
65) Toluene	7.728	91	3273819	97.17	ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	1340493	108.66	ug/L		97
67) Chloropicrin	7.943	117	1494106	No Calib		#	
68) Ethyl methacrylate	8.001	69	1350433	100.28	ug/L		98
69) 1,1,2-Trichloroethane	8.087	97	884106	94.89	ug/L		98
70) Tetrachloroethene	8.130	166	863259	92.55	ug/L		97
71) 1,3-Dichloropropane	8.201	76	1322049	95.20	ug/L		96
72) 2-Hexanone	8.251	43	1079952	85.71	ug/L		97
73) Chlorodibromomethane	8.352	129	1077209	106.56	ug/L		99
74) Butyl acetate	8.344	43	1776725	85.16	ug/L		97
75) 1,2-Dibromoethane	8.423	107	993619	96.18	ug/L		99
76) Chlorobenzene	8.753	112	2242966	98.09	ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	840333	100.00	ug/L		98
78) Ethylbenzene	8.817	91	3631544	99.43	ug/L		98
79) m/p-Xylene	8.896	91	5448438	203.11	ug/L		99
80) Styrene	9.140	104	2328309	100.92	ug/L		98
81) o-Xylene	9.125	91	2868982	98.88	ug/L		97
82) Cyclohexanone	9.390	55	440267	313.50	ug/L		96
83) Bromoform	9.247	173	863611	104.06	ug/L		99
84) Isopropylbenzene	9.333	105	3306667	99.84	ug/L		99
86) Bromobenzene	9.512	77	2153382	96.70	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	1536663	101.72	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	393600	89.91	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	391280	100.61	ug/L		94
90) n-Propylbenzene	9.562	91	4013237	100.26	ug/L		98
91) 2-Chlorotoluene	9.612	91	2350123	94.82	ug/L		96

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

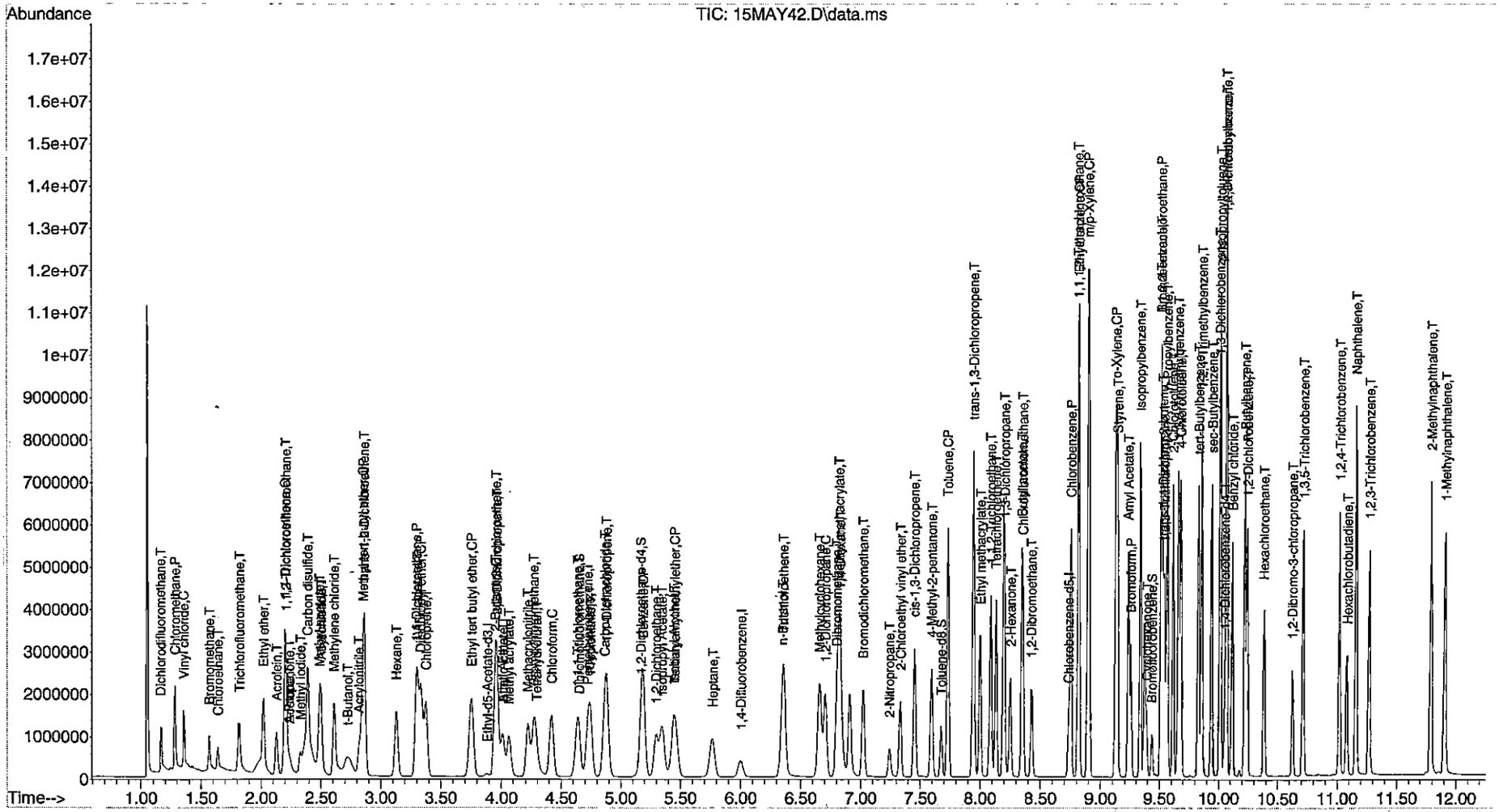
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	2756438	100.24	ug/L		97
93) 1,3,5-Trimethylbenzene	9.655	105	2693676	101.89	ug/L		99
94) tert-Butylbenzene	9.827	91	1545332	97.68	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2857345	99.09	ug/L		96
96) sec-Butylbenzene	9.942	105	3246007	101.50	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1741947	92.88	ug/L		99
99) p-Isopropyltoluene	10.013	119	2757336	102.88	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1765567	92.77	ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	2878995	95.17	ug/L		98
102) Benzyl chloride	10.114	91	2268227	161.15	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	1684083	90.89	ug/L		99
104) n-Butylbenzene	10.221	91	2445950	101.45	ug/L		99
105) Hexachloroethane	10.379	117	616797	102.00	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	470115	104.78	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	1160559	91.84	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	1175905	90.82	ug/L		99
109) Hexachlorobutadiene	11.081	225	400864	95.93	ug/L		100
110) Naphthalene	11.152	128	4510372	103.94	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	1154927	90.43	ug/L		98
112) 2-Methylnaphthalene	11.783	142	2431169	119.80	ug/L		100
113) 1-Methylnaphthalene	11.904	142	2258311	113.11	ug/L		98
115) 2-Propanone	2.234	43	413119	60.39	ug/L		96
116) Acetic Ether	4.011	43	1358808	65.92	ug/L	#	99
117) Isopropyl Acetate	5.343	61	573535	75.41	ug/L		99
118) Amyl Acetate	9.226	43	1677366	76.19	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	349576	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	520240	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	480396	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	243335	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	106735	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	184303	20.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.10%				
45) 1,2-Dichloroethane-d4	5.164	65	182611	20.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.95%				
64) Toluene-d8	7.671	98	622933	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%				
85) Bromofluorobenzene	9.433	95	219771	19.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	193245m	25.80	ug/L		
3) Chloromethane	1.281	50	362841	30.64	ug/L		99
4) Vinyl chloride	1.353	62	297030	32.01	ug/L		97
5) Bromomethane	1.568	96	106474	36.75	ug/L		95
6) Chloroethane	1.640	64	145221	30.07	ug/L		94
7) Trichlorofluoromethane	1.819	101	312759	32.43	ug/L		97
8) Ethyl ether	2.019	59	249960	35.08	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	396976	37.72	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	236303	44.95	ug/L		99
13) Acetone	2.234	43	178045	37.25	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	864685	37.90	ug/L		100
16) Allyl chloride	2.499	41	366268	29.87	ug/L		88
17) Methyl acetate	2.485	43	15854	1.48	ug/L	#	11
18) Acetonitrile	2.499	41	366268	30.03	ug/L	#	90
19) Methylene chloride	2.607	49	389288	34.91	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	434036	37.90	ug/L		99
21) t-Butanol	2.728	59	543389	225.79	ug/L		99
22) Acrylonitrile	2.814	53	196572	37.05	ug/L		100
23) Methyl tert-butyl ether	2.850	73	964202	44.03	ug/L		100
24) Hexane	3.122	57	5424	0.61	ug/L	#	45
25) 1,1-Dichloroethane	3.294	63	582582	37.23	ug/L		100
26) Diisopropyl ether	3.330	45	961172	41.66	ug/L	#	50
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	944303	41.43	ug/L		99
29) 2,2-Dichloropropane	3.960	77	396862	35.61	ug/L		99
30) cis-1,2-Dichloroethene	3.953	61	528908	38.78	ug/L		99
31) 2-Butanone	3.946	43	295041	35.97	ug/L		98
32) Ethyl Acetate	4.011	43	517606	38.41	ug/L	#	100
33) Methyl acrylate	4.068	55	496531	38.30	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.268	49	262487	36.54 ug/L		98
36) Tetrahydrofuran	4.290	42	188428	38.41 ug/L		96
37) Methacrylonitrile	4.218	41	315369	41.07 ug/L		99
38) Chloroform	4.419	83	576850	36.37 ug/L		98
39) Cyclohexane	4.713	56	6230	0.50 ug/L	#	1
41) 1,1,1-Trichloroethane	4.634	97	469321	38.87 ug/L		99
43) Carbon tetrachloride	4.863	117	394649	38.07 ug/L		99
44) 1,1-Dichloropropene	4.884	75	395420	34.81 ug/L		99
46) 1,2-Dichloroethane	5.293	62	416148	36.02 ug/L		98
47) Benzene	5.178	78	1263309	38.07 ug/L		100
48) Tertiaryamylmethylether	5.450	73	957723	44.45 ug/L		99
49) Isobutyl Alcohol	5.443	43	283690	40.52 ug/L		97
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	6.740	88	16952	91.98 ug/L	#	82
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	6.353	130	342718	36.70 ug/L		97
55) 1,2-Dichloropropane	6.704	63	354362	37.33 ug/L		96
56) Dibromomethane	6.797	93	258114	37.23 ug/L		96
57) Methyl methacrylate	6.826	41	378838	35.46 ug/L		97
58) Bromodichloromethane	7.019	83	470946	39.04 ug/L		100
59) 2-Chloroethyl vinyl ether	7.241	43	114870	26.07 ug/L	#	1
60) 2-Nitropropane	7.241	43	165616	35.75 ug/L		100
61) cis-1,3-Dichloropropene	7.449	75	562862	39.25 ug/L		100
63) 4-Methyl-2-pentanone	7.599	43	911834	61.07 ug/L		78
65) Toluene	7.728	91	1330941	38.51 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	511613	36.92 ug/L		100
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	8.000	69	517571	35.01 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	385963	37.85 ug/L		93
70) Tetrachloroethene	8.129	166	354756	39.32 ug/L		98
71) 1,3-Dichloropropane	8.201	76	537324	37.49 ug/L		95
72) 2-Hexanone	8.251	43	455797	38.85 ug/L		98
73) Chlorodibromomethane	8.351	129	409184	37.17 ug/L		99
74) Butyl acetate	8.344	43	676110	34.57 ug/L		99
75) 1,2-Dibromoethane	8.423	107	402182	38.26 ug/L		99
76) Chlorobenzene	8.753	112	870424	37.33 ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.810	131	340613	37.83 ug/L		99
78) Ethylbenzene	8.817	91	1432455	38.53 ug/L		100
79) m/p-Xylene	8.896	91	2131692	75.64 ug/L		100
80) Styrene	9.139	104	937450	39.03 ug/L		99
81) o-Xylene	9.125	91	1124386	37.60 ug/L		100
82) Cyclohexanone	9.390	55	12334	Below Cal	#	22
83) Bromoform	9.247	173	331157	39.85 ug/L		99
84) Isopropylbenzene	9.333	105	1305283	37.10 ug/L		99
86) Bromobenzene	9.512	77	828353	37.57 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	648517	41.06 ug/L		98
88) 1,2,3-Trichloropropane	9.540	110	155393	35.86 ug/L		93
89) trans-1,4-Dichloro-2-b...	9.526	53	140283	32.15 ug/L		96
90) n-Propylbenzene	9.562	91	1523894	37.59 ug/L		99
91) 2-Chlorotoluene	9.612	91	949275	39.09 ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

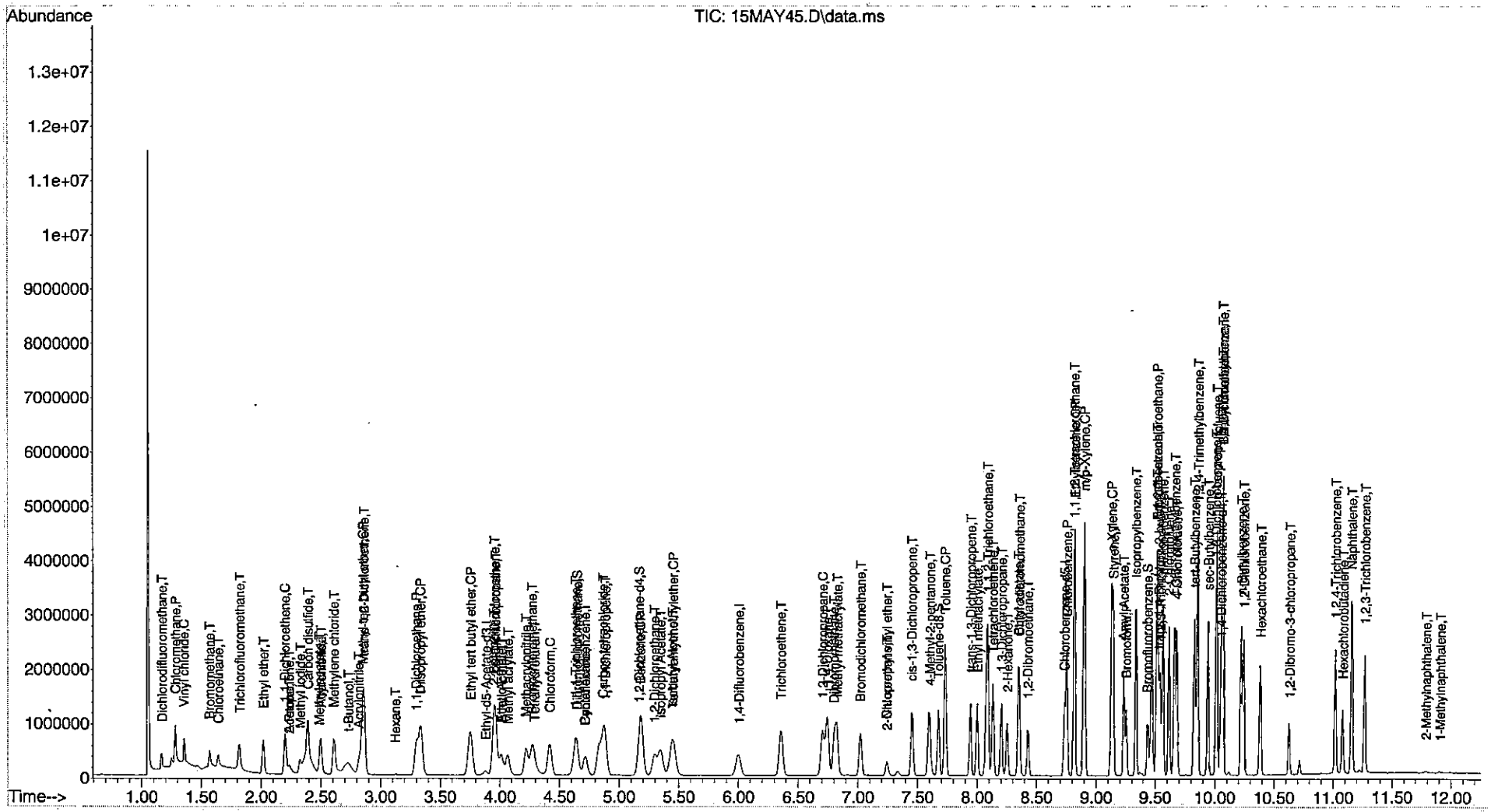
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1082870	38.09	ug/L		100
93) 1,3,5-Trimethylbenzene	9.662	105	1058151	38.01	ug/L		99
94) tert-Butylbenzene	9.827	91	597735	35.93	ug/L		94
95) 1,2,4-Trimethylbenzene	9.856	105	1073925	36.21	ug/L		100
96) sec-Butylbenzene	9.942	105	1244710	37.10	ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	666654	38.70	ug/L		99
99) p-Isopropyltoluene	10.013	119	1057357	38.14	ug/L		100
100) 1,4-Dichlorobenzene	10.063	146	677975	38.59	ug/L		99
101) 1,2,3-Trimethylbenzene	10.063	105	1126981	38.72	ug/L		99
102) Benzyl chloride	10.063	91	105157	4.57	ug/L	#	38
103) 1,2-Dichlorobenzene	10.242	146	674350	39.78	ug/L		100
104) n-Butylbenzene	10.221	91	955877	38.05	ug/L		100
105) Hexachloroethane	10.386	117	225440	36.14	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.629	157	185152	38.04	ug/L		99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	448126	37.83	ug/L		99
109) Hexachlorobutadiene	11.081	225	151652	38.31	ug/L		99
110) Naphthalene	11.152	128	1728966	39.78	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	449389	39.00	ug/L		97
112) 2-Methylnaphthalene	11.782	142	14019	0.63	ug/L		95
113) 1-Methylnaphthalene	11.904	142	8536	0.41	ug/L		82
115) 2-Propanone	2.234	43	178045	37.20	ug/L		95
116) Acetic Ether	4.011	43	517606	38.14	ug/L	#	99
117) Isopropyl Acetate	5.343	61	227826	37.29	ug/L		99
118) Amyl Acetate	9.225	43	636113	36.41	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	40.000	25.801	35.5#	73	0.00
3	P	Chloromethane	40.000	30.638	23.4#	84	0.00
4	C	Vinyl chloride	40.000	32.007	20.0	89	0.00
5	T	Bromomethane	40.000	36.754	8.1	99	0.00
6	T	Chloroethane	40.000	30.068	24.8#	79	0.00
7	T	Trichlorofluoromethane	40.000	32.431	18.9	90	0.00
8	T	Ethyl ether	40.000	35.080	12.3	96	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.13#
10	C	1,1-Dichloroethene	40.000	37.717	5.7	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	44.950	-12.4	117	0.00
13	T	Acetone	40.000	37.253	6.9	109	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	37.904	5.2	101	0.00
16	T	Allyl chloride	40.000	29.870	25.3#	80	0.00
17	T	Methyl acetate	40.000	1.483	96.3#	4	0.00
18	T	Acetonitrile	40.000	30.033	24.9#	80	0.00
19	T	Methylene chloride	40.000	34.911	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	40.000	37.903	5.2	99	0.00
21	T	t-Butanol	200.000	225.792	-12.9	116	0.00
22	T	Acrylonitrile	40.000	37.054	7.4	95	0.00
23	CP	Methyl tert-butyl ether	40.000	44.026	-10.1	109	0.00
24	T	Hexane	40.000	0.612	98.5#	2	0.00
25	P	1,1-Dichloroethane	40.000	37.235	6.9	98	0.00
26	CP	Diisopropyl ether	40.000	41.662	-4.2	107	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	41.433	-3.6	107	0.00
29	T	2,2-Dichloropropane	40.000	35.610	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.782	3.0	102	0.00
31	T	2-Butanone	40.000	35.975	10.1	103	0.00
32	T	Ethyl Acetate	40.000	38.411	4.0	96	0.00
33	T	Methyl acrylate	40.000	38.302	4.2	96	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.73#
35	T	Bromochloromethane	40.000	36.536	8.7	96	0.00
36	T	Tetrahydrofuran	40.000	38.405	4.0	97	0.00
37	T	Methacrylonitrile	40.000	41.075	-2.7	99	0.00
38	C	Chloroform	40.000	36.374	9.1	97	0.00
39	T	Cyclohexane	40.000	0.497	98.8#	1	-0.02
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	40.000	38.870	2.8	100	0.00
42	S	Dibromofluoromethane	20.000	20.425	-2.1	101	0.00
43	T	Carbon tetrachloride	40.000	38.074	4.8	94	0.00
44	T	1,1-Dichloropropene	40.000	34.811	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.788	-3.9	106	0.00
46	T	1,2-Dichloroethane	40.000	36.015	10.0	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	38.071	4.8	97	0.00
48	CP	Tertiaryamylmethylether	40.000	44.454	-11.1	110	0.00
49	T	Isobutyl Alcohol	40.000	40.517	-1.3	109	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.76#
51	T	1,4-Dioxane	4000.000	91.984	97.7#	2	-0.09
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.35#
54	T	Trichloroethene	40.000	36.699	8.3	97	0.00
55	C	1,2-Dichloropropane	40.000	37.328	6.7	100	0.00
56	T	Dibromomethane	40.000	37.235	6.9	96	0.00
57	T	Methyl methacrylate	40.000	35.458	11.4	96	0.00
58	T	Bromodichloromethane	40.000	39.041	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	40.000	26.074	34.8#	70	-0.09
60	T	2-Nitropropane	40.000	35.750	10.6	101	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.246	1.9	98	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	40.000	61.067	-52.7#	167	0.00
64	S	Toluene-d8	20.000	19.866	0.7	103	0.00
65	CP	Toluene	40.000	38.509	3.7	99	0.00
66	T	trans-1,3-Dichloropropene	40.000	36.918	7.7	99	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	35.010	12.5	96	0.00
69	T	1,1,2-Trichloroethane	40.000	37.850	5.4	110	0.00
70	T	Tetrachloroethene	40.000	39.321	1.7	105	0.00
71	T	1,3-Dichloropropane	40.000	37.490	6.3	100	0.00
72	T	2-Hexanone	40.000	38.849	2.9	103	0.00
73	T	Chlorodibromomethane	40.000	37.169	7.1	95	0.00
74	T	Butyl acetate	40.000	34.571	13.6	93	0.00
75	T	1,2-Dibromoethane	40.000	38.259	4.4	100	0.00
76	P	Chlorobenzene	40.000	37.329	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	37.829	5.4	103	0.00
78	CP	Ethylbenzene	40.000	38.527	3.7	99	0.00
79	CP	m/p-Xylene	80.000	75.638	5.5	97	0.00
80	T	Styrene	40.000	39.032	2.4	101	0.00
81	CP	o-Xylene	40.000	37.598	6.0	98	0.00
82	T	Cyclohexanone	200.000	-0.548	100.3#	7	0.00
83	P	Bromoform	40.000	39.854	0.4	99	0.00
84	T	Isopropylbenzene	40.000	37.105	7.2	97	0.00
85	S	Bromofluorobenzene	20.000	19.332	3.3	98	0.00
86	T	Bromobenzene	40.000	37.569	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.061	-2.7	107	0.00
88	T	1,2,3-Trichloropropane	40.000	35.858	10.4	100	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	32.146	19.6	92	0.00
90	T	n-Propylbenzene	40.000	37.593	6.0	96	0.00
91	T	2-Chlorotoluene	40.000	39.085	2.3	101	0.00
92	T	4-Chlorotoluene	40.000	38.095	4.8	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	38.006	5.0	98	0.00
94	T	tert-Butylbenzene	40.000	35.934	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	40.000	36.207	9.5	95	0.00
96	T	sec-Butylbenzene	40.000	37.097	7.3	98	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	40.000	38.700	3.2	96	0.00
99	T	p-Isopropyltoluene	40.000	38.137	4.7	97	0.00
100	T	1,4-Dichlorobenzene	40.000	38.586	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	40.000	38.718	3.2	97	0.00
102	T	Benzyl chloride	40.000	4.573	88.6#	12	-0.05
103	T	1,2-Dichlorobenzene	40.000	39.777	0.6	99	0.00
104	T	n-Butylbenzene	40.000	38.047	4.9	97	0.00
105	T	Hexachloroethane	40.000	36.141	9.6	94	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.038	4.9	103	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.72#
108	T	1,2,4-Trichlorobenzene	40.000	37.830	5.4	99	0.00
109	T	Hexachlorobutadiene	40.000	38.311	4.2	100	0.00
110	T	Naphthalene	40.000	39.780	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	40.000	38.999	2.5	95	0.00
112	T	2-Methylnaphthalene	40.000	0.628	98.4#	2	0.00
113	T	1-Methylnaphthalene	40.000	0.410	99.0#	1	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	102	0.00
115	T	2-Propanone	40.000	37.197	7.0	102	0.00
116	T	Acetic Ether	40.000	38.140	4.6	96	0.00
117	T	Isopropyl Acetate	40.000	37.288	6.8	99	0.00
118	T	Amyl Acetate	40.000	36.411	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	0.448	0.276	38.4#	73	0.00
3	P	Chloromethane	0.678	0.519	23.5#	84	0.00
4	C	Vinyl chloride	0.531	0.425	20.0	89	0.00
5	T	Bromomethane	0.244	0.152#	37.7#	99	0.00
6	T	Chloroethane	0.384	0.208	45.8#	79	0.00
7	T	Trichlorofluoromethane	0.552	0.447	19.0	90	0.00
8	T	Ethyl ether	0.408	0.358	12.3	96	0.00
9	T	Acrolein	0.108	0.000#	100.0#	0#	-2.13#
10	C	1,1-Dichloroethene	0.602	0.568	5.6	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.433	0.338	21.9#	117	0.00
13	T	Acetone	0.273	0.255	6.6	109	0.00
14	T	Chloroprene	0.609	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.305	1.237	5.2	101	0.00
16	T	Allyl chloride	0.702	0.524	25.4#	80	0.00
17	T	Methyl acetate	0.612	0.023#	96.2#	4#	0.00
18	T	Acetonitrile	0.698	0.524	24.9#	80	0.00
19	T	Methylene chloride	0.638	0.557	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.621	5.2	99	0.00
21	T	t-Butanol	0.138	0.155#	-12.3	116	0.00
22	T	Acrylonitrile	0.304	0.281	7.6	95	0.00
23	CP	Methyl tert-butyl ether	1.253	1.379	-10.1	109	0.00
24	T	Hexane	0.507	0.008#	98.4#	2#	0.00
25	P	1,1-Dichloroethane	0.895	0.833	6.9	98	0.00
26	CP	Diisopropyl ether	1.320	1.375	-4.2	107	0.00
27	T	Vinyl acetate	0.087	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.304	1.351	-3.6	107	0.00
29	T	2,2-Dichloropropane	0.638	0.568	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.756	3.1	102	0.00
31	T	2-Butanone	0.469	0.422	10.0	103	0.00
32	T	Ethyl Acetate	0.771	0.740	4.0	96	0.00
33	T	Methyl acrylate	0.742	0.710	4.3	96	0.00
34	T	Propionitrile	0.049	0.000#	100.0#	0#	-4.73#
35	T	Bromochloromethane	0.411	0.375	8.8	96	0.00
36	T	Tetrahydrofuran	0.281	0.270	3.9	97	0.00
37	T	Methacrylonitrile	0.439	0.451	-2.7	99	0.00
38	C	Chloroform	0.907	0.825	9.0	97	0.00
39	T	Cyclohexane	0.717	0.009#	98.7#	1#	-0.02
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	0.464	0.451	2.8	100	0.00
42	S	Dibromofluoromethane	0.347	0.354	-2.0	101	0.00
43	T	Carbon tetrachloride	0.398	0.379	4.8	94	0.00
44	T	1,1-Dichloropropene	0.437	0.380	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.351	-3.8	106	0.00
46	T	1,2-Dichloroethane	0.444	0.400	9.9	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.214	4.9	97	0.00
48	CP	Tertiaryamylmethylether	0.828	0.920	-11.1	110	0.00
49	T	Isobutyl Alcohol	0.269	0.273	-1.5	109	0.00
50	T	Heptane	0.289	0.000#	100.0#	0#	-5.76#
51	T	1,4-Dioxane	0.007	0.000#	100.0#	2#	-0.09
52	T	Methylcyclohexane	0.438	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.023	0.000#	100.0#	0#	-6.35#
54	T	Trichloroethene	0.359	0.329	8.4	97	0.00
55	C	1,2-Dichloropropane	0.365	0.341	6.6	100	0.00
56	T	Dibromomethane	0.266	0.248	6.8	96	0.00
57	T	Methyl methacrylate	0.411	0.364	11.4	96	0.00
58	T	Bromodichloromethane	0.464	0.453	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.110#	34.9#	70	-0.09
60	T	2-Nitropropane	0.178	0.159#	10.7	101	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.541	1.8	98	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	0.622	0.949	-52.6#	167	0.00
64	S	Toluene-d8	1.305	1.297	0.6	103	0.00
65	CP	Toluene	1.439	1.385	3.8	99	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.532	7.8	99	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.615	0.539	12.4	96	0.00
69	T	1,1,2-Trichloroethane	0.425	0.402	5.4	110	0.00
70	T	Tetrachloroethene	0.376	0.369	1.9	105	0.00
71	T	1,3-Dichloropropane	0.597	0.559	6.4	100	0.00
72	T	2-Hexanone	0.488	0.474	2.9	103	0.00
73	T	Chlorodibromomethane	0.458	0.426	7.0	95	0.00
74	T	Butyl acetate	0.814	0.704	13.5	93	0.00
75	T	1,2-Dibromoethane	0.438	0.419	4.3	100	0.00
76	P	Chlorobenzene	0.971	0.906	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.355	5.3	103	0.00
78	CP	Ethylbenzene	1.548	1.491	3.7	99	0.00
79	CP	m/p-Xylene	1.173	1.109	5.5	97	0.00
80	T	Styrene	1.000	0.976	2.4	101	0.00
81	CP	o-Xylene	1.245	1.170	6.0	98	0.00
82	T	Cyclohexanone	0.073	0.003#	95.9#	7#	0.00
83	P	Bromoform	0.346	0.345	0.3	99	0.00
84	T	Isopropylbenzene	1.465	1.359	7.2	97	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	98	0.00
86	T	Bromobenzene	0.918	0.862	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.675	-2.6	107	0.00
88	T	1,2,3-Trichloropropane	0.180	0.162#	10.0	100	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.146#	19.8	92	0.00
90	T	n-Propylbenzene	1.688	1.586	6.0	96	0.00
91	T	2-Chlorotoluene	1.011	0.988	2.3	101	0.00
92	T	4-Chlorotoluene	1.183	1.127	4.7	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.101	5.0	98	0.00
94	T	tert-Butylbenzene	0.693	0.622	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.118	9.5	95	0.00
96	T	sec-Butylbenzene	1.397	1.296	7.2	98	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	1.416	1.370	3.2	96	0.00
99	T	p-Isopropyltoluene	2.279	2.173	4.7	97	0.00
100	T	1,4-Dichlorobenzene	1.444	1.393	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.316	3.2	97	0.00
102	T	Benzyl chloride	1.890	0.216	88.6#	12#	-0.05
103	T	1,2-Dichlorobenzene	1.393	1.386	0.5	99	0.00
104	T	n-Butylbenzene	2.065	1.964	4.9	97	0.00
105	T	Hexachloroethane	0.513	0.463	9.7	94	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.380	5.0	103	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.000#	100.0#	0#	-10.72#
108	T	1,2,4-Trichlorobenzene	0.974	0.921	5.4	99	0.00
109	T	Hexachlorobutadiene	0.325	0.312	4.0	100	0.00
110	T	Naphthalene	3.572	3.553	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.923	2.5	95	0.00
112	T	2-Methylnaphthalene	1.836	0.029#	98.4#	2#	0.00
113	T	1-Methylnaphthalene	1.711	0.018#	98.9#	1#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	102	0.00
115	T	2-Propanone	0.897	0.834	7.0	102	0.00
116	T	Acetic Ether	2.543	2.425	4.6	96	0.00
117	T	Isopropyl Acetate	1.145	1.067	6.8	99	0.00
118	T	Amyl Acetate	3.274	2.980	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Sequence Name: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

EMR 5/16/18

Line			Sample Name/Misc Info		
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	VBLKS1-
16)	Sample	5	15MAY16	8SGO0502	BLK
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV
27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK

Sequence Name: C:\msdchem\1\sequence\8V180515.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	33	15MAY44	8GI0502	BLK
45)		Sample	34	15MAY45	8GI0502	ICV
46)		Sample	35	15MAY46	8GI0502	BLK
47)		Sample	36	15MAY47	BFB	VBFB8-180515
48)		Sample	37	15MAY48	8GI0502	VCCV1-180515
49)		Sample	38	15MAY49	8GI0502	VCCV2-180515
50)		Sample	39	15MAY50	8GI0502	VLCSW2-180515
51)		Sample	40	15MAY51	8GI0502	LCS-
52)		Sample	41	15MAY52	8GI0502	BLK
53)		Sample	42	15MAY53	8GI0502	VBLKW2-180415
54)		Sample	43	15MAY54	8GI0502	MBLK-
55)		Sample	44	15MAY55	8GI0502	1805671-22A
56)		Sample	45	15MAY56	8GI0502	1805671-11A
57)		Sample	46	15MAY57	8GI0502	1805671-12A
58)		Sample	47	15MAY58	8GI0502	1805671-13A
59)		Sample	48	15MAY59	8GI0502	1805671-14A
60)		Sample	49	15MAY60	8GI0502	1805671-15A
61)		Sample	50	15MAY61	8GI0502	1805671-16A
62)		Sample	51	15MAY62	8GI0502	1805671-17A
63)		Sample	52	15MAY63	8GI0502	1805671-18A
64)		Sample	53	15MAY64	8GI0502	1805671-19A
65)		Sample	54	15MAY65	8GI0502	1805671-20A
66)		Sample	55	15MAY66	8GI0502	1805671-21A
67)		Sample	56	15MAY67	8GI0502	1805671-23A
68)		Sample	57	15MAY68	8GI0502	1805671-24A
69)		Sample	58	15MAY69	8GI0502	1805671-25A
70)		Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)		Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)		Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)		Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)		Sample	63	15MAY74	8GI0502	1805699-01A DF20
75)		Sample	64	15MAY75	8GI0502	1805699-01A MS DF20
76)		Sample	65	15MAY76	8GI0502	1805699-01A MSD DF20
77)		Sample	66	15MAY77	8GI0502	BLK
78)		Sample	67	15MAY78	8SGO0502	BLK
79)		Sample	68	15MAY79	8SGO0502	BLK

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	78	0.00
2	T	Dichlorodifluoromethane	40.000	47.659	-19.1	108	0.00
3	P	Chloromethane	40.000	45.659	-14.1	96	0.00
4	C	Vinyl chloride	40.000	33.348	16.6	71	0.00
5	T	Bromomethane	40.000	70.490	-76.2#	142	0.00
6	T	Chloroethane	40.000	33.816	15.5	67	0.00
7	T	Trichlorofluoromethane	40.000	36.754	8.1	78	0.00
8	T	Ethyl ether	40.000	40.011	-0.0	84	0.00
9	T	Acrolein	200.000	206.514	-3.3	88	0.00
10	C	1,1-Dichloroethene	40.000	40.944	-2.4	83	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	39.133	2.2	85	0.00
12	T	Methyl iodide	40.000	37.123	7.2	75	0.00
13	T	Acetone	40.000	36.121	9.7	81	0.00
14	T	Chloroprene	40.000	41.085	-2.7	82	0.00
15	T	Carbon disulfide	40.000	36.502	8.7	75	0.00
16	T	Allyl chloride	40.000	39.786	0.5	82	0.00
17	T	Methyl acetate	40.000	44.846	-12.1	88	0.00
18	T	Acetonitrile	40.000	40.002	-0.0	82	0.00
19	T	Methylene chloride	40.000	39.862	0.3	83	0.00
20	T	trans-1,2-Dichloroethene	40.000	40.343	-0.9	81	0.00
21	T	t-Butanol	200.000	195.723	2.1	77	-0.01
22	T	Acrylonitrile	40.000	44.213	-10.5	87	0.00
23	CP	Methyl tert-butyl ether	40.000	45.852	-14.6	87	0.00
24	T	Hexane	40.000	34.775	13.1	79	0.00
25	P	1,1-Dichloroethane	40.000	41.453	-3.6	83	0.00
26	CP	Diisopropyl ether	40.000	44.879	-12.2	88	0.00
27	T	Vinyl acetate	40.000	41.408	-3.5	94	0.00
28	CP	Ethyl tert butyl ether	40.000	44.397	-11.0	88	0.00
29	T	2,2-Dichloropropane	40.000	42.368	-5.9	88	0.00
30	T	cis-1,2-Dichloroethene	40.000	41.477	-3.7	84	0.00
31	T	2-Butanone	40.000	35.443	11.4	78	0.00
32	T	Ethyl Acetate	40.000	46.751	-16.9	89	0.00
33	T	Methyl acrylate	40.000	43.278	-8.2	83	0.00
34	T	Propionitrile	40.000	43.709	-9.3	88	0.00
35	T	Bromochloromethane	40.000	43.254	-8.1	87	0.00
36	T	Tetrahydrofuran	40.000	42.109	-5.3	81	0.00
37	T	Methacrylonitrile	40.000	43.274	-8.2	80	0.00
38	C	Chloroform	40.000	43.117	-7.8	88	0.00
39	T	Cyclohexane	40.000	37.529	6.2	81	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	79	0.00
41	T	1,1,1-Trichloroethane	40.000	41.715	-4.3	84	0.00
42	S	Dibromofluoromethane	20.000	21.367	-6.8	83	0.00
43	T	Carbon tetrachloride	40.000	44.478	-11.2	86	0.00
44	T	1,1-Dichloropropene	40.000	39.166	2.1	84	0.00
45	S	1,2-Dichloroethane-d4	20.000	21.582	-7.9	86	0.00
46	T	1,2-Dichloroethane	40.000	41.035	-2.6	88	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	41.733	-4.3	83	0.00
48	CP	Tertiaryamylmethylether	40.000	44.833	-12.1	87	0.00
49	T	Isobutyl Alcohol	40.000	42.049	-5.1	88	0.00
50	T	Heptane	40.000	38.593	3.5	77	0.00
51	T	1,4-Dioxane	4000.000	4251.222	-6.3	84	-0.01
52	T	Methylcyclohexane	40.000	38.392	4.0	82	0.00
53	T	n-Butanol	400.000	339.607	15.1	62	0.00
54	T	Trichloroethene	40.000	40.685	-1.7	84	0.00
55	C	1,2-Dichloropropane	40.000	39.305	1.7	82	0.00
56	T	Dibromomethane	40.000	42.357	-5.9	85	0.00
57	T	Methyl methacrylate	40.000	39.957	0.1	85	0.00
58	T	Bromodichloromethane	40.000	41.742	-4.4	82	0.00
59	T	2-Chloroethyl vinyl ether	40.000	42.387	-6.0	89	0.00
60	T	2-Nitropropane	40.000	34.650	13.4	76	0.00
61	T	cis-1,3-Dichloropropene	40.000	41.580	-3.9	81	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	74	0.00
63	T	4-Methyl-2-pentanone	40.000	40.826	-2.1	80	0.00
64	S	Toluene-d8	20.000	21.319	-6.6	79	0.00
65	CP	Toluene	40.000	45.343	-13.4	84	0.00
66	T	trans-1,3-Dichloropropene	40.000	43.166	-7.9	83	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	41.770	-4.4	82	0.00
69	T	1,1,2-Trichloroethane	40.000	41.878	-4.7	87	0.00
70	T	Tetrachloroethene	40.000	45.814	-14.5	87	0.00
71	T	1,3-Dichloropropane	40.000	44.817	-12.0	86	0.00
72	T	2-Hexanone	40.000	40.921	-2.3	78	0.00
73	T	Chlorodibromomethane	40.000	44.977	-12.4	82	0.00
74	T	Butyl acetate	40.000	42.902	-7.3	83	0.00
75	T	1,2-Dibromoethane	40.000	45.826	-14.6	86	0.00
76	P	Chlorobenzene	40.000	43.758	-9.4	82	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	43.785	-9.5	85	0.00
78	CP	Ethylbenzene	40.000	45.125	-12.8	83	0.00
79	CP	m/p-Xylene	80.000	90.742	-13.4	83	0.00
80	T	Styrene	40.000	45.675	-14.2	85	0.00
81	CP	o-Xylene	40.000	44.095	-10.2	82	0.00
82	T	Cyclohexanone	200.000	277.053	-38.5#	96	0.00
83	P	Bromoform	40.000	45.336	-13.3	81	0.00
84	T	Isopropylbenzene	40.000	43.762	-9.4	82	0.00
85	S	Bromofluorobenzene	20.000	20.819	-4.1	76	0.00
86	T	Bromobenzene	40.000	45.027	-12.6	83	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	47.245	-18.1	89	0.00
88	T	1,2,3-Trichloropropane	40.000	42.721	-6.8	86	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	41.773	-4.4	85	0.00
90	T	n-Propylbenzene	40.000	46.095	-15.2	85	0.00
91	T	2-Chlorotoluene	40.000	45.861	-14.7	85	0.00
92	T	4-Chlorotoluene	40.000	45.851	-14.6	86	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	44.132	-10.3	82	0.00
94	T	tert-Butylbenzene	40.000	42.515	-6.3	82	0.00
95	T	1,2,4-Trimethylbenzene	40.000	43.778	-9.4	82	0.00
96	T	sec-Butylbenzene	40.000	43.208	-8.0	82	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	79	0.00
98	T	1,3-Dichlorobenzene	40.000	45.291	-13.2	86	0.00
99	T	p-Isopropyltoluene	40.000	42.096	-5.2	82	0.00
100	T	1,4-Dichlorobenzene	40.000	44.805	-12.0	87	0.00
101	T	1,2,3-Trimethylbenzene	40.000	44.557	-11.4	86	0.00
102	T	Benzyl chloride	40.000	43.553	-8.9	85	0.00
103	T	1,2-Dichlorobenzene	40.000	45.742	-14.4	87	0.00
104	T	n-Butylbenzene	40.000	41.123	-2.8	81	0.00
105	T	Hexachloroethane	40.000	40.255	-0.6	81	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	39.908	0.2	83	0.00
107	T	1,3,5-Trichlorobenzene	40.000	44.717	-11.8	86	0.00
108	T	1,2,4-Trichlorobenzene	40.000	42.677	-6.7	85	0.00
109	T	Hexachlorobutadiene	40.000	42.009	-5.0	84	0.00
110	T	Naphthalene	40.000	43.343	-8.4	83	0.00
111	T	1,2,3-Trichlorobenzene	40.000	43.920	-9.8	82	0.00
112	T	2-Methylnaphthalene	40.000	42.167	-5.4	79	0.00
113	T	1-Methylnaphthalene	40.000	42.850	-7.1	79	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	113	0.00
115	T	2-Propanone	40.000	24.834	37.9#	75	0.00
116	T	Acetic Ether	40.000	32.060	19.8	90	0.00
117	T	Isopropyl Acetate	40.000	28.838	27.9#	85	0.00
118	T	Amyl Acetate	40.000	28.622	28.4#	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	78	0.00
2	T	Dichlorodifluoromethane	0.448	0.534	-19.2	108	0.00
3	P	Chloromethane	0.678	0.773	-14.0	96	0.00
4	C	Vinyl chloride	0.531	0.443	16.6	71	0.00
5	T	Bromomethane	0.244	0.287	-17.6	142	0.00
6	T	Chloroethane	0.384	0.229	40.4#	67	0.00
7	T	Trichlorofluoromethane	0.552	0.507	8.2	78	0.00
8	T	Ethyl ether	0.408	0.408	0.0	84	0.00
9	T	Acrolein	0.108	0.084#	22.2#	88	0.00
10	C	1,1-Dichloroethene	0.602	0.616	-2.3	83	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.320	2.1	85	0.00
12	T	Methyl iodide	0.433	0.283	34.6#	75	0.00
13	T	Acetone	0.273	0.247	9.5	81	0.00
14	T	Chloroprene	0.609	0.626	-2.8	82	0.00
15	T	Carbon disulfide	1.305	1.191	8.7	75	0.00
16	T	Allyl chloride	0.702	0.698	0.6	82	0.00
17	T	Methyl acetate	0.612	0.686	-12.1	88	0.00
18	T	Acetonitrile	0.698	0.698	0.0	82	0.00
19	T	Methylene chloride	0.638	0.636	0.3	83	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.661	-0.9	81	0.00
21	T	t-Butanol	0.138	0.135#	2.2	77	-0.01
22	T	Acrylonitrile	0.304	0.335	-10.2	87	0.00
23	CP	Methyl tert-butyl ether	1.253	1.436	-14.6	87	0.00
24	T	Hexane	0.507	0.441	13.0	79	0.00
25	P	1,1-Dichloroethane	0.895	0.928	-3.7	83	0.00
26	CP	Diisopropyl ether	1.320	1.481	-12.2	88	0.00
27	T	Vinyl acetate	0.087	0.090#	-3.4	94	0.00
28	CP	Ethyl tert butyl ether	1.304	1.447	-11.0	88	0.00
29	T	2,2-Dichloropropane	0.638	0.675	-5.8	88	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.809	-3.7	84	0.00
31	T	2-Butanone	0.469	0.416	11.3	78	0.00
32	T	Ethyl Acetate	0.771	0.901	-16.9	89	0.00
33	T	Methyl acrylate	0.742	0.802	-8.1	83	0.00
34	T	Propionitrile	0.049	0.046#	6.1	88	0.00
35	T	Bromochloromethane	0.411	0.444	-8.0	87	0.00
36	T	Tetrahydrofuran	0.281	0.296	-5.3	81	0.00
37	T	Methacrylonitrile	0.439	0.475	-8.2	80	0.00
38	C	Chloroform	0.907	0.978	-7.8	88	0.00
39	T	Cyclohexane	0.717	0.672	6.3	81	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	79	0.00
41	T	1,1,1-Trichloroethane	0.464	0.484	-4.3	84	0.00
42	S	Dibromofluoromethane	0.347	0.371	-6.9	83	0.00
43	T	Carbon tetrachloride	0.398	0.443	-11.3	86	0.00
44	T	1,1-Dichloropropene	0.437	0.428	2.1	84	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.364	-7.7	86	0.00
46	T	1,2-Dichloroethane	0.444	0.456	-2.7	88	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.331	-4.3	83	0.00
48	CP	Tertiaryamylmethylether	0.828	0.928	-12.1	87	0.00
49	T	Isobutyl Alcohol	0.269	0.283	-5.2	88	0.00
50	T	Heptane	0.289	0.238	17.6	77	0.00
51	T	1,4-Dioxane	0.007	0.008#	-14.3	84	-0.01
52	T	Methylcyclohexane	0.438	0.420	4.1	82	0.00
53	T	n-Butanol	0.023	0.020#	13.0	62	0.00
54	T	Trichloroethene	0.359	0.365	-1.7	84	0.00
55	C	1,2-Dichloropropane	0.365	0.359	1.6	82	0.00
56	T	Dibromomethane	0.266	0.282	-6.0	85	0.00
57	T	Methyl methacrylate	0.411	0.410	0.2	85	0.00
58	T	Bromodichloromethane	0.464	0.484	-4.3	82	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.179#	-5.9	89	0.00
60	T	2-Nitropropane	0.178	0.154#	13.5	76	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.573	-4.0	81	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	74	0.00
63	T	4-Methyl-2-pentanone	0.622	0.634	-1.9	80	0.00
64	S	Toluene-d8	1.305	1.392	-6.7	79	0.00
65	CP	Toluene	1.439	1.631	-13.3	84	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.623	-8.0	83	0.00
67	T	Chloropicrin	0.000	0.006#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.643	-4.6	82	0.00
69	T	1,1,2-Trichloroethane	0.425	0.444	-4.5	87	0.00
70	T	Tetrachloroethene	0.376	0.430	-14.4	87	0.00
71	T	1,3-Dichloropropane	0.597	0.669	-12.1	86	0.00
72	T	2-Hexanone	0.488	0.500	-2.5	78	0.00
73	T	Chlorodibromomethane	0.458	0.515	-12.4	82	0.00
74	T	Butyl acetate	0.814	0.873	-7.2	83	0.00
75	T	1,2-Dibromoethane	0.438	0.501	-14.4	86	0.00
76	P	Chlorobenzene	0.971	1.062	-9.4	82	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.410	-9.3	85	0.00
78	CP	Ethylbenzene	1.548	1.746	-12.8	83	0.00
79	CP	m/p-Xylene	1.173	1.331	-13.5	83	0.00
80	T	Styrene	1.000	1.142	-14.2	85	0.00
81	CP	o-Xylene	1.245	1.372	-10.2	82	0.00
82	T	Cyclohexanone	0.073	0.053#	27.4#	96	0.00
83	P	Bromoform	0.346	0.392	-13.3	81	0.00
84	T	Isopropylbenzene	1.465	1.602	-9.4	82	0.00
85	S	Bromofluorobenzene	0.473	0.493	-4.2	76	0.00
86	T	Bromobenzene	0.918	1.033	-12.5	83	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.777	-18.1	89	0.00
88	T	1,2,3-Trichloropropane	0.180	0.193#	-7.2	86	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.190#	-4.4	85	0.00
90	T	n-Propylbenzene	1.688	1.945	-15.2	85	0.00
91	T	2-Chlorotoluene	1.011	1.159	-14.6	85	0.00
92	T	4-Chlorotoluene	1.183	1.357	-14.7	86	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.279	-10.4	82	0.00
94	T	tert-Butylbenzene	0.693	0.736	-6.2	82	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.351	-9.4	82	0.00
96	T	sec-Butylbenzene	1.397	1.509	-8.0	82	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	79	0.00
98	T	1,3-Dichlorobenzene	1.416	1.603	-13.2	86	0.00
99	T	p-Isopropyltoluene	2.279	2.398	-5.2	82	0.00
100	T	1,4-Dichlorobenzene	1.444	1.618	-12.0	87	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.665	-11.4	86	0.00
102	T	Benzyl chloride	1.890	2.058	-8.9	85	0.00
103	T	1,2-Dichlorobenzene	1.393	1.593	-14.4	87	0.00
104	T	n-Butylbenzene	2.065	2.123	-2.8	81	0.00
105	T	Hexachloroethane	0.513	0.516	-0.6	81	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.399	0.3	83	0.00
107	T	1,3,5-Trichlorobenzene	0.950	1.062	-11.8	86	0.00
108	T	1,2,4-Trichlorobenzene	0.974	1.039	-6.7	85	0.00
109	T	Hexachlorobutadiene	0.325	0.342	-5.2	84	0.00
110	T	Naphthalene	3.572	3.871	-8.4	83	0.00
111	T	1,2,3-Trichlorobenzene	0.947	1.040	-9.8	82	0.00
112	T	2-Methylnaphthalene	1.836	1.935	-5.4	79	0.00
113	T	1-Methylnaphthalene	1.711	1.833	-7.1	79	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	113	0.00
115	T	2-Propanone	0.897	0.557	37.9#	75	0.00
116	T	Acetic Ether	2.543	2.038	19.9	90	0.00
117	T	Isopropyl Acetate	1.145	0.825	27.9#	85	0.00
118	T	Amyl Acetate	3.274	2.342	28.5#	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	267647	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	406579	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	344684	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	186387	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	118681	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	150683	21.37	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 106.85%				
45) 1,2-Dichloroethane-d4	5.164	65	148162	21.58	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.90%				
64) Toluene-d8	7.671	98	479638	21.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 106.60%				
85) Bromofluorobenzene	9.433	95	169819	20.82	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	285816	47.66	ug/L		99
3) Chloromethane	1.282	50	414001	45.66	ug/L		100
4) Vinyl chloride	1.353	62	236947	33.35	ug/L		93
5) Bromomethane	1.568	96	153519	70.49	ug/L		98
6) Chloroethane	1.640	64	122723m	33.82	ug/L		
7) Trichlorofluoromethane	1.819	101	271377	36.75	ug/L		98
8) Ethyl ether	2.020	59	218275	40.01	ug/L		100
9) Acrolein	2.127	56	224466	206.51	ug/L		99
10) 1,1-Dichloroethene	2.199	61	329938	40.94	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.199	151	171176	39.13	ug/L		99
12) Methyl iodide	2.328	142	151320	37.12	ug/L		97
13) Acetone	2.234	43	132176	36.12	ug/L		96
14) Chloroprene	3.373	53	334875	41.08	ug/L		100
15) Carbon disulfide	2.385	76	637547	36.50	ug/L		98
16) Allyl chloride	2.499	41	373515	39.79	ug/L		94
17) Methyl acetate	2.485	43	367024	44.85	ug/L		99
18) Acetonitrile	2.499	41	373515	40.00	ug/L		95
19) Methylene chloride	2.607	49	340319	39.86	ug/L		97
20) trans-1,2-Dichloroethene	2.858	61	353701	40.34	ug/L		98
21) t-Butanol	2.707	59	360633	195.72	ug/L		98
22) Acrylonitrile	2.815	53	179580	44.21	ug/L		100
23) Methyl tert-butyl ether	2.843	73	768850	45.85	ug/L		100
24) Hexane	3.130	57	235873	34.77	ug/L		95
25) 1,1-Dichloroethane	3.295	63	496574	41.45	ug/L		99
26) Diisopropyl ether	3.330	45	792743	44.88	ug/L		96
27) Vinyl acetate	3.295	86	48247	41.41	ug/L	#	94
28) Ethyl tert butyl ether	3.746	59	774709	44.40	ug/L		100
29) 2,2-Dichloropropane	3.954	77	361519	42.37	ug/L		99
30) cis-1,2-Dichloroethene	3.954	61	433085	41.48	ug/L		98
31) 2-Butanone	3.946	43	222551	35.44	ug/L		98
32) Ethyl Acetate	4.004	43	482334	46.75	ug/L	#	99
33) Methyl acrylate	4.061	55	429547	43.28	ug/L		99
34) Propionitrile	4.727	54	24588	43.71	ug/L	#	84

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	237923	43.25 ug/L		98
36) Tetrahydrofuran	4.283	42	158181	42.11 ug/L		99
37) Methacrylonitrile	4.219	41	254384	43.27 ug/L		98
38) Chloroform	4.412	83	523532	43.12 ug/L		98
39) Cyclohexane	4.727	56	359952	37.53 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	393631	41.71 ug/L		98
43) Carbon tetrachloride	4.863	117	360304	44.48 ug/L		97
44) 1,1-Dichloropropene	4.878	75	347685	39.17 ug/L		99
46) 1,2-Dichloroethane	5.293	62	370562	41.04 ug/L		98
47) Benzene	5.178	78	1082297	41.73 ug/L		99
48) Tertiaryamylmethylether	5.443	73	754860	44.83 ug/L		99
49) Isobutyl Alcohol	5.443	43	230098	42.05 ug/L	#	68
50) Heptane	5.759	43	193190	38.59 ug/L		98
51) 1,4-Dioxane	6.812	88	612301	4251.22 ug/L		99
52) Methylcyclohexane	6.654	83	341476	38.39 ug/L		99
53) n-Butanol	6.339	56	160600	339.61 ug/L		95
54) Trichloroethene	6.353	130	296933	40.68 ug/L		100
55) 1,2-Dichloropropane	6.697	63	291610	39.31 ug/L		98
56) Dibromomethane	6.797	93	229471	42.36 ug/L		98
57) Methyl methacrylate	6.819	41	333631	39.96 ug/L		98
58) Bromodichloromethane	7.019	83	393514	41.74 ug/L		98
59) 2-Chloroethyl vinyl ether	7.327	43	145940	42.39 ug/L		99
60) 2-Nitropropane	7.241	43	125450	34.65 ug/L		98
61) cis-1,3-Dichloropropene	7.449	75	466043	41.58 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	437392	40.83 ug/L		99
65) Toluene	7.728	91	1124406	45.34 ug/L		99
66) trans-1,3-Dichloropropene	7.936	75	429212	43.17 ug/L		100
67) Chloropicrin	7.943	117	41764	No Calib		
68) Ethyl methacrylate	7.994	69	443067	41.77 ug/L		99
69) 1,1,2-Trichloroethane	8.087	97	306393	41.88 ug/L		99
70) Tetrachloroethene	8.130	166	296570	45.81 ug/L		99
71) 1,3-Dichloropropane	8.201	76	460871	44.82 ug/L		96
72) 2-Hexanone	8.244	43	344475	40.92 ug/L		99
73) Chlorodibromomethane	8.352	129	355258	44.98 ug/L		99
74) Butyl acetate	8.344	43	602009	42.90 ug/L		100
75) 1,2-Dibromoethane	8.423	107	345639	45.83 ug/L		99
76) Chlorobenzene	8.753	112	732101	43.76 ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	282866	43.78 ug/L		100
78) Ethylbenzene	8.817	91	1203817	45.13 ug/L		100
79) m/p-Xylene	8.896	91	1834913	90.74 ug/L		99
80) Styrene	9.140	104	787099	45.67 ug/L		100
81) o-Xylene	9.125	91	946151	44.09 ug/L		99
82) Cyclohexanone	9.390	55	181001	277.05 ug/L		98
83) Bromoform	9.247	173	270290	45.34 ug/L		99
84) Isopropylbenzene	9.333	105	1104577	43.76 ug/L		100
86) Bromobenzene	9.512	77	712327	45.03 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	535395	47.25 ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	132832	42.72 ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	130796	41.77 ug/L		94
90) n-Propylbenzene	9.562	91	1340689	46.10 ug/L		98
91) 2-Chlorotoluene	9.612	91	799178	45.86 ug/L		99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

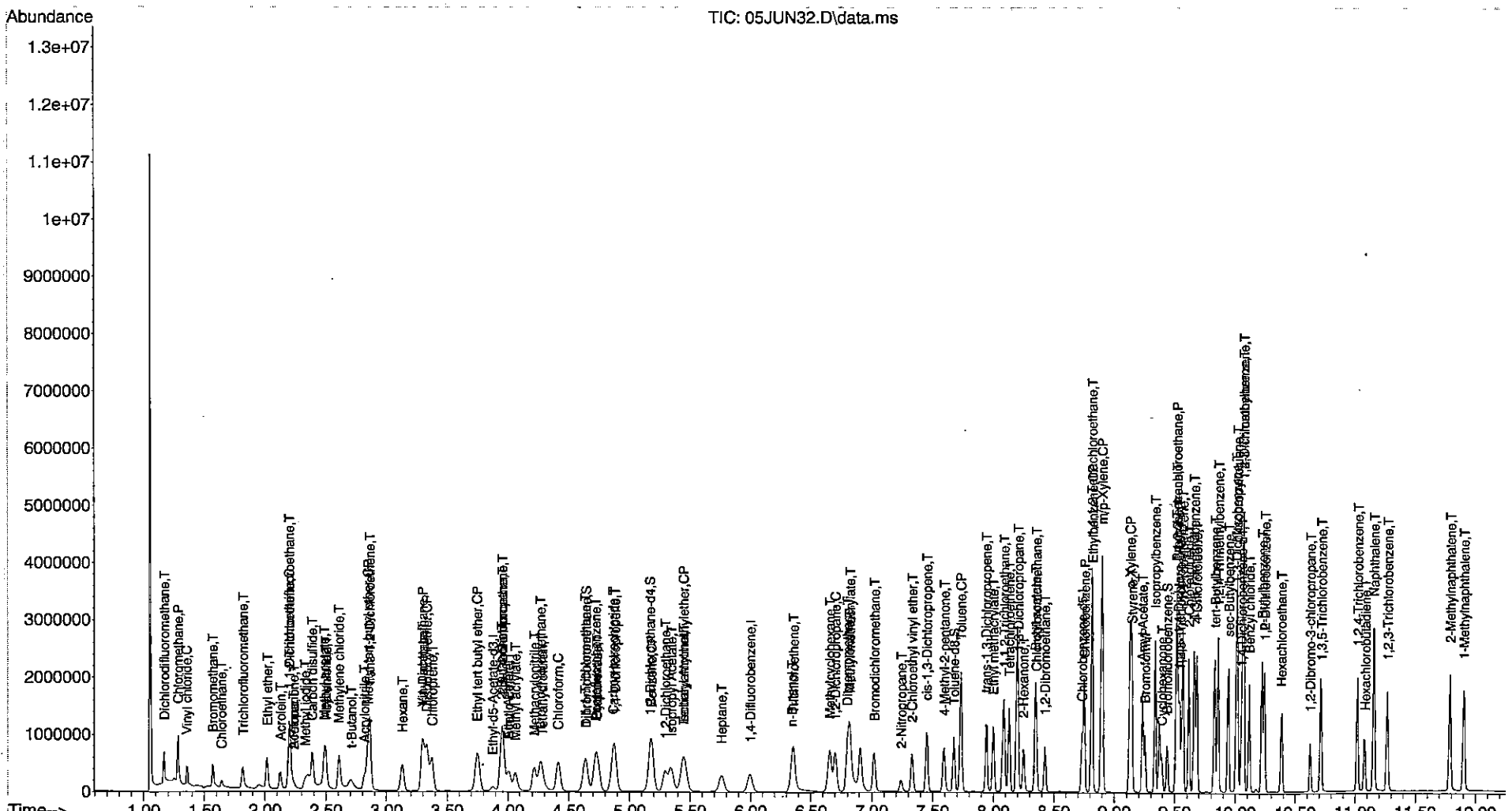
Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92)	4-Chlorotoluene	9.677	91	935146	45.85	ug/L		99
93)	1,3,5-Trimethylbenzene	9.655	105	881589	44.13	ug/L		100
94)	tert-Butylbenzene	9.827	91	507419	42.52	ug/L		99
95)	1,2,4-Trimethylbenzene	9.856	105	931648	43.78	ug/L		99
96)	sec-Butylbenzene	9.942	105	1040206	43.21	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	597599	45.29	ug/L		100
99)	p-Isopropyltoluene	10.013	119	893976	42.10	ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	603007	44.81	ug/L		99
101)	1,2,3-Trimethylbenzene	10.064	105	993408	44.56	ug/L		100
102)	Benzyl chloride	10.114	91	767204	43.55	ug/L		100
103)	1,2-Dichlorobenzene	10.243	146	593992	45.74	ug/L		99
104)	n-Butylbenzene	10.221	91	791362	41.12	ug/L		99
105)	Hexachloroethane	10.379	117	192335	40.25	ug/L		99
106)	1,2-Dibromo-3-chloropr...	10.622	157	148794	39.91	ug/L		99
107)	1,3,5-Trichlorobenzene	10.715	180	395986	44.72	ug/L		99
108)	1,2,4-Trichlorobenzene	11.016	180	387231	42.68	ug/L		99
109)	Hexachlorobutadiene	11.081	225	127372	42.01	ug/L		99
110)	Naphthalene	11.152	128	1442947	43.34	ug/L		99
111)	1,2,3-Trichlorobenzene	11.267	180	387651	43.92	ug/L		99
112)	2-Methylnaphthalene	11.783	142	721475	42.17	ug/L		99
113)	1-Methylnaphthalene	11.897	142	683288	42.85	ug/L		98
115)	2-Propanone	2.234	43	132176	24.83	ug/L		96
116)	Acetic Ether	4.004	43	483792	32.06	ug/L	#	97
117)	Isopropyl Acetate	5.343	61	195916	28.84	ug/L		98
118)	Amyl Acetate	9.226	43	555992	28.62	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN32.D
Acq On : 5 Jun 2018 10:21 pm
Operator : WH
Sample : VCCV2-180605
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 05 22:34:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	80	0.00
2	T	Dichlorodifluoromethane	40.000	52.116	-30.3#	121	0.00
3	P	Chloromethane	40.000	36.415	9.0	78	0.00
4	C	Vinyl chloride	40.000	35.466	11.3	77	0.00
5	T	Bromomethane	40.000	63.956	-59.9#	132	0.00
6	T	Chloroethane	40.000	34.010	15.0	69	0.00
7	T	Trichlorofluoromethane	40.000	38.171	4.6	82	0.00
8	T	Ethyl ether	40.000	33.104	17.2	71	0.00
9	T	Acrolein	200.000	159.644	20.2#	69	0.00
10	C	1,1-Dichloroethene	40.000	34.777	13.1	72	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	37.427	6.4	83	0.00
12	T	Methyl iodide	40.000	30.318	24.2#	63	0.00
13	T	Acetone	40.000	34.721	13.2	79	0.00
14	T	Chloroprene	40.000	37.938	5.2	77	0.00
15	T	Carbon disulfide	40.000	33.014	17.5	69	0.00
16	T	Allyl chloride	40.000	33.926	15.2	71	0.00
17	T	Methyl acetate	40.000	37.921	5.2	76	0.00
18	T	Acetonitrile	40.000	34.110	14.7	71	0.00
19	T	Methylene chloride	40.000	32.140	19.6	68	0.00
20	T	trans-1,2-Dichloroethene	40.000	35.675	10.8	73	0.00
21	T	t-Butanol	200.000	176.043	12.0	71	-0.01
22	T	Acrylonitrile	40.000	36.975	7.6	75	0.00
23	CP	Methyl tert-butyl ether	40.000	43.107	-7.8	84	0.00
24	T	Hexane	40.000	37.053	7.4	86	0.00
25	P	1,1-Dichloroethane	40.000	36.648	8.4	75	0.00
26	CP	Diisopropyl ether	40.000	42.948	-7.4	86	0.00
27	T	Vinyl acetate	40.000	50.703	-26.8#	118	0.00
28	CP	Ethyl tert butyl ether	40.000	42.999	-7.5	87	0.00
29	T	2,2-Dichloropropane	40.000	41.900	-4.7	89	0.00
30	T	cis-1,2-Dichloroethene	40.000	37.890	5.3	78	0.00
31	T	2-Butanone	40.000	34.703	13.2	78	0.00
32	T	Ethyl Acetate	40.000	44.749	-11.9	87	0.00
33	T	Methyl acrylate	40.000	37.677	5.8	74	0.00
34	T	Propionitrile	40.000	46.573	-16.4	95	0.00
35	T	Bromochloromethane	40.000	37.054	7.4	76	0.00
36	T	Tetrahydrofuran	40.000	37.446	6.4	74	0.00
37	T	Methacrylonitrile	40.000	37.084	7.3	70	0.00
38	C	Chloroform	40.000	38.931	2.7	81	0.00
39	T	Cyclohexane	40.000	39.622	0.9	87	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	80	0.00
41	T	1,1,1-Trichloroethane	40.000	40.207	-0.5	82	0.00
42	S	Dibromofluoromethane	20.000	20.381	-1.9	80	0.00
43	T	Carbon tetrachloride	40.000	43.811	-9.5	86	0.00
44	T	1,1-Dichloropropene	40.000	37.282	6.8	81	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.947	-4.7	84	0.00
46	T	1,2-Dichloroethane	40.000	38.360	4.1	84	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	40.415	-1.0	81	0.00
48	CP	Tertiaryamylmethylether	40.000	48.516	-21.3#	95	0.00
49	T	Isobutyl Alcohol	40.000	42.042	-5.1	89	0.00
50	T	Heptane	40.000	47.753	-19.4	96	0.00
51	T	1,4-Dioxane	4000.000	4553.439	-13.8	91	-0.01
52	T	Methylcyclohexane	40.000	43.469	-8.7	93	0.00
53	T	n-Butanol	400.000	365.936	8.5	68	-0.01
54	T	Trichloroethene	40.000	39.816	0.5	83	0.00
55	C	1,2-Dichloropropane	40.000	37.704	5.7	80	0.00
56	T	Dibromomethane	40.000	38.957	2.6	80	0.00
57	T	Methyl methacrylate	40.000	36.335	9.2	78	0.00
58	T	Bromodichloromethane	40.000	40.166	-0.4	80	0.00
59	T	2-Chloroethyl vinyl ether	40.000	41.011	-2.5	87	0.00
60	T	2-Nitropropane	40.000	31.981	20.0#	71	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.868	0.3	79	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	83	0.00
63	T	4-Methyl-2-pentanone	40.000	39.274	1.8	86	0.00
64	S	Toluene-d8	20.000	18.721	6.4	78	0.00
65	CP	Toluene	40.000	40.131	-0.3	83	0.00
66	T	trans-1,3-Dichloropropene	40.000	36.846	7.9	79	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	36.054	9.9	79	0.00
69	T	1,1,2-Trichloroethane	40.000	35.848	10.4	84	0.00
70	T	Tetrachloroethene	40.000	43.404	-8.5	93	0.00
71	T	1,3-Dichloropropane	40.000	39.755	0.6	85	0.00
72	T	2-Hexanone	40.000	40.744	-1.9	87	0.00
73	T	Chlorodibromomethane	40.000	40.767	-1.9	84	0.00
74	T	Butyl acetate	40.000	42.542	-6.4	92	0.00
75	T	1,2-Dibromoethane	40.000	40.714	-1.8	86	0.00
76	P	Chlorobenzene	40.000	41.336	-3.3	87	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	40.214	-0.5	88	0.00
78	CP	Ethylbenzene	40.000	42.376	-5.9	88	0.00
79	CP	m/p-Xylene	80.000	84.399	-5.5	87	0.00
80	T	Styrene	40.000	41.794	-4.5	87	0.00
81	CP	o-Xylene	40.000	40.959	-2.4	86	0.00
82	T	Cyclohexanone	200.000	286.983	-43.5#	111	0.00
83	P	Bromoform	40.000	40.846	-2.1	81	0.00
84	T	Isopropylbenzene	40.000	41.224	-3.1	87	0.00
85	S	Bromofluorobenzene	20.000	20.405	-2.0	83	0.00
86	T	Bromobenzene	40.000	40.110	-0.3	83	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	42.073	-5.2	88	0.00
88	T	1,2,3-Trichloropropane	40.000	37.577	6.1	85	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	36.436	8.9	84	0.00
90	T	n-Propylbenzene	40.000	43.717	-9.3	90	0.00
91	T	2-Chlorotoluene	40.000	42.805	-7.0	89	0.00
92	T	4-Chlorotoluene	40.000	41.163	-2.9	86	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	40.716	-1.8	85	0.00
94	T	tert-Butylbenzene	40.000	37.825	5.4	82	0.00
95	T	1,2,4-Trimethylbenzene	40.000	39.128	2.2	82	0.00
96	T	sec-Butylbenzene	40.000	39.452	1.4	84	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	84	0.00
98	T	1,3-Dichlorobenzene	40.000	42.183	-5.5	86	0.00
99	T	p-Isopropyltoluene	40.000	40.450	-1.1	84	0.00
100	T	1,4-Dichlorobenzene	40.000	42.139	-5.3	87	0.00
101	T	1,2,3-Trimethylbenzene	40.000	44.183	-10.5	91	0.00
102	T	Benzyl chloride	40.000	47.375	-18.4	98	0.00
103	T	1,2-Dichlorobenzene	40.000	42.623	-6.6	86	0.00
104	T	n-Butylbenzene	40.000	41.561	-3.9	87	0.00
105	T	Hexachloroethane	40.000	40.597	-1.5	87	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	36.892	7.8	81	0.00
107	T	1,3,5-Trichlorobenzene	40.000	46.441	-16.1	95	0.00
108	T	1,2,4-Trichlorobenzene	40.000	41.874	-4.7	89	0.00
109	T	Hexachlorobutadiene	40.000	43.672	-9.2	93	0.00
110	T	Naphthalene	40.000	40.702	-1.8	83	0.00
111	T	1,2,3-Trichlorobenzene	40.000	42.901	-7.3	85	0.00
112	T	2-Methylnaphthalene	40.000	41.752	-4.4	84	0.00
113	T	1-Methylnaphthalene	40.000	42.590	-6.5	84	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	100	0.00
115	T	2-Propanone	40.000	23.413	41.5#	63	0.00
116	T	Acetic Ether	40.000	35.447	11.4	87	0.00
117	T	Isopropyl Acetate	40.000	34.223	14.4	89	0.00
118	T	Amyl Acetate	40.000	36.570	8.6	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	80	0.00
2	T	Dichlorodifluoromethane	0.448	0.584	-30.4#	121	0.00
3	P	Chloromethane	0.678	0.617	9.0	78	0.00
4	C	Vinyl chloride	0.531	0.471	11.3	77	0.00
5	T	Bromomethane	0.244	0.261	-7.0	132	0.00
6	T	Chloroethane	0.384	0.230	40.1#	69	0.00
7	T	Trichlorofluoromethane	0.552	0.527	4.5	82	0.00
8	T	Ethyl ether	0.408	0.337	17.4	71	0.00
9	T	Acrolein	0.108	0.065#	39.8#	69	0.00
10	C	1,1-Dichloroethene	0.602	0.524	13.0	72	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.306	6.4	83	0.00
12	T	Methyl iodide	0.433	0.234	46.0#	63	0.00
13	T	Acetone	0.273	0.237	13.2	79	0.00
14	T	Chloroprene	0.609	0.578	5.1	77	0.00
15	T	Carbon disulfide	1.305	1.077	17.5	69	0.00
16	T	Allyl chloride	0.702	0.595	15.2	71	0.00
17	T	Methyl acetate	0.612	0.580	5.2	76	0.00
18	T	Acetonitrile	0.698	0.595	14.8	71	0.00
19	T	Methylene chloride	0.638	0.513	19.6	68	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.584	10.8	73	0.00
21	T	t-Butanol	0.138	0.121#	12.3	71	-0.01
22	T	Acrylonitrile	0.304	0.281	7.6	75	0.00
23	CP	Methyl tert-butyl ether	1.253	1.350	-7.7	84	0.00
24	T	Hexane	0.507	0.470	7.3	86	0.00
25	P	1,1-Dichloroethane	0.895	0.820	8.4	75	0.00
26	CP	Diisopropyl ether	1.320	1.417	-7.3	86	0.00
27	T	Vinyl acetate	0.087	0.110#	-26.4#	118	0.00
28	CP	Ethyl tert butyl ether	1.304	1.402	-7.5	87	0.00
29	T	2,2-Dichloropropane	0.638	0.668	-4.7	89	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.739	5.3	78	0.00
31	T	2-Butanone	0.469	0.407	13.2	78	0.00
32	T	Ethyl Acetate	0.771	0.862	-11.8	87	0.00
33	T	Methyl acrylate	0.742	0.699	5.8	74	0.00
34	T	Propionitrile	0.049	0.049#	0.0	95	0.00
35	T	Bromochloromethane	0.411	0.381	7.3	76	0.00
36	T	Tetrahydrofuran	0.281	0.263	6.4	74	0.00
37	T	Methacrylonitrile	0.439	0.407	7.3	70	0.00
38	C	Chloroform	0.907	0.883	2.6	81	0.00
39	T	Cyclohexane	0.717	0.710	1.0	87	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	80	0.00
41	T	1,1,1-Trichloroethane	0.464	0.467	-0.6	82	0.00
42	S	Dibromofluoromethane	0.347	0.353	-1.7	80	0.00
43	T	Carbon tetrachloride	0.398	0.436	-9.5	86	0.00
44	T	1,1-Dichloropropene	0.437	0.407	6.9	81	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.354	-4.7	84	0.00
46	T	1,2-Dichloroethane	0.444	0.426	4.1	84	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.289	-1.0	81	0.00
48	CP	Tertiaryamylmethylether	0.828	1.005	-21.4#	95	0.00
49	T	Isobutyl Alcohol	0.269	0.283	-5.2	89	0.00
50	T	Heptane	0.289	0.294	-1.7	96	0.00
51	T	1,4-Dioxane	0.007	0.008#	-14.3	91	-0.01
52	T	Methylcyclohexane	0.438	0.475	-8.4	93	0.00
53	T	n-Butanol	0.023	0.021#	8.7	68	-0.01
54	T	Trichloroethene	0.359	0.357	0.6	83	0.00
55	C	1,2-Dichloropropane	0.365	0.344	5.8	80	0.00
56	T	Dibromomethane	0.266	0.260	2.3	80	0.00
57	T	Methyl methacrylate	0.411	0.373	9.2	78	0.00
58	T	Bromodichloromethane	0.464	0.466	-0.4	80	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.174#	-3.0	87	0.00
60	T	2-Nitropropane	0.178	0.142#	20.2#	71	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.550	0.2	79	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	83	0.00
63	T	4-Methyl-2-pentanone	0.622	0.610	1.9	86	0.00
64	S	Toluene-d8	1.305	1.222	6.4	78	0.00
65	CP	Toluene	1.439	1.444	-0.3	83	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.531	8.0	79	0.00
67	T	Chloropicrin	0.000	0.011#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.555	9.8	79	0.00
69	T	1,1,2-Trichloroethane	0.425	0.380	10.6	84	0.00
70	T	Tetrachloroethene	0.376	0.408	-8.5	93	0.00
71	T	1,3-Dichloropropane	0.597	0.593	0.7	85	0.00
72	T	2-Hexanone	0.488	0.498	-2.0	87	0.00
73	T	Chlorodibromomethane	0.458	0.467	-2.0	84	0.00
74	T	Butyl acetate	0.814	0.866	-6.4	92	0.00
75	T	1,2-Dibromoethane	0.438	0.445	-1.6	86	0.00
76	P	Chlorobenzene	0.971	1.003	-3.3	87	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.377	-0.5	88	0.00
78	CP	Ethylbenzene	1.548	1.640	-5.9	88	0.00
79	CP	m/p-Xylene	1.173	1.238	-5.5	87	0.00
80	T	Styrene	1.000	1.045	-4.5	87	0.00
81	CP	o-Xylene	1.245	1.275	-2.4	86	0.00
82	T	Cyclohexanone	0.073	0.054#	26.0#	111	0.00
83	P	Bromoform	0.346	0.353	-2.0	81	0.00
84	T	Isopropylbenzene	1.465	1.509	-3.0	87	0.00
85	S	Bromofluorobenzene	0.473	0.483	-2.1	83	0.00
86	T	Bromobenzene	0.918	0.920	-0.2	83	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.692	-5.2	88	0.00
88	T	1,2,3-Trichloropropane	0.180	0.169#	6.1	85	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.165#	9.3	84	0.00
90	T	n-Propylbenzene	1.688	1.844	-9.2	90	0.00
91	T	2-Chlorotoluene	1.011	1.082	-7.0	89	0.00
92	T	4-Chlorotoluene	1.183	1.218	-3.0	86	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.180	-1.8	85	0.00
94	T	tert-Butylbenzene	0.693	0.655	5.5	82	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.208	2.2	82	0.00
96	T	sec-Butylbenzene	1.397	1.378	1.4	84	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	84	0.00
98	T	1,3-Dichlorobenzene	1.416	1.493	-5.4	86	0.00
99	T	p-Isopropyltoluene	2.279	2.304	-1.1	84	0.00
100	T	1,4-Dichlorobenzene	1.444	1.521	-5.3	87	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.643	-10.5	91	0.00
102	T	Benzyl chloride	1.890	2.239	-18.5	98	0.00
103	T	1,2-Dichlorobenzene	1.393	1.485	-6.6	86	0.00
104	T	n-Butylbenzene	2.065	2.146	-3.9	87	0.00
105	T	Hexachloroethane	0.513	0.520	-1.4	87	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.369	7.8	81	0.00
107	T	1,3,5-Trichlorobenzene	0.950	1.103	-16.1	95	0.00
108	T	1,2,4-Trichlorobenzene	0.974	1.019	-4.6	89	0.00
109	T	Hexachlorobutadiene	0.325	0.355	-9.2	93	0.00
110	T	Naphthalene	3.572	3.635	-1.8	83	0.00
111	T	1,2,3-Trichlorobenzene	0.947	1.016	-7.3	85	0.00
112	T	2-Methylnaphthalene	1.836	1.916	-4.4	84	0.00
113	T	1-Methylnaphthalene	1.711	1.822	-6.5	84	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	100	0.00
115	T	2-Propanone	0.897	0.525	41.5#	63	0.00
116	T	Acetic Ether	2.543	2.254	11.4	87	0.00
117	T	Isopropyl Acetate	1.145	0.980	14.4	89	0.00
118	T	Amyl Acetate	3.274	2.993	8.6	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	273383	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	411187	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	386449	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	198437	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	104632	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	145354	20.38	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.90%				
45) 1,2-Dichloroethane-d4	5.164	65	145438	20.95	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.75%				
64) Toluene-d8	7.671	98	472231	18.72	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.60%				
85) Bromofluorobenzene	9.433	95	186612	20.41	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.05%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	319249	52.12	ug/L		99
3) Chloromethane	1.282	50	337262	36.41	ug/L		99
4) Vinyl chloride	1.353	62	257395	35.47	ug/L		96
5) Bromomethane	1.568	96	142565	63.96	ug/L		99
6) Chloroethane	1.640	64	125960	34.01	ug/L		86
7) Trichlorofluoromethane	1.819	101	287882	38.17	ug/L		97
8) Ethyl ether	2.019	59	184465	33.10	ug/L		99
9) Acrolein	2.127	56	177924m	159.64	ug/L		
10) 1,1-Dichloroethene	2.198	61	286249	34.78	ug/L		92
11) 1,1,2-Trichlorotrifluo...	2.198	151	167223	37.43	ug/L		98
12) Methyl iodide	2.320	142	127779m	30.32	ug/L		
13) Acetone	2.234	43	129775m	34.72	ug/L		
14) Chloroprene	3.373	53	315852	37.94	ug/L		97
15) Carbon disulfide	2.385	76	588986	33.01	ug/L		100
16) Allyl chloride	2.492	41	325325	33.93	ug/L		97
17) Methyl acetate	2.485	43	317001	37.92	ug/L		98
18) Acetonitrile	2.492	41	325325	34.11	ug/L		99
19) Methylene chloride	2.607	49	280269	32.14	ug/L		94
20) trans-1,2-Dichloroethene	2.857	61	319480	35.67	ug/L		95
21) t-Butanol	2.707	59	331322	176.04	ug/L		98
22) Acrylonitrile	2.814	53	153401	36.98	ug/L		95
23) Methyl tert-butyl ether	2.850	73	738318	43.11	ug/L		100
24) Hexane	3.130	57	256708	37.05	ug/L		98
25) 1,1-Dichloroethane	3.294	63	448418	36.65	ug/L		99
26) Diisopropyl ether	3.330	45	774886	42.95	ug/L		86
27) Vinyl acetate	3.294	86	60344	50.70	ug/L	#	61
28) Ethyl tert butyl ether	3.746	59	766391	43.00	ug/L		98
29) 2,2-Dichloropropane	3.953	77	365187	41.90	ug/L		100
30) cis-1,2-Dichloroethene	3.953	61	404114	37.89	ug/L		96
31) 2-Butanone	3.939	43	222576	34.70	ug/L		99
32) Ethyl Acetate	4.004	43	471579	44.75	ug/L	#	100
33) Methyl acrylate	4.061	55	381968	37.68	ug/L		98
34) Propionitrile	4.734	54	26719	46.57	ug/L		85

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	208185	37.05 ug/L		93
36) Tetrahydrofuran	4.283	42	143677	37.45 ug/L		98
37) Methacrylonitrile	4.218	41	222666	37.08 ug/L		96
38) Chloroform	4.412	83	482834	38.93 ug/L		98
39) Cyclohexane	4.734	56	388173	39.62 ug/L		99
41) 1,1,1-Trichloroethane	4.634	97	383705	40.21 ug/L		98
43) Carbon tetrachloride	4.863	117	358921	43.81 ug/L		97
44) 1,1-Dichloropropene	4.877	75	334711	37.28 ug/L		97
46) 1,2-Dichloroethane	5.286	62	350330	38.36 ug/L		100
47) Benzene	5.178	78	1059990	40.42 ug/L		99
48) Tertiaryamylmethylether	5.443	73	826127	48.52 ug/L		97
49) Isobutyl Alcohol	5.443	43	232664	42.04 ug/L		96
50) Heptane	5.759	43	241409	47.75 ug/L		99
51) 1,4-Dioxane	6.811	88	663262	4553.44 ug/L		99
52) Methylcyclohexane	6.654	83	391015	43.47 ug/L		97
53) n-Butanol	6.332	56	175012	365.94 ug/L		96
54) Trichloroethene	6.346	130	293886	39.82 ug/L		99
55) 1,2-Dichloropropane	6.697	63	282898	37.70 ug/L		97
56) Dibromomethane	6.797	93	213445	38.96 ug/L		96
57) Methyl methacrylate	6.819	41	306831	36.34 ug/L		98
58) Bromodichloromethane	7.019	83	382954	40.17 ug/L		98
59) 2-Chloroethyl vinyl ether	7.327	43	142805	41.01 ug/L		100
60) 2-Nitropropane	7.241	43	117099	31.98 ug/L	#	99
61) cis-1,3-Dichloropropene	7.449	75	451920	39.87 ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	471747	39.27 ug/L		100
65) Toluene	7.728	91	1115744	40.13 ug/L		99
66) trans-1,3-Dichloropropene	7.936	75	410759	36.85 ug/L		99
67) Chloropicrin	7.943	117	83335	No Calib		
68) Ethyl methacrylate	7.993	69	428769	36.05 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	294058	35.85 ug/L		98
70) Tetrachloroethene	8.129	166	315014	43.40 ug/L		98
71) 1,3-Dichloropropane	8.201	76	458352	39.75 ug/L		94
72) 2-Hexanone	8.244	43	384543	40.74 ug/L		98
73) Chlorodibromomethane	8.352	129	361023	40.77 ug/L		100
74) Butyl acetate	8.344	43	669288	42.54 ug/L		99
75) 1,2-Dibromoethane	8.423	107	344294	40.71 ug/L		99
76) Chlorobenzene	8.753	112	775367	41.34 ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	291278	40.21 ug/L		100
78) Ethylbenzene	8.817	91	1267450	42.38 ug/L		100
79) m/p-Xylene	8.896	91	1913443	84.40 ug/L		100
80) Styrene	9.139	104	807488	41.79 ug/L		100
81) o-Xylene	9.125	91	985361	40.96 ug/L		99
82) Cyclohexanone	9.390	55	209837	286.98 ug/L		97
83) Bromoform	9.247	173	273028	40.85 ug/L		98
84) Isopropylbenzene	9.333	105	1166582	41.22 ug/L		99
86) Bromobenzene	9.512	77	711428	40.11 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	534555	42.07 ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	130997	37.58 ug/L		96
89) trans-1,4-Dichloro-2-b...	9.526	53	127908	36.44 ug/L		97
90) n-Propylbenzene	9.562	91	1425582	43.72 ug/L		99
91) 2-Chlorotoluene	9.612	91	836299	42.80 ug/L		99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	941269	41.16	ug/L		98
93) 1,3,5-Trimethylbenzene	9.662	105	911896	40.72	ug/L		98
94) tert-Butylbenzene	9.827	91	506145	37.83	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	933589	39.13	ug/L		99
96) sec-Butylbenzene	9.942	105	1064870	39.45	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	592582	42.18	ug/L		99
99) p-Isopropyltoluene	10.021	119	914561	40.45	ug/L		98
100) 1,4-Dichlorobenzene	10.063	146	603788	42.14	ug/L		98
101) 1,2,3-Trimethylbenzene	10.071	105	1048756	44.18	ug/L		100
102) Benzyl chloride	10.114	91	888468	47.37	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	589277	42.62	ug/L		98
104) n-Butylbenzene	10.221	91	851501	41.56	ug/L		100
105) Hexachloroethane	10.386	117	206509	40.60	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.629	157	146441	36.89	ug/L		95
107) 1,3,5-Trichlorobenzene	10.715	180	437837	46.44	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	404509	41.87	ug/L		97
109) Hexachlorobutadiene	11.081	225	140976	43.67	ug/L		98
110) Naphthalene	11.159	128	1442622	40.70	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	403138	42.90	ug/L		99
112) 2-Methylnaphthalene	11.790	142	760558	41.75	ug/L		98
113) 1-Methylnaphthalene	11.904	142	723053	42.59	ug/L		98
115) 2-Propanone	2.234	43	109859	23.41	ug/L		97
116) Acetic Ether	4.004	43	471579	35.45	ug/L	#	99
117) Isopropyl Acetate	5.343	61	204980	34.22	ug/L		98
118) Amyl Acetate	9.225	43	626293	36.57	ug/L		100

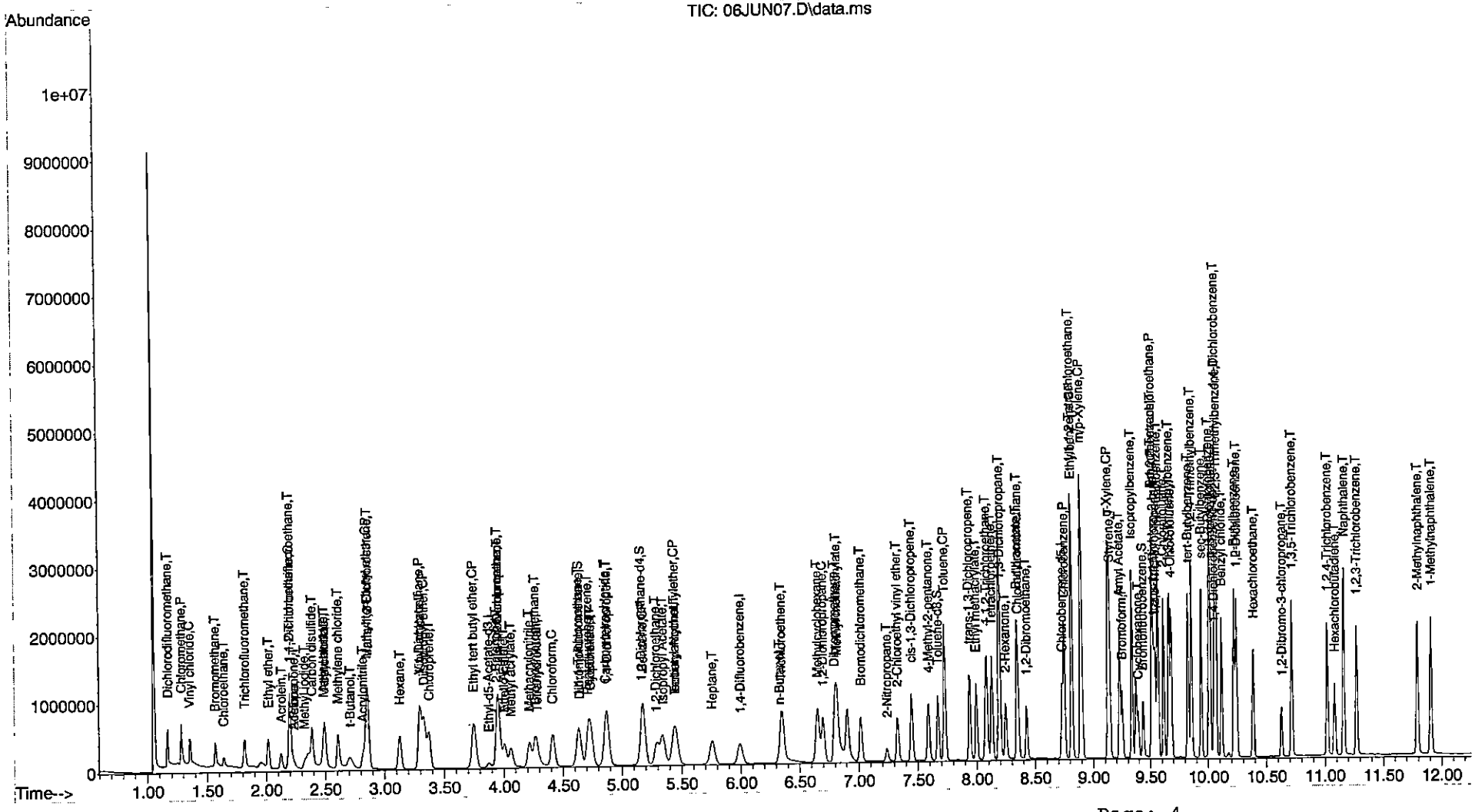
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Qz Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN07.D
Acq On : 6 Jun 2018 10:46 am
Operator : EMR
Sample : VCCV3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 06 11:00:43 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

TIC: 06JUN07.D\data.ms



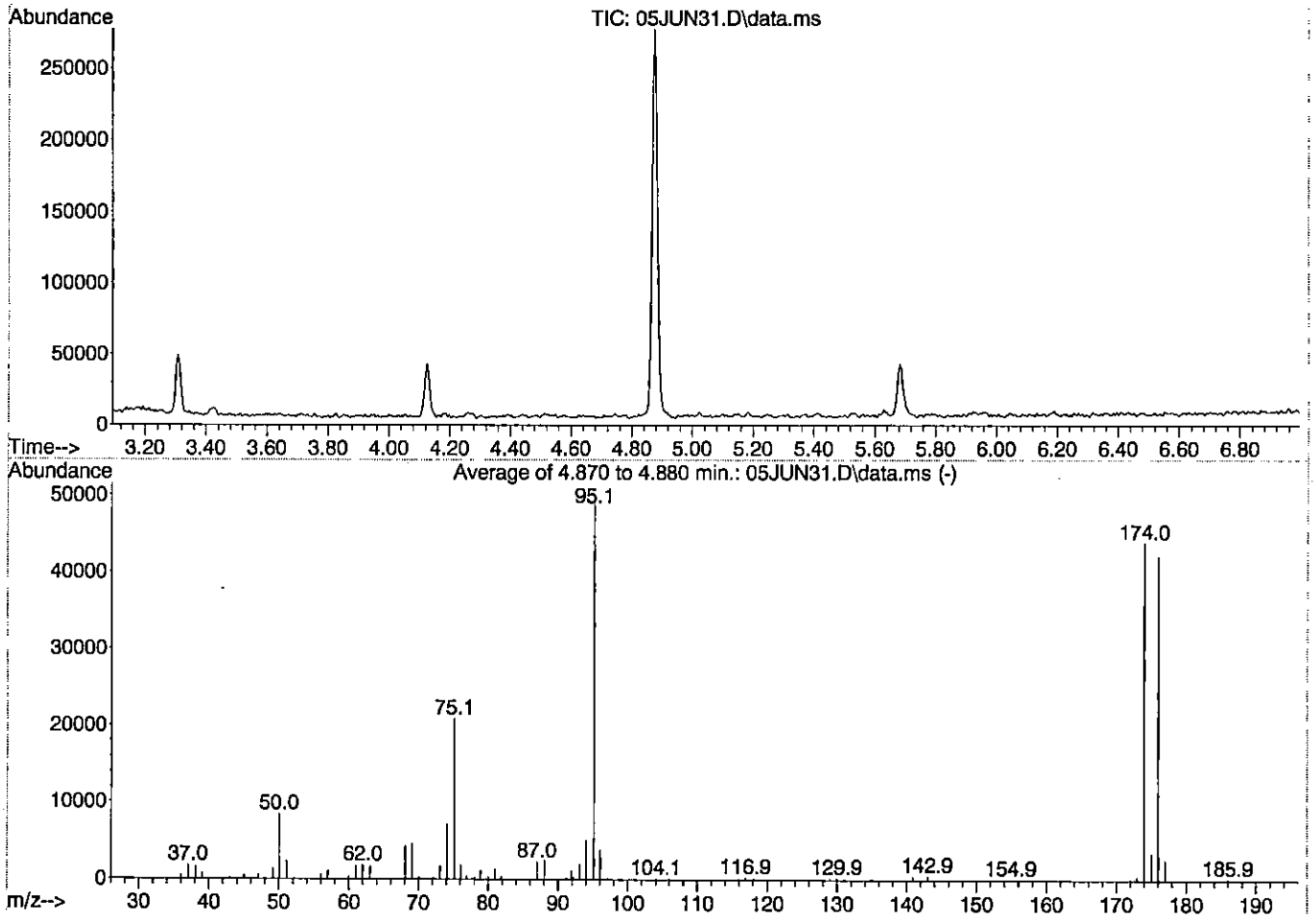
8GI0515.M Fri Jun 29 15:54:58 2018

BFB

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN31.D
Acq On : 5 Jun 2018 10:06 pm
Operator : WH
Sample : VBFB2-180605
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed Jun 27 11:02:07 2018



Spectrum Information: Average of 4.870 to 4.880 min.

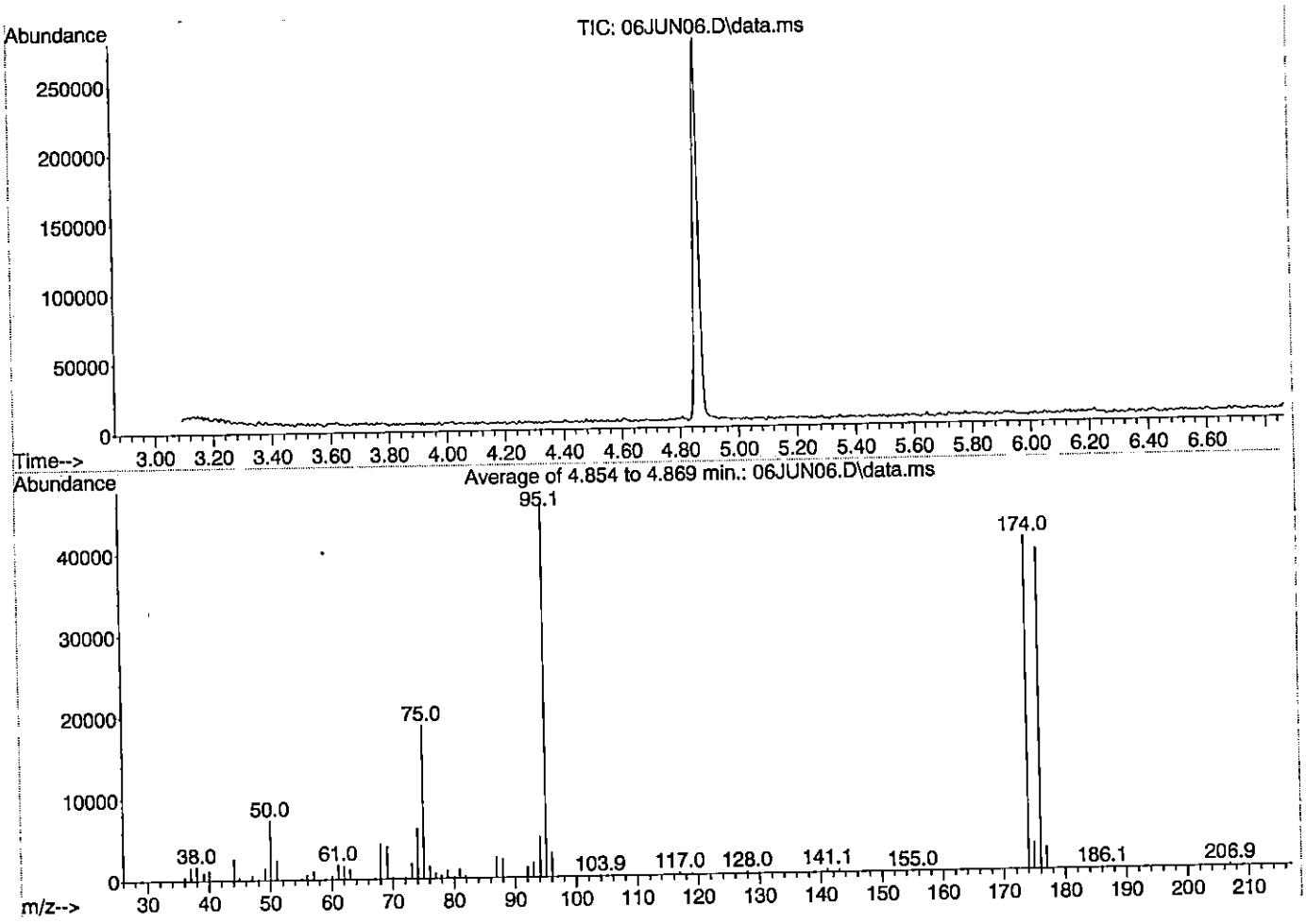
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.1	8399	PASS
75	95	30	60	42.6	20883	PASS
95	95	100	100	100.0	48984	PASS
96	95	5	9	7.8	3812	PASS
173	174	0.00	2	1.1	494	PASS
174	95	50	100	89.4	43800	PASS
175	174	5	9	7.9	3473	PASS
176	174	95	101	95.9	42013	PASS
177	176	5	9	6.3	2630	PASS

BFB

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN06.D
Acq On : 6 Jun 2018 10:05 am
Operator : EMR
Sample : VBFB3-180606
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed Jun 27 11:02:07 2018



Spectrum Information: Average of 4.854 to 4.869 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.3	7391	PASS
75	95	30	60	41.5	18847	PASS
95	95	100	100	100.0	45460	PASS
96	95	5	9	6.7	3056	PASS
173	174	0.00	2	0.4	149	PASS
174	95	50	100	89.7	40764	PASS
175	174	5	9	8.0	3246	PASS
176	174	95	101	96.3	39238	PASS
177	176	5	9	6.9	2696	PASS

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN37.D
Acq On : 5 Jun 2018 11:41 pm
Operator : WH
Sample : VBLKW2-180605
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 05 23:53:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	281583	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	421340	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	376743	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	178907	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	121850	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	150360	20.57	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.85%				
45) 1,2-Dichloroethane-d4	5.164	65	155876	21.91	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 109.55%				
64) Toluene-d8	7.671	98	501942	20.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.05%				
85) Bromofluorobenzene	9.433	95	173119	19.42	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.618	64	8950	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN37.D
Acq On : 5 Jun 2018 11:41 pm
Operator : WH
Sample : VBLKW2-180605
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 05 23:53:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.	d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN37.D
Acq On : 5 Jun 2018 11:41 pm
Operator : WH
Sample : VBLKW2-180605
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 05 23:53:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

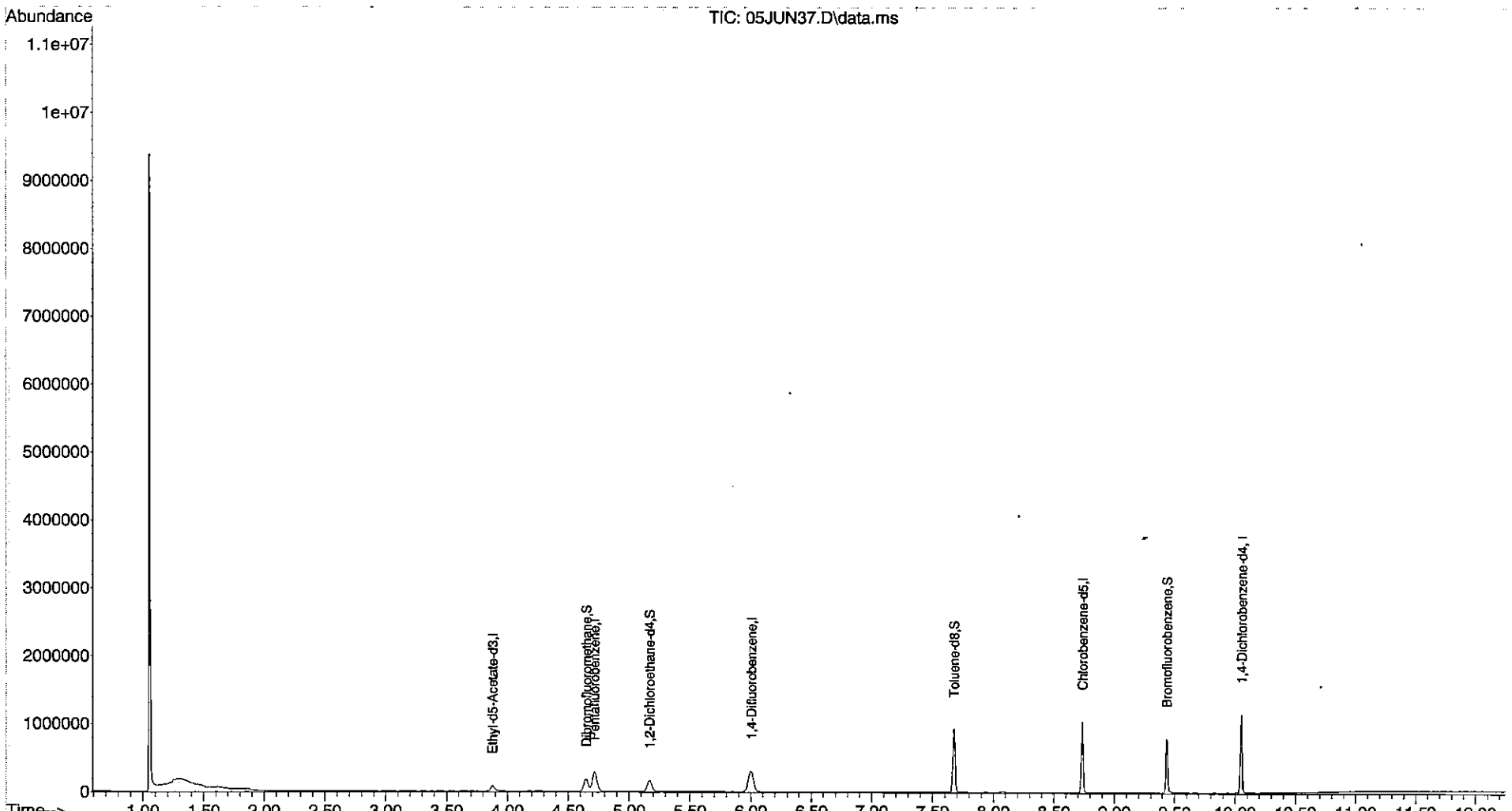
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN37.D
Acq On : 5 Jun 2018 11:41 pm
Operator : WH
Sample : VBLKW2-180605
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 05 23:53:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN35.D
Acq On : 5 Jun 2018 11:09 pm
Operator : WH
Sample : VLCSW3-180605
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 05 23:21:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	280779	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	423087	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	380324	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	192123	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	116036	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	151757	20.68	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.40%				
45) 1,2-Dichloroethane-d4	5.171	65	154357	21.61	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 108.05%				
64) Toluene-d8	7.671	98	507589	20.45	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.25%				
85) Bromofluorobenzene	9.433	95	173455	19.27	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	112492	17.88	ug/L		97
3) Chloromethane	1.282	50	190453	20.02	ug/L		98
4) Vinyl chloride	1.360	62	151975	20.39	ug/L		96
5) Bromomethane	1.568	96	72206	30.81	ug/L		98
6) Chloroethane	1.640	64	74427	17.38	ug/L		82
7) Trichlorofluoromethane	1.819	101	123373	15.93	ug/L		99
8) Ethyl ether	2.019	59	110150	19.25	ug/L		95
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	182266	21.56	ug/L		96
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	125264	28.86	ug/L		96
13) Acetone	2.234	43	74511	19.41	ug/L		92
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	366472	20.00	ug/L		98
16) Allyl chloride	2.499	41	162801	16.53	ug/L	#	86
17) Methyl acetate	2.478	43	5547	0.65	ug/L	#	1
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	172126	19.22	ug/L		98
20) trans-1,2-Dichloroethene	2.865	61	192947	20.98	ug/L		97
21) t-Butanol	2.714	59	205952	106.55	ug/L		98
22) Acrylonitrile	2.822	53	85035	19.96	ug/L		98
23) Methyl tert-butyl ether	2.850	73	413826	23.53	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.301	63	256848	20.44	ug/L		99
26) Diisopropyl ether	3.337	45	399472	21.56	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	385447	21.06	ug/L		99
29) 2,2-Dichloropropane	3.961	77	177464	19.83	ug/L		95
30) cis-1,2-Dichloroethene	3.961	61	233445	21.31	ug/L		98
31) 2-Butanone	3.953	43	118398	17.97	ug/L		99
32) Ethyl Acetate	4.011	43	222833	20.59	ug/L		99
33) Methyl acrylate	4.068	55	203843	19.58	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN35.D
Acq On : 5 Jun 2018 11:09 pm
Operator : WH
Sample : VLCSW3-180605
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 05 23:21:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	116893	20.26 ug/L		94
36) Tetrahydrofuran	4.290	42	76604	19.44 ug/L		94
37) Methacrylonitrile	4.226	41	124817	20.24 ug/L		97
38) Chloroform	4.419	83	258769	20.31 ug/L		98
39) Cyclohexane	4.713	56	5441	0.54 ug/L	#	1
41) 1,1,1-Trichloroethane	4.634	97	201437	20.51 ug/L		99
43) Carbon tetrachloride	4.870	117	169791	20.14 ug/L		98
44) 1,1-Dichloropropene	4.877	75	171489	18.56 ug/L		99
46) 1,2-Dichloroethane	5.293	62	187862	19.99 ug/L		98
47) Benzene	5.185	78	563549	20.88 ug/L		99
48) Tertiaryamylmethylether	5.450	73	390327	22.28 ug/L		99
49) Isobutyl Alcohol	5.450	43	117042	20.55 ug/L		98
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D. d		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	6.353	130	150710	19.84 ug/L		96
55) 1,2-Dichloropropane	6.704	63	151288	19.60 ug/L	#	87
56) Dibromomethane	6.797	93	114169	20.25 ug/L		95
57) Methyl methacrylate	6.826	41	156310	17.99 ug/L		98
58) Bromodichloromethane	7.019	83	190792	19.45 ug/L		99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d		
60) 2-Nitropropane	7.241	43	59159	15.70 ug/L	#	95
61) cis-1,3-Dichloropropene	7.449	75	233438	20.01 ug/L		100
63) 4-Methyl-2-pentanone	7.599	43	360351	30.48 ug/L		79
65) Toluene	7.728	91	573948	20.98 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	209056	19.05 ug/L		100
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	8.000	69	222917	19.05 ug/L		99
69) 1,1,2-Trichloroethane	8.086	97	154208	19.10 ug/L		99
70) Tetrachloroethene	8.129	166	155381	21.75 ug/L		99
71) 1,3-Dichloropropane	8.201	76	229295	20.21 ug/L		96
72) 2-Hexanone	8.251	43	183716	19.78 ug/L		98
73) Chlorodibromomethane	8.351	129	157746	18.10 ug/L		99
74) Butyl acetate	8.344	43	279781	18.07 ug/L		100
75) 1,2-Dibromoethane	8.423	107	180363	21.67 ug/L		99
76) Chlorobenzene	8.753	112	380533	20.61 ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	144173	20.23 ug/L		97
78) Ethylbenzene	8.817	91	613221	20.83 ug/L		100
79) m/p-Xylene	8.896	91	922200	41.33 ug/L		100
80) Styrene	9.139	104	402316	21.16 ug/L		98
81) o-Xylene	9.125	91	479733	20.26 ug/L		100
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	9.247	173	120328	18.29 ug/L		99
84) Isopropylbenzene	9.333	105	556833	19.99 ug/L		99
86) Bromobenzene	9.512	77	351838	20.16 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	275634	22.04 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	67575	19.70 ug/L		95
89) trans-1,4-Dichloro-2-b...	9.526	53	54176	15.68 ug/L		91
90) n-Propylbenzene	9.562	91	659977	20.56 ug/L		98
91) 2-Chlorotoluene	9.612	91	409990	21.32 ug/L		99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN35.D
Acq On : 5 Jun 2018 11:09 pm
Operator : WH
Sample : VLCSW3-180605
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

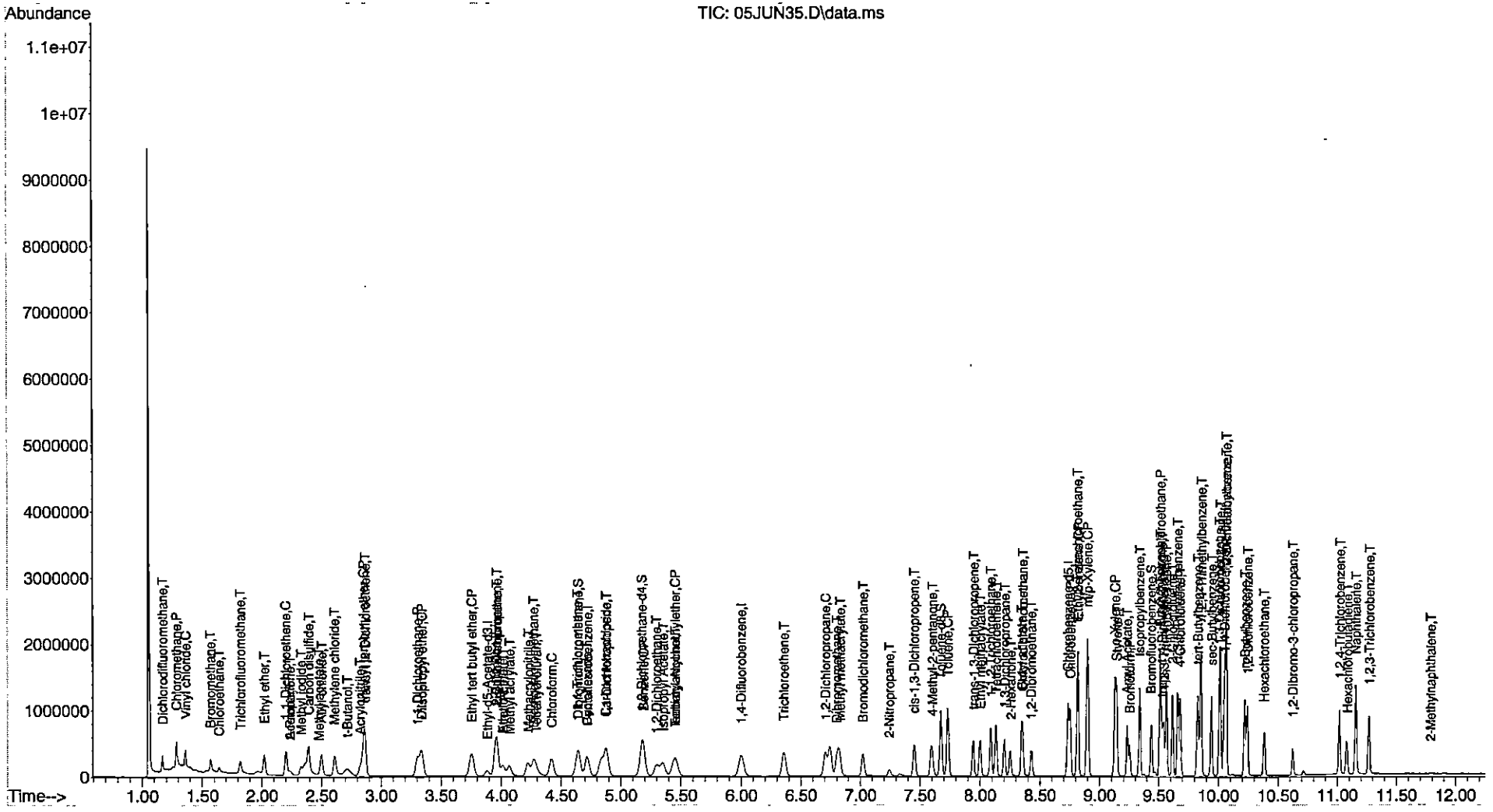
Quant Time: Jun 05 23:21:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	470021	20.89 ug/L	99
93) 1,3,5-Trimethylbenzene	9.655	105	450646	20.45 ug/L	100
94) tert-Butylbenzene	9.827	91	261388	19.85 ug/L	91
95) 1,2,4-Trimethylbenzene	9.856	105	460698	19.62 ug/L	100
96) sec-Butylbenzene	9.942	105	531200	20.00 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	296788	21.82 ug/L	100
99) p-Isopropyltoluene	10.013	119	447860	20.46 ug/L	99
100) 1,4-Dichlorobenzene	10.063	146	308587	22.24 ug/L	98
101) 1,2,3-Trimethylbenzene	10.063	105	461007	20.06 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.242	146	292091	21.82 ug/L	99
104) n-Butylbenzene	10.221	91	399707	20.15 ug/L	99
105) Hexachloroethane	10.379	117	87490	17.76 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.622	157	69300	18.03 ug/L	99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	194894	20.84 ug/L	99
109) Hexachlorobutadiene	11.081	225	68761	22.00 ug/L	99
110) Naphthalene	11.152	128	691291	20.14 ug/L	100
111) 1,2,3-Trichlorobenzene	11.267	180	191251	21.02 ug/L	98
112) 2-Methylnaphthalene	11.783	142	5070	0.29 ug/L #	6
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	74511	14.32 ug/L	92
116) Acetic Ether	4.011	43	220378	14.94 ug/L #	98
117) Isopropyl Acetate	5.350	61	94526	14.23 ug/L	97
118) Amyl Acetate	9.225	43	256741	13.52 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN35.D
Acq On : 5 Jun 2018 11:09 pm
Operator : WH
Sample : VLCSW3-180605
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 05 23:21:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN55.D
Acq On : 6 Jun 2018 4:24 am
Operator : WH
Sample : 1806057-01A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 54 Sample Multiplier: 1

Quant Time: Jun 06 04:37:23 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	265829	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	379472	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	349569	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	188594	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	95356	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	130812	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.35%				
45) 1,2-Dichloroethane-d4	5.171	65	123600	19.29	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.45%				
64) Toluene-d8	7.671	98	437166	19.16	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.80%				
85) Bromofluorobenzene	9.433	95	153853	18.60	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	119357	20.04	ug/L		97
3) Chloromethane	1.282	50	117464	13.04	ug/L		98
4) Vinyl chloride	1.361	62	110011	15.59	ug/L		95
5) Bromomethane	1.583	96	95211	43.47	ug/L		97
6) Chloroethane	1.647	64	70779	17.48	ug/L		91
7) Trichlorofluoromethane	1.826	101	144377	19.69	ug/L		98
8) Ethyl ether	2.020	59	85184	15.72	ug/L		95
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	171993	21.49	ug/L		91
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.328	142	141673	34.86	ug/L		97
13) Acetone	2.234	43	67186	18.49	ug/L		97
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	345783	19.93	ug/L		97
16) Allyl chloride	2.499	41	154663	16.59	ug/L		95
17) Methyl acetate	2.485	43	9649	1.19	ug/L	#	15
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.614	49	139985	16.51	ug/L		90
20) trans-1,2-Dichloroethene	2.865	61	163513	18.78	ug/L		93
21) t-Butanol	2.707	59	153659	83.96	ug/L		97
22) Acrylonitrile	2.815	53	69786	17.30	ug/L		97
23) Methyl tert-butyl ether	2.850	73	325519	19.55	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.302	63	215451	18.11	ug/L		100
26) Diisopropyl ether	3.338	45	319325	18.20	ug/L	#	48
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	305696	17.64	ug/L		98
29) 2,2-Dichloropropane	3.968	77	138307	16.32	ug/L		96
30) cis-1,2-Dichloroethene	3.961	61	211256	20.37	ug/L		99
31) 2-Butanone	3.954	43	89440	14.34	ug/L		94
32) Ethyl Acetate	4.011	43	183193	17.88	ug/L	#	100
33) Methyl acrylate	4.068	55	168706	17.11	ug/L		100
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN55.D
Acq On : 6 Jun 2018 4:24 am
Operator : WH
Sample : 1806057-01A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 54 Sample Multiplier: 1

Quant Time: Jun 06 04:37:23 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	96621	17.69 ug/L	83
36) Tetrahydrofuran	4.290	42	58522	15.69 ug/L	91
37) Methacrylonitrile	4.219	41	95631	16.38 ug/L	96
38) Chloroform	4.419	83	221008	18.33 ug/L	97
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.641	97	181386	20.60 ug/L	99
43) Carbon tetrachloride	4.870	117	152515	20.17 ug/L	99
44) 1,1-Dichloropropene	4.885	75	148578	17.93 ug/L	95
46) 1,2-Dichloroethane	5.293	62	146139	17.34 ug/L	98
47) Benzene	5.186	78	486290	20.09 ug/L	98
48) Tertiaryamylmethylether	5.451	73	308281	19.62 ug/L	98
49) Isobutyl Alcohol	5.451	43	91639	17.94 ug/L #	94
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	139273	20.45 ug/L	96
55) 1,2-Dichloropropane	6.704	63	126111	18.21 ug/L	89
56) Dibromomethane	6.797	93	91908	18.18 ug/L	96
57) Methyl methacrylate	6.819	41	120139	15.42 ug/L	93
58) Bromodichloromethane	7.019	83	155929	17.72 ug/L	98
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	42707	12.64 ug/L #	93
61) cis-1,3-Dichloropropene	7.456	75	184006	17.59 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	283606	26.10 ug/L	80
65) Toluene	7.728	91	493238	19.61 ug/L	100
66) trans-1,3-Dichloropropene	7.943	75	166952	16.56 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	172892	16.07 ug/L	94
69) 1,1,2-Trichloroethane	8.087	97	132238	17.82 ug/L	97
70) Tetrachloroethene	8.130	166	150087	22.86 ug/L	97
71) 1,3-Dichloropropane	8.201	76	190998	18.31 ug/L	96
72) 2-Hexanone	8.251	43	146610	17.17 ug/L	100
73) Chlorodibromomethane	8.352	129	135117	16.87 ug/L	99
74) Butyl acetate	8.344	43	232719	16.35 ug/L	97
75) 1,2-Dibromoethane	8.430	107	151700	19.83 ug/L #	98
76) Chlorobenzene	8.753	112	329260	19.41 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.817	131	124460	19.00 ug/L	98
78) Ethylbenzene	8.817	91	531608	19.65 ug/L	98
79) m/p-Xylene	8.896	91	812565	39.62 ug/L	97
80) Styrene	9.140	104	340705	19.49 ug/L	98
81) o-Xylene	9.125	91	415045	19.07 ug/L	96
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	105825	17.50 ug/L	97
84) Isopropylbenzene	9.333	105	494957	19.34 ug/L	100
86) Bromobenzene	9.512	77	296806	18.50 ug/L	90
87) 1,1,2,2-Tetrachloroethane	9.512	83	234893	20.44 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	57280	18.16 ug/L	91
89) trans-1,4-Dichloro-2-b...	9.526	53	40985	12.91 ug/L	92
90) n-Propylbenzene	9.562	91	573479	19.44 ug/L	98
91) 2-Chlorotoluene	9.612	91	347336	19.65 ug/L	94

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN55.D
Acq On : 6 Jun 2018 4:24 am
Operator : WH
Sample : 1806057-01A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 54 Sample Multiplier: 1

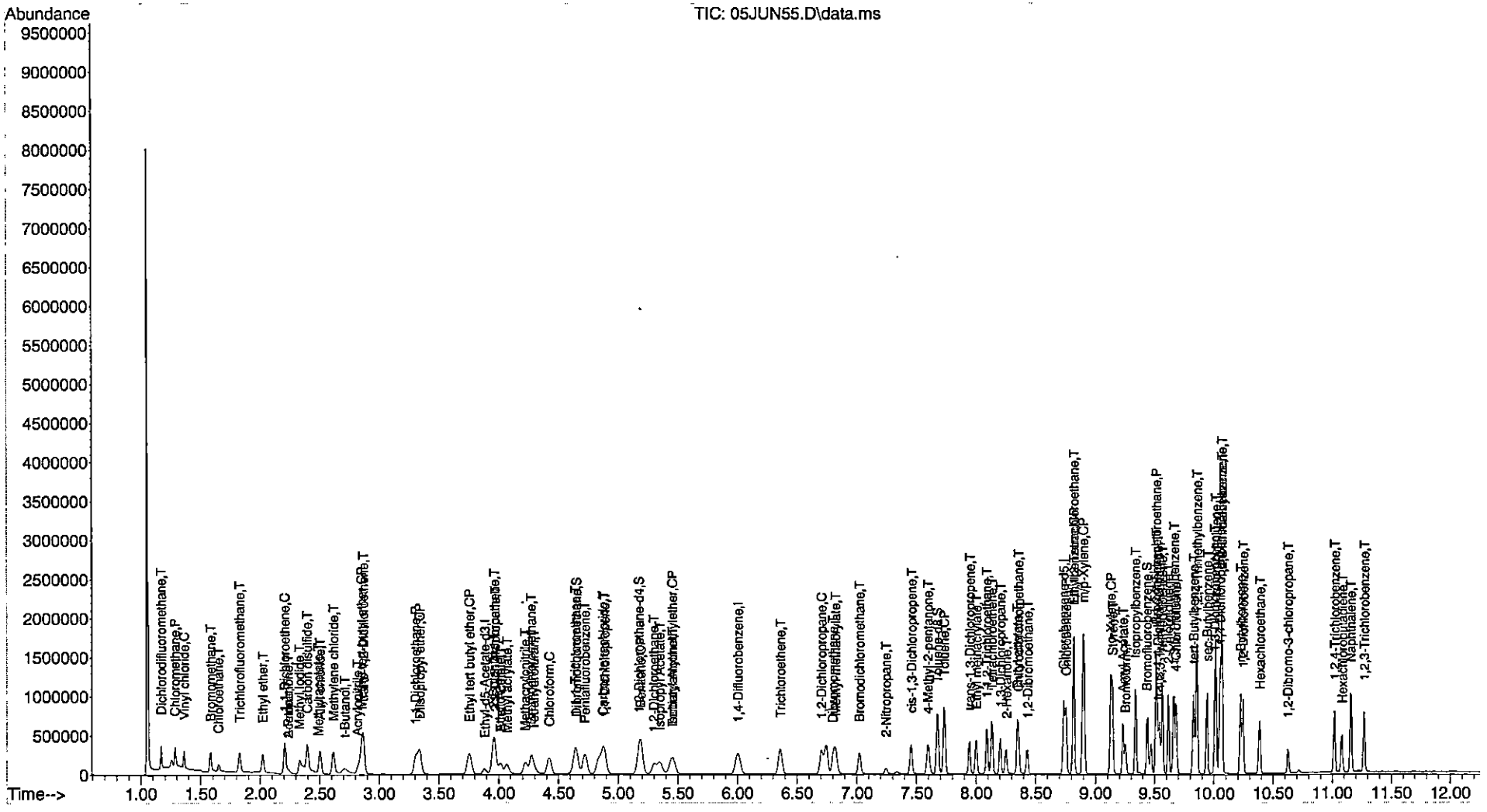
Quant Time: Jun 06 04:37:23 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92)	4-Chlorotoluene	9.677	91	384153	18.57	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	385325	19.02	ug/L		97
94)	tert-Butylbenzene	9.827	91	209588	17.32	ug/L		89
95)	1,2,4-Trimethylbenzene	9.856	105	405308	18.78	ug/L		97
96)	sec-Butylbenzene	9.942	105	457195	18.73	ug/L		98
98)	1,3-Dichlorobenzene	10.006	146	263949	19.77	ug/L		99
99)	p-Isopropyltoluene	10.013	119	380112	17.69	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	272971	20.05	ug/L		98
101)	1,2,3-Trimethylbenzene	10.064	105	403745	17.90	ug/L		97
102)	Benzyl chloride	0.000		0	N.D.	d		
103)	1,2-Dichlorobenzene	10.243	146	262150	19.95	ug/L		97
104)	n-Butylbenzene	10.221	91	331017	17.00	ug/L		98
105)	Hexachloroethane	10.386	117	75648	15.65	ug/L		96
106)	1,2-Dibromo-3-chloropr...	10.622	157	63580	16.85	ug/L		93
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.			
108)	1,2,4-Trichlorobenzene	11.016	180	161845	17.63	ug/L		99
109)	Hexachlorobutadiene	11.081	225	65628	21.39	ug/L		97
110)	Naphthalene	11.152	128	578473	17.17	ug/L		99
111)	1,2,3-Trichlorobenzene	11.267	180	161424	18.07	ug/L		96
112)	2-Methylnaphthalene	0.000		0	N.D.			
113)	1-Methylnaphthalene	0.000		0	N.D.			
115)	2-Propanone	2.234	43	67186	15.71	ug/L		97
116)	Acetic Ether	4.011	43	184095	15.18	ug/L	#	98
117)	Isopropyl Acetate	5.343	61	78179	14.32	ug/L		90
118)	Amyl Acetate	9.226	43	219383	14.06	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN55.D
Acq On : 6 Jun 2018 4:24 am
Operator : WH
Sample : 1806057-01A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 54 Sample Multiplier: 1

Quant Time: Jun 06 04:37:23 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN56.D
Acq On : 6 Jun 2018 4:40 am
Operator : WH
Sample : 1806057-01A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 55 Sample Multiplier: 1

Quant Time: Jun 06 04:53:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	253276	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	361214	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	331165	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	175686	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	93766	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	128237	20.47	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.35%				
45) 1,2-Dichloroethane-d4	5.171	65	119900	19.66	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.30%				
64) Toluene-d8	7.671	98	422803	19.56	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.80%				
85) Bromofluorobenzene	9.433	95	146191	18.65	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	113853	20.06	ug/L		99
3) Chloromethane	1.282	50	108212	12.61	ug/L		99
4) Vinyl chloride	1.361	62	108172	16.09	ug/L		100
5) Bromomethane	1.583	96	89334	42.79	ug/L		97
6) Chloroethane	1.654	64	80147	21.65	ug/L		90
7) Trichlorofluoromethane	1.826	101	141603	20.27	ug/L		99
8) Ethyl ether	2.019	59	85460	16.55	ug/L		95
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	163654	21.46	ug/L		88
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.328	142	147862	38.42	ug/L		97
13) Acetone	2.242	43	66311	19.15	ug/L		94
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	341212	20.64	ug/L		96
16) Allyl chloride	2.499	41	148110	16.67	ug/L		93
17) Methyl acetate	2.485	43	7639	0.99	ug/L	#	23
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.614	49	137776	17.05	ug/L		90
20) trans-1,2-Dichloroethene	2.865	61	162939	19.64	ug/L		92
21) t-Butanol	2.714	59	148756	85.31	ug/L	#	90
22) Acrylonitrile	2.822	53	70996	18.47	ug/L		98
23) Methyl tert-butyl ether	2.850	73	326973	20.61	ug/L		98
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.302	63	205474	18.13	ug/L		99
26) Diisopropyl ether	3.337	45	310049	18.55	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	297500	18.02	ug/L		97
29) 2,2-Dichloropropane	3.961	77	141638	17.54	ug/L		97
30) cis-1,2-Dichloroethene	3.961	61	184742	18.70	ug/L		92
31) 2-Butanone	3.954	43	87583	14.74	ug/L		93
32) Ethyl Acetate	4.011	43	178551	18.29	ug/L	#	100
33) Methyl acrylate	4.068	55	164510	17.52	ug/L		98
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN56.D
Acq On : 6 Jun 2018 4:40 am
Operator : WH
Sample : 1806057-01A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 55 Sample Multiplier: 1

Quant Time: Jun 06 04:53:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.276	49	100510	19.31 ug/L	90
36) Tetrahydrofuran	4.297	42	58607	16.49 ug/L	95
37) Methacrylonitrile	4.226	41	96372	17.32 ug/L	96
38) Chloroform	4.419	83	213051	18.54 ug/L	97
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.641	97	175117	20.89 ug/L	99
43) Carbon tetrachloride	4.870	117	152051	21.13 ug/L	99
44) 1,1-Dichloropropene	4.885	75	148612	18.84 ug/L	96
46) 1,2-Dichloroethane	5.293	62	144562	18.02 ug/L	99
47) Benzene	5.186	78	471789	20.48 ug/L	98
48) Tertiaryamylmethylether	5.443	73	306584	20.50 ug/L	97
49) Isobutyl Alcohol	5.451	43	85009	17.49 ug/L	98
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	136003	20.97 ug/L	98
55) 1,2-Dichloropropane	6.704	63	119969	18.20 ug/L	87
56) Dibromomethane	6.804	93	92788	19.28 ug/L	98
57) Methyl methacrylate	6.826	41	116833	15.75 ug/L	93
58) Bromodichloromethane	7.019	83	154278	18.42 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	41985	13.05 ug/L #	93
61) cis-1,3-Dichloropropene	7.456	75	185335	18.61 ug/L	97
63) 4-Methyl-2-pentanone	7.592	43	275376	26.75 ug/L	80
65) Toluene	7.728	91	487588	20.47 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	162168	16.98 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	174012	17.07 ug/L	97
69) 1,1,2-Trichloroethane	8.087	97	128943	18.34 ug/L	98
70) Tetrachloroethene	8.130	166	148778	23.92 ug/L	95
71) 1,3-Dichloropropane	8.201	76	187626	18.99 ug/L	95
72) 2-Hexanone	8.251	43	143806	17.78 ug/L	99
73) Chlorodibromomethane	8.352	129	136789	18.02 ug/L	98
74) Butyl acetate	8.344	43	227056	16.84 ug/L	96
75) 1,2-Dibromoethane	8.430	107	144445	19.93 ug/L #	96
76) Chlorobenzene	8.753	112	329209	20.48 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.817	131	118100	19.03 ug/L	96
78) Ethylbenzene	8.817	91	512676	20.00 ug/L	97
79) m/p-Xylene	8.896	91	788260	40.57 ug/L	98
80) Styrene	9.140	104	341071	20.60 ug/L	96
81) o-Xylene	9.125	91	421555	20.45 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	105125	18.35 ug/L	97
84) Isopropylbenzene	9.333	105	492434	20.31 ug/L	99
86) Bromobenzene	9.512	77	289148	19.02 ug/L	88
87) 1,1,2,2-Tetrachloroethane	9.512	83	225718	20.73 ug/L	97
88) 1,2,3-Trichloropropane	9.541	110	54174	18.13 ug/L	93
89) trans-1,4-Dichloro-2-b...	9.526	53	40423	13.44 ug/L	95
90) n-Propylbenzene	9.562	91	549887	19.68 ug/L	99
91) 2-Chlorotoluene	9.612	91	348056	20.79 ug/L	98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN56.D
Acq On : 6 Jun 2018 4:40 am
Operator : WH
Sample : 1806057-01A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 55 Sample Multiplier: 1

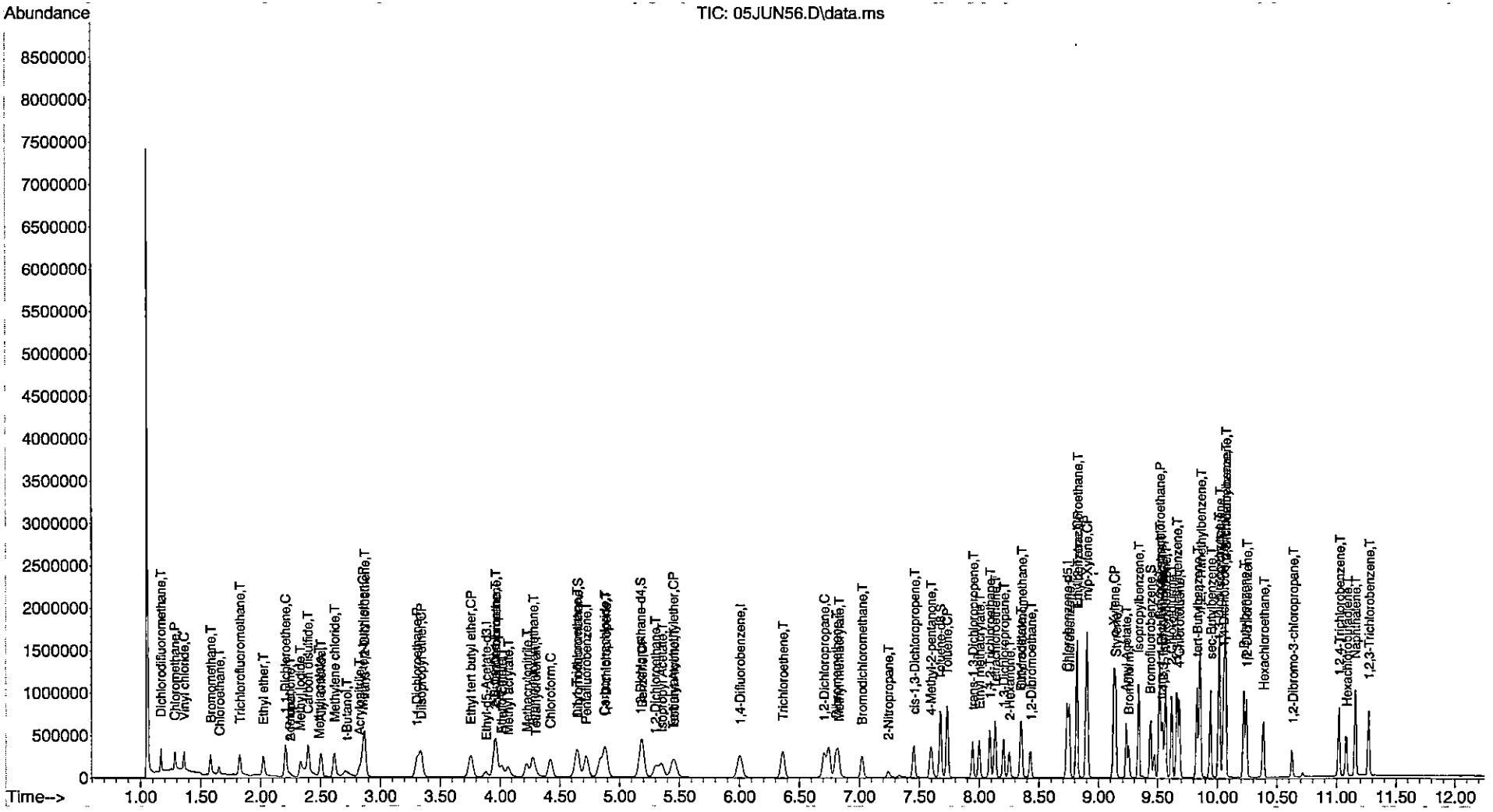
Quant Time: Jun 06 04:53:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	390891	19.95	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	386475	20.14	ug/L		98
94) tert-Butylbenzene	9.827	91	217315	18.95	ug/L		88
95) 1,2,4-Trimethylbenzene	9.856	105	397331	19.43	ug/L		97
96) sec-Butylbenzene	9.942	105	460675	19.92	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	266272	21.41	ug/L		98
99) p-Isopropyltoluene	10.013	119	384392	19.20	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	269871	21.27	ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	403369	19.19	ug/L		100
102) Benzyl chloride	0.000		0	N.D.	d		
103) 1,2-Dichlorobenzene	10.243	146	267883	21.89	ug/L		97
104) n-Butylbenzene	10.221	91	349640	19.28	ug/L		99
105) Hexachloroethane	10.386	117	74045	16.44	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	60912	17.33	ug/L		97
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	172916	20.22	ug/L		95
109) Hexachlorobutadiene	11.081	225	69690	24.38	ug/L		98
110) Naphthalene	11.152	128	565452	18.02	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	168658	20.27	ug/L		99
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	2.242	43	66311	15.77	ug/L		94
116) Acetic Ether	4.011	43	180295	15.12	ug/L	#	98
117) Isopropyl Acetate	5.350	61	79574	14.83	ug/L		94
118) Amyl Acetate	9.226	43	214061	13.95	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180605\
Data File : 05JUN56.D
Acq On : 6 Jun 2018 4:40 am
Operator : WH
Sample : 1806057-01A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 55 Sample Multiplier: 1

Quant Time: Jun 06 04:53:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN11.D
Acq On : 6 Jun 2018 12:01 pm
Operator : EMR
Sample : VBLKW1-180606
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 06 12:14:26 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	261195	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	375755	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	359915	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183427	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	100162	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	132116	20.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.35%				
45) 1,2-Dichloroethane-d4	5.164	65	130024	20.49	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.45%				
64) Toluene-d8	7.671	98	469400	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.90%				
85) Bromofluorobenzene	9.433	95	171198	20.10	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.	d		
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN11.D
Acq On : 6 Jun 2018 12:01 pm
Operator : EMR
Sample : VBLKW1-180606
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 06 12:14:26 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN11.D
Acq On : 6 Jun 2018 12:01 pm
Operator : EMR
Sample : VBLKW1-180606
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

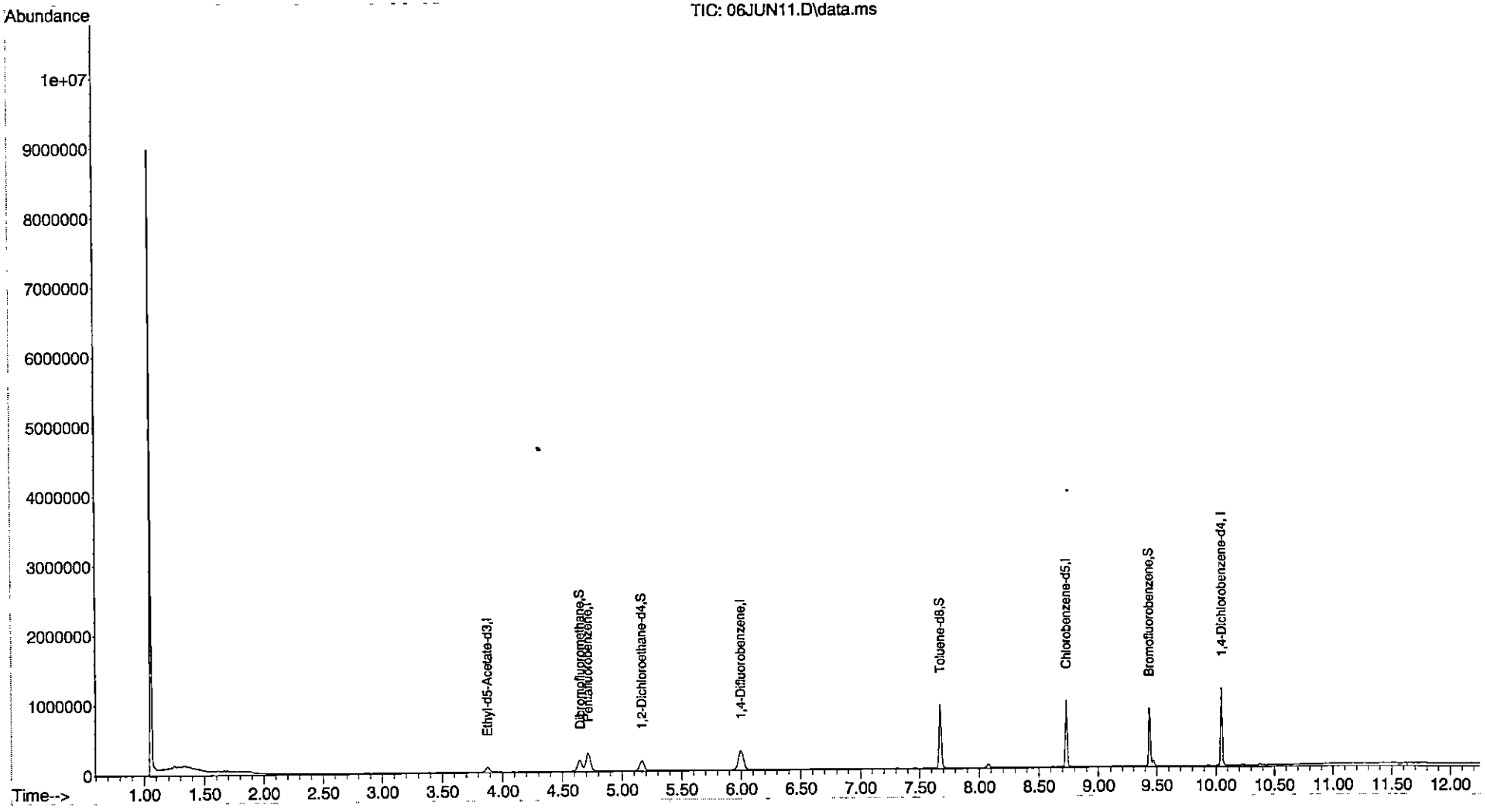
Quant Time: Jun 06 12:14:26 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN11.D
Acq On : 6 Jun 2018 12:01 pm
Operator : EMR
Sample : VBLKW1-180606
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 06 12:14:26 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN08.D
Acq On : 6 Jun 2018 11:13 am
Operator : EMR
Sample : VLCSW1-180605
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 06 11:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	282650	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	401867	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	384091	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	206054	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	112745	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	153634	22.04	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 110.20%			
45) 1,2-Dichloroethane-d4	5.164	65	151542	22.33	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 111.65%			
64) Toluene-d8	7.671	98	471849	18.82	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.10%			
85) Bromofluorobenzene	9.433	95	182381	20.07	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	81736	12.91	ug/L	97
3) Chloromethane	1.282	50	120656	12.60	ug/L	96
4) Vinyl chloride	1.360	62	101549	13.53	ug/L	93
5) Bromomethane	1.568	96	72316	30.64	ug/L	99
6) Chloroethane	1.640	64	92362m	22.52	ug/L	
7) Trichlorofluoromethane	1.819	101	111694	14.32	ug/L	99
8) Ethyl ether	2.019	59	96833	16.81	ug/L	94
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.199	61	162645	19.11	ug/L	95
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.327	142	109560	24.86	ug/L	99
13) Acetone	2.234	43	61366	15.88	ug/L	98
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.385	76	342327	18.56	ug/L	98
16) Allyl chloride	2.492	41	155150	15.65	ug/L	89
17) Methyl acetate	2.485	43	6856	0.79	ug/L #	7
18) Acetonitrile	2.492	41	155150	15.73	ug/L #	91
19) Methylene chloride	2.607	49	154714	17.16	ug/L	95
20) trans-1,2-Dichloroethene	2.858	61	176906	19.11	ug/L	98
21) t-Butanol	2.707	59	166097	85.36	ug/L	98
22) Acrylonitrile	2.815	53	79857	18.62	ug/L	93
23) Methyl tert-butyl ether	2.850	73	369093	20.84	ug/L	100
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.294	63	231865	18.33	ug/L	99
26) Diisopropyl ether	3.330	45	360152	19.31	ug/L #	50
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.753	59	352579	19.13	ug/L	99
29) 2,2-Dichloropropane	3.953	77	180898	20.07	ug/L	98
30) cis-1,2-Dichloroethene	3.953	61	211701	19.20	ug/L	97
31) 2-Butanone	3.946	43	110722	16.70	ug/L	99
32) Ethyl Acetate	4.011	43	209970	19.27	ug/L #	98
33) Methyl acrylate	4.061	55	186704	17.81	ug/L	99
34) Propionitrile	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN08.D
Acq On : 6 Jun 2018 11:13 am
Operator : EMR
Sample : VLCSW1-180605
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 06 11:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	108988	18.76 ug/L	99
36) Tetrahydrofuran	4.290	42	67318	16.97 ug/L	97
37) Methacrylonitrile	4.219	41	115101	18.54 ug/L	98
38) Chloroform	4.412	83	237127	18.49 ug/L	99
39) Cyclohexane	4.706	56	5859	0.58 ug/L #	1
41) 1,1,1-Trichloroethane	4.634	97	188770	20.24 ug/L	99
43) Carbon tetrachloride	4.863	117	154752	19.33 ug/L	99
44) 1,1-Dichloropropene	4.878	75	159269	18.15 ug/L	98
46) 1,2-Dichloroethane	5.293	62	175455	19.66 ug/L	99
47) Benzene	5.178	78	510144	19.90 ug/L	99
48) Tertiaryamylmethylether	5.443	73	343673	20.65 ug/L	99
49) Isobutyl Alcohol	5.443	43	102746	19.00 ug/L	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.826	88	7450	52.33 ug/L	89
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	133801	18.55 ug/L	99
55) 1,2-Dichloropropane	6.697	63	123560	16.85 ug/L	89
56) Dibromomethane	6.797	93	91383m	17.07 ug/L	
57) Methyl methacrylate	6.819	41	117727	14.26 ug/L	95
58) Bromodichloromethane	7.019	83	156054	16.75 ug/L	99
59) 2-Chloroethyl vinyl ether	7.241	43	37114	10.91 ug/L #	1
60) 2-Nitropropane	7.241	43	44944	12.56 ug/L #	93
61) cis-1,3-Dichloropropene	7.449	75	188150	16.98 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	289788	24.27 ug/L	79
65) Toluene	7.728	91	503628	18.23 ug/L	100
66) trans-1,3-Dichloropropene	7.936	75	188844	17.04 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	203550	17.22 ug/L	99
69) 1,1,2-Trichloroethane	8.087	97	143537	17.61 ug/L	98
70) Tetrachloroethene	8.130	166	146947	20.37 ug/L	99
71) 1,3-Dichloropropane	8.201	76	212265	18.52 ug/L	97
72) 2-Hexanone	8.244	43	167784	17.89 ug/L	96
73) Chlorodibromomethane	8.352	129	145136	16.49 ug/L	99
74) Butyl acetate	8.344	43	273342	17.48 ug/L	99
75) 1,2-Dibromoethane	8.423	107	164541	19.58 ug/L #	100
76) Chlorobenzene	8.753	112	356766	19.14 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	130751	18.16 ug/L	97
78) Ethylbenzene	8.817	91	553756	18.63 ug/L	99
79) m/p-Xylene	8.896	91	865613	38.42 ug/L	100
80) Styrene	9.140	104	372473	19.40 ug/L	100
81) o-Xylene	9.125	91	445289	18.62 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	113829	17.13 ug/L	100
84) Isopropylbenzene	9.333	105	519219	18.46 ug/L	100
86) Bromobenzene	9.512	77	324386	18.40 ug/L	93
87) 1,1,2,2-Tetrachloroethane	9.512	83	253798	20.10 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	59831	17.27 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	49004	14.04 ug/L	88
90) n-Propylbenzene	9.562	91	632752	19.52 ug/L	98
91) 2-Chlorotoluene	9.612	91	378416	19.49 ug/L	99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN08.D
Acq On : 6 Jun 2018 11:13 am
Operator : EMR
Sample : VLCSW1-180605
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

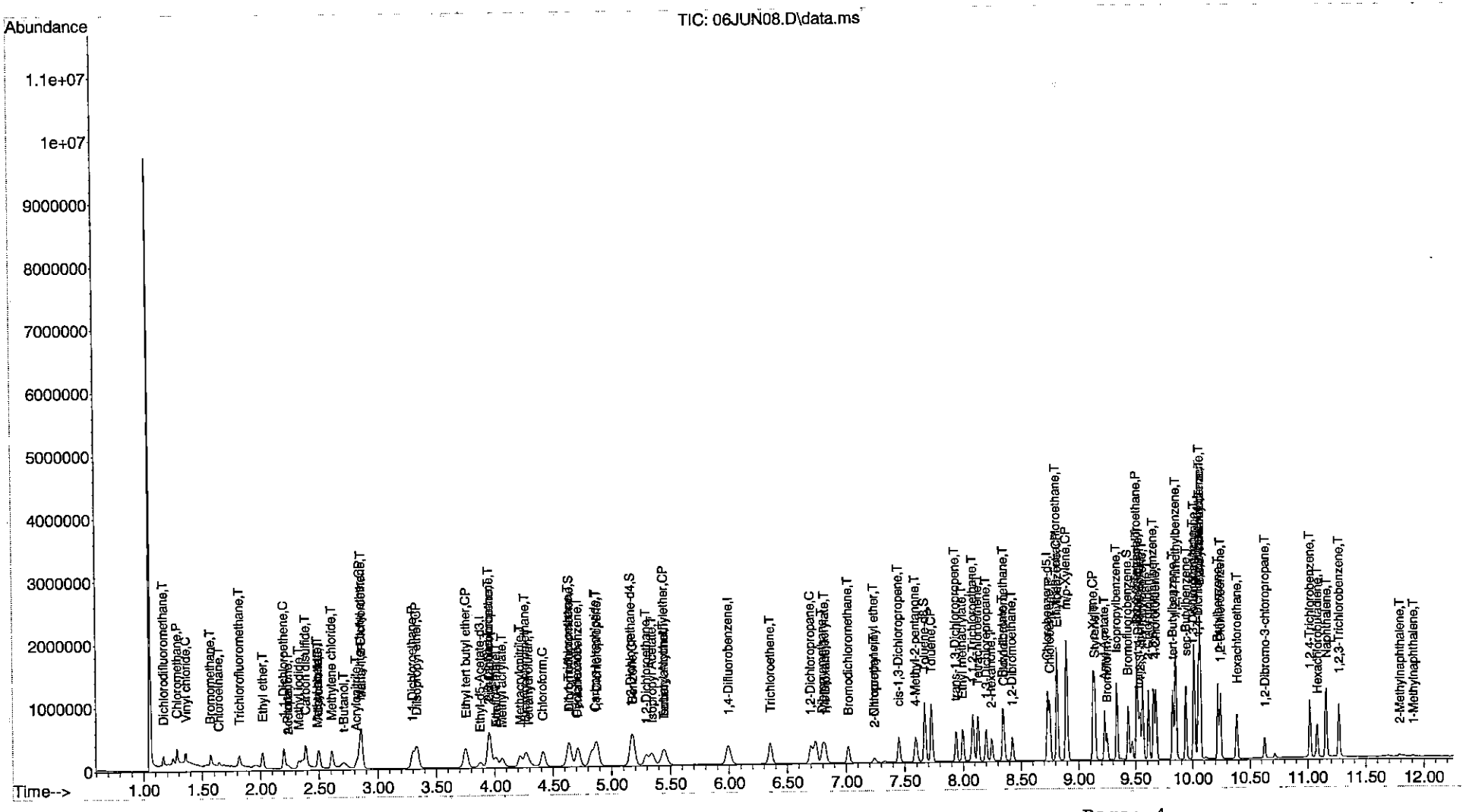
Quant Time: Jun 06 11:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	443288	19.50	ug/L		99
93) 1,3,5-Trimethylbenzene	9.655	105	423757	19.04	ug/L		100
94) tert-Butylbenzene	9.827	91	238221	17.91	ug/L		92
95) 1,2,4-Trimethylbenzene	9.856	105	429227	18.10	ug/L		100
96) sec-Butylbenzene	9.942	105	512783	19.11	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	276173	18.93	ug/L		99
99) p-Isopropyltoluene	10.013	119	416543	17.74	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	286407	19.25	ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	434184	17.62	ug/L		99
102) Benzyl chloride	10.064	91	41588	2.14	ug/L	#	38
103) 1,2-Dichlorobenzene	10.243	146	273001	19.02	ug/L		99
104) n-Butylbenzene	10.221	91	394433	18.54	ug/L		100
105) Hexachloroethane	10.386	117	85155	16.12	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	65147	15.81	ug/L		95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	175087	17.45	ug/L		96
109) Hexachlorobutadiene	11.081	225	65275	19.47	ug/L		96
110) Naphthalene	11.160	128	609422	16.56	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	174827	17.92	ug/L		97
112) 2-Methylnaphthalene	11.790	142	10779	0.57	ug/L	#	62
113) 1-Methylnaphthalene	11.904	142	10149	0.58	ug/L		91
115) 2-Propanone	2.234	43	61366	12.14	ug/L		98
116) Acetic Ether	4.011	43	209970	14.65	ug/L	#	99
117) Isopropyl Acetate	5.343	61	88526	13.72	ug/L		94
118) Amyl Acetate	9.225	43	258344	14.00	ug/L		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN08.D
Acq On : 6 Jun 2018 11:13 am
Operator : EMR
Sample : VLCSW1-180605
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 06 11:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN35.D
Acq On : 6 Jun 2018 7:06 pm
Operator : EMR
Sample : 1806019-02A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 06 19:18:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	290247	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	439628	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	389631	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	201926	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	124006	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	154386	20.25	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.25%			
45) 1,2-Dichloroethane-d4	5.164	65	159879	21.54	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.70%			
64) Toluene-d8	7.671	98	517085	20.33	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.65%			
85) Bromofluorobenzene	9.433	95	186179	20.19	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.95%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	144336	22.19	ug/L	97
3) Chloromethane	1.282	50	182215	18.53	ug/L	100
4) Vinyl chloride	1.353	62	139890	18.16	ug/L	97
5) Bromomethane	1.575	96	93650	39.02	ug/L	99
6) Chloroethane	1.647	64	54147	10.98	ug/L	92
7) Trichlorofluoromethane	1.819	101	157012	19.61	ug/L	98
8) Ethyl ether	2.019	59	114066	19.28	ug/L	98
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.198	61	208934	23.91	ug/L	93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.327	142	155150	34.97	ug/L	96
13) Acetone	2.234	43	72899	18.37	ug/L	97
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	427133	22.55	ug/L	99
16) Allyl chloride	2.499	41	192488	18.91	ug/L #	86
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D. d		
19) Methylene chloride	2.607	49	183619	19.83	ug/L	97
20) trans-1,2-Dichloroethene	2.857	61	218816	23.01	ug/L	97
21) t-Butanol	2.700	59	192650	96.41	ug/L	98
22) Acrylonitrile	2.814	53	89380	20.29	ug/L	99
23) Methyl tert-butyl ether	2.850	73	427760	23.52	ug/L	100
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.294	63	332886	25.62	ug/L	100
26) Diisopropyl ether	3.330	45	409808	21.39	ug/L #	49
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.753	59	385421	20.37	ug/L	100
29) 2,2-Dichloropropane	3.961	77	197684	21.36	ug/L	99
30) cis-1,2-Dichloroethene	3.953	61	298544	26.37	ug/L	97
31) 2-Butanone	3.946	43	121156	17.79	ug/L	97
32) Ethyl Acetate	4.011	43	238340	21.30	ug/L #	98
33) Methyl acrylate	4.061	55	216670	20.13	ug/L	99
34) Propionitrile	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN35.D
Acq On : 6 Jun 2018 7:06 pm
Operator : EMR
Sample : 1806019-02A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 06 19:18:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	126964	21.28 ug/L	99
36) Tetrahydrofuran	4.290	42	78018	19.15 ug/L	98
37) Methacrylonitrile	4.218	41	131875	20.69 ug/L	99
38) Chloroform	4.419	83	269772	20.49 ug/L	99
39) Cyclohexane	4.713	56	5485	0.53 ug/L #	1
41) 1,1,1-Trichloroethane	4.627	97	225527	22.10 ug/L	99
43) Carbon tetrachloride	4.863	117	193225	22.06 ug/L	98
44) 1,1-Dichloropropene	4.877	75	195111	20.33 ug/L	99
46) 1,2-Dichloroethane	5.293	62	201562	20.64 ug/L	97
47) Benzene	5.178	78	594133	21.19 ug/L	99
48) Tertiaryamylmethylether	5.443	73	390858	21.47 ug/L	100
49) Isobutyl Alcohol	5.436	43	118422	20.01 ug/L #	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	157066	19.90 ug/L	98
55) 1,2-Dichloropropane	6.697	63	152591	19.02 ug/L #	86
56) Dibromomethane	6.797	93	112582	19.22 ug/L	95
57) Methyl methacrylate	6.819	41	164349	18.20 ug/L	98
58) Bromodichloromethane	7.019	83	196300	19.26 ug/L	98
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	65449	16.72 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	240978	19.88 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	375395	31.00 ug/L	79
65) Toluene	7.728	91	606832	21.65 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	215421	19.17 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	235022	19.60 ug/L	98
69) 1,1,2-Trichloroethane	8.086	97	159748	19.32 ug/L	99
70) Tetrachloroethene	8.129	166	172662	23.60 ug/L	98
71) 1,3-Dichloropropane	8.201	76	235958	20.30 ug/L	96
72) 2-Hexanone	8.244	43	192363	20.22 ug/L	98
73) Chlorodibromomethane	8.352	129	164850	18.46 ug/L	98
74) Butyl acetate	8.344	43	309430	19.51 ug/L	99
75) 1,2-Dibromoethane	8.423	107	178437	20.93 ug/L #	99
76) Chlorobenzene	8.753	112	392777	20.77 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	144521	19.79 ug/L	99
78) Ethylbenzene	8.817	91	647242	21.46 ug/L	99
79) m/p-Xylene	8.896	91	970483	42.46 ug/L	99
80) Styrene	9.139	104	422049	21.67 ug/L	99
81) o-Xylene	9.125	91	510432	21.04 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	124392	18.46 ug/L	99
84) Isopropylbenzene	9.333	105	605082	21.21 ug/L	99
86) Bromobenzene	9.512	77	372811	20.85 ug/L	96
87) 1,1,2,2-Tetrachloroethane	9.512	83	283624	22.14 ug/L	97
88) 1,2,3-Trichloropropane	9.541	110	68082	19.37 ug/L	98
89) trans-1,4-Dichloro-2-b...	9.526	53	59208	16.73 ug/L	86
90) n-Propylbenzene	9.562	91	732379	22.28 ug/L	98
91) 2-Chlorotoluene	9.612	91	423108	21.48 ug/L	100

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN35.D
Acq On : 6 Jun 2018 7:06 pm
Operator : EMR
Sample : 1806019-02A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 06 19:18:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

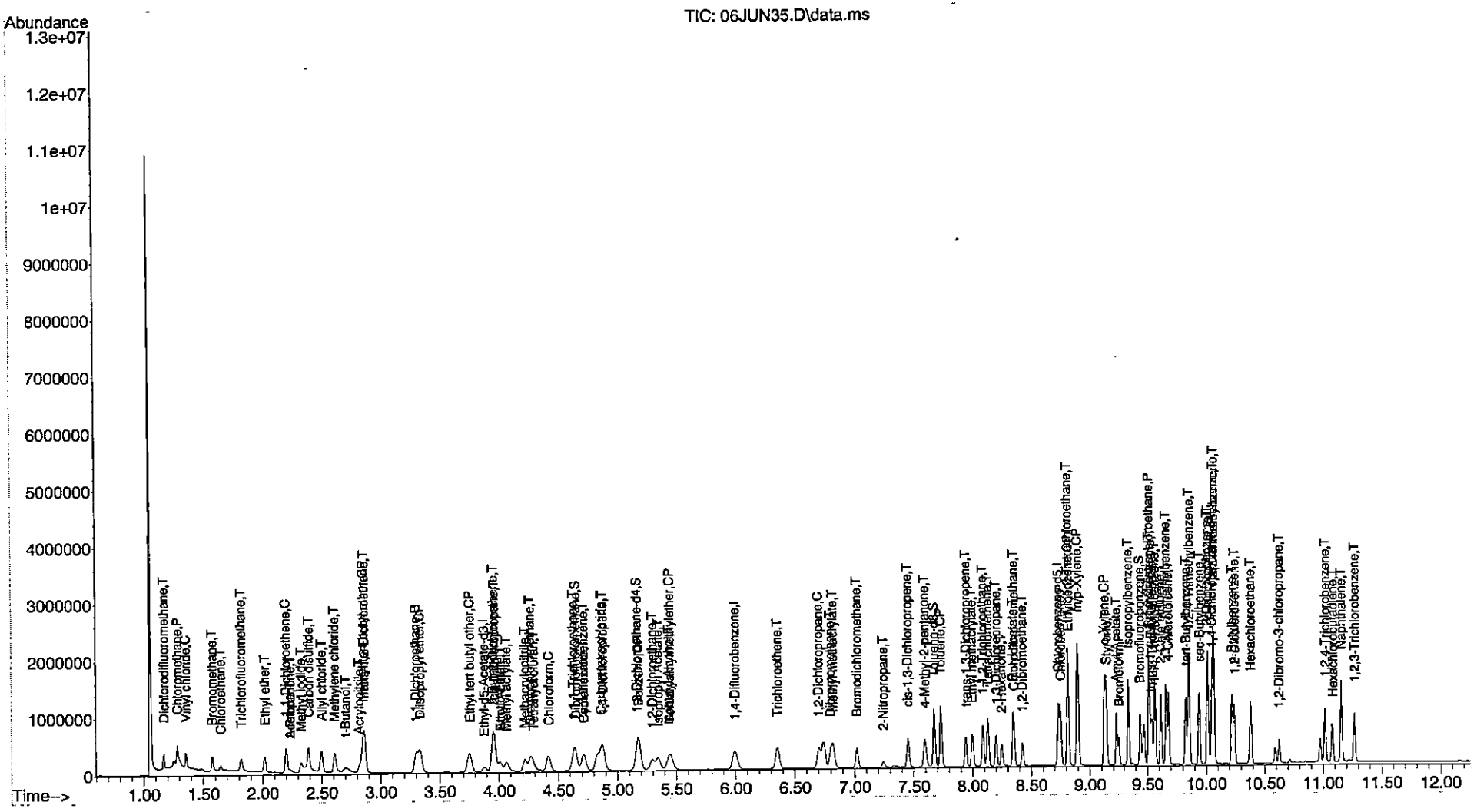
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	491558	21.32 ug/L	100
93) 1,3,5-Trimethylbenzene	9.655	105	487299	21.58 ug/L	100
94) tert-Butylbenzene	9.827	91	309995	22.98 ug/L	98
95) 1,2,4-Trimethylbenzene	9.856	105	496059	20.62 ug/L	100
96) sec-Butylbenzene	9.942	105	569651	20.93 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	301956	21.12 ug/L	98
99) p-Isopropyltoluene	10.013	119	475300	20.66 ug/L	99
100) 1,4-Dichlorobenzene	10.063	146	316663	21.72 ug/L	100
101) 1,2,3-Trimethylbenzene	10.063	105	502992	20.82 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	307291	21.84 ug/L	98
104) n-Butylbenzene	10.221	91	438280	21.02 ug/L	99
105) Hexachloroethane	10.379	117	96163	18.58 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.622	157	70131	17.36 ug/L	94
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	191968	19.53 ug/L	100
109) Hexachlorobutadiene	11.081	225	91009	27.71 ug/L	98
110) Naphthalene	11.152	128	698757	19.37 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	192722	20.15 ug/L	96
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	72899	13.11 ug/L	97
116) Acetic Ether	4.011	43	238340	15.12 ug/L #	97
117) Isopropyl Acetate	5.343	61	97583	13.75 ug/L	94
118) Amyl Acetate	9.225	43	296440	14.60 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN35.D
Acq On : 6 Jun 2018 7:06 pm
Operator : EMR
Sample : 1806019-02A MS DF10
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: Jun 06 19:18:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN36.D
Acq On : 6 Jun 2018 7:21 pm
Operator : EMR
Sample : 1806019-02A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 06 19:34:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	275117	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	405305	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	367619	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	188396	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	114537	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	143645	20.43	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.15%			
45) 1,2-Dichloroethane-d4	5.164	65	147101	21.49	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.45%			
64) Toluene-d8	7.671	98	498120	20.76	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.80%			
85) Bromofluorobenzene	9.433	95	172361	19.81	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	147707	23.96	ug/L	99
3) Chloromethane	1.282	50	183155	19.65	ug/L	99
4) Vinyl chloride	1.353	62	142301	19.48	ug/L	97
5) Bromomethane	1.575	96	104170	46.04	ug/L	99
6) Chloroethane	1.647	64	97514	24.85	ug/L	92
7) Trichlorofluoromethane	1.819	101	163450	21.54	ug/L	99
8) Ethyl ether	2.019	59	111914	19.96	ug/L	97
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.199	61	222147	26.82	ug/L	97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.328	142	167866	40.27	ug/L	98
13) Acetone	2.234	43	75663	20.12	ug/L	97
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	445325	24.80	ug/L	100
16) Allyl chloride	2.499	41	205234	21.27	ug/L	92
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D. d		
19) Methylene chloride	2.607	49	181844	20.72	ug/L	98
20) trans-1,2-Dichloroethene	2.865	61	221229	24.55	ug/L	97
21) t-Butanol	2.700	59	206668	109.12	ug/L	98
22) Acrylonitrile	2.822	53	91970	22.03	ug/L	100
23) Methyl tert-butyl ether	2.850	73	423789	24.59	ug/L	100
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.295	63	335758	27.27	ug/L	99
26) Diisopropyl ether	3.330	45	405041	22.31	ug/L #	49
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.746	59	395025	22.02	ug/L	100
29) 2,2-Dichloropropane	3.961	77	199210	22.71	ug/L	99
30) cis-1,2-Dichloroethene	3.954	61	337348	31.43	ug/L	97
31) 2-Butanone	3.946	43	117522	18.21	ug/L	97
32) Ethyl Acetate	4.011	43	248096	23.39	ug/L #	98
33) Methyl acrylate	4.061	55	218263	21.39	ug/L	99
34) Propionitrile	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN36.D
Acq On : 6 Jun 2018 7:21 pm
Operator : EMR
Sample : 1806019-02A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 06 19:34:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	130541	23.09 ug/L	98
36) Tetrahydrofuran	4.290	42	80347	20.81 ug/L	99
37) Methacrylonitrile	4.219	41	129922	21.50 ug/L	96
38) Chloroform	4.419	83	271592	21.76 ug/L	99
39) Cyclohexane	4.706	56	5529	0.56 ug/L #	1
41) 1,1,1-Trichloroethane	4.634	97	221909	23.59 ug/L	99
43) Carbon tetrachloride	4.870	117	197866	24.50 ug/L	98
44) 1,1-Dichloropropene	4.878	75	192945	21.80 ug/L	98
46) 1,2-Dichloroethane	5.293	62	192952	21.43 ug/L	99
47) Benzene	5.186	78	593512	22.96 ug/L	100
48) Tertiaryamylmethylether	5.451	73	398539	23.74 ug/L	99
49) Isobutyl Alcohol	5.451	43	119083	21.83 ug/L #	95
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	162810	22.38 ug/L	98
55) 1,2-Dichloropropane	6.704	63	158569	21.44 ug/L #	85
56) Dibromomethane	6.797	93	116682	21.61 ug/L	97
57) Methyl methacrylate	6.819	41	161170	19.36 ug/L	95
58) Bromodichloromethane	7.019	83	203246	21.63 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	64404	17.84 ug/L #	98
61) cis-1,3-Dichloropropene	7.449	75	243814	21.82 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	384391	33.64 ug/L	78
65) Toluene	7.728	91	600033	22.69 ug/L	98
66) trans-1,3-Dichloropropene	7.936	75	219058	20.66 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	231157	20.43 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	162824	20.87 ug/L	98
70) Tetrachloroethene	8.130	166	170930	24.76 ug/L	98
71) 1,3-Dichloropropane	8.201	76	241198	21.99 ug/L	95
72) 2-Hexanone	8.244	43	190963	21.27 ug/L	97
73) Chlorodibromomethane	8.352	129	167868	19.93 ug/L	99
74) Butyl acetate	8.344	43	315473	21.08 ug/L	99
75) 1,2-Dibromoethane	8.423	107	180638	22.46 ug/L #	98
76) Chlorobenzene	8.753	112	397894	22.30 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	150593	21.86 ug/L	99
78) Ethylbenzene	8.817	91	641688	22.55 ug/L	99
79) m/p-Xylene	8.896	91	990642	45.93 ug/L	99
80) Styrene	9.140	104	422717	23.00 ug/L	99
81) o-Xylene	9.125	91	521389	22.78 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	126034	19.82 ug/L	99
84) Isopropylbenzene	9.333	105	598146	22.22 ug/L	100
86) Bromobenzene	9.512	77	365592	21.67 ug/L	96
87) 1,1,2,2-Tetrachloroethane	9.512	83	281650	23.30 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	68973	20.80 ug/L	98
89) trans-1,4-Dichloro-2-b...	9.526	53	57862	17.33 ug/L	89
90) n-Propylbenzene	9.562	91	709824	22.88 ug/L	99
91) 2-Chlorotoluene	9.612	91	429780	23.12 ug/L	99

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN36.D
Acq On : 6 Jun 2018 7:21 pm
Operator : EMR
Sample : 1806019-02A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 06 19:34:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	489838	22.52 ug/L	99
93) 1,3,5-Trimethylbenzene	9.655	105	471846	22.15 ug/L	100
94) tert-Butylbenzene	9.827	91	305642	24.01 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	486507	21.43 ug/L	99
96) sec-Butylbenzene	9.942	105	576256	22.44 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	306025	22.95 ug/L	99
99) p-Isopropyltoluene	10.013	119	474967	22.13 ug/L	99
100) 1,4-Dichlorobenzene	10.064	146	314201	23.10 ug/L	99
101) 1,2,3-Trimethylbenzene	10.064	105	504980	22.41 ug/L	100
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	301585	22.98 ug/L	99
104) n-Butylbenzene	10.221	91	434470	22.34 ug/L	99
105) Hexachloroethane	10.379	117	94180	19.50 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.622	157	67815	17.99 ug/L	98
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	193777	21.13 ug/L	99
109) Hexachlorobutadiene	11.074	225	87009	28.39 ug/L	98
110) Naphthalene	11.152	128	683425	20.31 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	191248	21.44 ug/L	95
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	75663	14.73 ug/L	97
116) Acetic Ether	4.011	43	248096	17.04 ug/L #	96
117) Isopropyl Acetate	5.343	61	98964	15.09 ug/L	96
118) Amyl Acetate	9.226	43	287178	15.32 ug/L	99

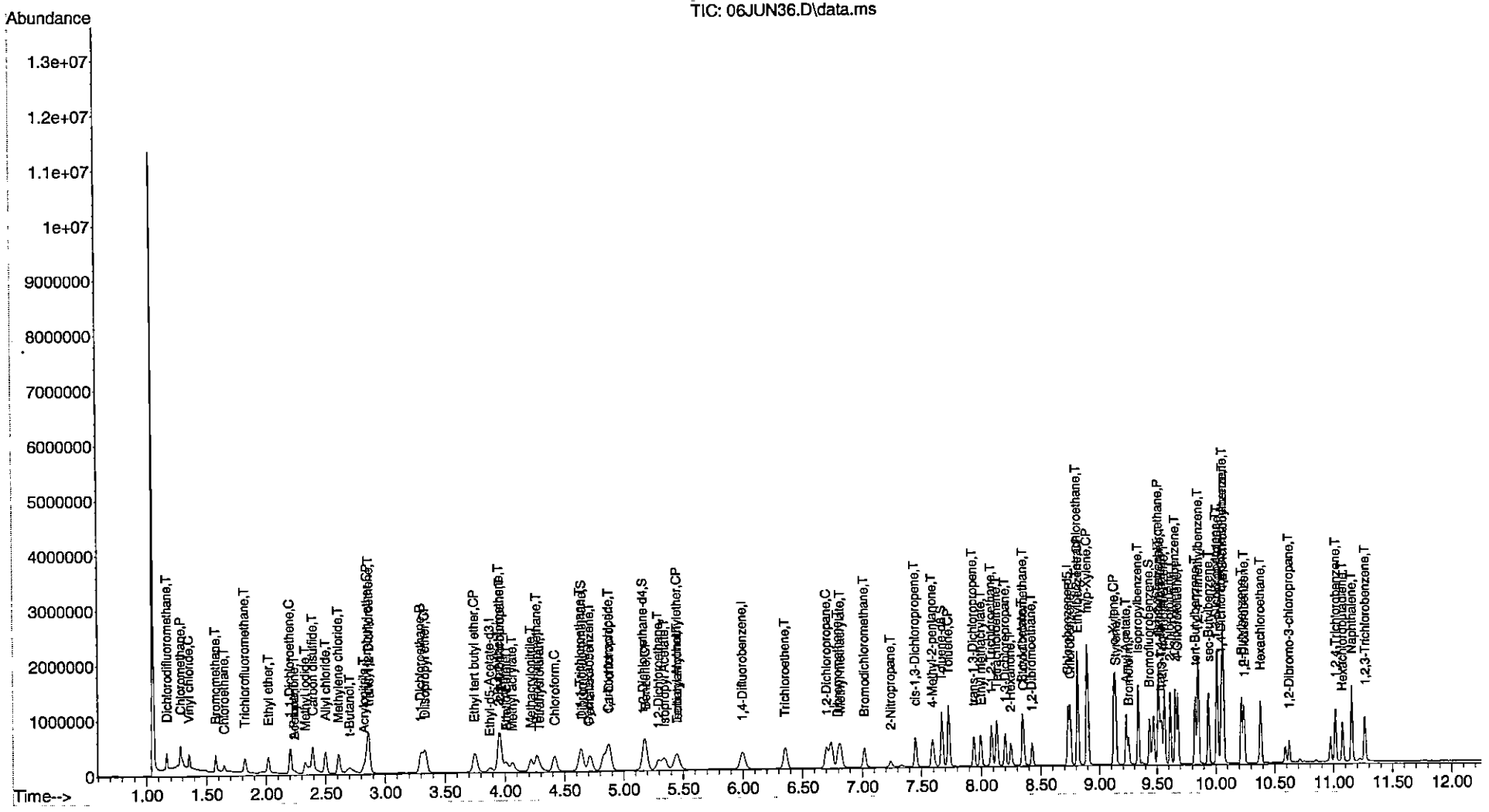
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180606\
Data File : 06JUN36.D
Acq On : 6 Jun 2018 7:21 pm
Operator : EMR
Sample : 1806019-02A MSD DF10
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 06 19:34:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

TIC: 06JUN36.D\data.ms



Sequence Name: C:\msdchem\1\sequence\8V180605.s
Comment:
Operator: WH
Data Path: D:\MSDCHEM\1\DATA\8V180605\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

EMR 6/6/18

Line			Sample Name/Misc Info		
1)	BFB	1	05JUN01	BFB	VBFB1-180605
2)	Sample	1	05JUN02	8GI0515	VCCV1-180605
3)	Sample	2	05JUN03	8GI0515	VLCSW101805
4)	Sample	3	05JUN04	8GI0515	LCS-
5)	Sample	4	05JUN05	8GI0515	BLK
6)	Sample	5	05JUN06	8GI0515	VBLKW1-180605
7)	Sample	6	05JUN07	8GI0515	MBLK-
8)	Sample	7	05JUN08	8GI0515	18051061-01A
9)	Sample	8	05JUN09	8GI0515	18051061-02A
10)	Sample	9	05JUN10	8GI0515	18051061-04A
11)	Sample	10	05JUN11	8GI0515	18061949-01A DF20
12)	Sample	11	05JUN12	8GI0515	18051738-07A
13)	Sample	12	05JUN13	8GI0515	18051999-02A
14)	Sample	13	05JUN14	8GI0515	18051999-03A
15)	Sample	14	05JUN15	8GI0515	18051999-04A
16)	Sample	15	05JUN16	8GI0515	18051999-05A
17)	Sample	16	05JUN17	8GI0515	18051999-06A
18)	Sample	17	05JUN18	8GI0515	18051999-07A
19)	Sample	18	05JUN19	8GI0515	18051999-08A
20)	Sample	19	05JUN20	8GI0515	18051999-09A
21)	Sample	20	05JUN21	8GI0515	18051999-10A
22)	Sample	21	05JUN22	8GI0515	18052000-01A
23)	Sample	22	05JUN23	8GI0515	18052000-02A
24)	Sample	23	05JUN24	8GI0515	18052000-03A
25)	Sample	24	05JUN25	8GI0515	18052000-04A
26)	Sample	25	05JUN26	8GI0515	1806056-01B DF200
27)	Sample	26	05JUN27	8GI0515	18051966-01A DF100
28)	Sample	27	05JUN28	8GI0515	1806056-01B MS DF200
29)	Sample	28	05JUN29	8GI0515	1806056-01B MSD DF200
30)	Sample	29	05JUN30	8GI0515	BLK
31)	Sample	30	05JUN31	BFB	VBFB2-180605
32)	Sample	31	05JUN32	8GI0515	VCCV2-180605
33)	Sample	32	05JUN33	8GI0515	VCCV3-180605
34)	Sample	33	05JUN34	8GI0515	VLCSW1-180605
35)	Sample	34	05JUN35	8GI0515	VLCSW3-180605
36)	Sample	35	05JUN36	8GI0515	BLK
37)	Sample	36	05JUN37	8GI0515	VBLKW2-180605
38)	Sample	37	05JUN38	8GI0515	18052010-03A DF50
39)	Sample	38	05JUN39	8GI0515	1806083-02A
40)	Sample	39	05JUN40	8GI0515	1806057-01A DF10
41)	Sample	40	05JUN41	8GI0515	1806112-03A
42)	Sample	41	05JUN42	8GI0515	1806112-06A
43)	Sample	42	05JUN43	8GI0515	1806112-08A

EMR 6/6/18

Sequence Name: C:\msdchem\1\sequence\8V180605.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	43	05JUN44	8GI0515	1806112-11A
45)		Sample	44	05JUN45	8GI0515	1806126-01A
46)		Sample	45	05JUN46	8GI0515	1806126-04A
47)		Sample	46	05JUN47	8GI0515	1806126-05A
48)		Sample	47	05JUN48	8GI0515	1806019-05A
49)		Sample	48	05JUN49	8GI0515	1805074-27A DF10
50)		Sample	49	05JUN50	8GI0515	1806054-02A DF5
51)		Sample	50	05JUN51	8GI0515	1806074-21A DF5
52)		Sample	51	05JUN52	8GI0515	1806074-25A DF10
53)		Sample	52	05JUN53	8GI0515	1806074-24A DF25
54)		Sample	53	05JUN54	8GI0515	1806040-01B DF500
55)		Sample	54	05JUN55	8GI0515	1806057-01A MS DF10
56)		Sample	55	05JUN56	8GI0515	1806057-01A MSD DF10
57)		Sample	56	05JUN57	8GI0515	BLK
58)		Pause				
59)		Sample	61	05JUN58	BFB	VBFB3-180605
60)		Sample	62	05JUN59	8GI0515	VCCV4-180605
61)		Sample	63	05JUN60	8GI0515	VCCV5-180605
62)		Sample	64	05JUN61	8GI0515	VLCSW3-180605
63)		Sample	65	05JUN62	8GI0515	BLK
64)		Sample	66	05JUN63	8GI0515	VBLKW3-180605
65)		Sample	67	05JUN64	8GI0515	1
66)		Sample	68	05JUN65	8GI0515	2
67)		Sample	69	05JUN66	8GI0515	3
68)		Sample	70	05JUN67	8GI0515	4
69)		Sample	71	05JUN68	8GI0515	5
70)		Sample	72	05JUN69	8GI0515	6
71)		Sample	73	05JUN70	8GI0515	7
72)		Sample	74	05JUN71	8GI0515	8
73)		Sample	75	05JUN72	8GI0515	9
74)		Sample	76	05JUN73	8GI0515	10
75)		Sample	77	05JUN74	8GI0515	11
76)		Sample	78	05JUN75	8GI0515	12
77)		Sample	79	05JUN76	8GI0515	13
78)		Sample	80	05JUN77	8GI0515	14
79)		Sample	1	05JUN78	8GI0515	15
80)		Sample	2	05JUN79	8GI0515	16
81)		Sample	3	05JUN80	8GI0515	17
82)		Sample	4	05JUN81	8GI0515	18
83)		Sample	5	05JUN82	8GI0515	19
84)		Sample	6	05JUN83	8GI0515	20
85)		Sample	7	05JUN84	8GI0515	MS
86)		Sample	8	05JUN85	8GI0515	MSD
87)		Sample	9	05JUN86	8GI0515	BLK

2018 Jun 06 0934 Sequence Log

Starting sequence Wed Jun 06 08:10:07 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180606.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180606\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
This computer is now swap bound.					
1)	BFB	1	06JUN01	BFB	VBFB1-180606
1)	BFB	1	06JUN02	BFB	VBFB2-180606
3)	Sample	1	06JUN03	8GI0515	VCCV1-180606
4)	Sample	1	06JUN04	8GI0515	VCCV2-180606
5)	Sample	1	06JUN05	8GI0515	BLK
6)	BFB	1	06JUN06	BFB	VBFB3-180606
7)	Sample	1	06JUN07	8GI0515	VCCV3-180606
8)	Sample	2	06JUN08	8GI0515	VLCSW1-180606
9)	Sample	3	06JUN09	8GI0515	LCS-
10)	Sample	4	06JUN10	8GI0515	BLK
11)	Sample	5	06JUN11	8GI0515	VBLKW1-180606
12)	Sample	6	06JUN12	8GI0515	MBLK-
13)	Sample	7	06JUN13	8GI0515	1806083-02A
14)	Sample	8	06JUN14	8GI0515	1806057-01A
15)	Sample	9	06JUN15	8GI0515	1806074-24A DF10
16)	Sample	10	06JUN16	8GI0515	18051999-05A DF5
17)	Sample	11	06JUN17	8GI0515	1806019-01A
18)	Sample	12	06JUN18	8GI0515	1806019-02A DF10
19)	Sample	13	06JUN19	8GI0515	1806019-03A
20)	Sample	14	06JUN20	8GI0515	1806019-04A DF10
21)	Sample	15	06JUN21	8GI0515	1806110-01A DF20
22)	Sample	16	06JUN22	8GI0515	1806126-03A DF20
23)	Sample	17	06JUN23	8GI0515	1806182-01A
24)	Sample	18	06JUN24	8GI0515	1806182-03A
25)	Sample	19	06JUN25	8GI0515	1806182-05A
26)	Sample	20	06JUN26	8GI0515	1806182-09A
27)	Sample	21	06JUN27	8GI0515	1806182-10A
28)	Sample	22	06JUN28	8GI0515	1806182-12A
29)	Sample	23	06JUN29	8GI0515	1806182-13A
30)	Sample	24	06JUN30	8GI0515	1806182-15A
31)	Sample	25	06JUN31	8GI0515	1806297-01A
32)	Sample	26	06JUN32	8GI0515	1806284-01A
33)	Sample	27	06JUN33	8GI0515	1806284-01A MS
34)	Sample	28	06JUN34	8GI0515	1806284-01A MSD
35)	Sample	29	06JUN35	8GI0515	1806019-02A MS DF10
36)	Sample	30	06JUN36	8GI0515	1806019-02A MSD DF10
37)	Sample	31	06JUN37	8GI0515	BLK
38)	Sample	32	06JUN38	BFB	VBFB3-180606
39)	Sample	33	06JUN39	8GI0515	VCCV2-180606
40)	Sample	34	06JUN40	8GI0515	VCCV3-180606
41)	Sample	35	06JUN41	8GI0515	VLCSW2-180606
42)	Sample	36	06JUN42	8GI0515	VLCSW3-180606
43)	Sample	37	06JUN43	8GI0515	BLK
44)	Sample	38	06JUN44	8GI0515	VBLKW2-180606
45)	Sample	39	06JUN45	8GI0515	1806182-02A
46)	Sample	40	06JUN46	8GI0515	1806182-04A
47)	Sample	41	06JUN47	8GI0515	1806182-06A
48)	Sample	42	06JUN48	8GI0515	1806182-08A
49)	Sample	43	06JUN49	8GI0515	1806182-11A
50)	Sample	44	06JUN50	8GI0515	1806182-14A.
51)	Sample	45	06JUN51	8GI0515	1806143-01A

2018 Jun 06 0934 Sequence Log

52)	Sample	46	06JUN52	8GI0515	1806143-02A
53)	Sample	47	06JUN53	8GI0515	1806143-03A
54)	Sample	48	06JUN54	8GI0515	1806143-04A
55)	Sample	49	06JUN55	8GI0515	1806143-05A
56)	Sample	50	06JUN56	8GI0515	1806143-06A
57)	Sample	51	06JUN57	8GI0515	1806143-07A
58)	Sample	52	06JUN58	8GI0515	1806143-08A
59)	Sample	53	06JUN59	8GI0515	1806143-09A
60)	Sample	54	06JUN60	8GI0515	1806143-10A
61)	Sample	55	06JUN61	8GI0515	1806143-11A
62)	Sample	56	06JUN62	8GI0515	1806143-12A
63)	Sample	57	06JUN63	8GI0515	1806143-13A
64)	Sample	58	06JUN64	8GI0515	1806143-14A
65)	Sample	59	06JUN65	8GI0515	1806182-02A DUP
66)	Sample	60	06JUN66	8GI0515	1806182-04A MS
67)	Sample	61	06JUN67	8GI0515	BLK
68)	Sample	62	06JUN68	BFB	VBFB4-180606
69)	Sample	63	06JUN69	8GI0515	VCCV4-180606
70)	Sample	64	06JUN70	8GI0515	VCCV5-180606
71)	Sample	65	06JUN71	8GI0515	VLCSW3-180606
72)	Sample	66	06JUN72	8GI0515	BLK
73)	Sample	67	06JUN73	8GI0515	VBLKW3-180606
74)	Sample	68	06JUN74	8GI0515	1806143-30A
75)	Sample	69	06JUN75	8GI0515	1806143-15A
76)	Sample	70	06JUN76	8GI0515	1806143-16A
77)	Sample	71	06JUN77	8GI0515	1806143-17A
78)	Sample	72	06JUN78	8GI0515	1806143-18A
79)	Sample	73	06JUN79	8GI0515	1806143-19A
80)	Sample	74	06JUN80	8GI0515	1806143-20A
81)	Sample	75	06JUN81	8GI0515	1806143-21A
82)	Sample	76	06JUN82	8GI0515	1806143-22A
83)	Sample	77	06JUN83	8GI0515	1806143-23A
84)	Sample	78	06JUN84	8GI0515	1806143-24A
85)	Sample	79	06JUN85	8GI0515	1806143-25A
86)	Sample	80	06JUN86	8GI0515	1806143-26A
87)	Sample	1	06JUN87	8GI0515	1806143-27A
88)	Sample	2	06JUN88	8GI0515	1806143-28A
89)	Sample	3	06JUN89	8GI0515	1806143-29A
90)	Sample	4	06JUN90	8GI0515	1806223-01A
91)	Sample	5	06JUN91	8GI0515	1806216-01A
92)	Sample	6	06JUN92	8GI0515	1806162-01A DF2000
93)	Sample	7	06JUN93	8GI0515	1806143-15A DUP
94)	Sample	8	06JUN94	8GI0515	1806143-16A MS.
95)	Sample	9	06JUN95	8GI0515	BLK

Sequence completed Thu Jun 07 11:03:18 2018

D:\MSDCHEM\1\DATA\8V180606\2018 Jun 06 0934 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180606\2018 Jun 06 0934 Sequence Log .LOG

1B CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-55

Lab Name: ALS Group, USA

Lab Code: MI01262 SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-03A

Sample wt/vol: 50.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 6/1/2018

% Moisture: not dec. 0 Date Extracted 6/6/2018

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 6/6/2018

Injection Volume: 1 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH 0

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/L	Q
106-46-7	1,4-Dichlorobenzene	100	U
95-95-4	2,4,5-Trichlorophenol	100	U
88-06-2	2,4,6-Trichlorophenol	100	U
121-14-2	2,4-Dinitrotoluene	100	U
87-68-3	Hexachloro-1,3-butadiene	100	U
118-74-1	Hexachlorobenzene	100	U
67-72-1	Hexachloroethane	100	U
108-39-4	m-Cresol	100	U
98-95-3	Nitrobenzene	100	U
95-48-7	o-Cresol	100	U
106-44-5	p-Cresol	100	U
87-86-5	Pentachlorophenol	100	U
110-86-1	Pyridine	200	U

ALS Group, USA

Client: Jacobs
Work Order: 1806126
Project: PMC

Date: 13-Jul-18

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-119330-119330** Units: **µg/L** Analysis Date: **6/6/2018 05:05 PM**
Client ID: Run ID: **SVMS9_180606A** SeqNo: **5076611** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dinitrotoluene	U	5.0								
Hexachloro-1,3-butadiene	U	5.0								
Hexachlorobenzene	U	5.0								
Hexachloroethane	U	5.0								
m-Cresol	U	5.0								
Nitrobenzene	U	5.0								
o-Cresol	U	5.0								
p-Cresol	U	5.0								
Pentachlorophenol	U	5.0								
Pyridine	U	10								
Surr: 2,4,6-Tribromophenol	*28.92*	0	*50*	0	*57.8*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*27.68*	0	*50*	0	*55.4*	*34-98*	0			
Surr: 2-Fluorophenol	*18.39*	0	*50*	0	*36.8*	*23-55*	0			
Surr: 4-Terphenyl-d14	*40.64*	0	*50*	0	*81.3*	*50-111*	0			
Surr: Nitrobenzene-d5	*26.35*	0	*50*	0	*52.7*	*32-89*	0			
Surr: Phenol-d6	*8.92*	0	*50*	0	*17.8*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

LCS Sample ID: **SLCSW1-119330-119330** Units: µg/L Analysis Date: **6/6/2018 05:28 PM**
Client ID: Run ID: **SVMS9_180606A** SeqNo: **5076612** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	10.07	5.0	20	0	50.4	26-96	0			
2,4,5-Trichlorophenol	13.14	5.0	20	0	65.7	45-104	0			
2,4,6-Trichlorophenol	11.53	5.0	20	0	57.6	41-102	0			
2,4-Dinitrotoluene	15.27	5.0	20	0	76.4	52-106	0			
Hexachloro-1,3-butadiene	10.08	5.0	20	0	50.4	21-99	0			
Hexachlorobenzene	13.64	5.0	20	0	68.2	52-104	0			
Hexachloroethane	9.5	5.0	20	0	47.5	19-99	0			
m-Cresol	10.5	5.0	20	0	52.5	31-81	0			
Nitrobenzene	11.66	5.0	20	0	58.3	41-101	0			
o-Cresol	11.14	5.0	20	0	55.7	32-87	0			
p-Cresol	10.5	5.0	20	0	52.5	31-81	0			
Pentachlorophenol	14.23	5.0	20	0	71.2	30-104	0			
Pyridine	6.72	10	20	0	33.6	11-60	0			J
Surr: 2,4,6-Tribromophenol	*35.79*	0	*50*	0	*71.6*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*28.85*	0	*50*	0	*57.7*	*34-98*	0			
Surr: 2-Fluorophenol	*18.99*	0	*50*	0	*38*	*23-55*	0			
Surr: 4-Terphenyl-d14	*38.64*	0	*50*	0	*77.3*	*50-111*	0			
Surr: Nitrobenzene-d5	*27.16*	0	*50*	0	*54.3*	*32-89*	0			
Surr: Phenol-d6	*12.17*	0	*50*	0	*24.3*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MS Sample ID: **1806126-03A MS** Units: **µg/L** Analysis Date: **6/6/2018 06:37 PM**
Client ID: **18CP02-55** Run ID: **SVMS9_180606A** SeqNo: **5076613** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	239.2	100	400	0	59.8	26-96	0			
2,4,5-Trichlorophenol	262.8	100	400	0	65.7	45-104	0			
2,4,6-Trichlorophenol	241.6	100	400	0	60.4	41-102	0			
2,4-Dinitrotoluene	297.2	100	400	0	74.3	52-106	0			
Hexachloro-1,3-butadiene	231.4	100	400	0	57.8	21-99	0			
Hexachlorobenzene	276	100	400	0	69	52-104	0			
Hexachloroethane	225.8	100	400	0	56.4	19-99	0			
m-Cresol	206.2	100	400	0	51.6	31-81	0			
Nitrobenzene	245.4	100	400	0	61.4	41-101	0			
o-Cresol	228.2	100	400	0	57	32-87	0			
p-Cresol	206.2	100	400	0	51.6	31-81	0			
Pentachlorophenol	292.8	100	400	0	73.2	30-104	0			
Pyridine	157.8	200	400	0	39.4	11-60	0			J
Surr: 2,4,6-Tribromophenol	*712.4*	0	*1000*	0	*71.2*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*578.6*	0	*1000*	0	*57.9*	*34-98*	0			
Surr: 2-Fluorophenol	*376*	0	*1000*	0	*37.6*	*23-55*	0			
Surr: 4-Terphenyl-d14	*796.4*	0	*1000*	0	*79.6*	*50-111*	0			
Surr: Nitrobenzene-d5	*548.2*	0	*1000*	0	*54.8*	*32-89*	0			
Surr: Phenol-d6	*231.2*	0	*1000*	0	*23.1*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MSD Sample ID: **1806126-03A MSD** Units: µg/L Analysis Date: **6/6/2018 07:00 PM**
Client ID: **18CP02-55** Run ID: **SVMS9_180606A** SeqNo: **5076614** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	283.8	100	400	0	71	26-96	239.2	17.1	30	
2,4,5-Trichlorophenol	330.8	100	400	0	82.7	45-104	262.8	22.9	30	
2,4,6-Trichlorophenol	316	100	400	0	79	41-102	241.6	26.7	30	
2,4-Dinitrotoluene	352.2	100	400	0	88	52-106	297.2	16.9	30	
Hexachloro-1,3-butadiene	281	100	400	0	70.2	21-99	231.4	19.4	30	
Hexachlorobenzene	333	100	400	0	83.2	52-104	276	18.7	30	
Hexachloroethane	272.2	100	400	0	68	19-99	225.8	18.6	30	
m-Cresol	266	100	400	0	66.5	31-81	206.2	25.3	30	
Nitrobenzene	309	100	400	0	77.2	41-101	245.4	22.9	30	
o-Cresol	290.2	100	400	0	72.6	32-87	228.2	23.9	30	
p-Cresol	266	100	400	0	66.5	31-81	206.2	25.3	30	
Pentachlorophenol	356.6	100	400	0	89.2	30-104	292.8	19.6	30	
Pyridine	156	200	400	0	39	11-60	157.8	0	30	J
Surr: 2,4,6-Tribromophenol	*834.6*	0	*1000*	0	*83.5*	*32-92*	712.4	*15.8*	*40*	
Surr: 2-Fluorobiphenyl	*720*	0	*1000*	0	*72*	*34-98*	578.6	*21.8*	*40*	
Surr: 2-Fluorophenol	*471.2*	0	*1000*	0	*47.1*	*23-55*	376	*22.5*	*40*	
Surr: 4-Terphenyl-d14	*904.2*	0	*1000*	0	*90.4*	*50-111*	796.4	*12.7*	*40*	
Surr: Nitrobenzene-d5	*698*	0	*1000*	0	*69.8*	*32-89*	548.2	*24*	*40*	
Surr: Phenol-d6	*290.6*	0	*1000*	0	*29.1*	*10-35*	231.2	*22.8*	*40*	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 1806126

	EPA SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	TOT OUT
01	SBLKW1-11933	37	18	53	55	58	81	0
02	SLCSW1-11933	38	24	54	58	72	77	0
03	18CP02-55 MS	38	23	55	58	71	80	0
04	18CP02-55 MS	47	29	70	72	83	90	0
05	18CP02-55	27	14	34	37	41	82	0

QC LIMITS

S1	(2FP)	=	2-Fluorophenol	(23-55)
S2	(PHL)	=	Phenol-d6	(10-35)
S3	(NBZ)	=	Nitrobenzene-d5	(32-89)
S4	(FBP)	=	2-Fluorobiphenyl	(34-98)
S5	(TBP)	=	2,4,6-Tribromophenol	(32-92)
S6	(TPH)	=	4-Terphenyl-d14	(50-111)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

4B

EPA SAMPLE NO.

SEMIVOLATILE METHOD BLANK SUMMARY

SBLKW1-119330

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 06061805.D Lab Sample ID: SBLKW1-119330

Instrument ID: SVMS9 Date Extracted: 6/6/2018

Matrix: (soil/water) WATER Date Analyzed: 6/6/2018

Level: (low/med) LOW Time Analyzed: 17:05

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SLCSW1-119330	SLCSW1-119330	06061806.D	6/6/2018
02	18CP02-55 MS	1806126-03A MS	06061809.D	6/6/2018
03	18CP02-55 MSD	1806126-03A MSD	06061810.D	6/6/2018
04	18CP02-55	1806126-03A	06061811.D	6/6/2018

COMMENTS:

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 1806126

Lab File ID: 06061803.D DFTPP Injection Date: 6/6/2018

Instrument ID: SVMS9 DFTPP Injection Time: 16:18

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	48.0
68	Less than 2.0% of mass 69	0.9 (1.9)1
69	Mass 69 Relative abundance	46.8
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	25.0 - 75.0% of mass 198	51.3
197	Less than 1.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 30.0% of mass 198	22.5
365	Greater than 0.75% of mass 198	2.7
441	Present, but less than mass 443	10.6
442	40.0 - 110.0% of mass 198	72.1
443	15.0 - 24.0% of mass 442	13.5 (18.8)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD01	20.0 UG/ML BNA	06061804.D	6/6/2018	16:41
02	SBLKW1-119330	SBLKW1-119330	06061805.D	6/6/2018	17:05
03	SLCSW1-119330	SLCSW1-119330	06061806.D	6/6/2018	17:28
04	18CP02-55 MS	1806126-03A MS	06061809.D	6/6/2018	18:37
05	18CP02-55 MSD	1806126-03A MSD	06061810.D	6/6/2018	19:00
06	18CP02-55	1806126-03A	06061811.D	6/6/2018	19:23

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 1806126

Lab File ID (Standard): 06061804.D Date Analyzed: 6/6/2018

Instrument ID: SVMS9 Time Analyzed: 16:41

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ACE) AREA #	RT #
	12 HOUR STD	369509	3.79	982952	4.53	488937	5.64
	UPPER LIMIT	739018	4.29	1965904	5.03	977874	6.14
	LOWER LIMIT	184755	3.29	491476	4.03	244469	5.14
	EPA SAMPLE NO.						
01	SBLKW1-1193	198469	3.79	528871	4.53	293322	5.65
02	SLCSW1-1193	259473	3.79	700504	4.53	378811	5.64
03	18CP02-55 M	277918	3.79	733623	4.53	382117	5.64
04	18CP02-55 M	265750	3.79	699484	4.53	366371	5.64
05	18CP02-55	274010	3.79	704528	4.53	356649	5.64

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 1806126

Lab File ID (Standard): 06061804.D Date Analyzed: 6/6/2018

Instrument ID: SVMS9 Time Analyzed: 16:41

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	826846	6.67	686497	9.47	600162	12.17
	UPPER LIMIT	1653692	6.17	1372994	8.97	1200324	11.67
	LOWER LIMIT	413423	7.17	343249	9.97	300081	12.67
	EPA SAMPLE NO.						
01	SBLKW1-1193	611112	6.67	620745	9.48	596732	12.18
02	SLCSW1-1193	736183	6.67	649932	9.47	538120	12.17
03	18CP02-55 M	702472	6.66	548401	9.46	444346	12.16
04	18CP02-55 M	669756	6.66	545518	9.46	442681	12.16
05	18CP02-55	644754	6.67	447782	9.47	359446	12.17

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ACE) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061811.D
Acq On : 06 Jun 2018 07:23 pm
Operator : EB
Sample : 1806126-03A
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 07 08:26:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	274010	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	704528	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.640	164	356649	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.669	188	644754	40.00	ug/ml	0.00
84) Chrysene-d12	9.469	240	447782	40.00	ug/ml	0.00
94) Perylene-d12	12.169	264	359446	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	75139	13.59	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 27.18%			
7) Phenol-d6	3.575	99	50419m	6.97	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 13.94%			
25) Nitrobenzene-d5	4.099	82	134687	17.08	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 34.16%			
54) 2-Fluorobiphenyl	5.187	172	259361	18.49	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 36.98%			
75) 2,4,6-Tribromophenol	6.175	330	33402m	20.74	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 41.48%			
88) 4-Terphenyl-d14	8.046	244	479594	41.09	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 82.18%			
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) Pyridine	0.000		0	N.D.	d	
4) N-Nitrosodimethylamine	0.000		0	N.D.	d	
6) Benzaldehyde	3.552	77	152	N.D.		
8) Phenol	0.000		0	N.D.	d	
9) Aniline	0.000		0	N.D.		
10) Bis(2-chloroethyl)ether	0.000		0	N.D.		
11) 2-Chlorophenol	0.000		0	N.D.		
12) 1,3-Dichlorobenzene	0.000		0	N.D.	d	
13) 1,4-Dichlorobenzene	0.000		0	N.D.	d	
14) Benzyl alcohol	0.000		0	N.D.	d	
15) 1,2-Dichlorobenzene	0.000		0	N.D.		
16) 2-Methylphenol	0.000		0	N.D.		
17) Dichloroisopropyl ether	0.000		0	N.D.	d	
18) 3-Methylphenol	0.000		0	N.D.		
19) 4-Methylphenol	0.000		0	N.D.		
20) 3&4-Methylphenol	0.000		0	N.D.		
21) Acetophenone	0.000		0	N.D.	d	
22) N-Nitrosodi-n-propylamine	0.000		0	N.D.		
23) Hexachloroethane	0.000		0	N.D.		
26) Nitrobenzene	0.000		0	N.D.	d	
27) Isophorone	0.000		0	N.D.	d	
28) 2-Nitrophenol	0.000		0	N.D.		
29) 2,4-Dimethylphenol	0.000		0	N.D.		
30) Bis(2-chloroethoxy)met	0.000		0	N.D.		
31) Benzoic acid	0.000		0	N.D.		
32) 2,4-Dichlorophenol	0.000		0	N.D.		

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061811.D
Acq On : 06 Jun 2018 07:23 pm
Operator : EB
Sample : 1806126-03A
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 07 08:26:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
34) 4-Chlorophenol	0.000		0	N.D.	d	
35) Naphthalene	0.000		0	N.D.	d	
36) 4-Chloroaniline	0.000		0	N.D.		
37) 2,6-Dichlorophenol	0.000		0	N.D.		
38) Hexachlorobutadiene	0.000		0	N.D.		
39) Caprolactam	0.000		0	N.D.	d	
40) 4-Chloro-3-methylphenol	0.000		0	N.D.		
41) 2-Methylnaphthalene	0.000		0	N.D.		
42) 1-Methylnaphthalene	0.000		0	N.D.		
43) 1,2,4,5-Tetrachloroben...	0.000		0	N.D.		
44) 1,1-Biphenyl	0.000		0	N.D.	d	
45) 2,3,5,6-Tetrachlorophenol	0.000		0	N.D.		
46) 2,3,4,6-Tetrachlorophenol	0.000		0	N.D.		
47) 1,4-Dinitrobenzene	0.000		0	N.D.		
48) 1,3-Dinitrobenzene	0.000		0	N.D.		
49) 1,2-Dinitrobenzene	0.000		0	N.D.		
51) Hexachlorocyclopentadiene	0.000		0	N.D.		
52) 2,4,6-Trichlorophenol	0.000		0	N.D.		
53) 2,4,5-Trichlorophenol	0.000		0	N.D.		
55) 2-Chloronaphthalene	0.000		0	N.D.		
56) 2-Nitroaniline	0.000		0	N.D.		
57) Dimethylphthalate	0.000		0	N.D.	d	
58) Acenaphthylene	0.000		0	N.D.		
59) 2,6-Dinitrotoluene	0.000		0	N.D.		
60) 3-Nitroaniline	0.000		0	N.D.	d	
61) Acenaphthene	0.000		0	N.D.	d	
62) 2,4-Dinitrophenol	0.000		0	N.D.		
63) Dibenzofuran	0.000		0	N.D.		
64) 4-Nitrophenol	0.000		0	N.D.	d	
65) 2,4-Dinitrotoluene	0.000		0	N.D.		
66) Diethylphthalate	0.000		0	N.D.	d	
67) Fluorene	0.000		0	N.D.		
68) 4-Chlorophenyl phenyl	0.000		0	N.D.		
69) 4-Nitroaniline	0.000		0	N.D.		
70) Atrazine	0.000		0	N.D.		
72) 4,6-Dinitro-2-methylph	0.000		0	N.D.		
73) N-Nitrosodiphenylamine	0.000		0	N.D.		
74) 1,2-Diphenylhydrazine	6.099	77	95	N.D.		
76) 4-Bromophenyl phenyl e	0.000		0	N.D.		
77) Hexachlorobenzene	0.000		0	N.D.		
78) Pentachlorophenol	0.000		0	N.D.		
79) Phenanthrene	0.000		0	N.D.	d	
80) Anthracene	0.000		0	N.D.	d	
81) Carbazole	0.000		0	N.D.		
82) Di-n-butylphthalate	0.000		0	N.D.	d	
83) Fluoranthene	0.000		0	N.D.	d	
85) 3,3-Dimethylbenzidine	0.000		0	N.D.		
86) Benzidine	0.000		0	N.D.		
87) Pyrene	0.000		0	N.D.		

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061811.D
Acq On : 06 Jun 2018 07:23 pm
Operator : EB
Sample : 1806126-03A
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 11 Sample Multiplier: 1

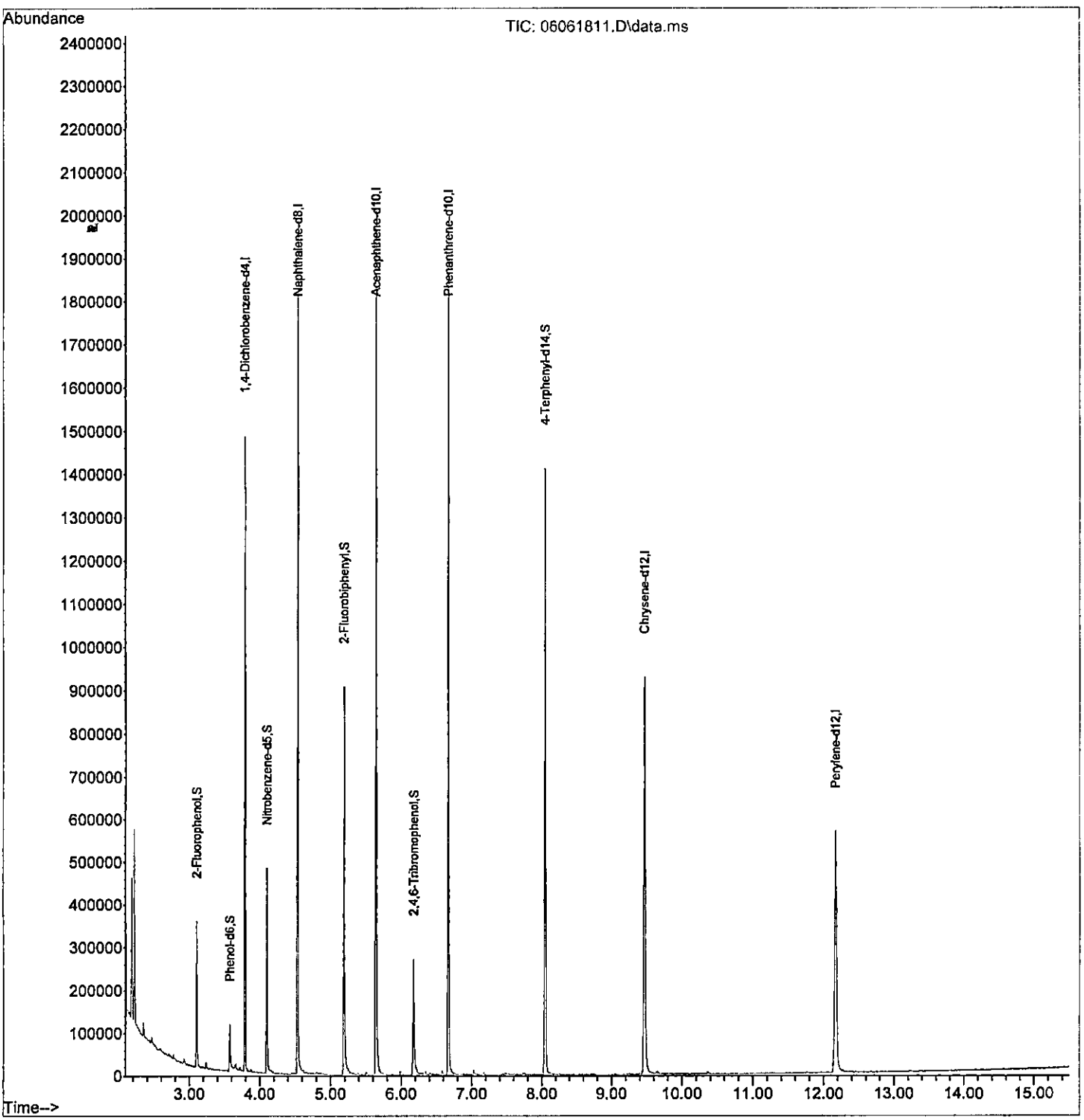
Quant Time: Jun 07 08:26:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89)	Butylbenzylphthalate	0.000		0	N.D.	d	
90)	Benzo[a]anthracene	0.000		0	N.D.	d	
91)	3,3'-Dichlorobenzidine	0.000		0	N.D.		
92)	Chrysene	0.000		0	N.D.	d	
93)	Bis(2-ethylhexyl)phtha	0.000		0	N.D.	d	
95)	Di-n-octylphthalate	0.000		0	N.D.	d	
96)	Benzo(b)fluoranthene	0.000		0	N.D.		
97)	Benzo(k)fluoranthene	0.000		0	N.D.		
98)	Benzo(a)pyrene	0.000		0	N.D.		
99)	Indeno(1,2,3-cd)pyrene	0.000		0	N.D.		
100)	Dibenz(a,h)anthracene	0.000		0	N.D.		
101)	Benzo(g,h,i)perylene	0.000		0	N.D.	d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061811.D
Acq On : 06 Jun 2018 07:23 pm
Operator : EB
Sample : 1806126-03A
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 07 08:26:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



Response Factor Report SVMS9

Method Path : D:\MassHunter\GCMS\1\methods\
Method File : 9S052218.M
Title : 8270/625/1311 Calibration
Last Update : Wed Jun 06 09:09:58 2018
Response Via : Initial Calibration

Calibration Files
0.1 =05221804.D 0.5 =05221805.D 1 =05221806.D 5 =05221807.D 10 =05221808.D 20 =06051811.D 40 =05221810.D 50 =05221811.D
60 =05221812.D

		Compound	0.1	0.5	1	5	10	20	40	50	60	Avg	%RSD
1)	I	1,4-Dichlorobenzen...	----------ISTD----------										
2)		1,4-Dioxane		0.372	0.526	0.410	0.377	0.346	0.360	0.335	0.324	0.381	16.85
3)		Pyridine	1.096	0.846	0.954	0.981	0.940	0.895	0.934	0.866	0.855	0.930	8.41
4)		N-Nitrosodimet...	0.596	0.286	0.380	0.394	0.396	0.378	0.409	0.369	0.364	0.397	20.85
5)	S	2-Fluorophenol	0.753	0.878	0.769	0.796	0.850	0.817	0.838	0.764	0.798	0.807	5.26
6)	P	Benzaldehyde	0.917	0.611	0.623	0.632	0.621	0.588	0.629	0.454	0.470	0.616	21.46
7)	S	Phenol-d6	0.808	1.069	0.863	1.023	1.072	1.026	1.052	0.949	0.984	0.983	9.49
8)	CP	Phenol	1.134	0.911	0.961	1.116	1.112	1.066	1.126	1.019	0.996	1.049	7.71
9)		Aniline	1.680	1.275	1.209	1.506	1.494	1.366	1.404	1.198	1.170	1.367	12.57
10)	P	Bis(2-chloroet...	0.931	0.796	1.064	0.862	0.853	0.843	0.893	0.804	0.786	0.870	9.94
11)	P	2-Chlorophenol	0.893	0.779	0.824	0.915	0.916	0.872	0.921	0.829	0.815	0.863	6.05
12)		1,3-Dichlorobe...	1.160	1.009	1.088	1.073	1.035	0.969	1.016	0.925	0.897	1.019	8.08
13)	C	1,4-Dichlorobe...	1.397	1.014	1.175	1.086	1.051	0.984	1.025	0.932	0.912	1.064	13.88
14)		Benzyl alcohol	0.584	0.520	0.521	0.558	0.573	0.553	0.599	0.532	0.530	0.552	5.19
15)		1,2-Dichlorobe...	1.262	0.938	1.024	1.039	1.000	0.934	0.980	0.880	0.867	0.992	11.85
16)	P	2-Methylphenol	0.716	0.611	0.670	0.708	0.729	0.704	0.747	0.675	0.659	0.691	6.00
17)	P	Dichloroisopro...	1.683	1.184	1.151	1.169	1.135	1.031	1.100	0.952	0.966	1.152	18.81
18)	P	3-Methylphenol	0.854	0.854	0.831	0.926	0.944	0.909	0.965	0.882	0.856	0.891	5.26
19)	P	4-Methylphenol	0.854	0.854	0.831	0.926	0.944	0.909	0.965	0.882	0.856	0.891	5.26
20)	P	3&4-Methylphenol	0.854	0.854	0.831	0.926	0.944	0.909	0.965	0.882	0.856	0.891	5.26
21)	P	Acetophenone	1.563	1.223	1.366	1.361	1.344	1.255	1.311	1.162	1.156	1.305	9.66
22)	P	N-Nitrosodi-n-...	0.741	0.633	0.628	0.644	0.669	0.627	0.672	0.601	0.595	0.645	6.86
23)	P	Hexachloroethane	0.612	0.409	0.454	0.458	0.437	0.408	0.429	0.389	0.383	0.442	15.58
24)	I	Naphthalene-d8	----------ISTD----------										
25)	S	Nitrobenzene-d5	0.421	0.451	0.424	0.448	0.448	0.445	0.479	0.452	0.460	0.448	3.91
26)	P	Nitrobenzene	0.459	0.357	0.371	0.409	0.396	0.399	0.436	0.416	0.399	0.405	7.66
27)	P	Isophorone	0.692	0.592	0.681	0.720	0.716	0.716	0.804	0.751	0.723	0.710	8.00
28)	CP	2-Nitrophenol	0.140	0.130	0.143	0.180	0.182	0.188	0.211	0.206	0.198	0.175	17.32
29)	P	2,4-Dimethylph...	0.315	0.250	0.245	0.290	0.299	0.366	0.394	0.392	0.376	0.325	18.13
30)	P	Bis(2-chloroet...	0.462	0.396	0.451	0.475	0.458	0.456	0.499	0.475	0.456	0.459	6.02
31)		Benzoic acid		0.030	0.068	0.111	0.126	0.135	0.184	0.182	0.192	0.129	45.38
32)	CP	2,4-Dichloroph...	0.201	0.219	0.251	0.282	0.277	0.285	0.316	0.305	0.293	0.270	14.36
33)		1,2,4-Trichlor...	0.345	0.303	0.339	0.353	0.328	0.326	0.353	0.335	0.326	0.334	4.70
34)		4-Chlorophenol	0.308	0.269	0.303	0.364	0.359	0.372	0.408	0.394	0.375	0.350	13.27
35)	P	Naphthalene	1.554	1.133	1.229	1.224	1.172	1.151	1.238	1.180	1.129	1.223	10.68

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36)	P	4-Chloroaniline	0.492	0.296	0.346	0.408	0.416	0.426	0.468	0.446	0.430	0.414	14.50
37)		2,6-Dichloroph...	0.300	0.203	0.267	0.298	0.302	0.295	0.327	0.306	0.292	0.288	12.27
38)	CP	Hexachlorobuta...	0.184	0.173	0.175	0.178	0.173	0.174	0.187	0.180	0.171	0.177	3.05
39)	P	Caprolactam		0.099	0.135	0.124	0.133	0.144	0.165	0.155	0.152	0.138	15.05
40)	CP	4-Chloro-3-met...	0.331	0.229	0.262	0.288	0.300	0.307	0.345	0.327	0.317	0.301	12.14
41)	P	2-Methylnaphth...	0.725	0.623	0.721	0.747	0.732	0.724	0.796	0.748	0.721	0.726	6.27
42)		1-Methylnaphth...	0.743	0.580	0.702	0.724	0.696	0.693	0.752	0.720	0.686	0.700	7.17
43)	P	1,2,4,5-Tetrac...	0.389	0.296	0.310	0.337	0.321	0.315	0.345	0.295	0.316	0.325	8.91
44)	P	1,1-Biphenyl	0.925	0.761	0.876	0.906	0.893	0.868	0.945	0.898	0.861	0.881	5.98
45)		2,3,5,6-Tetrac...	0.105	0.080	0.111	0.137	0.139	0.149	0.157	0.151	0.148	0.131	19.90
46)	P	2,3,4,6-Tetrac...	0.104	0.090	0.122	0.149	0.151	0.166	0.167	0.149	0.147	0.138	19.45
47)		1,4-Dinitroben...	0.045	0.047	0.062	0.085	0.092	0.104	0.122	0.115	0.115	0.087	34.09
48)		1,3-Dinitroben...	0.067	0.057	0.087	0.103	0.111	0.120	0.138	0.132	0.127	0.105	27.41
49)		1,2-Dinitroben...		0.033	0.062	0.076	0.083	0.082	0.091	0.089	0.085	0.075	25.73
50)	I	Acenaphthene-d10	----------ISTD----------										
51)	P	Hexachlorocycl...	0.164	0.185	0.229	0.293	0.308	0.370	0.402	0.403	0.384	0.304	30.67
52)	CP	2,4,6-Trichlor...	0.310	0.289	0.320	0.358	0.384	0.386	0.416	0.386	0.384	0.359	11.98
53)	P	2,4,5-Trichlor...	0.334	0.293	0.328	0.390	0.403	0.403	0.442	0.412	0.409	0.379	12.97
54)	S	2-Fluorobiphenyl	1.429	1.640	1.561	1.590	1.590	1.559	1.660	1.527	1.606	1.574	4.32
55)	P	2-Chloronaphth...	1.469	1.213	1.299	1.429	1.346	1.320	1.452	1.377	1.330	1.359	6.02
56)	P	2-Nitroaniline	0.240	0.269	0.335	0.357	0.376	0.389	0.450	0.432	0.422	0.363	19.79
57)	P	Dimethylphthalate	1.765	1.260	1.358	1.515	1.475	1.497	1.633	1.540	1.488	1.503	9.64
58)	P	Acenaphthylene	2.151	1.577	1.810	2.047	1.993	2.031	2.201	2.095	2.020	1.992	9.56
59)	P	2,6-Dinitrotol...	0.261	0.189	0.242	0.325	0.331	0.348	0.390	0.368	0.355	0.312	21.35
60)	P	3-Nitroaniline	0.185	0.186	0.239	0.344	0.351	0.361	0.421	0.393	0.391	0.319	28.53
61)	CP	Acenaphthene	1.451	1.181	1.302	1.407	1.354	1.349	1.481	1.397	1.362	1.365	6.44
62)	P	2,4-Dinitrophenol			0.012	0.073	0.103	0.138	0.181	0.178	0.187	0.125	52.72
63)	P	Dibenzofuran	2.230	1.728	1.883	1.988	1.906	1.868	2.031	1.932	1.861	1.936	7.21
64)	P	4-Nitrophenol			0.077	0.165	0.186	0.225	0.264	0.270	0.269	0.208	34.26
65)	P	2,4-Dinitrotol...		0.210	0.278	0.407	0.411	0.440	0.504	0.480	0.475	0.401	25.97
66)	P	Diethylphthalate	2.504	1.440	1.451	1.540	1.497	1.508	1.664	1.557	1.491	1.628	20.58
67)	P	Fluorene	1.689	1.272	1.429	1.543	1.511	1.503	1.642	1.561	1.513	1.518	7.93
68)	P	4-Chlorophenyl...	0.755	0.574	0.688	0.724	0.700	0.705	0.765	0.725	0.712	0.705	7.83
69)	P	4-Nitroaniline		0.162	0.208	0.333	0.355	0.376	0.431	0.407	0.413	0.335	29.56
70)	P	Atrazine	0.282	0.199	0.294	0.360	0.365	0.383				0.314	22.17
71)	I	Phenanthrene-d10	----------ISTD----------										
72)	P	4,6-Dinitro-2-...		0.018	0.040	0.078	0.090	0.111	0.133	0.130	0.129	0.091	47.51
73)	CP	N-Nitrosodiphe...	0.655	0.526	0.620	0.723	0.710	0.717	0.791	0.759	0.739	0.693	11.69
74)		1,2-Diphenylhy...	1.022	0.681	0.818	0.966	0.971	0.963	1.062	0.992	0.971	0.938	12.47
75)	S	2,4,6-Tribromo...	0.064	0.084	0.078	0.088	0.095	0.103	0.107	0.102	0.109	0.092	16.14
76)	P	4-Bromophenyl ...	0.260	0.179	0.199	0.214	0.216	0.211	0.244	0.225	0.226	0.219	10.77
77)	P	Hexachlorobenzene	0.284	0.209	0.230	0.236	0.224	0.224	0.246	0.233	0.229	0.235	8.83
78)	CP	Pentachlorophenol		0.021	0.051	0.081	0.089	0.107	0.112	0.106	0.111	0.085	38.75#
79)	P	Phenanthrene	1.640	1.181	1.286	1.287	1.207	1.202	1.296	1.233	1.196	1.281	11.05

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80)	P	Anthracene	1.173	0.944	1.057	1.177	1.164	1.212	1.325	1.262	1.232	1.172	9.64
81)	P	Carbazole	1.123	0.759	0.893	1.073	1.055	1.094	1.201	1.148	1.130	1.053	13.25
82)	P	Di-n-butylphth...	1.077	0.798	0.906	1.196	1.229	1.331	1.513	1.434	1.406	1.210	20.15
83)	CP	Fluoranthene	1.115	0.881	0.979	1.126	1.100	1.158	1.282	1.240	1.217	1.122	11.32
84)	I	Chrysene-d12	----------ISTD----------										
85)		3,3-Dimethylbe...	0.324	0.274	0.306	0.451	0.507	0.627	0.677	0.647	0.676	0.499	33.44
86)		Benzidine	0.333	0.276	0.287	0.407	0.473	0.600	0.647	0.565	0.576	0.463	30.76
87)		Pyrene	1.726	1.203	1.372	1.523	1.531	1.480	1.621	1.488	1.422	1.485	10.00
88)	S	4-Terphenyl-d14	1.050	1.017	0.940	1.057	1.085	1.067	1.104	1.024	1.040	1.043	4.54
89)	P	Butylbenzylpht...	0.344	0.322	0.349	0.531	0.577	0.647	0.738	0.723	0.701	0.548	31.17
90)	P	Benzo[a]anthra...	1.978	1.085	1.035	1.175	1.175	1.232	1.343	1.327	1.264	1.290	21.48
91)	P	3,3'-Dichlorob...	0.133	0.180	0.215	0.300	0.330	0.381	0.448	0.455	0.453	0.322	38.38
92)	P	Chrysene	1.590	1.115	1.358	1.292	1.250	1.235	1.318	1.279	1.221	1.295	10.03
93)	P	Bis(2-ethylhex...	0.647	0.401	0.429	0.613	0.724	0.847	0.979	0.980	0.970	0.732	31.10
94)	I	Perylene-d12	----------ISTD----------										
95)	CP	Di-n-octylphth...	0.778	0.548	0.622	0.783	0.939	1.202	1.690	1.620	1.685	1.096	42.47#
96)	P	Benzo(b)fluora...	0.982	0.717	0.866	1.013	1.079	1.133	1.309	1.261	1.271	1.070	18.55
97)	P	Benzo(k)fluora...	0.910	0.776	0.988	1.323	1.184	1.270	1.444	1.287	1.300	1.164	19.08
98)	CP	Benzo(a)pyrene	0.737	0.609	0.659	0.908	0.984	1.068	1.281	1.224	1.243	0.968	26.62#
99)	P	Indeno(1,2,3-c...	0.299	0.448	0.528	0.733	0.809	0.903	1.085	1.043	1.074	0.769	37.65
100)	P	Dibenz(a,h)ant...	0.496	0.522	0.646	0.815	0.897	0.948	1.116	1.067	1.078	0.843	28.35
101)	P	Benzo(g,h,i)pe...	0.778	0.689	0.820	1.008	1.023	1.049	1.219	1.158	1.187	0.992	19.15

(#) = Out of Range

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Calibration Files
0.1 =05221804 0.5 =05221805 1 =05221806 5 =05221807 10 =05221808 20 =06051811 40 =05221810
50 =05221811 60 =05221812

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	1,4-Dichlorobenz...		----------ISTD----------			
2)		1,4-Dioxane	Quad	0.0011	0.3848	-0.0393	0.9983
4)		N-Nitrosodimethy...	Quad	0.0001	0.4039	-0.0226	0.9980
6)	P	Benzaldehyde	Quad	0.0001	0.6813	-0.1410	0.9906
7)	S	Phenol-d6	Quad	-0.0018	1.0777	-0.0686	0.9988
8)	CP	Phenol	Quad	-0.0009	1.1473	-0.0897	0.9985
9)		Aniline	Quad	-0.0009	1.5469	-0.2447	0.9976
10)	P	Bis(2-chloroethy...	Quad	0.0000	0.9041	-0.0699	0.9982
11)	P	2-Chlorophenol	Quad	-0.0007	0.9424	-0.0775	0.9986
13)	C	1,4-Dichlorobenzene	Quad	0.0007	1.0809	-0.1076	0.9990
15)		1,2-Dichlorobenzene	Quad	0.0003	1.0286	-0.1035	0.9987
17)	P	Dichloroisopropy...	Quad	0.0011	1.1503	-0.1253	0.9979
23)	P	Hexachloroethane	Quad	0.0003	0.4484	-0.0421	0.9988
24)	I	Naphthalene-d8		----------ISTD----------			
28)	CP	2-Nitrophenol	Quad	-0.0003	0.1874	0.0122	0.9983
29)	P	2,4-Dimethylphenol	Quad	-0.0004	0.3299	0.0425	0.9969
31)		Benzoic acid	Quad	-0.0013	0.1213	0.0506	0.9982
32)	CP	2,4-Dichlorophenol	Quad	-0.0004	0.2897	0.0091	0.9985
34)		4-Chlorophenol	Quad	-0.0005	0.3768	0.0084	0.9982
35)	P	Naphthalene	Quad	0.0005	1.2150	-0.0380	0.9989
36)	P	4-Chloroaniline	Quad	-0.0003	0.4289	0.0106	0.9981
37)		2,6-Dichlorophenol	Quad	-0.0003	0.3108	-0.0057	0.9979
39)	P	Caprolactam	Quad	-0.0006	0.1433	0.0096	0.9972
40)	CP	4-Chloro-3-methy...	Quad	-0.0002	0.3088	0.0127	0.9979
45)		2,3,5,6-Tetrachl...	Quad	-0.0003	0.1456	0.0043	0.9986
46)	P	2,3,4,6-Tetrachl...	Quad	-0.0004	0.1662	-0.0105	0.9973
47)		1,4-Dinitrobenzene	Quad	-0.0003	0.0967	0.0151	0.9965
48)		1,3-Dinitrobenzene	Quad	-0.0003	0.1163	0.0110	0.9967
49)		1,2-Dinitrobenzene	Quad	-0.0007	0.0866	0.0008	0.9986
50)	I	Acenaphthene-d10		----------ISTD----------			
51)	P	Hexachlorocyclop...	Quad	-0.0009	0.3357	0.0449	0.9970
52)	CP	2,4,6-Trichlorop...	Quad	-0.0005	0.3912	0.0002	0.9985
53)	P	2,4,5-Trichlorop...	Quad	-0.0006	0.4108	0.0047	0.9985
56)	P	2-Nitroaniline	Quad	-0.0007	0.3847	0.0348	0.9980
59)	P	2,6-Dinitrotoluene	Quad	-0.0007	0.3479	0.0140	0.9972
60)	P	3-Nitroaniline	Quad	-0.0009	0.3602	0.0286	0.9973
62)	P	2,4-Dinitrophenol	Quad	-0.0034	0.1183	0.0509	0.9965
64)	P	4-Nitrophenol	Quad	-0.0040	0.2084	0.0475	0.9985
65)	P	2,4-Dinitrotoluene	Quad	-0.0036	0.4446	0.0302	0.9983
66)	P	Diethylphthalate	Quad	-0.0195	1.7531	-0.1506	0.9978
69)	P	4-Nitroaniline	Quad	-0.0034	0.3755	0.0313	0.9985
70)	P	Atrazine	Quad	-0.0011	0.3566	0.0580	0.9999
71)	I	Phenanthrene-d10		----------ISTD----------			
72)	P	4,6-Dinitro-2-me...	Quad	-0.0014	0.1018	0.0223	0.9968
73)	CP	N-Nitrosodipheny...	Quad	-0.0008	0.7300	0.0196	0.9987
74)		1,2-Diphenylhydr...	Quad	-0.0010	0.9950	0.0004	0.9983
75)	S	2,4,6-Tribromoph...	Quad	-0.0002	0.0965	0.0076	0.9990
76)	P	4-Bromophenyl ph...	Quad	-0.0000	0.2171	0.0090	0.9980
78)	CP	Pentachlorophenol	Quad	-0.0012	0.1004	0.0077	0.9981
79)	P	Phenanthrene	Quad	0.0006	1.2562	-0.0234	0.9990

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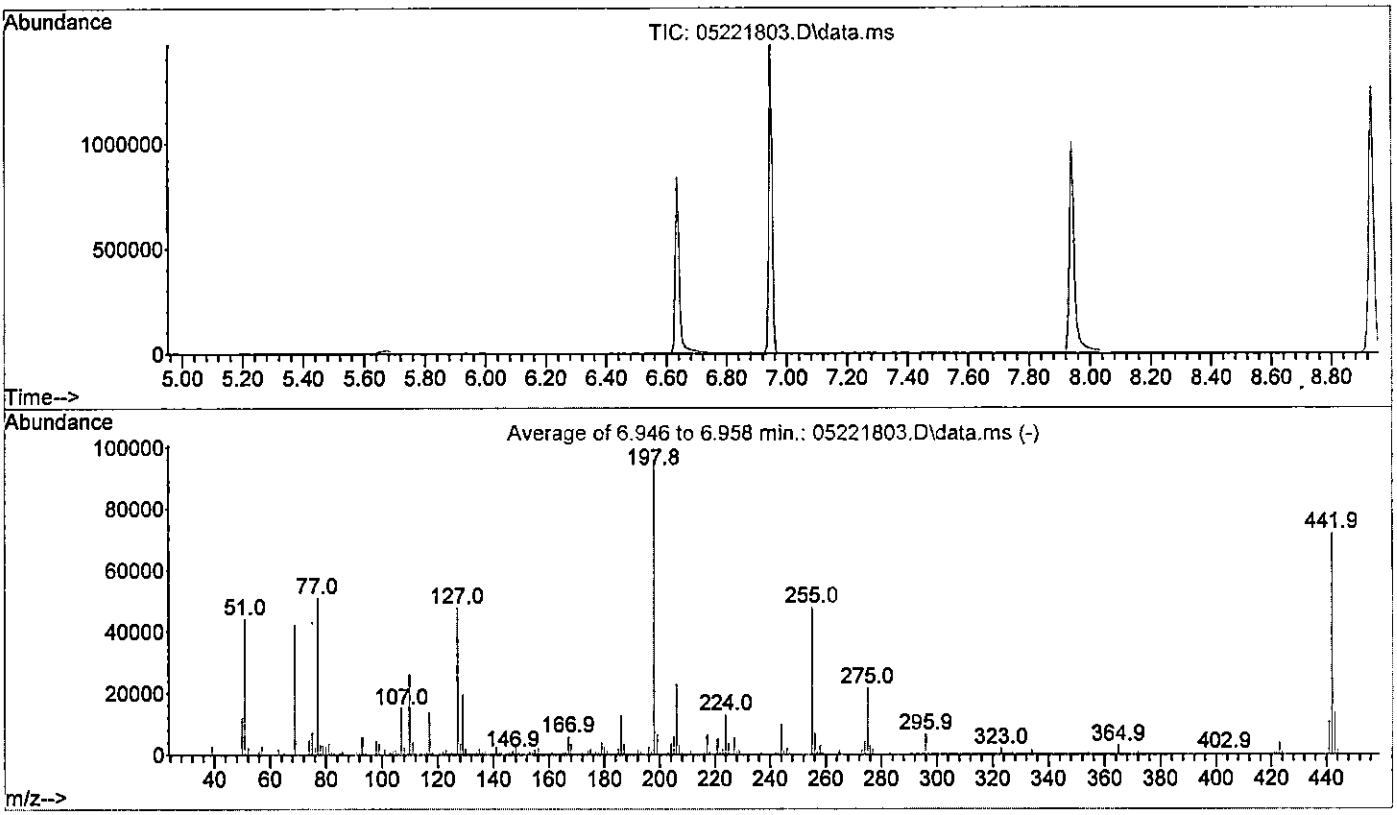
Title : 8270/625/1311 Calibration

80)	P	Anthracene	Quad	-0.0010	1.2164	0.0333	0.9986
81)	P	Carbazole	Quad	-0.0010	1.0911	0.0448	0.9986
82)	P	Di-n-butylphthalate	Quad	-0.0023	1.2892	0.1126	0.9974
83)	CP	Fluoranthene	Quad	-0.0010	1.1429	0.0718	0.9987
84)	I	Chrysene-d12	----------	ISTD	----------		
85)		3,3-Dimethylbenz...	Quad	-0.0015	0.5361	0.1014	0.9969
86)		Benzidine	Quad	-0.0016	0.5404	0.0373	0.9923
87)		Pyrene	Quad	-0.0010	1.5841	-0.0778	0.9979
89)	P	Butylbenzylphtha...	Quad	-0.0017	0.6009	0.0883	0.9970
90)	P	Benzo[a]anthracene	Quad	0.0008	1.2106	0.0670	0.9984
91)	P	3,3'-Dichloroben...	Quad	-0.0010	0.3336	0.0908	0.9980
92)	P	Chrysene	Quad	0.0003	1.2892	-0.0243	0.9991
93)	P	Bis(2-ethylhexyl...	Quad	-0.0016	0.7341	0.1844	0.9969
94)	I	Perylene-d12	----------	ISTD	----------		
95)	CP	Di-n-octylphthalate	Quad	-0.0023	0.9497	0.5427	0.9944
96)	P	Benzo(b)fluorant...	Quad	-0.0015	1.0792	0.1488	0.9984
97)	P	Benzo(k)fluorant...	Quad	-0.0024	1.2955	0.0220	0.9967
98)	CP	Benzo(a)pyrene	Quad	-0.0020	0.9889	0.1948	0.9975
99)	P	Indeno(1,2,3-cd)...	Quad	-0.0024	0.8125	0.1937	0.9977
100)	P	Dibenz(a,h)anthr...	Quad	-0.0021	0.8973	0.1408	0.9979
101)	P	Benzo(g,h,i)pery...	Quad	-0.0016	1.0207	0.1240	0.9986

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221803.D
Acq On : 22 May 2018 02:44 pm
Operator : RS
Sample : 50 ug/ml DFTPP
Misc : DFTPP
ALS Vial : 3 Sample Multiplier: 1

Integration File: rteint.p

Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Title : 8270/625/1311 Calibration
Last Update : Wed Jun 06 09:09:58 2018



Spectrum Information: Average of 6.946 to 6.958 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	46.1	44124	PASS
68	69	0.00	2	1.8	754	PASS
69	198	0.00	100	43.9	42074	PASS
70	69	0.00	2	0.6	258	PASS
127	198	30	60	49.8	47682	PASS
197	198	0.00	1	1.0	951	PASS
198	198	100	100	100.0	95812	PASS
199	198	5	9	6.8	6521	PASS
275	198	10	30	22.4	21447	PASS
365	198	1	100	3.1	2925	PASS
441	443	0.01	100	78.2	10554	PASS
442	198	39	100	75.0	71879	PASS
443	442	17	23	18.8	13500	PASS

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221804.D
Acq On : 22 May 2018 03:07 pm
Operator : RS
Sample : 0.1 ug/ml BNA
Misc : 300-0307A
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 15:33:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	290404	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	747355	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.728	164	358324	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.775	188	642668	40.00	ug/ml	-0.01
84) Chrysene-d12	9.634	240	478307	40.00	ug/ml	-0.04
94) Perylene-d12	12.357	264	393556	40.00	ug/ml	-0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	1366	0.27	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 0.54%#			
7) Phenol-d6	3.622	99	1466	0.31	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 0.62%#			
25) Nitrobenzene-d5	4.169	82	1965	0.24	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 0.48%#			
54) 2-Fluorobiphenyl	5.269	172	3200	0.13	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 0.26%#			
75) 2,4,6-Tribromophenol	6.269	330	258	0.15	ug/ml	-0.01
Spiked Amount 50.000	Range 32 - 115		Recovery = 0.30%#			
88) 4-Terphenyl-d14	8.187	244	3140	0.26	ug/ml	-0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 0.52%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) Pyridine	2.575	79	796	0.13	ug/ml	78
4) N-Nitrosodimethylamine	2.540	42	433	0.18	ug/ml#	73
6) Benzaldehyde	3.616	77	666	0.16	ug/ml	84
8) Phenol	3.628	94	823	0.22	ug/ml	85
9) Aniline	3.669	93	1220	0.16	ug/ml	90
10) Bis(2-chloroethyl)ether	3.687	93	676m	0.13	ug/ml	
11) 2-Chlorophenol	3.740	128	648	0.19	ug/ml	88
12) 1,3-Dichlorobenzene	3.828	146	842	0.12	ug/ml	83
13) 1,4-Dichlorobenzene	3.863	146	1014m	0.14	ug/ml	
14) Benzyl alcohol	3.916	108	424	0.46	ug/ml#	73
15) 1,2-Dichlorobenzene	3.958	146	916	0.13	ug/ml	95
16) 2-Methylphenol	3.969	107	520	0.17	ug/ml	87
17) Dichloroisopropyl ether	3.987	45	1222	0.17	ug/ml	86
18) 3-Methylphenol	4.058	107	620	0.17	ug/ml#	1
19) 4-Methylphenol	4.058	107	620	0.17	ug/ml#	1
20) 3&4-Methylphenol	4.058	107	620	0.17	ug/ml#	1
21) Acetophenone	4.075	105	1135	0.12	ug/ml#	57
22) N-Nitrosodi-n-propylamine	4.063	70	538	0.11	ug/ml	68
23) Hexachloroethane	4.158	117	444	0.16	ug/ml#	73
26) Nitrobenzene	4.181	77	858	0.12	ug/ml	80
27) Isophorone	4.310	82	1293	0.10	ug/ml	89
28) 2-Nitrophenol	4.369	139	262	0.36	ug/ml	93
29) 2,4-Dimethylphenol	4.369	107	588	0.14	ug/ml	91
30) Bis(2-chloroethoxy)met	4.428	93	863	0.15	ug/ml	88
31) Benzoic acid	0.000		0	N.D.	d	
32) 2,4-Dichlorophenol	4.516	162	376	0.15	ug/ml#	67

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221804.D
Acq On : 22 May 2018 03:07 pm
Operator : RS
Sample : 0.1 ug/ml BNA
Misc : 300-0307A
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 15:33:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.563	180	644	0.11 ug/ml	89
34) 4-Chlorophenol	4.558	128	575	0.31 ug/ml	83
35) Naphthalene	4.622	128	2904	0.13 ug/ml#	70
36) 4-Chloroaniline	4.640	127	919	0.18 ug/ml	91
37) 2,6-Dichlorophenol	4.646	162	561	0.10 ug/ml#	68
38) Hexachlorobutadiene	4.681	225	343	0.11 ug/ml	91
39) Caprolactam	0.000		0	N.D. d	
40) 4-Chloro-3-methylphenol	4.922	107	618	0.22 ug/ml	83
41) 2-Methylnaphthalene	5.046	142	1355	0.10 ug/ml	97
42) 1-Methylnaphthalene	5.110	142	1388	0.10 ug/ml	93
43) 1,2,4,5-Tetrachloroben...	5.152	216	726	0.11 ug/ml	83
44) 1,1-Biphenyl	5.334	154	1728	0.10 ug/ml	97
45) 2,3,5,6-Tetrachlorophenol	5.916	232	197	0.14 ug/ml#	69
46) 2,3,4,6-Tetrachlorophenol	5.946	232	195m	0.11 ug/ml	
47) 1,4-Dinitrobenzene	5.505	168	84	0.16 ug/ml#	1
48) 1,3-Dinitrobenzene	5.546	168	125	0.13 ug/ml#	45
49) 1,2-Dinitrobenzene	0.000		0	N.D. d	
51) Hexachlorocyclopentadiene	5.140	237	147	0.47 ug/ml#	57
52) 2,4,6-Trichlorophenol	5.216	196	278	0.20 ug/ml	90
53) 2,4,5-Trichlorophenol	5.252	196	299	0.24 ug/ml	86
55) 2-Chloronaphthalene	5.363	162	1316	0.11 ug/ml	95
56) 2-Nitroaniline	5.416	65	215	0.12 ug/ml	93
57) Dimethylphthalate	5.516	163	1581	0.11 ug/ml	91
58) Acenaphthylene	5.634	152	1927	0.11 ug/ml	98
59) 2,6-Dinitrotoluene	5.563	165	234	0.15 ug/ml#	65
60) 3-Nitroaniline	5.687	138	166	0.30 ug/ml#	67
61) Acenaphthene	5.746	154	1300	0.11 ug/ml	80
62) 2,4-Dinitrophenol	0.000		0	N.D.	
63) Dibenzofuran	5.863	168	1998	0.12 ug/ml	96
64) 4-Nitrophenol	0.000		0	N.D. d	
65) 2,4-Dinitrotoluene	0.000		0	N.D.	
66) Diethylphthalate	5.981	149	2243	0.16 ug/ml	96
67) Fluorene	6.099	166	1513	0.11 ug/ml	93
68) 4-Chlorophenyl phenyl	6.081	204	676	0.10 ug/ml	93
69) 4-Nitroaniline	0.000		0	N.D.	
70) Atrazine	6.522	200	253	0.12 ug/ml#	56
72) 4,6-Dinitro-2-methylph	0.000		0	N.D.	
73) N-Nitrosodiphenylamine	6.163	169	1053	0.13 ug/ml	92
74) 1,2-Diphenylhydrazine	6.193	77	1642	0.12 ug/ml	83
76) 4-Bromophenyl phenyl e	6.434	248	417	0.16 ug/ml	79
77) Hexachlorobenzene	6.487	284	456	0.12 ug/ml	70
78) Pentachlorophenol	0.000		0	N.D.	
79) Phenanthrene	6.793	178	2635	0.13 ug/ml	79
80) Anthracene	6.828	178	1885	0.10 ug/ml	99
81) Carbazole	6.940	167	1804	0.14 ug/ml	91
82) Di-n-butylphthalate	7.181	149	1730	0.14 ug/ml	94
83) Fluoranthene	7.804	202	1791	0.13 ug/ml	92
85) 3,3-Dimethylbenzidine	8.769	212	387	0.16 ug/ml#	77
86) Benzidine	7.922	184	398	0.22 ug/ml#	65
87) Pyrene	8.046	202	2064	0.15 ug/ml	97

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221804.D
Acq On : 22 May 2018 03:07 pm
Operator : RS
Sample : 0.1 ug/ml BNA
Misc : 300-0307A
ALS Vial : 4 Sample Multiplier: 1

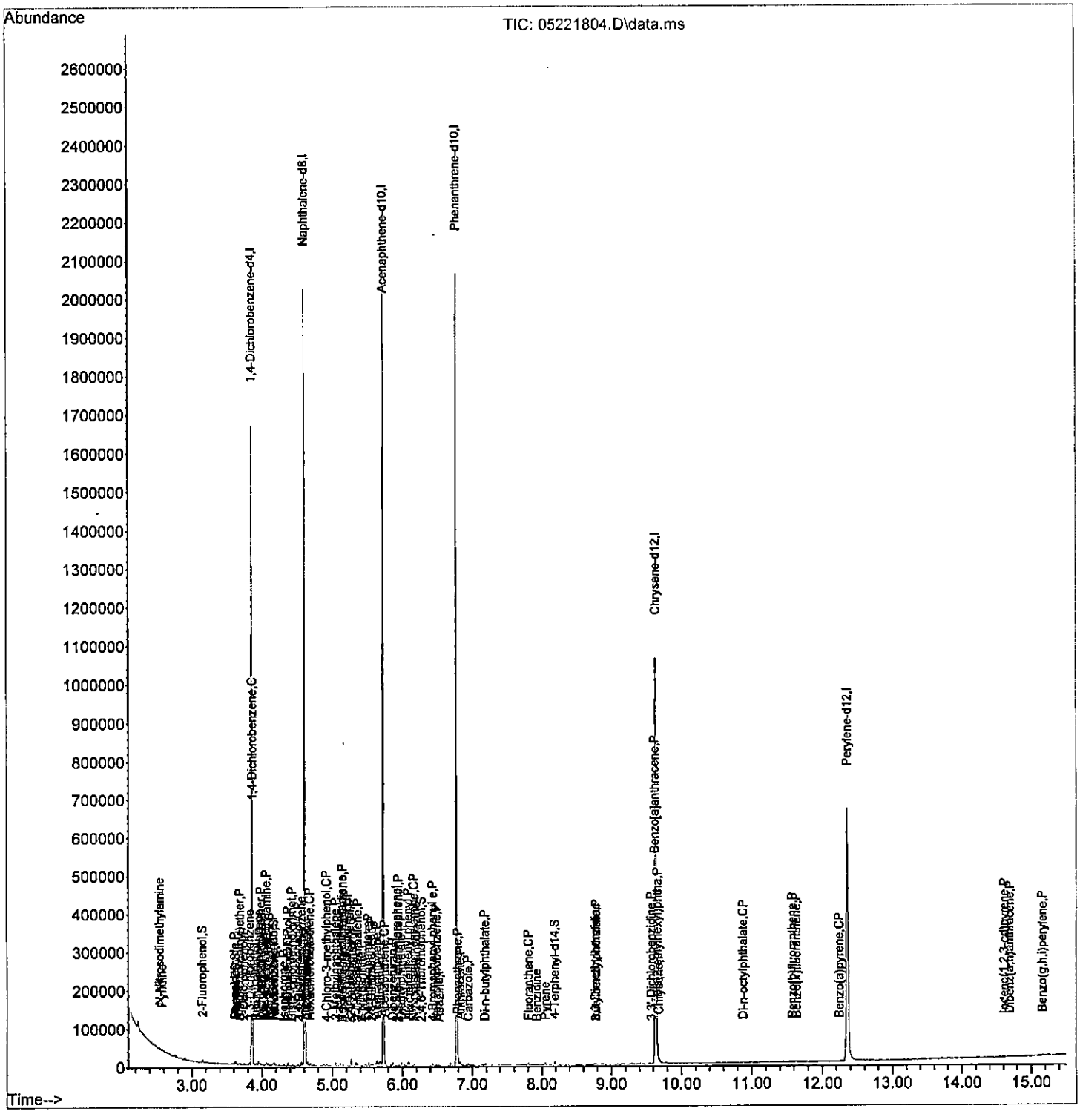
Quant Time: May 22 15:33:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.781	149	411	0.14 ug/ml#	65
90) Benzo[a]anthracene	9.622	228	2365	0.12 ug/ml	73
91) 3,3'-Dichlorobenzidine	9.569	252	159	0.15 ug/ml#	57
92) Chrysene	9.675	228	1901	0.12 ug/ml#	87
93) Bis(2-ethylhexyl)phtha	9.657	149	774	0.17 ug/ml#	49
95) Di-n-octylphthalate	10.875	149	765	0.19 ug/ml#	79
96) Benzo(b)fluoranthene	11.575	252	966	0.18 ug/ml	87
97) Benzo(k)fluoranthene	11.634	252	895	0.13 ug/ml	78
98) Benzo(a)pyrene	12.239	252	725	0.17 ug/ml	79
99) Indeno(1,2,3-cd)pyrene	14.610	276	294	0.17 ug/ml#	49
100) Dibenz(a,h)anthracene	14.686	278	488	0.17 ug/ml#	63
101) Benzo(g,h,i)perylene	15.157	276	765m	0.16 ug/ml	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221804.D
Acq On : 22 May 2018 03:07 pm
Operator : RS
Sample : 0.1 ug/ml BNA
Misc : 300-0307A
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 15:33:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221805.D
Acq On : 22 May 2018 03:29 pm
Operator : RS
Sample : 0.5 ug/ml BNA
Misc : 300-0307B
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:54:42 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	269458	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	682361	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	316881	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.769	188	564568	40.00	ug/ml	-0.02
84) Chrysene-d12	9.634	240	432739	40.00	ug/ml	-0.04
94) Perylene-d12	12.357	264	378493	40.00	ug/ml	-0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	2956	0.62	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 1.24%#			
7) Phenol-d6	3.617	99	3599	0.66	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 1.32%#			
25) Nitrobenzene-d5	4.170	82	3847	0.52	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 1.04%#			
54) 2-Fluorobiphenyl	5.269	172	6497	0.45	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 0.90%#			
75) 2,4,6-Tribromophenol	6.264	330	595	0.45	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 0.90%#			
88) 4-Terphenyl-d14	8.187	244	5499	0.50	ug/ml	-0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 1.00%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	1252	0.37	ug/ml#	84
3) Pyridine	2.570	79	2851	0.50	ug/ml	89
4) N-Nitrosodimethylamine	2.534	42	962m	0.41	ug/ml	
6) Benzaldehyde	3.617	77	2059	0.52	ug/ml	97
8) Phenol	3.628	94	3067	0.56	ug/ml	99
9) Aniline	3.670	93	4294	0.53	ug/ml	95
10) Bis(2-chloroethyl)ether	3.687	93	2682m	0.42	ug/ml	
11) 2-Chlorophenol	3.740	128	2625	0.54	ug/ml	94
12) 1,3-Dichlorobenzene	3.828	146	3398	0.52	ug/ml	95
13) 1,4-Dichlorobenzene	3.864	146	3415m	0.50	ug/ml	
14) Benzyl alcohol	3.917	108	1750	0.81	ug/ml	99
15) 1,2-Dichlorobenzene	3.952	146	3160	0.48	ug/ml	94
16) 2-Methylphenol	3.970	107	2058	0.49	ug/ml	97
17) Dichloroisopropyl ether	3.987	45	3987	0.58	ug/ml	85
18) 3-Methylphenol	4.052	107	2878	0.52	ug/ml#	75
19) 4-Methylphenol	4.052	107	2878	0.52	ug/ml#	75
20) 3&4-Methylphenol	4.052	107	2878	0.52	ug/ml#	75
21) Acetophenone	4.075	105	4121	0.47	ug/ml#	76
22) N-Nitrosodi-n-propylamine	4.064	70	2131	0.46	ug/ml#	68
23) Hexachloroethane	4.152	117	1378	0.52	ug/ml	92
26) Nitrobenzene	4.181	77	3044	0.48	ug/ml	91
27) Isophorone	4.311	82	5048	0.41	ug/ml	99
28) 2-Nitrophenol	4.370	139	1106	0.64	ug/ml	85
29) 2,4-Dimethylphenol	4.370	107	2129	0.41	ug/ml	93
30) Bis(2-chloroethoxy)met	4.428	93	3381	0.49	ug/ml	98
31) Benzoic acid	4.393	122	253m	0.66	ug/ml	
32) 2,4-Dichlorophenol	4.511	162	1869	0.47	ug/ml	92

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221805.D
Acq On : 22 May 2018 03:29 pm
Operator : RS
Sample : 0.5 ug/ml BNA
Misc : 300-0307B
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:54:42 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	2588	0.47 ug/ml	96
34) 4-Chlorophenol	4.558	128	2295	0.58 ug/ml	98
35) Naphthalene	4.617	128	9665m	0.47 ug/ml	
36) 4-Chloroaniline	4.640	127	2529m	0.42 ug/ml	
37) 2,6-Dichlorophenol	4.646	162	1734	0.34 ug/ml	83
38) Hexachlorobutadiene	4.681	225	1479	0.51 ug/ml	98
39) Caprolactam	4.834	55	842	0.41 ug/ml#	62
40) 4-Chloro-3-methylphenol	4.922	107	1952	0.46 ug/ml	96
41) 2-Methylnaphthalene	5.046	142	5312	0.41 ug/ml	99
42) 1-Methylnaphthalene	5.111	142	4950	0.39 ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.146	216	2529	0.44 ug/ml	99
44) 1,1-Biphenyl	5.334	154	6487	0.40 ug/ml	98
45) 2,3,5,6-Tetrachlorophenol	5.911	232	684	0.31 ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.940	232	767m	0.28 ug/ml	
47) 1,4-Dinitrobenzene	5.499	168	403	0.33 ug/ml#	1
48) 1,3-Dinitrobenzene	5.546	168	489	0.28 ug/ml#	39
49) 1,2-Dinitrobenzene	5.605	168	280	0.25 ug/ml#	50
51) Hexachlorocyclopentadiene	5.140	237	732	0.74 ug/ml	86
52) 2,4,6-Trichlorophenol	5.217	196	1144	0.53 ug/ml	84
53) 2,4,5-Trichlorophenol	5.246	196	1160	0.51 ug/ml	91
55) 2-Chloronaphthalene	5.358	162	4805	0.47 ug/ml	99
56) 2-Nitroaniline	5.411	65	1064	0.42 ug/ml	91
57) Dimethylphthalate	5.517	163	4992	0.41 ug/ml	98
58) Acenaphthylene	5.634	152	6248	0.39 ug/ml	100
59) 2,6-Dinitrotoluene	5.564	165	748	0.34 ug/ml#	55
60) 3-Nitroaniline	5.681	138	738	0.49 ug/ml#	81
61) Acenaphthene	5.746	154	4678m	0.43 ug/ml	
62) 2,4-Dinitrophenol	0.000		0	N.D.	
63) Dibenzofuran	5.864	168	6843	0.45 ug/ml	98
64) 4-Nitrophenol	0.000		0	N.D. d	
65) 2,4-Dinitrotoluene	5.828	165	830m	0.46 ug/ml	
66) Diethylphthalate	5.981	149	5705	0.45 ug/ml	99
67) Fluorene	6.099	166	5039	0.41 ug/ml	100
68) 4-Chlorophenyl phenyl	6.081	204	2273	0.39 ug/ml	93
69) 4-Nitroaniline	6.105	138	640	0.90 ug/ml	90
70) Atrazine	6.522	200	787	0.29 ug/ml#	77
72) 4,6-Dinitro-2-methylph	6.122	198	129	0.53 ug/ml#	53
73) N-Nitrosodiphenylamine	6.164	169	3711	0.42 ug/ml	91
74) 1,2-Diphenylhydrazine	6.193	77	4805	0.41 ug/ml	92
76) 4-Bromophenyl phenyl e	6.428	248	1263	0.48 ug/ml	97
77) Hexachlorobenzene	6.481	284	1478	0.45 ug/ml	97
78) Pentachlorophenol	6.628	266	151	0.43 ug/ml#	60
79) Phenanthrene	6.787	178	8335	0.46 ug/ml	94
80) Anthracene	6.828	178	6660	0.40 ug/ml	97
81) Carbazole	6.940	167	5357	0.37 ug/ml	99
82) Di-n-butylphthalate	7.181	149	5632	0.36 ug/ml	98
83) Fluoranthene	7.805	202	6220	0.38 ug/ml	99
85) 3,3-Dimethylbenzidine	8.769	212	1480	0.33 ug/ml#	88
86) Benzidine	7.922	184	1495	0.43 ug/ml	78
87) Pyrene	8.040	202	6507	0.49 ug/ml	91

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221805.D
Acq On : 22 May 2018 03:29 pm
Operator : RS
Sample : 0.5 ug/ml BNA
Misc : 300-0307B
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:54:42 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

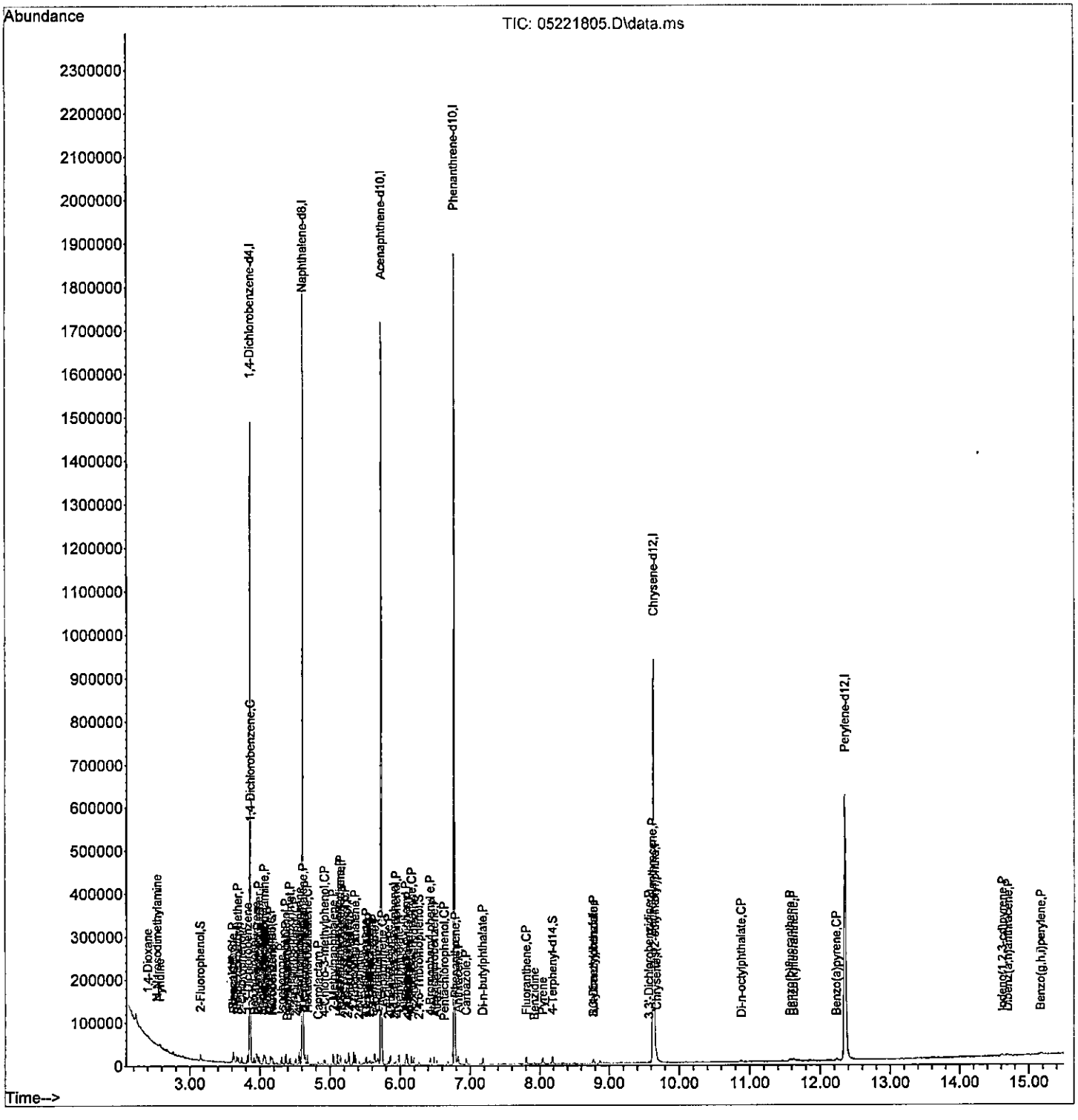
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.775	149	1744	0.36 ug/ml	90
90) Benzo[a]anthracene	9.616	228	5867	0.40 ug/ml	95
91) 3,3'-Dichlorobenzidine	9.569	252	974	0.35 ug/ml	92
92) Chrysene	9.675	228	6033	0.44 ug/ml	96
93) Bis(2-ethylhexyl)phtha	9.652	149	2171	0.36 ug/ml#	85
95) Di-n-octylphthalate	10.881	149	2595	0.41 ug/ml#	91
96) Benzo(b)fluoranthene	11.575	252	3393	0.43 ug/ml	93
97) Benzo(k)fluoranthene	11.628	252	3672m	0.38 ug/ml	
98) Benzo(a)pyrene	12.234	252	2881	0.40 ug/ml	90
99) Indeno(1,2,3-cd)pyrene	14.616	276	2121	0.42 ug/ml	87
100) Dibenz(a,h)anthracene	14.698	278	2472	0.44 ug/ml#	59
101) Benzo(g,h,i)perylene	15.169	276	3262	0.44 ug/ml	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221805.D
Acq On : 22 May 2018 03:29 pm
Operator : RS
Sample : 0.5 ug/ml BNA
Misc : 300-0307B
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:54:42 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221806.D
Acq On : 22 May 2018 03:52 pm
Operator : RS
Sample : 1.0 ug/ml BNA
Misc : 300-0307C
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 09:04:24 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	288333	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	725276	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	3S0054	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.769	188	619602	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	476300	40.00	ug/ml	-0.04
94) Perylene-d12	12.351	264	420237	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	5546	1.10	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 2.20%#			
7) Phenol-d6	3.616	99	6221	1.02	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 2.04%#			
25) Nitrobenzene-d5	4.169	82	7693	0.97	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 1.94%#			
54) 2-Fluorobiphenyl	5.269	172	13661	0.97	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 1.94%#			
75) 2,4,6-Tribromophenol	6.263	330	1209	0.85	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 1.70%#			
88) 4-Terphenyl-d14	8.181	244	11192	0.92	ug/ml	-0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 1.84%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	3789	1.43	ug/ml	84
3) Pyridine	2.S64	79	6876	1.13	ug/ml	95
4) N-Nitrosodimethylamine	2.534	42	2739	1.08	ug/ml	94
6) Benzaldehyde	3.616	77	4492	1.06	ug/ml	97
8) Phenol	3.628	94	6928	1.07	ug/ml	94
9) Aniline	3.669	93	8717m	0.98	ug/ml	
10) Bis(2-chloroethyl)ether	3.687	93	7670m	1.06	ug/ml	
11) 2-Chlorophenol	3.740	128	5937	1.06	ug/ml	94
12) 1,3-Dichlorobenzene	3.828	146	7843	1.11	ug/ml	97
13) 1,4-Dichlorobenzene	3.864	146	8471	1.17	ug/ml	77
14) Benzyl alcohol	3.916	108	3755	1.25	ug/ml	96
15) 1,2-Dichlorobenzene	3.958	146	7382	1.06	ug/ml	96
16) 2-Methylphenol	3.969	107	4833	0.98	ug/ml	97
17) Dichloroisopropyl ether	3.987	45	8298	1.13	ug/ml	90
18) 3-Methylphenol	4.052	107	5987	0.93	ug/ml#	82
19) 4-Methylphenol	4.052	107	5987	0.93	ug/ml#	82
20) 3&4-Methylphenol	4.052	107	5987	0.93	ug/ml#	82
21) Acetophenone	4.075	105	9845m	1.04	ug/ml	
22) N-Nitrosodi-n-propylamine	4.064	70	4525	0.92	ug/ml	86
23) Hexachloroethane	4.152	117	3270	1.16	ug/ml	99
26) Nitrobenzene	4.181	77	6731	1.00	ug/ml	92
27) Isophorone	4.311	82	12353	0.94	ug/ml	97
28) 2-Nitrophenol	4.369	139	2590	1.06	ug/ml	96
29) 2,4-Dimethylphenol	4.369	107	4435	0.75	ug/ml#	78
30) Bis(2-chloroethoxy)met	4.428	93	8172	1.05	ug/ml	98
31) Benzoic acid	4.387	122	1233m	1.00	ug/ml	
32) 2,4-Dichlorophenol	4.511	162	4549	0.98	ug/ml	88

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221806.D
Acq On : 22 May 2018 03:52 pm
Operator : RS
Sample : 1.0 ug/ml BNA
Misc : 300-0307C
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 09:04:24 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	6145	1.05 ug/ml	98
34) 4-Chlorophenol	4.558	128	5495	1.02 ug/ml	98
35) Naphthalene	4.616	128	22280	1.02 ug/ml#	32
36) 4-Chloroaniline	4.640	127	6275m	0.89 ug/ml	
37) 2,6-Dichlorophenol	4.646	162	4839	0.90 ug/ml	98
38) Hexachlorobutadiene	4.681	225	3174	1.04 ug/ml	95
39) Caprolactam	4.834	55	2456	0.92 ug/ml#	80
40) 4-Chloro-3-methylphenol	4.922	107	4751	0.89 ug/ml	98
41) 2-Methylnaphthalene	5.046	142	13076	0.95 ug/ml	96
42) 1-Methylnaphthalene	5.111	142	12735	0.94 ug/ml	96
43) 1,2,4,5-Tetrachloroben...	5.146	216	5626	0.92 ug/ml	96
44) 1,1-Biphenyl	5.334	154	15892	0.92 ug/ml	97
45) 2,3,5,6-Tetrachlorophenol	5.910	232	2017	0.70 ug/ml	92
46) 2,3,4,6-Tetrachlorophenol	5.940	232	2210m	0.65 ug/ml	
47) 1,4-Dinitrobenzene	5.499	168	1117m	0.66 ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	1581	0.69 ug/ml#	73
49) 1,2-Dinitrobenzene	5.599	168	1125	0.71 ug/ml#	82
51) Hexachlorocyclopentadiene	5.140	237	2003	1.23 ug/ml	96
52) 2,4,6-Trichlorophenol	5.216	196	2800	1.03 ug/ml	96
53) 2,4,5-Trichlorophenol	5.246	196	2869	0.94 ug/ml	92
55) 2-Chloronaphthalene	5.358	162	11371	1.01 ug/ml	95
56) 2-Nitroaniline	5.411	65	2936	0.95 ug/ml#	75
57) Dimethylphthalate	5.516	163	11884	0.88 ug/ml	100
58) Acenaphthylene	5.634	152	15837	0.91 ug/ml	96
59) 2,6-Dinitrotoluene	5.563	165	2119	0.76 ug/ml	90
60) 3-Nitroaniline	5.681	138	2095	0.87 ug/ml#	85
61) Acenaphthene	5.746	154	11391m	0.94 ug/ml	
62) 2,4-Dinitrophenol	5.781	184	109m	2.46 ug/ml	
63) Dibenzofuran	5.863	168	16481	0.97 ug/ml	97
64) 4-Nitrophenol	5.799	65	674m	2.02 ug/ml	
65) 2,4-Dinitrotoluene	5.834	165	2434	0.82 ug/ml	88
66) Diethylphthalate	5.981	149	12702	0.91 ug/ml	99
67) Fluorene	6.093	166	12506	0.91 ug/ml	99
68) 4-Chlorophenyl phenyl	6.081	204	6022	0.94 ug/ml	97
69) 4-Nitroaniline	6.099	138	1816m	1.18 ug/ml	
70) Atrazine	6.516	200	2574	0.77 ug/ml	91
72) 4,6-Dinitro-2-methylph	6.116	198	627	0.83 ug/ml#	49
73) N-Nitrosodiphenylamine	6.158	169	9609	0.94 ug/ml	97
74) 1,2-Diphenylhydrazine	6.193	77	12664	0.98 ug/ml	98
76) 4-Bromophenyl phenyl e	6.428	248	3087	1.03 ug/ml	91
77) Hexachlorobenzene	6.481	284	3560	1.00 ug/ml	93
78) Pentachlorophenol	6.628	266	790	0.79 ug/ml	96
79) Phenanthrene	6.787	178	19920	1.01 ug/ml	97
80) Anthracene	6.822	178	16369	0.89 ug/ml	99
81) Carbazole	6.940	167	13839	0.82 ug/ml	97
82) Di-n-butylphthalate	7.181	149	14031	0.75 ug/ml	99
83) Fluoranthene	7.799	202	15160	0.80 ug/ml	97
85) 3,3-Dimethylbenzidine	8.763	212	3646	0.61 ug/ml	97
86) Benzidine	7.916	184	3412	0.73 ug/ml	97
87) Pyrene	8.040	202	16332	1.11 ug/ml	97

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221806.D
Acq On : 22 May 2018 03:52 pm
Operator : RS
Sample : 1.0 ug/ml BNA
Misc : 300-0307C
ALS Vial : 6 Sample Multiplier: 1

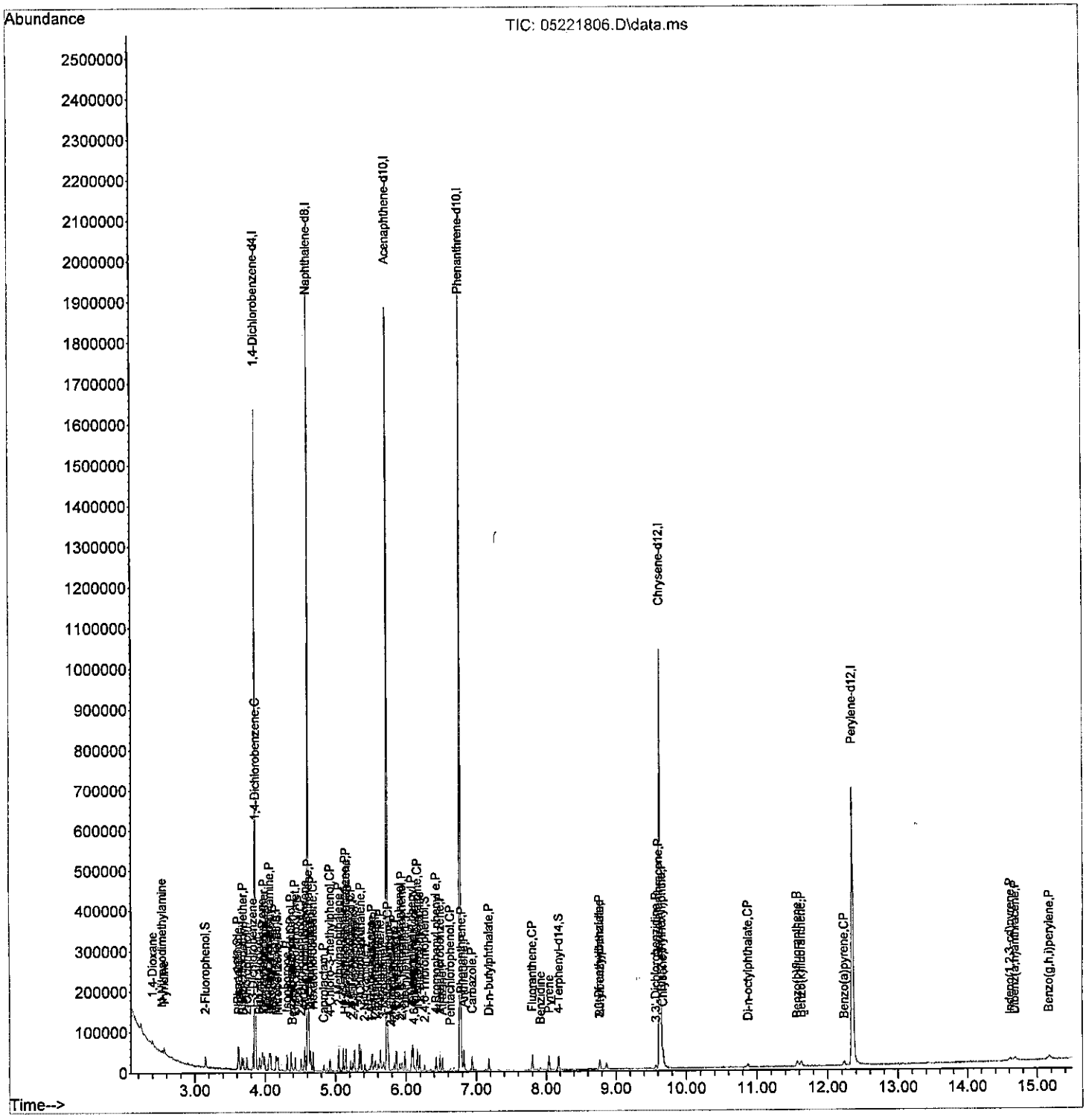
Quant Time: May 23 09:04:24 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89) Butylbenzylphthalate	8.769	149	4158	0.70	ug/ml	89
90) Benzo[a]anthracene	9.610	228	12329	0.81	ug/ml	92
91) 3,3'-Dichlorobenzidine	9.569	252	2563	0.69	ug/ml	94
92) Chrysene	9.669	228	16169m	1.06	ug/ml	
93) Bis(2-ethylhexyl)phtha	9.651	149	5110	0.68	ug/ml	95
95) Di-n-octylphthalate	10.875	149	6534	0.80	ug/ml	97
96) Benzo(b)fluoranthene	11.569	252	9093	0.91	ug/ml	93
97) Benzo(k)fluoranthene	11.628	252	10375m	0.90	ug/ml	
98) Benzo(a)pyrene	12.234	252	6919	0.76	ug/ml	98
99) Indeno(1,2,3-cd)pyrene	14.610	276	5544	0.82	ug/ml	91
100) Dibenz(a,h)anthracene	14.681	278	6782	0.91	ug/ml	73
101) Benzo(g,h,i)perylene	15.169	276	8611	0.94	ug/ml	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221806.D
Acq On : 22 May 2018 03:52 pm
Operator : RS
Sample : 1.0 ug/ml BNA
Misc : 300-0307C
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 09:04:24 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221807.D
Acq On : 22 May 2018 04:15 pm
Operator : RS
Sample : 5.0 ug/ml BNA
Misc : 300-0307D
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	290012	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	715448	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	347835	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.769	188	617045	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	483994	40.00	ug/ml	-0.04
94) Perylene-d12	12.357	264	409886	40.00	ug/ml	-0.06
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	28850	5.67	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 11.34%#			
7) Phenol-d6	3.617	99	37084	5.52	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 11.04%#			
25) Nitrobenzene-d5	4.170	82	40064	5.15	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 10.30%#			
54) 2-Fluorobiphenyl	5.269	172	69120	5.43	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 10.86%#			
75) 2,4,6-Tribromophenol	6.264	330	6813	4.86	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 9.72%#			
88) 4-Terphenyl-d14	8.181	244	63972	5.16	ug/ml	-0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 10.32%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.393	88	14867	6.23	ug/ml	99
3) Pyridine	2.558	79	35556	5.81	ug/ml	97
4) N-Nitrosodimethylamine	2.528	42	14284	5.56	ug/ml	96
6) Benzaldehyde	3.617	77	22915	5.43	ug/ml	98
8) Phenol	3.628	94	40441	5.65	ug/ml	100
9) Aniline	3.670	93	54610	5.94	ug/ml	98
10) Bis(2-chloroethyl)ether	3.687	93	31246m	4.20	ug/ml	
11) 2-Chlorophenol	3.740	128	33168	5.49	ug/ml	97
12) 1,3-Dichlorobenzene	3.828	146	38892	5.49	ug/ml	98
13) 1,4-Dichlorobenzene	3.870	146	39376	5.38	ug/ml	97
14) Benzyl alcohol	3.917	108	20216	5.11	ug/ml	98
15) 1,2-Dichlorobenzene	3.958	146	37681	5.36	ug/ml	100
16) 2-Methylphenol	3.970	107	25662	4.86	ug/ml	100
17) Dichloroisopropyl ether	3.987	45	42387m	5.75	ug/ml	
18) 3-Methylphenol	4.052	107	33580	4.82	ug/ml#	84
19) 4-Methylphenol	4.052	107	33580	4.82	ug/ml#	84
20) 3&4-Methylphenol	4.052	107	33580	4.82	ug/ml#	84
21) Acetophenone	4.075	105	49329	5.19	ug/ml#	82
22) N-Nitrosodi-n-propylamine	4.064	70	23334	4.71	ug/ml	94
23) Hexachloroethane	4.152	117	16607	5.84	ug/ml	96
26) Nitrobenzene	4.181	77	36609	5.49	ug/ml	95
27) Isophorone	4.311	82	64346	4.97	ug/ml	99
28) 2-Nitrophenol	4.370	139	16054	5.16	ug/ml	98
29) 2,4-Dimethylphenol	4.370	107	25953	4.19	ug/ml#	77
30) Bis(2-chloroethoxy)met	4.428	93	42478	5.33	ug/ml	99
31) Benzoic acid	4.387	122	9942m	4.00	ug/ml	
32) 2,4-Dichlorophenol	4.511	162	25237	5.09	ug/ml	97

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221807.D
Acq On : 22 May 2018 04:15 pm
Operator : RS
Sample : 5.0 ug/ml BNA
Misc : 300-0307D
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	31543	5.47	ug/ml	100
34) 4-Chlorophenol	4.558	128	32580	4.96	ug/ml	98
35) Naphthalene	4.622	128	109495	5.06	ug/ml	92
36) 4-Chloroaniline	4.640	127	36457m	4.91	ug/ml	
37) 2,6-Dichlorophenol	4.646	162	26662	5.03	ug/ml	98
38) Hexachlorobutadiene	4.681	225	15903	5.28	ug/ml	98
39) Caprolactam	4.834	55	11084	3.77	ug/ml	95
40) 4-Chloro-3-methylphenol	4.922	107	25743	4.34	ug/ml	100
41) 2-Methylnaphthalene	5.046	142	66836	4.95	ug/ml	100
42) 1-Methylnaphthalene	5.111	142	64788	4.85	ug/ml	97
43) 1,2,4,5-Tetrachloroben...	5.146	216	30129	4.97	ug/ml	97
44) 1,1-Biphenyl	5.334	154	81021	4.76	ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.905	232	12264	3.89	ug/ml	97
46) 2,3,4,6-Tetrachlorophenol	5.934	232	13344m	3.70	ug/ml	
47) 1,4-Dinitrobenzene	5.499	168	7567m	3.81	ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	9228	3.66	ug/ml#	73
49) 1,2-Dinitrobenzene	5.605	168	6801	3.88	ug/ml#	88
51) Hexachlorocyclopentadiene	5.140	237	12757	5.52	ug/ml	99
52) 2,4,6-Trichlorophenol	5.217	196	15544	5.17	ug/ml	97
53) 2,4,5-Trichlorophenol	5.240	196	16946	4.79	ug/ml	98
55) 2-Chloronaphthalene	5.358	162	62149	5.57	ug/ml	99
56) 2-Nitroaniline	5.411	65	15520	4.77	ug/ml	91
57) Dimethylphthalate	5.517	163	65866	4.93	ug/ml	100
58) Acenaphthylene	5.634	152	89007	5.12	ug/ml	100
59) 2,6-Dinitrotoluene	5.564	165	14149m	4.60	ug/ml	
60) 3-Nitroaniline	5.681	138	14966	4.66	ug/ml	97
61) Acenaphthene	5.746	154	61167	5.11	ug/ml	99
62) 2,4-Dinitrophenol	5.752	184	3156	4.67	ug/ml	89
63) Dibenzofuran	5.858	168	86440	5.13	ug/ml	97
64) 4-Nitrophenol	5.787	65	7154	6.56	ug/ml	89
65) 2,4-Dinitrotoluene	5.828	165	17696	4.42	ug/ml	99
66) Diethylphthalate	5.981	149	66950	4.81	ug/ml	99
67) Fluorene	6.093	166	67074	4.92	ug/ml	99
68) 4-Chlorophenyl phenyl	6.081	204	31490	4.97	ug/ml	99
69) 4-Nitroaniline	6.093	138	14476	4.39	ug/ml	96
70) Atrazine	6.516	200	15635	4.37	ug/ml	98
72) 4,6-Dinitro-2-methylph	6.111	198	5989	4.09	ug/ml#	60
73) N-Nitrosodiphenylamine	6.158	169	55780	5.34	ug/ml	98
74) 1,2-Diphenylhydrazine	6.193	77	74517	5.80	ug/ml	97
76) 4-Bromophenyl phenyl e	6.428	248	16518	5.34	ug/ml	97
77) Hexachlorobenzene	6.481	284	18225	5.12	ug/ml	98
78) Pentachlorophenol	6.622	266	6280	3.91	ug/ml	96
79) Phenanthrene	6.787	178	99242	5.05	ug/ml	100
80) Anthracene	6.822	178	90811	4.95	ug/ml	99
81) Carbazole	6.934	167	82779	4.69	ug/ml	98
82) Di-n-butylphthalate	7.181	149	92260	4.59	ug/ml	100
83) Fluoranthene	7.799	202	86885	4.38	ug/ml	99
85) 3,3-Dimethylbenzidine	8.763	212	27269	3.79	ug/ml	97
86) Benzidine	7.916	184	24599	4.13	ug/ml	98
87) Pyrene	8.040	202	92128	6.00	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221807.D
Acq On : 22 May 2018 04:15 pm
Operator : RS
Sample : 5.0 ug/ml BNA
Misc : 300-0307D
ALS Vial : 7 Sample Multiplier: 1

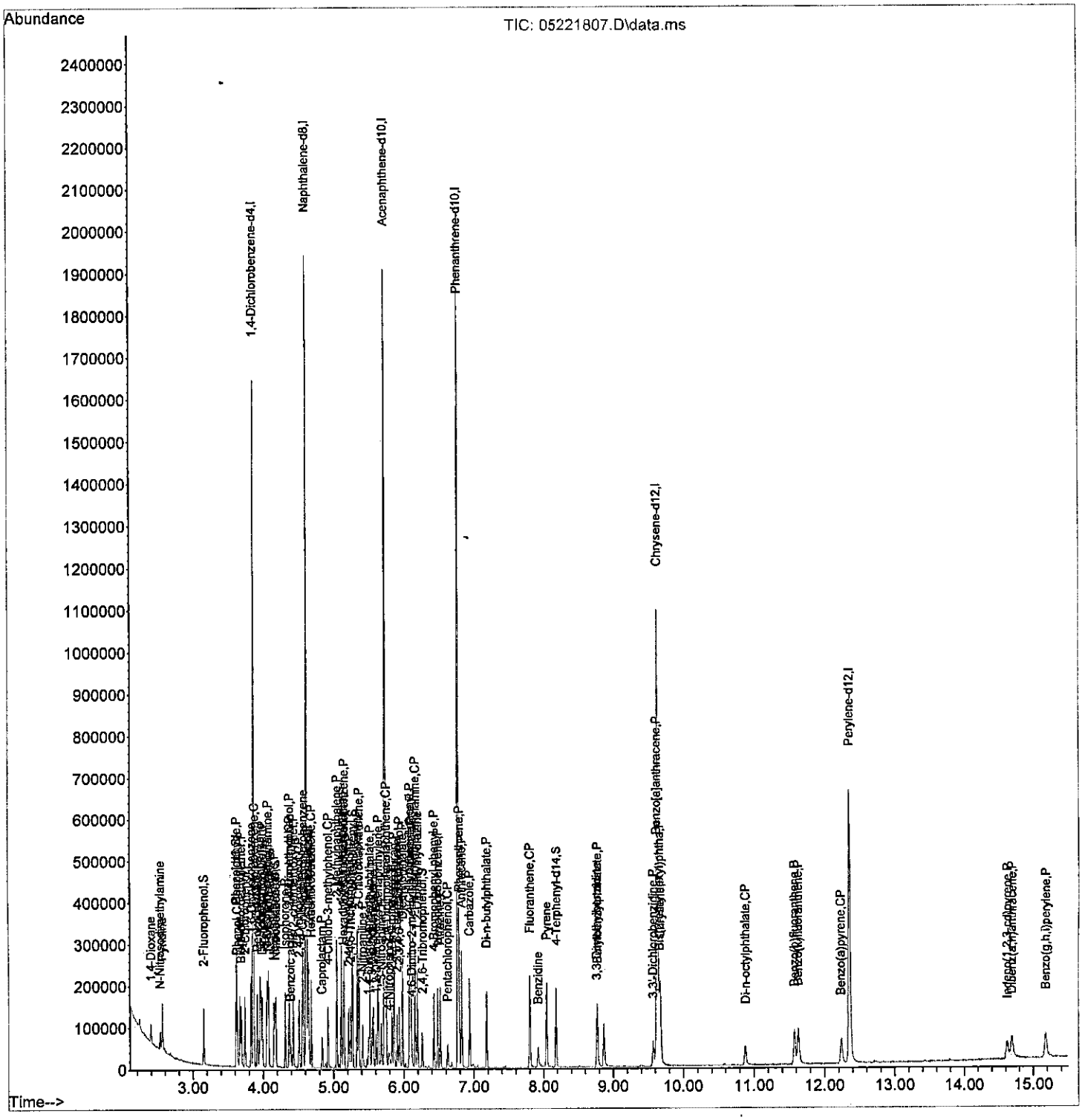
Quant Time: May 23 09:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.775	149	32115	4.66 ug/ml	98
90) Benzo[a]anthracene	9.616	228	71106	4.79 ug/ml	98
91) 3,3'-Dichlorobenzidine	9.569	252	18139	4.04 ug/ml	95
92) Chrysene	9.669	228	78185	5.07 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.658	149	37085	4.31 ug/ml	100
95) Di-n-octylphthalate	10.881	149	40115	4.22 ug/ml	99
96) Benzo(b)fluoranthene	11.575	252	51893	4.83 ug/ml	98
97) Benzo(k)fluoranthene	11.628	252	67767m	5.68 ug/ml	
98) Benzo(a)pyrene	12.234	252	46519	4.57 ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.622	276	37556	4.86 ug/ml	99
100) Dibenz(a,h)anthracene	14.693	278	41770	5.09 ug/ml	96
101) Benzo(g,h,i)perylene	15.175	276	51643	5.38 ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221807.D
Acq On : 22 May 2018 04:15 pm
Operator : RS
Sample : 5.0 ug/ml BNA
Misc : 300-0307D
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221808.D
Acq On : 22 May 2018 04:38 pm
Operator : R5
Sample : 10.0 ug/ml BNA
Misc : 300-0307E
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:19:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	316050	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	794738	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	388829	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.763	188	683610	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	530119	40.00	ug/ml	-0.04
94) Perylene-d12	12.351	264	444153	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	67186	12.11	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 24.22%			
7) Phenol-d6	3.617	99	84673	11.36	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 22.72%			
25) Nitrobenzene-d5	4.170	82	89103	10.30	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 20.60%#			
54) 2-Fluorobiphenyl	5.269	172	154547	10.90	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 21.80%#			
75) 2,4,6-Tribromophenol	6.264	330	16160	10.11	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 20.22%#			
88) 4-Terphenyl-d14	8.181	244	143743	10.58	ug/ml	-0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 21.16%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.393	88	29822	11.74	ug/ml	98
3) Pyridine	2.558	79	74311	11.14	ug/ml	97
4) N-Nitrosodimethylamine	2.528	42	31295	11.20	ug/ml	97
6) Benzaldehyde	3.617	77	49072	10.93	ug/ml	98
8) Phenol	3.628	94	87849	11.12	ug/ml	99
9) Aniline	3.670	93	118006	11.64	ug/ml	98
10) Bis(2-chloroethyl)ether	3.687	93	67393	8.42	ug/ml	91
11) 2-Chlorophenol	3.740	128	72399	10.92	ug/ml	99
12) 1,3-Dichlorobenzene	3.828	146	81807	10.59	ug/ml	97
13) 1,4-Dichlorobenzene	3.870	146	83031	10.42	ug/ml	98
14) Benzyl alcohol	3.917	108	45302	10.12	ug/ml	98
15) 1,2-Dichlorobenzene	3.958	146	79030	10.32	ug/ml	100
16) 2-Methylphenol	3.970	107	57586	9.96	ug/ml	99
17) Dichloroisopropyl ether	3.987	45	89644m	11.16	ug/ml	
18) 3-Methylphenol	4.052	107	74593m	9.77	ug/ml	
19) 4-Methylphenol	4.052	107	74593m	9.77	ug/ml	
20) 3&4-Methylphenol	4.052	107	74593m	9.77	ug/ml	
21) Acetophenone	4.075	105	106163	10.24	ug/ml#	82
22) N-Nitrosodi-n-propylamine	4.064	70	52852	9.79	ug/ml	96
23) Hexachloroethane	4.152	117	34557	11.16	ug/ml	98
26) Nitrobenzene	4.181	77	78610	10.61	ug/ml	97
27) Isophorone	4.311	82	142291	9.90	ug/ml	98
28) 2-Nitrophenol	4.370	139	36190	10.08	ug/ml	98
29) 2,4-Dimethylphenol	4.370	107	59415m	8.49	ug/ml	
30) Bis(2-chloroethoxy)met	4.428	93	90988	10.20	ug/ml	100
31) Benzoic acid	4.393	122	25014m	8.11	ug/ml	
32) 2,4-Dichlorophenol	4.511	162	55067	9.80	ug/ml	98

Data Path : D:\MassHunter\GCMS\1\data\95052218\
Data File : 05221808.D
Acq On : 22 May 2018 04:38 pm
Operator : R5
Sample : 10.0 ug/ml BNA
Misc : 300-0307E
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:19:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\95051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	65238	10.18 ug/ml	98
34) 4-Chlorophenol	4.552	128	71236	9.47 ug/ml	97
35) Naphthalene	4.622	128	232814m	9.69 ug/ml	
36) 4-Chloroaniline	4.640	127	82585m	9.81 ug/ml	
37) 2,6-Dichlorophenol	4.646	162	59997	10.19 ug/ml	98
38) Hexachlorobutadiene	4.681	225	34315	10.25 ug/ml	99
39) Caprolactam	4.840	55	26404	7.89 ug/ml	96
40) 4-Chloro-3-methylphenol	4.922	107	59598	8.88 ug/ml	100
41) 2-Methylnaphthalene	5.046	142	145342	9.68 ug/ml	98
42) 1-Methylnaphthalene	5.111	142	138365	9.32 ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.146	216	63799	9.48 ug/ml	98
44) 1,1-Biphenyl	5.334	154	177519	9.38 ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.905	232	27561	7.71 ug/ml	98
46) 2,3,4,6-Tetrachlorophenol	5.934	232	29959	7.40 ug/ml	98
47) 1,4-Dinitrobenzene	5.499	168	18316m	8.00 ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	22064	7.69 ug/ml#	78
49) 1,2-Dinitrobenzene	5.605	168	16578	8.35 ug/ml	97
51) Hexachlorocyclopentadiene	5.140	237	29913	10.80 ug/ml	100
52) 2,4,6-Trichlorophenol	5.217	196	37299	10.76 ug/ml	97
53) 2,4,5-Trichlorophenol	5.240	196	39148	9.69 ug/ml	98
55) 2-Chloronaphthalene	5.358	162	130889	10.50 ug/ml	99
56) 2-Nitroaniline	5.411	65	36574	9.85 ug/ml	94
57) Dimethylphthalate	5.517	163	143367	9.60 ug/ml	100
58) Acenaphthylene	5.634	152	193720	9.97 ug/ml	100
59) 2,6-Dinitrotoluene	5.564	165	32193	9.21 ug/ml	93
60) 3-Nitroaniline	5.681	138	34137	9.16 ug/ml	97
61) Acenaphthene	5.746	154	131649	9.83 ug/ml	98
62) 2,4-Dinitrophenol	5.746	184	10016m	8.71 ug/ml	
63) Dibenzofuran	5.858	168	185249	9.84 ug/ml	99
64) 4-Nitrophenol	5.781	65	18093	12.23 ug/ml	91
65) 2,4-Dinitrotoluene	5.828	165	39960	8.61 ug/ml	96
66) Diethylphthalate	5.981	149	145502	9.35 ug/ml	100
67) Fluorene	6.093	166	146870	9.64 ug/ml	99
68) 4-Chlorophenyl phenyl	6.081	204	68044	9.61 ug/ml	98
69) 4-Nitroaniline	6.093	138	34509	8.50 ug/ml	96
70) Atrazine	6.516	200	35515	8.73 ug/ml	98
72) 4,6-Dinitro-2-methylph	6.111	198	15450	8.73 ug/ml#	61
73) N-Nitrosodiphenylamine	6.158	169	121268	10.39 ug/ml	99
74) 1,2-Diphenylhydrazine	6.187	77	165947	11.66 ug/ml	99
76) 4-Bromophenyl phenyl e	6.422	248	36954	10.66 ug/ml	99
77) Hexachlorobenzene	6.481	284	38367	9.74 ug/ml	98
78) Pentachlorophenol	6.616	266	15153	8.00 ug/ml	99
79) Phenanthrene	6.781	178	206308	9.48 ug/ml	99
80) Anthracene	6.822	178	198908	9.79 ug/ml	99
81) Carbazole	6.934	167	180244	9.15 ug/ml	99
82) Di-n-butylphthalate	7.175	149	210035	9.29 ug/ml	100
83) Fluoranthene	7.799	202	187938	8.49 ug/ml	99
85) 3,3-Dimethylbenzidine	8.763	212	67163	8.28 ug/ml	96
86) Benzidine	7.910	184	62716	9.12 ug/ml	98
87) Pyrene	8.034	202	202879	11.82 ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221808.D
Acq On : 22 May 2018 04:38 pm
Operator : RS
Sample : 10.0 ug/ml BNA
Misc : 300-0307E
ALS Vial : 8 Sample Multiplier: 1

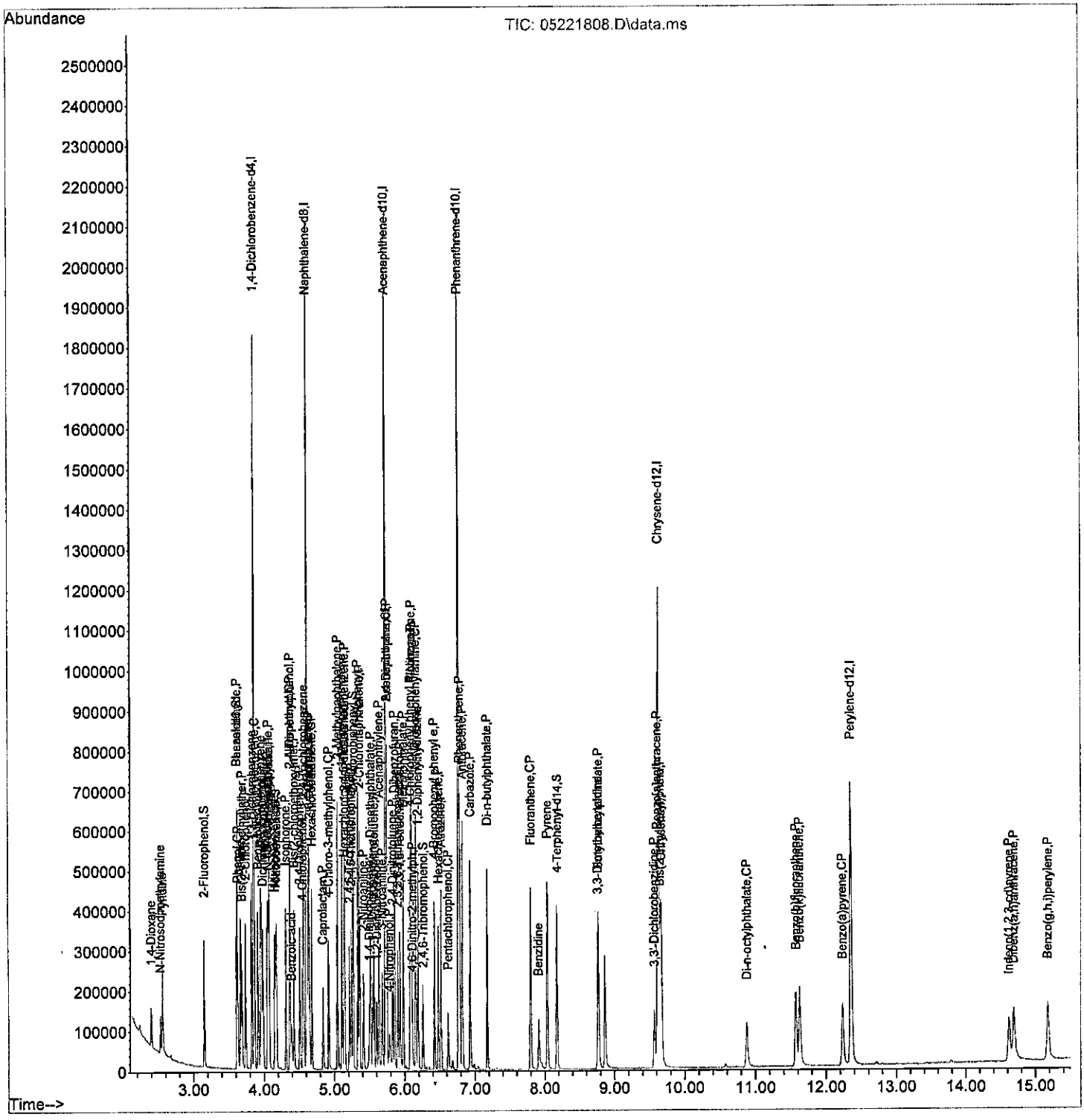
Quant Time: May 23 09:19:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.769	149	76436	9.80 ug/ml	95
90) Benzo[a]anthracene	9.610	228	155749	9.54 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.569	252	43789	8.61 ug/ml	98
92) Chrysene	9.669	228	165622	9.80 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.652	149	96014	9.75 ug/ml	99
95) Di-n-octylphthalate	10.881	149	104255	9.24 ug/ml	98
96) Benzo(b)fluoranthene	11.575	252	119766	9.97 ug/ml	99
97) Benzo(k)fluoranthene	11.628	252	131450	9.99 ug/ml	99
98) Benzo(a)pyrene	12.234	252	109292	9.59 ug/ml	98
99) Indeno(1,2,3-cd)pyrene	14.616	276	89786	10.37 ug/ml	99
100) Dibenz(a,h)anthracene	14.687	278	99642	10.88 ug/ml	95
101) Benzo(g,h,i)perylene	15.175	276	113587	10.78 ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221808.D
Acq On : 22 May 2018 04:38 pm
Operator : RS
Sample : 10.0 ug/ml BNA
Misc : 300-0307E
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:19:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221809.D
Acq On : 22 May 2018 05:01 pm
Operator : RS
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 23 09:27:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.857	150	330746	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.604	136	785121	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	389414	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.763	188	690154	40.00	ug/ml	-0.02
84) Chrysene-d12	9.622	240	566930	40.00	ug/ml	-0.05
94) Perylene-d12	12.351	264	506956	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.151	112	135184	23.28	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 46.56%			
7) Phenol-d6	3.616	99	169621	21.28	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 42.56%#			
25) Nitrobenzene-d5	4.169	82	174631	20.44	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 40.88%			
54) 2-Fluorobiphenyl	5.269	172	303459	21.17	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 42.34%			
75) 2,4,6-Tribromophenol	6.257	330	35608	20.80	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 41.60%			
88) 4-Terphenyl-d14	8.175	244	302352	20.81	ug/ml	-0.03
Spiked Amount 50.000	Range 23 - 112		Recovery = 41.62%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	57233	22.02	ug/ml	97
3) Pyridine	2.557	79	147928	21.19	ug/ml	98
4) N-Nitrosodimethylamine	2.528	42	62583	21.54	ug/ml	98
6) Benzaldehyde	3.616	77	97239	21.82	ug/ml	99
8) Phenol	3.628	94	176307	21.13	ug/ml	99
9) Aniline	3.669	93	225982	20.94	ug/ml	100
10) Bis(2-chloroethyl)ether	3.687	93	139478m	17.30	ug/ml	
11) 2-Chlorophenol	3.740	128	144166	20.74	ug/ml	99
12) 1,3-Dichlorobenzene	3.828	146	160194	19.82	ug/ml	99
13) 1,4-Dichlorobenzene	3.869	146	162703	19.51	ug/ml	99
14) Benzyl alcohol	3.916	108	91462	19.16	ug/ml	98
15) 1,2-Dichlorobenzene	3.957	146	154445	19.27	ug/ml	99
16) 2-Methylphenol	3.969	107	116382	19.28	ug/ml	99
17) Dichloroisopropyl ether	3.987	45	170486m	20.27	ug/ml	
18) 3-Methylphenol	4.051	107	150404	18.85	ug/ml	98
19) 4-Methylphenol	4.051	107	150404	18.85	ug/ml	98
20) 3&4-Methylphenol	4.051	107	150404	18.85	ug/ml	98
21) Acetophenone	4.075	105	207512	19.13	ug/ml	99
22) N-Nitrosodi-n-propylamine	4.063	70	103683	18.34	ug/ml	96
23) Hexachloroethane	4.157	117	67516	20.83	ug/ml	99
26) Nitrobenzene	4.181	77	156616	21.40	ug/ml	97
27) Isophorone	4.316	82	281145	19.79	ug/ml	99
28) 2-Nitrophenol	4.369	139	73988	20.13	ug/ml	98
29) 2,4-Dimethylphenol	4.369	107	143839	20.15	ug/ml	97
30) Bis(2-chloroethoxy)met	4.428	93	178943	20.10	ug/ml	99
31) Benzoic acid	4.398	122	53009	15.90	ug/ml	72
32) 2,4-Dichlorophenol	4.510	162	112067	19.63	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221809.D
Acq On : 22 May 2018 05:01 pm
Operator : RS
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 23 09:27:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\95051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.563	180	127848	20.19	ug/ml	99
34) 4-Chlorophenol	4.551	128	146082	19.12	ug/ml	99
35) Naphthalene	4.622	128	451839m	19.03	ug/ml	
36) 4-Chloroaniline	4.640	127	167121m	19.51	ug/ml	
37) 2,6-Dichlorophenol	4.646	162	115657	19.89	ug/ml	99
38) Hexachlorobutadiene	4.681	225	68403	20.68	ug/ml	99
39) Caprolactam	4.845	55	56538	16.78	ug/ml	94
40) 4-Chloro-3-methylphenol	4.922	107	120682	17.91	ug/ml	99
41) 2-Methylnaphthalene	5.045	142	284038	19.16	ug/ml	98
42) 1-Methylnaphthalene	5.110	142	272059	18.56	ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.145	216	123774	18.61	ug/ml	100
44) 1,1-Biphenyl	5.334	154	340662	18.23	ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.904	232	58533	16.17	ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.934	232	64998	16.11	ug/ml	99
47) 1,4-Dinitrobenzene	5.498	168	40700m	17.15	ug/ml	
48) 1,3-Dinitrobenzene	5.545	168	46947	16.12	ug/ml#	77
49) 1,2-Dinitrobenzene	5.604	168	32130	16.11	ug/ml	93
51) Hexachlorocyclopentadiene	5.140	237	72035	23.64	ug/ml	100
52) 2,4,6-Trichlorophenol	5.216	196	75212	20.83	ug/ml	99
53) 2,4,5-Trichlorophenol	5.240	196	78528	19.11	ug/ml	99
55) 2-Chloronaphthalene	5.357	162	256928	20.57	ug/ml	99
56) 2-Nitroaniline	5.410	65	75722	19.76	ug/ml	96
57) Dimethylphthalate	5.516	163	291447	19.50	ug/ml	100
58) Acenaphthylene	5.634	152	395455	20.32	ug/ml	100
59) 2,6-Dinitrotoluene	5.563	165	67679m	18.98	ug/ml	
60) 3-Nitroaniline	5.681	138	70281	18.20	ug/ml	97
61) Acenaphthene	5.745	154	262622	19.58	ug/ml	100
62) 2,4-Dinitrophenol	5.745	184	26779m	18.32	ug/ml	
63) Dibenzofuran	5.857	168	363725	19.30	ug/ml	99
64) 4-Nitrophenol	5.775	65	43797	24.44	ug/ml	88
65) 2,4-Dinitrotoluene	5.828	165	85682	17.85	ug/ml	96
66) Diethylphthalate	5.981	149	293667	18.83	ug/ml	100
67) Fluorene	6.092	166	292567	19.18	ug/ml	100
68) 4-Chlorophenyl phenyl	6.075	204	137261	19.35	ug/ml	100
69) 4-Nitroaniline	6.092	138	73145	17.03	ug/ml	97
70) Atrazine	6.516	200	74656	17.85	ug/ml	99
72) 4,6-Dinitro-2-methylph	6.104	198	38371	19.69	ug/ml	99
73) N-Nitrosodiphenylamine	6.157	169	247290	20.73	ug/ml	99
74) 1,2-Diphenylhydrazine	6.187	77	332341	23.13	ug/ml	99
76) 4-Bromophenyl phenyl e	6.422	248	72692	20.47	ug/ml	99
77) Hexachlorobenzene	6.475	284	77278	19.43	ug/ml	100
78) Pentachlorophenol	6.616	266	36992	18.08	ug/ml	98
79) Phenanthrene	6.781	178	414812	18.89	ug/ml	100
80) Anthracene	6.816	178	418262	20.40	ug/ml	100
81) Carbazole	6.928	167	377495	18.79	ug/ml	99
82) Di-n-butylphthalate	7.169	149	459406	19.69	ug/ml	100
83) Fluoranthene	7.792	202	399740	17.74	ug/ml	100
85) 3,3-Dimethylbenzidine	8.757	212	177606	19.62	ug/ml	97
86) Benzidine	7.910	184	170013	21.33	ug/ml	97
87) Pyrene	8.028	202	419551	22.12	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221809.D
Acq On : 22 May 2018 05:01 pm
Operator : RS
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 9 Sample Multiplier: 1

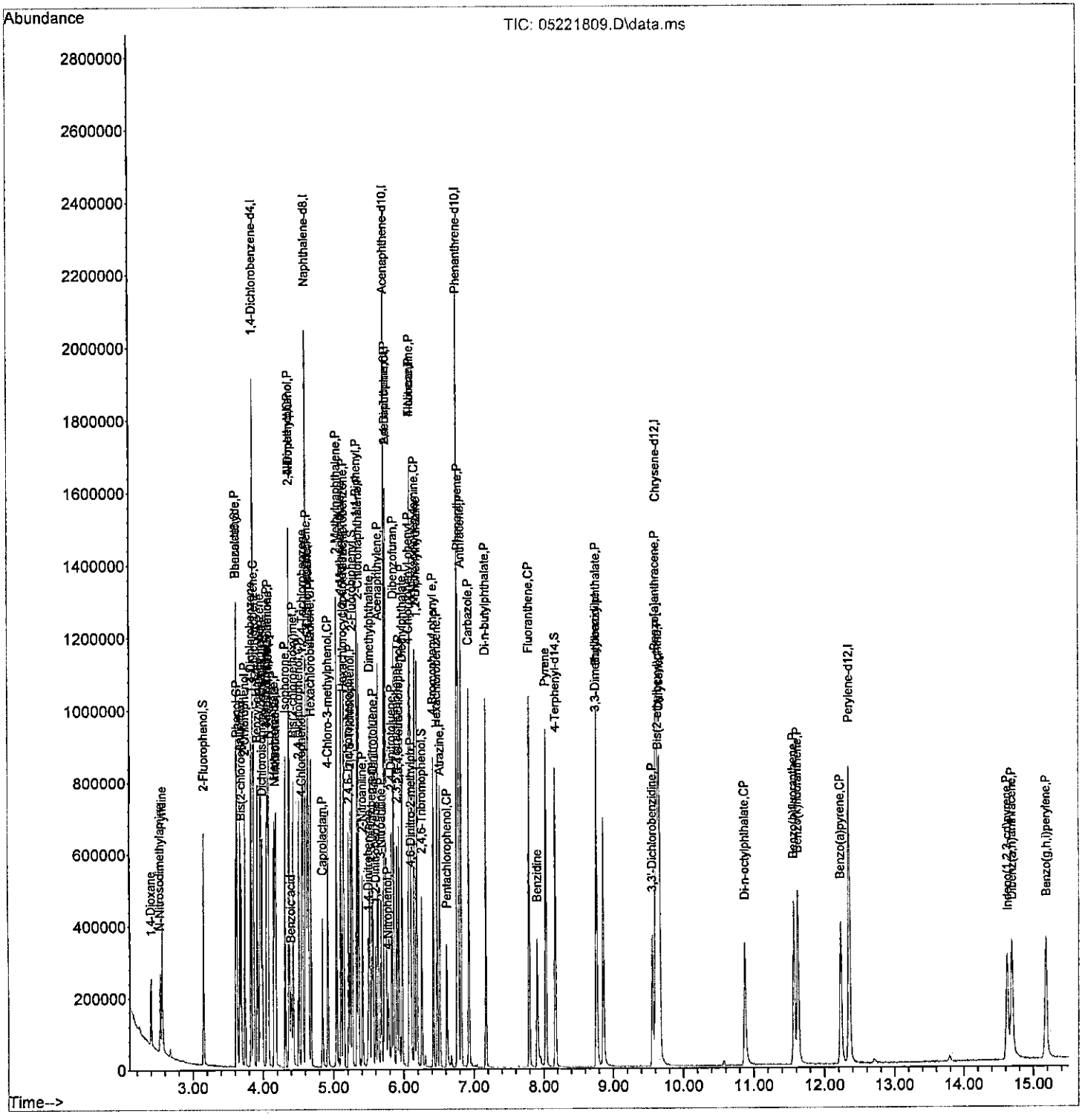
Quant Time: May 23 09:27:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.763	149	183358	20.78 ug/ml	98
90) Benzo[a]anthracene	9.610	228	349094	19.73 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.563	252	107982	18.96 ug/ml	99
92) Chrysene	9.663	228	349942	19.36 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.645	149	240172	21.26 ug/ml	99
95) Di-n-octylphthalate	10.875	149	304685	20.20 ug/ml	98
96) Benzo(b)fluoranthene	11.569	252	287241	19.98 ug/ml	99
97) Benzo(k)fluoranthene	11.627	252	321980m	20.66 ug/ml	
98) Benzo(a)pyrene	12.233	252	270742	19.88 ug/ml	100
99) Indeno(1,2,3-cd)pyrene	14.621	276	228798	22.07 ug/ml	99
100) Dibenz(a,h)anthracene	14.692	278	240306	22.14 ug/ml	95
101) Benzo(g,h,i)perylene	15.180	276	265848	21.74 ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221809.D
Acq On : 22 May 2018 05:01 pm
Operator : RS
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 23 09:27:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221810.D
Acq On : 22 May 2018 05:24 pm
Operator : RS
Sample : 40.0 ug/ml BNA
Misc : 300-0307G
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:36:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	327767	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	745895	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	366893	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.763	188	648208	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	S41948	40.00	ug/ml	-0.04
94) Perylene-d12	12.351	264	475645	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	274730	47.74	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 95.48%#			
7) Phenol-d6	3.622	99	344729	42.02	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 84.04%#			
25) Nitrobenzene-d5	4.169	82	357296	44.03	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 88.06%			
54) 2-Fluorobiphenyl	5.269	172	609160	43.87	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 87.74%			
75) 2,4,6-Tribromophenol	6.258	330	69469	39.23	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 78.46%			
88) 4-Terphenyl-d14	8.175	244	598238	43.07	ug/ml	-0.03
Spiked Amount 50.000	Range 23 - 112		Recovery = 86.14%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.393	88	117872	47.72	ug/ml	97
3) Pyridine	2.558	79	306076	44.25	ug/ml	97
4) N-Nitrosodimethylamine	2.528	42	134187	47.38	ug/ml	98
6) Benzaldehyde	3.617	77	206038	S6.57	ug/ml	99
8) Phenol	3.628	94	369088	44.07	ug/ml	99
9) Aniline	3.669	93	460044	41.51	ug/ml	100
10) Bis(2-chloroethyl)ether	3.687	93	292732m	41.19	ug/ml	
11) 2-Chlorophenol	3.740	128	301829	43.96	ug/ml	99
12) 1,3-Dichlorobenzene	3.828	146	333161	41.59	ug/ml	99
13) 1,4-Dichlorobenzene	3.869	146	336114	40.67	ug/ml	100
14) Benzyl alcohol	3.917	108	196216	40.88	ug/ml	99
15) 1,2-Dichlorobenzene	3.958	146	321244	40.44	ug/ml	99
16) 2-Methylphenol	3.969	107	244915	41.40	ug/ml	98
17) Dichloroisopropyl ether	3.987	45	360703m	43.28	ug/ml	
18) 3-Methylphenol	4.052	107	316355m	40.39	ug/ml	
19) 4-Methylphenol	4.052	107	316355m	40.39	ug/ml	
20) 3&4-Methylphenol	4.052	107	316355m	40.39	ug/ml	
21) Acetophenone	4.075	105	429819m	39.98	ug/ml	
22) N-Nitrosodi-n-propylamine	4.064	70	220223	39.32	ug/ml	98
23) Hexachloroethane	4.152	117	140710	43.80	ug/ml	100
26) Nitrobenzene	4.181	77	325537	46.83	ug/ml	96
27) Isophorone	4.316	82	599340	44.41	ug/ml	99
28) 2-Nitrophenol	4.369	139	157464	42.75	ug/ml	97
29) 2,4-Dimethylphenol	4.369	107	294140	41.18	ug/ml	95
30) Bis(2-chloroethoxy)met	4.428	93	371865	43.11	ug/ml	98
31) Benzoic acid	4.411	122	137098	37.08	ug/ml	83
32) 2,4-Dichlorophenol	4.511	162	235869	41.21	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221810.D
Acq On : 22 May 2018 0S:24 pm
Operator : RS
Sample : 40.0 ug/ml BNA
Misc : 300-0307G
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:36:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	263637	43.82	ug/ml	97
34) 4-Chlorophenol	4.552	128	304601	40.34	ug/ml	98
35) Naphthalene	4.622	128	923369	40.94	ug/ml	98
36) 4-Chloroaniline	4.640	127	348962m	40.51	ug/ml	
37) 2,6-Dichlorophenol	4.646	162	243763	44.13	ug/ml	99
38) Hexachlorobutadiene	4.681	225	139773	44.49	ug/ml	99
39) Caprolactam	4.852	55	123218	37.35	ug/ml	95
40) 4-Chloro-3-methylphenol	4.922	107	257136	39.17	ug/ml	100
41) 2-Methylnaphthalene	5.046	142	593760	42.15	ug/ml	99
42) 1-Methylnaphthalene	5.111	142	561114	40.29	ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.146	216	257602	40.78	ug/ml	99
44) 1,1-Biphenyl	5.334	154	705066	39.72	ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.905	232	116964	32.70	ug/ml	98
46) 2,3,4,6-Tetrachlorophenol	5.934	232	124400	32.11	ug/ml	98
47) 1,4-Dinitrobenzene	5.499	168	91006m	37.03	ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	103103	35.38	ug/ml#	82
49) 1,2-Dinitrobenzene	5.605	168	68187	34.91	ug/ml	93
51) Hexachlorocyclopentadiene	5.140	237	147328	45.50	ug/ml	99
52) 2,4,6-Trichlorophenol	5.216	196	152649	41.78	ug/ml	99
53) 2,4,5-Trichlorophenol	5.240	196	162298	41.06	ug/ml	98
55) 2-Chloronaphthalene	5.358	162	532810	45.28	ug/ml	99
56) 2-Nitroaniline	5.411	65	164994	42.97	ug/ml	96
57) Dimethylphthalate	5.516	163	599284	42.55	ug/ml	100
58) Acenaphthylene	5.634	152	807689	44.05	ug/ml	100
59) 2,6-Dinitrotoluene	5.563	165	143166	41.21	ug/ml	98
60) 3-Nitroaniline	5.681	138	154591	40.23	ug/ml	98
61) Acenaphthene	5.746	154	543228	42.99	ug/ml	99
62) 2,4-Dinitrophenol	5.746	184	66537	39.75	ug/ml	94
63) Dibenzofuran	5.858	168	745327	41.97	ug/ml	98
64) 4-Nitrophenol	5.769	65	96723	46.15	ug/ml	92
65) 2,4-Dinitrotoluene	5.828	165	185046	39.01	ug/ml	99
66) Diethylphthalate	5.981	149	610492	41.55	ug/ml	100
67) Fluorene	6.093	166	602560	41.93	ug/ml	100
68) 4-Chlorophenyl phenyl	6.081	204	280743	42.01	ug/ml	98
69) 4-Nitroaniline	6.093	138	158075	37.29	ug/ml	98
70) Atrazine	6.516	200	65380m	16.64	ug/ml	
72) 4,6-Dinitro-2-methylph	6.111	198	86014	41.75	ug/ml	93
73) N-Nitrosodiphenylamine	6.158	169	512975	44.6S	ug/ml	100
74) 1,2-Diphenylhydrazine	6.187	77	688487	51.02	ug/ml	99
76) 4-Bromophenyl phenyl e	6.422	248	158379	45.85	ug/ml	99
77) Hexachlorobenzene	6.475	284	159238	42.62	ug/ml	98
78) Pentachlorophenol	6.616	266	72867	35.10	ug/ml	99
79) Phenanthrene	6.781	178	839964	40.72	ug/ml	100
80) Anthracene	6.822	178	858634	44.58	ug/ml	100
81) Carbazole	6.934	167	778604	40.50	ug/ml	100
82) Di-n-butylphthalate	7.175	149	980665	42.89	ug/ml	100
83) Fluoranthene	7.793	202	831137	38.72	ug/ml	100
85) 3,3-Dimethylbenzidine	8.757	212	367049	39.85	ug/ml	97
86) Benzidine	7.910	184	350800	41.26	ug/ml	97
87) Pyrene	8.034	202	878367	45.15	ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221810.D
Acq On : 22 May 2018 05:24 pm
Operator : RS
Sample : 40.0 ug/ml BNA
Misc : 300-0307G
ALS Vial : 10 Sample Multiplier: 1

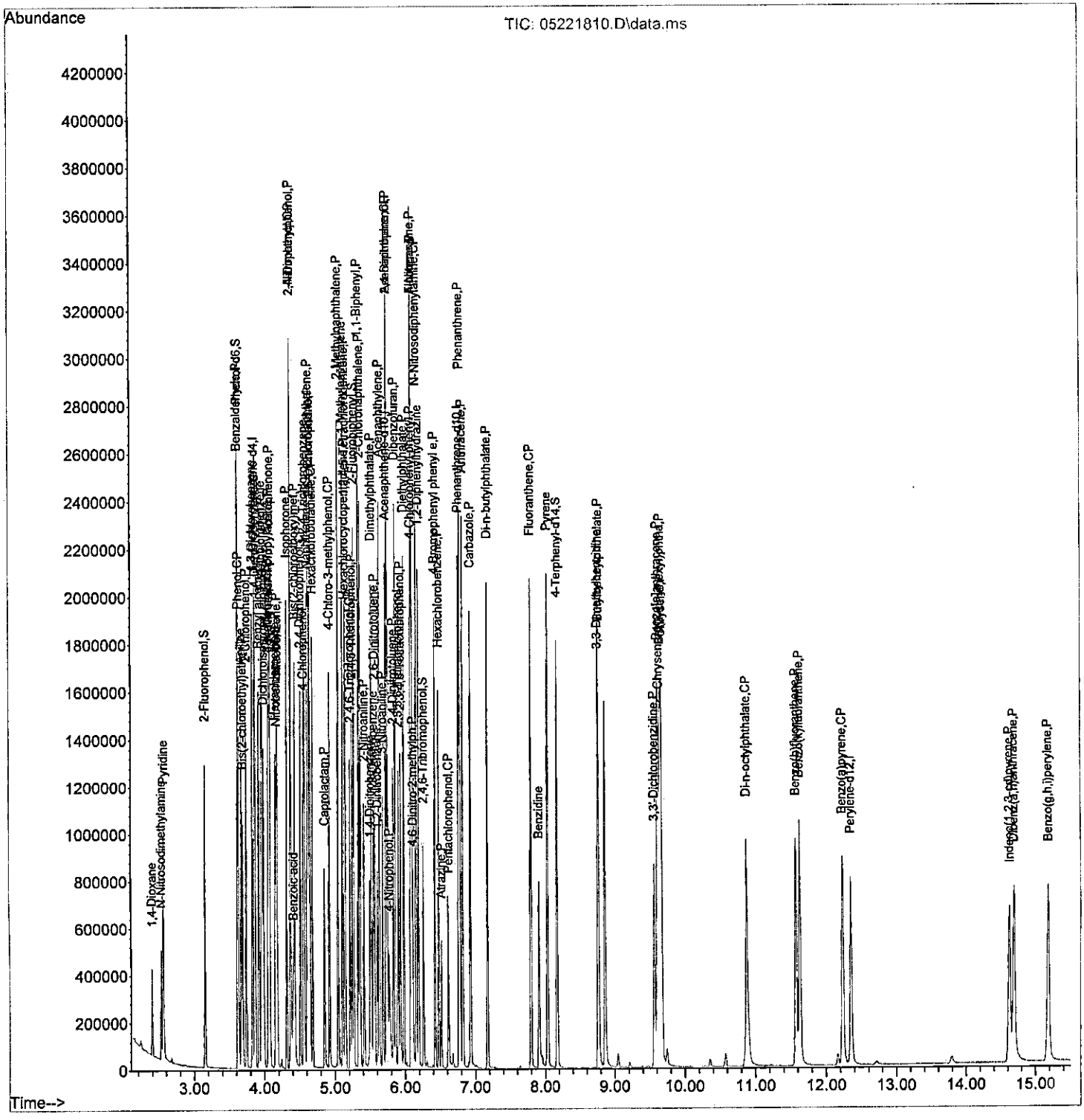
Quant Time: May 23 09:36:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.769	149	400113	43.01 ug/ml	99
90) Benzo[a]anthracene	9.610	228	727770	41.64 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.563	252	242726	41.10 ug/ml	99
92) Chrysene	9.669	228	714379	41.34 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.651	149	530734	43.62 ug/ml	100
95) Di-n-octylphthalate	10.875	149	804077	43.55 ug/ml	98
96) Benzo(b)fluoranthene	11.575	252	622454	42.14 ug/ml	99
97) Benzo(k)fluoranthene	11.628	252	686796m	43.75 ug/ml	
98) Benzo(a)pyrene	12.234	252	609400	43.58 ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.628	276	515981	48.46 ug/ml	99
100) Dibenz(a,h)anthracene	14.692	278	530999	48.38 ug/ml	95
101) Benzo(g,h,i)perylene	15.181	276	579775	48.91 ug/ml	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221810.D
Acq On : 22 May 2018 05:24 pm
Operator : RS
Sample : 40.0 ug/ml BNA
Misc : 300-0307G
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:36:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221811.D
Acq On : 22 May 2018 05:47 pm
Operator : RS
Sample : 50.0 ug/ml BNA
Misc : 300-0307H
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	314680	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.611	136	669248	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	329760	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.763	188	580971	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	505099	40.00	ug/ml	-0.04
94) Perylene-d12	12.351	264	471762	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	300343	54.36	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 108.72%#			
7) Phenol-d6	3.622	99	373211	46.98	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 93.96%#			
25) Nitrobenzene-d5	4.169	82	378500	51.98	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 103.96%#			
54) 2-Fluorobiphenyl	5.269	172	629444	50.04	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 100.08%#			
75) 2,4,6-Tribromophenol	6.257	330	74078	45.29	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 90.58%			
88) 4-Terphenyl-d14	8.175	244	646319	49.93	ug/ml	-0.03
Spiked Amount 50.000	Range 23 - 112		Recovery = 99.86%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	131812	56.34	ug/ml	96
3) Pyridine	2.558	79	340512	51.27	ug/ml	97
4) N-Nitrosodimethylamine	2.528	42	145271	53.64	ug/ml	99
6) Benzaldehyde	3.616	77	178498	48.70	ug/ml	98
8) Phenol	3.628	94	400990	49.74	ug/ml	100
9) Aniline	3.669	93	471116	44.08	ug/ml	99
10) Bis(2-chloroethyl)ether	3.693	93	316271	48.10	ug/ml	98
11) 2-Chlorophenol	3.740	128	326043	49.51	ug/ml	98
12) 1,3-Dichlorobenzene	3.828	146	363747	47.29	ug/ml	98
13) 1,4-Dichlorobenzene	3.869	146	366640	46.20	ug/ml	99
14) Benzyl alcohol	3.916	108	209433	45.37	ug/ml	98
15) 1,2-Dichlorobenzene	3.958	146	346153	45.39	ug/ml	99
16) 2-Methylphenol	3.969	107	265700	46.92	ug/ml	98
17) Dichloroisopropyl ether	3.987	45	374552m	46.81	ug/ml	
18) 3-Methylphenol	4.052	107	347071m	46.29	ug/ml	
19) 4-Methylphenol	4.052	107	347071m	46.29	ug/ml	
20) 3&4-Methylphenol	4.052	107	347071m	46.29	ug/ml	
21) Acetophenone	4.075	105	457121m	44.29	ug/ml	
22) N-Nitrosodi-n-propylamine	4.063	70	236568	43.99	ug/ml	99
23) Hexachloroethane	4.158	117	152851	49.56	ug/ml	100
26) Nitrobenzene	4.181	77	348108	55.81	ug/ml	97
27) Isophorone	4.316	82	627852	51.86	ug/ml	99
28) 2-Nitrophenol	4.369	139	172638	51.30	ug/ml	97
29) 2,4-Dimethylphenol	4.369	107	328128	50.13	ug/ml	95
30) Bis(2-chloroethoxy)met	4.428	93	397731	51.06	ug/ml	98
31) Benzoic acid	4.411	122	152532	44.05	ug/ml	84
32) 2,4-Dichlorophenol	4.511	162	255325	48.85	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221811.D
Acq On : 22 May 2018 05:47 pm
Operator : RS
Sample : 50.0 ug/ml BNA
Misc : 300-0307H
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.563	180	280092	51.88 ug/ml	98
34) 4-Chlorophenol	4.552	128	329429	48.02 ug/ml	99
35) Naphthalene	4.622	128	987553m	48.80 ug/ml	
36) 4-Chloroaniline	4.640	127	373060m	47.42 ug/ml	
37) 2,6-Dichlorophenol	4.646	162	256338	51.72 ug/ml	99
38) Hexachlorobutadiene	4.681	225	150329	53.33 ug/ml	100
39) Caprolactam	4.852	55	129914	43.53 ug/ml	95
40) 4-Chloro-3-methylphenol	4.922	107	273644	46.12 ug/ml	99
41) 2-Methylnaphthalene	5.046	142	625670	49.50 ug/ml	99
42) 1-Methylnaphthalene	5.110	142	602024	48.18 ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.146	216	276645	48.81 ug/ml	99
44) 1,1-Biphenyl	5.334	154	751111	47.15 ug/ml	100
45) 2,3,5,6-Tetrachlorophenol	5.905	232	126501	38.88 ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.934	232	124822	35.83 ug/ml	97
47) 1,4-Dinitrobenzene	5.499	168	96545m	42.78 ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	110100	41.47 ug/ml	82
49) 1,2-Dinitrobenzene	5.605	168	74061	41.83 ug/ml	93
51) Hexachlorocyclopentadiene	5.140	237	166024	54.56 ug/ml	99
52) 2,4,6-Trichlorophenol	5.216	196	159270	47.61 ug/ml	99
53) 2,4,5-Trichlorophenol	5.240	196	169822	47.55 ug/ml	98
55) 2-Chloronaphthalene	5.358	162	567455	53.66 ug/ml	100
56) 2-Nitroaniline	5.410	65	177902	50.57 ug/ml	96
57) Dimethylphthalate	5.516	163	634786	50.15 ug/ml	99
58) Acenaphthylene	5.634	152	863583	52.40 ug/ml	100
59) 2,6-Dinitrotoluene	5.563	165	151707m	48.12 ug/ml	
60) 3-Nitroaniline	5.681	138	161922	46.26 ug/ml	98
61) Acenaphthene	5.746	154	575691	50.69 ug/ml	99
62) 2,4-Dinitrophenol	5.746	184	73348	46.63 ug/ml	92
63) Dibenzofuran	5.857	168	796562	49.91 ug/ml	99
64) 4-Nitrophenol	5.769	65	111178m	54.94 ug/ml	
65) 2,4-Dinitrotoluene	5.834	165	197651	45.74 ug/ml	99
66) Diethylphthalate	5.981	149	641897	48.61 ug/ml	100
67) Fluorene	6.093	166	643246	49.81 ug/ml	100
68) 4-Chlorophenyl phenyl	6.081	204	298672	49.73 ug/ml	99
69) 4-Nitroaniline	6.093	138	167802	43.61 ug/ml	98
70) Atrazine	6.516	200	824	0.30 ug/ml#	83
72) 4,6-Dinitro-2-methylph	6.110	198	94634	49.43 ug/ml	94
73) N-Nitrosodiphenylamine	6.157	169	551180	53.07 ug/ml	99
74) 1,2-Diphenylhydrazine	6.187	77	720467	59.57 ug/ml	100
76) 4-Bromophenyl phenyl e	6.422	248	163251	52.28 ug/ml	99
77) Hexachlorobenzene	6.475	284	169408	50.59 ug/ml	100
78) Pentachlorophenol	6.616	266	76835	40.41 ug/ml	99
79) Phenanthrene	6.781	178	895151	48.41 ug/ml	100
80) Anthracene	6.822	178	916781	53.11 ug/ml	100
81) Carbazole	6.934	167	833933	48.11 ug/ml	99
82) Di-n-butylphthalate	7.175	149	1041605	50.19 ug/ml	100
83) Fluoranthene	7.793	202	900863	46.59 ug/ml	99
85) 3,3-Dimethylbenzidine	8.757	212	408420	46.65 ug/ml	97
86) Benzidine	7.910	184	356966	44.34 ug/ml	96
87) Pyrene	8.034	202	939666	50.96 ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221811.D
Acq On : 22 May 2018 05:47 pm
Operator : RS
Sample : 50.0 ug/ml BNA
Misc : 300-0307H
ALS Vial : 11 Sample Multiplier: 1

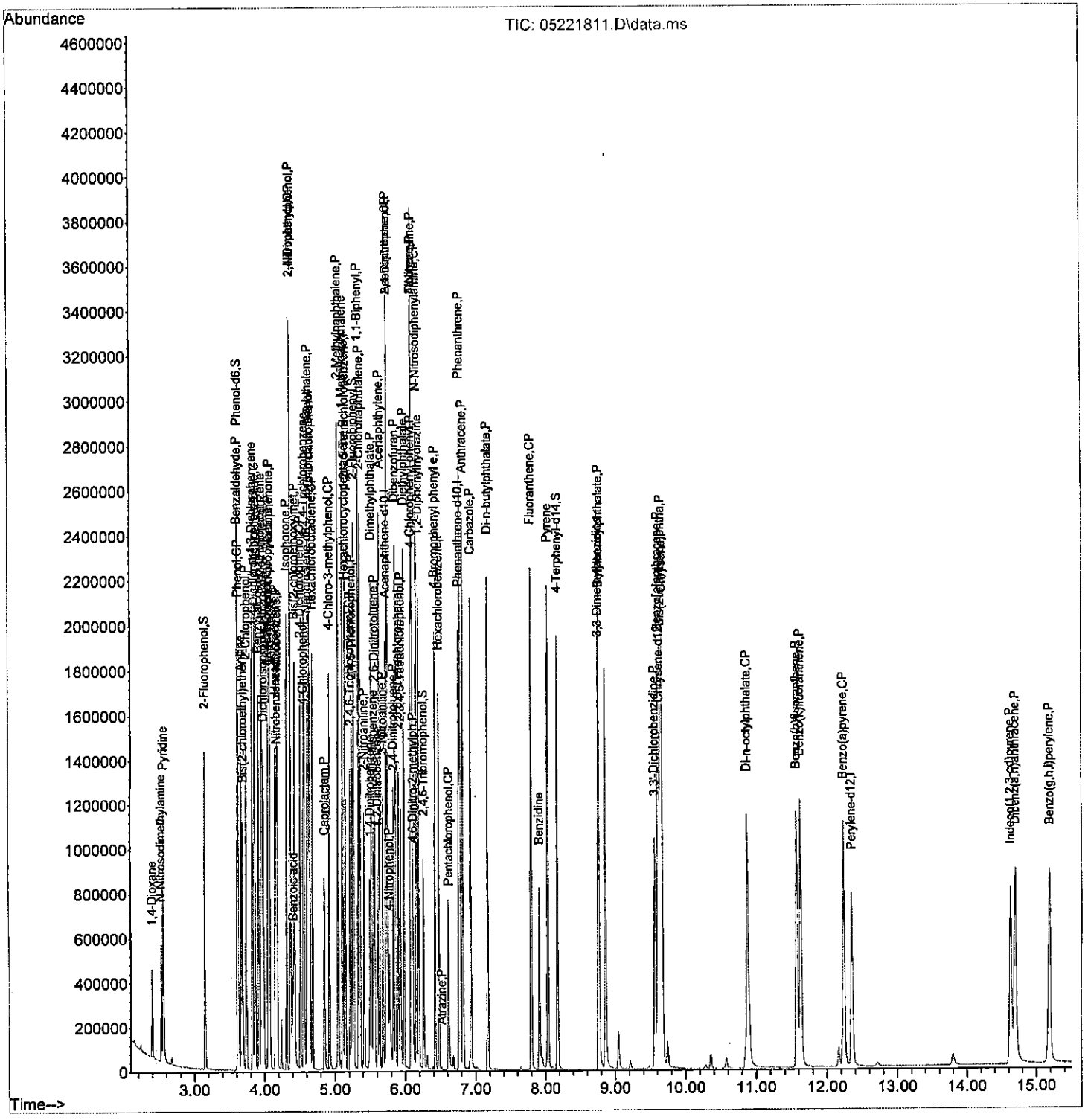
Quant Time: May 23 09:52:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89) Butylbenzylphthalate	8.769	149	456693	50.98	ug/ml	99
90) Benzo[a]anthracene	9.610	228	837844	50.74	ug/ml	99
91) 3,3'-Dichlorobenzidine	9.563	252	287262	50.54	ug/ml	99
92) Chrysene	9.669	228	807550	50.14	ug/ml	98
93) Bis(2-ethylhexyl)phtha	9.651	149	618733	52.30	ug/ml	100
95) Di-n-octylphthalate	10.875	149	955225	49.32	ug/ml	97
96) Benzo(b)fluoranthene	11.575	252	743624	49.37	ug/ml	100
97) Benzo(k)fluoranthene	11.628	252	758736	48.12	ug/ml	99
98) Benzo(a)pyrene	12.240	252	721845	50.74	ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.628	276	614841	56.72	ug/ml	99
100) Dibenz(a,h)anthracene	14.698	278	628988	56.53	ug/ml	96
101) Benzo(g,h,i)perylene	15.186	276	683001	57.53	ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221811.D
Acq On : 22 May 2018 05:47 pm
Operator : RS
Sample : 50.0 ug/ml BNA
Misc : 300-0307H
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:41 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221812.D
Acq On : 22 May 2018 06:10 pm
Operator : RS
Sample : 60.0 ug/ml BNA
Misc : 300-0307I
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 10:27:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.858	150	337187	40.00	ug/ml	-0.02
24) Naphthalene-d8	4.605	136	737590	40.00	ug/ml	-0.02
50) Acenaphthene-d10	5.722	164	358223	40.00	ug/ml	-0.02
71) Phenanthrene-d10	6.763	188	625898	40.00	ug/ml	-0.02
84) Chrysene-d12	9.628	240	569750	40.00	ug/ml	-0.04
94) Perylene-d12	12.351	264	521748	40.00	ug/ml	-0.07
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	403487	68.15	ug/ml	-0.02
Spiked Amount 50.000	Range 22 - 59		Recovery = 136.30%#			
7) Phenol-d6	3.622	99	497664	57.44	ug/ml	-0.02
Spiked Amount 50.000	Range 13 - 36		Recovery = 114.88%#			
25) Nitrobenzene-d5	4.170	82	508866	63.41	ug/ml	-0.02
Spiked Amount 50.000	Range 31 - 93		Recovery = 126.82%#			
54) 2-Fluorobiphenyl	5.269	172	862941	62.17	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 100		Recovery = 124.34%#			
75) 2,4,6-Tribromophenol	6.258	330	101915	55.19	ug/ml	-0.02
Spiked Amount 50.000	Range 32 - 115		Recovery = 110.38%			
88) 4-Terphenyl-d14	8.175	244	888906	60.88	ug/ml	-0.03
Spiked Amount 50.000	Range 23 - 112		Recovery = 121.76%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	163904	66.40	ug/ml	95
3) Pyridine	2.558	79	432629	60.80	ug/ml	98
4) N-Nitrosodimethylamine	2.528	42	184012	63.84	ug/ml	99
6) Benzaldehyde	3.617	77	237593	68.33	ug/ml	99
8) Phenol	3.628	94	503811	58.09	ug/ml	99
9) Aniline	3.670	93	591518	51.05	ug/ml	99
10) Bis(2-chloroethyl)ether	3.693	93	397592	60.54	ug/ml	98
11) 2-Chlorophenol	3.740	128	412444	58.56	ug/ml	98
12) 1,3-Dichlorobenzene	3.828	146	453440	55.02	ug/ml	99
13) 1,4-Dichlorobenzene	3.870	146	461437	54.27	ug/ml	99
14) Benzyl alcohol	3.917	108	268202	54.06	ug/ml	98
15) 1,2-Dichlorobenzene	3.958	146	438764	53.70	ug/ml	99
16) 2-Methylphenol	3.970	107	333349m	55.20	ug/ml	
17) Dichloroisopropyl ether	3.987	45	488441m	56.97	ug/ml	
18) 3-Methylphenol	4.058	107	432973	54.12	ug/ml#	49
19) 4-Methylphenol	4.058	107	432973	54.12	ug/ml#	49
20) 3&4-Methylphenol	4.058	107	432973	54.12	ug/ml#	49
21) Acetophenone	4.075	105	584510	52.85	ug/ml#	79
22) N-Nitrosodi-n-propylamine	4.064	70	301014	52.24	ug/ml	98
23) Hexachloroethane	4.152	117	193487	58.55	ug/ml	99
26) Nitrobenzene	4.181	77	441696	64.25	ug/ml	97
27) Isophorone	4.317	82	799627	59.92	ug/ml	99
28) 2-Nitrophenol	4.369	139	219393	58.32	ug/ml	95
29) 2,4-Dimethylphenol	4.369	107	416381	56.83	ug/ml	95
30) Bis(2-chloroethoxy)met	4.428	93	504403	58.41	ug/ml	98
31) Benzoic acid	4.417	122	212802m	52.96	ug/ml	
32) 2,4-Dichlorophenol	4.511	162	324554	55.49	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221812.D
Acq On : 22 May 2018 06:10 pm
Operator : RS
Sample : 60.0 ug/ml BNA
Misc : 300-0307I
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 10:27:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.564	180	360239	60.55 ug/ml	98
34) 4-Chlorophenol	4.558	128	415284	54.37 ug/ml	99
35) Naphthalene	4.622	128	1248826	55.99 ug/ml	98
36) 4-Chloroaniline	4.640	127	476183m	54.01 ug/ml	
37) 2,6-Dichlorophenol	4.646	162	322875	59.10 ug/ml	100
38) Hexachlorobutadiene	4.681	225	189473	60.99 ug/ml	99
39) Caprolactam	4.858	55	168016	50.62 ug/ml	95
40) 4-Chloro-3-methylphenol	4.922	107	350228	53.17 ug/ml	100
41) 2-Methylnaphthalene	5.046	142	797815	57.27 ug/ml	99
42) 1-Methylnaphthalene	5.111	142	759046	55.12 ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.152	216	349163	55.89 ug/ml	99
44) 1,1-Biphenyl	5.334	154	952313	54.25 ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.905	232	164231	45.17 ug/ml	98
46) 2,3,4,6-Tetrachlorophenol	5.934	232	163045	42.31 ug/ml	98
47) 1,4-Dinitrobenzene	5.499	168	126747m	49.61 ug/ml	
48) 1,3-Dinitrobenzene	5.546	168	140449	47.32 ug/ml#	82
49) 1,2-Dinitrobenzene	5.605	168	93841	47.68 ug/ml	94
51) Hexachlorocyclopentadiene	5.140	237	206522	60.70 ug/ml	100
52) 2,4,6-Trichlorophenol	5.216	196	206352	55.42 ug/ml	99
53) 2,4,5-Trichlorophenol	5.240	196	219955	56.30 ug/ml	99
55) 2-Chloronaphthalene	5.358	162	714402	62.18 ug/ml	99
56) 2-Nitroaniline	5.411	65	226697	58.22 ug/ml	97
57) Dimethylphthalate	5.516	163	799544	58.14 ug/ml	100
58) Acenaphthylene	5.634	152	1085401	60.63 ug/ml	100
59) 2,6-Dinitrotoluene	5.564	165	190536	55.10 ug/ml	97
60) 3-Nitroaniline	5.681	138	210087	54.30 ug/ml	97
61) Acenaphthene	5.746	154	731954	59.33 ug/ml	99
62) 2,4-Dinitrophenol	5.746	184	100457	55.73 ug/ml	92
63) Dibenzofuran	5.858	168	1000178	57.68 ug/ml	99
64) 4-Nitrophenol	5.769	65	144480m	62.20 ug/ml	
65) 2,4-Dinitrotoluene	5.834	165	255286	53.57 ug/ml	99
66) Diethylphthalate	5.981	149	801143	55.85 ug/ml	100
67) Fluorene	6.093	166	812811	57.94 ug/ml	99
68) 4-Chlorophenyl phenyl	6.081	204	382507	58.62 ug/ml	99
69) 4-Nitroaniline	6.093	138	221792	52.41 ug/ml	98
70) Atrazine	0.000		0	N.D.	
72) 4,6-Dinitro-2-methylph	6.111	198	121097	56.80 ug/ml	94
73) N-Nitrosodiphenylamine	6.158	169	694186	61.51 ug/ml	100
74) 1,2-Diphenylhydrazine	6.187	77	911290	69.94 ug/ml	99
76) 4-Bromophenyl phenyl e	6.422	248	212410	62.32 ug/ml	99
77) Hexachlorobenzene	6.475	284	215335	59.69 ug/ml	100
78) Pentachlorophenol	6.616	266	103885	49.03 ug/ml	100
79) Phenanthrene	6.781	178	1122984	56.37 ug/ml	100
80) Anthracene	6.822	178	1156757	62.20 ug/ml	100
81) Carbazole	6.928	167	1060909	56.44 ug/ml	100
82) Di-n-butylphthalate	7.175	149	1319800	58.22 ug/ml	100
83) Fluoranthene	7.793	202	1142950	54.60 ug/ml	99
85) 3,3-Dimethylbenzidine	8.757	212	577889	56.87 ug/ml	97
86) Benzidine	7.910	184	492007	52.14 ug/ml	97
87) Pyrene	8.034	202	1215482	57.38 ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221812.D
Acq On : 22 May 2018 06:10 pm
Operator : RS
Sample : 60.0 ug/ml BNA
Misc : 300-0307I
ALS Vial : 12 Sample Multiplier: 1

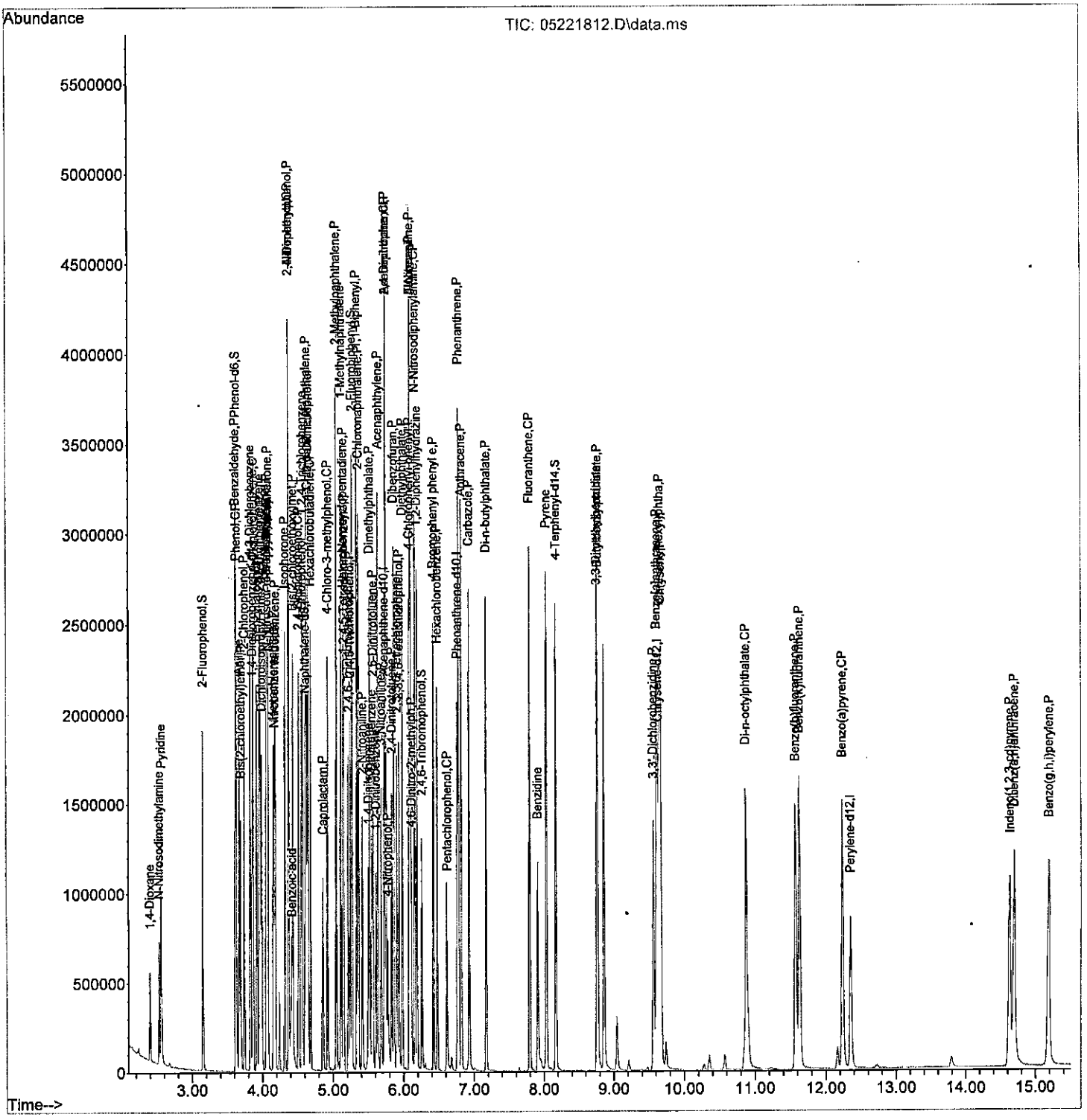
Quant Time: May 23 10:27:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.769	149	599376	57.74 ug/ml	100
90) Benzo[a]anthracene	9.610	228	1080466	57.44 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.563	252	386837	58.74 ug/ml	99
92) Chrysene	9.669	228	1043699	57.44 ug/ml	98
93) Bis(2-ethylhexyl)phtha	9.652	149	828833	59.93 ug/ml	99
95) Di-n-octylphthalate	10.875	149	1318437	57.27 ug/ml	98
96) Benzo(b)fluoranthene	11.575	252	994345	57.85 ug/ml	100
97) Benzo(k)fluoranthene	11.634	252	1017180	56.88 ug/ml	99
98) Benzo(a)pyrene	12.240	252	973188	59.94 ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.634	276	840794	67.80 ug/ml	99
100) Dibenz(a,h)anthracene	14.698	278	843660	66.76 ug/ml	94
101) Benzo(g,h,i)perylene	15.192	276	929293	69.81 ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221812.D
Acq On : 22 May 2018 06:10 pm
Operator : RS
Sample : 60.0 ug/ml BNA
Misc : 300-0307I
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 10:27:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S051518.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 16 09:38:31 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.857	150	330479	40.00	ug/ml	0.00
24) Naphthalene-d8	4.604	136	783698	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.722	164	381341	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.763	188	655761	40.00	ug/ml	0.00
84) Chrysene-d12	9.622	240	565372	40.00	ug/ml	0.00
94) Perylene-d12	12.351	264	504948	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.152	112	138876	20.83	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 41.66%			
7) Phenol-d6	3.616	99	172245	20.05	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 40.10%#			
25) Nitrobenzene-d5	4.169	82	174262	19.87	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 39.74%			
54) 2-Fluorobiphenyl	5.263	172	298194	19.88	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 39.76%			
75) 2,4,6-Tribromophenol	6.257	330	32999	20.17	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 40.34%			
88) 4-Terphenyl-d14	8.169	244	287550	19.51	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 39.02%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.399	88	57852	19.00	ug/ml	97
3) Pyridine	2.558	79	146714	19.10	ug/ml	98
4) N-Nitrosodimethylamine	2.528	42	59664	18.34	ug/ml	98
6) Benzaldehyde	3.616	77	91806	17.97	ug/ml	99
8) Phenol	3.628	94	173461	19.04	ug/ml	99
9) Aniline	3.669	93	228007	19.34	ug/ml	99
10) Bis(2-chloroethyl)ether	3.687	93	128375	17.80	ug/ml	92
11) 2-Chlorophenol	3.740	128	141132	18.89	ug/ml	98
12) 1,3-Dichlorobenzene	3.828	146	158576	18.84	ug/ml	99
13) 1,4-Dichlorobenzene	3.869	146	161062	18.90	ug/ml	99
14) Benzyl alcohol	3.916	108	87941	19.28	ug/ml	99
15) 1,2-Dichlorobenzene	3.957	146	152429	18.82	ug/ml	99
16) 2-Methylphenol	3.969	107	112637	19.73	ug/ml	99
17) Dichloroisopropyl ether	3.987	45	163685	18.07	ug/ml	85
18) 3-Methylphenol	4.052	107	143907	19.54	ug/ml	99
19) 4-Methylphenol	4.052	107	143907	19.54	ug/ml	99
20) 3&4-Methylphenol	4.052	107	143907	19.54	ug/ml	99
21) Acetophenone	4.075	105	198795	18.44	ug/ml	99
22) N-Nitrosodi-n-propylamine	4.063	70	101139	18.96	ug/ml	99
23) Hexachloroethane	4.152	117	67681	19.10	ug/ml	99
26) Nitrobenzene	4.181	77	148428	18.72	ug/ml	99
27) Isophorone	4.316	82	268990	19.33	ug/ml	99
28) 2-Nitrophenol	4.369	139	71500	18.96	ug/ml	97
29) 2,4-Dimethylphenol	4.369	107	125148	18.33	ug/ml	97
30) Bis(2-chloroethoxy)met	4.428	93	170582	18.98	ug/ml	99
31) Benzoic acid	4.399	122	53420	19.10	ug/ml	74
32) 2,4-Dichlorophenol	4.510	162	109208	19.01	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.563	180	121541	18.56	ug/ml	96
34) 4-Chlorophenol	4.552	128	134036	18.03	ug/ml	97
35) Naphthalene	4.622	128	431658	18.38	ug/ml	97
36) 4-Chloroaniline	4.640	127	156774m	18.48	ug/ml	
37) 2,6-Dichlorophenol	4.646	162	111878	18.57	ug/ml	99
38) Hexachlorobutadiene	4.681	225	66530	19.16	ug/ml	99
39) Caprolactam	4.846	55	53079	18.51	ug/ml	95
40) 4-Chloro-3-methylphenol	4.922	107	115075	18.69	ug/ml	99
41) 2-Methylnaphthalene	5.046	142	266889	18.76	ug/ml	99
42) 1-Methylnaphthalene	5.110	142	256314	18.70	ug/ml	100
43) 1,2,4,5-Tetrachloroben...	5.146	216	118514	18.61	ug/ml	99
44) 1,1-Biphenyl	5.334	154	323261	18.72	ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.904	232	54588	18.95	ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.934	232	60404	19.22	ug/ml	97
47) 1,4-Dinitrobenzene	5.493	168	37471	18.56	ug/ml	85
48) 1,3-Dinitrobenzene	5.546	168	44565	18.82	ug/ml	83
49) 1,2-Dinitrobenzene	5.599	168	31144	18.59	ug/ml	97
51) Hexachlorocyclopentadiene	5.140	237	64140	18.95	ug/ml	99
52) 2,4,6-Trichlorophenol	5.210	196	71949	19.34	ug/ml	100
53) 2,4,5-Trichlorophenol	5.240	196	73298	18.67	ug/ml	98
55) 2-Chloronaphthalene	5.357	162	241420	18.63	ug/ml	99
56) 2-Nitroaniline	5.410	65	74152	19.43	ug/ml	94
57) Dimethylphthalate	5.516	163	267966	18.70	ug/ml	100
58) Acenaphthylene	5.634	152	364557	19.20	ug/ml	100
59) 2,6-Dinitrotoluene	5.563	165	62172	18.48	ug/ml	97
60) 3-Nitroaniline	5.675	138	66292	18.71	ug/ml	98
61) Acenaphthene	5.746	154	242074	18.60	ug/ml	100
62) 2,4-Dinitrophenol	5.746	184	25216	19.44	ug/ml	98
63) Dibenzofuran	5.857	168	340745	18.46	ug/ml	99
64) 4-Nitrophenol	5.775	65	38593	18.28	ug/ml	92
65) 2,4-Dinitrotoluene	5.828	165	79850	18.58	ug/ml	99
66) Diethylphthalate	5.981	149	268792	17.16	ug/ml	100
67) Fluorene	6.093	166	274623	18.98	ug/ml	99
68) 4-Chlorophenyl phenyl	6.075	204	126025	18.74	ug/ml	99
69) 4-Nitroaniline	6.087	138	68963	18.89	ug/ml	99
70) Atrazine	6.510	200	68951	18.95	ug/ml	99
72) 4,6-Dinitro-2-methylph	6.104	198	35025	19.46	ug/ml	99
73) N-Nitrosodiphenylamine	6.157	169	229016	18.94	ug/ml	99
74) 1,2-Diphenylhydrazine	6.187	77	305064	18.74	ug/ml	99
76) 4-Bromophenyl phenyl e	6.422	248	68453	18.87	ug/ml	98
77) Hexachlorobenzene	6.475	284	69908	18.14	ug/ml	98
78) Pentachlorophenol	6.610	266	34153	20.42	ug/ml	100
79) Phenanthrene	6.775	178	382257	18.70	ug/ml	99
80) Anthracene	6.816	178	380122	18.85	ug/ml	100
81) Carbazole	6.928	167	346700	19.05	ug/ml	100
82) Di-n-butylphthalate	7.169	149	413929	18.88	ug/ml	100
83) Fluoranthene	7.793	202	363366	18.87	ug/ml	99
85) 3,3-Dimethylbenzidine	8.757	212	165381	20.04	ug/ml	97
86) Benzidine	7.904	184	163048	20.73	ug/ml	98
87) Pyrene	8.028	202	380607	17.39	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

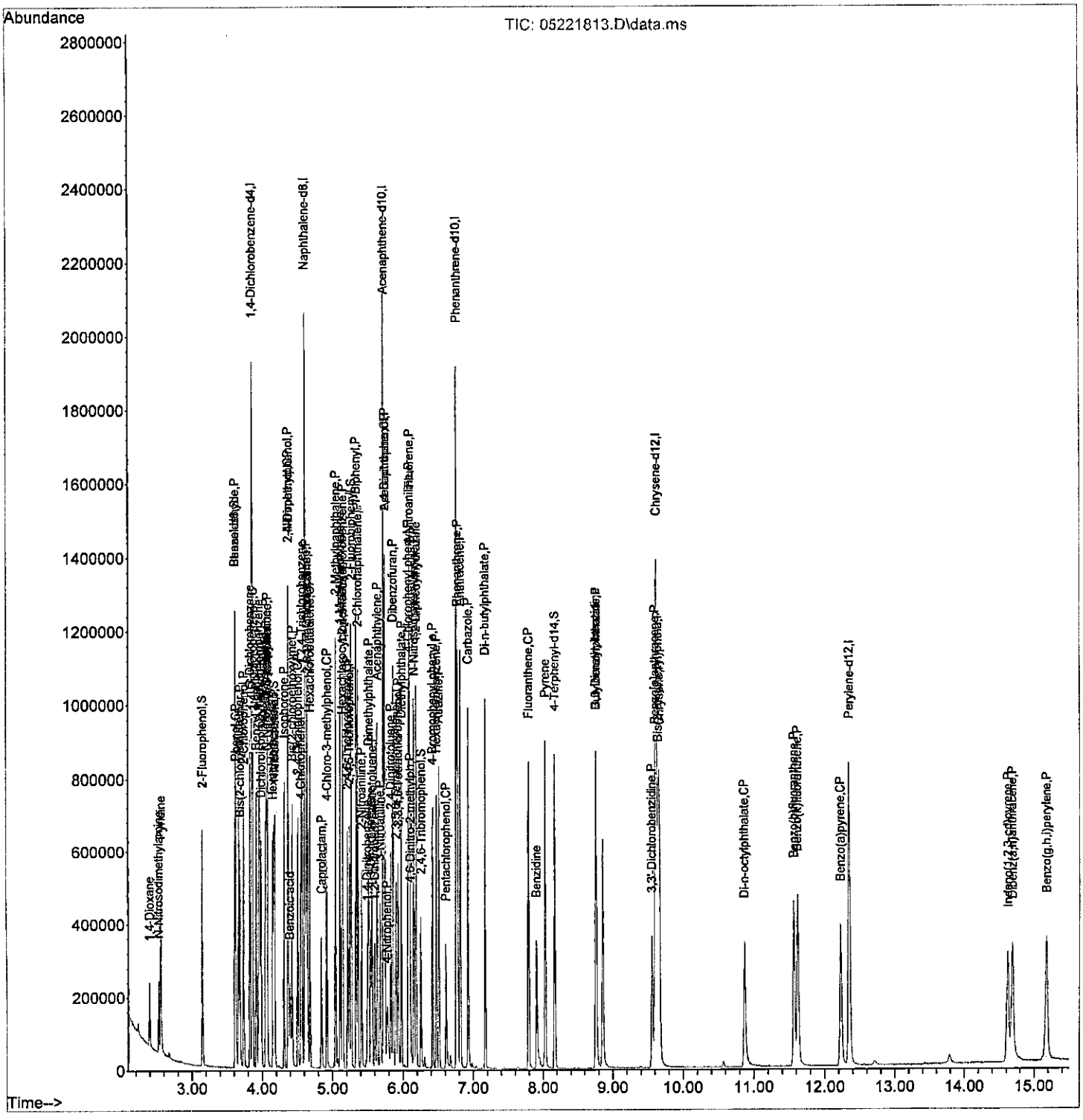
Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.763	149	176818	19.53 ug/ml	100
90) Benzo[a]anthracene	9.604	228	327648	18.64 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.557	252	106306	19.95 ug/ml	99
92) Chrysene	9.663	228	334159	18.49 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.645	149	234979	20.18 ug/ml	100
95) Di-n-octylphthalate	10.869	149	312373	20.28 ug/ml	98
96) Benzo(b)fluoranthene	11.569	252	289172	19.91 ug/ml	99
97) Benzo(k)fluoranthene	11.622	252	296798	18.08 ug/ml	100
98) Benzo(a)pyrene	12.228	252	267330	19.61 ug/ml	98
99) Indeno(1,2,3-cd)pyrene	14.622	276	234503	20.48 ug/ml	100
100) Dibenz(a,h)anthracene	14.686	278	242833	19.97 ug/ml	96
101) Benzo(g,h,i)perylene	15.175	276	273522	20.07 ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	100	0.07
2		1,4-Dioxane	20.000	19.001	5.0	101	0.06
3		Pyridine	20.000	19.100	4.5	99	0.06
4		N-Nitrosodimethylamine	20.000	18.341	8.3	95	0.06
5	S	2-Fluorophenol	20.000	20.830	-4.1	103	0.05
6	P	Benzaldehyde	20.000	17.974	10.1	94	0.06
7	S	Phenol-d6	20.000	20.052	-0.3	102	0.05
8	CP	Phenol	20.000	19.038	4.8	98	0.05
9		Aniline	20.000	19.343	3.3	101	0.06
10	P	Bis(2-chloroethyl)ether	20.000	17.796	11.0	92	0.06
11	P	2-Chlorophenol	20.000	18.887	5.6	98	0.06
12		1,3-Dichlorobenzene	20.000	18.835	5.8	99	0.07
13	C	1,4-Dichlorobenzene	20.000	18.900	5.5	99	0.07
14		Benzyl alcohol	20.000	19.275	3.6	96	0.06
15		1,2-Dichlorobenzene	20.000	18.816	5.9	99	0.07
16	P	2-Methylphenol	20.000	19.727	1.4	97	0.06
17	P	Dichloroisopropyl ether	20.000	18.073	9.6	96	0.07
18	P	3-Methylphenol	20.000	19.540	2.3	96	0.05
19	P	4-Methylphenol	20.000	19.540	2.3	96	0.05
20	P	3&4-Methylphenol	20.000	19.540	2.3	96	0.05
21	P	Acetophenone	20.000	18.444	7.8	96	0.07
22	P	N-Nitrosodi-n-propylamine	20.000	18.965	5.2	98	0.07
23	P	Hexachloroethane	20.000	19.104	4.5	100	0.07
24	I	Naphthalene-d8	40.000	40.000	0.0	100	0.07
25	S	Nitrobenzene-d5	20.000	19.870	0.6	100	0.07
26	P	Nitrobenzene	20.000	18.716	6.4	95	0.07
27	P	Isophorone	20.000	19.326	3.4	96	0.07
28	CP	2-Nitrophenol	20.000	18.955	5.2	97	0.07
29	P	2,4-Dimethylphenol	20.000	18.334	8.3	87	0.06
30	P	Bis(2-chloroethoxy)met	20.000	18.984	5.1	95	0.07
31		Benzoic acid	20.000	19.104	4.5	101	0.05
32	CP	2,4-Dichlorophenol	20.000	19.012	4.9	97	0.06
33		1,2,4-Trichlorobenzene	20.000	18.563	7.2	95	0.07
34		4-Chlorophenol	20.000	18.028	9.9	92	0.05
35	P	Naphthalene	20.000	18.381	8.1	96	0.08
36	P	4-Chloroaniline	20.000	18.478	7.6	94	0.07
37		2,6-Dichlorophenol	20.000	18.575	7.1	97	0.07
38	CP	Hexachlorobutadiene	20.000	19.159	4.2	97	0.07
39	P	Caprolactam	20.000	18.508	7.5	94	0.08
40	CP	4-Chloro-3-methylphenol	20.000	18.695	6.5	95	0.06
41	P	2-Methylnaphthalene	20.000	18.756	6.2	94	0.08
42		1-Methylnaphthalene	20.000	18.697	6.5	94	0.08
43	P	1,2,4,5-Tetrachlorobenzene	20.000	18.613	6.9	96	0.08
44	P	1,1-Biphenyl	20.000	18.719	6.4	95	0.08
45		2,3,5,6-Tetrachlorophenol	20.000	18.946	5.3	93	0.08

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	P	2,3,4,6-Tetrachlorophenol	20.000	19.223	3.9	93	0.08
47		1,4-Dinitrobenzene	20.000	18.562	7.2	92	0.08
48		1,3-Dinitrobenzene	20.000	18.816	5.9	95	0.08
49		1,2-Dinitrobenzene	20.000	18.591	7.0	97	0.08
50	I	Acenaphthene-d10	40.000	40.000	0.0	98	0.08
51	P	Hexachlorocyclopentadiene	20.000	18.950	5.3	89	0.08
52	CP	2,4,6-Trichlorophenol	20.000	19.342	3.3	96	0.07
53	P	2,4,5-Trichlorophenol	20.000	18.673	6.6	93	0.06
54	S	2-Fluorobiphenyl	20.000	19.878	0.6	98	0.08
55	P	2-Chloronaphthalene	20.000	18.627	6.9	94	0.08
56	P	2-Nitroaniline	20.000	19.434	2.8	98	0.08
57	P	Dimethylphthalate	20.000	18.695	6.5	92	0.08
58	P	Acenaphthylene	20.000	19.199	4.0	92	0.08
59	P	2,6-Dinitrotoluene	20.000	18.484	7.6	92	0.08
60	P	3-Nitroaniline	20.000	18.713	6.4	94	0.08
61	CP	Acenaphthene	20.000	18.605	7.0	92	0.08
62	P	2,4-Dinitrophenol	20.000	19.441	2.8	94	0.08
63	P	Dibenzofuran	20.000	18.457	7.7	94	0.08
64	P	4-Nitrophenol	20.000	18.283	8.6	88	0.06
65	P	2,4-Dinitrotoluene	20.000	18.576	7.1	93	0.08
66	P	Diethylphthalate	20.000	17.160	14.2	92	0.09
67	P	Fluorene	20.000	18.977	5.1	94	0.09
68	P	4-Chlorophenyl phenyl	20.000	18.743	6.3	92	0.09
69	P	4-Nitroaniline	20.000	18.886	5.6	94	0.08
70	P	Atrazine	20.000	18.948	5.3	92	0.09
71	I	Phenanthrene-d10	40.000	40.000	0.0	95	0.10
72	P	4,6-Dinitro-2-methylph	20.000	19.459	2.7	91	0.08
73	CP	N-Nitrosodiphenylamine	20.000	18.939	5.3	93	0.09
74		1,2-Diphenylhydrazine	20.000	18.738	6.3	92	0.09
75	S	2,4,6-Tribromophenol	20.000	20.168	-0.8	93	0.09
76	P	4-Bromophenyl phenyl e	20.000	18.872	5.6	94	0.09
77	P	Hexachlorobenzene	20.000	18.136	9.3	90	0.09
78	CP	Pentachlorophenol	20.000	20.425	-2.1	92	0.09
79	P	Phenanthrene	20.000	18.704	6.5	92	0.09
80	P	Anthracene	20.000	18.853	5.7	91	0.09
81	P	Carbazole	20.000	19.047	4.8	92	0.10
82	P	Di-n-butylphthalate	20.000	18.878	5.6	90	0.11
83	CP	Fluoranthene	20.000	18.868	5.7	91	0.12
84	I	Chrysene-d12	40.000	40.000	0.0	100	0.16
85		3,3-Dimethylbenzidine	20.000	20.041	-0.2	93	0.14
86		Benzidine	20.000	20.726	-3.6	96	0.12
87		Pyrene	20.000	17.395	13.0	91	0.12
88	S	4-Terphenyl-d14	20.000	19.513	2.4	95	0.13

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : R5
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
89	P	Butylbenzylphthalate	20.000	19.529	2.4	96	0.15
90	P	Benzo[a]anthracene	20.000	18.642	6.8	94	0.16
91	P	3,3'-Dichlorobenzidine	20.000	19.954	0.2	98	0.15
92	P	Chrysene	20.000	18.490	7.6	95	0.16
93	P	Bis(2-ethylhexyl)phtha	20.000	20.179	-0.9	98	0.16
94	I	Perylene-d12	40.000	40.000	0.0	100	0.19
95	CP	Di-n-octylphthalate	20.000	20.277	-1.4	103	0.18
96	P	Benzo(b)fluoranthene	20.000	19.912	0.4	101	0.18
97	P	Benzo(k)fluoranthene	20.000	18.084	9.6	92	0.18
98	CP	Benzo(a)pyrene	20.000	19.605	2.0	99	0.18
99	P	Indeno(1,2,3-cd)pyrene	20.000	20.483	-2.4	102	0.20
100	P	Dibenz(a,h)anthracene	20.000	19.968	0.2	101	0.20
101	P	Benzo(g,h,i)perylene	20.000	20.066	-0.3	103	0.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.07
2		1,4-Dioxane	0.381	0.350	8.1	101	0.06
3		Pyridine	0.930	0.888	4.5	99	0.06
4		N-Nitrosodimethylamine	0.397	0.361	9.1	95	0.06
5	S	2-Fluorophenol	0.807	0.840	-4.1	103	0.05
6	P	Benzaldehyde	0.616	0.556	9.7	94	0.06
7	S	Phenol-d6	0.983	1.042	-6.0	102	0.05
8	CP	Phenol	1.049	1.050	-0.1	98	0.05
9		Aniline	1.367	1.380	-1.0	101	0.06
10	P	Bis(2-chloroethyl)ether	0.870	0.777	10.7	92	0.06
11	P	2-Chlorophenol	0.863	0.854	1.0	98	0.06
12		1,3-Dichlorobenzene	1.019	0.960	5.8	99	0.07
13	C	1,4-Dichlorobenzene	1.064	0.975	8.4	99	0.07
14		Benzyl alcohol	0.552	0.532	3.6	96	0.06
15		1,2-Dichlorobenzene	0.992	0.922	7.1	99	0.07
16	P	2-Methylphenol	0.691	0.682	1.3	97	0.06
17	P	Dichloroisopropyl ether	1.152	0.991	14.0	96	0.07
18	P	3-Methylphenol	0.891	0.871	2.2	96	0.05
19	P	4-Methylphenol	0.891	0.871	2.2	96	0.05
20	P	3&4-Methylphenol	0.891	0.871	2.2	96	0.05
21	P	Acetophenone	1.305	1.203	7.8	96	0.07
22	P	N-Nitrosodi-n-propylamine	0.645	0.612	5.1	98	0.07
23	P	Hexachloroethane	0.442	0.410	7.2	100	0.07
24	I	Naphthalene-d8	1.000	1.000	0.0	100	0.07
25	S	Nitrobenzene-d5	0.448	0.445	0.7	100	0.07
26	P	Nitrobenzene	0.405	0.379	6.4	95	0.07
27	P	Isophorone	0.710	0.686	3.4	96	0.07
28	CP	2-Nitrophenol	0.175	0.182	-4.0	97	0.07
29	P	2,4-Dimethylphenol	0.325	0.319	1.8	87	0.06
30	P	Bis(2-chloroethoxy)met	0.459	0.435	5.2	95	0.07
31		Benzoic acid	0.129	0.136	-5.4	101	0.05
32	CP	2,4-Dichlorophenol	0.270	0.279	-3.3	97	0.06
33		1,2,4-Trichlorobenzene	0.334	0.310	7.2	95	0.07
34		4-Chlorophenol	0.350	0.342	2.3	92	0.05
35	P	Naphthalene	1.223	1.102	9.9	96	0.08
36	P	4-Chloroaniline	0.414	0.400	3.4	94	0.07
37		2,6-Dichlorophenol	0.288	0.286	0.7	97	0.07
38	CP	Hexachlorobutadiene	0.177	0.170	4.0	97	0.07
39	P	Caprolactam	0.138	0.135	2.2	94	0.08
40	CP	4-Chloro-3-methylphenol	0.301	0.294	2.3	95	0.06
41	P	2-Methylnaphthalene	0.726	0.681	6.2	94	0.08
42		1-Methylnaphthalene	0.700	0.654	6.6	94	0.08
43	P	1,2,4,5-Tetrachlorobenzene	0.325	0.302	7.1	96	0.08
44	P	1,1-Biphenyl	0.881	0.825	6.4	95	0.08
45		2,3,5,6-Tetrachlorophenol	0.131	0.139	-6.1	93	0.08

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	P	2,3,4,6-Tetrachlorophenol	0.138	0.154	-11.6	93	0.08
47		1,4-Dinitrobenzene	0.087	0.096	-10.3	92	0.08
48		1,3-Dinitrobenzene	0.105	0.114	-8.6	95	0.08
49		1,2-Dinitrobenzene	0.075	0.079	-5.3	97	0.08
50	I	Acenaphthene-d10	1.000	1.000	0.0	98	0.08
51	P	Hexachlorocyclopentadiene	0.304	0.336	-10.5	89	0.08
52	CP	2,4,6-Trichlorophenol	0.359	0.377	-5.0	96	0.07
53	P	2,4,5-Trichlorophenol	0.379	0.384	-1.3	93	0.06
54	S	2-Fluorobiphenyl	1.574	1.564	0.6	98	0.08
55	P	2-Chloronaphthalene	1.359	1.266	6.8	94	0.08
56	P	2-Nitroaniline	0.363	0.389	-7.2	98	0.08
57	P	Dimethylphthalate	1.503	1.405	6.5	92	0.08
58	P	Acenaphthylene	1.992	1.912	4.0	92	0.08
59	P	2,6-Dinitrotoluene	0.312	0.326	-4.5	92	0.08
60	P	3-Nitroaniline	0.319	0.348	-9.1	94	0.08
61	CP	Acenaphthene	1.365	1.270	7.0	92	0.08
62	P	2,4-Dinitrophenol	0.125	0.132	-5.6	94	0.08
63	P	Dibenzofuran	1.936	1.787	7.7	94	0.08
64	P	4-Nitrophenol	0.208	0.202	2.9	88	0.06
65	P	2,4-Dinitrotoluene	0.401	0.419	-4.5	93	0.08
66	P	Diethylphthalate	1.628	1.410	13.4	92	0.09
67	P	Fluorene	1.518	1.440	5.1	94	0.09
68	P	4-Chlorophenyl phenyl	0.705	0.661	6.2	92	0.09
69	P	4-Nitroaniline	0.335	0.362	-8.1	94	0.08
70	P	Atrazine	0.314	0.362	-15.3	92	0.09
71	I	Phenanthrene-d10	1.000	1.000	0.0	95	0.10
72	P	4,6-Dinitro-2-methylph	0.091	0.107	-17.6	91	0.08
73	CP	N-Nitrosodiphenylamine	0.693	0.698	-0.7	93	0.09
74		1,2-Diphenylhydrazine	0.938	0.930	0.9	92	0.09
75	S	2,4,6-Tribromophenol	0.092	0.101	-9.8	93	0.09
76	P	4-Bromophenyl phenyl e	0.219	0.209	4.6	94	0.09
77	P	Hexachlorobenzene	0.235	0.213	9.4	90	0.09
78	CP	Pentachlorophenol	0.085	0.104	-22.4#	92	0.09
79	P	Phenanthrene	1.281	1.166	9.0	92	0.09
80	P	Anthracene	1.172	1.159	1.1	91	0.09
81	P	Carbazole	1.053	1.057	-0.4	92	0.10
82	P	Di-n-butylphthalate	1.210	1.262	-4.3	90	0.11
83	CP	Fluoranthene	1.122	1.108	1.2	91	0.12
84	I	Chrysene-d12	1.000	1.000	0.0	100	0.16
85		3,3-Dimethylbenzidine	0.499	0.585	-17.2	93	0.14
86		Benzidine	0.463	0.577	-24.6#	96	0.12
87		Pyrene	1.485	1.346	9.4	91	0.12
88	S	4-Terphenyl-d14	1.043	1.017	2.5	95	0.13

Data Path : D:\MassHunter\GCMS\1\data\9S052218\
Data File : 05221813.D
Acq On : 22 May 2018 06:32 pm
Operator : RS
Sample : ICV 20.0 ug/ml BNA
Misc : 300-0307
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 10:47:53 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed May 23 10:47:47 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
89	P	Butylbenzylphthalate	0.548	0.625	-14.1	96	0.15
90	P	Benzo[a]anthracene	1.290	1.159	10.2	94	0.16
91	P	3,3'-Dichlorobenzidine	0.322	0.376	-16.8	98	0.15
92	P	Chrysene	1.295	1.182	8.7	95	0.16
93	P	Bis(2-ethylhexyl)phtha	0.732	0.831	-13.5	98	0.16
94	I	Perylene-d12	1.000	1.000	0.0	100	0.19
95	CP	Di-n-octylphthalate	1.096	1.237	-12.9	103	0.18
96	P	Benzo(b)fluoranthene	1.070	1.145	-7.0	101	0.18
97	P	Benzo(k)fluoranthene	1.164	1.176	-1.0	92	0.18
98	CP	Benzo(a)pyrene	0.968	1.059	-9.4	99	0.18
99	P	Indeno(1,2,3-cd)pyrene	0.769	0.929	-20.8#	102	0.20
100	P	Dibenz(a,h)anthracene	0.843	0.962	-14.1	101	0.20
101	P	Benzo(g,h,i)perylene	0.992	1.083	-9.2	103	0.20

(#) = Out of Range SPCC's out = 0 CCC's out = 1

	Name	Vial	Method File	Data File	Type	Comment
	CONDITIONING SHOT	1	8270.M	05221801	Sample	CONDITIONING SHOT
	RINSE	2	8270.M	05221802	Sample	RINSE
	50 ug/ml DFTPP	3	8270.M	05221803	Sample	DFTPP
	0.1 ug/ml BNA	4	8270.M	05221804	Sample	300-0307A
	0.5 ug/ml BNA	5	8270.M	05221805	Sample	300-0307B
	1.0 ug/ml BNA	6	8270.M	05221806	Sample	300-0307C
	5.0 ug/ml BNA	7	8270.M	05221807	Sample	300-0307D
	10.0 ug/ml BNA	8	8270.M	05221808	Sample	300-0307E
	20.0 ug/ml BNA	9	8270.M	05221809	Sample	300-0307F
	40.0 ug/ml BNA	10	8270.M	05221810	Sample	300-0307G
	50.0 ug/ml BNA	11	8270.M	05221811	Sample	300-0307H
	60.0 ug/ml BNA	12	8270.M	05221812	Sample	300-0307I
	ICV 20.0 ug/ml BNA	13	8270.M	05221813	Sample	300-0307
	PBLKS1-118621	21	8270.M	05221814	Sample	1X 18BAS-118621
	PLCSS1-118621	22	8270.M	05221815	Sample	1X 18BAS-118621
	PBLKW1-118648	23	8270.M	05221816	Sample	1X 18BAW-118648/49/50
	PLCSW1-118648	24	8270.M	05221817	Sample	1X 18BAW-118648/49/50
	50 ug/ml DFTPP	3	8270.M	05221818	Sample	DFTPP
	20.0 ug/ml BNA	9	8270.M	05221819	Sample	300-0307F
	18051252-01B MS	25	8270.M	05221820	Sample	1X 18BAS-118621
	18051252-01B MSD	26	8270.M	05221821	Sample	1X 18BAS-118621
	18051252-01B	27	8270.M	05221822	Sample	1X 18BAS-118621
	18051164-02A MS	28	8270.M	05221823	Sample	1X 18BAW-118648/49/50
	18051164-02A	29	8270.M	05221824	Sample	1X 18BAW-118648/49/50
	18051198-03A DUP	30	8270.M	05221825	Sample	1X 18BAW-118648/49/50
	18051198-03A	31	8270.M	05221826	Sample	1X 18BAW-118648/49/50
	18051164-04A	32	8270.M	05221827	Sample	1X 18BAW-118648
	18051186-01B	33	8270.M	05221828	Sample	1X 18BAW-118648
	18051307-02B	34	8270.M	05221829	Sample	1X 18BAW-118650
	18051196-01B	35	8270.M	05221830	Sample	1X 18BAW-118649
	18051196-07B	36	8270.M	05221831	Sample	1X 18BAW-118649
	18051196-02B	37	8270.M	05221832	Sample	1X 18BAW-118649
	18051196-03B	38	8270.M	05221833	Sample	1X 18BAW-118649
	18051196-04B	39	8270.M	05221834	Sample	1X 18BAW-118649
	18051196-05B	40	8270.M	05221835	Sample	1X 18BAW-118649
	18051196-06B	41	8270.M	05221836	Sample	1X 18BAW-118649
	18051196-08B	42	8270.M	05221837	Sample	1X 18BAW-118649
	18051252-02B	43	8270.M	05221838	Sample	1X 18BAS-118621
	18051252-03B	44	8270.M	05221839	Sample	1X 18BAS-118621

	Name	Vial	Method File	Data File	Type	Comment
	18051252-04B	45	8270.M	05221840	Sample	1X 18BAS-118621
	18051252-07B	46	8270.M	05221841	Sample	1X 18BAS-118621
	18051243-01B DF50	47	8270.M	05221842	Sample	50X 18BAS-118621
	RINSE	2	8270.M	05221843	Sample	RINSE
	RINSE	2	8270.M	05221844	Sample	RINSE
	RINSE	2	8270.M	05221845	Sample	RINSE
	RINSE	2	8270.M	05221846	Sample	RINSE
	RINSE	2	8270.M	05221847	Sample	RINSE

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	40.000	40.000	0.0	112	0.00
2		1,4-Dioxane	20.000	20.975	-4.9	124	0.00
3		Pyridine	20.000	21.611	-8.1	125	0.00
4		N-Nitrosodimethylamine	20.000	21.923	-9.6	127	0.00
5	S	2-Fluorophenol	20.000	22.771	-13.9	126	0.00
6	P	Benzaldehyde	20.000	23.445	-17.2	133	0.00
7	S	Phenol-d6	20.000	22.708	-13.5	128	0.00
8	CP	Phenol	20.000	22.221	-11.1	128	0.00
9		Aniline	20.000	20.211	-1.1	117	0.00
10	P	Bis(2-chloroethyl)ether	20.000	18.512	7.4	107	0.00
11	P	2-Chlorophenol	20.000	21.716	-8.6	125	0.00
12		1,3-Dichlorobenzene	20.000	21.191	-6.0	125	0.00
13	C	1,4-Dichlorobenzene	20.000	21.719	-8.6	126	0.00
14		Benzyl alcohol	20.000	22.168	-10.8	124	0.00
15		1,2-Dichlorobenzene	20.000	21.575	-7.9	126	0.00
16	P	2-Methylphenol	20.000	22.526	-12.6	124	0.00
17	P	Dichloroisopropyl ether	20.000	22.615	-13.1	133	0.00
18	P	3-Methylphenol	20.000	22.777	-13.9	12S	0.00
19	P	4-Methylphenol	20.000	22.777	-13.9	125	0.00
20	P	3&4-Methylphenol	20.000	22.777	-13.9	125	0.00
21	P	Acetophenone	20.000	21.374	-6.9	124	0.00
22	P	N-Nitrosodi-n-propylamine	20.000	21.896	-9.5	126	0.00
23	P	Hexachloroethane	20.000	21.047	-5.2	123	0.00
24	I	Naphthalene-d8	40.000	40.000	0.0	125	0.00
25	S	Nitrobenzene-d5	20.000	20.131	-0.7	127	0.00
26	P	Nitrobenzene	20.000	19.983	0.1	127	0.00
27	P	Isophorone	20.000	19.766	1.2	123	0.00
28	CP	2-Nitrophenol	20.000	20.439	-2.2	131	0.00
29	P	2,4-Dimethylphenol	20.000	20.443	-2.2	123	0.00
30	P	Bis(2-chloroethoxy)met	20.000	20.092	-0.5	127	0.00
31		Benzoic acid	20.000	21.074	-5.4	142	0.00
32	CP	2,4-Dichlorophenol	20.000	19.663	1.7	126	0.00
33		1,2,4-Trichlorobenzene	20.000	19.846	0.8	127	0.00
34		4-Chlorophenol	20.000	18.880	5.6	121	0.00
35	P	Naphthalene	20.000	19.501	2.5	127	0.00
36	P	4-Chloroaniline	20.000	19.459	2.7	124	0.00
37		2,6-Dichlorophenol	20.000	19.498	2.5	127	0.00
38	CP	Hexachlorobutadiene	20.000	20.023	-0.1	127	0.00
39	P	Caprolactam	20.000	18.878	5.6	120	0.00
40	CP	4-Chloro-3-methylphenol	20.000	19.784	1.1	127	0.00
41	P	2-Methylnaphthalene	20.000	19.729	1.4	124	0.00
42		1-Methylnaphthalene	20.000	20.138	-0.7	127	0.00
43	P	1,2,4,5-Tetrachlorobenzene	20.000	20.044	-0.2	129	0.00
44	P	1,1-Biphenyl	20.000	19.714	1.4	125	0.00
45		2,3,5,6-Tetrachlorophenol	20.000	21.047	-5.2	130	0.00

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
46	P	2,3,4,6-Tetrachlorophenol	20.000	20.808	-4.0	126	0.00
47		1,4-Dinitrobenzene	20.000	22.748	-13.7	144	0.05
48		1,3-Dinitrobenzene	20.000	19.986	0.1	127	0.00
49		1,2-Dinitrobenzene	20.000	19.491	2.5	128	0.00
50	I	Acenaphthene-d10	40.000	40.000	0.0	126	0.00
51	P	Hexachlorocyclopentadiene	20.000	17.724	11.4	106	0.00
52	CP	2,4,6-Trichlorophenol	20.000	19.671	1.6	125	0.00
53	P	2,4,5-Trichlorophenol	20.000	20.179	-0.9	129	0.00
54	S	2-Fluorobiphenyl	20.000	19.985	0.1	127	0.00
55	P	2-Chloronaphthalene	20.000	19.493	2.5	126	0.00
56	P	2-Nitroaniline	20.000	19.450	2.8	126	0.00
57	P	Dimethylphthalate	20.000	19.191	4.0	121	0.00
58	P	Acenaphthylene	20.000	20.116	-0.6	124	0.00
59	P	2,6-Dinitrotoluene	20.000	19.501	2.5	124	0.00
60	P	3-Nitroaniline	20.000	18.328	8.4	118	0.00
61	CP	Acenaphthene	20.000	19.544	2.3	124	0.00
62	P	2,4-Dinitrophenol	20.000	19.764	1.2	123	0.00
63	P	Dibenzofuran	20.000	19.195	4.0	125	0.00
64	P	4-Nitrophenol	20.000	20.699	-3.5	130	0.02
65	P	2,4-Dinitrotoluene	20.000	19.321	3.4	125	0.00
66	P	Diethylphthalate	20.000	17.352	13.2	119	0.00
67	P	Fluorene	20.000	19.589	2.1	124	0.00
68	P	4-Chlorophenyl phenyl	20.000	19.711	1.4	124	0.00
69	P	4-Nitroaniline	20.000	18.385	8.1	117	0.00
70	P	Atrazine	20.000	18.438	7.8	115	0.00
71	I	Phenanthrene-d10	40.000	40.000	0.0	120	0.00
72	P	4,6-Dinitro-2-methylph	20.000	22.450	-12.2	135	0.00
73	CP	N-Nitrosodiphenylamine	20.000	20.023	-0.1	124	0.00
74		1,2-Diphenylhydrazine	20.000	19.377	3.1	120	0.00
75	S	2,4,6-Tribromophenol	20.000	22.303	-11.5	130	0.00
76	P	4-Bromophenyl phenyl e	20.000	20.004	-0.0	126	0.00
77	P	Hexachlorobenzene	20.000	20.103	-0.5	126	0.00
78	CP	Pentachlorophenol	20.000	20.692	-3.5	118	0.00
79	P	Phenanthrene	20.000	19.484	2.6	121	0.00
80	P	Anthracene	20.000	19.728	1.4	120	0.00
81	P	Carbazole	20.000	19.096	4.5	116	0.00
82	P	Di-n-butylphthalate	20.000	19.223	3.9	116	0.00
83	CP	Fluoranthene	20.000	19.617	1.9	119	0.00
84	I	Chrysene-d12	40.000	40.000	0.0	121	0.00
85		3,3-Dimethylbenzidine	20.000	21.192	-6.0	120	0.00
86		Benzidine	20.000	20.675	-3.4	116	0.00
87		Pyrene	20.000	18.785	6.1	119	0.00
88	S	4-Terphenyl-d14	20.000	20.480	-2.4	121	0.00

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
89	P	Butylbenzylphthalate	20.000	19.453	2.7	117	0.00
90	P	Benzo[a]anthracene	20.000	19.540	2.3	120	0.00
91	P	3,3'-Dichlorobenzidine	20.000	20.041	-0.2	120	0.00
92	P	Chrysene	20.000	19.387	3.1	122	0.00
93	P	Bis(2-ethylhexyl)phtha	20.000	20.614	-3.1	122	0.00
94	I	Perylene-d12	40.000	40.000	0.0	118	0.00
95	CP	Di-n-octylphthalate	20.000	20.958	-4.8	127	0.00
96	P	Benzo(b)fluoranthene	20.000	20.191	-1.0	121	0.00
97	P	Benzo(k)fluoranthene	20.000	18.893	5.5	115	0.00
98	CP	Benzo(a)pyrene	20.000	19.762	1.2	118	0.00
99	P	Indeno(1,2,3-cd)pyrene	20.000	20.566	-2.8	122	0.00
100	P	Dibenz(a,h)anthracene	20.000	20.662	-3.3	125	0.00
101	P	Benzo(g,h,i)perylene	20.000	19.417	2.9	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	112	0.00
2		1,4-Dioxane	0.381	0.384	-0.8	124	0.00
3		Pyridine	0.930	1.005	-8.1	125	0.00
4		N-Nitrosodimethylamine	0.397	0.429	-8.1	127	0.00
5	S	2-Fluorophenol	0.807	0.919	-13.9	126	0.00
6	P	Benzaldehyde	0.616	0.702	-14.0	133	0.00
7	S	Phenol-d6	0.983	1.176	-19.6	128	0.00
8	CP	Phenol	1.049	1.218	-16.1	128	0.00
9		Aniline	1.367	1.436	-5.0	117	0.00
10	P	Bis(2-chloroethyl)ether	0.870	0.807	7.2	107	0.00
11	P	2-Chlorophenol	0.863	0.976	-13.1	125	0.00
12		1,3-Dichlorobenzene	1.019	1.080	-6.0	125	0.00
13	C	1,4-Dichlorobenzene	1.064	1.112	-4.5	126	0.00
14		Benzyl alcohol	0.552	0.612	-10.9	124	0.00
15		1,2-Dichlorobenzene	0.992	1.050	-5.8	126	0.00
16	P	2-Methylphenol	0.691	0.778	-12.6	124	0.00
17	P	Dichloroisopropyl ether	1.152	1.223	-6.2	133	0.00
18	P	3-Methylphenol	0.891	1.015	-13.9	125	0.00
19	P	4-Methylphenol	0.891	1.015	-13.9	125	0.00
20	P	3&4-Methylphenol	0.891	1.015	-13.9	125	0.00
21	P	Acetophenone	1.305	1.394	-6.8	124	0.00
22	P	N-Nitrosodi-n-propylamine	0.645	0.707	-9.6	126	0.00
23	P	Hexachloroethane	0.442	0.449	-1.6	123	0.00
24	I	Naphthalene-d8	1.000	1.000	0.0	125	0.00
25	S	Nitrobenzene-d5	0.448	0.451	-0.7	127	0.00
26	P	Nitrobenzene	0.405	0.404	0.2	127	0.00
27	P	Isophorone	0.710	0.702	1.1	123	0.00
28	CP	2-Nitrophenol	0.175	0.197	-12.6	131	0.00
29	P	2,4-Dimethylphenol	0.325	0.359	-10.5	123	0.00
30	P	Bis(2-chloroethoxy)met	0.459	0.461	-0.4	127	0.00
31		Benzoic acid	0.129	0.153	-18.6	142	0.00
32	CP	2,4-Dichlorophenol	0.270	0.288	-6.7	126	0.00
33		1,2,4-Trichlorobenzene	0.334	0.332	0.6	127	0.00
34		4-Chlorophenol	0.350	0.358	-2.3	121	0.00
35	P	Naphthalene	1.223	1.168	4.5	127	0.00
36	P	4-Chloroaniline	0.414	0.422	-1.9	124	0.00
37		2,6-Dichlorophenol	0.288	0.300	-4.2	127	0.00
38	CP	Hexachlorobutadiene	0.177	0.177	0.0	127	0.00
39	P	Caprolactam	0.138	0.138	0.0	120	0.00
40	CP	4-Chloro-3-methylphenol	0.301	0.311	-3.3	127	0.00
41	P	2-Methylnaphthalene	0.726	0.716	1.4	124	0.00
42		1-Methylnaphthalene	0.700	0.705	-0.7	127	0.00
43	P	1,2,4,5-Tetrachlorobenzene	0.325	0.326	-0.3	129	0.00
44	P	1,1-Biphenyl	0.881	0.869	1.4	125	0.00
45		2,3,5,6-Tetrachlorophenol	0.131	0.155	-18.3	130	0.00

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	P	2,3,4,6-Tetrachlorophenol	0.138	0.166	-20.3#	126	0.00
47		1,4-Dinitrobenzene	0.087	0.119	-36.8#	144	0.05
48		1,3-Dinitrobenzene	0.105	0.121	-15.2	127	0.00
49		1,2-Dinitrobenzene	0.075	0.083	-10.7	128	0.00
50	I	Acenaphthene-d10	1.000	1.000	0.0	126	0.00
51	P	Hexachlorocyclopentadiene	0.304	0.313	-3.0	106	0.00
52	CP	2,4,6-Trichlorophenol	0.359	0.384	-7.0	125	0.00
53	P	2,4,5-Trichlorophenol	0.379	0.416	-9.8	129	0.00
54	S	2-Fluorobiphenyl	1.574	1.572	0.1	127	0.00
55	P	2-Chloronaphthalene	1.359	1.325	2.5	126	0.00
56	P	2-Nitroaniline	0.363	0.389	-7.2	126	0.00
57	P	Dimethylphthalate	1.503	1.443	4.0	121	0.00
58	P	Acenaphthylene	1.992	2.003	-0.6	124	0.00
59	P	2,6-Dinitrotoluene	0.312	0.344	-10.3	124	0.00
60	P	3-Nitroaniline	0.319	0.340	-6.6	118	0.00
61	CP	Acenaphthene	1.365	1.334	2.3	124	0.00
62	P	2,4-Dinitrophenol	0.125	0.135	-8.0	123	0.00
63	P	Dibenzofuran	1.936	1.859	4.0	125	0.00
64	P	4-Nitrophenol	0.208	0.233	-12.0	130	0.02
65	P	2,4-Dinitrotoluene	0.401	0.436	-8.7	125	0.00
66	P	Diethylphthalate	1.628	1.425	12.5	119	0.00
67	P	Fluorene	1.518	1.487	2.0	124	0.00
68	P	4-Chlorophenyl phenyl	0.705	0.695	1.4	124	0.00
69	P	4-Nitroaniline	0.335	0.352	-5.1	117	0.00
70	P	Atrazine	0.314	0.351	-11.8	115	0.00
71	I	Phenanthrene-d10	1.000	1.000	0.0	120	0.00
72	P	4,6-Dinitro-2-methylph	0.091	0.126	-38.5#	135	0.00
73	CP	N-Nitrosodiphenylamine	0.693	0.739	-6.6	124	0.00
74		1,2-Diphenylhydrazine	0.938	0.962	-2.6	120	0.00
75	S	2,4,6-Tribromophenol	0.092	0.112	-21.7#	130	0.00
76	P	4-Bromophenyl phenyl e	0.219	0.222	-1.4	126	0.00
77	P	Hexachlorobenzene	0.235	0.236	-0.4	126	0.00
78	CP	Pentachlorophenol	0.085	0.106	-24.7#	118	0.00
79	P	Phenanthrene	1.281	1.214	5.2	121	0.00
80	P	Anthracene	1.172	1.214	-3.6	120	0.00
81	P	Carbazole	1.053	1.060	-0.7	116	0.00
82	P	Di-n-butylphthalate	1.210	1.287	-6.4	116	0.00
83	CP	Fluoranthene	1.122	1.154	-2.9	119	0.00
84	I	Chrysene-d12	1.000	1.000	0.0	121	0.00
85		3,3-Dimethylbenzidine	0.499	0.622	-24.6#	120	0.00
86		Benzidine	0.463	0.575	-24.2#	116	0.00
87		Pyrene	1.485	1.452	2.2	119	0.00
88	S	4-Terphenyl-d14	1.043	1.068	-2.4	121	0.00

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
89	P	Butylbenzylphthalate	0.548	0.623	-13.7	117	0.00
90	P	Benzo[a]anthracene	1.290	1.216	5.7	120	0.00
91	P	3,3'-Dichlorobenzidine	0.322	0.378	-17.4	120	0.00
92	P	Chrysene	1.295	1.239	4.3	122	0.00
93	P	Bis(2-ethylhexyl)phtha	0.732	0.851	-16.3	122	0.00
94	I	Perylene-d12	1.000	1.000	0.0	118	0.00
95	CP	Di-n-octylphthalate	1.096	1.289	-17.6	127	0.00
96	P	Benzo(b)fluoranthene	1.070	1.162	-8.6	121	0.00
97	P	Benzo(k)fluoranthene	1.164	1.229	-5.6	115	0.00
98	CP	Benzo(a)pyrene	0.968	1.068	-10.3	118	0.00
99	P	Indeno(1,2,3-cd)pyrene	0.769	0.933	-21.3#	122	0.00
100	P	Dibenz(a,h)anthracene	0.843	0.998	-18.4	125	0.00
101	P	Benzo(g,h,i)perylene	0.992	1.046	-5.4	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	369509m	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	982952	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.640	164	488937	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.669	188	826846	40.00	ug/ml	0.00
84) Chrysene-d12	9.469	240	686497	40.00	ug/ml	0.00
94) Perylene-d12	12.169	264	600162	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	169744	22.77	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 45.54%			
7) Phenol-d6	3.570	99	217221	22.71	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 45.42%#			
25) Nitrobenzene-d5	4.099	82	221441	20.13	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 40.26%			
54) 2-Fluorobiphenyl	5.187	172	384391	19.99	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 39.98%			
75) 2,4,6-Tribromophenol	6.169	330	46222	22.30	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 44.60%			
88) 4-Terphenyl-d14	8.046	244	366443	20.48	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 40.96%			
Target Compounds						Qvalue
2) 1,4-Dioxane	2.346	88	70986	20.98	ug/ml	95
3) Pyridine	2.505	79	185606	21.61	ug/ml	95
4) N-Nitrosodimethylamine	2.475	42	79325	21.92	ug/ml	98
6) Benzaldehyde	3.552	77	129699	23.45	ug/ml	97
8) Phenol	3.581	94	224960	22.22	ug/ml	98
9) Aniline	3.605	93	265399m	20.21	ug/ml	
10) Bis(2-chloroethyl)ether	3.622	93	149095m	18.51	ug/ml	
11) 2-Chlorophenol	3.681	128	180370	21.72	ug/ml	97
12) 1,3-Dichlorobenzene	3.758	146	199484	21.19	ug/ml	99
13) 1,4-Dichlorobenzene	3.799	146	205383	21.72	ug/ml	100
14) Benzyl alcohol	3.852	108	113082	22.17	ug/ml	98
15) 1,2-Dichlorobenzene	3.887	146	193979	21.57	ug/ml	99
16) 2-Methylphenol	3.911	107	143814	22.53	ug/ml	89
17) Dichloroisopropyl ether	3.917	45	225933	22.61	ug/ml	73
18) 3-Methylphenol	3.999	107	187550	22.78	ug/ml#	48
19) 4-Methylphenol	3.999	107	187550	22.78	ug/ml#	48
20) 3&4-Methylphenol	3.999	107	187550	22.78	ug/ml#	48
21) Acetophenone	4.005	105	257575	21.37	ug/ml#	78
22) N-Nitrosodi-n-propylamine	3.993	70	130565	21.90	ug/ml	97
23) Hexachloroethane	4.081	117	82963	21.05	ug/ml	98
26) Nitrobenzene	4.111	77	198777	19.98	ug/ml	95
27) Isophorone	4.246	82	345066	19.77	ug/ml	99
28) 2-Nitrophenol	4.299	139	96948	20.44	ug/ml	96
29) 2,4-Dimethylphenol	4.305	107	176203	20.44	ug/ml	93
30) Bis(2-chloroethoxy)met	4.358	93	226437	20.09	ug/ml	98
31) Benzoic acid	4.352	122	75334	21.07	ug/ml	91
32) 2,4-Dichlorophenol	4.446	162	141751	19.66	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.493	180	162980	19.85 ug/ml	99
34) 4-Chlorophenol	4.505	128	176166	18.88 ug/ml	95
35) Naphthalene	4.546	128	573850	19.50 ug/ml#	52
36) 4-Chloroaniline	4.569	127	207221	19.46 ug/ml	98
37) 2,6-Dichlorophenol	4.575	162	147249	19.50 ug/ml	99
38) Hexachlorobutadiene	4.611	225	87210	20.02 ug/ml	98
39) Caprolactam	4.775	55	67958	18.88 ug/ml	94
40) 4-Chloro-3-methylphenol	4.858	107	152925	19.78 ug/ml	99
41) 2-Methylnaphthalene	4.969	142	352119	19.73 ug/ml	99
42) 1-Methylnaphthalene	5.034	142	346262	20.14 ug/ml	98
43) 1,2,4,5-Tetrachloroben...	5.069	216	160075	20.04 ug/ml	99
44) 1,1-Biphenyl	5.258	154	427003	19.71 ug/ml	100
45) 2,3,5,6-Tetrachlorophenol	5.822	232	76206	21.05 ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.852	232	81824	20.81 ug/ml	99
47) 1,4-Dinitrobenzene	5.469	168	58540	22.75 ug/ml	87
48) 1,3-Dinitrobenzene	5.469	168	59546	19.99 ug/ml	83
49) 1,2-Dinitrobenzene	5.522	168	40996	19.49 ug/ml	91
51) Hexachlorocyclopentadiene	5.058	237	76592	17.72 ug/ml	100
52) 2,4,6-Trichlorophenol	5.140	196	93822	19.67 ug/ml	99
53) 2,4,5-Trichlorophenol	5.175	196	101626	20.18 ug/ml	99
55) 2-Chloronaphthalene	5.281	162	323917	19.49 ug/ml	100
56) 2-Nitroaniline	5.334	65	95159	19.45 ug/ml	95
57) Dimethylphthalate	5.434	163	352674	19.19 ug/ml	100
58) Acenaphthylene	5.552	152	489737	20.12 ug/ml	100
59) 2,6-Dinitrotoluene	5.481	165	84207	19.50 ug/ml	98
60) 3-Nitroaniline	5.605	138	83176	18.33 ug/ml	99
61) Acenaphthene	5.664	154	326050	19.54 ug/ml	100
62) 2,4-Dinitrophenol	5.669	184	32994	19.76 ug/ml	82
63) Dibenzofuran	5.775	168	454366	19.20 ug/ml	97
64) 4-Nitrophenol	5.734	65	57007	20.70 ug/ml#	69
65) 2,4-Dinitrotoluene	5.746	165	106687	19.32 ug/ml	92
66) Diethylphthalate	5.893	149	348443	17.35 ug/ml	100
67) Fluorene	6.005	166	363465	19.59 ug/ml	99
68) 4-Chlorophenyl phenyl	5.987	204	169928	19.71 ug/ml	99
69) 4-Nitroaniline	6.011	138	85941	18.38 ug/ml	97
70) Atrazine	6.422	200	85842	18.44 ug/ml	99
72) 4,6-Dinitro-2-methylph	6.022	198	51900	22.45 ug/ml	94
73) N-Nitrosodiphenylamine	6.069	169	305556	20.02 ug/ml	99
74) 1,2-Diphenylhydrazine	6.099	77	397804	19.38 ug/ml	99
76) 4-Bromophenyl phenyl e	6.328	248	91600	20.00 ug/ml	99
77) Hexachlorobenzene	6.387	284	97705	20.10 ug/ml	98
78) Pentachlorophenol	6.528	266	43662	20.69 ug/ml	98
79) Phenanthrene	6.687	178	501880	19.48 ug/ml	100
80) Anthracene	6.722	178	501860	19.73 ug/ml	100
81) Carbazole	6.834	167	438286	19.10 ug/ml	99
82) Di-n-butylphthalate	7.063	149	531878	19.22 ug/ml	100
83) Fluoranthene	7.675	202	476916	19.62 ug/ml	99
85) 3,3-Dimethylbenzidine	8.622	212	213465	21.19 ug/ml	95
86) Benzidine	7.793	184	197469	20.67 ug/ml	95
87) Pyrene	7.910	202	498267	18.79 ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

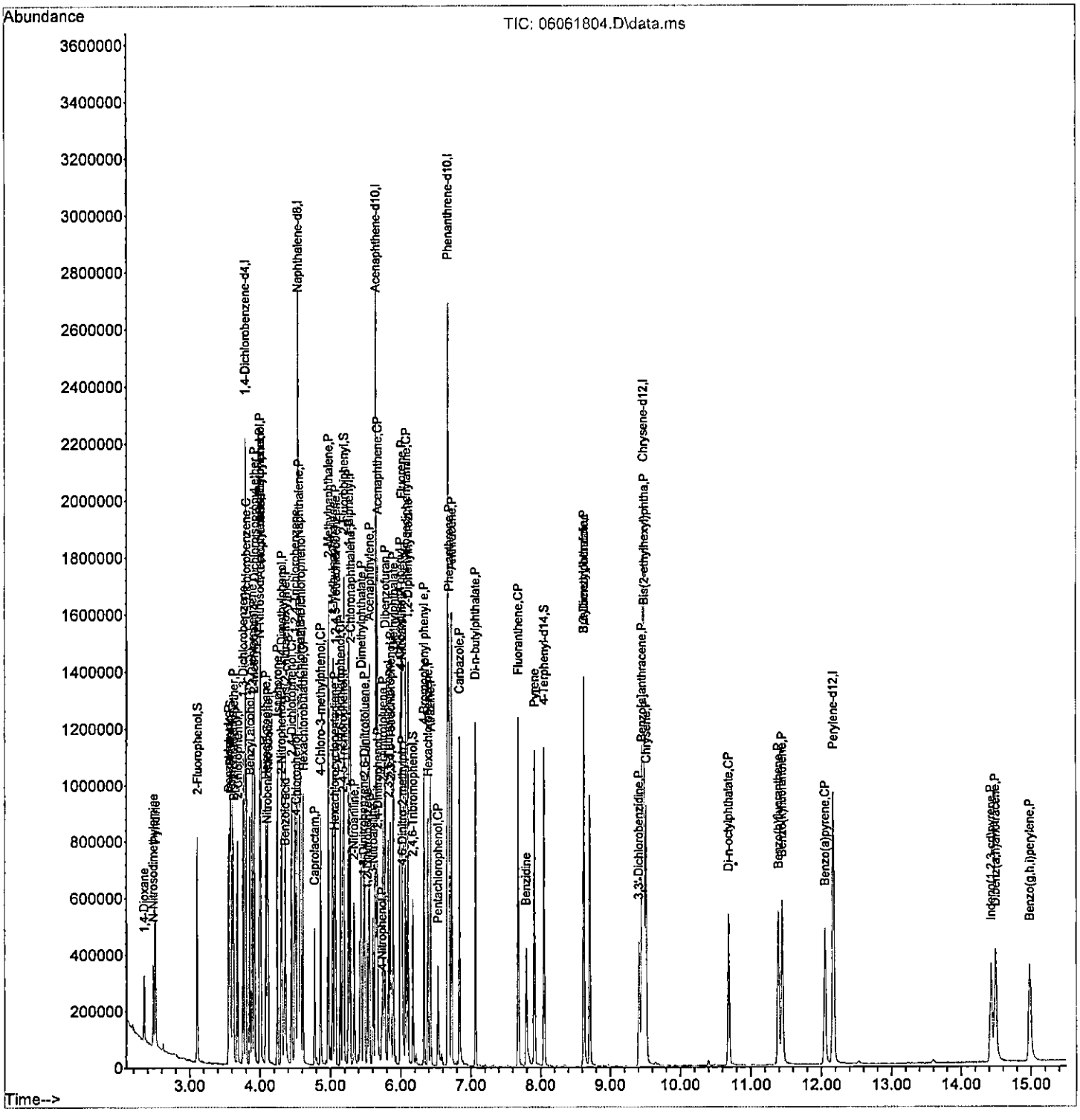
Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89) Butylbenzylphthalate	8.622	149	213804	19.45	ug/ml	100
90) Benzo[a]anthracene	9.452	228	417490	19.54	ug/ml	99
91) 3,3'-Dichlorobenzidine	9.410	252	129714	20.04	ug/ml	98
92) Chrysene	9.510	228	425249	19.39	ug/ml	100
93) Bis(2-ethylhexyl)phtha	9.481	149	292210	20.61	ug/ml	100
95) Di-n-octylphthalate	10.687	149	386698	20.96	ug/ml	98
96) Benzo(b)fluoranthene	11.393	252	348828	20.19	ug/ml	100
97) Benzo(k)fluoranthene	11.446	252	368739	18.89	ug/ml	100
98) Benzo(a)pyrene	12.051	252	320526	19.76	ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.428	276	279980	20.57	ug/ml	97
100) Dibenz(a,h)anthracene	14.492	278	299456	20.66	ug/ml	96
101) Benzo(g,h,i)perylene	14.981	276	313970	19.42	ug/ml	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061804.D
Acq On : 06 Jun 2018 04:41 pm
Operator : EB
Sample : 20.0 ug/ml BNA
Misc : 300-0307F
ALS Vial : 4 Sample Multiplier: 1

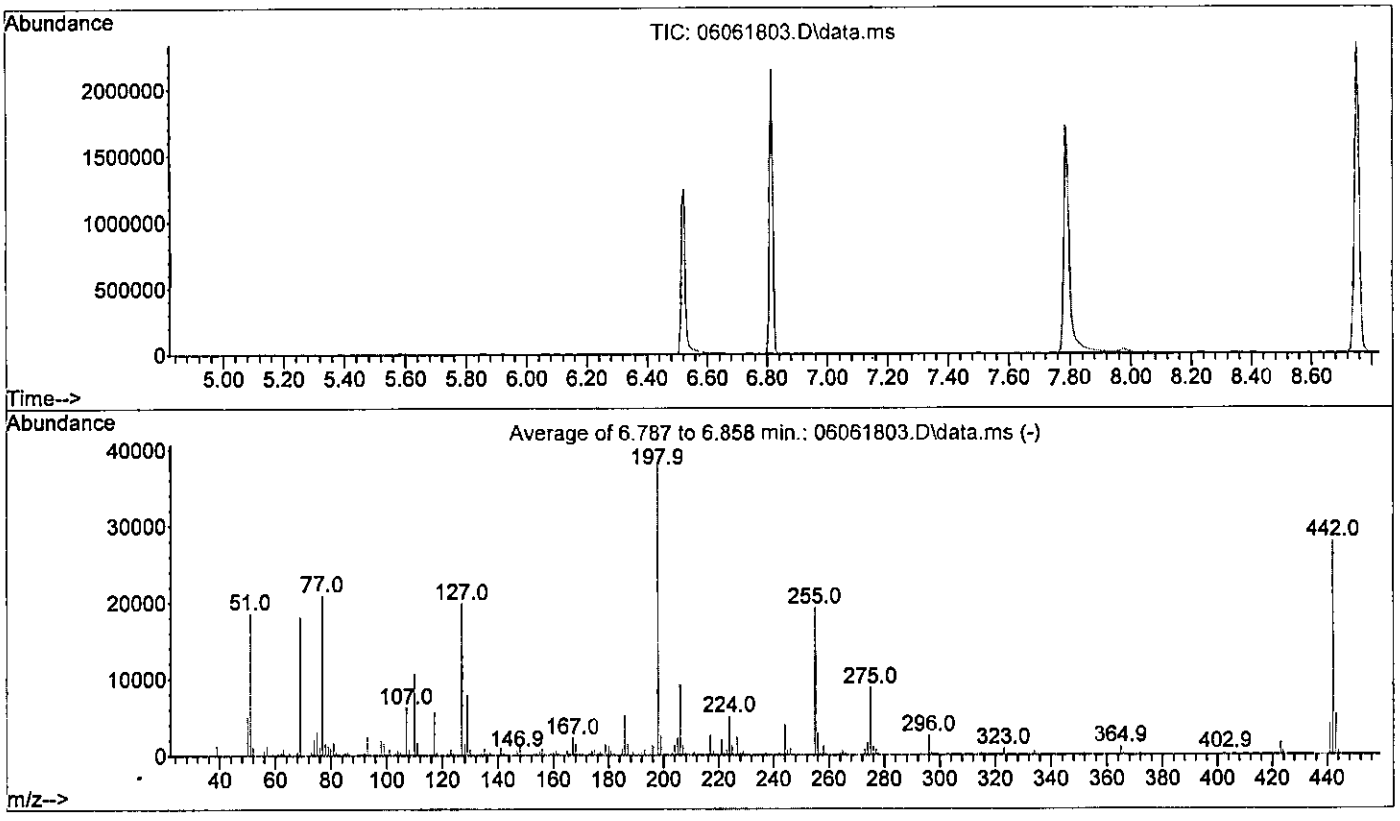
Quant Time: Jun 07 08:24:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061803.D
Acq On : 06 Jun 2018 04:18 pm
Operator : EB
Sample : 50 ug/ml DFTPP
Misc : DFTPP
ALS Vial : 3 Sample Multiplier: 1

Integration File: rteint.p

Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Title : 8270/625/1311 Calibration
Last Update : Wed Jun 06 09:09:58 2018



Spectrum Information: Average of 6.787 to 6.858 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	48.0	18523	PASS
68	69	0.00	2	1.9	341	PASS
69	198	0.00	100	46.8	18067	PASS
70	69	0.00	2	0.6	109	PASS
127	198	30	60	51.3	19815	PASS
197	198	0.00	1	0.2	62	PASS
198	198	100	100	100.0	38611	PASS
199	198	5	9	6.6	2532	PASS
275	198	10	30	22.5	8702	PASS
365	198	1	100	2.7	1035	PASS
441	443	0.01	100	77.9	4076	PASS
442	198	39	100	72.1	27821	PASS
443	442	17	23	18.8	5229	PASS

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061805.D
Acq On : 06 Jun 2018 05:05 pm
Operator : EB
Sample : SBLKW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 07 08:26:45 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	198469	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	528871	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.646	164	293322	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.675	188	611112	40.00	ug/ml	0.01
84) Chrysene-d12	9.481	240	620745	40.00	ug/ml	0.02
94) Perylene-d12	12.175	264	596732	40.00	ug/ml	0.01
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	73650	18.39	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 36.78%			
7) Phenol-d6	3.575	99	46683	8.92	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 17.84%			
25) Nitrobenzene-d5	4.099	82	155939	26.35	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 52.70%			
54) 2-Fluorobiphenyl	5.193	172	319350	27.68	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 55.36%			
75) 2,4,6-Tribromophenol	6.181	330	44898	28.92	ug/ml	0.01
Spiked Amount 50.000	Range 32 - 115		Recovery = 57.84%			
88) 4-Terphenyl-d14	8.057	244	657514	40.64	ug/ml	0.02
Spiked Amount 50.000	Range 23 - 112		Recovery = 81.28%			

Target Compounds			Qvalue
2) 1,4-Dioxane	0.000	0	N.D. d
3) Pyridine	0.000	0	N.D. d
4) N-Nitrosodimethylamine	0.000	0	N.D. d
6) Benzaldehyde	0.000	0	N.D. d
8) Phenol	0.000	0	N.D.
9) Aniline	0.000	0	N.D.
10) Bis(2-chloroethyl)ether	0.000	0	N.D.
11) 2-Chlorophenol	0.000	0	N.D.
12) 1,3-Dichlorobenzene	0.000	0	N.D.
13) 1,4-Dichlorobenzene	0.000	0	N.D.
14) Benzyl alcohol	0.000	0	N.D. d
15) 1,2-Dichlorobenzene	0.000	0	N.D.
16) 2-Methylphenol	0.000	0	N.D.
17) Dichloroisopropyl ether	0.000	0	N.D. d
18) 3-Methylphenol	0.000	0	N.D.
19) 4-Methylphenol	0.000	0	N.D.
20) 3&4-Methylphenol	0.000	0	N.D.
21) Acetophenone	0.000	0	N.D. d
22) N-Nitrosodi-n-propylamine	0.000	0	N.D. d
23) Hexachloroethane	0.000	0	N.D.
26) Nitrobenzene	0.000	0	N.D. d
27) Isophorone	0.000	0	N.D. d
28) 2-Nitrophenol	0.000	0	N.D.
29) 2,4-Dimethylphenol	0.000	0	N.D.
30) Bis(2-chloroethoxy)met	0.000	0	N.D.
31) Benzoic acid	0.000	0	N.D.
32) 2,4-Dichlorophenol	0.000	0	N.D.

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061805.D
Acq On : 06 Jun 2018 05:05 pm
Operator : EB
Sample : SBLKW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 07 08:26:45 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
34) 4-Chlorophenol	0.000		0	N.D.	d
35) Naphthalene	0.000		0	N.D.	d
36) 4-Chloroaniline	0.000		0	N.D.	
37) 2,6-Dichlorophenol	0.000		0	N.D.	
38) Hexachlorobutadiene	0.000		0	N.D.	
39) Caprolactam	0.000		0	N.D.	d
40) 4-Chloro-3-methylphenol	0.000		0	N.D.	
41) 2-Methylnaphthalene	0.000		0	N.D.	
42) 1-Methylnaphthalene	0.000		0	N.D.	
43) 1,2,4,5-Tetrachloroben...	0.000		0	N.D.	
44) 1,1-Biphenyl	0.000		0	N.D.	d
45) 2,3,5,6-Tetrachlorophenol	0.000		0	N.D.	
46) 2,3,4,6-Tetrachlorophenol	0.000		0	N.D.	
47) 1,4-Dinitrobenzene	0.000		0	N.D.	
48) 1,3-Dinitrobenzene	0.000		0	N.D.	
49) 1,2-Dinitrobenzene	0.000		0	N.D.	
51) Hexachlorocyclopentadiene	0.000		0	N.D.	
52) 2,4,6-Trichlorophenol	0.000		0	N.D.	
53) 2,4,5-Trichlorophenol	0.000		0	N.D.	
55) 2-Chloronaphthalene	0.000		0	N.D.	
56) 2-Nitroaniline	0.000		0	N.D.	
57) Dimethylphthalate	0.000		0	N.D.	
58) Acenaphthylene	0.000		0	N.D.	d
59) 2,6-Dinitrotoluene	0.000		0	N.D.	
60) 3-Nitroaniline	0.000		0	N.D.	
61) Acenaphthene	0.000		0	N.D.	d
62) 2,4-Dinitrophenol	0.000		0	N.D.	
63) Dibenzofuran	0.000		0	N.D.	
64) 4-Nitrophenol	0.000		0	N.D.	d
65) 2,4-Dinitrotoluene	0.000		0	N.D.	
66) Diethylphthalate	0.000		0	N.D.	d
67) Fluorene	0.000		0	N.D.	
68) 4-Chlorophenyl phenyl	0.000		0	N.D.	
69) 4-Nitroaniline	0.000		0	N.D.	
70) Atrazine	0.000		0	N.D.	
72) 4,6-Dinitro-2-methylph	0.000		0	N.D.	
73) N-Nitrosodiphenylamine	0.000		0	N.D.	
74) 1,2-Diphenylhydrazine	0.000		0	N.D.	d
76) 4-Bromophenyl phenyl e	0.000		0	N.D.	
77) Hexachlorobenzene	0.000		0	N.D.	
78) Pentachlorophenol	0.000		0	N.D.	
79) Phenanthrene	0.000		0	N.D.	d
80) Anthracene	0.000		0	N.D.	d
81) Carbazole	0.000		0	N.D.	
82) Di-n-butylphthalate	0.000		0	N.D.	d
83) Fluoranthene	0.000		0	N.D.	
85) 3,3-Dimethylbenzidine	0.000		0	N.D.	d
86) Benzidine	0.000		0	N.D.	d
87) Pyrene	0.000		0	N.D.	d

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061805.D
Acq On : 06 Jun 2018 05:05 pm
Operator : EB
Sample : SBLKW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 5 Sample Multiplier: 1

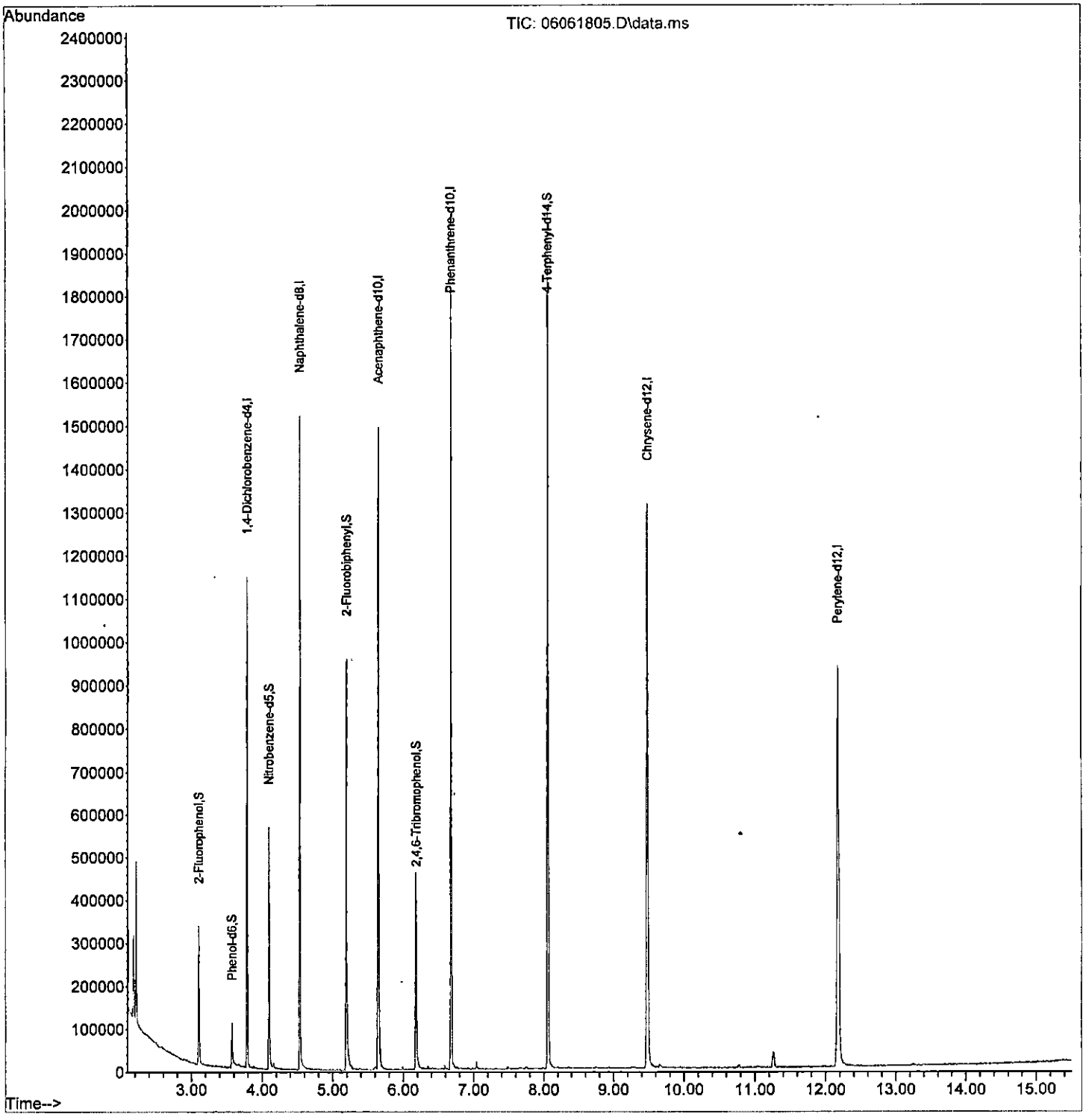
Quant Time: Jun 07 08:26:45 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89) Butylbenzylphthalate	0.000		0	N.D.	d	
90) Benzo[a]anthracene	0.000		0	N.D.	d	
91) 3,3'-Dichlorobenzidine	0.000		0	N.D.		
92) Chrysene	0.000		0	N.D.	d	
93) Bis(2-ethylhexyl)phtha	0.000		0	N.D.	d	
95) Di-n-octylphthalate	0.000		0	N.D.	d	
96) Benzo(b)fluoranthene	0.000		0	N.D.	d	
97) Benzo(k)fluoranthene	0.000		0	N.D.	d	
98) Benzo(a)pyrene	0.000		0	N.D.		
99) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.		
100) Dibenz(a,h)anthracene	0.000		0	N.D.		
101) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061805.D
Acq On : 06 Jun 2018 05:05 pm
Operator : EB
Sample : SBLKW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 07 08:26:45 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061806.D
Acq On : 06 Jun 2018 05:28 pm
Operator : EB
Sample : 5LC5W1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 07 08:26:48 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	259473	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	700504	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.640	164	378811	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.669	188	736183	40.00	ug/ml	0.00
84) Chrysene-d12	9.469	240	649932	40.00	ug/ml	0.00
94) Perylene-d12	12.169	264	538120	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	99424	18.99	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 37.98%			
7) Phenol-d6	3.570	99	82979	12.17	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 24.34%			
25) Nitrobenzene-d5	4.099	82	212874	27.16	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 54.32%			
54) 2-Fluorobiphenyl	5.187	172	429971	28.85	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 57.70%			
75) 2,4,6-Tribromophenol	6.169	330	67831	35.79	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 71.58%			
88) 4-Terphenyl-d14	8.046	244	654565	38.64	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 77.28%			
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) Pyridine	2.505	79	40514m	6.72	ug/ml	
4) N-Nitrosodimethylamine	2.476	42	19667	7.58	ug/ml	94
6) Benzaldehyde	3.552	77	56676	13.80	ug/ml	97
8) Phenol	3.581	94	46728m	6.39	ug/ml	
9) Aniline	3.605	93	119398m	12.54	ug/ml	
10) Bis(2-chloroethyl)ether	3.623	93	58788m	10.22	ug/ml	
11) 2-Chlorophenol	3.681	128	68661m	11.53	ug/ml	
12) 1,3-Dichlorobenzene	3.758	146	66925	10.12	ug/ml	99
13) 1,4-Dichlorobenzene	3.799	146	68989	10.07	ug/ml	98
14) Benzyl alcohol	3.852	108	39589	11.05	ug/ml	97
15) 1,2-Dichlorobenzene	3.887	146	68438	10.52	ug/ml	99
16) 2-Methylphenol	3.911	107	49932	11.14	ug/ml	87
17) Dichloroisopropyl ether	3.917	45	90948	12.58	ug/ml	77
18) 3-Methylphenol	3.999	107	60710	10.50	ug/ml#	33
19) 4-Methylphenol	3.999	107	60710	10.50	ug/ml#	33
20) 3&4-Methylphenol	3.999	107	60710	10.50	ug/ml#	33
21) Acetophenone	4.005	105	107369	12.69	ug/ml#	82
22) N-Nitrosodi-n-propylamine	3.993	70	55735	13.31	ug/ml	97
23) Hexachloroethane	4.081	117	27094	9.50	ug/ml	99
26) Nitrobenzene	4.111	77	82627	11.66	ug/ml	95
27) Isophorone	4.240	82	158799	12.76	ug/ml	99
28) 2-Nitrophenol	4.299	139	38564	11.60	ug/ml	99
29) 2,4-Dimethylphenol	4.305	107	72085	12.06	ug/ml	93
30) Bis(2-chloroethoxy)met	4.358	93	98827	12.30	ug/ml	99
31) Benzoic acid	0.000		0	N.D.	d	
32) 2,4-Dichlorophenol	4.446	162	57192	11.23	ug/ml	97

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061806.D
Acq On : 06 Jun 2018 05:28 pm
Operator : EB
Sample : SLCSW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 07 08:26:48 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.493	180	61678	10.54 ug/ml	99
34) 4-Chlorophenol	0.000		0	N.D. d	
35) Naphthalene	4.546	128	232197	10.99 ug/ml#	53
36) 4-Chloroaniline	4.570	127	93301	12.36 ug/ml	99
37) 2,6-Dichlorophenol	4.575	162	59255	10.99 ug/ml	99
38) Hexachlorobutadiene	4.611	225	31278	10.08 ug/ml	98
39) Caprolactam	4.764	55	9135	3.79 ug/ml	89
40) 4-Chloro-3-methylphenol	4.858	107	72498	13.26 ug/ml	99
41) 2-Methylnaphthalene	4.970	142	156443	12.30 ug/ml	99
42) 1-Methylnaphthalene	5.034	142	154575	12.61 ug/ml	97
43) 1,2,4,5-Tetrachloroben...	5.070	216	66493	11.68 ug/ml	99
44) 1,1-Biphenyl	5.258	154	201715	13.07 ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.822	232	41387	16.12 ug/ml	98
46) 2,3,4,6-Tetrachlorophenol	5.852	232	46854	16.62 ug/ml	97
47) 1,4-Dinitrobenzene	5.417	168	26850m	15.09 ug/ml	
48) 1,3-Dinitrobenzene	5.464	168	32788	15.62 ug/ml#	82
49) 1,2-Dinitrobenzene	5.522	168	23279	15.61 ug/ml	90
51) Hexachlorocyclopentadiene	5.058	237	23644	7.36 ug/ml	98
52) 2,4,6-Trichlorophenol	5.140	196	42503	11.53 ug/ml	99
53) 2,4,5-Trichlorophenol	5.175	196	51088	13.14 ug/ml	97
55) 2-Chloronaphthalene	5.275	162	151253m	11.75 ug/ml	
56) 2-Nitroaniline	5.334	65	49354	13.22 ug/ml	94
57) Dimethylphthalate	5.434	163	201735	14.17 ug/ml	99
58) Acenaphthylene	5.552	152	241892	12.82 ug/ml	99
59) 2,6-Dinitrotoluene	5.481	165	46191	13.91 ug/ml	97
60) 3-Nitroaniline	5.599	138	47372	13.62 ug/ml	96
61) Acenaphthene	5.664	154	165775	12.83 ug/ml	99
62) 2,4-Dinitrophenol	5.670	184	16130	13.57 ug/ml	84
63) Dibenzofuran	5.775	168	236757	12.91 ug/ml	98
64) 4-Nitrophenol	5.746	65	13266m	7.19 ug/ml	
65) 2,4-Dinitrotoluene	5.746	165	64616	15.27 ug/ml	98
66) Diethylphthalate	5.893	149	217311	13.95 ug/ml	99
67) Fluorene	6.005	166	197986	13.77 ug/ml	100
68) 4-Chlorophenyl phenyl	5.987	204	91193	13.65 ug/ml	99
69) 4-Nitroaniline	6.011	138	53083	14.83 ug/ml	98
70) Atrazine	6.422	200	60953	17.00 ug/ml	99
72) 4,6-Dinitro-2-methylph	6.022	198	31687	16.05 ug/ml	94
73) N-Nitrosodiphenylamine	6.069	169	179799	13.31 ug/ml	100
74) 1,2-Diphenylhydrazine	6.099	77	222682	12.20 ug/ml	99
76) 4-Bromophenyl phenyl e	6.328	248	52452	12.96 ug/ml	99
77) Hexachlorobenzene	6.381	284	59039	13.64 ug/ml	98
78) Pentachlorophenol	6.528	266	26132	14.23 ug/ml	99
79) Phenanthrene	6.687	178	322212	14.01 ug/ml	99
80) Anthracene	6.722	178	322033	14.28 ug/ml	100
81) Carbazole	6.834	167	301831	14.84 ug/ml	100
82) Di-n-butylphthalate	7.064	149	381881	15.63 ug/ml	100
83) Fluoranthene	7.675	202	341628	15.88 ug/ml	99
85) 3,3-Dimethylbenzidine	0.000		0	N.D. d	
86) Benzidine	0.000		0	N.D. d	
87) Pyrene	7.905	202	348471	13.80 ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061806.D
Acq On : 06 Jun 2018 05:28 pm
Operator : EB
Sample : SLCSW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 6 Sample Multiplier: 1

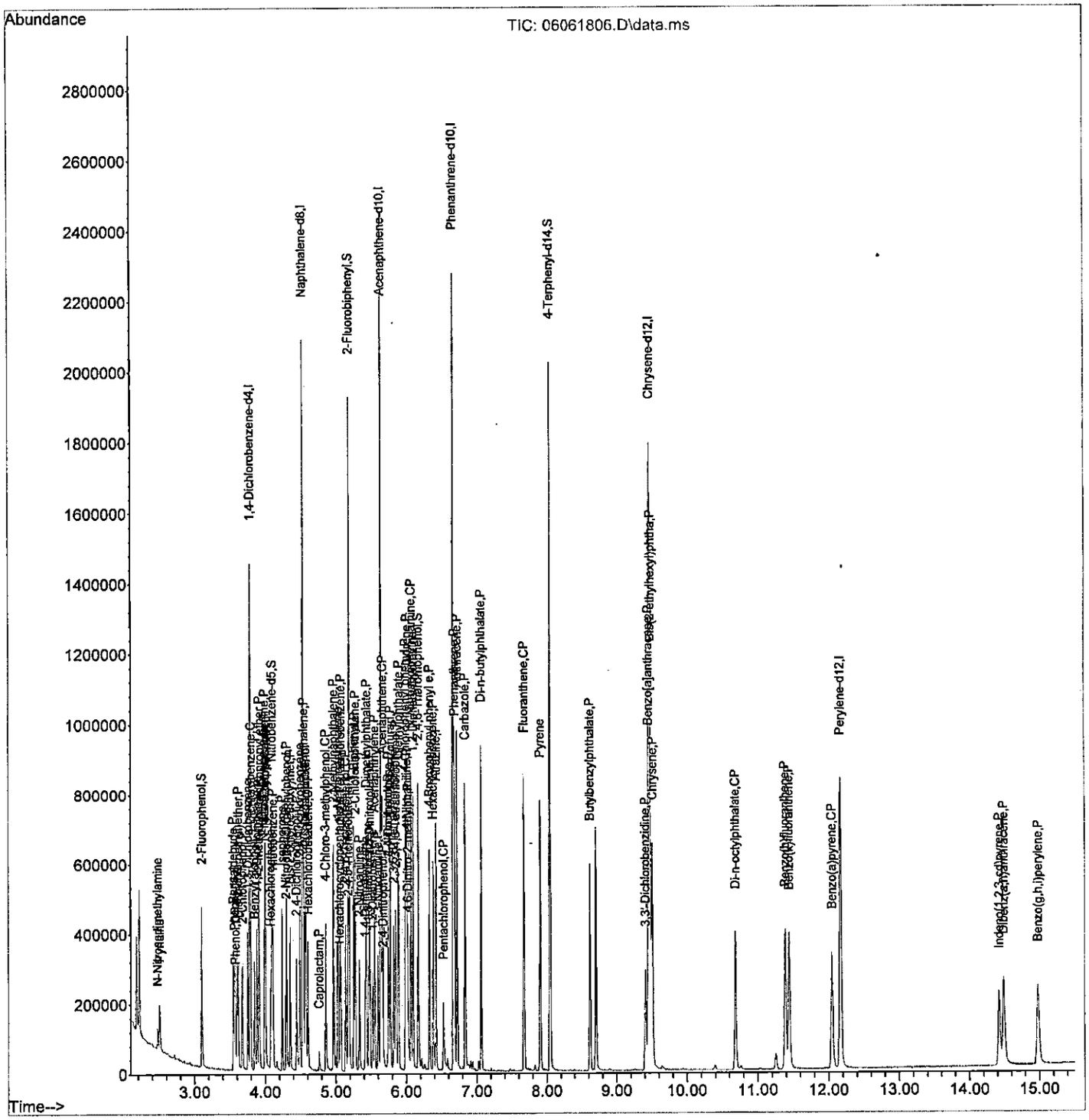
Quant Time: Jun 07 08:26:48 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.622	149	150224	14.70 ug/ml	99
90) Benzo[a]anthracene	9.452	228	301349	14.98 ug/ml	98
91) 3,3'-Dichlorobenzidine	9.410	252	81033	13.78 ug/ml	98
92) Chrysene	9.510	228	309007	14.85 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.481	149	221245	16.85 ug/ml	100
95) Di-n-octylphthalate	10.687	149	281836	17.69 ug/ml	98
96) Benzo(b)fluoranthene	11.387	252	256055	16.73 ug/ml	99
97) Benzo(k)fluoranthene	11.440	252	254268	14.57 ug/ml	99
98) Benzo(a)pyrene	12.046	252	218456	15.34 ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.428	276	168130	14.28 ug/ml	99
100) Dibenz(a,h)anthracene	14.493	278	183441	14.47 ug/ml	95
101) Benzo(g,h,i)perylene	14.981	276	197476	13.86 ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061806.D
Acq On : 06 Jun 2018 05:28 pm
Operator : EB
Sample : SLCSW1-119328
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 07 08:26:48 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061809.D
Acq On : 06 Jun 2018 06:37 pm
Operator : EB
Sample : 1806126-03A MS
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 07 08:26:54 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	277918	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	733623	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.640	164	382117	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.658	188	702472	40.00	ug/ml	0.00
84) Chrysene-d12	9.457	240	548401	40.00	ug/ml	0.00
94) Perylene-d12	12.157	264	444346	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	105384	18.80	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 37.60%			
7) Phenol-d6	3.570	99	84461	11.56	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 23.12%			
25) Nitrobenzene-d5	4.099	82	225059	27.41	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 54.82%			
54) 2-Fluorobiphenyl	5.187	172	434891	28.93	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 57.86%			
75) 2,4,6-Tribromophenol	6.169	330	64397	35.62	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 71.24%			
88) 4-Terphenyl-d14	8.034	244	569171	39.82	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 79.64%			
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) Pyridine	2.505	79	50956	7.89	ug/ml	96
4) N-Nitrosodimethylamine	2.475	42	24463	8.82	ug/ml	94
6) Benzaldehyde	3.552	77	59790	13.58	ug/ml	97
8) Phenol	3.581	94	51367m	6.56	ug/ml	
9) Aniline	3.605	93	111412m	10.86	ug/ml	
10) Bis(2-chloroethyl)ether	3.622	93	90365m	14.81	ug/ml	
11) 2-Chlorophenol	3.681	128	74902	11.75	ug/ml	96
12) 1,3-Dichlorobenzene	3.758	146	84997	12.00	ug/ml	99
13) 1,4-Dichlorobenzene	3.799	146	87294	11.96	ug/ml	99
14) Benzyl alcohol	3.852	108	43334	11.29	ug/ml	99
15) 1,2-Dichlorobenzene	3.887	146	84930	12.25	ug/ml	99
16) 2-Methylphenol	3.911	107	54788	11.41	ug/ml	86
17) Dichloroisopropyl ether	3.917	45	98819	12.77	ug/ml	77
18) 3-Methylphenol	3.999	107	63830	10.31	ug/ml#	30
19) 4-Methylphenol	3.999	107	63830	10.31	ug/ml#	30
20) 3&4-Methylphenol	3.999	107	63830	10.31	ug/ml#	30
21) Acetophenone	4.005	105	118112	13.03	ug/ml#	84
22) N-Nitrosodi-n-propylamine	3.993	70	60662	13.53	ug/ml	97
23) Hexachloroethane	4.081	117	34304	11.29	ug/ml	97
26) Nitrobenzene	4.111	77	91127	12.27	ug/ml	97
27) Isophorone	4.240	82	166595	12.79	ug/ml	99
28) 2-Nitrophenol	4.299	139	44364	12.71	ug/ml	95
29) 2,4-Dimethylphenol	4.305	107	72878	11.66	ug/ml	95
30) Bis(2-chloroethoxy)met	4.358	93	104108	12.38	ug/ml	99
31) Benzoic acid	0.000		0	N.D.	d	
32) 2,4-Dichlorophenol	4.446	162	63136	11.83	ug/ml	98

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061809.D
Acq On : 06 Jun 2018 06:37 pm
Operator : EB
Sample : 1806126-03A MS
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 07 08:26:54 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.493	180	72474	11.82 ug/ml	97
34) 4-Chlorophenol	0.000		0	N.D. d	
35) Naphthalene	4.546	128	263146	11.90 ug/ml#	38
36) 4-Chloroaniline	4.569	127	104119m	13.16 ug/ml	
37) 2,6-Dichlorophenol	4.575	162	64359	11.39 ug/ml	97
38) Hexachlorobutadiene	4.605	225	37624	11.57 ug/ml	98
39) Caprolactam	4.764	55	10157	4.01 ug/ml	96
40) 4-Chloro-3-methylphenol	4.858	107	74648	13.04 ug/ml	98
41) 2-Methylnaphthalene	4.969	142	167903	12.60 ug/ml	100
42) 1-Methylnaphthalene	5.028	142	166854	13.00 ug/ml	99
43) 1,2,4,5-Tetrachloroben...	5.069	216	73486	12.33 ug/ml	99
44) 1,1-Biphenyl	5.252	154	211897	13.11 ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.822	232	40549	15.09 ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.846	232	47956	16.24 ug/ml	99
47) 1,4-Dinitrobenzene	5.416	168	27570m	14.82 ug/ml	
48) 1,3-Dinitrobenzene	5.464	168	33940	15.44 ug/ml	85
49) 1,2-Dinitrobenzene	5.522	168	23808	15.25 ug/ml#	97
51) Hexachlorocyclopentadiene	5.058	237	27625	8.48 ug/ml	99
52) 2,4,6-Trichlorophenol	5.140	196	44946	12.08 ug/ml	100
53) 2,4,5-Trichlorophenol	5.169	196	51523	13.14 ug/ml	96
55) 2-Chloronaphthalene	5.275	162	160417	12.35 ug/ml	100
56) 2-Nitroaniline	5.334	65	50766	13.47 ug/ml	95
57) Dimethylphthalate	5.434	163	203789	14.19 ug/ml	100
58) Acenaphthylene	5.546	152	251312	13.21 ug/ml	100
59) 2,6-Dinitrotoluene	5.481	165	47156	14.07 ug/ml	96
60) 3-Nitroaniline	5.599	138	51379	14.61 ug/ml	96
61) Acenaphthene	5.658	154	168545	12.93 ug/ml	99
62) 2,4-Dinitrophenol	5.669	184	15524	13.06 ug/ml	81
63) Dibenzofuran	5.769	168	236894	12.81 ug/ml	91
64) 4-Nitrophenol	5.740	65	11615m	6.37 ug/ml	
65) 2,4-Dinitrotoluene	5.746	165	63316	14.86 ug/ml	96
66) Diethylphthalate	5.887	149	215235	13.70 ug/ml	99
67) Fluorene	5.999	166	199045	13.73 ug/ml	99
68) 4-Chlorophenyl phenyl	5.987	204	93744	13.91 ug/ml	100
69) 4-Nitroaniline	6.011	138	53465	14.81 ug/ml	98
70) Atrazine	6.416	200	57824	16.05 ug/ml	99
72) 4,6-Dinitro-2-methylph	6.016	198	28847	15.38 ug/ml	97
73) N-Nitrosodiphenylamine	6.064	169	179896	13.94 ug/ml	99
74) 1,2-Diphenylhydrazine	6.093	77	226352	12.99 ug/ml	99
76) 4-Bromophenyl phenyl e	6.322	248	53361	13.81 ug/ml	98
77) Hexachlorobenzene	6.381	284	56994	13.80 ug/ml	98
78) Pentachlorophenol	6.522	266	25711	14.64 ug/ml	99
79) Phenanthrene	6.675	178	311751	14.21 ug/ml	99
80) Anthracene	6.716	178	307647	14.30 ug/ml	100
81) Carbazole	6.828	167	285491	14.71 ug/ml	100
82) Di-n-butylphthalate	7.058	149	357286	15.34 ug/ml	100
83) Fluoranthene	7.663	202	311828	15.21 ug/ml	100
85) 3,3-Dimethylbenzidine	0.000		0	N.D. d	
86) Benzidine	0.000		0	N.D.	
87) Pyrene	7.899	202	313664	14.73 ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061809.D
Acq On : 06 Jun 2018 06:37 pm
Operator : EB
Sample : 1806126-03A MS
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 9 Sample Multiplier: 1

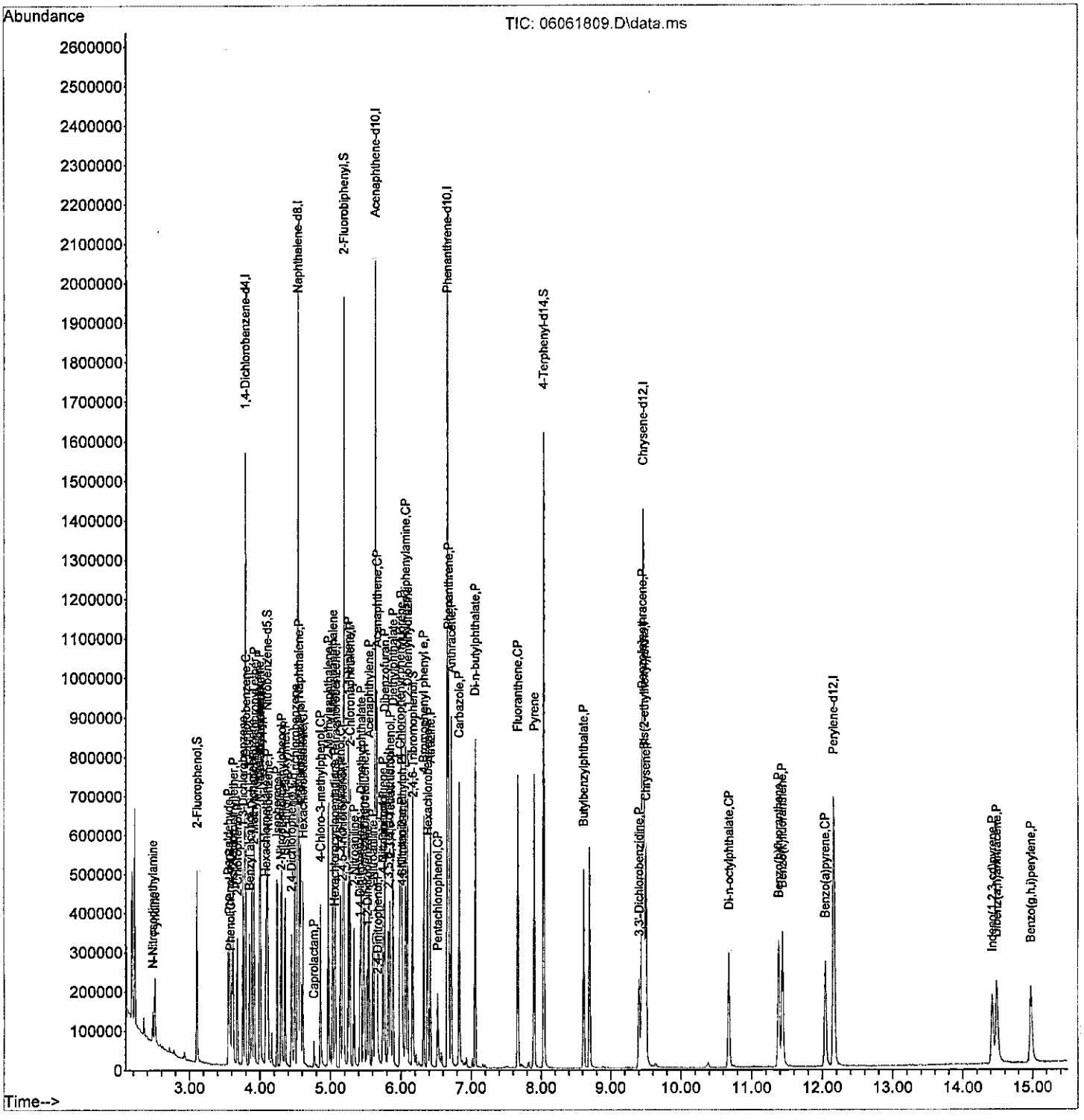
Quant Time: Jun 07 08:26:54 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
89) Butylbenzylphthalate	8.610	149	128299	14.87 ug/ml	99
90) Benzo[a]anthracene	9.446	228	261026	15.37 ug/ml	99
91) 3,3'-Dichlorobenzidine	9.405	252	70020	14.08 ug/ml	99
92) Chrysene	9.499	228	262272	14.93 ug/ml	99
93) Bis(2-ethylhexyl)phtha	9.475	149	182153	16.48 ug/ml	99
95) Di-n-octylphthalate	10.681	149	227617	17.36 ug/ml	98
96) Benzo(b)fluoranthene	11.381	252	209022	16.54 ug/ml	99
97) Benzo(k)fluoranthene	11.434	252	211554	14.68 ug/ml	100
98) Benzo(a)pyrene	12.040	252	182949	15.55 ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.422	276	145520	14.92 ug/ml	99
100) Dibenz(a,h)anthracene	14.487	278	158751	15.12 ug/ml	94
101) Benzo(g,h,i)perylene	14.975	276	170341	14.45 ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061809.D
Acq On : 06 Jun 2018 06:37 pm
Operator : EB
Sample : 1806126-03A MS
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 07 08:26:54 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061810.D
Acq On : 06 Jun 2018 07:00 pm
Operator : EB
Sample : 1806126-03A MSD
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 07 08:26:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.787	150	265750	40.00	ug/ml	0.00
24) Naphthalene-d8	4.534	136	699484	40.00	ug/ml	0.00
50) Acenaphthene-d10	5.640	164	366371	40.00	ug/ml	0.00
71) Phenanthrene-d10	6.663	188	669756	40.00	ug/ml	0.00
84) Chrysene-d12	9.463	240	545518	40.00	ug/ml	0.00
94) Perylene-d12	12.163	264	442681	40.00	ug/ml	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.105	112	126286	23.56	ug/ml	0.00
Spiked Amount 50.000	Range 22 - 59		Recovery = 47.12%			
7) Phenol-d6	3.569	99	101165	14.53	ug/ml	0.00
Spiked Amount 50.000	Range 13 - 36		Recovery = 29.06%			
25) Nitrobenzene-d5	4.099	82	273210	34.90	ug/ml	0.00
Spiked Amount 50.000	Range 31 - 93		Recovery = 69.80%			
54) 2-Fluorobiphenyl	5.187	172	518780	36.00	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 100		Recovery = 72.00%			
75) 2,4,6-Tribromophenol	6.169	330	72766	41.73	ug/ml	0.00
Spiked Amount 50.000	Range 32 - 115		Recovery = 83.46%			
88) 4-Terphenyl-d14	8.040	244	642758	45.21	ug/ml	0.00
Spiked Amount 50.000	Range 23 - 112		Recovery = 90.42%			
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) Pyridine	2.505	79	48201	7.80	ug/ml	96
4) N-Nitrosodimethylamine	2.475	42	25728	9.71	ug/ml	96
6) Benzaldehyde	3.552	77	81267	20.02	ug/ml	97
8) Phenol	3.581	94	60022m	8.03	ug/ml	
9) Aniline	3.605	93	121309m	12.44	ug/ml	
10) Bis(2-chloroethyl)ether	3.622	93	77705m	13.28	ug/ml	
11) 2-Chlorophenol	3.681	128	92291	15.25	ug/ml	99
12) 1,3-Dichlorobenzene	3.758	146	96678	14.28	ug/ml	99
13) 1,4-Dichlorobenzene	3.799	146	98496	14.19	ug/ml	99
14) Benzyl alcohol	3.852	108	51168	13.95	ug/ml	100
15) 1,2-Dichlorobenzene	3.887	146	97368	14.79	ug/ml	99
16) 2-Methylphenol	3.911	107	66641	14.51	ug/ml	88
17) Dichloroisopropyl ether	3.916	45	119650	16.34	ug/ml	76
18) 3-Methylphenol	3.999	107	78775	13.30	ug/ml#	32
19) 4-Methylphenol	3.999	107	78775	13.30	ug/ml#	32
20) 3&4-Methylphenol	3.999	107	78775	13.30	ug/ml#	32
21) Acetophenone	4.005	105	145177	16.75	ug/ml	85
22) N-Nitrosodi-n-propylamine	3.993	70	74121	17.28	ug/ml	99
23) Hexachloroethane	4.081	117	39307	13.61	ug/ml	98
26) Nitrobenzene	4.111	77	109338	15.45	ug/ml	96
27) Isophorone	4.246	82	205616	16.55	ug/ml	99
28) 2-Nitrophenol	4.299	139	53578	16.00	ug/ml	95
29) 2,4-Dimethylphenol	4.305	107	84897	14.13	ug/ml	96
30) Bis(2-chloroethoxy)met	4.358	93	128165	15.98	ug/ml	99
31) Benzoic acid	0.000		0	N.D.	d	
32) 2,4-Dichlorophenol	4.446	162	77239	15.12	ug/ml	99

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061810.D
Acq On : 06 Jun 2018 07:00 pm
Operator : EB
Sample : 1806126-03A MSD
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 07 08:26:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
33) 1,2,4-Trichlorobenzene	4.493	180	85028	14.55	ug/ml	98
34) 4-Chlorophenol	0.000		0	N.D.	d	
35) Naphthalene	4.546	128	314380	14.96	ug/ml#	37
36) 4-Chloroaniline	4.569	127	122329m	16.18	ug/ml	
37) 2,6-Dichlorophenol	4.575	162	78915	14.66	ug/ml	98
38) Hexachlorobutadiene	4.611	225	43558	14.05	ug/ml	98
39) Caprolactam	4.763	55	11346	4.66	ug/ml	93
40) 4-Chloro-3-methylphenol	4.858	107	89671	16.36	ug/ml	99
41) 2-Methylnaphthalene	4.969	142	203166	16.00	ug/ml	98
42) 1-Methylnaphthalene	5.028	142	202074	16.51	ug/ml	97
43) 1,2,4,5-Tetrachloroben...	5.069	216	88835	15.63	ug/ml	98
44) 1,1-Biphenyl	5.252	154	257527	16.71	ug/ml	99
45) 2,3,5,6-Tetrachlorophenol	5.822	232	46516	18.10	ug/ml	99
46) 2,3,4,6-Tetrachlorophenol	5.852	232	55028	19.63	ug/ml	98
47) 1,4-Dinitrobenzene	5.416	168	31333m	17.47	ug/ml	
48) 1,3-Dinitrobenzene	5.463	168	38483	18.23	ug/ml	82
49) 1,2-Dinitrobenzene	5.522	168	26928	18.02	ug/ml#	90
51) Hexachlorocyclopentadiene	5.058	237	35336	11.18	ug/ml	99
52) 2,4,6-Trichlorophenol	5.140	196	56425	15.80	ug/ml	98
53) 2,4,5-Trichlorophenol	5.175	196	62310	16.54	ug/ml	98
55) 2-Chloronaphthalene	5.275	162	190516	15.30	ug/ml	99
56) 2-Nitroaniline	5.334	65	60764	16.68	ug/ml	94
57) Dimethylphthalate	5.434	163	237169	17.22	ug/ml	99
58) Acenaphthylene	5.546	152	302527	16.58	ug/ml	100
59) 2,6-Dinitrotoluene	5.481	165	54857	17.01	ug/ml	96
60) 3-Nitroaniline	5.599	138	56371	16.64	ug/ml	98
61) Acenaphthene	5.658	154	201705	16.14	ug/ml	99
62) 2,4-Dinitrophenol	5.669	184	19213	16.10	ug/ml	80
63) Dibenzofuran	5.769	168	284319	16.03	ug/ml	97
64) 4-Nitrophenol	5.746	65	14137m	7.82	ug/ml	
65) 2,4-Dinitrotoluene	5.746	165	72525	17.61	ug/ml	98
66) Diethylphthalate	5.893	149	241999	16.07	ug/ml	100
67) Fluorene	6.005	166	232881	16.75	ug/ml	99
68) 4-Chlorophenyl phenyl	5.987	204	109894	17.01	ug/ml	100
69) 4-Nitroaniline	6.010	138	59362	17.02	ug/ml	98
70) Atrazine	6.416	200	65279	18.69	ug/ml	99
72) 4,6-Dinitro-2-methylph	6.022	198	32933	18.08	ug/ml	97
73) N-Nitrosodiphenylamine	6.063	169	203633	16.52	ug/ml	100
74) 1,2-Diphenylhydrazine	6.093	77	258522	15.55	ug/ml	100
76) 4-Bromophenyl phenyl e	6.328	248	59548	16.12	ug/ml	99
77) Hexachlorobenzene	6.381	284	65542	16.65	ug/ml	99
78) Pentachlorophenol	6.522	266	30200	17.83	ug/ml	99
79) Phenanthrene	6.681	178	344599	16.49	ug/ml	100
80) Anthracene	6.716	178	347529	16.90	ug/ml	100
81) Carbazole	6.834	167	319347	17.21	ug/ml	100
82) Di-n-butylphthalate	7.057	149	396418	17.75	ug/ml	100
83) Fluoranthene	7.669	202	349683	17.81	ug/ml	100
85) 3,3-Dimethylbenzidine	0.000		0	N.D.	d	
86) Benzidine	0.000		0	N.D.		
87) Pyrene	7.904	202	357141	16.91	ug/ml	100

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061810.D
Acq On : 06 Jun 2018 07:00 pm
Operator : EB
Sample : 1806126-03A MSD
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 10 Sample Multiplier: 1

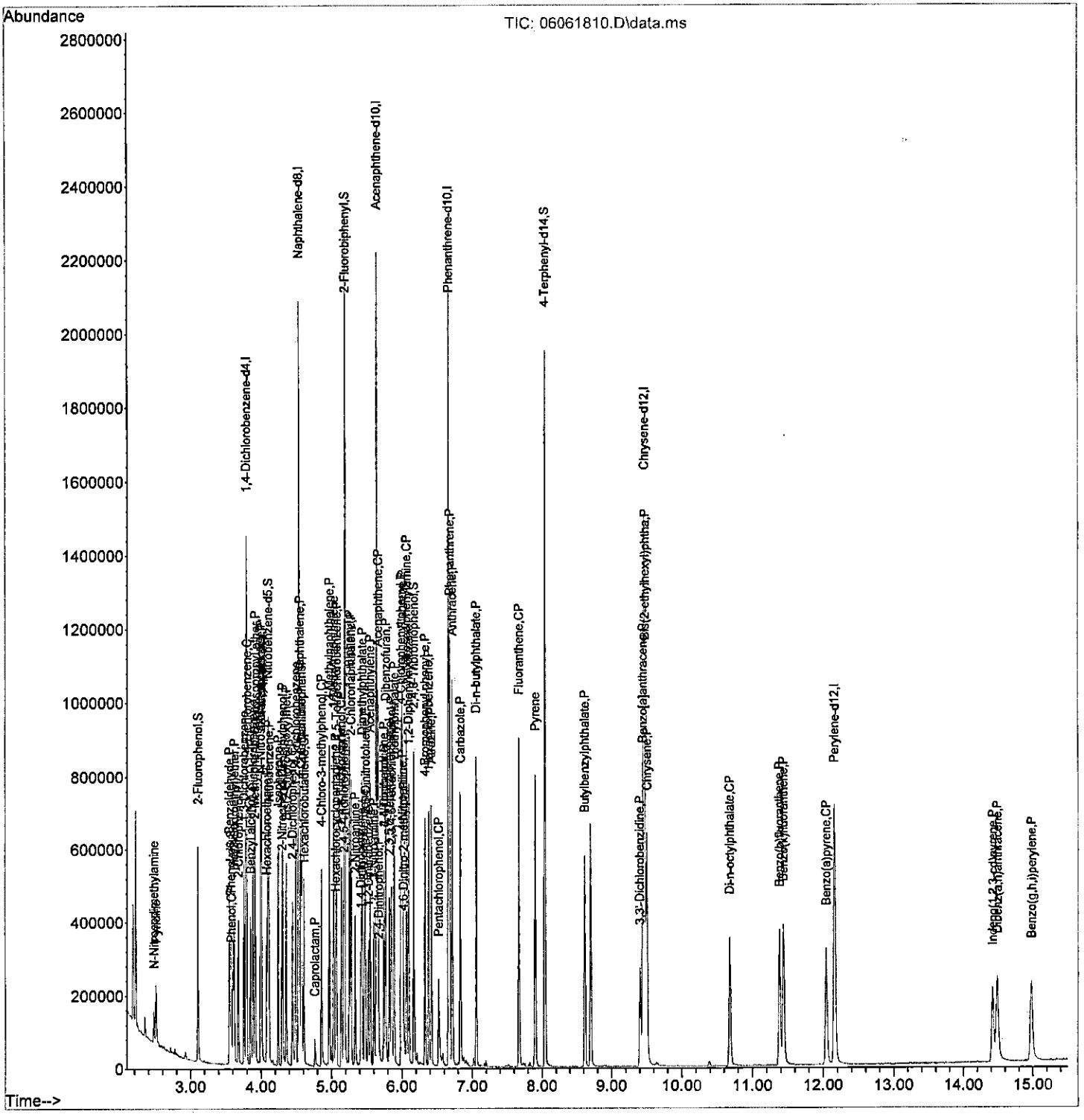
Quant Time: Jun 07 08:26:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
89) Butylbenzylphthalate	8.616	149	149751	17.29	ug/ml	98
90) Benzo[a]anthracene	9.446	228	297765	17.58	ug/ml	98
91) 3,3'-Dichlorobenzidine	9.404	252	81998	16.33	ug/ml	98
92) Chrysene	9.504	228	304060	17.43	ug/ml	100
93) Bis(2-ethylhexyl)phtha	9.475	149	215736	19.30	ug/ml	99
95) Di-n-octylphthalate	10.681	149	272332	20.19	ug/ml	98
96) Benzo(b)fluoranthene	11.387	252	237582	18.74	ug/ml	100
97) Benzo(k)fluoranthene	11.440	252	249231	17.33	ug/ml	99
98) Benzo(a)pyrene	12.045	252	212099	17.89	ug/ml	99
99) Indeno(1,2,3-cd)pyrene	14.428	276	166164	16.90	ug/ml	99
100) Dibenz(a,h)anthracene	14.492	278	180685	17.14	ug/ml	96
101) Benzo(g,h,i)perylene	14.981	276	192345	16.28	ug/ml	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\MassHunter\GCMS\1\data\9S060618\
Data File : 06061810.D
Acq On : 06 Jun 2018 07:00 pm
Operator : EB
Sample : 1806126-03A MSD
Misc : 1X 18BAW-119328/29/30/31
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 07 08:26:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\9S052218.M
Quant Title : 8270/625/1311 Calibration
QLast Update : Wed Jun 06 09:09:58 2018
Response via : Initial Calibration



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	RINSE	2	8270.M	06061802	Sample	RINSE
	50 ug/ml DFTPP	3	8270.M	06061803	Sample	DFTPP
	20.0 ug/ml BNA	4	8270.M	06061804	Sample	300-0307F
	SBLKW1-119328	5	8270.M	06061805	Sample	1X 18BAW-119328/29/30/31
	SLCSW1-119328	6	8270.M	06061806	Sample	1X 18BAW-119328/29/30/31
	SBLKO1-119356	7	8270.M	06061807	Sample	1X 18BAO-119356
	SLCSO1-119356	8	8270.M	06061808	Sample	1X 18BAO-119356
	1806126-03A MS	9	8270.M	06061809	Sample	1X 18BAW-119328/29/30/31
	1806126-03A MSD	10	8270.M	06061810	Sample	1X 18BAW-119328/29/30/31
	1806126-03A	11	8270.M	06061811	Sample	1X 18BAW-119328/29/30/31
	18051680-01B DF5	12	8270.M	06061812	Sample	5X 18BAW-119259
	1806011-01B	13	8270.M	06061813	Sample	1X 18BAW-119328
	1806155-14D	14	8270.M	06061814	Sample	1X 18BAW-119328
	1806155-15D	15	8270.M	06061815	Sample	1X 18BAW-119328
	1806183-02B	16	8270.M	06061816	Sample	1X 18BAW-119328
	1806110-01B	17	8270.M	06061817	Sample	1X 18BAW-119330
	1806166-02B	18	8270.M	06061818	Sample	1X 18BAW-119330
	18052051-01B	19	8270.M	06061819	Sample	1X 18BAW-119331
	1806174-02A	20	8270.M	06061820	Sample	1X 18BAW-119331
	1806174-03A	21	8270.M	06061821	Sample	1X 18BAW-119331
	1806174-19A	22	8270.M	06061822	Sample	1X 18BAW-119331
	1806174-21A	23	8270.M	06061823	Sample	1X 18BAW-119331
	1806249-21A	24	8270.M	06061824	Sample	1X 18BAW-119331
	1806108-01B DF5	25	8270.M	06061825	Sample	5X 18BAW-119328
	1806166-01B DF10	26	8270.M	06061826	Sample	5X 18BAW-119329
	1806174-01A DF5	27	8270.M	06061827	Sample	5X 18BAW-119331
	1806174-17A DF5	28	8270.M	06061828	Sample	5X 18BAW-119331
	1806174-18A DF5	29	8270.M	06061829	Sample	5X 18BAW-119331
	1806174-20A DF5	30	8270.M	06061830	Sample	5X 18BAW-119331
	1806249-01A DF5	31	8270.M	06061831	Sample	5X 18BAW-119331
	18051838-03A DF20	32	8270.M	06061832	Sample	20X 18BAO-119356
	18051840-03A DF100	33	8270.M	06061833	Sample	100X 18BAO-119356
	RINSE	2	8270.M	06061834	Sample	RINSE
	RINSE	2	8270.M	06061835	Sample	RINSE
	RINSE	2	8270.M	06061836	Sample	RINSE
	RINSE	2	8270.M	06061837	Sample	RINSE

ALS Group, USA

PREP BATCH REPORT

Batch ID: **119330** Prep Code: **BA_3510_W**

Start Date: **6/6/2018 7:46:13 AM** End Date: **6/6/2018 2:04:43 PM**

Technician: **Jacqueline Disanto**

InitSamp Wt/Vol: 1000 mL
FinSampVol: 1 mL
OriginalFac: 0.001
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
1806110-01B	Tclp Extract			50	0	1	0.02
1806126-03A	Tclp Extract			50	0	1	0.02
1806126-03A MS	Tclp Extract			50	0	1	0.02
1806126-03A MSD	Tclp Extract			50	0	1	0.02
1806166-02B	Tclp Extract			50	0	1	0.02
SBLKW1-119330				1000	0	1	0.001
SLCSW1-119330				1000	0	1	0.001

Notes: *500 uL Surrogate, line# 2049-187-1, added to all samples. 500 uL Mega Mix Spike, line# 300-0341 added to QC. All samples are B1/E1 unless otherwise noted*

1D

CLIENT SAMPLE NO.

PCBS ANALYSIS DATA SHEET

18CP02-55

Lab Name: ALS Group, USA

Lab Code: MI01262 SDG No. 1806126

Matrix: Soil Lab Sample ID: 1806126-02A

Sample wt/vol: 15.21 (g/mL) g Lab File ID:

% Moisture: not dec. 6.1 Date Received: 6/1/2018

Extraction Type: Date Extracted 6/4/2018

Concentrated Extract Volume: 25000 (uL) Date Analyzed: 6/5/2018

Injection Volume: 1 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 0

CONCENTRATION UNITS: µg/Kg-dry

CAS NO.	COMPOUND		Q
12674-11-2	Aroclor 1016	70	U
11104-28-2	Aroclor 1221	70	U
11141-16-5	Aroclor 1232	70	U
53469-21-9	Aroclor 1242	70	U
12672-29-6	Aroclor 1248	70	U
11097-69-1	Aroclor 1254	70	U
11096-82-5	Aroclor 1260	70	U
37324-23-5	Aroclor 1262	70	U
11100-14-4	Aroclor 1268	70	U

ALS Group, USA

Client: Jacobs
Work Order: 1806126
Project: PMC

Date: 13-Jul-18

QC BATCH REPORT

Batch ID: **119240** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-119240-119240** Units: **µg/Kg** Analysis Date: **6/5/2018 03:10 PM**
Client ID: Run ID: **GC14_180605B** SeqNo: **5073982** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	67								
Aroclor 1221	U	67								
Aroclor 1232	U	67								
Aroclor 1242	U	67								
Aroclor 1248	U	67								
Aroclor 1254	U	67								
Aroclor 1260	U	67								
Aroclor 1262	U	67								
Aroclor 1268	U	67								
Surr: Decachlorobiphenyl	*24.15*	0	*33.3*	0	*72.5*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*30.36*	0	*33.3*	0	*91.2*	*45-124*	0			

LCS Sample ID: **PLCSS1-119240-119240** Units: **µg/Kg** Analysis Date: **6/5/2018 03:24 PM**
Client ID: Run ID: **GC14_180605B** SeqNo: **5073983** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	730.9	67	833	0	87.7	50-130	0			
Aroclor 1260	586	67	833	0	70.4	50-130	0			
Surr: Decachlorobiphenyl	*27.03*	0	*33.3*	0	*81.2*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*27.52*	0	*33.3*	0	*82.6*	*45-124*	0			

MS Sample ID: **1806142-11A MS** Units: **µg/Kg** Analysis Date: **6/5/2018 03:53 PM**
Client ID: Run ID: **GC14_180605B** SeqNo: **5073985** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	779.2	66	822.6	0	94.7	40-140	0			
Aroclor 1260	638.3	66	822.6	0	77.6	40-140	0			
Surr: Decachlorobiphenyl	*25.5*	0	*32.89*	0	*77.5*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*28.25*	0	*32.89*	0	*85.9*	*45-124*	0			

MSD Sample ID: **1806142-11A MSD** Units: **µg/Kg** Analysis Date: **6/5/2018 04:36 PM**
Client ID: Run ID: **GC14_180605B** SeqNo: **5073986** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	755.5	64	804.8	0	93.9	40-140	779.2	3.09	50	
Aroclor 1260	630.7	64	804.8	0	78.4	40-140	638.3	1.2	50	
Surr: Decachlorobiphenyl	*25.82*	0	*32.17*	0	*80.3*	*40-140*	25.5	*1.26*	*50*	
Surr: Tetrachloro-m-xylene	*27.43*	0	*32.17*	0	*85.3*	*45-124*	28.25	*2.95*	*50*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119240** Instrument ID **GC14** Method: **SW8082**

The following samples were analyzed in this batch: 1806126-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051825.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 17:19
Operator : KJB
Sample : 1806126-02A
Misc : LVI SOIL
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:06:20 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1)	S TCMX	2.950	3.408	643.0E6	474.6E6	12.595	13.166
47)	S DCB	7.869	8.802	560.2E6	374.2E6	12.711	14.325
	Target Compounds						
	Sum Aroclor 1016			0	0	N.D.	N.D.
	Average Aroclor 1016					0.000	0.000
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
	Sum Aroclor 1260			0	0	N.D.	N.D.
	Average Aroclor 1260					0.000	0.000
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

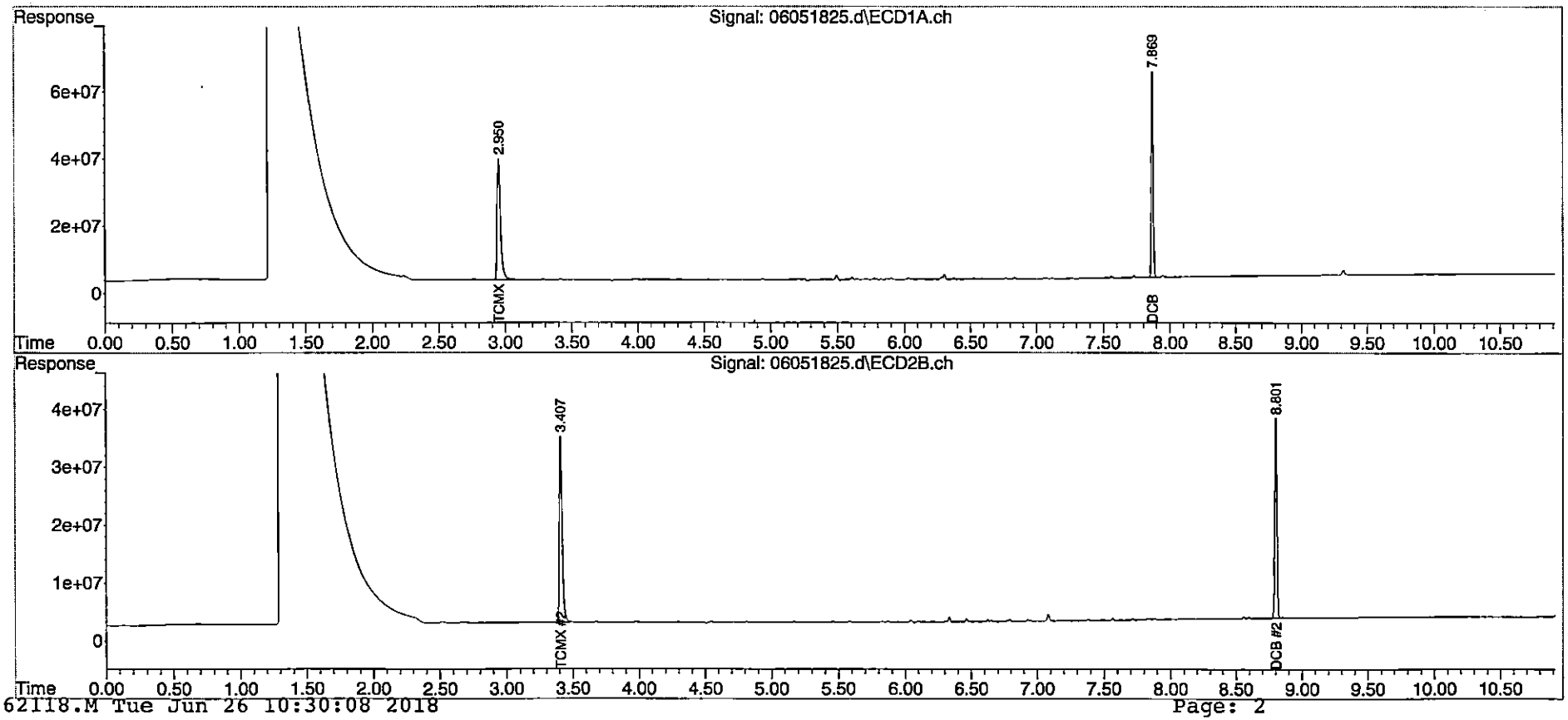
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051825.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 17:19
Operator : KJB
Sample : 1806126-02A
Misc : LVI SOIL
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:06:20 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Method Path : C:\msdchem\1\methods\
Method File : PCBLVI060418.M
Title :
Last Update : Tue Jun 05 09:50:13 2018
Response Via : Initial Calibration

Calibration Files
10 =06041805.d 20 =06041806.d 30 =06041807.d
50 =06041808.d 100 =06041809.d 200 =06041810.d

		Compound	10	20	30	50	100	200	Avg		%RSD
1)	S	TCMX	6.069	5.980	5.040	4.796	4.950	5.033	5.230	E7	9.00
2)	L	Aroclor 1016	1.069	1.051	1.018	1.084	0.934	0.887	0.942	E6	12.60
3)	L	Aroclor 1016 {2}	2.198	2.045	1.973	1.832	1.688	1.591	1.757	E6	15.53
4)	L	Aroclor 1016 {3}	3.193	2.858	2.695	2.549	2.371	2.302	2.570	E6	11.85
5)	L	Aroclor 1016 {4}	1.924	1.734	1.632	1.535	1.425	1.371	1.571	E6	11.57
6)	L	Aroclor 1016 {5}	1.628	1.507	1.431	1.349	1.256	1.207	1.314	E6	13.43
7)	L,M	Aroclor 1221							3.255	E5	0.00
8)	L,M	Aroclor 1221 {2}							4.833	E5	0.00
9)	L,M	Aroclor 1221 {3}							1.122	E6	0.00
10)	L,M	Aroclor 1221 {4}							9.715	E4	0.00
11)	L,M	Aroclor 1221 {5}							1.312	E5	0.00
12)	L	Aroclor 1232							8.646	E5	0.00
13)	L	Aroclor 1232 {2}							6.882	E5	0.00
14)	L	Aroclor 1232 {3}							9.268	E5	0.00
15)	L	Aroclor 1232 {4}							5.793	E5	0.00
16)	L	Aroclor 1232 {5}							4.770	E5	0.00
17)	L,M	Aroclor 1242							1.595	E6	0.00
18)	L,M	Aroclor 1242 {2}							2.117	E6	0.00
19)	L,M	Aroclor 1242 {3}							1.519	E6	0.00
20)	L,M	Aroclor 1242 {4}							1.149	E6	0.00
21)	L,M	Aroclor 1242 {5}							1.120	E6	0.00
22)	L	Aroclor 1248							1.055	E6	0.00
23)	L	Aroclor 1248 {2}							8.844	E5	0.00
24)	L	Aroclor 1248 {3}							9.599	E5	0.00
25)	L	Aroclor 1248 {4}							1.606	E6	0.00
26)	L	Aroclor 1248 {5}							9.234	E5	0.00
27)	L,M	Aroclor 1254							1.384	E6	0.00
28)	L,M	Aroclor 1254 {2}							2.359	E6	0.00
29)	L,M	Aroclor 1254 {3}							2.479	E6	0.00
30)	L,M	Aroclor 1254 {4}							1.866	E6	0.00
31)	L,M	Aroclor 1254 {5}							2.639	E6	0.00
32)	L	Aroclor 1260	3.278	3.297	3.050	2.809	2.537	2.413	2.695	E6	16.02
33)	L	Aroclor 1260 {2}	4.958	4.601	4.352	4.089	3.787	3.670	4.003	E6	13.63
34)	L	Aroclor 1260 {3}	5.403	5.055	4.787	4.558	4.259	4.172	4.527	E6	10.76
35)	L	Aroclor 1260 {4}	5.933	5.467	5.330	4.932	4.716	4.663	5.077	E6	8.95
36)	L	Aroclor 1260 {5}	1.825	1.583	1.487	1.390	1.299	1.266	1.421	E6	13.23
37)	L,M	Aroclor 1262							2.242	E6	0.00
38)	L,M	Aroclor 1262 {2}							2.728	E6	0.00
39)	L,M	Aroclor 1262 {3}							2.639	E6	0.00
40)	L,M	Aroclor 1262 {4}							5.271	E6	0.00
41)	L,M	Aroclor 1262 {5}							2.282	E6	0.00
42)	L	Aroclor 1268							6.443	E6	0.00
43)	L	Aroclor 1268 {2}							6.689	E6	0.00
44)	L	Aroclor 1268 {3}							4.299	E6	0.00
45)	L	Aroclor 1268 {4}							2.188	E6	0.00
46)	L	Aroclor 1268 {5}							1.415	E7	0.00
47)	S	DCB	4.637	5.175	4.955	4.702	4.475	4.226	4.562	E7	8.07

Signal #2 Calibration Files
10 =06041805.d 20 =06041806.d 30 =06041807.d
50 =06041808.d 100 =06041809.d 200 =06041810.d

		Compound	10	20	30	50	100	200	Avg		%RSD
1)	S	TCMX	3.873	3.591	3.534	3.378	3.260	3.286	3.475	E7	6.20
2)	L	Aroclor 1016	1.286	0.979	0.853	0.772	0.684	0.642	0.790	E6	28.19

Response Factor Report GC14

Method Path : C:\msdchem\1\methods\
Method File : PCBLVI060418.M
Title :
Last Update : Tue Jun 05 09:50:13 2018
Response Via : Initial Calibration

Calibration Files
10 =06041805.d 20 =06041806.d 30 =06041807.d
50 =06041808.d 100 =06041809.d 200 =06041810.d

	Compound	10	20	30	50	100	200	Avg	%RSD
3)	L Aroclor 1016 {2}	1.949	1.787	1.558	1.442	1.359	1.435	1.509 E6	14.79
4)	L Aroclor 1016 {3}	2.276	2.027	1.906	1.787	1.675	1.633	1.827 E6	11.79
5)	L Aroclor 1016 {4}	1.402	1.376	1.227	1.167	1.101	1.076	1.180 E6	11.27
6)	L Aroclor 1016 {5}	1.306	1.148	1.055	1.005	0.927	0.888	0.997 E6	15.21
7)	L,M Aroclor 1221							2.456 E5	0.00
8)	L,M Aroclor 1221 {2}							3.578 E5	0.00
9)	L,M Aroclor 1221 {3}							8.095 E5	0.00
10)	L,M Aroclor 1221 {4}							1.041 E5	0.00
11)	L,M Aroclor 1221 {5}							1.159 E5.	0.00
12)	L Aroclor 1232							6.522 E5	0.00
13)	L Aroclor 1232 {2}							4.216 E5	0.00
14)	L Aroclor 1232 {3}							7.089 E5	0.00
15)	L Aroclor 1232 {4}							4.793 E5	0.00
16)	L Aroclor 1232 {5}							3.550 E5	0.00
17)	L,M Aroclor 1242							8.626 E5	0.00
18)	L,M Aroclor 1242 {2}							1.548 E6	0.00
19)	L,M Aroclor 1242 {3}							1.050 E6	0.00
20)	L,M Aroclor 1242 {4}							8.303 E5	0.00
21)	L,M Aroclor 1242 {5}							9.108 E5	0.00
22)	L Aroclor 1248							7.253 E5	0.00
23)	L Aroclor 1248 {2}							6.553 E5	0.00
24)	L Aroclor 1248 {3}							1.069 E6	0.00
25)	L Aroclor 1248 {4}							1.276 E6	0.00
26)	L Aroclor 1248 {5}							1.184 E6	0.00
27)	L,M Aroclor 1254							1.035 E6	0.00
28)	L,M Aroclor 1254 {2}							1.154 E6	0.00
29)	L,M Aroclor 1254 {3}							1.532 E6	0.00
30)	L,M Aroclor 1254 {4}							1.115 E6	0.00
31)	L,M Aroclor 1254 {5}							1.560 E6	0.00
32)	L Aroclor 1260	2.047	1.928	1.832	1.744	1.605	1.558	1.713 E6	11.20
33)	L Aroclor 1260 {2}	2.478	2.165	2.053	1.926	1.816	1.786	1.972 E6	11.64
34)	L Aroclor 1260 {3}	1.803	1.721	1.636	1.528	1.453	1.421	1.536 E6	9.97
35)	L Aroclor 1260 {4}	3.575	3.387	3.181	3.029	2.922	2.967	3.140 E6	7.52
36)	L Aroclor 1260 {5}	9.893	9.731	9.057	8.554	7.940	6.896	8.329 E5	12.87
37)	L,M Aroclor 1262							1.238 E6	0.00
38)	L,M Aroclor 1262 {2}							1.767 E6	0.00
39)	L,M Aroclor 1262 {3}							1.654 E6	0.00
40)	L,M Aroclor 1262 {4}							3.318 E6	0.00
41)	L,M Aroclor 1262 {5}							1.099 E6	0.00
42)	L Aroclor 1268							3.965 E6	0.00
43)	L Aroclor 1268 {2}							3.928 E6	0.00
44)	L Aroclor 1268 {3}							2.653 E6	0.00
45)	L Aroclor 1268 {4}							1.305 E6	0.00
46)	L Aroclor 1268 {5}							8.424 E6	0.00
47)	S DCB	4.459	2.955	2.800	2.735	2.546	2.456	2.854 E7	22.01

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method Path : C:\msdchem\1\methods\
Method File : PCBLVI060418.M
Title :
Last Update : Tue Jun 05 09:50:13 2018
Response Via : Initial Calibration

Calibration Files
10 =06041805 20 =06041806 30 =06041807 50 =06041808 100 =06041809
200 =06041810 300 =06041811 500 =06041822 1000=06041813

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	S	TCMX	Lin	1.0694 e6	5.0964 e7	-----	0.9982
2)	L	Aroclor 1016	Lin	1.5037 e7	7.5998 e5	-----	0.9979
3)	L	Aroclor 1016 {2}	Lin	1.6262 e7	1.4548 e6	-----	0.9978
4)	L	Aroclor 1016 {3}	Lin	6.2585 e6	2.4138 e6	-----	0.9973
5)	L	Aroclor 1016 {4}	Lin	1.5587 e7	1.3912 e6	-----	0.9958
6)	L	Aroclor 1016 {5}	Lin	6.7073 e6	1.1462 e6	-----	0.9993
32)	L	Aroclor 1260	Lin	1.5117 e7	2.3178 e6	-----	0.9952
33)	L	Aroclor 1260 {2}	Lin	-6.3128 e6	3.6646 e6	-----	0.9953
34)	L	Aroclor 1260 {3}	Lin	1.1158 e7	4.2484 e6	-----	0.9954
35)	L	Aroclor 1260 {4}	Lin	-5.1014 e7	5.1748 e6	-----	0.9952
36)	L	Aroclor 1260 {5}	Lin	3.6869 e6	1.3289 e6	-----	0.9966
47)	S	DCB	Lin	1.3220 e6	4.3968 e7	-----	0.9958

Signal #2

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	S	TCMX	Lin	-7.9146 e6	3.6649 e7	-----	0.9974
2)	L	Aroclor 1016	Lin	2.2819 e6	6.4492 e5	-----	0.9985
3)	L	Aroclor 1016 {2}	Lin	-6.5569 e6	1.4229 e6	-----	0.9962
4)	L	Aroclor 1016 {3}	Lin	-9.8980 e6	1.7811 e6	-----	0.9987
5)	L	Aroclor 1016 {4}	Lin	-8.2295 e6	1.1534 e6	-----	0.9961
6)	L	Aroclor 1016 {5}	Lin	-3.9758 e6	9.2843 e5	-----	0.9970
32)	L	Aroclor 1260	Lin	4.7454 e6	1.5948 e6	-----	0.9960
33)	L	Aroclor 1260 {2}	Lin	5.1707 e6	1.8432 e6	-----	0.9989
34)	L	Aroclor 1260 {3}	Lin	3.9731 e6	1.4368 e6	-----	0.9975
35)	L	Aroclor 1260 {4}	Lin	9.5523 e5	3.1163 e6	-----	0.9959
36)	L	Aroclor 1260 {5}	Lin	2.9096 e6	7.6026 e5	-----	0.9964
47)	S	DCB	Lin	2.0503 e6	2.5978 e7	-----	0.9955

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041805.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:19
Operator : KJB
Sample : PCBLVI ICAL A 10 NG/ML
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:12:28 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

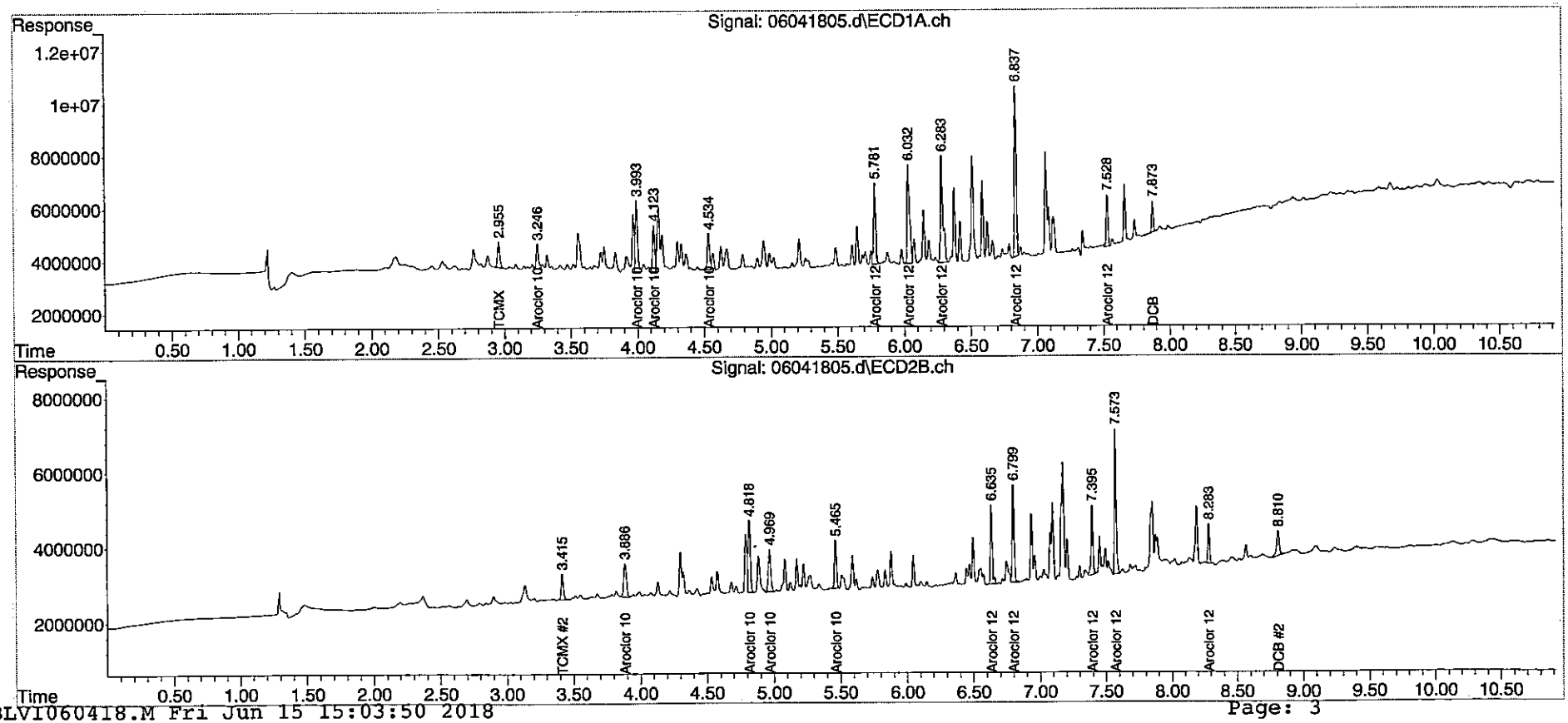
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.955	3.415	12138579	7746897	0.283	0.291m
47) S	DCB	7.873	8.810	9274770	8917180	0.231	0.233m
	Target Compounds						
2) L	Aroclor 1016	3.247	3.886	10692760	12862877	15.964	5.363m#
4) L	Aroclor 1...	3.994	4.818	31933906	22756190	13.761	0.097 #
5) L	Aroclor 1...	4.123	4.969	19235171	14019165	9.067	0.904m#
6) L	Aroclor 1...	4.534	5.465	16281904	13059683	18.907	2.570m#
	Sum Aroclor 1016			78143740	62697915	57.699	8.934
Average	Aroclor 1016					14.425	2.233
	Sum Aroclor 1221			0	0	N.D.	N.D.
Average	Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
Average	Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
Average	Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
Average	Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
Average	Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.781	6.635	32780679	20472878	13.983m	7.500 #
33) L	Aroclor 1...	6.033	6.800	49577296	24779905	20.768	7.708 #
34) L	Aroclor 1...	6.284	7.395	54029439	18026335	20.753	7.207m#
35) L	Aroclor 1...	6.838	7.573	59333255	35745552	13.988	9.397m#
36) L	Aroclor 1...	7.528	8.283	18245188	9893232	18.967m	7.867m#
	Sum Aroclor 1260			214.0E6	108.9E6	88.460	39.678
Average	Aroclor 1260					17.692	7.936
	Sum Aroclor 1262			0	0	N.D.	N.D.
Average	Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
Average	Aroclor 1268					0.000	0.000

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041805.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:19
Operator : KJB
Sample : PCBLVI ICAL A 10 NG/ML
Misc :
ALS Vial : 11 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:12:28 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041806.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:33
Operator : KJB
Sample : PCBLVI ICAL B 20 NG/ML
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:13:43 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

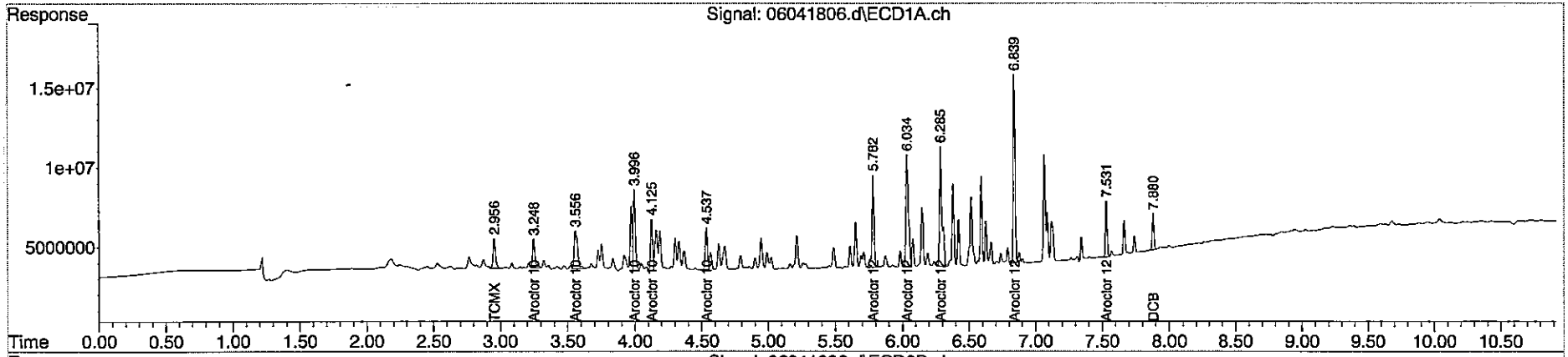
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.956	3.417	23918345	14363396	0.562	0.466m
47) S	DCB	7.880	8.820	20699692	11819657	0.581	0.334m#
	Target Compounds						
2) L	Aroclor 1016	3.248	3.886	21026766	19582131	32.009	16.038m#
3) L	Aroclor 1...	3.558	4.302	40896591	35739126	13.606	9.092m#
4) L	Aroclor 1...	3.996	4.820	57150972	40548616	28.583	9.985 #
5) L	Aroclor 1...	4.126	4.971	34681342	27519389	23.368	12.549m#
6) L	Aroclor 1...	4.537	5.467	30132831	22951077	36.883	13.594 #
	Sum Aroclor 1016			183.9E6	146.3E6	134.448	61.258
	Average Aroclor 1016					26.890	12.252
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.783	6.637	65935060	38559016	33.239	17.401 #
33) L	Aroclor 1...	6.035	6.802	92021971	43303113	37.647	16.422 #
34) L	Aroclor 1...	6.286	7.399	101.1E6	34427897	37.116	16.682 #
35) L	Aroclor 1...	6.840	7.578	109.3E6	67748081	26.753	18.453m#
36) L	Aroclor 1...	7.532	8.292	31668633	19462251	33.210	18.606 #
	Sum Aroclor 1260			400.1E6	203.5E6	167.964	87.563
	Average Aroclor 1260					33.593	17.513
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041806.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:33
Operator : KJB
Sample : PCBLVI ICAL B 20 NG/ML
Misc :
ALS Vial : 12 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:13:43 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041807.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:47
Operator : KJB
Sample : PCBLVI ICAL C 30 NG/ML
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:14:37 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

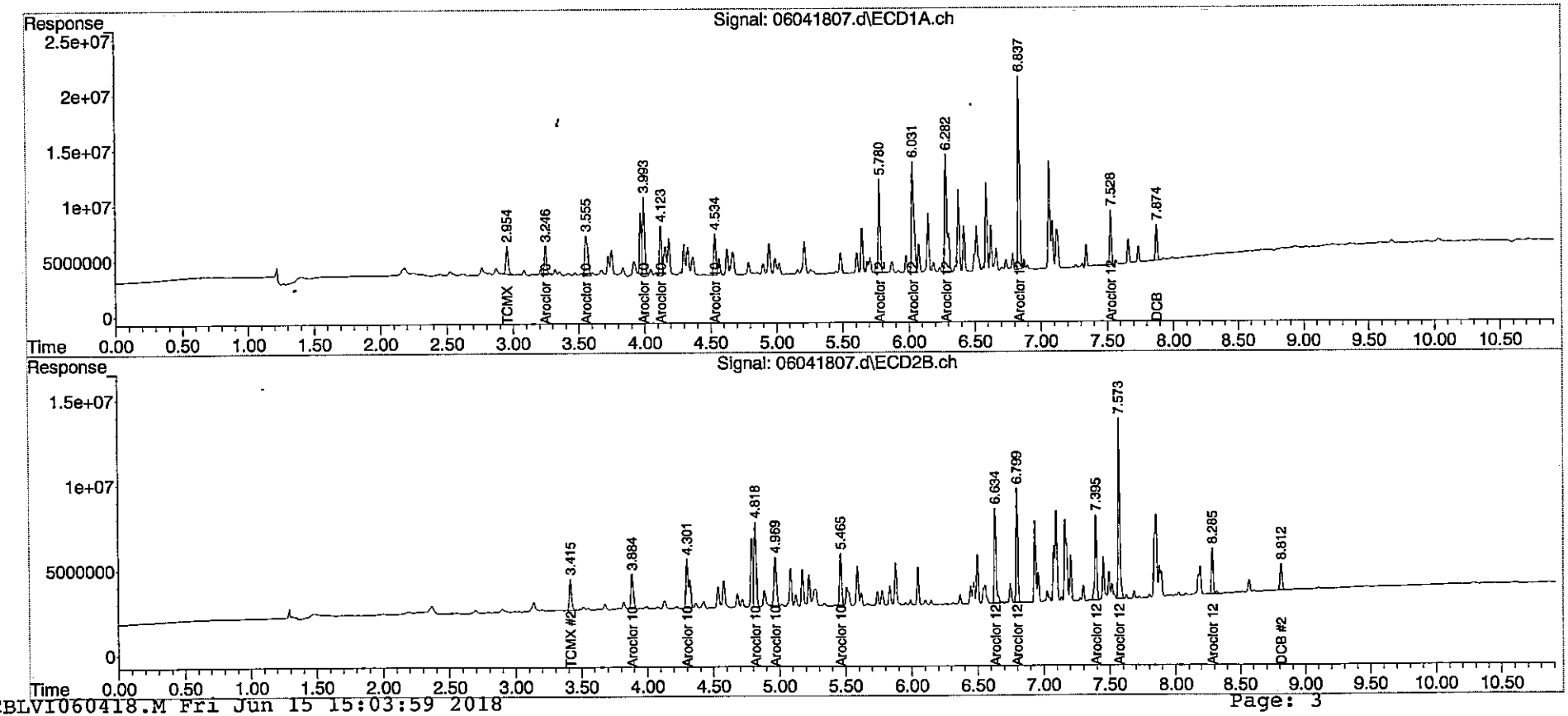
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.954	3.416	30238153	21204605	0.712m	0.647	
47) S	DCB	7.874	8.812	29730029	16800541	0.857	0.506m	#
	Target Compounds							
2) L	Aroclor 1016	3.247	3.885	30540375	25587132	46.780	25.578	#
3) L	Aroclor 1...	3.556	4.302	59177091	46728633	28.798	17.417	#
4) L	Aroclor 1...	3.994	4.819	80853726	57190302	42.515	19.234	#
5) L	Aroclor 1...	4.124	4.970	48964376	36822241	36.592	20.573	#
6) L	Aroclor 1...	4.534	5.465	42943634	31658339	53.509	23.298	#
	Sum Aroclor 1016			262.5E6	198.0E6	208.194	106.100	
	Average Aroclor 1016					41.639	21.220	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.780	6.634	91512249	54963339	48.093	26.382	#
33) L	Aroclor 1...	6.032	6.799	130.6E6	61581645	52.974	25.021	#
34) L	Aroclor 1...	6.282	7.396	143.6E6	49065542	51.897	25.138	#
35) L	Aroclor 1...	6.837	7.573	159.9E6	95424947	39.664	26.284	#
36) L	Aroclor 1...	7.528	8.285	44613749	27172112	46.945	27.258	#
	Sum Aroclor 1260			570.2E6	288.2E6	239.573	130.083	
	Average Aroclor 1260					47.915	26.017	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041807.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 16:47
Operator : KJB
Sample : PCBLVI ICAL C 30 NG/ML
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:14:37 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041808.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:02
Operator : KJB
Sample : PCBLVI ICAL D 50 NG/ML
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:15:09 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

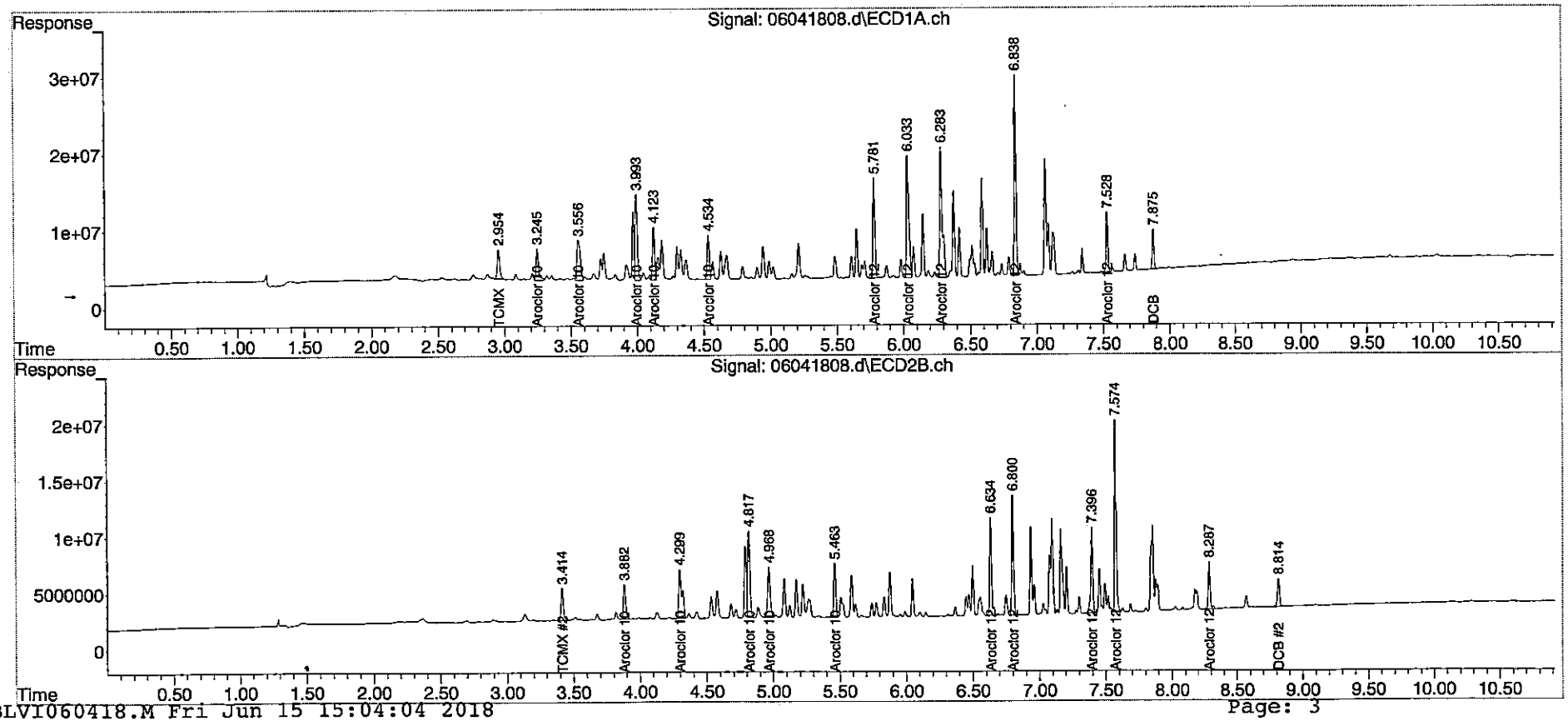
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.954	3.415	47964783	33777354	1.132m	0.980	
47) S	DCB	7.875	8.814	47024774	27349425	1.387	0.872	#
	Target Compounds							
2) L	Aroclor 1016	3.246	3.883	54209522	38589985	83.530	46.236	#
3) L	Aroclor 1...	3.556	4.300	91617534	72075847	55.758	36.618	#
4) L	Aroclor 1...	3.994	4.818	127.5E6	89362027	69.911	37.115	#
5) L	Aroclor 1...	4.123	4.968	76731764	58338020	62.300	39.131	#
6) L	Aroclor 1...	4.535	5.464	67457702	50241702	85.324	44.009	#
	Sum Aroclor 1016			417.5E6	308.6E6	356.822	203.109	
	Average Aroclor 1016					71.364	40.622	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.781	6.635	140.4E6	87194227	76.515	44.027	#
33) L	Aroclor 1...	6.033	6.800	204.5E6	96294784	82.362	41.352	#
34) L	Aroclor 1...	6.284	7.396	227.9E6	76398105	81.184	40.929	#
35) L	Aroclor 1...	6.839	7.574	246.6E6	151.5E6	61.797	42.143	#
36) L	Aroclor 1...	7.529	8.287	69515800	42768999	73.367	44.762	#
	Sum Aroclor 1260			888.9E6	454.1E6	375.226	213.212	
	Average Aroclor 1260					75.045	42.642	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041808.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:02
Operator : KJB
Sample : PCBLVI ICAL D 50 NG/ML
Misc :
ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: autointl.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:15:09 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:16
Operator : KJB
Sample : PCBLVI ICAL E 100 NG/ML
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:15:50 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

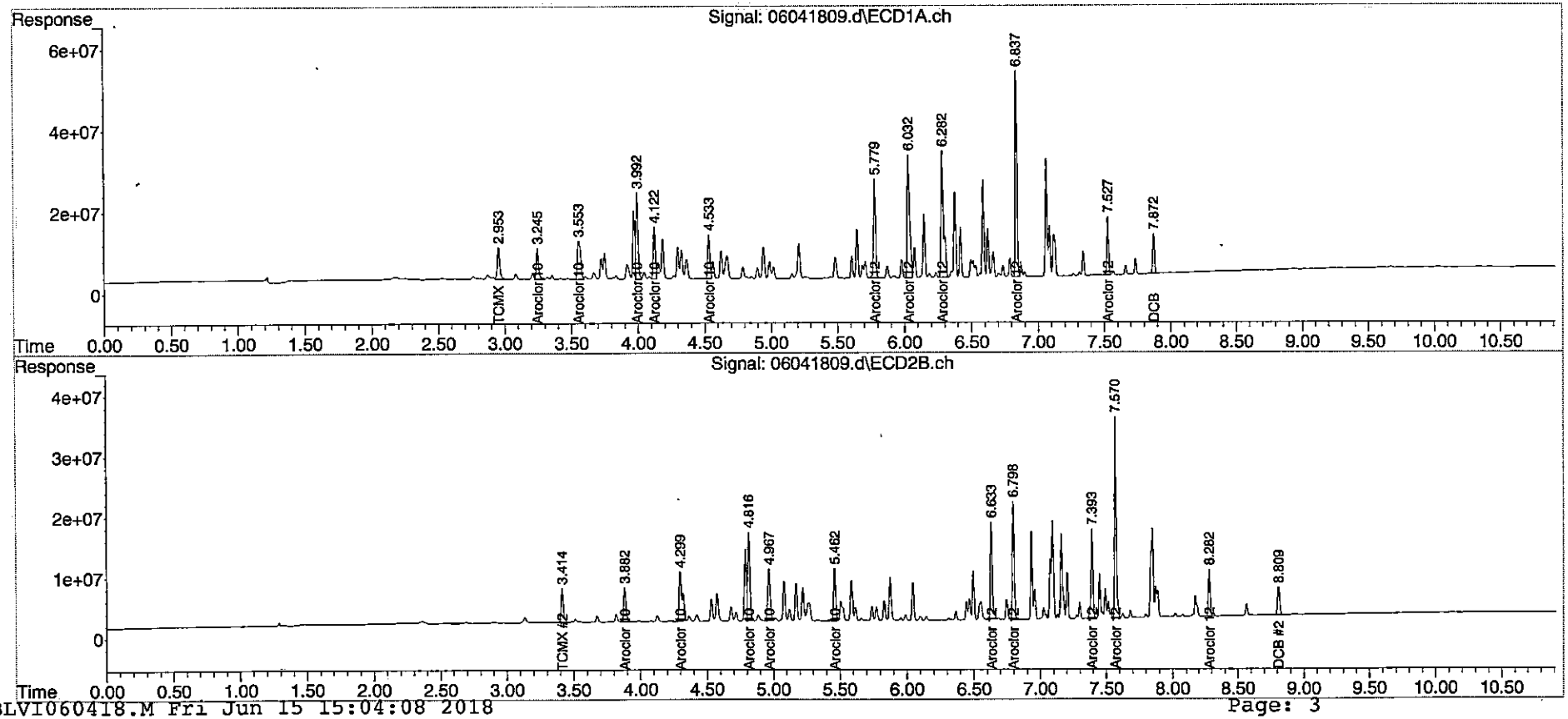
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.954	3.414	99006078	65202408	2.342	1.813	
47) S	DCB	7.872	8.809	89503561	50926671	2.688	1.688	#
	Target Compounds							
2) L	Aroclor 1016	3.245	3.882	93363275	68358463	144.322	93.530	#
3) L	Aroclor 1...	3.555	4.299	168.8E6	135.9E6	119.887	85.002	#
4) L	Aroclor 1...	3.993	4.817	237.1E6	167.5E6	134.349	80.551	#
5) L	Aroclor 1...	4.123	4.967	142.5E6	110.1E6	123.153	83.758	#
6) L	Aroclor 1...	4.533	5.462	125.6E6	92682441	160.755	91.308	#
	Sum Aroclor 1016			767.3E6	574.6E6	682.467	434.149	
	Average Aroclor 1016					136.493	86.830	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.780	6.633	253.7E6	160.5E6	142.280	84.156	#
33) L	Aroclor 1...	6.032	6.798	378.7E6	181.6E6	151.655	81.481	#
34) L	Aroclor 1...	6.283	7.394	425.9E6	145.3E6	150.004	80.713	#
35) L	Aroclor 1...	6.838	7.571	471.6E6	292.2E6	119.233	81.978	#
36) L	Aroclor 1...	7.527	8.283	129.9E6	79397150	137.485	85.867	#
	Sum Aroclor 1260			1659.8E6	859.0E6	700.657	414.195	
	Average Aroclor 1260					140.131	82.839	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:16
Operator : KJB
Sample : PCBLVI ICAL E 100 NG/ML
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:15:50 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041810.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:30
Operator : KJB
Sample : PCBLVI ICAL F 200 NG/ML
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:30:24 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

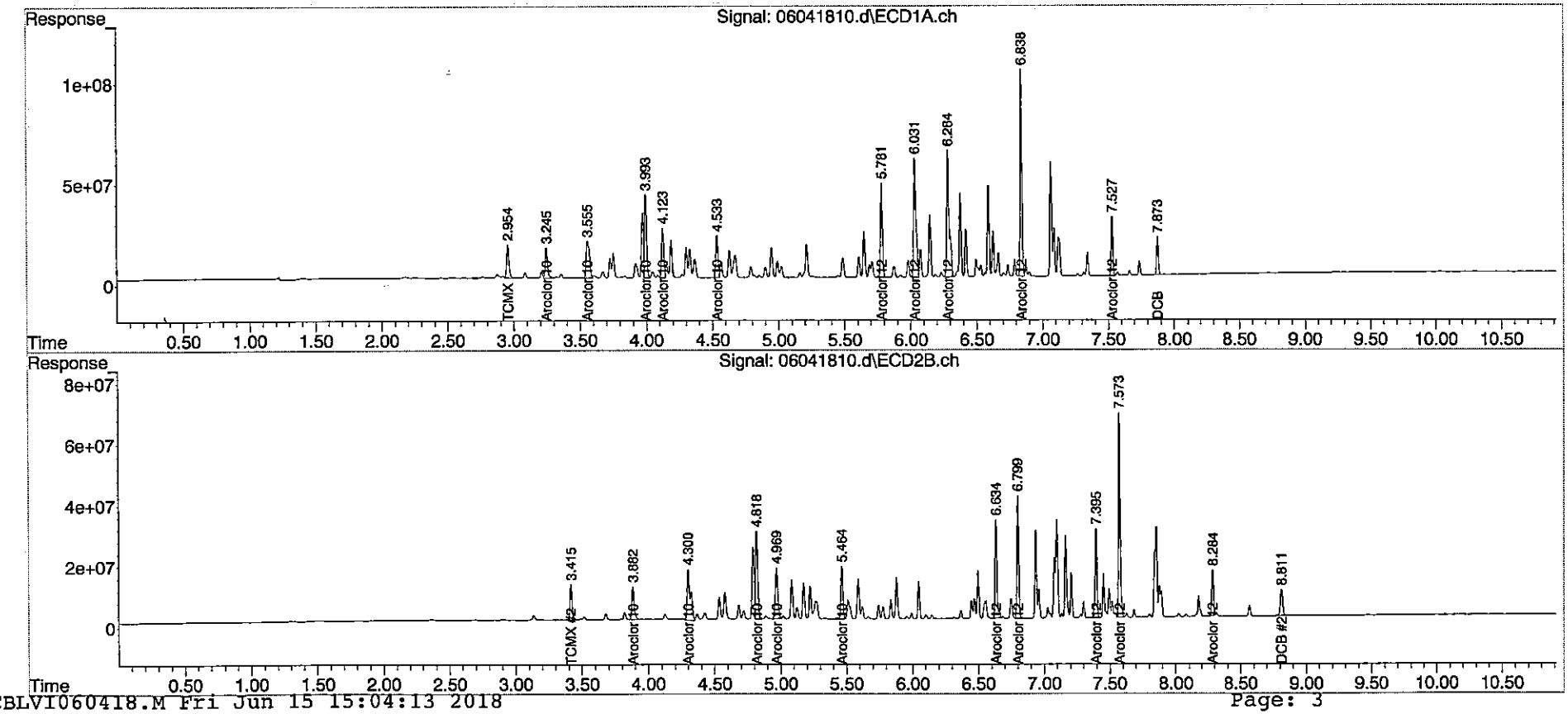
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.955	3.415	201.3E6	131.5E6	4.766	3.569	#
47) S	DCB	7.874	8.811	169.1E6	98224037	5.126	3.326	#
	Target Compounds							
2) L	Aroclor 1016	3.246	3.883	177.3E6	128.5E6	274.687	189.042	#
3) L	Aroclor 1...	3.556	4.300	318.2E6	287.0E6	244.062	199.391	m
4) L	Aroclor 1...	3.994	4.819	460.5E6	326.6E6	265.645	168.990	#
5) L	Aroclor 1...	4.124	4.969	274.3E6	215.3E6	245.182	174.510	#
6) L	Aroclor 1...	4.534	5.464	241.5E6	177.5E6	311.195	185.847	#
	Sum Aroclor 1016			1471.8E6	1134.9E6	1340.770	917.779	
	Average Aroclor 1016					268.154	183.556	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.781	6.634	482.6E6	311.5E6	275.253	166.832	#
33) L	Aroclor 1...	6.032	6.799	734.0E6	357.3E6	292.947	164.138	#
34) L	Aroclor 1...	6.284	7.395	834.4E6	284.1E6	292.015	160.929	#
35) L	Aroclor 1...	6.838	7.573	932.6E6	593.4E6	236.903	167.192	#
36) L	Aroclor 1...	7.528	8.285	253.2E6	137.9E6	268.310	151.543	#
	Sum Aroclor 1260			3236.8E6	1684.2E6	1365.427	810.634	
	Average Aroclor 1260					273.085	162.127	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041810.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:30
Operator : KJB
Sample : PCBLVI ICAL F 200 NG/ML
Misc :
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:30:24 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041811.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:45
Operator : KJB
Sample : PCBLVI ICAL G 300 NG/ML
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:30:43 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

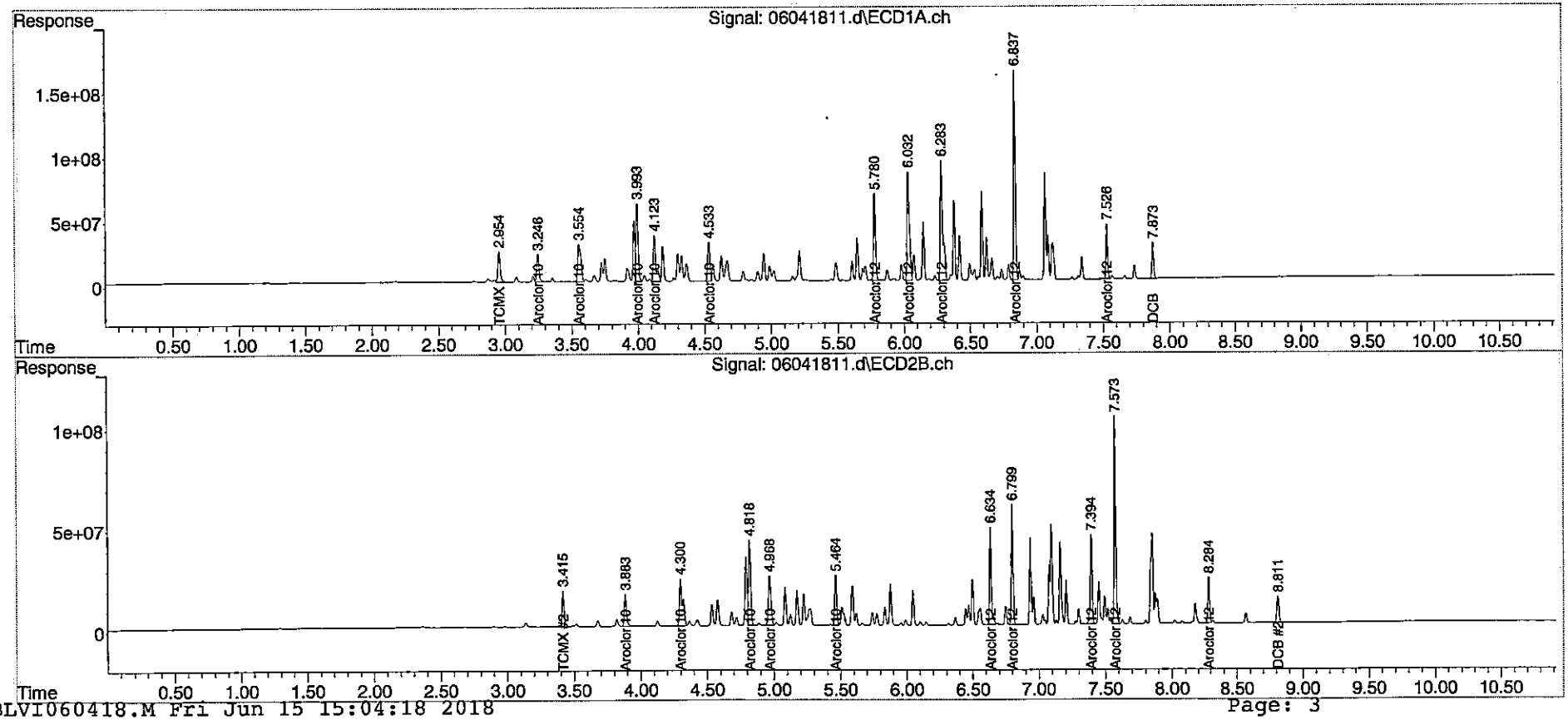
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.955	3.416	302.0E6	196.0E6	7.152	5.280	#
47) S	DCB	7.873	8.811	245.9E6	142.4E6	7.480	4.854	#
	Target Compounds							
2) L	Aroclor 1016	3.246	3.884	254.0E6	184.3E6	393.774	277.657	#
3) L	Aroclor 1...	3.555	4.300	484.0E6	393.9E6	381.813	280.444m	#
4) L	Aroclor 1...	3.994	4.819	670.0E6	479.2E6	388.794	253.762	#
5) L	Aroclor 1...	4.123	4.969	490.8E6	319.2E6	445.631	264.101	#
6) L	Aroclor 1...	4.534	5.464	347.0E6	253.3E6	448.165	270.303	#
	Sum Aroclor 1016			2245.8E6	1629.8E6	2058.176	1346.267	
	Average Aroclor 1016					411.635	269.253	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.780	6.635	696.5E6	457.1E6	399.466	246.527	#
33) L	Aroclor 1...	6.033	6.799	1067.1E6	528.1E6	425.397	244.501	#
34) L	Aroclor 1...	6.284	7.395	1221.3E6	421.0E6	426.520	240.014	#
35) L	Aroclor 1...	6.837	7.573	1449.0E6	891.7E6	368.729	251.613	#
36) L	Aroclor 1...	7.527	8.284	371.3E6	212.3E6	393.598	234.977m	#
	Sum Aroclor 1260			4805.2E6	2510.2E6	2013.710	1217.633	
	Average Aroclor 1260					402.742	243.527	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041811.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:45
Operator : KJB
Sample : PCBLVI ICAL G 300 NG/ML
Misc :
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:30:43 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041812.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 17:59
Operator : KJB
Sample : PCBLVI ICAL H 500 NG/ML
Misc :
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:33:25 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

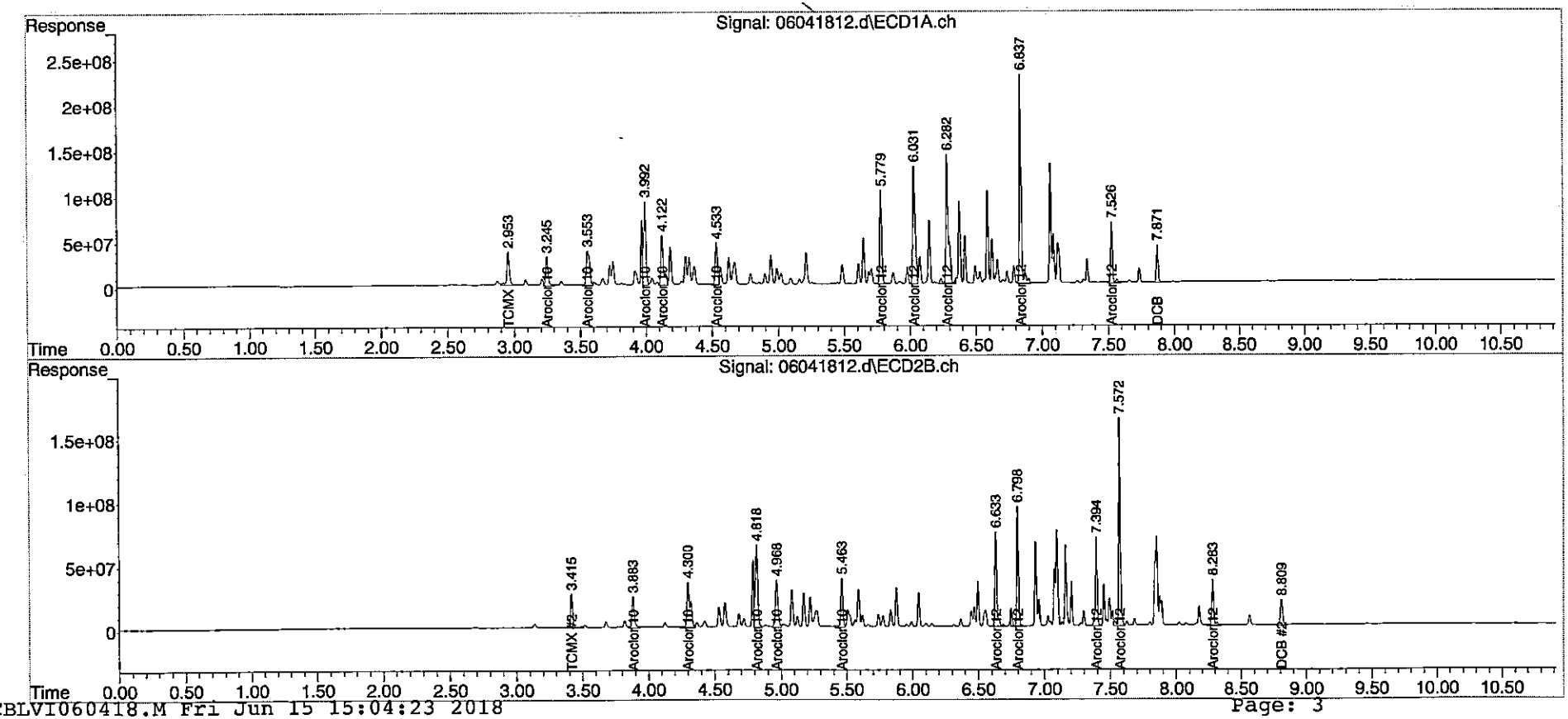
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.953	3.415	487.7E6	337.9E6	11.553m	9.040m
47) S	DCB	7.871	8.809	413.3E6	261.8E6	12.607m	8.990m#
	Target Compounds						
2) L	Aroclor 1016	3.245	3.882	412.6E6	310.3E6	639.962m	477.834m#
3) L	Aroclor 1...	3.553	4.300	692.4E6	641.8E6	555.052m	468.204m
4) L	Aroclor 1...	3.992	4.818	1202.3E6	872.4E6	701.682m	472.308m#
5) L	Aroclor 1...	4.122	4.968	753.3E6	517.5E6	688.680m	435.149m#
6) L	Aroclor 1...	4.533	5.463	564.4E6	428.2E6	730.215m	465.262m#
	Sum Aroclor 1016			3624.9E6	2770.2E6	3315.593	2318.758
	Average Aroclor 1016					663.119	463.752
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.779	6.633	1055.7E6	745.2E6	608.092m	404.274m#
33) L	Aroclor 1...	6.031	6.798	1625.4E6	938.7E6	647.411m	437.678m#
34) L	Aroclor 1...	6.282	7.394	1956.4E6	676.7E6	682.038m	387.740m#
35) L	Aroclor 1...	6.837	7.572	2273.5E6	1459.5E6	579.217m	412.262m#
36) L	Aroclor 1...	7.526	8.283	647.9E6	403.9E6	687.104m	450.005m#
	Sum Aroclor 1260			7558.9E6	4224.0E6	3203.862	2091.959
	Average Aroclor 1260					640.772	418.392
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041812.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 17:59
Operator : KJB
Sample   : PCBLVI ICAL H 500 NG/ML
Misc   :
ALS Vial : 18   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:33:25 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041813.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 18:13
Operator : KJB
Sample : PCBLVI ICAL I 1000 NG/ML
Misc :
ALS Vial : 19 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:35:58 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

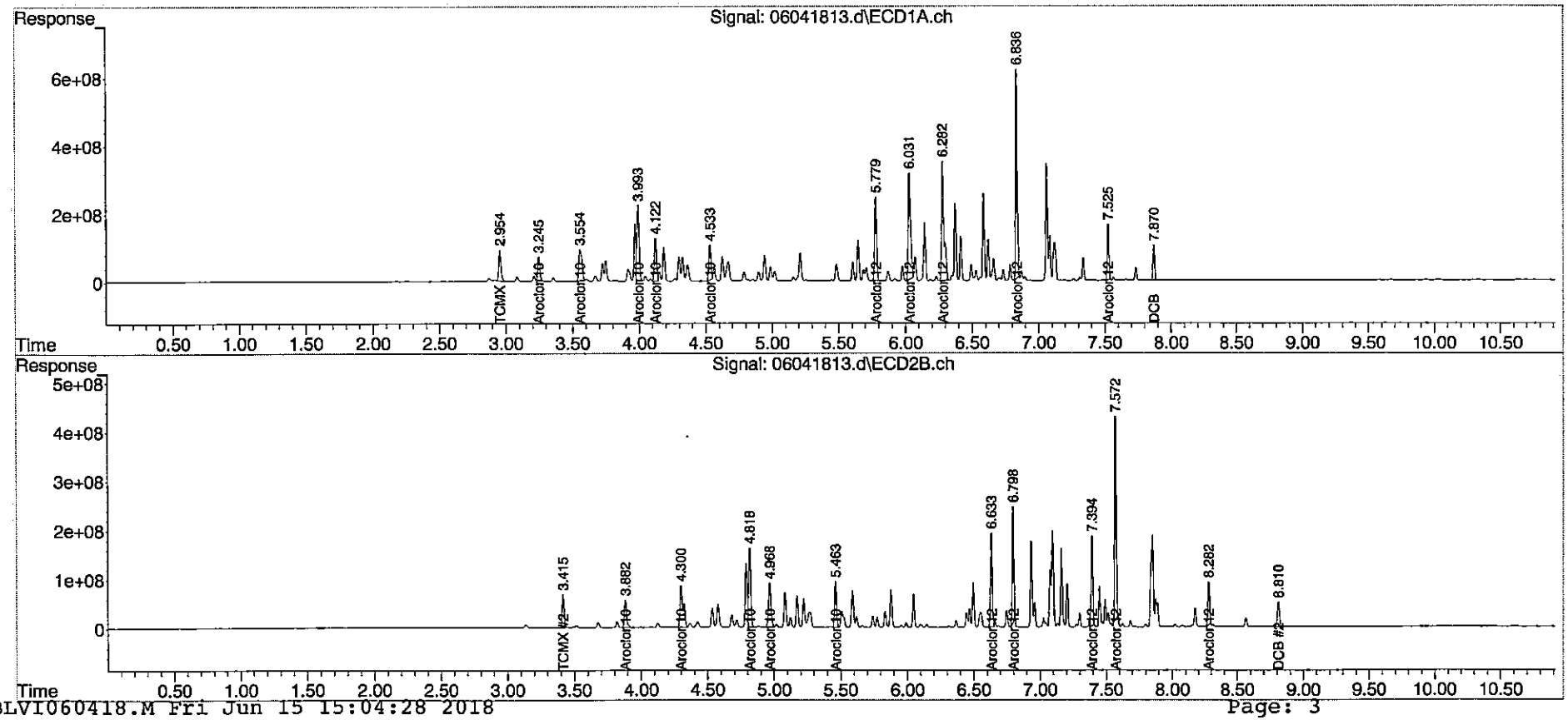
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.954	3.415	1057.9E6	740.9E6	25.063m	19.717m
47) S	DCB	7.870	8.810	930.8E6	548.5E6	28.463	18.918 #
	Target Compounds						
2) L	Aroclor 1016	3.245	3.883	761.1E6	657.8E6	1181.087m	1030.065
3) L	Aroclor 1...	3.554	4.300	1484.5E6	1452.9E6	1213.363m	1082.616m
4) L	Aroclor 1...	3.993	4.818	2523.5E6	1791.5E6	1478.272m	983.138 #
5) L	Aroclor 1...	4.122	4.969	1374.5E6	1176.3E6	1263.856m	1003.433
6) L	Aroclor 1...	4.533	5.463	1158.1E6	946.4E6	1500.746m	1042.794 #
	Sum Aroclor 1016			7301.8E6	6025.0E6	6637.324	5142.046
	Average Aroclor 1016					1327.465	1028.409
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.779	6.633	2439.2E6	1691.8E6	1411.586m	922.454m#
33) L	Aroclor 1...	6.031	6.798	3760.2E6	1888.3E6	1496.377m	884.381m#
34) L	Aroclor 1...	6.282	7.394	4524.7E6	1506.0E6	1574.787m	866.818m#
35) L	Aroclor 1...	6.836	7.572	5275.4E6	3308.4E6	1345.553m	935.452m#
36) L	Aroclor 1...	7.525	8.282	1403.5E6	773.6E6	1488.763m	864.951m#
	Sum Aroclor 1260			17403.0E6	9168.0E6	7317.066	4474.056
	Average Aroclor 1260					1463.413	894.811
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041813.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 18:13
Operator : KJB
Sample   : PCBLVI ICAL I 1000 NG/ML
Misc   :
ALS Vial : 19   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:35:58 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:10:06 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041814.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 18:28
Operator : KJB
Sample : PCBLVI ICV 500 NG/ML
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:37:01 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:36:03 2018
Response via : Initial Calibration
Integrator: ChemStation

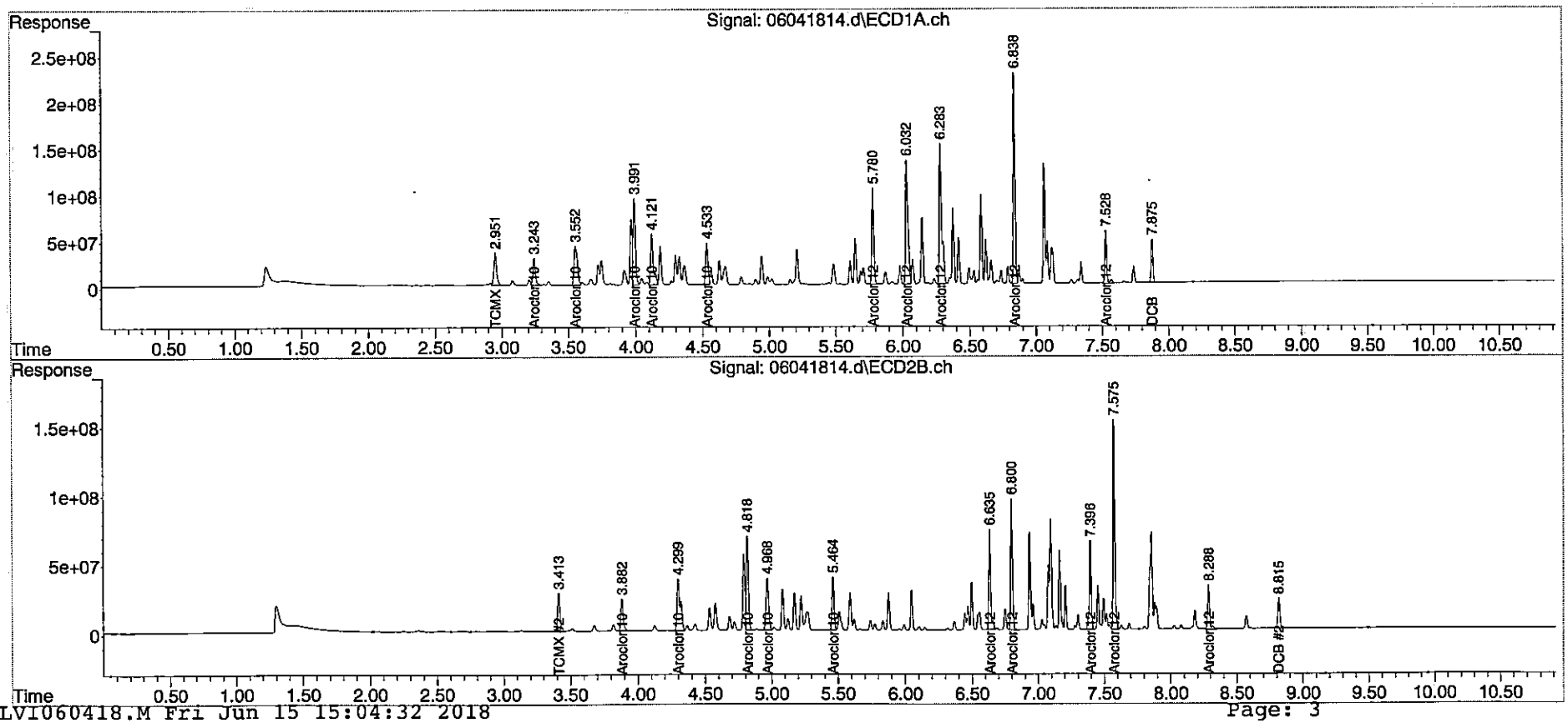
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.952	3.414	518.1E6	353.3E6	10.146	9.857
47) S	DCB	7.875	8.816	412.1E6	240.9E6	9.342	9.194
	Target Compounds						
2) L	Aroclor 1016	3.244	3.882	384.8E6	283.7E6	486.530	436.428
3) L	Aroclor 1...	3.554	4.300	744.1E6	639.3E6	500.264	453.908
4) L	Aroclor 1...	3.992	4.818	1081.7E6	773.4E6	445.529	439.776
5) L	Aroclor 1...	4.122	4.968	755.2E6	507.3E6	531.592	446.930
6) L	Aroclor 1...	4.533	5.464	539.6E6	400.7E6	464.956	435.890
	Sum Aroclor 1016			3505.3E6	2604.4E6	2428.870	2212.933
	Average Aroclor 1016					485.774	442.587
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.781	6.636	1059.5E6	716.0E6	450.573	445.975
33) L	Aroclor 1...	6.032	6.800	1668.7E6	821.0E6	457.084	442.605
34) L	Aroclor 1...	6.283	7.396	1964.5E6	619.4E6	459.792	428.374
35) L	Aroclor 1...	6.838	7.575	2048.2E6	1314.5E6	405.665	421.521
36) L	Aroclor 1...	7.528	8.288	568.7E6	339.4E6	425.197m	442.588m
	Sum Aroclor 1260			7309.7E6	3810.4E6	2198.311	2181.064
	Average Aroclor 1260					439.662	436.213
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041814.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 18:28
Operator : KJB
Sample : PCBLVI ICV 500 NG/ML
Misc :
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:37:01 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:36:03 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041815.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 18:42
Operator : KJB
Sample : 1221 ICAL 500 NG/ML
Misc :
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:38:37 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:36:03 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

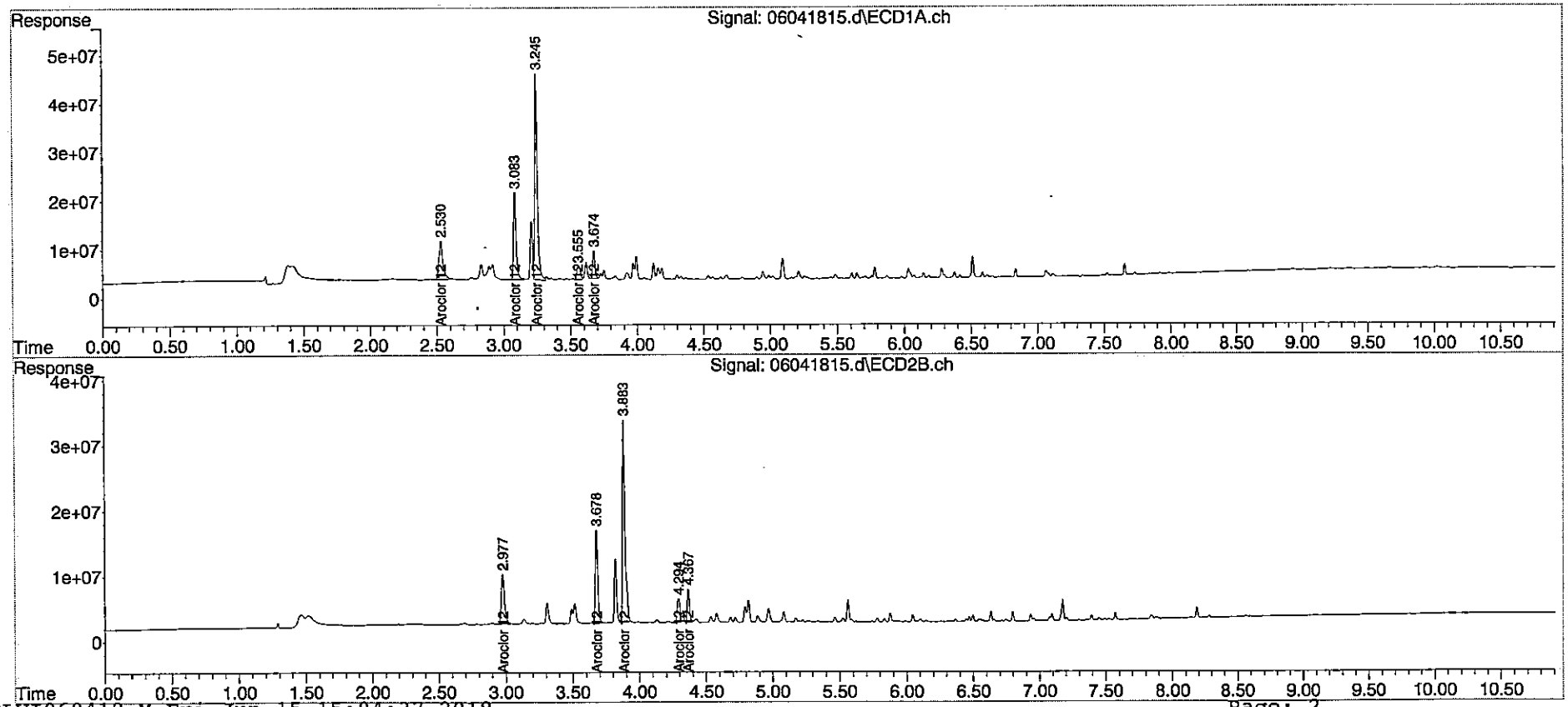
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
7) L,M Aroclor 1221	2.530f	2.977f	162.7E6	122.8E6	552.438m	425.009m
8) L,M Aroclor 1...	3.083f	3.678f	241.6E6	178.9E6	596.170m	416.546m#
9) L,M Aroclor 1...	3.245f	3.883f	560.8E6	404.7E6	530.267m	417.454m
10) L,M Aroclor 1...	3.555f	4.294f	48575509	52041578	469.417m	53.676m#
11) L,M Aroclor 1...	3.674	4.367f	65623211	57966155	421.587m	453.395m
Sum Aroclor 1221			1079.4E6	816.4E6	2569.879	1766.081
Average Aroclor 1221					513.976	353.216
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041815.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 18:42
Operator : KJB
Sample   : 1221 ICAL 500 NG/ML
Misc   :
ALS Vial : 21   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:38:37 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:36:03 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041816.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 18:56
Operator : KJB
Sample : 1232 ICAL 500 NG/ML
Misc :
ALS Vial : 22 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:40:50 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:38:44 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :

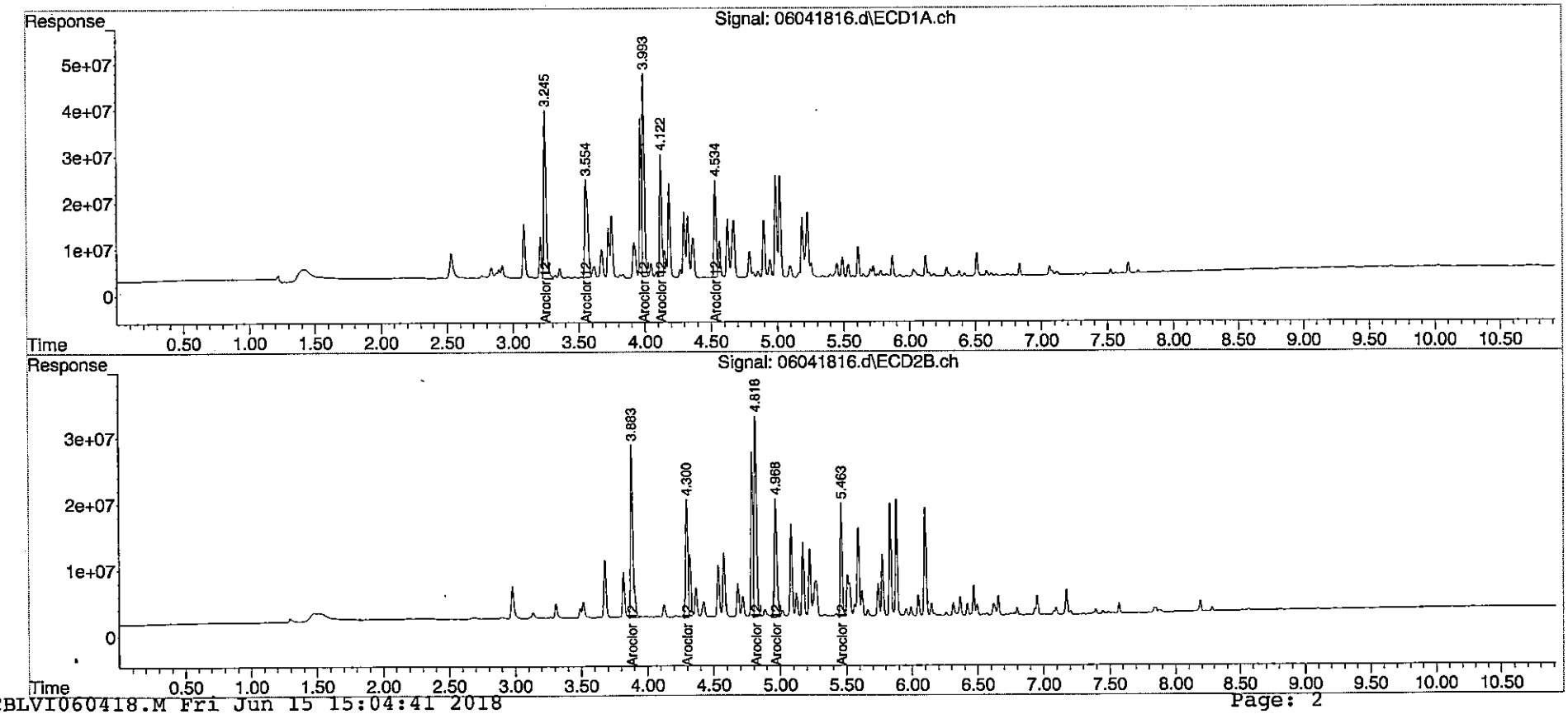
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds			0	0	N.D.	N.D.
Sum Aroclor 1016					0.000	0.000
Average Aroclor 1016						
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
12) L Aroclor 1232	3.245f	3.883f	432.3E6	326.1E6	572.105m	435.993m
13) L Aroclor 1...	3.554f	4.300f	344.1E6	210.8E6	559.345m	2229.826m#
14) L Aroclor 1...	3.993f	4.818f	463.4E6	354.5E6	551.297m	398.285m#
15) L Aroclor 1...	4.122f	4.968f	289.6E6	239.6E6	571.592m	423.344m#
16) L Aroclor 1...	4.534f	5.463f	238.5E6	177.5E6	737.424m	439.398m#
Sum Aroclor 1232			1768.0E6	1308.5E6	2991.763	3926.846
Average Aroclor 1232					598.353	785.369
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041816.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 18:56
Operator : KJB
Sample   : 1232 ICAL 500 NG/ML
Misc   :
ALS Vial : 22   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:40:50 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:38:44 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041817.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:11
Operator : KJB
Sample : 1242 ICAL 500 NG/ML
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:42:47 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:40:54 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
17) L,M Aroclor 1242	3.553f	4.299f	797.5E6	431.3E6	702.379m	2986.807m#
18) L,M Aroclor 1...	3.991f	4.817f	1058.5E6	774.1E6	648.032m	493.820m
19) L,M Aroclor 1...	4.120f	4.967f	759.6E6	525.2E6	817.356m	512.006m#
20) L,M Aroclor 1...	4.531	5.462f	574.6E6	415.2E6	1657.599m	512.772m#
21) L,M Aroclor 1...	5.018f	5.881f	560.2E6	455.4E6	643.926m	474.333m#
Sum Aroclor 1242			3750.3E6	2601.1E6	4469.291	4979.738
Average Aroclor 1242					893.858	995.948
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

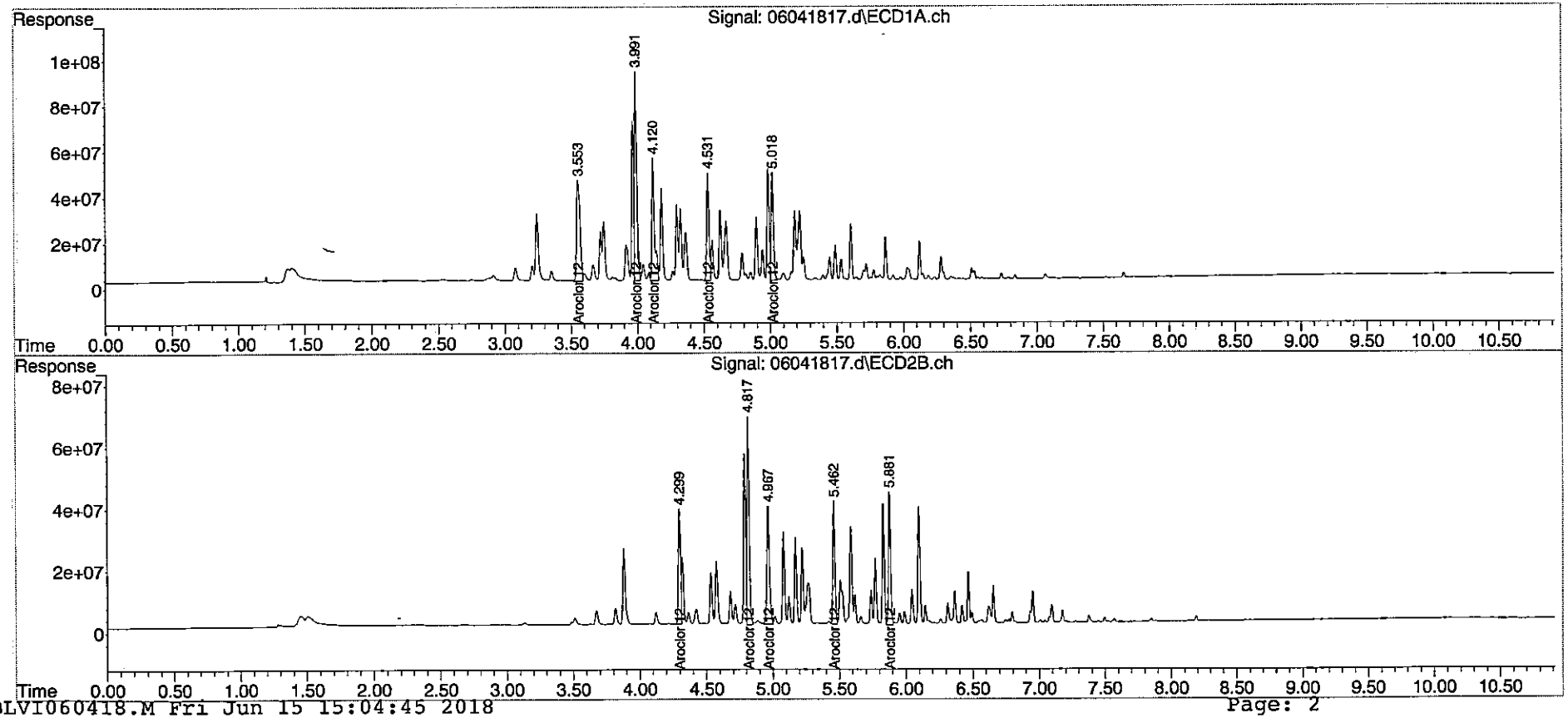
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041817.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:11
Operator : KJB
Sample : 1242 ICAL 500 NG/ML
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:42:47 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:40:54 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041818.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:25
Operator : KJB
Sample : 1248 ICAL 500 NG/ML
Misc :
ALS Vial : 24 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:44:51 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:42:51 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

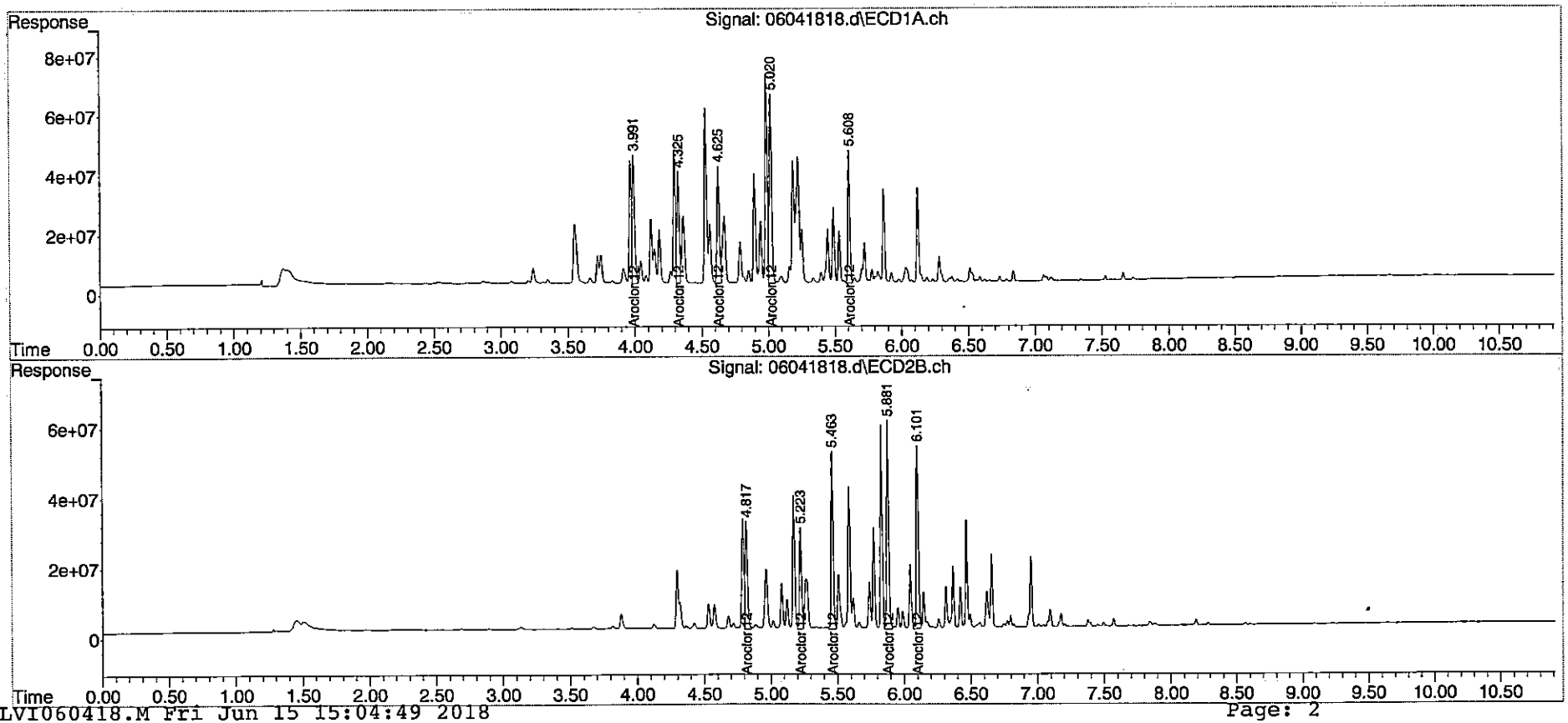
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
22) L Aroclor 1248	3.991f	4.817f	527.3E6	362.6E6	657.126m	399.343m#
23) L Aroclor 1...	4.325f	5.223f	442.2E6	327.6E6	602.471m	512.614m
24) L Aroclor 1...	4.625	5.463f	480.0E6	534.5E6	694.677m	440.709m#
25) L Aroclor 1...	5.020f	5.881f	803.0E6	637.9E6	592.974m	408.238m#
26) L Aroclor 1...	5.608f	6.101f	461.7E6	592.0E6	617.836m	445.974m#
Sum Aroclor 1248			2714.2E6	2454.6E6	3165.085	2206.878
Average Aroclor 1248					633.017	441.376
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041818.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 19:25
Operator : KJB
Sample   : 1248 ICAL 500 NG/ML
Misc   :
ALS Vial : 24   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:44:51 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:42:51 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041819.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:39
Operator : KJB
Sample : 1254 ICAL 500 NG/ML
Misc :
ALS Vial : 25 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:46:33 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:44:55 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

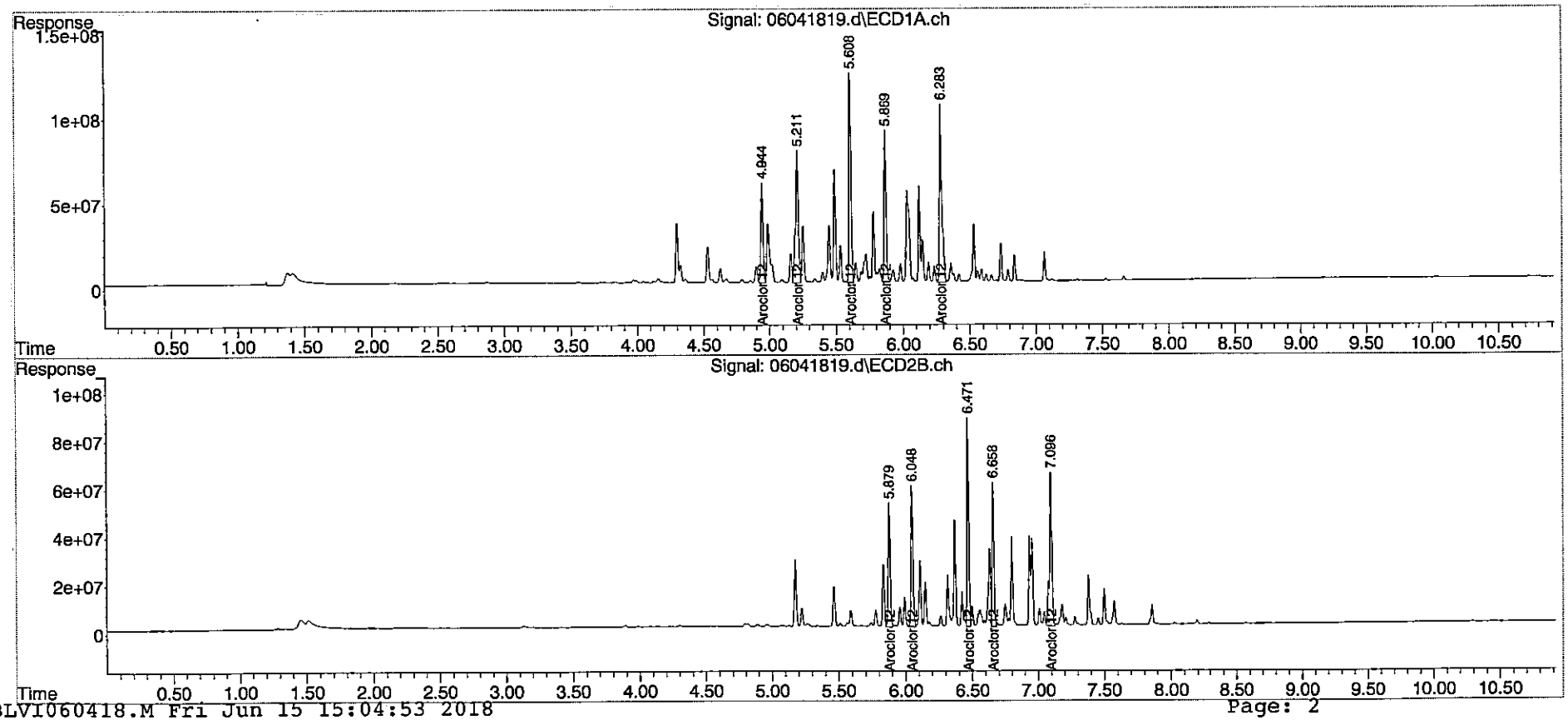
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
27) L,M Aroclor 1254	4.944	5.879f	692.2E6	517.4E6	672.329m	336.075m#
28) L,M Aroclor 1...	5.211f	6.048f	1179.4E6	577.2E6	576.261m	343.170m#
29) L,M Aroclor 1...	5.608f	6.471f	1239.4E6	766.2E6	494.953m	300.981m#
30) L,M Aroclor 1...	5.869f	6.658f	933.1E6	557.4E6	566.589m	346.276m#
31) L,M Aroclor 1...	6.283f	7.096f	1319.4E6	780.0E6	535.113m	312.439m#
Sum Aroclor 1254			5363.4E6	3198.2E6	2845.245	1638.940
Average Aroclor 1254					569.049	327.788
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041819.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 19:39
Operator : KJB
Sample   : 1254 ICAL 500 NG/ML
Misc   :
ALS Vial : 25   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:46:33 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:44:55 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041820.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:54
Operator : KJB
Sample : 1260 ICAL 500 NG/ML
Misc :
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:47:26 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:46:38 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

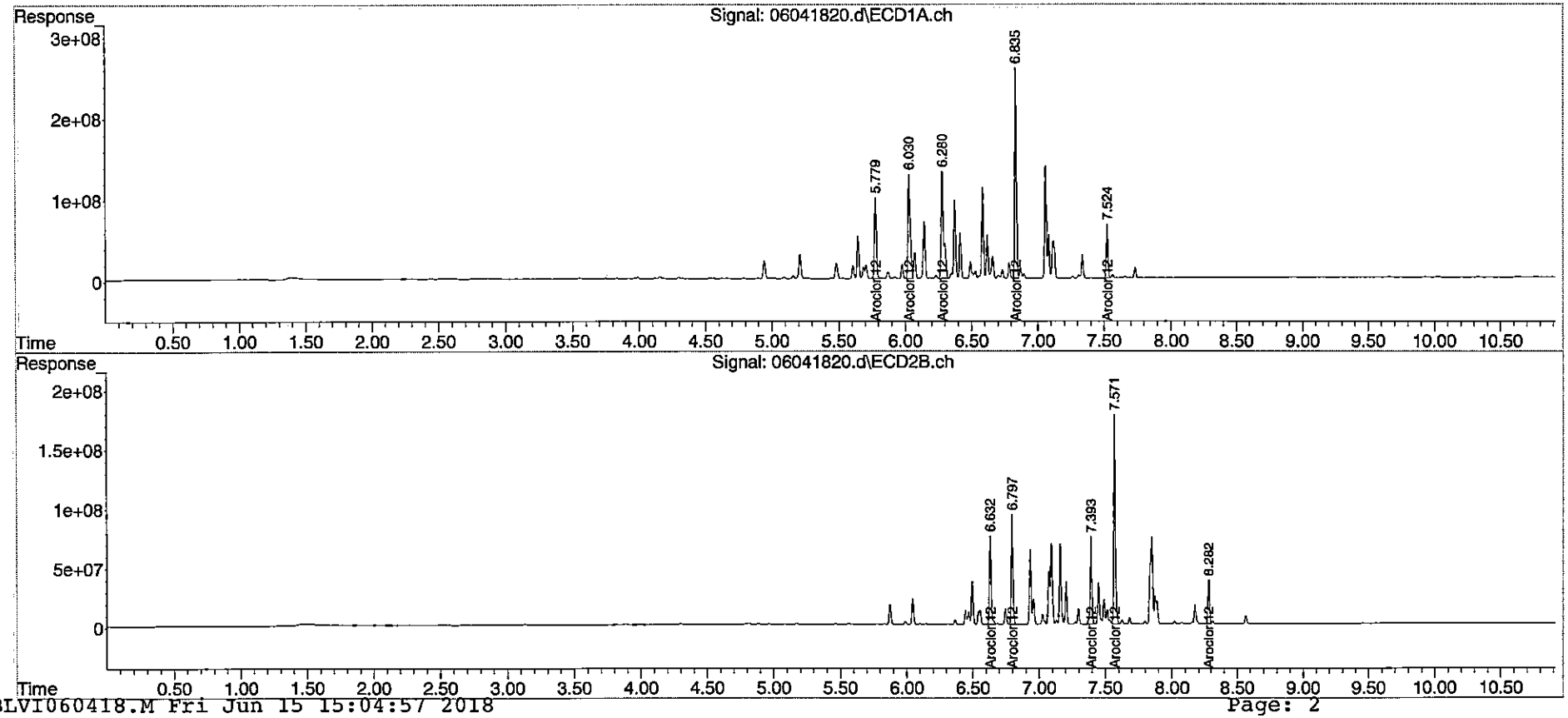
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
32) L Aroclor 1260	5.779	6.633	1052.2E6	677.7E6	447.420	421.969
33) L Aroclor 1...	6.031	6.798	1595.7E6	802.9E6	437.158	432.797
34) L Aroclor 1...	6.281	7.394	1772.4E6	671.7E6	414.574	464.762
35) L Aroclor 1...	6.835	7.572	2362.3E6	1498.9E6	466.354	480.671
36) L Aroclor 1...	7.524	8.283	589.3E6	346.8E6	440.668	452.316
Sum Aroclor 1260			7371.8E6	3998.0E6	2206.174	2252.515
Average Aroclor 1260					441.235	450.503
Sum Aroclor 1262			0	0	N.D.	N.D.
Average Aroclor 1262					0.000	0.000
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041820.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 19:54
Operator : KJB
Sample : 1260 ICAL 500 NG/ML
Misc :
ALS Vial : 26 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:47:26 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:46:38 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 20:08
Operator : KJB
Sample : 1262 ICAL 500 NG/ML
Misc :
ALS Vial : 27 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:48:49 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:46:38 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

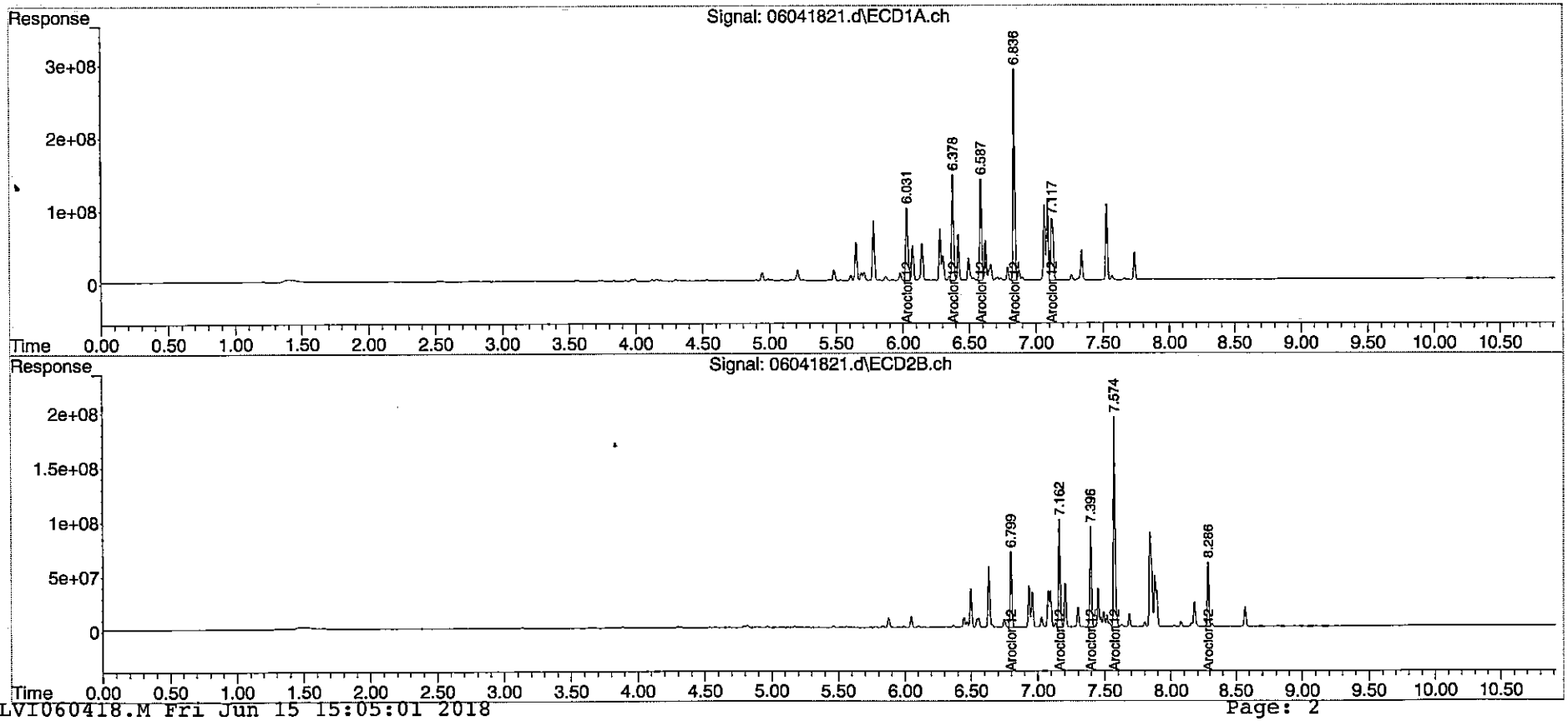
Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
System Monitoring Compounds						
Target Compounds						
Sum Aroclor 1016			0	0	N.D.	N.D.
Average Aroclor 1016					0.000	0.000
Sum Aroclor 1221			0	0	N.D.	N.D.
Average Aroclor 1221					0.000	0.000
Sum Aroclor 1232			0	0	N.D.	N.D.
Average Aroclor 1232					0.000	0.000
Sum Aroclor 1242			0	0	N.D.	N.D.
Average Aroclor 1242					0.000	0.000
Sum Aroclor 1248			0	0	N.D.	N.D.
Average Aroclor 1248					0.000	0.000
Sum Aroclor 1254			0	0	N.D.	N.D.
Average Aroclor 1254					0.000	0.000
Sum Aroclor 1260			0	0	N.D.	N.D.
Average Aroclor 1260					0.000	0.000
37) L,M Aroclor 1262	6.031	6.799f	1121.2E6	618.9E6	694.583m	398.230m#
38) L,M Aroclor 1...	6.378	7.162f	1363.9E6	883.7E6	605.496m	411.586m#
39) L,M Aroclor 1...	6.587	7.396f	1319.5E6	826.9E6	664.277m	402.040m#
40) L,M Aroclor 1...	6.836	7.574f	2635.7E6	1659.1E6	585.302m	418.499m#
41) L,M Aroclor 1...	7.117	8.286f	1141.2E6	549.4E6	506.442m	409.795m
Sum Aroclor 1262			7581.4E6	4538.1E6	3056.101	2040.149
Average Aroclor 1262					611.220	408.030
Sum Aroclor 1268			0	0	N.D.	N.D.
Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On   : 4 Jun 2018 20:08
Operator : KJB
Sample   : 1262 ICAL 500 NG/ML
Misc   :
ALS Vial : 27   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:48:49 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:46:38 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.   :
Signal #1 Phase :   Signal #2 Phase:
Signal #1 Info :   Signal #2 Info :



Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041822.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 20:22
Operator : KJB
Sample : 1268 ICAL 500 NG/ML
Misc :
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:50:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:48:54 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
	Target Compounds						
	Sum Aroclor 1016			0	0	N.D.	N.D.
	Average Aroclor 1016					0.000	0.000
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
	Sum Aroclor 1260			0	0	N.D.	N.D.
	Average Aroclor 1260					0.000	0.000
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
42)	L Aroclor 1268	7.083f	7.838f	3221.4E6	1982.3E6	672.336m	427.967m#
43)	L Aroclor 1...	7.114f	7.873f	3344.6E6	1964.0E6	576.759m	405.360m#
44)	L Aroclor 1...	7.262f	8.071f	2149.3E6	1326.3E6	590.380m	414.960m#
45)	L Aroclor 1...	7.523f	8.280f	1094.0E6	652.5E6	635.698m	445.147m#
46)	L Aroclor 1...	7.732f	8.564f	7073.7E6	4212.1E6	648.519m	445.374m#
	Sum Aroclor 1268			16883.0E6	10137.2E6	3123.692	2138.808
	Average Aroclor 1268					624.738	427.762

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

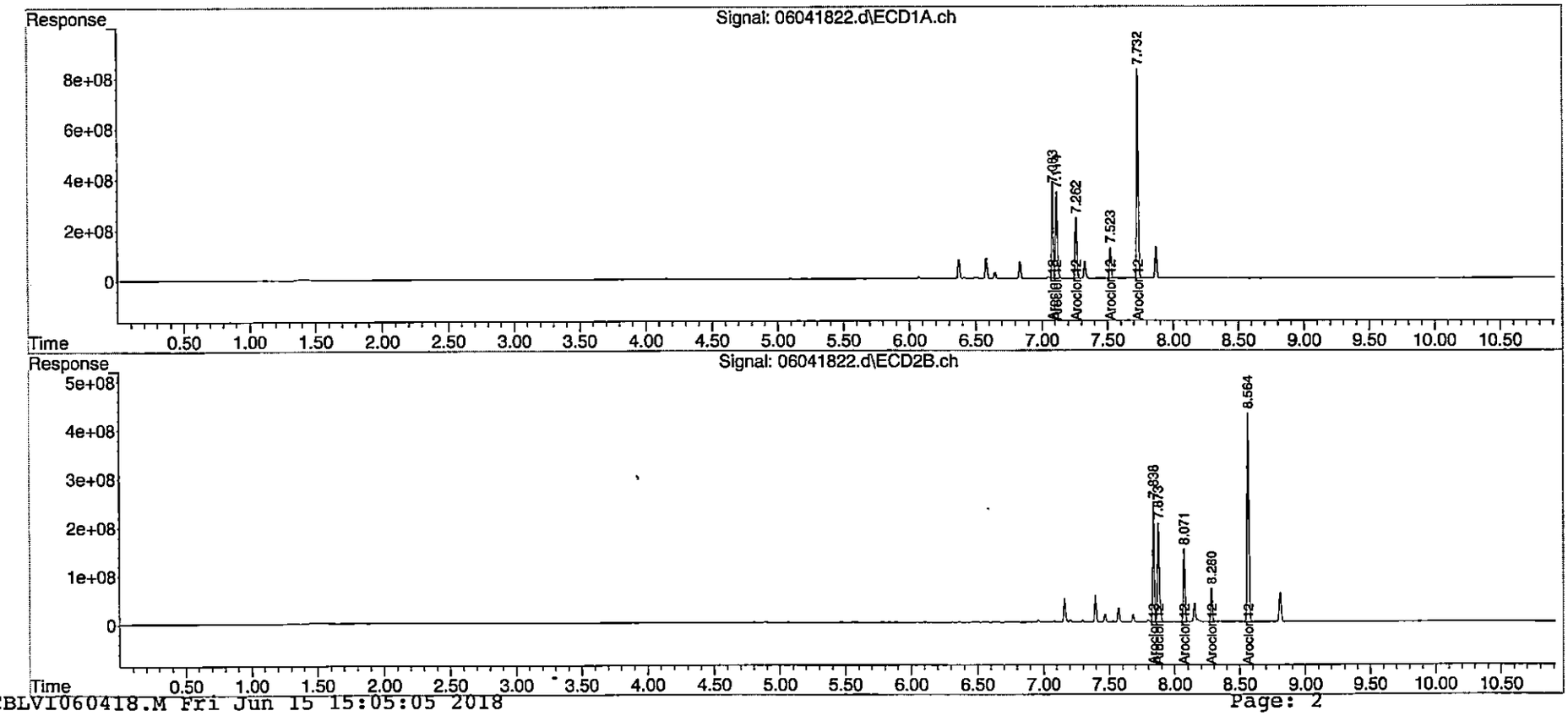
[redacted]

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060418PC\
Data File : 06041822.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 4 Jun 2018 20:22
Operator : KJB
Sample : 1268 ICAL 500 NG/ML
Misc :
ALS Vial : 28 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Jun 05 09:50:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:48:54 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



2018 Jun 04 1548 Sequence Log

Starting sequence Mon Jun 04 15:48:28 2018

Instrument Name: GC14
Sequence File: C:\msdchem\1\sequence\060418PC.s
Comment: PCB's by GCECD
Operator: KJB
Data Path: C:\MSDCHEM\1\DATA\060418PC\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
3)	Sample	2	06041803	PCBLVI	BLANK
4)	Sample	2	06041804	PCBLVI	BLANK
5)	Sample	11	06041805	PCBLVI	PCBLVI ICAL A 10 NG/ML
6)	Sample	12	06041806	PCBLVI	PCBLVI ICAL B 20 NG/ML
7)	Sample	13	06041807	PCBLVI	PCBLVI ICAL C 30 NG/ML
8)	Sample	14	06041808	PCBLVI	PCBLVI ICAL D 50 NG/ML
9)	Sample	15	06041809	PCBLVI	PCBLVI ICAL E 100 NG/ML
10)	Sample	16	06041810	PCBLVI	PCBLVI ICAL F 200 NG/ML
11)	Sample	17	06041811	PCBLVI	PCBLVI ICAL G 300 NG/ML
12)	Sample	18	06041812	PCBLVI	PCBLVI ICAL H 500 NG/ML
13)	Sample	19	06041813	PCBLVI	PCBLVI ICAL I 1000 NG/ML
14)	Sample	20	06041814	PCBLVI	PCBLVI ICV 500 NG/ML
15)	Sample	21	06041815	PCBLVI	1221 ICAL 500 NG/ML
16)	Sample	22	06041816	PCBLVI	1232 ICAL 500 NG/ML
17)	Sample	23	06041817	PCBLVI	1242 ICAL 500 NG/ML
18)	Sample	24	06041818	PCBLVI	1248 ICAL 500 NG/ML
19)	Sample	25	06041819	PCBLVI	1254 ICAL 500 NG/ML
20)	Sample	26	06041820	PCBLVI	1260 ICAL 500 NG/ML
21)	Sample	27	06041821	PCBLVI	1262 ICAL 500 NG/ML
22)	Sample	28	06041822	PCBLVI	1268 ICAL 500 NG/ML
23)	Sample	2	06041823	PCB4	BLANK
24)	Sample	2	06041824	PCB4	BLANK
25)	Sample	31	06041825	PCB4	PCB ICAL 0.2 ug/mL
26)	Sample	32	06041826	PCB4	PCB ICAL 0.5 ug/mL
27)	Sample	33	06041827	PCB4	PCB ICAL 1.0 ug/mL
28)	Sample	34	06041828	PCB4	PCB ICAL 2.0 ug/mL
29)	Sample	35	06041829	PCB4	PCB ICAL 5.0 ug/mL
30)	Sample	36	06041830	PCB4	PCB ICAL 10.0 ug/mL
31)	Sample	37	06041831	PCB4	PCB ICV 5.0 ug/mL
32)	Sample	38	06041832	PCB4	1242 ICAL 0.2 ug/mL
33)	Sample	39	06041833	PCB4	1242 ICAL 0.5 ug/mL
34)	Sample	40	06041834	PCB4	1242 ICAL 1.0 ug/mL
35)	Sample	41	06041835	PCB4	1242 ICAL 2.0 ug/mL
36)	Sample	42	06041836	PCB4	1242 ICAL 5.0 ug/mL
37)	Sample	43	06041837	PCB4	1242 ICAL 10.0 ug/mL
38)	Sample	44	06041838	PCB4	1242 ICV 5.0 ug/mL
39)	Sample	45	06041839	PCB4	1248 ICAL 0.2 ug/mL
40)	Sample	46	06041840	PCB4	1248 ICAL 0.5 ug/mL
41)	Sample	47	06041841	PCB4	1248 ICAL 1.0 ug/mL
42)	Sample	48	06041842	PCB4	1248 ICAL 2.0 ug/mL
43)	Sample	49	06041843	PCB4	1248 ICAL 5.0 ug/mL
44)	Sample	50	06041844	PCB4	1248 ICAL 10.0 ug/mL
45)	Sample	51	06041845	PCB4	1248 ICV 5.0 ug/mL
46)	Sample	52	06041846	PCB4	1254 ICAL 0.2 ug/mL
47)	Sample	53	06041847	PCB4	1254 ICAL 0.5 ug/mL
48)	Sample	54	06041848	PCB4	1254 ICAL 1.0 ug/mL
49)	Sample	55	06041849	PCB4	1254 ICAL 2.0 ug/mL
50)	Sample	56	06041850	PCB4	1254 ICAL 5.0 ug/mL
51)	Sample	57	06041851	PCB4	1254 ICAL 10.0 ug/mL
52)	Sample	58	06041852	PCB4	1254 ICV 5.0 ug/mL
53)	Sample	59	06041853	PCB4	1221 ICAL 5.0 ug/mL
54)	Sample	60	06041854	PCB4	1232 ICAL 5.0 ug/mL

2018 Jun 04 1548 Sequence Log

55) Sample 61 06041855 PCB4 1260 ICAL 5.0 ug/mL
56) Sample 62 06041856 PCB4 1262 ICAL 5.0 ug/mL
57) Sample 63 06041857 PCB4 1268 ICAL 5.0 ug/mL

Sequence completed Tue Jun 05 04:55:23 2018

C:\MSDCHEM\1\DATA\060418PC\2018 Jun 04 1548 Quality Log.LOG
C:\MSDCHEM\1\DATA\060418PC\2018 Jun 04 1548 Sequence Log .LOG

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 13:29
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 05 14:19:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	S	TCMX	0.100	9.516	-9416.0#	47	-0.03
2	L	Aroclor 1016	5.000	513.670	-10173.4#	56	-0.02
3	L	Aroclor 1016 {2}	5.000	526.594	-10431.9#	55	-0.01
4	L	Aroclor 1016 {3}	5.000	470.276	-9305.5#	57	0.00
5	L	Aroclor 1016 {4}	5.000	530.365	-10507.3#	54	0.00
6	L	Aroclor 1016 {5}	5.000	461.463	-9129.3#	52	0.00
32	L	Aroclor 1260	5.000	446.444	-8828.9#	53	0.02
33	L	Aroclor 1260 {2}	5.000	442.525	-8750.5#	51	0.02
34	L	Aroclor 1260 {3}	5.000	433.678	-8573.6#	51	0.02
35	L	Aroclor 1260 {4}	5.000	434.554	-8591.1#	46	0.02
36	L	Aroclor 1260 {5}	5.000	427.062	-8441.2#	50	0.03
47	S	DCB	0.100	8.620	-8520.0#	50	0.04

Signal #2

1	S	TCMX	0.100	9.252	-9152.0#	40	0.00
2	L	Aroclor 1016	5.000	457.133	-9042.7#	47	0.03
3	L	Aroclor 1016 {2}	5.000	447.245	-8844.9#	73	0.04
4	L	Aroclor 1016 {3}	5.000	438.737	-8674.7#	45	0.05
5	L	Aroclor 1016 {4}	5.000	441.398	-8728.0#	44	0.05
6	L	Aroclor 1016 {5}	5.000	437.440	-8648.8#	49	-0.07
32	L	Aroclor 1260	5.000	449.450	-8889.0#	43	0.07
33	L	Aroclor 1260 {2}	5.000	447.259	-8845.2#	40	0.06
34	L	Aroclor 1260 {3}	5.000	468.646	-9272.9#	41	0.07
35	L	Aroclor 1260 {4}	5.000	478.509	-9470.2#	42	0.07
36	L	Aroclor 1260 {5}	5.000	478.227	-9464.5#	43	0.09
47	S	DCB	0.100	9.190	-9090.0#	45	0.10

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	5.000	0.000	100.0#	0	-2.56#
8	L,M	Aroclor 1221 {2}	5.000	0.000	100.0#	0	-3.10#
9	L,M	Aroclor 1221 {3}	5.000	0.000	100.0#	0	-3.26#
10	L,M	Aroclor 1221 {4}	5.000	0.000	100.0#	0	-3.63#
11	L,M	Aroclor 1221 {5}	5.000	0.000	100.0#	0	-3.68#
12	L	Aroclor 1232	5.000	0.000	100.0#	0	-3.26#
13	L	Aroclor 1232 {2}	5.000	0.000	100.0#	0	-3.57#
14	L	Aroclor 1232 {3}	5.000	0.000	100.0#	0	-4.00#
15	L	Aroclor 1232 {4}	5.000	0.000	100.0#	0	-4.13#
16	L	Aroclor 1232 {5}	5.000	0.000	100.0#	0	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 13:29
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 05 14:19:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	TCMX	11.208	4.860 E9	56.6#	47#	-0.03
2	L	Aroclor 1016	170.271	81.083 E6	52.4#	56	-0.02
3	L	Aroclor 1016 {2}	322.871	156.475 E6	51.5#	55	-0.01
4	L	Aroclor 1016 {3}	454.856	228.278 E6	49.8#	57	0.00
5	L	Aroclor 1016 {4}	309.416	150.691 E6	51.3#	54	0.00
6	L	Aroclor 1016 {5}	228.524	107.123 E6	53.1#	52	0.00
32	L	Aroclor 1260	444.575	209.978 E6	52.8#	53	0.02
33	L	Aroclor 1260 {2}	684.182	323.075 E6	52.8#	51	0.02
34	L	Aroclor 1260 {3}	773.092	370.715 E6	52.0#	51	0.02
35	L	Aroclor 1260 {4}	942.060	439.546 E6	53.3#	46#	0.02
36	L	Aroclor 1260 {5}	244.630	114.240 E6	53.3#	50	0.03
47	S	DCB	8.129	3.803 E9	53.2#	50	0.04

Signal #2

1	S	TCMX	8.562	3.312 E9	61.3#	40#	0.00
2	L	Aroclor 1016	144.594	59.419 E6	58.9#	47#	0.03
3	L	Aroclor 1016 {2}	197.367	125.965 E6	36.2#	73	0.04
4	L	Aroclor 1016 {3}	371.204	154.305 E6	58.4#	45#	0.05
5	L	Aroclor 1016 {4}	249.856	100.179 E6	59.9#	44#	0.05
6	L	Aroclor 1016 {5}	175.697	80.432 E6	54.2#	49#	-0.07
32	L	Aroclor 1260	357.853	144.309 E6	59.7#	43#	0.07
33	L	Aroclor 1260 {2}	431.971	165.910 E6	61.6#	40#	0.06
34	L	Aroclor 1260 {3}	341.999	135.461 E6	60.4#	41#	0.07
35	L	Aroclor 1260 {4}	713.743	298.427 E6	58.2#	42#	0.07
36	L	Aroclor 1260 {5}	174.297	73.297 E6	57.9#	43#	0.09
47	S	DCB	5.777	2.408 E9	58.3#	45#	0.10

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	59.316	0.000 E6	100.0#	0#	-2.56#
8	L,M	Aroclor 1221 {2}	95.458	0.000 E6	100.0#	0#	-3.10#
9	L,M	Aroclor 1221 {3}	214.239	0.000 E6	100.0#	0#	-3.26#
10	L,M	Aroclor 1221 {4}	18.439	0.000 E6	100.0#	0#	-3.63#
11	L,M	Aroclor 1221 {5}	27.828	0.000 E6	100.0#	0#	-3.68#
12	L	Aroclor 1232	164.060	0.000 E6	100.0#	0#	-3.26#
13	L	Aroclor 1232 {2}	129.295	0.000 E6	100.0#	0#	-3.57#
14	L	Aroclor 1232 {3}	190.198	0.000 E6	100.0#	0#	-4.00#
15	L	Aroclor 1232 {4}	128.430	0.000 E6	100.0#	0#	-4.13#
16	L	Aroclor 1232 {5}	93.327	0.000 E6	100.0#	0#	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 13:29
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 05 14:19:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

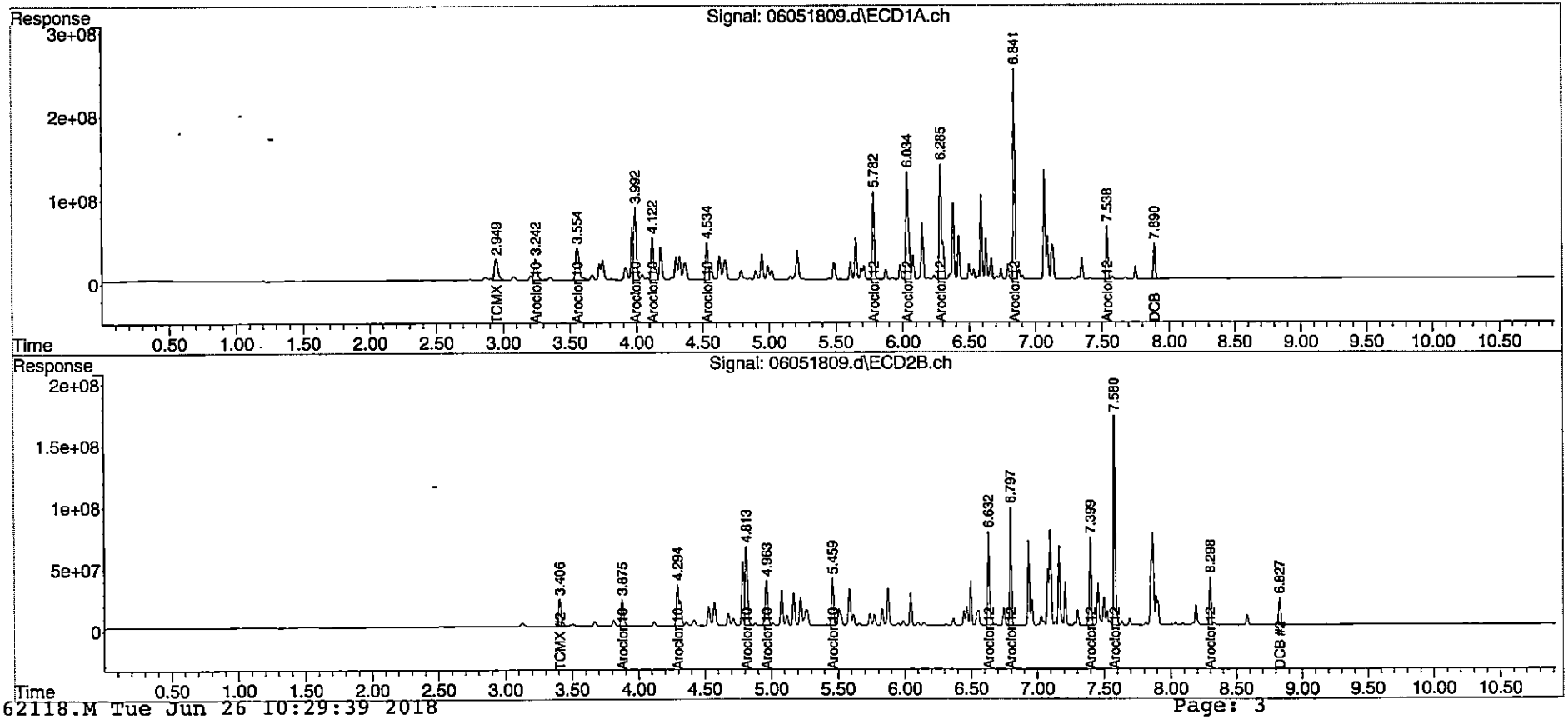
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.948	3.407	486.0E6	331.2E6	9.516	9.252
47) S	DCB	7.891	8.827	380.3E6	240.8E6	8.620	9.190
	Target Compounds						
2) L	Aroclor 1016	3.242	3.876	405.4E6	297.1E6	513.670	457.133
3) L	Aroclor 1...	3.555	4.294	782.4E6	629.8E6	526.594	447.245
4) L	Aroclor 1...	3.992	4.813	1141.4E6	771.5E6	470.276m	438.737
5) L	Aroclor 1...	4.122	4.963	753.5E6	500.9E6	530.365	441.398
6) L	Aroclor 1...	4.534	5.459	535.6E6	402.2E6	461.463	437.440
	Sum Aroclor 1016			3618.2E6	2601.5E6	2502.368	2221.952
	Average Aroclor 1016					500.474	444.390
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.782	6.632	1049.9E6	721.5E6	446.444	449.450
33) L	Aroclor 1...	6.034	6.798	1615.4E6	829.5E6	442.525	447.259
34) L	Aroclor 1...	6.286	7.400	1853.6E6	677.3E6	433.678	468.646
35) L	Aroclor 1...	6.841	7.580	2197.7E6	1492.1E6	434.554	478.509
36) L	Aroclor 1...	7.538	8.299	571.2E6	366.5E6	427.062	478.227
	Sum Aroclor 1260			7287.8E6	4087.0E6	2184.263	2322.091
	Average Aroclor 1260					436.853	464.418
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051809.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 13:29
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 05 14:19:06 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:22
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:29 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	S	TCMX	0.100	9.702	-9602.0#	48	-0.04
2	L	Aroclor 1016	5.000	528.029	-10460.6#	58	-0.03
3	L	Aroclor 1016 {2}	5.000	540.576	-10711.5#	57	-0.02
4	L	Aroclor 1016 {3}	5.000	461.748	-9135.0#	56	0.00
5	L	Aroclor 1016 {4}	5.000	539.810	-10696.2#	54	0.00
6	L	Aroclor 1016 {5}	5.000	471.111	-9322.2#	53	0.00
32	L	Aroclor 1260	5.000	446.434	-8828.7#	53	0.00
33	L	Aroclor 1260 {2}	5.000	440.003	-8700.1#	51	0.01
34	L	Aroclor 1260 {3}	5.000	429.831	-8496.6#	50	0.01
35	L	Aroclor 1260 {4}	5.000	422.189	-8343.8#	45	0.01
36	L	Aroclor 1260 {5}	5.000	404.011	-7980.2#	47	0.02
47	S	DCB	0.100	9.295	-9195.0#	54	0.02

Signal #2

1	S	TCMX	0.100	9.978	-9878.0#	44	0.00
2	L	Aroclor 1016	5.000	481.203	-9524.1#	49	0.02
3	L	Aroclor 1016 {2}	5.000	473.830	-9376.6#	77	0.04
4	L	Aroclor 1016 {3}	5.000	465.082	-9201.6#	48	0.05
5	L	Aroclor 1016 {4}	5.000	474.128	-9382.6#	48	0.05
6	L	Aroclor 1016 {5}	5.000	465.728	-9214.6#	52	-0.07
32	L	Aroclor 1260	5.000	497.577	-9851.5#	48	0.06
33	L	Aroclor 1260 {2}	5.000	495.049	-9801.0#	45	0.06
34	L	Aroclor 1260 {3}	5.000	511.002	-10120.0#	45	0.06
35	L	Aroclor 1260 {4}	5.000	505.948	-10019.0#	44	0.06
36	L	Aroclor 1260 {5}	5.000	488.172	-9663.4#	44	0.06
47	S	DCB	0.100	9.514	-9414.0#	47	0.07

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	5.000	0.000	100.0#	0	-2.56#
8	L,M	Aroclor 1221 {2}	5.000	0.000	100.0#	0	-3.10#
9	L,M	Aroclor 1221 {3}	5.000	0.000	100.0#	0	-3.26#
10	L,M	Aroclor 1221 {4}	5.000	0.000	100.0#	0	-3.63#
11	L,M	Aroclor 1221 {5}	5.000	0.000	100.0#	0	-3.68#
12	L	Aroclor 1232	5.000	0.000	100.0#	0	-3.26#
13	L	Aroclor 1232 {2}	5.000	0.000	100.0#	0	-3.57#
14	L	Aroclor 1232 {3}	5.000	0.000	100.0#	0	-4.00#
15	L	Aroclor 1232 {4}	5.000	0.000	100.0#	0	-4.13#
16	L	Aroclor 1232 {5}	5.000	0.000	100.0#	0	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:22
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:29 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	TCMX	11.208	4.955 E9	55.8#	48#	-0.04
2	L	Aroclor 1016	170.271	83.265 E6	51.1#	58	-0.03
3	L	Aroclor 1016 {2}	322.871	160.543 E6	50.3#	57	-0.02
4	L	Aroclor 1016 {3}	454.856	224.161 E6	50.7#	56	0.00
5	L	Aroclor 1016 {4}	309.416	153.319 E6	50.4#	54	0.00
6	L	Aroclor 1016 {5}	228.524	109.335 E6	52.2#	53	0.00
32	L	Aroclor 1260	444.575	209.974 E6	52.8#	53	0.00
33	L	Aroclor 1260 {2}	684.182	321.227 E6	53.0#	51	0.01
34	L	Aroclor 1260 {3}	773.092	367.447 E6	52.5#	50	0.01
35	L	Aroclor 1260 {4}	942.060	426.748 E6	54.7#	45#	0.01
36	L	Aroclor 1260 {5}	244.630	108.113 E6	55.8#	47#	0.02
47	S	DCB	8.129	4.100 E9	49.6#	54	0.02

Signal #2

1	S	TCMX	8.562	3.578 E9	58.2#	44#	0.00
2	L	Aroclor 1016	144.594	62.524 E6	56.8#	49#	0.02
3	L	Aroclor 1016 {2}	197.367	133.530 E6	32.3#	77	0.04
4	L	Aroclor 1016 {3}	371.204	163.690 E6	55.9#	48#	0.05
5	L	Aroclor 1016 {4}	249.856	107.729 E6	56.9#	48#	0.05
6	L	Aroclor 1016 {5}	175.697	85.684 E6	51.2#	52	-0.07
32	L	Aroclor 1260	357.853	159.660 E6	55.4#	48#	0.06
33	L	Aroclor 1260 {2}	431.971	183.527 E6	57.5#	45#	0.06
34	L	Aroclor 1260 {3}	341.999	147.632 E6	56.8#	45#	0.06
35	L	Aroclor 1260 {4}	713.743	315.529 E6	55.8#	44#	0.06
36	L	Aroclor 1260 {5}	174.297	74.809 E6	57.1#	44#	0.06
47	S	DCB	5.777	2.492 E9	56.9#	47#	0.07

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	59.316	0.000 E6	100.0#	0#	-2.56#
8	L,M	Aroclor 1221 {2}	95.458	0.000 E6	100.0#	0#	-3.10#
9	L,M	Aroclor 1221 {3}	214.239	0.000 E6	100.0#	0#	-3.26#
10	L,M	Aroclor 1221 {4}	18.439	0.000 E6	100.0#	0#	-3.63#
11	L,M	Aroclor 1221 {5}	27.828	0.000 E6	100.0#	0#	-3.68#
12	L	Aroclor 1232	164.060	0.000 E6	100.0#	0#	-3.26#
13	L	Aroclor 1232 {2}	129.295	0.000 E6	100.0#	0#	-3.57#
14	L	Aroclor 1232 {3}	190.198	0.000 E6	100.0#	0#	-4.00#
15	L	Aroclor 1232 {4}	128.430	0.000 E6	100.0#	0#	-4.13#
16	L	Aroclor 1232 {5}	93.327	0.000 E6	100.0#	0#	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:22
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:29 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

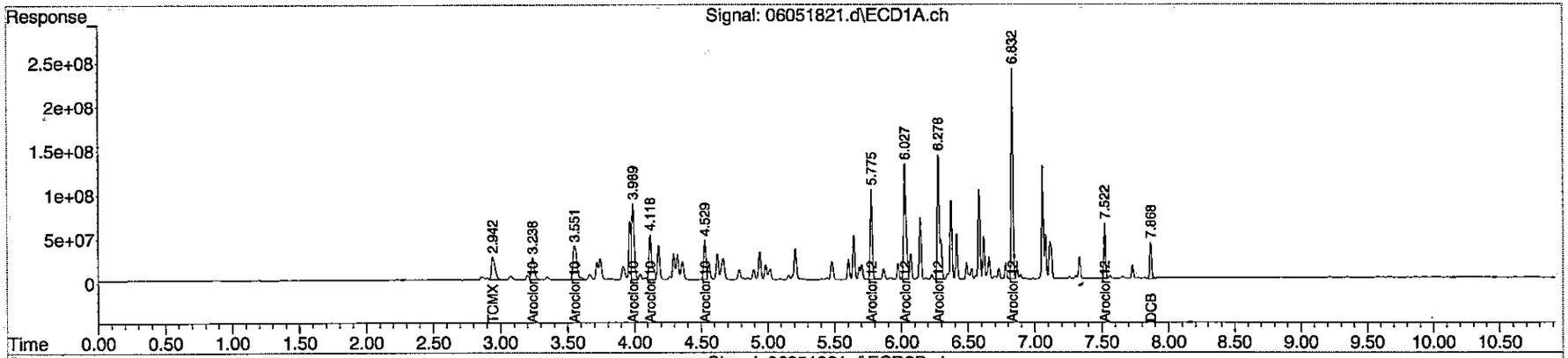
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.943	3.405	495.5E6	357.8E6	9.702	9.978
47) S	DCB	7.868	8.801	410.0E6	249.2E6	9.295m	9.514
	Target Compounds						
2) L	Aroclor 1016	3.239	3.874	416.3E6	312.6E6	528.029	481.203
3) L	Aroclor 1...	3.553	4.292	802.7E6	667.7E6	540.576	473.830
4) L	Aroclor 1...	3.989	4.810	1120.8E6	818.4E6	461.748	465.082
5) L	Aroclor 1...	4.119	4.960	766.6E6	538.6E6	539.810	474.128
6) L	Aroclor 1...	4.530	5.455	546.7E6	428.4E6	471.111	465.728
	Sum Aroclor 1016			3653.1E6	2765.8E6	2541.275	2359.971
	Average Aroclor 1016					508.255	471.994
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.776	6.626	1049.9E6	798.3E6	446.434	497.577
33) L	Aroclor 1...	6.028	6.791	1606.1E6	917.6E6	440.003	495.049
34) L	Aroclor 1...	6.278	7.387	1837.2E6	738.2E6	429.831	511.002
35) L	Aroclor 1...	6.833	7.565	2133.7E6	1577.6E6	422.189	505.948
36) L	Aroclor 1...	7.522	8.275	540.6E6	374.0E6	404.011	488.172
	Sum Aroclor 1260			7167.5E6	4405.8E6	2142.469	2497.749
	Average Aroclor 1260					428.494	499.550
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051821.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:22
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:29 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051833.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 19:13
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:15:12 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(Min)
1	S	TCMX	0.100	9.732	-9632.0#	48	-0.03
2	L	Aroclor 1016	5.000	520.838	-10316.8#	57	-0.02
3	L	Aroclor 1016 {2}	5.000	541.064	-10721.3#	57	-0.02
4	L	Aroclor 1016 {3}	5.000	457.671	-9053.4#	56	0.00
5	L	Aroclor 1016 {4}	5.000	541.728	-10734.6#	55	0.00
6	L	Aroclor 1016 {5}	5.000	473.844	-9376.9#	53	0.00
32	L	Aroclor 1260	5.000	451.721	-8934.4#	53	0.00
33	L	Aroclor 1260 {2}	5.000	447.571	-8851.4#	52	0.01
34	L	Aroclor 1260 {3}	5.000	437.213	-8644.3#	51	0.01
35	L	Aroclor 1260 {4}	5.000	436.461	-8629.2#	46	0.01
36	L	Aroclor 1260 {5}	5.000	417.434	-8248.7#	49	0.02
47	S	DCB	0.100	8.921	-8821.0#	52	0.02

Signal #2

1	S	TCMX	0.100	9.690	-9590.0#	42	0.00
2	L	Aroclor 1016	5.000	470.020	-9300.4#	48	0.02
3	L	Aroclor 1016 {2}	5.000	465.493	-9209.9#	76	0.04
4	L	Aroclor 1016 {3}	5.000	455.000	-9000.0#	47	0.05
5	L	Aroclor 1016 {4}	5.000	464.399	-9188.0#	47	0.05
6	L	Aroclor 1016 {5}	5.000	457.459	-9049.2#	51	-0.07
32	L	Aroclor 1260	5.000	489.960	-9699.2#	47	0.06
33	L	Aroclor 1260 {2}	5.000	489.930	-9698.6#	44	0.06
34	L	Aroclor 1260 {3}	5.000	509.538	-10090.8#	45	0.06
35	L	Aroclor 1260 {4}	5.000	512.885	-10157.7#	45	0.06
36	L	Aroclor 1260 {5}	5.000	501.882	-9937.6#	45	0.06
47	S	DCB	0.100	9.704	-9604.0#	48	0.07

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	5.000	0.000	100.0#	0	-2.56#
8	L,M	Aroclor 1221 {2}	5.000	0.000	100.0#	0	-3.10#
9	L,M	Aroclor 1221 {3}	5.000	0.000	100.0#	0	-3.26#
10	L,M	Aroclor 1221 {4}	5.000	0.000	100.0#	0	-3.63#
11	L,M	Aroclor 1221 {5}	5.000	0.000	100.0#	0	-3.68#
12	L	Aroclor 1232	5.000	0.000	100.0#	0	-3.26#
13	L	Aroclor 1232 {2}	5.000	0.000	100.0#	0	-3.57#
14	L	Aroclor 1232 {3}	5.000	0.000	100.0#	0	-4.00#
15	L	Aroclor 1232 {4}	5.000	0.000	100.0#	0	-4.13#
16	L	Aroclor 1232 {5}	5.000	0.000	100.0#	0	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051833.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 19:13
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:15:12 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	S	TCMX	11.208	4.970 E9	55.7#	48#	-0.03
2	L	Aroclor 1016	170.271	82.172 E6	51.7#	57	-0.02
3	L	Aroclor 1016 {2}	322.871	160.685 E6	50.2#	57	-0.02
4	L	Aroclor 1016 {3}	454.856	222.193 E6	51.2#	56	0.00
5	L	Aroclor 1016 {4}	309.416	153.853 E6	50.3#	55	0.00
6	L	Aroclor 1016 {5}	228.524	109.961 E6	51.9#	53	0.00
32	L	Aroclor 1260	444.575	212.425 E6	52.2#	53	0.00
33	L	Aroclor 1260 {2}	684.182	326.774 E6	52.2#	52	0.01
34	L	Aroclor 1260 {3}	773.092	373.719 E6	51.7#	51	0.01
35	L	Aroclor 1260 {4}	942.060	441.520 E6	53.1#	46#	0.01
36	L	Aroclor 1260 {5}	244.630	111.681 E6	54.3#	49#	0.02
47	S	DCB	8.129	3.936 E9	51.6#	52	0.02

Signal #2

1	S	TCMX	8.562	3.472 E9	59.4#	42#	0.00
2	L	Aroclor 1016	144.594	61.081 E6	57.8#	48#	0.02
3	L	Aroclor 1016 {2}	197.367	131.158 E6	33.5#	76	0.04
4	L	Aroclor 1016 {3}	371.204	160.098 E6	56.9#	47#	0.05
5	L	Aroclor 1016 {4}	249.856	105.485 E6	57.8#	47#	0.05
6	L	Aroclor 1016 {5}	175.697	84.149 E6	52.1#	51	-0.07
32	L	Aroclor 1260	357.853	157.230 E6	56.1#	47#	0.06
33	L	Aroclor 1260 {2}	431.971	181.640 E6	58.0#	44#	0.06
34	L	Aroclor 1260 {3}	341.999	147.212 E6	57.0#	45#	0.06
35	L	Aroclor 1260 {4}	713.743	319.852 E6	55.2#	45#	0.06
36	L	Aroclor 1260 {5}	174.297	76.894 E6	55.9#	45#	0.06
47	S	DCB	5.777	2.541 E9	56.0#	48#	0.07

Evaluate Continuing Calibration Report - Not Founds

7	L,M	Aroclor 1221	59.316	0.000 E6	100.0#	0#	-2.56#
8	L,M	Aroclor 1221 {2}	95.458	0.000 E6	100.0#	0#	-3.10#
9	L,M	Aroclor 1221 {3}	214.239	0.000 E6	100.0#	0#	-3.26#
10	L,M	Aroclor 1221 {4}	18.439	0.000 E6	100.0#	0#	-3.63#
11	L,M	Aroclor 1221 {5}	27.828	0.000 E6	100.0#	0#	-3.68#
12	L	Aroclor 1232	164.060	0.000 E6	100.0#	0#	-3.26#
13	L	Aroclor 1232 {2}	129.295	0.000 E6	100.0#	0#	-3.57#
14	L	Aroclor 1232 {3}	190.198	0.000 E6	100.0#	0#	-4.00#
15	L	Aroclor 1232 {4}	128.430	0.000 E6	100.0#	0#	-4.13#
16	L	Aroclor 1232 {5}	93.327	0.000 E6	100.0#	0#	-4.53#

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051833.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 19:13
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:15:12 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

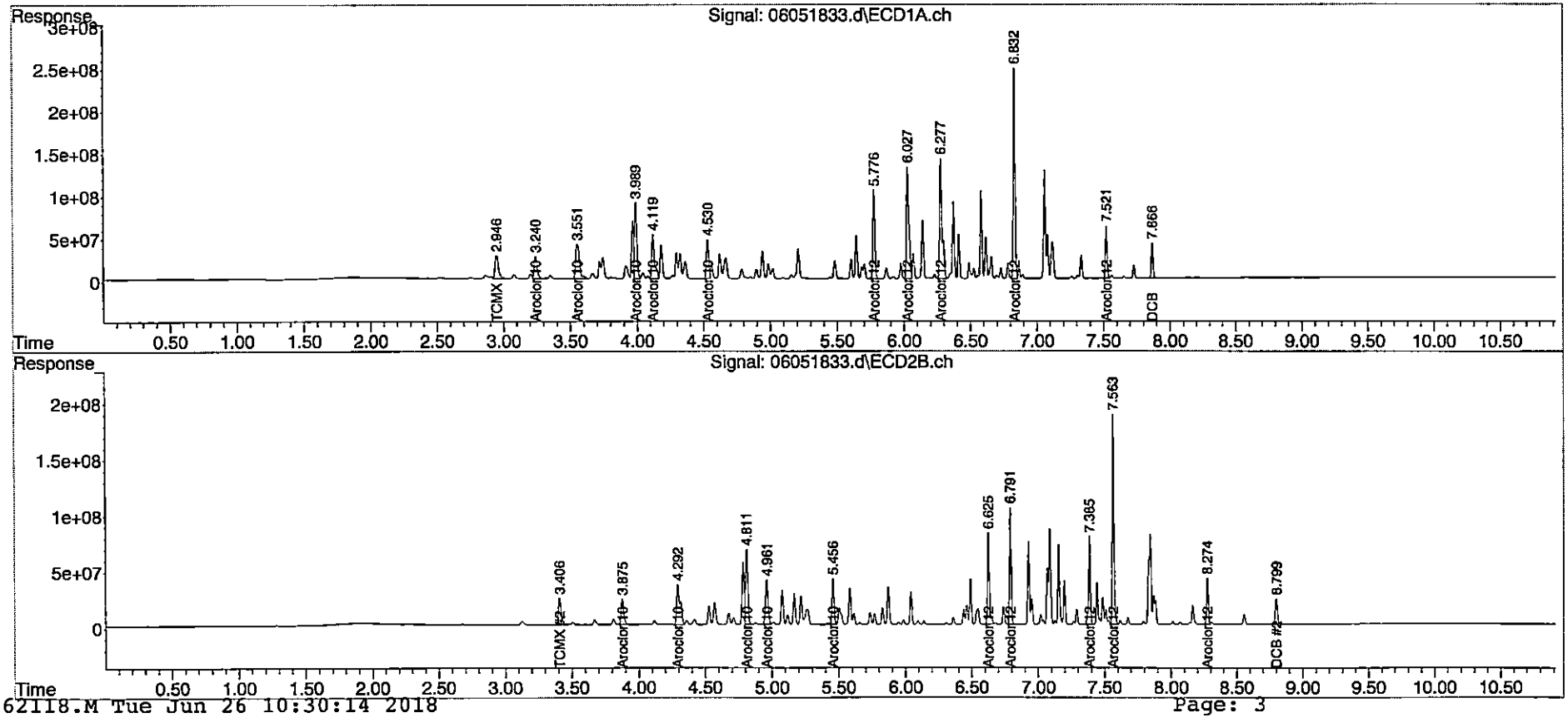
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.947	3.406	497.0E6	347.2E6	9.732	9.690
47) S	DCB	7.866	8.800	393.6E6	254.1E6	8.921m	9.704
	Target Compounds						
2) L	Aroclor 1016	3.240	3.876	410.9E6	305.4E6	520.838	470.020
3) L	Aroclor 1...	3.553	4.293	803.4E6	655.8E6	541.064	465.493
4) L	Aroclor 1...	3.989	4.811	1111.0E6	800.5E6	457.671	455.000
5) L	Aroclor 1...	4.119	4.961	769.3E6	527.4E6	541.728	464.399
6) L	Aroclor 1...	4.530	5.456	549.8E6	420.7E6	473.844	457.459
	Sum Aroclor 1016			3644.3E6	2709.9E6	2535.145	2312.371
	Average Aroclor 1016					507.029	462.474
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.776	6.626	1062.1E6	786.2E6	451.721	489.960
33) L	Aroclor 1...	6.028	6.791	1633.9E6	908.2E6	447.571	489.930
34) L	Aroclor 1...	6.278	7.386	1868.6E6	736.1E6	437.213	509.538
35) L	Aroclor 1...	6.832	7.564	2207.6E6	1599.3E6	436.461	512.885
36) L	Aroclor 1...	7.521	8.274	558.4E6	384.5E6	417.434	501.882
	Sum Aroclor 1260			7330.6E6	4414.1E6	2190.401	2504.195
	Average Aroclor 1260					438.080	500.839
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051833.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 19:13
Operator : KJB
Sample : PCBLVI CCV 500 NG/ML
Misc : 100-9220
ALS Vial : 3 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:15:12 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051816.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 15:10
Operator : KJB
Sample : PBLKS1-119240
Misc : LVI SOIL
ALS Vial : 17 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:01:59 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

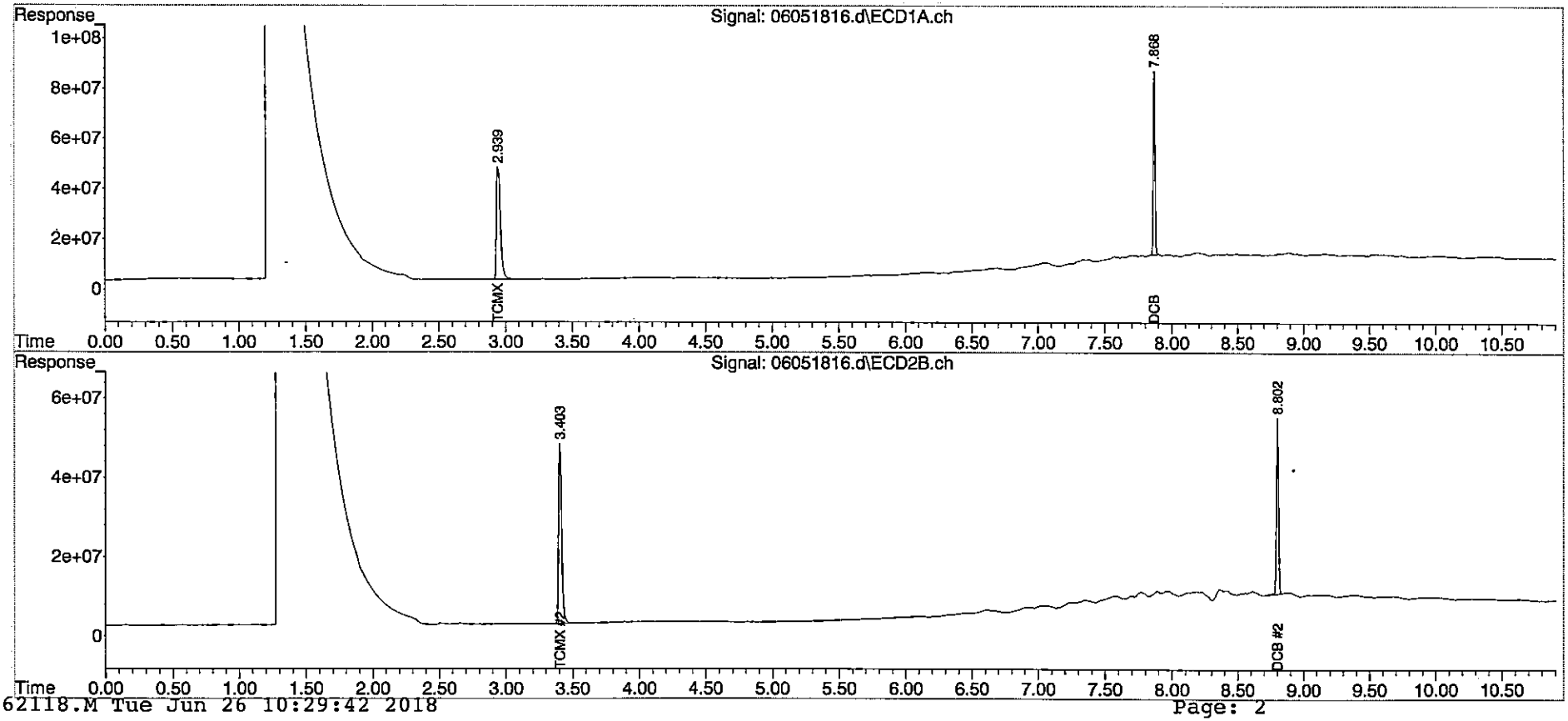
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1)	S TCMX	2.941	3.404	929.6E6	727.7E6	18.219	20.071
47)	S DCB	7.868	8.802	638.4E6	475.7E6	14.489m	18.232 #
	Target Compounds						
	Sum Aroclor 1016			0	0	N.D.	N.D.
	Average Aroclor 1016					0.000	0.000
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
	Sum Aroclor 1260			0	0	N.D.	N.D.
	Average Aroclor 1260					0.000	0.000
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

```
Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051816.d
Signal(s) : Signal #1: ECD1A.ch  Signal #2: ECD2B.ch
Acq On    :  5 Jun 2018  15:10
Operator  : KJB
Sample    : PBLKS1-119240
Misc      : LVI SOIL
ALS Vial  : 17   Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:01:59 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title  :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.     :
Signal #1 Phase :                    Signal #2 Phase:
Signal #1 Info  :                    Signal #2 Info :
```



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051817.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 15:24
Operator : KJB
Sample : PLCSS1-119240
Misc : LVI SOIL
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:02:26 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

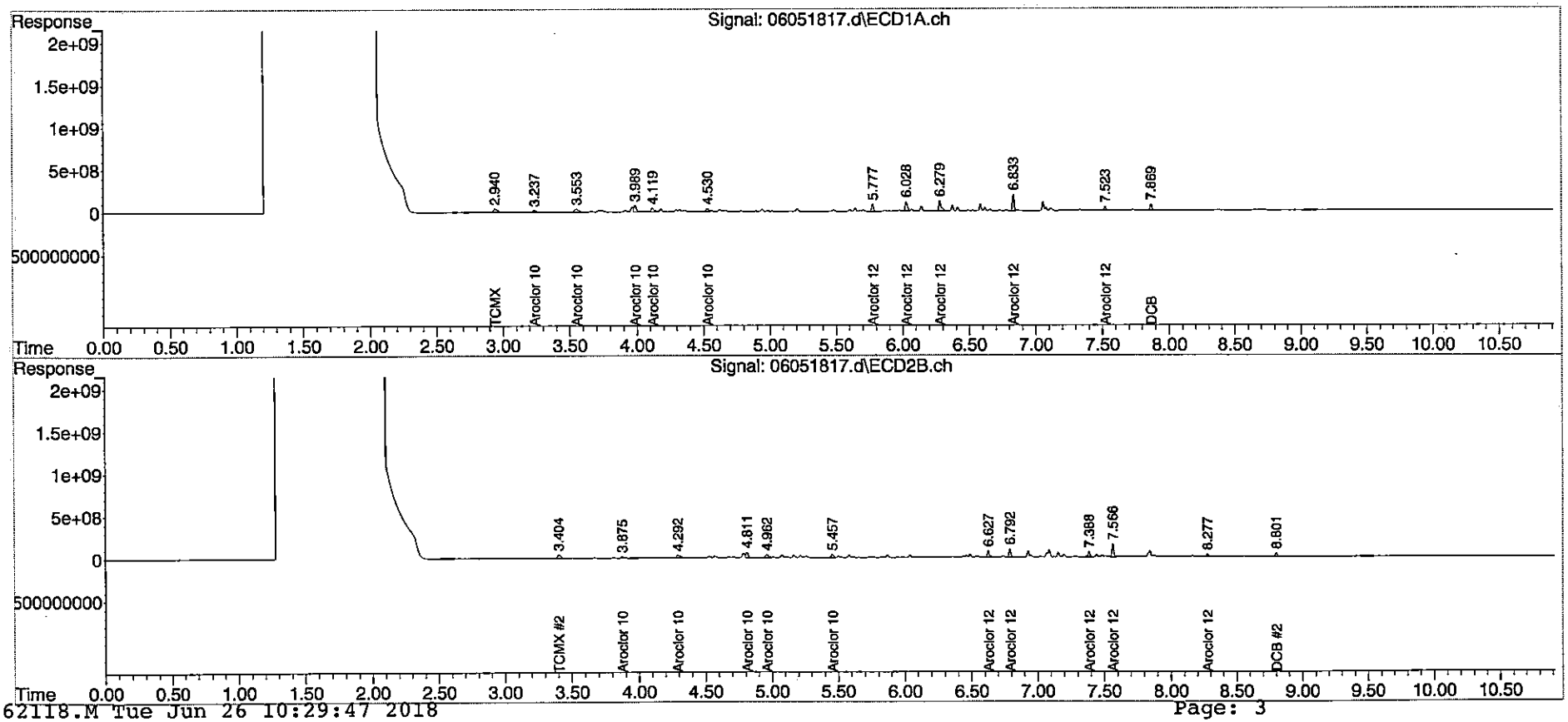
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL	
	System Monitoring Compounds							
1) S	TCMX	2.942	3.405	842.5E6	670.9E6	16.510	18.521	
47) S	DCB	7.869	8.802	714.5E6	466.5E6	16.220	17.878	
	Target Compounds							
2) L	Aroclor 1016	3.239	3.876	367.0E6	293.8E6	463.184	452.048	
3) L	Aroclor 1...	3.554	4.293	702.1E6	624.4E6	471.439	443.468	
4) L	Aroclor 1...	3.990	4.811	992.7E6	774.6E6	408.680	440.471	
5) L	Aroclor 1...	4.120	4.962	638.2E6	502.2E6	447.544	442.495	
6) L	Aroclor 1...	4.531	5.458	467.4E6	399.1E6	401.906	434.124	
	Sum Aroclor 1016			3167.5E6	2594.1E6	2192.753	2212.605	
	Average Aroclor 1016					438.551	442.521	
	Sum Aroclor 1221			0	0	N.D.	N.D.	
	Average Aroclor 1221					0.000	0.000	
	Sum Aroclor 1232			0	0	N.D.	N.D.	
	Average Aroclor 1232					0.000	0.000	
	Sum Aroclor 1242			0	0	N.D.	N.D.	
	Average Aroclor 1242					0.000	0.000	
	Sum Aroclor 1248			0	0	N.D.	N.D.	
	Average Aroclor 1248					0.000	0.000	
	Sum Aroclor 1254			0	0	N.D.	N.D.	
	Average Aroclor 1254					0.000	0.000	
32) L	Aroclor 1260	5.777	6.627	877.3E6	743.9E6	371.982	463.454	
33) L	Aroclor 1...	6.029	6.792	1392.4E6	832.2E6	381.681	448.711	
34) L	Aroclor 1...	6.280	7.388	1602.5E6	616.0E6	374.568	425.943	
35) L	Aroclor 1...	6.834	7.566	1677.0E6	1313.5E6	333.925	421.192	#
36) L	Aroclor 1...	7.523	8.277	396.9E6	278.0E6	295.894	361.862	
	Sum Aroclor 1260			5946.0E6	3783.6E6	1758.051	2121.163	
	Average Aroclor 1260					351.610	424.233	
	Sum Aroclor 1262			0	0	N.D.	N.D.	
	Average Aroclor 1262					0.000	0.000	
	Sum Aroclor 1268			0	0	N.D.	N.D.	
	Average Aroclor 1268					0.000	0.000	

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051817.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 15:24
Operator : KJB
Sample : PLCSS1-119240
Misc : LVI SOIL
ALS Vial : 18 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:02:26 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051819.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 15:53
Operator : KJB
Sample : 1806142-11A MS
Misc : LVI SOIL
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:03:40 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

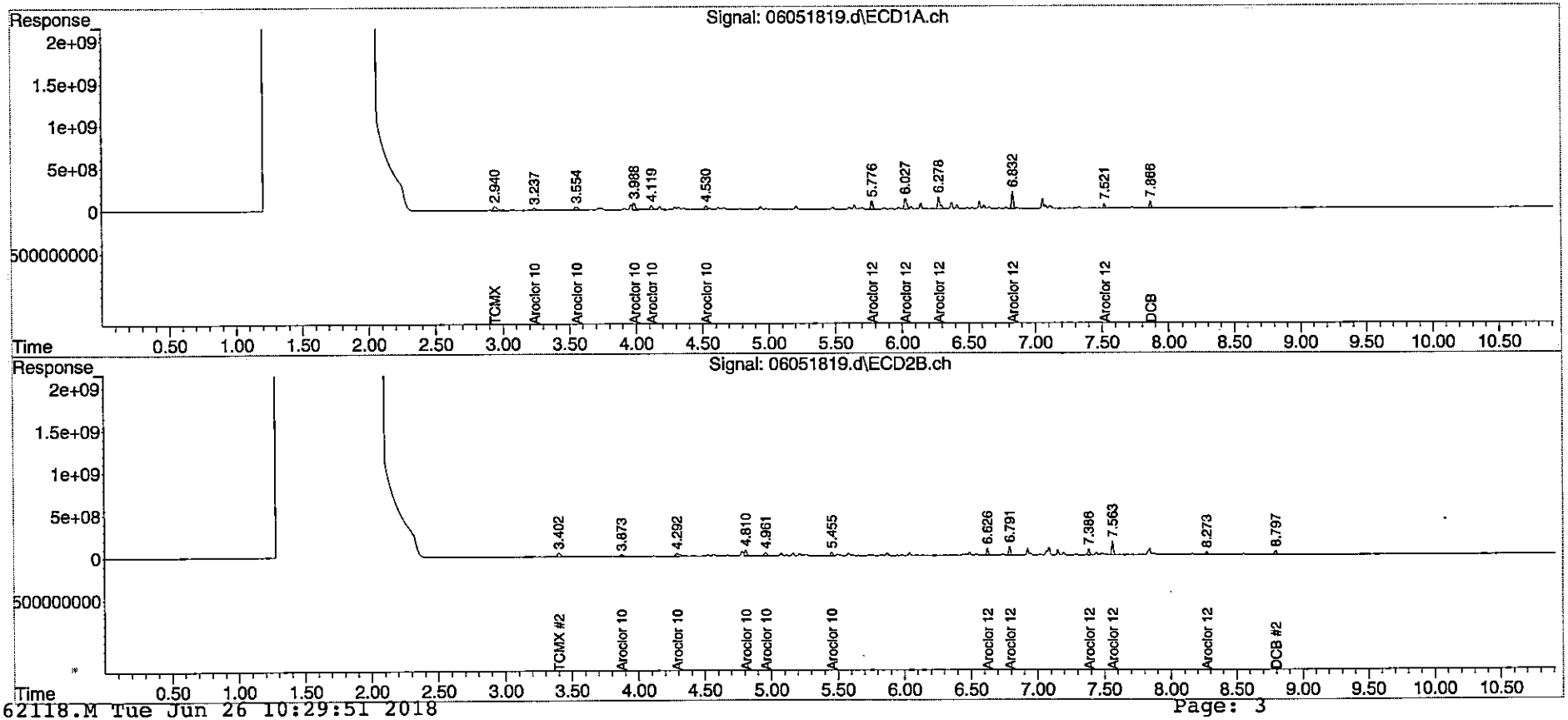
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.941	3.404	875.8E6	679.1E6	17.165	18.746
47) S	DCB	7.866	8.798	682.4E6	482.9E6	15.490	18.508
	Target Compounds						
2) L	Aroclor 1016	3.238	3.874	389.4E6	308.7E6	492.664	475.140
3) L	Aroclor 1...	3.554	4.292	751.3E6	660.5E6	505.216	468.799
4) L	Aroclor 1...	3.989	4.810	1071.8E6	819.4E6	441.463	465.618
5) L	Aroclor 1...	4.119	4.961	694.8E6	533.6E6	488.209	469.766
6) L	Aroclor 1...	4.530	5.456	510.6E6	424.7E6	439.605	461.694
	Sum Aroclor 1016			3417.9E6	2746.9E6	2367.157	2341.017
	Average Aroclor 1016					473.431	468.203
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.777	6.626	975.4E6	774.8E6	414.288	482.824
33) L	Aroclor 1...	6.028	6.792	1539.5E6	884.5E6	421.826	477.090
34) L	Aroclor 1...	6.279	7.386	1778.2E6	662.9E6	415.936	458.599
35) L	Aroclor 1...	6.832	7.564	1837.5E6	1402.5E6	364.938	449.757
36) L	Aroclor 1...	7.521	8.273	431.7E6	290.9E6	322.057	378.743
	Sum Aroclor 1260			6562.2E6	4015.6E6	1939.045	2247.013
	Average Aroclor 1260					387.809	449.403
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051819.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 15:53
Operator : KJB
Sample : 1806142-11A MS
Misc : LVI SOIL
ALS Vial : 20 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:03:40 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051822.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:36
Operator : KJB
Sample : 1806142-11A MSD
Misc : LVI SOIL
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:57 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

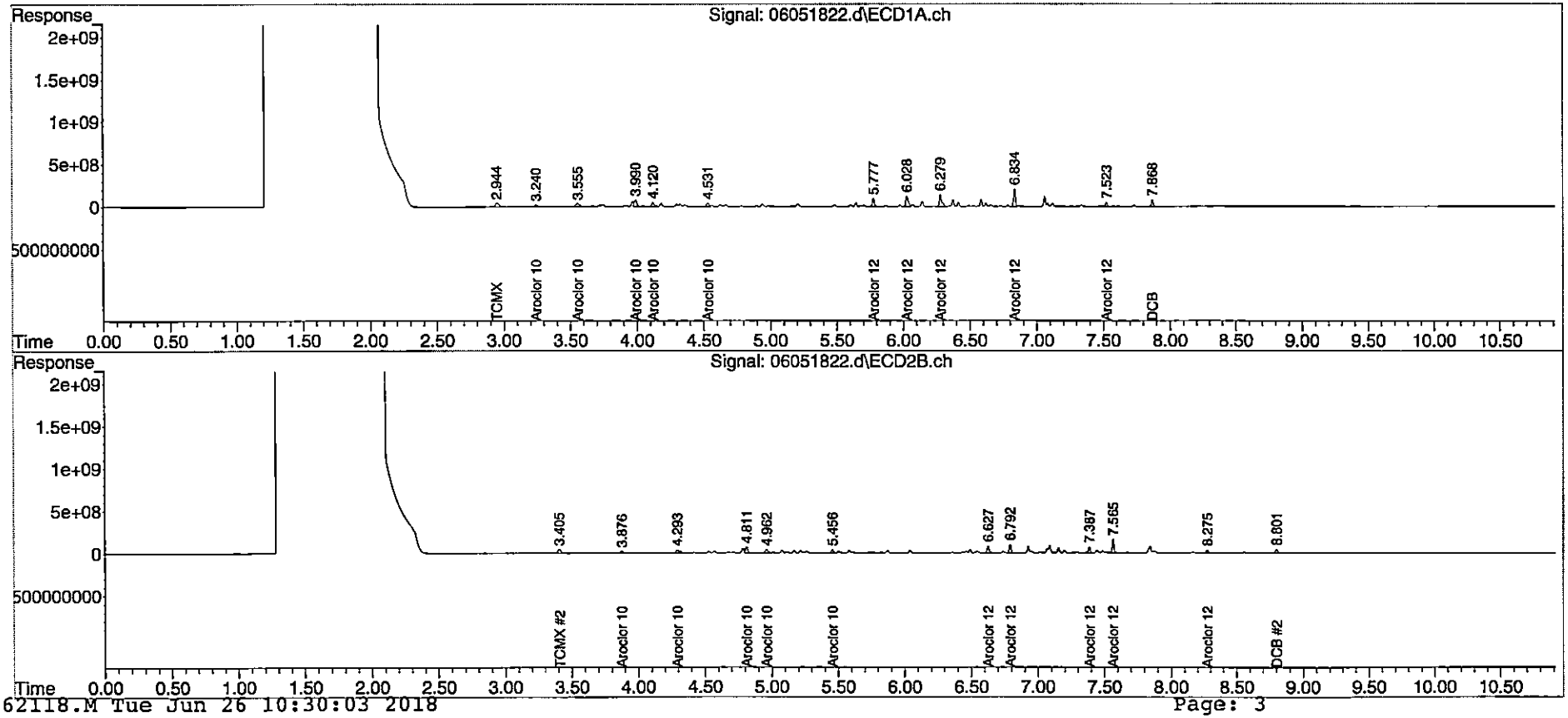
	Compound	RT#1	RT#2	Resp#1	Resp#2	ng/mL	ng/mL
	System Monitoring Compounds						
1) S	TCMX	2.946	3.406	869.3E6	669.9E6	17.035	18.494
47) S	DCB	7.869	8.801	706.3E6	484.7E6	16.034	18.579
	Target Compounds						
2) L	Aroclor 1016	3.241	3.876	384.6E6	300.5E6	486.326	462.468
3) L	Aroclor 1...	3.555	4.293	744.4E6	653.8E6	500.478	464.077
4) L	Aroclor 1...	3.990	4.812	1059.5E6	809.0E6	436.341	459.762
5) L	Aroclor 1...	4.120	4.962	691.5E6	529.2E6	485.844	465.906
6) L	Aroclor 1...	4.531	5.457	507.7E6	417.4E6	437.066	453.818
	Sum Aroclor 1016			3387.7E6	2709.8E6	2346.054	2306.031
	Average Aroclor 1016					469.211	461.206
	Sum Aroclor 1221			0	0	N.D.	N.D.
	Average Aroclor 1221					0.000	0.000
	Sum Aroclor 1232			0	0	N.D.	N.D.
	Average Aroclor 1232					0.000	0.000
	Sum Aroclor 1242			0	0	N.D.	N.D.
	Average Aroclor 1242					0.000	0.000
	Sum Aroclor 1248			0	0	N.D.	N.D.
	Average Aroclor 1248					0.000	0.000
	Sum Aroclor 1254			0	0	N.D.	N.D.
	Average Aroclor 1254					0.000	0.000
32) L	Aroclor 1260	5.777	6.627	971.9E6	771.3E6	412.813	480.644
33) L	Aroclor 1...	6.029	6.792	1538.7E6	874.7E6	421.592	471.777
34) L	Aroclor 1...	6.280	7.387	1791.5E6	663.2E6	419.065	458.800
35) L	Aroclor 1...	6.834	7.565	1852.4E6	1395.9E6	367.826	447.641
36) L	Aroclor 1...	7.523	8.276	451.8E6	291.8E6	337.176	379.960
	Sum Aroclor 1260			6606.3E6	3996.9E6	1958.472	2238.822
	Average Aroclor 1260					391.694	447.764
	Sum Aroclor 1262			0	0	N.D.	N.D.
	Average Aroclor 1262					0.000	0.000
	Sum Aroclor 1268			0	0	N.D.	N.D.
	Average Aroclor 1268					0.000	0.000

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\060518PC\
Data File : 06051822.d
Signal(s) : Signal #1: ECD1A.ch Signal #2: ECD2B.ch
Acq On : 5 Jun 2018 16:36
Operator : KJB
Sample : 1806142-11A MSD
Misc : LVI SOIL
ALS Vial : 21 Sample Multiplier: 1

Integration File signal 1: EVENTS.E
Integration File signal 2: EVENTS2.E
Quant Time: Jun 06 08:04:57 2018
Quant Method : C:\msdchem\1\methods\PCBLVI060418.M
Quant Title :
QLast Update : Tue Jun 05 09:50:13 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



2018 Jun 05 1357 Sequence Log

Starting sequence Tue Jun 05 13:13:27 2018

Instrument Name: GC14
Sequence File: C:\msdchem\1\sequence\060518PC.s
Comment: PCB's by GCECD
Operator: KJB
Data Path: C:\MSDCHEM\1\DATA\060518PC\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
8)	Sample	2	06051808	PCBLVI	BLANK
9)	Sample	3	06051809	PCBLVI	PCBLVI CCV 500 NG/ML
10)	Sample	11	06051810	PCBLVI	PBLKW1-119219

Sequence paused Tue Jun 05 13:54:57 2018

C:\MSDCHEM\1\DATA\060518PC\2018 Jun 05 1313 Quality Log.LOG
C:\MSDCHEM\1\DATA\060518PC\2018 Jun 05 1313 Sequence Log .LOG

Resuming sequence Tue Jun 05 13:57:02 2018

Instrument Name: GC14
Sequence File: C:\msdchem\1\sequence\060518PC.s
Comment: PCB's by GCECD
Operator: KJB
Data Path: C:\MSDCHEM\1\DATA\060518PC\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
11)	Sample	12	06051811	PCBLVI	PLCSW1-119219
12)	Sample	13	06051812	PCBLVI	PLCSDW1-119219
13)	Sample	14	06051813	PCBLVI	18051957-01F
14)	Sample	15	06051814	PCBLVI	18052023-04B
15)	Sample	16	06051815	PCBLVI	18052029-01A
16)	Sample	17	06051816	PCBLVI	PBLKS1-119240
17)	Sample	18	06051817	PCBLVI	PLCSS1-119240
18)	Sample	19	06051818	PCBLVI	1806142-11A
19)	Sample	20	06051819	PCBLVI	1806142-11A MS
20)	Sample	3	06051820	PCBLVI	PCBLVI CCV 500 NG/ML
21)	Sample	3	06051821	PCBLVI	PCBLVI CCV 500 NG/ML
22)	Sample	21	06051822	PCBLVI	1806142-11A MSD
23)	Sample	22	06051823	PCBLVI	18052046-01B
24)	Sample	23	06051824	PCBLVI	18052046-02B
25)	Sample	24	06051825	PCBLVI	1806126-02A
26)	Sample	25	06051826	PCBLVI	1806142-01A
27)	Sample	26	06051827	PCBLVI	1806142-02A
28)	Sample	27	06051828	PCBLVI	1806142-03A
29)	Sample	28	06051829	PCBLVI	1806142-04A
30)	Sample	29	06051830	PCBLVI	1806142-05A
31)	Sample	30	06051831	PCBLVI	1806142-06A
32)	Sample	3	06051832	PCBLVI	PCBLVI CCV 500 NG/ML
33)	Sample	3	06051833	PCBLVI	PCBLVI CCV 500 NG/ML
34)	Sample	31	06051834	PCBLVI	1806142-07A
35)	Sample	32	06051835	PCBLVI	1806142-08A
36)	Sample	33	06051836	PCBLVI	1806142-09A
37)	Sample	34	06051837	PCBLVI	1806142-10A
38)	Sample	35	06051838	PCBLVI	1806142-12A
39)	Sample	36	06051839	PCBLVI	1806142-13A
40)	Sample	3	06051840	PCBLVI	PCBLVI CCV 500 NG/ML
41)	Sample	3	06051841	PCBLVI	PCBLVI CCV 500 NG/ML

2018 Jun 05 1357 Sequence Log

42)	Sample	2	06051842	PCB4	BLANK
43)	Sample	2	06051843	PCB4	BLANK
44)	Sample	41	06051844	PCB4	PCB ICAL 0.2 ug/mL
45)	Sample	42	06051845	PCB4	PCB ICAL 0.5 ug/mL
46)	Sample	43	06051846	PCB4	PCB ICAL 1.0 ug/mL
47)	Sample	44	06051847	PCB4	PCB ICAL 2.0 ug/mL
48)	Sample	45	06051848	PCB4	PCB ICAL 5.0 ug/mL
49)	Sample	46	06051849	PCB4	PCB ICAL 10.0 ug/mL
50)	Sample	47	06051850	PCB4	PCB ICV 5.0 ug/mL
51)	Sample	48	06051851	PCB4	1242 ICAL 0.2 ug/mL
52)	Sample	49	06051852	PCB4	1242 ICAL 0.5 ug/mL
53)	Sample	50	06051853	PCB4	1242 ICAL 1.0 ug/mL
54)	Sample	51	06051854	PCB4	1242 ICAL 2.0 ug/mL
55)	Sample	52	06051855	PCB4	1242 ICAL 5.0 ug/mL
56)	Sample	53	06051856	PCB4	1242 ICAL 10.0 ug/mL
57)	Sample	54	06051857	PCB4	1242 ICV 5.0 ug/mL
58)	Sample	55	06051858	PCB4	1248 ICAL 0.2 ug/mL
59)	Sample	56	06051859	PCB4	1248 ICAL 0.5 ug/mL
This computer is now swap bound.					
60)	Sample	57	06051860	PCB4	1248 ICAL 1.0 ug/mL
This computer is now swap bound.					
61)	Sample	58	06051861	PCB4	1248 ICAL 2.0 ug/mL
This computer is now swap bound.					
62)	Sample	59	06051862	PCB4	1248 ICAL 5.0 ug/mL
This computer is now swap bound.					
63)	Sample	60	06051863	PCB4	1248 ICAL 10.0 ug/mL
This computer is now swap bound.					
64)	Sample	61	06051864	PCB4	1248 ICV 5.0 ug/mL
This computer is now swap bound.					
65)	Sample	62	06051865	PCB4	1254 ICAL 0.2 ug/mL
This computer is now swap bound.					
66)	Sample	63	06051866	PCB4	1254 ICAL 0.5 ug/mL
67)	Sample	64	06051867	PCB4	1254 ICAL 1.0 ug/mL
68)	Sample	65	06051868	PCB4	1254 ICAL 2.0 ug/mL
69)	Sample	66	06051869	PCB4	1254 ICAL 5.0 ug/mL
70)	Sample	67	06051870	PCB4	1254 ICAL 10.0 ug/mL
This computer is now swap bound.					
71)	Sample	68	06051871	PCB4	1254 ICV 5.0 ug/mL
72)	Sample	69	06051872	PCB4	1221 ICAL 5.0 ug/mL
73)	Sample	70	06051873	PCB4	1232 ICAL 5.0 ug/mL
74)	Sample	71	06051874	PCB4	1260 ICAL 5.0 ug/mL
This computer is now swap bound.					
75)	Sample	72	06051875	PCB4	1262 ICAL 5.0 ug/mL
76)	Sample	73	06051876	PCB4	1268 ICAL 5.0 ug/mL

Sequence completed Wed Jun 06 05:45:11 2018

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C:\MSDCHEM\1\DATA\060518PC\2018 Jun 05 1357 Sequence Log .LOG

ALS Group, USA

PREP BATCH REPORT

Batch ID: **119240** Prep Code: **PCBLVI_3546_S**

Start Date: **6/4/2018 12:17:06 PM** End Date: **6/4/2018 2:58:53 PM**

Technician: **Jessica Spiller**

InitSamp Wt/Vol: 15 g
FinSampVol: 25 mL
OriginalFac: 1.66667
PrepUnitFac: 1

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18052046-01B	Soil		15.072		0	25	1.6587
18052046-02B	Soil		15.58		0	25	1.60462
1806126-02A	Soil		15.208		0	25	1.64387
1806142-01A	Soil		15.039		0	25	1.66234
1806142-02A	Soil		15.71		0	25	1.59134
1806142-03A	Soil		15.388		0	25	1.62464
1806142-04A	Soil		15.155		0	25	1.64962
1806142-05A	Soil		15.485		0	25	1.61447
1806142-06A	Soil		15.634		0	25	1.59908
1806142-07A	Soil		15.767		0	25	1.58559
1806142-08A	Soil		15.114		0	25	1.6541
1806142-09A	Soil		15.662		0	25	1.59622
1806142-10A	Soil		15.673		0	25	1.5951
1806142-11A	Soil		15.111		0	25	1.65442
1806142-11A MS	Soil		15.189		0	25	1.64593
2.5 mL PCB Spike, line# 100-9243 added.							
1806142-11A MSD	Soil		15.526		0	25	1.6102
2.5 mL PCB Spike, line# 100-9243 added.							
1806142-12A	Soil		15.455		0	25	1.6176
1806142-13A	Soil		15.221		0	25	1.64247
PBLKS1-119240			15		0	25	1.66667
PLCSS1-119240			15		0	25	1.66667
2.5 mL PCB Spike, line# 100-9243 added.							

Notes: *500uL PCB/PE Surrogate, line# 100-9210, added to all samples. All extractions are B1/E1 unless otherwise noted. HN-EXT-016-R01. Balance 5. Hydromatrix, H051518. Sodium Sulfate, S091816. Sand, Sa041118*

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-55

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-03A

Level (low/med): LOW Date Received: 6/1/2018

% Moisture: not dec. 0 Date Prep: 6/6/2018

CONCENTRATION UNITS: mg/L

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7440-38-2	Arsenic	0.050	U		MS
7440-39-3	Barium	0.33			MS
7440-43-9	Cadmium	0.00096	J		MS
7440-47-3	Chromium	0.050	U		MS
7439-92-1	Lead	0.0056	J		MS
7782-49-2	Selenium	0.050	U		MS
7440-22-4	Silver	0.050	U		MS

ALS Group, USA

Date: 13-Jul-18

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119351** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK Sample ID: **MBLK-119351-119351** Units: **mg/L** Analysis Date: **6/6/2018 05:47 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076312** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Chromium	U	0.0050								
Lead	U	0.0050								
Selenium	U	0.0050								
Silver	U	0.0050								

LCS Sample ID: **LCS-119351-119351** Units: **mg/L** Analysis Date: **6/6/2018 05:54 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076316** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09658	0.0050	0.1	0	96.6	80-120	0			
Barium	0.1001	0.0050	0.1	0	100	80-120	0			
Cadmium	0.1021	0.0020	0.1	0	102	80-120	0			
Chromium	0.09863	0.0050	0.1	0	98.6	80-120	0			
Lead	0.097	0.0050	0.1	0	97	80-120	0			
Selenium	0.09646	0.0050	0.1	0	96.5	80-120	0			
Silver	0.09837	0.0050	0.1	0	98.4	80-120	0			

MS Sample ID: **1806079-01BMS** Units: **mg/L** Analysis Date: **6/6/2018 06:00 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076320** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1032	0.0050	0.1	0.000141	103	75-125	0			
Barium	0.1151	0.0050	0.1	0.009437	106	75-125	0			
Cadmium	0.1043	0.0020	0.1	-0.000004	104	75-125	0			
Chromium	0.1035	0.0050	0.1	0.000193	103	75-125	0			
Lead	0.1007	0.0050	0.1	-0.000042	101	75-125	0			
Selenium	0.1023	0.0050	0.1	0.000099	102	75-125	0			
Silver	0.1008	0.0050	0.1	0.000004	101	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119351** Instrument ID **ICPMS3** Method: **SW6020A**

MSD	Sample ID: 1806079-01BMSD				Units: mg/L			Analysis Date: 6/6/2018 06:02 PM		
Client ID:	Run ID: ICPMS3_180606A			SeqNo: 5076321		Prep Date: 6/6/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1012	0.0050	0.1	0.000141	101	75-125	0.1032	2.04	20	
Barium	0.1126	0.0050	0.1	0.009437	103	75-125	0.1151	2.21	20	
Cadmium	0.1031	0.0020	0.1	-0.000004	103	75-125	0.1043	1.1	20	
Chromium	0.101	0.0050	0.1	0.000193	101	75-125	0.1035	2.4	20	
Lead	0.09899	0.0050	0.1	-0.000042	99	75-125	0.1007	1.67	20	
Selenium	0.09869	0.0050	0.1	0.000099	98.6	75-125	0.1023	3.63	20	
Silver	0.09951	0.0050	0.1	0.000004	99.5	75-125	0.1008	1.24	20	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 1) 06/06 14:01 and 2) 06/06 14:12 True	Found	%R(1)	Found	%R(1)	M
Arsenic	80.0	76.17	95	100.0	99.45	99	101.23	101	MS
Barium	80.0	77.41	97	100.0	102.58	103	101.17	101	MS
Cadmium	80.0	77.75	97	100.0	104.30	104	102.02	102	MS
Chromium	80.0	77.74	97	100.0	100.86	101	103.01	103	MS
Lead	80.0	75.41	94	100.0	101.86	102	100.63	101	MS
Selenium	80.0	78.52	98	100.0	97.81	98	99.60	100	MS
Silver	80.0	77.19	96	100.0	103.16	103	103.40	103	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 3) 06/06 14:34 and 4) 06/06 14:53					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	98.99	99	98.12	98	MS
Barium	80.0	77.41	97	100.0	99.57	100	99.13	99	MS
Cadmium	80.0	77.75	97	100.0	101.02	101	100.27	100	MS
Chromium	80.0	77.74	97	100.0	101.16	101	98.89	99	MS
Lead	80.0	75.41	94	100.0	99.04	99	98.64	99	MS
Selenium	80.0	78.52	98	100.0	100.34	100	99.17	99	MS
Silver	80.0	77.19	96	100.0	101.47	101	100.17	100	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/06 15:15 and 6) 06/06 15:36					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	99.87	100	98.14	98	MS
Barium	80.0	77.41	97	100.0	100.89	101	100.50	100	MS
Cadmium	80.0	77.75	97	100.0	102.41	102	101.96	102	MS
Chromium	80.0	77.74	97	100.0	101.17	101	100.66	101	MS
Lead	80.0	75.41	94	100.0	100.19	100	99.08	99	MS
Selenium	80.0	78.52	98	100.0	99.20	99	100.11	100	MS
Silver	80.0	77.19	96	100.0	102.66	103	102.95	103	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/06 15:58 and 8) 06/06 16:20					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	97.24	97	99.56	100	MS
Barium	80.0	77.41	97	100.0	99.66	100	101.51	102	MS
Cadmium	80.0	77.75	97	100.0	100.19	100	102.15	102	MS
Chromium	80.0	77.74	97	100.0	98.60	99	100.49	100	MS
Lead	80.0	75.41	94	100.0	97.38	97	98.85	99	MS
Selenium	80.0	78.52	98	100.0	99.47	99	99.04	99	MS
Silver	80.0	77.19	96	100.0	101.02	101	103.18	103	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 9) 06/06 16:42 and 10) 06/06 17:04					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	95.54	96	94.08	94	MS
Barium	80.0	77.41	97	100.0	99.45	99	95.73	96	MS
Cadmium	80.0	77.75	97	100.0	99.73	100	96.02	96	MS
Chromium	80.0	77.74	97	100.0	96.23	96	94.13	94	MS
Lead	80.0	75.41	94	100.0	97.61	98	94.14	94	MS
Selenium	80.0	78.52	98	100.0	97.33	97	96.18	96	MS
Silver	80.0	77.19	96	100.0	99.50	99	96.88	97	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 11) 06/06 17:26 and 12) 06/06 17:49					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	94.63	95	100.08	100	MS
Barium	80.0	77.41	97	100.0	97.53	98	102.27	102	MS
Cadmium	80.0	77.75	97	100.0	97.66	98	102.47	102	MS
Chromium	80.0	77.74	97	100.0	94.54	95	99.69	100	MS
Lead	80.0	75.41	94	100.0	95.54	96	100.46	100	MS
Selenium	80.0	78.52	98	100.0	95.40	95	101.20	101	MS
Silver	80.0	77.19	96	100.0	97.46	97	102.93	103	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 13) 06/06 18:11 and 14) 06/06 18:33					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	76.17	95	100.0	101.07	101	102.64	103	MS
Barium	80.0	77.41	97	100.0	102.29	102	106.32	106	MS
Cadmium	80.0	77.75	97	100.0	102.10	102	106.36	106	MS
Chromium	80.0	77.74	97	100.0	100.32	100	101.96	102	MS
Lead	80.0	75.41	94	100.0	99.12	99	102.85	103	MS
Selenium	80.0	78.52	98	100.0	99.12	99	104.40	104	MS
Silver	80.0	77.19	96	100.0	104.55	105	107.60	108	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180606A

Continuing Calibration Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 15) 06/06 18:43 and True	Found	%R(1)	Found	%R(1)	M
Arsenic	80.0	76.17	95	100.0	103.85	104			MS
Barium	80.0	77.41	97	100.0	105.86	106			MS
Cadmium	80.0	77.75	97	100.0	107.32	107			MS
Chromium	80.0	77.74	97	100.0	102.29	102			MS
Lead	80.0	75.41	94	100.0	103.17	103			MS
Selenium	80.0	78.52	98	100.0	106.07	106			MS
Silver	80.0	77.19	96	100.0	107.45	107			MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 1) 06/07 12:27 and 2) 06/07 12:49					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	98.40	98	96.81	97	MS
Barium	80.0	78.84	99	100.0	100.96	101	96.15	96	MS
Cadmium	80.0	79.58	99	100.0	101.14	101	98.15	98	MS
Chromium	80.0	79.67	100	100.0	100.97	101	98.58	99	MS
Lead	80.0	77.63	97	100.0	100.87	101	97.53	98	MS
Selenium	80.0	74.06	93	100.0	97.28	97	93.86	94	MS
Silver	80.0	78.90	99	100.0	101.77	102	99.40	99	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3_180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 3) 06/07 13:29 and 4) 06/07 13:52 True	Found	%R(1)	Found	%R(1)	M
Arsenic	80.0	78.25	98	100.0	99.25	99	99.00	99	MS
Barium	80.0	78.84	99	100.0	98.92	99	100.42	100	MS
Cadmium	80.0	79.58	99	100.0	100.37	100	102.63	103	MS
Chromium	80.0	79.67	100	100.0	101.21	101	100.32	100	MS
Lead	80.0	77.63	97	100.0	98.96	99	101.30	101	MS
Selenium	80.0	74.06	93	100.0	99.70	100	100.40	100	MS
Silver	80.0	78.90	99	100.0	101.42	101	101.85	102	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/07 14:14 and 6) 06/07 14:37					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	100.25	100	101.95	102	MS
Barium	80.0	78.84	99	100.0	101.49	101	102.41	102	MS
Cadmium	80.0	79.58	99	100.0	102.87	103	103.82	104	MS
Chromium	80.0	79.67	100	100.0	100.83	101	103.53	104	MS
Lead	80.0	77.63	97	100.0	100.96	101	101.85	102	MS
Selenium	80.0	74.06	93	100.0	98.04	98	98.33	98	MS
Silver	80.0	78.90	99	100.0	103.66	104	104.97	105	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/07 15:03 and 8) 06/07 15:22					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	71.03	71	97.13	97	MS
Barium	80.0	78.84	99	100.0	67.40	67	97.36	97	MS
Cadmium	80.0	79.58	99	100.0	67.50	68	98.24	98	MS
Chromium	80.0	79.67	100	100.0	71.82	72	96.43	96	MS
Lead	80.0	77.63	97	100.0	67.46	67	97.65	98	MS
Selenium	80.0	74.06	93	100.0	64.62	65	104.03	104	MS
Silver	80.0	78.90	99	100.0	72.53	73	98.03	98	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 9) 06/07 15:49 and 10) 06/07 16:08					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	131.43	131	96.92	97	MS
Barium	80.0	78.84	99	100.0	130.23	130	96.73	97	MS
Cadmium	80.0	79.58	99	100.0	132.07	132	98.02	98	MS
Chromium	80.0	79.67	100	100.0	130.36	130	97.31	97	MS
Lead	80.0	77.63	97	100.0	129.87	130	96.75	97	MS
Selenium	80.0	74.06	93	100.0	130.40	130	100.63	101	MS
Silver	80.0	78.90	99	100.0	132.14	132	98.86	99	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 11) 06/07 16:31 and 12) 06/07 16:54 True	Found	%R(1)	Found	%R(1)	M
Arsenic	80.0	78.25	98	100.0	98.89	99	94.67	95	MS
Barium	80.0	78.84	99	100.0	98.69	99	94.61	95	MS
Cadmium	80.0	79.58	99	100.0	98.32	98	94.22	94	MS
Chromium	80.0	79.67	100	100.0	97.94	98	93.09	93	MS
Lead	80.0	77.63	97	100.0	98.08	98	94.00	94	MS
Selenium	80.0	74.06	93	100.0	103.27	103	93.26	93	MS
Silver	80.0	78.90	99	100.0	98.65	99	93.39	93	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 13) 06/07 17:17 and 14) 06/07 17:41					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	101.78	102	103.66	104	MS
Barium	80.0	78.84	99	100.0	102.57	103	104.28	104	MS
Cadmium	80.0	79.58	99	100.0	101.77	102	102.95	103	MS
Chromium	80.0	79.67	100	100.0	100.25	100	102.40	102	MS
Lead	80.0	77.63	97	100.0	101.54	102	103.49	103	MS
Selenium	80.0	74.06	93	100.0	101.01	101	98.70	99	MS
Silver	80.0	78.90	99	100.0	102.25	102	104.23	104	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 15) 06/07 18:04 and 16) 06/07 18:28					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	105.14	105	105.48	105	MS
Barium	80.0	78.84	99	100.0	107.55	108	103.63	104	MS
Cadmium	80.0	79.58	99	100.0	105.46	105	101.10	101	MS
Chromium	80.0	79.67	100	100.0	105.70	106	103.58	104	MS
Lead	80.0	77.63	97	100.0	107.83	108	103.91	104	MS
Selenium	80.0	74.06	93	100.0	104.67	105	101.84	102	MS
Silver	80.0	78.90	99	100.0	108.08	108	107.14	107	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 17) 06/07 18:53 and 18) 06/07 19:18 True	Found	%R(1)	Found	%R(1)	M
Arsenic	80.0	78.25	98	100.0	104.50	105	104.28	104	MS
Barium	80.0	78.84	99	100.0	105.79	106	107.04	107	MS
Cadmium	80.0	79.58	99	100.0	102.54	103	104.36	104	MS
Chromium	80.0	79.67	100	100.0	103.20	103	103.05	103	MS
Lead	80.0	77.63	97	100.0	103.70	104	105.72	106	MS
Selenium	80.0	74.06	93	100.0	100.96	101	103.44	103	MS
Silver	80.0	78.90	99	100.0	105.31	105	107.55	108	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: ICPMS3 180607A

Continuing Calibration Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 19) 06/07 19:42 and 20) 06/07 20:01					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	80.0	78.25	98	100.0	104.51	105	96.19	96	MS
Barium	80.0	78.84	99	100.0	107.65	108	99.26	99	MS
Cadmium	80.0	79.58	99	100.0	103.26	103	95.47	95	MS
Chromium	80.0	79.67	100	100.0	101.75	102	94.72	95	MS
Lead	80.0	77.63	97	100.0	105.52	106	95.76	96	MS
Selenium	80.0	74.06	93	100.0	103.69	104	91.77	92	MS
Silver	80.0	78.90	99	100.0	107.48	107	99.04	99	MS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 1) 06/06 14:04 and 2) 06/06 14:16				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.90	98	5.0	4.90	98	5.14	103
Barium	5.0	4.89	98	5.0	4.89	98	4.94	99
Cadmium	2.0	2.03	102	2.0	2.03	102	2.07	104
Chromium	5.0	5.11	102	5.0	5.11	102	5.17	103
Lead	5.0	4.80	96	5.0	4.80	96	4.83	97
Selenium	5.0	5.02	100	5.0	5.02	100	3.82	76
Silver	5.0	5.19	104	5.0	5.19	104	5.13	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 3) 06/06 14:37 and 4) 06/06 14:56				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.06	101	5.0	5.06	101	4.96	99
Barium	5.0	4.91	98	5.0	4.91	98	4.91	98
Cadmium	2.0	2.09	105	2.0	2.09	105	2.06	103
Chromium	5.0	5.02	100	5.0	5.02	100	4.97	99
Lead	5.0	4.82	96	5.0	4.82	96	4.75	95
Selenium	5.0	5.13	103	5.0	5.13	103	4.80	96
Silver	5.0	5.13	103	5.0	5.13	103	5.03	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 5) 06/06 15:18 and 6) 06/06 15:40				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.90	98	5.0	4.90	98	4.82	96
Barium	5.0	4.82	96	5.0	4.82	96	4.98	100
Cadmium	2.0	2.01	100	2.0	2.01	100	2.02	101
Chromium	5.0	5.25	105	5.0	5.25	105	5.11	102
Lead	5.0	4.71	94	5.0	4.71	94	4.77	95
Selenium	5.0	5.44	109	5.0	5.44	109	5.74	115
Silver	5.0	5.15	103	5.0	5.15	103	5.15	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 7) 06/06 16:01 and 8) 06/06 16:23				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.00	100	5.0	5.00	100	5.25	105
Barium	5.0	4.89	98	5.0	4.89	98	5.01	100
Cadmium	2.0	2.09	104	2.0	2.09	104	2.09	105
Chromium	5.0	5.15	103	5.0	5.15	103	5.06	101
Lead	5.0	4.75	95	5.0	4.75	95	4.84	97
Selenium	5.0	5.86	117	5.0	5.86	117	4.02	80
Silver	5.0	5.12	102	5.0	5.12	102	5.16	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/06 16:46 and 10) 06/06 17:08				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.77	95	5.0	4.77	95	4.71	94
Barium	5.0	4.87	97	5.0	4.87	97	4.75	95
Cadmium	2.0	1.98	99	2.0	1.98	99	2.01	101
Chromium	5.0	4.93	99	5.0	4.93	99	4.84	97
Lead	5.0	4.72	94	5.0	4.72	94	4.61	92
Selenium	5.0	4.70	94	5.0	4.70	94	4.47	89
Silver	5.0	5.05	101	5.0	5.05	101	4.86	97

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/06 17:30 and 12) 06/06 17:52				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.68	94	5.0	4.68	94	4.68	94
Barium	5.0	4.65	93	5.0	4.65	93	4.91	98
Cadmium	2.0	1.93	96	2.0	1.93	96	2.04	102
Chromium	5.0	4.68	94	5.0	4.68	94	4.87	97
Lead	5.0	4.53	91	5.0	4.53	91	4.72	94
Selenium	5.0	5.17	103	5.0	5.17	103	4.64	93
Silver	5.0	4.85	97	5.0	4.85	97	5.15	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 13) 06/06 18:14 and 14) 06/06 18:36				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.96	99	5.0	4.96	99	5.27	105
Barium	5.0	5.12	102	5.0	5.12	102	5.31	106
Cadmium	2.0	2.13	107	2.0	2.13	107	2.14	107
Chromium	5.0	5.03	101	5.0	5.03	101	5.21	104
Lead	5.0	4.87	97	5.0	4.87	97	5.00	100
Selenium	5.0	4.62	92	5.0	4.62	92	4.76	95
Silver	5.0	5.25	105	5.0	5.25	105	5.45	109

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180606A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 15) 06/06 18:46 and				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.09	102	5.0	5.09	102		
Barium	5.0	5.22	104	5.0	5.22	104		
Cadmium	2.0	2.11	106	2.0	2.11	106		
Chromium	5.0	5.12	102	5.0	5.12	102		
Lead	5.0	4.95	99	5.0	4.95	99		
Selenium	5.0	4.43	89	5.0	4.43	89		
Silver	5.0	5.23	105	5.0	5.23	105		

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 1) 06/07 12:31 and 2) 06/07 12:53				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.11	102	5.0	5.11	102	4.93	99
Barium	5.0	5.17	103	5.0	5.17	103	4.96	99
Cadmium	2.0	2.15	107	2.0	2.15	107	2.11	106
Chromium	5.0	4.95	99	5.0	4.95	99	5.19	104
Lead	5.0	4.95	99	5.0	4.95	99	4.90	98
Selenium	5.0	5.52	110	5.0	5.52	110	5.01	100
Silver	5.0	5.24	105	5.0	5.24	105	5.10	102

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 3) 06/07 13:33 and 4) 06/07 13:55				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.10	102	5.0	5.10	102	4.80	96
Barium	5.0	4.91	98	5.0	4.91	98	4.63	92
Cadmium	2.0	2.08	104	2.0	2.08	104	2.01	101
Chromium	5.0	5.16	103	5.0	5.16	103	4.84	97
Lead	5.0	4.81	96	5.0	4.81	96	4.66	93
Selenium	5.0	5.69	114	5.0	5.69	114	3.85	77
Silver	5.0	5.08	102	5.0	5.08	102	4.84	97

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 06/07 14:18 and 6) 06/07 14:40				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.03	101	5.0	5.03	101	4.75	95
Barium	5.0	4.90	98	5.0	4.90	98	5.12	102
Cadmium	2.0	2.06	103	2.0	2.06	103	2.07	103
Chromium	5.0	5.30	106	5.0	5.30	106	5.28	106
Lead	5.0	4.94	99	5.0	4.94	99	4.95	99
Selenium	5.0	5.07	101	5.0	5.07	101	4.78	96
Silver	5.0	5.15	103	5.0	5.15	103	5.23	105

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 7) 06/07 15:06 and 8) 06/07 15:26				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	3.71	74	5.0	3.71	74	5.06	101
Barium	5.0	3.47	69	5.0	3.47	69	5.01	100
Cadmium	2.0	1.50	75	2.0	1.50	75	2.06	103
Chromium	5.0	4.04	81	5.0	4.04	81	5.13	103
Lead	5.0	3.41	68	5.0	3.41	68	4.92	98
Selenium	5.0	3.91	78	5.0	3.91	78	4.19	84
Silver	5.0	4.03	81	5.0	4.03	81	4.99	100

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/07 15:52 and 10) 06/07 16:12				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	6.78	136	5.0	6.78	136	4.67	93
Barium	5.0	6.59	132	5.0	6.59	132	4.85	97
Cadmium	2.0	2.67	134	2.0	2.67	134	1.94	97
Chromium	5.0	7.07	141	5.0	7.07	141	5.06	101
Lead	5.0	6.43	129	5.0	6.43	129	4.76	95
Selenium	5.0	6.03	121	5.0	6.03	121	5.47	109
Silver	5.0	6.55	131	5.0	6.55	131	4.89	98

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 11) 06/07 16:35 and 12) 06/07 16:58				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	4.83	97	5.0	4.83	97	4.60	92
Barium	5.0	4.90	98	5.0	4.90	98	4.90	98
Cadmium	2.0	1.99	100	2.0	1.99	100	1.94	97
Chromium	5.0	5.20	104	5.0	5.20	104	4.92	98
Lead	5.0	4.91	98	5.0	4.91	98	4.64	93
Selenium	5.0	5.16	103	5.0	5.16	103	5.19	104
Silver	5.0	4.96	99	5.0	4.96	99	4.67	93

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 13) 06/07 17:21 and 14) 06/07 17:44				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.07	101	5.0	5.07	101	5.06	101
Barium	5.0	5.07	101	5.0	5.07	101	5.15	103
Cadmium	2.0	2.09	104	2.0	2.09	104	2.04	102
Chromium	5.0	5.39	108	5.0	5.39	108	5.50	110
Lead	5.0	5.02	100	5.0	5.02	100	5.10	102
Selenium	5.0	4.97	99	5.0	4.97	99	4.29	86
Silver	5.0	5.12	102	5.0	5.12	102	5.20	104

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 15) 06/07 18:08 and 16) 06/07 18:32				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.02	100	5.0	5.02	100	5.18	104
Barium	5.0	5.23	104	5.0	5.23	104	5.35	107
Cadmium	2.0	2.05	102	2.0	2.05	102	2.09	104
Chromium	5.0	5.33	107	5.0	5.33	107	5.48	110
Lead	5.0	5.24	105	5.0	5.24	105	5.67	113
Selenium	5.0	5.20	104	5.0	5.20	104	4.39	88
Silver	5.0	5.31	106	5.0	5.31	106	5.37	107

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 17) 06/07 18:56 and 18) 06/07 19:21				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.38	108	5.0	5.38	108	5.37	107
Barium	5.0	5.47	109	5.0	5.47	109	5.57	111
Cadmium	2.0	2.11	105	2.0	2.11	105	2.09	104
Chromium	5.0	5.45	109	5.0	5.45	109	5.37	107
Lead	5.0	5.62	112	5.0	5.62	112	5.86	117
Selenium	5.0	4.48	90	5.0	4.48	90	5.27	105
Silver	5.0	5.31	106	5.0	5.31	106	5.44	109

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: ICPMS3_180607A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 19) 06/07 19:46 and 20) 06/07 20:04				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic	5.0	5.12	102	5.0	5.12	102	4.97	99
Barium	5.0	5.61	112	5.0	5.61	112	4.92	98
Cadmium	2.0	2.13	106	2.0	2.13	106	1.91	96
Chromium	5.0	5.46	109	5.0	5.46	109	4.94	99
Lead	5.0	5.78	116	5.0	5.78	116	5.05	101
Selenium	5.0	4.41	88	5.0	4.41	88	5.11	102
Silver	5.0	5.39	108	5.0	5.39	108	5.04	101

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180606A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 14:02	C	2) 14:14	C	3) 14:36	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	2.000	U	MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180606A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 14:55	C	5) 15:16	C	6) 15:38	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	2.000	U	MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180606A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 16:00	C	8) 16:22	C	9) 16:44	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	2.000	U	MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180606A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte,	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 17:06	C	11) 17:28	C	12) 17:51	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Cadmium	2.000	U	0.050	U	2.000	U	2.000	U	2.000	U	MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180606A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 18:13	C	14) 18:34	C	15) 18:44	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Cadmium	2.000	U	2.000	U	0.050	U	0.052	J	2.000	U	MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 12:29	C	2) 12:51	C	3) 13:31	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Selenium	5.000	U	5.000	U	0.900	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 13:53	C	5) 14:16	C	6) 14:39	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 15:05	C	8) 15:24	C	9) 15:51	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	0.050	U	0.050	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 16:10	C	11) 16:33	C	12) 16:56	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Selenium	5.000	U	0.900	U	5.000	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 17:19	C	14) 17:42	C	15) 18:06	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	5.000	U	5.000	U	0.380	J	0.000		MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 18:30	C	17) 18:55	C	18) 19:20	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		MS
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Lead	5.000	U	0.980	J	0.630	J	0.890	J	0.000		MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		MS

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: ICPMS3 180607A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 19) 19:44	C	20) 20:03	C	21	C	Prepa-ration Blank	C	M
Arsenic	5.000	U	5.000	U	5.000	U			0.000		MS
Barium	5.000	U	5.000	U	5.000	U			0.000		MS
Cadmium	2.000	U	2.000	U	2.000	U			0.000		MS
Chromium	5.000	U	5.000	U	5.000	U			0.000		MS
Lead	5.000	U	0.840	J	0.390	J			0.000		MS
Selenium	5.000	U	5.000	U	5.000	U			0.000		MS
Silver	5.000	U	5.000	U	5.000	U			0.000		MS

Note: MDLs are used, not IDLs

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. SAS No.: SDG No.: 1806126

ICP ID Number: ICPMS3 Run: ICPMS3_180606A

ICS Source: Start: 6/6/2018

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic		100.00	0.18	98.1	98	0.22	107	107
Barium		100.00	0.29	101	101	0.29	108	108
Cadmium		100.00	0.12	96.9	97	0.11	103	103
Chromium		100.00	0.20	94.7	95	0.23	101	101
Lead		100.00	-0.0040	98.8	99	-0.034	104	104
Selenium		100.00	0.025	98.3	98	0.19	104	104
Silver		100.00	0.020	95.5	96	0.015	104	104

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. SAS No.: SDG No.: 1806126

ICP ID Number: ICPMS3 Run: ICPMS3 180607A

ICS Source: Start: 6/7/2018

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Arsenic		100.00	0.22	99.2	99	0.16	91.1	91
Barium		100.00	0.30	103	103	0.43	97.9	98
Cadmium		100.00	0.076	99.7	100	0.064	89.6	90
Chromium		100.00	0.29	96.9	97	0.20	86.0	86
Lead		100.00	-0.025	103	103	0.34	93.2	93
Selenium		100.00	-0.17	94.0	94	0.059	92.7	93
Silver		100.00	0.016	97.4	97	0.0080	89.1	89

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 1806126

Matrix Spike - Client SampID: ZZZZZZ Level:(low/med) LOW

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC. LIMITS REC.
Aluminum	100.0	14.68	117.0	102	75-125
Antimony	100.0	0.05100	105.4	105	75-125
Arsenic	100.0	0.1410	103.2	103	75-125
Barium	100.0	9.437	115.1	106	75-125
Beryllium	100.0	-0.04600	100.1	100	75-125
Boron	500.0	10.79	497.4	97.3	75-125
Cadmium	100.0	-0.004000	104.3	104	75-125
Calcium	10000	69060	78670	96.1	75-125
Chromium	100.0	0.1930	103.5	103	75-125
Cobalt	100.0	0.006000	102.2	102	75-125
Copper	100.0	21.26	120.9	99.7	75-125
Iron	10000	13.72	10020	100	75-125
Lead	100.0	-0.04200	100.7	101	75-125
Lithium	100.0	6.279	109.8	103	75-125
Magnesium	10000	16560	26320	97.6	75-125
Manganese	100.0	0.5150	99.84	99.3	75-125
Molybdenum	100.0	0.5240	104.5	104	75-125
Nickel	100.0	0.4640	99.80	99.3	75-125
Potassium	10000	889.9	11050	102	75-125
Selenium	100.0	0.09900	102.3	102	75-125
Silicon	10000	3145	13580	104	75-125
Silver	100.0	0.004000	100.8	101	75-125
Sodium	10000	4973	15110	101	75-125
Strontium	100.0	51.15	153.4	102	75-125
Thallium	100.0	-0.06500	101.5	102	75-125
Thorium	100.0	0.01600	103.2	103	75-125
Tin	100.0	-0.09900	103.7	104	75-125
Titanium	100.0	1.208	103.2	102	75-125
Uranium	100.0	0.3300	103.3	103	75-125
Vanadium	100.0	0.4330	108.4	108	75-125
Zinc	100.0	0.6920	100.5	99.8	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 32 outside limits

Spike Recovery: 1 out of 64 outside limits

COMMENTS:

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 1806126

Matrix Spike - Client SampID: ZZZZZZ Level:(low/med) LOW

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aluminum	100.0	114.2	99.5	2.43	20	75-125
Antimony	100.0	103.4	103	1.92	20	75-125
Arsenic	100.0	101.2	101	2.04	20	75-125
Barium	100.0	112.6	103	2.21	20	75-125
Beryllium	100.0	99.22	99.3	0.929	20	75-125
Boron	500.0	495.2	96.9	0.445	20	75-125
Cadmium	100.0	103.1	103	1.10	20	75-125
Calcium	10000	76170	71.1 *	3.23	20	75-125
Chromium	100.0	101.0	101	2.40	20	75-125
Cobalt	100.0	100.1	100	2.12	20	75-125
Copper	100.0	118.2	96.9	2.29	20	75-125
Iron	10000	9834	98.2	1.90	20	75-125
Lead	100.0	98.99	99.0	1.67	20	75-125
Lithium	100.0	108.3	102	1.35	20	75-125
Magnesium	10000	25560	90.0	2.92	20	75-125
Manganese	100.0	97.47	97.0	2.40	20	75-125
Molybdenum	100.0	103.1	103	1.33	20	75-125
Nickel	100.0	98.48	98.0	1.33	20	75-125
Potassium	10000	10770	98.8	2.57	20	75-125
Selenium	100.0	98.69	98.6	3.63	20	75-125
Silicon	10000	13150	100	3.17	20	75-125
Silver	100.0	99.51	99.5	1.24	20	75-125
Sodium	10000	14740	97.7	2.51	20	75-125
Strontium	100.0	148.4	97.3	3.32	20	75-125
Thallium	100.0	98.35	98.4	3.11	20	75-125
Thorium	100.0	101.5	102	1.62	20	75-125
Tin	100.0	100.6	101	3.06	20	75-125
Titanium	100.0	101.5	100	1.64	20	75-125
Uranium	100.0	100.7	100	2.49	20	75-125
Vanadium	100.0	105.4	105	2.84	20	75-125
Zinc	100.0	98.10	97.4	2.37	20	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 32 outside limits

Spike Recovery: 1 out of 64 outside limits

COMMENTS:

FORM V

7

LABORATORY CONTROL SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

LCS Source: LCS-119351

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Aluminum	100.0	94.72	94.7					
Antimony	100.0	100.56	100.6					
Arsenic	100.0	96.58	96.6					
Barium	100.0	100.06	100.1					
Beryllium	100.0	96.58	96.6					
Boron	500.0	466.47	93.3					
Cadmium	100.0	102.15	102.1					
Calcium	10000.0	9795.22	98.0					
Chromium	100.0	98.63	98.6					
Cobalt	100.0	98.83	98.8					
Copper	100.0	97.98	98.0					
Hardness (Calculation)	66150.0	64632.37	97.7					
Iron	10000.0	9584.28	95.8					
Lead	100.0	97.00	97.0					
Lithium	100.0	99.58	99.6					
Magnesium	10000.0	9755.64	97.6					
Manganese	100.0	95.17	95.2					
Molybdenum	100.0	98.41	98.4					
Nickel	100.0	97.36	97.4					
Potassium	10000.0	9698.61	97.0					
Selenium	100.0	96.46	96.5					
Silicon	10000.0	10124.71	101.2					
Silver	100.0	98.37	98.4					
Sodium	10000.0	10061.13	100.6					
Strontium	100.0	97.22	97.2					
Thallium	100.0	96.11	96.1					
Thorium	100.0	97.12	97.1					
Tin	100.0	98.30	98.3					
Titanium	100.0	98.55	98.5					
Uranium	100.0	96.41	96.4					
Vanadium	100.0	101.64	101.6					
Zinc	100.0	98.35	98.3					

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 1806126

Instrument Type: ICPMS Instrument ID: ICPMS3 Date: 8/17/2017

Concentration Units (ug/L, mg/kg, or ug): mg/Kg

Analyte	Wave-length (nm)	Back-ground	PQL mg/Kg	MDL mg/Kg	M
Aluminum	0		0.50	0.166	MS
Antimony	0		0.25	0.008	MS
Arsenic	0		0.25	0.037	MS
Barium	0		0.25	0.035	MS
Beryllium	0		0.10	0.002	MS
Boron	0		1.00	0.04	MS
Cadmium	0		0.10	0.002	MS
Calcium	0		25.00	2.308	MS
Chromium	0		0.25	0.012	MS
Cobalt	0		0.25	0.003	MS
Copper	0		0.25	0.044	MS
Hardness (Calcul	0		25.00	6.72	MS
Iron	0		4.00	0.478	MS
Lead	0		0.25	0.004	MS
Lithium	0		0.50	0.018	MS
Magnesium	0		10.00	0.233	MS
Manganese	0		0.25	0.02	MS
Molybdenum	0		0.25	0.008	MS
Nickel	0		0.25	0.01	MS
Potassium	0		10.00	0.38	MS
Selenium	0		0.25	0.075	MS
Silicon	0		50.00	2.215	MS
Silver	0		0.25	0.002	MS
Sodium	0		10.00	2.02	MS
Strontium	0		0.25	0.012	MS
Thallium	0		0.25	0.002	MS
Tin	0		0.10	0.006	MS
Titanium	0		0.25	0.064	MS
Vanadium	0		0.25	0.036	MS
Zinc	0		0.50	0.309	MS

Comments:

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 1806126

Instrument Type: ICPMS Instrument ID: ICPMS3 Date: 8/17/2017

Concentration Units (ug/L, mg/kg, or ug): ug/L

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Aluminum	0		10.00	4.2	MS
Antimony	0		5.00	0.17	MS
Arsenic	0		5.00	0.87	MS
Barium	0		5.00	2.19	MS
Beryllium	0		2.00	0.12	MS
Boron	0		20.00	1.84	MS
Cadmium	0		2.00	0.05	MS
Calcium	0		500.00	85.8	MS
Chromium	0		5.00	0.65	MS
Cobalt	0		5.00	0.14	MS
Copper	0		5.00	0.28	MS
Hardness (Calcul	0		2000.00	242	MS
Iron	0		80.00	4.65	MS
Lead	0		5.00	0.33	MS
Lithium	0		10.00	0.37	MS
Magnesium	0		200.00	6.76	MS
Manganese	0		5.00	0.51	MS
Molybdenum	0		5.00	0.31	MS
Nickel	0		5.00	0.41	MS
Potassium	0		200.00	17.3	MS
Selenium	0		5.00	0.9	MS
Silicon	0		1000.00	343	MS
Silver	0		5.00	0.05	MS
Sodium	0		200.00	34.2	MS
Strontium	0		5.00	0.06	MS
Thallium	0		5.00	0.16	MS
Tin	0		2.00	0.11	MS
Titanium	0		5.00	0.39	MS
Vanadium	0		5.00	0.98	MS
Zinc	0		10.00	1.41	MS

Comments:

12-IN

PREPARATION LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUK SAS No.: SDG No.: 1806126

Method: MP 6020 W Batch ID: 119351

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
18CP02-55	6/6/2018	5.00	50
LCSW	6/6/2018	50.00	50
PBW	6/6/2018	50.00	50
ZZZZZZ	6/6/2018	50.00	50
ZZZZZZ	6/6/2018	50.00	50

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: ICPMS3 Method: SW6020A

Start Date: 6/6/2018 End Date: 6/6/2018 Run: ICPMS3 180606A

EPA Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	1350	0			X	X		X		X				X							X	X								
ICB	1	1354	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1355	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
ICSAB	1	1357	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~1	1	1401	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~1	1	1402	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~1	1	1404	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~2	1	1412	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~2	1	1414	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~2	1	1416	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~3	1	1434	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~3	1	1436	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~3	1	1437	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~4	1	1453	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~4	1	1455	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~4	1	1456	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~5	1	1515	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~5	1	1516	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~5	1	1518	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~6	1	1536	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~6	1	1538	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~6	1	1540	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~7	1	1558	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~7	1	1600	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~7	1	1601	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~8	1	1620	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~8	1	1622	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~8	1	1623	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~9	1	1642	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~9	1	1644	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~9	1	1646	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~10	1	1704	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~10	1	1706	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~10	1	1708	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~11	1	1726	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: ICPMS3 Method: SW6020A

Start Date: 6/6/2018 End Date: 6/6/2018 Run: ICPMS3_180606A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
CCB~11	1	1728	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~11	1	1730	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
PBW	1	1747	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X
CCV~12	1	1749	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~12	1	1751	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~12	1	1752	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LCSW	1	1754	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	1800	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	1802	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~13	1	1811	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~13	1	1813	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~13	1	1814	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
18CP02-55	1	1819	0			X	X		X		X				X							X	X							
CCV~14	1	1833	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~14	1	1834	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~14	1	1836	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~15	1	1843	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~15	1	1844	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~15	1	1846	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1848	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSAB	1	1849	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: ICPMS3 Method: SW6020A

Start Date: 6/7/2018 End Date: 6/7/2018 Run: ICPMS3_180607A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	1215	0																											
ICV	1	1218	0			X	X		X		X				X							X	X							
ICB	1	1220	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1222	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSAB	1	1224	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~1	1	1227	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~1	1	1229	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~1	1	1231	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
PBW	1	1242	0																					X								
CCV~2	1	1249	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~2	1	1251	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~2	1	1253	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~3	1	1329	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~3	1	1331	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~3	1	1333	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~4	1	1352	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~4	1	1353	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~4	1	1355	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~5	1	1414	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~5	1	1416	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~5	1	1418	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~6	1	1437	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~6	1	1439	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~6	1	1440	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~7	1	1459	0																													
CCV~8	1	1503	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~7	1	1505	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~7	1	1506	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~9	1	1522	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~8	1	1524	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~8	1	1526	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCV~10	1	1545	0																													
CCV~11	1	1549	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB~9	1	1551	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~9	1	1552	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: ICPMS3 Method: SW6020A

Start Date: 6/7/2018 End Date: 6/7/2018 Run: ICPMS3 180607A

EPA Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
CCV~12	1	1608	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~10	1	1610	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~10	1	1612	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~13	1	1631	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~11	1	1633	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~11	1	1635	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~14	1	1654	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~12	1	1656	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~12	1	1658	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~15	1	1717	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~13	1	1719	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~13	1	1721	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~16	1	1741	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~14	1	1742	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~14	1	1744	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~17	1	1804	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~15	1	1806	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~15	1	1808	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~18	1	1828	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~16	1	1830	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~16	1	1832	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~19	1	1853	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~17	1	1855	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~17	1	1856	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~20	1	1918	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~18	1	1920	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~18	1	1921	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~21	1	1942	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~19	1	1944	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~19	1	1946	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~22	1	1957	0																												
CCV~23	1	2001	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~20	1	2003	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~20	1	2004	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	2006	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: ICPMS3 Method: SW6020A

Start Date: 6/7/2018 End Date: 6/7/2018 Run: ICPMS3 180607A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN		
ICSAB	1	2008	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		

FORM XIII - IN

ALS Group, USA

Analytical Run Summary

13-Jul-18

Run ID ICPMS3_180606A

Analyst Joanne Foy

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5075331	std 1	ICP_6020_W	SAMP	004CALB.d	6/6/2018 13:31	1	R237461		32
5075332	std 1	ICP_6020_W	SAMP	005CALB.d	6/6/2018 13:34	1	R237461		32
5075333	std 2	ICP_6020_W	SAMP	006CALS.d	6/6/2018 13:36	1	R237461		32
5075334	std 3	ICP_6020_W	SAMP	007CALS.d	6/6/2018 13:38	1	R237461		32
5075335	std 4	ICP_6020_W	SAMP	008CALS.d	6/6/2018 13:40	1	R237461		32
5075336	std 5	ICP_6020_W	SAMP	009CALS.d	6/6/2018 13:42	1	R237461		32
5075337	std 6	ICP_6020_W	SAMP	010CALS.d	6/6/2018 13:44	1	R237461		32
5075339	std 7	ICP_6020_W	SAMP	011CALS.d	6/6/2018 13:46	1	R237461		32
5075340	std 8	ICP_6020_W	SAMP	012CALS.d	6/6/2018 13:48	1	R237461		32
5075342	ICV	ICP_6020_W	ICV	013_ICV.d	6/6/2018 13:50	1	R237461		15
5075343	LLICV	ICP_6020_W	LLICV	014LICV.d	6/6/2018 13:52	1	R237461		32
5075344	ICB	ICP_6020_W	ICB	015_ICB.d	6/6/2018 13:54	1	R237461		32
5075346	ICSA	ICP_6020_W	ICSA	016ICSA.d	6/6/2018 13:55	1	R237461		32
5075348	ICSAB	ICP_6020_W	ICSAB	017ICSB.d	6/6/2018 13:57	1	R237461		32
5075350	rinse	ICP_6020_W	SAMP	018SMPL.d	6/6/2018 13:59	1	R237461		0
5075352	CCV	ICP_6020_W	CCV	019SMPL.d	6/6/2018 14:01	1	R237461		32
5075353	CCB	ICP_6020_W	CCB	020_CCB.d	6/6/2018 14:02	1	R237461		32
5075356	LLCCV	ICP_6020_W	LLCCV	021LCCV.d	6/6/2018 14:04	1	R237461		32
5075357	CCV	ICP_6020_W	CCV	026SMPL.d	6/6/2018 14:12	1	R237461		32
5075358	CCB	ICP_6020_W	CCB	027_CCB.d	6/6/2018 14:14	1	R237461		32
5075359	LLCCV	ICP_6020_W	LLCCV	028LCCV.d	6/6/2018 14:16	1	R237461		32
5075360	18051980-01A	ICP_6020_W	SAMP	029SMPL.d	6/6/2018 14:17	100	119274	6/5/2018	2
5075361	MBLK-119346	ICP_6020_W	MBLK	030SMPL.d	6/6/2018 14:19	1	119346	6/6/2018	32
5075362	LCS-119346	ICP_6020_W	LCS	031SMPL.d	6/6/2018 14:20	1	119346	6/6/2018	32
5075363	1806074-07B	ICP_6020_W	SAMP	032SMPL.d	6/6/2018 14:22	1	119346	6/6/2018	1
5075364	1806074-07BMS	ICP_6020_W	MS	033SMPL.d	6/6/2018 14:24	1	119346	6/6/2018	32
5075365	1806074-07BMSD	ICP_6020_W	MSD	034SMPL.d	6/6/2018 14:25	1	119346	6/6/2018	32
5075366	1806197-01A	ICP_6020_W	SAMP	035SMPL.d	6/6/2018 14:27	1	119346	6/6/2018	1
5075367	1806197-02A	ICP_6020_W	SAMP	036SMPL.d	6/6/2018 14:29	1	119346	6/6/2018	1
5075368	1806197-03A	ICP_6020_W	SAMP	037SMPL.d	6/6/2018 14:31	1	119346	6/6/2018	1
5075369	MBLK-119339	ICP_200.8_WW	MBLK	038SMPL.d	6/6/2018 14:33	1	119344	6/6/2018	31
5075370	CCV	ICP_6020_W	CCV	039_CCV.d	6/6/2018 14:34	1	R237461		32
5075371	CCB	ICP_6020_W	CCB	040_CCB.d	6/6/2018 14:36	1	R237461		32
5075372	LLCCV	ICP_6020_W	LLCCV	041LCCV.d	6/6/2018 14:37	1	R237461		32
5075391	LCS-119339	ICP_200.8_WW	LCS	042SMPL.d	6/6/2018 14:39	1	119344	6/6/2018	31
5075392	MBLK-119344	ICP_200.8_WW	MBLK	043SMPL.d	6/6/2018 14:41	1	119344	6/6/2018	31
5075393	LCS-119344	ICP_200.8_WW	LCS	044SMPL.d	6/6/2018 14:42	1	119344	6/6/2018	31
5075394	1806258-01A	ICP_200.8_WW	SAMP	045SMPL.d	6/6/2018 14:44	1	119344	6/6/2018	7
5075395	1806258-02B	ICP_200.8_WW	SAMP	046SMPL.d	6/6/2018 14:46	1	119344	6/6/2018	2
5075396	1806258-05B	ICP_200.8_WW	SAMP	047SMPL.d	6/6/2018 14:48	1	119344	6/6/2018	2
5075397	1806258-07B	ICP_200.8_WW	SAMP	048SMPL.d	6/6/2018 14:49	1	119344	6/6/2018	2
5075398	1806258-08B	ICP_200.8_WW	SAMP	049SMPL.d	6/6/2018 14:51	1	119344	6/6/2018	2
5075399	CCV	ICP_6020_W	CCV	050SMPL.d	6/6/2018 14:53	1	R237461		32
5075400	CCB	ICP_6020_W	CCB	051_CCB.d	6/6/2018 14:55	1	R237461		32
5075401	LLCCV	ICP_6020_W	LLCCV	052LCCV.d	6/6/2018 14:56	1	R237461		32
5076211	18051835-03B	ICP_6020_W	SAMP	053SMPL.d	6/6/2018 14:58	10	119288	6/5/2018	1
5076212	18051835-11B	ICP_6020_W	SAMP	054SMPL.d	6/6/2018 14:59	10	119288	6/5/2018	1
5076213	18051961-02A	ICP_6020_S	SAMP	055SMPL.d	6/6/2018 15:01	10	119291	6/5/2018	1
5076214	18051961-04A	ICP_6020_S	SAMP	056SMPL.d	6/6/2018 15:03	10	119291	6/5/2018	1
5076215	18051961-07A	ICP_6020_S	SAMP	057SMPL.d	6/6/2018 15:04	100	119291	6/5/2018	2
5076216	18051961-08A	ICP_6020_S	SAMP	058SMPL.d	6/6/2018 15:06	10	119291	6/5/2018	2
5076217	1806055-01A	ICP_6020_S	SAMP	059SMPL.d	6/6/2018 15:08	10	119291	6/5/2018	1
5076218	18051630-01A	ICP_6020_S	SAMP	060SMPL.d	6/6/2018 15:09	1	119029	5/30/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5076219	18051835-21B	ICP_6020_W	SAMP	061SMPL.d	6/6/2018 15:11	1	119346	6/6/2018	15
5076220	1806002-01E	ICP_6020_W	SAMP	062SMPL.d	6/6/2018 15:13	1	119346	6/6/2018	16
5076221	CCV	ICP_6020_W	CCV	063_CCV.d	6/6/2018 15:15	1	R237461		32
5076222	CCB	ICP_6020_W	CCB	064_CCB.d	6/6/2018 15:16	1	R237461		32
5076223	LLCCV	ICP_6020_W	LLCCV	065LCCV.d	6/6/2018 15:18	1	R237461		32
5076224	1806002-02E	ICP_6020_W	SAMP	066SMPL.d	6/6/2018 15:20	1	119346	6/6/2018	16
5076225	1806002-03E	ICP_6020_W	SAMP	067SMPL.d	6/6/2018 15:21	1	119346	6/6/2018	16
5076226	1806002-04E	ICP_6020_W	SAMP	068SMPL.d	6/6/2018 15:23	1	119346	6/6/2018	16
5076227	1806002-05E	ICP_6020_W	SAMP	069SMPL.d	6/6/2018 15:25	1	119346	6/6/2018	16
5076228	1806002-06E	ICP_6020_W	SAMP	070SMPL.d	6/6/2018 15:26	1	119346	6/6/2018	16
5076229	1806002-07E	ICP_6020_W	SAMP	071SMPL.d	6/6/2018 15:28	1	119346	6/6/2018	15
5076230	1806033-01B	ICP_6020_W	SAMP	072SMPL.d	6/6/2018 15:30	1	119346	6/6/2018	1
5076231	1806074-01B	ICP_6020_WD	SAMP	073SMPL.d	6/6/2018 15:31	1	119346	6/6/2018	1
5076232	1806074-02B	ICP_6020_W	SAMP	074SMPL.d	6/6/2018 15:33	1	119346	6/6/2018	1
5076233	1806074-03B	ICP_6020_W	SAMP	075SMPL.d	6/6/2018 15:35	1	119346	6/6/2018	1
5076234	CCV	ICP_6020_W	CCV	076_CCV.d	6/6/2018 15:36	1	R237461		32
5076236	CCB	ICP_6020_W	CCB	077_CCB.d	6/6/2018 15:38	1	R237461		32
5076237	LLCCV	ICP_6020_W	LLCCV	078LCCV.d	6/6/2018 15:40	1	R237461		32
5076238	1806074-03C	ICP_6020_WD	SAMP	079SMPL.d	6/6/2018 15:41	1	119346	6/6/2018	1
5076239	1806074-04B	ICP_6020_W	SAMP	080SMPL.d	6/6/2018 15:43	1	119346	6/6/2018	1
5076240	1806074-05B	ICP_6020_W	SAMP	081SMPL.d	6/6/2018 15:45	1	119346	6/6/2018	1
5076241	1806074-06B	ICP_6020_W	SAMP	082SMPL.d	6/6/2018 15:46	1	119346	6/6/2018	1
5076242	MBLK-119352	ICP_6020_WD	MBLK	083SMPL.d	6/6/2018 15:48	1	119352	6/6/2018	10
5076243	LCS-119352	ICP_6020_WD	LCS	084SMPL.d	6/6/2018 15:49	1	119352	6/6/2018	10
5076244	1806083-01C	ICP_6020_WD	SAMP	085SMPL.d	6/6/2018 15:51	1	119352	6/6/2018	10
5076245	1806083-01CMS	ICP_6020_WD	MS	086SMPL.d	6/6/2018 15:53	1	119352	6/6/2018	10
5076246	1806083-01CMSD	ICP_6020_WD	MSD	087SMPL.d	6/6/2018 15:55	1	119352	6/6/2018	0
5076247	1806083-02C	ICP_6020_WD	SAMP	088SMPL.d	6/6/2018 15:56	1	119352	6/6/2018	10
5076248	CCV	ICP_6020_W	CCV	089_CCV.d	6/6/2018 15:58	1	R237461		32
5076249	CCB	ICP_6020_W	CCB	090_CCB.d	6/6/2018 16:00	1	R237461		32
5076250	LLCCV	ICP_6020_W	LLCCV	091LCCV.d	6/6/2018 16:01	1	R237461		32
5076251	1806083-03C	ICP_6020_WD	SAMP	092SMPL.d	6/6/2018 16:03	1	119352	6/6/2018	10
5076252	1806083-04C	ICP_6020_WD	SAMP	093SMPL.d	6/6/2018 16:05	1	119352	6/6/2018	10
5076253	1806083-05C	ICP_6020_WD	SAMP	094SMPL.d	6/6/2018 16:06	1	119352	6/6/2018	10
5076254	1806083-06C	ICP_6020_WD	SAMP	095SMPL.d	6/6/2018 16:08	1	119352	6/6/2018	10
5076255	1806083-07C	ICP_6020_WD	SAMP	096SMPL.d	6/6/2018 16:10	1	119352	6/6/2018	10
5076256	1806083-08C	ICP_6020_WD	SAMP	097SMPL.d	6/6/2018 16:11	1	119352	6/6/2018	10
5076257	1806101-02A	ICP_200.8_WW	SAMP	098SMPL.d	6/6/2018 16:13	1	119344	6/6/2018	1
5076258	1806101-02AMS	ICP_200.8_WW	MS	099SMPL.d	6/6/2018 16:15	1	119344	6/6/2018	31
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Na*							
5076259	1806101-02AMSD	ICP_200.8_WW	MSD	100SMPL.d	6/6/2018 16:17	1	119344	6/6/2018	31
5076260	1806106-01A	ICP_200.8_WW	SAMP	101SMPL.d	6/6/2018 16:18	1	119344	6/6/2018	1
5076261	CCV	ICP_6020_W	CCV	102_CCV.d	6/6/2018 16:20	1	R237461		32
5076262	CCB	ICP_6020_W	CCB	103_CCB.d	6/6/2018 16:22	1	R237461		32
5076263	LLCCV	ICP_6020_W	LLCCV	104LCCV.d	6/6/2018 16:23	1	R237461		32
5076264	1806106-01AMS	ICP_200.8_WW	MS	105SMPL.d	6/6/2018 16:25	1	119344	6/6/2018	31
5076265	1806106-01AMSD	ICP_200.8_WW	MSD	106SMPL.d	6/6/2018 16:27	1	119344	6/6/2018	31
5076266	1806108-01A	ICP_200.8_WW	SAMP	107SMPL.d	6/6/2018 16:29	1	119344	6/6/2018	9
5076267	1806113-01A	ICP_200.8_WW	SAMP	108SMPL.d	6/6/2018 16:30	1	119344	6/6/2018	28
5076268	1806121-01A	ICP_200.8_WWD	SAMP	109SMPL.d	6/6/2018 16:32	1	119344	6/6/2018	1
5076269	1806121-01C	ICP_200.8_WW	SAMP	110SMPL.d	6/6/2018 16:34	1	119344	6/6/2018	2
5076270	1806174-01D	ICP_200.8_WW	SAMP	111SMPL.d	6/6/2018 16:35	1	119344	6/6/2018	10
5076271	1806242-01A	ICP_200.8_WW	SAMP	112SMPL.d	6/6/2018 16:37	1	119344	6/6/2018	3
5076272	1806242-02A	ICP_200.8_WW	SAMP	113SMPL.d	6/6/2018 16:39	1	119344	6/6/2018	3
5076273	1806242-03A	ICP_200.8_WW	SAMP	114SMPL.d	6/6/2018 16:41	1	119344	6/6/2018	3
5076274	CCV	ICP_6020_W	CCV	115_CCV.d	6/6/2018 16:42	1	R237461		32
5076275	CCB	ICP_6020_W	CCB	116_CCB.d	6/6/2018 16:44	1	R237461		32
5076276	LLCCV	ICP_6020_W	LLCCV	117LCCV.d	6/6/2018 16:46	1	R237461		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5076277	1806242-04A	ICP_200.8_WW	SAMP	118SMPL.d	6/6/2018 16:47	1	119344	6/6/2018	3
5076278	1806242-05A	ICP_200.8_WW	SAMP	119SMPL.d	6/6/2018 16:49	1	119344	6/6/2018	4
5076279	1806242-06A	ICP_200.8_WW	SAMP	120SMPL.d	6/6/2018 16:51	1	119344	6/6/2018	4
5076280	1806242-07A	ICP_200.8_WW	SAMP	121SMPL.d	6/6/2018 16:52	1	119344	6/6/2018	4
5076281	1806242-08A	ICP_200.8_WW	SAMP	122SMPL.d	6/6/2018 16:54	1	119344	6/6/2018	4
5076282	MBLK-119347	ICP_6020_W	MBLK	123SMPL.d	6/6/2018 16:56	1	119347	6/6/2018	8
5076283	LCS-119347	ICP_6020_W	LCS	124SMPL.d	6/6/2018 16:57	1	119347	6/6/2018	8
5076284	1806074-08B	ICP_6020_W	SAMP	125SMPL.d	6/6/2018 16:59	1	119347	6/6/2018	1
5076285	1806074-09B	ICP_6020_W	SAMP	126SMPL.d	6/6/2018 17:01	1	119347	6/6/2018	1
5076286	1806074-10B	ICP_6020_W	SAMP	127SMPL.d	6/6/2018 17:03	1	119347	6/6/2018	1
5076287	CCV	ICP_6020_W	CCV	128_CCV.d	6/6/2018 17:04	1	R237461		32
5076288	CCB	ICP_6020_W	CCB	129_CCB.d	6/6/2018 17:06	1	R237461		32
5076289	LLCCV	ICP_6020_W	LLCCV	130LCCV.d	6/6/2018 17:08	1	R237461		32
5076290	1806074-11B	ICP_6020_W	SAMP	131SMPL.d	6/6/2018 17:09	1	119347	6/6/2018	1
5076291	1806074-12B	ICP_6020_W	SAMP	132SMPL.d	6/6/2018 17:11	1	119347	6/6/2018	1
5076292	1806074-13B	ICP_6020_W	SAMP	133SMPL.d	6/6/2018 17:13	1	119347	6/6/2018	1
5076293	1806074-13C	ICP_6020_WD	SAMP	134SMPL.d	6/6/2018 17:14	1	119347	6/6/2018	1
5076294	1806074-14B	ICP_6020_W	SAMP	135SMPL.d	6/6/2018 17:16	1	119347	6/6/2018	1
5076295	1806074-15B	ICP_6020_W	SAMP	136SMPL.d	6/6/2018 17:18	1	119347	6/6/2018	1
5076296	1806074-15C	ICP_6020_WD	SAMP	137SMPL.d	6/6/2018 17:19	1	119347	6/6/2018	1
5076297	1806074-16B	ICP_6020_W	SAMP	138SMPL.d	6/6/2018 17:21	1	119347	6/6/2018	1
5076298	1806074-17B	ICP_6020_W	SAMP	139SMPL.d	6/6/2018 17:23	1	119347	6/6/2018	1
5076299	1806074-20B	ICP_6020_W	SAMP	140SMPL.d	6/6/2018 17:25	1	119347	6/6/2018	1
5076300	CCV	ICP_6020_W	CCV	141_CCV.d	6/6/2018 17:26	1	R237461		32
5076301	CCB	ICP_6020_W	CCB	142_CCB.d	6/6/2018 17:28	1	R237461		32
5076302	LLCCV	ICP_6020_W	LLCCV	143LCCV.d	6/6/2018 17:30	1	R237461		32
5076303	1806074-21B	ICP_6020_W	SAMP	144SMPL.d	6/6/2018 17:31	1	119347	6/6/2018	1
5076304	1806074-24B	ICP_6020_W	SAMP	145SMPL.d	6/6/2018 17:33	1	119347	6/6/2018	1
5076305	1806074-24BMS	ICP_6020_W	MS	146SMPL.d	6/6/2018 17:35	1	119347	6/6/2018	8
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mn Na*							
5076306	1806074-24BMSD	ICP_6020_W	MSD	147SMPL.d	6/6/2018 17:37	1	119347	6/6/2018	8
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mn Na*							
5076307	1806074-25B	ICP_6020_W	SAMP	148SMPL.d	6/6/2018 17:38	1	119347	6/6/2018	1
5076308	1806074-26B	ICP_6020_W	SAMP	149SMPL.d	6/6/2018 17:40	1	119347	6/6/2018	1
5076309	1806074-27B	ICP_6020_W	SAMP	150SMPL.d	6/6/2018 17:42	1	119347	6/6/2018	1
5076310	1806074-28B	ICP_6020_W	SAMP	151SMPL.d	6/6/2018 17:44	1	119347	6/6/2018	1
5076311	1806092-01D	ICP_6020_W	SAMP	152SMPL.d	6/6/2018 17:45	1	119347	6/6/2018	6
5076312	MBLK-119351	ICP_6020_W	MBLK	153SMPL.d	6/6/2018 17:47	1	119351	6/6/2018	31
5076313	CCV	ICP_6020_W	CCV	154_CCV.d	6/6/2018 17:49	1	R237461		32
5076314	CCB	ICP_6020_W	CCB	155_CCB.d	6/6/2018 17:51	1	R237461		32
5076315	LLCCV	ICP_6020_W	LLCCV	156LCCV.d	6/6/2018 17:52	1	R237461		32
5076316	LCS-119351	ICP_6020_W	LCS	157SMPL.d	6/6/2018 17:54	1	119351	6/6/2018	32
5076317	EQB-119319	ICP_6020_W	SAMP	158SMPL.d	6/6/2018 17:56	1	119351	6/6/2018	7
5076318	1806044-33A	ICP_6020_W	SAMP	159SMPL.d	6/6/2018 17:57	1	119351	6/6/2018	21
5076319	1806079-01B	ICP_6020_W	SAMP	160SMPL.d	6/6/2018 17:59	1	119351	6/6/2018	8
5076320	1806079-01BMS	ICP_6020_W	MS	161SMPL.d	6/6/2018 18:00	1	119351	6/6/2018	32
5076321	1806079-01BMSD	ICP_6020_W	MSD	162SMPL.d	6/6/2018 18:02	1	119351	6/6/2018	32
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca*							
5076322	1806085-01A	ICP_6020_WD	SAMP	163SMPL.d	6/6/2018 18:04	1	119351	6/6/2018	5
5076323	1806085-02A	ICP_6020_WD	SAMP	164SMPL.d	6/6/2018 18:06	1	119351	6/6/2018	5
5076324	1806085-03A	ICP_6020_WD	SAMP	165SMPL.d	6/6/2018 18:07	1	119351	6/6/2018	5
5076325	1806093-01D	ICP_6020_W	SAMP	166SMPL.d	6/6/2018 18:09	1	119351	6/6/2018	6
5076326	CCV	ICP_6020_W	CCV	167_CCV.d	6/6/2018 18:11	1	R237461		32
5076327	CCB	ICP_6020_W	CCB	168_CCB.d	6/6/2018 18:13	1	R237461		32
5076328	LLCCV	ICP_6020_W	LLCCV	169LCCV.d	6/6/2018 18:14	1	R237461		32
5076329	1806094-01D	ICP_6020_W	SAMP	170SMPL.d	6/6/2018 18:16	1	119351	6/6/2018	6

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5076330	1806109-01A	TCICP_6020_S	SAMP	171SMPL.d	6/6/2018 18:18	1	119351	6/6/2018	7
5076331	1806126-03A	TCICP_6020_S	SAMP	172SMPL.d	6/6/2018 18:19	1	119351	6/6/2018	7
5076332	1806166-02C	TCICP_6020_S	SAMP	173SMPL.d	6/6/2018 18:21	1	119351	6/6/2018	7
5076333	1806172-01B	ICP_6020_W	SAMP	174SMPL.d	6/6/2018 18:23	1	119351	6/6/2018	2
5076334	1806172-02B	ICP_6020_W	SAMP	175SMPL.d	6/6/2018 18:24	1	119351	6/6/2018	2
5076335	1806270-01A	ICP_6020_W	SAMP	176SMPL.d	6/6/2018 18:26	1	119351	6/6/2018	12
5076336	1806051-01A	ICP_6020_SOL	SAMP	177SMPL.d	6/6/2018 18:28	10	119363	6/6/2018	2
5076337	1806051-01ADUP	ICP_6020_SOL	DUP	178SMPL.d	6/6/2018 18:29	10	119363	6/6/2018	2
5076338	1806051-02A	ICP_6020_SOL	SAMP	179SMPL.d	6/6/2018 18:31	10	119363	6/6/2018	3
5076339	CCV	ICP_6020_W	CCV	180_CCV.d	6/6/2018 18:33	1	R237461		32
5076340	CCB	ICP_6020_W	CCB	181_CCB.d	6/6/2018 18:34	1	R237461		32
5076341	LLCCV	ICP_6020_W	LLCCV	182LCCV.d	6/6/2018 18:36	1	R237461		32
5076342	1806051-03A	ICP_6020_SOL	SAMP	183SMPL.d	6/6/2018 18:38	10	119363	6/6/2018	3
5076343	1806051-04A	ICP_6020_SOL	SAMP	184SMPL.d	6/6/2018 18:39	10	119363	6/6/2018	3
5076344	1806051-05A	ICP_6020_SOL	SAMP	185SMPL.d	6/6/2018 18:41	10	119363	6/6/2018	3
5076345	CCV	ICP_6020_W	CCV	186_CCV.d	6/6/2018 18:43	1	R237461		32
5076346	CCB	ICP_6020_W	CCB	187_CCB.d	6/6/2018 18:44	1	R237461		32
5076347	LLCCV	ICP_6020_W	LLCCV	188LCCV.d	6/6/2018 18:46	1	R237461		32
5076348	ICSA	ICP_6020_W	ICSA	189ICSA.d	6/6/2018 18:48	1	R237461		32
5076349	ICSAB	ICP_6020_W	ICSAB	190ICSB.d	6/6/2018 18:49	1	R237461		32

US EPA Tune Check Report

Operator Name	ALSHN ICPMS
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq. Date-Time	2018-06-06 13:23:58
Report Comment	---
Instrument Name	G8421A JP17200678

[No Gas]

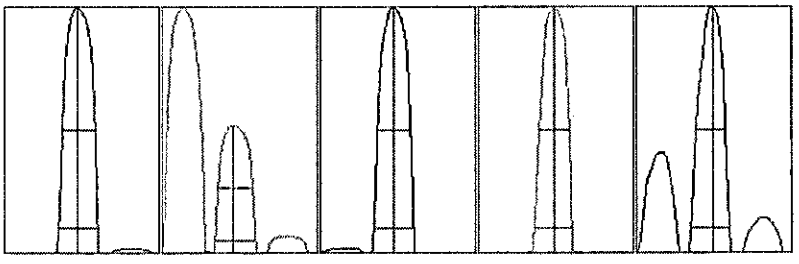
Sensitivity

Mass	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
9	7735	77353.52	0.331	5.000	
24	47127	471269.69	0.166	5.000	
59	44349	443487.74	0.169	5.000	
115	64769	647688.72	0.417	5.000	
208	27158	271581.46	0.187	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	7713	7755	7732	7709	7767
24	47184	47093	47045	47233	47079
59	44290	44423	44336	44429	44267
115	64721	64446	64787	65193	64697
208	27159	27222	27080	27171	27159

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	12634.44	8.95	8.90 - 9.10	
24	72974.42	23.90	23.90 - 24.10	
59	71815.58	58.95	58.90 - 59.10	
115	113941.58	115.00	114.90 - 115.10	
208	50051.32	208.00	207.90 - 208.10	

Mass	W-50%	W-10%	W-10% (Required)	W-10% (Flag)
9	0.64	0.761	0.900	
24	0.68	0.776	0.900	
59	0.65	0.772	0.900	
115	0.60	0.722	0.900	
208	0.58	0.747	0.900	

US EPA Tune Check Report

Integration Time [sec]	0.1
Acquisition Time [sec]	168.5
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	General Purpose	Nebulizer Gas	1.07 L/min	Makeup Gas	0.00 L/min
RF Power	1550 W	Option Gas	—	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.4 V	Deflect	13.6 V
Extract 2	-195.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-80 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	—	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	—	OctP RF	200 V		

QP Parameters

Mass Gain	128	Axis Gain	0.9995	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.05		

Hardware Settings

Torch

Torch H	0.4 mm	Torch V	0.0 mm		

EM

Discriminator	4.7 mV	Analog HV	2269 V	Pulse HV	981 V

[He]

Sensitivity

Mass	Count	CPS	RSD%	RSD% (Required)	RSD% (Flag)
59	8357	83573.85	0.854	5.000	
89	6822	68215.81	1.708	5.000	
205	14362	143617.46	0.815	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
59	8455	8401	8347	8288	8295
89	6984	6878	6805	6766	6675
205	14546	14411	14292	14280	14279

Integration Time [sec]	0.1

Tune Parameters

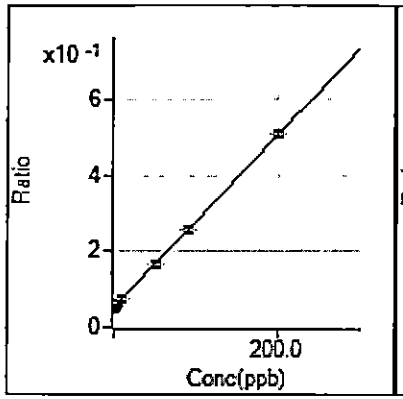
Plasma Parameters

Plasma Mode	General Purpose	Nebulizer Gas	1.07 L/min	Makeup Gas	0.00 L/min
RF Power	1550 W	Option Gas	—	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	10.0 mm	S/C Temp	2 °C		

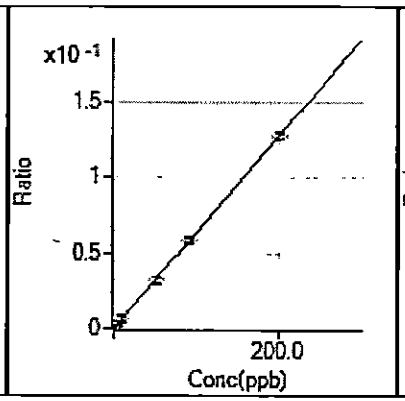
US EPA Tune Check Report

Lens Parameters					
Extract 1	0.0 V	Omega Lens	8.4 V	Deflect	1.2 V
Extract 2	-195.0 V	Cell Entrance	-40 V	Plate Bias	-55 V
Omega Bias	-80 V	Cell Exit	-60 V		
Cell Parameters					
Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	4.0 mL/min	OctP Bias	-18.0 V		
H2 Flow	---	OctP RF	200 V		
QP Parameters					
Mass Gain	128	Axis Gain	0.9995	QP Bias	-13.0 V
Mass Offset	125	Axis Offset	0.05		
Hardware Settings					
Torch					
Torch H	0.4 mm	Torch V	0.0 mm		
EM					
Discriminator	4.7 mV	Analog HV	2269 V	Pulse HV	981 V

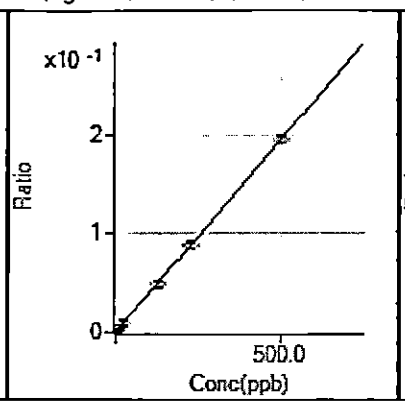
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



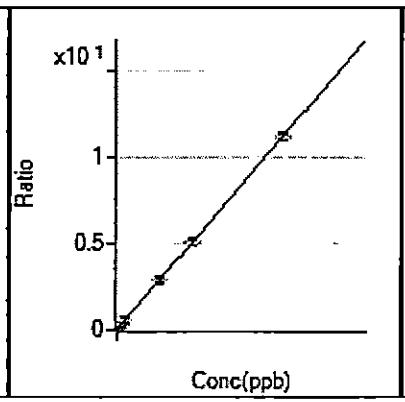
7 Li [No Gas] / ISTD: 6 Li
y = 2.271E-3 x + 5.264E-2
R 1.0000
DL 0.1094
BEC 23.17



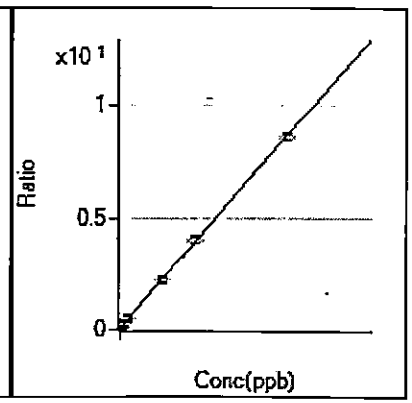
9 Be [No Gas] / ISTD: 6 Li
y = 6.412E-4 x + 3.203E-5
R 1.0000
DL 0.01236
BEC 0.04995



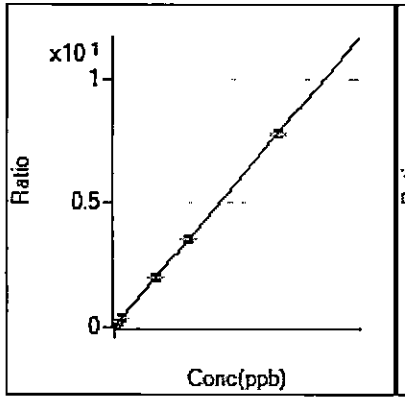
11 B [No Gas] / ISTD: 6 Li
y = 3.897E-4 x + 6.140E-4
R 1.0000
DL 0.275
BEC 1.576



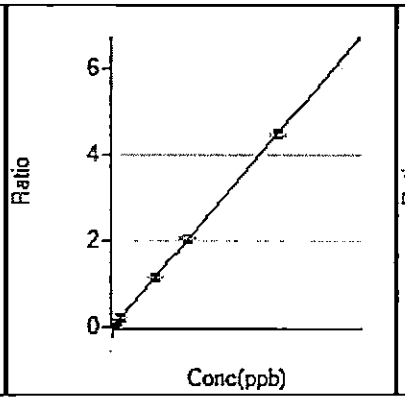
23 Na [No Gas] / ISTD: 45 Sc
y = 5.597E-4 x + 2.450E-2
R 1.0000
DL 0.1471
BEC 43.77



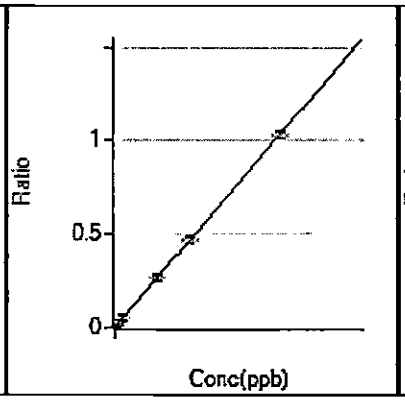
23 Na [He] / ISTD: 45 Sc
y = 4.319E-4 x + 2.643E-2
R 0.9999
DL 10.39
BEC 61.2



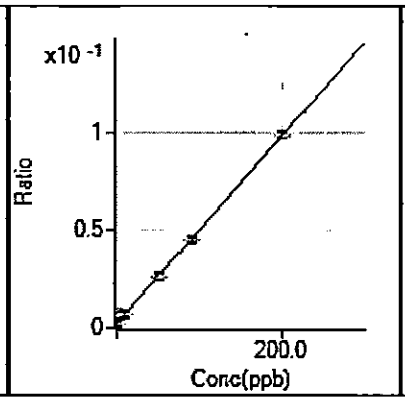
24 Mg [No Gas] / ISTD: 45 Sc
y = 3.899E-4 x + 4.921E-4
R 1.0000
DL 0.08236
BEC 1.262



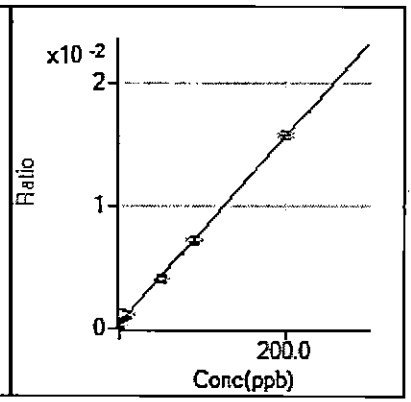
24 Mg [He] / ISTD: 45 Sc
y = 2.248E-4 x + 3.747E-4
R 1.0000
DL 0.925
BEC 1.667



25 Mg [No Gas] / ISTD: 45 Sc
y = 5.170E-5 x + 6.465E-5
R 1.0000
DL 0.4153
BEC 1.251

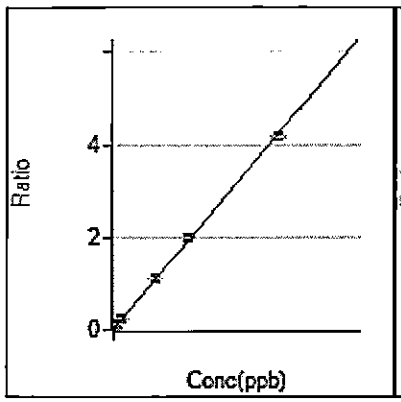


27 Al [No Gas] / ISTD: 45 Sc
y = 4.800E-4 x + 2.159E-3
R 0.9999
DL 0.4854
BEC 4.498

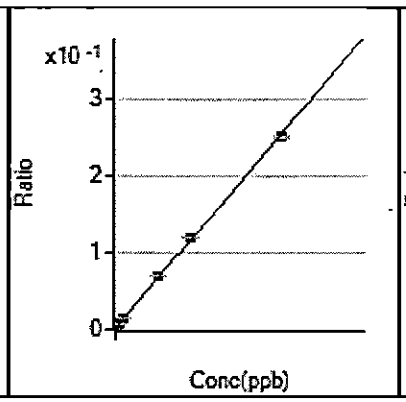


27 Al [He] / ISTD: 45 Sc
y = 7.656E-5 x + 3.745E-4
R 0.9998
DL 1.097
BEC 4.891

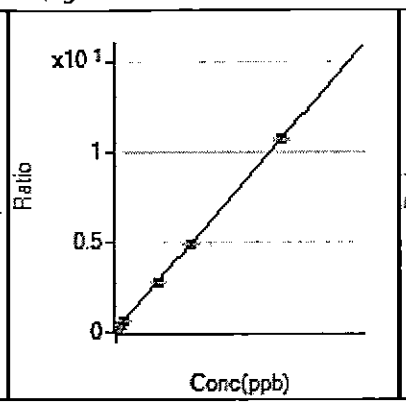
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



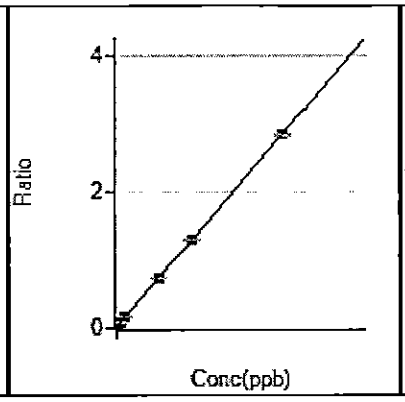
28 Si [No Gas] / ISTD: 45 Sc
y = 2.108E-4 x + 8.908E-3
R 0.9997
DL 2.489
BEC 42.26



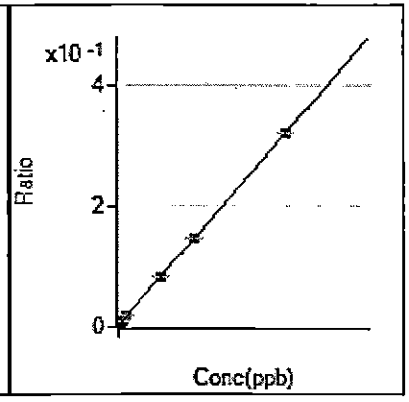
29 Si [No Gas] / ISTD: 45 Sc
y = 1.261E-5 x + 1.685E-3
R 0.9996
DL 4.325
BEC 133.5



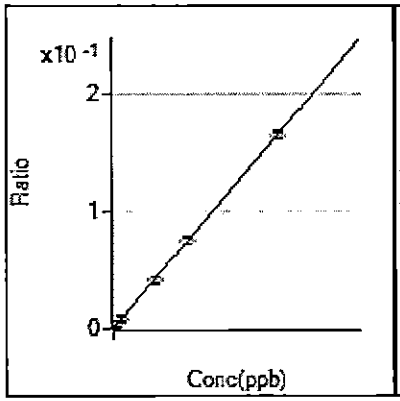
39 K [No Gas] / ISTD: 45 Sc
y = 5.305E-4 x + 1.365E-1
R 1.0000
DL 3.932
BEC 257.2



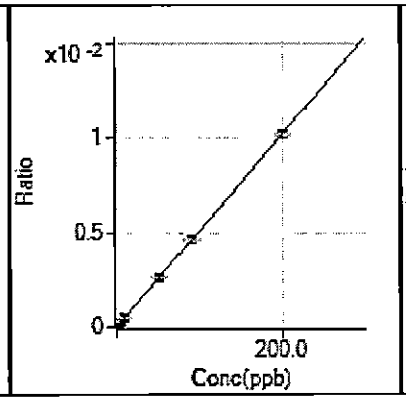
39 K [He] / ISTD: 45 Sc
y = 1.417E-4 x + 1.701E-2
R 1.0000
DL 12.54
BEC 120



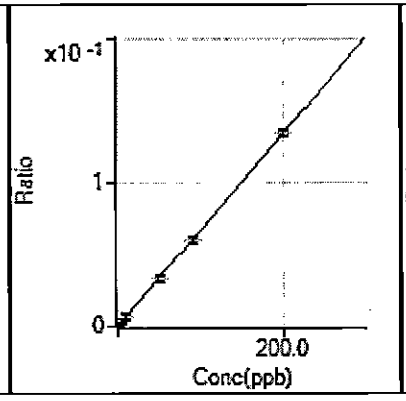
44 Ca [No Gas] / ISTD: 45 Sc
y = 1.602E-5 x + 1.159E-3
R 1.0000
DL 7.939
BEC 72.34



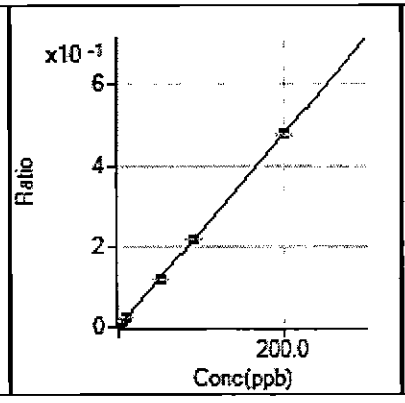
44 Ca [He] / ISTD: 45 Sc
y = 8.278E-6 x + 2.044E-4
R 1.0000
DL 24.74
BEC 24.69



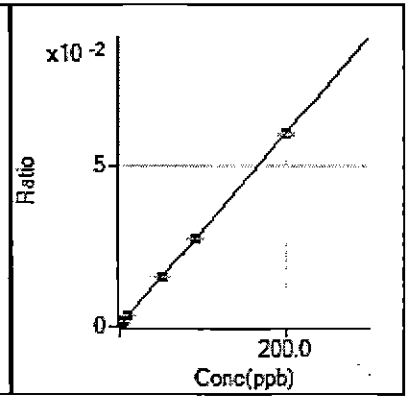
47 Ti [No Gas] / ISTD: 45 Sc
y = 5.112E-5 x + 4.856E-6
R 1.0000
DL 0.08715
BEC 0.09499



51 V [No Gas] / ISTD: 45 Sc
y = 6.726E-4 x + 1.171E-5
R 1.0000
DL 0.7094
BEC 0.01741

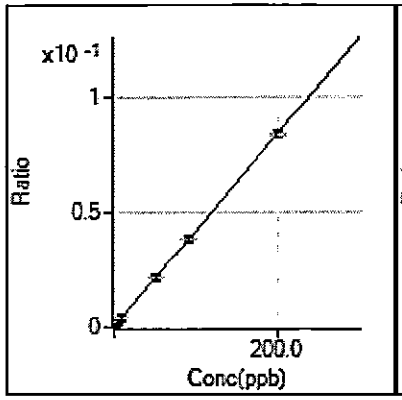


51 V [He] / ISTD: 45 Sc
y = 2.389E-3 x + 1.619E-4
R 1.0000
DL 0.03692
BEC 0.06777

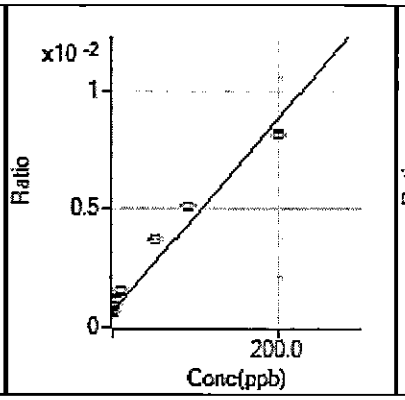


52 Cr [No Gas] / ISTD: 89 Y
y = 3.011E-4 x + 2.844E-4
R 1.0000
DL 0.04093
BEC 0.9444

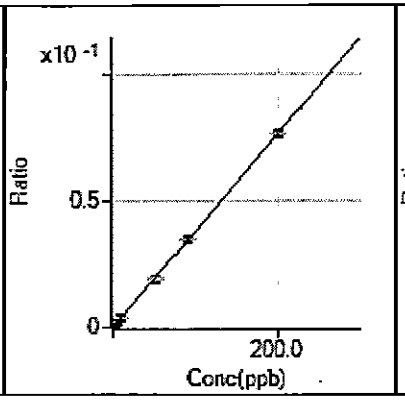
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



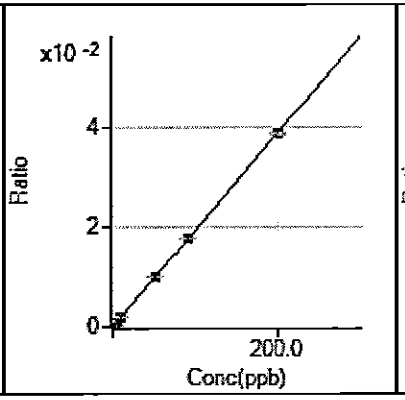
52 Cr [He] / ISTD: 89 Y
y = 4.214E-4 x + 1.264E-4
R 1.0000
DL 0.05777
BEC 0.3



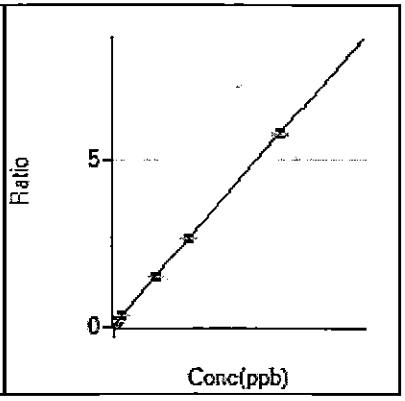
53 Cr [No Gas] / ISTD: 89 Y
y = 4.076E-5 x + 6.591E-4
R 0.9856
DL 1.894
BEC 16.17



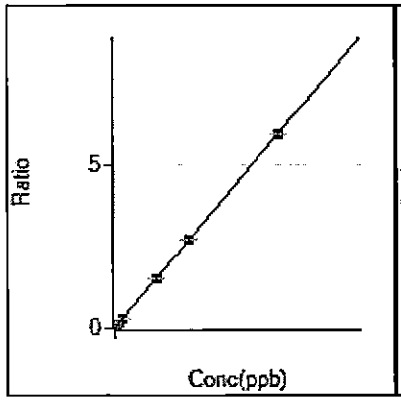
55 Mn [No Gas] / ISTD: 89 Y
y = 3.820E-4 x + 7.932E-5
R 1.0000
DL 0.02237
BEC 0.2077



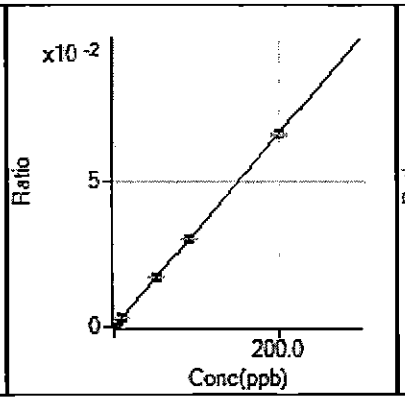
55 Mn [He] / ISTD: 89 Y
y = 1.936E-4 x + 9.091E-6
R 1.0000
DL 0.04644
BEC 0.04695



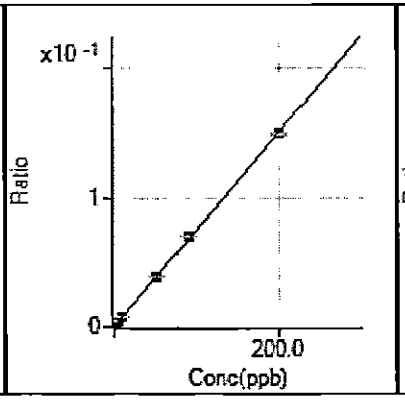
56 Fe [No Gas] / ISTD: 89 Y
y = 2.865E-4 x + 3.464E-2
R 1.0000
DL 1.739
BEC 120.9



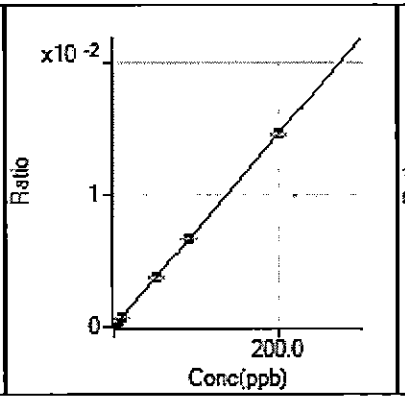
56 Fe [He] / ISTD: 89 Y
y = 2.969E-4 x + 2.959E-3
R 1.0000
DL 1.692
BEC 9.966



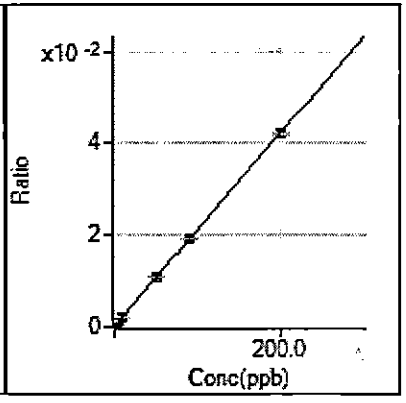
59 Co [No Gas] / ISTD: 89 Y
y = 3.324E-4 x + 1.957E-5
R 1.0000
DL 0.00271
BEC 0.05887



59 Co [He] / ISTD: 89 Y
y = 7.514E-4 x + 3.358E-5
R 0.9999
DL 0.01156
BEC 0.04469

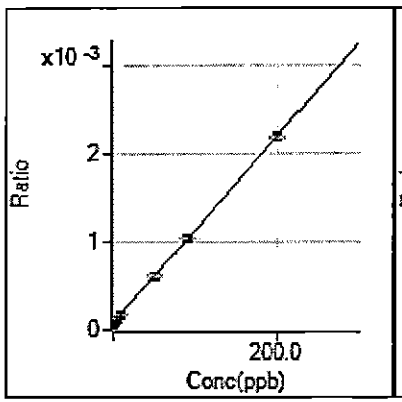


60 Ni [No Gas] / ISTD: 89 Y
y = 7.283E-5 x + 9.580E-6
R 1.0000
DL 0.03965
BEC 0.1315

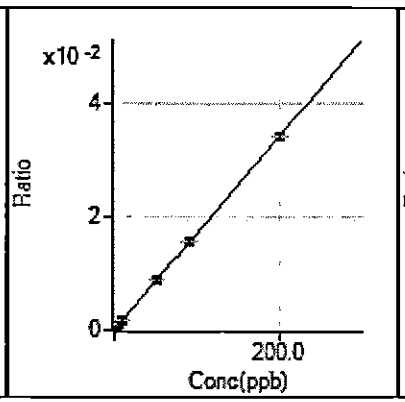


60 Ni [He] / ISTD: 89 Y
y = 2.115E-4 x + 2.134E-5
R 1.0000
DL 0.08452
BEC 0.1009

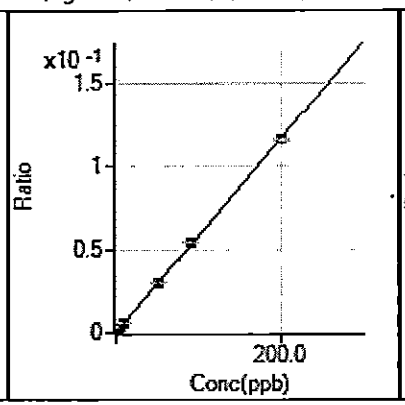
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



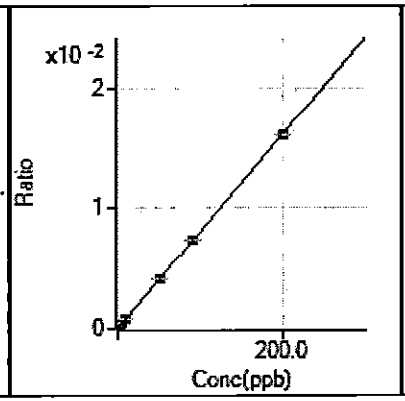
62 Ni [No Gas] / ISTD: 89 Y
y = 1.061E-5 x + 7.773E-5
R 1.0000
DL 0.8124
BEC 7.323



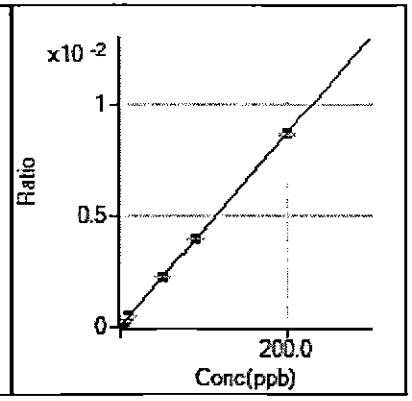
63 Cu [No Gas] / ISTD: 89 Y
y = 1.708E-4 x + 2.939E-5
R 1.0000
DL 0.02325
BEC 0.1721



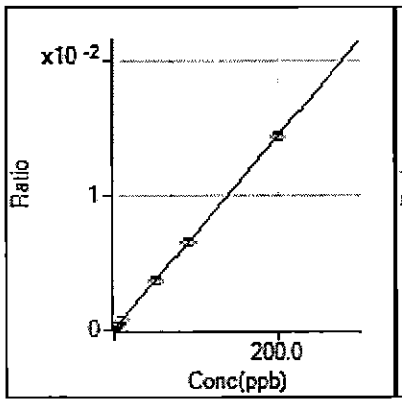
63 Cu [He] / ISTD: 89 Y
y = 5.826E-4 x + 8.139E-S
R 0.9999
DL 0.06951
BEC 0.1397



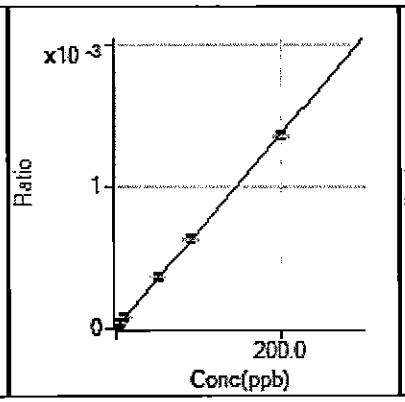
65 Cu [No Gas] / ISTD: 89 Y
y = 8.067E-5 x + 1.359E-5
R 1.0000
DL 0.03865
BEC 0.1685



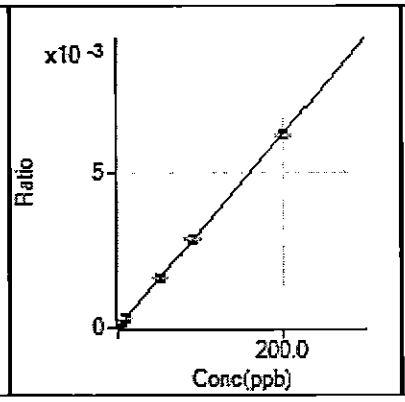
66 Zn [No Gas] / ISTD: 89 Y
y = 4.351E-5 x + 1.651E-5
R 1.0000
DL 0.04127
BEC 0.3795



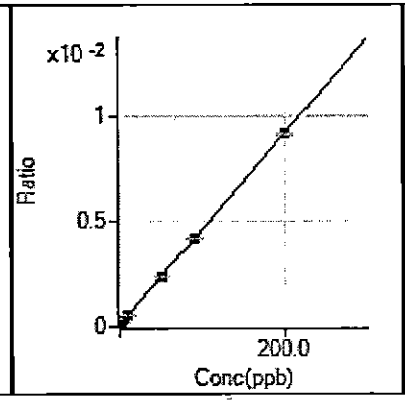
66 Zn [He] / ISTD: 89 Y
y = 7.176E-5 x + 2.370E-5
R 1.0000
DL 0.08416
BEC 0.3303



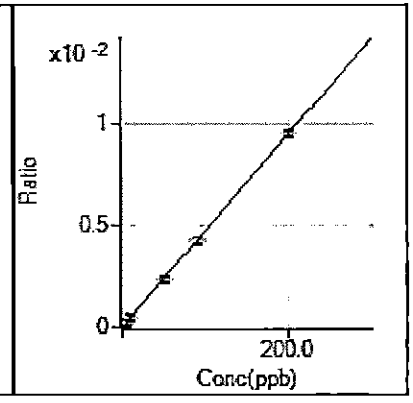
67 Zn [No Gas] / ISTD: 89 Y
y = 6.841E-6 x + 4.601E-6
R 0.9999
DL 0.2408
BEC 0.6726



68 Zn [No Gas] / ISTD: 89 Y
y = 3.111E-5 x + 1.356E-5
R 0.9999
DL 0.05634
BEC 0.4358

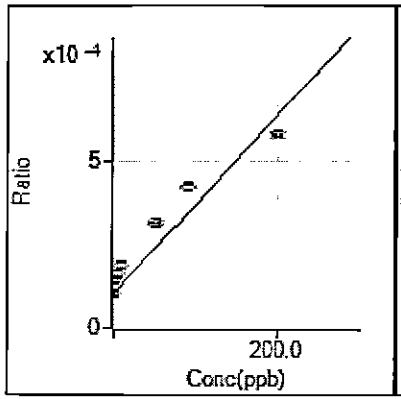


75 As [No Gas] / ISTD: 89 Y
y = 4.540E-5 x + 9.525E-5
R 1.0000
DL 0.6933
BEC 2.098



75 As [He] / ISTD: 89 Y
y = 4.768E-5 x + 9.215E-7
R 1.0000
DL 0.01444
BEC 0.01933

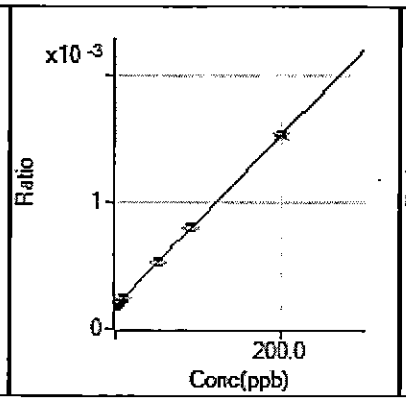
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



77 Se [No Gas] / ISTD: 89 Y

y = 2.681E-6 x + 1.033E-4

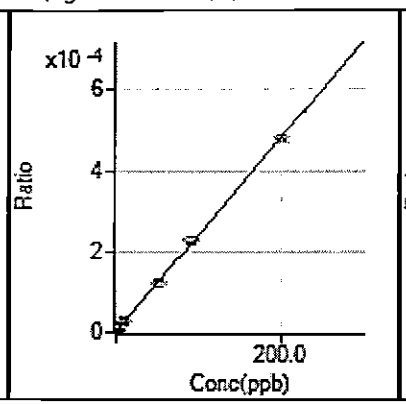
R	0.9738
DL	4.676
BEC	38.51



78 Se [No Gas] / ISTD: 89 Y

y = 6.758E-6 x + 1.813E-4

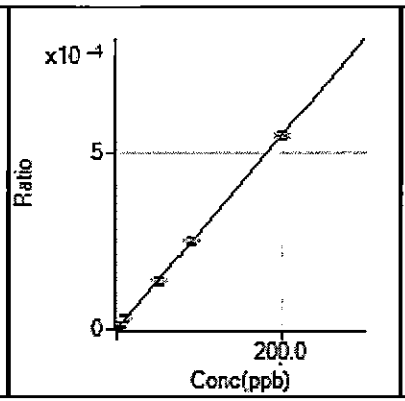
R	0.9999
DL	0.4681
BEC	26.83



78 Se [He] / ISTD: 89 Y

y = 2.403E-6 x + 1.842E-6

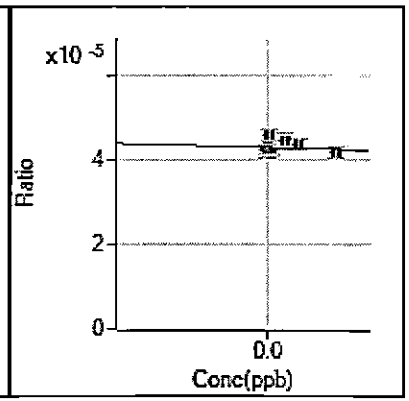
R	0.9996
DL	0.7512
BEC	0.7663



82 Se [No Gas] / ISTD: 89 Y

y = 2.760E-6 x - 8.971E-7

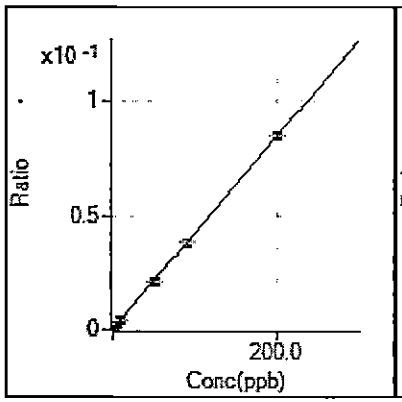
R	0.9999
DL	4.628
BEC	-0.325



83 [Se] [No Gas] / ISTD: 89 Y

y = - 2.095E-9 x + 4.287E-5

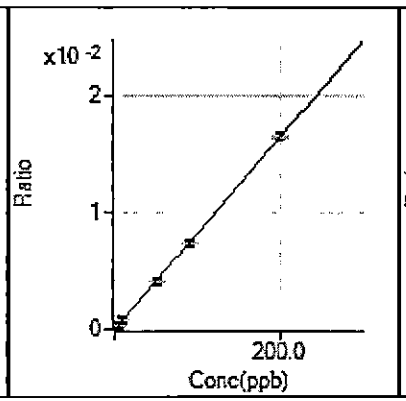
R	-0.1921
DL	-2028
BEC	-2.047E+04



88 Sr [No Gas] / ISTD: 89 Y

y = 4.231E-4 x + 1.208E-4

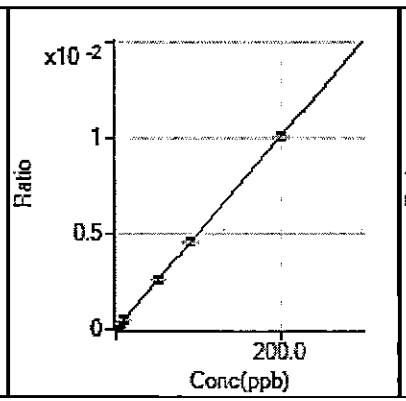
R	1.0000
DL	0.0185
BEC	0.2855



95 Mo [No Gas] / ISTD: 89 Y

y = 8.260E-5 x + 2.369E-6

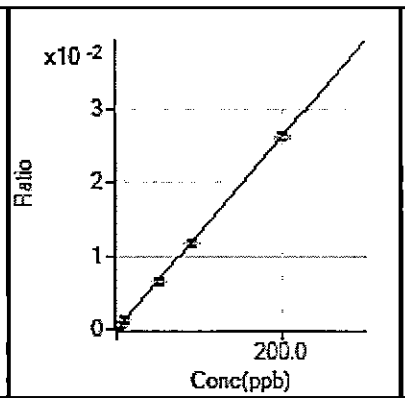
R	1.0000
DL	0.007751
BEC	0.02868



97 Mo [No Gas] / ISTD: 89 Y

y = 5.043E-5 x + 2.953E-6

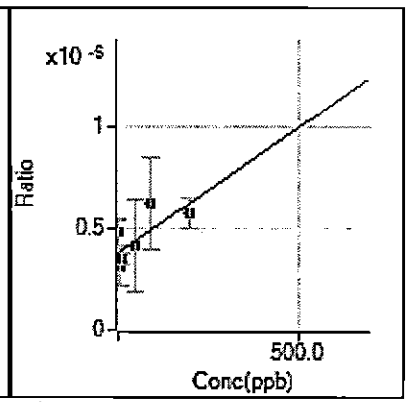
R	1.0000
DL	0.02399
BEC	0.05856



98 Mo [No Gas] / ISTD: 89 Y

y = 1.311E-4 x + 4.888E-6

R	1.0000
DL	0.01325
BEC	0.03729

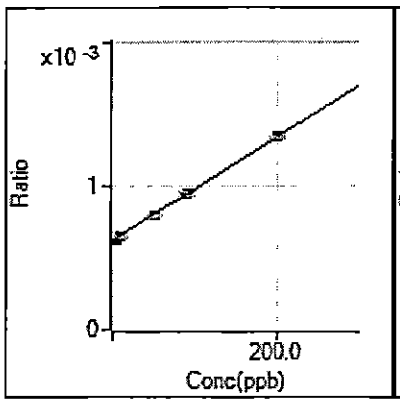


99 [Mo] [No Gas] / ISTD: 89 Y

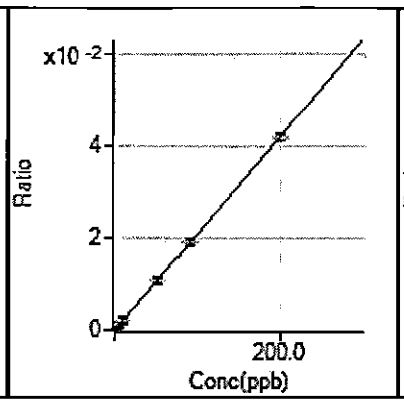
y = 1.232E-9 x + 3.775E-7

R	0.7533
DL	804.8
BEC	306.4

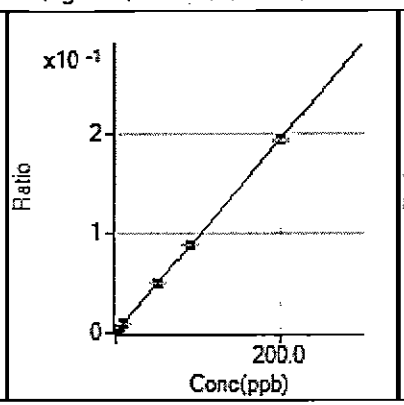
Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



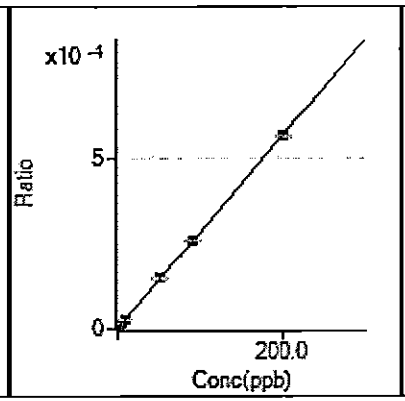
106 Cd [No Gas] / ISTD: 89 Y
y = 3.586E-6 x + 6.254E-4
R 0.9998
DL 3.64
BEC 174.4



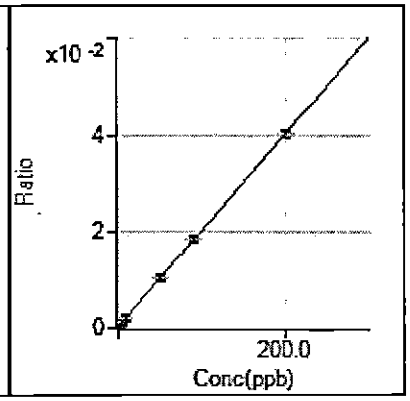
107 Ag [No Gas] / ISTD: 89 Y
y = 2.110E-4 x + 5.224E-6
R 1.0000
DL 0.0008937
BEC 0.02476



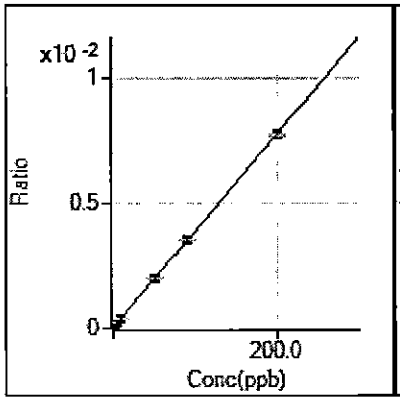
107 Ag [He] / ISTD: 89 Y
y = 9.719E-4 x + 3.556E-6
R 1.0000
DL 2.813E-05
BEC 0.003659



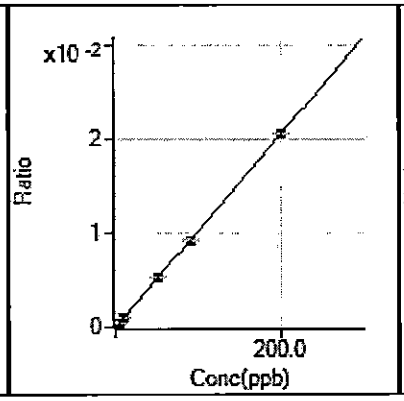
108 Cd [No Gas] / ISTD: 89 Y
y = 2.839E-6 x + 1.132E-6
R 0.9999
DL 0.3906
BEC 0.3988



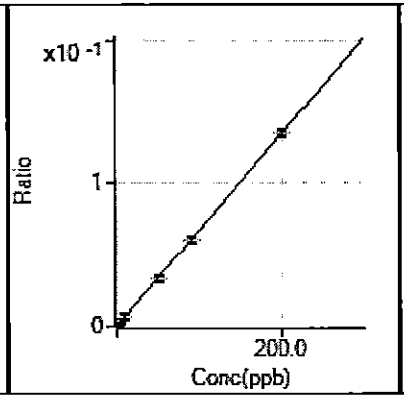
109 Ag [No Gas] / ISTD: 89 Y
y = 2.012E-4 x + 5.493E-7
R 1.0000
DL 0.002349
BEC 0.002729



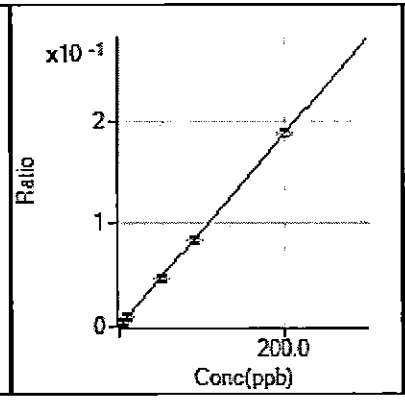
111 Cd [No Gas] / ISTD: 89 Y
y = 3.899E-5 x - 1.146E-6
R 1.0000
DL 0.02875
BEC -0.0294



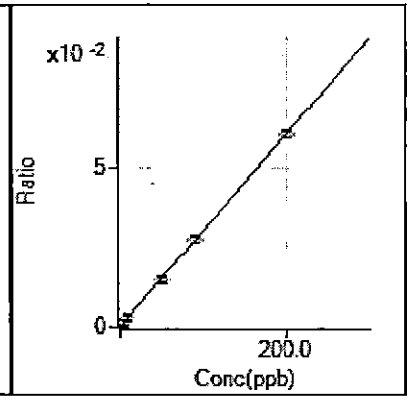
114 Cd [No Gas] / ISTD: 89 Y
y = 1.027E-4 x + 6.516E-7
R 1.0000
DL 0.006859
BEC 0.006346



118 Sn [No Gas] / ISTD: 115 In
y = 6.735E-4 x + 2.160E-4
R 1.0000
DL 0.584
BEC 0.3207

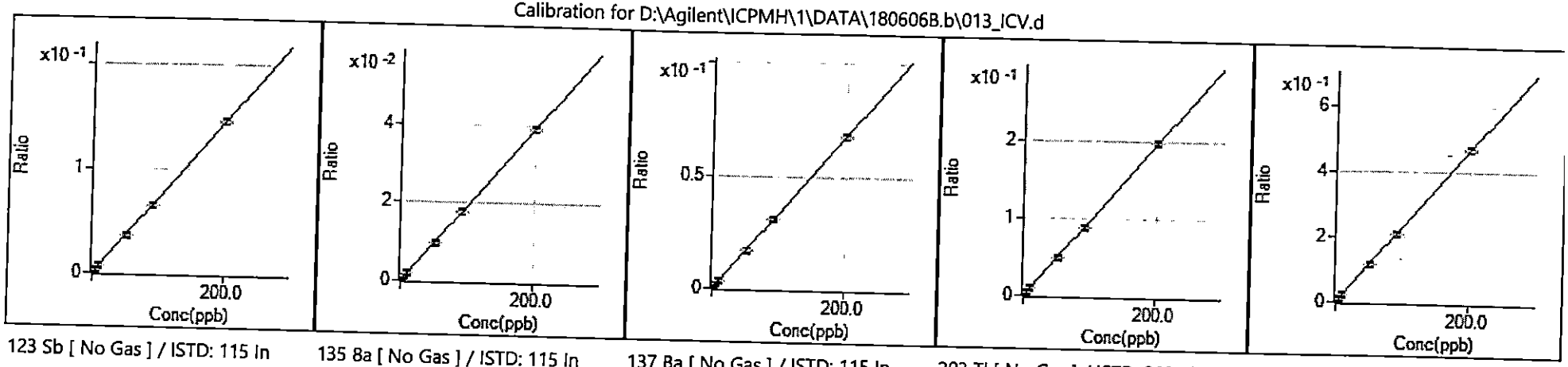


121 Sb [No Gas] / ISTD: 115 In
y = 9.381E-4 x + 9.135E-6
R 1.0000
DL 0.004565
BEC 0.009737



121 Sb [He] / ISTD: 89 Y
y = 3.047E-4 x + 2.762E-6
R 1.0000
DL 0.006654
BEC 0.009064

Calibration for D:\Agilent\ICPMH\1\DATA\180606B.b\013_ICV.d



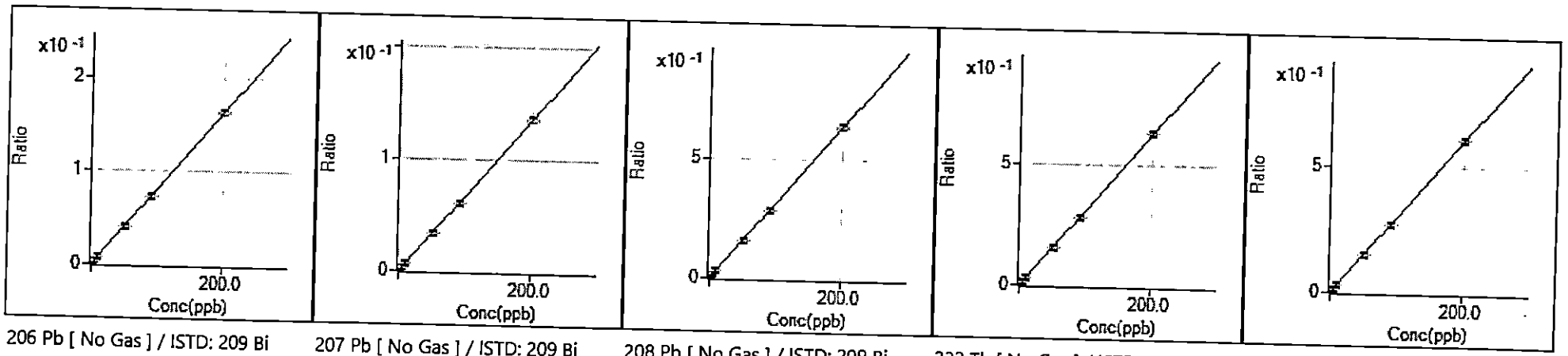
123 Sb [No Gas] / ISTD: 115 In
y = 7.261E-4 x + 1.176E-5
R 1.0000
DL 0.005873
BEC 0.0162

135 8a [No Gas] / ISTD: 115 In
y = 1.949E-4 x + 4.453E-5
R 1.0000
DL 0.06867
BEC 0.2285

137 Ba [No Gas] / ISTD: 115 In
y = 3.380E-4 x + 7.536E-5
R 1.0000
DL 0.0688
BEC 0.2229

203 Tl [No Gas] / ISTD: 209 8i
y = 9.850E-4 x + 8.206E-5
R 1.0000
DL 0.03108
BEC 0.08331

205 Tl [No Gas] / ISTD: 209 8i
y = 2.340E-3 x + 1.805E-4
R 1.0000
DL 0.01102
BEC 0.07714



206 Pb [No Gas] / ISTD: 209 Bi
y = 8.148E-4 x + 7.658E-5
R 1.0000
DL 0.03634
BEC 0.09399

207 Pb [No Gas] / ISTD: 209 Bi
y = 6.799E-4 x + 6.380E-5
R 1.0000
DL 0.06324
BEC 0.093B5

208 Pb [No Gas] / ISTD: 209 Bi
y = 3.165E-3 x + 2.900E-4
R 1.0000
DL 0.01426
BEC 0.09163

232 Th [No Gas] / ISTD: 209 Bi
y = 3.125E-3 x + 4.253E-4
R 1.0000
DL 0.02994
BEC 0.1361

238 U [No Gas] / ISTD: 209 Bi
y = 3.019E-3 x + 2.194E-4
R 1.0000
DL 0.0156
BEC 0.07267

Calibration Blank Report

Sample Name	std 1
File Name	005CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:34:58
Sample Type	CalBlk
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	9480697.36	0.7
Sc	45	No Gas	47455820.92	0.4
Sc	45	He	1174790.44	0.5
Y	89	No Gas	87209970.17	0.5
Y	89	He	8445161.43	0.3
In	115	No Gas	18729406.78	0.2
Bi	209	No Gas	14071721.66	0.2

Calibration Standard Report

Sample Name	std 2
File Name	006CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:36:54
Sample Type	CalStd
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Pb	208	209	No Gas	13676.86	3.6

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9297745.51	1.1	9480697.36	98.07	70	125	
Sc	45	No Gas	47184414.51	0.2	47455820.92	99.43	75	125	
Sc	45	He	1152998.81	0.5	1174790.44	98.15	75	125	
Y	89	No Gas	97085906.11	0.3	97209970.17	99.87	75	125	
Y	89	He	8264752.27	0.6	9445161.43	97.86	75	125	
In	115	No Gas	18631499.48	0.2	18729406.78	99.48	75	125	
Bi	209	No Gas	14081650.55	0.2	14071721.66	99.93	75	125	

Calibration Standard Report

Sample Name	std 3
File Name	007CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:38:49
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Ag	107	89	He	16654.00	2.4
Ba	137	115	No Gas	14352.46	3.2
Pb	208	209	No Gas	93002.63	1.1

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9417282.16	1.1	9480697.36	99.33	70	125	
Sc	45	No Gas	47317153.92	0.4	47455820.92	99.71	75	125	
Sc	45	He	1154913.77	0.6	1174790.44	98.31	75	125	
Y	89	No Gas	97320590.79	0.6	97209970.17	100.11	75	125	
Y	89	He	8292800.53	0.3	8445161.43	98.2	75	125	
In	115	No Gas	18722333.08	0.5	18729406.78	99.96	75	125	
Bi	209	No Gas	14155696.66	0.3	14071721.68	100.6	75	125	

Calibration Standard Report

Sample Name	std 4
File Name	008CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:40:46
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Cr	52	89	He	18821.87	1.2
Ag	107	89	He	41285.81	0.9
Cd	111	89	No Gas	18910.70	1.2
Ba	137	115	No Gas	32747.61	0.5
Pb	208	209	No Gas	225082.84	0.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9276888.64	0.5	9480697.36	97.87	70	125	
Sc	45	No Gas	46791643.40	0.3	47455820.92	98.6	75	125	
Sc	45	He	1153532.98	0.7	1174790.44	98.19	75	125	
Y	89	No Gas	96377083.95	0.2	97209970.17	99.14	75	125	
Y	89	He	8284287.01	0.7	8445161.43	98.1	75	125	
In	115	No Gas	18586101.72	0.2	18729406.78	99.23	75	125	
Bi	209	No Gas	14087667.22	0.5	14071721.66	100.18	75	125	

Calibration Standard Report

Sample Name	std 5
File Name	009CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:42:42
Sample Type	CalStd
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Cr	52	89	He	36100.51	1.2
Ag	107	89	He	82202.58	1.3
Cd	111	89	No Gas	38576.92	0.7
Ba	137	115	No Gas	63474.43	0.7
Pb	208	209	No Gas	446878.51	0.3

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9271847.83	0.2	9480697.36	97.8	70	125	
Sc	45	No Gas	46405710.80	0.2	47455820.92	97.79	75	125	
Sc	45	He	1134064.23	0.3	1174790.44	96.53	75	125	
Y	89	No Gas	96209189.39	0.1	97209970.17	98.97	75	125	
Y	89	He	8182940.04	0.3	8445161.43	96.9	75	125	
In	115	No Gas	18569628.38	0.2	18729406.78	99.15	75	125	
Bi	209	No Gas	14126730.55	0.2	14071721.66	100.39	75	125	

Calibration Standard Report

Sample Name	std 6
File Name	010CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:44:36
Sample Type	CalStd
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Cr	52	89	He	181227.58	0.5
As	75	89	He	19709.92	1.4
Ag	107	89	He	411152.02	0.3
Cd	111	89	No Gas	192782.15	1.4
Ba	137	115	No Gas	318477.00	0.6
Pb	208	209	No Gas	2211972.56	0.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9159964.98	0.8	9480697.36	96.62	70	125	
Sc	45	No Gas	46581895.32	0.6	47455820.92	98.16	75	125	
Sc	45	He	1152764.05	0.4	1174790.44	98.13	75	125	
Y	89	No Gas	96434748.28	0.3	97209970.17	99.2	75	125	
Y	89	He	6328832.81	0.7	6445161.43	98.62	75	125	
In	115	No Gas	18639230.65	0.6	18729406.78	99.52	75	125	
Bi	209	No Gas	13991644.44	0.2	14071721.66	99.43	75	125	

Calibration Standard Report

Sample Name	std 7
File Name	011CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180608B.b
Acq Time	2018-06-06 13:46:39
Sample Type	CalStd
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Cr	52	89	He	318930.53	0.6
As	75	89	He	35573.33	0.8
Ag	107	89	He	728887.93	0.4
Cd	111	89	No Gas	342404.50	0.3
Ba	137	115	No Gas	564574.69	0.4
Pb	208	209	No Gas	3933249.61	0.3

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9042580.94	0.8	9480697.36	95.38	70	125	
Sc	45	No Gas	46815705.80	0.5	47455820.92	98.65	75	125	
Sc	45	He	1137399.19	0.6	1174790.44	96.82	75	125	
Y	89	No Gas	96591985.49	0.5	97209970.17	99.36	75	125	
Y	89	He	8267920.85	0.2	8445161.43	97.9	75	125	
In	115	No Gas	18413510.68	0.5	18729406.78	98.31	75	125	
Bi	209	No Gas	13866034.17	0.7	14071721.66	98.54	75	125	

Calibration Standard Report

Sample Name	std 8
File Name	012CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:48:40
Sample Type	CalStd
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	CPS	RSD
Cr	52	89	He	715149.11	0.8
As	75	89	He	81159.48	0.4
Ag	107	89	He	1649886.80	0.6
Cd	111	89	No Gas	768631.56	0.5
Ba	137	115	No Gas	1272905.77	0.3
Pb	208	209	No Gas	8895789.04	0.2

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9236865.12	0.8	9480697.36	97.43	70	125	
Sc	45	No Gas	47783480.24	0.5	47455820.92	100.69	75	125	
Sc	45	He	1166268.53	0.2	1174790.44	99.27	75	125	
Y	89	No Gas	98970293.83	0.2	97209970.17	101.81	75	125	
Y	89	He	8510238.80	0.3	8445161.43	100.77	75	125	
In	115	No Gas	18834931.80	0.5	18729406.78	100.56	75	125	
Bi	209	No Gas	14029275.00	0.2	14071721.66	99.7	75	125	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	013_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:50:38
Sample Type	ICV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Cr	52	89	He	77.738	ppb	0.4	277952.26	80	97.17	90	110	
As	75	89	He	76.166	ppb	0.4	30700.35	80	95.21	90	110	
Se	78	89	He	78.516	ppb	1.9	1610.10	80	98.15	90	110	
Ag	107	89	He	77.191	ppb	0.4	634066.34	80	96.49	90	110	
Cd	111	89	No Gas	77.753	ppb	0.5	298239.68	80	97.19	90	110	
Ba	137	115	No Gas	77.412	ppb	0.7	495227.23	80	96.77	90	110	
Pb	208	209	No Gas	75.410	ppb	0.4	3393710.59	80	94.26	90	110	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9280546.81	0.5	9480697.36	97.89	70	125	
Sc	45	No Gas	47370563.99	0.4	47455820.92	99.82	75	125	
Sc	45	He	1157086.62	0.5	1174790.44	98.49	75	125	
Y	89	No Gas	98420700.90	0.3	97209970.17	101.25	75	125	
Y	89	He	8451278.79	0.7	8445161.43	100.07	75	125	
In	115	No Gas	18871013.26	0.4	18729406.78	100.76	75	125	
Bi	209	No Gas	14201847.77	0.3	14071721.66	100.92	75	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICV
File Name	014LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:52:25
Sample Type	LLICV
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Flal	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	4.915	ppb	1.4	18424.37	5	98.3	70	130	
As	75	89	He	4.790	ppb	2.6	1922.37	5	95.8	70	130	
Se	78	89	He	5.355	ppb	5.1	123.33	5	107.1	70	130	
Ag	107	89	He	4.961	ppb	1.7	40452.58	5	99.22	70	130	
Cd	111	89	No Gas	2.017	ppb	4.6	7557.05	2	100.85	70	130	
Ba	137	115	No Gas	4.905	ppb	1.0	32506.66	5	98.1	70	130	
Pb	208	209	No Gas	4.763	ppb	0.1	219595.86	5	95.26	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9223292.05	0.5	9480697.36	97.28	70	125	
Sc	45	No Gas	46983645.41	0.5	47455820.92	99.01	75	125	
Sc	45	He	1149799.19	0.2	1174790.44	97.87	75	125	
Y	89	No Gas	97540083.61	0.5	97209970.17	100.34	75	125	
Y	89	He	8382931.70	0.2	8445161.43	99.26	75	125	
In	115	No Gas	18752477.85	0.8	18729408.78	100.12	75	125	
Bi	209	No Gas	14290438.88	0.3	14071721.66	101.55	75	125	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	015_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:54:03
Sample Type	ICB
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	-0.006	ppb	N/A	1034.43	100	
As	75	89	He	0.014	ppb	118.5	13.33	100	
Se	78	89	He	-0.158	ppb	N/A	12.22	100	
Ag	107	89	He	0.015	ppb	29.9	150.15	100	
Cd	111	89	No Gas	0.002	ppb	331.8	-104.45	100	
Ba	137	115	No Gas	-0.069	ppb	N/A	850.90	100	
Pb	208	209	No Gas	-0.031	ppb	N/A	2732.90	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9218071.21	0.6	9480697.36	97.23	70	125	
Sc	45	No Gas	47441251.35	0.3	47455820.92	99.97	75	125	
Sc	45	He	1151966.43	0.6	1174790.44	98.06	75	125	
Y	89	No Gas	98071171.37	0.5	97209970.17	100.89	75	125	
Y	89	He	8353199.47	0.2	8445161.43	98.91	75	125	
In	115	No Gas	18762705.00	0.5	18729406.78	100.18	75	125	
Bi	209	No Gas	14240159.43	0.3	14071721.66	101.2	75	125	

Interference Check Solution A (ICS-A) Report

Sample Name	ICSA
File Name	016ICSA.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:55:40
Sample Type	ICSA
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Cr	52	89	He	0.185	ppb	8.8	1705.17			120	
As	75	89	He	0.183	ppb	19.0	78.89			120	
Se	78	89	He	0.025	ppb	2345.0	15.56			120	
Ag	107	89	He	0.020	ppb	7.2	186.86			120	
Cd	111	89	No Gas	0.116	ppb	38.4	329.33			120	
Ba	137	115	No Gas	0.287	ppb	14.9	3126.89			120	
Pb	208	209	No Gas	-0.004	ppb	N/A	3767.39			120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8886024.34	0.4	9480697.36	93.73	70	125	
Sc	45	No Gas	46389070.83	0.4	47455820.92	97.75	75	125	
Sc	45	He	1106302.80	0.8	1174790.44	94.17	75	125	
Y	89	No Gas	97046386.58	0.2	97209970.17	99.83	75	125	
Y	89	He	8175997.06	0.1	8445161.43	96.81	75	125	
In	115	No Gas	18134198.56	0.7	18729406.78	96.82	75	125	
Bi	209	No Gas	13543773.91	0.2	14071721.66	96.25	75	125	

Interference Check Solution AB (ICS-AB) Report

Sample Name	ICSAB
File Name	017ICSB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 13:57:30
Sample Type	ICSB
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Low	%High	QC Flag
Cr	52	89	He	94.720	ppb	0.4	319053.56	100	80	120	
As	75	89	He	98.065	ppb	0.8	37262.29	100	80	120	
Se	78	89	He	98.298	ppb	1.6	1896.81	100	80	120	
Ag	107	89	He	95.528	ppb	0.5	739775.66	100	80	120	
Cd	111	89	No Gas	96.922	ppb	0.7	355418.58	100	80	120	
Ba	137	115	No Gas	100.668	ppb	0.7	599951.18	100	80	120	
Pb	208	209	No Gas	98.795	ppb	0.4	4162841.44	100	80	120	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8652739.13	0.9	9480697.36	91.27	70	125	
Sc	45	No Gas	44594215.97	0.6	47455820.92	93.97	75	125	
Sc	45	He	1073266.38	0.3	1174790.44	91.36	75	125	
Y	89	No Gas	94087811.34	0.7	97209970.17	96.79	75	125	
Y	89	He	7967406.38	0.3	8445161.43	94.34	75	125	
In	115	No Gas	17591410.16	0.6	18729406.78	93.92	75	125	
Bi	209	No Gas	13301053.08	1.0	14071721.66	94.52	75	125	

Sample Report

Sample Name	rinse
File Name	018SMPL.d
Data Path Name	D:\Agilent\ICPMH11\DATA\180606B.b
Acq Time	2018-06-06 13:59:23
Sample Type	Sample
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	0.005	ppb	389.4	1057.78	2000	
As	75	89	He	0.037	ppb	12.5	22.22	2000	
Se	78	89	He	-0.204	ppb	N/A	11.11	2000	
Ag	107	89	He	0.034	ppb	4.3	300.31	200	
Cd	111	89	No Gas	0.028	ppb	46.4	-3.83	2000	
Ba	137	115	No Gas	-0.063	ppb	N/A	1007.73	2000	
Pb	208	209	No Gas	0.004	ppb	38.3	4378.11	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9293303.69	0.6	9480897.36	98.02	70	125	
Sc	45	No Gas	45726256.35	0.1	47455820.92	96.36	75	125	
Sc	45	He	1110853.46	0.3	1174790.44	94.56	75	125	
Y	89	No Gas	96988583.11	0.2	97209970.17	99.77	75	125	
Y	89	He	8234791.06	0.6	8445161.43	97.51	75	125	
In	115	No Gas	18645520.18	0.4	18729406.78	99.55	75	125	
Bi	209	No Gas	14443092.21	0.5	14071721.66	102.64	75	125	

Sample Report

Sample Name	CCV
File Name	019SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 14:01:00
Sample Type	Sample
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	100.863	ppb	1.3	342320.51	2000	
As	75	89	He	99.451	ppb	1.7	38089.04	2000	
Se	78	89	He	97.812	ppb	1.5	1902.37	2000	
Ag	107	89	He	103.158	ppb	0.3	805133.81	200	
Cd	111	89	No Gas	104.298	ppb	0.2	380370.23	2000	
Ba	137	115	No Gas	102.577	ppb	0.4	632535.26	2000	
Pb	208	209	No Gas	101.862	ppb	0.6	4510713.53	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8819467.62	0.3	9480697.36	93.03	70	125	
Sc	45	No Gas	44440532.29	0.4	47455820.92	93.65	75	125	
Sc	45	He	1083853.74	1.1	1174790.44	92.26	75	125	
Y	89	No Gas	93569336.19	0.4	97209970.17	96.25	75	125	
Y	89	He	8030029.00	1.0	8445161.43	95.08	75	125	
In	115	No Gas	18202509.54	0.3	18729406.78	97.19	75	125	
Bi	209	No Gas	13978852.78	0.5	14071721.66	99.34	75	125	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	020_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 14:02:45
Sample Type	CCB
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Flal	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	-0.031	ppb	N/A	937.66	100	
As	75	89	He	0.048	ppb	18.0	26.67	100	
Se	78	89	He	0.014	ppb	2436.5	15.55	100	
Ag	107	89	He	0.021	ppb	18.1	196.87	100	
Cd	111	89	No Gas	0.012	ppb	29.1	-67.41	100	
Ba	137	115	No Gas	-0.053	ppb	N/A	1074.47	100	
Pb	208	209	No Gas	-0.012	ppb	N/A	3653.94	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9230254.13	0.5	9480697.36	97.36	70	125	
Sc	45	No Gas	45919689.98	0.2	47455820.92	96.76	75	125	
Sc	45	He	1121389.02	0.3	1174790.44	95.45	75	125	
Y	89	No Gas	96927314.18	0.2	97209970.17	99.71	75	125	
Y	89	He	8285348.28	0.3	8445161.43	98.11	75	125	
In	115	No Gas	18727441.88	0.8	18729406.78	99.99	75	125	
Bi	209	No Gas	14415166.65	0.5	14071721.66	102.44	75	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLCCV
File Name	021LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 14:04:22
Sample Type	LLCCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	5.112	ppb	4.6	18547.94	5	102.24	70	130	
As	75	89	He	4.900	ppb	0.6	1807.92	5	98	70	130	
Se	78	89	He	5.022	ppb	29.0	113.33	5	100.44	70	130	
Ag	107	89	He	5.192	ppb	1.8	41075.07	5	103.84	70	130	
Cd	111	89	No Gas	2.034	ppb	0.4	7506.43	2	101.7	70	130	
Ba	137	115	No Gas	4.889	ppb	2.6	32289.28	5	97.78	70	130	
Pb	208	209	No Gas	4.797	ppb	0.4	223236.94	5	95.94	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8979164.22	0.2	9480697.36	94.71	70	125	
Sc	45	No Gas	45778883.98	0.7	47455820.92	96.47	75	125	
Sc	45	He	1103624.95	1.1	1174790.44	93.94	75	125	
Y	89	No Gas	96062322.52	0.6	97209970.17	98.82	75	125	
Y	89	He	8134772.91	1.0	8445161.43	96.32	75	125	
In	115	No Gas	18685225.83	0.3	18729406.78	99.76	75	125	
Bi	209	No Gas	14427029.98	0.8	14071721.66	102.52	75	125	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	141_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:26:44
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Cr	52	89	He	94.537	ppb	0.4	310799.16	100	94.54	90	110	
As	75	89	He	94.633	ppb	1.0	35094.30	100	94.63	90	110	
Se	78	89	He	95.402	ppb	5.0	1796.79	100	95.4	90	110	
Ag	107	89	He	97.460	ppb	1.2	736585.65	100	97.46	90	110	
Cd	111	89	No Gas	97.659	ppb	0.4	356892.06	100	97.66	90	110	
Ba	137	115	No Gas	97.526	ppb	0.7	601445.95	100	97.53	90	110	
Pb	208	209	No Gas	95.544	ppb	0.2	4230570.76	100	95.54	90	110	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8652887.35	0.2	9480697.36	91.27	70	125	
Sc	45	No Gas	43494017.44	0.1	47455820.92	91.65	75	125	
Sc	45	He	1030697.11	0.5	1174790.44	87.73	75	125	
Y	89	No Gas	93762155.68	0.3	97209970.17	96.45	75	125	
Y	89	He	7776136.57	0.7	8445161.43	92.08	75	125	
In	115	No Gas	18202105.47	0.1	18729406.78	97.18	75	125	
Bi	209	No Gas	13976600.28	0.2	14071721.68	99.32	75	125	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	142_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:28:29
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Flal	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	-0.017	ppb	N/A	867.69	100	
As	75	89	He	0.009	ppb	230.9	11.11	100	
Se	78	89	He	-0.024	ppb	N/A	14.44	100	
Ag	107	89	He	0.032	ppb	10.2	283.63	100	
Cd	111	89	No Gas	0.039	ppb	56.0	37.29	100	
Ba	137	115	No Gas	-0.031	ppb	N/A	1207.95	100	
Pb	208	209	No Gas	-0.001	ppb	N/A	4137.83	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9080635.70	0.3	9480697.36	95.78	70	125	
Sc	45	No Gas	44921159.58	0.0	47455820.92	94.66	75	125	
Sc	45	He	1077011.80	0.4	1174790.44	91.68	75	125	
Y	89	No Gas	96299813.34	0.2	97209970.17	99.06	75	125	
Y	89	He	8110330.76	0.4	8445161.43	96.04	75	125	
In	115	No Gas	18663516.53	0.3	18728406.78	99.65	75	125	
Bi	209	No Gas	14478537.76	0.1	14071721.66	102.89	75	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLCCV
File Name	143LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:30:06
Sample Type	LLCCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	4.677	ppb	1.8	16506.58	5	93.54	70	130	
As	75	89	He	4.680	ppb	4.2	1763.48	5	93.6	70	130	
Se	78	89	He	5.168	ppb	7.9	112.22	5	103.36	70	130	
Ag	107	89	He	4.853	ppb	1.7	37145.97	5	97.06	70	130	
Cd	111	89	No Gas	1.927	ppb	1.5	7035.49	2	96.35	70	130	
Ba	137	115	No Gas	4.653	ppb	3.2	30576.89	5	93.06	70	130	
Pb	208	209	No Gas	4.532	ppb	1.2	211334.84	5	90.64	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	8876698.86	0.6	9480697.36	93.63	70	125	
Sc	45	No Gas	44189482.91	1.0	47455820.92	93.14	75	125	
Sc	45	He	1045517.14	0.6	1174780.44	89	75	125	
Y	89	No Gas	95084141.00	0.4	97209970.17	97.81	75	125	
Y	89	He	7869709.93	0.2	8445161.43	93.19	75	125	
In	115	No Gas	18553474.06	0.6	18729406.78	99.06	75	125	
Bi	209	No Gas	14440848.87	0.4	14071721.66	102.62	75	125	

Sample Report

Sample Name	MBLK-119351
File Name	153SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:47:36
Sample Type	Sample
Total Dilution	1.0000
Comment	6020W B119351
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	0.098	ppb	50.2	1398.16	2000	
As	75	89	He	0.006	ppb	2.4	10.00	2000	
Se	78	89	He	-0.323	ppb	N/A	8.89	2000	
Ag	107	89	He	0.000	ppb	151.5	33.37	200	
Cd	111	89	No Gas	-0.010	ppb	N/A	-154.94	2000	
Ba	137	115	No Gas	-0.098	ppb	N/A	820.86	2000	
Pb	208	209	No Gas	-0.070	ppb	N/A	1014.39	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	9209137.10	0.4	9480697.36	97.14	70	125	
Sc	45	No Gas	47170247.01	0.4	47455820.92	99.4	75	125	
Sc	45	He	1126139.33	0.2	1174790.44	95.86	75	125	
Y	89	No Gas	100368732.27	0.5	97209970.17	103.25	75	125	
Y	89	He	8340281.34	0.6	8445161.43	98.76	75	125	
In	115	No Gas	19439162.34	0.0	18729406.78	103.79	75	125	
Bi	209	No Gas	14885763.85	0.3	14071721.66	105.78	75	125	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	154_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:49:14
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Cr	52	89	He	99.689	ppb	1.0	336089.03	100	99.69	90	110	
Zn	66	89	He	100.452	ppb	3.0	57676.69	100	100.45	90	110	
As	75	89	He	100.075	ppb	0.3	38066.76	100	100.08	90	110	
Se	78	89	He	101.201	ppb	4.1	1954.60	100	101.2	90	110	
Cd	111	89	No Gas	102.467	ppb	0.1	393086.54	100	102.47	90	110	
Ba	137	115	No Gas	102.272	ppb	0.3	657090.14	100	102.27	90	110	
Pb	208	209	No Gas	100.460	ppb	0.3	4860952.98	100	100.46	90	110	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1057525.69	0.9	1174790.44	90.02	75	125	
Y	89	He	7976041.06	0.7	8445161.43	94.45	75	125	
In	115	No Gas	18985438.77	0.8	18729408.78	101.26	75	125	
Bi	209	No Gas	14645834.97	0.3	14071721.66	104.08	75	125	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	155_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:51:02
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	-0.005	ppb	N/A	1017.74	100	
Zn	66	89	He	0.045	ppb	140.5	220.23	100	
As	75	89	He	0.040	ppb	55.0	23.33	100	
Se	78	89	He	-0.200	ppb	N/A	11.11	100	
Cd	111	89	No Gas	0.031	ppb	63.6	5.18	100	
Ba	137	115	No Gas	-0.013	ppb	N/A	1368.16	100	
Pb	208	209	No Gas	-0.009	ppb	N/A	3960.96	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1093275.27	0.5	1174780.44	93.06	75	125	
Y	89	He	8181362.00	0.6	8445161.43	96.88	75	125	
In	115	No Gas	18546730.86	0.9	18729406.76	104.36	75	125	
Bi	209	No Gas	15162508.29	0.7	14071721.66	107.75	75	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLCCV
File Name	156LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:52:39
Sample Type	LLCCV
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	4.873	ppb	1.7	17508.94	5	97.46	70	130	
Zn	66	89	He	9.915	ppb	3.9	5903.97	10	99.15	70	130	
As	75	89	He	4.682	ppb	1.5	1800.13	5	93.64	70	130	
Se	78	89	He	4.643	ppb	16.2	104.44	5	92.86	70	130	
Cd	111	89	No Gas	2.037	ppb	1.0	7779.20	2	101.85	70	130	
Ba	137	115	No Gas	4.906	ppb	2.9	33463.44	5	98.12	70	130	
Pb	208	209	No Gas	4.723	ppb	0.3	229165.38	5	94.46	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1071544.12	1.0	1174790.44	91.21	75	125	
Y	89	He	8031096.74	0.8	8445161.43	95.1	75	125	
In	115	No Gas	19301982.98	0.2	18729408.78	103.06	75	125	
Bi	209	No Gas	15039128.85	0.3	14071721.66	106.87	75	125	

Sample Report

Sample Name	LCS-119351
File Name	157SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:54:16
Sample Type	Sample
Total Dilution	1.0000
Comment	6020W B119351
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	98.632	ppb	0.7	339862.12	2000	
Zn	66	89	He	98.347	ppb	1.7	57720.14	2000	
As	75	89	He	96.583	ppb	0.2	37546.39	2000	
Se	78	89	He	96.458	ppb	3.1	1904.59	2000	
Cd	111	89	No Gas	102.146	ppb	0.3	398813.24	2000	
Ba	137	115	No Gas	100.061	ppb	0.5	657075.89	2000	
Pb	208	209	No Gas	96.996	ppb	0.5	4584689.09	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1086535.62	0.6	1174790.44	92.49	75	125	
Y	89	He	8151358.25	0.1	8445161.43	96.52	75	125	
In	115	No Gas	19383081.93	0.2	18729406.78	103.49	75	125	
Bi	209	No Gas	14920843.30	0.3	14071721.66	106.03	75	125	

Sample Report

Sample Name	1806079-01B
File Name	160SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 17:59:17
Sample Type	Sample
Total Dilution	1.0000
Comment	6020W B119351
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	0.193	ppb	12.0	1665.13	2000	
Zn	66	89	He	0.692	ppb	8.1	587.28	2000	
As	75	89	He	0.141	ppb	30.2	61.11	2000	
Se	78	89	He	0.099	ppb	602.6	16.67	2000	
Cd	111	89	No Gas	-0.004	ppb	N/A	-128.40	2000	
Ba	137	115	No Gas	9.437	ppb	1.2	61922.37	2000	
Pb	208	209	No Gas	-0.042	ppb	N/A	2255.72	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1081441.52	0.4	1174790.44	92.05	75	125	
Y	89	He	8007912.72	0.5	8445161.43	94.82	75	125	
In	115	No Gas	18982170.98	0.1	18729408.78	101.24	75	125	
Bi	209	No Gas	14460882.20	0.4	14071721.66	102.77	75	125	

Sample Report

Sample Name	1806079-01BMSD
File Name	162SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 16:02:43
Sample Type	Sample
Total Dilution	1.0000
Comment	6020W B119351
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	101.008	ppb	1.8	339376.26	2000	
Zn	66	89	He	98.099	ppb	2.2	56142.05	2000	
As	75	89	He	101.167	ppb	1.4	38351.97	2000	
Se	78	89	He	98.694	ppb	2.7	1900.14	2000	
Cd	111	89	No Gas	103.125	ppb	1.7	389432.95	2000	
Ba	137	115	No Gas	112.623	ppb	1.1	716950.08	2000	
Pb	208	209	No Gas	98.990	ppb	0.6	4486767.40	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1062296.17	0.8	1174790.44	90.42	75	125	
Y	89	He	7949511.61	0.9	8445161.43	94.13	75	125	
In	115	No Gas	18795555.12	1.0	18729406.78	100.35	75	125	
Bi	209	No Gas	14307438.87	0.2	14071721.66	101.68	75	125	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	167_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 16:11:16
Sample Type	CCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Cr	52	89	He	100.315	ppb	0.9	319557.25	100	100.32	90	110	
Zn	66	89	He	100.756	ppb	1.6	54664.45	100	100.76	90	110	
As	75	89	He	101.069	ppb	0.3	36326.47	100	101.07	90	110	
Se	78	89	He	99.121	ppb	3.2	1809.02	100	99.12	90	110	
Cd	111	89	No Gas	102.098	ppb	0.6	374832.12	100	102.1	90	110	
Ba	137	115	No Gas	102.287	ppb	0.5	631879.04	100	102.29	90	110	
Pb	208	209	No Gas	99.117	ppb	0.7	4483633.85	100	99.12	90	110	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1001885.24	0.9	1174790.44	85.28	75	125	
Y	89	He	7536585.56	1.0	8445161.43	89.24	75	125	
In	115	No Gas	16235218.27	0.4	16729408.78	97.36	75	125	
Bi	209	No Gas	14279245.54	0.2	14071721.66	101.47	75	125	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	168_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 18:13:02
Sample Type	CCB
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	0.004	ppb	880.9	991.04	100	
Zn	66	89	He	0.074	ppb	236.0	223.56	100	
As	75	89	He	0.029	ppb	19.0	17.76	100	
Se	78	89	He	-0.289	ppb	N/A	8.89	100	
Cd	111	89	No Gas	0.039	ppb	32.7	34.69	100	
Ba	137	115	No Gas	-0.025	ppb	N/A	1237.98	100	
Pb	208	209	No Gas	-0.004	ppb	N/A	4037.71	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1022229.23	1.2	1174790.44	87.01	75	125	
Y	89	He	7715337.85	1.3	8445161.43	91.36	75	125	
In	115	No Gas	18521023.17	0.6	18729408.78	98.89	75	125	
Bi	209	No Gas	14493913.31	0.4	14071721.66	103	75	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLCCV
File Name	169LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 16:14:39
Sample Type	LLCCV
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	5.032	ppb	1.4	16974.38	5	100.64	70	130	
Zn	66	89	He	10.380	ppb	8.6	5803.80	10	103.8	70	130	
As	75	89	He	4.958	ppb	1.6	1792.35	5	99.16	70	130	
Se	78	89	He	4.622	ppb	23.6	97.78	5	92.44	70	130	
Cd	111	89	No Gas	2.132	ppb	1.4	7753.59	2	106.6	70	130	
Ba	137	115	No Gas	5.115	ppb	1.7	33105.62	5	102.3	70	130	
Pb	208	209	No Gas	4.870	ppb	0.8	226041.05	5	97.4	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1004608.01	1.4	1174790.44	85.51	75	125	
Y	89	He	7553331.89	1.4	8445161.43	89.44	75	125	
In	115	No Gas	18348778.18	0.9	18729406.78	97.97	75	125	
Bi	209	No Gas	14393429.43	0.1	14071721.68	102.29	75	125	

Sample Report

Sample Name	1806126-03A
File Name	172SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 18:19:39
Sample Type	Sample
Total Dilution	1.0000
Comment	6020W B119351
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fail	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	LDR	QC Flag
Cr	52	89	He	0.132	ppb	4.3	1398.16	2000	
Zn	66	89	He	14.510	ppb	6.7	8180.79	2000	
As	75	89	He	0.047	ppb	61.6	24.45	2000	
Se	78	89	He	-0.044	ppb	N/A	13.33	2000	
Cd	111	89	No Gas	0.096	ppb	17.0	245.56	2000	
Ba	137	115	No Gas	32.791	ppb	0.7	205042.71	2000	
Pb	208	209	No Gas	0.555	ppb	3.1	28845.74	2000	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	1033548.43	0.2	1174790.44	87.98	75	125	
Y	89	He	7681848.95	0.2	8445161.43	90.96	75	125	
In	115	No Gas	18372355.81	0.7	18729408.78	98.09	75	125	
Bi	209	No Gas	14103724.44	0.4	14071721.68	100.23	75	125	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	180_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 18:33:03
Sample Type	CCV
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Fial	Fail
ISTD QC Pass/Fail	Pass
Operator	**ALSHN** **ICPMS**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	% Rec	%Low	%High	QC Flag
Cr	52	89	He	101.960	ppb	0.4	314710.60	100	101.96	90	110	
Zn	66	89	He	102.871	ppb	1.5	54078.22	100	102.87	90	110	
As	75	89	He	102.635	ppb	1.1	35744.89	100	102.64	90	110	
Se	78	89	He	104.403	ppb	2.7	1845.69	100	104.4	90	110	
Cd	111	89	No Gas	106.355	ppb	0.4	377429.21	100	106.36	90	110	
Ba	137	115	No Gas	106.315	ppb	1.2	642087.57	100	106.32	90	110	
Pb	208	209	No Gas	102.852	ppb	0.1	4540115.88	100	102.85	90	110	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	951659.66	0.5	1174790.44	81.01	75	125	
Y	89	He	7302478.75	0.4	8445161.43	86.47	75	125	
In	115	No Gas	17829409.45	0.4	18729406.78	95.19	75	125	
Bi	209	No Gas	13934464.17	0.2	14071721.66	99.02	75	125	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	181_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180608B.b
Acq Time	2018-06-06 18:34:48
Sample Type	CCB
Total Dilution	1.0000
Comment	—
ISTD Ref FileName	005CALB.d
Sample QC Pass/Flal	Fail
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	Limit	QC Flag
Cr	52	89	He	-0.008	ppb	N/A	927.64	100	
Zn	66	89	He	0.003	ppb	3569.4	180.19	100	
As	75	89	He	0.039	ppb	67.9	21.11	100	
Se	78	89	He	-0.276	ppb	N/A	8.89	100	
Cd	111	89	No Gas	0.047	ppb	11.3	62.34	100	
Ba	137	115	No Gas	0.015	ppb	140.2	1461.57	100	
Pb	208	209	No Gas	0.003	ppb	283.4	4287.99	100	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	987389.09	0.3	1174790.44	84.05	75	125	
Y	89	He	7532042.47	0.4	8445161.43	89.19	75	125	
In	115	No Gas	18200766.94	0.8	18729406.78	97.18	75	125	
Bi	209	No Gas	14290254.43	0.8	14071721.66	101.55	75	125	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLCCV
File Name	182LCCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\180606B.b
Acq Time	2018-06-06 18:36:26
Sample Type	LLCCV
Total Dilution	1.0000
Comment	---
ISTD Ref FileName	005CALB.d
Sample QC Pass/Flal	Fail
ISTD QC Pass/Fail	Pass
Operator	ALSHN ICPMS

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	RSD	CPS	ExpVal	%Rec	%Low	%High	QC Flag
Cr	52	89	He	5.207	ppb	1.2	17087.93	5	104.14	70	130	
Zn	66	89	He	10.521	ppb	0.4	5733.70	10	105.21	70	130	
As	75	89	He	5.269	ppb	5.4	1856.81	5	105.38	70	130	
Se	78	89	He	4.762	ppb	35.7	97.78	5	95.24	70	130	
Cd	111	89	No Gas	2.142	ppb	0.2	7610.42	2	107.1	70	130	
Ba	137	115	No Gas	5.307	ppb	3.8	33851.50	5	106.14	70	130	
Pb	208	209	No Gas	5.000	ppb	1.9	230742.26	5	100	70	130	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Sc	45	He	984513.19	0.6	1174790.44	82.1	75	125	
Y	89	He	7363284.76	0.6	8445161.43	87.19	75	125	
In	115	No Gas	18112633.44	0.8	18729406.78	96.71	75	125	
Bi	209	No Gas	14319381.65	0.8	14071721.68	101.76	75	125	

ALS Group, USA

PREP BATCH REPORT

Batch ID: 119351 Prep Code: MP_6020_W

Start Date: 6/6/2018 11:35:23 AM End Date: 6/6/2018 3:36:29 PM

Technician: Carrie LeBoeuf

InitSamp Wt/Vol: 50 mL
FinSampVol: 50 mL
OriginalFac: 1
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
1806044-33A	Water			50	0	50	1
1806079-01B	Water			50	0	50	1
1806079-01BMS	Water			50	0	50	1
1806079-01BMSD	Water			50	0	50	1
1806085-01A	Groundwater			50	0	50	1
1806085-02A	Groundwater			50	0	50	1
1806085-03A	Groundwater			50	0	50	1
1806093-01D	Groundwater			50	0	50	1
1806094-01D	Groundwater			50	0	50	1
1806109-01A	Tclp Extract			5	0	50	10
1806126-03A	Tclp Extract			5	0	50	10
1806166-02C	Tclp Extract			5	0	50	10
1806172-01B	Water			50	0	50	1
1806172-02B	Water			50	0	50	1
1806270-01A	Tclp Extract			5	0	50	10
EQB-119319				50	0	50	1
LCS-119351				50	0	50	1
MBLK-119351				50	0	50	1

Notes: *All samples are B1/D2unless otherwise noted. Spike BPL: 2049-165-10/1461-86-5/1461-86-3/1461-86-4; HNO3: 2049-158-10; HCl: 2049-169-7; Block 54 @95/95'C; Digestion Cups: 1705110; Pipette: ME-31.*

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-55

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 1806126

Matrix: Water Lab Sample ID: 1806126-03A

Level (low/med): LOW Date Received: 6/1/2018

% Moisture: not dec. 0 Date Prep: 6/8/2018

CONCENTRATION UNITS: mg/L

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7439-97-6	Mercury	0.0020	U		CV

ALS Group, USA

Client: Jacobs
Work Order: 1806126
Project: PMC

Date: 13-Jul-18

QC BATCH REPORT

Batch ID: **119472** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-119472-119472** Units: **mg/L** Analysis Date: **6/8/2018 12:18 PM**
Client ID: Run ID: **HG1_180608A** SeqNo: **5079894** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000142	0.00020								J

LCS Sample ID: **LCS-119472-119472** Units: **mg/L** Analysis Date: **6/8/2018 12:21 PM**
Client ID: Run ID: **HG1_180608A** SeqNo: **5079895** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00201	0.00020	0.002	0	100	80-120	0			

MS Sample ID: **1806126-03AMS** Units: **mg/L** Analysis Date: **6/8/2018 12:59 PM**
Client ID: **18CP02-55** Run ID: **HG1_180608A** SeqNo: **5079910** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0205	0.0020	0.02	-0.00031	104	75-125	0			

MSD Sample ID: **1806126-03AMSD** Units: **mg/L** Analysis Date: **6/8/2018 01:01 PM**
Client ID: **18CP02-55** Run ID: **HG1_180608A** SeqNo: **5079911** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0215	0.0020	0.02	-0.00031	109	75-125	0.0205	4.76	20	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1_180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 1) 06/08 09:27 and 2) 06/08 09:43 True	Found	%R(1)	Found	%R(1)		M
Mercury	2.0	2.00	100	2.0	1.96	98	2.02	101		CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1 180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 3) 06/08 10:32 and 4) 06/08 11:08					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	2.00	100	2.0	1.99	100	1.96	98	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1 180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/08 11:47 and 6) 06/08 12:44					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	2.00	100	2.0	2.13	106	1.98	99	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1 180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/08 13:31 and 8) 06/08 14:01					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	2.00	100	2.0	1.93	96	1.98	99	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1 180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 9) 06/08 14:37 and 10) 06/08 15:25 True	Found	%R(1)	Found	%R(1)		M
Mercury	2.0	2.00	100	2.0	2.00	100	2.01	100		CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

Initial Calibration Source: Run: HG1 180608A

Continuing Calibration Source: Start: 6/8/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 11) 06/08 16:09 and 12) 06/08 16:42					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	2.00	100	2.0	1.96	98	2.01	100	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 1) 06/08 09:30 and 2) 06/08 09:45				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.19	96					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 3) 06/08 10:35 and 4) 06/08 11:10				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.20	100					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 06/08 11:49 and 6) 06/08 12:46				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.19	97					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 7) 06/08 13:33 and 8) 06/08 14:04				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.19	96					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/08 14:40 and 10) 06/08 15:28				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.18	90					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

AA CRDL Standard Source: Run: HG1_180608A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/08 16:14 and 12) 06/08 16:45				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.20	100					

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: HG1 180608A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 09:33	C	2) 09:48	C	3) 10:37	C	Prepa-ration Blank	C	M
Mercury	-0.040		-0.042		-0.042		-0.046		0.142	J	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: HG1 180608A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 11:13	C	5) 11:52	C	6) 12:49	C	Prepa-ration Blank	C	M
Mercury	-0.040		-0.044		-0.040		-0.042		0.142	J	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: HG1 180608A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 13:36	C	8) 14:07	C	9) 14:42	C	Prepa-ration Blank	C	M
Mercury	-0.040		-0.042		-0.046		-0.046		0.142	J	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 1806126

Preparation Blank Matrix (soil/water): WATER Run: HG1 180608A

Preparation Blank Concentration Units (ug/L or mg/kg): ug/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 15:30	C	11) 16:17	C	12) 16:48	C	Prepa-ration Blank	C	M
Mercury	-0.040		-0.046		-0.043		-0.045		0.142	J	CV

Note: MDLs are used, not IDLs

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 1806126

Matrix Spike - Client SampID: 18CP02-55S Level:(low/med) LOW

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC. LIMITS REC.
Mercury	20.00	-0.3100	20.50	104	75-125

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Mercury	20.00	21.50	109	4.76	20	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

7

LABORATORY CONTROL SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 1806126

LCS Source: LCS-119472

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Mercury	2.0	2.01	100.5						

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 1806126

Instrument Type: HG Instrument ID: HG1 Date: 11/2/2017

Concentration Units (ug/L, mg/kg, or ug): ug/L

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	0		0.20	0.03	CV

Comments:

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 1806126

Instrument Type: HG Instrument ID: HG1 Date: 11/2/2017

Concentration Units (ug/L, mg/kg, or ug): mg/Kg

Analyte	Wave-length (nm)	Back-ground	PQL mg/Kg	MDL mg/Kg	M
Mercury	0		0.02	0.002	CV

Comments:

FORM X - IN

12-IN

PREPARATION LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUK SAS No.: SDG No.: 1806126

Method: HGPR 7470 W Batch ID: 119472

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
18CP02-55	6/8/2018	5.00	50
18CP02-55S	6/8/2018	5.00	50
18CP02-55S	6/8/2018	5.00	50
LCSW	6/8/2018	50.00	50
PBW	6/8/2018	50.00	50

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: HG1 Method: SW7470A

Start Date: 6/8/2018 End Date: 6/8/2018 Run: HG1_180608A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	0918	0															X												
ICB	1	0923	0															X												
CCV~1	1	0927	0															X												
CRA	1	0930	0															X												
CCB~1	1	0933	0															X												
CCV~2	1	0943	0															X												
CRA	1	0945	0															X												
CCB~2	1	0948	0															X												
CCV~3	1	1032	0															X												
CRA	1	1035	0															X												
CCB~3	1	1037	0															X												
CCV~4	1	1105	0																											
CCV~5	1	1108	0															X												
CRA	1	1110	0															X												
CCB~4	1	1113	0															X												
CCV~6	1	1147	0															X												
CRA	1	1149	0															X												
CCB~5	1	1152	0															X												
PBW	1	1218	0															X												
LCSW	1	1221	0															X												
CCV~7	1	1244	0															X												
CRA	1	1246	0															X												
CCB~6	1	1249	0															X												
18CP02-55	1	1256	0															X												
18CP02-55S	1	1259	0															X												
18CP02-55S	1	1301	0															X												
CCV~8	1	1331	0															X												
CRA	1	1333	0															X												
CCB~7	1	1336	0															X												
CCV~9	1	1401	0															X												
CRA	1	1404	0															X												
CCB~8	1	1407	0															X												
CCV~10	1	1437	0															X												
CRA	1	1440	0															X												
CCB~9	1	1442	0															X												

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: HG1 Method: SW7470A

Start Date: 6/8/2018 End Date: 6/8/2018 Run: HG1 180608A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
CCV-11	1	1525	0															X													
CRA	1	1528	0															X													
CCB-10	1	1530	0															X													
CCV-12	1	1609	0															X													
CRA	1	1614	0															X													
CCB-11	1	1617	0															X													
CCV-13	1	1642	0															X													
CRA	1	1645	0															X													
CCB-12	1	1648	0															X													

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: HG1 Method: E245.1

Start Date: 6/8/2018 End Date: 6/8/2018 Run: HG1 180608A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	0918	0															X													
ICB	1	0923	0															X													
CCV~14	1	0927	0															X													
CRA	1	0930	0															X													
CCB~13	1	0933	0															X													
CCV~15	1	0943	0															X													
CRA	1	0945	0															X													
CCB~14	1	0948	0															X													
CCV~16	1	1032	0															X													
CRA	1	1035	0															X													
CCB~15	1	1037	0															X													
CCV~17	1	1105	0																												
CCV~18	1	1108	0															X													
CRA	1	1110	0															X													
CCB~16	1	1113	0															X													
CCV~19	1	1147	0															X													
CRA	1	1149	0															X													
CCB~17	1	1152	0															X													
PBW	1	1218	0															X													
LCSW	1	1221	0															X													
CCV~20	1	1244	0															X													
CRA	1	1246	0															X													
CCB~18	1	1249	0															X													
18CP02-55	1	1256	0															X													
18CP02-55S	1	1259	0															X													
18CP02-55S	1	1301	0															X													
CCV~21	1	1331	0															X													
CRA	1	1333	0															X													
CCB~19	1	1336	0															X													
CCV~22	1	1401	0															X													
CRA	1	1404	0															X													
CCB~20	1	1407	0															X													
CCV~23	1	1437	0															X													
CRA	1	1440	0															X													
CCB~21	1	1442	0															X													

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 1806126

Instrument ID Number: HG1 Method: E245.1

Start Date: 6/8/2018 End Date: 6/8/2018 Run: HG1 180608A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN			
CCV-24	1	1525	0															X														
CRA	1	1528	0															X														
CCB-22	1	1530	0															X														
CCV-25	1	1609	0															X														
CRA	1	1614	0															X														
CCB-23	1	1617	0															X														
CCV-26	1	1642	0															X														
CRA	1	1645	0															X														
CCB-24	1	1648	0															X														

ALS Group, USA

Analytical Run Summary

Run ID HG1_180608A

11-Jun-18

Analyst Rob Haney

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5078510	Calibration Blank	HG_7470_GW	SAMP		6/8/2018 09:03	1	R237576		1
5078511	Standard #1 (0.2 ppb	HG_7470_GW	SAMP		6/8/2018 09:05	1	R237576		1
5078512	Standard #2 (0.5 ppb	HG_7470_GW	SAMP		6/8/2018 09:08	1	R237576		1
5078513	Standard #3 (1.0 ppb	HG_7470_GW	SAMP		6/8/2018 09:10	1	R237576		1
5078514	Standard #4 (2.0 ppb	HG_7470_GW	SAMP		6/8/2018 09:13	1	R237576		1
5078515	Standard #5 (4.0 ppb	HG_7470_GW	SAMP		6/8/2018 09:16	1	R237576		1
5078516	ICV	HG_7470_GW	ICV		6/8/2018 09:18	1	R237576		1
5078517	ICB	HG_7470_GW	ICB		6/8/2018 09:23	1	R237576		1
5078518	IPC/CCV	HG_7470_GW	CCV		6/8/2018 09:27	1	R237576		1
5078519	CRDL	HG_7470_GW	CRA		6/8/2018 09:30	1	R237576		1
5078520	CCB	HG_7470_GW	CCB		6/8/2018 09:33	1	R237576		1
5078521	18051708-01AMS	HG_7470_GW	MS		6/8/2018 09:35	1	119417	6/7/2018	1
5078522	18051708-01AMSD	HG_7470_GW	MSD		6/8/2018 09:38	1	119417	6/7/2018	1
5078523	LCS-119404	HG_7470_GW	LCS		6/8/2018 09:40	1	119404	6/7/2018	1
5078524	IPC/CCV	HG_7470_GW	CCV		6/8/2018 09:43	1	R237576		1
5078525	CRDL	HG_7470_GW	CRA		6/8/2018 09:45	1	R237576		1
5078526	CCB	HG_7470_GW	CCB		6/8/2018 09:48	1	R237576		1
5079490	MBLK-119428	HG_245.1_WW	MBLK		6/8/2018 10:07	1	119428	6/7/2018	1
5079491	LCS-119428	HG_245.1_WW	LCS		6/8/2018 10:09	1	119428	6/7/2018	1
5079492	18051878-01A	HG_245.1_WW	SAMP		6/8/2018 10:12	1	119428	6/7/2018	1
5079493	18051878-01AMS	HG_245.1_WW	MS		6/8/2018 10:14	1	119428	6/7/2018	1
5079494	18051878-01AMSD	HG_245.1_WW	MSD		6/8/2018 10:17	1	119428	6/7/2018	1
5079495	18051938-03A	HG_245.1_WW	SAMP		6/8/2018 10:19	1	119428	6/7/2018	1
5079496	18051938-07A	HG_245.1_WW	SAMP		6/8/2018 10:22	1	119428	6/7/2018	1
5079497	18051940-03A	HG_245.1_WW	SAMP		6/8/2018 10:24	1	119428	6/7/2018	1
5079498	18051941-01A	HG_245.1_WW	SAMP		6/8/2018 10:27	1	119428	6/7/2018	1
5079499	18051943-01A	HG_245.1_WW	SAMP		6/8/2018 10:29	1	119428	6/7/2018	1
5079500	IPC/CCV	HG_245.1_WW	CCV		6/8/2018 10:32	1	R237576		1
5079501	CRDL	HG_245.1_WW	CRA		6/8/2018 10:35	1	R237576		1
5079502	CCB	HG_245.1_WW	CCB		6/8/2018 10:37	1	R237576		1
5079503	18051945-01A	HG_245.1_WW	SAMP		6/8/2018 10:40	1	119428	6/7/2018	1
5079504	18052058-06F	HG_245.1_WW	SAMP		6/8/2018 10:42	1	119428	6/7/2018	1
5079505	1806011-01A	HG_245.1_WW	SAMP		6/8/2018 10:45	1	119428	6/7/2018	1
5079506	1806115-01A	HG_245.1_WW	SAMP		6/8/2018 10:47	1	119428	6/7/2018	1
5079507	1806115-02A	HG_245.1_WW	SAMP		6/8/2018 10:50	1	119428	6/7/2018	1
5079508	1806115-02AMS	HG_245.1_WW	MS		6/8/2018 10:52	1	119428	6/7/2018	1
5079509	1806115-02AMSD	HG_245.1_WW	MSD		6/8/2018 10:55	1	119428	6/7/2018	1
5079510	1806115-03A	HG_245.1_WW	SAMP		6/8/2018 10:58	1	119428	6/7/2018	1
5079511	1806115-03ADUP	HG_245.1_WW	DUP		6/8/2018 11:00	1	119428	6/7/2018	1
5079512	1806116-01A	HG_245.1_WW	SAMP		6/8/2018 11:03	1	119428	6/7/2018	1
5079513	IPC/CCV	HG_245.1_WW	CCV		6/8/2018 11:05	1	R237576		0
5079514	IPC/CCV	HG_245.1_WW	CCV		6/8/2018 11:08	1	R237576		1
5079515	CRDL	HG_245.1_WW	CRA		6/8/2018 11:10	1	R237576		1
5079516	CCB	HG_245.1_WW	CCB		6/8/2018 11:13	1	R237576		1
5079517	1806116-01ADUP	HG_245.1_WW	DUP		6/8/2018 11:16	1	119428	6/7/2018	1
5079518	1806116-02A	HG_245.1_WW	SAMP		6/8/2018 11:18	1	119428	6/7/2018	1
5079519	1806116-02ADUP	HG_245.1_WW	DUP		6/8/2018 11:21	1	119428	6/7/2018	1
5079520	IPC/CCV	HG_245.1_WW	CCV		6/8/2018 11:47	1	R237576		1
5079521	CRDL	HG_245.1_WW	CRA		6/8/2018 11:49	1	R237576		1
5079522	CCB	HG_245.1_WW	CCB		6/8/2018 11:52	1	R237576		1
5079894	MBLK-119472	HG_7470_GW	MBLK		6/8/2018 12:18	1	119472	6/8/2018	1
5079895	LCS-119472	HG_7470_GW	LCS		6/8/2018 12:21	1	119472	6/8/2018	1
5079896	1806002-01E	HG_7470_GW	SAMP		6/8/2018 12:23	1	119472	6/8/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5079897	1806002-02E	HG_7470_GW	SAMP		6/8/2018 12:26	1	119472	6/8/2018	1
5079898	1806002-03E	HG_7470_GW	SAMP		6/8/2018 12:28	1	119472	6/8/2018	1
5079899	1806002-04E	HG_7470_GW	SAMP		6/8/2018 12:31	1	119472	6/8/2018	1
5079900	1806002-05E	HG_7470_GW	SAMP		6/8/2018 12:33	1	119472	6/8/2018	1
5079901	1806002-06E	HG_7470_GW	SAMP		6/8/2018 12:36	1	119472	6/8/2018	1
5079902	1806002-07E	HG_7470_GW	SAMP		6/8/2018 12:38	1	119472	6/8/2018	1
5079903	1806040-01A	TCHG_7470_S	SAMP		6/8/2018 12:41	1	119472	6/8/2018	1
5079904	IPC/CCV	HG_7470_GW	CCV		6/8/2018 12:44	1	R237576		1
5079905	CRDL	HG_7470_GW	CRA		6/8/2018 12:46	1	R237576		1
5079906	CCB	HG_7470_GW	CCB		6/8/2018 12:49	1	R237576		1
5079907	1806046-01A	TCHG_7470_S	SAMP		6/8/2018 12:51	1	119472	6/8/2018	1
5079908	1806110-01B	TCHG_7470_S	SAMP		6/8/2018 12:54	1	119472	6/8/2018	1
5079909	1806126-03A	TCHG_7470_S	SAMP		6/8/2018 12:56	1	119472	6/8/2018	1
5079910	1806126-03AMS	TCHG_7470_S	MS		6/8/2018 12:59	1	119472	6/8/2018	1
5079911	1806126-03AMSD	TCHG_7470_S	MSD		6/8/2018 13:01	1	119472	6/8/2018	1
5079912	1806159-02A	TCHG_7470_S	SAMP		6/8/2018 13:04	1	119472	6/8/2018	1
5079913	1806162-01C	TCHG_7470_S	SAMP		6/8/2018 13:07	1	119472	6/8/2018	1
5080364	MBLK-119483	HG_7471_S	MBLK		6/8/2018 13:18	1	119483	6/8/2018	1
5080365	LCS-119483	HG_7471_S	LCS		6/8/2018 13:22	1	119483	6/8/2018	0
5080366	LCS-119483	HG_7471_S	LCS		6/8/2018 13:28	1	119483	6/8/2018	1
5080369	IPC/CCV	HG_7470_GW	CCV		6/8/2018 13:31	1	R237576		1
5080371	CRDL	HG_7470_GW	CRA		6/8/2018 13:33	1	R237576		1
5080372	CCB	HG_7470_GW	CCB		6/8/2018 13:36	1	R237576		1
5080375	1806297-01C	HG_7471_S	SAMP		6/8/2018 13:39	1	119483	6/8/2018	1
5080376	1806297-01CMS	HG_7471_S	MS		6/8/2018 13:41	1	119483	6/8/2018	1
5080378	1806297-01CMSD	HG_7471_S	MSD		6/8/2018 13:44	1	119483	6/8/2018	1
	MSD07	*The MSD recovery was outside of the control limit. However, the MS recovery and the RPD between the MS and MSD was in control. No qualification is required for this analyte: Hg*							
5080379	1806371-01B	HG_7471_S	SAMP		6/8/2018 13:46	1	119483	6/8/2018	1
5080381	1806371-02B	HG_7471_S	SAMP		6/8/2018 13:49	1	119483	6/8/2018	1
5080382	1806371-03B	HG_7471_S	SAMP		6/8/2018 13:51	1	119483	6/8/2018	1
5080383	1806371-04B	HG_7471_S	SAMP		6/8/2018 13:54	1	119483	6/8/2018	1
5080384	18051800-01A	HG_7471_S	SAMP		6/8/2018 13:56	1	119483	6/8/2018	1
5080386	18051800-03A	HG_7471_S	SAMP		6/8/2018 13:59	1	119483	6/8/2018	1
5080388	IPC/CCV	HG_7470_GW	CCV		6/8/2018 14:01	1	R237576		1
5080391	CRDL	HG_7470_GW	CRA		6/8/2018 14:04	1	R237576		1
5080392	CCB	HG_7470_GW	CCB		6/8/2018 14:07	1	R237576		1
5080471	MBLK-119495	HG_7470_GW	MBLK		6/8/2018 14:22	1	119495	6/8/2018	1
5080472	LCS-119495	HG_7470_GW	LCS		6/8/2018 14:24	1	119495	6/8/2018	1
5080473	1806205-02A	TCHG_7470_S	SAMP		6/8/2018 14:27	1	119495	6/8/2018	1
5080474	1806359-01C	HG_7470_GW	SAMP		6/8/2018 14:29	1	119495	6/8/2018	1
5080475	1806359-01CMS	HG_7470_GW	MS		6/8/2018 14:32	1	119495	6/8/2018	1
5080476	1806359-01CMSD	HG_7470_GW	MSD		6/8/2018 14:35	1	119495	6/8/2018	1
5080477	IPC/CCV	HG_7470_GW	CCV		6/8/2018 14:37	1	R237576		1
5080478	CRDL	HG_7470_GW	CRA		6/8/2018 14:40	1	R237576		1
5080479	CCB	HG_7470_GW	CCB		6/8/2018 14:42	1	R237576		1
5080499	1806017-01B	HG_7471_S	SAMP		6/8/2018 15:00	1	119483	6/8/2018	1
5080500	1806017-02B	HG_7471_S	SAMP		6/8/2018 15:02	1	119483	6/8/2018	1
5080501	1806017-03B	HG_7471_S	SAMP		6/8/2018 15:05	1	119483	6/8/2018	1
5080502	1806017-04B	HG_7471_S	SAMP		6/8/2018 15:07	1	119483	6/8/2018	1
5080503	1806017-05B	HG_7471_S	SAMP		6/8/2018 15:10	1	119483	6/8/2018	1
5080504	1806017-06B	HG_7471_S	SAMP		6/8/2018 15:12	1	119483	6/8/2018	1
5080505	1806017-07B	HG_7471_S	SAMP		6/8/2018 15:15	1	119483	6/8/2018	1
5080506	1806017-08B	HG_7471_S	SAMP		6/8/2018 15:18	1	119483	6/8/2018	1
5080507	1806017-09B	HG_7471_S	SAMP		6/8/2018 15:20	1	119483	6/8/2018	1
5080508	1805618-16A	HG_7471_S	SAMP		6/8/2018 15:23	1	119483	6/8/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5080509	IPC/CCV	HG_7470_GW	CCV		6/8/2018 15:25	1	R237576		1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5080510	CRDL	HG_7470_GW	CRA		6/8/2018 15:28	1	R237576		1
5080511	CCB	HG_7470_GW	CCB		6/8/2018 15:30	1	R237576		1
5080512	MBLK-119500	HG_7471_S	MBLK		6/8/2018 15:46	1	119500	6/8/2018	1
5080513	LCS-119500	HG_7471_S	LCS		6/8/2018 15:48	1	119500	6/8/2018	1
5080514	18051777-01A	HG_7471_S	SAMP		6/8/2018 15:51	1	119500	6/8/2018	1
5080515	18051777-04A	HG_7471_S	SAMP		6/8/2018 15:53	1	119500	6/8/2018	1
5080516	18051777-05A	HG_7471_S	SAMP		6/8/2018 15:56	1	119500	6/8/2018	1
5080517	18051777-06A	HG_7471_S	SAMP		6/8/2018 15:58	1	119500	6/8/2018	1
5080518	1806037-01B	HG_7471_S	SAMP		6/8/2018 16:01	1	119500	6/8/2018	1
5080519	1806037-02B	HG_7471_S	SAMP		6/8/2018 16:03	1	119500	6/8/2018	1
5080520	1806037-02BMS	HG_7471_S	MS		6/8/2018 16:06	1	119500	6/8/2018	1
5080521	IPC/CCV	HG_7470_GW	CCV		6/8/2018 16:09	1	R237576		1
5080523	CRDL	HG_7470_GW	CRA		6/8/2018 16:14	1	R237576		1
5080524	CCB	HG_7470_GW	CCB		6/8/2018 16:17	1	R237576		1
5080525	1806037-02BMSD	HG_7471_S	MSD		6/8/2018 16:20	1	119500	6/8/2018	1
5080526	1806037-03B	HG_7471_S	SAMP		6/8/2018 16:22	1	119500	6/8/2018	1
5082943	1806037-04B	HG_7471_S	SAMP		6/8/2018 16:25	1	119500	6/8/2018	1
5082944	1806037-05B	HG_7471_S	SAMP		6/8/2018 16:27	1	119500	6/8/2018	1
5082945	1806112-01B	HG_7471_S	SAMP		6/8/2018 16:30	1	119500	6/8/2018	1
5082946	1806112-09A	HG_7471_S	SAMP		6/8/2018 16:32	1	119500	6/8/2018	1
5082947	1806112-13B	HG_7471_S	SAMP		6/8/2018 16:35	1	119500	6/8/2018	1
5082948	1806182-09B	HG_7471_S	SAMP		6/8/2018 16:37	1	119500	6/8/2018	0
5082949	1806182-12B	HG_7471_S	SAMP		6/8/2018 16:40	1	119500	6/8/2018	0
5082950	IPC/CCV	HG_7470_GW	CCV		6/8/2018 16:42	1	R237576		1
5082951	CRDL	HG_7470_GW	CRA		6/8/2018 16:45	1	R237576		1
5082952	CCB	HG_7470_GW	CCB		6/8/2018 16:48	1	R237576		1

Method 245.1 / 7470A / 7471B

Report Generated By CETAC QuickTrace
Analyst: alshn.hg
Worksheet file: C:\Program Files\QuickTrace\Worksheets\180608A.wsz
Date Started: 6/8/2018 8:33:16 AM
Comment:

Hg1 180608A

Results

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Calibration Blank					STD	06/08/18 09:03:18 am	0.000	-139	38.92	
Replicates	-159.3	-120.4	-202.4	-75.4						
Standard #1 (0.2 ppb)					STD	06/08/18 09:05:49 am	0.200	3172	2.49	
Replicates	3076.9	3140.8	3217.3	3253.8						
Standard #2 (0.5 ppb)					STD	06/08/18 09:08:22 am	0.500	7645	2.28	
Replicates	7419.7	7620.5	7703.5	7836.3						
Standard #3 (1.0 ppb)					STD	06/08/18 09:10:54 am	1.000	15105	1.98	
Replicates	14745.6	14997.1	15243.6	15432.1						
Standard #4 (2.0 ppb)					STD	06/08/18 09:13:28 am	2.000	26656	2.17	
Replicates	25943.0	26461.9	26955.9	27262.1						
Standard #5 (4.0 ppb)					STD	06/08/18 09:16:02 am	4.000	54374	2.04	
Replicates	52997.4	54059.2	54846.7	55593.5						

Calibration

Equation: A = 557.895 + 13437.020C
R2: 0.99880
SEE: 785.1564
Flags:

√ RSH

ICV					ICV	06/08/18 09:18:36 am	2.000	27431	2.29	
Replicates	26633.8	27274.6	27719.8	28095.3						
% Recovery	100.00									

√ RSH

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
ICB				ICB	06/08/18 09:23:43 am	-0.040	20	108.08	
Replicates	15.8	51.9	0.1	13.9					
IPC/CCV				CCV	06/08/18 09:27:57 am	1.960	26883	2.61	
Replicates	26030.0	26661.9	27171.7	27669.9					
% Recovery	97.96								
CRDL				CRDL	06/08/18 09:30:33 am	0.191	3120	1.29	
Replicates	3081.9	3159.0	3089.3	3150.3					
% Recovery	95.34								
CCB				CCB	06/08/18 09:33:08 am	-0.042	-5	871.77	
Replicates	26.1	40.3	-47.2	-39.7					
18051708-01AMS				UNK	06/08/18 09:35:39 am	1.950	26703	2.04	
Replicates	26037.1	26529.0	26946.2	27301.7					
18051708-01AMSD				UNK	06/08/18 09:38:10 am	1.960	26959	2.06	
Replicates	26247.1	26833.6	27215.4	27539.6					
LCS-119404				UNK	06/08/18 09:40:41 am	1.900	26054	1.59	
Replicates	25564.8	25896.7	26236.0	26518.2					
IPC/CCV				CCV	06/08/18 09:43:17 am	2.020	27729	2.29	
Replicates	26945.9	27526.0	28040.3	28402.5					
% Recovery	101.10								
CRDL				CRDL	06/08/18 09:45:53 am	0.176	2928	2.34	
Replicates	2845.1	2946.6	2911.9	3008.9					
% Recovery	88.20								
CCB				CCB	06/08/18 09:48:28 am	-0.042	-7	657.18	
Replicates	-46.6	-46.0	45.5	18.8					
MBLK-119428				UNK	06/08/18 10:07:05 am	0.042	1117	3.13	
Replicates	1092.2	1101.5	1105.2	1168.7					
LCS-119428				UNK	06/08/18 10:09:37 am	1.870	25627	1.83	
Replicates	25004.7	25560.1	25842.3	26099.1					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051878-01A				UNK	06/08/18 10:12:09 am	0.035	1028	1.44	
Replicates	1020.8	1022.0	1019.7	1050.5					
18051878-01AMS				UNK	06/08/18 10:14:41 am	1.760	24228	1.84	
Replicates	23708.3	24040.0	24440.0	24725.2					
18051878-01AMSD				UNK	06/08/18 10:17:14 am	1.740	23944	1.46	
Replicates	23511.3	23833.7	24112.0	24317.2					
18051938-03A				UNK	06/08/18 10:19:47 am	0.028	933	6.78	
Replicates	910.6	873.1	925.8	1021.6					
18051938-07A				UNK	06/08/18 10:22:20 am	0.071	1506	3.12	
Replicates	1440.9	1531.3	1503.8	1547.8					
18051940-03A				UNK	06/08/18 10:24:54 am	0.027	927	2.85	
Replicates	948.7	904.2	951.4	904.4					
18051941-01A				UNK	06/08/18 10:27:28 am	0.038	1071	6.01	
Replicates	976.3	1087.9	1119.4	1099.9					
18051943-01A				UNK	06/08/18 10:29:58 am	0.032	987	1.39	
Replicates	1000.6	974.2	976.9	997.7					
IPC/CCV				CCV	06/08/18 10:32:34 am	1.990	27256	2.36	
Replicates	26474.3	27034.5	27559.0	27955.5					
% Recovery	99.34								
CRDL				CRDL	06/08/18 10:35:10 am	0.199	3226	2.48	
Replicates	3117.0	3223.4	3304.9	3258.7					
% Recovery	99.28								
CCB				CCB	06/08/18 10:37:45 am	-0.046	-55	60.37	
Replicates	-72.2	-63.6	-5.8	-76.6					
18051945-01A				UNK	06/08/18 10:40:16 am	0.023	865	4.45	
Replicates	820.8	890.2	902.9	844.4					

√RSH

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18052058-06F				UNK	06/08/18 10:42:48 am	0.040	1094	4.54	
Replicates	1020.2	1117.4	1111.7	1126.9					
1806011-01A				UNK	06/08/18 10:45:19 am	0.045	1167	3.59	
Replicates	1121.5	1178.0	1219.8	1150.0					
1806115-01A				UNK	06/08/18 10:47:51 am	2.100	28722	2.11	
Replicates	28000.4	28506.3	28975.8	29404.1					
1806115-02A				UNK	06/08/18 10:50:23 am	0.786	11115	2.10	
Replicates	10851.9	11005.3	11222.5	11379.3					
1806115-02AMS				UNK	06/08/18 10:52:55 am	2.460	33566	1.97	
Replicates	32744.4	33365.1	33893.6	34261.4					
1806115-02AMSD				UNK	06/08/18 10:55:28 am	2.540	34714	0.94	
Replicates	34291.6	34649.4	34864.1	35050.4					
1806115-03A				UNK	06/08/18 10:58:01 am	0.054	1281	1.21	
Replicates	1261.4	1299.1	1283.1	1279.4					
1806115-03ADUP				UNK	06/08/18 11:00:34 am	0.063	1407	2.35	
Replicates	1375.6	1416.9	1449.6	1387.6					
1806116-01A				UNK	06/08/18 11:03:08 am	0.053	1275	1.79	
Replicates	1288.7	1289.9	1241.6	1281.4					
IPC/CCV				CCV	06/08/18 11:05:44 am	1.700	23445	2.50	Q
Replicates	22704.9	23304.3	23694.8	24076.0					
% Recovery	85.16								
IPC/CCV				CCV	06/08/18 11:08:19 am	1.960	26919	2.40	
Replicates	26143.1	26683.3	27224.6	27626.8					
% Recovery	98.09								
CRDL				CRDL	06/08/18 11:10:56 am	0.166	2791	3.57	
Replicates	2745.0	2733.2	2747.2	2940.4					
% Recovery	83.11								

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB				CCB	06/08/18 11:13:31 am	-0.044	-31	81.24	
Replicates	-26.7	-55.1	-45.3	2.4					
1806116-01ADUP				UNK	06/08/18 11:16:04 am	0.059	1346	1.23	
Replicates	1355.4	1329.8	1335.0	1364.8					
1806116-02A				UNK	06/08/18 11:18:35 am	0.353	5297	2.24	
Replicates	5135.4	5290.8	5354.3	5409.5					
1806116-02ADUP				UNK	06/08/18 11:21:06 am	0.306	4668	1.32	
Replicates	4605.2	4628.4	4738.4	4698.7					
IPC/CCV				CCV	06/08/18 11:47:02 am	2.130	29187	1.82	
Replicates	28518.0	29026.1	29493.1	29711.4					
% Recovery	106.53								
CRDL				CRDL	06/08/18 11:49:39 am	0.194	3161	2.09	
Replicates	3069.7	3155.0	3214.5	3203.8					
% Recovery	96.85								
CCB				CCB	06/08/18 11:52:14 am	-0.039	28	78.91	
Replicates	47.4	44.9	3.9	14.4					
MBLK-119472				UNK	06/08/18 12:18:37 pm	0.142	2469	2.92	
Replicates	2361.7	2492.2	2505.9	2515.9					
LCS-119472				UNK	06/08/18 12:21:09 pm	2.010	27507	2.21	
Replicates	26802.8	27245.1	27787.3	28192.3					
1806002-01E				UNK	06/08/18 12:23:40 pm	0.163	2745	1.69	
Replicates	2692.6	2730.5	2755.0	2803.5					
1806002-02E				UNK	06/08/18 12:26:13 pm	0.176	2925	3.35	
Replicates	2825.0	2896.4	2919.6	3059.1					
1806002-03E				UNK	06/08/18 12:28:45 pm	0.227	3609	2.14	
Replicates	3506.4	3595.6	3657.4	3678.1					

∫ Rslt

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1806002-04E				UNK	06/08/18 12:31:18 pm	0.188	3086	1.99	
Replicates	2994.6	3115.1	3110.1	3124.8					
1806002-05E				UNK	06/08/18 12:33:51 pm	0.078	1610	2.55	
Replicates	1642.1	1603.7	1554.5	1640.0					
1806002-06E				UNK	06/08/18 12:36:24 pm	0.052	1260	3.58	
Replicates	1205.2	1280.6	1244.8	1309.3					
1806002-07E				UNK	06/08/18 12:38:58 pm	0.168	2813	3.15	
Replicates	2691.2	2803.5	2870.5	2886.0					
1806040-01A				UNK	06/08/18 12:41:31 pm	0.143	2479	1.40	
Replicates	2442.0	2457.9	2496.9	2517.6					
IPC/CCV				CCV	06/08/18 12:44:07 pm	1.980	27127	2.36	
Replicates	26352.6	26921.8	27384.8	27847.8					
% Recovery	98.86								
CRDL				CRDL	06/08/18 12:46:43 pm	0.177	2935	2.41	
Replicates	2871.5	2876.9	2989.2	3003.2					
% Recovery	88.46								
CCB				CCB	06/08/18 12:49:18 pm	-0.042	-10	390.62	
Replicates	34.3	-45.7	10.6	-38.7					
1806046-01A				UNK	06/08/18 12:51:50 pm	0.036	1038	3.37	
Replicates	998.8	1028.9	1040.7	1083.2					
1806110-01B				UNK	06/08/18 12:54:21 pm	-0.002	533	7.49	
Replicates	548.4	486.1	517.1	578.6					
1806126-03A				UNK	06/08/18 12:56:52 pm	-0.031	146	12.70	
Replicates	154.5	143.1	121.1	164.1					
1806126-03AMS				UNK	06/08/18 12:59:24 pm	2.050	28089	2.03	
Replicates	27386.4	27928.7	28311.4	28729.7					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1806126-03AMSD				UNK	06/08/18 01:01:56 pm	2.150	29450	2.11	
Replicates	28713.7	29236.0	29683.3	30167.8					
1806159-02A				UNK	06/08/18 01:04:28 pm	0.002	581	11.83	
Replicates	557.6	534.7	683.7	549.9					
1806162-01C				UNK	06/08/18 01:07:00 pm	-0.017	331	11.46	
Replicates	279.1	369.8	334.3	342.0					
MBLK-119483				UNK	06/08/18 01:18:49 pm	-0.048	-88	46.19	
Replicates	-88.2	-75.7	-142.5	-45.2					
LCS-119483				UNK	06/08/18 01:22:08 pm	2.580	35260	2.16	
Replicates	34360.1	34962.0	35619.5	36100.5					MR
LCS-119483				UNK	06/08/18 01:28:41 pm	2.210	30212	1.94	
Replicates	29481.5	30035.5	30506.2	30825.2					
IPC/CCV				CCV	06/08/18 01:31:17 pm	1.930	26492	2.18	
Replicates	25813.5	26268.7	26734.5	27150.0					MR 5/17
% Recovery	96.50								
CRDL				CRDL	06/08/18 01:33:53 pm	0.191	3118	1.98	
Replicates	3047.5	3091.6	3187.9	3146.9					
% Recovery	95.28								
CCB				CCB	06/08/18 01:36:28 pm	-0.042	-3	427.74	
Replicates	-44.8	65.1	-17.9	-15.9					
1806297-01C				UNK	06/08/18 01:39:01 pm	0.580	8346	1.55	
Replicates	8181.9	8302.7	8450.2	8449.2					
1806297-01CMS				UNK	06/08/18 01:41:35 pm	2.690	36643	1.84	
Replicates	35791.2	36501.6	36887.1	37393.6					
1806297-01CMSD				UNK	06/08/18 01:44:09 pm	3.200	43585	1.93	
Replicates	42537.5	43366.8	43929.6	44506.8					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1806371-01B				UNK	06/08/18 01:46:40 pm	0.712	10121	1.75	
Replicates	9909.7	10060.8	10190.3	10322.5					
1806371-02B				UNK	06/08/18 01:49:12 pm	0.499	7268	2.26	
Replicates	7053.5	7261.9	7309.1	7449.4					
1806371-03B				UNK	06/08/18 01:51:43 pm	0.485	7078	1.79	
Replicates	6939.1	7013.8	7136.8	7224.0					
1806371-04B				UNK	06/08/18 01:54:15 pm	0.304	4648	2.99	
Replicates	4498.8	4582.1	4691.4	4819.9					
18051800-01A				UNK	06/08/18 01:56:47 pm	0.282	4347	1.46	
Replicates	4278.9	4323.5	4357.7	4429.5					
18051800-03A				UNK	06/08/18 01:59:19 pm	0.480	7010	1.69	
Replicates	6863.3	6983.1	7050.4	7144.6					
IPC/CCV				CCV	06/08/18 02:01:55 pm	1.980	27137	2.35	
Replicates	26377.5	26906.0	27411.8	27851.3					
% Recovery	98.90								
CRDL				CRDL	06/08/18 02:04:31 pm	0.187	3070	2.78	
Replicates	2950.6	3068.2	3143.9	3115.9					
% Recovery	93.46								
CCB				CCB	06/08/18 02:07:06 pm	-0.046	-62	48.99	
Replicates	-48.1	-34.9	-60.9	-105.1					
MBLK-119495				UNK	06/08/18 02:22:16 pm	-0.043	-17	69.21	
Replicates	-26.6	-24.0	-0.5	-16.8					
LCS-119495				UNK	06/08/18 02:24:49 pm	2.140	29290	1.92	
Replicates	28613.0	29102.6	29522.9	29922.1					
1805205-02A				UNK	06/08/18 02:27:22 pm	0.195	3178	3.33	
Replicates	3045.5	3140.3	3250.8	3274.5					

∫ Result

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1805359-01C					UNK	06/08/18 02:29:55 pm	0.128	2284	2.79	
Replicates	2242.6	2216.5	2333.8	2342.8						
1805359-01CMS					UNK	06/08/18 02:32:29 pm	1.860	25595	2.48	
Replicates	24805.6	25409.1	25886.6	26279.6						
1805359-01CMSD					UNK	06/08/18 02:35:02 pm	1.920	26382	2.07	
Replicates	25710.1	26227.7	26590.7	26997.7						
IPC/CCV					CCV	06/08/18 02:37:38 pm	2.000	27424	2.52	√KSH
Replicates	26575.0	27229.6	27689.6	28201.1						
% Recovery	99.97									
CRDL					CRDL	06/08/18 02:40:14 pm	0.181	2984	1.69	
Replicates	2936.4	2943.6	3030.6	3023.6						
% Recovery	90.26									
CCB					CCB	06/08/18 02:42:49 pm	-0.046	-56	27.63	
Replicates	-56.7	-76.5	-48.5	-40.8						
1806017-01B					UNK	06/08/18 03:00:14 pm	0.171	2853	2.07	
Replicates	2776.8	2849.8	2866.3	2920.0						
1806017-02B					UNK	06/08/18 03:02:46 pm	0.078	1608	3.34	
Replicates	1541.3	1590.1	1663.1	1636.9						
1806017-03B					UNK	06/08/18 03:05:18 pm	0.125	2231	2.95	
Replicates	2149.4	2213.6	2258.1	2303.8						
1806017-04B					UNK	06/08/18 03:07:50 pm	0.058	1338	2.03	
Replicates	1327.0	1329.8	1316.5	1377.5						
1806017-05B					UNK	06/08/18 03:10:22 pm	0.302	4615	2.42	
Replicates	4486.1	4560.0	4689.8	4725.3						
1806017-06B					UNK	06/08/18 03:12:55 pm	0.157	2672	2.55	
Replicates	2602.8	2625.3	2729.6	2732.1						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1806017-07B				UNK	06/08/18 03:15:27 pm	0.066	1449	2.14	
Replicates	1407.0	1445.6	1479.4	1462.6					
1806017-08B				UNK	06/08/18 03:18:00 pm	0.049	1210	5.12	
Replicates	1163.8	1160.3	1225.8	1291.6					
1806017-09B				UNK	06/08/18 03:20:33 pm	0.104	1958	1.65	
Replicates	1914.6	1952.4	1977.6	1986.9					
1805618-16A				UNK	06/08/18 03:23:06 pm	2.940	40030	1.78	
Replicates	39129.2	39851.3	40352.3	40787.8					
IPC/CCV				CCV	06/08/18 03:25:42 pm	2.010	27588	2.27	
Replicates	26818.6	27404.6	27844.1	28283.4					
% Recovery	100.58								
CRDL				CRDL	06/08/18 03:28:18 pm	0.182	3007	2.57	
Replicates	2913.9	3009.7	3001.7	3102.7					
% Recovery	91.13								
CCB				CCB	06/08/18 03:30:53 pm	-0.046	-63	67.04	
Replicates	-54.2	-10.2	-76.2	-111.0					
1805618-17A				UNK	06/08/18 03:33:26 pm	1.860	25593	1.68	
Replicates	25082.2	25449.6	25744.6	26095.1					
MBLK-119500				UNK	06/08/18 03:46:07 pm	-0.004	499	2.75	
Replicates	484.6	517.8	497.5	497.3					
LCS-119500				UNK	06/08/18 03:48:40 pm	2.100	28775	2.19	
Replicates	28029.4	28528.0	29073.0	29471.5					
18051777-01A				UNK	06/08/18 03:51:12 pm	0.285	4393	2.52	
Replicates	4271.1	4358.5	4406.0	4536.5					
18051777-04A				UNK	06/08/18 03:53:45 pm	0.402	5966	2.26	
Replicates	5807.6	5900.4	6071.9	6083.2					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags	
18051777-05A				UNK	06/08/18 03:56:17 pm	0.568	8185	2.46		
Replicates	7956.4	8089.1	8289.4	8406.9						
18051777-06A				UNK	06/08/18 03:58:50 pm	0.502	7297	1.94		
Replicates	7121.4	7252.2	7367.2	7447.2						
1806037-01B				UNK	06/08/18 04:01:22 pm	0.114	2088	2.21		
Replicates	2022.1	2094.0	2106.3	2128.5						
1806037-02B				UNK	06/08/18 04:03:54 pm	0.113	2081	3.10		
Replicates	2006.5	2111.6	2052.6	2152.9						
1806037-02BMS				UNK	06/08/18 04:06:27 pm	2.070	28437	1.95		
Replicates	27762.7	28260.4	28674.1	29051.6						
IPC/CCV				CCV	06/08/18 04:09:03 pm	1.960	26911	2.12		JR5H
Replicates	26222.0	26727.8	27136.0	27558.0						
% Recovery	98.06									
CRDL				CRDL	06/08/18 04:11:39 pm	0.334	5040	2.35	Y	NR
Replicates	4886.2	5019.3	5088.1	5164.8						
% Recovery	166.77									
CRDL				CRDL	06/08/18 04:14:52 pm	0.200	3250	2.19		
Replicates	3168.5	3217.0	3282.5	3330.3						
% Recovery	100.16									
CCB				CCB	06/08/18 04:17:27 pm	-0.043	-26	79.87		
Replicates	-6.0	-47.9	-10.7	-38.7						
1806037-02BMSD				UNK	06/08/18 04:20:00 pm	2.100	28747	1.76		
Replicates	28100.1	28623.7	28997.9	29268.2						
1806037-03B				UNK	06/08/18 04:22:33 pm	0.176	2917	2.24		
Replicates	2860.0	2863.4	2956.6	2988.1						
1806037-04B				UNK	06/08/18 04:25:07 pm	0.166	2790	2.51		
Replicates	2720.9	2760.2	2793.7	2885.2						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags	
1806037-05B				UNK	06/08/18 04:27:40 pm	0.407	6026	1.30		
Replicates	5919.7	6016.3	6069.6	6096.6						
1806112-01B				UNK	06/08/18 04:30:13 pm	0.714	10145	1.53		
Replicates	9925.6	10161.0	10207.0	10287.8						
1806112-09A				UNK	06/08/18 04:32:46 pm	0.695	9898	1.64		
Replicates	9712.3	9856.5	9919.5	10103.8						
1806112-13B				UNK	06/08/18 04:35:18 pm	0.080	1628	2.27		
Replicates	1616.9	1619.3	1594.5	1680.8						
1806182-09B				UNK	06/08/18 04:37:51 pm	O/R	158778	1.43	O	NR
Replicates	155970.5	158082.6	159802.4	161255.6						
1806182-12B				UNK	06/08/18 04:40:23 pm	O/R	104613	1.56	O	NR
Replicates	102578.8	104130.6	105373.6	106369.1						
IPC/CCV				CCV	06/08/18 04:42:59 pm	2.010	27539	2.26		√ KBIT
Replicates	26750.9	27377.4	27833.4	28192.9						
% Recovery	100.40									
CRDL				CRDL	06/08/18 04:45:35 pm	0.193	3152	1.95		
Replicates	3119.9	3108.3	3138.8	3242.8						
% Recovery	96.54									
CCB				CCB	06/08/18 04:48:10 pm	-0.045	-51	61.91		
Replicates	-68.5	-57.2	-75.0	-5.0						

ALS Group, USA

PREP BATCH REPORT

Batch ID: **119472** Prep Code: **HGPR_7470_W**

Start Date: **6/8/2018 9:09:21 AM** End Date: **6/8/2018 11:15:14 AM**

Technician: **Rob Haney**

InitSamp Wt/Vol:	50 mL
FinSampVol:	50 mL
OriginalFac:	1
PrepUnitFac:	

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
1806002-01E	Water			50	0	50	1
1806002-02E	Water			50	0	50	1
1806002-03E	Water			50	0	50	1
1806002-04E	Water			50	0	50	1
1806002-05E	Water			50	0	50	1
1806002-06E	Water			50	0	50	1
1806002-07E	Water			50	0	50	1
1806040-01A	Tclp Extract			5	0	50	10
1806046-01A	Tclp Extract			5	0	50	10
1806110-01B	Tclp Extract			5	0	50	10
1806126-03A	Tclp Extract			5	0	50	10
1806126-03AMS	Tclp Extract			5	0	50	10
1806126-03AMSD	Tclp Extract			5	0	50	10
1806159-02A	Tclp Extract			5	0	50	10
1806162-01C	Tclp Extract			5	0	50	10
LCS-119472				50	0	50	1
MBLK-119472				50	0	50	1

Notes: *ALL SAMPLES ARE B1/D1 UNLESS OTHERWISE NOTED. BLOCK A 96 degrees C // Digestion Cups: 180304 Auto Sampler Tubes: 274134 // Boiling Chips: 26397-103/1920-174-2*

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-55

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 1806126

Matrix: Soil Lab Sample ID: 1806126-02A

Level (low/med): LOW Date Received: 6/1/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.1			

ALS Group, USA

Client: Jacobs
Work Order: 1806126
Project: PMC

Date: 13-Jul-18

QC BATCH REPORT

Batch ID: **R237230** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237230** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R237230** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069071** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5		0		

DUP Sample ID: **18051832-02B DUP** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069033** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.5	0.050	0	0	0	0-0	17.11	2.25	10	

DUP Sample ID: **1806102-01A DUP** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069059** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	4.09	0.050	0	0	0	0-0	4.14	1.22	10	

The following samples were analyzed in this batch: 1806126-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Moisture

Analyst:	NW			Date/Time In:	6/2/18 11:20 PM					Temp In Deg C:	104.2		
Review By:				Date/Time Out:	6/3/18 12:30 AM					Temp Out Deg C:	103		
Method:	% Moisture (E160.3M)			Batch ID:	MOIST_180602A					Sand BPL:	2049-158-8		
SOP:	HN-WC-036			Balance ID:	6								
WO	**Btl. #**	**SampType**	**Dish ID**	**Pan Wt**	**Tare Wt***	**Wet Wt**	**1st Wt**	**2nd Wt**	**3rd Wt**	**Final Wt****	**% Solid**	**%Moisture**	**Analyte**
WBLKS		MBLK	BLK	1.3038	0	0.0000				1.3041	0.03	0.03	Moisture
LCS		LCS	LCS	1.3032	0	5.6674				6.9716	100.02	100.02	Moisture
18051832-02B	1	SAMP	X1	1.3288	0	9.0448				8.8257	82.89	17.11	Moisture
18051832-02B DUP	1	DUP	X2	1.3356	0	9.653				9.2993	82.50	17.50	Moisture
18051832-01B	1	SAMP	X3	1.3944	0	7.5843				7.7842	84.25	15.75	Moisture
18051832-03B	1	SAMP	X4	1.3627	0	7.6877				7.436	79.00	21.00	Moisture
18051832-04B	1	SAMP	X5	1.431	0	9.3671				9.0737	81.59	18.41	Moisture
18051832-05B	1	SAMP	X6	1.392	0	11.0433				10.5847	83.24	16.76	Moisture
18051832-06B	1	SAMP	X7	1.3392	0	9.0642				8.5387	79.43	20.57	Moisture
18051865-01A	1	SAMP	X8	1.3766	0	3.3195				1.838	13.90	86.10	Moisture
18051944-01A	1	SAMP	X9	1.3339	0	6.9047				7.5737	90.37	9.63	Moisture
1806007-01A	1	SAMP	X10	1.3267	0	8.2238				5.2931	48.23	51.77	Moisture
1806010-01A	1	SAMP	X11	1.3386	0	5.8827				3.8984	43.51	56.49	Moisture
1806102-01A	1	SAMP	X12	1.3917	0	8.6304				9.6649	95.86	4.14	Moisture
1806102-01A DUP	1	DUP	X13	1.4397	0	9.1833				10.2475	95.91	4.09	Moisture
18051916-01A	1	SAMP	X14	1.3581	0	6.5661				6.0154	70.93	29.07	Moisture
18051916-02A	1	SAMP	X15	1.3214	0	7.2529				3.5505	30.73	69.27	Moisture
1806055-01A	1	SAMP	X16	1.3485	0	6.0485				4.1594	46.47	53.53	Moisture
18051789-01A	1	SAMP	X17	1.333	0	5.6644				6.6313	93.54	6.46	Moisture
1806102-02A	1	SAMP	X18	1.3776	0	10.0265				11.2396	98.36	1.64	Moisture
1806126-02A	1	SAMP	X19	1.3392	0	9.1307				9.9158	93.93	6.07	Moisture
1806128-01A	1	SAMP	X20	1.3738	0	10.8248				11.7419	95.78	4.22	Moisture
1806128-02A	1	SAMP	X21	1.3861	0	8.8838				9.3264	89.38	10.62	Moisture
1806128-03A	1	SAMP	X22	1.4284	0	8.6814				9.3643	91.41	8.59	Moisture

Re-Dry		Temp °C	Analyst
Date/Time In:			
Date/Time Out:			

Analysis Date/Time:	6/4/18 8:43AM	RM

: Tare weight must ≤ 0.0005g

****: Weight difference must be <4% or 0.5mg (whichever is smaller)**

% Solid = ((Final Wt - Pan Wt) / Wet Wt)*100

% Moisture = (1- (Final Wt - Pan Wt) / Wet Wt)) * 100

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TCLP/SPLP/ASTM
EXTRACTION PROCEDURE

DATE: 6/5/18 SAMPLE ID: 1806126-03A ANALYST: ED

ANALYSIS REQUIRED: TCLP ZHE, SV, MET

SAMPLE DESCRIPTION (COLOR, TEXTURE, PARTICLE SIZE, ETC.): Soil

Filter Wt: — g Sample Wt: — g Filtered Wt: — g

%SOLIDS[1]: 100% % DRY SOLIDS[2]: —
([1]IF LESS THAN 0.5%, EXTRACTION NOT NECESSARY) ([2]Only use if liquid is entrained in filter)
SAMPLE PREPARATION (CRUSH, GRIND, CUT, etc.): —

EXTRACTION FLUID DETERMINATION: 5.1 g to 96.5mL DI Cup BPL: P0102778OC
Balance ID: 11
INITIAL pH OF SLURRY: 9.12 (If < 5.0, use Fluid #1. If > 5.0, add HCl & Heat)
pH AFTER HCl & Heat: 5.86 (If <5.0, use Fluid #1. If > 5.0, use Fluid #2)
pH Meter ID: 4 HCl BPL: 1809-154-7
EXTRACTION FLUID USED FOR NON-VOLATILES (BPL): 1809-155-15
and pH OF EXTRACTION FLUID USED FOR NON-VOLATILES: 801 2
EXTRACTION FLUID USED FOR VOLATILES (BPL): 1809-156-6
and pH OF EXTRACTION FLUID USED FOR VOLATILES: 801 1

SAMPLE WEIGHT (grams - corrected for % Solids):

VOLATILES (ZHE):	25.1 g	NON-VOLATILES:	100.3 g
BALANCE ID:	11	BALANCE ID:	11
EXTRACTOR ID #:	711	EXTRACTOR ID #:	031438
FINAL Pressure:	15 psi		

EXTRACTION FLUID VOLUMES (mLs):
VOLATILES (ZHE): 500 mL NON-VOLATILES: 2000 mL
NOTE: FLUID VOLUME = 20 X SAMPLE WEIGHT USED

EXTRACTION DATE/TIME: START: 6/5/18 1652 FINISH: 6/6/18 908
RPM: 30
EXTRACTION pH AT FINISH: 6.00 PRESERVATION BPL: 2049-187-1
pH Meter ID: 4

TEMPERATURE RANGE DURING EXTRACTION (°C): HIGH: 23.1 LOW: 22.3

POST EXTRACTION DESCRIPTION (COLOR, TEXTURE, PARTICLE SIZE, ETC.):

EXTRACTION COMMENTS:

Note: One Blank extraction must be processed for every 20 sample extractions.

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com
RIGHT SOLUTIONS

11-Jun-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **1806126**

Dear Heather,

ALS Environmental received 5 samples on 01-Jun-2018 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 33.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MI: 0022

ALS Group, USA

Date: 11-Jun-18

Client: Jacobs
Project: PMC
Work Order: **1806126**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1806126-01	18CP02-54	Groundwater		5/30/2018 10:45	6/1/2018 10:00	☐
1806126-02	18CP02-55	Soil		5/30/2018 13:10	6/1/2018 10:00	☐
1806126-03	18CP02-55	Tclp Extract		5/30/2018 13:10	6/1/2018 10:00	☐
1806126-04	18CP02-56	Water		5/30/2018 17:20	6/1/2018 10:00	☐
1806126-05	18CP02-57	Wastewater		5/30/2018 17:00	6/1/2018 10:00	☐

ALS Group, USA

Date: 11-Jun-18

Client: Jacobs
Project: PMC
Work Order: 1806126

Case Narrative

Samples for the above noted Work Order were received on 06/01/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

ALS Group, USA

Date: 11-Jun-18

Client: Jacobs
Project: PMC
WorkOrder: **1806126**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-54
Collection Date: 5/30/2018 10:45 AM

Work Order: 1806126
Lab ID: 1806126-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/6/2018 01:47
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/6/2018 01:47
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/6/2018 01:47
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/6/2018 01:47
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/6/2018 01:47
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/6/2018 01:47
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/6/2018 01:47
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/6/2018 01:47
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/6/2018 01:47
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/6/2018 01:47
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/6/2018 01:47
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/6/2018 01:47
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/6/2018 01:47
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 01:47
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/6/2018 01:47
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 01:47
2-Butanone	**1.0**	J	**0.47**	**5.0**	**µg/L**	1	6/6/2018 01:47
2-Hexanone	U		0.50	5.0	µg/L	1	6/6/2018 01:47
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/6/2018 01:47
Acetone	**6.2**	J	**0.47**	**10**	**µg/L**	1	6/6/2018 01:47
Benzene	U		0.42	1.0	µg/L	1	6/6/2018 01:47
Bromochloromethane	U		0.15	1.0	µg/L	1	6/6/2018 01:47
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/6/2018 01:47
Bromoform	U		0.56	1.0	µg/L	1	6/6/2018 01:47
Bromomethane	U		0.29	1.0	µg/L	1	6/6/2018 01:47
Carbon disulfide	U		0.39	1.0	µg/L	1	6/6/2018 01:47
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/6/2018 01:47
Chlorobenzene	U		0.21	1.0	µg/L	1	6/6/2018 01:47
Chloroethane	U		0.68	1.0	µg/L	1	6/6/2018 01:47
Chloroform	U		0.46	1.0	µg/L	1	6/6/2018 01:47
Chloromethane	U		0.68	1.0	µg/L	1	6/6/2018 01:47
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/6/2018 01:47
Cyclohexane	U		0.18	1.0	µg/L	1	6/6/2018 01:47
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/6/2018 01:47
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/6/2018 01:47
Ethylbenzene	**0.36**	J	**0.29**	**1.0**	**µg/L**	1	6/6/2018 01:47
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/6/2018 01:47
m,p-Xylene	U		0.53	2.0	µg/L	1	6/6/2018 01:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-54
Collection Date: 5/30/2018 10:45 AM

Work Order: 1806126
Lab ID: 1806126-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/6/2018 01:47
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/6/2018 01:47
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/6/2018 01:47
Methylene chloride	U		0.16	5.0	µg/L	1	6/6/2018 01:47
o-Xylene	**0.26**	J	**0.19**	**1.0**	**µg/L**	1	6/6/2018 01:47
Styrene	U		0.19	1.0	µg/L	1	6/6/2018 01:47
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/6/2018 01:47
Toluene	**1.1**		**0.32**	**1.0**	**µg/L**	1	6/6/2018 01:47
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/6/2018 01:47
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/6/2018 01:47
Trichloroethene	U		0.33	1.0	µg/L	1	6/6/2018 01:47
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/6/2018 01:47
Vinyl chloride	U		0.53	1.0	µg/L	1	6/6/2018 01:47
Xylenes, Total	U		0.74	3.0	µg/L	1	6/6/2018 01:47
Surr: 1,2-Dichloroethane-d4	*110*			*75-120*	*%REC*	1	6/6/2018 01:47
Surr: 4-Bromofluorobenzene	*96.0*			*80-110*	*%REC*	1	6/6/2018 01:47
Surr: Dibromofluoromethane	*104*			*85-115*	*%REC*	1	6/6/2018 01:47
Surr: Toluene-d8	*101*			*85-110*	*%REC*	1	6/6/2018 01:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-55
Collection Date: 5/30/2018 01:10 PM

Work Order: 1806126
Lab ID: 1806126-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS		Method: **SW8082**			Prep: SW3546 / 6/4/18		Analyst: **KB**
Aroclor 1016	U		24	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1221	U		24	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1232	U		24	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1242	U		24	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1248	U		24	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1254	U		20	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1260	U		20	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1262	U		20	70	µg/Kg-dry	1	6/5/2018 17:19
Aroclor 1268	U		20	70	µg/Kg-dry	1	6/5/2018 17:19
Surr: Decachlorobiphenyl	*63.6*			*40-140*	*%REC*	1	6/5/2018 17:19
Surr: Tetrachloro-m-xylene	*63.0*			*45-124*	*%REC*	1	6/5/2018 17:19
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**6.1**		**0.025**	**0.050**	**% of sample**	1	6/2/2018 23:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-55
Collection Date: 5/30/2018 01:10 PM

Work Order: 1806126
Lab ID: 1806126-03
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA		Method: **SW7470A**			Prep: SW7470 / 6/8/18		Analyst: **RSH**
Mercury	U		0.00030	0.0020	mg/L	1	6/8/2018 12:56
TCLP METALS ANALYSIS BY ICP-MS		Method: **SW6020A**			Prep: SW3005A / 6/6/18		Analyst: **JF**
Arsenic	U		0.0019	0.050	mg/L	1	6/6/2018 18:19
Barium	**0.33**		**0.0085**	**0.050**	**mg/L**	1	6/6/2018 18:19
Cadmium	**0.00096**	J	**0.00040**	**0.0020**	**mg/L**	1	6/6/2018 18:19
Chromium	U		0.0061	0.050	mg/L	1	6/6/2018 18:19
Lead	**0.0056**	J	**0.00080**	**0.050**	**mg/L**	1	6/6/2018 18:19
Selenium	U		0.0048	0.050	mg/L	1	6/6/2018 18:19
Silver	U		0.0012	0.050	mg/L	1	6/6/2018 18:19
TCLP SEMI-VOLATILE ORGANICS		Method: **SW8270D**			Prep: SW3510 / 6/6/18		Analyst: **EB**
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	6/6/2018 19:23
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	6/6/2018 19:23
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	6/6/2018 19:23
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	6/6/2018 19:23
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	6/6/2018 19:23
Hexachlorobenzene	U		8.8	100	µg/L	1	6/6/2018 19:23
Hexachloroethane	U		4.2	100	µg/L	1	6/6/2018 19:23
m-Cresol	U		3.9	100	µg/L	1	6/6/2018 19:23
Nitrobenzene	U		5.2	100	µg/L	1	6/6/2018 19:23
o-Cresol	U		4.0	100	µg/L	1	6/6/2018 19:23
p-Cresol	U		3.9	100	µg/L	1	6/6/2018 19:23
Pentachlorophenol	U		19	100	µg/L	1	6/6/2018 19:23
Pyridine	U		2.0	200	µg/L	1	6/6/2018 19:23
Surr: 2,4,6-Tribromophenol	*41.5*			*32-92*	*%REC*	1	6/6/2018 19:23
Surr: 2-Fluorobiphenyl	*37.0*			*34-98*	*%REC*	1	6/6/2018 19:23
Surr: 2-Fluorophenol	*27.2*			*23-55*	*%REC*	1	6/6/2018 19:23
Surr: 4-Terphenyl-d14	*82.2*			*50-111*	*%REC*	1	6/6/2018 19:23
Surr: Nitrobenzene-d5	*34.2*			*32-89*	*%REC*	1	6/6/2018 19:23
Surr: Phenol-d6	*13.9*			*10-35*	*%REC*	1	6/6/2018 19:23
TCLP VOLATILE ORGANICS		Method: **SW8260C**			Leachate: SW1311 / 6/6/18 Prep: SW1311 / 6/6/18		Analyst: **EMR**
1,1-Dichloroethene	U		7.2	20	µg/L	20	6/6/2018 15:01
1,2-Dichloroethane	U		2.2	20	µg/L	20	6/6/2018 15:01
2-Butanone	**17**	J	**9.4**	**100**	**µg/L**	20	6/6/2018 15:01
Benzene	U		8.4	20	µg/L	20	6/6/2018 15:01
Carbon tetrachloride	U		6.4	20	µg/L	20	6/6/2018 15:01
Chlorobenzene	U		4.2	20	µg/L	20	6/6/2018 15:01

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-55
Collection Date: 5/30/2018 01:10 PM

Work Order: 1806126
Lab ID: 1806126-03
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Chloroform	U		9.2	20	µg/L	20	6/6/2018 15:01
Tetrachloroethene	U		5.6	20	µg/L	20	6/6/2018 15:01
Trichloroethene	U		6.6	20	µg/L	20	6/6/2018 15:01
Vinyl chloride	U		11	20	µg/L	20	6/6/2018 15:01
Surr: 1,2-Dichloroethane-d4	*108*			*70-130*	*%REC*	20	6/6/2018 15:01
Surr: 4-Bromofluorobenzene	*98.2*			*70-130*	*%REC*	20	6/6/2018 15:01
Surr: Dibromofluoromethane	*101*			*70-130*	*%REC*	20	6/6/2018 15:01
Surr: Toluene-d8	*101*			*70-130*	*%REC*	20	6/6/2018 15:01

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-56
Collection Date: 5/30/2018 05:20 PM

Work Order: 1806126
Lab ID: 1806126-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/6/2018 02:03
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/6/2018 02:03
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/6/2018 02:03
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/6/2018 02:03
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/6/2018 02:03
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/6/2018 02:03
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/6/2018 02:03
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/6/2018 02:03
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/6/2018 02:03
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/6/2018 02:03
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/6/2018 02:03
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/6/2018 02:03
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/6/2018 02:03
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 02:03
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/6/2018 02:03
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 02:03
2-Butanone	U		0.47	5.0	µg/L	1	6/6/2018 02:03
2-Hexanone	U		0.50	5.0	µg/L	1	6/6/2018 02:03
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/6/2018 02:03
Acetone	**2.6**	J	**0.47**	**10**	**µg/L**	1	6/6/2018 02:03
Benzene	U		0.42	1.0	µg/L	1	6/6/2018 02:03
Bromochloromethane	U		0.15	1.0	µg/L	1	6/6/2018 02:03
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/6/2018 02:03
Bromoform	U		0.56	1.0	µg/L	1	6/6/2018 02:03
Bromomethane	U		0.29	1.0	µg/L	1	6/6/2018 02:03
Carbon disulfide	U		0.39	1.0	µg/L	1	6/6/2018 02:03
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/6/2018 02:03
Chlorobenzene	U		0.21	1.0	µg/L	1	6/6/2018 02:03
Chloroethane	U		0.68	1.0	µg/L	1	6/6/2018 02:03
Chloroform	**0.62**	J	**0.46**	**1.0**	**µg/L**	1	6/6/2018 02:03
Chloromethane	U		0.68	1.0	µg/L	1	6/6/2018 02:03
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/6/2018 02:03
Cyclohexane	U		0.18	1.0	µg/L	1	6/6/2018 02:03
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/6/2018 02:03
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/6/2018 02:03
Ethylbenzene	U		0.29	1.0	µg/L	1	6/6/2018 02:03
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/6/2018 02:03
m,p-Xylene	U		0.53	2.0	µg/L	1	6/6/2018 02:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-56
Collection Date: 5/30/2018 05:20 PM

Work Order: 1806126
Lab ID: 1806126-04
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/6/2018 02:03
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/6/2018 02:03
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/6/2018 02:03
Methylene chloride	U		0.16	5.0	µg/L	1	6/6/2018 02:03
o-Xylene	U		0.19	1.0	µg/L	1	6/6/2018 02:03
Styrene	U		0.19	1.0	µg/L	1	6/6/2018 02:03
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/6/2018 02:03
Toluene	U		0.32	1.0	µg/L	1	6/6/2018 02:03
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/6/2018 02:03
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/6/2018 02:03
Trichloroethene	U		0.33	1.0	µg/L	1	6/6/2018 02:03
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/6/2018 02:03
Vinyl chloride	U		0.53	1.0	µg/L	1	6/6/2018 02:03
Xylenes, Total	U		0.74	3.0	µg/L	1	6/6/2018 02:03
Surr: 1,2-Dichloroethane-d4	*98.0*			*75-120*	*%REC*	1	6/6/2018 02:03
Surr: 4-Bromofluorobenzene	*98.0*			*80-110*	*%REC*	1	6/6/2018 02:03
Surr: Dibromofluoromethane	*99.8*			*85-115*	*%REC*	1	6/6/2018 02:03
Surr: Toluene-d8	*99.4*			*85-110*	*%REC*	1	6/6/2018 02:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-57
Collection Date: 5/30/2018 05:00 PM

Work Order: 1806126
Lab ID: 1806126-05
Matrix: WASTEWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/6/2018 02:19
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/6/2018 02:19
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/6/2018 02:19
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/6/2018 02:19
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/6/2018 02:19
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/6/2018 02:19
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/6/2018 02:19
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/6/2018 02:19
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/6/2018 02:19
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/6/2018 02:19
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/6/2018 02:19
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/6/2018 02:19
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/6/2018 02:19
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 02:19
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/6/2018 02:19
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/6/2018 02:19
2-Butanone	**1.8**	J	**0.47**	**5.0**	**µg/L**	1	6/6/2018 02:19
2-Hexanone	U		0.50	5.0	µg/L	1	6/6/2018 02:19
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/6/2018 02:19
Acetone	**10**		**0.47**	**10**	**µg/L**	1	6/6/2018 02:19
Benzene	U		0.42	1.0	µg/L	1	6/6/2018 02:19
Bromochloromethane	U		0.15	1.0	µg/L	1	6/6/2018 02:19
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/6/2018 02:19
Bromoform	U		0.56	1.0	µg/L	1	6/6/2018 02:19
Bromomethane	U		0.29	1.0	µg/L	1	6/6/2018 02:19
Carbon disulfide	U		0.39	1.0	µg/L	1	6/6/2018 02:19
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/6/2018 02:19
Chlorobenzene	U		0.21	1.0	µg/L	1	6/6/2018 02:19
Chloroethane	U		0.68	1.0	µg/L	1	6/6/2018 02:19
Chloroform	U		0.46	1.0	µg/L	1	6/6/2018 02:19
Chloromethane	U		0.68	1.0	µg/L	1	6/6/2018 02:19
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/6/2018 02:19
Cyclohexane	U		0.18	1.0	µg/L	1	6/6/2018 02:19
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/6/2018 02:19
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/6/2018 02:19
Ethylbenzene	U		0.29	1.0	µg/L	1	6/6/2018 02:19
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/6/2018 02:19
m,p-Xylene	U		0.53	2.0	µg/L	1	6/6/2018 02:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *11-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-57
Collection Date: 5/30/2018 05:00 PM

Work Order: 1806126
Lab ID: 1806126-05
Matrix: WASTEWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/6/2018 02:19
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/6/2018 02:19
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/6/2018 02:19
Methylene chloride	U		0.16	5.0	µg/L	1	6/6/2018 02:19
o-Xylene	U		0.19	1.0	µg/L	1	6/6/2018 02:19
Styrene	U		0.19	1.0	µg/L	1	6/6/2018 02:19
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/6/2018 02:19
Toluene	**1.1**		**0.32**	**1.0**	**µg/L**	1	6/6/2018 02:19
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/6/2018 02:19
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/6/2018 02:19
Trichloroethene	U		0.33	1.0	µg/L	1	6/6/2018 02:19
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/6/2018 02:19
Vinyl chloride	U		0.53	1.0	µg/L	1	6/6/2018 02:19
Xylenes, Total	U		0.74	3.0	µg/L	1	6/6/2018 02:19
Surr: 1,2-Dichloroethane-d4	*113*			*75-120*	*%REC*	1	6/6/2018 02:19
Surr: 4-Bromofluorobenzene	*97.2*			*80-110*	*%REC*	1	6/6/2018 02:19
Surr: Dibromofluoromethane	*102*			*85-115*	*%REC*	1	6/6/2018 02:19
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	6/6/2018 02:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 11-Jun-18

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119240** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-119240-119240** Units: **µg/Kg** Analysis Date: **6/5/2018 03:10 PM**

Client ID: Run ID: **GC14_180605B** SeqNo: **5073982** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	67								
Aroclor 1221	U	67								
Aroclor 1232	U	67								
Aroclor 1242	U	67								
Aroclor 1248	U	67								
Aroclor 1254	U	67								
Aroclor 1260	U	67								
Aroclor 1262	U	67								
Aroclor 1268	U	67								
Surr: Decachlorobiphenyl	*24.15*	0	*33.3*	0	*72.5*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*30.36*	0	*33.3*	0	*91.2*	*45-124*	0			

LCS Sample ID: **PLCSS1-119240-119240** Units: **µg/Kg** Analysis Date: **6/5/2018 03:24 PM**

Client ID: Run ID: **GC14_180605B** SeqNo: **5073983** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	730.9	67	833	0	87.7	50-130	0			
Aroclor 1260	586	67	833	0	70.4	50-130	0			
Surr: Decachlorobiphenyl	*27.03*	0	*33.3*	0	*81.2*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*27.52*	0	*33.3*	0	*82.6*	*45-124*	0			

MS Sample ID: **1806142-11A MS** Units: **µg/Kg** Analysis Date: **6/5/2018 03:53 PM**

Client ID: Run ID: **GC14_180605B** SeqNo: **5073985** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	779.2	66	822.6	0	94.7	40-140	0			
Aroclor 1260	638.3	66	822.6	0	77.6	40-140	0			
Surr: Decachlorobiphenyl	*25.5*	0	*32.89*	0	*77.5*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*28.25*	0	*32.89*	0	*85.9*	*45-124*	0			

MSD Sample ID: **1806142-11A MSD** Units: **µg/Kg** Analysis Date: **6/5/2018 04:36 PM**

Client ID: Run ID: **GC14_180605B** SeqNo: **5073986** Prep Date: **6/4/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	755.5	64	804.8	0	93.9	40-140	779.2	3.09	50	
Aroclor 1260	630.7	64	804.8	0	78.4	40-140	638.3	1.2	50	
Surr: Decachlorobiphenyl	*25.82*	0	*32.17*	0	*80.3*	*40-140*	25.5	*1.26*	*50*	
Surr: Tetrachloro-m-xylene	*27.43*	0	*32.17*	0	*85.3*	*45-124*	28.25	*2.95*	*50*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119240** Instrument ID **GC14** Method: **SW8082**

The following samples were analyzed in this batch: 1806126-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119472** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-119472-119472** Units: **mg/L** Analysis Date: **6/8/2018 12:18 PM**
Client ID: Run ID: **HG1_180608A** SeqNo: **5079894** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000142	0.00020								J

LCS Sample ID: **LCS-119472-119472** Units: **mg/L** Analysis Date: **6/8/2018 12:21 PM**
Client ID: Run ID: **HG1_180608A** SeqNo: **5079895** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00201	0.00020	0.002	0	100	80-120	0			

MS Sample ID: **1806126-03AMS** Units: **mg/L** Analysis Date: **6/8/2018 12:59 PM**
Client ID: **18CP02-55** Run ID: **HG1_180608A** SeqNo: **5079910** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0205	0.0020	0.02	-0.00031	104	75-125	0			

MSD Sample ID: **1806126-03AMSD** Units: **mg/L** Analysis Date: **6/8/2018 01:01 PM**
Client ID: **18CP02-55** Run ID: **HG1_180608A** SeqNo: **5079911** Prep Date: **6/8/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0215	0.0020	0.02	-0.00031	109	75-125	0.0205	4.76	20	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119351** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK Sample ID: **MBLK-119351-119351** Units: **mg/L** Analysis Date: **6/6/2018 05:47 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076312** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Chromium	U	0.0050								
Lead	U	0.0050								
Selenium	U	0.0050								
Silver	U	0.0050								

LCS Sample ID: **LCS-119351-119351** Units: **mg/L** Analysis Date: **6/6/2018 05:54 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076316** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09658	0.0050	0.1	0	96.6	80-120	0			
Barium	0.1001	0.0050	0.1	0	100	80-120	0			
Cadmium	0.1021	0.0020	0.1	0	102	80-120	0			
Chromium	0.09863	0.0050	0.1	0	98.6	80-120	0			
Lead	0.097	0.0050	0.1	0	97	80-120	0			
Selenium	0.09646	0.0050	0.1	0	96.5	80-120	0			
Silver	0.09837	0.0050	0.1	0	98.4	80-120	0			

MS Sample ID: **1806079-01BMS** Units: **mg/L** Analysis Date: **6/6/2018 06:00 PM**
Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076320** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1032	0.0050	0.1	0.000141	103	75-125	0			
Barium	0.1151	0.0050	0.1	0.009437	106	75-125	0			
Cadmium	0.1043	0.0020	0.1	-0.000004	104	75-125	0			
Chromium	0.1035	0.0050	0.1	0.000193	103	75-125	0			
Lead	0.1007	0.0050	0.1	-0.000042	101	75-125	0			
Selenium	0.1023	0.0050	0.1	0.000099	102	75-125	0			
Silver	0.1008	0.0050	0.1	0.000004	101	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119351** Instrument ID **ICPMS3** Method: **SW6020A**

MSD Sample ID: **1806079-01BMSD** Units: **mg/L** Analysis Date: **6/6/2018 06:02 PM**

Client ID: Run ID: **ICPMS3_180606A** SeqNo: **5076321** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1012	0.0050	0.1	0.000141	101	75-125	0.1032	2.04	20	
Barium	0.1126	0.0050	0.1	0.009437	103	75-125	0.1151	2.21	20	
Cadmium	0.1031	0.0020	0.1	-0.000004	103	75-125	0.1043	1.1	20	
Chromium	0.101	0.0050	0.1	0.000193	101	75-125	0.1035	2.4	20	
Lead	0.09899	0.0050	0.1	-0.000042	99	75-125	0.1007	1.67	20	
Selenium	0.09869	0.0050	0.1	0.000099	98.6	75-125	0.1023	3.63	20	
Silver	0.09951	0.0050	0.1	0.000004	99.5	75-125	0.1008	1.24	20	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-119330-119330** Units: **µg/L** Analysis Date: **6/6/2018 05:05 PM**
Client ID: Run ID: **SVMS9_180606A** SeqNo: **5076611** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dinitrotoluene	U	5.0								
Hexachloro-1,3-butadiene	U	5.0								
Hexachlorobenzene	U	5.0								
Hexachloroethane	U	5.0								
m-Cresol	U	5.0								
Nitrobenzene	U	5.0								
o-Cresol	U	5.0								
p-Cresol	U	5.0								
Pentachlorophenol	U	5.0								
Pyridine	U	10								
Surr: 2,4,6-Tribromophenol	*28.92*	0	*50*	0	*57.8*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*27.68*	0	*50*	0	*55.4*	*34-98*	0			
Surr: 2-Fluorophenol	*18.39*	0	*50*	0	*36.8*	*23-55*	0			
Surr: 4-Terphenyl-d14	*40.64*	0	*50*	0	*81.3*	*50-111*	0			
Surr: Nitrobenzene-d5	*26.35*	0	*50*	0	*52.7*	*32-89*	0			
Surr: Phenol-d6	*8.92*	0	*50*	0	*17.8*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

LCS Sample ID: **SLCSW1-119330-119330** Units: **µg/L** Analysis Date: **6/6/2018 05:28 PM**
Client ID: Run ID: **SVMS9_180606A** SeqNo: **5076612** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	10.07	5.0	20	0	50.4	26-96	0			
2,4,5-Trichlorophenol	13.14	5.0	20	0	65.7	45-104	0			
2,4,6-Trichlorophenol	11.53	5.0	20	0	57.6	41-102	0			
2,4-Dinitrotoluene	15.27	5.0	20	0	76.4	52-106	0			
Hexachloro-1,3-butadiene	10.08	5.0	20	0	50.4	21-99	0			
Hexachlorobenzene	13.64	5.0	20	0	68.2	52-104	0			
Hexachloroethane	9.5	5.0	20	0	47.5	19-99	0			
m-Cresol	10.5	5.0	20	0	52.5	31-81	0			
Nitrobenzene	11.66	5.0	20	0	58.3	41-101	0			
o-Cresol	11.14	5.0	20	0	55.7	32-87	0			
p-Cresol	10.5	5.0	20	0	52.5	31-81	0			
Pentachlorophenol	14.23	5.0	20	0	71.2	30-104	0			
Pyridine	6.72	10	20	0	33.6	11-60	0			J
Surr: 2,4,6-Tribromophenol	*35.79*	0	*50*	0	*71.6*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*28.85*	0	*50*	0	*57.7*	*34-98*	0			
Surr: 2-Fluorophenol	*18.99*	0	*50*	0	*38*	*23-55*	0			
Surr: 4-Terphenyl-d14	*38.64*	0	*50*	0	*77.3*	*50-111*	0			
Surr: Nitrobenzene-d5	*27.16*	0	*50*	0	*54.3*	*32-89*	0			
Surr: Phenol-d6	*12.17*	0	*50*	0	*24.3*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MS Sample ID: **1806126-03A MS** Units: **µg/L** Analysis Date: **6/6/2018 06:37 PM**
Client ID: **18CP02-55** Run ID: **SVMS9_180606A** SeqNo: **5076613** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	239.2	100	400	0	59.8	26-96	0			
2,4,5-Trichlorophenol	262.8	100	400	0	65.7	45-104	0			
2,4,6-Trichlorophenol	241.6	100	400	0	60.4	41-102	0			
2,4-Dinitrotoluene	297.2	100	400	0	74.3	52-106	0			
Hexachloro-1,3-butadiene	231.4	100	400	0	57.8	21-99	0			
Hexachlorobenzene	276	100	400	0	69	52-104	0			
Hexachloroethane	225.8	100	400	0	56.4	19-99	0			
m-Cresol	206.2	100	400	0	51.6	31-81	0			
Nitrobenzene	245.4	100	400	0	61.4	41-101	0			
o-Cresol	228.2	100	400	0	57	32-87	0			
p-Cresol	206.2	100	400	0	51.6	31-81	0			
Pentachlorophenol	292.8	100	400	0	73.2	30-104	0			
Pyridine	157.8	200	400	0	39.4	11-60	0			J
Surr: 2,4,6-Tribromophenol	*712.4*	0	*1000*	0	*71.2*	*32-92*	0			
Surr: 2-Fluorobiphenyl	*578.6*	0	*1000*	0	*57.9*	*34-98*	0			
Surr: 2-Fluorophenol	*376*	0	*1000*	0	*37.6*	*23-55*	0			
Surr: 4-Terphenyl-d14	*796.4*	0	*1000*	0	*79.6*	*50-111*	0			
Surr: Nitrobenzene-d5	*548.2*	0	*1000*	0	*54.8*	*32-89*	0			
Surr: Phenol-d6	*231.2*	0	*1000*	0	*23.1*	*10-35*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **119330** Instrument ID **SVMS9** Method: **SW8270D**

MSD Sample ID: **1806126-03A MSD** Units: **µg/L** Analysis Date: **6/6/2018 07:00 PM**
Client ID: **18CP02-55** Run ID: **SVMS9_180606A** SeqNo: **5076614** Prep Date: **6/6/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	283.8	100	400	0	71	26-96	239.2	17.1	30	
2,4,5-Trichlorophenol	330.8	100	400	0	82.7	45-104	262.8	22.9	30	
2,4,6-Trichlorophenol	316	100	400	0	79	41-102	241.6	26.7	30	
2,4-Dinitrotoluene	352.2	100	400	0	88	52-106	297.2	16.9	30	
Hexachloro-1,3-butadiene	281	100	400	0	70.2	21-99	231.4	19.4	30	
Hexachlorobenzene	333	100	400	0	83.2	52-104	276	18.7	30	
Hexachloroethane	272.2	100	400	0	68	19-99	225.8	18.6	30	
m-Cresol	266	100	400	0	66.5	31-81	206.2	25.3	30	
Nitrobenzene	309	100	400	0	77.2	41-101	245.4	22.9	30	
o-Cresol	290.2	100	400	0	72.6	32-87	228.2	23.9	30	
p-Cresol	266	100	400	0	66.5	31-81	206.2	25.3	30	
Pentachlorophenol	356.6	100	400	0	89.2	30-104	292.8	19.6	30	
Pyridine	156	200	400	0	39	11-60	157.8	0	30	J
Surr: 2,4,6-Tribromophenol	*834.6*	0	*1000*	0	*83.5*	*32-92*	712.4	*15.8*	*40*	
Surr: 2-Fluorobiphenyl	*720*	0	*1000*	0	*72*	*34-98*	578.6	*21.8*	*40*	
Surr: 2-Fluorophenol	*471.2*	0	*1000*	0	*47.1*	*23-55*	376	*22.5*	*40*	
Surr: 4-Terphenyl-d14	*904.2*	0	*1000*	0	*90.4*	*50-111*	796.4	*12.7*	*40*	
Surr: Nitrobenzene-d5	*698*	0	*1000*	0	*69.8*	*32-89*	548.2	*24*	*40*	
Surr: Phenol-d6	*290.6*	0	*1000*	0	*29.1*	*10-35*	231.2	*22.8*	*40*	

The following samples were analyzed in this batch: 1806126-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MBLK	Sample ID: **VBLKW2-180605-R237372**			Units: **µg/L**		Analysis Date: **6/5/2018 11:41 PM**			
Client ID:		Run ID: **VMS8_180605B**		SeqNo: **5074561**		Prep Date:		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*21.91*	0	*20*	0	*110*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.42*	0	*20*	0	*97.1*	*80-110*	0
Surr: Dibromofluoromethane	*20.57*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*20.41*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSW3-180605-R237372**			Units: **µg/L**			Analysis Date: **6/5/2018 11:09 PM**			
Client ID:		Run ID: **VMS8_180605B**		SeqNo: **5074560**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.51	1.0	20	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	22.04	1.0	20	0	110	75-130	0			
1,1,2-Trichloroethane	19.1	1.0	20	0	95.5	75-125	0			
1,1-Dichloroethane	20.44	1.0	20	0	102	68-142	0			
1,1-Dichloroethene	21.56	1.0	20	0	108	70-145	0			
1,2,3-Trichlorobenzene	21.02	1.0	20	0	105	70-140	0			
1,2,4-Trichlorobenzene	20.84	1.0	20	0	104	70-135	0			
1,2-Dibromo-3-chloropropane	18.03	1.0	20	0	90.2	60-130	0			
1,2-Dibromoethane	21.67	1.0	20	0	108	67-155	0			
1,2-Dichlorobenzene	21.82	1.0	20	0	109	70-130	0			
1,2-Dichloroethane	19.99	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	19.6	1.0	20	0	98	75-125	0			
1,3-Dichlorobenzene	21.82	1.0	20	0	109	75-130	0			
1,3-Dichloropropane	20.21	1.0	20	0	101	75-125	0			
1,4-Dichlorobenzene	22.24	1.0	20	0	111	75-130	0			
2-Butanone	17.97	5.0	20	0	89.8	55-150	0			
2-Hexanone	19.78	5.0	20	0	98.9	60-135	0			
4-Methyl-2-pentanone	30.48	1.0	20	0	152	77-178	0			
Acetone	19.41	10	20	0	97	60-160	0			
Benzene	20.88	1.0	20	0	104	85-125	0			
Bromochloromethane	20.26	1.0	20	0	101	72-141	0			
Bromodichloromethane	19.45	1.0	20	0	97.2	75-125	0			
Bromoform	18.29	1.0	20	0	91.4	60-125	0			
Bromomethane	30.81	1.0	20	0	154	30-185	0			
Carbon disulfide	20	1.0	20	0	100	60-165	0			
Carbon tetrachloride	20.14	1.0	20	0	101	65-140	0			
Chlorobenzene	20.61	1.0	20	0	103	80-120	0			
Chloroethane	17.38	1.0	20	0	86.9	50-140	0			
Chloroform	20.31	1.0	20	0	102	80-130	0			
Chloromethane	20.02	1.0	20	0	100	46-148	0			
cis-1,2-Dichloroethene	21.31	1.0	20	0	107	75-134	0			
Dibromochloromethane	18.1	1.0	20	0	90.5	60-115	0			
Dichlorodifluoromethane	17.88	1.0	20	0	89.4	20-120	0			
Ethylbenzene	20.83	1.0	20	0	104	76-123	0			
Isopropylbenzene	19.99	1.0	20	0	100	80-127	0			
m,p-Xylene	41.33	2.0	40	0	103	75-130	0			
Methyl tert-butyl ether	23.53	1.0	20	0	118	68-129	0			
Methylene chloride	19.22	5.0	20	0	96.1	75-140	0			
o-Xylene	20.26	1.0	20	0	101	76-127	0			
Styrene	21.16	1.0	20	0	106	83-137	0			
Tetrachloroethene	21.75	1.0	20	0	109	68-166	0			
Toluene	20.98	1.0	20	0	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	20.98	1.0	20	0	105	80-140	0
trans-1,3-Dichloropropene	19.05	1.0	20	0	95.2	56-132	0
Trichloroethene	19.84	1.0	20	0	99.2	84-130	0
Trichlorofluoromethane	15.93	1.0	20	0	79.6	60-140	0
Vinyl chloride	20.39	1.0	20	0	102	50-136	0
Xylenes, Total	61.59	3.0	60	0	103	76-127	0
Surr: 1,2-Dichloroethane-d4	*21.61*	0	*20*	0	*108*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.27*	0	*20*	0	*96.4*	*80-110*	0
Surr: Dibromofluoromethane	*20.68*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*20.45*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MS	Sample ID: **1806057-01A MS**				Units: **µg/L**			Analysis Date: **6/6/2018 04:24 AM**			
Client ID:		Run ID: **VMS8_180605B**			SeqNo: **5074576**		Prep Date:		DF: **10**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	206	10	200	0	103	75-130	0			
1,1,2,2-Tetrachloroethane	204.4	10	200	0	102	75-130	0			
1,1,2-Trichloroethane	178.2	10	200	0	89.1	75-125	0			
1,1-Dichloroethane	181.1	10	200	0	90.6	68-142	0			
1,1-Dichloroethene	214.9	10	200	0	107	70-145	0			
1,2,3-Trichlorobenzene	180.7	10	200	0	90.4	70-140	0			
1,2,4-Trichlorobenzene	176.3	10	200	0	88.2	70-135	0			
1,2-Dibromo-3-chloropropane	168.5	10	200	0	84.2	60-130	0			
1,2-Dibromoethane	198.3	10	200	0	99.2	67-155	0			
1,2-Dichlorobenzene	199.5	10	200	0	99.8	70-130	0			
1,2-Dichloroethane	173.4	10	200	0	86.7	78-125	0			
1,2-Dichloropropane	182.1	10	200	0	91	75-125	0			
1,3-Dichlorobenzene	197.7	10	200	0	98.8	75-130	0			
1,3-Dichloropropane	183.1	10	200	0	91.6	75-125	0			
1,4-Dichlorobenzene	200.5	10	200	0	100	75-130	0			
2-Butanone	143.4	50	200	0	71.7	55-150	0			
2-Hexanone	171.7	50	200	0	85.8	60-135	0			
4-Methyl-2-pentanone	261	10	200	0	130	77-178	0			
Acetone	184.9	100	200	29.2	77.8	60-160	0			
Benzene	200.9	10	200	0	100	85-125	0			
Bromochloromethane	176.9	10	200	0	88.4	72-141	0			
Bromodichloromethane	177.2	10	200	0	88.6	75-125	0			
Bromoform	175	10	200	0	87.5	60-125	0			
Bromomethane	434.7	10	200	0	217	30-185	0			S
Carbon disulfide	199.3	10	200	0	99.6	60-165	0			
Carbon tetrachloride	201.7	10	200	0	101	65-140	0			
Chlorobenzene	194.1	10	200	0	97	80-120	0			
Chloroethane	174.8	10	200	0	87.4	50-140	0			
Chloroform	183.3	10	200	0	91.6	80-130	0			
Chloromethane	130.4	10	200	0	65.2	46-148	0			
cis-1,2-Dichloroethene	203.7	10	200	0	102	75-134	0			
Dibromochloromethane	168.7	10	200	0	84.4	60-115	0			
Dichlorodifluoromethane	200.4	10	200	0	100	20-120	0			
Ethylbenzene	196.5	10	200	0	98.2	76-123	0			
Isopropylbenzene	193.4	10	200	0	96.7	80-127	0			
m,p-Xylene	396.2	20	400	3.5	98.2	75-130	0			
Methyl tert-butyl ether	195.5	10	200	0	97.8	68-129	0			
Methylene chloride	165.1	50	200	0	82.6	75-140	0			
o-Xylene	190.7	10	200	0	95.4	76-127	0			
Styrene	194.9	10	200	0	97.4	83-137	0			
Tetrachloroethene	228.6	10	200	0	114	68-166	0			
Toluene	196.1	10	200	3.5	96.3	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	187.8	10	200	0	93.9	80-140	0
trans-1,3-Dichloropropene	165.6	10	200	0	82.8	56-132	0
Trichloroethene	204.5	10	200	0	102	84-130	0
Trichlorofluoromethane	196.9	10	200	0	98.4	60-140	0
Vinyl chloride	155.9	10	200	0	78	50-136	0
Xylenes, Total	586.9	30	600	0	97.8	76-127	0
Surr: 1,2-Dichloroethane-d4	*192.9*	0	*200*	0	*96.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*186*	0	*200*	0	*93*	*80-110*	0
Surr: Dibromofluoromethane	*198.7*	0	*200*	0	*99.4*	*85-115*	0
Surr: Toluene-d8	*191.6*	0	*200*	0	*95.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

MSD	Sample ID: **1806057-01A MSD**				Units: **µg/L**			Analysis Date: **6/6/2018 04:40 AM**			
Client ID:		Run ID: **VMS8_180605B**			SeqNo: **5074577**		Prep Date:		DF: **10**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	208.9	10	200	0	104	75-130	206	1.4	30	
1,1,2,2-Tetrachloroethane	207.3	10	200	0	104	75-130	204.4	1.41	30	
1,1,2-Trichloroethane	183.4	10	200	0	91.7	75-125	178.2	2.88	30	
1,1-Dichloroethane	181.3	10	200	0	90.6	68-142	181.1	0.11	30	
1,1-Dichloroethene	214.6	10	200	0	107	70-145	214.9	0.14	30	
1,2,3-Trichlorobenzene	202.7	10	200	0	101	70-140	180.7	11.5	30	
1,2,4-Trichlorobenzene	202.2	10	200	0	101	70-135	176.3	13.7	30	
1,2-Dibromo-3-chloropropane	173.3	10	200	0	86.6	60-130	168.5	2.81	30	
1,2-Dibromoethane	199.3	10	200	0	99.6	67-155	198.3	0.503	30	
1,2-Dichlorobenzene	218.9	10	200	0	109	70-130	199.5	9.27	30	
1,2-Dichloroethane	180.2	10	200	0	90.1	78-125	173.4	3.85	30	
1,2-Dichloropropane	182	10	200	0	91	75-125	182.1	0.0549	30	
1,3-Dichlorobenzene	214.1	10	200	0	107	75-130	197.7	7.97	30	
1,3-Dichloropropane	189.9	10	200	0	95	75-125	183.1	3.65	30	
1,4-Dichlorobenzene	212.7	10	200	0	106	75-130	200.5	5.91	30	
2-Butanone	147.4	50	200	0	73.7	55-150	143.4	2.75	30	
2-Hexanone	177.8	50	200	0	88.9	60-135	171.7	3.49	30	
4-Methyl-2-pentanone	267.5	10	200	0	134	77-178	261	2.46	30	
Acetone	191.5	100	200	29.2	81.2	60-160	184.9	3.51	30	
Benzene	204.8	10	200	0	102	85-125	200.9	1.92	30	
Bromochloromethane	193.1	10	200	0	96.6	72-141	176.9	8.76	30	
Bromodichloromethane	184.2	10	200	0	92.1	75-125	177.2	3.87	30	
Bromoform	183.5	10	200	0	91.8	60-125	175	4.74	30	
Bromomethane	427.9	10	200	0	214	30-185	434.7	1.58	30	S
Carbon disulfide	206.4	10	200	0	103	60-165	199.3	3.5	30	
Carbon tetrachloride	211.3	10	200	0	106	65-140	201.7	4.65	30	
Chlorobenzene	204.8	10	200	0	102	80-120	194.1	5.36	30	
Chloroethane	216.5	10	200	0	108	50-140	174.8	21.3	30	
Chloroform	185.4	10	200	0	92.7	80-130	183.3	1.14	30	
Chloromethane	126.1	10	200	0	63	46-148	130.4	3.35	30	
cis-1,2-Dichloroethene	187	10	200	0	93.5	75-134	203.7	8.55	30	
Dibromochloromethane	180.2	10	200	0	90.1	60-115	168.7	6.59	30	
Dichlorodifluoromethane	200.6	10	200	0	100	20-120	200.4	0.0998	30	
Ethylbenzene	200	10	200	0	100	76-123	196.5	1.77	30	
Isopropylbenzene	203.1	10	200	0	102	80-127	193.4	4.89	30	
m,p-Xylene	405.7	20	400	3.5	101	75-130	396.2	2.37	30	
Methyl tert-butyl ether	206.1	10	200	0	103	68-129	195.5	5.28	30	
Methylene chloride	170.5	50	200	0	85.2	75-140	165.1	3.22	30	
o-Xylene	204.5	10	200	0	102	76-127	190.7	6.98	30	
Styrene	206	10	200	0	103	83-137	194.9	5.54	30	
Tetrachloroethene	239.2	10	200	0	120	68-166	228.6	4.53	30	
Toluene	204.7	10	200	3.5	101	76-125	196.1	4.29	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237372** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	196.4	10	200	0	98.2	80-140	187.8	4.48	30
trans-1,3-Dichloropropene	169.8	10	200	0	84.9	56-132	165.6	2.5	30
Trichloroethene	209.7	10	200	0	105	84-130	204.5	2.51	30
Trichlorofluoromethane	202.7	10	200	0	101	60-140	196.9	2.9	30
Vinyl chloride	160.9	10	200	0	80.4	50-136	155.9	3.16	30
Xylenes, Total	610.2	30	600	0	102	76-127	586.9	3.89	30
Surr: 1,2-Dichloroethane-d4	*196.6*	0	*200*	0	*98.3*	*75-120*	192.9	*1.9*	*30*
Surr: 4-Bromofluorobenzene	*186.5*	0	*200*	0	*93.2*	*80-110*	186	*0.268*	*30*
Surr: Dibromofluoromethane	*204.7*	0	*200*	0	*102*	*85-115*	198.7	*2.97*	*30*
Surr: Toluene-d8	*195.6*	0	*200*	0	*97.8*	*85-110*	191.6	*2.07*	*30*

The following samples were analyzed in this batch: 1806126-01A 1806126-04A 1806126-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 1806126
Project: PMC

QC BATCH REPORT

Batch ID: **R237230** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237230** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069073** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R237230** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069071** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051832-02B DUP** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069033** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.5	0.050	0	0	0	0-0	17.11	2.25	10	

DUP Sample ID: **1806102-01A DUP** Units: **% of sample** Analysis Date: **6/2/2018 11:20 PM**
Client ID: Run ID: **MOIST_180602A** SeqNo: **5069059** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	4.09	0.050	0	0	0	0-0	4.14	1.22	10	

The following samples were analyzed in this batch: 1806126-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

180642

Page 1 of 1

USEPA CLP COC (LAB COPY)

DateShipped: 5/30/2018
CarrierName: FedEx
AirbillNo: 7811 1892 5418

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-053018-132725-0009

Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-SVB-02-GW/8.9-13.9-053018	18CP02-54	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-02	05/30/2018 10:45	
PMC-IDW-01-SO-053018	18CP02-55	Solid Waste/ CH2M	Grab	TCLP VOC(5), TCLP SVOC(5), TCLP Metals(5), PCBs(5)	A (None), B (None), C (None), D (None), E (None) (5)	PMC-IDW	05/30/2018 13:10	
PMC-TB-11-053018	18CP02-56	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/30/2018 17:20	
PMC-IDW-01-W-053018	18CP02-57	Waste Water/ CH2M	Grab	VOC(21)	A, B, C (3)	PMC-IDW	05/30/2018 17:00	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC=TCL VOCs (groundwater), TCLP VOC=TCLP Volatile Organic Compounds, TCLP SVOC=TCLP Semivolatile Organic Compounds, TCLP Metals=TCLP Resource Conservation and Recovery Act Metals, PCBs=Polychlorinated Biphenyls, VOC_s=TCL VOCs (soil)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature]	5/31/18 1000	FedEx [signature]	6/1/18 1000	

(A) SR2 3.0°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **01-Jun-18 10:00**

Work Order: **1806126** Received by: **KRW**

Checklist completed by Chad Whelton (eSignature) 05-Jun-18 (Date) Reviewed by: Chad Whelton (eSignature) 05-Jun-18 (Date)

Matrices: Water, Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0/3.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/2/2018 10:14:15 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Work Order: 18051328

Project Name:

PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

27-Jun-2018

Certificate No: MI: 0022

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

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Environmental www.alsglobal.com

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Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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Section I

CASE NARRATIVE

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

ALS Group, USA

Date: 27-Jun-18

Client: Jacobs
Project: PMC
Work Order: 18051328

Case Narrative

Samples for the above noted Work Order were received on 05/18/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 118941, Method OXDMD_KMNO4_S, Samples 18051328-02C DUP2, -14C DUP3, and -16C DUP3: The RPDs between the samples and their duplicates were out of control. The corresponding sample result should be considered estimated.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

ALS Group, USA

Date: 27-Jun-18

Client: Jacobs
Project: PMC
Work Order: 18051328

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051328-01	18CP02-01	Soil		5/15/2018 14:50	5/18/2018 09:30	☐
18051328-02	18CP02-02	Soil		5/15/2018 14:45	5/18/2018 09:30	☐
18051328-03	18CP02-03	Water		5/15/2018 15:20	5/18/2018 09:30	☐
18051328-04	18CP02-04	Soil		5/15/2018 17:00	5/18/2018 09:30	☐
18051328-05	18CP02-05	Soil		5/15/2018 16:55	5/18/2018 09:30	☐
18051328-06	18CP02-06	Soil		5/15/2018 16:50	5/18/2018 09:30	☐
18051328-07	18CP02-07	Soil		5/15/2018 11:35	5/18/2018 09:30	☐
18051328-08	18CP02-08	Water		5/15/2018 11:55	5/18/2018 09:30	☐
18051328-09	18CP02-09	Soil		5/16/2018 09:30	5/18/2018 09:30	☐
18051328-10	18CP02-10	Soil		5/16/2018 09:30	5/18/2018 09:30	☐
18051328-11	18CP02-11	Soil		5/16/2018 10:05	5/18/2018 09:30	☐
18051328-12	18CP02-12	Soil		5/16/2018 10:55	5/18/2018 09:30	☐
18051328-13	18CP02-13	Soil		5/16/2018 15:35	5/18/2018 09:30	☐
18051328-14	18CP02-14	Soil		5/16/2018 16:20	5/18/2018 09:30	☐
18051328-15	18CP02-15	Soil		5/17/2018 10:50	5/18/2018 09:30	☐
18051328-16	18CP02-16	Soil		5/17/2018 11:00	5/18/2018 09:30	☐
18051328-17	18CP02-17	Water		5/17/2018 15:10	5/18/2018 09:30	☐
18051328-18	18CP02-18	Soil		5/17/2018 08:49	5/18/2018 09:30	☐
18051328-19	18CP02-19	Soil		5/17/2018 09:05	5/18/2018 09:30	☐
18051328-20	18CP02-20	Water		5/17/2018 14:30	5/18/2018 09:30	☐
18051328-21	18CP02-21	Water		5/17/2018 16:15	5/18/2018 09:30	☐
18051328-22	18CP02-22	Water		5/17/2018 16:20	5/18/2018 09:30	☐
18051328-23	18CP02-23	Water		5/17/2018 16:00	5/18/2018 09:30	☐
18051328-24	18CP02-24	Soil		5/17/2018 16:05	5/18/2018 09:30	☐

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: ~~781016124789~~ 7810 1847 1956

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051618-145951-0001

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-SVB-07-SO/4.0-5.0-051518	18CP02-01	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-07	05/15/2018 14:50	
2	PMC-SVB-07-SO/15.0-16.0-051518	18CP02-02	Soil/ CH2M	Grab	VOC_s(21), PNOD(21), TOC(21)	A (MeOH), B (4 C), C (4 C) (4)	PMC-SVB-07	05/15/2018 14:45	
3	PMC-SVB-07-GW/10.7-15.7-051518	18CP02-03	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-07	05/15/2018 15:20	
4	PMC-SVB-08-SO/3.0-4.0-051518	18CP02-04	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-08	05/15/2018 17:00	
5	PMC-SVB-08-SO/7.5-8.0-051518	18CP02-05	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-08	05/15/2018 16:55	
6	PMC-SVB-08-SO/9.0-10.0-051518	18CP02-06	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-08	05/15/2018 16:50	
7	PMC-SVB-09-SO/1.0-2.0-051518	18CP02-07	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-09	05/15/2018 11:35	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Smo Jacobs	05/17/18 1900	[signature] AK	5/18/18 0930	

(c) ser 4.0°i

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: ~~781016124789~~ 7810 1847 1936

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051618-145951-0001

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
8	PMC-SVB-09-GW/7.7-12.7-051518	18CP02-08	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-09	05/15/2018 11:55	
9	PMC-SVB-10-SO/3.0-4.0-051618	18CP02-09	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 09:30	
10	PMC-SVB-10-SO/3.0-4.0-051618-FD	18CP02-10	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 09:30	
11	PMC-SVB-10-SO/12.0-13.0-051618	18CP02-11	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 10:05	
12	PMC-SVB-10-SO/19.5-20.0-051618	18CP02-12	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-10	05/16/2018 10:55	
13	PMC-SVB-16-SO/8.0-8.8-051618	18CP02-13	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-16	05/16/2018 15:35	
14	PMC-SVB-16-SO/10.5-11.5-051618	18CP02-14	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-16	05/16/2018 16:20	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Sno Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)
DateShipped: 5/17/2018
CarrierName: FedEx
AirbillNo: 781016124789

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-051618-145951-0001
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
15	PMC-SVB-14-SO/9.0-10.0-051718	18CP02-15	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (Water), B (4 C) (4)	PMC-SVB-14	05/17/2018 10:50	
16	PMC-SVB-14-SO/11.0-12.0-051718	18CP02-16	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (Water), B (4 C), C (4 C) (5)	PMC-SVB-14	05/17/2018 11:00	
17	PMC-SVB-14-GW/9.3-14.3-051718	18CP02-17	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-14	05/17/2018 15:10	
18	PMC-SVB-15-SO/4.0-5.0-051718	18CP02-18	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (Water), B (4 C) (4)	PMC-SVB-15	05/17/2018 08:49	
19	PMC-SVB-15-SO/13.5-14.0-051718	18CP02-19	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (Water), B (4 C), C (4 C) (5)	PMC-SVB-15	05/17/2018 09:05	
20	PMC-SVB-15-GW/8.6-13.6-051718	18CP02-20	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-15	05/17/2018 14:30	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Ken Simms CH2M/Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: 7810 1847 1956

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051718-165320-0002

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-TB-01-051718	18CP02-21	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (1)	PMC-TB	05/17/2018 16:15	
~~PMC-TB-02-051718~~	~~18CP02-22~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC(21)~~	~~A (HCl pH<2 4C) (1)~~	~~PMC-TB~~	~~05/17/2018 16:20~~	
~~PMC-TB-03-051718~~	~~18CP02-23~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC_s(21)~~	~~A (1MeOH 1H2O) (2)~~	~~PMC-TB~~	~~05/17/2018 16:00~~	
PMC-TB-04-051718	18CP02-24	Blank/ CH2M	Grab	VOC_s(21)	A (MeOH) (1)	PMC-TB	05/17/2018 16:05	

Special Instructions:	Shipment for Case Complete? N
	Samples Transferred From Chain of Custody #
Analysis Key: VOC=TCL VOCs (groundwater), VOC_s=TCL VOCs (soil)	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Sue Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 5-051718-165320-0002

DateShipped: 5/17/2018
CarrierName: FedEx
AirbillNo:

Case #:
Cooler #:

Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
~~PMC-TB-01-051718~~	~~18CP02-21~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC(21)~~	~~A (HCl pH<2 4C) (1)~~	~~PMC-TB~~	~~05/17/2018 18:15~~	
PMC-TB-02-051718	18CP02-22	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (1)	PMC-TB	05/17/2018 16:20	
PMC-TB-03-051718	18CP02-23	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/17/2018 16:00	
~~PMC-TB-04-051718~~	~~18CP02-24~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC_s(21)~~	~~A (MeOH) (2)~~	~~PMC-TB~~	~~05/17/2018 16:05~~	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #
Analysis Key: VOC=TCL VOCs (groundwater), VOC_s=TCL VOCs (soil)	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	CH2M/Jacobs	05/17/18 1900	ALS	5/18/18 0930	

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **18-May-18 09:30**

Work Order: **18051328** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 19-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 20-May-18 (Date)

Matrices: Soil & Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/19/2018 9:06:09 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

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www.alsglobal.com

Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

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GC/MS
Volatile Organics

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1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-01

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-01A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
79-00-5	1,1,2-Trichloroethane	34	U
76-13-1	1,1,2-Trichlorotrifluoroeth	34	U
75-34-3	1,1-Dichloroethane	34	U
75-35-4	1,1-Dichloroethene	34	U
87-61-6	1,2,3-Trichlorobenzene	34	U
120-82-1	1,2,4-Trichlorobenzene	34	U
96-12-8	1,2-Dibromo-3-chloropropane	110	U
106-93-4	1,2-Dibromoethane	34	U
95-50-1	1,2-Dichlorobenzene	34	U
107-06-2	1,2-Dichloroethane	34	U
78-87-5	1,2-Dichloropropane	34	U
541-73-1	1,3-Dichlorobenzene	34	U
106-46-7	1,4-Dichlorobenzene	34	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	34	U
108-10-1	4-Methyl-2-pentanone	34	U
67-64-1	Acetone	330	
71-43-2	Benzene	60	
74-97-5	Bromochloromethane	34	U
75-27-4	Bromodichloromethane	34	U
75-25-2	Bromoform	34	U
74-83-9	Bromomethane	110	U
75-15-0	Carbon disulfide	34	U
56-23-5	Carbon tetrachloride	34	U
108-90-7	Chlorobenzene	34	U
75-00-3	Chloroethane	110	U
67-66-3	Chloroform	34	U
74-87-3	Chloromethane	110	U
156-59-2	cis-1,2-Dichloroethene	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-01

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-01A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	34	U
124-48-1	Dibromochloromethane	34	U
75-71-8	Dichlorodifluoromethane	34	U
100-41-4	Ethylbenzene	78	
98-82-8	Isopropylbenzene	11	J
136777-61-2	m,p-Xylene	160	
79-20-9	Methyl acetate	83	J
1634-04-4	Methyl tert-butyl ether	34	U
108-87-2	Methylcyclohexane	34	U
75-09-2	Methylene chloride	34	U
95-47-6	o-Xylene	70	
100-42-5	Styrene	28	J
127-18-4	Tetrachloroethene	34	U
108-88-3	Toluene	140	
156-60-5	trans-1,2-Dichloroethene	34	U
10061-02-6	trans-1,3-Dichloropropene	34	U
79-01-6	Trichloroethene	110	
75-69-4	Trichlorofluoromethane	34	U
75-01-4	Vinyl chloride	34	U
1330-20-7	Xylenes, Total	230	

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-02

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	36	U
79-34-5	1,1,2,2-Tetrachloroethane	36	U
79-00-5	1,1,2-Trichloroethane	36	U
76-13-1	1,1,2-Trichlorotrifluoroeth	36	U
75-34-3	1,1-Dichloroethane	36	U
75-35-4	1,1-Dichloroethene	36	U
87-61-6	1,2,3-Trichlorobenzene	36	U
120-82-1	1,2,4-Trichlorobenzene	36	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	36	U
95-50-1	1,2-Dichlorobenzene	36	U
107-06-2	1,2-Dichloroethane	36	U
78-87-5	1,2-Dichloropropane	36	U
541-73-1	1,3-Dichlorobenzene	36	U
106-46-7	1,4-Dichlorobenzene	36	U
78-93-3	2-Butanone	81	J
591-78-6	2-Hexanone	36	U
108-10-1	4-Methyl-2-pentanone	36	U
67-64-1	Acetone	120	U
71-43-2	Benzene	36	U
74-97-5	Bromochloromethane	36	U
75-27-4	Bromodichloromethane	36	U
75-25-2	Bromoform	36	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	36	U
56-23-5	Carbon tetrachloride	36	U
108-90-7	Chlorobenzene	36	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	36	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	36	U
10061-01-5	cis-1,3-Dichloropropene	36	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-02

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	36	U
124-48-1	Dibromochloromethane	36	U
75-71-8	Dichlorodifluoromethane	36	U
100-41-4	Ethylbenzene	26	J
98-82-8	Isopropylbenzene	36	U
136777-61-2	m,p-Xylene	63	J
79-20-9	Methyl acetate	240	U
1634-04-4	Methyl tert-butyl ether	36	U
108-87-2	Methylcyclohexane	36	U
75-09-2	Methylene chloride	36	U
95-47-6	o-Xylene	41	
100-42-5	Styrene	36	U
127-18-4	Tetrachloroethene	36	U
108-88-3	Toluene	28	J
156-60-5	trans-1,2-Dichloroethene	36	U
10061-02-6	trans-1,3-Dichloropropene	36	U
79-01-6	Trichloroethene	410	
75-69-4	Trichlorofluoromethane	36	U
75-01-4	Vinyl chloride	36	U
1330-20-7	Xylenes, Total	100	J

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-04

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	40	U
79-34-5	1,1,2,2-Tetrachloroethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
76-13-1	1,1,2-Trichlorotrifluoroeth	40	U
75-34-3	1,1-Dichloroethane	40	U
75-35-4	1,1-Dichloroethene	40	U
87-61-6	1,2,3-Trichlorobenzene	40	U
120-82-1	1,2,4-Trichlorobenzene	40	U
96-12-8	1,2-Dibromo-3-chloropropane	130	U
106-93-4	1,2-Dibromoethane	40	U
95-50-1	1,2-Dichlorobenzene	40	U
107-06-2	1,2-Dichloroethane	40	U
78-87-5	1,2-Dichloropropane	40	U
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
78-93-3	2-Butanone	270	U
591-78-6	2-Hexanone	40	U
108-10-1	4-Methyl-2-pentanone	40	U
67-64-1	Acetone	220	
71-43-2	Benzene	40	U
74-97-5	Bromochloromethane	40	U
75-27-4	Bromodichloromethane	40	U
75-25-2	Bromoform	40	U
74-83-9	Bromomethane	130	U
75-15-0	Carbon disulfide	40	U
56-23-5	Carbon tetrachloride	40	U
108-90-7	Chlorobenzene	40	U
75-00-3	Chloroethane	130	U
67-66-3	Chloroform	40	U
74-87-3	Chloromethane	130	U
156-59-2	cis-1,2-Dichloroethene	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-04

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	40	U
124-48-1	Dibromochloromethane	40	U
75-71-8	Dichlorodifluoromethane	40	U
100-41-4	Ethylbenzene	40	U
98-82-8	Isopropylbenzene	40	U
136777-61-2	m,p-Xylene	80	U
79-20-9	Methyl acetate	380	
1634-04-4	Methyl tert-butyl ether	40	U
108-87-2	Methylcyclohexane	40	U
75-09-2	Methylene chloride	45	
95-47-6	o-Xylene	40	U
100-42-5	Styrene	40	U
127-18-4	Tetrachloroethene	40	U
108-88-3	Toluene	40	U
156-60-5	trans-1,2-Dichloroethene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
79-01-6	Trichloroethene	270	
75-69-4	Trichlorofluoromethane	40	U
75-01-4	Vinyl chloride	40	U
1330-20-7	Xylenes, Total	120	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-05

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-05A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	37	U
79-34-5	1,1,2,2-Tetrachloroethane	37	U
79-00-5	1,1,2-Trichloroethane	37	U
76-13-1	1,1,2-Trichlorotrifluoroeth	37	U
75-34-3	1,1-Dichloroethane	37	U
75-35-4	1,1-Dichloroethene	37	U
87-61-6	1,2,3-Trichlorobenzene	37	U
120-82-1	1,2,4-Trichlorobenzene	37	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	37	U
95-50-1	1,2-Dichlorobenzene	37	U
107-06-2	1,2-Dichloroethane	37	U
78-87-5	1,2-Dichloropropane	37	U
541-73-1	1,3-Dichlorobenzene	37	U
106-46-7	1,4-Dichlorobenzene	37	U
78-93-3	2-Butanone	240	U
591-78-6	2-Hexanone	37	U
108-10-1	4-Methyl-2-pentanone	37	U
67-64-1	Acetone	120	U
71-43-2	Benzene	37	U
74-97-5	Bromochloromethane	37	U
75-27-4	Bromodichloromethane	37	U
75-25-2	Bromoform	37	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	37	U
56-23-5	Carbon tetrachloride	37	U
108-90-7	Chlorobenzene	37	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	37	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	37	U
10061-01-5	cis-1,3-Dichloropropene	37	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-05

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-05A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	37	U
124-48-1	Dibromochloromethane	37	U
75-71-8	Dichlorodifluoromethane	37	U
100-41-4	Ethylbenzene	37	U
98-82-8	Isopropylbenzene	37	U
136777-61-2	m,p-Xylene	73	U
79-20-9	Methyl acetate	84	J
1634-04-4	Methyl tert-butyl ether	37	U
108-87-2	Methylcyclohexane	37	U
75-09-2	Methylene chloride	37	U
95-47-6	o-Xylene	37	U
100-42-5	Styrene	37	U
127-18-4	Tetrachloroethene	37	U
108-88-3	Toluene	37	U
156-60-5	trans-1,2-Dichloroethene	37	U
10061-02-6	trans-1,3-Dichloropropene	37	U
79-01-6	Trichloroethene	37	U
75-69-4	Trichlorofluoromethane	37	U
75-01-4	Vinyl chloride	37	U
1330-20-7	Xylenes, Total	110	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-06

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-06A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	36	U
79-34-5	1,1,2,2-Tetrachloroethane	36	U
79-00-5	1,1,2-Trichloroethane	36	U
76-13-1	1,1,2-Trichlorotrifluoroeth	36	U
75-34-3	1,1-Dichloroethane	36	U
75-35-4	1,1-Dichloroethene	36	U
87-61-6	1,2,3-Trichlorobenzene	36	U
120-82-1	1,2,4-Trichlorobenzene	36	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	36	U
95-50-1	1,2-Dichlorobenzene	36	U
107-06-2	1,2-Dichloroethane	36	U
78-87-5	1,2-Dichloropropane	36	U
541-73-1	1,3-Dichlorobenzene	36	U
106-46-7	1,4-Dichlorobenzene	36	U
78-93-3	2-Butanone	240	U
591-78-6	2-Hexanone	36	U
108-10-1	4-Methyl-2-pentanone	36	U
67-64-1	Acetone	120	U
71-43-2	Benzene	36	U
74-97-5	Bromochloromethane	36	U
75-27-4	Bromodichloromethane	36	U
75-25-2	Bromoform	36	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	36	U
56-23-5	Carbon tetrachloride	36	U
108-90-7	Chlorobenzene	36	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	36	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	36	U
10061-01-5	cis-1,3-Dichloropropene	36	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-06

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-06A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	36	U
124-48-1	Dibromochloromethane	36	U
75-71-8	Dichlorodifluoromethane	36	U
100-41-4	Ethylbenzene	36	U
98-82-8	Isopropylbenzene	36	U
136777-61-2	m,p-Xylene	23	J
79-20-9	Methyl acetate	130	J
1634-04-4	Methyl tert-butyl ether	36	U
108-87-2	Methylcyclohexane	36	U
75-09-2	Methylene chloride	36	U
95-47-6	o-Xylene	36	U
100-42-5	Styrene	36	U
127-18-4	Tetrachloroethene	36	U
108-88-3	Toluene	18	J
156-60-5	trans-1,2-Dichloroethene	36	U
10061-02-6	trans-1,3-Dichloropropene	36	U
79-01-6	Trichloroethene	36	U
75-69-4	Trichlorofluoromethane	36	U
75-01-4	Vinyl chloride	36	U
1330-20-7	Xylenes, Total	110	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-07

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-07A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	37	U
79-34-5	1,1,2,2-Tetrachloroethane	37	U
79-00-5	1,1,2-Trichloroethane	37	U
76-13-1	1,1,2-Trichlorotrifluoroeth	37	U
75-34-3	1,1-Dichloroethane	37	U
75-35-4	1,1-Dichloroethene	37	U
87-61-6	1,2,3-Trichlorobenzene	37	U
120-82-1	1,2,4-Trichlorobenzene	37	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	37	U
95-50-1	1,2-Dichlorobenzene	37	U
107-06-2	1,2-Dichloroethane	37	U
78-87-5	1,2-Dichloropropane	37	U
541-73-1	1,3-Dichlorobenzene	37	U
106-46-7	1,4-Dichlorobenzene	37	U
78-93-3	2-Butanone	240	U
591-78-6	2-Hexanone	37	U
108-10-1	4-Methyl-2-pentanone	37	U
67-64-1	Acetone	120	U
71-43-2	Benzene	37	U
74-97-5	Bromochloromethane	37	U
75-27-4	Bromodichloromethane	37	U
75-25-2	Bromoform	37	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	37	U
56-23-5	Carbon tetrachloride	37	U
108-90-7	Chlorobenzene	37	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	37	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	37	U
10061-01-5	cis-1,3-Dichloropropene	37	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-07

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-07A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	37	U
124-48-1	Dibromochloromethane	37	U
75-71-8	Dichlorodifluoromethane	37	U
100-41-4	Ethylbenzene	23	J
98-82-8	Isopropylbenzene	37	U
136777-61-2	m,p-Xylene	40	J
79-20-9	Methyl acetate	120	J
1634-04-4	Methyl tert-butyl ether	37	U
108-87-2	Methylcyclohexane	37	U
75-09-2	Methylene chloride	37	U
95-47-6	o-Xylene	63	
100-42-5	Styrene	37	U
127-18-4	Tetrachloroethene	37	U
108-88-3	Toluene	37	U
156-60-5	trans-1,2-Dichloroethene	37	U
10061-02-6	trans-1,3-Dichloropropene	37	U
79-01-6	Trichloroethene	37	U
75-69-4	Trichlorofluoromethane	37	U
75-01-4	Vinyl chloride	37	U
1330-20-7	Xylenes, Total	100	J

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-09

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-09A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	39	U
79-34-5	1,1,2,2-Tetrachloroethane	39	U
79-00-5	1,1,2-Trichloroethane	39	U
76-13-1	1,1,2-Trichlorotrifluoroeth	39	U
75-34-3	1,1-Dichloroethane	39	U
75-35-4	1,1-Dichloroethene	39	U
87-61-6	1,2,3-Trichlorobenzene	39	U
120-82-1	1,2,4-Trichlorobenzene	39	U
96-12-8	1,2-Dibromo-3-chloropropane	130	U
106-93-4	1,2-Dibromoethane	39	U
95-50-1	1,2-Dichlorobenzene	39	U
107-06-2	1,2-Dichloroethane	39	U
78-87-5	1,2-Dichloropropane	39	U
541-73-1	1,3-Dichlorobenzene	39	U
106-46-7	1,4-Dichlorobenzene	39	U
78-93-3	2-Butanone	260	U
591-78-6	2-Hexanone	39	U
108-10-1	4-Methyl-2-pentanone	39	U
67-64-1	Acetone	130	U
71-43-2	Benzene	39	U
74-97-5	Bromochloromethane	39	U
75-27-4	Bromodichloromethane	39	U
75-25-2	Bromoform	39	U
74-83-9	Bromomethane	130	U
75-15-0	Carbon disulfide	39	U
56-23-5	Carbon tetrachloride	39	U
108-90-7	Chlorobenzene	39	U
75-00-3	Chloroethane	130	U
67-66-3	Chloroform	39	U
74-87-3	Chloromethane	130	U
156-59-2	cis-1,2-Dichloroethene	39	U
10061-01-5	cis-1,3-Dichloropropene	39	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-09

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-09A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	39	U
124-48-1	Dibromochloromethane	39	U
75-71-8	Dichlorodifluoromethane	39	U
100-41-4	Ethylbenzene	39	U
98-82-8	Isopropylbenzene	39	U
136777-61-2	m,p-Xylene	28	J
79-20-9	Methyl acetate	220	J
1634-04-4	Methyl tert-butyl ether	39	U
108-87-2	Methylcyclohexane	39	U
75-09-2	Methylene chloride	39	U
95-47-6	o-Xylene	39	U
100-42-5	Styrene	39	U
127-18-4	Tetrachloroethene	39	U
108-88-3	Toluene	39	U
156-60-5	trans-1,2-Dichloroethene	39	U
10061-02-6	trans-1,3-Dichloropropene	39	U
79-01-6	Trichloroethene	200	
75-69-4	Trichlorofluoromethane	39	U
75-01-4	Vinyl chloride	39	U
1330-20-7	Xylenes, Total	120	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-10

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-10A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	40	U
79-34-5	1,1,2,2-Tetrachloroethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
76-13-1	1,1,2-Trichlorotrifluoroeth	40	U
75-34-3	1,1-Dichloroethane	40	U
75-35-4	1,1-Dichloroethene	40	U
87-61-6	1,2,3-Trichlorobenzene	40	U
120-82-1	1,2,4-Trichlorobenzene	40	U
96-12-8	1,2-Dibromo-3-chloropropane	130	U
106-93-4	1,2-Dibromoethane	40	U
95-50-1	1,2-Dichlorobenzene	40	U
107-06-2	1,2-Dichloroethane	40	U
78-87-5	1,2-Dichloropropane	40	U
541-73-1	1,3-Dichlorobenzene	40	U
106-46-7	1,4-Dichlorobenzene	40	U
78-93-3	2-Butanone	270	U
591-78-6	2-Hexanone	40	U
108-10-1	4-Methyl-2-pentanone	40	U
67-64-1	Acetone	130	U
71-43-2	Benzene	40	U
74-97-5	Bromochloromethane	40	U
75-27-4	Bromodichloromethane	40	U
75-25-2	Bromoform	40	U
74-83-9	Bromomethane	130	U
75-15-0	Carbon disulfide	40	U
56-23-5	Carbon tetrachloride	40	U
108-90-7	Chlorobenzene	40	U
75-00-3	Chloroethane	130	U
67-66-3	Chloroform	40	U
74-87-3	Chloromethane	130	U
156-59-2	cis-1,2-Dichloroethene	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-10

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-10A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	40	U
124-48-1	Dibromochloromethane	40	U
75-71-8	Dichlorodifluoromethane	40	U
100-41-4	Ethylbenzene	40	U
98-82-8	Isopropylbenzene	40	U
136777-61-2	m,p-Xylene	80	U
79-20-9	Methyl acetate	130	J
1634-04-4	Methyl tert-butyl ether	40	U
108-87-2	Methylcyclohexane	40	U
75-09-2	Methylene chloride	40	U
95-47-6	o-Xylene	40	U
100-42-5	Styrene	40	U
127-18-4	Tetrachloroethene	40	U
108-88-3	Toluene	40	U
156-60-5	trans-1,2-Dichloroethene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
79-01-6	Trichloroethene	120	
75-69-4	Trichlorofluoromethane	40	U
75-01-4	Vinyl chloride	40	U
1330-20-7	Xylenes, Total	120	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-11

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-11A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
79-00-5	1,1,2-Trichloroethane	34	U
76-13-1	1,1,2-Trichlorotrifluoroeth	34	U
75-34-3	1,1-Dichloroethane	34	U
75-35-4	1,1-Dichloroethene	34	U
87-61-6	1,2,3-Trichlorobenzene	34	U
120-82-1	1,2,4-Trichlorobenzene	34	U
96-12-8	1,2-Dibromo-3-chloropropane	110	U
106-93-4	1,2-Dibromoethane	34	U
95-50-1	1,2-Dichlorobenzene	34	U
107-06-2	1,2-Dichloroethane	34	U
78-87-5	1,2-Dichloropropane	34	U
541-73-1	1,3-Dichlorobenzene	34	U
106-46-7	1,4-Dichlorobenzene	34	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	34	U
108-10-1	4-Methyl-2-pentanone	34	U
67-64-1	Acetone	110	U
71-43-2	Benzene	34	U
74-97-5	Bromochloromethane	34	U
75-27-4	Bromodichloromethane	34	U
75-25-2	Bromoform	34	U
74-83-9	Bromomethane	110	U
75-15-0	Carbon disulfide	34	U
56-23-5	Carbon tetrachloride	34	U
108-90-7	Chlorobenzene	34	U
75-00-3	Chloroethane	110	U
67-66-3	Chloroform	34	U
74-87-3	Chloromethane	110	U
156-59-2	cis-1,2-Dichloroethene	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-11

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-11A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	34	U
124-48-1	Dibromochloromethane	34	U
75-71-8	Dichlorodifluoromethane	34	U
100-41-4	Ethylbenzene	34	U
98-82-8	Isopropylbenzene	34	U
136777-61-2	m,p-Xylene	21	J
79-20-9	Methyl acetate	230	U
1634-04-4	Methyl tert-butyl ether	34	U
108-87-2	Methylcyclohexane	34	U
75-09-2	Methylene chloride	34	U
95-47-6	o-Xylene	34	U
100-42-5	Styrene	34	U
127-18-4	Tetrachloroethene	34	U
108-88-3	Toluene	34	U
156-60-5	trans-1,2-Dichloroethene	34	U
10061-02-6	trans-1,3-Dichloropropene	34	U
79-01-6	Trichloroethene	34	U
75-69-4	Trichlorofluoromethane	34	U
75-01-4	Vinyl chloride	34	U
1330-20-7	Xylenes, Total	100	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-12

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-12A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
79-00-5	1,1,2-Trichloroethane	34	U
76-13-1	1,1,2-Trichlorotrifluoroeth	34	U
75-34-3	1,1-Dichloroethane	34	U
75-35-4	1,1-Dichloroethene	34	U
87-61-6	1,2,3-Trichlorobenzene	34	U
120-82-1	1,2,4-Trichlorobenzene	34	U
96-12-8	1,2-Dibromo-3-chloropropane	110	U
106-93-4	1,2-Dibromoethane	34	U
95-50-1	1,2-Dichlorobenzene	34	U
107-06-2	1,2-Dichloroethane	34	U
78-87-5	1,2-Dichloropropane	34	U
541-73-1	1,3-Dichlorobenzene	34	U
106-46-7	1,4-Dichlorobenzene	34	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	34	U
108-10-1	4-Methyl-2-pentanone	34	U
67-64-1	Acetone	110	U
71-43-2	Benzene	34	U
74-97-5	Bromochloromethane	34	U
75-27-4	Bromodichloromethane	34	U
75-25-2	Bromoform	34	U
74-83-9	Bromomethane	110	U
75-15-0	Carbon disulfide	34	U
56-23-5	Carbon tetrachloride	34	U
108-90-7	Chlorobenzene	34	U
75-00-3	Chloroethane	110	U
67-66-3	Chloroform	34	U
74-87-3	Chloromethane	110	U
156-59-2	cis-1,2-Dichloroethene	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-12

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-12A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	34	U
124-48-1	Dibromochloromethane	34	U
75-71-8	Dichlorodifluoromethane	34	U
100-41-4	Ethylbenzene	34	U
98-82-8	Isopropylbenzene	34	U
136777-61-2	m,p-Xylene	33	J
79-20-9	Methyl acetate	230	U
1634-04-4	Methyl tert-butyl ether	34	U
108-87-2	Methylcyclohexane	34	U
75-09-2	Methylene chloride	34	U
95-47-6	o-Xylene	19	J
100-42-5	Styrene	34	U
127-18-4	Tetrachloroethene	34	U
108-88-3	Toluene	27	J
156-60-5	trans-1,2-Dichloroethene	34	U
10061-02-6	trans-1,3-Dichloropropene	34	U
79-01-6	Trichloroethene	2,700	
75-69-4	Trichlorofluoromethane	34	U
75-01-4	Vinyl chloride	34	U
1330-20-7	Xylenes, Total	52	J

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-13

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-13A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
79-00-5	1,1,2-Trichloroethane	34	U
76-13-1	1,1,2-Trichlorotrifluoroeth	34	U
75-34-3	1,1-Dichloroethane	34	U
75-35-4	1,1-Dichloroethene	34	U
87-61-6	1,2,3-Trichlorobenzene	34	U
120-82-1	1,2,4-Trichlorobenzene	34	U
96-12-8	1,2-Dibromo-3-chloropropane	110	U
106-93-4	1,2-Dibromoethane	34	U
95-50-1	1,2-Dichlorobenzene	34	U
107-06-2	1,2-Dichloroethane	34	U
78-87-5	1,2-Dichloropropane	34	U
541-73-1	1,3-Dichlorobenzene	34	U
106-46-7	1,4-Dichlorobenzene	34	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	34	U
108-10-1	4-Methyl-2-pentanone	34	U
67-64-1	Acetone	110	U
71-43-2	Benzene	34	U
74-97-5	Bromochloromethane	34	U
75-27-4	Bromodichloromethane	34	U
75-25-2	Bromoform	34	U
74-83-9	Bromomethane	110	U
75-15-0	Carbon disulfide	34	U
56-23-5	Carbon tetrachloride	34	U
108-90-7	Chlorobenzene	34	U
75-00-3	Chloroethane	110	U
67-66-3	Chloroform	34	U
74-87-3	Chloromethane	110	U
156-59-2	cis-1,2-Dichloroethene	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-13

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-13A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	34	U
124-48-1	Dibromochloromethane	34	U
75-71-8	Dichlorodifluoromethane	34	U
100-41-4	Ethylbenzene	34	U
98-82-8	Isopropylbenzene	34	U
136777-61-2	m,p-Xylene	68	U
79-20-9	Methyl acetate	230	U
1634-04-4	Methyl tert-butyl ether	34	U
108-87-2	Methylcyclohexane	34	U
75-09-2	Methylene chloride	34	U
95-47-6	o-Xylene	34	U
100-42-5	Styrene	34	U
127-18-4	Tetrachloroethene	34	U
108-88-3	Toluene	34	U
156-60-5	trans-1,2-Dichloroethene	34	U
10061-02-6	trans-1,3-Dichloropropene	34	U
79-01-6	Trichloroethene	34	U
75-69-4	Trichlorofluoromethane	34	U
75-01-4	Vinyl chloride	34	U
1330-20-7	Xylenes, Total	100	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-14

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-14A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	35	U
79-34-5	1,1,2,2-Tetrachloroethane	35	U
79-00-5	1,1,2-Trichloroethane	35	U
76-13-1	1,1,2-Trichlorotrifluoroeth	35	U
75-34-3	1,1-Dichloroethane	35	U
75-35-4	1,1-Dichloroethene	35	U
87-61-6	1,2,3-Trichlorobenzene	35	U
120-82-1	1,2,4-Trichlorobenzene	35	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	35	U
95-50-1	1,2-Dichlorobenzene	35	U
107-06-2	1,2-Dichloroethane	35	U
78-87-5	1,2-Dichloropropane	35	U
541-73-1	1,3-Dichlorobenzene	35	U
106-46-7	1,4-Dichlorobenzene	35	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	35	U
108-10-1	4-Methyl-2-pentanone	35	U
67-64-1	Acetone	120	U
71-43-2	Benzene	35	U
74-97-5	Bromochloromethane	35	U
75-27-4	Bromodichloromethane	35	U
75-25-2	Bromoform	35	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	35	U
56-23-5	Carbon tetrachloride	35	U
108-90-7	Chlorobenzene	35	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	35	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	35	U
10061-01-5	cis-1,3-Dichloropropene	35	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-14

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-14A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/24/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	35	U
124-48-1	Dibromochloromethane	35	U
75-71-8	Dichlorodifluoromethane	35	U
100-41-4	Ethylbenzene	35	U
98-82-8	Isopropylbenzene	35	U
136777-61-2	m,p-Xylene	23	J
79-20-9	Methyl acetate	230	U
1634-04-4	Methyl tert-butyl ether	35	U
108-87-2	Methylcyclohexane	35	U
75-09-2	Methylene chloride	35	U
95-47-6	o-Xylene	35	U
100-42-5	Styrene	35	U
127-18-4	Tetrachloroethene	35	U
108-88-3	Toluene	22	J
156-60-5	trans-1,2-Dichloroethene	35	U
10061-02-6	trans-1,3-Dichloropropene	35	U
79-01-6	Trichloroethene	35	U
75-69-4	Trichlorofluoromethane	35	U
75-01-4	Vinyl chloride	35	U
1330-20-7	Xylenes, Total	100	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-24

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-24A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/22/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	30	U
79-34-5	1,1,2,2-Tetrachloroethane	30	U
79-00-5	1,1,2-Trichloroethane	30	U
76-13-1	1,1,2-Trichlorotrifluoroeth	30	U
75-34-3	1,1-Dichloroethane	30	U
75-35-4	1,1-Dichloroethene	30	U
87-61-6	1,2,3-Trichlorobenzene	30	U
120-82-1	1,2,4-Trichlorobenzene	30	U
96-12-8	1,2-Dibromo-3-chloropropane	100	U
106-93-4	1,2-Dibromoethane	30	U
95-50-1	1,2-Dichlorobenzene	30	U
107-06-2	1,2-Dichloroethane	30	U
78-87-5	1,2-Dichloropropane	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	30	U
78-93-3	2-Butanone	200	U
591-78-6	2-Hexanone	30	U
108-10-1	4-Methyl-2-pentanone	30	U
67-64-1	Acetone	100	U
71-43-2	Benzene	30	U
74-97-5	Bromochloromethane	30	U
75-27-4	Bromodichloromethane	30	U
75-25-2	Bromoform	30	U
74-83-9	Bromomethane	100	U
75-15-0	Carbon disulfide	30	U
56-23-5	Carbon tetrachloride	30	U
108-90-7	Chlorobenzene	30	U
75-00-3	Chloroethane	100	U
67-66-3	Chloroform	30	U
74-87-3	Chloromethane	100	U
156-59-2	cis-1,2-Dichloroethene	30	U
10061-01-5	cis-1,3-Dichloropropene	30	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-24

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-24A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/22/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	30	U
124-48-1	Dibromochloromethane	30	U
75-71-8	Dichlorodifluoromethane	30	U
100-41-4	Ethylbenzene	30	U
98-82-8	Isopropylbenzene	30	U
136777-61-2	m,p-Xylene	60	U
79-20-9	Methyl acetate	200	U
1634-04-4	Methyl tert-butyl ether	30	U
108-87-2	Methylcyclohexane	30	U
75-09-2	Methylene chloride	30	U
95-47-6	o-Xylene	30	U
100-42-5	Styrene	30	U
127-18-4	Tetrachloroethene	30	U
108-88-3	Toluene	30	U
156-60-5	trans-1,2-Dichloroethene	30	U
10061-02-6	trans-1,3-Dichloropropene	30	U
79-01-6	Trichloroethene	30	U
75-69-4	Trichlorofluoromethane	30	U
75-01-4	Vinyl chloride	30	U
1330-20-7	Xylenes, Total	90	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-15

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-15A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 5.4 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.76

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.0	U
79-34-5	1,1,2,2-Tetrachloroethane	4.0	U
79-00-5	1,1,2-Trichloroethane	4.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.0	U
75-34-3	1,1-Dichloroethane	4.0	U
75-35-4	1,1-Dichloroethene	4.0	U
87-61-6	1,2,3-Trichlorobenzene	4.0	U
120-82-1	1,2,4-Trichlorobenzene	4.0	U
96-12-8	1,2-Dibromo-3-chloropropane	4.0	U
106-93-4	1,2-Dibromoethane	4.0	U
95-50-1	1,2-Dichlorobenzene	4.0	U
107-06-2	1,2-Dichloroethane	4.0	U
78-87-5	1,2-Dichloropropane	4.0	U
541-73-1	1,3-Dichlorobenzene	4.0	U
106-46-7	1,4-Dichlorobenzene	4.0	U
78-93-3	2-Butanone	8.1	U
591-78-6	2-Hexanone	4.0	U
108-10-1	4-Methyl-2-pentanone	4.0	U
67-64-1	Acetone	27	
71-43-2	Benzene	4.0	U
74-97-5	Bromochloromethane	4.0	U
75-27-4	Bromodichloromethane	4.0	U
75-25-2	Bromoform	4.0	U
74-83-9	Bromomethane	8.1	U
75-15-0	Carbon disulfide	4.0	U
56-23-5	Carbon tetrachloride	4.0	U
108-90-7	Chlorobenzene	4.0	U
75-00-3	Chloroethane	4.0	U
67-66-3	Chloroform	4.0	U
74-87-3	Chloromethane	8.1	U
156-59-2	cis-1,2-Dichloroethene	4.0	U
10061-01-5	cis-1,3-Dichloropropene	4.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-15

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-15A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 5.4 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.76

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	8.1	U
124-48-1	Dibromochloromethane	4.0	U
75-71-8	Dichlorodifluoromethane	8.1	U
100-41-4	Ethylbenzene	4.0	U
98-82-8	Isopropylbenzene	4.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	8.1	U
1634-04-4	Methyl tert-butyl ether	4.0	U
108-87-2	Methylcyclohexane	8.1	U
75-09-2	Methylene chloride	4.0	U
95-47-6	o-Xylene	2.0	U
100-42-5	Styrene	4.0	U
127-18-4	Tetrachloroethene	4.0	U
108-88-3	Toluene	0.61	J
156-60-5	trans-1,2-Dichloroethene	4.0	U
10061-02-6	trans-1,3-Dichloropropene	4.0	U
79-01-6	Trichloroethene	4.0	U
75-69-4	Trichlorofluoromethane	4.0	U
75-01-4	Vinyl chloride	4.0	U
1330-20-7	Xylenes, Total	4.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-16

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-16A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 5.8 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.87

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.6	U
79-34-5	1,1,2,2-Tetrachloroethane	4.6	U
79-00-5	1,1,2-Trichloroethane	4.6	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.6	U
75-34-3	1,1-Dichloroethane	4.6	U
75-35-4	1,1-Dichloroethene	4.6	U
87-61-6	1,2,3-Trichlorobenzene	4.6	U
120-82-1	1,2,4-Trichlorobenzene	4.6	U
96-12-8	1,2-Dibromo-3-chloropropane	4.6	U
106-93-4	1,2-Dibromoethane	4.6	U
95-50-1	1,2-Dichlorobenzene	4.6	U
107-06-2	1,2-Dichloroethane	4.6	U
78-87-5	1,2-Dichloropropane	4.6	U
541-73-1	1,3-Dichlorobenzene	4.6	U
106-46-7	1,4-Dichlorobenzene	4.6	U
78-93-3	2-Butanone	9.3	U
591-78-6	2-Hexanone	4.6	U
108-10-1	4-Methyl-2-pentanone	4.6	U
67-64-1	Acetone	55	
71-43-2	Benzene	4.6	U
74-97-5	Bromochloromethane	4.6	U
75-27-4	Bromodichloromethane	4.6	U
75-25-2	Bromoform	4.6	U
74-83-9	Bromomethane	9.3	U
75-15-0	Carbon disulfide	4.6	U
56-23-5	Carbon tetrachloride	4.6	U
108-90-7	Chlorobenzene	4.6	U
75-00-3	Chloroethane	4.6	U
67-66-3	Chloroform	4.6	U
74-87-3	Chloromethane	9.3	U
156-59-2	cis-1,2-Dichloroethene	4.6	U
10061-01-5	cis-1,3-Dichloropropene	4.6	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-16

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-16A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 5.8 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.87

Soil Extract Volume: (mL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	9.3	U
124-48-1	Dibromochloromethane	4.6	U
75-71-8	Dichlorodifluoromethane	9.3	U
100-41-4	Ethylbenzene	4.6	U
98-82-8	Isopropylbenzene	4.6	U
136777-61-2	m,p-Xylene	2.3	U
79-20-9	Methyl acetate	9.3	U
1634-04-4	Methyl tert-butyl ether	4.6	U
108-87-2	Methylcyclohexane	9.3	U
75-09-2	Methylene chloride	0.80	J
95-47-6	o-Xylene	2.3	U
100-42-5	Styrene	4.6	U
127-18-4	Tetrachloroethene	4.6	U
108-88-3	Toluene	0.68	J
156-60-5	trans-1,2-Dichloroethene	4.6	U
10061-02-6	trans-1,3-Dichloropropene	4.6	U
79-01-6	Trichloroethene	4.6	U
75-69-4	Trichlorofluoromethane	4.6	U
75-01-4	Vinyl chloride	4.6	U
1330-20-7	Xylenes, Total	4.6	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-18

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-18A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 9.1 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.82

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.5	U
79-34-5	1,1,2,2-Tetrachloroethane	4.5	U
79-00-5	1,1,2-Trichloroethane	4.5	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.5	U
75-34-3	1,1-Dichloroethane	4.5	U
75-35-4	1,1-Dichloroethene	4.5	U
87-61-6	1,2,3-Trichlorobenzene	4.5	U
120-82-1	1,2,4-Trichlorobenzene	4.5	U
96-12-8	1,2-Dibromo-3-chloropropane	4.5	U
106-93-4	1,2-Dibromoethane	4.5	U
95-50-1	1,2-Dichlorobenzene	4.5	U
107-06-2	1,2-Dichloroethane	4.5	U
78-87-5	1,2-Dichloropropane	4.5	U
541-73-1	1,3-Dichlorobenzene	4.5	U
106-46-7	1,4-Dichlorobenzene	4.5	U
78-93-3	2-Butanone	8.0	J
591-78-6	2-Hexanone	2.0	J
108-10-1	4-Methyl-2-pentanone	4.5	U
67-64-1	Acetone	59	
71-43-2	Benzene	0.71	J
74-97-5	Bromochloromethane	4.5	U
75-27-4	Bromodichloromethane	4.5	U
75-25-2	Bromoform	4.5	U
74-83-9	Bromomethane	9.0	U
75-15-0	Carbon disulfide	4.5	U
56-23-5	Carbon tetrachloride	4.5	U
108-90-7	Chlorobenzene	4.5	U
75-00-3	Chloroethane	4.5	U
67-66-3	Chloroform	4.5	U
74-87-3	Chloromethane	9.0	U
156-59-2	cis-1,2-Dichloroethene	4.5	U
10061-01-5	cis-1,3-Dichloropropene	4.5	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-18

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-18A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 9.1 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.82

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	9.0	U
124-48-1	Dibromochloromethane	4.5	U
75-71-8	Dichlorodifluoromethane	9.0	U
100-41-4	Ethylbenzene	0.60	J
98-82-8	Isopropylbenzene	4.5	U
136777-61-2	m,p-Xylene	2.3	U
79-20-9	Methyl acetate	9.0	U
1634-04-4	Methyl tert-butyl ether	4.5	U
108-87-2	Methylcyclohexane	9.0	U
75-09-2	Methylene chloride	4.5	U
95-47-6	o-Xylene	0.47	J
100-42-5	Styrene	4.5	U
127-18-4	Tetrachloroethene	4.5	U
108-88-3	Toluene	2.1	J
156-60-5	trans-1,2-Dichloroethene	4.5	U
10061-02-6	trans-1,3-Dichloropropene	4.5	U
79-01-6	Trichloroethene	2.0	J
75-69-4	Trichlorofluoromethane	4.5	U
75-01-4	Vinyl chloride	4.5	U
1330-20-7	Xylenes, Total	4.5	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-19

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-19A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 8.6 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.77

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.2	U
79-34-5	1,1,2,2-Tetrachloroethane	4.2	U
79-00-5	1,1,2-Trichloroethane	4.2	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.2	U
75-34-3	1,1-Dichloroethane	4.2	U
75-35-4	1,1-Dichloroethene	4.2	U
87-61-6	1,2,3-Trichlorobenzene	4.2	U
120-82-1	1,2,4-Trichlorobenzene	4.2	U
96-12-8	1,2-Dibromo-3-chloropropane	4.2	U
106-93-4	1,2-Dibromoethane	4.2	U
95-50-1	1,2-Dichlorobenzene	4.2	U
107-06-2	1,2-Dichloroethane	4.2	U
78-87-5	1,2-Dichloropropane	4.2	U
541-73-1	1,3-Dichlorobenzene	4.2	U
106-46-7	1,4-Dichlorobenzene	4.2	U
78-93-3	2-Butanone	8.4	U
591-78-6	2-Hexanone	4.2	U
108-10-1	4-Methyl-2-pentanone	4.2	U
67-64-1	Acetone	8.4	U
71-43-2	Benzene	4.2	U
74-97-5	Bromochloromethane	4.2	U
75-27-4	Bromodichloromethane	4.2	U
75-25-2	Bromoform	4.2	U
74-83-9	Bromomethane	8.4	U
75-15-0	Carbon disulfide	4.2	U
56-23-5	Carbon tetrachloride	4.2	U
108-90-7	Chlorobenzene	4.2	U
75-00-3	Chloroethane	4.2	U
67-66-3	Chloroform	4.2	U
74-87-3	Chloromethane	8.4	U
156-59-2	cis-1,2-Dichloroethene	4.2	U
10061-01-5	cis-1,3-Dichloropropene	4.2	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-19

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-19A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 8.6 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.77

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	8.4	U
124-48-1	Dibromochloromethane	4.2	U
75-71-8	Dichlorodifluoromethane	8.4	U
100-41-4	Ethylbenzene	4.2	U
98-82-8	Isopropylbenzene	4.2	U
136777-61-2	m,p-Xylene	2.1	U
79-20-9	Methyl acetate	8.4	U
1634-04-4	Methyl tert-butyl ether	4.2	U
108-87-2	Methylcyclohexane	8.4	U
75-09-2	Methylene chloride	2.8	J
95-47-6	o-Xylene	2.1	U
100-42-5	Styrene	4.2	U
127-18-4	Tetrachloroethene	4.2	U
108-88-3	Toluene	0.80	J
156-60-5	trans-1,2-Dichloroethene	4.2	U
10061-02-6	trans-1,3-Dichloropropene	4.2	U
79-01-6	Trichloroethene	2.6	J
75-69-4	Trichlorofluoromethane	4.2	U
75-01-4	Vinyl chloride	4.2	U
1330-20-7	Xylenes, Total	4.2	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-03

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	2.7	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	0.58	J

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-03

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	6.4	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-08

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-08A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	3.4	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-08

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-08A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	0.74	J
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-17

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-17A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	1.8	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-17

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-17A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.36	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-20

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-20A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	3.6	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-20

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-20A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/26/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.73	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.6	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-21

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-21A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-21

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-21A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-22

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-22A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-22

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-22A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-23

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Matrix: Water Lab Sample ID: 18051328-23A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	3.7	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-23

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051328

Matrix: Water Lab Sample ID: 18051328-23A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/18/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	0.64	J
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

ALS Group, USA

Client: Jacobs
Work Order: 18051328
Project: PMC

Date: 27-Jun-18

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MBLK Sample ID: **MBLK-118631-118631** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 12:39 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5049644** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	30	0	0	0	0-0	0			
1,1,2,2-Tetrachloroethane	U	30	0	0	0	0-0	0			
1,1,2-Trichloroethane	U	30	0	0	0	0-0	0			
1,1,2-Trichlorotrifluoroethane	U	30	0	0	0		0			
1,1-Dichloroethane	U	30	0	0	0	0-0	0			
1,1-Dichloroethene	U	30	0	0	0	0-0	0			
1,2,3-Trichlorobenzene	U	30	0	0	0	0-0	0			
1,2,4-Trichlorobenzene	U	30	0	0	0	0-0	0			
1,2-Dibromo-3-chloropropane	U	100	0	0	0	0-0	0			
1,2-Dibromoethane	U	30	0	0	0	0-0	0			
1,2-Dichlorobenzene	U	30	0	0	0	0-0	0			
1,2-Dichloroethane	U	30	0	0	0	0-0	0			
1,2-Dichloropropane	U	30	0	0	0	0-0	0			
1,3-Dichlorobenzene	U	30	0	0	0	0-0	0			
1,4-Dichlorobenzene	U	30	0	0	0	0-0	0			
2-Butanone	131	200	0	0	0	0-0	0			J
2-Hexanone	U	30	0	0	0	0-0	0			
4-Methyl-2-pentanone	U	30	0	0	0	0-0	0			
Acetone	U	100	0	0	0	0-0	0			
Benzene	U	30	0	0	0	0-0	0			
Bromochloromethane	U	30	0	0	0	0-0	0			
Bromodichloromethane	U	30	0	0	0	0-0	0			
Bromoform	U	30	0	0	0	0-0	0			
Bromomethane	U	100	0	0	0	0-0	0			
Carbon disulfide	U	30	0	0	0	0-0	0			
Carbon tetrachloride	U	30	0	0	0	0-0	0			
Chlorobenzene	U	30	0	0	0	0-0	0			
Chloroethane	U	100	0	0	0	0-0	0			
Chloroform	U	30	0	0	0	0-0	0			
Chloromethane	U	100	0	0	0	0-0	0			
cis-1,2-Dichloroethene	U	30	0	0	0	0-0	0			
cis-1,3-Dichloropropene	U	30	0	0	0	0-0	0			
Cyclohexane	U	30	0	0	0		0			
Dibromochloromethane	U	30	0	0	0	0-0	0			
Dichlorodifluoromethane	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
Isopropylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
Methyl acetate	U	200	0	0	0		0			
Methyl tert-butyl ether	U	30	0	0	0	0-0	0			
Methylcyclohexane	U	30	0	0	0		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

Methylene chloride	U	30	0	0	0	0-0	0
o-Xylene	U	30	0	0	0	0-0	0
Styrene	U	30	0	0	0	0-0	0
Tetrachloroethene	U	30	0	0	0	0-0	0
Toluene	U	30	0	0	0	0-0	0
trans-1,2-Dichloroethene	U	30	0	0	0	0-0	0
trans-1,3-Dichloropropene	U	30	0	0	0	0-0	0
Trichloroethene	U	30	0	0	0	0-0	0
Trichlorofluoromethane	U	30	0	0	0	0-0	0
Vinyl chloride	U	30	0	0	0	0-0	0
Xylenes, Total	U	90	0	0	0	0-0	0
Surr: 1,2-Dichloroethane-d4	*953*	0	*20*	0	*95.3*	*70-130*	0
Surr: 4-Bromofluorobenzene	*914*	0	*20*	0	*91.4*	*70-130*	0
Surr: Dibromofluoromethane	*829.5*	0	*20*	0	*83*	*70-130*	0
Surr: Toluene-d8	*947*	0	*20*	0	*94.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

LCS Sample ID: **LCS-118631-118631** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 11:26 AM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5049637** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1074	30	20	0	107	70-135	0			
1,1,2,2-Tetrachloroethane	1048	30	20	0	105	55-130	0			
1,1,2-Trichloroethane	1011	30	20	0	101	60-125	0			
1,1-Dichloroethane	1196	30	20	0	120	75-125	0			
1,1-Dichloroethene	1304	30	20	0	130	76-148	0			
1,2,3-Trichlorobenzene	1032	30	20	0	103	60-135	0			
1,2,4-Trichlorobenzene	986.5	30	20	0	98.8	65-130	0			
1,2-Dibromo-3-chloropropane	931	100	20	0	93.1	40-135	0			
1,2-Dibromoethane	1194	30	20	0	119	60-195	0			
1,2-Dichlorobenzene	1040	30	20	0	104	75-120	0			
1,2-Dichloroethane	995	30	20	0	99.5	70-135	0			
1,2-Dichloropropane	1056	30	20	0	106	70-120	0			
1,3-Dichlorobenzene	1066	30	20	0	107	70-125	0			
1,4-Dichlorobenzene	1053	30	20	0	105	70-125	0			
2-Butanone	1020	200	20	0	102	30-160	0			
2-Hexanone	947.5	30	20	0	94.8	45-145	0			
4-Methyl-2-pentanone	1261	30	20	0	126	74-176	0			
Acetone	1074	100	20	0	107	20-160	0			
Benzene	1057	30	20	0	106	75-125	0			
Bromochloromethane	1204	30	20	0	120	74-134	0			
Bromodichloromethane	1028	30	20	0	103	70-130	0			
Bromoform	913	30	20	0	91.3	55-135	0			
Bromomethane	1510	100	20	0	151	50-170	0			
Carbon disulfide	1288	30	20	0	129	45-160	0			
Carbon tetrachloride	1016	30	20	0	102	65-135	0			
Chlorobenzene	1048	30	20	0	105	75-125	0			
Chloroethane	963	100	20	0	96.3	40-155	0			
Chloroform	1160	30	20	0	116	70-125	0			
Chloromethane	900	100	20	0	90	50-144	0			
cis-1,2-Dichloroethene	1172	30	20	0	117	65-125	0			
cis-1,3-Dichloropropene	1015	30	20	0	102	70-125	0			
Dibromochloromethane	972.5	30	20	0	97.2	65-135	0			
Dichlorodifluoromethane	964.5	30	20	0	96.4	35-135	0			
Ethylbenzene	1084	30	20	0	108	75-125	0			
Isopropylbenzene	1142	30	20	0	114	75-130	0			
m,p-Xylene	2209	60	40	0	110	80-125	0			
Methyl tert-butyl ether	1169	30	20	0	117	75-125	0			
Methylene chloride	1149	30	20	0	115	55-145	0			B
o-Xylene	1100	30	20	0	110	75-125	0			
Styrene	1168	30	20	0	117	80-138	0			
Tetrachloroethene	1120	30	20	0	112	67-167	0			
Toluene	1050	30	20	0	105	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	1230	30	20	0	123	65-135	0
trans-1,3-Dichloropropene	934	30	20	0	93.4	59-129	0
Trichloroethene	1024	30	20	0	102	75-125	0
Trichlorofluoromethane	1051	30	20	0	105	25-185	0
Vinyl chloride	1158	30	20	0	116	60-125	0
Xylenes, Total	3310	90	60	0	110	75-125	0
Surr: 1,2-Dichloroethane-d4	*1004*	0	*20*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*20*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*947*	0	*20*	0	*94.7*	*70-130*	0
Surr: Toluene-d8	*994.5*	0	*20*	0	*99.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MS Sample ID: **18051308-01A MS** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 09:58 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5049650** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	985.4	30	20.23	0	97.4	70-135	0			
1,1,2,2-Tetrachloroethane	858.9	30	20.23	0	84.9	55-130	0			
1,1,2-Trichloroethane	1072	30	20.23	0	106	60-125	0			
1,1-Dichloroethane	970.2	30	20.23	0	95.9	75-125	0			
1,1-Dichloroethene	1041	30	20.23	0	103	76-148	0			
1,2,3-Trichlorobenzene	1044	30	20.23	0	103	60-135	0			
1,2,4-Trichlorobenzene	1137	30	20.23	0	112	65-130	0			
1,2-Dibromo-3-chloropropane	1083	100	20.23	0	107	40-135	0			
1,2-Dibromoethane	1253	30	20.23	0	124	80-195	0			
1,2-Dichlorobenzene	1016	30	20.23	0	100	75-120	0			
1,2-Dichloroethane	874.6	30	20.23	0	86.4	70-135	0			
1,2-Dichloropropane	973.7	30	20.23	0	96.2	70-120	0			
1,3-Dichlorobenzene	1011	30	20.23	0	100	70-125	0			
1,4-Dichlorobenzene	997.5	30	20.23	0	98.6	70-125	0			
2-Butanone	1407	200	20.23	0	139	30-160	0			
2-Hexanone	1589	30	20.23	0	157	45-145	0			S
4-Methyl-2-pentanone	1572	30	20.23	0	155	74-176	0			
Acetone	1987	100	20.23	0	196	20-160	0			S
Benzene	998	30	20.23	0	98.6	75-125	0			
Bromochloromethane	981.8	30	20.23	0	97	74-134	0			
Bromodichloromethane	844.2	30	20.23	0	83.4	70-130	0			
Bromoform	938.3	30	20.23	0	92.8	55-135	0			
Bromomethane	713.2	100	20.23	0	70.5	50-170	0			
Carbon disulfide	917.6	30	20.23	0	90.7	45-160	0			
Carbon tetrachloride	906.5	30	20.23	0	89.6	65-135	0			
Chlorobenzene	997	30	20.23	0	98.6	75-125	0			
Chloroethane	73.85	100	20.23	0	7.3	40-155	0			JS
Chloroform	999.5	30	20.23	0	98.8	70-125	0			
Chloromethane	702.1	100	20.23	0	69.4	50-144	0			
cis-1,2-Dichloroethene	978.3	30	20.23	0	96.7	65-125	0			
cis-1,3-Dichloropropene	900.9	30	20.23	0	89	70-125	0			
Dibromochloromethane	960.6	30	20.23	0	95	65-135	0			
Dichlorodifluoromethane	797.7	30	20.23	0	78.8	35-135	0			
Ethylbenzene	1064	30	20.23	0	105	75-125	0			
Isopropylbenzene	1108	30	20.23	0	110	75-130	0			
m,p-Xylene	2138	61	40.47	24.79	104	80-125	0			
Methyl tert-butyl ether	1104	30	20.23	0	109	75-125	0			
Methylene chloride	917.6	30	20.23	0	90.7	55-145	0			B
o-Xylene	1092	30	20.23	0	108	75-125	0			
Styrene	1099	30	20.23	0	109	80-138	0			
Tetrachloroethene	1860	30	20.23	0	184	67-167	0			S
Toluene	1054	30	20.23	0	104	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	961.1	30	20.23	0	95	65-135	0
trans-1,3-Dichloropropene	925.7	30	20.23	0	91.5	59-129	0
Trichloroethene	1144	30	20.23	0	113	75-125	0
Trichlorofluoromethane	879.6	30	20.23	0	87	25-185	0
Vinyl chloride	950	30	20.23	0	93.9	60-125	0
Xylenes, Total	3230	91	60.7	25	106	75-125	0
Surr: 1,2-Dichloroethane-d4	*909.5*	0	*20.23*	0	*89.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1031*	0	*20.23*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*913.5*	0	*20.23*	0	*90.3*	*70-130*	0
Surr: Toluene-d8	*1005*	0	*20.23*	0	*99.3*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MSD Sample ID: **18051308-01A MSD** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 10:23 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5049656** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	944.9	30	20.23	0	93.4	70-135	985.4	4.19	30	
1,1,2,2-Tetrachloroethane	1014	30	20.23	0	100	55-130	858.9	16.6	30	
1,1,2-Trichloroethane	1067	30	20.23	0	106	60-125	1072	0.473	30	
1,1-Dichloroethane	954.5	30	20.23	0	94.4	75-125	970.2	1.63	30	
1,1-Dichloroethene	1028	30	20.23	0	102	76-148	1041	1.27	30	
1,2,3-Trichlorobenzene	1055	30	20.23	0	104	60-135	1044	1.06	30	
1,2,4-Trichlorobenzene	1126	30	20.23	0	111	65-130	1137	0.939	30	
1,2-Dibromo-3-chloropropane	1070	100	20.23	0	106	40-135	1083	1.22	30	
1,2-Dibromoethane	1255	30	20.23	0	124	80-195	1253	0.161	30	
1,2-Dichlorobenzene	1005	30	20.23	0	99.3	75-120	1016	1.1	30	
1,2-Dichloroethane	864.5	30	20.23	0	85.4	70-135	874.6	1.16	30	
1,2-Dichloropropane	971.7	30	20.23	0	96	70-120	973.7	0.208	30	
1,3-Dichlorobenzene	1002	30	20.23	0	99	70-125	1011	0.905	30	
1,4-Dichlorobenzene	989.9	30	20.23	0	97.8	70-125	997.5	0.764	30	
2-Butanone	1088	200	20.23	0	108	30-160	1407	25.6	30	
2-Hexanone	1440	30	20.23	0	142	45-145	1589	9.85	30	
4-Methyl-2-pentanone	1674	30	20.23	0	166	74-176	1572	6.29	30	
Acetone	1725	100	20.23	0	170	20-160	1987	14.1	30	S
Benzene	949.5	30	20.23	0	93.8	75-125	998	4.99	30	
Bromochloromethane	974.7	30	20.23	0	96.4	74-134	981.8	0.724	30	
Bromodichloromethane	845.8	30	20.23	0	83.6	70-130	844.2	0.18	30	
Bromoform	913	30	20.23	0	90.2	55-135	938.3	2.73	30	
Bromomethane	675.8	100	20.23	0	66.8	50-170	713.2	5.39	30	
Carbon disulfide	910.5	30	20.23	0	90	45-160	917.6	0.775	30	
Carbon tetrachloride	858.4	30	20.23	0	84.8	65-135	906.5	5.45	30	
Chlorobenzene	985.9	30	20.23	0	97.4	75-125	997	1.12	30	
Chloroethane	95.6	100	20.23	0	9.45	40-155	73.85	0	30	JS
Chloroform	1004	30	20.23	0	99.2	70-125	999.5	0.404	30	
Chloromethane	728.4	100	20.23	0	72	50-144	702.1	3.68	30	
cis-1,2-Dichloroethene	943.9	30	20.23	0	93.3	65-125	978.3	3.58	30	
cis-1,3-Dichloropropene	948.9	30	20.23	0	93.8	70-125	900.9	5.2	30	
Dibromochloromethane	943.4	30	20.23	0	93.2	65-135	960.6	1.81	30	
Dichlorodifluoromethane	782	30	20.23	0	77.3	35-135	797.7	1.99	30	
Ethylbenzene	1044	30	20.23	0	103	75-125	1064	1.92	30	
Isopropylbenzene	1101	30	20.23	0	109	75-130	1108	0.595	30	
m,p-Xylene	2064	61	40.47	24.79	101	80-125	2138	3.54	30	
Methyl tert-butyl ether	1178	30	20.23	0	116	75-125	1104	6.52	30	
Methylene chloride	902.9	30	20.23	0	89.2	55-145	917.6	1.61	30	B
o-Xylene	1068	30	20.23	0	106	75-125	1092	2.2	30	
Styrene	1093	30	20.23	0	108	80-138	1099	0.6	30	
Tetrachloroethene	1740	30	20.23	0	172	67-167	1860	6.72	30	S
Toluene	1014	30	20.23	0	100	70-125	1054	3.91	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	952.5	30	20.23	0	94.2	65-135	961.1	0.899	30
trans-1,3-Dichloropropene	980.3	30	20.23	0	96.9	59-129	925.7	5.73	30
Trichloroethene	988.4	30	20.23	0	97.7	75-125	1144	14.6	30
Trichlorofluoromethane	807.3	30	20.23	0	79.8	25-185	879.6	8.58	30
Vinyl chloride	952	30	20.23	0	94.1	60-125	950	0.213	30
Xylenes, Total	3132	91	60.7	25	102	75-125	3230	3.09	30
Surr: 1,2-Dichloroethane-d4	*883.2*	0	*20.23*	0	*87.3*	*70-130*	909.5	*2.93*	*30*
Surr: 4-Bromofluorobenzene	*1047*	0	*20.23*	0	*104*	*70-130*	1031	*1.51*	*30*
Surr: Dibromofluoromethane	*877.1*	0	*20.23*	0	*86.7*	*70-130*	913.5	*4.07*	*30*
Surr: Toluene-d8	*1019*	0	*20.23*	0	*101*	*70-130*	1005	*1.4*	*30*

The following samples were analyzed in this batch:

18051328-01A	18051328-02A	18051328-04A
18051328-05A	18051328-06A	18051328-07A
18051328-09A	18051328-10A	18051328-11A
18051328-12A	18051328-13A	18051328-14A
18051328-24A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180523-R236432A** Units: **µg/L** Analysis Date: **5/23/2018 12:14 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5048961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*20*	0	*20*	0	*100*	*75-120*	0
Surr: 4-Bromofluorobenzene	*17.72*	0	*20*	0	*88.6*	*80-110*	0
Surr: Dibromofluoromethane	*18.13*	0	*20*	0	*90.6*	*85-115*	0
Surr: Toluene-d8	*19.87*	0	*20*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

LCS	Sample ID: **VLCSW1-180523-R236432A**				Units: µg/L			Analysis Date: **5/23/2018 11:02 AM**		
Client ID:	Run ID: **VMS9_180523A**				SeqNo: **5048960**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.05	1.0	20	0	105	75-130	0			
1,1,2,2-Tetrachloroethane	18.59	1.0	20	0	93	75-130	0			
1,1,2-Trichloroethane	19.43	1.0	20	0	97.2	75-125	0			
1,1-Dichloroethane	23.59	1.0	20	0	118	68-142	0			
1,1-Dichloroethene	25.16	1.0	20	0	126	70-145	0			
1,2,3-Trichlorobenzene	19.37	1.0	20	0	96.8	70-140	0			
1,2,4-Trichlorobenzene	18.56	1.0	20	0	92.8	70-135	0			
1,2-Dibromo-3-chloropropane	15.92	1.0	20	0	79.6	60-130	0			
1,2-Dibromoethane	22.06	1.0	20	0	110	67-155	0			
1,2-Dichlorobenzene	19.72	1.0	20	0	98.6	70-130	0			
1,2-Dichloroethane	19.27	1.0	20	0	96.4	78-125	0			
1,2-Dichloropropane	20.43	1.0	20	0	102	75-125	0			
1,3-Dichlorobenzene	20.66	1.0	20	0	103	75-130	0			
1,3-Dichloropropane	19.84	1.0	20	0	99.2	75-125	0			
1,4-Dichlorobenzene	20.46	1.0	20	0	102	75-130	0			
2-Butanone	16.72	5.0	20	0	83.6	55-150	0			
2-Hexanone	15.61	5.0	20	0	78	60-135	0			
4-Methyl-2-pentanone	21.15	1.0	20	0	106	77-178	0			
Acetone	17.23	10	20	0	86.2	60-160	0			
Benzene	21	1.0	20	0	105	85-125	0			
Bromochloromethane	23.58	1.0	20	0	118	72-141	0			
Bromodichloromethane	20.09	1.0	20	0	100	75-125	0			
Bromoform	17.16	1.0	20	0	85.8	60-125	0			
Bromomethane	30.83	1.0	20	0	154	30-185	0			
Carbon disulfide	26.03	1.0	20	0	130	60-165	0			
Carbon tetrachloride	19.86	1.0	20	0	99.3	65-140	0			
Chlorobenzene	20.77	1.0	20	0	104	80-120	0			
Chloroethane	19.71	1.0	20	0	98.6	50-140	0			
Chloroform	22.08	1.0	20	0	110	80-130	0			
Chloromethane	17.72	1.0	20	0	88.6	46-148	0			
cis-1,2-Dichloroethene	22.71	1.0	20	0	114	75-134	0			
Dibromochloromethane	18.88	1.0	20	0	94.4	60-115	0			
Dichlorodifluoromethane	18.22	1.0	20	0	91.1	20-120	0			
Ethylbenzene	21.44	1.0	20	0	107	76-123	0			
Isopropylbenzene	22.59	1.0	20	0	113	80-127	0			
m,p-Xylene	44.1	2.0	40	0	110	75-130	0			
Methyl tert-butyl ether	21.69	1.0	20	0	108	68-129	0			
Methylene chloride	22.64	5.0	20	0	113	75-140	0			
o-Xylene	21.71	1.0	20	0	109	76-127	0			
Styrene	23.17	1.0	20	0	116	83-137	0			
Tetrachloroethene	21.79	1.0	20	0	109	68-166	0			
Toluene	20.52	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	23.96	1.0	20	0	120	80-140	0
trans-1,3-Dichloropropene	18.24	1.0	20	0	91.2	56-132	0
Trichloroethene	20.41	1.0	20	0	102	84-130	0
Trichlorofluoromethane	20.32	1.0	20	0	102	60-140	0
Vinyl chloride	22.86	1.0	20	0	114	50-136	0
Xylenes, Total	65.81	3.0	60	0	110	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.83*	0	*20*	0	*99.2*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.73*	0	*20*	0	*104*	*80-110*	0
Surr: Dibromofluoromethane	*18.29*	0	*20*	0	*91.4*	*85-115*	0
Surr: Toluene-d8	*20.12*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MS Sample ID: **1805219-02A MS** Units: **µg/L** Analysis Date: **5/23/2018 03:17 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5048965** Prep Date: **5/23/2018** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	455.6	20	20	0	114	75-130	0			
1,1,2,2-Tetrachloroethane	425.2	20	20	0	106	75-130	0			
1,1,2-Trichloroethane	420	20	20	0	105	75-125	0			
1,1-Dichloroethane	487.4	20	20	0	122	68-142	0			
1,1-Dichloroethene	551.4	20	20	0	138	70-145	0			
1,2,3-Trichlorobenzene	404.8	20	20	0	101	70-140	0			
1,2,4-Trichlorobenzene	397.6	20	20	0	99.4	70-135	0			
1,2-Dibromo-3-chloropropane	389.8	20	20	0	97.4	60-130	0			
1,2-Dibromoethane	484.6	20	20	0	121	67-155	0			
1,2-Dichlorobenzene	414	20	20	0	104	70-130	0			
1,2-Dichloroethane	401.4	20	20	0	100	78-125	0			
1,2-Dichloropropane	412.8	20	20	0	103	75-125	0			
1,3-Dichlorobenzene	428	20	20	0	107	75-130	0			
1,3-Dichloropropane	426.6	20	20	0	107	75-125	0			
1,4-Dichlorobenzene	420.6	20	20	0	105	75-130	0			
2-Butanone	516	100	20	0	129	55-150	0			
2-Hexanone	438	100	20	0	110	60-135	0			
4-Methyl-2-pentanone	526	20	20	0	132	77-178	0			
Acetone	673	200	20	0	168	60-160	0			S
Benzene	436	20	20	0	109	85-125	0			
Bromochloromethane	476.4	20	20	0	119	72-141	0			
Bromodichloromethane	401.6	20	20	0	100	75-125	0			
Bromoform	372.6	20	20	0	93.2	60-125	0			
Bromomethane	1478	20	20	0	369	30-185	0			S
Carbon disulfide	578.8	20	20	0	145	60-165	0			
Carbon tetrachloride	443.6	20	20	0	111	65-140	0			
Chlorobenzene	427.4	20	20	0	107	80-120	0			
Chloroethane	415.4	20	20	0	104	50-140	0			
Chloroform	463	20	20	0	116	80-130	0			
Chloromethane	374.4	20	20	0	93.6	46-148	0			
cis-1,2-Dichloroethene	469.6	20	20	0	117	75-134	0			
Dibromochloromethane	411.2	20	20	0	103	60-115	0			
Dichlorodifluoromethane	483.2	20	20	0	121	20-120	0			S
Ethylbenzene	455.2	20	20	0	114	76-123	0			
Isopropylbenzene	472.8	20	20	0	118	80-127	0			
m,p-Xylene	978.6	40	40	13.4	121	75-130	0			
Methyl tert-butyl ether	477.6	20	20	0	119	68-129	0			
Methylene chloride	455.2	100	20	0	114	75-140	0			
o-Xylene	467.6	20	20	0	117	76-127	0			
Styrene	472.8	20	20	0	118	83-137	0			
Tetrachloroethene	495.4	20	20	0	124	68-166	0			
Toluene	451.2	20	20	7.8	111	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	496.4	20	20	0	124	80-140	0
trans-1,3-Dichloropropene	372.4	20	20	0	93.1	56-132	0
Trichloroethene	428.6	20	20	0	107	84-130	0
Trichlorofluoromethane	472	20	20	0	118	60-140	0
Vinyl chloride	504.4	20	20	0	126	50-136	0
Xylenes, Total	1446	60	60	13.4	119	76-127	0
Surr: 1,2-Dichloroethane-d4	*399.2*	0	*20*	0	*99.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*413.4*	0	*20*	0	*103*	*80-110*	0
Surr: Dibromofluoromethane	*370.2*	0	*20*	0	*92.6*	*85-115*	0
Surr: Toluene-d8	*403.2*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MSD Sample ID: **1805219-02A MSD** Units: **µg/L** Analysis Date: **5/23/2018 03:42 PM**
Client ID: Run ID: **VMS9_180523A** SeqNo: **5048966** Prep Date: **5/23/2018** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	427	20	20	0	107	75-130	455.6	6.48	30	
1,1,2,2-Tetrachloroethane	400.8	20	20	0	100	75-130	425.2	5.91	30	
1,1,2-Trichloroethane	391.2	20	20	0	97.8	75-125	420	7.1	30	
1,1-Dichloroethane	439.6	20	20	0	110	68-142	487.4	10.3	30	
1,1-Dichloroethene	510.8	20	20	0	128	70-145	551.4	7.64	30	
1,2,3-Trichlorobenzene	413.6	20	20	0	103	70-140	404.8	2.15	30	
1,2,4-Trichlorobenzene	401.8	20	20	0	100	70-135	397.6	1.05	30	
1,2-Dibromo-3-chloropropane	401	20	20	0	100	60-130	389.8	2.83	30	
1,2-Dibromoethane	455.4	20	20	0	114	67-155	484.6	6.21	30	
1,2-Dichlorobenzene	417.8	20	20	0	104	70-130	414	0.914	30	
1,2-Dichloroethane	368.4	20	20	0	91.6	78-125	401.4	9.12	30	
1,2-Dichloropropane	405.2	20	20	0	101	75-125	412.8	1.86	30	
1,3-Dichlorobenzene	438.2	20	20	0	110	75-130	428	2.36	30	
1,3-Dichloropropane	401.8	20	20	0	100	75-125	426.6	5.99	30	
1,4-Dichlorobenzene	430.2	20	20	0	108	75-130	420.6	2.26	30	
2-Butanone	450	100	20	0	112	55-150	516	13.7	30	
2-Hexanone	462.4	100	20	0	116	60-135	438	5.42	30	
4-Methyl-2-pentanone	512.8	20	20	0	128	77-178	526	2.54	30	
Acetone	552.2	200	20	0	138	60-160	673	19.7	30	
Benzene	434.4	20	20	0	109	85-125	436	0.368	30	
Bromochloromethane	447	20	20	0	112	72-141	476.4	6.37	30	
Bromodichloromethane	373	20	20	0	93.2	75-125	401.6	7.38	30	
Bromoform	346.4	20	20	0	86.6	60-125	372.6	7.29	30	
Bromomethane	1651	20	20	0	413	30-185	1478	11.1	30	S
Carbon disulfide	554.8	20	20	0	139	60-165	578.8	4.23	30	
Carbon tetrachloride	428.6	20	20	0	107	65-140	443.6	3.44	30	
Chlorobenzene	424.8	20	20	0	106	80-120	427.4	0.61	30	
Chloroethane	415.2	20	20	0	104	50-140	415.4	0.0482	30	
Chloroform	422	20	20	0	106	80-130	463	9.27	30	
Chloromethane	346.8	20	20	0	86.7	46-148	374.4	7.65	30	
cis-1,2-Dichloroethene	425.4	20	20	0	106	75-134	469.6	9.88	30	
Dibromochloromethane	369	20	20	0	92.2	60-115	411.2	10.8	30	
Dichlorodifluoromethane	462.2	20	20	0	116	20-120	483.2	4.44	30	
Ethylbenzene	444	20	20	0	111	76-123	455.2	2.49	30	
Isopropylbenzene	471.4	20	20	0	118	80-127	472.8	0.297	30	
m,p-Xylene	913.4	40	40	13.4	112	75-130	978.6	6.89	30	
Methyl tert-butyl ether	443.4	20	20	0	111	68-129	477.6	7.43	30	
Methylene chloride	447.8	100	20	0	112	75-140	455.2	1.64	30	
o-Xylene	444.4	20	20	0	111	76-127	467.6	5.09	30	
Styrene	466.2	20	20	0	117	83-137	472.8	1.41	30	
Tetrachloroethene	508.2	20	20	0	127	68-166	495.4	2.55	30	
Toluene	433.4	20	20	7.8	106	76-125	451.2	4.02	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	463.2	20	20	0	116	80-140	496.4	6.92	30
trans-1,3-Dichloropropene	353	20	20	0	88.2	56-132	372.4	5.35	30
Trichloroethene	417.4	20	20	0	104	84-130	428.6	2.65	30
Trichlorofluoromethane	423.4	20	20	0	106	60-140	472	10.9	30
Vinyl chloride	494.4	20	20	0	124	50-136	504.4	2	30
Xylenes, Total	1358	60	60	13.4	112	76-127	1446	6.31	30
Surr: 1,2-Dichloroethane-d4	*372.2*	0	*20*	0	*93*	*75-120*	399.2	*7*	*30*
Surr: 4-Bromofluorobenzene	*402.8*	0	*20*	0	*101*	*80-110*	413.4	*2.6*	*30*
Surr: Dibromofluoromethane	*356*	0	*20*	0	*89*	*85-115*	370.2	*3.91*	*30*
Surr: Toluene-d8	*404*	0	*20*	0	*101*	*85-110*	403.2	*0.198*	*30*

The following samples were analyzed in this batch:

18051328-21A	18051328-22A	18051328-23A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180523-R236457** Units: **µg/Kg** Analysis Date: **5/23/2018 02:24 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050337** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	3.05	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457**	Instrument ID **VMS8**		Method: **SW8260C**				
o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*83-111*	0
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	0
Surr: Toluene-d8	*19.86*	0	*20*	0	*99.3*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

Batch ID: R236457 Instrument ID VMS8 Method: SW8260C

LCS Sample ID: VLCSS1-180523-R236457 Units: µg/Kg Analysis Date: 5/23/2018 01:30 PM
Client ID: Run ID: VMS8_180523A SeqNo: 5050336 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.07	5.0	20	0	95.4	73-138		0		
1,1,2,2-Tetrachloroethane	15.83	5.0	20	0	79.2	71-126		0		
1,1,2-Trichloroethane	16.89	5.0	20	0	84.4	77-123		0		
1,1-Dichloroethane	19.77	5.0	20	0	98.8	63-148		0		
1,1-Dichloroethene	18.87	5.0	20	0	94.4	67-156		0		
1,2,3-Trichlorobenzene	17.86	5.0	20	0	89.3	73-129		0		
1,2,4-Trichlorobenzene	18.53	5.0	20	0	92.6	70-132		0		
1,2-Dibromo-3-chloropropane	13.54	5.0	20	0	67.7	48-127		0		
1,2-Dibromoethane	17.26	5.0	20	0	86.3	71-144		0		
1,2-Dichlorobenzene	19.62	5.0	20	0	98.1	77-127		0		
1,2-Dichloroethane	17.28	5.0	20	0	86.4	77-127		0		
1,2-Dichloropropane	18.42	5.0	20	0	92.1	74-130		0		
1,3-Dichlorobenzene	19.49	5.0	20	0	97.4	75-133		0		
1,4-Dichlorobenzene	19.46	5.0	20	0	97.3	74-130		0		
2-Butanone	12.65	10	20	0	63.2	55-132		0		
2-Hexanone	13.14	5.0	20	0	65.7	55-124		0		
4-Methyl-2-pentanone	16.68	5.0	20	0	83.4	67-159		0		
Acetone	10.73	10	20	0	53.6	31-156		0		
Benzene	18.84	5.0	20	0	94.2	77-133		0		
Bromochloromethane	18.7	5.0	20	0	93.5	72-139		0		
Bromodichloromethane	18.33	5.0	20	0	91.6	69-133		0		
Bromoform	16.07	5.0	20	0	80.4	55-126		0		
Bromomethane	18.99	10	20	0	95	31-174		0		
Carbon disulfide	21.03	5.0	20	0	105	45-160		0		
Carbon tetrachloride	20.31	5.0	20	0	102	69-140		0		
Chlorobenzene	19.31	5.0	20	0	96.6	76-130		0		
Chloroethane	17.28	5.0	20	0	86.4	53-150		0		
Chloroform	18.15	5.0	20	0	90.8	72-132		0		
Chloromethane	14.89	10	20	0	74.4	43-150		0		
cis-1,2-Dichloroethene	18.52	5.0	20	0	92.6	74-134		0		
cis-1,3-Dichloropropene	17.79	5.0	20	0	89	62-134		0		
Dibromochloromethane	16.98	5.0	20	0	84.9	57-118		0		
Dichlorodifluoromethane	16.73	10	20	0	83.6	43-126		0		
Ethylbenzene	18.7	5.0	20	0	93.5	75-133		0		
Isopropylbenzene	19.32	5.0	20	0	96.6	74-137		0		
m,p-Xylene	36.95	2.5	40	0	92.4	75-134		0		
Methyl tert-butyl ether	21.37	5.0	20	0	107	62-136		0		
Methylene chloride	24.19	5.0	20	0	121	55-157		0		
o-Xylene	18.63	2.5	20	0	93.2	76-130		0		
Styrene	17.82	5.0	20	0	89.1	72-138		0		
Tetrachloroethene	20.04	5.0	20	0	100	70-171		0		
Toluene	18.43	5.0	20	0	92.2	76-130		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.49	5.0	20	0	92.4	65-137	0
trans-1,3-Dichloropropene	16.11	5.0	20	0	80.6	58-126	0
Trichloroethene	19.23	5.0	20	0	96.2	75-135	0
Trichlorofluoromethane	17.18	5.0	20	0	85.9	62-136	0
Vinyl chloride	19.52	5.0	20	0	97.6	57-143	0
Xylenes, Total	55.58	5.0	60	0	92.6	75-132	0
Surr: 1,2-Dichloroethane-d4	*17.6*	0	*20*	0	*88*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.34*	0	*20*	0	*91.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/23/2018 07:36 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5050355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4.27	1.0	5	0	85.4	73-138	0			
1,1,2,2-Tetrachloroethane	4.45	1.0	5	0	89	71-126	0			
1,1,2-Trichloroethane	5.54	1.0	5	0	111	77-123	0			
1,1-Dichloroethane	6.72	2.0	5	0	134	63-148	0			
1,1-Dichloroethene	4.4	1.0	5	0	88	67-156	0			
1,2,3-Trichlorobenzene	U	1.0	5	0	0	73-129	0			S
1,2,4-Trichlorobenzene	U	1.0	5	0	0	70-132	0			S
1,2-Dibromo-3-chloropropane	3.32	1.0	5	0	66.4	48-127	0			
1,2-Dibromoethane	5.71	1.0	5	0	114	71-144	0			
1,2-Dichlorobenzene	1.16	1.0	5	0	23.6	77-127	0			S
1,2-Dichloroethane	6.39	1.0	5	0	128	77-127	0			S
1,2-Dichloropropane	5.8	1.0	5	0	116	74-130	0			
1,3-Dichlorobenzene	1.17	1.0	5	0	23.4	75-133	0			S
1,4-Dichlorobenzene	1.13	1.0	5	0	22.6	74-130	0			S
2-Butanone	10.25	2.0	5	7.575	53.5	55-132	0			S
2-Hexanone	6.35	1.0	5	0	127	55-124	0			S
4-Methyl-2-pentanone	7.85	1.0	5	0	157	67-159	0			
Acetone	93.01	5.0	5	83.43	192	31-156	0			SO
Benzene	4.56	1.0	5	0	91.2	77-133	0			
Bromochloromethane	7.01	1.0	5	0	140	72-139	0			S
Bromodichloromethane	5.35	1.0	5	0	107	69-133	0			
Bromoform	3.78	1.0	5	0	75.6	55-126	0			
Bromomethane	6.45	1.0	5	0	129	31-174	0			
Carbon disulfide	4.05	1.0	5	1.246	56.1	45-160	0			
Carbon tetrachloride	3.06	1.0	5	0	61.2	69-140	0			S
Chlorobenzene	2.42	1.0	5	0	48.4	76-130	0			S
Chloroethane	6.17	1.0	5	0	123	53-150	0			
Chloroform	5.44	1.0	5	0	109	72-132	0			
Chloromethane	4.89	1.0	5	0	97.8	43-150	0			
cis-1,2-Dichloroethene	5.1	1.0	5	0	102	74-134	0			
cis-1,3-Dichloropropene	4.5	1.0	5	0	90	62-134	0			
Dibromochloromethane	4.61	1.0	5	0	92.2	57-118	0			
Dichlorodifluoromethane	1.49	2.0	5	0	29.8	43-126	0			JS
Ethylbenzene	2.23	1.0	5	0	44.6	75-133	0			S
Isopropylbenzene	1.41	1.0	5	0	28.2	74-137	0			S
m,p-Xylene	3.96	2.5	10	0	39.8	75-134	0			S
Methyl tert-butyl ether	10.62	1.0	5	0	212	62-136	0			S
Methylene chloride	7.77	1.0	5	0	155	55-157	0			B
o-Xylene	2.41	1.0	5	0	48.2	76-130	0			S
Styrene	1.95	1.0	5	0	39	72-136	0			S
Tetrachloroethene	1.67	1.0	5	0	33.4	70-171	0			S
Toluene	3.48	1.0	5	2.154	26.5	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457**	Instrument ID **VMS8**		Method: **SW8260C**					
trans-1,2-Dichloroethene	4.78	1.0	5	0	95.6	65-137	0	
trans-1,3-Dichloropropene	4.25	1.0	5	0	85	58-126	0	
Trichloroethene	3.38	1.0	5	0	67.6	75-135	0	S
Trichlorofluoromethane	2.67	1.0	5	0	53.4	62-136	0	S
Vinyl chloride	5.82	1.0	5	0	116	57-143	0	
Xylenes, Total	6.39	2.0	15	0	42.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.26*	0	*20*	0	*96.3*	*83-111*	0	
Surr: Dibromofluoromethane	*20.19*	0	*20*	0	*101*	*77-125*	0	
Surr: Toluene-d8	*19*	0	*20*	0	*95*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/24/2018 04:52 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5055162** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	26.91	5.0	20	0	135	73-138	0			
1,1,2,2-Tetrachloroethane	24.06	5.0	20	0	120	71-126	0			
1,1,2-Trichloroethane	24.95	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	27.94	5.0	20	0	140	63-148	0			
1,1-Dichloroethene	27.67	5.0	20	0	138	67-156	0			
1,2,3-Trichlorobenzene	11.67	5.0	20	0	58.4	73-129	0			S
1,2,4-Trichlorobenzene	12.64	5.0	20	0	63.2	70-132	0			S
1,2-Dibromo-3-chloropropane	19.99	5.0	20	0	100	48-127	0			
1,2-Dibromoethane	26.22	5.0	20	0	131	71-144	0			
1,2-Dichlorobenzene	18.42	5.0	20	0	92.1	77-127	0			
1,2-Dichloroethane	25.33	5.0	20	0	127	77-127	0			
1,2-Dichloropropane	26.22	5.0	20	0	131	74-130	0			S
1,3-Dichlorobenzene	18.33	5.0	20	0	91.6	75-133	0			
1,4-Dichlorobenzene	18.53	5.0	20	0	92.6	74-130	0			
2-Butanone	45.41	10	20	7.575	189	55-132	0			S
2-Hexanone	36.52	5.0	20	0	183	55-124	0			S
4-Methyl-2-pentanone	33.22	5.0	20	0	166	67-159	0			S
Acetone	115	10	20	83.43	158	31-156	0			SEO
Benzene	25.86	5.0	20	0	129	77-133	0			
Bromochloromethane	27.71	5.0	20	0	139	72-139	0			
Bromodichloromethane	26.27	5.0	20	0	131	69-133	0			
Bromoform	23.16	5.0	20	0	116	55-126	0			
Bromomethane	27.39	10	20	0	137	31-174	0			
Carbon disulfide	29.4	5.0	20	1.246	141	45-160	0			
Carbon tetrachloride	27.8	5.0	20	0	139	69-140	0			
Chlorobenzene	23.11	5.0	20	0	116	76-130	0			
Chloroethane	26.48	5.0	20	0	132	53-150	0			
Chloroform	25.68	5.0	20	0	129	72-132	0			
Chloromethane	21.69	10	20	0	108	43-150	0			
cis-1,2-Dichloroethene	25.98	5.0	20	0	130	74-134	0			
cis-1,3-Dichloropropene	25.33	5.0	20	0	127	62-134	0			
Dibromochloromethane	23.73	5.0	20	0	119	57-118	0			S
Dichlorodifluoromethane	29.65	10	20	0	149	43-126	0			S
Ethylbenzene	22.65	5.0	20	0	114	75-133	0			
Isopropylbenzene	21.56	5.0	20	0	108	74-137	0			
m,p-Xylene	44.68	2.5	40	0	112	75-134	0			
Methyl tert-butyl ether	35.08	5.0	20	0	175	62-136	0			S
Methylene chloride	32.16	5.0	20	0	161	55-157	0			S
o-Xylene	22.61	2.5	20	0	113	76-130	0			
Styrene	20.8	5.0	20	0	104	72-138	0			
Tetrachloroethene	23.74	5.0	20	0	119	70-171	0			
Toluene	23.91	5.0	20	2.154	109	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	26.19	5.0	20	0	131	65-137	0	
trans-1,3-Dichloropropene	23.07	5.0	20	0	115	58-126	0	
Trichloroethene	25.66	5.0	20	0	128	75-135	0	
Trichlorofluoromethane	26.49	5.0	20	0	132	62-136	0	
Vinyl chloride	28.72	5.0	20	0	144	57-143	0	S
Xylenes, Total	67.29	5.0	60	0	112	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.12*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.41*	0	*20*	0	*97*	*83-111*	0	
Surr: Dibromofluoromethane	*20.51*	0	*20*	0	*103*	*77-125*	0	
Surr: Toluene-d8	*19.22*	0	*20*	0	*96.1*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051384-01A MSD** Units: **µg/Kg** Analysis Date: **5/23/2018 07:53 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050356** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	6.85	1.0	5	0	137	73-138	4.27	46.4	30	R
1,1,2,2-Tetrachloroethane	7.17	1.0	5	0	143	71-126	4.45	46.8	30	SR
1,1,2-Trichloroethane	8.42	1.0	5	0	168	77-123	5.54	41.3	30	SR
1,1-Dichloroethane	9.51	2.0	5	0	190	63-148	6.72	34.4	30	SR
1,1-Dichloroethene	7.11	1.0	5	0	142	67-156	4.4	47.1	30	R
1,2,3-Trichlorobenzene	2	1.0	5	0	40	73-129	0	200	30	SR
1,2,4-Trichlorobenzene	2.2	1.0	5	0	44	70-132	0.67	107	30	SR
1,2-Dibromo-3-chloropropane	5.32	1.0	5	0	106	48-127	3.32	46.3	30	R
1,2-Dibromoethane	8.53	1.0	5	0	171	71-144	5.71	39.6	30	SR
1,2-Dichlorobenzene	3.87	1.0	5	0	77.4	77-127	1.18	107	30	R
1,2-Dichloroethane	9.17	1.0	5	0	183	77-127	6.39	35.7	30	SR
1,2-Dichloropropane	8.78	1.0	5	0	176	74-130	5.8	40.9	30	SR
1,3-Dichlorobenzene	3.66	1.0	5	0	73.2	75-133	1.17	103	30	SR
1,4-Dichlorobenzene	3.73	1.0	5	0	74.6	74-130	1.13	107	30	R
2-Butanone	12.14	2.0	5	7.575	91.3	55-132	10.25	16.9	30	
2-Hexanone	7.39	1.0	5	0	148	55-124	6.35	15.1	30	S
4-Methyl-2-pentanone	9.1	1.0	5	0	182	67-159	7.85	14.7	30	S
Acetone	129.6	5.0	5	83.43	923	31-156	93.01	32.8	30	SREO
Benzene	7.54	1.0	5	0	151	77-133	4.56	49.3	30	SR
Bromochloromethane	9.82	1.0	5	0	196	72-139	7.01	33.4	30	SR
Bromodichloromethane	8.28	1.0	5	0	166	69-133	5.35	43	30	SR
Bromoform	6.58	1.0	5	0	132	55-126	3.78	54.1	30	SR
Bromomethane	7.12	1.0	5	0	142	31-174	6.45	9.87	30	
Carbon disulfide	5.68	1.0	5	1.246	88.7	45-160	4.05	33.5	30	R
Carbon tetrachloride	6.34	1.0	5	0	127	69-140	3.06	69.8	30	R
Chlorobenzene	5.51	1.0	5	0	110	76-130	2.42	77.9	30	R
Chloroethane	7.93	1.0	5	0	159	53-150	6.17	25	30	S
Chloroform	8.41	1.0	5	0	168	72-132	5.44	42.9	30	SR
Chloromethane	6.16	1.0	5	0	123	43-150	4.89	23	30	
cis-1,2-Dichloroethene	7.9	1.0	5	0	158	74-134	5.1	43.1	30	SR
cis-1,3-Dichloropropene	6.47	1.0	5	0	129	62-134	4.5	35.9	30	R
Dibromochloromethane	7.42	1.0	5	0	148	57-118	4.61	46.7	30	SR
Dichlorodifluoromethane	7.37	2.0	5	0	147	43-126	1.49	133	30	SR
Ethylbenzene	4.99	1.0	5	0	99.8	75-133	2.23	76.5	30	R
Isopropylbenzene	4.57	1.0	5	0	91.4	74-137	1.41	106	30	R
m,p-Xylene	9.73	2.5	10	0	97.3	75-134	3.98	83.9	30	R
Methyl tert-butyl ether	13.84	1.0	5	0	277	62-136	10.62	26.3	30	S
Methylene chloride	10.38	1.0	5	0	208	55-157	7.77	28.8	30	BS
o-Xylene	5.28	1.0	5	0	106	76-130	2.41	74.6	30	R
Styrene	4.68	1.0	5	0	93.6	72-138	1.95	82.4	30	R
Tetrachloroethene	4.91	1.0	5	0	98.2	70-171	1.67	98.5	30	R
Toluene	5.99	1.0	5	2.154	76.7	76-130	3.48	53	30	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	7	1.0	5	0	140	65-137	4.78	37.7	30	SR
trans-1,3-Dichloropropene	6.79	1.0	5	0	136	58-126	4.25	46	30	SR
Trichloroethene	6.05	1.0	5	0	121	75-135	3.38	56.6	30	R
Trichlorofluoromethane	6.34	1.0	5	0	127	62-136	2.67	81.5	30	R
Vinyl chloride	7.45	1.0	5	0	149	57-143	5.82	24.6	30	S
Xylenes, Total	15.01	2.0	15	0	100	75-132	6.39	80.6	30	R
Surr: 1,2-Dichloroethane-d4	*20.11*	0	*20*	0	*101*	*83-132*	20.13	*0.0994*	*30*	
Surr: 4-Bromofluorobenzene	*19.65*	0	*20*	0	*98.2*	*83-111*	19.26	*2*	*30*	
Surr: Dibromofluoromethane	*20.44*	0	*20*	0	*102*	*77-125*	20.19	*1.23*	*30*	
Surr: Toluene-d8	*19.56*	0	*20*	0	*97.8*	*86-108*	19	*2.9*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051384-01A MSD** Units: **µg/Kg** Analysis Date: **5/24/2018 05:08 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5055163** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.24	5.0	20	0	146	73-138	26.91	8.3	30	S
1,1,2,2-Tetrachloroethane	27.49	5.0	20	0	137	71-126	24.06	13.3	30	S
1,1,2-Trichloroethane	27.82	5.0	20	0	139	77-123	24.95	10.9	30	S
1,1-Dichloroethane	30.21	5.0	20	0	151	63-148	27.94	7.81	30	S
1,1-Dichloroethene	30.56	5.0	20	0	153	67-156	27.67	9.93	30	
1,2,3-Trichlorobenzene	13.92	5.0	20	0	69.6	73-129	11.67	17.6	30	S
1,2,4-Trichlorobenzene	15.31	5.0	20	0	76.6	70-132	12.64	19.1	30	
1,2-Dibromo-3-chloropropane	23.95	5.0	20	0	120	48-127	19.99	18	30	
1,2-Dibromoethane	29.08	5.0	20	0	145	71-144	26.22	10.3	30	S
1,2-Dichlorobenzene	22.4	5.0	20	0	112	77-127	18.42	19.5	30	
1,2-Dichloroethane	27.57	5.0	20	0	138	77-127	25.33	8.47	30	S
1,2-Dichloropropane	29.06	5.0	20	0	145	74-130	26.22	10.3	30	S
1,3-Dichlorobenzene	21.65	5.0	20	0	108	75-133	18.33	16.6	30	
1,4-Dichlorobenzene	20.8	5.0	20	0	104	74-130	18.53	11.5	30	
2-Butanone	55.45	10	20	7.575	239	55-132	45.41	19.9	30	S
2-Hexanone	42.64	5.0	20	0	213	55-124	36.52	15.5	30	S
4-Methyl-2-pentanone	40.06	5.0	20	0	200	67-159	33.22	18.7	30	S
Acetone	173.6	10	20	83.43	451	31-156	115	40.6	30	SREO
Benzene	28.32	5.0	20	0	142	77-133	25.86	9.08	30	S
Bromochloromethane	29.52	5.0	20	0	148	72-139	27.71	6.33	30	S
Bromodichloromethane	28.73	5.0	20	0	144	69-133	26.27	8.95	30	S
Bromoform	26.12	5.0	20	0	131	55-126	23.16	12	30	S
Bromomethane	27.19	10	20	0	136	31-174	27.39	0.733	30	
Carbon disulfide	31.35	5.0	20	1.246	151	45-160	29.4	6.42	30	
Carbon tetrachloride	30.89	5.0	20	0	154	69-140	27.8	10.5	30	S
Chlorobenzene	25.31	5.0	20	0	127	76-130	23.11	9.09	30	
Chloroethane	28.8	5.0	20	0	144	53-150	26.48	8.39	30	
Chloroform	27.76	5.0	20	0	139	72-132	25.88	7.01	30	S
Chloromethane	22.87	10	20	0	114	43-150	21.69	5.3	30	
cis-1,2-Dichloroethene	27.78	5.0	20	0	139	74-134	25.98	6.7	30	S
cis-1,3-Dichloropropene	26.96	5.0	20	0	135	62-134	25.33	6.23	30	S
Dibromochloromethane	27.02	5.0	20	0	135	57-118	23.73	13	30	S
Dichlorodifluoromethane	32.9	10	20	0	164	43-126	29.85	9.72	30	S
Ethylbenzene	25.92	5.0	20	0	130	75-133	22.85	12.6	30	
Isopropylbenzene	25.38	5.0	20	0	127	74-137	21.56	16.3	30	
m,p-Xylene	51.47	2.5	40	0	129	75-134	44.68	14.1	30	
Methyl tert-butyl ether	39.65	5.0	20	0	198	62-136	35.08	12.2	30	S
Methylene chloride	34.86	5.0	20	0	174	55-157	32.16	8.06	30	S
o-Xylene	25.55	2.5	20	0	128	76-130	22.61	12.2	30	
Styrene	23.44	5.0	20	0	117	72-138	20.8	11.9	30	
Tetrachloroethene	28.27	5.0	20	0	141	70-171	23.74	17.4	30	
Toluene	26.95	5.0	20	2.154	124	76-130	23.91	12	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	28.2	5.0	20	0	141	65-137	26.19	7.39	30	S
trans-1,3-Dichloropropene	25.89	5.0	20	0	129	58-126	23.07	11.5	30	S
Trichloroethene	27.9	5.0	20	0	140	75-135	25.66	8.36	30	S
Trichlorofluoromethane	28.9	5.0	20	0	144	62-136	26.49	8.7	30	S
Vinyl chloride	30.22	5.0	20	0	151	57-143	28.72	5.09	30	S
Xylenes, Total	77.02	5.0	60	0	128	75-132	67.29	13.5	30	
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0	*103*	*83-132*	20.12	*2.31*	*30*	
Surr: 4-Bromofluorobenzene	*18.84*	0	*20*	0	*94.2*	*83-111*	19.41	*2.98*	*30*	
Surr: Dibromofluoromethane	*19.83*	0	*20*	0	*99.2*	*77-125*	20.51	*3.37*	*30*	
Surr: Toluene-d8	*19.12*	0	*20*	0	*95.6*	*86-108*	19.22	*0.522*	*30*	

The following samples were analyzed in this batch:

18051328-15A	18051328-16A	18051328-18A
18051328-19A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Client: Jacobs
Work Order: 18051328
Project: PMC

Batch ID: R236690a Instrument ID VMS8 Method: SW8260C

MBLK Sample ID: VBLKW1-180525-R236690a Units: µg/L Analysis Date: 5/25/2018 09:01 PM
Client ID: Run ID: VMS8_180525B SeqNo: 5056563 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	2.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	1.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	5.0								
Methylene chloride										

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*19.87*	0	*20*	0	*99.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.95*	0	*20*	0	*94.8*	*80-110*	0
Surr: Dibromofluoromethane	*20.1*	0	*20*	0	*100*	*85-115*	0
Surr: Toluene-d8	*18.79*	0	*20*	0	*94*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSW1-180525-R236690a** Units: **µg/L** Analysis Date: **5/25/2018 08:12 PM**
Client ID: Run ID: **VMS8_180525B** SeqNo: **5056562** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.66	1.0	20	0	98.3	75-130	0			
1,1,2,2-Tetrachloroethane	22.27	1.0	20	0	111	75-130	0			
1,1,2-Trichloroethane	18.89	1.0	20	0	94.4	75-125	0			
1,1-Dichloroethane	19.69	1.0	20	0	98.4	68-142	0			
1,1-Dichloroethene	20.4	1.0	20	0	102	70-145	0			
1,2,3-Trichlorobenzene	21.13	1.0	20	0	106	70-140	0			
1,2,4-Trichlorobenzene	21.5	1.0	20	0	108	70-135	0			
1,2-Dibromo-3-chloropropane	18.65	1.0	20	0	93.2	60-130	0			
1,2-Dibromoethane	21.08	1.0	20	0	105	67-155	0			
1,2-Dichlorobenzene	21.42	1.0	20	0	107	70-130	0			
1,2-Dichloroethane	18.4	1.0	20	0	92	78-125	0			
1,2-Dichloropropane	19.19	1.0	20	0	96	75-125	0			
1,3-Dichlorobenzene	21.6	1.0	20	0	108	75-130	0			
1,3-Dichloropropane	19.94	1.0	20	0	99.7	75-125	0			
1,4-Dichlorobenzene	22.24	1.0	20	0	111	75-130	0			
2-Butanone	19.28	5.0	20	0	96.4	55-150	0			
2-Hexanone	19.6	5.0	20	0	98	60-135	0			
4-Methyl-2-pentanone	29.85	1.0	20	0	149	77-178	0			
Acetone	18.28	10	20	0	91.4	60-160	0			
Benzene	20.2	1.0	20	0	101	85-125	0			
Bromochloromethane	20.17	1.0	20	0	101	72-141	0			
Bromodichloromethane	19.65	1.0	20	0	98.2	75-125	0			
Bromoform	20.31	1.0	20	0	102	60-125	0			
Bromomethane	34.54	1.0	20	0	173	30-185	0			
Carbon disulfide	20.96	1.0	20	0	105	60-165	0			
Carbon tetrachloride	19.93	1.0	20	0	99.6	65-140	0			
Chlorobenzene	21.55	1.0	20	0	108	80-120	0			
Chloroethane	10.31	1.0	20	0	51.6	50-140	0			
Chloroform	19.36	1.0	20	0	96.8	80-130	0			
Chloromethane	15.26	1.0	20	0	76.3	46-148	0			
cis-1,2-Dichloroethene	19.95	1.0	20	0	99.8	75-134	0			
Dibromochloromethane	19.5	1.0	20	0	97.5	60-115	0			
Dichlorodifluoromethane	16.14	1.0	20	0	80.7	20-120	0			
Ethylbenzene	21.1	1.0	20	0	106	76-123	0			
Isopropylbenzene	20.79	1.0	20	0	104	80-127	0			
m,p-Xylene	42.51	2.0	40	0	106	75-130	0			
Methyl tert-butyl ether	22.42	1.0	20	0	112	68-129	0			
Methylene chloride	18.62	5.0	20	0	93.1	75-140	0			
o-Xylene	20.71	1.0	20	0	104	76-127	0			
Styrene	21.4	1.0	20	0	107	83-137	0			
Tetrachloroethene	22.58	1.0	20	0	113	68-166	0			
Toluene	21.2	1.0	20	0	106	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a**	Instrument ID **VMS8**		Method: **SW8260C**				
trans-1,2-Dichloroethene	20.4	1.0	20	0	102	80-140	0
trans-1,3-Dichloropropene	19.02	1.0	20	0	95.1	56-132	0
Trichloroethene	20.07	1.0	20	0	100	84-130	0
Trichlorofluoromethane	17.04	1.0	20	0	85.2	60-140	0
Vinyl chloride	17.2	1.0	20	0	86	50-136	0
Xylenes, Total	63.22	3.0	60	0	105	76-127	0
Surr: 1,2-Dichloroethane-d4	*18.95*	0	*20*	0	*94.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.63*	0	*20*	0	*98.2*	*80-110*	0
Surr: Dibromofluoromethane	*19.94*	0	*20*	0	*99.7*	*85-115*	0
Surr: Toluene-d8	*19.68*	0	*20*	0	*98.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051315-06A MS** Units: **µg/L** Analysis Date: **5/26/2018 03:10 AM**
Client ID: Run ID: **VMS8_180525B** SeqNo: **5056579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	22.1	1.0	20	0	110	75-130	0			
1,1,2,2-Tetrachloroethane	21.08	1.0	20	0	105	75-130	0			
1,1,2-Trichloroethane	18.2	1.0	20	0	91	75-125	0			
1,1-Dichloroethane	19.44	1.0	20	0	97.2	68-142	0			
1,1-Dichloroethene	22.6	1.0	20	0	113	70-145	0			
1,2,3-Trichlorobenzene	20.08	1.0	20	0	100	70-140	0			
1,2,4-Trichlorobenzene	18.5	1.0	20	0	92.5	70-135	0			
1,2-Dibromo-3-chloropropane	18.28	1.0	20	0	91.4	60-130	0			
1,2-Dibromoethane	20.54	1.0	20	0	103	67-155	0			
1,2-Dichlorobenzene	20.88	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	18.64	1.0	20	0	93.2	78-125	0			
1,2-Dichloropropane	18.92	1.0	20	0	94.6	75-125	0			
1,3-Dichlorobenzene	21.16	1.0	20	0	106	75-130	0			
1,3-Dichloropropane	19.19	1.0	20	0	96	75-125	0			
1,4-Dichlorobenzene	21.56	1.0	20	0	108	75-130	0			
2-Butanone	17.55	5.0	20	0	87.8	55-150	0			
2-Hexanone	19.21	5.0	20	0	96	60-135	0			
4-Methyl-2-pentanone	29.82	1.0	20	0	149	77-178	0			
Acetone	19.92	10	20	2.85	85.4	60-160	0			
Benzene	21.09	1.0	20	0	105	85-125	0			
Bromochloromethane	19.93	1.0	20	0	99.6	72-141	0			
Bromodichloromethane	19.38	1.0	20	0	96.9	75-125	0			
Bromoform	19.72	1.0	20	0	98.6	60-125	0			
Bromomethane	51.71	1.0	20	0	259	30-185	0			S
Carbon disulfide	22.12	1.0	20	0	111	60-165	0			
Carbon tetrachloride	21.33	1.0	20	0	107	65-140	0			
Chlorobenzene	20.26	1.0	20	0	101	80-120	0			
Chloroethane	24.15	1.0	20	0	121	50-140	0			
Chloroform	19.03	1.0	20	0	95.2	80-130	0			
Chloromethane	14.54	1.0	20	0	72.7	46-148	0			
cis-1,2-Dichloroethene	19.78	1.0	20	0	98.9	75-134	0			
Dibromochloromethane	18.02	1.0	20	0	90.1	60-115	0			
Dichlorodifluoromethane	21.5	1.0	20	0	108	20-120	0			
Ethylbenzene	21.19	1.0	20	0	106	76-123	0			
Isopropylbenzene	20.63	1.0	20	0	103	80-127	0			
m,p-Xylene	42.05	2.0	40	0	105	75-130	0			
Methyl tert-butyl ether	21.76	1.0	20	0	109	68-129	0			
Methylene chloride	18.52	5.0	20	0	92.6	75-140	0			
o-Xylene	20.27	1.0	20	0	101	76-127	0			
Styrene	20.63	1.0	20	0	103	83-137	0			
Tetrachloroethene	22.99	1.0	20	0	115	68-166	0			
Toluene	20.68	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	20.48	1.0	20	0	102	80-140	0
trans-1,3-Dichloropropene	17.57	1.0	20	0	87.8	56-132	0
Trichloroethene	20.26	1.0	20	0	101	84-130	0
Trichlorofluoromethane	21.04	1.0	20	0	105	60-140	0
Vinyl chloride	19.46	1.0	20	0	97.3	50-136	0
Xylenes, Total	62.32	3.0	60	0	104	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.2*	0	*20*	0	*96*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.07*	0	*20*	0	*95.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.95*	0	*20*	0	*99.8*	*85-115*	0
Surr: Toluene-d8	*19.21*	0	*20*	0	*96*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

DUP Sample ID: **18051315-05A DUP** Units: **µg/L** Analysis Date: **5/26/2018 02:54 AM**
Client ID: Run ID: **VMS8_180525B** SeqNo: **5056578** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0	0	0	0		0			
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0			
1,1,2-Trichloroethane	U	1.0	0	0	0		0			
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0			
1,1-Dichloroethane	U	1.0	0	0	0		0			
1,1-Dichloroethene	U	1.0	0	0	0		0			
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0			
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0			
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0			
1,2-Dibromoethane	U	1.0	0	0	0		0			
1,2-Dichlorobenzene	U	1.0	0	0	0		0			
1,2-Dichloroethane	U	1.0	0	0	0		0			
1,2-Dichloropropane	U	1.0	0	0	0		0			
1,3-Dichlorobenzene	U	1.0	0	0	0		0			
1,3-Dichloropropane	U	1.0	0	0	0		0			
1,4-Dichlorobenzene	U	1.0	0	0	0		0			
2-Butanone	U	5.0	0	0	0		0			
2-Hexanone	U	5.0	0	0	0		0			
4-Methyl-2-pentanone	U	1.0	0	0	0		0			
Acetone	2.18	10	0	0	0		0			J
Benzene	U	1.0	0	0	0		0			
Bromochloromethane	U	1.0	0	0	0		0			
Bromodichloromethane	U	1.0	0	0	0		0			
Bromoform	U	1.0	0	0	0		0			
Bromomethane	U	1.0	0	0	0		0			
Carbon disulfide	U	1.0	0	0	0		0			
Carbon tetrachloride	U	1.0	0	0	0		0			
Chlorobenzene	U	1.0	0	0	0		0			
Chloroethane	U	1.0	0	0	0		0			
Chloroform	U	1.0	0	0	0		0			
Chloromethane	U	1.0	0	0	0		0			
cis-1,2-Dichloroethene	U	1.0	0	0	0		0			
Cyclohexane	U	1.0	0	0	0		0			
Dibromochloromethane	U	1.0	0	0	0		0			
Dichlorodifluoromethane	U	1.0	0	0	0		0			
Ethylbenzene	U	1.0	0	0	0		0			
Isopropylbenzene	U	1.0	0	0	0		0			
m,p-Xylene	U	2.0	0	0	0		0			
Methyl acetate	U	2.0	0	0	0		0			
Methyl tert-butyl ether	U	1.0	0	0	0		0			
Methylcyclohexane	U	1.0	0	0	0		0			
Methylene chloride	U	5.0	0	0	0		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a**	Instrument ID **VMS8**			Method: **SW8260C**			
o-Xylene	U	1.0	0	0	0		0
Styrene	U	1.0	0	0	0		0
Tetrachloroethene	U	1.0	0	0	0		0
Toluene	U	1.0	0	0	0		0
trans-1,2-Dichloroethene	U	1.0	0	0	0		0
trans-1,3-Dichloropropene	U	1.0	0	0	0		0
Trichloroethene	U	1.0	0	0	0		0
Trichlorofluoromethane	U	1.0	0	0	0		0
Vinyl chloride	U	1.0	0	0	0		0
Xylenes, Total	U	3.0	0	0	0		0
Surr: 1,2-Dichloroethane-d4	*18.92*	0	*20*	0	*94.6*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.7*	0	*20*	0	*93.5*	*80-110*	0
Surr: Dibromofluoromethane	*19.59*	0	*20*	0	*98*	*85-115*	0
Surr: Toluene-d8	*18.91*	0	*20*	0	*94.6*	*85-110*	0

The following samples were analyzed in this batch:

18051328-03A	18051328-08A	18051328-17A
18051328-20A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	18CP02-24	86	89	95	94	0
02	MBLK-118631	83	95	95	91	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(70-130)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-130)
SMC3	TOL	=	Toluene-d8	(70-130)
SMC4	BFB	=	Bromofluorobenzene	(70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	RHSWHGE	103	101	94	103	0
02	LCS01	99	88	97	92	0
03	VBLK01	99	97	99	92	0
04	18051384-01A	103	104	100	92	0
05	18CP02-15	103	100	97	96	0
06	18CP02-16	103	98	98	94	0
07	18CP02-18	92	98	98	94	0
08	18CP02-19	102	102	93	98	0
09	18051384-01AM	101	101	95	96	0
10	18051384-01AM	102	101	98	98	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(7-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS01	91	99	101	104	0
02	VBLK01	91	100	99	89	0
03	1805219-02A	95	102	100	91	0
04	1805219-02AM	93	100	101	103	0
05	1805219-02AM	89	93	101	101	0
06	18CP02-21	94	96	98	88	0
07	18CP02-22	93	95	98	89	0
08	18CP02-23	95	96	97	87	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS-118631	95	100	99	104	0
02	MBLK-118631	83	95	95	91	0
03	18051308-01A	92	97	99	93	0
04	18051308-01AM	90	90	99	102	0
05	18051308-01AM	87	87	101	103	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(70-130)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-130)
SMC3	TOL	=	Toluene-d8	(70-130)
SMC4	BFB	=	Bromofluorobenzene	(70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	MBLK-118631	83	95	95	91	0
02	18CP02-02	81	86	99	99	0
03	18CP02-05	81	86	100	98	0
04	18CP02-06	80	86	100	101	0
05	18CP02-12	81	83	101	100	0
06	18CP02-13	82	88	100	98	0
07	18CP02-14	82	86	99	99	0
08	18CP02-07	79	86	101	100	0
09	18CP02-09	81	86	99	99	0
10	18CP02-10	80	85	99	98	0
11	18CP02-11	81	87	98	97	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(70-130)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-130)
SMC3	TOL	=	Toluene-d8	(70-130)
SMC4	BFB	=	Bromofluorobenzene	(70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS02	100	95	98	98	0
02	VBLK02	101	99	94	95	0
03	18051315-05A	*	*	93	94	2
04	18051315-06A	100	97	94	97	0
05	18CP02-20	100	99	96	95	0
06	18CP02-17	101	101	97	96	0
07	18CP02-08	99	98	91	95	0
08	18CP02-03	99	97	95	96	0
09	18051315-05AD	98	95	95	94	0
10	18051315-06AM	100	96	96	95	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	MBLK-118631	83	95	95	91	0
02	18CP02-04	88	97	94	93	0
03	18CP02-01	83	96	95	97	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(70-130)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-130)
SMC3	TOL	=	Toluene-d8	(70-130)
SMC4	BFB	=	Bromofluorobenzene	(70-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118631

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY07.D Lab Sample ID: MBLK-118631

Date Analyzed: 5/23/2018 Time Analyzed: 12:39

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18CP02-24	18051328-24A	22MAY41.D	22:04

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY10.D Lab Sample ID: VBLKS1-180523

Date Analyzed: 5/23/2018 Time Analyzed: 14:24

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSS1-180523	23MAY08.D	13:30
02	18051384-01A	18051384-01A DF1.21	23MAY15.D	15:59
03	18CP02-15	18051328-15A DF0.765	23MAY19.D	17:05
04	18CP02-16	18051328-16A DF0.874	23MAY20.D	17:22
05	18CP02-18	18051328-18A DF0.818	23MAY21.D	17:39
06	18CP02-19	18051328-19A DF0.766	23MAY22.D	17:55
07	18051384-01AMS	18051384-01A MS	23MAY28.D	19:36
08	18051384-01AMSD	18051384-01A MSD	23MAY29.D	19:53

COMMENTS:

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY06.D Lab Sample ID: VBLKW1-180523

Date Analyzed: 5/23/2018 Time Analyzed: 12:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSW1-180523	23MAY03.D	11:02
02	1805219-02A	1805219-02A DF20	23MAY10.D	14:05
03	1805219-02AMS	1805219-02A MS DF20	23MAY13.D	15:17
04	1805219-02AMSD	1805219-02A MSD DF20	23MAY14.D	15:42
05	18CP02-21	18051328-21A	23MAY22.D	19:31
06	18CP02-22	18051328-22A	23MAY23.D	19:55
07	18CP02-23	18051328-23A	23MAY24.D	20:20
08	18051308-01A	18051308-01A	23MAY25.D	20:44

COMMENTS:

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

MBLK-118631

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY07.D Lab Sample ID: MBLK-118631

Date Analyzed: 5/23/2018 Time Analyzed: 12:39

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS-118631	LCS-118631	23MAY04.D	11:26
02	18051308-01AMS	18051308-01A MS	23MAY28.D	21:58
03	18051308-01AMSD	18051308-01A MSD	23MAY29.D	22:23

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118631

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY07.D Lab Sample ID: MBLK-118631

Date Analyzed: 5/23/2018 Time Analyzed: 12:39

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18CP02-02	18051328-02A	23MAY44.D	4:32
02	18CP02-05	18051328-05A	23MAY46.D	5:21
03	18CP02-06	18051328-06A	23MAY47.D	5:45
04	18CP02-12	18051328-12A	23MAY48.D	6:10
05	18CP02-13	18051328-13A	23MAY49.D	6:34
06	18CP02-14	18051328-14A	23MAY50.D	6:59
07	18CP02-07	18051328-07A	23MAY51.D	7:23
08	18CP02-09	18051328-09A	23MAY52.D	7:47
09	18CP02-10	18051328-10A	23MAY53.D	8:12
10	18CP02-11	18051328-11A	23MAY54.D	8:36

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118631

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY07.D Lab Sample ID: MBLK-118631

Date Analyzed: 5/23/2018 Time Analyzed: 12:39

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18CP02-04	18051328-04A	25MAY39.D	2:22
02	18CP02-01	18051328-01A	25MAY40.D	2:38

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 25MAY19.D Lab Sample ID: VBLKW1-180525

Date Analyzed: 5/25/2018 Time Analyzed: 21:01

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS02	VLCSW1-180525	25MAY16.D	20:12
02	18051315-05A	18051315-05A	25MAY29.D	23:43
03	18051315-06A	18051315-06A	25MAY30.D	23:59
04	18CP02-20	18051328-20A	25MAY35.D	1:18
05	18CP02-17	18051328-17A	25MAY36.D	1:34
06	18CP02-08	18051328-08A	25MAY37.D	1:50
07	18CP02-03	18051328-03A	25MAY38.D	2:06
08	18051315-05ADUP	18051315-05A DUP	25MAY41.D	2:54
09	18051315-06AMS	18051315-06A MS	25MAY42.D	3:10

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 22MAY33.D BFB Injection Date: 5/22/2018

Instrument ID: VMS8 BFB Injection Time: 19:58

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.7
75	30.0 - 66.0% of mass 95	43.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.0
173	Less than 2.0% of mass 174	0.5 (0.7)1
174	50.0 - 120.0% of mass 95	75.8
175	4.0 - 9.0% of mass 174	6.3 (8.3)1
176	93.0 - 101.0% of mass 174	74.9 (98.8)1
177	5.0 - 9.0% of mass 176	5.6 (7.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180522	22MAY35.D	5/22/2018	20:29
02	18CP02-24	18051328-24A	22MAY41.D	5/22/2018	22:04
03	MBLK-118631	MBLK-118631	23MAY07.D	5/23/2018	12:39

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY06.D BFB Injection Date: 5/23/2018

Instrument ID: VMS8 BFB Injection Time: 12:43

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.1
75	30.0 - 66.0% of mass 95	43.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.9 (0.9)1
174	50.0 - 120.0% of mass 95	94.1
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	93.2 (99.0)1
177	5.0 - 9.0% of mass 176	5.7 (6.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180523	23MAY07.D	5/23/2018	12:59
02	RHSWHGE	LCS-	23MAY06.D	5/23/2018	13:14
03	LCS01	VLCSS1-180523	23MAY08.D	5/23/2018	13:30
04	VBLK01	VBLKS1-180523	23MAY10.D	5/23/2018	14:24
05	18051384-01A	18051384-01A DF1.21	23MAY15.D	5/23/2018	15:59
06	18CP02-15	18051328-15A DF0.765	23MAY19.D	5/23/2018	17:05
07	18CP02-16	18051328-16A DF0.874	23MAY20.D	5/23/2018	17:22
08	18CP02-18	18051328-18A DF0.818	23MAY21.D	5/23/2018	17:39
09	18CP02-19	18051328-19A DF0.766	23MAY22.D	5/23/2018	17:55
10	18051384-01AMS	18051384-01A MS	23MAY28.D	5/23/2018	19:36
11	18051384-01AMS	18051384-01A MSD	23MAY29.D	5/23/2018	19:53

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY01.D BFB Injection Date: 5/23/2018

Instrument ID: VMS8 BFB Injection Time: 10:03

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.1
75	30.0 - 66.0% of mass 95	47.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.3 (0.5)1
174	50.0 - 120.0% of mass 95	71.4
175	4.0 - 9.0% of mass 174	5.7 (8.0)1
176	93.0 - 101.0% of mass 174	69.3 (97.0)1
177	5.0 - 9.0% of mass 176	4.9 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD01	VCCV1-180523	23MAY02.D	5/23/2018	10:26
02	LCS01	VLCSW1-180523	23MAY03.D	5/23/2018	11:02
03	LCS-118631	LCS-118631	23MAY04.D	5/23/2018	11:26
04	VBLK01	VBLKW1-180523	23MAY06.D	5/23/2018	12:14
05	MBLK-118631	MBLK-118631	23MAY07.D	5/23/2018	12:39
06	1805219-02A	1805219-02A DF20	23MAY10.D	5/23/2018	14:05
07	1805219-02AMS	1805219-02A MS DF20	23MAY13.D	5/23/2018	15:17
08	1805219-02AMSD	1805219-02A MSD DF2	23MAY14.D	5/23/2018	15:42
09	18CP02-21	18051328-21A	23MAY22.D	5/23/2018	19:31
10	18CP02-22	18051328-22A	23MAY23.D	5/23/2018	19:55
11	18CP02-23	18051328-23A	23MAY24.D	5/23/2018	20:20
12	18051308-01A	18051308-01A	23MAY25.D	5/23/2018	20:44
13	18051308-01AMS	18051308-01A MS	23MAY28.D	5/23/2018	21:58
14	18051308-01AMS	18051308-01A MSD	23MAY29.D	5/23/2018	22:23

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 23MAY31.D BFB Injection Date: 5/23/2018

Instrument ID: VMS8 BFB Injection Time: 23:12

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.3
75	30.0 - 66.0% of mass 95	48.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.7 (1.1)1
174	50.0 - 120.0% of mass 95	67.8
175	4.0 - 9.0% of mass 174	5.1 (7.6)1
176	93.0 - 101.0% of mass 174	66.1 (97.5)1
177	5.0 - 9.0% of mass 176	4.8 (7.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180523	23MAY33.D	5/24/2018	0:01
02	18CP02-02	18051328-02A	23MAY44.D	5/24/2018	4:32
03	18CP02-05	18051328-05A	23MAY46.D	5/24/2018	5:21
04	18CP02-06	18051328-06A	23MAY47.D	5/24/2018	5:45
05	18CP02-12	18051328-12A	23MAY48.D	5/24/2018	6:10
06	18CP02-13	18051328-13A	23MAY49.D	5/24/2018	6:34
07	18CP02-14	18051328-14A	23MAY50.D	5/24/2018	6:59
08	18CP02-07	18051328-07A	23MAY51.D	5/24/2018	7:23
09	18CP02-09	18051328-09A	23MAY52.D	5/24/2018	7:47
10	18CP02-10	18051328-10A	23MAY53.D	5/24/2018	8:12
11	18CP02-11	18051328-11A	23MAY54.D	5/24/2018	8:36

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID: 25MAY13.D BFB Injection Date: 5/25/2018

Instrument ID: VMS8 BFB Injection Time: 19:23

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.4
75	30.0 - 66.0% of mass 95	44.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	70.9
175	4.0 - 9.0% of mass 174	5.9 (8.3)1
176	93.0 - 101.0% of mass 174	67.9 (95.7)1
177	5.0 - 9.0% of mass 176	4.2 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV3-180525	25MAY15.D	5/25/2018	19:55
02	LCS02	VLCSW1-180525	25MAY16.D	5/25/2018	20:12
03	VBLK02	VBLKW1-180525	25MAY19.D	5/25/2018	21:01
04	18051315-05A	18051315-05A	25MAY29.D	5/25/2018	23:43
05	18051315-06A	18051315-06A	25MAY30.D	5/25/2018	23:59
06	18CP02-20	18051328-20A	25MAY35.D	5/26/2018	1:18
07	18CP02-17	18051328-17A	25MAY36.D	5/26/2018	1:34
08	18CP02-08	18051328-08A	25MAY37.D	5/26/2018	1:50
09	18CP02-03	18051328-03A	25MAY38.D	5/26/2018	2:06
10	18CP02-04	18051328-04A	25MAY39.D	5/26/2018	2:22
11	18CP02-01	18051328-01A	25MAY40.D	5/26/2018	2:38
12	18051315-05ADU	18051315-05A DUP	25MAY41.D	5/26/2018	2:54
13	18051315-06AMS	18051315-06A MS	25MAY42.D	5/26/2018	3:10

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 22MAY35.D Date Analyzed: 5/22/2018

Instrument ID: VMS8 Time Analyzed: 20:29

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	366321	4.71	526735	5.99	490207	8.73
	UPPER LIMIT	732642	5.21	1053470	6.49	980414	9.23
	LOWER LIMIT	183161	4.21	263368	5.49	245104	8.23
	EPA SAMPLE NO.						
01	18CP02-24	368946	4.71	530568	6.00	486260	8.73
02	MBLK-118631	128668 *	4.35	239268 *	5.78	224103 *	10.55*

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 22MAY35.D Date Analyzed: 5/22/2018

Instrument ID: VMS8 Time Analyzed: 20:29

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	260179	10.05		.00		
	UPPER LIMIT	520358	9.55		-.50		
	LOWER LIMIT	130090	10.55		.50		
	EPA SAMPLE NO.						
01	18CP02-24	256868	10.05	0	.00		
02	MBLK-118631	106686*	13.20*	44410*	3.43*		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY07.D Date Analyzed: 5/23/2018

Instrument ID: VMS8 Time Analyzed: 12:59

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	216514	4.72	319521	5.99	284811	8.73
	UPPER LIMIT	433028	5.22	639042	6.49	569622	9.23
	LOWER LIMIT	108257	4.22	159761	5.49	142406	8.23
	EPA SAMPLE NO.						
01	RHSWHGE	177520	5.00	345217	6.28	333140	8.85
02	LCS01	221847	4.72	332164	6.00	291245	8.73
03	VBLK01	205128	4.73	293346	6.00	251087	8.73
04	18051384-01A	198822	4.72	302990	6.00	253163	8.73
05	18CP02-15	263926	4.72	390542	6.00	348358	8.73
06	18CP02-16	246804	4.72	363511	6.00	320404	8.73
07	18CP02-18	236393	4.71	363658	6.00	303474	8.73
08	18CP02-19	143025	4.71	212158	6.00	194187	8.73
09	18051384-01A	218315	4.71	328397	5.99	287061	8.73
10	18051384-01A	252669	4.71	386008	6.00	338603	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY07.D Date Analyzed: 5/23/2018

Instrument ID: VMS8 Time Analyzed: 12:59

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	135560	10.05		.00		
	UPPER LIMIT	271120	9.55		-.50		
	LOWER LIMIT	67780	10.55		.50		
	EPA SAMPLE NO.						
01	RHSWHGE	162834	10.15	0	.00		
02	LCS01	135848	10.05	0	.00		
03	VBLK01	120792	10.05	0	.00		
04	18051384-01A	109931	10.05	0	.00		
05	18CP02-15	164819	10.05	0	.00		
06	18CP02-16	148263	10.05	0	.00		
07	18CP02-18	127488	10.05	0	.00		
08	18CP02-19	92113	10.05	0	.00		
09	18051384-01A	134150	10.05	0	.00		
10	18051384-01A	167155	10.05	0	.00		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY02.D Date Analyzed: 5/23/2018

Instrument ID: VMS8 Time Analyzed: 10:26

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	135629	4.35	237862	5.78	243361	10.54
	UPPER LIMIT	271258	4.85	475724	6.28	486722	11.04
	LOWER LIMIT	67815	3.85	118931	5.28	121681	10.04
	EPA SAMPLE NO.						
01	LCS01	134971	4.34	235481	5.78	247885	10.54
02	LCS-118631	130763	4.35	231056	5.79	241470	10.54
03	VBLK01	125584	4.35	216100	5.79	206373	10.54
04	MBLK-118631	128668	4.35	239268	5.78	224103	10.55
05	1805219-02A	128613	4.35	218263	5.79	205330	10.54
06	1805219-02A	129100	4.35	221741	5.79	224997	10.54
07	1805219-02A	129960	4.35	221073	5.79	229280	10.54
08	18CP02-21	131435	4.35	205523	5.79	208171	10.54
09	18CP02-22	126787	4.35	199471	5.78	198946	10.54
10	18CP02-23	127167	4.35	197742	5.79	201585	10.54
11	18051308-01A	135935	4.35	230346	5.79	219859	10.55
12	18051308-01A	155877	4.35	262686	5.79	265817	10.55
13	18051308-01A	160475	4.35	279024	5.79	274663	10.55

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY02.D Date Analyzed: 5/23/2018

Instrument ID: VMS8 Time Analyzed: 10:26

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	135832	13.19	38369	3.42		
	UPPER LIMIT	271664	12.69	76738	2.92		
	LOWER LIMIT	67916	13.69	19185	3.92		
	EPA SAMPLE NO.						
01	LCS01	136598	13.19	38282	3.42		
02	LCS-118631	130055	13.19	44510	3.43		
03	VBLK01	101455	13.19	40316	3.43		
04	MBLK-118631	106686	13.20	44410	3.43		
05	1805219-02A	102390	13.19	43242	3.43		
06	1805219-02A	125551	13.19	45804	3.43		
07	1805219-02A	123155	13.19	42258	3.43		
08	18CP02-21	101341	13.19	40702	3.43		
09	18CP02-22	97418	13.19	38843	3.43		
10	18CP02-23	95550	13.19	38678	3.43		
11	18051308-01A	115161	13.20	46002	3.46		
12	18051308-01A	141573	13.19	55280	3.45		
13	18051308-01A	144356	13.20	58467	3.45		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

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* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY33.D Date Analyzed: 5/24/2018

Instrument ID: VMS8 Time Analyzed: 0:01

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	156101	4.35	263682	5.79	256559	10.55
	UPPER LIMIT	312202	4.85	527364	6.29	513118	11.05
	LOWER LIMIT	78051	3.85	131841	5.29	128280	10.05
	EPA SAMPLE NO.						
01	18CP02-02	156800	4.35	274644	5.78	263652	10.55
02	18CP02-05	156194	4.35	272818	5.78	259289	10.54
03	18CP02-06	154432	4.35	274513	5.79	260335	10.55
04	18CP02-12	155410	4.35	274837	5.78	257036	10.54
05	18CP02-13	153042	4.35	268120	5.78	254557	10.54
06	18CP02-14	156206	4.35	274342	5.78	257288	10.54
07	18CP02-07	153813	4.35	272091	5.79	254569	10.54
08	18CP02-09	154225	4.35	270418	5.78	256263	10.54
09	18CP02-10	155517	4.35	270582	5.79	253079	10.54
10	18CP02-11	155196	4.35	269673	5.79	259542	10.54

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

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* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 23MAY33.D Date Analyzed: 5/24/2018

Instrument ID: VMS8 Time Analyzed: 0:01

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	140117	13.19	57496	3.44		
	UPPER LIMIT	280234	12.69	114992	2.94		
	LOWER LIMIT	70059	13.69	28748	3.94		
	EPA SAMPLE NO.						
01	18CP02-02	136661	13.19	50595	3.44		
02	18CP02-05	134655	13.19	50903	3.44		
03	18CP02-06	135074	13.19	46236	3.44		
04	18CP02-12	133541	13.19	49897	3.44		
05	18CP02-13	129212	13.19	49602	3.44		
06	18CP02-14	130831	13.19	48879	3.44		
07	18CP02-07	130686	13.19	46127	3.44		
08	18CP02-09	131379	13.19	49824	3.44		
09	18CP02-10	130644	13.19	48906	3.44		
10	18CP02-11	129642	13.19	46695	3.44		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
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RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

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* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 25MAY15.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 19:55

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	269254	4.71	398675	5.99	367820	8.73
	UPPER LIMIT	538508	5.21	797350	6.49	735640	9.23
	LOWER LIMIT	134627	4.21	199338	5.49	183910	8.23
	EPA SAMPLE NO.						
01	LCS02	259460	4.71	393637	5.99	355107	8.73
02	VBLK02	279478	4.71	403933	5.99	375370	8.73
03	18051315-05A	0 *	.00*	0 *	.00*	368765	8.70
04	18051315-06A	270432	4.71	393236	6.00	364818	8.73
05	18CP02-20	263380	4.71	378188	6.00	352043	8.73
06	18CP02-17	264352	4.71	389647	6.00	354315	8.73
07	18CP02-08	256834	4.72	384286	6.00	365642	8.73
08	18CP02-03	260445	4.71	378750	6.00	344515	8.73
09	18CP02-04	247304	4.71	367951	6.00	349643	8.73
10	18CP02-01	257743	4.71	379578	6.00	350869	8.73
11	18051315-05A	275073	4.71	414123	6.00	369640	8.73
12	18051315-06A	274453	4.71	398688	6.00	366835	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
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RT UPPER LIMIT = +0.50 minutes of internal standard RT
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Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051328

Lab File ID (Standard): 25MAY15.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 19:55

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	196501	10.05		.00		
	UPPER LIMIT	393002	9.55		-.50		
	LOWER LIMIT	98251	10.55		.50		
	EPA SAMPLE NO.						
01	LCS02	189568	10.05	0	.00		
02	VBLK02	185148	10.05	0	.00		
03	18051315-05A	183094	10.04	0	.00		
04	18051315-06A	186614	10.05	0	.00		
05	18CP02-20	177079	10.05	0	.00		
06	18CP02-17	179773	10.05	0	.00		
07	18CP02-08	178935	10.05	0	.00		
08	18CP02-03	172730	10.05	0	.00		
09	18CP02-04	181030	10.05	0	.00		
10	18CP02-01	183602	10.05	0	.00		
11	18051315-05A	183169	10.05	0	.00		
12	18051315-06A	190588	10.05	0	.00		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
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Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	257743	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	379578	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	350869	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183602	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	69423	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	109737	16.67	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 83.35%#				
45) 1,2-Dichloroethane-d4	5.164	65	122428	19.10	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.50%				
64) Toluene-d8	7.671	98	436866	19.08	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.40%				
85) Bromofluorobenzene	9.433	95	161296	19.43	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.242	43	20368	5.78	ug/L		94
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	2.492	43	11605	1.47	ug/L	#	61
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.	d		
32) Ethyl Acetate	0.000		0	N.D.	d		
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.171	78	25773	1.06 ug/L	85
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	5.752	43	18622	3.73 ug/L #	23
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	13577	1.99 ug/L	91
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.729	91	62715	2.48 ug/L	97
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.817	91	37312	1.37 ug/L	91
79) m/p-Xylene	8.896	91	57293	2.78 ug/L	100
80) Styrene	9.140	104	8644	0.49 ug/L	73
81) o-Xylene	9.125	91	26855	1.23 ug/L	96
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	9.333	105	5243	0.20 ug/L #	49
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	9.562	91	16210	0.55 ug/L #	53
91) 2-Chlorotoluene	0.000		0	N.D. d	
92) 4-Chlorotoluene	0.000		0	N.D. d	
93) 1,3,5-Trimethylbenzene	9.655	105	10096	0.50 ug/L	91
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	9.856	105	35711	1.65 ug/L	87
96) sec-Butylbenzene	0.000		0	N.D. d	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

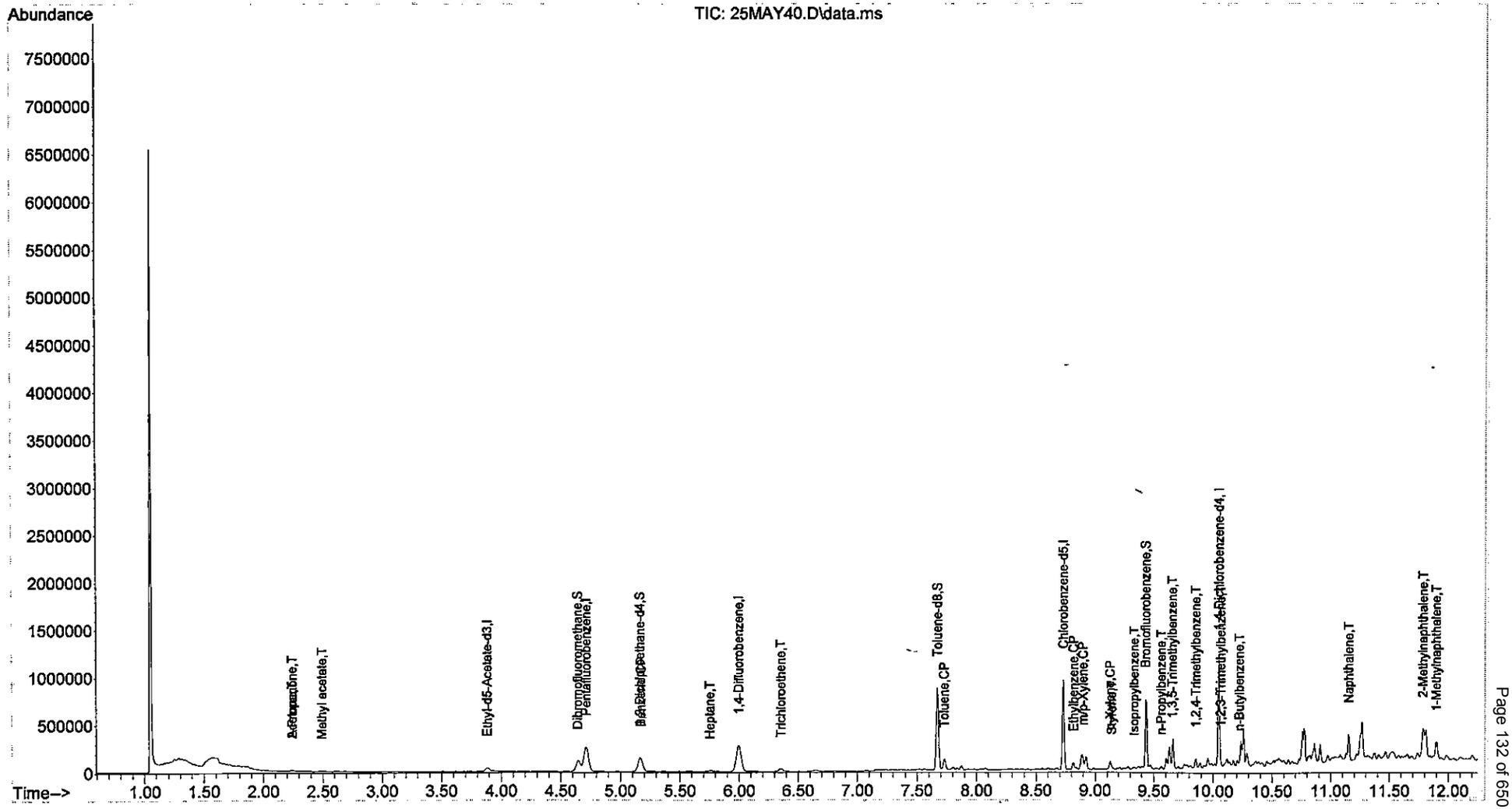
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	10074	0.46 ug/L #	82
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	10.221	91	10158	0.54 ug/L #	69
105) Hexachloroethane	0.000		0	N.D. d	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	142265	4.34 ug/L	98
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	11.783	142	97883	5.81 ug/L	96
113) 1-Methylnaphthalene	11.897	142	62182	3.96 ug/L	99
115) 2-Propanone	2.242	43	20368	6.54 ug/L	94
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

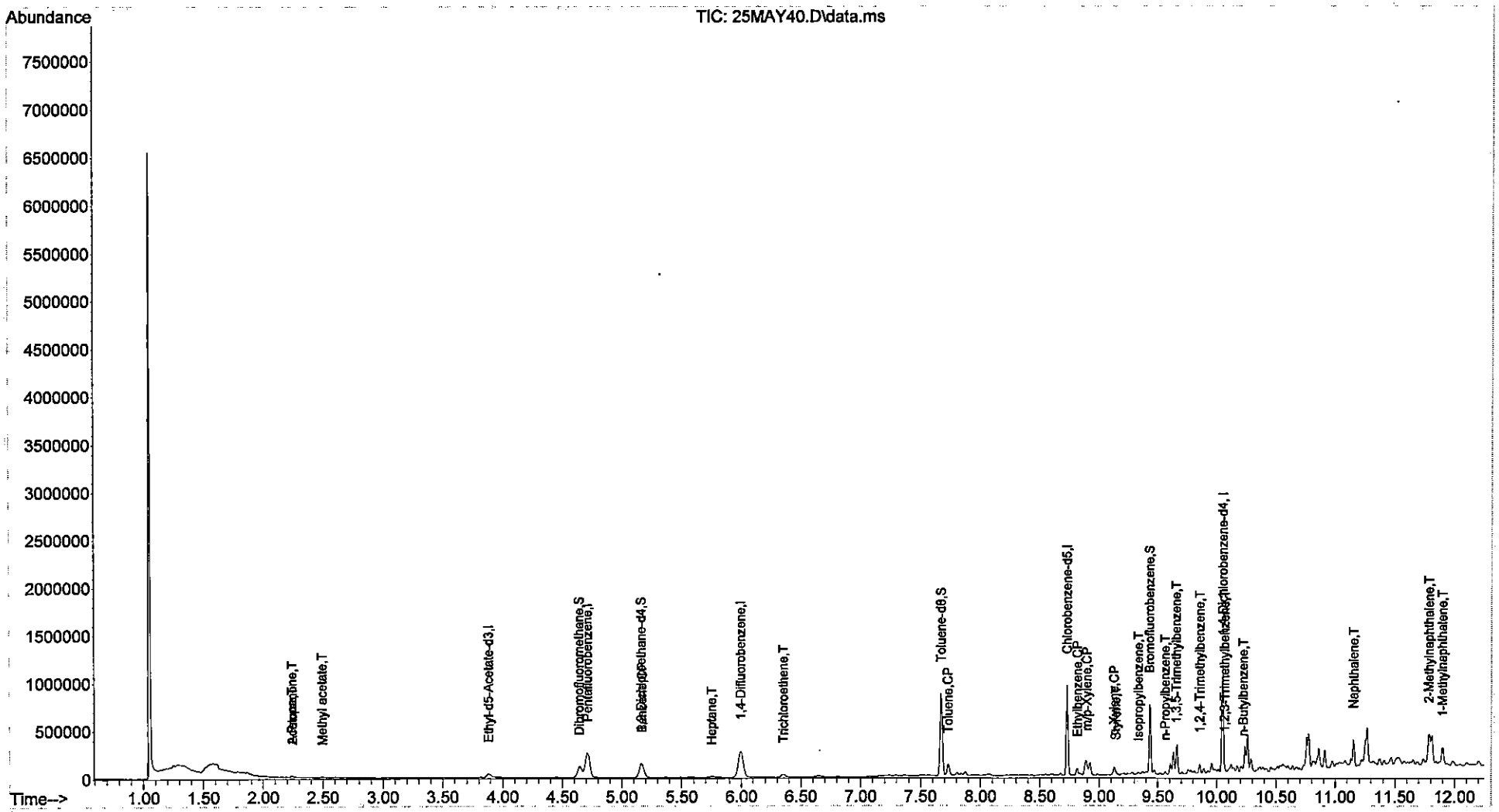
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	257743	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	379578	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	350869	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183602	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	69423	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	109737	16.67	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 83.35%#				
45) 1,2-Dichloroethane-d4	5.164	65	122428	19.10	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.50%				
64) Toluene-d8	7.671	98	436866	19.08	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.40%				
85) Bromofluorobenzene	9.433	95	161296	19.43	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.15%				
Target Compounds							Qvalue
13) Acetone	2.242	43	20368	5.78	ug/L		94
17) Methyl acetate	2.492	43	11605	1.47	ug/L	#	61
47) Benzene	5.171	78	25773	1.06	ug/L		85
50) Heptane	5.752	43	18622	3.73	ug/L	#	23
54) Trichloroethene	6.353	130	13577	1.99	ug/L		91
65) Toluene	7.729	91	62715	2.48	ug/L		97
78) Ethylbenzene	8.817	91	37312	1.37	ug/L		91
79) m/p-Xylene	8.896	91	57293	2.78	ug/L		100
80) Styrene	9.140	104	8644	0.49	ug/L		73
81) o-Xylene	9.125	91	26855	1.23	ug/L		96
84) Isopropylbenzene	9.333	105	5243	0.20	ug/L	#	49
90) n-Propylbenzene	9.562	91	16210	0.55	ug/L	#	53
93) 1,3,5-Trimethylbenzene	9.655	105	10096	0.50	ug/L		91
95) 1,2,4-Trimethylbenzene	9.856	105	35711	1.65	ug/L		87
101) 1,2,3-Trimethylbenzene	10.064	105	10074	0.46	ug/L	#	82
104) n-Butylbenzene	10.221	91	10158	0.54	ug/L	#	69
110) Naphthalene	11.152	128	142265	4.34	ug/L		98
112) 2-Methylnaphthalene	11.783	142	97883	5.81	ug/L		96
113) 1-Methylnaphthalene	11.897	142	62182	3.96	ug/L		99
115) 2-Propanone	2.242	43	20368	6.54	ug/L		94

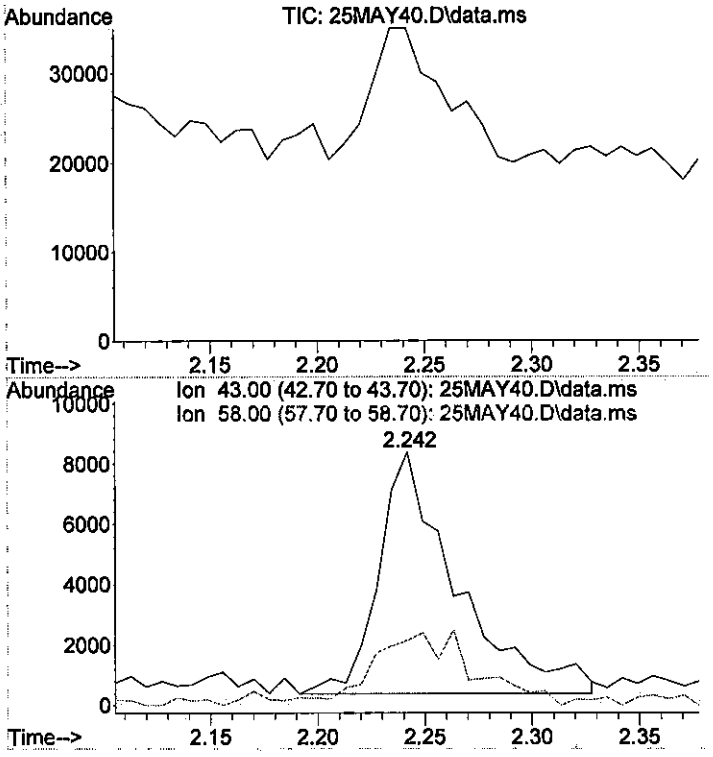
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY40.D
Acq On : 26 May 2018 2:38 am
Operator : EMR
Sample : 18051328-01A
Misc : IS/SS 200-20081
ALS Vial : 38 Sample Multiplier: 1

Quant Time: May 26 09:19:13 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

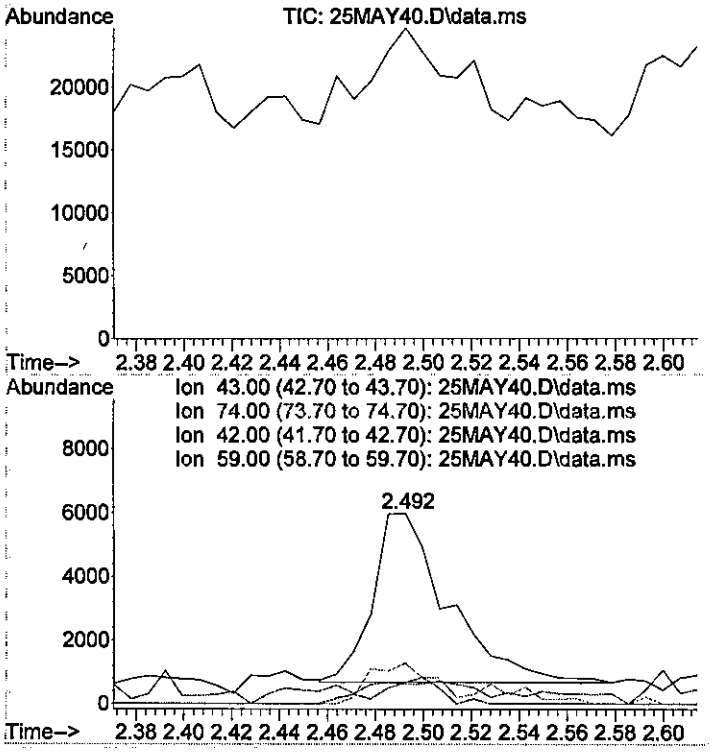




#13
Acetone
Concen: 5.78 ug/L
RT: 2.242 min Scan# 231
Delta R.T. 0.008 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 43 Resp: 20368

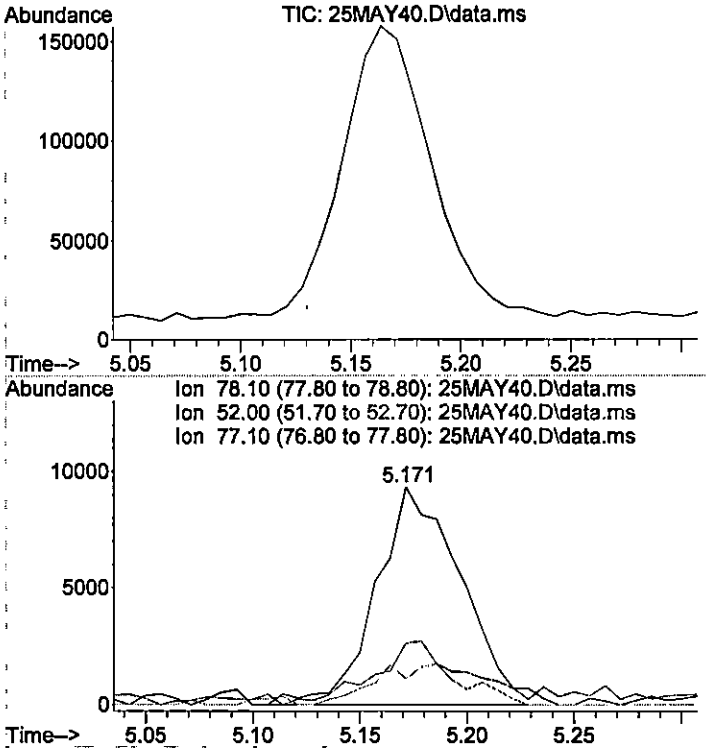
Ion	Ratio	Lower	Upper
43	100		
58	39.2	15.8	55.8



#17
Methyl acetate
Concen: 1.47 ug/L
RT: 2.492 min Scan# 266
Delta R.T. 0.007 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 43 Resp: 11605

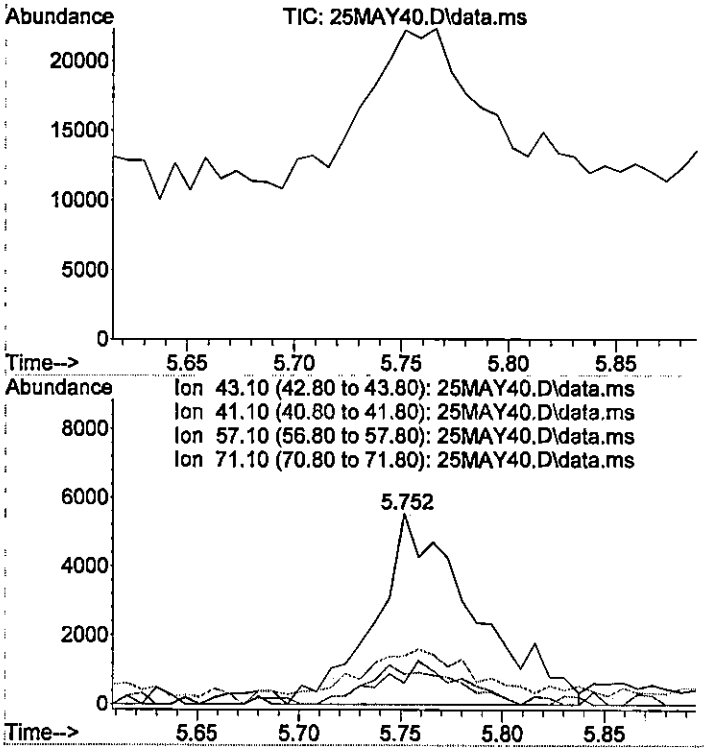
Ion	Ratio	Lower	Upper
43	100		
74	0.0	18.2	27.4#
42	0.0	10.8	16.2#
59	0.0	6.2	9.2#



#47
Benzene
Concen: 1.06 ug/L
RT: 5.171 min Scan# 640
Delta R.T. -0.007 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 78 Resp: 25773

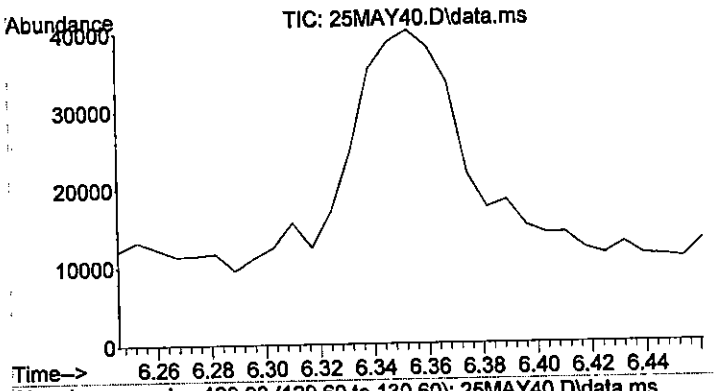
Ion	Ratio	Lower	Upper
78	100		
52	20.0	0.0	34.9
77	30.9	3.0	43.0



#50
Heptane
Concen: 3.73 ug/L
RT: 5.752 min Scan# 721
Delta R.T. -0.008 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 43 Resp: 18622

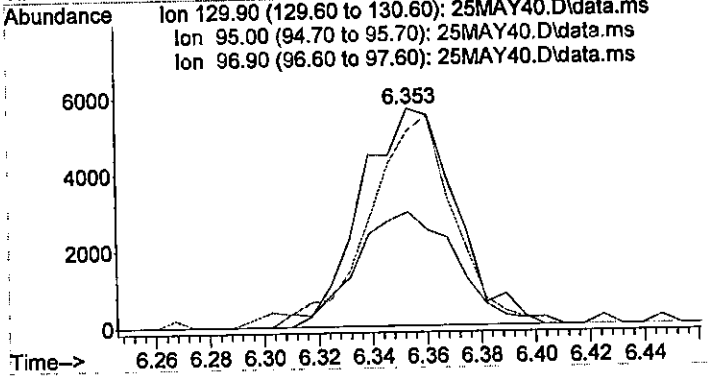
Ion	Ratio	Lower	Upper
43	100		
41	0.0	44.9	67.3#
57	0.0	43.0	64.4#
71	0.0	46.5	69.7#

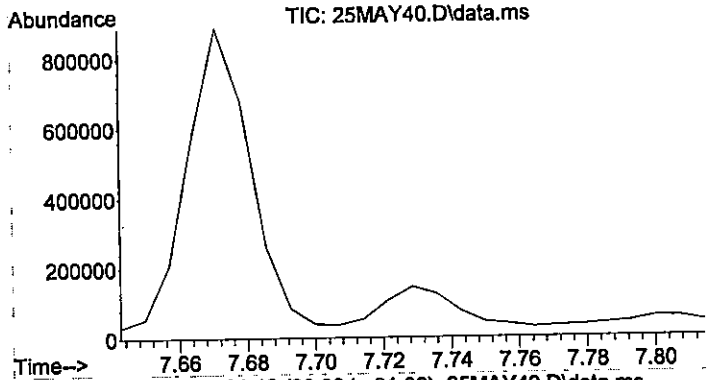


#54
Trichloroethene
Concen: 1.99 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion:130 Resp: 13577

Ion	Ratio	Lower	Upper
130	100		
95	88.9	79.0	119.0
97	57.0	42.5	82.5

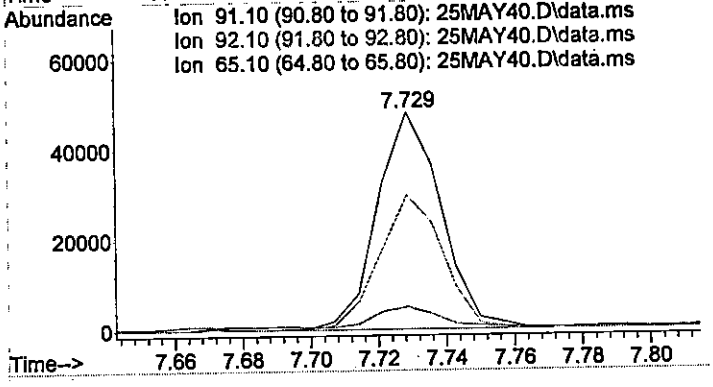


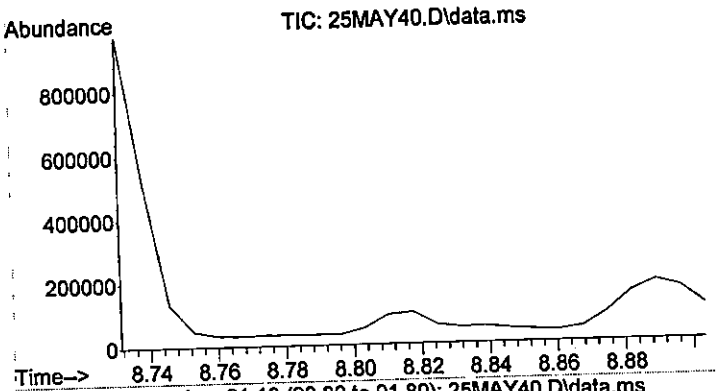


#65
Toluene
Concen: 2.48 ug/L
RT: 7.729 min Scan# 997
Delta R.T. 0.001 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 91 Resp: 62715

Ion	Ratio	Lower	Upper
91	100		
92	61.7	39.2	79.2
65	9.6	0.0	30.7

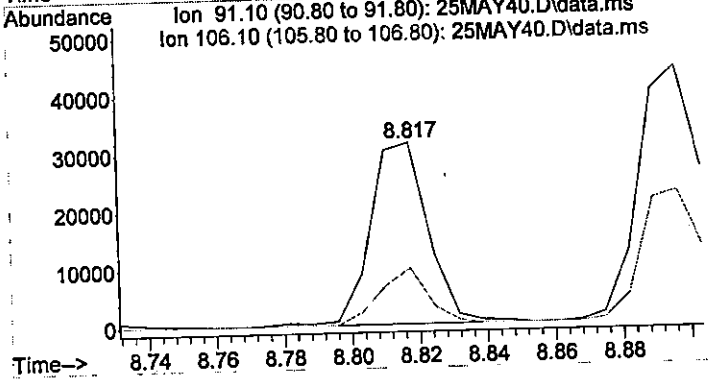


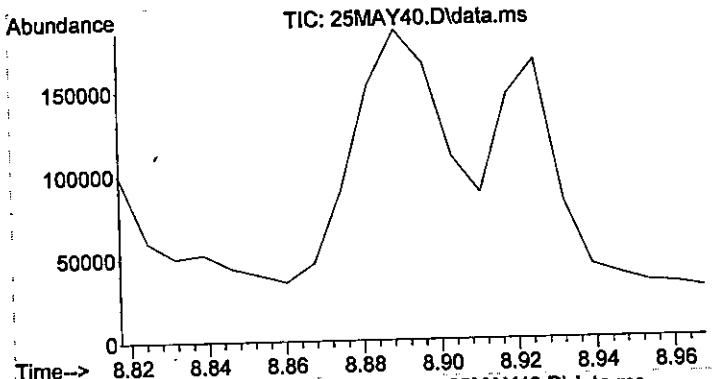


#78
Ethylbenzene
Concen: 1.37 ug/L
RT: 8.817 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 91 Resp: 37312

Ion	Ratio	Lower	Upper
91	100		
106	26.0	11.1	51.1

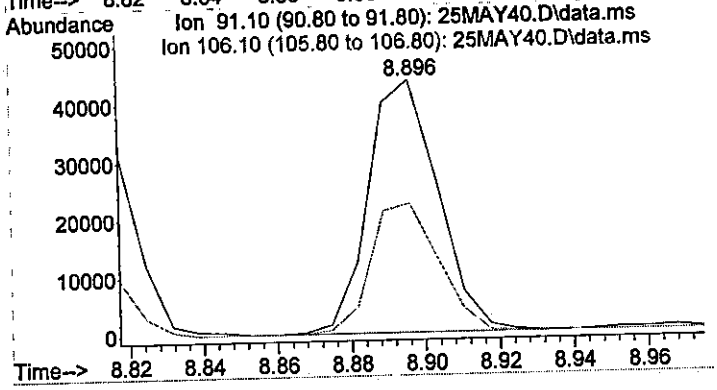


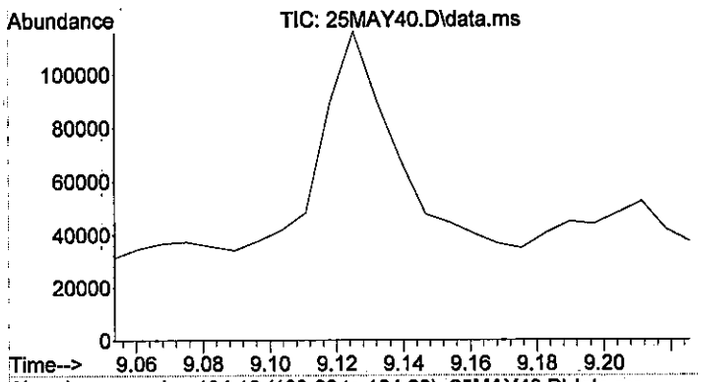


#79
m/p-Xylene
Concen: 2.78 ug/L
RT: 8.896 min Scan# 1160
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 91 Resp: 57293

Ion	Ratio	Lower	Upper
91	100		
106	49.9	30.2	70.2

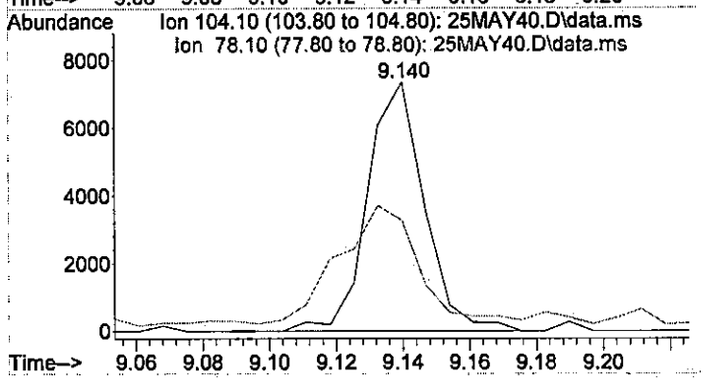


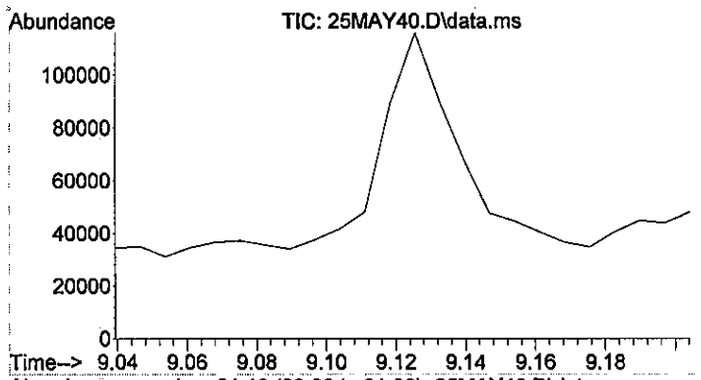


#80
Styrene
Concen: 0.49 ug/L
RT: 9.140 min Scan# 1194
Delta R.T. 0.001 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion:104 Resp: 8644

Ion	Ratio	Lower	Upper
104	100		
78	65.9	28.0	68.0

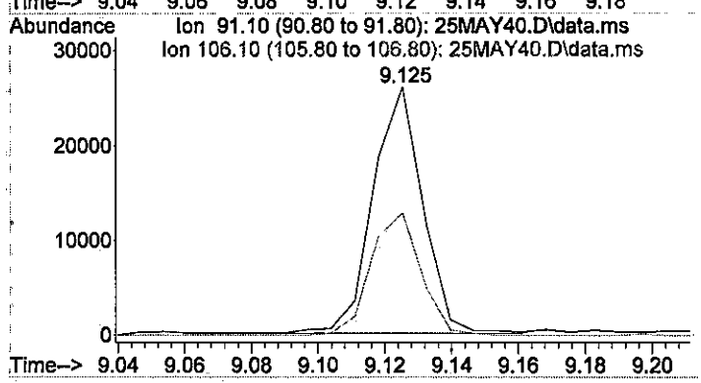


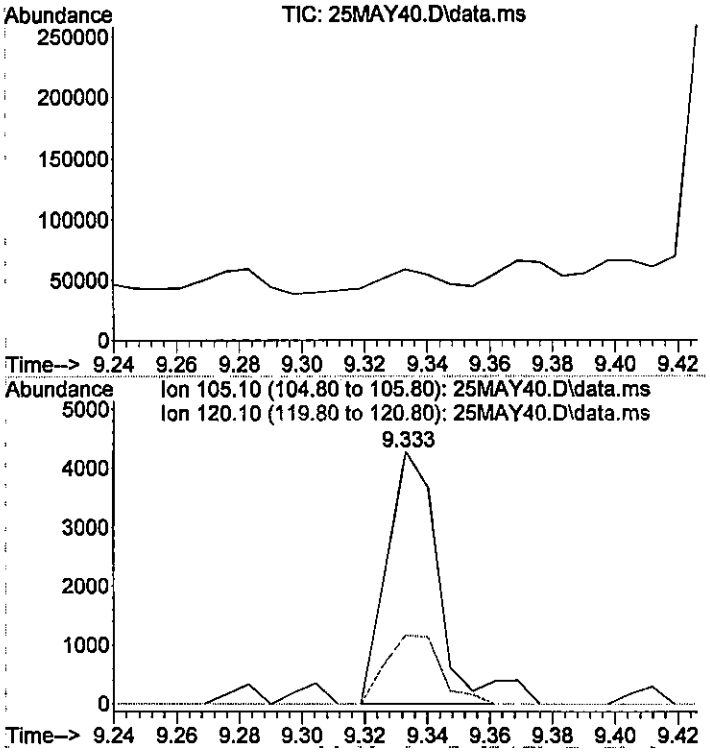


#81
o-Xylene
Concen: 1.23 ug/L
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 91 Resp: 26855

Ion	Ratio	Lower	Upper
91	100		
106	50.5	27.9	67.9

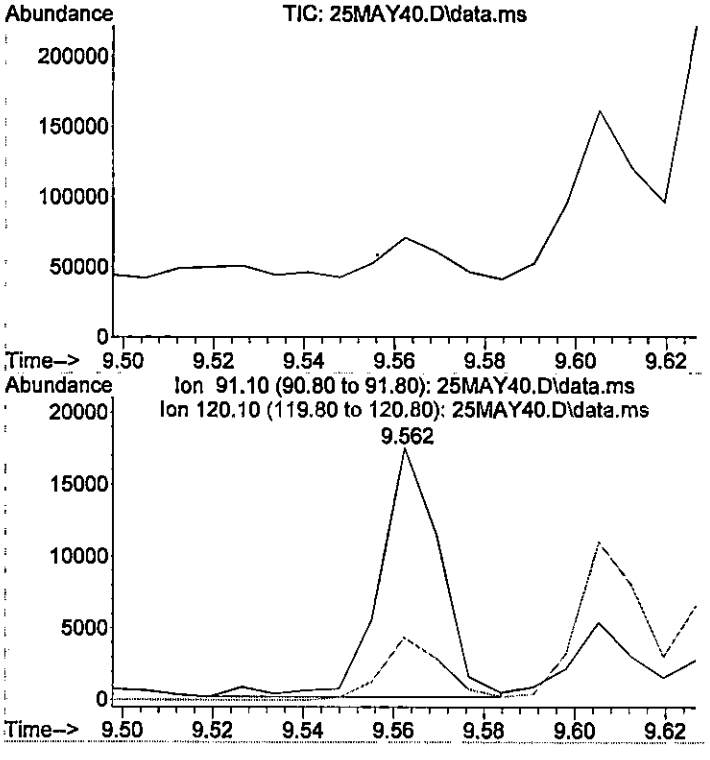




#84
Isopropylbenzene
Concen: 0.20 ug/L
RT: 9.333 min Scan# 1221
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion:105 Resp: 5243

Ion	Ratio	Lower	Upper
105	100		
120	0.0	6.0	46.0#



#90
n-Propylbenzene
Concen: 0.55 ug/L
RT: 9.562 min Scan# 1253
Delta R.T. 0.000 min
Lab File: 25MAY40.D
Acq: 26 May 2018 2:38 am

Tgt Ion: 91 Resp: 16210

Ion	Ratio	Lower	Upper
91	100		
120	0.0	2.6	42.6#

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.346	168	156800	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	274644	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.549	117	263652	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	136661	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	50595	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74854	16.12	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.60%#			
46) 1,2-Dichloroethane-d4	4.797	65	104197	17.15	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.75%			
65) Toluene-d8	8.572	98	317732	19.72	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.60%			
86) Bromofluorobenzene	11.954	95	142530	19.85	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.	d	
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	3.497	43	6198m	1.37	ug/L	
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D. d	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.187	130	28224	6.98 ug/L	97
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	8.672	91	8055m	0.47 ug/L	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	10.733	91	8113m	0.44 ug/L	
80) m/p-Xylene	10.900	91	15638	1.06 ug/L	98
81) Styrene	0.000		0	N.D.	
82) o-Xylene	11.335	91	10401m	0.69 ug/L	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	12.835	105	5187m	0.34 ug/L	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

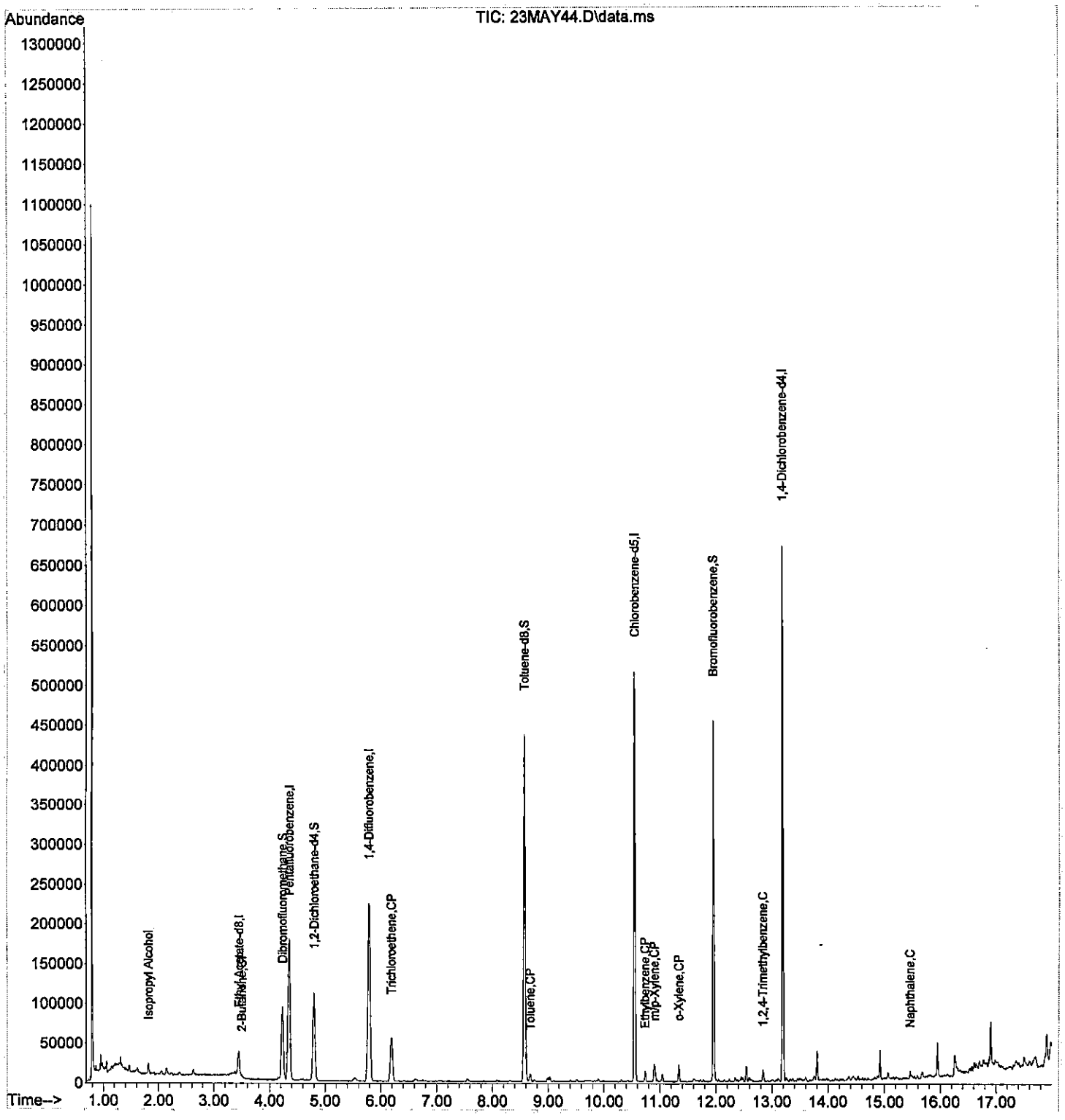
Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	15.462	128	5125m	0.31 ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	1.814	45	8879	21.90 ug/L #	56
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

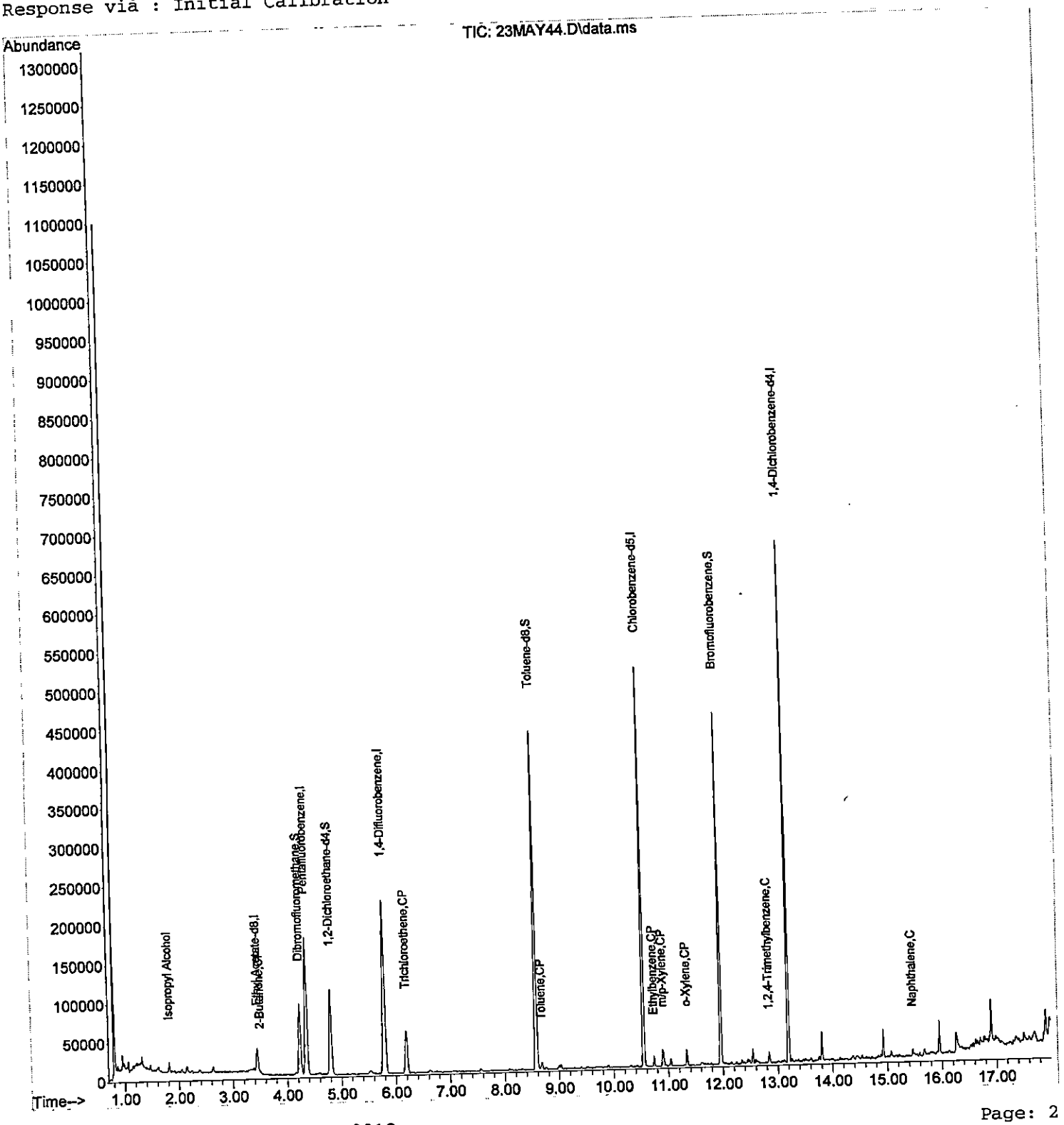
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	156800	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	274644	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	263652	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	136661	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.445	46	50595	20.00	ug/L	#	0.01
System Monitoring Compounds							
43) Dibromofluoromethane	4.231	111	74854	16.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.60%#				
46) 1,2-Dichloroethane-d4	4.797	65	104197	17.15	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.75%				
65) Toluene-d8	8.572	98	317732	19.72	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.60%				
86) Bromofluorobenzene	11.954	95	142530	19.85	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.25%				
Target Compounds							Qvalue
32) 2-Butanone	3.497	43	6198m	1.37	ug/L		
53) Trichloroethene	6.187	130	28224	6.98	ug/L		97
66) Toluene	8.672	91	8055m	0.47	ug/L		
79) Ethylbenzene	10.733	91	8113m	0.44	ug/L		
80) m/p-Xylene	10.900	91	15638	1.06	ug/L		98
82) o-Xylene	11.335	91	10401m	0.69	ug/L		
96) 1,2,4-Trimethylbenzene	12.835	105	5187m	0.34	ug/L		
111) Naphthalene	15.462	128	5125m	0.31	ug/L		
117) Isopropyl Alcohol	1.814	45	8879	21.90	ug/L	#	56

(#) = qualifier out of range (m) = manual integration (+) = signals summed

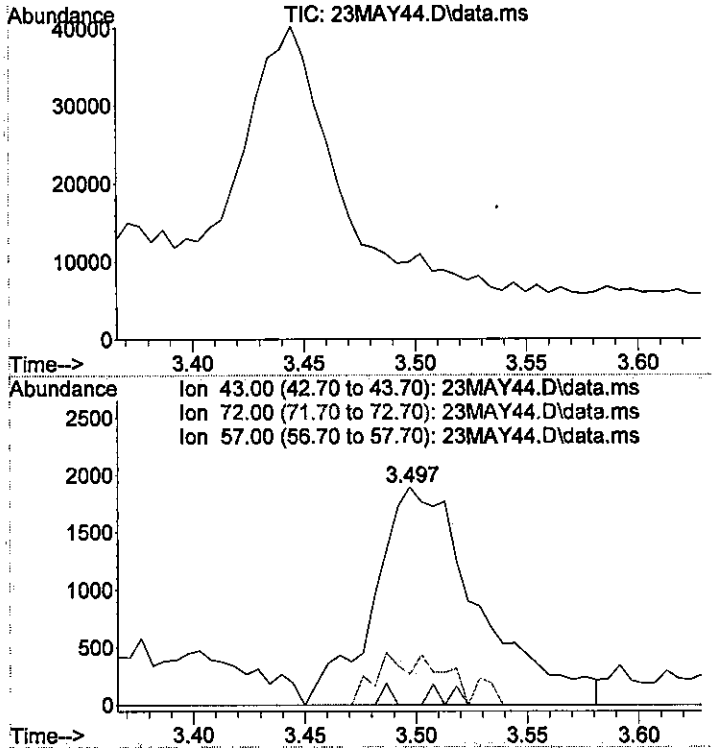
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY44.D
Acq On : 24 May 2018 4:32 am
Operator : AK
Sample : 18051328-02A
Misc : IS/SS 200-20033
ALS Vial : 43 Sample Multiplier: 1

Quant Time: May 24 11:39:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



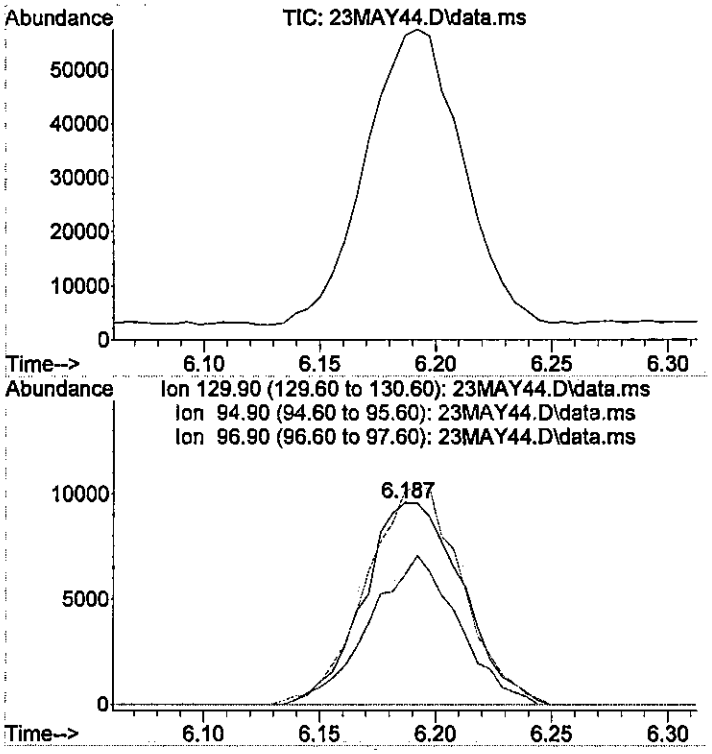
9AC0522.M Sun Jun 24 17:29:27 2018



#32
2-Butanone
Concen: 1.37 ug/L m
RT: 3.497 min Scan# 536
Delta R.T. 0.010 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion: 43 Resp: 6198

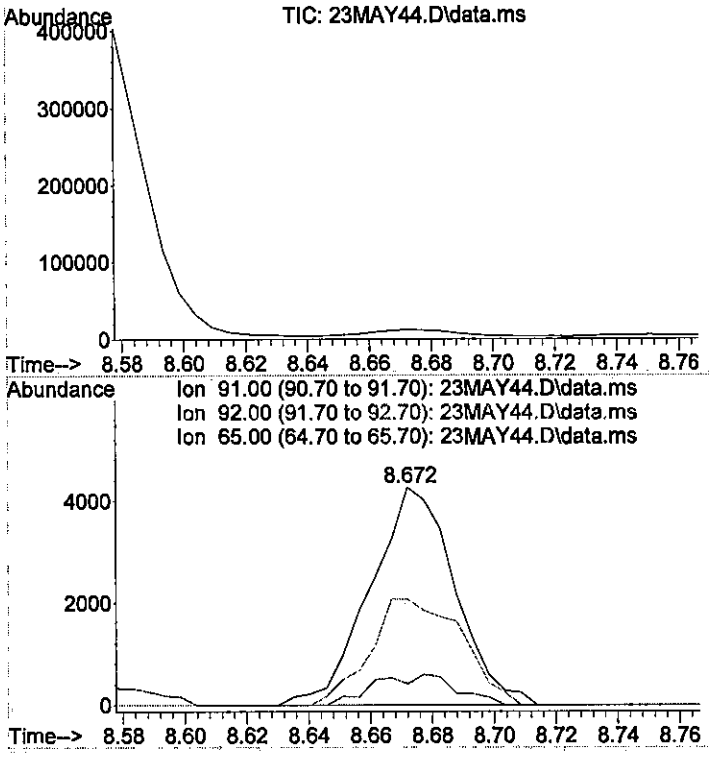
Ion	Ratio	Lower	Upper
43	100		
72	14.2	0.0	53.5
57	0.0	0.0	37.8



#53
Trichloroethene
Concen: 6.98 ug/L
RT: 6.187 min Scan# 1049
Delta R.T. -0.005 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion:130 Resp: 28224

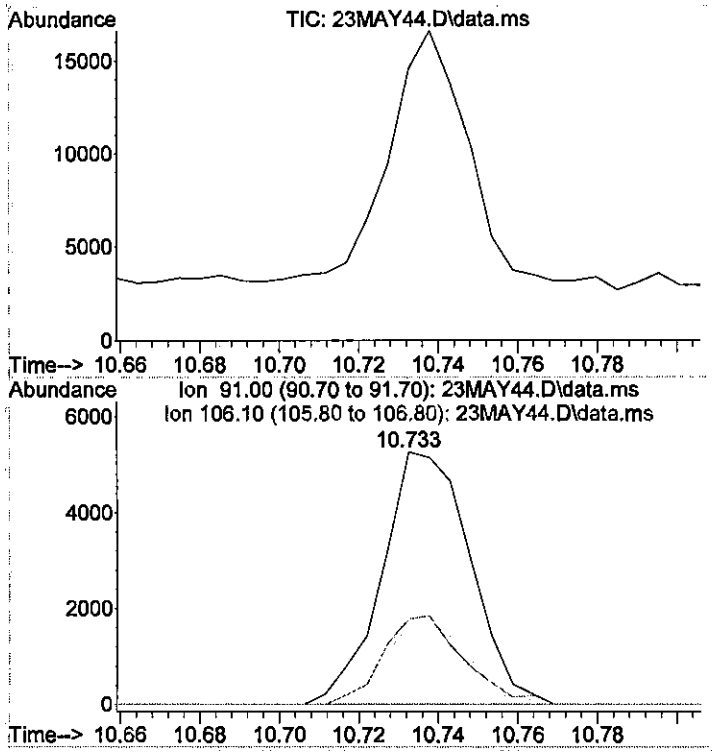
Ion	Ratio	Lower	Upper
130	100		
95	104.9	77.1	137.1
97	66.6	39.6	99.6



#66
Toluene
Concen: 0.47 ug/L m
RT: 8.672 min Scan# 1523
Delta R.T. -0.005 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion: 91 Resp: 8055

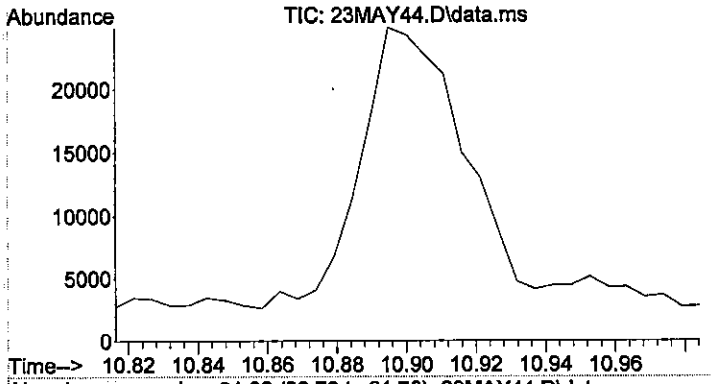
Ion	Ratio	Lower	Upper
91	100		
92	53.0	29.0	89.0
65	0.0	0.0	42.5



#79
Ethylbenzene
Concen: 0.44 ug/L m
RT: 10.733 min Scan# 1916
Delta R.T. -0.005 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion: 91 Resp: 8113

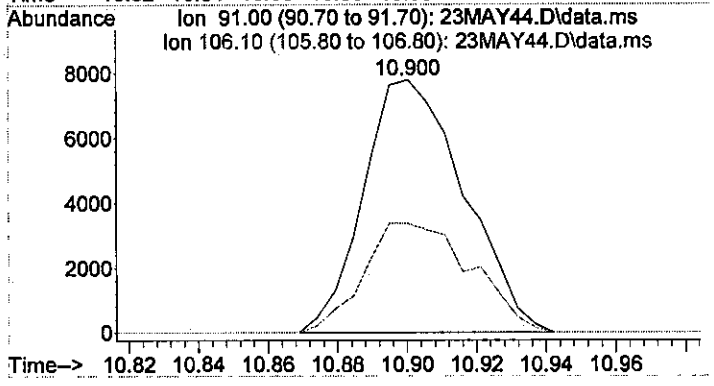
Ion	Ratio	Lower	Upper
91	100		
106	32.3	0.2	60.2

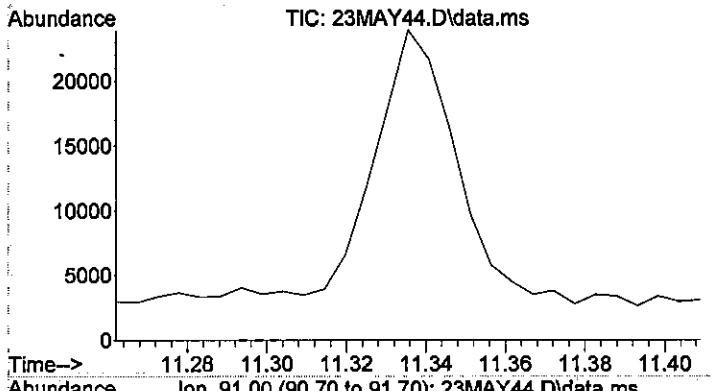


#80
m/p-Xylene
Concen: 1.06 ug/L
RT: 10.900 min Scan# 1948
Delta R.T. -0.006 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion: 91 Resp: 15638

Ion	Ratio	Lower	Upper
91	100		
106	46.5	17.9	77.9

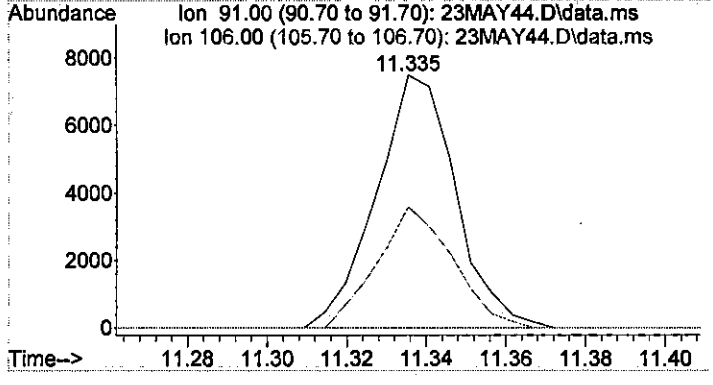




#82
o-Xylene
Concen: 0.69 ug/L m
RT: 11.335 min Scan# 2031
Delta R.T. -0.006 min
Lab File: 23MAY44.D
Acq: 24 May 2018 4:32 am

Tgt Ion: 91 Resp: 10401

Ion	Ratio	Lower	Upper
91	100		
106	45.7	15.8	75.8



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	247304	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	367951	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	349643	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	181030	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	65867	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	112302	17.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 88.00%				
45) 1,2-Dichloroethane-d4	5.164	65	121114	19.49	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.45%				
64) Toluene-d8	7.671	98	430364	18.86	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.30%				
85) Bromofluorobenzene	9.433	95	153805	18.59	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 92.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.654	64	10499	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.234	43	11427	3.38	ug/L	#	39
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	2.492	43	43226	5.72	ug/L	#	89
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	5377	0.68	ug/L	#	15
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D. d			
32) Ethyl Acetate	0.000		0	N.D. d			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	5.766	43	10413	2.03 ug/L #	23
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	27216	4.12 ug/L	97
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

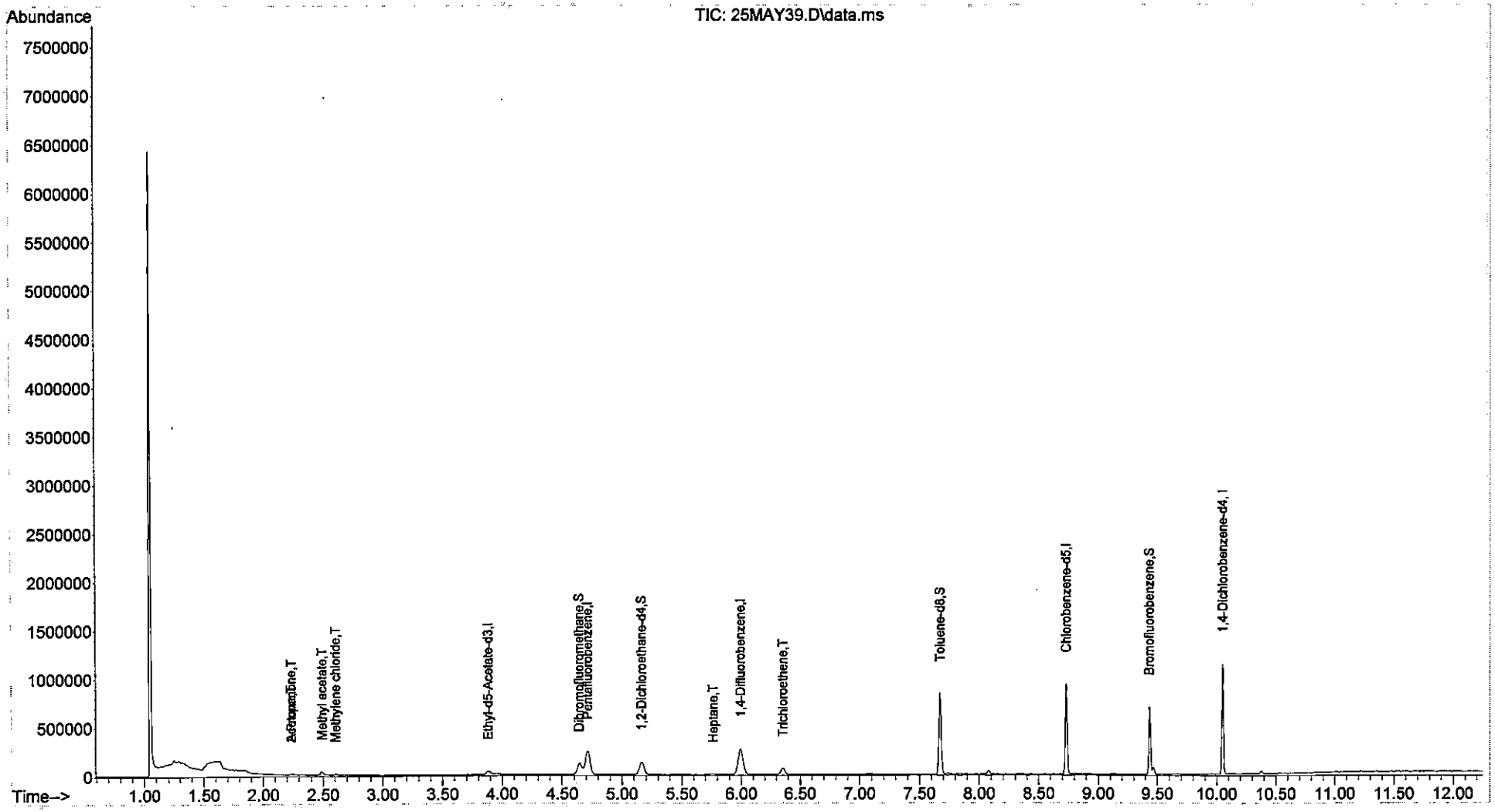
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	11427	3.87 ug/L #	39
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

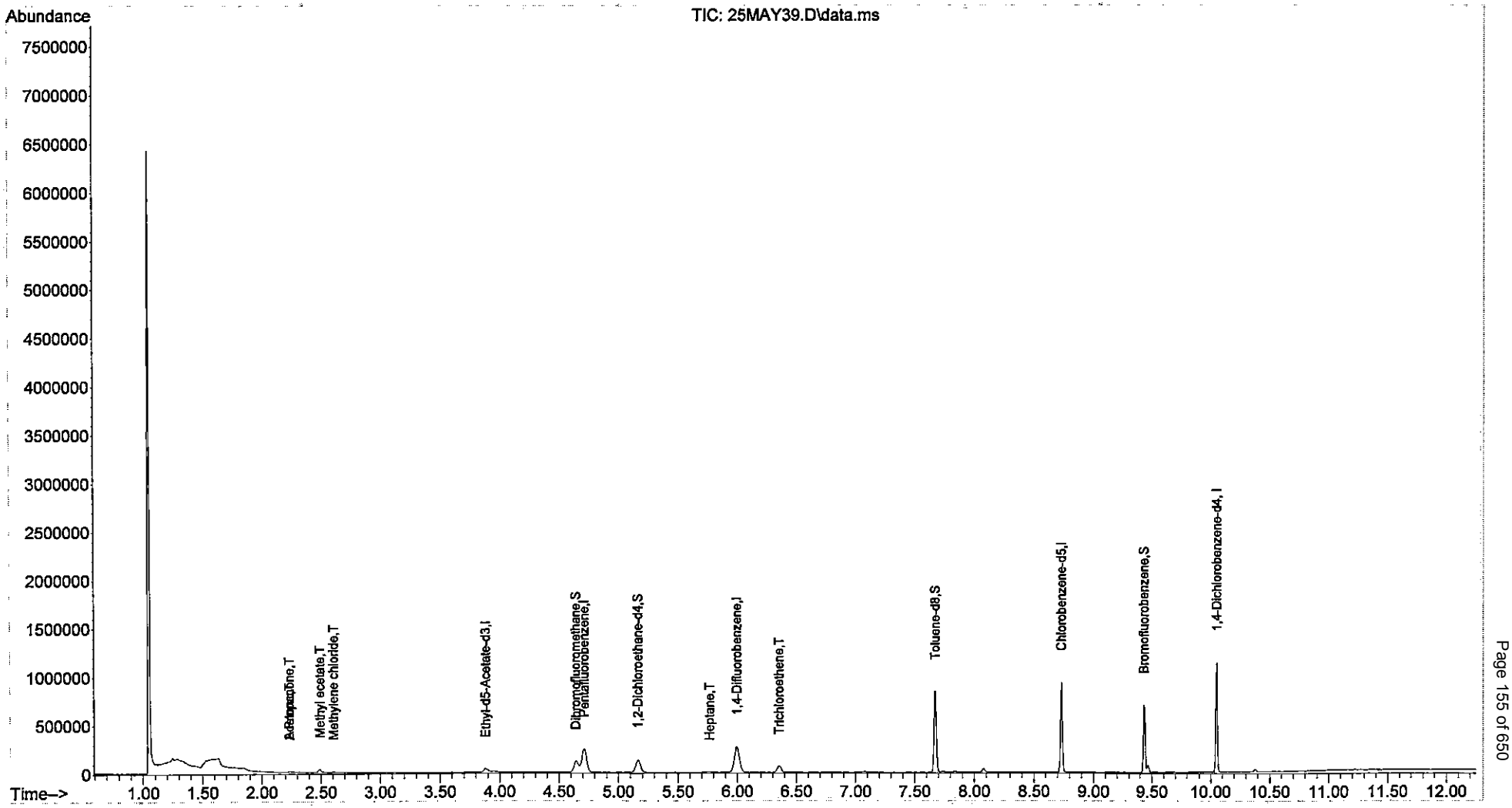
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	247304	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	367951	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	349643	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	181030	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	65867	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	112302	17.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 88.00%				
45) 1,2-Dichloroethane-d4	5.164	65	121114	19.49	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.45%				
64) Toluene-d8	7.671	98	430364	18.86	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.30%				
85) Bromofluorobenzene	9.433	95	153805	18.59	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 92.95%				
Target Compounds							Qvalue
6) Chloroethane	1.654	64	10499	Below Cal		#	50
13) Acetone	2.234	43	11427	3.38	ug/L	#	39
17) Methyl acetate	2.492	43	43226	5.72	ug/L	#	89
19) Methylene chloride	2.607	49	5377	0.68	ug/L	#	15
50) Heptane	5.766	43	10413	2.03	ug/L	#	23
54) Trichloroethene	6.353	130	27216	4.12	ug/L		97
115) 2-Propanone	2.234	43	11427	3.87	ug/L	#	39

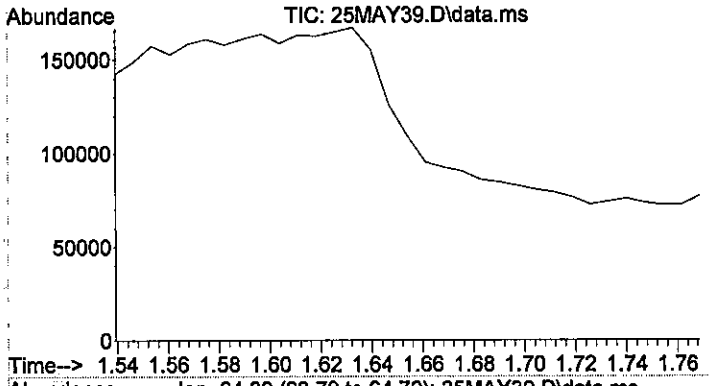
(#) = qualifier out of range (m) = manual integration (+) = signals summed

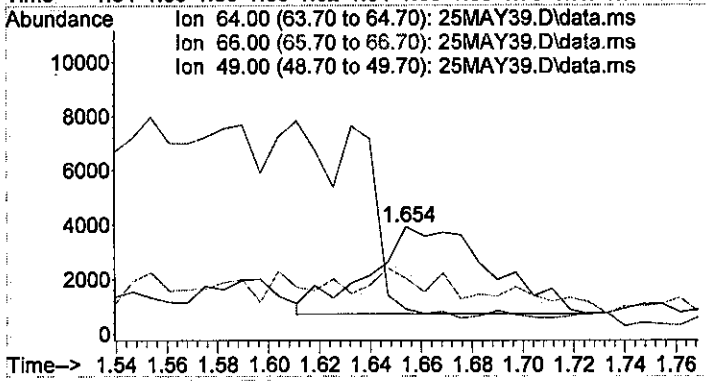
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY39.D
Acq On : 26 May 2018 2:22 am
Operator : EMR
Sample : 18051328-04A
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 26 09:17:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



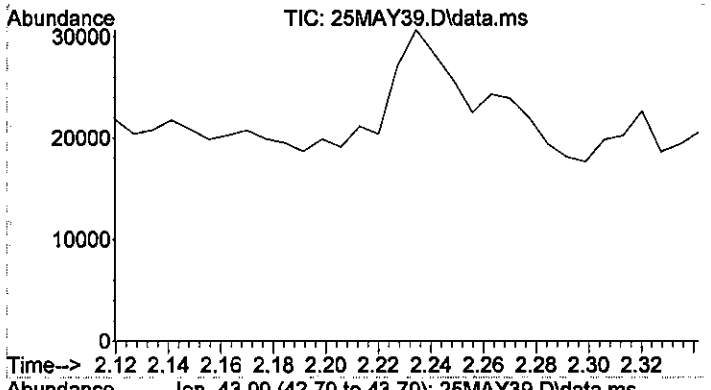


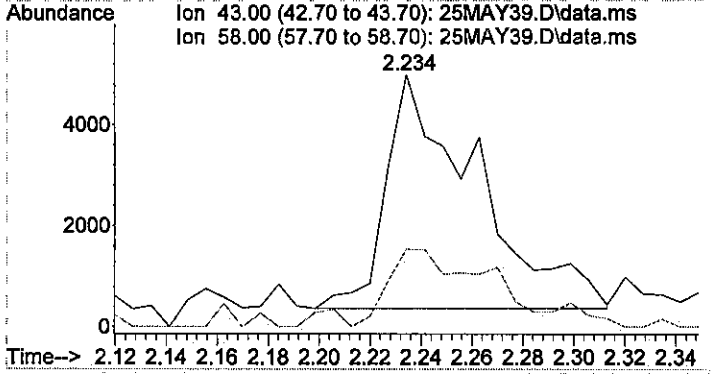


#6
Chloroethane
Concen: Below Cal
RT: 1.654 min Scan# 149
Delta R.T. 0.014 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion: 64 Resp: 10499

Ion	Ratio	Lower	Upper
64	100		
66	0.0	10.8	50.8#
49	0.0	0.0	37.2

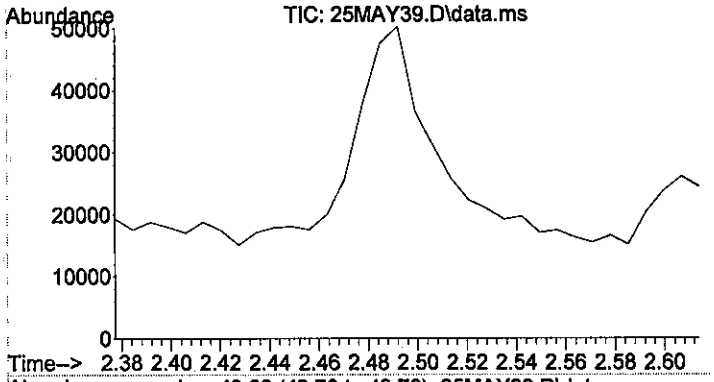




#13
Acetone
Concen: 3.38 ug/L
RT: 2.234 min Scan# 230
Delta R.T. 0.000 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion: 43 Resp: 11427

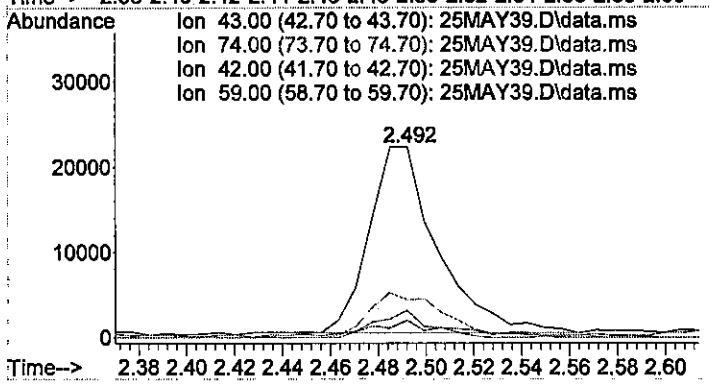
Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.8	55.8#

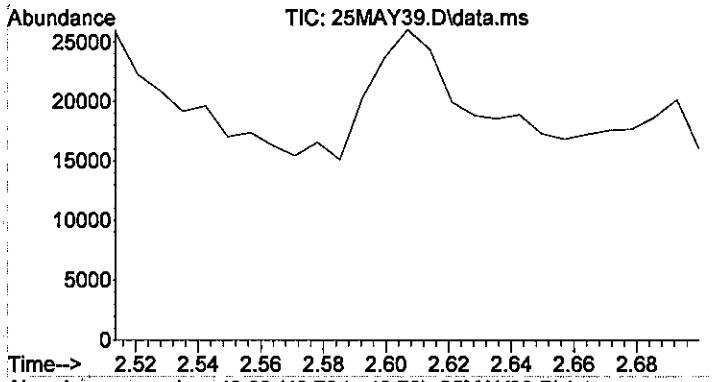


#17
Methyl acetate
Concen: 5.72 ug/L
RT: 2.492 min Scan# 266
Delta R.T. 0.007 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion: 43 Resp: 43226

Ion	Ratio	Lower	Upper
43	100		
74	27.9	18.2	27.4#
42	15.6	10.8	16.2
59	0.0	6.2	9.2#

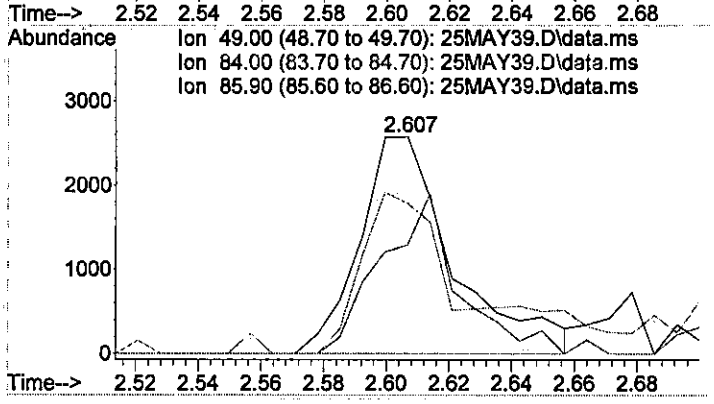


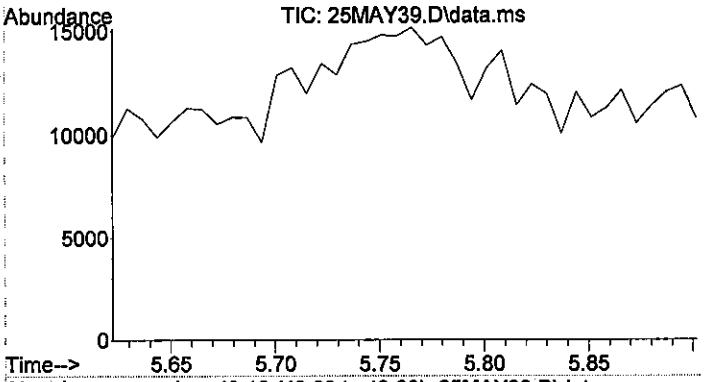


#19
Methylene chloride
Concen: 0.68 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion: 49 Resp: 5377

Ion	Ratio	Lower	Upper
49	100		
84	0.0	62.7	102.7#
86	0.0	32.5	72.5#

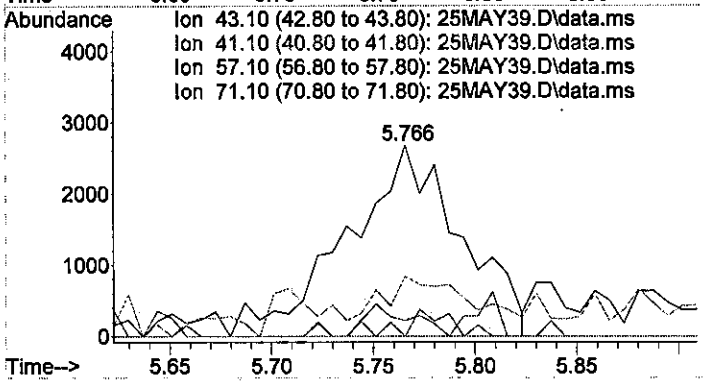


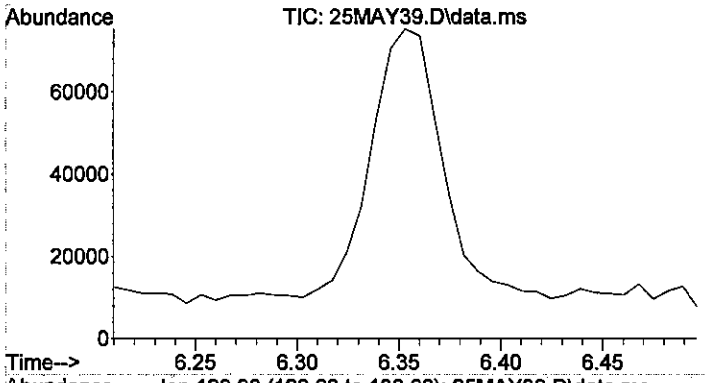


#50
Heptane
Concen: 2.03 ug/L
RT: 5.766 min Scan# 723
Delta R.T. 0.007 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion: 43 Resp: 10413

Ion	Ratio	Lower	Upper
43	100		
41	0.0	44.9	67.3#
57	0.0	43.0	64.4#
71	0.0	46.5	69.7#

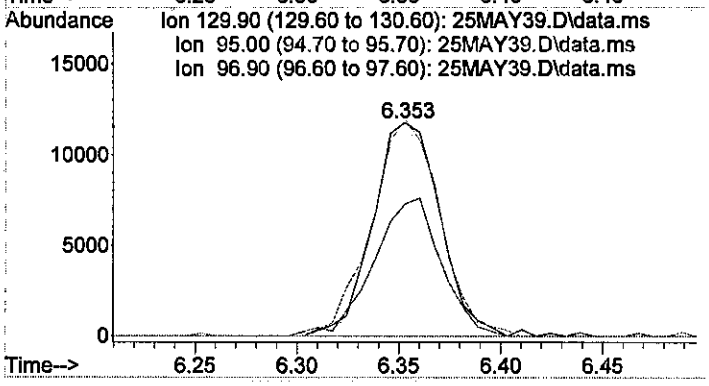




#54
Trichloroethene
Concen: 4.12 ug/L
RT: 6.353 min Scan# 805
Delta R.T. -0.000 min
Lab File: 25MAY39.D
Acq: 26 May 2018 2:22 am

Tgt Ion:130 Resp: 27216

Ion	Ratio	Lower	Upper
130	100		
95	102.4	79.0	119.0
97	64.6	42.5	82.5



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	156194	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	272818	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	259289	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	134655	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.445	46	50903	20.00	ug/L	#	0.01
System Monitoring Compounds							
43) Dibromofluoromethane	4.231	111	74707	16.20	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.00%#				
46) 1,2-Dichloroethane-d4	4.797	65	103720	17.19	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.95%				
65) Toluene-d8	8.572	98	315947	19.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.70%				
86) Bromofluorobenzene	11.954	95	138572	19.63	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.	d		
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	2.045	43	7016m	1.38	ug/L		
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39)	Chloroform	0.000		0	N.D.		
40)	Cyclohexane	0.000		0	N.D.		
42)	1,1,1-Trichloroethane	0.000		0	N.D.		
44)	Carbon tetrachloride	0.000		0	N.D.		
45)	1,1-Dichloropropene	0.000		0	N.D.	d	
47)	1,2-Dichloroethane	0.000		0	N.D.		
48)	Benzene	0.000		0	N.D.		
49)	Isobutyl Alcohol	0.000		0	N.D.	d	
50)	Tertiaryamylmethylether	0.000		0	N.D.		
51)	Heptane	0.000		0	N.D.	d	
52)	Methylcyclohexane	0.000		0	N.D.		
53)	Trichloroethene	0.000		0	N.D.		
54)	n-Butanol	0.000		0	N.D.		
55)	1,2-Dichloropropane	0.000		0	N.D.		
56)	Dibromomethane	0.000		0	N.D.		
57)	1,4-Dioxane	0.000		0	N.D.		
58)	Methyl methacrylate	0.000		0	N.D.		
59)	Bromodichloromethane	0.000		0	N.D.		
60)	2-Nitropropane	0.000		0	N.D.		
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.		
62)	cis-1,3-Dichloropropene	0.000		0	N.D.		
64)	4-Methyl-2-pentanone	0.000		0	N.D.		
66)	Toluene	0.000		0	N.D.		
67)	Chloropicrin	0.000		0	N.D.		
68)	trans-1,3-Dichloropropene	0.000		0	N.D.		
69)	Ethyl methacrylate	0.000		0	N.D.		
70)	1,1,2-Trichloroethane	0.000		0	N.D.		
71)	Tetrachloroethene	0.000		0	N.D.		
72)	1,3-Dichloropropane	0.000		0	N.D.		
73)	2-Hexanone	0.000		0	N.D.		
74)	Chlorodibromomethane	0.000		0	N.D.		
75)	Butyl acetate	0.000		0	N.D.		
76)	1,2-Dibromoethane	0.000		0	N.D.		
77)	Chlorobenzene	0.000		0	N.D.		
78)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79)	Ethylbenzene	0.000		0	N.D.		
80)	m/p-Xylene	0.000		0	N.D.		
81)	Styrene	0.000		0	N.D.		
82)	o-Xylene	0.000		0	N.D.		
83)	Cyclohexanone	0.000		0	N.D.		
84)	Bromoform	0.000		0	N.D.		
85)	Isopropylbenzene	0.000		0	N.D.		
87)	Bromobenzene	0.000		0	N.D.		
88)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89)	1,2,3-Trichloropropane	0.000		0	N.D.		
90)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91)	n-Propylbenzene	0.000		0	N.D.		
92)	2-Chlorotoluene	0.000		0	N.D.		
93)	4-Chlorotoluene	0.000		0	N.D.		
94)	1,3,5-Trimethylbenzene	0.000		0	N.D.		
95)	tert-Butylbenzene	0.000		0	N.D.		
96)	1,2,4-Trimethylbenzene	0.000		0	N.D.		
97)	sec-Butylbenzene	0.000		0	N.D.		
99)	1,3-Dichlorobenzene	0.000		0	N.D.		
100)	p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

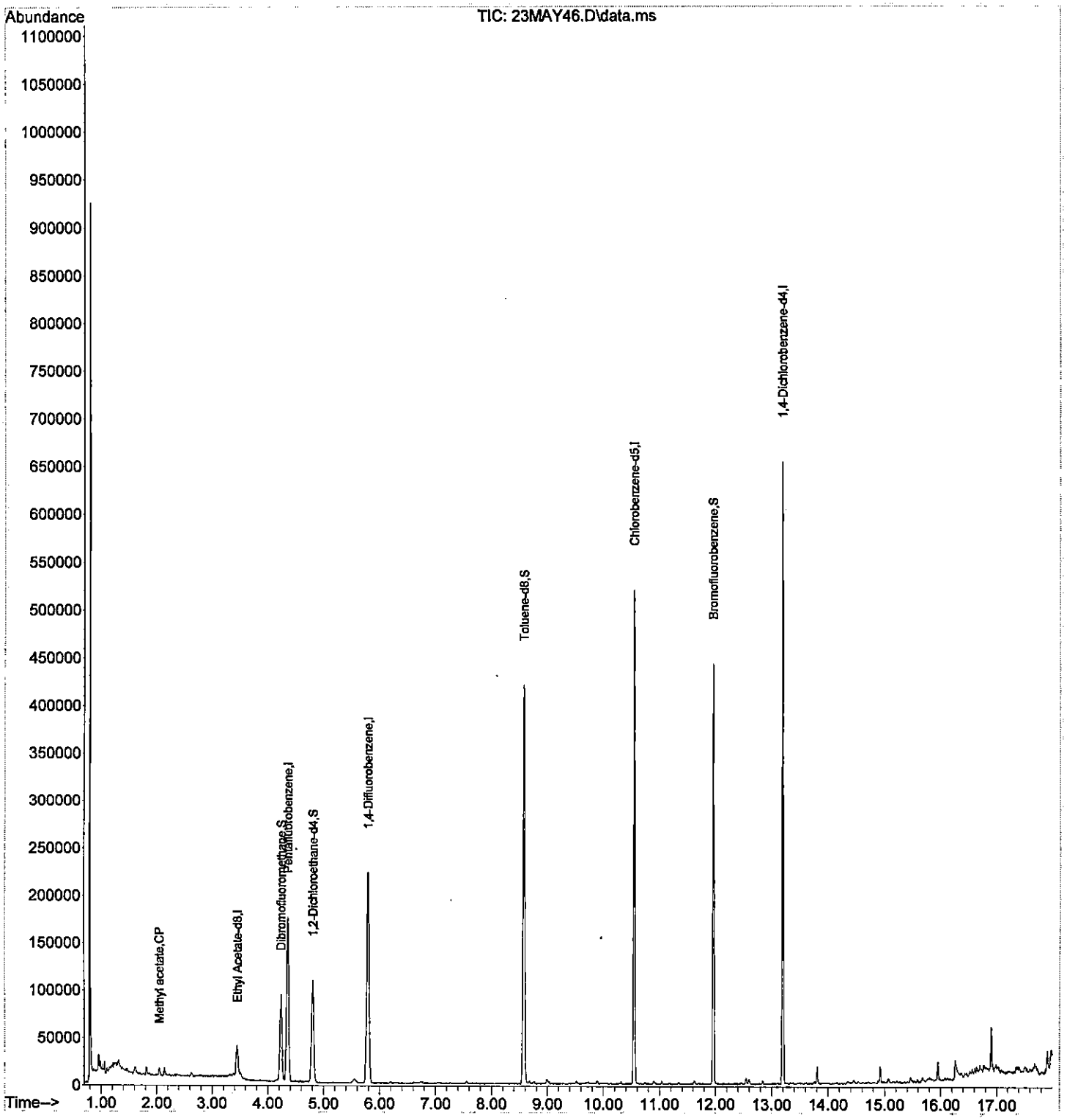
Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

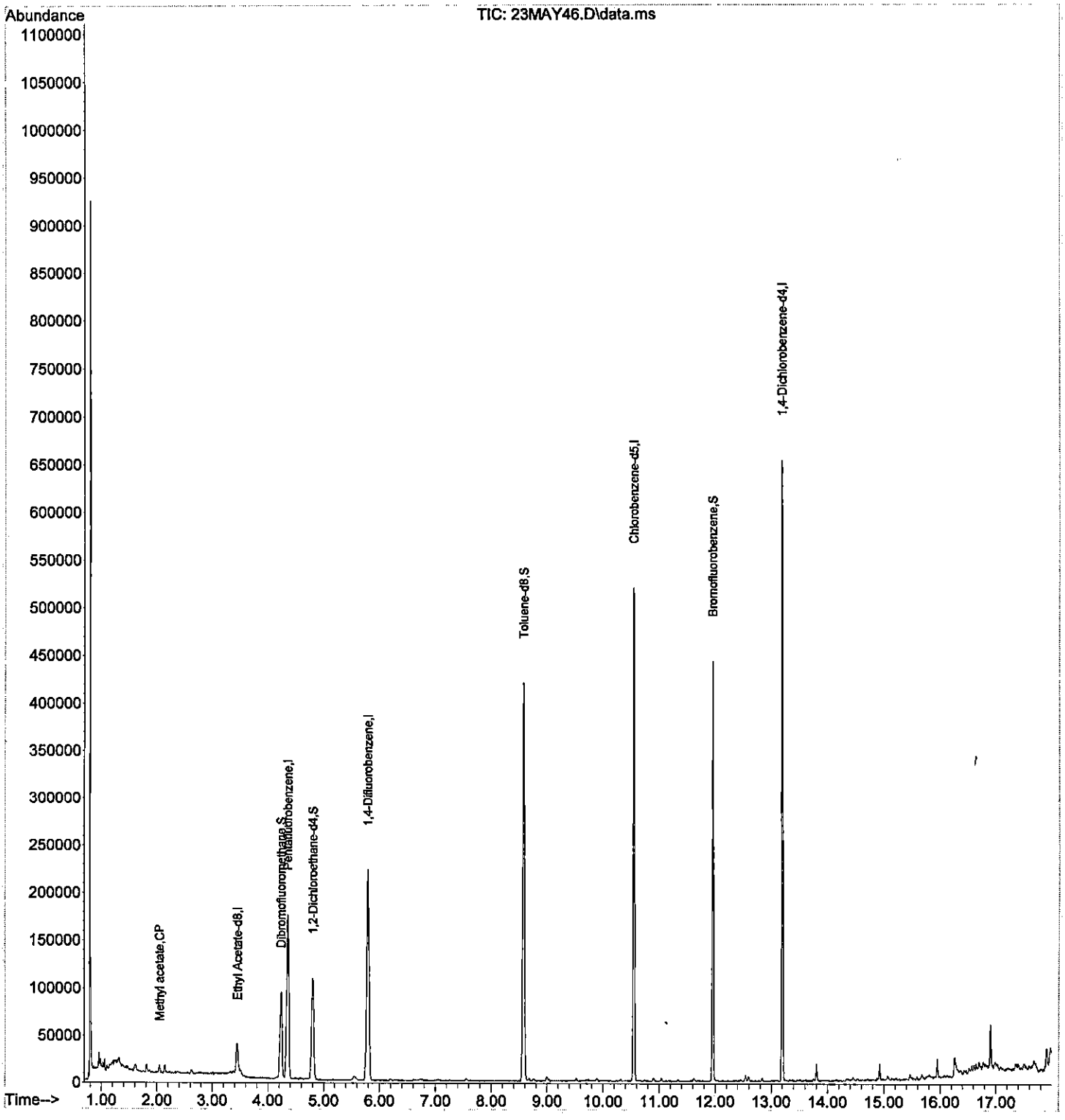
Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

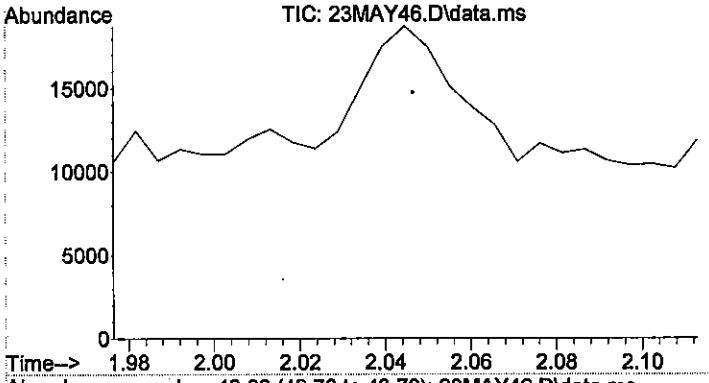
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.346	168	156194	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	272818	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	259289	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	134655	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	50903	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74707	16.20	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.00%#			
46) 1,2-Dichloroethane-d4	4.797	65	103720	17.19	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.95%			
65) Toluene-d8	8.572	98	315947	19.94	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.70%			
86) Bromofluorobenzene	11.954	95	138572	19.63	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.15%			
Target Compounds						Qvalue
17) Methyl acetate	2.045	43	7016m	1.38	ug/L	

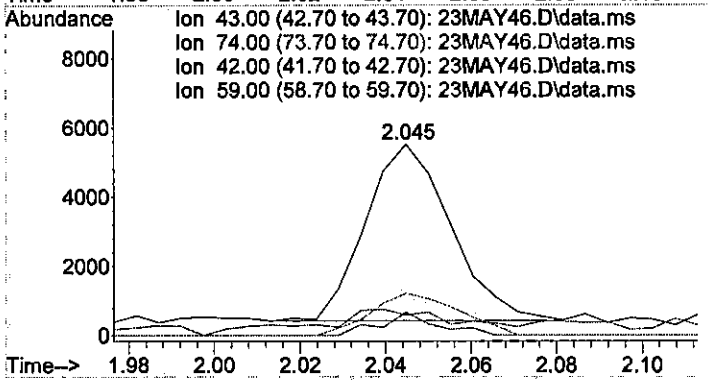
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY46.D
Acq On : 24 May 2018 5:21 am
Operator : AK
Sample : 18051328-05A
Misc : IS/SS 200-20033
ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 24 11:41:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration







#17
Methyl acetate
Concen: 1.38 ug/L m
RT: 2.045 min Scan# 259
Delta R.T. 0.011 min
Lab File: 23MAY46.D
Acq: 24 May 2018 5:21 am

Tgt Ion: 43 Resp: 7016

Ion	Ratio	Lower	Upper
43	100		
74	24.8	14.4	26.7
42	0.0	12.0	22.2#
59	0.0	5.6	10.4#

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	154432	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	274513	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.549	117	260335	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	135074	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	46236	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	74213	15.99	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 79.95%#			
46) 1,2-Dichloroethane-d4	4.797	65	104669	17.24	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.20%			
65) Toluene-d8	8.572	98	317043	19.93	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.65%			
86) Bromofluorobenzene	11.954	95	143115	20.19	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.95%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D. d		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	2.045	43	11198m	2.23	ug/L	
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	d
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	8.677	91	5073m	0.30 ug/L	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	10.900	91	5630m	0.39 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

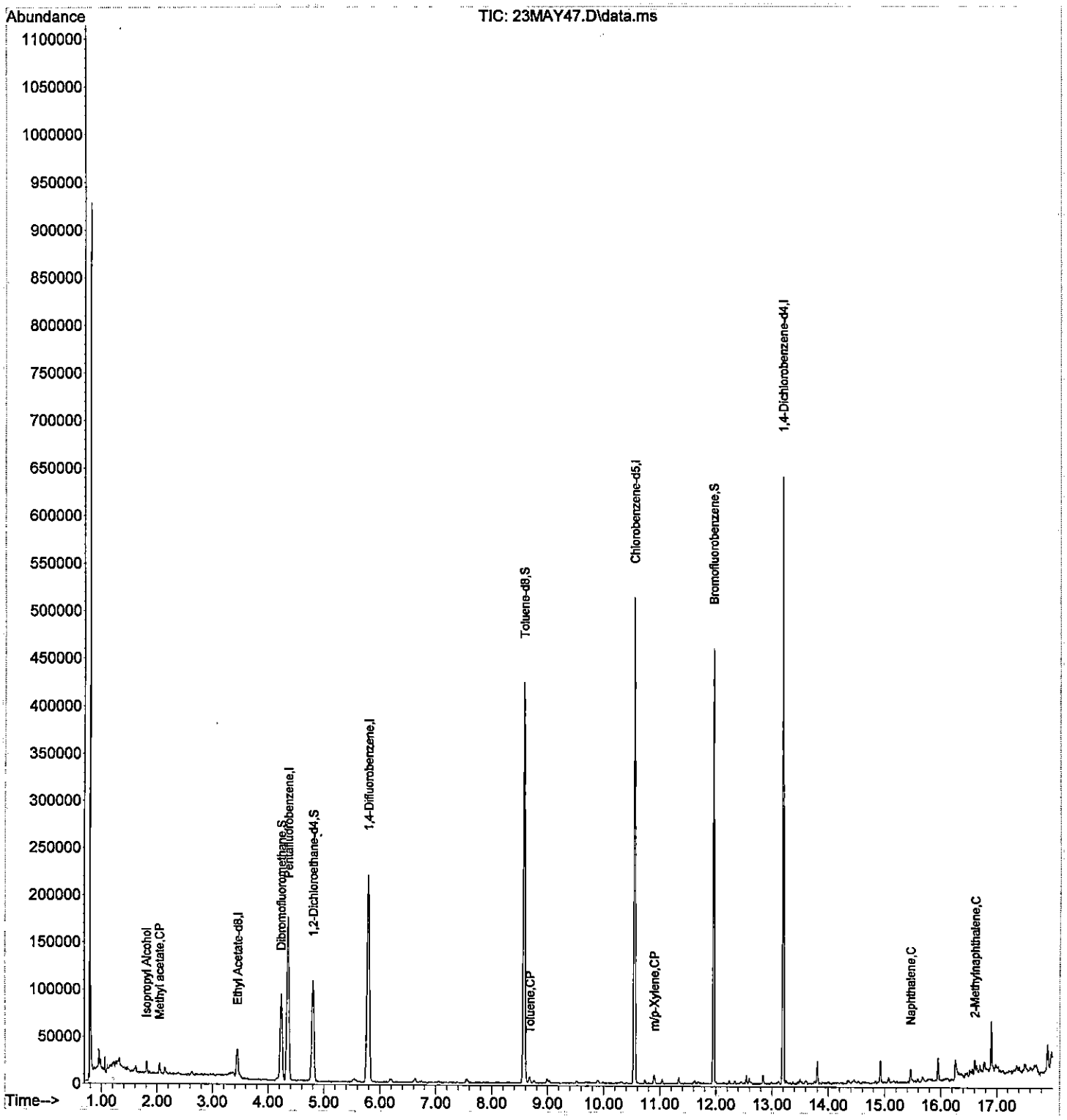
Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	15.462	128	8147m	0.50 ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	16.610	142	5744	0.84 ug/L	92
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	1.809	45	5690	15.36 ug/L #	56
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

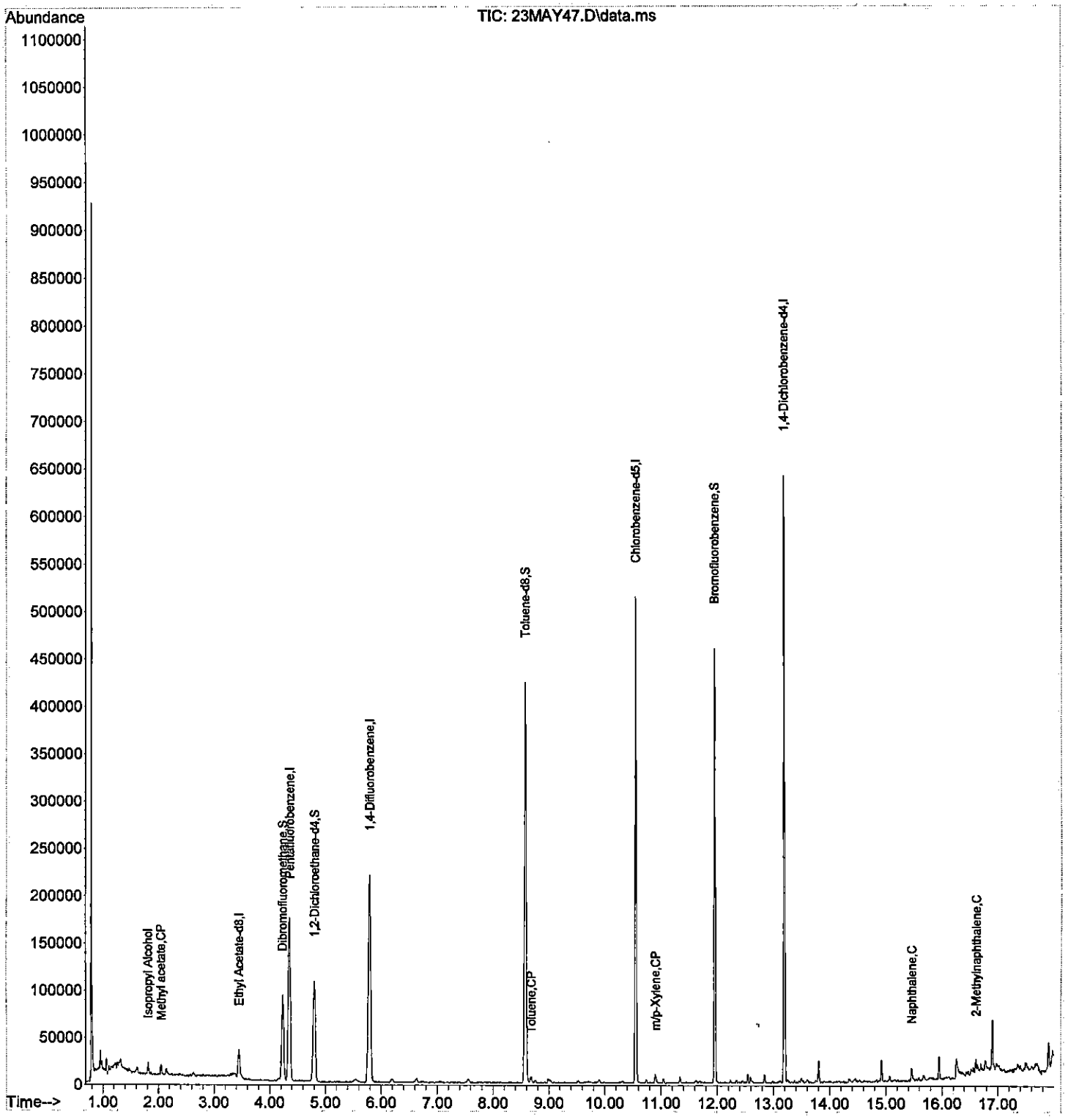
Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

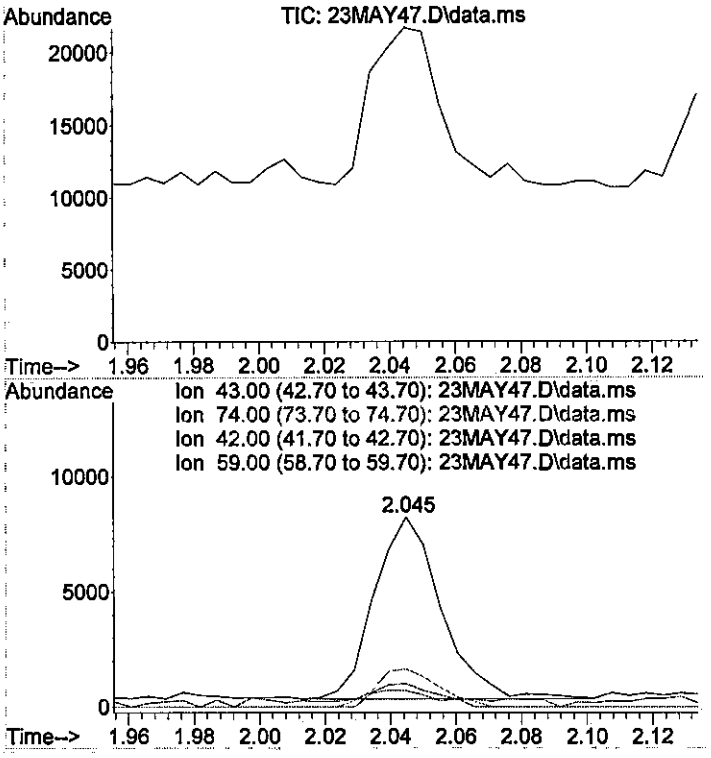
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	154432	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	274513	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.549	117	260335	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	135074	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	46236	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	74213	15.99	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 79.95%#			
46) 1,2-Dichloroethane-d4	4.797	65	104669	17.24	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.20%			
65) Toluene-d8	8.572	98	317043	19.93	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.65%			
86) Bromofluorobenzene	11.954	95	143115	20.19	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.95%			
Target Compounds						Qvalue
17) Methyl acetate	2.045	43	11198m	2.23	ug/L	
66) Toluene	8.677	91	5073m	0.30	ug/L	
80) m/p-Xylene	10.900	91	5630m	0.39	ug/L	
111) Naphthalene	15.462	128	8147m	0.50	ug/L	
113) 2-Methylnaphthalene	16.610	142	5744	0.84	ug/L	92
117) Isopropyl Alcohol	1.809	45	5690	15.36	ug/L #	56

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY47.D
Acq On : 24 May 2018 5:45 am
Operator : AK
Sample : 18051328-06A
Misc : IS/SS 200-20033
ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 24 11:41:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

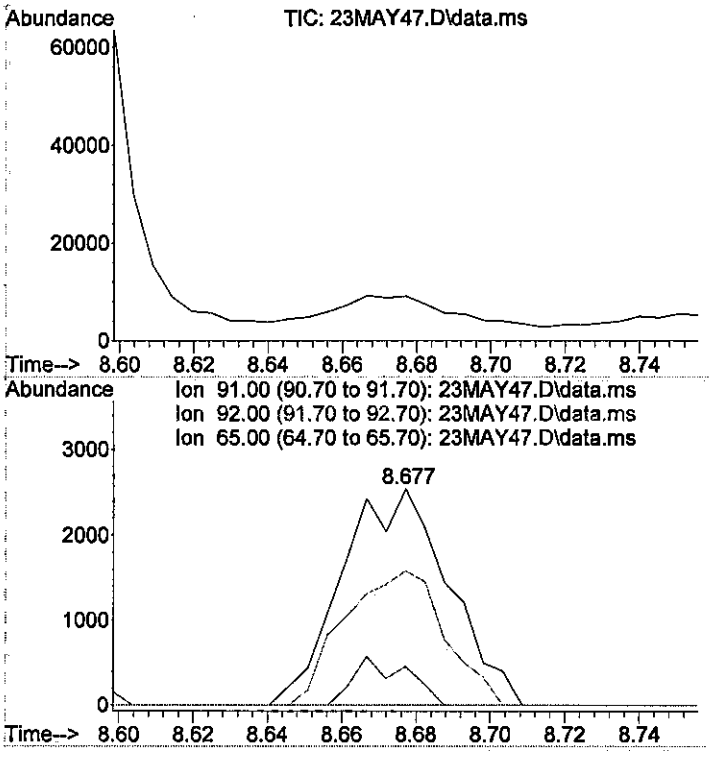




#17
Methyl acetate
Concen: 2.23 ug/L m
RT: 2.045 min Scan# 259
Delta R.T. 0.011 min
Lab File: 23MAY47.D
Acq: 24 May 2018 5:45 am

Tgt Ion: 43 Resp: 11198

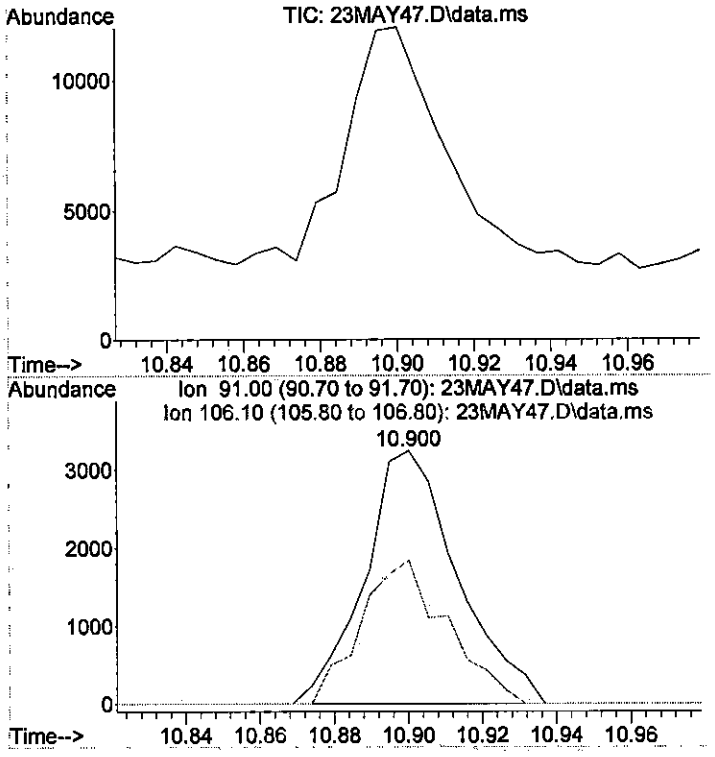
Ion	Ratio	Lower	Upper
43	100		
74	19.8	14.4	26.7
42	0.0	12.0	22.2#
59	0.0	5.6	10.4#



#66
Toluene
Concen: 0.30 ug/L m
RT: 8.677 min Scan# 1524
Delta R.T. 0.000 min
Lab File: 23MAY47.D
Acq: 24 May 2018 5:45 am

Tgt Ion: 91 Resp: 5073

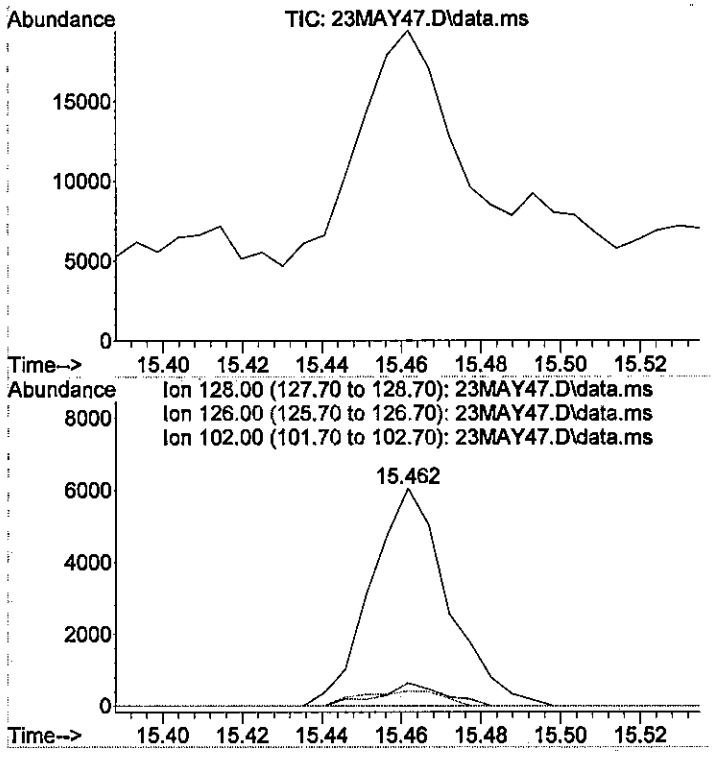
Ion	Ratio	Lower	Upper
91	100		
92	58.5	29.0	89.0
65	0.0	0.0	42.5



#80
m/p-Xylene
Concen: 0.39 ug/L m
RT: 10.900 min Scan# 1948
Delta R.T. -0.006 min
Lab File: 23MAY47.D
Acq: 24 May 2018 5:45 am

Tgt Ion: 91 Resp: 5630

Ion	Ratio	Lower	Upper
91	100		
106	52.8	17.9	77.9



#111
Naphthalene
Concen: 0.50 ug/L m
RT: 15.462 min Scan# 2818
Delta R.T. -0.005 min
Lab File: 23MAY47.D
Acq: 24 May 2018 5:45 am

Tgt Ion:128 Resp: 8147

Ion	Ratio	Lower	Upper
128	100		
126	7.3	0.0	37.0
102	0.0	0.0	38.4

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.347	168	153813	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	272091	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	254569	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	130686	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	46127	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	72492	15.76	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 78.80%#			
46) 1,2-Dichloroethane-d4	4.792	65	103532	17.20	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.00%			
65) Toluene-d8	8.572	98	313187	20.13	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.65%			
86) Bromofluorobenzene	11.954	95	138794	20.02	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		d
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	2.045	43	9489m	1.89	ug/L	
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D. d	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	10.733	91	6726m	0.38 ug/L	
80) m/p-Xylene	10.895	91	9443m	0.66 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	11.335	91	14972	1.03 ug/L	100
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

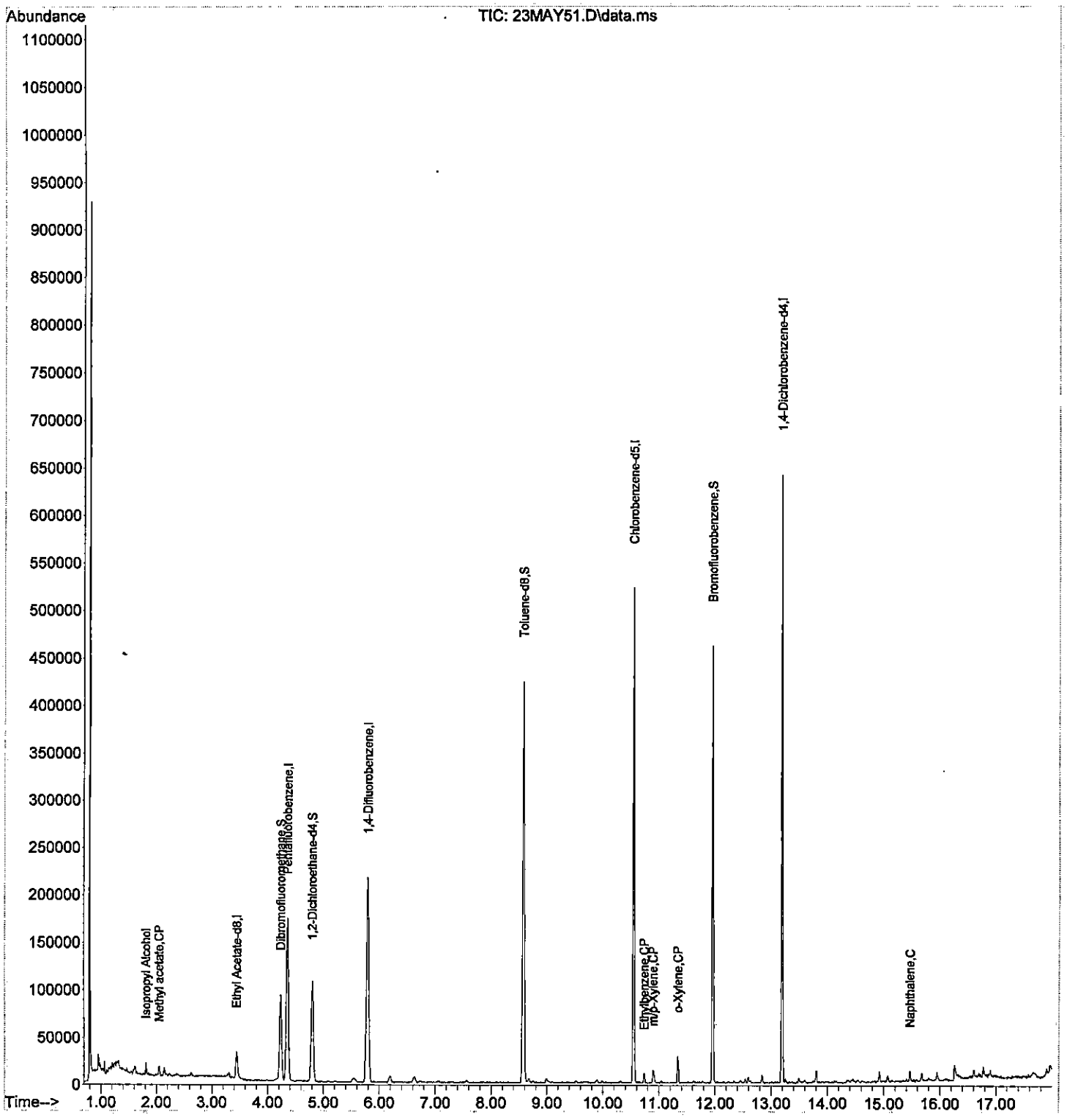
Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	15.462	128	6015m	0.38	ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	1.809	45	6692	18.11	ug/L #	56
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

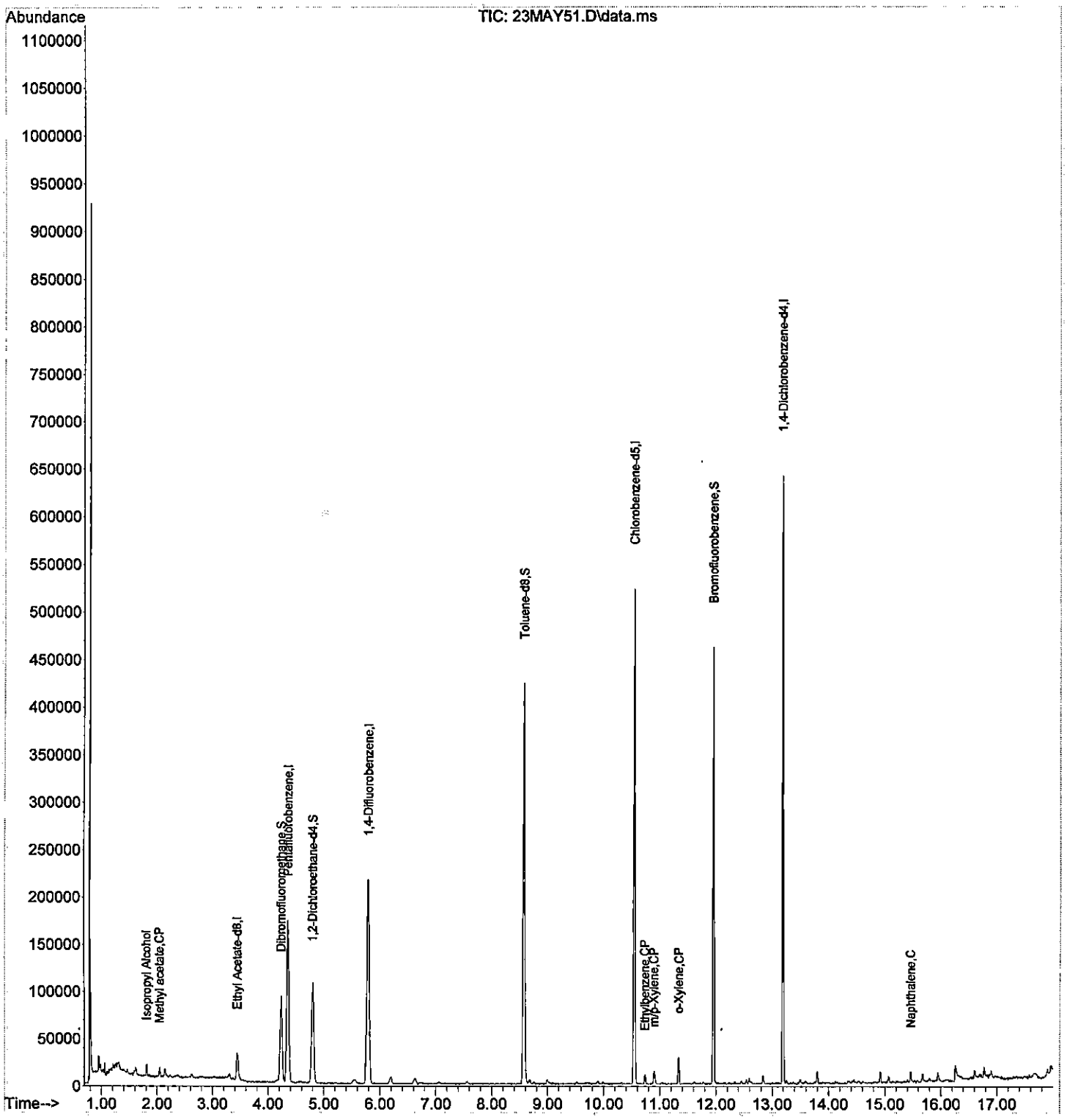
Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

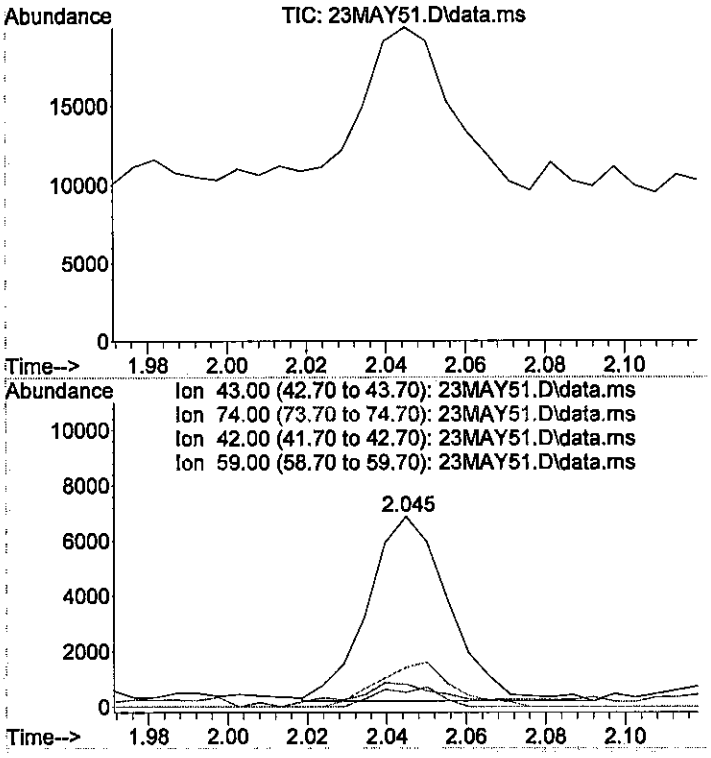
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	153813	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	272091	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	254569	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	130686	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.439	46	46127	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	72492	15.76	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 78.80%#				
46) 1,2-Dichloroethane-d4	4.792	65	103532	17.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.00%				
65) Toluene-d8	8.572	98	313187	20.13	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.65%				
86) Bromofluorobenzene	11.954	95	138794	20.02	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.10%				
Target Compounds							Qvalue
17) Methyl acetate	2.045	43	9489m	1.89	ug/L		
79) Ethylbenzene	10.733	91	6726m	0.38	ug/L		
80) m/p-Xylene	10.895	91	9443m	0.66	ug/L		
82) o-Xylene	11.335	91	14972	1.03	ug/L		100
111) Naphthalene	15.462	128	6015m	0.38	ug/L		
117) Isopropyl Alcohol	1.809	45	6692	18.11	ug/L	#	56

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY51.D
Acq On : 24 May 2018 7:23 am
Operator : AK
Sample : 18051328-07A
Misc : IS/SS 200-20033
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 24 11:44:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

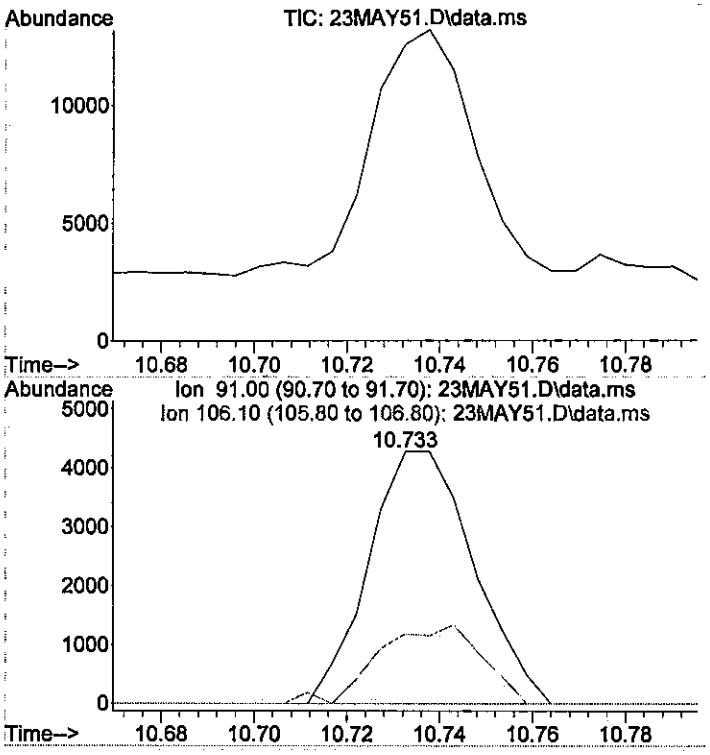




#17
Methyl acetate
Concen: 1.89 ug/L m
RT: 2.045 min Scan# 259
Delta R.T. 0.011 min
Lab File: 23MAY51.D
Acq: 24 May 2018 7:23 am

Tgt Ion: 43 Resp: 9489

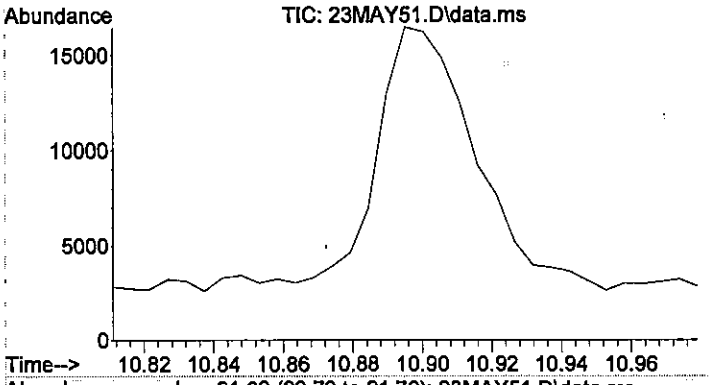
Ion	Ratio	Lower	Upper
43	100		
74	21.9	14.4	26.7
42	0.0	12.0	22.2#
59	0.0	5.6	10.4#



#79
Ethylbenzene
Concen: 0.38 ug/L m
RT: 10.733 min Scan# 1916
Delta R.T. -0.005 min
Lab File: 23MAY51.D
Acq: 24 May 2018 7:23 am

Tgt Ion: 91 Resp: 6726

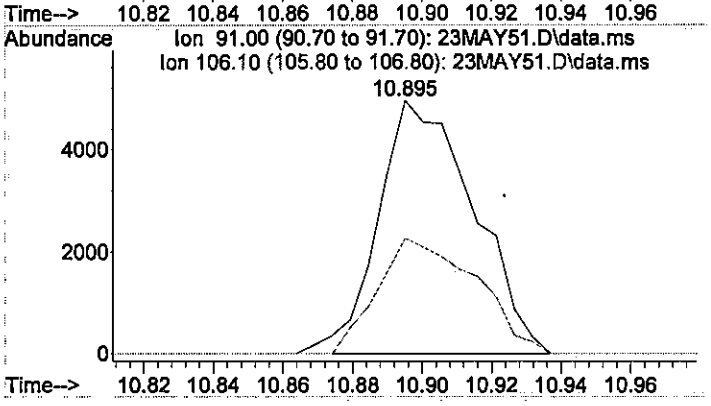
Ion	Ratio	Lower	Upper
91	100		
106	29.9	0.2	60.2

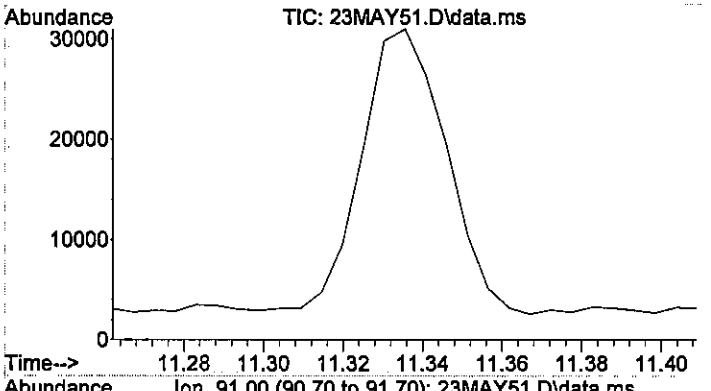


#80
m/p-Xylene
Concen: 0.66 ug/L m
RT: 10.895 min Scan# 1947
Delta R.T. -0.011 min
Lab File: 23MAY51.D
Acq: 24 May 2018 7:23 am

Tgt Ion: 91 Resp: 9443

Ion	Ratio	Lower	Upper
91	100		
106	47.3	17.9	77.9

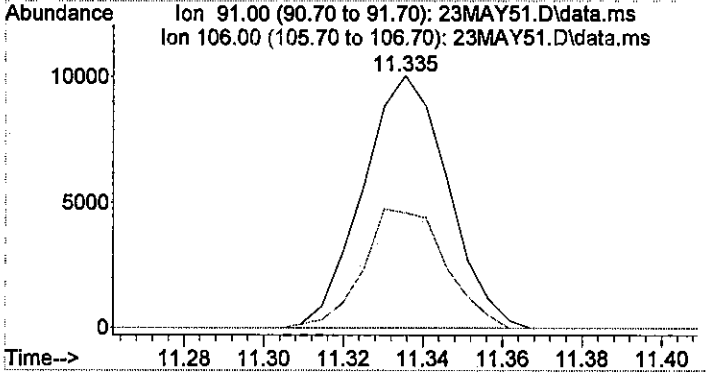




#82
o-Xylene
Concen: 1.03 ug/L
RT: 11.335 min Scan# 2031
Delta R.T. -0.006 min
Lab File: 23MAY51.D
Acq: 24 May 2018 7:23 am

Tgt Ion: 91 Resp: 14972

Ion	Ratio	Lower	Upper
91	100		
106	45.9	15.8	75.8



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.347	168	154225	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	270418	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	256263	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	131379	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.440	46	49824	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74285	16.25	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.25%#			
46) 1,2-Dichloroethane-d4	4.803	65	103286	17.27	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.35%			
65) Toluene-d8	8.572	98	309871	19.79	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.95%			
86) Bromofluorobenzene	11.954	95	137907	19.76	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.	d	
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	2.045	43	17409m	3.46	ug/L	
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D. d	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	12311	3.09 ug/L	96
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	10.900	91	6127m	0.43 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

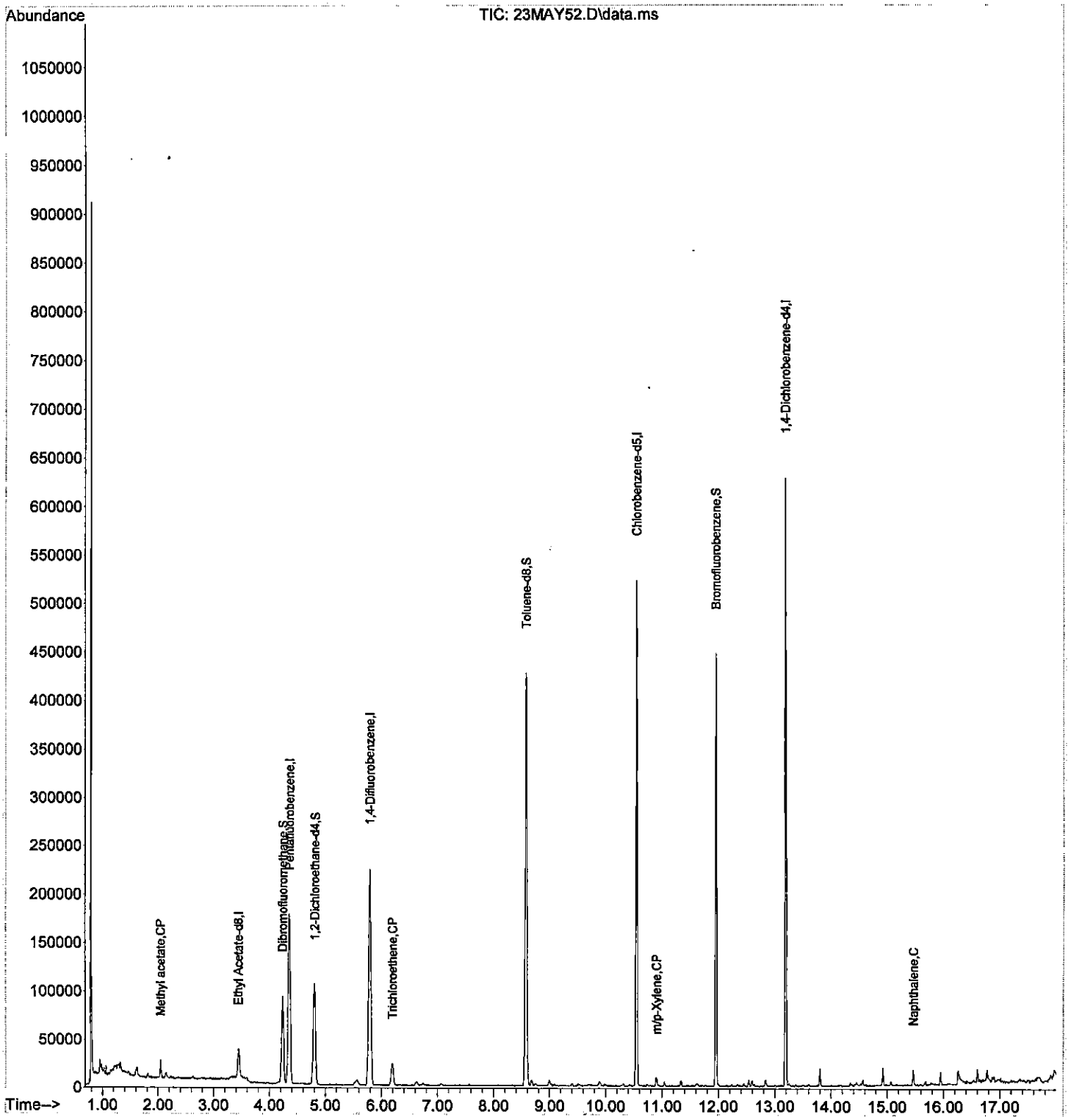
Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	15.462	128	9716m	0.61 ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	0.000		0	N.D.	
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

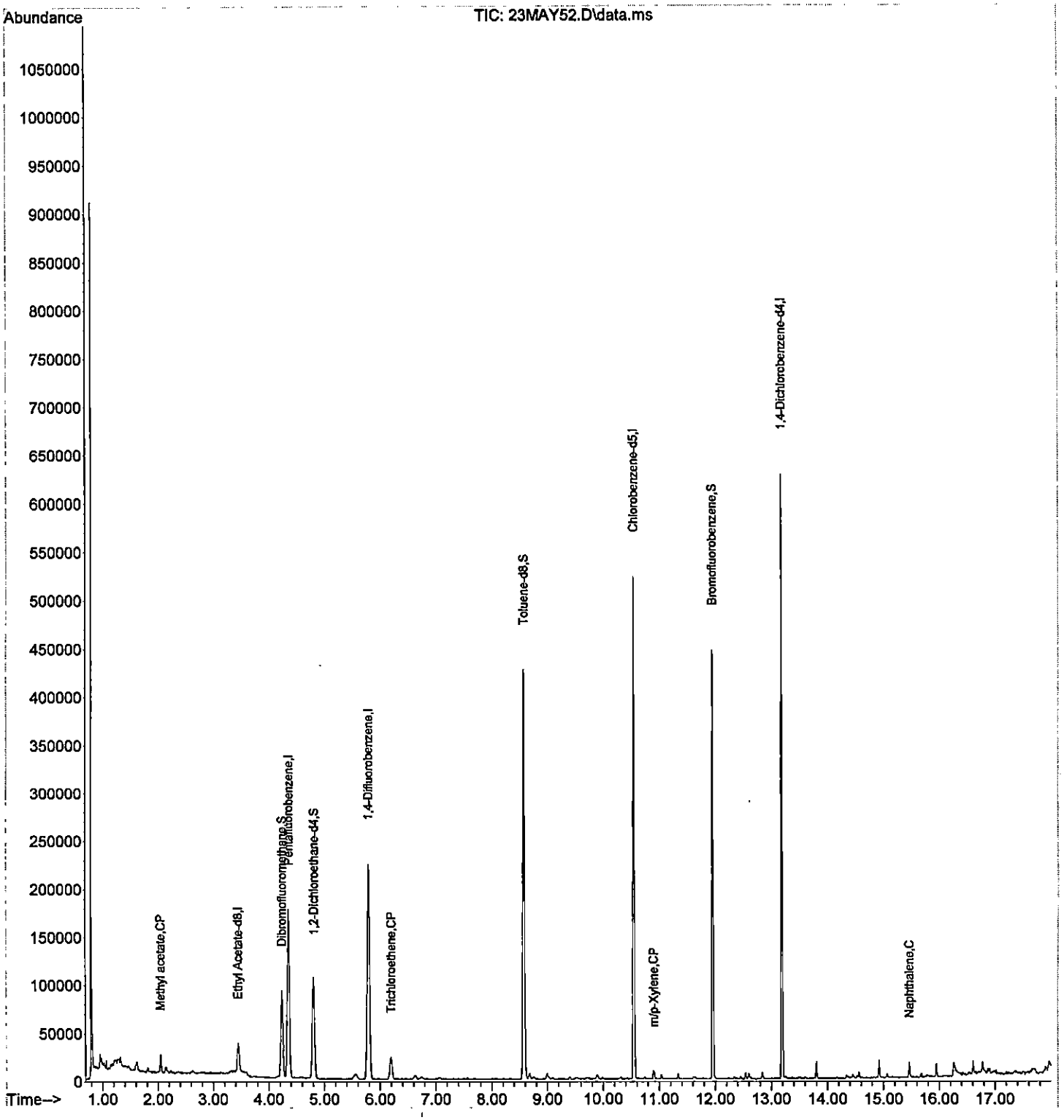
Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

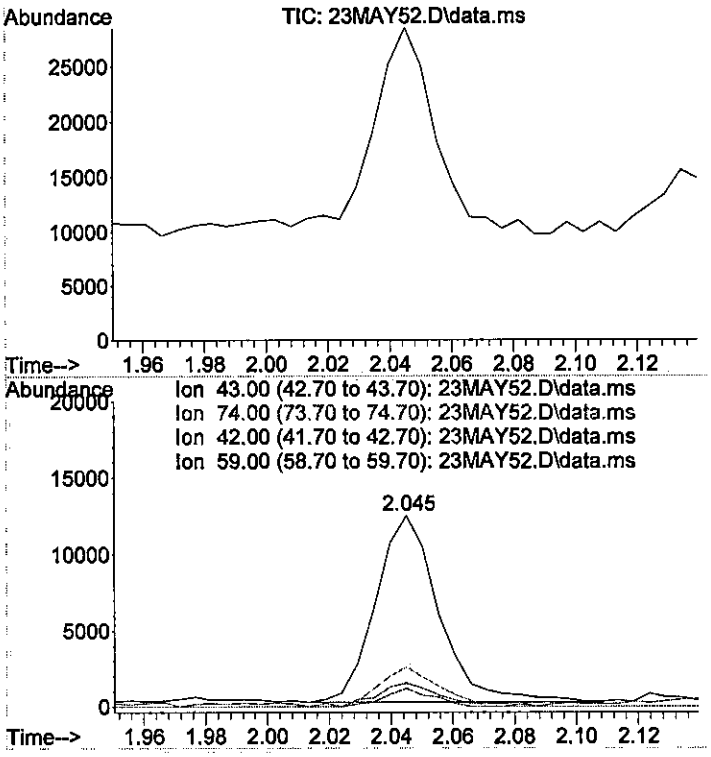
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.347	168	154225	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	270418	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	256263	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	131379	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.440	46	49824	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74285	16.25	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.25%#			
46) 1,2-Dichloroethane-d4	4.803	65	103286	17.27	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.35%			
65) Toluene-d8	8.572	98	309871	19.79	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.95%			
86) Bromofluorobenzene	11.954	95	137907	19.76	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.80%			
Target Compounds						Qvalue
17) Methyl acetate	2.045	43	17409m	3.46	ug/L	
53) Trichloroethene	6.192	130	12311	3.09	ug/L	96
80) m/p-Xylene	10.900	91	6127m	0.43	ug/L	
111) Naphthalene	15.462	128	9716m	0.61	ug/L	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY52.D
Acq On : 24 May 2018 7:47 am
Operator : AK
Sample : 18051328-09A
Misc : IS/SS 200-20033
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 24 11:45:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

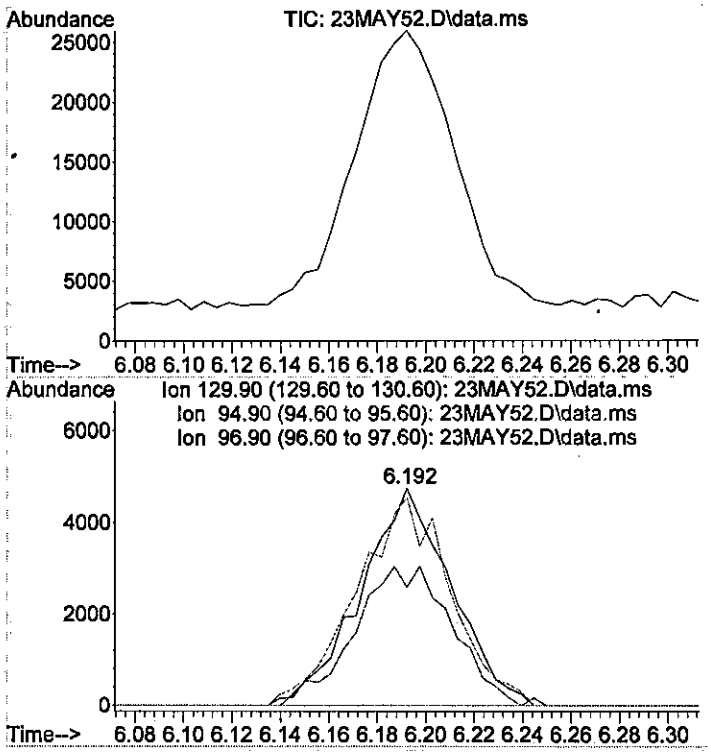




#17
Methyl acetate
Concen: 3.46 ug/L m
RT: 2.045 min Scan# 259
Delta R.T. 0.011 min
Lab File: 23MAY52.D
Acq: 24 May 2018 7:47 am

Tgt Ion: 43 Resp: 17409

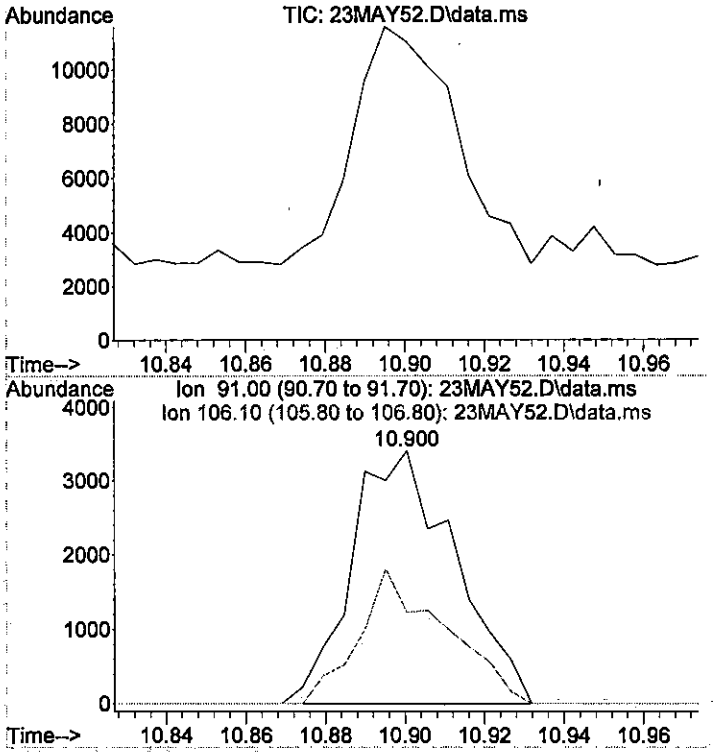
Ion	Ratio	Lower	Upper
43	100		
74	19.4	14.4	26.7
42	0.0	12.0	22.2#
59	0.0	5.6	10.4#



#53
Trichloroethene
Concen: 3.09 ug/L
RT: 6.192 min Scan# 1050
Delta R.T. 0.000 min
Lab File: 23MAY52.D
Acq: 24 May 2018 7:47 am

Tgt Ion:130 Resp: 12311

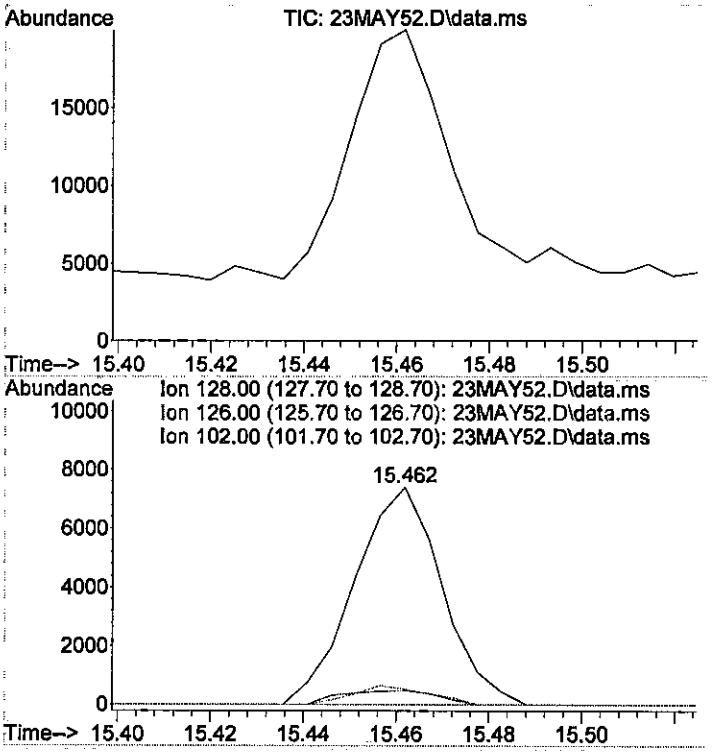
Ion	Ratio	Lower	Upper
130	100		
95	100.5	77.1	137.1
97	69.3	39.6	99.6



#80
m/p-Xylene
Concen: 0.43 ug/L m
RT: 10.900 min Scan# 1948
Delta R.T. -0.006 min
Lab File: 23MAY52.D
Acq: 24 May 2018 7:47 am

Tgt Ion: 91 Resp: 6127

Ion	Ratio	Lower	Upper
91	100		
106	44.7	17.9	77.9



#111
Naphthalene
Concen: 0.61 ug/L m
RT: 15.462 min Scan# 2818
Delta R.T. -0.005 min
Lab File: 23MAY52.D
Acq: 24 May 2018 7:47 am

Tgt Ion:128 Resp: 9716

Ion	Ratio	Lower	Upper
128	100		
126	7.6	0.0	37.0
102	0.0	0.0	38.4

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	155517	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	270582	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	253079	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	130644	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	48906	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	73341	16.04	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.20%#			
46) 1,2-Dichloroethane-d4	4.797	65	102057	17.05	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.25%			
65) Toluene-d8	8.572	98	306639	19.83	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.15%			
86) Bromofluorobenzene	11.954	95	135175	19.62	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.	d	
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	2.040	43	10285m	2.03	ug/L	
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	d
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	d
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	d
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	7278m	1.83 ug/L	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

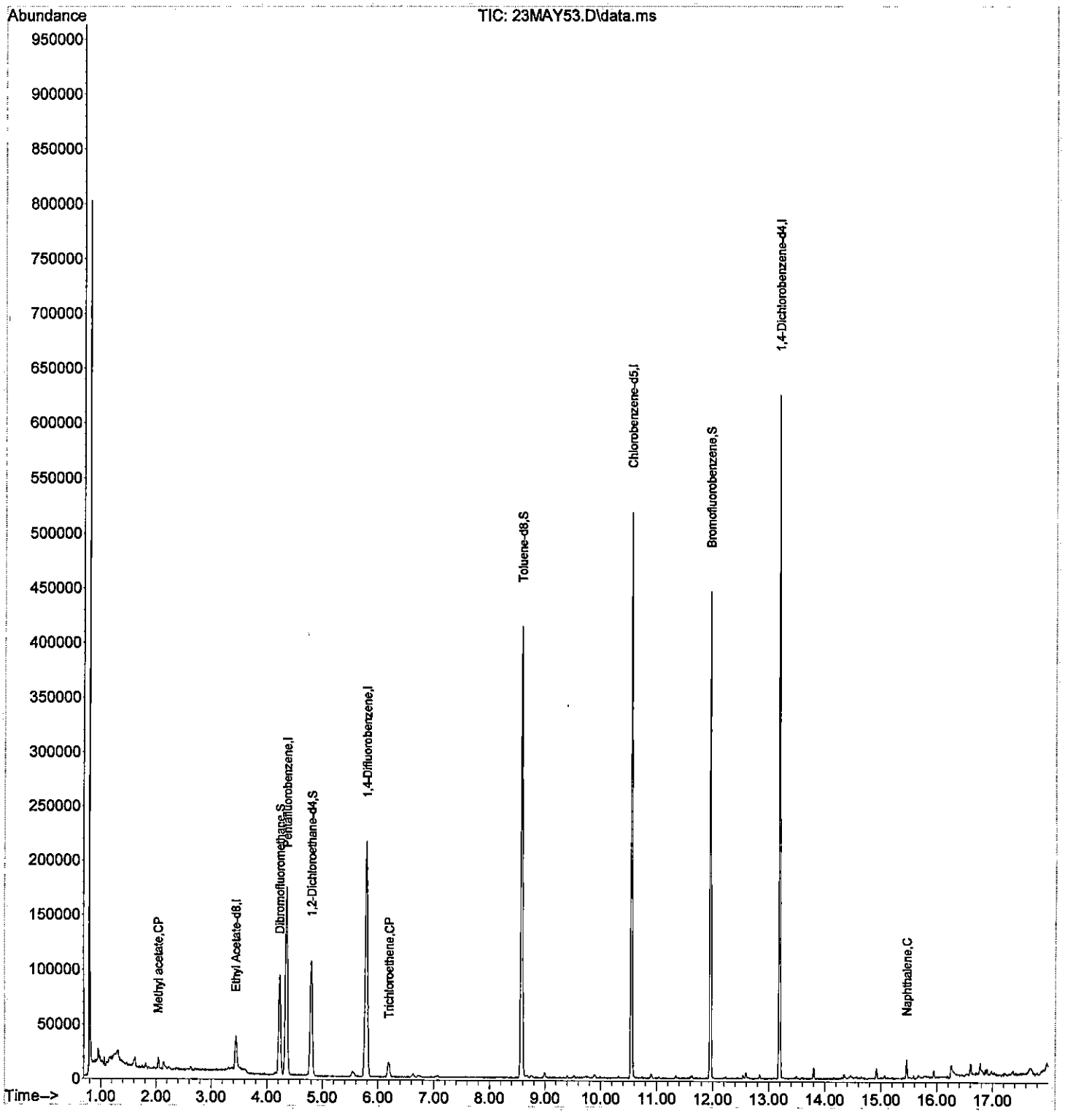
Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	15.462	128	10477m	0.67 ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	0.000		0	N.D.	
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

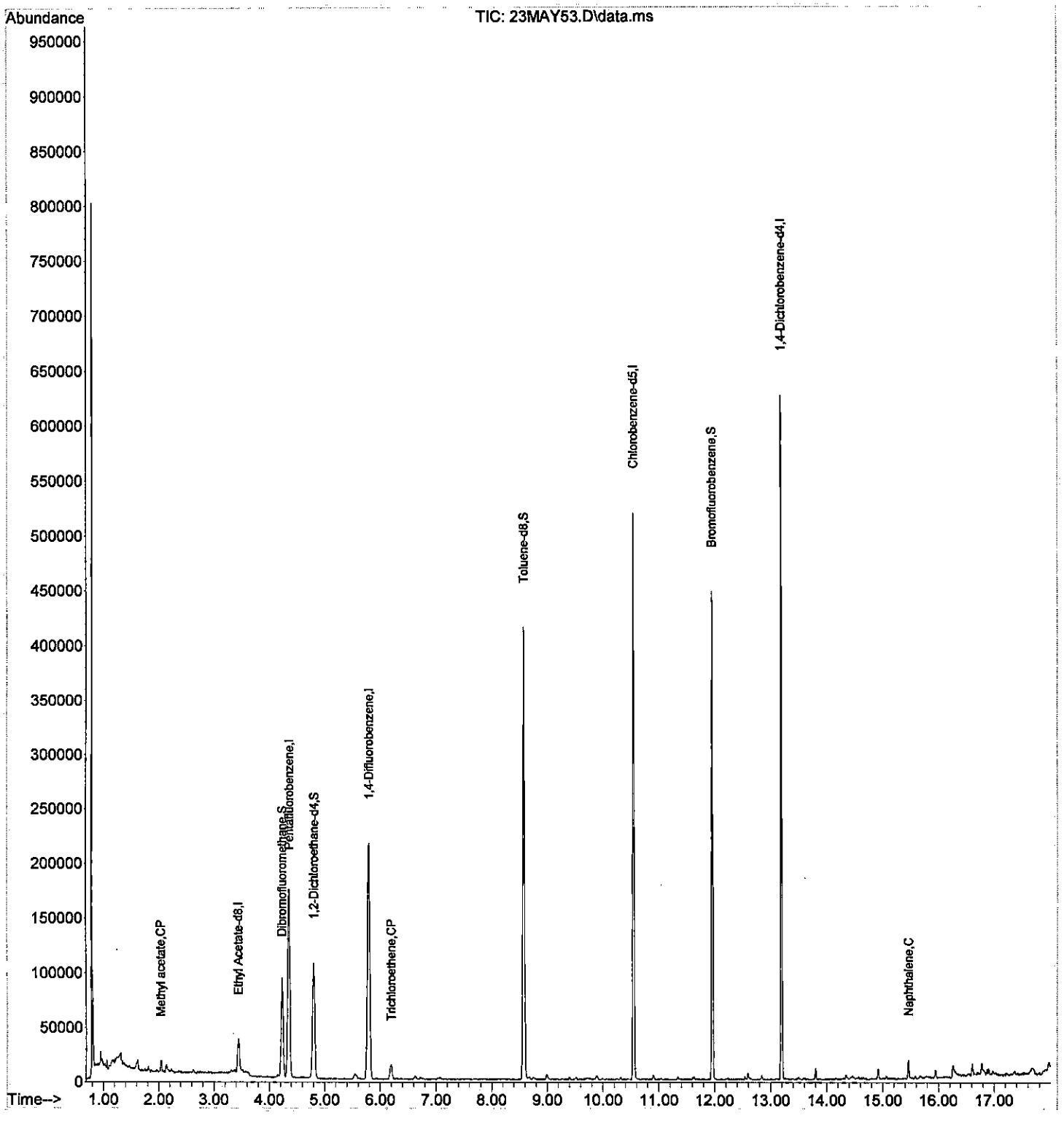
Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

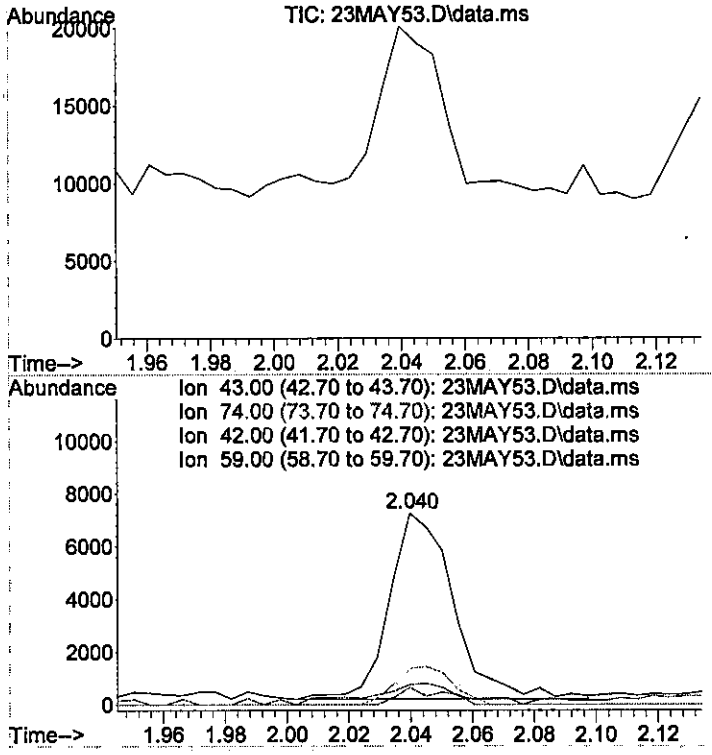
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	155517	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	270582	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	253079	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	130644	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	48906	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	73341	16.04	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.20%#			
46) 1,2-Dichloroethane-d4	4.797	65	102057	17.05	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.25%			
65) Toluene-d8	8.572	98	306639	19.83	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.15%			
86) Bromofluorobenzene	11.954	95	135175	19.62	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.10%			
Target Compounds						Qvalue
17) Methyl acetate	2.040	43	10285m	2.03	ug/L	
53) Trichloroethene	6.192	130	7278m	1.83	ug/L	
111) Naphthalene	15.462	128	10477m	0.67	ug/L	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY53.D
Acq On : 24 May 2018 8:12 am
Operator : AK
Sample : 18051328-10A
Misc : IS/SS 200-20033
ALS Vial : 52 Sample Multiplier: 1

Quant Time: May 24 11:46:25 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

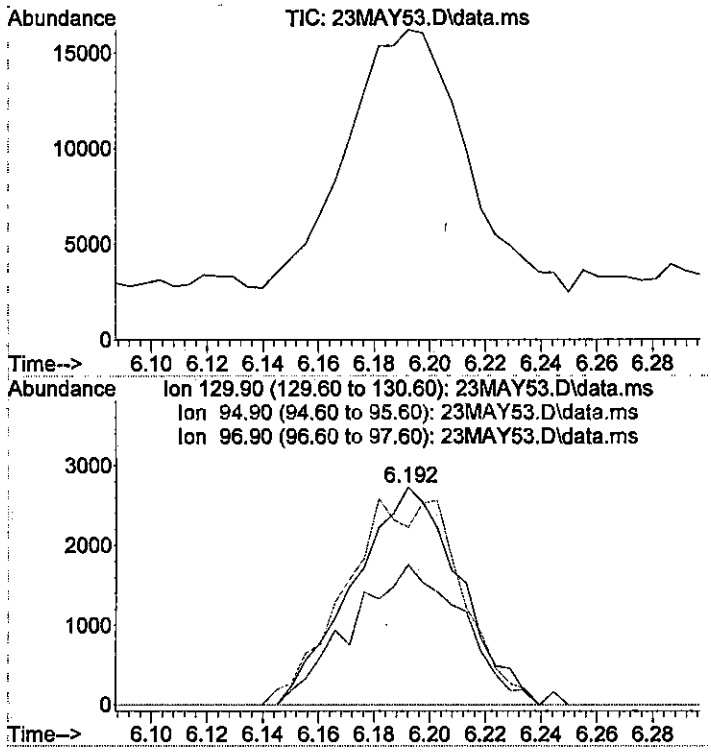




#17
Methyl acetate
Concen: 2.03 ug/L m
RT: 2.040 min Scan# 258
Delta R.T. 0.006 min
Lab File: 23MAY53.D
Acq: 24 May 2018 8:12 am

Tgt Ion: 43 Resp: 10285

Ion	Ratio	Lower	Upper
43	100		
74	18.0	14.4	26.7
42	0.0	12.0	22.2#
59	0.0	5.6	10.4#



#53
Trichloroethene
Concen: 1.83 ug/L m
RT: 6.192 min Scan# 1050
Delta R.T. 0.000 min
Lab File: 23MAY53.D
Acq: 24 May 2018 8:12 am

Tgt Ion:130 Resp: 7278

Ion	Ratio	Lower	Upper
130	100		
95	102.4	77.1	137.1
97	0.0	39.6	99.6#

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	155196	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	269673	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	259542	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	129642	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.445	46	46695	20.00	ug/L	#	0.01
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	73481	16.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.60%#				
46) 1,2-Dichloroethane-d4	4.792	65	103751	17.39	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.95%				
65) Toluene-d8	8.572	98	311927	19.67	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.35%				
86) Bromofluorobenzene	11.954	95	136668	19.34	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D. d			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	d
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	d
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	d
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	10.900	91	5386m	0.37 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

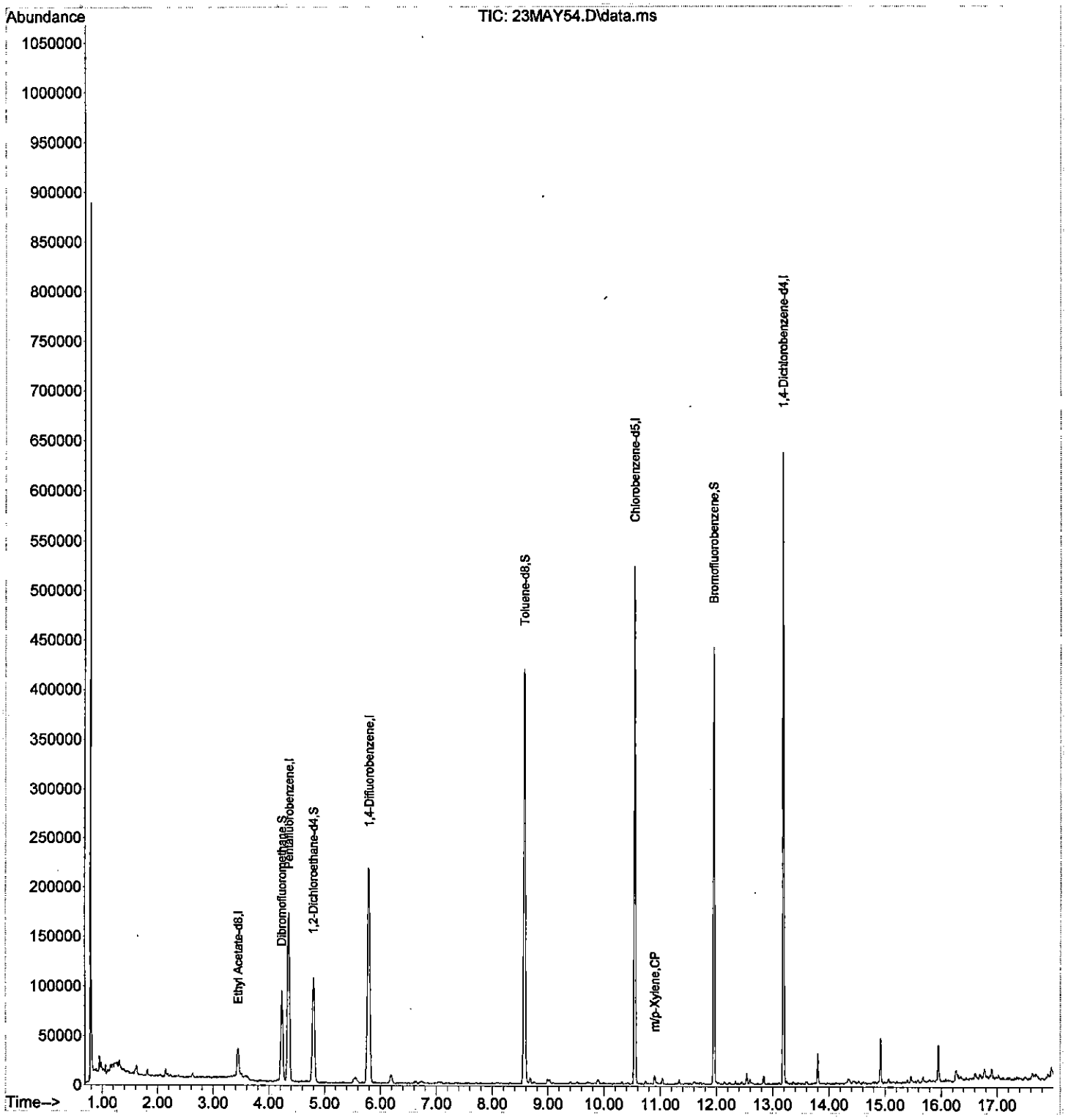
Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0		N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0		N.D.	
103) Benzyl chloride	0.000		0		N.D.	
104) 1,2-Dichlorobenzene	0.000		0		N.D.	
105) n-Butylbenzene	0.000		0		N.D.	
106) Hexachloroethane	0.000		0		N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0		N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0		N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0		N.D.	
110) Hexachlorobutadiene	0.000		0		N.D.	
111) Naphthalene	0.000		0		N.D.	
112) 1,2,3-Trichlorobenzene	0.000		0		N.D.	
113) 2-Methylnaphthalene	0.000		0		N.D.	
114) 1-Methylnaphthalene	0.000		0		N.D.	
116) 2-Propanone	0.000		0		N.D.	
117) Isopropyl Alcohol	0.000		0		N.D.	
118) Acetic Ether	0.000		0		N.D.	
119) Isopropyl Acetate	0.000		0		N.D.	
120) Amyl Acetate	0.000		0		N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

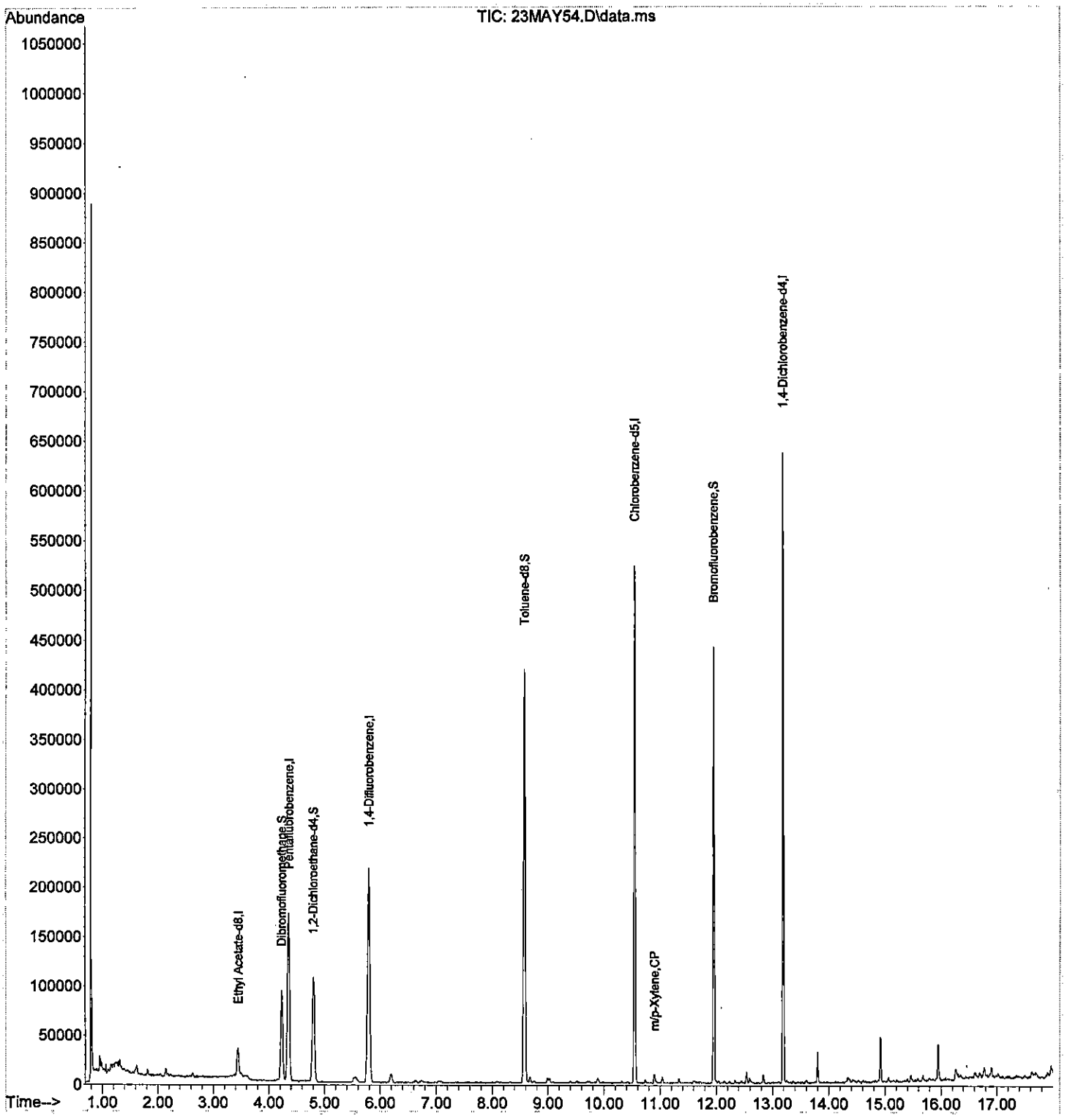
Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

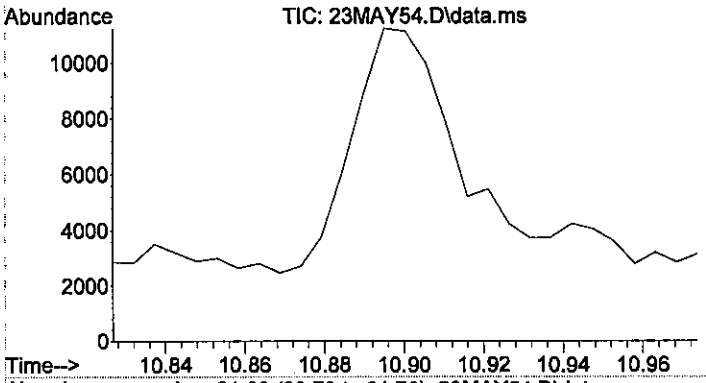
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	155196	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	269673	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	259542	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	129642	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.445	46	46695	20.00	ug/L	#	0.01
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	73481	16.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.60%#				
46) 1,2-Dichloroethane-d4	4.792	65	103751	17.39	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.95%				
65) Toluene-d8	8.572	98	311927	19.67	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.35%				
86) Bromofluorobenzene	11.954	95	136668	19.34	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.70%				
Target Compounds							Qvalue
80) m/p-Xylene	10.900	91	5386m	0.37	ug/L		

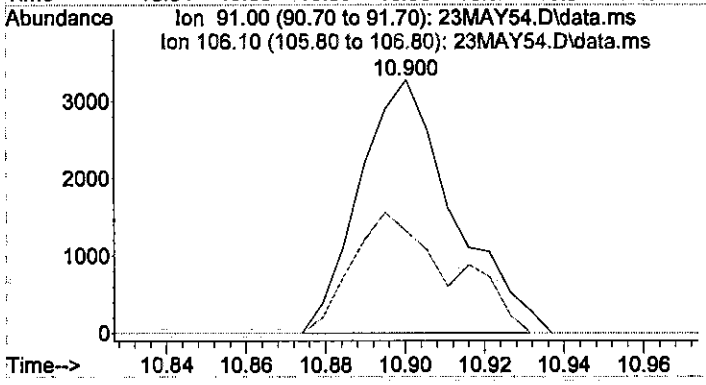
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY54.D
Acq On : 24 May 2018 8:36 am
Operator : AK
Sample : 18051328-11A
Misc : IS/SS 200-20033
ALS Vial : 53 Sample Multiplier: 1

Quant Time: May 24 11:46:48 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration







#80
m/p-Xylene
Concen: 0.37 ug/L m
RT: 10.900 min Scan# 1948
Delta R.T. -0.006 min
Lab File: 23MAY54.D
Acq: 24 May 2018 8:36 am

Tgt Ion: 91 Resp: 5386

Ion	Ratio	Lower	Upper
91	100		
106	50.1	17.9	77.9

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	155410	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	274837	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	257036	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	133541	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	49897	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	75013	16.15	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.75%#			
46) 1,2-Dichloroethane-d4	4.797	65	101350	16.67	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 83.35%			
65) Toluene-d8	8.572	98	316017	20.12	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.60%			
86) Bromofluorobenzene	11.954	95	140539	20.08	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.40%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D. d		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D. d	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	193613	47.84 ug/L	98
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	8.677	91	8124m	0.48 ug/L	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	10.895	91	8384m	0.58 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	11.335	91	5036m	0.34 ug/L	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

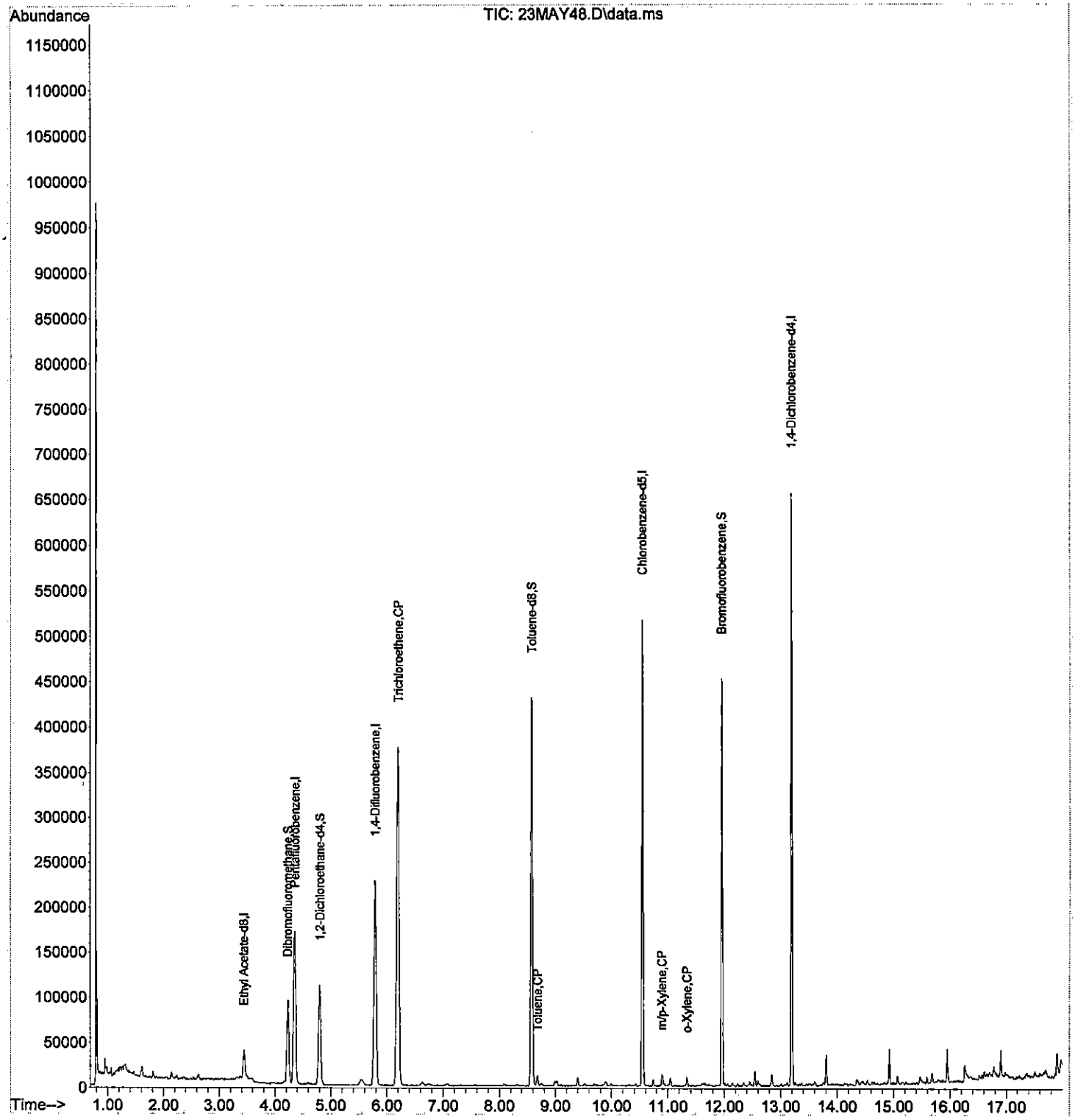
Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

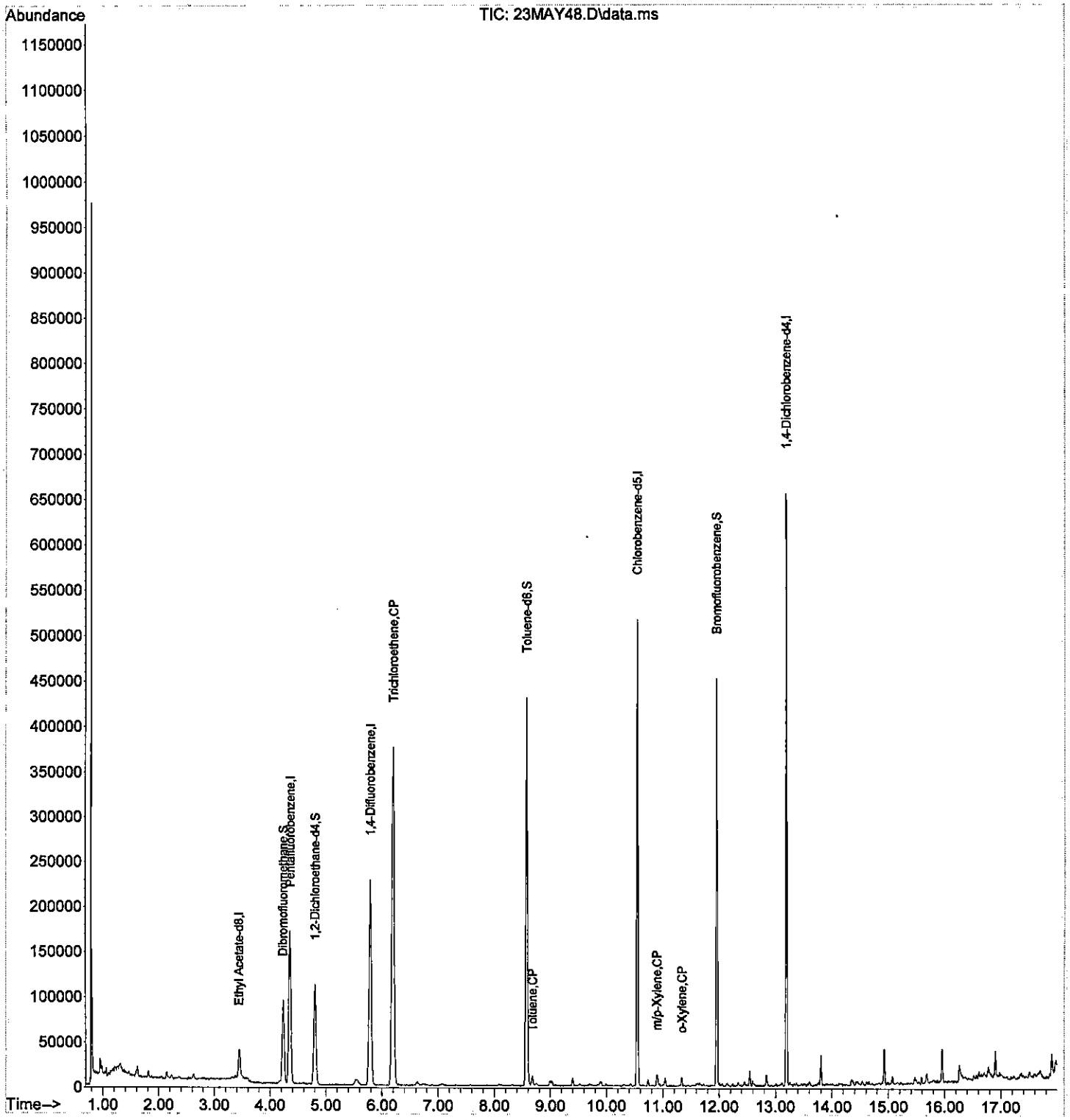
Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

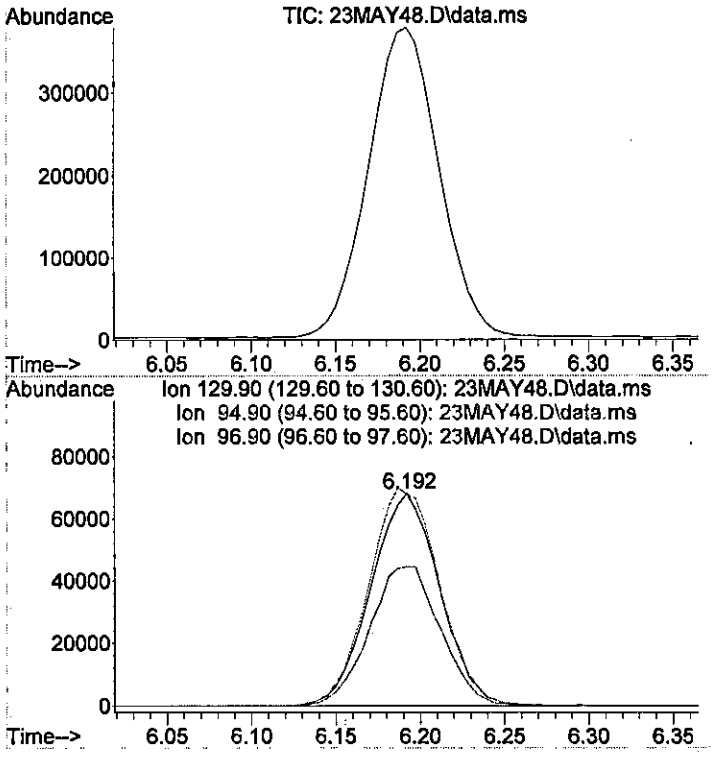
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	155410	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	274837	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	257036	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	133541	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	49897	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	75013	16.15	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 80.75%#			
46) 1,2-Dichloroethane-d4	4.797	65	101350	16.67	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 83.35%			
65) Toluene-d8	8.572	98	316017	20.12	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.60%			
86) Bromofluorobenzene	11.954	95	140539	20.08	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.40%			
Target Compounds						Qvalue
53) Trichloroethene	6.192	130	193613	47.84	ug/L	98
66) Toluene	8.677	91	8124m	0.48	ug/L	
80) m/p-Xylene	10.895	91	8384m	0.58	ug/L	
82) o-Xylene	11.335	91	5036m	0.34	ug/L	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY48.D
Acq On : 24 May 2018 6:10 am
Operator : AK
Sample : 18051328-12A
Misc : IS/SS 200-20033
ALS Vial : 47 Sample Multiplier: 1

Quant Time: May 24 11:42:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

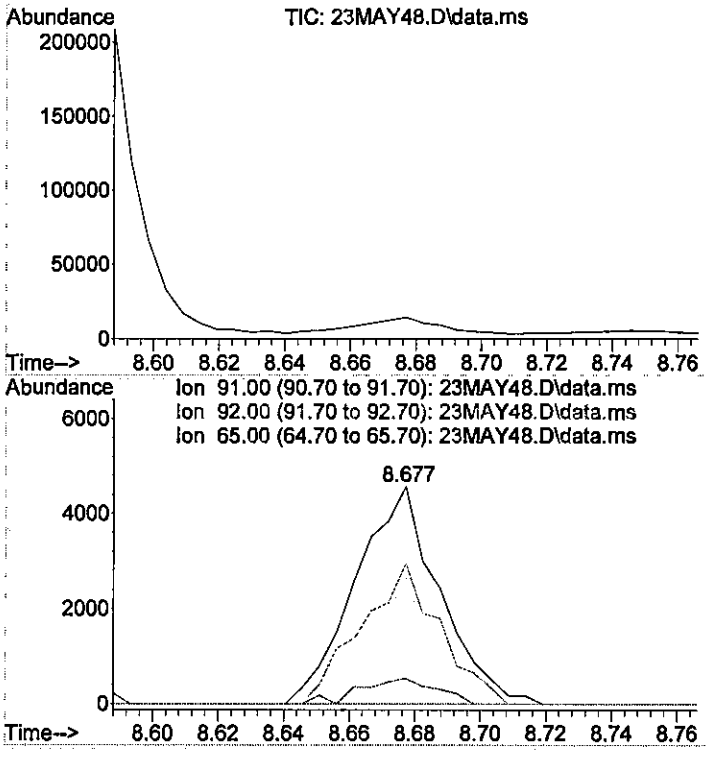




#53
Trichloroethene
Concen: 47.84 ug/L
RT: 6.192 min Scan# 1050
Delta R.T. -0.000 min
Lab File: 23MAY48.D
Acq: 24 May 2018 6:10 am

Tgt Ion:130 Resp: 193613

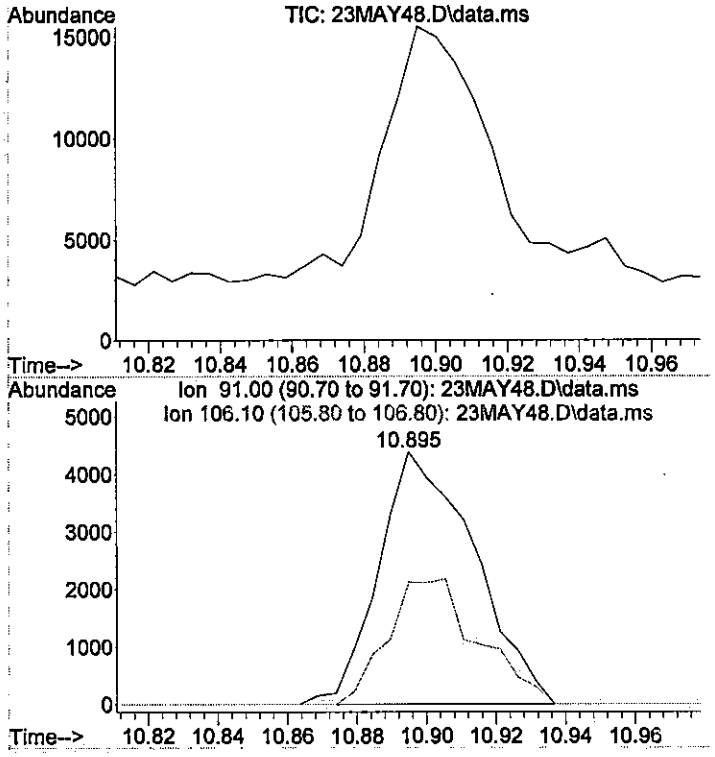
Ion	Ratio	Lower	Upper
130	100		
95	105.7	77.1	137.1
97	67.4	39.6	99.6



#66
Toluene
Concen: 0.48 ug/L m
RT: 8.677 min Scan# 1524
Delta R.T. 0.000 min
Lab File: 23MAY48.D
Acq: 24 May 2018 6:10 am

Tgt Ion: 91 Resp: 8124

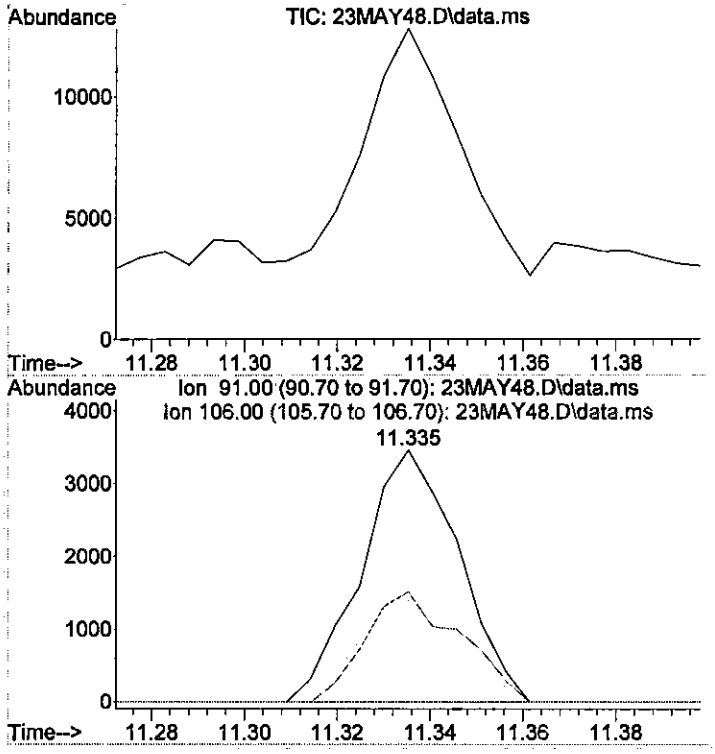
Ion	Ratio	Lower	Upper
91	100		
92	60.0	29.0	89.0
65	0.0	0.0	42.5



#80
m/p-Xylene
Concen: 0.58 ug/L m
RT: 10.895 min Scan# 1947
Delta R.T. -0.011 min
Lab File: 23MAY48.D
Acq: 24 May 2018 6:10 am

Tgt Ion: 91 Resp: 8384

Ion	Ratio	Lower	Upper
91	100		
106	47.1	17.9	77.9



#82
o-Xylene
Concen: 0.34 ug/L m
RT: 11.335 min Scan# 2031
Delta R.T. -0.006 min
Lab File: 23MAY48.D
Acq: 24 May 2018 6:10 am

Tgt Ion: 91 Resp: 5036

Ion	Ratio	Lower	Upper
91	100		
106	43.0	15.8	75.8

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	153042	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	268120	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	254557	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	129212	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	49602	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74395	16.42	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 82.10%#			
46) 1,2-Dichloroethane-d4	4.797	65	103804	17.50	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 87.50%			
65) Toluene-d8	8.572	98	310033	19.93	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.65%			
86) Bromofluorobenzene	11.954	95	135312	19.52	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.	d	
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.	d	
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.	d	
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.	d	
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

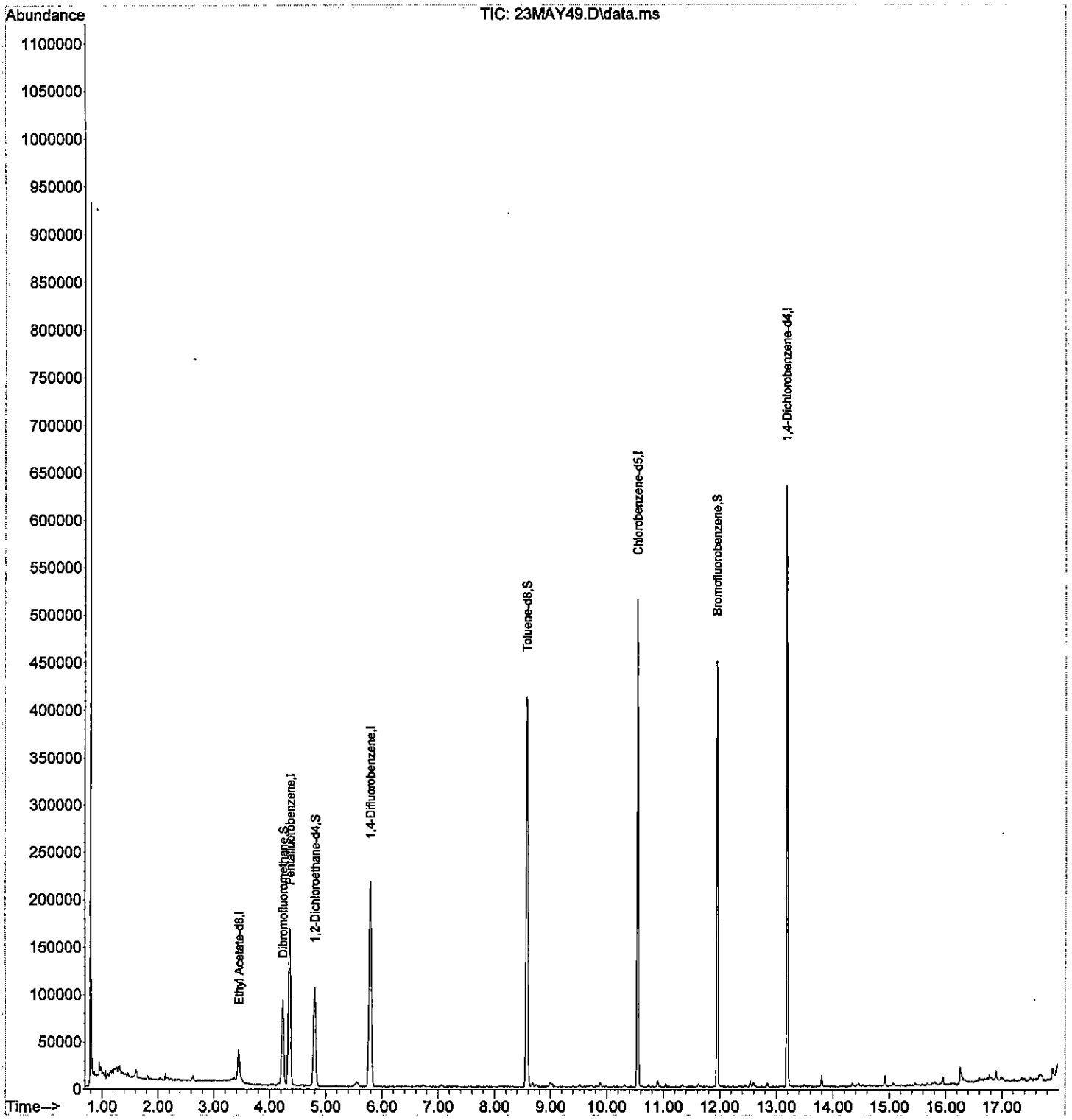
Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Titl e : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

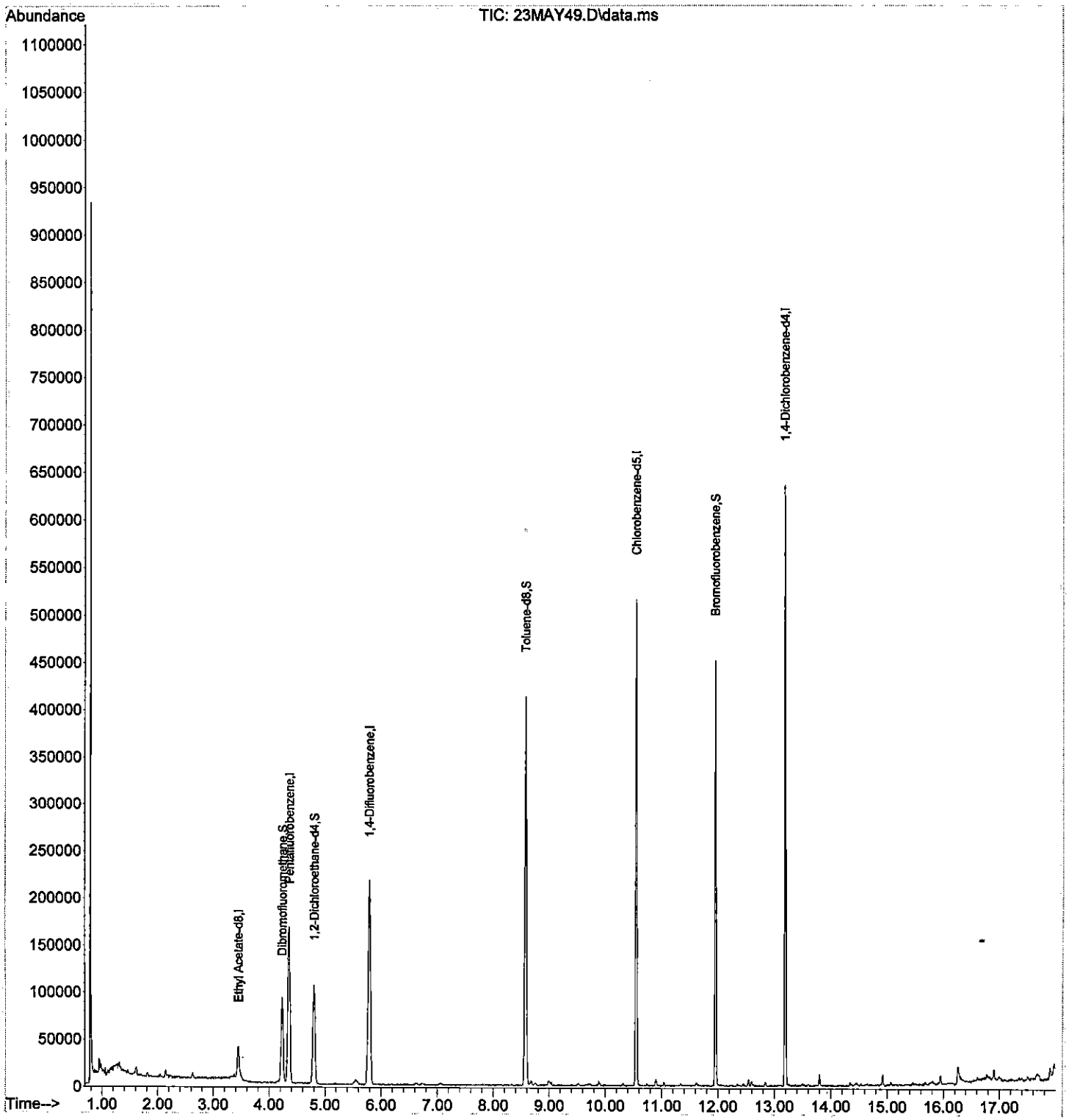
Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	153042	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	268120	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	254557	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	129212	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.445	46	49602	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	74395	16.42	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 82.10%#			
46) 1,2-Dichloroethane-d4	4.797	65	103804	17.50	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 87.50%			
65) Toluene-d8	8.572	98	310033	19.93	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.65%			
86) Bromofluorobenzene	11.954	95	135312	19.52	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.60%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY49.D
Acq On : 24 May 2018 6:34 am
Operator : AK
Sample : 18051328-13A
Misc : IS/SS 200-20033
ALS Vial : 48 Sample Multiplier: 1

Quant Time: May 24 11:42:39 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	156206	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	274342	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	257288	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	130831	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	48879	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	75574	16.30	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.50%#			
46) 1,2-Dichloroethane-d4	4.792	65	104303	17.19	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.95%			
65) Toluene-d8	8.572	98	312404	19.87	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%			
86) Bromofluorobenzene	11.954	95	138180	19.72	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.	d	
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	d
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	d
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	d
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	8.677	91	6345m	0.38 ug/L	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	10.900	91	5697m	0.40 ug/L	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

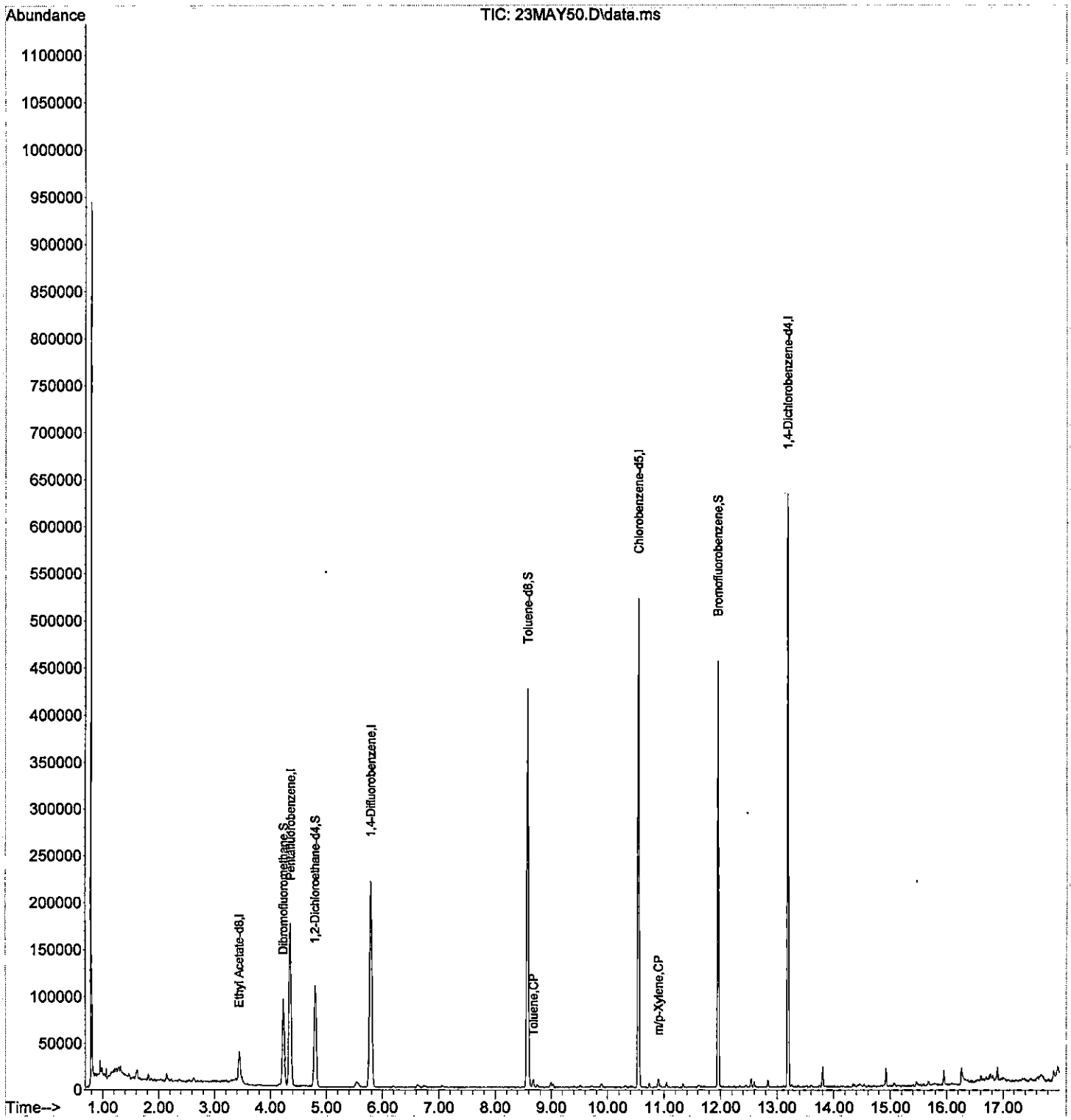
Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

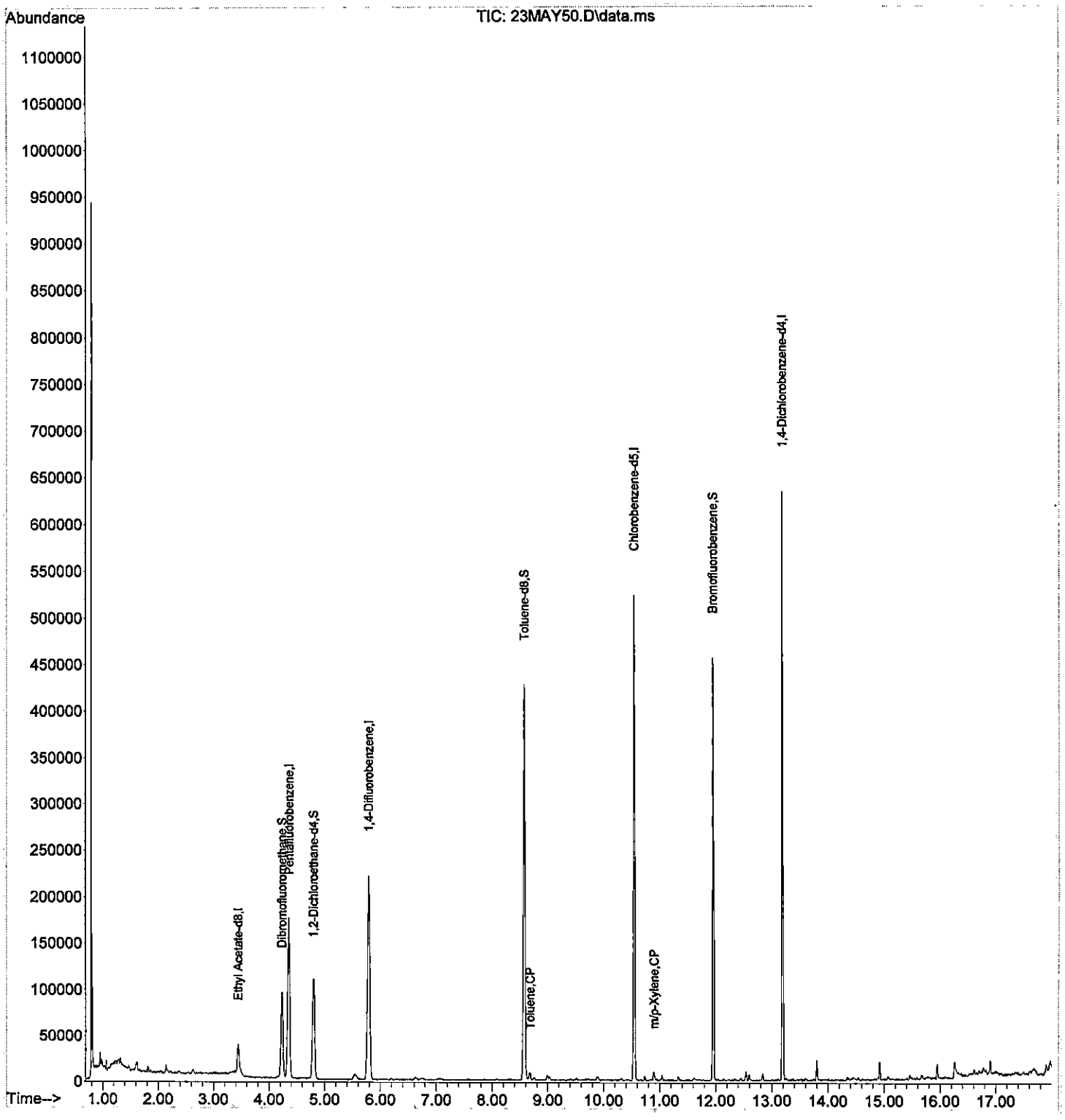
Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

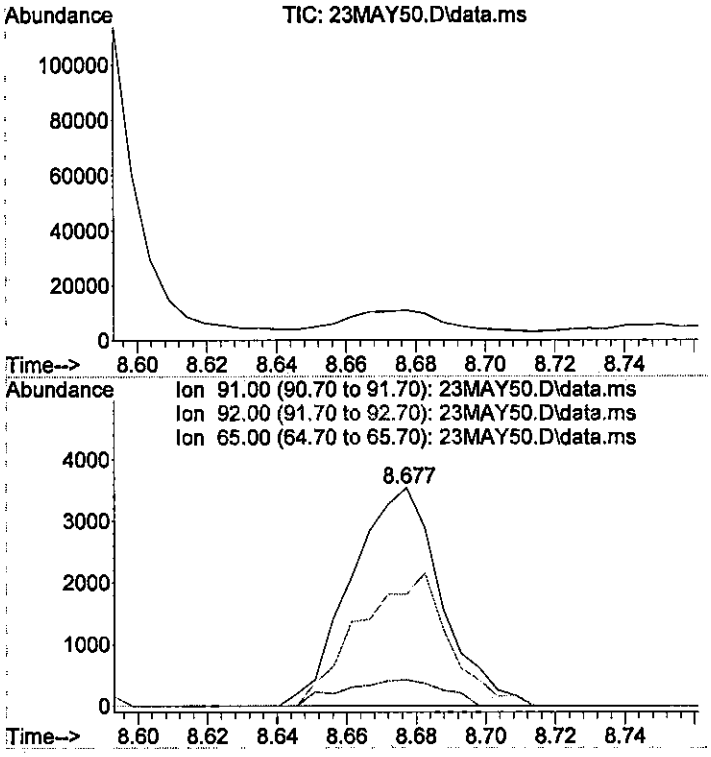
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	156206	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	274342	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	257288	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	130831	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.439	46	48879	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	75574	16.30	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 81.50%#			
46) 1,2-Dichloroethane-d4	4.792	65	104303	17.19	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.95%			
65) Toluene-d8	8.572	98	312404	19.87	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%			
86) Bromofluorobenzene	11.954	95	138180	19.72	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.60%			
Target Compounds						Qvalue
66) Toluene	8.677	91	6345m	0.38	ug/L	
80) m/p-Xylene	10.900	91	5697m	0.40	ug/L	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY50.D
Acq On : 24 May 2018 6:59 am
Operator : AK
Sample : 18051328-14A
Misc : IS/SS 200-20033
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 24 11:43:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

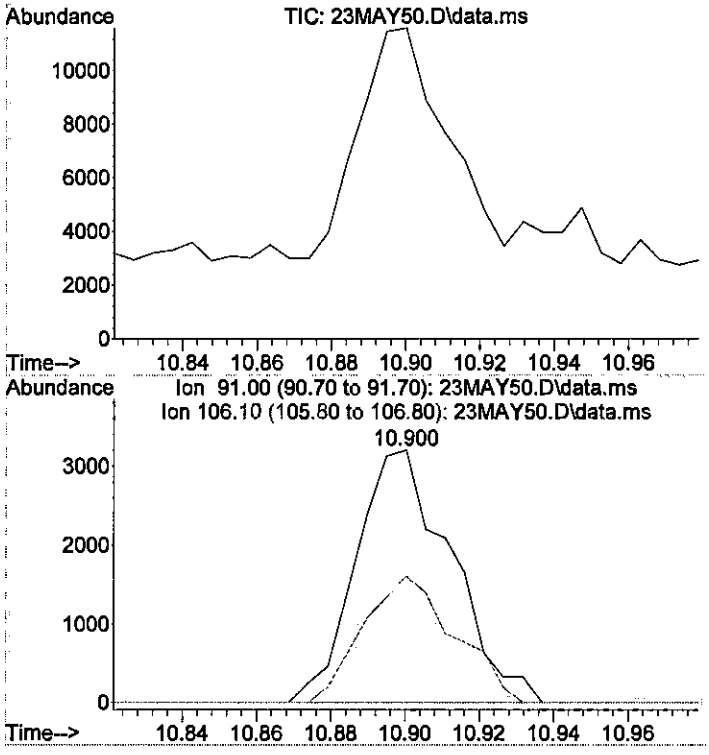




#66
Toluene
Concen: 0.38 ug/L m
RT: 8.677 min Scan# 1524
Delta R.T. 0.000 min
Lab File: 23MAY50.D
Acq: 24 May 2018 6:59 am

Tgt Ion: 91 Resp: 6345

Ion	Ratio	Lower	Upper
91	100		
92	60.5	29.0	89.0
65	0.0	0.0	42.5



#80
m/p-Xylene
Concen: 0.40 ug/L m
RT: 10.900 min Scan# 1948
Delta R.T. -0.006 min
Lab File: 23MAY50.D
Acq: 24 May 2018 6:59 am

Tgt Ion: 91 Resp: 5697

Ion	Ratio	Lower	Upper
91	100		
106	48.5	17.9	77.9

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	368946	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	530568	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	486260	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	256868	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	81782	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	158663	17.24	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 86.20%				
45) 1,2-Dichloroethane-d4	5.164	65	159372	17.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 88.95%				
64) Toluene-d8	7.671	98	600790	18.93	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.65%				
85) Bromofluorobenzene	9.433	95	216582	18.82	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.	d		
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.676	64	5437	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.	d	
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

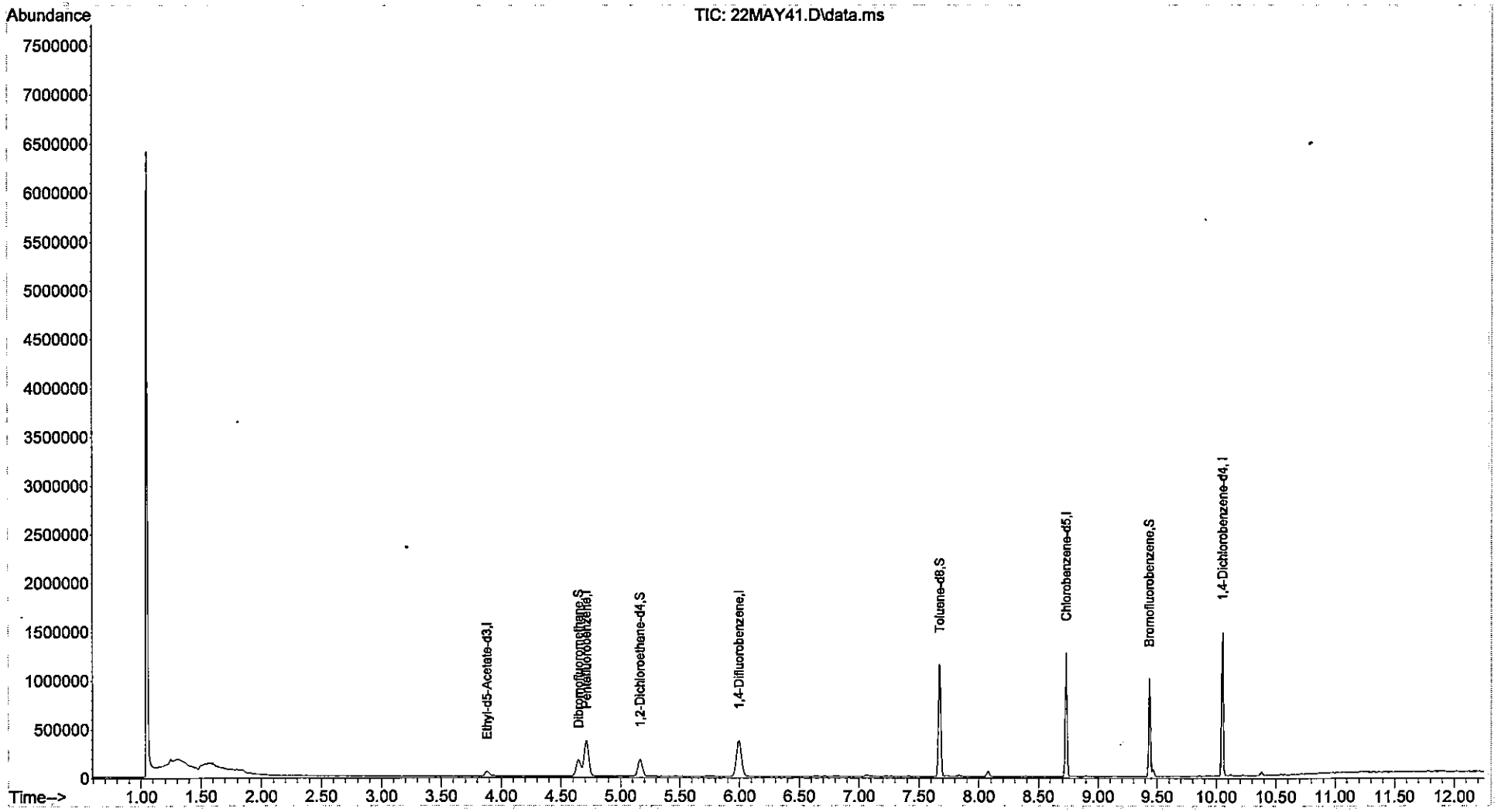
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

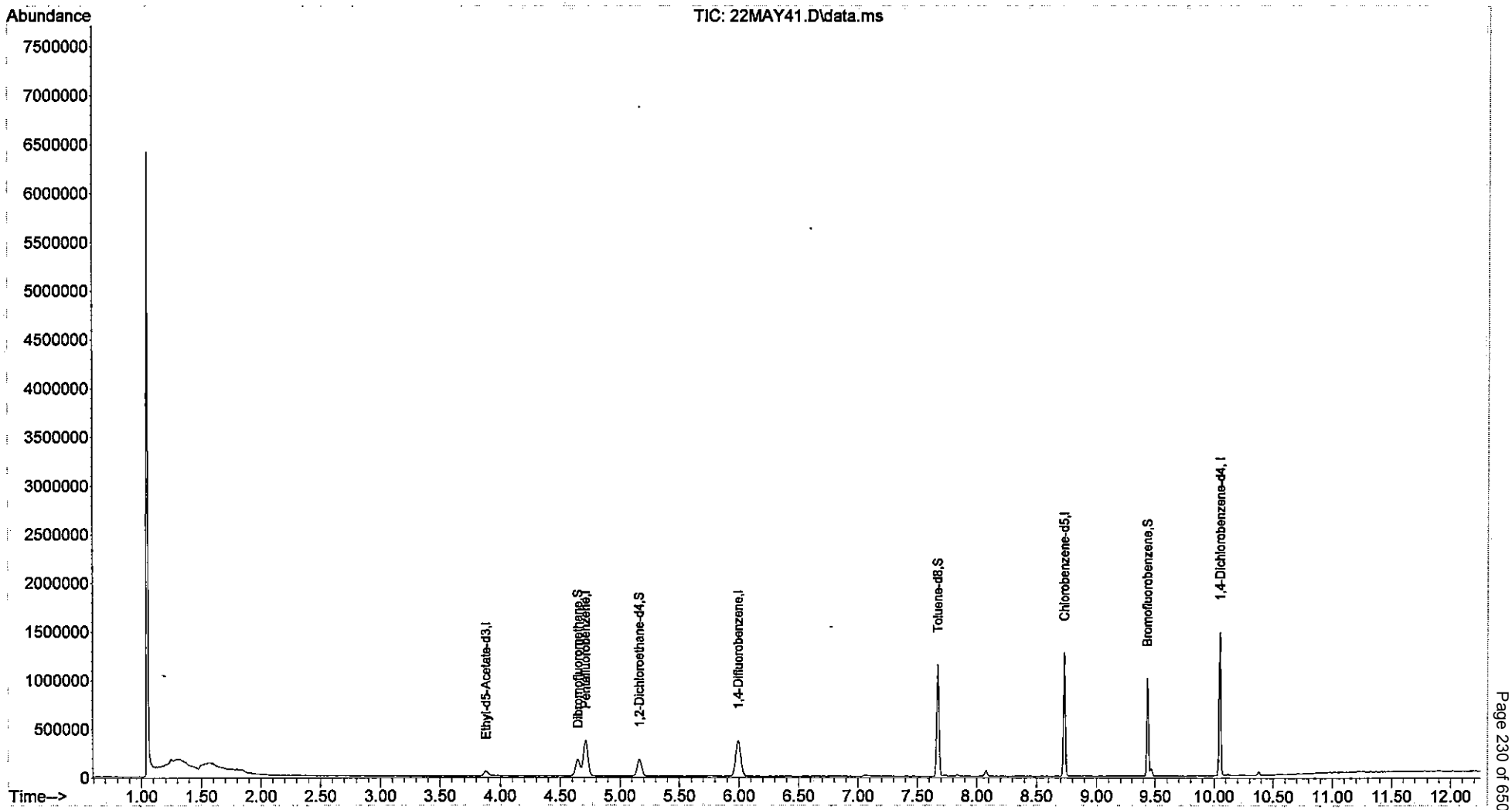
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	368946	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	530568	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	486260	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	256868	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.882	46	81782	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	158663	17.24	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 86.20%			
45) 1,2-Dichloroethane-d4	5.164	65	159372	17.79	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 88.95%			
64) Toluene-d8	7.671	98	600790	18.93	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.65%			
85) Bromofluorobenzene	9.433	95	216582	18.82	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.10%			
Target Compounds						Qvalue
6) Chloroethane	1.676	64	5437	Below Cal	#	50

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY41.D
Acq On : 22 May 2018 10:04 pm
Operator : EMR
Sample : 18051328-24A
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 23 09:35:44 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 5:05 pm
Operator : EMR
Sample : 18051328-15A DF0.765
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 24 09:06:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	263926	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	390542	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	348358	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	164819	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29460	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	137163	20.68	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 103.40%				
45) 1,2-Dichloroethane-d4	5.164	65	116502	19.96	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.80%				
64) Toluene-d8	7.671	98	455227	19.46	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.30%				
85) Bromofluorobenzene	9.433	95	151720	19.24	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 96.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.227	43	65987	33.74	ug/L		99
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	39907	0.39	ug/L		92
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.137	57	12402	Below Cal		#	93
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 5:05 pm
Operator : EMR
Sample : 18051328-15A DF0.765
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 24 09:06:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D. d	
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	0.000		0	N.D. d	
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	0.000		0	N.D.	
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	0.000		0	N.D.	
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	7.728	91	25102	0.75 ug/L #	94
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	0.000		0	N.D.	
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	0.000		0	N.D.	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D.	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	8.817	91	12846m	0.37 ug/L	
79)	m/p-Xylene	8.896	91	17508	0.66 ug/L	96
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	9.125	91	9343m	0.34 ug/L	
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	0.000		0	N.D.	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	0.000		0	N.D. d	
91)	2-Chlorotoluene	0.000		0	N.D. d	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	9.655	105	6698m	0.26 ug/L	
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	9.856	105	21325	0.78 ug/L	85
96)	sec-Butylbenzene	0.000		0	N.D. d	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 5:05 pm
Operator : EMR
Sample : 18051328-15A DF0.765
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 24 09:06:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	8205m	0.32 ug/L	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	7780m	0.30 ug/L	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	65987	51.18 ug/L	99
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
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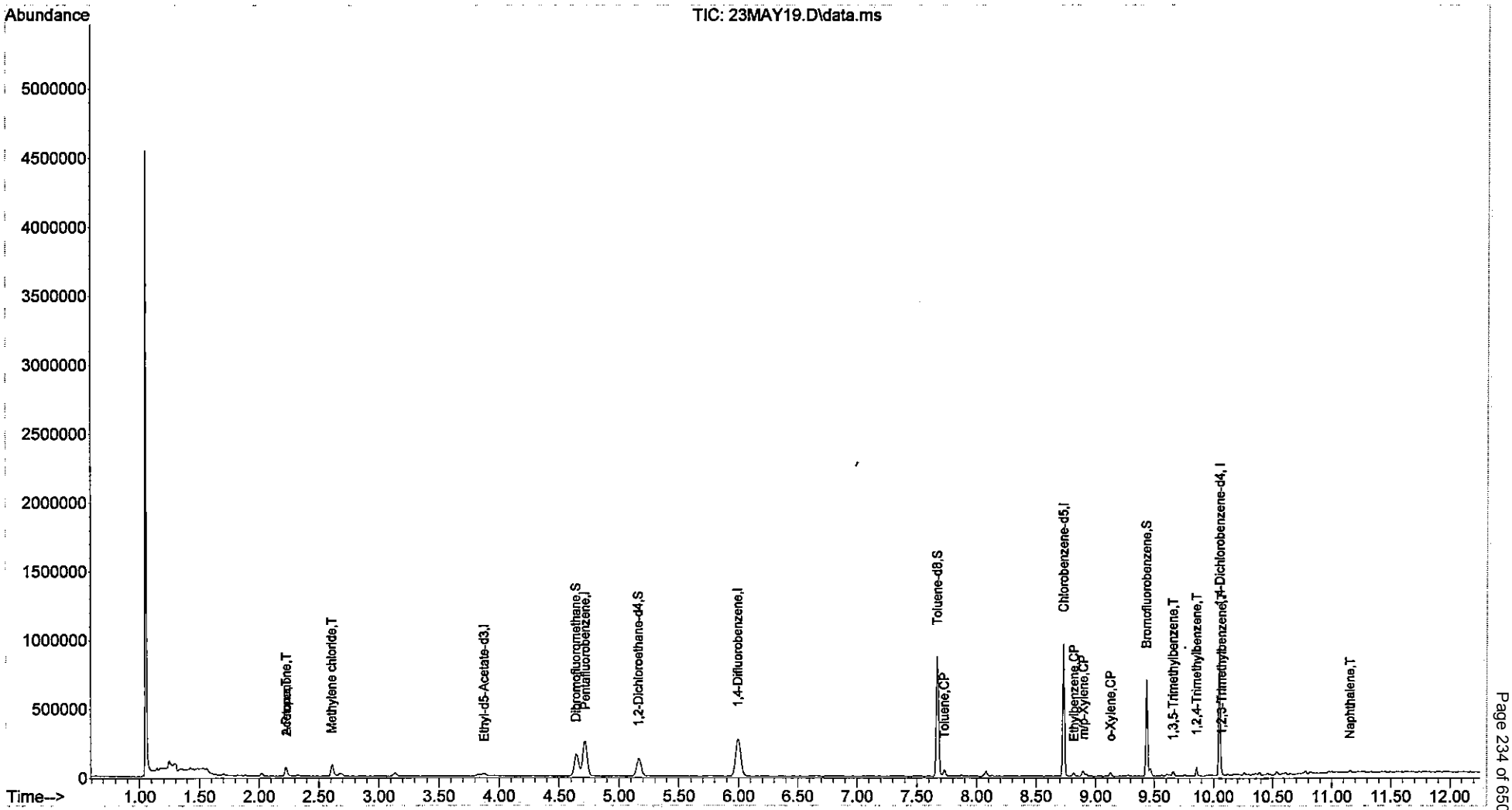
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 5:05 pm
Operator : EMR
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

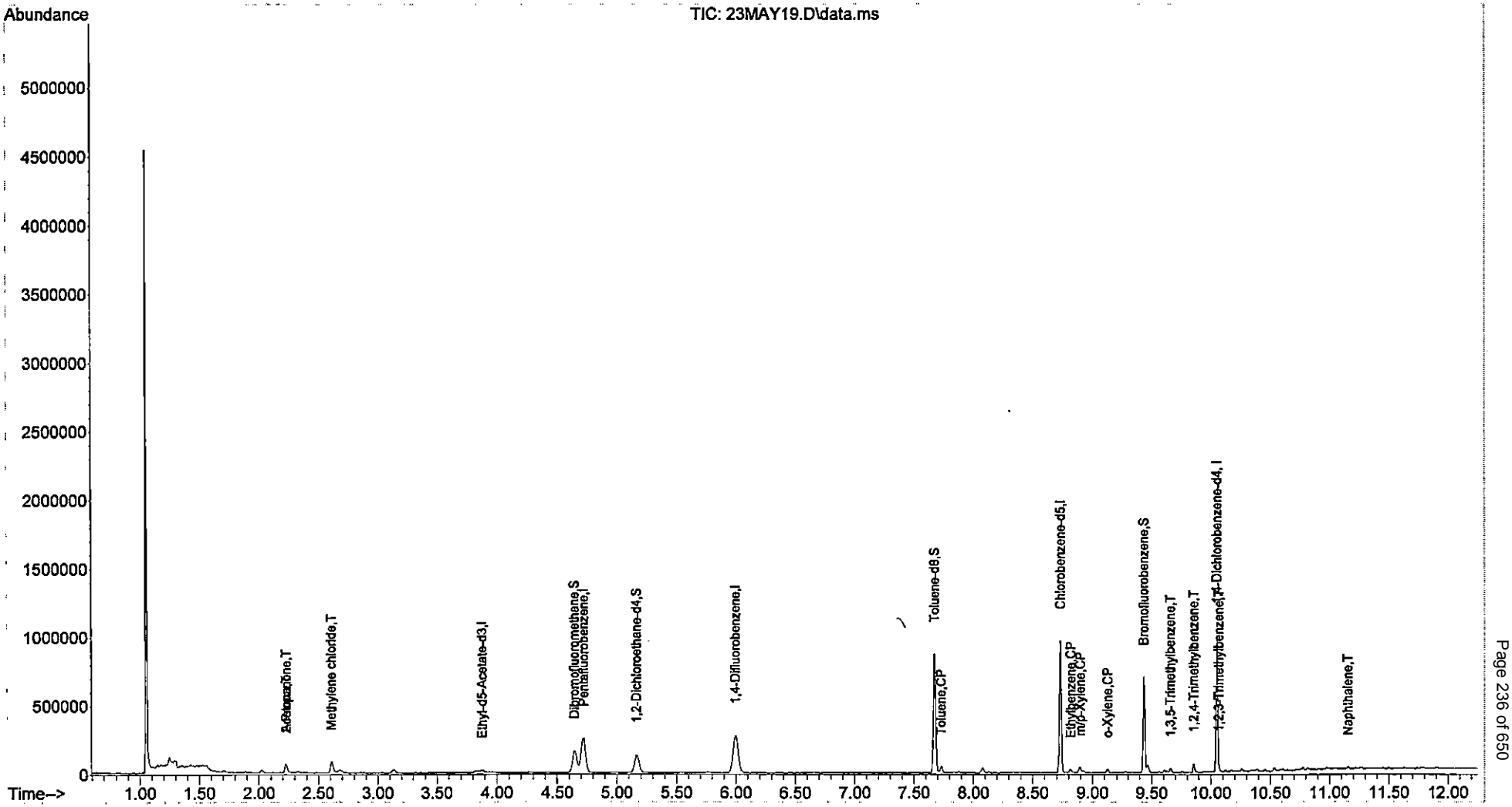
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	263926	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	390542	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	348358	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	164819	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29460	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	137163	20.68	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 103.40%				
45) 1,2-Dichloroethane-d4	5.164	65	116502	19.96	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.80%				
64) Toluene-d8	7.671	98	455227	19.46	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.30%				
85) Bromofluorobenzene	9.433	95	151720	19.24	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 96.20%				
Target Compounds							Qvalue
13) Acetone	2.227	43	65987	33.74	ug/L		99
19) Methylene chloride	2.607	49	39907	0.39	ug/L		92
24) Hexane	3.137	57	12402	Below Cal		#	93
65) Toluene	7.728	91	25102	0.75	ug/L	#	94
78) Ethylbenzene	8.817	91	12846m	0.37	ug/L		
79) m/p-Xylene	8.896	91	17508	0.66	ug/L		96
81) o-Xylene	9.125	91	9343m	0.34	ug/L		
93) 1,3,5-Trimethylbenzene	9.655	105	6698m	0.26	ug/L		
95) 1,2,4-Trimethylbenzene	9.856	105	21325	0.78	ug/L		85
101) 1,2,3-Trimethylbenzene	10.063	105	8205m	0.32	ug/L		
110) Naphthalene	11.152	128	7780m	0.30	ug/L		
115) 2-Propanone	2.227	43	65987	51.18	ug/L		99

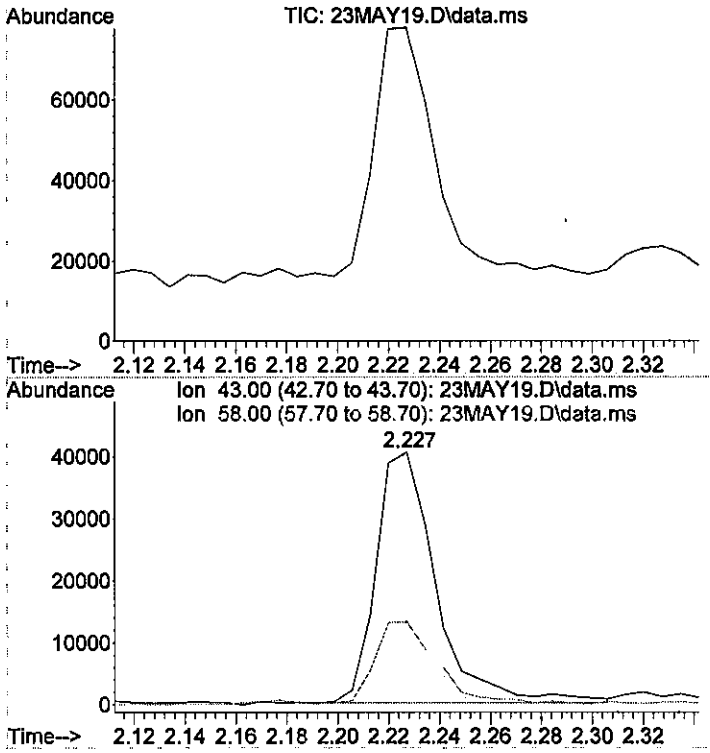
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 5:05 pm
Operator : EMR
Sample : 18051328-15A DF0.765
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 24 09:06:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

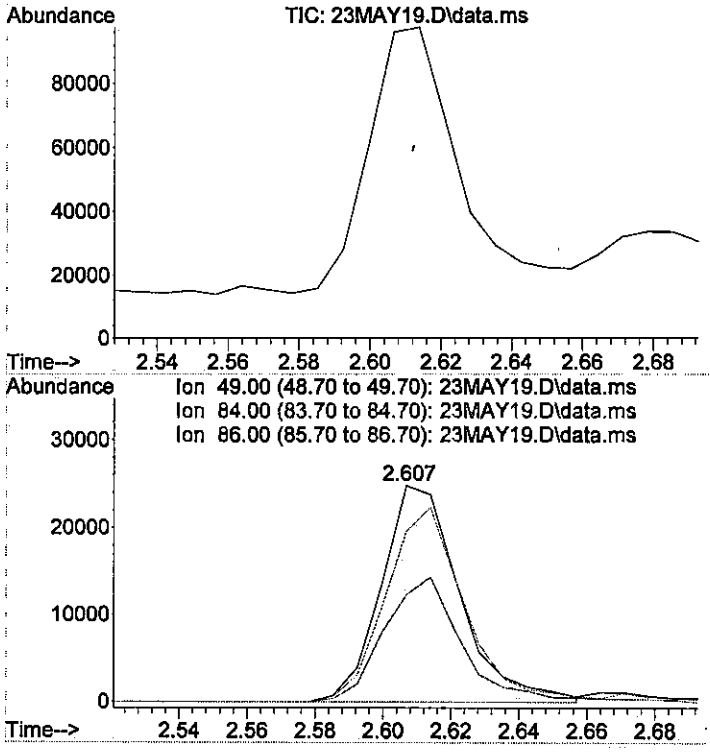




#13
Acetone
Concen: 33.74 ug/L
RT: 2.227 min Scan# 229
Delta R.T. 0.000 min
Lab File: 23MAY19.D
Acq: 23 May 2018 5:05 pm

Tgt Ion: 43 Resp: 65987

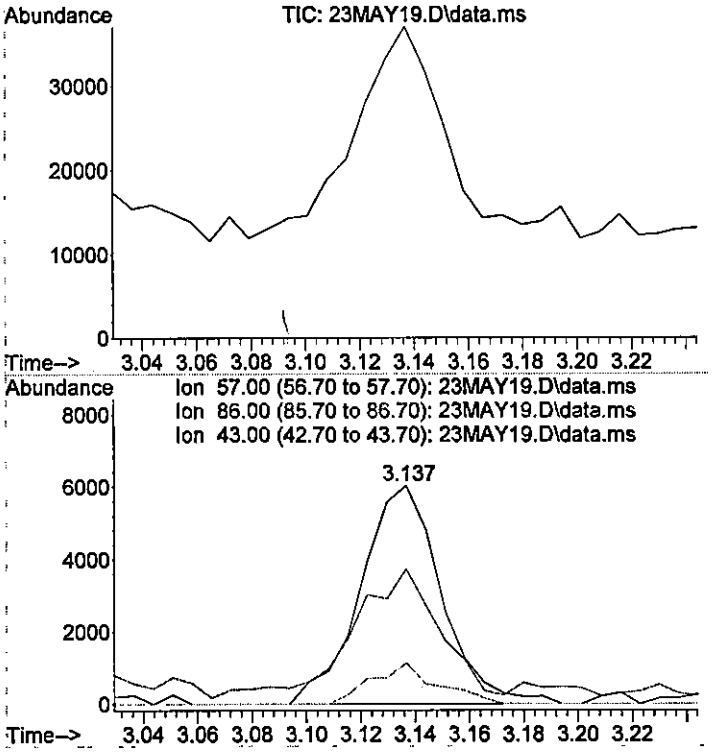
Ion	Ratio	Lower	Upper
43	100		
58	33.9	13.5	53.5



#19
Methylene chloride
Concen: 0.39 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY19.D
Acq: 23 May 2018 5:05 pm

Tgt Ion: 49 Resp: 39907

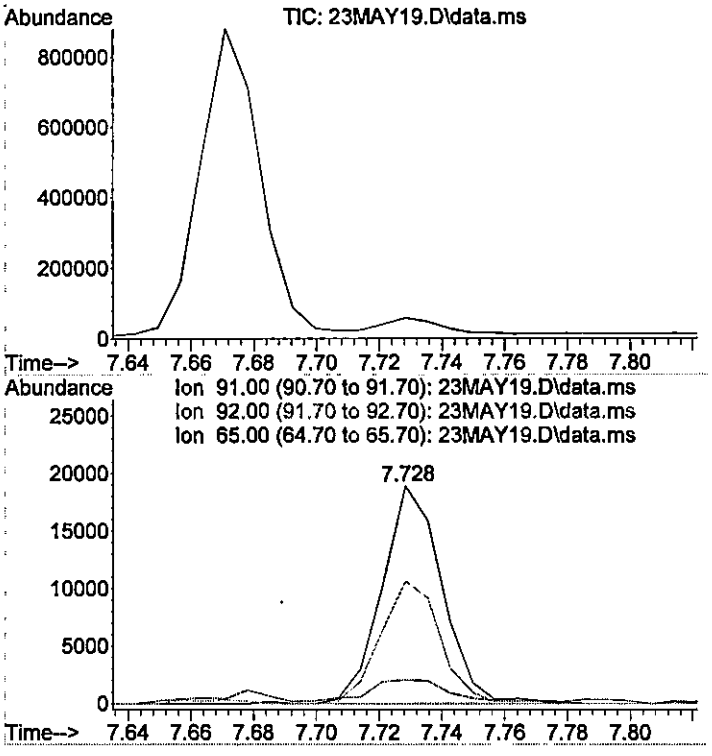
Ion	Ratio	Lower	Upper
49	100		
84	89.7	61.9	101.9
86	57.6	32.2	72.2



#24
Hexane
Concen: Below Cal
RT: 3.137 min Scan# 356
Delta R.T. 0.007 min
Lab File: 23MAY19.D
Acq: 23 May 2018 5:05 pm

Tgt Ion: 57 Resp: 12402

Ion	Ratio	Lower	Upper
57	100		
86	0.0	0.0	34.2
43	64.6	43.5	83.5



#65
Toluene
Concen: 0.75 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY19.D
Acq: 23 May 2018 5:05 pm

Tgt Ion: 91 Resp: 25102

Ion	Ratio	Lower	Upper
91	100		
92	56.4	37.8	77.8
65	0.0	0.0	31.0

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	246804	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	363511	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	320404	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	148263	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29442	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	126603	20.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.55%				
45) 1,2-Dichloroethane-d4	5.171	65	106404	19.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 97.90%				
64) Toluene-d8	7.671	98	421046	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.433	95	136023	18.76	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 93.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.220	43	103294	59.41	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	40703	0.86	ug/L		95
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.130	57	19749	Below Cal		#	89
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D. d	
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	0.000		0	N.D. d	
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	0.000		0	N.D. d	
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	0.000		0	N.D.	
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	7.728	91	22357	0.73 ug/L #	93
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	0.000		0	N.D.	
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	0.000		0	N.D.	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D.	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	8.817	91	8128m	0.25 ug/L	
79)	m/p-Xylene	8.896	91	12044	0.49 ug/L	95
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	9.125	91	5542	0.22 ug/L #	29
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	0.000		0	N.D.	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	0.000		0	N.D.	
91)	2-Chlorotoluene	0.000		0	N.D.	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	9.655	105	2478m	0.10 ug/L	
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	9.856	105	8450m	0.34 ug/L	
96)	sec-Butylbenzene	0.000		0	N.D. d	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

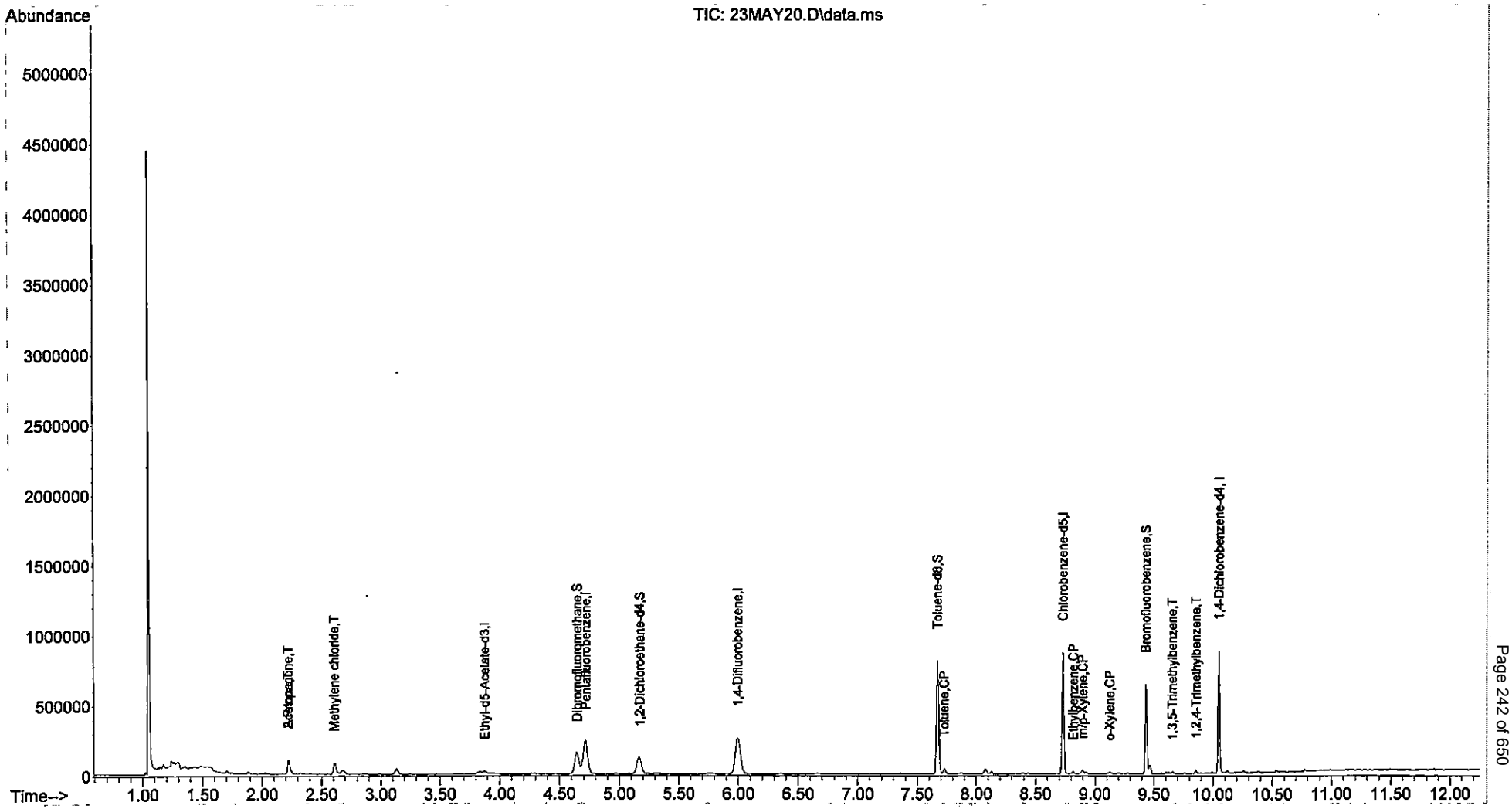
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.220	43	103294	82.88	ug/L	98
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

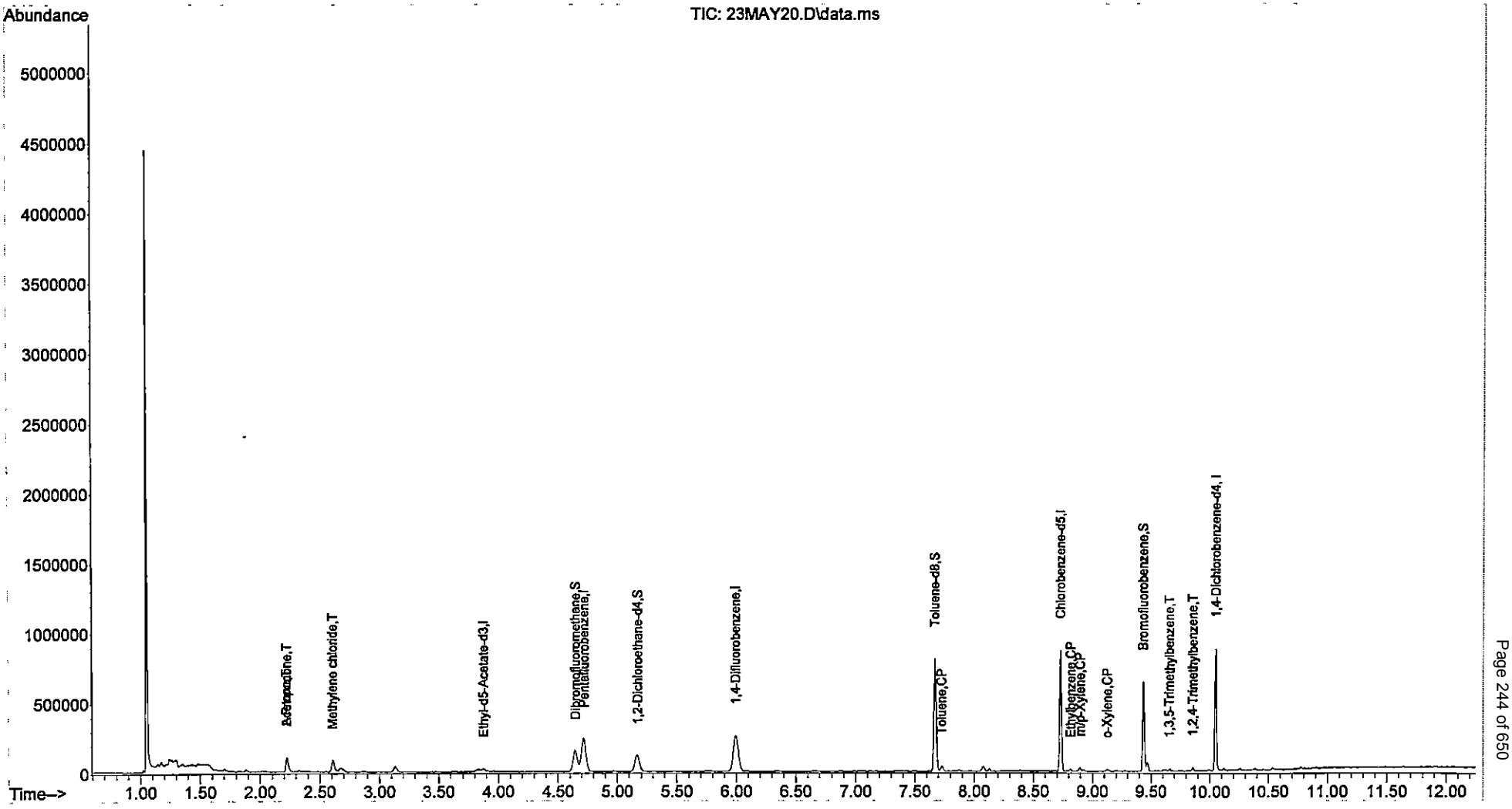
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	246804	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	363511	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	320404	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	148263	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29442	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	126603	20.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.55%				
45) 1,2-Dichloroethane-d4	5.171	65	106404	19.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 97.90%				
64) Toluene-d8	7.671	98	421046	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.433	95	136023	18.76	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 93.80%				
Target Compounds							Qvalue
13) Acetone	2.220	43	103294	59.41	ug/L		98
19) Methylene chloride	2.607	49	40703	0.86	ug/L		95
24) Hexane	3.130	57	19749	Below Cal		#	89
65) Toluene	7.728	91	22357	0.73	ug/L	#	93
78) Ethylbenzene	8.817	91	8128m	0.25	ug/L		
79) m/p-Xylene	8.896	91	12044	0.49	ug/L		95
81) o-Xylene	9.125	91	5542	0.22	ug/L	#	29
93) 1,3,5-Trimethylbenzene	9.655	105	2478m	0.10	ug/L		
95) 1,2,4-Trimethylbenzene	9.856	105	8450m	0.34	ug/L		
115) 2-Propanone	2.220	43	103294	82.88	ug/L		98

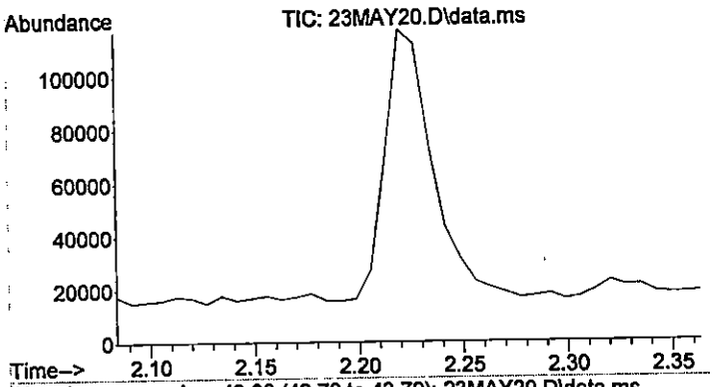
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 5:22 pm
Operator : EMR
Sample : 18051328-16A DF0.874
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 09:07:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

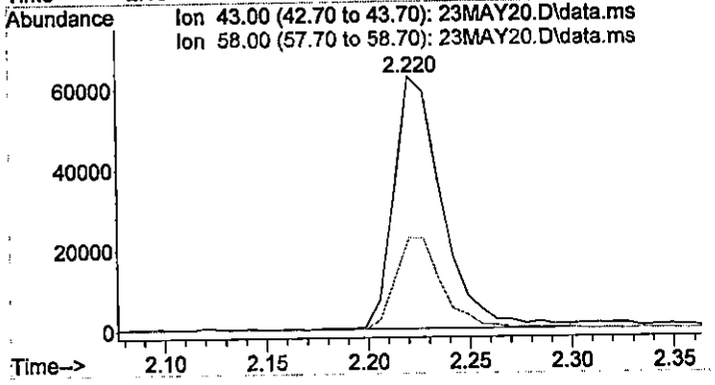


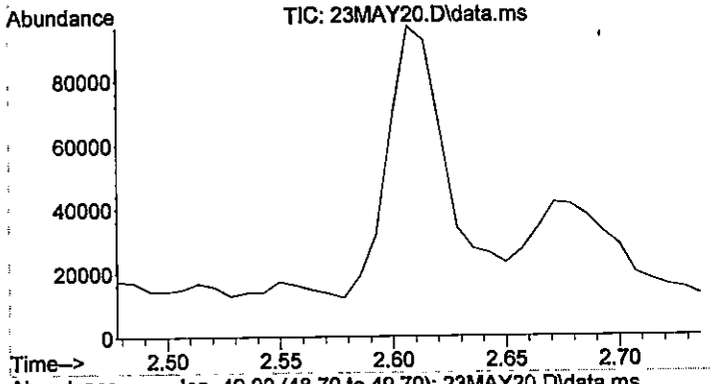


#13
Acetone
Concen: 59.41 ug/L
RT: 2.220 min Scan# 228
Delta R.T. -0.007 min
Lab File: 23MAY20.D
Acq: 23 May 2018 5:22 pm

Tgt Ion: 43 Resp: 103294

Ion	Ratio	Lower	Upper
43	100		
58	34.7	13.5	53.5

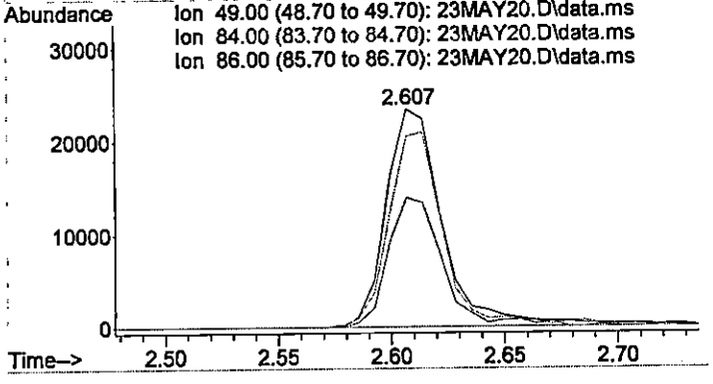


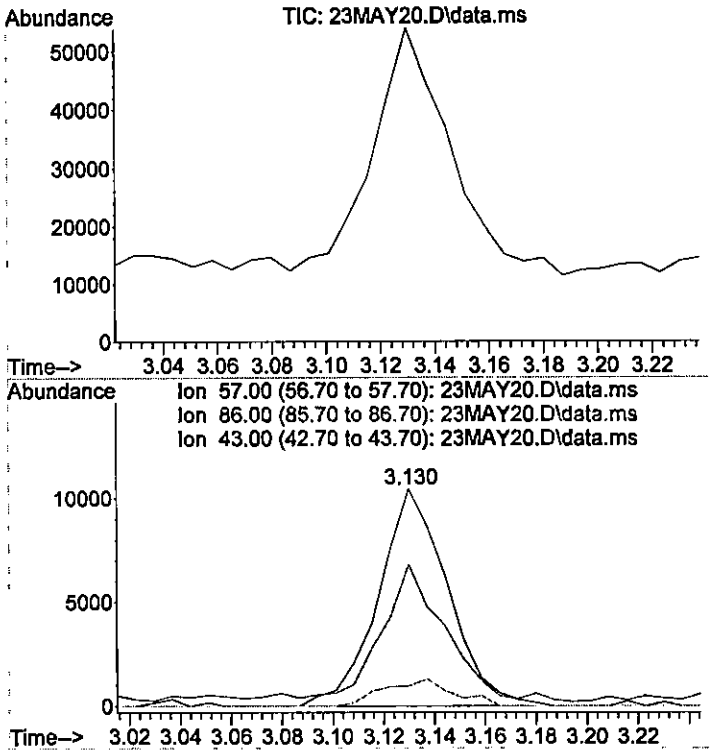


#19
Methylene chloride
Concen: 0.86 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY20.D
Acq: 23 May 2018 5:22 pm

Tgt Ion: 49 Resp: 40703

Ion	Ratio	Lower	Upper
49	100		
84	85.5	61.9	101.9
86	57.3	32.2	72.2

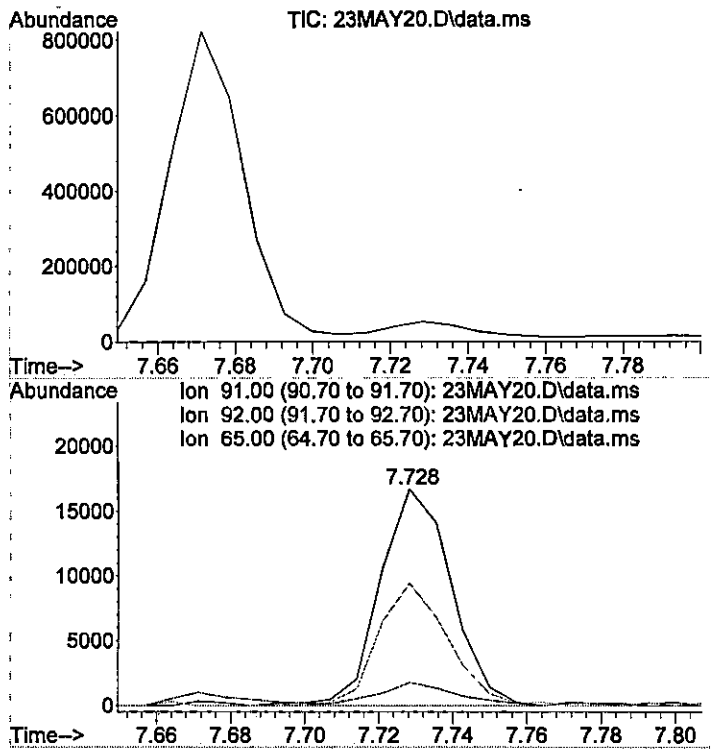




#24
Hexane
Concen: Below Cal
RT: 3.130 min Scan# 355
Delta R.T. -0.000 min
Lab File: 23MAY20.D
Acq: 23 May 2018 5:22 pm

Tgt Ion: 57 Resp: 19749

Ion	Ratio	Lower	Upper
57	100		
86	0.0	0.0	34.2
43	58.6	43.5	83.5



#65
Toluene
Concen: 0.73 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY20.D
Acq: 23 May 2018 5:22 pm

Tgt Ion: 91 Resp: 22357

Ion	Ratio	Lower	Upper
91	100		
92	56.0	37.8	77.8
65	0.0	0.0	31.0

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY21.D
Acq On : 23 May 2018 5:39 pm
Operator : EMR
Sample : 18051328-18A DF0.818
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 09:29:41 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	236393	20.00 ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	363658	20.00 ug/L		0.00
62) Chlorobenzene-d5	8.731	117	303474	20.00 ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	127488	20.00 ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	27795m	20.00 ug/L		0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	113488	18.38 ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 91.90%			
45) 1,2-Dichloroethane-d4	5.164	65	106789	19.64 ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 98.20%			
64) Toluene-d8	7.671	98	399930	19.63 ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.15%			
85) Bromofluorobenzene	9.433	95	129222	18.81 ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	109000	65.89 ug/L		98
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.607	49	36671	0.52 ug/L		92
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D. d		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.137	57	20541	Below Cal	#	84
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	3.946	43	23815	8.86 ug/L	#	87
32) Ethyl Acetate	0.000		0	N.D. d		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY21.D
Acq On : 23 May 2018 5:39 pm
Operator : EMR
Sample : 18051328-18A DF0.818
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 09:29:41 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D. d	
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	5.193	78	22978m	0.79 ug/L	
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	5.766	43	11045	1.12 ug/L	92
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	6.654	83	13064	1.14 ug/L #	92
53)	n-Butanol	0.000		0	N.D. d	
54)	Trichloroethene	6.353	130	18143	2.26 ug/L	94
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	7.728	91	69115	2.38 ug/L	97
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	0.000		0	N.D.	
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	8.251	43	9031m	2.21 ug/L	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D. d	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	8.817	91	20586	0.67 ug/L	93
79)	m/p-Xylene	8.896	91	26705	1.16 ug/L	98
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	9.125	91	12306	0.52 ug/L	96
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	0.000		0	N.D.	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D. d	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	9.562	91	5493m	0.16 ug/L	
91)	2-Chlorotoluene	0.000		0	N.D. d	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	9.655	105	5851m	0.26 ug/L	
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	9.856	105	15826	0.67 ug/L	89
96)	sec-Butylbenzene	9.934	105	2238m	0.08 ug/L	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY21.D
Acq On : 23 May 2018 5:39 pm
Operator : EMR
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Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 09:29:41 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	7025m	0.36 ug/L	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	72909	3.62 ug/L	98
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	11.783	142	30306	2.42 ug/L	86
113) 1-Methylnaphthalene	11.897	142	18322	1.75 ug/L	86
115) 2-Propanone	2.227	43	109000	93.20 ug/L	98
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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Quant Time: May 24 09:29:41 2018
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
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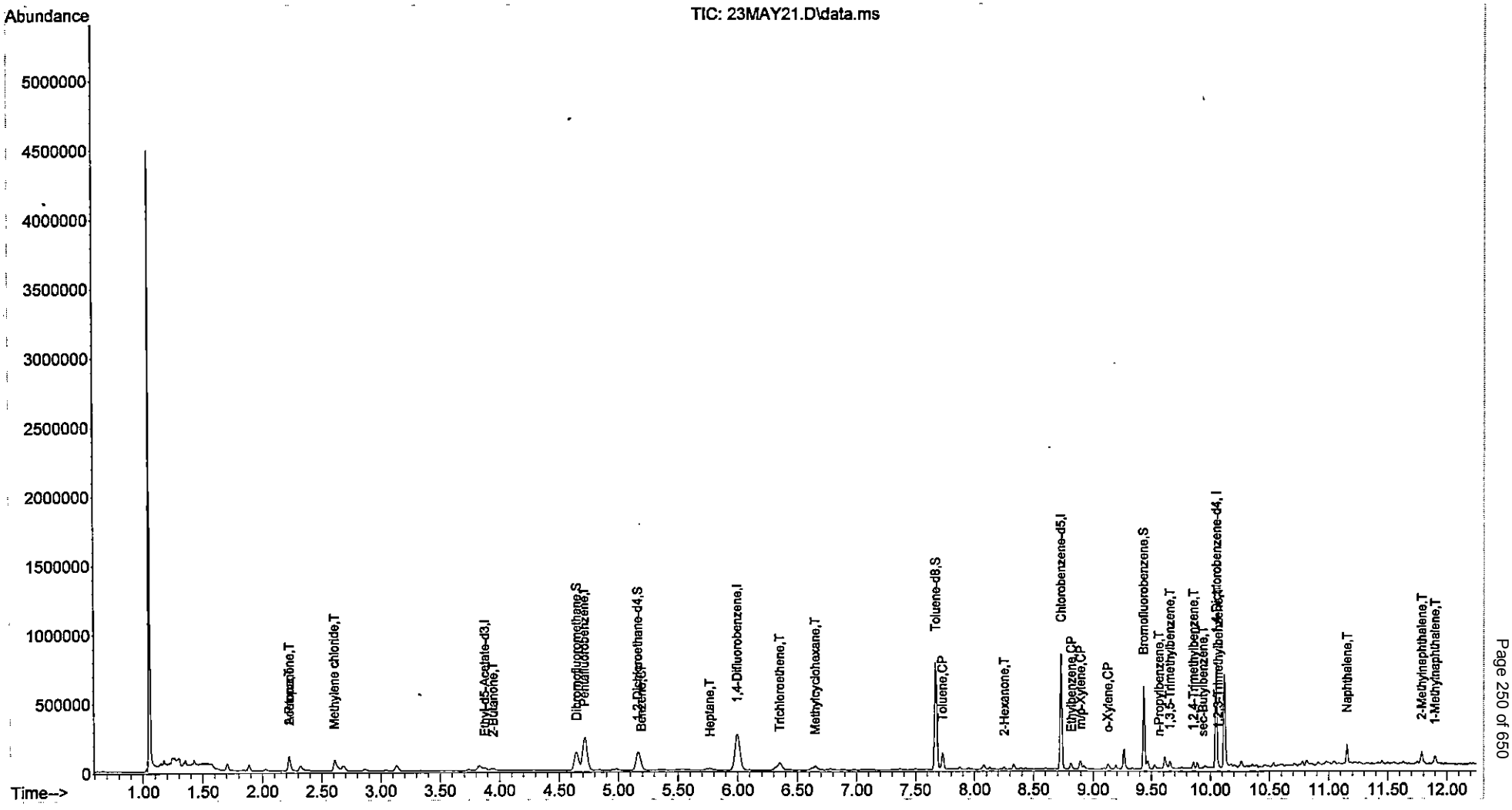

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY21.D
Acq On : 23 May 2018 5:39 pm
Operator : EMR
Sample : 18051328-18A DF0.818
Misc : IS/SS 200-20081
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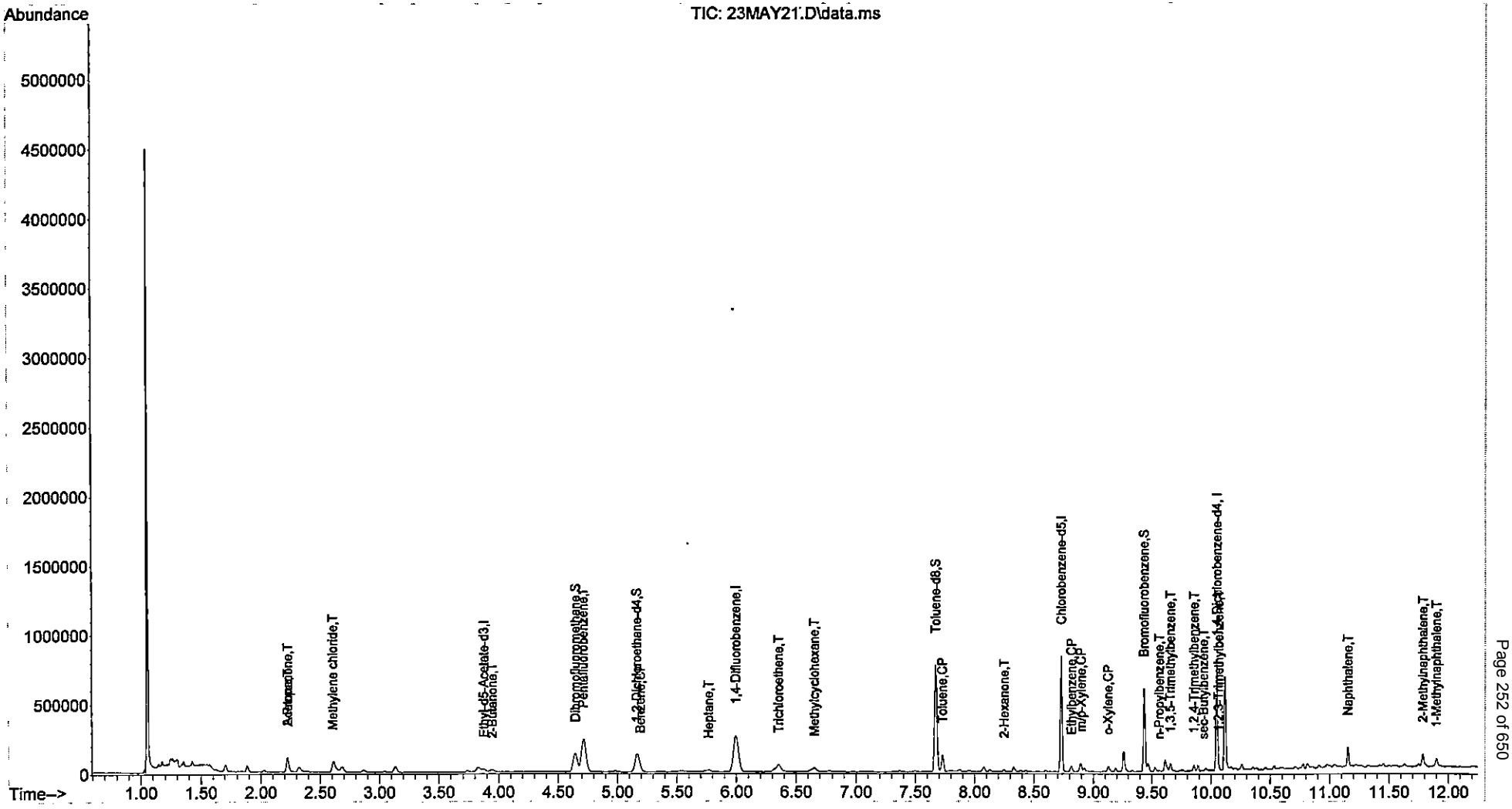
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	236393	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	363658	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	303474	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	127488	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	27795m	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	113488	18.38	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 91.90%				
45) 1,2-Dichloroethane-d4	5.164	65	106789	19.64	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 98.20%				
64) Toluene-d8	7.671	98	399930	19.63	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.15%				
85) Bromofluorobenzene	9.433	95	129222	18.81	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.05%				
Target Compounds							Qvalue
13) Acetone	2.227	43	109000	65.89	ug/L		98
19) Methylene chloride	2.607	49	36671	0.52	ug/L		92
24) Hexane	3.137	57	20541	Below Cal		#	84
31) 2-Butanone	3.946	43	23815	8.86	ug/L	#	87
47) Benzene	5.193	78	22978m	0.79	ug/L		
50) Heptane	5.766	43	11045	1.12	ug/L		92
52) Methylcyclohexane	6.654	83	13064	1.14	ug/L	#	92
54) Trichloroethene	6.353	130	18143	2.26	ug/L		94
65) Toluene	7.728	91	69115	2.38	ug/L		97
72) 2-Hexanone	8.251	43	9031m	2.21	ug/L		
78) Ethylbenzene	8.817	91	20586	0.67	ug/L		93
79) m/p-Xylene	8.896	91	26705	1.16	ug/L		98
81) o-Xylene	9.125	91	12306	0.52	ug/L		96
90) n-Propylbenzene	9.562	91	5493m	0.16	ug/L		
93) 1,3,5-Trimethylbenzene	9.655	105	5851m	0.26	ug/L		
95) 1,2,4-Trimethylbenzene	9.856	105	15826	0.67	ug/L		89
96) sec-Butylbenzene	9.934	105	2238m	0.08	ug/L		
101) 1,2,3-Trimethylbenzene	10.063	105	7025m	0.36	ug/L		
110) Naphthalene	11.152	128	72909	3.62	ug/L		98
112) 2-Methylnaphthalene	11.783	142	30306	2.42	ug/L		86
113) 1-Methylnaphthalene	11.897	142	18322	1.75	ug/L		86
115) 2-Propanone	2.227	43	109000	93.20	ug/L		98

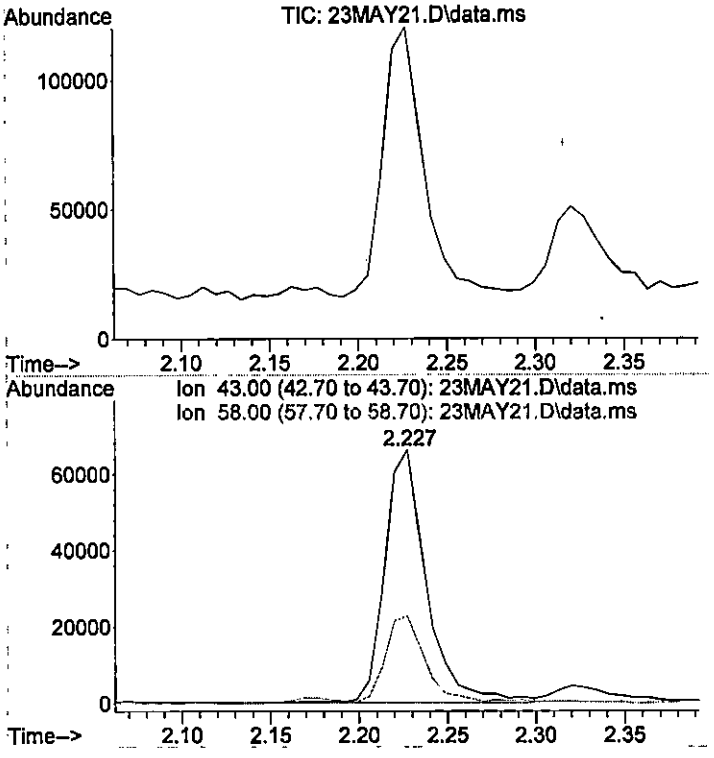
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY21.D
Acq On : 23 May 2018 5:39 pm
Operator : EMR
Sample : 18051328-18A DF0.818
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 09:29:41 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

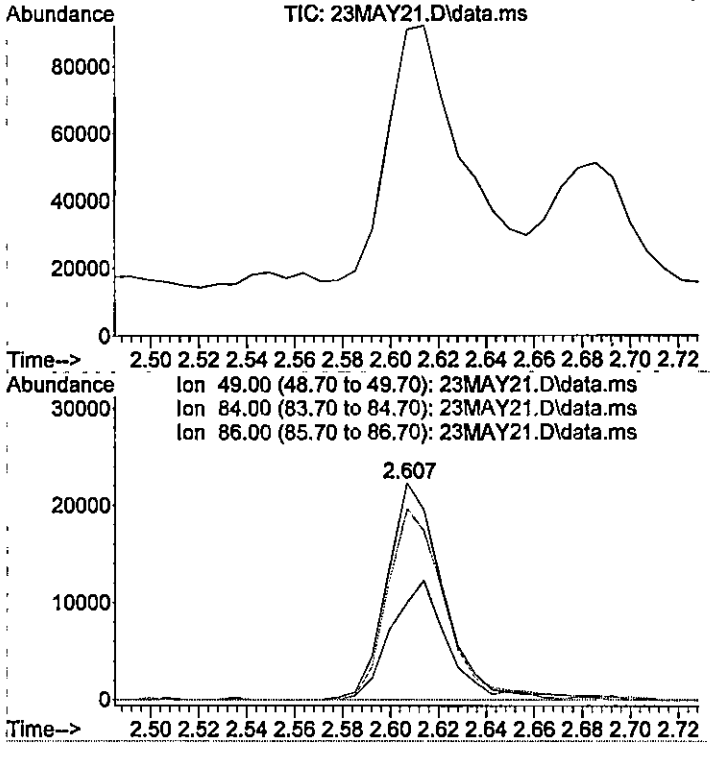




#13
Acetone
Concen: 65.89 ug/L
RT: 2.227 min Scan# 229
Delta R.T. 0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 43 Resp: 109000

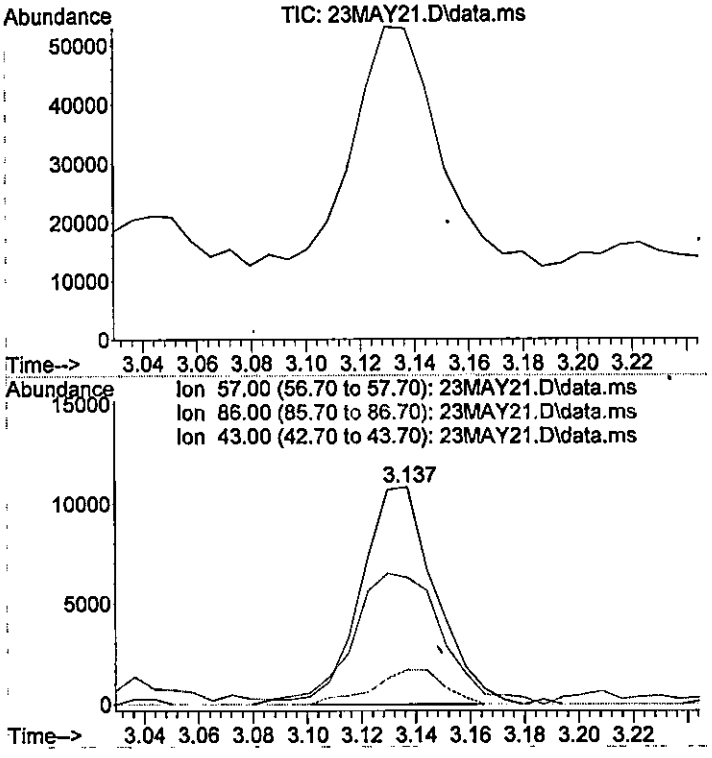
Ion	Ratio	Lower	Upper
43	100		
58	32.3	13.5	53.5



#19
Methylene chloride
Concen: 0.52 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 49 Resp: 36671

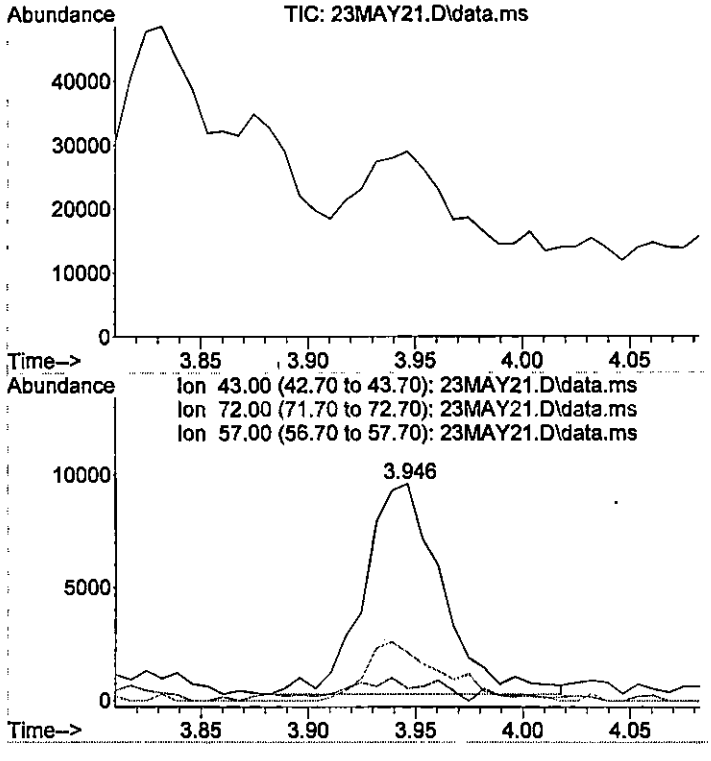
Ion	Ratio	Lower	Upper
49	100		
84	91.2	61.9	101.9
86	55.5	32.2	72.2



#24
Hexane
Concen: Below Cal
RT: 3.137 min Scan# 356
Delta R.T. 0.007 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 57 Resp: 20541

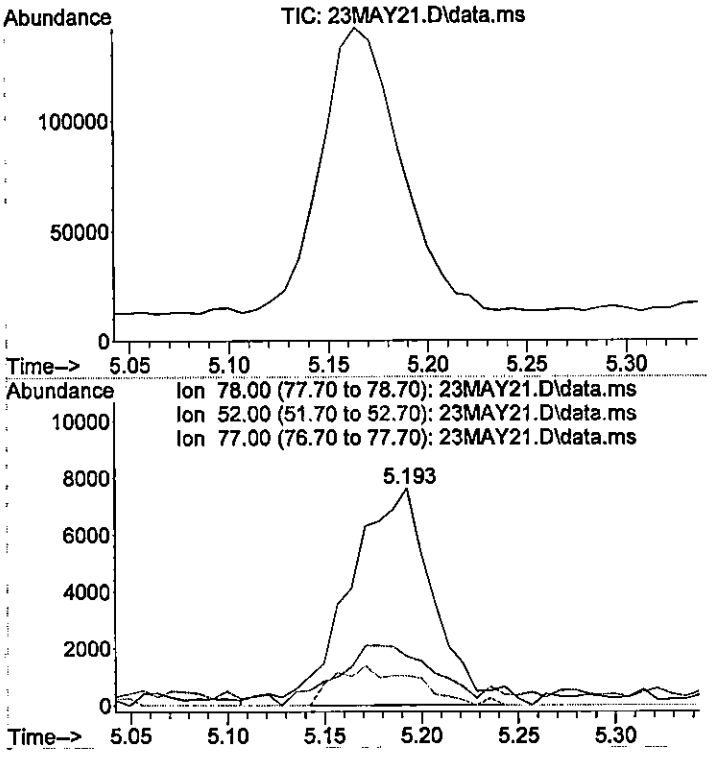
Ion	Ratio	Lower	Upper
57	100		
86	0.0	0.0	34.2
43	72.3	43.5	83.5



#31
2-Butanone
Concen: 8.86 ug/L
RT: 3.946 min Scan# 469
Delta R.T. 0.007 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 43 Resp: 23815

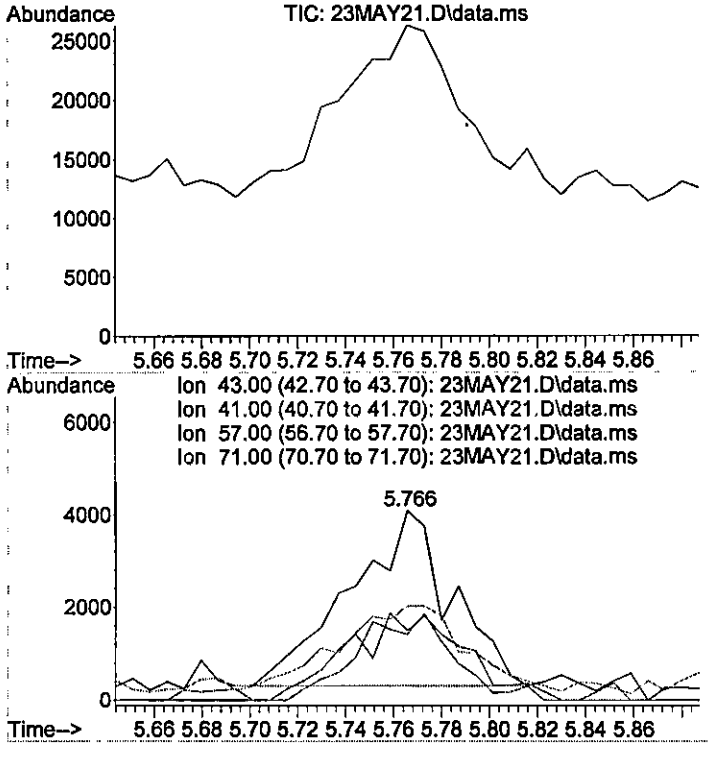
Ion	Ratio	Lower	Upper
43	100		
72	27.3	11.1	51.1
57	0.0	0.0	31.8



#47
Benzene
Concen: 0.79 ug/L m
RT: 5.193 min Scan# 643
Delta R.T. 0.007 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 78 Resp: 22978

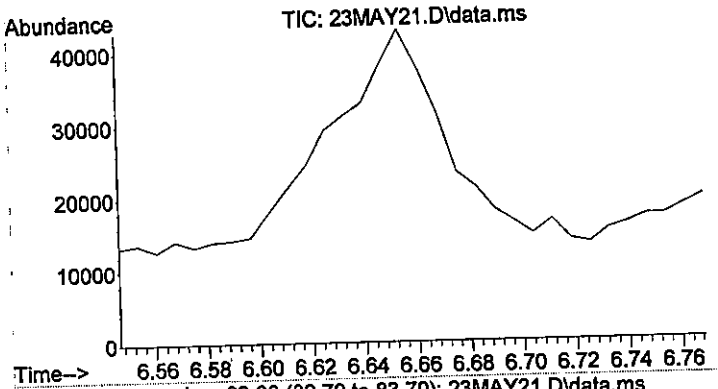
Ion	Ratio	Lower	Upper
78	100		
52	17.2	0.0	34.8
77	31.3	3.8	43.8



#50
Heptane
Concen: 1.12 ug/L
RT: 5.766 min Scan# 723
Delta R.T. -0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 43 Resp: 11045

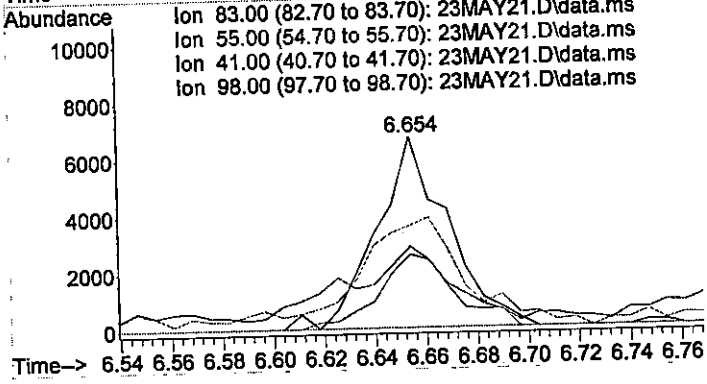
Ion	Ratio	Lower	Upper
43	100		
41	60.9	44.4	66.6
57	57.6	44.2	66.2
71	46.6	45.6	68.4

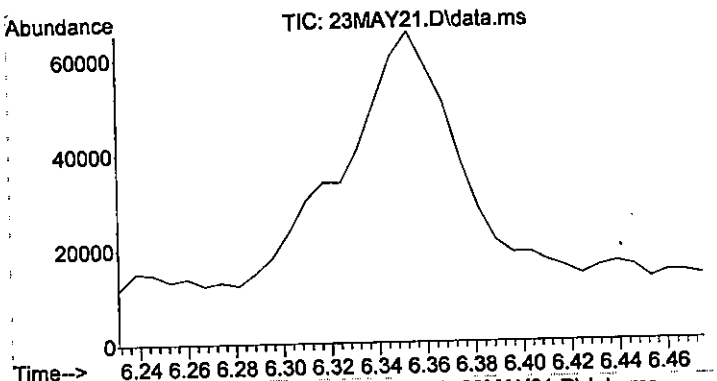


#52
Methylcyclohexane
Concen: 1.14 ug/L
RT: 6.654 min Scan# 847
Delta R.T. -0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 83 Resp: 13064

Ion	Ratio	Lower	Upper
83	100		
55	83.9	63.8	95.6
41	54.4	33.5	50.3#
98	40.9	33.8	50.6

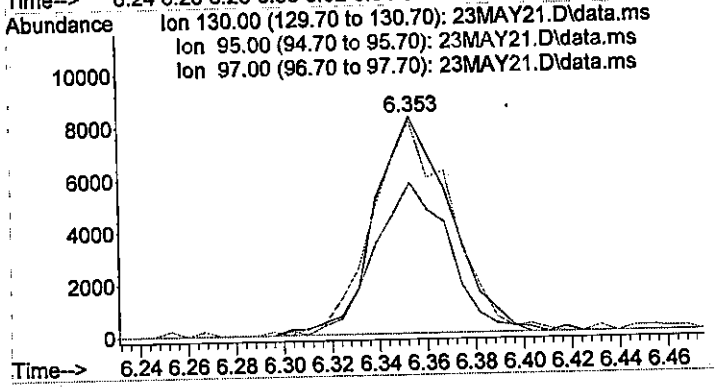


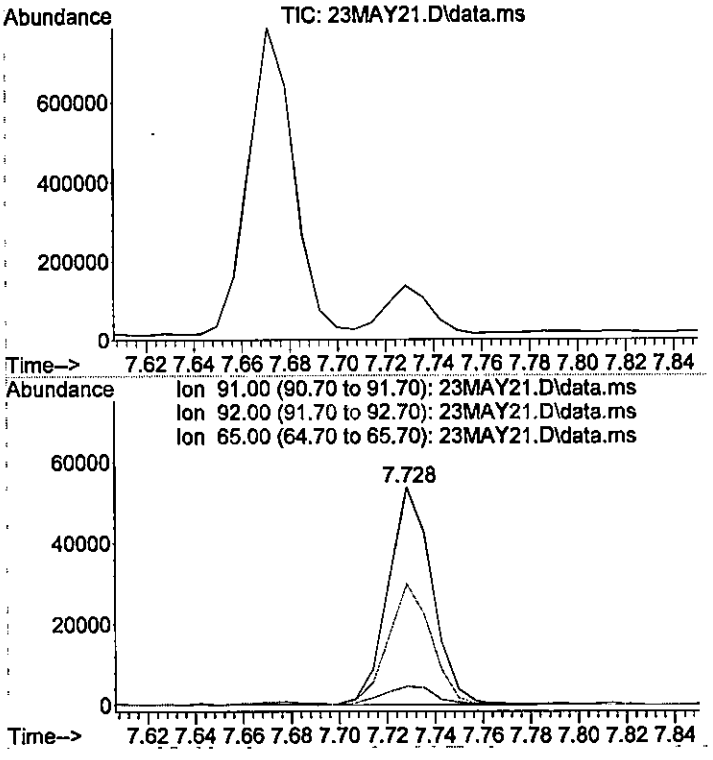


#54
Trichloroethene
Concen: 2.26 ug/L
RT: 6.353 min Scan# 805
Delta R.T. -0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion:130 Resp: 18143

Ion	Ratio	Lower	Upper
130	100		
95	102.4	78.5	118.5
97	69.1	41.9	81.9

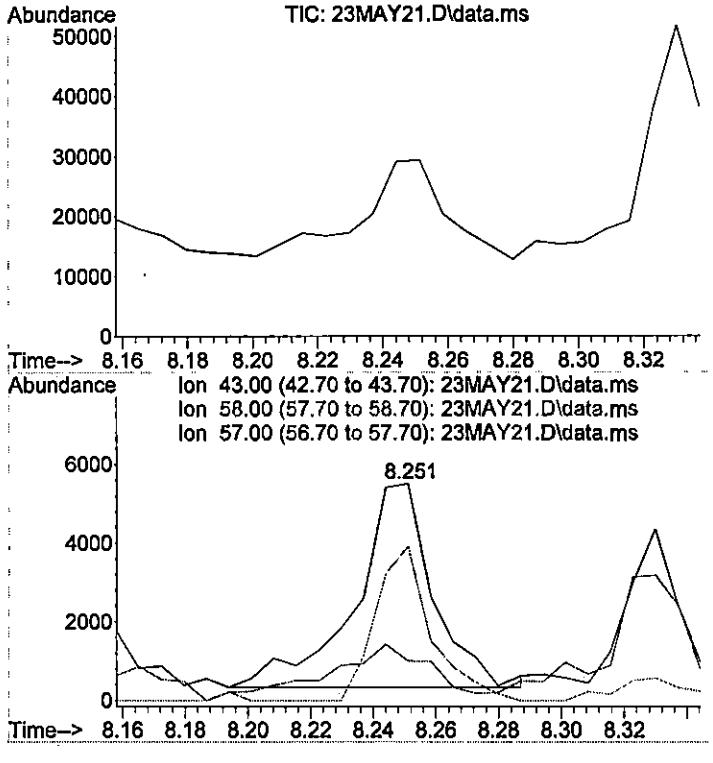




#65
Toluene
Concen: 2.38 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 91 Resp: 69115

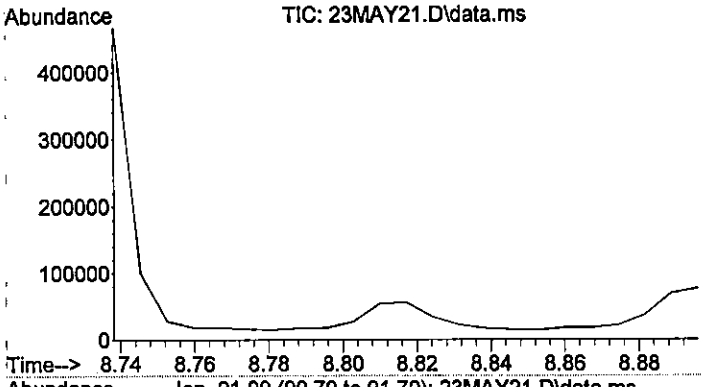
Ion	Ratio	Lower	Upper
91	100		
92	55.3	37.8	77.8
65	10.8	0.0	31.0

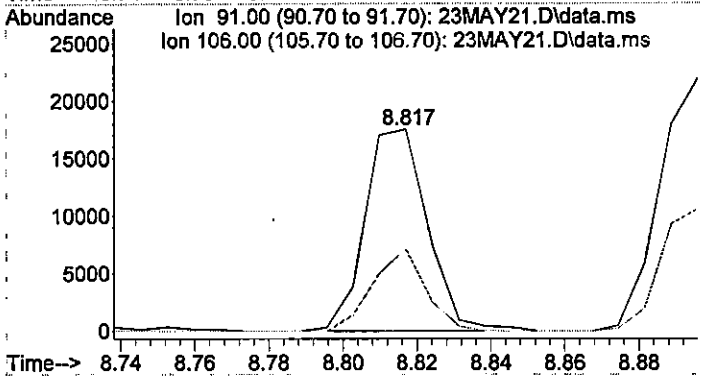


#72
2-Hexanone
Concen: 2.21 ug/L m
RT: 8.251 min Scan# 1070
Delta R.T. 0.007 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 43 Resp: 9031

Ion	Ratio	Lower	Upper
43	100		
58	53.7	35.8	75.8
57	36.4	0.0	38.5

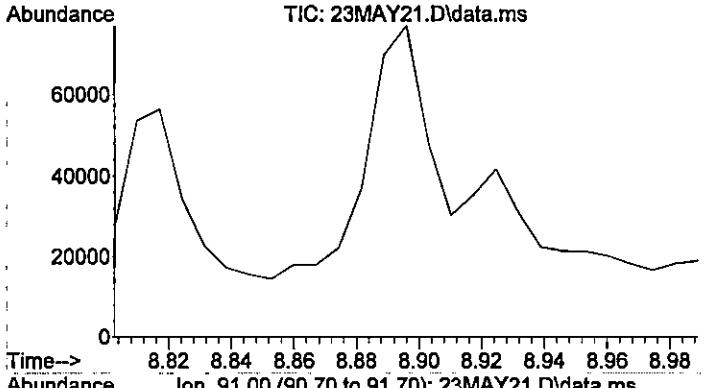


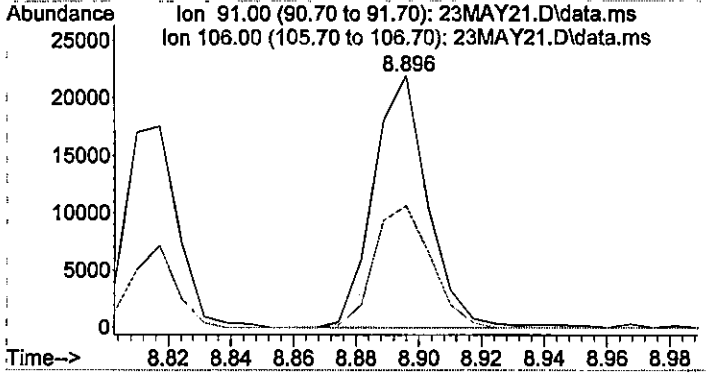


#78
Ethylbenzene
Concen: 0.67 ug/L
RT: 8.817 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 91 Resp: 20586

Ion	Ratio	Lower	Upper
91	100		
106	34.6	10.8	50.8

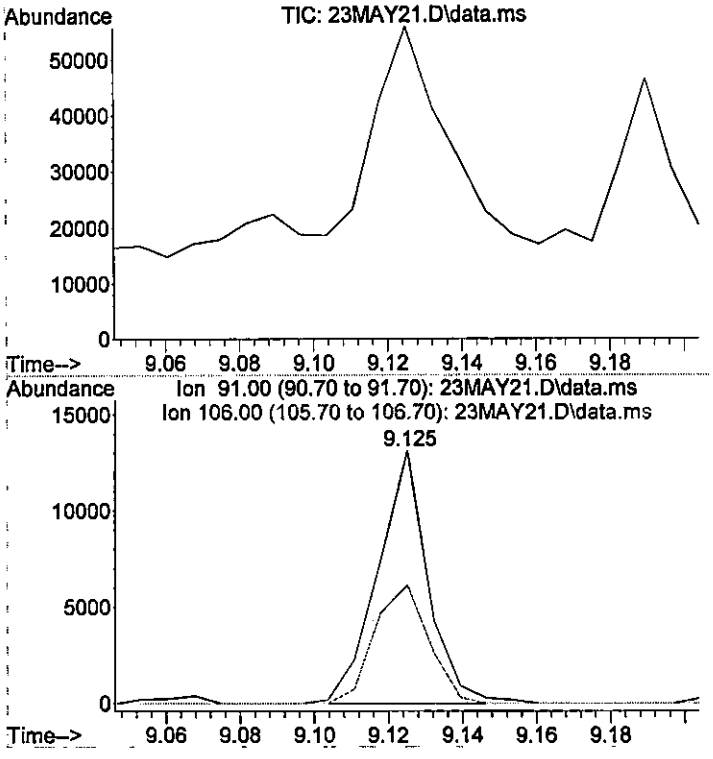




#79
m/p-Xylene
Concen: 1.16 ug/L
RT: 8.896 min Scan# 1160
Delta R.T. -0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 91 Resp: 26705

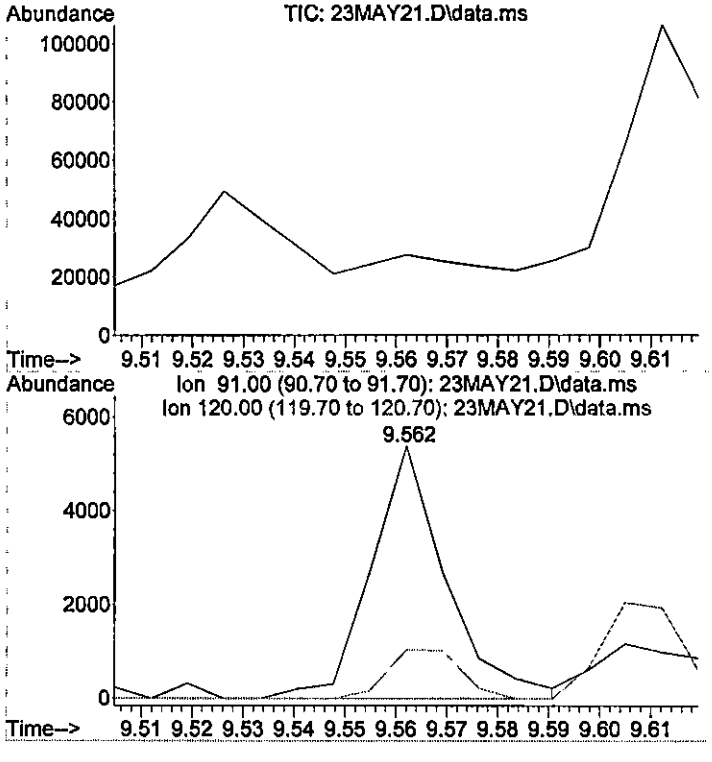
Ion	Ratio	Lower	Upper
91	100		
106	50.2	28.8	68.8



#81
o-Xylene
Concen: 0.52 ug/L
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 91 Resp: 12306

Ion	Ratio	Lower	Upper
91	100		
106	50.8	28.4	68.4



#90
n-Propylbenzene
Concen: 0.16 ug/L m
RT: 9.562 min Scan# 1253
Delta R.T. 0.000 min
Lab File: 23MAY21.D
Acq: 23 May 2018 5:39 pm

Tgt Ion: 91 Resp: 5493

Ion	Ratio	Lower	Upper
91	100		
120	19.3	1.9	41.9

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	143025	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	212158	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	194187	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	92113	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	17641	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	73214	20.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 101.60%				
45) 1,2-Dichloroethane-d4	5.164	65	64643	20.38	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.90%				
64) Toluene-d8	7.671	98	243348	18.67	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 93.35%				
85) Bromofluorobenzene	9.433	95	86110	19.59	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 97.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	34023	3.37	ug/L		95
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.130	57	11978	Below Cal		#	89
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.178	78	6371m	0.38 ug/L	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	14785	3.16 ug/L	97
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	17842	0.96 ug/L #	91
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.810	91	5650m	0.29 ug/L	
79) m/p-Xylene	8.889	91	8794m	0.59 ug/L	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

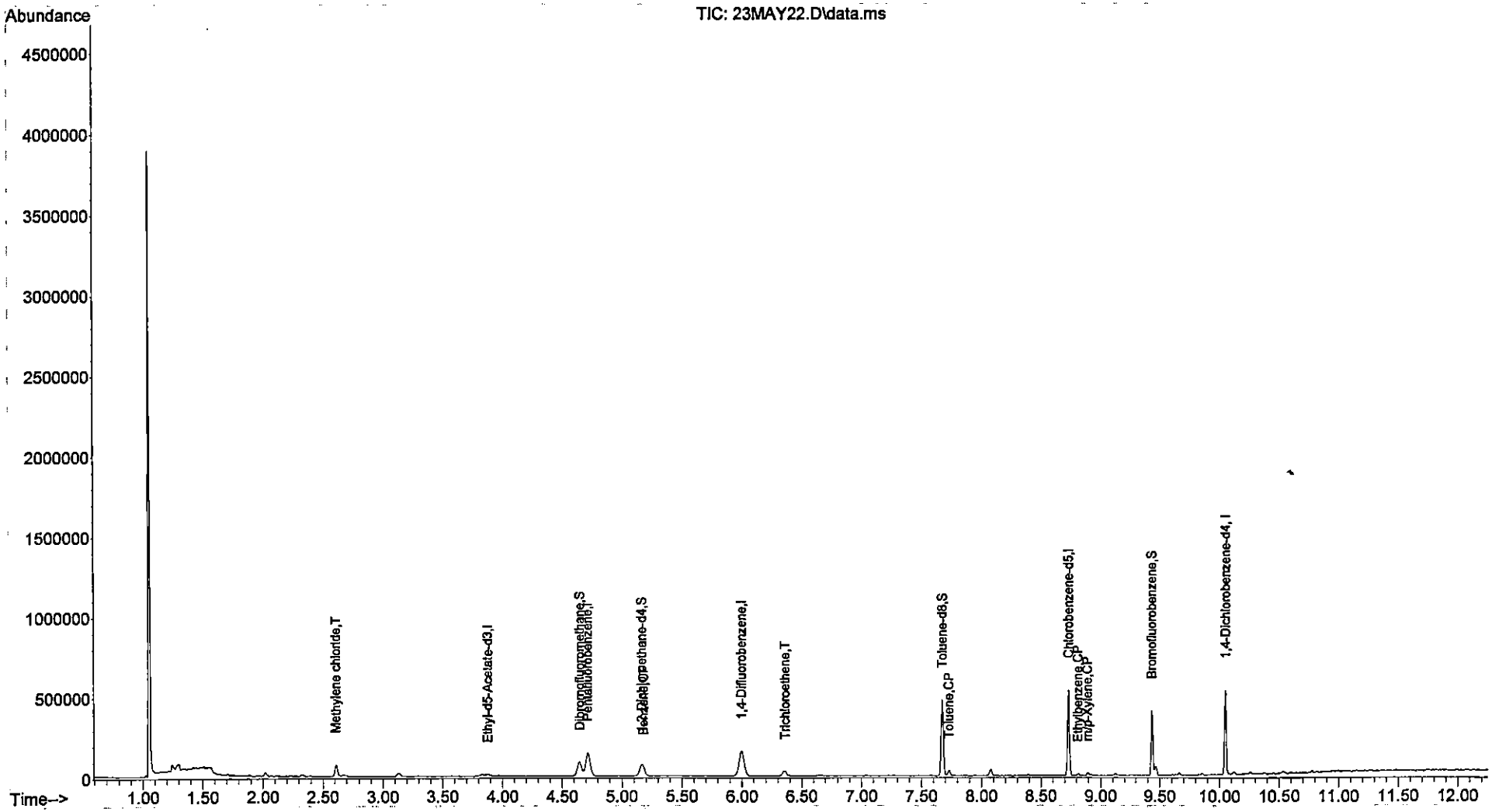
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

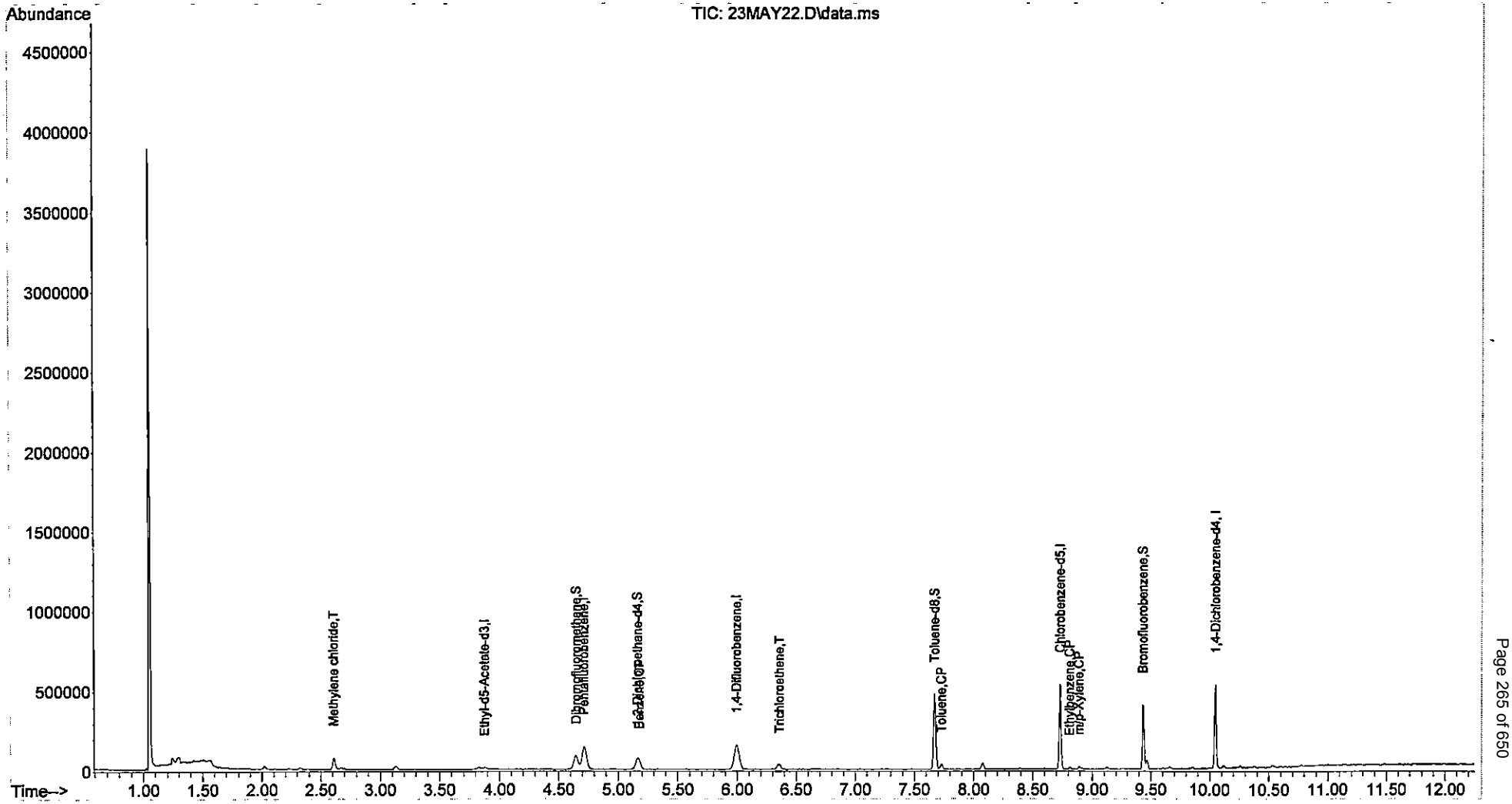
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	143025	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	212158	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	194187	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	92113	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	17641	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	73214	20.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 101.60%				
45) 1,2-Dichloroethane-d4	5.164	65	64643	20.38	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.90%				
64) Toluene-d8	7.671	98	243348	18.67	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 93.35%				
85) Bromofluorobenzene	9.433	95	86110	19.59	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 97.95%				
Target Compounds							Qvalue
19) Methylene chloride	2.607	49	34023	3.37	ug/L		95
24) Hexane	3.130	57	11978	Below Cal		#	89
47) Benzene	5.178	78	6371m	0.38	ug/L		
54) Trichloroethene	6.360	130	14785	3.16	ug/L		97
65) Toluene	7.728	91	17842	0.96	ug/L	#	91
78) Ethylbenzene	8.810	91	5650m	0.29	ug/L		
79) m/p-Xylene	8.889	91	8794m	0.59	ug/L		

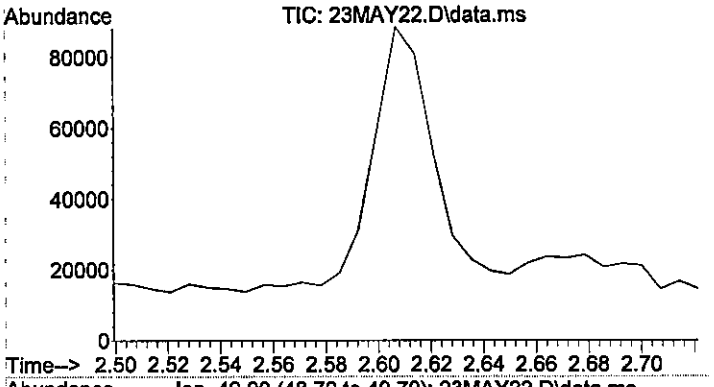
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 5:55 pm
Operator : EMR
Sample : 18051328-19A DF0.766
Misc : IS/SS 200-20081
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 09:30:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

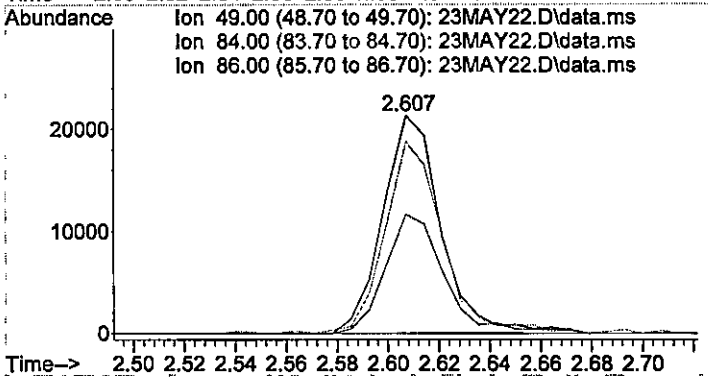


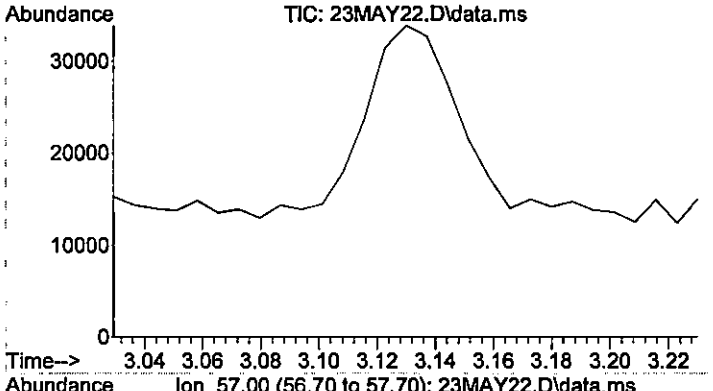


#19
Methylene chloride
Concen: 3.37 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY22.D
Acq: 23 May 2018 5:55 pm

Tgt Ion: 49 Resp: 34023

Ion	Ratio	Lower	Upper
49	100		
84	87.2	61.9	101.9
86	55.4	32.2	72.2

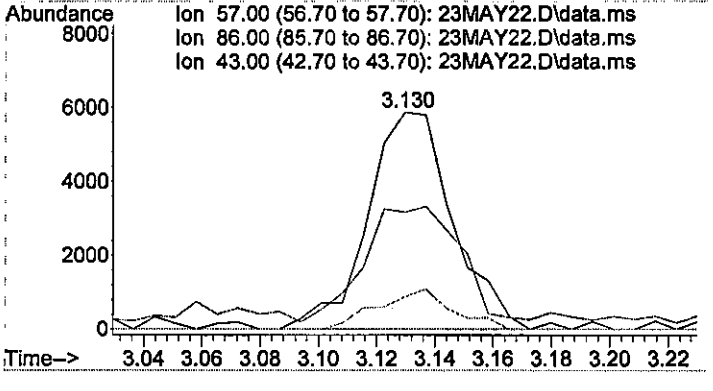


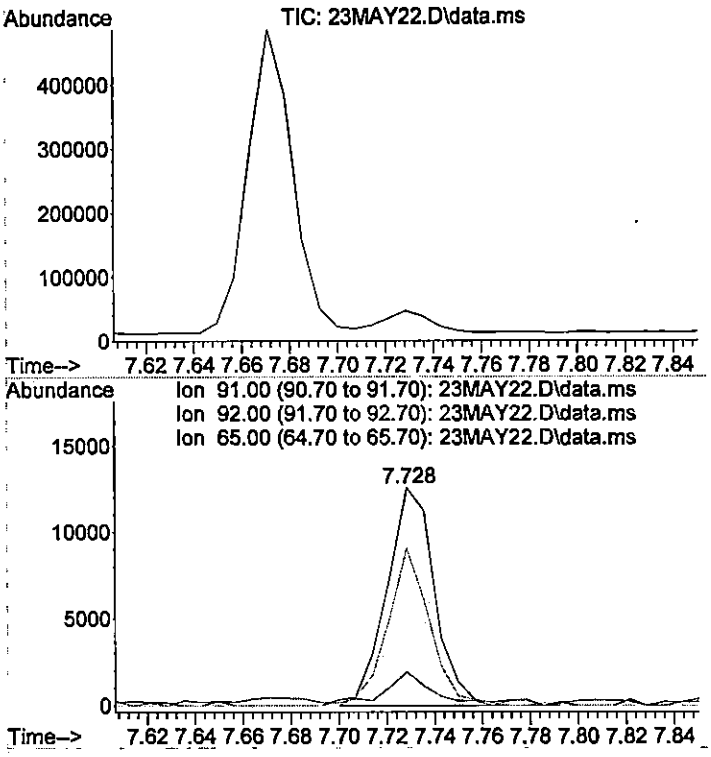


#24
Hexane
Concen: Below Cal
RT: 3.130 min Scan# 355
Delta R.T. -0.000 min
Lab File: 23MAY22.D
Acq: 23 May 2018 5:55 pm

Tgt Ion: 57 Resp: 11978

Ion	Ratio	Lower	Upper
57	100		
86	0.0	0.0	34.2
43	59.0	43.5	83.5

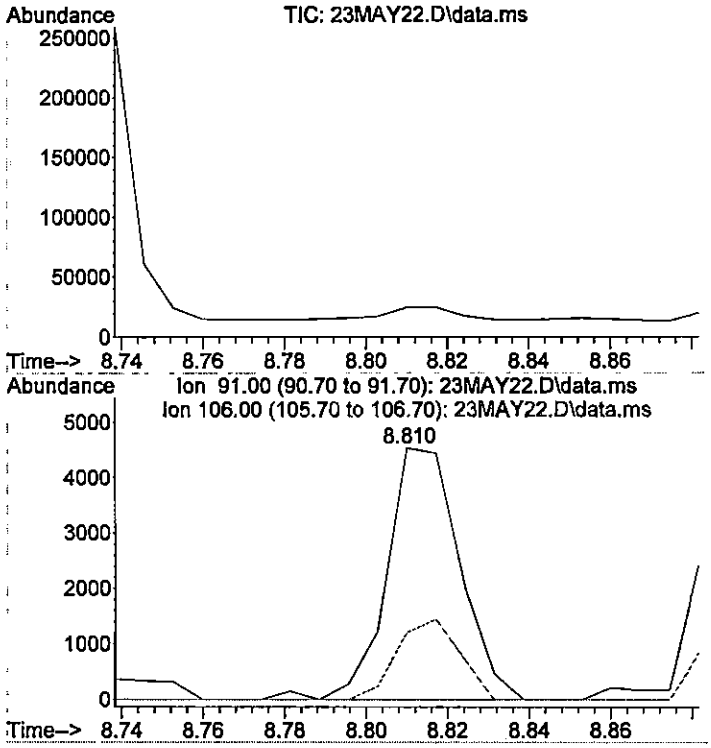




#65
Toluene
Concen: 0.96 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY22.D
Acq: 23 May 2018 5:55 pm

Tgt Ion: 91 Resp: 17842

Ion	Ratio	Lower	Upper
91	100		
92	62.1	37.8	77.8
65	0.0	0.0	31.0



#78
Ethylbenzene
Concen: 0.29 ug/L m
RT: 8.810 min Scan# 1148
Delta R.T. -0.007 min
Lab File: 23MAY22.D
Acq: 23 May 2018 5:55 pm

Tgt Ion: 91 Resp: 5650

Ion	Ratio	Lower	Upper
91	100		
106	27.5	10.8	50.8

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	260445	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	378750	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	344515	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	172730	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.868	46	72285	20.00 ug/L	-0.01
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	130750	19.90 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%		
45) 1,2-Dichloroethane-d4	5.164	65	123622	19.33 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.65%		
64) Toluene-d8	7.671	98	428786	19.07 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.35%		
85) Bromofluorobenzene	9.433	95	156809	19.23 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.15%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D.	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.227	43	9610	2.70 ug/L #	39
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	0.000		0	N.D.	
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D. d	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	3.961	61	5864	0.58 ug/L #	57
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	43163	6.35 ug/L	98
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

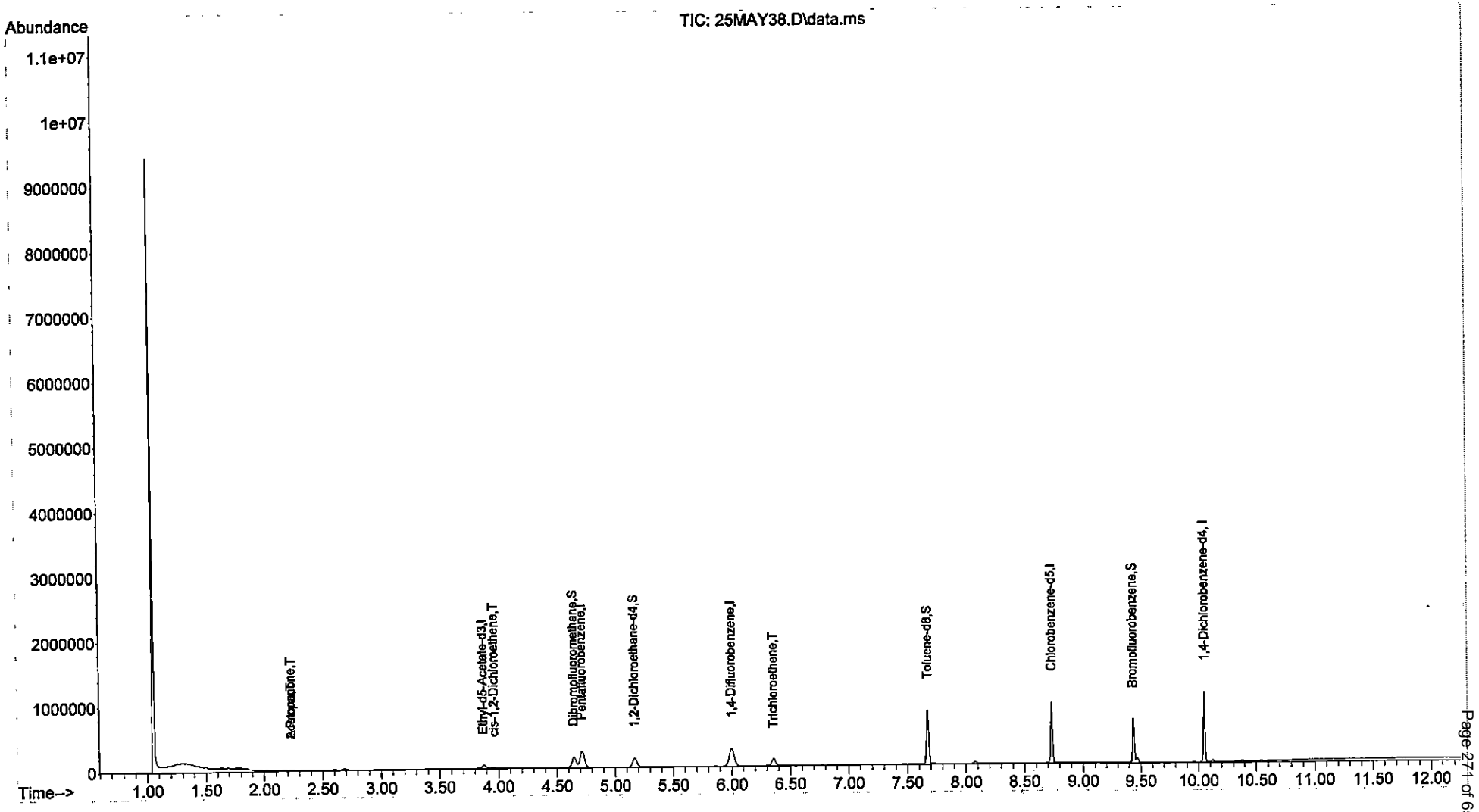
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	9610	2.96 ug/L #	39
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

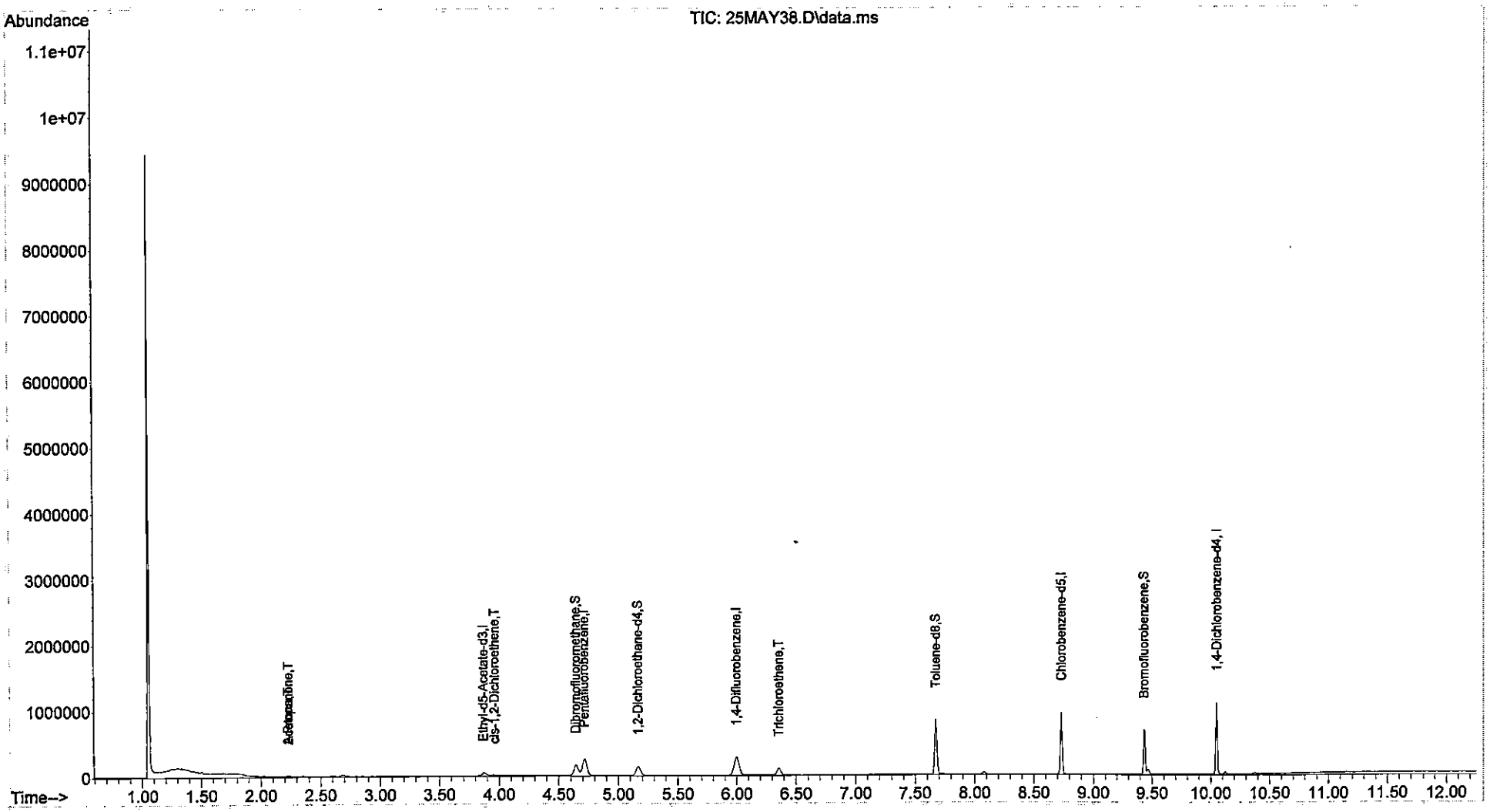
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	260445	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	378750	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	344515	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	172730	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.868	46	72285	20.00	ug/L	-0.01
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	130750	19.90	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%			
45) 1,2-Dichloroethane-d4	5.164	65	123622	19.33	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.65%			
64) Toluene-d8	7.671	98	428786	19.07	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.35%			
85) Bromofluorobenzene	9.433	95	156809	19.23	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.15%			
Target Compounds						Qvalue
13) Acetone	2.227	43	9610	2.70	ug/L #	39
30) cis-1,2-Dichloroethene	3.961	61	5864	0.58	ug/L #	57
54) Trichloroethene	6.353	130	43163	6.35	ug/L	98
115) 2-Propanone	2.227	43	9610	2.96	ug/L #	39

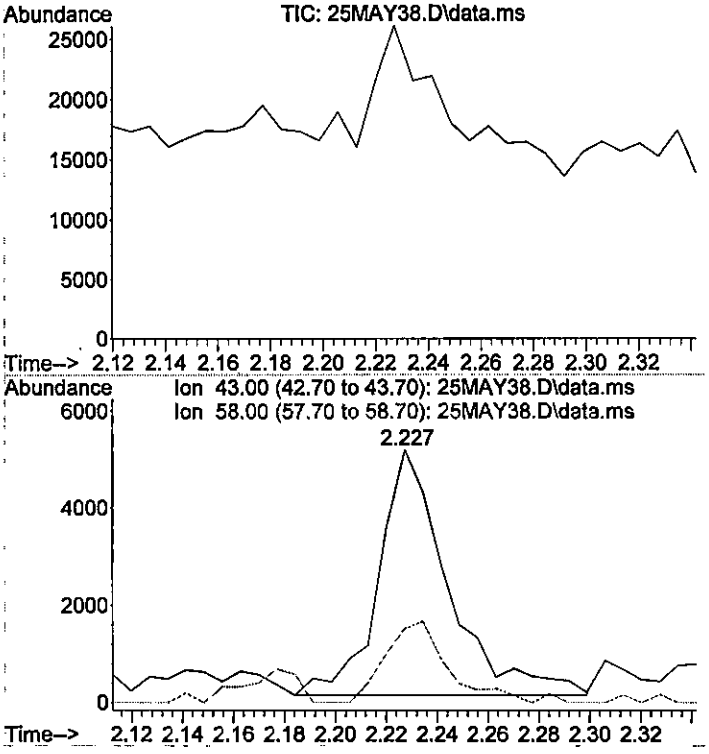
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY38.D
Acq On : 26 May 2018 2:06 am
Operator : EMR
Sample : 18051328-03A
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 26 09:16:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

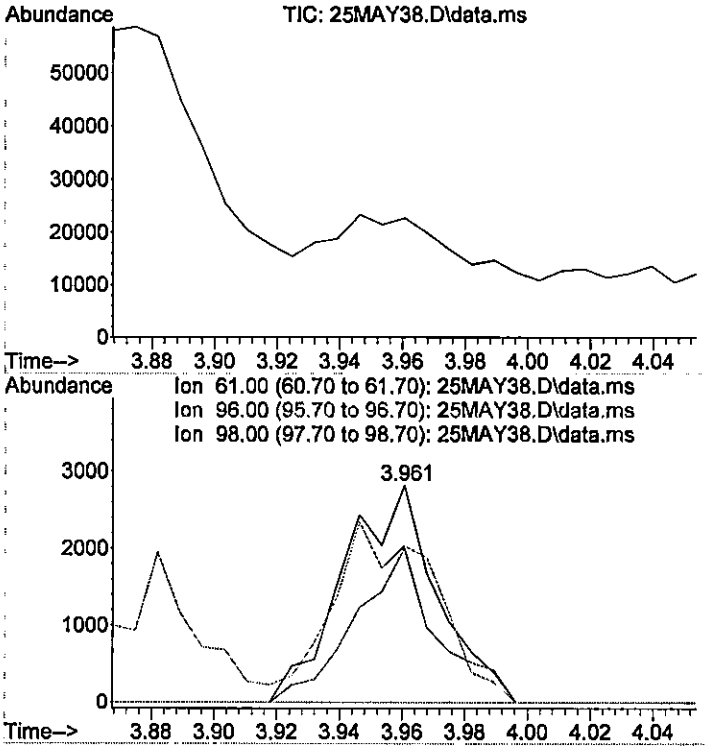




#13
Acetone
Concen: 2.70 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY38.D
Acq: 26 May 2018 2:06 am

Tgt Ion: 43 Resp: 9610

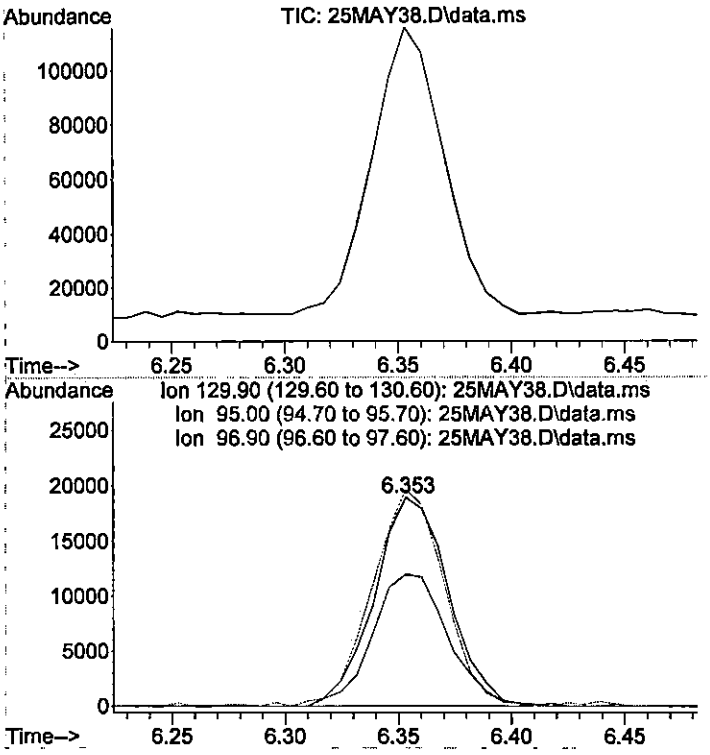
Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.8	55.8#



#30
cis-1,2-Dichloroethene
Concen: 0.58 ug/L
RT: 3.961 min Scan# 471
Delta R.T. 0.008 min
Lab File: 25MAY38.D
Acq: 26 May 2018 2:06 am

Tgt Ion: 61 Resp: 5864

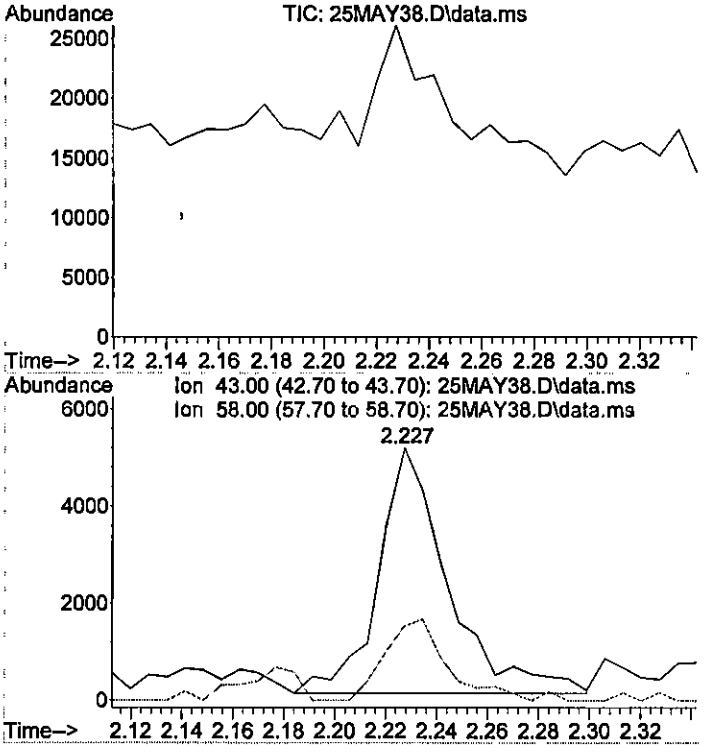
Ion	Ratio	Lower	Upper
61	100		
96	90.3	48.3	88.3#
98	0.0	24.4	64.4#



#54
Trichloroethene
Concen: 6.35 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 25MAY38.D
Acq: 26 May 2018 2:06 am

Tgt Ion:130 Resp: 43163

Ion	Ratio	Lower	Upper
130	100		
95	101.1	79.0	119.0
97	64.4	42.5	82.5



#115
2-Propanone
Concen: 2.96 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY38.D
Acq: 26 May 2018 2:06 am

Tgt Ion: 43 Resp: 9610

Ion	Ratio	Lower	Upper
43	100		
58	0.0	28.6	43.0#

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	256834	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	384286	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	365642	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	178935	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72659	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	132001	19.80	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.00%				
45) 1,2-Dichloroethane-d4	5.164	65	126699	19.53	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.65%				
64) Toluene-d8	7.671	98	434123	18.19	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 90.95%				
85) Bromofluorobenzene	9.433	95	163964	18.95	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.227	43	11845	3.37	ug/L	#	39
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	5101	0.74 ug/L #	66
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

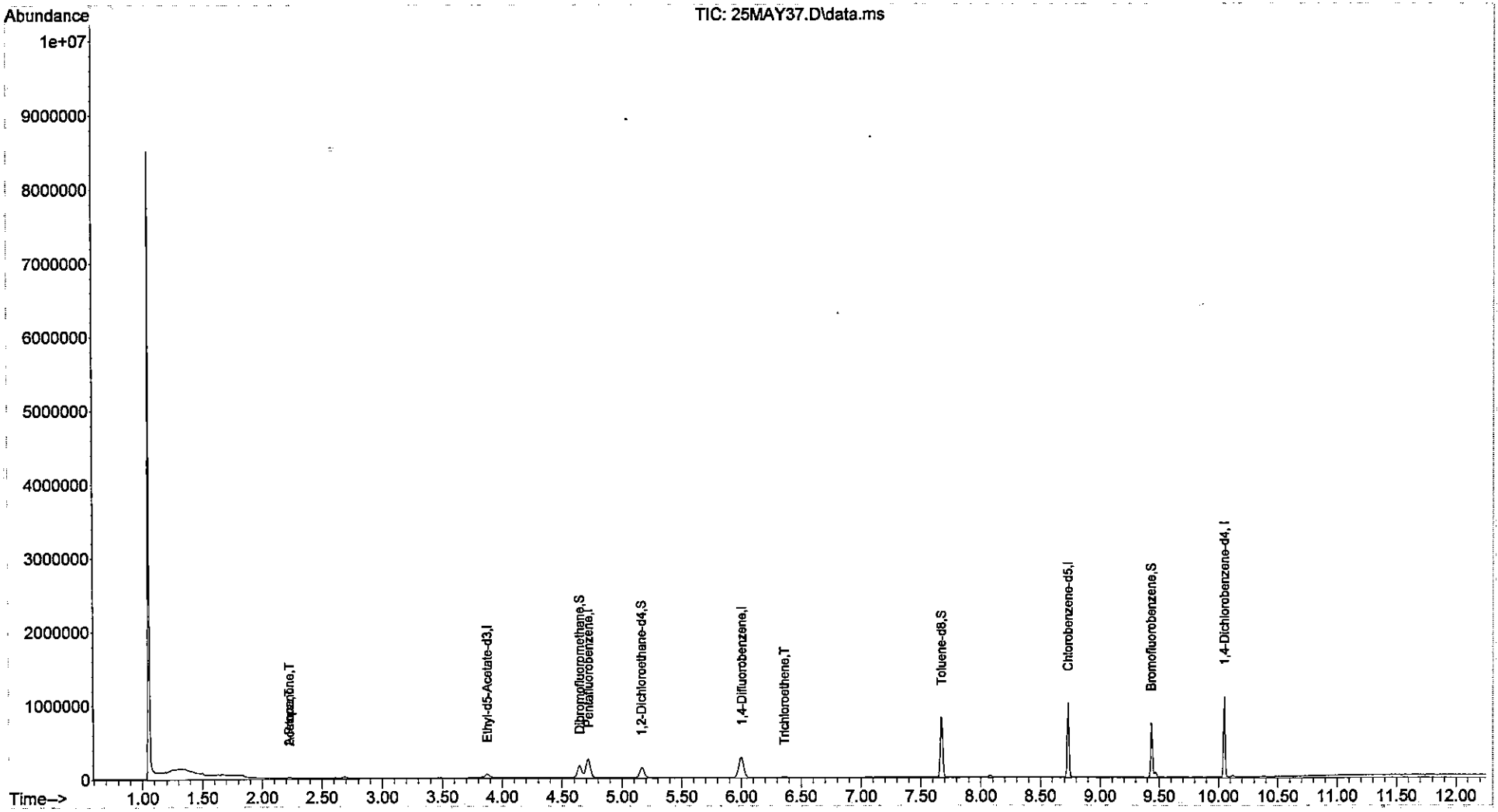
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.			
102) Benzyl chloride	0.000		0	N.D.			
103) 1,2-Dichlorobenzene	0.000		0	N.D.			
104) n-Butylbenzene	0.000		0	N.D.			
105) Hexachloroethane	0.000		0	N.D.			
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.			
109) Hexachlorobutadiene	0.000		0	N.D.			
110) Naphthalene	0.000		0	N.D.			
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.			
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	2.227	43	11845	3.64	ug/L	#	39
116) Acetic Ether	0.000		0	N.D.			
117) Isopropyl Acetate	0.000		0	N.D.			
118) Amyl Acetate	0.000		0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

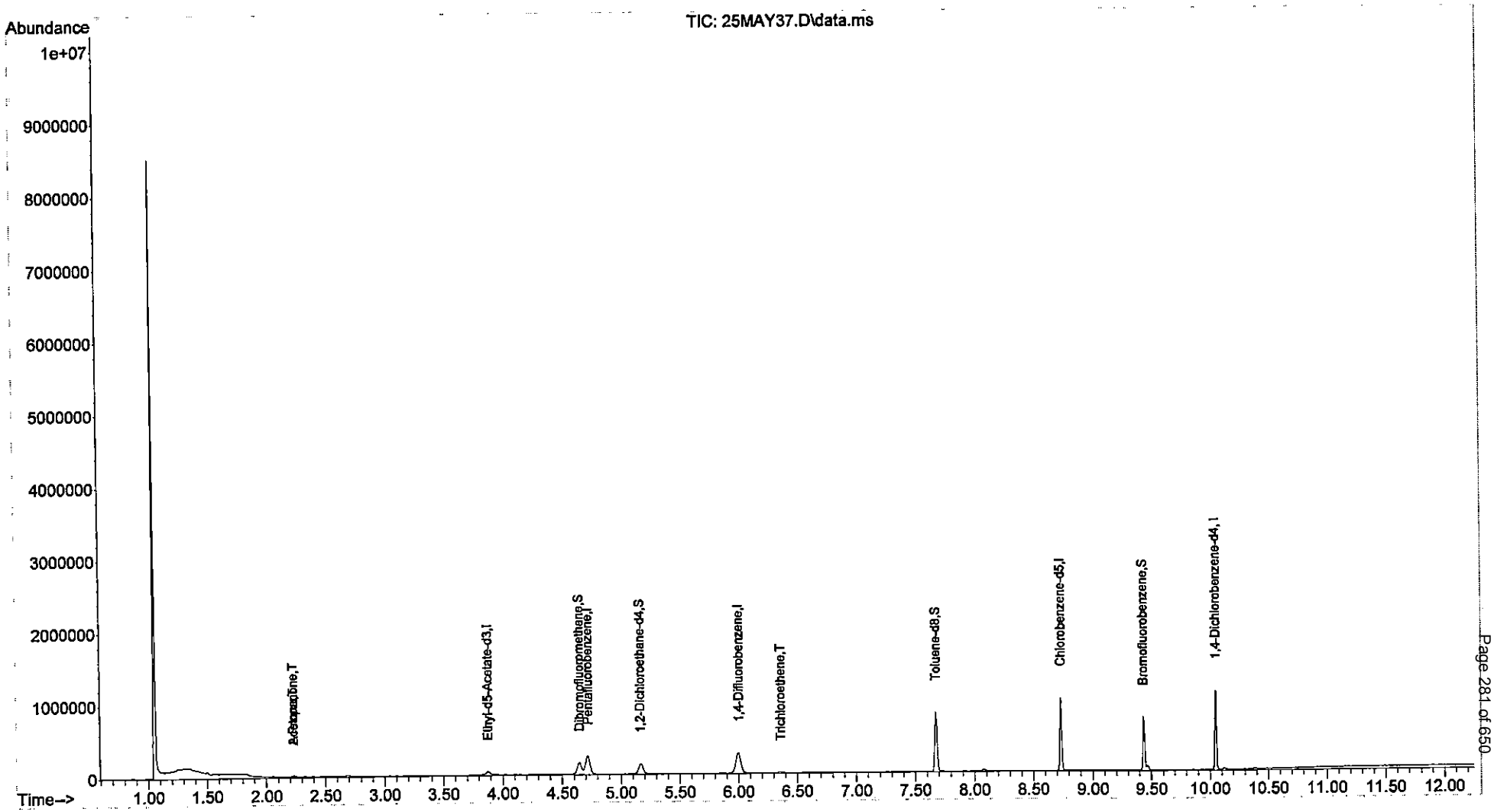
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	256834	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	384286	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	365642	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	178935	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72659	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	132001	19.80	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.00%				
45) 1,2-Dichloroethane-d4	5.164	65	126699	19.53	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.65%				
64) Toluene-d8	7.671	98	434123	18.19	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 90.95%				
85) Bromofluorobenzene	9.433	95	163964	18.95	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.75%				
Target Compounds							Qvalue
13) Acetone	2.227	43	11845	3.37	ug/L	#	39
54) Trichloroethene	6.360	130	5101	0.74	ug/L	#	66
115) 2-Propanone	2.227	43	11845	3.64	ug/L	#	39

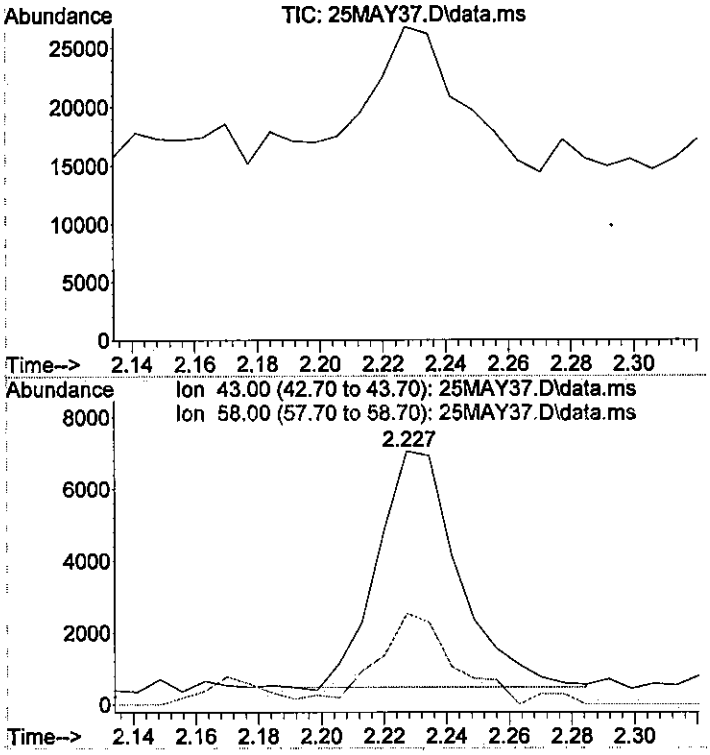
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY37.D
Acq On : 26 May 2018 1:50 am
Operator : EMR
Sample : 18051328-08A
Misc : IS/SS 200-20081
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 26 09:16:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

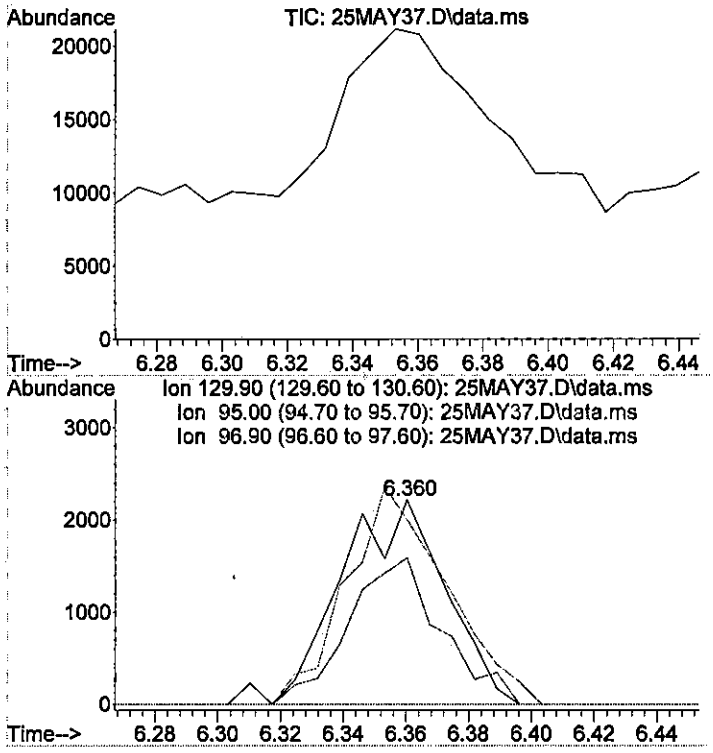




#13
Acetone
Concen: 3.37 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY37.D
Acq: 26 May 2018 1:50 am

Tgt Ion: 43 Resp: 11845

Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.8	55.8#



#54
Trichloroethene
Concen: 0.74 ug/L
RT: 6.360 min Scan# 806
Delta R.T. 0.007 min
Lab File: 25MAY37.D
Acq: 26 May 2018 1:50 am

Tgt Ion:130 Resp: 5101

Ion	Ratio	Lower	Upper
130	100		
95	102.7	79.0	119.0
97	0.0	42.5	82.5#

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY36.D
Acq On : 26 May 2018 1:34 am
Operator : EMR
Sample : 18051328-17A
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 26 09:15:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	264352	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	389647	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	354315	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	179773	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72355	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	136516	20.20	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.00%				
45) 1,2-Dichloroethane-d4	5.164	65	132267	20.10	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.50%				
64) Toluene-d8	7.671	98	448892	19.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.05%				
85) Bromofluorobenzene	9.433	95	161287	19.24	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.604	64	6922	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.227	43	6393	1.77	ug/L	#	39
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D. d			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY36.D
Acq On : 26 May 2018 1:34 am
Operator : EMR
Sample : 18051328-17A
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 26 09:15:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	9127	0.36 ug/L #	29
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY36.D
Acq On : 26 May 2018 1:34 am
Operator : EMR
Sample : 18051328-17A
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 26 09:15:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	6393	1.97 ug/L #	39
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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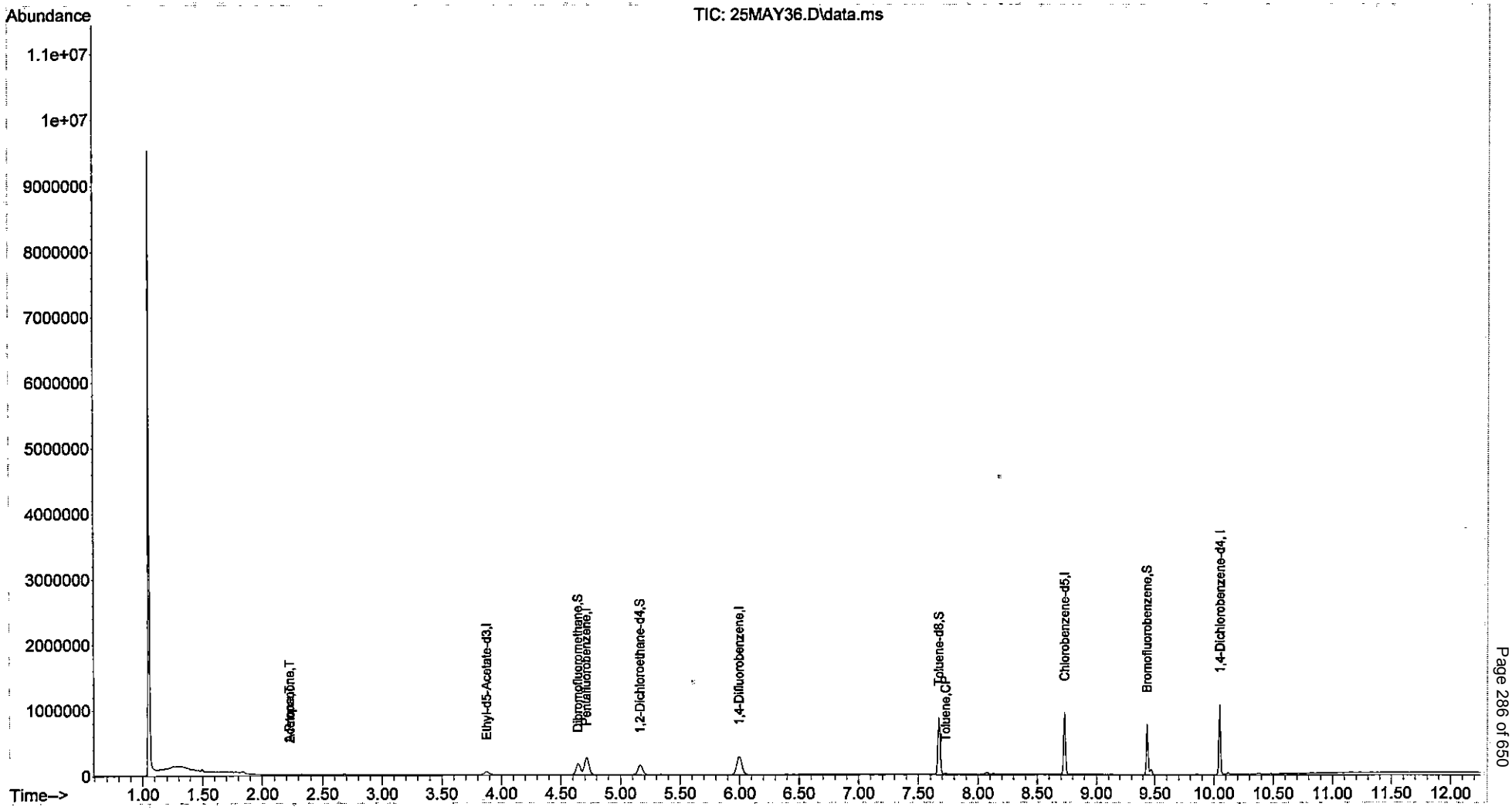

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY36.D
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Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

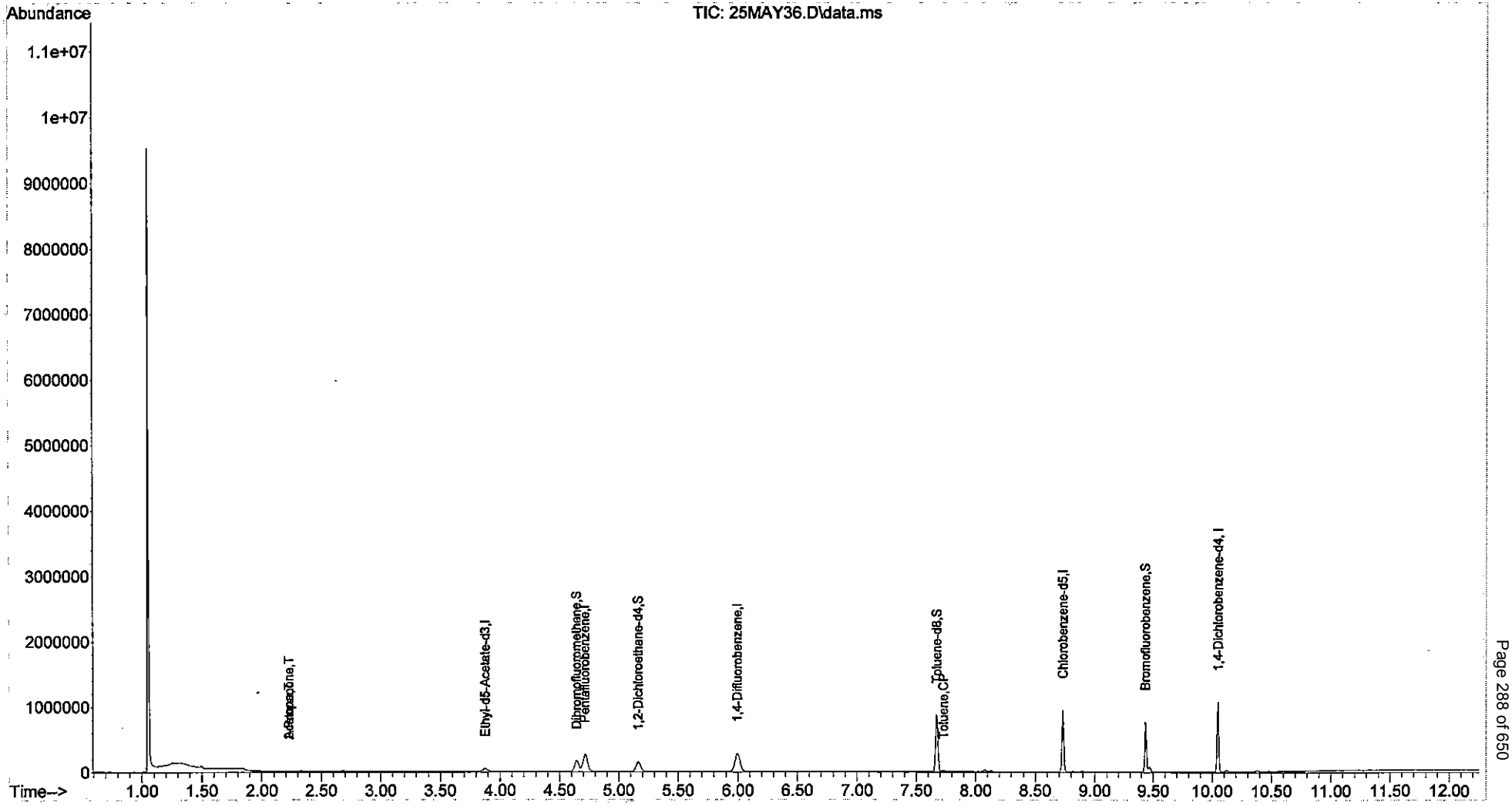
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	264352	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	389647	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	354315	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	179773	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72355	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	136516	20.20	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.00%			
45) 1,2-Dichloroethane-d4	5.164	65	132267	20.10	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.50%			
64) Toluene-d8	7.671	98	448892	19.41	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.05%			
85) Bromofluorobenzene	9.433	95	161287	19.24	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.20%			
Target Compounds						Qvalue
6) Chloroethane	1.604	64	6922	Below Cal	#	50
13) Acetone	2.227	43	6393	1.77	ug/L #	39
65) Toluene	7.728	91	9127	0.36	ug/L #	29
115) 2-Propanone	2.227	43	6393	1.97	ug/L #	39

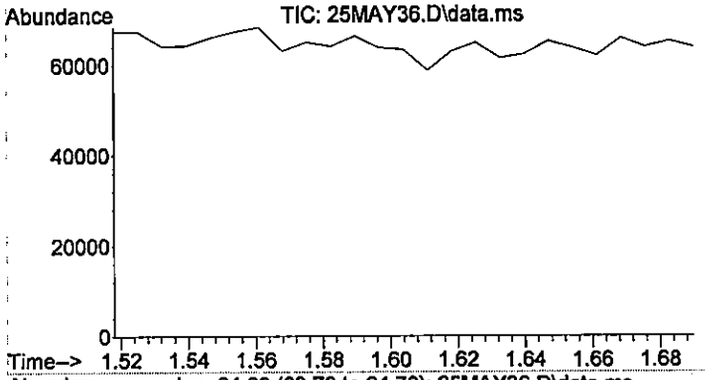
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY36.D
Acq On : 26 May 2018 1:34 am
Operator : EMR
Sample : 18051328-17A
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 26 09:15:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

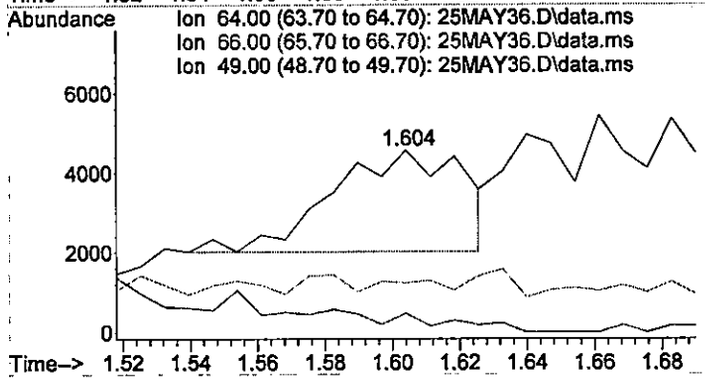


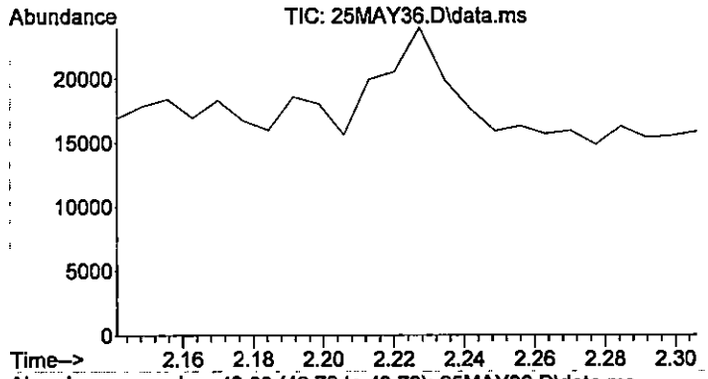


#6
Chloroethane
Concen: Below Cal
RT: 1.604 min Scan# 142
Delta R.T. -0.036 min
Lab File: 25MAY36.D
Acq: 26 May 2018 1:34 am

Tgt Ion: 64 Resp: 6922

Ion	Ratio	Lower	Upper
64	100		
66	0.0	10.8	50.8#
49	0.0	0.0	37.2

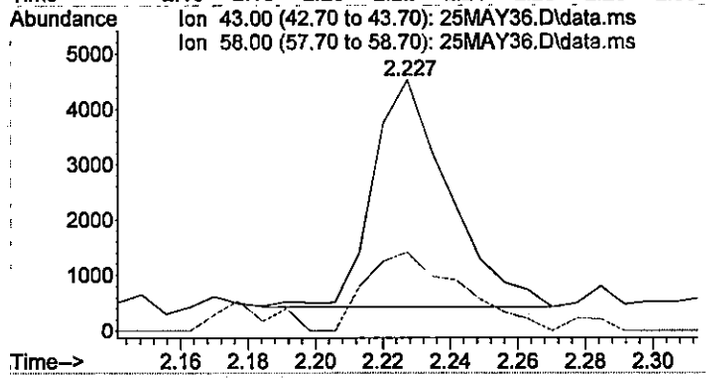


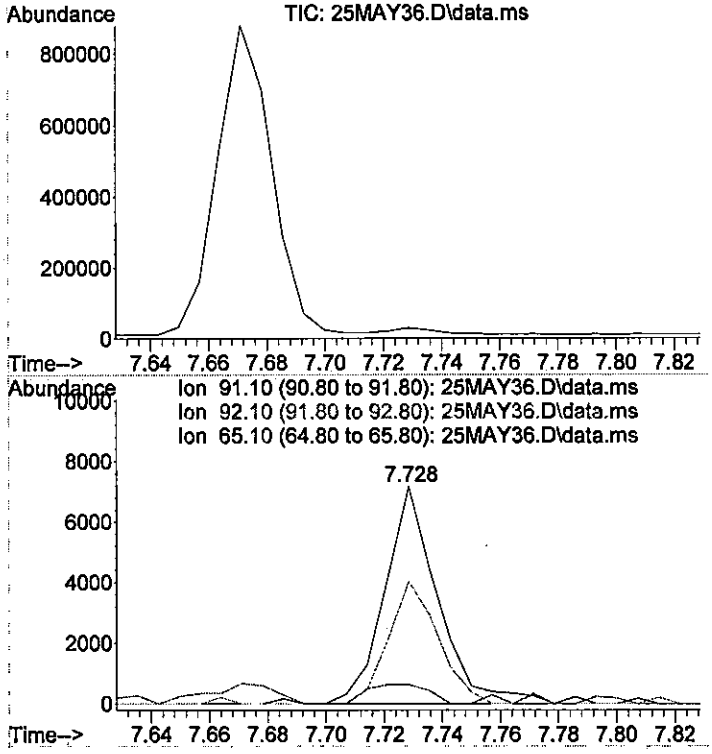


#13
Acetone
Concen: 1.77 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY36.D
Acq: 26 May 2018 1:34 am

Tgt Ion: 43 Resp: 6393

Ion	Ratio	Lower	Upper
43	100		
58	0.0	15.8	55.8#

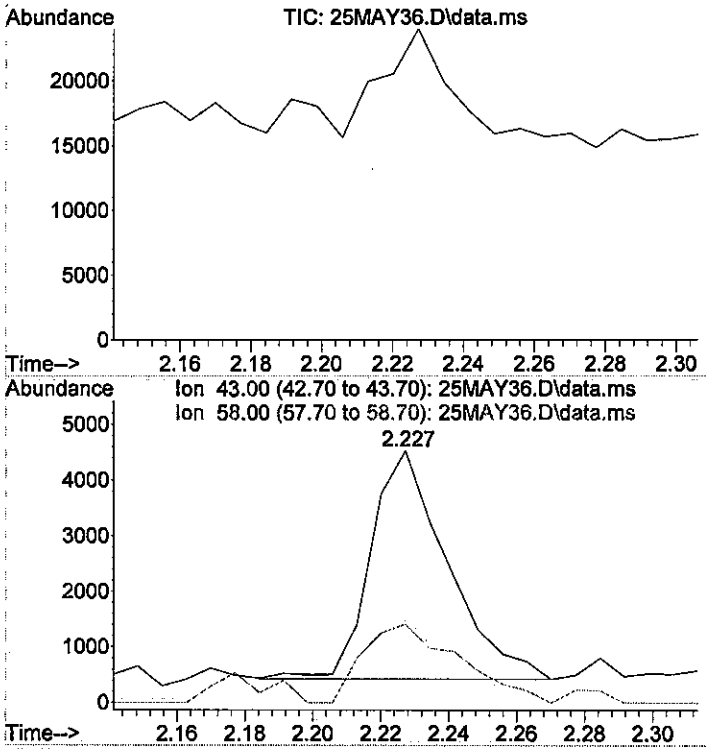




#65
Toluene
Concen: 0.36 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 25MAY36.D
Acq: 26 May 2018 1:34 am

Tgt Ion: 91 Resp: 9127

Ion	Ratio	Lower	Upper
91	100		
92	0.0	39.2	79.2#
65	0.0	0.0	30.7



#115
2-Propanone
Concen: 1.97 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY36.D
Acq: 26 May 2018 1:34 am

Tgt Ion: 43 Resp: 6393

Ion	Ratio	Lower	Upper
43	100		
58	0.0	28.6	43.0#

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	263380	20.00 ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	378188	20.00 ug/L		0.00
62) Chlorobenzene-d5	8.731	117	352043	20.00 ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	177079	20.00 ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72619	20.00 ug/L	#	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	131039	19.98 ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%			
45) 1,2-Dichloroethane-d4	5.171	65	126595	19.82 ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.10%			
64) Toluene-d8	7.671	98	440445	19.17 ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.85%			
85) Bromofluorobenzene	9.433	95	158132	18.98 ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.90%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	1.640	64	12080	Below Cal	#	50
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	13074	3.63 ug/L		90
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D. d		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.185	78	8913	0.37 ug/L #	57
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	11211	1.65 ug/L	91
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.735	91	18417	0.73 ug/L #	89
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.817	91	4832m	0.18 ug/L	
79) m/p-Xylene	8.896	91	6531	0.32 ug/L #	27
80) Styrene	0.000		0	N.D.	
81) o-Xylene	9.125	91	3245m	0.15 ug/L	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

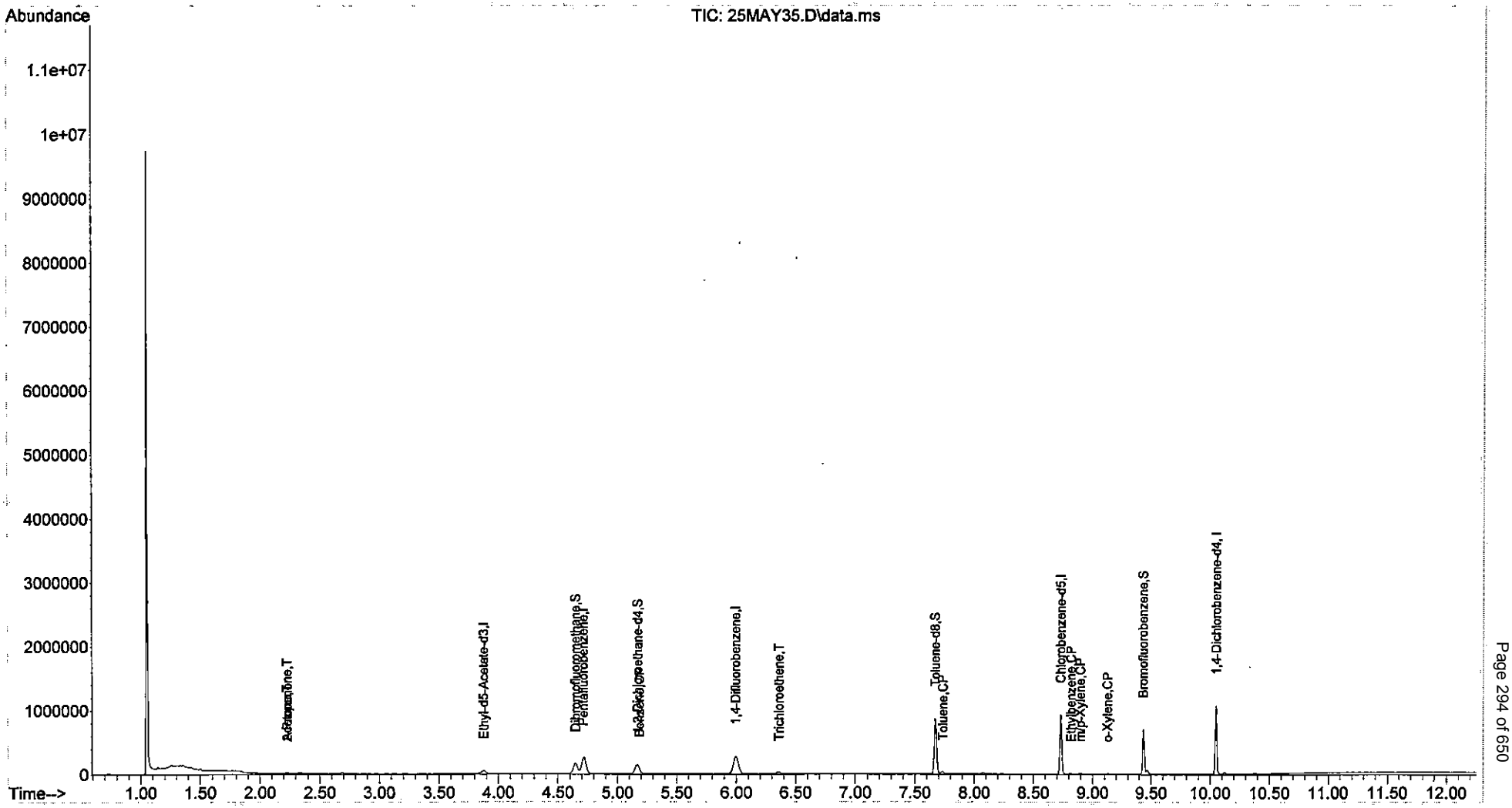
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	13074	4.01 ug/L	90
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

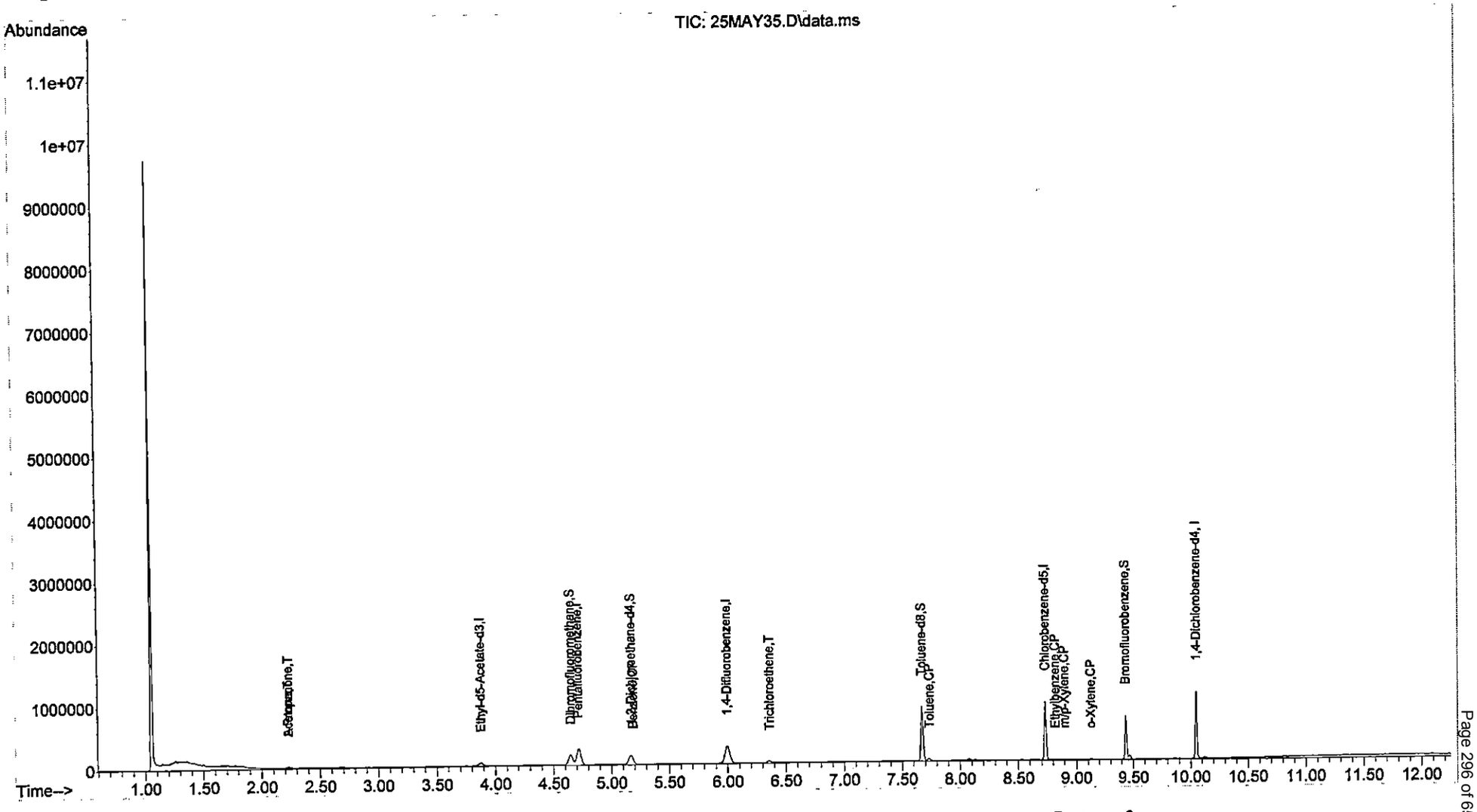
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	263380	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	378188	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	352043	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	177079	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72619	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	131039	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%				
45) 1,2-Dichloroethane-d4	5.171	65	126595	19.82	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.10%				
64) Toluene-d8	7.671	98	440445	19.17	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.85%				
85) Bromofluorobenzene	9.433	95	158132	18.98	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.90%				
Target Compounds							Qvalue
6) Chloroethane	1.640	64	12080	Below Cal		#	50
13) Acetone	2.227	43	13074	3.63	ug/L		90
47) Benzene	5.185	78	8913	0.37	ug/L	#	57
54) Trichloroethene	6.360	130	11211	1.65	ug/L		91
65) Toluene	7.735	91	18417	0.73	ug/L	#	89
78) Ethylbenzene	8.817	91	4832m	0.18	ug/L		
79) m/p-Xylene	8.896	91	6531	0.32	ug/L	#	27
81) o-Xylene	9.125	91	3245m	0.15	ug/L		
115) 2-Propanone	2.227	43	13074	4.01	ug/L		90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

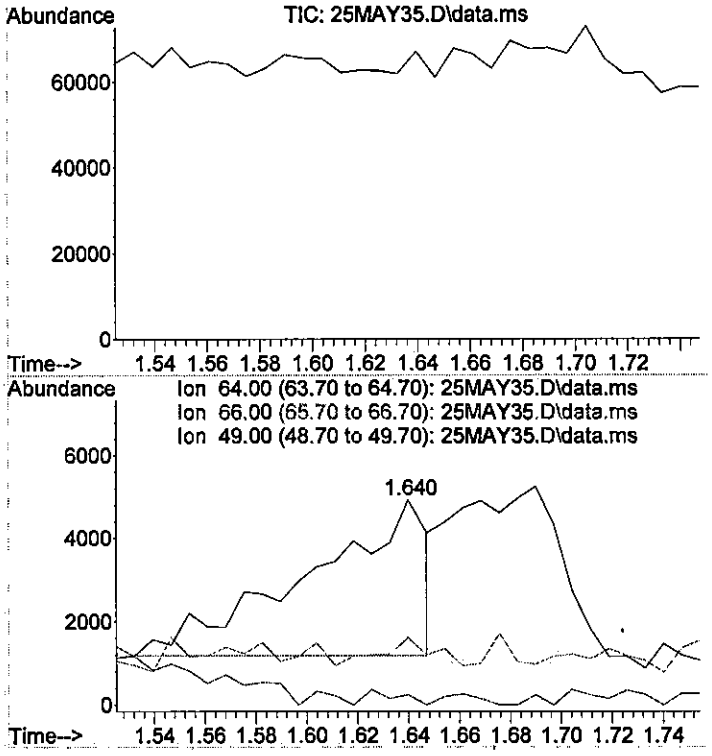
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY35.D
Acq On : 26 May 2018 1:18 am
Operator : EMR
Sample : 18051328-20A
Misc : IS/SS 200-20081
ALS Vial : 33 Sample Multiplier: 1

Quant Time: May 26 09:15:28 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



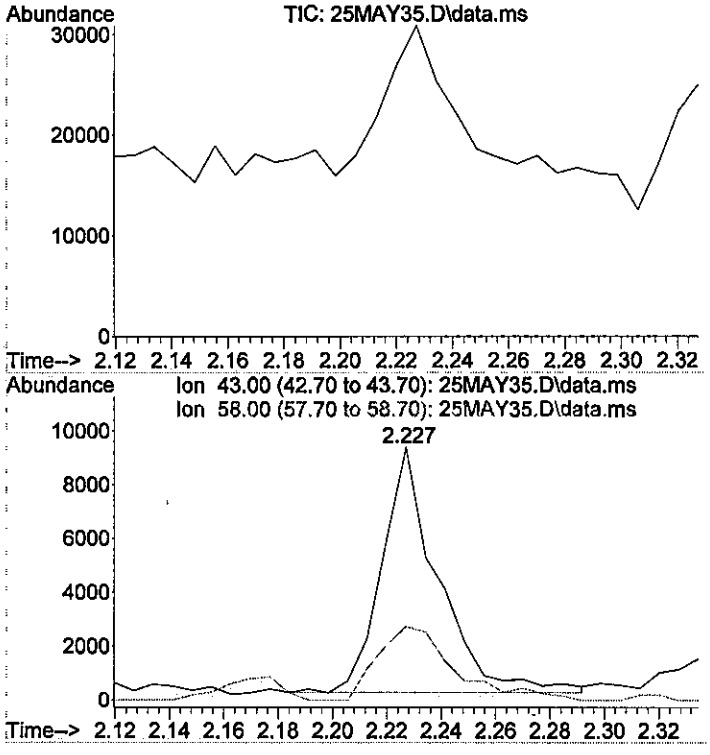
8GI0515.M Sun Jun 24 18:00:45 2018 Page: 2



#6
Chloroethane
Concen: Below Cal
RT: 1.640 min Scan# 147
Delta R.T. -0.000 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion: 64 Resp: 12080

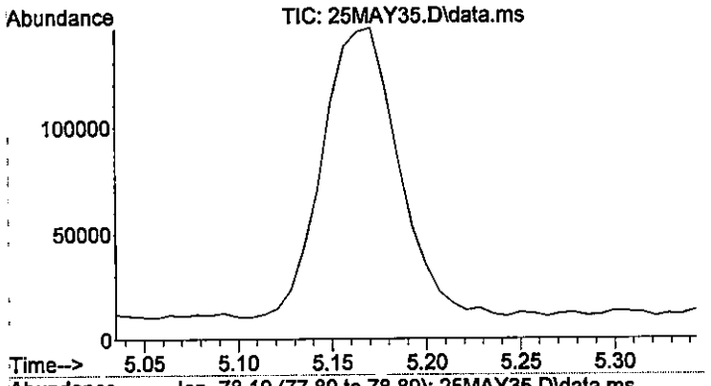
Ion	Ratio	Lower	Upper
64	100		
66	0.0	10.8	50.8#
49	0.0	0.0	37.2



#13
Acetone
Concen: 3.63 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion: 43 Resp: 13074

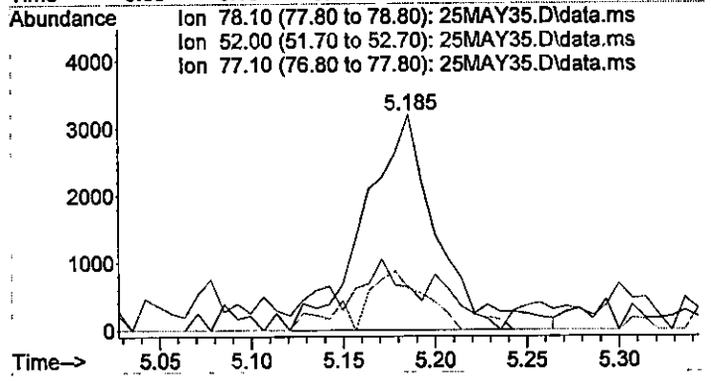
Ion	Ratio	Lower	Upper
43	100		
58	41.4	15.8	55.8

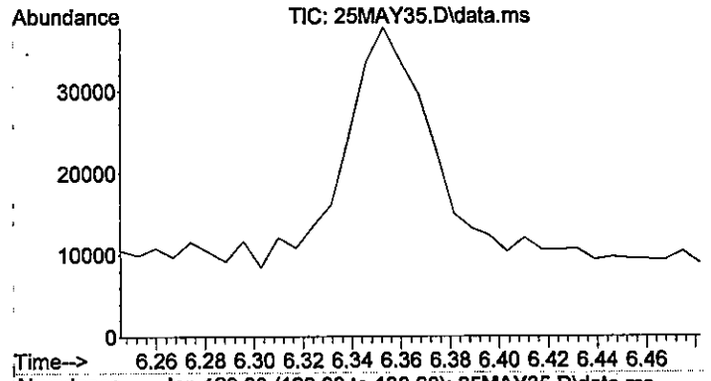


#47
Benzene
Concen: 0.37 ug/L
RT: 5.185 min Scan# 642
Delta R.T. 0.007 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion: 78 Resp: 8913

Ion	Ratio	Lower	Upper
78	100		
52	0.0	0.0	34.9
77	0.0	3.0	43.0#

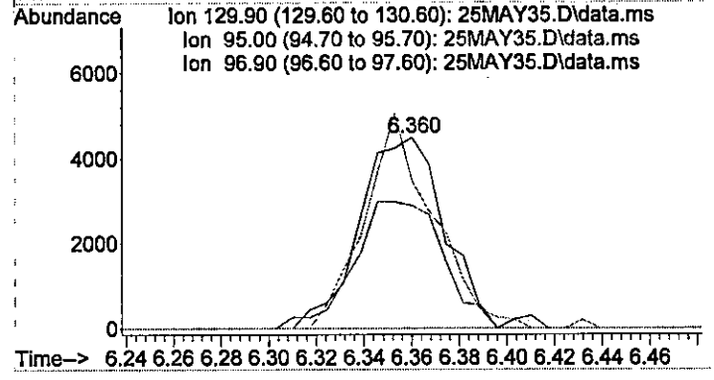


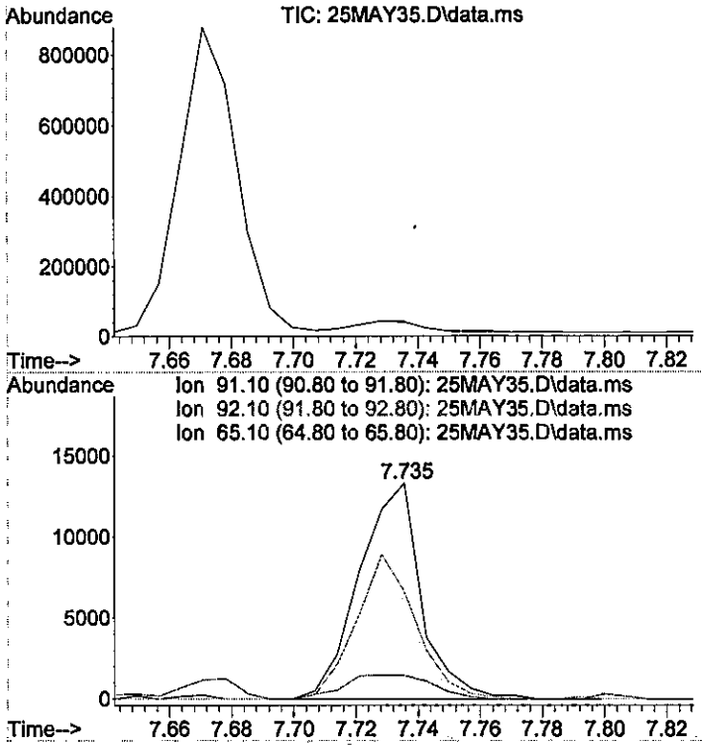


#54
Trichloroethene
Concen: 1.65 ug/L
RT: 6.360 min Scan# 806
Delta R.T. 0.007 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion:130 Resp: 11211

Ion	Ratio	Lower	Upper
130	100		
95	89.6	79.0	119.0
97	69.1	42.5	82.5

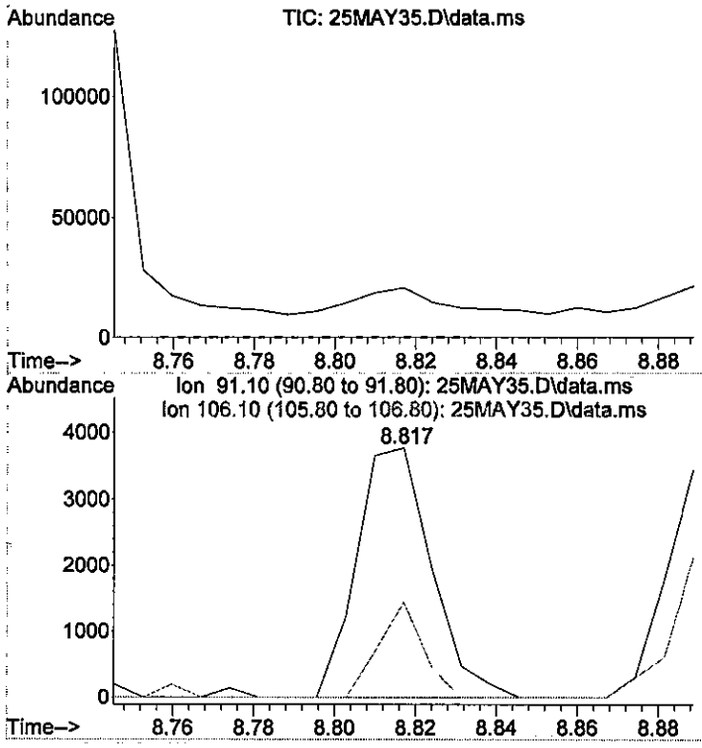




#65
Toluene
Concen: 0.73 ug/L
RT: 7.735 min Scan# 998
Delta R.T. 0.007 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion: 91 Resp: 18417

Ion	Ratio	Lower	Upper
91	100		
92	64.9	39.2	79.2
65	0.0	0.0	30.7



#78
Ethylbenzene
Concen: 0.18 ug/L m
RT: 8.817 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 25MAY35.D
Acq: 26 May 2018 1:18 am

Tgt Ion: 91 Resp: 4832

Ion	Ratio	Lower	Upper
91	100		
106	0.0	11.1	51.1#

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 7:31 pm
Operator : AK
Sample : 18051328-21A
Misc : IS/SS 200-20033
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 08:28:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	131435	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	205523	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	208171	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	101341	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.434	46	40702	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	65136	18.75	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 93.75%			
46) 1,2-Dichloroethane-d4	4.797	65	87299	19.20	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.00%			
65) Toluene-d8	8.572	98	249134	19.58	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.90%			
86) Bromofluorobenzene	11.954	95	99931	17.63	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 88.15%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 7:31 pm
Operator : AK
Sample : 18051328-21A
Misc : IS/SS 200-20033
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 08:28:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.	d	
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 7:31 pm
Operator : AK
Sample : 18051328-21A
Misc : IS/SS 200-20033
ALS Vial : 21 Sample Multiplier: 1

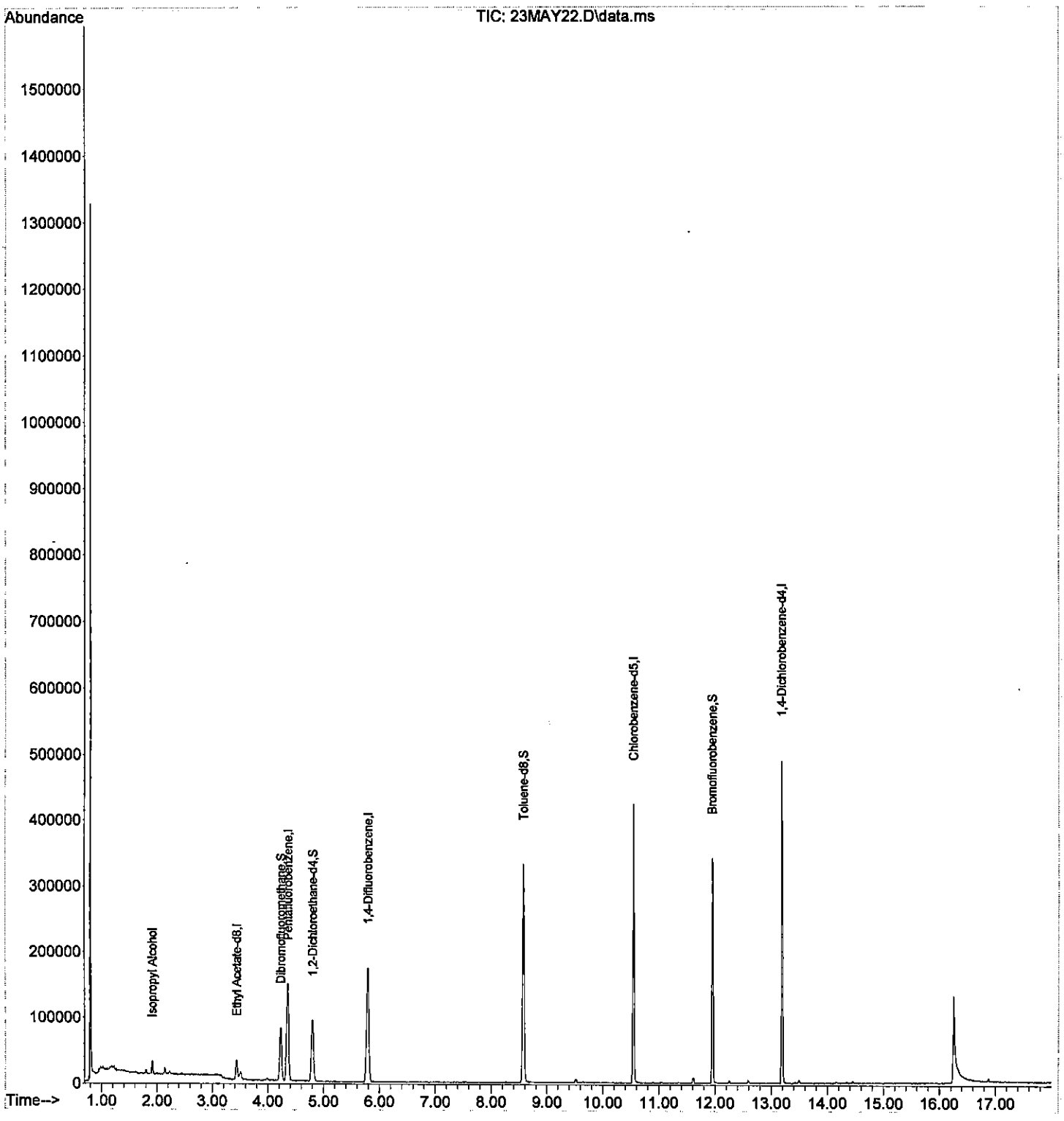
Quant Time: May 24 08:28:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.			
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.			
103) Benzyl chloride	0.000		0	N.D.			
104) 1,2-Dichlorobenzene	0.000		0	N.D.			
105) n-Butylbenzene	0.000		0	N.D.			
106) Hexachloroethane	0.000		0	N.D.			
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.			
110) Hexachlorobutadiene	0.000		0	N.D.			
111) Naphthalene	0.000		0	N.D.			
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.			
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	0.000		0	N.D.			
116) 2-Propanone	0.000		0	N.D.			
117) Isopropyl Alcohol	1.914	45	16311	50.02	ug/L	#	82
118) Acetic Ether	0.000		0	N.D.			
119) Isopropyl Acetate	0.000		0	N.D.			
120) Amyl Acetate	0.000		0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY22.D
Acq On : 23 May 2018 7:31 pm
Operator : AK
Sample : 18051328-21A
Misc : IS/SS 200-20033
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 08:28:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY23.D
Acq On : 23 May 2018 7:55 pm
Operator : AK
Sample : 18051328-22A
Misc : IS/SS 200-20033
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 08:28:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	126787	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	199471	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	198946	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	97418	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.434	46	38843	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	62600	18.57	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.85%			
46) 1,2-Dichloroethane-d4	4.797	65	83681	18.97	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.85%			
65) Toluene-d8	8.572	98	239180	19.67	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.35%			
86) Bromofluorobenzene	11.954	95	96776	17.86	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 89.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY23.D
Acq On : 23 May 2018 7:55 pm
Operator : AK
Sample : 18051328-22A
Misc : IS/SS 200-20033
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 08:28:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39)	Chloroform	0.000		0	N.D.		
40)	Cyclohexane	0.000		0	N.D.		
42)	1,1,1-Trichloroethane	0.000		0	N.D.		
44)	Carbon tetrachloride	0.000		0	N.D.		
45)	1,1-Dichloropropene	0.000		0	N.D.	d	
47)	1,2-Dichloroethane	0.000		0	N.D.		
48)	Benzene	0.000		0	N.D.		
49)	Isobutyl Alcohol	0.000		0	N.D.		
50)	Tertiaryamylmethylether	0.000		0	N.D.		
51)	Heptane	0.000		0	N.D.		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	Trichloroethene	0.000		0	N.D.		
54)	n-Butanol	0.000		0	N.D.		
55)	1,2-Dichloropropane	0.000		0	N.D.		
56)	Dibromomethane	0.000		0	N.D.		
57)	1,4-Dioxane	0.000		0	N.D.		
58)	Methyl methacrylate	0.000		0	N.D.		
59)	Bromodichloromethane	0.000		0	N.D.		
60)	2-Nitropropane	0.000		0	N.D.		
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.		
62)	cis-1,3-Dichloropropene	0.000		0	N.D.		
64)	4-Methyl-2-pentanone	0.000		0	N.D.		
66)	Toluene	0.000		0	N.D.		
67)	Chloropicrin	0.000		0	N.D.		
68)	trans-1,3-Dichloropropene	0.000		0	N.D.		
69)	Ethyl methacrylate	0.000		0	N.D.		
70)	1,1,2-Trichloroethane	0.000		0	N.D.		
71)	Tetrachloroethene	0.000		0	N.D.		
72)	1,3-Dichloropropane	0.000		0	N.D.		
73)	2-Hexanone	0.000		0	N.D.		
74)	Chlorodibromomethane	0.000		0	N.D.		
75)	Butyl acetate	0.000		0	N.D.		
76)	1,2-Dibromoethane	0.000		0	N.D.		
77)	Chlorobenzene	0.000		0	N.D.		
78)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79)	Ethylbenzene	0.000		0	N.D.		
80)	m/p-Xylene	0.000		0	N.D.		
81)	Styrene	0.000		0	N.D.		
82)	o-Xylene	0.000		0	N.D.		
83)	Cyclohexanone	0.000		0	N.D.		
84)	Bromoform	0.000		0	N.D.		
85)	Isopropylbenzene	0.000		0	N.D.		
87)	Bromobenzene	0.000		0	N.D.		
88)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89)	1,2,3-Trichloropropane	0.000		0	N.D.		
90)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91)	n-Propylbenzene	0.000		0	N.D.		
92)	2-Chlorotoluene	0.000		0	N.D.		
93)	4-Chlorotoluene	0.000		0	N.D.		
94)	1,3,5-Trimethylbenzene	0.000		0	N.D.		
95)	tert-Butylbenzene	0.000		0	N.D.		
96)	1,2,4-Trimethylbenzene	0.000		0	N.D.		
97)	sec-Butylbenzene	0.000		0	N.D.		
99)	1,3-Dichlorobenzene	0.000		0	N.D.		
100)	p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY23.D
Acq On : 23 May 2018 7:55 pm
Operator : AK
Sample : 18051328-22A
Misc : IS/SS 200-20033
ALS Vial : 22 Sample Multiplier: 1

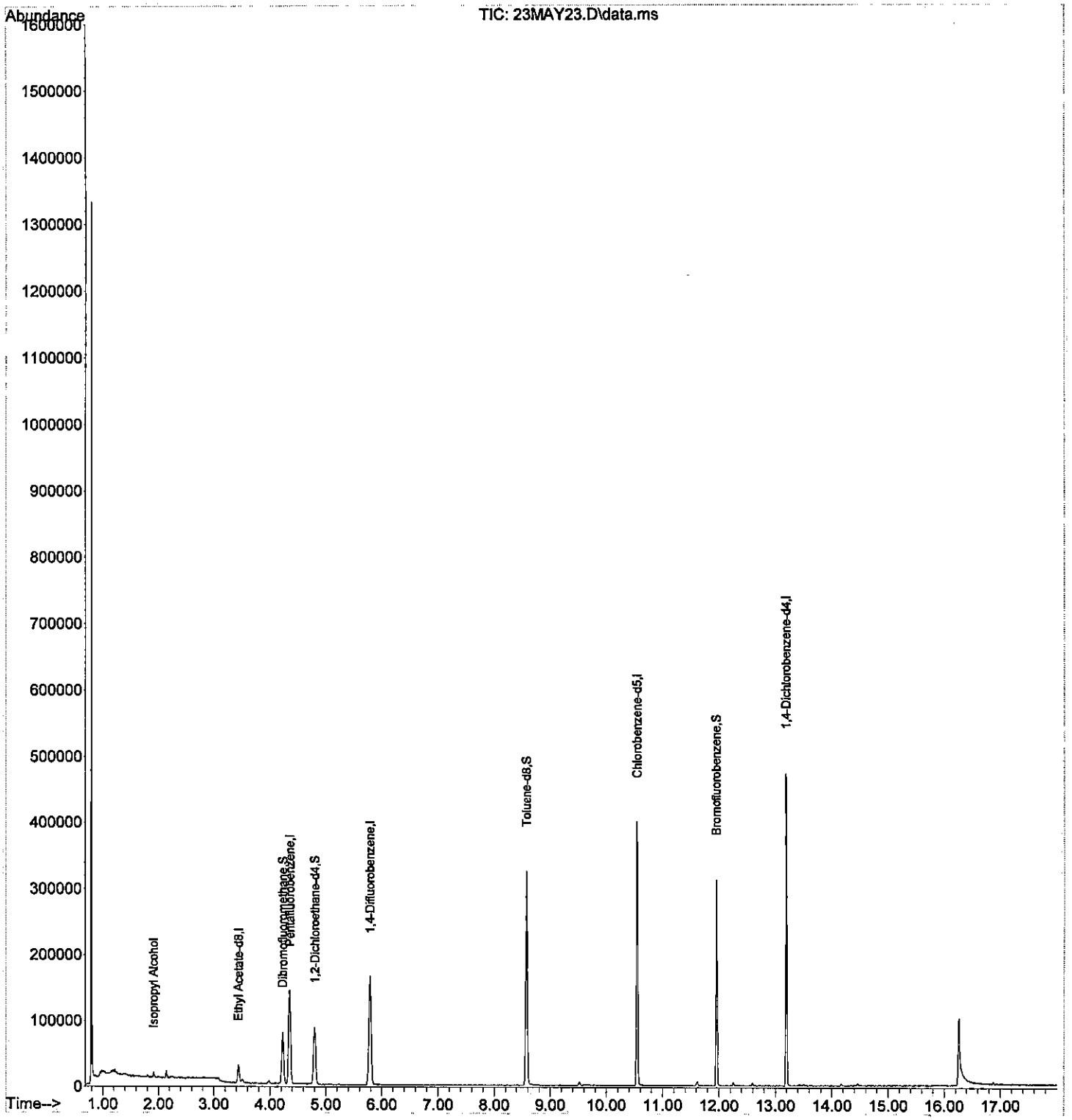
Quant Time: May 24 08:28:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	0.000		0	N.D.	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	1.914	45	7062	22.69 ug/L #	56
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY23.D
Acq On : 23 May 2018 7:55 pm
Operator : AK
Sample : 18051328-22A
Misc : IS/SS 200-20033
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 08:28:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 8:20 pm
Operator : AK
Sample : 18051328-23A
Misc : IS/SS 200-20033
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 08:29:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	127167	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	197742	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	201585	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	95550	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.434	46	38678	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.231	111	63671	19.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.25%				
46) 1,2-Dichloroethane-d4	4.797	65	84131	19.23	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.15%				
65) Toluene-d8	8.572	98	240104	19.49	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.45%				
86) Bromofluorobenzene	11.954	95	95948	17.48	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 87.40%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	1.804	43	8139	3.68	ug/L	#	43
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.144	49	5258	0.64	ug/L	#	21
20) t-Butanol	0.000		0	N.D.	d		
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

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Misc : IS/SS 200-20033
ALS Vial : 23 Sample Multiplier: 1

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Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.		
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	0.000		0	N.D.	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.804	43	8139	4.64 ug/L #	43
117) Isopropyl Alcohol	1.919	45	55207	178.16 ug/L	98
118) Acetic Ether	0.000		0	N.D.	
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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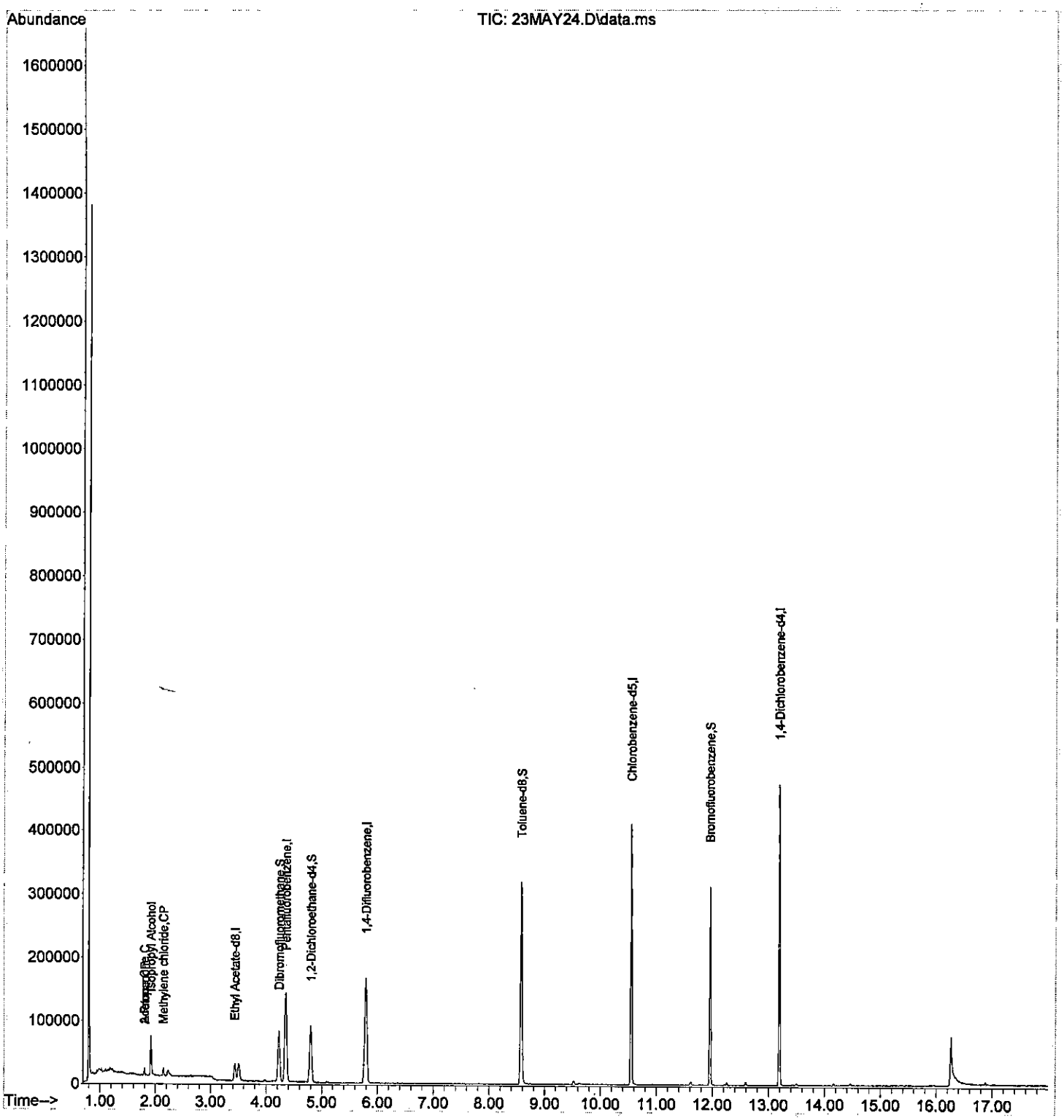
Acq On : 23 May 2018 8:20 pm
Operator : AK
Sample : 18051328-23A
Misc : IS/SS 200-20033
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 08:29:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Response Factor Report VMS8

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY35.D 2 =15MAY36.D 3 =15MAY37.D 4 =15MAY38.D 5 =15MAY39.D 6 =15MAY40.D 7 =15MAY41.D
8 =15MAY42.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...	0.552	0.462	0.476	0.448	0.449	0.388	0.404	0.407	0.448	11.65
3)	P	Chloromethane			0.832	0.691	0.659	0.632	0.637	0.614	0.678	11.87
4)	C	Vinyl chloride	0.636	0.593	0.497	0.536	0.524	0.490	0.494	0.480	0.531	10.49
5)	T	Bromomethane		0.538	0.285	0.227	0.197	0.158	0.149	0.152	0.244	56.84
6)	T	Chloroethane			0.676	0.563	0.338	0.268	0.234	0.227	0.384	49.39
7)	T	Trichlorofluor...	0.601	0.628	0.560	0.544	0.509	0.512	0.547	0.512	0.552	7.94
8)	T	Ethyl ether	0.421	0.539	0.424	0.385	0.386	0.381	0.369	0.355	0.408	14.25
9)	T	Acrolein	0.147	0.152	0.122	0.105	0.103	0.075	0.078	0.083	0.108#	27.87
10)	C	1,1-Dichloroet...	0.657	0.637	0.653	0.585	0.590	0.581	0.567	0.548	0.602	6.84
11)	T	1,1,2-Trichlor...	0.407	0.370	0.314	0.328	0.309	0.295	0.297	0.294	0.327	12.46
12)	T	Methyl iodide	0.777	0.601	0.472	0.407	0.344	0.295	0.281	0.283	0.433	41.05
13)	T	Acetone			0.359	0.261	0.316	0.240	0.233	0.233	0.273	19.11
14)	T	Chloroprene	0.569	0.623	0.653	0.645	0.614	0.601	0.589	0.579	0.609	5.01
15)	T	Carbon disulfide	1.630	1.193	1.388	1.289	1.238	1.250	1.236	1.218	1.305	11.03
16)	T	Allyl chloride	0.862	0.759	0.684	0.694	0.682	0.671	0.643	0.618	0.702	10.96
17)	T	Methyl acetate			0.685	0.654	0.595	0.614	0.560	0.562	0.612	8.21
18)	T	Acetonitrile	0.862	0.729	0.684	0.694	0.682	0.671	0.643	0.618	0.698	10.66
19)	T	Methylene chlo...		0.818	0.685	0.613	0.602	0.601	0.585	0.562	0.638	13.82
20)	T	trans-1,2-Dich...	0.698	0.708	0.678	0.646	0.638	0.640	0.625	0.608	0.655	5.44
21)	T	t-Butanol		0.128	0.163	0.138	0.140	0.138	0.129	0.128	0.138#	8.92
22)	T	Acrylonitrile	0.344	0.279	0.306	0.310	0.303	0.302	0.296	0.289	0.304	6.36
23)	CP	Methyl tert-bu...	1.212	1.240	1.269	1.307	1.262	1.295	1.229	1.211	1.253	2.89#
24)	T	Hexane	0.697	0.560	0.539	0.468	0.468	0.436	0.446	0.441	0.507	17.67
25)	P	1,1-Dichloroet...	1.009	0.892	0.962	0.884	0.883	0.873	0.848	0.810	0.895	7.03
26)	CP	Diisopropyl ether	1.426	1.339	1.370	1.334	1.301	1.320	1.245	1.224	1.320	4.93#
27)	T	Vinyl acetate		0.115	0.098	0.080	0.082	0.075	0.081	0.078	0.087#	16.52
28)	CP	Ethyl tert but...	1.283	1.454	1.364	1.297	1.308	1.292	1.216	1.217	1.304	5.93#
29)	T	2,2-Dichloropr...		0.794	0.650	0.627	0.622	0.603	0.595	0.572	0.638	11.51
30)	T	cis-1,2-Dichlo...	0.935	0.831	0.728	0.757	0.752	0.760	0.754	0.726	0.780	9.00
31)	T	2-Butanone			0.639	0.502	0.462	0.419	0.397	0.396	0.469	19.80
32)	T	Ethyl Acetate		0.618	0.868	0.797	0.781	0.792	0.773	0.768	0.771	9.77
33)	T	Methyl acrylate	0.758	0.806	0.724	0.704	0.732	0.755	0.732	0.722	0.742	4.20
34)	T	Propionitrile			0.061	0.065	0.043	0.041	0.042	0.041	0.049#	22.41
35)	T	Bromochloromet...	0.451	0.475	0.395	0.401	0.395	0.400	0.392	0.380	0.411	8.13
36)	T	Tetrahydrofuran			0.281	0.283	0.276	0.285	0.282	0.277	0.281	1.25
37)	T	Methacrylonitrile	0.348	0.403	0.519	0.427	0.457	0.465	0.448	0.446	0.439	11.33
38)	C	Chloroform	1.055	0.975	0.947	0.866	0.860	0.872	0.854	0.829	0.907	8.52

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Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

39)	T	Cyclohexane		0.903	0.749	0.710	0.653	0.650	0.635	0.717		14.11
40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.469	0.478	0.488	0.472	0.455	0.446	0.441	0.464	3.73
42)	S	Dibromofluorom...	0.342	0.351	0.346	0.345	0.350	0.353	0.342	0.345	0.347	1.19
43)	T	Carbon tetrach...	0.442	0.333	0.418	0.401	0.387	0.407	0.396	0.404	0.398	7.81
44)	T	1,1-Dichloropr...	0.597	0.396	0.453	0.450	0.415	0.401	0.384	0.397	0.437	15.96
45)	S	1,2-Dichloroet...	0.338	0.342	0.345	0.336	0.333	0.336	0.330	0.342	0.338	1.51
46)	T	1,2-Dichloroet...	0.576	0.504	0.438	0.418	0.416	0.407	0.395	0.399	0.444	14.32
47)	CP	Benzene	1.479	1.271	1.289	1.272	1.216	1.265	1.204	1.209	1.276	6.94#
48)	CP	Tertiaryamylme...	0.675	0.910	0.901	0.857	0.849	0.846	0.785	0.802	0.828	9.09#
49)	T	Isobutyl Alcohol	0.221	0.271	0.363	0.312	0.261	0.253	0.235	0.239	0.269	17.40
50)	T	Heptane	0.292	0.419	0.317	0.286	0.266	0.244	0.240	0.247	0.289	20.47
51)	T	1,4-Dioxane	0.007	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007#	6.01
52)	T	Methylcyclohexane	0.478	0.528	0.406	0.449	0.422	0.406	0.399	0.413	0.438	10.31
53)	T	n-Butanol			0.022	0.022	0.021	0.025	0.024	0.025	0.023#	7.39
54)	T	Trichloroethene	0.388	0.407	0.382	0.344	0.343	0.345	0.332	0.331	0.359	8.10
55)	C	1,2-Dichloropr...		0.441	0.397	0.375	0.338	0.345	0.330	0.329	0.365	11.50
56)	T	Dibromomethane	0.204	0.354	0.266	0.295	0.256	0.261	0.249	0.248	0.266	16.32
57)	T	Methyl methacr...	0.447	0.464	0.424	0.409	0.402	0.383	0.378	0.379	0.411	7.81
58)	T	Bromodichlorom...	0.445	0.478	0.486	0.469	0.463	0.467	0.449	0.454	0.464	3.06
59)	T	2-Chloroethyl ...			0.205	0.164	0.176	0.160	0.158	0.154	0.169#	11.33
60)	T	2-Nitropropane		0.227	0.193	0.181	0.169	0.160	0.157	0.160	0.178#	14.26
61)	T	cis-1,3-Dichlo...	0.551	0.563	0.568	0.546	0.550	0.557	0.531	0.545	0.551	2.10
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...	0.629	0.782	0.563	0.668	0.586	0.586	0.590	0.568	0.622	11.82
64)	S	Toluene-d8	1.319	1.292	1.306	1.290	1.292	1.295	1.341	1.308	1.305	1.33
65)	CP	Toluene	1.508	1.354	1.452	1.490	1.430	1.439	1.470	1.368	1.439	3.80
66)	T	trans-1,3-Dich...	0.574	0.599	0.598	0.574	0.579	0.556	0.575	0.560	0.577	2.70
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.578	0.773	0.648	0.609	0.594	0.581	0.577	0.564	0.615	11.17
69)	T	1,1,2-Trichlor...	0.562	0.512	0.422	0.389	0.386	0.377	0.379	0.369	0.425	17.06
70)	T	Tetrachloroethene	0.382	0.374	0.382	0.389	0.379	0.363	0.375	0.361	0.376	2.54
71)	T	1,3-Dichloropr...	0.596	0.705	0.596	0.579	0.582	0.575	0.587	0.552	0.597	7.72
72)	T	2-Hexanone		0.608	0.481	0.464	0.473	0.476	0.466	0.451	0.488	10.93
73)	T	Chlorodibromom...	0.497	0.421	0.490	0.446	0.443	0.462	0.458	0.450	0.458	5.47
74)	T	Butyl acetate	0.958	0.906	0.792	0.818	0.757	0.781	0.761	0.742	0.814	9.51
75)	T	1,2-Dibromoethane	0.462	0.411	0.491	0.437	0.423	0.430	0.434	0.415	0.438	6.06
76)	P	Chlorobenzene	0.978	0.959	1.040	0.984	0.951	0.956	0.961	0.937	0.971	3.26
77)	T	1,1,1,2-Tetrac...	0.435	0.363	0.396	0.366	0.363	0.356	0.369	0.351	0.375	7.43
78)	CP	Ethylbenzene	1.571	1.470	1.623	1.557	1.508	1.546	1.591	1.517	1.548	3.15
79)	CP	m/p-Xylene	1.242	1.061	1.201	1.206	1.150	1.178	1.211	1.138	1.173	4.84#
80)	T	Styrene	1.078	0.948	1.031	0.995	0.979	0.995	1.001	0.973	1.000	3.98
81)	CP	o-Xylene	1.359	1.172	1.255	1.251	1.240	1.232	1.254	1.199	1.245	4.38#
82)	T	Cyclohexanone		0.204	0.093	0.059	0.043	0.040	0.038	0.037	0.073#	82.88
83)	P	Bromoform	0.327	0.315	0.343	0.341	0.353	0.360	0.368	0.361	0.346	5.23
84)	T	Isopropylbenzene	1.637	1.408	1.452	1.502	1.438	1.435	1.463	1.381	1.465	5.34

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

85)	S	Bromofluoroben...	0.466	0.470	0.474	0.465	0.473	0.481	0.481	0.476	0.473	1.30
86)	T	Bromobenzene	0.773	1.026	0.937	0.934	0.913	0.918	0.942	0.900	0.918	7.61
87)	P	1,1,2,2-Tetrac...	0.603	0.702	0.666	0.668	0.658	0.647	0.674	0.642	0.658	4.34
88)	T	1,2,3-Trichlor...	0.226	0.203	0.168	0.183	0.169	0.166	0.164	0.164	0.180#	12.64
89)	T	trans-1,4-Dich...	0.208	0.194	0.218	0.174	0.163	0.164	0.169	0.163	0.182#	12.07
90)	T	n-Propylbenzene	1.649	1.567	1.765	1.713	1.685	1.695	1.751	1.677	1.688	3.67
91)	T	2-Chlorotoluene	0.934	1.024	1.082	1.021	1.001	1.009	1.036	0.982	1.011	4.21
92)	T	4-Chlorotoluene	1.165	1.251	1.164	1.214	1.169	1.167	1.186	1.152	1.183	2.80
93)	T	1,3,5-Trimethy...	1.058	1.198	1.203	1.231	1.132	1.152	1.174	1.125	1.159	4.73
94)	T	tert-Butylbenzene	0.801	0.727	0.677	0.689	0.669	0.659	0.673	0.646	0.693	7.18
95)	T	1,2,4-Trimethy...	1.287	1.198	1.272	1.241	1.216	1.217	1.254	1.194	1.235	2.77
96)	T	sec-Butylbenzene	1.559	1.350	1.390	1.398	1.341	1.364	1.417	1.356	1.397	5.04
97)	I	1,4-Dichlorobenzen...	----------ISTD----------									
98)	T	1,3-Dichlorobe...	1.377	1.377	1.422	1.476	1.396	1.472	1.425	1.383	1.416	2.84
99)	T	p-Isopropyltol...	2.403	2.110	2.389	2.288	2.269	2.324	2.257	2.190	2.279	4.30
100)	T	1,4-Dichlorobe...	1.439	1.387	1.462	1.503	1.439	1.470	1.450	1.402	1.444	2.57
101)	T	1,2,3-Trimethy...	2.393	2.323	2.402	2.474	2.409	2.459	2.392	2.286	2.392	2.62
102)	T	Benzyl chloride	1.817	2.053	1.998	1.881	1.818	1.921	1.831	1.801	1.890	4.95
103)	T	1,2-Dichlorobe...	1.322	1.353	1.378	1.477	1.417	1.453	1.410	1.337	1.393	3.98
104)	T	n-Butylbenzene	2.141	2.184	2.116	2.106	1.965	2.089	1.976	1.942	2.065	4.40
105)	T	Hexachloroethane	0.572	0.561	0.520	0.491	0.467	0.508	0.493	0.490	0.513	7.18
106)	T	1,2-Dibromo-3-...	0.450	0.417	0.428	0.411	0.362	0.382	0.378	0.373	0.400	7.65
107)	T	1,3,5-Trichlor...	0.913	0.902	1.001	1.018	0.906	0.984	0.954	0.922	0.950	4.85
108)	T	1,2,4-Trichlor...	1.097	0.887	0.978	0.986	0.964	0.967	0.976	0.934	0.974	6.10
109)	T	Hexachlorobuta...	0.336	0.312	0.332	0.347	0.319	0.321	0.317	0.318	0.325	3.67
110)	T	Naphthalene	3.706	3.329	3.593	3.625	3.548	3.696	3.501	3.582	3.572	3.37
111)	T	1,2,3-Trichlor...	0.921	0.888	0.989	0.965	0.932	1.009	0.955	0.917	0.947	4.26
112)	T	2-Methylnaphth...	1.715	1.759	1.786	1.840	1.801	1.934	1.922	1.931	1.836	4.62
113)	T	1-Methylnaphth...	1.547	1.661	1.655	1.660	1.713	1.833	1.825	1.793	1.711	5.84
114)	I	Ethyl-d5-Acetate-d3	----------ISTD----------									
115)	T	2-Propanone			1.204	0.840	1.007	0.838	0.737	0.755	0.897	19.88
116)	T	Acetic Ether		2.167	2.915	2.725	2.490	2.583	2.437	2.484	2.543	9.25
117)	T	Isopropyl Acetate		1.267	1.343	1.132	1.108	1.099	1.016	1.048	1.145	10.31
118)	T	Amyl Acetate	3.219	4.118	3.305	3.109	3.208	3.164	2.999	3.066	3.274	10.83

(#) = Out of Range

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

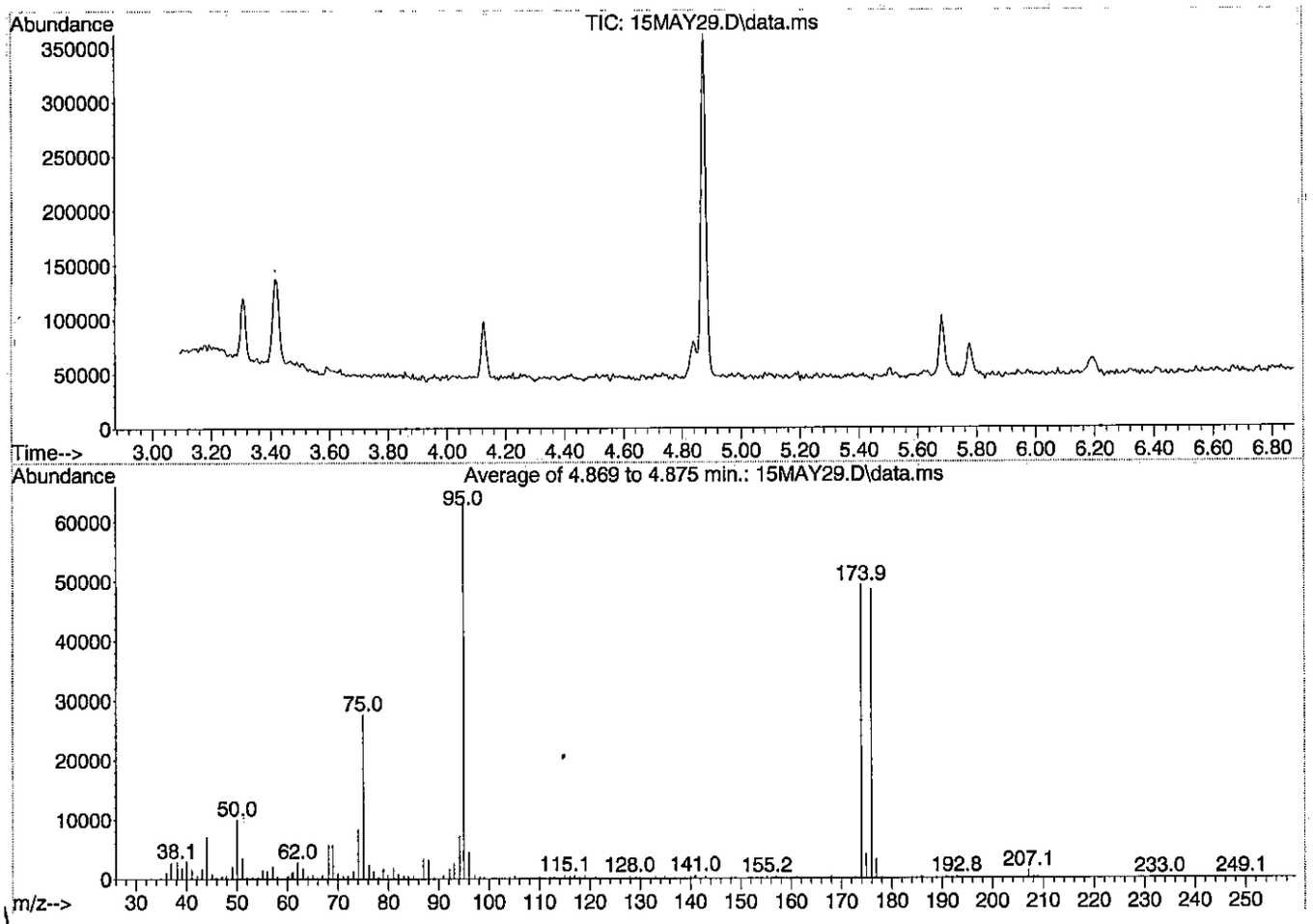
Calibration Files
1 =15MAY35 2 =15MAY36 3 =15MAY37 4 =15MAY38 5 =15MAY39 6 =15MAY40
7 =15MAY41 8 =15MAY42

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	T	Bromomethane	Lin	0.0115	0.1595	-----	0.9936
6)	T	Chloroethane	Quad	0.0477	0.2576	-0.0086	0.9966
9)	T	Acrolein	Lin	0.0110	0.0802	-----	0.9940
12)	T	Methyl iodide	Quad	0.0103	0.3126	-0.0073	0.9983
34)	T	Propionitrile	Lin	0.0023	0.0410	-----	0.9996
40)	I	1,4-Difluorobenzene		----------ISTD----------			
50)	T	Heptane	Lin	0.0035	0.2444	-----	0.9985
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0267	0.0360	-----	0.9994
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY29.D
Acq On : 15 May 2018 5:56 pm
Operator : EMR
Sample : VBFB7-180515
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0502.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 11:00:13 2018



Spectrum Information: Average of 4.869 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.9	10004	PASS
75	95	30	60	43.9	27608	PASS
95	95	100	100	100.0	62836	PASS
96	95	5	9	7.2	4503	PASS
173	174	0.00	2	0.3	125	PASS
174	95	50	100	78.3	49232	PASS
175	174	5	9	8.4	4114	PASS
176	174	95	101	98.6	48536	PASS
177	176	5	9	6.6	3201	PASS

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	362356	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	542314	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	476055	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	241467	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	108075	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	185610	19.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.70%				
45) 1,2-Dichloroethane-d4	5.164	65	183484	20.34	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.70%				
64) Toluene-d8	7.671	98	627892	20.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.55%				
85) Bromofluorobenzene	9.433	95	221780	20.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4000	0.46	ug/L	#	68
3) Chloromethane	1.282	50	11435	0.68	ug/L	#	61
4) Vinyl chloride	1.353	62	4606m	0.39	ug/L		
5) Bromomethane	1.568	96	4640	0.03	ug/L	#	79
6) Chloroethane	1.668	64	15493	Below Cal			81
7) Trichlorofluoromethane	1.819	101	4357	0.37	ug/L	#	71
8) Ethyl ether	2.019	59	3053	0.42	ug/L		99
9) Acrolein	2.127	56	5327m	Below Cal			
10) 1,1-Dichloroethene	2.198	61	4759m	0.48	ug/L		
11) 1,1,2-Trichlorotrifluo...	2.198	151	2947	0.53	ug/L	#	82
12) Methyl iodide	2.320	142	5631	0.80	ug/L		72
13) Acetone	2.234	43	3835	Below Cal			81
14) Chloroprene	3.373	53	4120	0.38	ug/L	#	91
15) Carbon disulfide	2.392	76	11810	0.56	ug/L		96
16) Allyl chloride	2.492	41	6250	0.48	ug/L	#	79
17) Methyl acetate	2.485	43	5158	0.35	ug/L	#	74
18) Acetonitrile	2.492	41	6250	0.48	ug/L	#	69
19) Methylene chloride	2.614	49	7595	0.61	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	5060	0.46	ug/L	#	72
21) t-Butanol	2.707	59	8426	2.83	ug/L	#	86
22) Acrylonitrile	2.822	53	2496	0.53	ug/L		86
23) Methyl tert-butyl ether	2.850	73	8782	0.34	ug/L		81
24) Hexane	3.137	57	5052m	0.66	ug/L		
25) 1,1-Dichloroethane	3.294	63	7314m	0.49	ug/L		
26) Diisopropyl ether	3.337	45	10337	0.36	ug/L	#	35
27) Vinyl acetate	3.301	86	881m	2.18	ug/L		
28) Ethyl tert butyl ether	3.753	59	9297	0.35	ug/L		94
29) 2,2-Dichloropropane	3.968	77	7677m	0.79	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	6774m	0.48	ug/L		
31) 2-Butanone	3.953	43	10025	0.79	ug/L		95
32) Ethyl Acetate	4.011	43	9022m	0.52	ug/L		
33) Methyl acrylate	4.068	55	5491	0.42	ug/L	#	83
34) Propionitrile	4.763	54	774	0.90	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	3268	0.44 ug/L	89
36) Tetrahydrofuran	4.290	42	1396	0.26 ug/L #	51
37) Methacrylonitrile	4.226	41	2521	0.28 ug/L #	71
38) Chloroform	4.426	83	7644	0.48 ug/L	85
39) Cyclohexane	4.720	56	13134m	0.89 ug/L	
41) 1,1,1-Trichloroethane	4.627	97	9572m	0.80 ug/L	
43) Carbon tetrachloride	4.849	117	4796	0.73 ug/L	84
44) 1,1-Dichloropropene	4.885	75	6479	0.58 ug/L #	63
46) 1,2-Dichloroethane	5.293	62	6250	0.53 ug/L	84
47) Benzene	5.178	78	16047	0.46 ug/L	61
48) Tertiaryamylmethylether	5.450	73	7321	0.30 ug/L #	87
49) Isobutyl Alcohol	5.436	43	2397	0.29 ug/L #	75
50) Heptane	5.758	43	3165m	0.48 ug/L	
51) 1,4-Dioxane	6.826	88	8007	36.56 ug/L #	31
52) Methylcyclohexane	6.647	83	5183	0.46 ug/L	96
53) n-Butanol	6.374	56	2527m	4.20 ug/L	
54) Trichloroethene	6.353	130	4211	0.39 ug/L #	81
55) 1,2-Dichloropropane	6.697	63	5801m	0.60 ug/L	
56) Dibromomethane	6.797	93	2211m	0.32 ug/L	
57) Methyl methacrylate	6.826	41	4845	0.44 ug/L #	73
58) Bromodichloromethane	7.019	83	4830	0.42 ug/L #	52
59) 2-Chloroethyl vinyl ether	7.334	43	1749	0.46 ug/L #	25
60) 2-Nitropropane	7.241	43	3105	0.77 ug/L #	75
61) cis-1,3-Dichloropropene	7.456	75	5972	0.45 ug/L	76
63) 4-Methyl-2-pentanone	7.592	43	5990m	0.37 ug/L	
65) Toluene	7.728	91	14362	0.43 ug/L	91
66) trans-1,3-Dichloropropene	7.943	75	5461	0.45 ug/L #	33
67) Chloropicrin	0.000		0	N.D. d	
68) Ethyl methacrylate	8.000	69	5503	0.41 ug/L #	82
69) 1,1,2-Trichloroethane	8.086	97	5349	0.58 ug/L #	79
70) Tetrachloroethene	8.129	166	3641	0.39 ug/L	89
71) 1,3-Dichloropropane	8.201	76	5672	0.41 ug/L #	55
72) 2-Hexanone	8.251	43	6949	0.55 ug/L	73
73) Chlorodibromomethane	8.351	129	4733	0.47 ug/L	83
74) Butyl acetate	8.344	43	9119	0.44 ug/L #	90
75) 1,2-Dibromoethane	8.430	107	4397	0.43 ug/L #	63
76) Chlorobenzene	8.753	112	9315	0.41 ug/L #	40
77) 1,1,1,2-Tetrachloroethane	8.810	131	4143	0.50 ug/L	89
78) Ethylbenzene	8.817	91	14959	0.41 ug/L	98
79) m/p-Xylene	8.896	91	23658	0.89 ug/L	94
80) Styrene	9.139	104	10268	0.45 ug/L	95
81) o-Xylene	9.125	91	12935	0.45 ug/L	86
82) Cyclohexanone	9.390	55	11280	8.08 ug/L #	90
83) Bromoform	9.247	173	3112	0.38 ug/L	94
84) Isopropylbenzene	9.333	105	15584	0.47 ug/L	92
86) Bromobenzene	9.512	77	7363	0.33 ug/L	97
87) 1,1,2,2-Tetrachloroethane	9.512	83	5743	0.38 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2155m	0.50 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	1979	0.51 ug/L	91
90) n-Propylbenzene	9.562	91	15696	0.39 ug/L	88
91) 2-Chlorotoluene	9.612	91	8897	0.36 ug/L	86

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

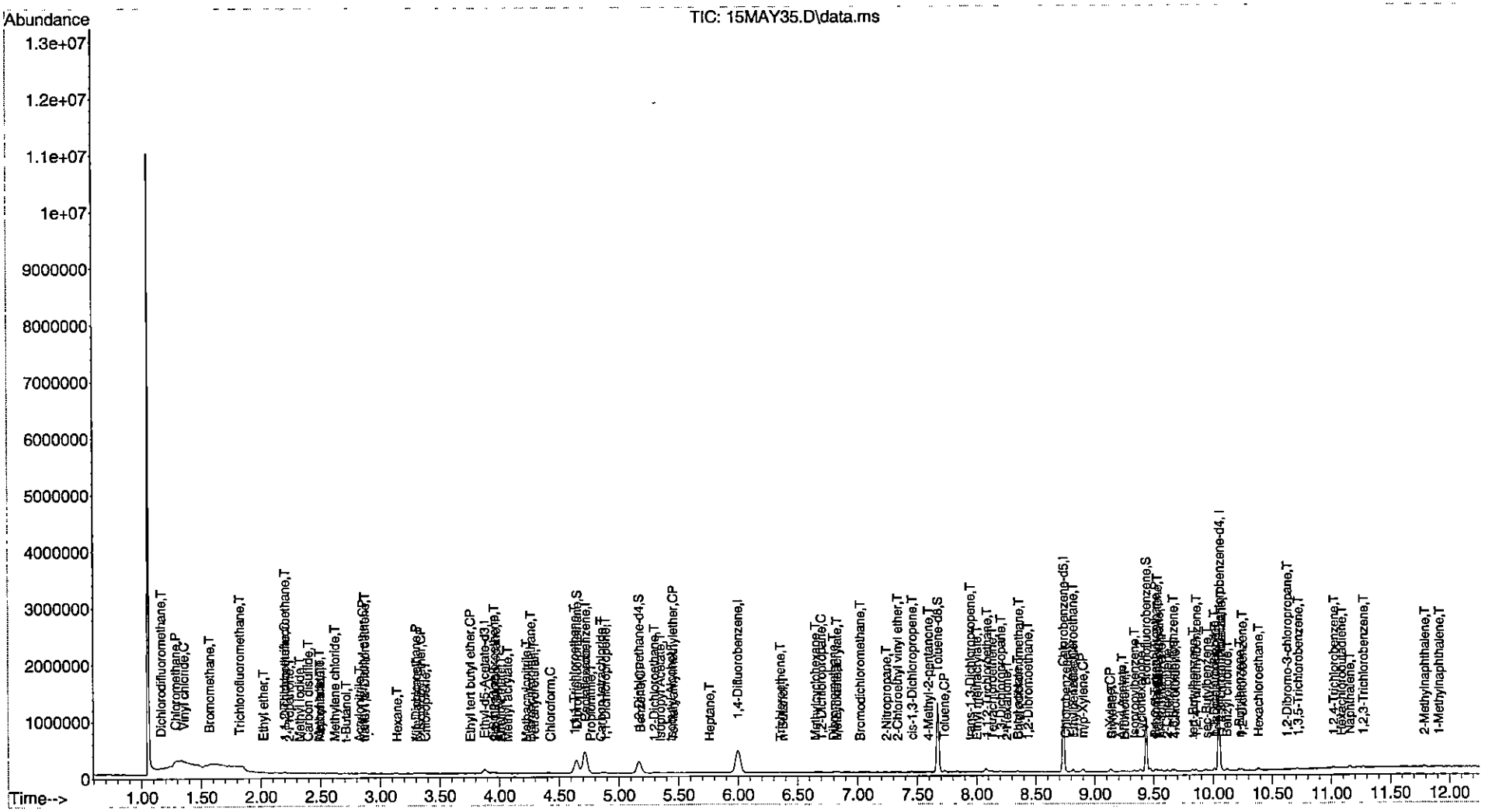
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	11092	0.41	ug/L		98
93) 1,3,5-Trimethylbenzene	9.662	105	10074	0.38	ug/L		90
94) tert-Butylbenzene	9.827	91	7622	0.48	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	12251	0.43	ug/L		92
96) sec-Butylbenzene	9.942	105	14839	0.47	ug/L		92
98) 1,3-Dichlorobenzene	10.006	146	6650	0.37	ug/L		87
99) p-Isopropyltoluene	10.013	119	11607	0.45	ug/L		88
100) 1,4-Dichlorobenzene	10.063	146	6951m	0.38	ug/L		
101) 1,2,3-Trimethylbenzene	10.063	105	11556	0.40	ug/L		95
102) Benzyl chloride	10.114	91	8773	0.65	ug/L		94
103) 1,2-Dichlorobenzene	10.242	146	6385	0.36	ug/L		91
104) n-Butylbenzene	10.221	91	10341m	0.45	ug/L		
105) Hexachloroethane	10.379	117	2764m	0.48	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2171	0.50	ug/L	#	67
107) 1,3,5-Trichlorobenzene	10.715	180	4409	0.36	ug/L	#	92
108) 1,2,4-Trichlorobenzene	11.016	180	5300	0.43	ug/L		94
109) Hexachlorobutadiene	11.081	225	1625	0.41	ug/L	#	81
110) Naphthalene	11.152	128	17898	0.43	ug/L		89
111) 1,2,3-Trichlorobenzene	11.267	180	4447	0.36	ug/L		99
112) 2-Methylnaphthalene	11.783	142	8281	0.43	ug/L		91
113) 1-Methylnaphthalene	11.904	142	7473	0.39	ug/L		85
115) 2-Propanone	2.234	43	5168m	0.25	ug/L		
116) Acetic Ether	4.011	43	11118m	0.55	ug/L		
117) Isopropyl Acetate	5.343	61	718m	0.10	ug/L		
118) Amyl Acetate	9.225	43	6957	0.32	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	345310	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	515573	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	467514	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233707	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	98455	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181076	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.30%				
45) 1,2-Dichloroethane-d4	5.164	65	176535	20.58	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.90%				
64) Toluene-d8	7.671	98	603853	20.28	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.40%				
85) Bromofluorobenzene	9.433	95	219602	20.74	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4787m	0.58	ug/L		
3) Chloromethane	1.282	50	10899m	0.68	ug/L		
4) Vinyl chloride	1.353	62	6139	0.55	ug/L	#	1
5) Bromomethane	1.568	96	5570m	0.17	ug/L		
6) Chloroethane	1.640	64	11699m	Below Cal			
7) Trichlorofluoromethane	1.812	101	6510	0.57	ug/L		90
8) Ethyl ether	2.019	59	5583	0.81	ug/L		87
9) Acrolein	2.127	56	7885	Below Cal		#	60
10) 1,1-Dichloroethene	2.199	61	6603	0.70	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	3831	0.72	ug/L		91
12) Methyl iodide	2.327	142	6226	0.90	ug/L		98
13) Acetone	2.234	43	3840	0.02	ug/L		67
14) Chloroprene	3.373	53	6459	0.63	ug/L	#	87
15) Carbon disulfide	2.392	76	12358	0.62	ug/L		45
16) Allyl chloride	2.499	41	7862	0.64	ug/L	#	80
17) Methyl acetate	2.485	43	13185m	0.93	ug/L		
18) Acetonitrile	2.499	41	7548m	0.61	ug/L		
19) Methylene chloride	2.607	49	8475	0.71	ug/L		90
20) trans-1,2-Dichloroethene	2.858	61	7336	0.69	ug/L		93
21) t-Butanol	2.700	59	6622	2.34	ug/L	#	65
22) Acrylonitrile	2.836	53	2890m	0.62	ug/L		
23) Methyl tert-butyl ether	2.850	73	12843	0.52	ug/L		93
24) Hexane	3.130	57	5801m	0.79	ug/L		
25) 1,1-Dichloroethane	3.302	63	9239	0.65	ug/L		84
26) Diisopropyl ether	3.330	45	13874	0.51	ug/L	#	57
27) Vinyl acetate	3.309	86	1195	2.61	ug/L	#	18
28) Ethyl tert butyl ether	3.753	59	15061	0.60	ug/L		97
29) 2,2-Dichloropropane	3.961	77	8226m	0.88	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	8607m	0.64	ug/L		
31) 2-Butanone	3.968	43	15629	1.50	ug/L		94
32) Ethyl Acetate	4.011	43	6401	0.39	ug/L		98
33) Methyl acrylate	4.075	55	8346	0.68	ug/L	#	69
34) Propionitrile	4.741	54	593	0.72	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	4924	0.69 ug/L	85
36) Tetrahydrofuran	4.290	42	6345	1.23 ug/L #	75
37) Methacrylonitrile	4.219	41	4179	0.49 ug/L #	55
38) Chloroform	4.419	83	10099	0.66 ug/L	98
39) Cyclohexane	4.720	56	12704m	0.91 ug/L	
41) 1,1,1-Trichloroethane	4.641	97	7259	0.64 ug/L #	73
43) Carbon tetrachloride	4.863	117	5153	0.79 ug/L #	61
44) 1,1-Dichloropropene	4.885	75	6130	0.58 ug/L	78
46) 1,2-Dichloroethane	5.293	62	7790	0.70 ug/L	86
47) Benzene	5.178	78	19660	0.59 ug/L	72
48) Tertiaryamylmethylether	5.451	73	14077	0.60 ug/L #	72
49) Isobutyl Alcohol	5.451	43	4184m	0.53 ug/L	
50) Heptane	5.773	43	6485m	1.03 ug/L	
51) 1,4-Dioxane	6.826	88	9467	45.47 ug/L	93
52) Methylcyclohexane	6.647	83	8165	0.76 ug/L	89
53) n-Butanol	6.332	56	1220m	2.13 ug/L	
54) Trichloroethene	6.360	130	6299	0.62 ug/L	94
55) 1,2-Dichloropropane	6.697	63	6821m	0.74 ug/L	
56) Dibromomethane	6.804	93	5481	0.83 ug/L #	79
57) Methyl methacrylate	6.826	41	7181	0.68 ug/L	92
58) Bromodichloromethane	7.026	83	7390	0.67 ug/L #	86
59) 2-Chloroethyl vinyl ether	7.334	43	5262	1.47 ug/L #	66
60) 2-Nitropropane	7.248	43	3515	0.92 ug/L #	70
61) cis-1,3-Dichloropropene	7.456	75	8714m	0.69 ug/L	
63) 4-Methyl-2-pentanone	7.592	43	10970	0.69 ug/L	94
65) Toluene	7.728	91	18987	0.58 ug/L	93
66) trans-1,3-Dichloropropene	7.943	75	8402m	0.70 ug/L	
67) Chloropicrin	7.943	117	791	No Calib	
68) Ethyl methacrylate	8.001	69	10840	0.82 ug/L	90
69) 1,1,2-Trichloroethane	8.087	97	7186	0.79 ug/L #	82
70) Tetrachloroethene	8.130	166	5245	0.58 ug/L	91
71) 1,3-Dichloropropane	8.201	76	9893	0.73 ug/L	92
72) 2-Hexanone	8.251	43	8521m	0.69 ug/L	
73) Chlorodibromomethane	8.352	129	5905	0.60 ug/L #	80
74) Butyl acetate	8.344	43	12702	0.62 ug/L #	89
75) 1,2-Dibromoethane	8.430	107	5761	0.57 ug/L	81
76) Chlorobenzene	8.753	112	13453m	0.60 ug/L	
77) 1,1,1,2-Tetrachloroethane	8.810	131	5086	0.62 ug/L #	84
78) Ethylbenzene	8.817	91	20617	0.58 ug/L	93
79) m/p-Xylene	8.896	91	29748	1.14 ug/L	88
80) Styrene	9.140	104	13290	0.59 ug/L	100
81) o-Xylene	9.125	91	16437	0.58 ug/L	92
82) Cyclohexanone	9.390	55	14288	10.42 ug/L	95
83) Bromoform	9.254	173	4420	0.55 ug/L	84
84) Isopropylbenzene	9.333	105	19744	0.61 ug/L	99
86) Bromobenzene	9.512	77	14391	0.66 ug/L	86
87) 1,1,2,2-Tetrachloroethane	9.512	83	9841	0.67 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2844m	0.67 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	2720	0.72 ug/L	87
90) n-Propylbenzene	9.562	91	21983	0.56 ug/L	97
91) 2-Chlorotoluene	9.612	91	14363m	0.59 ug/L	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

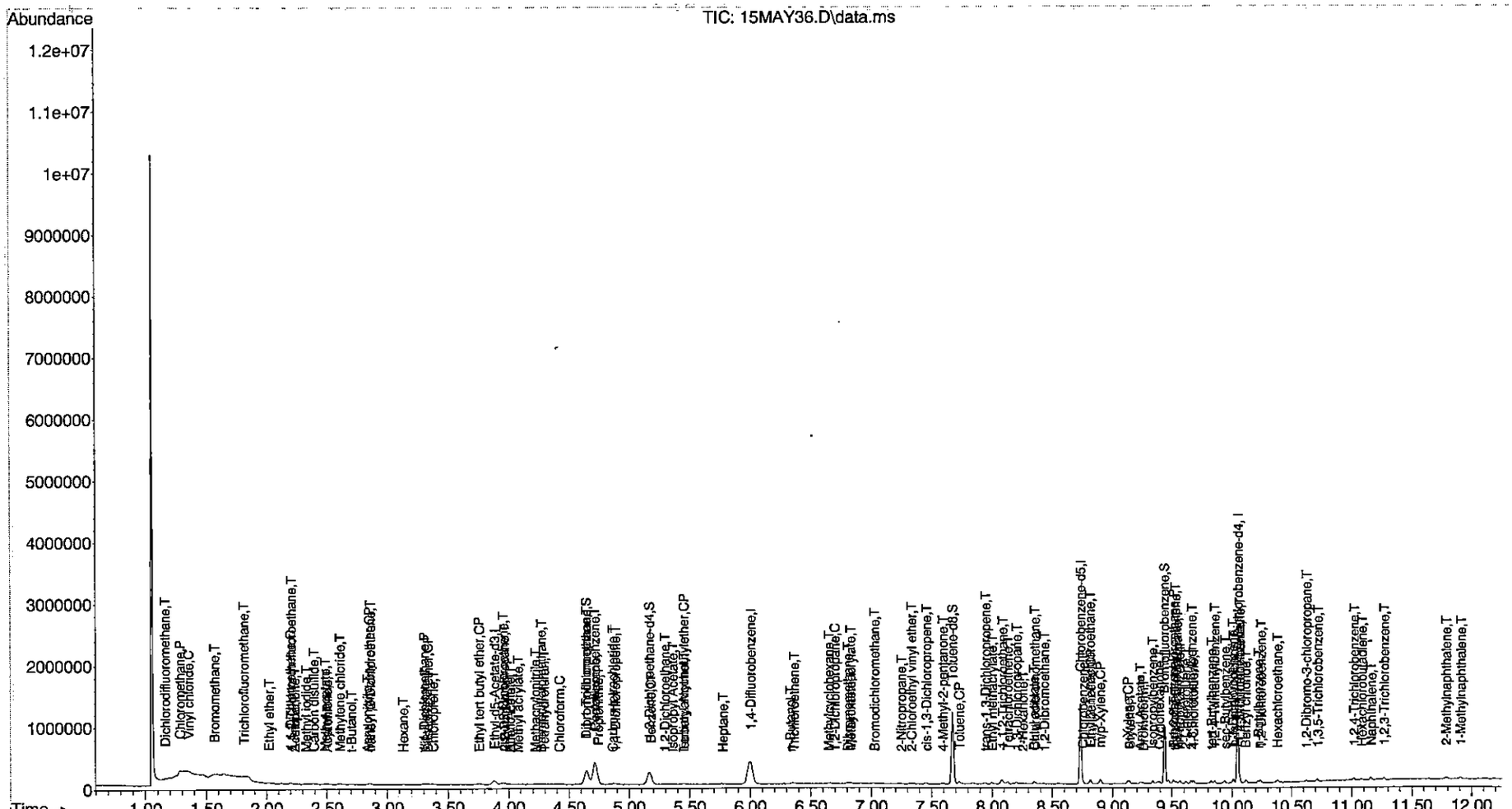
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	17542	0.65	ug/L		93
93) 1,3,5-Trimethylbenzene	9.662	105	16806	0.65	ug/L		91
94) tert-Butylbenzene	9.827	91	10190	0.66	ug/L		82
95) 1,2,4-Trimethylbenzene	9.856	105	16805	0.60	ug/L		97
96) sec-Butylbenzene	9.942	105	18937	0.61	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	9653	0.55	ug/L		94
99) p-Isopropyltoluene	10.013	119	14791	0.59	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	9726m	0.55	ug/L		
101) 1,2,3-Trimethylbenzene	10.064	105	16288	0.58	ug/L		95
102) Benzyl chloride	10.114	91	14397m	1.10	ug/L		
103) 1,2-Dichlorobenzene	10.243	146	9485	0.55	ug/L		90
104) n-Butylbenzene	10.221	91	15309	0.68	ug/L		96
105) Hexachloroethane	10.379	117	3935m	0.70	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2921	0.70	ug/L		88
107) 1,3,5-Trichlorobenzene	10.715	180	6327	0.54	ug/L		95
108) 1,2,4-Trichlorobenzene	11.016	180	6221	0.52	ug/L		90
109) Hexachlorobutadiene	11.081	225	2187	0.56	ug/L	#	88
110) Naphthalene	11.160	128	23337	0.58	ug/L		94
111) 1,2,3-Trichlorobenzene	11.267	180	6224	0.53	ug/L		85
112) 2-Methylnaphthalene	11.783	142	12334	0.65	ug/L		96
113) 1-Methylnaphthalene	11.904	142	11647	0.63	ug/L		98
115) 2-Propanone	2.234	43	6529m	0.55	ug/L		
116) Acetic Ether	4.011	43	6401	0.35	ug/L	#	81
117) Isopropyl Acetate	5.357	61	3741m	0.55	ug/L		
118) Amyl Acetate	9.225	43	12164	0.61	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341663	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	510208	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	459357	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233694	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	101741	20.00	ug/L		-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	176770	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%				
45) 1,2-Dichloroethane-d4	5.164	65	175827	20.71	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.55%				
64) Toluene-d8	7.671	98	600091	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.60%				
85) Bromofluorobenzene	9.433	95	217812	20.94	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	16254	1.99	ug/L		94
3) Chloromethane	1.282	50	28443	1.80	ug/L		93
4) Vinyl chloride	1.353	62	16967	1.53	ug/L	#	60
5) Bromomethane	1.568	96	9751	0.68	ug/L	#	27
6) Chloroethane	1.633	64	23107	Below Cal		#	72
7) Trichlorofluoromethane	1.819	101	19126	1.71	ug/L		92
8) Ethyl ether	2.019	59	14499m	2.13	ug/L		
9) Acrolein	2.127	56	20791	9.56	ug/L		91
10) 1,1-Dichloroethene	2.199	61	22302	2.39	ug/L		92
11) 1,1,2-Trichlorotrifluo...	2.206	151	10738	2.05	ug/L		93
12) Methyl iodide	2.328	142	16131m	2.06	ug/L		
13) Acetone	2.242	43	12253	1.58	ug/L		78
14) Chloroprene	3.373	53	22327	2.19	ug/L	#	93
15) Carbon disulfide	2.385	76	47429	2.39	ug/L		95
16) Allyl chloride	2.499	41	23371	1.91	ug/L		88
17) Methyl acetate	2.485	43	23390	1.67	ug/L	#	90
18) Acetonitrile	2.499	41	23371	1.91	ug/L	#	86
19) Methylene chloride	2.607	49	23407	1.98	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	23150	2.21	ug/L		97
21) t-Butanol	2.729	59	27826	9.92	ug/L	#	87
22) Acrylonitrile	2.822	53	10448	1.96	ug/L		94
23) Methyl tert-butyl ether	2.850	73	43359	1.77	ug/L		98
24) Hexane	3.130	57	18410	2.54	ug/L	#	78
25) 1,1-Dichloroethane	3.295	63	32867	2.35	ug/L		95
26) Diisopropyl ether	3.337	45	46820	1.74	ug/L	#	15
27) Vinyl acetate	3.295	86	3336	5.24	ug/L	#	31
28) Ethyl tert butyl ether	3.746	59	46588	1.88	ug/L		96
29) 2,2-Dichloropropane	3.961	77	22212	2.41	ug/L		93
30) cis-1,2-Dichloroethene	3.954	61	24889	1.86	ug/L		95
31) 2-Butanone	3.954	43	21848	2.25	ug/L		88
32) Ethyl Acetate	4.011	43	29654	1.81	ug/L		98
33) Methyl acrylate	4.068	55	24748	2.03	ug/L	#	88
34) Propionitrile	4.749	54	2077	2.56	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	13503	1.92	ug/L		96
36) Tetrahydrofuran	4.290	42	9602	1.88	ug/L		76
37) Methacrylonitrile	4.226	41	17748	2.11	ug/L		90
38) Chloroform	4.419	83	32339	2.15	ug/L		97
39) Cyclohexane	4.727	56	30864	2.23	ug/L	#	79
41) 1,1,1-Trichloroethane	4.634	97	24366	2.16	ug/L		95
43) Carbon tetrachloride	4.863	117	21310	2.34	ug/L		95
44) 1,1-Dichloropropene	4.885	75	23127	2.22	ug/L		88
46) 1,2-Dichloroethane	5.293	62	22372	2.03	ug/L		96
47) Benzene	5.186	78	65749	2.00	ug/L		94
48) Tertiaryamylmethylether	5.451	73	45975	1.98	ug/L	#	91
49) Isobutyl Alcohol	5.443	43	18503	2.39	ug/L	#	58
50) Heptane	5.759	43	16149	2.59	ug/L		95
51) 1,4-Dioxane	6.826	88	37712	183.02	ug/L		97
52) Methylcyclohexane	6.654	83	20710m	1.95	ug/L		
53) n-Butanol	6.382	56	11429m	20.20	ug/L		
54) Trichloroethene	6.353	130	19494	1.93	ug/L		96
55) 1,2-Dichloropropane	6.697	63	20251	2.23	ug/L		93
56) Dibromomethane	6.797	93	13565	2.06	ug/L		90
57) Methyl methacrylate	6.826	41	21614	2.07	ug/L	#	88
58) Bromodichloromethane	7.019	83	24814	2.27	ug/L		93
59) 2-Chloroethyl vinyl ether	7.334	43	10479	2.95	ug/L	#	82
60) 2-Nitropropane	7.241	43	9866	2.61	ug/L	#	91
61) cis-1,3-Dichloropropene	7.449	75	28961	2.31	ug/L		88
63) 4-Methyl-2-pentanone	7.592	43	25870	1.67	ug/L		93
65) Toluene	7.728	91	66695	2.06	ug/L		96
66) trans-1,3-Dichloropropene	7.943	75	27490	2.32	ug/L		91
67) Chloropicrin	7.950	117	729	No Calib			
68) Ethyl methacrylate	8.001	69	29786	2.31	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	19396	2.17	ug/L		99
70) Tetrachloroethene	8.130	166	17532	1.96	ug/L		90
71) 1,3-Dichloropropane	8.201	76	27398	2.06	ug/L		93
72) 2-Hexanone	8.251	43	22109	1.83	ug/L		93
73) Chlorodibromomethane	8.352	129	22518	2.32	ug/L		99
74) Butyl acetate	8.344	43	36363	1.82	ug/L	#	90
75) 1,2-Dibromoethane	8.423	107	22535	2.27	ug/L		94
76) Chlorobenzene	8.753	112	47771	2.18	ug/L		93
77) 1,1,1,2-Tetrachloroethane	8.810	131	18207	2.26	ug/L		92
78) Ethylbenzene	8.817	91	74547	2.13	ug/L		100
79) m/p-Xylene	8.896	91	110316	4.29	ug/L		100
80) Styrene	9.140	104	47340	2.14	ug/L		96
81) o-Xylene	9.125	91	57643	2.07	ug/L		96
82) Cyclohexanone	9.390	55	21381	15.87	ug/L		92
83) Bromoform	9.247	173	15750	1.98	ug/L		100
84) Isopropylbenzene	9.333	105	66713	2.10	ug/L		98
86) Bromobenzene	9.512	77	43059	2.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	30581	2.11	ug/L		96
88) 1,2,3-Trichloropropane	9.541	110	7695	1.83	ug/L		89
89) trans-1,4-Dichloro-2-b...	9.526	53	10014	2.68	ug/L		82
90) n-Propylbenzene	9.562	91	81080	2.11	ug/L		97
91) 2-Chlorotoluene	9.612	91	49680	2.09	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

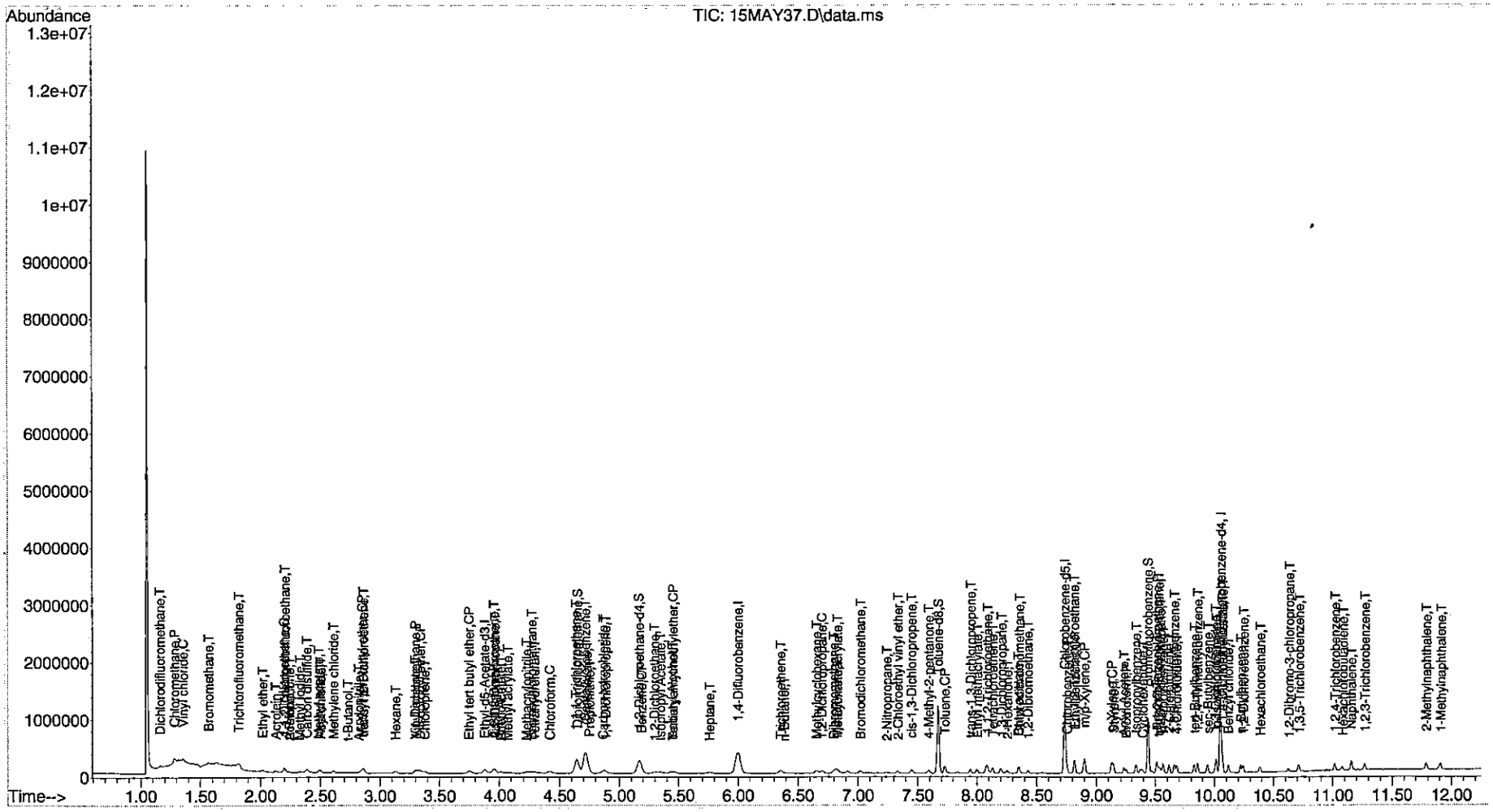
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	53475	2.03	ug/L		99
93) 1,3,5-Trimethylbenzene	9.655	105	55251	2.18	ug/L		96
94) tert-Butylbenzene	9.827	91	31106	2.05	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	58428	2.11	ug/L		94
96) sec-Butylbenzene	9.942	105	63838	2.08	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	33229	1.91	ug/L		97
99) p-Isopropyltoluene	10.013	119	55838	2.25	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	34169	1.93	ug/L		91
101) 1,2,3-Trimethylbenzene	10.064	105	56130	2.00	ug/L		96
102) Benzyl chloride	10.114	91	46703	3.58	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	32202	1.87	ug/L		91
104) n-Butylbenzene	10.221	91	49453	2.21	ug/L		100
105) Hexachloroethane	10.386	117	12149	2.17	ug/L		92
106) 1,2-Dibromo-3-chloropr...	10.629	157	9991	2.40	ug/L		99
107) 1,3,5-Trichlorobenzene	10.715	180	23403	2.00	ug/L		100
108) 1,2,4-Trichlorobenzene	11.016	180	22850	1.90	ug/L		99
109) Hexachlorobutadiene	11.081	225	7764	2.00	ug/L		92
110) Naphthalene	11.152	128	83966	2.09	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	23116	1.95	ug/L		94
112) 2-Methylnaphthalene	11.783	142	41741	2.22	ug/L		96
113) 1-Methylnaphthalene	11.904	142	38682	2.09	ug/L		97
115) 2-Propanone	2.242	43	12253	1.42	ug/L	#	77
116) Acetic Ether	4.011	43	29654	1.55	ug/L	#	81
117) Isopropyl Acetate	5.343	61	13666	1.93	ug/L	#	75
118) Amyl Acetate	9.226	43	33626	1.64	ug/L		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	352448	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	529324	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	477074	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	237433	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109613	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182632	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	177885	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	615517	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	221934	20.54	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	31607	3.74	ug/L		99
3) Chloromethane	1.282	50	48735	2.99	ug/L		90
4) Vinyl chloride	1.353	62	37796	3.31	ug/L	#	38
5) Bromomethane	1.568	96	16036	1.39	ug/L		90
6) Chloroethane	1.640	64	39671	1.21	ug/L	#	61
7) Trichlorofluoromethane	1.812	101	38338	3.31	ug/L		97
8) Ethyl ether	2.019	59	27155	3.86	ug/L		97
9) Acrolein	2.127	56	37040	31.38	ug/L		92
10) 1,1-Dichloroethene	2.199	61	41216	4.28	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.206	151	23118	4.27	ug/L		98
12) Methyl iodide	2.327	142	28724	3.45	ug/L		95
13) Acetone	2.234	43	18409	2.60	ug/L		95
14) Chloroprene	3.373	53	45447	4.31	ug/L		99
15) Carbon disulfide	2.392	76	90839	4.44	ug/L		98
16) Allyl chloride	2.499	41	48925	3.88	ug/L		87
17) Methyl acetate	2.485	43	46105	3.19	ug/L	#	95
18) Acetonitrile	2.499	41	48925	3.88	ug/L		89
19) Methylene chloride	2.607	49	43239	3.55	ug/L		92
20) trans-1,2-Dichloroethene	2.858	61	45556	4.21	ug/L		97
21) t-Butanol	2.729	59	48671	16.82	ug/L	#	76
22) Acrylonitrile	2.822	53	21858	3.87	ug/L		91
23) Methyl tert-butyl ether	2.850	73	92128	3.64	ug/L		97
24) Hexane	3.130	57	32991	4.41	ug/L		94
25) 1,1-Dichloroethane	3.294	63	62323	4.33	ug/L		96
26) Diisopropyl ether	3.337	45	94027	3.38	ug/L	#	23
27) Vinyl acetate	3.302	86	5659	7.82	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	91455	3.59	ug/L		96
29) 2,2-Dichloropropane	3.961	77	44197	4.66	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	53356	3.87	ug/L		99
31) 2-Butanone	3.953	43	35378	3.71	ug/L		90
32) Ethyl Acetate	4.011	43	56163	3.33	ug/L	#	94
33) Methyl acrylate	4.068	55	49635	3.94	ug/L		96
34) Propionitrile	4.741	54	4584	5.47	ug/L	#	81

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.261	49	28260	3.89	ug/L		95
36) Tetrahydrofuran	4.283	42	19978	3.79	ug/L		96
37) Methacrylonitrile	4.226	41	30082	3.47	ug/L	#	92
38) Chloroform	4.412	83	61043	3.93	ug/L		99
39) Cyclohexane	4.734	56	52815	3.69	ug/L	#	88
41) 1,1,1-Trichloroethane	4.634	97	51689	4.41	ug/L		90
43) Carbon tetrachloride	4.863	117	42414	4.20	ug/L		97
44) 1,1-Dichloropropene	4.878	75	47608	4.40	ug/L		97
46) 1,2-Dichloroethane	5.293	62	44292	3.87	ug/L		97
47) Benzene	5.186	78	134612	3.96	ug/L		95
48) Tertiaryamylmethylether	5.451	73	90754	3.76	ug/L		94
49) Isobutyl Alcohol	5.451	43	33041	4.11	ug/L		93
50) Heptane	5.759	43	30311	4.68	ug/L		96
51) 1,4-Dioxane	6.826	88	73339	343.07	ug/L		88
52) Methylcyclohexane	6.654	83	47485	4.30	ug/L		97
53) n-Butanol	6.360	56	22872	38.96	ug/L	#	71
54) Trichloroethene	6.360	130	36432	3.48	ug/L		96
55) 1,2-Dichloropropane	6.704	63	39705m	4.22	ug/L		
56) Dibromomethane	6.797	93	31188	4.57	ug/L		91
57) Methyl methacrylate	6.826	41	43259	3.99	ug/L		99
58) Bromodichloromethane	7.019	83	49614	4.37	ug/L		97
59) 2-Chloroethyl vinyl ether	7.327	43	17369	4.72	ug/L		90
60) 2-Nitropropane	7.241	43	19148	4.88	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	57823	4.44	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	63747	3.95	ug/L		95
65) Toluene	7.728	91	142128	4.23	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	54813	4.46	ug/L		86
67) Chloropicrin	7.950	117	896	No Calib		#	
68) Ethyl methacrylate	8.001	69	58066	4.33	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	37097	4.00	ug/L		99
70) Tetrachloroethene	8.130	166	37079	3.99	ug/L		97
71) 1,3-Dichloropropane	8.201	76	55249	3.99	ug/L		95
72) 2-Hexanone	8.251	43	44283	3.53	ug/L		92
73) Chlorodibromomethane	8.352	129	42511	4.22	ug/L		96
74) Butyl acetate	8.344	43	78027	3.75	ug/L	#	96
75) 1,2-Dibromoethane	8.423	107	41675	4.05	ug/L		98
76) Chlorobenzene	8.753	112	93850	4.12	ug/L		94
77) 1,1,1,2-Tetrachloroethane	8.810	131	34887	4.17	ug/L		97
78) Ethylbenzene	8.817	91	148591	4.08	ug/L		99
79) m/p-Xylene	8.896	91	230052	8.61	ug/L		98
80) Styrene	9.140	104	94891	4.13	ug/L		95
81) o-Xylene	9.125	91	119371	4.13	ug/L		100
82) Cyclohexanone	9.390	55	28261	20.19	ug/L		95
83) Bromoform	9.247	173	32567	3.94	ug/L		93
84) Isopropylbenzene	9.333	105	143269	4.34	ug/L		100
86) Bromobenzene	9.512	77	89162	4.02	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	63732	4.23	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	17461	4.00	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	16630	4.29	ug/L		96
90) n-Propylbenzene	9.562	91	163425	4.10	ug/L		96
91) 2-Chlorotoluene	9.612	91	97397	3.94	ug/L		99

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

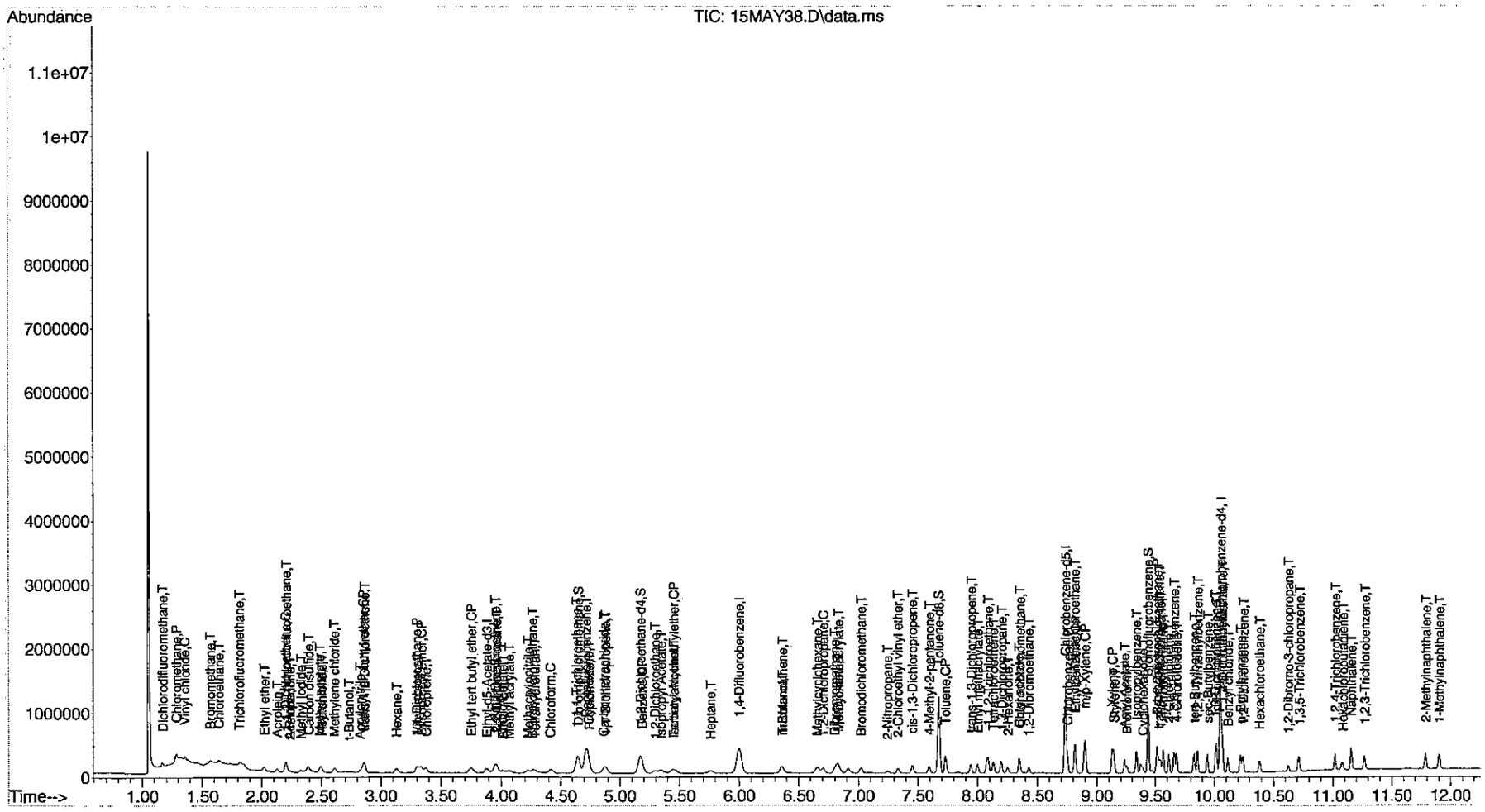
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	115808	4.23	ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	117494	4.46	ug/L	97
94) tert-Butylbenzene	9.827	91	65724	4.17	ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	118426	4.12	ug/L	98
96) sec-Butylbenzene	9.942	105	133408	4.19	ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	70068	3.96	ug/L	99
99) p-Isopropyltoluene	10.013	119	108637	4.30	ug/L	97
100) 1,4-Dichlorobenzene	10.064	146	71386	3.98	ug/L	96
101) 1,2,3-Trimethylbenzene	10.064	105	117499	4.12	ug/L	99
102) Benzyl chloride	10.114	91	89346	6.73	ug/L	99
103) 1,2-Dichlorobenzene	10.243	146	70158	4.02	ug/L	97
104) n-Butylbenzene	10.221	91	100030	4.40	ug/L	99
105) Hexachloroethane	10.379	117	23315	4.09	ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.622	157	19528	4.62	ug/L	96
107) 1,3,5-Trichlorobenzene	10.715	180	48362	4.06	ug/L	95
108) 1,2,4-Trichlorobenzene	11.016	180	46830	3.84	ug/L	99
109) Hexachlorobutadiene	11.081	225	16475	4.18	ug/L	98
110) Naphthalene	11.152	128	172129	4.21	ug/L	100
111) 1,2,3-Trichlorobenzene	11.267	180	45843	3.81	ug/L	97
112) 2-Methylnaphthalene	11.783	142	87362	4.57	ug/L	98
113) 1-Methylnaphthalene	11.897	142	78822	4.19	ug/L	96
115) 2-Propanone	2.234	43	18409	2.19	ug/L	93
116) Acetic Ether	4.011	43	59749m	2.89	ug/L	
117) Isopropyl Acetate	5.343	61	24808	3.26	ug/L	95
118) Amyl Acetate	9.225	43	68161	3.09	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	340633	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	517885	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	468070	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	240783	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	106804	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181506	20.21	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.05%				
45) 1,2-Dichloroethane-d4	5.164	65	172360	20.00	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.00%				
64) Toluene-d8	7.671	98	604887	20.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.50%				
85) Bromofluorobenzene	9.433	95	221410	20.89	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	76432	9.36	ug/L		96
3) Chloromethane	1.282	50	112231	7.12	ug/L		96
4) Vinyl chloride	1.353	62	89186	8.08	ug/L		71
5) Bromomethane	1.568	96	33561	3.61	ug/L		97
6) Chloroethane	1.640	64	57603	4.42	ug/L		92
7) Trichlorofluoromethane	1.819	101	86710	7.76	ug/L		99
8) Ethyl ether	2.019	59	65726	9.68	ug/L		93
9) Acrolein	2.127	56	87651	102.52	ug/L		97
10) 1,1-Dichloroethene	2.198	61	100483	10.79	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.198	151	52662	10.07	ug/L		97
12) Methyl iodide	2.320	142	58645	7.20	ug/L		99
13) Acetone	2.234	43	53777m	9.23	ug/L		
14) Chloroprene	3.373	53	104594	10.27	ug/L		99
15) Carbon disulfide	2.385	76	210877	10.67	ug/L		98
16) Allyl chloride	2.499	41	116161	9.54	ug/L		94
17) Methyl acetate	2.485	43	101331	7.25	ug/L	#	94
18) Acetonitrile	2.499	41	116161	9.54	ug/L	#	95
19) Methylene chloride	2.607	49	102482	8.71	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	108673	10.40	ug/L		96
21) t-Butanol	2.721	59	119445m	42.70	ug/L		
22) Acrylonitrile	2.822	53	51538	9.29	ug/L		94
23) Methyl tert-butyl ether	2.850	73	214910	8.80	ug/L		100
24) Hexane	3.130	57	79672	11.01	ug/L		96
25) 1,1-Dichloroethane	3.301	63	150448	10.81	ug/L		98
26) Diisopropyl ether	3.330	45	221540	8.24	ug/L	#	17
27) Vinyl acetate	3.294	86	13926	17.71	ug/L	#	1
28) Ethyl tert butyl ether	3.746	59	222810	9.04	ug/L		100
29) 2,2-Dichloropropane	3.961	77	106004	11.56	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	128063	9.61	ug/L		97
31) 2-Butanone	3.953	43	78637	8.93	ug/L		98
32) Ethyl Acetate	4.011	43	132948	8.16	ug/L		95
33) Methyl acrylate	4.068	55	124673	10.24	ug/L	#	96
34) Propionitrile	4.741	54	7327	9.05	ug/L	#	71

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	67233	9.59 ug/L		99
36) Tetrahydrofuran	4.290	42	46966	9.22 ug/L		92
37) Methacrylonitrile	4.218	41	77818	9.28 ug/L		95
38) Chloroform	4.419	83	146546	9.76 ug/L		99
39) Cyclohexane	4.734	56	120921	8.75 ug/L		96
41) 1,1,1-Trichloroethane	4.634	97	122214	10.67 ug/L		98
43) Carbon tetrachloride	4.863	117	100287	9.73 ug/L		98
44) 1,1-Dichloropropene	4.877	75	107449	10.14 ug/L		98
46) 1,2-Dichloroethane	5.293	62	107657	9.61 ug/L		97
47) Benzene	5.178	78	314962	9.46 ug/L		99
48) Tertiaryamylmethylether	5.458	73	219892	9.31 ug/L		98
49) Isobutyl Alcohol	5.450	43	67516	8.59 ug/L		99
50) Heptane	5.758	43	68974	10.88 ug/L		95
51) 1,4-Dioxane	6.826	88	192256	919.22 ug/L		92
52) Methylcyclohexane	6.654	83	109298	10.13 ug/L		98
53) n-Butanol	6.367	56	55250	96.20 ug/L	#	95
54) Trichloroethene	6.353	130	88762	8.67 ug/L		99
55) 1,2-Dichloropropane	6.704	63	87483	9.51 ug/L		98
56) Dibromomethane	6.797	93	66312	9.94 ug/L		99
57) Methyl methacrylate	6.819	41	104038	9.82 ug/L		98
58) Bromodichloromethane	7.019	83	119836	10.80 ug/L		96
59) 2-Chloroethyl vinyl ether	7.334	43	45490	12.63 ug/L		99
60) 2-Nitropropane	7.241	43	43718	11.39 ug/L	#	94
61) cis-1,3-Dichloropropene	7.449	75	142406	11.17 ug/L		98
63) 4-Methyl-2-pentanone	7.592	43	137218	8.68 ug/L		98
65) Toluene	7.728	91	334782	10.16 ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	135420	11.23 ug/L		99
67) Chloropicrin	7.950	117	1907	No Calib	#	
68) Ethyl methacrylate	8.000	69	138970	10.56 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	90318	9.91 ug/L		99
70) Tetrachloroethene	8.129	166	88639	9.72 ug/L		97
71) 1,3-Dichloropropane	8.201	76	136286	10.04 ug/L		97
72) 2-Hexanone	8.251	43	110634	8.98 ug/L		96
73) Chlorodibromomethane	8.351	129	103601	10.48 ug/L		98
74) Butyl acetate	8.344	43	177057	8.68 ug/L		96
75) 1,2-Dibromoethane	8.423	107	98887	9.79 ug/L		96
76) Chlorobenzene	8.753	112	222506	9.95 ug/L		96
77) 1,1,1,2-Tetrachloroethane	8.810	131	85054	10.35 ug/L		98
78) Ethylbenzene	8.817	91	353024	9.89 ug/L		100
79) m/p-Xylene	8.896	91	538211	20.52 ug/L		99
80) Styrene	9.139	104	229206	10.16 ug/L		96
81) o-Xylene	9.125	91	290111	10.23 ug/L		96
82) Cyclohexanone	9.390	55	50345	36.67 ug/L		96
83) Bromoform	9.247	173	82555	10.17 ug/L		95
84) Isopropylbenzene	9.333	105	336657	10.40 ug/L		98
86) Bromobenzene	9.512	77	213637	9.81 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	154100	10.43 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	39605	9.25 ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	38105	10.02 ug/L		93
90) n-Propylbenzene	9.562	91	394365	10.08 ug/L		97
91) 2-Chlorotoluene	9.612	91	234330	9.67 ug/L		93

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

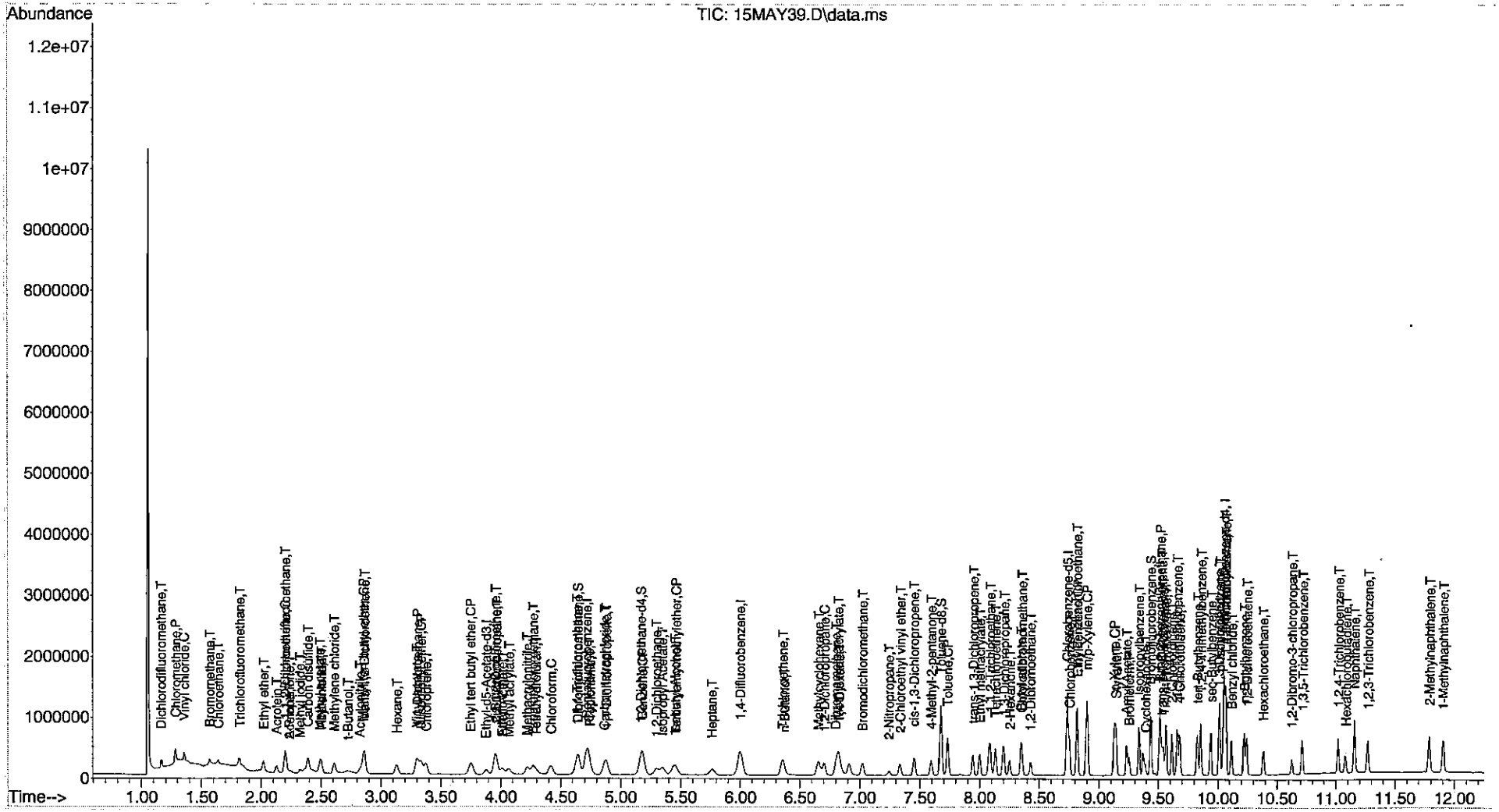
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	273644	10.18	ug/L		95
93) 1,3,5-Trimethylbenzene	9.655	105	264836	10.25	ug/L		99
94) tert-Butylbenzene	9.827	91	156481	10.12	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	284569	10.09	ug/L		95
96) sec-Butylbenzene	9.942	105	313863	10.04	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	168012	9.37	ug/L		99
99) p-Isopropyltoluene	10.013	119	273147	10.66	ug/L		98
100) 1,4-Dichlorobenzene	10.063	146	173185	9.52	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	290064	10.03	ug/L		97
102) Benzyl chloride	10.114	91	218901	16.27	ug/L		99
103) 1,2-Dichlorobenzene	10.242	146	170636	9.63	ug/L		99
104) n-Butylbenzene	10.221	91	236523	10.26	ug/L		99
105) Hexachloroethane	10.379	117	56186	9.72	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.622	157	43607	10.17	ug/L		94
107) 1,3,5-Trichlorobenzene	10.715	180	109119	9.03	ug/L		97
108) 1,2,4-Trichlorobenzene	11.016	180	116016	9.37	ug/L		99
109) Hexachlorobutadiene	11.081	225	38354	9.60	ug/L		99
110) Naphthalene	11.152	128	427113	10.30	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	112225	9.19	ug/L		99
112) 2-Methylnaphthalene	11.783	142	216787	11.17	ug/L		99
113) 1-Methylnaphthalene	11.897	142	206205	10.80	ug/L		97
115) 2-Propanone	2.234	43	53777m	7.60	ug/L		
116) Acetic Ether	4.011	43	132948	6.61	ug/L	#	98
117) Isopropyl Acetate	5.343	61	59190	7.97	ug/L		96
118) Amyl Acetate	9.225	43	171320	7.97	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341042	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	514805	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	466588	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	235133	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	104617	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181633	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.164	65	172998	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	604432	20.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.70%				
85) Bromofluorobenzene	9.433	95	224637	21.26	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	264461	32.36	ug/L		98
3) Chloromethane	1.282	50	431373	27.34	ug/L		98
4) Vinyl chloride	1.353	62	333899	30.23	ug/L		96
5) Bromomethane	1.568	96	107875	13.04	ug/L		97
6) Chloroethane	1.640	64	182788m	25.43	ug/L		
7) Trichlorofluoromethane	1.819	101	349400	31.22	ug/L		99
8) Ethyl ether	2.019	59	260201	38.27	ug/L		99
9) Acrolein	2.127	56	256116	302.57	ug/L		100
10) 1,1-Dichloroethene	2.199	61	396546	42.55	ug/L		94
11) 1,1,2-Trichlorotrifluo...	2.206	151	201533	38.49	ug/L		99
12) Methyl iodide	2.327	142	201505m	26.45	ug/L		
13) Acetone	2.234	43	163480	29.39	ug/L		100
14) Chloroprene	3.373	53	409693	40.19	ug/L		99
15) Carbon disulfide	2.385	76	852539	43.10	ug/L		98
16) Allyl chloride	2.499	41	457352	37.52	ug/L		96
17) Methyl acetate	2.485	43	418992	29.94	ug/L		98
18) Acetonitrile	2.499	41	457352	37.52	ug/L	#	98
19) Methylene chloride	2.607	49	409920	34.78	ug/L		97
20) trans-1,2-Dichloroethene	2.857	61	436320	41.70	ug/L		98
21) t-Butanol	2.721	59	469103m	167.51	ug/L		
22) Acrylonitrile	2.815	53	205871	36.74	ug/L		99
23) Methyl tert-butyl ether	2.850	73	883042	36.10	ug/L		99
24) Hexane	3.130	57	297389	41.05	ug/L		97
25) 1,1-Dichloroethane	3.294	63	595288	42.71	ug/L		98
26) Diisopropyl ether	3.330	45	900154	33.46	ug/L	#	23
27) Vinyl acetate	3.294	86	51291	56.67	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	881030	35.70	ug/L		100
29) 2,2-Dichloropropane	3.961	77	411371	44.80	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	518043	38.83	ug/L		98
31) 2-Butanone	3.946	43	285553	33.22	ug/L		98
32) Ethyl Acetate	4.011	43	540376	33.11	ug/L	#	98
33) Methyl acrylate	4.061	55	515083	42.24	ug/L		99
34) Propionitrile	4.727	54	28092	34.67	ug/L	#	81

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	272530	38.82	ug/L		98
36) Tetrahydrofuran	4.283	42	194100	38.04	ug/L		97
37) Methacrylonitrile	4.218	41	317453	37.80	ug/L		96
38) Chloroform	4.419	83	595101	39.59	ug/L		100
39) Cyclohexane	4.734	56	445159	32.18	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	468714	41.16	ug/L		97
43) Carbon tetrachloride	4.863	117	418577	39.88	ug/L		98
44) 1,1-Dichloropropene	4.877	75	412685	39.18	ug/L		99
46) 1,2-Dichloroethane	5.293	62	419522	37.67	ug/L		98
47) Benzene	5.178	78	1302054	39.34	ug/L		100
48) Tertiaryamylmethylether	5.443	73	871552	37.12	ug/L		99
49) Isobutyl Alcohol	5.443	43	260509	33.34	ug/L		99
50) Heptane	5.759	43	251230	39.86	ug/L		96
51) 1,4-Dioxane	6.826	88	730024	3511.30	ug/L		90
52) Methylcyclohexane	6.654	83	418506	39.01	ug/L		96
53) n-Butanol	6.346	56	257409	450.88	ug/L	#	94
54) Trichloroethene	6.353	130	354970	34.87	ug/L		99
55) 1,2-Dichloropropane	6.704	63	355458	38.86	ug/L		98
56) Dibromomethane	6.797	93	268426	40.47	ug/L		97
57) Methyl methacrylate	6.819	41	394600	37.45	ug/L		97
58) Bromodichloromethane	7.019	83	480420	43.55	ug/L		95
59) 2-Chloroethyl vinyl ether	7.334	43	164604	45.99	ug/L		93
60) 2-Nitropropane	7.241	43	164250	43.06	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	573516	45.27	ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	546854	34.69	ug/L		98
65) Toluene	7.728	91	1342864	40.90	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	518884	43.16	ug/L		99
67) Chloropicrin	7.943	117	35830	No Calib		#	
68) Ethyl methacrylate	8.001	69	541732	41.28	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	351563	38.72	ug/L		99
70) Tetrachloroethene	8.129	166	339156	37.31	ug/L		98
71) 1,3-Dichloropropane	8.201	76	536613	39.65	ug/L		97
72) 2-Hexanone	8.251	43	444478	36.19	ug/L		96
73) Chlorodibromomethane	8.352	129	431353	43.78	ug/L		99
74) Butyl acetate	8.344	43	729024	35.85	ug/L		98
75) 1,2-Dibromoethane	8.423	107	400863	39.81	ug/L		99
76) Chlorobenzene	8.753	112	892014	40.02	ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	331852	40.52	ug/L		98
78) Ethylbenzene	8.817	91	1442302	40.52	ug/L		99
79) m/p-Xylene	8.896	91	2198523	84.09	ug/L		99
80) Styrene	9.139	104	928801	41.31	ug/L		97
81) o-Xylene	9.125	91	1149546	40.65	ug/L		98
82) Cyclohexanone	9.390	55	188808	137.95	ug/L		96
83) Bromoform	9.247	173	335758	41.51	ug/L		98
84) Isopropylbenzene	9.333	105	1339417	41.50	ug/L		100
86) Bromobenzene	9.512	77	856759	39.48	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	604051	41.03	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	154912	36.31	ug/L		96
89) trans-1,4-Dichloro-2-b...	9.526	53	152996	40.37	ug/L		93
90) n-Propylbenzene	9.562	91	1581314	40.53	ug/L		99
91) 2-Chlorotoluene	9.612	91	941697	38.99	ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

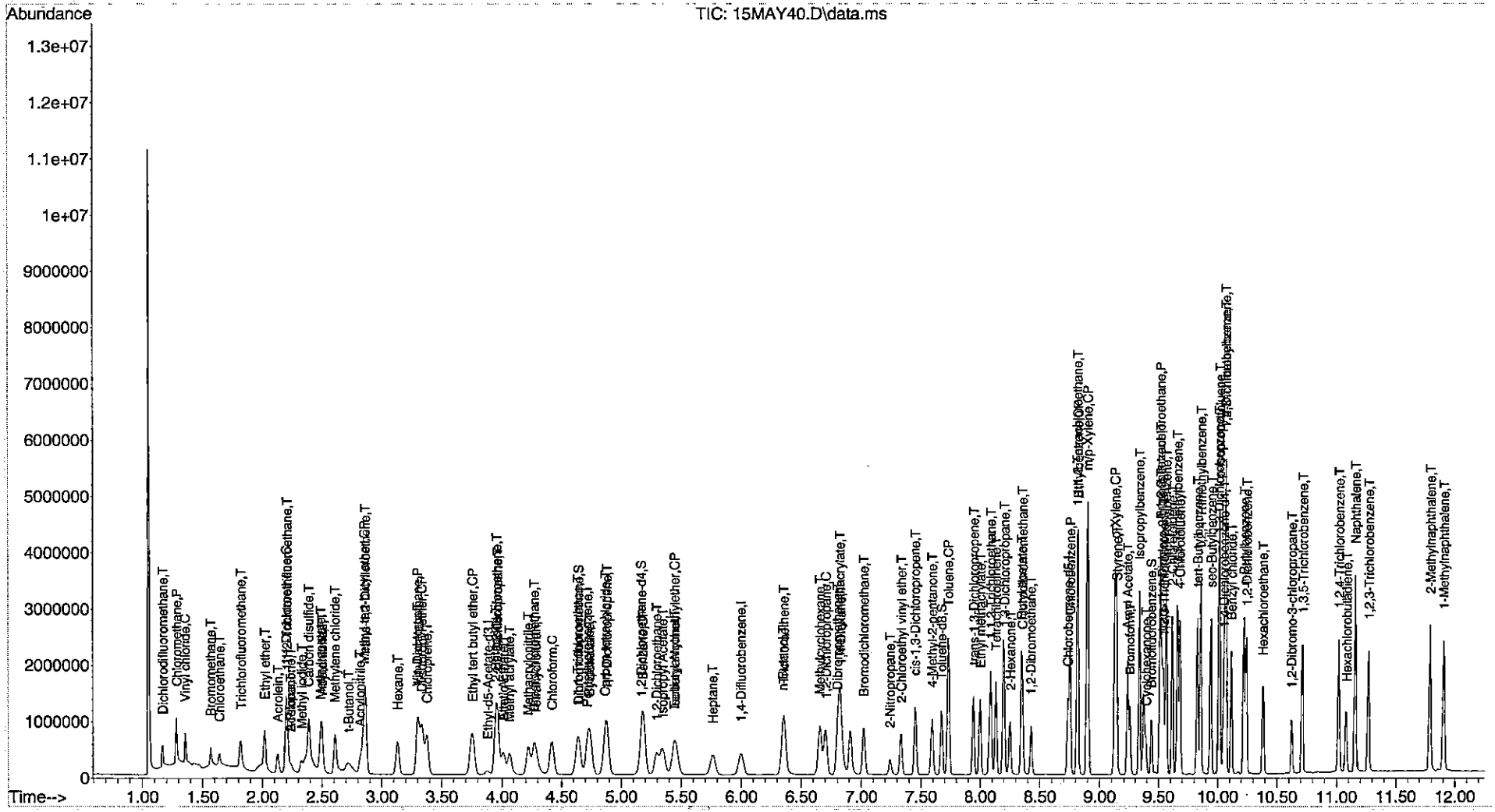
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1088923	40.63	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1074792	41.72	ug/L		99
94) tert-Butylbenzene	9.827	91	615392	39.91	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	1135887	40.42	ug/L		98
96) sec-Butylbenzene	9.942	105	1272781	40.84	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	692240	39.53	ug/L		98
99) p-Isopropyltoluene	10.013	119	1093083	43.68	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	691504	38.92	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	1156396	40.94	ug/L		99
102) Benzyl chloride	10.114	91	903207	68.73	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	683110	39.49	ug/L		99
104) n-Butylbenzene	10.221	91	982336	43.64	ug/L		100
105) Hexachloroethane	10.379	117	238723	42.29	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	179820	42.93	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	462739	39.22	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	454723	37.62	ug/L		99
109) Hexachlorobutadiene	11.081	225	151025	38.71	ug/L		99
110) Naphthalene	11.152	128	1737952	42.90	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	474629	39.80	ug/L		99
112) 2-Methylnaphthalene	11.783	142	909577	48.01	ug/L		99
113) 1-Methylnaphthalene	11.897	142	862197	46.25	ug/L		97
115) 2-Propanone	2.234	43	175322m	26.51	ug/L		
116) Acetic Ether	4.011	43	540376	27.41	ug/L	#	98
117) Isopropyl Acetate	5.343	61	230031	31.63	ug/L		97
118) Amyl Acetate	9.225	43	661940	31.44	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	352748	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	538528	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	464547	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	247861	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	111377	20.00	ug/L		#-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	184248	19.73	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%				
45) 1,2-Dichloroethane-d4	5.164	65	177505	19.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.05%				
64) Toluene-d8	7.671	98	622745	21.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.25%				
85) Bromofluorobenzene	9.433	95	223431	21.24	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	498675	59.00	ug/L		99
3) Chloromethane	1.282	50	785848	48.16	ug/L		97
4) Vinyl chloride	1.353	62	609541	53.36	ug/L		97
5) Bromomethane	1.568	96	183748	22.43	ug/L		100
6) Chloroethane	1.640	64	288871m	41.81	ug/L		
7) Trichlorofluoromethane	1.812	101	675653m	58.37	ug/L		
8) Ethyl ether	2.019	59	455604	64.79	ug/L		99
9) Acrolein	2.127	56	479389	508.14	ug/L		100
10) 1,1-Dichloroethene	2.199	61	699504	72.56	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.199	151	367043	67.78	ug/L		97
12) Methyl iodide	2.320	142	347481m	49.31	ug/L		
13) Acetone	2.234	43	287382	50.41	ug/L		97
14) Chloroprene	3.373	53	727249	68.97	ug/L		99
15) Carbon disulfide	2.385	76	1526157	74.60	ug/L		100
16) Allyl chloride	2.499	41	793388	62.93	ug/L		95
17) Methyl acetate	2.485	43	691136	47.75	ug/L		97
18) Acetonitrile	2.499	41	793388	62.93	ug/L	#	98
19) Methylene chloride	2.607	49	722014m	59.23	ug/L		
20) trans-1,2-Dichloroethene	2.857	61	771709	71.31	ug/L		98
21) t-Butanol	2.729	59	797655	275.38	ug/L		96
22) Acrylonitrile	2.815	53	365170	62.93	ug/L		97
23) Methyl tert-butyl ether	2.850	73	1516761	59.96	ug/L		98
24) Hexane	3.130	57	550302	73.43	ug/L		95
25) 1,1-Dichloroethane	3.294	63	1046582	72.60	ug/L		98
26) Diisopropyl ether	3.330	45	1537078	55.23	ug/L	#	16
27) Vinyl acetate	3.294	86	99780	96.84	ug/L	#	2
28) Ethyl tert butyl ether	3.753	59	1501703	58.82	ug/L		99
29) 2,2-Dichloropropane	3.961	77	734173	77.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	930982	67.47	ug/L		99
31) 2-Butanone	3.946	43	490334	55.36	ug/L		98
32) Ethyl Acetate	4.011	43	954504	56.55	ug/L	#	98
33) Methyl acrylate	4.061	55	903784	71.66	ug/L		99
34) Propionitrile	4.741	54	51691	61.68	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	483631	66.60 ug/L		97
36) Tetrahydrofuran	4.290	42	348457	66.03 ug/L		97
37) Methacrylonitrile	4.226	41	553120	63.68 ug/L		95
38) Chloroform	4.419	83	1054933	67.85 ug/L		98
39) Cyclohexane	4.734	56	802422	56.08 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	840034	70.52 ug/L		98
43) Carbon tetrachloride	4.863	117	747250	67.84 ug/L		98
44) 1,1-Dichloropropene	4.877	75	723963	65.71 ug/L		98
46) 1,2-Dichloroethane	5.293	62	744154	63.87 ug/L		98
47) Benzene	5.178	78	2270113	65.57 ug/L		99
48) Tertiaryamylmethylether	5.451	73	1478878	60.21 ug/L		98
49) Isobutyl Alcohol	5.451	43	442205	54.10 ug/L		98
50) Heptane	5.759	43	451783	68.53 ug/L		95
51) 1,4-Dioxane	6.826	88	1345358	6185.90 ug/L		91
52) Methylcyclohexane	6.654	83	751822	66.99 ug/L		96
53) n-Butanol	6.346	56	451461	755.94 ug/L	#	95
54) Trichloroethene	6.353	130	625592	58.75 ug/L		99
55) 1,2-Dichloropropane	6.704	63	621073	64.91 ug/L		97
56) Dibromomethane	6.797	93	468488	67.52 ug/L		98
57) Methyl methacrylate	6.819	41	713046	64.69 ug/L		96
58) Bromodichloromethane	7.019	83	845547	73.28 ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	297005	79.32 ug/L		92
60) 2-Nitropropane	7.241	43	295491	74.05 ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1000261	75.48 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	960026	61.16 ug/L		98
65) Toluene	7.728	91	2390402	73.12 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	935489	78.15 ug/L		99
67) Chloropicrin	7.943	117	475300	No Calib	#	
68) Ethyl methacrylate	8.001	69	938963	71.86 ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	616256	68.16 ug/L		99
70) Tetrachloroethene	8.130	166	610385	67.44 ug/L		97
71) 1,3-Dichloropropane	8.201	76	954823	70.86 ug/L		95
72) 2-Hexanone	8.251	43	757709	61.97 ug/L		97
73) Chlorodibromomethane	8.352	129	744243	75.87 ug/L		98
74) Butyl acetate	8.344	43	1237166	61.11 ug/L		97
75) 1,2-Dibromoethane	8.423	107	705715	70.40 ug/L		98
76) Chlorobenzene	8.753	112	1563236	70.45 ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	599990	73.58 ug/L		97
78) Ethylbenzene	8.817	91	2586877	72.99 ug/L		98
79) m/p-Xylene	8.896	91	3939460	151.35 ug/L		98
80) Styrene	9.139	104	1627340	72.69 ug/L		97
81) o-Xylene	9.125	91	2038599	72.41 ug/L		98
82) Cyclohexanone	9.390	55	305153	223.93 ug/L		97
83) Bromoform	9.247	173	598318	74.30 ug/L		97
84) Isopropylbenzene	9.333	105	2378514	74.01 ug/L		100
86) Bromobenzene	9.512	77	1531131	70.86 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	1096044	74.77 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	266704	62.78 ug/L		95
89) trans-1,4-Dichloro-2-b...	9.526	53	274997	72.87 ug/L		94
90) n-Propylbenzene	9.562	91	2847403	73.31 ug/L		99
91) 2-Chlorotoluene	9.612	91	1684565	70.05 ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

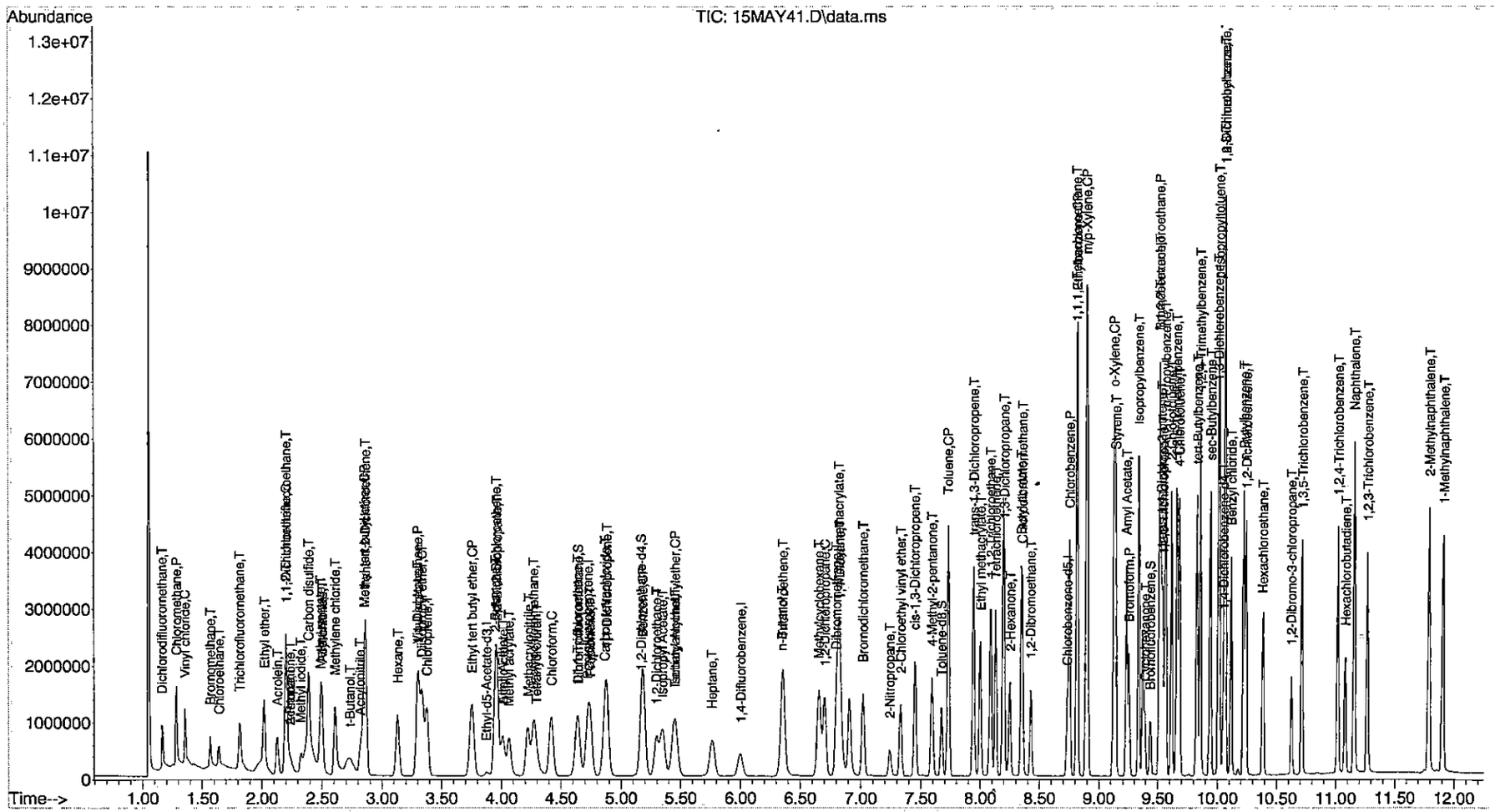
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1928540	72.28	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1908207	74.39	ug/L		99
94) tert-Butylbenzene	9.827	91	1094943	71.33	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2038547	72.85	ug/L		96
96) sec-Butylbenzene	9.942	105	2304509	74.26	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1235868	66.96	ug/L		98
99) p-Isopropyltoluene	10.013	119	1957985	74.23	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1257959	67.16	ug/L		97
101) 1,2,3-Trimethylbenzene	10.064	105	2075226	69.70	ug/L		99
102) Benzyl chloride	10.114	91	1588701	114.69	ug/L		100
103) 1,2-Dichlorobenzene	10.243	146	1222973	67.07	ug/L		99
104) n-Butylbenzene	10.221	91	1714310	72.25	ug/L		99
105) Hexachloroethane	10.379	117	427660	71.86	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	327705	74.21	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	828033	66.58	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	846645	66.44	ug/L		100
109) Hexachlorobutadiene	11.081	225	275124	66.90	ug/L		98
110) Naphthalene	11.152	128	3036904	71.11	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	828579	65.92	ug/L		99
112) 2-Methylnaphthalene	11.783	142	1667628	83.50	ug/L		99
113) 1-Methylnaphthalene	11.904	142	1583542	80.59	ug/L		97
115) 2-Propanone	2.234	43	287382	41.10	ug/L		95
116) Acetic Ether	4.011	43	950130	45.28	ug/L	#	99
117) Isopropyl Acetate	5.343	61	396213	51.17	ug/L		99
118) Amyl Acetate	9.225	43	1169241	52.17	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	355168	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	528490	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	478748	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	251853	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109405	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182207	19.88	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.40%				
45) 1,2-Dichloroethane-d4	5.164	65	180608	20.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.70%				
64) Toluene-d8	7.671	98	626338	20.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.75%				
85) Bromofluorobenzene	9.433	95	227873	21.02	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	721976	84.84	ug/L		100
3) Chloromethane	1.282	50	1089610	66.32	ug/L		98
4) Vinyl chloride	1.353	62	851896	74.07	ug/L		99
5) Bromomethane	1.568	96	270530	34.29	ug/L		98
6) Chloroethane	1.640	64	402774m	60.25	ug/L		
7) Trichlorofluoromethane	1.819	101	909320m	78.02	ug/L		
8) Ethyl ether	2.019	59	630493	89.05	ug/L		100
9) Acrolein	2.127	56	733803	712.86	ug/L		100
10) 1,1-Dichloroethene	2.199	61	972841	100.23	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	522594	95.84	ug/L		98
12) Methyl iodide	2.328	142	503062	90.98	ug/L		99
13) Acetone	2.234	43	413119	72.27	ug/L		97
14) Chloroprene	3.373	53	1027463	96.78	ug/L		100
15) Carbon disulfide	2.385	76	2162401	104.98	ug/L		100
16) Allyl chloride	2.499	41	1096821	86.40	ug/L		92
17) Methyl acetate	2.485	43	997353	68.44	ug/L		98
18) Acetonitrile	2.499	41	1096821	86.40	ug/L	#	97
19) Methylene chloride	2.607	49	997313	81.26	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	1080017	99.12	ug/L		98
21) t-Butanol	2.721	59	1136109	389.56	ug/L		97
22) Acrylonitrile	2.815	53	512540	87.69	ug/L		99
23) Methyl tert-butyl ether	2.850	73	2151294	84.46	ug/L		98
24) Hexane	3.130	57	783747	103.87	ug/L		95
25) 1,1-Dichloroethane	3.295	63	1438757	99.12	ug/L		98
26) Diisopropyl ether	3.330	45	2173870	77.58	ug/L	#	16
27) Vinyl acetate	3.302	86	139251	126.16	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	2161889	84.11	ug/L		100
29) 2,2-Dichloropropane	3.961	77	1015750	106.23	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	1288532	92.75	ug/L		99
31) 2-Butanone	3.946	43	703995	79.07	ug/L		99
32) Ethyl Acetate	4.011	43	1364082	80.26	ug/L	#	99
33) Methyl acrylate	4.061	55	1282725	101.01	ug/L		99
34) Propionitrile	4.741	54	73671	87.31	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	674571	92.26 ug/L	99
36) Tetrahydrofuran	4.290	42	492252	92.64 ug/L	98
37) Methacrylonitrile	4.219	41	792631	90.63 ug/L	97
38) Chloroform	4.419	83	1472361	94.05 ug/L	99
39) Cyclohexane	4.734	56	1127861	78.29 ug/L	98
41) 1,1,1-Trichloroethane	4.634	97	1165891	99.74 ug/L	98
43) Carbon tetrachloride	4.863	117	1067303	98.60 ug/L	98
44) 1,1-Dichloropropene	4.878	75	1048902	97.01 ug/L	98
46) 1,2-Dichloroethane	5.293	62	1054076	92.20 ug/L	98
47) Benzene	5.186	78	3195853	94.06 ug/L	99
48) Tertiaryamylmethylether	5.451	73	2119484	87.94 ug/L	98
49) Isobutyl Alcohol	5.443	43	630977	78.66 ug/L	99
50) Heptane	5.766	43	652580	100.87 ug/L	96
51) 1,4-Dioxane	6.826	88	1903822	8919.96 ug/L	90
52) Methylcyclohexane	6.654	83	1090186	98.98 ug/L	97
53) n-Butanol	6.346	56	667985	1139.74 ug/L #	95
54) Trichloroethene	6.353	130	874547	83.68 ug/L	99
55) 1,2-Dichloropropane	6.704	63	869642	92.62 ug/L	98
56) Dibromomethane	6.797	93	655158	96.22 ug/L	99
57) Methyl methacrylate	6.819	41	1002306	92.67 ug/L	96
58) Bromodichloromethane	7.019	83	1199177	105.90 ug/L	97
59) 2-Chloroethyl vinyl ether	7.334	43	405960	110.48 ug/L	90
60) 2-Nitropropane	7.241	43	422932	108.00 ug/L	91
61) cis-1,3-Dichloropropene	7.449	75	1441089	110.81 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	1359185	84.02 ug/L	98
65) Toluene	7.728	91	3273819	97.17 ug/L	100
66) trans-1,3-Dichloropropene	7.943	75	1340493	108.66 ug/L	97
67) Chloropicrin	7.943	117	1494106	No Calib #	
68) Ethyl methacrylate	8.001	69	1350433	100.28 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	884106	94.89 ug/L	98
70) Tetrachloroethene	8.130	166	863259	92.55 ug/L	97
71) 1,3-Dichloropropane	8.201	76	1322049	95.20 ug/L	96
72) 2-Hexanone	8.251	43	1079952	85.71 ug/L	97
73) Chlorodibromomethane	8.352	129	1077209	106.56 ug/L	99
74) Butyl acetate	8.344	43	1776725	85.16 ug/L	97
75) 1,2-Dibromoethane	8.423	107	993619	96.18 ug/L	99
76) Chlorobenzene	8.753	112	2242966	98.09 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	840333	100.00 ug/L	98
78) Ethylbenzene	8.817	91	3631544	99.43 ug/L	98
79) m/p-Xylene	8.896	91	5448438	203.11 ug/L	99
80) Styrene	9.140	104	2328309	100.92 ug/L	98
81) o-Xylene	9.125	91	2868982	98.88 ug/L	97
82) Cyclohexanone	9.390	55	440267	313.50 ug/L	96
83) Bromoform	9.247	173	863611	104.06 ug/L	99
84) Isopropylbenzene	9.333	105	3306667	99.84 ug/L	99
86) Bromobenzene	9.512	77	2153382	96.70 ug/L	94
87) 1,1,2,2-Tetrachloroethane	9.512	83	1536663	101.72 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	393600	89.91 ug/L	98
89) trans-1,4-Dichloro-2-b...	9.526	53	391280	100.61 ug/L	94
90) n-Propylbenzene	9.562	91	4013237	100.26 ug/L	98
91) 2-Chlorotoluene	9.612	91	2350123	94.82 ug/L	96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

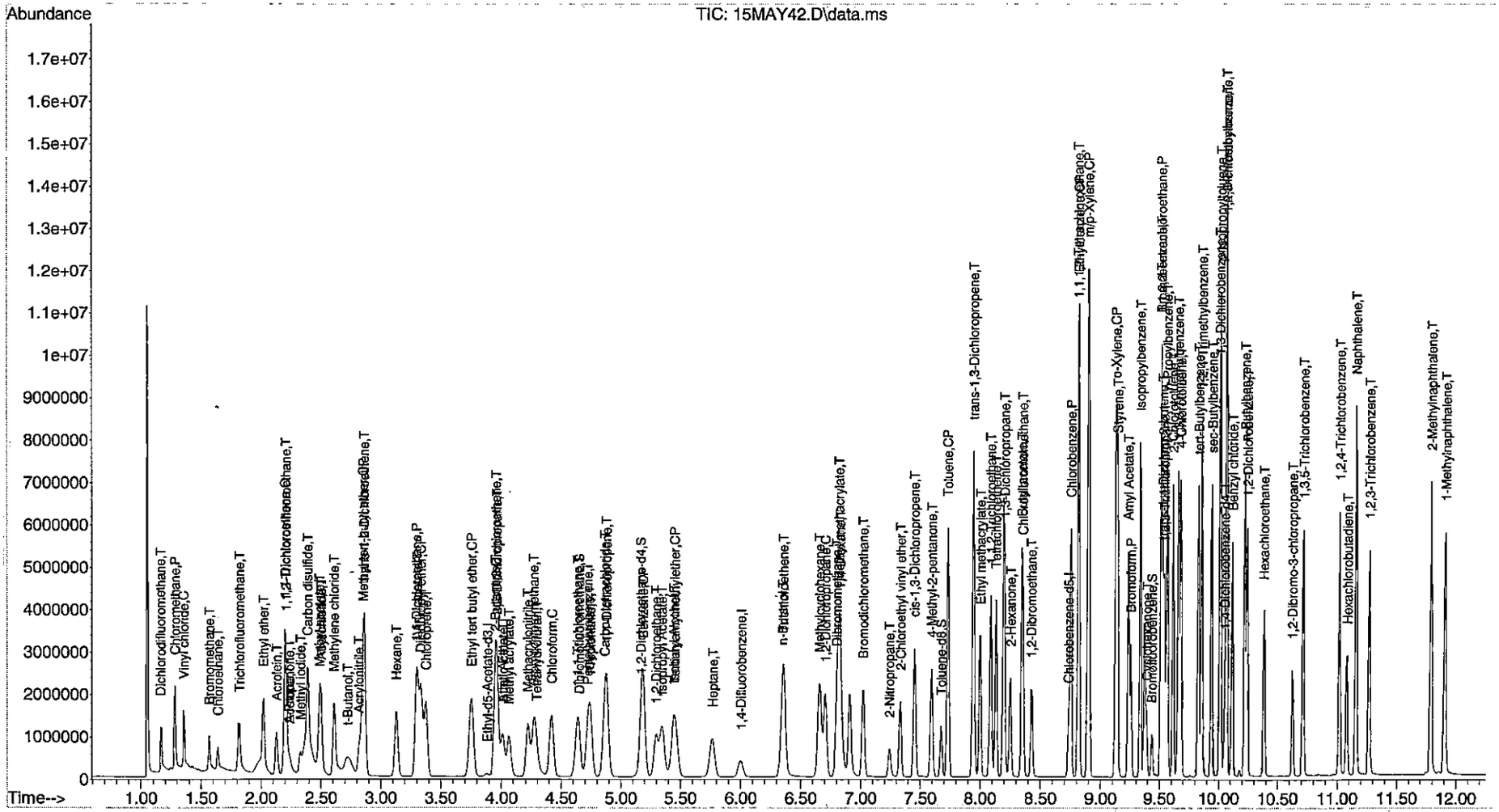
Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	2756438	100.24 ug/L		97
93) 1,3,5-Trimethylbenzene	9.655	105	2693676	101.89 ug/L		99
94) tert-Butylbenzene	9.827	91	1545332	97.68 ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2857345	99.09 ug/L		96
96) sec-Butylbenzene	9.942	105	3246007	101.50 ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1741947	92.88 ug/L		99
99) p-Isopropyltoluene	10.013	119	2757336	102.88 ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1765567	92.77 ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	2878995	95.17 ug/L		98
102) Benzyl chloride	10.114	91	2268227	161.15 ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	1684083	90.89 ug/L		99
104) n-Butylbenzene	10.221	91	2445950	101.45 ug/L		99
105) Hexachloroethane	10.379	117	616797	102.00 ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	470115	104.78 ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	1160559	91.84 ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	1175905	90.82 ug/L		99
109) Hexachlorobutadiene	11.081	225	400864	95.93 ug/L		100
110) Naphthalene	11.152	128	4510372	103.94 ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	1154927	90.43 ug/L		98
112) 2-Methylnaphthalene	11.783	142	2431169	119.80 ug/L		100
113) 1-Methylnaphthalene	11.904	142	2258311	113.11 ug/L		98
115) 2-Propanone	2.234	43	413119	60.39 ug/L		96
116) Acetic Ether	4.011	43	1358808	65.92 ug/L	#	99
117) Isopropyl Acetate	5.343	61	573535	75.41 ug/L		99
118) Amyl Acetate	9.226	43	1677366	76.19 ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	349576	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	520240	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	480396	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	243335	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	106735	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	184303	20.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.10%				
45) 1,2-Dichloroethane-d4	5.164	65	182611	20.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.95%				
64) Toluene-d8	7.671	98	622933	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%				
85) Bromofluorobenzene	9.433	95	219771	19.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	193245m	25.80	ug/L		
3) Chloromethane	1.281	50	362841	30.64	ug/L		99
4) Vinyl chloride	1.353	62	297030	32.01	ug/L		97
5) Bromomethane	1.568	96	106474	36.75	ug/L		95
6) Chloroethane	1.640	64	145221	30.07	ug/L		94
7) Trichlorofluoromethane	1.819	101	312759	32.43	ug/L		97
8) Ethyl ether	2.019	59	249960	35.08	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	396976	37.72	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	236303	44.95	ug/L		99
13) Acetone	2.234	43	178045	37.25	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	864685	37.90	ug/L		100
16) Allyl chloride	2.499	41	366268	29.87	ug/L		88
17) Methyl acetate	2.485	43	15854	1.48	ug/L	#	11
18) Acetonitrile	2.499	41	366268	30.03	ug/L	#	90
19) Methylene chloride	2.607	49	389288	34.91	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	434036	37.90	ug/L		99
21) t-Butanol	2.728	59	543389	225.79	ug/L		99
22) Acrylonitrile	2.814	53	196572	37.05	ug/L		100
23) Methyl tert-butyl ether	2.850	73	964202	44.03	ug/L		100
24) Hexane	3.122	57	5424	0.61	ug/L	#	45
25) 1,1-Dichloroethane	3.294	63	582582	37.23	ug/L		100
26) Diisopropyl ether	3.330	45	961172	41.66	ug/L	#	50
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	944303	41.43	ug/L		99
29) 2,2-Dichloropropane	3.960	77	396862	35.61	ug/L		99
30) cis-1,2-Dichloroethene	3.953	61	528908	38.78	ug/L		99
31) 2-Butanone	3.946	43	295041	35.97	ug/L		98
32) Ethyl Acetate	4.011	43	517606	38.41	ug/L	#	100
33) Methyl acrylate	4.068	55	496531	38.30	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.268	49	262487	36.54 ug/L		98
36) Tetrahydrofuran	4.290	42	188428	38.41 ug/L		96
37) Methacrylonitrile	4.218	41	315369	41.07 ug/L		99
38) Chloroform	4.419	83	576850	36.37 ug/L		98
39) Cyclohexane	4.713	56	6230	0.50 ug/L	#	1
41) 1,1,1-Trichloroethane	4.634	97	469321	38.87 ug/L		99
43) Carbon tetrachloride	4.863	117	394649	38.07 ug/L		99
44) 1,1-Dichloropropene	4.884	75	395420	34.81 ug/L		99
46) 1,2-Dichloroethane	5.293	62	416148	36.02 ug/L		98
47) Benzene	5.178	78	1263309	38.07 ug/L		100
48) Tertiaryamylmethylether	5.450	73	957723	44.45 ug/L		99
49) Isobutyl Alcohol	5.443	43	283690	40.52 ug/L		97
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	6.740	88	16952	91.98 ug/L	#	82
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	6.353	130	342718	36.70 ug/L		97
55) 1,2-Dichloropropane	6.704	63	354362	37.33 ug/L		96
56) Dibromomethane	6.797	93	258114	37.23 ug/L		96
57) Methyl methacrylate	6.826	41	378838	35.46 ug/L		97
58) Bromodichloromethane	7.019	83	470946	39.04 ug/L		100
59) 2-Chloroethyl vinyl ether	7.241	43	114870	26.07 ug/L	#	1
60) 2-Nitropropane	7.241	43	165616	35.75 ug/L		100
61) cis-1,3-Dichloropropene	7.449	75	562862	39.25 ug/L		100
63) 4-Methyl-2-pentanone	7.599	43	911834	61.07 ug/L		78
65) Toluene	7.728	91	1330941	38.51 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	511613	36.92 ug/L		100
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	8.000	69	517571	35.01 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	385963	37.85 ug/L		93
70) Tetrachloroethene	8.129	166	354756	39.32 ug/L		98
71) 1,3-Dichloropropane	8.201	76	537324	37.49 ug/L		95
72) 2-Hexanone	8.251	43	455797	38.85 ug/L		98
73) Chlorodibromomethane	8.351	129	409184	37.17 ug/L		99
74) Butyl acetate	8.344	43	676110	34.57 ug/L		99
75) 1,2-Dibromoethane	8.423	107	402182	38.26 ug/L		99
76) Chlorobenzene	8.753	112	870424	37.33 ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.810	131	340613	37.83 ug/L		99
78) Ethylbenzene	8.817	91	1432455	38.53 ug/L		100
79) m/p-Xylene	8.896	91	2131692	75.64 ug/L		100
80) Styrene	9.139	104	937450	39.03 ug/L		99
81) o-Xylene	9.125	91	1124386	37.60 ug/L		100
82) Cyclohexanone	9.390	55	12334	Below Cal	#	22
83) Bromoform	9.247	173	331157	39.85 ug/L		99
84) Isopropylbenzene	9.333	105	1305283	37.10 ug/L		99
86) Bromobenzene	9.512	77	828353	37.57 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	648517	41.06 ug/L		98
88) 1,2,3-Trichloropropane	9.540	110	155393	35.86 ug/L		93
89) trans-1,4-Dichloro-2-b...	9.526	53	140283	32.15 ug/L		96
90) n-Propylbenzene	9.562	91	1523894	37.59 ug/L		99
91) 2-Chlorotoluene	9.612	91	949275	39.09 ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1082870	38.09	ug/L		100
93) 1,3,5-Trimethylbenzene	9.662	105	1058151	38.01	ug/L		99
94) tert-Butylbenzene	9.827	91	597735	35.93	ug/L		94
95) 1,2,4-Trimethylbenzene	9.856	105	1073925	36.21	ug/L		100
96) sec-Butylbenzene	9.942	105	1244710	37.10	ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	666654	38.70	ug/L		99
99) p-Isopropyltoluene	10.013	119	1057357	38.14	ug/L		100
100) 1,4-Dichlorobenzene	10.063	146	677975	38.59	ug/L		99
101) 1,2,3-Trimethylbenzene	10.063	105	1126981	38.72	ug/L		99
102) Benzyl chloride	10.063	91	105157	4.57	ug/L	#	38
103) 1,2-Dichlorobenzene	10.242	146	674350	39.78	ug/L		100
104) n-Butylbenzene	10.221	91	955877	38.05	ug/L		100
105) Hexachloroethane	10.386	117	225440	36.14	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.629	157	185152	38.04	ug/L		99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	448126	37.83	ug/L		99
109) Hexachlorobutadiene	11.081	225	151652	38.31	ug/L		99
110) Naphthalene	11.152	128	1728966	39.78	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	449389	39.00	ug/L		97
112) 2-Methylnaphthalene	11.782	142	14019	0.63	ug/L		95
113) 1-Methylnaphthalene	11.904	142	8536	0.41	ug/L		82
115) 2-Propanone	2.234	43	178045	37.20	ug/L		95
116) Acetic Ether	4.011	43	517606	38.14	ug/L	#	99
117) Isopropyl Acetate	5.343	61	227826	37.29	ug/L		99
118) Amyl Acetate	9.225	43	636113	36.41	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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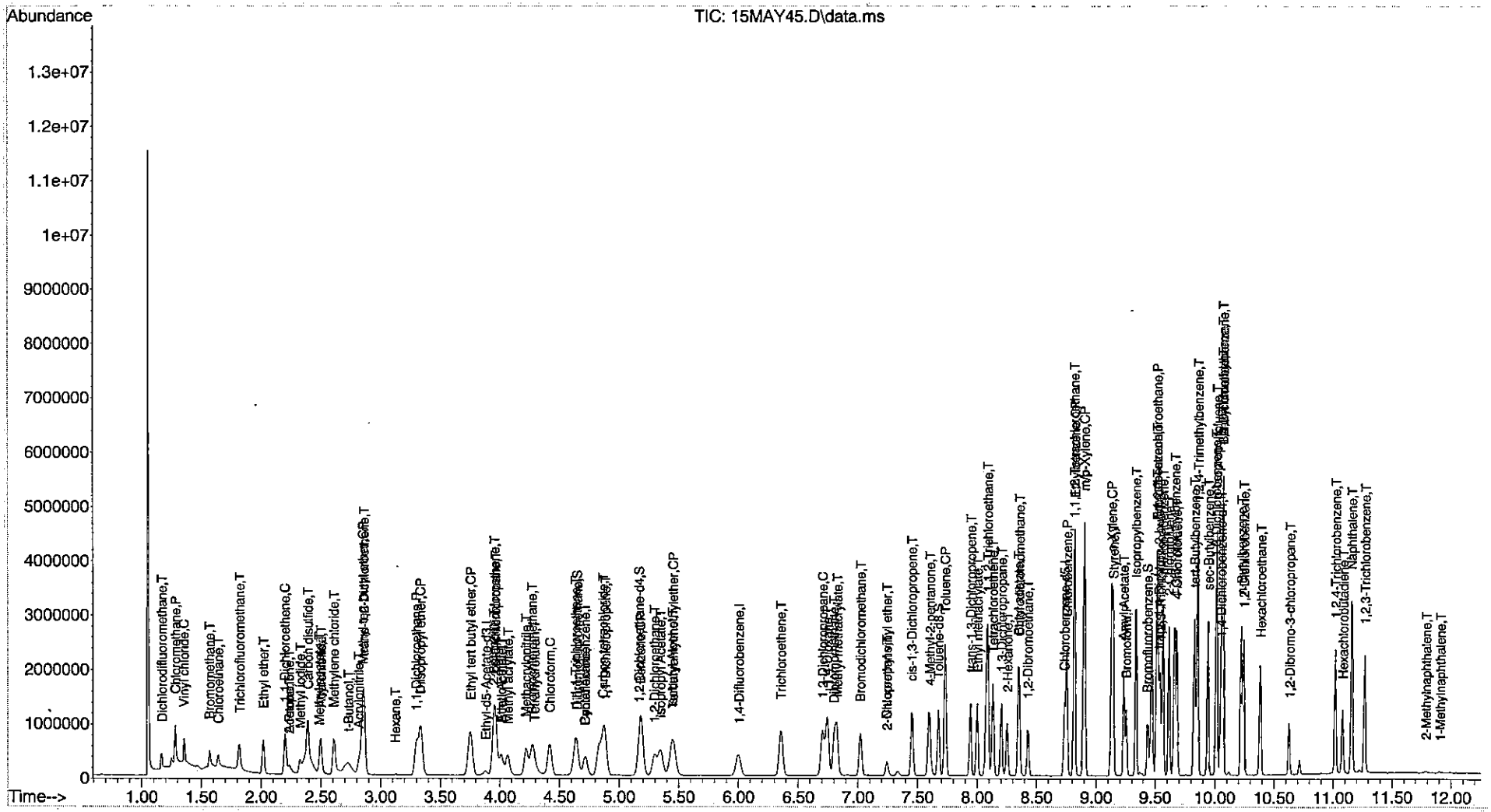
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration



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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	40.000	25.801	35.5#	73	0.00
3	P	Chloromethane	40.000	30.638	23.4#	84	0.00
4	C	Vinyl chloride	40.000	32.007	20.0	89	0.00
5	T	Bromomethane	40.000	36.754	8.1	99	0.00
6	T	Chloroethane	40.000	30.068	24.8#	79	0.00
7	T	Trichlorofluoromethane	40.000	32.431	18.9	90	0.00
8	T	Ethyl ether	40.000	35.080	12.3	96	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.13#
10	C	1,1-Dichloroethene	40.000	37.717	5.7	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	44.950	-12.4	117	0.00
13	T	Acetone	40.000	37.253	6.9	109	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	37.904	5.2	101	0.00
16	T	Allyl chloride	40.000	29.870	25.3#	80	0.00
17	T	Methyl acetate	40.000	1.483	96.3#	4	0.00
18	T	Acetonitrile	40.000	30.033	24.9#	80	0.00
19	T	Methylene chloride	40.000	34.911	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	40.000	37.903	5.2	99	0.00
21	T	t-Butanol	200.000	225.792	-12.9	116	0.00
22	T	Acrylonitrile	40.000	37.054	7.4	95	0.00
23	CP	Methyl tert-butyl ether	40.000	44.026	-10.1	109	0.00
24	T	Hexane	40.000	0.612	98.5#	2	0.00
25	P	1,1-Dichloroethane	40.000	37.235	6.9	98	0.00
26	CP	Diisopropyl ether	40.000	41.662	-4.2	107	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	41.433	-3.6	107	0.00
29	T	2,2-Dichloropropane	40.000	35.610	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.782	3.0	102	0.00
31	T	2-Butanone	40.000	35.975	10.1	103	0.00
32	T	Ethyl Acetate	40.000	38.411	4.0	96	0.00
33	T	Methyl acrylate	40.000	38.302	4.2	96	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.73#
35	T	Bromochloromethane	40.000	36.536	8.7	96	0.00
36	T	Tetrahydrofuran	40.000	38.405	4.0	97	0.00
37	T	Methacrylonitrile	40.000	41.075	-2.7	99	0.00
38	C	Chloroform	40.000	36.374	9.1	97	0.00
39	T	Cyclohexane	40.000	0.497	98.8#	1	-0.02
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	40.000	38.870	2.8	100	0.00
42	S	Dibromofluoromethane	20.000	20.425	-2.1	101	0.00
43	T	Carbon tetrachloride	40.000	38.074	4.8	94	0.00
44	T	1,1-Dichloropropene	40.000	34.811	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.788	-3.9	106	0.00
46	T	1,2-Dichloroethane	40.000	36.015	10.0	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
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ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	38.071	4.8	97	0.00
48	CP	Tertiaryamylmethylether	40.000	44.454	-11.1	110	0.00
49	T	Isobutyl Alcohol	40.000	40.517	-1.3	109	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.76#
51	T	1,4-Dioxane	4000.000	91.984	97.7#	2	-0.09
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.35#
54	T	Trichloroethene	40.000	36.699	8.3	97	0.00
55	C	1,2-Dichloropropane	40.000	37.328	6.7	100	0.00
56	T	Dibromomethane	40.000	37.235	6.9	96	0.00
57	T	Methyl methacrylate	40.000	35.458	11.4	96	0.00
58	T	Bromodichloromethane	40.000	39.041	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	40.000	26.074	34.8#	70	-0.09
60	T	2-Nitropropane	40.000	35.750	10.6	101	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.246	1.9	98	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	40.000	61.067	-52.7#	167	0.00
64	S	Toluene-d8	20.000	19.866	0.7	103	0.00
65	CP	Toluene	40.000	38.509	3.7	99	0.00
66	T	trans-1,3-Dichloropropene	40.000	36.918	7.7	99	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	35.010	12.5	96	0.00
69	T	1,1,2-Trichloroethane	40.000	37.850	5.4	110	0.00
70	T	Tetrachloroethene	40.000	39.321	1.7	105	0.00
71	T	1,3-Dichloropropane	40.000	37.490	6.3	100	0.00
72	T	2-Hexanone	40.000	38.849	2.9	103	0.00
73	T	Chlorodibromomethane	40.000	37.169	7.1	95	0.00
74	T	Butyl acetate	40.000	34.571	13.6	93	0.00
75	T	1,2-Dibromoethane	40.000	38.259	4.4	100	0.00
76	P	Chlorobenzene	40.000	37.329	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	37.829	5.4	103	0.00
78	CP	Ethylbenzene	40.000	38.527	3.7	99	0.00
79	CP	m/p-Xylene	80.000	75.638	5.5	97	0.00
80	T	Styrene	40.000	39.032	2.4	101	0.00
81	CP	o-Xylene	40.000	37.598	6.0	98	0.00
82	T	Cyclohexanone	200.000	-0.548	100.3#	7	0.00
83	P	Bromoform	40.000	39.854	0.4	99	0.00
84	T	Isopropylbenzene	40.000	37.105	7.2	97	0.00
85	S	Bromofluorobenzene	20.000	19.332	3.3	98	0.00
86	T	Bromobenzene	40.000	37.569	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.061	-2.7	107	0.00
88	T	1,2,3-Trichloropropane	40.000	35.858	10.4	100	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	32.146	19.6	92	0.00
90	T	n-Propylbenzene	40.000	37.593	6.0	96	0.00
91	T	2-Chlorotoluene	40.000	39.085	2.3	101	0.00
92	T	4-Chlorotoluene	40.000	38.095	4.8	99	0.00

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Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	38.006	5.0	98	0.00
94	T	tert-Butylbenzene	40.000	35.934	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	40.000	36.207	9.5	95	0.00
96	T	sec-Butylbenzene	40.000	37.097	7.3	98	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	40.000	38.700	3.2	96	0.00
99	T	p-Isopropyltoluene	40.000	38.137	4.7	97	0.00
100	T	1,4-Dichlorobenzene	40.000	38.586	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	40.000	38.718	3.2	97	0.00
102	T	Benzyl chloride	40.000	4.573	88.6#	12	-0.05
103	T	1,2-Dichlorobenzene	40.000	39.777	0.6	99	0.00
104	T	n-Butylbenzene	40.000	38.047	4.9	97	0.00
105	T	Hexachloroethane	40.000	36.141	9.6	94	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.038	4.9	103	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.72#
108	T	1,2,4-Trichlorobenzene	40.000	37.830	5.4	99	0.00
109	T	Hexachlorobutadiene	40.000	38.311	4.2	100	0.00
110	T	Naphthalene	40.000	39.780	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	40.000	38.999	2.5	95	0.00
112	T	2-Methylnaphthalene	40.000	0.628	98.4#	2	0.00
113	T	1-Methylnaphthalene	40.000	0.410	99.0#	1	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	102	0.00
115	T	2-Propanone	40.000	37.197	7.0	102	0.00
116	T	Acetic Ether	40.000	38.140	4.6	96	0.00
117	T	Isopropyl Acetate	40.000	37.288	6.8	99	0.00
118	T	Amyl Acetate	40.000	36.411	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	0.448	0.276	38.4#	73	0.00
3	P	Chloromethane	0.678	0.519	23.5#	84	0.00
4	C	Vinyl chloride	0.531	0.425	20.0	89	0.00
5	T	Bromomethane	0.244	0.152#	37.7#	99	0.00
6	T	Chloroethane	0.384	0.208	45.8#	79	0.00
7	T	Trichlorofluoromethane	0.552	0.447	19.0	90	0.00
8	T	Ethyl ether	0.408	0.358	12.3	96	0.00
9	T	Acrolein	0.108	0.000#	100.0#	0#	-2.13#
10	C	1,1-Dichloroethene	0.602	0.568	5.6	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.433	0.338	21.9#	117	0.00
13	T	Acetone	0.273	0.255	6.6	109	0.00
14	T	Chloroprene	0.609	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.305	1.237	5.2	101	0.00
16	T	Allyl chloride	0.702	0.524	25.4#	80	0.00
17	T	Methyl acetate	0.612	0.023#	96.2#	4#	0.00
18	T	Acetonitrile	0.698	0.524	24.9#	80	0.00
19	T	Methylene chloride	0.638	0.557	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.621	5.2	99	0.00
21	T	t-Butanol	0.138	0.155#	-12.3	116	0.00
22	T	Acrylonitrile	0.304	0.281	7.6	95	0.00
23	CP	Methyl tert-butyl ether	1.253	1.379	-10.1	109	0.00
24	T	Hexane	0.507	0.008#	98.4#	2#	0.00
25	P	1,1-Dichloroethane	0.895	0.833	6.9	98	0.00
26	CP	Diisopropyl ether	1.320	1.375	-4.2	107	0.00
27	T	Vinyl acetate	0.087	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.304	1.351	-3.6	107	0.00
29	T	2,2-Dichloropropane	0.638	0.568	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.756	3.1	102	0.00
31	T	2-Butanone	0.469	0.422	10.0	103	0.00
32	T	Ethyl Acetate	0.771	0.740	4.0	96	0.00
33	T	Methyl acrylate	0.742	0.710	4.3	96	0.00
34	T	Propionitrile	0.049	0.000#	100.0#	0#	-4.73#
35	T	Bromochloromethane	0.411	0.375	8.8	96	0.00
36	T	Tetrahydrofuran	0.281	0.270	3.9	97	0.00
37	T	Methacrylonitrile	0.439	0.451	-2.7	99	0.00
38	C	Chloroform	0.907	0.825	9.0	97	0.00
39	T	Cyclohexane	0.717	0.009#	98.7#	1#	-0.02
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	0.464	0.451	2.8	100	0.00
42	S	Dibromofluoromethane	0.347	0.354	-2.0	101	0.00
43	T	Carbon tetrachloride	0.398	0.379	4.8	94	0.00
44	T	1,1-Dichloropropene	0.437	0.380	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.351	-3.8	106	0.00
46	T	1,2-Dichloroethane	0.444	0.400	9.9	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.214	4.9	97	0.00
48	CP	Tertiaryamylmethylether	0.828	0.920	-11.1	110	0.00
49	T	Isobutyl Alcohol	0.269	0.273	-1.5	109	0.00
50	T	Heptane	0.289	0.000#	100.0#	0#	-5.76#
51	T	1,4-Dioxane	0.007	0.000#	100.0#	2#	-0.09
52	T	Methylcyclohexane	0.438	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.023	0.000#	100.0#	0#	-6.35#
54	T	Trichloroethene	0.359	0.329	8.4	97	0.00
55	C	1,2-Dichloropropane	0.365	0.341	6.6	100	0.00
56	T	Dibromomethane	0.266	0.248	6.8	96	0.00
57	T	Methyl methacrylate	0.411	0.364	11.4	96	0.00
58	T	Bromodichloromethane	0.464	0.453	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.110#	34.9#	70	-0.09
60	T	2-Nitropropane	0.178	0.159#	10.7	101	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.541	1.8	98	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	0.622	0.949	-52.6#	167	0.00
64	S	Toluene-d8	1.305	1.297	0.6	103	0.00
65	CP	Toluene	1.439	1.385	3.8	99	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.532	7.8	99	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.615	0.539	12.4	96	0.00
69	T	1,1,2-Trichloroethane	0.425	0.402	5.4	110	0.00
70	T	Tetrachloroethene	0.376	0.369	1.9	105	0.00
71	T	1,3-Dichloropropane	0.597	0.559	6.4	100	0.00
72	T	2-Hexanone	0.488	0.474	2.9	103	0.00
73	T	Chlorodibromomethane	0.458	0.426	7.0	95	0.00
74	T	Butyl acetate	0.814	0.704	13.5	93	0.00
75	T	1,2-Dibromoethane	0.438	0.419	4.3	100	0.00
76	P	Chlorobenzene	0.971	0.906	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.355	5.3	103	0.00
78	CP	Ethylbenzene	1.548	1.491	3.7	99	0.00
79	CP	m/p-Xylene	1.173	1.109	5.5	97	0.00
80	T	Styrene	1.000	0.976	2.4	101	0.00
81	CP	o-Xylene	1.245	1.170	6.0	98	0.00
82	T	Cyclohexanone	0.073	0.003#	95.9#	7#	0.00
83	P	Bromoform	0.346	0.345	0.3	99	0.00
84	T	Isopropylbenzene	1.465	1.359	7.2	97	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	98	0.00
86	T	Bromobenzene	0.918	0.862	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.675	-2.6	107	0.00
88	T	1,2,3-Trichloropropane	0.180	0.162#	10.0	100	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.146#	19.8	92	0.00
90	T	n-Propylbenzene	1.688	1.586	6.0	96	0.00
91	T	2-Chlorotoluene	1.011	0.988	2.3	101	0.00
92	T	4-Chlorotoluene	1.183	1.127	4.7	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.101	5.0	98	0.00
94	T	tert-Butylbenzene	0.693	0.622	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.118	9.5	95	0.00
96	T	sec-Butylbenzene	1.397	1.296	7.2	98	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	1.416	1.370	3.2	96	0.00
99	T	p-Isopropyltoluene	2.279	2.173	4.7	97	0.00
100	T	1,4-Dichlorobenzene	1.444	1.393	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.316	3.2	97	0.00
102	T	Benzyl chloride	1.890	0.216	88.6#	12#	-0.05
103	T	1,2-Dichlorobenzene	1.393	1.386	0.5	99	0.00
104	T	n-Butylbenzene	2.065	1.964	4.9	97	0.00
105	T	Hexachloroethane	0.513	0.463	9.7	94	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.380	5.0	103	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.000#	100.0#	0#	-10.72#
108	T	1,2,4-Trichlorobenzene	0.974	0.921	5.4	99	0.00
109	T	Hexachlorobutadiene	0.325	0.312	4.0	100	0.00
110	T	Naphthalene	3.572	3.553	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.923	2.5	95	0.00
112	T	2-Methylnaphthalene	1.836	0.029#	98.4#	2#	0.00
113	T	1-Methylnaphthalene	1.711	0.018#	98.9#	1#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	102	0.00
115	T	2-Propanone	0.897	0.834	7.0	102	0.00
116	T	Acetic Ether	2.543	2.425	4.6	96	0.00
117	T	Isopropyl Acetate	1.145	1.067	6.8	99	0.00
118	T	Amyl Acetate	3.274	2.980	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Sequence Name: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info		
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	VBLKS1-
16)	Sample	5	15MAY16	8SGO0502	BLK
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV
27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK

EMR 5/16/18

Sequence Name: C:\msdchem\1\sequence\8V180515.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	33	15MAY44	8GI0502	BLK
45)		Sample	34	15MAY45	8GI0502	ICV
46)		Sample	35	15MAY46	8GI0502	BLK
47)		Sample	36	15MAY47	BFB	VBFB8-180515
48)		Sample	37	15MAY48	8GI0502	VCCV1-180515
49)		Sample	38	15MAY49	8GI0502	VCCV2-180515
50)		Sample	39	15MAY50	8GI0502	VLCSW2-180515
51)		Sample	40	15MAY51	8GI0502	LCS-
52)		Sample	41	15MAY52	8GI0502	BLK
53)		Sample	42	15MAY53	8GI0502	VBLKW2-180415
54)		Sample	43	15MAY54	8GI0502	MBLK-
55)		Sample	44	15MAY55	8GI0502	1805671-22A
56)		Sample	45	15MAY56	8GI0502	1805671-11A
57)		Sample	46	15MAY57	8GI0502	1805671-12A
58)		Sample	47	15MAY58	8GI0502	1805671-13A
59)		Sample	48	15MAY59	8GI0502	1805671-14A
60)		Sample	49	15MAY60	8GI0502	1805671-15A
61)		Sample	50	15MAY61	8GI0502	1805671-16A
62)		Sample	51	15MAY62	8GI0502	1805671-17A
63)		Sample	52	15MAY63	8GI0502	1805671-18A
64)		Sample	53	15MAY64	8GI0502	1805671-19A
65)		Sample	54	15MAY65	8GI0502	1805671-20A
66)		Sample	55	15MAY66	8GI0502	1805671-21A
67)		Sample	56	15MAY67	8GI0502	1805671-23A
68)		Sample	57	15MAY68	8GI0502	1805671-24A
69)		Sample	58	15MAY69	8GI0502	1805671-25A
70)		Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)		Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)		Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)		Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)		Sample	63	15MAY74	8GI0502	1805699-01A DF20
75)		Sample	64	15MAY75	8GI0502	1805699-01A MS DF20
76)		Sample	65	15MAY76	8GI0502	1805699-01A MSD DF20
77)		Sample	66	15MAY77	8GI0502	BLK
78)		Sample	67	15MAY78	8SGO0502	BLK
79)		Sample	68	15MAY79	8SGO0502	BLK

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	107	0.00
2	T	Dichlorodifluoromethane	40.000	32.371	19.1	100	0.00
3	P	Chloromethane	40.000	32.127	19.7	92	0.00
4	C	Vinyl chloride	40.000	30.149	24.6#	88	0.00
5	T	Bromomethane	40.000	73.138	-82.8#	202	-0.01
6	T	Chloroethane	40.000	34.191	14.5	93	0.00
7	T	Trichlorofluoromethane	40.000	33.428	16.4	97	0.00
8	T	Ethyl ether	40.000	29.143	27.1#	84	0.00
9	T	Acrolein	200.000	246.500	-23.3#	143	0.00
10	C	1,1-Dichloroethene	40.000	31.516	21.2#	88	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	32.846	17.9	98	0.00
12	T	Methyl iodide	40.000	35.483	11.3	99	0.00
13	T	Acetone	40.000	31.059	22.4#	95	0.00
14	T	Chloroprene	40.000	30.106	24.7#	82	0.00
15	T	Carbon disulfide	40.000	31.402	21.5#	88	0.00
16	T	Allyl chloride	40.000	29.019	27.5#	82	0.00
17	T	Methyl acetate	40.000	31.893	20.3#	85	0.00
18	T	Acetonitrile	40.000	29.176	27.1#	82	0.00
19	T	Methylene chloride	40.000	28.528	28.7#	81	0.00
20	T	trans-1,2-Dichloroethene	40.000	30.585	23.5#	84	0.00
21	T	t-Butanol	200.000	168.375	15.8	91	-0.02
22	T	Acrylonitrile	40.000	31.489	21.3#	85	0.00
23	CP	Methyl tert-butyl ether	40.000	37.134	7.2	97	0.00
24	T	Hexane	40.000	26.186	34.5#	82	0.00
25	P	1,1-Dichloroethane	40.000	30.734	23.2#	85	0.00
26	CP	Diisopropyl ether	40.000	33.794	15.5	91	0.00
27	T	Vinyl acetate	40.000	36.580	8.6	114	0.00
28	CP	Ethyl tert butyl ether	40.000	34.946	12.6	95	0.00
29	T	2,2-Dichloropropane	40.000	31.426	21.4#	89	0.00
30	T	cis-1,2-Dichloroethene	40.000	30.873	22.8#	85	0.00
31	T	2-Butanone	40.000	30.966	22.6#	93	0.00
32	T	Ethyl Acetate	40.000	32.361	19.1	85	0.00
33	T	Methyl acrylate	40.000	30.876	22.8#	81	0.00
34	T	Propionitrile	40.000	30.923	22.7#	86	0.00
35	T	Bromochloromethane	40.000	30.530	23.7#	84	0.00
36	T	Tetrahydrofuran	40.000	29.093	27.3#	77	0.00
37	T	Methacrylonitrile	40.000	29.393	26.5#	74	0.00
38	C	Chloroform	40.000	32.471	18.8	91	0.00
39	T	Cyclohexane	40.000	27.852	30.4#	82	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	102	0.00
41	T	1,1,1-Trichloroethane	40.000	33.581	16.0	88	0.00
42	S	Dibromofluoromethane	20.000	19.478	2.6	98	0.00
43	T	Carbon tetrachloride	40.000	36.032	9.9	90	0.00
44	T	1,1-Dichloropropene	40.000	32.212	19.5	90	0.00
45	S	1,2-Dichloroethane-d4	20.000	17.719	11.4	91	0.00
46	T	1,2-Dichloroethane	40.000	30.261	24.3#	84	0.00
47	CP	Benzene	40.000	33.779	15.6	87	0.00
48	CP	Tertiaryamylmethylether	40.000	39.998	0.0	100	0.00
49	T	Isobutyl Alcohol	40.000	33.152	17.1	90	0.00
50	T	Heptane	40.000	31.607	21.0#	82	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	4125.983	-3.1	105	-0.01
52	T	Methylcyclohexane	40.000	32.586	18.5	90	0.00
53	T	n-Butanol	400.000	350.186	12.5	83	-0.02
54	T	Trichloroethene	40.000	35.650	10.9	95	0.00
55	C	1,2-Dichloropropane	40.000	31.693	20.8#	86	0.00
56	T	Dibromomethane	40.000	33.806	15.5	88	0.00
57	T	Methyl methacrylate	40.000	28.754	28.1#	79	0.00
58	T	Bromodichloromethane	40.000	34.453	13.9	88	0.00
59	T	2-Chloroethyl vinyl ether	40.000	26.270	34.3#	71	0.00
60	T	2-Nitropropane	40.000	24.886	37.8#	71	0.00
61	T	cis-1,3-Dichloropropene	40.000	34.596	13.5	88	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	105	0.00
63	T	4-Methyl-2-pentanone	40.000	30.549	23.6#	85	0.00
64	S	Toluene-d8	20.000	18.983	5.1	100	0.00
65	CP	Toluene	40.000	35.494	11.3	93	0.00
66	T	trans-1,3-Dichloropropene	40.000	32.349	19.1	88	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	30.673	23.3#	85	0.00
69	T	1,1,2-Trichloroethane	40.000	32.051	19.9	95	0.00
70	T	Tetrachloroethene	40.000	38.519	3.7	105	0.00
71	T	1,3-Dichloropropane	40.000	32.731	18.2	89	0.00
72	T	2-Hexanone	40.000	31.397	21.5#	85	0.00
73	T	Chlorodibromomethane	40.000	35.433	11.4	92	0.00
74	T	Butyl acetate	40.000	32.156	19.6	88	0.00
75	T	1,2-Dibromoethane	40.000	34.763	13.1	93	0.00
76	P	Chlorobenzene	40.000	36.014	10.0	96	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	35.171	12.1	97	0.00
78	CP	Ethylbenzene	40.000	35.920	10.2	94	0.00
79	CP	m/p-Xylene	80.000	71.183	11.0	93	0.00
80	T	Styrene	40.000	35.683	10.8	94	0.00
81	CP	o-Xylene	40.000	35.095	12.3	93	0.00
82	T	Cyclohexanone	200.000	190.793	4.6	96	0.00
83	P	Bromoform	40.000	37.600	6.0	95	0.00
84	T	Isopropylbenzene	40.000	34.877	12.8	93	0.00
85	S	Bromofluorobenzene	20.000	18.673	6.6	96	0.00
86	T	Bromobenzene	40.000	33.152	17.1	87	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	34.651	13.4	92	0.00
88	T	1,2,3-Trichloropropane	40.000	32.203	19.5	92	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	28.856	27.9#	84	0.00
90	T	n-Propylbenzene	40.000	35.926	10.2	94	0.00
91	T	2-Chlorotoluene	40.000	36.269	9.3	95	0.00
92	T	4-Chlorotoluene	40.000	35.823	10.4	95	0.00
93	T	1,3,5-Trimethylbenzene	40.000	35.776	10.6	95	0.00
94	T	tert-Butylbenzene	40.000	33.064	17.3	91	0.00
95	T	1,2,4-Trimethylbenzene	40.000	35.680	10.8	95	0.00
96	T	sec-Butylbenzene	40.000	35.194	12.0	95	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	40.000	38.642	3.4	103	0.00
99	T	p-Isopropyltoluene	40.000	35.214	12.0	96	0.00

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	37.828	5.4	103	0.00
101	T	1,2,3-Trimethylbenzene	40.000	36.816	8.0	99	0.00
102	T	Benzyl chloride	40.000	36.317	9.2	99	0.00
103	T	1,2-Dichlorobenzene	40.000	38.953	2.6	103	0.00
104	T	n-Butylbenzene	40.000	34.049	14.9	93	0.00
105	T	Hexachloroethane	40.000	34.886	12.8	97	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	31.624	20.9#	92	0.00
107	T	1,3,5-Trichlorobenzene	40.000	40.282	-0.7	108	0.00
108	T	1,2,4-Trichlorobenzene	40.000	38.394	4.0	107	0.00
109	T	Hexachlorobutadiene	40.000	38.218	4.5	107	0.00
110	T	Naphthalene	40.000	33.883	15.3	91	0.00
111	T	1,2,3-Trichlorobenzene	40.000	35.544	11.1	92	0.00
112	T	2-Methylnaphthalene	40.000	26.798	33.0#	70	0.00
113	T	1-Methylnaphthalene	40.000	24.479	38.8#	63	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	86	0.00
115	T	2-Propanone	40.000	36.202	9.5	83	0.00
116	T	Acetic Ether	40.000	40.035	-0.1	85	0.00
117	T	Isopropyl Acetate	40.000	41.673	-4.2	93	0.00
118	T	Amyl Acetate	40.000	41.960	-4.9	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 3

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	107	0.00
2	T	Dichlorodifluoromethane	0.448	0.363	19.0	100	0.00
3	P	Chloromethane	0.678	0.544	19.8	92	0.00
4	C	Vinyl chloride	0.531	0.400	24.7#	88	0.00
5	T	Bromomethane	0.244	0.297	-21.7#	202#	-0.01
6	T	Chloroethane	0.384	0.231	39.8#	93	0.00
7	T	Trichlorofluoromethane	0.552	0.461	16.5	97	0.00
8	T	Ethyl ether	0.408	0.297	27.2#	84	0.00
9	T	Acrolein	0.108	0.100#	7.4	143	0.00
10	C	1,1-Dichloroethene	0.602	0.474	21.3#	88	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.268	18.0	98	0.00
12	T	Methyl iodide	0.433	0.271	37.4#	99	0.00
13	T	Acetone	0.273	0.212	22.3#	95	0.00
14	T	Chloroprene	0.609	0.458	24.8#	82	0.00
15	T	Carbon disulfide	1.305	1.025	21.5#	88	0.00
16	T	Allyl chloride	0.702	0.509	27.5#	82	0.00
17	T	Methyl acetate	0.612	0.488	20.3#	85	0.00
18	T	Acetonitrile	0.698	0.509	27.1#	82	0.00
19	T	Methylene chloride	0.638	0.455	28.7#	81	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.501	23.5#	84	0.00
21	T	t-Butanol	0.138	0.116#	15.9	91	-0.02
22	T	Acrylonitrile	0.304	0.239	21.4#	85	0.00
23	CP	Methyl tert-butyl ether	1.253	1.163	7.2	97	0.00
24	T	Hexane	0.507	0.332	34.5#	82	0.00
25	P	1,1-Dichloroethane	0.895	0.688	23.1#	85	0.00
26	CP	Diisopropyl ether	1.320	1.115	15.5	91	0.00
27	T	Vinyl acetate	0.087	0.080#	8.0	114	0.00
28	CP	Ethyl tert butyl ether	1.304	1.139	12.7	95	0.00
29	T	2,2-Dichloropropane	0.638	0.501	21.5#	89	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.602	22.8#	85	0.00
31	T	2-Butanone	0.469	0.363	22.6#	93	0.00
32	T	Ethyl Acetate	0.771	0.624	19.1	85	0.00
33	T	Methyl acrylate	0.742	0.572	22.9#	81	0.00
34	T	Propionitrile	0.049	0.033#	32.7#	86	0.00
35	T	Bromochloromethane	0.411	0.314	23.6#	84	0.00
36	T	Tetrahydrofuran	0.281	0.204	27.4#	77	0.00
37	T	Methacrylonitrile	0.439	0.323	26.4#	74	0.00
38	C	Chloroform	0.907	0.737	18.7	91	0.00
39	T	Cyclohexane	0.717	0.499	30.4#	82	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	102	0.00
41	T	1,1,1-Trichloroethane	0.464	0.390	15.9	88	0.00
42	S	Dibromofluoromethane	0.347	0.338	2.6	98	0.00
43	T	Carbon tetrachloride	0.398	0.359	9.8	90	0.00
44	T	1,1-Dichloropropene	0.437	0.352	19.5	90	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.299	11.5	91	0.00
46	T	1,2-Dichloroethane	0.444	0.336	24.3#	84	0.00
47	CP	Benzene	1.276	1.077	15.6	87	0.00
48	CP	Tertiaryamylmethylether	0.828	0.828	0.0	100	0.00
49	T	Isobutyl Alcohol	0.269	0.223	17.1	90	0.00
50	T	Heptane	0.289	0.195#	32.5#	82	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.007	0.007#	0.0	105	-0.01
52	T	Methylcyclohexane	0.438	0.356	18.7	90	0.00
53	T	n-Butanol	0.023	0.020#	13.0	83	-0.02
54	T	Trichloroethene	0.359	0.320	10.9	95	0.00
55	C	1,2-Dichloropropane	0.365	0.289	20.8#	86	0.00
56	T	Dibromomethane	0.266	0.225	15.4	88	0.00
57	T	Methyl methacrylate	0.411	0.295	28.2#	79	0.00
58	T	Bromodichloromethane	0.464	0.399	14.0	88	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.111#	34.3#	71	0.00
60	T	2-Nitropropane	0.178	0.111#	37.6#	71	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.477	13.4	88	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	105	0.00
63	T	4-Methyl-2-pentanone	0.622	0.475	23.6#	85	0.00
64	S	Toluene-d8	1.305	1.239	5.1	100	0.00
65	CP	Toluene	1.439	1.277	11.3	93	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.467	19.1	88	0.00
67	T	Chloropicrin	0.000	0.029#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.472	23.3#	85	0.00
69	T	1,1,2-Trichloroethane	0.425	0.340	20.0	95	0.00
70	T	Tetrachloroethene	0.376	0.362	3.7	105	0.00
71	T	1,3-Dichloropropane	0.597	0.488	18.3	89	0.00
72	T	2-Hexanone	0.488	0.383	21.5#	85	0.00
73	T	Chlorodibromomethane	0.458	0.406	11.4	92	0.00
74	T	Butyl acetate	0.814	0.655	19.5	88	0.00
75	T	1,2-Dibromoethane	0.438	0.380	13.2	93	0.00
76	P	Chlorobenzene	0.971	0.874	10.0	96	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.330	12.0	97	0.00
78	CP	Ethylbenzene	1.548	1.390	10.2	94	0.00
79	CP	m/p-Xylene	1.173	1.044	11.0	93	0.00
80	T	Styrene	1.000	0.892	10.8	94	0.00
81	CP	o-Xylene	1.245	1.092	12.3	93	0.00
82	T	Cyclohexanone	0.073	0.037#	49.3#	96	0.00
83	P	Bromoform	0.346	0.325	6.1	95	0.00
84	T	Isopropylbenzene	1.465	1.277	12.8	93	0.00
85	S	Bromofluorobenzene	0.473	0.442	6.6	96	0.00
86	T	Bromobenzene	0.918	0.761	17.1	87	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.570	13.4	92	0.00
88	T	1,2,3-Trichloropropane	0.180	0.145#	19.4	92	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.131#	28.0#	84	0.00
90	T	n-Propylbenzene	1.688	1.516	10.2	94	0.00
91	T	2-Chlorotoluene	1.011	0.917	9.3	95	0.00
92	T	4-Chlorotoluene	1.183	1.060	10.4	95	0.00
93	T	1,3,5-Trimethylbenzene	1.159	1.037	10.5	95	0.00
94	T	tert-Butylbenzene	0.693	0.572	17.5	91	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.101	10.9	95	0.00
96	T	sec-Butylbenzene	1.397	1.229	12.0	95	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	1.416	1.368	3.4	103	0.00
99	T	p-Isopropyltoluene	2.279	2.006	12.0	96	0.00

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.444	1.366	5.4	103	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.202	7.9	99	0.00
102	T	Benzyl chloride	1.890	1.716	9.2	99	0.00
103	T	1,2-Dichlorobenzene	1.393	1.357	2.6	103	0.00
104	T	n-Butylbenzene	2.065	1.758	14.9	93	0.00
105	T	Hexachloroethane	0.513	0.447	12.9	97	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.316	21.0#	92	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.957	-0.7	108	0.00
108	T	1,2,4-Trichlorobenzene	0.974	0.935	4.0	107	0.00
109	T	Hexachlorobutadiene	0.325	0.311	4.3	107	0.00
110	T	Naphthalene	3.572	3.026	15.3	91	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.842	11.1	92	0.00
112	T	2-Methylnaphthalene	1.836	1.230	33.0#	70	0.00
113	T	1-Methylnaphthalene	1.711	1.047	38.8#	63	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	86	0.00
115	T	2-Propanone	0.897	0.812	9.5	83	0.00
116	T	Acetic Ether	2.543	2.545	-0.1	85	0.00
117	T	Isopropyl Acetate	1.145	1.193	-4.2	93	0.00
118	T	Amyl Acetate	3.274	3.434	-4.9	93	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 3

Data Path : C:\msdchem\1\data\8V180522\
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Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	366321	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	526735	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	490207	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	260179	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	89771	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	177957	19.48	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.40%				
45) 1,2-Dichloroethane-d4	5.164	65	157591	17.72	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 88.60%				
64) Toluene-d8	7.671	98	607394	18.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.90%				
85) Bromofluorobenzene	9.433	95	216616	18.67	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	265703	32.37	ug/L		99
3) Chloromethane	1.282	50	398697m	32.13	ug/L		
4) Vinyl chloride	1.353	62	293189m	30.15	ug/L		
5) Bromomethane	1.554	96	217851	73.14	ug/L		98
6) Chloroethane	1.640	64	169534m	34.19	ug/L		
7) Trichlorofluoromethane	1.819	101	337822	33.43	ug/L		98
8) Ethyl ether	2.012	59	217601m	29.14	ug/L		
9) Acrolein	2.120	56	365924m	246.50	ug/L		
10) 1,1-Dichloroethene	2.199	61	347592m	31.52	ug/L		
11) 1,1,2-Trichlorotrifluo...	2.199	151	196646	32.85	ug/L		97
12) Methyl iodide	2.320	142	198513	35.48	ug/L		99
13) Acetone	2.227	43	155553m	31.06	ug/L		
14) Chloroprene	3.373	53	335856	30.11	ug/L		94
15) Carbon disulfide	2.385	76	750671	31.40	ug/L		98
16) Allyl chloride	2.492	41	372868	29.02	ug/L		95
17) Methyl acetate	2.478	43	357246	31.89	ug/L		96
18) Acetonitrile	2.492	41	372868	29.18	ug/L	#	95
19) Methylene chloride	2.607	49	333350	28.53	ug/L		88
20) trans-1,2-Dichloroethene	2.858	61	367012	30.58	ug/L		92
21) t-Butanol	2.700	59	424620	168.37	ug/L		98
22) Acrylonitrile	2.815	53	175052	31.49	ug/L		97
23) Methyl tert-butyl ether	2.843	73	852230	37.13	ug/L		98
24) Hexane	3.130	57	243100	26.19	ug/L		96
25) 1,1-Dichloroethane	3.294	63	503901	30.73	ug/L		99
26) Diisopropyl ether	3.330	45	817011	33.79	ug/L		94
27) Vinyl acetate	3.294	86	58336	36.58	ug/L	#	58
28) Ethyl tert butyl ether	3.753	59	834595	34.95	ug/L		97
29) 2,2-Dichloropropane	3.961	77	367015	31.43	ug/L		96
30) cis-1,2-Dichloroethene	3.953	61	441209	30.87	ug/L		92
31) 2-Butanone	3.939	43	266123	30.97	ug/L		99
32) Ethyl Acetate	4.004	43	456965	32.36	ug/L	#	97
33) Methyl acrylate	4.061	55	419432	30.88	ug/L		97
34) Propionitrile	4.727	54	24057	30.92	ug/L	#	93
35) Bromochloromethane	4.261	49	229844	30.53	ug/L		84
36) Tetrahydrofuran	4.283	42	149575	29.09	ug/L		92
37) Methacrylonitrile	4.218	41	236483	29.39	ug/L		94
38) Chloroform	4.419	83	539617	32.47	ug/L		97

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.734	56	365629	27.85 ug/L	94
41) 1,1,1-Trichloroethane	4.634	97	410528	33.58 ug/L	98
43) Carbon tetrachloride	4.863	117	378144	36.03 ug/L	99
44) 1,1-Dichloropropene	4.878	75	370467	32.21 ug/L	97
46) 1,2-Dichloroethane	5.293	62	354026	30.26 ug/L	98
47) Benzene	5.178	78	1134899	33.78 ug/L	98
48) Tertiaryamylmethylether	5.443	73	872476	40.00 ug/L	96
49) Isobutyl Alcohol	5.443	43	235021	33.15 ug/L	98
50) Heptane	5.759	43	205309	31.61 ug/L	95
51) 1,4-Dioxane	6.812	88	769885	4125.98 ug/L	92
52) Methylcyclohexane	6.654	83	375489	32.59 ug/L	95
53) n-Butanol	6.324	56	214543	350.19 ug/L	98
54) Trichloroethene	6.353	130	337077	35.65 ug/L	96
55) 1,2-Dichloropropane	6.697	63	304622	31.69 ug/L	96
56) Dibromomethane	6.797	93	237271	33.81 ug/L	97
57) Methyl methacrylate	6.819	41	311039	28.75 ug/L	92
58) Bromodichloromethane	7.019	83	420785	34.45 ug/L	98
59) 2-Chloroethyl vinyl ether	7.327	43	117182	26.27 ug/L	91
60) 2-Nitropropane	7.241	43	116727	24.89 ug/L #	97
61) cis-1,3-Dichloropropene	7.449	75	502359	34.60 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	465470	30.55 ug/L	94
65) Toluene	7.728	91	1251773	35.49 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	457449	32.35 ug/L	97
67) Chloropicrin	7.943	117	279763	No Calib #	
68) Ethyl methacrylate	7.993	69	462717	30.67 ug/L	93
69) 1,1,2-Trichloroethane	8.087	97	333502	32.05 ug/L	97
70) Tetrachloroethene	8.130	166	354614	38.52 ug/L	97
71) 1,3-Dichloropropane	8.201	76	478693	32.73 ug/L	96
72) 2-Hexanone	8.244	43	375893	31.40 ug/L	97
73) Chlorodibromomethane	8.352	129	398039	35.43 ug/L	100
74) Butyl acetate	8.344	43	641716	32.16 ug/L	96
75) 1,2-Dibromoethane	8.423	107	372894	34.76 ug/L	99
76) Chlorobenzene	8.753	112	856927	36.01 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.810	131	323151	35.17 ug/L	98
78) Ethylbenzene	8.817	91	1362820	35.92 ug/L	98
79) m/p-Xylene	8.896	91	2047114	71.18 ug/L	98
80) Styrene	9.140	104	874520	35.68 ug/L	97
81) o-Xylene	9.125	91	1070969	35.10 ug/L	98
82) Cyclohexanone	9.383	55	181341	190.79 ug/L	94
83) Bromoform	9.247	173	318809	37.60 ug/L	99
84) Isopropylbenzene	9.333	105	1251968	34.88 ug/L	100
86) Bromobenzene	9.512	77	745884	33.15 ug/L	89
87) 1,1,2,2-Tetrachloroethane	9.512	83	558456	34.65 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	142405	32.20 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	128497	28.86 ug/L	96
90) n-Propylbenzene	9.562	91	1486097	35.93 ug/L	98
91) 2-Chlorotoluene	9.612	91	898866	36.27 ug/L	97
92) 4-Chlorotoluene	9.677	91	1039072	35.82 ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	1016407	35.78 ug/L	99
94) tert-Butylbenzene	9.827	91	561227	33.06 ug/L	95
95) 1,2,4-Trimethylbenzene	9.856	105	1079905	35.68 ug/L	100
96) sec-Butylbenzene	9.942	105	1204960	35.19 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	711723	38.64 ug/L	98
99) p-Isopropyltoluene	10.013	119	1043903	35.21 ug/L	99
100) 1,4-Dichlorobenzene	10.064	146	710656	37.83 ug/L	98

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

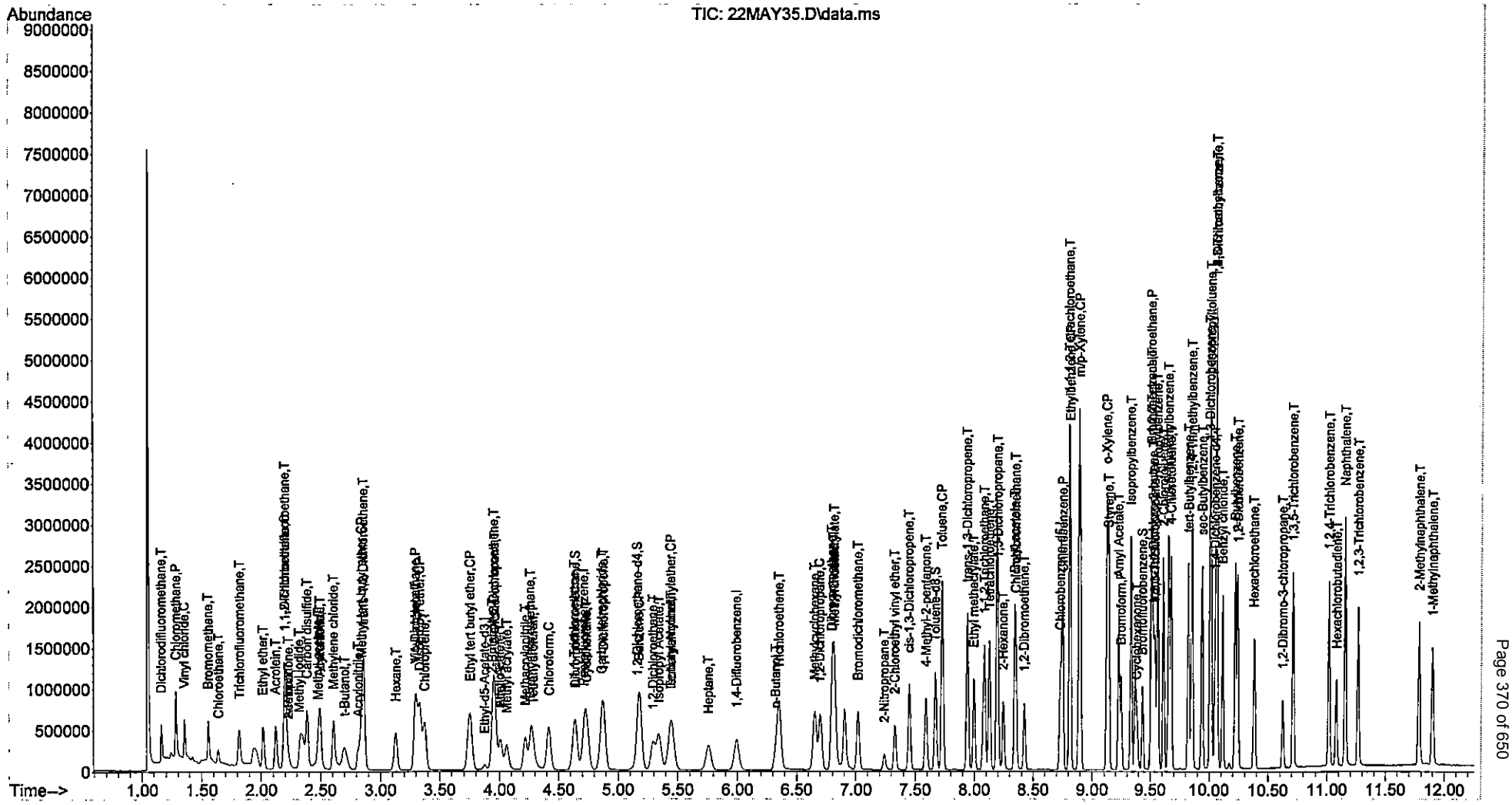
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	1145805	36.82	ug/L		99
102) Benzyl chloride	10.114	91	892996	36.32	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	706108	38.95	ug/L		98
104) n-Butylbenzene	10.221	91	914653	34.05	ug/L		99
105) Hexachloroethane	10.379	117	232675	34.89	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.622	157	164588	31.62	ug/L		93
107) 1,3,5-Trichlorobenzene	10.708	180	497942	40.28	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	486294	38.39	ug/L		99
109) Hexachlorobutadiene	11.081	225	161755	38.22	ug/L		99
110) Naphthalene	11.152	128	1574594	33.88	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	437935	35.54	ug/L		96
112) 2-Methylnaphthalene	11.783	142	640046	26.80	ug/L		100
113) 1-Methylnaphthalene	11.897	142	544879	24.48	ug/L		100
115) 2-Propanone	2.227	43	145744	36.20	ug/L		97
116) Acetic Ether	4.004	43	456965	40.03	ug/L	#	98
117) Isopropyl Acetate	5.343	61	214147	41.67	ug/L		95
118) Amyl Acetate	9.225	43	616542	41.96	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY35.D
Acq On : 22 May 2018 8:29 pm
Operator : EMR
Sample : VCCV3-180522
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 23 09:28:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	79	0.00
2	T	Dichlorodifluoromethane	40.000	45.849	-14.6	105	0.00
3	P	Chloromethane	40.000	39.082	2.3	83	0.00
4	C	Vinyl chloride	40.000	36.798	8.0	79	0.00
5	T	Bromomethane	40.000	65.395	-63.5#	133	-0.01
6	T	Chloroethane	40.000	37.264	6.8	73	0.00
7	T	Trichlorofluoromethane	40.000	36.626	8.4	78	0.00
8	T	Ethyl ether	40.000	33.031	17.4	70	0.00
9	T	Acrolein	200.000	355.408	-77.7#	151	0.00
10	C	1,1-Dichloroethene	40.000	33.822	15.4	69	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	34.604	13.5	76	0.00
12	T	Methyl iodide	40.000	44.754	-11.9	90	0.00
13	T	Acetone	40.000	34.135	14.7	77	0.00
14	T	Chloroprene	40.000	35.648	10.9	71	0.00
15	T	Carbon disulfide	40.000	32.915	17.7	68	0.00
16	T	Allyl chloride	40.000	35.389	11.5	73	0.00
17	T	Methyl acetate	40.000	38.017	5.0	75	0.00
18	T	Acetonitrile	40.000	35.581	11.0	73	0.00
19	T	Methylene chloride	40.000	35.099	12.3	74	0.00
20	T	trans-1,2-Dichloroethene	40.000	36.054	9.9	73	0.00
21	T	t-Butanol	200.000	204.357	-2.2	81	-0.02
22	T	Acrylonitrile	40.000	37.670	5.8	75	0.00
23	CP	Methyl tert-butyl ether	40.000	42.208	-5.5	81	0.00
24	T	Hexane	40.000	31.401	21.5#	72	0.00
25	P	1,1-Dichloroethane	40.000	35.714	10.7	72	0.00
26	CP	Diisopropyl ether	40.000	41.046	-2.6	81	0.00
27	T	Vinyl acetate	40.000	42.454	-6.1	97	0.00
28	CP	Ethyl tert butyl ether	40.000	40.825	-2.1	81	0.00
29	T	2,2-Dichloropropane	40.000	36.657	8.4	76	0.00
30	T	cis-1,2-Dichloroethene	40.000	37.909	5.2	77	0.00
31	T	2-Butanone	40.000	36.393	9.0	81	0.00
32	T	Ethyl Acetate	40.000	41.307	-3.3	79	0.00
33	T	Methyl acrylate	40.000	37.323	6.7	72	0.00
34	T	Propionitrile	40.000	36.603	8.5	74	0.00
35	T	Bromochloromethane	40.000	37.028	7.4	75	0.00
36	T	Tetrahydrofuran	40.000	38.158	4.6	74	0.00
37	T	Methacrylonitrile	40.000	38.031	4.9	71	0.00
38	C	Chloroform	40.000	37.300	6.8	77	0.00
39	T	Cyclohexane	40.000	33.169	17.1	72	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	77	0.00
41	T	1,1,1-Trichloroethane	40.000	37.124	7.2	73	0.00
42	S	Dibromofluoromethane	20.000	20.267	-1.3	77	0.00
43	T	Carbon tetrachloride	40.000	39.088	2.3	74	0.00
44	T	1,1-Dichloropropene	40.000	34.964	12.6	74	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.369	3.2	75	0.00
46	T	1,2-Dichloroethane	40.000	35.154	12.1	74	0.00
47	CP	Benzene	40.000	38.860	2.9	76	0.00
48	CP	Tertiaryamylmethylether	40.000	43.966	-9.9	83	0.00
49	T	Isobutyl Alcohol	40.000	38.468	3.8	79	0.00
50	T	Heptane	40.000	38.356	4.1	75	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	5220.618	-30.5#	101	-0.02
52	T	Methylcyclohexane	40.000	35.195	12.0	73	0.00
53	T	n-Butanol	400.000	423.717	-5.9	76	-0.02
54	T	Trichloroethene	40.000	38.494	3.8	78	0.00
55	C	1,2-Dichloropropane	40.000	37.226	6.9	76	0.00
56	T	Dibromomethane	40.000	37.764	5.6	75	0.00
57	T	Methyl methacrylate	40.000	35.617	11.0	74	0.00
58	T	Bromodichloromethane	40.000	39.261	1.8	76	0.00
59	T	2-Chloroethyl vinyl ether	40.000	34.892	12.8	72	0.00
60	T	2-Nitropropane	40.000	30.395	24.0#	66	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.354	1.6	75	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	79	0.00
63	T	4-Methyl-2-pentanone	40.000	36.930	7.7	77	0.00
64	S	Toluene-d8	20.000	19.503	2.5	77	0.00
65	CP	Toluene	40.000	39.267	1.8	77	0.00
66	T	trans-1,3-Dichloropropene	40.000	37.350	6.6	76	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	35.828	10.4	75	0.00
69	T	1,1,2-Trichloroethane	40.000	35.193	12.0	78	0.00
70	T	Tetrachloroethene	40.000	40.963	-2.4	83	0.00
71	T	1,3-Dichloropropane	40.000	37.351	6.6	76	0.00
72	T	2-Hexanone	40.000	37.949	5.1	77	0.00
73	T	Chlorodibromomethane	40.000	39.302	1.7	77	0.00
74	T	Butyl acetate	40.000	38.588	3.5	79	0.00
75	T	1,2-Dibromoethane	40.000	38.909	2.7	78	0.00
76	P	Chlorobenzene	40.000	40.121	-0.3	80	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	39.239	1.9	82	0.00
78	CP	Ethylbenzene	40.000	39.318	1.7	78	0.00
79	CP	m/p-Xylene	80.000	78.173	2.3	77	0.00
80	T	Styrene	40.000	40.011	-0.0	79	0.00
81	CP	o-Xylene	40.000	38.826	2.9	77	0.00
82	T	Cyclohexanone	200.000	250.159	-25.1#	93	0.00
83	P	Bromoform	40.000	41.873	-4.7	79	0.00
84	T	Isopropylbenzene	40.000	38.717	3.2	78	0.00
85	S	Bromofluorobenzene	20.000	18.832	5.8	73	0.00
86	T	Bromobenzene	40.000	39.583	1.0	78	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	40.805	-2.0	82	0.00
88	T	1,2,3-Trichloropropane	40.000	35.765	10.6	77	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	33.380	16.5	73	0.00
90	T	n-Propylbenzene	40.000	40.228	-0.6	79	0.00
91	T	2-Chlorotoluene	40.000	40.831	-2.1	81	0.00
92	T	4-Chlorotoluene	40.000	40.278	-0.7	81	0.00
93	T	1,3,5-Trimethylbenzene	40.000	39.760	0.6	79	0.00
94	T	tert-Butylbenzene	40.000	41.443	-3.6	86	0.00
95	T	1,2,4-Trimethylbenzene	40.000	38.857	2.9	78	0.00
96	T	sec-Butylbenzene	40.000	39.431	1.4	80	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	84	0.00
98	T	1,3-Dichlorobenzene	40.000	42.054	-5.1	85	0.00
99	T	p-Isopropyltoluene	40.000	38.227	4.4	78	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	41.287	-3.2	85	0.00
101	T	1,2,3-Trimethylbenzene	40.000	40.461	-1.2	82	0.00
102	T	Benzyl chloride	40.000	40.804	-2.0	84	0.00
103	T	1,2-Dichlorobenzene	40.000	41.747	-4.4	84	0.00
104	T	n-Butylbenzene	40.000	37.760	5.6	78	0.00
105	T	Hexachloroethane	40.000	38.225	4.4	81	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	37.014	7.5	81	0.00
107	T	1,3,5-Trichlorobenzene	40.000	43.555	-8.9	88	0.00
108	T	1,2,4-Trichlorobenzene	40.000	41.752	-4.4	88	0.00
109	T	Hexachlorobutadiene	40.000	42.012	-5.0	89	0.00
110	T	Naphthalene	40.000	39.997	0.0	81	0.00
111	T	1,2,3-Trichlorobenzene	40.000	42.676	-6.7	84	0.00
112	T	2-Methylnaphthalene	40.000	39.030	2.4	77	0.00
113	T	1-Methylnaphthalene	40.000	40.874	-2.2	80	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	72	0.00
115	T	2-Propanone	40.000	37.372	6.6	72	0.00
116	T	Acetic Ether	40.000	44.971	-12.4	79	0.00
117	T	Isopropyl Acetate	40.000	43.177	-7.9	81	0.00
118	T	Amyl Acetate	40.000	45.133	-12.8	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	79	0.00
2	T	Dichlorodifluoromethane	0.448	0.514	-14.7	105	0.00
3	P	Chloromethane	0.678	0.662	2.4	83	0.00
4	C	Vinyl chloride	0.531	0.488	8.1	79	0.00
5	T	Bromomethane	0.244	0.266	-9.0	133	-0.01
6	T	Chloroethane	0.384	0.249	35.2#	73	0.00
7	T	Trichlorofluoromethane	0.552	0.505	8.5	78	0.00
8	T	Ethyl ether	0.408	0.337	17.4	70	0.00
9	T	Acrolein	0.108	0.144#	-33.3#	151	0.00
10	C	1,1-Dichloroethene	0.602	0.509	15.4	69	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.283	13.5	76	0.00
12	T	Methyl iodide	0.433	0.337	22.2#	90	0.00
13	T	Acetone	0.273	0.233	14.7	77	0.00
14	T	Chloroprene	0.609	0.543	10.8	71	0.00
15	T	Carbon disulfide	1.305	1.074	17.7	68	0.00
16	T	Allyl chloride	0.702	0.621	11.5	73	0.00
17	T	Methyl acetate	0.612	0.581	5.1	75	0.00
18	T	Acetonitrile	0.698	0.621	11.0	73	0.00
19	T	Methylene chloride	0.638	0.560	12.2	74	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.591	9.8	73	0.00
21	T	t-Butanol	0.138	0.141#	-2.2	81	-0.02
22	T	Acrylonitrile	0.304	0.286	5.9	75	0.00
23	CP	Methyl tert-butyl ether	1.253	1.322	-5.5	81	0.00
24	T	Hexane	0.507	0.398	21.5#	72	0.00
25	P	1,1-Dichloroethane	0.895	0.799	10.7	72	0.00
26	CP	Diisopropyl ether	1.320	1.354	-2.6	81	0.00
27	T	Vinyl acetate	0.087	0.092#	-5.7	97	0.00
28	CP	Ethyl tert butyl ether	1.304	1.331	-2.1	81	0.00
29	T	2,2-Dichloropropane	0.638	0.584	8.5	76	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.739	5.3	77	0.00
31	T	2-Butanone	0.469	0.427	9.0	81	0.00
32	T	Ethyl Acetate	0.771	0.796	-3.2	79	0.00
33	T	Methyl acrylate	0.742	0.692	6.7	72	0.00
34	T	Propionitrile	0.049	0.039#	20.4#	74	0.00
35	T	Bromochloromethane	0.411	0.380	7.5	75	0.00
36	T	Tetrahydrofuran	0.281	0.268	4.6	74	0.00
37	T	Methacrylonitrile	0.439	0.418	4.8	71	0.00
38	C	Chloroform	0.907	0.846	6.7	77	0.00
39	T	Cyclohexane	0.717	0.594	17.2	72	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	77	0.00
41	T	1,1,1-Trichloroethane	0.464	0.431	7.1	73	0.00
42	S	Dibromofluoromethane	0.347	0.352	-1.4	77	0.00
43	T	Carbon tetrachloride	0.398	0.389	2.3	74	0.00
44	T	1,1-Dichloropropene	0.437	0.382	12.6	74	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.327	3.3	75	0.00
46	T	1,2-Dichloroethane	0.444	0.390	12.2	74	0.00
47	CP	Benzene	1.276	1.239	2.9	76	0.00
48	CP	Tertiaryamylmethylether	0.828	0.910	-9.9	83	0.00
49	T	Isobutyl Alcohol	0.269	0.259	3.7	79	0.00
50	T	Heptane	0.289	0.236	18.3	75	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.007	0.009#	-28.6#	101	-0.02
52	T	Methylcyclohexane	0.438	0.385	12.1	73	0.00
53	T	n-Butanol	0.023	0.025#	-8.7	76	-0.02
54	T	Trichloroethene	0.359	0.345	3.9	78	0.00
55	C	1,2-Dichloropropane	0.365	0.340	6.8	76	0.00
56	T	Dibromomethane	0.266	0.252	5.3	75	0.00
57	T	Methyl methacrylate	0.411	0.366	10.9	74	0.00
58	T	Bromodichloromethane	0.464	0.455	1.9	76	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.148#	12.4	72	0.00
60	T	2-Nitropropane	0.178	0.135#	24.2#	66	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.542	1.6	75	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	79	0.00
63	T	4-Methyl-2-pentanone	0.622	0.574	7.7	77	0.00
64	S	Toluene-d8	1.305	1.273	2.5	77	0.00
65	CP	Toluene	1.439	1.413	1.8	77	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.539	6.6	76	0.00
67	T	Chloropicrin	0.000	0.032#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.551	10.4	75	0.00
69	T	1,1,2-Trichloroethane	0.425	0.374	12.0	78	0.00
70	T	Tetrachloroethene	0.376	0.385	-2.4	83	0.00
71	T	1,3-Dichloropropane	0.597	0.557	6.7	76	0.00
72	T	2-Hexanone	0.488	0.463	5.1	77	0.00
73	T	Chlorodibromomethane	0.458	0.450	1.7	77	0.00
74	T	Buty1 acetate	0.814	0.785	3.6	79	0.00
75	T	1,2-Dibromoethane	0.438	0.426	2.7	78	0.00
76	P	Chlorobenzene	0.971	0.974	-0.3	80	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.368	1.9	82	0.00
78	CP	Ethylbenzene	1.548	1.522	1.7	78	0.00
79	CP	m/p-Xylene	1.173	1.147	2.2	77	0.00
80	T	Styrene	1.000	1.000	0.0	79	0.00
81	CP	o-Xylene	1.245	1.208	3.0	77	0.00
82	T	Cyclohexanone	0.073	0.048#	34.2#	93	0.00
83	P	Bromoform	0.346	0.362	-4.6	79	0.00
84	T	Isopropylbenzene	1.465	1.418	3.2	78	0.00
85	S	Bromofluorobenzene	0.473	0.446	5.7	73	0.00
86	T	Bromobenzene	0.918	0.908	1.1	78	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.671	-2.0	82	0.00
88	T	1,2,3-Trichloropropane	0.180	0.161#	10.6	77	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.152#	16.5	73	0.00
90	T	n-Propylbenzene	1.688	1.697	-0.5	79	0.00
91	T	2-Chlorotoluene	1.011	1.032	-2.1	81	0.00
92	T	4-Chlorotoluene	1.183	1.192	-0.8	81	0.00
93	T	1,3,5-Trimethylbenzene	1.159	1.152	0.6	79	0.00
94	T	tert-Butylbenzene	0.693	0.717	-3.5	86	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.200	2.8	78	0.00
96	T	sec-Butylbenzene	1.397	1.377	1.4	80	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	84	0.00
98	T	1,3-Dichlorobenzene	1.416	1.489	-5.2	85	0.00
99	T	p-Isopropyltoluene	2.279	2.178	4.4	78	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.444	1.491	-3.3	85	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.420	-1.2	82	0.00
102	T	Benzyl chloride	1.890	1.928	-2.0	84	0.00
103	T	1,2-Dichlorobenzene	1.393	1.454	-4.4	84	0.00
104	T	n-Butylbenzene	2.065	1.949	5.6	78	0.00
105	T	Hexachloroethane	0.513	0.490	4.5	81	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.370	7.5	81	0.00
107	T	1,3,5-Trichlorobenzene	0.950	1.035	-8.9	88	0.00
108	T	1,2,4-Trichlorobenzene	0.974	1.016	-4.3	88	0.00
109	T	Hexachlorobutadiene	0.325	0.342	-5.2	89	0.00
110	T	Naphthalene	3.572	3.572	0.0	81	0.00
111	T	1,2,3-Trichlorobenzene	0.947	1.010	-6.7	84	0.00
112	T	2-Methylnaphthalene	1.836	1.791	2.5	77	0.00
113	T	1-Methylnaphthalene	1.711	1.748	-2.2	80	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	72	0.00
115	T	2-Propanone	0.897	0.838	6.6	72	0.00
116	T	Acetic Ether	2.543	2.859	-12.4	79	0.00
117	T	Isopropyl Acetate	1.145	1.236	-7.9	81	0.00
118	T	Amyl Acetate	3.274	3.694	-12.8	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	269254	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	398675	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	367820	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	196501	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	74978	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	140143	20.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.35%				
45) 1,2-Dichloroethane-d4	5.157	65	130389	19.37	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.85%				
64) Toluene-d8	7.671	98	468235	19.50	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.50%				
85) Bromofluorobenzene	9.433	95	163923	18.83	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	276614	45.85	ug/L		99
3) Chloromethane	1.282	50	356493	39.08	ug/L		100
4) Vinyl chloride	1.353	62	263027	36.80	ug/L		95
5) Bromomethane	1.554	96	143502	65.40	ug/L		98
6) Chloroethane	1.633	64	133994	37.26	ug/L		88
7) Trichlorofluoromethane	1.812	101	272055	36.63	ug/L		96
8) Ethyl ether	2.012	59	181280	33.03	ug/L		95
9) Acrolein	2.120	56	386485	355.41	ug/L		99
10) 1,1-Dichloroethene	2.199	61	274184	33.82	ug/L		93
11) 1,1,2-Trichlorotrifluo...	2.199	151	152274	34.60	ug/L		98
12) Methyl iodide	2.320	142	181267	44.75	ug/L		99
13) Acetone	2.227	43	125659	34.14	ug/L		97
14) Chloroprene	3.366	53	292304	35.65	ug/L		99
15) Carbon disulfide	2.385	76	578341	32.91	ug/L		98
16) Allyl chloride	2.492	41	334229	35.39	ug/L		97
17) Methyl acetate	2.478	43	313004	38.02	ug/L		99
18) Acetonitrile	2.492	41	334229	35.58	ug/L	#	95
19) Methylene chloride	2.600	49	301451	35.10	ug/L		97
20) trans-1,2-Dichloroethene	2.858	61	317996	36.05	ug/L		96
21) t-Butanol	2.700	59	378802	204.36	ug/L		98
22) Acrylonitrile	2.807	53	153925	37.67	ug/L		98
23) Methyl tert-butyl ether	2.843	73	711995	42.21	ug/L		100
24) Hexane	3.123	57	214269	31.40	ug/L		96
25) 1,1-Dichloroethane	3.295	63	430388	35.71	ug/L		99
26) Diisopropyl ether	3.330	45	729379	41.05	ug/L		91
27) Vinyl acetate	3.287	86	49763	42.45	ug/L	#	80
28) Ethyl tert butyl ether	3.746	59	716644	40.82	ug/L		99
29) 2,2-Dichloropropane	3.954	77	314669	36.66	ug/L		99
30) cis-1,2-Dichloroethene	3.946	61	398213	37.91	ug/L		97
31) 2-Butanone	3.939	43	229891	36.39	ug/L		98
32) Ethyl Acetate	4.004	43	428726	41.31	ug/L	#	100
33) Methyl acrylate	4.061	55	372661	37.32	ug/L		99
34) Propionitrile	4.734	54	20816	36.60	ug/L	#	88
35) Bromochloromethane	4.262	49	204898	37.03	ug/L		92
36) Tetrahydrofuran	4.283	42	144201	38.16	ug/L		98
37) Methacrylonitrile	4.219	41	224907	38.03	ug/L		98
38) Chloroform	4.412	83	455627	37.30	ug/L		98

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	4.727	56	320046	33.17 ug/L		98
41)	1,1,1-Trichloroethane	4.627	97	343504	37.12 ug/L		99
43)	Carbon tetrachloride	4.856	117	310481	39.09 ug/L		98
44)	1,1-Dichloropropene	4.870	75	304353	34.96 ug/L		98
46)	1,2-Dichloroethane	5.293	62	311283	35.15 ug/L		97
47)	Benzene	5.178	78	988180	38.86 ug/L		99
48)	Tertiaryamylmethylether	5.443	73	725875	43.97 ug/L		98
49)	Isobutyl Alcohol	5.443	43	206408	38.47 ug/L		99
50)	Heptane	5.751	43	188278	38.36 ug/L		98
51)	1,4-Dioxane	6.804	88	737305	5220.62 ug/L		98
52)	Methylcyclohexane	6.654	83	306952	35.19 ug/L		98
53)	n-Butanol	6.324	56	196480	423.72 ug/L		99
54)	Trichloroethene	6.346	130	275482	38.49 ug/L		97
55)	1,2-Dichloropropane	6.697	63	270814	37.23 ug/L		97
56)	Dibromomethane	6.797	93	200614	37.76 ug/L		95
57)	Methyl methacrylate	6.819	41	291611	35.62 ug/L		97
58)	Bromodichloromethane	7.019	83	362934	39.26 ug/L		100
59)	2-Chloroethyl vinyl ether	7.327	43	117799	34.89 ug/L		96
60)	2-Nitropropane	7.241	43	107906	30.39 ug/L	#	97
61)	cis-1,3-Dichloropropene	7.449	75	432526	39.35 ug/L		99
63)	4-Methyl-2-pentanone	7.585	43	422203	36.93 ug/L		99
65)	Toluene	7.728	91	1039092	39.27 ug/L		99
66)	trans-1,3-Dichloropropene	7.936	75	396310	37.35 ug/L		98
67)	Chloropicrin	7.943	117	232100	No Calib	#	
68)	Ethyl methacrylate	7.993	69	405547	35.83 ug/L		97
69)	1,1,2-Trichloroethane	8.087	97	274769	35.19 ug/L		98
70)	Tetrachloroethene	8.130	166	282968	40.96 ug/L		98
71)	1,3-Dichloropropane	8.201	76	409873	37.35 ug/L		95
72)	2-Hexanone	8.244	43	340904	37.95 ug/L		99
73)	Chlorodibromomethane	8.352	129	331275	39.30 ug/L		99
74)	Butyl acetate	8.344	43	577824	38.59 ug/L		98
75)	1,2-Dibromoethane	8.423	107	313164	38.91 ug/L		99
76)	Chlorobenzene	8.746	112	716295	40.12 ug/L		97
77)	1,1,1,2-Tetrachloroethane	8.810	131	270513	39.24 ug/L		99
78)	Ethylbenzene	8.810	91	1119303	39.32 ug/L		98
79)	m/p-Xylene	8.896	91	1686855	78.17 ug/L		97
80)	Styrene	9.132	104	735778	40.01 ug/L		99
81)	o-Xylene	9.125	91	889015	38.83 ug/L		99
82)	Cyclohexanone	9.383	55	175353	250.16 ug/L		98
83)	Bromoform	9.247	173	266399	41.87 ug/L		99
84)	Isopropylbenzene	9.333	105	1042828	38.72 ug/L		99
86)	Bromobenzene	9.512	77	668236	39.58 ug/L		93
87)	1,1,2,2-Tetrachloroethane	9.512	83	493444	40.80 ug/L		99
88)	1,2,3-Trichloropropane	9.541	110	118669	35.76 ug/L		98
89)	trans-1,4-Dichloro-2-b...	9.526	53	111531	33.38 ug/L		97
90)	n-Propylbenzene	9.562	91	1248586	40.23 ug/L		99
91)	2-Chlorotoluene	9.612	91	759278	40.83 ug/L		100
92)	4-Chlorotoluene	9.677	91	876628	40.28 ug/L		98
93)	1,3,5-Trimethylbenzene	9.655	105	847558	39.76 ug/L		98
94)	tert-Butylbenzene	9.827	91	527818	41.44 ug/L		96
95)	1,2,4-Trimethylbenzene	9.856	105	882442	38.86 ug/L		98
96)	sec-Butylbenzene	9.942	105	1012983	39.43 ug/L		99
98)	1,3-Dichlorobenzene	10.006	146	585001	42.05 ug/L		98
99)	p-Isopropyltoluene	10.013	119	855866	38.23 ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	585812	41.29 ug/L		99

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ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

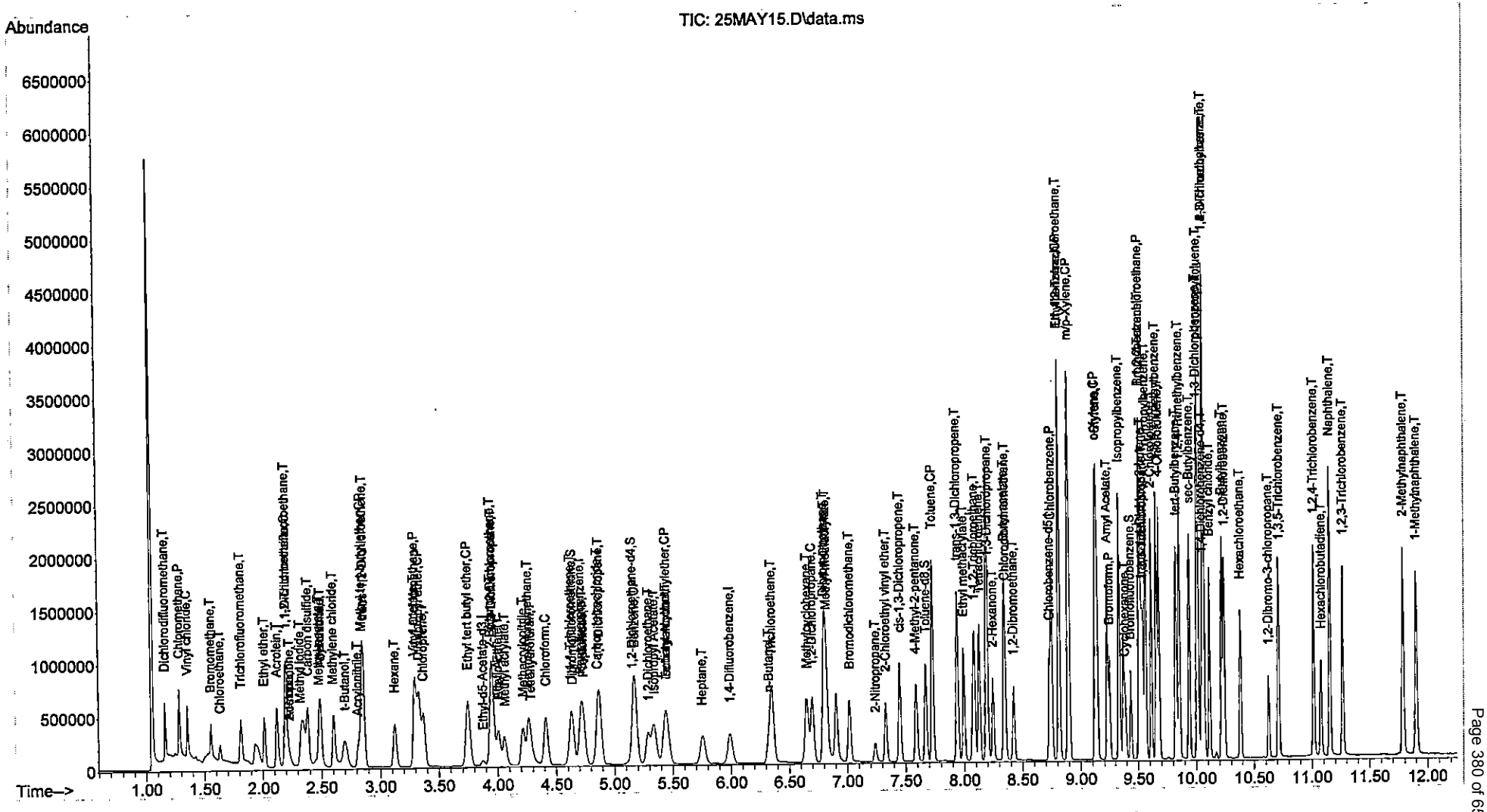
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	951047	40.46	ug/L		98
102) Benzyl chloride	10.114	91	757781	40.80	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	571539	41.75	ug/L		99
104) n-Butylbenzene	10.221	91	766068	37.76	ug/L		99
105) Hexachloroethane	10.379	117	192547	38.22	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	145494	37.01	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	406626	43.56	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	399402	41.75	ug/L		98
109) Hexachlorobutadiene	11.081	225	134294	42.01	ug/L		99
110) Naphthalene	11.152	128	1403792	40.00	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	397110	42.68	ug/L		98
112) 2-Methylnaphthalene	11.783	142	704030	39.03	ug/L		99
113) 1-Methylnaphthalene	11.897	142	687157	40.87	ug/L		98
115) 2-Propanone	2.227	43	125659	37.37	ug/L		97
116) Acetic Ether	4.004	43	428726	44.97	ug/L	#	99
117) Isopropyl Acetate	5.343	61	185316	43.18	ug/L		98
118) Amyl Acetate	9.226	43	553890	45.13	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 7:55 pm
Operator : EMR
Sample : VCCV3-180525
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 20:08:02 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

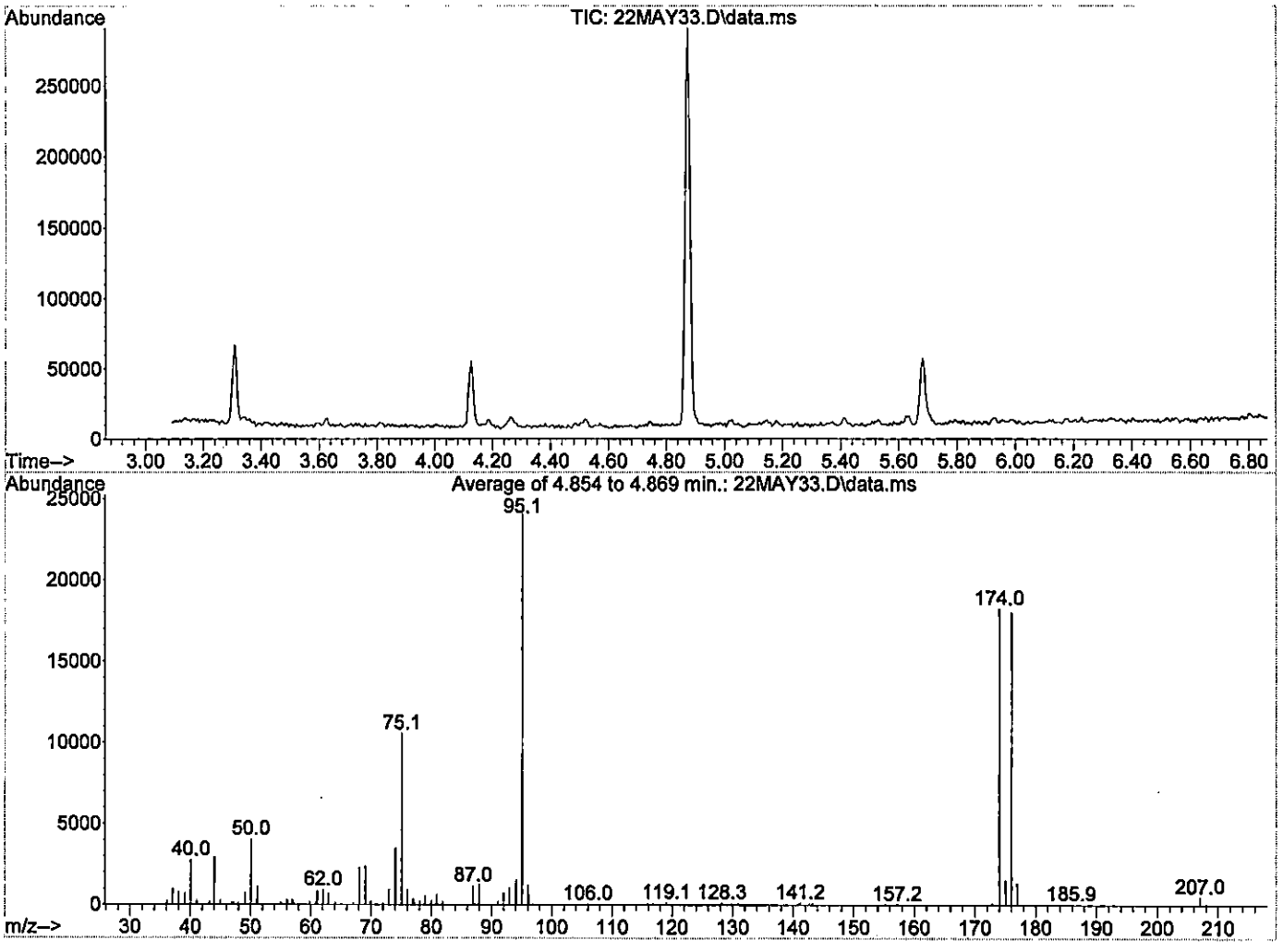


8GI0515.M Sun Jun 24 17:59:34 2018 Page: 4

Data Path : C:\msdchem\1\data\8V180522\
Data File : 22MAY33.D
Acq On : 22 May 2018 7:58 pm
Operator : EMR
Sample : VBFB2-180522
Misc : IS/SS 200-20081
ALS Vial : 32 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



Spectrum Information: Average of 4.854 to 4.869 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	16.7	4020	PASS
75	95	30	80	43.9	10535	PASS
95	95	100	100	100.0	24009	PASS
96	95	5	9	5.0	1204	PASS
173	174	0.00	2	0.7	124	PASS
174	95	50	100	75.8	18199	PASS
175	174	5	9	8.3	1504	PASS
176	174	95	101	98.8	17977	PASS
177	176	5	9	7.5	1352	PASS

Response Factor Report VMS8

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY17.D 2 =15MAY18.D 3 =15MAY19.D 4 =15MAY20.D 5 =15MAY21.D 6 =15MAY22.D 7 =15MAY23.D
8 =15MAY24.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...		0.865	0.627	0.650	0.641	0.574	0.554	0.550	0.637	17.05
3)	P	Chloromethane		1.151	0.853	0.885	0.818	0.822	0.793	0.824	0.878	14.13
4)	C	Vinyl chloride			0.651	0.666	0.695	0.626	0.608	0.614	0.643	5.19
5)	T	Bromomethane			0.656	0.641	0.546	0.532	0.484	0.495	0.559	13.04
6)	T	Chloroethane	0.508	0.497	0.457	0.381	0.381	0.382	0.361	0.366	0.416	14.54
7)	T	Trichlorofluor...		1.137	0.833	0.906	0.863	0.780	0.767	0.788	0.868	14.82
8)	T	Ethyl ether	0.289	0.405	0.419	0.393	0.349	0.352	0.338	0.378	0.365	11.49
9)	T	Acrolein		0.197	0.084	0.085	0.074	0.049	0.048	0.052	0.084#	62.10
10)	C	1,1-Dichloroet...	0.938	1.022	0.838	0.844	0.775	0.792	0.720	0.811	0.842	11.40
11)	T	1,1,2-Trichlor...	0.417	0.521	0.353	0.430	0.390	0.398	0.343	0.404	0.407	13.42
12)	T	Methyl iodide		0.469	0.340	0.328	0.324	0.360	0.369	0.443	0.376	15.22
13)	T	Acetone		1.131	0.329	0.318	0.186	0.140	0.133	0.143	0.340	105.42
14)	T	Chloroprene	0.849	1.012	0.859	0.823	0.738	0.763	0.699	0.800	0.818	11.69
15)	T	Carbon disulfide			2.109	2.101	1.867	1.899	1.750	1.924	1.942	7.19
16)	T	Allyl chloride			0.998	1.047	0.841	0.846	0.829	0.888	0.908	10.16
17)	T	Methyl acetate			0.413	0.333	0.325	0.324	0.328	0.362	0.348	10.06
18)	T	Acetonitrile			0.998	1.047	0.841	0.846	0.828	0.882	0.907	10.21
19)	T	Methylene chlo...		5.461	1.750	1.296	0.846	0.725	0.689	0.727	1.642	105.29
20)	T	trans-1,2-Dich...	1.003	1.094	0.939	0.855	0.794	0.825	0.755	0.853	0.890	12.82
21)	T	t-Butanol	0.281	0.212	0.113	0.085	0.068	0.057	0.056	0.063	0.117#	72.01
22)	T	Acrylonitrile	0.172	0.290	0.199	0.193	0.199	0.197	0.187	0.209	0.206	17.38
23)	CP	Methyl tert-bu...	1.158	1.077	1.126	1.015	1.035	1.015	1.082	1.160	1.083	5.50#
24)	T	Hexane		3.630	1.305	1.023	0.866	0.806	0.637	0.700	1.281	82.69
25)	P	1,1-Dichloroet...	0.859	1.178	1.068	1.089	1.009	1.027	0.983	1.082	1.037	9.02
26)	CP	Diisopropyl ether	1.159	1.348	1.229	1.234	1.242	1.197	1.296	1.375	1.260	5.90#
27)	T	Vinyl acetate			0.114	0.114	0.095	0.077	0.076	0.082	0.093#	18.78
28)	CP	Ethyl tert but...	1.162	1.165	1.236	1.090	1.166	1.127	1.183	1.275	1.175	4.95#
29)	T	2,2-Dichloropr...			0.832	0.872	0.805	0.799	0.744	0.818	0.812	5.16
30)	T	cis-1,2-Dichlo...	1.134	1.203	1.081	0.919	0.941	0.952	0.908	0.995	1.017	10.80
31)	T	2-Butanone		0.480	0.229	0.187	0.214	0.205	0.209	0.234	0.251	40.68
32)	T	Ethyl Acetate	0.429	0.527	0.380	0.428	0.436	0.424	0.446	0.481	0.444	9.84
33)	T	Methyl acrylate			0.443	0.461	0.464	0.483	0.456	0.504	0.468	4.59
34)	T	Propionitrile		0.151	0.112	0.096	0.065	0.053	0.049	0.056	0.083#	45.97
35)	T	Bromochloromet...			0.593	0.467	0.457	0.439	0.429	0.465	0.475	12.55
36)	T	Tetrahydrofuran		0.314	0.267	0.204	0.163	0.154	0.169	0.168	0.206	30.03
37)	T	Methacrylonitrile	0.249	0.362	0.352	0.330	0.309	0.311	0.287	0.319	0.315	11.42
38)	C	Chloroform	1.227	1.557	1.064	1.099	0.991	1.001	0.937	1.056	1.116	17.74
39)	T	Cyclohexane	1.593	1.603	0.993	0.977	0.870	0.852	0.728	0.845	1.058	32.48

Response Factor Report VMS8

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration

40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.713	0.618	0.599	0.554	0.570	0.504	0.556	0.588	11.21
42)	S	Dibromofluorom...	0.353	0.357	0.329	0.333	0.342	0.335	0.331	0.337	0.340	3.06
43)	T	Carbon tetrach...	0.378	0.542	0.443	0.527	0.479	0.513	0.455	0.515	0.481	11.30
44)	T	1,1-Dichloropr...	0.612	0.830	0.558	0.519	0.502	0.534	0.464	0.524	0.568	20.09
45)	S	1,2-Dichloroet...	0.307	0.300	0.299	0.297	0.303	0.294	0.293	0.300	0.299	1.55
46)	T	1,2-Dichloroet...	0.519	0.568	0.469	0.434	0.405	0.414	0.387	0.421	0.452	13.84
47)	CP	Benzene	1.860	1.977	1.570	1.575	1.454	1.480	1.370	1.499	1.598	13.17#
48)	CP	Tertiaryamylme...		0.764	0.758	0.743	0.734	0.717	0.742	0.779	0.748	2.75#
49)	T	Isobutyl Alcohol		0.536	0.226	0.214	0.211	0.219	0.222	0.237	0.266	44.77
50)	T	Heptane			0.561	0.597	0.555	0.571	0.473	0.494	0.542	8.86
51)	T	1,4-Dioxane		0.007	0.005	0.005	0.005	0.006	0.005	0.005	0.005#	11.57
52)	T	Methylcyclohexane		0.847	0.605	0.629	0.596	0.621	0.522	0.586	0.630	16.22
53)	T	n-Butanol	0.019	0.033	0.006	0.007	0.009	0.010	0.009	0.011	0.013#	68.72
54)	T	Trichloroethene		0.603	0.456	0.422	0.397	0.414	0.376	0.415	0.441	17.16
55)	C	1,2-Dichloropr...	0.379	0.524	0.436	0.413	0.367	0.385	0.352	0.388	0.406	13.48
56)	T	Dibromomethane		0.303	0.251	0.264	0.239	0.246	0.225	0.250	0.254	9.75
57)	T	Methyl methacr...		0.351	0.326	0.390	0.282	0.287	0.262	0.280	0.311	14.85
58)	T	Bromodichlorom...	0.482	0.622	0.552	0.486	0.488	0.510	0.475	0.517	0.517	9.59
59)	T	2-Chloroethyl ...		0.174	0.166	0.176	0.155	0.142	0.128	0.140	0.154#	11.95
60)	T	2-Nitropropane		0.114	0.139	0.148	0.119	0.105	0.092	0.106	0.117#	16.82
61)	T	cis-1,3-Dichlo...	0.709	0.673	0.659	0.623	0.609	0.612	0.577	0.629	0.636	6.54
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...		0.477	0.498	0.388	0.370	0.343	0.333	0.363	0.396	16.47
64)	S	Toluene-d8	1.323	1.363	1.357	1.336	1.349	1.324	1.332	1.358	1.343	1.18
65)	CP	Toluene	2.164	2.273	2.008	1.823	1.736	1.828	1.672	1.830	1.917	11.04
66)	T	trans-1,3-Dich...	0.655	0.867	0.651	0.660	0.594	0.618	0.589	0.623	0.657	13.57
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.695	0.614	0.530	0.467	0.487	0.493	0.451	0.490	0.528	15.86
69)	T	1,1,2-Trichlor...	0.536	0.516	0.424	0.405	0.365	0.372	0.347	0.373	0.417	17.12
70)	T	Tetrachloroethene	0.533	0.643	0.499	0.506	0.471	0.499	0.442	0.471	0.508	12.00
71)	T	1,3-Dichloropr...	0.701	0.769	0.667	0.574	0.570	0.571	0.533	0.578	0.620	13.28
72)	T	2-Hexanone		0.345	0.275	0.221	0.273	0.257	0.249	0.262	0.269	14.20
73)	T	Chlorodibromom...	0.444	0.642	0.450	0.498	0.464	0.484	0.447	0.477	0.488	13.30
74)	T	Butyl acetate			0.550	0.520	0.530	0.505	0.514	0.522	0.523	2.95
75)	T	1,2-Dibromoethane		0.527	0.436	0.422	0.390	0.387	0.368	0.393	0.418	12.78
76)	P	Chlorobenzene	1.205	1.545	1.158	1.187	1.150	1.165	1.094	1.168	1.209	11.53
77)	T	1,1,1,2-Tetrac...	0.522	0.640	0.461	0.456	0.405	0.421	0.399	0.431	0.467	17.19
78)	CP	Ethylbenzene	2.236	2.335	2.014	1.928	1.871	1.967	1.836	1.976	2.020	8.66
79)	CP	m/p-Xylene	1.621	1.735	1.486	1.493	1.457	1.502	1.385	1.500	1.523	7.08#
80)	T	Styrene	1.421	1.661	1.314	1.241	1.191	1.243	1.129	1.213	1.302	13.00
81)	CP	o-Xylene	1.716	1.676	1.670	1.594	1.436	1.509	1.397	1.521	1.565	7.53#
82)	T	Cyclohexanone		0.030	0.038	0.026	0.020	0.020	0.018	0.020	0.025#	30.62
83)	P	Bromoform	0.331	0.423	0.304	0.315	0.311	0.316	0.300	0.322	0.328	12.10
84)	T	Isopropylbenzene	1.775	2.123	1.893	1.839	1.742	1.853	1.731	1.890	1.856	6.74
85)	S	Bromofluoroben...	0.448	0.465	0.453	0.449	0.469	0.442	0.439	0.457	0.453	2.32
86)	T	Bromobenzene		1.388	1.056	0.904	0.868	0.889	0.843	0.894	0.977	19.81
87)	P	1,1,2,2-Tetrac...	0.533	0.707	0.518	0.575	0.537	0.513	0.480	0.513	0.547	12.82
88)	T	1,2,3-Trichlor...			0.142	0.122	0.134	0.125	0.112	0.117	0.125#	8.81

Method Path : C:\msdchem\1\methods\
Method File : 8SG00515.M
Title : 8260B/624 Volatile Calibration

89)	T	trans-1,4-Dich...			0.166	0.138	0.127	0.126	0.117	0.122	0.133#	13.49
90)	T	n-Propylbenzene	2.011	2.678	2.209	2.276	2.222	2.274	2.109	2.253	2.254	8.62
91)	T	2-Chlorotoluene	1.179	1.573	1.274	1.251	1.245	1.273	1.173	1.265	1.279	9.78
92)	T	4-Chlorotoluene	1.818	1.737	1.596	1.486	1.469	1.492	1.392	1.456	1.556	9.61
93)	T	1,3,5-Trimethy...	1.505	1.794	1.461	1.473	1.381	1.488	1.394	1.477	1.497	8.56
94)	T	tert-Butylbenzene	0.877	1.143	0.905	0.904	0.877	0.846	0.818	0.876	0.906	11.04
95)	T	1,2,4-Trimethy...	1.783	1.713	1.545	1.583	1.488	1.509	1.409	1.467	1.562	8.14
96)	T	sec-Butylbenzene	1.855	2.013	1.974	2.032	1.930	1.966	1.828	1.962	1.945	3.68
97)	I	1,4-Dichlorobenzen...	----------				ISTD	----------				
98)	T	1,3-Dichlorobe...	1.839	2.396	1.859	1.767	1.792	1.842	1.755	1.860	1.889	11.06
99)	T	p-Isopropyltol...	3.241	3.988	3.485	3.491	3.304	3.402	3.274	3.454	3.455	6.84
100)	T	1,4-Dichlorobe...	2.177	2.176	1.945	1.815	1.829	1.808	1.770	1.858	1.922	8.58
101)	T	1,2,3-Trimethy...	2.842	3.505	3.245	3.057	2.987	3.056	2.966	3.151	3.101	6.55
102)	T	Benzyl chloride	2.250	2.496	2.014	1.892	1.888	1.865	1.827	1.949	2.023	11.52
103)	T	1,2-Dichlorobe...	1.668	2.077	1.810	1.683	1.627	1.690	1.643	1.713	1.739	8.48
104)	T	n-Butylbenzene	3.940	3.850	3.553	3.387	3.319	3.381	3.256	3.344	3.504	7.33
105)	T	Hexachloroethane	0.546	1.062	0.762	0.722	0.694	0.768	0.749	0.798	0.763	18.83
106)	T	1,2-Dibromo-3-...	0.269	0.477	0.389	0.283	0.241	0.246	0.234	0.259	0.300	29.03
107)	T	1,3,5-Trichlor...	1.419	1.607	1.455	1.346	1.406	1.430	1.366	1.448	1.435	5.52
108)	T	1,2,4-Trichlor...	1.482	1.535	1.303	1.234	1.294	1.254	1.247	1.321	1.334	8.45
109)	T	Hexachlorobuta...	0.818	0.845	0.648	0.713	0.654	0.711	0.677	0.736	0.725	9.99
110)	T	Naphthalene	3.183	4.056	3.077	2.996	2.943	2.951	2.897	3.179	3.160	11.95
111)	T	1,2,3-Trichlor...	1.611	1.570	1.295	1.215	1.149	1.156	1.147	1.218	1.295	14.62
112)	T	2-Methylnaphth...	2.688	2.230	1.743	1.682	1.819	1.720	1.856	2.000	1.967	17.36
113)	T	1-Methylnaphth...	1.684	2.223	1.593	1.432	1.458	1.490	1.542	1.707	1.641	15.57
114)	I	Ethyl-d5-Acetate-d3	----------				ISTD	----------				
115)	T	2-Propanone			7.064	2.244	2.149	1.101	0.879	0.887	0.826	2.164	103.69
116)	T	Acetic Ether	2.572	3.247	2.593	2.719	2.574	2.689	2.964	2.754	2.764	8.47
117)	T	Isopropyl Acetate			3.917	2.160	1.168	1.478	1.481	1.586	1.491	1.897	49.50
118)	T	Amyl Acetate	3.446	5.901	4.979	4.246	4.070	3.942	4.453	4.044	4.385	17.18

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

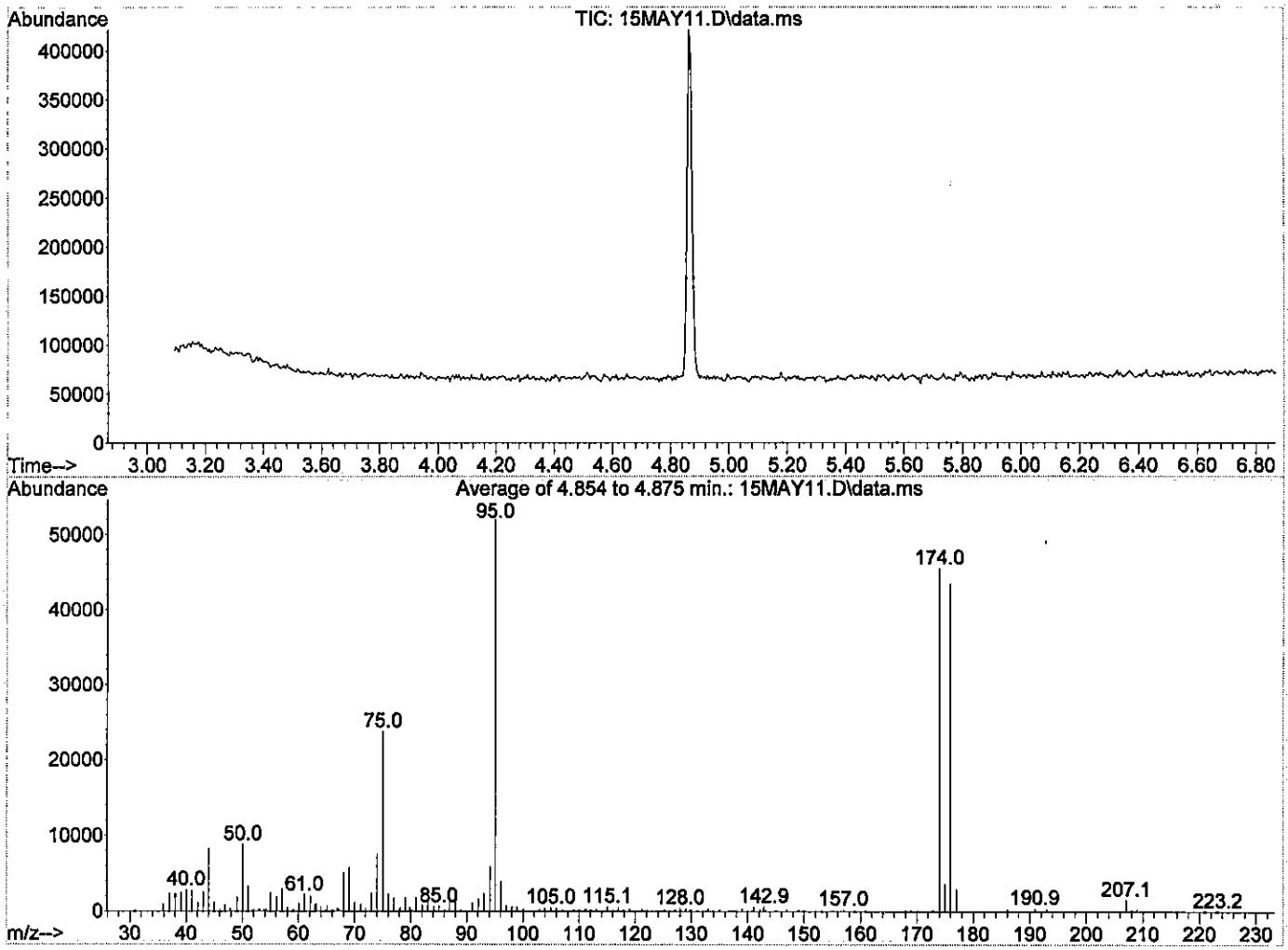
Calibration Files
1 =15MAY17 2 =15MAY18 3 =15MAY19 4 =15MAY20 5 =15MAY21 6 =15MAY22
7 =15MAY23 8 =15MAY24

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
9)	T	Acrolein	Lin	0.0241	0.0496	-----	0.9949
13)	T	Acetone	Lin	0.0285	0.1313	-----	0.9910
19)	T	Methylene chloride	Quad	0.1400	0.5765	0.0243	0.9980
21)	T	t-Butanol	Lin	0.0224	0.0600	-----	0.9922
24)	T	Hexane	Lin	0.0932	0.6679	-----	0.9923
31)	T	2-Butanone	Lin	0.0047	0.2169	-----	0.9938
34)	T	Propionitrile	Lin	0.0040	0.0525	-----	0.9920
36)	T	Tetrahydrofuran	Lin	0.0014	0.1667	-----	0.9985
39)	T	Cyclohexane	Lin	0.0157	0.8070	-----	0.9927
40)	I	1,4-Difluorobenzene		----------ISTD----------			
44)	T	1,1-Dichloropropene	Lin	0.0009	0.5069	-----	0.9950
49)	T	Isobutyl Alcohol	Lin	-0.0068	0.2323	-----	0.9980
53)	T	n-Butanol	Quad	0.0031	0.0076	0.0001	0.9974
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0033	0.0192	-----	0.9958
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
106)	T	1,2-Dibromo-3-ch...	Lin	-0.0002	0.2507	-----	0.9965
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			
115)	T	2-Propanone	Lin	0.1919	0.8004	-----	0.9981
117)	T	Isopropyl Acetate	Quad	0.0637	1.3869	0.0269	0.9956

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY11.D
Acq On : 15 May 2018 11:54 am
Operator : EMR
Sample : VBFB6-180515
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



Spectrum Information: Average of 4.854 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.9	8785	PASS
75	95	30	60	45.7	23744	PASS
95	95	100	100	100.0	51950	PASS
96	95	5	9	7.5	3919	PASS
173	174	0.00	2	0.4	176	PASS
174	95	50	100	87.4	45401	PASS
175	174	5	9	7.8	3562	PASS
176	174	95	101	95.4	43293	PASS
177	176	5	9	6.8	2940	PASS

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	218396	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	330222	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289404	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	133604	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	32113	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	116506	20.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.10%				
45) 1,2-Dichloroethane-d4	5.171	65	101495	20.89	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 104.45%				
64) Toluene-d8	7.678	98	382987	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	129631	20.71	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	3800	0.46	ug/L	#	43
3) Chloromethane	1.282	50	7313	0.52	ug/L	#	41
4) Vinyl chloride	1.360	62	4244	0.42	ug/L		66
5) Bromomethane	1.575	96	3928	0.23	ug/L	#	3
6) Chloroethane	1.647	64	2217	0.42	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	5732	0.56	ug/L		78
8) Ethyl ether	2.019	59	1262	0.33	ug/L	#	2
9) Acrolein	2.120	56	2494m	4.29	ug/L		
10) 1,1-Dichloroethene	2.206	61	4098	0.49	ug/L		80
11) 1,1,2-Trichlorotrifluo...	2.220	151	1823	0.38	ug/L	#	86
12) Methyl iodide	2.327	142	2601	0.59	ug/L		76
13) Acetone	2.220	43	2898	Below Cal			74
14) Chloroprene	3.380	53	3709m	0.44	ug/L		
15) Carbon disulfide	2.392	76	15165	0.69	ug/L		97
16) Allyl chloride	2.499	41	6525	0.64	ug/L		95
17) Methyl acetate	2.478	43	2344	0.51	ug/L	#	9
18) Acetonitrile	2.499	41	6525	0.64	ug/L	#	81
19) Methylene chloride	2.614	49	33947	0.98	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	4383	0.48	ug/L		92
21) t-Butanol	2.686	59	6129	0.68	ug/L	#	61
22) Acrylonitrile	2.829	53	752m	0.66	ug/L		
23) Methyl tert-butyl ether	2.850	73	5057m	0.39	ug/L		
24) Hexane	3.137	57	25551	0.56	ug/L		98
25) 1,1-Dichloroethane	3.302	63	3751	0.34	ug/L	#	21
26) Diisopropyl ether	3.330	45	5061m	0.29	ug/L		
27) Vinyl acetate	3.309	86	1324	1.98	ug/L	#	1
28) Ethyl tert butyl ether	3.760	59	5075m	0.34	ug/L		
29) 2,2-Dichloropropane	3.961	77	5549	0.66	ug/L	#	93
30) cis-1,2-Dichloroethene	3.968	61	4952	0.45	ug/L		97
31) 2-Butanone	3.953	43	8008	2.87	ug/L	#	60
32) Ethyl Acetate	4.004	43	1875m	0.61	ug/L		
33) Methyl acrylate	4.082	55	2853	0.56	ug/L	#	64
34) Propionitrile	4.741	54	1332	1.99	ug/L	#	1
35) Bromochloromethane	4.269	49	3037	0.56	ug/L	#	80
36) Tetrahydrofuran	4.261	42	1060m	0.53	ug/L		
37) Methacrylonitrile	4.211	41	1086	0.75	ug/L	#	47
38) Chloroform	4.426	83	5359m	0.47	ug/L		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	6956	0.60	ug/L	#	27
41)	1,1,1-Trichloroethane	4.648	97	2347	0.28	ug/L	#	57
43)	Carbon tetrachloride	4.870	117	2498	0.34	ug/L		87
44)	1,1-Dichloropropene	4.885	75	4040m	0.47	ug/L		
46)	1,2-Dichloroethane	5.293	62	3431	0.53	ug/L		77
47)	Benzene	5.193	78	12287	0.50	ug/L		81
48)	Tertiaryamylmethylether	5.436	73	2413	0.18	ug/L	#	1
49)	Isobutyl Alcohol	5.436	43	1986	0.45	ug/L	#	1
50)	Heptane	5.766	43	3970	0.30	ug/L	#	72
51)	1,4-Dioxane	6.811	88	5881	107.14	ug/L		86
52)	Methylcyclohexane	6.647	83	6259	0.58	ug/L	#	44
53)	n-Butanol	6.346	56	1269m	27.47	ug/L		
54)	Trichloroethene	6.360	130	3948	0.57	ug/L	#	58
55)	1,2-Dichloropropane	6.704	63	2500	0.37	ug/L	#	49
56)	Dibromomethane	6.804	93	3929	1.01	ug/L	#	75
57)	Methyl methacrylate	6.819	41	2963	0.65	ug/L		96
58)	Bromodichloromethane	7.019	83	3185m	0.41	ug/L		
59)	2-Chloroethyl vinyl ether	7.334	43	2663	1.78	ug/L	#	48
60)	2-Nitropropane	7.241	43	4374	2.68	ug/L	#	54
61)	cis-1,3-Dichloropropene	7.456	75	4681m	0.53	ug/L		
63)	4-Methyl-2-pentanone	7.592	43	6668	1.15	ug/L		85
65)	Toluene	7.728	91	12523	0.50	ug/L		96
66)	trans-1,3-Dichloropropene	7.943	75	3791	0.49	ug/L	#	1
67)	Chloropicrin	7.950	117	402m	Below Cal			
68)	Ethyl methacrylate	8.000	69	4021	0.62	ug/L	#	85
69)	1,1,2-Trichloroethane	8.086	97	3103m	0.61	ug/L		
70)	Tetrachloroethene	8.137	166	3083	0.40	ug/L	#	80
71)	1,3-Dichloropropane	8.201	76	4059	0.50	ug/L		99
72)	2-Hexanone	8.251	43	4032	1.03	ug/L	#	83
73)	Chlorodibromomethane	8.359	129	2570	0.41	ug/L	#	46
74)	Butyl acetate	8.351	43	7089	0.87	ug/L	#	65
75)	1,2-Dibromoethane	8.430	107	3654m	0.68	ug/L		
76)	Chlorobenzene	8.753	112	6973	0.43	ug/L	#	51
77)	1,1,1,2-Tetrachloroethane	8.817	131	3021	0.57	ug/L	#	80
78)	Ethylbenzene	8.817	91	12940	0.49	ug/L		91
79)	m/p-Xylene	8.896	91	18764	0.96	ug/L		97
80)	Styrene	9.139	104	8227	0.54	ug/L		74
81)	o-Xylene	9.125	91	9934	0.50	ug/L		93
82)	Cyclohexanone	9.383	55	3167	8.20	ug/L	#	69
83)	Bromoform	9.247	173	1914	0.50	ug/L		89
84)	Isopropylbenzene	9.340	105	10273	0.42	ug/L		90
86)	Bromobenzene	9.512	77	6896	0.54	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	3085	0.44	ug/L	#	39
88)	1,2,3-Trichloropropane	9.541	110	1486	0.92	ug/L	#	67
89)	trans-1,4-Dichloro-2-b...	9.533	53	857m	0.73	ug/L		
90)	n-Propylbenzene	9.569	91	11638	0.37	ug/L		81
91)	2-Chlorotoluene	9.612	91	6825	0.40	ug/L		68
92)	4-Chlorotoluene	9.684	91	10523	0.54	ug/L		93
93)	1,3,5-Trimethylbenzene	9.662	105	8711	0.45	ug/L		86
94)	tert-Butylbenzene	9.827	91	5074m	0.42	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	10318	0.51	ug/L		81
96)	sec-Butylbenzene	9.942	105	10735	0.40	ug/L		99
98)	1,3-Dichlorobenzene	10.013	146	4915	0.40	ug/L		82
99)	p-Isopropyltoluene	10.020	119	8659	0.41	ug/L	#	71
100)	1,4-Dichlorobenzene	10.063	146	5817m	0.48	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

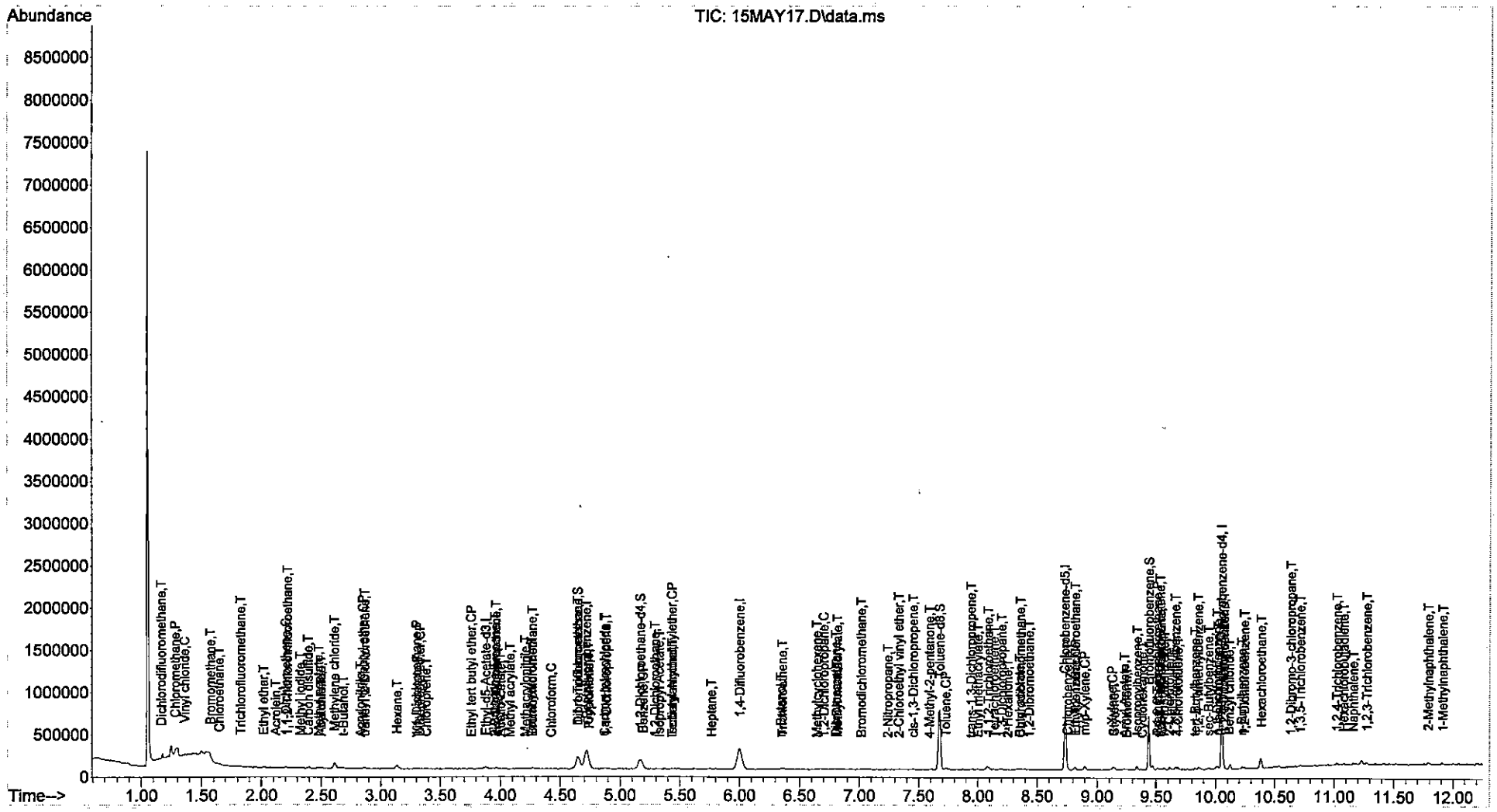
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	7594	0.39	ug/L	#	80
102) Benzyl chloride	10.114	91	6012	0.72	ug/L		78
103) 1,2-Dichlorobenzene	10.243	146	4457	0.39	ug/L	#	79
104) n-Butylbenzene	10.221	91	10527	0.47	ug/L		92
105) Hexachloroethane	10.386	117	1459	0.31	ug/L	#	23
106) 1,2-Dibromo-3-chloropr...	10.636	157	719m	0.61	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	3791	0.41	ug/L	#	78
108) 1,2,4-Trichlorobenzene	11.023	180	3959	0.49	ug/L		90
109) Hexachlorobutadiene	11.081	225	2186	0.47	ug/L		96
110) Naphthalene	11.159	128	8505	0.49	ug/L		81
111) 1,2,3-Trichlorobenzene	11.274	180	4306	0.61	ug/L		100
112) 2-Methylnaphthalene	11.790	142	7183	2.10	ug/L		97
113) 1-Methylnaphthalene	11.912	142	4501	1.61	ug/L	#	81
115) 2-Propanone	2.220	43	2898	Below Cal		#	74
116) Acetic Ether	4.004	43	1652	0.29	ug/L	#	55
117) Isopropyl Acetate	5.329	61	538	0.21	ug/L	#	1
118) Amyl Acetate	9.225	43	2213	0.22	ug/L	#	42

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230763	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	347253	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	293807	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142787	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34624	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	124106m	21.09	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 105.45%				
45) 1,2-Dichloroethane-d4	5.171	65	104078	20.37	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.85%				
64) Toluene-d8	7.678	98	400375	20.15	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.75%				
85) Bromofluorobenzene	9.440	95	136700	21.51	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 107.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	5989m	0.69	ug/L		
3) Chloromethane	1.282	50	7971m	0.53	ug/L		
4) Vinyl chloride	1.361	62	7061m	0.67	ug/L		
5) Bromomethane	1.575	96	6740m	0.62	ug/L		
6) Chloroethane	1.647	64	3439	0.62	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	7868	0.73	ug/L	#	68
8) Ethyl ether	2.020	59	2802	0.69	ug/L	#	58
9) Acrolein	2.127	56	6811	11.09	ug/L		96
10) 1,1-Dichloroethene	2.206	61	7074	0.80	ug/L	#	77
11) 1,1,2-Trichlorotrifluo...	2.213	151	3605	0.72	ug/L		90
12) Methyl iodide	2.328	142	3244	0.66	ug/L	#	34
13) Acetone	2.234	43	7830m	0.77	ug/L		
14) Chloroprene	3.381	53	7003	0.78	ug/L	#	78
15) Carbon disulfide	2.392	76	21727	0.95	ug/L		90
16) Allyl chloride	2.499	41	9756m	0.91	ug/L		
17) Methyl acetate	2.478	43	6139	1.27	ug/L	#	74
18) Acetonitrile	2.499	41	9849m	0.92	ug/L		
19) Methylene chloride	2.607	49	37807	1.19	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	7575	0.79	ug/L		86
21) t-Butanol	2.686	59	7324m	1.96	ug/L		
22) Acrylonitrile	2.822	53	2011	1.15	ug/L		81
23) Methyl tert-butyl ether	2.850	73	7458	0.54	ug/L		64
24) Hexane	3.137	57	25128	0.41	ug/L		88
25) 1,1-Dichloroethane	3.295	63	8155m	0.69	ug/L		
26) Diisopropyl ether	3.330	45	9334	0.51	ug/L	#	35
27) Vinyl acetate	3.302	86	91	0.13	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	8066	0.51	ug/L	#	84
29) 2,2-Dichloropropane	3.975	77	10136	1.13	ug/L	#	91
30) cis-1,2-Dichloroethene	3.954	61	8327	0.72	ug/L		83
31) 2-Butanone	3.939	43	3323m	1.18	ug/L		
32) Ethyl Acetate	4.018	43	3650m	0.87	ug/L		
33) Methyl acrylate	4.061	55	6698	1.24	ug/L	#	75
34) Propionitrile	4.734	54	1042	1.51	ug/L	#	1
35) Bromochloromethane	4.262	49	4907	0.85	ug/L		95
36) Tetrahydrofuran	4.269	42	2176m	1.04	ug/L		
37) Methacrylonitrile	4.211	41	2506	1.09	ug/L	#	68
38) Chloroform	4.426	83	10782	0.90	ug/L		87

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	11098	0.90	ug/L	#	60
41)	1,1,1-Trichloroethane	4.641	97	7426	0.85	ug/L	#	77
43)	Carbon tetrachloride	4.863	117	5643	0.73	ug/L		98
44)	1,1-Dichloropropene	4.899	75	8645	0.96	ug/L		90
46)	1,2-Dichloroethane	5.293	62	5918	0.86	ug/L		73
47)	Benzene	5.186	78	20594	0.79	ug/L	#	68
48)	Tertiaryamylmethylether	5.451	73	7957	0.55	ug/L	#	64
49)	Isobutyl Alcohol	5.458	43	5585m	1.20	ug/L		
50)	Heptane	5.766	43	1546	0.11	ug/L	#	1
51)	1,4-Dioxane	6.804	88	6837	118.45	ug/L	#	74
52)	Methylcyclohexane	6.661	83	8826	0.77	ug/L	#	75
53)	n-Butanol	6.332	56	3445	45.67	ug/L	#	75
54)	Trichloroethene	6.368	130	6283	0.86	ug/L	#	78
55)	1,2-Dichloropropane	6.704	63	5463	0.76	ug/L	#	82
56)	Dibromomethane	6.797	93	3160m	0.77	ug/L		
57)	Methyl methacrylate	6.826	41	3654	0.76	ug/L	#	82
58)	Bromodichloromethane	7.027	83	6483	0.79	ug/L		81
59)	2-Chloroethyl vinyl ether	7.335	43	1814m	1.15	ug/L		
60)	2-Nitropropane	7.249	43	1192	0.69	ug/L	#	25
61)	cis-1,3-Dichloropropene	7.456	75	7013	0.75	ug/L	#	22
63)	4-Methyl-2-pentanone	7.600	43	4200m	0.71	ug/L		
65)	Toluene	7.736	91	20036	0.79	ug/L		93
66)	trans-1,3-Dichloropropene	7.943	75	7646m	0.98	ug/L		
67)	Chloropicrin	7.943	117	670m	Below Cal			
68)	Ethyl methacrylate	8.001	69	5409	0.83	ug/L	#	57
69)	1,1,2-Trichloroethane	8.087	97	4545	0.87	ug/L	#	80
70)	Tetrachloroethene	8.130	166	5665	0.73	ug/L		83
71)	1,3-Dichloropropane	8.201	76	6782m	0.82	ug/L		
72)	2-Hexanone	8.266	43	3042	0.76	ug/L	#	72
73)	Chlorodibromomethane	8.352	129	5655	0.89	ug/L		87
74)	Butyl acetate	8.345	43	10055	1.21	ug/L	#	86
75)	1,2-Dibromoethane	8.430	107	4648	0.85	ug/L		92
76)	Chlorobenzene	8.753	112	13615	0.84	ug/L		85
77)	1,1,1,2-Tetrachloroethane	8.817	131	5641	1.04	ug/L		80
78)	Ethylbenzene	8.817	91	20578	0.77	ug/L		97
79)	m/p-Xylene	8.896	91	30594	1.54	ug/L		99
80)	Styrene	9.140	104	14640	0.95	ug/L		93
81)	o-Xylene	9.125	91	14775	0.73	ug/L		87
82)	Cyclohexanone	9.383	55	1340	3.42	ug/L	#	21
83)	Bromoform	9.247	173	3728	0.95	ug/L		92
84)	Isopropylbenzene	9.333	105	18716	0.75	ug/L		98
86)	Bromobenzene	9.512	77	12231	0.94	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	6233	0.87	ug/L		82
88)	1,2,3-Trichloropropane	9.541	110	2272	1.39	ug/L	#	68
89)	trans-1,4-Dichloro-2-b...	9.526	53	2246m	1.58	ug/L		
90)	n-Propylbenzene	9.569	91	23606	0.74	ug/L		100
91)	2-Chlorotoluene	9.612	91	13863	0.80	ug/L		96
92)	4-Chlorotoluene	9.684	91	15313	0.78	ug/L		95
93)	1,3,5-Trimethylbenzene	9.663	105	15815	0.81	ug/L		98
94)	tert-Butylbenzene	9.827	91	10072	0.83	ug/L		81
95)	1,2,4-Trimethylbenzene	9.856	105	15103	0.74	ug/L		89
96)	sec-Butylbenzene	9.942	105	17747	0.65	ug/L		83
98)	1,3-Dichlorobenzene	10.014	146	10263	0.78	ug/L		87
99)	p-Isopropyltoluene	10.021	119	17085	0.75	ug/L		90
100)	1,4-Dichlorobenzene	10.064	146	9323m	0.71	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

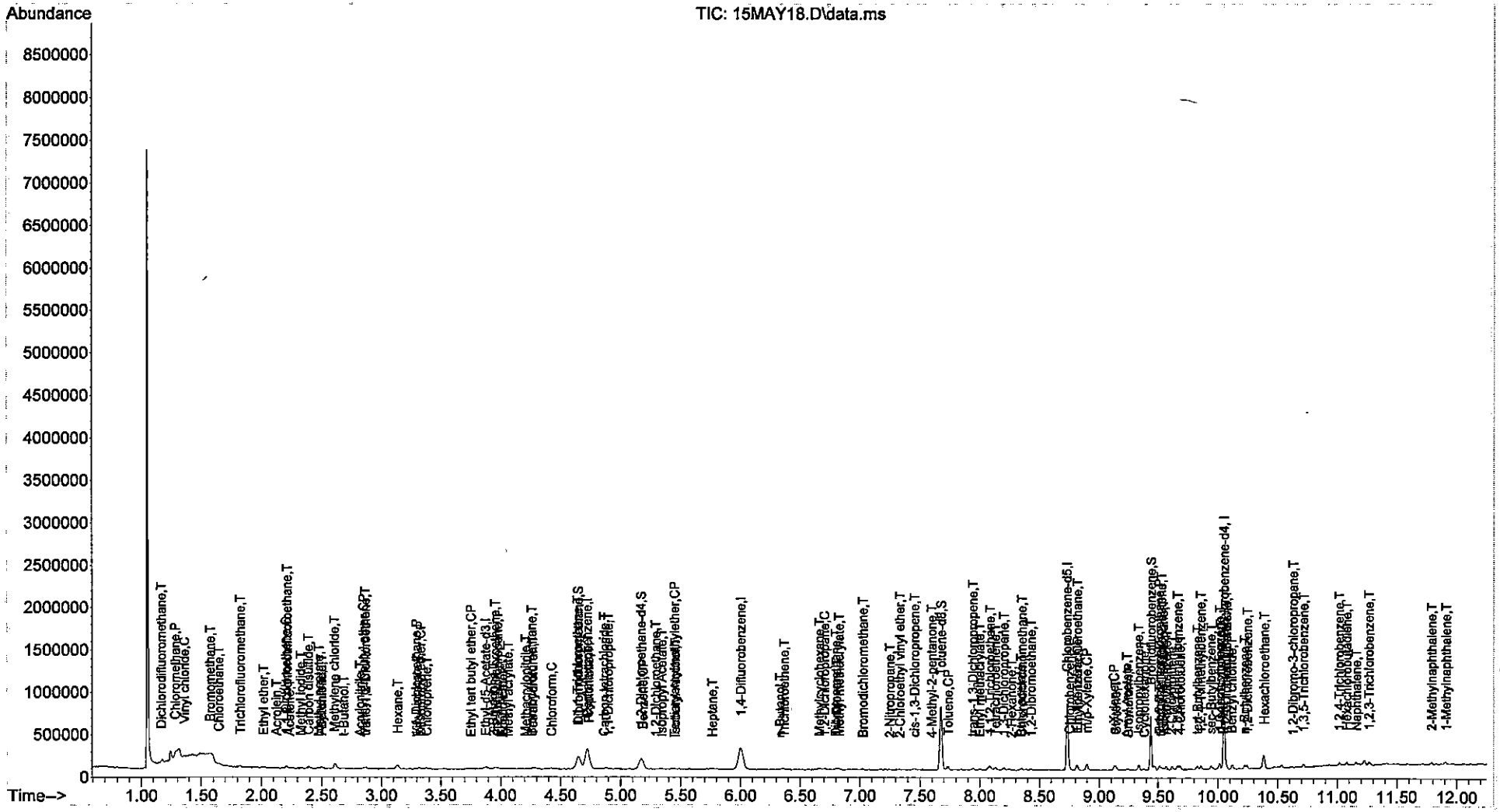
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	15015	0.72	ug/L		90
102) Benzyl chloride	10.114	91	10694	1.19	ug/L		88
103) 1,2-Dichlorobenzene	10.243	146	8895	0.73	ug/L		83
104) n-Butylbenzene	10.221	91	16492	0.69	ug/L		95
105) Hexachloroethane	10.386	117	4550	0.91	ug/L		82
106) 1,2-Dibromo-3-chloropr...	10.630	157	2044m	1.47	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	6882	0.69	ug/L	#	89
108) 1,2,4-Trichlorobenzene	11.016	180	6574	0.77	ug/L		85
109) Hexachlorobutadiene	11.081	225	3620	0.73	ug/L		91
110) Naphthalene	11.160	128	17376	0.93	ug/L		78
111) 1,2,3-Trichlorobenzene	11.267	180	6727	0.89	ug/L		99
112) 2-Methylnaphthalene	11.790	142	9551	2.30	ug/L		97
113) 1-Methylnaphthalene	11.912	142	9523	2.15	ug/L		96
115) 2-Propanone	2.234	43	7338m	Below Cal			
116) Acetic Ether	4.018	43	3373	0.54	ug/L	#	89
117) Isopropyl Acetate	5.343	61	4069m	1.49	ug/L		
118) Amyl Acetate	9.233	43	6130	0.57	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230239	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	344046	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292144	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	139289	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	33731	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	113188	19.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.05%				
45) 1,2-Dichloroethane-d4	5.164	65	102708	20.29	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.45%				
64) Toluene-d8	7.671	98	396324	20.06	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.30%				
85) Bromofluorobenzene	9.440	95	132295	20.94	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	14447	1.67	ug/L		81
3) Chloromethane	1.282	50	19641	1.31	ug/L		76
4) Vinyl chloride	1.360	62	14986	1.42	ug/L		93
5) Bromomethane	1.575	96	15105	1.91	ug/L	#	75
6) Chloroethane	1.654	64	10513	1.91	ug/L		87
7) Trichlorofluoromethane	1.826	101	19185	1.78	ug/L		97
8) Ethyl ether	2.019	59	9644	2.39	ug/L		97
9) Acrolein	2.127	56	9638	15.73	ug/L	#	62
10) 1,1-Dichloroethene	2.206	61	19303	2.18	ug/L		95
11) 1,1,2-Trichlorotrifluo...	2.213	151	8135	1.62	ug/L		94
12) Methyl iodide	2.327	142	7824	1.33	ug/L		90
13) Acetone	2.227	43	7569	0.63	ug/L		75
14) Chloroprene	3.380	53	19769	2.20	ug/L		94
15) Carbon disulfide	2.392	76	48556	2.14	ug/L		92
16) Allyl chloride	2.499	41	22976	2.15	ug/L		92
17) Methyl acetate	2.485	43	9505m	1.96	ug/L		
18) Acetonitrile	2.499	41	22976	2.15	ug/L		96
19) Methylene chloride	2.614	49	40286	1.46	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	21622	2.26	ug/L		92
21) t-Butanol	2.686	59	12964m	10.49	ug/L		
22) Acrylonitrile	2.822	53	4591m	2.20	ug/L		
23) Methyl tert-butyl ether	2.850	73	25920	1.88	ug/L		97
24) Hexane	3.130	57	30046	0.81	ug/L		95
25) 1,1-Dichloroethane	3.302	63	24586	2.09	ug/L		89
26) Diisopropyl ether	3.337	45	28297	1.56	ug/L	#	74
27) Vinyl acetate	3.294	86	2615	3.72	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	28448	1.80	ug/L		96
29) 2,2-Dichloropropane	3.961	77	19157	2.15	ug/L	#	86
30) cis-1,2-Dichloroethene	3.953	61	24897	2.16	ug/L		94
31) 2-Butanone	3.946	43	5271m	1.82	ug/L		
32) Ethyl Acetate	4.011	43	8746	1.63	ug/L	#	100
33) Methyl acrylate	4.068	55	10207	1.90	ug/L	#	73
34) Propionitrile	4.749	54	2586	3.55	ug/L	#	1
35) Bromochloromethane	4.276	49	13646m	2.38	ug/L		
36) Tetrahydrofuran	4.290	42	6151	2.94	ug/L	#	72
37) Methacrylonitrile	4.211	41	8111m	2.48	ug/L		
38) Chloroform	4.419	83	24503	2.05	ug/L		89

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	22870	1.87	ug/L	#	81
41)	1,1,1-Trichloroethane	4.634	97	21247	2.46	ug/L		97
43)	Carbon tetrachloride	4.863	117	15228	1.99	ug/L	#	79
44)	1,1-Dichloropropene	4.885	75	19198	2.15	ug/L		95
46)	1,2-Dichloroethane	5.293	62	16124	2.38	ug/L		81
47)	Benzene	5.186	78	54015	2.10	ug/L		96
48)	Tertiaryamylmethylether	5.443	73	26081	1.83	ug/L	#	82
49)	Isobutyl Alcohol	5.443	43	7787	1.69	ug/L	#	90
50)	Heptane	5.766	43	19287	1.38	ug/L	#	88
51)	1,4-Dioxane	6.811	88	18308	320.15	ug/L		95
52)	Methylcyclohexane	6.654	83	20810m	1.84	ug/L		
53)	n-Butanol	6.317	56	2194	35.12	ug/L	#	16
54)	Trichloroethene	6.353	130	15698	2.17	ug/L		96
55)	1,2-Dichloropropane	6.704	63	15001	2.11	ug/L		94
56)	Dibromomethane	6.797	93	8637m	2.14	ug/L		
57)	Methyl methacrylate	6.826	41	11211	2.35	ug/L		91
58)	Bromodichloromethane	7.019	83	19008	2.34	ug/L		93
59)	2-Chloroethyl vinyl ether	7.334	43	5701	3.65	ug/L	#	88
60)	2-Nitropropane	7.241	43	4788	2.82	ug/L	#	70
61)	cis-1,3-Dichloropropene	7.456	75	22668	2.45	ug/L		94
63)	4-Methyl-2-pentanone	7.592	43	14553m	2.48	ug/L		
65)	Toluene	7.728	91	58651	2.33	ug/L		97
66)	trans-1,3-Dichloropropene	7.943	75	19029	2.45	ug/L		78
67)	Chloropicrin	7.950	117	2637	Below Cal		#	70
68)	Ethyl methacrylate	8.001	69	15492m	2.38	ug/L		
69)	1,1,2-Trichloroethane	8.087	97	12392	2.39	ug/L		88
70)	Tetrachloroethene	8.130	166	14575	1.89	ug/L		97
71)	1,3-Dichloropropane	8.201	76	19492m	2.37	ug/L		
72)	2-Hexanone	8.244	43	8025	2.03	ug/L		85
73)	Chlorodibromomethane	8.352	129	13132	2.07	ug/L		83
74)	Butyl acetate	8.344	43	16067	1.95	ug/L	#	76
75)	1,2-Dibromoethane	8.423	107	12747	2.34	ug/L		96
76)	Chlorobenzene	8.753	112	33819	2.09	ug/L		80
77)	1,1,1,2-Tetrachloroethane	8.817	131	13470	2.50	ug/L		93
78)	Ethylbenzene	8.817	91	58848	2.21	ug/L		100
79)	m/p-Xylene	8.896	91	86852	4.39	ug/L		98
80)	Styrene	9.139	104	38382	2.51	ug/L		99
81)	o-Xylene	9.125	91	48793	2.42	ug/L		95
82)	Cyclohexanone	9.383	55	5612	14.39	ug/L	#	78
83)	Bromoform	9.247	173	8895	2.29	ug/L		89
84)	Isopropylbenzene	9.340	105	55299	2.24	ug/L		97
86)	Bromobenzene	9.512	77	30862	2.39	ug/L		92
87)	1,1,2,2-Tetrachloroethane	9.512	83	15132	2.12	ug/L		87
88)	1,2,3-Trichloropropane	9.541	110	4151	2.56	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	4858	3.20	ug/L		85
90)	n-Propylbenzene	9.562	91	64534	2.02	ug/L		93
91)	2-Chlorotoluene	9.619	91	37212	2.17	ug/L		96
92)	4-Chlorotoluene	9.684	91	46619	2.37	ug/L		99
93)	1,3,5-Trimethylbenzene	9.662	105	42673	2.19	ug/L		99
94)	tert-Butylbenzene	9.827	91	26437	2.18	ug/L		85
95)	1,2,4-Trimethylbenzene	9.856	105	45141	2.22	ug/L		94
96)	sec-Butylbenzene	9.942	105	57674	2.13	ug/L		98
98)	1,3-Dichlorobenzene	10.013	146	25894	2.02	ug/L		97
99)	p-Isopropyltoluene	10.021	119	48537	2.19	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	27092	2.12	ug/L		91

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

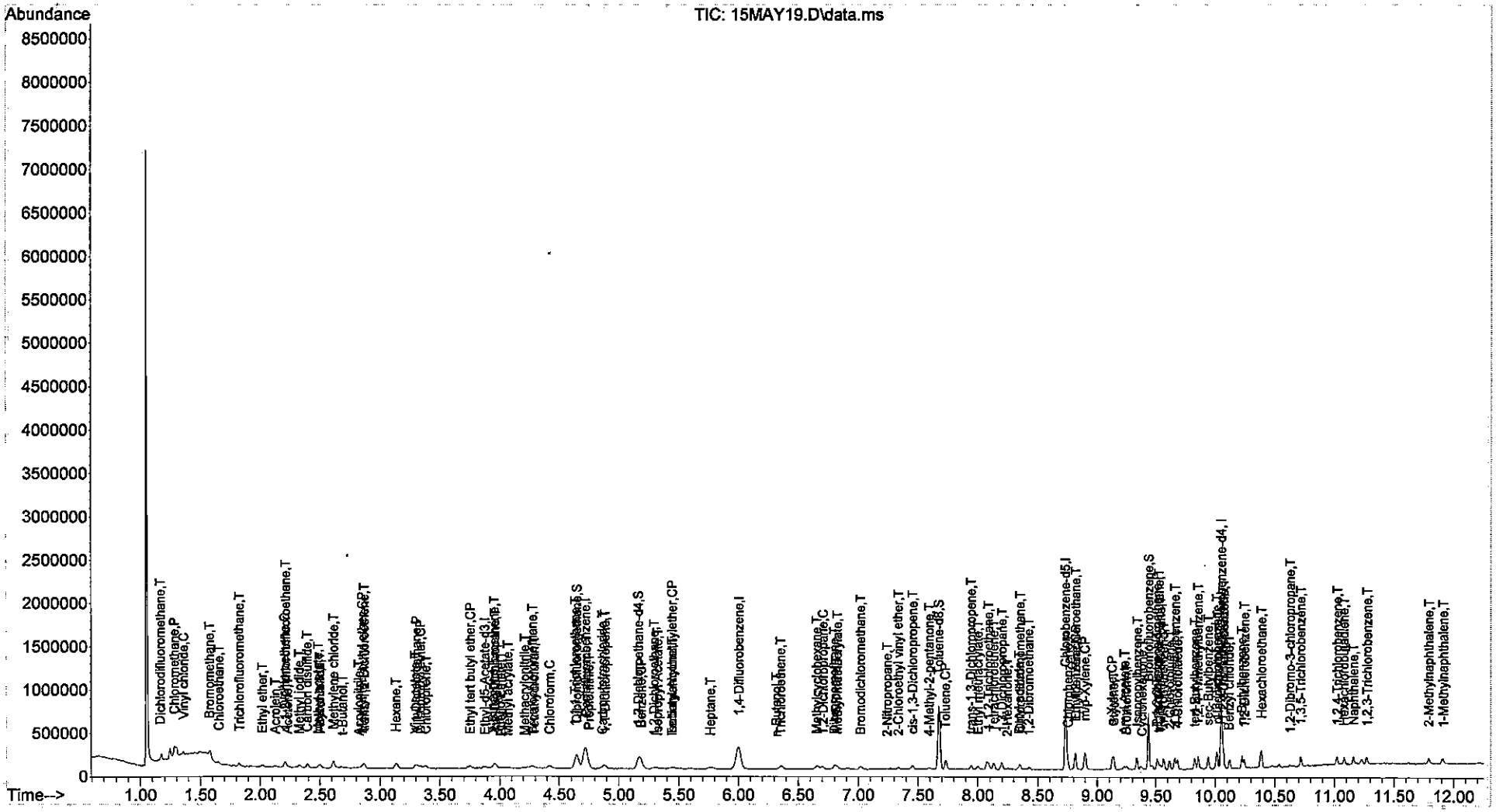
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	45195	2.21	ug/L		95
102) Benzyl chloride	10.114	91	28046	3.21	ug/L		93
103) 1,2-Dichlorobenzene	10.243	146	25212	2.13	ug/L		95
104) n-Butylbenzene	10.221	91	49489	2.13	ug/L		98
105) Hexachloroethane	10.386	117	10608	2.16	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.629	157	5425	3.85	ug/L	#	79
107) 1,3,5-Trichlorobenzene	10.715	180	20270	2.09	ug/L		94
108) 1,2,4-Trichlorobenzene	11.023	180	18156	2.17	ug/L		92
109) Hexachlorobutadiene	11.081	225	9029	1.86	ug/L	#	89
110) Naphthalene	11.159	128	42865	2.35	ug/L		92
111) 1,2,3-Trichlorobenzene	11.274	180	18032	2.44	ug/L		97
112) 2-Methylnaphthalene	11.790	142	24284	3.96	ug/L		99
113) 1-Methylnaphthalene	11.912	142	22195	3.65	ug/L		97
115) 2-Propanone	2.227	43	7569	Below Cal		#	75
116) Acetic Ether	4.011	43	8746	1.44	ug/L	#	78
117) Isopropyl Acetate	5.322	61	7286	2.73	ug/L	#	1
118) Amyl Acetate	9.233	43	16794	1.61	ug/L	#	81

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volati1e Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223307	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	335192	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289109	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	138041	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35297	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	111550	19.63	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.15%				
45) 1,2-Dichloroethane-d4	5.164	65	99541	20.18	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.90%				
64) Toluene-d8	7.671	98	386199	19.75	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.75%				
85) Bromofluorobenzene	9.440	95	129870	20.77	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	29028	3.45	ug/L		93
3) Chloromethane	1.282	50	39537	2.72	ug/L		97
4) Vinyl chloride	1.353	62	29729	2.91	ug/L		99
5) Bromomethane	1.575	96	28612	4.12	ug/L		86
6) Chloroethane	1.647	64	16995	3.18	ug/L		96
7) Trichlorofluoromethane	1.826	101	40452	3.88	ug/L		99
8) Ethyl ether	2.019	59	17532	4.48	ug/L		91
9) Acrolein	2.127	56	18903	31.81	ug/L		91
10) 1,1-Dichloroethene	2.206	61	37706	4.40	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	19188	3.94	ug/L		93
12) Methyl iodide	2.328	142	14656m	2.41	ug/L		
13) Acetone	2.227	43	14195m	4.68	ug/L		
14) Chloroprene	3.380	53	36738	4.22	ug/L		95
15) Carbon disulfide	2.392	76	93832	4.28	ug/L		98
16) Allyl chloride	2.499	41	46778	4.51	ug/L		94
17) Methyl acetate	2.478	43	14878	3.17	ug/L	#	74
18) Acetonitrile	2.499	41	46778	4.51	ug/L	#	94
19) Methylene chloride	2.614	49	57882	3.53	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	38195	4.11	ug/L		99
21) t-Butanol	2.678	59	19036	20.54	ug/L	#	75
22) Acrylonitrile	2.822	53	8620m	3.95	ug/L		
23) Methyl tert-butyl ether	2.850	73	45342	3.39	ug/L		87
24) Hexane	3.137	57	45693	2.21	ug/L		98
25) 1,1-Dichloroethane	3.302	63	48650	4.26	ug/L		98
26) Diisopropyl ether	3.330	45	55090	3.13	ug/L	#	81
27) Vinyl acetate	3.302	86	5084	7.45	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	48671	3.18	ug/L	#	94
29) 2,2-Dichloropropane	3.961	77	38925	4.50	ug/L		97
30) cis-1,2-Dichloroethene	3.961	61	41038	3.68	ug/L		95
31) 2-Butanone	3.939	43	8354	2.92	ug/L	#	48
32) Ethyl Acetate	4.004	43	19133	3.29	ug/L	#	85
33) Methyl acrylate	4.068	55	20586	3.95	ug/L	#	90
34) Propionitrile	4.749	54	4273	5.96	ug/L	#	54
35) Bromochloromethane	4.269	49	20870	3.75	ug/L		95
36) Tetrahydrofuran	4.276	42	9122	4.49	ug/L	#	81
37) Methacrylonitrile	4.219	41	14732	4.23	ug/L		96
38) Chloroform	4.419	83	49072	4.23	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	43620	3.67	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	40140	4.77	ug/L		93
43)	Carbon tetrachloride	4.863	117	35332	4.73	ug/L		96
44)	1,1-Dichloropropene	4.885	75	34810	4.00	ug/L		88
46)	1,2-Dichloroethane	5.300	62	29124	4.41	ug/L		91
47)	Benzene	5.186	78	105578	4.20	ug/L		97
48)	Tertiaryamylmethylether	5.451	73	49818	3.58	ug/L		95
49)	Isobutyl Alcohol	5.451	43	14363	3.20	ug/L	#	79
50)	Heptane	5.766	43	40047	2.95	ug/L		93
51)	1,4-Dioxane	6.804	88	34757	623.84	ug/L		92
52)	Methylcyclohexane	6.661	83	42195	3.83	ug/L		95
53)	n-Butanol	6.332	56	4701	57.66	ug/L	#	82
54)	Trichloroethene	6.353	130	28322	4.02	ug/L		92
55)	1,2-Dichloropropane	6.704	63	27708	4.01	ug/L		93
56)	Dibromomethane	6.797	93	17691m	4.49	ug/L		
57)	Methyl methacrylate	6.826	41	26126	5.62	ug/L	#	82
58)	Bromodichloromethane	7.019	83	32585	4.11	ug/L		97
59)	2-Chloroethyl vinyl ether	7.334	43	11789	7.75	ug/L		87
60)	2-Nitropropane	7.241	43	9900	5.98	ug/L	#	80
61)	cis-1,3-Dichloropropene	7.456	75	41746	4.64	ug/L		93
63)	4-Methyl-2-pentanone	7.592	43	22416	3.86	ug/L		92
65)	Toluene	7.728	91	105382	4.23	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	38189	4.97	ug/L		94
67)	Chloropicrin	7.958	117	3280	Below Cal		#	74
68)	Ethyl methacrylate	8.001	69	27023	4.20	ug/L		93
69)	1,1,2-Trichloroethane	8.087	97	23402	4.57	ug/L		90
70)	Tetrachloroethene	8.130	166	29274	3.83	ug/L		98
71)	1,3-Dichloropropane	8.201	76	33178	4.08	ug/L		100
72)	2-Hexanone	8.251	43	12765	3.26	ug/L		81
73)	Chlorodibromomethane	8.352	129	28821m	4.59	ug/L		
74)	Butyl acetate	8.344	43	30059	3.69	ug/L	#	95
75)	1,2-Dibromoethane	8.430	107	24413m	4.53	ug/L		
76)	Chlorobenzene	8.753	112	68640	4.28	ug/L		95
77)	1,1,1,2-Tetrachloroethane	8.817	131	26366	4.95	ug/L		99
78)	Ethylbenzene	8.817	91	111508	4.23	ug/L		94
79)	m/p-Xylene	8.896	91	172648	8.81	ug/L		100
80)	Styrene	9.140	104	71729	4.75	ug/L		94
81)	o-Xylene	9.125	91	92167	4.61	ug/L		100
82)	Cyclohexanone	9.390	55	7435	19.27	ug/L		95
83)	Bromoform	9.247	173	18201	4.73	ug/L		96
84)	Isopropylbenzene	9.340	105	106325	4.35	ug/L		99
86)	Bromobenzene	9.512	77	52285	4.09	ug/L		98
87)	1,1,2,2-Tetrachloroethane	9.512	83	33266	4.71	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	7067	4.40	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	7994	5.20	ug/L		88
90)	n-Propylbenzene	9.562	91	131597m	4.17	ug/L		
91)	2-Chlorotoluene	9.612	91	72357	4.27	ug/L		100
92)	4-Chlorotoluene	9.684	91	85902	4.42	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	85190	4.42	ug/L		99
94)	tert-Butylbenzene	9.827	91	52267	4.35	ug/L		98
95)	1,2,4-Trimethylbenzene	9.856	105	91539	4.54	ug/L		83
96)	sec-Butylbenzene	9.942	105	117473	4.38	ug/L		100
98)	1,3-Dichlorobenzene	10.013	146	48786	3.84	ug/L		98
99)	p-Isopropyltoluene	10.021	119	96390	4.39	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	50099	3.96	ug/L		93

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

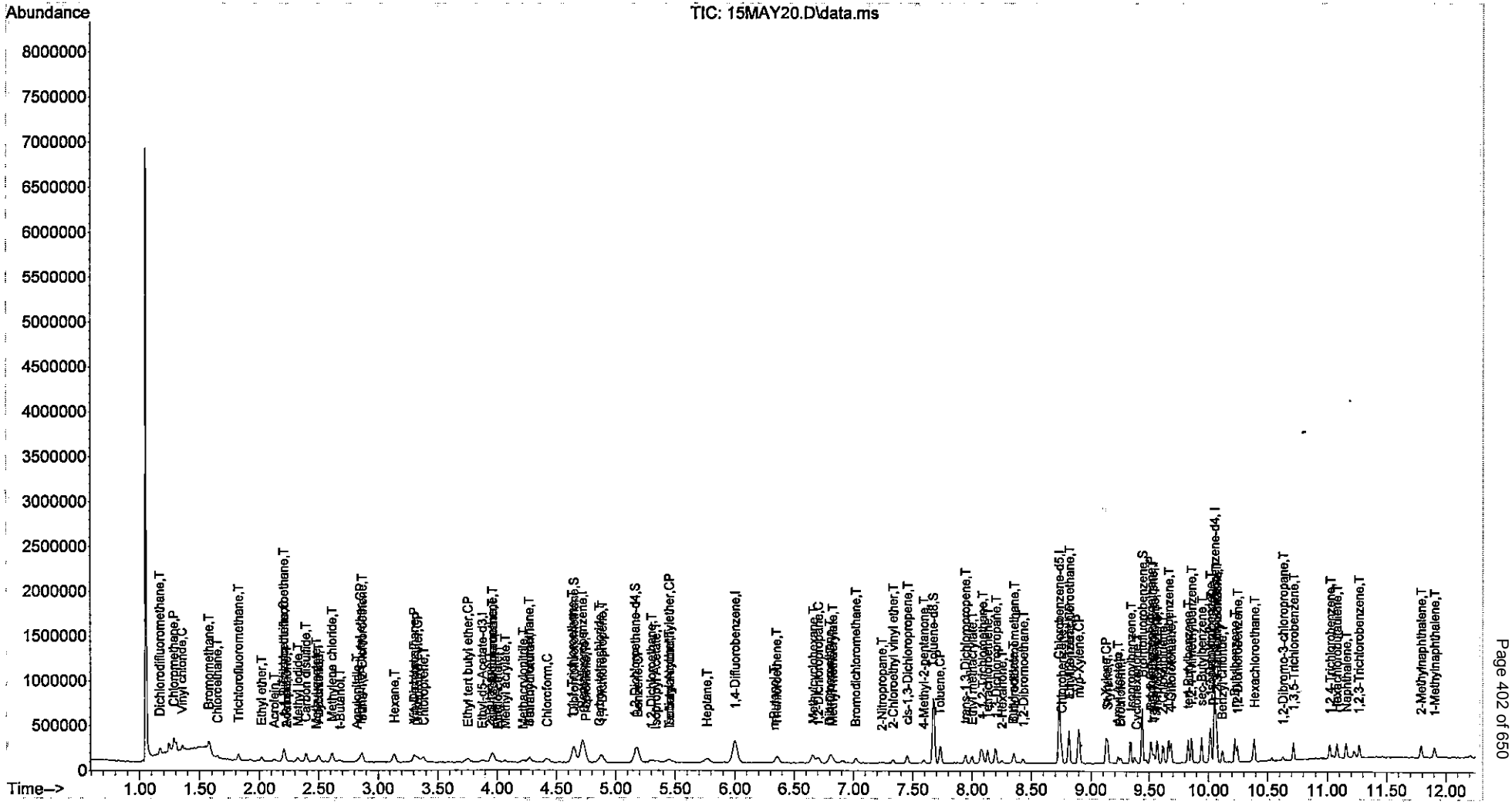
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	84387	4.17	ug/L		97
102) Benzyl chloride	10.114	91	52228	6.03	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	46469	3.97	ug/L		95
104) n-Butylbenzene	10.221	91	93516	4.07	ug/L		99
105) Hexachloroethane	10.386	117	19922	4.10	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	7812	5.53	ug/L		91
107) 1,3,5-Trichlorobenzene	10.715	180	37155	3.87	ug/L		98
108) 1,2,4-Trichlorobenzene	11.023	180	34057	4.11	ug/L		99
109) Hexachlorobutadiene	11.081	225	19698	4.10	ug/L		98
110) Naphthalene	11.160	128	82720	4.58	ug/L		96
111) 1,2,3-Trichlorobenzene	11.267	180	33549	4.58	ug/L		98
112) 2-Methylnaphthalene	11.790	142	46427	6.43	ug/L		96
113) 1-Methylnaphthalene	11.904	142	39547	5.69	ug/L		98
115) 2-Propanone	2.227	43	15169m	2.87	ug/L		
116) Acetic Ether	4.004	43	19193	3.02	ug/L	#	85
117) Isopropyl Acetate	5.336	61	8247	2.96	ug/L	#	66
118) Amyl Acetate	9.226	43	29975	2.75	ug/L	#	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223435	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337798	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	291131	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	140591	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	37830	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	115394	20.15	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.75%				
45) 1,2-Dichloroethane-d4	5.164	65	102258	20.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.90%				
64) Toluene-d8	7.671	98	392868	19.95	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 99.75%				
85) Bromofluorobenzene	9.441	95	136425	21.67	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 108.35%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	71593	8.51	ug/L		93
3) Chloromethane	1.282	50	91360	6.29	ug/L		92
4) Vinyl chloride	1.353	62	77607	7.58	ug/L		99
5) Bromomethane	1.575	96	61023	9.26	ug/L		90
6) Chloroethane	1.647	64	42523	7.96	ug/L		98
7) Trichlorofluoromethane	1.826	101	96366	9.24	ug/L		98
8) Ethyl ether	2.020	59	38963	9.96	ug/L		91
9) Acrolein	2.127	56	41473	69.76	ug/L		95
10) 1,1-Dichloroethene	2.206	61	86606	10.10	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	43624	8.96	ug/L		96
12) Methyl iodide	2.328	142	36174	5.72	ug/L		97
13) Acetone	2.227	43	20830	8.60	ug/L		98
14) Chloroprene	3.373	53	82418	9.47	ug/L		100
15) Carbon disulfide	2.392	76	208630	9.53	ug/L		98
16) Allyl chloride	2.500	41	93923	9.06	ug/L		98
17) Methyl acetate	2.485	43	36304	7.73	ug/L	#	83
18) Acetonitrile	2.500	41	93923	9.06	ug/L	#	96
19) Methylene chloride	2.607	49	94488	7.54	ug/L		89
20) trans-1,2-Dichloroethene	2.865	61	88700	9.55	ug/L		98
21) t-Butanol	2.679	59	38160	50.25	ug/L	#	76
22) Acrylonitrile	2.815	53	22280m	9.68	ug/L		
23) Methyl tert-butyl ether	2.851	73	115668	8.63	ug/L		100
24) Hexane	3.130	57	96794	6.53	ug/L		95
25) 1,1-Dichloroethane	3.302	63	112670	9.85	ug/L		98
26) Diisopropyl ether	3.330	45	138712	7.87	ug/L	#	80
27) Vinyl acetate	3.302	86	10669	15.62	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	130315	8.50	ug/L		97
29) 2,2-Dichloropropane	3.968	77	89958	10.40	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	105163	9.41	ug/L		98
31) 2-Butanone	3.939	43	23918	8.20	ug/L		78
32) Ethyl Acetate	4.011	43	48682	7.88	ug/L	#	97
33) Methyl acrylate	4.061	55	51786	9.94	ug/L	#	90
34) Propionitrile	4.734	54	7257	10.03	ug/L	#	91
35) Bromochloromethane	4.269	49	51019	9.17	ug/L		100
36) Tetrahydrofuran	4.276	42	18180	8.95	ug/L		82
37) Methacrylonitrile	4.219	41	34561	9.30	ug/L		89
38) Chloroform	4.419	83	110672	9.53	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	97187	8.17	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	93632	11.04	ug/L		93
43)	Carbon tetrachloride	4.863	117	80942	10.75	ug/L		98
44)	1,1-Dichloropropene	4.878	75	84841	9.67	ug/L		94
46)	1,2-Dichloroethane	5.293	62	68399	10.27	ug/L		94
47)	Benzene	5.186	78	245583	9.70	ug/L		98
48)	Tertiaryamylmethylether	5.451	73	124004	8.84	ug/L		94
49)	Isobutyl Alcohol	5.451	43	35613	7.87	ug/L	#	81
50)	Heptane	5.766	43	93669	6.84	ug/L		97
51)	1,4-Dioxane	6.805	88	92692	1650.86	ug/L		94
52)	Methylcyclohexane	6.654	83	100734	9.07	ug/L		96
53)	n-Butanol	6.325	56	14616m	137.32	ug/L		
54)	Trichloroethene	6.353	130	67099	9.46	ug/L		96
55)	1,2-Dichloropropane	6.704	63	61987	8.89	ug/L		99
56)	Dibromomethane	6.797	93	40449	10.19	ug/L		93
57)	Methyl methacrylate	6.819	41	47658	10.17	ug/L		97
58)	Bromodichloromethane	7.019	83	82466	10.32	ug/L		96
59)	2-Chloroethyl vinyl ether	7.335	43	26199	17.10	ug/L		96
60)	2-Nitropropane	7.241	43	20055	12.02	ug/L		91
61)	cis-1,3-Dichloropropene	7.456	75	102942	11.35	ug/L		99
63)	4-Methyl-2-pentanone	7.592	43	53793	9.21	ug/L		96
65)	Toluene	7.729	91	252631	10.06	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	86426	11.18	ug/L		97
67)	Chloropicrin	7.943	117	7082	Below Cal		#	86
68)	Ethyl methacrylate	8.001	69	70919	10.94	ug/L		97
69)	1,1,2-Trichloroethane	8.087	97	53073	10.29	ug/L		91
70)	Tetrachloroethene	8.130	166	68538	8.90	ug/L		98
71)	1,3-Dichloropropane	8.201	76	82904	10.13	ug/L		95
72)	2-Hexanone	8.251	43	39670	10.05	ug/L		87
73)	Chlorodibromomethane	8.352	129	67558	10.69	ug/L		97
74)	Butyl acetate	8.345	43	77091	9.39	ug/L	#	91
75)	1,2-Dibromoethane	8.431	107	56843	10.48	ug/L		97
76)	Chlorobenzene	8.753	112	167387	10.36	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	58888	10.97	ug/L		98
78)	Ethylbenzene	8.817	91	272402	10.27	ug/L		100
79)	m/p-Xylene	8.896	91	424087	21.49	ug/L		99
80)	Styrene	9.140	104	173406	11.40	ug/L		100
81)	o-Xylene	9.125	91	209042	10.39	ug/L		99
82)	Cyclohexanone	9.383	55	14345	36.91	ug/L	#	93
83)	Bromoform	9.247	173	45210	11.66	ug/L		97
84)	Isopropylbenzene	9.333	105	253562	10.31	ug/L		98
86)	Bromobenzene	9.512	77	126327	9.81	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	78226	10.99	ug/L		98
88)	1,2,3-Trichloropropane	9.541	110	19496	12.06	ug/L	#	81
89)	trans-1,4-Dichloro-2-b...	9.526	53	18506	11.69	ug/L		91
90)	n-Propylbenzene	9.562	91	323487	10.17	ug/L		99
91)	2-Chlorotoluene	9.612	91	181210	10.62	ug/L		98
92)	4-Chlorotoluene	9.684	91	213790	10.93	ug/L		98
93)	1,3,5-Trimethylbenzene	9.663	105	201016	10.35	ug/L		99
94)	tert-Butylbenzene	9.827	91	127590	10.55	ug/L		95
95)	1,2,4-Trimethylbenzene	9.856	105	216603	10.68	ug/L		98
96)	sec-Butylbenzene	9.942	105	280936	10.39	ug/L		100
98)	1,3-Dichlorobenzene	10.014	146	125978	9.73	ug/L		97
99)	p-Isopropyltoluene	10.021	119	232270	10.38	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	128547	9.99	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

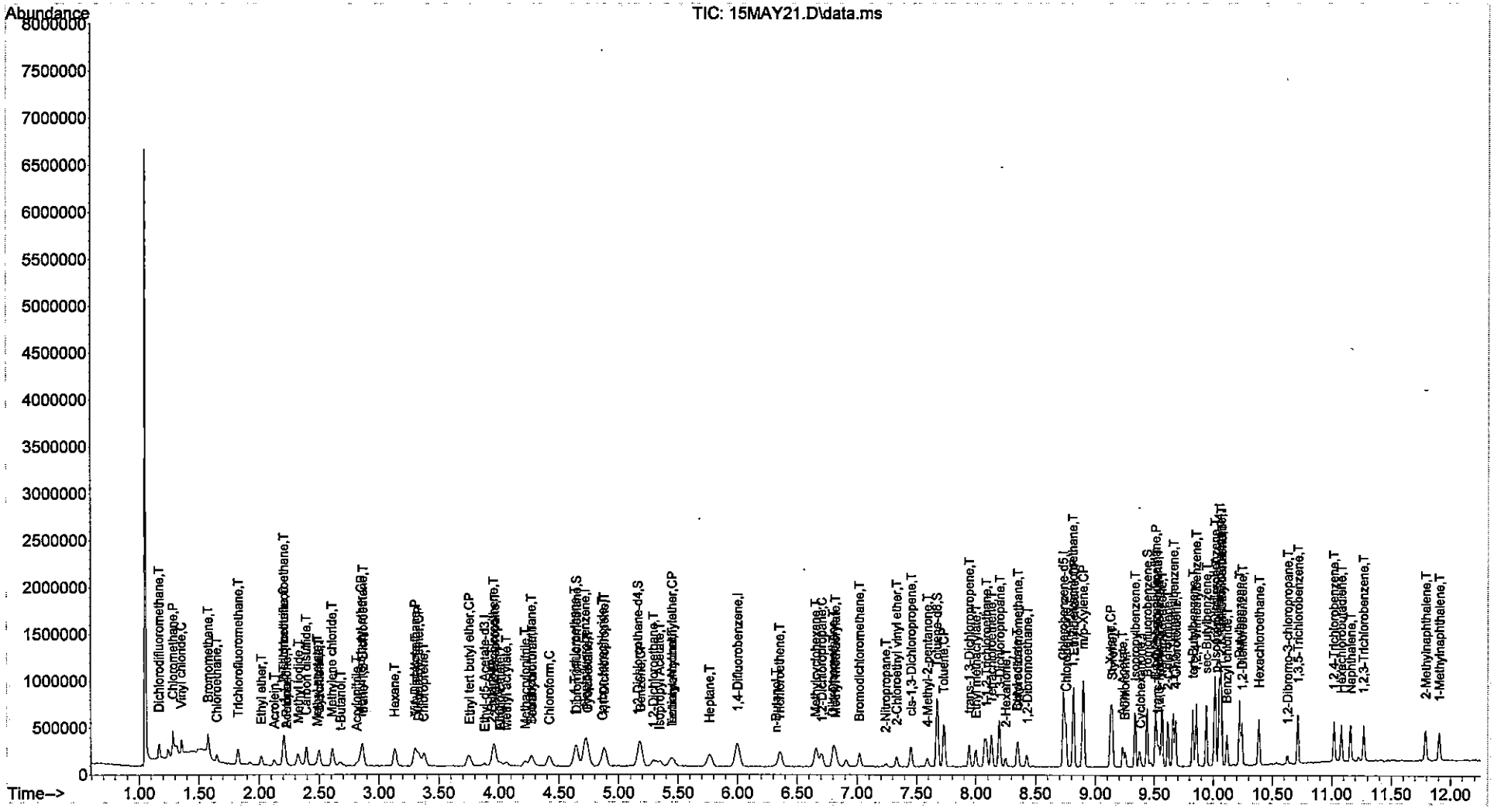
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	209977	10.18	ug/L		97
102) Benzyl chloride	10.114	91	132710	15.04	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	114345	9.59	ug/L		98
104) n-Butylbenzene	10.221	91	233344	9.97	ug/L		98
105) Hexachloroethane	10.386	117	48820	9.87	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.630	157	16937m	11.53	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	98806	10.10	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	90991	10.78	ug/L		99
109) Hexachlorobutadiene	11.081	225	45997	9.41	ug/L		90
110) Naphthalene	11.160	128	206907	11.25	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	80738	10.83	ug/L		95
112) 2-Methylnaphthalene	11.790	142	127864	14.94	ug/L		97
113) 1-Methylnaphthalene	11.905	142	102485	12.73	ug/L		96
115) 2-Propanone	2.227	43	20830	5.18	ug/L		98
116) Acetic Ether	4.011	43	48682	7.15	ug/L	#	92
117) Isopropyl Acetate	5.343	61	27963	9.35	ug/L		92
118) Amyl Acetate	9.226	43	76991	6.58	ug/L		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	214853	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	317331	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	274150	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	131734	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34202	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	106371	19.78	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%				
45) 1,2-Dichloroethane-d4	5.164	65	93244	19.97	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.85%				
64) Toluene-d8	7.671	98	362916	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	121066	20.42	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 102.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	246454m	30.46	ug/L		
3) Chloromethane	1.282	50	353311	25.30	ug/L		97
4) Vinyl chloride	1.353	62	269086	27.33	ug/L		99
5) Bromomethane	1.575	96	228722	37.27	ug/L		94
6) Chloroethane	1.647	64	164110m	31.95	ug/L		
7) Trichlorofluoromethane	1.826	101	335179m	33.42	ug/L		
8) Ethyl ether	2.020	59	151431	40.25	ug/L		99
9) Acrolein	2.120	56	104464	182.72	ug/L		99
10) 1,1-Dichloroethene	2.206	61	340209	41.26	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	171133	36.56	ug/L		98
12) Methyl iodide	2.328	142	154630m	26.09	ug/L		
13) Acetone	2.227	43	60127	33.24	ug/L		95
14) Chloroprene	3.373	53	327939	39.17	ug/L		98
15) Carbon disulfide	2.392	76	815941	38.82	ug/L		100
16) Allyl chloride	2.499	41	363421	36.44	ug/L		96
17) Methyl acetate	2.478	43	139305	30.84	ug/L	#	92
18) Acetonitrile	2.499	41	363421	36.44	ug/L	#	97
19) Methylene chloride	2.607	49	311711	32.75	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	354467	39.68	ug/L		96
21) t-Butanol	2.679	59	122604	189.12	ug/L	#	90
22) Acrylonitrile	2.807	53	84811	37.33	ug/L		88
23) Methyl tert-butyl ether	2.843	73	435997	33.85	ug/L		97
24) Hexane	3.130	57	346248	28.77	ug/L		95
25) 1,1-Dichloroethane	3.302	63	441230	40.12	ug/L		99
26) Diisopropyl ether	3.330	45	514295	30.34	ug/L	#	83
27) Vinyl acetate	3.295	86	33173	50.51	ug/L	#	28
28) Ethyl tert butyl ether	3.753	59	484177	32.84	ug/L		98
29) 2,2-Dichloropropane	3.961	77	343516	41.31	ug/L		98
30) cis-1,2-Dichloroethene	3.954	61	409000	38.07	ug/L		98
31) 2-Butanone	3.939	43	88032	31.16	ug/L		92
32) Ethyl Acetate	4.004	43	182010	29.73	ug/L	#	95
33) Methyl acrylate	4.061	55	207599	41.43	ug/L		99
34) Propionitrile	4.742	54	22680	32.32	ug/L	#	70
35) Bromochloromethane	4.269	49	188446	35.23	ug/L		97
36) Tetrahydrofuran	4.283	42	65996	33.77	ug/L		85
37) Methacrylonitrile	4.219	41	133804	36.05	ug/L		98
38) Chloroform	4.419	83	429939	38.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	366241	32.02	ug/L		98
41)	1,1,1-Trichloroethane	4.641	97	361953	45.42	ug/L		99
43)	Carbon tetrachloride	4.870	117	325645	46.03	ug/L		99
44)	1,1-Dichloropropene	4.878	75	339147	41.16	ug/L		97
46)	1,2-Dichloroethane	5.293	62	262513	41.94	ug/L		99
47)	Benzene	5.186	78	939376	39.50	ug/L		100
48)	Tertiaryamylmethylether	5.443	73	454793	34.51	ug/L		98
49)	Isobutyl Alcohol	5.451	43	138707	32.62	ug/L	#	91
50)	Heptane	5.766	43	362340	28.17	ug/L		97
51)	1,4-Dioxane	6.804	88	349756	6630.99	ug/L		99
52)	Methylcyclohexane	6.654	83	394304	37.78	ug/L		98
53)	n-Butanol	6.317	56	63002	462.86	ug/L	#	73
54)	Trichloroethene	6.353	130	262727	39.42	ug/L		97
55)	1,2-Dichloropropane	6.704	63	244490	37.34	ug/L		99
56)	Dibromomethane	6.797	93	156353	41.93	ug/L		99
57)	Methyl methacrylate	6.819	41	181911	41.32	ug/L		96
58)	Bromodichloromethane	7.019	83	323896	43.17	ug/L		99
59)	2-Chloroethyl vinyl ether	7.335	43	90438	62.82	ug/L		92
60)	2-Nitropropane	7.241	43	66601	42.48	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	388654	45.61	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	188041	34.18	ug/L		96
65)	Toluene	7.728	91	1002095	42.37	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	338773	46.54	ug/L		95
67)	Chloropicrin	7.943	117	111945	474.19	ug/L		97
68)	Ethyl methacrylate	7.994	69	270115	44.26	ug/L		94
69)	1,1,2-Trichloroethane	8.087	97	204167	42.04	ug/L		94
70)	Tetrachloroethene	8.130	166	273810	37.74	ug/L		97
71)	1,3-Dichloropropane	8.201	76	313218	40.62	ug/L		100
72)	2-Hexanone	8.244	43	141163	37.97	ug/L		95
73)	Chlorodibromomethane	8.352	129	265417	44.61	ug/L		99
74)	Butyl acetate	8.345	43	276690	35.80	ug/L		97
75)	1,2-Dibromoethane	8.423	107	212445	41.61	ug/L		98
76)	Chlorobenzene	8.753	112	638709	41.98	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	230645	45.62	ug/L		98
78)	Ethylbenzene	8.817	91	1078284	43.19	ug/L		99
79)	m/p-Xylene	8.896	91	1647403	88.64	ug/L		98
80)	Styrene	9.140	104	681802	47.60	ug/L		98
81)	o-Xylene	9.125	91	827310	43.65	ug/L		100
82)	Cyclohexanone	9.383	55	54065	147.74	ug/L		88
83)	Bromoform	9.247	173	173503	47.52	ug/L		96
84)	Isopropylbenzene	9.333	105	1015730	43.85	ug/L		98
86)	Bromobenzene	9.512	77	487338	40.17	ug/L		96
87)	1,1,2,2-Tetrachloroethane	9.512	83	281351	41.97	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	68751	45.16	ug/L		88
89)	trans-1,4-Dichloro-2-b...	9.526	53	68906	45.64	ug/L		91
90)	n-Propylbenzene	9.562	91	1246601	41.61	ug/L		98
91)	2-Chlorotoluene	9.612	91	697769	43.42	ug/L		100
92)	4-Chlorotoluene	9.677	91	818193	44.41	ug/L		98
93)	1,3,5-Trimethylbenzene	9.662	105	815695	44.60	ug/L		99
94)	tert-Butylbenzene	9.827	91	464001m	40.73	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	827364	43.31	ug/L		99
96)	sec-Butylbenzene	9.942	105	1077716	42.33	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	485258	40.01	ug/L		99
99)	p-Isopropyltoluene	10.014	119	896209	42.76	ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	476359	39.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

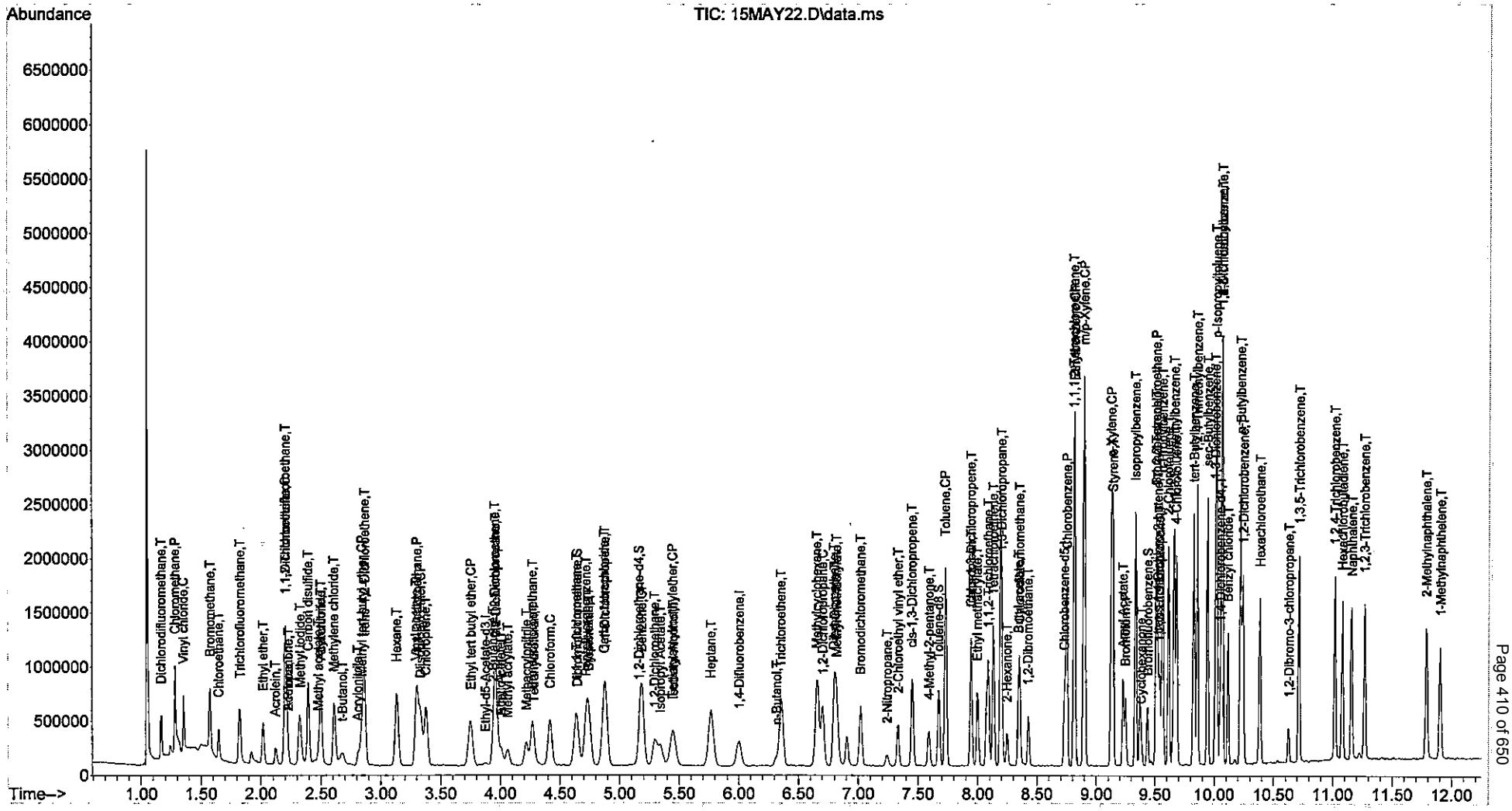
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	805112	41.68	ug/L		96
102) Benzyl chloride	10.114	91	491442	59.42	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	445383	39.87	ug/L		99
104) n-Butylbenzene	10.221	91	890816	40.60	ug/L		98
105) Hexachloroethane	10.386	117	202462	43.68	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	64682	43.84	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	376791	41.10	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	330324	41.76	ug/L		97
109) Hexachlorobutadiene	11.081	225	187240	40.87	ug/L		98
110) Naphthalene	11.160	128	777368	45.10	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	304686	43.63	ug/L		100
112) 2-Methylnaphthalene	11.783	142	453115	49.13	ug/L		98
113) 1-Methylnaphthalene	11.905	142	392569	46.72	ug/L		98
115) 2-Propanone	2.227	43	60127	28.25	ug/L		95
116) Acetic Ether	4.004	43	183944	29.90	ug/L	#	91
117) Isopropyl Acetate	5.343	61	101293	37.46	ug/L		92
118) Amyl Acetate	9.226	43	269615	25.50	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SG00502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	234086	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	357162	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	308260	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142961	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35159	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	118099	19.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.55%				
45) 1,2-Dichloroethane-d4	5.171	65	104696	19.92	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.60%				
64) Toluene-d8	7.671	98	410739	19.70	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.50%				
85) Bromofluorobenzene	9.433	95	135360	20.30	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 101.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	453484	51.45	ug/L		98
3) Chloromethane	1.282	50	649354	42.69	ug/L		98
4) Vinyl chloride	1.353	62	498176	46.44	ug/L		99
5) Bromomethane	1.568	96	396902	59.61	ug/L		95
6) Chloroethane	1.647	64	296177	52.92	ug/L		97
7) Trichlorofluoromethane	1.819	101	628518m	57.52	ug/L		
8) Ethyl ether	2.019	59	277190	67.63	ug/L		99
9) Acrolein	2.120	56	197055	316.35	ug/L		98
10) 1,1-Dichloroethene	2.206	61	589586	65.63	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	280919	55.08	ug/L		95
12) Methyl iodide	2.327	142	302722m	49.83	ug/L		
13) Acetone	2.227	43	109199	57.89	ug/L		93
14) Chloroprene	3.373	53	572761	62.80	ug/L		98
15) Carbon disulfide	2.392	76	1434144	62.64	ug/L		99
16) Allyl chloride	2.499	41	679215m	62.51	ug/L		
17) Methyl acetate	2.478	43	268820	54.63	ug/L		96
18) Acetonitrile	2.499	41	678789m	62.47	ug/L		
19) Methylene chloride	2.607	49	564466m	56.30	ug/L		
20) trans-1,2-Dichloroethene	2.865	61	618855	63.58	ug/L		97
21) t-Butanol	2.678	59	227767	328.87	ug/L	#	89
22) Acrylonitrile	2.815	53	153351	61.73	ug/L		92
23) Methyl tert-butyl ether	2.843	73	886153	63.14	ug/L		97
24) Hexane	3.130	57	521876m	40.44	ug/L		
25) 1,1-Dichloroethane	3.302	63	805027	67.18	ug/L		98
26) Diisopropyl ether	3.330	45	1061999	57.51	ug/L		87
27) Vinyl acetate	3.294	86	62177	86.89	ug/L	#	37
28) Ethyl tert butyl ether	3.746	59	968939	60.32	ug/L		98
29) 2,2-Dichloropropane	3.961	77	609897	67.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	743751	63.55	ug/L		98
31) 2-Butanone	3.939	43	171197	55.56	ug/L		91
32) Ethyl Acetate	4.004	43	365131	54.47	ug/L	#	96
33) Methyl acrylate	4.061	55	373900	68.48	ug/L		99
34) Propionitrile	4.741	54	39879	52.08	ug/L	#	91
35) Bromochloromethane	4.269	49	351734	60.36	ug/L		99
36) Tetrahydrofuran	4.283	42	138657m	65.13	ug/L		
37) Methacrylonitrile	4.218	41	235373	57.92	ug/L		96
38) Chloroform	4.419	83	767774	63.09	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.741	56	596333	47.86	ug/L		98
41)	1,1,1-Trichloroethane	4.634	97	630299	70.28	ug/L		98
43)	Carbon tetrachloride	4.870	117	568563	71.41	ug/L		99
44)	1,1-Dichloropropene	4.878	75	580152	62.56	ug/L		98
46)	1,2-Dichloroethane	5.293	62	484391	68.76	ug/L		98
47)	Benzene	5.186	78	1712920	64.00	ug/L		99
48)	Tertiaryamylmethylether	5.443	73	927719	62.55	ug/L		98
49)	Isobutyl Alcohol	5.443	43	276982	57.88	ug/L		96
50)	Heptane	5.766	43	591101	40.83	ug/L		97
51)	1,4-Dioxane	6.804	88	574819	9682.59	ug/L		97
52)	Methylcyclohexane	6.654	83	652797	55.57	ug/L		98
53)	n-Butanol	6.310	56	117814	673.84	ug/L	#	67
54)	Trichloroethene	6.353	130	470469	62.71	ug/L		97
55)	1,2-Dichloropropane	6.704	63	439798	59.67	ug/L		98
56)	Dibromomethane	6.797	93	281064	66.97	ug/L		99
57)	Methyl methacrylate	6.819	41	326930	65.98	ug/L		95
58)	Bromodichloromethane	7.019	83	593362	70.26	ug/L		99
59)	2-Chloroethyl vinyl ether	7.334	43	159763	98.60	ug/L		90
60)	2-Nitropropane	7.241	43	114916	65.13	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	721586	75.24	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	359550	58.13	ug/L		94
65)	Toluene	7.728	91	1804145	67.85	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	635250	77.61	ug/L		97
67)	Chloropicrin	7.943	117	658684	934.42	ug/L		95
68)	Ethyl methacrylate	8.001	69	486325	70.87	ug/L		95
69)	1,1,2-Trichloroethane	8.087	97	374063	68.50	ug/L		96
70)	Tetrachloroethene	8.130	166	476951	58.46	ug/L		97
71)	1,3-Dichloropropane	8.201	76	575240	66.35	ug/L		99
72)	2-Hexanone	8.244	43	268951	64.34	ug/L		91
73)	Chlorodibromomethane	8.352	129	482052	72.05	ug/L		98
74)	Butyl acetate	8.344	43	554918	63.85	ug/L		97
75)	1,2-Dibromoethane	8.423	107	397285	69.20	ug/L		98
76)	Chlorobenzene	8.753	112	1180727	69.02	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.817	131	430096	75.66	ug/L		99
78)	Ethylbenzene	8.817	91	1981258	70.57	ug/L		100
79)	m/p-Xylene	8.896	91	2988243	143.00	ug/L		100
80)	Styrene	9.140	104	1218501	75.66	ug/L		99
81)	o-Xylene	9.125	91	1507054	70.71	ug/L		99
82)	Cyclohexanone	9.383	55	96986	235.70	ug/L		91
83)	Bromoform	9.247	173	323605	78.83	ug/L		97
84)	Isopropylbenzene	9.333	105	1867984	71.73	ug/L		98
86)	Bromobenzene	9.512	77	909120	66.65	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	517604	68.67	ug/L		99
88)	1,2,3-Trichloropropane	9.541	110	121057	70.71	ug/L		90
89)	trans-1,4-Dichloro-2-b...	9.526	53	126023	74.11	ug/L		94
90)	n-Propylbenzene	9.562	91	2275310	67.54	ug/L		98
91)	2-Chlorotoluene	9.612	91	1266001	70.06	ug/L		98
92)	4-Chlorotoluene	9.677	91	1501961	72.50	ug/L		97
93)	1,3,5-Trimethylbenzene	9.662	105	1503993	73.14	ug/L		99
94)	tert-Butylbenzene	9.827	91	882606	68.91	ug/L		97
95)	1,2,4-Trimethylbenzene	9.856	105	1520096	70.76	ug/L		98
96)	sec-Butylbenzene	9.942	105	1972361	68.90	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	878070	66.72	ug/L		99
99)	p-Isopropyltoluene	10.013	119	1638260	72.03	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	885873	67.68	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

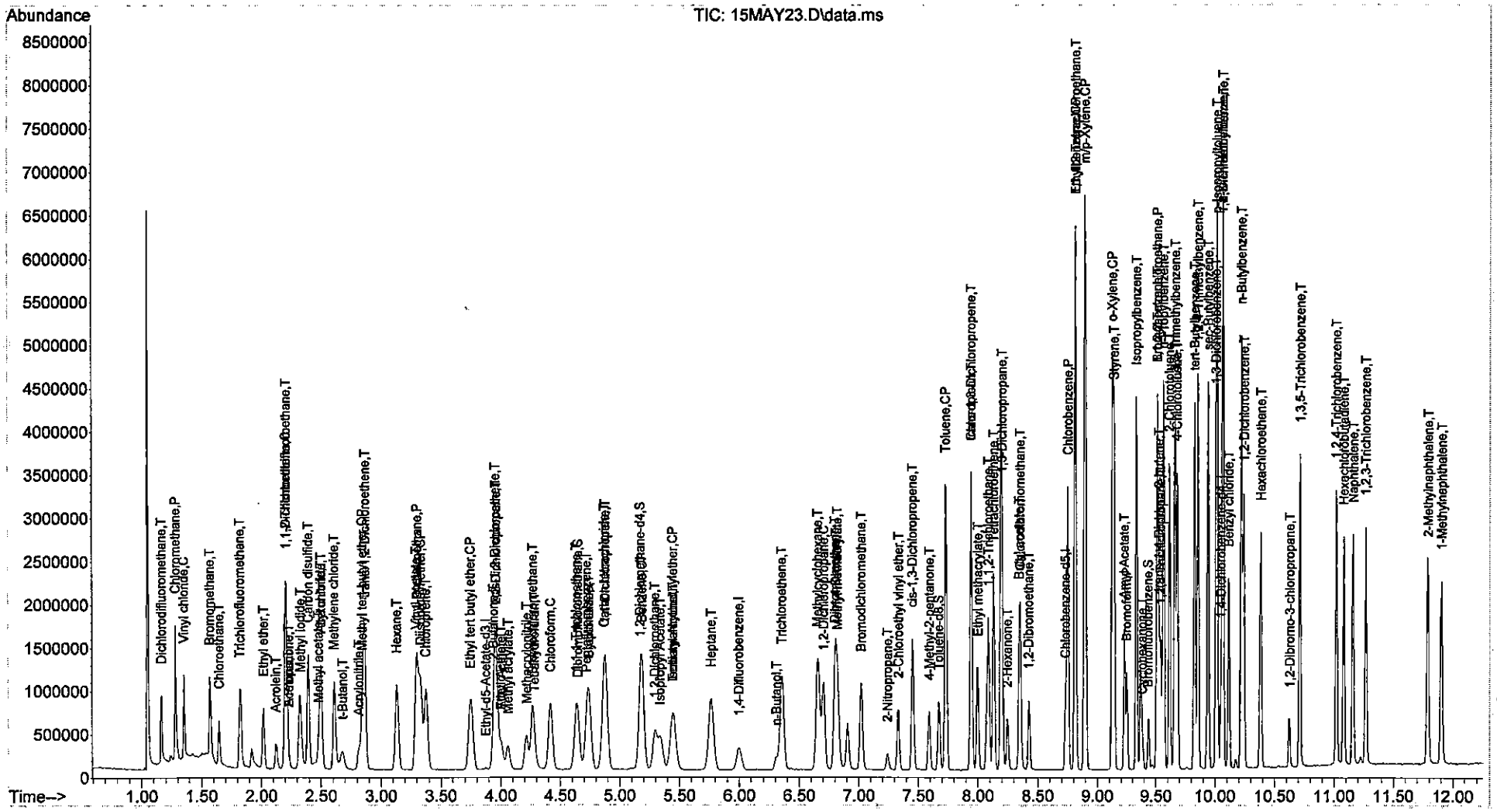
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	1483949	70.78	ug/L		97
102) Benzyl chloride	10.114	91	914284	101.87	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	821988	67.80	ug/L		99
104) n-Butylbenzene	10.221	91	1629272	68.43	ug/L		98
105) Hexachloroethane	10.386	117	375020	74.55	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	117278	69.73	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	683646	68.72	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	623902	72.69	ug/L		98
109) Hexachlorobutadiene	11.081	225	338606	68.10	ug/L		97
110) Naphthalene	11.159	128	1449713	77.50	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	573723	75.70	ug/L		97
112) 2-Methylnaphthalene	11.790	142	928898	85.10	ug/L		99
113) 1-Methylnaphthalene	11.904	142	771791	80.41	ug/L		100
115) 2-Propanone	2.227	43	109199	54.02	ug/L		93
116) Acetic Ether	4.004	43	364789	57.68	ug/L	#	95
117) Isopropyl Acetate	5.336	61	195160	70.21	ug/L		97
118) Amyl Acetate	9.225	43	547920	50.42	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	219223	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337292	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292395	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135609	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	38061	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	113822	19.91	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.55%				
45) 1,2-Dichloroethane-d4	5.164	65	101022	20.36	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.80%				
64) Toluene-d8	7.671	98	397010	20.08	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.40%				
85) Bromofluorobenzene	9.433	95	133605	21.13	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 105.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	603175	73.07	ug/L		98
3) Chloromethane	1.282	50	903112	63.39	ug/L		97
4) Vinyl chloride	1.353	62	673194	67.01	ug/L		98
5) Bromomethane	1.568	96	542781	87.23	ug/L		92
6) Chloroethane	1.647	64	401591	76.62	ug/L		96
7) Trichlorofluoromethane	1.826	101	863204m	84.35	ug/L		
8) Ethyl ether	2.020	59	413934	107.84	ug/L		97
9) Acrolein	2.120	56	286960	491.92	ug/L		99
10) 1,1-Dichloroethene	2.206	61	888412	105.60	ug/L		100
11) 1,1,2-Trichlorotrifluo...	2.206	151	443095	92.76	ug/L		95
12) Methyl iodide	2.328	142	485310m	98.59	ug/L		
13) Acetone	2.227	43	157216	91.00	ug/L		93
14) Chloroprene	3.373	53	877349	102.71	ug/L		96
15) Carbon disulfide	2.392	76	2109405	98.40	ug/L		99
16) Allyl chloride	2.499	41	973265m	95.65	ug/L		
17) Methyl acetate	2.478	43	396745	86.09	ug/L		95
18) Acetonitrile	2.499	41	966765m	95.01	ug/L		
19) Methylene chloride	2.607	49	797251	86.35	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	935189	102.60	ug/L		96
21) t-Butanol	2.679	59	343008	534.35	ug/L	#	91
22) Acrylonitrile	2.807	53	228718	98.12	ug/L		92
23) Methyl tert-butyl ether	2.850	73	1271354	96.73	ug/L		98
24) Hexane	3.130	57	767565	64.45	ug/L		94
25) 1,1-Dichloroethane	3.302	63	1186441	105.72	ug/L		99
26) Diisopropyl ether	3.330	45	1507453	87.16	ug/L		85
27) Vinyl acetate	3.295	86	89977	134.27	ug/L	#	39
28) Ethyl tert butyl ether	3.753	59	1397901	92.92	ug/L		99
29) 2,2-Dichloropropane	3.961	77	897050	105.72	ug/L		96
30) cis-1,2-Dichloroethene	3.954	61	1090757	99.51	ug/L		98
31) 2-Butanone	3.939	43	255955	88.64	ug/L		92
32) Ethyl Acetate	4.004	43	527113	83.80	ug/L	#	96
33) Methyl acrylate	4.061	55	552007	107.96	ug/L		98
34) Propionitrile	4.741	54	61276	85.37	ug/L	#	88
35) Bromochloromethane	4.269	49	509511	93.37	ug/L		98
36) Tetrahydrofuran	4.276	42	184230	92.40	ug/L		90
37) Methacrylonitrile	4.211	41	349650	91.60	ug/L		97
38) Chloroform	4.419	83	1157860	101.59	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Cyclohexane	4.741	56	925854	79.34	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	937737	110.71	ug/L		98
43) Carbon tetrachloride	4.870	117	868733	115.53	ug/L		100
44) 1,1-Dichloropropene	4.878	75	883426	100.87	ug/L		99
46) 1,2-Dichloroethane	5.293	62	710080	106.73	ug/L		99
47) Benzene	5.186	78	2528009	100.02	ug/L		100
48) Tertiaryamylmethylether	5.443	73	1313747	93.79	ug/L		98
49) Isobutyl Alcohol	5.443	43	399442	88.38	ug/L		94
50) Heptane	5.766	43	832494	60.89	ug/L		97
51) 1,4-Dioxane	6.804	88	826080	14734.71	ug/L		96
52) Methylcyclohexane	6.654	83	988061	89.06	ug/L		97
53) n-Butanol	6.310	56	185788m	965.09	ug/L		
54) Trichloroethene	6.353	130	700631	98.89	ug/L		98
55) 1,2-Dichloropropane	6.704	63	655151	94.13	ug/L		98
56) Dibromomethane	6.797	93	420964	106.21	ug/L		100
57) Methyl methacrylate	6.819	41	473009	101.09	ug/L		94
58) Bromodichloromethane	7.019	83	871932	109.33	ug/L		99
59) 2-Chloroethyl vinyl ether	7.335	43	235538	153.93	ug/L		90
60) 2-Nitropropane	7.241	43	178080	106.87	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	1060539	117.10	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	531187	90.54	ug/L		96
65) Toluene	7.728	91	2676125	106.10	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	910532	117.28	ug/L		99
67) Chloropicrin	7.943	117	1623752	1433.62	ug/L		95
68) Ethyl methacrylate	8.001	69	715976	109.99	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	545454	105.31	ug/L		94
70) Tetrachloroethene	8.130	166	688275	88.94	ug/L		99
71) 1,3-Dichloropropane	8.201	76	844669	102.71	ug/L		98
72) 2-Hexanone	8.244	43	382486	96.46	ug/L		92
73) Chlorodibromomethane	8.352	129	696769	109.80	ug/L		97
74) Butyl acetate	8.344	43	763461	92.61	ug/L		97
75) 1,2-Dibromoethane	8.423	107	574470	105.49	ug/L		98
76) Chlorobenzene	8.753	112	1707259	105.21	ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	630724	116.97	ug/L		98
78) Ethylbenzene	8.817	91	2889224	108.49	ug/L		100
79) m/p-Xylene	8.896	91	4387285	221.34	ug/L		99
80) Styrene	9.140	104	1772686	116.05	ug/L		98
81) o-Xylene	9.125	91	2223110	109.97	ug/L		99
82) Cyclohexanone	9.383	55	145735	373.39	ug/L		91
83) Bromoform	9.247	173	470961	120.95	ug/L		97
84) Isopropylbenzene	9.333	105	2762700	111.84	ug/L		98
86) Bromobenzene	9.512	77	1307035	101.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	749760	104.87	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	170647	105.09	ug/L		92
89) trans-1,4-Dichloro-2-b...	9.526	53	178584	110.61	ug/L		92
90) n-Propylbenzene	9.562	91	3293190	103.06	ug/L		98
91) 2-Chlorotoluene	9.612	91	1849093	107.87	ug/L		98
92) 4-Chlorotoluene	9.677	91	2129065	108.35	ug/L		99
93) 1,3,5-Trimethylbenzene	9.662	105	2159216	110.70	ug/L		99
94) tert-Butylbenzene	9.827	91	1281033	105.44	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2145024	105.28	ug/L		99
96) sec-Butylbenzene	9.942	105	2868041	105.63	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	1261294	101.03	ug/L		99
99) p-Isopropyltoluene	10.013	119	2341946	108.56	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	1260035	101.48	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

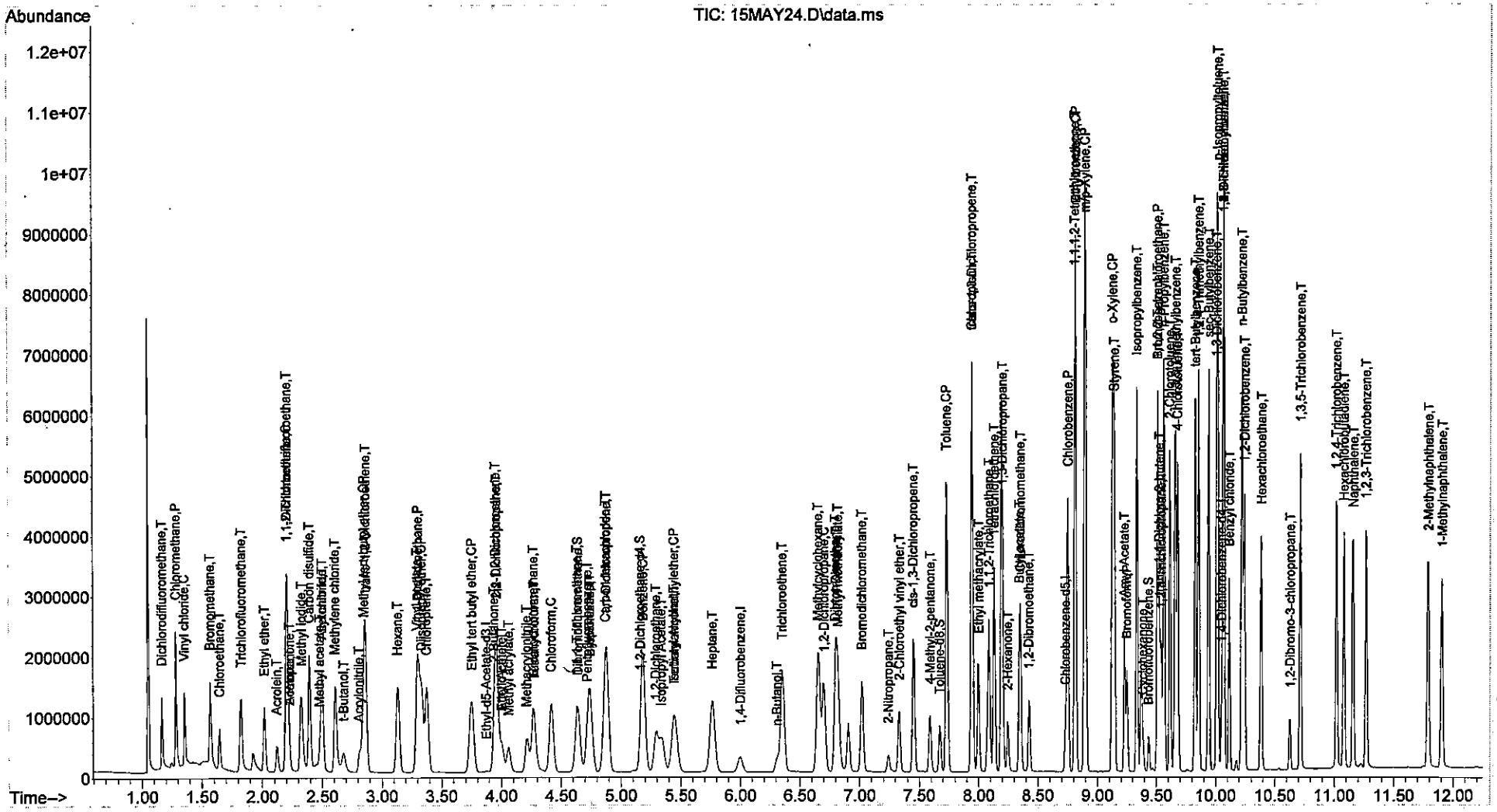
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	2136710	107.45	ug/L		98
102) Benzyl chloride	10.114	91	1321776	155.26	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	1161702	101.02	ug/L		99
104) n-Butylbenzene	10.221	91	2267139	100.38	ug/L		98
105) Hexachloroethane	10.386	117	540789	113.33	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	175943	103.77	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	981701	104.03	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	895907	110.03	ug/L		96
109) Hexachlorobutadiene	11.081	225	498769	105.75	ug/L		97
110) Naphthalene	11.160	128	2155818	121.49	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	826065	114.91	ug/L		97
112) 2-Methylnaphthalene	11.790	142	1356116	121.45	ug/L		99
113) 1-Methylnaphthalene	11.905	142	1157205	120.67	ug/L		99
115) 2-Propanone	2.227	43	157216	73.60	ug/L		92
116) Acetic Ether	4.004	43	524105	76.55	ug/L	#	96
117) Isopropyl Acetate	5.336	61	283805	94.32	ug/L		98
118) Amyl Acetate	9.226	43	769595	65.41	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	228121	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	349027	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	310765	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	145994	20.00 ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	31556	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	118267	19.95 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.75%		
45) 1,2-Dichloroethane-d4	5.164	65	100172	19.20 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.00%		
64) Toluene-d8	7.671	98	402249	19.28 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.40%		
85) Bromofluorobenzene	9.433	95	138310	19.66 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 98.30%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.160	85	169980m	23.39 ug/L	
3) Chloromethane	1.282	50	322437m	32.20 ug/L	
4) Vinyl chloride	1.353	62	236750	32.27 ug/L	100
5) Bromomethane	1.554	96	158492m	24.85 ug/L	
6) Chloroethane	1.633	64	162227m	34.15 ug/L	
7) Trichlorofluoromethane	1.819	101	291239m	29.43 ug/L	
8) Ethyl ether	2.019	59	157140	37.72 ug/L	100
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.199	61	349464	36.37 ug/L	97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	2.327	142	218042	50.83 ug/L	98
13) Acetone	2.227	43	62027	37.08 ug/L	96
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	805610	36.37 ug/L	98
16) Allyl chloride	2.499	41	335987m	32.44 ug/L	
17) Methyl acetate	2.492	43	7687	1.94 ug/L #	1
18) Acetonitrile	2.499	41	327596	31.66 ug/L	100
19) Methylene chloride	2.607	49	324804	41.00 ug/L	99
20) trans-1,2-Dichloroethene	2.858	61	373862	36.83 ug/L	99
21) t-Butanol	2.693	59	149223	210.65 ug/L	96
22) Acrylonitrile	2.815	53	86380	36.77 ug/L	95
23) Methyl tert-butyl ether	2.843	73	557849	45.14 ug/L	100
24) Hexane	3.137	57	26411	0.67 ug/L #	86
25) 1,1-Dichloroethane	3.294	63	456924	38.64 ug/L	99
26) Diisopropyl ether	3.330	45	658165	45.80 ug/L #	47
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	3.746	59	600615	44.80 ug/L	99
29) 2,2-Dichloropropane	3.961	77	352410	38.06 ug/L	99
30) cis-1,2-Dichloroethene	3.953	61	444955	38.37 ug/L	99
31) 2-Butanone	3.946	43	103307	41.32 ug/L	97
32) Ethyl Acetate	4.004	43	209819	41.45 ug/L #	98
33) Methyl acrylate	4.068	55	208973	39.11 ug/L	99
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	4.261	49	195912	36.17 ug/L	98
36) Tetrahydrofuran	4.283	42	63984	33.49 ug/L	95
37) Methacrylonitrile	4.218	41	121453	33.81 ug/L	91
38) Chloroform	4.419	83	440168	34.56 ug/L	99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.713	56	6452	0.31 ug/L #	19
41) 1,1,1-Trichloroethane	4.634	97	373782	36.44 ug/L	98
43) Carbon tetrachloride	4.870	117	316686	37.69 ug/L	99
44) 1,1-Dichloropropene	4.878	75	324168	36.61 ug/L	98
46) 1,2-Dichloroethane	5.293	62	280984	35.60 ug/L	99
47) Benzene	5.178	78	982407	35.22 ug/L	99
48) Tertiaryamylmethylether	5.451	73	575649	44.09 ug/L	98
49) Isobutyl Alcohol	5.451	43	171045	42.78 ug/L #	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.747	88	15857	169.32 ug/L #	76
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	277130	36.03 ug/L	99
55) 1,2-Dichloropropane	6.704	63	258190	36.48 ug/L #	86
56) Dibromomethane	6.797	93	161786	36.49 ug/L	100
57) Methyl methacrylate	6.819	41	174933	32.23 ug/L	98
58) Bromodichloromethane	7.019	83	334592	37.11 ug/L	100
59) 2-Chloroethyl vinyl ether	7.241	43	69883m	25.94 ug/L	
60) 2-Nitropropane	7.241	43	65246	31.82 ug/L #	95
61) cis-1,3-Dichloropropene	7.449	75	405362	36.50 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	297937	48.43 ug/L	82
65) Toluene	7.728	91	1024015	34.39 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	348219	34.10 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	279405	34.04 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	216861	33.45 ug/L	98
70) Tetrachloroethene	8.130	166	274338	34.76 ug/L	99
71) 1,3-Dichloropropane	8.201	76	329972	34.23 ug/L	87
72) 2-Hexanone	8.251	43	154582	37.01 ug/L	98
73) Chlorodibromomethane	8.352	129	264550	34.88 ug/L	98
74) Butyl acetate	8.344	43	314238	38.64 ug/L	100
75) 1,2-Dibromoethane	8.423	107	234507	36.12 ug/L	99
76) Chlorobenzene	8.753	112	668530	35.59 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	248740	34.29 ug/L	98
78) Ethylbenzene	8.817	91	1113151	35.46 ug/L	98
79) m/p-Xylene	8.896	91	1655032	69.96 ug/L	98
80) Styrene	9.140	104	697394	34.48 ug/L	99
81) o-Xylene	9.125	91	857265	35.26 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	176881	34.73 ug/L	100
84) Isopropylbenzene	9.333	105	1053887	36.55 ug/L	100
86) Bromobenzene	9.512	77	512360	33.74 ug/L	100
87) 1,1,2,2-Tetrachloroethane	9.512	83	317493	37.35 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	71343	36.61 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	62118	30.12 ug/L	99
90) n-Propylbenzene	9.562	91	1296417	37.02 ug/L	99
91) 2-Chlorotoluene	9.612	91	742153	37.34 ug/L	99
92) 4-Chlorotoluene	9.677	91	831194	34.38 ug/L	99
93) 1,3,5-Trimethylbenzene	9.662	105	845769	36.37 ug/L	99
94) tert-Butylbenzene	9.827	91	502038	35.68 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	856924	35.30 ug/L	100
96) sec-Butylbenzene	9.942	105	1109122	36.70 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	496623	36.02 ug/L	99
99) p-Isopropyltoluene	10.013	119	904535	35.87 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	500024	35.63 ug/L	100

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	841143	37.16	ug/L		99
102) Benzyl chloride	10.114	91	5040	0.34	ug/L	#	61
103) 1,2-Dichlorobenzene	10.243	146	471111	37.12	ug/L		99
104) n-Butylbenzene	10.221	91	902345	35.28	ug/L		99
105) Hexachloroethane	10.386	117	197912	35.55	ug/L		95
106) 1,2-Dibromo-3-chloropr...	10.629	157	69775	38.14	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	6140	0.59	ug/L	#	79
108) 1,2,4-Trichlorobenzene	11.016	180	354051	36.37	ug/L		100
109) Hexachlorobutadiene	11.081	225	202680	38.28	ug/L		98
110) Naphthalene	11.152	128	859066	37.24	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	335053	35.44	ug/L		96
112) 2-Methylnaphthalene	11.790	142	16652	1.16	ug/L		92
113) 1-Methylnaphthalene	11.904	142	11961	1.00	ug/L		84
115) 2-Propanone	2.227	43	62027	44.32	ug/L		96
116) Acetic Ether	4.004	43	209819	48.11	ug/L	#	94
117) Isopropyl Acetate	5.343	61	117221	50.21	ug/L		99
118) Amyl Acetate	9.225	43	323648	46.78	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
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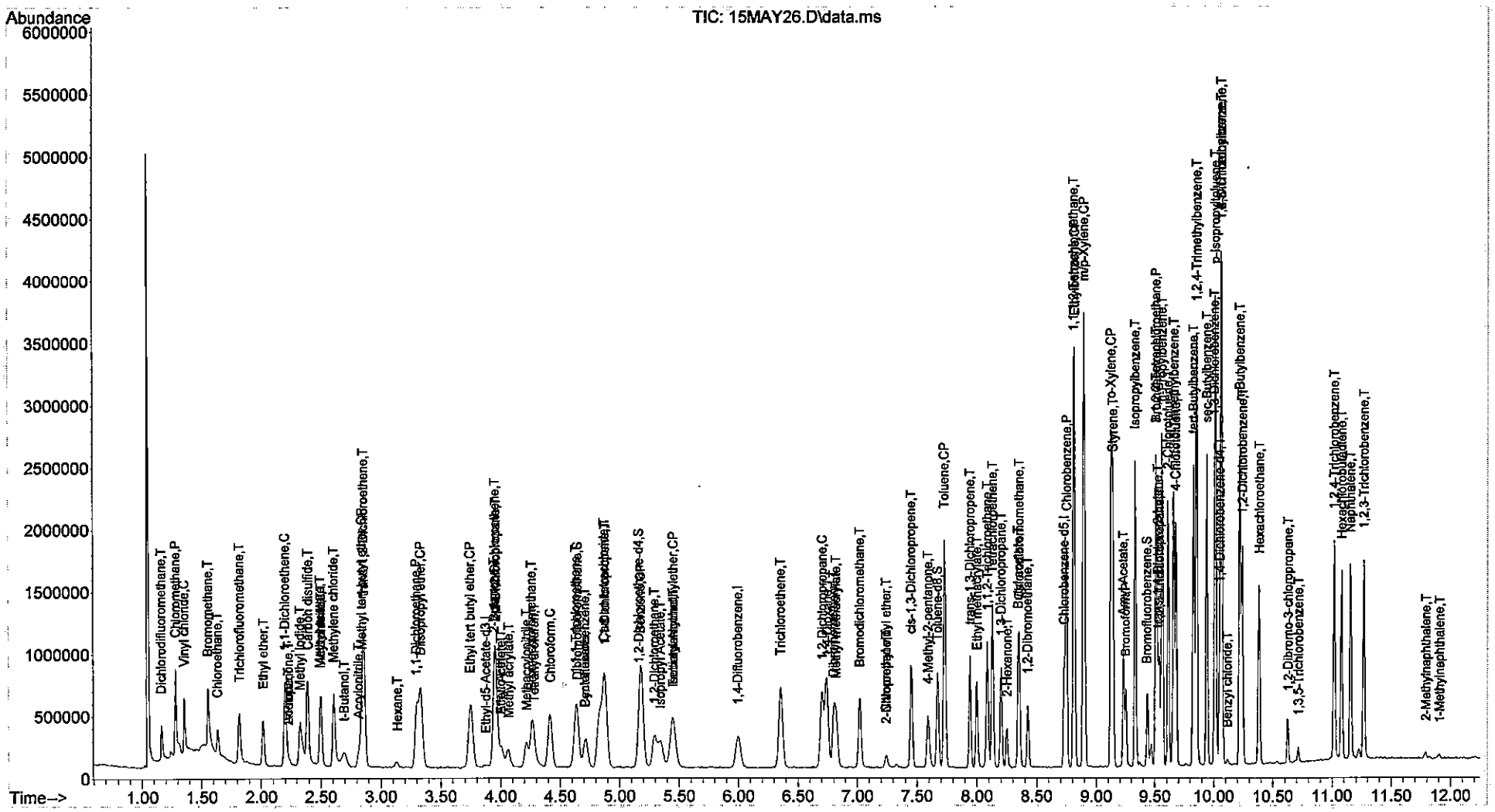

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	40.000	23.386	41.5#	69	0.00
3	P	Chloromethane	40.000	32.196	19.5	91	0.00
4	C	Vinyl chloride	40.000	32.267	19.3	88	0.00
5	T	Bromomethane	40.000	24.852	37.9#	69	-0.02
6	T	Chloroethane	40.000	34.150	14.6	99	-0.01
7	T	Trichlorofluoromethane	40.000	29.432	26.4#	87	0.00
8	T	Ethyl ether	40.000	37.716	5.7	104	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.12#
10	C	1,1-Dichloroethene	40.000	36.367	9.1	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	50.832	-27.1#	141	0.00
13	T	Acetone	40.000	37.076	7.3	103	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	36.373	9.1	99	0.00
16	T	Allyl chloride	40.000	32.437	18.9	92	0.00
17	T	Methyl acetate	40.000	1.939	95.2#	6	0.01
18	T	Acetonitrile	40.000	31.665	20.8#	90	0.00
19	T	Methylene chloride	40.000	41.002	-2.5	104	0.00
20	T	trans-1,2-Dichloroethene	40.000	36.832	7.9	105	0.00
21	T	t-Butanol	200.000	210.650	-5.3	122	0.01
22	T	Acrylonitrile	40.000	36.770	8.1	102	0.00
23	CP	Methyl tert-butyl ether	40.000	45.141	-12.9	128	0.00
24	T	Hexane	40.000	0.675	98.3#	8	0.00
25	P	1,1-Dichloroethane	40.000	38.639	3.4	104	0.00
26	CP	Diisopropyl ether	40.000	45.799	-14.5	128	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	44.798	-12.0	124	0.00
29	T	2,2-Dichloropropane	40.000	38.058	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.373	4.1	109	0.00
31	T	2-Butanone	40.000	41.323	-3.3	117	0.00
32	T	Ethyl Acetate	40.000	41.447	-3.6	115	0.00
33	T	Methyl acrylate	40.000	39.108	2.2	101	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.74#
35	T	Bromochloromethane	40.000	36.169	9.6	104	0.00
36	T	Tetrahydrofuran	40.000	33.488	16.3	97	0.00
37	T	Methacrylonitrile	40.000	33.806	15.5	91	0.00
38	C	Chloroform	40.000	34.564	13.6	102	0.00
39	T	Cyclohexane	40.000	0.313	99.2#	2	-0.03
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	40.000	36.443	8.9	103	0.00
42	S	Dibromofluoromethane	20.000	19.955	0.2	111	0.00
43	T	Carbon tetrachloride	40.000	37.690	5.8	97	0.00
44	T	1,1-Dichloropropene	40.000	36.612	8.5	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.199	4.0	107	0.00
46	T	1,2-Dichloroethane	40.000	35.604	11.0	107	0.00
47	CP	Benzene	40.000	35.224	11.9	105	0.00
48	CP	Tertiaryamylmethylether	40.000	44.091	-10.2	127	0.00
49	T	Isobutyl Alcohol	40.000	42.785	-7.0	123	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	169.322	95.8#	5	-0.06
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.32#
54	T	Trichloroethene	40.000	36.034	9.9	105	0.00
55	C	1,2-Dichloropropane	40.000	36.476	8.8	106	0.00
56	T	Dibromomethane	40.000	36.487	8.8	103	0.00
57	T	Methyl methacrylate	40.000	32.230	19.4	96	0.00
58	T	Bromodichloromethane	40.000	37.108	7.2	103	0.00
59	T	2-Chloroethyl vinyl ether	40.000	25.936	35.2#	77	-0.09
60	T	2-Nitropropane	40.000	31.820	20.4#	98	0.00
61	T	cis-1,3-Dichloropropene	40.000	36.497	8.8	104	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	40.000	48.431	-21.1#	158	0.00
64	S	Toluene-d8	20.000	19.280	3.6	111	0.00
65	CP	Toluene	40.000	34.386	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	40.000	34.101	14.7	103	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	34.038	14.9	103	0.00
69	T	1,1,2-Trichloroethane	40.000	33.455	16.4	106	0.00
70	T	Tetrachloroethene	40.000	34.759	13.1	100	0.00
71	T	1,3-Dichloropropane	40.000	34.228	14.4	105	0.00
72	T	2-Hexanone	40.000	37.013	7.5	110	0.00
73	T	Chlorodibromomethane	40.000	34.879	12.8	100	0.00
74	T	Butyl acetate	40.000	38.636	3.4	114	0.00
75	T	1,2-Dibromoethane	40.000	36.118	9.7	110	0.00
76	P	Chlorobenzene	40.000	35.591	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	34.295	14.3	108	0.00
78	CP	Ethylbenzene	40.000	35.457	11.4	103	0.00
79	CP	m/p-Xylene	80.000	69.959	12.6	100	0.00
80	T	Styrene	40.000	34.481	13.8	102	0.00
81	CP	o-Xylene	40.000	35.256	11.9	104	0.00
82	T	Cyclohexanone	200.000	0.000	100.0#	0	-9.38#
83	P	Bromoform	40.000	34.733	13.2	102	0.00
84	T	Isopropylbenzene	40.000	36.550	8.6	104	0.00
85	S	Bromofluorobenzene	20.000	19.663	1.7	114	0.00
86	T	Bromobenzene	40.000	33.738	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	37.350	6.6	113	0.00
88	T	1,2,3-Trichloropropane	40.000	36.607	8.5	104	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	30.122	24.7#	90	0.00
90	T	n-Propylbenzene	40.000	37.018	7.5	104	0.00
91	T	2-Chlorotoluene	40.000	37.341	6.6	106	0.00
92	T	4-Chlorotoluene	40.000	34.384	14.0	102	0.00
93	T	1,3,5-Trimethylbenzene	40.000	36.370	9.1	104	0.00
94	T	tert-Butylbenzene	40.000	35.676	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	40.000	35.303	11.7	104	0.00
96	T	sec-Butylbenzene	40.000	36.701	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	40.000	36.019	10.0	102	0.00
99	T	p-Isopropyltoluene	40.000	35.867	10.3	101	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	35.634	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	40.000	37.158	7.1	104	0.00
102	T	Benzyl chloride	40.000	0.341	99.1#	1	0.00
103	T	1,2-Dichlorobenzene	40.000	37.115	7.2	106	0.00
104	T	n-Butylbenzene	40.000	35.280	11.8	101	0.00
105	T	Hexachloroethane	40.000	35.549	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.136	4.7	108	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.586	98.5#	2	0.00
108	T	1,2,4-Trichlorobenzene	40.000	36.366	9.1	107	0.00
109	T	Hexachlorobutadiene	40.000	38.283	4.3	108	0.00
110	T	Naphthalene	40.000	37.237	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	40.000	35.438	11.4	110	0.00
112	T	2-Methylnaphthalene	40.000	1.160	97.1#	4	0.00
113	T	1-Methylnaphthalene	40.000	0.998	97.5#	3	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	92	0.00
115	T	2-Propanone	40.000	44.324	-10.8	103	0.00
116	T	Acetic Ether	40.000	48.111	-20.3#	114	0.00
117	T	Isopropyl Acetate	40.000	50.209	-25.5#	116	0.00
118	T	Amyl Acetate	40.000	46.778	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	0.637	0.373	41.4#	69	0.00
3	P	Chloromethane	0.878	0.707	19.5	91	0.00
4	C	Vinyl chloride	0.643	0.519	19.3	88	0.00
5	T	Bromomethane	0.559	0.347	37.9#	69	-0.02
6	T	Chloroethane	0.416	0.356	14.4	99	-0.01
7	T	Trichlorofluoromethane	0.868	0.638	26.5#	87	0.00
8	T	Ethyl ether	0.365	0.344	5.8	104	0.00
9	T	Acrolein	0.084	0.000#	100.0#	0#	-2.12#
10	C	1,1-Dichloroethene	0.842	0.766	9.0	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.376	0.478	-27.1#	141	0.00
13	T	Acetone	0.340	0.136#	60.0#	103	0.00
14	T	Chloroprene	0.818	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.942	1.766	9.1	99	0.00
16	T	Allyl chloride	0.908	0.736	18.9	92	0.00
17	T	Methyl acetate	0.348	0.017#	95.1#	6#	0.01
18	T	Acetonitrile	0.907	0.718	20.8#	90	0.00
19	T	Methylene chloride	1.642	0.712	56.6#	104	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.819	8.0	105	0.00
21	T	t-Butanol	0.117	0.065#	44.4#	122	0.01
22	T	Acrylonitrile	0.206	0.189#	8.3	102	0.00
23	CP	Methyl tert-butyl ether	1.083	1.223	-12.9	128	0.00
24	T	Hexane	1.281	0.058#	95.5#	8#	0.00
25	P	1,1-Dichloroethane	1.037	1.001	3.5	104	0.00
26	CP	Diisopropyl ether	1.260	1.443	-14.5	128	0.00
27	T	Vinyl acetate	0.093	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.175	1.316	-12.0	124	0.00
29	T	2,2-Dichloropropane	0.812	0.772	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.975	4.1	109	0.00
31	T	2-Butanone	0.251	0.226	10.0	117	0.00
32	T	Ethyl Acetate	0.444	0.460	-3.6	115	0.00
33	T	Methyl acrylate	0.468	0.458	2.1	101	0.00
34	T	Propionitrile	0.083	0.000#	100.0#	0#	-4.74#
35	T	Bromochloromethane	0.475	0.429	9.7	104	0.00
36	T	Tetrahydrofuran	0.206	0.140#	32.0#	97	0.00
37	T	Methacrylonitrile	0.315	0.266	15.6	91	0.00
38	C	Chloroform	1.116	0.965	13.5	102	0.00
39	T	Cyclohexane	1.058	0.014#	98.7#	2#	-0.03
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	0.588	0.535	9.0	103	0.00
42	S	Dibromofluoromethane	0.340	0.339	0.3	111	0.00
43	T	Carbon tetrachloride	0.481	0.454	5.6	97	0.00
44	T	1,1-Dichloropropene	0.568	0.464	18.3	96	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.287	4.0	107	0.00
46	T	1,2-Dichloroethane	0.452	0.403	10.8	107	0.00
47	CP	Benzene	1.598	1.407	12.0	105	0.00
48	CP	Tertiaryamylmethylether	0.748	0.825	-10.3	127	0.00
49	T	Isobutyl Alcohol	0.266	0.245	7.9	123	0.00
50	T	Heptane	0.542	0.000#	100.0#	0#	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.000#	100.0#	5#	-0.06
52	T	Methylcyclohexane	0.630	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.013	0.000#	100.0#	0#	-6.32#
54	T	Trichloroethene	0.441	0.397	10.0	105	0.00
55	C	1,2-Dichloropropane	0.406	0.370	8.9	106	0.00
56	T	Dibromomethane	0.254	0.232	8.7	103	0.00
57	T	Methyl methacrylate	0.311	0.251	19.3	96	0.00
58	T	Bromodichloromethane	0.517	0.479	7.4	103	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.100#	35.1#	77	-0.09
60	T	2-Nitropropane	0.117	0.093#	20.5#	98	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.581	8.6	104	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	0.396	0.479	-21.0#	158	0.00
64	S	Toluene-d8	1.343	1.294	3.6	111	0.00
65	CP	Toluene	1.917	1.648	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.560	14.8	103	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.528	0.450	14.8	103	0.00
69	T	1,1,2-Trichloroethane	0.417	0.349	16.3	106	0.00
70	T	Tetrachloroethene	0.508	0.441	13.2	100	0.00
71	T	1,3-Dichloropropane	0.620	0.531	14.4	105	0.00
72	T	2-Hexanone	0.269	0.249	7.4	110	0.00
73	T	Chlorodibromomethane	0.488	0.426	12.7	100	0.00
74	T	Butyl acetate	0.523	0.506	3.3	114	0.00
75	T	1,2-Dibromoethane	0.418	0.377	9.8	110	0.00
76	P	Chlorobenzene	1.209	1.076	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.400	14.3	108	0.00
78	CP	Ethylbenzene	2.020	1.791	11.3	103	0.00
79	CP	m/p-Xylene	1.523	1.331	12.6	100	0.00
80	T	Styrene	1.302	1.122	13.8	102	0.00
81	CP	o-Xylene	1.565	1.379	11.9	104	0.00
82	T	Cyclohexanone	0.025	0.000#	100.0#	0#	-9.38#
83	P	Bromoform	0.328	0.285	13.1	102	0.00
84	T	Isopropylbenzene	1.856	1.696	8.6	104	0.00
85	S	Bromofluorobenzene	0.453	0.445	1.8	114	0.00
86	T	Bromobenzene	0.977	0.824	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.511	6.6	113	0.00
88	T	1,2,3-Trichloropropane	0.125	0.115#	8.0	104	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.100#	24.8#	90	0.00
90	T	n-Propylbenzene	2.254	2.086	7.5	104	0.00
91	T	2-Chlorotoluene	1.279	1.194	6.6	106	0.00
92	T	4-Chlorotoluene	1.556	1.337	14.1	102	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.361	9.1	104	0.00
94	T	tert-Butylbenzene	0.906	0.808	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.379	11.7	104	0.00
96	T	sec-Butylbenzene	1.945	1.785	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	1.889	1.701	10.0	102	0.00
99	T	p-Isopropyltoluene	3.455	3.098	10.3	101	0.00

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.712	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.881	7.1	104	0.00
102	T	Benzyl chloride	2.023	0.017#	99.2#	1#	0.00
103	T	1,2-Dichlorobenzene	1.739	1.613	7.2	106	0.00
104	T	n-Butylbenzene	3.504	3.090	11.8	101	0.00
105	T	Hexachloroethane	0.763	0.678	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.239	20.3#	108	0.00
107	T	1,3,5-Trichlorobenzene	1.435	0.021#	98.5#	2#	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.213	9.1	107	0.00
109	T	Hexachlorobutadiene	0.725	0.694	4.3	108	0.00
110	T	Naphthalene	3.160	2.942	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.147	11.4	110	0.00
112	T	2-Methylnaphthalene	1.967	0.057#	97.1#	4#	0.00
113	T	1-Methylnaphthalene	1.641	0.041#	97.5#	3#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	92	0.00
115	T	2-Propanone	2.164	0.983	54.6#	103	0.00
116	T	Acetic Ether	2.764	3.325	-20.3#	114	0.00
117	T	Isopropyl Acetate	1.897	1.857	2.1	116	0.00
118	T	Amyl Acetate	4.385	5.128	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2018 May 15 1138 Sequence Log

Starting sequence Tue May 15 08:43:19 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	BLK
16)	Sample	5	15MAY16	8SGO0502	VBLKS1-180515
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV

2018 May 15 1138 Sequence Log

27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK
44)	Sample	33	15MAY44	8GI0502	BLK
45)	Sample	34	15MAY45	8GI0502	ICV
46)	Sample	35	15MAY46	8GI0502	BLK
47)	Sample	36	15MAY47	BFB	VBFB8-180514
48)	Sample	37	15MAY48	8GI0502	VCCV1-180514
49)	Sample	38	15MAY49	8GI0502	VCCV2-180511
50)	Sample	39	15MAY50	8GI0502	VLCSW2-180514

2018 May 15 1138 Sequence Log

51)	Sample	40	15MAY51	8GI0502	LCS-
52)	Sample	41	15MAY52	8GI0502	BLK
53)	Sample	42	15MAY53	8GI0502	VBLKW2-180414
54)	Sample	43	15MAY54	8GI0502	MBLK-
55)	Sample	44	15MAY55	8GI0502	1805671-22A
56)	Sample	45	15MAY56	8GI0502	1805671-11A
57)	Sample	46	15MAY57	8GI0502	1805671-12A
58)	Sample	47	15MAY58	8GI0502	1805671-13A
59)	Sample	48	15MAY59	8GI0502	1805671-14A
60)	Sample	49	15MAY60	8GI0502	1805671-15A
61)	Sample	50	15MAY61	8GI0502	1805671-16A
62)	Sample	51	15MAY62	8GI0502	1805671-17A
63)	Sample	52	15MAY63	8GI0502	1805671-18A
64)	Sample	53	15MAY64	8GI0502	1805671-19A
65)	Sample	54	15MAY65	8GI0502	1805671-20A
66)	Sample	55	15MAY66	8GI0502	1805671-21A
67)	Sample	56	15MAY67	8GI0502	1805671-23A
68)	Sample	57	15MAY68	8GI0502	1805671-24A
69)	Sample	58	15MAY69	8GI0502	1805671-25A
70)	Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)	Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)	Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)	Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)	Sample	63	15MAY74	8GI0502	1805699-01A DF20

2018 May 15 1138 Sequence Log

75) Sample 64 15MAY75 8GI0502 1805699-01A MS DF20

76) Sample 65 15MAY76 8GI0502 1805699-01A MSD DF20

77) Sample 66 15MAY77 8GI0502 BLK

Sequence completed Wed May 16 06:46:15 2018

D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Sequence Log .LOG

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	101	0.00
2	T	Dichlorodifluoromethane	40.000	35.125	12.2	98	0.00
3	P	Chloromethane	40.000	29.359	26.6#	79	0.00
4	C	Vinyl chloride	40.000	32.811	18.0	85	0.00
5	T	Bromomethane	40.000	33.150	17.1	88	0.00
6	T	Chloroethane	40.000	32.171	19.6	88	0.00
7	T	Trichlorofluoromethane	40.000	34.304	14.2	96	0.00
8	T	Ethyl ether	40.000	32.616	18.5	85	0.00
9	T	Acrolein	200.000	240.875	-20.4#	129	0.00
10	C	1,1-Dichloroethene	40.000	32.577	18.6	87	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	35.728	10.7	92	0.00
12	T	Methyl iodide	40.000	51.673	-29.2#	136	0.00
13	T	Acetone	40.000	32.717	18.2	88	0.00
14	T	Chloroprene	40.000	33.113	17.2	89	0.00
15	T	Carbon disulfide	40.000	34.525	13.7	89	0.00
16	T	Allyl chloride	40.000	32.410	19.0	88	0.00
17	T	Methyl acetate	40.000	33.804	15.5	91	0.00
18	T	Acetonitrile	40.000	32.433	18.9	88	0.00
19	T	Methylene chloride	40.000	36.936	7.7	89	0.00
20	T	trans-1,2-Dichloroethene	40.000	31.430	21.4#	85	0.00
21	T	t-Butanol	200.000	158.408	20.8#	88	0.00
22	T	Acrylonitrile	40.000	28.873	27.8#	76	0.00
23	CP	Methyl tert-butyl ether	40.000	40.424	-1.1	109	0.00
24	T	Hexane	40.000	33.690	15.8	76	0.00
25	P	1,1-Dichloroethane	40.000	34.040	14.9	87	0.00
26	CP	Diisopropyl ether	40.000	43.496	-8.7	115	0.00
27	T	Vinyl acetate	40.000	32.760	18.1	99	0.00
28	CP	Ethyl tert butyl ether	40.000	42.526	-6.3	112	0.00
29	T	2,2-Dichloropropane	40.000	34.882	12.8	89	0.00
30	T	cis-1,2-Dichloroethene	40.000	32.650	18.4	88	0.00
31	T	2-Butanone	40.000	32.087	19.8	87	0.00
32	T	Ethyl Acetate	40.000	36.243	9.4	96	0.00
33	T	Methyl acrylate	40.000	30.979	22.6#	76	0.00
34	T	Propionitrile	40.000	35.822	10.4	94	0.00
35	T	Bromochloromethane	40.000	32.906	17.7	90	0.00
36	T	Tetrahydrofuran	40.000	24.510	38.7#	67	0.00
37	T	Methacrylonitrile	40.000	29.121	27.2#	74	0.00
38	C	Chloroform	40.000	31.889	20.3#	90	0.00
39	T	Cyclohexane	40.000	36.634	8.4	88	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	40.000	33.955	15.1	88	0.00
42	S	Dibromofluoromethane	20.000	19.342	3.3	99	0.00
43	T	Carbon tetrachloride	40.000	38.301	4.2	90	0.00
44	T	1,1-Dichloropropene	40.000	36.402	9.0	87	0.00
45	S	1,2-Dichloroethane-d4	20.000	18.658	6.7	96	0.00
46	T	1,2-Dichloroethane	40.000	31.359	21.6#	86	0.00
47	CP	Benzene	40.000	33.878	15.3	92	0.00
48	CP	Tertiaryamylmethylether	40.000	42.933	-7.3	113	0.00
49	T	Isobutyl Alcohol	40.000	40.968	-2.4	108	0.00
50	T	Heptane	40.000	30.414	24.0#	73	0.00

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	2478.282	38.0#	61	0.00
52	T	Methylcyclohexane	40.000	34.429	13.9	88	0.00
53	T	n-Butanol	400.000	322.188	19.5	72	-0.01
54	T	Trichloroethene	40.000	35.146	12.1	94	0.00
55	C	1,2-Dichloropropane	40.000	32.847	17.9	87	0.00
56	T	Dibromomethane	40.000	33.226	16.9	86	0.00
57	T	Methyl methacrylate	40.000	26.905	32.7#	73	0.00
58	T	Bromodichloromethane	40.000	34.240	14.4	87	0.00
59	T	2-Chloroethyl vinyl ether	40.000	24.138	39.7#	66	0.00
60	T	2-Nitropropane	40.000	23.819	40.5#	67	0.00
61	T	cis-1,3-Dichloropropene	40.000	33.059	17.4	86	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	104	0.00
63	T	4-Methyl-2-pentanone	40.000	29.766	25.6#	89	0.00
64	S	Toluene-d8	20.000	18.946	5.3	100	0.00
65	CP	Toluene	40.000	33.981	15.0	93	0.00
66	T	trans-1,3-Dichloropropene	40.000	30.395	24.0#	84	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	30.368	24.1#	85	0.00
69	T	1,1,2-Trichloroethane	40.000	29.921	25.2#	87	0.00
70	T	Tetrachloroethene	40.000	36.177	9.6	96	0.00
71	T	1,3-Dichloropropane	40.000	30.967	22.6#	87	0.00
72	T	2-Hexanone	40.000	32.445	18.9	88	0.00
73	T	Chlorodibromomethane	40.000	33.346	16.6	87	0.00
74	T	Butyl acetate	40.000	36.011	10.0	97	0.00
75	T	1,2-Dibromoethane	40.000	32.176	19.6	90	0.00
76	P	Chlorobenzene	40.000	33.760	15.6	91	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	31.518	21.2#	91	0.00
78	CP	Ethylbenzene	40.000	34.350	14.1	92	0.00
79	CP	m/p-Xylene	80.000	66.731	16.6	88	0.00
80	T	Styrene	40.000	32.165	19.6	87	0.00
81	CP	o-Xylene	40.000	32.734	18.2	88	0.00
82	T	Cyclohexanone	200.000	182.474	8.8	94	0.00
83	P	Bromoform	40.000	31.756	20.6#	85	0.00
84	T	Isopropylbenzene	40.000	34.398	14.0	89	0.00
85	S	Bromofluorobenzene	20.000	18.464	7.7	98	0.00
86	T	Bromobenzene	40.000	29.891	25.3#	85	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	30.203	24.5#	84	0.00
88	T	1,2,3-Trichloropropane	40.000	32.410	19.0	84	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	26.185	34.5#	72	0.00
90	T	n-Propylbenzene	40.000	35.874	10.3	92	0.00
91	T	2-Chlorotoluene	40.000	34.196	14.5	89	0.00
92	T	4-Chlorotoluene	40.000	32.352	19.1	88	0.00
93	T	1,3,5-Trimethylbenzene	40.000	34.059	14.9	89	0.00
94	T	tert-Butylbenzene	40.000	33.205	17.0	92	0.00
95	T	1,2,4-Trimethylbenzene	40.000	34.004	15.0	91	0.00
96	T	sec-Butylbenzene	40.000	35.031	12.4	90	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	40.000	34.595	13.5	91	0.00
99	T	p-Isopropyltoluene	40.000	34.291	14.3	90	0.00

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	34.044	14.9	93	0.00
101	T	1,2,3-Trimethylbenzene	40.000	34.325	14.2	90	0.00
102	T	Benzyl chloride	40.000	28.443	28.9#	79	0.00
103	T	1,2-Dichlorobenzene	40.000	34.743	13.1	92	0.00
104	T	n-Butylbenzene	40.000	32.717	18.2	87	0.00
105	T	Hexachloroethane	40.000	34.390	14.0	88	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	27.987	30.0#	73	0.00
107	T	1,3,5-Trichlorobenzene	40.000	36.788	8.0	95	0.00
108	T	1,2,4-Trichlorobenzene	40.000	35.019	12.5	96	0.00
109	T	Hexachlorobutadiene	40.000	35.488	11.3	93	0.00
110	T	Naphthalene	40.000	31.382	21.5#	86	0.00
111	T	1,2,3-Trichlorobenzene	40.000	33.301	16.7	96	0.00
112	T	2-Methylnaphthalene	40.000	29.179	27.1#	86	0.00
113	T	1-Methylnaphthalene	40.000	30.319	24.2#	86	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	78	0.00
115	T	2-Propanone	40.000	44.640	-11.6	88	0.00
116	T	Acetic Ether	40.000	47.324	-18.3	95	0.00
117	T	Isopropyl Acetate	40.000	50.048	-25.1#	97	0.00
118	T	Amyl Acetate	40.000	45.916	-14.8	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180523\
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Misc : IS/SS 200-20081
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Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	101	0.00
2	T	Dichlorodifluoromethane	0.637	0.560	12.1	98	0.00
3	P	Chloromethane	0.878	0.644	26.7#	79	0.00
4	C	Vinyl chloride	0.643	0.528	17.9	85	0.00
5	T	Bromomethane	0.559	0.463	17.2	88	0.00
6	T	Chloroethane	0.416	0.335	19.5	88	0.00
7	T	Trichlorofluoromethane	0.868	0.744	14.3	96	0.00
8	T	Ethyl ether	0.365	0.298	18.4	85	0.00
9	T	Acrolein	0.084	0.062#	26.2#	129	0.00
10	C	1,1-Dichloroethene	0.842	0.686	18.5	87	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.364	10.6	92	0.00
12	T	Methyl iodide	0.376	0.486	-29.3#	136	0.00
13	T	Acetone	0.340	0.122#	64.1#	88	0.00
14	T	Chloroprene	0.818	0.677	17.2	89	0.00
15	T	Carbon disulfide	1.942	1.676	13.7	89	0.00
16	T	Allyl chloride	0.908	0.736	18.9	88	0.00
17	T	Methyl acetate	0.348	0.294	15.5	91	0.00
18	T	Acetonitrile	0.907	0.735	19.0	88	0.00
19	T	Methylene chloride	1.642	0.644	60.8#	89	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.699	21.5#	85	0.00
21	T	t-Butanol	0.117	0.050#	57.3#	88	0.00
22	T	Acrylonitrile	0.206	0.149#	27.7#	76	0.00
23	CP	Methyl tert-butyl ether	1.083	1.095	-1.1	109	0.00
24	T	Hexane	1.281	0.609	52.5#	76	0.00
25	P	1,1-Dichloroethane	1.037	0.882	14.9	87	0.00
26	CP	Diisopropyl ether	1.260	1.370	-8.7	115	0.00
27	T	Vinyl acetate	0.093	0.076#	18.3	99	0.00
28	CP	Ethyl tert butyl ether	1.175	1.250	-6.4	112	0.00
29	T	2,2-Dichloropropane	0.812	0.708	12.8	89	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.830	18.4	88	0.00
31	T	2-Butanone	0.251	0.176#	29.9#	87	0.00
32	T	Ethyl Acetate	0.444	0.402	9.5	96	0.00
33	T	Methyl acrylate	0.468	0.363	22.4#	76	0.00
34	T	Propionitrile	0.083	0.049#	41.0#	94	0.00
35	T	Bromochloromethane	0.475	0.391	17.7	90	0.00
36	T	Tetrahydrofuran	0.206	0.103#	50.0#	67	0.00
37	T	Methacrylonitrile	0.315	0.229	27.3#	74	0.00
38	C	Chloroform	1.116	0.890	20.3#	90	0.00
39	T	Cyclohexane	1.058	0.747	29.4#	88	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	0.588	0.499	15.1	88	0.00
42	S	Dibromofluoromethane	0.340	0.328	3.5	99	0.00
43	T	Carbon tetrachloride	0.481	0.461	4.2	90	0.00
44	T	1,1-Dichloropropene	0.568	0.462	18.7	87	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.279	6.7	96	0.00
46	T	1,2-Dichloroethane	0.452	0.355	21.5#	86	0.00
47	CP	Benzene	1.598	1.354	15.3	92	0.00
48	CP	Tertiaryamylmethylether	0.748	0.803	-7.4	113	0.00
49	T	Isobutyl Alcohol	0.266	0.234	12.0	108	0.00
50	T	Heptane	0.542	0.412	24.0#	73	0.00

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Operator : EMR
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Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.003#	40.0#	61	0.00
52	T	Methylcyclohexane	0.630	0.542	14.0	88	0.00
53	T	n-Butanol	0.013	0.007#	46.2#	72	-0.01
54	T	Trichloroethene	0.441	0.387	12.2	94	0.00
55	C	1,2-Dichloropropane	0.406	0.333	18.0	87	0.00
56	T	Dibromomethane	0.254	0.211	16.9	86	0.00
57	T	Methyl methacrylate	0.311	0.209	32.8#	73	0.00
58	T	Bromodichloromethane	0.517	0.442	14.5	87	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.093#	39.6#	66	0.00
60	T	2-Nitropropane	0.117	0.070#	40.2#	67	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.526	17.3	86	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	104	0.00
63	T	4-Methyl-2-pentanone	0.396	0.295	25.5#	89	0.00
64	S	Toluene-d8	1.343	1.272	5.3	100	0.00
65	CP	Toluene	1.917	1.628	15.1	93	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.499	24.0#	84	0.00
67	T	Chloropicrin	0.000	0.040#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.528	0.401	24.1#	85	0.00
69	T	1,1,2-Trichloroethane	0.417	0.312	25.2#	87	0.00
70	T	Tetrachloroethene	0.508	0.459	9.6	96	0.00
71	T	1,3-Dichloropropane	0.620	0.480	22.6#	87	0.00
72	T	2-Hexanone	0.269	0.218	19.0	88	0.00
73	T	Chlorodibromomethane	0.488	0.407	16.6	87	0.00
74	T	Butyl acetate	0.523	0.471	9.9	97	0.00
75	T	1,2-Dibromoethane	0.418	0.336	19.6	90	0.00
76	P	Chlorobenzene	1.209	1.020	15.6	91	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.368	21.2#	91	0.00
78	CP	Ethylbenzene	2.020	1.735	14.1	92	0.00
79	CP	m/p-Xylene	1.523	1.270	16.6	88	0.00
80	T	Styrene	1.302	1.047	19.6	87	0.00
81	CP	o-Xylene	1.565	1.281	18.1	88	0.00
82	T	Cyclohexanone	0.025	0.018#	28.0#	94	0.00
83	P	Bromoform	0.328	0.260	20.7#	85	0.00
84	T	Isopropylbenzene	1.856	1.596	14.0	89	0.00
85	S	Bromofluorobenzene	0.453	0.418	7.7	98	0.00
86	T	Bromobenzene	0.977	0.730	25.3#	85	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.413	24.5#	84	0.00
88	T	1,2,3-Trichloropropane	0.125	0.102#	18.4	84	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.087#	34.6#	72	0.00
90	T	n-Propylbenzene	2.254	2.021	10.3	92	0.00
91	T	2-Chlorotoluene	1.279	1.094	14.5	89	0.00
92	T	4-Chlorotoluene	1.556	1.258	19.2	88	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.274	14.9	89	0.00
94	T	tert-Butylbenzene	0.906	0.752	17.0	92	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.328	15.0	91	0.00
96	T	sec-Butylbenzene	1.945	1.703	12.4	90	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	1.889	1.634	13.5	91	0.00
99	T	p-Isopropyltoluene	3.455	2.962	14.3	90	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.636	14.9	93	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.661	14.2	90	0.00
102	T	Benzyl chloride	2.023	1.438	28.9#	79	0.00
103	T	1,2-Dichlorobenzene	1.739	1.510	13.2	92	0.00
104	T	n-Butylbenzene	3.504	2.866	18.2	87	0.00
105	T	Hexachloroethane	0.763	0.656	14.0	88	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.175#	41.7#	73	0.00
107	T	1,3,5-Trichlorobenzene	1.435	1.319	8.1	95	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.168	12.4	96	0.00
109	T	Hexachlorobutadiene	0.725	0.643	11.3	93	0.00
110	T	Naphthalene	3.160	2.479	21.6#	86	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.078	16.8	96	0.00
112	T	2-Methylnaphthalene	1.967	1.435	27.0#	86	0.00
113	T	1-Methylnaphthalene	1.641	1.244	24.2#	86	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	78	0.00
115	T	2-Propanone	2.164	0.989	54.3#	88	0.00
116	T	Acetic Ether	2.764	3.270	-18.3	95	0.00
117	T	Isopropyl Acetate	1.897	1.851	2.4	97	0.00
118	T	Amyl Acetate	4.385	5.034	-14.8	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 1

Data Path : C:\msdchem\1\data\8V180523\
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Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	216514	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	319521	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	284811	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135560	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	26626	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	104944	19.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 96.70%				
45) 1,2-Dichloroethane-d4	5.171	65	89119	18.66	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 93.30%				
64) Toluene-d8	7.671	98	362283	18.95	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 94.75%				
85) Bromofluorobenzene	9.433	95	119026	18.46	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 92.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	242314	35.13	ug/L		98
3) Chloromethane	1.282	50	279069m	29.36	ug/L		
4) Vinyl chloride	1.360	62	228493	32.81	ug/L		100
5) Bromomethane	1.575	96	200660	33.15	ug/L		98
6) Chloroethane	1.647	64	145049m	32.17	ug/L		
7) Trichlorofluoromethane	1.826	101	322171	34.30	ug/L		100
8) Ethyl ether	2.019	59	128976	32.62	ug/L		94
9) Acrolein	2.127	56	134565	240.88	ug/L		96
10) 1,1-Dichloroethene	2.206	61	297115	32.58	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	157462	35.73	ug/L		97
12) Methyl iodide	2.327	142	210371	51.67	ug/L		99
13) Acetone	2.227	43	52674	32.72	ug/L		99
14) Chloroprene	3.373	53	293152	33.11	ug/L		99
15) Carbon disulfide	2.392	76	725777	34.52	ug/L		100
16) Allyl chloride	2.499	41	318625m	32.41	ug/L		
17) Methyl acetate	2.485	43	127178	33.80	ug/L		95
18) Acetonitrile	2.499	41	318476m	32.43	ug/L		
19) Methylene chloride	2.614	49	278740	36.94	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	302801m	31.43	ug/L		
21) t-Butanol	2.678	59	107708	158.41	ug/L	#	97
22) Acrylonitrile	2.814	53	64377	28.87	ug/L		97
23) Methyl tert-butyl ether	2.850	73	474138	40.42	ug/L		100
24) Hexane	3.137	57	263769	33.69	ug/L		97
25) 1,1-Dichloroethane	3.301	63	382057	34.04	ug/L		99
26) Diisopropyl ether	3.330	45	593265	43.50	ug/L		94
27) Vinyl acetate	3.294	86	32988m	32.76	ug/L		
28) Ethyl tert butyl ether	3.753	59	541147	42.53	ug/L		97
29) 2,2-Dichloropropane	3.960	77	306573	34.88	ug/L		96
30) cis-1,2-Dichloroethene	3.953	61	359326	32.65	ug/L		96
31) 2-Butanone	3.939	43	76360	32.09	ug/L		97
32) Ethyl Acetate	4.003	43	174142	36.24	ug/L	#	99
33) Methyl acrylate	4.061	55	157115	30.98	ug/L		99
34) Propionitrile	4.741	54	21224	35.82	ug/L	#	78
35) Bromochloromethane	4.269	49	169169	32.91	ug/L		94
36) Tetrahydrofuran	4.283	42	44529	24.51	ug/L		96
37) Methacrylonitrile	4.211	41	99298	29.12	ug/L		98
38) Chloroform	4.419	83	385439m	31.89	ug/L		

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	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	323450	36.63	ug/L		98
41)	1,1,1-Trichloroethane	4.641	97	318818	33.95	ug/L		98
43)	Carbon tetrachloride	4.870	117	294619	38.30	ug/L		99
44)	1,1-Dichloropropene	4.877	75	295068	36.40	ug/L		96
46)	1,2-Dichloroethane	5.300	62	226559m	31.36	ug/L		
47)	Benzene	5.185	78	865010	33.88	ug/L		99
48)	Tertiaryamylmethylether	5.450	73	513143	42.93	ug/L		99
49)	Isobutyl Alcohol	5.443	43	149844	40.97	ug/L	#	97
50)	Heptane	5.766	43	263192m	30.41	ug/L		
51)	1,4-Dioxane	6.804	88	212471m	2478.28	ug/L		
52)	Methylcyclohexane	6.661	83	346316	34.43	ug/L		95
53)	n-Butanol	6.303	56	45588	322.19	ug/L	#	90
54)	Trichloroethene	6.353	130	247451	35.15	ug/L		98
55)	1,2-Dichloropropane	6.697	63	212843	32.85	ug/L		96
56)	Dibromomethane	6.797	93	134872	33.23	ug/L		97
57)	Methyl methacrylate	6.819	41	133688	26.91	ug/L		92
58)	Bromodichloromethane	7.019	83	282634	34.24	ug/L		98
59)	2-Chloroethyl vinyl ether	7.327	43	59540	24.14	ug/L		95
60)	2-Nitropropane	7.241	43	44711	23.82	ug/L	#	98
61)	cis-1,3-Dichloropropene	7.449	75	336135	33.06	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	167824	29.77	ug/L		97
65)	Toluene	7.728	91	927455	33.98	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	284455m	30.40	ug/L		
67)	Chloropicrin	7.943	117	226346	No Calib			
68)	Ethyl methacrylate	7.993	69	228465m	30.37	ug/L		
69)	1,1,2-Trichloroethane	8.086	97	177757	29.92	ug/L		98
70)	Tetrachloroethene	8.129	166	261683	36.18	ug/L		98
71)	1,3-Dichloropropane	8.201	76	273599	30.97	ug/L		99
72)	2-Hexanone	8.244	43	124185m	32.44	ug/L		
73)	Chlorodibromomethane	8.351	129	231798	33.35	ug/L		99
74)	Butyl acetate	8.344	43	268426	36.01	ug/L		97
75)	1,2-Dibromoethane	8.423	107	191462	32.18	ug/L		100
76)	Chlorobenzene	8.753	112	581187	33.76	ug/L		98
77)	1,1,1,2-Tetrachloroethane	8.810	131	209505	31.52	ug/L		99
78)	Ethylbenzene	8.817	91	988319	34.35	ug/L		98
79)	m/p-Xylene	8.896	91	1446810	66.73	ug/L		96
80)	Styrene	9.139	104	596225	32.17	ug/L		98
81)	o-Xylene	9.125	91	729469	32.73	ug/L		99
82)	Cyclohexanone	9.383	55	50750	182.47	ug/L		95
83)	Bromoform	9.247	173	148217	31.76	ug/L		99
84)	Isopropylbenzene	9.333	105	908985	34.40	ug/L		100
86)	Bromobenzene	9.512	77	416037	29.89	ug/L		95
87)	1,1,2,2-Tetrachloroethane	9.512	83	235296	30.20	ug/L		99
88)	1,2,3-Trichloropropane	9.540	110	57889	32.41	ug/L		97
89)	trans-1,4-Dichloro-2-b...	9.526	53	49488	26.18	ug/L		94
90)	n-Propylbenzene	9.562	91	1151424	35.87	ug/L		100
91)	2-Chlorotoluene	9.612	91	622888	34.20	ug/L		99
92)	4-Chlorotoluene	9.677	91	716750	32.35	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	725872	34.06	ug/L		100
94)	tert-Butylbenzene	9.827	91	428248	33.21	ug/L		98
95)	1,2,4-Trimethylbenzene	9.856	105	756466	34.00	ug/L		99
96)	sec-Butylbenzene	9.942	105	970244	35.03	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	442898	34.60	ug/L		99
99)	p-Isopropyltoluene	10.013	119	802993	34.29	ug/L		99
100)	1,4-Dichlorobenzene	10.063	146	443574	34.04	ug/L		99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

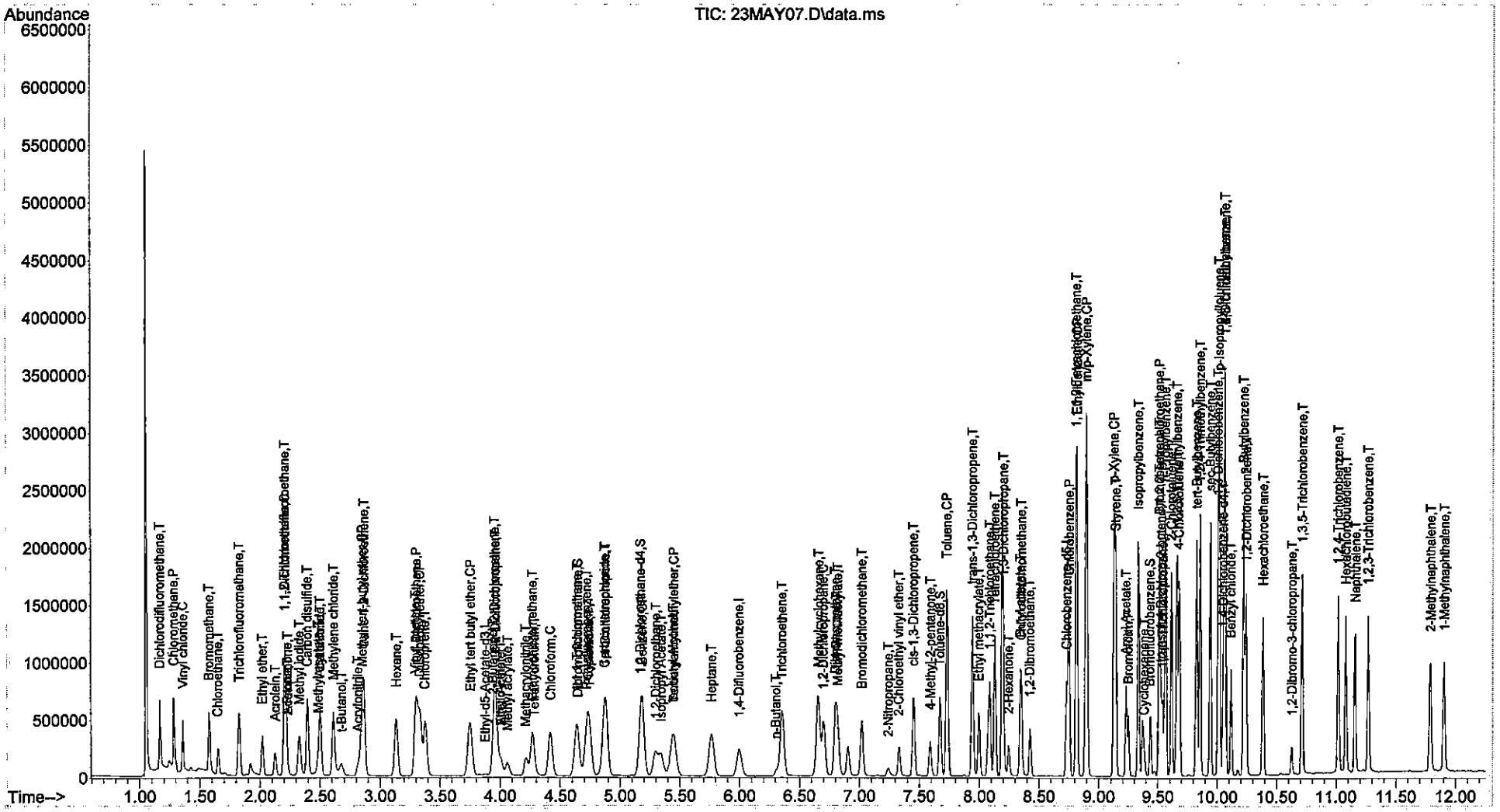
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	721478	34.33	ug/L		97
102) Benzyl chloride	10.114	91	389948	28.44	ug/L		98
103) 1,2-Dichlorobenzene	10.242	146	409479	34.74	ug/L		99
104) n-Butylbenzene	10.221	91	776974	32.72	ug/L		99
105) Hexachloroethane	10.386	117	177774	34.39	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	47540m	27.99	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	357701	36.79	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	316568	35.02	ug/L		98
109) Hexachlorobutadiene	11.081	225	174454	35.49	ug/L		98
110) Naphthalene	11.159	128	672241	31.38	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	292347	33.30	ug/L		99
112) 2-Methylnaphthalene	11.790	142	389079	29.18	ug/L		98
113) 1-Methylnaphthalene	11.904	142	337294	30.32	ug/L		100
115) 2-Propanone	2.227	43	52674	44.64	ug/L		99
116) Acetic Ether	4.003	43	174142	47.32	ug/L	#	97
117) Isopropyl Acetate	5.343	61	98580	50.05	ug/L		99
118) Amyl Acetate	9.225	43	268053	45.92	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

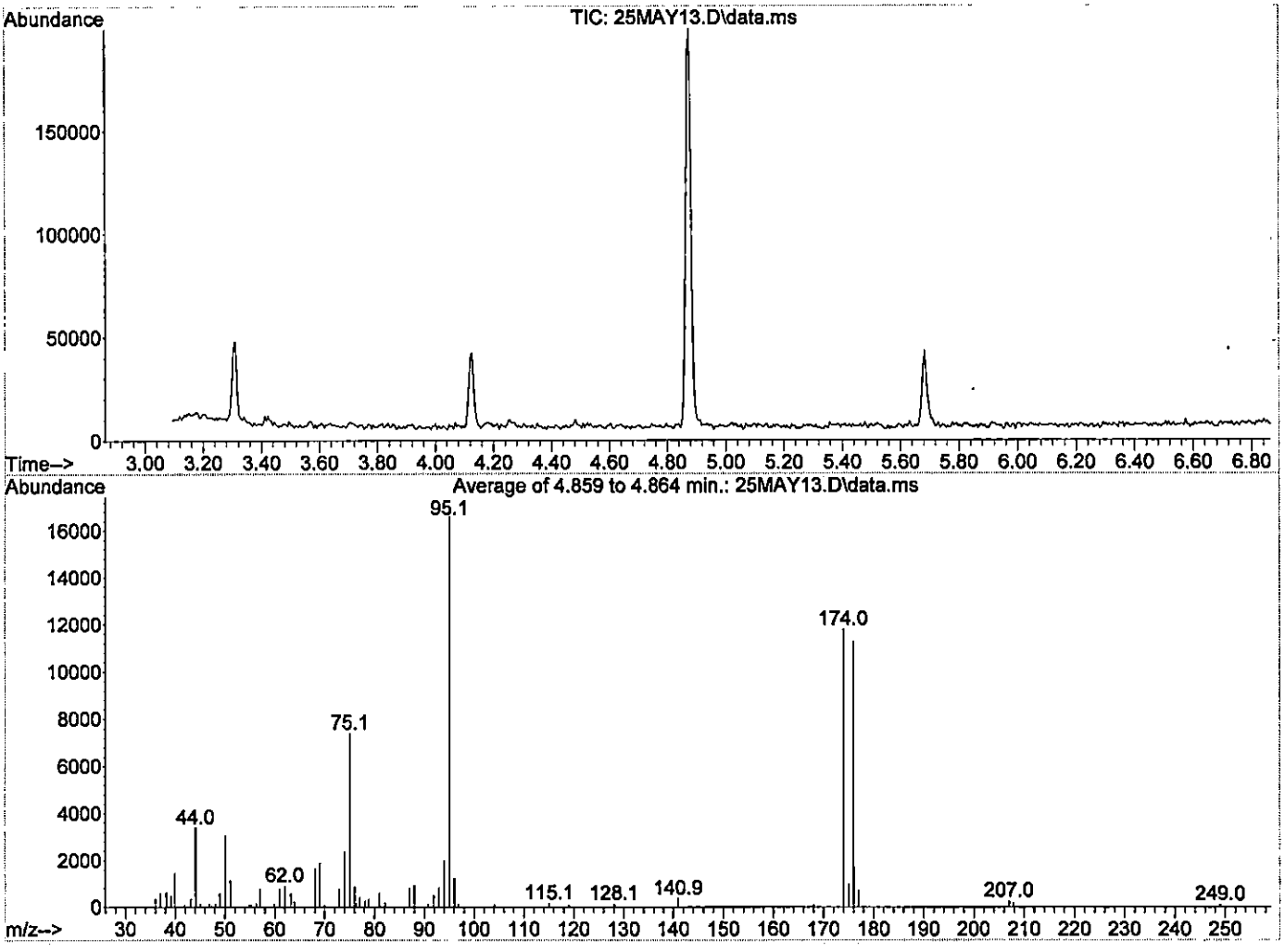
Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 7:23 pm
Operator : EMR
Sample : VBFB3-180525
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



Spectrum Information: Average of 4.859 to 4.864 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	18.4	3047	PASS
75	95	30	80	44.5	7378	PASS
95	95	100	100	100.0	16593	PASS
96	95	5	9	7.3	1210	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.9	11768	PASS
175	174	5	9	8.3	973	PASS
176	174	95	101	95.7	11267	PASS
177	176	5	9	6.2	694	PASS

Response Factor Report VMS9

Method Path : C:\msdchem\1\methods\
Method File : 9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018
Response Via : Initial Calibration

Calibration Files
1 =22MAY12.D 2 =22MAY13.D 3 =22MAY14.D 4 =22MAY15.D 5 =22MAY16.D 6 =22MAY18.D 7 =22MAY19.D
8 =22MAY20.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	ISTD									
2)	CP	Dichlorodifluo...	0.386	0.579	0.530	0.581	0.580	0.490	0.637	0.560	0.543	14.10
3)	CP	Chloromethane	1.337	1.268	0.996	1.053	1.046	0.931	1.116	0.912	1.083	14.04
4)	CP	Vinyl chloride	0.676	0.706	0.691	0.737	0.698	0.663	0.821	0.698	0.711	6.91
5)	CP	Bromomethane		0.211	0.125	0.118	0.093	0.076	0.103		0.121	39.04#
6)	CP	Chloroethane		0.846	0.808	0.675	0.539	0.451	0.523	0.446	0.612	26.99#
7)	CP	Trichlorofluor...	0.481	0.619	0.588	0.631	0.634	0.566	0.723	0.610	0.607	11.31#
8)		Ethanol	0.066	0.061	0.032	0.032	0.032	0.028	0.036	0.034	0.040#	36.59
9)	C	Ethyl ether	0.369	0.531	0.516	0.522	0.519	0.501	0.616	0.523	0.512	13.18#
10)	C	Acrolein	0.111	0.104	0.053	0.050	0.038	0.069	0.074	0.093	0.074#	36.33#
11)	CP	1,1-Dichloroet...	0.598	0.725	0.716	0.674	0.698	0.649	0.800	0.691	0.694	8.49
12)	CP	1,1,2-Trichlor...	0.206	0.240	0.223	0.282	0.274	0.241	0.294	0.243	0.250	12.10#
13)	C	Methyl iodide	0.566	0.543	0.298	0.228	0.218	0.237	0.286	0.292	0.334	41.93#
14)	CP	Acetone		0.992	0.401	0.333	0.289	0.230	0.300	0.271	0.402	66.02#
15)	CP	Carbon disulfide	1.185	1.094	1.025	1.048	1.052	1.047	1.357	1.186	1.124	10.05#
16)	C	Allyl chloride	1.126	0.965	0.815	0.757	0.777	0.761	0.943	0.831	0.872	14.89#
17)	CP	Methyl acetate		0.708	0.593	0.623	0.620	0.592	0.742	0.684	0.652	9.15#
18)	C	Acetonitrile		0.206	0.135	0.136	0.122	0.114	0.143	0.122	0.140#	22.09#
19)	CP	Methylene chlo...	1.557	1.377	1.012	0.903	0.871	0.780	0.948	0.821	1.034	27.20#
20)	C	t-Butanol	0.070	0.081	0.060	0.073	0.068	0.063	0.084	0.074	0.072#	11.54#
21)	CP	trans-1,2-Dich...	0.715	0.737	0.763	0.736	0.772	0.708	0.874	0.748	0.757	6.91#
22)	C	Acrylonitrile	0.294	0.295	0.318	0.343	0.358	0.324	0.409	0.349	0.336	11.19#
23)	CP	Methyl tert-bu...	1.174	1.371	1.283	1.368	1.375	1.244	1.551	1.399	1.346	8.45#
24)	C	Hexane	0.650	0.725	0.595	0.669	0.657	0.516	0.674	0.549	0.630	11.11#
25)	C	1,1-Dichloroet...	0.820	0.991	0.956	1.006	1.017	0.943	1.147	0.985	0.983	9.21
26)	C	Diisopropyl ether	2.127	1.802	1.876	1.897	1.859	1.595	1.973	1.771	1.863	8.30#
27)	C	Vinyl acetate		0.117	0.092	0.093	0.110	0.106	0.128	0.118	0.109#	12.31#
28)	C	Chloroprene	0.572	0.738	0.781	0.767	0.800	0.724	0.912	0.765	0.757	12.45#
29)	C	Ethyl tert but...	1.330	1.300	1.350	1.400	1.365	1.183	1.503	1.349	1.347	6.67#
30)	C	2,2-Dichloropr...	0.631	0.648	0.572	0.520	0.503	0.475	0.596	0.506	0.556	11.59#
31)	CP	cis-1,2-Dichlo...	0.969	0.942	0.915	0.906	0.893	0.831	1.023	0.873	0.919	6.42#
32)	CP	2-Butanone	1.580	1.295	0.629	0.511	0.465	0.388	0.503	0.447	0.727	61.87#
33)	C	Ethyl Acetate	0.668	0.928	0.709	0.764	0.764	0.721	0.922	0.840	0.790	12.35#
34)	C	Methyl acrylate	0.620	0.753	0.687	0.685	0.730	0.672	0.863	0.735	0.718	10.08#
35)	C	Propionitrile		0.186	0.140	0.135	0.146	0.138	0.174	0.144	0.152#	12.98#
36)	C	Bromochloromet...	0.515	0.484	0.531	0.537	0.527	0.498	0.616	0.520	0.528	7.44#
37)	C	Tetrahydrofuran	0.377	0.378	0.285	0.272	0.284	0.242	0.333	0.258	0.304	17.26
38)	C	Methacrylonitrile	0.270	0.305	0.300	0.326	0.344	0.314	0.398	0.343	0.325	11.68#
39)	CP	Chloroform	0.766	0.831	0.837	0.902	0.905	0.869	1.023	0.923	0.882	8.65
40)	CP	Cyclohexane	0.740	0.928	0.867	0.919	0.869	0.747	0.991	0.809	0.859	10.36#

Method Path : C:\msdchem\1\methods\
Method File : 9AC0522.M
Title : 8260B/624 Volatile Calibration

41)	I	1,4-Difluorobenzene	----------ISTD----------									
42)	CP	1,1,1-Trichlor...	0.262	0.321	0.365	0.364	0.358	0.350	0.355	0.381	0.345	10.90#
43)	S	Dibromofluorom...	0.335	0.338	0.345	0.333	0.337	0.333	0.321	0.363	0.338	3.60
44)	CP	Carbon tetrach...	0.208	0.246	0.275	0.288	0.272	0.282	0.269	0.296	0.267	10.54#
45)	C	1,1-Dichloropr...	0.426	0.435	0.427	0.455	0.427	0.390	0.416	0.420	0.424	4.29#
46)	S	1,2-Dichloroet...	0.442	0.446	0.455	0.445	0.431	0.427	0.441	0.453	0.442	2.19
47)	CP	1,2-Dichloroet...	0.493	0.551	0.508	0.518	0.491	0.475	0.517	0.518	0.509	4.51#
48)	CP	Benzene	1.262	1.432	1.448	1.447	1.344	1.217	1.336	1.315	1.350	6.42#
49)	C	Isobutyl Alcohol	0.327	0.399	0.343	0.386	0.356	0.377	0.387	0.419	0.374	8.13#
50)	C	Tertiaryamylme...	0.645	0.624	0.641	0.688	0.661	0.658	0.713	0.787	0.677	7.76#
51)	C	Heptane	0.327	0.399	0.343	0.386	0.356	0.377	0.387	0.419	0.374	8.13#
52)	CP	Methylcyclohexane	0.350	0.370	0.392	0.429	0.417	0.422	0.464	0.467	0.414	10.10#
53)	CP	Trichloroethene	0.267	0.313	0.303	0.319	0.299	0.271	0.294	0.290	0.294	6.28#
54)	C	n-Butanol	0.003	0.004	0.006	0.008	0.008	0.009	0.011	0.013	0.008#	43.87#
55)	CP	1,2-Dichloropr...	0.344	0.339	0.357	0.381	0.360	0.352	0.377	0.368	0.360	4.14
56)	C	Dibromomethane	0.142	0.179	0.215	0.224	0.218	0.224	0.238	0.244	0.211	15.96#
57)	C	1,4-Dioxane		0.004	0.004	0.005	0.005	0.006	0.007	0.007	0.006#	19.11#
58)	C	Methyl methacr...	0.264	0.306	0.302	0.339	0.313	0.366	0.399	0.415	0.338	15.33#
59)	CP	Bromodichlorom...	0.276	0.399	0.379	0.373	0.381	0.399	0.417	0.428	0.382	12.20#
60)	C	2-Nitropropane	0.072	0.072	0.085	0.082	0.080	0.083	0.096	0.104	0.084#	13.21#
61)	T	2-Chloroethyl ...	0.197	0.184	0.199	0.241	0.237	0.247	0.211	0.249	0.221	11.67
62)	CP	cis-1,3-Dichlo...		0.345	0.377	0.396	0.397	0.446	0.509	0.522	0.427	15.77#
63)	I	Chlorobenzene-d5	----------ISTD----------									
64)	CP	4-Methyl-2-pen...		0.363	0.314	0.363	0.390	0.401	0.447	0.485	0.395	14.43#
65)	S	Toluene-d8	1.190	1.208	1.172	1.192	1.201	1.279	1.273	1.262	1.222	3.46
66)	CP	Toluene	1.229	1.397	1.197	1.299	1.329	1.339	1.330	1.344	1.308	4.99
67)	T	Chloropicrin							0.070		0.070#	0.00
68)	CP	trans-1,3-Dich...		0.295	0.299	0.321	0.324	0.392	0.443	0.438	0.359	17.86#
69)	C	Ethyl methacry...		0.334	0.358	0.387	0.430	0.492	0.541	0.557	0.443	20.07#
70)	CP	1,1,2-Trichlor...	0.304	0.314	0.323	0.352	0.343	0.309	0.324	0.303	0.321	5.61#
71)	CP	Tetrachloroethene	0.317	0.277	0.282	0.296	0.290	0.273	0.262	0.257	0.282	6.82#
72)	C	1,3-Dichloropr...	0.503	0.576	0.579	0.620	0.606	0.559	0.586	0.548	0.572	6.35#
73)	CP	2-Hexanone		0.274	0.225	0.271	0.284	0.301	0.344	0.368	0.295	16.30#
74)	CP	Chlorodibromom...	0.194	0.231	0.244	0.268	0.274	0.283	0.309	0.294	0.262	14.21#
75)	C	Butyl acetate	0.576	0.509	0.411	0.513	0.548	0.620	0.688	0.768	0.579	19.33#
76)	CP	1,2-Dibromoethane	0.282	0.299	0.312	0.306	0.310	0.258	0.176	0.207	0.269	19.16#
77)	CP	Chlorobenzene	0.807	0.826	0.871	0.920	0.891	0.886	0.883	0.880	0.871	4.21
78)	C	1,1,1,2-Tetrac...	0.215	0.251	0.236	0.263	0.258	0.255	0.266	0.259	0.250	6.81#
79)	CP	Ethylbenzene		1.220	1.252	1.356	1.395	1.509	1.559	1.557	1.407	9.98
80)	CP	m/p-Xylene		0.973	0.981	1.024	1.123	1.228	1.254	1.230	1.116	11.07#
81)	CP	Styrene		0.762	0.754	0.827	0.928	1.002	1.034	1.010	0.902	13.36#
82)	CP	o-Xylene		0.969	0.986	1.076	1.164	1.232	1.287	1.280	1.142	11.72#
83)	C	Cyclohexanone	0.021	0.023	0.023	0.025	0.031	0.030	0.033	0.027	0.027#	15.91#
84)	CP	Bromoform		0.147	0.144	0.168	0.174	0.195	0.214	0.209	0.179	15.77
85)	CP	Isopropylbenzene		1.029	1.102	1.213	1.345	1.455	1.496	1.466	1.301	14.47#
86)	S	Bromofluoroben...	0.502	0.509	0.525	0.539	0.563	0.569	0.584	0.566	0.545	5.59
87)	C	Bromobenzene	0.554	0.669	0.668	0.706	0.724	0.726	0.733	0.719	0.687	8.65#
88)	CP	1,1,2,2-Tetrac...	0.467	0.523	0.520	0.580	0.598	0.576	0.614	0.576	0.557	8.79

Method Path : C:\msdchem\1\methods\
Method File : 9AC0522.M
Title : 8260B/624 Volatile Calibration

89)	C	1,2,3-Trichlor...	0.117	0.129	0.134	0.152	0.152	0.149	0.158	0.150	0.143#	10.02#
90)	C	trans-1,4-Dich...		0.146	0.133	0.155	0.162	0.164	0.186	0.177	0.160#	11.28#
91)	C	n-Propylbenzene		1.430	1.522	1.680	1.786	1.911	1.992	1.935	1.751	12.33#
92)	C	2-Chlorotoluene		0.913	0.959	1.081	1.163	1.176	1.182	1.151	1.089	10.18#
93)	C	4-Chlorotoluene		1.098	1.084	1.202	1.292	1.344	1.376	1.348	1.249	9.75#
94)	C	1,3,5-Trimethy...		0.854	0.887	1.021	1.193	1.272	1.307	1.267	1.114	17.17#
95)	C	tert-Butylbenzene		0.505	0.546	0.623	0.645	0.696	0.727	0.708	0.636	13.26#
96)	C	1,2,4-Trimethy...		0.892	0.930	1.048	1.209	1.318	1.370	1.338	1.158	17.28#
97)	C	sec-Butylbenzene		1.077	1.183	1.357	1.511	1.577	1.651	1.595	1.422	15.59#
98)	I	1,4-Dichlorobenzen...	----------ISTD----------									
99)	CP	1,3-Dichlorobe...	1.263	1.257	1.307	1.355	1.371	1.380	1.322	1.371	1.328	3.70#
100)	C	p-Isopropyltol...		1.704	1.837	1.998	2.139	2.362	2.370	2.480	2.127	13.82#
101)	CP	1,4-Dichlorobe...	1.265	1.416	1.438	1.462	1.416	1.413	1.354	1.382	1.393	4.38#
102)	C	1,2,3-Trimethy...		1.890	2.006	2.257	2.460	2.640	2.611	2.724	2.370	13.79#
103)	C	Benzyl chloride	0.745	0.804	0.800	0.871	0.890	1.049	1.198	1.317	0.959	21.62#
104)	CP	1,2-Dichlorobe...	1.232	1.336	1.296	1.377	1.337	1.347	1.318	1.364	1.326	3.42#
105)	C	n-Butylbenzene		1.744	1.906	2.037	2.205	2.443	2.475	2.581	2.198	14.39#
106)	C	Hexachloroethane		0.341	0.330	0.356	0.361	0.398	0.415	0.440	0.377	10.83#
107)	CP	1,2-Dibromo-3-...		0.158	0.121	0.146	0.148	0.145	0.164	0.167	0.150	10.21#
108)	C	1,3,5-Trichlor...	0.825	0.937	0.877	0.924	0.892	0.920	0.924	0.958	0.907	4.58#
109)	CP	1,2,4-Trichlor...	0.731	0.864	0.816	0.824	0.801	0.861	0.870	0.907	0.834	6.46#
110)	C	Hexachlorobuta...	0.280	0.366	0.312	0.319	0.308	0.302	0.295	0.308	0.311	8.09#
111)	C	Naphthalene		2.007	1.902	2.093	2.241	2.683	2.898	3.015	2.406	18.81#
112)	C	1,2,3-Trichlor...	0.744	0.826	0.767	0.813	0.836	0.879	0.884	0.917	0.833	7.09#
113)	C	2-Methylnaphth...	0.971	1.102	0.976	1.058	1.105	1.472	1.656	1.719	1.257	24.55#
114)	C	1-Methylnaphth...	0.789	0.915	0.804	0.930	1.081	1.418	1.524	1.542	1.125	28.47#
115)	I	Ethyl Acetate-d8	----------ISTD----------									
116)	C	2-Propanone	3.035	2.700	1.359	1.156	0.899	0.749	0.806	0.880	1.448	62.35#
117)		Isopropyl Alcohol	0.161	0.164	0.153	0.150	0.157	0.153	0.172	0.171	0.160#	5.24
118)	C	Acetic Ether	2.119	2.797	2.404	2.571	2.431	2.347	2.458	2.733	2.483	8.74#
119)	C	Isopropyl Acetate	5.191	4.322	4.186	4.235	4.125	3.972	4.357	4.940	4.416	9.59#
120)	C	Amyl Acetate	2.487	1.865	2.155	2.599	2.777	3.350	3.753	4.536	2.940	30.13#

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018
Response Via : Initial Calibration

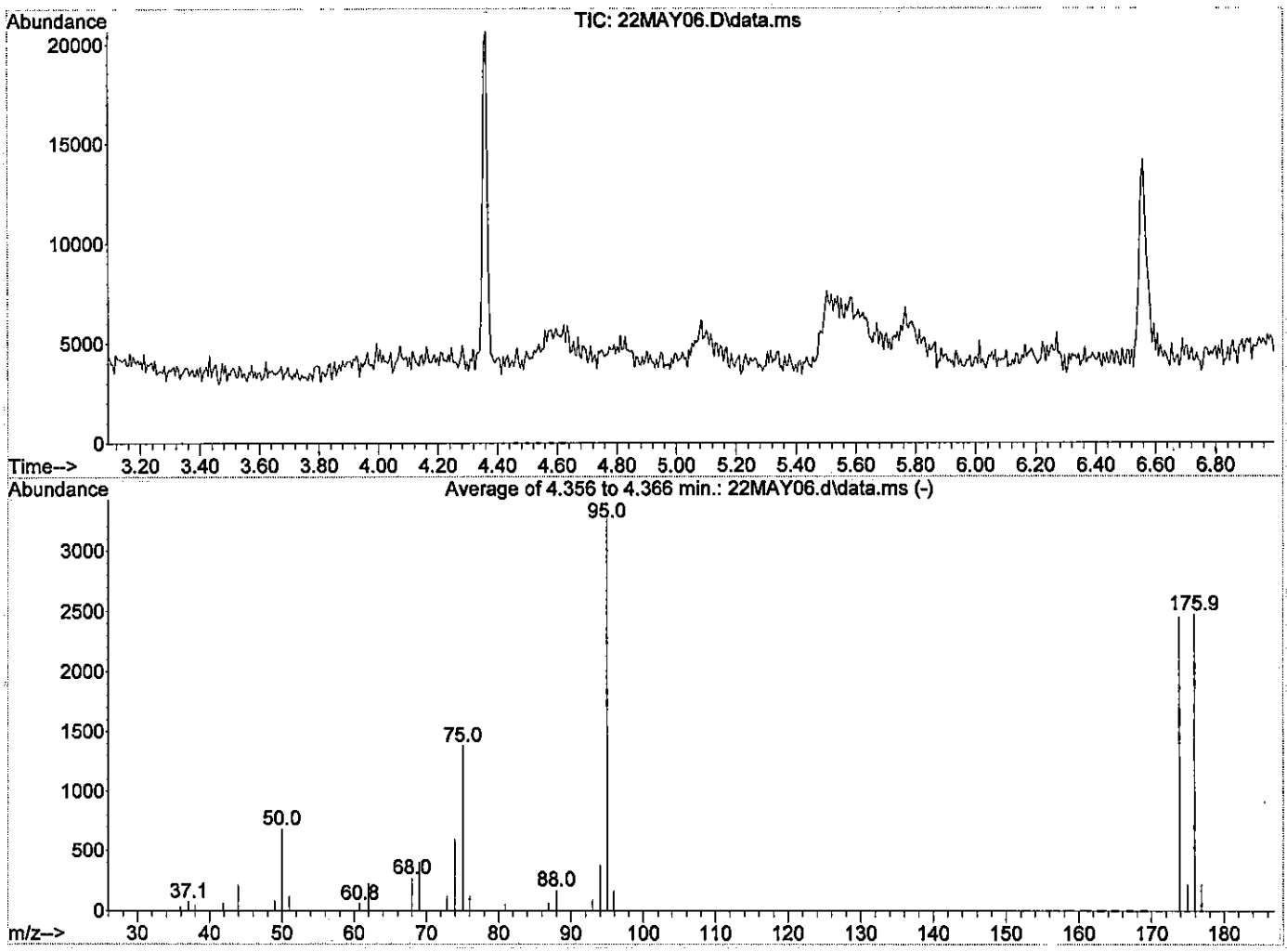
Calibration Files
1 =22MAY12 2 =22MAY13 3 =22MAY14 4 =22MAY15 5 =22MAY16 6 =22MAY18
7 =22MAY19 8 =22MAY20

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		ISTD			
5)	CP	Bromomethane	Quad	0.0123	0.0367	0.0179	0.9975
6)	CP	Chloroethane	Quad	0.0076	0.5456	-0.0184	0.9924
8)		Ethanol	Lin	0.0111	0.0332	-----	0.9918
10)	C	Acrolein	Quad	0.0061	0.0411	0.0021	0.9981
13)	C	Methyl iodide	Quad	0.0082	0.2033	0.0187	0.9982
14)	CP	Acetone	Quad	0.0215	0.2289	0.0097	0.9918
18)	C	Acetonitrile	Lin	0.0018	0.1264	-----	0.9915
19)	CP	Methylene chloride	Lin	0.0142	0.8507	-----	0.9915
32)	CP	2-Butanone	Lin	0.0083	0.4558	-----	0.9909
41)	I	1,4-Difluorobenzene		ISTD			
54)	C	n-Butanol	Quad	-0.0006	0.0069	0.0001	0.9990
63)	I	Chlorobenzene-d5		ISTD			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
69)	C	Ethyl methacrylate	Quad	-0.0057	0.4467	0.0236	0.9995
98)	I	1,4-Dichlorobenz...		ISTD			
103)	C	Benzyl chloride	Quad	-0.0031	0.8699	0.0906	0.9999
113)	C	2-Methylnaphthalene	Quad	-0.0097	1.2326	0.1044	0.9985
114)	C	1-Methylnaphthalene	Quad	-0.0160	1.2283	0.0702	0.9977
115)	I	Ethyl Acetate-d8		ISTD			
116)	C	2-Propanone	Lin	0.0151	0.8418	-----	0.9947
120)	C	Amyl Acetate	Quad	0.0385	2.3095	0.4385	0.9995

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY06.D
Acq On : 22 May 2018 12:19 pm
Operator : AK
Sample : VBFB3-180522
Misc : BFB 200-20117
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0520.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 23 09:23:34 2018



Spectrum Information: Average of 4.356 to 4.366 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	20.8	679	PASS
75	95	30	80	42.2	1375	PASS
95	95	100	100	100.0	3259	PASS
96	95	5	9	5.0	164	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	74.9	2442	PASS
175	174	5	9	8.9	218	PASS
176	174	95	101	100.9	2464	PASS
177	176	5	9	8.8	216	PASS

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY12.D
Acq On : 22 May 2018 3:39 pm
Operator : AK
Sample : 0.4PPB
Misc : IS/SS 200-20033
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 23 08:53:50 2018
Quant Method : C:\msdchem\1\methods\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 10:18:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.341	168	153236	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.778	114	245340	20.00	ug/L		-0.01
63) Chlorobenzene-d5	10.544	117	239965	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	122210	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.429	46	46785	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.221	111	82122	21.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 109.50%				
46) 1,2-Dichloroethane-d4	4.792	65	108354	20.91	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.55%				
65) Toluene-d8	8.567	98	285612	19.09	ug/L		-0.01
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.45%				
86) Bromofluorobenzene	11.954	95	120519	18.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	1182	0.20	ug/L		93
3) Chloromethane	0.980	50	4096	0.44	ug/L		98
4) Vinyl chloride	1.043	62	2072	0.31	ug/L	#	21
5) Bromomethane	1.211	94	861	0.56	ug/L		97
6) Chloroethane	1.274	64	9974	2.53	ug/L		58
7) Trichlorofluoromethane	1.426	101	1473	0.25	ug/L		92
8) Ethanol	1.562	45	4056	1.72	ug/L	#	85
9) Ethyl ether	1.610	59	1132	0.28	ug/L		95
10) Acrolein	1.704	56	1700	Below Cal			97
11) 1,1-Dichloroethene	1.762	61	1834	0.30	ug/L		90
12) 1,1,2-Trichlorotrifluo...	1.767	151	632	0.25	ug/L		91
13) Methyl iodide	1.866	142	1736	Below Cal			93
14) Acetone	1.804	43	2840	0.05	ug/L		85
15) Carbon disulfide	1.914	76	3631	0.37	ug/L		90
16) Allyl chloride	2.034	41	3451	0.52	ug/L	#	88
17) Methyl acetate	2.029	43	3163	Below Cal		#	91
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.139	49	4772	0.71	ug/L		100
20) t-Butanol	2.281	59	1080m	0.20	ug/L		
21) trans-1,2-Dichloroethene	2.375	61	2190	0.34	ug/L		99
22) Acrylonitrile	2.333	53	902	0.35	ug/L		95
23) Methyl tert-butyl ether	2.375	73	3599	0.27	ug/L		97
24) Hexane	2.632	57	1992	0.34	ug/L		95
25) 1,1-Dichloroethane	2.794	63	2514	0.31	ug/L		90
26) Diisopropyl ether	2.863	45	6519	0.38	ug/L		85
27) Vinyl acetate	2.821	86	178	0.20	ug/L	#	1
28) Chloroprene	2.863	53	1753	0.25	ug/L	#	91
29) Ethyl tert butyl ether	3.282	59	4077	0.29	ug/L		99
30) 2,2-Dichloropropane	3.455	77	1934	0.38	ug/L	#	59
31) cis-1,2-Dichloroethene	3.460	61	2971	0.40	ug/L	#	49
32) 2-Butanone	3.481	43	4841	0.36	ug/L		94
33) Ethyl Acetate	3.565	43	2048	0.29	ug/L	#	80
34) Methyl acrylate	3.612	55	1900	0.34	ug/L	#	80
35) Propionitrile	3.560	54	217	0.21	ug/L	#	1
36) Bromochloromethane	3.775	49	1579m	0.38	ug/L		
37) Tetrahydrofuran	3.822	42	1154	0.25	ug/L	#	46
38) Methacrylonitrile	3.764	67	827	0.32	ug/L		72

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY12.D
Acq On : 22 May 2018 3:39 pm
Operator : AK
Sample : 0.4PPB
Misc : IS/SS 200-20033
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 23 08:53:50 2018
Quant Method : C:\msdchem\1\methods\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 10:18:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	3.974	83	2348	0.32 ug/L		87
40) Cyclohexane	4.263	56	2267	0.27 ug/L	#	81
42) 1,1,1-Trichloroethane	4.152	97	1284m	0.29 ug/L		
44) Carbon tetrachloride	4.394	119	1020m	0.31 ug/L		
45) 1,1-Dichloropropene	4.446	75	2091	0.38 ug/L		93
47) 1,2-Dichloroethane	4.934	62	2418	0.41 ug/L	#	65
48) Benzene	4.776	78	6191	0.38 ug/L		91
49) Isobutyl Alcohol	5.510	43	1604	0.31 ug/L	#	90
50) Tertiaryamylmethylether	5.164	73	3163m	0.30 ug/L		
51) Heptane	5.510	43	1604	0.31 ug/L	#	66
52) Methylcyclohexane	6.638	83	1716m	0.29 ug/L		
53) Trichloroethene	6.181	130	1310m	0.35 ug/L		
54) n-Butanol	6.360	56	131	0.98 ug/L	#	48
55) 1,2-Dichloropropane	6.758	63	1688	0.40 ug/L		80
56) Dibromomethane	6.926	93	698m	0.29 ug/L		
57) 1,4-Dioxane	6.994	88	2133m	37.25 ug/L		
58) Methyl methacrylate	7.088	41	1297	0.34 ug/L	#	55
59) Bromodichloromethane	7.387	83	1356	0.32 ug/L	#	61
60) 2-Nitropropane	7.823	43	353	0.37 ug/L	#	40
61) 2-Chloroethyl vinyl ether	8.037	63	967	0.39 ug/L	#	90
62) cis-1,3-Dichloropropene	8.195	75	1334	0.26 ug/L		87
64) 4-Methyl-2-pentanone	8.515	43	1631	0.31 ug/L	#	77
66) Toluene	8.672	91	5897	0.36 ug/L		98
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	9.123	75	1237	0.41 ug/L		73
69) Ethyl methacrylate	9.301	69	1374	0.38 ug/L	#	83
70) 1,1,2-Trichloroethane	9.395	97	1457	0.39 ug/L		88
71) Tetrachloroethene	9.401	166	1520	0.43 ug/L		81
72) 1,3-Dichloropropane	9.579	76	2412	0.36 ug/L		89
73) 2-Hexanone	9.731	43	1285	0.33 ug/L		72
74) Chlorodibromomethane	9.846	129	931	0.30 ug/L		87
75) Butyl acetate	9.956	43	2762	0.36 ug/L		93
76) 1,2-Dibromoethane	9.946	107	1353	Below Cal	#	80
77) Chlorobenzene	10.580	112	3871	0.36 ug/L		99
78) 1,1,1,2-Tetrachloroethane	10.727	131	1032	0.34 ug/L		91
79) Ethylbenzene	10.738	91	5191	0.29 ug/L		95
80) m/p-Xylene	10.905	91	8139	0.59 ug/L		96
81) Styrene	11.372	104	2743	0.25 ug/L		92
82) o-Xylene	11.335	91	4339	0.31 ug/L		96
83) Cyclohexanone	11.839	55	509	1.30 ug/L	#	79
84) Bromoform	11.545	173	519	0.25 ug/L		80
85) Isopropylbenzene	11.776	105	4161	0.25 ug/L		96
87) Bromobenzene	12.064	77	2658	0.32 ug/L		92
88) 1,1,2,2-Tetrachloroethane	12.164	83	2241	0.35 ug/L	#	94
89) 1,2,3-Trichloropropane	12.190	110	563	0.34 ug/L		84
90) trans-1,4-Dichloro-2-b...	12.200	53	367	0.21 ug/L	#	84
91) n-Propylbenzene	12.237	91	5780	0.26 ug/L		98
92) 2-Chlorotoluene	12.300	91	3998	0.30 ug/L		94
93) 4-Chlorotoluene	12.442	91	4240	0.28 ug/L		97
94) 1,3,5-Trimethylbenzene	12.452	105	3471	0.24 ug/L		94
95) tert-Butylbenzene	12.772	91	2224	0.27 ug/L		87
96) 1,2,4-Trimethylbenzene	12.840	105	3675	0.25 ug/L		95
97) sec-Butylbenzene	13.008	105	4199	0.23 ug/L		91
99) 1,3-Dichlorobenzene	13.097	146	3087	0.37 ug/L		92
100) p-Isopropyltoluene	13.191	119	3766	0.27 ug/L		85

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY12.D
Acq On : 22 May 2018 3:39 pm
Operator : AK
Sample : 0.4PPB
Misc : IS/SS 200-20033
ALS Vial : 4 Sample Multiplier: 1

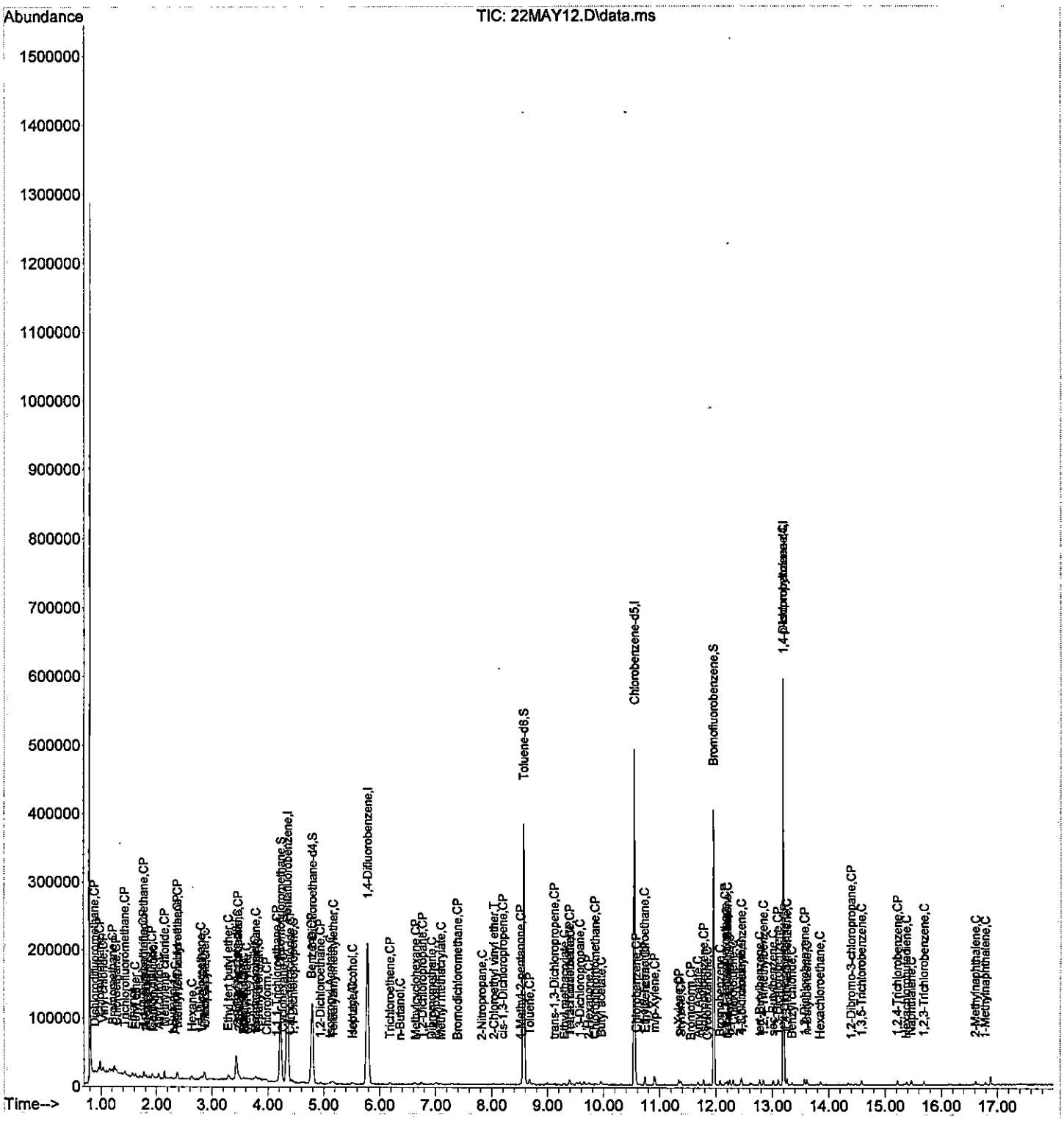
Quant Time: May 23 08:53:50 2018
Quant Method : C:\msdchem\1\methods\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 10:18:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.223	146	3093	0.36 ug/L		87
102) 1,2,3-Trimethylbenzene	13.254	105	4051	0.28 ug/L		98
103) Benzyl chloride	13.343	91	1820	0.36 ug/L		92
104) 1,2-Dichlorobenzene	13.574	146	3012	0.37 ug/L		97
105) n-Butylbenzene	13.611	91	4241	0.30 ug/L		94
106) Hexachloroethane	13.842	117	634	0.28 ug/L		93
107) 1,2-Dibromo-3-chloropr...	14.397	157	118	0.14 ug/L	#	7
108) 1,3,5-Trichlorobenzene	14.581	180	2016	0.35 ug/L		92
109) 1,2,4-Trichlorobenzene	15.220	180	1787	0.34 ug/L		98
110) Hexachlorobutadiene	15.378	225	684	0.32 ug/L		94
111) Naphthalene	15.467	128	4560	0.31 ug/L		92
112) 1,2,3-Trichlorobenzene	15.692	180	1819	0.35 ug/L		98
113) 2-Methylnaphthalene	16.610	142	2373	0.45 ug/L		92
114) 1-Methylnaphthalene	16.783	142	1928	0.46 ug/L		97
116) 2-Propanone	1.804	43	2840	0.56 ug/L	#	85
117) Isopropyl Alcohol	1.935	45	3020	16.56 ug/L	#	77
118) Acetic Ether	3.565	43	1983	0.51 ug/L	#	87
119) Isopropyl Acetate	5.112	43	4857	0.35 ug/L	#	72
120) Amyl Acetate	11.671	43	2327	1.98 ug/L	#	90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY12.D
Acq On : 22 May 2018 3:39 pm
Operator : AK
Sample : 0.4PPB
Misc : IS/SS 200-20033
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 23 08:53:50 2018
Quant Method : C:\msdchem\1\methods\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 10:18:39 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY13.D
Acq On : 22 May 2018 4:03 pm
Operator : AK
Sample : 0.6PPB
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:56:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	137092	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	219655	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	210189	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	107272	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.429	46	45463	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.221	111	74337	22.14	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 110.70%				
46) 1,2-Dichloroethane-d4	4.792	65	97975	21.12	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 105.60%				
65) Toluene-d8	8.572	98	253844	19.37	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.85%				
86) Bromofluorobenzene	11.959	95	106900	18.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 92.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	2380	0.45	ug/L		99
3) Chloromethane	0.981	50	5216	0.62	ug/L		97
4) Vinyl chloride	1.043	62	2905	0.49	ug/L	#	10
5) Bromomethane	1.211	94	866	0.71	ug/L		92
6) Chloroethane	1.274	64	3480m	0.99	ug/L		
7) Trichlorofluoromethane	1.426	101	2547	0.48	ug/L		89
8) Ethanol	1.563	45	5036	7.99	ug/L		99
9) Ethyl ether	1.615	59	2183	0.61	ug/L		89
10) Acrolein	1.704	56	2145	Below Cal			88
11) 1,1-Dichloroethene	1.762	61	2982	0.54	ug/L		91
12) 1,1,2-Trichlorotrifluo...	1.772	151	986	0.44	ug/L		93
13) Methyl iodide	1.872	142	2232	Below Cal			94
14) Acetone	1.804	43	4081	0.87	ug/L		88
15) Carbon disulfide	1.919	76	4499	0.52	ug/L		89
16) Allyl chloride	2.034	41	3969m	0.67	ug/L		
17) Methyl acetate	2.040	43	2911	Below Cal		#	72
18) Acetonitrile	1.998	41	846	0.61	ug/L	#	1
19) Methylene chloride	2.139	49	5663	0.94	ug/L		99
20) t-Butanol	2.270	59	1657m	1.47	ug/L		
21) trans-1,2-Dichloroethene	2.370	61	3032	0.53	ug/L		92
22) Acrylonitrile	2.333	53	1212	0.53	ug/L		74
23) Methyl tert-butyl ether	2.380	73	5637	0.47	ug/L		100
24) Hexane	2.632	57	2980	0.56	ug/L		70
25) 1,1-Dichloroethane	2.795	63	4076	0.56	ug/L		98
26) Diisopropyl ether	2.858	45	7412	0.49	ug/L		92
27) Vinyl acetate	2.821	86	482	0.59	ug/L	#	77
28) Chloroprene	2.868	53	3036	0.49	ug/L	#	83
29) Ethyl tert butyl ether	3.287	59	5348	0.42	ug/L	#	88
30) 2,2-Dichloropropane	3.455	77	2664	0.58	ug/L	#	83
31) cis-1,2-Dichloroethene	3.466	61	3873	0.58	ug/L		96
32) 2-Butanone	3.492	43	5328	0.69	ug/L		92
33) Ethyl Acetate	3.576	43	3815m	0.61	ug/L		
34) Methyl acrylate	3.618	55	3097	0.62	ug/L	#	87
35) Propionitrile	3.565	54	763	0.82	ug/L	#	56
36) Bromochloromethane	3.786	49	1990	0.53	ug/L		91
37) Tetrahydrofuran	3.822	42	1554	0.55	ug/L		61
38) Methacrylonitrile	3.770	67	1256m	0.55	ug/L		

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY13.D
Acq On : 22 May 2018 4:03 pm
Operator : AK
Sample : 0.6PPB
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:56:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	3.969	83	3416	0.53 ug/L		94
40) Cyclohexane	4.257	56	3818	0.52 ug/L		97
42) 1,1,1-Trichloroethane	4.163	97	2117	0.54 ug/L		95
44) Carbon tetrachloride	4.409	119	1619	0.54 ug/L	#	69
45) 1,1-Dichloropropene	4.441	75	2864	0.59 ug/L		86
47) 1,2-Dichloroethane	4.949	62	3628	0.69 ug/L	#	72
48) Benzene	4.782	78	9434	0.64 ug/L		97
49) Isobutyl Alcohol	5.521	43	2629	0.56 ug/L	#	71
50) Tertiaryamylmethylether	5.180	73	4113	0.44 ug/L	#	72
51) Heptane	5.521	43	2629	0.56 ug/L	#	69
52) Methylcyclohexane	6.627	83	2435	0.46 ug/L	#	86
53) Trichloroethene	6.182	130	2065	0.62 ug/L		93
54) n-Butanol	6.365	56	284	2.37 ug/L	#	84
55) 1,2-Dichloropropane	6.758	63	2237m	0.59 ug/L		
56) Dibromomethane	6.931	93	1182m	0.55 ug/L		
57) 1,4-Dioxane	7.015	88	2914	56.83 ug/L		84
58) Methyl methacrylate	7.104	41	2018m	0.59 ug/L		
59) Bromodichloromethane	7.382	83	2628	0.70 ug/L	#	71
60) 2-Nitropropane	7.817	43	476	0.56 ug/L	#	75
61) 2-Chloroethyl vinyl ether	8.038	63	1214	0.54 ug/L	#	61
62) cis-1,3-Dichloropropene	8.200	75	2271	0.49 ug/L		90
64) 4-Methyl-2-pentanone	8.510	43	2286	0.50 ug/L	#	83
66) Toluene	8.672	91	8810	0.61 ug/L		97
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	9.128	75	1860	0.63 ug/L		96
69) Ethyl methacrylate	9.301	69	2107	0.59 ug/L		81
70) 1,1,2-Trichloroethane	9.385	97	1979	0.60 ug/L		95
71) Tetrachloroethene	9.401	166	1748	0.56 ug/L		89
72) 1,3-Dichloropropane	9.574	76	3630	0.62 ug/L		99
73) 2-Hexanone	9.736	43	1725	0.50 ug/L		78
74) Chlorodibromomethane	9.852	129	1458	0.54 ug/L		89
75) Butyl acetate	9.957	43	3210	0.47 ug/L		97
76) 1,2-Dibromoethane	9.946	107	1887	Below Cal	#	96
77) Chlorobenzene	10.581	112	5211	0.56 ug/L		92
78) 1,1,1,2-Tetrachloroethane	10.733	131	1582	0.60 ug/L		95
79) Ethylbenzene	10.738	91	7691	0.49 ug/L		98
80) m/p-Xylene	10.906	91	12273	1.01 ug/L		97
81) Styrene	11.372	104	4803	0.50 ug/L		95
82) o-Xylene	11.341	91	6112	0.49 ug/L		97
83) Cyclohexanone	11.844	55	714	2.08 ug/L	#	85
84) Bromoform	11.561	173	929	0.51 ug/L		96
85) Isopropylbenzene	11.776	105	6488	0.44 ug/L		100
87) Bromobenzene	12.059	77	4219	0.58 ug/L		96
88) 1,1,2,2-Tetrachloroethane	12.159	83	3300	0.59 ug/L		95
89) 1,2,3-Trichloropropane	12.190	110	815	0.55 ug/L		93
90) trans-1,4-Dichloro-2-b...	12.201	53	919	0.60 ug/L	#	56
91) n-Propylbenzene	12.237	91	9016	0.47 ug/L		99
92) 2-Chlorotoluene	12.295	91	5754	0.49 ug/L		93
93) 4-Chlorotoluene	12.437	91	6922	0.52 ug/L		96
94) 1,3,5-Trimethylbenzene	12.458	105	5384	0.43 ug/L		99
95) tert-Butylbenzene	12.772	91	3183	0.45 ug/L		85
96) 1,2,4-Trimethylbenzene	12.835	105	5624	0.44 ug/L		96
97) sec-Butylbenzene	13.013	105	6793	0.42 ug/L		99
99) 1,3-Dichlorobenzene	13.097	146	4044	0.55 ug/L		91
100) p-Isopropyltoluene	13.197	119	5484	0.45 ug/L		93

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY13.D
Acq On : 22 May 2018 4:03 pm
Operator : AK
Sample : 0.6PPB
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

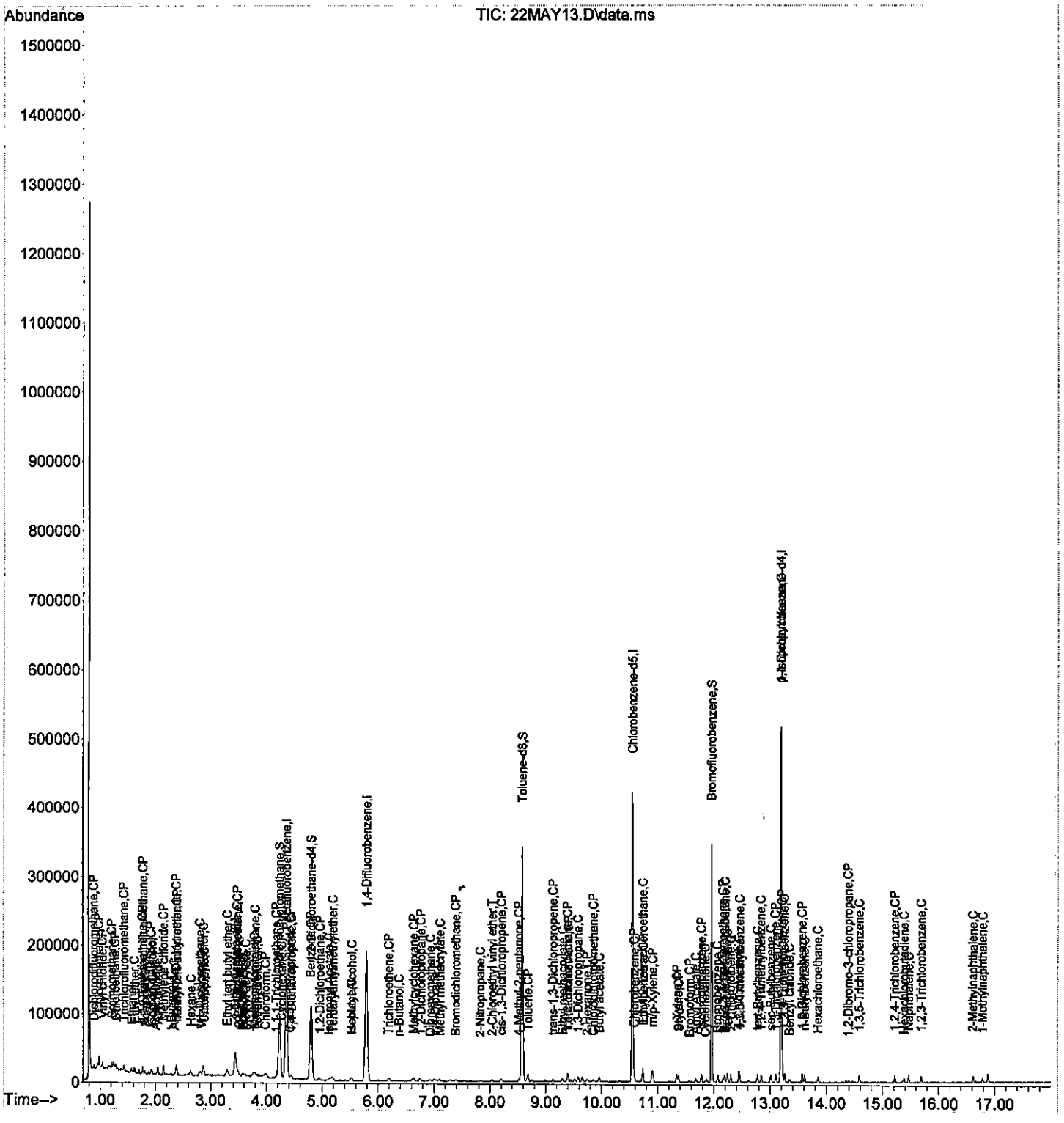
Quant Time: May 23 08:56:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	4556	0.60	ug/L		92
102) 1,2,3-Trimethylbenzene	13.254	105	6081	0.48	ug/L		94
103) Benzyl chloride	13.344	91	2586	0.59	ug/L		94
104) 1,2-Dichlorobenzene	13.569	146	4299	0.60	ug/L		97
105) n-Butylbenzene	13.611	91	5611	0.45	ug/L		92
106) Hexachloroethane	13.847	117	1097	0.54	ug/L		88
107) 1,2-Dibromo-3-chloropr...	14.392	157	507	0.69	ug/L		78
108) 1,3,5-Trichlorobenzene	14.586	180	3015	0.59	ug/L		95
109) 1,2,4-Trichlorobenzene	15.215	180	2780	0.61	ug/L		99
110) Hexachlorobutadiene	15.383	225	1178	0.64	ug/L		84
111) Naphthalene	15.467	128	6460	0.49	ug/L		98
112) 1,2,3-Trichlorobenzene	15.687	180	2659	0.58	ug/L		94
113) 2-Methylnaphthalene	16.610	142	3546	0.66	ug/L		97
114) 1-Methylnaphthalene	16.783	142	2946	0.65	ug/L		95
116) 2-Propanone	1.804	43	3682m	1.03	ug/L		
117) Isopropyl Alcohol	1.935	45	4472	20.22	ug/L	#	61
118) Acetic Ether	3.576	43	3815m	0.82	ug/L		
119) Isopropyl Acetate	5.112	43	5895m	0.44	ug/L		
120) Amyl Acetate	11.676	43	2544	2.01	ug/L	#	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY13.D
Acq On : 22 May 2018 4:03 pm
Operator : AK
Sample : 0.6PPB
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 08:56:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY14.D
Acq On : 22 May 2018 4:40 pm
Operator : AK
Sample : 2PPB
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 08:58:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	149074	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	236400	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	232914	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	123136	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.424	46	43957	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.221	111	81591	22.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 112.90%				
46) 1,2-Dichloroethane-d4	4.792	65	107559	21.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.70%				
65) Toluene-d8	8.572	98	273067	18.80	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.00%				
86) Bromofluorobenzene	11.954	95	122192	19.15	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	7902	1.39	ug/L		99
3) Chloromethane	0.980	50	14847	1.63	ug/L		99
4) Vinyl chloride	1.043	62	10299	1.61	ug/L		81
5) Bromomethane	1.211	94	1865	2.05	ug/L		94
6) Chloroethane	1.274	64	12042m	3.14	ug/L		
7) Trichlorofluoromethane	1.431	101	8769	1.52	ug/L		96
8) Ethanol	1.562	45	9507	24.49	ug/L		91
9) Ethyl ether	1.615	59	7687	1.99	ug/L		99
10) Acrolein	1.704	56	3924	8.36	ug/L		81
11) 1,1-Dichloroethene	1.762	61	10675	1.78	ug/L		98
12) 1,1,2-Trichlorotrifluo...	1.772	151	3329	1.38	ug/L		82
13) Methyl iodide	1.866	142	4445	0.63	ug/L		97
14) Acetone	1.803	43	5974	1.62	ug/L		96
15) Carbon disulfide	1.919	76	15273	1.62	ug/L		94
16) Allyl chloride	2.034	41	12152m	1.88	ug/L		
17) Methyl acetate	2.034	43	8833	1.08	ug/L	#	90
18) Acetonitrile	2.003	41	2015	1.81	ug/L	#	1
19) Methylene chloride	2.139	49	15088	2.30	ug/L		95
20) t-Butanol	2.270	59	4480	6.01	ug/L	#	69
21) trans-1,2-Dichloroethene	2.375	61	11368	1.83	ug/L		98
22) Acrylonitrile	2.344	53	4742	1.90	ug/L		98
23) Methyl tert-butyl ether	2.380	73	19122	1.47	ug/L		99
24) Hexane	2.632	57	8874	1.54	ug/L		87
25) 1,1-Dichloroethane	2.789	63	14249	1.78	ug/L		98
26) Diisopropyl ether	2.857	45	27965	1.69	ug/L		96
27) Vinyl acetate	2.821	86	1370	1.55	ug/L	#	72
28) Chloroprene	2.863	53	11639	1.72	ug/L		99
29) Ethyl tert butyl ether	3.287	59	20125	1.47	ug/L		98
30) 2,2-Dichloropropane	3.445	77	8527	1.72	ug/L	#	83
31) cis-1,2-Dichloroethene	3.455	61	13640	1.88	ug/L		92
32) 2-Butanone	3.486	43	9381	1.79	ug/L		94
33) Ethyl Acetate	3.570	43	10566	1.55	ug/L		93
34) Methyl acrylate	3.612	55	10234	1.88	ug/L		98
35) Propionitrile	3.560	54	2081	2.05	ug/L	#	68
36) Bromochloromethane	3.785	49	7913	1.94	ug/L		94
37) Tetrahydrofuran	3.822	42	4243	1.87	ug/L		88
38) Methacrylonitrile	3.759	67	4478	1.80	ug/L		80

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY14.D
Acq On : 22 May 2018 4:40 pm
Operator : AK
Sample : 2PPB
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 08:58:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.974	83	12476	1.77	ug/L		96
40)	Cyclohexane	4.262	56	12923	1.61	ug/L		98
42)	1,1,1-Trichloroethane	4.173	97	8629	2.05	ug/L		99
44)	Carbon tetrachloride	4.409	119	6503	2.02	ug/L		88
45)	1,1-Dichloropropene	4.441	75	10106	1.92	ug/L		97
47)	1,2-Dichloroethane	4.939	62	12002	2.11	ug/L		97
48)	Benzene	4.776	78	34234	2.16	ug/L		99
49)	Isobutyl Alcohol	5.526	43	8106	1.61	ug/L	#	95
50)	Tertiaryamylmethylether	5.170	73	15150	1.50	ug/L	#	82
51)	Heptane	5.526	43	8106	1.61	ug/L		91
52)	Methylcyclohexane	6.627	83	9278	1.63	ug/L		96
53)	Trichloroethene	6.181	130	7157	2.00	ug/L		97
54)	n-Butanol	6.365	56	1456m	11.30	ug/L		
55)	1,2-Dichloropropane	6.737	63	8449	2.07	ug/L		75
56)	Dibromomethane	6.921	93	5089	2.21	ug/L		98
57)	1,4-Dioxane	6.994	88	10351	187.58	ug/L		94
58)	Methyl methacrylate	7.088	41	7130	1.94	ug/L	#	88
59)	Bromodichloromethane	7.382	83	8961	2.21	ug/L		96
60)	2-Nitropropane	7.817	43	2001	2.18	ug/L	#	56
61)	2-Chloroethyl vinyl ether	8.027	63	4697	1.95	ug/L	#	85
62)	cis-1,3-Dichloropropene	8.195	75	8910	1.80	ug/L		96
64)	4-Methyl-2-pentanone	8.509	43	7316	1.44	ug/L	#	90
66)	Toluene	8.667	91	27878	1.75	ug/L		98
67)	Chloropicrin	0.000		0	N.D.			
68)	trans-1,3-Dichloropropene	9.128	75	6970	1.90	ug/L		99
69)	Ethyl methacrylate	9.296	69	8332	1.84	ug/L		97
70)	1,1,2-Trichloroethane	9.385	97	7517	2.05	ug/L		97
71)	Tetrachloroethene	9.395	166	6573	1.91	ug/L		97
72)	1,3-Dichloropropane	9.579	76	13494	2.08	ug/L		97
73)	2-Hexanone	9.731	43	5231	1.38	ug/L		88
74)	Chlorodibromomethane	9.846	129	5689	1.89	ug/L		98
75)	Butyl acetate	9.956	43	9580	1.28	ug/L	#	95
76)	1,2-Dibromoethane	9.951	107	7265	0.33	ug/L	#	93
77)	Chlorobenzene	10.580	112	20288	1.95	ug/L		93
78)	1,1,1,2-Tetrachloroethane	10.727	131	5486	1.87	ug/L		90
79)	Ethylbenzene	10.738	91	29155	1.67	ug/L		99
80)	m/p-Xylene	10.905	91	45718	3.40	ug/L		98
81)	Styrene	11.372	104	17553	1.64	ug/L		86
82)	o-Xylene	11.335	91	22964	1.67	ug/L		100
83)	Cyclohexanone	11.844	55	2717	7.15	ug/L	#	89
84)	Bromoform	11.556	173	3352	1.66	ug/L		94
85)	Isopropylbenzene	11.776	105	25663	1.58	ug/L		99
87)	Bromobenzene	12.064	77	15564	1.93	ug/L		99
88)	1,1,2,2-Tetrachloroethane	12.164	83	12116	1.94	ug/L		98
89)	1,2,3-Trichloropropane	12.190	110	3110	1.91	ug/L		93
90)	trans-1,4-Dichloro-2-b...	12.195	53	3087	1.82	ug/L		86
91)	n-Propylbenzene	12.237	91	35446	1.65	ug/L		99
92)	2-Chlorotoluene	12.300	91	22330	1.73	ug/L		97
93)	4-Chlorotoluene	12.442	91	25249	1.71	ug/L		98
94)	1,3,5-Trimethylbenzene	12.452	105	20650	1.50	ug/L		99
95)	tert-Butylbenzene	12.772	91	12711	1.61	ug/L		91
96)	1,2,4-Trimethylbenzene	12.840	105	21671	1.52	ug/L		93
97)	sec-Butylbenzene	13.013	105	27552	1.53	ug/L		98
99)	1,3-Dichlorobenzene	13.102	146	16091	1.91	ug/L		97
100)	p-Isopropyltoluene	13.191	119	22615	1.61	ug/L		98

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY14.D
Acq On : 22 May 2018 4:40 pm
Operator : AK
Sample : 2PPB
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

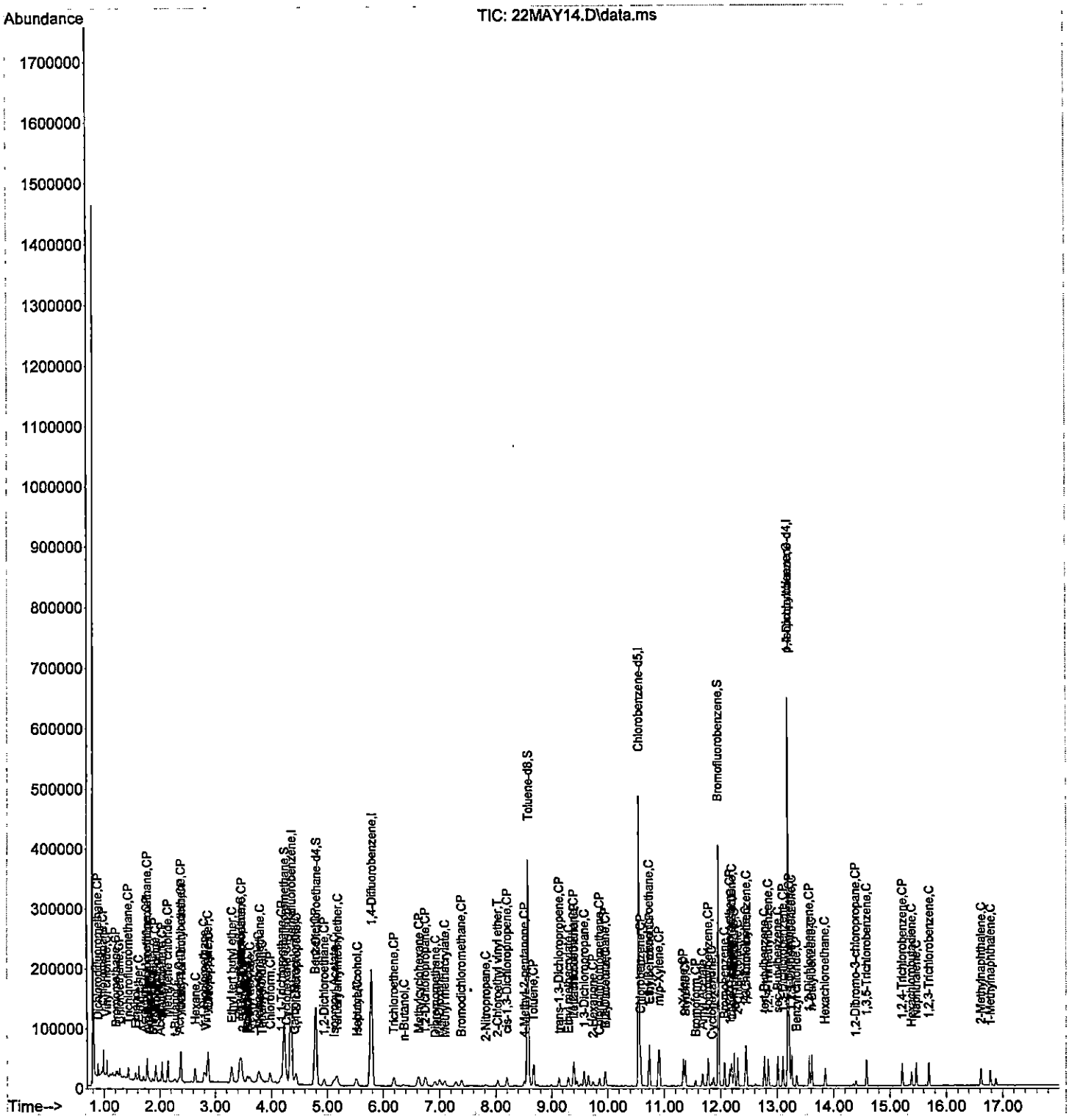
Quant Time: May 23 08:58:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	17711	2.05	ug/L		95
102) 1,2,3-Trimethylbenzene	13.254	105	24699	1.69	ug/L		98
103) Benzyl chloride	13.343	91	9854	1.97	ug/L		97
104) 1,2-Dichlorobenzene	13.569	146	15960	1.95	ug/L		96
105) n-Butylbenzene	13.611	91	23467	1.64	ug/L		97
106) Hexachloroethane	13.847	117	4066	1.76	ug/L		93
107) 1,2-Dibromo-3-chloropr...	14.392	157	1494	1.78	ug/L		94
108) 1,3,5-Trichlorobenzene	14.586	180	10793	1.84	ug/L		99
109) 1,2,4-Trichlorobenzene	15.220	180	10052	1.91	ug/L		97
110) Hexachlorobutadiene	15.383	225	3843	1.81	ug/L		97
111) Naphthalene	15.467	128	23424	1.56	ug/L		98
112) 1,2,3-Trichlorobenzene	15.692	180	9441	1.78	ug/L		97
113) 2-Methylnaphthalene	16.615	142	12015	1.64	ug/L		98
114) 1-Methylnaphthalene	16.783	142	9901	1.48	ug/L		99
116) 2-Propanone	1.803	43	5974	2.32	ug/L		96
117) Isopropyl Alcohol	1.929	45	13446	42.72	ug/L	#	95
118) Acetic Ether	3.570	43	10566	1.99	ug/L	#	95
119) Isopropyl Acetate	5.117	43	18399m	1.42	ug/L		
120) Amyl Acetate	11.676	43	9474	2.73	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY14.D
Acq On : 22 May 2018 4:40 pm
Operator : AK
Sample : 2PPB
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 08:58:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY15.D
Acq On : 22 May 2018 5:04 pm
Operator : AK
Sample : 4PPB
Misc : IS/SS 200-20033
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:01:43 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	145964	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	219958	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	222151	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	119013	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.429	46	43350	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	73200	21.77	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 108.85%				
46) 1,2-Dichloroethane-d4	4.797	65	97788	21.05	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 105.25%				
65) Toluene-d8	8.572	98	264793	19.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.60%				
86) Bromofluorobenzene	11.959	95	119747	19.68	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.40%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	16966	3.04	ug/L		98
3) Chloromethane	0.980	50	30753	3.45	ug/L		98
4) Vinyl chloride	1.043	62	21505	3.43	ug/L		92
5) Bromomethane	1.211	94	3456	4.45	ug/L		98
6) Chloroethane	1.274	64	19696m	5.25	ug/L		
7) Trichlorofluoromethane	1.426	101	18418	3.25	ug/L		99
8) Ethanol	1.568	45	18668	63.63	ug/L		97
9) Ethyl ether	1.615	59	15234	4.02	ug/L		97
10) Acrolein	1.704	56	7234	28.76	ug/L		94
11) 1,1-Dichloroethene	1.762	61	19670	3.35	ug/L		96
12) 1,1,2-Trichlorotrifluo...	1.772	151	8240	3.48	ug/L		99
13) Methyl iodide	1.866	142	6645	1.90	ug/L		98
14) Acetone	1.798	43	9707m	3.54	ug/L		
15) Carbon disulfide	1.919	76	30595	3.32	ug/L		100
16) Allyl chloride	2.034	41	22085	3.50	ug/L		99
17) Methyl acetate	2.034	43	18197	2.97	ug/L	#	92
18) Acetonitrile	1.997	41	3978	4.06	ug/L	#	1
19) Methylene chloride	2.139	49	26374	4.10	ug/L		97
20) t-Butanol	2.281	59	10707	16.94	ug/L	#	86
21) trans-1,2-Dichloroethene	2.375	61	21490	3.54	ug/L		98
22) Acrylonitrile	2.338	53	10000	4.10	ug/L		95
23) Methyl tert-butyl ether	2.375	73	39927	3.13	ug/L		99
24) Hexane	2.632	57	19535	3.47	ug/L		93
25) 1,1-Dichloroethane	2.794	63	29364	3.76	ug/L		99
26) Diisopropyl ether	2.863	45	55378	3.41	ug/L		99
27) Vinyl acetate	2.826	86	2716	3.14	ug/L	#	66
28) Chloroprene	2.863	53	22388	3.38	ug/L		99
29) Ethyl tert butyl ether	3.293	59	40861	3.04	ug/L		97
30) 2,2-Dichloropropane	3.455	77	15186	3.12	ug/L		90
31) cis-1,2-Dichloroethene	3.466	61	26437	3.72	ug/L		97
32) 2-Butanone	3.486	43	14930	3.60	ug/L		99
33) Ethyl Acetate	3.570	43	22292	3.33	ug/L		99
34) Methyl acrylate	3.612	55	19984	3.74	ug/L		98
35) Propionitrile	3.555	54	3954	3.98	ug/L	#	71
36) Bromochloromethane	3.785	49	15666	3.93	ug/L		97
37) Tetrahydrofuran	3.827	42	7945	3.87	ug/L		91
38) Methacrylonitrile	3.764	67	9526	3.92	ug/L		90

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY15.D
Acq On : 22 May 2018 5:04 pm
Operator : AK
Sample : 4PPB
Misc : IS/SS 200-20033
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:01:43 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.974	83	26335	3.82	ug/L		98
40)	Cyclohexane	4.257	56	26820	3.40	ug/L		98
42)	1,1,1-Trichloroethane	4.173	97	16028	4.09	ug/L		100
44)	Carbon tetrachloride	4.420	119	12656	4.23	ug/L		97
45)	1,1-Dichloropropene	4.446	75	20000	4.09	ug/L		98
47)	1,2-Dichloroethane	4.949	62	22779	4.31	ug/L		97
48)	Benzene	4.771	78	63675	4.31	ug/L		100
49)	Isobutyl Alcohol	5.526	43	16998	3.62	ug/L	#	94
50)	Tertiaryamylmethylether	5.170	73	30274	3.21	ug/L	#	83
51)	Heptane	5.526	43	16998	3.62	ug/L		91
52)	Methylcyclohexane	6.632	83	18879	3.57	ug/L	#	92
53)	Trichloroethene	6.187	130	14034	4.21	ug/L		98
54)	n-Butanol	6.365	56	3596	29.99	ug/L	#	83
55)	1,2-Dichloropropane	6.758	63	16771	4.42	ug/L		95
56)	Dibromomethane	6.921	93	9868	4.60	ug/L		99
57)	1,4-Dioxane	7.010	88	23241	452.66	ug/L		96
58)	Methyl methacrylate	7.088	41	14900	4.36	ug/L		94
59)	Bromodichloromethane	7.393	83	16424	4.36	ug/L		97
60)	2-Nitropropane	7.833	43	3621	4.23	ug/L	#	94
61)	2-Chloroethyl vinyl ether	8.032	63	10621	4.74	ug/L		94
62)	cis-1,3-Dichloropropene	8.200	75	17401	3.78	ug/L		100
64)	4-Methyl-2-pentanone	8.509	43	16119	3.34	ug/L		95
66)	Toluene	8.677	91	57722	3.80	ug/L		98
67)	Chloropicrin	0.000		0	N.D.			
68)	trans-1,3-Dichloropropene	9.133	75	14269	3.92	ug/L		96
69)	Ethyl methacrylate	9.296	69	17205	3.84	ug/L		94
70)	1,1,2-Trichloroethane	9.390	97	15644	4.48	ug/L		99
71)	Tetrachloroethene	9.401	166	13172	4.01	ug/L		99
72)	1,3-Dichloropropane	9.579	76	27526	4.45	ug/L		99
73)	2-Hexanone	9.736	43	12046	3.32	ug/L		95
74)	Chlorodibromomethane	9.852	129	11910	4.15	ug/L		98
75)	Butyl acetate	9.956	43	22800	3.19	ug/L		96
76)	1,2-Dibromoethane	9.951	107	13602	4.43	ug/L		98
77)	Chlorobenzene	10.580	112	40887	4.13	ug/L		98
78)	1,1,1,2-Tetrachloroethane	10.727	131	11703	4.17	ug/L		97
79)	Ethylbenzene	10.738	91	60259	3.62	ug/L		100
80)	m/p-Xylene	10.905	91	90950	7.08	ug/L		99
81)	Styrene	11.372	104	36749	3.59	ug/L		100
82)	o-Xylene	11.341	91	47798	3.64	ug/L		99
83)	Cyclohexanone	11.844	55	5637	15.54	ug/L		95
84)	Bromoform	11.556	173	7457	3.87	ug/L		99
85)	Isopropylbenzene	11.776	105	53879	3.48	ug/L		99
87)	Bromobenzene	12.069	77	31346	4.07	ug/L		99
88)	1,1,2,2-Tetrachloroethane	12.164	83	25761	4.33	ug/L		98
89)	1,2,3-Trichloropropane	12.195	110	6761	4.35	ug/L		96
90)	trans-1,4-Dichloro-2-b...	12.200	53	6882	4.25	ug/L		80
91)	n-Propylbenzene	12.237	91	74656	3.65	ug/L		99
92)	2-Chlorotoluene	12.300	91	48019	3.90	ug/L		99
93)	4-Chlorotoluene	12.442	91	53426	3.79	ug/L		99
94)	1,3,5-Trimethylbenzene	12.457	105	45365	3.45	ug/L		98
95)	tert-Butylbenzene	12.772	91	27695	3.68	ug/L		95
96)	1,2,4-Trimethylbenzene	12.840	105	46585	3.43	ug/L		98
97)	sec-Butylbenzene	13.013	105	60312	3.52	ug/L		100
99)	1,3-Dichlorobenzene	13.102	146	32264	3.95	ug/L		98
100)	p-Isopropyltoluene	13.191	119	47569	3.51	ug/L		99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY15.D
Acq On : 22 May 2018 5:04 pm
Operator : AK
Sample : 4PPB
Misc : IS/SS 200-20033
ALS Vial : 7 Sample Multiplier: 1

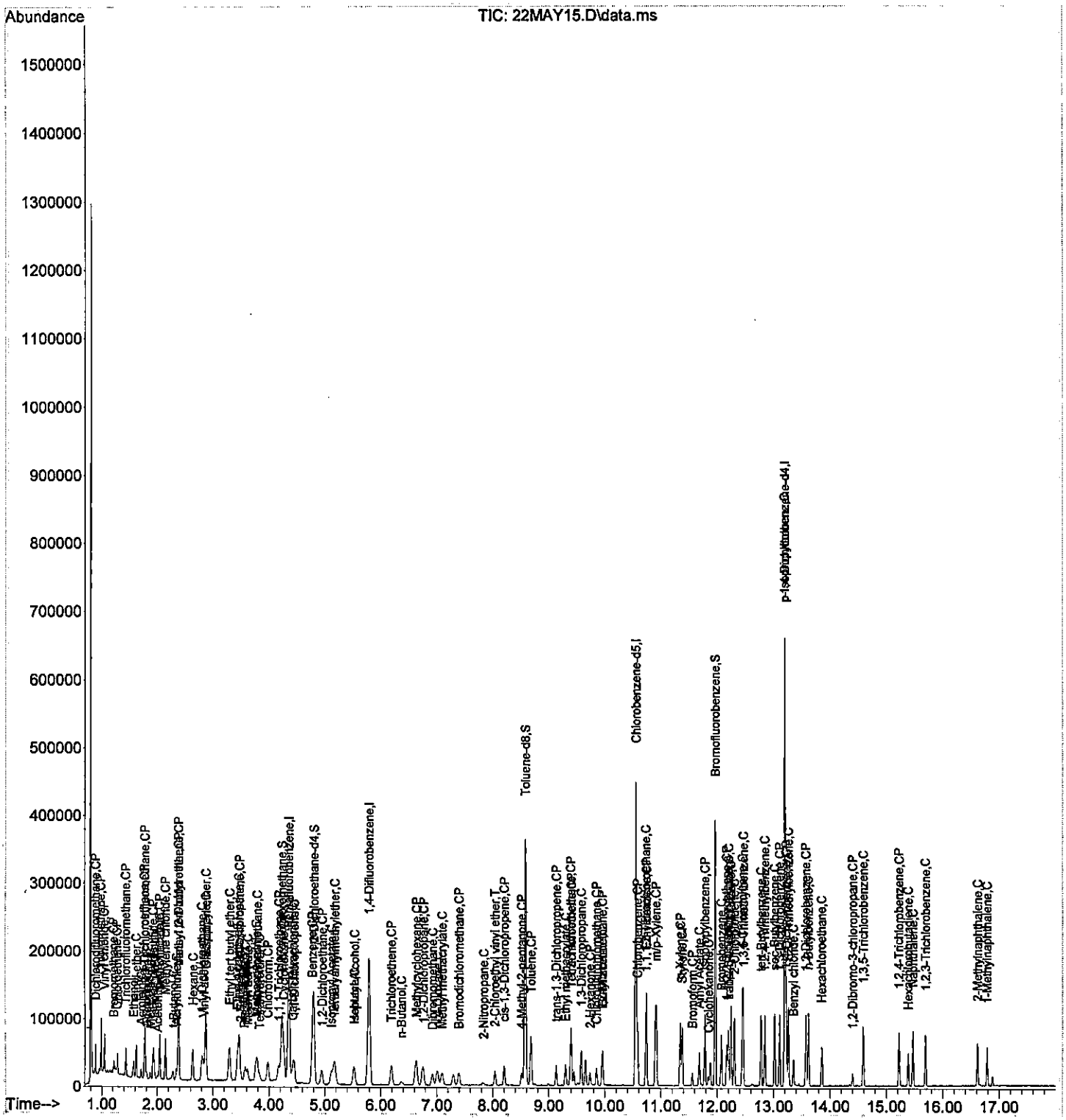
Quant Time: May 23 09:01:43 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.223	146	34794	4.16	ug/L		95
102) 1,2,3-Trimethylbenzene	13.260	105	53720	3.80	ug/L		99
103) Benzyl chloride	13.349	91	20732	4.24	ug/L		97
104) 1,2-Dichlorobenzene	13.569	146	32770	4.15	ug/L		99
105) n-Butylbenzene	13.611	91	48487	3.51	ug/L		98
106) Hexachloroethane	13.847	117	8471	3.79	ug/L		96
107) 1,2-Dibromo-3-chloropr...	14.397	157	3476	4.28	ug/L		93
108) 1,3,5-Trichlorobenzene	14.586	180	21993	3.88	ug/L		97
109) 1,2,4-Trichlorobenzene	15.220	180	19621	3.85	ug/L		98
110) Hexachlorobutadiene	15.383	225	7589	3.70	ug/L		98
111) Naphthalene	15.467	128	49811	3.43	ug/L		100
112) 1,2,3-Trichlorobenzene	15.692	180	19357	3.78	ug/L		100
113) 2-Methylnaphthalene	16.615	142	25192	3.36	ug/L		98
114) 1-Methylnaphthalene	16.783	142	22143	3.13	ug/L		99
116) 2-Propanone	1.798	43	10019m	4.54	ug/L		
117) Isopropyl Alcohol	1.940	45	26093	74.80	ug/L	#	92
118) Acetic Ether	3.570	43	22292	4.03	ug/L		99
119) Isopropyl Acetate	5.112	43	36717m	2.88	ug/L		
120) Amyl Acetate	11.676	43	22531	4.11	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY15.D
Acq On : 22 May 2018 5:04 pm
Operator : AK
Sample : 4PPB
Misc : IS/SS 200-20033
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 23 09:01:43 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY16.D
Acq On : 22 May 2018 5:29 pm
Operator : AK
Sample : 10PPB
Misc : IS/SS 200-20033
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:03:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	138021	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.783	114	220728	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	221673	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	124577	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.429	46	43382	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	74292	22.02	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 110.10%				
46) 1,2-Dichloroethane-d4	4.797	65	95086	20.40	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.00%				
65) Toluene-d8	8.572	98	266290	19.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.35%				
86) Bromofluorobenzene	11.959	95	124757	20.55	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	40026	7.58	ug/L		99
3) Chloromethane	0.980	50	72174	8.56	ug/L		100
4) Vinyl chloride	1.043	62	48198	8.12	ug/L		98
5) Bromomethane	1.211	94	6442	9.32	ug/L		96
6) Chloroethane	1.274	64	37226m	10.49	ug/L		
7) Trichlorofluoromethane	1.426	101	43749	8.17	ug/L		99
8) Ethanol	1.562	45	44567	182.66	ug/L		99
9) Ethyl ether	1.615	59	35809	9.99	ug/L		98
10) Acrolein	1.704	56	13072	62.81	ug/L		100
11) 1,1-Dichloroethene	1.762	61	48183	8.68	ug/L		99
12) 1,1,2-Trichlorotrifluo...	1.772	151	18901	8.45	ug/L		99
13) Methyl iodide	1.872	142	15057	6.84	ug/L		98
14) Acetone	1.803	43	19948m	9.22	ug/L		
15) Carbon disulfide	1.919	76	72594	8.32	ug/L		99
16) Allyl chloride	2.034	41	53631	8.98	ug/L		97
17) Methyl acetate	2.039	43	42784	8.33	ug/L		97
18) Acetonitrile	1.997	41	8411	9.58	ug/L	#	1
19) Methylene chloride	2.139	49	60079	9.89	ug/L		98
20) t-Butanol	2.275	59	23396	41.23	ug/L	#	83
21) trans-1,2-Dichloroethene	2.375	61	53282	9.28	ug/L		95
22) Acrylonitrile	2.338	53	24739	10.72	ug/L		97
23) Methyl tert-butyl ether	2.375	73	94892	7.86	ug/L		99
24) Hexane	2.632	57	45361	8.53	ug/L		98
25) 1,1-Dichloroethane	2.800	63	70166	9.49	ug/L		100
26) Diisopropyl ether	2.863	45	128325	8.36	ug/L		97
27) Vinyl acetate	2.826	86	7574	9.25	ug/L	#	90
28) Chloroprene	2.868	53	55190	8.81	ug/L		99
29) Ethyl tert butyl ether	3.287	59	94211	7.42	ug/L		98
30) 2,2-Dichloropropane	3.460	77	34691	7.55	ug/L		86
31) cis-1,2-Dichloroethene	3.460	61	61659	9.16	ug/L		98
32) 2-Butanone	3.486	43	32108	9.58	ug/L		98
33) Ethyl Acetate	3.576	43	52732	8.33	ug/L		99
34) Methyl acrylate	3.618	55	50348	9.98	ug/L		99
35) Propionitrile	3.560	54	10057	10.71	ug/L	#	93
36) Bromochloromethane	3.791	49	36362	9.64	ug/L		97
37) Tetrahydrofuran	3.827	42	19629	10.62	ug/L		93
38) Methacrylonitrile	3.770	67	23729	10.32	ug/L		95

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY16.D
Acq On : 22 May 2018 5:29 pm
Operator : AK
Sample : 10PPB
Misc : IS/SS 200-20033
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:03:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	3.974	83	62458	9.58 ug/L	98
40) Cyclohexane	4.262	56	59939	8.05 ug/L	99
42) 1,1,1-Trichloroethane	4.168	97	39484	10.03 ug/L	99
44) Carbon tetrachloride	4.409	119	29978	9.99 ug/L	98
45) 1,1-Dichloropropene	4.446	75	47108	9.60 ug/L	98
47) 1,2-Dichloroethane	4.944	62	54161	10.21 ug/L	99
48) Benzene	4.776	78	148367	10.01 ug/L	99
49) Isobutyl Alcohol	5.521	43	39294	8.35 ug/L #	92
50) Tertiaryamylmethylether	5.170	73	72918	7.71 ug/L #	78
51) Heptane	5.521	43	39294	8.35 ug/L	95
52) Methylcyclohexane	6.627	83	46053	8.69 ug/L	92
53) Trichloroethene	6.192	130	32990	9.85 ug/L	99
54) n-Butanol	6.375	56	9172	76.22 ug/L	93
55) 1,2-Dichloropropane	6.758	63	39730	10.43 ug/L	95
56) Dibromomethane	6.921	93	24046	11.16 ug/L	99
57) 1,4-Dioxane	7.005	88	60695	1178.02 ug/L	93
58) Methyl methacrylate	7.094	41	34571	10.07 ug/L	96
59) Bromodichloromethane	7.398	83	42089	11.12 ug/L	98
60) 2-Nitropropane	7.817	43	8795	10.25 ug/L #	95
61) 2-Chloroethyl vinyl ether	8.037	63	26111	11.60 ug/L	98
62) cis-1,3-Dichloropropene	8.200	75	43787	9.49 ug/L	98
64) 4-Methyl-2-pentanone	8.515	43	43228	8.96 ug/L	93
66) Toluene	8.677	91	147305	9.71 ug/L	99
67) Chloropicrin	9.091	117	1956	No Calib #	
68) trans-1,3-Dichloropropene	9.133	75	35874	9.52 ug/L	95
69) Ethyl methacrylate	9.301	69	47707	10.26 ug/L	100
70) 1,1,2-Trichloroethane	9.390	97	38003	10.91 ug/L	99
71) Tetrachloroethene	9.401	166	32114	9.79 ug/L	98
72) 1,3-Dichloropropane	9.579	76	67186	10.89 ug/L	98
73) 2-Hexanone	9.736	43	31458	8.70 ug/L	96
74) Chlorodibromomethane	9.852	129	30346	10.60 ug/L	99
75) Butyl acetate	9.962	43	60729	8.52 ug/L	98
76) 1,2-Dibromoethane	9.951	107	34317	16.90 ug/L	96
77) Chlorobenzene	10.580	112	98772	9.99 ug/L	99
78) 1,1,1,2-Tetrachloroethane	10.732	131	28586	10.22 ug/L	100
79) Ethylbenzene	10.738	91	154615	9.32 ug/L	100
80) m/p-Xylene	10.905	91	249005	19.43 ug/L	99
81) Styrene	11.372	104	102890	10.08 ug/L	99
82) o-Xylene	11.335	91	129048	9.85 ug/L	99
83) Cyclohexanone	11.839	55	17056	47.13 ug/L	91
84) Bromoform	11.556	173	19296	10.03 ug/L	96
85) Isopropylbenzene	11.776	105	149065	9.64 ug/L	100
87) Bromobenzene	12.069	77	80239	10.44 ug/L	97
88) 1,1,2,2-Tetrachloroethane	12.164	83	66314	11.16 ug/L	99
89) 1,2,3-Trichloropropane	12.195	110	16890	10.89 ug/L	98
90) trans-1,4-Dichloro-2-b...	12.195	53	17942	11.11 ug/L	84
91) n-Propylbenzene	12.237	91	197977	9.71 ug/L	100
92) 2-Chlorotoluene	12.295	91	128897	10.48 ug/L	100
93) 4-Chlorotoluene	12.442	91	143223	10.18 ug/L	99
94) 1,3,5-Trimethylbenzene	12.452	105	132198	10.07 ug/L	97
95) tert-Butylbenzene	12.772	91	71540	9.53 ug/L	96
96) 1,2,4-Trimethylbenzene	12.840	105	133971	9.90 ug/L	99
97) sec-Butylbenzene	13.008	105	167519	9.79 ug/L	99
99) 1,3-Dichlorobenzene	13.102	146	85381	10.00 ug/L	99
100) p-Isopropyltoluene	13.191	119	133239	9.39 ug/L	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY16.D
Acq On : 22 May 2018 5:29 pm
Operator : AK
Sample : 10PPB
Misc : IS/SS 200-20033
ALS Vial : 8 Sample Multiplier: 1

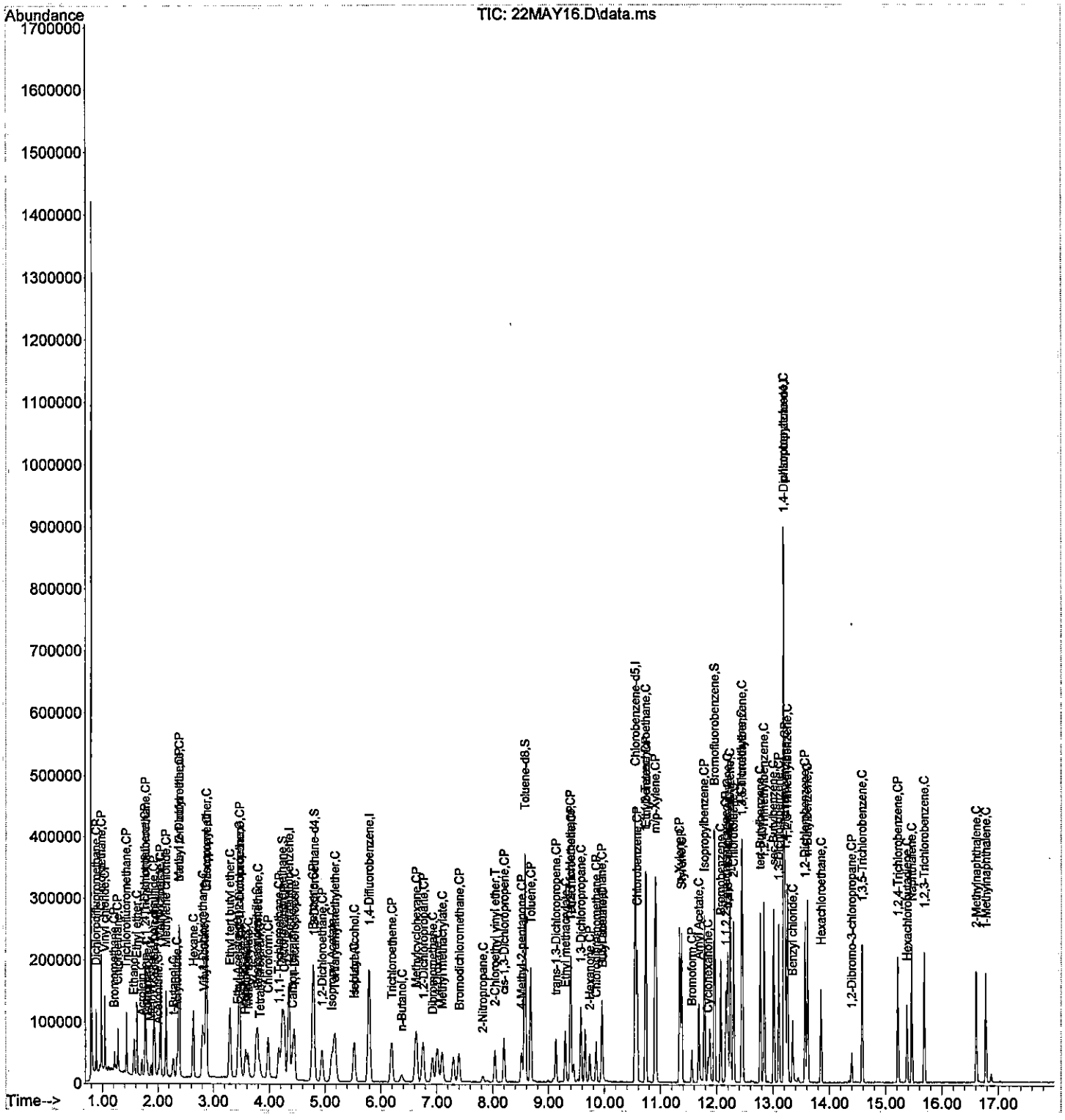
Quant Time: May 23 09:03:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101)	1,4-Dichlorobenzene	13.218	146	88188	10.07	ug/L		98
102)	1,2,3-Trimethylbenzene	13.254	105	153207	10.34	ug/L		97
103)	Benzyl chloride	13.349	91	55459	10.45	ug/L		96
104)	1,2-Dichlorobenzene	13.569	146	83293	10.08	ug/L		99
105)	n-Butylbenzene	13.611	91	137346	9.49	ug/L		98
106)	Hexachloroethane	13.852	117	22511	9.62	ug/L		98
107)	1,2-Dibromo-3-chloropr...	14.397	157	9241	10.86	ug/L		96
108)	1,3,5-Trichlorobenzene	14.586	180	55588	9.36	ug/L		99
109)	1,2,4-Trichlorobenzene	15.220	180	49897	9.35	ug/L		97
110)	Hexachlorobutadiene	15.383	225	19199	8.95	ug/L		100
111)	Naphthalene	15.467	128	139576	9.19	ug/L		100
112)	1,2,3-Trichlorobenzene	15.687	180	52074	9.72	ug/L		99
113)	2-Methylnaphthalene	16.610	142	68823	8.37	ug/L		96
114)	1-Methylnaphthalene	16.783	142	67328	8.56	ug/L		99
116)	2-Propanone	1.803	43	19503m	9.65	ug/L		
117)	Isopropyl Alcohol	1.935	45	67963	179.37	ug/L	#	95
118)	Acetic Ether	3.576	43	52732	9.27	ug/L		98
119)	Isopropyl Acetate	5.117	43	89475	7.02	ug/L	#	87
120)	Amyl Acetate	11.676	43	60239	8.05	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY16.D
Acq On : 22 May 2018 5:29 pm
Operator : AK
Sample : 10PPB
Misc : IS/SS 200-20033
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 23 09:03:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY17.D
Acq On : 22 May 2018 5:53 pm
Operator : AK
Sample : 20PPB
Misc : IS/SS 200-20033
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 18:11:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	140410	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	219160	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	228309	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	128285	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.434	46	43876	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	76580	22.86	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 114.30%				
46) 1,2-Dichloroethane-d4	4.797	65	96323	20.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.05%				
65) Toluene-d8	8.572	98	279200	19.61	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.05%				
86) Bromofluorobenzene	11.954	95	129759	20.75	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	79590	14.81	ug/L		99
3) Chloromethane	0.980	50	149185	17.39	ug/L		99
4) Vinyl chloride	1.043	62	98602	16.33	ug/L		94
5) Bromomethane	1.211	94	12336	17.83	ug/L		95
6) Chloroethane	1.274	64	67718	18.76	ug/L		99
7) Trichlorofluoromethane	1.426	101	87227	16.01	ug/L		99
8) Ethanol	1.568	45	84318	352.11	ug/L		97
9) Ethyl ether	1.615	59	73263	20.09	ug/L		98
10) Acrolein	1.704	56	28731	128.67	ug/L		98
11) 1,1-Dichloroethene	1.762	61	97617	17.28	ug/L		98
12) 1,1,2-Trichlorotrifluo...	1.772	151	37101	16.30	ug/L		97
13) Methyl iodide	1.866	142	29471	14.18	ug/L		97
14) Acetone	1.803	43	36579	17.66	ug/L		96
15) Carbon disulfide	1.919	76	148644	16.75	ug/L		100
16) Allyl chloride	2.034	41	108895	17.92	ug/L		99
17) Methyl acetate	2.039	43	87507	17.39	ug/L		98
18) Acetonitrile	2.003	41	16995	19.43	ug/L	#	1
19) Methylene chloride	2.139	49	117730	19.05	ug/L		96
20) t-Butanol	2.281	59	47826	84.44	ug/L		91
21) trans-1,2-Dichloroethene	2.375	61	106213	18.18	ug/L		98
22) Acrylonitrile	2.338	53	48942	20.85	ug/L		96
23) Methyl tert-butyl ether	2.380	73	187811	15.29	ug/L		99
24) Hexane	2.632	57	86221	15.94	ug/L		97
25) 1,1-Dichloroethane	2.794	63	139316	18.52	ug/L		100
26) Diisopropyl ether	2.863	45	247077	15.83	ug/L		97
27) Vinyl acetate	2.826	86	15201	18.25	ug/L	#	91
28) Chloroprene	2.868	53	110481	17.34	ug/L		99
29) Ethyl tert butyl ether	3.292	59	184538	14.28	ug/L		99
30) 2,2-Dichloropropane	3.455	77	71874	15.37	ug/L		93
31) cis-1,2-Dichloroethene	3.460	61	122174	17.85	ug/L		100
32) 2-Butanone	3.486	43	61533	19.02	ug/L		100
33) Ethyl Acetate	3.570	43	109909	17.07	ug/L		99
34) Methyl acrylate	3.612	55	102614	19.99	ug/L		99
35) Propionitrile	3.560	54	20850	21.82	ug/L	#	93
36) Bromochloromethane	3.785	49	74667	19.45	ug/L		97
37) Tetrahydrofuran	3.827	42	35872	19.34	ug/L		98
38) Methacrylonitrile	3.759	67	47404	20.26	ug/L		97

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY17.D
Acq On : 22 May 2018 5:53 pm
Operator : AK
Sample : 20PPB
Misc : IS/SS 200-20033
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 18:11:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.979	83	124841	18.83	ug/L		100
40)	Cyclohexane	4.262	56	122178	16.12	ug/L		98
42)	1,1,1-Trichloroethane	4.173	97	79184	20.26	ug/L		99
44)	Carbon tetrachloride	4.415	119	62765	21.06	ug/L		98
45)	1,1-Dichloropropene	4.446	75	91985	18.87	ug/L		98
47)	1,2-Dichloroethane	4.944	62	109212	20.73	ug/L		99
48)	Benzene	4.782	78	287217	19.52	ug/L		99
49)	Isobutyl Alcohol	5.521	43	83143	17.79	ug/L	#	97
50)	Tertiaryamylmethylether	5.175	73	148665	15.82	ug/L	#	88
51)	Heptane	5.521	43	83143	17.79	ug/L		96
52)	Methylcyclohexane	6.632	83	96189	18.27	ug/L		97
53)	Trichloroethene	6.187	130	65961	19.84	ug/L		99
54)	n-Butanol	6.370	56	19923	166.74	ug/L		97
55)	1,2-Dichloropropane	6.753	63	79276	20.95	ug/L		96
56)	Dibromomethane	6.921	93	50028	23.38	ug/L		99
57)	1,4-Dioxane	7.005	88	130652	2553.94	ug/L		93
58)	Methyl methacrylate	7.094	41	76261	22.38	ug/L		98
59)	Bromodichloromethane	7.393	83	87972	23.41	ug/L		99
60)	2-Nitropropane	7.828	43	17995	21.12	ug/L	#	95
61)	2-Chloroethyl vinyl ether	8.032	63	53489	23.93	ug/L		98
62)	cis-1,3-Dichloropropene	8.200	75	96379	21.03	ug/L		99
64)	4-Methyl-2-pentanone	8.515	43	89381	18.00	ug/L		98
66)	Toluene	8.677	91	301355	19.29	ug/L		100
67)	Chloropicrin	9.091	117	32887	No Calib			
68)	trans-1,3-Dichloropropene	9.133	75	80009	19.67	ug/L		98
69)	Ethyl methacrylate	9.301	69	105976	21.21	ug/L		98
70)	1,1,2-Trichloroethane	9.390	97	75106	20.93	ug/L		99
71)	Tetrachloroethene	9.406	166	63488	18.79	ug/L		98
72)	1,3-Dichloropropane	9.579	76	133413	20.99	ug/L		97
73)	2-Hexanone	9.736	43	68359	18.36	ug/L		97
74)	Chlorodibromomethane	9.852	129	65546	22.22	ug/L		99
75)	Butyl acetate	9.962	43	134684	18.35	ug/L		98
76)	1,2-Dibromoethane	9.951	107	58405	29.86	ug/L		98
77)	Chlorobenzene	10.580	112	202058	19.84	ug/L		99
78)	1,1,1,2-Tetrachloroethane	10.732	131	60108	20.86	ug/L		98
79)	Ethylbenzene	10.738	91	333686	19.53	ug/L		99
80)	m/p-Xylene	10.911	91	542453	41.10	ug/L		100
81)	Styrene	11.372	104	226271	21.52	ug/L		98
82)	o-Xylene	11.341	91	275021	20.39	ug/L		100
83)	Cyclohexanone	11.839	55	33899	90.95	ug/L		98
84)	Bromoform	11.556	173	42353	21.37	ug/L		99
85)	Isopropylbenzene	11.776	105	326397	20.49	ug/L		99
87)	Bromobenzene	12.064	77	167352	21.15	ug/L		97
88)	1,1,2,2-Tetrachloroethane	12.164	83	133881	21.88	ug/L		98
89)	1,2,3-Trichloropropane	12.190	110	34613	21.67	ug/L		99
90)	trans-1,4-Dichloro-2-b...	12.195	53	38567	23.18	ug/L		87
91)	n-Propylbenzene	12.237	91	429990	20.48	ug/L		99
92)	2-Chlorotoluene	12.300	91	267362	21.11	ug/L		99
93)	4-Chlorotoluene	12.442	91	306211	21.13	ug/L		99
94)	1,3,5-Trimethylbenzene	12.452	105	284816	21.06	ug/L		99
95)	tert-Butylbenzene	12.772	91	155410	20.10	ug/L		98
96)	1,2,4-Trimethylbenzene	12.840	105	293742	21.07	ug/L		99
97)	sec-Butylbenzene	13.008	105	358863	20.36	ug/L		100
99)	1,3-Dichlorobenzene	13.102	146	173344	19.71	ug/L		100
100)	p-Isopropyltoluene	13.191	119	291076	19.91	ug/L		99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY17.D
Acq On : 22 May 2018 5:53 pm
Operator : AK
Sample : 20PPB
Misc : IS/SS 200-20033
ALS Vial : 9 Sample Multiplier: 1

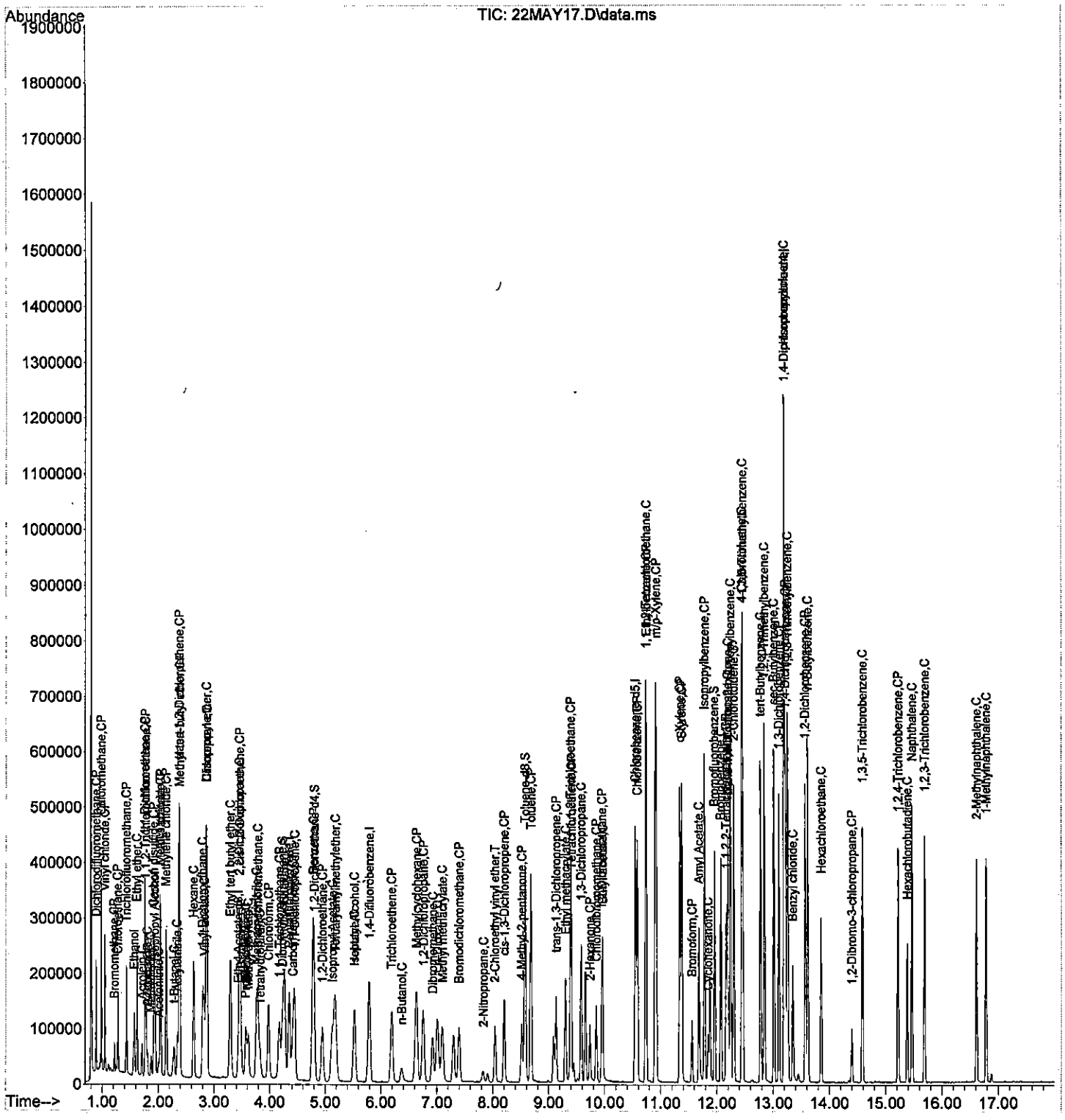
Quant Time: May 22 18:11:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	178303	19.76	ug/L		98
102) 1,2,3-Trimethylbenzene	13.254	105	325665	21.35	ug/L		100
103) Benzyl chloride	13.349	91	120029	20.71	ug/L		99
104) 1,2-Dichlorobenzene	13.569	146	171393	20.14	ug/L		99
105) n-Butylbenzene	13.611	91	298099	20.01	ug/L		98
106) Hexachloroethane	13.852	117	46536	19.30	ug/L		98
107) 1,2-Dibromo-3-chloropr...	14.397	157	18959	21.64	ug/L		97
108) 1,3,5-Trichlorobenzene	14.586	180	116658	19.08	ug/L		99
109) 1,2,4-Trichlorobenzene	15.220	180	104616	19.04	ug/L		98
110) Hexachlorobutadiene	15.383	225	37611	17.02	ug/L		99
111) Naphthalene	15.467	128	309909	19.81	ug/L		99
112) 1,2,3-Trichlorobenzene	15.692	180	109950	19.92	ug/L		98
113) 2-Methylnaphthalene	16.615	142	161592	18.20	ug/L		99
114) 1-Methylnaphthalene	16.783	142	161725	19.10	ug/L		100
116) 2-Propanone	1.803	43	36579	18.62	ug/L		96
117) Isopropyl Alcohol	1.940	45	138345	351.34	ug/L		95
118) Acetic Ether	3.570	43	109909	18.89	ug/L		99
119) Isopropyl Acetate	5.128	43	181658	14.09	ug/L	#	72
120) Amyl Acetate	11.676	43	133103	15.50	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY17.D
Acq On : 22 May 2018 5:53 pm
Operator : AK
Sample : 20PPB
Misc : IS/SS 200-20033
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 18:11:33 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY18.D
Acq On : 22 May 2018 6:17 pm
Operator : AK
Sample : 40PPB
Misc : IS/SS 200-20033
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:04:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	145575	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	220909	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	235692	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	127596	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.434	46	44737	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	73496	21.77	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 108.85%				
46) 1,2-Dichloroethane-d4	4.797	65	94337	20.22	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.10%				
65) Toluene-d8	8.572	98	301534	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.60%				
86) Bromofluorobenzene	11.954	95	134106	20.77	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	142705	25.61	ug/L		99
3) Chloromethane	0.981	50	271134	30.48	ug/L		99
4) Vinyl chloride	1.043	62	193171	30.85	ug/L		98
5) Bromomethane	1.211	94	22045	30.49	ug/L		96
6) Chloroethane	1.274	64	131271	35.08	ug/L		98
7) Trichlorofluoromethane	1.426	101	164794	29.18	ug/L		98
8) Ethanol	1.568	45	163962	673.05	ug/L		99
9) Ethyl ether	1.615	59	145891	38.58	ug/L		96
10) Acrolein	1.704	56	100123	318.43	ug/L		97
11) 1,1-Dichloroethene	1.762	61	188820	32.25	ug/L		98
12) 1,1,2-Trichlorotrifluo...	1.772	151	70133	29.72	ug/L		98
13) Methyl iodide	1.872	142	69019	31.27	ug/L		98
14) Acetone	1.804	43	67013	32.21	ug/L		96
15) Carbon disulfide	1.919	76	304922	33.14	ug/L		100
16) Allyl chloride	2.034	41	221443	35.14	ug/L		99
17) Methyl acetate	2.034	43	172282	33.59	ug/L		98
18) Acetonitrile	2.003	41	33111	36.86	ug/L	#	1
19) Methylene chloride	2.139	49	226972	35.42	ug/L		99
20) t-Butanol	2.281	59	91187	156.62	ug/L		92
21) trans-1,2-Dichloroethene	2.375	61	206132	34.03	ug/L		97
22) Acrylonitrile	2.338	53	94305	38.74	ug/L		99
23) Methyl tert-butyl ether	2.380	73	362321	28.46	ug/L		98
24) Hexane	2.632	57	150347	26.80	ug/L		98
25) 1,1-Dichloroethane	2.795	63	274437	35.19	ug/L		100
26) Diisopropyl ether	2.863	45	464392	28.69	ug/L		97
27) Vinyl acetate	2.821	86	30970	35.87	ug/L		99
28) Chloroprene	2.868	53	210725	31.90	ug/L		100
29) Ethyl tert butyl ether	3.293	59	344484	25.72	ug/L		99
30) 2,2-Dichloropropane	3.455	77	138317	28.54	ug/L		96
31) cis-1,2-Dichloroethene	3.461	61	242034	34.10	ug/L		99
32) 2-Butanone	3.487	43	113034	34.53	ug/L		100
33) Ethyl Acetate	3.576	43	210035	31.47	ug/L		98
34) Methyl acrylate	3.613	55	195543	36.74	ug/L		100
35) Propionitrile	3.555	54	40075	40.45	ug/L	#	96
36) Bromochloromethane	3.786	49	145063	36.45	ug/L		98
37) Tetrahydrofuran	3.822	42	70492m	36.95	ug/L		
38) Methacrylonitrile	3.765	67	91527	37.73	ug/L		96

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY18.D
Acq On : 22 May 2018 6:17 pm
Operator : AK
Sample : 40PPB
Misc : IS/SS 200-20033
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:04:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.974	83	252926	36.79	ug/L		99
40)	Cyclohexane	4.263	56	217493	27.68	ug/L		99
42)	1,1,1-Trichloroethane	4.168	97	154739	39.28	ug/L		100
44)	Carbon tetrachloride	4.415	119	124425	41.42	ug/L		99
45)	1,1-Dichloropropene	4.446	75	172315	35.08	ug/L		99
47)	1,2-Dichloroethane	4.950	62	209894	39.53	ug/L		99
48)	Benzene	4.777	78	537896	36.27	ug/L		99
49)	Isobutyl Alcohol	5.521	43	166449	35.33	ug/L	#	100
50)	Tertiaryamylmethylether	5.170	73	290588	30.69	ug/L	#	83
51)	Heptane	5.521	43	166449	35.33	ug/L		97
52)	Methylcyclohexane	6.633	83	186362	35.12	ug/L		98
53)	Trichloroethene	6.192	130	119538	35.68	ug/L		98
54)	n-Butanol	6.360	56	40105	332.99	ug/L		95
55)	1,2-Dichloropropane	6.748	63	155734	40.83	ug/L		100
56)	Dibromomethane	6.926	93	98864	45.84	ug/L		99
57)	1,4-Dioxane	7.000	88	269588	5228.09	ug/L		96
58)	Methyl methacrylate	7.094	41	161569	47.04	ug/L		98
59)	Bromodichloromethane	7.393	83	176236	46.53	ug/L		100
60)	2-Nitropropane	7.823	43	36469	42.46	ug/L		95
61)	2-Chloroethyl vinyl ether	8.038	63	109318	48.53	ug/L		98
62)	cis-1,3-Dichloropropene	8.200	75	196889	42.63	ug/L		98
64)	4-Methyl-2-pentanone	8.510	43	189114	36.89	ug/L		98
66)	Toluene	8.677	91	631229	39.15	ug/L		99
67)	Chloropicrin	9.092	117	253364	No Calib			
68)	trans-1,3-Dichloropropene	9.133	75	184686	40.55	ug/L		99
69)	Ethyl methacrylate	9.301	69	231941	41.97	ug/L		99
70)	1,1,2-Trichloroethane	9.390	97	145510	39.28	ug/L		99
71)	Tetrachloroethene	9.401	166	128670	36.89	ug/L		98
72)	1,3-Dichloropropane	9.579	76	263562	40.16	ug/L		99
73)	2-Hexanone	9.736	43	141798	36.89	ug/L		99
74)	Chlorodibromomethane	9.852	129	133174	43.74	ug/L		99
75)	Butyl acetate	9.957	43	292361	38.58	ug/L		99
76)	1,2-Dibromoethane	9.951	107	121720	61.27	ug/L		100
77)	Chlorobenzene	10.581	112	417828	39.75	ug/L		100
78)	1,1,1,2-Tetrachloroethane	10.733	131	120165	40.39	ug/L		99
79)	Ethylbenzene	10.738	91	711503	40.33	ug/L		100
80)	m/p-Xylene	10.906	91	1157769	84.98	ug/L		99
81)	Styrene	11.372	104	472445	43.53	ug/L		98
82)	o-Xylene	11.341	91	580858	41.72	ug/L		100
83)	Cyclohexanone	11.839	55	69712	181.18	ug/L		99
84)	Bromoform	11.556	173	91825	44.89	ug/L		99
85)	Isopropylbenzene	11.776	105	686048	41.71	ug/L		100
87)	Bromobenzene	12.070	77	342081	41.87	ug/L		98
88)	1,1,2,2-Tetrachloroethane	12.164	83	271431	42.97	ug/L		99
89)	1,2,3-Trichloropropane	12.190	110	70352	42.67	ug/L		99
90)	trans-1,4-Dichloro-2-b...	12.195	53	77494	45.11	ug/L		95
91)	n-Propylbenzene	12.237	91	900768	41.56	ug/L		99
92)	2-Chlorotoluene	12.295	91	554431	42.40	ug/L		99
93)	4-Chlorotoluene	12.442	91	633662	42.36	ug/L		99
94)	1,3,5-Trimethylbenzene	12.452	105	599557	42.94	ug/L		99
95)	tert-Butylbenzene	12.772	91	327899	41.09	ug/L		98
96)	1,2,4-Trimethylbenzene	12.840	105	621406	43.19	ug/L		99
97)	sec-Butylbenzene	13.013	105	743191	40.84	ug/L		100
99)	1,3-Dichlorobenzene	13.102	146	352123	40.26	ug/L		99
100)	p-Isopropyltoluene	13.192	119	602725	41.46	ug/L		99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY18.D
Acq On : 22 May 2018 6:17 pm
Operator : AK
Sample : 40PPB
Misc : IS/SS 200-20033
ALS Vial : 10 Sample Multiplier: 1

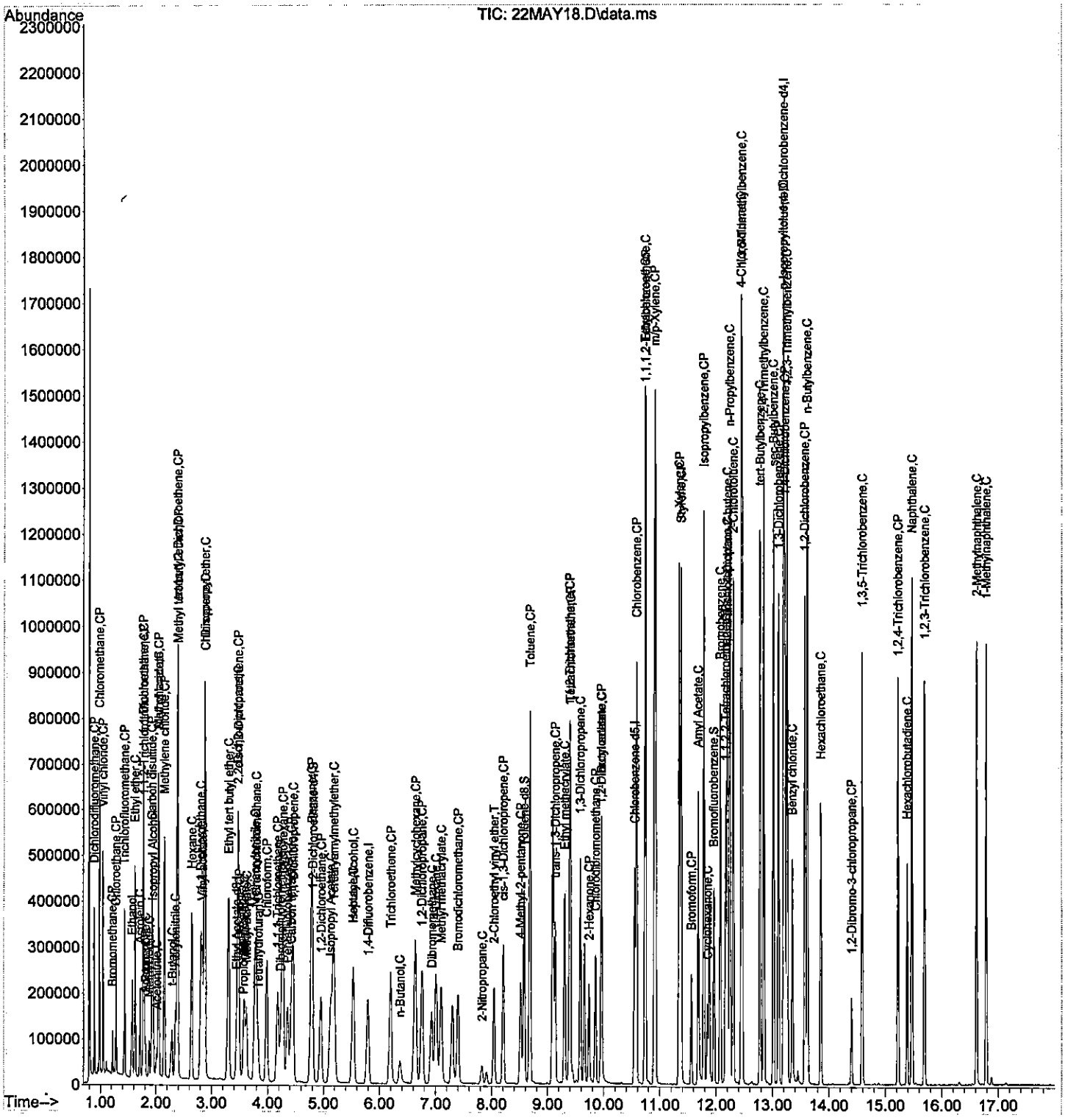
Quant Time: May 23 09:04:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	360519	40.18	ug/L		99
102) 1,2,3-Trimethylbenzene	13.255	105	673753	44.40	ug/L		99
103) Benzyl chloride	13.349	91	267738	41.59	ug/L		99
104) 1,2-Dichlorobenzene	13.569	146	343738	40.61	ug/L		99
105) n-Butylbenzene	13.611	91	623408	42.07	ug/L		99
106) Hexachloroethane	13.852	117	101637	42.39	ug/L		98
107) 1,2-Dibromo-3-chloropr...	14.397	157	36899	42.35	ug/L		96
108) 1,3,5-Trichlorobenzene	14.586	180	234702	38.60	ug/L		100
109) 1,2,4-Trichlorobenzene	15.221	180	219666	40.20	ug/L		100
110) Hexachlorobutadiene	15.383	225	77031	35.05	ug/L		97
111) Naphthalene	15.467	128	684712	44.01	ug/L		99
112) 1,2,3-Trichlorobenzene	15.693	180	224345	40.86	ug/L		100
113) 2-Methylnaphthalene	16.615	142	375766	39.23	ug/L		98
114) 1-Methylnaphthalene	16.783	142	361763	40.24	ug/L		100
116) 2-Propanone	1.804	43	67013	34.14	ug/L		96
117) Isopropyl Alcohol	1.935	45	273730	672.79	ug/L		98
118) Acetic Ether	3.576	43	210035	35.23	ug/L		99
119) Isopropyl Acetate	5.117	43	355411	27.04	ug/L	#	80
120) Amyl Acetate	11.676	43	299720	32.12	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY18.D
Acq On : 22 May 2018 6:17 pm
Operator : AK
Sample : 40PPB
Misc : IS/SS 200-20033
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 23 09:04:19 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY19.D
Acq On : 22 May 2018 6:42 pm
Operator : AK
Sample : 70PPB
Misc : IS/SS 200-20033
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	118193	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	212644	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	228408	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	128833	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.434	46	44359	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	68260	21.00	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.00%				
46) 1,2-Dichloroethane-d4	4.797	65	93842	20.90	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.50%				
65) Toluene-d8	8.572	98	290736	20.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.10%				
86) Bromofluorobenzene	11.959	95	133462	21.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	263686	58.29	ug/L		99
3) Chloromethane	0.980	50	461776	63.95	ug/L		100
4) Vinyl chloride	1.043	62	339472	66.78	ug/L		97
5) Bromomethane	1.211	94	42748	68.95	ug/L		97
6) Chloroethane	1.274	64	216342	71.20	ug/L		99
7) Trichlorofluoromethane	1.426	101	299092	65.22	ug/L		99
8) Ethanol	1.568	45	298529	1527.26	ug/L		100
9) Ethyl ether	1.615	59	254740	82.98	ug/L		96
10) Acrolein	1.704	56	152350	478.83	ug/L		98
11) 1,1-Dichloroethene	1.762	61	330807	69.59	ug/L		96
12) 1,1,2-Trichlorotrifluo...	1.772	151	121620	63.47	ug/L		98
13) Methyl iodide	1.867	142	118496	59.55	ug/L		98
14) Acetone	1.798	43	124298m	75.25	ug/L		
15) Carbon disulfide	1.919	76	561356	75.15	ug/L		99
16) Allyl chloride	2.034	41	390243	76.28	ug/L		99
17) Methyl acetate	2.034	43	307135	74.50	ug/L		99
18) Acetonitrile	2.003	41	59064	81.47	ug/L	#	1
19) Methylene chloride	2.139	49	392167	75.37	ug/L		97
20) t-Butanol	2.281	59	174358	370.99	ug/L		93
21) trans-1,2-Dichloroethene	2.375	61	361671	73.54	ug/L		98
22) Acrylonitrile	2.338	53	169045	85.54	ug/L		98
23) Methyl tert-butyl ether	2.380	73	641574	62.06	ug/L		98
24) Hexane	2.632	57	278963	61.25	ug/L		97
25) 1,1-Dichloroethane	2.795	63	474310	74.92	ug/L		100
26) Diisopropyl ether	2.863	45	816316	62.12	ug/L		97
27) Vinyl acetate	2.821	86	53115	75.77	ug/L	#	89
28) Chloroprene	2.868	53	377186	70.32	ug/L		99
29) Ethyl tert butyl ether	3.293	59	621571	57.15	ug/L		98
30) 2,2-Dichloropropane	3.460	77	246408	62.62	ug/L		98
31) cis-1,2-Dichloroethene	3.460	61	422991	73.41	ug/L		97
32) 2-Butanone	3.487	43	208104	79.70	ug/L		99
33) Ethyl Acetate	3.576	43	381584	70.42	ug/L		98
34) Methyl acrylate	3.612	55	357152	82.65	ug/L		99
35) Propionitrile	3.560	54	71822	89.29	ug/L	#	92
36) Bromochloromethane	3.786	49	254676	78.82	ug/L		95
37) Tetrahydrofuran	3.822	42	137840m	89.46	ug/L		
38) Methacrylonitrile	3.765	67	164459	83.51	ug/L		96

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY19.D
Acq On : 22 May 2018 6:42 pm
Operator : AK
Sample : 70PPB
Misc : IS/SS 200-20033
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.979	83	423193	75.82	ug/L		99
40)	Cyclohexane	4.263	56	410120	64.28	ug/L		98
42)	1,1,1-Trichloroethane	4.173	97	264273	69.70	ug/L		100
44)	Carbon tetrachloride	4.415	119	200441	69.33	ug/L		95
45)	1,1-Dichloropropene	4.446	75	309246	65.40	ug/L		100
47)	1,2-Dichloroethane	4.944	62	384703	75.27	ug/L		99
48)	Benzene	4.776	78	994328	69.66	ug/L		99
49)	Isobutyl Alcohol	5.521	43	288145	63.54	ug/L	#	99
50)	Tertiaryamylmethylether	5.175	73	530628	58.21	ug/L	#	93
51)	Heptane	5.521	43	288145	63.54	ug/L		98
52)	Methylcyclohexane	6.627	83	345597	67.67	ug/L		99
53)	Trichloroethene	6.192	130	219097	67.94	ug/L		99
54)	n-Butanol	6.376	56	81455	702.60	ug/L		98
55)	1,2-Dichloropropane	6.748	63	280937	76.52	ug/L		100
56)	Dibromomethane	6.921	93	176820	85.18	ug/L		100
57)	1,4-Dioxane	7.005	88	520597	10488.28	ug/L		97
58)	Methyl methacrylate	7.099	41	297114	89.86	ug/L		96
59)	Bromodichloromethane	7.393	83	310521	85.18	ug/L		99
60)	2-Nitropropane	7.828	43	71702	86.72	ug/L		98
61)	2-Chloroethyl vinyl ether	8.038	63	157167	72.48	ug/L		98
62)	cis-1,3-Dichloropropene	8.200	75	379020	85.25	ug/L		98
64)	4-Methyl-2-pentanone	8.515	43	357594	71.97	ug/L		98
66)	Toluene	8.677	91	1063569	68.06	ug/L		100
67)	Chloropicrin	9.091	117	563303	No Calib			
68)	trans-1,3-Dichloropropene	9.133	75	353934	71.90	ug/L		96
69)	Ethyl methacrylate	9.301	69	432459	73.48	ug/L		99
70)	1,1,2-Trichloroethane	9.390	97	259119	72.19	ug/L		99
71)	Tetrachloroethene	9.401	166	209288	61.91	ug/L		97
72)	1,3-Dichloropropane	9.579	76	468160	73.61	ug/L		100
73)	2-Hexanone	9.742	43	274821	73.78	ug/L		98
74)	Chlorodibromomethane	9.852	129	246868	83.67	ug/L		99
75)	Butyl acetate	9.962	43	550043	74.90	ug/L		99
76)	1,2-Dibromoethane	9.951	107	140555	72.54	ug/L		99
77)	Chlorobenzene	10.581	112	705723	69.28	ug/L		99
78)	1,1,1,2-Tetrachloroethane	10.733	131	212588	73.73	ug/L		99
79)	Ethylbenzene	10.738	91	1246684	72.92	ug/L		100
80)	m/p-Xylene	10.911	91	2005124	151.86	ug/L		99
81)	Styrene	11.372	104	826691	78.60	ug/L		99
82)	o-Xylene	11.341	91	1029239	76.27	ug/L		100
83)	Cyclohexanone	11.839	55	132351	354.95	ug/L		99
84)	Bromoform	11.556	173	171035	86.28	ug/L		99
85)	Isopropylbenzene	11.776	105	1196317	75.06	ug/L		100
87)	Bromobenzene	12.070	77	586205	74.05	ug/L		98
88)	1,1,2,2-Tetrachloroethane	12.164	83	490530	80.14	ug/L		100
89)	1,2,3-Trichloropropane	12.190	110	126408	79.12	ug/L		99
90)	trans-1,4-Dichloro-2-b...	12.195	53	148694	89.32	ug/L		98
91)	n-Propylbenzene	12.237	91	1592730	75.83	ug/L		99
92)	2-Chlorotoluene	12.300	91	944777	74.55	ug/L		100
93)	4-Chlorotoluene	12.442	91	1099879	75.88	ug/L		100
94)	1,3,5-Trimethylbenzene	12.458	105	1044933	77.23	ug/L		98
95)	tert-Butylbenzene	12.772	91	581351	75.17	ug/L		99
96)	1,2,4-Trimethylbenzene	12.840	105	1095491	78.56	ug/L		99
97)	sec-Butylbenzene	13.013	105	1320151	74.87	ug/L		99
99)	1,3-Dichlorobenzene	13.102	146	596146	67.51	ug/L		99
100)	p-Isopropyltoluene	13.192	119	1068504	72.79	ug/L		99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY19.D
Acq On : 22 May 2018 6:42 pm
Operator : AK
Sample : 70PPB
Misc : IS/SS 200-20033
ALS Vial : 11 Sample Multiplier: 1

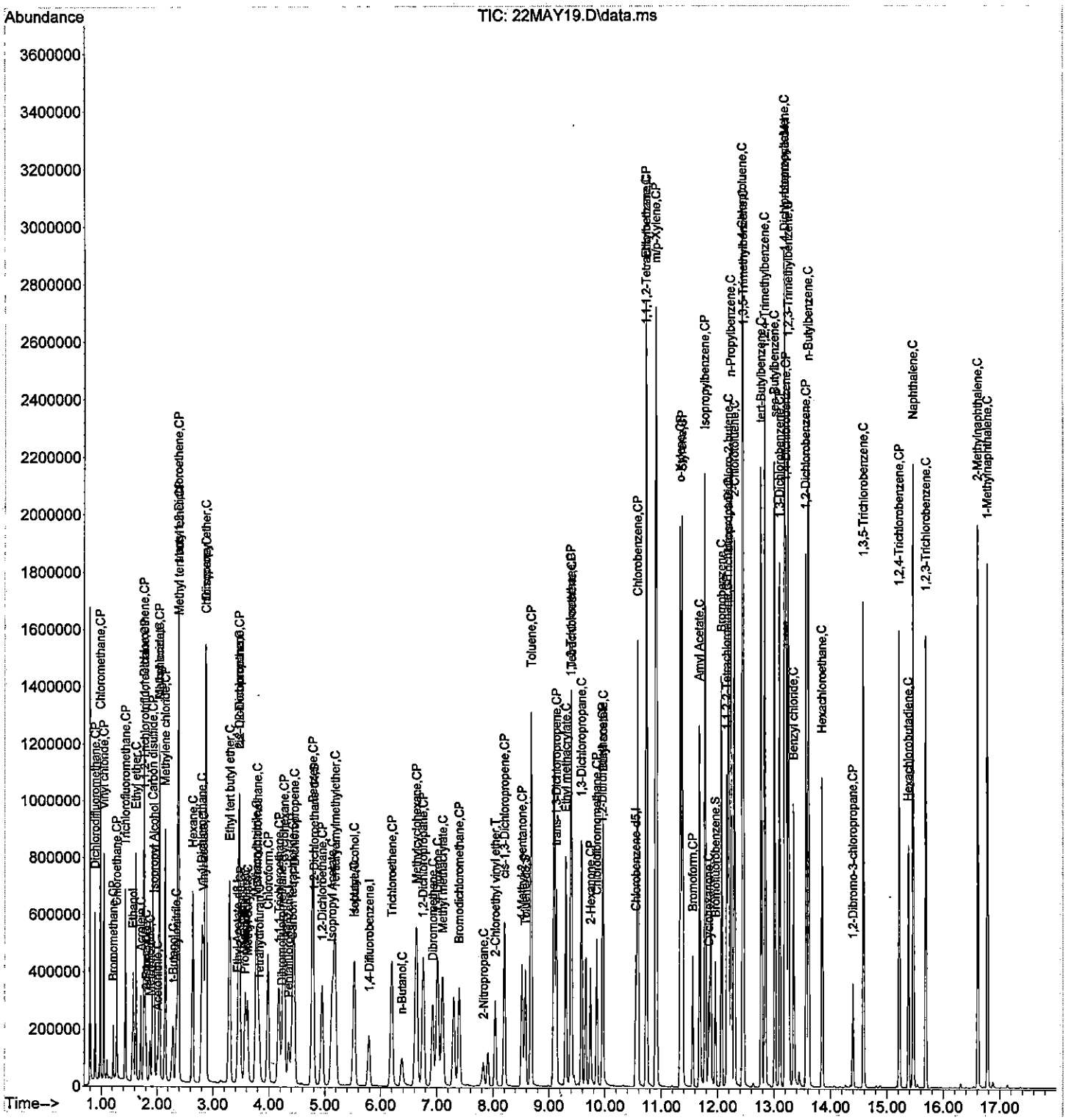
Quant Time: May 23 09:52:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	610643	67.40	ug/L		100
102) 1,2,3-Trimethylbenzene	13.260	105	1177490	76.85	ug/L		100
103) Benzyl chloride	13.349	91	540160	72.09	ug/L		99
104) 1,2-Dichlorobenzene	13.569	146	594413	69.54	ug/L		99
105) n-Butylbenzene	13.611	91	1115837	74.58	ug/L		99
106) Hexachloroethane	13.852	117	187275	77.36	ug/L		99
107) 1,2-Dibromo-3-chloropr...	14.397	157	73784	83.88	ug/L		96
108) 1,3,5-Trichlorobenzene	14.586	180	416515	67.84	ug/L		99
109) 1,2,4-Trichlorobenzene	15.221	180	392155	71.07	ug/L		99
110) Hexachlorobutadiene	15.383	225	132896	59.88	ug/L		99
111) Naphthalene	15.467	128	1306668	83.19	ug/L		99
112) 1,2,3-Trichlorobenzene	15.692	180	398452	71.88	ug/L		99
113) 2-Methylnaphthalene	16.610	142	746737	69.66	ug/L		99
114) 1-Methylnaphthalene	16.783	142	687070	69.88	ug/L		100
116) 2-Propanone	1.798	43	125119	65.05	ug/L		96
117) Isopropyl Alcohol	1.940	45	534062	1314.59	ug/L		99
118) Acetic Ether	3.576	43	381584	64.39	ug/L		99
119) Isopropyl Acetate	5.122	43	676515	51.90	ug/L	#	97
120) Amyl Acetate	11.676	43	582652	61.28	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY19.D
Acq On : 22 May 2018 6:42 pm
Operator : AK
Sample : 70PPB
Misc : IS/SS 200-20033
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 23 09:52:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY20.D
Acq On : 22 May 2018 7:06 pm
Operator : AK
Sample : 100PPB
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 09:28:47 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.346	168	137783	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	207192	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	236547	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	124240	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.434	46	42370	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	75225	23.76	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 118.80%#				
46) 1,2-Dichloroethane-d4	4.797	65	93816	21.44	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.20%				
65) Toluene-d8	8.572	98	298539	20.24	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.20%				
86) Bromofluorobenzene	11.954	95	133938	20.67	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	385918	73.19	ug/L		99
3) Chloromethane	0.980	50	628630	74.68	ug/L		100
4) Vinyl chloride	1.043	62	481110	81.18	ug/L		98
5) Bromomethane	1.211	94	62853	84.87	ug/L		97
6) Chloroethane	1.274	64	306928	86.65	ug/L		99
7) Trichlorofluoromethane	1.426	101	420304	78.62	ug/L		99
8) Ethanol	1.562	45	468512	2061.09	ug/L		99
9) Ethyl ether	1.615	59	360090	100.62	ug/L		96
10) Acrolein	1.704	56	321858	687.60	ug/L		97
11) 1,1-Dichloroethene	1.762	61	475742	85.84	ug/L		95
12) 1,1,2-Trichlorotrifluo...	1.772	151	167080	74.80	ug/L		97
13) Methyl iodide	1.867	142	201485	80.29	ug/L		98
14) Acetone	1.804	43	186380	97.17	ug/L		95
15) Carbon disulfide	1.919	76	816791	93.80	ug/L		100
16) Allyl chloride	2.034	41	572342	95.96	ug/L		99
17) Methyl acetate	2.040	43	470972	98.19	ug/L		98
18) Acetonitrile	2.003	41	83988m	99.47	ug/L		
19) Methylene chloride	2.139	49	565284	93.19	ug/L		96
20) t-Butanol	2.275	59	255148	466.11	ug/L		94
21) trans-1,2-Dichloroethene	2.375	61	515636	89.94	ug/L		96
22) Acrylonitrile	2.338	53	240404	104.35	ug/L		96
23) Methyl tert-butyl ether	2.380	73	963866	79.98	ug/L		99
24) Hexane	2.632	57	378294	71.25	ug/L		97
25) 1,1-Dichloroethane	2.795	63	678485	91.93	ug/L		99
26) Diisopropyl ether	2.863	45	1220187	79.65	ug/L		95
27) Vinyl acetate	2.826	86	81573	99.82	ug/L	#	90
28) Chloroprene	2.868	53	527004	84.28	ug/L		97
29) Ethyl tert butyl ether	3.293	59	929117	73.29	ug/L		98
30) 2,2-Dichloropropane	3.460	77	348331	75.93	ug/L		98
31) cis-1,2-Dichloroethene	3.460	61	601689	89.58	ug/L		97
32) 2-Butanone	3.487	43	307949	101.46	ug/L		99
33) Ethyl Acetate	3.576	43	579025	91.66	ug/L		99
34) Methyl acrylate	3.618	55	506490	100.55	ug/L		99
35) Propionitrile	3.560	54	99289	105.89	ug/L	#	98
36) Bromochloromethane	3.785	49	358312	95.13	ug/L		94
37) Tetrahydrofuran	3.822	42	178083m	99.18	ug/L		
38) Methacrylonitrile	3.764	67	236264	102.91	ug/L		97

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY20.D
Acq On : 22 May 2018 7:06 pm
Operator : AK
Sample : 100PPB
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 09:28:47 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	3.979	83	635915	97.74 ug/L	99
40) Cyclohexane	4.263	56	557035	74.90 ug/L	99
42) 1,1,1-Trichloroethane	4.173	97	394770	106.86 ug/L	99
44) Carbon tetrachloride	4.415	119	306845	108.92 ug/L	97
45) 1,1-Dichloropropene	4.446	75	434960	94.40 ug/L	99
47) 1,2-Dichloroethane	4.949	62	536112	107.66 ug/L	100
48) Benzene	4.782	78	1362175	97.94 ug/L	99
49) Isobutyl Alcohol	5.521	43	433855	98.19 ug/L #	97
50) Tertiaryamylmethylether	5.170	73	815298	91.80 ug/L #	96
51) Heptane	5.521	43	433855	98.19 ug/L	97
52) Methylcyclohexane	6.632	83	483884	97.23 ug/L	99
53) Trichloroethene	6.192	130	300307	95.57 ug/L	99
54) n-Butanol	6.365	56	137900	1220.78 ug/L	97
55) 1,2-Dichloropropane	6.753	63	381090	106.53 ug/L	99
56) Dibromomethane	6.926	93	252342	124.76 ug/L	98
57) 1,4-Dioxane	6.999	88	721983	14928.27 ug/L	96
58) Methyl methacrylate	7.094	41	429730	133.38 ug/L	96
59) Bromodichloromethane	7.393	83	443573	124.87 ug/L	100
60) 2-Nitropropane	7.823	43	107935	133.98 ug/L	99
61) 2-Chloroethyl vinyl ether	8.038	63	257531	121.89 ug/L	99
62) cis-1,3-Dichloropropene	8.200	75	540263	124.71 ug/L	99
64) 4-Methyl-2-pentanone	8.515	43	573154	111.38 ug/L	99
66) Toluene	8.677	91	1589671	98.23 ug/L	100
67) Chloropicrin	9.091	117	1239933	No Calib	
68) trans-1,3-Dichloropropene	9.133	75	517657	94.52 ug/L	95
69) Ethyl methacrylate	9.301	69	658744	100.40 ug/L	99
70) 1,1,2-Trichloroethane	9.390	97	358816	96.52 ug/L	99
71) Tetrachloroethene	9.401	166	304498	86.98 ug/L	98
72) 1,3-Dichloropropane	9.579	76	648115	98.40 ug/L	100
73) 2-Hexanone	9.736	43	435429	112.87 ug/L	100
74) Chlorodibromomethane	9.852	129	347937	113.87 ug/L	100
75) Butyl acetate	9.957	43	908533	119.46 ug/L	99
76) 1,2-Dibromoethane	9.951	107	245204	117.29 ug/L	99
77) Chlorobenzene	10.580	112	1040242	98.60 ug/L	99
78) 1,1,1,2-Tetrachloroethane	10.732	131	306305	102.58 ug/L	100
79) Ethylbenzene	10.738	91	1841909	104.03 ug/L	99
80) m/p-Xylene	10.911	91	2908618	212.71 ug/L	99
81) Styrene	11.372	104	1194927	109.70 ug/L	100
82) o-Xylene	11.335	91	1514177	108.35 ug/L	99
83) Cyclohexanone	11.839	55	160901	416.67 ug/L	97
84) Bromoform	11.556	173	247401	120.51 ug/L	98
85) Isopropylbenzene	11.776	105	1733664	105.03 ug/L	100
87) Bromobenzene	12.064	77	850245	103.70 ug/L	97
88) 1,1,2,2-Tetrachloroethane	12.164	83	681561	107.51 ug/L	99
89) 1,2,3-Trichloropropane	12.190	110	177989	107.58 ug/L	99
90) trans-1,4-Dichloro-2-b...	12.195	53	209076	121.27 ug/L	95
91) n-Propylbenzene	12.237	91	2289134	105.24 ug/L	99
92) 2-Chlorotoluene	12.295	91	1361495	103.73 ug/L	100
93) 4-Chlorotoluene	12.442	91	1594267	106.20 ug/L	99
94) 1,3,5-Trimethylbenzene	12.452	105	1497965	106.90 ug/L	99
95) tert-Butylbenzene	12.772	91	836802	104.48 ug/L	99
96) 1,2,4-Trimethylbenzene	12.840	105	1581925	109.54 ug/L	98
97) sec-Butylbenzene	13.013	105	1886685	103.32 ug/L	100
99) 1,3-Dichlorobenzene	13.102	146	851543	99.99 ug/L	100
100) p-Isopropyltoluene	13.191	119	1540294	108.81 ug/L	99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY20.D
Acq On : 22 May 2018 7:06 pm
Operator : AK
Sample : 100PPB
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

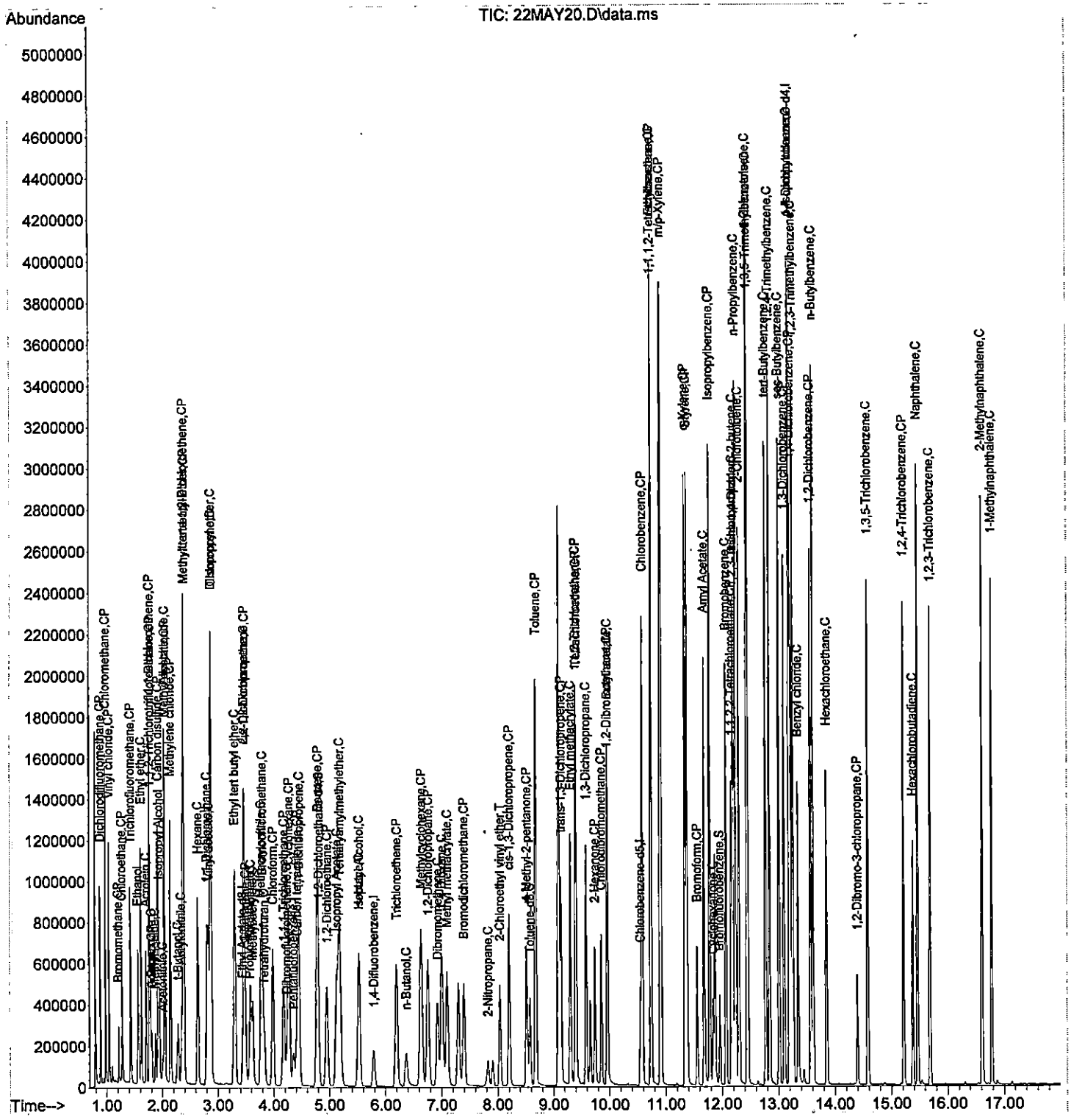
Quant Time: May 23 09:28:47 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	858771	98.29	ug/L	99
102) 1,2,3-Trimethylbenzene	13.254	105	1692449	114.55	ug/L	98
103) Benzyl chloride	13.349	91	818113	100.70	ug/L	99
104) 1,2-Dichlorobenzene	13.569	146	847405	102.81	ug/L	99
105) n-Butylbenzene	13.611	91	1603061	111.11	ug/L	99
106) Hexachloroethane	13.852	117	273031	116.95	ug/L	99
107) 1,2-Dibromo-3-chloropr...	14.397	157	103800	122.36	ug/L	95
108) 1,3,5-Trichlorobenzene	14.581	180	594870	100.47	ug/L	100
109) 1,2,4-Trichlorobenzene	15.215	180	563724	105.94	ug/L	99
110) Hexachlorobutadiene	15.383	225	191128	89.31	ug/L	97
111) Naphthalene	15.467	128	1873219	123.66	ug/L	99
112) 1,2,3-Trichlorobenzene	15.692	180	569469	106.53	ug/L	99
113) 2-Methylnaphthalene	16.610	142	1067945	95.44	ug/L	99
114) 1-Methylnaphthalene	16.783	142	958136	94.96	ug/L	100
116) 2-Propanone	1.804	43	186380	101.93	ug/L	95
117) Isopropyl Alcohol	1.935	45	726629	1868.50	ug/L	99
118) Acetic Ether	3.576	43	579025	102.18	ug/L	99
119) Isopropyl Acetate	5.122	43	1046605	84.06	ug/L	98
120) Amyl Acetate	11.676	43	960857	104.53	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY20.D
Acq On : 22 May 2018 7:06 pm
Operator : AK
Sample : 100PPB
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 09:28:47 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0520.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 21 09:42:06 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	134351	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	216793	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	229546	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	123458	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.440	46	42282	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.231	111	70428	19.22	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.10%				
46) 1,2-Dichloroethane-d4	4.797	65	93181	19.43	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.15%				
65) Toluene-d8	8.572	98	286996	20.46	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.30%				
86) Bromofluorobenzene	11.954	95	128764	20.60	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	107658	29.52	ug/L		99
3) Chloromethane	0.981	50	215448	29.63	ug/L		100
4) Vinyl chloride	1.043	62	175295	36.68	ug/L		99
5) Bromomethane	1.211	94	22157	41.39	ug/L	#	91
6) Chloroethane	1.274	64	120141	34.51	ug/L		97
7) Trichlorofluoromethane	1.426	101	152623	37.46	ug/L		100
8) Ethanol	1.615	45	106611	471.03	ug/L	#	55
9) Ethyl ether	1.615	59	135683	39.45	ug/L		100
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.762	61	208696	44.78	ug/L		98
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.867	142	112069	62.99	ug/L		98
14) Acetone	1.804	43	67670	38.93	ug/L		98
15) Carbon disulfide	1.919	76	306211	40.55	ug/L		100
16) Allyl chloride	2.034	41	208669	35.63	ug/L		97
17) Methyl acetate	1.935	43	20681	4.72	ug/L	#	61
18) Acetonitrile	2.034	41	208288	245.04	ug/L	#	48
19) Methylene chloride	2.139	49	236814	41.10	ug/L		98
20) t-Butanol	2.281	59	87674	182.12	ug/L		99
21) trans-1,2-Dichloroethene	2.375	61	218235	42.93	ug/L		99
22) Acrylonitrile	2.344	53	89716	39.72	ug/L		98
23) Methyl tert-butyl ether	2.380	73	360961	39.93	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	2.800	63	279076	42.26	ug/L		99
26) Diisopropyl ether	2.863	45	439894	35.16	ug/L		93
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.293	59	326581	36.08	ug/L		100
30) 2,2-Dichloropropane	3.455	77	134528	36.00	ug/L		99
31) cis-1,2-Dichloroethene	3.461	61	258103	41.81	ug/L		97
32) 2-Butanone	3.487	43	107438	34.72	ug/L		97
33) Ethyl Acetate	3.576	43	181689	34.25	ug/L		98
34) Methyl acrylate	3.618	55	180580	37.44	ug/L		98
35) Propionitrile	3.560	54	37081	36.40	ug/L	#	90
36) Bromochloromethane	3.791	49	146952	41.40	ug/L		91
37) Tetrahydrofuran	3.828	42	60574	29.69	ug/L		95
38) Methacrylonitrile	3.765	67	86588	39.65	ug/L		94

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	3.980	83	250263	42.24 ug/L	99
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	4.168	97	163012	43.65 ug/L	99
44) Carbon tetrachloride	4.415	119	124594	43.07 ug/L	99
45) 1,1-Dichloropropene	4.446	75	173141	37.64 ug/L	100
47) 1,2-Dichloroethane	4.944	62	214929	38.98 ug/L	99
48) Benzene	4.777	78	564810	38.59 ug/L	99
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.170	73	276947	37.74 ug/L #	91
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	126108	39.51 ug/L	97
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	6.753	63	157140	40.27 ug/L	98
56) Dibromomethane	6.921	93	99914	43.79 ug/L	100
57) 1,4-Dioxane	6.931	88	6928	112.84 ug/L #	11
58) Methyl methacrylate	7.099	41	151740	41.42 ug/L	96
59) Bromodichloromethane	7.393	83	174969	42.29 ug/L	99
60) 2-Nitropropane	7.823	43	34605	37.90 ug/L #	97
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.200	75	193755	41.84 ug/L	99
64) 4-Methyl-2-pentanone	8.510	43	249918	55.18 ug/L	83
66) Toluene	8.677	91	633077	42.17 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.133	75	165170	40.11 ug/L	95
69) Ethyl methacrylate	9.301	69	214920	38.30 ug/L	100
70) 1,1,2-Trichloroethane	9.390	97	153331	41.56 ug/L	98
71) Tetrachloroethene	9.401	166	143093	44.24 ug/L	99
72) 1,3-Dichloropropane	9.579	76	271065	41.29 ug/L	99
73) 2-Hexanone	9.736	43	139719	41.25 ug/L	97
74) Chlorodibromomethane	9.852	129	122744	40.80 ug/L	99
75) Butyl acetate	9.957	43	259320	39.01 ug/L	99
76) 1,2-Dibromoethane	9.951	107	151436	49.09 ug/L #	99
77) Chlorobenzene	10.581	112	421540	42.19 ug/L	100
78) 1,1,1,2-Tetrachloroethane	10.733	131	123407	42.95 ug/L	100
79) Ethylbenzene	10.738	91	722745	44.76 ug/L	100
80) m/p-Xylene	10.906	91	1171420	91.44 ug/L	100
81) Styrene	11.372	104	501617	48.43 ug/L	99
82) o-Xylene	11.336	91	596410	45.50 ug/L	100
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.556	173	85684	41.77 ug/L	99
85) Isopropylbenzene	11.776	105	699168	46.83 ug/L	100
87) Bromobenzene	12.064	77	344586	43.68 ug/L	100
88) 1,1,2,2-Tetrachloroethane	12.164	83	291547	45.62 ug/L	100
89) 1,2,3-Trichloropropane	12.190	110	70769	43.18 ug/L	97
90) trans-1,4-Dichloro-2-b...	12.195	53	61132	33.22 ug/L	95
91) n-Propylbenzene	12.237	91	902172	44.89 ug/L	100
92) 2-Chlorotoluene	12.295	91	566218	45.30 ug/L	100
93) 4-Chlorotoluene	12.442	91	630008	43.94 ug/L	100
94) 1,3,5-Trimethylbenzene	12.452	105	606709	47.44 ug/L	100
95) tert-Butylbenzene	12.772	91	331092	45.38 ug/L	96
96) 1,2,4-Trimethylbenzene	12.840	105	620715	46.70 ug/L	100
97) sec-Butylbenzene	13.008	105	751346	46.04 ug/L	99
99) 1,3-Dichlorobenzene	13.102	146	351184	42.83 ug/L	99
100) p-Isopropyltoluene	13.192	119	607832	46.29 ug/L	99

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

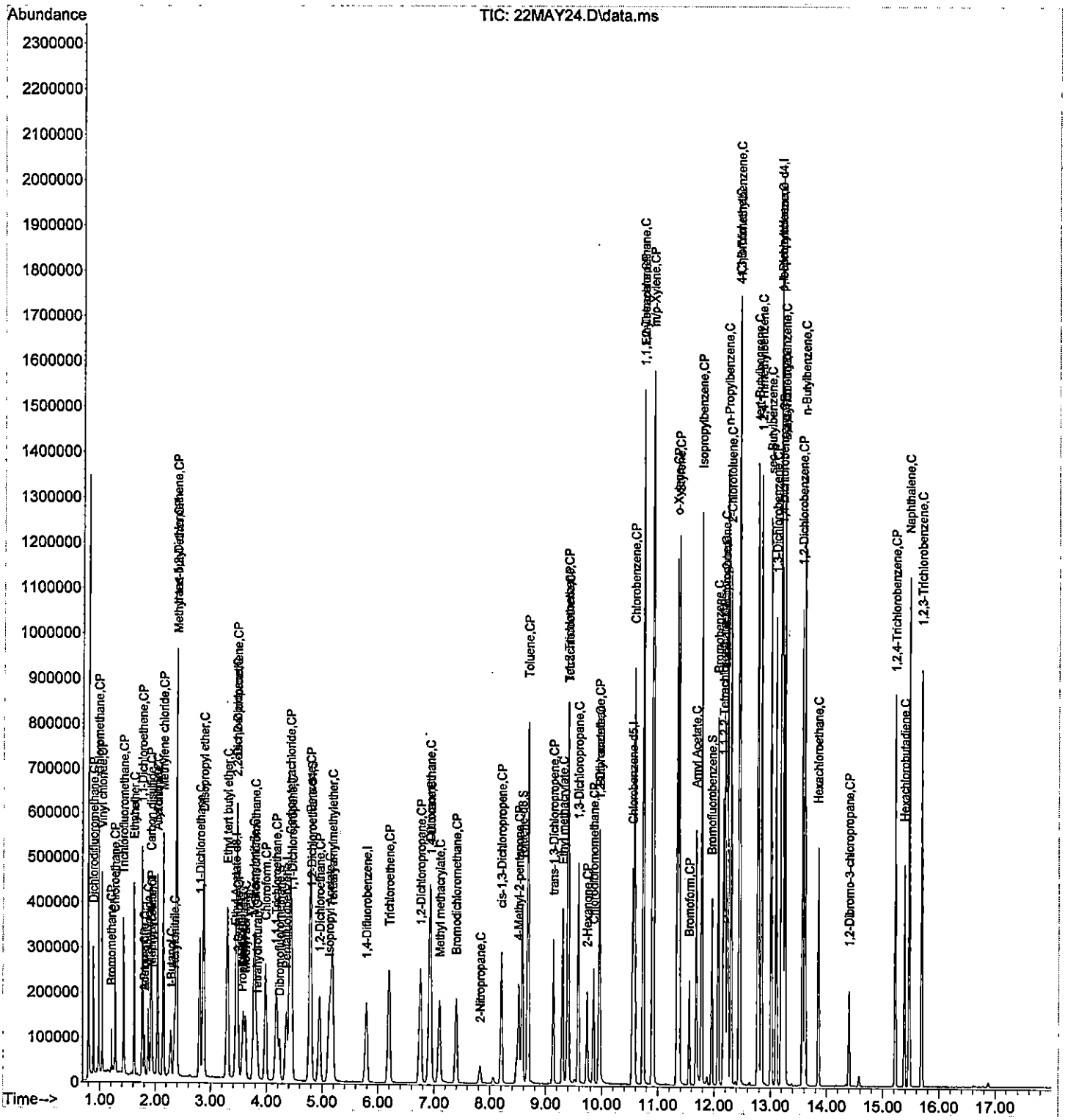
Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	360860	41.96	ug/L		100
102) 1,2,3-Trimethylbenzene	13.255	105	626116	42.80	ug/L		100
103) Benzyl chloride	13.255	91	59125	10.51	ug/L	#	35
104) 1,2-Dichlorobenzene	13.569	146	345134	42.17	ug/L		100
105) n-Butylbenzene	13.611	91	632341	46.59	ug/L		100
106) Hexachloroethane	13.847	117	81585	35.02	ug/L		99
107) 1,2-Dibromo-3-chloropr...	14.397	157	41882	45.29	ug/L		99
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	15.221	180	213173	41.39	ug/L		100
110) Hexachlorobutadiene	15.383	225	79012	41.14	ug/L		100
111) Naphthalene	15.467	128	697256	46.95	ug/L		100
112) 1,2,3-Trichlorobenzene	15.687	180	224824	43.71	ug/L		100
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	0.000		0	N.D.			
116) 2-Propanone	1.804	43	67670	37.66	ug/L		98
117) Isopropyl Alcohol	1.935	45	110658	326.67	ug/L		98
118) Acetic Ether	3.576	43	180404	34.37	ug/L		98
119) Isopropyl Acetate	5.123	43	343131	36.75	ug/L	#	94
120) Amyl Acetate	11.676	43	262656	39.01	ug/L		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	92	0.00
2	CP	Dichlorodifluoromethane	40.000	29.519	26.2#	75	0.00
3	CP	Chloromethane	40.000	29.628	25.9#	79	0.00
4	CP	Vinyl chloride	40.000	36.684	8.3	91	0.00
5	CP	Bromomethane	40.000	41.392	-3.5	101	0.00
6	CP	Chloroethane	40.000	34.507	13.7	92	0.00
7	CP	Trichlorofluoromethane	40.000	37.460	6.3	93	0.00
8		Ethanol	800.000	471.032	41.1#	65	0.05
9	C	Ethyl ether	40.000	39.449	1.4	93	0.00
10	C	Acrolein	200.000	0.000	100.0#	0	-1.70#
11	CP	1,1-Dichloroethene	40.000	44.779	-11.9	111	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-1.77#
13	C	Methyl iodide	40.000	62.986	-57.5#	162	0.00
14	CP	Acetone	40.000	38.927	2.7	101	0.00
15	CP	Carbon disulfide	40.000	40.550	-1.4	100	0.00
16	C	Allyl chloride	40.000	35.630	10.9	94	0.00
17	CP	Methyl acetate	40.000	4.724	88.2#	12	-0.10
18	C	Acetonitrile	40.000	245.042	-512.6#	629	0.03
19	CP	Methylene chloride	40.000	41.104	-2.8	104	0.00
20	C	t-Butanol	200.000	182.115	8.9	96	0.00
21	CP	trans-1,2-Dichloroethene	40.000	42.935	-7.3	106	0.00
22	C	Acrylonitrile	40.000	39.724	0.7	95	0.00
23	CP	Methyl tert-butyl ether	40.000	39.933	0.2	100	0.00
24	C	Hexane	40.000	0.000	100.0#	0	-2.63#
25	C	1,1-Dichloroethane	40.000	42.264	-5.7	102	0.00
26	C	Diisopropyl ether	40.000	35.156	12.1	95	0.00
27	C	Vinyl acetate	40.000	0.000	100.0#	0	-2.82#
28	C	Chloroprene	40.000	0.000	100.0#	0	-2.87#
29	C	Ethyl tert butyl ether	40.000	36.079	9.8	95	0.00
30	C	2,2-Dichloropropane	40.000	36.002	10.0	97	0.00
31	CP	cis-1,2-Dichloroethene	40.000	41.806	-4.5	107	0.00
32	CP	2-Butanone	40.000	34.720	13.2	95	0.00
33	C	Ethyl Acetate	40.000	34.255	14.4	87	0.00
34	C	Methyl acrylate	40.000	37.441	6.4	92	0.00
35	C	Propionitrile	40.000	36.395	9.0	93	0.00
36	C	Bromochloromethane	40.000	41.398	-3.5	101	0.00
37	C	Tetrahydrofuran	40.000	29.693	25.8#	86	0.00
38	C	Methacrylonitrile	40.000	39.651	0.9	95	0.00
39	CP	Chloroform	40.000	42.242	-5.6	99	0.00
40	CP	Cyclohexane	40.000	0.000	100.0#	0	-4.26#
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	98	0.00
42	CP	1,1,1-Trichloroethane	40.000	43.646	-9.1	105	0.00
43	S	Dibromofluoromethane	20.000	19.220	3.9	96	0.00
44	CP	Carbon tetrachloride	40.000	43.068	-7.7	100	0.00
45	C	1,1-Dichloropropene	40.000	37.637	5.9	100	0.00
46	S	1,2-Dichloroethane-d4	20.000	19.431	2.8	99	0.00
47	CP	1,2-Dichloroethane	40.000	38.983	2.5	102	0.00
48	CP	Benzene	40.000	38.591	3.5	105	0.00
49	C	Isobutyl Alcohol	40.000	0.000	100.0#	0	-5.52#
50	C	Tertiaryamylmethylether	40.000	37.738	5.7	95	0.00

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	0.000	100.0#	0	-5.52#
52	CP	Methylcyclohexane	40.000	0.000	100.0#	0	-6.63#
53	CP	Trichloroethene	40.000	39.506	1.2	105	0.00
54	C	n-Butanol	400.000	0.000	100.0#	0	-6.36#
55	CP	1,2-Dichloropropane	40.000	40.270	-0.7	101	0.00
56	C	Dibromomethane	40.000	43.788	-9.5	101	0.00
57	C	1,4-Dioxane	4000.000	112.838	97.2#	3	-0.07
58	C	Methyl methacrylate	40.000	41.419	-3.5	94	0.00
59	CP	Bromodichloromethane	40.000	42.294	-5.7	99	0.00
60	C	2-Nitropropane	40.000	37.898	5.3	95	0.00
61	T	2-Chloroethyl vinyl ether	40.000	0.000	100.0#	0	-8.04#
62	CP	cis-1,3-Dichloropropene	40.000	41.844	-4.6	98	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	97	0.00
64	CP	4-Methyl-2-pentanone	40.000	55.175	-37.9#	132	0.00
65	S	Toluene-d8	20.000	20.459	-2.3	95	0.00
66	CP	Toluene	40.000	42.168	-5.4	100	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-9.09#
68	CP	trans-1,3-Dichloropropene	40.000	40.114	-0.3	89	0.00
69	C	Ethyl methacrylate	40.000	38.304	4.2	93	0.00
70	CP	1,1,2-Trichloroethane	40.000	41.564	-3.9	105	0.00
71	CP	Tetrachloroethene	40.000	44.239	-10.6	111	0.00
72	C	1,3-Dichloropropane	40.000	41.289	-3.2	103	0.00
73	CP	2-Hexanone	40.000	41.249	-3.1	99	0.00
74	CP	Chlorodibromomethane	40.000	40.803	-2.0	92	0.00
75	C	Butyl acetate	40.000	39.011	2.5	89	0.00
76	CP	1,2-Dibromoethane	40.000	49.091	-22.7#	124	0.00
77	CP	Chlorobenzene	40.000	42.191	-5.5	101	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	42.953	-7.4	103	0.00
79	CP	Ethylbenzene	40.000	44.757	-11.9	102	0.00
80	CP	m/p-Xylene	80.000	91.441	-14.3	101	0.00
81	CP	Styrene	40.000	48.427	-21.1#	106	0.00
82	CP	o-Xylene	40.000	45.496	-13.7	103	0.00
83	C	Cyclohexanone	200.000	0.000	100.0#	0	-11.84#
84	CP	Bromoform	40.000	41.770	-4.4	93	0.00
85	CP	Isopropylbenzene	40.000	46.829	-17.1	102	0.00
86	S	Bromofluorobenzene	20.000	20.600	-3.0	96	0.00
87	C	Bromobenzene	40.000	43.683	-9.2	101	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	45.623	-14.1	107	0.00
89	C	1,2,3-Trichloropropane	40.000	43.176	-7.9	101	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	33.224	16.9	79	0.00
91	C	n-Propylbenzene	40.000	44.892	-12.2	100	0.00
92	C	2-Chlorotoluene	40.000	45.295	-13.2	102	0.00
93	C	4-Chlorotoluene	40.000	43.941	-9.9	99	0.00
94	C	1,3,5-Trimethylbenzene	40.000	47.442	-18.6	101	0.00
95	C	tert-Butylbenzene	40.000	45.382	-13.5	101	0.00
96	C	1,2,4-Trimethylbenzene	40.000	46.705	-16.8	100	0.00
97	C	sec-Butylbenzene	40.000	46.044	-15.1	101	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	97	0.00
99	CP	1,3-Dichlorobenzene	40.000	42.835	-7.1	100	0.00

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	46.293	-15.7	101	0.00
101	CP	1,4-Dichlorobenzene	40.000	41.957	-4.9	100	0.00
102	C	1,2,3-Trimethylbenzene	40.000	42.803	-7.0	93	0.00
103	C	Benzyl chloride	40.000	10.507	73.7#	22	-0.09
104	CP	1,2-Dichlorobenzene	40.000	42.167	-5.4	100	0.00
105	C	n-Butylbenzene	40.000	46.595	-16.5	101	0.00
106	C	Hexachloroethane	40.000	35.024	12.4	80	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	45.293	-13.2	114	0.00
108	C	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-14.59#
109	CP	1,2,4-Trichlorobenzene	40.000	41.391	-3.5	97	0.00
110	C	Hexachlorobutadiene	40.000	41.135	-2.8	103	0.00
111	C	Naphthalene	40.000	46.954	-17.4	102	0.00
112	C	1,2,3-Trichlorobenzene	40.000	43.710	-9.3	100	0.00
113	C	2-Methylnaphthalene	40.000	0.000	100.0#	0	-16.61#
114	C	1-Methylnaphthalene	40.000	0.000	100.0#	0	-16.78#
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	95	0.00
116	C	2-Propanone	40.000	37.664	5.8	101	0.00
117		Isopropyl Alcohol	800.000	326.668	59.2#	40	0.00
118	C	Acetic Ether	40.000	34.373	14.1	86	0.00
119	C	Isopropyl Acetate	40.000	36.754	8.1#	97	0.00
120	C	Amyl Acetate	40.000	39.013	2.5	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 26

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	92	0.00
2	CP	Dichlorodifluoromethane	0.543	0.401	26.2#	75	0.00
3	CP	Chloromethane	1.083	0.802	25.9#	79	0.00
4	CP	Vinyl chloride	0.711	0.652	8.3	91	0.00
5	CP	Bromomethane	0.121	0.082#	32.2#	101	0.00
6	CP	Chloroethane	0.612	0.447	27.0#	92	0.00
7	CP	Trichlorofluoromethane	0.607	0.568	6.4	93	0.00
8		Ethanol	0.040	0.020#	50.0#	65	0.05
9	C	Ethyl ether	0.512	0.505	1.4	93	0.00
10	C	Acrolein	0.074	0.000#	100.0#	0#	-1.70#
11	CP	1,1-Dichloroethene	0.694	0.777	-12.0	111	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.250	0.000#	100.0#	0#	-1.77#
13	C	Methyl iodide	0.334	0.417	-24.9#	162	0.00
14	CP	Acetone	0.402	0.252	37.3#	101	0.00
15	CP	Carbon disulfide	1.124	1.140	-1.4	100	0.00
16	C	Allyl chloride	0.872	0.777	10.9	94	0.00
17	CP	Methyl acetate	0.652	0.077#	88.2#	12#	-0.10
18	C	Acetonitrile	0.140	0.775	-453.6#	629#	0.03
19	CP	Methylene chloride	1.034	0.881	14.8	104	0.00
20	C	t-Butanol	0.072	0.065#	9.7	96	0.00
21	CP	trans-1,2-Dichloroethene	0.757	0.812	-7.3	106	0.00
22	C	Acrylonitrile	0.336	0.334	0.6	95	0.00
23	CP	Methyl tert-butyl ether	1.346	1.343	0.2	100	0.00
24	C	Hexane	0.630	0.000#	100.0#	0#	-2.63#
25	C	1,1-Dichloroethane	0.983	1.039	-5.7	102	0.00
26	C	Diisopropyl ether	1.863	1.637	12.1	95	0.00
27	C	Vinyl acetate	0.109	0.000#	100.0#	0#	-2.82#
28	C	Chloroprene	0.757	0.000#	100.0#	0#	-2.87#
29	C	Ethyl tert butyl ether	1.347	1.215	9.8	95	0.00
30	C	2,2-Dichloropropane	0.556	0.501	9.9	97	0.00
31	CP	cis-1,2-Dichloroethene	0.919	0.961	-4.6	107	0.00
32	CP	2-Butanone	0.727	0.400	45.0#	95	0.00
33	C	Ethyl Acetate	0.790	0.676	14.4	87	0.00
34	C	Methyl acrylate	0.718	0.672	6.4	92	0.00
35	C	Propionitrile	0.152	0.138#	9.2	93	0.00
36	C	Bromochloromethane	0.528	0.547	-3.6	101	0.00
37	C	Tetrahydrofuran	0.304	0.225	26.0#	86	0.00
38	C	Methacrylonitrile	0.325	0.322	0.9	95	0.00
39	CP	Chloroform	0.882	0.931	-5.6	99	0.00
40	CP	Cyclohexane	0.859	0.000#	100.0#	0#	-4.26#
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	98	0.00
42	CP	1,1,1-Trichloroethane	0.345	0.376	-9.0	105	0.00
43	S	Dibromofluoromethane	0.338	0.325	3.8	96	0.00
44	CP	Carbon tetrachloride	0.267	0.287	-7.5	100	0.00
45	C	1,1-Dichloropropene	0.424	0.399	5.9	100	0.00
46	S	1,2-Dichloroethane-d4	0.442	0.430	2.7	99	0.00
47	CP	1,2-Dichloroethane	0.509	0.496	2.6	102	0.00
48	CP	Benzene	1.350	1.303	3.5	105	0.00
49	C	Isobutyl Alcohol	0.374	0.000#	100.0#	0#	-5.52#
50	C	Tertiaryamylmethylether	0.677	0.639	5.6	95	0.00

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.374	0.000#	100.0#	0#	-5.52#
52	CP	Methylcyclohexane	0.414	0.000#	100.0#	0#	-6.63#
53	CP	Trichloroethene	0.294	0.291	1.0	105	0.00
54	C	n-Butanol	0.008	0.000#	100.0#	0#	-6.36#
55	CP	1,2-Dichloropropane	0.360	0.362	-0.6	101	0.00
56	C	Dibromomethane	0.211	0.230	-9.0	101	0.00
57	C	1,4-Dioxane	0.006	0.000#	100.0#	3#	-0.07
58	C	Methyl methacrylate	0.338	0.350	-3.6	94	0.00
59	CP	Bromodichloromethane	0.382	0.404	-5.8	99	0.00
60	C	2-Nitropropane	0.084	0.080#	4.8	95	0.00
61	T	2-Chloroethyl vinyl ether	0.221	0.000#	100.0#	0#	-8.04#
62	CP	cis-1,3-Dichloropropene	0.427	0.447	-4.7	98	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	97	0.00
64	CP	4-Methyl-2-pentanone	0.395	0.544	-37.7#	132	0.00
65	S	Toluene-d8	1.222	1.250	-2.3	95	0.00
66	CP	Toluene	1.308	1.379	-5.4	100	0.00
67	T	Chloropicrin	0.070	0.000#	100.0#	0#	-9.09#
68	CP	trans-1,3-Dichloropropene	0.359	0.360	-0.3	89	0.00
69	C	Ethyl methacrylate	0.443	0.468	-5.6	93	0.00
70	CP	1,1,2-Trichloroethane	0.321	0.334	-4.0	105	0.00
71	CP	Tetrachloroethene	0.282	0.312	-10.6	111	0.00
72	C	1,3-Dichloropropane	0.572	0.590	-3.1	103	0.00
73	CP	2-Hexanone	0.295	0.304	-3.1	99	0.00
74	CP	Chlorodibromomethane	0.262	0.267	-1.9	92	0.00
75	C	Butyl acetate	0.579	0.565	2.4	89	0.00
76	CP	1,2-Dibromoethane	0.269	0.330	-22.7#	124	0.00
77	CP	Chlorobenzene	0.871	0.918	-5.4	101	0.00
78	C	1,1,1,2-Tetrachloroethane	0.250	0.269	-7.6	103	0.00
79	CP	Ethylbenzene	1.407	1.574	-11.9	102	0.00
80	CP	m/p-Xylene	1.116	1.276	-14.3	101	0.00
81	CP	Styrene	0.902	1.093	-21.2#	106	0.00
82	CP	o-Xylene	1.142	1.299	-13.7	103	0.00
83	C	Cyclohexanone	0.027	0.000#	100.0#	0#	-11.84#
84	CP	Bromoform	0.179	0.187	-4.5	93	0.00
85	CP	Isopropylbenzene	1.301	1.523	-17.1	102	0.00
86	S	Bromofluorobenzene	0.545	0.561	-2.9	96	0.00
87	C	Bromobenzene	0.687	0.751	-9.3	101	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.557	0.635	-14.0	107	0.00
89	C	1,2,3-Trichloropropane	0.143	0.154#	-7.7	101	0.00
90	C	trans-1,4-Dichloro-2-butene	0.160	0.133#	16.9	79	0.00
91	C	n-Propylbenzene	1.751	1.965	-12.2	100	0.00
92	C	2-Chlorotoluene	1.089	1.233	-13.2	102	0.00
93	C	4-Chlorotoluene	1.249	1.372	-9.8	99	0.00
94	C	1,3,5-Trimethylbenzene	1.114	1.322	-18.7	101	0.00
95	C	tert-Butylbenzene	0.636	0.721	-13.4	101	0.00
96	C	1,2,4-Trimethylbenzene	1.158	1.352	-16.8	100	0.00
97	C	sec-Butylbenzene	1.422	1.637	-15.1	101	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	97	0.00
99	CP	1,3-Dichlorobenzene	1.328	1.422	-7.1	100	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\9V180522\
Data File : 22MAY24.D
Acq On : 22 May 2018 8:43 pm
Operator : AK
Sample : ICV
Misc : IS/SS 200-20033
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 23 10:10:56 2018
Quant Method : C:\msdchem\1\methods\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 10:09:03 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100 C	p-Isopropyltoluene	2.127	2.462	-15.7	101	0.00
101 CP	1,4-Dichlorobenzene	1.393	1.461	-4.9	100	0.00
102 C	1,2,3-Trimethylbenzene	2.370	2.536	-7.0	93	0.00
103 C	Benzyl chloride	0.959	0.239	75.1#	22#	-0.09
104 CP	1,2-Dichlorobenzene	1.326	1.398	-5.4	100	0.00
105 C	n-Butylbenzene	2.198	2.561	-16.5	101	0.00
106 C	Hexachloroethane	0.377	0.330	12.5	80	0.00
107 CP	1,2-Dibromo-3-chloropropane	0.150	0.170	-13.3	114	0.00
108 C	1,3,5-Trichlorobenzene	0.907	0.000#	100.0#	0#	-14.59#
109 CP	1,2,4-Trichlorobenzene	0.834	0.863	-3.5	97	0.00
110 C	Hexachlorobutadiene	0.311	0.320	-2.9	103	0.00
111 C	Naphthalene	2.406	2.824	-17.4	102	0.00
112 C	1,2,3-Trichlorobenzene	0.833	0.911	-9.4	100	0.00
113 C	2-Methylnaphthalene	1.257	0.000#	100.0#	0#	-16.61#
114 C	1-Methylnaphthalene	1.125	0.000#	100.0#	0#	-16.78#
115 I	Ethyl Acetate-d8	1.000	1.000	0.0	95	0.00
116 C	2-Propanone	1.448	0.800	44.8#	101	0.00
117	Isopropyl Alcohol	0.160	0.065#	59.4#	40#	0.00
118 C	Acetic Ether	2.483	2.133	14.1	86	0.00
119 C	Isopropyl Acetate	4.416	4.058	8.1#	97	0.00
120 C	Amyl Acetate	2.940	3.106	-5.6	88	0.00

(#) = Out of Range SPCC's out = 5 CCC's out = 31

2018 May 22 1217 Sequence Log

Starting sequence Tue May 22 12:17:52 2018

Instrument Name: VMS9
Sequence File: C:\msdchem\1\sequence\9V180522.s
Comment:
Operator: AK
Data Path: C:\msdchem\1\DATA\9V180522\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	4	22MAY01	9AC0520	BLK
2)	BFB	1	22MAY02	BFB	VBFB1-180522
3)	Sample	1	22MAY03	9AC0520	VCCV1-180522
4)	Sample	1	22MAY04	9AC0520	VCCV2-180522
5)	BFB	1	22MAY05	BFB	VBFB2-180522

This computer is now swap bound.

6)	BFB	1	22MAY06	BFB	VBFB3-180522
7)	Sample	1	22MAY07	9AC0520	VCCV3-180522
8)	Sample	2	22MAY08	9AC0520	VLCSW1-180522
9)	Sample	3	22MAY09	9AC0520	LCS-
10)	Sample	2	22MAY10	9AC0520	BLK
11)	Sample	3	22MAY11	9AC0520	VBLKW1-180522
12)	Sample	4	22MAY12	9AC0520	0.4PPB

2018 May 22 1217 Sequence Log

13)	Sample	5	22MAY13	9AC0520	0.6PPB
14)	Sample	6	22MAY14	9AC0520	2PPB
15)	Sample	7	22MAY15	9AC0520	4PPB
16)	Sample	8	22MAY16	9AC0520	10PPB
17)	Sample	9	22MAY17	9AC0520	20PPB
18)	Sample	10	22MAY18	9AC0520	40PPB
19)	Sample	11	22MAY19	9AC0520	70PPB
20)	Sample	12	22MAY20	9AC0520	100PPB
21)	Sample	13	22MAY21	9AC0520	BLK
22)	Sample	14	22MAY22	9AC0520	BLK
23)	Sample	15	22MAY23	9AC0520	DWICV
24)	Sample	16	22MAY24	9AC0520	ICV
25)	Sample	17	22MAY25	9AC0520	BLK
26)	Sample	18	22MAY26	BFB	VBFB4-180522
27)	Sample	19	22MAY27	9AC0520	VCCV5-180522
28)	Sample	20	22MAY28	9AC0520	VCCV6-180522

2018 May 22 1217 Sequence Log

29)	Sample	21	22MAY29	9AC0520	VLCSW2-180522
30)	Sample	22	22MAY30	9AC0520	LCS-
31)	Sample	23	22MAY31	9AC0520	BLK
32)	Sample	24	22MAY32	9AC0520	VBLKW2-180522
33)	Sample	25	22MAY33	9AC0520	MBLK-
34)	Sample	26	22MAY34	9AC0520	18051407-01A
35)	Sample	27	22MAY35	9AC0520	18051450-01A
36)	Sample	28	22MAY36	9AC0520	18051450-02A
37)	Sample	29	22MAY37	9AC0520	18051454-01A
38)	Sample	30	22MAY38	9AC0520	18051454-02A
39)	Sample	31	22MAY39	9AC0520	18051454-03A
40)	Sample	32	22MAY40	9AC0520	18051158-05A
41)	Sample	33	22MAY41	9AC0520	18051158-06A
42)	Sample	34	22MAY42	9AC0520	18051158-07A
43)	Sample	35	22MAY43	9AC0520	18051288-02A
44)	Sample	36	22MAY44	9AC0520	18051288-03A

2018 May 22 1217 Sequence Log

45)	Sample	37	22MAY45	9AC0520	18051288-04A
46)	Sample	38	22MAY46	9AC0520	18051288-05A
47)	Sample	39	22MAY47	9AC0520	18051288-06A
48)	Sample	40	22MAY48	9AC0520	18051288-07A
49)	Sample	41	22MAY49	9AC0520	18051288-08A
50)	Sample	42	22MAY50	9AC0520	18051407-02A
51)	Sample	43	22MAY51	9AC0520	18051407-03A
52)	Sample	44	22MAY52	9AC0520	18051407-04A
53)	Sample	45	22MAY53	9AC0520	18051407-07A
54)	Sample	46	22MAY54	9AC0520	18051454-01A MS
55)	Sample	47	22MAY55	9AC0520	18051454-01A MSD
56)	Sample	48	22MAY56	9AC0520	BLK

Sequence completed Wed May 23 09:59:36 2018

C:\msdchem\1\DATA\9V180522\2018 May 22 1217 Quality Log.LOG
C:\msdchem\1\DATA\9V180522\2018 May 22 1217 Sequence Log .LOG

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	93	0.00
2	CP	Dichlorodifluoromethane	40.000	34.832	12.9	90	0.00
3	CP	Chloromethane	40.000	38.716	3.2	105	0.00
4	CP	Vinyl chloride	40.000	39.658	0.9	99	0.00
5	CP	Bromomethane	40.000	47.347	-18.4	123	0.00
6	CP	Chloroethane	40.000	35.528	11.2	95	0.00
7	CP	Trichlorofluoromethane	40.000	41.492	-3.7	104	0.00
8		Ethanol	800.000	591.735	26.0#	82	0.00
9	C	Ethyl ether	40.000	42.527	-6.3	101	0.00
10	C	Acrolein	200.000	102.894	48.6#	37	0.00
11	CP	1,1-Dichloroethene	40.000	44.716	-11.8	111	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	45.131	-12.8	109	0.00
13	C	Methyl iodide	40.000	37.527	6.2	90	0.00
14	CP	Acetone	40.000	33.295	16.8	87	0.00
15	CP	Carbon disulfide	40.000	46.799	-17.0	117	0.00
16	C	Allyl chloride	40.000	40.743	-1.9	109	0.00
17	CP	Methyl acetate	40.000	33.073	17.3	85	0.00
18	C	Acetonitrile	40.000	35.697	10.8	93	0.00
19	CP	Methylene chloride	40.000	43.830	-9.6	112	0.00
20	C	t-Butanol	200.000	127.988	36.0#	68	-0.01
21	CP	trans-1,2-Dichloroethene	40.000	44.666	-11.7	111	0.00
22	C	Acrylonitrile	40.000	37.976	5.1	92	0.00
23	CP	Methyl tert-butyl ether	40.000	38.345	4.1	97	0.00
24	C	Hexane	40.000	43.277	-8.2	123	0.00
25	C	1,1-Dichloroethane	40.000	44.603	-11.5	108	0.00
26	C	Diisopropyl ether	40.000	39.239	1.9	107	0.00
27	C	Vinyl acetate	40.000	41.251	-3.1	99	0.00
28	C	Chloroprene	40.000	45.538	-13.8	111	0.00
29	C	Ethyl tert butyl ether	40.000	38.593	3.5	102	0.00
30	C	2,2-Dichloropropane	40.000	39.535	1.2	108	0.00
31	CP	cis-1,2-Dichloroethene	40.000	42.163	-5.4	109	0.00
32	CP	2-Butanone	40.000	31.239	21.9#	86	-0.01
33	C	Ethyl Acetate	40.000	33.901	15.2	86	-0.01
34	C	Methyl acrylate	40.000	35.819	10.5	89	0.00
35	C	Propionitrile	40.000	32.552	18.6	84	0.00
36	C	Bromochloromethane	40.000	44.122	-10.3	109	0.00
37	C	Tetrahydrofuran	40.000	29.116	27.2#	85	0.00
38	C	Methacrylonitrile	40.000	37.349	6.6	90	-0.01
39	CP	Chloroform	40.000	43.902	-9.8	104	0.00
40	CP	Cyclohexane	40.000	43.834	-9.6	117	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	108	-0.01
42	CP	1,1,1-Trichloroethane	40.000	39.355	1.6	104	0.00
43	S	Dibromofluoromethane	20.000	18.321	8.4	100	0.00
44	CP	Carbon tetrachloride	40.000	39.769	0.6	101	0.00
45	C	1,1-Dichloropropene	40.000	38.138	4.7	112	0.00
46	S	1,2-Dichloroethane-d4	20.000	19.119	4.4	107	0.00
47	CP	1,2-Dichloroethane	40.000	37.224	6.9	107	-0.01
48	CP	Benzene	40.000	37.761	5.6	113	0.00
49	C	Isobutyl Alcohol	40.000	42.169	-5.4	113	0.00
50	C	Tertiaryamylmethylether	40.000	35.174	12.1	97	0.00

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	42.169	-5.4	113	0.00
52	CP	Methylcyclohexane	40.000	41.994	-5.0	111	0.00
53	CP	Trichloroethene	40.000	37.743	5.6	111	0.00
54	C	n-Butanol	400.000	300.637	24.8#	78	0.00
55	CP	1,2-Dichloropropane	40.000	39.392	1.5	108	0.00
56	C	Dibromomethane	40.000	40.359	-0.9	102	-0.01
57	C	1,4-Dioxane	4000.000	2894.968	27.6#	72	0.00
58	C	Methyl methacrylate	40.000	36.186	9.5	90	0.00
59	CP	Bromodichloromethane	40.000	40.382	-1.0	104	0.00
60	C	2-Nitropropane	40.000	29.639	25.9#	81	0.00
61	T	2-Chloroethyl vinyl ether	40.000	37.015	7.5	89	0.00
62	CP	cis-1,3-Dichloropropene	40.000	40.773	-1.9	105	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	103	0.00
64	CP	4-Methyl-2-pentanone	40.000	31.586	21.0#	80	0.00
65	S	Toluene-d8	20.000	21.054	-5.3	104	0.00
66	CP	Toluene	40.000	42.230	-5.6	106	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	CP	trans-1,3-Dichloropropene	40.000	42.168	-5.4	100	0.00
69	C	Ethyl methacrylate	40.000	34.173	14.6	87	0.00
70	CP	1,1,2-Trichloroethane	40.000	37.036	7.4	100	0.00
71	CP	Tetrachloroethene	40.000	40.140	-0.4	107	0.00
72	C	1,3-Dichloropropane	40.000	38.541	3.6	102	0.00
73	CP	2-Hexanone	40.000	30.414	24.0#	77	0.00
74	CP	Chlorodibromomethane	40.000	42.429	-6.1	102	0.00
75	C	Butyl acetate	40.000	33.655	15.9	81	0.00
76	CP	1,2-Dibromoethane	40.000	29.623	25.9#	80	0.00
77	CP	Chlorobenzene	40.000	40.949	-2.4	104	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	41.439	-3.6	105	0.00
79	CP	Ethylbenzene	40.000	43.382	-8.5	104	0.00
80	CP	m/p-Xylene	80.000	89.208	-11.5	105	0.00
81	CP	Styrene	40.000	45.041	-12.6	105	0.00
82	CP	o-Xylene	40.000	43.360	-8.4	104	0.00
83	C	Cyclohexanone	200.000	123.570	38.2#	57	0.00
84	CP	Bromoform	40.000	37.895	5.3	90	0.00
85	CP	Isopropylbenzene	40.000	44.743	-11.9	103	0.00
86	S	Bromofluorobenzene	20.000	21.097	-5.5	104	0.00
87	C	Bromobenzene	40.000	41.995	-5.0	103	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	35.536	11.2	89	0.00
89	C	1,2,3-Trichloropropane	40.000	35.978	10.1	89	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	34.636	13.4	87	0.00
91	C	n-Propylbenzene	40.000	44.652	-11.6	106	0.00
92	C	2-Chlorotoluene	40.000	43.530	-8.8	104	0.00
93	C	4-Chlorotoluene	40.000	43.475	-8.7	104	0.00
94	C	1,3,5-Trimethylbenzene	40.000	46.185	-15.5	104	0.00
95	C	tert-Butylbenzene	40.000	43.766	-9.4	103	0.00
96	C	1,2,4-Trimethylbenzene	40.000	45.605	-14.0	103	0.00
97	C	sec-Butylbenzene	40.000	44.622	-11.6	104	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	106	0.00
99	CP	1,3-Dichlorobenzene	40.000	40.205	-0.5	103	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	43.580	-8.9	104	0.00
101	CP	1,4-Dichlorobenzene	40.000	39.256	1.9	103	0.00
102	C	1,2,3-Trimethylbenzene	40.000	42.831	-7.1	102	0.00
103	C	Benzyl chloride	40.000	34.187	14.5	89	0.00
104	CP	1,2-Dichlorobenzene	40.000	38.924	2.7	102	0.00
105	C	n-Butylbenzene	40.000	43.941	-9.9	105	0.00
106	C	Hexachloroethane	40.000	40.385	-1.0	102	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	30.261	24.3#	83	0.00
108	C	1,3,5-Trichlorobenzene	40.000	39.140	2.1	103	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	38.440	3.9	99	0.00
110	C	Hexachlorobutadiene	40.000	36.472	8.8	100	0.00
111	C	Naphthalene	40.000	36.241	9.4	86	0.00
112	C	1,2,3-Trichlorobenzene	40.000	38.263	4.3	97	0.00
113	C	2-Methylnaphthalene	40.000	31.252	21.9#	78	0.00
114	C	1-Methylnaphthalene	40.000	30.107	24.7#	75	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	86	-0.01
116	C	2-Propanone	40.000	35.702	10.7	87	0.00
117		Isopropyl Alcohol	800.000	621.175	22.4#	70	0.00
118	C	Acetic Ether	40.000	38.113	4.7	86	-0.01
119	C	Isopropyl Acetate	40.000	38.882	2.8#	93	0.00
120	C	Amyl Acetate	40.000	40.784	-2.0	84	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 15

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	93	0.00
2	CP	Dichlorodifluoromethane	0.543	0.473	12.9	90	0.00
3	CP	Chloromethane	1.083	1.048	3.2	105	0.00
4	CP	Vinyl chloride	0.711	0.705	0.8	99	0.00
5	CP	Bromomethane	0.121	0.100#	17.4	123	0.00
6	CP	Chloroethane	0.612	0.459	25.0#	95	0.00
7	CP	Trichlorofluoromethane	0.607	0.629	-3.6	104	0.00
8		Ethanol	0.040	0.025#	37.5#	82	0.00
9	C	Ethyl ether	0.512	0.544	-6.3	101	0.00
10	C	Acrolein	0.074	0.027#	63.5#	37#	0.00
11	CP	1,1-Dichloroethene	0.694	0.776	-11.8	111	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.250	0.282	-12.8	109	0.00
13	C	Methyl iodide	0.334	0.228	31.7#	90	0.00
14	CP	Acetone	0.402	0.215	46.5#	87	0.00
15	CP	Carbon disulfide	1.124	1.315	-17.0	117	0.00
16	C	Allyl chloride	0.872	0.888	-1.8	109	0.00
17	CP	Methyl acetate	0.652	0.539	17.3	85	0.00
18	C	Acetonitrile	0.140	0.114#	18.6	93	0.00
19	CP	Methylene chloride	1.034	0.939	9.2	112	0.00
20	C	t-Butanol	0.072	0.046#	36.1#	68	-0.01
21	CP	trans-1,2-Dichloroethene	0.757	0.845	-11.6	111	0.00
22	C	Acrylonitrile	0.336	0.319	5.1	92	0.00
23	CP	Methyl tert-butyl ether	1.346	1.290	4.2	97	0.00
24	C	Hexane	0.630	0.681	-8.1	123	0.00
25	C	1,1-Dichloroethane	0.983	1.096	-11.5	108	0.00
26	C	Diisopropyl ether	1.863	1.827	1.9	107	0.00
27	C	Vinyl acetate	0.109	0.113#	-3.7	99	0.00
28	C	Chloroprene	0.757	0.862	-13.9	111	0.00
29	C	Ethyl tert butyl ether	1.347	1.300	3.5	102	0.00
30	C	2,2-Dichloropropane	0.556	0.550	1.1	108	0.00
31	CP	cis-1,2-Dichloroethene	0.919	0.969	-5.4	109	0.00
32	CP	2-Butanone	0.727	0.360	50.5#	86	-0.01
33	C	Ethyl Acetate	0.790	0.669	15.3	86	-0.01
34	C	Methyl acrylate	0.718	0.643	10.4	89	0.00
35	C	Propionitrile	0.152	0.123#	19.1	84	0.00
36	C	Bromochloromethane	0.528	0.583	-10.4	109	0.00
37	C	Tetrahydrofuran	0.304	0.221	27.3#	85	0.00
38	C	Methacrylonitrile	0.325	0.304	6.5	90	-0.01
39	CP	Chloroform	0.882	0.968	-9.8	104	0.00
40	CP	Cyclohexane	0.859	0.941	-9.5	117	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	108	-0.01
42	CP	1,1,1-Trichloroethane	0.345	0.339	1.7	104	0.00
43	S	Dibromofluoromethane	0.338	0.310	8.3	100	0.00
44	CP	Carbon tetrachloride	0.267	0.265	0.7	101	0.00
45	C	1,1-Dichloropropene	0.424	0.405	4.5	112	0.00
46	S	1,2-Dichloroethane-d4	0.442	0.423	4.3	107	0.00
47	CP	1,2-Dichloroethane	0.509	0.473	7.1	107	-0.01
48	CP	Benzene	1.350	1.275	5.6	113	0.00
49	C	Isobutyl Alcohol	0.374	0.395	-5.6	113	0.00
50	C	Tertiaryamylmethylether	0.677	0.595	12.1	97	0.00

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.374	0.395	-5.6	113	0.00
52	CP	Methylcyclohexane	0.414	0.435	-5.1	111	0.00
53	CP	Trichloroethene	0.294	0.278	5.4	111	0.00
54	C	n-Butanol	0.008	0.007#	12.5	78	0.00
55	CP	1,2-Dichloropropane	0.360	0.355	1.4	108	0.00
56	C	Dibromomethane	0.211	0.212	-0.5	102	-0.01
57	C	1,4-Dioxane	0.006	0.004#	33.3#	72	0.00
58	C	Methyl methacrylate	0.338	0.306	9.5	90	0.00
59	CP	Bromodichloromethane	0.382	0.385	-0.8	104	0.00
60	C	2-Nitropropane	0.084	0.062#	26.2#	81	0.00
61	T	2-Chloroethyl vinyl ether	0.221	0.204	7.7	89	0.00
62	CP	cis-1,3-Dichloropropene	0.427	0.435	-1.9	105	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	103	0.00
64	CP	4-Methyl-2-pentanone	0.395	0.312	21.0#	80	0.00
65	S	Toluene-d8	1.222	1.287	-5.3	104	0.00
66	CP	Toluene	1.308	1.381	-5.6	106	0.00
67	T	Chloropicrin	0.070	0.046#	34.3#	0#	0.00
68	CP	trans-1,3-Dichloropropene	0.359	0.378	-5.3	100	0.00
69	C	Ethyl methacrylate	0.443	0.413	6.8	87	0.00
70	CP	1,1,2-Trichloroethane	0.321	0.298	7.2	100	0.00
71	CP	Tetrachloroethene	0.282	0.283	-0.4	107	0.00
72	C	1,3-Dichloropropane	0.572	0.551	3.7	102	0.00
73	CP	2-Hexanone	0.295	0.224	24.1#	77	0.00
74	CP	Chlorodibromomethane	0.262	0.278	-6.1	102	0.00
75	C	Butyl acetate	0.579	0.487	15.9	81	0.00
76	CP	1,2-Dibromoethane	0.269	0.199	26.0#	80	0.00
77	CP	Chlorobenzene	0.871	0.891	-2.3	104	0.00
78	C	1,1,1,2-Tetrachloroethane	0.250	0.259	-3.6	105	0.00
79	CP	Ethylbenzene	1.407	1.526	-8.5	104	0.00
80	CP	m/p-Xylene	1.116	1.245	-11.6	105	0.00
81	CP	Styrene	0.902	1.016	-12.6	105	0.00
82	CP	o-Xylene	1.142	1.238	-8.4	104	0.00
83	C	Cyclohexanone	0.027	0.016#	40.7#	57	0.00
84	CP	Bromoform	0.179	0.169	5.6	90	0.00
85	CP	Isopropylbenzene	1.301	1.455	-11.8	103	0.00
86	S	Bromofluorobenzene	0.545	0.574	-5.3	104	0.00
87	C	Bromobenzene	0.687	0.722	-5.1	103	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.557	0.495	11.1	89	0.00
89	C	1,2,3-Trichloropropane	0.143	0.128#	10.5	89	0.00
90	C	trans-1,4-Dichloro-2-butene	0.160	0.139#	13.1	87	0.00
91	C	n-Propylbenzene	1.751	1.955	-11.7	106	0.00
92	C	2-Chlorotoluene	1.089	1.185	-8.8	104	0.00
93	C	4-Chlorotoluene	1.249	1.358	-8.7	104	0.00
94	C	1,3,5-Trimethylbenzene	1.114	1.287	-15.5	104	0.00
95	C	tert-Butylbenzene	0.636	0.696	-9.4	103	0.00
96	C	1,2,4-Trimethylbenzene	1.158	1.320	-14.0	103	0.00
97	C	sec-Butylbenzene	1.422	1.586	-11.5	104	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	106	0.00
99	CP	1,3-Dichlorobenzene	1.328	1.335	-0.5	103	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.127	2.317	-8.9	104	0.00
101	CP	1,4-Dichlorobenzene	1.393	1.367	1.9	103	0.00
102	C	1,2,3-Trimethylbenzene	2.370	2.537	-7.0	102	0.00
103	C	Benzyl chloride	0.959	0.874	8.9	89	0.00
104	CP	1,2-Dichlorobenzene	1.326	1.290	2.7	102	0.00
105	C	n-Butylbenzene	2.198	2.415	-9.9	105	0.00
106	C	Hexachloroethane	0.377	0.381	-1.1	102	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.150	0.113	24.7#	83	0.00
108	C	1,3,5-Trichlorobenzene	0.907	0.887	2.2	103	0.00
109	CP	1,2,4-Trichlorobenzene	0.834	0.802	3.8	99	0.00
110	C	Hexachlorobutadiene	0.311	0.284	8.7	100	0.00
111	C	Naphthalene	2.406	2.180	9.4	86	0.00
112	C	1,2,3-Trichlorobenzene	0.833	0.797	4.3	97	0.00
113	C	2-Methylnaphthalene	1.257	1.086	13.6	78	0.00
114	C	1-Methylnaphthalene	1.125	0.996	11.5	75	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	86	-0.01
116	C	2-Propanone	1.448	0.759	47.6#	87	0.00
117		Isopropyl Alcohol	0.160	0.124#	22.5#	70	0.00
118	C	Acetic Ether	2.483	2.365	4.8	86	-0.01
119	C	Isopropyl Acetate	4.416	4.293	2.8#	93	0.00
120	C	Amyl Acetate	2.940	3.286	-11.8	84	0.00

(#) = Out of Range SPCC's out = 1 CCC's out = 16

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	135629	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.778	114	237862	20.00	ug/L		-0.01
63) Chlorobenzene-d5	10.544	117	243361	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	135832	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.424	46	38369	20.00	ug/L		#-0.01
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	73661	18.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 91.60%				
46) 1,2-Dichloroethane-d4	4.792	65	100592	19.12	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.60%				
65) Toluene-d8	8.567	98	313113	21.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.25%				
86) Bromofluorobenzene	11.954	95	139807	21.10	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	128242	34.83	ug/L		99
3) Chloromethane	0.981	50	284210	38.72	ug/L		100
4) Vinyl chloride	1.043	62	191311	39.66	ug/L		93
5) Bromomethane	1.211	94	27057	47.35	ug/L	#	91
6) Chloroethane	1.279	64	124617	35.53	ug/L		95
7) Trichlorofluoromethane	1.431	101	170661	41.49	ug/L		99
8) Ethanol	1.562	45	134820	591.73	ug/L		98
9) Ethyl ether	1.615	59	147663	42.53	ug/L		100
10) Acrolein	1.699	56	36839	102.89	ug/L		98
11) 1,1-Dichloroethene	1.762	61	210386	44.72	ug/L		100
12) 1,1,2-Trichlorotrifluo...	1.772	151	76621	45.13	ug/L		95
13) Methyl iodide	1.867	142	61789	37.53	ug/L		97
14) Acetone	1.798	43	58239	33.30	ug/L		98
15) Carbon disulfide	1.919	76	356759	46.80	ug/L		100
16) Allyl chloride	2.034	41	240882	40.74	ug/L		98
17) Methyl acetate	2.034	43	146149	33.07	ug/L		98
18) Acetonitrile	1.998	41	30841	35.70	ug/L	#	87
19) Methylene chloride	2.139	49	254795	43.83	ug/L		98
20) t-Butanol	2.270	59	62202	127.99	ug/L		94
21) trans-1,2-Dichloroethene	2.375	61	229193	44.67	ug/L		99
22) Acrylonitrile	2.338	53	86584	37.98	ug/L		96
23) Methyl tert-butyl ether	2.375	73	349906	38.35	ug/L		99
24) Hexane	2.632	57	184751	43.28	ug/L		99
25) 1,1-Dichloroethane	2.795	63	297323	44.60	ug/L		99
26) Diisopropyl ether	2.857	45	495649	39.24	ug/L		97
27) Vinyl acetate	2.816	86	30574	41.25	ug/L	#	91
28) Chloroprene	2.863	53	233855	45.54	ug/L		99
29) Ethyl tert butyl ether	3.287	59	352657	38.59	ug/L		99
30) 2,2-Dichloropropane	3.455	77	149133	39.53	ug/L		96
31) cis-1,2-Dichloroethene	3.455	61	262777	42.16	ug/L		99
32) 2-Butanone	3.476	43	97698	31.24	ug/L		99
33) Ethyl Acetate	3.565	43	181522	33.90	ug/L		99
34) Methyl acrylate	3.607	55	174400	35.82	ug/L		100
35) Propionitrile	3.550	54	33481	32.55	ug/L	#	90
36) Bromochloromethane	3.786	49	158112	44.12	ug/L		99
37) Tetrahydrofuran	3.817	42	59960	29.12	ug/L		97
38) Methacrylonitrile	3.754	67	82337	37.35	ug/L		99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	3.974	83	262572	43.90 ug/L		99
40) Cyclohexane	4.257	56	255237	43.83 ug/L		97
42) 1,1,1-Trichloroethane	4.168	97	161271	39.36 ug/L		99
44) Carbon tetrachloride	4.415	119	126230	39.77 ug/L		99
45) 1,1-Dichloropropene	4.441	75	192492	38.14 ug/L		98
47) 1,2-Dichloroethane	4.939	62	225177	37.22 ug/L		100
48) Benzene	4.771	78	606367	37.76 ug/L		99
49) Isobutyl Alcohol	5.516	43	187685	42.17 ug/L	#	96
50) Tertiaryamylmethylether	5.164	73	283219	35.17 ug/L	#	88
51) Heptane	5.516	43	187685	42.17 ug/L		98
52) Methylcyclohexane	6.632	83	206730	41.99 ug/L		99
53) Trichloroethene	6.187	130	132187	37.74 ug/L		98
54) n-Butanol	6.360	56	31129	300.64 ug/L		97
55) 1,2-Dichloropropane	6.743	63	168654	39.39 ug/L		100
56) Dibromomethane	6.916	93	101041	40.36 ug/L		99
57) 1,4-Dioxane	7.000	88	195018	2894.97 ug/L		99
58) Methyl methacrylate	7.089	41	145455	36.19 ug/L		98
59) Bromodichloromethane	7.393	83	183297	40.38 ug/L		99
60) 2-Nitropropane	7.823	43	29693	29.64 ug/L	#	98
61) 2-Chloroethyl vinyl ether	8.032	63	97135	37.01 ug/L		98
62) cis-1,3-Dichloropropene	8.200	75	207145	40.77 ug/L		99
64) 4-Methyl-2-pentanone	8.509	43	151680	31.59 ug/L		98
66) Toluene	8.672	91	672165	42.23 ug/L		100
67) Chloropicrin	9.086	117	225814	No Calib		
68) trans-1,3-Dichloropropene	9.128	75	184075	42.17 ug/L		95
69) Ethyl methacrylate	9.296	69	201111	34.17 ug/L		99
70) 1,1,2-Trichloroethane	9.385	97	144849	37.04 ug/L		98
71) Tetrachloroethene	9.401	166	137646	40.14 ug/L		99
72) 1,3-Dichloropropane	9.579	76	268255	38.54 ug/L		99
73) 2-Hexanone	9.731	43	109218	30.41 ug/L		97
74) Chlorodibromomethane	9.846	129	135316	42.43 ug/L		99
75) Butyl acetate	9.957	43	237178	33.65 ug/L		99
76) 1,2-Dibromoethane	9.946	107	96883	29.62 ug/L	#	99
77) Chlorobenzene	10.581	112	433747	40.95 ug/L		100
78) 1,1,1,2-Tetrachloroethane	10.727	131	126221	41.44 ug/L		99
79) Ethylbenzene	10.738	91	742710	43.38 ug/L		99
80) m/p-Xylene	10.906	91	1211593	89.21 ug/L		100
81) Styrene	11.372	104	494616	45.04 ug/L		97
82) o-Xylene	11.336	91	602627	43.36 ug/L		99
83) Cyclohexanone	11.839	55	40078	123.57 ug/L		96
84) Bromoform	11.556	173	82412	37.89 ug/L		100
85) Isopropylbenzene	11.776	105	708238	44.74 ug/L		100
87) Bromobenzene	12.064	77	351215	42.00 ug/L		99
88) 1,1,2,2-Tetrachloroethane	12.159	83	240753	35.54 ug/L		100
89) 1,2,3-Trichloropropane	12.190	110	62520	35.98 ug/L		95
90) trans-1,4-Dichloro-2-b...	12.195	53	67567	34.64 ug/L		96
91) n-Propylbenzene	12.237	91	951361	44.65 ug/L		100
92) 2-Chlorotoluene	12.295	91	576903	43.53 ug/L		100
93) 4-Chlorotoluene	12.437	91	660847	43.48 ug/L		100
94) 1,3,5-Trimethylbenzene	12.452	105	626188	46.19 ug/L		100
95) tert-Butylbenzene	12.772	91	338522	43.77 ug/L		99
96) 1,2,4-Trimethylbenzene	12.835	105	642576	45.61 ug/L		100
97) sec-Butylbenzene	13.008	105	771958	44.62 ug/L		100
99) 1,3-Dichlorobenzene	13.097	146	362661	40.20 ug/L		99
100) p-Isopropyltoluene	13.192	119	629549	43.58 ug/L		99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

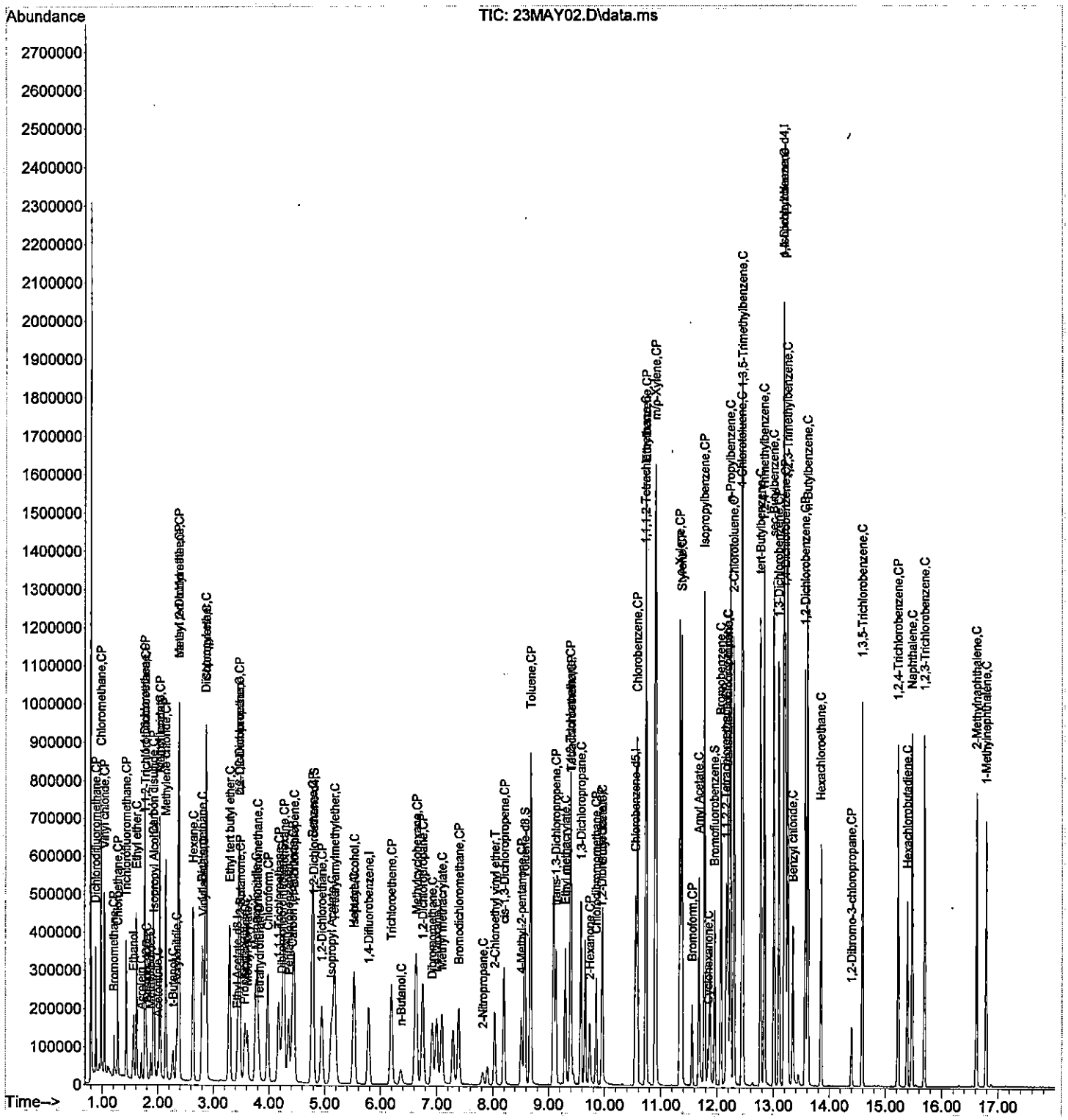
Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	371474	39.26	ug/L		100
102) 1,2,3-Trimethylbenzene	13.254	105	689326	42.83	ug/L		99
103) Benzyl chloride	13.344	91	237517	34.19	ug/L		99
104) 1,2-Dichlorobenzene	13.569	146	350525	38.92	ug/L		99
105) n-Butylbenzene	13.611	91	656090	43.94	ug/L		100
106) Hexachloroethane	13.847	117	103500	40.38	ug/L		97
107) 1,2-Dibromo-3-chloropr...	14.392	157	30787	30.26	ug/L		97
108) 1,3,5-Trichlorobenzene	14.581	180	241090	39.14	ug/L		99
109) 1,2,4-Trichlorobenzene	15.215	180	217819	38.44	ug/L		100
110) Hexachlorobutadiene	15.383	225	77076	36.47	ug/L		98
111) Naphthalene	15.467	128	592107	36.24	ug/L		99
112) 1,2,3-Trichlorobenzene	15.687	180	216533	38.26	ug/L		99
113) 2-Methylnaphthalene	16.610	142	294934	31.25	ug/L		99
114) 1-Methylnaphthalene	16.783	142	270598	30.11	ug/L		99
116) 2-Propanone	1.798	43	58239	35.70	ug/L		98
117) Isopropyl Alcohol	1.929	45	190948	621.17	ug/L		98
118) Acetic Ether	3.565	43	181522	38.11	ug/L		99
119) Isopropyl Acetate	5.112	43	329409	38.88	ug/L	#	94
120) Amyl Acetate	11.676	43	252142	40.78	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 10:26 am
Operator : AK
Sample : VCCV1-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 23 10:44:29 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	107	0.00
2	CP	Dichlorodifluoromethane	40.000	31.555	21.1#	94	0.00
3	CP	Chloromethane	40.000	32.118	19.7	100	0.00
4	CP	Vinyl chloride	40.000	34.294	14.3	99	0.00
5	CP	Bromomethane	40.000	36.816	8.0	99	0.00
6	CP	Chloroethane	40.000	30.093	24.8#	94	0.00
7	CP	Trichlorofluoromethane	40.000	36.546	8.6	105	0.00
8		Ethanol	800.000	933.639	-16.7	149	0.00
9	C	Ethyl ether	40.000	37.336	6.7	102	0.00
10	C	Acrolein	200.000	142.193	28.9#	63	0.00
11	CP	1,1-Dichloroethene	40.000	34.728	13.2	100	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	31.112	22.2#	87	0.00
13	C	Methyl iodide	40.000	34.118	14.7	93	0.00
14	CP	Acetone	40.000	48.808	-22.0#	149	0.00
15	CP	Carbon disulfide	40.000	35.939	10.2	103	0.00
16	C	Allyl chloride	40.000	38.923	2.7	120	0.00
17	CP	Methyl acetate	40.000	45.151	-12.9	133	0.00
18	C	Acetonitrile	40.000	266.974	-567.4#	796	0.03
19	CP	Methylene chloride	40.000	34.497	13.8	102	0.00
20	C	t-Butanol	200.000	302.284	-51.1#	185	0.00
21	CP	trans-1,2-Dichloroethene	40.000	35.256	11.9	101	0.00
22	C	Acrylonitrile	40.000	40.177	-0.4	112	0.00
23	CP	Methyl tert-butyl ether	40.000	45.368	-13.4	132	0.00
24	C	Hexane	40.000	29.624	25.9#	97	0.00
25	C	1,1-Dichloroethane	40.000	34.400	14.0	96	0.00
26	C	Diisopropyl ether	40.000	37.972	5.1	119	0.00
27	C	Vinyl acetate	40.000	37.550	6.1	103	0.00
28	C	Chloroprene	40.000	36.979	7.6	104	0.00
29	C	Ethyl tert butyl ether	40.000	45.736	-14.3	140	0.00
30	C	2,2-Dichloropropane	40.000	31.933	20.2#	100	0.00
31	CP	cis-1,2-Dichloroethene	40.000	32.684	18.3	97	0.00
32	CP	2-Butanone	40.000	45.188	-13.0	143	0.01
33	C	Ethyl Acetate	40.000	46.515	-16.3	136	0.00
34	C	Methyl acrylate	40.000	42.401	-6.0	122	0.00
35	C	Propionitrile	40.000	41.622	-4.1	123	0.01
36	C	Bromochloromethane	40.000	35.599	11.0	101	0.00
37	C	Tetrahydrofuran	40.000	37.841	5.4	127	0.00
38	C	Methacrylonitrile	40.000	41.118	-2.8	114	0.00
39	CP	Chloroform	40.000	35.480	11.3	97	0.00
40	CP	Cyclohexane	40.000	34.549	13.6	106	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	119	0.00
42	CP	1,1,1-Trichloroethane	40.000	36.823	7.9	108	0.00
43	S	Dibromofluoromethane	20.000	18.443	7.8	112	0.00
44	CP	Carbon tetrachloride	40.000	34.488	13.8	98	0.00
45	C	1,1-Dichloropropene	40.000	33.307	16.7	108	0.00
46	S	1,2-Dichloroethane-d4	20.000	18.416	7.9	114	0.00
47	CP	1,2-Dichloroethane	40.000	34.573	13.6	110	0.00
48	CP	Benzene	40.000	33.830	15.4	112	0.00
49	C	Isobutyl Alcohol	40.000	27.533	31.2#	82	0.00
50	C	Tertiaryamylmethylether	40.000	49.697	-24.2#	153	0.01

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	27.533	31.2#	82	0.00
52	CP	Methylcyclohexane	40.000	35.866	10.3	105	0.00
53	CP	Trichloroethene	40.000	34.720	13.2	113	0.00
54	C	n-Butanol	400.000	605.413	-51.4#	212	0.02
55	CP	1,2-Dichloropropane	40.000	35.596	11.0	108	0.00
56	C	Dibromomethane	40.000	36.943	7.6	104	0.00
57	C	1,4-Dioxane	4000.000	5070.322	-26.8#	140	0.00
58	C	Methyl methacrylate	40.000	44.387	-11.0	122	0.00
59	CP	Bromodichloromethane	40.000	34.097	14.8	97	0.00
60	C	2-Nitropropane	40.000	44.788	-12.0	136	0.00
61	T	2-Chloroethyl vinyl ether	40.000	36.403	9.0	97	0.00
62	CP	cis-1,3-Dichloropropene	40.000	39.496	1.3	113	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	109	0.00
64	CP	4-Methyl-2-pentanone	40.000	50.993	-27.5#	137	0.00
65	S	Toluene-d8	20.000	20.932	-4.7	109	0.00
66	CP	Toluene	40.000	37.432	6.4	100	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	CP	trans-1,3-Dichloropropene	40.000	44.964	-12.4	112	0.00
69	C	Ethyl methacrylate	40.000	40.636	-1.6	111	0.00
70	CP	1,1,2-Trichloroethane	40.000	38.407	4.0	109	0.00
71	CP	Tetrachloroethene	40.000	34.404	14.0	97	0.00
72	C	1,3-Dichloropropane	40.000	38.567	3.6	107	0.00
73	CP	2-Hexanone	40.000	53.602	-34.0#	143	0.00
74	CP	Chlorodibromomethane	40.000	40.940	-2.3	103	0.00
75	C	Butyl acetate	40.000	51.702	-29.3#	131	0.00
76	CP	1,2-Dibromoethane	40.000	24.666	38.3#	70	0.00
77	CP	Chlorobenzene	40.000	36.670	8.3	98	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	38.422	3.9	103	0.00
79	CP	Ethylbenzene	40.000	38.694	3.3	98	0.00
80	CP	m/p-Xylene	80.000	78.876	1.4	98	0.00
81	CP	Styrene	40.000	40.135	-0.3	98	0.00
82	CP	o-Xylene	40.000	40.670	-1.7	103	0.00
83	C	Cyclohexanone	200.000	247.072	-23.5#	121	0.00
84	CP	Bromoform	40.000	37.449	6.4	94	0.00
85	CP	Isopropylbenzene	40.000	39.734	0.7	97	0.00
86	S	Bromofluorobenzene	20.000	21.234	-6.2	111	0.00
87	C	Bromobenzene	40.000	37.579	6.1	97	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	38.263	4.3	101	0.00
89	C	1,2,3-Trichloropropane	40.000	41.903	-4.8	109	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	37.361	6.6	99	0.00
91	C	n-Propylbenzene	40.000	38.626	3.4	96	0.00
92	C	2-Chlorotoluene	40.000	38.371	4.1	97	0.00
93	C	4-Chlorotoluene	40.000	38.671	3.3	98	0.00
94	C	1,3,5-Trimethylbenzene	40.000	40.701	-1.8	97	0.00
95	C	tert-Butylbenzene	40.000	39.628	0.9	99	0.00
96	C	1,2,4-Trimethylbenzene	40.000	41.223	-3.1	99	0.00
97	C	sec-Butylbenzene	40.000	38.043	4.9	93	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	110	0.00
99	CP	1,3-Dichlorobenzene	40.000	36.097	9.8	95	0.00

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	38.082	4.8	94	0.00
101	CP	1,4-Dichlorobenzene	40.000	35.316	11.7	96	0.00
102	C	1,2,3-Trimethylbenzene	40.000	39.973	0.1	98	0.00
103	C	Benzyl chloride	40.000	36.582	8.5	99	0.00
104	CP	1,2-Dichlorobenzene	40.000	36.667	8.3	99	0.00
105	C	n-Butylbenzene	40.000	36.733	8.2	91	0.00
106	C	Hexachloroethane	40.000	32.865	17.8	85	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	46.455	-16.1	132	0.00
108	C	1,3,5-Trichlorobenzene	40.000	35.529	11.2	96	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	38.516	3.7	102	0.00
110	C	Hexachlorobutadiene	40.000	28.577	28.6#	81	0.00
111	C	Naphthalene	40.000	49.222	-23.1#	121	0.00
112	C	1,2,3-Trichlorobenzene	40.000	38.677	3.3	101	0.00
113	C	2-Methylnaphthalene	40.000	43.817	-9.5	119	0.00
114	C	1-Methylnaphthalene	40.000	39.358	1.6	104	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	129	0.00
116	C	2-Propanone	40.000	40.775	-1.9	149	0.00
117		Isopropyl Alcohol	800.000	905.061	-13.1	152	0.00
118	C	Acetic Ether	40.000	40.165	-0.4	136	0.00
119	C	Isopropyl Acetate	40.000	43.202	-8.0#	154	0.02
120	C	Amyl Acetate	40.000	42.860	-7.1	134	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 22

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	107	0.00
2	CP	Dichlorodifluoromethane	0.543	0.428	21.2#	94	0.00
3	CP	Chloromethane	1.083	0.869	19.8	100	0.00
4	CP	Vinyl chloride	0.711	0.610	14.2	99	0.00
5	CP	Bromomethane	0.121	0.070#	42.1#	99	0.00
6	CP	Chloroethane	0.612	0.393	35.8#	94	0.00
7	CP	Trichlorofluoromethane	0.607	0.554	8.7	105	0.00
8		Ethanol	0.040	0.039#	2.5	149	0.00
9	C	Ethyl ether	0.512	0.478	6.6	102	0.00
10	C	Acrolein	0.074	0.040#	45.9#	63	0.00
11	CP	1,1-Dichloroethene	0.694	0.602	13.3	100	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.250	0.195	22.0#	87	0.00
13	C	Methyl iodide	0.334	0.205	38.6#	93	0.00
14	CP	Acetone	0.402	0.319	20.6#	149	0.00
15	CP	Carbon disulfide	1.124	1.010	10.1	103	0.00
16	C	Allyl chloride	0.872	0.848	2.8	120	0.00
17	CP	Methyl acetate	0.652	0.736	-12.9	133	0.00
18	C	Acetonitrile	0.140	0.844	-502.9#	796#	0.03
19	CP	Methylene chloride	1.034	0.741	28.3#	102	0.00
20	C	t-Butanol	0.072	0.108#	-50.0#	185	0.00
21	CP	trans-1,2-Dichloroethene	0.757	0.667	11.9	101	0.00
22	C	Acrylonitrile	0.336	0.338	-0.6	112	0.00
23	CP	Methyl tert-butyl ether	1.346	1.526	-13.4	132	0.00
24	C	Hexane	0.630	0.466	26.0#	97	0.00
25	C	1,1-Dichloroethane	0.983	0.845	14.0	96	0.00
26	C	Diisopropyl ether	1.863	1.768	5.1	119	0.00
27	C	Vinyl acetate	0.109	0.103#	5.5	103	0.00
28	C	Chloroprene	0.757	0.700	7.5	104	0.00
29	C	Ethyl tert butyl ether	1.347	1.541	-14.4	140	0.00
30	C	2,2-Dichloropropane	0.556	0.444	20.1#	100	0.00
31	CP	cis-1,2-Dichloroethene	0.919	0.751	18.3	97	0.00
32	CP	2-Butanone	0.727	0.519	28.6#	143	0.01
33	C	Ethyl Acetate	0.790	0.918	-16.2	136	0.00
34	C	Methyl acrylate	0.718	0.761	-6.0	122	0.00
35	C	Propionitrile	0.152	0.158#	-3.9	123	0.01
36	C	Bromochloromethane	0.528	0.470	11.0	101	0.00
37	C	Tetrahydrofuran	0.304	0.287	5.6	127	0.00
38	C	Methacrylonitrile	0.325	0.334	-2.8	114	0.00
39	CP	Chloroform	0.882	0.782	11.3	97	0.00
40	CP	Cyclohexane	0.859	0.742	13.6	106	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	119	0.00
42	CP	1,1,1-Trichloroethane	0.345	0.317	8.1	108	0.00
43	S	Dibromofluoromethane	0.338	0.312	7.7	112	0.00
44	CP	Carbon tetrachloride	0.267	0.230	13.9	98	0.00
45	C	1,1-Dichloropropene	0.424	0.353	16.7	108	0.00
46	S	1,2-Dichloroethane-d4	0.442	0.407	7.9	114	0.00
47	CP	1,2-Dichloroethane	0.509	0.440	13.6	110	0.00
48	CP	Benzene	1.350	1.142	15.4	112	0.00
49	C	Isobutyl Alcohol	0.374	0.258	31.0#	82	0.00
50	C	Tertiaryamylmethylether	0.677	0.841	-24.2#	153	0.01

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.374	0.258	31.0#	82	0.00
52	CP	Methylcyclohexane	0.414	0.371	10.4	105	0.00
53	CP	Trichloroethene	0.294	0.256	12.9	113	0.00
54	C	n-Butanol	0.008	0.016#	-100.0#	212#	0.02
55	CP	1,2-Dichloropropane	0.360	0.320	11.1	108	0.00
56	C	Dibromomethane	0.211	0.194#	8.1	104	0.00
57	C	1,4-Dioxane	0.006	0.007#	-16.7	140	0.00
58	C	Methyl methacrylate	0.338	0.375	-10.9	122	0.00
59	CP	Bromodichloromethane	0.382	0.325	14.9	97	0.00
60	C	2-Nitropropane	0.084	0.094#	-11.9	136	0.00
61	T	2-Chloroethyl vinyl ether	0.221	0.201	9.0	97	0.00
62	CP	cis-1,3-Dichloropropene	0.427	0.422	1.2	113	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	109	0.00
64	CP	4-Methyl-2-pentanone	0.395	0.503	-27.3#	137	0.00
65	S	Toluene-d8	1.222	1.279	-4.7	109	0.00
66	CP	Toluene	1.308	1.224	6.4	100	0.00
67	T	Chloropicrin	0.070	0.019#	72.9#	0#	0.00
68	CP	trans-1,3-Dichloropropene	0.359	0.403	-12.3	112	0.00
69	C	Ethyl methacrylate	0.443	0.500	-12.9	111	0.00
70	CP	1,1,2-Trichloroethane	0.321	0.309	3.7	109	0.00
71	CP	Tetrachloroethene	0.282	0.242	14.2	97	0.00
72	C	1,3-Dichloropropane	0.572	0.552	3.5	107	0.00
73	CP	2-Hexanone	0.295	0.395	-33.9#	143	0.00
74	CP	Chlorodibromomethane	0.262	0.268	-2.3	103	0.00
75	C	Butyl acetate	0.579	0.749	-29.4#	131	0.00
76	CP	1,2-Dibromoethane	0.269	0.166	38.3#	70	0.00
77	CP	Chlorobenzene	0.871	0.798	8.4	98	0.00
78	C	1,1,1,2-Tetrachloroethane	0.250	0.240	4.0	103	0.00
79	CP	Ethylbenzene	1.407	1.361	3.3	98	0.00
80	CP	m/p-Xylene	1.116	1.100	1.4	98	0.00
81	CP	Styrene	0.902	0.906	-0.4	98	0.00
82	CP	o-Xylene	1.142	1.161	-1.7	103	0.00
83	C	Cyclohexanone	0.027	0.033#	-22.2#	121	0.00
84	CP	Bromoform	0.179	0.167	6.7	94	0.00
85	CP	Isopropylbenzene	1.301	1.292	0.7	97	0.00
86	S	Bromofluorobenzene	0.545	0.578	-6.1	111	0.00
87	C	Bromobenzene	0.687	0.646	6.0	97	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.557	0.533	4.3	101	0.00
89	C	1,2,3-Trichloropropane	0.143	0.150#	-4.9	109	0.00
90	C	trans-1,4-Dichloro-2-butene	0.160	0.150#	6.3	99	0.00
91	C	n-Propylbenzene	1.751	1.691	3.4	96	0.00
92	C	2-Chlorotoluene	1.089	1.045	4.0	97	0.00
93	C	4-Chlorotoluene	1.249	1.208	3.3	98	0.00
94	C	1,3,5-Trimethylbenzene	1.114	1.134	-1.8	97	0.00
95	C	tert-Butylbenzene	0.636	0.630	0.9	99	0.00
96	C	1,2,4-Trimethylbenzene	1.158	1.193	-3.0	99	0.00
97	C	sec-Butylbenzene	1.422	1.352	4.9	93	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	110	0.00
99	CP	1,3-Dichlorobenzene	1.328	1.199	9.7	95	0.00

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.127	2.025	4.8	94	0.00
101	CP	1,4-Dichlorobenzene	1.393	1.230	11.7	96	0.00
102	C	1,2,3-Trimethylbenzene	2.370	2.368	0.1	98	0.00
103	C	Benzyl chloride	0.959	0.946	1.4	99	0.00
104	CP	1,2-Dichlorobenzene	1.326	1.215	8.4	99	0.00
105	C	n-Butylbenzene	2.198	2.019	8.1	91	0.00
106	C	Hexachloroethane	0.377	0.310	17.8	85	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.150	0.174	-16.0	132	0.00
108	C	1,3,5-Trichlorobenzene	0.907	0.806	11.1	96	0.00
109	CP	1,2,4-Trichlorobenzene	0.834	0.803	3.7	102	0.00
110	C	Hexachlorobutadiene	0.311	0.222	28.6#	81	0.00
111	C	Naphthalene	2.406	2.960	-23.0#	121	0.00
112	C	1,2,3-Trichlorobenzene	0.833	0.806	3.2	101	0.00
113	C	2-Methylnaphthalene	1.257	1.596	-27.0#	119	0.00
114	C	1-Methylnaphthalene	1.125	1.337	-18.8	104	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	129	0.00
116	C	2-Propanone	1.448	0.866	40.2#	149	0.00
117		Isopropyl Alcohol	0.160	0.181#	-13.1	152	0.00
118	C	Acetic Ether	2.483	2.493	-0.4	136	0.00
119	C	Isopropyl Acetate	4.416	4.770	-8.0#	154	0.02
120	C	Amyl Acetate	2.940	3.501	-19.1	134	0.00

(#) = Out of Range SPCC's out = 1 CCC's out = 27

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	156101	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	263682	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	256559	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	140117	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.439	46	57496	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	82200	18.44	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.20%				
46) 1,2-Dichloroethane-d4	4.797	65	107415	18.42	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 92.10%				
65) Toluene-d8	8.572	98	328191	20.93	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.65%				
86) Bromofluorobenzene	11.954	95	148341	21.23	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.881	85	133714	31.55	ug/L		98
3) Chloromethane	0.981	50	271361	32.12	ug/L		100
4) Vinyl chloride	1.043	62	190407	34.29	ug/L		99
5) Bromomethane	1.211	94	21933	36.82	ug/L	#	87
6) Chloroethane	1.269	64	122841	30.09	ug/L		97
7) Trichlorofluoromethane	1.421	101	173003	36.55	ug/L		99
8) Ethanol	1.568	45	243830	933.64	ug/L		98
9) Ethyl ether	1.615	59	149207	37.34	ug/L		98
10) Acrolein	1.704	56	62705	142.19	ug/L		96
11) 1,1-Dichloroethene	1.762	61	188055	34.73	ug/L		97
12) 1,1,2-Trichlorotrifluo...	1.767	151	60793	31.11	ug/L		95
13) Methyl iodide	1.867	142	63922	34.12	ug/L		98
14) Acetone	1.804	43	99547	48.81	ug/L		99
15) Carbon disulfide	1.914	76	315326	35.94	ug/L		100
16) Allyl chloride	2.034	41	264859	38.92	ug/L		89
17) Methyl acetate	2.040	43	229638	45.15	ug/L		98
18) Acetonitrile	2.034	41	263643	266.97	ug/L	#	46
19) Methylene chloride	2.139	49	231277	34.50	ug/L		96
20) t-Butanol	2.281	59	169085	302.28	ug/L	#	84
21) trans-1,2-Dichloroethene	2.370	61	208215	35.26	ug/L		99
22) Acrylonitrile	2.344	53	105428	40.18	ug/L		99
23) Methyl tert-butyl ether	2.380	73	476481	45.37	ug/L		99
24) Hexane	2.632	57	145558	29.62	ug/L		99
25) 1,1-Dichloroethane	2.795	63	263926	34.40	ug/L		99
26) Diisopropyl ether	2.868	45	552036	37.97	ug/L		98
27) Vinyl acetate	2.826	86	32032	37.55	ug/L		99
28) Chloroprene	2.863	53	218565	36.98	ug/L		97
29) Ethyl tert butyl ether	3.293	59	481016	45.74	ug/L		99
30) 2,2-Dichloropropane	3.455	77	138640	31.93	ug/L		89
31) cis-1,2-Dichloroethene	3.460	61	234447	32.68	ug/L		99
32) 2-Butanone	3.497	43	162074	45.19	ug/L		98
33) Ethyl Acetate	3.581	43	286658	46.51	ug/L		99
34) Methyl acrylate	3.618	55	237606	42.40	ug/L		100
35) Propionitrile	3.565	54	49271	41.62	ug/L	#	92
36) Bromochloromethane	3.786	49	146823	35.60	ug/L		97
37) Tetrahydrofuran	3.827	42	89692	37.84	ug/L		99
38) Methacrylonitrile	3.770	67	104327	41.12	ug/L		97

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.980	83	244233	35.48	ug/L		99
40)	Cyclohexane	4.257	56	231538	34.55	ug/L		99
42)	1,1,1-Trichloroethane	4.168	97	167274	36.82	ug/L		99
44)	Carbon tetrachloride	4.409	119	121351	34.49	ug/L		91
45)	1,1-Dichloropropene	4.441	75	186358	33.31	ug/L		99
47)	1,2-Dichloroethane	4.949	62	231840	34.57	ug/L		100
48)	Benzene	4.776	78	602223	33.83	ug/L		100
49)	Isobutyl Alcohol	5.516	43	135845	27.53	ug/L	#	99
50)	Tertiaryamylmethylether	5.180	73	443590	49.70	ug/L	#	76
51)	Heptane	5.516	43	135845	27.53	ug/L		98
52)	Methylcyclohexane	6.633	83	195731	35.87	ug/L		98
53)	Trichloroethene	6.187	130	134801	34.72	ug/L		99
54)	n-Butanol	6.381	56	84960	605.41	ug/L		90
55)	1,2-Dichloropropane	6.753	63	168942	35.60	ug/L		98
56)	Dibromomethane	6.921	93	102528	36.94	ug/L		100
57)	1,4-Dioxane	7.010	88	378636	5070.32	ug/L		100
58)	Methyl methacrylate	7.099	41	197787	44.39	ug/L		98
59)	Bromodichloromethane	7.393	83	171567	34.10	ug/L		99
60)	2-Nitropropane	7.828	43	49741	44.79	ug/L	#	93
61)	2-Chloroethyl vinyl ether	8.038	63	105899	36.40	ug/L		97
62)	cis-1,3-Dichloropropene	8.200	75	222438	39.50	ug/L		100
64)	4-Methyl-2-pentanone	8.515	43	258156	50.99	ug/L		96
66)	Toluene	8.677	91	628105	37.43	ug/L		99
67)	Chloropicrin	9.091	117	97620	No Calib			
68)	trans-1,3-Dichloropropene	9.133	75	206928	44.96	ug/L		95
69)	Ethyl methacrylate	9.301	69	256360	40.64	ug/L		99
70)	1,1,2-Trichloroethane	9.390	97	158356	38.41	ug/L		99
71)	Tetrachloroethene	9.401	166	124375	34.40	ug/L		99
72)	1,3-Dichloropropane	9.579	76	282991	38.57	ug/L		99
73)	2-Hexanone	9.736	43	202925	53.60	ug/L		99
74)	Chlorodibromomethane	9.852	129	137650	40.94	ug/L		99
75)	Butyl acetate	9.957	43	384123	51.70	ug/L		97
76)	1,2-Dibromoethane	9.951	107	85046	24.67	ug/L	#	98
77)	Chlorobenzene	10.581	112	409492	36.67	ug/L		100
78)	1,1,1,2-Tetrachloroethane	10.727	131	123379	38.42	ug/L		98
79)	Ethylbenzene	10.738	91	698377	38.69	ug/L		100
80)	m/p-Xylene	10.906	91	1129364	78.88	ug/L		100
81)	Styrene	11.372	104	464647	40.14	ug/L		99
82)	o-Xylene	11.336	91	595889	40.67	ug/L		100
83)	Cyclohexanone	11.839	55	84480	247.07	ug/L		99
84)	Bromoform	11.556	173	85860	37.45	ug/L		98
85)	Isopropylbenzene	11.776	105	663047	39.73	ug/L		100
87)	Bromobenzene	12.064	77	331320	37.58	ug/L		99
88)	1,1,2,2-Tetrachloroethane	12.164	83	273288	38.26	ug/L		100
89)	1,2,3-Trichloropropane	12.190	110	76766	41.90	ug/L		96
90)	trans-1,4-Dichloro-2-b...	12.195	53	76834	37.36	ug/L		88
91)	n-Propylbenzene	12.237	91	867605	38.63	ug/L		100
92)	2-Chlorotoluene	12.295	91	536107	38.37	ug/L		99
93)	4-Chlorotoluene	12.437	91	619694	38.67	ug/L		99
94)	1,3,5-Trimethylbenzene	12.452	105	581760	40.70	ug/L		100
95)	tert-Butylbenzene	12.772	91	323141	39.63	ug/L		98
96)	1,2,4-Trimethylbenzene	12.840	105	612327	41.22	ug/L		100
97)	sec-Butylbenzene	13.008	105	693842	38.04	ug/L		100
99)	1,3-Dichlorobenzene	13.102	146	335879	36.10	ug/L		99
100)	p-Isopropyltoluene	13.192	119	567481	38.08	ug/L		100

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

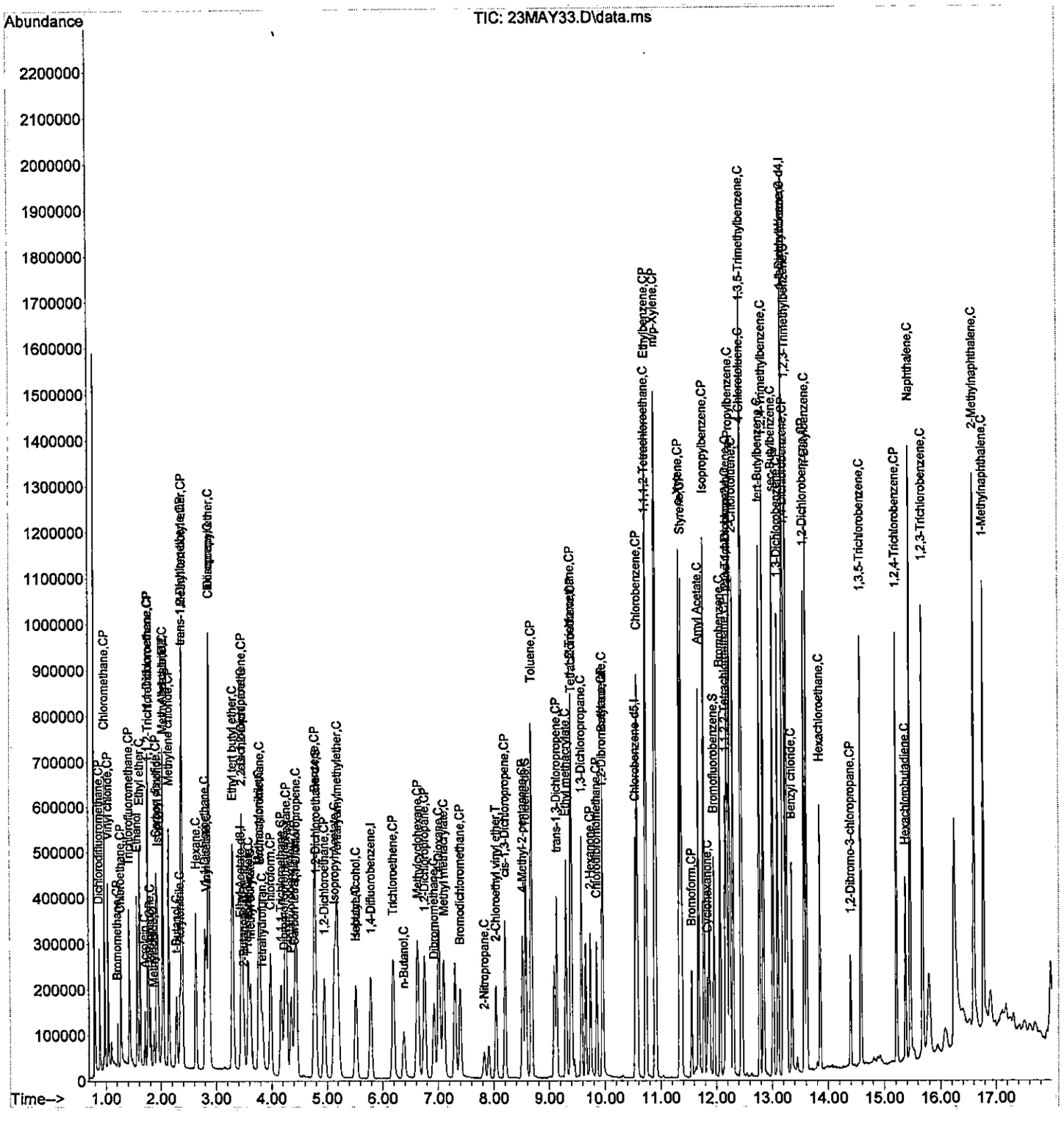
Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	344728	35.32	ug/L		100
102) 1,2,3-Trimethylbenzene	13.254	105	663624	39.97	ug/L		100
103) Benzyl chloride	13.349	91	264989	36.58	ug/L		98
104) 1,2-Dichlorobenzene	13.569	146	340615	36.67	ug/L		99
105) n-Butylbenzene	13.611	91	565776	36.73	ug/L		99
106) Hexachloroethane	13.847	117	86886	32.87	ug/L		98
107) 1,2-Dibromo-3-chloropr...	14.397	157	48753	46.46	ug/L		98
108) 1,3,5-Trichlorobenzene	14.581	180	225750	35.53	ug/L		100
109) 1,2,4-Trichlorobenzene	15.215	180	225131	38.52	ug/L		99
110) Hexachlorobutadiene	15.383	225	62296	28.58	ug/L		97
111) Naphthalene	15.462	128	829564	49.22	ug/L		100
112) 1,2,3-Trichlorobenzene	15.687	180	225776	38.68	ug/L		97
113) 2-Methylnaphthalene	16.610	142	447242	43.82	ug/L		99
114) 1-Methylnaphthalene	16.778	142	374544	39.36	ug/L		99
116) 2-Propanone	1.804	43	99547	40.77	ug/L		99
117) Isopropyl Alcohol	1.940	45	416904	905.06	ug/L		93
118) Acetic Ether	3.581	43	286658	40.17	ug/L		99
119) Isopropyl Acetate	5.133	43	548462	43.20	ug/L	#	94
120) Amyl Acetate	11.676	43	402559	42.86	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY33.D
Acq On : 24 May 2018 12:01 am
Operator : AK
Sample : VCCV3-180523
Misc : 200-20260, 20262, 20261 40PPB
ALS Vial : 32 Sample Multiplier: 1

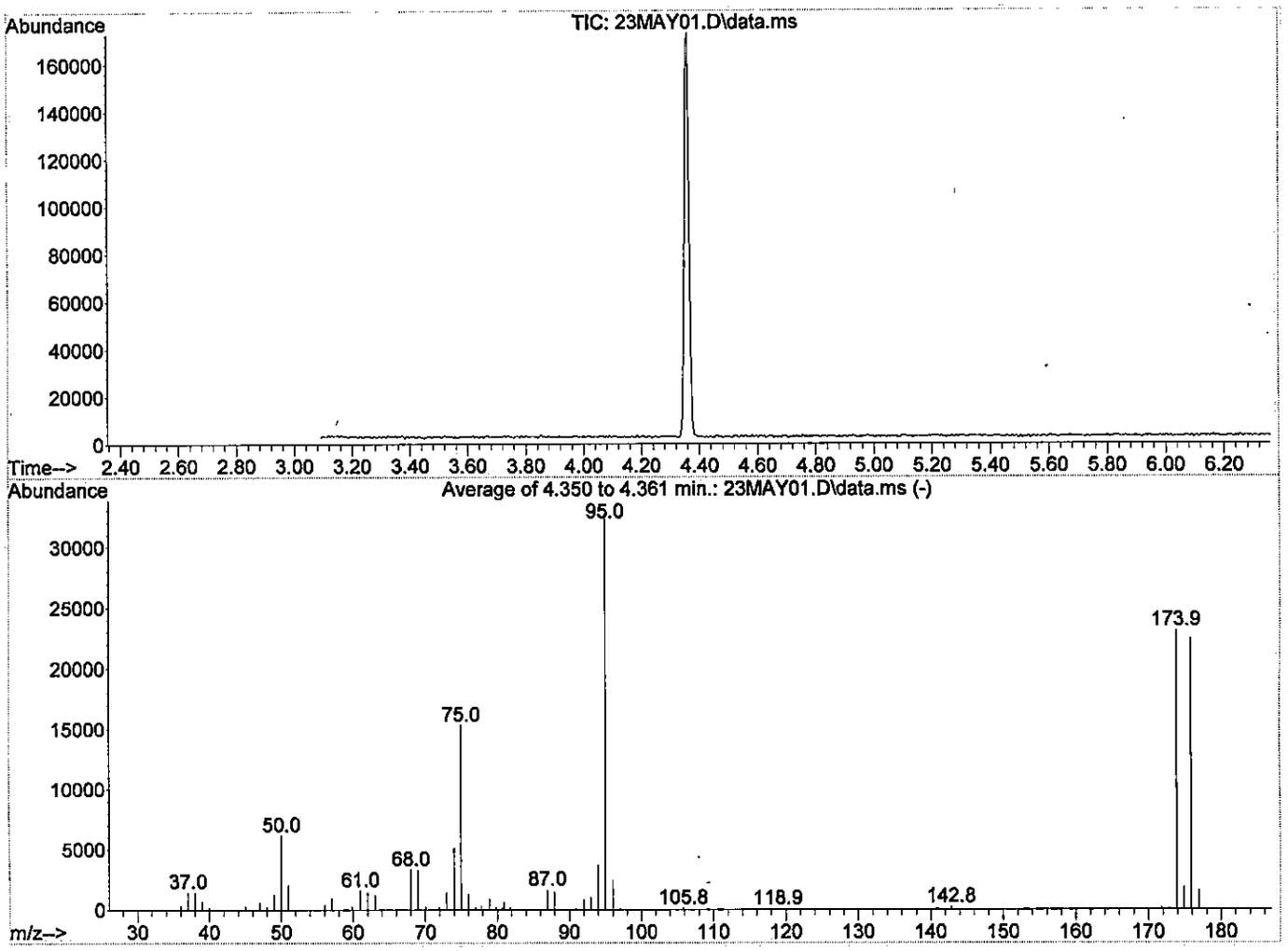
Quant Time: May 24 00:20:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY01.D
Acq On : 23 May 2018 10:03 am
Operator : AK
Sample : VBFB1-180523
Misc : BFB 200-20117
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



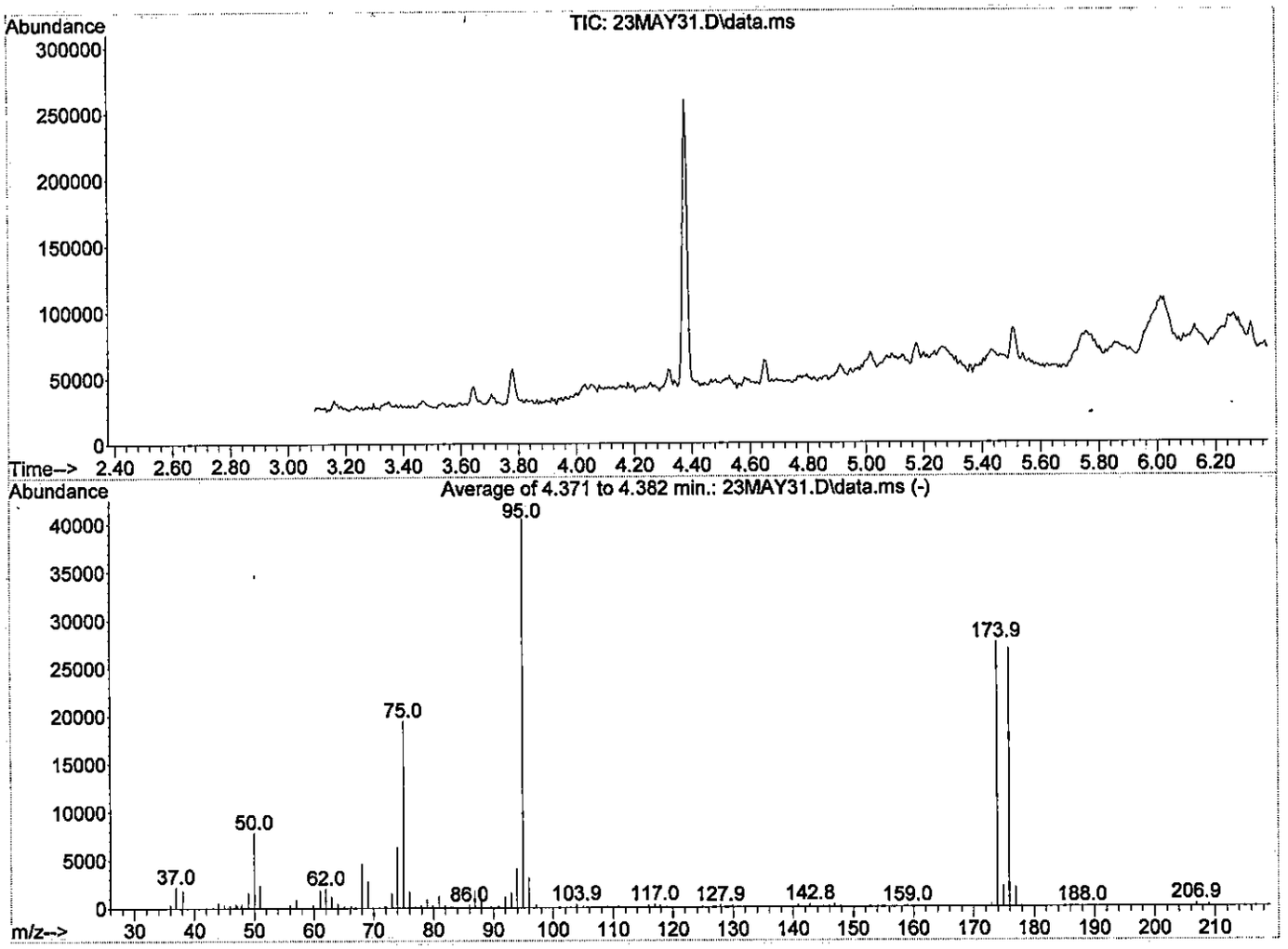
Spectrum Information: Average of 4.350 to 4.361 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	19.1	6141	PASS
75	95	30	80	47.5	15286	PASS
95	95	100	100	100.0	32213	PASS
96	95	5	9	7.5	2424	PASS
173	174	0.00	2	0.5	111	PASS
174	95	50	100	71.4	23015	PASS
175	174	5	9	8.0	1830	PASS
176	174	95	101	97.0	22330	PASS
177	176	5	9	7.0	1573	PASS

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY31.D
Acq On : 23 May 2018 11:12 pm
Operator : AK
Sample : VBFB2-180523
Misc : BFB 200-20117
ALS Vial : 30 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



Spectrum Information: Average of 4.371 to 4.382 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	19.3	7792	PASS
75	95	30	80	48.0	19405	PASS
95	95	100	100	100.0	40459	PASS
96	95	5	9	7.6	3077	PASS
173	174	0.00	2	1.1	301	PASS
174	95	50	100	67.8	27451	PASS
175	174	5	9	7.6	2082	PASS
176	174	95	101	97.5	26763	PASS
177	176	5	9	7.3	1961	PASS

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:39 pm
Operator : AK
Sample : MBLK-118631
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 16:00:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	128668	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.783	114	239268	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.549	117	224103	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	106686	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.434	46	44410	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.226	111	67100	16.59	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 82.95%#			
46) 1,2-Dichloroethane-d4	4.797	65	100880	19.06	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.30%			
65) Toluene-d8	8.572	98	259408	18.94	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.70%			
86) Bromofluorobenzene	11.959	95	111568	18.28	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.40%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D. d		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	3.492	43	8769	2.62	ug/L #	58
33) Ethyl Acetate	0.000		0	N.D. d		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:39 pm
Operator : AK
Sample : MBLK-118631
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 16:00:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	d
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:39 pm
Operator : AK
Sample : MBLK-118631
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

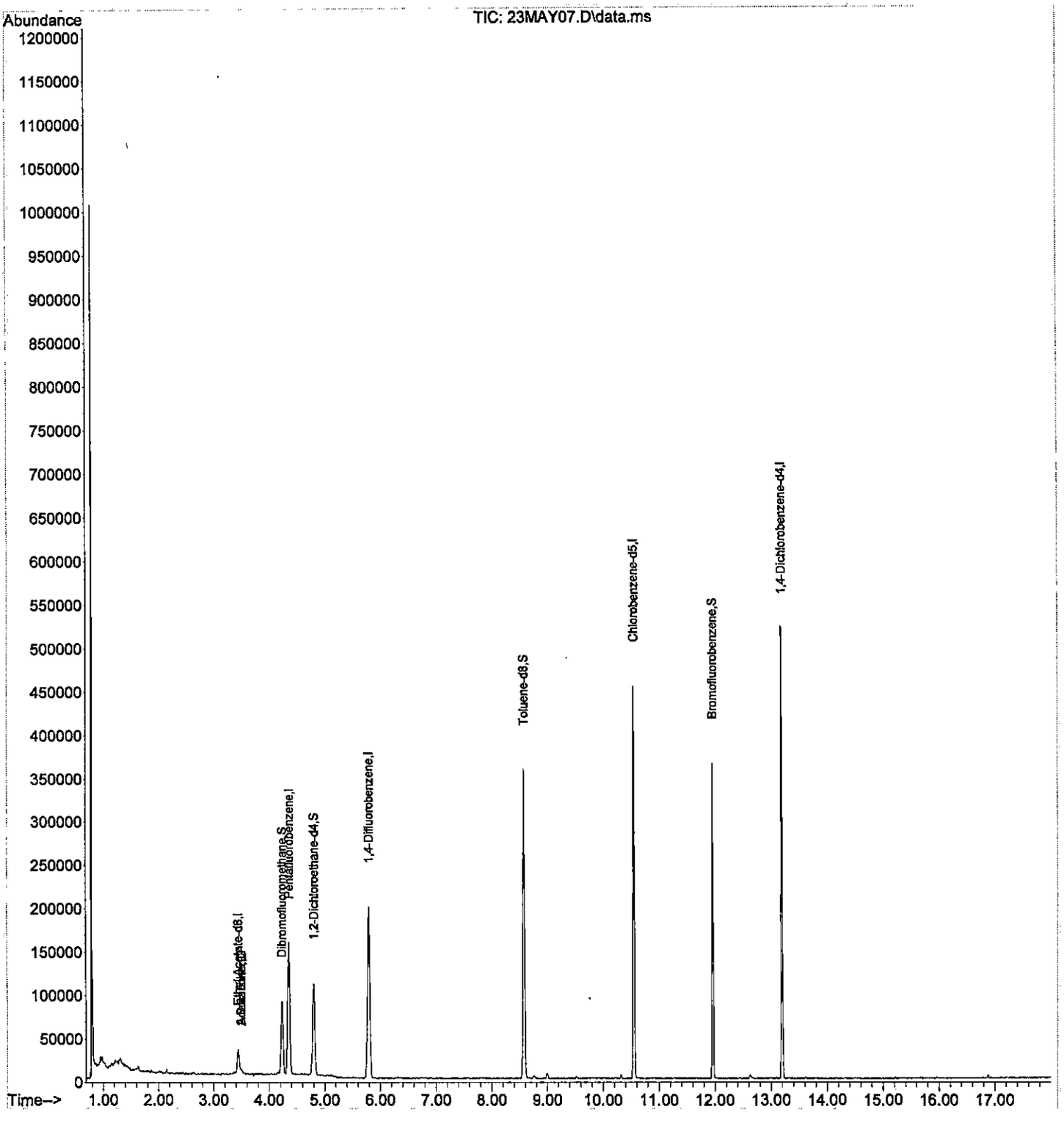
Quant Time: May 23 16:00:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
103) Benzyl chloride	0.000		0	N.D.	
104) 1,2-Dichlorobenzene	0.000		0	N.D.	
105) n-Butylbenzene	0.000		0	N.D.	
106) Hexachloroethane	0.000		0	N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
110) Hexachlorobutadiene	0.000		0	N.D.	
111) Naphthalene	0.000		0	N.D.	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	0.000		0	N.D.	
117) Isopropyl Alcohol	0.000		0	N.D.	
118) Acetic Ether	3.492	43	6874	1.25 ug/L #	67
119) Isopropyl Acetate	0.000		0	N.D.	
120) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:39 pm
Operator : AK
Sample : MBLK-118631
Misc : IS/SS 200-20033
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 23 16:00:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY04.D
Acq On : 23 May 2018 11:26 am
Operator : AK
Sample : LCS-118631
Misc : 200-20259 20PPB
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 23 16:00:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	130763	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	231056	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	241470	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	130055	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.429	46	44510	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.221	111	73984	18.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 94.70%				
46) 1,2-Dichloroethane-d4	4.797	65	102690	20.09	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.45%				
65) Toluene-d8	8.572	98	293485	19.89	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.45%				
86) Bromofluorobenzene	11.954	95	136674	20.79	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	68463	19.29	ug/L		98
3) Chloromethane	0.980	50	127369	18.00	ug/L		99
4) Vinyl chloride	1.043	62	107725	23.16	ug/L		99
5) Bromomethane	1.211	94	14198	30.21	ug/L	#	85
6) Chloroethane	1.279	64	67486	19.26	ug/L		96
7) Trichlorofluoromethane	1.426	101	83362	21.02	ug/L		98
8) Ethanol	1.568	45	84235	381.13	ug/L		99
9) Ethyl ether	1.615	59	79850	23.85	ug/L		99
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.762	61	118341	26.09	ug/L		98
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.872	142	64897	40.47	ug/L		99
14) Acetone	1.798	43	36427	21.48	ug/L		99
15) Carbon disulfide	1.919	76	189418	25.77	ug/L		100
16) Allyl chloride	2.034	41	126337	22.16	ug/L		99
17) Methyl acetate	1.935	43	27971	6.57	ug/L	#	72
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.139	49	129693	22.98	ug/L		97
20) t-Butanol	2.281	59	44227	94.39	ug/L	#	91
21) trans-1,2-Dichloroethene	2.375	61	121686	24.60	ug/L		100
22) Acrylonitrile	2.338	53	50738	23.08	ug/L		95
23) Methyl tert-butyl ether	2.375	73	205712	23.38	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	2.795	63	153723	23.92	ug/L		99
26) Diisopropyl ether	2.863	45	274269	22.52	ug/L		93
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.287	59	197200	22.38	ug/L		99
30) 2,2-Dichloropropane	3.455	77	78714	21.64	ug/L		94
31) cis-1,2-Dichloroethene	3.460	61	140769	23.43	ug/L		99
32) 2-Butanone	3.481	43	61931	20.41	ug/L	#	92
33) Ethyl Acetate	3.571	43	109696	21.25	ug/L	#	97
34) Methyl acrylate	3.612	55	102357	21.80	ug/L		100
35) Propionitrile	3.560	54	18573	18.73	ug/L	#	61
36) Bromochloromethane	3.785	49	83203	24.08	ug/L		98
37) Tetrahydrofuran	3.822	42	33876	17.06	ug/L		99
38) Methacrylonitrile	3.759	67	47680	22.43	ug/L		98

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY04.D
Acq On : 23 May 2018 11:26 am
Operator : AK
Sample : LCS-118631
Misc : 200-20259 20PPB
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 23 16:00:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	3.974	83	133828	23.21 ug/L	97
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	4.168	97	85557	21.49 ug/L	99
44) Carbon tetrachloride	4.409	119	62679	20.33 ug/L	100
45) 1,1-Dichloropropene	4.441	75	96823	19.75 ug/L	97
47) 1,2-Dichloroethane	4.944	62	116940	19.90 ug/L	100
48) Benzene	4.776	78	329818	21.14 ug/L	99
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.175	73	153961	19.68 ug/L #	90
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	69723	20.49 ug/L	99
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	6.748	63	87838	21.12 ug/L	97
56) Dibromomethane	6.921	93	52605	21.63 ug/L	99
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	7.094	41	76223	19.52 ug/L	98
59) Bromodichloromethane	7.387	83	90649	20.56 ug/L	100
60) 2-Nitropropane	7.823	43	18490	19.00 ug/L #	93
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.200	75	100168	20.30 ug/L	98
64) 4-Methyl-2-pentanone	8.515	43	120175	25.22 ug/L	83
66) Toluene	8.677	91	331779	21.01 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.133	75	80912	18.68 ug/L	99
69) Ethyl methacrylate	9.296	69	105177	18.82 ug/L	98
70) 1,1,2-Trichloroethane	9.390	97	78457	20.22 ug/L	96
71) Tetrachloroethene	9.401	166	76211	22.40 ug/L	99
72) 1,3-Dichloropropane	9.579	76	143455	20.77 ug/L	97
73) 2-Hexanone	9.736	43	67530	18.95 ug/L	94
74) Chlorodibromomethane	9.852	129	61550	19.45 ug/L	99
75) Butyl acetate	9.957	43	128974	18.44 ug/L	98
76) 1,2-Dibromoethane	9.951	107	77505	23.88 ug/L #	99
77) Chlorobenzene	10.580	112	220136	20.95 ug/L	99
78) 1,1,1,2-Tetrachloroethane	10.727	131	63491	21.01 ug/L	100
79) Ethylbenzene	10.738	91	368385	21.69 ug/L	99
80) m/p-Xylene	10.906	91	595374	44.18 ug/L	100
81) Styrene	11.372	104	254487	23.36 ug/L	97
82) o-Xylene	11.335	91	303589	22.01 ug/L	99
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.556	173	39397	18.26 ug/L	98
85) Isopropylbenzene	11.776	105	358846	22.85 ug/L	99
87) Bromobenzene	12.064	77	180727	21.78 ug/L	99
88) 1,1,2,2-Tetrachloroethane	12.159	83	140951	20.97 ug/L	100
89) 1,2,3-Trichloropropane	12.190	110	34740	20.15 ug/L	96
90) trans-1,4-Dichloro-2-b...	12.195	53	33881	17.50 ug/L #	80
91) n-Propylbenzene	12.237	91	470331	22.25 ug/L	99
92) 2-Chlorotoluene	12.295	91	297521	22.63 ug/L	98
93) 4-Chlorotoluene	12.437	91	330769	21.93 ug/L	99
94) 1,3,5-Trimethylbenzene	12.452	105	312460	23.23 ug/L	100
95) tert-Butylbenzene	12.772	91	169618	22.10 ug/L	94
96) 1,2,4-Trimethylbenzene	12.840	105	309481	22.14 ug/L	99
97) sec-Butylbenzene	13.008	105	387676	22.58 ug/L	100
99) 1,3-Dichlorobenzene	13.102	146	184111	21.32 ug/L	99
100) p-Isopropyltoluene	13.192	119	308539	22.31 ug/L	99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY04.D
Acq On : 23 May 2018 11:26 am
Operator : AK
Sample : LCS-118631
Misc : 200-20259 20PPB
ALS Vial : 3 Sample Multiplier: 1

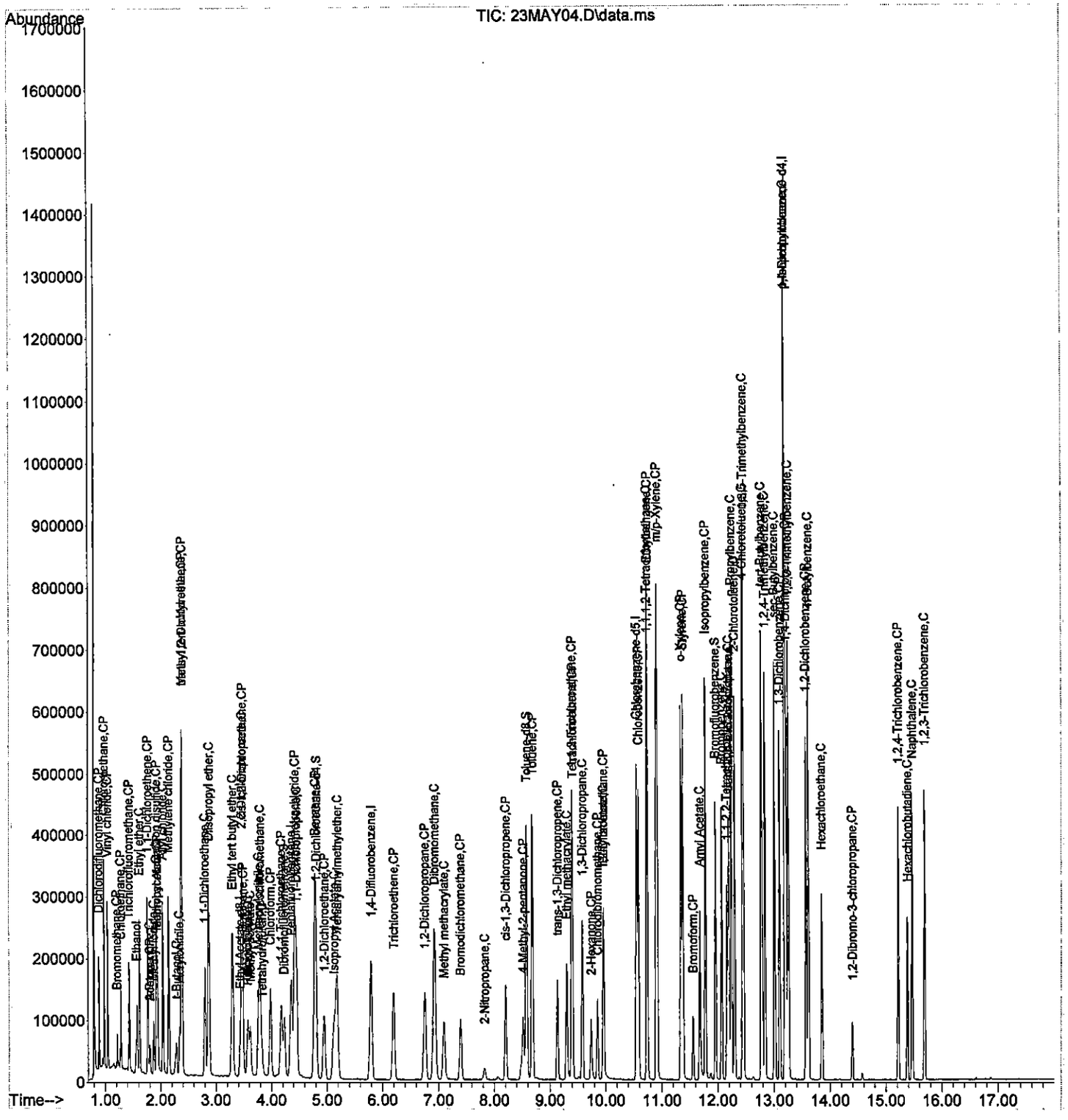
Quant Time: May 23 16:00:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	190806	21.06 ug/L	99
102) 1,2,3-Trimethylbenzene	13.254	105	331775	21.53 ug/L	99
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	13.569	146	179459	20.81 ug/L	99
105) n-Butylbenzene	13.611	91	323188	22.61 ug/L	99
106) Hexachloroethane	13.847	117	43948	17.91 ug/L	99
107) 1,2-Dibromo-3-chloropr...	14.397	157	18133	18.62 ug/L	99
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.215	180	107266	19.77 ug/L	99
110) Hexachlorobutadiene	15.383	225	42184	20.85 ug/L	99
111) Naphthalene	15.467	128	296432	18.95 ug/L	100
112) 1,2,3-Trichlorobenzene	15.687	180	111820	20.64 ug/L	100
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.798	43	36427	19.08 ug/L	99
117) Isopropyl Alcohol	1.935	45	145953	409.29 ug/L	98
118) Acetic Ether	3.571	43	109696	19.85 ug/L	99
119) Isopropyl Acetate	5.122	43	187798	19.11 ug/L #	95
120) Amyl Acetate	11.676	43	131841	21.09 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY04.D
Acq On : 23 May 2018 11:26 am
Operator : AK
Sample : LCS-118631
Misc : 200-20259 20PPB
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 23 16:00:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 9:58 pm
Operator : AK
Sample : 18051308-01A MS
Misc : IS/SS 200-20033
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 24 08:35:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.347	168	155877	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	262686	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	265817	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	141573	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.450	46	55280	20.00	ug/L	#	0.02
System Monitoring Compounds							
43) Dibromofluoromethane	4.231	111	80210	18.06	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 90.30%				
46) 1,2-Dichloroethane-d4	4.797	65	104451	17.98	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 89.90%				
65) Toluene-d8	8.572	98	322683	19.86	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.30%				
86) Bromofluorobenzene	11.959	95	147616	20.39	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 101.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.881	85	66734	15.77	ug/L		98
3) Chloromethane	0.981	50	117099	13.88	ug/L		99
4) Vinyl chloride	1.043	62	104111	18.78	ug/L		100
5) Bromomethane	1.211	94	7334	14.10	ug/L	#	91
6) Chloroethane	1.269	64	7375	1.46	ug/L	#	49
7) Trichlorofluoromethane	1.405	101	82218	17.39	ug/L		97
8) Ethanol	1.625	45	172418	659.20	ug/L	#	85
9) Ethyl ether	1.620	59	77358	19.39	ug/L		98
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.751	61	111281	20.58	ug/L		97
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.861	142	55359	29.99	ug/L		99
14) Acetone	1.825	43	79250	39.28	ug/L		97
15) Carbon disulfide	1.903	76	158911	18.14	ug/L		99
16) Allyl chloride	2.029	41	120476	17.73	ug/L		97
17) Methyl acetate	2.050	43	19067	3.75	ug/L	#	45
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.139	49	122490	18.14	ug/L		100
20) t-Butanol	2.333	59	77492	138.74	ug/L	#	91
21) trans-1,2-Dichloroethene	2.370	61	112032	19.00	ug/L		99
22) Acrylonitrile	2.354	53	60248	22.99	ug/L		97
23) Methyl tert-butyl ether	2.391	73	228817	21.82	ug/L		89
24) Hexane	2.627	57	31305	6.38	ug/L		98
25) 1,1-Dichloroethane	2.795	63	146909	19.18	ug/L		99
26) Diisopropyl ether	2.873	45	279069	19.22	ug/L		95
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.303	59	225481	21.47	ug/L		100
30) 2,2-Dichloropropane	3.455	77	70255	16.21	ug/L		98
31) cis-1,2-Dichloroethene	3.460	61	138546	19.34	ug/L		97
32) 2-Butanone	3.513	43	100127	27.82	ug/L		99
33) Ethyl Acetate	3.592	43	139633	22.69	ug/L		99
34) Methyl acrylate	3.628	55	122009	21.80	ug/L		100
35) Propionitrile	3.597	54	26271	22.22	ug/L	#	92
36) Bromochloromethane	3.786	49	79960	19.41	ug/L		99
37) Tetrahydrofuran	3.843	42	46941	19.83	ug/L		99
38) Methacrylonitrile	3.780	67	56066	22.13	ug/L		97

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 9:58 pm
Operator : AK
Sample : 18051308-01A MS
Misc : IS/SS 200-20033
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 24 08:35:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Chloroform	3.980	83	135801	19.76	ug/L		98
40) Cyclohexane	4.252	56	20720	3.10	ug/L	#	86
42) 1,1,1-Trichloroethane	4.168	97	88166	19.48	ug/L		100
44) Carbon tetrachloride	4.409	119	62830	17.92	ug/L		99
45) 1,1-Dichloropropene	4.441	75	101229	18.16	ug/L		99
47) 1,2-Dichloroethane	4.949	62	115532	17.29	ug/L		99
48) Benzene	4.776	78	349805	19.73	ug/L		99
49) Isobutyl Alcohol	5.511	43	85993	17.49	ug/L	#	96
50) Tertiaryamylmethylether	5.185	73	192987	21.70	ug/L	#	83
51) Heptane	5.511	43	85993	17.49	ug/L		93
52) Methylcyclohexane	6.617	83	29961	5.51	ug/L		97
53) Trichloroethene	6.192	130	87472	22.62	ug/L		97
54) n-Butanol	0.000		0	N.D.			
55) 1,2-Dichloropropane	6.753	63	91002	19.25	ug/L		98
56) Dibromomethane	6.926	93	54245	19.62	ug/L		99
57) 1,4-Dioxane	0.000		0	N.D.			
58) Methyl methacrylate	7.110	41	94932	21.39	ug/L		98
59) Bromodichloromethane	7.393	83	83687	16.69	ug/L		97
60) 2-Nitropropane	7.833	43	20401	18.44	ug/L	#	96
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.			
62) cis-1,3-Dichloropropene	8.205	75	99916	17.81	ug/L		100
64) 4-Methyl-2-pentanone	8.525	43	163009	31.08	ug/L	#	16
66) Toluene	8.677	91	362226	20.84	ug/L		99
67) Chloropicrin	0.000		0	N.D.			
68) trans-1,3-Dichloropropene	9.139	75	87239	18.30	ug/L		100
69) Ethyl methacrylate	9.306	69	138641	22.30	ug/L		97
70) 1,1,2-Trichloroethane	9.396	97	90568	21.20	ug/L		98
71) Tetrachloroethene	9.401	166	137757	36.78	ug/L		99
72) 1,3-Dichloropropane	9.579	76	162277	21.35	ug/L		99
73) 2-Hexanone	9.742	43	123233	31.42	ug/L		99
74) Chlorodibromomethane	9.852	129	66150	18.99	ug/L		100
75) Butyl acetate	9.962	43	192493	25.01	ug/L		99
76) 1,2-Dibromoethane	9.951	107	88487	24.77	ug/L	#	98
77) Chlorobenzene	10.581	112	228077	19.71	ug/L		99
78) 1,1,1,2-Tetrachloroethane	10.733	131	65488	19.68	ug/L		99
79) Ethylbenzene	10.738	91	393391	21.04	ug/L		100
80) m/p-Xylene	10.906	91	627076	42.27	ug/L		100
81) Styrene	11.372	104	260622	21.73	ug/L		100
82) o-Xylene	11.336	91	327633	21.58	ug/L		100
83) Cyclohexanone	11.923	55	5861	16.54	ug/L	#	29
84) Bromoform	11.556	173	44056	18.55	ug/L		98
85) Isopropylbenzene	11.776	105	378720	21.90	ug/L		99
87) Bromobenzene	12.070	77	183891	20.13	ug/L		99
88) 1,1,2,2-Tetrachloroethane	12.164	83	125633	16.98	ug/L		99
89) 1,2,3-Trichloropropane	12.195	110	46019	24.24	ug/L		94
90) trans-1,4-Dichloro-2-b...	12.195	53	36977	17.35	ug/L	#	87
91) n-Propylbenzene	12.237	91	497501	21.38	ug/L		100
92) 2-Chlorotoluene	12.295	91	295355	20.40	ug/L		99
93) 4-Chlorotoluene	12.442	91	341354	20.56	ug/L		99
94) 1,3,5-Trimethylbenzene	12.452	105	334166	22.56	ug/L		99
95) tert-Butylbenzene	12.772	91	189169	22.39	ug/L		97
96) 1,2,4-Trimethylbenzene	12.840	105	355734	23.11	ug/L		99
97) sec-Butylbenzene	13.008	105	438032	23.18	ug/L		99
99) 1,3-Dichlorobenzene	13.102	146	187968	19.99	ug/L		99
100) p-Isopropyltoluene	13.192	119	359720	23.89	ug/L		99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 9:58 pm
Operator : AK
Sample : 18051308-01A MS
Misc : IS/SS 200-20033
ALS Vial : 27 Sample Multiplier: 1

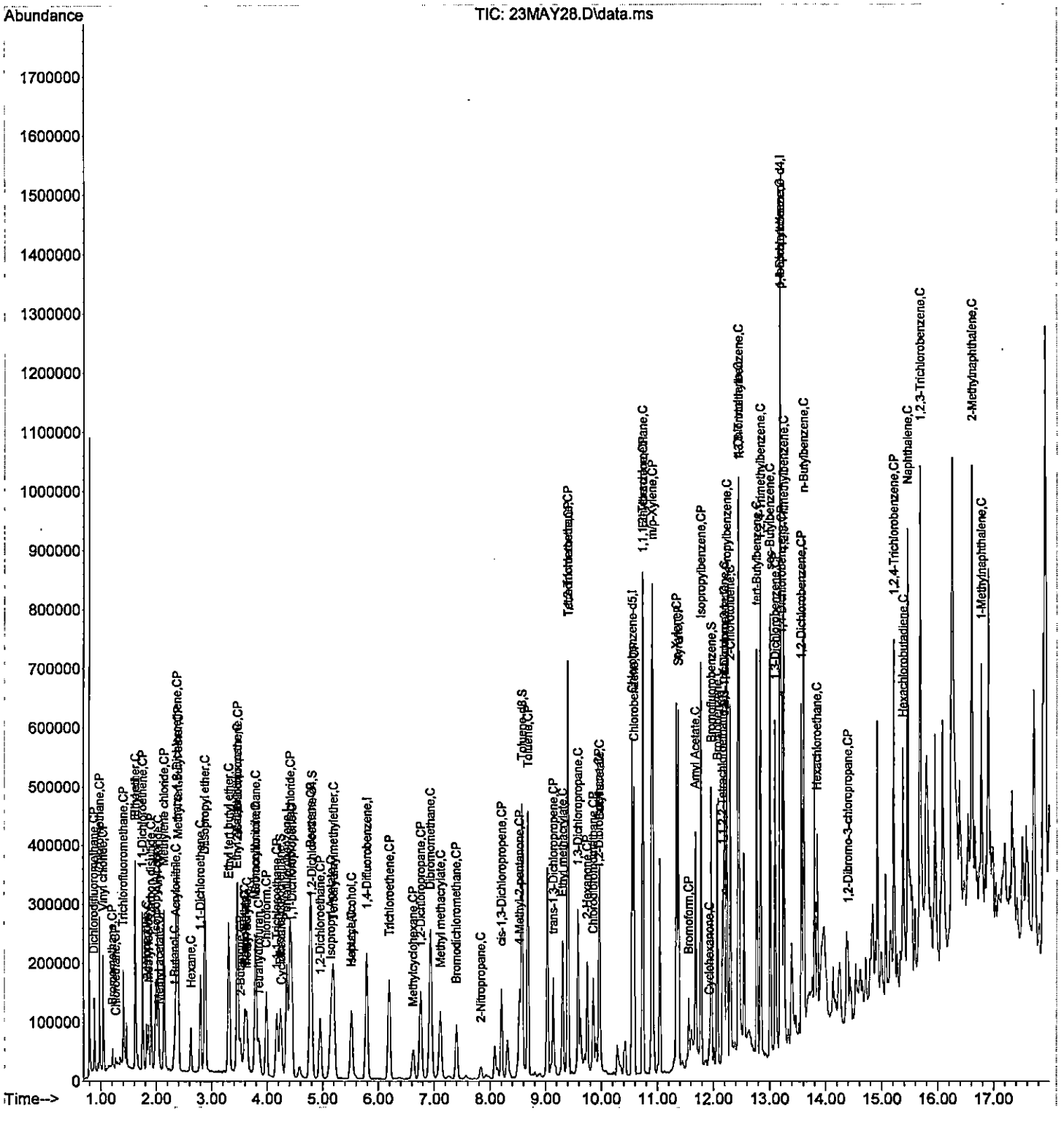
Quant Time: May 24 08:35:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	194523	19.72 ug/L	100
102) 1,2,3-Trimethylbenzene	13.254	105	366926	21.87 ug/L	99
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	13.569	146	188502	20.08 ug/L	99
105) n-Butylbenzene	13.611	91	388910	24.99 ug/L	99
106) Hexachloroethane	13.847	117	43297	16.21 ug/L	89
107) 1,2-Dibromo-3-chloropr...	14.397	157	22717	21.42 ug/L #	72
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.215	180	132681	22.47 ug/L	97
110) Hexachlorobutadiene	15.383	225	59293	26.92 ug/L	99
111) Naphthalene	15.462	128	463663	27.23 ug/L	99
112) 1,2,3-Trichlorobenzene	15.687	180	121702	20.63 ug/L	98
113) 2-Methylnaphthalene	16.610	142	219250	23.04 ug/L	100
114) 1-Methylnaphthalene	16.778	142	150388	16.75 ug/L	99
116) 2-Propanone	1.825	43	79250	33.70 ug/L	97
117) Isopropyl Alcohol	1.998	45	210442	475.16 ug/L #	91
118) Acetic Ether	3.592	43	139633	20.35 ug/L	98
119) Isopropyl Acetate	5.143	43	237651	19.47 ug/L #	87
120) Amyl Acetate	11.676	43	187706	23.73 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 9:58 pm
Operator : AK
Sample : 18051308-01A MS
Misc : IS/SS 200-20033
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 24 08:35:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 10:23 pm
Operator : AK
Sample : 18051308-01A MSD
Misc : IS/SS 200-20033
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 24 08:36:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	160475	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	279024	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.549	117	274663	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.197	152	144356	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.450	46	58467	20.00	ug/L	#	0.02
System Monitoring Compounds							
43) Dibromofluoromethane	4.236	111	81797	17.34	ug/L		0.01
Spiked Amount 20.000	Range 85 - 115		Recovery = 86.70%				
46) 1,2-Dichloroethane-d4	4.802	65	107774	17.46	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 87.30%				
65) Toluene-d8	8.572	98	338037	20.14	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.70%				
86) Bromofluorobenzene	11.959	95	154852	20.70	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.881	85	67368	15.46	ug/L		98
3) Chloromethane	0.980	50	125050	14.40	ug/L		100
4) Vinyl chloride	1.043	62	107444	18.82	ug/L		100
5) Bromomethane	1.211	94	7188	13.36	ug/L	#	92
6) Chloroethane	1.269	64	9470	1.89	ug/L	#	49
7) Trichlorofluoromethane	1.405	101	77670	15.96	ug/L		97
8) Ethanol	1.625	45	174442	647.72	ug/L	#	83
9) Ethyl ether	1.625	59	82027	19.97	ug/L		99
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.751	61	113096	20.32	ug/L		99
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.856	142	56996	29.99	ug/L		98
14) Acetone	1.824	43	70595	34.10	ug/L		99
15) Carbon disulfide	1.903	76	162347	18.00	ug/L		99
16) Allyl chloride	2.029	41	117538	16.80	ug/L		97
17) Methyl acetate	2.050	43	18452	3.53	ug/L	#	10
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.139	49	124128	17.85	ug/L		99
20) t-Butanol	2.349	59	65238	113.45	ug/L	#	83
21) trans-1,2-Dichloroethene	2.370	61	114341	18.83	ug/L		99
22) Acrylonitrile	2.354	53	63760	23.64	ug/L		96
23) Methyl tert-butyl ether	2.391	73	251494	23.29	ug/L		95
24) Hexane	2.621	57	13659	2.70	ug/L	#	82
25) 1,1-Dichloroethane	2.794	63	148819	18.87	ug/L		99
26) Diisopropyl ether	2.878	45	290490	19.44	ug/L		95
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.308	59	244833	22.64	ug/L		99
30) 2,2-Dichloropropane	3.455	77	74641	16.72	ug/L		93
31) cis-1,2-Dichloroethene	3.460	61	137581	18.66	ug/L		98
32) 2-Butanone	3.513	43	79992	21.50	ug/L		92
33) Ethyl Acetate	3.597	43	154956	24.46	ug/L		98
34) Methyl acrylate	3.628	55	133878	23.24	ug/L		99
35) Propionitrile	3.591	54	26056	21.41	ug/L	#	61
36) Bromochloromethane	3.791	49	81709	19.27	ug/L		87
37) Tetrahydrofuran	3.843	42	44595	18.30	ug/L		89
38) Methacrylonitrile	3.780	67	62359	23.91	ug/L		92

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 10:23 pm
Operator : AK
Sample : 18051308-01A MSD
Misc : IS/SS 200-20033
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 24 08:36:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	3.985	83	140385	19.84	ug/L		99
40)	Cyclohexane	4.252	56	7144	1.04	ug/L	#	59
42)	1,1,1-Trichloroethane	4.168	97	89773	18.68	ug/L		100
44)	Carbon tetrachloride	4.409	119	63204	16.97	ug/L		98
45)	1,1-Dichloropropene	4.435	75	103198	17.43	ug/L		99
47)	1,2-Dichloroethane	4.949	62	121289	17.09	ug/L		99
48)	Benzene	4.771	78	353591	18.77	ug/L		99
49)	Isobutyl Alcohol	5.510	43	18667	3.58	ug/L	#	83
50)	Tertiaryamylmethylether	5.196	73	213687	22.62	ug/L	#	79
51)	Heptane	5.510	43	18667	3.58	ug/L		91
52)	Methylcyclohexane	6.627	83	10217	1.77	ug/L	#	59
53)	Trichloroethene	6.192	130	80291	19.54	ug/L		98
54)	n-Butanol	0.000		0	N.D.			
55)	1,2-Dichloropropane	6.758	63	96500	19.21	ug/L		99
56)	Dibromomethane	6.921	93	56309	19.17	ug/L		99
57)	1,4-Dioxane	0.000		0	N.D.			
58)	Methyl methacrylate	7.115	41	105974	22.47	ug/L		97
59)	Bromodichloromethane	7.403	83	89043	16.72	ug/L		98
60)	2-Nitropropane	7.833	43	24522	20.87	ug/L	#	95
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.			
62)	cis-1,3-Dichloropropene	8.205	75	111814	18.76	ug/L		98
64)	4-Methyl-2-pentanone	8.530	43	179378	33.10	ug/L	#	18
66)	Toluene	8.677	91	360041	20.04	ug/L		99
67)	Chloropicrin	0.000		0	N.D.			
68)	trans-1,3-Dichloropropene	9.138	75	95485	19.38	ug/L		98
69)	Ethyl methacrylate	9.306	69	143853	22.38	ug/L		98
70)	1,1,2-Trichloroethane	9.395	97	93147	21.10	ug/L		99
71)	Tetrachloroethene	9.401	166	133084	34.39	ug/L		99
72)	1,3-Dichloropropane	9.584	76	169330	21.56	ug/L		99
73)	2-Hexanone	9.747	43	115405	28.47	ug/L		99
74)	Chlorodibromomethane	9.857	129	67121	18.65	ug/L		99
75)	Butyl acetate	9.967	43	198901	25.01	ug/L		98
76)	1,2-Dibromoethane	9.956	107	91582	24.81	ug/L	#	99
77)	Chlorobenzene	10.580	112	232989	19.49	ug/L		99
78)	1,1,1,2-Tetrachloroethane	10.732	131	69457	20.20	ug/L		97
79)	Ethylbenzene	10.738	91	398802	20.64	ug/L		99
80)	m/p-Xylene	10.911	91	625355	40.80	ug/L		99
81)	Styrene	11.372	104	267698	21.60	ug/L		98
82)	o-Xylene	11.335	91	331125	21.11	ug/L		100
83)	Cyclohexanone	11.928	55	5419	14.80	ug/L	#	29
84)	Bromoform	11.561	173	44293	18.05	ug/L		99
85)	Isopropylbenzene	11.776	105	388902	21.77	ug/L		100
87)	Bromobenzene	12.069	77	187661	19.88	ug/L		100
88)	1,1,2,2-Tetrachloroethane	12.164	83	153303	20.05	ug/L		99
89)	1,2,3-Trichloropropane	12.195	110	44224	22.55	ug/L		98
90)	trans-1,4-Dichloro-2-b...	12.200	53	38377	17.43	ug/L		97
91)	n-Propylbenzene	12.237	91	498655	20.74	ug/L		99
92)	2-Chlorotoluene	12.300	91	308050	20.59	ug/L		99
93)	4-Chlorotoluene	12.442	91	352148	20.53	ug/L		99
94)	1,3,5-Trimethylbenzene	12.452	105	335903	21.95	ug/L		100
95)	tert-Butylbenzene	12.772	91	189313	21.69	ug/L		98
96)	1,2,4-Trimethylbenzene	12.840	105	351580	22.11	ug/L		100
97)	sec-Butylbenzene	13.008	105	432712	22.16	ug/L		100
99)	1,3-Dichlorobenzene	13.102	146	189891	19.81	ug/L		99
100)	p-Isopropyltoluene	13.191	119	361801	23.57	ug/L		100

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 10:23 pm
Operator : AK
Sample : 18051308-01A MSD
Misc : IS/SS 200-20033
ALS Vial : 28 Sample Multiplier: 1

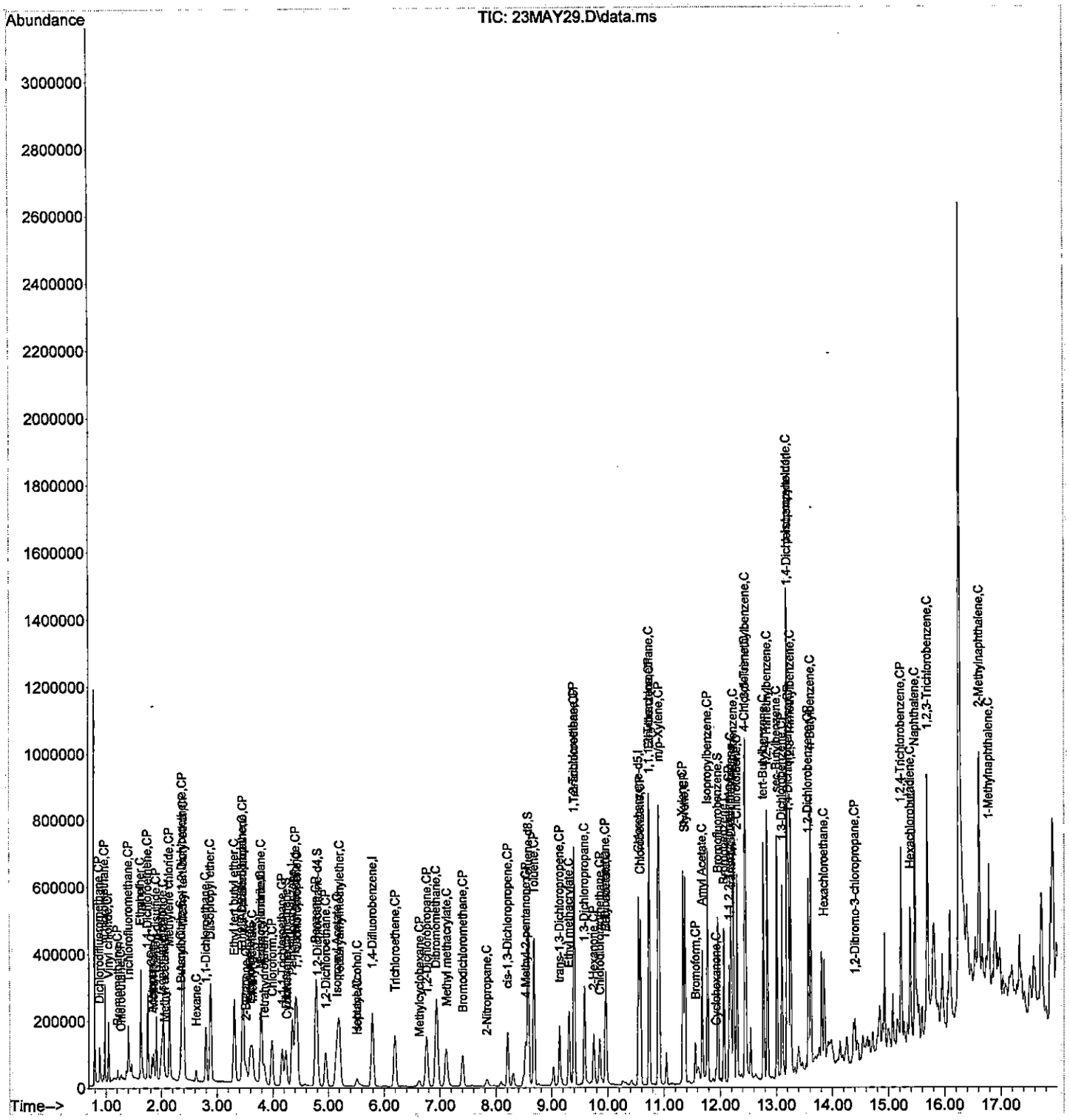
Quant Time: May 24 08:36:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	196775	19.57 ug/L		99
102) 1,2,3-Trimethylbenzene	13.254	105	373135	21.82 ug/L		100
103) Benzyl chloride	0.000		0	N.D. d		
104) 1,2-Dichlorobenzene	13.569	146	190048	19.86 ug/L		99
105) n-Butylbenzene	13.611	91	385264	24.28 ug/L		99
106) Hexachloroethane	13.847	117	44317	16.27 ug/L		91
107) 1,2-Dibromo-3-chloropr...	14.397	157	22876	21.16 ug/L	#	82
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	15.215	180	134031	22.26 ug/L		100
110) Hexachlorobutadiene	15.383	225	60109	26.76 ug/L		99
111) Naphthalene	15.467	128	468555	26.99 ug/L		100
112) 1,2,3-Trichlorobenzene	15.687	180	125420	20.85 ug/L		99
113) 2-Methylnaphthalene	16.610	142	203373	21.13 ug/L		99
114) 1-Methylnaphthalene	16.778	142	132563	14.60 ug/L		96
116) 2-Propanone	1.824	43	70595	28.33 ug/L		99
117) Isopropyl Alcohol	2.003	45	181733	387.97 ug/L	#	88
118) Acetic Ether	3.597	43	151813	20.92 ug/L		98
119) Isopropyl Acetate	5.149	43	263365	20.40 ug/L	#	77
120) Amyl Acetate	11.681	43	192879	23.15 ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 10:23 pm
Operator : AK
Sample : 18051308-01A MSD
Misc : IS/SS 200-20033
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 24 08:36:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY06.D
Acq On : 23 May 2018 12:14 pm
Operator : AK
Sample : VBLKW1-180523
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 16:00:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.352	168	125584	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.788	114	216100	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.544	117	206373	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	101455	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.429	46	40316	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.231	111	66213	18.13	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 90.65%			
46) 1,2-Dichloroethane-d4	4.797	65	95590	20.00	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.00%			
65) Toluene-d8	8.572	98	250579	19.87	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%			
86) Bromofluorobenzene	11.954	95	99570	17.72	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 88.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY06.D
Acq On : 23 May 2018 12:14 pm
Operator : AK
Sample : VBLKW1-180523
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 16:00:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.	d	
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY06.D
Acq On : 23 May 2018 12:14 pm
Operator : AK
Sample : VBLKW1-180523
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

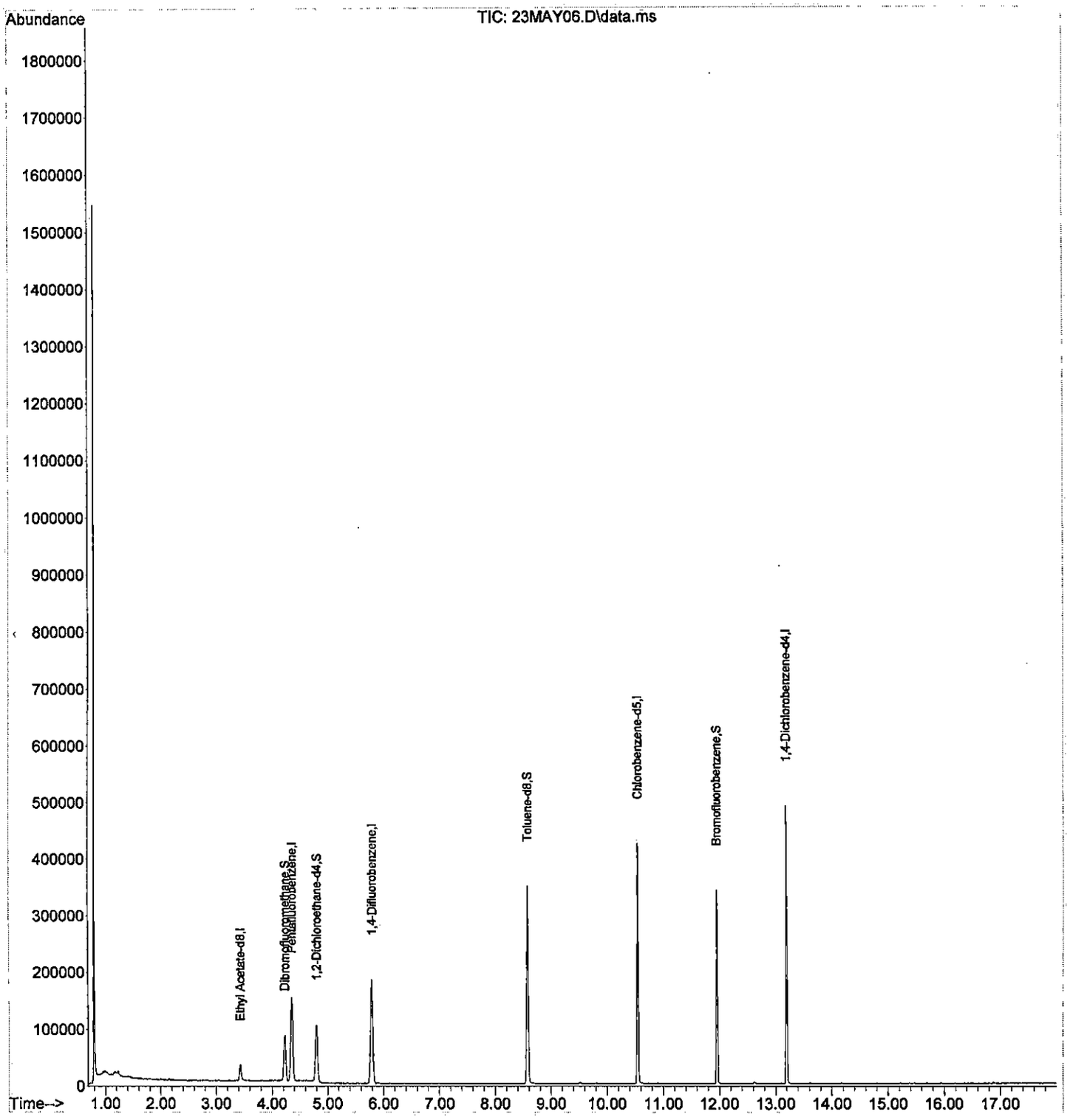
Quant Time: May 23 16:00:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0		N.D.	
102) 1,2,3-Trimethylbenzene	0.000		0		N.D.	
103) Benzyl chloride	0.000		0		N.D.	
104) 1,2-Dichlorobenzene	0.000		0		N.D.	
105) n-Butylbenzene	0.000		0		N.D.	
106) Hexachloroethane	0.000		0		N.D.	
107) 1,2-Dibromo-3-chloropr...	0.000		0		N.D.	
108) 1,3,5-Trichlorobenzene	0.000		0		N.D.	
109) 1,2,4-Trichlorobenzene	0.000		0		N.D.	
110) Hexachlorobutadiene	0.000		0		N.D.	
111) Naphthalene	0.000		0		N.D.	
112) 1,2,3-Trichlorobenzene	0.000		0		N.D.	
113) 2-Methylnaphthalene	0.000		0		N.D.	
114) 1-Methylnaphthalene	0.000		0		N.D.	
116) 2-Propanone	0.000		0		N.D.	
117) Isopropyl Alcohol	0.000		0		N.D.	
118) Acetic Ether	0.000		0		N.D.	
119) Isopropyl Acetate	0.000		0		N.D.	
120) Amyl Acetate	0.000		0		N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY06.D
Acq On : 23 May 2018 12:14 pm
Operator : AK
Sample : VBLKW1-180523
Misc : IS/SS 200-20033
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 23 16:00:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY03.D
Acq On : 23 May 2018 11:02 am
Operator : AK
Sample : VLCSW1-180523
Misc : 200-20259 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 23 16:00:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.341	168	134971	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	5.778	114	235481	20.00	ug/L	-0.01
63) Chlorobenzene-d5	10.544	117	247885	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.192	152	136598	20.00	ug/L	0.00
115) Ethyl Acetate-d8	3.424	46	38282	20.00	ug/L	#-0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.215	111	72817	18.29	ug/L	-0.01
Spiked Amount 20.000	Range 85 - 115		Recovery = 91.45%			
46) 1,2-Dichloroethane-d4	4.792	65	103304	19.83	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.15%			
65) Toluene-d8	8.567	98	304809	20.12	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.60%			
86) Bromofluorobenzene	11.954	95	139957	20.73	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.65%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.886	85	66754	18.22	ug/L	99
3) Chloromethane	0.980	50	129423	17.72	ug/L	100
4) Vinyl chloride	1.043	62	109743	22.86	ug/L	99
5) Bromomethane	1.211	94	15034	30.83	ug/L #	90
6) Chloroethane	1.279	64	71182	19.71	ug/L	97
7) Trichlorofluoromethane	1.431	101	83166	20.32	ug/L	99
8) Ethanol	1.562	45	70755	308.92	ug/L	99
9) Ethyl ether	1.615	59	79473	23.00	ug/L	98
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	1.762	61	117811	25.16	ug/L	100
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	1.867	142	65047	39.44	ug/L	99
14) Acetone	1.798	43	30483	17.23	ug/L	100
15) Carbon disulfide	1.919	76	197507	26.03	ug/L	99
16) Allyl chloride	2.034	41	125957	21.41	ug/L	99
17) Methyl acetate	1.935	43	16920	3.85	ug/L #	61
18) Acetonitrile	0.000		0	N.D. d		
19) Methylene chloride	2.139	49	131912	22.64	ug/L	99
20) t-Butanol	2.270	59	34894	72.15	ug/L #	91
21) trans-1,2-Dichloroethene	2.375	61	122335	23.96	ug/L	99
22) Acrylonitrile	2.333	53	44454	19.59	ug/L	97
23) Methyl tert-butyl ether	2.375	73	196928	21.69	ug/L	99
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	2.795	63	156485	23.59	ug/L	99
26) Diisopropyl ether	2.857	45	270445	21.51	ug/L	93
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	3.282	59	195465	21.49	ug/L	99
30) 2,2-Dichloropropane	3.455	77	78561	20.93	ug/L	94
31) cis-1,2-Dichloroethene	3.460	61	140837	22.71	ug/L	99
32) 2-Butanone	3.481	43	52554	16.72	ug/L #	94
33) Ethyl Acetate	3.565	43	97267	18.25	ug/L #	96
34) Methyl acrylate	3.607	55	87162	17.99	ug/L	98
35) Propionitrile	3.550	54	17453	17.05	ug/L #	61
36) Bromochloromethane	3.780	49	84089	23.58	ug/L	98
37) Tetrahydrofuran	3.812	42	28784	14.05	ug/L	98
38) Methacrylonitrile	3.759	67	42862	19.54	ug/L	97

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY03.D
Acq On : 23 May 2018 11:02 am
Operator : AK
Sample : VLCSW1-180523
Misc : 200-20259 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 23 16:00:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Chloroform	3.974	83	131396	22.08 ug/L		97
40)	Cyclohexane	0.000		0	N.D.		
42)	1,1,1-Trichloroethane	4.168	97	85382	21.05 ug/L		99
44)	Carbon tetrachloride	4.409	119	62401	19.86 ug/L		99
45)	1,1-Dichloropropene	4.441	75	99170	19.85 ug/L		98
47)	1,2-Dichloroethane	4.939	62	115415	19.27 ug/L		99
48)	Benzene	4.771	78	333829	21.00 ug/L		99
49)	Isobutyl Alcohol	0.000		0	N.D.		
50)	Tertiaryamylmethylether	5.170	73	149126	18.71 ug/L	#	91
51)	Heptane	0.000		0	N.D.		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	Trichloroethene	6.187	130	70761	20.41 ug/L		97
54)	n-Butanol	0.000		0	N.D.		
55)	1,2-Dichloropropane	6.748	63	86614	20.43 ug/L		95
56)	Dibromomethane	6.916	93	51112	20.62 ug/L		99
57)	1,4-Dioxane	0.000		0	N.D.		
58)	Methyl methacrylate	7.089	41	69675	17.51 ug/L		96
59)	Bromodichloromethane	7.387	83	90268	20.09 ug/L		99
60)	2-Nitropropane	7.817	43	16175	16.31 ug/L	#	95
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.		
62)	cis-1,3-Dichloropropene	8.195	75	99714	19.83 ug/L		99
64)	4-Methyl-2-pentanone	8.504	43	103467	21.15 ug/L		83
66)	Toluene	8.672	91	332606	20.52 ug/L		100
67)	Chloropicrin	0.000		0	N.D.		
68)	trans-1,3-Dichloropropene	9.128	75	81083	18.24 ug/L		96
69)	Ethyl methacrylate	9.296	69	94716	16.63 ug/L		96
70)	1,1,2-Trichloroethane	9.385	97	77391	19.43 ug/L		99
71)	Tetrachloroethene	9.401	166	76127	21.79 ug/L		97
72)	1,3-Dichloropropane	9.579	76	140663	19.84 ug/L		100
73)	2-Hexanone	9.731	43	57107	15.61 ug/L		94
74)	Chlorodibromomethane	9.846	129	61348	18.88 ug/L		99
75)	Butyl acetate	9.957	43	113865	15.86 ug/L		98
76)	1,2-Dibromoethane	9.946	107	73472	22.06 ug/L	#	99
77)	Chlorobenzene	10.580	112	224103	20.77 ug/L		100
78)	1,1,1,2-Tetrachloroethane	10.727	131	63158	20.36 ug/L		99
79)	Ethylbenzene	10.738	91	373911	21.44 ug/L		98
80)	m/p-Xylene	10.906	91	610152	44.10 ug/L		99
81)	Styrene	11.372	104	259198	23.17 ug/L		98
82)	o-Xylene	11.335	91	307360	21.71 ug/L		100
83)	Cyclohexanone	0.000		0	N.D.		
84)	Bromoform	11.550	173	38019	17.16 ug/L		98
85)	Isopropylbenzene	11.776	105	364248	22.59 ug/L		100
87)	Bromobenzene	12.064	77	183778	21.57 ug/L		98
88)	1,1,2,2-Tetrachloroethane	12.159	83	128288	18.59 ug/L		99
89)	1,2,3-Trichloropropane	12.190	110	31278	17.67 ug/L		97
90)	trans-1,4-Dichloro-2-b...	12.195	53	30494	15.35 ug/L	#	80
91)	n-Propylbenzene	12.237	91	470863	21.70 ug/L		100
92)	2-Chlorotoluene	12.295	91	301267	22.32 ug/L		99
93)	4-Chlorotoluene	12.437	91	335838	21.69 ug/L		100
94)	1,3,5-Trimethylbenzene	12.452	105	312941	22.66 ug/L		98
95)	tert-Butylbenzene	12.772	91	168367	21.37 ug/L		93
96)	1,2,4-Trimethylbenzene	12.840	105	314677	21.93 ug/L		99
97)	sec-Butylbenzene	13.008	105	395449	22.44 ug/L		100
99)	1,3-Dichlorobenzene	13.097	146	187438	20.66 ug/L		99
100)	p-Isopropyltoluene	13.192	119	318171	21.90 ug/L		100

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY03.D
Acq On : 23 May 2018 11:02 am
Operator : AK
Sample : VLCSW1-180523
Misc : 200-20259 20PPB
ALS Vial : 2 Sample Multiplier: 1

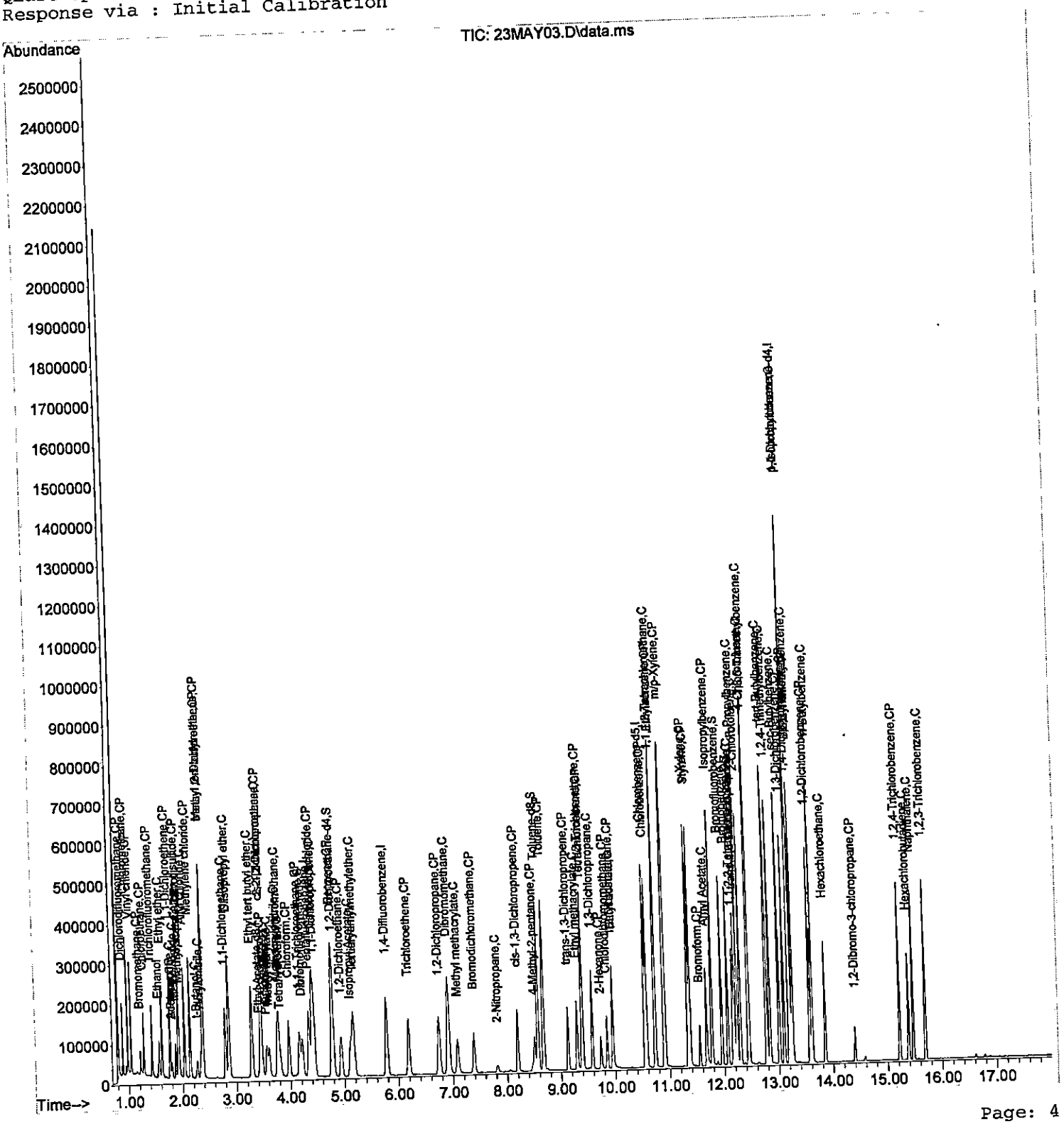
Quant Time: May 23 16:00:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	194739	20.46 ug/L		98
102) 1,2,3-Trimethylbenzene	13.254	105	335783	20.75 ug/L		99
103) Benzyl chloride	13.254	91	33278	5.51 ug/L	#	39
104) 1,2-Dichlorobenzene	13.569	146	178587	19.72 ug/L		99
105) n-Butylbenzene	13.611	91	330608	22.02 ug/L		100
106) Hexachloroethane	13.847	117	45167	17.52 ug/L		97
107) 1,2-Dibromo-3-chloropr...	14.397	157	16290	15.92 ug/L		98
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	15.215	180	105760	18.56 ug/L		98
110) Hexachlorobutadiene	15.378	225	43202	20.33 ug/L		99
111) Naphthalene	15.467	128	274402	16.70 ug/L		100
112) 1,2,3-Trichlorobenzene	15.687	180	110248	19.37 ug/L		100
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	1.798	43	30483	18.56 ug/L		100
117) Isopropyl Alcohol	1.929	45	118193	385.37 ug/L		99
118) Acetic Ether	3.565	43	97267	20.47 ug/L		99
119) Isopropyl Acetate	5.112	43	176593	20.89 ug/L	#	92
120) Amyl Acetate	11.671	43	123884	22.77 ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY03.D
Acq On : 23 May 2018 11:02 am
Operator : AK
Sample : VLCSW1-180523
Misc : 200-20259 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 23 16:00:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY13.D
Acq On : 23 May 2018 3:17 pm
Operator : AK
Sample : 1805219-02A MS DF20
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 16:02:05 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	129100	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	221741	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	224997	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	125551	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.429	46	45804	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	69389	18.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.55%				
46) 1,2-Dichloroethane-d4	4.792	65	97920	19.96	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.80%				
65) Toluene-d8	8.572	98	277176	20.16	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.80%				
86) Bromofluorobenzene	11.954	95	126656	20.67	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	84656	24.16	ug/L		98
3) Chloromethane	0.980	50	130825	18.72	ug/L		100
4) Vinyl chloride	1.043	62	115793	25.22	ug/L		97
5) Bromomethane	1.216	94	50627	73.89	ug/L		96
6) Chloroethane	1.284	64	71564	20.77	ug/L		97
7) Trichlorofluoromethane	1.431	101	92394	23.60	ug/L		99
8) Ethanol	1.547	45	70332	321.30	ug/L		99
9) Ethyl ether	1.615	59	76776	23.23	ug/L		96
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.767	61	123471	27.57	ug/L		99
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.872	142	69095	43.24	ug/L		99
14) Acetone	1.798	43	56033	33.65	ug/L		95
15) Carbon disulfide	1.919	76	210005	28.94	ug/L		100
16) Allyl chloride	2.034	41	128872	22.90	ug/L		99
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.139	49	126808	22.76	ug/L		99
20) t-Butanol	2.260	59	44166	95.47	ug/L		97
21) trans-1,2-Dichloroethene	2.375	61	121211	24.82	ug/L		98
22) Acrylonitrile	2.338	53	50917	23.46	ug/L		95
23) Methyl tert-butyl ether	2.375	73	207388	23.88	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	2.800	63	154638	24.37	ug/L		100
26) Diisopropyl ether	2.863	45	260278	21.65	ug/L		92
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.287	59	194350	22.34	ug/L		99
30) 2,2-Dichloropropane	3.460	77	82251	22.91	ug/L		97
31) cis-1,2-Dichloroethene	3.460	61	139268	23.48	ug/L		99
32) 2-Butanone	3.481	43	76995	25.80	ug/L		99
33) Ethyl Acetate	3.570	43	114424	22.45	ug/L	#	96
34) Methyl acrylate	3.612	55	101489	21.90	ug/L		99
35) Propionitrile	3.555	54	17167	17.53	ug/L	#	61
36) Bromochloromethane	3.791	49	81250	23.82	ug/L		100
37) Tetrahydrofuran	3.822	42	37440	19.10	ug/L		96
38) Methacrylonitrile	3.764	67	47175	22.48	ug/L		99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY13.D
Acq On : 23 May 2018 3:17 pm
Operator : AK
Sample : 1805219-02A MS DF20
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 16:02:05 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	3.979	83	131765	23.15 ug/L	99
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	4.173	97	87004	22.78 ug/L	100
44) Carbon tetrachloride	4.420	119	65624	22.18 ug/L	99
45) 1,1-Dichloropropene	4.446	75	102460	21.78 ug/L	98
47) 1,2-Dichloroethane	4.949	62	113207	20.07 ug/L	98
48) Benzene	4.776	78	326279	21.80 ug/L	98
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.175	73	152742	20.35 ug/L #	98
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.192	130	69983	21.43 ug/L	98
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	6.753	63	82384	20.64 ug/L	95
56) Dibromomethane	6.921	93	50917	21.82 ug/L	98
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	7.094	41	71778	19.16 ug/L	98
59) Bromodichloromethane	7.393	83	84957	20.08 ug/L	96
60) 2-Nitropropane	7.823	43	18499	19.81 ug/L #	94
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.200	75	92243	19.48 ug/L	98
64) 4-Methyl-2-pentanone	8.509	43	116770	26.30 ug/L	84
66) Toluene	8.677	91	331911	22.56 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.133	75	75155	18.62 ug/L	95
69) Ethyl methacrylate	9.296	69	100670	19.31 ug/L	99
70) 1,1,2-Trichloroethane	9.390	97	75918	21.00 ug/L	100
71) Tetrachloroethene	9.401	166	78540	24.77 ug/L	98
72) 1,3-Dichloropropane	9.579	76	137273	21.33 ug/L	100
73) 2-Hexanone	9.736	43	72699	21.90 ug/L	97
74) Chlorodibromomethane	9.852	129	60620	20.56 ug/L	98
75) Butyl acetate	9.956	43	140662	21.59 ug/L	98
76) 1,2-Dibromoethane	9.946	107	73267	24.23 ug/L #	98
77) Chlorobenzene	10.580	112	209269	21.37 ug/L	100
78) 1,1,1,2-Tetrachloroethane	10.727	131	59577	21.16 ug/L	99
79) Ethylbenzene	10.738	91	360295	22.76 ug/L	100
80) m/p-Xylene	10.905	91	614344	48.93 ug/L	100
81) Styrene	11.372	104	240036	23.64 ug/L	98
82) o-Xylene	11.335	91	300425	23.38 ug/L	99
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.556	173	37456	18.63 ug/L	99
85) Isopropylbenzene	11.776	105	345921	23.64 ug/L	100
87) Bromobenzene	12.064	77	169687	21.95 ug/L	99
88) 1,1,2,2-Tetrachloroethane	12.164	83	133197	21.26 ug/L	99
89) 1,2,3-Trichloropropane	12.190	110	34144	21.25 ug/L	93
90) trans-1,4-Dichloro-2-b...	12.195	53	31963	17.72 ug/L #	82
91) n-Propylbenzene	12.237	91	456355	23.17 ug/L	100
92) 2-Chlorotoluene	12.295	91	284291	23.20 ug/L	100
93) 4-Chlorotoluene	12.442	91	315426	22.44 ug/L	99
94) 1,3,5-Trimethylbenzene	12.452	105	311897	24.88 ug/L	100
95) tert-Butylbenzene	12.772	91	165462	23.14 ug/L	93
96) 1,2,4-Trimethylbenzene	12.840	105	311383	23.90 ug/L	100
97) sec-Butylbenzene	13.008	105	383118	23.95 ug/L	100
99) 1,3-Dichlorobenzene	13.097	146	178422	21.40 ug/L	100
100) p-Isopropyltoluene	13.191	119	303285	22.71 ug/L	100

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY13.D
Acq On : 23 May 2018 3:17 pm
Operator : AK
Sample : 1805219-02A MS DF20
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

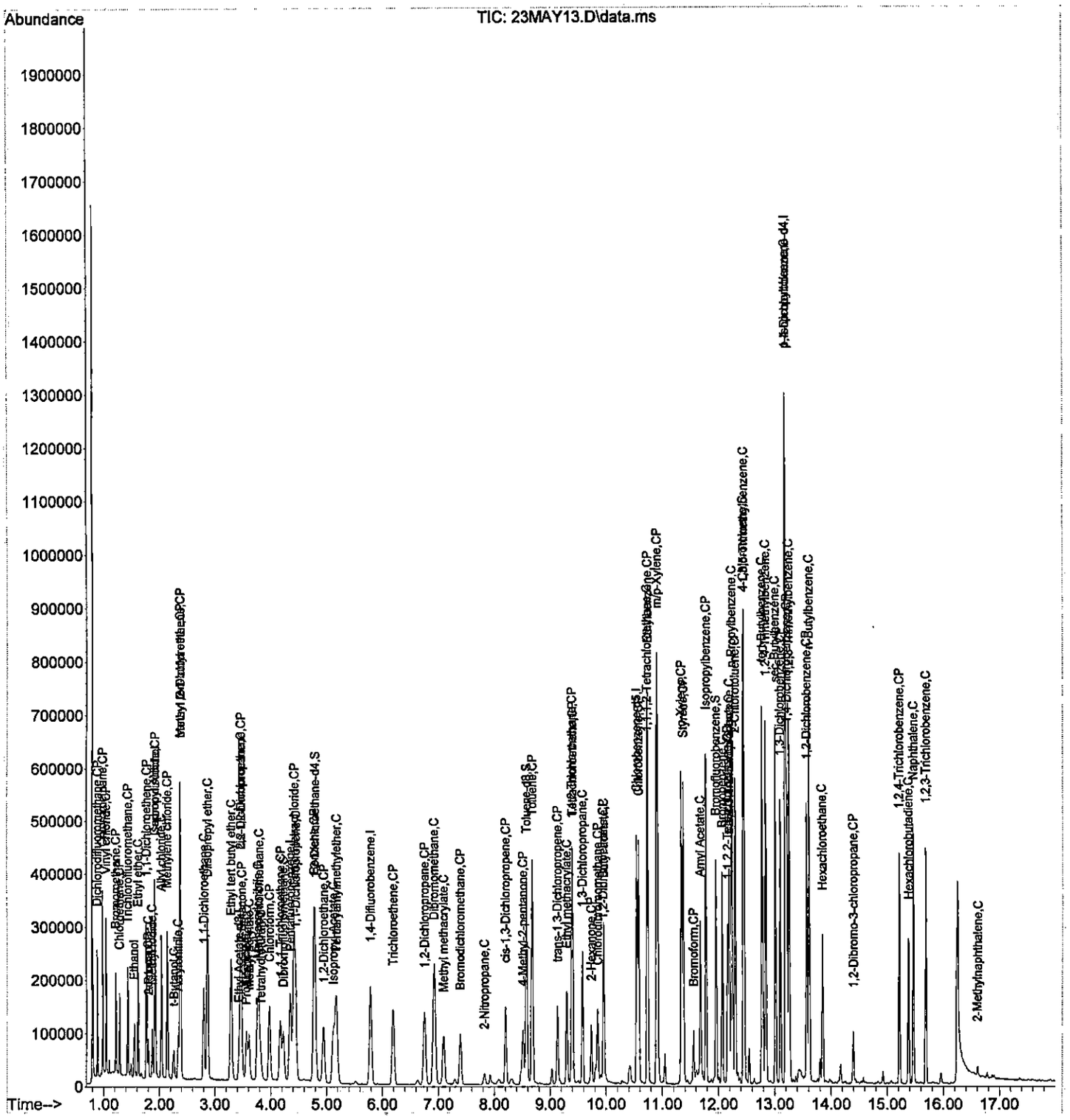
Quant Time: May 23 16:02:05 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	183983	21.03 ug/L	98
102) 1,2,3-Trimethylbenzene	13.254	105	324626	21.82 ug/L	100
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	13.569	146	172335	20.70 ug/L	99
105) n-Butylbenzene	13.611	91	329330	23.86 ug/L	99
106) Hexachloroethane	13.847	117	40955	17.29 ug/L	96
107) 1,2-Dibromo-3-chloropr...	14.397	157	18324	19.49 ug/L	96
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.215	180	104107	19.88 ug/L	99
110) Hexachlorobutadiene	15.383	225	42366	21.69 ug/L	97
111) Naphthalene	15.467	128	313238	20.74 ug/L	99
112) 1,2,3-Trichlorobenzene	15.687	180	105846	20.24 ug/L	99
113) 2-Methylnaphthalene	16.610	142	6523	1.00 ug/L	96
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.798	43	56033	28.70 ug/L	95
117) Isopropyl Alcohol	1.919	45	130237	354.90 ug/L	99
118) Acetic Ether	3.570	43	114424	20.13 ug/L	99
119) Isopropyl Acetate	5.122	43	196443	19.42 ug/L	97
120) Amyl Acetate	11.676	43	142441	22.00 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY13.D
Acq On : 23 May 2018 3:17 pm
Operator : AK
Sample : 1805219-02A MS DF20
Misc : IS/SS 200-20033
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 23 16:02:05 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 3:42 pm
Operator : AK
Sample : 1805219-02A MSD DF20
Misc : IS/SS 200-20033
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 16:02:15 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.352	168	129960	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	5.788	114	221073	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.544	117	229280	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.191	152	123155	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.434	46	42258	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.226	111	66524	17.80	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 89.00%				
46) 1,2-Dichloroethane-d4	4.797	65	91001	18.61	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.05%				
65) Toluene-d8	8.572	98	282987	20.20	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.00%				
86) Bromofluorobenzene	11.954	95	125769	20.14	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.886	85	81530	23.11	ug/L		99
3) Chloromethane	0.980	50	121962	17.34	ug/L		98
4) Vinyl chloride	1.043	62	114286	24.72	ug/L		93
5) Bromomethane	1.222	94	60914	82.55	ug/L		96
6) Chloroethane	1.284	64	72002	20.76	ug/L		96
7) Trichlorofluoromethane	1.436	101	83425	21.17	ug/L		99
8) Ethanol	1.541	45	72308	328.28	ug/L		97
9) Ethyl ether	1.615	59	72404	21.76	ug/L		100
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.767	61	115126	25.54	ug/L		99
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	1.872	142	72576	44.86	ug/L		97
14) Acetone	1.798	43	46268	27.61	ug/L		97
15) Carbon disulfide	1.924	76	202626	27.74	ug/L		100
16) Allyl chloride	2.039	41	120615	21.29	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.144	49	125641	22.39	ug/L		99
20) t-Butanol	2.249	59	42322	90.88	ug/L		93
21) trans-1,2-Dichloroethene	2.375	61	113883	23.16	ug/L		99
22) Acrylonitrile	2.338	53	47370	21.68	ug/L		97
23) Methyl tert-butyl ether	2.375	73	193825	22.17	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	2.800	63	140377	21.98	ug/L		98
26) Diisopropyl ether	2.863	45	248245	20.51	ug/L		92
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.293	59	184291	21.05	ug/L		99
30) 2,2-Dichloropropane	3.460	77	76899	21.27	ug/L		100
31) cis-1,2-Dichloroethene	3.460	61	126999	21.27	ug/L		100
32) 2-Butanone	3.481	43	67721	22.50	ug/L		99
33) Ethyl Acetate	3.570	43	106003	20.66	ug/L	#	94
34) Methyl acrylate	3.607	55	92117	19.74	ug/L		99
35) Propionitrile	3.549	54	17210	17.46	ug/L	#	61
36) Bromochloromethane	3.785	49	76755	22.35	ug/L		99
37) Tetrahydrofuran	3.822	42	32479	16.46	ug/L		99
38) Methacrylonitrile	3.759	67	44655	21.14	ug/L		97

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 3:42 pm
Operator : AK
Sample : 1805219-02A MSD DF20
Misc : IS/SS 200-20033
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 16:02:15 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Chloroform	3.979	83	120898	21.10 ug/L	99
40)	Cyclohexane	0.000		0	N.D.	
42)	1,1,1-Trichloroethane	4.173	97	81321	21.35 ug/L	99
44)	Carbon tetrachloride	4.420	119	63209	21.43 ug/L	100
45)	1,1-Dichloropropene	4.446	75	98786	21.06 ug/L	100
47)	1,2-Dichloroethane	4.949	62	102994	18.32 ug/L	99
48)	Benzene	4.782	78	324151	21.72 ug/L	100
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Tertiaryamylmethylether	5.175	73	145556	19.45 ug/L #	99
51)	Heptane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	Trichloroethene	6.187	130	67922	20.87 ug/L	99
54)	n-Butanol	0.000		0	N.D.	
55)	1,2-Dichloropropane	6.753	63	80635	20.26 ug/L	97
56)	Dibromomethane	6.921	93	46535	20.00 ug/L	100
57)	1,4-Dioxane	0.000		0	N.D.	
58)	Methyl methacrylate	7.094	41	70895	18.98 ug/L	98
59)	Bromodichloromethane	7.393	83	78687	18.65 ug/L	98
60)	2-Nitropropane	7.817	43	15455	16.60 ug/L #	91
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
62)	cis-1,3-Dichloropropene	8.200	75	87136	18.45 ug/L	100
64)	4-Methyl-2-pentanone	8.504	43	115996	25.64 ug/L	82
66)	Toluene	8.677	91	324897	21.67 ug/L	100
67)	Chloropicrin	0.000		0	N.D.	
68)	trans-1,3-Dichloropropene	9.133	75	72581	17.65 ug/L	95
69)	Ethyl methacrylate	9.296	69	99969	18.84 ug/L	99
70)	1,1,2-Trichloroethane	9.390	97	72061	19.56 ug/L	97
71)	Tetrachloroethene	9.406	166	82094	25.41 ug/L	99
72)	1,3-Dichloropropane	9.579	76	131760	20.09 ug/L	99
73)	2-Hexanone	9.731	43	78237	23.12 ug/L	95
74)	Chlorodibromomethane	9.852	129	55439	18.45 ug/L	99
75)	Butyl acetate	9.956	43	132136	19.90 ug/L	99
76)	1,2-Dibromoethane	9.951	107	70170	22.77 ug/L #	99
77)	Chlorobenzene	10.580	112	211943	21.24 ug/L	99
78)	1,1,1,2-Tetrachloroethane	10.732	131	57175	19.92 ug/L	99
79)	Ethylbenzene	10.738	91	357999	22.20 ug/L	100
80)	m/p-Xylene	10.905	91	584329	45.67 ug/L	99
81)	Styrene	11.372	104	241164	23.31 ug/L	98
82)	o-Xylene	11.335	91	290995	22.22 ug/L	100
83)	Cyclohexanone	0.000		0	N.D.	
84)	Bromoform	11.550	173	35479	17.32 ug/L	99
85)	Isopropylbenzene	11.776	105	351465	23.57 ug/L	100
87)	Bromobenzene	12.064	77	168777	21.42 ug/L	99
88)	1,1,2,2-Tetrachloroethane	12.159	83	127919	20.04 ug/L	100
89)	1,2,3-Trichloropropane	12.190	110	33469	20.44 ug/L	99
90)	trans-1,4-Dichloro-2-b...	12.195	53	30973	16.85 ug/L #	80
91)	n-Propylbenzene	12.237	91	455330	22.68 ug/L	100
92)	2-Chlorotoluene	12.295	91	286362	22.93 ug/L	100
93)	4-Chlorotoluene	12.436	91	313168	21.87 ug/L	99
94)	1,3,5-Trimethylbenzene	12.452	105	299078	23.41 ug/L	99
95)	tert-Butylbenzene	12.772	91	163400	22.42 ug/L	94
96)	1,2,4-Trimethylbenzene	12.840	105	300812	22.66 ug/L	99
97)	sec-Butylbenzene	13.008	105	384616	23.60 ug/L	100
99)	1,3-Dichlorobenzene	13.102	146	179198	21.91 ug/L	100
100)	p-Isopropyltoluene	13.191	119	305890	23.35 ug/L	99

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 3:42 pm
Operator : AK
Sample : 1805219-02A MSD DF20
Misc : IS/SS 200-20033
ALS Vial : 13 Sample Multiplier: 1

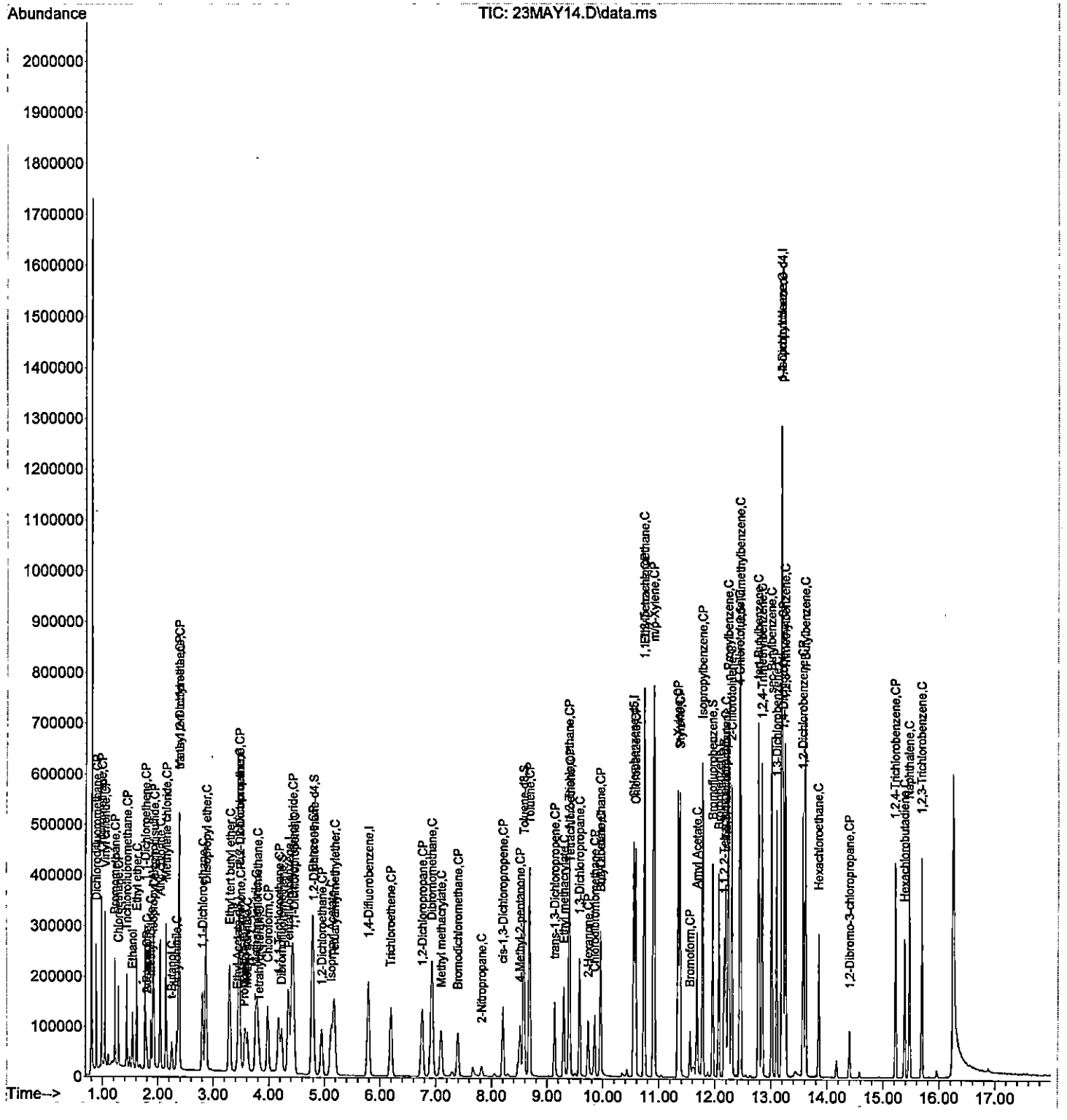
Quant Time: May 23 16:02:15 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.218	146	184582	21.51	ug/L	99
102) 1,2,3-Trimethylbenzene	13.254	105	318594	21.83	ug/L	100
103) Benzyl chloride	0.000		0	N.D.	d	
104) 1,2-Dichlorobenzene	13.569	146	170560	20.89	ug/L	99
105) n-Butylbenzene	13.611	91	327886	24.22	ug/L	98
106) Hexachloroethane	13.847	117	39818	17.14	ug/L	99
107) 1,2-Dibromo-3-chloropr...	14.397	157	18497	20.05	ug/L	99
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	15.215	180	103218	20.09	ug/L	99
110) Hexachlorobutadiene	15.383	225	44368	23.16	ug/L	98
111) Naphthalene	15.467	128	298577	20.16	ug/L	99
112) 1,2,3-Trichlorobenzene	15.687	180	106118	20.68	ug/L	99
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	1.798	43	46268	25.65	ug/L	97
117) Isopropyl Alcohol	1.908	45	127599	376.89	ug/L	98
118) Acetic Ether	3.570	43	106003	20.21	ug/L	98
119) Isopropyl Acetate	5.122	43	184520	19.78	ug/L	97
120) Amyl Acetate	11.676	43	136613	22.75	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\9V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 3:42 pm
Operator : AK
Sample : 1805219-02A MSD DF20
Misc : IS/SS 200-20033
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 23 16:02:15 2018
Quant Method : C:\MSDCHEM\1\METHODS\9AC0522.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 23 09:52:25 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.727	168	205128	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	293346	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	251087	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	120792	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.889	46	23936	20.00	ug/L	#	0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.655	111	99113	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	84846	19.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.75%				
64) Toluene-d8	7.678	98	334837	19.86	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 99.30%				
85) Bromofluorobenzene	9.440	95	104427	18.37	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D. d			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.614	49	46850	3.05	ug/L		96
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.137	57	10993	Below Cal		#	83
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

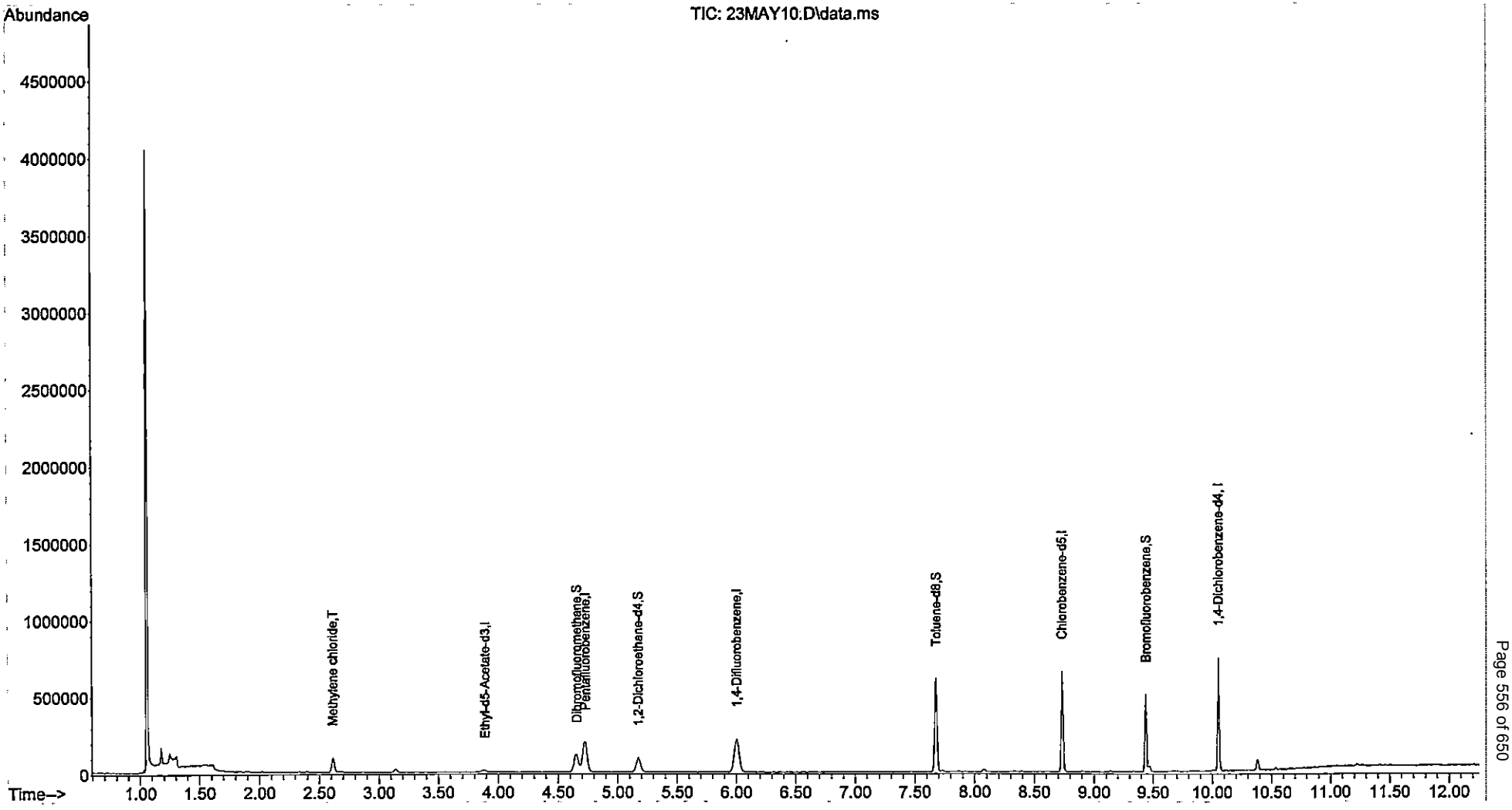
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	221847	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	332164	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	291245	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135848	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	23292	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	111576	19.78	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%				
45) 1,2-Dichloroethane-d4	5.164	65	87376	17.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 88.00%				
64) Toluene-d8	7.671	98	379601	19.41	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.05%				
85) Bromofluorobenzene	9.440	95	120878	18.34	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	118283	16.73	ug/L		98
3) Chloromethane	1.282	50	144973	14.89	ug/L		97
4) Vinyl chloride	1.360	62	139255	19.52	ug/L		100
5) Bromomethane	1.582	96	117808	18.99	ug/L		94
6) Chloroethane	1.654	64	79810	17.28	ug/L		96
7) Trichlorofluoromethane	1.826	101	165340	17.18	ug/L		99
8) Ethyl ether	2.019	59	72672	17.94	ug/L		93
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	176304	18.87	ug/L		94
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	162014	38.84	ug/L		98
13) Acetone	2.227	43	21950	10.73	ug/L		99
14) Chloroprene	3.373	53	7625	0.84	ug/L	#	83
15) Carbon disulfide	2.392	76	452916	21.03	ug/L		100
16) Allyl chloride	2.499	41	176077	17.48	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D. d			
19) Methylene chloride	2.614	49	193644	24.19	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	182504	18.49	ug/L		95
21) t-Butanol	2.678	59	45201	60.47	ug/L	#	94
22) Acrylonitrile	2.815	53	32875	14.39	ug/L		98
23) Methyl tert-butyl ether	2.843	73	256881	21.37	ug/L		98
24) Hexane	3.137	57	23636	0.40	ug/L	#	87
25) 1,1-Dichloroethane	3.302	63	227407	19.77	ug/L		100
26) Diisopropyl ether	3.330	45	308998	22.11	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	269266	20.65	ug/L		98
29) 2,2-Dichloropropane	3.968	77	179660	19.95	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	208836	18.52	ug/L		93
31) 2-Butanone	3.939	43	31472	12.65	ug/L	#	87
32) Ethyl Acetate	4.004	43	74685	15.17	ug/L	#	86
33) Methyl acrylate	4.061	55	80330	15.46	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.269	49	98486	18.70	ug/L		96
36) Tetrahydrofuran	4.283	42	20609	10.98	ug/L		92
37) Methacrylonitrile	4.218	41	49867	14.27	ug/L		97
38) Chloroform	4.419	83	224728	18.15	ug/L		99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.734	56	11466	0.89 ug/L #	72
41) 1,1,1-Trichloroethane	4.641	97	186138	19.07 ug/L	100
43) Carbon tetrachloride	4.863	117	162444	20.31 ug/L	99
44) 1,1-Dichloropropene	4.877	75	163904	19.43 ug/L	95
46) 1,2-Dichloroethane	5.293	62	129788	17.28 ug/L	98
47) Benzene	5.186	78	500059	18.84 ug/L	99
48) Tertiaryamylmethylether	5.443	73	255471	20.56 ug/L	97
49) Isobutyl Alcohol	5.443	43	70814	18.94 ug/L #	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	6.661	83	8791	0.84 ug/L #	1
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	140782	19.23 ug/L	98
55) 1,2-Dichloropropane	6.704	63	124068	18.42 ug/L #	85
56) Dibromomethane	6.797	93	74993	17.77 ug/L	98
57) Methyl methacrylate	6.819	41	66754	12.92 ug/L	92
58) Bromodichloromethane	7.019	83	157262	18.33 ug/L	95
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	21634	11.09 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	188071	17.79 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	96177	16.68 ug/L	90
65) Toluene	7.728	91	514324	18.43 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	154197	16.11 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	115019	14.95 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	102623	16.89 ug/L	99
70) Tetrachloroethene	8.130	166	148198	20.04 ug/L	98
71) 1,3-Dichloropropane	8.201	76	146074	16.17 ug/L	91
72) 2-Hexanone	8.244	43	51446	13.14 ug/L	92
73) Chlorodibromomethane	8.352	129	120680	16.98 ug/L	100
74) Butyl acetate	8.344	43	117799	15.45 ug/L	96
75) 1,2-Dibromoethane	8.430	107	105002	17.26 ug/L #	99
76) Chlorobenzene	8.753	112	339865	19.31 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	119633	17.60 ug/L	98
78) Ethylbenzene	8.817	91	550090	18.70 ug/L	98
79) m/p-Xylene	8.896	91	819212	36.95 ug/L	96
80) Styrene	9.139	104	337727	17.82 ug/L	98
81) o-Xylene	9.125	91	424437	18.63 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	76697	16.07 ug/L	99
84) Isopropylbenzene	9.333	105	522051	19.32 ug/L	99
86) Bromobenzene	9.512	77	231545	16.27 ug/L	92
87) 1,1,2,2-Tetrachloroethane	9.512	83	126139	15.83 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	28315	15.50 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	22222	11.50 ug/L	98
90) n-Propylbenzene	9.562	91	621185	18.93 ug/L	99
91) 2-Chlorotoluene	9.612	91	359854	19.32 ug/L	98
92) 4-Chlorotoluene	9.677	91	386402	17.06 ug/L	95
93) 1,3,5-Trimethylbenzene	9.662	105	411731	18.89 ug/L	98
94) tert-Butylbenzene	9.827	91	240497	18.24 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	410613	18.05 ug/L	100
96) sec-Butylbenzene	9.942	105	548241	19.36 ug/L	100
98) 1,3-Dichlorobenzene	10.013	146	250101	19.49 ug/L	99
99) p-Isopropyltoluene	10.021	119	453781	19.34 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	254052	19.46 ug/L	99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

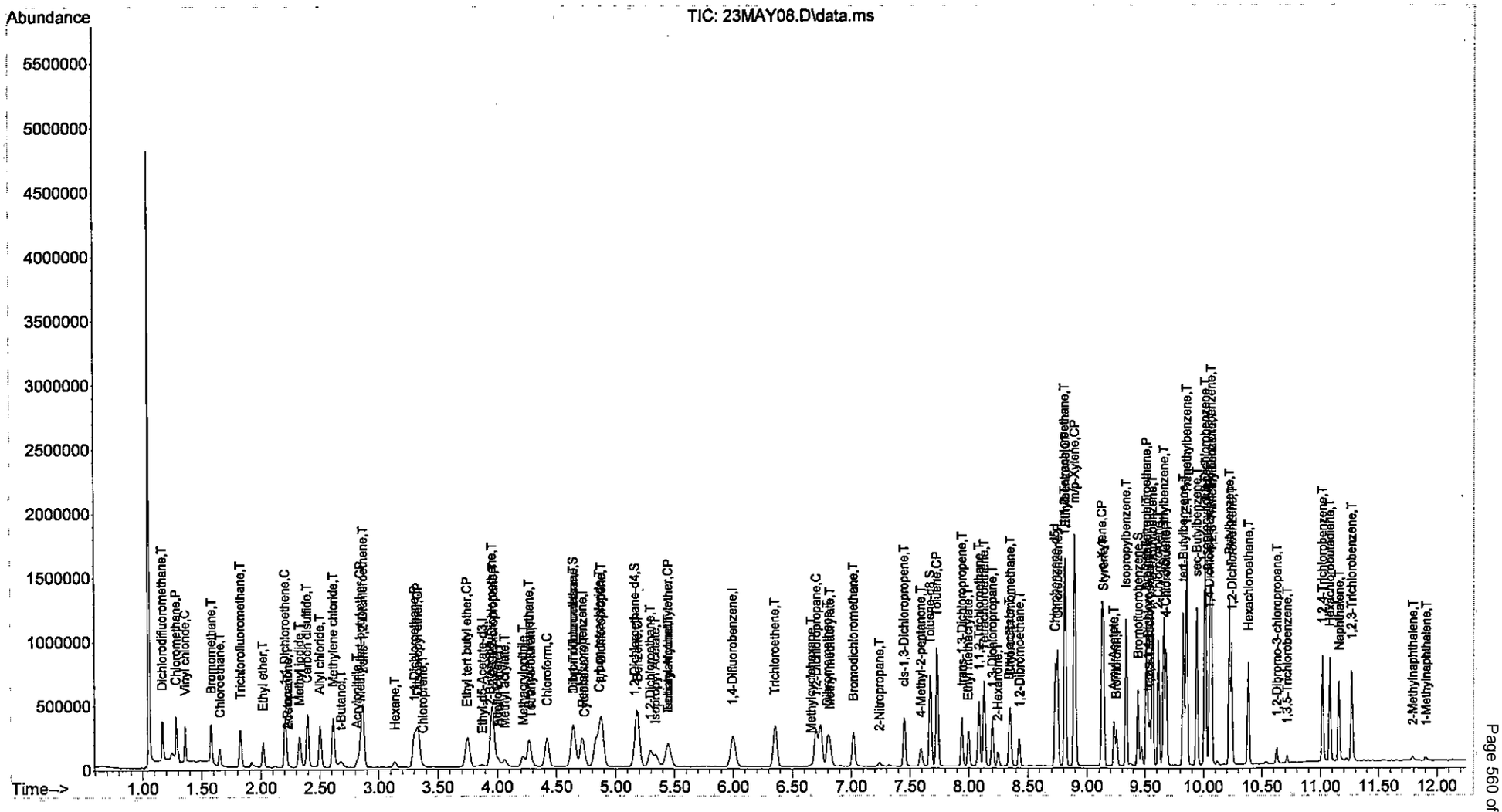
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	396897	18.84	ug/L		97
102) Benzyl chloride	0.000		0	N.D.	d		
103) 1,2-Dichlorobenzene	10.243	146	231759	19.62	ug/L		99
104) n-Butylbenzene	10.221	91	438502	18.43	ug/L		99
105) Hexachloroethane	10.386	117	95627	18.46	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	23036	13.54	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	8737	0.90	ug/L	#	74
108) 1,2,4-Trichlorobenzene	11.016	180	167887	18.53	ug/L		97
109) Hexachlorobutadiene	11.081	225	103373	20.98	ug/L		99
110) Naphthalene	11.159	128	343056	15.98	ug/L		97
111) 1,2,3-Trichlorobenzene	11.267	180	157146	17.86	ug/L		100
112) 2-Methylnaphthalene	11.790	142	12763	0.96	ug/L		88
113) 1-Methylnaphthalene	11.904	142	11307	1.01	ug/L		100
115) 2-Propanone	2.227	43	21950	18.75	ug/L		99
116) Acetic Ether	4.004	43	74685	23.20	ug/L	#	90
117) Isopropyl Acetate	5.336	61	48961	28.60	ug/L		93
118) Amyl Acetate	9.225	43	118740	23.25	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	218315	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	328397	20.00	ug/L		-0.01
62) Chlorobenzene-d5	8.731	117	287061	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	134150	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	30207	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	112563	20.19	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.95%				
45) 1,2-Dichloroethane-d4	5.157	65	98843	20.13	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.65%				
64) Toluene-d8	7.671	98	366153	19.00	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.00%				
85) Bromofluorobenzene	9.433	95	125129	19.26	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 96.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	10350	1.49	ug/L	#	50
3) Chloromethane	1.282	50	46888	4.89	ug/L		100
4) Vinyl chloride	1.353	62	40881	5.82	ug/L		97
5) Bromomethane	1.575	96	39393	6.45	ug/L		83
6) Chloroethane	1.647	64	28070	6.17	ug/L		91
7) Trichlorofluoromethane	1.826	101	25241	2.67	ug/L	#	93
8) Ethyl ether	2.019	59	34379	8.62	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	40487	4.40	ug/L		93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	37730	9.19	ug/L		99
13) Acetone	2.220	43	139539	93.01	ug/L		96
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	85947	4.05	ug/L		98
16) Allyl chloride	2.499	41	53826	5.43	ug/L		96
17) Methyl acetate	2.478	43	49905	13.16	ug/L	#	91
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	80239	7.77	ug/L		94
20) trans-1,2-Dichloroethene	2.857	61	46454	4.78	ug/L		94
21) t-Butanol	2.678	59	31367	40.44	ug/L	#	79
22) Acrylonitrile	2.807	53	16188	7.20	ug/L		96
23) Methyl tert-butyl ether	2.843	73	125595	10.62	ug/L		98
24) Hexane	3.130	57	5497	Below Cal		#	53
25) 1,1-Dichloroethane	3.294	63	76090	6.72	ug/L		98
26) Diisopropyl ether	3.330	45	130925	9.52	ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	124196	9.68	ug/L		98
29) 2,2-Dichloropropane	3.961	77	47458	5.36	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	56626	5.10	ug/L		84
31) 2-Butanone	3.939	43	25297	10.25	ug/L	#	82
32) Ethyl Acetate	3.939	43	25297	5.22	ug/L	#	86
33) Methyl acrylate	4.061	55	28114	5.50	ug/L	#	90
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.261	49	36345	7.01	ug/L		91
36) Tetrahydrofuran	4.283	42	11084	5.92	ug/L		87
37) Methacrylonitrile	4.211	41	20032	5.83	ug/L	#	92
38) Chloroform	4.419	83	66294	5.44	ug/L		94

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.		
41)	1,1,1-Trichloroethane	4.627	97	41227	4.27 ug/L		98
43)	Carbon tetrachloride	4.863	117	24216	3.06 ug/L		97
44)	1,1-Dichloropropene	4.870	75	24875	2.95 ug/L		95
46)	1,2-Dichloroethane	5.286	62	47472	6.39 ug/L		94
47)	Benzene	5.178	78	119711	4.56 ug/L		99
48)	Tertiaryamylmethylether	5.436	73	116553	9.49 ug/L		97
49)	Isobutyl Alcohol	5.443	43	32944	9.23 ug/L	#	91
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	0.000		0	N.D.		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.353	130	24426	3.38 ug/L		96
55)	1,2-Dichloropropane	6.697	63	38648	5.80 ug/L	#	82
56)	Dibromomethane	6.797	93	28488	6.83 ug/L		97
57)	Methyl methacrylate	6.819	41	45265	8.86 ug/L		95
58)	Bromodichloromethane	7.019	83	45350	5.35 ug/L		98
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d		
60)	2-Nitropropane	7.234	43	11514	5.97 ug/L	#	82
61)	cis-1,3-Dichloropropene	7.449	75	46991	4.50 ug/L		93
63)	4-Methyl-2-pentanone	7.585	43	44583	7.85 ug/L	#	86
65)	Toluene	7.728	91	95719	3.48 ug/L		99
66)	trans-1,3-Dichloropropene	7.936	75	40086	4.25 ug/L		91
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	7.993	69	14374	1.90 ug/L	#	89
69)	1,1,2-Trichloroethane	8.086	97	33176	5.54 ug/L		96
70)	Tetrachloroethene	8.129	166	12171	1.67 ug/L		96
71)	1,3-Dichloropropane	8.194	76	51122	5.74 ug/L		93
72)	2-Hexanone	8.244	43	24487	6.35 ug/L		89
73)	Chlorodibromomethane	8.351	129	32278	4.61 ug/L		99
74)	Butyl acetate	8.244	43	19964	2.66 ug/L	#	46
75)	1,2-Dibromoethane	8.423	107	34262	5.71 ug/L	#	98
76)	Chlorobenzene	8.745	112	42028	2.42 ug/L		92
77)	1,1,1,2-Tetrachloroethane	8.810	131	23944	3.57 ug/L		92
78)	Ethylbenzene	8.810	91	64611	2.23 ug/L		96
79)	m/p-Xylene	8.896	91	86932	3.98 ug/L		98
80)	Styrene	9.139	104	36364	1.95 ug/L		100
81)	o-Xylene	9.125	91	54074	2.41 ug/L		97
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.247	173	17785	3.78 ug/L		97
84)	Isopropylbenzene	9.333	105	37515	1.41 ug/L		95
86)	Bromobenzene	9.512	77	32940	2.35 ug/L		87
87)	1,1,2,2-Tetrachloroethane	9.505	83	34948	4.45 ug/L	#	96
88)	1,2,3-Trichloropropane	9.541	110	9781	5.43 ug/L		90
89)	trans-1,4-Dichloro-2-b...	9.526	53	5120	2.69 ug/L	#	17
90)	n-Propylbenzene	9.562	91	36726	1.14 ug/L		97
91)	2-Chlorotoluene	9.612	91	25008	1.36 ug/L		93
92)	4-Chlorotoluene	9.677	91	27012	1.21 ug/L		96
93)	1,3,5-Trimethylbenzene	9.655	105	24890	1.16 ug/L		82
94)	tert-Butylbenzene	9.827	91	17102	1.32 ug/L		92
95)	1,2,4-Trimethylbenzene	9.856	105	26023	1.16 ug/L		88
96)	sec-Butylbenzene	9.935	105	25753	0.92 ug/L	#	59
98)	1,3-Dichlorobenzene	10.006	146	14846	1.17 ug/L		92
99)	p-Isopropyltoluene	10.013	119	21106	0.91 ug/L		96
100)	1,4-Dichlorobenzene	10.056	146	14545	1.13 ug/L		89

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

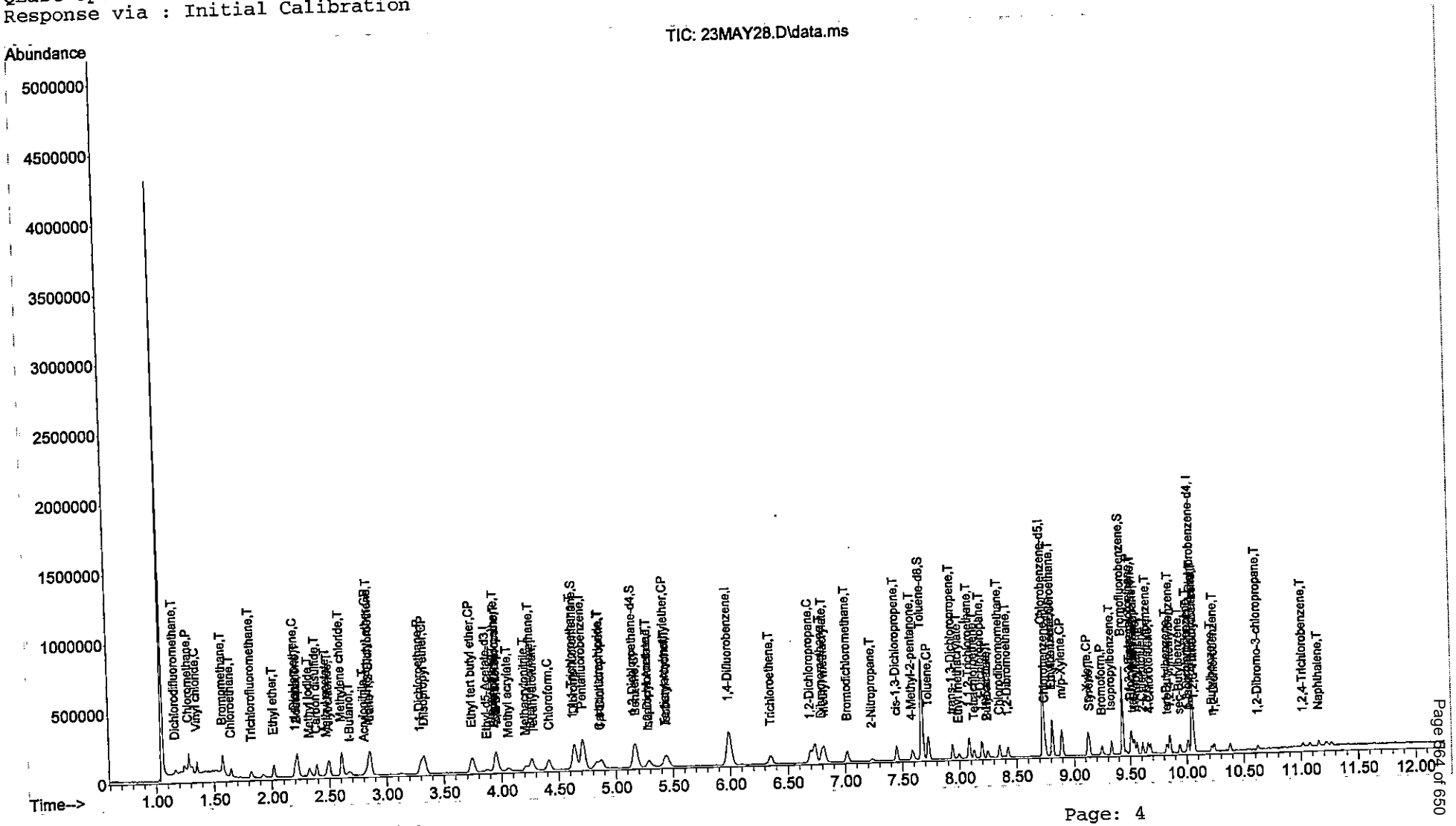
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	31928	1.53 ug/L	99
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	10.243	146	13716	1.18 ug/L	93
104) n-Butylbenzene	10.221	91	15384	0.65 ug/L #	79
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	10.622	157	5559	3.32 ug/L #	50
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	6020	0.67 ug/L #	2
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	18651	0.88 ug/L #	79
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	139539	110.64 ug/L	96
116) Acetic Ether	3.939	43	23232	5.56 ug/L #	66
117) Isopropyl Acetate	5.286	61	8195	2.98 ug/L #	1
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Page: 4

8SGO0515.M Sun Jun 24 16:52:49 2018

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	252669	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	386008	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	338603	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	167155	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.868	46	31256	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	133952	20.44	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.20%				
45) 1,2-Dichloroethane-d4	5.157	65	116050	20.11	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.55%				
64) Toluene-d8	7.671	98	444671	19.56	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.80%				
85) Bromofluorobenzene	9.433	95	150593	19.65	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 98.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	59305	7.37	ug/L		99
3) Chloromethane	1.282	50	68331	6.16	ug/L		100
4) Vinyl chloride	1.353	62	60572	7.45	ug/L		99
5) Bromomethane	1.575	96	50319	7.12	ug/L	#	76
6) Chloroethane	1.647	64	41725	7.93	ug/L		94
7) Trichlorofluoromethane	1.819	101	69468	6.34	ug/L		96
8) Ethyl ether	2.020	59	51929	11.25	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.199	61	75660	7.11	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.328	142	59313	12.48	ug/L		96
13) Acetone	2.220	43	222126	129.56	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	139365	5.68	ug/L		97
16) Allyl chloride	2.499	41	84560	7.37	ug/L		97
17) Methyl acetate	2.478	43	54511	12.42	ug/L	#	90
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	112609	10.38	ug/L		93
20) trans-1,2-Dichloroethene	2.858	61	78735	7.00	ug/L		94
21) t-Butanol	2.679	59	38988	43.98	ug/L		98
22) Acrylonitrile	2.807	53	22191	8.53	ug/L		89
23) Methyl tert-butyl ether	2.843	73	189385	13.84	ug/L		99
24) Hexane	3.123	57	8218	Below Cal		#	85
25) 1,1-Dichloroethane	3.295	63	124624	9.51	ug/L		99
26) Diisopropyl ether	3.330	45	208743	13.11	ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	194196	13.08	ug/L		100
29) 2,2-Dichloropropane	3.954	77	79399	7.74	ug/L		97
30) cis-1,2-Dichloroethene	3.954	61	101445	7.90	ug/L		88
31) 2-Butanone	3.939	43	34454	12.14	ug/L	#	85
32) Ethyl Acetate	3.939	43	33671	6.01	ug/L	#	86
33) Methyl acrylate	4.061	55	33992	5.74	ug/L	#	92
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.262	49	58945	9.82	ug/L		93
36) Tetrahydrofuran	4.283	42	16693	7.76	ug/L		94
37) Methacrylonitrile	4.211	41	27061	6.80	ug/L		93
38) Chloroform	4.412	83	118608	8.41	ug/L		96

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.820	56	54481	4.96 ug/L #	46
41) 1,1,1-Trichloroethane	4.627	97	77707	6.85 ug/L	95
43) Carbon tetrachloride	4.863	117	58892	6.34 ug/L	99
44) 1,1-Dichloropropene	4.870	75	55028	5.59 ug/L	89
46) 1,2-Dichloroethane	5.286	62	80056	9.17 ug/L	98
47) Benzene	5.171	78	232634	7.54 ug/L	99
48) Tertiaryamylmethylether	5.443	73	187639	13.00 ug/L	98
49) Isobutyl Alcohol	5.436	43	53289	12.47 ug/L #	93
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.346	130	51471	6.05 ug/L	99
55) 1,2-Dichloropropane	6.697	63	68765	8.78 ug/L #	82
56) Dibromomethane	6.797	93	45753	9.33 ug/L	97
57) Methyl methacrylate	6.819	41	61362	10.22 ug/L	94
58) Bromodichloromethane	7.012	83	82579	8.28 ug/L	97
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	14140	6.24 ug/L #	92
61) cis-1,3-Dichloropropene	7.449	75	79436	6.47 ug/L	95
63) 4-Methyl-2-pentanone	7.585	43	60964	9.10 ug/L	94
65) Toluene	7.728	91	194240	5.99 ug/L	98
66) trans-1,3-Dichloropropene	7.936	75	75507	6.79 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	18312	2.05 ug/L #	88
69) 1,1,2-Trichloroethane	8.087	97	59461	8.42 ug/L	99
70) Tetrachloroethene	8.130	166	42265	4.91 ug/L	97
71) 1,3-Dichloropropane	8.194	76	89195	8.49 ug/L	93
72) 2-Hexanone	8.244	43	33633	7.39 ug/L	92
73) Chlorodibromomethane	8.352	129	61333	7.42 ug/L	96
74) Butyl acetate	8.244	43	25375	2.86 ug/L #	46
75) 1,2-Dibromoethane	8.423	107	60356	8.53 ug/L #	98
76) Chlorobenzene	8.746	112	112735	5.51 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.810	131	53755	6.80 ug/L	94
78) Ethylbenzene	8.810	91	170821	4.99 ug/L	98
79) m/p-Xylene	8.896	91	250928	9.73 ug/L	97
80) Styrene	9.132	104	103067	4.68 ug/L	95
81) o-Xylene	9.118	91	139899	5.28 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	36496	6.58 ug/L	99
84) Isopropylbenzene	9.333	105	143464	4.57 ug/L	100
86) Bromobenzene	9.512	77	86727	5.24 ug/L	96
87) 1,1,2,2-Tetrachloroethane	9.505	83	66420	7.17 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	15226	7.17 ug/L	97
89) trans-1,4-Dichloro-2-b...	9.526	53	9599	4.27 ug/L #	83
90) n-Propylbenzene	9.562	91	146546	3.84 ug/L	97
91) 2-Chlorotoluene	9.612	91	90620	4.18 ug/L	99
92) 4-Chlorotoluene	9.677	91	99707	3.79 ug/L	99
93) 1,3,5-Trimethylbenzene	9.655	105	100633	3.97 ug/L	95
94) tert-Butylbenzene	9.820	91	55466	3.62 ug/L	94
95) 1,2,4-Trimethylbenzene	9.849	105	101720	3.85 ug/L	97
96) sec-Butylbenzene	9.935	105	110571	3.36 ug/L	97
98) 1,3-Dichlorobenzene	10.006	146	57704	3.66 ug/L	97
99) p-Isopropyltoluene	10.013	119	85259	2.95 ug/L	98
100) 1,4-Dichlorobenzene	10.056	146	59942	3.73 ug/L	96

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

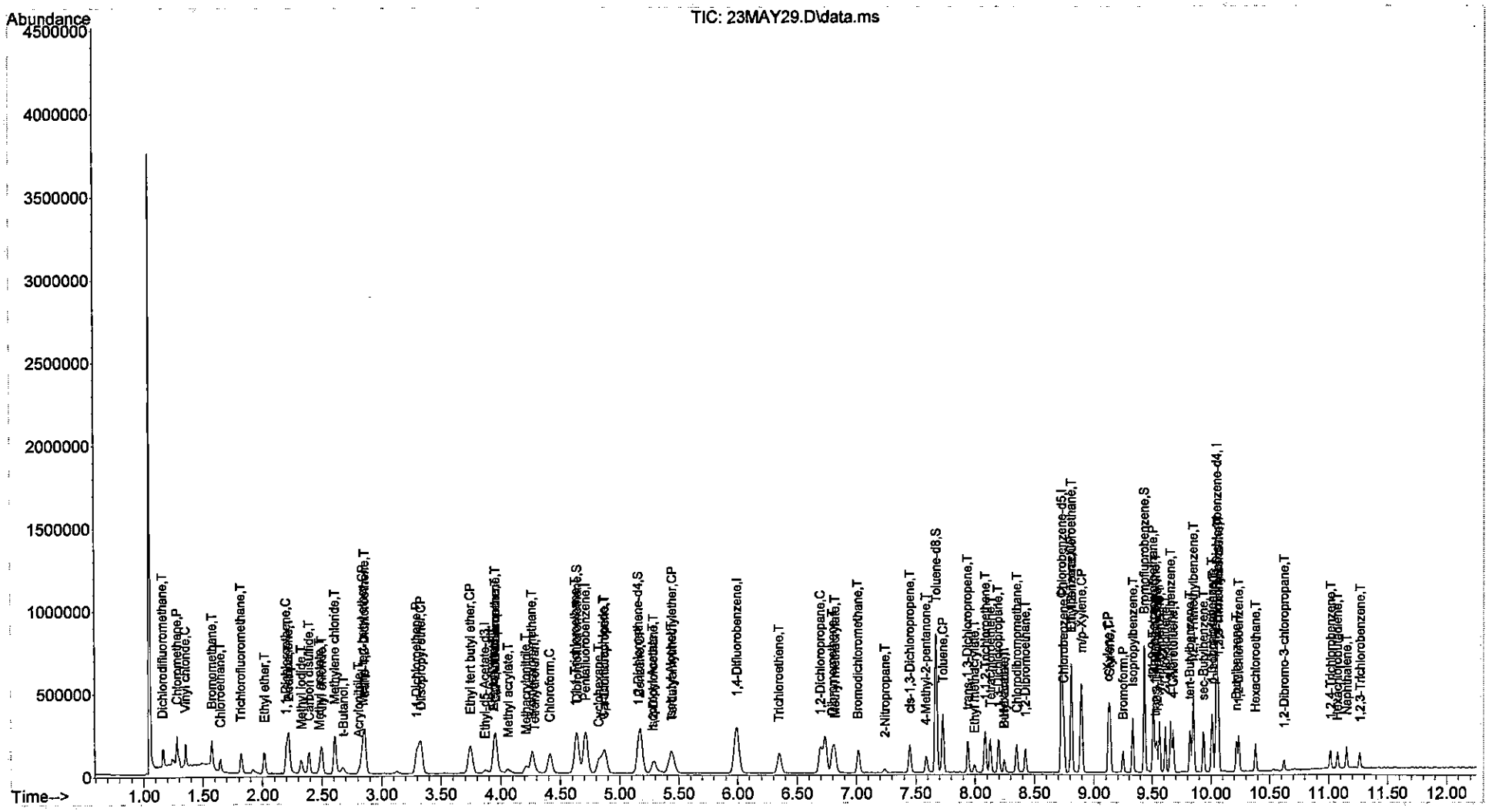
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	108781	4.20 ug/L	97
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.236	146	56236	3.87 ug/L	97
104) n-Butylbenzene	10.214	91	69873	2.39 ug/L	96
105) Hexachloroethane	10.379	117	20167	3.16 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.622	157	11114	5.32 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	24576	2.20 ug/L	98
109) Hexachlorobutadiene	11.074	225	13419	2.21 ug/L	96
110) Naphthalene	11.152	128	64719	2.45 ug/L #	90
111) 1,2,3-Trichlorobenzene	11.267	180	21656	2.00 ug/L	97
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	222126	172.79 ug/L	98
116) Acetic Ether	3.939	43	33671	7.79 ug/L #	66
117) Isopropyl Acetate	5.279	61	10265	3.80 ug/L #	1
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY19.D
Acq On : 25 May 2018 9:01 pm
Operator : EMR
Sample : VBLKW1-180525
Misc : IS/SS 200-20081
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 25 21:13:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	279478	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	403933	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	375370	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	185148	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.867	46	76400	20.00 ug/L	-0.01
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	140809	20.10 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.50%		
45) 1,2-Dichloroethane-d4	5.164	65	135550	19.87 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.35%		
64) Toluene-d8	7.671	98	460463	18.79 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.95%		
85) Bromofluorobenzene	9.433	95	168335	18.95 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.75%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	1.604	64	5261	Below Cal #	50
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	0.000		0	N.D.	
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	0.000		0	N.D.	
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D.	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY19.D
Acq On : 25 May 2018 9:01 pm
Operator : EMR
Sample : VBLKW1-180525
Misc : IS/SS 200-20081
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 25 21:13:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY19.D
Acq On : 25 May 2018 9:01 pm
Operator : EMR
Sample : VBLKW1-180525
Misc : IS/SS 200-20081
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 25 21:13:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

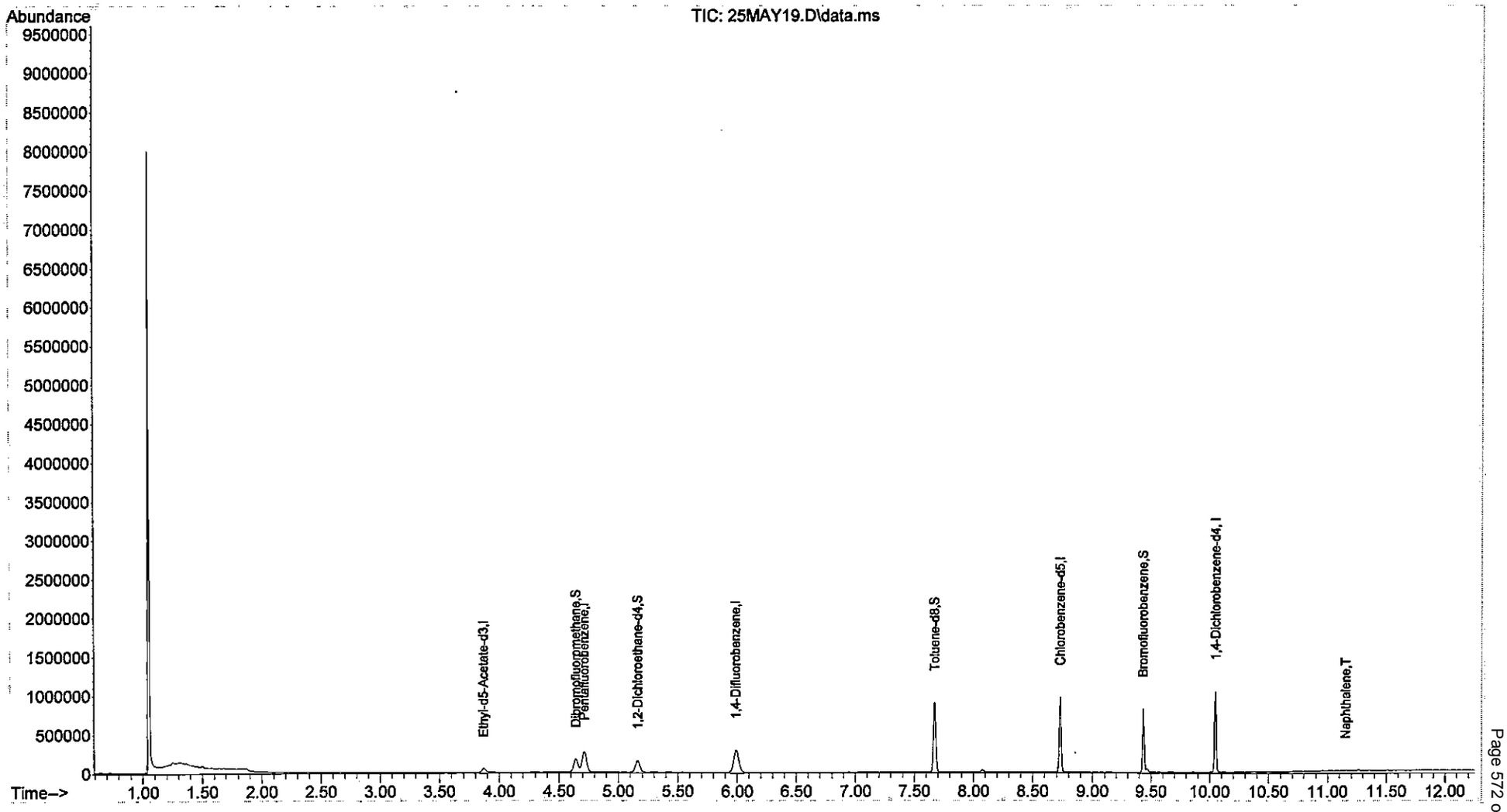
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	5066	0.15 ug/L #	78
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	0.000		0	N.D.	
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY19.D
Acq On : 25 May 2018 9:01 pm
Operator : EMR
Sample : VBLKW1-180525
Misc : IS/SS 200-20081
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 25 21:13:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY16.D
Acq On : 25 May 2018 8:12 pm
Operator : EMR
Sample : VLCSW1-180525
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 26 09:08:45 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.705	168	259460	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	393637	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	355107	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	189568	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72185	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	136122	19.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.70%				
45) 1,2-Dichloroethane-d4	5.157	65	125927	18.95	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.75%				
64) Toluene-d8	7.671	98	456157	19.68	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.40%				
85) Bromofluorobenzene	9.433	95	164985	19.63	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	93819	16.14	ug/L		99
3) Chloromethane	1.282	50	134175	15.26	ug/L		99
4) Vinyl chloride	1.353	62	118455	17.20	ug/L		91
5) Bromomethane	1.554	96	74442	34.54	ug/L		99
6) Chloroethane	1.633	64	46221	10.31	ug/L		86
7) Trichlorofluoromethane	1.812	101	121994	17.04	ug/L		99
8) Ethyl ether	2.012	59	102971	19.47	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	159348	20.40	ug/L		93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.320	142	134655	33.89	ug/L		98
13) Acetone	2.227	43	64855	18.28	ug/L		97
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.385	76	354969	20.96	ug/L		98
16) Allyl chloride	2.492	41	149951	16.48	ug/L		89
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.492	41	149951	16.57	ug/L	#	91
19) Methylene chloride	2.607	49	154137	18.62	ug/L		97
20) trans-1,2-Dichloroethene	2.857	61	173346	20.40	ug/L		94
21) t-Butanol	2.707	59	193264	108.20	ug/L		95
22) Acrylonitrile	2.814	53	79951	20.31	ug/L		95
23) Methyl tert-butyl ether	2.843	73	364385	22.42	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.294	63	228612	19.69	ug/L		99
26) Diisopropyl ether	3.330	45	352548	20.59	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	346777	20.50	ug/L		98
29) 2,2-Dichloropropane	3.953	77	161931	19.58	ug/L		98
30) cis-1,2-Dichloroethene	3.953	61	201901	19.95	ug/L		92
31) 2-Butanone	3.939	43	117353	19.28	ug/L		99
32) Ethyl Acetate	4.004	43	197596	19.76	ug/L	#	99
33) Methyl acrylate	4.061	55	189382	19.68	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.261	49	107530	20.17	ug/L		95
36) Tetrahydrofuran	4.276	42	71752	19.70	ug/L		98
37) Methacrylonitrile	4.218	41	117638	20.64	ug/L		98
38) Chloroform	4.412	83	227836	19.36	ug/L		99

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY16.D
Acq On : 25 May 2018 8:12 pm
Operator : EMR
Sample : VLCSW1-180525
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 26 09:08:45 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Cyclohexane	4.705	56	5338	0.57	ug/L	#	1
41) 1,1,1-Trichloroethane	4.627	97	179594	19.66	ug/L		99
43) Carbon tetrachloride	4.863	117	156313	19.93	ug/L		98
44) 1,1-Dichloropropene	4.870	75	157534	18.33	ug/L		97
46) 1,2-Dichloroethane	5.293	62	160854	18.40	ug/L		99
47) Benzene	5.171	78	507275	20.20	ug/L		100
48) Tertiaryamylmethylether	5.443	73	347967	21.35	ug/L		98
49) Isobutyl Alcohol	5.443	43	98947	18.68	ug/L		97
50) Heptane	0.000		0	N.D.			
51) 1,4-Dioxane	6.811	88	15957	114.43	ug/L		90
52) Methylcyclohexane	0.000		0	N.D.			
53) n-Butanol	0.000		0	N.D.			
54) Trichloroethene	6.353	130	141839	20.07	ug/L		100
55) 1,2-Dichloropropane	6.697	63	137848	19.19	ug/L		88
56) Dibromomethane	6.797	93	102387	19.52	ug/L		96
57) Methyl methacrylate	6.819	41	142540	17.63	ug/L		96
58) Bromodichloromethane	7.019	83	179353	19.65	ug/L		98
59) 2-Chloroethyl vinyl ether	7.241	43	52516	15.75	ug/L	#	1
60) 2-Nitropropane	7.241	43	56724	16.18	ug/L	#	98
61) cis-1,3-Dichloropropene	7.449	75	215065	19.82	ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	329508	29.85	ug/L		80
65) Toluene	7.728	91	541718	21.20	ug/L		99
66) trans-1,3-Dichloropropene	7.936	75	194788	19.02	ug/L		99
67) Chloropicrin	0.000		0	N.D.			
68) Ethyl methacrylate	7.993	69	204372	18.70	ug/L		97
69) 1,1,2-Trichloroethane	8.086	97	142364	18.89	ug/L		98
70) Tetrachloroethene	8.129	166	150559	22.58	ug/L		98
71) 1,3-Dichloropropane	8.201	76	211263	19.94	ug/L		98
72) 2-Hexanone	8.244	43	170006	19.60	ug/L		99
73) Chlorodibromomethane	8.351	129	158699	19.50	ug/L		99
74) Butyl acetate	8.344	43	266592	18.44	ug/L		98
75) 1,2-Dibromoethane	8.423	107	163813	21.08	ug/L	#	96
76) Chlorobenzene	8.745	112	371459	21.55	ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	137197	20.61	ug/L		100
78) Ethylbenzene	8.810	91	579904	21.10	ug/L		100
79) m/p-Xylene	8.896	91	885619	42.51	ug/L		98
80) Styrene	9.139	104	379965	21.40	ug/L		97
81) o-Xylene	9.125	91	457910	20.71	ug/L		100
82) Cyclohexanone	0.000		0	N.D.			
83) Bromoform	9.247	173	124758	20.31	ug/L		98
84) Isopropylbenzene	9.333	105	540700	20.79	ug/L		100
86) Bromobenzene	9.512	77	332699	20.41	ug/L		92
87) 1,1,2,2-Tetrachloroethane	9.512	83	260002	22.27	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	61905	19.33	ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	53382	16.55	ug/L		96
90) n-Propylbenzene	9.562	91	646511	21.58	ug/L		99
91) 2-Chlorotoluene	9.612	91	386820	21.55	ug/L		96
92) 4-Chlorotoluene	9.677	91	444018	21.13	ug/L		97
93) 1,3,5-Trimethylbenzene	9.655	105	426964	20.75	ug/L		96
94) tert-Butylbenzene	9.827	91	271060	22.04	ug/L		94
95) 1,2,4-Trimethylbenzene	9.856	105	450555	20.55	ug/L		99
96) sec-Butylbenzene	9.942	105	522888	21.08	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	289870	21.60	ug/L		98
99) p-Isopropyltoluene	10.013	119	441528	20.44	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	304366	22.24	ug/L		95

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY16.D
Acq On : 25 May 2018 8:12 pm
Operator : EMR
Sample : VLCSW1-180525
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 26 09:08:45 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

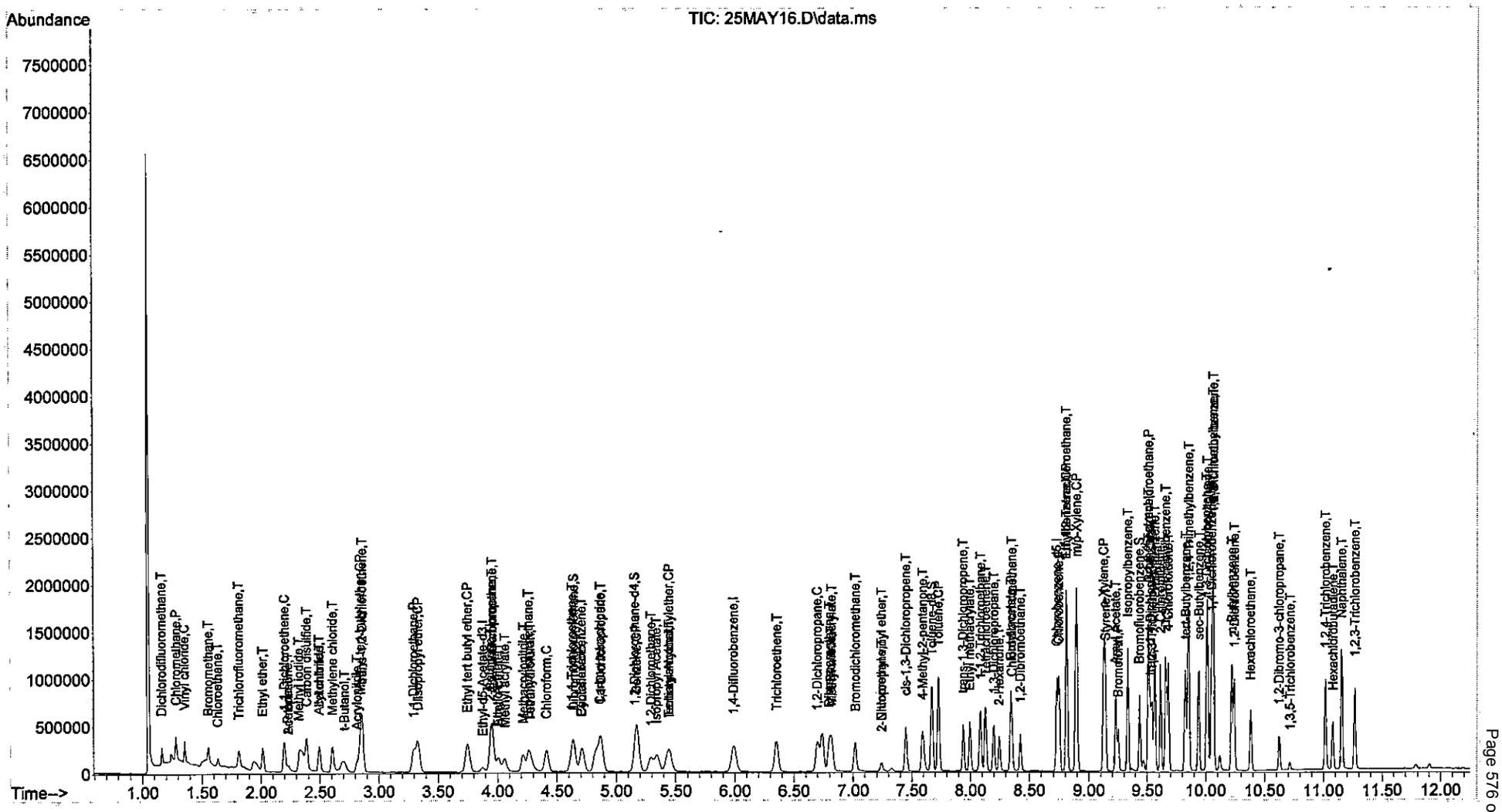
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	463256	20.43 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	282938	21.42 ug/L	98
104) n-Butylbenzene	10.221	91	394307	20.15 ug/L	98
105) Hexachloroethane	10.379	117	87986	18.11 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.622	157	70728	18.65 ug/L	96
107) 1,3,5-Trichlorobenzene	10.715	180	5636	0.63 ug/L #	18
108) 1,2,4-Trichlorobenzene	11.016	180	198442	21.50 ug/L	100
109) Hexachlorobutadiene	11.081	225	72016	23.35 ug/L	100
110) Naphthalene	11.152	128	694501	20.51 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	189673	21.13 ug/L	98
112) 2-Methylnaphthalene	0.000		0	N.D. d	
113) 1-Methylnaphthalene	0.000		0	N.D. d	
115) 2-Propanone	2.227	43	64855	20.03 ug/L	97
116) Acetic Ether	4.004	43	197067	21.47 ug/L #	98
117) Isopropyl Acetate	5.336	61	90138	21.81 ug/L	94
118) Amyl Acetate	9.225	43	253226	21.43 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY16.D
Acq On : 25 May 2018 8:12 pm
Operator : EMR
Sample : VLCSW1-180525
Misc : IS/SS 200-20081
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 26 09:08:45 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY42.D
Acq On : 26 May 2018 3:10 am
Operator : EMR
Sample : 18051315-06A MS
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 26 09:19:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	274453	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	398688	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	366835	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	190588	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	76337	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	137963	19.95	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.75%			
45) 1,2-Dichloroethane-d4	5.164	65	129281	19.20	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.00%			
64) Toluene-d8	7.671	98	460081	19.21	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.05%			
85) Bromofluorobenzene	9.433	95	165552	19.07	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	132201	21.50	ug/L	98
3) Chloromethane	1.282	50	135188	14.54	ug/L	100
4) Vinyl chloride	1.353	62	141786	19.46	ug/L	95
5) Bromomethane	1.575	96	116325	51.71	ug/L	98
6) Chloroethane	1.647	64	94985	24.15	ug/L	93
7) Trichlorofluoromethane	1.819	101	159279	21.04	ug/L	96
8) Ethyl ether	2.019	59	100752	18.01	ug/L	98
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.199	61	186712	22.60	ug/L	90
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.327	142	144908	34.51	ug/L	99
13) Acetone	2.227	43	74758	19.92	ug/L	100
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	396146	22.12	ug/L	97
16) Allyl chloride	2.499	41	177449	18.43	ug/L	91
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	2.499	41	177449	18.53	ug/L #	91
19) Methylene chloride	2.607	49	162111	18.52	ug/L	98
20) trans-1,2-Dichloroethene	2.865	61	184111	20.48	ug/L	95
21) t-Butanol	2.686	59	198557	105.09	ug/L	96
22) Acrylonitrile	2.815	53	83741	20.11	ug/L	100
23) Methyl tert-butyl ether	2.850	73	374141	21.76	ug/L	99
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.294	63	238761	19.44	ug/L	98
26) Diisopropyl ether	3.330	45	369028	20.37	ug/L #	48
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.746	59	342354	19.13	ug/L	100
29) 2,2-Dichloropropane	3.961	77	147742	16.89	ug/L	98
30) cis-1,2-Dichloroethene	3.953	61	211828	19.78	ug/L	96
31) 2-Butanone	3.939	43	113020	17.55	ug/L	97
32) Ethyl Acetate	4.004	43	195328	18.46	ug/L #	99
33) Methyl acrylate	4.061	55	195950	19.25	ug/L	99
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	4.261	49	112439	19.93	ug/L	94
36) Tetrahydrofuran	4.283	42	75329	19.56	ug/L	97
37) Methacrylonitrile	4.218	41	117303	19.46	ug/L	98
38) Chloroform	4.419	83	236896	19.03	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY42.D
Acq On : 26 May 2018 3:10 am
Operator : EMR
Sample : 18051315-06A MS
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 26 09:19:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.634	97	204523	22.10 ug/L	97
43) Carbon tetrachloride	4.863	117	169454	21.33 ug/L	99
44) 1,1-Dichloropropene	4.885	75	172161	19.78 ug/L	97
46) 1,2-Dichloroethane	5.293	62	165098	18.64 ug/L	97
47) Benzene	5.186	78	536311	21.09 ug/L	99
48) Tertiaryamylmethylether	5.443	73	354407	21.47 ug/L	97
49) Isobutyl Alcohol	5.443	43	99089	18.47 ug/L #	96
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.740	88	7671	54.31 ug/L #	20
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	144986	20.26 ug/L	99
55) 1,2-Dichloropropane	6.697	63	137671	18.92 ug/L	95
56) Dibromomethane	6.797	93	104340	19.64 ug/L	98
57) Methyl methacrylate	6.819	41	143046	17.47 ug/L	97
58) Bromodichloromethane	7.019	83	179163	19.38 ug/L	97
59) 2-Chloroethyl vinyl ether	7.241	43	45967	13.61 ug/L #	1
60) 2-Nitropropane	7.241	43	54238	15.28 ug/L #	97
61) cis-1,3-Dichloropropene	7.449	75	207675	18.90 ug/L	97
63) 4-Methyl-2-pentanone	7.592	43	340057	29.82 ug/L	78
65) Toluene	7.728	91	545863	20.68 ug/L	100
66) trans-1,3-Dichloropropene	7.943	75	185941	17.57 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	205961	18.24 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	141716	18.20 ug/L	98
70) Tetrachloroethene	8.130	166	158362	22.99 ug/L	99
71) 1,3-Dichloropropane	8.201	76	210055	19.19 ug/L	97
72) 2-Hexanone	8.244	43	172074	19.21 ug/L	99
73) Chlorodibromomethane	8.352	129	151524	18.02 ug/L	99
74) Butyl acetate	8.344	43	247572	16.58 ug/L	99
75) 1,2-Dibromoethane	8.423	107	164850	20.54 ug/L #	100
76) Chlorobenzene	8.753	112	360724	20.26 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	135726	19.74 ug/L	99
78) Ethylbenzene	8.817	91	601579	21.19 ug/L	99
79) m/p-Xylene	8.896	91	904937	42.05 ug/L	99
80) Styrene	9.140	104	378314	20.63 ug/L	99
81) o-Xylene	9.125	91	462872	20.27 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	125136	19.72 ug/L	99
84) Isopropylbenzene	9.333	105	554074	20.63 ug/L	99
86) Bromobenzene	9.512	77	325567	19.34 ug/L	92
87) 1,1,2,2-Tetrachloroethane	9.512	83	254278	21.08 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	61376	18.55 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	47593	14.28 ug/L	93
90) n-Propylbenzene	9.562	91	645256	20.85 ug/L	99
91) 2-Chlorotoluene	9.612	91	394583	21.28 ug/L	100
92) 4-Chlorotoluene	9.677	91	434519	20.02 ug/L	97
93) 1,3,5-Trimethylbenzene	9.655	105	432919	20.36 ug/L	100
94) tert-Butylbenzene	9.827	91	284875	22.43 ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	443580	19.59 ug/L	100
96) sec-Butylbenzene	9.942	105	513937	20.06 ug/L	98
98) 1,3-Dichlorobenzene	10.006	146	285546	21.16 ug/L	99
99) p-Isopropyltoluene	10.013	119	448429	20.65 ug/L	98
100) 1,4-Dichlorobenzene	10.064	146	296748	21.56 ug/L	97

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY42.D
Acq On : 26 May 2018 3:10 am
Operator : EMR
Sample : 18051315-06A MS
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 26 09:19:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

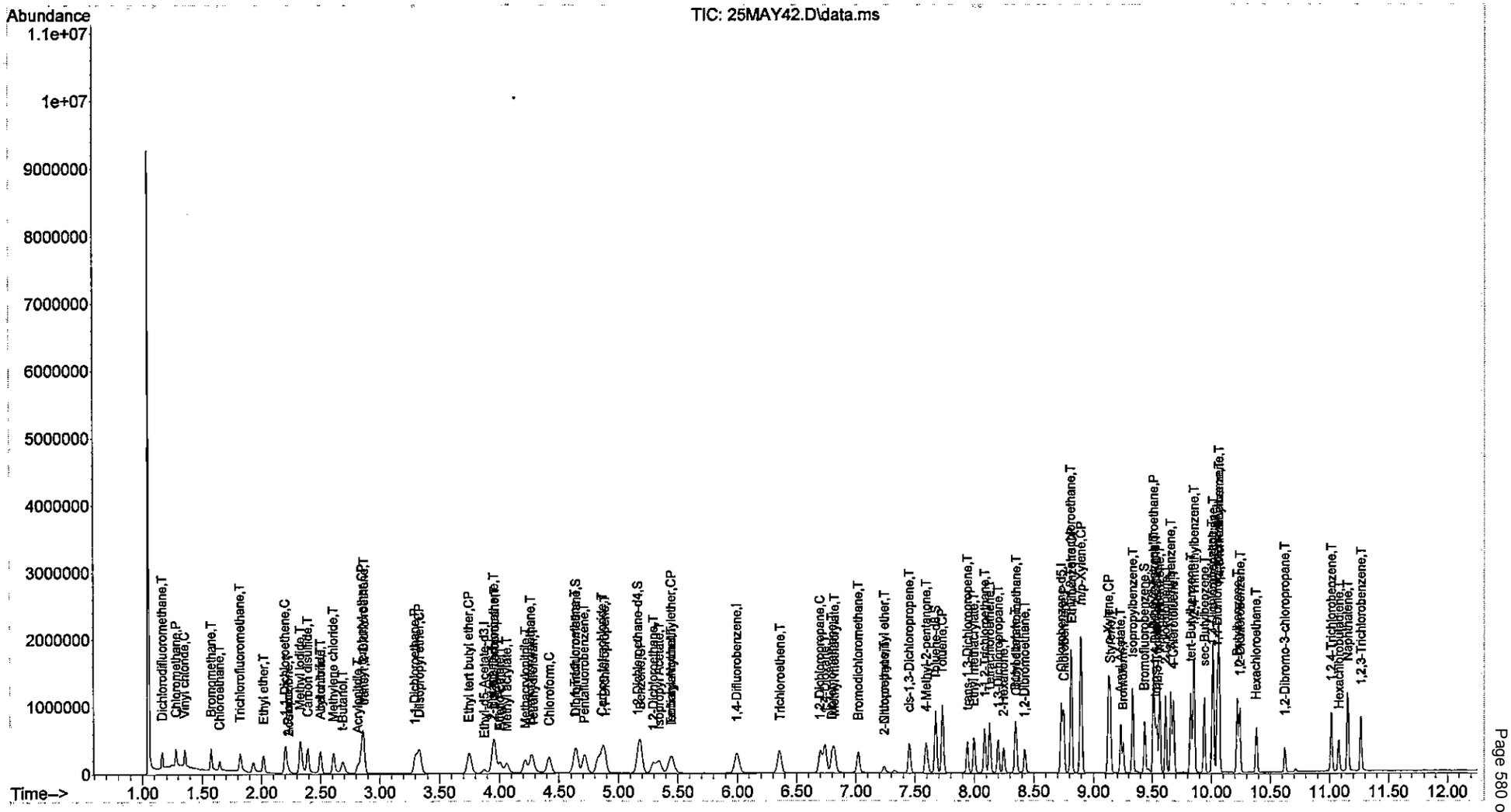
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	465719	20.43 ug/L	100
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	277283	20.88 ug/L	98
104) n-Butylbenzene	10.221	91	390574	19.85 ug/L	100
105) Hexachloroethane	10.379	117	88933	18.20 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.622	157	69685	18.28 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	171636	18.50 ug/L	98
109) Hexachlorobutadiene	11.081	225	63677	20.54 ug/L	97
110) Naphthalene	11.152	128	628348	18.46 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	181241	20.08 ug/L	99
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	74758	21.84 ug/L	100
116) Acetic Ether	4.004	43	195328	20.12 ug/L #	98
117) Isopropyl Acetate	5.343	61	88277	20.20 ug/L	99
118) Amyl Acetate	9.225	43	230492	18.45 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY42.D
Acq On : 26 May 2018 3:10 am
Operator : EMR
Sample : 18051315-06A MS
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 26 09:19:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY41.D
Acq On : 26 May 2018 2:54 am
Operator : EMR
Sample : 18051315-05A DUP
Misc : IS/SS 200-20081
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 26 03:06:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	275073	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	414123	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	369640	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183169	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	78542	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	140689	19.59	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.95%				
45) 1,2-Dichloroethane-d4	5.164	65	132309	18.92	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.60%				
64) Toluene-d8	7.671	98	456211	18.91	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.55%				
85) Bromofluorobenzene	9.433	95	163596	18.70	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.611	64	11229	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.227	43	8191	2.18	ug/L	#	39
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY41.D
Acq On : 26 May 2018 2:54 am
Operator : EMR
Sample : 18051315-05A DUP
Misc : IS/SS 200-20081
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 26 03:06:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D.	
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	0.000		0	N.D.	
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	0.000		0	N.D.	
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	0.000		0	N.D.	
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	0.000		0	N.D.	
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	0.000		0	N.D.	
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	0.000		0	N.D.	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D.	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	0.000		0	N.D.	
79)	m/p-Xylene	0.000		0	N.D.	
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	0.000		0	N.D.	
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	0.000		0	N.D.	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	0.000		0	N.D.	
91)	2-Chlorotoluene	0.000		0	N.D.	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	0.000		0	N.D.	
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	0.000		0	N.D.	
96)	sec-Butylbenzene	0.000		0	N.D.	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY41.D
Acq On : 26 May 2018 2:54 am
Operator : EMR
Sample : 18051315-05A DUP
Misc : IS/SS 200-20081
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 26 03:06:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

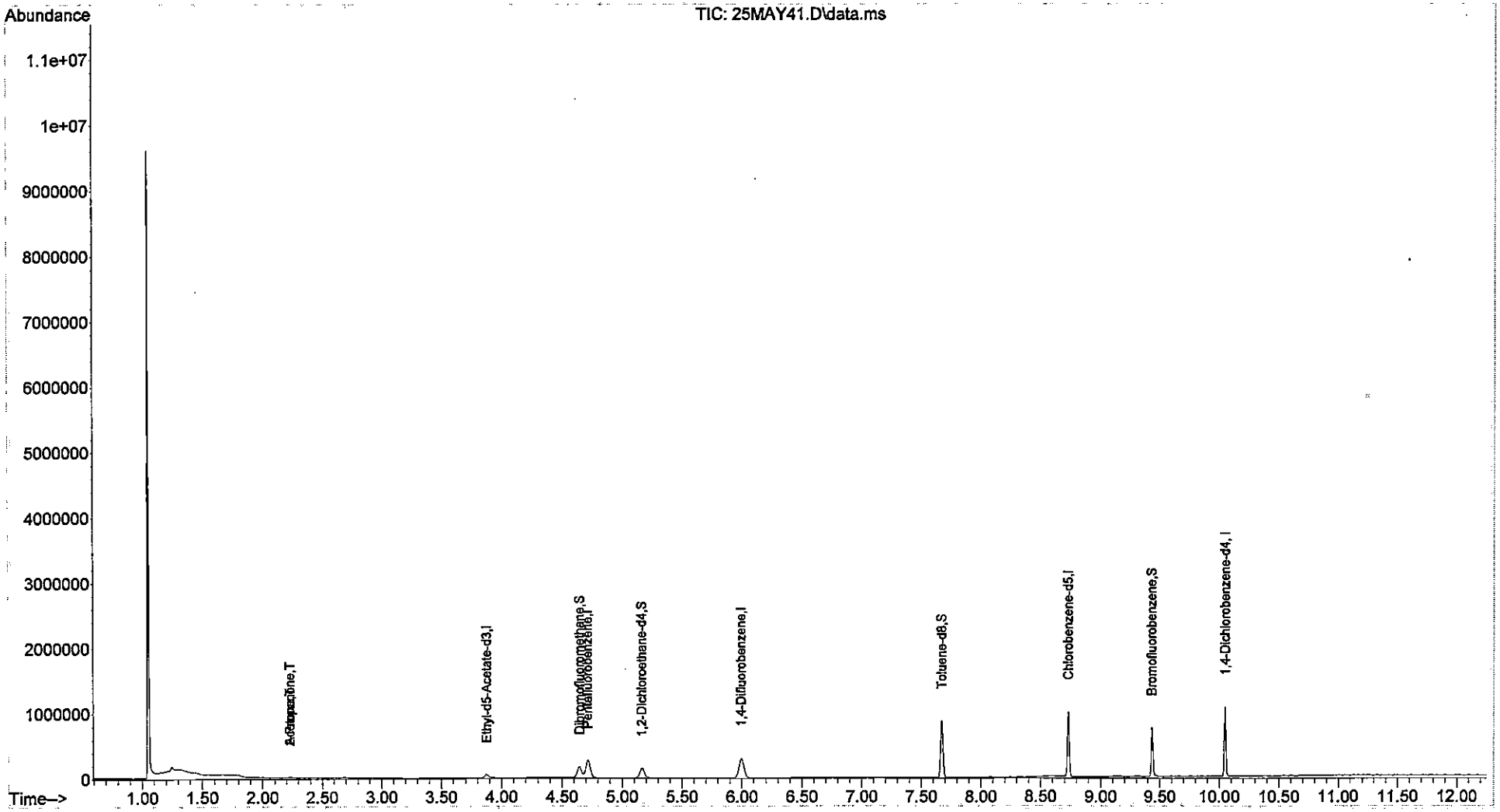
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.227	43	8191	2.33	ug/L #	39
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY41.D
Acq On : 26 May 2018 2:54 am
Operator : EMR
Sample : 18051315-05A DUP
Misc : IS/SS 200-20081
ALS Vial : 39 Sample Multiplier: 1

Quant Time: May 26 03:06:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



2018 May 22 0940 Sequence Log

Starting sequence Tue May 22 09:40:12 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180522.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180522\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	22MAY01	BFB	VBFB1-180522
2)	Sample	1	22MAY02	8GI0515	VCCV1-180522

Sequence Table edit performed Tue May 22 10:33:34 2018

3)	Sample	2	22MAY03	8GI0515	VLCSW1-180522
4)	Sample	3	22MAY04	8GI0515	LCS-
5)	Sample	4	22MAY05	8GI0515	BLK
6)	Sample	5	22MAY06	8GI0515	VBLKW1-180522
7)	Sample	6	22MAY07	8GI0515	MBLK-

Sequence Table edit performed Tue May 22 12:20:57 2018

8)	Sample	7	22MAY08	8GI0515	18051288-01A
9)	Sample	8	22MAY09	8GI0515	18051384-01A
10)	Sample	9	22MAY10	8GI0515	18051384-02A
11)	Sample	10	22MAY11	8GI0515	18051384-03A
12)	Sample	11	22MAY12	8GI0515	18051384-04A
13)	Sample	12	22MAY13	8GI0515	18051367-01A
14)	Sample	13	22MAY14	8GI0515	18051367-02A
15)	Sample	14	22MAY15	8GI0515	18051102-03A
16)	Sample	15	22MAY16	8GI0515	18051102-01A

Sequence Table edit performed Tue May 22 15:16:21 2018

17)	Sample	16	22MAY17	8GI0515	18051082-01A DF5

2018 May 22 0940 Sequence Log

18)	Sample	17	22MAY18	8GI0515	18051043-01A
19)	Sample	18	22MAY19	8GI0515	18051043-02A
20)	Sample	19	22MAY20	8GI0515	18051090-03A DF10
21)	Sample	20	22MAY21	8GI0515	18051125-03A
22)	Sample	21	22MAY22	8GI0515	18051125-01A
23)	Sample	22	22MAY23	8GI0515	
24)	Sample	23	22MAY24	8GI0515	18051220-01A

Sequence Table edit performed Tue May 22 17:47:47 2018

25)	Sample	24	22MAY25	8GI0515	18051220-02A
26)	Sample	25	22MAY26	8GI0515	18051220-03A
27)	Sample	26	22MAY27	8GI0515	18051125-02A DF10
28)	Sample	27	22MAY28	8GI0515	18051043-01A MS
29)	Sample	28	22MAY29	8GI0515	18051043-01A MSD
30)	Sample	29	22MAY30	8GI0515	18051288-01A MS
31)	Sample	30	22MAY31	8GI0515	18051288-01A MSD
32)	Sample	31	22MAY32	8GI0515	BLK
33)	Sample	32	22MAY33	BFB	VBFB2-180522
34)	Sample	33	22MAY34	8GI0515	VCCV2-180522
35)	Sample	34	22MAY35	8GI0515	VCCV3-180522
36)	Sample	35	22MAY36	8GI0515	VLCSW2-180522
37)	Sample	36	22MAY37	8GI0515	LCS-
38)	Sample	37	22MAY38	8GI0515	BLK
39)	Sample	38	22MAY39	8GI0515	VBLKW2-180522
40)	Sample	39	22MAY40	8GI0515	MBLK-

2018 May 22 0940 Sequence Log

41)	Sample	40	22MAY41	8GI0515	18051328-24A
42)	Sample	41	22MAY42	8GI0515	18051328-01A
43)	Sample	42	22MAY43	8GI0515	18051328-02A
44)	Sample	43	22MAY44	8GI0515	18051328-04A
45)	Sample	44	22MAY45	8GI0515	18051328-05A
46)	Sample	45	22MAY46	8GI0515	18051328-06A
47)	Sample	46	22MAY47	8GI0515	18051328-07A
48)	Sample	47	22MAY48	8GI0515	18051328-09A
49)	Sample	48	22MAY49	8GI0515	18051328-10A
50)	Sample	49	22MAY50	8GI0515	18051328-11A
51)	Sample	50	22MAY51	8GI0515	18051328-12A
52)	Sample	51	22MAY52	8GI0515	18051328-13A
53)	Sample	52	22MAY53	8GI0515	18051328-14A
54)	Sample	53	22MAY54	8GI0515	18051328-15A
55)	Sample	54	22MAY55	8GI0515	18051328-16A
56)	Sample	55	22MAY56	8GI0515	18051328-18A
57)	Sample	56	22MAY57	8GI0515	18051328-19A
58)	Sample	57	22MAY58	8GI0515	18051308-01A
59)	Sample	58	22MAY59	8GI0515	18051158-04A
60)	Sample	59	22MAY60	8GI0515	18051220-04A
61)	Sample	60	22MAY61	8GI0515	18051308-01A MS
62)	Sample	61	22MAY62	8GI0515	18051308-01A MSD
63)	Sample	62	22MAY63	8GI0515	BLK
64)	Sample	63	22MAY64	BFB	VBFB3-180522

2018 May 22 0940 Sequence Log

65)	Sample	64	22MAY65	8GI0515	VCCV4-180522
66)	Sample	65	22MAY66	8GI0515	VCCV5-180522
67)	Sample	66	22MAY67	8GI0515	VLCSW3-180522
68)	Sample	67	22MAY68	8GI0515	BLK
69)	Sample	68	22MAY69	8GI0515	VBLKW3-180522
70)	Sample	69	22MAY70	8GI0515	18051238-22A
71)	Sample	70	22MAY71	8GI0515	18021328-21A
72)	Sample	71	22MAY72	8GI0515	18021328-23A
73)	Sample	72	22MAY73	8GI0515	18051328-03A
74)	Sample	73	22MAY74	8GI0515	18051328-08A
75)	Sample	74	22MAY75	8GI0515	18051328-17A
76)	Sample	75	22MAY76	8GI0515	18051328-20A
77)	Sample	76	22MAY77	8GI0515	18051308-02A
78)	Sample	77	22MAY78	8GI0515	18051308-03A
79)	Sample	78	22MAY79	8GI0515	18051308-04A
80)	Sample	79	22MAY80	8GI0515	18051294-01A
81)	Sample	7	22MAY81	8GI0515	18051328-03A DUP
82)	Sample	8	22MAY82	8GI0515	18051328-08A MS
83)	Sample	9	22MAY83	8GI0515	BLK
84)	Sample	2	22MAY84	8SGO0515	BLK
85)	Sample	3	22MAY85	8SGO0515	BLK

Sequence completed Wed May 23 10:26:04 2018

D:\MSDCHEM\1\DATA\8V180522\2018 May 22 0940 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180522\2018 May 22 0940 Sequence Log .LOG

2018 May 23 1047 Sequence Log

Starting sequence Wed May 23 10:47:26 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180523.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180523\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	23MAY01	BFB	VBFB1-180523
2)	Sample	1	23MAY02	8SGO0515	VCCV1-180523

Sequence Table edit performed Wed May 23 11:28:34 2018

3)	Sample	1	23MAY03	8SGO0515	VCCV2-180523

Sequence Table edit performed Wed May 23 11:57:18 2018

4)	Sample	1	23MAY04	8SGO0515	BLK
5)	Sample	2	23MAY05	8SGO0515	BLK
6)	Sample	1	23MAY06	BFB	VBFB2-180523
7)	Sample	1	23MAY07	8SGO0515	VCCV3-180523
8)	Sample	2	23MAY08	8SGO0515	VLCSS1-180523
9)	Sample	3	23MAY09	8SGO0515	BLK
10)	Sample	4	23MAY10	8SGO0515	VBLKS1-180523
11)	Sample	5	23MAY11	8SGO0515	18051384-05A
12)	Sample	6	23MAY12	8SGO0515	18051367-03A
13)	Sample	7	23MAY13	8SGO0515	18051367-01A DF0.914
14)	Sample	8	23MAY14	8SGO0515	18051367-02A DF1.12
15)	Sample	9	23MAY15	8SGO0515	18051384-01A DF1.21
16)	Sample	10	23MAY16	8SGO0515	18051384-02A DF1.17
17)	Sample	11	23MAY17	8SGO0515	18051384-03A DF0.703

2018 May 23 1047 Sequence Log

18) Sample 12 23MAY18 8SGO0515 18051384-01A DF0.855

Sequence Table edit performed Wed May 23 17:02:54 2018

19) Sample 13 23MAY19 8SGO0515 18051328-15A DF0.765

20) Sample 14 23MAY20 8SGO0515 18051328-16A DF0.874

21) Sample 15 23MAY21 8SGO0515 18051328-18A DF0.818

22) Sample 16 23MAY22 8SGO0515 18051328-19A DF0.766

23) Sample 17 23MAY23 8SGO0515 18051252-01C DF0.790

24) Sample 18 23MAY24 8SGO0515 18051407-01A

25) Sample 19 23MAY25 8SGO0515 18051407-02A DF0.785

26) Sample 20 23MAY26 8SGO0515 18051407-03A DF0.822

27) Sample 21 23MAY27 8SGO0515 18051407-04A DF0.969

28) Sample 22 23MAY28 8SGO0515 18051384-01A MS

29) Sample 23 23MAY29 8SGO0515 18051384-01A MSD

30) Sample 24 23MAY30 8SGO0515 BLK

31) Sample 25 23MAY31 8SGO0515 BLK

32) Sample 26 23MAY32 BFB VBFB2-180523

33) Sample 27 23MAY33 8GI0515 BLK

34) Sample 28 23MAY34 8GI0515 BLK

35) Sample 29 23MAY35 8GI0515 VBLKW2-180523

36) Sample 30 23MAY36 8GI0515 0.4 PPB

37) Sample 31 23MAY37 8GI0515 0.6PPB

38) Sample 32 23MAY38 8GI0515 2PPB

39) Sample 33 23MAY39 8GI0515 4 PPB

40) Sample 34 23MAY40 8GI0515 10PPB

41) Sample 35 23MAY41 8GI0515 40PPB

2018 May 23 1047 Sequence Log

42)	Sample	36	23MAY42	8GI0515	70PPB
43)	Sample	37	23MAY43	8GI0515	100PPB
44)	Sample	38	23MAY44	8GI0515	BLK
45)	Sample	39	23MAY45	8GI0515	ICV
46)	Sample	40	23MAY46	8GI0515	BLK
47)	Sample	41	23MAY47	BFB	VBFB3-180523
48)	Sample	42	23MAY48	8GI0515	VCCV4-180523
49)	Sample	43	23MAY49	8GI0515	VCCV5-180523
50)	Sample	44	23MAY50	8GI0515	VLCSW3-180523
51)	Sample	45	23MAY51	8GI0515	LCS-
52)	Sample	46	23MAY52	8GI0515	BLK
53)	Sample	47	23MAY53	8GI0515	VBLKW3-180523
54)	Sample	48	23MAY54	8GI0515	MBLK-
55)	Sample	49	23MAY55	8GI0515	18051125-03A
56)	Sample	50	23MAY56	8GI0515	18051158-04A
57)	Sample	51	23MAY57	8GI0515	18051164-02D
58)	Sample	52	23MAY58	8GI0515	18051285-06A
59)	Sample	53	23MAY59	8GI0515	18051285-07A
60)	Sample	54	23MAY60	8GI0515	18051285-08A
61)	Sample	55	23MAY61	8GI0515	18051285-09A
62)	Sample	56	23MAY62	8GI0515	18051285-10A
63)	Sample	57	23MAY63	8GI0515	18051285-11A
64)	Sample	58	23MAY64	8GI0515	18051285-12A
65)	Sample	59	23MAY65	8GI0515	18051285-13A

2018 May 23 1047 Sequence Log

66)	Sample	60	23MAY66	8GI0515	18051285-14A
67)	Sample	61	23MAY67	8GI0515	18051285-15A
68)	Sample	62	23MAY68	8GI0515	18051285-16A
69)	Sample	63	23MAY69	8GI0515	18051285-17A
70)	Sample	64	23MAY70	8GI0515	18051285-18A
71)	Sample	65	23MAY71	8GI0515	18051285-19A
72)	Sample	66	23MAY72	8GI0515	18051285-20A
73)	Sample	67	23MAY73	8GI0515	18051285-21A
74)	Sample	68	23MAY74	8GI0515	18051125-02A DF4
75)	Sample	69	23MAY75	8GI0515	18051285-07A MS
76)	Sample	70	23MAY76	8GI0515	18051285-07A MSD
77)	Sample	71	23MAY77	8GI0515	BLK

Sequence completed Thu May 24 09:20:01 2018

D:\MSDCHEM\1\DATA\8V180523\2018 May 23 1047 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180523\2018 May 23 1047 Sequence Log.LOG

2018 May 23 1001 Sequence Log

Starting sequence Wed May 23 10:01:34 2018

Instrument Name: VMS9
Sequence File: C:\msdchem\1\sequence\9V180523.s
Comment:
Operator: AK
Data Path: C:\msdchem\1\DATA\9V180523\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	23MAY01	BFB	VBFB1-180523
2)	Sample	1	23MAY02	9AC0522	VCCV1-180523
3)	Sample	2	23MAY03	9AC0522	VLCSW1-180523
4)	Sample	3	23MAY04	9AC0522	LCS-
5)	Sample	4	23MAY05	9AC0522	BLK
6)	Sample	5	23MAY06	9AC0522	VBLKW1-180523
7)	Sample	6	23MAY07	9AC0522	MBLK-
8)	Sample	7	23MAY08	9AC0522	1805787-01 DF5000
9)	Sample	8	23MAY09	9AC0522	1805937-09A
10)	Sample	9	23MAY10	9AC0522	1805219-02A DF20
11)	Sample	10	23MAY11	9AC0522	18051102-05A DF50
12)	Sample	11	23MAY12	9AC0522	1805515-21F DF20

2018 May 23 1001 Sequence Log

13)	Sample	12	23MAY13	9AC0522	1805219-02A MS DF20
14)	Sample	13	23MAY14	9AC0522	1805219-02A MSD DF20
15)	Sample	14	23MAY15	9AC0522	1804911-01A
16)	Sample	15	23MAY16	9AC0522	1804911-02A
17)	Sample	16	23MAY17	9AC0522	1804911-04A
18)	Sample	17	23MAY18	9AC0522	18051286-06A
19)	Sample	18	23MAY19	9AC0522	18051043-01A
20)	Sample	19	23MAY20	9AC0522	18051043-012A
21)	Sample	20	23MAY21	9AC0522	18051286-05A
22)	Sample	21	23MAY22	9AC0522	18051328-21A
23)	Sample	22	23MAY23	9AC0522	18051328-22A
24)	Sample	23	23MAY24	9AC0522	18051328-23A
25)	Sample	24	23MAY25	9AC0522	18051308-01A
26)	Sample	25	23MAY26	9AC0522	18051102-01A DF4
27)	Sample	26	23MAY27	9AC0522	18051102-03A DF10
28)	Sample	27	23MAY28	9AC0522	18051308-01A MS

2018 May 23 1001 Sequence Log

29)	Sample	28	23MAY29	9AC0522	18051308-01A MSD
30)	Sample	29	23MAY30	9AC0522	BLK
31)	Sample	30	23MAY31	BFB	VBFB2-180523
32)	Sample	31	23MAY32	9AC0522	VCCV2-180523
33)	Sample	32	23MAY33	9AC0522	VCCV3-180523
34)	Sample	33	23MAY34	9AC0522	VLCSW2-180523
35)	Sample	34	23MAY35	9AC0522	LCS-
36)	Sample	35	23MAY36	9AC0522	BLK
37)	Sample	36	23MAY37	9AC0522	VBLKW2-180523
38)	Sample	37	23MAY38	9AC0522	MBLK-
39)	Sample	38	23MAY39	9AC0522	18051328-03A
40)	Sample	39	23MAY40	9AC0522	18051328-08A
41)	Sample	40	23MAY41	9AC0522	18051328-17A
42)	Sample	41	23MAY42	9AC0522	18051328-20A
43)	Sample	42	23MAY43	9AC0522	18051328-01A
44)	Sample	43	23MAY44	9AC0522	18051328-02A

2018 May 23 1001 Sequence Log

45)	Sample	44	23MAY45	9AC0522	18051328-04A
46)	Sample	45	23MAY46	9AC0522	18051328-05A
47)	Sample	46	23MAY47	9AC0522	18051328-06A
48)	Sample	47	23MAY48	9AC0522	18051328-12A
49)	Sample	48	23MAY49	9AC0522	18051328-13A
50)	Sample	49	23MAY50	9AC0522	18051328-14A
51)	Sample	50	23MAY51	9AC0522	18051328-07A
52)	Sample	51	23MAY52	9AC0522	18051328-09A
53)	Sample	52	23MAY53	9AC0522	18051328-10A
54)	Sample	53	23MAY54	9AC0522	18051328-11A
55)	Sample	54	23MAY55	9AC0522	18051481-03B
56)	Sample	55	23MAY56	9AC0522	VLCSW3-180523
57)	Sample	56	23MAY57	9AC0522	18051080-01A DF2000
58)	Sample	57	23MAY58	9AC0522	18051481-03B MS
59)	Sample	58	23MAY59	9AC0522	18051481-03B MSD
60)	Sample	59	23MAY60	9AC0522	18051080-01A MS

2018 May 23 1001 Sequence Log

61) Sample 60 23MAY61 9AC0522 18051080-01A MSD

62) Sample 61 23MAY62 9AC0522 BLK

Sequence completed Thu May 24 12:11:24 2018

C:\msdchem\1\DATA\9V180523\2018 May 23 1001 Quality Log.LOG
C:\msdchem\1\DATA\9V180523\2018 May 23 1001 Sequence Log .LOG

2018 May 25 1640 Sequence Log

Starting sequence Fri May 25 16:40:14 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180525.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180525\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	25MAY01	BFB	VBFB1-180525
2)	Sample	1	25MAY02	8SGO0515	VCCV1-180525

Sequence Table edit performed Fri May 25 15:34:44 2018

3)	Sample	2	25MAY03	8SGO0515	VLCSS1-180525
4)	Sample	3	25MAY04	8SGO0515	BLK
5)	Sample	4	25MAY05	8SGO0515	VBLKS1-180525
6)	Sample	5	25MAY06	8SGO0515	VBLKS1-180525
7)	Sample	5	25MAY07	8SGO0515	18051407-09A DF0.952
8)	Sample	6	25MAY08	8SGO0515	18051407-09A DF0.951
9)	Sample	7	25MAY09	8SGO0515	18051407-09A MS
10)	Sample	8	25MAY10	8SGO0515	18051407-09A MSD
11)	Sample	9	25MAY11	8SGO0515	BLK
12)	Sample	10	25MAY12	8GI0515	BLK
13)	Sample	11	25MAY13	BFB	VBFB3-180525
14)	Sample	12	25MAY14	8GI0515	VCCV2-180525
15)	Sample	13	25MAY15	8GI0515	VCCV3-180525
16)	Sample	14	25MAY16	8GI0515	VLCSW1-180525
17)	Sample	15	25MAY17	8GI0515	LCS-
18)	Sample	16	25MAY18	8GI0515	BLK

2018 May 25 1640 Sequence Log

19)	Sample	17	25MAY19	8GI0515	VBLKW1-180525
20)	Sample	18	25MAY20	8GI0515	MBLK-
21)	Sample	19	25MAY21	8GI0515	18051282-18A
22)	Sample	20	25MAY22	8GI0515	18051282-17A
23)	Sample	21	25MAY23	8GI0515	18051282-13A
24)	Sample	22	25MAY24	8GI0515	18051315-11A
25)	Sample	23	25MAY25	8GI0515	18051315-01A
26)	Sample	24	25MAY26	8GI0515	18051315-02A
27)	Sample	25	25MAY27	8GI0515	18051315-03A
28)	Sample	26	25MAY28	8GI0515	18051315-04A
29)	Sample	27	25MAY29	8GI0515	18051315-05A
30)	Sample	28	25MAY30	8GI0515	18051315-06A
31)	Sample	29	25MAY31	8GI0515	18051315-07A
32)	Sample	30	25MAY32	8GI0515	18051315-08A
33)	Sample	31	25MAY33	8GI0515	18051315-09A
34)	Sample	32	25MAY34	8GI0515	18051315-10A
35)	Sample	33	25MAY35	8GI0515	18051328-20A
36)	Sample	34	25MAY36	8GI0515	18051328-17A
37)	Sample	35	25MAY37	8GI0515	18051328-08A
38)	Sample	36	25MAY38	8GI0515	18051328-03A
39)	Sample	37	25MAY39	8GI0515	18051328-04A
40)	Sample	38	25MAY40	8GI0515	18051328-01A
41)	Sample	39	25MAY41	8GI0515	18051315-05A DUP
42)	Sample	40	25MAY42	8GI0515	18051315-06A MS
43)	Sample	41	25MAY43	8GI0515	BLK
44)	Sample	42	25MAY44	BFB	VBFB3-180525

2018 May 25 1640 Sequence Log

45)	Sample	43	25MAY45	8GI0515	VCCV4-180525
46)	Sample	44	25MAY46	8GI0515	VCCV5-180525
47)	Sample	45	25MAY47	8GI0515	VLCSW2-180525
48)	Sample	46	25MAY48	8GI0515	VLCSW3-180525
49)	Sample	47	25MAY49	8GI0515	BLK
50)	Sample	48	25MAY50	8GI0515	VBLKW2-180525
51)	Sample	49	25MAY51	8GI0515	18051400-01A
52)	Sample	50	25MAY52	8GI0515	18051400-02A
53)	Sample	51	25MAY53	8GI0515	18051400-03A DF200
54)	Sample	52	25MAY54	8GI0515	18051400-04A
55)	Sample	53	25MAY55	8GI0515	18051400-05A DF10
56)	Sample	54	25MAY56	8GI0515	18051400-06A DF5
57)	Sample	55	25MAY57	8GI0515	18051400-07A
58)	Sample	56	25MAY58	8GI0515	18051400-08A
59)	Sample	57	25MAY59	8GI0515	18051400-09A
60)	Sample	58	25MAY60	8GI0515	18051400-10A
61)	Sample	59	25MAY61	8GI0515	18051400-11A
62)	Sample	60	25MAY62	8GI0515	18051400-12A
63)	Sample	61	25MAY63	8GI0515	18051400-13A
64)	Sample	62	25MAY64	8GI0515	18051400-14A
65)	Sample	63	25MAY65	8GI0515	18051400-15A DF200
66)	Sample	64	25MAY66	8GI0515	18051400-16A
67)	Sample	65	25MAY67	8GI0515	18051400-17A DF5
68)	Sample	66	25MAY68	8GI0515	18051400-18A
69)	Sample	67	25MAY69	8GI0515	18051400-19A
70)	Sample	68	25MAY70	8GI0515	18051400-20A DF200
71)	Sample	69	25MAY71	8GI0515	18051400-20A MS DF200
72)	Sample	70	25MAY72	8GI0515	18051400-20A MSD DF200
73)	Sample	71	25MAY73	8GI0515	BLK

2018 May 25 1640 Sequence Log

Sequence completed Sat May 26 11:35:29 2018

D:\MSDCHEM\1\DATA\8V180525\2018 May 25 1640 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180525\2018 May 25 1640 Sequence Log .LOG

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118631** Prep Code: **VOC_5035_S**

Start Date: **5/21/2018 11:03:06 AM** End Date: **5/21/2018 11:03:06 AM**

Technician: **Angela Karst**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051233-01A	Soil		10		37	10	108.73
Updated . The sample was not preserved within 2 days of the collection date. The prep HoldTime was exceeded by 7 days.							
18051235-01A	Soil		10		31	10	94.9275
Updated. The sample was not preserved within 2 days of the collection date. The prep HoldTime was exceeded by 18 days.							
18051308-01A	Soil		10		0.58	10	50.5834
Updated EMR. The sample was not preserved within 2 days of the collection date.							
18051308-01A MS			10		0.58	10	50.5834
Updated EMR. The sample was not preserved within 2 days of the collection date.							
18051308-01A MS			10		0.58	10	50.5834
Updated EMR. The sample was not preserved within 2 days of the collection date.							
18051308-02A	Soil		10		0.94	10	50.9489
Updated EMR The sample was not preserved within 2 days of the collection date.							
18051308-03A	Soil		10		0.89	10	50.898
Updated EMR. The sample was not preserved within 2 days of the collection date.							
18051328-01A	Soil		10		6.3	10	56.7236
Updated EMR							
18051328-02A	Soil		10		8.5	10	59.2896
Updated EMR							
18051328-04A	Soil		10		14	10	66.2791
Updated EMR							
18051328-05A	Soil		10		10	10	61.1111
Updated EMR							
18051328-06A	Soil		10		8.5	10	59.2896
Updated EMR							
18051328-07A	Soil		10		9.9	10	60.9878
Updated EMR							

Notes: *Balance 4 MeOH 3081-1-1 weights checked*

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118631** Prep Code: **VOC_5035_S**

Start Date: **5/21/2018 11:03:06 AM** End Date: **5/21/2018 11:03:06 AM**

Technician: **Angela Karst**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051328-09A	Soil		9.66		11	10	64.3369
Updated EMR							
18051328-10A	Soil		10		14	10	66.2791
Updated EMR							
18051328-11A	Soil		9.44		3.6	10	56.8113
Updated EMR							
18051328-12A	Soil		9.99		6.4	10	56.8911
Updated EMR							
18051328-13A	Soil		10		6.2	10	56.6098
Updated EMR							
18051328-14A	Soil		10		7.5	10	58.1081
Updated EMR							
18051328-24A	Soil		10		0	10	50
Trip blank.							
18051339-01A	Soil		10		14	10	66.2791
Updated EMR The sample was not preserved within 2 days of the collection date. The prep HoldTime was exceeded by 26 days.							
18051341-01A	Soil		10		17	10	70.4819
Updated EMR The sample was not preserved within 2 days of the collection date.							
LCS-118631			10		0	10	50
MBLK-118631			10		0	10	50

Notes: *Balance 4 MeOH 3081-1-1 weights checked*

Book Number 3093

Method 5035 Soil Extraction Logsheet

ALS

Label Weight (g): 0.31 | Analyst: EH | Batch ID: 118631

Balance ID: 4 | Methanol ID: 3081-1-1

Sample ID	Vial	Vial Tare Weight	Vial Weight w/Sample	Sample Weight (1)	Methanol Volume (2)	Methanol Additions	Solvent Ratio (3)	Date & Time of Sonication (4)	Date & Time of Aliquot (5)
1805 1328-01A	2/2	33.11	45.15	11.73	10.00	1.38	50	5/21/18 1040	5/21/18 1115
-02A		33.51	47.33	13.51		2.81			
-04A		33.02	44.19	10.80		0.69			
-05A		33.08	44.74	11.35		1.08			
-06A		33.47	45.71	11.93		1.54			
-07A		33.05	43.64	10.28		0.22			
-09A		33.44	43.41	9.66		—	52		
-10A		33.34	44.27	10.62		0.50	50		
-11A		33.43	43.18	9.44		—	53		
-12A		33.10	43.40	9.99		—	50		
-13A		33.17	44.76	11.28		1.02			
-14A		33.32	43.94	10.31		0.25			
-24A	4/1	TRIP	BLANK	—		—	50		
1805 1339-01A	4/1	BULK	—	10.00					
1805 1341-01A	2/2								
1805 1308-01	4/2								
-02	↓								
-03	2/2								
-04	↓								
-01AMS	4/2								
-01AMSD	↓								
~~1805131805 1233-01A~~	4/1							5/21/18 ~~1600~~ 1630	5/21/18 ~~1230~~ 1600
1805 1235-01A	↓							5/21/18 1600	↓

was 5/21/18 moved to later prep batch

eaa 5/21/18

Reviewed by: [signature]

(1) Sample Weight = (Vial w/Sample Weight) - (Vial Tare Weight) - (Label Weight)
(2) Default = 10 mL
(3) Ratio of methanol to soil must be > 1.0
(4) Sonicate for a minimum of 20 minutes
(5) If not taken immediately after sonication

File Name: 5035 Soil Extraction Log - R4 - 2015.xls

Inorganic

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

Wet Chemistry

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
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1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-01

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-01B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.3			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-02

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-02B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	8.5			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-04

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-04B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	14			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-05

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-05B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	10			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-06

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-06B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	8.5			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-07

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-07B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	9.9			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-09

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-09B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	11			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-10

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-10B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	14			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-11

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-11B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	3.6			

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-12

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-12B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.4			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-13

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-13B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.2			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-14

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil

Lab Sample ID: 18051328-14B

Level (low/med): LOW

Date Received: 5/18/2018

% Moisture: not dec. 0

Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	7.5			

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-15

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil

Lab Sample ID: 18051328-15B

Level (low/med): LOW

Date Received: 5/18/2018

% Moisture: not dec. 0

Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	5.4			

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-16

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-16B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	5.8			

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-18

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-18B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	9.1			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-19

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-19B

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	8.6			

1.

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-02

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-02C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	9.93			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-06

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-06C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	24.3			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-12

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-12C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	10.9			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-14

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-14C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	8.18			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-16

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-16C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	7.56			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-19

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-19C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	7.89			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-02

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-02D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 8.5 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.11			

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-06

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-06D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 8.5 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.29			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-12

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-12D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 6.4 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.12			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-14

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-14D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 7.5 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.11			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-15

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-15C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 5.4 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.10			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-16

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-16D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 5.8 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.084			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-18

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-18C

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 9.1 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	1.3			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-19

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051328

Matrix: Soil Lab Sample ID: 18051328-19D

Level (low/med): LOW Date Received: 5/18/2018

% Moisture: not dec. 8.6 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.080			

ALS Group, USA

Date: 27-Jun-18

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061452** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061453** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	14.83	0	15	0	98.9	80-120	0			

DUP Sample ID: **18051328-02C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-02** Run ID: **WETCHEM_180530H** SeqNo: **5061455** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.18	0	0	0	0		9.93	32.1	20	R

DUP Sample ID: **18051328-02C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-02** Run ID: **WETCHEM_180530H** SeqNo: **5061456** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.75	0	0	0	0		9.93	1.83	20	

DUP Sample ID: **18051328-06C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180530H** SeqNo: **5061458** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	23.46	0	0	0	0		24.29	3.48	20	

DUP Sample ID: **18051328-06C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180530H** SeqNo: **5061459** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	24.22	0	0	0	0		24.29	0.289	20	

DUP Sample ID: **18051328-12C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-12** Run ID: **WETCHEM_180530H** SeqNo: **5061461** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: 118941 Instrument ID WETCHEM Method: A4500-KMnO4 B-1

DUP	Sample ID: 18051328-12C DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-12	Run ID: WETCHEM_180530H			SeqNo: 5061462			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

DUP	Sample ID: 18051328-14C DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-14	Run ID: WETCHEM_180530H			SeqNo: 5061464			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.09	0	0	0	0		8.18	10.5	20	

DUP	Sample ID: 18051328-14C DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-14	Run ID: WETCHEM_180530H			SeqNo: 5061465			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.68	0	0	0	0		8.18	26.5	20	R

DUP	Sample ID: 18051328-16C DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-16	Run ID: WETCHEM_180530H			SeqNo: 5061467			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.87	0	0	0	0		7.56	15.9	20	

DUP	Sample ID: 18051328-16C DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-16	Run ID: WETCHEM_180530H			SeqNo: 5061468			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.18	0	0	0	0		7.56	19.4	20	

DUP	Sample ID: 18051328-19C DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-19	Run ID: WETCHEM_180530H			SeqNo: 5061470			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.61	0	0	0	0		7.89	8.73	20	

DUP	Sample ID: 18051328-19C DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-19	Run ID: WETCHEM_180530H			SeqNo: 5061471			Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.68	0	0	0	0		7.89	9.54	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP	Sample ID: 18051407-04D DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061473		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.83	0	0	0	0		4.98	44.5	20	R

DUP	Sample ID: 18051407-04D DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061474		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.97	0	0	0	0		4.98	46.2	20	R

DUP	Sample ID: 18051407-08D DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061476		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	12.3	0	0	0	0		5.45	77.2	20	R

DUP	Sample ID: 18051407-08D DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061477		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10	0	0	0	0		5.45	58.9	20	R

DUP	Sample ID: 18051407-09D DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061479		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.35	0	0	0	0		11.64	11.7	20	

DUP	Sample ID: 18051407-09D DUP3			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061480		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.74	0	0	0	0		11.64	8.04	20	

DUP	Sample ID: 18051407-10D DUP2			Units: g/Kg			Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061482		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.48	0	0	0	0		9.67	1.98	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP	Sample ID: 18051407-10D DUP3				Units: g/Kg		Analysis Date: 5/30/2018 11:45 AM			
Client ID:	Run ID: WETCHEM_180530H			SeqNo: 5061483		Prep Date: 5/30/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.03	0	0	0	0		9.67	18.5	20	

The following samples were analyzed in this batch:

18051328-02C	18051328-06C	18051328-12C
18051328-14C	18051328-16C	18051328-19C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236545** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R236545** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: Run ID: **MOIST_180523B** SeqNo: **5050561** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R236545** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: Run ID: **MOIST_180523B** SeqNo: **5050560** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051328-01B DUP** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: **18CP02-01** Run ID: **MOIST_180523B** SeqNo: **5050543** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	6.38	0.050	0	0	0	0-0	6.29	1.42	10	

DUP Sample ID: **18051328-09B DUP** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: **18CP02-09** Run ID: **MOIST_180523B** SeqNo: **5050550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.84	0.050	0	0	0	0-0	11.18	3.09	10	

The following samples were analyzed in this batch:

18051328-01B	18051328-02B	18051328-04B
18051328-05B	18051328-06B	18051328-07B
18051328-09B	18051328-10B	18051328-11B
18051328-12B	18051328-13B	18051328-14B
18051328-15B	18051328-16B	18051328-18B
18051328-19B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236999** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063479** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.115	0.025	0.1	0	115	91-143	0			

MS Sample ID: **18051328-06D MS** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180531A** SeqNo: **5063483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8382	0.025	0.4525	0.2628	127	91-143	0			

MSD Sample ID: **18051328-06D MSD** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180531A** SeqNo: **5063484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8296	0.025	0.4386	0.2628	129	91-143	0.8382	1.03	20	

The following samples were analyzed in this batch:

18051328-02D	18051328-06D	18051328-12D
18051328-14D	18051328-15C	18051328-16D
18051328-18C	18051328-19D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Moisture

ALS Environmental

Analyst:	NW	Date/Time In:	5/23/18 3:50 PM
Review By:		Date/Time Out:	5/24/18 10:14 AM
Method:	% Moisture (E160.3M)	Batch ID:	MOIST_180523B
SOP:	HN-WC-036	Balance ID:	6

Temp In Deg C:	103.4
Temp Out Deg C:	104.3
Sand BPL:	2049-158-8

WO	Btl. #	SampType	Dish ID	Pan Wt	Tare Wt*	Wet Wt	1st Wt	2nd Wt	3rd Wt	Final Wt**	% Solid	%Moisture	Analyte
WBLKS		MBLK	BLK	1.2994	0	0.0000				1.2996	0.02	0.02	Moisture
LCS		LCS	LCS	1.281	0	7.3942				8.6753	100.00	100.00	Moisture
18051328-01B	1	SAMP	P1	1.3112	0	7.9054				8.7193	93.71	6.29	Moisture
18051328-01B DUP	1	DUP	P2	1.3271	0	8.3167				9.1131	93.62	6.38	Moisture
18051308-01A	1	SAMP	P3	1.2932	0	9.0959				10.3362	99.42	0.58	Moisture
18051308-02A	1	SAMP	P4	1.431	0	9.3599				10.7029	99.06	0.94	Moisture
18051308-03A	1	SAMP	P5	1.3479	0	7.3611				8.6438	99.11	0.89	Moisture
18051308-04A	1	SAMP	P6	1.3257	0	9.4971				10.7699	99.44	0.56	Moisture
18051328-02B	1	SAMP	P7	1.3221	0	6.6513				7.4069	91.48	8.52	Moisture
18051328-04B	1	SAMP	P8	1.3408	0	6.9777				7.3435	86.03	13.97	Moisture
18051328-05B	1	SAMP	P9	1.3099	0	6.8771				7.4659	89.51	10.49	Moisture
18051328-06B	1	SAMP	P10	1.3137	0	7.108				7.8153	91.47	8.53	Moisture
18051328-07B	1	SAMP	P11	1.3135	0	10.7717				11.0226	90.14	9.86	Moisture
18051328-09B	1	SAMP	P12	1.3351	0	5.6104				6.3185	88.82	11.18	Moisture
18051328-09B DUP	1	DUP	P13	1.347	0	6.9191				7.5158	89.16	10.84	Moisture
18051328-10B	1	SAMP	P14	1.3604	0	7.4905				7.8258	86.31	13.69	Moisture
18051328-11B	1	SAMP	P15	1.4098	0	8.0715				9.1951	96.45	3.55	Moisture
18051328-12B	1	SAMP	P16	1.313	0	6.9168				7.7869	93.60	6.40	Moisture
18051328-13B	1	SAMP	P17	1.3554	0	9.6196				10.3831	93.85	6.15	Moisture
18051328-14B	1	SAMP	P18	1.2987	0	9.7478				10.3152	92.50	7.50	Moisture
18051328-15B	1	SAMP	P19	1.3516	0	10.3652				11.1515	94.55	5.45	Moisture
18051328-16B	1	SAMP	P20	1.4687	0	7.9593				8.9703	94.25	5.75	Moisture
18051328-18B	1	SAMP	P21	1.3035	0	5.756				6.534	90.87	9.13	Moisture
18051328-19B	1	SAMP	P22	1.3326	0	7.4374				8.132	91.42	8.58	Moisture

Re-Dry		Temp °C	Analyst
Date/Time In:			
Date/Time Out:			

Analysis Date/Time:	5/24/2018 11:28	NW

: Tare weight must ≤ 0.0005g

****: Weight difference must be <4% or 0.5mg (whichever is smaller)**

% Solid = ((Final Wt - Pan Wt) / Wet Wt)*100

% Moisture = (1- (Final Wt - Pan Wt) / Wet Wt)) * 100

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Oxidant Demand

Batch ID: WC-180530 Date: 5/30/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99996				
0.5						0.008					
50						0.759					
100						1.492					
MBLK- 118941	50	100	20000	96	250	1.213	0.003	81.01	0.03	20246.00	-0.49
LCS- 118941	50	100	20000	96	250	0.756	0.004	50.43	0.09	12584.25	14.83
18051328-02C	50.23	100	20000	96	250	0.898	0.001	59.93	-0.11	15010.00	9.93
18051328-02C	50.15	100	20000	96	250	0.982	0.002	65.55	-0.04	16397.50	7.18
18051328-02C	50.49	100	20000	96	250	0.903	0.002	60.26	-0.04	15075.00	9.75
18051328-06C	50.38	100	20000	96	250	0.465	0.001	30.95	-0.11	7765.00	24.29
18051328-06C	50.53	100	20000	96	250	0.489	0.002	32.55	-0.04	8147.50	23.46
18051328-06C	50.59	100	20000	96	250	0.464	0.001	30.88	-0.11	7747.50	24.22
18051328-12C	50.87	100	20000	96	250	0.866	0.001	57.79	-0.11	14475.00	10.86
18051328-12C	50.28	100	20000	96	250	0.899	0.002	59.99	-0.04	15007.50	9.93
18051328-12C	50.43	100	20000	96	250	0.898	0.002	59.93	-0.04	14992.50	9.93
18051328-14C	50.17	100	20000	96	250	0.952	0.002	63.54	-0.04	15895.00	8.18
18051328-14C	50.67	100	20000	96	250	0.922	0.002	61.54	-0.04	15395.00	9.09
18051328-14C	51.57	100	20000	96	250	0.868	0.002	57.92	-0.04	14490.00	10.68
18051328-16C	51.38	100	20000	96	250	0.964	0.001	64.35	-0.11	16115.00	7.56
18051328-16C	50.23	100	20000	96	250	0.931	0.002	62.14	-0.04	15545.00	8.87
18051328-16C	50.36	100	20000	96	250	0.92	0.001	61.40	-0.11	15377.50	9.18

Vial Lot ID: 1712272 Calcium Chloride BPL: 2049-177-1 Reviewed By:

KMnO4 Standard BPL: 3072-59-13 Sodium Thio (0.019M) BPL: 3072-62-15 Review Date:

File Name: 180530A1

ALS Environmental

Oxidant Demand

Batch ID: WC-180530 Date: 5/30/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99996				
0.5						0.008					
50						0.759					
100						1.492					
MBLK-	50	100	20000	96	250					0.00	40.00
LCS-	50	100	20000	96	250					0.00	40.00
18051328-19C	50.92	100	20000	96	250	0.956	0.001	63.81	-0.11	15980.00	7.89
18051328-19C	52.71	100	20000	96	250	0.925	0.001	61.74	-0.11	15462.50	8.61
18051328-19C	51.3	100	20000	96	250	0.93	0.001	62.07	-0.11	15545.00	8.68
18051407-04D	50.39	100	20000	96	250	1.048	0	69.97	0.00	17492.50	4.98
18051407-04D	50.88	100	20000	96	250	0.958	0.001	63.95	-0.11	16015.00	7.83
18051407-04D	50.96	100	20000	96	250	0.955	0	63.75	0.00	15937.50	7.97
18051407-08D	19.6	100	20000	96	250	1.134	0	75.73	0.00	18932.50	5.45
18051407-08D	20.12	100	20000	96	250	1.05	0	70.10	0.00	17525.00	12.30
18051407-08D	20.4	100	20000	96	250	1.076	0	71.84	0.00	17960.00	10.00
18051407-09D	50.62	100	20000	96	250	0.844	0.001	56.32	-0.11	14107.50	11.64
18051407-09D	50.28	100	20000	96	250	0.887	0	59.19	0.00	14797.50	10.35
18051407-09D	50.78	100	20000	96	250	0.872	0	58.19	0.00	14547.50	10.74
18051407-10D	51.39	100	20000	96	250	0.901	0	60.13	0.00	15032.50	9.67
18051407-10D	50.16	100	20000	96	250	0.912	0.001	60.87	-0.11	15245.00	9.48
18051407-10D	50.61	100	20000	96	250	0.955	0	63.75	0.00	15937.50	8.03

Vial Lot ID: _____ Calcium Chloride BPL: _____ Reviewed By: _____

KMnO4 Standard BPL: _____ Sodium Thio (0.019M) BPL: _____ Review Date: _____

File Name: 180530B

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118941** Prep Code: **OXDMD_PREP**

Start Date: **5/26/2018** End Date: **5/30/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051328-02C	Soil		50		0	100	1
18051328-02C DU			50		0	100	1
18051328-02C DU			50		0	100	1
18051328-06C	Soil		50		0	100	1
18051328-06C DU			50		0	100	1
18051328-06C DU			50		0	100	1
18051328-12C	Soil		50		0	100	1
18051328-12C DU			50		0	100	1
18051328-12C DU			50		0	100	1
18051328-14C	Soil		50		0	100	1
18051328-14C DU			50		0	100	1
18051328-14C DU			50		0	100	1
18051328-16C	Soil		50		0	100	1
18051328-16C DU			50		0	100	1
18051328-16C DU			50		0	100	1
18051328-19C	Soil		50		0	100	1
18051328-19C DU			50		0	100	1
18051328-19C DU			50		0	100	1
18051407-04D	Soil		50		0	100	1
18051407-04D DU			50		0	100	1
18051407-04D DU			50		0	100	1
18051407-08D	Soil		50		0	100	1
18051407-08D DU			50		0	100	1
18051407-08D DU			50		0	100	1

Notes:

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118941** Prep Code: **OXDMD_PREP**

Start Date: **5/26/2018** End Date: **5/30/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051407-09D	Soil		50		0	100	1
18051407-09D DU			50		0	100	1
18051407-09D DU			50		0	100	1
18051407-10D	Soil		50		0	100	1
18051407-10D DU			50		0	100	1
18051407-10D DU			50		0	100	1
LCS-118941			50		0	100	1
MBLK-118941			50		0	100	1

Notes:

Book 1888

Walkley - Black TOC

ALS Environmental

QF
5.31.18 10:45a

FeSO4: 3012-225-11
$K_2Cr_2O_7$: 3012-130-9
Sulfuric Acid:

Sample ID	Sample Size (g)	N $FeSO_4$	Titration			mLs 1.0 N $K_2Cr_2O_7$	% Organic Carbon	Comments
			Finish	Start	Difference (mL)			
Blank	10g	0.5N	20.60	0.10	20.50			3072-46-11
LCS	↓		34.70	20.60	14.10			
1805 1407-08	2.29		17.20	0	17.20			
1328-02	2.23		36.00	17.20	18.80			
-06	2.30		17.10	0.20	16.90			
-06 MS	2.21		27.60	17.10	10.50			3072-46-11
-06 MSD	2.28		37.90	27.60	10.30			↓
-12	2.86		19.35	1.00	18.35			
-14	3.05		37.75	19.35	18.40			
-15	3.14		18.75	0.30	18.45			
-16	2.58		37.70	18.75	18.95			
-18	2.77		41.30	37.70	3.60			
-19	3.06		30.60	11.75	18.85			

5-31-18

Reviewed By: 5/31/18

TOC Walkley-Black Calculations

Batch ID:
Analyst: KF
Date: 5/31/18 10:45am

Sample ID	g sample	mL FeSO4	meq Fe	%
BLANK	10	20.5	10.25	-0.00975
LCS	10	14.1	7.05	0.11505
18051407-08	2.29	17.2	8.6	0.238428
18051328-02	2.23	18.8	9.4	0.104933
18051328-06	2.3	16.9	8.45	0.262826
18051328-06 MS	2.21	10.5	5.25	0.838235
18051328-06 MSD	2.28	10.3	5.15	0.829605
18051328-12	2.86	18.35	9.175	0.1125
18051328-14	3.05	18.4	9.2	0.102295
18051328-15	3.14	18.45	9.225	0.096258
18051328-16	2.58	18.95	9.475	0.07936
18051328-18	2.77	3.6	1.8	1.154513
18051328-19	3.06	18.85	9.425	0.073284
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$$\text{TOC \%} = \frac{(\text{Meq } K_2Cr_2O_2 - \text{MeqFeSO4}) \times .003 \times 100}{\text{grams water free soil}} \times (f)$$

(f) =correction factor of 1.3

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Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com
RIGHT SOLUTIONS

31-May-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051328**

Dear Heather,

ALS Environmental received 24 samples on 18-May-2018 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 100.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MI: 0022

ALS Group, USA

Date: 31-May-18

Client: Jacobs
Project: PMC
Work Order: **18051328**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051328-01	18CP02-01	Soil		5/15/2018 14:50	5/18/2018 09:30	☐
18051328-02	18CP02-02	Soil		5/15/2018 14:45	5/18/2018 09:30	☐
18051328-03	18CP02-03	Water		5/15/2018 15:20	5/18/2018 09:30	☐
18051328-04	18CP02-04	Soil		5/15/2018 17:00	5/18/2018 09:30	☐
18051328-05	18CP02-05	Soil		5/15/2018 16:55	5/18/2018 09:30	☐
18051328-06	18CP02-06	Soil		5/15/2018 16:50	5/18/2018 09:30	☐
18051328-07	18CP02-07	Soil		5/15/2018 11:35	5/18/2018 09:30	☐
18051328-08	18CP02-08	Water		5/15/2018 11:55	5/18/2018 09:30	☐
18051328-09	18CP02-09	Soil		5/16/2018 09:30	5/18/2018 09:30	☐
18051328-10	18CP02-10	Soil		5/16/2018 09:30	5/18/2018 09:30	☐
18051328-11	18CP02-11	Soil		5/16/2018 10:05	5/18/2018 09:30	☐
18051328-12	18CP02-12	Soil		5/16/2018 10:55	5/18/2018 09:30	☐
18051328-13	18CP02-13	Soil		5/16/2018 15:35	5/18/2018 09:30	☐
18051328-14	18CP02-14	Soil		5/16/2018 16:20	5/18/2018 09:30	☐
18051328-15	18CP02-15	Soil		5/17/2018 10:50	5/18/2018 09:30	☐
18051328-16	18CP02-16	Soil		5/17/2018 11:00	5/18/2018 09:30	☐
18051328-17	18CP02-17	Water		5/17/2018 15:10	5/18/2018 09:30	☐
18051328-18	18CP02-18	Soil		5/17/2018 08:49	5/18/2018 09:30	☐
18051328-19	18CP02-19	Soil		5/17/2018 09:05	5/18/2018 09:30	☐
18051328-20	18CP02-20	Water		5/17/2018 14:30	5/18/2018 09:30	☐
18051328-21	18CP02-21	Water		5/17/2018 16:15	5/18/2018 09:30	☐
18051328-22	18CP02-22	Water		5/17/2018 16:20	5/18/2018 09:30	☐
18051328-23	18CP02-23	Water		5/17/2018 16:00	5/18/2018 09:30	☐
18051328-24	18CP02-24	Soil		5/17/2018 16:05	5/18/2018 09:30	☐

Client: Jacobs
Project: PMC
Work Order: 18051328

Case Narrative

Samples for the above noted Work Order were received on 05/18/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 118941, Method OXDMD_KMNO4_S, Samples 18051328-02C DUP2, -14C DUP3, and -16C DUP3: The RPDs between the samples and their duplicates were out of control. The corresponding sample result should be considered estimated.

ALS Group, USA

Date: 31-May-18

Client: Jacobs
Project: PMC
WorkOrder: **18051328**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
g/Kg	

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-01
Collection Date: 5/15/2018 02:50 PM

Work Order: 18051328
Lab ID: 18051328-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **WH**
1,1,1-Trichloroethane	U		15	34	µg/Kg-dry	1	5/26/2018 02:38
1,1,2,2-Tetrachloroethane	U		15	34	µg/Kg-dry	1	5/26/2018 02:38
1,1,2-Trichloroethane	U		14	34	µg/Kg-dry	1	5/26/2018 02:38
1,1,2-Trichlorotrifluoroethane	U		22	34	µg/Kg-dry	1	5/26/2018 02:38
1,1-Dichloroethane	U		12	34	µg/Kg-dry	1	5/26/2018 02:38
1,1-Dichloroethene	U		11	34	µg/Kg-dry	1	5/26/2018 02:38
1,2,3-Trichlorobenzene	U		16	34	µg/Kg-dry	1	5/26/2018 02:38
1,2,4-Trichlorobenzene	U		12	34	µg/Kg-dry	1	5/26/2018 02:38
1,2-Dibromo-3-chloropropane	U		31	110	µg/Kg-dry	1	5/26/2018 02:38
1,2-Dibromoethane	U		9.6	34	µg/Kg-dry	1	5/26/2018 02:38
1,2-Dichlorobenzene	U		13	34	µg/Kg-dry	1	5/26/2018 02:38
1,2-Dichloroethane	U		15	34	µg/Kg-dry	1	5/26/2018 02:38
1,2-Dichloropropane	U		6.0	34	µg/Kg-dry	1	5/26/2018 02:38
1,3-Dichlorobenzene	U		11	34	µg/Kg-dry	1	5/26/2018 02:38
1,4-Dichlorobenzene	U		8.2	34	µg/Kg-dry	1	5/26/2018 02:38
2-Butanone	U		28	230	µg/Kg-dry	1	5/26/2018 02:38
2-Hexanone	U		17	34	µg/Kg-dry	1	5/26/2018 02:38
4-Methyl-2-pentanone	U		16	34	µg/Kg-dry	1	5/26/2018 02:38
Acetone	**330**		**35**	**110**	**µg/Kg-dry**	1	5/26/2018 02:38
Benzene	**60**		**5.8**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
Bromochloromethane	U		17	34	µg/Kg-dry	1	5/26/2018 02:38
Bromodichloromethane	U		19	34	µg/Kg-dry	1	5/26/2018 02:38
Bromoform	U		14	34	µg/Kg-dry	1	5/26/2018 02:38
Bromomethane	U		65	110	µg/Kg-dry	1	5/26/2018 02:38
Carbon disulfide	U		18	34	µg/Kg-dry	1	5/26/2018 02:38
Carbon tetrachloride	U		13	34	µg/Kg-dry	1	5/26/2018 02:38
Chlorobenzene	U		11	34	µg/Kg-dry	1	5/26/2018 02:38
Chloroethane	U		12	110	µg/Kg-dry	1	5/26/2018 02:38
Chloroform	U		12	34	µg/Kg-dry	1	5/26/2018 02:38
Chloromethane	U		28	110	µg/Kg-dry	1	5/26/2018 02:38
cis-1,2-Dichloroethene	U		11	34	µg/Kg-dry	1	5/26/2018 02:38
cis-1,3-Dichloropropene	U		13	34	µg/Kg-dry	1	5/26/2018 02:38
Cyclohexane	U		11	34	µg/Kg-dry	1	5/26/2018 02:38
Dibromochloromethane	U		19	34	µg/Kg-dry	1	5/26/2018 02:38
Dichlorodifluoromethane	U		7.1	34	µg/Kg-dry	1	5/26/2018 02:38
Ethylbenzene	**78**		**7.2**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
Isopropylbenzene	**11**	J	**10**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
m,p-Xylene	**160**		**16**	**68**	**µg/Kg-dry**	1	5/26/2018 02:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-01
Collection Date: 5/15/2018 02:50 PM

Work Order: 18051328
Lab ID: 18051328-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**83**	J	**15**	**230**	**µg/Kg-dry**	1	5/26/2018 02:38
Methyl tert-butyl ether	U		9.8	34	µg/Kg-dry	1	5/26/2018 02:38
Methylcyclohexane	U		13	34	µg/Kg-dry	1	5/26/2018 02:38
Methylene chloride	U		15	34	µg/Kg-dry	1	5/26/2018 02:38
o-Xylene	**70**		**13**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
Styrene	**28**	J	**13**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
Tetrachloroethene	U		9.9	34	µg/Kg-dry	1	5/26/2018 02:38
Toluene	**140**		**9.3**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
trans-1,2-Dichloroethene	U		13	34	µg/Kg-dry	1	5/26/2018 02:38
trans-1,3-Dichloropropene	U		19	34	µg/Kg-dry	1	5/26/2018 02:38
Trichloroethene	**110**		**15**	**34**	**µg/Kg-dry**	1	5/26/2018 02:38
Trichlorofluoromethane	U		17	34	µg/Kg-dry	1	5/26/2018 02:38
Vinyl chloride	U		7.3	34	µg/Kg-dry	1	5/26/2018 02:38
Xylenes, Total	**230**		**29**	**100**	**µg/Kg-dry**	1	5/26/2018 02:38
Surr: 1,2-Dichloroethane-d4	*95.5*			*70-130*	*%REC*	1	5/26/2018 02:38
Surr: 4-Bromofluorobenzene	*97.2*			*70-130*	*%REC*	1	5/26/2018 02:38
Surr: Dibromofluoromethane	*83.4*			*70-130*	*%REC*	1	5/26/2018 02:38
Surr: Toluene-d8	*95.4*			*70-130*	*%REC*	1	5/26/2018 02:38
MOISTURE			Method: **SW3550C**				Analyst: **NW**
Moisture	**6.3**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-02
Collection Date: 5/15/2018 02:45 PM

Work Order: 18051328
Lab ID: 18051328-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		16	36	µg/Kg-dry	1	5/24/2018 04:32
1,1,2,2-Tetrachloroethane	U		16	36	µg/Kg-dry	1	5/24/2018 04:32
1,1,2-Trichloroethane	U		15	36	µg/Kg-dry	1	5/24/2018 04:32
1,1,2-Trichlorotrifluoroethane	U		23	36	µg/Kg-dry	1	5/24/2018 04:32
1,1-Dichloroethane	U		13	36	µg/Kg-dry	1	5/24/2018 04:32
1,1-Dichloroethene	U		12	36	µg/Kg-dry	1	5/24/2018 04:32
1,2,3-Trichlorobenzene	U		17	36	µg/Kg-dry	1	5/24/2018 04:32
1,2,4-Trichlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 04:32
1,2-Dibromo-3-chloropropane	U		33	120	µg/Kg-dry	1	5/24/2018 04:32
1,2-Dibromoethane	U		10	36	µg/Kg-dry	1	5/24/2018 04:32
1,2-Dichlorobenzene	U		13	36	µg/Kg-dry	1	5/24/2018 04:32
1,2-Dichloroethane	U		15	36	µg/Kg-dry	1	5/24/2018 04:32
1,2-Dichloropropane	U		6.2	36	µg/Kg-dry	1	5/24/2018 04:32
1,3-Dichlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 04:32
1,4-Dichlorobenzene	U		8.6	36	µg/Kg-dry	1	5/24/2018 04:32
2-Butanone	**81**	J	**29**	**240**	**µg/Kg-dry**	1	5/24/2018 04:32
2-Hexanone	U		18	36	µg/Kg-dry	1	5/24/2018 04:32
4-Methyl-2-pentanone	U		17	36	µg/Kg-dry	1	5/24/2018 04:32
Acetone	U		37	120	µg/Kg-dry	1	5/24/2018 04:32
Benzene	U		6.1	36	µg/Kg-dry	1	5/24/2018 04:32
Bromochloromethane	U		18	36	µg/Kg-dry	1	5/24/2018 04:32
Bromodichloromethane	U		20	36	µg/Kg-dry	1	5/24/2018 04:32
Bromoform	U		15	36	µg/Kg-dry	1	5/24/2018 04:32
Bromomethane	U		68	120	µg/Kg-dry	1	5/24/2018 04:32
Carbon disulfide	U		18	36	µg/Kg-dry	1	5/24/2018 04:32
Carbon tetrachloride	U		14	36	µg/Kg-dry	1	5/24/2018 04:32
Chlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 04:32
Chloroethane	U		12	120	µg/Kg-dry	1	5/24/2018 04:32
Chloroform	U		13	36	µg/Kg-dry	1	5/24/2018 04:32
Chloromethane	U		30	120	µg/Kg-dry	1	5/24/2018 04:32
cis-1,2-Dichloroethene	U		11	36	µg/Kg-dry	1	5/24/2018 04:32
cis-1,3-Dichloropropene	U		13	36	µg/Kg-dry	1	5/24/2018 04:32
Cyclohexane	U		12	36	µg/Kg-dry	1	5/24/2018 04:32
Dibromochloromethane	U		20	36	µg/Kg-dry	1	5/24/2018 04:32
Dichlorodifluoromethane	U		7.4	36	µg/Kg-dry	1	5/24/2018 04:32
Ethylbenzene	**26**	J	**7.5**	**36**	**µg/Kg-dry**	1	5/24/2018 04:32
Isopropylbenzene	U		11	36	µg/Kg-dry	1	5/24/2018 04:32
m,p-Xylene	**63**	J	**17**	**71**	**µg/Kg-dry**	1	5/24/2018 04:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-02
Collection Date: 5/15/2018 02:45 PM

Work Order: 18051328
Lab ID: 18051328-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		16	240	µg/Kg-dry	1	5/24/2018 04:32
Methyl tert-butyl ether	U		10	36	µg/Kg-dry	1	5/24/2018 04:32
Methylcyclohexane	U		14	36	µg/Kg-dry	1	5/24/2018 04:32
Methylene chloride	U		15	36	µg/Kg-dry	1	5/24/2018 04:32
o-Xylene	**41**		**14**	**36**	**µg/Kg-dry**	1	5/24/2018 04:32
Styrene	U		14	36	µg/Kg-dry	1	5/24/2018 04:32
Tetrachloroethene	U		10	36	µg/Kg-dry	1	5/24/2018 04:32
Toluene	**28**	J	**9.7**	**36**	**µg/Kg-dry**	1	5/24/2018 04:32
trans-1,2-Dichloroethene	U		13	36	µg/Kg-dry	1	5/24/2018 04:32
trans-1,3-Dichloropropene	U		20	36	µg/Kg-dry	1	5/24/2018 04:32
Trichloroethene	**410**		**16**	**36**	**µg/Kg-dry**	1	5/24/2018 04:32
Trichlorofluoromethane	U		18	36	µg/Kg-dry	1	5/24/2018 04:32
Vinyl chloride	U		7.6	36	µg/Kg-dry	1	5/24/2018 04:32
Xylenes, Total	**100**	J	**31**	**110**	**µg/Kg-dry**	1	5/24/2018 04:32
Surr: 1,2-Dichloroethane-d4	*85.8*			*70-130*	*%REC*	1	5/24/2018 04:32
Surr: 4-Bromofluorobenzene	*99.2*			*70-130*	*%REC*	1	5/24/2018 04:32
Surr: Dibromofluoromethane	*80.6*			*70-130*	*%REC*	1	5/24/2018 04:32
Surr: Toluene-d8	*98.6*			*70-130*	*%REC*	1	5/24/2018 04:32
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**8.5**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**9.93**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.11**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-03
Collection Date: 5/15/2018 03:20 PM

Work Order: 18051328
Lab ID: 18051328-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **WH**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/26/2018 02:06
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/26/2018 02:06
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/26/2018 02:06
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/26/2018 02:06
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/26/2018 02:06
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/26/2018 02:06
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/26/2018 02:06
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/26/2018 02:06
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/26/2018 02:06
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/26/2018 02:06
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/26/2018 02:06
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/26/2018 02:06
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/26/2018 02:06
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 02:06
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/26/2018 02:06
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 02:06
2-Butanone	U		0.47	5.0	µg/L	1	5/26/2018 02:06
2-Hexanone	U		0.50	5.0	µg/L	1	5/26/2018 02:06
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/26/2018 02:06
Acetone	**2.7**	J	**0.47**	**10**	**µg/L**	1	5/26/2018 02:06
Benzene	U		0.42	1.0	µg/L	1	5/26/2018 02:06
Bromochloromethane	U		0.15	1.0	µg/L	1	5/26/2018 02:06
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/26/2018 02:06
Bromoform	U		0.56	1.0	µg/L	1	5/26/2018 02:06
Bromomethane	U		0.29	1.0	µg/L	1	5/26/2018 02:06
Carbon disulfide	U		0.39	1.0	µg/L	1	5/26/2018 02:06
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/26/2018 02:06
Chlorobenzene	U		0.21	1.0	µg/L	1	5/26/2018 02:06
Chloroethane	U		0.68	1.0	µg/L	1	5/26/2018 02:06
Chloroform	U		0.46	1.0	µg/L	1	5/26/2018 02:06
Chloromethane	U		0.68	1.0	µg/L	1	5/26/2018 02:06
cis-1,2-Dichloroethene	**0.58**	J	**0.38**	**1.0**	**µg/L**	1	5/26/2018 02:06
Cyclohexane	U		0.18	1.0	µg/L	1	5/26/2018 02:06
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/26/2018 02:06
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/26/2018 02:06
Ethylbenzene	U		0.29	1.0	µg/L	1	5/26/2018 02:06
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/26/2018 02:06
m,p-Xylene	U		0.53	2.0	µg/L	1	5/26/2018 02:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-03
Collection Date: 5/15/2018 03:20 PM

Work Order: 18051328
Lab ID: 18051328-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/26/2018 02:06
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/26/2018 02:06
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/26/2018 02:06
Methylene chloride	U		0.16	5.0	µg/L	1	5/26/2018 02:06
o-Xylene	U		0.19	1.0	µg/L	1	5/26/2018 02:06
Styrene	U		0.19	1.0	µg/L	1	5/26/2018 02:06
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/26/2018 02:06
Toluene	U		0.32	1.0	µg/L	1	5/26/2018 02:06
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/26/2018 02:06
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/26/2018 02:06
Trichloroethene	**6.4**		**0.33**	**1.0**	**µg/L**	1	5/26/2018 02:06
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/26/2018 02:06
Vinyl chloride	U		0.53	1.0	µg/L	1	5/26/2018 02:06
Xylenes, Total	U		0.74	3.0	µg/L	1	5/26/2018 02:06
Surr: 1,2-Dichloroethane-d4	*96.6*			*75-120*	*%REC*	1	5/26/2018 02:06
Surr: 4-Bromofluorobenzene	*96.2*			*80-110*	*%REC*	1	5/26/2018 02:06
Surr: Dibromofluoromethane	*99.5*			*85-115*	*%REC*	1	5/26/2018 02:06
Surr: Toluene-d8	*95.4*			*85-110*	*%REC*	1	5/26/2018 02:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-04
Collection Date: 5/15/2018 05:00 PM

Work Order: 18051328
Lab ID: 18051328-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **WH**
1,1,1-Trichloroethane	U		18	40	µg/Kg-dry	1	5/26/2018 02:22
1,1,2,2-Tetrachloroethane	U		18	40	µg/Kg-dry	1	5/26/2018 02:22
1,1,2-Trichloroethane	U		17	40	µg/Kg-dry	1	5/26/2018 02:22
1,1,2-Trichlorotrifluoroethane	U		25	40	µg/Kg-dry	1	5/26/2018 02:22
1,1-Dichloroethane	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
1,1-Dichloroethene	U		13	40	µg/Kg-dry	1	5/26/2018 02:22
1,2,3-Trichlorobenzene	U		19	40	µg/Kg-dry	1	5/26/2018 02:22
1,2,4-Trichlorobenzene	U		14	40	µg/Kg-dry	1	5/26/2018 02:22
1,2-Dibromo-3-chloropropane	U		37	130	µg/Kg-dry	1	5/26/2018 02:22
1,2-Dibromoethane	U		11	40	µg/Kg-dry	1	5/26/2018 02:22
1,2-Dichlorobenzene	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
1,2-Dichloroethane	U		17	40	µg/Kg-dry	1	5/26/2018 02:22
1,2-Dichloropropane	U		7.0	40	µg/Kg-dry	1	5/26/2018 02:22
1,3-Dichlorobenzene	U		13	40	µg/Kg-dry	1	5/26/2018 02:22
1,4-Dichlorobenzene	U		9.6	40	µg/Kg-dry	1	5/26/2018 02:22
2-Butanone	U		33	270	µg/Kg-dry	1	5/26/2018 02:22
2-Hexanone	U		20	40	µg/Kg-dry	1	5/26/2018 02:22
4-Methyl-2-pentanone	U		19	40	µg/Kg-dry	1	5/26/2018 02:22
Acetone	**220**		**41**	**130**	**µg/Kg-dry**	1	5/26/2018 02:22
Benzene	U		6.8	40	µg/Kg-dry	1	5/26/2018 02:22
Bromochloromethane	U		20	40	µg/Kg-dry	1	5/26/2018 02:22
Bromodichloromethane	U		22	40	µg/Kg-dry	1	5/26/2018 02:22
Bromoform	U		17	40	µg/Kg-dry	1	5/26/2018 02:22
Bromomethane	U		76	130	µg/Kg-dry	1	5/26/2018 02:22
Carbon disulfide	U		21	40	µg/Kg-dry	1	5/26/2018 02:22
Carbon tetrachloride	U		16	40	µg/Kg-dry	1	5/26/2018 02:22
Chlorobenzene	U		13	40	µg/Kg-dry	1	5/26/2018 02:22
Chloroethane	U		14	130	µg/Kg-dry	1	5/26/2018 02:22
Chloroform	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
Chloromethane	U		33	130	µg/Kg-dry	1	5/26/2018 02:22
cis-1,2-Dichloroethene	U		12	40	µg/Kg-dry	1	5/26/2018 02:22
cis-1,3-Dichloropropene	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
Cyclohexane	U		13	40	µg/Kg-dry	1	5/26/2018 02:22
Dibromochloromethane	U		22	40	µg/Kg-dry	1	5/26/2018 02:22
Dichlorodifluoromethane	U		8.3	40	µg/Kg-dry	1	5/26/2018 02:22
Ethylbenzene	U		8.4	40	µg/Kg-dry	1	5/26/2018 02:22
Isopropylbenzene	U		12	40	µg/Kg-dry	1	5/26/2018 02:22
m,p-Xylene	U		19	80	µg/Kg-dry	1	5/26/2018 02:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-04
Collection Date: 5/15/2018 05:00 PM

Work Order: 18051328
Lab ID: 18051328-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**380**		**18**	**270**	**µg/Kg-dry**	1	5/26/2018 02:22
Methyl tert-butyl ether	U		11	40	µg/Kg-dry	1	5/26/2018 02:22
Methylcyclohexane	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
Methylene chloride	**45**		**17**	**40**	**µg/Kg-dry**	1	5/26/2018 02:22
o-Xylene	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
Styrene	U		16	40	µg/Kg-dry	1	5/26/2018 02:22
Tetrachloroethene	U		12	40	µg/Kg-dry	1	5/26/2018 02:22
Toluene	U		11	40	µg/Kg-dry	1	5/26/2018 02:22
trans-1,2-Dichloroethene	U		15	40	µg/Kg-dry	1	5/26/2018 02:22
trans-1,3-Dichloropropene	U		22	40	µg/Kg-dry	1	5/26/2018 02:22
Trichloroethene	**270**		**18**	**40**	**µg/Kg-dry**	1	5/26/2018 02:22
Trichlorofluoromethane	U		20	40	µg/Kg-dry	1	5/26/2018 02:22
Vinyl chloride	U		8.5	40	µg/Kg-dry	1	5/26/2018 02:22
Xylenes, Total	U		34	120	µg/Kg-dry	1	5/26/2018 02:22
Surr: 1,2-Dichloroethane-d4	*97.4*			*70-130*	*%REC*	1	5/26/2018 02:22
Surr: 4-Bromofluorobenzene	*93.0*			*70-130*	*%REC*	1	5/26/2018 02:22
Surr: Dibromofluoromethane	*88.0*			*70-130*	*%REC*	1	5/26/2018 02:22
Surr: Toluene-d8	*94.3*			*70-130*	*%REC*	1	5/26/2018 02:22
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**14**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-05
Collection Date: 5/15/2018 04:55 PM

Work Order: 18051328
Lab ID: 18051328-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		17	37	µg/Kg-dry	1	5/24/2018 05:21
1,1,2,2-Tetrachloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 05:21
1,1,2-Trichloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 05:21
1,1,2-Trichlorotrifluoroethane	U		23	37	µg/Kg-dry	1	5/24/2018 05:21
1,1-Dichloroethane	U		13	37	µg/Kg-dry	1	5/24/2018 05:21
1,1-Dichloroethene	U		12	37	µg/Kg-dry	1	5/24/2018 05:21
1,2,3-Trichlorobenzene	U		17	37	µg/Kg-dry	1	5/24/2018 05:21
1,2,4-Trichlorobenzene	U		13	37	µg/Kg-dry	1	5/24/2018 05:21
1,2-Dibromo-3-chloropropane	U		34	120	µg/Kg-dry	1	5/24/2018 05:21
1,2-Dibromoethane	U		10	37	µg/Kg-dry	1	5/24/2018 05:21
1,2-Dichlorobenzene	U		14	37	µg/Kg-dry	1	5/24/2018 05:21
1,2-Dichloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 05:21
1,2-Dichloropropane	U		6.4	37	µg/Kg-dry	1	5/24/2018 05:21
1,3-Dichlorobenzene	U		12	37	µg/Kg-dry	1	5/24/2018 05:21
1,4-Dichlorobenzene	U		8.8	37	µg/Kg-dry	1	5/24/2018 05:21
2-Butanone	U		30	240	µg/Kg-dry	1	5/24/2018 05:21
2-Hexanone	U		18	37	µg/Kg-dry	1	5/24/2018 05:21
4-Methyl-2-pentanone	U		17	37	µg/Kg-dry	1	5/24/2018 05:21
Acetone	U		38	120	µg/Kg-dry	1	5/24/2018 05:21
Benzene	U		6.3	37	µg/Kg-dry	1	5/24/2018 05:21
Bromochloromethane	U		19	37	µg/Kg-dry	1	5/24/2018 05:21
Bromodichloromethane	U		21	37	µg/Kg-dry	1	5/24/2018 05:21
Bromoform	U		15	37	µg/Kg-dry	1	5/24/2018 05:21
Bromomethane	U		70	120	µg/Kg-dry	1	5/24/2018 05:21
Carbon disulfide	U		19	37	µg/Kg-dry	1	5/24/2018 05:21
Carbon tetrachloride	U		14	37	µg/Kg-dry	1	5/24/2018 05:21
Chlorobenzene	U		12	37	µg/Kg-dry	1	5/24/2018 05:21
Chloroethane	U		13	120	µg/Kg-dry	1	5/24/2018 05:21
Chloroform	U		13	37	µg/Kg-dry	1	5/24/2018 05:21
Chloromethane	U		31	120	µg/Kg-dry	1	5/24/2018 05:21
cis-1,2-Dichloroethene	U		11	37	µg/Kg-dry	1	5/24/2018 05:21
cis-1,3-Dichloropropene	U		14	37	µg/Kg-dry	1	5/24/2018 05:21
Cyclohexane	U		12	37	µg/Kg-dry	1	5/24/2018 05:21
Dibromochloromethane	U		21	37	µg/Kg-dry	1	5/24/2018 05:21
Dichlorodifluoromethane	U		7.7	37	µg/Kg-dry	1	5/24/2018 05:21
Ethylbenzene	U		7.7	37	µg/Kg-dry	1	5/24/2018 05:21
Isopropylbenzene	U		11	37	µg/Kg-dry	1	5/24/2018 05:21
m,p-Xylene	U		17	73	µg/Kg-dry	1	5/24/2018 05:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-05
Collection Date: 5/15/2018 04:55 PM

Work Order: 18051328
Lab ID: 18051328-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**84**	J	**16**	**240**	**µg/Kg-dry**	1	5/24/2018 05:21
Methyl tert-butyl ether	U		11	37	µg/Kg-dry	1	5/24/2018 05:21
Methylcyclohexane	U		14	37	µg/Kg-dry	1	5/24/2018 05:21
Methylene chloride	U		16	37	µg/Kg-dry	1	5/24/2018 05:21
o-Xylene	U		14	37	µg/Kg-dry	1	5/24/2018 05:21
Styrene	U		15	37	µg/Kg-dry	1	5/24/2018 05:21
Tetrachloroethene	U		11	37	µg/Kg-dry	1	5/24/2018 05:21
Toluene	U		10	37	µg/Kg-dry	1	5/24/2018 05:21
trans-1,2-Dichloroethene	U		13	37	µg/Kg-dry	1	5/24/2018 05:21
trans-1,3-Dichloropropene	U		20	37	µg/Kg-dry	1	5/24/2018 05:21
Trichloroethene	U		16	37	µg/Kg-dry	1	5/24/2018 05:21
Trichlorofluoromethane	U		19	37	µg/Kg-dry	1	5/24/2018 05:21
Vinyl chloride	U		7.9	37	µg/Kg-dry	1	5/24/2018 05:21
Xylenes, Total	U		32	110	µg/Kg-dry	1	5/24/2018 05:21
Surr: 1,2-Dichloroethane-d4	*86.0*			*70-130*	*%REC*	1	5/24/2018 05:21
Surr: 4-Bromofluorobenzene	*98.2*			*70-130*	*%REC*	1	5/24/2018 05:21
Surr: Dibromofluoromethane	*81.0*			*70-130*	*%REC*	1	5/24/2018 05:21
Surr: Toluene-d8	*99.7*			*70-130*	*%REC*	1	5/24/2018 05:21
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**10**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-06
Collection Date: 5/15/2018 04:50 PM

Work Order: 18051328
Lab ID: 18051328-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		16	36	µg/Kg-dry	1	5/24/2018 05:45
1,1,2,2-Tetrachloroethane	U		16	36	µg/Kg-dry	1	5/24/2018 05:45
1,1,2-Trichloroethane	U		15	36	µg/Kg-dry	1	5/24/2018 05:45
1,1,2-Trichlorotrifluoroethane	U		23	36	µg/Kg-dry	1	5/24/2018 05:45
1,1-Dichloroethane	U		13	36	µg/Kg-dry	1	5/24/2018 05:45
1,1-Dichloroethene	U		12	36	µg/Kg-dry	1	5/24/2018 05:45
1,2,3-Trichlorobenzene	U		17	36	µg/Kg-dry	1	5/24/2018 05:45
1,2,4-Trichlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 05:45
1,2-Dibromo-3-chloropropane	U		33	120	µg/Kg-dry	1	5/24/2018 05:45
1,2-Dibromoethane	U		10	36	µg/Kg-dry	1	5/24/2018 05:45
1,2-Dichlorobenzene	U		13	36	µg/Kg-dry	1	5/24/2018 05:45
1,2-Dichloroethane	U		15	36	µg/Kg-dry	1	5/24/2018 05:45
1,2-Dichloropropane	U		6.2	36	µg/Kg-dry	1	5/24/2018 05:45
1,3-Dichlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 05:45
1,4-Dichlorobenzene	U		8.6	36	µg/Kg-dry	1	5/24/2018 05:45
2-Butanone	U		29	240	µg/Kg-dry	1	5/24/2018 05:45
2-Hexanone	U		18	36	µg/Kg-dry	1	5/24/2018 05:45
4-Methyl-2-pentanone	U		17	36	µg/Kg-dry	1	5/24/2018 05:45
Acetone	U		37	120	µg/Kg-dry	1	5/24/2018 05:45
Benzene	U		6.1	36	µg/Kg-dry	1	5/24/2018 05:45
Bromochloromethane	U		18	36	µg/Kg-dry	1	5/24/2018 05:45
Bromodichloromethane	U		20	36	µg/Kg-dry	1	5/24/2018 05:45
Bromoform	U		15	36	µg/Kg-dry	1	5/24/2018 05:45
Bromomethane	U		68	120	µg/Kg-dry	1	5/24/2018 05:45
Carbon disulfide	U		18	36	µg/Kg-dry	1	5/24/2018 05:45
Carbon tetrachloride	U		14	36	µg/Kg-dry	1	5/24/2018 05:45
Chlorobenzene	U		12	36	µg/Kg-dry	1	5/24/2018 05:45
Chloroethane	U		12	120	µg/Kg-dry	1	5/24/2018 05:45
Chloroform	U		13	36	µg/Kg-dry	1	5/24/2018 05:45
Chloromethane	U		30	120	µg/Kg-dry	1	5/24/2018 05:45
cis-1,2-Dichloroethene	U		11	36	µg/Kg-dry	1	5/24/2018 05:45
cis-1,3-Dichloropropene	U		13	36	µg/Kg-dry	1	5/24/2018 05:45
Cyclohexane	U		12	36	µg/Kg-dry	1	5/24/2018 05:45
Dibromochloromethane	U		20	36	µg/Kg-dry	1	5/24/2018 05:45
Dichlorodifluoromethane	U		7.4	36	µg/Kg-dry	1	5/24/2018 05:45
Ethylbenzene	U		7.5	36	µg/Kg-dry	1	5/24/2018 05:45
Isopropylbenzene	U		11	36	µg/Kg-dry	1	5/24/2018 05:45
m,p-Xylene	**23**	J	**17**	**71**	**µg/Kg-dry**	1	5/24/2018 05:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-06
Collection Date: 5/15/2018 04:50 PM

Work Order: 18051328
Lab ID: 18051328-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**130**	J	**16**	**240**	**µg/Kg-dry**	1	5/24/2018 05:45
Methyl tert-butyl ether	U		10	36	µg/Kg-dry	1	5/24/2018 05:45
Methylcyclohexane	U		14	36	µg/Kg-dry	1	5/24/2018 05:45
Methylene chloride	U		15	36	µg/Kg-dry	1	5/24/2018 05:45
o-Xylene	U		14	36	µg/Kg-dry	1	5/24/2018 05:45
Styrene	U		14	36	µg/Kg-dry	1	5/24/2018 05:45
Tetrachloroethene	U		10	36	µg/Kg-dry	1	5/24/2018 05:45
Toluene	**18**	J	**9.7**	**36**	**µg/Kg-dry**	1	5/24/2018 05:45
trans-1,2-Dichloroethene	U		13	36	µg/Kg-dry	1	5/24/2018 05:45
trans-1,3-Dichloropropene	U		20	36	µg/Kg-dry	1	5/24/2018 05:45
Trichloroethene	U		16	36	µg/Kg-dry	1	5/24/2018 05:45
Trichlorofluoromethane	U		18	36	µg/Kg-dry	1	5/24/2018 05:45
Vinyl chloride	U		7.6	36	µg/Kg-dry	1	5/24/2018 05:45
Xylenes, Total	U		31	110	µg/Kg-dry	1	5/24/2018 05:45
Surr: 1,2-Dichloroethane-d4	*86.2*			*70-130*	*%REC*	1	5/24/2018 05:45
Surr: 4-Bromofluorobenzene	*101*			*70-130*	*%REC*	1	5/24/2018 05:45
Surr: Dibromofluoromethane	*80.0*			*70-130*	*%REC*	1	5/24/2018 05:45
Surr: Toluene-d8	*99.6*			*70-130*	*%REC*	1	5/24/2018 05:45
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**8.5**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)		Method:	**A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**24.3**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method:	**TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.29**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-07
Collection Date: 5/15/2018 11:35 AM

Work Order: 18051328
Lab ID: 18051328-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		17	37	µg/Kg-dry	1	5/24/2018 07:23
1,1,2,2-Tetrachloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 07:23
1,1,2-Trichloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 07:23
1,1,2-Trichlorotrifluoroethane	U		23	37	µg/Kg-dry	1	5/24/2018 07:23
1,1-Dichloroethane	U		13	37	µg/Kg-dry	1	5/24/2018 07:23
1,1-Dichloroethene	U		12	37	µg/Kg-dry	1	5/24/2018 07:23
1,2,3-Trichlorobenzene	U		17	37	µg/Kg-dry	1	5/24/2018 07:23
1,2,4-Trichlorobenzene	U		13	37	µg/Kg-dry	1	5/24/2018 07:23
1,2-Dibromo-3-chloropropane	U		34	120	µg/Kg-dry	1	5/24/2018 07:23
1,2-Dibromoethane	U		10	37	µg/Kg-dry	1	5/24/2018 07:23
1,2-Dichlorobenzene	U		14	37	µg/Kg-dry	1	5/24/2018 07:23
1,2-Dichloroethane	U		16	37	µg/Kg-dry	1	5/24/2018 07:23
1,2-Dichloropropane	U		6.4	37	µg/Kg-dry	1	5/24/2018 07:23
1,3-Dichlorobenzene	U		12	37	µg/Kg-dry	1	5/24/2018 07:23
1,4-Dichlorobenzene	U		8.8	37	µg/Kg-dry	1	5/24/2018 07:23
2-Butanone	U		30	240	µg/Kg-dry	1	5/24/2018 07:23
2-Hexanone	U		18	37	µg/Kg-dry	1	5/24/2018 07:23
4-Methyl-2-pentanone	U		17	37	µg/Kg-dry	1	5/24/2018 07:23
Acetone	U		38	120	µg/Kg-dry	1	5/24/2018 07:23
Benzene	U		6.3	37	µg/Kg-dry	1	5/24/2018 07:23
Bromochloromethane	U		19	37	µg/Kg-dry	1	5/24/2018 07:23
Bromodichloromethane	U		20	37	µg/Kg-dry	1	5/24/2018 07:23
Bromoform	U		15	37	µg/Kg-dry	1	5/24/2018 07:23
Bromomethane	U		70	120	µg/Kg-dry	1	5/24/2018 07:23
Carbon disulfide	U		19	37	µg/Kg-dry	1	5/24/2018 07:23
Carbon tetrachloride	U		14	37	µg/Kg-dry	1	5/24/2018 07:23
Chlorobenzene	U		12	37	µg/Kg-dry	1	5/24/2018 07:23
Chloroethane	U		13	120	µg/Kg-dry	1	5/24/2018 07:23
Chloroform	U		13	37	µg/Kg-dry	1	5/24/2018 07:23
Chloromethane	U		30	120	µg/Kg-dry	1	5/24/2018 07:23
cis-1,2-Dichloroethene	U		11	37	µg/Kg-dry	1	5/24/2018 07:23
cis-1,3-Dichloropropene	U		14	37	µg/Kg-dry	1	5/24/2018 07:23
Cyclohexane	U		12	37	µg/Kg-dry	1	5/24/2018 07:23
Dibromochloromethane	U		21	37	µg/Kg-dry	1	5/24/2018 07:23
Dichlorodifluoromethane	U		7.6	37	µg/Kg-dry	1	5/24/2018 07:23
Ethylbenzene	**23**	J	**7.7**	**37**	**µg/Kg-dry**	1	5/24/2018 07:23
Isopropylbenzene	U		11	37	µg/Kg-dry	1	5/24/2018 07:23
m,p-Xylene	**40**	J	**17**	**73**	**µg/Kg-dry**	1	5/24/2018 07:23

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-07
Collection Date: 5/15/2018 11:35 AM

Work Order: 18051328
Lab ID: 18051328-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**120**	J	**16**	**240**	**µg/Kg-dry**	1	5/24/2018 07:23
Methyl tert-butyl ether	U		11	37	µg/Kg-dry	1	5/24/2018 07:23
Methylcyclohexane	U		14	37	µg/Kg-dry	1	5/24/2018 07:23
Methylene chloride	U		16	37	µg/Kg-dry	1	5/24/2018 07:23
o-Xylene	**63**		**14**	**37**	**µg/Kg-dry**	1	5/24/2018 07:23
Styrene	U		15	37	µg/Kg-dry	1	5/24/2018 07:23
Tetrachloroethene	U		11	37	µg/Kg-dry	1	5/24/2018 07:23
Toluene	U		10	37	µg/Kg-dry	1	5/24/2018 07:23
trans-1,2-Dichloroethene	U		13	37	µg/Kg-dry	1	5/24/2018 07:23
trans-1,3-Dichloropropene	U		20	37	µg/Kg-dry	1	5/24/2018 07:23
Trichloroethene	U		16	37	µg/Kg-dry	1	5/24/2018 07:23
Trichlorofluoromethane	U		19	37	µg/Kg-dry	1	5/24/2018 07:23
Vinyl chloride	U		7.9	37	µg/Kg-dry	1	5/24/2018 07:23
Xylenes, Total	**100**	J	**32**	**110**	**µg/Kg-dry**	1	5/24/2018 07:23
Surr: 1,2-Dichloroethane-d4	*86.0*			*70-130*	*%REC*	1	5/24/2018 07:23
Surr: 4-Bromofluorobenzene	*100*			*70-130*	*%REC*	1	5/24/2018 07:23
Surr: Dibromofluoromethane	*78.8*			*70-130*	*%REC*	1	5/24/2018 07:23
Surr: Toluene-d8	*101*			*70-130*	*%REC*	1	5/24/2018 07:23
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**9.9**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-08
Collection Date: 5/15/2018 11:55 AM

Work Order: 18051328
Lab ID: 18051328-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **WH**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/26/2018 01:50
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/26/2018 01:50
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/26/2018 01:50
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/26/2018 01:50
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/26/2018 01:50
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/26/2018 01:50
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:50
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/26/2018 01:50
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/26/2018 01:50
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/26/2018 01:50
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/26/2018 01:50
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/26/2018 01:50
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/26/2018 01:50
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:50
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/26/2018 01:50
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:50
2-Butanone	U		0.47	5.0	µg/L	1	5/26/2018 01:50
2-Hexanone	U		0.50	5.0	µg/L	1	5/26/2018 01:50
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/26/2018 01:50
Acetone	**3.4**	J	**0.47**	**10**	**µg/L**	1	5/26/2018 01:50
Benzene	U		0.42	1.0	µg/L	1	5/26/2018 01:50
Bromochloromethane	U		0.15	1.0	µg/L	1	5/26/2018 01:50
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/26/2018 01:50
Bromoform	U		0.56	1.0	µg/L	1	5/26/2018 01:50
Bromomethane	U		0.29	1.0	µg/L	1	5/26/2018 01:50
Carbon disulfide	U		0.39	1.0	µg/L	1	5/26/2018 01:50
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/26/2018 01:50
Chlorobenzene	U		0.21	1.0	µg/L	1	5/26/2018 01:50
Chloroethane	U		0.68	1.0	µg/L	1	5/26/2018 01:50
Chloroform	U		0.46	1.0	µg/L	1	5/26/2018 01:50
Chloromethane	U		0.68	1.0	µg/L	1	5/26/2018 01:50
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/26/2018 01:50
Cyclohexane	U		0.18	1.0	µg/L	1	5/26/2018 01:50
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/26/2018 01:50
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/26/2018 01:50
Ethylbenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:50
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/26/2018 01:50
m,p-Xylene	U		0.53	2.0	µg/L	1	5/26/2018 01:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-08
Collection Date: 5/15/2018 11:55 AM

Work Order: 18051328
Lab ID: 18051328-08
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/26/2018 01:50
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/26/2018 01:50
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/26/2018 01:50
Methylene chloride	U		0.16	5.0	µg/L	1	5/26/2018 01:50
o-Xylene	U		0.19	1.0	µg/L	1	5/26/2018 01:50
Styrene	U		0.19	1.0	µg/L	1	5/26/2018 01:50
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/26/2018 01:50
Toluene	U		0.32	1.0	µg/L	1	5/26/2018 01:50
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/26/2018 01:50
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/26/2018 01:50
Trichloroethene	**0.74**	J	**0.33**	**1.0**	**µg/L**	1	5/26/2018 01:50
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/26/2018 01:50
Vinyl chloride	U		0.53	1.0	µg/L	1	5/26/2018 01:50
Xylenes, Total	U		0.74	3.0	µg/L	1	5/26/2018 01:50
Surr: 1,2-Dichloroethane-d4	*97.6*			*75-120*	*%REC*	1	5/26/2018 01:50
Surr: 4-Bromofluorobenzene	*94.8*			*80-110*	*%REC*	1	5/26/2018 01:50
Surr: Dibromofluoromethane	*99.0*			*85-115*	*%REC*	1	5/26/2018 01:50
Surr: Toluene-d8	*91.0*			*85-110*	*%REC*	1	5/26/2018 01:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-09
Collection Date: 5/16/2018 09:30 AM

Work Order: 18051328
Lab ID: 18051328-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		18	39	µg/Kg-dry	1	5/24/2018 07:47
1,1,2,2-Tetrachloroethane	U		17	39	µg/Kg-dry	1	5/24/2018 07:47
1,1,2-Trichloroethane	U		16	39	µg/Kg-dry	1	5/24/2018 07:47
1,1,2-Trichlorotrifluoroethane	U		24	39	µg/Kg-dry	1	5/24/2018 07:47
1,1-Dichloroethane	U		14	39	µg/Kg-dry	1	5/24/2018 07:47
1,1-Dichloroethene	U		13	39	µg/Kg-dry	1	5/24/2018 07:47
1,2,3-Trichlorobenzene	U		18	39	µg/Kg-dry	1	5/24/2018 07:47
1,2,4-Trichlorobenzene	U		13	39	µg/Kg-dry	1	5/24/2018 07:47
1,2-Dibromo-3-chloropropane	U		36	130	µg/Kg-dry	1	5/24/2018 07:47
1,2-Dibromoethane	U		11	39	µg/Kg-dry	1	5/24/2018 07:47
1,2-Dichlorobenzene	U		15	39	µg/Kg-dry	1	5/24/2018 07:47
1,2-Dichloroethane	U		17	39	µg/Kg-dry	1	5/24/2018 07:47
1,2-Dichloropropane	U		6.8	39	µg/Kg-dry	1	5/24/2018 07:47
1,3-Dichlorobenzene	U		13	39	µg/Kg-dry	1	5/24/2018 07:47
1,4-Dichlorobenzene	U		9.3	39	µg/Kg-dry	1	5/24/2018 07:47
2-Butanone	U		32	260	µg/Kg-dry	1	5/24/2018 07:47
2-Hexanone	U		19	39	µg/Kg-dry	1	5/24/2018 07:47
4-Methyl-2-pentanone	U		18	39	µg/Kg-dry	1	5/24/2018 07:47
Acetone	U		40	130	µg/Kg-dry	1	5/24/2018 07:47
Benzene	U		6.6	39	µg/Kg-dry	1	5/24/2018 07:47
Bromochloromethane	U		20	39	µg/Kg-dry	1	5/24/2018 07:47
Bromodichloromethane	U		22	39	µg/Kg-dry	1	5/24/2018 07:47
Bromoform	U		16	39	µg/Kg-dry	1	5/24/2018 07:47
Bromomethane	U		74	130	µg/Kg-dry	1	5/24/2018 07:47
Carbon disulfide	U		20	39	µg/Kg-dry	1	5/24/2018 07:47
Carbon tetrachloride	U		15	39	µg/Kg-dry	1	5/24/2018 07:47
Chlorobenzene	U		13	39	µg/Kg-dry	1	5/24/2018 07:47
Chloroethane	U		13	130	µg/Kg-dry	1	5/24/2018 07:47
Chloroform	U		14	39	µg/Kg-dry	1	5/24/2018 07:47
Chloromethane	U		32	130	µg/Kg-dry	1	5/24/2018 07:47
cis-1,2-Dichloroethene	U		12	39	µg/Kg-dry	1	5/24/2018 07:47
cis-1,3-Dichloropropene	U		14	39	µg/Kg-dry	1	5/24/2018 07:47
Cyclohexane	U		13	39	µg/Kg-dry	1	5/24/2018 07:47
Dibromochloromethane	U		22	39	µg/Kg-dry	1	5/24/2018 07:47
Dichlorodifluoromethane	U		8.1	39	µg/Kg-dry	1	5/24/2018 07:47
Ethylbenzene	U		8.1	39	µg/Kg-dry	1	5/24/2018 07:47
Isopropylbenzene	U		12	39	µg/Kg-dry	1	5/24/2018 07:47
m,p-Xylene	**28**	J	**18**	**77**	**µg/Kg-dry**	1	5/24/2018 07:47

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-09
Collection Date: 5/16/2018 09:30 AM

Work Order: 18051328
Lab ID: 18051328-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**220**	J	**17**	**260**	**µg/Kg-dry**	1	5/24/2018 07:47
Methyl tert-butyl ether	U		11	39	µg/Kg-dry	1	5/24/2018 07:47
Methylcyclohexane	U		15	39	µg/Kg-dry	1	5/24/2018 07:47
Methylene chloride	U		17	39	µg/Kg-dry	1	5/24/2018 07:47
o-Xylene	U		15	39	µg/Kg-dry	1	5/24/2018 07:47
Styrene	U		15	39	µg/Kg-dry	1	5/24/2018 07:47
Tetrachloroethene	U		11	39	µg/Kg-dry	1	5/24/2018 07:47
Toluene	U		11	39	µg/Kg-dry	1	5/24/2018 07:47
trans-1,2-Dichloroethene	U		14	39	µg/Kg-dry	1	5/24/2018 07:47
trans-1,3-Dichloropropene	U		22	39	µg/Kg-dry	1	5/24/2018 07:47
Trichloroethene	**200**		**17**	**39**	**µg/Kg-dry**	1	5/24/2018 07:47
Trichlorofluoromethane	U		20	39	µg/Kg-dry	1	5/24/2018 07:47
Vinyl chloride	U		8.3	39	µg/Kg-dry	1	5/24/2018 07:47
Xylenes, Total	U		33	120	µg/Kg-dry	1	5/24/2018 07:47
Surr: 1,2-Dichloroethane-d4	*86.4*			*70-130*	*%REC*	1	5/24/2018 07:47
Surr: 4-Bromofluorobenzene	*98.8*			*70-130*	*%REC*	1	5/24/2018 07:47
Surr: Dibromofluoromethane	*81.2*			*70-130*	*%REC*	1	5/24/2018 07:47
Surr: Toluene-d8	*99.0*			*70-130*	*%REC*	1	5/24/2018 07:47
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**11**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-10
Collection Date: 5/16/2018 09:30 AM

Work Order: 18051328
Lab ID: 18051328-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		18	40	µg/Kg-dry	1	5/24/2018 08:12
1,1,2,2-Tetrachloroethane	U		18	40	µg/Kg-dry	1	5/24/2018 08:12
1,1,2-Trichloroethane	U		17	40	µg/Kg-dry	1	5/24/2018 08:12
1,1,2-Trichlorotrifluoroethane	U		25	40	µg/Kg-dry	1	5/24/2018 08:12
1,1-Dichloroethane	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
1,1-Dichloroethene	U		13	40	µg/Kg-dry	1	5/24/2018 08:12
1,2,3-Trichlorobenzene	U		19	40	µg/Kg-dry	1	5/24/2018 08:12
1,2,4-Trichlorobenzene	U		14	40	µg/Kg-dry	1	5/24/2018 08:12
1,2-Dibromo-3-chloropropane	U		37	130	µg/Kg-dry	1	5/24/2018 08:12
1,2-Dibromoethane	U		11	40	µg/Kg-dry	1	5/24/2018 08:12
1,2-Dichlorobenzene	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
1,2-Dichloroethane	U		17	40	µg/Kg-dry	1	5/24/2018 08:12
1,2-Dichloropropane	U		7.0	40	µg/Kg-dry	1	5/24/2018 08:12
1,3-Dichlorobenzene	U		13	40	µg/Kg-dry	1	5/24/2018 08:12
1,4-Dichlorobenzene	U		9.6	40	µg/Kg-dry	1	5/24/2018 08:12
2-Butanone	U		33	270	µg/Kg-dry	1	5/24/2018 08:12
2-Hexanone	U		20	40	µg/Kg-dry	1	5/24/2018 08:12
4-Methyl-2-pentanone	U		19	40	µg/Kg-dry	1	5/24/2018 08:12
Acetone	U		41	130	µg/Kg-dry	1	5/24/2018 08:12
Benzene	U		6.8	40	µg/Kg-dry	1	5/24/2018 08:12
Bromochloromethane	U		20	40	µg/Kg-dry	1	5/24/2018 08:12
Bromodichloromethane	U		22	40	µg/Kg-dry	1	5/24/2018 08:12
Bromoform	U		17	40	µg/Kg-dry	1	5/24/2018 08:12
Bromomethane	U		76	130	µg/Kg-dry	1	5/24/2018 08:12
Carbon disulfide	U		21	40	µg/Kg-dry	1	5/24/2018 08:12
Carbon tetrachloride	U		16	40	µg/Kg-dry	1	5/24/2018 08:12
Chlorobenzene	U		13	40	µg/Kg-dry	1	5/24/2018 08:12
Chloroethane	U		14	130	µg/Kg-dry	1	5/24/2018 08:12
Chloroform	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
Chloromethane	U		33	130	µg/Kg-dry	1	5/24/2018 08:12
cis-1,2-Dichloroethene	U		12	40	µg/Kg-dry	1	5/24/2018 08:12
cis-1,3-Dichloropropene	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
Cyclohexane	U		13	40	µg/Kg-dry	1	5/24/2018 08:12
Dibromochloromethane	U		22	40	µg/Kg-dry	1	5/24/2018 08:12
Dichlorodifluoromethane	U		8.3	40	µg/Kg-dry	1	5/24/2018 08:12
Ethylbenzene	U		8.4	40	µg/Kg-dry	1	5/24/2018 08:12
Isopropylbenzene	U		12	40	µg/Kg-dry	1	5/24/2018 08:12
m,p-Xylene	U		19	80	µg/Kg-dry	1	5/24/2018 08:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-10
Collection Date: 5/16/2018 09:30 AM

Work Order: 18051328
Lab ID: 18051328-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	**130**	J	**18**	**270**	**µg/Kg-dry**	1	5/24/2018 08:12
Methyl tert-butyl ether	U		11	40	µg/Kg-dry	1	5/24/2018 08:12
Methylcyclohexane	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
Methylene chloride	U		17	40	µg/Kg-dry	1	5/24/2018 08:12
o-Xylene	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
Styrene	U		16	40	µg/Kg-dry	1	5/24/2018 08:12
Tetrachloroethene	U		12	40	µg/Kg-dry	1	5/24/2018 08:12
Toluene	U		11	40	µg/Kg-dry	1	5/24/2018 08:12
trans-1,2-Dichloroethene	U		15	40	µg/Kg-dry	1	5/24/2018 08:12
trans-1,3-Dichloropropene	U		22	40	µg/Kg-dry	1	5/24/2018 08:12
Trichloroethene	**120**		**18**	**40**	**µg/Kg-dry**	1	5/24/2018 08:12
Trichlorofluoromethane	U		20	40	µg/Kg-dry	1	5/24/2018 08:12
Vinyl chloride	U		8.5	40	µg/Kg-dry	1	5/24/2018 08:12
Xylenes, Total	U		34	120	µg/Kg-dry	1	5/24/2018 08:12
Surr: 1,2-Dichloroethane-d4	*85.2*			*70-130*	*%REC*	1	5/24/2018 08:12
Surr: 4-Bromofluorobenzene	*98.1*			*70-130*	*%REC*	1	5/24/2018 08:12
Surr: Dibromofluoromethane	*80.2*			*70-130*	*%REC*	1	5/24/2018 08:12
Surr: Toluene-d8	*99.2*			*70-130*	*%REC*	1	5/24/2018 08:12
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**14**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-11
Collection Date: 5/16/2018 10:05 AM

Work Order: 18051328
Lab ID: 18051328-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 08:36
1,1,2,2-Tetrachloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 08:36
1,1,2-Trichloroethane	U		14	34	µg/Kg-dry	1	5/24/2018 08:36
1,1,2-Trichlorotrifluoroethane	U		22	34	µg/Kg-dry	1	5/24/2018 08:36
1,1-Dichloroethane	U		12	34	µg/Kg-dry	1	5/24/2018 08:36
1,1-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 08:36
1,2,3-Trichlorobenzene	U		16	34	µg/Kg-dry	1	5/24/2018 08:36
1,2,4-Trichlorobenzene	U		12	34	µg/Kg-dry	1	5/24/2018 08:36
1,2-Dibromo-3-chloropropane	U		31	110	µg/Kg-dry	1	5/24/2018 08:36
1,2-Dibromoethane	U		9.6	34	µg/Kg-dry	1	5/24/2018 08:36
1,2-Dichlorobenzene	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
1,2-Dichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 08:36
1,2-Dichloropropane	U		6.0	34	µg/Kg-dry	1	5/24/2018 08:36
1,3-Dichlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 08:36
1,4-Dichlorobenzene	U		8.2	34	µg/Kg-dry	1	5/24/2018 08:36
2-Butanone	U		28	230	µg/Kg-dry	1	5/24/2018 08:36
2-Hexanone	U		17	34	µg/Kg-dry	1	5/24/2018 08:36
4-Methyl-2-pentanone	U		16	34	µg/Kg-dry	1	5/24/2018 08:36
Acetone	U		35	110	µg/Kg-dry	1	5/24/2018 08:36
Benzene	U		5.8	34	µg/Kg-dry	1	5/24/2018 08:36
Bromochloromethane	U		17	34	µg/Kg-dry	1	5/24/2018 08:36
Bromodichloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 08:36
Bromoform	U		14	34	µg/Kg-dry	1	5/24/2018 08:36
Bromomethane	U		65	110	µg/Kg-dry	1	5/24/2018 08:36
Carbon disulfide	U		18	34	µg/Kg-dry	1	5/24/2018 08:36
Carbon tetrachloride	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
Chlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 08:36
Chloroethane	U		12	110	µg/Kg-dry	1	5/24/2018 08:36
Chloroform	U		12	34	µg/Kg-dry	1	5/24/2018 08:36
Chloromethane	U		28	110	µg/Kg-dry	1	5/24/2018 08:36
cis-1,2-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 08:36
cis-1,3-Dichloropropene	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
Cyclohexane	U		11	34	µg/Kg-dry	1	5/24/2018 08:36
Dibromochloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 08:36
Dichlorodifluoromethane	U		7.1	34	µg/Kg-dry	1	5/24/2018 08:36
Ethylbenzene	U		7.2	34	µg/Kg-dry	1	5/24/2018 08:36
Isopropylbenzene	U		10	34	µg/Kg-dry	1	5/24/2018 08:36
m,p-Xylene	**21**	J	**16**	**68**	**µg/Kg-dry**	1	5/24/2018 08:36

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-11
Collection Date: 5/16/2018 10:05 AM

Work Order: 18051328
Lab ID: 18051328-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		15	230	µg/Kg-dry	1	5/24/2018 08:36
Methyl tert-butyl ether	U		9.8	34	µg/Kg-dry	1	5/24/2018 08:36
Methylcyclohexane	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
Methylene chloride	U		15	34	µg/Kg-dry	1	5/24/2018 08:36
o-Xylene	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
Styrene	U		14	34	µg/Kg-dry	1	5/24/2018 08:36
Tetrachloroethene	U		9.9	34	µg/Kg-dry	1	5/24/2018 08:36
Toluene	U		9.3	34	µg/Kg-dry	1	5/24/2018 08:36
trans-1,2-Dichloroethene	U		13	34	µg/Kg-dry	1	5/24/2018 08:36
trans-1,3-Dichloropropene	U		19	34	µg/Kg-dry	1	5/24/2018 08:36
Trichloroethene	U		15	34	µg/Kg-dry	1	5/24/2018 08:36
Trichlorofluoromethane	U		17	34	µg/Kg-dry	1	5/24/2018 08:36
Vinyl chloride	U		7.3	34	µg/Kg-dry	1	5/24/2018 08:36
Xylenes, Total	U		29	100	µg/Kg-dry	1	5/24/2018 08:36
Surr: 1,2-Dichloroethane-d4	*87.0*			*70-130*	*%REC*	1	5/24/2018 08:36
Surr: 4-Bromofluorobenzene	*96.7*			*70-130*	*%REC*	1	5/24/2018 08:36
Surr: Dibromofluoromethane	*80.6*			*70-130*	*%REC*	1	5/24/2018 08:36
Surr: Toluene-d8	*98.4*			*70-130*	*%REC*	1	5/24/2018 08:36
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**3.6**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-12
Collection Date: 5/16/2018 10:55 AM

Work Order: 18051328
Lab ID: 18051328-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:10
1,1,2,2-Tetrachloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:10
1,1,2-Trichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:10
1,1,2-Trichlorotrifluoroethane	U		22	34	µg/Kg-dry	1	5/24/2018 06:10
1,1-Dichloroethane	U		12	34	µg/Kg-dry	1	5/24/2018 06:10
1,1-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 06:10
1,2,3-Trichlorobenzene	U		16	34	µg/Kg-dry	1	5/24/2018 06:10
1,2,4-Trichlorobenzene	U		12	34	µg/Kg-dry	1	5/24/2018 06:10
1,2-Dibromo-3-chloropropane	U		31	110	µg/Kg-dry	1	5/24/2018 06:10
1,2-Dibromoethane	U		9.6	34	µg/Kg-dry	1	5/24/2018 06:10
1,2-Dichlorobenzene	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
1,2-Dichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:10
1,2-Dichloropropane	U		6.0	34	µg/Kg-dry	1	5/24/2018 06:10
1,3-Dichlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 06:10
1,4-Dichlorobenzene	U		8.2	34	µg/Kg-dry	1	5/24/2018 06:10
2-Butanone	U		28	230	µg/Kg-dry	1	5/24/2018 06:10
2-Hexanone	U		17	34	µg/Kg-dry	1	5/24/2018 06:10
4-Methyl-2-pentanone	U		16	34	µg/Kg-dry	1	5/24/2018 06:10
Acetone	U		35	110	µg/Kg-dry	1	5/24/2018 06:10
Benzene	U		5.8	34	µg/Kg-dry	1	5/24/2018 06:10
Bromochloromethane	U		17	34	µg/Kg-dry	1	5/24/2018 06:10
Bromodichloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 06:10
Bromoform	U		14	34	µg/Kg-dry	1	5/24/2018 06:10
Bromomethane	U		65	110	µg/Kg-dry	1	5/24/2018 06:10
Carbon disulfide	U		18	34	µg/Kg-dry	1	5/24/2018 06:10
Carbon tetrachloride	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
Chlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 06:10
Chloroethane	U		12	110	µg/Kg-dry	1	5/24/2018 06:10
Chloroform	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
Chloromethane	U		28	110	µg/Kg-dry	1	5/24/2018 06:10
cis-1,2-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 06:10
cis-1,3-Dichloropropene	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
Cyclohexane	U		11	34	µg/Kg-dry	1	5/24/2018 06:10
Dibromochloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 06:10
Dichlorodifluoromethane	U		7.1	34	µg/Kg-dry	1	5/24/2018 06:10
Ethylbenzene	U		7.2	34	µg/Kg-dry	1	5/24/2018 06:10
Isopropylbenzene	U		10	34	µg/Kg-dry	1	5/24/2018 06:10
m,p-Xylene	**33**	J	**16**	**68**	**µg/Kg-dry**	1	5/24/2018 06:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-12
Collection Date: 5/16/2018 10:55 AM

Work Order: 18051328
Lab ID: 18051328-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		15	230	µg/Kg-dry	1	5/24/2018 06:10
Methyl tert-butyl ether	U		9.8	34	µg/Kg-dry	1	5/24/2018 06:10
Methylcyclohexane	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
Methylene chloride	U		15	34	µg/Kg-dry	1	5/24/2018 06:10
o-Xylene	**19**	J	**13**	**34**	**µg/Kg-dry**	1	5/24/2018 06:10
Styrene	U		14	34	µg/Kg-dry	1	5/24/2018 06:10
Tetrachloroethene	U		9.9	34	µg/Kg-dry	1	5/24/2018 06:10
Toluene	**27**	J	**9.3**	**34**	**µg/Kg-dry**	1	5/24/2018 06:10
trans-1,2-Dichloroethene	U		13	34	µg/Kg-dry	1	5/24/2018 06:10
trans-1,3-Dichloropropene	U		19	34	µg/Kg-dry	1	5/24/2018 06:10
Trichloroethene	**2,700**		**15**	**34**	**µg/Kg-dry**	1	5/24/2018 06:10
Trichlorofluoromethane	U		17	34	µg/Kg-dry	1	5/24/2018 06:10
Vinyl chloride	U		7.3	34	µg/Kg-dry	1	5/24/2018 06:10
Xylenes, Total	**52**	J	**29**	**100**	**µg/Kg-dry**	1	5/24/2018 06:10
Surr: 1,2-Dichloroethane-d4	*83.4*			*70-130*	*%REC*	1	5/24/2018 06:10
Surr: 4-Bromofluorobenzene	*100*			*70-130*	*%REC*	1	5/24/2018 06:10
Surr: Dibromofluoromethane	*80.8*			*70-130*	*%REC*	1	5/24/2018 06:10
Surr: Toluene-d8	*101*			*70-130*	*%REC*	1	5/24/2018 06:10
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**6.4**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)		Method:	**A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**10.9**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method:	**TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.12**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-13
Collection Date: 5/16/2018 03:35 PM

Work Order: 18051328
Lab ID: 18051328-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:34
1,1,2,2-Tetrachloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:34
1,1,2-Trichloroethane	U		14	34	µg/Kg-dry	1	5/24/2018 06:34
1,1,2-Trichlorotrifluoroethane	U		22	34	µg/Kg-dry	1	5/24/2018 06:34
1,1-Dichloroethane	U		12	34	µg/Kg-dry	1	5/24/2018 06:34
1,1-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 06:34
1,2,3-Trichlorobenzene	U		16	34	µg/Kg-dry	1	5/24/2018 06:34
1,2,4-Trichlorobenzene	U		12	34	µg/Kg-dry	1	5/24/2018 06:34
1,2-Dibromo-3-chloropropane	U		31	110	µg/Kg-dry	1	5/24/2018 06:34
1,2-Dibromoethane	U		9.5	34	µg/Kg-dry	1	5/24/2018 06:34
1,2-Dichlorobenzene	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
1,2-Dichloroethane	U		15	34	µg/Kg-dry	1	5/24/2018 06:34
1,2-Dichloropropane	U		5.9	34	µg/Kg-dry	1	5/24/2018 06:34
1,3-Dichlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 06:34
1,4-Dichlorobenzene	U		8.2	34	µg/Kg-dry	1	5/24/2018 06:34
2-Butanone	U		28	230	µg/Kg-dry	1	5/24/2018 06:34
2-Hexanone	U		17	34	µg/Kg-dry	1	5/24/2018 06:34
4-Methyl-2-pentanone	U		16	34	µg/Kg-dry	1	5/24/2018 06:34
Acetone	U		35	110	µg/Kg-dry	1	5/24/2018 06:34
Benzene	U		5.8	34	µg/Kg-dry	1	5/24/2018 06:34
Bromochloromethane	U		17	34	µg/Kg-dry	1	5/24/2018 06:34
Bromodichloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 06:34
Bromoform	U		14	34	µg/Kg-dry	1	5/24/2018 06:34
Bromomethane	U		65	110	µg/Kg-dry	1	5/24/2018 06:34
Carbon disulfide	U		18	34	µg/Kg-dry	1	5/24/2018 06:34
Carbon tetrachloride	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
Chlorobenzene	U		11	34	µg/Kg-dry	1	5/24/2018 06:34
Chloroethane	U		12	110	µg/Kg-dry	1	5/24/2018 06:34
Chloroform	U		12	34	µg/Kg-dry	1	5/24/2018 06:34
Chloromethane	U		28	110	µg/Kg-dry	1	5/24/2018 06:34
cis-1,2-Dichloroethene	U		11	34	µg/Kg-dry	1	5/24/2018 06:34
cis-1,3-Dichloropropene	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
Cyclohexane	U		11	34	µg/Kg-dry	1	5/24/2018 06:34
Dibromochloromethane	U		19	34	µg/Kg-dry	1	5/24/2018 06:34
Dichlorodifluoromethane	U		7.1	34	µg/Kg-dry	1	5/24/2018 06:34
Ethylbenzene	U		7.2	34	µg/Kg-dry	1	5/24/2018 06:34
Isopropylbenzene	U		10	34	µg/Kg-dry	1	5/24/2018 06:34
m,p-Xylene	U		16	68	µg/Kg-dry	1	5/24/2018 06:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-13
Collection Date: 5/16/2018 03:35 PM

Work Order: 18051328
Lab ID: 18051328-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		15	230	µg/Kg-dry	1	5/24/2018 06:34
Methyl tert-butyl ether	U		9.8	34	µg/Kg-dry	1	5/24/2018 06:34
Methylcyclohexane	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
Methylene chloride	U		15	34	µg/Kg-dry	1	5/24/2018 06:34
o-Xylene	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
Styrene	U		13	34	µg/Kg-dry	1	5/24/2018 06:34
Tetrachloroethene	U		9.9	34	µg/Kg-dry	1	5/24/2018 06:34
Toluene	U		9.3	34	µg/Kg-dry	1	5/24/2018 06:34
trans-1,2-Dichloroethene	U		12	34	µg/Kg-dry	1	5/24/2018 06:34
trans-1,3-Dichloropropene	U		19	34	µg/Kg-dry	1	5/24/2018 06:34
Trichloroethene	U		15	34	µg/Kg-dry	1	5/24/2018 06:34
Trichlorofluoromethane	U		17	34	µg/Kg-dry	1	5/24/2018 06:34
Vinyl chloride	U		7.3	34	µg/Kg-dry	1	5/24/2018 06:34
Xylenes, Total	U		29	100	µg/Kg-dry	1	5/24/2018 06:34
Surr: 1,2-Dichloroethane-d4	*87.5*			*70-130*	*%REC*	1	5/24/2018 06:34
Surr: 4-Bromofluorobenzene	*97.6*			*70-130*	*%REC*	1	5/24/2018 06:34
Surr: Dibromofluoromethane	*82.1*			*70-130*	*%REC*	1	5/24/2018 06:34
Surr: Toluene-d8	*99.6*			*70-130*	*%REC*	1	5/24/2018 06:34
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**6.2**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-14
Collection Date: 5/16/2018 04:20 PM

Work Order: 18051328
Lab ID: 18051328-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **LSY**
1,1,1-Trichloroethane	U		16	35	µg/Kg-dry	1	5/24/2018 06:59
1,1,2,2-Tetrachloroethane	U		15	35	µg/Kg-dry	1	5/24/2018 06:59
1,1,2-Trichloroethane	U		15	35	µg/Kg-dry	1	5/24/2018 06:59
1,1,2-Trichlorotrifluoroethane	U		22	35	µg/Kg-dry	1	5/24/2018 06:59
1,1-Dichloroethane	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
1,1-Dichloroethene	U		11	35	µg/Kg-dry	1	5/24/2018 06:59
1,2,3-Trichlorobenzene	U		16	35	µg/Kg-dry	1	5/24/2018 06:59
1,2,4-Trichlorobenzene	U		12	35	µg/Kg-dry	1	5/24/2018 06:59
1,2-Dibromo-3-chloropropane	U		32	120	µg/Kg-dry	1	5/24/2018 06:59
1,2-Dibromoethane	U		9.8	35	µg/Kg-dry	1	5/24/2018 06:59
1,2-Dichlorobenzene	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
1,2-Dichloroethane	U		15	35	µg/Kg-dry	1	5/24/2018 06:59
1,2-Dichloropropane	U		6.1	35	µg/Kg-dry	1	5/24/2018 06:59
1,3-Dichlorobenzene	U		12	35	µg/Kg-dry	1	5/24/2018 06:59
1,4-Dichlorobenzene	U		8.4	35	µg/Kg-dry	1	5/24/2018 06:59
2-Butanone	U		29	230	µg/Kg-dry	1	5/24/2018 06:59
2-Hexanone	U		17	35	µg/Kg-dry	1	5/24/2018 06:59
4-Methyl-2-pentanone	U		17	35	µg/Kg-dry	1	5/24/2018 06:59
Acetone	U		36	120	µg/Kg-dry	1	5/24/2018 06:59
Benzene	U		6.0	35	µg/Kg-dry	1	5/24/2018 06:59
Bromochloromethane	U		18	35	µg/Kg-dry	1	5/24/2018 06:59
Bromodichloromethane	U		20	35	µg/Kg-dry	1	5/24/2018 06:59
Bromoform	U		15	35	µg/Kg-dry	1	5/24/2018 06:59
Bromomethane	U		67	120	µg/Kg-dry	1	5/24/2018 06:59
Carbon disulfide	U		18	35	µg/Kg-dry	1	5/24/2018 06:59
Carbon tetrachloride	U		14	35	µg/Kg-dry	1	5/24/2018 06:59
Chlorobenzene	U		12	35	µg/Kg-dry	1	5/24/2018 06:59
Chloroethane	U		12	120	µg/Kg-dry	1	5/24/2018 06:59
Chloroform	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
Chloromethane	U		29	120	µg/Kg-dry	1	5/24/2018 06:59
cis-1,2-Dichloroethene	U		11	35	µg/Kg-dry	1	5/24/2018 06:59
cis-1,3-Dichloropropene	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
Cyclohexane	U		11	35	µg/Kg-dry	1	5/24/2018 06:59
Dibromochloromethane	U		20	35	µg/Kg-dry	1	5/24/2018 06:59
Dichlorodifluoromethane	U		7.3	35	µg/Kg-dry	1	5/24/2018 06:59
Ethylbenzene	U		7.4	35	µg/Kg-dry	1	5/24/2018 06:59
Isopropylbenzene	U		11	35	µg/Kg-dry	1	5/24/2018 06:59
m,p-Xylene	**23**	J	**17**	**70**	**µg/Kg-dry**	1	5/24/2018 06:59

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-14
Collection Date: 5/16/2018 04:20 PM

Work Order: 18051328
Lab ID: 18051328-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		16	230	µg/Kg-dry	1	5/24/2018 06:59
Methyl tert-butyl ether	U		10	35	µg/Kg-dry	1	5/24/2018 06:59
Methylcyclohexane	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
Methylene chloride	U		15	35	µg/Kg-dry	1	5/24/2018 06:59
o-Xylene	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
Styrene	U		14	35	µg/Kg-dry	1	5/24/2018 06:59
Tetrachloroethene	U		10	35	µg/Kg-dry	1	5/24/2018 06:59
Toluene	**22**	J	**9.5**	**35**	**µg/Kg-dry**	1	5/24/2018 06:59
trans-1,2-Dichloroethene	U		13	35	µg/Kg-dry	1	5/24/2018 06:59
trans-1,3-Dichloropropene	U		19	35	µg/Kg-dry	1	5/24/2018 06:59
Trichloroethene	U		16	35	µg/Kg-dry	1	5/24/2018 06:59
Trichlorofluoromethane	U		18	35	µg/Kg-dry	1	5/24/2018 06:59
Vinyl chloride	U		7.5	35	µg/Kg-dry	1	5/24/2018 06:59
Xylenes, Total	U		30	100	µg/Kg-dry	1	5/24/2018 06:59
Surr: 1,2-Dichloroethane-d4	*86.0*			*70-130*	*%REC*	1	5/24/2018 06:59
Surr: 4-Bromofluorobenzene	*98.6*			*70-130*	*%REC*	1	5/24/2018 06:59
Surr: Dibromofluoromethane	*81.5*			*70-130*	*%REC*	1	5/24/2018 06:59
Surr: Toluene-d8	*99.4*			*70-130*	*%REC*	1	5/24/2018 06:59
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**7.5**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)		Method:	**A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**8.18**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method:	**TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.11**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-15
Collection Date: 5/17/2018 10:50 AM

Work Order: 18051328
Lab ID: 18051328-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.64	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,1,2,2-Tetrachloroethane	U		0.22	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,1,2-Trichloroethane	U		0.32	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,1,2-Trichlorotrifluoroethane	U		0.89	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,1-Dichloroethane	U		1.7	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,1-Dichloroethene	U		0.79	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2,3-Trichlorobenzene	U		0.50	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2,4-Trichlorobenzene	U		0.59	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2-Dibromo-3-chloropropane	U		1.1	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2-Dibromoethane	U		0.29	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2-Dichlorobenzene	U		0.51	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2-Dichloroethane	U		0.29	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,2-Dichloropropane	U		0.36	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,3-Dichlorobenzene	U		0.42	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
1,4-Dichlorobenzene	U		0.29	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
2-Butanone	U		1.5	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
2-Hexanone	U		0.79	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
4-Methyl-2-pentanone	U		0.66	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Acetone	**27**		**1.7**	**8.1**	**µg/Kg-dry**	0.765	5/23/2018 17:05
Benzene	U		0.42	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Bromochloromethane	U		0.40	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Bromodichloromethane	U		0.26	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Bromoform	U		0.25	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Bromomethane	U		0.58	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
Carbon disulfide	U		0.45	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Carbon tetrachloride	U		0.67	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Chlorobenzene	U		0.26	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Chloroethane	U		0.51	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Chloroform	U		0.24	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Chloromethane	U		0.37	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
cis-1,2-Dichloroethene	U		0.39	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
cis-1,3-Dichloropropene	U		0.21	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Cyclohexane	U		2.5	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
Dibromochloromethane	U		0.38	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Dichlorodifluoromethane	U		0.87	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
Ethylbenzene	U		0.49	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Isopropylbenzene	U		0.52	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
m,p-Xylene	U		1.0	2.0	µg/Kg-dry	0.765	5/23/2018 17:05

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-15
Collection Date: 5/17/2018 10:50 AM

Work Order: 18051328
Lab ID: 18051328-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.98	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
Methyl tert-butyl ether	U		0.19	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Methylcyclohexane	U		1.2	8.1	µg/Kg-dry	0.765	5/23/2018 17:05
Methylene chloride	U		0.70	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
o-Xylene	U		0.38	2.0	µg/Kg-dry	0.765	5/23/2018 17:05
Styrene	U		0.32	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Tetrachloroethene	U		0.72	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Toluene	**0.61**	J	**0.45**	**4.0**	**µg/Kg-dry**	0.765	5/23/2018 17:05
trans-1,2-Dichloroethene	U		0.32	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
trans-1,3-Dichloropropene	U		0.23	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Trichloroethene	U		0.58	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Trichlorofluoromethane	U		0.57	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Vinyl chloride	U		0.57	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Xylenes, Total	U		1.4	4.0	µg/Kg-dry	0.765	5/23/2018 17:05
Surr: 1,2-Dichloroethane-d4	*99.8*			*83-132*	*%REC*	0.765	5/23/2018 17:05
Surr: 4-Bromofluorobenzene	*96.2*			*83-111*	*%REC*	0.765	5/23/2018 17:05
Surr: Dibromofluoromethane	*103*			*77-125*	*%REC*	0.765	5/23/2018 17:05
Surr: Toluene-d8	*97.3*			*86-108*	*%REC*	0.765	5/23/2018 17:05
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**5.4**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.10**		**0.013**	**0.026**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-16
Collection Date: 5/17/2018 11:00 AM

Work Order: 18051328
Lab ID: 18051328-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.73	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,1,2,2-Tetrachloroethane	U		0.25	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,1,2-Trichloroethane	U		0.36	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,1,2-Trichlorotrifluoroethane	U		1.0	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,1-Dichloroethane	U		1.9	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,1-Dichloroethene	U		0.91	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2,3-Trichlorobenzene	U		0.57	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2,4-Trichlorobenzene	U		0.68	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2-Dibromo-3-chloropropane	U		1.3	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2-Dibromoethane	U		0.33	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2-Dichlorobenzene	U		0.58	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2-Dichloroethane	U		0.33	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,2-Dichloropropane	U		0.41	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,3-Dichlorobenzene	U		0.48	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
1,4-Dichlorobenzene	U		0.33	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
2-Butanone	U		1.8	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
2-Hexanone	U		0.91	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
4-Methyl-2-pentanone	U		0.75	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Acetone	**55**		**1.9**	**9.3**	**µg/Kg-dry**	0.874	5/23/2018 17:22
Benzene	U		0.48	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Bromochloromethane	U		0.45	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Bromodichloromethane	U		0.30	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Bromoform	U		0.29	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Bromomethane	U		0.67	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
Carbon disulfide	U		0.52	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Carbon tetrachloride	U		0.77	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Chlorobenzene	U		0.30	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Chloroethane	U		0.58	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Chloroform	U		0.28	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Chloromethane	U		0.43	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
cis-1,2-Dichloroethene	U		0.45	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
cis-1,3-Dichloropropene	U		0.24	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Cyclohexane	U		2.8	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
Dibromochloromethane	U		0.44	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Dichlorodifluoromethane	U		1.0	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
Ethylbenzene	U		0.56	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Isopropylbenzene	U		0.59	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
m,p-Xylene	U		1.1	2.3	µg/Kg-dry	0.874	5/23/2018 17:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-16
Collection Date: 5/17/2018 11:00 AM

Work Order: 18051328
Lab ID: 18051328-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.1	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
Methyl tert-butyl ether	U		0.21	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Methylcyclohexane	U		1.4	9.3	µg/Kg-dry	0.874	5/23/2018 17:22
Methylene chloride	**0.80**	J	**0.80**	**4.6**	**µg/Kg-dry**	0.874	5/23/2018 17:22
o-Xylene	U		0.44	2.3	µg/Kg-dry	0.874	5/23/2018 17:22
Styrene	U		0.37	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Tetrachloroethene	U		0.83	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Toluene	**0.68**	J	**0.52**	**4.6**	**µg/Kg-dry**	0.874	5/23/2018 17:22
trans-1,2-Dichloroethene	U		0.37	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
trans-1,3-Dichloropropene	U		0.27	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Trichloroethene	U		0.67	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Trichlorofluoromethane	U		0.66	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Vinyl chloride	U		0.65	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Xylenes, Total	U		1.6	4.6	µg/Kg-dry	0.874	5/23/2018 17:22
Surr: 1,2-Dichloroethane-d4	*97.9*			*83-132*	*%REC*	0.874	5/23/2018 17:22
Surr: 4-Bromofluorobenzene	*93.8*			*83-111*	*%REC*	0.874	5/23/2018 17:22
Surr: Dibromofluoromethane	*103*			*77-125*	*%REC*	0.874	5/23/2018 17:22
Surr: Toluene-d8	*97.8*			*86-108*	*%REC*	0.874	5/23/2018 17:22
MOISTURE			Method: **SW3550C**				Analyst: **NW**
Moisture	**5.8**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)			Method: **A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**7.56**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK			Method: **TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.084**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-17
Collection Date: 5/17/2018 03:10 PM

Work Order: 18051328
Lab ID: 18051328-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **WH**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/26/2018 01:34
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/26/2018 01:34
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/26/2018 01:34
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/26/2018 01:34
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/26/2018 01:34
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/26/2018 01:34
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:34
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/26/2018 01:34
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/26/2018 01:34
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/26/2018 01:34
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/26/2018 01:34
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/26/2018 01:34
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/26/2018 01:34
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:34
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/26/2018 01:34
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:34
2-Butanone	U		0.47	5.0	µg/L	1	5/26/2018 01:34
2-Hexanone	U		0.50	5.0	µg/L	1	5/26/2018 01:34
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/26/2018 01:34
Acetone	**1.8**	J	**0.47**	**10**	**µg/L**	1	5/26/2018 01:34
Benzene	U		0.42	1.0	µg/L	1	5/26/2018 01:34
Bromochloromethane	U		0.15	1.0	µg/L	1	5/26/2018 01:34
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/26/2018 01:34
Bromoform	U		0.56	1.0	µg/L	1	5/26/2018 01:34
Bromomethane	U		0.29	1.0	µg/L	1	5/26/2018 01:34
Carbon disulfide	U		0.39	1.0	µg/L	1	5/26/2018 01:34
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/26/2018 01:34
Chlorobenzene	U		0.21	1.0	µg/L	1	5/26/2018 01:34
Chloroethane	U		0.68	1.0	µg/L	1	5/26/2018 01:34
Chloroform	U		0.46	1.0	µg/L	1	5/26/2018 01:34
Chloromethane	U		0.68	1.0	µg/L	1	5/26/2018 01:34
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/26/2018 01:34
Cyclohexane	U		0.18	1.0	µg/L	1	5/26/2018 01:34
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/26/2018 01:34
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/26/2018 01:34
Ethylbenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:34
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/26/2018 01:34
m,p-Xylene	U		0.53	2.0	µg/L	1	5/26/2018 01:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-17
Collection Date: 5/17/2018 03:10 PM

Work Order: 18051328
Lab ID: 18051328-17
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/26/2018 01:34
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/26/2018 01:34
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/26/2018 01:34
Methylene chloride	U		0.16	5.0	µg/L	1	5/26/2018 01:34
o-Xylene	U		0.19	1.0	µg/L	1	5/26/2018 01:34
Styrene	U		0.19	1.0	µg/L	1	5/26/2018 01:34
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/26/2018 01:34
Toluene	**0.36**	J	**0.32**	**1.0**	**µg/L**	1	5/26/2018 01:34
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/26/2018 01:34
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/26/2018 01:34
Trichloroethene	U		0.33	1.0	µg/L	1	5/26/2018 01:34
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/26/2018 01:34
Vinyl chloride	U		0.53	1.0	µg/L	1	5/26/2018 01:34
Xylenes, Total	U		0.74	3.0	µg/L	1	5/26/2018 01:34
Surr: 1,2-Dichloroethane-d4	*100*			*75-120*	*%REC*	1	5/26/2018 01:34
Surr: 4-Bromofluorobenzene	*96.2*			*80-110*	*%REC*	1	5/26/2018 01:34
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	5/26/2018 01:34
Surr: Toluene-d8	*97.0*			*85-110*	*%REC*	1	5/26/2018 01:34

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-18
Collection Date: 5/17/2018 08:49 AM

Work Order: 18051328
Lab ID: 18051328-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.71	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,1,2,2-Tetrachloroethane	U		0.24	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,1,2-Trichloroethane	U		0.35	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,1,2-Trichlorotrifluoroethane	U		0.99	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,1-Dichloroethane	U		1.9	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,1-Dichloroethene	U		0.88	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2,3-Trichlorobenzene	U		0.56	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2,4-Trichlorobenzene	U		0.66	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2-Dibromo-3-chloropropane	U		1.2	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2-Dibromoethane	U		0.32	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2-Dichlorobenzene	U		0.57	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2-Dichloroethane	U		0.32	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,2-Dichloropropane	U		0.40	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,3-Dichlorobenzene	U		0.47	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
1,4-Dichlorobenzene	U		0.32	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
2-Butanone	**8.0**	J	**1.7**	**9.0**	**µg/Kg-dry**	0.818	5/23/2018 17:39
2-Hexanone	**2.0**	J	**0.88**	**4.5**	**µg/Kg-dry**	0.818	5/23/2018 17:39
4-Methyl-2-pentanone	U		0.73	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Acetone	**59**		**1.9**	**9.0**	**µg/Kg-dry**	0.818	5/23/2018 17:39
Benzene	**0.71**	J	**0.47**	**4.5**	**µg/Kg-dry**	0.818	5/23/2018 17:39
Bromochloromethane	U		0.44	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Bromodichloromethane	U		0.29	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Bromoform	U		0.28	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Bromomethane	U		0.65	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
Carbon disulfide	U		0.50	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Carbon tetrachloride	U		0.75	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Chlorobenzene	U		0.29	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Chloroethane	U		0.57	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Chloroform	U		0.27	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Chloromethane	U		0.41	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
cis-1,2-Dichloroethene	U		0.43	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
cis-1,3-Dichloropropene	U		0.23	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Cyclohexane	U		2.7	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
Dibromochloromethane	U		0.42	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Dichlorodifluoromethane	U		0.97	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
Ethylbenzene	**0.60**	J	**0.54**	**4.5**	**µg/Kg-dry**	0.818	5/23/2018 17:39
Isopropylbenzene	U		0.58	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
m,p-Xylene	U		1.1	2.3	µg/Kg-dry	0.818	5/23/2018 17:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-18
Collection Date: 5/17/2018 08:49 AM

Work Order: 18051328
Lab ID: 18051328-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.1	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
Methyl tert-butyl ether	U		0.21	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Methylcyclohexane	U		1.3	9.0	µg/Kg-dry	0.818	5/23/2018 17:39
Methylene chloride	U		0.77	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
o-Xylene	**0.47**	J	**0.42**	**2.3**	**µg/Kg-dry**	0.818	5/23/2018 17:39
Styrene	U		0.36	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Tetrachloroethene	U		0.80	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Toluene	**2.1**	J	**0.50**	**4.5**	**µg/Kg-dry**	0.818	5/23/2018 17:39
trans-1,2-Dichloroethene	U		0.36	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
trans-1,3-Dichloropropene	U		0.26	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Trichloroethene	**2.0**	J	**0.65**	**4.5**	**µg/Kg-dry**	0.818	5/23/2018 17:39
Trichlorofluoromethane	U		0.64	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Vinyl chloride	U		0.63	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Xylenes, Total	U		1.5	4.5	µg/Kg-dry	0.818	5/23/2018 17:39
Surr: 1,2-Dichloroethane-d4	*98.2*			*83-132*	*%REC*	0.818	5/23/2018 17:39
Surr: 4-Bromofluorobenzene	*94.0*			*83-111*	*%REC*	0.818	5/23/2018 17:39
Surr: Dibromofluoromethane	*91.9*			*77-125*	*%REC*	0.818	5/23/2018 17:39
Surr: Toluene-d8	*98.2*			*86-108*	*%REC*	0.818	5/23/2018 17:39
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**9.1**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**1.3**		**0.013**	**0.028**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-19
Collection Date: 5/17/2018 09:05 AM

Work Order: 18051328
Lab ID: 18051328-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.66	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,1,2,2-Tetrachloroethane	U		0.23	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,1,2-Trichloroethane	U		0.33	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,1,2-Trichlorotrifluoroethane	U		0.92	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,1-Dichloroethane	U		1.7	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,1-Dichloroethene	U		0.82	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2,3-Trichlorobenzene	U		0.52	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2,4-Trichlorobenzene	U		0.61	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2-Dibromo-3-chloropropane	U		1.2	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2-Dibromoethane	U		0.30	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2-Dichlorobenzene	U		0.53	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2-Dichloroethane	U		0.30	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,2-Dichloropropane	U		0.37	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,3-Dichlorobenzene	U		0.44	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
1,4-Dichlorobenzene	U		0.30	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
2-Butanone	U		1.6	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
2-Hexanone	U		0.82	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
4-Methyl-2-pentanone	U		0.68	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Acetone	U		1.8	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Benzene	U		0.44	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Bromochloromethane	U		0.41	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Bromodichloromethane	U		0.27	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Bromoform	U		0.26	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Bromomethane	U		0.60	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Carbon disulfide	U		0.47	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Carbon tetrachloride	U		0.70	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Chlorobenzene	U		0.27	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Chloroethane	U		0.53	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Chloroform	U		0.25	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Chloromethane	U		0.39	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
cis-1,2-Dichloroethene	U		0.40	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
cis-1,3-Dichloropropene	U		0.22	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Cyclohexane	U		2.6	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Dibromochloromethane	U		0.39	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Dichlorodifluoromethane	U		0.90	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Ethylbenzene	U		0.50	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Isopropylbenzene	U		0.54	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
m,p-Xylene	U		1.0	2.1	µg/Kg-dry	0.766	5/23/2018 17:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-19
Collection Date: 5/17/2018 09:05 AM

Work Order: 18051328
Lab ID: 18051328-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.0	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Methyl tert-butyl ether	U		0.19	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Methylcyclohexane	U		1.2	8.4	µg/Kg-dry	0.766	5/23/2018 17:55
Methylene chloride	**2.8**	J	**0.72**	**4.2**	**µg/Kg-dry**	0.766	5/23/2018 17:55
o-Xylene	U		0.39	2.1	µg/Kg-dry	0.766	5/23/2018 17:55
Styrene	U		0.34	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Tetrachloroethene	U		0.75	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Toluene	**0.80**	J	**0.47**	**4.2**	**µg/Kg-dry**	0.766	5/23/2018 17:55
trans-1,2-Dichloroethene	U		0.34	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
trans-1,3-Dichloropropene	U		0.24	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Trichloroethene	**2.6**	J	**0.60**	**4.2**	**µg/Kg-dry**	0.766	5/23/2018 17:55
Trichlorofluoromethane	U		0.59	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Vinyl chloride	U		0.59	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Xylenes, Total	U		1.4	4.2	µg/Kg-dry	0.766	5/23/2018 17:55
Surr: 1,2-Dichloroethane-d4	*102*			*83-132*	*%REC*	0.766	5/23/2018 17:55
Surr: 4-Bromofluorobenzene	*98.0*			*83-111*	*%REC*	0.766	5/23/2018 17:55
Surr: Dibromofluoromethane	*102*			*77-125*	*%REC*	0.766	5/23/2018 17:55
Surr: Toluene-d8	*93.4*			*86-108*	*%REC*	0.766	5/23/2018 17:55
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**8.6**		**0.025**	**0.050**	**% of sample**	1	5/23/2018 15:50
OXIDANT DEMAND (KMNO4)		Method:	**A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**7.89**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method:	**TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.080**		**0.013**	**0.027**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-20
Collection Date: 5/17/2018 02:30 PM

Work Order: 18051328
Lab ID: 18051328-20
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **WH**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/26/2018 01:18
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/26/2018 01:18
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/26/2018 01:18
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/26/2018 01:18
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/26/2018 01:18
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/26/2018 01:18
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:18
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/26/2018 01:18
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/26/2018 01:18
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/26/2018 01:18
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/26/2018 01:18
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/26/2018 01:18
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/26/2018 01:18
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:18
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/26/2018 01:18
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/26/2018 01:18
2-Butanone	U		0.47	5.0	µg/L	1	5/26/2018 01:18
2-Hexanone	U		0.50	5.0	µg/L	1	5/26/2018 01:18
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/26/2018 01:18
Acetone	**3.6**	J	**0.47**	**10**	**µg/L**	1	5/26/2018 01:18
Benzene	U		0.42	1.0	µg/L	1	5/26/2018 01:18
Bromochloromethane	U		0.15	1.0	µg/L	1	5/26/2018 01:18
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/26/2018 01:18
Bromoform	U		0.56	1.0	µg/L	1	5/26/2018 01:18
Bromomethane	U		0.29	1.0	µg/L	1	5/26/2018 01:18
Carbon disulfide	U		0.39	1.0	µg/L	1	5/26/2018 01:18
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/26/2018 01:18
Chlorobenzene	U		0.21	1.0	µg/L	1	5/26/2018 01:18
Chloroethane	U		0.68	1.0	µg/L	1	5/26/2018 01:18
Chloroform	U		0.46	1.0	µg/L	1	5/26/2018 01:18
Chloromethane	U		0.68	1.0	µg/L	1	5/26/2018 01:18
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/26/2018 01:18
Cyclohexane	U		0.18	1.0	µg/L	1	5/26/2018 01:18
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/26/2018 01:18
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/26/2018 01:18
Ethylbenzene	U		0.29	1.0	µg/L	1	5/26/2018 01:18
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/26/2018 01:18
m,p-Xylene	U		0.53	2.0	µg/L	1	5/26/2018 01:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-20
Collection Date: 5/17/2018 02:30 PM

Work Order: 18051328
Lab ID: 18051328-20
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/26/2018 01:18
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/26/2018 01:18
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/26/2018 01:18
Methylene chloride	U		0.16	5.0	µg/L	1	5/26/2018 01:18
o-Xylene	U		0.19	1.0	µg/L	1	5/26/2018 01:18
Styrene	U		0.19	1.0	µg/L	1	5/26/2018 01:18
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/26/2018 01:18
Toluene	**0.73**	J	**0.32**	**1.0**	**µg/L**	1	5/26/2018 01:18
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/26/2018 01:18
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/26/2018 01:18
Trichloroethene	**1.6**		**0.33**	**1.0**	**µg/L**	1	5/26/2018 01:18
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/26/2018 01:18
Vinyl chloride	U		0.53	1.0	µg/L	1	5/26/2018 01:18
Xylenes, Total	U		0.74	3.0	µg/L	1	5/26/2018 01:18
Surr: 1,2-Dichloroethane-d4	*99.1*			*75-120*	*%REC*	1	5/26/2018 01:18
Surr: 4-Bromofluorobenzene	*94.9*			*80-110*	*%REC*	1	5/26/2018 01:18
Surr: Dibromofluoromethane	*99.9*			*85-115*	*%REC*	1	5/26/2018 01:18
Surr: Toluene-d8	*95.8*			*85-110*	*%REC*	1	5/26/2018 01:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-21
Collection Date: 5/17/2018 04:15 PM

Work Order: 18051328
Lab ID: 18051328-21
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **AK**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/23/2018 19:31
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/23/2018 19:31
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/23/2018 19:31
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/23/2018 19:31
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/23/2018 19:31
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/23/2018 19:31
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/23/2018 19:31
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/23/2018 19:31
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/23/2018 19:31
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/23/2018 19:31
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/23/2018 19:31
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/23/2018 19:31
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/23/2018 19:31
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 19:31
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/23/2018 19:31
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 19:31
2-Butanone	U		0.47	5.0	µg/L	1	5/23/2018 19:31
2-Hexanone	U		0.50	5.0	µg/L	1	5/23/2018 19:31
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/23/2018 19:31
Acetone	U		0.47	10	µg/L	1	5/23/2018 19:31
Benzene	U		0.42	1.0	µg/L	1	5/23/2018 19:31
Bromochloromethane	U		0.15	1.0	µg/L	1	5/23/2018 19:31
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/23/2018 19:31
Bromoform	U		0.56	1.0	µg/L	1	5/23/2018 19:31
Bromomethane	U		0.29	1.0	µg/L	1	5/23/2018 19:31
Carbon disulfide	U		0.39	1.0	µg/L	1	5/23/2018 19:31
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/23/2018 19:31
Chlorobenzene	U		0.21	1.0	µg/L	1	5/23/2018 19:31
Chloroethane	U		0.68	1.0	µg/L	1	5/23/2018 19:31
Chloroform	U		0.46	1.0	µg/L	1	5/23/2018 19:31
Chloromethane	U		0.68	1.0	µg/L	1	5/23/2018 19:31
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/23/2018 19:31
Cyclohexane	U		0.18	1.0	µg/L	1	5/23/2018 19:31
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/23/2018 19:31
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/23/2018 19:31
Ethylbenzene	U		0.29	1.0	µg/L	1	5/23/2018 19:31
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/23/2018 19:31
m,p-Xylene	U		0.53	2.0	µg/L	1	5/23/2018 19:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-21
Collection Date: 5/17/2018 04:15 PM

Work Order: 18051328
Lab ID: 18051328-21
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/23/2018 19:31
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/23/2018 19:31
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/23/2018 19:31
Methylene chloride	U		0.16	5.0	µg/L	1	5/23/2018 19:31
o-Xylene	U		0.19	1.0	µg/L	1	5/23/2018 19:31
Styrene	U		0.19	1.0	µg/L	1	5/23/2018 19:31
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/23/2018 19:31
Toluene	U		0.32	1.0	µg/L	1	5/23/2018 19:31
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/23/2018 19:31
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/23/2018 19:31
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 19:31
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/23/2018 19:31
Vinyl chloride	U		0.53	1.0	µg/L	1	5/23/2018 19:31
Xylenes, Total	U		0.74	3.0	µg/L	1	5/23/2018 19:31
Surr: 1,2-Dichloroethane-d4	*96.0*			*75-120*	*%REC*	1	5/23/2018 19:31
Surr: 4-Bromofluorobenzene	*88.2*			*80-110*	*%REC*	1	5/23/2018 19:31
Surr: Dibromofluoromethane	*93.8*			*85-115*	*%REC*	1	5/23/2018 19:31
Surr: Toluene-d8	*97.9*			*85-110*	*%REC*	1	5/23/2018 19:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-22
Collection Date: 5/17/2018 04:20 PM

Work Order: 18051328
Lab ID: 18051328-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **AK**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/23/2018 19:55
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/23/2018 19:55
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/23/2018 19:55
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/23/2018 19:55
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/23/2018 19:55
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/23/2018 19:55
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/23/2018 19:55
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/23/2018 19:55
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/23/2018 19:55
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/23/2018 19:55
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/23/2018 19:55
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/23/2018 19:55
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/23/2018 19:55
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 19:55
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/23/2018 19:55
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 19:55
2-Butanone	U		0.47	5.0	µg/L	1	5/23/2018 19:55
2-Hexanone	U		0.50	5.0	µg/L	1	5/23/2018 19:55
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/23/2018 19:55
Acetone	U		0.47	10	µg/L	1	5/23/2018 19:55
Benzene	U		0.42	1.0	µg/L	1	5/23/2018 19:55
Bromochloromethane	U		0.15	1.0	µg/L	1	5/23/2018 19:55
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/23/2018 19:55
Bromoform	U		0.56	1.0	µg/L	1	5/23/2018 19:55
Bromomethane	U		0.29	1.0	µg/L	1	5/23/2018 19:55
Carbon disulfide	U		0.39	1.0	µg/L	1	5/23/2018 19:55
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/23/2018 19:55
Chlorobenzene	U		0.21	1.0	µg/L	1	5/23/2018 19:55
Chloroethane	U		0.68	1.0	µg/L	1	5/23/2018 19:55
Chloroform	U		0.46	1.0	µg/L	1	5/23/2018 19:55
Chloromethane	U		0.68	1.0	µg/L	1	5/23/2018 19:55
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/23/2018 19:55
Cyclohexane	U		0.18	1.0	µg/L	1	5/23/2018 19:55
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/23/2018 19:55
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/23/2018 19:55
Ethylbenzene	U		0.29	1.0	µg/L	1	5/23/2018 19:55
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/23/2018 19:55
m,p-Xylene	U		0.53	2.0	µg/L	1	5/23/2018 19:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-22
Collection Date: 5/17/2018 04:20 PM

Work Order: 18051328
Lab ID: 18051328-22
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/23/2018 19:55
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/23/2018 19:55
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/23/2018 19:55
Methylene chloride	U		0.16	5.0	µg/L	1	5/23/2018 19:55
o-Xylene	U		0.19	1.0	µg/L	1	5/23/2018 19:55
Styrene	U		0.19	1.0	µg/L	1	5/23/2018 19:55
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/23/2018 19:55
Toluene	U		0.32	1.0	µg/L	1	5/23/2018 19:55
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/23/2018 19:55
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/23/2018 19:55
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 19:55
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/23/2018 19:55
Vinyl chloride	U		0.53	1.0	µg/L	1	5/23/2018 19:55
Xylenes, Total	U		0.74	3.0	µg/L	1	5/23/2018 19:55
Surr: 1,2-Dichloroethane-d4	*94.8*			*75-120*	*%REC*	1	5/23/2018 19:55
Surr: 4-Bromofluorobenzene	*89.3*			*80-110*	*%REC*	1	5/23/2018 19:55
Surr: Dibromofluoromethane	*92.8*			*85-115*	*%REC*	1	5/23/2018 19:55
Surr: Toluene-d8	*98.4*			*85-110*	*%REC*	1	5/23/2018 19:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-23
Collection Date: 5/17/2018 04:00 PM

Work Order: 18051328
Lab ID: 18051328-23
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **AK**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/23/2018 20:20
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/23/2018 20:20
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/23/2018 20:20
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/23/2018 20:20
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/23/2018 20:20
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/23/2018 20:20
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/23/2018 20:20
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/23/2018 20:20
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/23/2018 20:20
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/23/2018 20:20
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/23/2018 20:20
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/23/2018 20:20
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/23/2018 20:20
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 20:20
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/23/2018 20:20
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/23/2018 20:20
2-Butanone	U		0.47	5.0	µg/L	1	5/23/2018 20:20
2-Hexanone	U		0.50	5.0	µg/L	1	5/23/2018 20:20
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/23/2018 20:20
Acetone	**3.7**	J	**0.47**	**10**	**µg/L**	1	5/23/2018 20:20
Benzene	U		0.42	1.0	µg/L	1	5/23/2018 20:20
Bromochloromethane	U		0.15	1.0	µg/L	1	5/23/2018 20:20
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/23/2018 20:20
Bromoform	U		0.56	1.0	µg/L	1	5/23/2018 20:20
Bromomethane	U		0.29	1.0	µg/L	1	5/23/2018 20:20
Carbon disulfide	U		0.39	1.0	µg/L	1	5/23/2018 20:20
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/23/2018 20:20
Chlorobenzene	U		0.21	1.0	µg/L	1	5/23/2018 20:20
Chloroethane	U		0.68	1.0	µg/L	1	5/23/2018 20:20
Chloroform	U		0.46	1.0	µg/L	1	5/23/2018 20:20
Chloromethane	U		0.68	1.0	µg/L	1	5/23/2018 20:20
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/23/2018 20:20
Cyclohexane	U		0.18	1.0	µg/L	1	5/23/2018 20:20
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/23/2018 20:20
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/23/2018 20:20
Ethylbenzene	U		0.29	1.0	µg/L	1	5/23/2018 20:20
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/23/2018 20:20
m,p-Xylene	U		0.53	2.0	µg/L	1	5/23/2018 20:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-23
Collection Date: 5/17/2018 04:00 PM

Work Order: 18051328
Lab ID: 18051328-23
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/23/2018 20:20
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/23/2018 20:20
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/23/2018 20:20
Methylene chloride	**0.64**	J	**0.16**	**5.0**	**µg/L**	1	5/23/2018 20:20
o-Xylene	U		0.19	1.0	µg/L	1	5/23/2018 20:20
Styrene	U		0.19	1.0	µg/L	1	5/23/2018 20:20
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/23/2018 20:20
Toluene	U		0.32	1.0	µg/L	1	5/23/2018 20:20
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/23/2018 20:20
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/23/2018 20:20
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 20:20
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/23/2018 20:20
Vinyl chloride	U		0.53	1.0	µg/L	1	5/23/2018 20:20
Xylenes, Total	U		0.74	3.0	µg/L	1	5/23/2018 20:20
Surr: 1,2-Dichloroethane-d4	*96.2*			*75-120*	*%REC*	1	5/23/2018 20:20
Surr: 4-Bromofluorobenzene	*87.4*			*80-110*	*%REC*	1	5/23/2018 20:20
Surr: Dibromofluoromethane	*95.2*			*85-115*	*%REC*	1	5/23/2018 20:20
Surr: Toluene-d8	*97.4*			*85-110*	*%REC*	1	5/23/2018 20:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-24
Collection Date: 5/17/2018 04:05 PM

Work Order: 18051328
Lab ID: 18051328-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/21/18		Analyst: **EMR**
1,1,1-Trichloroethane	U		14	30	µg/Kg-dry	1	5/22/2018 22:04
1,1,2,2-Tetrachloroethane	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
1,1,2-Trichloroethane	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
1,1,2-Trichlorotrifluoroethane	U		19	30	µg/Kg-dry	1	5/22/2018 22:04
1,1-Dichloroethane	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
1,1-Dichloroethene	U		9.7	30	µg/Kg-dry	1	5/22/2018 22:04
1,2,3-Trichlorobenzene	U		14	30	µg/Kg-dry	1	5/22/2018 22:04
1,2,4-Trichlorobenzene	U		10	30	µg/Kg-dry	1	5/22/2018 22:04
1,2-Dibromo-3-chloropropane	U		28	100	µg/Kg-dry	1	5/22/2018 22:04
1,2-Dibromoethane	U		8.4	30	µg/Kg-dry	1	5/22/2018 22:04
1,2-Dichlorobenzene	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
1,2-Dichloroethane	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
1,2-Dichloropropane	U		5.2	30	µg/Kg-dry	1	5/22/2018 22:04
1,3-Dichlorobenzene	U		10	30	µg/Kg-dry	1	5/22/2018 22:04
1,4-Dichlorobenzene	U		7.2	30	µg/Kg-dry	1	5/22/2018 22:04
2-Butanone	U		25	200	µg/Kg-dry	1	5/22/2018 22:04
2-Hexanone	U		15	30	µg/Kg-dry	1	5/22/2018 22:04
4-Methyl-2-pentanone	U		14	30	µg/Kg-dry	1	5/22/2018 22:04
Acetone	U		31	100	µg/Kg-dry	1	5/22/2018 22:04
Benzene	U		5.1	30	µg/Kg-dry	1	5/22/2018 22:04
Bromochloromethane	U		15	30	µg/Kg-dry	1	5/22/2018 22:04
Bromodichloromethane	U		17	30	µg/Kg-dry	1	5/22/2018 22:04
Bromoform	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
Bromomethane	U		57	100	µg/Kg-dry	1	5/22/2018 22:04
Carbon disulfide	U		16	30	µg/Kg-dry	1	5/22/2018 22:04
Carbon tetrachloride	U		12	30	µg/Kg-dry	1	5/22/2018 22:04
Chlorobenzene	U		10	30	µg/Kg-dry	1	5/22/2018 22:04
Chloroethane	U		10	100	µg/Kg-dry	1	5/22/2018 22:04
Chloroform	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
Chloromethane	U		25	100	µg/Kg-dry	1	5/22/2018 22:04
cis-1,2-Dichloroethene	U		9.4	30	µg/Kg-dry	1	5/22/2018 22:04
cis-1,3-Dichloropropene	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
Cyclohexane	U		9.8	30	µg/Kg-dry	1	5/22/2018 22:04
Dibromochloromethane	U		17	30	µg/Kg-dry	1	5/22/2018 22:04
Dichlorodifluoromethane	U		6.3	30	µg/Kg-dry	1	5/22/2018 22:04
Ethylbenzene	U		6.3	30	µg/Kg-dry	1	5/22/2018 22:04
Isopropylbenzene	U		9.2	30	µg/Kg-dry	1	5/22/2018 22:04
m,p-Xylene	U		14	60	µg/Kg-dry	1	5/22/2018 22:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-24
Collection Date: 5/17/2018 04:05 PM

Work Order: 18051328
Lab ID: 18051328-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		13	200	µg/Kg-dry	1	5/22/2018 22:04
Methyl tert-butyl ether	U		8.6	30	µg/Kg-dry	1	5/22/2018 22:04
Methylcyclohexane	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
Methylene chloride	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
o-Xylene	U		12	30	µg/Kg-dry	1	5/22/2018 22:04
Styrene	U		12	30	µg/Kg-dry	1	5/22/2018 22:04
Tetrachloroethene	U		8.7	30	µg/Kg-dry	1	5/22/2018 22:04
Toluene	U		8.2	30	µg/Kg-dry	1	5/22/2018 22:04
trans-1,2-Dichloroethene	U		11	30	µg/Kg-dry	1	5/22/2018 22:04
trans-1,3-Dichloropropene	U		17	30	µg/Kg-dry	1	5/22/2018 22:04
Trichloroethene	U		13	30	µg/Kg-dry	1	5/22/2018 22:04
Trichlorofluoromethane	U		15	30	µg/Kg-dry	1	5/22/2018 22:04
Vinyl chloride	U		6.4	30	µg/Kg-dry	1	5/22/2018 22:04
Xylenes, Total	U		26	90	µg/Kg-dry	1	5/22/2018 22:04
Surr: 1,2-Dichloroethane-d4	*89.0*			*70-130*	*%REC*	1	5/22/2018 22:04
Surr: 4-Bromofluorobenzene	*94.1*			*70-130*	*%REC*	1	5/22/2018 22:04
Surr: Dibromofluoromethane	*86.2*			*70-130*	*%REC*	1	5/22/2018 22:04
Surr: Toluene-d8	*94.6*			*70-130*	*%REC*	1	5/22/2018 22:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-May-18

Client: Jacobs

Work Order: 18051328

Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MBLK	Sample ID: **MBLK-118631-118631**				Units: **µg/Kg-dry**		Analysis Date: **5/23/2018 12:39 PM**			
Client ID:		Run ID: **VMS9_180523A**			SeqNo: **5049644**		Prep Date: **5/21/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	30	0	0	0	0-0	0			
1,1,2,2-Tetrachloroethane	U	30	0	0	0	0-0	0			
1,1,2-Trichloroethane	U	30	0	0	0	0-0	0			
1,1,2-Trichlorotrifluoroethane	U	30	0	0	0		0			
1,1-Dichloroethane	U	30	0	0	0	0-0	0			
1,1-Dichloroethene	U	30	0	0	0	0-0	0			
1,2,3-Trichlorobenzene	U	30	0	0	0	0-0	0			
1,2,4-Trichlorobenzene	U	30	0	0	0	0-0	0			
1,2-Dibromo-3-chloropropane	U	100	0	0	0	0-0	0			
1,2-Dibromoethane	U	30	0	0	0	0-0	0			
1,2-Dichlorobenzene	U	30	0	0	0	0-0	0			
1,2-Dichloroethane	U	30	0	0	0	0-0	0			
1,2-Dichloropropane	U	30	0	0	0	0-0	0			
1,3-Dichlorobenzene	U	30	0	0	0	0-0	0			
1,4-Dichlorobenzene	U	30	0	0	0	0-0	0			
2-Butanone	131	200	0	0	0	0-0	0			J
2-Hexanone	U	30	0	0	0	0-0	0			
4-Methyl-2-pentanone	U	30	0	0	0	0-0	0			
Acetone	U	100	0	0	0	0-0	0			
Benzene	U	30	0	0	0	0-0	0			
Bromochloromethane	U	30	0	0	0	0-0	0			
Bromodichloromethane	U	30	0	0	0	0-0	0			
Bromoform	U	30	0	0	0	0-0	0			
Bromomethane	U	100	0	0	0	0-0	0			
Carbon disulfide	U	30	0	0	0	0-0	0			
Carbon tetrachloride	U	30	0	0	0	0-0	0			
Chlorobenzene	U	30	0	0	0	0-0	0			
Chloroethane	U	100	0	0	0	0-0	0			
Chloroform	U	30	0	0	0	0-0	0			
Chloromethane	U	100	0	0	0	0-0	0			
cis-1,2-Dichloroethene	U	30	0	0	0	0-0	0			
cis-1,3-Dichloropropene	U	30	0	0	0	0-0	0			
Cyclohexane	U	30	0	0	0		0			
Dibromochloromethane	U	30	0	0	0	0-0	0			
Dichlorodifluoromethane	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
Isopropylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
Methyl acetate	U	200	0	0	0		0			
Methyl tert-butyl ether	U	30	0	0	0	0-0	0			
Methylcyclohexane	U	30	0	0	0		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

Methylene chloride	U	30	0	0	0	0-0	0
o-Xylene	U	30	0	0	0	0-0	0
Styrene	U	30	0	0	0	0-0	0
Tetrachloroethene	U	30	0	0	0	0-0	0
Toluene	U	30	0	0	0	0-0	0
trans-1,2-Dichloroethene	U	30	0	0	0	0-0	0
trans-1,3-Dichloropropene	U	30	0	0	0	0-0	0
Trichloroethene	U	30	0	0	0	0-0	0
Trichlorofluoromethane	U	30	0	0	0	0-0	0
Vinyl chloride	U	30	0	0	0	0-0	0
Xylenes, Total	U	90	0	0	0	0-0	0
Surr: 1,2-Dichloroethane-d4	*953*	0	*20*	0	*95.3*	*70-130*	0
Surr: 4-Bromofluorobenzene	*914*	0	*20*	0	*91.4*	*70-130*	0
Surr: Dibromofluoromethane	*829.5*	0	*20*	0	*83*	*70-130*	0
Surr: Toluene-d8	*947*	0	*20*	0	*94.7*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

LCS Sample ID: **LCS-118631-118631** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 11:26 AM**

Client ID: Run ID: **VMS9_180523A** SeqNo: **5049637** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1074	30	20	0	107	70-135	0			
1,1,2,2-Tetrachloroethane	1048	30	20	0	105	55-130	0			
1,1,2-Trichloroethane	1011	30	20	0	101	60-125	0			
1,1-Dichloroethane	1196	30	20	0	120	75-125	0			
1,1-Dichloroethene	1304	30	20	0	130	76-148	0			
1,2,3-Trichlorobenzene	1032	30	20	0	103	60-135	0			
1,2,4-Trichlorobenzene	988.5	30	20	0	98.8	65-130	0			
1,2-Dibromo-3-chloropropane	931	100	20	0	93.1	40-135	0			
1,2-Dibromoethane	1194	30	20	0	119	80-195	0			
1,2-Dichlorobenzene	1040	30	20	0	104	75-120	0			
1,2-Dichloroethane	995	30	20	0	99.5	70-135	0			
1,2-Dichloropropane	1056	30	20	0	106	70-120	0			
1,3-Dichlorobenzene	1066	30	20	0	107	70-125	0			
1,4-Dichlorobenzene	1053	30	20	0	105	70-125	0			
2-Butanone	1020	200	20	0	102	30-160	0			
2-Hexanone	947.5	30	20	0	94.8	45-145	0			
4-Methyl-2-pentanone	1261	30	20	0	126	74-176	0			
Acetone	1074	100	20	0	107	20-160	0			
Benzene	1057	30	20	0	106	75-125	0			
Bromochloromethane	1204	30	20	0	120	74-134	0			
Bromodichloromethane	1028	30	20	0	103	70-130	0			
Bromoform	913	30	20	0	91.3	55-135	0			
Bromomethane	1510	100	20	0	151	50-170	0			
Carbon disulfide	1288	30	20	0	129	45-160	0			
Carbon tetrachloride	1016	30	20	0	102	65-135	0			
Chlorobenzene	1048	30	20	0	105	75-125	0			
Chloroethane	963	100	20	0	96.3	40-155	0			
Chloroform	1160	30	20	0	116	70-125	0			
Chloromethane	900	100	20	0	90	50-144	0			
cis-1,2-Dichloroethene	1172	30	20	0	117	65-125	0			
cis-1,3-Dichloropropene	1015	30	20	0	102	70-125	0			
Dibromochloromethane	972.5	30	20	0	97.2	65-135	0			
Dichlorodifluoromethane	964.5	30	20	0	96.4	35-135	0			
Ethylbenzene	1084	30	20	0	108	75-125	0			
Isopropylbenzene	1142	30	20	0	114	75-130	0			
m,p-Xylene	2209	60	40	0	110	80-125	0			
Methyl tert-butyl ether	1169	30	20	0	117	75-125	0			
Methylene chloride	1149	30	20	0	115	55-145	0			B
o-Xylene	1100	30	20	0	110	75-125	0			
Styrene	1168	30	20	0	117	80-138	0			
Tetrachloroethene	1120	30	20	0	112	67-167	0			
Toluene	1050	30	20	0	105	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	1230	30	20	0	123	65-135	0
trans-1,3-Dichloropropene	934	30	20	0	93.4	59-129	0
Trichloroethene	1024	30	20	0	102	75-125	0
Trichlorofluoromethane	1051	30	20	0	105	25-185	0
Vinyl chloride	1158	30	20	0	116	60-125	0
Xylenes, Total	3310	90	60	0	110	75-125	0
Surr: 1,2-Dichloroethane-d4	*1004*	0	*20*	0	*100*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1040*	0	*20*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*947*	0	*20*	0	*94.7*	*70-130*	0
Surr: Toluene-d8	*994.5*	0	*20*	0	*99.4*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MS Sample ID: **18051308-01A MS** Units: **µg/Kg-dry** Analysis Date: **5/23/2018 09:58 PM**

Client ID: Run ID: **VMS9_180523A** SeqNo: **5049650** Prep Date: **5/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	985.4	30	20.23	0	97.4	70-135	0			
1,1,2,2-Tetrachloroethane	858.9	30	20.23	0	84.9	55-130	0			
1,1,2-Trichloroethane	1072	30	20.23	0	106	60-125	0			
1,1-Dichloroethane	970.2	30	20.23	0	95.9	75-125	0			
1,1-Dichloroethene	1041	30	20.23	0	103	76-148	0			
1,2,3-Trichlorobenzene	1044	30	20.23	0	103	60-135	0			
1,2,4-Trichlorobenzene	1137	30	20.23	0	112	65-130	0			
1,2-Dibromo-3-chloropropane	1083	100	20.23	0	107	40-135	0			
1,2-Dibromoethane	1253	30	20.23	0	124	80-195	0			
1,2-Dichlorobenzene	1016	30	20.23	0	100	75-120	0			
1,2-Dichloroethane	874.6	30	20.23	0	86.4	70-135	0			
1,2-Dichloropropane	973.7	30	20.23	0	96.2	70-120	0			
1,3-Dichlorobenzene	1011	30	20.23	0	100	70-125	0			
1,4-Dichlorobenzene	997.5	30	20.23	0	98.6	70-125	0			
2-Butanone	1407	200	20.23	0	139	30-160	0			
2-Hexanone	1589	30	20.23	0	157	45-145	0			S
4-Methyl-2-pentanone	1572	30	20.23	0	155	74-176	0			
Acetone	1987	100	20.23	0	196	20-160	0			S
Benzene	998	30	20.23	0	98.6	75-125	0			
Bromochloromethane	981.8	30	20.23	0	97	74-134	0			
Bromodichloromethane	844.2	30	20.23	0	83.4	70-130	0			
Bromoform	938.3	30	20.23	0	92.8	55-135	0			
Bromomethane	713.2	100	20.23	0	70.5	50-170	0			
Carbon disulfide	917.6	30	20.23	0	90.7	45-160	0			
Carbon tetrachloride	906.5	30	20.23	0	89.6	65-135	0			
Chlorobenzene	997	30	20.23	0	98.6	75-125	0			
Chloroethane	73.85	100	20.23	0	7.3	40-155	0			JS
Chloroform	999.5	30	20.23	0	98.8	70-125	0			
Chloromethane	702.1	100	20.23	0	69.4	50-144	0			
cis-1,2-Dichloroethene	978.3	30	20.23	0	96.7	65-125	0			
cis-1,3-Dichloropropene	900.9	30	20.23	0	89	70-125	0			
Dibromochloromethane	960.6	30	20.23	0	95	65-135	0			
Dichlorodifluoromethane	797.7	30	20.23	0	78.8	35-135	0			
Ethylbenzene	1064	30	20.23	0	105	75-125	0			
Isopropylbenzene	1108	30	20.23	0	110	75-130	0			
m,p-Xylene	2138	61	40.47	24.79	104	80-125	0			
Methyl tert-butyl ether	1104	30	20.23	0	109	75-125	0			
Methylene chloride	917.6	30	20.23	0	90.7	55-145	0			B
o-Xylene	1092	30	20.23	0	108	75-125	0			
Styrene	1099	30	20.23	0	109	80-138	0			
Tetrachloroethene	1860	30	20.23	0	184	67-167	0			S
Toluene	1054	30	20.23	0	104	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	961.1	30	20.23	0	95	65-135	0
trans-1,3-Dichloropropene	925.7	30	20.23	0	91.5	59-129	0
Trichloroethene	1144	30	20.23	0	113	75-125	0
Trichlorofluoromethane	879.6	30	20.23	0	87	25-185	0
Vinyl chloride	950	30	20.23	0	93.9	60-125	0
Xylenes, Total	3230	91	60.7	25	106	75-125	0
Surr: 1,2-Dichloroethane-d4	*909.5*	0	*20.23*	0	*89.9*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1031*	0	*20.23*	0	*102*	*70-130*	0
Surr: Dibromofluoromethane	*913.5*	0	*20.23*	0	*90.3*	*70-130*	0
Surr: Toluene-d8	*1005*	0	*20.23*	0	*99.3*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

MSD	Sample ID: **18051308-01A MSD**				Units: **µg/Kg-dry**			Analysis Date: **5/23/2018 10:23 PM**			
Client ID:		Run ID: **VMS9_180523A**			SeqNo: **5049656**			Prep Date: **5/21/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	944.9	30	20.23	0	93.4	70-135	985.4	4.19	30	
1,1,2,2-Tetrachloroethane	1014	30	20.23	0	100	55-130	858.9	16.6	30	
1,1,2-Trichloroethane	1067	30	20.23	0	106	60-125	1072	0.473	30	
1,1-Dichloroethane	954.5	30	20.23	0	94.4	75-125	970.2	1.63	30	
1,1-Dichloroethene	1028	30	20.23	0	102	76-148	1041	1.27	30	
1,2,3-Trichlorobenzene	1055	30	20.23	0	104	60-135	1044	1.06	30	
1,2,4-Trichlorobenzene	1126	30	20.23	0	111	65-130	1137	0.939	30	
1,2-Dibromo-3-chloropropane	1070	100	20.23	0	106	40-135	1083	1.22	30	
1,2-Dibromoethane	1255	30	20.23	0	124	80-195	1253	0.161	30	
1,2-Dichlorobenzene	1005	30	20.23	0	99.3	75-120	1016	1.1	30	
1,2-Dichloroethane	864.5	30	20.23	0	85.4	70-135	874.6	1.16	30	
1,2-Dichloropropane	971.7	30	20.23	0	96	70-120	973.7	0.208	30	
1,3-Dichlorobenzene	1002	30	20.23	0	99	70-125	1011	0.905	30	
1,4-Dichlorobenzene	989.9	30	20.23	0	97.8	70-125	997.5	0.764	30	
2-Butanone	1088	200	20.23	0	108	30-160	1407	25.6	30	
2-Hexanone	1440	30	20.23	0	142	45-145	1589	9.85	30	
4-Methyl-2-pentanone	1674	30	20.23	0	166	74-176	1572	6.29	30	
Acetone	1725	100	20.23	0	170	20-160	1987	14.1	30	S
Benzene	949.5	30	20.23	0	93.8	75-125	998	4.99	30	
Bromochloromethane	974.7	30	20.23	0	96.4	74-134	981.8	0.724	30	
Bromodichloromethane	845.8	30	20.23	0	83.6	70-130	844.2	0.18	30	
Bromoform	913	30	20.23	0	90.2	55-135	938.3	2.73	30	
Bromomethane	675.8	100	20.23	0	66.8	50-170	713.2	5.39	30	
Carbon disulfide	910.5	30	20.23	0	90	45-160	917.6	0.775	30	
Carbon tetrachloride	858.4	30	20.23	0	84.8	65-135	906.5	5.45	30	
Chlorobenzene	985.9	30	20.23	0	97.4	75-125	997	1.12	30	
Chloroethane	95.6	100	20.23	0	9.45	40-155	73.85	0	30	JS
Chloroform	1004	30	20.23	0	99.2	70-125	999.5	0.404	30	
Chloromethane	728.4	100	20.23	0	72	50-144	702.1	3.68	30	
cis-1,2-Dichloroethene	943.9	30	20.23	0	93.3	65-125	978.3	3.58	30	
cis-1,3-Dichloropropene	948.9	30	20.23	0	93.8	70-125	900.9	5.2	30	
Dibromochloromethane	943.4	30	20.23	0	93.2	65-135	960.6	1.81	30	
Dichlorodifluoromethane	782	30	20.23	0	77.3	35-135	797.7	1.99	30	
Ethylbenzene	1044	30	20.23	0	103	75-125	1064	1.92	30	
Isopropylbenzene	1101	30	20.23	0	109	75-130	1108	0.595	30	
m,p-Xylene	2064	61	40.47	24.79	101	80-125	2138	3.54	30	
Methyl tert-butyl ether	1178	30	20.23	0	116	75-125	1104	6.52	30	
Methylene chloride	902.9	30	20.23	0	89.2	55-145	917.6	1.61	30	B
o-Xylene	1068	30	20.23	0	106	75-125	1092	2.2	30	
Styrene	1093	30	20.23	0	108	80-138	1099	0.6	30	
Tetrachloroethene	1740	30	20.23	0	172	67-167	1860	6.72	30	S
Toluene	1014	30	20.23	0	100	70-125	1054	3.91	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	952.5	30	20.23	0	94.2	65-135	961.1	0.899	30
trans-1,3-Dichloropropene	980.3	30	20.23	0	96.9	59-129	925.7	5.73	30
Trichloroethene	988.4	30	20.23	0	97.7	75-125	1144	14.6	30
Trichlorofluoromethane	807.3	30	20.23	0	79.8	25-185	879.6	8.58	30
Vinyl chloride	952	30	20.23	0	94.1	60-125	950	0.213	30
Xylenes, Total	3132	91	60.7	25	102	75-125	3230	3.09	30
Surr: 1,2-Dichloroethane-d4	*883.2*	0	*20.23*	0	*87.3*	*70-130*	909.5	*2.93*	*30*
Surr: 4-Bromofluorobenzene	*1047*	0	*20.23*	0	*104*	*70-130*	1031	*1.51*	*30*
Surr: Dibromofluoromethane	*877.1*	0	*20.23*	0	*86.7*	*70-130*	913.5	*4.07*	*30*
Surr: Toluene-d8	*1019*	0	*20.23*	0	*101*	*70-130*	1005	*1.4*	*30*

The following samples were analyzed in this batch:

18051328-01A	18051328-02A	18051328-04A
18051328-05A	18051328-06A	18051328-07A
18051328-09A	18051328-10A	18051328-11A
18051328-12A	18051328-13A	18051328-14A
18051328-24A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MBLK	Sample ID: **VBLKW1-180523-R236432A**				Units: **µg/L**			Analysis Date: **5/23/2018 12:14 PM**		
Client ID:		Run ID: **VMS9_180523A**			SeqNo: **5048961**		Prep Date:		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*20*	0	*20*	0	*100*	*75-120*	0
Surr: 4-Bromofluorobenzene	*17.72*	0	*20*	0	*88.6*	*80-110*	0
Surr: Dibromofluoromethane	*18.13*	0	*20*	0	*90.6*	*85-115*	0
Surr: Toluene-d8	*19.87*	0	*20*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

LCS	Sample ID: **VLCSW1-180523-R236432A**				Units: **µg/L**		Analysis Date: **5/23/2018 11:02 AM**			
Client ID:		Run ID: **VMS9_180523A**			SeqNo: **5048960**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.05	1.0	20	0	105	75-130	0			
1,1,2,2-Tetrachloroethane	18.59	1.0	20	0	93	75-130	0			
1,1,2-Trichloroethane	19.43	1.0	20	0	97.2	75-125	0			
1,1-Dichloroethane	23.59	1.0	20	0	118	68-142	0			
1,1-Dichloroethene	25.16	1.0	20	0	126	70-145	0			
1,2,3-Trichlorobenzene	19.37	1.0	20	0	96.8	70-140	0			
1,2,4-Trichlorobenzene	18.56	1.0	20	0	92.8	70-135	0			
1,2-Dibromo-3-chloropropane	15.92	1.0	20	0	79.6	60-130	0			
1,2-Dibromoethane	22.06	1.0	20	0	110	67-155	0			
1,2-Dichlorobenzene	19.72	1.0	20	0	98.6	70-130	0			
1,2-Dichloroethane	19.27	1.0	20	0	96.4	78-125	0			
1,2-Dichloropropane	20.43	1.0	20	0	102	75-125	0			
1,3-Dichlorobenzene	20.66	1.0	20	0	103	75-130	0			
1,3-Dichloropropane	19.84	1.0	20	0	99.2	75-125	0			
1,4-Dichlorobenzene	20.46	1.0	20	0	102	75-130	0			
2-Butanone	16.72	5.0	20	0	83.6	55-150	0			
2-Hexanone	15.61	5.0	20	0	78	60-135	0			
4-Methyl-2-pentanone	21.15	1.0	20	0	106	77-178	0			
Acetone	17.23	10	20	0	86.2	60-160	0			
Benzene	21	1.0	20	0	105	85-125	0			
Bromochloromethane	23.58	1.0	20	0	118	72-141	0			
Bromodichloromethane	20.09	1.0	20	0	100	75-125	0			
Bromoform	17.16	1.0	20	0	85.8	60-125	0			
Bromomethane	30.83	1.0	20	0	154	30-185	0			
Carbon disulfide	26.03	1.0	20	0	130	60-165	0			
Carbon tetrachloride	19.86	1.0	20	0	99.3	65-140	0			
Chlorobenzene	20.77	1.0	20	0	104	80-120	0			
Chloroethane	19.71	1.0	20	0	98.6	50-140	0			
Chloroform	22.08	1.0	20	0	110	80-130	0			
Chloromethane	17.72	1.0	20	0	88.6	46-148	0			
cis-1,2-Dichloroethene	22.71	1.0	20	0	114	75-134	0			
Dibromochloromethane	18.88	1.0	20	0	94.4	60-115	0			
Dichlorodifluoromethane	18.22	1.0	20	0	91.1	20-120	0			
Ethylbenzene	21.44	1.0	20	0	107	76-123	0			
Isopropylbenzene	22.59	1.0	20	0	113	80-127	0			
m,p-Xylene	44.1	2.0	40	0	110	75-130	0			
Methyl tert-butyl ether	21.69	1.0	20	0	108	68-129	0			
Methylene chloride	22.64	5.0	20	0	113	75-140	0			
o-Xylene	21.71	1.0	20	0	109	76-127	0			
Styrene	23.17	1.0	20	0	116	83-137	0			
Tetrachloroethene	21.79	1.0	20	0	109	68-166	0			
Toluene	20.52	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	23.96	1.0	20	0	120	80-140	0
trans-1,3-Dichloropropene	18.24	1.0	20	0	91.2	56-132	0
Trichloroethene	20.41	1.0	20	0	102	84-130	0
Trichlorofluoromethane	20.32	1.0	20	0	102	60-140	0
Vinyl chloride	22.86	1.0	20	0	114	50-136	0
Xylenes, Total	65.81	3.0	60	0	110	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.83*	0	*20*	0	*99.2*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.73*	0	*20*	0	*104*	*80-110*	0
Surr: Dibromofluoromethane	*18.29*	0	*20*	0	*91.4*	*85-115*	0
Surr: Toluene-d8	*20.12*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MS Sample ID: **1805219-02A MS** Units: **µg/L** Analysis Date: **5/23/2018 03:17 PM**

Client ID: Run ID: **VMS9_180523A** SeqNo: **5048965** Prep Date: **5/23/2018** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	455.6	20	20	0	114	75-130	0			
1,1,2,2-Tetrachloroethane	425.2	20	20	0	106	75-130	0			
1,1,2-Trichloroethane	420	20	20	0	105	75-125	0			
1,1-Dichloroethane	487.4	20	20	0	122	68-142	0			
1,1-Dichloroethene	551.4	20	20	0	138	70-145	0			
1,2,3-Trichlorobenzene	404.8	20	20	0	101	70-140	0			
1,2,4-Trichlorobenzene	397.6	20	20	0	99.4	70-135	0			
1,2-Dibromo-3-chloropropane	389.8	20	20	0	97.4	60-130	0			
1,2-Dibromoethane	484.6	20	20	0	121	67-155	0			
1,2-Dichlorobenzene	414	20	20	0	104	70-130	0			
1,2-Dichloroethane	401.4	20	20	0	100	78-125	0			
1,2-Dichloropropane	412.8	20	20	0	103	75-125	0			
1,3-Dichlorobenzene	428	20	20	0	107	75-130	0			
1,3-Dichloropropane	426.6	20	20	0	107	75-125	0			
1,4-Dichlorobenzene	420.6	20	20	0	105	75-130	0			
2-Butanone	516	100	20	0	129	55-150	0			
2-Hexanone	438	100	20	0	110	60-135	0			
4-Methyl-2-pentanone	526	20	20	0	132	77-178	0			
Acetone	673	200	20	0	168	60-160	0			S
Benzene	436	20	20	0	109	85-125	0			
Bromochloromethane	476.4	20	20	0	119	72-141	0			
Bromodichloromethane	401.6	20	20	0	100	75-125	0			
Bromoform	372.6	20	20	0	93.2	60-125	0			
Bromomethane	1478	20	20	0	369	30-185	0			S
Carbon disulfide	578.8	20	20	0	145	60-165	0			
Carbon tetrachloride	443.6	20	20	0	111	65-140	0			
Chlorobenzene	427.4	20	20	0	107	80-120	0			
Chloroethane	415.4	20	20	0	104	50-140	0			
Chloroform	463	20	20	0	116	80-130	0			
Chloromethane	374.4	20	20	0	93.6	46-148	0			
cis-1,2-Dichloroethene	469.6	20	20	0	117	75-134	0			
Dibromochloromethane	411.2	20	20	0	103	60-115	0			
Dichlorodifluoromethane	483.2	20	20	0	121	20-120	0			S
Ethylbenzene	455.2	20	20	0	114	76-123	0			
Isopropylbenzene	472.8	20	20	0	118	80-127	0			
m,p-Xylene	978.6	40	40	13.4	121	75-130	0			
Methyl tert-butyl ether	477.6	20	20	0	119	68-129	0			
Methylene chloride	455.2	100	20	0	114	75-140	0			
o-Xylene	467.6	20	20	0	117	76-127	0			
Styrene	472.8	20	20	0	118	83-137	0			
Tetrachloroethene	495.4	20	20	0	124	68-166	0			
Toluene	451.2	20	20	7.8	111	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	496.4	20	20	0	124	80-140	0
trans-1,3-Dichloropropene	372.4	20	20	0	93.1	56-132	0
Trichloroethene	428.6	20	20	0	107	84-130	0
Trichlorofluoromethane	472	20	20	0	118	60-140	0
Vinyl chloride	504.4	20	20	0	126	50-136	0
Xylenes, Total	1446	60	60	13.4	119	76-127	0
Surr: 1,2-Dichloroethane-d4	*399.2*	0	*20*	0	*99.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*413.4*	0	*20*	0	*103*	*80-110*	0
Surr: Dibromofluoromethane	*370.2*	0	*20*	0	*92.6*	*85-115*	0
Surr: Toluene-d8	*403.2*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

MSD Sample ID: **1805219-02A MSD** Units: **µg/L** Analysis Date: **5/23/2018 03:42 PM**

Client ID: Run ID: **VMS9_180523A** SeqNo: **5048966** Prep Date: **5/23/2018** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	427	20	20	0	107	75-130	455.6	6.48	30	
1,1,2,2-Tetrachloroethane	400.8	20	20	0	100	75-130	425.2	5.91	30	
1,1,2-Trichloroethane	391.2	20	20	0	97.8	75-125	420	7.1	30	
1,1-Dichloroethane	439.6	20	20	0	110	68-142	487.4	10.3	30	
1,1-Dichloroethene	510.8	20	20	0	128	70-145	551.4	7.64	30	
1,2,3-Trichlorobenzene	413.6	20	20	0	103	70-140	404.8	2.15	30	
1,2,4-Trichlorobenzene	401.8	20	20	0	100	70-135	397.6	1.05	30	
1,2-Dibromo-3-chloropropane	401	20	20	0	100	60-130	389.8	2.83	30	
1,2-Dibromoethane	455.4	20	20	0	114	67-155	484.6	6.21	30	
1,2-Dichlorobenzene	417.8	20	20	0	104	70-130	414	0.914	30	
1,2-Dichloroethane	366.4	20	20	0	91.6	78-125	401.4	9.12	30	
1,2-Dichloropropane	405.2	20	20	0	101	75-125	412.8	1.86	30	
1,3-Dichlorobenzene	438.2	20	20	0	110	75-130	428	2.36	30	
1,3-Dichloropropane	401.8	20	20	0	100	75-125	426.6	5.99	30	
1,4-Dichlorobenzene	430.2	20	20	0	108	75-130	420.6	2.26	30	
2-Butanone	450	100	20	0	112	55-150	516	13.7	30	
2-Hexanone	462.4	100	20	0	116	60-135	438	5.42	30	
4-Methyl-2-pentanone	512.8	20	20	0	128	77-178	526	2.54	30	
Acetone	552.2	200	20	0	138	60-160	673	19.7	30	
Benzene	434.4	20	20	0	109	85-125	436	0.368	30	
Bromochloromethane	447	20	20	0	112	72-141	476.4	6.37	30	
Bromodichloromethane	373	20	20	0	93.2	75-125	401.6	7.38	30	
Bromoform	346.4	20	20	0	86.6	60-125	372.6	7.29	30	
Bromomethane	1651	20	20	0	413	30-185	1478	11.1	30	S
Carbon disulfide	554.8	20	20	0	139	60-165	578.8	4.23	30	
Carbon tetrachloride	428.6	20	20	0	107	65-140	443.6	3.44	30	
Chlorobenzene	424.8	20	20	0	106	80-120	427.4	0.61	30	
Chloroethane	415.2	20	20	0	104	50-140	415.4	0.0482	30	
Chloroform	422	20	20	0	106	80-130	463	9.27	30	
Chloromethane	346.8	20	20	0	86.7	46-148	374.4	7.65	30	
cis-1,2-Dichloroethene	425.4	20	20	0	106	75-134	469.6	9.88	30	
Dibromochloromethane	369	20	20	0	92.2	60-115	411.2	10.8	30	
Dichlorodifluoromethane	462.2	20	20	0	116	20-120	483.2	4.44	30	
Ethylbenzene	444	20	20	0	111	76-123	455.2	2.49	30	
Isopropylbenzene	471.4	20	20	0	118	80-127	472.8	0.297	30	
m,p-Xylene	913.4	40	40	13.4	112	75-130	978.6	6.89	30	
Methyl tert-butyl ether	443.4	20	20	0	111	68-129	477.6	7.43	30	
Methylene chloride	447.8	100	20	0	112	75-140	455.2	1.64	30	
o-Xylene	444.4	20	20	0	111	76-127	467.6	5.09	30	
Styrene	466.2	20	20	0	117	83-137	472.8	1.41	30	
Tetrachloroethene	508.2	20	20	0	127	68-166	495.4	2.55	30	
Toluene	433.4	20	20	7.8	106	76-125	451.2	4.02	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236432A** Instrument ID **VMS9** Method: **SW8260C**

trans-1,2-Dichloroethene	463.2	20	20	0	116	80-140	496.4	6.92	30
trans-1,3-Dichloropropene	353	20	20	0	88.2	56-132	372.4	5.35	30
Trichloroethene	417.4	20	20	0	104	84-130	428.6	2.65	30
Trichlorofluoromethane	423.4	20	20	0	106	60-140	472	10.9	30
Vinyl chloride	494.4	20	20	0	124	50-136	504.4	2	30
Xylenes, Total	1358	60	60	13.4	112	76-127	1446	6.31	30
Surr: 1,2-Dichloroethane-d4	*372.2*	0	*20*	0	*93*	*75-120*	399.2	*7*	*30*
Surr: 4-Bromofluorobenzene	*402.8*	0	*20*	0	*101*	*80-110*	413.4	*2.6*	*30*
Surr: Dibromofluoromethane	*356*	0	*20*	0	*89*	*85-115*	370.2	*3.91*	*30*
Surr: Toluene-d8	*404*	0	*20*	0	*101*	*85-110*	403.2	*0.198*	*30*

The following samples were analyzed in this batch:

18051328-21A	18051328-22A	18051328-23A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180523-R236457** Units: **µg/Kg** Analysis Date: **5/23/2018 02:24 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050337** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	3.05	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*83-111*	0
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	0
Surr: Toluene-d8	*19.86*	0	*20*	0	*99.3*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSS1-180523-R236457**				Units: **µg/Kg**		Analysis Date: **5/23/2018 01:30 PM**			
Client ID:		Run ID: **VMS8_180523A**			SeqNo: **5050336**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.07	5.0	20	0	95.4	73-138	0			
1,1,2,2-Tetrachloroethane	15.83	5.0	20	0	79.2	71-126	0			
1,1,2-Trichloroethane	16.89	5.0	20	0	84.4	77-123	0			
1,1-Dichloroethane	19.77	5.0	20	0	98.8	63-148	0			
1,1-Dichloroethene	18.87	5.0	20	0	94.4	67-156	0			
1,2,3-Trichlorobenzene	17.86	5.0	20	0	89.3	73-129	0			
1,2,4-Trichlorobenzene	18.53	5.0	20	0	92.6	70-132	0			
1,2-Dibromo-3-chloropropane	13.54	5.0	20	0	67.7	48-127	0			
1,2-Dibromoethane	17.26	5.0	20	0	86.3	71-144	0			
1,2-Dichlorobenzene	19.62	5.0	20	0	98.1	77-127	0			
1,2-Dichloroethane	17.28	5.0	20	0	86.4	77-127	0			
1,2-Dichloropropane	18.42	5.0	20	0	92.1	74-130	0			
1,3-Dichlorobenzene	19.49	5.0	20	0	97.4	75-133	0			
1,4-Dichlorobenzene	19.46	5.0	20	0	97.3	74-130	0			
2-Butanone	12.65	10	20	0	63.2	55-132	0			
2-Hexanone	13.14	5.0	20	0	65.7	55-124	0			
4-Methyl-2-pentanone	16.68	5.0	20	0	83.4	67-159	0			
Acetone	10.73	10	20	0	53.6	31-156	0			
Benzene	18.84	5.0	20	0	94.2	77-133	0			
Bromochloromethane	18.7	5.0	20	0	93.5	72-139	0			
Bromodichloromethane	18.33	5.0	20	0	91.6	69-133	0			
Bromoform	16.07	5.0	20	0	80.4	55-126	0			
Bromomethane	18.99	10	20	0	95	31-174	0			
Carbon disulfide	21.03	5.0	20	0	105	45-160	0			
Carbon tetrachloride	20.31	5.0	20	0	102	69-140	0			
Chlorobenzene	19.31	5.0	20	0	96.6	76-130	0			
Chloroethane	17.28	5.0	20	0	86.4	53-150	0			
Chloroform	18.15	5.0	20	0	90.8	72-132	0			
Chloromethane	14.89	10	20	0	74.4	43-150	0			
cis-1,2-Dichloroethene	18.52	5.0	20	0	92.6	74-134	0			
cis-1,3-Dichloropropene	17.79	5.0	20	0	89	62-134	0			
Dibromochloromethane	16.98	5.0	20	0	84.9	57-118	0			
Dichlorodifluoromethane	16.73	10	20	0	83.6	43-126	0			
Ethylbenzene	18.7	5.0	20	0	93.5	75-133	0			
Isopropylbenzene	19.32	5.0	20	0	96.6	74-137	0			
m,p-Xylene	36.95	2.5	40	0	92.4	75-134	0			
Methyl tert-butyl ether	21.37	5.0	20	0	107	62-136	0			
Methylene chloride	24.19	5.0	20	0	121	55-157	0			
o-Xylene	18.63	2.5	20	0	93.2	76-130	0			
Styrene	17.82	5.0	20	0	89.1	72-138	0			
Tetrachloroethene	20.04	5.0	20	0	100	70-171	0			
Toluene	18.43	5.0	20	0	92.2	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.49	5.0	20	0	92.4	65-137	0
trans-1,3-Dichloropropene	16.11	5.0	20	0	80.6	58-126	0
Trichloroethene	19.23	5.0	20	0	96.2	75-135	0
Trichlorofluoromethane	17.18	5.0	20	0	85.9	62-136	0
Vinyl chloride	19.52	5.0	20	0	97.6	57-143	0
Xylenes, Total	55.58	5.0	60	0	92.6	75-132	0
Surr: 1,2-Dichloroethane-d4	*17.6*	0	*20*	0	*88*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.34*	0	*20*	0	*91.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/23/2018 07:36 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5050355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4.27	1.0	5	0	85.4	73-138	0			
1,1,2,2-Tetrachloroethane	4.45	1.0	5	0	89	71-126	0			
1,1,2-Trichloroethane	5.54	1.0	5	0	111	77-123	0			
1,1-Dichloroethane	6.72	2.0	5	0	134	63-148	0			
1,1-Dichloroethene	4.4	1.0	5	0	88	67-156	0			
1,2,3-Trichlorobenzene	U	1.0	5	0	0	73-129	0			S
1,2,4-Trichlorobenzene	U	1.0	5	0	0	70-132	0			S
1,2-Dibromo-3-chloropropane	3.32	1.0	5	0	66.4	48-127	0			
1,2-Dibromoethane	5.71	1.0	5	0	114	71-144	0			
1,2-Dichlorobenzene	1.18	1.0	5	0	23.6	77-127	0			S
1,2-Dichloroethane	6.39	1.0	5	0	128	77-127	0			S
1,2-Dichloropropane	5.8	1.0	5	0	116	74-130	0			
1,3-Dichlorobenzene	1.17	1.0	5	0	23.4	75-133	0			S
1,4-Dichlorobenzene	1.13	1.0	5	0	22.6	74-130	0			S
2-Butanone	10.25	2.0	5	7.575	53.5	55-132	0			S
2-Hexanone	6.35	1.0	5	0	127	55-124	0			S
4-Methyl-2-pentanone	7.85	1.0	5	0	157	67-159	0			
Acetone	93.01	5.0	5	83.43	192	31-156	0			SO
Benzene	4.56	1.0	5	0	91.2	77-133	0			
Bromochloromethane	7.01	1.0	5	0	140	72-139	0			S
Bromodichloromethane	5.35	1.0	5	0	107	69-133	0			
Bromoform	3.78	1.0	5	0	75.6	55-126	0			
Bromomethane	6.45	1.0	5	0	129	31-174	0			
Carbon disulfide	4.05	1.0	5	1.246	56.1	45-160	0			
Carbon tetrachloride	3.06	1.0	5	0	61.2	69-140	0			S
Chlorobenzene	2.42	1.0	5	0	48.4	76-130	0			S
Chloroethane	6.17	1.0	5	0	123	53-150	0			
Chloroform	5.44	1.0	5	0	109	72-132	0			
Chloromethane	4.89	1.0	5	0	97.8	43-150	0			
cis-1,2-Dichloroethene	5.1	1.0	5	0	102	74-134	0			
cis-1,3-Dichloropropene	4.5	1.0	5	0	90	62-134	0			
Dibromochloromethane	4.61	1.0	5	0	92.2	57-118	0			
Dichlorodifluoromethane	1.49	2.0	5	0	29.8	43-126	0			JS
Ethylbenzene	2.23	1.0	5	0	44.6	75-133	0			S
Isopropylbenzene	1.41	1.0	5	0	28.2	74-137	0			S
m,p-Xylene	3.98	2.5	10	0	39.8	75-134	0			S
Methyl tert-butyl ether	10.62	1.0	5	0	212	62-136	0			S
Methylene chloride	7.77	1.0	5	0	155	55-157	0			B
o-Xylene	2.41	1.0	5	0	48.2	76-130	0			S
Styrene	1.95	1.0	5	0	39	72-138	0			S
Tetrachloroethene	1.67	1.0	5	0	33.4	70-171	0			S
Toluene	3.48	1.0	5	2.154	26.5	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	4.78	1.0	5	0	95.6	65-137	0	
trans-1,3-Dichloropropene	4.25	1.0	5	0	85	58-126	0	
Trichloroethene	3.38	1.0	5	0	67.6	75-135	0	S
Trichlorofluoromethane	2.67	1.0	5	0	53.4	62-136	0	S
Vinyl chloride	5.82	1.0	5	0	116	57-143	0	
Xylenes, Total	6.39	2.0	15	0	42.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.26*	0	*20*	0	*96.3*	*83-111*	0	
Surr: Dibromofluoromethane	*20.19*	0	*20*	0	*101*	*77-125*	0	
Surr: Toluene-d8	*19*	0	*20*	0	*95*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/24/2018 04:52 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5055162** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	26.91	5.0	20	0	135	73-138	0			
1,1,2,2-Tetrachloroethane	24.06	5.0	20	0	120	71-126	0			
1,1,2-Trichloroethane	24.95	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	27.94	5.0	20	0	140	63-148	0			
1,1-Dichloroethene	27.67	5.0	20	0	138	67-156	0			
1,2,3-Trichlorobenzene	11.67	5.0	20	0	58.4	73-129	0			S
1,2,4-Trichlorobenzene	12.64	5.0	20	0	63.2	70-132	0			S
1,2-Dibromo-3-chloropropane	19.99	5.0	20	0	100	48-127	0			
1,2-Dibromoethane	26.22	5.0	20	0	131	71-144	0			
1,2-Dichlorobenzene	18.42	5.0	20	0	92.1	77-127	0			
1,2-Dichloroethane	25.33	5.0	20	0	127	77-127	0			
1,2-Dichloropropane	26.22	5.0	20	0	131	74-130	0			S
1,3-Dichlorobenzene	18.33	5.0	20	0	91.6	75-133	0			
1,4-Dichlorobenzene	18.53	5.0	20	0	92.6	74-130	0			
2-Butanone	45.41	10	20	7.575	189	55-132	0			S
2-Hexanone	36.52	5.0	20	0	183	55-124	0			S
4-Methyl-2-pentanone	33.22	5.0	20	0	166	67-159	0			S
Acetone	115	10	20	83.43	158	31-156	0			SEO
Benzene	25.86	5.0	20	0	129	77-133	0			
Bromochloromethane	27.71	5.0	20	0	139	72-139	0			
Bromodichloromethane	26.27	5.0	20	0	131	69-133	0			
Bromoform	23.16	5.0	20	0	116	55-126	0			
Bromomethane	27.39	10	20	0	137	31-174	0			
Carbon disulfide	29.4	5.0	20	1.246	141	45-160	0			
Carbon tetrachloride	27.8	5.0	20	0	139	69-140	0			
Chlorobenzene	23.11	5.0	20	0	116	76-130	0			
Chloroethane	26.48	5.0	20	0	132	53-150	0			
Chloroform	25.88	5.0	20	0	129	72-132	0			
Chloromethane	21.69	10	20	0	108	43-150	0			
cis-1,2-Dichloroethene	25.98	5.0	20	0	130	74-134	0			
cis-1,3-Dichloropropene	25.33	5.0	20	0	127	62-134	0			
Dibromochloromethane	23.73	5.0	20	0	119	57-118	0			S
Dichlorodifluoromethane	29.85	10	20	0	149	43-126	0			S
Ethylbenzene	22.85	5.0	20	0	114	75-133	0			
Isopropylbenzene	21.56	5.0	20	0	108	74-137	0			
m,p-Xylene	44.68	2.5	40	0	112	75-134	0			
Methyl tert-butyl ether	35.08	5.0	20	0	175	62-136	0			S
Methylene chloride	32.16	5.0	20	0	161	55-157	0			S
o-Xylene	22.61	2.5	20	0	113	76-130	0			
Styrene	20.8	5.0	20	0	104	72-138	0			
Tetrachloroethene	23.74	5.0	20	0	119	70-171	0			
Toluene	23.91	5.0	20	2.154	109	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	26.19	5.0	20	0	131	65-137	0	
trans-1,3-Dichloropropene	23.07	5.0	20	0	115	58-126	0	
Trichloroethene	25.66	5.0	20	0	128	75-135	0	
Trichlorofluoromethane	26.49	5.0	20	0	132	62-136	0	
Vinyl chloride	28.72	5.0	20	0	144	57-143	0	S
Xylenes, Total	67.29	5.0	60	0	112	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.12*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.41*	0	*20*	0	*97*	*83-111*	0	
Surr: Dibromofluoromethane	*20.51*	0	*20*	0	*103*	*77-125*	0	
Surr: Toluene-d8	*19.22*	0	*20*	0	*96.1*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD	Sample ID: **18051384-01A MSD**				Units: **µg/Kg**			Analysis Date: **5/23/2018 07:53 PM**			
Client ID:		Run ID: **VMS8_180523A**			SeqNo: **5050356**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	6.85	1.0	5	0	137	73-138	4.27	46.4	30	R
1,1,2,2-Tetrachloroethane	7.17	1.0	5	0	143	71-126	4.45	46.8	30	SR
1,1,2-Trichloroethane	8.42	1.0	5	0	168	77-123	5.54	41.3	30	SR
1,1-Dichloroethane	9.51	2.0	5	0	190	63-148	6.72	34.4	30	SR
1,1-Dichloroethene	7.11	1.0	5	0	142	67-156	4.4	47.1	30	R
1,2,3-Trichlorobenzene	2	1.0	5	0	40	73-129	0	200	30	SR
1,2,4-Trichlorobenzene	2.2	1.0	5	0	44	70-132	0.67	107	30	SR
1,2-Dibromo-3-chloropropane	5.32	1.0	5	0	106	48-127	3.32	46.3	30	R
1,2-Dibromoethane	8.53	1.0	5	0	171	71-144	5.71	39.6	30	SR
1,2-Dichlorobenzene	3.87	1.0	5	0	77.4	77-127	1.18	107	30	R
1,2-Dichloroethane	9.17	1.0	5	0	183	77-127	6.39	35.7	30	SR
1,2-Dichloropropane	8.78	1.0	5	0	176	74-130	5.8	40.9	30	SR
1,3-Dichlorobenzene	3.66	1.0	5	0	73.2	75-133	1.17	103	30	SR
1,4-Dichlorobenzene	3.73	1.0	5	0	74.6	74-130	1.13	107	30	R
2-Butanone	12.14	2.0	5	7.575	91.3	55-132	10.25	16.9	30	
2-Hexanone	7.39	1.0	5	0	148	55-124	6.35	15.1	30	S
4-Methyl-2-pentanone	9.1	1.0	5	0	182	67-159	7.85	14.7	30	S
Acetone	129.6	5.0	5	83.43	923	31-156	93.01	32.8	30	SREO
Benzene	7.54	1.0	5	0	151	77-133	4.56	49.3	30	SR
Bromochloromethane	9.82	1.0	5	0	196	72-139	7.01	33.4	30	SR
Bromodichloromethane	8.28	1.0	5	0	166	69-133	5.35	43	30	SR
Bromoform	6.58	1.0	5	0	132	55-126	3.78	54.1	30	SR
Bromomethane	7.12	1.0	5	0	142	31-174	6.45	9.87	30	
Carbon disulfide	5.68	1.0	5	1.246	88.7	45-160	4.05	33.5	30	R
Carbon tetrachloride	6.34	1.0	5	0	127	69-140	3.06	69.8	30	R
Chlorobenzene	5.51	1.0	5	0	110	76-130	2.42	77.9	30	R
Chloroethane	7.93	1.0	5	0	159	53-150	6.17	25	30	S
Chloroform	8.41	1.0	5	0	168	72-132	5.44	42.9	30	SR
Chloromethane	6.16	1.0	5	0	123	43-150	4.89	23	30	
cis-1,2-Dichloroethene	7.9	1.0	5	0	158	74-134	5.1	43.1	30	SR
cis-1,3-Dichloropropene	6.47	1.0	5	0	129	62-134	4.5	35.9	30	R
Dibromochloromethane	7.42	1.0	5	0	148	57-118	4.61	46.7	30	SR
Dichlorodifluoromethane	7.37	2.0	5	0	147	43-126	1.49	133	30	SR
Ethylbenzene	4.99	1.0	5	0	99.8	75-133	2.23	76.5	30	R
Isopropylbenzene	4.57	1.0	5	0	91.4	74-137	1.41	106	30	R
m,p-Xylene	9.73	2.5	10	0	97.3	75-134	3.98	83.9	30	R
Methyl tert-butyl ether	13.84	1.0	5	0	277	62-136	10.62	26.3	30	S
Methylene chloride	10.38	1.0	5	0	208	55-157	7.77	28.8	30	BS
o-Xylene	5.28	1.0	5	0	106	76-130	2.41	74.6	30	R
Styrene	4.68	1.0	5	0	93.6	72-138	1.95	82.4	30	R
Tetrachloroethene	4.91	1.0	5	0	98.2	70-171	1.67	98.5	30	R
Toluene	5.99	1.0	5	2.154	76.7	76-130	3.48	53	30	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	7	1.0	5	0	140	65-137	4.78	37.7	30	SR
trans-1,3-Dichloropropene	6.79	1.0	5	0	136	58-126	4.25	46	30	SR
Trichloroethene	6.05	1.0	5	0	121	75-135	3.38	56.6	30	R
Trichlorofluoromethane	6.34	1.0	5	0	127	62-136	2.67	81.5	30	R
Vinyl chloride	7.45	1.0	5	0	149	57-143	5.82	24.6	30	S
Xylenes, Total	15.01	2.0	15	0	100	75-132	6.39	80.6	30	R
Surr: 1,2-Dichloroethane-d4	*20.11*	0	*20*	0	*101*	*83-132*	20.13	*0.0994*	*30*	
Surr: 4-Bromofluorobenzene	*19.65*	0	*20*	0	*98.2*	*83-111*	19.26	*2*	*30*	
Surr: Dibromofluoromethane	*20.44*	0	*20*	0	*102*	*77-125*	20.19	*1.23*	*30*	
Surr: Toluene-d8	*19.56*	0	*20*	0	*97.8*	*86-108*	19	*2.9*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD	Sample ID: **18051384-01A MSD**				Units: **µg/Kg**			Analysis Date: **5/24/2018 05:08 PM**			
Client ID:		Run ID: **VMS8_180523A**			SeqNo: **5055163**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.24	5.0	20	0	146	73-138	26.91	8.3	30	S
1,1,2,2-Tetrachloroethane	27.49	5.0	20	0	137	71-126	24.06	13.3	30	S
1,1,2-Trichloroethane	27.82	5.0	20	0	139	77-123	24.95	10.9	30	S
1,1-Dichloroethane	30.21	5.0	20	0	151	63-148	27.94	7.81	30	S
1,1-Dichloroethene	30.56	5.0	20	0	153	67-156	27.67	9.93	30	
1,2,3-Trichlorobenzene	13.92	5.0	20	0	69.6	73-129	11.67	17.6	30	S
1,2,4-Trichlorobenzene	15.31	5.0	20	0	76.6	70-132	12.64	19.1	30	
1,2-Dibromo-3-chloropropane	23.95	5.0	20	0	120	48-127	19.99	18	30	
1,2-Dibromoethane	29.08	5.0	20	0	145	71-144	26.22	10.3	30	S
1,2-Dichlorobenzene	22.4	5.0	20	0	112	77-127	18.42	19.5	30	
1,2-Dichloroethane	27.57	5.0	20	0	138	77-127	25.33	8.47	30	S
1,2-Dichloropropane	29.06	5.0	20	0	145	74-130	26.22	10.3	30	S
1,3-Dichlorobenzene	21.65	5.0	20	0	108	75-133	18.33	16.6	30	
1,4-Dichlorobenzene	20.8	5.0	20	0	104	74-130	18.53	11.5	30	
2-Butanone	55.45	10	20	7.575	239	55-132	45.41	19.9	30	S
2-Hexanone	42.64	5.0	20	0	213	55-124	36.52	15.5	30	S
4-Methyl-2-pentanone	40.06	5.0	20	0	200	67-159	33.22	18.7	30	S
Acetone	173.6	10	20	83.43	451	31-156	115	40.6	30	SREO
Benzene	28.32	5.0	20	0	142	77-133	25.86	9.08	30	S
Bromochloromethane	29.52	5.0	20	0	148	72-139	27.71	6.33	30	S
Bromodichloromethane	28.73	5.0	20	0	144	69-133	26.27	8.95	30	S
Bromoform	26.12	5.0	20	0	131	55-126	23.16	12	30	S
Bromomethane	27.19	10	20	0	136	31-174	27.39	0.733	30	
Carbon disulfide	31.35	5.0	20	1.246	151	45-160	29.4	6.42	30	
Carbon tetrachloride	30.89	5.0	20	0	154	69-140	27.8	10.5	30	S
Chlorobenzene	25.31	5.0	20	0	127	76-130	23.11	9.09	30	
Chloroethane	28.8	5.0	20	0	144	53-150	26.48	8.39	30	
Chloroform	27.76	5.0	20	0	139	72-132	25.88	7.01	30	S
Chloromethane	22.87	10	20	0	114	43-150	21.69	5.3	30	
cis-1,2-Dichloroethene	27.78	5.0	20	0	139	74-134	25.98	6.7	30	S
cis-1,3-Dichloropropene	26.96	5.0	20	0	135	62-134	25.33	6.23	30	S
Dibromochloromethane	27.02	5.0	20	0	135	57-118	23.73	13	30	S
Dichlorodifluoromethane	32.9	10	20	0	164	43-126	29.85	9.72	30	S
Ethylbenzene	25.92	5.0	20	0	130	75-133	22.85	12.6	30	
Isopropylbenzene	25.38	5.0	20	0	127	74-137	21.56	16.3	30	
m,p-Xylene	51.47	2.5	40	0	129	75-134	44.68	14.1	30	
Methyl tert-butyl ether	39.65	5.0	20	0	198	62-136	35.08	12.2	30	S
Methylene chloride	34.86	5.0	20	0	174	55-157	32.16	8.06	30	S
o-Xylene	25.55	2.5	20	0	128	76-130	22.61	12.2	30	
Styrene	23.44	5.0	20	0	117	72-138	20.8	11.9	30	
Tetrachloroethene	28.27	5.0	20	0	141	70-171	23.74	17.4	30	
Toluene	26.95	5.0	20	2.154	124	76-130	23.91	12	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	28.2	5.0	20	0	141	65-137	26.19	7.39	30	S
trans-1,3-Dichloropropene	25.89	5.0	20	0	129	58-126	23.07	11.5	30	S
Trichloroethene	27.9	5.0	20	0	140	75-135	25.66	8.36	30	S
Trichlorofluoromethane	28.9	5.0	20	0	144	62-136	26.49	8.7	30	S
Vinyl chloride	30.22	5.0	20	0	151	57-143	28.72	5.09	30	S
Xylenes, Total	77.02	5.0	60	0	128	75-132	67.29	13.5	30	
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0	*103*	*83-132*	20.12	*2.31*	*30*	
Surr: 4-Bromofluorobenzene	*18.84*	0	*20*	0	*94.2*	*83-111*	19.41	*2.98*	*30*	
Surr: Dibromofluoromethane	*19.83*	0	*20*	0	*99.2*	*77-125*	20.51	*3.37*	*30*	
Surr: Toluene-d8	*19.12*	0	*20*	0	*95.6*	*86-108*	19.22	*0.522*	*30*	

The following samples were analyzed in this batch:

18051328-15A	18051328-16A	18051328-18A
18051328-19A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

MBLK	Sample ID: **VBLKW1-180525-R236690a**				Units: **µg/L**			Analysis Date: **5/25/2018 09:01 PM**		
Client ID:		Run ID: **VMS8_180525B**			SeqNo: **5056563**		Prep Date:		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*19.87*	0	*20*	0	*99.4*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.95*	0	*20*	0	*94.8*	*80-110*	0
Surr: Dibromofluoromethane	*20.1*	0	*20*	0	*100*	*85-115*	0
Surr: Toluene-d8	*18.79*	0	*20*	0	*94*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSW1-180525-R236690a**				Units: **µg/L**		Analysis Date: **5/25/2018 08:12 PM**			
Client ID:		Run ID: **VMS8_180525B**			SeqNo: **5056562**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.66	1.0	20	0	98.3	75-130	0			
1,1,2,2-Tetrachloroethane	22.27	1.0	20	0	111	75-130	0			
1,1,2-Trichloroethane	18.89	1.0	20	0	94.4	75-125	0			
1,1-Dichloroethane	19.69	1.0	20	0	98.4	68-142	0			
1,1-Dichloroethene	20.4	1.0	20	0	102	70-145	0			
1,2,3-Trichlorobenzene	21.13	1.0	20	0	106	70-140	0			
1,2,4-Trichlorobenzene	21.5	1.0	20	0	108	70-135	0			
1,2-Dibromo-3-chloropropane	18.65	1.0	20	0	93.2	60-130	0			
1,2-Dibromoethane	21.08	1.0	20	0	105	67-155	0			
1,2-Dichlorobenzene	21.42	1.0	20	0	107	70-130	0			
1,2-Dichloroethane	18.4	1.0	20	0	92	78-125	0			
1,2-Dichloropropane	19.19	1.0	20	0	96	75-125	0			
1,3-Dichlorobenzene	21.6	1.0	20	0	108	75-130	0			
1,3-Dichloropropane	19.94	1.0	20	0	99.7	75-125	0			
1,4-Dichlorobenzene	22.24	1.0	20	0	111	75-130	0			
2-Butanone	19.28	5.0	20	0	96.4	55-150	0			
2-Hexanone	19.6	5.0	20	0	98	60-135	0			
4-Methyl-2-pentanone	29.85	1.0	20	0	149	77-178	0			
Acetone	18.28	10	20	0	91.4	60-160	0			
Benzene	20.2	1.0	20	0	101	85-125	0			
Bromochloromethane	20.17	1.0	20	0	101	72-141	0			
Bromodichloromethane	19.65	1.0	20	0	98.2	75-125	0			
Bromoform	20.31	1.0	20	0	102	60-125	0			
Bromomethane	34.54	1.0	20	0	173	30-185	0			
Carbon disulfide	20.96	1.0	20	0	105	60-165	0			
Carbon tetrachloride	19.93	1.0	20	0	99.6	65-140	0			
Chlorobenzene	21.55	1.0	20	0	108	80-120	0			
Chloroethane	10.31	1.0	20	0	51.6	50-140	0			
Chloroform	19.36	1.0	20	0	96.8	80-130	0			
Chloromethane	15.26	1.0	20	0	76.3	46-148	0			
cis-1,2-Dichloroethene	19.95	1.0	20	0	99.8	75-134	0			
Dibromochloromethane	19.5	1.0	20	0	97.5	60-115	0			
Dichlorodifluoromethane	16.14	1.0	20	0	80.7	20-120	0			
Ethylbenzene	21.1	1.0	20	0	106	76-123	0			
Isopropylbenzene	20.79	1.0	20	0	104	80-127	0			
m,p-Xylene	42.51	2.0	40	0	106	75-130	0			
Methyl tert-butyl ether	22.42	1.0	20	0	112	68-129	0			
Methylene chloride	18.62	5.0	20	0	93.1	75-140	0			
o-Xylene	20.71	1.0	20	0	104	76-127	0			
Styrene	21.4	1.0	20	0	107	83-137	0			
Tetrachloroethene	22.58	1.0	20	0	113	68-166	0			
Toluene	21.2	1.0	20	0	106	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	20.4	1.0	20	0	102	80-140	0
trans-1,3-Dichloropropene	19.02	1.0	20	0	95.1	56-132	0
Trichloroethene	20.07	1.0	20	0	100	84-130	0
Trichlorofluoromethane	17.04	1.0	20	0	85.2	60-140	0
Vinyl chloride	17.2	1.0	20	0	86	50-136	0
Xylenes, Total	63.22	3.0	60	0	105	76-127	0
Surr: 1,2-Dichloroethane-d4	*18.95*	0	*20*	0	*94.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.63*	0	*20*	0	*98.2*	*80-110*	0
Surr: Dibromofluoromethane	*19.94*	0	*20*	0	*99.7*	*85-115*	0
Surr: Toluene-d8	*19.68*	0	*20*	0	*98.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051315-06A MS** Units: **µg/L** Analysis Date: **5/26/2018 03:10 AM**

Client ID: Run ID: **VMS8_180525B** SeqNo: **5056579** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	22.1	1.0	20	0	110	75-130	0			
1,1,2,2-Tetrachloroethane	21.08	1.0	20	0	105	75-130	0			
1,1,2-Trichloroethane	18.2	1.0	20	0	91	75-125	0			
1,1-Dichloroethane	19.44	1.0	20	0	97.2	68-142	0			
1,1-Dichloroethene	22.6	1.0	20	0	113	70-145	0			
1,2,3-Trichlorobenzene	20.08	1.0	20	0	100	70-140	0			
1,2,4-Trichlorobenzene	18.5	1.0	20	0	92.5	70-135	0			
1,2-Dibromo-3-chloropropane	18.28	1.0	20	0	91.4	60-130	0			
1,2-Dibromoethane	20.54	1.0	20	0	103	67-155	0			
1,2-Dichlorobenzene	20.88	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	18.64	1.0	20	0	93.2	78-125	0			
1,2-Dichloropropane	18.92	1.0	20	0	94.6	75-125	0			
1,3-Dichlorobenzene	21.16	1.0	20	0	106	75-130	0			
1,3-Dichloropropane	19.19	1.0	20	0	96	75-125	0			
1,4-Dichlorobenzene	21.56	1.0	20	0	108	75-130	0			
2-Butanone	17.55	5.0	20	0	87.8	55-150	0			
2-Hexanone	19.21	5.0	20	0	96	60-135	0			
4-Methyl-2-pentanone	29.82	1.0	20	0	149	77-178	0			
Acetone	19.92	10	20	2.85	85.4	60-160	0			
Benzene	21.09	1.0	20	0	105	85-125	0			
Bromochloromethane	19.93	1.0	20	0	99.6	72-141	0			
Bromodichloromethane	19.38	1.0	20	0	96.9	75-125	0			
Bromoform	19.72	1.0	20	0	98.6	60-125	0			
Bromomethane	51.71	1.0	20	0	259	30-185	0			S
Carbon disulfide	22.12	1.0	20	0	111	60-165	0			
Carbon tetrachloride	21.33	1.0	20	0	107	65-140	0			
Chlorobenzene	20.26	1.0	20	0	101	80-120	0			
Chloroethane	24.15	1.0	20	0	121	50-140	0			
Chloroform	19.03	1.0	20	0	95.2	80-130	0			
Chloromethane	14.54	1.0	20	0	72.7	46-148	0			
cis-1,2-Dichloroethene	19.78	1.0	20	0	98.9	75-134	0			
Dibromochloromethane	18.02	1.0	20	0	90.1	60-115	0			
Dichlorodifluoromethane	21.5	1.0	20	0	108	20-120	0			
Ethylbenzene	21.19	1.0	20	0	106	76-123	0			
Isopropylbenzene	20.63	1.0	20	0	103	80-127	0			
m,p-Xylene	42.05	2.0	40	0	105	75-130	0			
Methyl tert-butyl ether	21.76	1.0	20	0	109	68-129	0			
Methylene chloride	18.52	5.0	20	0	92.6	75-140	0			
o-Xylene	20.27	1.0	20	0	101	76-127	0			
Styrene	20.63	1.0	20	0	103	83-137	0			
Tetrachloroethene	22.99	1.0	20	0	115	68-166	0			
Toluene	20.68	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	20.48	1.0	20	0	102	80-140	0
trans-1,3-Dichloropropene	17.57	1.0	20	0	87.8	56-132	0
Trichloroethene	20.26	1.0	20	0	101	84-130	0
Trichlorofluoromethane	21.04	1.0	20	0	105	60-140	0
Vinyl chloride	19.46	1.0	20	0	97.3	50-136	0
Xylenes, Total	62.32	3.0	60	0	104	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.2*	0	*20*	0	*96*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.07*	0	*20*	0	*95.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.95*	0	*20*	0	*99.8*	*85-115*	0
Surr: Toluene-d8	*19.21*	0	*20*	0	*96*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

DUP Sample ID: **18051315-05A DUP** Units: **µg/L** Analysis Date: **5/26/2018 02:54 AM**

Client ID: Run ID: **VMS8_180525B** SeqNo: **5056578** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0	0	0	0		0			
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0			
1,1,2-Trichloroethane	U	1.0	0	0	0		0			
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0			
1,1-Dichloroethane	U	1.0	0	0	0		0			
1,1-Dichloroethene	U	1.0	0	0	0		0			
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0			
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0			
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0			
1,2-Dibromoethane	U	1.0	0	0	0		0			
1,2-Dichlorobenzene	U	1.0	0	0	0		0			
1,2-Dichloroethane	U	1.0	0	0	0		0			
1,2-Dichloropropane	U	1.0	0	0	0		0			
1,3-Dichlorobenzene	U	1.0	0	0	0		0			
1,3-Dichloropropane	U	1.0	0	0	0		0			
1,4-Dichlorobenzene	U	1.0	0	0	0		0			
2-Butanone	U	5.0	0	0	0		0			
2-Hexanone	U	5.0	0	0	0		0			
4-Methyl-2-pentanone	U	1.0	0	0	0		0			
Acetone	2.18	10	0	0	0		0			J
Benzene	U	1.0	0	0	0		0			
Bromochloromethane	U	1.0	0	0	0		0			
Bromodichloromethane	U	1.0	0	0	0		0			
Bromoform	U	1.0	0	0	0		0			
Bromomethane	U	1.0	0	0	0		0			
Carbon disulfide	U	1.0	0	0	0		0			
Carbon tetrachloride	U	1.0	0	0	0		0			
Chlorobenzene	U	1.0	0	0	0		0			
Chloroethane	U	1.0	0	0	0		0			
Chloroform	U	1.0	0	0	0		0			
Chloromethane	U	1.0	0	0	0		0			
cis-1,2-Dichloroethene	U	1.0	0	0	0		0			
Cyclohexane	U	1.0	0	0	0		0			
Dibromochloromethane	U	1.0	0	0	0		0			
Dichlorodifluoromethane	U	1.0	0	0	0		0			
Ethylbenzene	U	1.0	0	0	0		0			
Isopropylbenzene	U	1.0	0	0	0		0			
m,p-Xylene	U	2.0	0	0	0		0			
Methyl acetate	U	2.0	0	0	0		0			
Methyl tert-butyl ether	U	1.0	0	0	0		0			
Methylcyclohexane	U	1.0	0	0	0		0			
Methylene chloride	U	5.0	0	0	0		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236690a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0	0	0	0		0
Styrene	U	1.0	0	0	0		0
Tetrachloroethene	U	1.0	0	0	0		0
Toluene	U	1.0	0	0	0		0
trans-1,2-Dichloroethene	U	1.0	0	0	0		0
trans-1,3-Dichloropropene	U	1.0	0	0	0		0
Trichloroethene	U	1.0	0	0	0		0
Trichlorofluoromethane	U	1.0	0	0	0		0
Vinyl chloride	U	1.0	0	0	0		0
Xylenes, Total	U	3.0	0	0	0		0
Surr: 1,2-Dichloroethane-d4	*18.92*	0	*20*	0	*94.6*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.7*	0	*20*	0	*93.5*	*80-110*	0
Surr: Dibromofluoromethane	*19.59*	0	*20*	0	*98*	*85-115*	0
Surr: Toluene-d8	*18.91*	0	*20*	0	*94.6*	*85-110*	0

The following samples were analyzed in this batch:

18051328-03A	18051328-08A	18051328-17A
18051328-20A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061452** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061453** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	14.83	0	15	0	98.9	80-120	0			

DUP Sample ID: **18051328-02C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-02** Run ID: **WETCHEM_180530H** SeqNo: **5061455** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.18	0	0	0	0		9.93	32.1	20	R

DUP Sample ID: **18051328-02C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-02** Run ID: **WETCHEM_180530H** SeqNo: **5061456** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.75	0	0	0	0		9.93	1.83	20	

DUP Sample ID: **18051328-06C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180530H** SeqNo: **5061458** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	23.46	0	0	0	0		24.29	3.48	20	

DUP Sample ID: **18051328-06C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180530H** SeqNo: **5061459** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	24.22	0	0	0	0		24.29	0.289	20	

DUP Sample ID: **18051328-12C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-12** Run ID: **WETCHEM_180530H** SeqNo: **5061461** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051328-12C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-12** Run ID: **WETCHEM_180530H** SeqNo: **5061462** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

DUP Sample ID: **18051328-14C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-14** Run ID: **WETCHEM_180530H** SeqNo: **5061464** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.09	0	0	0	0		8.18	10.5	20	

DUP Sample ID: **18051328-14C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-14** Run ID: **WETCHEM_180530H** SeqNo: **5061465** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.68	0	0	0	0		8.18	26.5	20	R

DUP Sample ID: **18051328-16C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-16** Run ID: **WETCHEM_180530H** SeqNo: **5061467** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.87	0	0	0	0		7.56	15.9	20	

DUP Sample ID: **18051328-16C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-16** Run ID: **WETCHEM_180530H** SeqNo: **5061468** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.18	0	0	0	0		7.56	19.4	20	

DUP Sample ID: **18051328-19C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-19** Run ID: **WETCHEM_180530H** SeqNo: **5061470** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.61	0	0	0	0		7.89	8.73	20	

DUP Sample ID: **18051328-19C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-19** Run ID: **WETCHEM_180530H** SeqNo: **5061471** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.68	0	0	0	0		7.89	9.54	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051407-04D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061473** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.83	0	0	0	0		4.98	44.5	20	R

DUP Sample ID: **18051407-04D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061474** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.97	0	0	0	0		4.98	46.2	20	R

DUP Sample ID: **18051407-08D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061476** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	12.3	0	0	0	0		5.45	77.2	20	R

DUP Sample ID: **18051407-08D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061477** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10	0	0	0	0		5.45	58.9	20	R

DUP Sample ID: **18051407-09D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061479** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.35	0	0	0	0		11.64	11.7	20	

DUP Sample ID: **18051407-09D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061480** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.74	0	0	0	0		11.64	8.04	20	

DUP Sample ID: **18051407-10D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061482** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.48	0	0	0	0		9.67	1.98	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051407-10D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**

Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061483** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.03	0	0	0	0		9.67	18.5	20	

The following samples were analyzed in this batch:

18051328-02C	18051328-06C	18051328-12C
18051328-14C	18051328-16C	18051328-19C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236545** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R236545** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: Run ID: **MOIST_180523B** SeqNo: **5050561** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R236545** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: Run ID: **MOIST_180523B** SeqNo: **5050560** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051328-01B DUP** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: **18CP02-01** Run ID: **MOIST_180523B** SeqNo: **5050543** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	6.38	0.050	0	0	0	0-0	6.29	1.42	10	

DUP Sample ID: **18051328-09B DUP** Units: **% of sample** Analysis Date: **5/23/2018 03:50 PM**
Client ID: **18CP02-09** Run ID: **MOIST_180523B** SeqNo: **5050550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	10.84	0.050	0	0	0	0-0	11.18	3.09	10	

The following samples were analyzed in this batch:

18051328-01B	18051328-02B	18051328-04B
18051328-05B	18051328-06B	18051328-07B
18051328-09B	18051328-10B	18051328-11B
18051328-12B	18051328-13B	18051328-14B
18051328-15B	18051328-16B	18051328-18B
18051328-19B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051328
Project: PMC

QC BATCH REPORT

Batch ID: **R236999** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063479** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.115	0.025	0.1	0	115	91-143	0			

MS Sample ID: **18051328-06D MS** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180531A** SeqNo: **5063483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8382	0.025	0.4525	0.2628	127	91-143	0			

MSD Sample ID: **18051328-06D MSD** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: **18CP02-06** Run ID: **WETCHEM_180531A** SeqNo: **5063484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8296	0.025	0.4386	0.2628	129	91-143	0.8382	1.03	20	

The following samples were analyzed in this batch:

18051328-02D	18051328-06D	18051328-12D
18051328-14D	18051328-15C	18051328-16D
18051328-18C	18051328-19D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: ~~781016124789~~ 7810 1847 1936

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051618-145951-0001

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-SVB-07-SO/4.0-5.0-051518	18CP02-01	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-07	05/15/2018 14:50	
2	PMC-SVB-07-SO/15.0-16.0-051518	18CP02-02	Soil/ CH2M	Grab	VOC_s(21), PNOD(21), TOC(21)	A (MeOH), B (4 C), C (4 C) (4)	PMC-SVB-07	05/15/2018 14:45	
3	PMC-SVB-07-GW/10.7-15.7-051518	18CP02-03	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-07	05/15/2018 15:20	
4	PMC-SVB-08-SO/3.0-4.0-051518	18CP02-04	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-08	05/15/2018 17:00	
5	PMC-SVB-08-SO/7.5-8.0-051518	18CP02-05	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (2)	PMC-SVB-08	05/15/2018 16:55	
6	PMC-SVB-08-SO/9.0-10.0-051518	18CP02-06	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-08	05/15/2018 16:50	
7	PMC-SVB-09-SO/1.0-2.0-051518	18CP02-07	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-09	05/15/2018 11:35	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	05/17/18 1900	AMS	5/18/18 0930	

C SEL 4.0°C

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: ~~781016124789~~ 7810 1847 1936

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051618-145951-0001

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
8	PMC-SVB-09-GW/7.7-12.7-051518	18CP02-08	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-09	05/15/2018 11:55	
9	PMC-SVB-10-SO/3.0-4.0-051618	18CP02-09	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 09:30	
10	PMC-SVB-10-SO/3.0-4.0-051618-FD	18CP02-10	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 09:30	
11	PMC-SVB-10-SO/12.0-13.0-051618	18CP02-11	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-10	05/16/2018 10:05	
12	PMC-SVB-10-SO/19.5-20.0-051618	18CP02-12	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-10	05/16/2018 10:55	
13	PMC-SVB-16-SO/8.0-8.8-051618	18CP02-13	Soil/ CH2M	Grab	VOC_s(21)	A (MeOH) (3)	PMC-SVB-16	05/16/2018 15:35	
14	PMC-SVB-16-SO/10.5-11.5-051618	18CP02-14	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-SVB-16	05/16/2018 16:20	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Smith Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: 781016124789

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051618-145951-0001

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
15	PMC-SVB-14-SO/9.0-10.0-051718	18CP02-15	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (Water), B (4 C) (4)	PMC-SVB-14	05/17/2018 10:50	
16	PMC-SVB-14-SO/11.0-12.0-051718	18CP02-16	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (Water), B (4 C), C (4 C) (5)	PMC-SVB-14	05/17/2018 11:00	
17	PMC-SVB-14-GW/9.3-14.3-051718	18CP02-17	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-14	05/17/2018 15:10	
18	PMC-SVB-15-SO/4.0-5.0-051718	18CP02-18	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (Water), B (4 C) (4)	PMC-SVB-15	05/17/2018 08:49	
19	PMC-SVB-15-SO/13.5-14.0-051718	18CP02-19	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (Water), B (4 C), C (4 C) (5)	PMC-SVB-15	05/17/2018 09:05	
20	PMC-SVB-15-GW/8.6-13.6-051718	18CP02-20	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-15	05/17/2018 14:30	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #
Analysis Key: VOC_s=TCL VOCs (soil), PNOD=Permanganate Natural Oxidant Demand, TOC=TOC, VOC=TCL VOCs (groundwater)	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Ken Simms CH2M/Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)

DateShipped: 5/17/2018

CarrierName: FedEx

AirbillNo: 7810 1847 1956

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051718-165320-0002

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-TB-01-051718	18CP02-21	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (1)	PMC-TB	05/17/2018 16:15	
~~PMC-TB-02-051718~~	~~18CP02-22~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC(21)~~	~~A (HCl pH<2 4C) (1)~~	~~PMC-TB~~	~~05/17/2018 16:20~~	
~~PMC-TB-03-051718~~	~~18CP02-23~~	~~Blank/ CH2M~~	~~Grab~~	VOC_s(21)	A (1MeOH 1H2O) (2)	~~PMC-TB~~	~~05/17/2018 16:00~~	
PMC-TB-04-051718	18CP02-24	Blank/ CH2M	Grab	VOC_s(21)	A (MeOH) (2) (1)	PMC-TB	05/17/2018 16:05	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #
Analysis Key: VOC=TCL VOCs (groundwater), VOC_s=TCL VOCs (soil)	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	05/17/18 1900	ALS	5/18/18 0930	

18051328

USEPA CLP COC (LAB COPY)
DateShipped: 5/17/2018
CarrierName: FedEx
AirbillNo:

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-051718-165320-0002
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
~~PMC-TB-01-051718~~	~~18CP02-21~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC(21)~~	~~A (HCl pH<2 4C) (1)~~	~~PMC-TB~~	~~05/17/2018 16:15~~	
PMC-TB-02-051718	18CP02-22	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (1)	PMC-TB	05/17/2018 16:20	
PMC-TB-03-051718	18CP02-23	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/17/2018 16:00	
~~PMC-TB-04-051718~~	~~18CP02-24~~	~~Blank/ CH2M~~	~~Grab~~	~~VOC_s(21)~~	~~A (MeOH) (2)~~	~~PMC-TB~~	~~05/17/2018 16:05~~	

Special Instructions:	**Shipment for Case Complete? N**
	Samples Transferred From Chain of Custody #
Analysis Key: VOC=TCL VOCs (groundwater), VOC_s=TCL VOCs (soil)	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	CH2M/Jacobs	05/17/18 1900	ALS	5/18/18 0930	

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **18-May-18 09:30**

Work Order: **18051328** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 19-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 20-May-18 (Date)

Matrices: Soil & Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/19/2018 9:06:09 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Work Order: 18051407

Project Name:

PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

02-Jul-2018

NELAP ACCREDITED LABORATORY

Certificate No: MI: 0022

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

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Section I

CASE NARRATIVE

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ALS Group, USA *Date: 02-Jul-18*

Client:	Jacobs
Project:	PMC
Work Order:	18051407

Case Narrative

Samples for the above noted Work Order were received on 05/19/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch 118698, Method VOC_8260_S, Sample 18051407-07A MS/MSD: The MS/MSD recoveries were above the upper control limits for 2-Hexanone, Acetone, Tetrachloroethene, and Trichloroethene. The corresponding results in the parent sample may be biased high.

Batch 118698, Method VOC_8260_S, Sample 18051407-07A MSD: The RPDs between the MS and MSD were outside the control limits for multiple compounds per the QC report. The corresponding results in the parent sample should be considered estimated.

Batch R236669, Method VOC_8260_SLL, Sample 18051407-09A MS/MSD: The MS/MSD recoveries were above the upper control limits for multiple compounds per the QC report. The corresponding results in the parent sample were non-detect, therefore no qualification is required.

Batch R236669, Method VOC_8260_SLL, Sample 18051407-09A MS/MSD: The MS/MSD recoveries were below the lower control limits for multiple compounds per the QC report. The corresponding results in the parent sample may be biased low.

Batch R236723, Method VOC_8260_W, Sample VLCSW2-180527: The LCS recoveries were above the upper control limits for 1,1,2,2-Tetrachloroethane and Dichlorodifluoromethane. All the sample results in the batch were non-detect. No qualification is required.

Wet Chemistry:

Client:	Jacobs
Project:	PMC
Work Order:	18051407

Case Narrative

Batch R236768, Method TOC_WBLK_S, Sample 18051407-07C MS/MSD: The MS/MSD recovery was below the lower control limit for TOC. The corresponding result in the parent sample may be biased low.

Batch 118941, Method OXDMD_KMNO4_S, Samples 18051407-04D DUP2, -04D DUP3, -08D DUP2, and -08D DUP3: The RPDs between the samples and the duplicates were out of control. The corresponding sample result should be considered estimated.Batch R236723, Method VOC_8260_W, Sample VLCSW1-180527: 1
Prep Comments for VOC_5035_S, Sample 18051407-01A: Trip blank. Prep Comments for VOC_5035_S, Sample 18051407-02A: Updated EMR Prep Comments for VOC_5035_S, Sample 18051407-03A: Updated EMR Prep Comments for VOC_5035_S, Sample 18051407-04A: Updated EMR Prep Comments for VOC_5035_S, Sample 18051407-07A: Updated EMR Prep Comments for VOC_5035_S, Sample 18051407-09A: Updated EMR Prep Comments for VOC_5035_S, Sample 18051407-10A: Updated EMR

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

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ALS Group, USA

Date: 02-Jul-18

Client: Jacobs
Project: PMC
Work Order: 18051407

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051407-01	18CP02-25	Soil		5/18/2018 16:00	5/19/2018 10:30	☐
18051407-02	18CP02-26	Soil		5/18/2018 09:00	5/19/2018 10:30	☐
18051407-03	18CP02-27	Soil		5/18/2018 09:15	5/19/2018 10:30	☐
18051407-04	18CP02-28	Soil		5/18/2018 09:35	5/19/2018 10:30	☐
18051407-05	18CP02-29	Groundwater		5/18/2018 14:40	5/19/2018 10:30	☐
18051407-06	18CP02-30	Groundwater		5/18/2018 14:40	5/19/2018 10:30	☐
18051407-07	18CP02-31	Soil		5/18/2018 10:15	5/19/2018 10:30	☐
18051407-08	18CP02-32	Soil		5/18/2018 10:40	5/19/2018 10:30	☐
18051407-09	18CP02-33	Soil		5/18/2018 10:50	5/19/2018 10:30	☐
18051407-10	18CP02-34	Soil		5/18/2018 11:00	5/19/2018 10:30	☐
18051407-11	18CP02-35	Groundwater		5/18/2018 15:20	5/19/2018 10:30	☐
18051407-12	18CP02-36	Water		5/18/2018 16:05	5/19/2018 10:30	☐

18051407

USEPA CLP COC (LAB COPY)
DateShipped: 5/18/2018
CarrierName: FedEx
AirbillNo: 7810 2669 6977

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-051818-103244-0003
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-TB-05-051818	18CP02-25	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/18/2018 16:00	
2	PMC-SVB-11-SO/4.5-5.5-051818	18CP02-26	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (1MeOH 1H2O), B (4 C) (4)	PMC-SVB-11	05/18/2018 09:00	
3	PMC-SVB-11-SO/13.0-14.0-051818	18CP02-27	Soil/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (3)	PMC-SVB-11	05/18/2018 09:15	
4	PMC-SVB-11-SO/18.0-19.0-051818	18CP02-28	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-11	05/18/2018 09:35	
5	PMC-SVB-11-GW/7.8-12.8-051818	18CP02-29	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-11	05/18/2018 14:40	
6	PMC-SVB-11-GW/7.8-12.8-051818-FD	18CP02-30	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-11	05/18/2018 14:40	
7	PMC-SVB-12-SO/1.5-2.5-051818	18CP02-31	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (1MeOH 1H2O), B (4 C) (12)	PMC-SVB-12	05/18/2018 10:15	

Sample(s) to be used for Lab QC: PMC-SVB-12-SO/1.5-2.5-051818 Tag A, PMC-SVB-12-SO/1.5-2.5-051818 Tag B

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Sims (Jenn Simms/Jacobs)	05/18/18 18:00	ALS	5/19/18 1030	

SPL 4.2°C

USEPA CLP COC (LAB COPY)
DateShipped: 5/18/2018
CarrierName: FedEx
AirbillNo: 7810 2669 6977

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-051818-103244-0003
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
8	PMC-SVB-12-SO/8.0-9.0-051818	18CP02-32	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 10:40	
9	PMC-SVB-12-SO/12.0-13.0-051818	18CP02-33	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 10:50	
10	PMC-SVB-12-SO/14.0-15.0-051818	18CP02-34	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 11:00	
11	PMC-SVB-12-GW/8.5-13.5-051818	18CP02-35	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-12	05/18/2018 15:20	
12	PMC-TB-06-051818	18CP02-36	Blank/ CH2M	Grab	VOC (21)	A (1 HCl pH<2 4C, 1H2O) (2)	PMC-TB	05/18/2018 16:05	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	(Tom Sinns/Jacobs)	05/18/18 1860	ALS	5/19/18 1030	

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **19-May-18 10:30**

Work Order: **18051407** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 21-May-18 (Date) Reviewed by: Alex Csaszar (eSignature) 21-May-18 (Date)

Matrices: Water & Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.2/4.2 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/21/2018 3:12:01 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Missing Volatiles samples for 1801407-08.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

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GC/MS
Volatile Organics

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1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-31

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-07A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	55	U
79-34-5	1,1,2,2-Tetrachloroethane	55	U
79-00-5	1,1,2-Trichloroethane	55	U
76-13-1	1,1,2-Trichlorotrifluoroeth	55	U
75-34-3	1,1-Dichloroethane	55	U
75-35-4	1,1-Dichloroethene	55	U
87-61-6	1,2,3-Trichlorobenzene	55	U
120-82-1	1,2,4-Trichlorobenzene	55	U
96-12-8	1,2-Dibromo-3-chloropropane	180	U
106-93-4	1,2-Dibromoethane	55	U
95-50-1	1,2-Dichlorobenzene	55	U
107-06-2	1,2-Dichloroethane	55	U
78-87-5	1,2-Dichloropropane	55	U
541-73-1	1,3-Dichlorobenzene	55	U
106-46-7	1,4-Dichlorobenzene	55	U
78-93-3	2-Butanone	370	U
591-78-6	2-Hexanone	55	U
108-10-1	4-Methyl-2-pentanone	55	U
67-64-1	Acetone	180	U
71-43-2	Benzene	55	U
74-97-5	Bromochloromethane	55	U
75-27-4	Bromodichloromethane	55	U
75-25-2	Bromoform	55	U
74-83-9	Bromomethane	180	U
75-15-0	Carbon disulfide	55	U
56-23-5	Carbon tetrachloride	55	U
108-90-7	Chlorobenzene	55	U
75-00-3	Chloroethane	180	U
67-66-3	Chloroform	55	U
74-87-3	Chloromethane	180	U
156-59-2	cis-1,2-Dichloroethene	55	U
10061-01-5	cis-1,3-Dichloropropene	55	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-31

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-07A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	55	U
124-48-1	Dibromochloromethane	55	U
75-71-8	Dichlorodifluoromethane	55	U
100-41-4	Ethylbenzene	55	U
98-82-8	Isopropylbenzene	55	U
136777-61-2	m,p-Xylene	110	U
79-20-9	Methyl acetate	370	U
1634-04-4	Methyl tert-butyl ether	55	U
108-87-2	Methylcyclohexane	55	U
75-09-2	Methylene chloride	55	U
95-47-6	o-Xylene	55	U
100-42-5	Styrene	55	U
127-18-4	Tetrachloroethene	35	J
108-88-3	Toluene	55	U
156-60-5	trans-1,2-Dichloroethene	55	U
10061-02-6	trans-1,3-Dichloropropene	55	U
79-01-6	Trichloroethene	1,100	
75-69-4	Trichlorofluoromethane	55	U
75-01-4	Vinyl chloride	55	U
1330-20-7	Xylenes, Total	170	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/Kg-dry	Q
67-64-1	Acetone	110	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-34

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-10A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	35	U
79-34-5	1,1,2,2-Tetrachloroethane	35	U
79-00-5	1,1,2-Trichloroethane	35	U
76-13-1	1,1,2-Trichlorotrifluoroeth	35	U
75-34-3	1,1-Dichloroethane	35	U
75-35-4	1,1-Dichloroethene	35	U
87-61-6	1,2,3-Trichlorobenzene	35	U
120-82-1	1,2,4-Trichlorobenzene	35	U
96-12-8	1,2-Dibromo-3-chloropropane	120	U
106-93-4	1,2-Dibromoethane	35	U
95-50-1	1,2-Dichlorobenzene	35	U
107-06-2	1,2-Dichloroethane	35	U
78-87-5	1,2-Dichloropropane	35	U
541-73-1	1,3-Dichlorobenzene	35	U
106-46-7	1,4-Dichlorobenzene	35	U
78-93-3	2-Butanone	230	U
591-78-6	2-Hexanone	35	U
108-10-1	4-Methyl-2-pentanone	35	U
67-64-1	Acetone	120	U
71-43-2	Benzene	35	U
74-97-5	Bromochloromethane	35	U
75-27-4	Bromodichloromethane	35	U
75-25-2	Bromoform	35	U
74-83-9	Bromomethane	120	U
75-15-0	Carbon disulfide	35	U
56-23-5	Carbon tetrachloride	35	U
108-90-7	Chlorobenzene	35	U
75-00-3	Chloroethane	120	U
67-66-3	Chloroform	35	U
74-87-3	Chloromethane	120	U
156-59-2	cis-1,2-Dichloroethene	35	U
10061-01-5	cis-1,3-Dichloropropene	35	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-34

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-10A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	35	U
124-48-1	Dibromochloromethane	35	U
75-71-8	Dichlorodifluoromethane	35	U
100-41-4	Ethylbenzene	35	U
98-82-8	Isopropylbenzene	35	U
136777-61-2	m,p-Xylene	70	U
79-20-9	Methyl acetate	230	U
1634-04-4	Methyl tert-butyl ether	35	U
108-87-2	Methylcyclohexane	35	U
75-09-2	Methylene chloride	42	
95-47-6	o-Xylene	35	U
100-42-5	Styrene	35	U
127-18-4	Tetrachloroethene	33	J
108-88-3	Toluene	35	U
156-60-5	trans-1,2-Dichloroethene	35	U
10061-02-6	trans-1,3-Dichloropropene	35	U
79-01-6	Trichloroethene	1,600	
75-69-4	Trichlorofluoromethane	35	U
75-01-4	Vinyl chloride	35	U
1330-20-7	Xylenes, Total	110	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-25

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-01A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg	Q
71-55-6	1,1,1-Trichloroethane	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
78-93-3	2-Butanone	10	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	5.0	U
74-97-5	Bromochloromethane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
75-25-2	Bromoform	5.0	U
74-83-9	Bromomethane	10	U
75-15-0	Carbon disulfide	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
108-90-7	Chlorobenzene	5.0	U
75-00-3	Chloroethane	5.0	U
67-66-3	Chloroform	5.0	U
74-87-3	Chloromethane	10	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-25

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-01A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg	Q
110-82-7	Cyclohexane	10	U
124-48-1	Dibromochloromethane	5.0	U
75-71-8	Dichlorodifluoromethane	10	U
100-41-4	Ethylbenzene	5.0	U
98-82-8	Isopropylbenzene	5.0	U
136777-61-2	m,p-Xylene	2.5	U
79-20-9	Methyl acetate	10	U
1634-04-4	Methyl tert-butyl ether	5.0	U
108-87-2	Methylcyclohexane	10	U
75-09-2	Methylene chloride	4.1	J
95-47-6	o-Xylene	2.5	U
100-42-5	Styrene	5.0	U
127-18-4	Tetrachloroethene	5.0	U
108-88-3	Toluene	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-01-6	Trichloroethene	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
1330-20-7	Xylenes, Total	5.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-26

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 6.5 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.79

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.2	U
79-34-5	1,1,2,2-Tetrachloroethane	4.2	U
79-00-5	1,1,2-Trichloroethane	4.2	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.2	U
75-34-3	1,1-Dichloroethane	4.2	U
75-35-4	1,1-Dichloroethene	4.2	U
87-61-6	1,2,3-Trichlorobenzene	4.2	U
120-82-1	1,2,4-Trichlorobenzene	4.2	U
96-12-8	1,2-Dibromo-3-chloropropane	4.2	U
106-93-4	1,2-Dibromoethane	4.2	U
95-50-1	1,2-Dichlorobenzene	4.2	U
107-06-2	1,2-Dichloroethane	4.2	U
78-87-5	1,2-Dichloropropane	4.2	U
541-73-1	1,3-Dichlorobenzene	4.2	U
106-46-7	1,4-Dichlorobenzene	4.2	U
78-93-3	2-Butanone	8.4	U
591-78-6	2-Hexanone	4.2	U
108-10-1	4-Methyl-2-pentanone	4.2	U
67-64-1	Acetone	29	
71-43-2	Benzene	4.2	U
74-97-5	Bromochloromethane	4.2	U
75-27-4	Bromodichloromethane	4.2	U
75-25-2	Bromoform	4.2	U
74-83-9	Bromomethane	8.4	U
75-15-0	Carbon disulfide	4.2	U
56-23-5	Carbon tetrachloride	4.2	U
108-90-7	Chlorobenzene	4.2	U
75-00-3	Chloroethane	4.2	U
67-66-3	Chloroform	4.2	U
74-87-3	Chloromethane	8.4	U
156-59-2	cis-1,2-Dichloroethene	4.2	U
10061-01-5	cis-1,3-Dichloropropene	4.2	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-26

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 6.5 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.79

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	8.4	U
124-48-1	Dibromochloromethane	4.2	U
75-71-8	Dichlorodifluoromethane	8.4	U
100-41-4	Ethylbenzene	0.66	J
98-82-8	Isopropylbenzene	4.2	U
136777-61-2	m,p-Xylene	1.4	J
79-20-9	Methyl acetate	8.4	U
1634-04-4	Methyl tert-butyl ether	4.2	U
108-87-2	Methylcyclohexane	8.4	U
75-09-2	Methylene chloride	4.2	U
95-47-6	o-Xylene	0.55	J
100-42-5	Styrene	4.2	U
127-18-4	Tetrachloroethene	4.2	U
108-88-3	Toluene	1.8	J
156-60-5	trans-1,2-Dichloroethene	4.2	U
10061-02-6	trans-1,3-Dichloropropene	4.2	U
79-01-6	Trichloroethene	2.0	J
75-69-4	Trichlorofluoromethane	4.2	U
75-01-4	Vinyl chloride	4.2	U
1330-20-7	Xylenes, Total	1.9	J

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-27

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-03A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 6.3 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.82

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.4	U
79-34-5	1,1,2,2-Tetrachloroethane	4.4	U
79-00-5	1,1,2-Trichloroethane	4.4	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.4	U
75-34-3	1,1-Dichloroethane	4.4	U
75-35-4	1,1-Dichloroethene	4.4	U
87-61-6	1,2,3-Trichlorobenzene	4.4	U
120-82-1	1,2,4-Trichlorobenzene	4.4	U
96-12-8	1,2-Dibromo-3-chloropropane	4.4	U
106-93-4	1,2-Dibromoethane	4.4	U
95-50-1	1,2-Dichlorobenzene	4.4	U
107-06-2	1,2-Dichloroethane	4.4	U
78-87-5	1,2-Dichloropropane	4.4	U
541-73-1	1,3-Dichlorobenzene	4.4	U
106-46-7	1,4-Dichlorobenzene	4.4	U
78-93-3	2-Butanone	8.8	U
591-78-6	2-Hexanone	4.4	U
108-10-1	4-Methyl-2-pentanone	4.4	U
67-64-1	Acetone	34	
71-43-2	Benzene	1.6	J
74-97-5	Bromochloromethane	4.4	U
75-27-4	Bromodichloromethane	4.4	U
75-25-2	Bromoform	4.4	U
74-83-9	Bromomethane	8.8	U
75-15-0	Carbon disulfide	4.4	U
56-23-5	Carbon tetrachloride	4.4	U
108-90-7	Chlorobenzene	4.4	U
75-00-3	Chloroethane	4.4	U
67-66-3	Chloroform	4.4	U
74-87-3	Chloromethane	8.8	U
156-59-2	cis-1,2-Dichloroethene	4.4	U
10061-01-5	cis-1,3-Dichloropropene	4.4	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-27

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-03A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 6.3 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.82

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	8.8	U
124-48-1	Dibromochloromethane	4.4	U
75-71-8	Dichlorodifluoromethane	8.8	U
100-41-4	Ethylbenzene	1.5	J
98-82-8	Isopropylbenzene	4.4	U
136777-61-2	m,p-Xylene	4.0	
79-20-9	Methyl acetate	8.8	U
1634-04-4	Methyl tert-butyl ether	4.4	U
108-87-2	Methylcyclohexane	1.4	J
75-09-2	Methylene chloride	4.4	U
95-47-6	o-Xylene	1.6	J
100-42-5	Styrene	4.4	U
127-18-4	Tetrachloroethene	1.5	J
108-88-3	Toluene	5.8	
156-60-5	trans-1,2-Dichloroethene	4.4	U
10061-02-6	trans-1,3-Dichloropropene	4.4	U
79-01-6	Trichloroethene	12	
75-69-4	Trichlorofluoromethane	4.4	U
75-01-4	Vinyl chloride	4.4	U
1330-20-7	Xylenes, Total	5.5	

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-28

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 7.7 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.97

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	5.2	U
79-34-5	1,1,2,2-Tetrachloroethane	5.2	U
79-00-5	1,1,2-Trichloroethane	5.2	U
76-13-1	1,1,2-Trichlorotrifluoroeth	5.2	U
75-34-3	1,1-Dichloroethane	5.2	U
75-35-4	1,1-Dichloroethene	5.2	U
87-61-6	1,2,3-Trichlorobenzene	5.2	U
120-82-1	1,2,4-Trichlorobenzene	5.2	U
96-12-8	1,2-Dibromo-3-chloropropane	5.2	U
106-93-4	1,2-Dibromoethane	5.2	U
95-50-1	1,2-Dichlorobenzene	5.2	U
107-06-2	1,2-Dichloroethane	5.2	U
78-87-5	1,2-Dichloropropane	5.2	U
541-73-1	1,3-Dichlorobenzene	5.2	U
106-46-7	1,4-Dichlorobenzene	5.2	U
78-93-3	2-Butanone	10	U
591-78-6	2-Hexanone	5.2	U
108-10-1	4-Methyl-2-pentanone	5.2	U
67-64-1	Acetone	10	U
71-43-2	Benzene	5.2	U
74-97-5	Bromochloromethane	5.2	U
75-27-4	Bromodichloromethane	5.2	U
75-25-2	Bromoform	5.2	U
74-83-9	Bromomethane	10	U
75-15-0	Carbon disulfide	5.2	U
56-23-5	Carbon tetrachloride	5.2	U
108-90-7	Chlorobenzene	5.2	U
75-00-3	Chloroethane	5.2	U
67-66-3	Chloroform	5.2	U
74-87-3	Chloromethane	10	U
156-59-2	cis-1,2-Dichloroethene	5.2	U
10061-01-5	cis-1,3-Dichloropropene	5.2	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-28

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 7.7 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.97

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	10	U
124-48-1	Dibromochloromethane	5.2	U
75-71-8	Dichlorodifluoromethane	10	U
100-41-4	Ethylbenzene	5.2	U
98-82-8	Isopropylbenzene	5.2	U
136777-61-2	m,p-Xylene	2.6	U
79-20-9	Methyl acetate	10	U
1634-04-4	Methyl tert-butyl ether	5.2	U
108-87-2	Methylcyclohexane	10	U
75-09-2	Methylene chloride	5.2	U
95-47-6	o-Xylene	2.6	U
100-42-5	Styrene	5.2	U
127-18-4	Tetrachloroethene	1.3	J
108-88-3	Toluene	5.2	U
156-60-5	trans-1,2-Dichloroethene	5.2	U
10061-02-6	trans-1,3-Dichloropropene	5.2	U
79-01-6	Trichloroethene	5.2	U
75-69-4	Trichlorofluoromethane	5.2	U
75-01-4	Vinyl chloride	5.2	U
1330-20-7	Xylenes, Total	5.2	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 5.1 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.95

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
78-93-3	2-Butanone	10	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
71-43-2	Benzene	0.79	J
74-97-5	Bromochloromethane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
75-25-2	Bromoform	5.0	U
74-83-9	Bromomethane	10	U
75-15-0	Carbon disulfide	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
108-90-7	Chlorobenzene	5.0	U
75-00-3	Chloroethane	5.0	U
67-66-3	Chloroform	5.0	U
74-87-3	Chloromethane	10	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
110-82-7	Cyclohexane	10	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 5.1 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.95

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
124-48-1	Dibromochloromethane	5.0	U
75-71-8	Dichlorodifluoromethane	10	U
100-41-4	Ethylbenzene	0.92	J
98-82-8	Isopropylbenzene	5.0	U
136777-61-2	m,p-Xylene	2.0	J
79-20-9	Methyl acetate	10	U
1634-04-4	Methyl tert-butyl ether	5.0	U
108-87-2	Methylcyclohexane	10	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	0.95	J
100-42-5	Styrene	5.0	U
127-18-4	Tetrachloroethene	2.8	J
108-88-3	Toluene	2.7	J
156-60-5	trans-1,2-Dichloroethene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-01-6	Trichloroethene	23	
75-69-4	Trichlorofluoromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
1330-20-7	Xylenes, Total	2.9	J

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-29

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/29/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	3.2	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-29

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/29/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	5.7	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-30

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-06A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/28/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-30

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-06A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/28/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	5.6	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-35

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-11A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/29/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	0.88	J
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	4.6	J
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-35

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-11A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/29/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.54	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	15	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-36

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-12A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/27/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-36

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051407

Matrix: Water Lab Sample ID: 18051407-12A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/19/2018

% Moisture: not dec. 0 Date Analyzed: 5/27/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

ALS Group, USA

Client: Jacobs
Work Order: 18051407
Project: PMC

Date: 02-Jul-18

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MBLK Sample ID: **MBLK-118698-118698** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 12:15 PM**
Client ID: Run ID: **VMS7_180525A** SeqNo: **5056412** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	30								
1,1,2,2-Tetrachloroethane	U	30								
1,1,2-Trichloroethane	U	30								
1,1,2-Trichlorotrifluoroethane	U	30								
1,1-Dichloroethane	U	30								
1,1-Dichloroethene	U	30								
1,2,3-Trichlorobenzene	U	30								
1,2,4-Trichlorobenzene	U	30								
1,2-Dibromo-3-chloropropane	U	100								
1,2-Dibromoethane	U	30								
1,2-Dichlorobenzene	U	30								
1,2-Dichloroethane	U	30								
1,2-Dichloropropane	U	30								
1,3-Dichlorobenzene	U	30								
1,4-Dichlorobenzene	U	30								
2-Butanone	U	200								
2-Hexanone	U	30								
4-Methyl-2-pentanone	U	30								
Acetone	U	100								
Benzene	U	30								
Bromochloromethane	U	30								
Bromodichloromethane	U	30								
Bromoform	U	30								
Bromomethane	U	100								
Carbon disulfide	U	30								
Carbon tetrachloride	U	30								
Chlorobenzene	U	30								
Chloroethane	U	100								
Chloroform	U	30								
Chloromethane	U	100								
cis-1,2-Dichloroethene	U	30								
cis-1,3-Dichloropropene	U	30								
Cyclohexane	U	30								
Dibromochloromethane	U	30								
Dichlorodifluoromethane	U	30								
Ethylbenzene	U	30								
Isopropylbenzene	U	30								
m,p-Xylene	U	60								
Methyl acetate	U	200								
Methyl tert-butyl ether	U	30								
Methylcyclohexane	U	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

Methylene chloride	U	30					
o-Xylene	U	30					
Styrene	U	30					
Tetrachloroethene	U	30					
Toluene	U	30					
trans-1,2-Dichloroethene	U	30					
trans-1,3-Dichloropropene	U	30					
Trichloroethene	U	30					
Trichlorofluoromethane	U	30					
Vinyl chloride	U	30					
Xylenes, Total	U	90					
Surr: 1,2-Dichloroethane-d4	*940*	0	*1000*	0	*94*	*70-130*	0
Surr: 4-Bromofluorobenzene	*989.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Dibromofluoromethane	*938*	0	*1000*	0	*93.8*	*70-130*	0
Surr: Toluene-d8	*970*	0	*1000*	0	*97*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

LCS Sample ID: **LCS-118698-118698** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 11:12 AM**
Client ID: Run ID: **VMS7_180525A** SeqNo: **5056411** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1081	30	1000	0	108	70-135	0			
1,1,2,2-Tetrachloroethane	1088	30	1000	0	109	55-130	0			
1,1,2-Trichloroethane	993	30	1000	0	99.3	60-125	0			
1,1-Dichloroethane	1066	30	1000	0	107	75-125	0			
1,1-Dichloroethene	1184	30	1000	0	118	76-148	0			
1,2,3-Trichlorobenzene	1035	30	1000	0	104	60-135	0			
1,2,4-Trichlorobenzene	1038	30	1000	0	104	65-130	0			
1,2-Dibromo-3-chloropropane	1014	100	1000	0	101	40-135	0			
1,2-Dibromoethane	1054	30	1000	0	105	80-195	0			
1,2-Dichlorobenzene	1002	30	1000	0	100	75-120	0			
1,2-Dichloroethane	1027	30	1000	0	103	70-135	0			
1,2-Dichloropropane	1058	30	1000	0	106	70-120	0			
1,3-Dichlorobenzene	1000	30	1000	0	100	70-125	0			
1,4-Dichlorobenzene	1012	30	1000	0	101	70-125	0			
2-Butanone	956.5	200	1000	0	95.6	30-160	0			
2-Hexanone	869	30	1000	0	86.9	45-145	0			
4-Methyl-2-pentanone	1208	30	1000	0	121	74-176	0			
Acetone	1198	100	1000	0	120	20-160	0			
Benzene	1060	30	1000	0	106	75-125	0			
Bromochloromethane	1060	30	1000	0	106	74-134	0			
Bromodichloromethane	1068	30	1000	0	107	70-130	0			
Bromoform	995.5	30	1000	0	99.6	55-135	0			
Bromomethane	1229	100	1000	0	123	50-170	0			
Carbon disulfide	1138	30	1000	0	114	45-160	0			
Carbon tetrachloride	976	30	1000	0	97.6	65-135	0			
Chlorobenzene	1068	30	1000	0	107	75-125	0			
Chloroethane	916	100	1000	0	91.6	40-155	0			
Chloroform	1098	30	1000	0	110	70-125	0			
Chloromethane	682.5	100	1000	0	68.2	50-144	0			
cis-1,2-Dichloroethene	1059	30	1000	0	106	65-125	0			
cis-1,3-Dichloropropene	1045	30	1000	0	104	70-125	0			
Dibromochloromethane	982.5	30	1000	0	98.2	65-135	0			
Dichlorodifluoromethane	693	30	1000	0	69.3	35-135	0			
Ethylbenzene	1036	30	1000	0	104	75-125	0			
Isopropylbenzene	1006	30	1000	0	101	75-130	0			
m,p-Xylene	2108	60	2000	0	105	80-125	0			
Methyl tert-butyl ether	1123	30	1000	0	112	75-125	0			
Methylene chloride	1100	30	1000	0	110	55-145	0			
o-Xylene	1016	30	1000	0	102	75-125	0			
Styrene	1044	30	1000	0	104	80-138	0			
Tetrachloroethene	967.5	30	1000	0	96.8	67-167	0			
Toluene	1008	30	1000	0	101	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1110	30	1000	0	111	65-135	0
trans-1,3-Dichloropropene	996	30	1000	0	99.6	59-129	0
Trichloroethene	1007	30	1000	0	101	75-125	0
Trichlorofluoromethane	886.5	30	1000	0	88.6	25-185	0
Vinyl chloride	1007	30	1000	0	101	60-125	0
Xylenes, Total	3124	90	3000	0	104	75-125	0
Surr: 1,2-Dichloroethane-d4	*997.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*972*	0	*1000*	0	*97.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MS Sample ID: **18051407-07A MS** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 08:17 PM**
Client ID: **18CP02-31** Run ID: **VMS7_180525A** SeqNo: **5056415** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2229	54	1791	0	124	70-135	0			
1,1,2,2-Tetrachloroethane	550	54	1791	0	30.7	55-130	0			S
1,1,2-Trichloroethane	2075	54	1791	0	116	60-125	0			
1,1-Dichloroethane	2145	54	1791	0	120	75-125	0			
1,1-Dichloroethene	2289	54	1791	0	128	76-148	0			
1,2,3-Trichlorobenzene	1825	54	1791	0	102	60-135	0			
1,2,4-Trichlorobenzene	1696	54	1791	0	94.6	65-130	0			
1,2-Dibromo-3-chloropropane	1534	180	1791	0	85.6	40-135	0			
1,2-Dibromoethane	2152	54	1791	0	120	80-195	0			
1,2-Dichlorobenzene	1886	54	1791	0	105	75-120	0			
1,2-Dichloroethane	1997	54	1791	0	111	70-135	0			
1,2-Dichloropropane	2038	54	1791	0	114	70-120	0			
1,3-Dichlorobenzene	1800	54	1791	0	100	70-125	0			
1,4-Dichlorobenzene	1915	54	1791	0	107	70-125	0			
2-Butanone	2447	360	1791	0	137	30-160	0			
2-Hexanone	2669	54	1791	0	149	45-145	0			S
4-Methyl-2-pentanone	1852	54	1791	0	103	74-176	0			
Acetone	3492	180	1791	0	195	20-160	0			S
Benzene	2141	54	1791	0	120	75-125	0			
Bromochloromethane	1980	54	1791	0	111	74-134	0			
Bromodichloromethane	1958	54	1791	0	109	70-130	0			
Bromoform	2068	54	1791	0	115	55-135	0			
Bromomethane	2275	180	1791	0	127	50-170	0			
Carbon disulfide	2216	54	1791	0	124	45-160	0			
Carbon tetrachloride	2035	54	1791	0	114	65-135	0			
Chlorobenzene	2108	54	1791	0	118	75-125	0			
Chloroethane	1669	180	1791	0	93.2	40-155	0			
Chloroform	2149	54	1791	0	120	70-125	0			
Chloromethane	1520	180	1791	0	84.8	50-144	0			
cis-1,2-Dichloroethene	1953	54	1791	0	109	65-125	0			
cis-1,3-Dichloropropene	1840	54	1791	0	103	70-125	0			
Dibromochloromethane	1943	54	1791	0	108	65-135	0			
Dichlorodifluoromethane	2011	54	1791	0	112	35-135	0			
Ethylbenzene	2147	54	1791	0	120	75-125	0			
Isopropylbenzene	2160	54	1791	0	121	75-130	0			
m,p-Xylene	4308	110	3583	0	120	80-125	0			
Methyl tert-butyl ether	1936	54	1791	0	108	75-125	0			
Methylene chloride	1930	54	1791	0	108	55-145	0			
o-Xylene	2006	54	1791	0	112	75-125	0			
Styrene	2067	54	1791	0	115	80-138	0			
Tetrachloroethene	3804	54	1791	34.84	210	67-167	0			S
Toluene	2019	54	1791	0	113	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1985	54	1791	0	111	65-135	0	
trans-1,3-Dichloropropene	1802	54	1791	0	101	59-129	0	
Trichloroethene	4583	54	1791	1150	192	75-125	0	S
Trichlorofluoromethane	1984	54	1791	0	111	25-185	0	
Vinyl chloride	2014	54	1791	0	112	60-125	0	
Xylenes, Total	6313	160	5374	0	117	75-125	0	
Surr: 1,2-Dichloroethane-d4	*1966*	0	*1791*	0	*110*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1843*	0	*1791*	0	*103*	*70-130*	0	
Surr: Dibromofluoromethane	*1882*	0	*1791*	0	*105*	*70-130*	0	
Surr: Toluene-d8	*1972*	0	*1791*	0	*110*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MSD Sample ID: **18051407-07A MSD** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 08:39 PM**
Client ID: **18CP02-31** Run ID: **VMS7_180525A** SeqNo: **5056416** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1514	48	1597	0	94.8	70-135	2229	38.3	30	R
1,1,2,2-Tetrachloroethane	252.4	48	1597	0	15.8	55-130	550	74.2	30	SR
1,1,2-Trichloroethane	1805	48	1597	0	113	60-125	2075	13.9	30	
1,1-Dichloroethane	1619	48	1597	0	101	75-125	2145	28	30	
1,1-Dichloroethene	1664	48	1597	0	104	76-148	2289	31.6	30	R
1,2,3-Trichlorobenzene	1603	48	1597	0	100	60-135	1825	12.9	30	
1,2,4-Trichlorobenzene	1586	48	1597	0	99.3	65-130	1696	6.67	30	
1,2-Dibromo-3-chloropropane	1721	160	1597	0	108	40-135	1534	11.5	30	
1,2-Dibromoethane	1956	48	1597	0	122	80-195	2152	9.56	30	
1,2-Dichlorobenzene	1631	48	1597	0	102	75-120	1886	14.5	30	
1,2-Dichloroethane	1589	48	1597	0	99.4	70-135	1997	22.8	30	
1,2-Dichloropropane	1642	48	1597	0	103	70-120	2038	21.5	30	
1,3-Dichlorobenzene	1538	48	1597	0	96.3	70-125	1800	15.7	30	
1,4-Dichlorobenzene	1642	48	1597	0	103	70-125	1915	15.3	30	
2-Butanone	2252	320	1597	0	141	30-160	2447	8.33	30	
2-Hexanone	2400	48	1597	0	150	45-145	2669	10.6	30	S
4-Methyl-2-pentanone	1717	48	1597	0	108	74-176	1852	7.57	30	
Acetone	3041	160	1597	0	190	20-160	3492	13.8	30	S
Benzene	1601	48	1597	0	100	75-125	2141	28.8	30	
Bromochloromethane	1590	48	1597	0	99.6	74-134	1980	21.9	30	
Bromodichloromethane	1608	48	1597	0	101	70-130	1958	19.6	30	
Bromoform	1674	48	1597	0	105	55-135	2068	21.1	30	
Bromomethane	1388	160	1597	0	86.9	50-170	2275	48.4	30	R
Carbon disulfide	1565	48	1597	0	98	45-160	2218	34.5	30	R
Carbon tetrachloride	1395	48	1597	0	87.3	65-135	2035	37.4	30	R
Chlorobenzene	1731	46	1597	0	108	75-125	2108	19.6	30	
Chloroethane	1123	160	1597	0	70.3	40-155	1669	39.1	30	R
Chloroform	1657	46	1597	0	104	70-125	2149	25.9	30	
Chloromethane	1159	160	1597	0	72.6	50-144	1520	27	30	
cis-1,2-Dichloroethene	1489	48	1597	0	93.2	65-125	1953	27	30	
cis-1,3-Dichloropropene	1444	48	1597	0	90.4	70-125	1840	24.1	30	
Dibromochloromethane	1661	48	1597	0	104	65-135	1943	15.6	30	
Dichlorodifluoromethane	1219	48	1597	0	76.3	35-135	2011	49.1	30	R
Ethylbenzene	1668	48	1597	0	104	75-125	2147	25.1	30	
Isopropylbenzene	1589	48	1597	0	99.4	75-130	2160	30.5	30	R
m,p-Xylene	3362	96	3195	0	105	80-125	4308	24.7	30	
Methyl tert-butyl ether	1764	48	1597	0	110	75-125	1936	9.26	30	
Methylene chloride	1574	48	1597	0	98.6	55-145	1930	20.3	30	
o-Xylene	1545	48	1597	0	96.7	75-125	2006	26	30	
Styrene	1730	48	1597	0	108	80-138	2067	17.8	30	
Tetrachloroethene	3053	48	1597	34.84	189	67-167	3804	21.9	30	S
Toluene	1614	48	1597	0	101	70-125	2019	22.3	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1605	48	1597	0	100	65-135	1985	21.1	30	
trans-1,3-Dichloropropene	1534	48	1597	0	96	59-129	1802	16.1	30	
Trichloroethene	3614	48	1597	1150	154	75-125	4583	23.6	30	S
Trichlorofluoromethane	1283	48	1597	0	80.3	25-185	1984	42.9	30	R
Vinyl chloride	1571	48	1597	0	98.4	60-125	2014	24.7	30	
Xylenes, Total	4906	140	4792	0	102	75-125	6313	25.1	30	
Surr: 1,2-Dichloroethane-d4	*1593*	0	*1597*	0	*99.7*	*70-130*	1966	*21*	*30*	
Surr: 4-Bromofluorobenzene	*1693*	0	*1597*	0	*106*	*70-130*	1843	*8.49*	*30*	
Surr: Dibromofluoromethane	*1597*	0	*1597*	0	*100*	*70-130*	1882	*16.4*	*30*	
Surr: Toluene-d8	*1668*	0	*1597*	0	*104*	*70-130*	1972	*16.7*	*30*	

The following samples were analyzed in this batch: 18051407-07A, 18051407-09A, 18051407-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180523-R236457** Units: µg/Kg Analysis Date: **5/23/2018 02:24 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050337** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	3.05	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457**	Instrument ID **VMS8**		Method: **SW8260C**				
o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*83-111*	0
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	0
Surr: Toluene-d8	*19.86*	0	*20*	0	*99.3*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSS1-180523-R236457** Units: **µg/Kg** Analysis Date: **5/23/2018 01:30 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050336** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.07	5.0	20	0	95.4	73-138	0			
1,1,2,2-Tetrachloroethane	15.83	5.0	20	0	79.2	71-126	0			
1,1,2-Trichloroethane	16.89	5.0	20	0	84.4	77-123	0			
1,1-Dichloroethane	19.77	5.0	20	0	98.8	63-148	0			
1,1-Dichloroethene	18.87	5.0	20	0	94.4	67-156	0			
1,2,3-Trichlorobenzene	17.86	5.0	20	0	89.3	73-129	0			
1,2,4-Trichlorobenzene	18.53	5.0	20	0	92.6	70-132	0			
1,2-Dibromo-3-chloropropane	13.54	5.0	20	0	67.7	48-127	0			
1,2-Dibromoethane	17.26	5.0	20	0	86.3	71-144	0			
1,2-Dichlorobenzene	19.62	5.0	20	0	98.1	77-127	0			
1,2-Dichloroethane	17.28	5.0	20	0	86.4	77-127	0			
1,2-Dichloropropane	18.42	5.0	20	0	92.1	74-130	0			
1,3-Dichlorobenzene	19.49	5.0	20	0	97.4	75-133	0			
1,4-Dichlorobenzene	19.46	5.0	20	0	97.3	74-130	0			
2-Butanone	12.65	10	20	0	63.2	55-132	0			
2-Hexanone	13.14	5.0	20	0	65.7	55-124	0			
4-Methyl-2-pentanone	16.68	5.0	20	0	83.4	67-159	0			
Acetone	10.73	10	20	0	53.6	31-156	0			
Benzene	18.84	5.0	20	0	94.2	77-133	0			
Bromochloromethane	18.7	5.0	20	0	93.5	72-139	0			
Bromodichloromethane	18.33	5.0	20	0	91.6	69-133	0			
Bromoform	16.07	5.0	20	0	80.4	55-126	0			
Bromomethane	18.99	10	20	0	95	31-174	0			
Carbon disulfide	21.03	5.0	20	0	105	45-160	0			
Carbon tetrachloride	20.31	5.0	20	0	102	69-140	0			
Chlorobenzene	19.31	5.0	20	0	96.6	76-130	0			
Chloroethane	17.28	5.0	20	0	86.4	53-150	0			
Chloroform	18.15	5.0	20	0	90.8	72-132	0			
Chloromethane	14.89	10	20	0	74.4	43-150	0			
cis-1,2-Dichloroethene	18.52	5.0	20	0	92.6	74-134	0			
cis-1,3-Dichloropropene	17.79	5.0	20	0	89	62-134	0			
Dibromochloromethane	16.98	5.0	20	0	84.9	57-118	0			
Dichlorodifluoromethane	16.73	10	20	0	83.6	43-126	0			
Ethylbenzene	18.7	5.0	20	0	93.5	75-133	0			
Isopropylbenzene	19.32	5.0	20	0	96.6	74-137	0			
m,p-Xylene	36.95	2.5	40	0	92.4	75-134	0			
Methyl tert-butyl ether	21.37	5.0	20	0	107	62-136	0			
Methylene chloride	24.19	5.0	20	0	121	55-157	0			
o-Xylene	18.63	2.5	20	0	93.2	76-130	0			
Styrene	17.82	5.0	20	0	89.1	72-138	0			
Tetrachloroethene	20.04	5.0	20	0	100	70-171	0			
Toluene	18.43	5.0	20	0	92.2	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.49	5.0	20	0	92.4	65-137	0
trans-1,3-Dichloropropene	16.11	5.0	20	0	80.6	58-126	0
Trichloroethene	19.23	5.0	20	0	96.2	75-135	0
Trichlorofluoromethane	17.18	5.0	20	0	85.9	62-136	0
Vinyl chloride	19.52	5.0	20	0	97.6	57-143	0
Xylenes, Total	55.58	5.0	60	0	92.6	75-132	0
Surr: 1,2-Dichloroethane-d4	*17.6*	0	*20*	0	*88*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.34*	0	*20*	0	*91.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/23/2018 07:36 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4.27	1.0	5	0	85.4	73-138	0			
1,1,2,2-Tetrachloroethane	4.45	1.0	5	0	89	71-126	0			
1,1,2-Trichloroethane	5.54	1.0	5	0	111	77-123	0			
1,1-Dichloroethane	6.72	2.0	5	0	134	63-148	0			
1,1-Dichloroethene	4.4	1.0	5	0	88	67-156	0			
1,2,3-Trichlorobenzene	U	1.0	5	0	0	73-129	0			S
1,2,4-Trichlorobenzene	U	1.0	5	0	0	70-132	0			S
1,2-Dibromo-3-chloropropane	3.32	1.0	5	0	66.4	48-127	0			
1,2-Dibromoethane	5.71	1.0	5	0	114	71-144	0			
1,2-Dichlorobenzene	1.18	1.0	5	0	23.6	77-127	0			S
1,2-Dichloroethane	6.39	1.0	5	0	128	77-127	0			S
1,2-Dichloropropane	5.8	1.0	5	0	116	74-130	0			
1,3-Dichlorobenzene	1.17	1.0	5	0	23.4	75-133	0			S
1,4-Dichlorobenzene	1.13	1.0	5	0	22.6	74-130	0			S
2-Butanone	10.25	2.0	5	7.575	53.5	55-132	0			S
2-Hexanone	6.35	1.0	5	0	127	55-124	0			S
4-Methyl-2-pentanone	7.85	1.0	5	0	157	67-159	0			
Acetone	93.01	5.0	5	83.43	192	31-156	0			SO
Benzene	4.56	1.0	5	0	91.2	77-133	0			
Bromochloromethane	7.01	1.0	5	0	140	72-139	0			S
Bromodichloromethane	5.35	1.0	5	0	107	69-133	0			
Bromoform	3.78	1.0	5	0	75.6	55-126	0			
Bromomethane	6.45	1.0	5	0	129	31-174	0			
Carbon disulfide	4.05	1.0	5	1.246	56.1	45-160	0			
Carbon tetrachloride	3.06	1.0	5	0	61.2	69-140	0			S
Chlorobenzene	2.42	1.0	5	0	48.4	76-130	0			S
Chloroethane	6.17	1.0	5	0	123	53-150	0			
Chloroform	5.44	1.0	5	0	109	72-132	0			
Chloromethane	4.89	1.0	5	0	97.8	43-150	0			
cis-1,2-Dichloroethene	5.1	1.0	5	0	102	74-134	0			
cis-1,3-Dichloropropene	4.5	1.0	5	0	90	62-134	0			
Dibromochloromethane	4.61	1.0	5	0	92.2	57-118	0			
Dichlorodifluoromethane	1.49	2.0	5	0	29.8	43-126	0			JS
Ethylbenzene	2.23	1.0	5	0	44.6	75-133	0			S
Isopropylbenzene	1.41	1.0	5	0	28.2	74-137	0			S
m,p-Xylene	3.98	2.5	10	0	39.8	75-134	0			S
Methyl tert-butyl ether	10.62	1.0	5	0	212	62-136	0			S
Methylene chloride	7.77	1.0	5	0	155	55-157	0			B
o-Xylene	2.41	1.0	5	0	48.2	76-130	0			S
Styrene	1.95	1.0	5	0	39	72-138	0			S
Tetrachloroethene	1.67	1.0	5	0	33.4	70-171	0			S
Toluene	3.48	1.0	5	2.154	26.5	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	4.78	1.0	5	0	95.6	65-137	0	
trans-1,3-Dichloropropene	4.25	1.0	5	0	85	58-126	0	
Trichloroethene	3.38	1.0	5	0	67.6	75-135	0	S
Trichlorofluoromethane	2.67	1.0	5	0	53.4	62-136	0	S
Vinyl chloride	5.82	1.0	5	0	116	57-143	0	
Xylenes, Total	6.39	2.0	15	0	42.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.26*	0	*20*	0	*96.3*	*83-111*	0	
Surr: Dibromofluoromethane	*20.19*	0	*20*	0	*101*	*77-125*	0	
Surr: Toluene-d8	*19*	0	*20*	0	*95*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/24/2018 04:52 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5055162** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	26.91	5.0	20	0	135	73-138	0			
1,1,2,2-Tetrachloroethane	24.06	5.0	20	0	120	71-126	0			
1,1,2-Trichloroethane	24.95	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	27.94	5.0	20	0	140	63-148	0			
1,1-Dichloroethene	27.67	5.0	20	0	138	67-156	0			
1,2,3-Trichlorobenzene	11.67	5.0	20	0	58.4	73-129	0			S
1,2,4-Trichlorobenzene	12.64	5.0	20	0	63.2	70-132	0			S
1,2-Dibromo-3-chloropropane	19.99	5.0	20	0	100	48-127	0			
1,2-Dibromoethane	26.22	5.0	20	0	131	71-144	0			
1,2-Dichlorobenzene	18.42	5.0	20	0	92.1	77-127	0			
1,2-Dichloroethane	25.33	5.0	20	0	127	77-127	0			
1,2-Dichloropropane	26.22	5.0	20	0	131	74-130	0			S
1,3-Dichlorobenzene	18.33	5.0	20	0	91.6	75-133	0			
1,4-Dichlorobenzene	18.53	5.0	20	0	92.6	74-130	0			
2-Butanone	45.41	10	20	7.575	189	55-132	0			S
2-Hexanone	36.52	5.0	20	0	183	55-124	0			S
4-Methyl-2-pentanone	33.22	5.0	20	0	166	67-159	0			S
Acetone	115	10	20	83.43	158	31-156	0			SEO
Benzene	25.86	5.0	20	0	129	77-133	0			
Bromochloromethane	27.71	5.0	20	0	139	72-139	0			
Bromodichloromethane	26.27	5.0	20	0	131	69-133	0			
Bromoform	23.16	5.0	20	0	116	55-126	0			
Bromomethane	27.39	10	20	0	137	31-174	0			
Carbon disulfide	29.4	5.0	20	1.246	141	45-160	0			
Carbon tetrachloride	27.8	5.0	20	0	139	69-140	0			
Chlorobenzene	23.11	5.0	20	0	116	76-130	0			
Chloroethane	26.48	5.0	20	0	132	53-150	0			
Chloroform	25.88	5.0	20	0	129	72-132	0			
Chloromethane	21.69	10	20	0	108	43-150	0			
cis-1,2-Dichloroethene	25.98	5.0	20	0	130	74-134	0			
cis-1,3-Dichloropropene	25.33	5.0	20	0	127	62-134	0			
Dibromochloromethane	23.73	5.0	20	0	119	57-118	0			S
Dichlorodifluoromethane	29.85	10	20	0	149	43-126	0			S
Ethylbenzene	22.85	5.0	20	0	114	75-133	0			
Isopropylbenzene	21.56	5.0	20	0	108	74-137	0			
m,p-Xylene	44.68	2.5	40	0	112	75-134	0			
Methyl tert-butyl ether	35.08	5.0	20	0	175	62-136	0			S
Methylene chloride	32.16	5.0	20	0	161	55-157	0			S
o-Xylene	22.61	2.5	20	0	113	76-130	0			
Styrene	20.8	5.0	20	0	104	72-138	0			
Tetrachloroethene	23.74	5.0	20	0	119	70-171	0			
Toluene	23.91	5.0	20	2.154	109	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	26.19	5.0	20	0	131	65-137	0	
trans-1,3-Dichloropropene	23.07	5.0	20	0	115	58-126	0	
Trichloroethene	25.66	5.0	20	0	128	75-135	0	
Trichlorofluoromethane	26.49	5.0	20	0	132	62-136	0	
Vinyl chloride	28.72	5.0	20	0	144	57-143	0	S
Xylenes, Total	67.29	5.0	60	0	112	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.12*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.41*	0	*20*	0	*97*	*83-111*	0	
Surr: Dibromofluoromethane	*20.51*	0	*20*	0	*103*	*77-125*	0	
Surr: Toluene-d8	*19.22*	0	*20*	0	*96.1*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051384-01A MSD** Units: **µg/Kg** Analysis Date: **5/23/2018 07:53 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050356** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	6.85	1.0	5	0	137	73-138	4.27	46.4	30	R
1,1,2,2-Tetrachloroethane	7.17	1.0	5	0	143	71-126	4.45	46.8	30	SR
1,1,2-Trichloroethane	8.42	1.0	5	0	168	77-123	5.54	41.3	30	SR
1,1-Dichloroethane	9.51	2.0	5	0	190	63-148	6.72	34.4	30	SR
1,1-Dichloroethene	7.11	1.0	5	0	142	67-156	4.4	47.1	30	R
1,2,3-Trichlorobenzene	2	1.0	5	0	40	73-129	0	200	30	SR
1,2,4-Trichlorobenzene	2.2	1.0	5	0	44	70-132	0.67	107	30	SR
1,2-Dibromo-3-chloropropane	5.32	1.0	5	0	106	48-127	3.32	46.3	30	R
1,2-Dibromoethane	8.53	1.0	5	0	171	71-144	5.71	39.6	30	SR
1,2-Dichlorobenzene	3.87	1.0	5	0	77.4	77-127	1.18	107	30	R
1,2-Dichloroethane	9.17	1.0	5	0	183	77-127	6.39	35.7	30	SR
1,2-Dichloropropane	8.78	1.0	5	0	176	74-130	5.8	40.9	30	SR
1,3-Dichlorobenzene	3.66	1.0	5	0	73.2	75-133	1.17	103	30	SR
1,4-Dichlorobenzene	3.73	1.0	5	0	74.6	74-130	1.13	107	30	R
2-Butanone	12.14	2.0	5	7.575	91.3	55-132	10.25	16.9	30	
2-Hexanone	7.39	1.0	5	0	148	55-124	6.35	15.1	30	S
4-Methyl-2-pentanone	9.1	1.0	5	0	182	67-159	7.85	14.7	30	S
Acetone	129.6	5.0	5	83.43	923	31-156	93.01	32.8	30	SREO
Benzene	7.54	1.0	5	0	151	77-133	4.56	49.3	30	SR
Bromochloromethane	9.82	1.0	5	0	196	72-139	7.01	33.4	30	SR
Bromodichloromethane	8.28	1.0	5	0	166	69-133	5.35	43	30	SR
Bromoform	6.58	1.0	5	0	132	55-126	3.78	54.1	30	SR
Bromomethane	7.12	1.0	5	0	142	31-174	6.45	9.87	30	
Carbon disulfide	5.68	1.0	5	1.246	88.7	45-160	4.05	33.5	30	R
Carbon tetrachloride	6.34	1.0	5	0	127	69-140	3.06	69.8	30	R
Chlorobenzene	5.51	1.0	5	0	110	76-130	2.42	77.9	30	R
Chloroethane	7.93	1.0	5	0	159	53-150	6.17	25	30	S
Chloroform	8.41	1.0	5	0	168	72-132	5.44	42.9	30	SR
Chloromethane	6.16	1.0	5	0	123	43-150	4.89	23	30	
cis-1,2-Dichloroethene	7.9	1.0	5	0	158	74-134	5.1	43.1	30	SR
cis-1,3-Dichloropropene	6.47	1.0	5	0	129	62-134	4.5	35.9	30	R
Dibromochloromethane	7.42	1.0	5	0	148	57-118	4.61	46.7	30	SR
Dichlorodifluoromethane	7.37	2.0	5	0	147	43-126	1.49	133	30	SR
Ethylbenzene	4.99	1.0	5	0	99.8	75-133	2.23	76.5	30	R
Isopropylbenzene	4.57	1.0	5	0	91.4	74-137	1.41	106	30	R
m,p-Xylene	9.73	2.5	10	0	97.3	75-134	3.98	83.9	30	R
Methyl tert-butyl ether	13.84	1.0	5	0	277	62-136	10.62	26.3	30	S
Methylene chloride	10.38	1.0	5	0	208	55-157	7.77	28.8	30	BS
o-Xylene	5.28	1.0	5	0	106	76-130	2.41	74.6	30	R
Styrene	4.68	1.0	5	0	93.6	72-138	1.95	82.4	30	R
Tetrachloroethene	4.91	1.0	5	0	98.2	70-171	1.67	98.5	30	R
Toluene	5.99	1.0	5	2.154	76.7	76-130	3.48	53	30	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	7	1.0	5	0	140	65-137	4.78	37.7	30	SR
trans-1,3-Dichloropropene	6.79	1.0	5	0	136	58-126	4.25	46	30	SR
Trichloroethene	6.05	1.0	5	0	121	75-135	3.38	56.6	30	R
Trichlorofluoromethane	6.34	1.0	5	0	127	62-136	2.67	81.5	30	R
Vinyl chloride	7.45	1.0	5	0	149	57-143	5.82	24.6	30	S
Xylenes, Total	15.01	2.0	15	0	100	75-132	6.39	80.6	30	R
Surr: 1,2-Dichloroethane-d4	*20.11*	0	*20*	0	*101*	*83-132*	20.13	*0.0994*	*30*	
Surr: 4-Bromofluorobenzene	*19.65*	0	*20*	0	*98.2*	*83-111*	19.26	*2*	*30*	
Surr: Dibromofluoromethane	*20.44*	0	*20*	0	*102*	*77-125*	20.19	*1.23*	*30*	
Surr: Toluene-d8	*19.56*	0	*20*	0	*97.8*	*86-108*	19	*2.9*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051384-01A MSD** Units: **µg/Kg** Analysis Date: **5/24/2018 05:08 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5055163** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.24	5.0	20	0	146	73-138	26.91	8.3	30	S
1,1,2,2-Tetrachloroethane	27.49	5.0	20	0	137	71-126	24.06	13.3	30	S
1,1,2-Trichloroethane	27.82	5.0	20	0	139	77-123	24.95	10.9	30	S
1,1-Dichloroethane	30.21	5.0	20	0	151	63-148	27.94	7.81	30	S
1,1-Dichloroethene	30.56	5.0	20	0	153	67-156	27.67	9.93	30	
1,2,3-Trichlorobenzene	13.92	5.0	20	0	69.6	73-129	11.67	17.6	30	S
1,2,4-Trichlorobenzene	15.31	5.0	20	0	76.6	70-132	12.64	19.1	30	
1,2-Dibromo-3-chloropropane	23.95	5.0	20	0	120	48-127	19.99	18	30	
1,2-Dibromoethane	29.08	5.0	20	0	145	71-144	26.22	10.3	30	S
1,2-Dichlorobenzene	22.4	5.0	20	0	112	77-127	18.42	19.5	30	
1,2-Dichloroethane	27.57	5.0	20	0	138	77-127	25.33	8.47	30	S
1,2-Dichloropropane	29.06	5.0	20	0	145	74-130	26.22	10.3	30	S
1,3-Dichlorobenzene	21.65	5.0	20	0	108	75-133	18.33	16.6	30	
1,4-Dichlorobenzene	20.8	5.0	20	0	104	74-130	18.53	11.5	30	
2-Butanone	55.45	10	20	7.575	239	55-132	45.41	19.9	30	S
2-Hexanone	42.64	5.0	20	0	213	55-124	36.52	15.5	30	S
4-Methyl-2-pentanone	40.06	5.0	20	0	200	67-159	33.22	18.7	30	S
Acetone	173.6	10	20	83.43	451	31-156	115	40.6	30	SREO
Benzene	28.32	5.0	20	0	142	77-133	25.86	9.08	30	S
Bromochloromethane	29.52	5.0	20	0	148	72-139	27.71	6.33	30	S
Bromodichloromethane	28.73	5.0	20	0	144	69-133	26.27	8.95	30	S
Bromoform	26.12	5.0	20	0	131	55-126	23.16	12	30	S
Bromomethane	27.19	10	20	0	136	31-174	27.39	0.733	30	
Carbon disulfide	31.35	5.0	20	1.246	151	45-160	29.4	6.42	30	
Carbon tetrachloride	30.89	5.0	20	0	154	69-140	27.8	10.5	30	S
Chlorobenzene	25.31	5.0	20	0	127	76-130	23.11	9.09	30	
Chloroethane	28.8	5.0	20	0	144	53-150	26.48	8.39	30	
Chloroform	27.76	5.0	20	0	139	72-132	25.88	7.01	30	S
Chloromethane	22.87	10	20	0	114	43-150	21.69	5.3	30	
cis-1,2-Dichloroethene	27.78	5.0	20	0	139	74-134	25.98	6.7	30	S
cis-1,3-Dichloropropene	26.96	5.0	20	0	135	62-134	25.33	6.23	30	S
Dibromochloromethane	27.02	5.0	20	0	135	57-118	23.73	13	30	S
Dichlorodifluoromethane	32.9	10	20	0	164	43-126	29.85	9.72	30	S
Ethylbenzene	25.92	5.0	20	0	130	75-133	22.85	12.6	30	
Isopropylbenzene	25.38	5.0	20	0	127	74-137	21.56	16.3	30	
m,p-Xylene	51.47	2.5	40	0	129	75-134	44.68	14.1	30	
Methyl tert-butyl ether	39.65	5.0	20	0	198	62-136	35.08	12.2	30	S
Methylene chloride	34.86	5.0	20	0	174	55-157	32.16	8.06	30	S
o-Xylene	25.55	2.5	20	0	128	76-130	22.61	12.2	30	
Styrene	23.44	5.0	20	0	117	72-138	20.8	11.9	30	
Tetrachloroethene	28.27	5.0	20	0	141	70-171	23.74	17.4	30	
Toluene	26.95	5.0	20	2.154	124	76-130	23.91	12	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	28.2	5.0	20	0	141	65-137	26.19	7.39	30	S
trans-1,3-Dichloropropene	25.89	5.0	20	0	129	58-126	23.07	11.5	30	S
Trichloroethene	27.9	5.0	20	0	140	75-135	25.66	8.36	30	S
Trichlorofluoromethane	28.9	5.0	20	0	144	62-136	26.49	8.7	30	S
Vinyl chloride	30.22	5.0	20	0	151	57-143	28.72	5.09	30	S
Xylenes, Total	77.02	5.0	60	0	128	75-132	67.29	13.5	30	
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0.	*103*	*83-132*	20.12	*2.31*	*30*	
Surr: 4-Bromofluorobenzene	*18.84*	0	*20*	0	*94.2*	*83-111*	19.41	*2.98*	*30*	
Surr: Dibromofluoromethene	*19.83*	0	*20*	0	*99.2*	*77-125*	20.51	*3.37*	*30*	
Surr: Toluene-d8	*19.12*	0	*20*	0	*95.6*	*86-108*	19.22	*0.522*	*30*	

The following samples were analyzed in this batch:

18051407-01A	18051407-02A	18051407-03A
18051407-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180525-R236669** Units: **µg/Kg** Analysis Date: **5/25/2018 04:17 PM**
Client ID: Run ID: **VMS8_180525A** SeqNo: **5056444** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	5.27	5.0								
o-Xylene	U	2.5								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: R236669	Instrument ID VMS8		Method: SW8260C				
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.45*	0	*20*	0	*97.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.38*	0	*20*	0	*96.9*	*83-111*	0
Surr: Dibromofluoromethane	*19.5*	0	*20*	0	*97.5*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSS1-180525-R236669** Units: **µg/Kg** Analysis Date: **5/25/2018 03:44 PM**
Client ID: Run ID: **VMS8_180525A** SeqNo: **5056443** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.05	5.0	20	0	90.2	73-138	0			
1,1,2,2-Tetrachloroethane	16.37	5.0	20	0	81.8	71-126	0			
1,1,2-Trichloroethane	16.72	5.0	20	0	83.6	77-123	0			
1,1-Dichloroethane	18.67	5.0	20	0	93.4	63-148	0			
1,1-Dichloroethene	17.93	5.0	20	0	89.6	67-156	0			
1,2,3-Trichlorobenzene	16.23	5.0	20	0	81.2	73-129	0			
1,2,4-Trichlorobenzene	17.35	5.0	20	0	86.8	70-132	0			
1,2-Dibromo-3-chloropropane	14.16	5.0	20	0	70.8	48-127	0			
1,2-Dibromoethane	17.35	5.0	20	0	86.8	71-144	0			
1,2-Dichlorobenzene	18.97	5.0	20	0	94.8	77-127	0			
1,2-Dichloroethane	16.71	5.0	20	0	83.6	77-127	0			
1,2-Dichloropropane	18.32	5.0	20	0	91.6	74-130	0			
1,3-Dichlorobenzene	18.41	5.0	20	0	92	75-133	0			
1,4-Dichlorobenzene	18.16	5.0	20	0	90.8	74-130	0			
2-Butanone	14.41	10	20	0	72	55-132	0			
2-Hexanone	14.13	5.0	20	0	70.6	55-124	0			
4-Methyl-2-pentanone	18.61	5.0	20	0	93	67-159	0			
Benzene	18.29	5.0	20	0	91.4	77-133	0			
Bromochloromethane	18.24	5.0	20	0	91.2	72-139	0			
Bromodichloromethane	17.69	5.0	20	0	88.4	69-133	0			
Bromoform	15.76	5.0	20	0	78.8	55-126	0			
Bromomethane	17.33	10	20	0	86.6	31-174	0			
Carbon disulfide	19.13	5.0	20	0	95.6	45-160	0			
Carbon tetrachloride	19.85	5.0	20	0	99.2	69-140	0			
Chlorobenzene	18	5.0	20	0	90	76-130	0			
Chloroethane	17.53	5.0	20	0	87.6	53-150	0			
Chloroform	16.84	5.0	20	0	84.2	72-132	0			
Chloromethane	13.08	10	20	0	65.4	43-150	0			
cis-1,2-Dichloroethene	17.87	5.0	20	0	89.4	74-134	0			
cis-1,3-Dichloropropene	17.47	5.0	20	0	87.4	62-134	0			
Dibromochloromethane	15.99	5.0	20	0	80	57-118	0			
Dichlorodifluoromethane	15.46	10	20	0	77.3	43-126	0			
Ethylbenzene	17.8	5.0	20	0	89	75-133	0			
Isopropylbenzene	18.24	5.0	20	0	91.2	74-137	0			
m,p-Xylene	36.1	2.5	40	0	90.2	75-134	0			
Methyl tert-butyl ether	20.33	5.0	20	0	102	62-136	0			
Methylene chloride	21.38	5.0	20	0	107	55-157	0			B
o-Xylene	17.87	2.5	20	0	89.4	76-130	0			
Styrene	17.01	5.0	20	0	85	72-138	0			
Tetrachloroethene	19.74	5.0	20	0	98.7	70-171	0			
Toluene	17.92	5.0	20	0	89.6	76-130	0			
trans-1,2-Dichloroethene	17.1	5.0	20	0	85.5	65-137	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	15.49	5.0	20	0	77.4	58-126	0
Trichloroethene	18	5.0	20	0	90	75-135	0
Trichlorofluoromethane	15.83	5.0	20	0	79.2	62-136	0
Vinyl chloride	17.1	5.0	20	0	85.5	57-143	0
Xylenes, Total	53.97	5.0	60	0	90	75-132	0
Surr: 1,2-Dichloroethane-d4	*18.17*	0	*20*	0	*90.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.94*	0	*20*	0	*94.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.56*	0	*20*	0	*97.8*	*77-125*	0
Surr: Toluene-d8	*19.47*	0	*20*	0	*97.4*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051407-09A MS** Units: **µg/Kg** Analysis Date: **5/25/2018 06:08 PM**
Client ID: **18CP02-33** Run ID: **VMS8_180525A** SeqNo: **5056447** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	28	5.0	20	0	140	73-138	0			S
1,1,2,2-Tetrachloroethane	23.51	5.0	20	0	118	71-126	0			
1,1,2-Trichloroethane	24.91	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	29.64	5.0	20	0	148	63-148	0			S
1,1-Dichloroethene	30.96	5.0	20	0	155	67-156	0			
1,2,3-Trichlorobenzene	5.4	5.0	20	0	27	73-129	0			S
1,2,4-Trichlorobenzene	5.89	5.0	20	0	29.4	70-132	0			S
1,2-Dibromo-3-chloropropane	18.98	5.0	20	0	94.9	48-127	0			
1,2-Dibromoethane	25.6	5.0	20	0	128	71-144	0			
1,2-Dichlorobenzene	13.26	5.0	20	0	66.3	77-127	0			S
1,2-Dichloroethane	26.69	5.0	20	0	133	77-127	0			S
1,2-Dichloropropane	27.49	5.0	20	0	137	74-130	0			S
1,3-Dichlorobenzene	13.11	5.0	20	0	65.6	75-133	0			S
1,4-Dichlorobenzene	13.1	5.0	20	0	65.5	74-130	0			S
2-Butanone	56.11	10	20	0	281	55-132	0			S
2-Hexanone	38.34	5.0	20	0	192	55-124	0			S
4-Methyl-2-pentanone	39	5.0	20	0	195	67-159	0			S
Benzene	27.11	5.0	20	0.7513	132	77-133	0			
Bromochloromethane	28.29	5.0	20	0	141	72-139	0			S
Bromodichloromethane	25.92	5.0	20	0	130	69-133	0			
Bromoform	21.3	5.0	20	0	106	55-126	0			
Bromomethane	27.69	10	20	0	138	31-174	0			
Carbon disulfide	31.29	5.0	20	0.2853	155	45-160	0			
Carbon tetrachloride	30.03	5.0	20	0	150	69-140	0			S
Chlorobenzene	20.69	5.0	20	0	103	76-130	0			
Chloroethane	26.88	5.0	20	0	134	53-150	0			
Chloroform	26.86	5.0	20	0	134	72-132	0			S
Chloromethane	21.94	10	20	0	110	43-150	0			
cis-1,2-Dichloroethene	28.07	5.0	20	0	140	74-134	0			S
cis-1,3-Dichloropropene	24.29	5.0	20	0	121	62-134	0			
Dibromochloromethane	24.13	5.0	20	0	121	57-118	0			S
Dichlorodifluoromethane	30.73	10	20	0	154	43-126	0			S
Ethylbenzene	22.18	5.0	20	0.8749	107	75-133	0			
Isopropylbenzene	21.82	5.0	20	0	109	74-137	0			
m,p-Xylene	43.12	2.5	40	1.883	103	75-134	0			
Methyl tert-butyl ether	37.31	5.0	20	0	187	62-136	0			S
Methylene chloride	36.19	5.0	20	0	181	55-157	0			BS
o-Xylene	21.25	2.5	20	0.9034	102	76-130	0			
Styrene	17.78	5.0	20	0	88.9	72-138	0			
Tetrachloroethene	30.75	5.0	20	2.663	140	70-171	0			
Toluene	25.58	5.0	20	2.539	115	76-130	0			
trans-1,2-Dichloroethene	27.57	5.0	20	0	138	65-137	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	21.68	5.0	20	0	108	58-126	0	
Trichloroethene	38.02	5.0	20	21.45	82.9	75-135	0	
Trichlorofluoromethane	27.67	5.0	20	0	138	62-136	0	S
Vinyl chloride	31.05	5.0	20	0	155	57-143	0	S
Xylenes, Total	64.37	5.0	60	2.786	103	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.55*	0	*20*	0	*103*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*18.82*	0	*20*	0	*94.1*	*83-111*	0	
Surr: Dibromofluoromethane	*20.77*	0	*20*	0	*104*	*77-125*	0	
Surr: Toluene-d8	*19.31*	0	*20*	0	*96.6*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051407-09A MSD** Units: **µg/Kg** Analysis Date: **5/25/2018 06:25 PM**
Client ID: **18CP02-33** Run ID: **VMS8_180525A** SeqNo: **5056448** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	27.75	5.0	20	0	139	73-138	28	0.897	30	S
1,1,2,2-Tetrachloroethane	22.28	5.0	20	0	111	71-126	23.51	5.37	30	
1,1,2-Trichloroethane	23.84	5.0	20	0	119	77-123	24.91	4.39	30	
1,1-Dichloroethane	28.68	5.0	20	0	143	63-148	29.64	3.29	30	
1,1-Dichloroethene	29.12	5.0	20	0	146	67-156	30.96	6.13	30	
1,2,3-Trichlorobenzene	5.3	5.0	20	0	26.5	73-129	5.4	1.87	30	S
1,2,4-Trichlorobenzene	6.03	5.0	20	0	30.2	70-132	5.89	2.35	30	S
1,2-Dibromo-3-chloropropane	17.54	5.0	20	0	87.7	48-127	18.98	7.89	30	
1,2-Dibromoethane	24.37	5.0	20	0	122	71-144	25.6	4.92	30	
1,2-Dichlorobenzene	12.43	5.0	20	0	62.2	77-127	13.26	6.46	30	S
1,2-Dichloroethane	26.44	5.0	20	0	132	77-127	26.69	0.941	30	S
1,2-Dichloropropane	26.19	5.0	20	0	131	74-130	27.49	4.84	30	S
1,3-Dichlorobenzene	12.87	5.0	20	0	64.4	75-133	13.11	1.85	30	S
1,4-Dichlorobenzene	12.31	5.0	20	0	61.6	74-130	13.1	6.22	30	S
2-Butanone	51.1	10	20	0	256	55-132	56.11	9.35	30	S
2-Hexanone	34.39	5.0	20	0	172	55-124	38.34	10.9	30	S
4-Methyl-2-pentanone	35.48	5.0	20	0	177	67-159	39	9.45	30	S
Benzene	25.81	5.0	20	0.7513	125	77-133	27.11	4.91	30	
Bromochloromethane	28.1	5.0	20	0	140	72-139	28.29	0.674	30	S
Bromodichloromethane	25.62	5.0	20	0	128	69-133	25.92	1.16	30	
Bromoform	20.82	5.0	20	0	104	55-126	21.3	2.28	30	
Bromomethane	27.25	10	20	0	136	31-174	27.69	1.6	30	
Carbon disulfide	29.65	5.0	20	0.2853	147	45-160	31.29	5.38	30	
Carbon tetrachloride	28.91	5.0	20	0	145	69-140	30.03	3.8	30	S
Chlorobenzene	19.77	5.0	20	0	98.8	76-130	20.69	4.55	30	
Chloroethane	26.44	5.0	20	0	132	53-150	26.88	1.65	30	
Chloroform	25.3	5.0	20	0	126	72-132	26.86	5.98	30	
Chloromethane	20.75	10	20	0	104	43-150	21.94	5.58	30	
cis-1,2-Dichloroethene	26.89	5.0	20	0	134	74-134	28.07	4.29	30	S
cis-1,3-Dichloropropene	24.13	5.0	20	0	121	62-134	24.29	0.661	30	
Dibromochloromethane	22.35	5.0	20	0	112	57-118	24.13	7.66	30	
Dichlorodifluoromethane	29.17	10	20	0	146	43-126	30.73	5.21	30	S
Ethylbenzene	20.92	5.0	20	0.8749	100	75-133	22.18	5.85	30	
Isopropylbenzene	20.44	5.0	20	0	102	74-137	21.82	6.53	30	
m,p-Xylene	40.53	2.5	40	1.883	96.6	75-134	43.12	6.19	30	
Methyl tert-butyl ether	36.72	5.0	20	0	184	62-136	37.31	1.59	30	S
Methylene chloride	33.52	5.0	20	0	168	55-157	36.19	7.66	30	BS
o-Xylene	20.19	2.5	20	0.9034	96.4	76-130	21.25	5.12	30	
Styrene	16.82	5.0	20	0	84.1	72-138	17.78	5.55	30	
Tetrachloroethene	29.57	5.0	20	2.663	135	70-171	30.75	3.91	30	
Toluene	23.84	5.0	20	2.539	107	76-130	25.58	7.04	30	
trans-1,2-Dichloroethene	26.44	5.0	20	0	132	65-137	27.57	4.18	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	21.68	5.0	20	0	108	58-126	21.68	0	30	
Trichloroethene	36.5	5.0	20	21.45	75.3	75-135	38.02	4.08	30	
Trichlorofluoromethane	26.22	5.0	20	0	131	62-136	27.67	5.38	30	
Vinyl chloride	29.33	5.0	20	0	147	57-143	31.05	5.7	30	S
Xylenes, Total	60.72	5.0	60	2.786	96.6	75-132	64.37	5.84	30	
Surr: 1,2-Dichloroethane-d4	*20.66*	0	*20*	0	*103*	*83-132*	20.55	*0.534*	*30*	
Surr: 4-Bromofluorobenzene	*19.33*	0	*20*	0	*96.6*	*83-111*	18.82	*2.67*	*30*	
Surr: Dibromofluoromethane	*19.92*	0	*20*	0	*99.6*	*77-125*	20.77	*4.18*	*30*	
Surr: Toluene-d8	*18.69*	0	*20*	0	*93.4*	*86-108*	19.31	*3.26*	*30*	

The following samples were analyzed in this batch: 18051407-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180527-R236723** Units: µg/L Analysis Date: **5/27/2018 07:42 PM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.94*	0	*20*	0	*99.7*	*80-110*	0
Surr: Dibromofluoromethane	*22.11*	0	*20*	0	*111*	*85-115*	0
Surr: Toluene-d8	*20.45*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

LCS Sample ID: **VLCSW2-180527-R236723** Units: µg/L Analysis Date: **5/27/2018 06:46 PM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058781** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	24.83	1.0	20	0	124	75-130	0			
1,1,2,2-Tetrachloroethane	26.43	1.0	20	0	132	75-130	0			S
1,1,2-Trichloroethane	24.38	1.0	20	0	122	75-125	0			
1,1-Dichloroethane	26.24	1.0	20	0	131	68-142	0			
1,1-Dichloroethene	25.27	1.0	20	0	126	70-145	0			
1,2,3-Trichlorobenzene	23.07	1.0	20	0	115	70-140	0			
1,2,4-Trichlorobenzene	22.29	1.0	20	0	111	70-135	0			
1,2-Dibromo-3-chloropropane	25.84	1.0	20	0	129	60-130	0			
1,2-Dibromoethane	25.22	1.0	20	0	126	67-155	0			
1,2-Dichlorobenzene	20.78	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	21.83	1.0	20	0	109	78-125	0			
1,2-Dichloropropane	23.34	1.0	20	0	117	75-125	0			
1,3-Dichlorobenzene	20.81	1.0	20	0	104	75-130	0			
1,3-Dichloropropane	21.39	1.0	20	0	107	75-125	0			
1,4-Dichlorobenzene	22.25	1.0	20	0	111	75-130	0			
2-Butanone	24.88	5.0	20	0	124	55-150	0			
2-Hexanone	23.04	5.0	20	0	115	60-135	0			
4-Methyl-2-pentanone	31.9	1.0	20	0	160	77-178	0			
Acetone	24.07	10	20	0	120	60-160	0			
Benzene	23.88	1.0	20	0	119	85-125	0			
Bromochloromethane	25.32	1.0	20	0	127	72-141	0			
Bromodichloromethane	22.66	1.0	20	0	113	75-125	0			
Bromoform	22.02	1.0	20	0	110	60-125	0			
Bromomethane	24.55	1.0	20	0	123	30-185	0			
Carbon disulfide	23.96	1.0	20	0	120	60-165	0			
Carbon tetrachloride	20.24	1.0	20	0	101	65-140	0			
Chlorobenzene	22.09	1.0	20	0	110	80-120	0			
Chloroethane	19.15	1.0	20	0	95.8	50-140	0			
Chloroform	24.79	1.0	20	0	124	80-130	0			
Chloromethane	23.96	1.0	20	0	120	46-148	0			
cis-1,2-Dichloroethene	25.27	1.0	20	0	126	75-134	0			
Dibromochloromethane	20.42	1.0	20	0	102	60-115	0			
Dichlorodifluoromethane	25.29	1.0	20	0	126	20-120	0			S
Ethylbenzene	23.86	1.0	20	0	119	76-123	0			
Isopropylbenzene	20.79	1.0	20	0	104	80-127	0			
m,p-Xylene	44.46	2.0	40	0	111	75-130	0			
Methyl tert-butyl ether	21.66	1.0	20	0	108	68-129	0			
Methylene chloride	21.71	5.0	20	0	109	75-140	0			
o-Xylene	21.48	1.0	20	0	107	76-127	0			
Styrene	22.53	1.0	20	0	113	83-137	0			
Tetrachloroethene	23.76	1.0	20	0	119	68-166	0			
Toluene	22.28	1.0	20	0	111	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	24.6	1.0	20	0	123	80-140	0
trans-1,3-Dichloropropene	21.09	1.0	20	0	105	56-132	0
Trichloroethene	23.01	1.0	20	0	115	84-130	0
Trichlorofluoromethane	20.67	1.0	20	0	103	60-140	0
Vinyl chloride	24.82	1.0	20	0	124	50-136	0
Xylenes, Total	65.94	3.0	60	0	110	76-127	0
Surr: 1,2-Dichloroethane-d4	*20.42*	0	*20*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.44*	0	*20*	0	*97.2*	*80-110*	0
Surr: Dibromofluoromethane	*21.69*	0	*20*	0	*108*	*85-115*	0
Surr: Toluene-d8	*19.94*	0	*20*	0	*99.7*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

MS Sample ID: **18051296-02A MS** Units: **µg/L** Analysis Date: **5/28/2018 03:31 AM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058802** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.93	1.0	20	0	105	75-130	0			
1,1,2,2-Tetrachloroethane	20.68	1.0	20	0	103	75-130	0			
1,1,2-Trichloroethane	20.34	1.0	20	0	102	75-125	0			
1,1-Dichloroethane	22.89	1.0	20	0	114	68-142	0			
1,1-Dichloroethene	25.81	1.0	20	0	129	70-145	0			
1,2,3-Trichlorobenzene	19.34	1.0	20	0	96.7	70-140	0			
1,2,4-Trichlorobenzene	20.04	1.0	20	0	100	70-135	0			
1,2-Dibromo-3-chloropropane	18.3	1.0	20	0	91.5	60-130	0			
1,2-Dibromoethane	21.51	1.0	20	0	108	67-155	0			
1,2-Dichlorobenzene	20.41	1.0	20	0	102	70-130	0			
1,2-Dichloroethane	20.04	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	21.23	1.0	20	0	106	75-125	0			
1,3-Dichlorobenzene	19.3	1.0	20	0	96.5	75-130	0			
1,3-Dichloropropane	19.78	1.0	20	0	98.9	75-125	0			
1,4-Dichlorobenzene	20.41	1.0	20	0	102	75-130	0			
2-Butanone	17.68	5.0	20	0	88.4	55-150	0			
2-Hexanone	16.5	5.0	20	0	82.5	60-135	0			
4-Methyl-2-pentanone	23.01	1.0	20	0	115	77-178	0			
Acetone	19.59	10	20	0	98	60-160	0			
Benzene	21.11	1.0	20	0	106	85-125	0			
Bromochloromethane	21.2	1.0	20	0	106	72-141	0			
Bromodichloromethane	19.65	1.0	20	0	98.2	75-125	0			
Bromoform	17.9	1.0	20	0	89.5	60-125	0			
Bromomethane	32.94	1.0	20	0	165	30-185	0			
Carbon disulfide	21.26	1.0	20	0	106	60-165	0			
Carbon tetrachloride	18.15	1.0	20	0	90.8	65-140	0			
Chlorobenzene	20.25	1.0	20	0	101	80-120	0			
Chloroethane	19.54	1.0	20	0	97.7	50-140	0			
Chloroform	22.59	1.0	20	0	113	80-130	0			
Chloromethane	20.91	1.0	20	0	105	46-148	0			
cis-1,2-Dichloroethene	22.28	1.0	20	0	111	75-134	0			
Dibromochloromethane	18.13	1.0	20	0	90.6	60-115	0			
Dichlorodifluoromethane	21.44	1.0	20	0	107	20-120	0			
Ethylbenzene	20.2	1.0	20	0	101	76-123	0			
Isopropylbenzene	21.43	1.0	20	0	107	80-127	0			
m,p-Xylene	41.94	2.0	40	0	105	75-130	0			
Methyl tert-butyl ether	16.95	1.0	20	0	84.8	68-129	0			
Methylene chloride	22.05	5.0	20	0	110	75-140	0			
o-Xylene	19.49	1.0	20	0	97.4	76-127	0			
Styrene	21.11	1.0	20	0	106	83-137	0			
Tetrachloroethene	22.04	1.0	20	0	110	68-166	0			
Toluene	20.99	1.0	20	0	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723**	Instrument ID **VMS7**			Method: **SW8260C**			
trans-1,2-Dichloroethene	20.69	1.0	20	0	103	80-140	0
trans-1,3-Dichloropropene	18.31	1.0	20	0	91.6	56-132	0
Trichloroethene	20.01	1.0	20	0	100	84-130	0
Trichlorofluoromethane	21.16	1.0	20	0	106	60-140	0
Vinyl chloride	25.34	1.0	20	0	127	50-136	0
Xylenes, Total	61.43	3.0	60	0	102	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.9*	0	*20*	0	*99.5*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.15*	0	*20*	0	*101*	*80-110*	0
Surr: Dibromofluoromethane	*19.89*	0	*20*	0	*99.4*	*85-115*	0
Surr: Toluene-d8	*19.36*	0	*20*	0	*96.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: R236723 Instrument ID VMS7 Method: SW8260C

DUP Sample ID: 18051296-01A DUP Units: µg/L Analysis Date: 5/28/2018 03:10 AM

Client ID: Run ID: VMS7_180527A SeqNo: 5058801 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	U	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
2-Butanone	U	5.0	0	0	0		0	0	30	
2-Hexanone	U	5.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	U	1.0	0	0	0		0	0	30	
Acetone	U	10	0	0	0		0	0	30	
Benzene	U	1.0	0	0	0		0	0	30	
Bromochloromethane	U	1.0	0	0	0		0	0	30	
Bromodichloromethane	U	1.0	0	0	0		0	0	30	
Bromoform	U	1.0	0	0	0		0	0	30	
Bromomethane	U	1.0	0	0	0		0	0	30	
Carbon disulfide	U	1.0	0	0	0		0	0	30	
Carbon tetrachloride	U	1.0	0	0	0		0	0	30	
Chlorobenzene	U	1.0	0	0	0		0	0	30	
Chloroethane	U	1.0	0	0	0		0	0	30	
Chloroform	U	1.0	0	0	0		0	0	30	
Chloromethane	U	1.0	0	0	0		0	0	30	
cis-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30	
Cyclohexane	U	1.0	0	0	0		0	0	30	
Dibromochloromethane	U	1.0	0	0	0		0	0	30	
Dichlorodifluoromethane	U	1.0	0	0	0		0	0	30	
Ethylbenzene	U	1.0	0	0	0		0	0	30	
Isopropylbenzene	U	1.0	0	0	0		0	0	30	
m,p-Xylene	U	2.0	0	0	0		0	0	30	
Methyl acetate	U	2.0	0	0	0		0	0	30	
Methyl tert-butyl ether	U	1.0	0	0	0		0	0	30	
Methylcyclohexane	U	1.0	0	0	0		0	0	30	
Methylene chloride	U	5.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

o-Xylene	U	1.0	0	0	0		0	0	30
Styrene	U	1.0	0	0	0		0	0	30
Tetrachloroethene	U	1.0	0	0	0		0	0	30
Toluene	U	1.0	0	0	0		0	0	30
trans-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30
trans-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
Trichloroethene	U	1.0	0	0	0		0	0	30
Trichlorofluoromethane	U	1.0	0	0	0		0	0	30
Vinyl chloride	U	1.0	0	0	0		0	0	30
Xylenes, Total	U	3.0	0	0	0		0	0	30
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0	*103*	*75-120*	19.17	*7.14*	*30*
Surr: 4-Bromofluorobenzene	*19.61*	0	*20*	0	*98*	*80-110*	19.72	*0.559*	*30*
Surr: Dibromofluoromethane	*21.02*	0	*20*	0	*105*	*85-115*	19.59	*7.04*	*30*
Surr: Toluene-d8	*20.88*	0	*20*	0	*104*	*85-110*	19.1	*8.9*	*30*

The following samples were analyzed in this batch:

18051407-05A	18051407-06A	18051407-11A
18051407-12A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

MBLK	Sample ID: VBLKW1-180529-R236820a				Units: µg/L			Analysis Date: 5/29/2018 04:57 PM			
Client ID:	Run ID: VMS8_180529B				SeqNo: 5060721			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*18.76*	0	*20*	0	*93.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.29*	0	*20*	0	*96.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.93*	0	*20*	0	*99.6*	*85-115*	0
Surr: Toluene-d8	*19.43*	0	*20*	0	*97.2*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSW1-180529-R236820a** Units: µg/L Analysis Date: **5/29/2018 04:08 PM**
Client ID: Run ID: **VMS8_180529B** SeqNo: **5060720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.48	1.0	20	0	97.4	75-130	0			
1,1,2,2-Tetrachloroethane	21.16	1.0	20	0	106	75-130	0			
1,1,2-Trichloroethane	18.81	1.0	20	0	94	75-125	0			
1,1-Dichloroethane	18.42	1.0	20	0	92.1	68-142	0			
1,1-Dichloroethene	19.56	1.0	20	0	97.8	70-145	0			
1,2,3-Trichlorobenzene	20.45	1.0	20	0	102	70-140	0			
1,2,4-Trichlorobenzene	20.52	1.0	20	0	103	70-135	0			
1,2-Dibromo-3-chloropropane	18.43	1.0	20	0	92.2	60-130	0			
1,2-Dibromoethane	20.53	1.0	20	0	103	67-155	0			
1,2-Dichlorobenzene	20.49	1.0	20	0	102	70-130	0			
1,2-Dichloroethane	17.23	1.0	20	0	86.2	78-125	0			
1,2-Dichloropropane	18.14	1.0	20	0	90.7	75-125	0			
1,3-Dichlorobenzene	20.37	1.0	20	0	102	75-130	0			
1,3-Dichloropropane	18.69	1.0	20	0	93.4	75-125	0			
1,4-Dichlorobenzene	20.82	1.0	20	0	104	75-130	0			
2-Butanone	15.45	5.0	20	0	77.2	55-150	0			
2-Hexanone	16.71	5.0	20	0	83.6	60-135	0			
4-Methyl-2-pentanone	26	1.0	20	0	130	77-178	0			
Acetone	14.45	10	20	0	72.2	60-160	0			
Benzene	20.02	1.0	20	0	100	85-125	0			
Bromochloromethane	18.23	1.0	20	0	91.2	72-141	0			
Bromodichloromethane	19.34	1.0	20	0	96.7	75-125	0			
Bromoform	21.43	1.0	20	0	107	60-125	0			
Bromomethane	25.63	1.0	20	0	128	30-185	0			
Carbon disulfide	19.15	1.0	20	0	95.8	60-165	0			
Carbon tetrachloride	20.54	1.0	20	0	103	65-140	0			
Chlorobenzene	20.59	1.0	20	0	103	80-120	0			
Chloroethane	11.25	1.0	20	0	56.2	50-140	0			
Chloroform	19.08	1.0	20	0	95.4	80-130	0			
Chloromethane	14.76	1.0	20	0	73.8	46-148	0			
cis-1,2-Dichloroethene	19.32	1.0	20	0	96.6	75-134	0			
Dibromochloromethane	19.32	1.0	20	0	96.6	60-115	0			
Dichlorodifluoromethane	21	1.0	20	0	105	20-120	0			
Ethylbenzene	20.53	1.0	20	0	103	76-123	0			
Isopropylbenzene	20.06	1.0	20	0	100	80-127	0			
m,p-Xylene	40.99	2.0	40	0	102	75-130	0			
Methyl tert-butyl ether	19.63	1.0	20	0	98.2	68-129	0			
Methylene chloride	17.24	5.0	20	0	86.2	75-140	0			
o-Xylene	19.62	1.0	20	0	98.1	76-127	0			
Styrene	20.52	1.0	20	0	103	83-137	0			
Tetrachloroethene	22.9	1.0	20	0	114	68-166	0			
Toluene	20.67	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: R236820a	Instrument ID VMS8			Method: SW8260C			
trans-1,2-Dichloroethene	19.13	1.0	20	0	95.6	80-140	0
trans-1,3-Dichloropropene	18.88	1.0	20	0	94.4	56-132	0
Trichloroethene	19.95	1.0	20	0	99.8	84-130	0
Trichlorofluoromethane	17.77	1.0	20	0	88.8	60-140	0
Vinyl chloride	17.57	1.0	20	0	87.8	50-136	0
Xylenes, Total	60.61	3.0	60	0	101	76-127	0
Surr: 1,2-Dichloroethane-d4	*18.41*	0	*20*	0	*92*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.12*	0	*20*	0	*95.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.6*	0	*20*	0	*98*	*85-115*	0
Surr: Toluene-d8	*19.07*	0	*20*	0	*95.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: R236820a Instrument ID VMS8 Method: SW8260C

MS Sample ID: 18051473-03A MS Units: µg/L Analysis Date: 5/31/2018 04:45 AM

Client ID: Run ID: VMS8_180529B SeqNo: 5067261 Prep Date: DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	111.5	5.0	100	8.44	103	75-130	0			
1,1,2,2-Tetrachloroethane	105.8	5.0	100	0	106	75-130	0			
1,1,2-Trichloroethane	88.3	5.0	100	0	88.3	75-125	0			
1,1-Dichloroethane	235.8	5.0	100	265.2	-29.4	68-142	0			S
1,1-Dichloroethene	109.4	5.0	100	0	109	70-145	0			
1,2,3-Trichlorobenzene	100.6	5.0	100	0	101	70-140	0			
1,2,4-Trichlorobenzene	101.2	5.0	100	0	101	70-135	0			
1,2-Dibromo-3-chloropropane	89.95	5.0	100	0	90	60-130	0			
1,2-Dibromoethane	100.4	5.0	100	0	100	67-155	0			
1,2-Dichlorobenzene	111.7	5.0	100	9.58	102	70-130	0			
1,2-Dichloroethane	97.05	5.0	100	0	97	78-125	0			
1,2-Dichloropropane	101.6	5.0	100	0	102	75-125	0			
1,3-Dichlorobenzene	101.6	5.0	100	0	102	75-130	0			
1,3-Dichloropropane	95.5	5.0	100	0	95.5	75-125	0			
1,4-Dichlorobenzene	103.7	5.0	100	0.87	103	75-130	0			
2-Butanone	80.9	25	100	2.33	78.6	55-150	0			
2-Hexanone	84.2	25	100	0	84.2	60-135	0			
4-Methyl-2-pentanone	131.7	5.0	100	0	132	77-178	0			
Acetone	95	50	100	1.77	93.2	60-160	0			
Benzene	109.6	5.0	100	1.07	108	85-125	0			
Bromochloromethane	94.8	5.0	100	0	94.8	72-141	0			
Bromodichloromethane	98.75	5.0	100	0.69	98.1	75-125	0			
Bromoform	95.5	5.0	100	0	95.5	60-125	0			
Bromomethane	191.2	5.0	100	0	191	30-185	0			S
Carbon disulfide	97.45	5.0	100	0	97.4	60-165	0			
Carbon tetrachloride	112.4	5.0	100	0	112	65-140	0			
Chlorobenzene	127.3	5.0	100	39.02	88.3	80-120	0			
Chloroethane	131.6	5.0	100	0	132	50-140	0			
Chloroform	96.4	5.0	100	0	96.4	80-130	0			
Chloromethane	81.2	5.0	100	0	81.2	46-148	0			
cis-1,2-Dichloroethene	97.65	5.0	100	0	97.6	75-134	0			
Dibromochloromethane	90.95	5.0	100	0	91	60-115	0			
Dichlorodifluoromethane	103.8	5.0	100	0	104	20-120	0			
Ethylbenzene	101.6	5.0	100	0	102	76-123	0			
Isopropylbenzene	101	5.0	100	0	101	80-127	0			
m,p-Xylene	204	10	200	0	102	75-130	0			
Methyl tert-butyl ether	97.8	5.0	100	0	97.8	68-129	0			
Methylene chloride	88.1	25	100	0	88.1	75-140	0			
o-Xylene	101	5.0	100	0.79	100	76-127	0			
Styrene	103.2	5.0	100	0	103	83-137	0			
Tetrachloroethene	111.6	5.0	100	0	112	68-166	0			
Toluene	104.6	5.0	100	4.4	100	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	102.3	5.0	100	0	102	80-140	0
trans-1,3-Dichloropropene	87.35	5.0	100	0	87.4	56-132	0
Trichloroethene	106	5.0	100	0	106	84-130	0
Trichlorofluoromethane	100.4	5.0	100	0	100	60-140	0
Vinyl chloride	105.1	5.0	100	2.63	102	50-136	0
Xylenes, Total	305	15	300	0.79	101	76-127	0
Surr: 1,2-Dichloroethane-d4	*100.6*	0	*100*	0	*101*	*75-120*	0
Surr: 4-Bromofluorobenzene	*93.65*	0	*100*	0	*93.6*	*80-110*	0
Surr: Dibromofluoromethane	*100.2*	0	*100*	0	*100*	*85-115*	0
Surr: Toluene-d8	*92.8*	0	*100*	0	*92.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

DUP Sample ID: **18051473-03A DUP** Units: **µg/L** Analysis Date: **5/29/2018 11:26 PM**
Client ID: Run ID: **VMS8_180529B** SeqNo: **5060739** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	8.3	5.0	100	8.44	-0.14		8.4	1.2	30	
1,1,2,2-Tetrachloroethane	U	5.0	100	0	0		0	0	30	
1,1,2-Trichloroethane	U	5.0	100	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	5.0	0	0	0		0	0	30	
1,1-Dichloroethane	239.4	5.0	100	265.2	-25.8		237.2	0.923	30	
1,1-Dichloroethene	U	5.0	100	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	5.0	100	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	5.0	100	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	5.0	100	0	0		0	0	30	
1,2-Dibromoethane	U	5.0	100	0	0		0	0	30	
1,2-Dichlorobenzene	8.95	5.0	100	9.58	-0.63		9.35	4.37	30	
1,2-Dichloroethane	U	5.0	100	0	0		0	0	30	
1,2-Dichloropropane	U	5.0	100	0	0		0	0	30	
1,3-Dichlorobenzene	U	5.0	100	0	0		0	0	30	
1,3-Dichloropropane	U	5.0	100	0	0		0	0	30	
1,4-Dichlorobenzene	U	5.0	100	0.87	-0.87		0	0	30	
2-Butanone	4.45	25	100	2.33	2.12		4.65	0	30	J
2-Hexanone	U	25	100	0	0		0	0	30	
4-Methyl-2-pentanone	U	5.0	100	0	0		0	0	30	
Acetone	U	50	100	1.77	-1.77		0	0	30	
Benzene	U	5.0	100	1.07	-1.07		0	0	30	
Bromochloromethane	U	5.0	100	0	0		0	0	30	
Bromodichloromethane	U	5.0	100	0.69	-0.69		0	0	30	
Bromoform	U	5.0	100	0	0		0	0	30	
Bromomethane	U	5.0	100	0	0		0	0	30	
Carbon disulfide	U	5.0	100	0	0		0	0	30	
Carbon tetrachloride	U	5.0	100	0	0		0	0	30	
Chlorobenzene	36.4	5.0	100	39.02	-2.62		37.3	2.44	30	
Chloroethane	U	5.0	100	0	0		0	0	30	
Chloroform	U	5.0	100	0	0		0	0	30	
Chloromethane	U	5.0	100	0	0		0	0	30	
cis-1,2-Dichloroethene	U	5.0	100	0	0		0	0	30	
Cyclohexane	U	5.0	0	0	0		0	0	30	
Dibromochloromethane	U	5.0	100	0	0		0	0	30	
Dichlorodifluoromethane	U	5.0	100	0	0		0	0	30	
Ethylbenzene	U	5.0	100	0	0		0	0	30	
Isopropylbenzene	U	5.0	100	0	0		0	0	30	
m,p-Xylene	U	10	200	0	0		0	0	30	
Methyl acetate	U	10	0	0	0		0	0	30	
Methyl tert-butyl ether	U	5.0	100	0	0		0	0	30	
Methylcyclohexane	U	5.0	0	0	0		0	0	30	
Methylene chloride	2.95	25	100	0	2.95		3.25	0	30	J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	5.0	100	0.79	-0.79		0	0	30	
Styrene	U	5.0	100	0	0		0	0	30	
Tetrachloroethene	U	5.0	100	0	0		0	0	30	
Toluene	4.9	5.0	100	4.4	0.5		4.45	0	30	J
trans-1,2-Dichloroethene	U	5.0	100	0	0		0	0	30	
trans-1,3-Dichloropropene	U	5.0	100	0	0		0	0	30	
Trichloroethene	U	5.0	100	0	0		0	0	30	
Trichlorofluoromethane	U	5.0	100	0	0		0	0	30	
Vinyl chloride	U	5.0	100	2.63	-2.63		0	0	30	
Xylenes, Total	U	15	0	0.79	0		0	0	30	
Surr: 1,2-Dichloroethane-d4	*93.65*	0	*100*	0	*93.6*	*75-120*	94.6	*1.01*	*30*	
Surr: 4-Bromofluorobenzene	*94.4*	0	*100*	0	*94.4*	*80-110*	94.4	*0*	*30*	
Surr: Dibromofluoromethane	*95.35*	0	*100*	0	*95.4*	*85-115*	98.6	*3.35*	*30*	
Surr: Toluene-d8	*97*	0	*100*	0	*97*	*85-110*	96.75	*0.258*	*30*	

The following samples were analyzed in this batch: 18051407-05A, 18051407-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS01	99	88	97	92	0
02	VBLK01	99	97	99	92	0
03	18051384-01A	103	104	100	92	0
04	18CP02-25	97	97	95	95	0
05	18CP02-26	104	99	99	91	0
06	18CP02-27	102	101	97	89	0
07	18CP02-28	105	102	92	94	0
08	18051384-01AM	101	101	95	96	0
09	18051384-01AM	102	101	98	98	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(7-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS ENVIRONMENTAL Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18061407

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VBLKS1-18052	98	90	95	97	0
02	18051384-01C	103	101	96	97	0
03	18051384-01C	99	103	96	94	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-120)
SMC3	TOL	=	Toluene-d8	(85-120)
SMC4	BFB	=	Bromofluorobenzene	(75-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS-118698	101	100	97	99	0
02	MBLK-118698	94	94	97	99	0
03	18CP02-31	93	98	98	97	0
04	18CP02-33	99	105	104	103	0
05	18CP02-34	95	96	95	98	0
06	18CP02-31 MS	105	110	110	103	0
07	18CP02-31 MS	100	100	104	106	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-120)
SMC3	TOL	=	Toluene-d8	(85-120)
SMC4	BFB	=	Bromofluorobenzene	(75-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS ENVIRONMENTAL Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18051407

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VLCSS1-18052	98	91	97	95	0
02	VBLKS1-18052	95	98	100	96	0
03	18CP02-33	99	94	101	95	0
04	18CP02-33 MS	104	103	97	94	0
05	18CP02-33 MS	100	103	93	97	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-120)
SMC3	TOL	=	Toluene-d8	(85-120)
SMC4	BFB	=	Bromofluorobenzene	(75-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS-	101	100	97	99	0
02	MBLK-	94	94	97	99	0
03	18CP02-31	93	98	98	97	0
04	18CP02-33	99	105	104	103	0
05	18CP02-34	95	96	95	98	0
06	18CP02-31 MS	105	110	110	103	0
07	18CP02-31 MS	100	100	104	106	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-120)
SMC3	TOL	=	Toluene-d8	(85-120)
SMC4	BFB	=	Bromofluorobenzene	(75-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	MBLK-	94	94	97	99	0
02	18CP02-29	101	91	95	96	0
03	18CP02-35	98	94	93	92	0
04	18051473-03A	99	95	97	94	0
05	18051473-04A	98	95	94	94	0
06	18051473-03A	95	94	97	94	0
07	18051473-03A	100	101	93	94	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(70-120)
SMC3	TOL	=	Toluene-d8	(85-120)
SMC4	BFB	=	Bromofluorobenzene	(75-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 23MAY10.D Lab Sample ID: VBLKS1-180523

Date Analyzed: 5/23/2018 Time Analyzed: 14:24

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: vms8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSS1-180523	23MAY08.D	13:30
02	18051384-01A	18051384-01A DF1.21	23MAY15.D	15:59
03	18CP02-25	18051407-01A	23MAY24.D	18:28
04	18CP02-26	18051407-02A DF0.785	23MAY25.D	18:45
05	18CP02-27	18051407-03A DF0.822	23MAY26.D	19:02
06	18CP02-28	18051407-04A DF0.969	23MAY27.D	19:19
07	18051384-01AMS	18051384-01A MS	23MAY28.D	19:36
08	18051384-01AMSD	18051384-01A MSD	23MAY29.D	19:53

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS1-180524

Lab Name: ALS ENVIRONMENTAL Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18061407

Lab File ID: 24MAY14.D Lab Sample ID: VBLKS1-180524

Date Analyzed: 5/24/2018 Time Analyzed: 15:52

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18051384-01C MS	18051384-01C MS	24MAY17.D	16:52
02	18051384-01C MSD	18051384-01C MSD	24MAY18.D	17:08

COMMENTS

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118698

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID: 25MAY08.D Lab Sample ID: MBLK-118698

Date Analyzed: 5/25/2018 Time Analyzed: 12:15

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS-118698	LCS-118698	25MAY05.D	11:12
02	18CP02-31	18051407-07A	25MAY13.D	14:01
03	18CP02-33	18051407-09A	25MAY14.D	14:22
04	18CP02-34	18051407-10A	25MAY15.D	14:43
05	18CP02-31 MS	18051407-07A MS	25MAY29.D	20:17
06	18CP02-31 MSD	18051407-07A MSD	25MAY30.D	20:39

COMMENTS

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS1-180525

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 25MAY06.D Lab Sample ID: VBLKS1-180525

Date Analyzed: 5/25/2018 Time Analyzed: 17:04

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSS1-180525	VLCSS1-180525	25MAY03.D	15:44
02	18CP02-33	18051407-09A DF0.951	25MAY08.D	17:52
03	18CP02-33 MS	18051407-09A MS	25MAY09.D	18:08
04	18CP02-33 MSD	18051407-09A MSD	25MAY10.D	18:25

COMMENTS

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

MBLK-

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 25MAY08.D Lab Sample ID: MBLK-

Date Analyzed: 5/25/2018 Time Analyzed: 12:15

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS7

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS-	LCS-	25MAY05.D	11:12
02	18CP02-31	18051407-07A	25MAY13.D	14:01
03	18CP02-33	18051407-09A	25MAY14.D	14:22
04	18CP02-34	18051407-10A	25MAY15.D	14:43
05	18CP02-31 MS	18051407-07A MS	25MAY29.D	20:17
06	18CP02-31 MSD	18051407-07A MSD	25MAY30.D	20:39

COMMENTS

4A

EPA SAMPLE NO.

VOLATILE METHOD BLANK SUMMARY

MBLK-

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 25MAY08.D Lab Sample ID: MBLK-

Date Analyzed: 5/25/2018 Time Analyzed: 12:15

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18CP02-29	18051407-05A	29MAY25.D	17:29
02	18CP02-35	18051407-11A	29MAY26.D	17:46
03	18051473-03A	18051473-03A DF5	29MAY33.D	19:40
04	18051473-03A DUP	18051473-03A DUP	29MAY47.D	23:26
05	18051473-03A MSD	18051473-03A MSD DF5	30MAY66.D	4:45

COMMENTS

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 23MAY06.D BFB Injection Date: 5/23/2018

Instrument ID: vms8 BFB Injection Time: 12:43

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.1
75	30.0 - 66.0% of mass 95	43.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.9 (0.9)1
174	50.0 - 120.0% of mass 95	94.1
175	4.0 - 9.0% of mass 174	6.7 (7.1)1
176	93.0 - 101.0% of mass 174	93.2 (99.0)1
177	5.0 - 9.0% of mass 176	5.7 (6.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180523	23MAY07.D	5/23/2018	12:59
02	LCS01	VLCSS1-180523	23MAY08.D	5/23/2018	13:30
03	VBLK01	VBLKS1-180523	23MAY10.D	5/23/2018	14:24
04	18051384-01A	18051384-01A DF1.21	23MAY15.D	5/23/2018	15:59
05	18CP02-25	18051407-01A	23MAY24.D	5/23/2018	18:28
06	18CP02-26	18051407-02A DF0.785	23MAY25.D	5/23/2018	18:45
07	18CP02-27	18051407-03A DF0.822	23MAY26.D	5/23/2018	19:02
08	18CP02-28	18051407-04A DF0.969	23MAY27.D	5/23/2018	19:19
09	18051384-01AMS	18051384-01A MS	23MAY28.D	5/23/2018	19:36
10	18051384-01AMS	18051384-01A MSD	23MAY29.D	5/23/2018	19:53

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID: 24MAY09.D BFB Injection Date: 5/24/2018

Instrument ID: VMS8 BFB Injection Time: 13:26

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.0
75	30.0 - 66.0% of mass 95	44.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.3 (0.3)1
174	50.0 - 120.0% of mass 95	87.7
175	4.0 - 9.0% of mass 174	6.4 (7.3)1
176	93.0 - 101.0% of mass 174	87.9 (100.2)1
177	5.0 - 9.0% of mass 176	6.5 (7.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV4-180524	24MAY11.D	5/24/2018	14:37
02	VBLKS1-180524	VBLKS1-180524	24MAY14.D	5/24/2018	15:52
03	18051384-01C MS	18051384-01C MS	24MAY17.D	5/24/2018	16:52
04	18051384-01C MS	18051384-01C MSD	24MAY18.D	5/24/2018	17:08

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID: 25MAY01.D BFB Injection Date: 5/25/2018

Instrument ID: VMS7 BFB Injection Time: 9:11

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.3
75	30.0 - 66.0% of mass 95	41.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	99.2
175	4.0 - 9.0% of mass 174	7.4 (7.5)1
176	93.0 - 101.0% of mass 174	99.0 (99.8)1
177	5.0 - 9.0% of mass 176	6.1 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV2-180525	25MAY03.D	5/25/2018	10:14
02	LCS-118698	LCS-118698	25MAY05.D	5/25/2018	11:12
03	MBLK-118698	MBLK-118698	25MAY08.D	5/25/2018	12:15
04	18CP02-31	18051407-07A	25MAY13.D	5/25/2018	14:01
05	18CP02-33	18051407-09A	25MAY14.D	5/25/2018	14:22
06	18CP02-34	18051407-10A	25MAY15.D	5/25/2018	14:43
07	18CP02-31 MS	18051407-07A MS	25MAY29.D	5/25/2018	20:17
08	18CP02-31 MSD	18051407-07A MSD	25MAY30.D	5/25/2018	20:39

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 25MAY01.D BFB Injection Date: 5/25/2018

Instrument ID: VMS8 BFB Injection Time: 14:49

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.9
75	30.0 - 66.0% of mass 95	44.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.3 (0.3)1
174	50.0 - 120.0% of mass 95	90.1
175	4.0 - 9.0% of mass 174	7.8 (8.6)1
176	93.0 - 101.0% of mass 174	90.3 (100.1)1
177	5.0 - 9.0% of mass 176	5.4 (6.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV1-180525	25MAY02.D	5/25/2018	15:13
02	VLCSS1-180525	VLCSS1-180525	25MAY03.D	5/25/2018	15:44
03	VBLKS1-180525	VBLKS1-180525	25MAY06.D	5/25/2018	17:04
04	18CP02-33	18051407-09A DF0.951	25MAY08.D	5/25/2018	17:52
05	18CP02-33 MS	18051407-09A MS	25MAY09.D	5/25/2018	18:08
06	18CP02-33 MSD	18051407-09A MSD	25MAY10.D	5/25/2018	18:25

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 25MAY01.D BFB Injection Date: 5/25/2018

Instrument ID: VMS7 BFB Injection Time: 9:11

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.3
75	30.0 - 66.0% of mass 95	41.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	99.2
175	4.0 - 9.0% of mass 174	7.4 (7.5)1
176	93.0 - 101.0% of mass 174	99.0 (99.8)1
177	5.0 - 9.0% of mass 176	6.1 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV2-180525	25MAY03.D	5/25/2018	10:14
02	LCS-	LCS-	25MAY05.D	5/25/2018	11:12
03	MBLK-	MBLK-	25MAY08.D	5/25/2018	12:15
04	18CP02-31	18051407-07A	25MAY13.D	5/25/2018	14:01
05	18CP02-33	18051407-09A	25MAY14.D	5/25/2018	14:22
06	18CP02-34	18051407-10A	25MAY15.D	5/25/2018	14:43
07	18CP02-31 MS	18051407-07A MS	25MAY29.D	5/25/2018	20:17
08	18CP02-31 MSD	18051407-07A MSD	25MAY30.D	5/25/2018	20:39

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID: 29MAY18.D BFB Injection Date: 5/29/2018

Instrument ID: VMS8 BFB Injection Time: 15:20

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.2
75	30.0 - 66.0% of mass 95	45.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	0.2 (0.3)1
174	50.0 - 120.0% of mass 95	83.2
175	4.0 - 9.0% of mass 174	6.7 (8.1)1
176	93.0 - 101.0% of mass 174	80.6 (96.8)1
177	5.0 - 9.0% of mass 176	5.1 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD	VCCV2-180529	29MAY19.D	5/29/2018	15:43
02	18CP02-29	18051407-05A	29MAY25.D	5/29/2018	17:29
03	18CP02-35	18051407-11A	29MAY26.D	5/29/2018	17:46
04	18051473-03A	18051473-03A DF5	29MAY33.D	5/29/2018	19:40
05	18051473-04A	18051473-04A DF5	29MAY34.D	5/29/2018	19:56
06	18051473-03A DU	18051473-03A DUP	29MAY47.D	5/29/2018	23:26
07	18051473-03A MS	18051473-03A MSD DF	30MAY66.D	5/31/2018	4:45

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 23MAY07.D Date Analyzed: 5/23/2018

Instrument ID: vms8 Time Analyzed: 12:59

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	216514	4.72	319521	5.99	284811	8.73
	UPPER LIMIT	433028	5.22	639042	6.49	569622	9.23
	LOWER LIMIT	108257	4.22	159761	5.49	142406	8.23
	EPA SAMPLE NO.						
01	LCS01	221847	4.72	332164	6.00	291245	8.73
02	VBLK01	205128	4.73	293346	6.00	251087	8.73
03	18051384-01A	198822	4.72	302990	6.00	253163	8.73
04	18CP02-25	212502	4.71	320824	6.00	286411	8.73
05	18CP02-26	244982	4.71	365237	6.00	319856	8.73
06	18CP02-27	236054	4.71	359034	6.00	309592	8.73
07	18CP02-28	234654	4.71	344370	5.99	316954	8.73
08	18051384-01A	218315	4.71	328397	5.99	287061	8.73
09	18051384-01A	252669	4.71	386008	6.00	338603	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 23MAY07.D Date Analyzed: 5/23/2018

Instrument ID: vms8 Time Analyzed: 12:59

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	135560	10.05		.00		
	UPPER LIMIT	271120	9.55		-.50		
	LOWER LIMIT	67780	10.55		.50		
	EPA SAMPLE NO.						
01	LCS01	135848	10.05	0	.00		
02	VBLK01	120792	10.05	0	.00		
03	18051384-01A	109931	10.05	0	.00		
04	18CP02-25	140203	10.05	0	.00		
05	18CP02-26	136488	10.05	0	.00		
06	18CP02-27	118686	10.05	0	.00		
07	18CP02-28	149458	10.05	0	.00		
08	18051384-01A	134150	10.05	0	.00		
09	18051384-01A	167155	10.05	0	.00		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID (Standard): 24MAY11.D Date Analyzed: 5/24/2018

Instrument ID: VMS8 Time Analyzed: 14:37

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	190742	4.71	269930	6.00	234112	8.73
	UPPER LIMIT	381484	5.21	539860	6.50	468224	9.23
	LOWER LIMIT	95371	4.21	134965	5.50	117056	8.23
	EPA SAMPLE NO.						
01	VBLKS1-1805	198021	4.71	286071	5.99	251058	8.73
02	18051384-01C	218995	4.71	328003	5.99	292449	8.73
03	18051384-01C	219544	4.71	324837	6.00	285395	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID (Standard): 24MAY11.D Date Analyzed: 5/24/2018

Instrument ID: VMS8 Time Analyzed: 14:37

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	114176	10.05				
	UPPER LIMIT	228352	9.55				
	LOWER LIMIT	57088	10.55				
	EPA SAMPLE NO.						
01	VBLKS1-1805	122293	10.05				
02	18051384-01C	141280	10.05				
03	18051384-01C	138167	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID (Standard): 25MAY03.D Date Analyzed: 5/25/2018

Instrument ID: VMS7 Time Analyzed: 10:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	148051	5.48	238976	6.53	206243	9.94
	UPPER LIMIT	296102	5.98	477952	7.03	412486	10.44
	LOWER LIMIT	74026	4.98	119488	6.03	103122	9.44
	EPA SAMPLE NO.						
01	LCS-118698	133989	5.49	213931	6.53	199130	9.94
02	MBLK-118698	146095	5.48	232284	6.53	206499	9.94
03	18CP02-31	148130	5.49	236282	6.53	207148	9.94
04	18CP02-33	137745	5.49	208950	6.53	186205	9.94
05	18CP02-34	149488	5.49	235654	6.53	203258	9.94
06	18CP02-31 M	127930	5.48	199474	6.53	169104	9.94
07	18CP02-31 M	129813	5.49	205209	6.53	165822	9.94

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18061407

Lab File ID (Standard): 25MAY03.D Date Analyzed: 5/25/2018

Instrument ID: VMS7 Time Analyzed: 10:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	104279	12.42				
	UPPER LIMIT	208558	11.92				
	LOWER LIMIT	52140	12.92				
	EPA SAMPLE NO.						
01	LCS-118698	99619	12.42				
02	MBLK-118698	106309	12.42				
03	18CP02-31	103404	12.42				
04	18CP02-33	96153	12.42				
05	18CP02-34	101841	12.42				
06	18CP02-31 M	95621	12.42				
07	18CP02-31 M	90902	12.42				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 25MAY02.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 15:13

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	191689	4.71	275051	5.99	246611	8.73
	UPPER LIMIT	383378	5.21	550102	6.49	493222	9.23
	LOWER LIMIT	95845	4.21	137526	5.49	123306	8.23
	EPA SAMPLE NO.						
01	VLCSS1-1805	185481	4.71	272994	6.00	239978	8.73
02	VBLKS1-1805	104865	4.71	137449 *	6.00	113516 *	8.73
03	18CP02-33	214341	4.71	328796	6.00	267433	8.73
04	18CP02-33 M	195557	4.71	297638	6.00	261912	8.73
05	18CP02-33 M	210129	4.71	313275	6.00	281325	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 25MAY02.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 15:13

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	121394	10.05				
	UPPER LIMIT	242788	9.55				
	LOWER LIMIT	60697	10.55				
	EPA SAMPLE NO.						
01	VLCSS1-1805	117256	10.05				
02	VBLKS1-1805	52862*	10.05				
03	18CP02-33	109834	10.05				
04	18CP02-33 M	123606	10.05				
05	18CP02-33 M	130764	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 25MAY03.D Date Analyzed: 5/25/2018

Instrument ID: VMS7 Time Analyzed: 10:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	148051	5.48	238976	6.53	206243	9.94
	UPPER LIMIT	296102	5.98	477952	7.03	412486	10.44
	LOWER LIMIT	74026	4.98	119488	6.03	103122	9.44
	EPA SAMPLE NO.						
01	LCS-	133989	5.49	213931	6.53	199130	9.94
02	MBLK-	146095	5.48	232284	6.53	206499	9.94
03	18CP02-31	148130	5.49	236282	6.53	207148	9.94
04	18CP02-33	137745	5.49	208950	6.53	186205	9.94
05	18CP02-34	149488	5.49	235654	6.53	203258	9.94
06	18CP02-31 M	127930	5.48	199474	6.53	169104	9.94
07	18CP02-31 M	129813	5.49	205209	6.53	165822	9.94

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
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RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 25MAY03.D Date Analyzed: 5/25/2018

Instrument ID: VMS7 Time Analyzed: 10:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	104279	12.42				
	UPPER LIMIT	208558	11.92				
	LOWER LIMIT	52140	12.92				
	EPA SAMPLE NO.						
01	LCS-	99619	12.42				
02	MBLK-	106309	12.42				
03	18CP02-31	103404	12.42				
04	18CP02-33	96153	12.42				
05	18CP02-34	101841	12.42				
06	18CP02-31 M	95621	12.42				
07	18CP02-31 M	90902	12.42				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 29MAY19.D Date Analyzed: 5/29/2018

Instrument ID: VMS8 Time Analyzed: 15:43

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	302600	4.71	423532	5.99	408738	8.73
	UPPER LIMIT	605200	5.21	847064	6.49	817476	9.23
	LOWER LIMIT	151300	4.21	211766	5.49	204369	8.23
	EPA SAMPLE NO.						
01	18CP02-29	288740	4.71	419171	6.00	382672	8.73
02	18CP02-35	272203	4.71	404058	6.00	372488	8.73
03	18051473-03A	278646	4.71	400967	6.00	368063	8.73
04	18051473-04A	285275	4.71	415692	6.00	388602	8.73
05	18051473-03A	272686	4.72	417673	6.00	375758	8.73
06	18051473-03A	274373	4.72	389246	6.00	375899	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051407

Lab File ID (Standard): 29MAY19.D Date Analyzed: 5/29/2018

Instrument ID: VMS8 Time Analyzed: 15:43

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	225044	10.05				
	UPPER LIMIT	450088	9.55				
	LOWER LIMIT	112522	10.55				
	EPA SAMPLE NO.						
01	18CP02-29	191563	10.05				
02	18CP02-35	191361	10.05				
03	18051473-03A	196802	10.05				
04	18051473-04A	196457	10.05				
05	18051473-03A	192561	10.05				
06	18051473-03A	195170	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.485	168	148130	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	236282	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	207148	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	103404	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	32499	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	81569	18.52	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.60%			
46) 1,2-Dichloroethane-d4	5.883	65	96553	19.68	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.40%			
65) Toluene-d8	8.311	98	269483	19.68	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.40%			
86) Bromofluorobenzene	11.210	95	102025	19.44	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.20%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	46258	12.54 ug/L	98
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) trans-1,3-Dichloropropene	0.000		0	N.D.	
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	8.971	166	1329m	0.38 ug/L	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

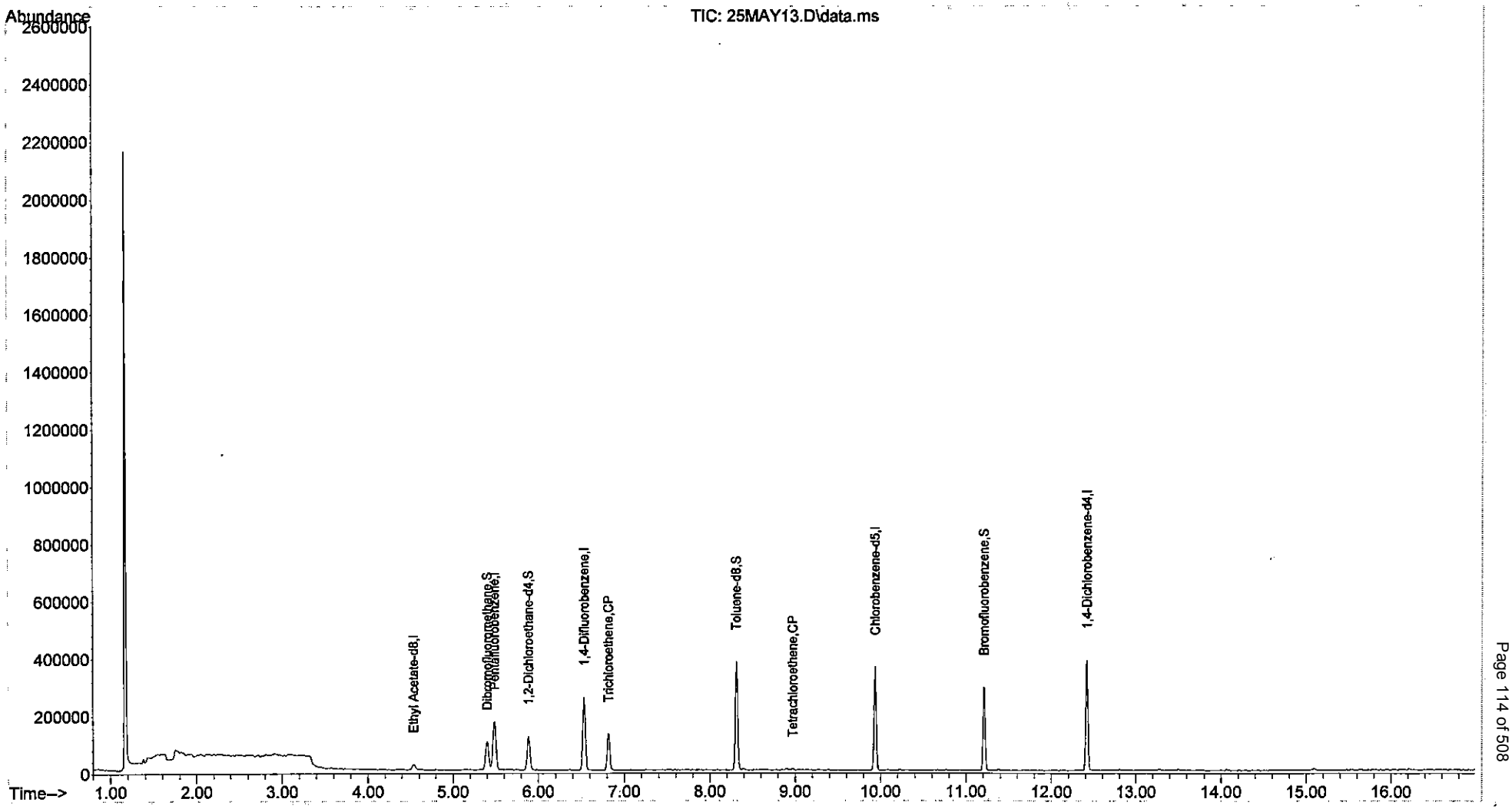
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

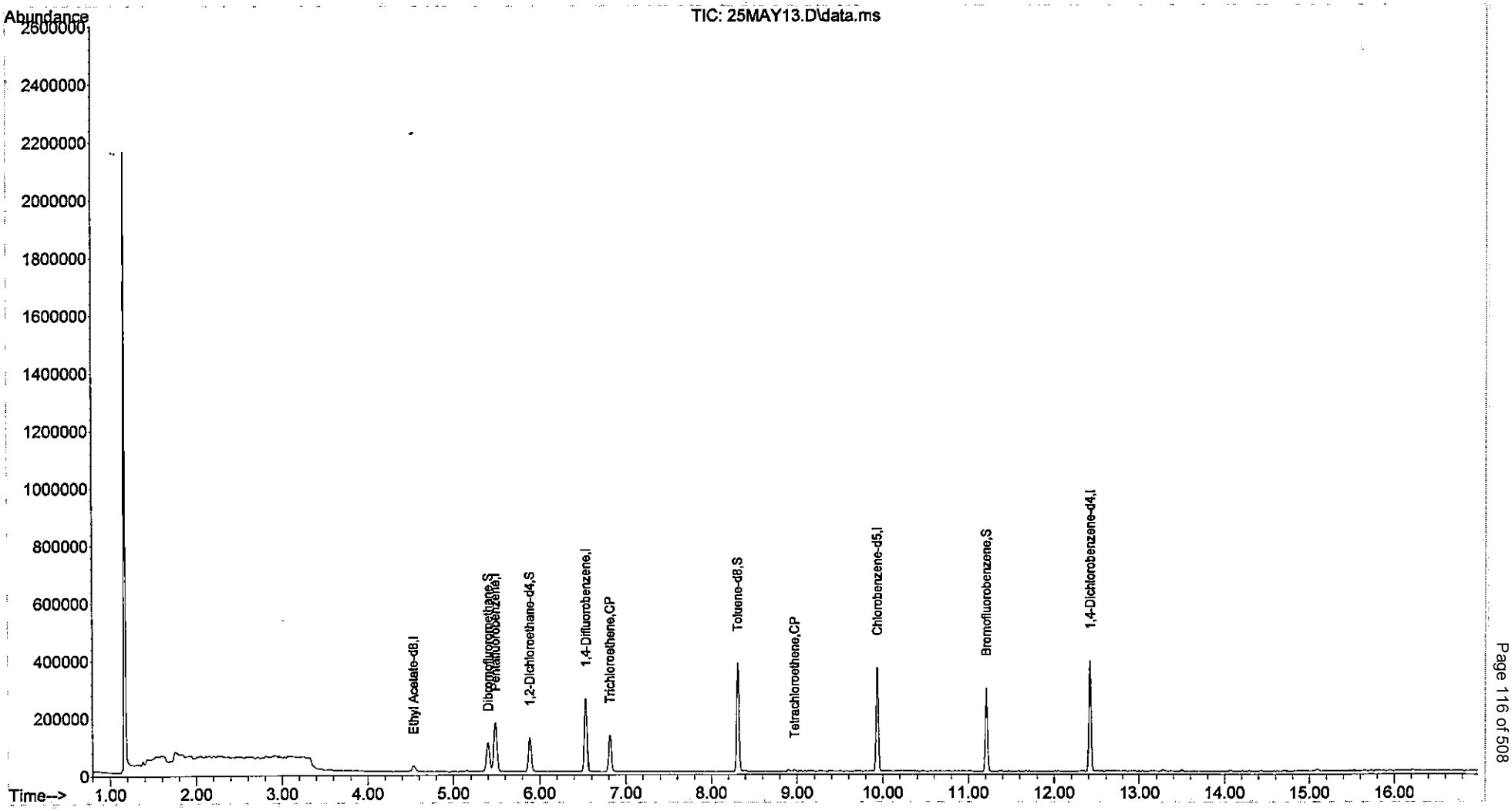
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	148130	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	236282	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	207148	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	103404	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	32499	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	81569	18.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.60%				
46) 1,2-Dichloroethane-d4	5.883	65	96553	19.68	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.40%				
65) Toluene-d8	8.311	98	269483	19.68	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.40%				
86) Bromofluorobenzene	11.210	95	102025	19.44	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.20%				
Target Compounds							Qvalue
53) Trichloroethene	6.816	130	46258	12.54	ug/L		98
71) Tetrachloroethene	8.971	166	1329m	0.38	ug/L		

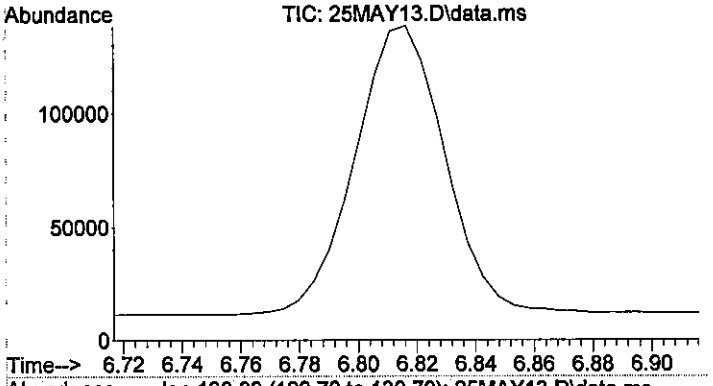
(#) = qualifier out of range (m) = manual integration (+) = signals summed

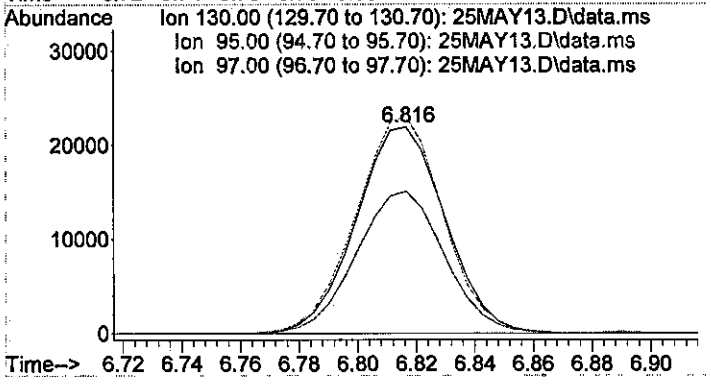
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY13.D
Acq On : 25 May 2018 2:01 pm
Operator : WH
Sample : 18051407-07A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 15:13:22 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



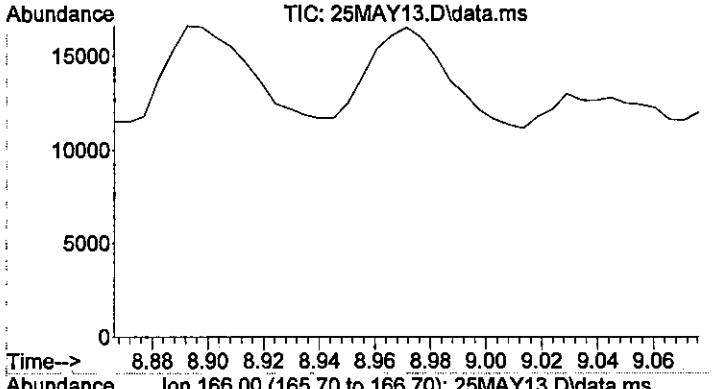


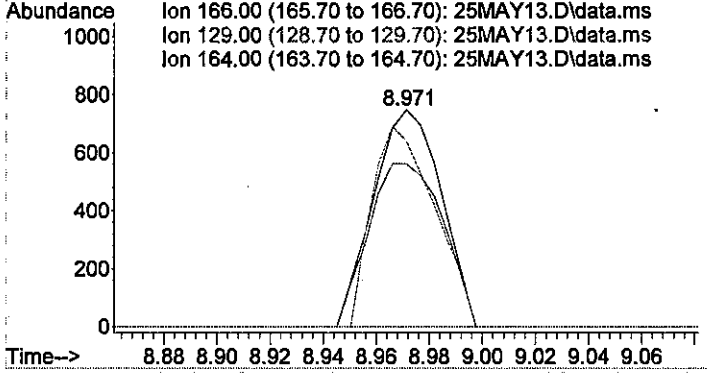


#53
Trichloroethene
Concen: 12.54 ug/L
RT: 6.816 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 25MAY13.D
Acq: 25 May 2018 2:01 pm

Tgt Ion:130 Resp: 46258

Ion	Ratio	Lower	Upper
130	100		
95	103.4	74.2	134.2
97	68.5	35.7	95.7





#71
Tetrachloroethene
Concen: 0.38 ug/L m
RT: 8.971 min Scan# 1560
Delta R.T. 0.000 min
Lab File: 25MAY13.D
Acq: 25 May 2018 2:01 pm

Tgt Ion:166 Resp: 1329

Ion	Ratio	Lower	Upper
166	100		
129	0.0	41.8	101.8#
164	0.0	47.2	107.2#

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.485	168	137745	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	208950	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	186205	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	96153	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	29813	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	76923	19.75	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.75%			
46) 1,2-Dichloroethane-d4	5.883	65	90715	20.90	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.50%			
65) Toluene-d8	8.311	98	257042	20.88	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.40%			
86) Bromofluorobenzene	11.210	95	97520	20.68	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.40%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	7486	2.30 ug/L	89
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) trans-1,3-Dichloropropene	0.000		0	N.D.	
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	8.971	166	1371m	0.44 ug/L	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

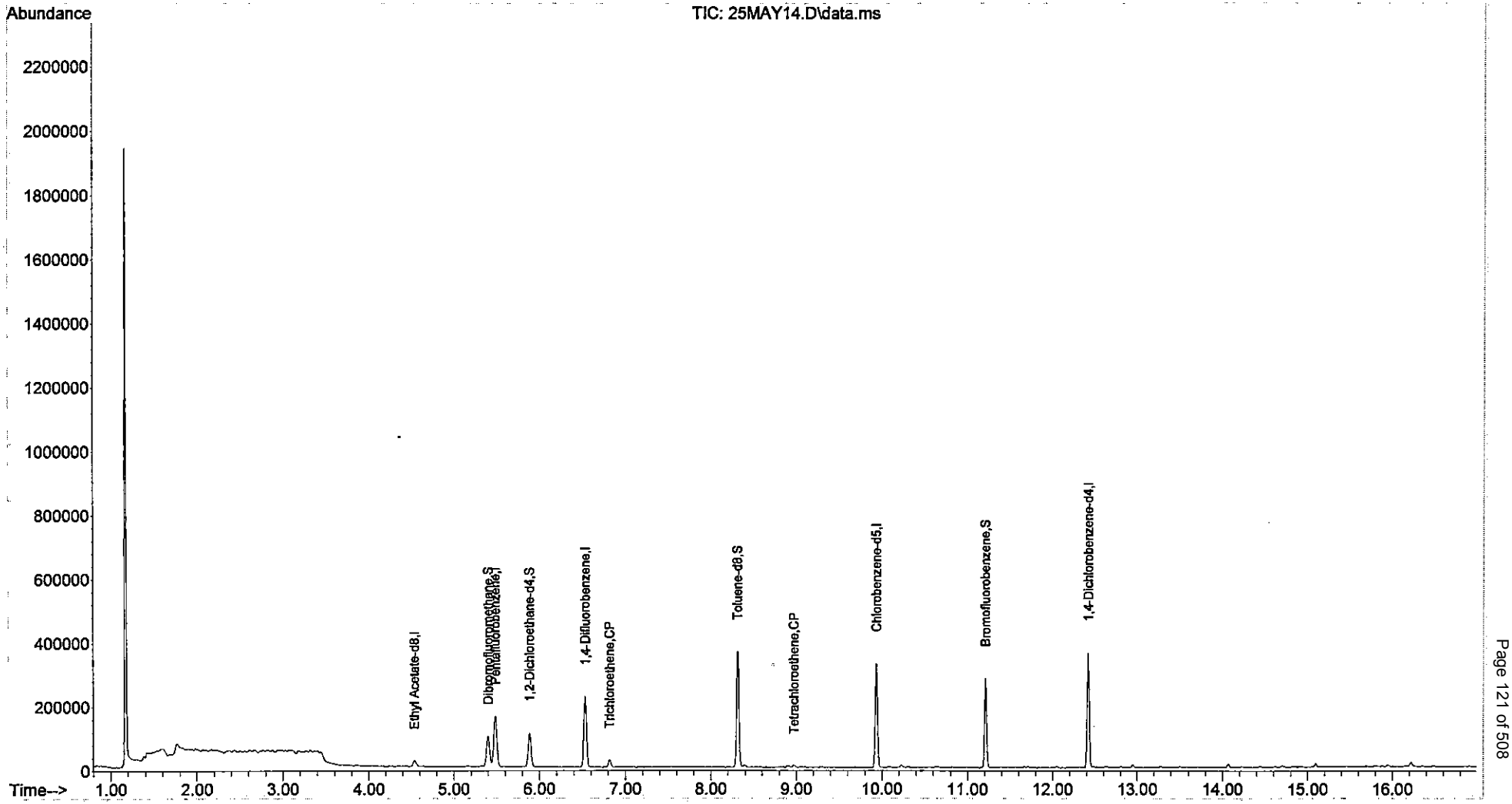
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

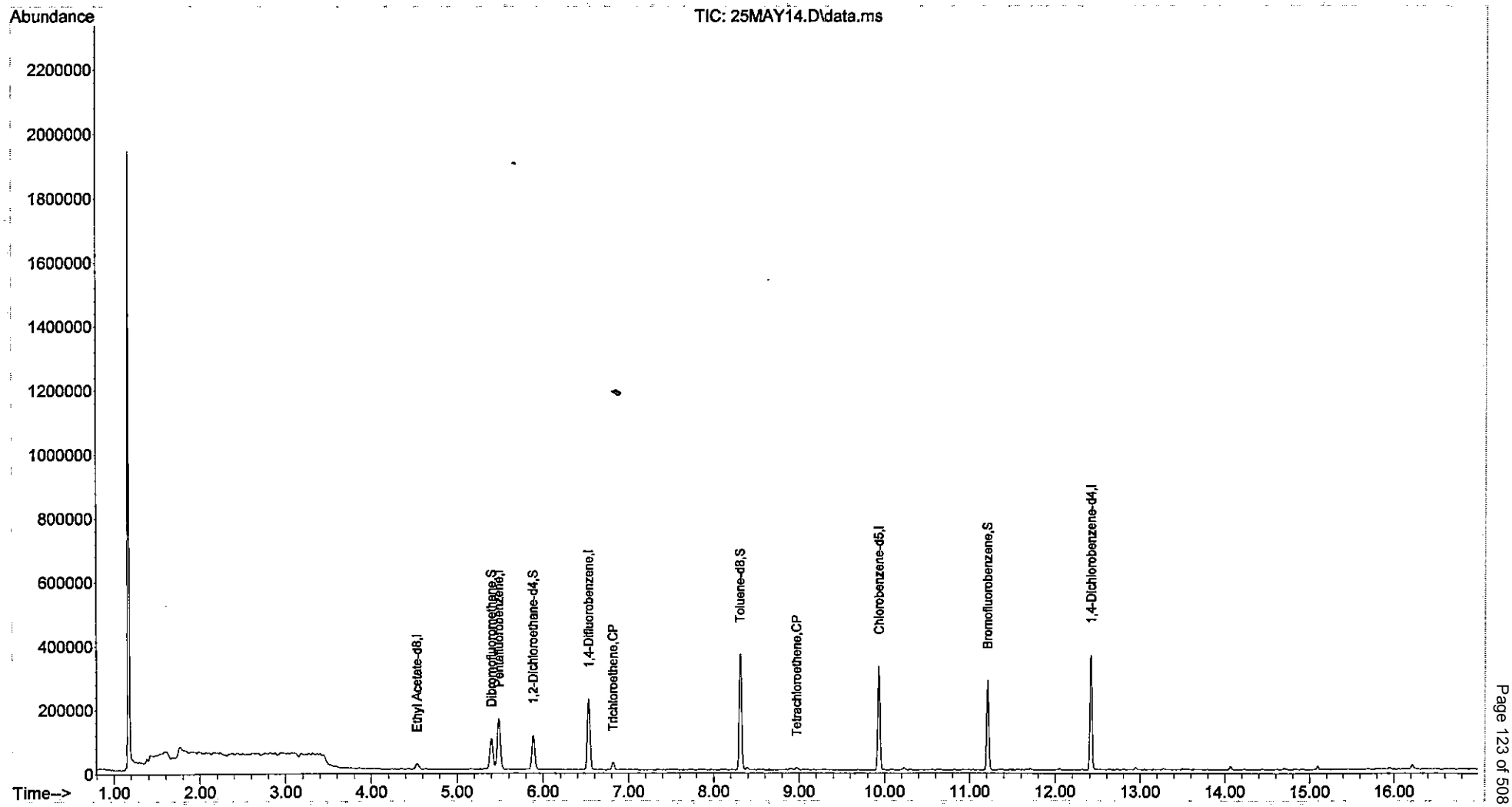
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.485	168	137745	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	208950	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	186205	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	96153	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	29813	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	76923	19.75	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.75%			
46) 1,2-Dichloroethane-d4	5.883	65	90715	20.90	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.50%			
65) Toluene-d8	8.311	98	257042	20.88	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.40%			
86) Bromofluorobenzene	11.210	95	97520	20.68	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.40%			
Target Compounds						Qvalue
53) Trichloroethene	6.816	130	7486	2.30	ug/L	89
71) Tetrachloroethene	8.971	166	1371m	0.44	ug/L	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY14.D
Acq On : 25 May 2018 2:22 pm
Operator : WH
Sample : 18051407-09A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 15:13:44 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	149488	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	235654	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	203258	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	101841	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	30440	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	83221	18.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 94.70%				
46) 1,2-Dichloroethane-d4	5.883	65	94003	19.21	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.05%				
65) Toluene-d8	8.311	98	254193	18.92	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.60%				
86) Bromofluorobenzene	11.210	95	100840	19.59	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.942	49	5390	0.71	ug/L	#	18
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	98073	26.66 ug/L	97
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) trans-1,3-Dichloropropene	0.000		0	N.D.	
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	8.971	166	1889m	0.56 ug/L	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

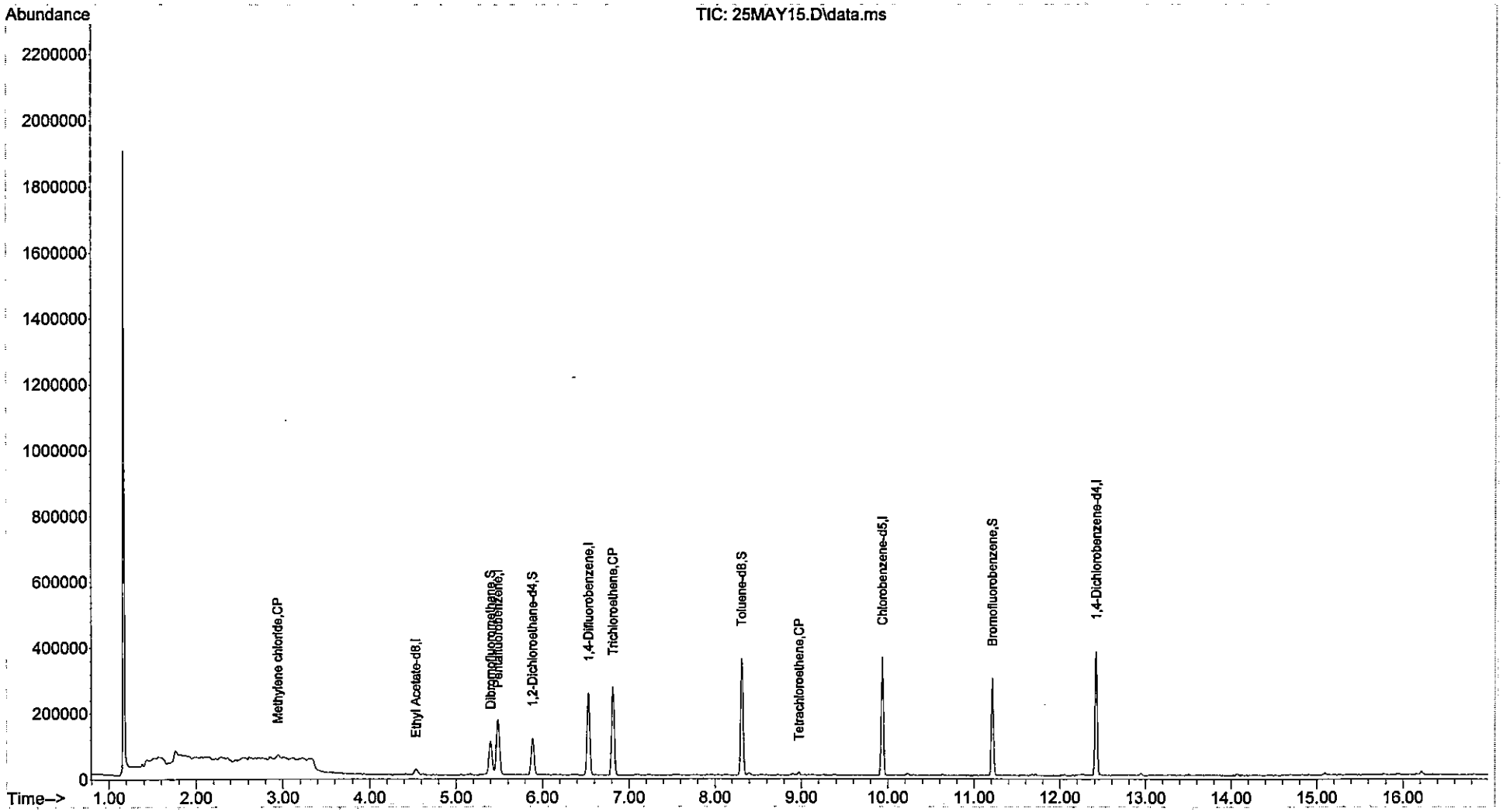
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

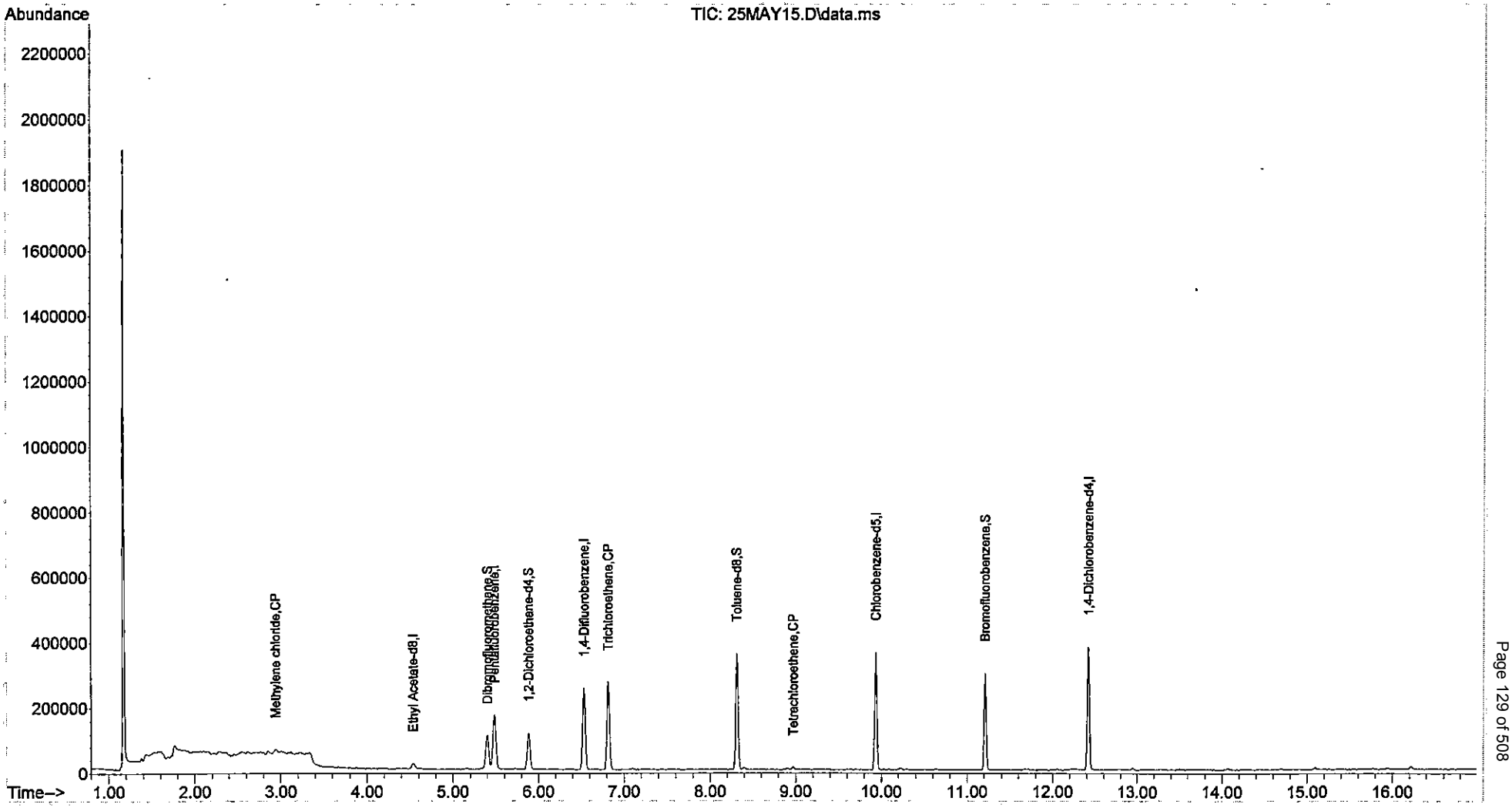
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.485	168	149488	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	235654	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	203258	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	101841	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	30440	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	83221	18.94	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 94.70%			
46) 1,2-Dichloroethane-d4	5.883	65	94003	19.21	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.05%			
65) Toluene-d8	8.311	98	254193	18.92	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.60%			
86) Bromofluorobenzene	11.210	95	100840	19.59	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.95%			
Target Compounds						Qvalue
19) Methylene chloride	2.942	49	5390	0.71	ug/L	# 18
53) Trichloroethene	6.816	130	98073	26.66	ug/L	97
71) Tetrachloroethene	8.971	166	1889m	0.56	ug/L	

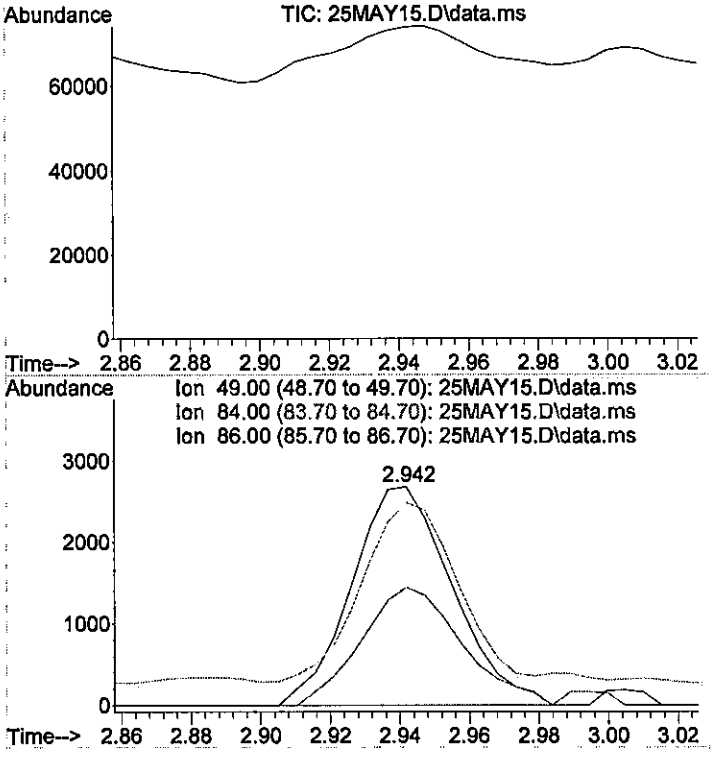
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY15.D
Acq On : 25 May 2018 2:43 pm
Operator : WH
Sample : 18051407-10A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 15:14:04 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

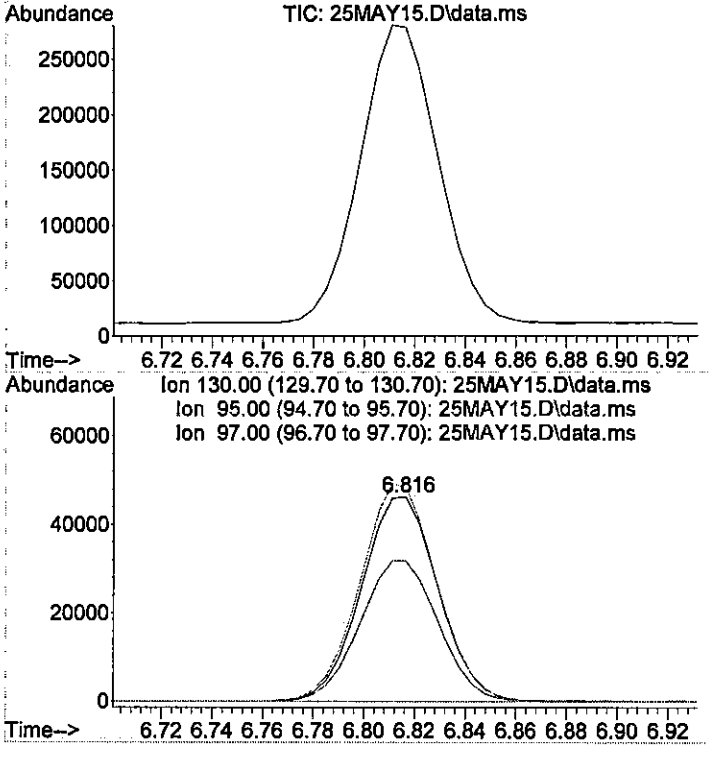




#19
Methylene chloride
Concen: 0.71 ug/L
RT: 2.942 min Scan# 410
Delta R.T. -0.005 min
Lab File: 25MAY15.D
Acq: 25 May 2018 2:43 pm

Tgt Ion: 49 Resp: 5390

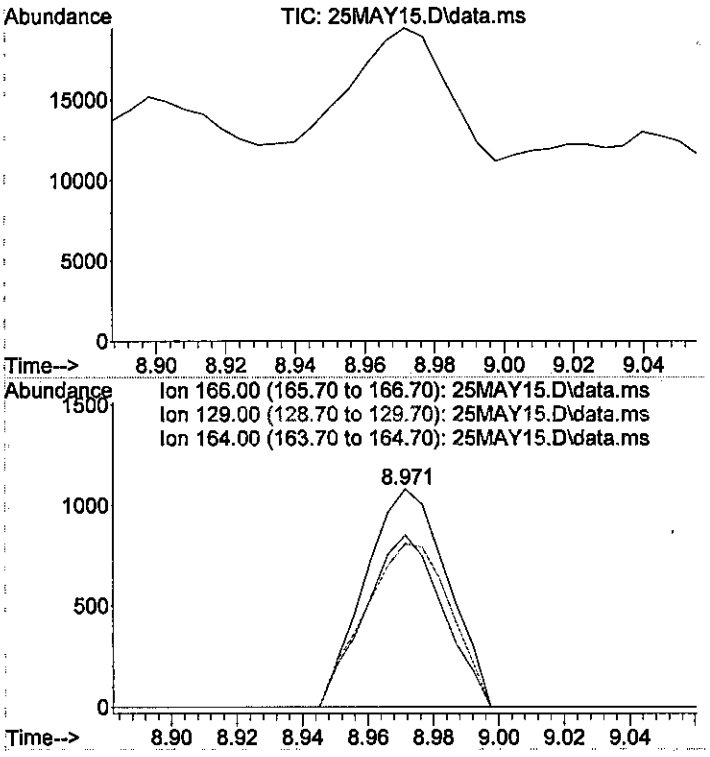
Ion	Ratio	Lower	Upper
49	100		
84	0.0	46.4	106.4#
86	0.0	19.2	79.2#



#53
Trichloroethene
Concen: 26.66 ug/L
RT: 6.816 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 25MAY15.D
Acq: 25 May 2018 2:43 pm

Tgt Ion:130 Resp: 98073

Ion	Ratio	Lower	Upper
130	100		
95	106.1	74.2	134.2
97	69.9	35.7	95.7



#71
Tetrachloroethene
Concen: 0.56 ug/L m
RT: 8.971 min Scan# 1560
Delta R.T. 0.000 min
Lab File: 25MAY15.D
Acq: 25 May 2018 2:43 pm

Tgt Ion:166 Resp: 1889

Ion	Ratio	Lower	Upper
166	100		
129	0.0	41.8	101.8#
164	0.0	47.2	107.2#

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
Sample : 18051407-01A
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	212502	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	320824	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	286411	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	140203	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	25317	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	106107	19.48	ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.40%			
45) 1,2-Dichloroethane-d4	5.164	65	92612	19.31	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.55%			
64) Toluene-d8	7.671	98	366294	19.05	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.25%			
85) Bromofluorobenzene	9.433	95	123244	19.01	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	1.819	101	5703m	0.62	ug/L	
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.607	49	55236	4.13	ug/L	97
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.130	57	11539	Below Cal	#	92
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
Sample : 18051407-01A
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
Sample : 18051407-01A
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

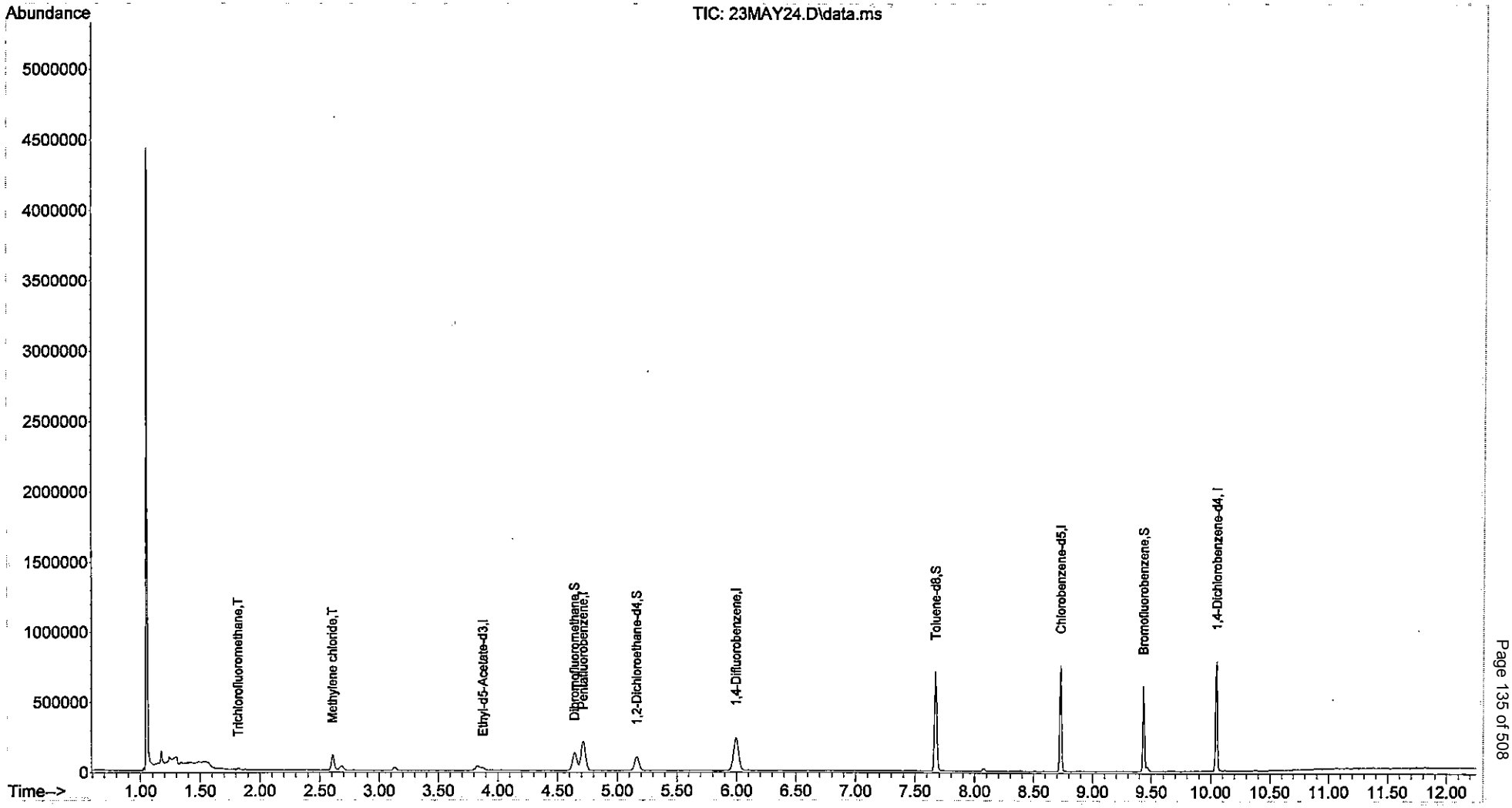
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
Sample : 18051407-01A
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
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ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

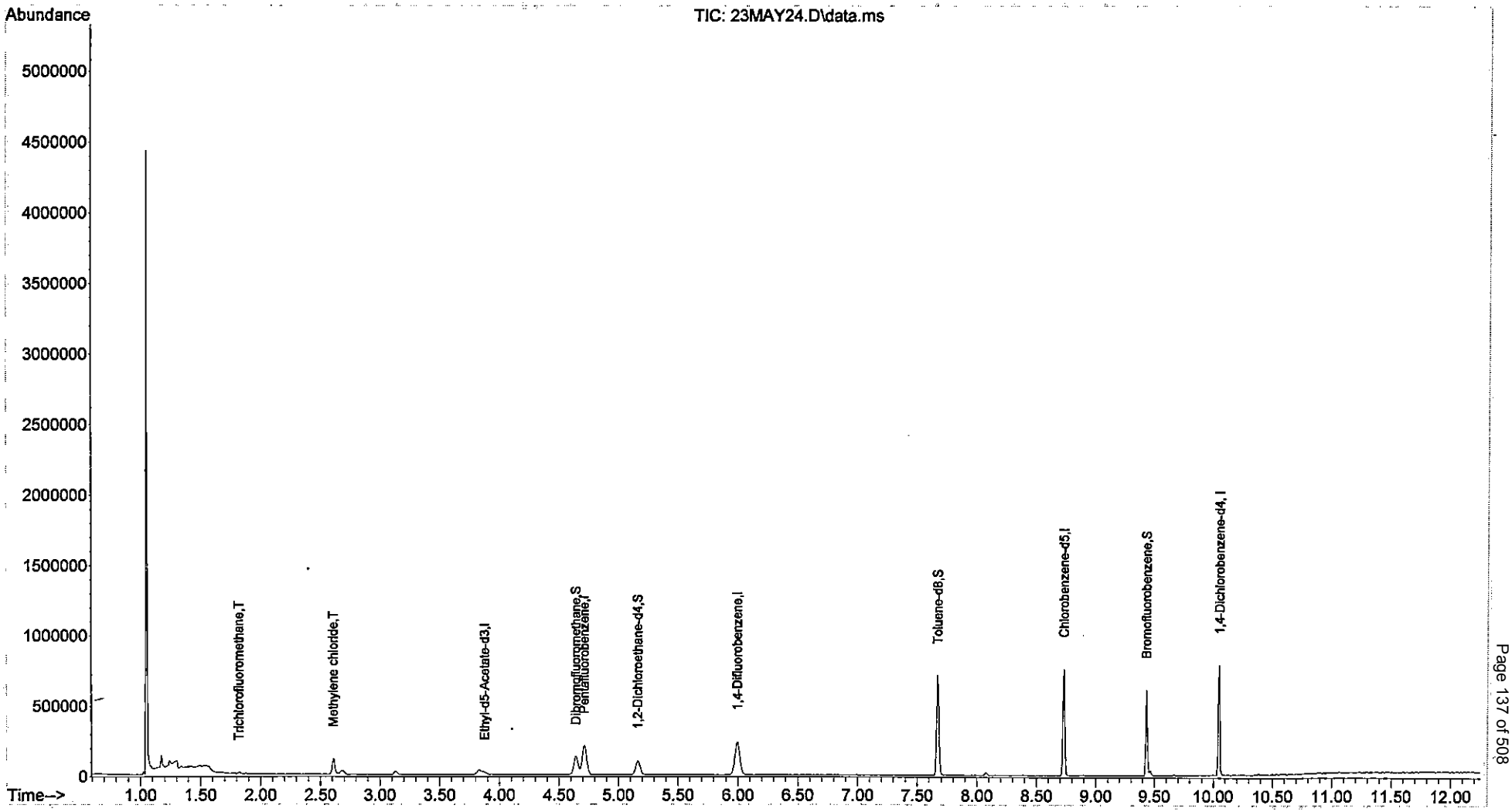
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	212502	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	320824	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	286411	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	140203	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	25317	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	106107	19.48	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.40%				
45) 1,2-Dichloroethane-d4	5.164	65	92612	19.31	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.55%				
64) Toluene-d8	7.671	98	366294	19.05	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.25%				
85) Bromofluorobenzene	9.433	95	123244	19.01	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.05%				
Target Compounds							Qvalue
7) Trichlorofluoromethane	1.819	101	5703m	0.62	ug/L		
19) Methylene chloride	2.607	49	55236	4.13	ug/L		97
24) Hexane	3.130	57	11539	Below Cal		#	92

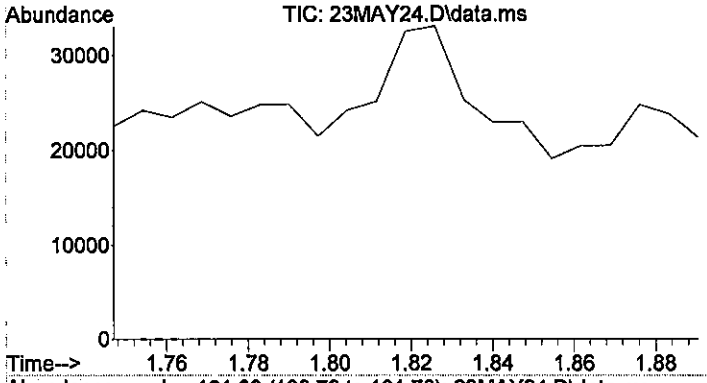
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY24.D
Acq On : 23 May 2018 6:28 pm
Operator : EMR
Sample : 18051407-01A
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Quant Time: May 24 09:31:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

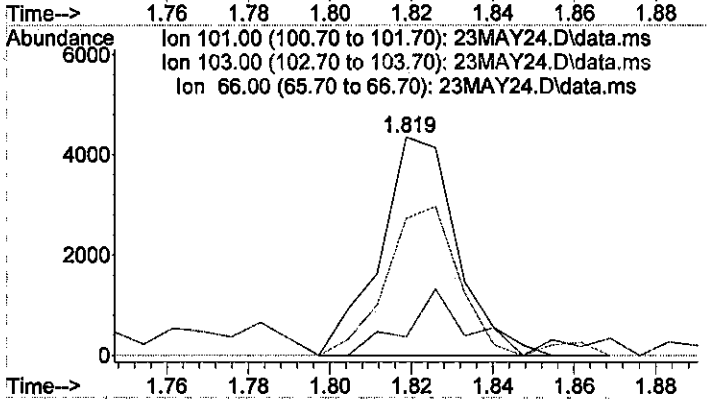


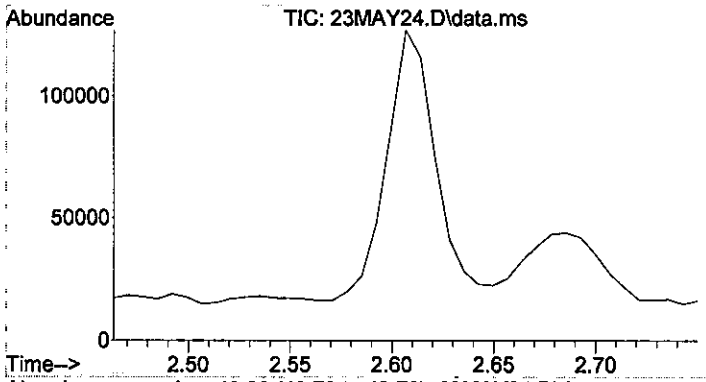


#7
Trichlorofluoromethane
Concen: 0.62 ug/L m
RT: 1.819 min Scan# 172
Delta R.T. -0.007 min
Lab File: 23MAY24.D
Acq: 23 May 2018 6:28 pm

Tgt Ion:101 Resp: 5703

Ion	Ratio	Lower	Upper
101	100		
103	63.9	44.3	84.3
66	0.0	0.0	30.7

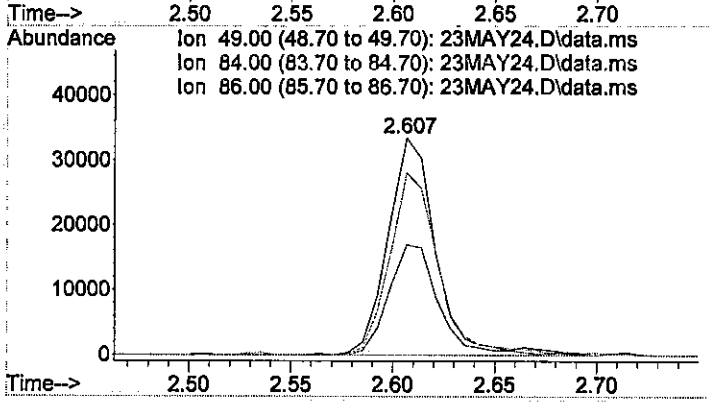




#19
Methylene chloride
Concen: 4.13 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY24.D
Acq: 23 May 2018 6:28 pm

Tgt Ion: 49 Resp: 55236

Ion	Ratio	Lower	Upper
49	100		
84	85.3	61.9	101.9
86	52.9	32.2	72.2



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY25.D
Acq On : 23 May 2018 6:45 pm
Operator : EMR
Sample : 18051407-02A DF0.785
Misc : IS/SS 200-20081
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 24 09:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	244982	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	365237	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	319856	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	136488	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	30386	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	129114	20.82	ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.10%			
45) 1,2-Dichloroethane-d4	5.164	65	108467	19.87	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.35%			
64) Toluene-d8	7.671	98	422983	19.70	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.50%			
85) Bromofluorobenzene	9.433	95	131950	18.23	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.15%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.220	43	63068	34.87	ug/L	95
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.607	49	38002	0.52	ug/L	92
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.130	57	25384m	0.31	ug/L	
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.	d	
32) Ethyl Acetate	0.000		0	N.D.	d	
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY25.D
Acq On : 23 May 2018 6:45 pm
Operator : EMR
Sample : 18051407-02A DF0.785
Misc : IS/SS 200-20081
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 24 09:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D. d	
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	0.000		0	N.D. d	
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	5.752	43	19044	1.93 ug/L	91
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	6.661	83	16959	1.47 ug/L #	85
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	6.353	130	18919	2.35 ug/L	97
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	7.729	91	67195	2.19 ug/L	98
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	0.000		0	N.D.	
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	0.000		0	N.D.	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D.	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	8.810	91	25222	0.78 ug/L	91
79)	m/p-Xylene	8.889	91	40238	1.65 ug/L	95
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	9.125	91	16338	0.65 ug/L	98
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	0.000		0	N.D.	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	9.562	91	7946m	0.22 ug/L	
91)	2-Chlorotoluene	0.000		0	N.D. d	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	9.655	105	10327m	0.43 ug/L	
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	9.856	105	24969	1.00 ug/L	96
96)	sec-Butylbenzene	0.000		0	N.D. d	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY25.D
Acq On : 23 May 2018 6:45 pm
Operator : EMR
Sample : 18051407-02A DF0.785
Misc : IS/SS 200-20081
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 24 09:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	8666m	0.41 ug/L	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	8025m	0.37 ug/L	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	63068	47.07 ug/L	95
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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Quant Time: May 24 09:32:32 2018
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Quant Title : 8260B/624 Volatile Calibration
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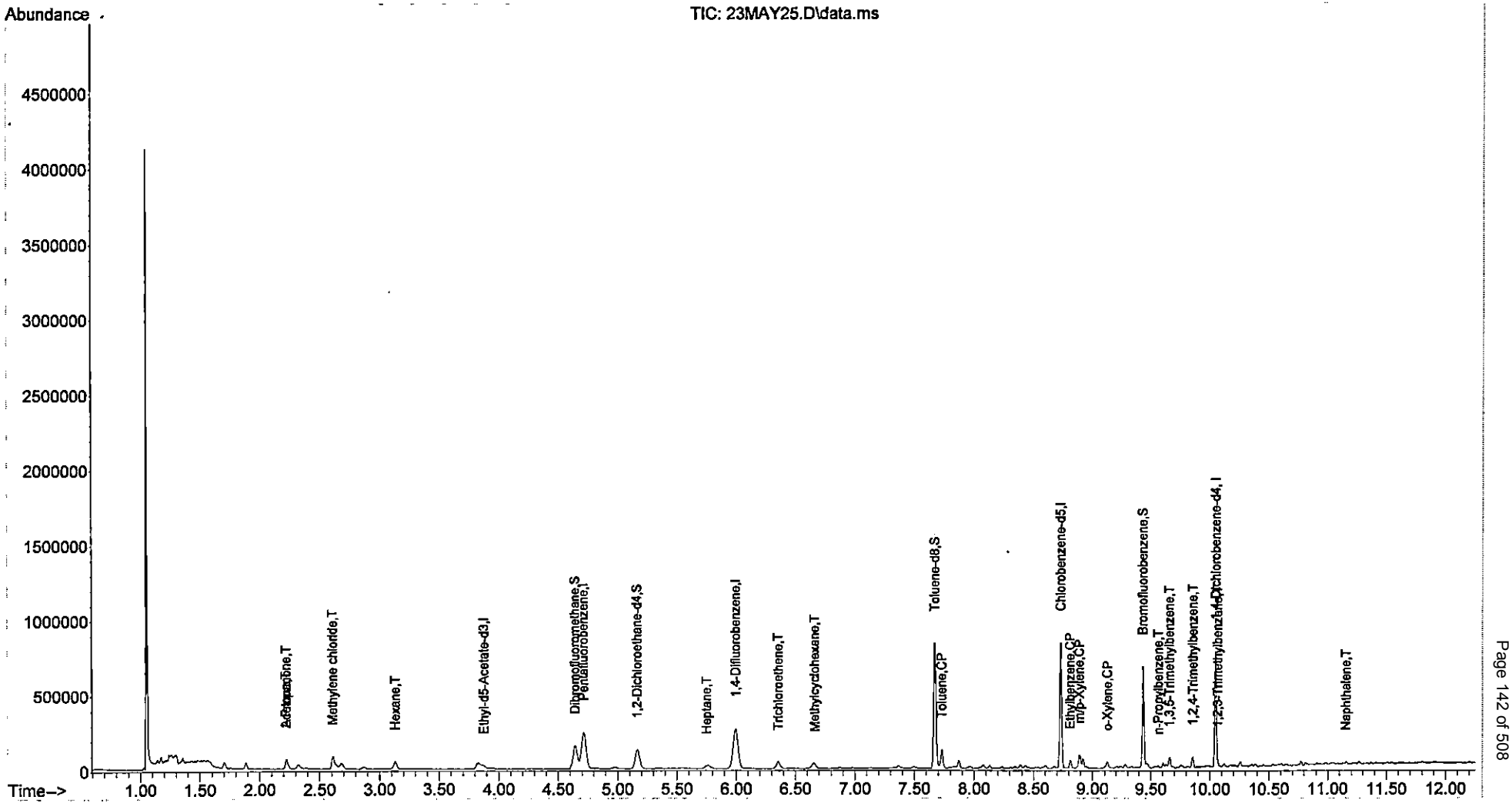

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Quant Title : 8260B/624 Volatile Calibration
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Response via : Initial Calibration

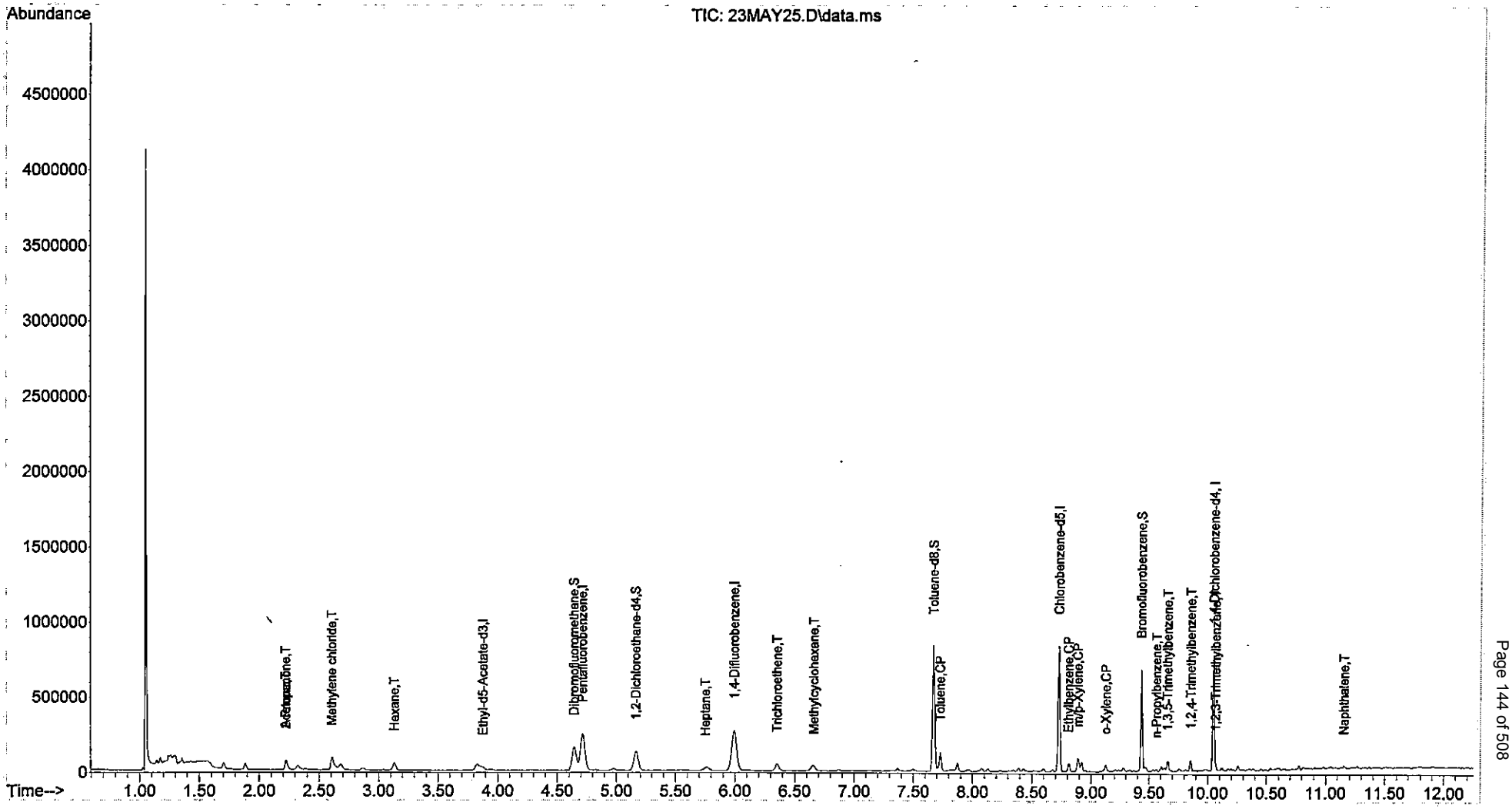
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	244982	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	365237	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	319856	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	136488	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	30386	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	129114	20.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.10%				
45) 1,2-Dichloroethane-d4	5.164	65	108467	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.35%				
64) Toluene-d8	7.671	98	422983	19.70	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.50%				
85) Bromofluorobenzene	9.433	95	131950	18.23	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.15%				
Target Compounds							Qvalue
13) Acetone	2.220	43	63068	34.87	ug/L		95
19) Methylene chloride	2.607	49	38002	0.52	ug/L		92
24) Hexane	3.130	57	25384m	0.31	ug/L		
50) Heptane	5.752	43	19044	1.93	ug/L		91
52) Methylcyclohexane	6.661	83	16959	1.47	ug/L	#	85
54) Trichloroethene	6.353	130	18919	2.35	ug/L		97
65) Toluene	7.729	91	67195	2.19	ug/L		98
78) Ethylbenzene	8.810	91	25222	0.78	ug/L		91
79) m/p-Xylene	8.889	91	40238	1.65	ug/L		95
81) o-Xylene	9.125	91	16338	0.65	ug/L		98
90) n-Propylbenzene	9.562	91	7946m	0.22	ug/L		
93) 1,3,5-Trimethylbenzene	9.655	105	10327m	0.43	ug/L		
95) 1,2,4-Trimethylbenzene	9.856	105	24969	1.00	ug/L		96
101) 1,2,3-Trimethylbenzene	10.064	105	8666m	0.41	ug/L		
110) Naphthalene	11.152	128	8025m	0.37	ug/L		
115) 2-Propanone	2.220	43	63068	47.07	ug/L		95

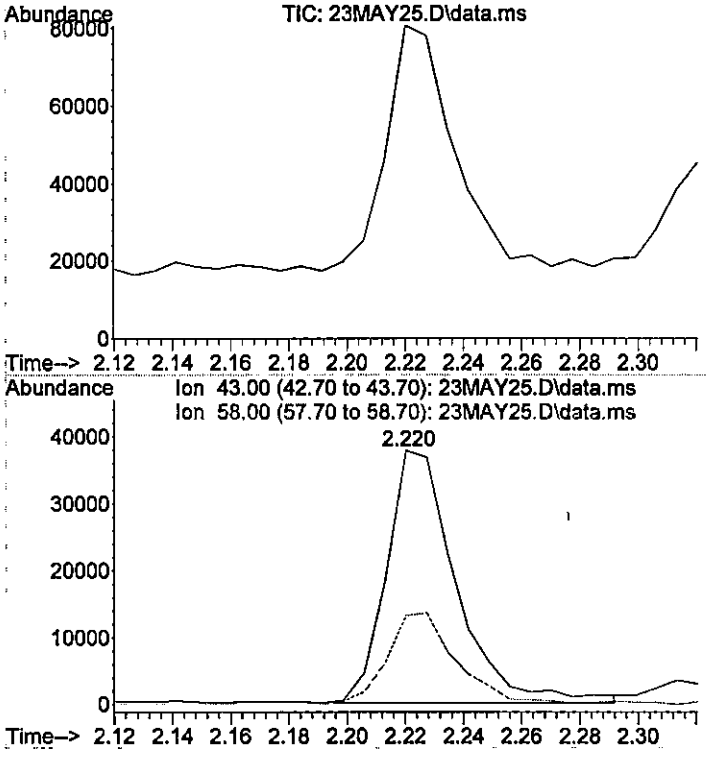
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY25.D
Acq On : 23 May 2018 6:45 pm
Operator : EMR
Sample : 18051407-02A DF0.785
Misc : IS/SS 200-20081
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 24 09:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

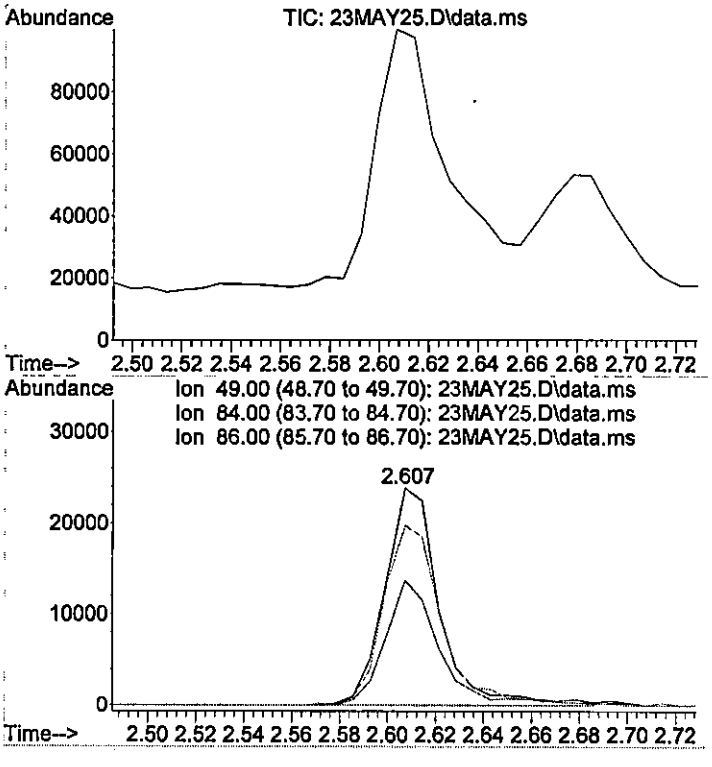




#13
Acetone
Concen: 34.87 ug/L
RT: 2.220 min Scan# 228
Delta R.T. -0.007 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 43 Resp: 63068

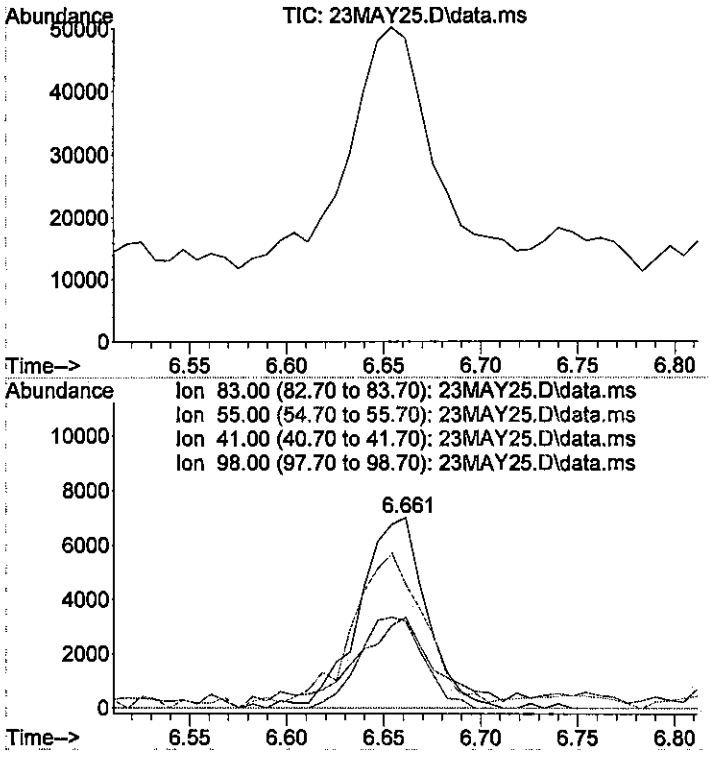
Ion	Ratio	Lower	Upper
43	100		
58	36.4	13.5	53.5



#19
Methylene chloride
Concen: 0.52 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 49 Resp: 38002

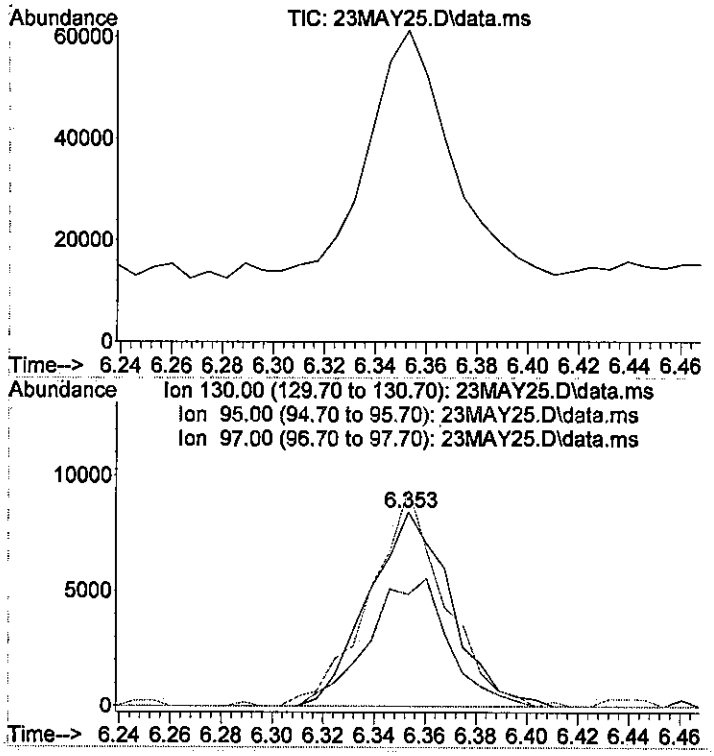
Ion	Ratio	Lower	Upper
49	100		
84	89.2	61.9	101.9
86	57.3	32.2	72.2



#52
Methylcyclohexane
Concen: 1.47 ug/L
RT: 6.661 min Scan# 848
Delta R.T. 0.007 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 83 Resp: 16959

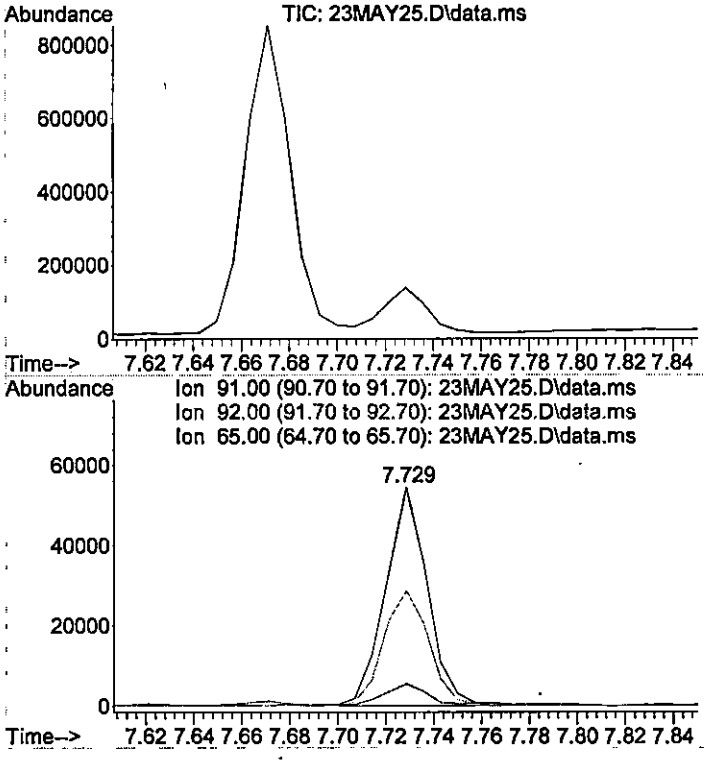
Ion	Ratio	Lower	Upper
83	100		
55	91.2	63.8	95.6
41	60.1	33.5	50.3#
98	45.8	33.8	50.6



#54
Trichloroethene
Concen: 2.35 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion:130 Resp: 18919

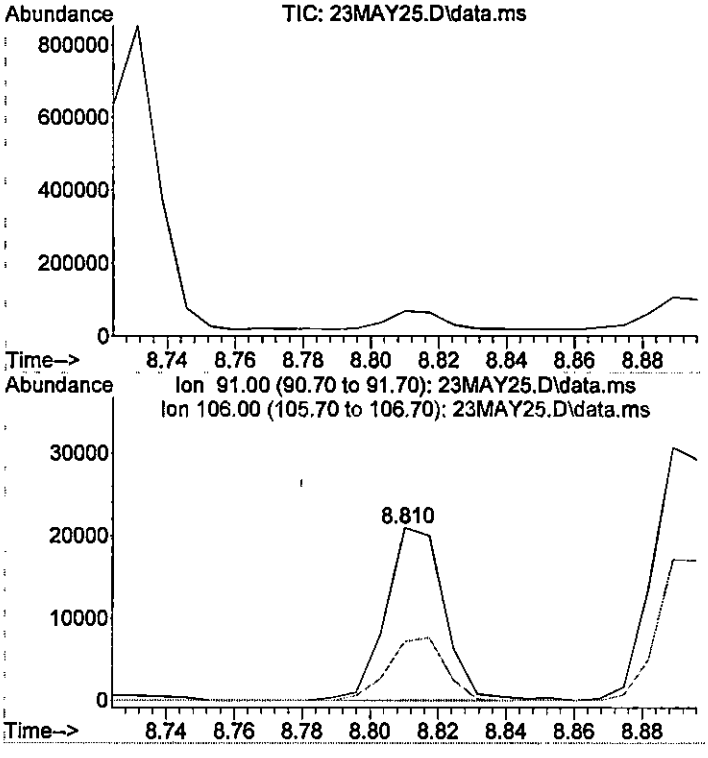
Ion	Ratio	Lower	Upper
130	100		
95	101.7	78.5	118.5
97	63.8	41.9	81.9



#65
Toluene
Concen: 2.19 ug/L
RT: 7.729 min Scan# 997
Delta R.T. 0.001 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 91 Resp: 67195

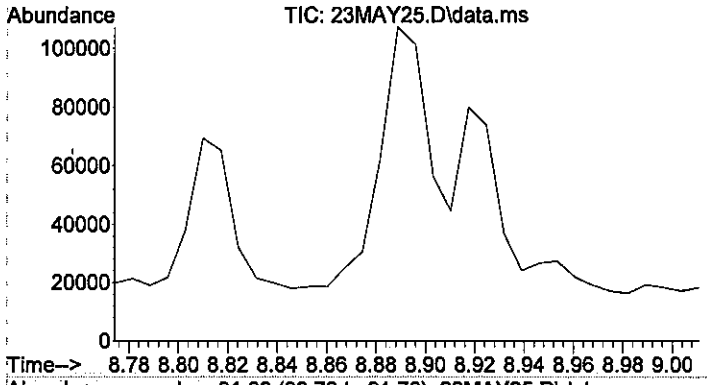
Ion	Ratio	Lower	Upper
91	100		
92	56.2	37.8	77.8
65	10.7	0.0	31.0



#78
Ethylbenzene
Concen: 0.78 ug/L
RT: 8.810 min Scan# 1148
Delta R.T. -0.007 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 91 Resp: 25222

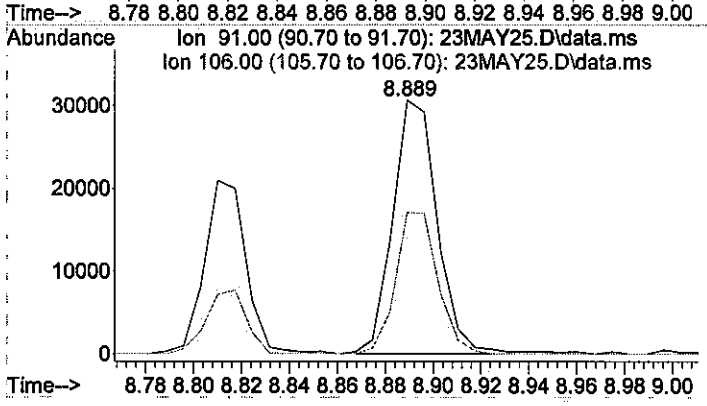
Ion	Ratio	Lower	Upper
91	100		
106	35.8	10.8	50.8

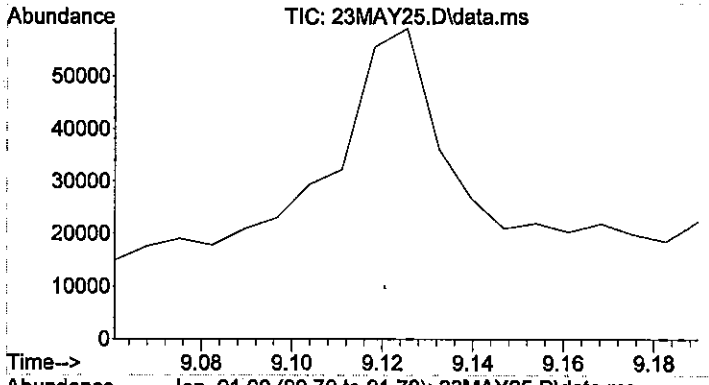


#79
m/p-Xylene
Concen: 1.65 ug/L
RT: 8.889 min Scan# 1159
Delta R.T. -0.007 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 91 Resp: 40238

Ion	Ratio	Lower	Upper
91	100		
106	52.5	28.8	68.8

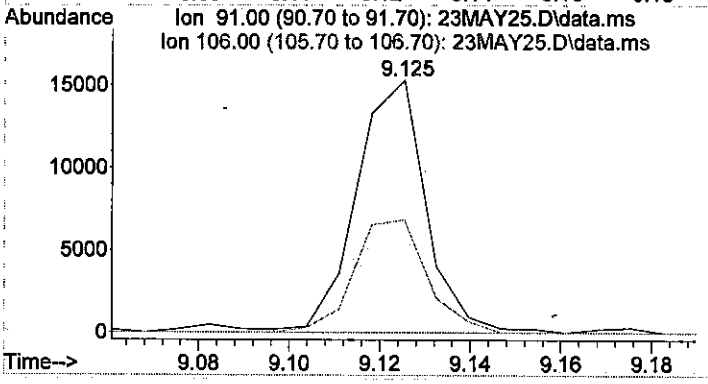




#81
o-Xylene
Concen: 0.65 ug/L
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 23MAY25.D
Acq: 23 May 2018 6:45 pm

Tgt Ion: 91 Resp: 16338

Ion	Ratio	Lower	Upper
91	100		
106	47.2	28.4	68.4



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	236054	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	359034	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	309592	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	118686	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29860	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	124838	20.48 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.40%		
45) 1,2-Dichloroethane-d4	5.164	65	108024	20.13 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.65%		
64) Toluene-d8	7.671	98	401527	19.32 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.60%		
85) Bromofluorobenzene	9.433	95	124091	17.71 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 88.55%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D.	
7) Trichlorofluoromethane	1.826	101	6391m	0.62 ug/L	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.220	43	66308	38.45 ug/L	97
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	2.607	49	38513	0.80 ug/L	93
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	2.686	59	27011	30.69 ug/L #	81
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	3.130	57	15776	Below Cal #	91
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D. d	
32) Ethyl Acetate	0.000		0	N.D. d	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	4.720	56	12027	0.87 ug/L #	66
41)	1,1,1-Trichloroethane	0.000		0	N.D.	
43)	Carbon tetrachloride	0.000		0	N.D.	
44)	1,1-Dichloropropene	0.000		0	N.D.	
46)	1,2-Dichloroethane	0.000		0	N.D.	
47)	Benzene	5.178	78	53808	1.88 ug/L	97
48)	Tertiaryamylmethylether	0.000		0	N.D.	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Heptane	0.000		0	N.D. d	
51)	1,4-Dioxane	0.000		0	N.D.	
52)	Methylcyclohexane	6.654	83	17844	1.58 ug/L	97
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	6.353	130	108349	13.70 ug/L	98
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	Methyl methacrylate	0.000		0	N.D.	
58)	Bromodichloromethane	0.000		0	N.D.	
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60)	2-Nitropropane	0.000		0	N.D.	
61)	cis-1,3-Dichloropropene	0.000		0	N.D.	
63)	4-Methyl-2-pentanone	0.000		0	N.D.	
65)	Toluene	7.728	91	197658	6.66 ug/L	100
66)	trans-1,3-Dichloropropene	0.000		0	N.D.	
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	0.000		0	N.D.	
69)	1,1,2-Trichloroethane	0.000		0	N.D.	
70)	Tetrachloroethene	8.130	166	13176	1.68 ug/L	93
71)	1,3-Dichloropropane	0.000		0	N.D.	
72)	2-Hexanone	0.000		0	N.D.	
73)	Chlorodibromomethane	0.000		0	N.D.	
74)	Butyl acetate	0.000		0	N.D.	
75)	1,2-Dibromoethane	0.000		0	N.D.	
76)	Chlorobenzene	0.000		0	N.D.	
77)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78)	Ethylbenzene	8.810	91	52315	1.67 ug/L	99
79)	m/p-Xylene	8.889	91	107048	4.54 ug/L	96
80)	Styrene	0.000		0	N.D.	
81)	o-Xylene	9.125	91	42911	1.77 ug/L	97
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	0.000		0	N.D.	
84)	Isopropylbenzene	9.333	105	6898m	0.24 ug/L	
86)	Bromobenzene	0.000		0	N.D.	
87)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88)	1,2,3-Trichloropropane	0.000		0	N.D.	
89)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90)	n-Propylbenzene	9.562	91	14614m	0.42 ug/L	
91)	2-Chlorotoluene	0.000		0	N.D. d	
92)	4-Chlorotoluene	0.000		0	N.D.	
93)	1,3,5-Trimethylbenzene	9.655	105	15640	0.68 ug/L	93
94)	tert-Butylbenzene	0.000		0	N.D.	
95)	1,2,4-Trimethylbenzene	9.856	105	37947	1.57 ug/L	86
96)	sec-Butylbenzene	0.000		0	N.D. d	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

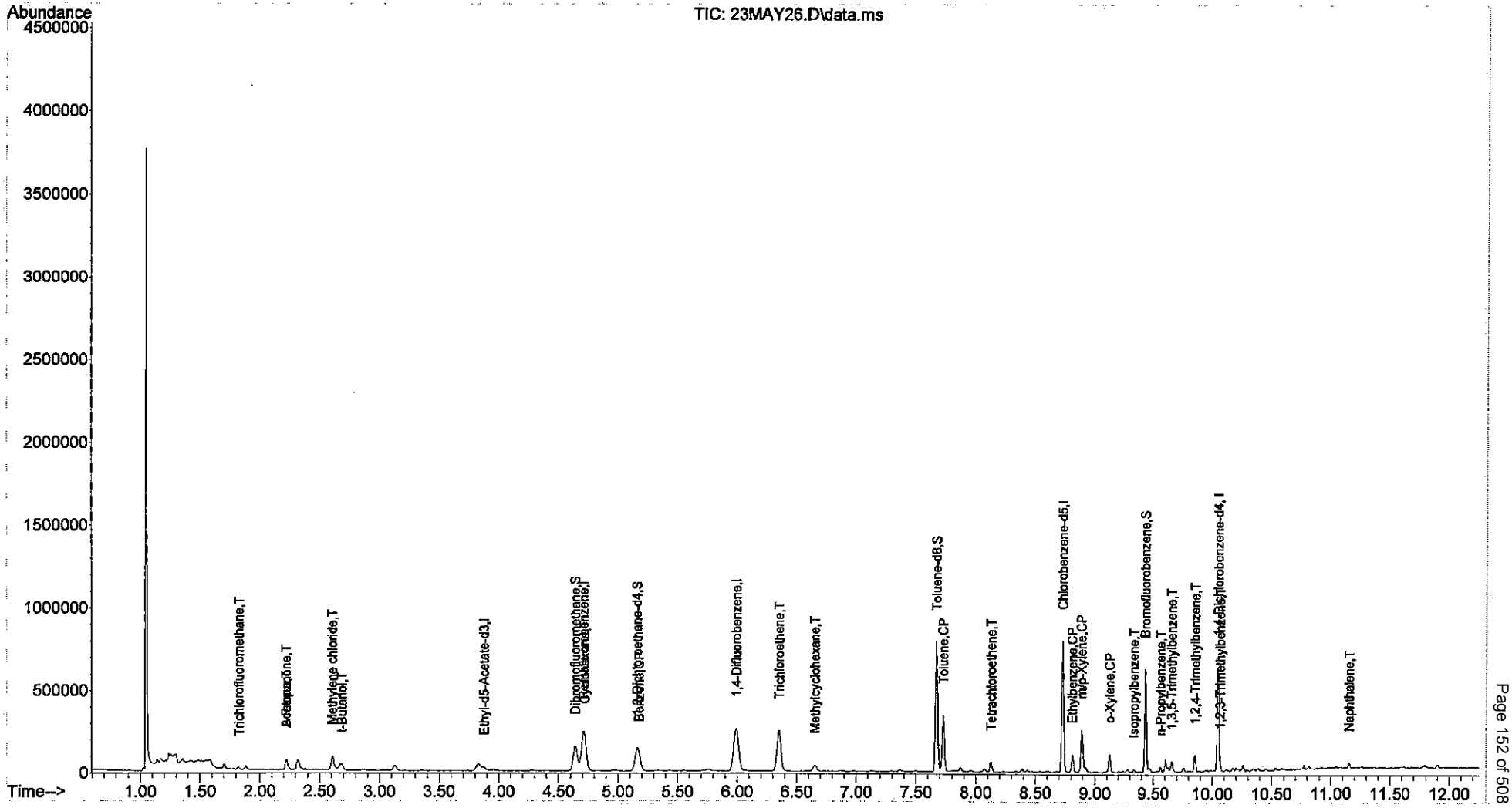
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	14450	0.79 ug/L	95
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	18849m	1.01 ug/L	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	66308	50.70 ug/L	97
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

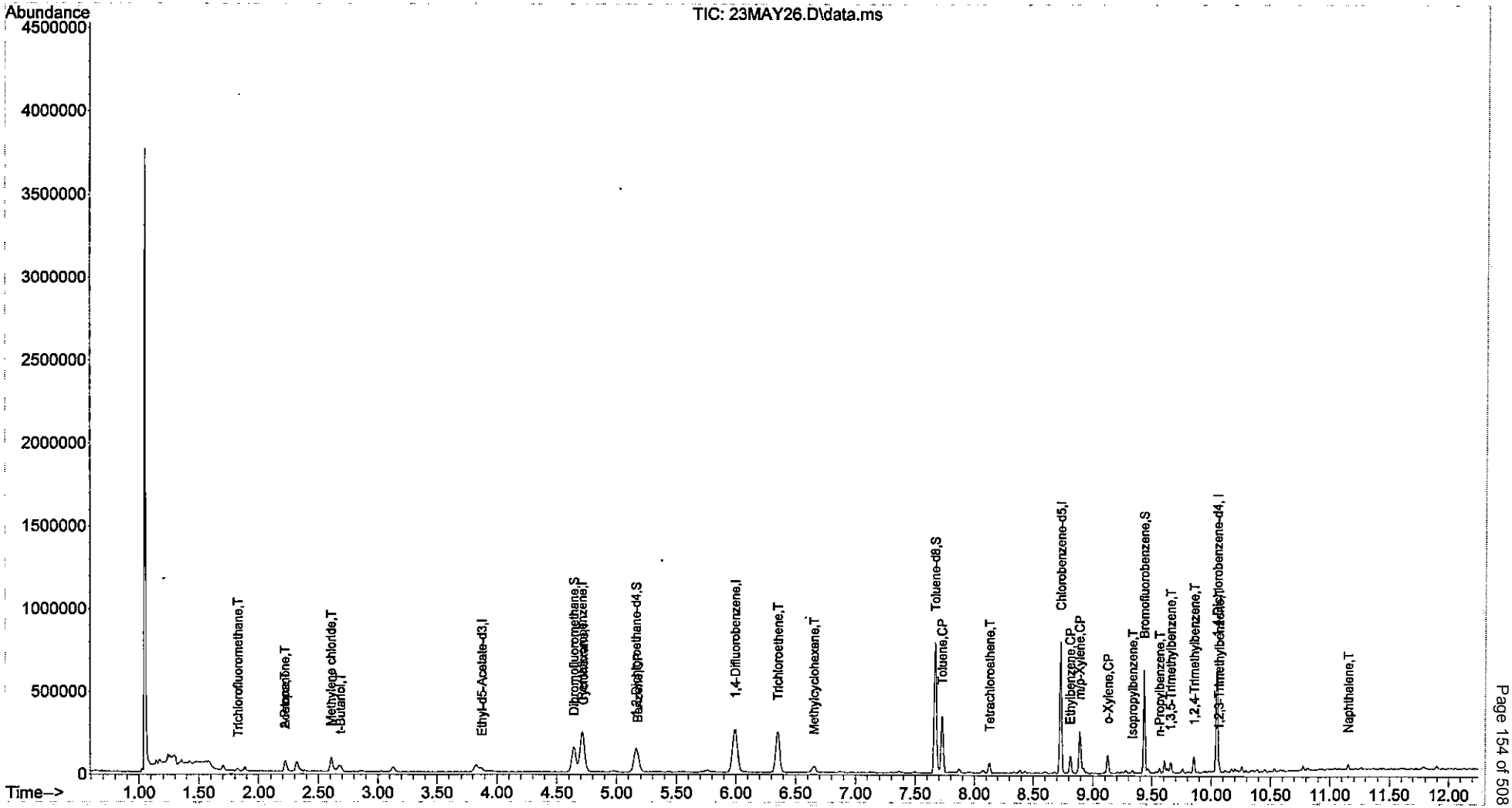
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	236054	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	359034	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	309592	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	118686	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29860	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	124838	20.48	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.40%				
45) 1,2-Dichloroethane-d4	5.164	65	108024	20.13	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.65%				
64) Toluene-d8	7.671	98	401527	19.32	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.60%				
85) Bromofluorobenzene	9.433	95	124091	17.71	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 88.55%				
Target Compounds							Qvalue
7) Trichlorofluoromethane	1.826	101	6391m	0.62	ug/L		
13) Acetone	2.220	43	66308	38.45	ug/L		97
19) Methylene chloride	2.607	49	38513	0.80	ug/L		93
21) t-Butanol	2.686	59	27011	30.69	ug/L	#	81
24) Hexane	3.130	57	15776	Below Cal		#	91
39) Cyclohexane	4.720	56	12027	0.87	ug/L	#	66
47) Benzene	5.178	78	53808	1.88	ug/L		97
52) Methylcyclohexane	6.654	83	17844	1.58	ug/L		97
54) Trichloroethene	6.353	130	108349	13.70	ug/L		98
65) Toluene	7.728	91	197658	6.66	ug/L		100
70) Tetrachloroethene	8.130	166	13176	1.68	ug/L		93
78) Ethylbenzene	8.810	91	52315	1.67	ug/L		99
79) m/p-Xylene	8.889	91	107048	4.54	ug/L		96
81) o-Xylene	9.125	91	42911	1.77	ug/L		97
84) Isopropylbenzene	9.333	105	6898m	0.24	ug/L		
90) n-Propylbenzene	9.562	91	14614m	0.42	ug/L		
93) 1,3,5-Trimethylbenzene	9.655	105	15640	0.68	ug/L		93
95) 1,2,4-Trimethylbenzene	9.856	105	37947	1.57	ug/L		86
101) 1,2,3-Trimethylbenzene	10.064	105	14450	0.79	ug/L		95
110) Naphthalene	11.152	128	18849m	1.01	ug/L		
115) 2-Propanone	2.220	43	66308	50.70	ug/L		97

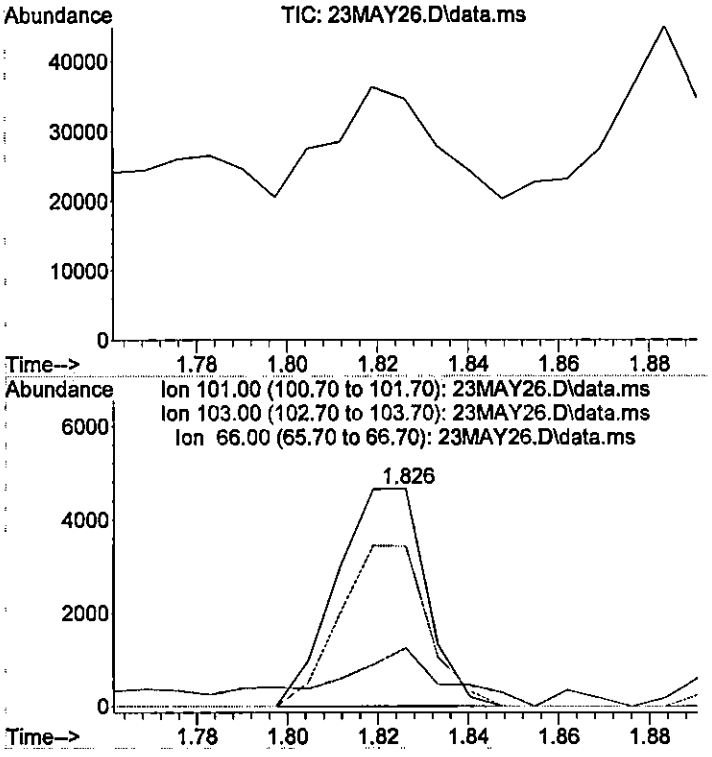
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY26.D
Acq On : 23 May 2018 7:02 pm
Operator : EMR
Sample : 18051407-03A DF0.822
Misc : IS/SS 200-20081
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 24 09:38:36 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

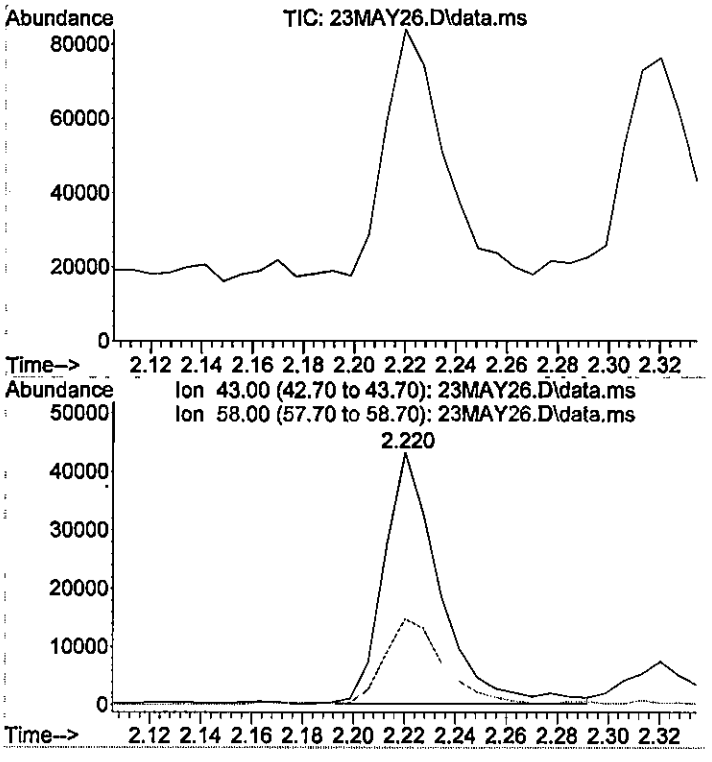




#7
Trichlorofluoromethane
Concen: 0.62 ug/L m
RT: 1.826 min Scan# 173
Delta R.T. 0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion:101 Resp: 6391

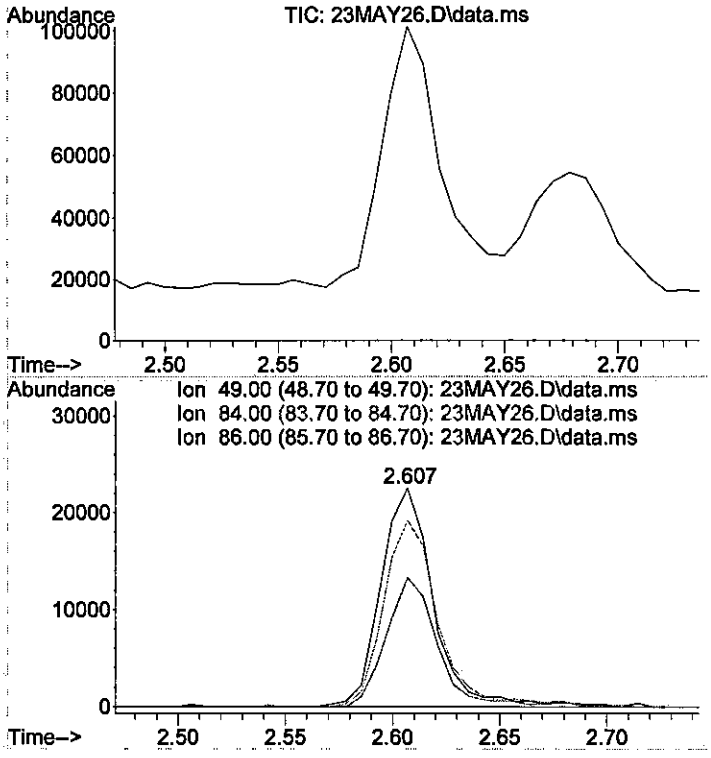
Ion	Ratio	Lower	Upper
101	100		
103	72.8	44.3	84.3
66	26.8	0.0	30.7



#13
Acetone
Concen: 38.45 ug/L
RT: 2.220 min Scan# 228
Delta R.T. -0.007 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 43 Resp: 66308

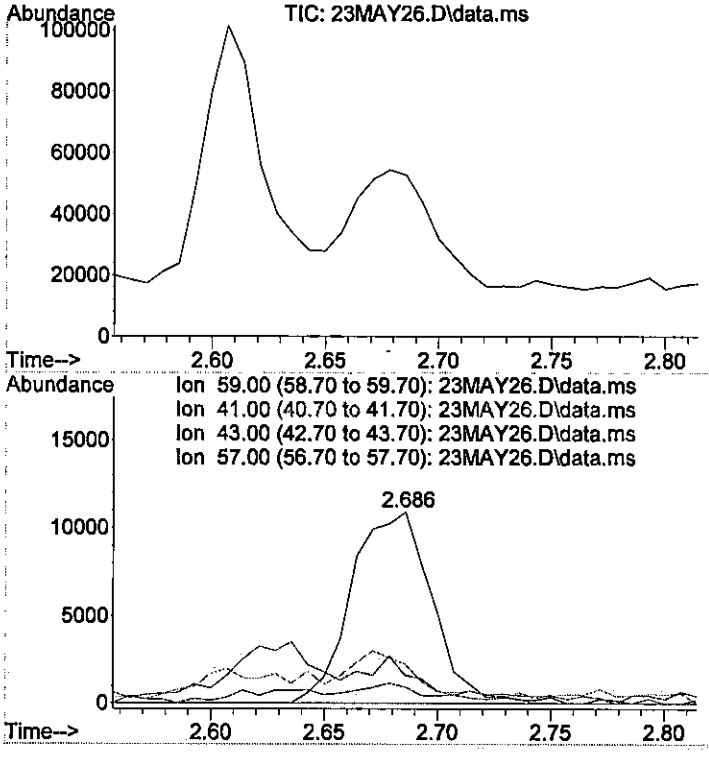
Ion	Ratio	Lower	Upper
43	100		
58	34.9	13.5	53.5



#19
Methylene chloride
Concen: 0.80 ug/L
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 49 Resp: 38513

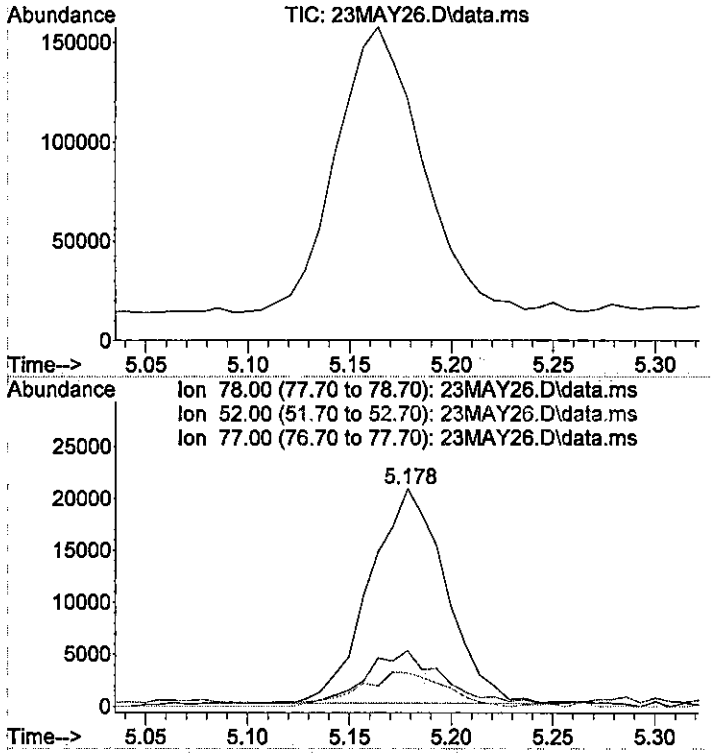
Ion	Ratio	Lower	Upper
49	100		
84	88.3	61.9	101.9
86	56.9	32.2	72.2



#21
t-Butanol
Concen: 30.69 ug/L
RT: 2.686 min Scan# 293
Delta R.T. 0.007 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 59 Resp: 27011

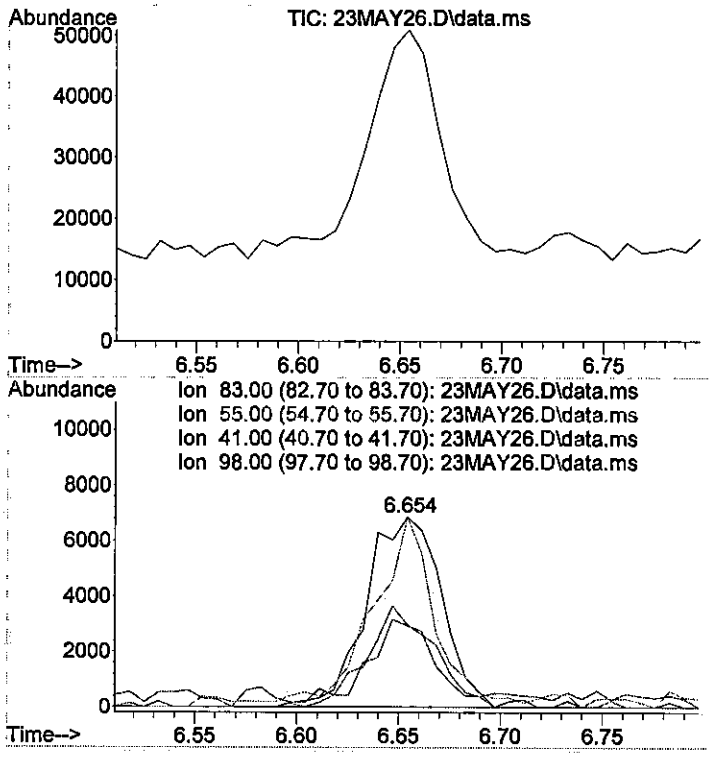
Ion	Ratio	Lower	Upper
59	100		
41	20.4	15.8	23.6
43	0.0	11.0	16.6#
57	0.0	9.3	13.9#



#47
Benzene
Concen: 1.88 ug/L
RT: 5.178 min Scan# 641
Delta R.T. -0.008 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 78 Resp: 53808

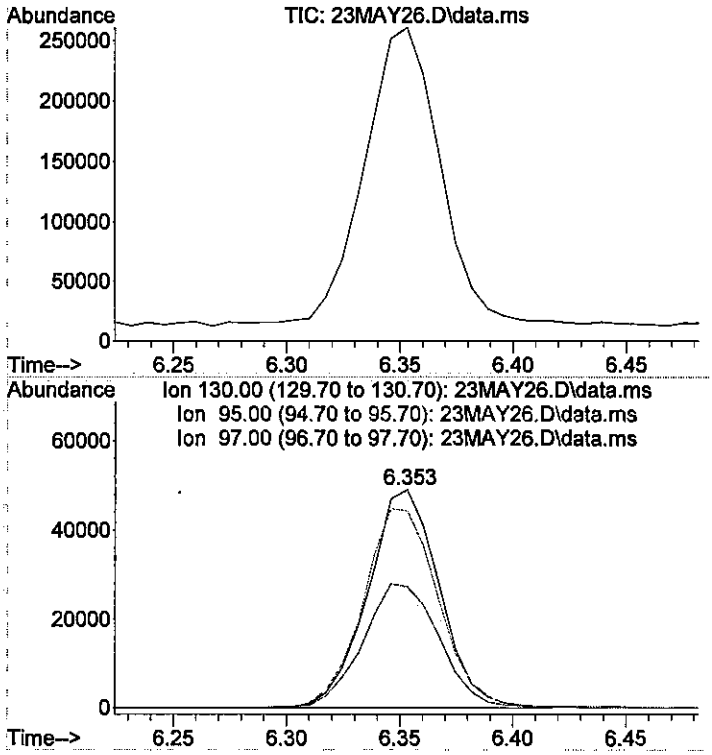
Ion	Ratio	Lower	Upper
78	100		
52	17.7	0.0	34.8
77	23.2	3.8	43.8



#52
Methylcyclohexane
Concen: 1.58 ug/L
RT: 6.654 min Scan# 847
Delta R.T. -0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 83 Resp: 17844

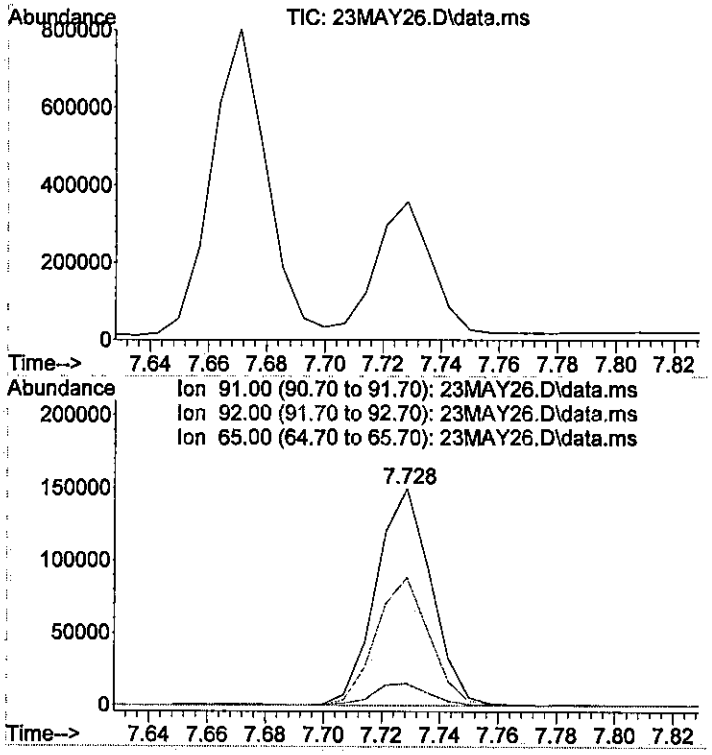
Ion	Ratio	Lower	Upper
83	100		
55	76.2	63.8	95.6
41	43.3	33.5	50.3
98	40.2	33.8	50.6



#54
Trichloroethene
Concen: 13.70 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion:130 Resp: 108349

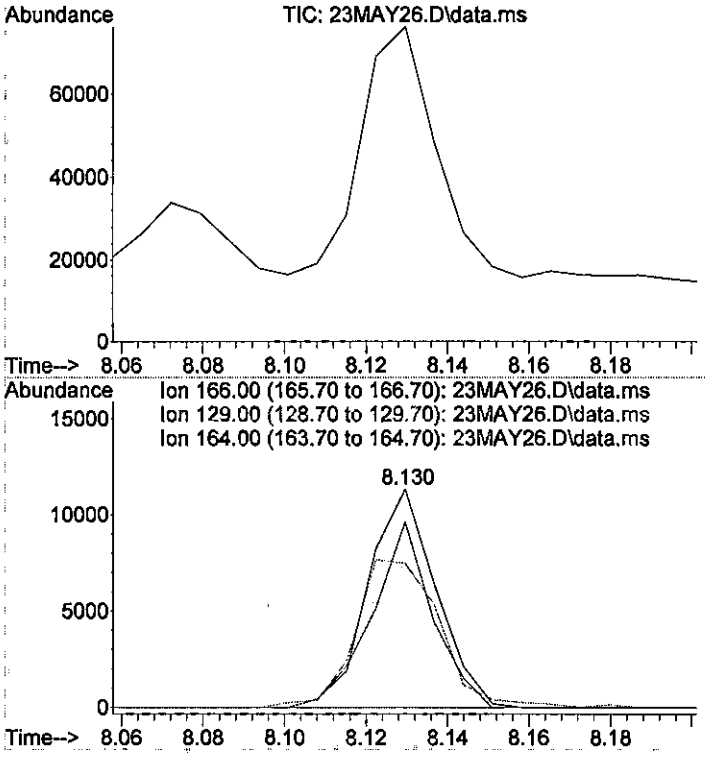
Ion	Ratio	Lower	Upper
130	100		
95	96.4	78.5	118.5
97	60.9	41.9	81.9



#65
Toluene
Concen: 6.66 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 91 Resp: 197658

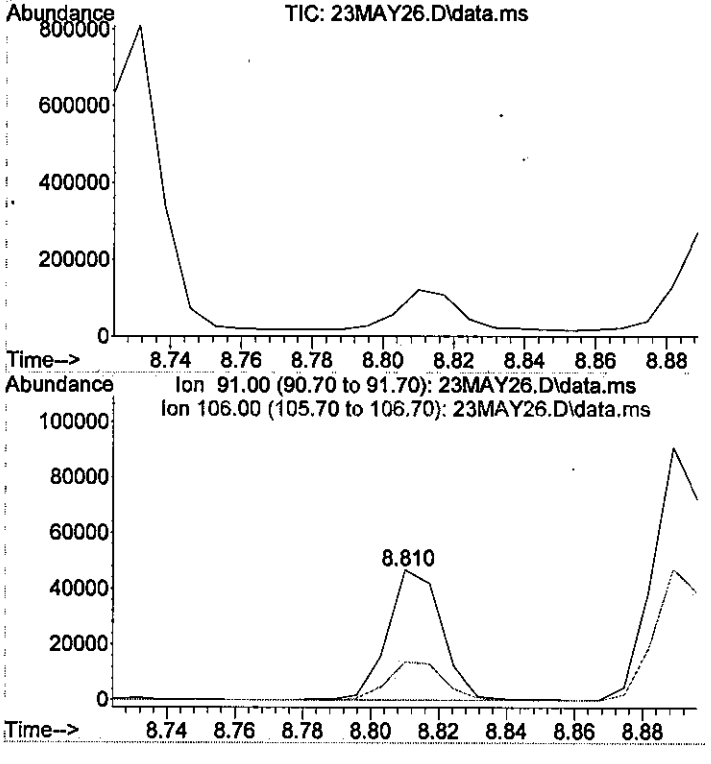
Ion	Ratio	Lower	Upper
91	100		
92	57.7	37.8	77.8
65	10.4	0.0	31.0



#70
Tetrachloroethene
Concen: 1.68 ug/L
RT: 8.130 min Scan# 1053
Delta R.T. -0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion:166 Resp: 13176

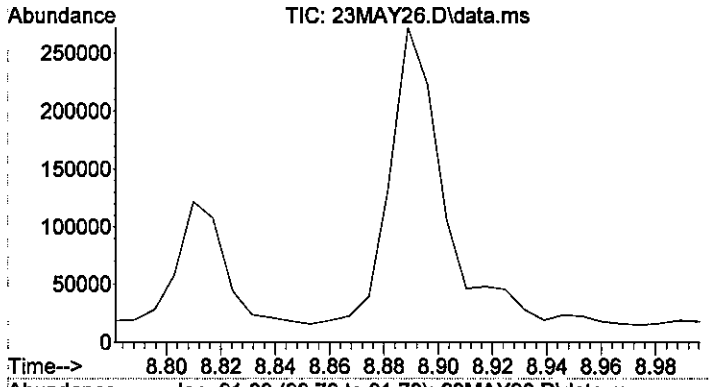
Ion	Ratio	Lower	Upper
166	100		
129	83.6	53.2	93.2
164	76.1	57.1	97.1



#78
Ethylbenzene
Concen: 1.67 ug/L
RT: 8.810 min Scan# 1148
Delta R.T. -0.007 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 91 Resp: 52315

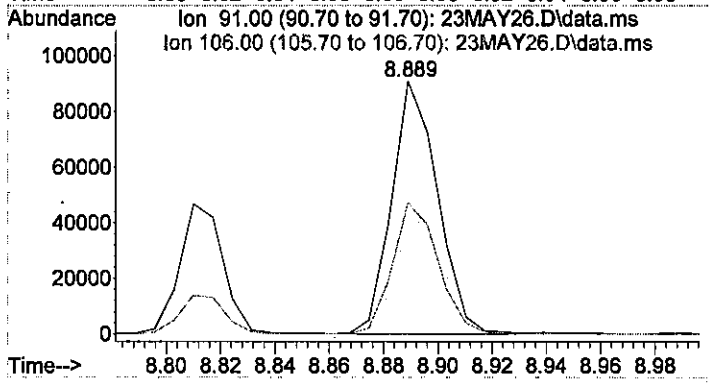
Ion	Ratio	Lower	Upper
91	100		
106	31.2	10.8	50.8

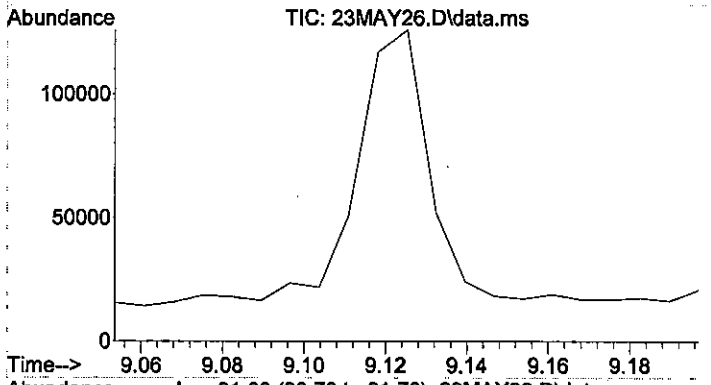


#79
m/p-Xylene
Concen: 4.54 ug/L
RT: 8.889 min Scan# 1159
Delta R.T. -0.007 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 91 Resp: 107048

Ion	Ratio	Lower	Upper
91	100		
106	51.5	28.8	68.8

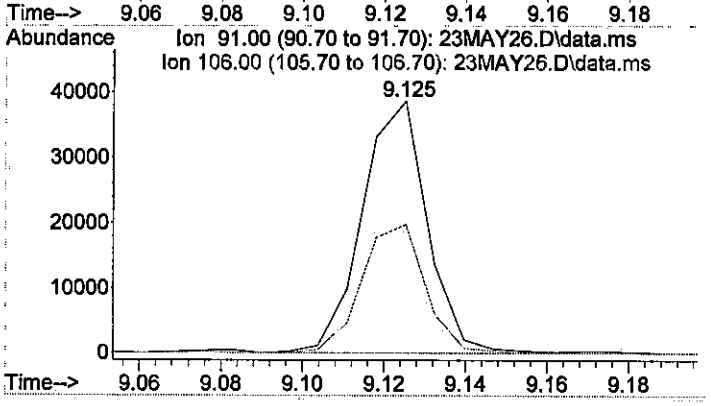




#81
o-Xylene
Concen: 1.77 ug/L
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 23MAY26.D
Acq: 23 May 2018 7:02 pm

Tgt Ion: 91 Resp: 42911

Ion	Ratio	Lower	Upper
91	100		
106	50.2	28.4	68.4



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	234654	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	344370	20.00 ug/L	-0.01
62) Chlorobenzene-d5	8.731	117	316954	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	149458	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	26144	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	122651	20.97 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.85%		
45) 1,2-Dichloroethane-d4	5.164	65	104744	20.35 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.75%		
64) Toluene-d8	7.671	98	390942	18.37 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 91.85%		
85) Bromofluorobenzene	9.433	95	134984	18.82 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.10%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D.	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	0.000		0	N.D.	
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	2.607	49	35297	0.36 ug/L	94
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D.	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	3.130	57	10431	Below Cal #	71
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	8741m	0.29 ug/L	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	8.129	166	10095	1.25 ug/L	93
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.810	91	3174m	0.10 ug/L	
79) m/p-Xylene	8.896	91	6251m	0.26 ug/L	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

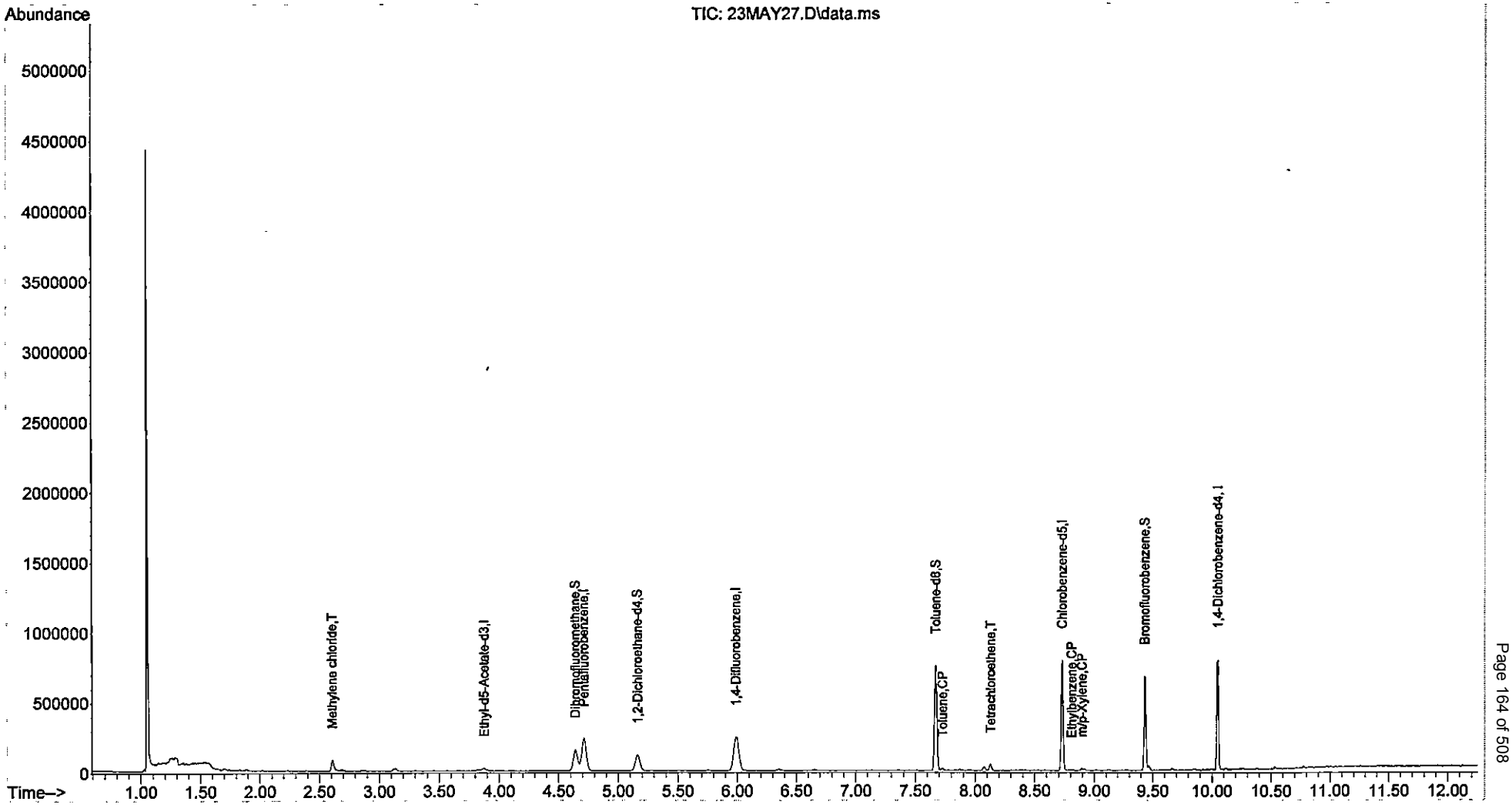
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

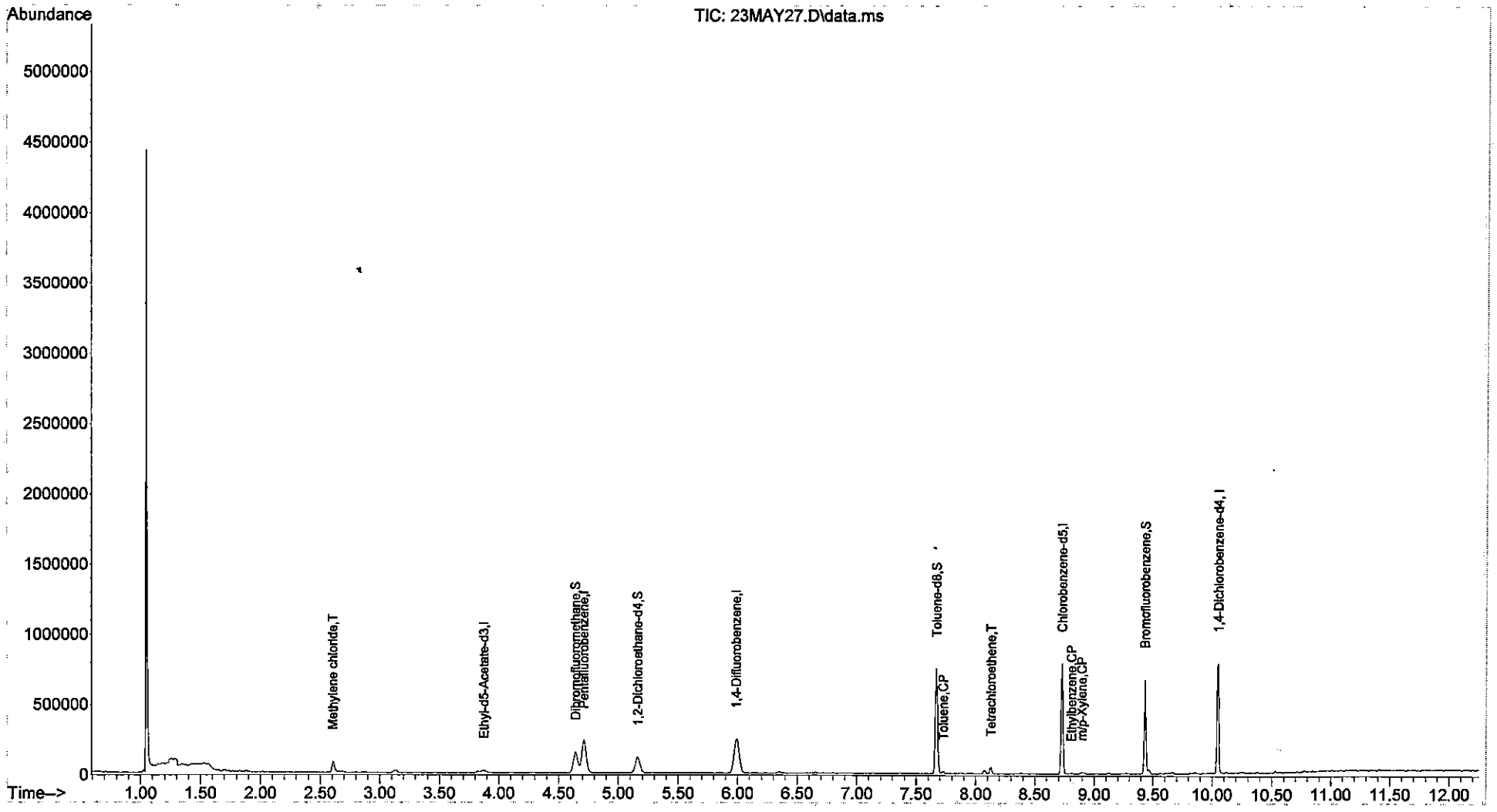
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	234654	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	344370	20.00	ug/L	-0.01
62) Chlorobenzene-d5	8.731	117	316954	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	149458	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	26144	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	122651	20.97	ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.85%			
45) 1,2-Dichloroethane-d4	5.164	65	104744	20.35	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.75%			
64) Toluene-d8	7.671	98	390942	18.37	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 91.85%			
85) Bromofluorobenzene	9.433	95	134984	18.82	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.10%			
Target Compounds						Qvalue
19) Methylene chloride	2.607	49	35297	0.36	ug/L	94
24) Hexane	3.130	57	10431	Below Cal	#	71
65) Toluene	7.728	91	8741m	0.29	ug/L	
70) Tetrachloroethene	8.129	166	10095	1.25	ug/L	93
78) Ethylbenzene	8.810	91	3174m	0.10	ug/L	
79) m/p-Xylene	8.896	91	6251m	0.26	ug/L	

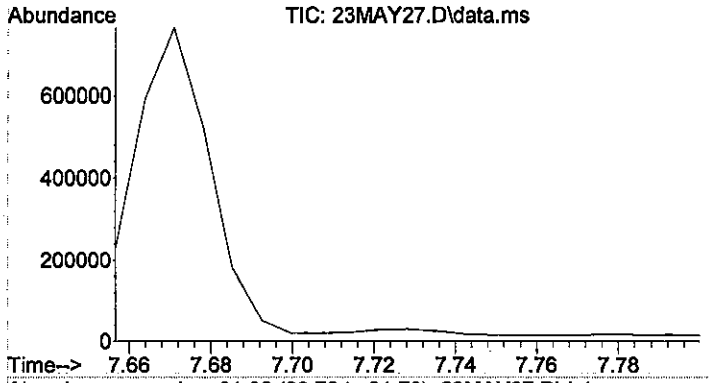
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY27.D
Acq On : 23 May 2018 7:19 pm
Operator : EMR
Sample : 18051407-04A DF0.969
Misc : IS/SS 200-20081
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 24 09:38:55 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

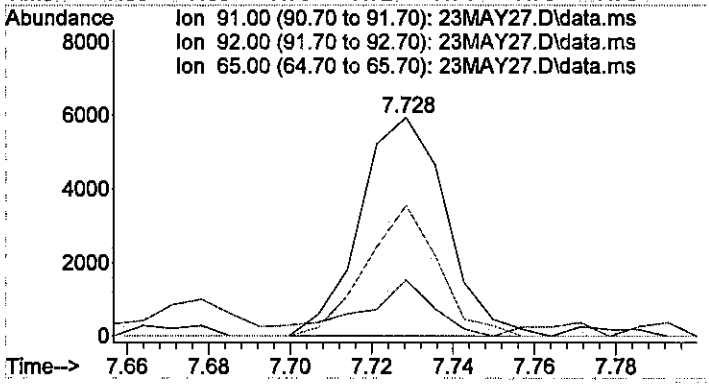


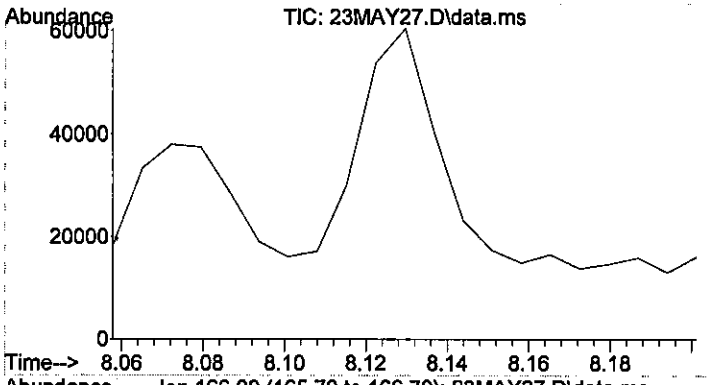


#65
Toluene
Concen: 0.29 ug/L m
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 23MAY27.D
Acq: 23 May 2018 7:19 pm

Tgt Ion: 91 Resp: 8741

Ion	Ratio	Lower	Upper
91	100		
92	50.6	37.8	77.8
65	0.0	0.0	31.0

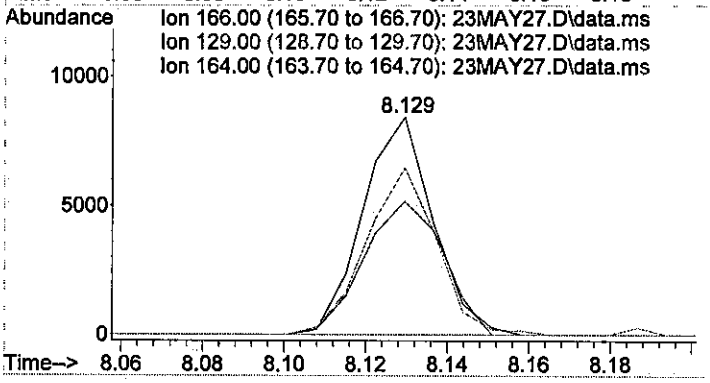




#70
Tetrachloroethene
Concen: 1.25 ug/L
RT: 8.129 min Scan# 1053
Delta R.T. -0.001 min
Lab File: 23MAY27.D
Acq: 23 May 2018 7:19 pm

Tgt Ion:166 Resp: 10095

Ion	Ratio	Lower	Upper
166	100		
129	77.5	53.2	93.2
164	69.5	57.1	97.1



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 5:52 pm
Operator : EMR
Sample : 18051407-09A DF0.951
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 26 08:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	214341	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	328796	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	267433	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	109834	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	27250	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	110483	19.79	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.95%				
45) 1,2-Dichloroethane-d4	5.164	65	92507	18.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 94.10%				
64) Toluene-d8	7.671	98	363797	20.26	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	115285	19.05	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.220	43	105744	70.80	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	6309	0.30	ug/L	#	76
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	24607	Below Cal			97
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D. d			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.130	57	21388	0.20	ug/L	#	92
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D. d			
32) Ethyl Acetate	0.000		0	N.D. d			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 5:52 pm
Operator : EMR
Sample : 18051407-09A DF0.951
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 26 08:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.720	56	9291	0.69 ug/L #	45
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.178	78	20690	0.79 ug/L #	84
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	5.766	43	9360	1.05 ug/L #	23
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	6.654	83	11100	1.07 ug/L #	71
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	163393	22.55 ug/L	100
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	68321	2.67 ug/L	99
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	8.130	166	19015	2.80 ug/L	95
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.817	91	24769	0.92 ug/L	96
79) m/p-Xylene	8.889	91	40350	1.98 ug/L	96
80) Styrene	0.000		0	N.D.	
81) o-Xylene	9.125	91	19871	0.95 ug/L	98
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	9.562	91	6154	0.20 ug/L #	54
91) 2-Chlorotoluene	0.000		0	N.D. d	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	9.655	105	7566	0.38 ug/L #	28
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	9.856	105	18391	0.88 ug/L	89
96) sec-Butylbenzene	0.000		0	N.D. d	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 5:52 pm
Operator : EMR
Sample : 18051407-09A DF0.951
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 26 08:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

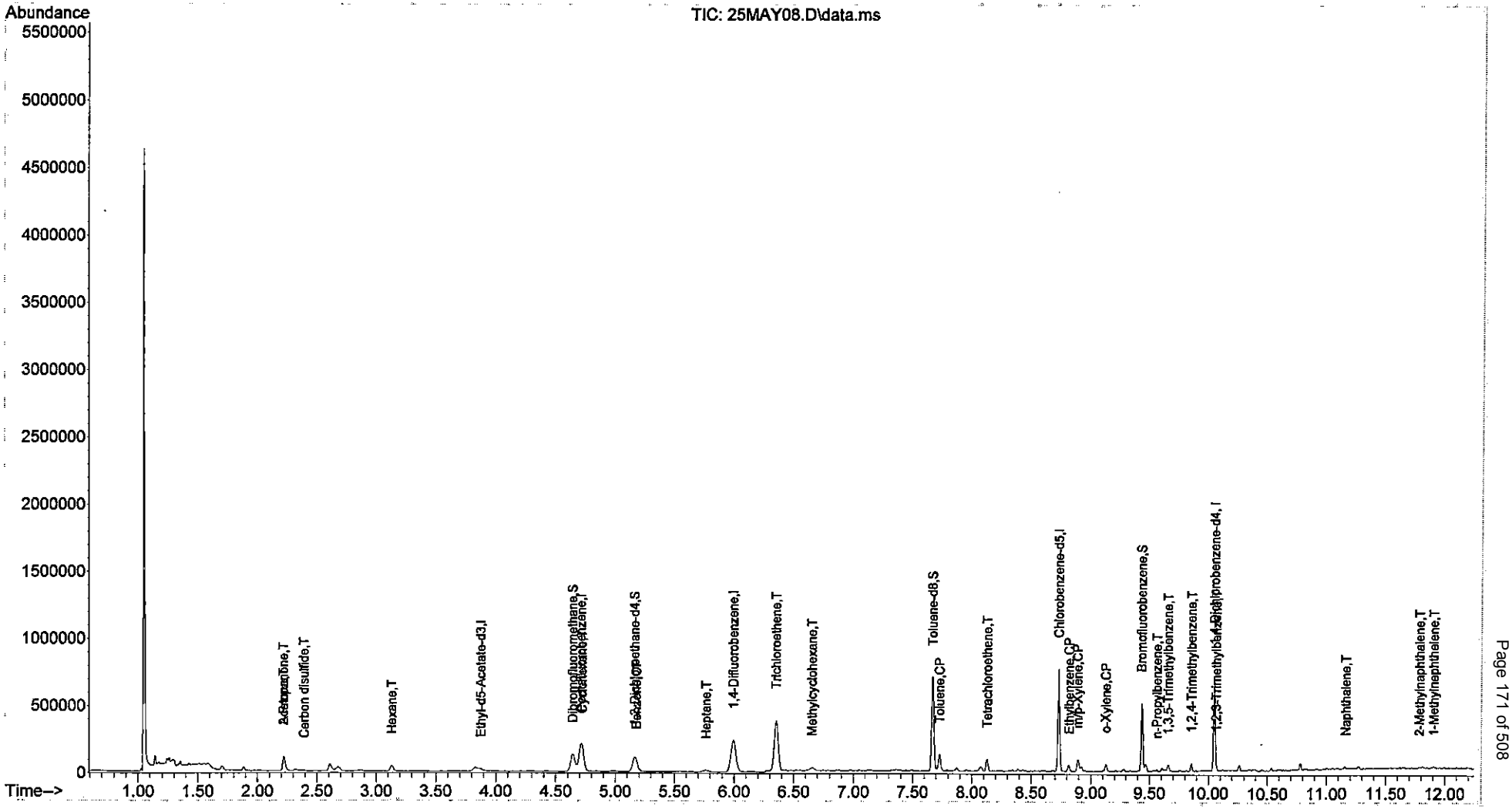
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	6865	0.40 ug/L #	33
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.160	128	10260	0.59 ug/L #	79
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	11.783	142	2977m	0.28 ug/L	
113) 1-Methylnaphthalene	11.905	142	2559m	0.28 ug/L	
115) 2-Propanone	2.220	43	105744	92.17 ug/L	97
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

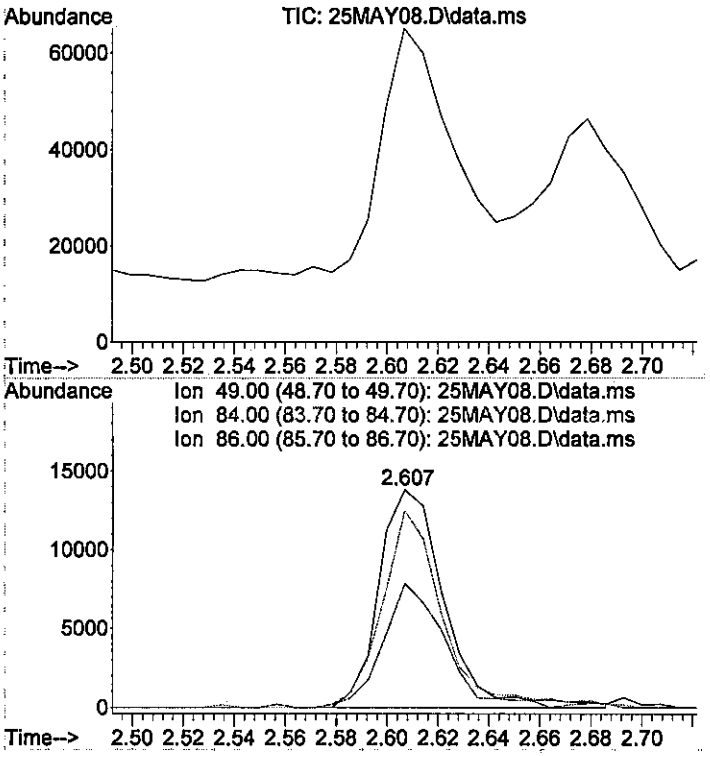
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 5:52 pm
Operator : EMR
Sample : 18051407-09A DF0.951
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 26 08:26:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

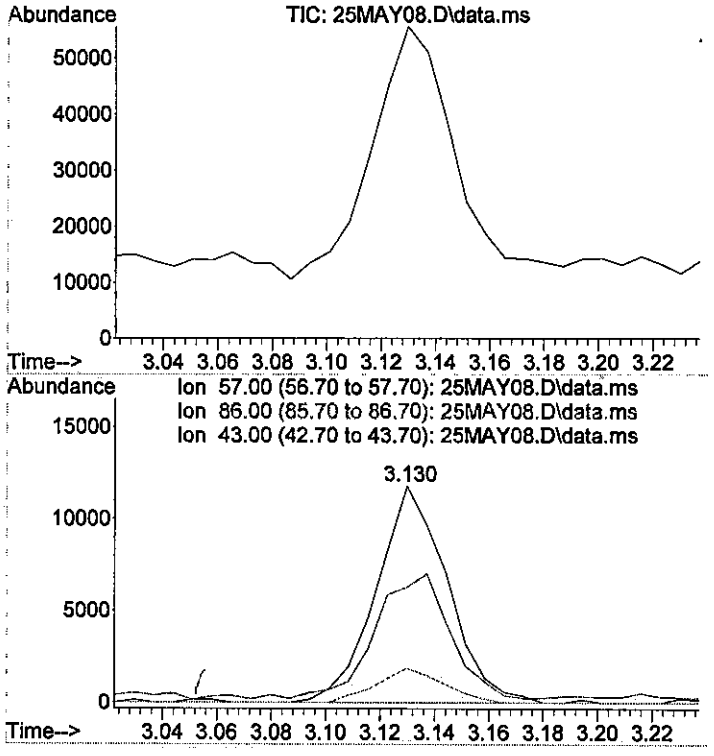




#19
Methylene chloride
Concen: Below Cal
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 49 Resp: 24607

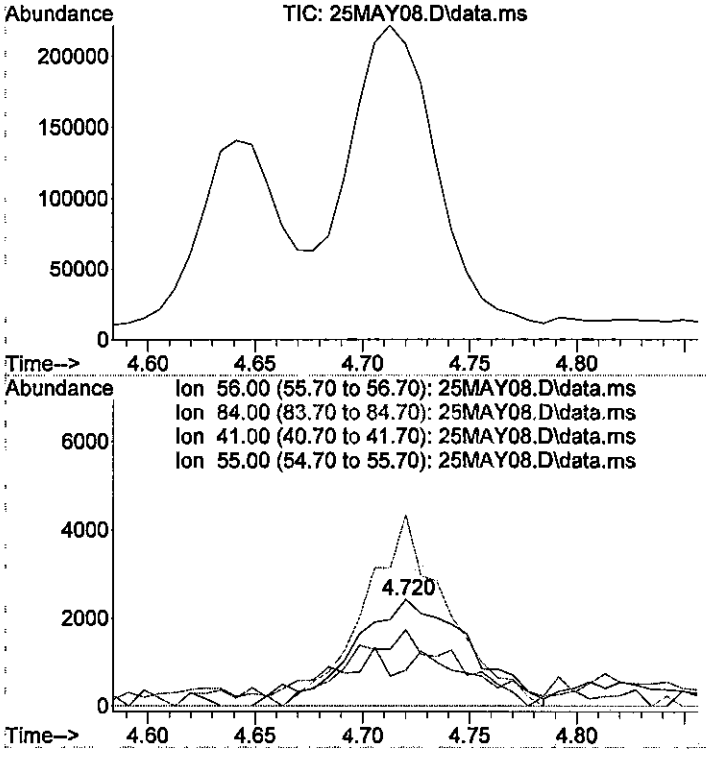
Ion	Ratio	Lower	Upper
49	100		
84	84.9	61.9	101.9
86	54.0	32.2	72.2



#24
Hexane
Concen: 0.20 ug/L
RT: 3.130 min Scan# 355
Delta R.T. -0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 57 Resp: 21388

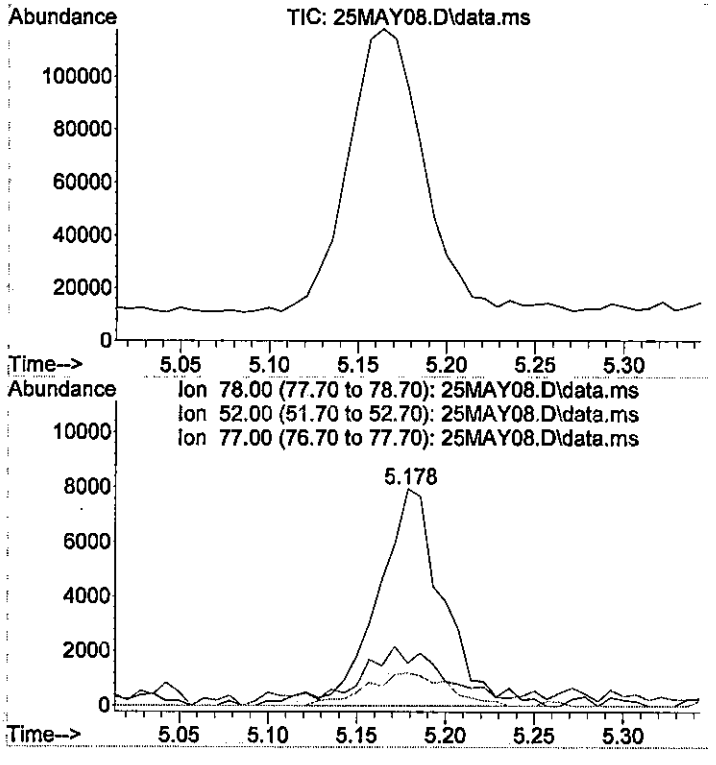
Ion	Ratio	Lower	Upper
57	100		
86	0.0	0.0	34.2
43	61.5	43.5	83.5



#39
Cyclohexane
Concen: 0.69 ug/L
RT: 4.720 min Scan# 577
Delta R.T. -0.022 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 56 Resp: 9291

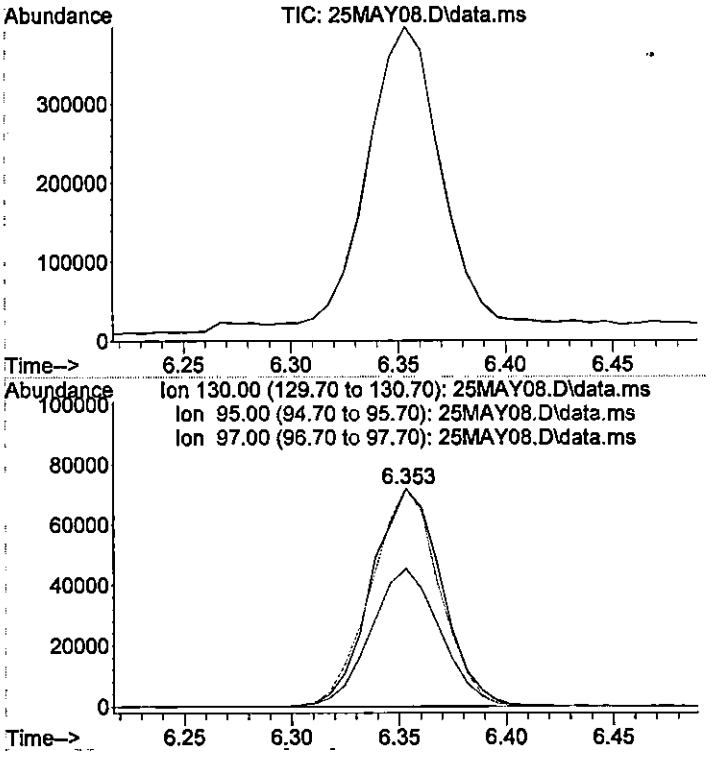
Ion	Ratio	Lower	Upper
56	100		
84	126.4	66.7	100.1#
41	0.0	42.5	63.7#
55	63.4	30.3	45.5#



#47
Benzene
Concen: 0.79 ug/L
RT: 5.178 min Scan# 641
Delta R.T. -0.008 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 78 Resp: 20690

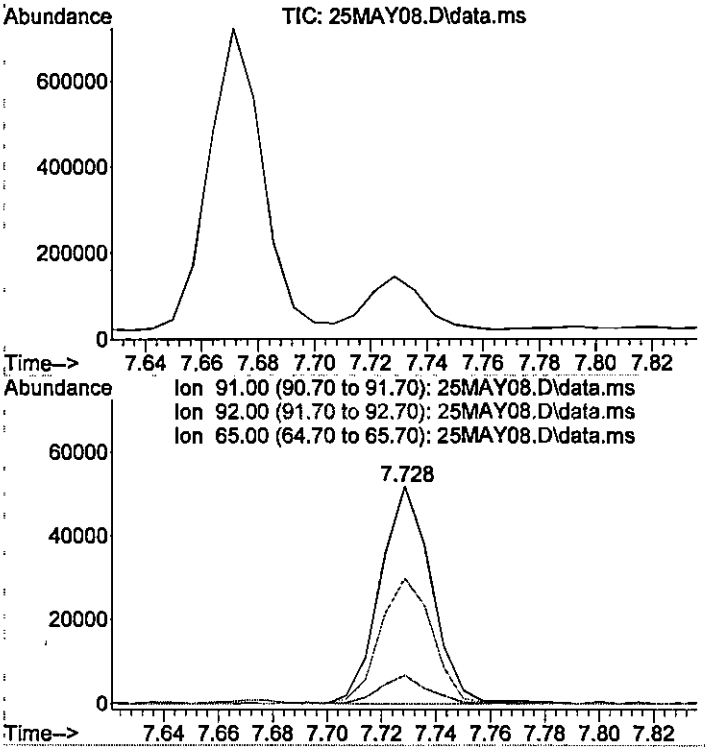
Ion	Ratio	Lower	Upper
78	100		
52	0.0	0.0	34.8
77	25.3	3.8	43.8



#54
Trichloroethene
Concen: 22.55 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion:130 Resp: 163393

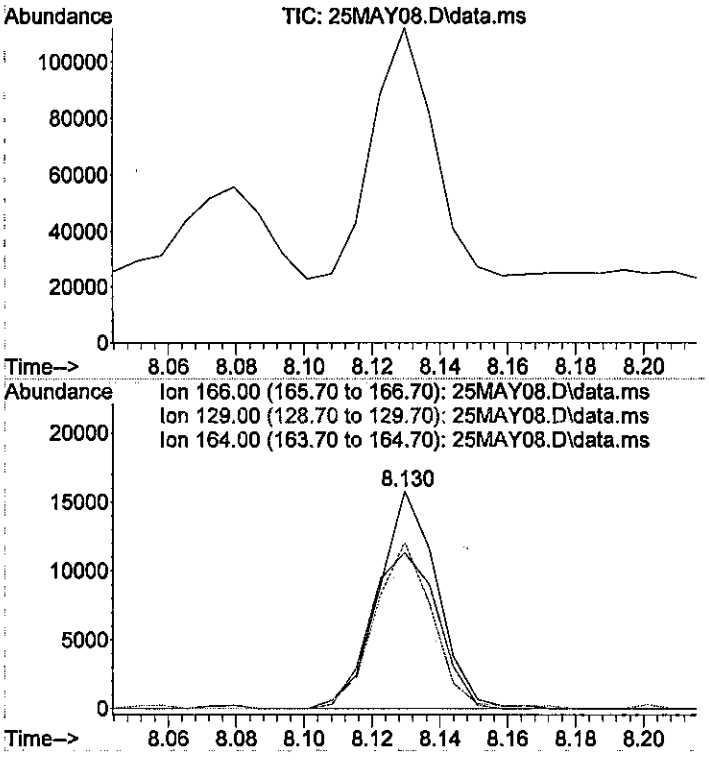
Ion	Ratio	Lower	Upper
130	100		
95	98.3	78.5	118.5
97	62.6	41.9	81.9



#65
Toluene
Concen: 2.67 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 91 Resp: 68321

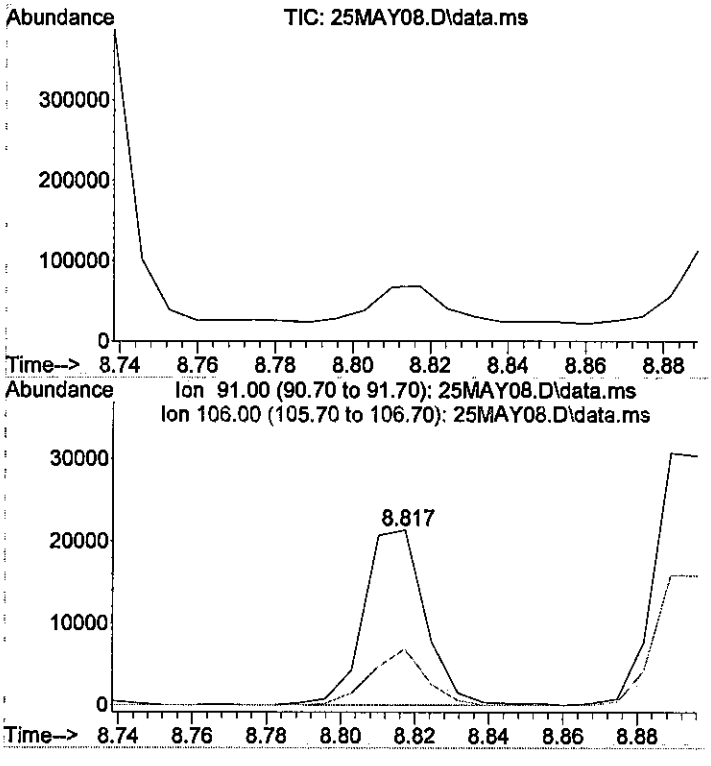
Ion	Ratio	Lower	Upper
91	100		
92	58.9	37.8	77.8
65	11.5	0.0	31.0



#70
Tetrachloroethene
Concen: 2.80 ug/L
RT: 8.130 min Scan# 1053
Delta R.T. -0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion:166 Resp: 19015

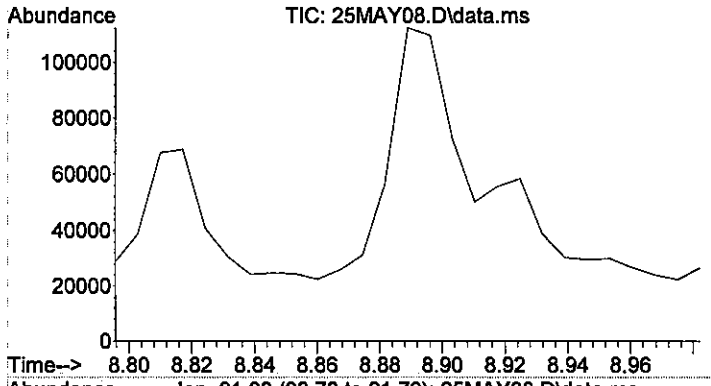
Ion	Ratio	Lower	Upper
166	100		
129	75.9	53.2	93.2
164	82.1	57.1	97.1



#78
Ethylbenzene
Concen: 0.92 ug/L
RT: 8.817 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 91 Resp: 24769

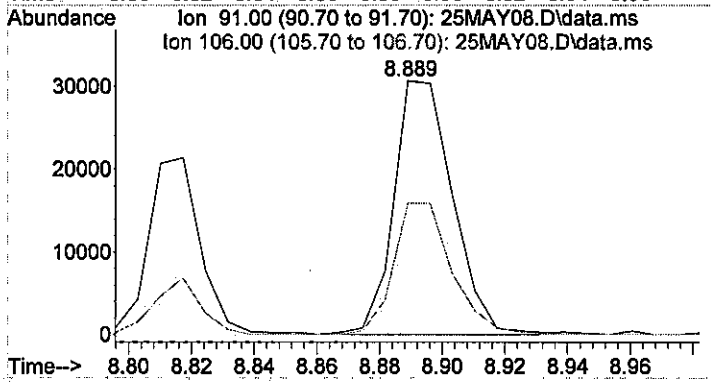
Ion	Ratio	Lower	Upper
91	100		
106	28.8	10.8	50.8

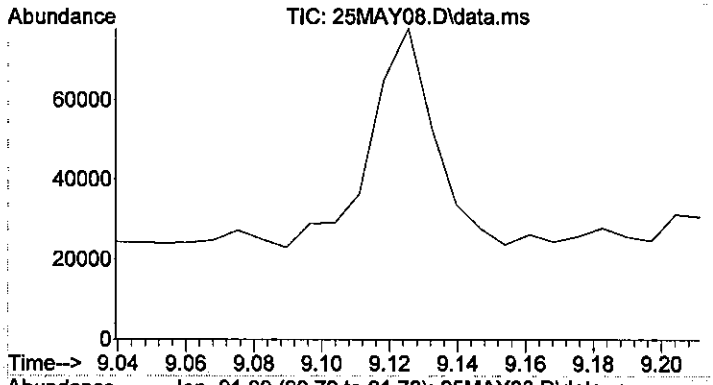


#79
m/p-Xylene
Concen: 1.98 ug/L
RT: 8.889 min Scan# 1159
Delta R.T. -0.007 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 91 Resp: 40350

Ion	Ratio	Lower	Upper
91	100		
106	51.2	28.8	68.8

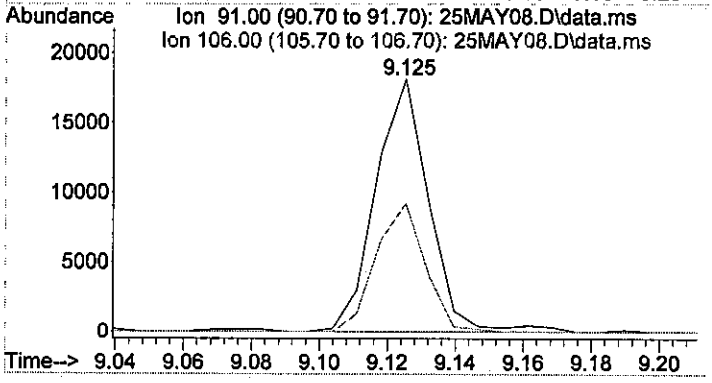




#81
o-Xylene
Concen: 0.95 ug/L
RT: 9.125 min Scan# 1192
Delta R.T. 0.000 min
Lab File: 25MAY08.D
Acq: 25 May 2018 5:52 pm

Tgt Ion: 91 Resp: 19871

Ion	Ratio	Lower	Upper
91	100		
106	47.0	28.4	68.4



Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 5:29 pm
Operator : EMR
Sample : 18051407-05A
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 10:46:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	288740	20.00 ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	419171	20.00 ug/L		0.00
62) Chlorobenzene-d5	8.731	117	382672	20.00 ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	191563	20.00 ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72742	20.00 ug/L		0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	146527	20.15 ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.75%			
45) 1,2-Dichloroethane-d4	5.157	65	129091	18.24 ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 91.20%			
64) Toluene-d8	7.671	98	475818	19.05 ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.25%			
85) Bromofluorobenzene	9.433	95	173980	19.21 ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	12585m	3.19 ug/L		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 5:29 pm
Operator : EMR
Sample : 18051407-05A
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 10:46:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	42598	5.66 ug/L	97
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 5:29 pm
Operator : EMR
Sample : 18051407-05A
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 10:46:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

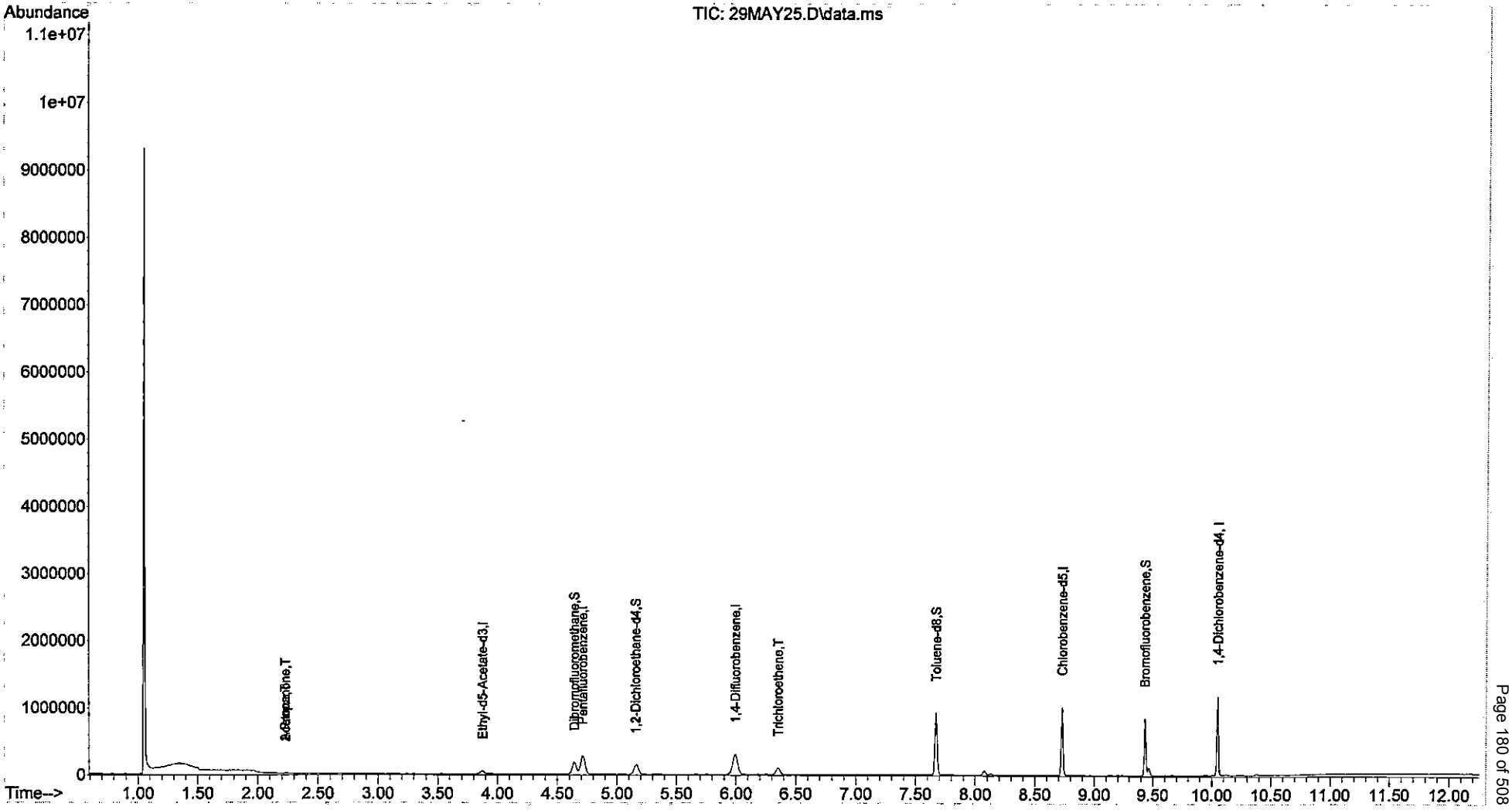
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.			
102) Benzyl chloride	0.000		0	N.D.			
103) 1,2-Dichlorobenzene	0.000		0	N.D.			
104) n-Butylbenzene	0.000		0	N.D.			
105) Hexachloroethane	0.000		0	N.D.			
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.			
109) Hexachlorobutadiene	0.000		0	N.D.			
110) Naphthalene	0.000		0	N.D.			
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.			
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	2.227	43	12585	3.86	ug/L	#	39
116) Acetic Ether	0.000		0	N.D.			
117) Isopropyl Acetate	0.000		0	N.D.			
118) Amyl Acetate	0.000		0	N.D.			

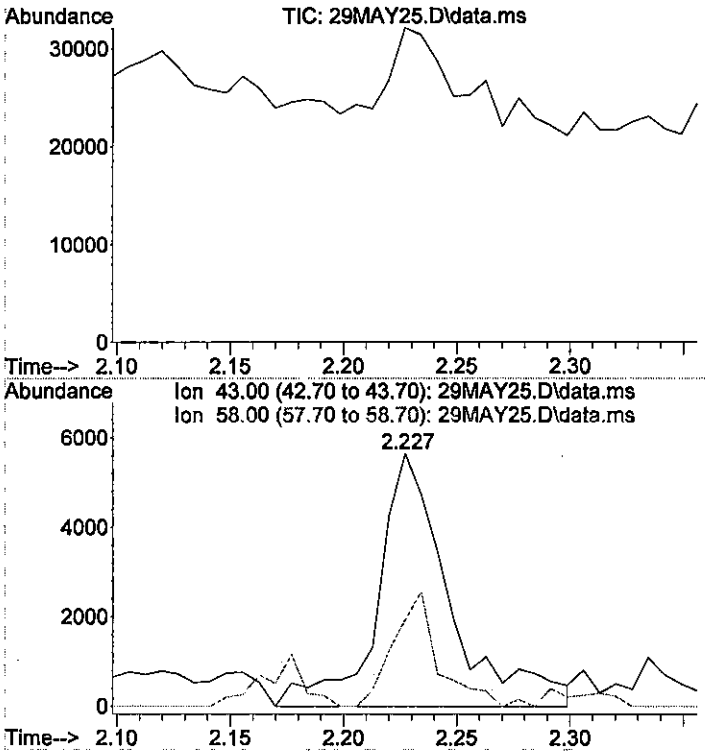
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 5:29 pm
Operator : EMR
Sample : 18051407-05A
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 10:46:08 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

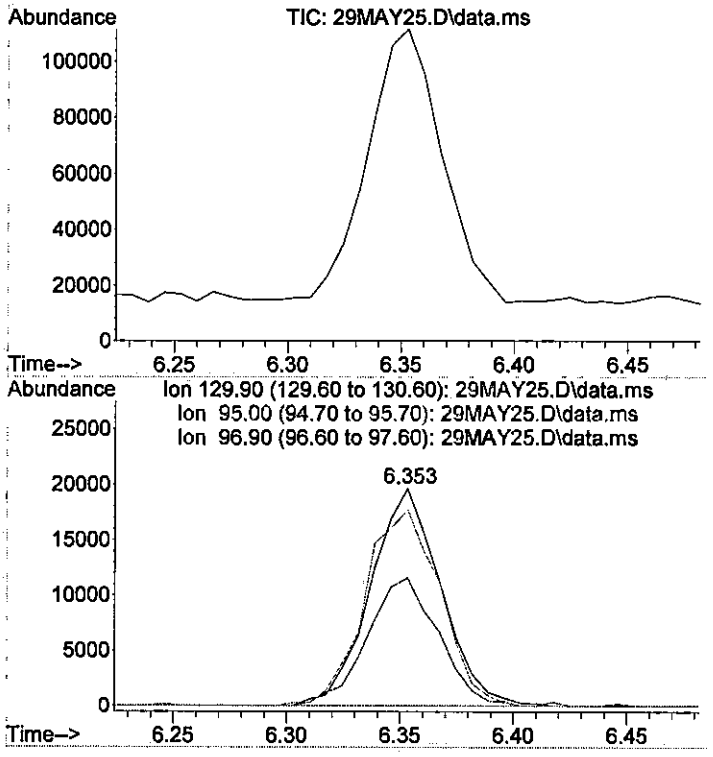




#13
Acetone
Concen: 3.19 ug/L m
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 29MAY25.D
Acq: 29 May 2018 5:29 pm

Tgt Ion: 43 Resp: 12585

Ion	Ratio	Lower	Upper
43	100		
58	28.0	15.8	55.8



#54
Trichloroethene
Concen: 5.66 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 29MAY25.D
Acq: 29 May 2018 5:29 pm

Tgt Ion:130 Resp: 42598

Ion	Ratio	Lower	Upper
130	100		
95	96.3	79.0	119.0
97	59.6	42.5	82.5

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY26.D
Acq On : 28 May 2018 2:27 am
Operator : WH
Sample : 18021407-06A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 28 02:44:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	134295	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	222858	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	200196	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	90718	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	31165	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	83504	20.10	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.50%				
46) 1,2-Dichloroethane-d4	5.888	65	90478	19.55	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.75%				
65) Toluene-d8	8.316	98	259155	19.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.90%				
86) Bromofluorobenzene	11.210	95	102304	20.18	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY26.D
Acq On : 28 May 2018 2:27 am
Operator : WH
Sample : 18021407-06A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 28 02:44:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.		
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	6.816	130	19544	5.62	ug/L	97
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
61) 2-Nitropropane	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) trans-1,3-Dichloropropene	0.000		0	N.D.		
68) Chloropicrin	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY26.D
Acq On : 28 May 2018 2:27 am
Operator : WH
Sample : 18021407-06A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 28 02:44:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

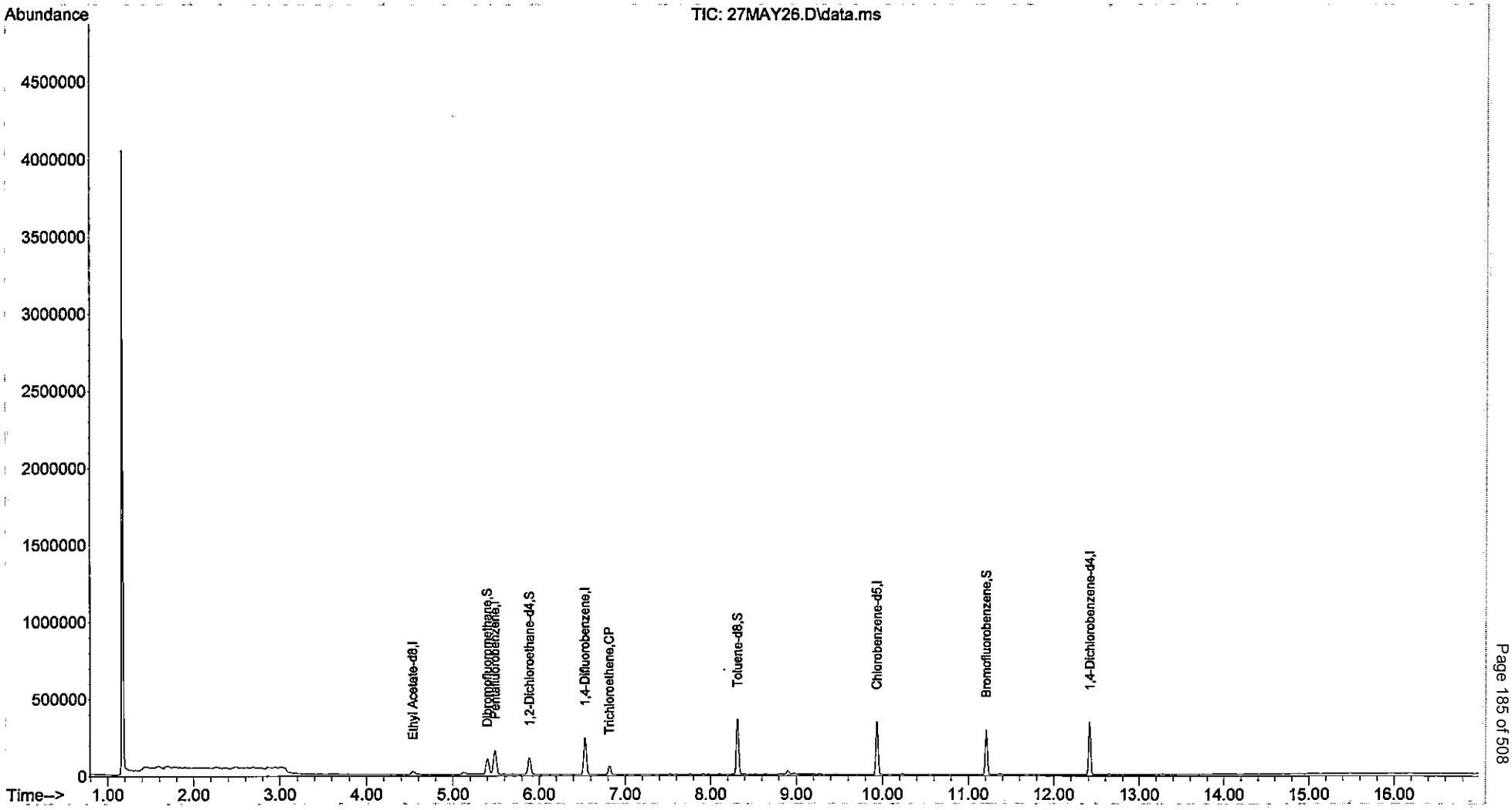
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

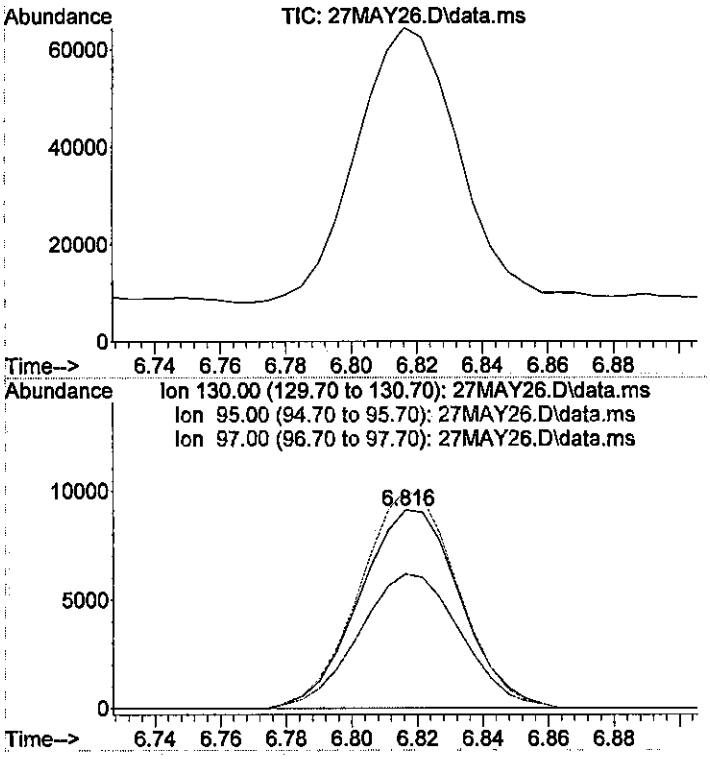
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY26.D
Acq On : 28 May 2018 2:27 am
Operator : WH
Sample : 18021407-06A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 28 02:44:56 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration





#53
Trichloroethene
Concen: 5.62 ug/L
RT: 6.816 min Scan# 1149
Delta R.T. 0.000 min
Lab File: 27MAY26.D
Acq: 28 May 2018 2:27 am

Tgt Ion:130 Resp: 19544

Ion	Ratio	Lower	Upper
130	100		
95	106.5	74.2	134.2
97	68.6	35.7	95.7

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 5:46 pm
Operator : EMR
Sample : 18051407-11A
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 10:48:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	272203	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	404058	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	372488	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	191361	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.868	46	69886	20.00	ug/L	#-0.01
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	137521	19.62	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.10%			
45) 1,2-Dichloroethane-d4	5.164	65	127610	18.70	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.50%			
64) Toluene-d8	7.671	98	452777	18.62	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.10%			
85) Bromofluorobenzene	9.433	95	162494	18.43	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 92.15%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	17260	4.64	ug/L	98
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	3.939	43	5623m	0.88	ug/L	
32) Ethyl Acetate	0.000		0	N.D.	d	
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 5:46 pm
Operator : EMR
Sample : 18051407-11A
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 10:48:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.178	78	8283m	0.32 ug/L	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	105980	14.61 ug/L	97
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.721	91	14357	0.54 ug/L #	82
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.810	91	3712m	0.13 ug/L	
79) m/p-Xylene	0.000		0	N.D. d	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 5:46 pm
Operator : EMR
Sample : 18051407-11A
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 10:48:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

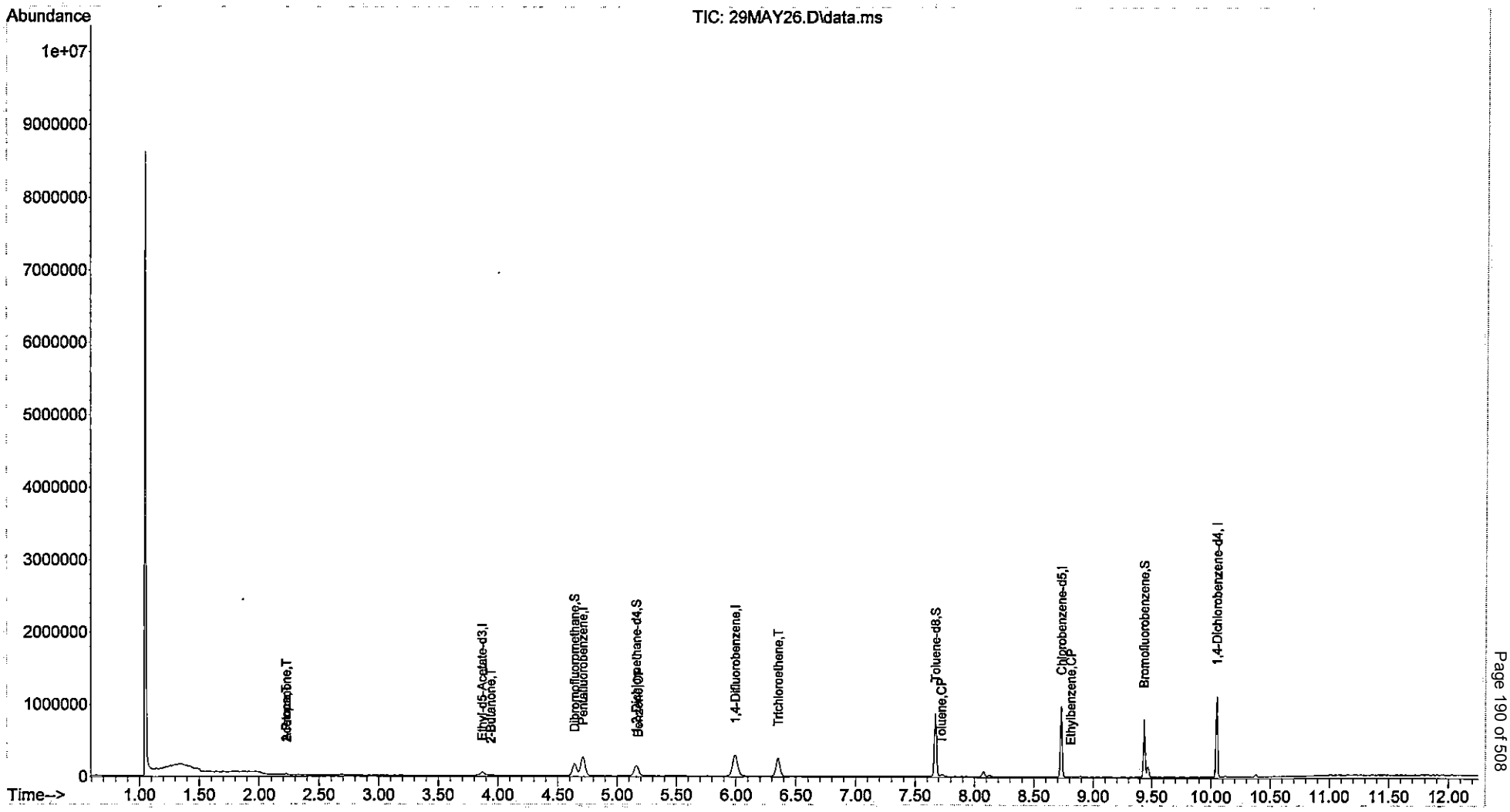
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.227	43	17260	5.51	ug/L	98
116) Acetic Ether	0.000		0	N.D. d		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

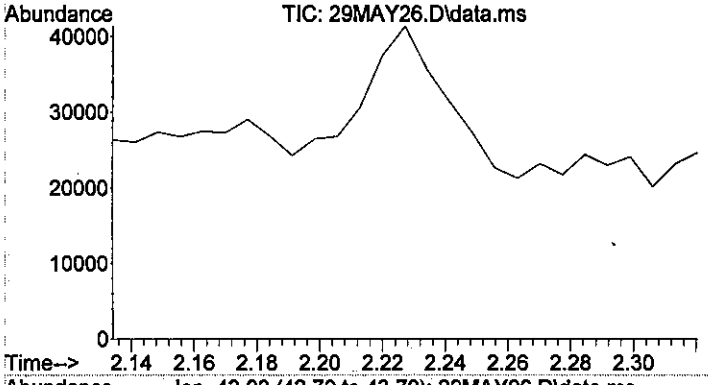
(#) = qualifier out of range (m) = manual integration (+) = signals summed

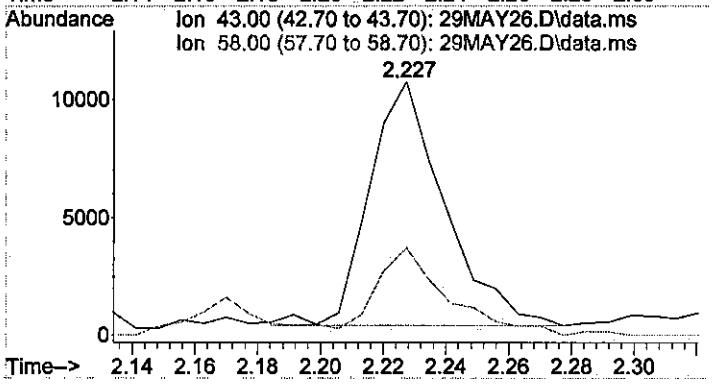
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 5:46 pm
Operator : EMR
Sample : 18051407-11A
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 10:48:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



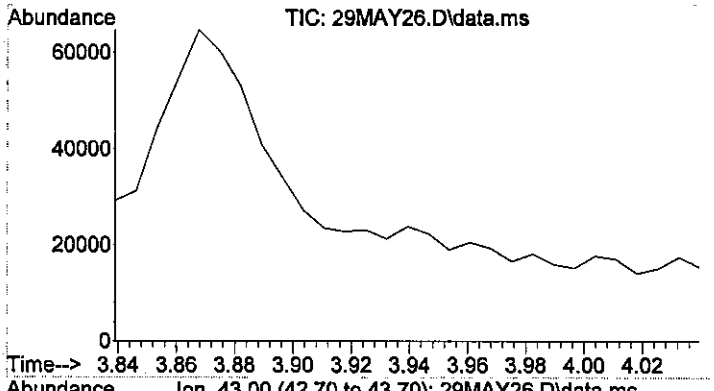


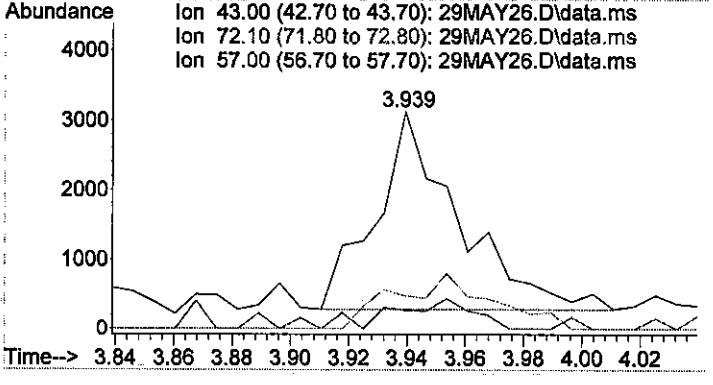


#13
Acetone
Concen: 4.64 ug/L
RT: 2.227 min Scan# 229
Delta R.T. -0.007 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion: 43 Resp: 17260

Ion	Ratio	Lower	Upper
43	100		
58	34.9	15.8	55.8

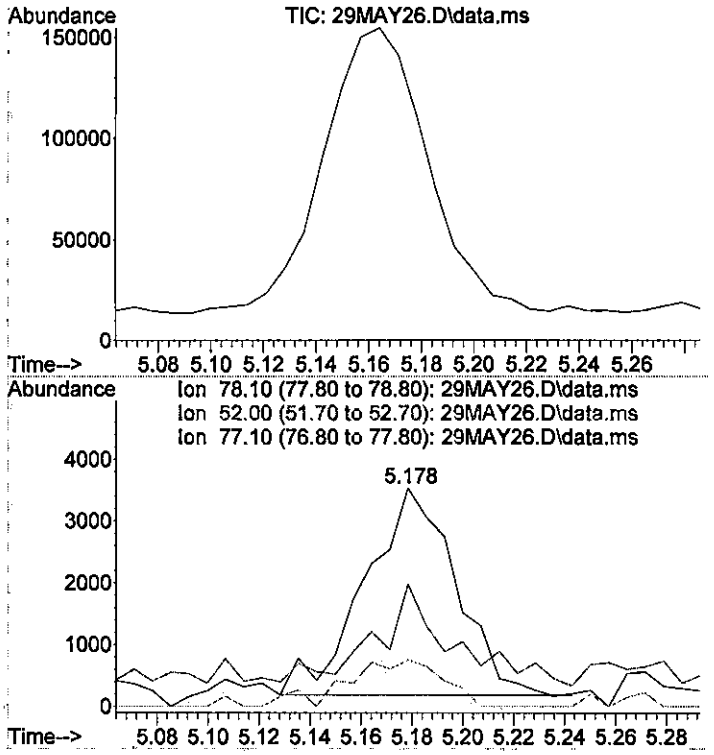




#31
2-Butanone
Concen: 0.88 ug/L m
RT: 3.939 min Scan# 468
Delta R.T. -0.007 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion: 43 Resp: 5623

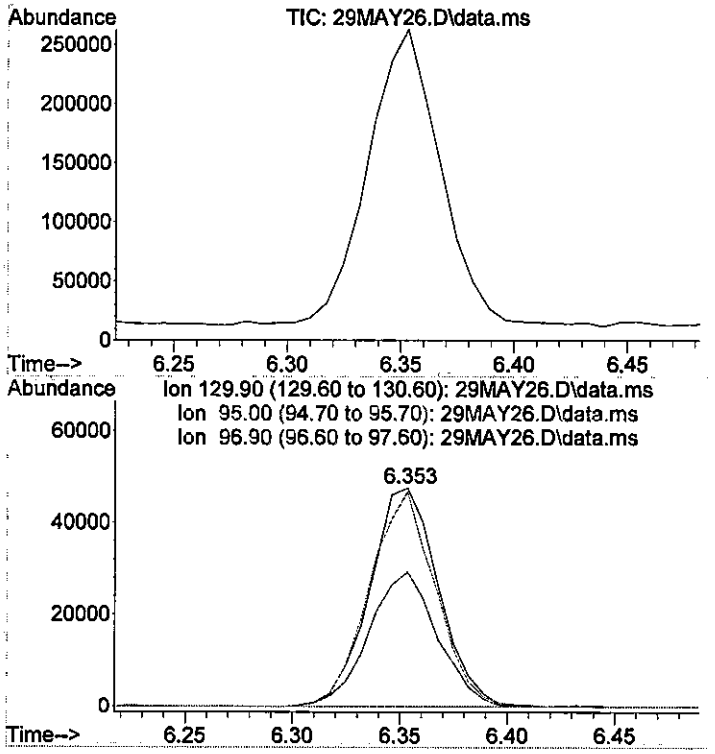
Ion	Ratio	Lower	Upper
43	100		
72	32.6	9.5	49.5
57	0.0	0.0	28.0



#47
Benzene
Concen: 0.32 ug/L m
RT: 5.178 min Scan# 641
Delta R.T. 0.000 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion: 78 Resp: 8283

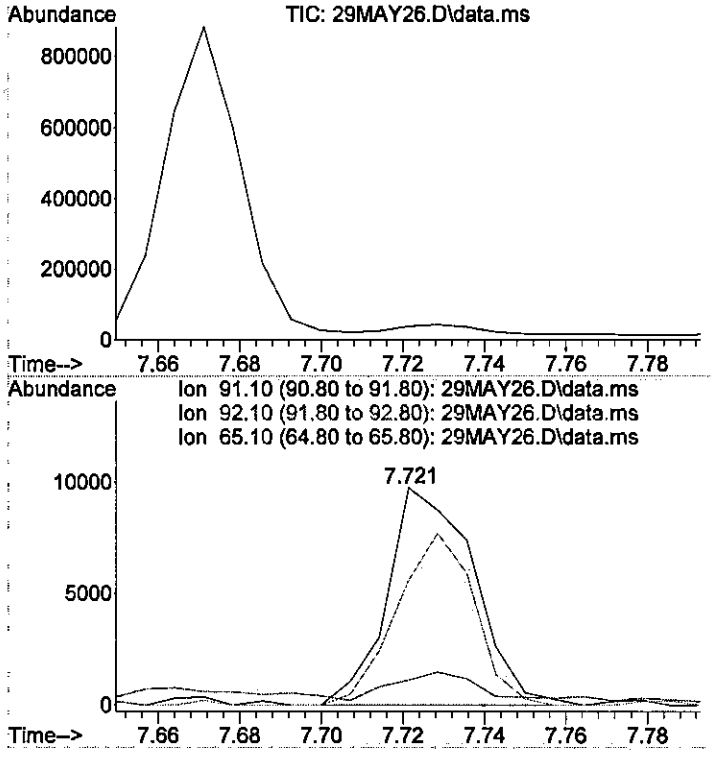
Ion	Ratio	Lower	Upper
78	100		
52	22.0	0.0	34.9
77	0.0	3.0	43.0#



#54
Trichloroethene
Concen: 14.61 ug/L
RT: 6.353 min Scan# 805
Delta R.T. 0.000 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion:130 Resp: 105980

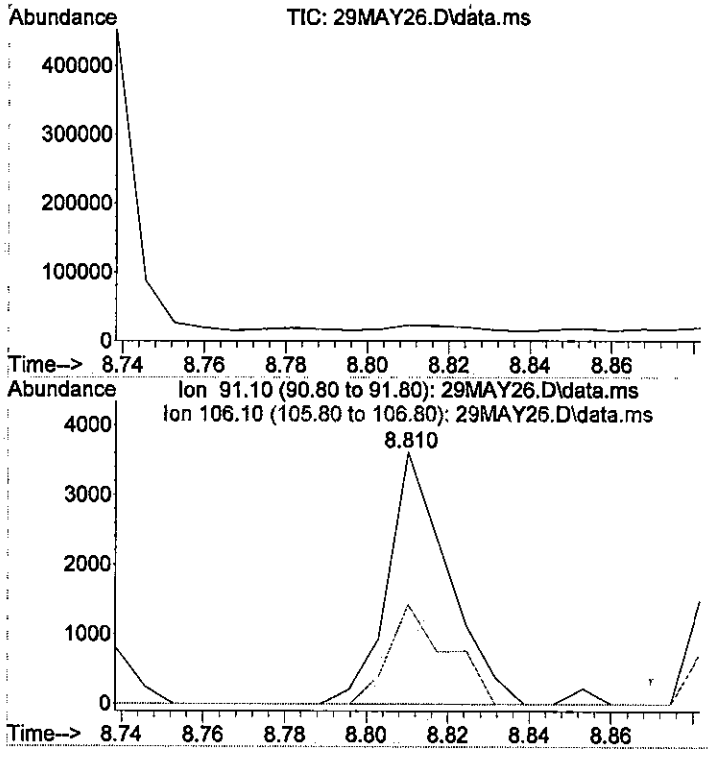
Ion	Ratio	Lower	Upper
130	100		
95	94.6	79.0	119.0
97	61.2	42.5	82.5



#65
Toluene
Concen: 0.54 ug/L
RT: 7.721 min Scan# 996
Delta R.T. -0.007 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion: 91 Resp: 14357

Ion	Ratio	Lower	Upper
91	100		
92	71.1	39.2	79.2
65	0.0	0.0	30.7



#78
Ethylbenzene
Concen: 0.13 ug/L m
RT: 8.810 min Scan# 1148
Delta R.T. -0.007 min
Lab File: 29MAY26.D
Acq: 29 May 2018 5:46 pm

Tgt Ion: 91 Resp: 3712

Ion	Ratio	Lower	Upper
91	100		
106	38.6	11.1	51.1

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY08.D
Acq On : 27 May 2018 8:04 pm
Operator : WH
Sample : 18051407-12A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 27 20:21:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.490	168	137160	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	218732	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	194544	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	95761	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	34441	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	84236	20.66	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.30%			
46) 1,2-Dichloroethane-d4	5.888	65	90267	19.87	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.35%			
65) Toluene-d8	8.316	98	236696	18.40	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 92.00%			
86) Bromofluorobenzene	11.210	95	95570	19.39	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.95%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY08.D
Acq On : 27 May 2018 8:04 pm
Operator : WH
Sample : 18051407-12A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 27 20:21:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0		N.D.	
40) Cyclohexane	0.000		0		N.D.	
42) 1,1,1-Trichloroethane	0.000		0		N.D.	
44) Carbon tetrachloride	0.000		0		N.D.	
45) 1,1-Dichloropropene	0.000		0		N.D.	
47) 1,2-Dichloroethane	0.000		0		N.D.	
48) Benzene	0.000		0		N.D.	
49) Isobutyl Alcohol	0.000		0		N.D.	
50) Tertiaryamylmethylether	0.000		0		N.D.	
51) Heptane	0.000		0		N.D.	
52) Methylcyclohexane	0.000		0		N.D.	
53) Trichloroethene	0.000		0		N.D.	
54) n-Butanol	0.000		0		N.D.	
55) 1,2-Dichloropropane	0.000		0		N.D.	
56) Dibromomethane	0.000		0		N.D.	
57) 1,4-Dioxane	0.000		0		N.D.	
58) Methyl methacrylate	0.000		0		N.D.	
59) Bromodichloromethane	0.000		0		N.D.	
60) 2-Chloroethyl vinyl ether	0.000		0		N.D.	
61) 2-Nitropropane	0.000		0		N.D.	
62) cis-1,3-Dichloropropene	0.000		0		N.D.	
64) 4-Methyl-2-pentanone	0.000		0		N.D.	
66) Toluene	0.000		0		N.D.	
67) trans-1,3-Dichloropropene	0.000		0		N.D.	
68) Chloropicrin	0.000		0		N.D.	
69) Ethyl methacrylate	0.000		0		N.D.	
70) 1,1,2-Trichloroethane	0.000		0		N.D.	
71) Tetrachloroethene	0.000		0		N.D.	
72) 1,3-Dichloropropane	0.000		0		N.D.	
73) 2-Hexanone	0.000		0		N.D.	
74) Chlorodibromomethane	0.000		0		N.D.	
75) Butyl acetate	0.000		0		N.D.	
76) 1,2-Dibromoethane	0.000		0		N.D.	
77) Chlorobenzene	0.000		0		N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0		N.D.	
79) Ethylbenzene	0.000		0		N.D.	
80) m/p-Xylene	0.000		0		N.D.	
81) Styrene	0.000		0		N.D.	
82) o-Xylene	0.000		0		N.D.	
83) Cyclohexanone	0.000		0		N.D.	
84) Bromoform	0.000		0		N.D.	
85) Isopropylbenzene	0.000		0		N.D.	
87) Bromobenzene	0.000		0		N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0		N.D.	
89) 1,2,3-Trichloropropane	0.000		0		N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0		N.D.	
91) n-Propylbenzene	0.000		0		N.D.	
92) 2-Chlorotoluene	0.000		0		N.D.	
93) 4-Chlorotoluene	0.000		0		N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0		N.D.	
95) tert-Butylbenzene	0.000		0		N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0		N.D.	
97) sec-Butylbenzene	0.000		0		N.D.	
99) 1,3-Dichlorobenzene	0.000		0		N.D.	
100) p-Isopropyltoluene	0.000		0		N.D.	

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY08.D
Acq On : 27 May 2018 8:04 pm
Operator : WH
Sample : 18051407-12A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 27 20:21:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

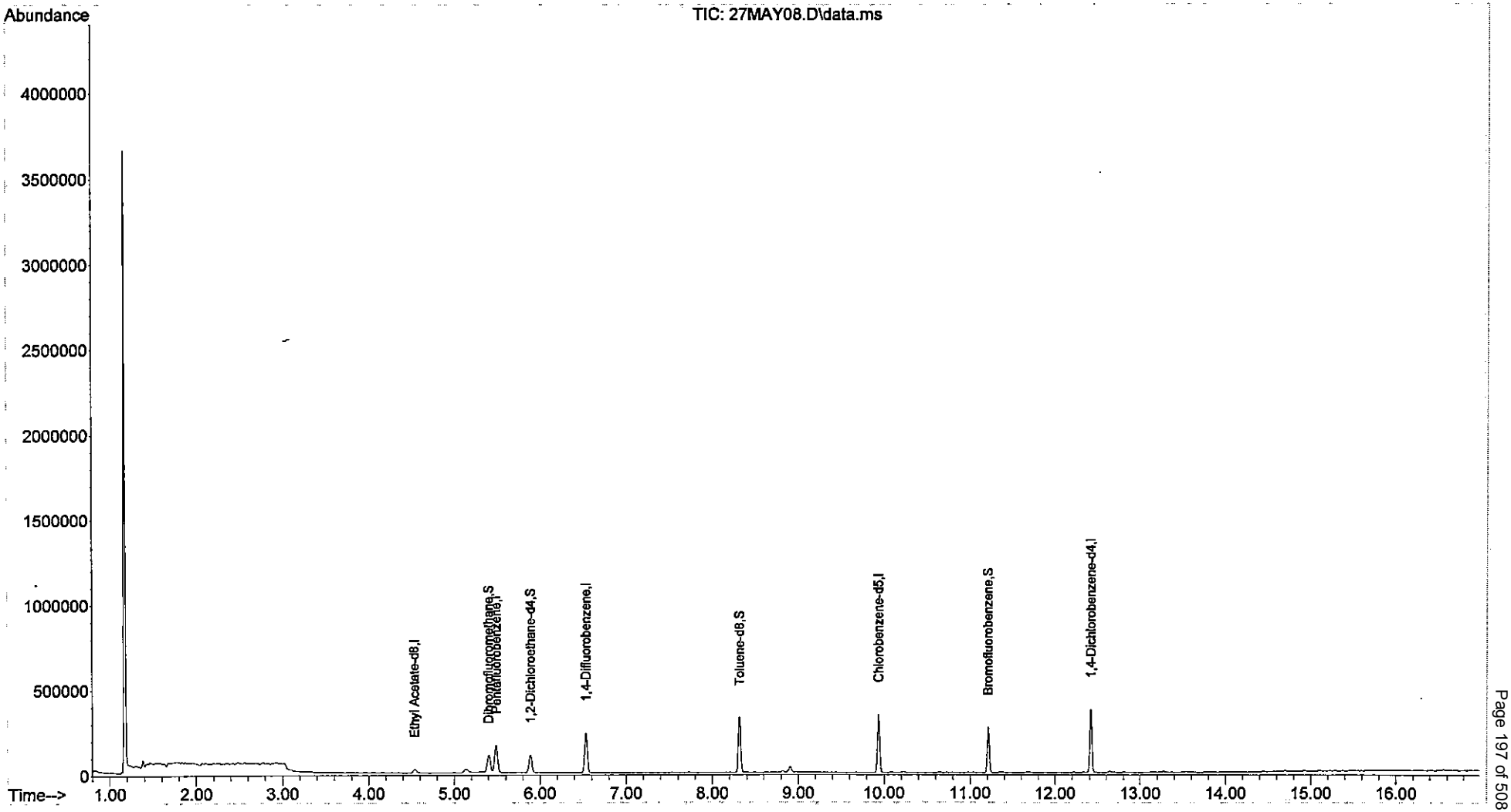
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY08.D
Acq On : 27 May 2018 8:04 pm
Operator : WH
Sample : 18051407-12A
Misc : V1/3 IS/SS 200-20233
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 27 20:21:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Response Factor Report VMS7

Method Path : C:\msdchem\1\methods\
Method File : 7AC0524.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 10:13:12 2018
Response Via : Initial Calibration

Calibration Files
1 =24MAY13.D 2 =24MAY14.D 3 =24MAY15.D 4 =24MAY16.D 5 =24MAY17.D 6 =24MAY18.D 7 =24MAY19.D
8 =24MAY20.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------	----------	ISTD	----------	----------	----------	----------	----------		
2)	CP	Dichlorodifluo...	0.576	0.576	0.556	0.567	0.565	0.489	0.521	0.534	0.548	5.63#
3)	CP	Chloromethane	1.069	0.960	0.900	0.781	0.872	0.936	1.003	0.975	0.937	9.34
4)	CP	Vinyl chloride	0.497	0.568	0.633	0.633	0.639	0.636	0.609	0.646	0.608	8.43
5)	CP	Bromomethane	0.505	0.625	0.594	0.522	0.470	0.346	0.340	0.367	0.471	23.52#
6)	CP	Chloroethane		0.508	0.449	0.392	0.372	0.340	0.328	0.332	0.389	17.39#
7)	CP	Trichlorofluor...	0.800	0.720	0.757	0.706	0.743	0.686	0.650	0.705	0.721	6.39#
8)		Ethanol		0.027	0.024	0.019	0.020	0.019	0.019	0.019	0.021	16.05
9)	C	Ethyl ether	0.287	0.348	0.373	0.358	0.344	0.392	0.363	0.368	0.354	8.74#
10)	C	Acrolein									0.000	-1.00
11)	CP	1,1-Dichloroet...		0.849	0.612	0.652	0.678	0.675	0.622	0.687	0.682	11.57
12)	CP	1,1,2-Trichlor...		0.325	0.292	0.290	0.283	0.275	0.267	0.287	0.289	6.29#
13)	C	Methyl iodide		0.053	0.091	0.083	0.122	0.105	0.123	0.152	0.104	30.87#
14)	CP	Acetone	0.399	0.589	0.374	0.263	0.197	0.170	0.166	0.167	0.291	52.46#
15)	CP	Carbon disulfide		1.712	1.481	1.364	1.376	1.373	1.361	1.390	1.437	8.93#
16)	C	Allyl chloride		0.912	0.763	0.682	0.696	0.718	0.725	0.762	0.751	10.28#
17)	CP	Methyl acetate	0.417	0.370	0.549	0.492	0.441	0.407	0.445	0.463	0.448	12.27#
18)	C	Acetonitrile	0.674	0.912	0.763	0.682	0.696	0.718	0.725	0.762	0.741	10.32#
19)	CP	Methylene chlo...		1.095	0.909	0.789	0.685	0.689	0.686	0.668	0.789	20.29#
20)	C	t-Butanol		0.051	0.080	0.067	0.062	0.057	0.059	0.058	0.062	15.14#
21)	CP	trans-1,2-Dich...		0.871	0.704	0.682	0.695	0.682	0.672	0.675	0.712	10.02#
22)	C	Acrylonitrile		0.231	0.315	0.248	0.214	0.205	0.212	0.205	0.233	16.98#
23)	CP	Methyl tert-bu...		1.428	1.389	1.359	1.361	1.332	1.360	1.358	1.370	2.23#
24)	C	Hexane		0.822	0.684	0.539	0.415	0.403	0.433	0.432	0.532	30.43#
25)	C	1,1-Dichloroet...	0.794	0.833	0.947	0.856	0.892	0.906	0.882	0.908	0.877	5.49
26)	T	Diisopropyl ether	1.295	1.382	1.596	1.549	1.497	1.482	1.518	1.554	1.484	6.69
27)	C	Chloroprene	0.659	0.707	0.686	0.645	0.631	0.637	0.638	0.654	0.657	4.02#
28)	C	Vinyl acetate		0.110	0.114	0.099	0.084	0.076	0.079	0.078	0.091	17.57#
29)	C	Ethyl tert but...	1.171	1.414	1.477	1.400	1.539	1.397	1.442	1.482	1.415	7.77#
30)	C	2,2-Dichloropr...	0.723	0.692	0.708	0.694	0.675	0.654	0.652	0.668	0.683	3.72#
31)	CP	cis-1,2-Dichlo...	0.857	0.894	0.856	0.773	0.785	0.760	0.765	0.797	0.811	6.26#
32)	CP	2-Butanone	0.354	0.268	0.352	0.260	0.271	0.255	0.262	0.276	0.287	14.25#
33)	C	Ethyl Acetate		0.308	0.595	0.535	0.554	0.522	0.554	0.572	0.520	18.57#
34)	C	Methyl acrylate		0.565	0.532	0.491	0.485	0.468	0.469	0.470	0.497	7.54#
35)	C	Propionitrile		0.026	0.034	0.036	0.045	0.041	0.043	0.043	0.038	17.71#
36)	C	Bromochloromet...	0.475	0.532	0.513	0.470	0.464	0.445	0.449	0.434	0.473	7.17#
37)	C	Tetrahydrofuran		0.184	0.181	0.164	0.155	0.146	0.153	0.150	0.162	9.37
38)	C	Methacrylonitrile		0.157	0.366	0.282	0.336	0.346	0.341	0.343	0.310	23.27#
39)	CP	Chloroform	0.908	0.886	0.926	0.833	0.898	0.863	0.864	0.915	0.887	3.53
40)	CP	Cyclohexane		1.390	0.922	0.713	0.673	0.623	0.633	0.633	0.798	35.24#

Method Path : C:\msdchem\1\methods\
Method File : 7AC0524.M
Title : 8260B/624 Volatile Calibration

41)	I	1,4-Difluorobenzene	----------ISTD----------									
42)	CP	1,1,1-Trichlor...	0.446	0.479	0.435	0.421	0.439	0.435	0.452	0.432	0.442	3.97#
43)	S	Dibromofluorom...	0.386	0.374	0.374	0.364	0.370	0.373	0.383	0.359	0.373	2.33
44)	CP	Carbon tetrach...	0.411	0.412	0.397	0.386	0.387	0.372	0.400	0.392	0.395	3.41#
45)	C	1,1-Dichloropr...		0.480	0.433	0.401	0.399	0.371	0.405	0.395	0.412	8.47#
46)	S	1,2-Dichloroet...	0.411	0.417	0.419	0.424	0.419	0.417	0.431	0.385	0.415	3.31
47)	CP	1,2-Dichloroet...	0.495	0.539	0.508	0.465	0.475	0.425	0.449	0.437	0.474	8.09#
48)	CP	Benzene	1.069	1.179	1.209	1.090	1.155	1.083	1.137	1.090	1.126	4.53#
49)	C	Isobutyl Alcohol	0.630	0.495	0.692	0.635	0.681	0.627	0.656	0.645	0.632	9.56#
50)	C	Tertiaryamylme...	0.849	0.809	0.941	0.939	0.905	0.820	0.866	0.851	0.873	5.83#
51)	C	Heptane	0.324	0.395	0.316	0.281	0.267	0.246	0.264	0.256	0.293	16.86#
52)	CP	Methylcyclohexane		0.496	0.391	0.372	0.378	0.356	0.369	0.366	0.390	12.38#
53)	CP	Trichloroethene		0.394	0.328	0.294	0.299	0.286	0.299	0.285	0.312	12.46#
54)	C	n-Butanol	0.011	0.013	0.010	0.010	0.010	0.009	0.010	0.010	0.010	11.38#
55)	CP	1,2-Dichloropr...	0.331	0.288	0.341	0.338	0.336	0.311	0.330	0.327	0.325	5.42
56)	C	Dibromomethane		0.322	0.282	0.244	0.244	0.235	0.237	0.234	0.257	12.91#
57)	C	1,4-Dioxane	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	9.27#
58)	C	Methyl methacr...	0.484	0.380	0.357	0.299	0.316	0.301	0.318	0.298	0.344	18.59#
59)	CP	Bromodichlorom...	0.425	0.433	0.496	0.462	0.474	0.456	0.462	0.445	0.457	4.97#
60)	T	2-Chloroethyl ...	0.090	0.285	0.185	0.167	0.164	0.150	0.156	0.147	0.168	32.61
61)	C	2-Nitropropane	0.050	0.205	0.093	0.118	0.112	0.109	0.113	0.109	0.114	37.73#
62)	CP	cis-1,3-Dichlo...	0.544	0.617	0.538	0.528	0.521	0.510	0.545	0.522	0.541	6.16#
63)	I	Chlorobenzene-d5	----------ISTD----------									
64)	CP	4-Methyl-2-pen...		0.406	0.421	0.411	0.402	0.360	0.385	0.400	0.398	5.06#
65)	S	Toluene-d8	1.276	1.390	1.287	1.385	1.322	1.307	1.291	1.319	1.322	3.27
66)	CP	Toluene	1.370	1.567	1.251	1.329	1.250	1.226	1.286	1.244	1.315	8.57
67)	CP	trans-1,3-Dich...	0.567	0.673	0.556	0.547	0.524	0.517	0.549	0.561	0.562	8.56#
68)	C	Chloropicrin									0.000	-1.00
69)	C	Ethyl methacry...	0.447	0.599	0.493	0.457	0.476	0.417	0.464	0.458	0.476	11.34#
70)	CP	1,1,2-Trichlor...	0.327	0.419	0.361	0.339	0.338	0.309	0.326	0.336	0.344	9.77#
71)	CP	Tetrachloroethene	0.354	0.405	0.337	0.326	0.319	0.298	0.317	0.320	0.335	9.76#
72)	C	1,3-Dichloropr...	0.548	0.627	0.565	0.513	0.513	0.499	0.497	0.510	0.534	8.33#
73)	CP	2-Hexanone	0.255	0.335	0.316	0.295	0.288	0.261	0.277	0.267	0.287	9.71#
74)	CP	Chlorodibromom...	0.433	0.548	0.436	0.410	0.423	0.403	0.422	0.409	0.435	10.76#
75)	C	Butyl acetate	0.566	0.777	0.673	0.658	0.645	0.600	0.637	0.618	0.647	9.66#
76)	CP	1,2-Dibromoethane	0.381	0.399	0.384	0.376	0.363	0.353	0.345	0.347	0.369	5.29#
77)	CP	Chlorobenzene	0.992	0.918	0.877	0.798	0.818	0.752	0.829	0.822	0.851	8.88
78)	C	1,1,1,2-Tetrac...	0.323	0.396	0.296	0.309	0.311	0.303	0.310	0.329	0.322	9.77#
79)	CP	Ethylbenzene	1.319	1.756	1.345	1.344	1.295	1.304	1.334	1.422	1.390	11.01
80)	CP	m/p-Xylene	1.059	1.218	1.074	1.063	1.057	1.050	1.002	1.040	1.070	5.94#
81)	CP	Styrene	0.900	1.026	0.911	0.878	0.824	0.814	0.816	0.820	0.874	8.38#
82)	CP	o-Xylene	1.301	1.436	1.171	1.131	1.015	1.035	1.087	1.139	1.165	12.11#
83)	C	Cyclohexanone	0.023	0.026	0.018	0.023	0.018	0.019	0.019	0.020	0.021	14.70#
84)	CP	Bromoform	0.244	0.292	0.300	0.269	0.273	0.261	0.271	0.289	0.275	6.66
85)	CP	Isopropylbenzene	1.374	1.403	1.257	1.249	1.275	1.206	1.200	1.206	1.271	6.10#
86)	S	Bromofluoroben...	0.485	0.551	0.504	0.505	0.477	0.505	0.522	0.503	0.507	4.44
87)	C	Bromobenzene		0.672	0.614	0.579	0.553	0.534	0.547	0.553	0.579	8.43#
88)	CP	1,1,2,2-Tetrac...	0.453	0.567	0.490	0.503	0.482	0.448	0.475	0.461	0.485	7.83

Method Path : C:\msdchem\1\methods\
Method File : 7AC0524.M
Title : 8260B/624 Volatile Calibration

89)	C	1,2,3-Trichlor...	0.179	0.214	0.132	0.117	0.113	0.102	0.105	0.105	0.133	30.87#
90)	C	trans-1,4-Dich...		0.168	0.146	0.128	0.134	0.118	0.127	0.123	0.135	12.65#
91)	C	n-Propylbenzene	1.602	1.880	1.572	1.493	1.548	1.413	1.456	1.546	1.564	9.10#
92)	C	2-Chlorotoluene	0.987	1.201	0.959	0.927	0.928	0.871	0.914	0.941	0.966	10.45#
93)	C	4-Chlorotoluene	1.174	1.414	1.148	1.052	1.096	0.968	1.053	1.062	1.121	11.99#
94)	C	1,3,5-Trimethy...	1.185	1.302	1.065	0.936	0.995	0.952	1.001	1.009	1.056	11.95#
95)	C	tert-Butylbenzene		0.714	0.604	0.617	0.532	0.559	0.573	0.587	0.598	9.75#
96)	C	1,2,4-Trimethy...		1.409	1.119	1.110	1.049	0.985	0.992	1.086	1.107	12.93#
97)	C	sec-Butylbenzene	1.315	1.473	1.240	1.115	1.189	1.165	1.184	1.244	1.240	8.99#
98)	I	1,4-Dichlorobenzen...	----------	ISTD	----------							
99)	CP	1,3-Dichlorobe...		1.505	1.417	1.104	1.373	1.208	1.228	1.318	1.308	10.50#
100)	C	p-Isopropyltol...		2.450	2.105	1.817	2.119	1.882	1.881	2.020	2.039	10.58#
101)	CP	1,4-Dichlorobe...		1.615	1.392	1.195	1.390	1.183	1.192	1.285	1.321	11.92#
102)	C	1,2,3-Trimethy...		2.188	2.499	2.065	2.433	2.033	2.191	2.300	2.244	7.86#
103)	C	Benzyl chloride	1.477	1.642	1.664	1.374	1.693	1.383	1.552	1.546	1.541	7.96#
104)	CP	1,2-Dichlorobe...	1.405	1.356	1.344	1.139	1.292	1.154	1.261	1.220	1.271	7.56#
105)	C	n-Butylbenzene		2.391	2.068	1.788	1.945	1.752	1.901	1.867	1.959	11.07#
106)	C	Hexachloroethane	0.561	0.648	0.538	0.448	0.531	0.452	0.467	0.509	0.519	12.84#
107)	CP	1,2-Dibromo-3-...	0.182	0.203	0.233	0.166	0.201	0.157	0.175	0.178	0.187	13.02#
108)	C	1,3,5-Trichlor...	0.991	1.042	0.964	0.834	0.935	0.781	0.847	0.880	0.909	9.75#
109)	CP	1,2,4-Trichlor...		1.099	0.964	0.747	0.851	0.753	0.818	0.849	0.869	14.36#
110)	C	Hexachlorobuta...	0.309	0.297	0.332	0.255	0.298	0.249	0.254	0.272	0.283	10.64#
111)	C	Naphthalene		2.996	2.553	2.177	2.541	2.174	2.228	2.400	2.439	12.05#
112)	C	1,2,3-Trichlor...		1.068	0.938	0.733	0.882	0.749	0.743	0.782	0.842	15.01#
113)	C	2-Methylnaphth...		1.869	1.485	1.237	1.294	1.159	1.217	1.260	1.360	18.14#
114)	C	1-Methylnaphth...		1.795	1.198	1.020	1.095	0.951	0.995	1.069	1.160	25.08#
115)	I	Ethyl Acetate-d8	----------	ISTD	----------							
116)	C	2-Propanone		2.351	1.505	1.055	0.866	0.733	0.685	0.683	1.125	54.56#
117)		Isopropyl Alcohol		0.180	0.197	0.161	0.168	0.152	0.155	0.151	0.167	10.20
118)	C	Acetic Ether		1.228	2.395	2.159	2.431	2.257	2.306	2.349	2.161	19.49#
119)	C	Isopropyl Acetate	0.815	0.982	1.010	0.874	0.987	0.898	0.857	0.868	0.911	7.89#
120)	C	Amyl Acetate	4.264	4.653	4.294	3.814	4.344	4.016	3.964	4.045	4.174	6.38#

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 7AC0524.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 10:13:12 2018
Response Via : Initial Calibration

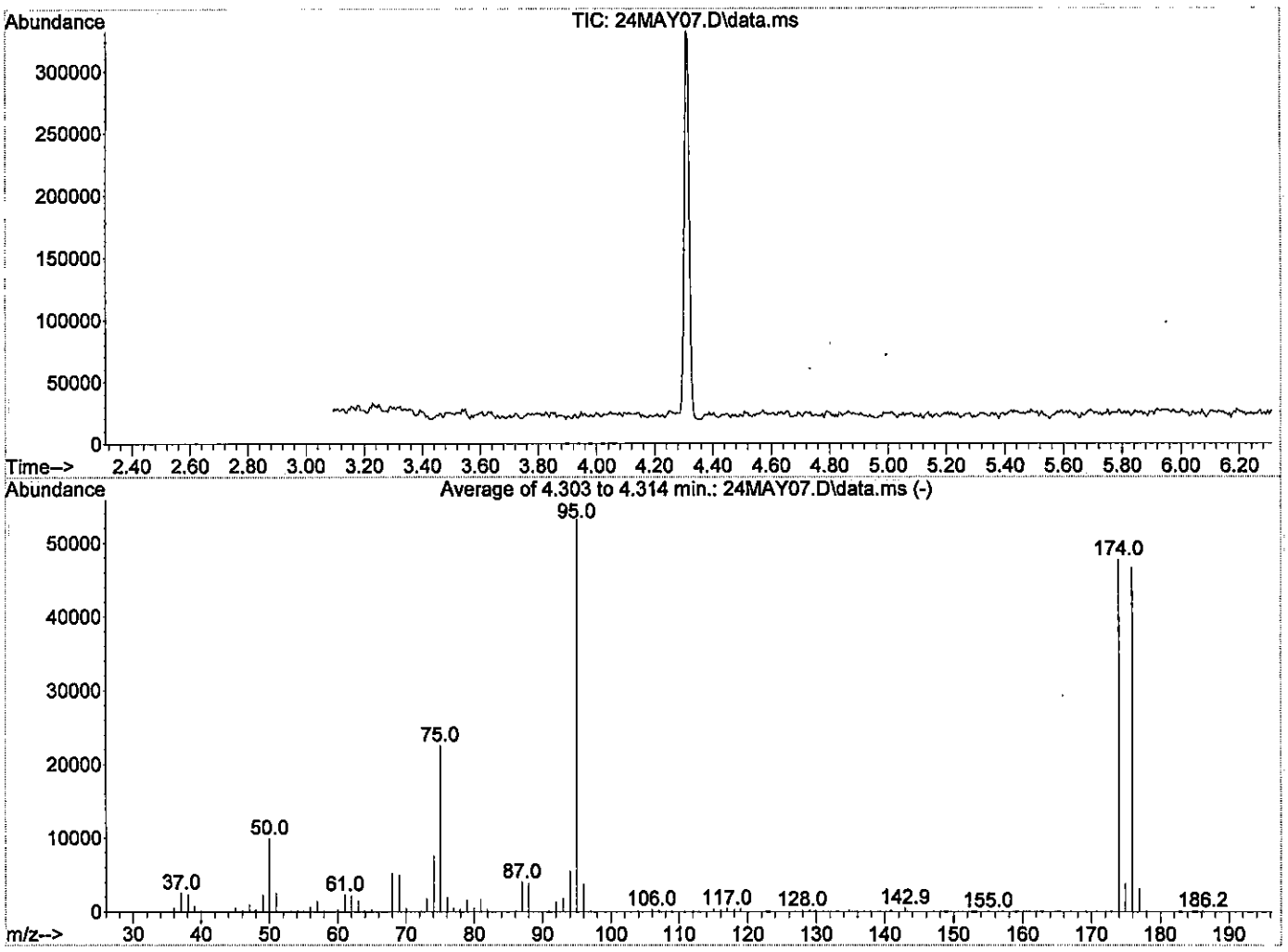
Calibration Files
1 =24MAY13 2 =24MAY14 3 =24MAY15 4 =24MAY16 5 =24MAY17 6 =24MAY18
7 =24MAY19 8 =24MAY20

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	CP	Bromomethane	Quad	0.0075	0.3860	-0.0071	0.9910
10)	C	Acrolein	Quad	-----	-----	-----	0.0000
13)	C	Methyl iodide	Quad	0.0066	0.0660	0.0167	0.9988
14)	CP	Acetone	Quad	0.0154	0.1604	0.0006	0.9997
19)	CP	Methylene chloride	Quad	0.0110	0.7021	-0.0069	0.9999
24)	C	Hexane	Quad	0.0190	0.3899	0.0082	0.9995
28)	C	Vinyl acetate	Lin	0.0027	0.0771	-----	0.9997
32)	CP	2-Butanone	Lin	-0.0034	0.2705	-----	0.9986
38)	C	Methacrylonitrile	Quad	-0.0048	0.3459	-0.0005	0.9999
40)	CP	Cyclohexane	Quad	0.0249	0.6100	0.0036	0.9998
41)	I	1,4-Difluorobenzene		----------ISTD----------			
60)	T	2-Chloroethyl vi...	Quad	0.0008	0.1612	-0.0027	0.9993
61)	C	2-Nitropropane	Quad	0.0002	0.1121	-0.0005	0.9969
63)	I	Chlorobenzene-d5		----------ISTD----------			
68)	C	Chloropicrin	Quad	-----	-----	-----	0.0000
89)	C	1,2,3-Trichlorop...	Quad	0.0033	0.1002	0.0009	0.9999
98)	I	1,4-Dichlorobenz...		----------ISTD----------			
114)	C	1-Methylnaphthalene	Quad	0.0523	0.8322	0.0448	0.9997
115)	I	Ethyl Acetate-d8		----------ISTD----------			
116)	C	2-Propanone	Quad	0.0555	0.7460	-0.0168	0.9983

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY07.D
Acq On : 24 May 2018 10:58 am
Operator : WH
Sample : VBFB2-180524
Misc : 200-20285
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\7AC0521.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 09:52:38 2018



Spectrum Information: Average of 4.303 to 4.314 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.7	9929	PASS
75	95	30	60	42.3	22502	PASS
95	95	100	100	100.0	53160	PASS
96	95	5	9	6.9	3650	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	89.7	47667	PASS
175	174	5	9	7.7	3690	PASS
176	174	95	101	97.7	46573	PASS
177	176	5	9	6.6	3078	PASS

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY13.D
Acq On : 24 May 2018 1:23 pm
Operator : WH
Sample : 0.4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.4PPB
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 09:38:38 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	147768	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	231044	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	216051	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	103586	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	37731	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.396	111	89147	19.86	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.30%				
46) 1,2-Dichloroethane-d4	5.883	65	94922	20.03	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.15%				
65) Toluene-d8	8.311	98	275728	21.20	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 106.00%				
86) Bromofluorobenzene	11.210	95	104879	20.97	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.296	85	1703	0.38	ug/L		91
3) Chloromethane	1.427	50	3158	0.49	ug/L		86
4) Vinyl chloride	1.505	62	1469m	0.30	ug/L		
5) Bromomethane	1.752	96	1491	Below Cal		#	29
6) Chloroethane	1.830	64	1468	0.22	ug/L		69
7) Trichlorofluoromethane	2.035	101	2364	0.38	ug/L		89
8) Ethanol	2.145	45	367	0.51	ug/L	#	100
9) Ethyl ether	2.255	59	848	0.31	ug/L		76
10) Acrolein	2.376	56	1256	No Calib			
11) 1,1-Dichloroethene	2.465	61	1748	0.38	ug/L		72
12) 1,1,2-Trichlorotrifluo...	2.470	151	1228	0.53	ug/L		86
13) Methyl iodide	2.596	142	465	0.75	ug/L	#	60
14) Acetone	2.496	43	1180	0.63	ug/L		98
15) Carbon disulfide	2.680	76	5668	0.61	ug/L		75
16) Allyl chloride	2.816	41	1991	0.45	ug/L	#	69
17) Methyl acetate	2.816	43	1231	0.52	ug/L	#	73
18) Acetonitrile	2.816	41	1991	0.43	ug/L	#	76
19) Methylene chloride	2.947	49	3971	1.06	ug/L		90
20) t-Butanol	3.052	59	689	Below Cal		#	1
21) trans-1,2-Dichloroethene	3.246	61	2651	0.54	ug/L		84
22) Acrylonitrile	3.194	53	512	0.34	ug/L		68
23) Methyl tert-butyl ether	3.246	73	2545	0.29	ug/L		98
24) Hexane	3.571	57	1109	0.39	ug/L	#	28
25) 1,1-Dichloroethane	3.781	63	2348	0.39	ug/L		85
26) Diisopropyl ether	3.854	45	3828	0.39	ug/L	#	100
27) Chloroprene	3.886	53	1949	0.46	ug/L	#	70
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.373	59	3460	0.40	ug/L	#	61
30) 2,2-Dichloropropane	4.604	77	2137	0.47	ug/L	#	77
31) cis-1,2-Dichloroethene	4.604	61	2533	0.47	ug/L		84
32) 2-Butanone	4.609	43	1045	Below Cal			40
33) Ethyl Acetate	4.693	43	229	0.07	ug/L	#	1
34) Methyl acrylate	4.745	55	1034	0.34	ug/L	#	64
35) Propionitrile	5.459	54	493	1.29	ug/L	#	1
36) Bromochloromethane	4.976	49	1404	0.45	ug/L		76
37) Tetrahydrofuran	5.013	42	334	0.34	ug/L		74
38) Methacrylonitrile	4.934	41	2006	0.90	ug/L	#	65

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY13.D
Acq On : 24 May 2018 1:23 pm
Operator : WH
Sample : 0.4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.4PPB
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 09:38:38 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.160	83	2684	0.43 ug/L	78
40) Cyclohexane	5.474	56	5475	0.57 ug/L #	47
42) 1,1,1-Trichloroethane	5.385	97	2060	0.44 ug/L	84
44) Carbon tetrachloride	5.611	119	1898	0.49 ug/L #	73
45) 1,1-Dichloropropene	5.626	75	2294	0.55 ug/L #	56
47) 1,2-Dichloroethane	5.993	62	2289	0.48 ug/L #	76
48) Benzene	5.899	78	4940	0.39 ug/L	73
49) Isobutyl Alcohol	6.056	43	2911	0.49 ug/L #	85
50) Tertiaryamylmethylether	6.135	73	3921	0.49 ug/L	94
51) Heptane	6.366	43	1496	0.55 ug/L	89
52) Methylcyclohexane	7.100	83	2288	0.58 ug/L #	70
53) Trichloroethene	6.816	130	2072	0.62 ug/L	96
54) n-Butanol	6.775	56	495	8.29 ug/L #	55
55) 1,2-Dichloropropane	7.142	63	1530	0.46 ug/L	92
56) Dibromomethane	7.241	93	1385	0.52 ug/L	94
57) 1,4-Dioxane	7.252	88	1480	54.67 ug/L #	45
58) Methyl methacrylate	7.267	41	2238	0.79 ug/L #	81
59) Bromodichloromethane	7.488	83	1964	0.42 ug/L #	93
60) 2-Chloroethyl vinyl ether	7.855	43	417	Below Cal #	6
61) 2-Nitropropane	7.760	43	230	Below Cal #	1
62) cis-1,3-Dichloropropene	8.012	75	2515	0.49 ug/L	92
64) 4-Methyl-2-pentanone	8.195	43	674	0.20 ug/L #	1
66) Toluene	8.389	91	5918	0.45 ug/L	97
67) trans-1,3-Dichloropropene	8.688	75	2449	0.53 ug/L	87
68) Chloropicrin	0.000		0	N.D. d	
69) Ethyl methacrylate	8.777	69	1933	0.48 ug/L	88
70) 1,1,2-Trichloroethane	8.908	97	1412	0.40 ug/L	82
71) Tetrachloroethene	8.977	166	1529	0.45 ug/L	81
72) 1,3-Dichloropropane	9.076	76	2367	0.47 ug/L	88
73) 2-Hexanone	9.155	43	1100m	0.47 ug/L	
74) Chlorodibromomethane	9.307	129	1870	0.49 ug/L	94
75) Butyl acetate	9.312	43	2447	0.46 ug/L #	83
76) 1,2-Dibromoethane	9.422	107	1645	0.45 ug/L #	95
77) Chlorobenzene	9.968	112	4285	0.50 ug/L	97
78) 1,1,1,2-Tetrachloroethane	10.072	131	1394	0.43 ug/L	87
79) Ethylbenzene	10.083	91	5700	0.41 ug/L	93
80) m/p-Xylene	10.230	91	9151	0.91 ug/L	96
81) Styrene	10.660	104	3888	0.48 ug/L	96
82) o-Xylene	10.633	91	5622	0.54 ug/L	92
83) Cyclohexanone	11.105	55	502	2.58 ug/L #	41
84) Bromoform	10.843	173	1054	0.42 ug/L	94
85) Isopropylbenzene	11.032	105	5936	0.51 ug/L	100
87) Bromobenzene	11.346	77	3556	0.62 ug/L #	65
88) 1,1,2,2-Tetrachloroethane	11.362	83	1958	0.41 ug/L #	20
89) 1,2,3-Trichloropropane	11.415	110	772	0.74 ug/L	75
90) trans-1,4-Dichloro-2-b...	11.409	53	772	0.75 ug/L #	79
91) n-Propylbenzene	11.467	91	6923	0.47 ug/L	99
92) 2-Chlorotoluene	11.551	91	4264	0.48 ug/L	96
93) 4-Chlorotoluene	11.682	91	5071	0.49 ug/L	93
94) 1,3,5-Trimethylbenzene	11.666	105	5119	0.55 ug/L	95
95) tert-Butylbenzene	11.986	91	3166	0.58 ug/L	89
96) 1,2,4-Trimethylbenzene	12.049	105	5915	0.60 ug/L	98
97) sec-Butylbenzene	12.222	105	5680	0.50 ug/L	89
99) 1,3-Dichlorobenzene	12.332	146	3174	0.49 ug/L	82
100) p-Isopropyltoluene	12.385	119	5209	0.60 ug/L	93

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY13.D
Acq On : 24 May 2018 1:23 pm
Operator : WH
Sample : 0.4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.4PPB
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 09:38:38 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

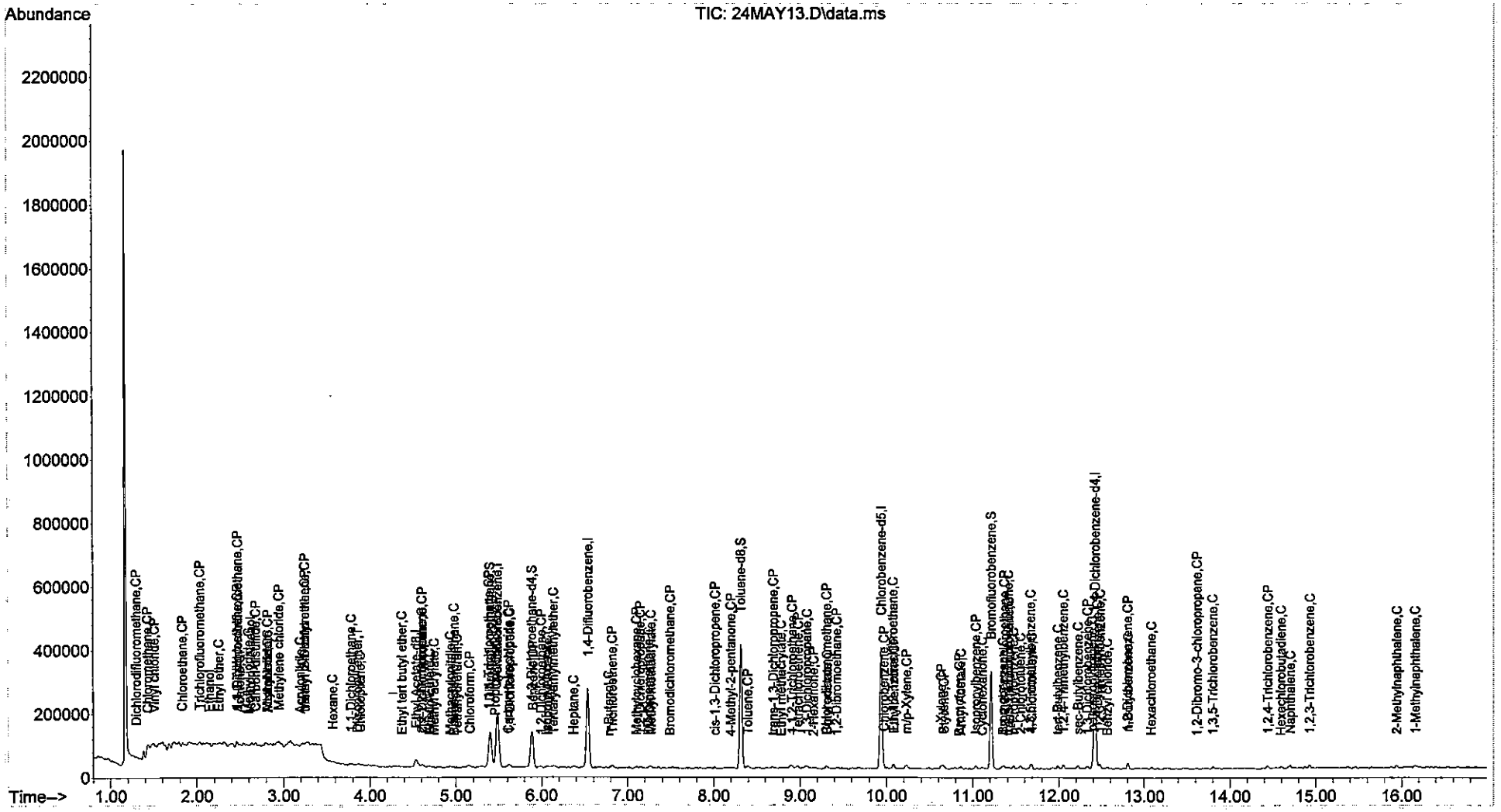
Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	3703	0.56 ug/L		90
102) 1,2,3-Trimethylbenzene	12.474	105	5731	0.55 ug/L		99
103) Benzyl chloride	12.558	91	3059	0.58 ug/L		87
104) 1,2-Dichlorobenzene	12.799	146	2911	0.45 ug/L		82
105) n-Butylbenzene	12.804	91	5141	0.58 ug/L		99
106) Hexachloroethane	13.082	117	1163	0.56 ug/L		78
107) 1,2-Dibromo-3-chloropr...	13.617	157	378	0.51 ug/L	#	59
108) 1,3,5-Trichlorobenzene	13.800	180	2053	0.44 ug/L	#	92
109) 1,2,4-Trichlorobenzene	14.440	180	2785	0.63 ug/L		85
110) Hexachlorobutadiene	14.592	225	641	0.37 ug/L		83
111) Naphthalene	14.702	128	6901	0.59 ug/L		96
112) 1,2,3-Trichlorobenzene	14.927	180	2452	0.55 ug/L		98
113) 2-Methylnaphthalene	15.939	142	4429	0.16 ug/L		96
114) 1-Methylnaphthalene	16.160	142	4024	0.73 ug/L	#	63
116) 2-Propanone	2.496	43	1389	Below Cal		90
117) Isopropyl Alcohol	2.622	45	2076	8.15 ug/L	#	8
118) Acetic Ether	4.693	43	229	0.05 ug/L	#	1
119) Isopropyl Acetate	6.067	61	615	0.38 ug/L	#	91
120) Amyl Acetate	10.859	43	3218	0.47 ug/L	#	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY13.D
Acq On : 24 May 2018 1:23 pm
Operator : WH
Sample : 0.4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.4PPB
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 09:38:38 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY14.D
Acq On : 24 May 2018 1:44 pm
Operator : WH
Sample : 0.6PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.6PPB
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 25 09:40:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	147939	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	228844	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	197992	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	111988	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	37088	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	85662	19.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.35%				
46) 1,2-Dichloroethane-d4	5.888	65	95530	20.35	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.75%				
65) Toluene-d8	8.316	98	275269	23.09	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 115.45%#				
86) Bromofluorobenzene	11.210	95	109110	23.80	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 119.00%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	2558	0.57	ug/L		92
3) Chloromethane	1.427	50	4260	0.66	ug/L		62
4) Vinyl chloride	1.510	62	2520	0.52	ug/L		48
5) Bromomethane	1.757	96	2772	0.05	ug/L		78
6) Chloroethane	1.835	64	2255	0.51	ug/L		90
7) Trichlorofluoromethane	2.035	101	3195	0.51	ug/L		85
8) Ethanol	2.150	45	2424	22.72	ug/L	#	100
9) Ethyl ether	2.260	59	1545	0.57	ug/L		95
10) Acrolein	2.375	56	2086	No Calib			
11) 1,1-Dichloroethene	2.470	61	3768	0.81	ug/L		81
12) 1,1,2-Trichlorotrifluo...	2.475	151	1441	0.62	ug/L		95
13) Methyl iodide	2.606	142	235m	0.55	ug/L		
14) Acetone	2.507	43	2616	2.10	ug/L		62
15) Carbon disulfide	2.680	76	7600	0.82	ug/L		73
16) Allyl chloride	2.816	41	4047	0.92	ug/L		95
17) Methyl acetate	2.800	43	1643	0.65	ug/L	#	76
18) Acetonitrile	2.816	41	4047	0.88	ug/L	#	86
19) Methylene chloride	2.947	49	4858	1.20	ug/L		89
20) t-Butanol	3.057	59	1135	Below Cal		#	41
21) trans-1,2-Dichloroethene	3.246	61	3867	0.78	ug/L		90
22) Acrylonitrile	3.204	53	1024	0.69	ug/L	#	65
23) Methyl tert-butyl ether	3.246	73	6337	0.73	ug/L		97
24) Hexane	3.576	57	3648	1.28	ug/L	#	32
25) 1,1-Dichloroethane	3.786	63	3695	0.62	ug/L		82
26) Diisopropyl ether	3.854	45	6133	0.63	ug/L	#	98
27) Chloroprene	3.880	53	3136	0.74	ug/L	#	89
28) Vinyl acetate	3.796	86	487	1.06	ug/L	#	53
29) Ethyl tert butyl ether	4.384	59	6276	0.72	ug/L		94
30) 2,2-Dichloropropane	4.620	77	3072	0.68	ug/L	#	71
31) cis-1,2-Dichloroethene	4.609	61	3967	0.74	ug/L		78
32) 2-Butanone	4.599	43	1190	Below Cal		#	26
33) Ethyl Acetate	4.693	43	1366	0.41	ug/L	#	64
34) Methyl acrylate	4.761	55	2509	0.83	ug/L	#	84
35) Propionitrile	5.500	54	116	0.30	ug/L	#	1
36) Bromochloromethane	4.987	49	2360	0.75	ug/L		78
37) Tetrahydrofuran	5.023	42	815m	0.82	ug/L		
38) Methacrylonitrile	4.929	41	697	0.31	ug/L	#	1

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY14.D
Acq On : 24 May 2018 1:44 pm
Operator : WH
Sample : 0.6PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.6PPB
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 25 09:40:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	5.165	83	3931m	0.63	ug/L		
40)	Cyclohexane	5.485	56	6171	0.73	ug/L	#	56
42)	1,1,1-Trichloroethane	5.385	97	3290	0.71	ug/L		85
44)	Carbon tetrachloride	5.610	119	2831	0.73	ug/L		91
45)	1,1-Dichloropropene	5.631	75	3295	0.79	ug/L		82
47)	1,2-Dichloroethane	5.998	62	3699	0.78	ug/L		94
48)	Benzene	5.904	78	8092	0.65	ug/L		86
49)	Isobutyl Alcohol	6.061	43	3397	0.58	ug/L	#	70
50)	Tertiaryamylmethylether	6.135	73	5551	0.70	ug/L	#	88
51)	Heptane	6.365	43	2710	1.01	ug/L	#	51
52)	Methylcyclohexane	7.094	83	3407	0.87	ug/L	#	85
53)	Trichloroethene	6.816	130	2707	0.81	ug/L		94
54)	n-Butanol	6.790	56	883	14.94	ug/L		87
55)	1,2-Dichloropropane	7.147	63	1977	0.59	ug/L		71
56)	Dibromomethane	7.246	93	2211	0.84	ug/L		78
57)	1,4-Dioxane	7.257	88	3013	112.36	ug/L	#	45
58)	Methyl methacrylate	7.267	41	2610	0.93	ug/L		92
59)	Bromodichloromethane	7.487	83	2974	0.64	ug/L		98
60)	2-Chloroethyl vinyl ether	7.854	43	1958	0.44	ug/L	#	74
61)	2-Nitropropane	7.760	43	1405	1.36	ug/L	#	48
62)	cis-1,3-Dichloropropene	8.017	75	4239	0.83	ug/L		73
64)	4-Methyl-2-pentanone	8.211	43	2411	0.78	ug/L		90
66)	Toluene	8.395	91	9309	0.78	ug/L		97
67)	trans-1,3-Dichloropropene	8.688	75	3995	0.95	ug/L		65
68)	Chloropicrin	0.000		0	N.D.	d		
69)	Ethyl methacrylate	8.777	69	3555	0.97	ug/L	#	68
70)	1,1,2-Trichloroethane	8.903	97	2491	0.76	ug/L		99
71)	Tetrachloroethene	8.971	166	2404	0.78	ug/L	#	81
72)	1,3-Dichloropropane	9.076	76	3725	0.80	ug/L		91
73)	2-Hexanone	9.160	43	1989	0.93	ug/L	#	54
74)	Chlorodibromomethane	9.312	129	3254	0.92	ug/L		95
75)	Butyl acetate	9.312	43	4613	0.94	ug/L	#	86
76)	1,2-Dibromoethane	9.422	107	2372	0.71	ug/L	#	88
77)	Chlorobenzene	9.967	112	5452	0.69	ug/L		96
78)	1,1,1,2-Tetrachloroethane	10.078	131	2350	0.80	ug/L		96
79)	Ethylbenzene	10.088	91	10432	0.83	ug/L		98
80)	m/p-Xylene	10.230	91	14475	1.57	ug/L		97
81)	Styrene	10.659	104	6094	0.83	ug/L		88
82)	o-Xylene	10.633	91	8531	0.89	ug/L		98
83)	Cyclohexanone	11.110	55	780	4.38	ug/L	#	80
84)	Bromoform	10.843	173	1736	0.75	ug/L		97
85)	Isopropylbenzene	11.032	105	8335	0.78	ug/L		94
87)	Bromobenzene	11.346	77	3993	0.76	ug/L		93
88)	1,1,2,2-Tetrachloroethane	11.367	83	3367	0.77	ug/L		97
89)	1,2,3-Trichloropropane	11.420	110	1274	1.33	ug/L	#	66
90)	trans-1,4-Dichloro-2-b...	11.404	53	995	1.05	ug/L	#	80
91)	n-Propylbenzene	11.472	91	11169	0.82	ug/L		100
92)	2-Chlorotoluene	11.551	91	7136	0.87	ug/L		99
93)	4-Chlorotoluene	11.682	91	8401	0.89	ug/L		95
94)	1,3,5-Trimethylbenzene	11.666	105	7734	0.90	ug/L		99
95)	tert-Butylbenzene	11.986	91	4240	0.84	ug/L		82
96)	1,2,4-Trimethylbenzene	12.049	105	8367	0.93	ug/L		94
97)	sec-Butylbenzene	12.222	105	8751	0.84	ug/L		100
99)	1,3-Dichlorobenzene	12.332	146	5056	0.73	ug/L		83
100)	p-Isopropyltoluene	12.384	119	8232	0.87	ug/L		98

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY14.D
Acq On : 24 May 2018 1:44 pm
Operator : WH
Sample : 0.6PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.6PPB
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 25 09:40:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

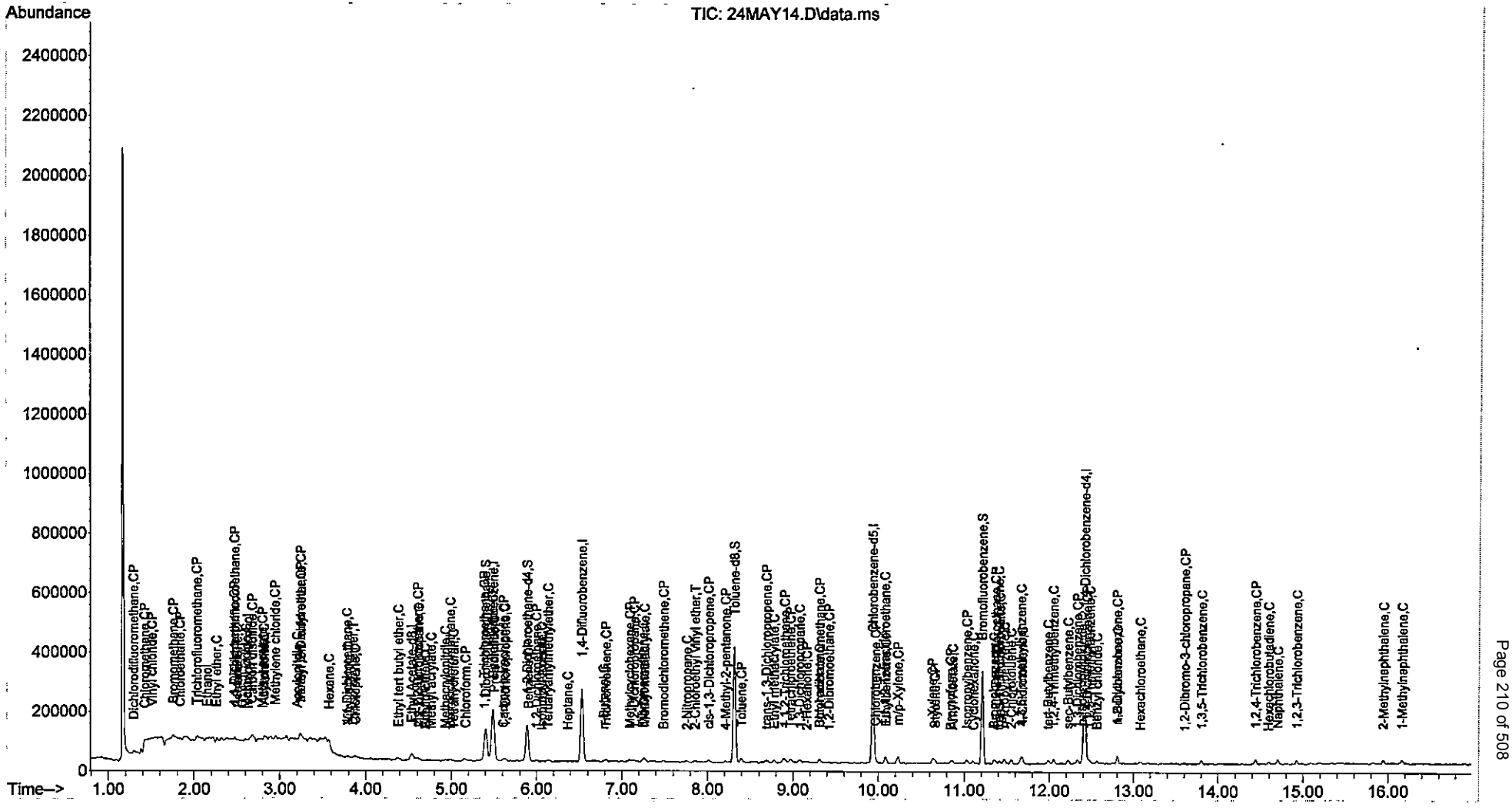
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	5425	0.76	ug/L	#	78
102) 1,2,3-Trimethylbenzene	12.474	105	7351	0.65	ug/L		93
103) Benzyl chloride	12.557	91	5518	0.97	ug/L		96
104) 1,2-Dichlorobenzene	12.799	146	4556	0.65	ug/L		91
105) n-Butylbenzene	12.804	91	8032	0.83	ug/L		97
106) Hexachloroethane	13.082	117	2176	0.96	ug/L		79
107) 1,2-Dibromo-3-chloropr...	13.606	157	682	0.85	ug/L	#	54
108) 1,3,5-Trichlorobenzene	13.805	180	3502	0.70	ug/L		97
109) 1,2,4-Trichlorobenzene	14.440	180	3692	0.77	ug/L		99
110) Hexachlorobutadiene	14.592	225	997	0.53	ug/L		98
111) Naphthalene	14.702	128	10067	0.80	ug/L		96
112) 1,2,3-Trichlorobenzene	14.927	180	3589	0.75	ug/L		98
113) 2-Methylnaphthalene	15.939	142	6280	0.43	ug/L		93
114) 1-Methylnaphthalene	16.165	142	6031	1.01	ug/L		100
116) 2-Propanone	2.507	43	2616	0.55	ug/L	#	62
117) Isopropyl Alcohol	2.627	45	4006	15.99	ug/L	#	62
118) Acetic Ether	4.693	43	1366	0.32	ug/L	#	64
119) Isopropyl Acetate	6.061	61	1093	0.69	ug/L	#	44
120) Amyl Acetate	10.864	43	5177	0.76	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY14.D
Acq On : 24 May 2018 1:44 pm
Operator : WH
Sample : 0.6PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 0.6PPB
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 25 09:40:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY15.D
Acq On : 24 May 2018 2:21 pm
Operator : WH
Sample : 2PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 2PPB
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 25 09:36:40 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	140931	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	217262	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	204205	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	96525	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	35041	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	81155	19.23	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.15%				
46) 1,2-Dichloroethane-d4	5.883	65	90962	20.41	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.05%				
65) Toluene-d8	8.311	98	262716	21.37	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 106.85%				
86) Bromofluorobenzene	11.210	95	102984	21.78	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 108.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	7841	1.84	ug/L		97
3) Chloromethane	1.421	50	12678	2.05	ug/L		87
4) Vinyl chloride	1.510	62	8927	1.94	ug/L		68
5) Bromomethane	1.757	96	8366	1.99	ug/L		94
6) Chloroethane	1.835	64	6330	2.14	ug/L		89
7) Trichlorofluoromethane	2.029	101	10674	1.80	ug/L		98
8) Ethanol	2.155	45	6897	74.72	ug/L	#	100
9) Ethyl ether	2.255	59	5252	2.02	ug/L		96
10) Acrolein	2.375	56	3300	No Calib			
11) 1,1-Dichloroethene	2.465	61	8624	1.96	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.470	151	4119	1.86	ug/L		90
13) Methyl iodide	2.611	142	1278	1.54	ug/L	#	25
14) Acetone	2.496	43	5272	5.08	ug/L		80
15) Carbon disulfide	2.680	76	20877	2.36	ug/L		100
16) Allyl chloride	2.811	41	10755	2.56	ug/L		93
17) Methyl acetate	2.800	43	7739	2.71	ug/L	#	90
18) Acetonitrile	2.811	41	10755	2.45	ug/L	#	94
19) Methylene chloride	2.942	49	12805	2.58	ug/L		93
20) t-Butanol	3.062	59	5652	17.64	ug/L	#	77
21) trans-1,2-Dichloroethene	3.246	61	9919	2.11	ug/L		98
22) Acrylonitrile	3.193	53	4440	3.13	ug/L		80
23) Methyl tert-butyl ether	3.246	73	19575	2.38	ug/L		90
24) Hexane	3.576	57	9637	3.54	ug/L	#	31
25) 1,1-Dichloroethane	3.786	63	13353	2.35	ug/L		95
26) Diisopropyl ether	3.854	45	22494	2.41	ug/L	#	97
27) Chloroprene	3.880	53	9664	2.39	ug/L	#	90
28) Vinyl acetate	3.802	86	1611	4.05	ug/L	#	32
29) Ethyl tert butyl ether	4.378	59	20818	2.50	ug/L		97
30) 2,2-Dichloropropane	4.609	77	9975	2.32	ug/L		98
31) cis-1,2-Dichloroethene	4.609	61	12068	2.35	ug/L		88
32) 2-Butanone	4.614	43	4954	1.69	ug/L		90
33) Ethyl Acetate	4.698	43	8391	2.66	ug/L	#	92
34) Methyl acrylate	4.756	55	7494	2.59	ug/L	#	70
35) Propionitrile	5.464	54	475	1.30	ug/L	#	1
36) Bromochloromethane	4.976	49	7233	2.42	ug/L		81
37) Tetrahydrofuran	5.002	42	2550	2.70	ug/L		96
38) Methacrylonitrile	4.929	41	5152	2.42	ug/L	#	91

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY15.D
Acq On : 24 May 2018 2:21 pm
Operator : WH
Sample : 2PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 2PPB
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 25 09:36:40 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	5.160	83	13047	2.19	ug/L		92
40)	Cyclohexane	5.479	56	12997	2.54	ug/L	#	86
42)	1,1,1-Trichloroethane	5.385	97	9461	2.14	ug/L		92
44)	Carbon tetrachloride	5.610	119	8624	2.36	ug/L		95
45)	1,1-Dichloropropene	5.626	75	9410	2.39	ug/L		96
47)	1,2-Dichloroethane	5.998	62	11041	2.45	ug/L		93
48)	Benzene	5.899	78	26259	2.21	ug/L		89
49)	Isobutyl Alcohol	6.056	43	15031	2.69	ug/L	#	99
50)	Tertiaryamylmethylether	6.135	73	20449	2.71	ug/L		96
51)	Heptane	6.365	43	6871	2.69	ug/L		87
52)	Methylcyclohexane	7.099	83	8500	2.29	ug/L	#	89
53)	Trichloroethene	6.811	130	7119	2.25	ug/L		97
54)	n-Butanol	6.780	56	2155	38.40	ug/L	#	86
55)	1,2-Dichloropropane	7.141	63	7399	2.34	ug/L		94
56)	Dibromomethane	7.241	93	6124	2.46	ug/L		96
57)	1,4-Dioxane	7.257	88	9120	358.23	ug/L		90
58)	Methyl methacrylate	7.267	41	7764	2.90	ug/L		91
59)	Bromodichloromethane	7.487	83	10771	2.46	ug/L		93
60)	2-Chloroethyl vinyl ether	7.854	43	4021	2.16	ug/L	#	86
61)	2-Nitropropane	7.750	43	2029	2.35	ug/L	#	89
62)	cis-1,3-Dichloropropene	8.012	75	11686	2.41	ug/L		97
64)	4-Methyl-2-pentanone	8.200	43	8605	2.69	ug/L		90
66)	Toluene	8.389	91	25542	2.07	ug/L		93
67)	trans-1,3-Dichloropropene	8.683	75	11362	2.61	ug/L		84
68)	Chloropicrin	0.000		0	N.D.			
69)	Ethyl methacrylate	8.777	69	10063	2.66	ug/L		94
70)	1,1,2-Trichloroethane	8.903	97	7371	2.19	ug/L		86
71)	Tetrachloroethene	8.971	166	6883	2.16	ug/L		90
72)	1,3-Dichloropropane	9.076	76	11535	2.40	ug/L		97
73)	2-Hexanone	9.155	43	6456	2.92	ug/L		93
74)	Chlorodibromomethane	9.307	129	8898	2.45	ug/L		97
75)	Butyl acetate	9.312	43	13746	2.73	ug/L		92
76)	1,2-Dibromoethane	9.422	107	7844	2.27	ug/L	#	99
77)	Chlorobenzene	9.967	112	17910	2.20	ug/L		89
78)	1,1,1,2-Tetrachloroethane	10.077	131	6051	1.99	ug/L		90
79)	Ethylbenzene	10.083	91	27474	2.11	ug/L		99
80)	m/p-Xylene	10.230	91	43856	4.60	ug/L		98
81)	Styrene	10.659	104	18605	2.45	ug/L		96
82)	o-Xylene	10.633	91	23914	2.42	ug/L		99
83)	Cyclohexanone	11.110	55	1790	9.75	ug/L	#	51
84)	Bromoform	10.843	173	6121	2.58	ug/L		99
85)	Isopropylbenzene	11.032	105	25665	2.33	ug/L		99
87)	Bromobenzene	11.346	77	12530	2.30	ug/L		86
88)	1,1,2,2-Tetrachloroethane	11.367	83	10008	2.22	ug/L		94
89)	1,2,3-Trichloropropane	11.414	110	2687	2.72	ug/L		95
90)	trans-1,4-Dichloro-2-b...	11.404	53	2972	3.04	ug/L		94
91)	n-Propylbenzene	11.467	91	32095	2.28	ug/L		100
92)	2-Chlorotoluene	11.551	91	19593	2.33	ug/L		96
93)	4-Chlorotoluene	11.682	91	23445	2.40	ug/L		97
94)	1,3,5-Trimethylbenzene	11.666	105	21745	2.46	ug/L		97
95)	tert-Butylbenzene	11.986	91	12327	2.37	ug/L		94
96)	1,2,4-Trimethylbenzene	12.049	105	22854	2.45	ug/L		98
97)	sec-Butylbenzene	12.222	105	25313	2.36	ug/L		98
99)	1,3-Dichlorobenzene	12.332	146	13676	2.28	ug/L		97
100)	p-Isopropyltoluene	12.384	119	20320	2.50	ug/L		93

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY15.D
Acq On : 24 May 2018 2:21 pm
Operator : WH
Sample : 2PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 2PPB
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 25 09:36:40 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

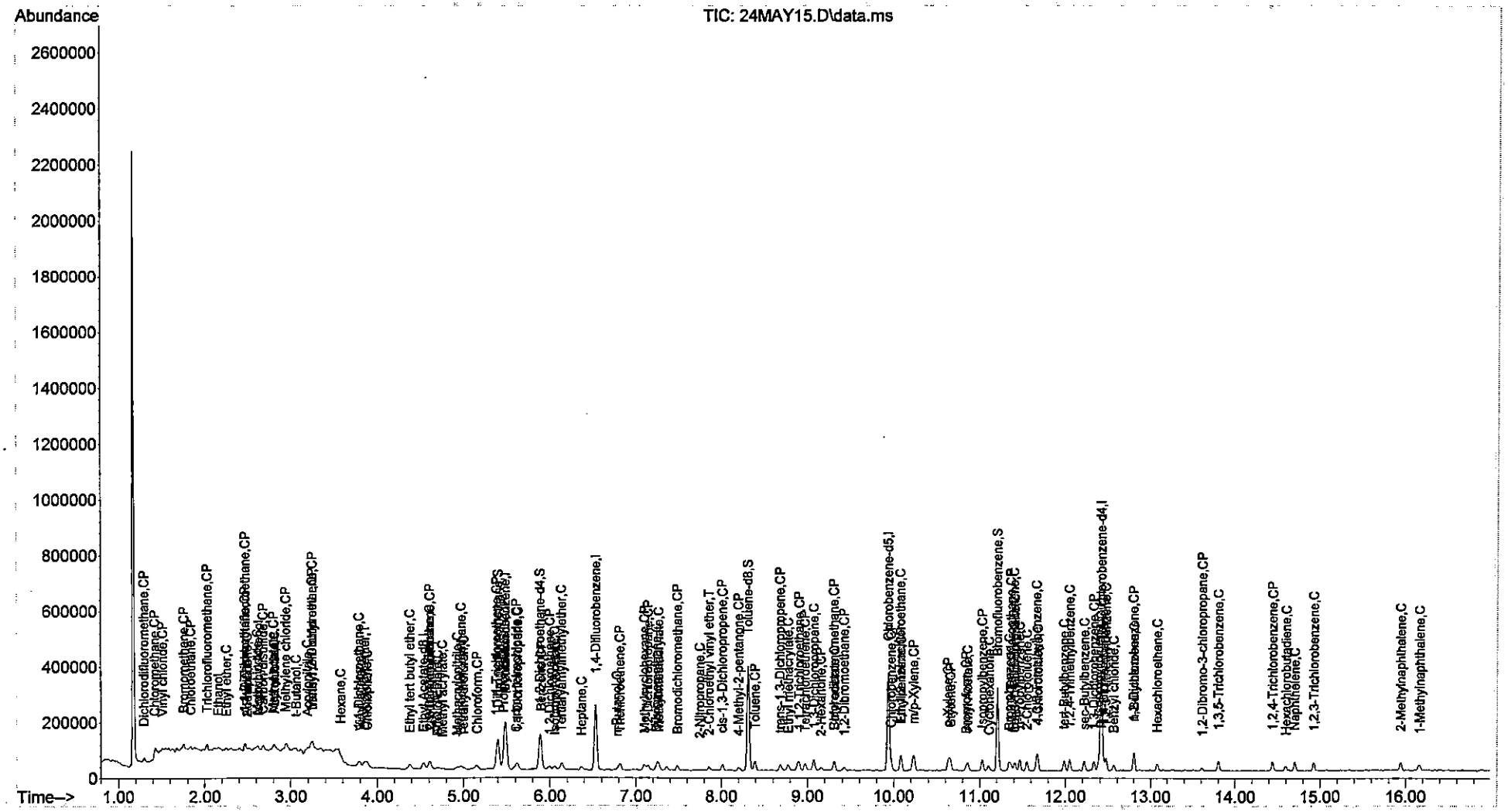
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	13432	2.19	ug/L		90
102) 1,2,3-Trimethylbenzene	12.468	105	24119	2.49	ug/L		99
103) Benzyl chloride	12.557	91	16059	3.26	ug/L		98
104) 1,2-Dichlorobenzene	12.799	146	12969	2.14	ug/L		93
105) n-Butylbenzene	12.804	91	19959	2.40	ug/L		94
106) Hexachloroethane	13.082	117	5194	2.67	ug/L		94
107) 1,2-Dibromo-3-chloropr...	13.611	157	2250	3.24	ug/L		94
108) 1,3,5-Trichlorobenzene	13.800	180	9301	2.15	ug/L		95
109) 1,2,4-Trichlorobenzene	14.440	180	9309	2.26	ug/L		100
110) Hexachlorobutadiene	14.597	225	3200	1.99	ug/L		93
111) Naphthalene	14.702	128	24640	2.27	ug/L		98
112) 1,2,3-Trichlorobenzene	14.927	180	9053	2.19	ug/L		98
113) 2-Methylnaphthalene	15.939	142	14335	2.27	ug/L		94
114) 1-Methylnaphthalene	16.165	142	11560	2.24	ug/L		91
116) 2-Propanone	2.496	43	5272	3.59	ug/L	#	79
117) Isopropyl Alcohol	2.627	45	13837	58.47	ug/L	#	77
118) Acetic Ether	4.698	43	8391	2.10	ug/L	#	94
119) Isopropyl Acetate	6.056	61	3539	2.36	ug/L		81
120) Amyl Acetate	10.859	43	15048	2.34	ug/L		93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY15.D
Acq On : 24 May 2018 2:21 pm
Operator : WH
Sample : 2PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 2PPB
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 25 09:36:40 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY16.D
Acq On : 24 May 2018 2:42 pm
Operator : WH
Sample : 4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 4PPB
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 25 09:36:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	150893	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	228689	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	201481	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	110499	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.541	46	37616	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	83321	18.76	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 93.80%				
46) 1,2-Dichloroethane-d4	5.888	65	97011	20.68	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.40%				
65) Toluene-d8	8.316	98	278998	23.00	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 115.00%#				
86) Bromofluorobenzene	11.210	95	101788	21.82	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 109.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	17100	3.74	ug/L		95
3) Chloromethane	1.426	50	23572	3.55	ug/L		92
4) Vinyl chloride	1.510	62	19100	3.87	ug/L		86
5) Bromomethane	1.757	96	15768	4.16	ug/L		96
6) Chloroethane	1.835	64	11837	3.99	ug/L		95
7) Trichlorofluoromethane	2.029	101	21311	3.36	ug/L		99
8) Ethanol	2.150	45	11272	115.88	ug/L	#	100
9) Ethyl ether	2.260	59	10808	3.89	ug/L		98
10) Acrolein	2.375	56	4454	No Calib			
11) 1,1-Dichloroethene	2.470	61	19663	4.17	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.475	151	8763	3.70	ug/L		97
13) Methyl iodide	2.611	142	2490	2.53	ug/L		91
14) Acetone	2.501	43	7938	7.38	ug/L		99
15) Carbon disulfide	2.679	76	41172	4.35	ug/L		99
16) Allyl chloride	2.816	41	20569	4.58	ug/L		95
17) Methyl acetate	2.800	43	14837	4.80	ug/L		93
18) Acetonitrile	2.816	41	20569	4.37	ug/L	#	93
19) Methylene chloride	2.947	49	23797	4.19	ug/L		91
20) t-Butanol	3.062	59	10134	32.58	ug/L	#	85
21) trans-1,2-Dichloroethene	3.246	61	20574	4.08	ug/L		95
22) Acrylonitrile	3.199	53	7494	4.94	ug/L		87
23) Methyl tert-butyl ether	3.246	73	41008	4.65	ug/L		88
24) Hexane	3.581	57	16271	5.58	ug/L		86
25) 1,1-Dichloroethane	3.786	63	25828	4.25	ug/L		97
26) Diisopropyl ether	3.854	45	46753	4.68	ug/L	#	96
27) Chloroprene	3.885	53	19473	4.49	ug/L	#	95
28) Vinyl acetate	3.801	86	2986	7.11	ug/L	#	57
29) Ethyl tert butyl ether	4.383	59	42256	4.74	ug/L		98
30) 2,2-Dichloropropane	4.614	77	20945	4.56	ug/L		97
31) cis-1,2-Dichloroethene	4.609	61	23322	4.24	ug/L		91
32) 2-Butanone	4.614	43	7836	3.38	ug/L		86
33) Ethyl Acetate	4.703	43	16143	4.77	ug/L		93
34) Methyl acrylate	4.761	55	14819	4.78	ug/L	#	90
35) Propionitrile	5.484	54	1084	2.77	ug/L	#	1
36) Bromochloromethane	4.976	49	14188	4.42	ug/L		89
37) Tetrahydrofuran	5.007	42	4959	4.90	ug/L		95
38) Methacrylonitrile	4.939	41	8517	3.74	ug/L		93

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY16.D
Acq On : 24 May 2018 2:42 pm
Operator : WH
Sample : 4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 4PPB
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 25 09:36:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	5.159	83	25141	3.94 ug/L		96
40) Cyclohexane	5.484	56	21531	4.35 ug/L		94
42) 1,1,1-Trichloroethane	5.385	97	19235	4.13 ug/L		99
44) Carbon tetrachloride	5.610	119	17674	4.59 ug/L		98
45) 1,1-Dichloropropene	5.626	75	18361	4.43 ug/L		97
47) 1,2-Dichloroethane	5.998	62	21253	4.47 ug/L		99
48) Benzene	5.899	78	49872	3.98 ug/L		96
49) Isobutyl Alcohol	6.061	43	29022	4.93 ug/L	#	93
50) Tertiaryamylmethylether	6.140	73	42947	5.41 ug/L		99
51) Heptane	6.371	43	12846	4.78 ug/L		94
52) Methylcyclohexane	7.099	83	17012	4.35 ug/L		93
53) Trichloroethene	6.816	130	13466	4.05 ug/L		98
54) n-Butanol	6.785	56	4604	77.94 ug/L	#	91
55) 1,2-Dichloropropane	7.147	63	15459	4.65 ug/L		99
56) Dibromomethane	7.246	93	11173	4.26 ug/L		93
57) 1,4-Dioxane	7.257	88	16895	630.47 ug/L	#	79
58) Methyl methacrylate	7.267	41	13674	4.86 ug/L		96
59) Bromodichloromethane	7.487	83	21140	4.58 ug/L		95
60) 2-Chloroethyl vinyl ether	7.854	43	7633	4.72 ug/L	#	94
61) 2-Nitropropane	7.755	43	5408	6.75 ug/L	#	95
62) cis-1,3-Dichloropropene	8.017	75	24131	4.73 ug/L		98
64) 4-Methyl-2-pentanone	8.206	43	16558	5.24 ug/L		99
66) Toluene	8.394	91	53542	4.40 ug/L		99
67) trans-1,3-Dichloropropene	8.688	75	22022	5.14 ug/L		88
68) Chloropicrin	8.693	117	709	No Calib	#	
69) Ethyl methacrylate	8.777	69	18417	4.94 ug/L		91
70) 1,1,2-Trichloroethane	8.903	97	13653	4.11 ug/L		95
71) Tetrachloroethene	8.971	166	13136	4.18 ug/L		95
72) 1,3-Dichloropropane	9.076	76	20654	4.36 ug/L		99
73) 2-Hexanone	9.155	43	11890	5.44 ug/L		88
74) Chlorodibromomethane	9.312	129	16521	4.60 ug/L		99
75) Butyl acetate	9.312	43	26531	5.34 ug/L		98
76) 1,2-Dibromoethane	9.427	107	15137	4.44 ug/L		99
77) Chlorobenzene	9.967	112	32168	4.00 ug/L		92
78) 1,1,1,2-Tetrachloroethane	10.077	131	12455	4.16 ug/L		93
79) Ethylbenzene	10.088	91	54160	4.22 ug/L		99
80) m/p-Xylene	10.229	91	85701	9.12 ug/L		98
81) Styrene	10.659	104	35366	4.72 ug/L		99
82) o-Xylene	10.633	91	45589	4.67 ug/L		100
83) Cyclohexanone	11.110	55	4667	25.76 ug/L	#	94
84) Bromoform	10.843	173	10843	4.63 ug/L		96
85) Isopropylbenzene	11.032	105	50347	4.62 ug/L		99
87) Bromobenzene	11.346	77	23329	4.35 ug/L		90
88) 1,1,2,2-Tetrachloroethane	11.367	83	20275	4.56 ug/L		97
89) 1,2,3-Trichloropropane	11.414	110	4718	4.83 ug/L		93
90) trans-1,4-Dichloro-2-b...	11.404	53	5144	5.34 ug/L		94
91) n-Propylbenzene	11.472	91	60148	4.34 ug/L		99
92) 2-Chlorotoluene	11.551	91	37351	4.50 ug/L		96
93) 4-Chlorotoluene	11.682	91	42407	4.40 ug/L		97
94) 1,3,5-Trimethylbenzene	11.666	105	37707	4.33 ug/L		98
95) tert-Butylbenzene	11.986	91	24864	4.85 ug/L		96
96) 1,2,4-Trimethylbenzene	12.054	105	44732	4.86 ug/L		99
97) sec-Butylbenzene	12.222	105	44924	4.25 ug/L		96
99) 1,3-Dichlorobenzene	12.332	146	24396	3.55 ug/L		96
100) p-Isopropyltoluene	12.384	119	40157	4.31 ug/L		96

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY16.D
Acq On : 24 May 2018 2:42 pm
Operator : WH
Sample : 4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 4PPB
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 25 09:36:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

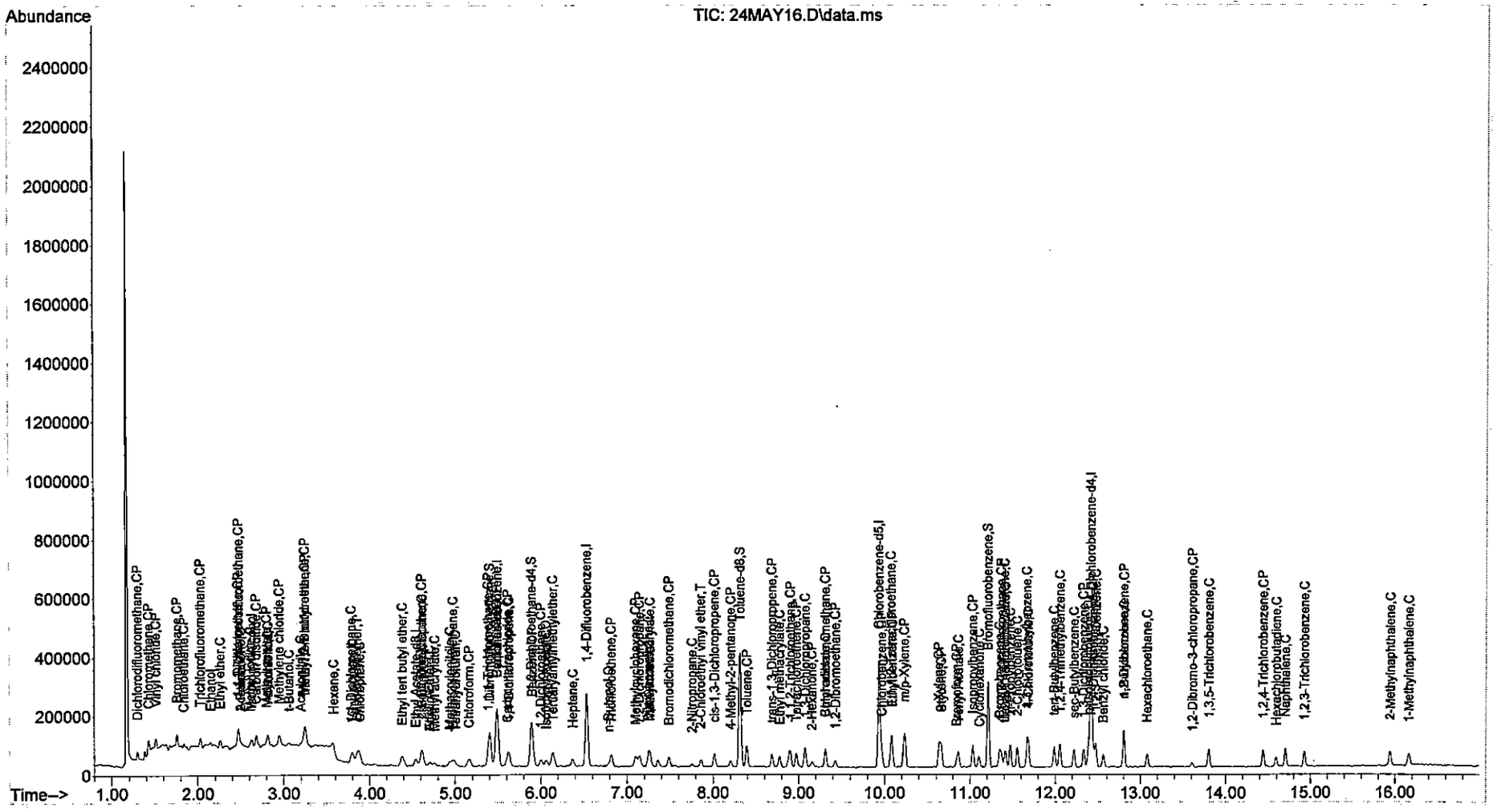
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	26399	3.76 ug/L	94
102) 1,2,3-Trimethylbenzene	12.473	105	45639	4.11 ug/L	98
103) Benzyl chloride	12.557	91	30376	5.39 ug/L	99
104) 1,2-Dichlorobenzene	12.804	146	25170	3.62 ug/L	97
105) n-Butylbenzene	12.804	91	39512	4.16 ug/L	97
106) Hexachloroethane	13.082	117	9904	4.45 ug/L	93
107) 1,2-Dibromo-3-chloropr...	13.611	157	3669	4.61 ug/L	88
108) 1,3,5-Trichlorobenzene	13.805	180	18433	3.73 ug/L	97
109) 1,2,4-Trichlorobenzene	14.440	180	16517	3.50 ug/L	93
110) Hexachlorobutadiene	14.592	225	5645	3.06 ug/L	93
111) Naphthalene	14.702	128	48117	3.87 ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	16207	3.43 ug/L	99
113) 2-Methylnaphthalene	15.939	142	27338	4.22 ug/L	100
114) 1-Methylnaphthalene	16.159	142	22541	3.82 ug/L	100
116) 2-Propanone	2.501	43	7938	5.84 ug/L	99
117) Isopropyl Alcohol	2.627	45	24272	95.55 ug/L #	89
118) Acetic Ether	4.703	43	16244	3.79 ug/L #	92
119) Isopropyl Acetate	6.056	61	6575	4.08 ug/L #	84
120) Amyl Acetate	10.864	43	28694	4.16 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY16.D
Acq On : 24 May 2018 2:42 pm
Operator : WH
Sample : 4PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 4PPB
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 25 09:36:42 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 3:03 pm
Operator : WH
Sample : 10PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 10PPB
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 25 09:36:46 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	143569	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	217753	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	199815	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	92077	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.535	46	32709	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	80562	19.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.25%				
46) 1,2-Dichloroethane-d4	5.888	65	91238	20.43	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.15%				
65) Toluene-d8	8.316	98	264237	21.97	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 109.85%				
86) Bromofluorobenzene	11.210	95	95346	20.61	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.05%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	40527	9.33	ug/L		97
3) Chloromethane	1.426	50	62592	9.92	ug/L		97
4) Vinyl chloride	1.510	62	45881	9.77	ug/L		94
5) Bromomethane	1.757	96	33769	10.54	ug/L		96
6) Chloroethane	1.835	64	26698	10.02	ug/L		96
7) Trichlorofluoromethane	2.035	101	53306	8.83	ug/L		96
8) Ethanol	2.155	45	29225	321.74	ug/L	#	100
9) Ethyl ether	2.260	59	24712	9.34	ug/L		98
10) Acrolein	2.375	56	9229	No Calib			
11) 1,1-Dichloroethene	2.470	61	48680	10.85	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.475	151	20334	9.03	ug/L		96
13) Methyl iodide	2.611	142	8731	8.29	ug/L		90
14) Acetone	2.501	43	14170	14.36	ug/L		94
15) Carbon disulfide	2.679	76	98786	10.96	ug/L		100
16) Allyl chloride	2.816	41	49949	11.68	ug/L		97
17) Methyl acetate	2.805	43	31661	10.91	ug/L	#	94
18) Acetonitrile	2.816	41	49949	11.16	ug/L		97
19) Methylene chloride	2.947	49	49201	8.82	ug/L		96
20) t-Butanol	3.062	59	22116	81.87	ug/L		96
21) trans-1,2-Dichloroethene	3.246	61	49878	10.40	ug/L		94
22) Acrylonitrile	3.199	53	15342	10.63	ug/L		98
23) Methyl tert-butyl ether	3.246	73	97728	11.65	ug/L		99
24) Hexane	3.581	57	29757	10.72	ug/L		86
25) 1,1-Dichloroethane	3.786	63	64035	11.08	ug/L		98
26) Diisopropyl ether	3.854	45	107454	11.30	ug/L	#	95
27) Chloroprene	3.885	53	45274	10.98	ug/L		98
28) Vinyl acetate	3.807	86	6060	15.35	ug/L		99
29) Ethyl tert butyl ether	4.383	59	110447	13.02	ug/L		99
30) 2,2-Dichloropropane	4.614	77	48470	11.08	ug/L		94
31) cis-1,2-Dichloroethene	4.609	61	56327	10.76	ug/L		92
32) 2-Butanone	4.614	43	19487	11.83	ug/L		95
33) Ethyl Acetate	4.703	43	39755	12.36	ug/L		98
34) Methyl acrylate	4.761	55	34795	11.79	ug/L		97
35) Propionitrile	5.484	54	3252	8.73	ug/L	#	10
36) Bromochloromethane	4.976	49	33296	10.91	ug/L		88
37) Tetrahydrofuran	5.007	42	11098	11.52	ug/L		95
38) Methacrylonitrile	4.939	41	24089	11.12	ug/L		95

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 3:03 pm
Operator : WH
Sample : 10PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 10PPB
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 25 09:36:46 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	5.165	83	64446	10.62	ug/L		97
40)	Cyclohexane	5.484	56	48287	11.34	ug/L		95
42)	1,1,1-Trichloroethane	5.385	97	47847	10.78	ug/L		100
44)	Carbon tetrachloride	5.610	119	42132	11.50	ug/L		98
45)	1,1-Dichloropropene	5.631	75	43468	11.00	ug/L		97
47)	1,2-Dichloroethane	5.998	62	51737	11.44	ug/L		99
48)	Benzene	5.899	78	125736	10.54	ug/L		99
49)	Isobutyl Alcohol	6.061	43	74180	13.22	ug/L	#	96
50)	Tertiaryamylmethylether	6.140	73	98570	13.03	ug/L		97
51)	Heptane	6.371	43	29108	11.37	ug/L		92
52)	Methylcyclohexane	7.099	83	41102	11.04	ug/L		95
53)	Trichloroethene	6.816	130	32590	10.29	ug/L		98
54)	n-Butanol	6.785	56	11370	202.15	ug/L		97
55)	1,2-Dichloropropane	7.147	63	36579	11.57	ug/L		95
56)	Dibromomethane	7.246	93	26619	10.65	ug/L		97
57)	1,4-Dioxane	7.257	88	44700	1751.84	ug/L		94
58)	Methyl methacrylate	7.267	41	34353	12.82	ug/L		91
59)	Bromodichloromethane	7.487	83	51654	11.76	ug/L		97
60)	2-Chloroethyl vinyl ether	7.860	43	17804	13.06	ug/L		97
61)	2-Nitropropane	7.749	43	12151	16.62	ug/L	#	97
62)	cis-1,3-Dichloropropene	8.017	75	56757	11.69	ug/L		99
64)	4-Methyl-2-pentanone	8.206	43	40200	12.84	ug/L		96
66)	Toluene	8.389	91	124879	10.34	ug/L		98
67)	trans-1,3-Dichloropropene	8.688	75	52355	12.31	ug/L		99
68)	Chloropicrin	8.693	117	4098	No Calib		#	
69)	Ethyl methacrylate	8.777	69	47555	12.87	ug/L		95
70)	1,1,2-Trichloroethane	8.903	97	33772	10.25	ug/L		98
71)	Tetrachloroethene	8.976	166	31849	10.21	ug/L		94
72)	1,3-Dichloropropane	9.076	76	51249	10.90	ug/L		99
73)	2-Hexanone	9.160	43	28739	13.26	ug/L		94
74)	Chlorodibromomethane	9.312	129	42217	11.86	ug/L		97
75)	Butyl acetate	9.312	43	64469	13.08	ug/L		99
76)	1,2-Dibromoethane	9.427	107	36271	10.73	ug/L		99
77)	Chlorobenzene	9.967	112	81727	10.25	ug/L		96
78)	1,1,1,2-Tetrachloroethane	10.077	131	31098	10.48	ug/L		98
79)	Ethylbenzene	10.088	91	129401	10.16	ug/L		100
80)	m/p-Xylene	10.229	91	211173	22.65	ug/L		99
81)	Styrene	10.659	104	82372	11.08	ug/L		96
82)	o-Xylene	10.638	91	101442	10.47	ug/L		99
83)	Cyclohexanone	11.110	55	9143	50.88	ug/L	#	93
84)	Bromoform	10.843	173	27233	11.73	ug/L		99
85)	Isopropylbenzene	11.032	105	127401	11.80	ug/L		98
87)	Bromobenzene	11.346	77	55239	10.38	ug/L		88
88)	1,1,2,2-Tetrachloroethane	11.367	83	48175	10.92	ug/L		99
89)	1,2,3-Trichloropropane	11.420	110	11302	11.67	ug/L		91
90)	trans-1,4-Dichloro-2-b...	11.404	53	13372	14.00	ug/L		93
91)	n-Propylbenzene	11.472	91	154631	11.24	ug/L		98
92)	2-Chlorotoluene	11.551	91	92680	11.25	ug/L		98
93)	4-Chlorotoluene	11.682	91	109508	11.45	ug/L		98
94)	1,3,5-Trimethylbenzene	11.666	105	99430	11.50	ug/L		99
95)	tert-Butylbenzene	11.986	91	53194	10.45	ug/L		97
96)	1,2,4-Trimethylbenzene	12.054	105	104813	11.49	ug/L		100
97)	sec-Butylbenzene	12.222	105	118809	11.34	ug/L		98
99)	1,3-Dichlorobenzene	12.332	146	63233	11.05	ug/L		97
100)	p-Isopropyltoluene	12.384	119	97572	12.57	ug/L		99

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 3:03 pm
Operator : WH
Sample : 10PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 10PPB
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 25 09:36:46 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

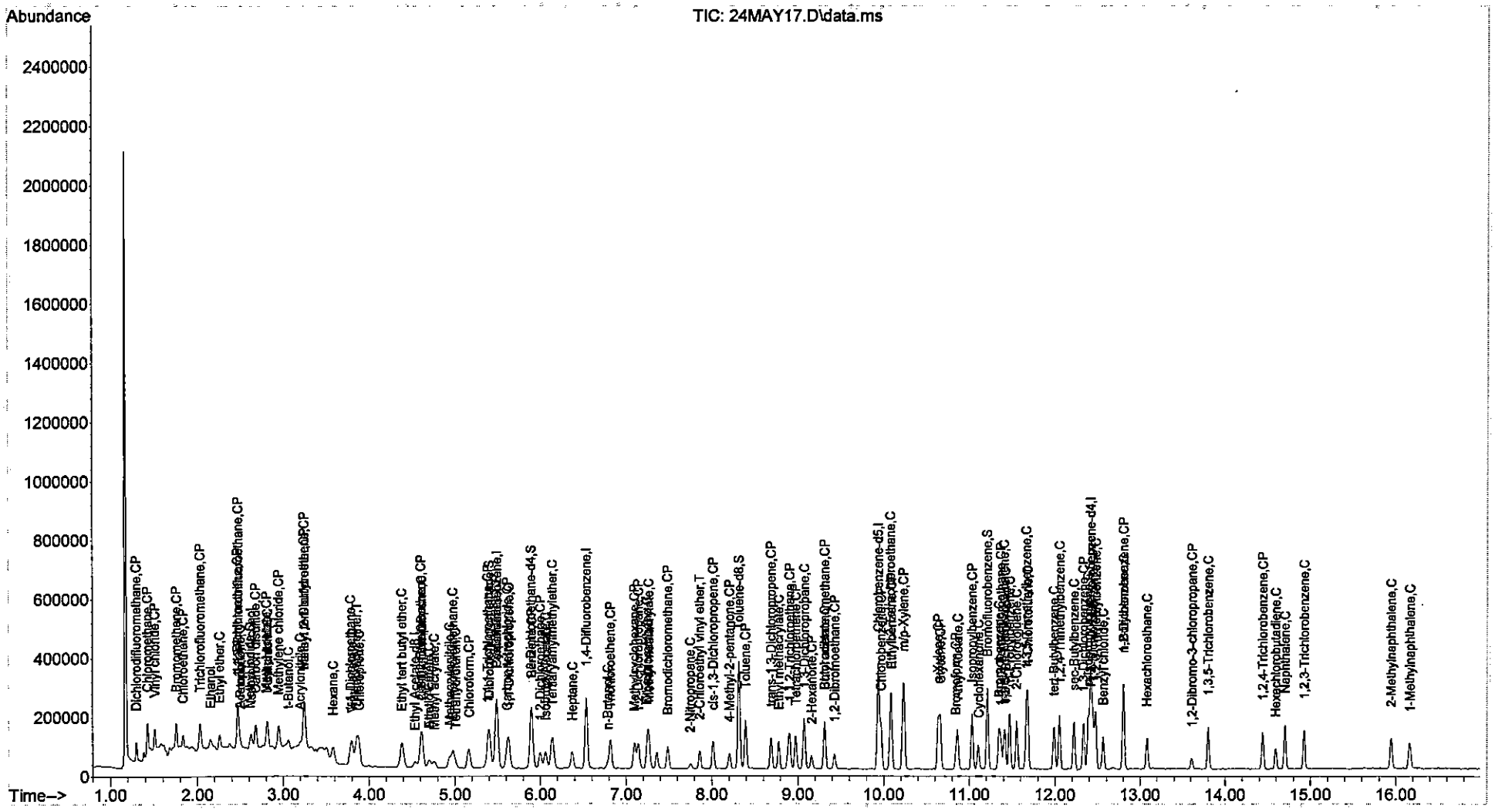
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	63988	10.95	ug/L	97
102) 1,2,3-Trimethylbenzene	12.473	105	112017	12.12	ug/L	98
103) Benzyl chloride	12.557	91	77930	16.61	ug/L	98
104) 1,2-Dichlorobenzene	12.804	146	59492	10.27	ug/L	97
105) n-Butylbenzene	12.804	91	89528	11.31	ug/L	97
106) Hexachloroethane	13.082	117	24459	13.18	ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	9259	13.96	ug/L	97
108) 1,3,5-Trichlorobenzene	13.800	180	43056	10.44	ug/L	98
109) 1,2,4-Trichlorobenzene	14.440	180	39173	9.95	ug/L	99
110) Hexachlorobutadiene	14.592	225	13703	8.92	ug/L	98
111) Naphthalene	14.702	128	116967	11.28	ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	40623	10.31	ug/L	99
113) 2-Methylnaphthalene	15.939	142	59588	11.92	ug/L	98
114) 1-Methylnaphthalene	16.165	142	50400	10.24	ug/L	92
116) 2-Propanone	2.501	43	14170	13.81	ug/L	94
117) Isopropyl Alcohol	2.627	45	54964	248.83	ug/L	99
118) Acetic Ether	4.703	43	39755	10.67	ug/L	98
119) Isopropyl Acetate	6.061	61	16142	11.51	ug/L	91
120) Amyl Acetate	10.864	43	71037	11.85	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 3:03 pm
Operator : WH
Sample : 10PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 10PPB
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 25 09:36:46 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 3:24 pm
Operator : WH
Sample : 40PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 09:36:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	148007	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	236661	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	216706	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	111810	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.541	46	34389	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	88193	19.18	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.90%				
46) 1,2-Dichloroethane-d4	5.888	65	98680	20.33	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.65%				
65) Toluene-d8	8.316	98	283255	21.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 108.55%				
86) Bromofluorobenzene	11.210	95	109406	21.80	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 109.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	144887	32.35	ug/L		99
3) Chloromethane	1.426	50	277147	42.60	ug/L		99
4) Vinyl chloride	1.510	62	188270	38.87	ug/L		99
5) Bromomethane	1.751	96	102549	34.17	ug/L		99
6) Chloroethane	1.835	64	100702	39.93	ug/L		99
7) Trichlorofluoromethane	2.029	101	202972	32.63	ug/L		100
8) Ethanol	2.155	45	113084	1217.15	ug/L	#	100
9) Ethyl ether	2.260	59	115914	42.51	ug/L		97
10) Acrolein	2.375	56	18751	No Calib			
11) 1,1-Dichloroethene	2.470	61	199755	43.18	ug/L		95
12) 1,1,2-Trichlorotrifluo...	2.475	151	81468	35.09	ug/L		96
13) Methyl iodide	2.611	142	31179	26.44	ug/L		95
14) Acetone	2.501	43	50381	50.93	ug/L		97
15) Carbon disulfide	2.679	76	406303	43.74	ug/L		99
16) Allyl chloride	2.816	41	212573	48.21	ug/L		95
17) Methyl acetate	2.800	43	120457	49.33	ug/L		97
18) Acetonitrile	2.816	41	212573	46.06	ug/L		96
19) Methylene chloride	2.947	49	203959	41.46	ug/L		97
20) t-Butanol	3.062	59	83753	351.62	ug/L		95
21) trans-1,2-Dichloroethene	3.246	61	201739	40.79	ug/L		96
22) Acrylonitrile	3.199	53	60656	40.76	ug/L		99
23) Methyl tert-butyl ether	3.246	73	394302	45.59	ug/L		98
24) Hexane	3.581	57	119200	41.65	ug/L		97
25) 1,1-Dichloroethane	3.786	63	268153	45.01	ug/L		98
26) Diisopropyl ether	3.854	45	438701	44.74	ug/L	#	95
27) Chloroprene	3.885	53	188505	44.34	ug/L		98
28) Vinyl acetate	3.801	86	22532	55.74	ug/L	#	82
29) Ethyl tert butyl ether	4.383	59	413448	47.28	ug/L		98
30) 2,2-Dichloropropane	4.614	77	193634	42.94	ug/L		94
31) cis-1,2-Dichloroethene	4.609	61	225105	41.73	ug/L		93
32) 2-Butanone	4.614	43	75572	49.61	ug/L		99
33) Ethyl Acetate	4.698	43	154524	46.60	ug/L		100
34) Methyl acrylate	4.756	55	138409	45.51	ug/L		99
35) Propionitrile	5.479	54	12088	31.47	ug/L	#	32
36) Bromochloromethane	4.976	49	131638	41.85	ug/L		87
37) Tetrahydrofuran	5.007	42	43137	43.44	ug/L		94
38) Methacrylonitrile	4.939	41	102458	45.87	ug/L		94

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 3:24 pm
Operator : WH
Sample : 40PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 09:36:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.159	83	255440	40.82 ug/L	98
40) Cyclohexane	5.479	56	184293	45.49 ug/L	94
42) 1,1,1-Trichloroethane	5.385	97	205678	42.65 ug/L	99
44) Carbon tetrachloride	5.610	119	175941	44.17 ug/L	99
45) 1,1-Dichloropropene	5.626	75	175791	40.94 ug/L	97
47) 1,2-Dichloroethane	5.998	62	201066	40.90 ug/L	99
48) Benzene	5.904	78	512665	39.52 ug/L	99
49) Isobutyl Alcohol	6.061	43	296608	48.65 ug/L #	95
50) Tertiaryamylmethylether	6.135	73	388140	47.22 ug/L	97
51) Heptane	6.371	43	116279	41.79 ug/L	93
52) Methylcyclohexane	7.099	83	168351	41.61 ug/L	96
53) Trichloroethene	6.816	130	135492	39.36 ug/L	99
54) n-Butanol	6.785	56	43176	706.30 ug/L	95
55) 1,2-Dichloropropane	7.147	63	147031	42.78 ug/L	95
56) Dibromomethane	7.246	93	111014	40.87 ug/L	99
57) 1,4-Dioxane	7.257	88	182766	6590.51 ug/L	95
58) Methyl methacrylate	7.267	41	142560	48.93 ug/L	93
59) Bromodichloromethane	7.487	83	215633	45.18 ug/L	100
60) 2-Chloroethyl vinyl ether	7.860	43	70928	50.37 ug/L	97
61) 2-Nitropropane	7.749	43	51695	65.64 ug/L	95
62) cis-1,3-Dichloropropene	8.017	75	241527	45.76 ug/L	99
64) 4-Methyl-2-pentanone	8.206	43	155868	45.89 ug/L	100
66) Toluene	8.394	91	531550	40.58 ug/L	100
67) trans-1,3-Dichloropropene	8.688	75	223963	48.56 ug/L	99
68) Chloropicrin	8.693	117	32745	No Calib	
69) Ethyl methacrylate	8.777	69	180656	45.07 ug/L	95
70) 1,1,2-Trichloroethane	8.903	97	134072	37.51 ug/L	99
71) Tetrachloroethene	8.971	166	129174	38.17 ug/L	95
72) 1,3-Dichloropropane	9.076	76	216205	42.41 ug/L	100
73) 2-Hexanone	9.160	43	113189	48.17 ug/L	98
74) Chlorodibromomethane	9.312	129	174808	45.27 ug/L	99
75) Butyl acetate	9.312	43	259853	48.63 ug/L	99
76) 1,2-Dibromoethane	9.427	107	153148	41.79 ug/L	99
77) Chlorobenzene	9.967	112	325949	37.70 ug/L	97
78) 1,1,1,2-Tetrachloroethane	10.077	131	131175	40.75 ug/L	98
79) Ethylbenzene	10.088	91	565077	40.92 ug/L	100
80) m/p-Xylene	10.229	91	910243	90.01 ug/L	100
81) Styrene	10.659	104	352795	43.77 ug/L	97
82) o-Xylene	10.633	91	448641	42.69 ug/L	99
83) Cyclohexanone	11.110	55	40504	207.83 ug/L	97
84) Bromoform	10.843	173	112969	44.86 ug/L	98
85) Isopropylbenzene	11.032	105	522569	44.62 ug/L	99
87) Bromobenzene	11.346	77	231642	40.13 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	194349	40.60 ug/L	99
89) 1,2,3-Trichloropropane	11.420	110	44290	42.18 ug/L	92
90) trans-1,4-Dichloro-2-b...	11.404	53	50933	49.17 ug/L	91
91) n-Propylbenzene	11.472	91	612284	41.04 ug/L	99
92) 2-Chlorotoluene	11.551	91	377365	42.23 ug/L	97
93) 4-Chlorotoluene	11.682	91	419546	40.45 ug/L	97
94) 1,3,5-Trimethylbenzene	11.666	105	412518	44.00 ug/L	98
95) tert-Butylbenzene	11.986	91	242070	43.86 ug/L	98
96) 1,2,4-Trimethylbenzene	12.054	105	426974	43.16 ug/L	100
97) sec-Butylbenzene	12.222	105	504868	44.42 ug/L	99
99) 1,3-Dichlorobenzene	12.332	146	270097	38.87 ug/L	98
100) p-Isopropyltoluene	12.384	119	420790	44.63 ug/L	99

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 3:24 pm
Operator : WH
Sample : 40PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 09:36:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

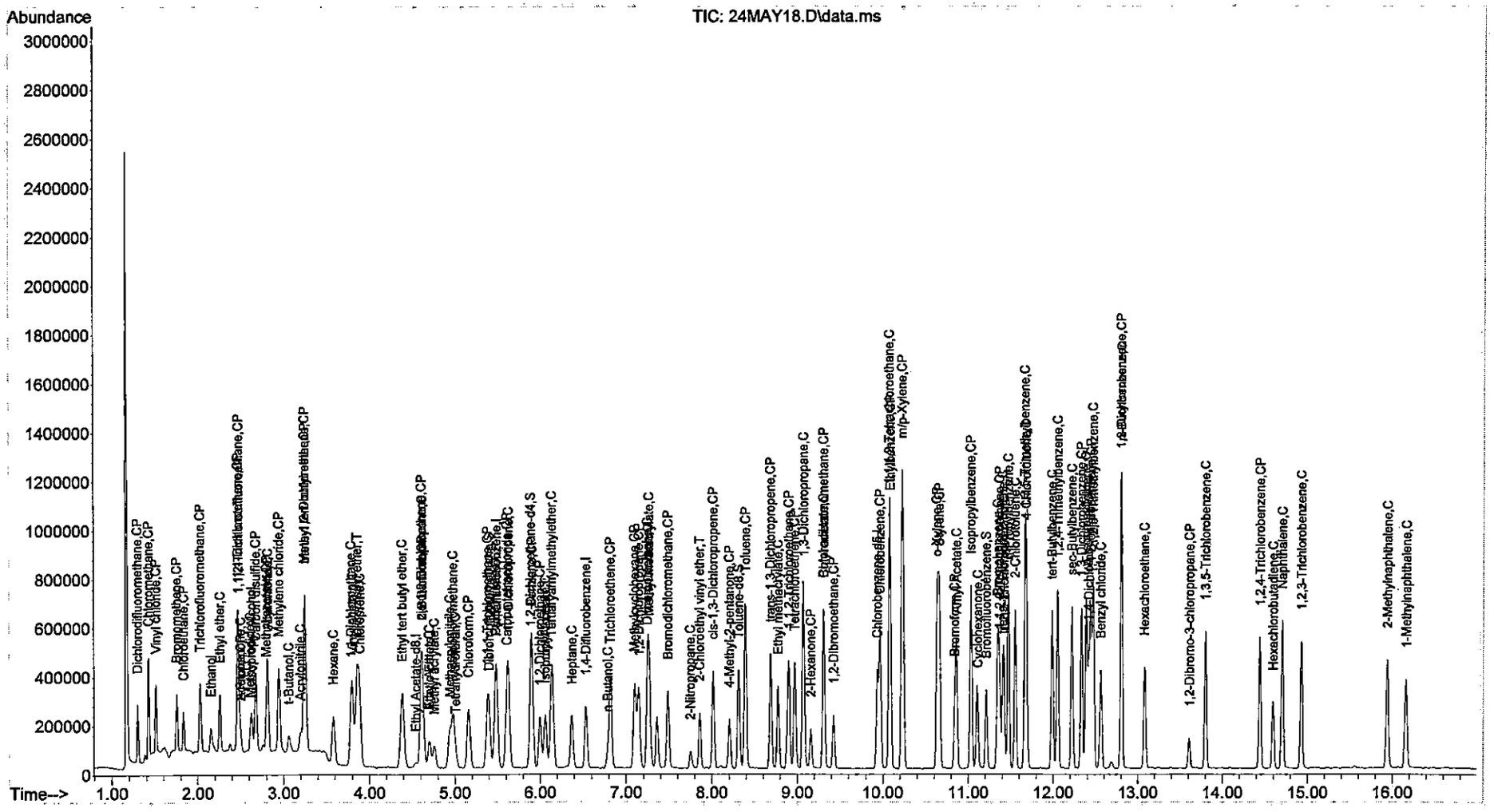
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	264637	37.29	ug/L	98
102) 1,2,3-Trimethylbenzene	12.468	105	454523	40.48	ug/L	100
103) Benzyl chloride	12.557	91	309202	54.27	ug/L	98
104) 1,2-Dichlorobenzene	12.799	146	258146	36.69	ug/L	98
105) n-Butylbenzene	12.804	91	391841	40.75	ug/L	98
106) Hexachloroethane	13.082	117	101087	44.86	ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	35194	43.69	ug/L	93
108) 1,3,5-Trichlorobenzene	13.800	180	174564	34.87	ug/L	99
109) 1,2,4-Trichlorobenzene	14.440	180	168478	35.24	ug/L	98
110) Hexachlorobutadiene	14.592	225	55635	29.82	ug/L	99
111) Naphthalene	14.702	128	486260	38.63	ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	167456	35.01	ug/L	100
113) 2-Methylnaphthalene	15.939	142	259135	41.43	ug/L	100
114) 1-Methylnaphthalene	16.165	142	212560	35.58	ug/L	99
116) 2-Propanone	2.501	43	50381	46.11	ug/L	97
117) Isopropyl Alcohol	2.627	45	209025	900.06	ug/L	94
118) Acetic Ether	4.698	43	155253	39.64	ug/L	99
119) Isopropyl Acetate	6.061	61	61739	41.89	ug/L	97
120) Amyl Acetate	10.864	43	276205	43.82	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 3:24 pm
Operator : WH
Sample : 40PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 25 09:36:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY19.D
Acq On : 24 May 2018 3:45 pm
Operator : WH
Sample : 70PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 70PPB
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 09:36:52 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	142929	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	220239	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	204617	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	104685	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.541	46	34498	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	84261	19.69	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.45%				
46) 1,2-Dichloroethane-d4	5.888	65	94965	21.02	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 105.10%				
65) Toluene-d8	8.316	98	264247	21.45	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 107.25%				
86) Bromofluorobenzene	11.210	95	106749	22.53	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 112.65%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	260410	60.20	ug/L		100
3) Chloromethane	1.421	50	501907	79.89	ug/L		99
4) Vinyl chloride	1.510	62	304476	65.10	ug/L		97
5) Bromomethane	1.746	96	169959	62.68	ug/L		98
6) Chloroethane	1.830	64	164326	72.82	ug/L		98
7) Trichlorofluoromethane	2.029	101	324950	54.09	ug/L		99
8) Ethanol	2.160	45	190016	2120.41	ug/L	#	100
9) Ethyl ether	2.260	59	181836	69.06	ug/L		96
10) Acrolein	2.375	56	40420	No Calib			
11) 1,1-Dichloroethene	2.465	61	311280	69.67	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.475	151	133760	59.66	ug/L		99
13) Methyl iodide	2.611	142	61381	50.15	ug/L		99
14) Acetone	2.501	43	82913	87.20	ug/L		97
15) Carbon disulfide	2.680	76	681073	75.93	ug/L		100
16) Allyl chloride	2.816	41	362844	85.22	ug/L		95
17) Methyl acetate	2.800	43	222799	Below Cal			97
18) Acetonitrile	2.816	41	362844	81.42	ug/L		96
19) Methylene chloride	2.947	49	342952	Below Cal			97
20) t-Butanol	3.068	59	147866	835.31	ug/L		95
21) trans-1,2-Dichloroethene	3.246	61	336164	70.38	ug/L		97
22) Acrylonitrile	3.199	53	106038	73.79	ug/L		94
23) Methyl tert-butyl ether	3.246	73	680578	81.49	ug/L		99
24) Hexane	3.581	57	216433	78.32	ug/L		97
25) 1,1-Dichloroethane	3.786	63	441015	76.66	ug/L		97
26) Diisopropyl ether	3.854	45	759621	80.23	ug/L	#	95
27) Chloroprene	3.885	53	319273	77.77	ug/L		97
28) Vinyl acetate	3.807	86	39469	101.23	ug/L	#	88
29) Ethyl tert butyl ether	4.384	59	721430	85.44	ug/L		99
30) 2,2-Dichloropropane	4.614	77	326201	74.91	ug/L		95
31) cis-1,2-Dichloroethene	4.609	61	382767	73.47	ug/L		92
32) 2-Butanone	4.614	43	130943	90.47	ug/L		98
33) Ethyl Acetate	4.698	43	277215	86.57	ug/L		99
34) Methyl acrylate	4.761	55	234593	79.88	ug/L		99
35) Propionitrile	5.479	54	21365	57.59	ug/L	#	47
36) Bromochloromethane	4.976	49	224669	73.97	ug/L		89
37) Tetrahydrofuran	5.007	42	76531	79.80	ug/L		94
38) Methacrylonitrile	4.939	41	170416	79.01	ug/L		96

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY19.D
Acq On : 24 May 2018 3:45 pm
Operator : WH
Sample : 70PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 70PPB
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 09:36:52 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.165	83	432450	71.57 ug/L	99
40) Cyclohexane	5.485	56	316427	84.65 ug/L	95
42) 1,1,1-Trichloroethane	5.385	97	348082	77.57 ug/L	99
44) Carbon tetrachloride	5.610	119	308140	83.13 ug/L	98
45) 1,1-Dichloropropene	5.626	75	312506	78.21 ug/L	97
47) 1,2-Dichloroethane	5.998	62	346185	75.66 ug/L	99
48) Benzene	5.904	78	876404	72.60 ug/L	99
49) Isobutyl Alcohol	6.061	43	505294	89.06 ug/L #	95
50) Tertiaryamylmethylether	6.140	73	667760	87.30 ug/L	97
51) Heptane	6.371	43	203252	78.50 ug/L	92
52) Methylcyclohexane	7.105	83	284527	75.56 ug/L	96
53) Trichloroethene	6.816	130	230203	71.85 ug/L	99
54) n-Butanol	6.790	56	73460	1291.31 ug/L	95
55) 1,2-Dichloropropane	7.147	63	254327	79.51 ug/L	97
56) Dibromomethane	7.246	93	182555	72.22 ug/L	99
57) 1,4-Dioxane	7.262	88	307253	11905.63 ug/L	93
58) Methyl methacrylate	7.267	41	244974	90.36 ug/L	92
59) Bromodichloromethane	7.487	83	356183	80.19 ug/L	100
60) 2-Chloroethyl vinyl ether	7.860	43	120332	92.12 ug/L	98
61) 2-Nitropropane	7.755	43	86778	117.03 ug/L	95
62) cis-1,3-Dichloropropene	8.017	75	420478	85.60 ug/L	99
64) 4-Methyl-2-pentanone	8.206	43	275880	86.02 ug/L	99
66) Toluene	8.389	91	921084	74.47 ug/L	99
67) trans-1,3-Dichloropropene	8.688	75	393221	90.29 ug/L	96
68) Chloropicrin	8.693	117	207462	No Calib	
69) Ethyl methacrylate	8.777	69	332521	87.87 ug/L	96
70) 1,1,2-Trichloroethane	8.903	97	233230	69.11 ug/L	99
71) Tetrachloroethene	8.971	166	227306	71.14 ug/L	97
72) 1,3-Dichloropropane	9.076	76	356222	74.00 ug/L	100
73) 2-Hexanone	9.160	43	198357	89.41 ug/L	97
74) Chlorodibromomethane	9.312	129	302139	82.87 ug/L	98
75) Butyl acetate	9.312	43	455862	90.34 ug/L	98
76) 1,2-Dibromoethane	9.427	107	247253	71.45 ug/L	97
77) Chlorobenzene	9.967	112	593537	72.70 ug/L	98
78) 1,1,1,2-Tetrachloroethane	10.078	131	221905	73.00 ug/L	97
79) Ethylbenzene	10.088	91	955388	73.28 ug/L	100
80) m/p-Xylene	10.230	91	1435028	150.29 ug/L	99
81) Styrene	10.659	104	584204	76.77 ug/L	97
82) o-Xylene	10.633	91	778326	78.45 ug/L	100
83) Cyclohexanone	11.110	55	69466	377.50 ug/L	98
84) Bromoform	10.843	173	194290	81.70 ug/L	98
85) Isopropylbenzene	11.032	105	859671	77.74 ug/L	99
87) Bromobenzene	11.346	77	391575	71.85 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	340161	75.26 ug/L	97
89) 1,2,3-Trichloropropane	11.414	110	75166	75.81 ug/L	91
90) trans-1,4-Dichloro-2-b...	11.404	53	90901	92.94 ug/L	89
91) n-Propylbenzene	11.472	91	1042803	74.03 ug/L	99
92) 2-Chlorotoluene	11.551	91	654230	77.55 ug/L	97
93) 4-Chlorotoluene	11.682	91	754013	76.99 ug/L	97
94) 1,3,5-Trimethylbenzene	11.666	105	716826	80.98 ug/L	99
95) tert-Butylbenzene	11.986	91	410553	78.78 ug/L	98
96) 1,2,4-Trimethylbenzene	12.054	105	710552	76.06 ug/L	100
97) sec-Butylbenzene	12.222	105	847878	79.00 ug/L	99
99) 1,3-Dichlorobenzene	12.332	146	449923	69.16 ug/L	98
100) p-Isopropyltoluene	12.384	119	689034	78.05 ug/L	99

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY19.D
Acq On : 24 May 2018 3:45 pm
Operator : WH
Sample : 70PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 70PPB
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 09:36:52 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Titl e : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

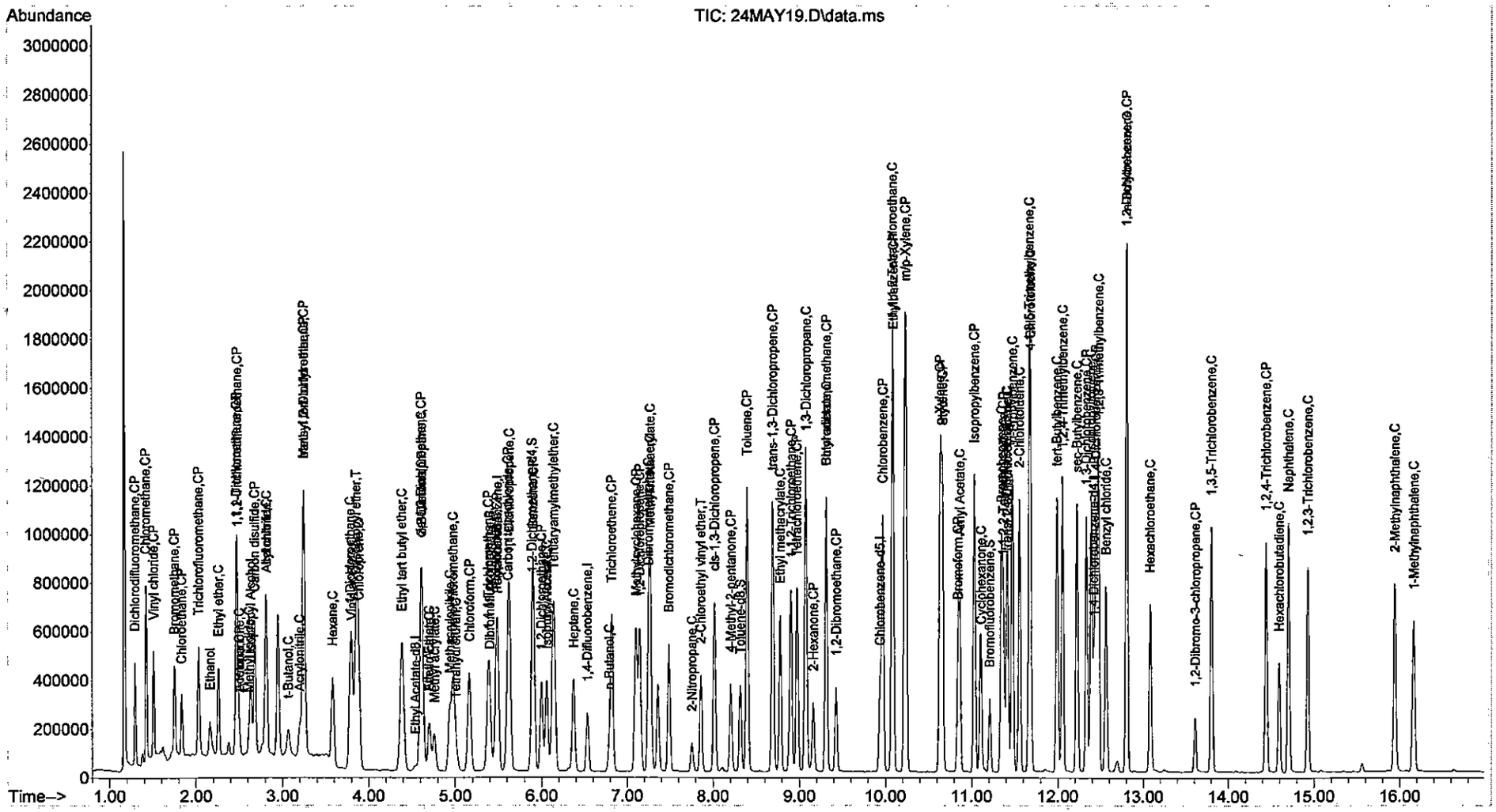
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	436677	65.71	ug/L	98
102) 1,2,3-Trimethylbenzene	12.474	105	802771	76.37	ug/L	100
103) Benzyl chloride	12.557	91	568738	106.61	ug/L	99
104) 1,2-Dichlorobenzene	12.799	146	462171	70.17	ug/L	97
105) n-Butylbenzene	12.804	91	696650	77.38	ug/L	98
106) Hexachloroethane	13.082	117	171202	81.15	ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	63971	84.81	ug/L	94
108) 1,3,5-Trichlorobenzene	13.800	180	310156	66.18	ug/L	99
109) 1,2,4-Trichlorobenzene	14.440	180	299856	67.00	ug/L	100
110) Hexachlorobutadiene	14.592	225	93044	53.26	ug/L	99
111) Naphthalene	14.702	128	816417	69.28	ug/L	100
112) 1,2,3-Trichlorobenzene	14.927	180	272236	60.79	ug/L	100
113) 2-Methylnaphthalene	15.939	142	445971	71.69	ug/L	100
114) 1-Methylnaphthalene	16.165	142	364649	65.19	ug/L	98
116) 2-Propanone	2.501	43	82769	70.89	ug/L	97
117) Isopropyl Alcohol	2.632	45	375158	1610.32	ug/L	94
118) Acetic Ether	4.698	43	278384	70.86	ug/L	99
119) Isopropyl Acetate	6.061	61	103523	70.02	ug/L	96
120) Amyl Acetate	10.864	43	478663	75.71	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY19.D
Acq On : 24 May 2018 3:45 pm
Operator : WH
Sample : 70PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 70PPB
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 25 09:36:52 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY20.D
Acq On : 24 May 2018 4:06 pm
Operator : WH
Sample : 100PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 100PPB
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 09:36:54 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	140613	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	224973	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	197635	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	99265	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	4.541	46	34354	20.00	ug/L		0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	80848	18.50	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 92.50%				
46) 1,2-Dichloroethane-d4	5.888	65	86543	18.76	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.80%				
65) Toluene-d8	8.316	98	260602	21.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 109.50%				
86) Bromofluorobenzene	11.210	95	99390	21.72	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 108.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	375663	88.28	ug/L		99
3) Chloromethane	1.421	50	685733	110.95	ug/L		99
4) Vinyl chloride	1.510	62	453968	98.66	ug/L		99
5) Bromomethane	1.746	96	258160	106.71	ug/L		99
6) Chloroethane	1.830	64	233188	117.12	ug/L		100
7) Trichlorofluoromethane	2.029	101	495814	83.90	ug/L		100
8) Ethanol	2.166	45	267607	3036.93	ug/L	#	100
9) Ethyl ether	2.260	59	259039	100.00	ug/L		97
10) Acrolein	2.376	56	76025	No Calib			
11) 1,1-Dichloroethene	2.465	61	483320	109.96	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.470	151	201645	91.42	ug/L		98
13) Methyl iodide	2.611	142	106599	81.41	ug/L		95
14) Acetone	2.501	43	117407	125.77	ug/L		96
15) Carbon disulfide	2.680	76	977376	110.75	ug/L		99
16) Allyl chloride	2.811	41	535415	127.82	ug/L		94
17) Methyl acetate	2.805	43	325843	Below Cal			97
18) Acetonitrile	2.811	41	535415	122.12	ug/L		95
19) Methylene chloride	2.947	49	469893	Below Cal			97
20) t-Butanol	3.068	59	204330	Below Cal			95
21) trans-1,2-Dichloroethene	3.246	61	474906	101.07	ug/L		96
22) Acrylonitrile	3.193	53	143913	101.80	ug/L		96
23) Methyl tert-butyl ether	3.246	73	954494	116.18	ug/L		100
24) Hexane	3.581	57	303943	111.79	ug/L		97
25) 1,1-Dichloroethane	3.786	63	638155	112.75	ug/L		98
26) Diisopropyl ether	3.854	45	1092229	117.26	ug/L	#	95
27) Chloroprene	3.886	53	460007	113.89	ug/L		97
28) Vinyl acetate	3.802	86	54514	142.18	ug/L	#	87
29) Ethyl tert butyl ether	4.384	59	1042210	125.46	ug/L		99
30) 2,2-Dichloropropane	4.614	77	469398	109.56	ug/L		94
31) cis-1,2-Dichloroethene	4.609	61	560559	109.38	ug/L		92
32) 2-Butanone	4.614	43	193841	137.07	ug/L		99
33) Ethyl Acetate	4.698	43	401924	127.58	ug/L		98
34) Methyl acrylate	4.761	55	330656	114.44	ug/L		99
35) Propionitrile	5.479	54	30533	83.66	ug/L	#	49
36) Bromochloromethane	4.976	49	305268	102.16	ug/L		88
37) Tetrahydrofuran	5.008	42	105450	111.77	ug/L		96
38) Methacrylonitrile	4.939	41	241083	113.62	ug/L		93

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY20.D
Acq On : 24 May 2018 4:06 pm
Operator : WH
Sample : 100PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 100PPB
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 09:36:54 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.160	83	643579	108.26 ug/L	98
40) Cyclohexane	5.479	56	444880	126.58 ug/L	94
42) 1,1,1-Trichloroethane	5.385	97	486017	106.02 ug/L	99
44) Carbon tetrachloride	5.610	119	440401	116.31 ug/L	98
45) 1,1-Dichloropropene	5.626	75	444326	108.86 ug/L	97
47) 1,2-Dichloroethane	5.998	62	492061	105.28 ug/L	99
48) Benzene	5.904	78	1225816	99.41 ug/L	99
49) Isobutyl Alcohol	6.061	43	725815	125.24 ug/L #	94
50) Tertiaryamylmethylether	6.135	73	957503	122.55 ug/L	97
51) Heptane	6.371	43	287443	108.67 ug/L	92
52) Methylcyclohexane	7.099	83	411772	107.05 ug/L	96
53) Trichloroethene	6.816	130	320264	97.86 ug/L	98
54) n-Butanol	6.790	56	106878	1839.21 ug/L	92
55) 1,2-Dichloropropane	7.147	63	368137	112.67 ug/L	96
56) Dibromomethane	7.246	93	263468	102.04 ug/L	98
57) 1,4-Dioxane	7.262	88	427829	16228.94 ug/L	96
58) Methyl methacrylate	7.267	41	335327	121.08 ug/L	91
59) Bromodichloromethane	7.487	83	500119	110.23 ug/L	100
60) 2-Chloroethyl vinyl ether	7.860	43	165426	123.76 ug/L	95
61) 2-Nitropropane	7.755	43	122295	159.66 ug/L	95
62) cis-1,3-Dichloropropene	8.017	75	586713	116.93 ug/L	100
64) 4-Methyl-2-pentanone	8.206	43	395433	127.66 ug/L	99
66) Toluene	8.395	91	1229343	102.91 ug/L	99
67) trans-1,3-Dichloropropene	8.688	75	554409	131.80 ug/L	96
68) Chloropicrin	8.693	117	599099	No Calib	
69) Ethyl methacrylate	8.777	69	452762	123.87 ug/L	96
70) 1,1,2-Trichloroethane	8.903	97	331935	101.83 ug/L	99
71) Tetrachloroethene	8.971	166	316473	102.55 ug/L	95
72) 1,3-Dichloropropane	9.076	76	504381	108.48 ug/L	99
73) 2-Hexanone	9.160	43	263936	123.17 ug/L	97
74) Chlorodibromomethane	9.312	129	404009	114.72 ug/L	98
75) Butyl acetate	9.312	43	610490	125.26 ug/L	98
76) 1,2-Dibromoethane	9.427	107	342852	102.57 ug/L	97
77) Chlorobenzene	9.967	112	811853	102.96 ug/L	98
78) 1,1,1,2-Tetrachloroethane	10.078	131	325271	110.79 ug/L	98
79) Ethylbenzene	10.088	91	1405025	111.58 ug/L	100
80) m/p-Xylene	10.230	91	2055665	222.90 ug/L	99
81) Styrene	10.660	104	810322	110.24 ug/L	96
82) o-Xylene	10.633	91	1125678	117.46 ug/L	100
83) Cyclohexanone	11.110	55	98367	553.44 ug/L	97
84) Bromoform	10.843	173	286011	124.52 ug/L	98
85) Isopropylbenzene	11.032	105	1192135	111.61 ug/L	98
87) Bromobenzene	11.346	77	546298	103.77 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	455451	104.33 ug/L	98
89) 1,2,3-Trichloropropane	11.415	110	104071	108.67 ug/L	92
90) trans-1,4-Dichloro-2-b...	11.404	53	121514	128.63 ug/L	90
91) n-Propylbenzene	11.472	91	1527651	112.28 ug/L	99
92) 2-Chlorotoluene	11.551	91	930211	114.15 ug/L	97
93) 4-Chlorotoluene	11.682	91	1049632	110.97 ug/L	96
94) 1,3,5-Trimethylbenzene	11.666	105	997283	116.64 ug/L	99
95) tert-Butylbenzene	11.986	91	579917	115.21 ug/L	98
96) 1,2,4-Trimethylbenzene	12.049	105	1073631	118.99 ug/L	100
97) sec-Butylbenzene	12.222	105	1228875	118.54 ug/L	98
99) 1,3-Dichlorobenzene	12.332	146	654148	106.04 ug/L	98
100) p-Isopropyltoluene	12.384	119	1002457	119.75 ug/L	99

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY20.D
Acq On : 24 May 2018 4:06 pm
Operator : WH
Sample : 100PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 100PPB
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 09:36:54 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration

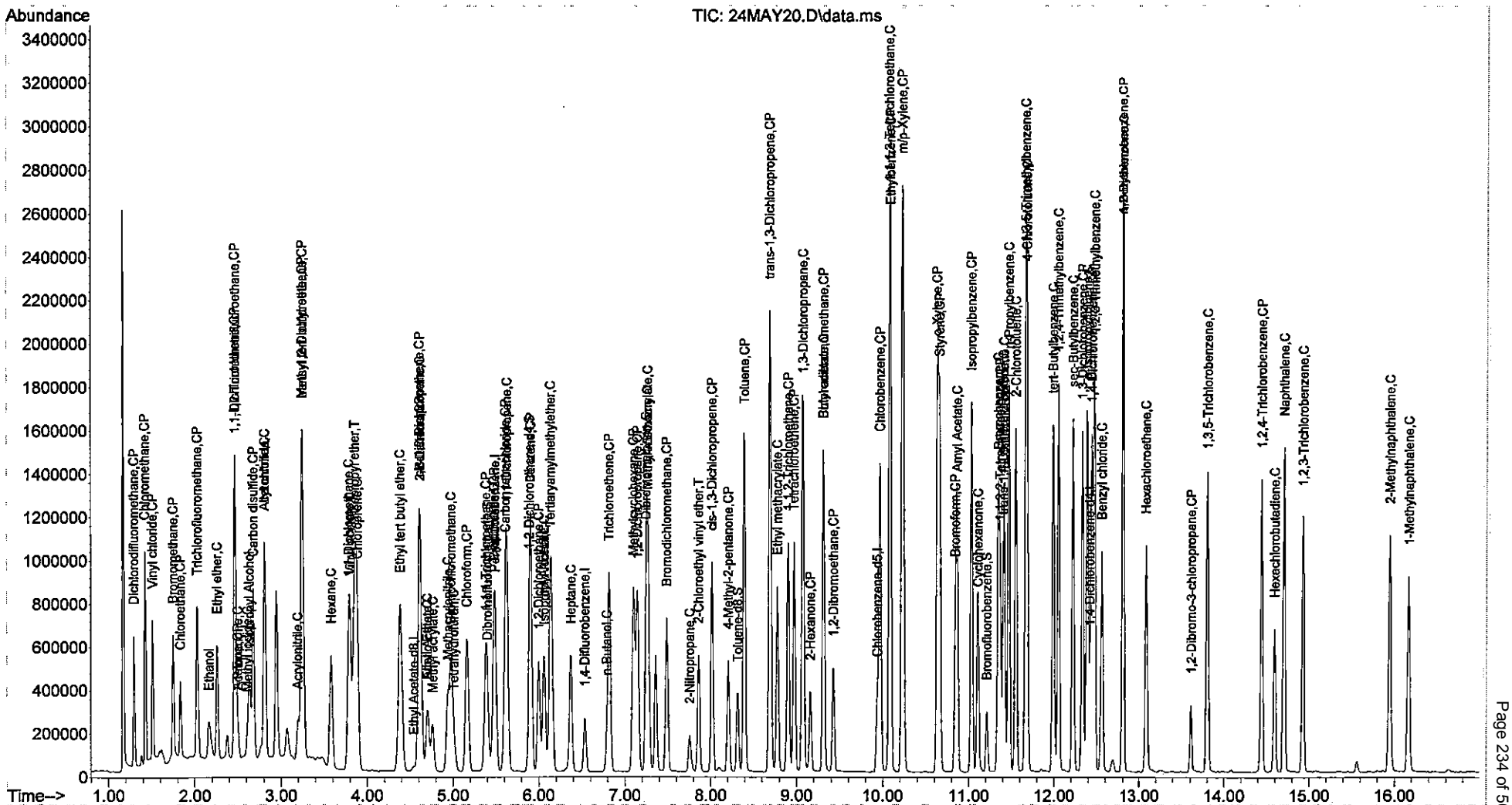
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	637531	101.18	ug/L	98
102) 1,2,3-Trimethylbenzene	12.474	105	1141704	114.54	ug/L	100
103) Benzyl chloride	12.557	91	767301	151.68	ug/L	99
104) 1,2-Dichlorobenzene	12.799	146	605549	96.96	ug/L	98
105) n-Butylbenzene	12.804	91	926797	108.57	ug/L	98
106) Hexachloroethane	13.082	117	252641	126.29	ug/L	95
107) 1,2-Dibromo-3-chloropr...	13.611	157	88480	123.71	ug/L	96
108) 1,3,5-Trichlorobenzene	13.805	180	436959	98.32	ug/L	99
109) 1,2,4-Trichlorobenzene	14.440	180	421383	99.29	ug/L	99
110) Hexachlorobutadiene	14.592	225	134874	81.43	ug/L	99
111) Naphthalene	14.702	128	1191202	106.60	ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	388036	91.38	ug/L	99
113) 2-Methylnaphthalene	15.939	142	625341	100.17	ug/L	100
114) 1-Methylnaphthalene	16.165	142	530606	100.03	ug/L	100
116) 2-Propanone	2.501	43	117284	94.70	ug/L	96
117) Isopropyl Alcohol	2.632	45	520338	2242.85	ug/L	96
118) Acetic Ether	4.698	43	403489	103.14	ug/L	99
119) Isopropyl Acetate	6.061	61	149063	101.24	ug/L	96
120) Amyl Acetate	10.864	43	694801	110.35	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY20.D
Acq On : 24 May 2018 4:06 pm
Operator : WH
Sample : 100PPB
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 100PPB
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 25 09:36:54 2018
Quant Method : C:\msdchem\1\METHODS\7AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:02:43 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	140584	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	219077	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	201140	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	102773	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.541	46	33350	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	86967	21.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 106.50%				
46) 1,2-Dichloroethane-d4	5.888	65	92728	20.38	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.90%				
65) Toluene-d8	8.316	98	265301	19.95	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.75%				
86) Bromofluorobenzene	11.210	95	100366	19.70	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	133035	34.53	ug/L		100
3) Chloromethane	1.427	50	184315	27.98	ug/L		99
4) Vinyl chloride	1.510	62	169757	39.75	ug/L		99
5) Bromomethane	1.752	96	117614	44.81	ug/L		100
6) Chloroethane	1.835	64	93114	34.07	ug/L		98
7) Trichlorofluoromethane	2.035	101	163852	32.34	ug/L		99
8) Ethanol	2.150	45	88967	598.90	ug/L	#	100
9) Ethyl ether	2.260	59	110916	44.55	ug/L		97
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.470	61	200169	41.74	ug/L		95
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.606	142	136681	117.71	ug/L		96
14) Acetone	2.501	43	44313	37.11	ug/L		97
15) Carbon disulfide	2.680	76	429142	42.49	ug/L		100
16) Allyl chloride	2.816	41	183487	34.76	ug/L		97
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.816	41	183487	35.21	ug/L		97
19) Methylene chloride	2.947	49	189153	38.76	ug/L		96
20) t-Butanol	3.062	59	74455	170.86	ug/L		92
21) trans-1,2-Dichloroethene	3.246	61	198113	39.61	ug/L		97
22) Acrylonitrile	3.193	53	61350	37.50	ug/L		94
23) Methyl tert-butyl ether	3.246	73	391293	40.64	ug/L		98
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.786	63	249286	40.43	ug/L		98
26) Diisopropyl ether	3.854	45	399171	38.26	ug/L	#	93
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.384	59	389342	39.14	ug/L		98
30) 2,2-Dichloropropane	4.614	77	174214	36.27	ug/L		97
31) cis-1,2-Dichloroethene	4.609	61	221450	38.85	ug/L		93
32) 2-Butanone	4.614	43	70283	37.21	ug/L		99
33) Ethyl Acetate	4.698	43	137999	37.76	ug/L	#	98
34) Methyl acrylate	4.756	55	140882	40.32	ug/L		99
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.976	49	129113	38.85	ug/L		86
37) Tetrahydrofuran	5.008	42	41368	36.39	ug/L		95
38) Methacrylonitrile	4.939	41	93588	38.88	ug/L		95

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.160	83	243899	39.13 ug/L	98
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	5.385	97	194080	40.06 ug/L	100
44) Carbon tetrachloride	5.610	119	157388	36.42 ug/L	97
45) 1,1-Dichloropropene	5.626	75	164038	36.33 ug/L	96
47) 1,2-Dichloroethane	5.998	62	195470	37.63 ug/L	99
48) Benzene	5.904	78	489340	39.66 ug/L	99
49) Isobutyl Alcohol	6.061	43	268460	38.75 ug/L #	96
50) Tertiaryamylmethylether	6.140	73	345165	36.11 ug/L	96
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	122963	35.96 ug/L	98
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.147	63	145306	40.79 ug/L	96
56) Dibromomethane	7.246	93	105580	37.52 ug/L	97
57) 1,4-Dioxane	0.000		0	N.D. d	
58) Methyl methacrylate	7.267	41	129472	34.34 ug/L	93
59) Bromodichloromethane	7.487	83	196969	39.38 ug/L	99
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	7.750	43	50125	41.18 ug/L #	95
62) cis-1,3-Dichloropropene	8.017	75	225508	38.07 ug/L	100
64) 4-Methyl-2-pentanone	8.206	43	213036	53.23 ug/L	84
66) Toluene	8.395	91	499787	37.78 ug/L	99
67) trans-1,3-Dichloropropene	8.688	75	205862	36.45 ug/L	99
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	8.777	69	183297	38.26 ug/L	95
70) 1,1,2-Trichloroethane	8.903	97	131758	38.04 ug/L	99
71) Tetrachloroethene	8.976	166	124813	37.10 ug/L	96
72) 1,3-Dichloropropane	9.076	76	198425	36.95 ug/L	92
73) 2-Hexanone	9.160	43	106736	37.02 ug/L	97
74) Chlorodibromomethane	9.312	129	162684	37.16 ug/L	98
75) Butyl acetate	9.312	43	229132	35.23 ug/L	99
76) 1,2-Dibromoethane	9.427	107	146468	39.52 ug/L #	98
77) Chlorobenzene	9.967	112	336412	39.32 ug/L	98
78) 1,1,1,2-Tetrachloroethane	10.078	131	130028	40.14 ug/L	99
79) Ethylbenzene	10.088	91	552426	39.52 ug/L	100
80) m/p-Xylene	10.230	91	855187	79.44 ug/L	99
81) Styrene	10.660	104	321782	36.63 ug/L	94
82) o-Xylene	10.633	91	447922	38.25 ug/L	100
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	10.843	173	110009	39.79 ug/L	99
85) Isopropylbenzene	11.032	105	505144	39.51 ug/L	100
87) Bromobenzene	11.346	77	221813	38.10 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	207221	42.49 ug/L	97
89) 1,2,3-Trichloropropane	11.420	110	43411	41.63 ug/L	96
90) trans-1,4-Dichloro-2-b...	11.404	53	44283	32.72 ug/L	94
91) n-Propylbenzene	11.472	91	574488	36.53 ug/L	98
92) 2-Chlorotoluene	11.551	91	363219	37.39 ug/L	96
93) 4-Chlorotoluene	11.682	91	430415	38.18 ug/L	97
94) 1,3,5-Trimethylbenzene	11.666	105	409303	38.56 ug/L	100
95) tert-Butylbenzene	11.986	91	222902	37.07 ug/L	97
96) 1,2,4-Trimethylbenzene	12.054	105	416488	37.40 ug/L	100
97) sec-Butylbenzene	12.222	105	462769	37.09 ug/L	99
99) 1,3-Dichlorobenzene	12.332	146	236095	35.14 ug/L	98
100) p-Isopropyltoluene	12.384	119	346455	33.06 ug/L	98

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

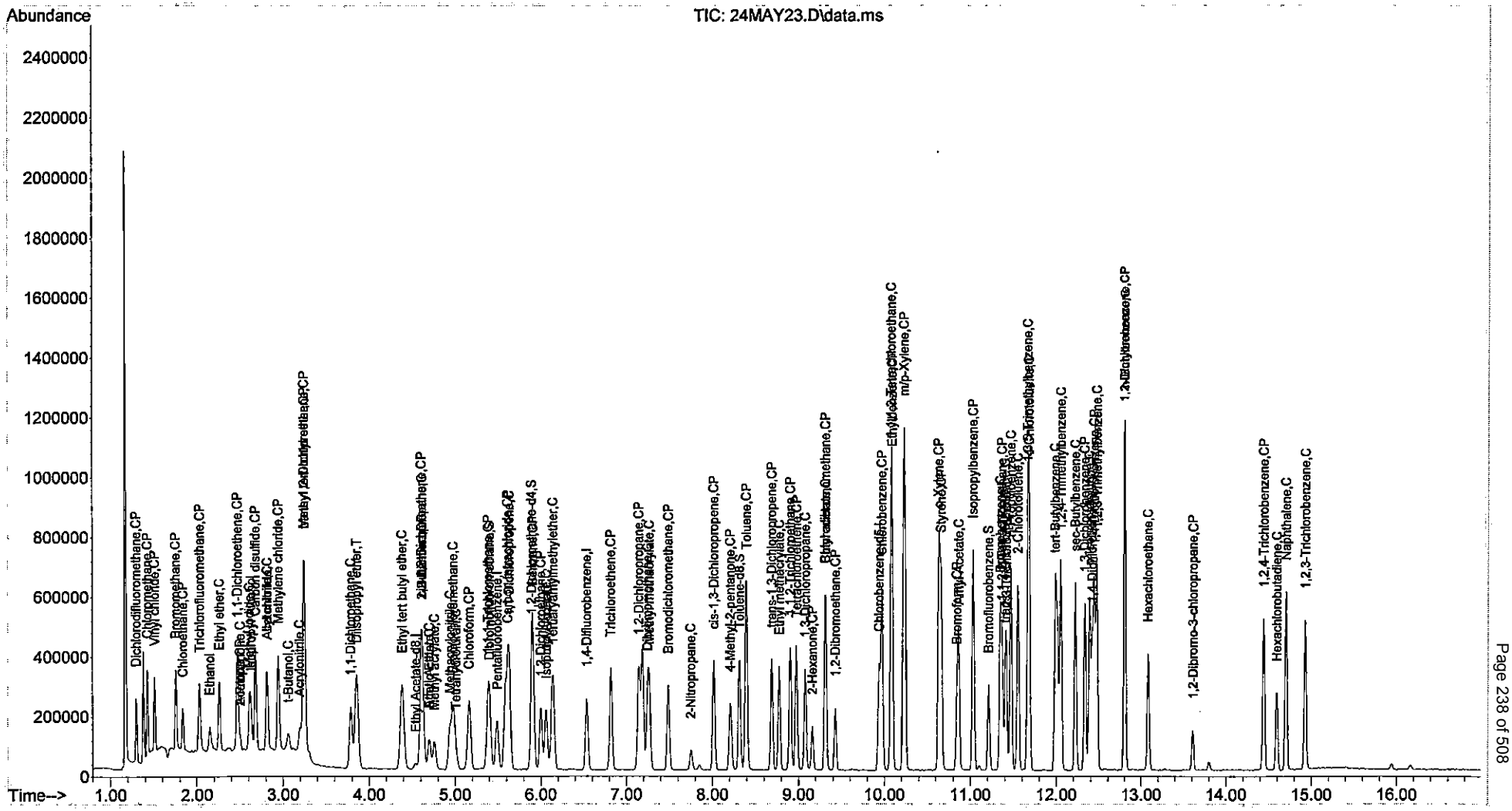
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	250561	36.90 ug/L	98
102) 1,2,3-Trimethylbenzene	12.474	105	415667	36.05 ug/L	100
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	12.799	146	244579	37.43 ug/L	97
105) n-Butylbenzene	12.804	91	375701	37.32 ug/L	98
106) Hexachloroethane	13.082	117	91092	34.13 ug/L	95
107) 1,2-Dibromo-3-chloropr...	13.611	157	37258	38.77 ug/L	94
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	14.440	180	160826	36.02 ug/L	100
110) Hexachlorobutadiene	14.592	225	53722	36.92 ug/L	98
111) Naphthalene	14.702	128	480820	38.37 ug/L	100
112) 1,2,3-Trichlorobenzene	14.927	180	158216	36.56 ug/L	99
113) 2-Methylnaphthalene	0.000		0	N.D. d	
114) 1-Methylnaphthalene	0.000		0	N.D. d	
116) 2-Propanone	2.501	43	44313	35.56 ug/L	97
117) Isopropyl Alcohol	2.627	45	174666	629.06 ug/L #	92
118) Acetic Ether	4.698	43	137999	38.30 ug/L	99
119) Isopropyl Acetate	6.061	61	54624	35.94 ug/L	96
120) Amyl Acetate	10.864	43	248567	35.71 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	95	0.00
2	CP	Dichlorodifluoromethane	40.000	34.533	13.7	92	0.00
3	CP	Chloromethane	40.000	27.985	30.0#	67	0.00
4	CP	Vinyl chloride	40.000	39.748	0.6	90	0.00
5	CP	Bromomethane	40.000	44.805	-12.0	115	0.00
6	CP	Chloroethane	40.000	34.069	14.8	92	0.00
7	CP	Trichlorofluoromethane	40.000	32.339	19.2	81	0.00
8		Ethanol	800.000	598.898	25.1#	79	-0.02
9	C	Ethyl ether	40.000	44.549	-11.4	96	0.00
10	C	Acrolein	200.000	0.000	100.0#	0	-2.38#
11	CP	1,1-Dichloroethene	40.000	41.745	-4.4	100	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.47#
13	C	Methyl iodide	40.000	117.710	-194.3#	438	0.00
14	CP	Acetone	40.000	37.113	7.2	88	0.00
15	CP	Carbon disulfide	40.000	42.488	-6.2	106	0.00
16	C	Allyl chloride	40.000	34.756	13.1	86	0.00
17	CP	Methyl acetate	40.000	0.000	100.0#	0	-2.81#
18	C	Acetonitrile	40.000	35.209	12.0	86	0.00
19	CP	Methylene chloride	40.000	38.757	3.1	93	0.00
20	C	t-Butanol	200.000	170.857	14.6	89	0.00
21	CP	trans-1,2-Dichloroethene	40.000	39.611	1.0	98	0.00
22	C	Acrylonitrile	40.000	37.496	6.3	101	0.00
23	CP	Methyl tert-butyl ether	40.000	40.645	-1.6	99	0.00
24	C	Hexane	40.000	0.000	100.0#	0	-3.58#
25	C	1,1-Dichloroethane	40.000	40.429	-1.1	93	0.00
26	T	Diisopropyl ether	40.000	38.262	4.3	91	0.00
27	C	Chloroprene	40.000	0.000	100.0#	0	-3.89#
28	C	Vinyl acetate	40.000	0.000	100.0#	0	-3.80#
29	C	Ethyl tert butyl ether	40.000	39.137	2.2	94	0.00
30	C	2,2-Dichloropropane	40.000	36.273	9.3	90	0.00
31	CP	cis-1,2-Dichloroethene	40.000	38.849	2.9	98	0.00
32	CP	2-Butanone	40.000	37.212	7.0	93	0.00
33	C	Ethyl Acetate	40.000	37.757	5.6	89	0.00
34	C	Methyl acrylate	40.000	40.319	-0.8	102	0.00
35	C	Propionitrile	40.000	0.000	100.0#	0	-5.48#
36	C	Bromochloromethane	40.000	38.853	2.9	98	0.00
37	C	Tetrahydrofuran	40.000	36.386	9.0	96	0.00
38	C	Methacrylonitrile	40.000	38.879	2.8	91	0.00
39	CP	Chloroform	40.000	39.133	2.2	95	0.00
40	CP	Cyclohexane	40.000	0.000	100.0#	0	-5.48#
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	93	0.00
42	CP	1,1,1-Trichloroethane	40.000	40.056	-0.1	94	0.00
43	S	Dibromofluoromethane	20.000	21.295	-6.5	99	0.00
44	CP	Carbon tetrachloride	40.000	36.417	9.0	89	0.00
45	C	1,1-Dichloropropene	40.000	36.328	9.2	93	0.00
46	S	1,2-Dichloroethane-d4	20.000	20.380	-1.9	94	0.00
47	CP	1,2-Dichloroethane	40.000	37.632	5.9	97	0.00
48	CP	Benzene	40.000	39.659	0.9	95	0.00
49	C	Isobutyl Alcohol	40.000	38.749	3.1	91	0.00
50	C	Tertiaryamylmethylether	40.000	36.115	9.7	89	0.00

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	0.000	100.0#	0	-6.37#
52	CP	Methylcyclohexane	40.000	0.000	100.0#	0	-7.10#
53	CP	Trichloroethene	40.000	35.957	10.1	91	0.00
54	C	n-Butanol	400.000	0.000	100.0#	0	-6.79#
55	CP	1,2-Dichloropropane	40.000	40.794	-2.0	99	0.00
56	C	Dibromomethane	40.000	37.519	6.2	95	0.00
57	C	1,4-Dioxane	4000.000	0.000	100.0#	0	-7.26#
58	C	Methyl methacrylate	40.000	34.342	14.1	91	0.00
59	CP	Bromodichloromethane	40.000	39.381	1.5	91	0.00
60	T	2-Chloroethyl vinyl ether	40.000	0.000	100.0#	0	-7.86#
61	C	2-Nitropropane	40.000	41.183	-3.0	97	0.00
62	CP	cis-1,3-Dichloropropene	40.000	38.073	4.8	93	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	93	0.00
64	CP	4-Methyl-2-pentanone	40.000	53.231	-33.1#	137	0.00
65	S	Toluene-d8	20.000	19.952	0.2	94	0.00
66	CP	Toluene	40.000	37.781	5.5	94	0.00
67	CP	trans-1,3-Dichloropropene	40.000	36.446	8.9	92	0.00
68	C	Chloropicrin	400.000	0.000	100.0#	0	-8.69#
69	C	Ethyl methacrylate	40.000	38.259	4.4	101	0.00
70	CP	1,1,2-Trichloroethane	40.000	38.045	4.9	98	0.00
71	CP	Tetrachloroethene	40.000	37.100	7.2	97	0.00
72	C	1,3-Dichloropropane	40.000	36.948	7.6	92	0.00
73	CP	2-Hexanone	40.000	37.019	7.5	94	0.00
74	CP	Chlorodibromomethane	40.000	37.155	7.1	93	0.00
75	C	Butyl acetate	40.000	35.230	11.9	88	0.00
76	CP	1,2-Dibromoethane	40.000	39.516	1.2	96	0.00
77	CP	Chlorobenzene	40.000	39.323	1.7	103	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	40.143	-0.4	99	0.00
79	CP	Ethylbenzene	40.000	39.518	1.2	98	0.00
80	CP	m/p-Xylene	80.000	79.438	0.7	94	0.00
81	CP	Styrene	40.000	36.626	8.4	91	0.00
82	CP	o-Xylene	40.000	38.246	4.4	100	0.00
83	C	Cyclohexanone	200.000	0.000	100.0#	0	-11.11#
84	CP	Bromoform	40.000	39.795	0.5	97	0.00
85	CP	Isopropylbenzene	40.000	39.507	1.2	97	0.00
86	S	Bromofluorobenzene	20.000	19.700	1.5	92	0.00
87	C	Bromobenzene	40.000	38.104	4.7	96	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	42.487	-6.2	107	0.00
89	C	1,2,3-Trichloropropane	40.000	41.632	-4.1	98	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	32.721	18.2	87	0.00
91	C	n-Propylbenzene	40.000	36.531	8.7	94	0.00
92	C	2-Chlorotoluene	40.000	37.388	6.5	96	0.00
93	C	4-Chlorotoluene	40.000	38.180	4.6	103	0.00
94	C	1,3,5-Trimethylbenzene	40.000	38.556	3.6	99	0.00
95	C	tert-Butylbenzene	40.000	37.067	7.3	92	0.00
96	C	1,2,4-Trimethylbenzene	40.000	37.401	6.5	98	0.00
97	C	sec-Butylbenzene	40.000	37.094	7.3	92	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	92	0.00
99	CP	1,3-Dichlorobenzene	40.000	35.138	12.2	87	0.00

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	33.064	17.3	82	0.00
101	CP	1,4-Dichlorobenzene	40.000	36.898	7.8	95	0.00
102	C	1,2,3-Trimethylbenzene	40.000	36.045	9.9	91	0.00
103	C	Benzyl chloride	40.000	0.000	100.0#	0	-12.56#
104	CP	1,2-Dichlorobenzene	40.000	37.434	6.4	95	0.00
105	C	n-Butylbenzene	40.000	37.324	6.7	96	0.00
106	C	Hexachloroethane	40.000	34.132	14.7	90	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	38.775	3.1	106	0.00
108	C	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-13.81#
109	CP	1,2,4-Trichlorobenzene	40.000	36.019	10.0	95	0.00
110	C	Hexachlorobutadiene	40.000	36.921	7.7	97	0.00
111	C	Naphthalene	40.000	38.371	4.1	99	0.00
112	C	1,2,3-Trichlorobenzene	40.000	36.557	8.6	94	0.00
113	C	2-Methylnaphthalene	40.000	0.000	100.0#	0	-15.94#
114	C	1-Methylnaphthalene	40.000	0.000	100.0#	0	-16.16#
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	97	0.00
116	C	2-Propanone	40.000	35.557	11.1	88	0.00
117		Isopropyl Alcohol	800.000	629.064	21.4	84	0.00
118	C	Acetic Ether	40.000	38.303	4.2	89	0.00
119	C	Isopropyl Acetate	40.000	35.943	10.1	88	0.00
120	C	Amyl Acetate	40.000	35.710	10.7	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 21

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	95	0.00
2	CP	Dichlorodifluoromethane	0.548	0.473	13.7	92	0.00
3	CP	Chloromethane	0.937	0.656	30.0#	67	0.00
4	CP	Vinyl chloride	0.608	0.604	0.7	90	0.00
5	CP	Bromomethane	0.471	0.418	11.3	115	0.00
6	CP	Chloroethane	0.389	0.331	14.9	92	0.00
7	CP	Trichlorofluoromethane	0.721	0.583	19.1	81	0.00
8		Ethanol	0.021	0.016	23.8	79	-0.02
9	C	Ethyl ether	0.354	0.394	-11.3	96	0.00
10	C	Acrolein	0.000	0.000	0.0	0#	-2.38#
11	CP	1,1-Dichloroethene	0.682	0.712	-4.4	100	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.289	0.000#	100.0#	0#	-2.47#
13	C	Methyl iodide	0.104	0.486	-367.3#	438#	0.00
14	CP	Acetone	0.291	0.158	45.7#	88	0.00
15	CP	Carbon disulfide	1.437	1.526	-6.2	106	0.00
16	C	Allyl chloride	0.751	0.653	13.0	86	0.00
17	CP	Methyl acetate	0.448	0.000#	100.0#	0#	-2.81#
18	C	Acetonitrile	0.741	0.653	11.9	86	0.00
19	CP	Methylene chloride	0.789	0.673	14.7	93	0.00
20	C	t-Butanol	0.062	0.053	14.5	89	0.00
21	CP	trans-1,2-Dichloroethene	0.712	0.705	1.0	98	0.00
22	C	Acrylonitrile	0.233	0.218	6.4	101	0.00
23	CP	Methyl tert-butyl ether	1.370	1.392	-1.6	99	0.00
24	C	Hexane	0.532	0.000	100.0#	0#	-3.58#
25	C	1,1-Dichloroethane	0.877	0.887	-1.1	93	0.00
26	T	Diisopropyl ether	1.484	1.420	4.3	91	0.00
27	C	Chloroprene	0.657	0.000	100.0#	0#	-3.89#
28	C	Vinyl acetate	0.091	0.000	100.0#	0#	-3.80#
29	C	Ethyl tert butyl ether	1.415	1.385	2.1	94	0.00
30	C	2,2-Dichloropropane	0.683	0.620	9.2	90	0.00
31	CP	cis-1,2-Dichloroethene	0.811	0.788	2.8	98	0.00
32	CP	2-Butanone	0.287	0.250	12.9	93	0.00
33	C	Ethyl Acetate	0.520	0.491	5.6	89	0.00
34	C	Methyl acrylate	0.497	0.501	-0.8	102	0.00
35	C	Propionitrile	0.038	0.000	100.0#	0#	-5.48#
36	C	Bromochloromethane	0.473	0.459	3.0	98	0.00
37	C	Tetrahydrofuran	0.162	0.147	9.3	96	0.00
38	C	Methacrylonitrile	0.310	0.333	-7.4	91	0.00
39	CP	Chloroform	0.887	0.867	2.3	95	0.00
40	CP	Cyclohexane	0.798	0.000#	100.0#	0#	-5.48#
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	93	0.00
42	CP	1,1,1-Trichloroethane	0.442	0.443	-0.2	94	0.00
43	S	Dibromofluoromethane	0.373	0.397	-6.4	99	0.00
44	CP	Carbon tetrachloride	0.395	0.359	9.1	89	0.00
45	C	1,1-Dichloropropene	0.412	0.374	9.2	93	0.00
46	S	1,2-Dichloroethane-d4	0.415	0.423	-1.9	94	0.00
47	CP	1,2-Dichloroethane	0.474	0.446	5.9	97	0.00
48	CP	Benzene	1.126	1.117	0.8	95	0.00
49	C	Isobutyl Alcohol	0.632	0.613	3.0	91	0.00
50	C	Tertiaryamylmethylether	0.873	0.788	9.7	89	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.293	0.000	100.0#	0#	-6.37#
52	CP	Methylcyclohexane	0.390	0.000#	100.0#	0#	-7.10#
53	CP	Trichloroethene	0.312	0.281	9.9	91	0.00
54	C	n-Butanol	0.010	0.000	100.0#	0#	-6.79#
55	CP	1,2-Dichloropropane	0.325	0.332	-2.2	99	0.00
56	C	Dibromomethane	0.257	0.241	6.2	95	0.00
57	C	1,4-Dioxane	0.004	0.000	100.0#	0#	-7.26#
58	C	Methyl methacrylate	0.344	0.295	14.2	91	0.00
59	CP	Bromodichloromethane	0.457	0.450	1.5	91	0.00
60	T	2-Chloroethyl vinyl ether	0.168	0.000	100.0#	0#	-7.86#
61	C	2-Nitropropane	0.114	0.114	0.0	97	0.00
62	CP	cis-1,3-Dichloropropene	0.541	0.515	4.8	93	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	93	0.00
64	CP	4-Methyl-2-pentanone	0.398	0.530	-33.2#	137	0.00
65	S	Toluene-d8	1.322	1.319	0.2	94	0.00
66	CP	Toluene	1.315	1.242	5.6	94	0.00
67	CP	trans-1,3-Dichloropropene	0.562	0.512	8.9	92	0.00
68	C	Chloropicrin	0.000	0.000	0.0	0#	-8.69#
69	C	Ethyl methacrylate	0.476	0.456	4.2	101	0.00
70	CP	1,1,2-Trichloroethane	0.344	0.328	4.7	98	0.00
71	CP	Tetrachloroethene	0.335	0.310	7.5	97	0.00
72	C	1,3-Dichloropropane	0.534	0.493	7.7	92	0.00
73	CP	2-Hexanone	0.287	0.265	7.7	94	0.00
74	CP	Chlorodibromomethane	0.435	0.404	7.1	93	0.00
75	C	Butyl acetate	0.647	0.570	11.9	88	0.00
76	CP	1,2-Dibromoethane	0.369	0.364	1.4	96	0.00
77	CP	Chlorobenzene	0.851	0.836	1.8	103	0.00
78	C	1,1,1,2-Tetrachloroethane	0.322	0.323	-0.3	99	0.00
79	CP	Ethylbenzene	1.390	1.373	1.2	98	0.00
80	CP	m/p-Xylene	1.070	1.063	0.7	94	0.00
81	CP	Styrene	0.874	0.800	8.5	91	0.00
82	CP	o-Xylene	1.165	1.113	4.5	100	0.00
83	C	Cyclohexanone	0.021	0.000	100.0#	0#	-11.11#
84	CP	Bromoform	0.275	0.273	0.7	97	0.00
85	CP	Isopropylbenzene	1.271	1.256	1.2	97	0.00
86	S	Bromofluorobenzene	0.507	0.499	1.6	92	0.00
87	C	Bromobenzene	0.579	0.551	4.8	96	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.485	0.515	-6.2	107	0.00
89	C	1,2,3-Trichloropropane	0.133	0.108	18.8	98	0.00
90	C	trans-1,4-Dichloro-2-butene	0.135	0.110	18.5	87	0.00
91	C	n-Propylbenzene	1.564	1.428	8.7	94	0.00
92	C	2-Chlorotoluene	0.966	0.903	6.5	96	0.00
93	C	4-Chlorotoluene	1.121	1.070	4.5	103	0.00
94	C	1,3,5-Trimethylbenzene	1.056	1.017	3.7	99	0.00
95	C	tert-Butylbenzene	0.598	0.554	7.4	92	0.00
96	C	1,2,4-Trimethylbenzene	1.107	1.035	6.5	98	0.00
97	C	sec-Butylbenzene	1.240	1.150	7.3	92	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	92	0.00
99	CP	1,3-Dichlorobenzene	1.308	1.149	12.2	87	0.00

Data Path : C:\msdchem\1\data\7V180524\
Data File : 24MAY23.D
Acq On : 24 May 2018 5:10 pm
Operator : WH
Sample : ICV
Misc : V1/3 IS/SS 200-20233
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 25 10:18:32 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.039	1.686	17.3	82	0.00
101	CP	1,4-Dichlorobenzene	1.321	1.219	7.7	95	0.00
102	C	1,2,3-Trimethylbenzene	2.244	2.022	9.9	91	0.00
103	C	Benzyl chloride	1.541	0.000	100.0#	0#	-12.56#
104	CP	1,2-Dichlorobenzene	1.271	1.190	6.4	95	0.00
105	C	n-Butylbenzene	1.959	1.828	6.7	96	0.00
106	C	Hexachloroethane	0.519	0.443	14.6	90	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.187	0.181	3.2	106	0.00
108	C	1,3,5-Trichlorobenzene	0.909	0.000	100.0#	0#	-13.81#
109	CP	1,2,4-Trichlorobenzene	0.869	0.782	10.0	95	0.00
110	C	Hexachlorobutadiene	0.283	0.261	7.8	97	0.00
111	C	Naphthalene	2.439	2.339	4.1	99	0.00
112	C	1,2,3-Trichlorobenzene	0.842	0.770	8.6	94	0.00
113	C	2-Methylnaphthalene	1.360	0.000	100.0#	0#	-15.94#
114	C	1-Methylnaphthalene	1.160	0.000	100.0#	0#	-16.16#
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	97	0.00
116	C	2-Propanone	1.125	0.664	41.0#	88	0.00
117		Isopropyl Alcohol	0.167	0.131	21.6	84	0.00
118	C	Acetic Ether	2.161	2.069	4.3	89	0.00
119	C	Isopropyl Acetate	0.911	0.819	10.1	88	0.00
120	C	Amyl Acetate	4.174	3.727	10.7	90	0.00

(#) = Out of Range SPCC's out = 4 CCC's out = 21

2018 May 24 0846 Sequence Log

Starting sequence Thu May 24 08:46:33 2018

Instrument Name: VMS7
Sequence File: C:\msdchem\1\sequence\VMS7_180524.s
Comment:
Operator: WH
Data Path: D:\MSDCHEM\1\DATA\7V180524\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	1	24MAY01	7AC0521	BLK
2)	Sample	1	24MAY02	7AC0521	CCV
3)	Sample	1	24MAY03	7AC0521	CCV
4)	Sample	1	24MAY04	7AC0521	CCV
5)	Sample	1	24MAY05	7AC0521	CCV
6)	Sample	1	24MAY06	BFB	VBFB1-180524
7)	Sample	1	24MAY07	BFB	VBFB2-180524
8)	Sample	1	24MAY08	7AC0521	BLK
9)	Sample	2	24MAY09	7AC0521	BLK
10)	Sample	3	24MAY10	7AC0521	BLK
11)	Sample	4	24MAY11	7AC0521	BLK
12)	Sample	5	24MAY12	7AC0521	VBLKW1-180524
13)	Sample	6	24MAY13	7AC0521	0.4PPB
14)	Sample	7	24MAY14	7AC0521	0.6PPB
15)	Sample	8	24MAY15	7AC0521	2PPB
16)	Sample	9	24MAY16	7AC0521	4PPB
17)	Sample	10	24MAY17	7AC0521	10PPB
18)	Sample	11	24MAY18	7AC0521	40PPB
19)	Sample	12	24MAY19	7AC0521	70PPB
20)	Sample	13	24MAY20	7AC0521	100PPB
21)	Sample	14	24MAY21	7AC0521	BLK
22)	Sample	15	24MAY22	7AC0521	BLK
23)	Sample	16	24MAY23	7AC0521	ICV
24)	Sample	17	24MAY24	7AC0521	BLK
25)	Sample	18	24MAY25	BFB	VBFB3-180524
26)	Sample	19	24MAY26	7AC0521	VCCV1-180524
27)	Sample	20	24MAY27	7AC0521	VCCV2-180524
28)	Sample	21	24MAY28	7AC0521	VLCSW2-180524
29)	Sample	22	24MAY29	7AC0521	VLCSW3-180524
30)	Sample	23	24MAY30	7AC0521	BLK
31)	Sample	24	24MAY31	7AC0521	VBLKW2-180524
32)	Sample	25	24MAY32	7AC0521	18051388-14A DF100
33)	Sample	26	24MAY33	7AC0521	18051388-15A DF10
34)	Sample	27	24MAY34	7AC0521	18051312-01A
35)	Sample	28	24MAY35	7AC0521	18051390-01
36)	Sample	29	24MAY36	7AC0521	18051390-02
37)	Sample	30	24MAY37	7AC0521	18051390-03

2018 May 24 0846 Sequence Log

38)	Sample	31	24MAY38	7AC0521	18051390-04
39)	Sample	32	24MAY39	7AC0521	18051390-05
40)	Sample	33	24MAY40	7AC0521	18051390-06
41)	Sample	34	24MAY41	7AC0521	18051390-07
42)	Sample	35	24MAY42	7AC0521	18051390-08
43)	Sample	36	24MAY43	7AC0521	18051390-09
44)	Sample	37	24MAY44	7AC0521	18051390-10
45)	Sample	38	24MAY45	7AC0521	18051390-11
46)	Sample	39	24MAY46	7AC0521	18051390-12
47)	Sample	40	24MAY47	7AC0521	18051403-03A DF20
48)	Sample	41	24MAY48	7AC0521	18051351-01A
49)	Sample	42	24MAY49	7AC0521	18051351-02A DF10
50)	Sample	43	24MAY50	7AC0521	18051351-03A
51)	Sample	44	24MAY51	7AC0521	18051351-04A
52)	Sample	45	24MAY52	7AC0521	18051351-02A MS DF10
53)	Sample	46	24MAY53	7AC0521	18051351-02A MSD DF10
54)	Sample	47	24MAY54	7AC0521	BLK

Sequence completed Fri May 25 04:45:04 2018

D:\MSDCHEM\1\DATA\7V180524\2018 May 24 0846 Quality Log.LOG
D:\MSDCHEM\1\DATA\7V180524\2018 May 24 0846 Sequence Log .LOG

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	100	0.00
2	CP	Dichlorodifluoromethane	40.000	51.344	-28.4#	144	0.00
3	CP	Chloromethane	40.000	46.446	-16.1	116	0.00
4	CP	Vinyl chloride	40.000	46.656	-16.6	111	0.00
5	CP	Bromomethane	40.000	45.767	-14.4	123	0.00
6	CP	Chloroethane	40.000	38.924	2.7	111	0.00
7	CP	Trichlorofluoromethane	40.000	45.006	-12.5	118	0.00
8		Ethanol	800.000	664.562	16.9	92	-0.02
9	C	Ethyl ether	40.000	48.917	-22.3#	111	0.00
10	C	Acrolein	200.000	0.000	100.0#	0	0.00
11	CP	1,1-Dichloroethene	40.000	41.074	-2.7	104	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	41.008	-2.5	108	0.00
13	C	Methyl iodide	40.000	59.938	-49.8#	168	0.00
14	CP	Acetone	40.000	36.539	8.7	91	0.00
15	CP	Carbon disulfide	40.000	41.475	-3.7	109	0.00
16	C	Allyl chloride	40.000	41.090	-2.7	107	0.00
17	CP	Methyl acetate	40.000	35.216	12.0	97	0.00
18	C	Acetonitrile	40.000	41.626	-4.1	107	0.00
19	CP	Methylene chloride	40.000	42.119	-5.3	106	0.00
20	C	t-Butanol	200.000	167.147	16.4	92	-0.02
21	CP	trans-1,2-Dichloroethene	40.000	42.856	-7.1	112	0.00
22	C	Acrylonitrile	40.000	36.318	9.2	103	0.00
23	CP	Methyl tert-butyl ether	40.000	39.572	1.1	102	0.00
24	C	Hexane	40.000	49.653	-24.1#	129	0.00
25	C	1,1-Dichloroethane	40.000	42.791	-7.0	104	0.00
26	T	Diisopropyl ether	40.000	38.346	4.1	96	0.00
27	C	Chloroprene	40.000	39.818	0.5	103	0.00
28	C	Vinyl acetate	40.000	38.254	4.4	99	0.00
29	C	Ethyl tert butyl ether	40.000	39.604	1.0	100	0.00
30	C	2,2-Dichloropropane	40.000	42.000	-5.0	110	0.00
31	CP	cis-1,2-Dichloroethene	40.000	41.414	-3.5	110	0.00
32	CP	2-Butanone	40.000	32.974	17.6	87	-0.01
33	C	Ethyl Acetate	40.000	36.489	8.8	91	0.00
34	C	Methyl acrylate	40.000	39.141	2.1	104	-0.01
35	C	Propionitrile	40.000	47.511	-18.8	111	0.00
36	C	Bromochloromethane	40.000	41.263	-3.2	110	0.00
37	C	Tetrahydrofuran	40.000	35.178	12.1	98	0.00
38	C	Methacrylonitrile	40.000	39.442	1.4	98	-0.01
39	CP	Chloroform	40.000	43.021	-7.6	111	0.00
40	CP	Cyclohexane	40.000	40.209	-0.5	102	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
42	CP	1,1,1-Trichloroethane	40.000	40.135	-0.3	103	0.00
43	S	Dibromofluoromethane	20.000	19.153	4.2	97	0.00
44	CP	Carbon tetrachloride	40.000	38.522	3.7	103	0.00
45	C	1,1-Dichloropropene	40.000	37.709	5.7	106	0.00
46	S	1,2-Dichloroethane-d4	20.000	19.725	1.4	99	0.00
47	CP	1,2-Dichloroethane	40.000	38.691	3.3	109	0.00
48	CP	Benzene	40.000	39.906	0.2	105	0.00
49	C	Isobutyl Alcohol	40.000	34.217	14.5	87	-0.01
50	C	Tertiaryamylmethylether	40.000	36.415	9.0	98	0.00

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	36.726	8.2	111	0.00
52	CP	Methylcyclohexane	40.000	38.209	4.5	106	0.00
53	CP	Trichloroethene	40.000	37.193	7.0	102	0.00
54	C	n-Butanol	400.000	268.322	32.9#	76	-0.01
55	CP	1,2-Dichloropropane	40.000	40.394	-1.0	107	0.00
56	C	Dibromomethane	40.000	37.752	5.6	104	0.00
57	C	1,4-Dioxane	4000.000	3715.345	7.1	95	-0.01
58	C	Methyl methacrylate	40.000	33.678	15.8	97	0.00
59	CP	Bromodichloromethane	40.000	40.987	-2.5	104	0.00
60	T	2-Chloroethyl vinyl ether	40.000	35.032	12.4	93	0.00
61	C	2-Nitropropane	40.000	37.644	5.9	97	0.00
62	CP	cis-1,3-Dichloropropene	40.000	41.264	-3.2	110	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	95	0.00
64	CP	4-Methyl-2-pentanone	40.000	33.426	16.4	88	0.00
65	S	Toluene-d8	20.000	19.982	0.1	96	0.00
66	CP	Toluene	40.000	42.354	-5.9	108	0.00
67	CP	trans-1,3-Dichloropropene	40.000	40.497	-1.2	105	0.00
68	C	Chloropicrin	400.000	0.000	100.0#	0	0.00
69	C	Ethyl methacrylate	40.000	39.552	1.1	108	0.00
70	CP	1,1,2-Trichloroethane	40.000	40.210	-0.5	107	0.00
71	CP	Tetrachloroethene	40.000	40.673	-1.7	109	0.00
72	C	1,3-Dichloropropane	40.000	40.228	-0.6	102	0.00
73	CP	2-Hexanone	40.000	31.030	22.4#	81	0.00
74	CP	Chlorodibromomethane	40.000	41.170	-2.9	106	0.00
75	C	Butyl acetate	40.000	34.007	15.0	87	0.00
76	CP	1,2-Dibromoethane	40.000	39.339	1.7	98	0.00
77	CP	Chlorobenzene	40.000	41.861	-4.7	113	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	42.017	-5.0	106	0.00
79	CP	Ethylbenzene	40.000	40.867	-2.2	104	0.00
80	CP	m/p-Xylene	80.000	80.838	-1.0	98	0.00
81	CP	Styrene	40.000	40.225	-0.6	103	0.00
82	CP	o-Xylene	40.000	38.712	3.2	104	0.00
83	C	Cyclohexanone	200.000	153.982	23.0#	82	0.00
84	CP	Bromoform	40.000	40.358	-0.9	101	0.00
85	CP	Isopropylbenzene	40.000	40.114	-0.3	101	0.00
86	S	Bromofluorobenzene	20.000	19.896	0.5	95	0.00
87	C	Bromobenzene	40.000	40.930	-2.3	105	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	39.741	0.6	102	0.00
89	C	1,2,3-Trichloropropane	40.000	41.159	-2.9	99	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	35.978	10.1	98	0.00
91	C	n-Propylbenzene	40.000	42.371	-5.9	112	0.00
92	C	2-Chlorotoluene	40.000	40.685	-1.7	107	0.00
93	C	4-Chlorotoluene	40.000	42.286	-5.7	117	0.00
94	C	1,3,5-Trimethylbenzene	40.000	41.832	-4.6	110	0.00
95	C	tert-Butylbenzene	40.000	41.589	-4.0	106	0.00
96	C	1,2,4-Trimethylbenzene	40.000	37.627	5.9	101	0.00
97	C	sec-Butylbenzene	40.000	40.850	-2.1	104	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	93	0.00
99	CP	1,3-Dichlorobenzene	40.000	41.188	-3.0	104	0.00

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	40.492	-1.2	102	0.00
101	CP	1,4-Dichlorobenzene	40.000	40.523	-1.3	106	0.00
102	C	1,2,3-Trimethylbenzene	40.000	40.313	-0.8	104	0.00
103	C	Benzyl chloride	40.000	41.331	-3.3	107	0.00
104	CP	1,2-Dichlorobenzene	40.000	42.461	-6.2	109	0.00
105	C	n-Butylbenzene	40.000	42.405	-6.0	111	0.00
106	C	Hexachloroethane	40.000	38.860	2.9	104	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	34.925	12.7	97	0.00
108	C	1,3,5-Trichlorobenzene	40.000	39.147	2.1	106	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	40.199	-0.5	108	0.00
110	C	Hexachlorobutadiene	40.000	45.939	-14.8	122	0.00
111	C	Naphthalene	40.000	38.930	2.7	102	0.00
112	C	1,2,3-Trichlorobenzene	40.000	38.520	3.7	101	0.00
113	C	2-Methylnaphthalene	40.000	33.409	16.5	91	0.00
114	C	1-Methylnaphthalene	40.000	38.043	4.9	88	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	88	-0.01
116	C	2-Propanone	40.000	40.956	-2.4	91	0.00
117		Isopropyl Alcohol	800.000	826.722	-3.3	100	-0.01
118	C	Acetic Ether	40.000	42.544	-6.4	90	0.00
119	C	Isopropyl Acetate	40.000	37.781	5.5	85	0.00
120	C	Amyl Acetate	40.000	39.122	2.2	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 9

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	100	0.00
2	CP	Dichlorodifluoromethane	0.548	0.703	-28.3#	144	0.00
3	CP	Chloromethane	0.937	1.088	-16.1	116	0.00
4	CP	Vinyl chloride	0.608	0.709	-16.6	111	0.00
5	CP	Bromomethane	0.471	0.427	9.3	123	0.00
6	CP	Chloroethane	0.389	0.378	2.8	111	0.00
7	CP	Trichlorofluoromethane	0.721	0.811	-12.5	118	0.00
8		Ethanol	0.021	0.018	14.3	92	-0.02
9	C	Ethyl ether	0.354	0.433	-22.3#	111	0.00
10	C	Acrolein	0.000	0.014	0.0	0#	0.00
11	CP	1,1-Dichloroethene	0.682	0.700	-2.6	104	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.289	0.296	-2.4	108	0.00
13	C	Methyl iodide	0.104	0.177	-70.2#	168#	0.00
14	CP	Acetone	0.291	0.155	46.7#	91	0.00
15	CP	Carbon disulfide	1.437	1.490	-3.7	109	0.00
16	C	Allyl chloride	0.751	0.772	-2.8	107	0.00
17	CP	Methyl acetate	0.448	0.394	12.1	97	0.00
18	C	Acetonitrile	0.741	0.772	-4.2	107	0.00
19	CP	Methylene chloride	0.789	0.729	7.6	106	0.00
20	C	t-Butanol	0.062	0.052	16.1	92	-0.02
21	CP	trans-1,2-Dichloroethene	0.712	0.762	-7.0	112	0.00
22	C	Acrylonitrile	0.233	0.211	9.4	103	0.00
23	CP	Methyl tert-butyl ether	1.370	1.355	1.1	102	0.00
24	C	Hexane	0.532	0.519	2.4	129	0.00
25	C	1,1-Dichloroethane	0.877	0.938	-7.0	104	0.00
26	T	Diisopropyl ether	1.484	1.423	4.1	96	0.00
27	C	Chloroprene	0.657	0.654	0.5	103	0.00
28	C	Vinyl acetate	0.091	0.075	17.6	99	0.00
29	C	Ethyl tert butyl ether	1.415	1.401	1.0	100	0.00
30	C	2,2-Dichloropropane	0.683	0.717	-5.0	110	0.00
31	CP	cis-1,2-Dichloroethene	0.811	0.840	-3.6	110	0.00
32	CP	2-Butanone	0.287	0.221	23.0#	87	-0.01
33	C	Ethyl Acetate	0.520	0.474	8.8	91	0.00
34	C	Methyl acrylate	0.497	0.486	2.2	104	-0.01
35	C	Propionitrile	0.038	0.045	-18.4	111	0.00
36	C	Bromochloromethane	0.473	0.488	-3.2	110	0.00
37	C	Tetrahydrofuran	0.162	0.142	12.3	98	0.00
38	C	Methacrylonitrile	0.310	0.338	-9.0	98	-0.01
39	CP	Chloroform	0.887	0.954	-7.6	111	0.00
40	CP	Cyclohexane	0.798	0.633	20.7#	102	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
42	CP	1,1,1-Trichloroethane	0.442	0.444	-0.5	103	0.00
43	S	Dibromofluoromethane	0.373	0.357	4.3	97	0.00
44	CP	Carbon tetrachloride	0.395	0.380	3.8	103	0.00
45	C	1,1-Dichloropropene	0.412	0.389	5.6	106	0.00
46	S	1,2-Dichloroethane-d4	0.415	0.410	1.2	99	0.00
47	CP	1,2-Dichloroethane	0.474	0.459	3.2	109	0.00
48	CP	Benzene	1.126	1.124	0.2	105	0.00
49	C	Isobutyl Alcohol	0.632	0.541	14.4	87	-0.01
50	C	Tertiaryamylmethylether	0.873	0.794	9.0	98	0.00

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.293	0.269	8.2	111	0.00
52	CP	Methylcyclohexane	0.390	0.372	4.6	106	0.00
53	CP	Trichloroethene	0.312	0.290	7.1	102	0.00
54	C	n-Butanol	0.010	0.007	30.0#	76	-0.01
55	CP	1,2-Dichloropropane	0.325	0.328	-0.9	107	0.00
56	C	Dibromomethane	0.257	0.242	5.8	104	0.00
57	C	1,4-Dioxane	0.004	0.004	0.0	95	-0.01
58	C	Methyl methacrylate	0.344	0.290	15.7	97	0.00
59	CP	Bromodichloromethane	0.457	0.468	-2.4	104	0.00
60	T	2-Chloroethyl vinyl ether	0.168	0.138	17.9	93	0.00
61	C	2-Nitropropane	0.114	0.105	7.9	97	0.00
62	CP	cis-1,3-Dichloropropene	0.541	0.558	-3.1	110	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	95	0.00
64	CP	4-Methyl-2-pentanone	0.398	0.333	16.3	88	0.00
65	S	Toluene-d8	1.322	1.321	0.1	96	0.00
66	CP	Toluene	1.315	1.393	-5.9	108	0.00
67	CP	trans-1,3-Dichloropropene	0.562	0.569	-1.2	105	0.00
68	C	Chloropicrin	0.000	0.010	0.0	0#	0.00
69	C	Ethyl methacrylate	0.476	0.471	1.1	108	0.00
70	CP	1,1,2-Trichloroethane	0.344	0.346	-0.6	107	0.00
71	CP	Tetrachloroethene	0.335	0.340	-1.5	109	0.00
72	C	1,3-Dichloropropane	0.534	0.537	-0.6	102	0.00
73	CP	2-Hexanone	0.287	0.222	22.6#	81	0.00
74	CP	Chlorodibromomethane	0.435	0.448	-3.0	106	0.00
75	C	Butyl acetate	0.647	0.550	15.0	87	0.00
76	CP	1,2-Dibromoethane	0.369	0.362	1.9	98	0.00
77	CP	Chlorobenzene	0.851	0.890	-4.6	113	0.00
78	C	1,1,1,2-Tetrachloroethane	0.322	0.338	-5.0	106	0.00
79	CP	Ethylbenzene	1.390	1.420	-2.2	104	0.00
80	CP	m/p-Xylene	1.070	1.082	-1.1	98	0.00
81	CP	Styrene	0.874	0.879	-0.6	103	0.00
82	CP	o-Xylene	1.165	1.127	3.3	104	0.00
83	C	Cyclohexanone	0.021	0.016	23.8#	82	0.00
84	CP	Bromoform	0.275	0.277	-0.7	101	0.00
85	CP	Isopropylbenzene	1.271	1.275	-0.3	101	0.00
86	S	Bromofluorobenzene	0.507	0.504	0.6	95	0.00
87	C	Bromobenzene	0.579	0.592	-2.2	105	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.485	0.482	0.6	102	0.00
89	C	1,2,3-Trichloropropane	0.133	0.107	19.5	99	0.00
90	C	trans-1,4-Dichloro-2-butene	0.135	0.121	10.4	98	0.00
91	C	n-Propylbenzene	1.564	1.656	-5.9	112	0.00
92	C	2-Chlorotoluene	0.966	0.983	-1.8	107	0.00
93	C	4-Chlorotoluene	1.121	1.185	-5.7	117	0.00
94	C	1,3,5-Trimethylbenzene	1.056	1.104	-4.5	110	0.00
95	C	tert-Butylbenzene	0.598	0.622	-4.0	106	0.00
96	C	1,2,4-Trimethylbenzene	1.107	1.042	5.9	101	0.00
97	C	sec-Butylbenzene	1.240	1.267	-2.2	104	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	93	0.00
99	CP	1,3-Dichlorobenzene	1.308	1.346	-2.9	104	0.00

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.039	2.064	-1.2	102	0.00
101	CP	1,4-Dichlorobenzene	1.321	1.339	-1.4	106	0.00
102	C	1,2,3-Trimethylbenzene	2.244	2.262	-0.8	104	0.00
103	C	Benzyl chloride	1.541	1.593	-3.4	107	0.00
104	CP	1,2-Dichlorobenzene	1.271	1.350	-6.2	109	0.00
105	C	n-Butylbenzene	1.959	2.077	-6.0	111	0.00
106	C	Hexachloroethane	0.519	0.505	2.7	104	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.187	0.163	12.8	97	0.00
108	C	1,3,5-Trichlorobenzene	0.909	0.890	2.1	106	0.00
109	CP	1,2,4-Trichlorobenzene	0.869	0.873	-0.5	108	0.00
110	C	Hexachlorobutadiene	0.283	0.325	-14.8	122	0.00
111	C	Naphthalene	2.439	2.373	2.7	102	0.00
112	C	1,2,3-Trichlorobenzene	0.842	0.811	3.7	101	0.00
113	C	2-Methylnaphthalene	1.360	1.136	16.5	91	0.00
114	C	1-Methylnaphthalene	1.160	0.899	22.5#	88	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	88	-0.01
116	C	2-Propanone	1.125	0.756	32.8#	91	0.00
117		Isopropyl Alcohol	0.167	0.172	-3.0	100	-0.01
118	C	Acetic Ether	2.161	2.298	-6.3	90	0.00
119	C	Isopropyl Acetate	0.911	0.861	5.5	85	0.00
120	C	Amyl Acetate	4.174	4.083	2.2	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 11

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.484	168	148051	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.528	114	238976	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	206243	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	104279	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.530	46	30392	20.00	ug/L	#-0.01
System Monitoring Compounds						
43) Dibromofluoromethane	5.395	111	85326	19.15	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.75%			
46) 1,2-Dichloroethane-d4	5.883	65	97901	19.73	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.65%			
65) Toluene-d8	8.310	98	272439	19.98	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.90%			
86) Bromofluorobenzene	11.210	95	103935	19.90	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.50%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.295	85	208306	51.34	ug/L	99
3) Chloromethane	1.426	50	322155	46.45	ug/L	98
4) Vinyl chloride	1.510	62	209846	46.66	ug/L	96
5) Bromomethane	1.751	96	126379	45.77	ug/L	99
6) Chloroethane	1.835	64	112033	38.92	ug/L	99
7) Trichlorofluoromethane	2.029	101	240140	45.01	ug/L	100
8) Ethanol	2.150	45	103965	664.56	ug/L #	100
9) Ethyl ether	2.255	59	128260	48.92	ug/L	97
10) Acrolein	2.375	56	20787	No Calib		
11) 1,1-Dichloroethene	2.464	61	207415	41.07	ug/L	98
12) 1,1,2-Trichlorotrifluo...	2.475	151	87600	41.01	ug/L	97
13) Methyl iodide	2.606	142	52411	59.94	ug/L	96
14) Acetone	2.496	43	45976	36.54	ug/L	95
15) Carbon disulfide	2.679	76	441165	41.48	ug/L	100
16) Allyl chloride	2.811	41	228448	41.09	ug/L	95
17) Methyl acetate	2.800	43	116800	35.22	ug/L	97
18) Acetonitrile	2.811	41	228448	41.63	ug/L	95
19) Methylene chloride	2.942	49	215973	42.12	ug/L	98
20) t-Butanol	3.052	59	76707	167.15	ug/L	97
21) trans-1,2-Dichloroethene	3.246	61	225728	42.86	ug/L	97
22) Acrylonitrile	3.193	53	62580	36.32	ug/L	98
23) Methyl tert-butyl ether	3.240	73	401207	39.57	ug/L	100
24) Hexane	3.581	57	153559	49.65	ug/L	98
25) 1,1-Dichloroethane	3.786	63	277859	42.79	ug/L	98
26) Diisopropyl ether	3.849	45	421293	38.35	ug/L #	95
27) Chloroprene	3.880	53	193696	39.82	ug/L	98
28) Vinyl acetate	3.796	86	22242	38.25	ug/L #	86
29) Ethyl tert butyl ether	4.378	59	414910	39.60	ug/L	99
30) 2,2-Dichloropropane	4.609	77	212432	42.00	ug/L	95
31) cis-1,2-Dichloroethene	4.604	61	248612	41.41	ug/L	93
32) 2-Butanone	4.604	43	65529	32.97	ug/L #	93
33) Ethyl Acetate	4.693	43	140447	36.49	ug/L #	96
34) Methyl acrylate	4.750	55	144031	39.14	ug/L	99
35) Propionitrile	5.479	54	13467	47.51	ug/L #	53
36) Bromochloromethane	4.971	49	144403	41.26	ug/L	89
37) Tetrahydrofuran	5.002	42	42119	35.18	ug/L	97
38) Methacrylonitrile	4.929	41	99993	39.44	ug/L	95

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	5.154	83	282370	43.02	ug/L		99
40)	Cyclohexane	5.479	56	187418	40.21	ug/L		96
42)	1,1,1-Trichloroethane	5.380	97	212126	40.13	ug/L		99
44)	Carbon tetrachloride	5.605	119	181611	38.52	ug/L		98
45)	1,1-Dichloropropene	5.626	75	185737	37.71	ug/L		97
47)	1,2-Dichloroethane	5.993	62	219226	38.69	ug/L		99
48)	Benzene	5.899	78	537120	39.91	ug/L		100
49)	Isobutyl Alcohol	6.051	43	258593	34.22	ug/L	#	94
50)	Tertiaryamylmethylether	6.129	73	379645	36.41	ug/L		97
51)	Heptane	6.365	43	128788	36.73	ug/L		94
52)	Methylcyclohexane	7.099	83	177914	38.21	ug/L		97
53)	Trichloroethene	6.811	130	138740	37.19	ug/L		98
54)	n-Butanol	6.779	56	32925	268.32	ug/L		94
55)	1,2-Dichloropropane	7.141	63	156952	40.39	ug/L		98
56)	Dibromomethane	7.241	93	115885	37.75	ug/L		99
57)	1,4-Dioxane	7.251	88	173355	3715.34	ug/L		97
58)	Methyl methacrylate	7.262	41	138501	33.68	ug/L		92
59)	Bromodichloromethane	7.482	83	223621	40.99	ug/L		99
60)	2-Chloroethyl vinyl ether	7.854	43	65721	35.03	ug/L		94
61)	2-Nitropropane	7.749	43	50025	37.64	ug/L	#	94
62)	cis-1,3-Dichloropropene	8.012	75	266610	41.26	ug/L		99
64)	4-Methyl-2-pentanone	8.200	43	137168	33.43	ug/L		99
66)	Toluene	8.389	91	574494	42.35	ug/L		99
67)	trans-1,3-Dichloropropene	8.683	75	234549	40.50	ug/L		99
68)	Chloropicrin	8.693	117	40404	No Calib			
69)	Ethyl methacrylate	8.772	69	194296	39.55	ug/L		97
70)	1,1,2-Trichloroethane	8.898	97	142788	40.21	ug/L		99
71)	Tetrachloroethene	8.971	166	140303	40.67	ug/L		96
72)	1,3-Dichloropropane	9.071	76	221522	40.23	ug/L		100
73)	2-Hexanone	9.155	43	91736	31.03	ug/L		96
74)	Chlorodibromomethane	9.307	129	184835	41.17	ug/L		99
75)	Butyl acetate	9.307	43	226791	34.01	ug/L		98
76)	1,2-Dibromoethane	9.422	107	149511	39.34	ug/L	#	98
77)	Chlorobenzene	9.967	112	367211	41.86	ug/L		98
78)	1,1,1,2-Tetrachloroethane	10.072	131	139550	42.02	ug/L		98
79)	Ethylbenzene	10.083	91	585775	40.87	ug/L		99
80)	m/p-Xylene	10.229	91	892338	80.84	ug/L		99
81)	Styrene	10.659	104	362370	40.22	ug/L		96
82)	o-Xylene	10.633	91	464879	38.71	ug/L		100
83)	Cyclohexanone	11.110	55	33047	153.98	ug/L		98
84)	Bromoform	10.843	173	114397	40.36	ug/L		98
85)	Isopropylbenzene	11.032	105	525915	40.11	ug/L		98
87)	Bromobenzene	11.341	77	244307	40.93	ug/L		90
88)	1,1,2,2-Tetrachloroethane	11.367	83	198744	39.74	ug/L		99
89)	1,2,3-Trichloropropane	11.414	110	44006	41.16	ug/L		95
90)	trans-1,4-Dichloro-2-b...	11.404	53	49925	35.98	ug/L		87
91)	n-Propylbenzene	11.467	91	683220	42.37	ug/L		100
92)	2-Chlorotoluene	11.551	91	405278	40.69	ug/L		97
93)	4-Chlorotoluene	11.682	91	488796	42.29	ug/L		98
94)	1,3,5-Trimethylbenzene	11.666	105	455343	41.83	ug/L		99
95)	tert-Butylbenzene	11.986	91	256442	41.59	ug/L		99
96)	1,2,4-Trimethylbenzene	12.049	105	429631	37.63	ug/L		100
97)	sec-Butylbenzene	12.222	105	522545	40.85	ug/L		99
99)	1,3-Dichlorobenzene	12.332	146	280804	41.19	ug/L		98
100)	p-Isopropyltoluene	12.384	119	430510	40.49	ug/L		99

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

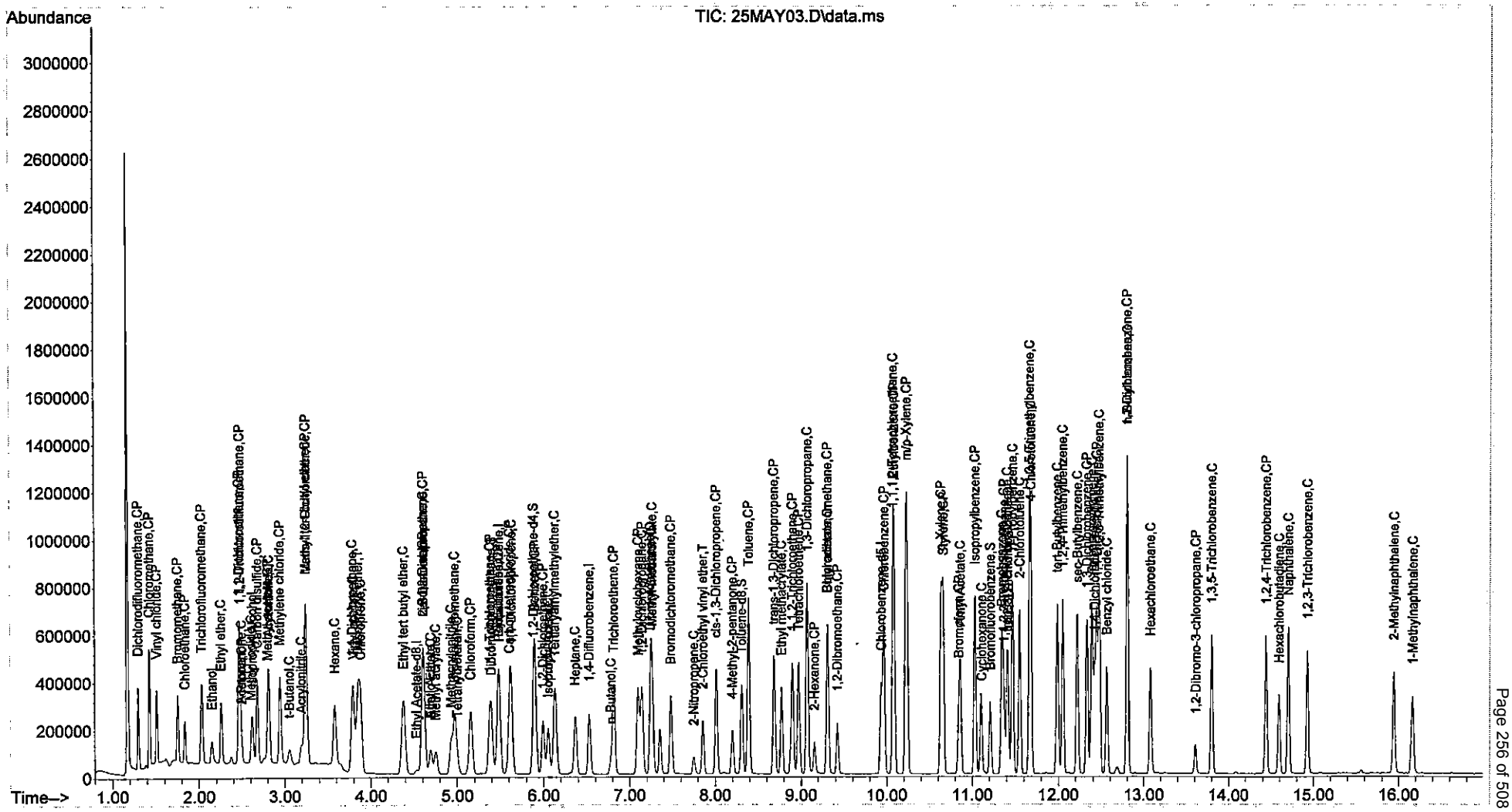
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	279209	40.52	ug/L	98
102) 1,2,3-Trimethylbenzene	12.468	105	471690	40.31	ug/L	100
103) Benzyl chloride	12.557	91	332155	41.33	ug/L	99
104) 1,2-Dichlorobenzene	12.799	146	281488	42.46	ug/L	98
105) n-Butylbenzene	12.804	91	433096	42.40	ug/L	98
106) Hexachloroethane	13.082	117	105231	38.86	ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	34051	34.93	ug/L	94
108) 1,3,5-Trichlorobenzene	13.800	180	185581	39.15	ug/L	99
109) 1,2,4-Trichlorobenzene	14.440	180	182120	40.20	ug/L	99
110) Hexachlorobutadiene	14.592	225	67822	45.94	ug/L	98
111) Naphthalene	14.702	128	494973	38.93	ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	169153	38.52	ug/L	100
113) 2-Methylnaphthalene	15.939	142	236943	33.41	ug/L	98
114) 1-Methylnaphthalene	16.165	142	187410	38.04	ug/L	98
116) 2-Propanone	2.496	43	45976	40.96	ug/L	95
117) Isopropyl Alcohol	2.622	45	209188	826.72	ug/L	94
118) Acetic Ether	4.693	43	139684	42.54	ug/L	98
119) Isopropyl Acetate	6.056	61	52325	37.78	ug/L	94
120) Amyl Acetate	10.859	43	248165	39.12	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 10:14 am
Operator : WH
Sample : VCCV2-180525
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 10:31:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	85	0.00
2	CP	Dichlorodifluoromethane	40.000	32.742	18.1	78	0.00
3	CP	Chloromethane	40.000	48.591	-21.5#	103	0.00
4	CP	Vinyl chloride	40.000	38.917	2.7	79	0.00
5	CP	Bromomethane	40.000	38.384	4.0	88	0.00
6	CP	Chloroethane	40.000	32.893	17.8	79	0.00
7	CP	Trichlorofluoromethane	40.000	32.963	17.6	73	0.00
8		Ethanol	800.000	949.527	-18.7	111	-0.01
9	C	Ethyl ether	40.000	48.583	-21.5#	93	0.00
10	C	Acrolein	200.000	0.000	100.0#	0	0.00
11	CP	1,1-Dichloroethene	40.000	37.422	6.4	80	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	34.748	13.1	77	0.00
13	C	Methyl iodide	40.000	27.680	30.8#	52	0.00
14	CP	Acetone	40.000	48.790	-22.0#	102	0.00
15	CP	Carbon disulfide	40.000	36.918	7.7	82	0.00
16	C	Allyl chloride	40.000	35.728	10.7	79	0.00
17	CP	Methyl acetate	40.000	41.266	-3.2	96	0.00
18	C	Acetonitrile	40.000	36.194	9.5	79	0.00
19	CP	Methylene chloride	40.000	43.124	-7.8	92	0.00
20	C	t-Butanol	200.000	252.516	-26.3#	117	0.00
21	CP	trans-1,2-Dichloroethene	40.000	39.084	2.3	86	0.00
22	C	Acrylonitrile	40.000	45.544	-13.9	109	0.00
23	CP	Methyl tert-butyl ether	40.000	42.066	-5.2	91	0.00
24	C	Hexane	40.000	34.754	13.1	76	0.00
25	C	1,1-Dichloroethane	40.000	46.928	-17.3	96	0.00
26	T	Diisopropyl ether	40.000	45.781	-14.5	97	0.00
27	C	Chloroprene	40.000	39.473	1.3	86	0.00
28	C	Vinyl acetate	40.000	36.055	9.9	79	0.00
29	C	Ethyl tert butyl ether	40.000	45.450	-13.6	97	0.00
30	C	2,2-Dichloropropane	40.000	41.263	-3.2	91	-0.01
31	CP	cis-1,2-Dichloroethene	40.000	44.635	-11.6	101	0.00
32	CP	2-Butanone	40.000	50.956	-27.4#	114	0.00
33	C	Ethyl Acetate	40.000	53.986	-35.0#	114	0.00
34	C	Methyl acrylate	40.000	51.142	-27.9#	115	0.00
35	C	Propionitrile	40.000	41.997	-5.0	83	0.00
36	C	Bromochloromethane	40.000	46.314	-15.8	104	0.00
37	C	Tetrahydrofuran	40.000	49.920	-24.8#	117	0.00
38	C	Methacrylonitrile	40.000	51.397	-28.5#	108	0.00
39	CP	Chloroform	40.000	47.320	-18.3	103	0.00
40	CP	Cyclohexane	40.000	33.948	15.1	73	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	93	0.00
42	CP	1,1,1-Trichloroethane	40.000	37.107	7.2	87	0.00
43	S	Dibromofluoromethane	20.000	20.939	-4.7	97	0.00
44	CP	Carbon tetrachloride	40.000	33.757	15.6	83	0.00
45	C	1,1-Dichloropropene	40.000	35.002	12.5	90	0.00
46	S	1,2-Dichloroethane-d4	20.000	19.032	4.8	88	0.00
47	CP	1,2-Dichloroethane	40.000	38.996	2.5	101	0.00
48	CP	Benzene	40.000	37.939	5.2	91	0.00
49	C	Isobutyl Alcohol	40.000	43.723	-9.3	102	0.00
50	C	Tertiaryamy1methylether	40.000	39.444	1.4	97	0.00

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	28.624	28.4#	79	0.00
52	CP	Methylcyclohexane	40.000	29.679	25.8#	75	0.00
53	CP	Trichloroethene	40.000	36.142	9.6	91	0.00
54	C	n-Butanol	400.000	440.866	-10.2	115	0.00
55	CP	1,2-Dichloropropane	40.000	41.924	-4.8	102	0.00
56	C	Dibromomethane	40.000	37.939	5.2	96	0.00
57	C	1,4-Dioxane	4000.000	5037.007	-25.9#	118	0.00
58	C	Methyl methacrylate	40.000	38.659	3.4	102	0.00
59	CP	Bromodichloromethane	40.000	38.983	2.5	90	0.00
60	T	2-Chloroethyl vinyl ether	40.000	38.542	3.6	93	0.00
61	C	2-Nitropropane	40.000	33.098	17.3	78	0.00
62	CP	cis-1,3-Dichloropropene	40.000	38.027	4.9	93	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	90	0.00
64	CP	4-Methyl-2-pentanone	40.000	45.484	-13.7	114	0.00
65	S	Toluene-d8	20.000	18.730	6.3	86	0.00
66	CP	Toluene	40.000	38.742	3.1	94	0.00
67	CP	trans-1,3-Dichloropropene	40.000	40.556	-1.4	100	0.00
68	C	Chloropicrin	400.000	0.000	100.0#	0	0.00
69	C	Ethyl methacrylate	40.000	36.733	8.2	95	0.00
70	CP	1,1,2-Trichloroethane	40.000	42.233	-5.6	106	0.00
71	CP	Tetrachloroethene	40.000	37.036	7.4	94	0.00
72	C	1,3-Dichloropropane	40.000	39.701	0.7	96	0.00
73	CP	2-Hexanone	40.000	45.982	-15.0	114	0.00
74	CP	Chlorodibromomethane	40.000	42.000	-5.0	102	0.00
75	C	Butyl acetate	40.000	44.801	-12.0	109	0.00
76	CP	1,2-Dibromoethane	40.000	35.671	10.8	84	0.00
77	CP	Chlorobenzene	40.000	39.697	0.8	102	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	40.403	-1.0	97	0.00
79	CP	Ethylbenzene	40.000	40.253	-0.6	97	0.00
80	CP	m/p-Xylene	80.000	73.687	7.9	85	0.00
81	CP	Styrene	40.000	38.103	4.7	92	0.00
82	CP	o-Xylene	40.000	36.308	9.2	92	0.00
83	C	Cyclohexanone	200.000	250.285	-25.1#	126	0.00
84	CP	Bromoform	40.000	43.575	-8.9	104	0.00
85	CP	Isopropylbenzene	40.000	35.861	10.3	85	0.00
86	S	Bromofluorobenzene	20.000	20.898	-4.5	95	0.00
87	C	Bromobenzene	40.000	41.285	-3.2	101	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	43.735	-9.3	107	0.00
89	C	1,2,3-Trichloropropane	40.000	46.135	-15.3	106	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	41.568	-3.9	108	0.00
91	C	n-Propylbenzene	40.000	36.799	8.0	92	0.00
92	C	2-Chlorotoluene	40.000	36.871	7.8	92	0.00
93	C	4-Chlorotoluene	40.000	35.481	11.3	93	0.00
94	C	1,3,5-Trimethylbenzene	40.000	34.651	13.4	87	0.00
95	C	tert-Butylbenzene	40.000	34.578	13.6	84	0.00
96	C	1,2,4-Trimethylbenzene	40.000	35.647	10.9	91	0.00
97	C	sec-Butylbenzene	40.000	38.050	4.9	92	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	79	0.00
99	CP	1,3-Dichlorobenzene	40.000	40.952	-2.4	88	0.00

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100 C	p-Isopropyltoluene	40.000	37.591	6.0	81	0.00
101 CP	1,4-Dichlorobenzene	40.000	40.944	-2.4	91	0.00
102 C	1,2,3-Trimethylbenzene	40.000	42.610	-6.5	93	0.00
103 C	Benzyl chloride	40.000	40.938	-2.3	91	0.00
104 CP	1,2-Dichlorobenzene	40.000	43.364	-8.4	95	0.00
105 C	n-Butylbenzene	40.000	41.086	-2.7	91	0.00
106 C	Hexachloroethane	40.000	38.986	2.5	89	0.00
107 CP	1,2-Dibromo-3-chloropropane	40.000	51.300	-28.2#	121	0.00
108 C	1,3,5-Trichlorobenzene	40.000	43.089	-7.7	100	0.00
109 CP	1,2,4-Trichlorobenzene	40.000	45.043	-12.6	103	0.00
110 C	Hexachlorobutadiene	40.000	46.656	-16.6	105	0.00
111 C	Naphthalene	40.000	46.694	-16.7	104	0.00
112 C	1,2,3-Trichlorobenzene	40.000	46.829	-17.1	105	0.00
113 C	2-Methylnaphthalene	40.000	45.262	-13.2	106	0.00
114 C	1-Methylnaphthalene	40.000	57.202	-43.0#	117	0.00
115 I	Ethyl Acetate-d8	20.000	20.000	0.0	105	0.00
116 C	2-Propanone	40.000	38.328	4.2	102	0.00
117	Isopropyl Alcohol	800.000	803.148	-0.4	115	0.00
118 C	Acetic Ether	40.000	45.059	-12.6	113	0.00
119 C	Isopropyl Acetate	40.000	39.155	2.1	104	0.00
120 C	Amyl Acetate	40.000	38.171	4.6	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 18

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	85	0.00
2	CP	Dichlorodifluoromethane	0.548	0.449	18.1	78	0.00
3	CP	Chloromethane	0.937	1.138	-21.5#	103	0.00
4	CP	Vinyl chloride	0.608	0.591	2.8	79	0.00
5	CP	Bromomethane	0.471	0.361	23.4#	88	0.00
6	CP	Chloroethane	0.389	0.320	17.7	79	0.00
7	CP	Trichlorofluoromethane	0.721	0.594	17.6	73	0.00
8		Ethanol	0.021	0.025	-19.0	111	-0.01
9	C	Ethyl ether	0.354	0.430	-21.5#	93	0.00
10	C	Acrolein	0.000	0.029	0.0	0#	0.00
11	CP	1,1-Dichloroethene	0.682	0.638	6.5	80	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.289	0.251	13.1	77	0.00
13	C	Methyl iodide	0.104	0.065	37.5#	52	0.00
14	CP	Acetone	0.291	0.205	29.6#	102	0.00
15	CP	Carbon disulfide	1.437	1.326	7.7	82	0.00
16	C	Allyl chloride	0.751	0.671	10.7	79	0.00
17	CP	Methyl acetate	0.448	0.462	-3.1	96	0.00
18	C	Acetonitrile	0.741	0.671	9.4	79	0.00
19	CP	Methylene chloride	0.789	0.746	5.4	92	0.00
20	C	t-Butanol	0.062	0.078	-25.8#	117	0.00
21	CP	trans-1,2-Dichloroethene	0.712	0.695	2.4	86	0.00
22	C	Acrylonitrile	0.233	0.265	-13.7	109	0.00
23	CP	Methyl tert-butyl ether	1.370	1.440	-5.1	91	0.00
24	C	Hexane	0.532	0.361	32.1#	76	0.00
25	C	1,1-Dichloroethane	0.877	1.029	-17.3	96	0.00
26	T	Diisopropyl ether	1.484	1.699	-14.5	97	0.00
27	C	Chloroprene	0.657	0.648	1.4	86	0.00
28	C	Vinyl acetate	0.091	0.071	22.0#	79	0.00
29	C	Ethyl tert butyl ether	1.415	1.608	-13.6	97	0.00
30	C	2,2-Dichloropropane	0.683	0.705	-3.2	91	-0.01
31	CP	cis-1,2-Dichloroethene	0.811	0.905	-11.6	101	0.00
32	CP	2-Butanone	0.287	0.343	-19.5	114	0.00
33	C	Ethyl Acetate	0.520	0.702	-35.0#	114	0.00
34	C	Methyl acrylate	0.497	0.636	-28.0#	115	0.00
35	C	Propionitrile	0.038	0.040	-5.3	83	0.00
36	C	Bromochloromethane	0.473	0.547	-15.6	104	0.00
37	C	Tetrahydrofuran	0.162	0.202	-24.7#	117	0.00
38	C	Methacrylonitrile	0.310	0.440	-41.9#	108	0.00
39	CP	Chloroform	0.887	1.049	-18.3	103	0.00
40	CP	Cyclohexane	0.798	0.535	33.0#	73	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	93	0.00
42	CP	1,1,1-Trichloroethane	0.442	0.410	7.2	87	0.00
43	S	Dibromofluoromethane	0.373	0.390	-4.6	97	0.00
44	CP	Carbon tetrachloride	0.395	0.333	15.7	83	0.00
45	C	1,1-Dichloropropene	0.412	0.361	12.4	90	0.00
46	S	1,2-Dichloroethane-d4	0.415	0.395	4.8	88	0.00
47	CP	1,2-Dichloroethane	0.474	0.462	2.5	101	0.00
48	CP	Benzene	1.126	1.068	5.2	91	0.00
49	C	Isobutyl Alcohol	0.632	0.691	-9.3	102	0.00
50	C	Tertiaryamylmethylether	0.873	0.860	1.5	97	0.00

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.293	0.210	28.3#	79	0.00
52	CP	Methylcyclohexane	0.390	0.289	25.9#	75	0.00
53	CP	Trichloroethene	0.312	0.282	9.6	91	0.00
54	C	n-Butanol	0.010	0.011	-10.0	115	0.00
55	CP	1,2-Dichloropropane	0.325	0.341	-4.9	102	0.00
56	C	Dibromomethane	0.257	0.244	5.1	96	0.00
57	C	1,4-Dioxane	0.004	0.005	-25.0#	118	0.00
58	C	Methyl methacrylate	0.344	0.333	3.2	102	0.00
59	CP	Bromodichloromethane	0.457	0.445	2.6	90	0.00
60	T	2-Chloroethyl vinyl ether	0.168	0.151	10.1	93	0.00
61	C	2-Nitropropane	0.114	0.092	19.3	78	0.00
62	CP	cis-1,3-Dichloropropene	0.541	0.514	5.0	93	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	90	0.00
64	CP	4-Methyl-2-pentanone	0.398	0.453	-13.8	114	0.00
65	S	Toluene-d8	1.322	1.238	6.4	86	0.00
66	CP	Toluene	1.315	1.274	3.1	94	0.00
67	CP	trans-1,3-Dichloropropene	0.562	0.569	-1.2	100	0.00
68	C	Chloropicrin	0.000	0.022	0.0	0#	0.00
69	C	Ethyl methacrylate	0.476	0.437	8.2	95	0.00
70	CP	1,1,2-Trichloroethane	0.344	0.364	-5.8	106	0.00
71	CP	Tetrachloroethene	0.335	0.310	7.5	94	0.00
72	C	1,3-Dichloropropane	0.534	0.530	0.7	96	0.00
73	CP	2-Hexanone	0.287	0.330	-15.0	114	0.00
74	CP	Chlorodibromomethane	0.435	0.457	-5.1	102	0.00
75	C	Butyl acetate	0.647	0.724	-11.9	109	0.00
76	CP	1,2-Dibromoethane	0.369	0.329	10.8	84	0.00
77	CP	Chlorobenzene	0.851	0.844	0.8	102	0.00
78	C	1,1,1,2-Tetrachloroethane	0.322	0.325	-0.9	97	0.00
79	CP	Ethylbenzene	1.390	1.399	-0.6	97	0.00
80	CP	m/p-Xylene	1.070	0.986	7.9	85	0.00
81	CP	Styrene	0.874	0.832	4.8	92	0.00
82	CP	o-Xylene	1.165	1.057	9.3	92	0.00
83	C	Cyclohexanone	0.021	0.026	-23.8#	126	0.00
84	CP	Bromoform	0.275	0.299	-8.7	104	0.00
85	CP	Isopropylbenzene	1.271	1.140	10.3	85	0.00
86	S	Bromofluorobenzene	0.507	0.529	-4.3	95	0.00
87	C	Bromobenzene	0.579	0.597	-3.1	101	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.485	0.530	-9.3	107	0.00
89	C	1,2,3-Trichloropropane	0.133	0.120	9.8	106	0.00
90	C	trans-1,4-Dichloro-2-butene	0.135	0.140	-3.7	108	0.00
91	C	n-Propylbenzene	1.564	1.439	8.0	92	0.00
92	C	2-Chlorotoluene	0.966	0.890	7.9	92	0.00
93	C	4-Chlorotoluene	1.121	0.994	11.3	93	0.00
94	C	1,3,5-Trimethylbenzene	1.056	0.914	13.4	87	0.00
95	C	tert-Butylbenzene	0.598	0.517	13.5	84	0.00
96	C	1,2,4-Trimethylbenzene	1.107	0.987	10.8	91	0.00
97	C	sec-Butylbenzene	1.240	1.180	4.8	92	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	79	0.00
99	CP	1,3-Dichlorobenzene	1.308	1.339	-2.4	88	0.00

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.039	1.916	6.0	81	0.00
101	CP	1,4-Dichlorobenzene	1.321	1.353	-2.4	91	0.00
102	C	1,2,3-Trimethylbenzene	2.244	2.391	-6.6	93	0.00
103	C	Benzyl chloride	1.541	1.578	-2.4	91	0.00
104	CP	1,2-Dichlorobenzene	1.271	1.378	-8.4	95	0.00
105	C	n-Butylbenzene	1.959	2.012	-2.7	91	0.00
106	C	Hexachloroethane	0.519	0.506	2.5	89	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.187	0.240	-28.3#	121	0.00
108	C	1,3,5-Trichlorobenzene	0.909	0.979	-7.7	100	0.00
109	CP	1,2,4-Trichlorobenzene	0.869	0.978	-12.5	103	0.00
110	C	Hexachlorobutadiene	0.283	0.330	-16.6	105	0.00
111	C	Naphthalene	2.439	2.847	-16.7	104	0.00
112	C	1,2,3-Trichlorobenzene	0.842	0.986	-17.1	105	0.00
113	C	2-Methylnaphthalene	1.360	1.539	-13.2	106	0.00
114	C	1-Methylnaphthalene	1.160	1.399	-20.6#	117	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	105	0.00
116	C	2-Propanone	1.125	0.712	36.7#	102	0.00
117		Isopropyl Alcohol	0.167	0.167	0.0	115	0.00
118	C	Acetic Ether	2.161	2.434	-12.6	113	0.00
119	C	Isopropyl Acetate	0.911	0.892	2.1	104	0.00
120	C	Amyl Acetate	4.174	3.983	4.6	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 20

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	125179	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	219131	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	195971	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	88840	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	36093	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.395	111	85536	20.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 104.70%				
46) 1,2-Dichloroethane-d4	5.883	65	86618	19.03	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.15%				
65) Toluene-d8	8.311	98	242656	18.73	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.65%				
86) Bromofluorobenzene	11.210	95	103732	20.90	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	112316	32.74	ug/L		98
3) Chloromethane	1.421	50	284966	48.59	ug/L		98
4) Vinyl chloride	1.505	62	147996	38.92	ug/L		99
5) Bromomethane	1.746	96	90401	38.38	ug/L		95
6) Chloroethane	1.830	64	80048	32.89	ug/L		99
7) Trichlorofluoromethane	2.029	101	148711	32.96	ug/L		99
8) Ethanol	2.155	45	125597	949.53	ug/L	#	100
9) Ethyl ether	2.255	59	107706	48.58	ug/L		98
10) Acrolein	2.375	56	36524	No Calib			
11) 1,1-Dichloroethene	2.465	61	159779	37.42	ug/L		96
12) 1,1,2-Trichlorotrifluo...	2.470	151	62761	34.75	ug/L		100
13) Methyl iodide	2.606	142	16251	27.68	ug/L	#	87
14) Acetone	2.496	43	51378	48.79	ug/L		94
15) Carbon disulfide	2.674	76	332026	36.92	ug/L		100
16) Allyl chloride	2.811	41	167951	35.73	ug/L		96
17) Methyl acetate	2.800	43	115721	41.27	ug/L		97
18) Acetonitrile	2.811	41	167951	36.19	ug/L		96
19) Methylene chloride	2.942	49	186839	43.12	ug/L		98
20) t-Butanol	3.067	59	97982	252.52	ug/L		93
21) trans-1,2-Dichloroethene	3.240	61	174057	39.08	ug/L		98
22) Acrylonitrile	3.193	53	66353	45.54	ug/L		95
23) Methyl tert-butyl ether	3.240	73	360603	42.07	ug/L		98
24) Hexane	3.576	57	90268	34.75	ug/L		97
25) 1,1-Dichloroethane	3.781	63	257651	46.93	ug/L		97
26) Diisopropyl ether	3.854	45	425278	45.78	ug/L	#	93
27) Chloroprene	3.880	53	162353	39.47	ug/L		99
28) Vinyl acetate	3.796	86	17744	36.05	ug/L	#	34
29) Ethyl tert butyl ether	4.383	59	402597	45.45	ug/L		97
30) 2,2-Dichloropropane	4.604	77	176465	41.26	ug/L		92
31) cis-1,2-Dichloroethene	4.604	61	226555	44.64	ug/L		93
32) 2-Butanone	4.609	43	85855	50.96	ug/L		99
33) Ethyl Acetate	4.698	43	175693	53.99	ug/L	#	98
34) Methyl acrylate	4.756	55	159117	51.14	ug/L		100
35) Propionitrile	5.474	54	10065	42.00	ug/L	#	62
36) Bromochloromethane	4.971	49	137039	46.31	ug/L		86
37) Tetrahydrofuran	5.007	42	50536	49.92	ug/L		95
38) Methacrylonitrile	4.934	41	110255	51.40	ug/L		96

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	5.159	83	262609	47.32 ug/L		98
40) Cyclohexane	5.474	56	134031	33.95 ug/L		93
42) 1,1,1-Trichloroethane	5.380	97	179838	37.11 ug/L		100
44) Carbon tetrachloride	5.605	119	145931	33.76 ug/L		99
45) 1,1-Dichloropropene	5.621	75	158088	35.00 ug/L		97
47) 1,2-Dichloroethane	5.993	62	202602	39.00 ug/L		98
48) Benzene	5.899	78	468236	37.94 ug/L		99
49) Isobutyl Alcohol	6.056	43	302997	43.72 ug/L	#	95
50) Tertiaryamylmethylether	6.135	73	377077	39.44 ug/L		98
51) Heptane	6.365	43	92042	28.62 ug/L		93
52) Methylcyclohexane	7.099	83	126718	29.68 ug/L		94
53) Trichloroethene	6.811	130	123623	36.14 ug/L		93
54) n-Butanol	6.785	56	49605	440.87 ug/L		95
55) 1,2-Dichloropropane	7.141	63	149367	41.92 ug/L		94
56) Dibromomethane	7.241	93	106788	37.94 ug/L		99
57) 1,4-Dioxane	7.257	88	215506	5037.01 ug/L		96
58) Methyl methacrylate	7.267	41	145784	38.66 ug/L		91
59) Bromodichloromethane	7.482	83	195024	38.98 ug/L		99
60) 2-Chloroethyl vinyl ether	7.854	43	66086	38.54 ug/L	#	79
61) 2-Nitropropane	7.750	43	40380	33.10 ug/L	#	96
62) cis-1,3-Dichloropropene	8.012	75	225291	38.03 ug/L		100
64) 4-Methyl-2-pentanone	8.200	43	177354	45.48 ug/L		98
66) Toluene	8.389	91	499332	38.74 ug/L		99
67) trans-1,3-Dichloropropene	8.688	75	223192	40.56 ug/L		96
68) Chloropicrin	8.693	117	86759	No Calib		
69) Ethyl methacrylate	8.777	69	171463	36.73 ug/L		96
70) 1,1,2-Trichloroethane	8.903	97	142502	42.23 ug/L		100
71) Tetrachloroethene	8.971	166	121395	37.04 ug/L		94
72) 1,3-Dichloropropane	9.076	76	207731	39.70 ug/L		98
73) 2-Hexanone	9.155	43	129172	45.98 ug/L		99
74) Chlorodibromomethane	9.307	129	179170	42.00 ug/L		99
75) Butyl acetate	9.312	43	283893	44.80 ug/L		97
76) 1,2-Dibromoethane	9.422	107	128819	35.67 ug/L	#	99
77) Chlorobenzene	9.967	112	330886	39.70 ug/L		98
78) 1,1,1,2-Tetrachloroethane	10.077	131	127505	40.40 ug/L		97
79) Ethylbenzene	10.083	91	548229	40.25 ug/L		99
80) m/p-Xylene	10.229	91	772889	73.69 ug/L		98
81) Styrene	10.659	104	326159	38.10 ug/L		96
82) o-Xylene	10.633	91	414293	36.31 ug/L		100
83) Cyclohexanone	11.110	55	51040	250.29 ug/L		96
84) Bromoform	10.843	173	117362	43.57 ug/L		98
85) Isopropylbenzene	11.032	105	446742	35.86 ug/L		98
87) Bromobenzene	11.341	77	234151	41.28 ug/L		89
88) 1,1,2,2-Tetrachloroethane	11.367	83	207826	43.73 ug/L		99
89) 1,2,3-Trichloropropane	11.414	110	46895	46.14 ug/L		92
90) trans-1,4-Dichloro-2-b...	11.404	53	54810	41.57 ug/L		88
91) n-Propylbenzene	11.472	91	563818	36.80 ug/L		98
92) 2-Chlorotoluene	11.551	91	348988	36.87 ug/L		98
93) 4-Chlorotoluene	11.682	91	389713	35.48 ug/L		98
94) 1,3,5-Trimethylbenzene	11.666	105	358396	34.65 ug/L		98
95) tert-Butylbenzene	11.986	91	202593	34.58 ug/L		94
96) 1,2,4-Trimethylbenzene	12.054	105	386756	35.65 ug/L		99
97) sec-Butylbenzene	12.222	105	462492	38.05 ug/L		98
99) 1,3-Dichlorobenzene	12.332	146	237856	40.95 ug/L		97
100) p-Isopropyltoluene	12.384	119	340492	37.59 ug/L		98

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration

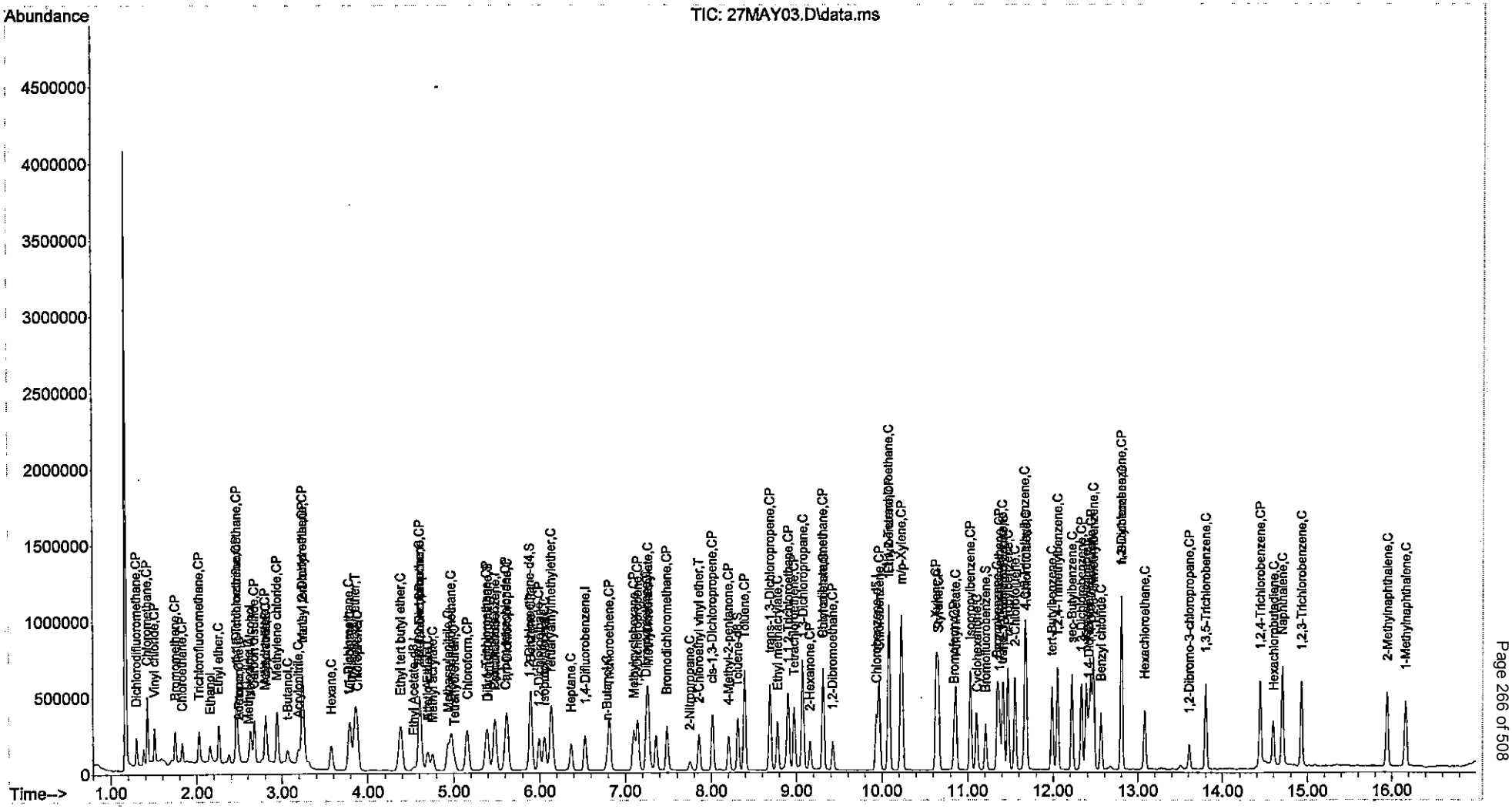
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	240342	40.94 ug/L	98
102) 1,2,3-Trimethylbenzene	12.468	105	424751	42.61 ug/L	100
103) Benzyl chloride	12.557	91	280293	40.94 ug/L	98
104) 1,2-Dichlorobenzene	12.799	146	244916	43.36 ug/L	98
105) n-Butylbenzene	12.804	91	357497	41.09 ug/L	97
106) Hexachloroethane	13.082	117	89942	38.99 ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.606	157	42611	51.30 ug/L	96
108) 1,3,5-Trichlorobenzene	13.800	180	174026	43.09 ug/L	99
109) 1,2,4-Trichlorobenzene	14.440	180	173853	45.04 ug/L	99
110) Hexachlorobutadiene	14.597	225	58683	46.66 ug/L	100
111) Naphthalene	14.702	128	505793	46.69 ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	175196	46.83 ug/L	100
113) 2-Methylnaphthalene	15.939	142	273478	45.26 ug/L	100
114) 1-Methylnaphthalene	16.159	142	248623	57.20 ug/L	98
116) 2-Propanone	2.496	43	51378	38.33 ug/L	94
117) Isopropyl Alcohol	2.627	45	241344	803.15 ug/L	96
118) Acetic Ether	4.698	43	175693	45.06 ug/L	99
119) Isopropyl Acetate	6.056	61	64400	39.16 ug/L	93
120) Amyl Acetate	10.859	43	287547	38.17 ug/L	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY03.D
Acq On : 27 May 2018 5:34 pm
Operator : WH
Sample : VCCV1-180527
Misc : V1/3 IS/SS 200-20233,20276,20274,20272 40PPB
ALS Vial : 1 Sample Multiplier: 1

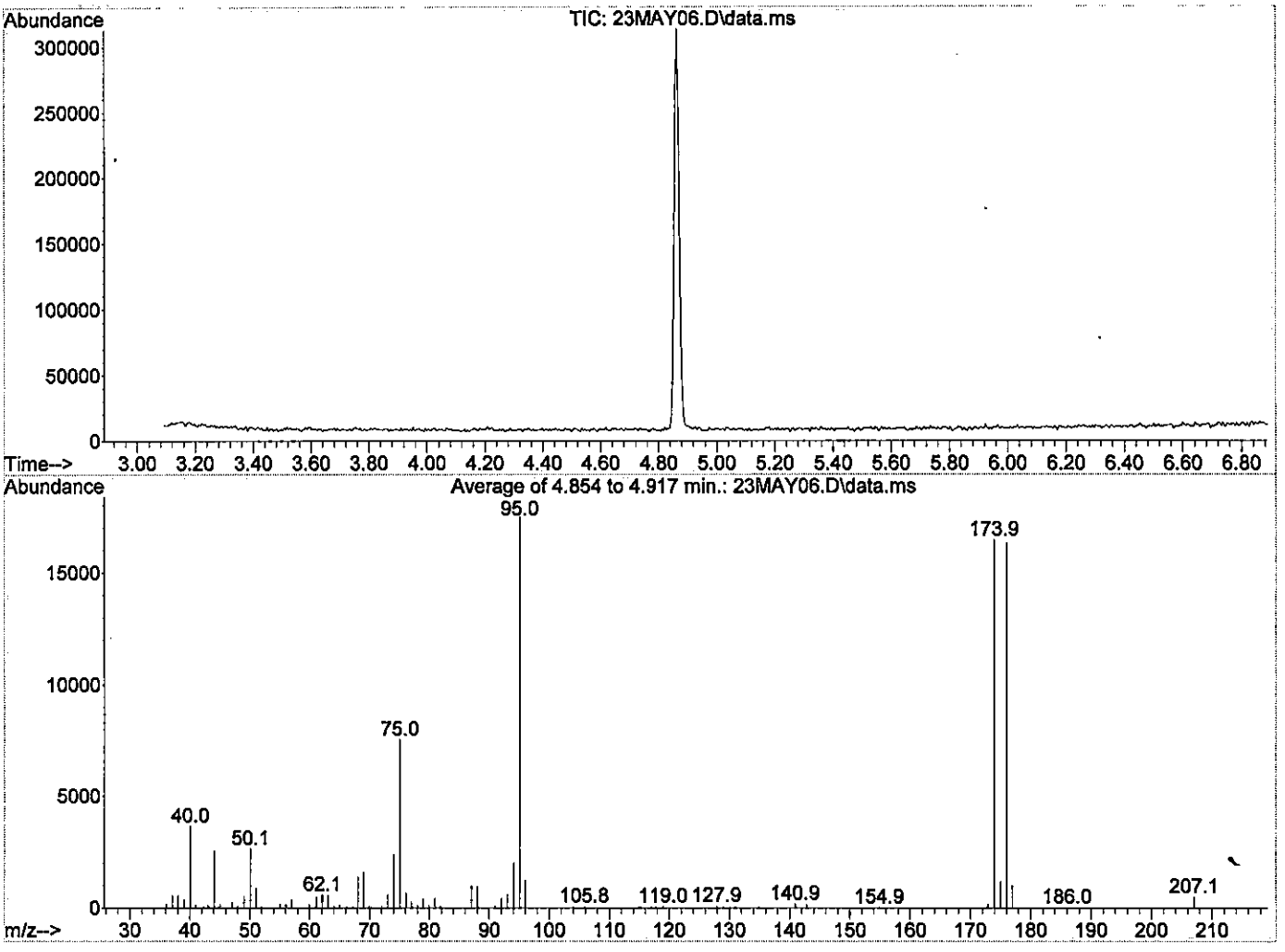
Quant Time: May 27 17:51:48 2018
Quant Method : C:\msdchem\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 10:13:12 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY06.D
Acq On : 23 May 2018 12:43 pm
Operator : EMR
Sample : VBFB2-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\7AC0524.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 10:13:12 2018



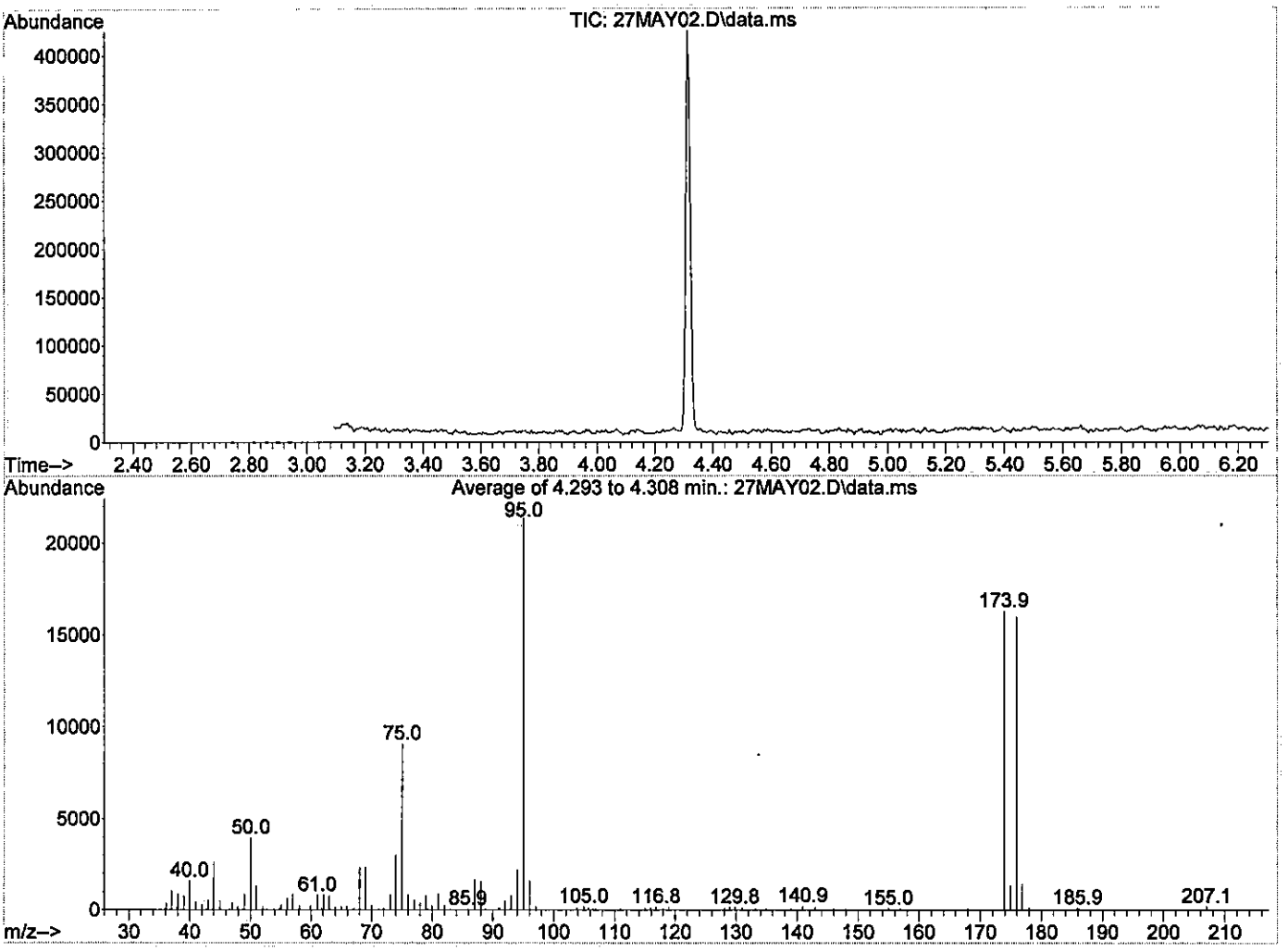
Spectrum Information: Average of 4.854 to 4.917 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.1	2635	PASS
75	95	30	60	43.1	7529	PASS
95	95	100	100	100.0	17486	PASS
96	95	5	9	7.1	1246	PASS
173	174	0.00	2	0.9	153	PASS
174	95	50	100	94.1	16453	PASS
175	174	5	9	7.1	1165	PASS
176	174	95	101	99.0	16295	PASS
177	176	5	9	6.1	992	PASS

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY02.D
Acq On : 27 May 2018 5:10 pm
Operator : WH
Sample : VBFB1-180527
Misc : 200-20285
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\7AC0524.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 10:13:12 2018



Spectrum Information: Average of 4.293 to 4.308 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.4	3935	PASS
75	95	30	60	42.4	9053	PASS
95	95	100	100	100.0	21347	PASS
96	95	5	9	7.5	1606	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	76.2	16257	PASS
175	174	5	9	8.1	1321	PASS
176	174	95	101	98.2	15963	PASS
177	176	5	9	8.7	1390	PASS

Response Factor Report VMS8

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY17.D 2 =15MAY18.D 3 =15MAY19.D 4 =15MAY20.D 5 =15MAY21.D 6 =15MAY22.D 7 =15MAY23.D
8 =15MAY24.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...		0.865	0.627	0.650	0.641	0.574	0.554	0.550	0.637	17.05
3)	P	Chloromethane		1.151	0.853	0.885	0.818	0.822	0.793	0.824	0.878	14.13
4)	C	Vinyl chloride			0.651	0.666	0.695	0.626	0.608	0.614	0.643	5.19
5)	T	Bromomethane			0.656	0.641	0.546	0.532	0.484	0.495	0.559	13.04
6)	T	Chloroethane	0.508	0.497	0.457	0.381	0.381	0.382	0.361	0.366	0.416	14.54
7)	T	Trichlorofluor...		1.137	0.833	0.906	0.863	0.780	0.767	0.788	0.868	14.82
8)	T	Ethyl ether	0.289	0.405	0.419	0.393	0.349	0.352	0.338	0.378	0.365	11.49
9)	T	Acrolein		0.197	0.084	0.085	0.074	0.049	0.048	0.052	0.084#	62.10
10)	C	1,1-Dichloroet...	0.938	1.022	0.838	0.844	0.775	0.792	0.720	0.811	0.842	11.40
11)	T	1,1,2-Trichlor...	0.417	0.521	0.353	0.430	0.390	0.398	0.343	0.404	0.407	13.42
12)	T	Methyl iodide		0.469	0.340	0.328	0.324	0.360	0.369	0.443	0.376	15.22
13)	T	Acetone		1.131	0.329	0.318	0.186	0.140	0.133	0.143	0.340	105.42
14)	T	Chloroprene	0.849	1.012	0.859	0.823	0.738	0.763	0.699	0.800	0.818	11.69
15)	T	Carbon disulfide			2.109	2.101	1.867	1.899	1.750	1.924	1.942	7.19
16)	T	Allyl chloride			0.998	1.047	0.841	0.846	0.829	0.888	0.908	10.16
17)	T	Methyl acetate			0.413	0.333	0.325	0.324	0.328	0.362	0.348	10.06
18)	T	Acetonitrile			0.998	1.047	0.841	0.846	0.828	0.882	0.907	10.21
19)	T	Methylene chlo...		5.461	1.750	1.296	0.846	0.725	0.689	0.727	1.642	105.29
20)	T	trans-1,2-Dich...	1.003	1.094	0.939	0.855	0.794	0.825	0.755	0.853	0.890	12.82
21)	T	t-Butanol	0.281	0.212	0.113	0.085	0.068	0.057	0.056	0.063	0.117#	72.01
22)	T	Acrylonitrile	0.172	0.290	0.199	0.193	0.199	0.197	0.187	0.209	0.206	17.38
23)	CP	Methyl tert-bu...	1.158	1.077	1.126	1.015	1.035	1.015	1.082	1.160	1.083	5.50#
24)	T	Hexane		3.630	1.305	1.023	0.866	0.806	0.637	0.700	1.281	82.69
25)	P	1,1-Dichloroet...	0.859	1.178	1.068	1.089	1.009	1.027	0.983	1.082	1.037	9.02
26)	CP	Diisopropyl ether	1.159	1.348	1.229	1.234	1.242	1.197	1.296	1.375	1.260	5.90#
27)	T	Vinyl acetate			0.114	0.114	0.095	0.077	0.076	0.082	0.093#	18.78
28)	CP	Ethyl tert but...	1.162	1.165	1.236	1.090	1.166	1.127	1.183	1.275	1.175	4.95#
29)	T	2,2-Dichloropr...			0.832	0.872	0.805	0.799	0.744	0.818	0.812	5.16
30)	T	cis-1,2-Dichlo...	1.134	1.203	1.081	0.919	0.941	0.952	0.908	0.995	1.017	10.80
31)	T	2-Butanone		0.480	0.229	0.187	0.214	0.205	0.209	0.234	0.251	40.68
32)	T	Ethyl Acetate	0.429	0.527	0.380	0.428	0.436	0.424	0.446	0.481	0.444	9.84
33)	T	Methyl acrylate			0.443	0.461	0.464	0.483	0.456	0.504	0.468	4.59
34)	T	Propionitrile		0.151	0.112	0.096	0.065	0.053	0.049	0.056	0.083#	45.97
35)	T	Bromochloromet...			0.593	0.467	0.457	0.439	0.429	0.465	0.475	12.55
36)	T	Tetrahydrofuran		0.314	0.267	0.204	0.163	0.154	0.169	0.168	0.206	30.03
37)	T	Methacrylonitrile	0.249	0.362	0.352	0.330	0.309	0.311	0.287	0.319	0.315	11.42
38)	C	Chloroform	1.227	1.557	1.064	1.099	0.991	1.001	0.937	1.056	1.116	17.74
39)	T	Cyclohexane	1.593	1.603	0.993	0.977	0.870	0.852	0.728	0.845	1.058	32.48

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration

40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.713	0.618	0.599	0.554	0.570	0.504	0.556	0.588	11.21
42)	S	Dibromofluorom...	0.353	0.357	0.329	0.333	0.342	0.335	0.331	0.337	0.340	3.06
43)	T	Carbon tetrach...	0.378	0.542	0.443	0.527	0.479	0.513	0.455	0.515	0.481	11.30
44)	T	1,1-Dichloropr...	0.612	0.830	0.558	0.519	0.502	0.534	0.464	0.524	0.568	20.09
45)	S	1,2-Dichloroet...	0.307	0.300	0.299	0.297	0.303	0.294	0.293	0.300	0.299	1.55
46)	T	1,2-Dichloroet...	0.519	0.568	0.469	0.434	0.405	0.414	0.387	0.421	0.452	13.84
47)	CP	Benzene	1.860	1.977	1.570	1.575	1.454	1.480	1.370	1.499	1.598	13.17#
48)	CP	Tertiaryamylme...		0.764	0.758	0.743	0.734	0.717	0.742	0.779	0.748	2.75#
49)	T	Isobutyl Alcohol		0.536	0.226	0.214	0.211	0.219	0.222	0.237	0.266	44.77
50)	T	Heptane			0.561	0.597	0.555	0.571	0.473	0.494	0.542	8.86
51)	T	1,4-Dioxane		0.007	0.005	0.005	0.005	0.006	0.005	0.005	0.005#	11.57
52)	T	Methylcyclohexane		0.847	0.605	0.629	0.596	0.621	0.522	0.586	0.630	16.22
53)	T	n-Butanol	0.019	0.033	0.006	0.007	0.009	0.010	0.009	0.011	0.013#	68.72
54)	T	Trichloroethene		0.603	0.456	0.422	0.397	0.414	0.376	0.415	0.441	17.16
55)	C	1,2-Dichloropr...	0.379	0.524	0.436	0.413	0.367	0.385	0.352	0.388	0.406	13.48
56)	T	Dibromomethane		0.303	0.251	0.264	0.239	0.246	0.225	0.250	0.254	9.75
57)	T	Methyl methacr...		0.351	0.326	0.390	0.282	0.287	0.262	0.280	0.311	14.85
58)	T	Bromodichlorom...	0.482	0.622	0.552	0.486	0.488	0.510	0.475	0.517	0.517	9.59
59)	T	2-Chloroethyl ...		0.174	0.166	0.176	0.155	0.142	0.128	0.140	0.154#	11.95
60)	T	2-Nitropropane		0.114	0.139	0.148	0.119	0.105	0.092	0.106	0.117#	16.82
61)	T	cis-1,3-Dichlo...	0.709	0.673	0.659	0.623	0.609	0.612	0.577	0.629	0.636	6.54
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...		0.477	0.498	0.388	0.370	0.343	0.333	0.363	0.396	16.47
64)	S	Toluene-d8	1.323	1.363	1.357	1.336	1.349	1.324	1.332	1.358	1.343	1.18
65)	CP	Toluene	2.164	2.273	2.008	1.823	1.736	1.828	1.672	1.830	1.917	11.04
66)	T	trans-1,3-Dich...	0.655	0.867	0.651	0.660	0.594	0.618	0.589	0.623	0.657	13.57
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.695	0.614	0.530	0.467	0.487	0.493	0.451	0.490	0.528	15.86
69)	T	1,1,2-Trichlor...	0.536	0.516	0.424	0.405	0.365	0.372	0.347	0.373	0.417	17.12
70)	T	Tetrachloroethene	0.533	0.643	0.499	0.506	0.471	0.499	0.442	0.471	0.508	12.00
71)	T	1,3-Dichloropr...	0.701	0.769	0.667	0.574	0.570	0.571	0.533	0.578	0.620	13.28
72)	T	2-Hexanone		0.345	0.275	0.221	0.273	0.257	0.249	0.262	0.269	14.20
73)	T	Chlorodibromom...	0.444	0.642	0.450	0.498	0.464	0.484	0.447	0.477	0.488	13.30
74)	T	Butyl acetate			0.550	0.520	0.530	0.505	0.514	0.522	0.523	2.95
75)	T	1,2-Dibromoethane		0.527	0.436	0.422	0.390	0.387	0.368	0.393	0.418	12.78
76)	P	Chlorobenzene	1.205	1.545	1.158	1.187	1.150	1.165	1.094	1.168	1.209	11.53
77)	T	1,1,1,2-Tetrac...	0.522	0.640	0.461	0.456	0.405	0.421	0.399	0.431	0.467	17.19
78)	CP	Ethylbenzene	2.236	2.335	2.014	1.928	1.871	1.967	1.836	1.976	2.020	8.66
79)	CP	m/p-Xylene	1.621	1.735	1.486	1.493	1.457	1.502	1.385	1.500	1.523	7.08#
80)	T	Styrene	1.421	1.661	1.314	1.241	1.191	1.243	1.129	1.213	1.302	13.00
81)	CP	o-Xylene	1.716	1.676	1.670	1.594	1.436	1.509	1.397	1.521	1.565	7.53#
82)	T	Cyclohexanone		0.030	0.038	0.026	0.020	0.020	0.018	0.020	0.025#	30.62
83)	P	Bromoform	0.331	0.423	0.304	0.315	0.311	0.316	0.300	0.322	0.328	12.10
84)	T	Isopropylbenzene	1.775	2.123	1.893	1.839	1.742	1.853	1.731	1.890	1.856	6.74
85)	S	Bromofluoroben...	0.448	0.465	0.453	0.449	0.469	0.442	0.439	0.457	0.453	2.32
86)	T	Bromobenzene		1.388	1.056	0.904	0.868	0.889	0.843	0.894	0.977	19.81
87)	P	1,1,2,2-Tetrac...	0.533	0.707	0.518	0.575	0.537	0.513	0.480	0.513	0.547	12.82
88)	T	1,2,3-Trichlor...			0.142	0.122	0.134	0.125	0.112	0.117	0.125#	8.81

Method Path : C:\msdchem\1\methods\
Method File : 8SG00515.M
Title : 8260B/624 Volatile Calibration

89)	T	trans-1,4-Dich...			0.166	0.138	0.127	0.126	0.117	0.122	0.133#	13.49
90)	T	n-Propylbenzene	2.011	2.678	2.209	2.276	2.222	2.274	2.109	2.253	2.254	8.62
91)	T	2-Chlorotoluene	1.179	1.573	1.274	1.251	1.245	1.273	1.173	1.265	1.279	9.78
92)	T	4-Chlorotoluene	1.818	1.737	1.596	1.486	1.469	1.492	1.392	1.456	1.556	9.61
93)	T	1,3,5-Trimethy...	1.505	1.794	1.461	1.473	1.381	1.488	1.394	1.477	1.497	8.56
94)	T	tert-Butylbenzene	0.877	1.143	0.905	0.904	0.877	0.846	0.818	0.876	0.906	11.04
95)	T	1,2,4-Trimethy...	1.783	1.713	1.545	1.583	1.488	1.509	1.409	1.467	1.562	8.14
96)	T	sec-Butylbenzene	1.855	2.013	1.974	2.032	1.930	1.966	1.828	1.962	1.945	3.68
97)	I	1,4-Dichlorobenzen...	----------				ISTD	----------				
98)	T	1,3-Dichlorobe...	1.839	2.396	1.859	1.767	1.792	1.842	1.755	1.860	1.889	11.06
99)	T	p-Isopropyltol...	3.241	3.988	3.485	3.491	3.304	3.402	3.274	3.454	3.455	6.84
100)	T	1,4-Dichlorobe...	2.177	2.176	1.945	1.815	1.829	1.808	1.770	1.858	1.922	8.58
101)	T	1,2,3-Trimethy...	2.842	3.505	3.245	3.057	2.987	3.056	2.966	3.151	3.101	6.55
102)	T	Benzyl chloride	2.250	2.496	2.014	1.892	1.888	1.865	1.827	1.949	2.023	11.52
103)	T	1,2-Dichlorobe...	1.668	2.077	1.810	1.683	1.627	1.690	1.643	1.713	1.739	8.48
104)	T	n-Butylbenzene	3.940	3.850	3.553	3.387	3.319	3.381	3.256	3.344	3.504	7.33
105)	T	Hexachloroethane	0.546	1.062	0.762	0.722	0.694	0.768	0.749	0.798	0.763	18.83
106)	T	1,2-Dibromo-3-...	0.269	0.477	0.389	0.283	0.241	0.246	0.234	0.259	0.300	29.03
107)	T	1,3,5-Trichlor...	1.419	1.607	1.455	1.346	1.406	1.430	1.366	1.448	1.435	5.52
108)	T	1,2,4-Trichlor...	1.482	1.535	1.303	1.234	1.294	1.254	1.247	1.321	1.334	8.45
109)	T	Hexachlorobuta...	0.818	0.845	0.648	0.713	0.654	0.711	0.677	0.736	0.725	9.99
110)	T	Naphthalene	3.183	4.056	3.077	2.996	2.943	2.951	2.897	3.179	3.160	11.95
111)	T	1,2,3-Trichlor...	1.611	1.570	1.295	1.215	1.149	1.156	1.147	1.218	1.295	14.62
112)	T	2-Methylnaphth...	2.688	2.230	1.743	1.682	1.819	1.720	1.856	2.000	1.967	17.36
113)	T	1-Methylnaphth...	1.684	2.223	1.593	1.432	1.458	1.490	1.542	1.707	1.641	15.57
114)	I	Ethyl-d5-Acetate-d3	----------				ISTD	----------				
115)	T	2-Propanone			7.064	2.244	2.149	1.101	0.879	0.887	0.826	2.164	103.69
116)	T	Acetic Ether	2.572	3.247	2.593	2.719	2.574	2.689	2.964	2.754	2.764	8.47
117)	T	Isopropyl Acetate			3.917	2.160	1.168	1.478	1.481	1.586	1.491	1.897	49.50
118)	T	Amyl Acetate	3.446	5.901	4.979	4.246	4.070	3.942	4.453	4.044	4.385	17.18

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

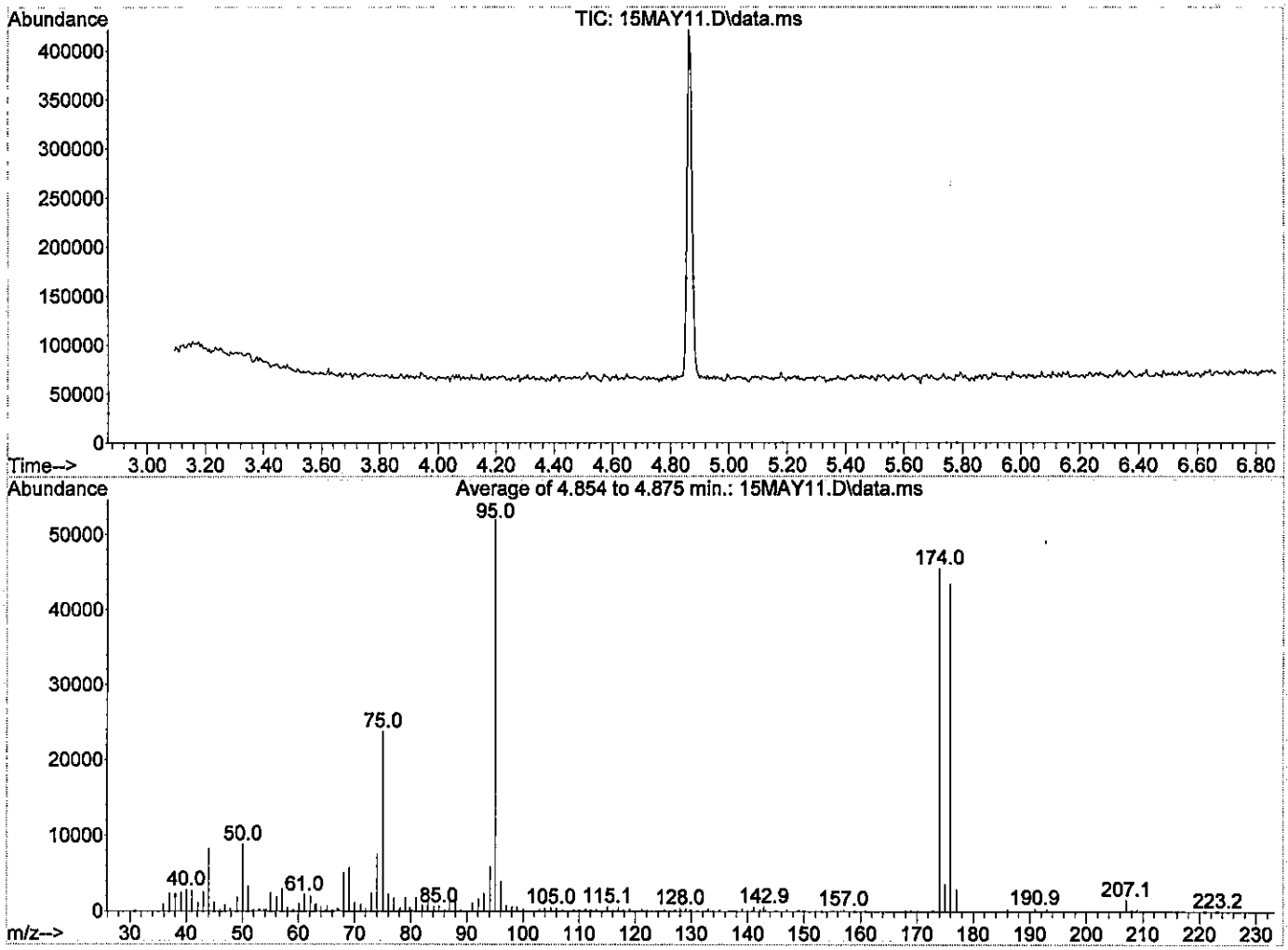
Calibration Files
1 =15MAY17 2 =15MAY18 3 =15MAY19 4 =15MAY20 5 =15MAY21 6 =15MAY22
7 =15MAY23 8 =15MAY24

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
9)	T	Acrolein	Lin	0.0241	0.0496	-----	0.9949
13)	T	Acetone	Lin	0.0285	0.1313	-----	0.9910
19)	T	Methylene chloride	Quad	0.1400	0.5765	0.0243	0.9980
21)	T	t-Butanol	Lin	0.0224	0.0600	-----	0.9922
24)	T	Hexane	Lin	0.0932	0.6679	-----	0.9923
31)	T	2-Butanone	Lin	0.0047	0.2169	-----	0.9938
34)	T	Propionitrile	Lin	0.0040	0.0525	-----	0.9920
36)	T	Tetrahydrofuran	Lin	0.0014	0.1667	-----	0.9985
39)	T	Cyclohexane	Lin	0.0157	0.8070	-----	0.9927
40)	I	1,4-Difluorobenzene		----------ISTD----------			
44)	T	1,1-Dichloropropene	Lin	0.0009	0.5069	-----	0.9950
49)	T	Isobutyl Alcohol	Lin	-0.0068	0.2323	-----	0.9980
53)	T	n-Butanol	Quad	0.0031	0.0076	0.0001	0.9974
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0033	0.0192	-----	0.9958
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
106)	T	1,2-Dibromo-3-ch...	Lin	-0.0002	0.2507	-----	0.9965
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			
115)	T	2-Propanone	Lin	0.1919	0.8004	-----	0.9981
117)	T	Isopropyl Acetate	Quad	0.0637	1.3869	0.0269	0.9956

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY11.D
Acq On : 15 May 2018 11:54 am
Operator : EMR
Sample : VBFB6-180515
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



Spectrum Information: Average of 4.854 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.9	8785	PASS
75	95	30	60	45.7	23744	PASS
95	95	100	100	100.0	51950	PASS
96	95	5	9	7.5	3919	PASS
173	174	0.00	2	0.4	176	PASS
174	95	50	100	87.4	45401	PASS
175	174	5	9	7.8	3562	PASS
176	174	95	101	95.4	43293	PASS
177	176	5	9	6.8	2940	PASS

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	218396	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	330222	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289404	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	133604	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	32113	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	116506	20.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.10%				
45) 1,2-Dichloroethane-d4	5.171	65	101495	20.89	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 104.45%				
64) Toluene-d8	7.678	98	382987	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	129631	20.71	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	3800	0.46	ug/L	#	43
3) Chloromethane	1.282	50	7313	0.52	ug/L	#	41
4) Vinyl chloride	1.360	62	4244	0.42	ug/L		66
5) Bromomethane	1.575	96	3928	0.23	ug/L	#	3
6) Chloroethane	1.647	64	2217	0.42	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	5732	0.56	ug/L		78
8) Ethyl ether	2.019	59	1262	0.33	ug/L	#	2
9) Acrolein	2.120	56	2494m	4.29	ug/L		
10) 1,1-Dichloroethene	2.206	61	4098	0.49	ug/L		80
11) 1,1,2-Trichlorotrifluo...	2.220	151	1823	0.38	ug/L	#	86
12) Methyl iodide	2.327	142	2601	0.59	ug/L		76
13) Acetone	2.220	43	2898	Below Cal			74
14) Chloroprene	3.380	53	3709m	0.44	ug/L		
15) Carbon disulfide	2.392	76	15165	0.69	ug/L		97
16) Allyl chloride	2.499	41	6525	0.64	ug/L		95
17) Methyl acetate	2.478	43	2344	0.51	ug/L	#	9
18) Acetonitrile	2.499	41	6525	0.64	ug/L	#	81
19) Methylene chloride	2.614	49	33947	0.98	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	4383	0.48	ug/L		92
21) t-Butanol	2.686	59	6129	0.68	ug/L	#	61
22) Acrylonitrile	2.829	53	752m	0.66	ug/L		
23) Methyl tert-butyl ether	2.850	73	5057m	0.39	ug/L		
24) Hexane	3.137	57	25551	0.56	ug/L		98
25) 1,1-Dichloroethane	3.302	63	3751	0.34	ug/L	#	21
26) Diisopropyl ether	3.330	45	5061m	0.29	ug/L		
27) Vinyl acetate	3.309	86	1324	1.98	ug/L	#	1
28) Ethyl tert butyl ether	3.760	59	5075m	0.34	ug/L		
29) 2,2-Dichloropropane	3.961	77	5549	0.66	ug/L	#	93
30) cis-1,2-Dichloroethene	3.968	61	4952	0.45	ug/L		97
31) 2-Butanone	3.953	43	8008	2.87	ug/L	#	60
32) Ethyl Acetate	4.004	43	1875m	0.61	ug/L		
33) Methyl acrylate	4.082	55	2853	0.56	ug/L	#	64
34) Propionitrile	4.741	54	1332	1.99	ug/L	#	1
35) Bromochloromethane	4.269	49	3037	0.56	ug/L	#	80
36) Tetrahydrofuran	4.261	42	1060m	0.53	ug/L		
37) Methacrylonitrile	4.211	41	1086	0.75	ug/L	#	47
38) Chloroform	4.426	83	5359m	0.47	ug/L		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	6956	0.60	ug/L	#	27
41)	1,1,1-Trichloroethane	4.648	97	2347	0.28	ug/L	#	57
43)	Carbon tetrachloride	4.870	117	2498	0.34	ug/L		87
44)	1,1-Dichloropropene	4.885	75	4040m	0.47	ug/L		
46)	1,2-Dichloroethane	5.293	62	3431	0.53	ug/L		77
47)	Benzene	5.193	78	12287	0.50	ug/L		81
48)	Tertiaryamylmethylether	5.436	73	2413	0.18	ug/L	#	1
49)	Isobutyl Alcohol	5.436	43	1986	0.45	ug/L	#	1
50)	Heptane	5.766	43	3970	0.30	ug/L	#	72
51)	1,4-Dioxane	6.811	88	5881	107.14	ug/L		86
52)	Methylcyclohexane	6.647	83	6259	0.58	ug/L	#	44
53)	n-Butanol	6.346	56	1269m	27.47	ug/L		
54)	Trichloroethene	6.360	130	3948	0.57	ug/L	#	58
55)	1,2-Dichloropropane	6.704	63	2500	0.37	ug/L	#	49
56)	Dibromomethane	6.804	93	3929	1.01	ug/L	#	75
57)	Methyl methacrylate	6.819	41	2963	0.65	ug/L		96
58)	Bromodichloromethane	7.019	83	3185m	0.41	ug/L		
59)	2-Chloroethyl vinyl ether	7.334	43	2663	1.78	ug/L	#	48
60)	2-Nitropropane	7.241	43	4374	2.68	ug/L	#	54
61)	cis-1,3-Dichloropropene	7.456	75	4681m	0.53	ug/L		
63)	4-Methyl-2-pentanone	7.592	43	6668	1.15	ug/L		85
65)	Toluene	7.728	91	12523	0.50	ug/L		96
66)	trans-1,3-Dichloropropene	7.943	75	3791	0.49	ug/L	#	1
67)	Chloropicrin	7.950	117	402m	Below Cal			
68)	Ethyl methacrylate	8.000	69	4021	0.62	ug/L	#	85
69)	1,1,2-Trichloroethane	8.086	97	3103m	0.61	ug/L		
70)	Tetrachloroethene	8.137	166	3083	0.40	ug/L	#	80
71)	1,3-Dichloropropane	8.201	76	4059	0.50	ug/L		99
72)	2-Hexanone	8.251	43	4032	1.03	ug/L	#	83
73)	Chlorodibromomethane	8.359	129	2570	0.41	ug/L	#	46
74)	Butyl acetate	8.351	43	7089	0.87	ug/L	#	65
75)	1,2-Dibromoethane	8.430	107	3654m	0.68	ug/L		
76)	Chlorobenzene	8.753	112	6973	0.43	ug/L	#	51
77)	1,1,1,2-Tetrachloroethane	8.817	131	3021	0.57	ug/L	#	80
78)	Ethylbenzene	8.817	91	12940	0.49	ug/L		91
79)	m/p-Xylene	8.896	91	18764	0.96	ug/L		97
80)	Styrene	9.139	104	8227	0.54	ug/L		74
81)	o-Xylene	9.125	91	9934	0.50	ug/L		93
82)	Cyclohexanone	9.383	55	3167	8.20	ug/L	#	69
83)	Bromoform	9.247	173	1914	0.50	ug/L		89
84)	Isopropylbenzene	9.340	105	10273	0.42	ug/L		90
86)	Bromobenzene	9.512	77	6896	0.54	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	3085	0.44	ug/L	#	39
88)	1,2,3-Trichloropropane	9.541	110	1486	0.92	ug/L	#	67
89)	trans-1,4-Dichloro-2-b...	9.533	53	857m	0.73	ug/L		
90)	n-Propylbenzene	9.569	91	11638	0.37	ug/L		81
91)	2-Chlorotoluene	9.612	91	6825	0.40	ug/L		68
92)	4-Chlorotoluene	9.684	91	10523	0.54	ug/L		93
93)	1,3,5-Trimethylbenzene	9.662	105	8711	0.45	ug/L		86
94)	tert-Butylbenzene	9.827	91	5074m	0.42	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	10318	0.51	ug/L		81
96)	sec-Butylbenzene	9.942	105	10735	0.40	ug/L		99
98)	1,3-Dichlorobenzene	10.013	146	4915	0.40	ug/L		82
99)	p-Isopropyltoluene	10.020	119	8659	0.41	ug/L	#	71
100)	1,4-Dichlorobenzene	10.063	146	5817m	0.48	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

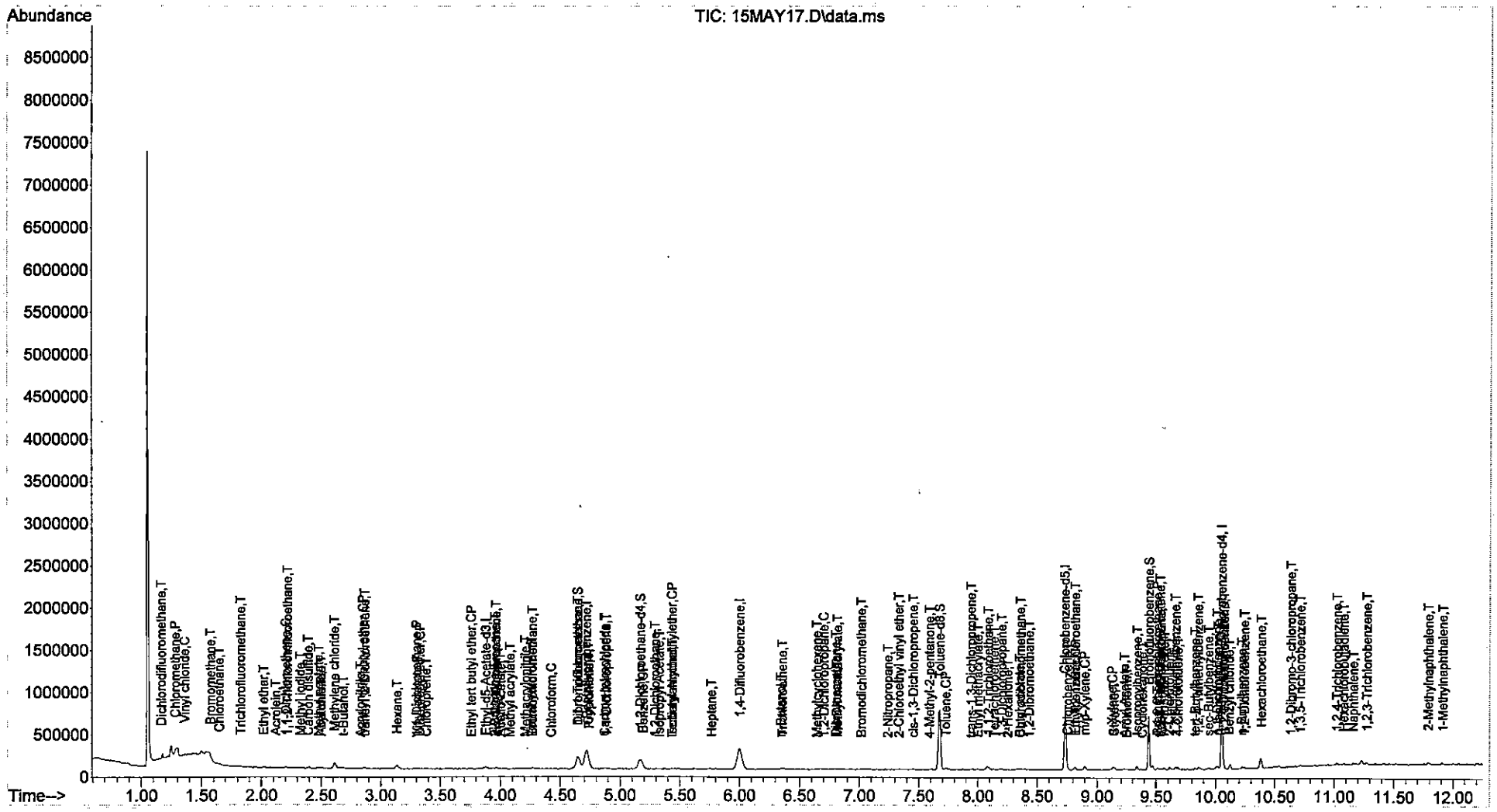
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	7594	0.39	ug/L	#	80
102) Benzyl chloride	10.114	91	6012	0.72	ug/L		78
103) 1,2-Dichlorobenzene	10.243	146	4457	0.39	ug/L	#	79
104) n-Butylbenzene	10.221	91	10527	0.47	ug/L		92
105) Hexachloroethane	10.386	117	1459	0.31	ug/L	#	23
106) 1,2-Dibromo-3-chloropr...	10.636	157	719m	0.61	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	3791	0.41	ug/L	#	78
108) 1,2,4-Trichlorobenzene	11.023	180	3959	0.49	ug/L		90
109) Hexachlorobutadiene	11.081	225	2186	0.47	ug/L		96
110) Naphthalene	11.159	128	8505	0.49	ug/L		81
111) 1,2,3-Trichlorobenzene	11.274	180	4306	0.61	ug/L		100
112) 2-Methylnaphthalene	11.790	142	7183	2.10	ug/L		97
113) 1-Methylnaphthalene	11.912	142	4501	1.61	ug/L	#	81
115) 2-Propanone	2.220	43	2898	Below Cal		#	74
116) Acetic Ether	4.004	43	1652	0.29	ug/L	#	55
117) Isopropyl Acetate	5.329	61	538	0.21	ug/L	#	1
118) Amyl Acetate	9.225	43	2213	0.22	ug/L	#	42

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230763	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	347253	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	293807	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142787	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34624	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	124106m	21.09	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 105.45%				
45) 1,2-Dichloroethane-d4	5.171	65	104078	20.37	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.85%				
64) Toluene-d8	7.678	98	400375	20.15	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.75%				
85) Bromofluorobenzene	9.440	95	136700	21.51	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 107.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	5989m	0.69	ug/L		
3) Chloromethane	1.282	50	7971m	0.53	ug/L		
4) Vinyl chloride	1.361	62	7061m	0.67	ug/L		
5) Bromomethane	1.575	96	6740m	0.62	ug/L		
6) Chloroethane	1.647	64	3439	0.62	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	7868	0.73	ug/L	#	68
8) Ethyl ether	2.020	59	2802	0.69	ug/L	#	58
9) Acrolein	2.127	56	6811	11.09	ug/L		96
10) 1,1-Dichloroethene	2.206	61	7074	0.80	ug/L	#	77
11) 1,1,2-Trichlorotrifluo...	2.213	151	3605	0.72	ug/L		90
12) Methyl iodide	2.328	142	3244	0.66	ug/L	#	34
13) Acetone	2.234	43	7830m	0.77	ug/L		
14) Chloroprene	3.381	53	7003	0.78	ug/L	#	78
15) Carbon disulfide	2.392	76	21727	0.95	ug/L		90
16) Allyl chloride	2.499	41	9756m	0.91	ug/L		
17) Methyl acetate	2.478	43	6139	1.27	ug/L	#	74
18) Acetonitrile	2.499	41	9849m	0.92	ug/L		
19) Methylene chloride	2.607	49	37807	1.19	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	7575	0.79	ug/L		86
21) t-Butanol	2.686	59	7324m	1.96	ug/L		
22) Acrylonitrile	2.822	53	2011	1.15	ug/L		81
23) Methyl tert-butyl ether	2.850	73	7458	0.54	ug/L		64
24) Hexane	3.137	57	25128	0.41	ug/L		88
25) 1,1-Dichloroethane	3.295	63	8155m	0.69	ug/L		
26) Diisopropyl ether	3.330	45	9334	0.51	ug/L	#	35
27) Vinyl acetate	3.302	86	91	0.13	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	8066	0.51	ug/L	#	84
29) 2,2-Dichloropropane	3.975	77	10136	1.13	ug/L	#	91
30) cis-1,2-Dichloroethene	3.954	61	8327	0.72	ug/L		83
31) 2-Butanone	3.939	43	3323m	1.18	ug/L		
32) Ethyl Acetate	4.018	43	3650m	0.87	ug/L		
33) Methyl acrylate	4.061	55	6698	1.24	ug/L	#	75
34) Propionitrile	4.734	54	1042	1.51	ug/L	#	1
35) Bromochloromethane	4.262	49	4907	0.85	ug/L		95
36) Tetrahydrofuran	4.269	42	2176m	1.04	ug/L		
37) Methacrylonitrile	4.211	41	2506	1.09	ug/L	#	68
38) Chloroform	4.426	83	10782	0.90	ug/L		87

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	11098	0.90	ug/L	#	60
41)	1,1,1-Trichloroethane	4.641	97	7426	0.85	ug/L	#	77
43)	Carbon tetrachloride	4.863	117	5643	0.73	ug/L		98
44)	1,1-Dichloropropene	4.899	75	8645	0.96	ug/L		90
46)	1,2-Dichloroethane	5.293	62	5918	0.86	ug/L		73
47)	Benzene	5.186	78	20594	0.79	ug/L	#	68
48)	Tertiaryamylmethylether	5.451	73	7957	0.55	ug/L	#	64
49)	Isobutyl Alcohol	5.458	43	5585m	1.20	ug/L		
50)	Heptane	5.766	43	1546	0.11	ug/L	#	1
51)	1,4-Dioxane	6.804	88	6837	118.45	ug/L	#	74
52)	Methylcyclohexane	6.661	83	8826	0.77	ug/L	#	75
53)	n-Butanol	6.332	56	3445	45.67	ug/L	#	75
54)	Trichloroethene	6.368	130	6283	0.86	ug/L	#	78
55)	1,2-Dichloropropane	6.704	63	5463	0.76	ug/L	#	82
56)	Dibromomethane	6.797	93	3160m	0.77	ug/L		
57)	Methyl methacrylate	6.826	41	3654	0.76	ug/L	#	82
58)	Bromodichloromethane	7.027	83	6483	0.79	ug/L		81
59)	2-Chloroethyl vinyl ether	7.335	43	1814m	1.15	ug/L		
60)	2-Nitropropane	7.249	43	1192	0.69	ug/L	#	25
61)	cis-1,3-Dichloropropene	7.456	75	7013	0.75	ug/L	#	22
63)	4-Methyl-2-pentanone	7.600	43	4200m	0.71	ug/L		
65)	Toluene	7.736	91	20036	0.79	ug/L		93
66)	trans-1,3-Dichloropropene	7.943	75	7646m	0.98	ug/L		
67)	Chloropicrin	7.943	117	670m	Below Cal			
68)	Ethyl methacrylate	8.001	69	5409	0.83	ug/L	#	57
69)	1,1,2-Trichloroethane	8.087	97	4545	0.87	ug/L	#	80
70)	Tetrachloroethene	8.130	166	5665	0.73	ug/L		83
71)	1,3-Dichloropropane	8.201	76	6782m	0.82	ug/L		
72)	2-Hexanone	8.266	43	3042	0.76	ug/L	#	72
73)	Chlorodibromomethane	8.352	129	5655	0.89	ug/L		87
74)	Butyl acetate	8.345	43	10055	1.21	ug/L	#	86
75)	1,2-Dibromoethane	8.430	107	4648	0.85	ug/L		92
76)	Chlorobenzene	8.753	112	13615	0.84	ug/L		85
77)	1,1,1,2-Tetrachloroethane	8.817	131	5641	1.04	ug/L		80
78)	Ethylbenzene	8.817	91	20578	0.77	ug/L		97
79)	m/p-Xylene	8.896	91	30594	1.54	ug/L		99
80)	Styrene	9.140	104	14640	0.95	ug/L		93
81)	o-Xylene	9.125	91	14775	0.73	ug/L		87
82)	Cyclohexanone	9.383	55	1340	3.42	ug/L	#	21
83)	Bromoform	9.247	173	3728	0.95	ug/L		92
84)	Isopropylbenzene	9.333	105	18716	0.75	ug/L		98
86)	Bromobenzene	9.512	77	12231	0.94	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	6233	0.87	ug/L		82
88)	1,2,3-Trichloropropane	9.541	110	2272	1.39	ug/L	#	68
89)	trans-1,4-Dichloro-2-b...	9.526	53	2246m	1.58	ug/L		
90)	n-Propylbenzene	9.569	91	23606	0.74	ug/L		100
91)	2-Chlorotoluene	9.612	91	13863	0.80	ug/L		96
92)	4-Chlorotoluene	9.684	91	15313	0.78	ug/L		95
93)	1,3,5-Trimethylbenzene	9.663	105	15815	0.81	ug/L		98
94)	tert-Butylbenzene	9.827	91	10072	0.83	ug/L		81
95)	1,2,4-Trimethylbenzene	9.856	105	15103	0.74	ug/L		89
96)	sec-Butylbenzene	9.942	105	17747	0.65	ug/L		83
98)	1,3-Dichlorobenzene	10.014	146	10263	0.78	ug/L		87
99)	p-Isopropyltoluene	10.021	119	17085	0.75	ug/L		90
100)	1,4-Dichlorobenzene	10.064	146	9323m	0.71	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

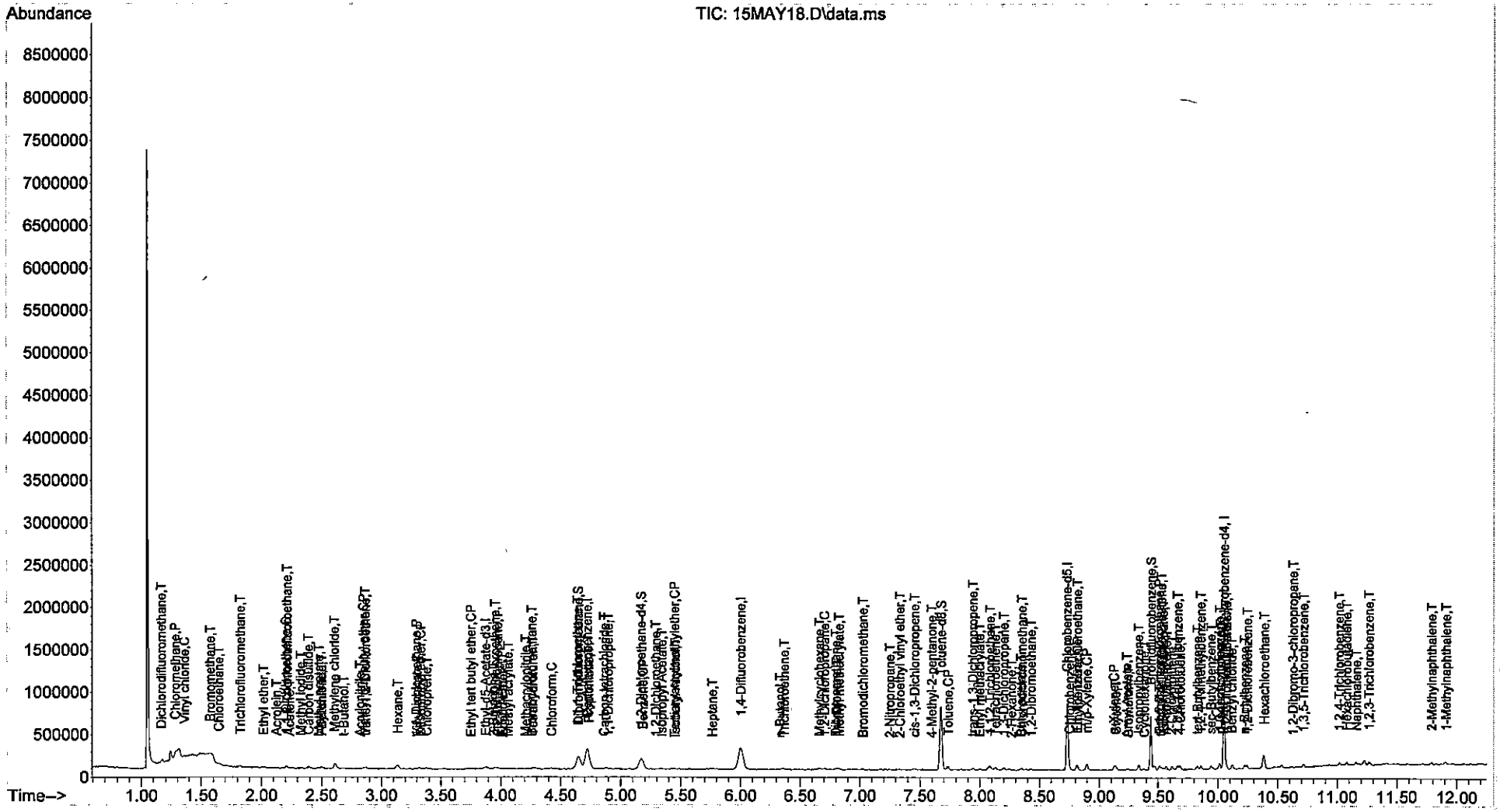
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	15015	0.72	ug/L		90
102) Benzyl chloride	10.114	91	10694	1.19	ug/L		88
103) 1,2-Dichlorobenzene	10.243	146	8895	0.73	ug/L		83
104) n-Butylbenzene	10.221	91	16492	0.69	ug/L		95
105) Hexachloroethane	10.386	117	4550	0.91	ug/L		82
106) 1,2-Dibromo-3-chloropr...	10.630	157	2044m	1.47	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	6882	0.69	ug/L	#	89
108) 1,2,4-Trichlorobenzene	11.016	180	6574	0.77	ug/L		85
109) Hexachlorobutadiene	11.081	225	3620	0.73	ug/L		91
110) Naphthalene	11.160	128	17376	0.93	ug/L		78
111) 1,2,3-Trichlorobenzene	11.267	180	6727	0.89	ug/L		99
112) 2-Methylnaphthalene	11.790	142	9551	2.30	ug/L		97
113) 1-Methylnaphthalene	11.912	142	9523	2.15	ug/L		96
115) 2-Propanone	2.234	43	7338m	Below Cal			
116) Acetic Ether	4.018	43	3373	0.54	ug/L	#	89
117) Isopropyl Acetate	5.343	61	4069m	1.49	ug/L		
118) Amyl Acetate	9.233	43	6130	0.57	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230239	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	344046	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292144	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	139289	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	33731	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	113188	19.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.05%				
45) 1,2-Dichloroethane-d4	5.164	65	102708	20.29	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.45%				
64) Toluene-d8	7.671	98	396324	20.06	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.30%				
85) Bromofluorobenzene	9.440	95	132295	20.94	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	14447	1.67	ug/L		81
3) Chloromethane	1.282	50	19641	1.31	ug/L		76
4) Vinyl chloride	1.360	62	14986	1.42	ug/L		93
5) Bromomethane	1.575	96	15105	1.91	ug/L	#	75
6) Chloroethane	1.654	64	10513	1.91	ug/L		87
7) Trichlorofluoromethane	1.826	101	19185	1.78	ug/L		97
8) Ethyl ether	2.019	59	9644	2.39	ug/L		97
9) Acrolein	2.127	56	9638	15.73	ug/L	#	62
10) 1,1-Dichloroethene	2.206	61	19303	2.18	ug/L		95
11) 1,1,2-Trichlorotrifluo...	2.213	151	8135	1.62	ug/L		94
12) Methyl iodide	2.327	142	7824	1.33	ug/L		90
13) Acetone	2.227	43	7569	0.63	ug/L		75
14) Chloroprene	3.380	53	19769	2.20	ug/L		94
15) Carbon disulfide	2.392	76	48556	2.14	ug/L		92
16) Allyl chloride	2.499	41	22976	2.15	ug/L		92
17) Methyl acetate	2.485	43	9505m	1.96	ug/L		
18) Acetonitrile	2.499	41	22976	2.15	ug/L		96
19) Methylene chloride	2.614	49	40286	1.46	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	21622	2.26	ug/L		92
21) t-Butanol	2.686	59	12964m	10.49	ug/L		
22) Acrylonitrile	2.822	53	4591m	2.20	ug/L		
23) Methyl tert-butyl ether	2.850	73	25920	1.88	ug/L		97
24) Hexane	3.130	57	30046	0.81	ug/L		95
25) 1,1-Dichloroethane	3.302	63	24586	2.09	ug/L		89
26) Diisopropyl ether	3.337	45	28297	1.56	ug/L	#	74
27) Vinyl acetate	3.294	86	2615	3.72	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	28448	1.80	ug/L		96
29) 2,2-Dichloropropane	3.961	77	19157	2.15	ug/L	#	86
30) cis-1,2-Dichloroethene	3.953	61	24897	2.16	ug/L		94
31) 2-Butanone	3.946	43	5271m	1.82	ug/L		
32) Ethyl Acetate	4.011	43	8746	1.63	ug/L	#	100
33) Methyl acrylate	4.068	55	10207	1.90	ug/L	#	73
34) Propionitrile	4.749	54	2586	3.55	ug/L	#	1
35) Bromochloromethane	4.276	49	13646m	2.38	ug/L		
36) Tetrahydrofuran	4.290	42	6151	2.94	ug/L	#	72
37) Methacrylonitrile	4.211	41	8111m	2.48	ug/L		
38) Chloroform	4.419	83	24503	2.05	ug/L		89

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	22870	1.87	ug/L	#	81
41)	1,1,1-Trichloroethane	4.634	97	21247	2.46	ug/L		97
43)	Carbon tetrachloride	4.863	117	15228	1.99	ug/L	#	79
44)	1,1-Dichloropropene	4.885	75	19198	2.15	ug/L		95
46)	1,2-Dichloroethane	5.293	62	16124	2.38	ug/L		81
47)	Benzene	5.186	78	54015	2.10	ug/L		96
48)	Tertiaryamylmethylether	5.443	73	26081	1.83	ug/L	#	82
49)	Isobutyl Alcohol	5.443	43	7787	1.69	ug/L	#	90
50)	Heptane	5.766	43	19287	1.38	ug/L	#	88
51)	1,4-Dioxane	6.811	88	18308	320.15	ug/L		95
52)	Methylcyclohexane	6.654	83	20810m	1.84	ug/L		
53)	n-Butanol	6.317	56	2194	35.12	ug/L	#	16
54)	Trichloroethene	6.353	130	15698	2.17	ug/L		96
55)	1,2-Dichloropropane	6.704	63	15001	2.11	ug/L		94
56)	Dibromomethane	6.797	93	8637m	2.14	ug/L		
57)	Methyl methacrylate	6.826	41	11211	2.35	ug/L		91
58)	Bromodichloromethane	7.019	83	19008	2.34	ug/L		93
59)	2-Chloroethyl vinyl ether	7.334	43	5701	3.65	ug/L	#	88
60)	2-Nitropropane	7.241	43	4788	2.82	ug/L	#	70
61)	cis-1,3-Dichloropropene	7.456	75	22668	2.45	ug/L		94
63)	4-Methyl-2-pentanone	7.592	43	14553m	2.48	ug/L		
65)	Toluene	7.728	91	58651	2.33	ug/L		97
66)	trans-1,3-Dichloropropene	7.943	75	19029	2.45	ug/L		78
67)	Chloropicrin	7.950	117	2637	Below Cal		#	70
68)	Ethyl methacrylate	8.001	69	15492m	2.38	ug/L		
69)	1,1,2-Trichloroethane	8.087	97	12392	2.39	ug/L		88
70)	Tetrachloroethene	8.130	166	14575	1.89	ug/L		97
71)	1,3-Dichloropropane	8.201	76	19492m	2.37	ug/L		
72)	2-Hexanone	8.244	43	8025	2.03	ug/L		85
73)	Chlorodibromomethane	8.352	129	13132	2.07	ug/L		83
74)	Butyl acetate	8.344	43	16067	1.95	ug/L	#	76
75)	1,2-Dibromoethane	8.423	107	12747	2.34	ug/L		96
76)	Chlorobenzene	8.753	112	33819	2.09	ug/L		80
77)	1,1,1,2-Tetrachloroethane	8.817	131	13470	2.50	ug/L		93
78)	Ethylbenzene	8.817	91	58848	2.21	ug/L		100
79)	m/p-Xylene	8.896	91	86852	4.39	ug/L		98
80)	Styrene	9.139	104	38382	2.51	ug/L		99
81)	o-Xylene	9.125	91	48793	2.42	ug/L		95
82)	Cyclohexanone	9.383	55	5612	14.39	ug/L	#	78
83)	Bromoform	9.247	173	8895	2.29	ug/L		89
84)	Isopropylbenzene	9.340	105	55299	2.24	ug/L		97
86)	Bromobenzene	9.512	77	30862	2.39	ug/L		92
87)	1,1,2,2-Tetrachloroethane	9.512	83	15132	2.12	ug/L		87
88)	1,2,3-Trichloropropane	9.541	110	4151	2.56	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	4858	3.20	ug/L		85
90)	n-Propylbenzene	9.562	91	64534	2.02	ug/L		93
91)	2-Chlorotoluene	9.619	91	37212	2.17	ug/L		96
92)	4-Chlorotoluene	9.684	91	46619	2.37	ug/L		99
93)	1,3,5-Trimethylbenzene	9.662	105	42673	2.19	ug/L		99
94)	tert-Butylbenzene	9.827	91	26437	2.18	ug/L		85
95)	1,2,4-Trimethylbenzene	9.856	105	45141	2.22	ug/L		94
96)	sec-Butylbenzene	9.942	105	57674	2.13	ug/L		98
98)	1,3-Dichlorobenzene	10.013	146	25894	2.02	ug/L		97
99)	p-Isopropyltoluene	10.021	119	48537	2.19	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	27092	2.12	ug/L		91

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

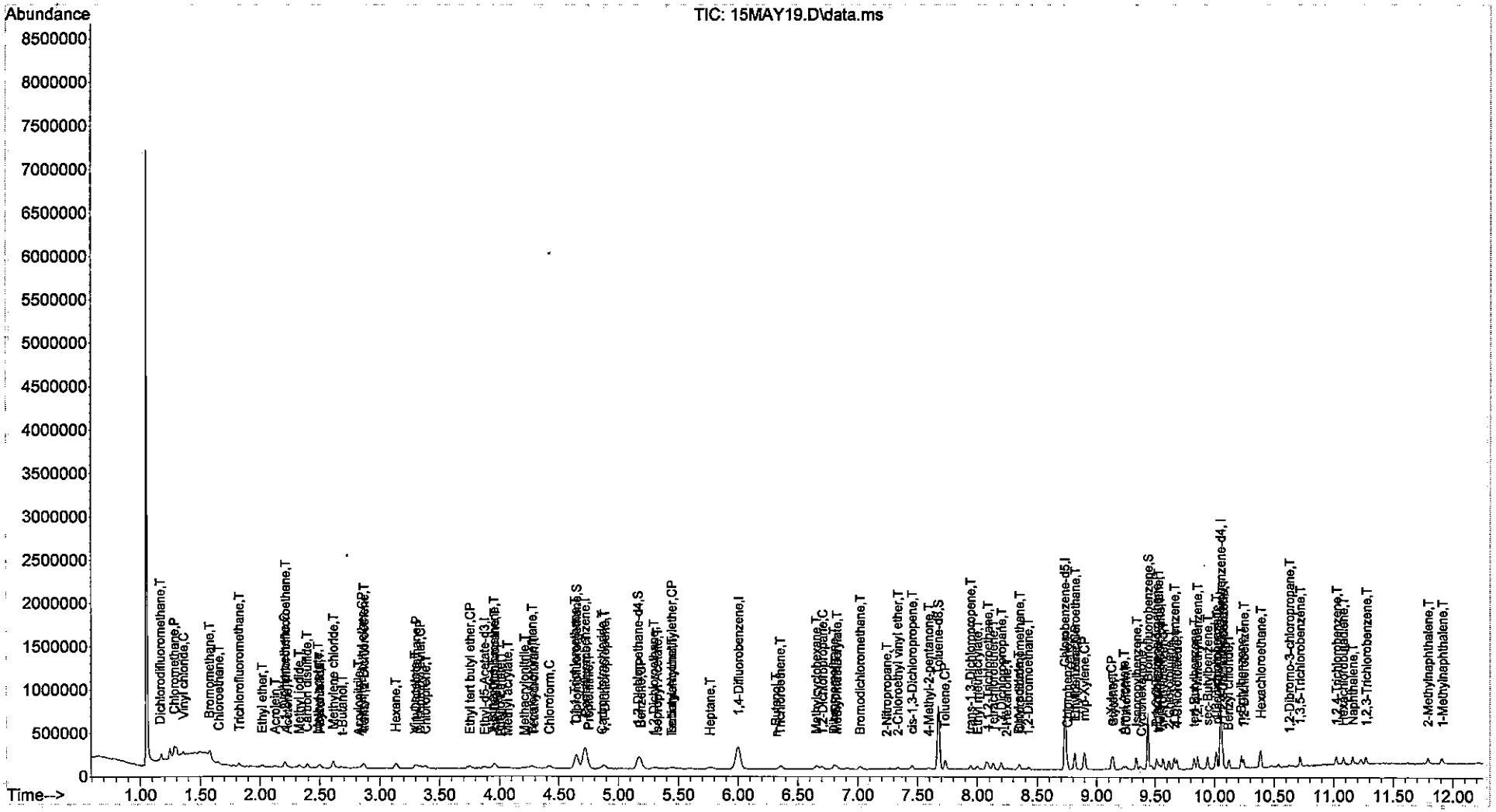
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	45195	2.21	ug/L		95
102) Benzyl chloride	10.114	91	28046	3.21	ug/L		93
103) 1,2-Dichlorobenzene	10.243	146	25212	2.13	ug/L		95
104) n-Butylbenzene	10.221	91	49489	2.13	ug/L		98
105) Hexachloroethane	10.386	117	10608	2.16	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.629	157	5425	3.85	ug/L	#	79
107) 1,3,5-Trichlorobenzene	10.715	180	20270	2.09	ug/L		94
108) 1,2,4-Trichlorobenzene	11.023	180	18156	2.17	ug/L		92
109) Hexachlorobutadiene	11.081	225	9029	1.86	ug/L	#	89
110) Naphthalene	11.159	128	42865	2.35	ug/L		92
111) 1,2,3-Trichlorobenzene	11.274	180	18032	2.44	ug/L		97
112) 2-Methylnaphthalene	11.790	142	24284	3.96	ug/L		99
113) 1-Methylnaphthalene	11.912	142	22195	3.65	ug/L		97
115) 2-Propanone	2.227	43	7569	Below Cal		#	75
116) Acetic Ether	4.011	43	8746	1.44	ug/L	#	78
117) Isopropyl Acetate	5.322	61	7286	2.73	ug/L	#	1
118) Amyl Acetate	9.233	43	16794	1.61	ug/L	#	81

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volati1e Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223307	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	335192	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289109	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	138041	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35297	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	111550	19.63	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.15%				
45) 1,2-Dichloroethane-d4	5.164	65	99541	20.18	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.90%				
64) Toluene-d8	7.671	98	386199	19.75	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.75%				
85) Bromofluorobenzene	9.440	95	129870	20.77	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	29028	3.45	ug/L		93
3) Chloromethane	1.282	50	39537	2.72	ug/L		97
4) Vinyl chloride	1.353	62	29729	2.91	ug/L		99
5) Bromomethane	1.575	96	28612	4.12	ug/L		86
6) Chloroethane	1.647	64	16995	3.18	ug/L		96
7) Trichlorofluoromethane	1.826	101	40452	3.88	ug/L		99
8) Ethyl ether	2.019	59	17532	4.48	ug/L		91
9) Acrolein	2.127	56	18903	31.81	ug/L		91
10) 1,1-Dichloroethene	2.206	61	37706	4.40	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	19188	3.94	ug/L		93
12) Methyl iodide	2.328	142	14656m	2.41	ug/L		
13) Acetone	2.227	43	14195m	4.68	ug/L		
14) Chloroprene	3.380	53	36738	4.22	ug/L		95
15) Carbon disulfide	2.392	76	93832	4.28	ug/L		98
16) Allyl chloride	2.499	41	46778	4.51	ug/L		94
17) Methyl acetate	2.478	43	14878	3.17	ug/L	#	74
18) Acetonitrile	2.499	41	46778	4.51	ug/L	#	94
19) Methylene chloride	2.614	49	57882	3.53	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	38195	4.11	ug/L		99
21) t-Butanol	2.678	59	19036	20.54	ug/L	#	75
22) Acrylonitrile	2.822	53	8620m	3.95	ug/L		
23) Methyl tert-butyl ether	2.850	73	45342	3.39	ug/L		87
24) Hexane	3.137	57	45693	2.21	ug/L		98
25) 1,1-Dichloroethane	3.302	63	48650	4.26	ug/L		98
26) Diisopropyl ether	3.330	45	55090	3.13	ug/L	#	81
27) Vinyl acetate	3.302	86	5084	7.45	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	48671	3.18	ug/L	#	94
29) 2,2-Dichloropropane	3.961	77	38925	4.50	ug/L		97
30) cis-1,2-Dichloroethene	3.961	61	41038	3.68	ug/L		95
31) 2-Butanone	3.939	43	8354	2.92	ug/L	#	48
32) Ethyl Acetate	4.004	43	19133	3.29	ug/L	#	85
33) Methyl acrylate	4.068	55	20586	3.95	ug/L	#	90
34) Propionitrile	4.749	54	4273	5.96	ug/L	#	54
35) Bromochloromethane	4.269	49	20870	3.75	ug/L		95
36) Tetrahydrofuran	4.276	42	9122	4.49	ug/L	#	81
37) Methacrylonitrile	4.219	41	14732	4.23	ug/L		96
38) Chloroform	4.419	83	49072	4.23	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	43620	3.67	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	40140	4.77	ug/L		93
43)	Carbon tetrachloride	4.863	117	35332	4.73	ug/L		96
44)	1,1-Dichloropropene	4.885	75	34810	4.00	ug/L		88
46)	1,2-Dichloroethane	5.300	62	29124	4.41	ug/L		91
47)	Benzene	5.186	78	105578	4.20	ug/L		97
48)	Tertiaryamylmethylether	5.451	73	49818	3.58	ug/L		95
49)	Isobutyl Alcohol	5.451	43	14363	3.20	ug/L	#	79
50)	Heptane	5.766	43	40047	2.95	ug/L		93
51)	1,4-Dioxane	6.804	88	34757	623.84	ug/L		92
52)	Methylcyclohexane	6.661	83	42195	3.83	ug/L		95
53)	n-Butanol	6.332	56	4701	57.66	ug/L	#	82
54)	Trichloroethene	6.353	130	28322	4.02	ug/L		92
55)	1,2-Dichloropropane	6.704	63	27708	4.01	ug/L		93
56)	Dibromomethane	6.797	93	17691m	4.49	ug/L		
57)	Methyl methacrylate	6.826	41	26126	5.62	ug/L	#	82
58)	Bromodichloromethane	7.019	83	32585	4.11	ug/L		97
59)	2-Chloroethyl vinyl ether	7.334	43	11789	7.75	ug/L		87
60)	2-Nitropropane	7.241	43	9900	5.98	ug/L	#	80
61)	cis-1,3-Dichloropropene	7.456	75	41746	4.64	ug/L		93
63)	4-Methyl-2-pentanone	7.592	43	22416	3.86	ug/L		92
65)	Toluene	7.728	91	105382	4.23	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	38189	4.97	ug/L		94
67)	Chloropicrin	7.958	117	3280	Below Cal		#	74
68)	Ethyl methacrylate	8.001	69	27023	4.20	ug/L		93
69)	1,1,2-Trichloroethane	8.087	97	23402	4.57	ug/L		90
70)	Tetrachloroethene	8.130	166	29274	3.83	ug/L		98
71)	1,3-Dichloropropane	8.201	76	33178	4.08	ug/L		100
72)	2-Hexanone	8.251	43	12765	3.26	ug/L		81
73)	Chlorodibromomethane	8.352	129	28821m	4.59	ug/L		
74)	Butyl acetate	8.344	43	30059	3.69	ug/L	#	95
75)	1,2-Dibromoethane	8.430	107	24413m	4.53	ug/L		
76)	Chlorobenzene	8.753	112	68640	4.28	ug/L		95
77)	1,1,1,2-Tetrachloroethane	8.817	131	26366	4.95	ug/L		99
78)	Ethylbenzene	8.817	91	111508	4.23	ug/L		94
79)	m/p-Xylene	8.896	91	172648	8.81	ug/L		100
80)	Styrene	9.140	104	71729	4.75	ug/L		94
81)	o-Xylene	9.125	91	92167	4.61	ug/L		100
82)	Cyclohexanone	9.390	55	7435	19.27	ug/L		95
83)	Bromoform	9.247	173	18201	4.73	ug/L		96
84)	Isopropylbenzene	9.340	105	106325	4.35	ug/L		99
86)	Bromobenzene	9.512	77	52285	4.09	ug/L		98
87)	1,1,2,2-Tetrachloroethane	9.512	83	33266	4.71	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	7067	4.40	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	7994	5.20	ug/L		88
90)	n-Propylbenzene	9.562	91	131597m	4.17	ug/L		
91)	2-Chlorotoluene	9.612	91	72357	4.27	ug/L		100
92)	4-Chlorotoluene	9.684	91	85902	4.42	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	85190	4.42	ug/L		99
94)	tert-Butylbenzene	9.827	91	52267	4.35	ug/L		98
95)	1,2,4-Trimethylbenzene	9.856	105	91539	4.54	ug/L		83
96)	sec-Butylbenzene	9.942	105	117473	4.38	ug/L		100
98)	1,3-Dichlorobenzene	10.013	146	48786	3.84	ug/L		98
99)	p-Isopropyltoluene	10.021	119	96390	4.39	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	50099	3.96	ug/L		93

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

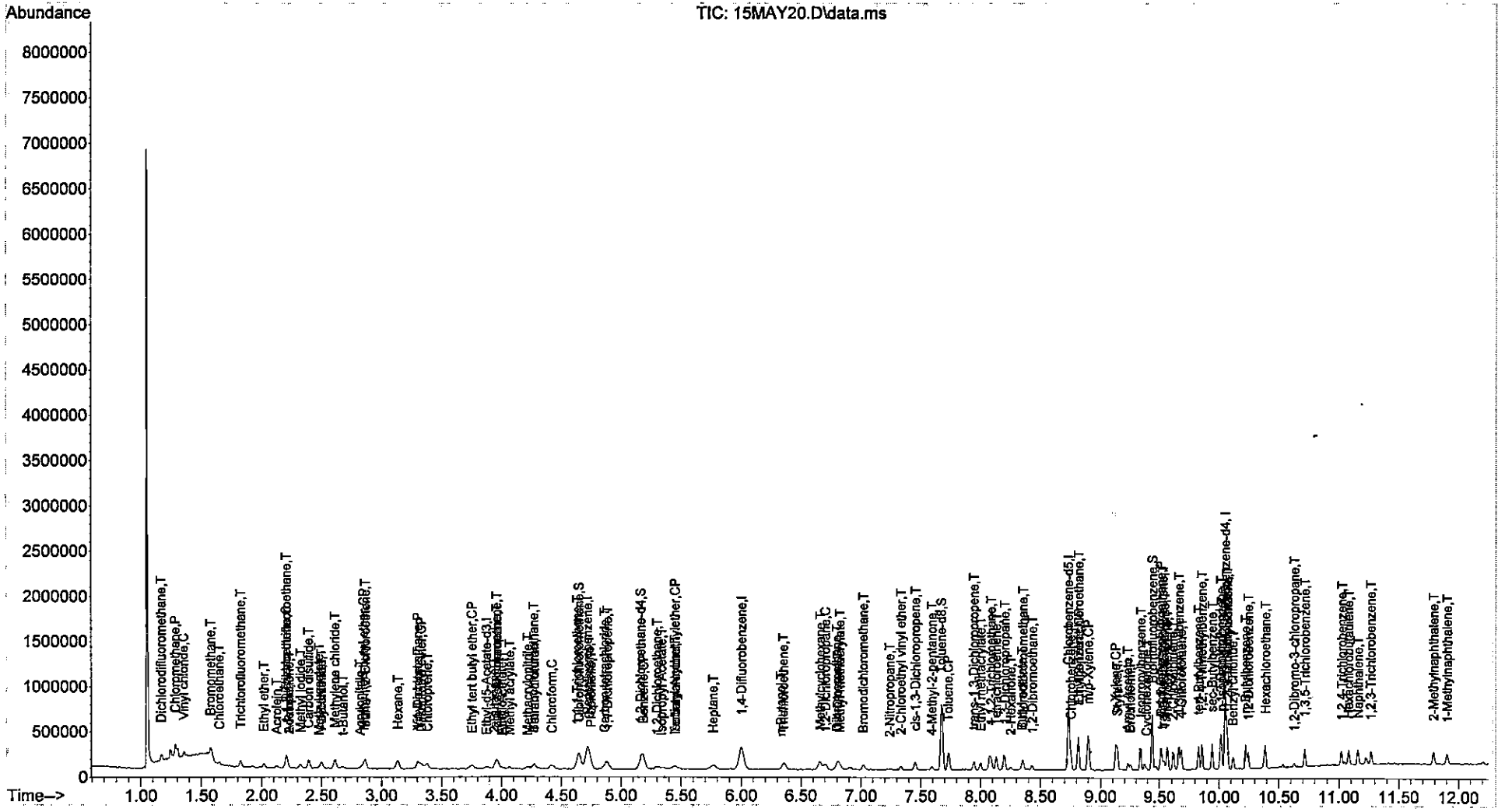
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	84387	4.17	ug/L		97
102) Benzyl chloride	10.114	91	52228	6.03	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	46469	3.97	ug/L		95
104) n-Butylbenzene	10.221	91	93516	4.07	ug/L		99
105) Hexachloroethane	10.386	117	19922	4.10	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	7812	5.53	ug/L		91
107) 1,3,5-Trichlorobenzene	10.715	180	37155	3.87	ug/L		98
108) 1,2,4-Trichlorobenzene	11.023	180	34057	4.11	ug/L		99
109) Hexachlorobutadiene	11.081	225	19698	4.10	ug/L		98
110) Naphthalene	11.160	128	82720	4.58	ug/L		96
111) 1,2,3-Trichlorobenzene	11.267	180	33549	4.58	ug/L		98
112) 2-Methylnaphthalene	11.790	142	46427	6.43	ug/L		96
113) 1-Methylnaphthalene	11.904	142	39547	5.69	ug/L		98
115) 2-Propanone	2.227	43	15169m	2.87	ug/L		
116) Acetic Ether	4.004	43	19193	3.02	ug/L	#	85
117) Isopropyl Acetate	5.336	61	8247	2.96	ug/L	#	66
118) Amyl Acetate	9.226	43	29975	2.75	ug/L	#	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223435	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337798	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	291131	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	140591	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	37830	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	115394	20.15	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.75%				
45) 1,2-Dichloroethane-d4	5.164	65	102258	20.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.90%				
64) Toluene-d8	7.671	98	392868	19.95	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 99.75%				
85) Bromofluorobenzene	9.441	95	136425	21.67	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 108.35%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	71593	8.51	ug/L		93
3) Chloromethane	1.282	50	91360	6.29	ug/L		92
4) Vinyl chloride	1.353	62	77607	7.58	ug/L		99
5) Bromomethane	1.575	96	61023	9.26	ug/L		90
6) Chloroethane	1.647	64	42523	7.96	ug/L		98
7) Trichlorofluoromethane	1.826	101	96366	9.24	ug/L		98
8) Ethyl ether	2.020	59	38963	9.96	ug/L		91
9) Acrolein	2.127	56	41473	69.76	ug/L		95
10) 1,1-Dichloroethene	2.206	61	86606	10.10	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	43624	8.96	ug/L		96
12) Methyl iodide	2.328	142	36174	5.72	ug/L		97
13) Acetone	2.227	43	20830	8.60	ug/L		98
14) Chloroprene	3.373	53	82418	9.47	ug/L		100
15) Carbon disulfide	2.392	76	208630	9.53	ug/L		98
16) Allyl chloride	2.500	41	93923	9.06	ug/L		98
17) Methyl acetate	2.485	43	36304	7.73	ug/L	#	83
18) Acetonitrile	2.500	41	93923	9.06	ug/L	#	96
19) Methylene chloride	2.607	49	94488	7.54	ug/L		89
20) trans-1,2-Dichloroethene	2.865	61	88700	9.55	ug/L		98
21) t-Butanol	2.679	59	38160	50.25	ug/L	#	76
22) Acrylonitrile	2.815	53	22280m	9.68	ug/L		
23) Methyl tert-butyl ether	2.851	73	115668	8.63	ug/L		100
24) Hexane	3.130	57	96794	6.53	ug/L		95
25) 1,1-Dichloroethane	3.302	63	112670	9.85	ug/L		98
26) Diisopropyl ether	3.330	45	138712	7.87	ug/L	#	80
27) Vinyl acetate	3.302	86	10669	15.62	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	130315	8.50	ug/L		97
29) 2,2-Dichloropropane	3.968	77	89958	10.40	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	105163	9.41	ug/L		98
31) 2-Butanone	3.939	43	23918	8.20	ug/L		78
32) Ethyl Acetate	4.011	43	48682	7.88	ug/L	#	97
33) Methyl acrylate	4.061	55	51786	9.94	ug/L	#	90
34) Propionitrile	4.734	54	7257	10.03	ug/L	#	91
35) Bromochloromethane	4.269	49	51019	9.17	ug/L		100
36) Tetrahydrofuran	4.276	42	18180	8.95	ug/L		82
37) Methacrylonitrile	4.219	41	34561	9.30	ug/L		89
38) Chloroform	4.419	83	110672	9.53	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	97187	8.17	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	93632	11.04	ug/L		93
43)	Carbon tetrachloride	4.863	117	80942	10.75	ug/L		98
44)	1,1-Dichloropropene	4.878	75	84841	9.67	ug/L		94
46)	1,2-Dichloroethane	5.293	62	68399	10.27	ug/L		94
47)	Benzene	5.186	78	245583	9.70	ug/L		98
48)	Tertiaryamylmethylether	5.451	73	124004	8.84	ug/L		94
49)	Isobutyl Alcohol	5.451	43	35613	7.87	ug/L	#	81
50)	Heptane	5.766	43	93669	6.84	ug/L		97
51)	1,4-Dioxane	6.805	88	92692	1650.86	ug/L		94
52)	Methylcyclohexane	6.654	83	100734	9.07	ug/L		96
53)	n-Butanol	6.325	56	14616m	137.32	ug/L		
54)	Trichloroethene	6.353	130	67099	9.46	ug/L		96
55)	1,2-Dichloropropane	6.704	63	61987	8.89	ug/L		99
56)	Dibromomethane	6.797	93	40449	10.19	ug/L		93
57)	Methyl methacrylate	6.819	41	47658	10.17	ug/L		97
58)	Bromodichloromethane	7.019	83	82466	10.32	ug/L		96
59)	2-Chloroethyl vinyl ether	7.335	43	26199	17.10	ug/L		96
60)	2-Nitropropane	7.241	43	20055	12.02	ug/L		91
61)	cis-1,3-Dichloropropene	7.456	75	102942	11.35	ug/L		99
63)	4-Methyl-2-pentanone	7.592	43	53793	9.21	ug/L		96
65)	Toluene	7.729	91	252631	10.06	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	86426	11.18	ug/L		97
67)	Chloropicrin	7.943	117	7082	Below Cal		#	86
68)	Ethyl methacrylate	8.001	69	70919	10.94	ug/L		97
69)	1,1,2-Trichloroethane	8.087	97	53073	10.29	ug/L		91
70)	Tetrachloroethene	8.130	166	68538	8.90	ug/L		98
71)	1,3-Dichloropropane	8.201	76	82904	10.13	ug/L		95
72)	2-Hexanone	8.251	43	39670	10.05	ug/L		87
73)	Chlorodibromomethane	8.352	129	67558	10.69	ug/L		97
74)	Butyl acetate	8.345	43	77091	9.39	ug/L	#	91
75)	1,2-Dibromoethane	8.431	107	56843	10.48	ug/L		97
76)	Chlorobenzene	8.753	112	167387	10.36	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	58888	10.97	ug/L		98
78)	Ethylbenzene	8.817	91	272402	10.27	ug/L		100
79)	m/p-Xylene	8.896	91	424087	21.49	ug/L		99
80)	Styrene	9.140	104	173406	11.40	ug/L		100
81)	o-Xylene	9.125	91	209042	10.39	ug/L		99
82)	Cyclohexanone	9.383	55	14345	36.91	ug/L	#	93
83)	Bromoform	9.247	173	45210	11.66	ug/L		97
84)	Isopropylbenzene	9.333	105	253562	10.31	ug/L		98
86)	Bromobenzene	9.512	77	126327	9.81	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	78226	10.99	ug/L		98
88)	1,2,3-Trichloropropane	9.541	110	19496	12.06	ug/L	#	81
89)	trans-1,4-Dichloro-2-b...	9.526	53	18506	11.69	ug/L		91
90)	n-Propylbenzene	9.562	91	323487	10.17	ug/L		99
91)	2-Chlorotoluene	9.612	91	181210	10.62	ug/L		98
92)	4-Chlorotoluene	9.684	91	213790	10.93	ug/L		98
93)	1,3,5-Trimethylbenzene	9.663	105	201016	10.35	ug/L		99
94)	tert-Butylbenzene	9.827	91	127590	10.55	ug/L		95
95)	1,2,4-Trimethylbenzene	9.856	105	216603	10.68	ug/L		98
96)	sec-Butylbenzene	9.942	105	280936	10.39	ug/L		100
98)	1,3-Dichlorobenzene	10.014	146	125978	9.73	ug/L		97
99)	p-Isopropyltoluene	10.021	119	232270	10.38	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	128547	9.99	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

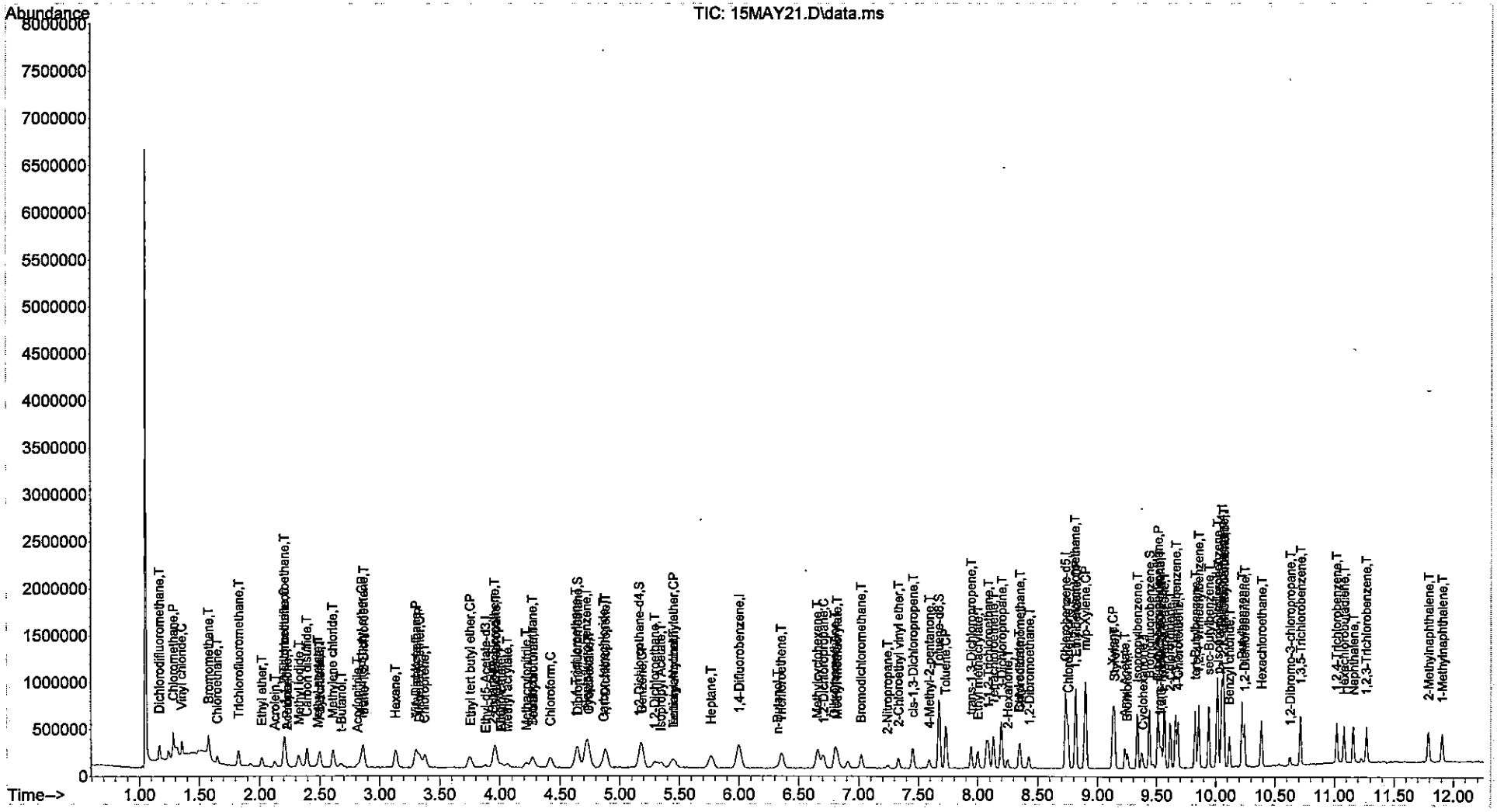
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	209977	10.18	ug/L		97
102) Benzyl chloride	10.114	91	132710	15.04	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	114345	9.59	ug/L		98
104) n-Butylbenzene	10.221	91	233344	9.97	ug/L		98
105) Hexachloroethane	10.386	117	48820	9.87	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.630	157	16937m	11.53	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	98806	10.10	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	90991	10.78	ug/L		99
109) Hexachlorobutadiene	11.081	225	45997	9.41	ug/L		90
110) Naphthalene	11.160	128	206907	11.25	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	80738	10.83	ug/L		95
112) 2-Methylnaphthalene	11.790	142	127864	14.94	ug/L		97
113) 1-Methylnaphthalene	11.905	142	102485	12.73	ug/L		96
115) 2-Propanone	2.227	43	20830	5.18	ug/L		98
116) Acetic Ether	4.011	43	48682	7.15	ug/L	#	92
117) Isopropyl Acetate	5.343	61	27963	9.35	ug/L		92
118) Amyl Acetate	9.226	43	76991	6.58	ug/L		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	214853	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	317331	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	274150	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	131734	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34202	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	106371	19.78	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%				
45) 1,2-Dichloroethane-d4	5.164	65	93244	19.97	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.85%				
64) Toluene-d8	7.671	98	362916	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	121066	20.42	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 102.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	246454m	30.46	ug/L		
3) Chloromethane	1.282	50	353311	25.30	ug/L		97
4) Vinyl chloride	1.353	62	269086	27.33	ug/L		99
5) Bromomethane	1.575	96	228722	37.27	ug/L		94
6) Chloroethane	1.647	64	164110m	31.95	ug/L		
7) Trichlorofluoromethane	1.826	101	335179m	33.42	ug/L		
8) Ethyl ether	2.020	59	151431	40.25	ug/L		99
9) Acrolein	2.120	56	104464	182.72	ug/L		99
10) 1,1-Dichloroethene	2.206	61	340209	41.26	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	171133	36.56	ug/L		98
12) Methyl iodide	2.328	142	154630m	26.09	ug/L		
13) Acetone	2.227	43	60127	33.24	ug/L		95
14) Chloroprene	3.373	53	327939	39.17	ug/L		98
15) Carbon disulfide	2.392	76	815941	38.82	ug/L		100
16) Allyl chloride	2.499	41	363421	36.44	ug/L		96
17) Methyl acetate	2.478	43	139305	30.84	ug/L	#	92
18) Acetonitrile	2.499	41	363421	36.44	ug/L	#	97
19) Methylene chloride	2.607	49	311711	32.75	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	354467	39.68	ug/L		96
21) t-Butanol	2.679	59	122604	189.12	ug/L	#	90
22) Acrylonitrile	2.807	53	84811	37.33	ug/L		88
23) Methyl tert-butyl ether	2.843	73	435997	33.85	ug/L		97
24) Hexane	3.130	57	346248	28.77	ug/L		95
25) 1,1-Dichloroethane	3.302	63	441230	40.12	ug/L		99
26) Diisopropyl ether	3.330	45	514295	30.34	ug/L	#	83
27) Vinyl acetate	3.295	86	33173	50.51	ug/L	#	28
28) Ethyl tert butyl ether	3.753	59	484177	32.84	ug/L		98
29) 2,2-Dichloropropane	3.961	77	343516	41.31	ug/L		98
30) cis-1,2-Dichloroethene	3.954	61	409000	38.07	ug/L		98
31) 2-Butanone	3.939	43	88032	31.16	ug/L		92
32) Ethyl Acetate	4.004	43	182010	29.73	ug/L	#	95
33) Methyl acrylate	4.061	55	207599	41.43	ug/L		99
34) Propionitrile	4.742	54	22680	32.32	ug/L	#	70
35) Bromochloromethane	4.269	49	188446	35.23	ug/L		97
36) Tetrahydrofuran	4.283	42	65996	33.77	ug/L		85
37) Methacrylonitrile	4.219	41	133804	36.05	ug/L		98
38) Chloroform	4.419	83	429939	38.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	366241	32.02	ug/L		98
41)	1,1,1-Trichloroethane	4.641	97	361953	45.42	ug/L		99
43)	Carbon tetrachloride	4.870	117	325645	46.03	ug/L		99
44)	1,1-Dichloropropene	4.878	75	339147	41.16	ug/L		97
46)	1,2-Dichloroethane	5.293	62	262513	41.94	ug/L		99
47)	Benzene	5.186	78	939376	39.50	ug/L		100
48)	Tertiaryamylmethylether	5.443	73	454793	34.51	ug/L		98
49)	Isobutyl Alcohol	5.451	43	138707	32.62	ug/L	#	91
50)	Heptane	5.766	43	362340	28.17	ug/L		97
51)	1,4-Dioxane	6.804	88	349756	6630.99	ug/L		99
52)	Methylcyclohexane	6.654	83	394304	37.78	ug/L		98
53)	n-Butanol	6.317	56	63002	462.86	ug/L	#	73
54)	Trichloroethene	6.353	130	262727	39.42	ug/L		97
55)	1,2-Dichloropropane	6.704	63	244490	37.34	ug/L		99
56)	Dibromomethane	6.797	93	156353	41.93	ug/L		99
57)	Methyl methacrylate	6.819	41	181911	41.32	ug/L		96
58)	Bromodichloromethane	7.019	83	323896	43.17	ug/L		99
59)	2-Chloroethyl vinyl ether	7.335	43	90438	62.82	ug/L		92
60)	2-Nitropropane	7.241	43	66601	42.48	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	388654	45.61	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	188041	34.18	ug/L		96
65)	Toluene	7.728	91	1002095	42.37	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	338773	46.54	ug/L		95
67)	Chloropicrin	7.943	117	111945	474.19	ug/L		97
68)	Ethyl methacrylate	7.994	69	270115	44.26	ug/L		94
69)	1,1,2-Trichloroethane	8.087	97	204167	42.04	ug/L		94
70)	Tetrachloroethene	8.130	166	273810	37.74	ug/L		97
71)	1,3-Dichloropropane	8.201	76	313218	40.62	ug/L		100
72)	2-Hexanone	8.244	43	141163	37.97	ug/L		95
73)	Chlorodibromomethane	8.352	129	265417	44.61	ug/L		99
74)	Butyl acetate	8.345	43	276690	35.80	ug/L		97
75)	1,2-Dibromoethane	8.423	107	212445	41.61	ug/L		98
76)	Chlorobenzene	8.753	112	638709	41.98	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	230645	45.62	ug/L		98
78)	Ethylbenzene	8.817	91	1078284	43.19	ug/L		99
79)	m/p-Xylene	8.896	91	1647403	88.64	ug/L		98
80)	Styrene	9.140	104	681802	47.60	ug/L		98
81)	o-Xylene	9.125	91	827310	43.65	ug/L		100
82)	Cyclohexanone	9.383	55	54065	147.74	ug/L		88
83)	Bromoform	9.247	173	173503	47.52	ug/L		96
84)	Isopropylbenzene	9.333	105	1015730	43.85	ug/L		98
86)	Bromobenzene	9.512	77	487338	40.17	ug/L		96
87)	1,1,2,2-Tetrachloroethane	9.512	83	281351	41.97	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	68751	45.16	ug/L		88
89)	trans-1,4-Dichloro-2-b...	9.526	53	68906	45.64	ug/L		91
90)	n-Propylbenzene	9.562	91	1246601	41.61	ug/L		98
91)	2-Chlorotoluene	9.612	91	697769	43.42	ug/L		100
92)	4-Chlorotoluene	9.677	91	818193	44.41	ug/L		98
93)	1,3,5-Trimethylbenzene	9.662	105	815695	44.60	ug/L		99
94)	tert-Butylbenzene	9.827	91	464001m	40.73	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	827364	43.31	ug/L		99
96)	sec-Butylbenzene	9.942	105	1077716	42.33	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	485258	40.01	ug/L		99
99)	p-Isopropyltoluene	10.014	119	896209	42.76	ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	476359	39.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

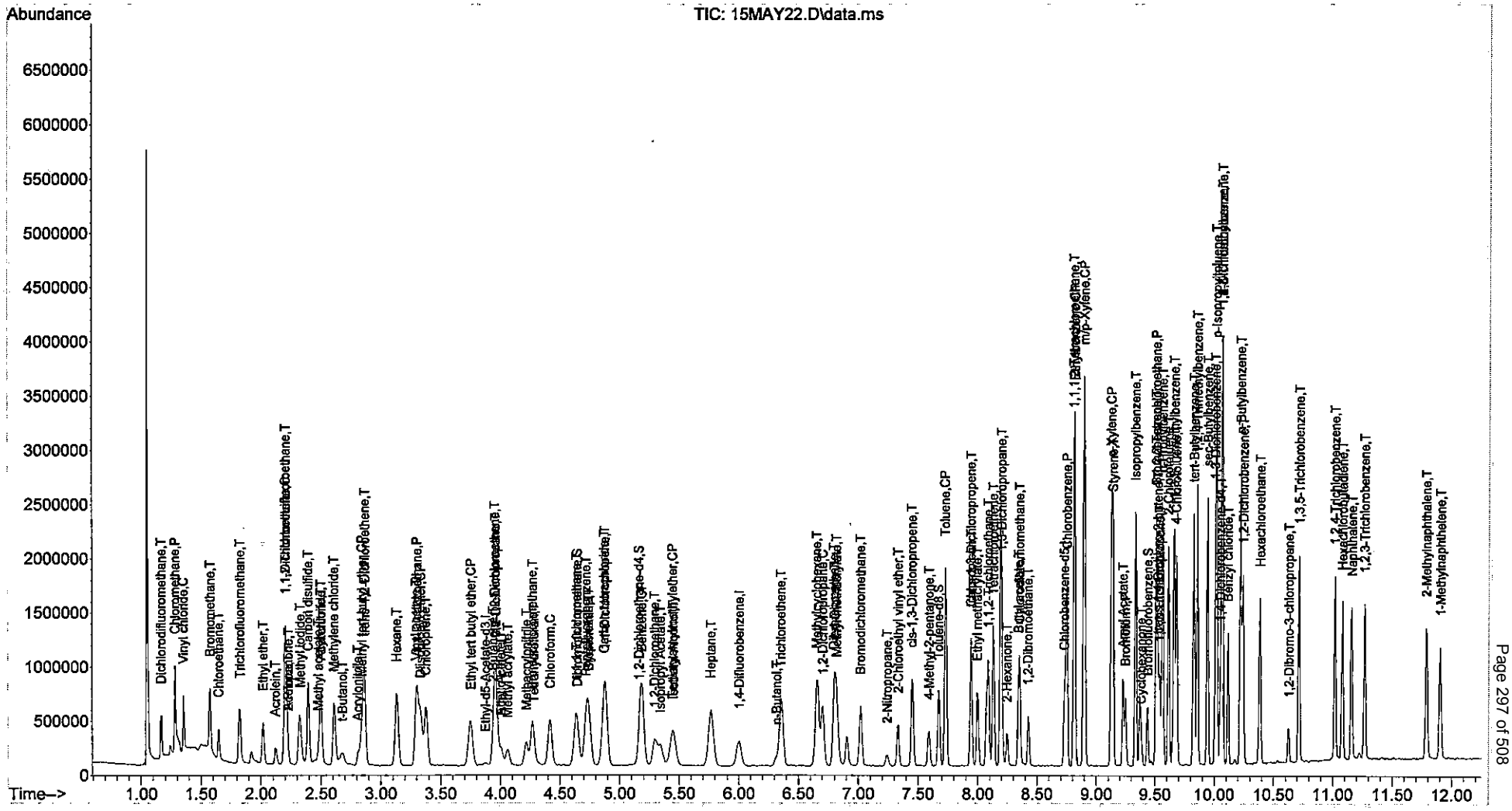
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	805112	41.68	ug/L		96
102) Benzyl chloride	10.114	91	491442	59.42	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	445383	39.87	ug/L		99
104) n-Butylbenzene	10.221	91	890816	40.60	ug/L		98
105) Hexachloroethane	10.386	117	202462	43.68	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	64682	43.84	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	376791	41.10	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	330324	41.76	ug/L		97
109) Hexachlorobutadiene	11.081	225	187240	40.87	ug/L		98
110) Naphthalene	11.160	128	777368	45.10	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	304686	43.63	ug/L		100
112) 2-Methylnaphthalene	11.783	142	453115	49.13	ug/L		98
113) 1-Methylnaphthalene	11.905	142	392569	46.72	ug/L		98
115) 2-Propanone	2.227	43	60127	28.25	ug/L		95
116) Acetic Ether	4.004	43	183944	29.90	ug/L	#	91
117) Isopropyl Acetate	5.343	61	101293	37.46	ug/L		92
118) Amyl Acetate	9.226	43	269615	25.50	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SG00502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	234086	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	357162	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	308260	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142961	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35159	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	118099	19.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.55%				
45) 1,2-Dichloroethane-d4	5.171	65	104696	19.92	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.60%				
64) Toluene-d8	7.671	98	410739	19.70	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.50%				
85) Bromofluorobenzene	9.433	95	135360	20.30	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 101.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	453484	51.45	ug/L		98
3) Chloromethane	1.282	50	649354	42.69	ug/L		98
4) Vinyl chloride	1.353	62	498176	46.44	ug/L		99
5) Bromomethane	1.568	96	396902	59.61	ug/L		95
6) Chloroethane	1.647	64	296177	52.92	ug/L		97
7) Trichlorofluoromethane	1.819	101	628518m	57.52	ug/L		
8) Ethyl ether	2.019	59	277190	67.63	ug/L		99
9) Acrolein	2.120	56	197055	316.35	ug/L		98
10) 1,1-Dichloroethene	2.206	61	589586	65.63	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	280919	55.08	ug/L		95
12) Methyl iodide	2.327	142	302722m	49.83	ug/L		
13) Acetone	2.227	43	109199	57.89	ug/L		93
14) Chloroprene	3.373	53	572761	62.80	ug/L		98
15) Carbon disulfide	2.392	76	1434144	62.64	ug/L		99
16) Allyl chloride	2.499	41	679215m	62.51	ug/L		
17) Methyl acetate	2.478	43	268820	54.63	ug/L		96
18) Acetonitrile	2.499	41	678789m	62.47	ug/L		
19) Methylene chloride	2.607	49	564466m	56.30	ug/L		
20) trans-1,2-Dichloroethene	2.865	61	618855	63.58	ug/L		97
21) t-Butanol	2.678	59	227767	328.87	ug/L	#	89
22) Acrylonitrile	2.815	53	153351	61.73	ug/L		92
23) Methyl tert-butyl ether	2.843	73	886153	63.14	ug/L		97
24) Hexane	3.130	57	521876m	40.44	ug/L		
25) 1,1-Dichloroethane	3.302	63	805027	67.18	ug/L		98
26) Diisopropyl ether	3.330	45	1061999	57.51	ug/L		87
27) Vinyl acetate	3.294	86	62177	86.89	ug/L	#	37
28) Ethyl tert butyl ether	3.746	59	968939	60.32	ug/L		98
29) 2,2-Dichloropropane	3.961	77	609897	67.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	743751	63.55	ug/L		98
31) 2-Butanone	3.939	43	171197	55.56	ug/L		91
32) Ethyl Acetate	4.004	43	365131	54.47	ug/L	#	96
33) Methyl acrylate	4.061	55	373900	68.48	ug/L		99
34) Propionitrile	4.741	54	39879	52.08	ug/L	#	91
35) Bromochloromethane	4.269	49	351734	60.36	ug/L		99
36) Tetrahydrofuran	4.283	42	138657m	65.13	ug/L		
37) Methacrylonitrile	4.218	41	235373	57.92	ug/L		96
38) Chloroform	4.419	83	767774	63.09	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.741	56	596333	47.86	ug/L		98
41)	1,1,1-Trichloroethane	4.634	97	630299	70.28	ug/L		98
43)	Carbon tetrachloride	4.870	117	568563	71.41	ug/L		99
44)	1,1-Dichloropropene	4.878	75	580152	62.56	ug/L		98
46)	1,2-Dichloroethane	5.293	62	484391	68.76	ug/L		98
47)	Benzene	5.186	78	1712920	64.00	ug/L		99
48)	Tertiaryamylmethylether	5.443	73	927719	62.55	ug/L		98
49)	Isobutyl Alcohol	5.443	43	276982	57.88	ug/L		96
50)	Heptane	5.766	43	591101	40.83	ug/L		97
51)	1,4-Dioxane	6.804	88	574819	9682.59	ug/L		97
52)	Methylcyclohexane	6.654	83	652797	55.57	ug/L		98
53)	n-Butanol	6.310	56	117814	673.84	ug/L	#	67
54)	Trichloroethene	6.353	130	470469	62.71	ug/L		97
55)	1,2-Dichloropropane	6.704	63	439798	59.67	ug/L		98
56)	Dibromomethane	6.797	93	281064	66.97	ug/L		99
57)	Methyl methacrylate	6.819	41	326930	65.98	ug/L		95
58)	Bromodichloromethane	7.019	83	593362	70.26	ug/L		99
59)	2-Chloroethyl vinyl ether	7.334	43	159763	98.60	ug/L		90
60)	2-Nitropropane	7.241	43	114916	65.13	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	721586	75.24	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	359550	58.13	ug/L		94
65)	Toluene	7.728	91	1804145	67.85	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	635250	77.61	ug/L		97
67)	Chloropicrin	7.943	117	658684	934.42	ug/L		95
68)	Ethyl methacrylate	8.001	69	486325	70.87	ug/L		95
69)	1,1,2-Trichloroethane	8.087	97	374063	68.50	ug/L		96
70)	Tetrachloroethene	8.130	166	476951	58.46	ug/L		97
71)	1,3-Dichloropropane	8.201	76	575240	66.35	ug/L		99
72)	2-Hexanone	8.244	43	268951	64.34	ug/L		91
73)	Chlorodibromomethane	8.352	129	482052	72.05	ug/L		98
74)	Butyl acetate	8.344	43	554918	63.85	ug/L		97
75)	1,2-Dibromoethane	8.423	107	397285	69.20	ug/L		98
76)	Chlorobenzene	8.753	112	1180727	69.02	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.817	131	430096	75.66	ug/L		99
78)	Ethylbenzene	8.817	91	1981258	70.57	ug/L		100
79)	m/p-Xylene	8.896	91	2988243	143.00	ug/L		100
80)	Styrene	9.140	104	1218501	75.66	ug/L		99
81)	o-Xylene	9.125	91	1507054	70.71	ug/L		99
82)	Cyclohexanone	9.383	55	96986	235.70	ug/L		91
83)	Bromoform	9.247	173	323605	78.83	ug/L		97
84)	Isopropylbenzene	9.333	105	1867984	71.73	ug/L		98
86)	Bromobenzene	9.512	77	909120	66.65	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	517604	68.67	ug/L		99
88)	1,2,3-Trichloropropane	9.541	110	121057	70.71	ug/L		90
89)	trans-1,4-Dichloro-2-b...	9.526	53	126023	74.11	ug/L		94
90)	n-Propylbenzene	9.562	91	2275310	67.54	ug/L		98
91)	2-Chlorotoluene	9.612	91	1266001	70.06	ug/L		98
92)	4-Chlorotoluene	9.677	91	1501961	72.50	ug/L		97
93)	1,3,5-Trimethylbenzene	9.662	105	1503993	73.14	ug/L		99
94)	tert-Butylbenzene	9.827	91	882606	68.91	ug/L		97
95)	1,2,4-Trimethylbenzene	9.856	105	1520096	70.76	ug/L		98
96)	sec-Butylbenzene	9.942	105	1972361	68.90	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	878070	66.72	ug/L		99
99)	p-Isopropyltoluene	10.013	119	1638260	72.03	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	885873	67.68	ug/L		99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

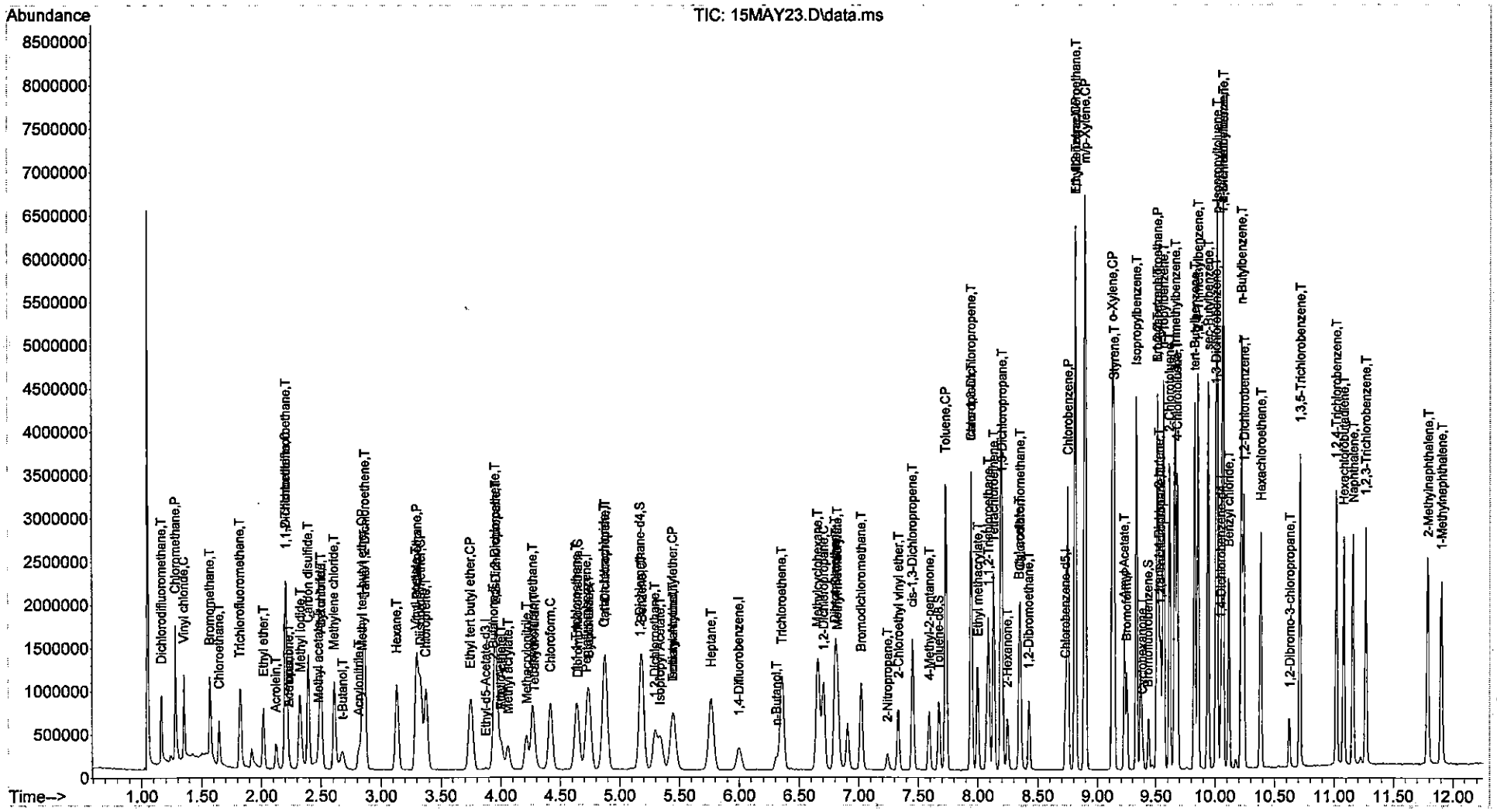
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	1483949	70.78	ug/L		97
102) Benzyl chloride	10.114	91	914284	101.87	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	821988	67.80	ug/L		99
104) n-Butylbenzene	10.221	91	1629272	68.43	ug/L		98
105) Hexachloroethane	10.386	117	375020	74.55	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	117278	69.73	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	683646	68.72	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	623902	72.69	ug/L		98
109) Hexachlorobutadiene	11.081	225	338606	68.10	ug/L		97
110) Naphthalene	11.159	128	1449713	77.50	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	573723	75.70	ug/L		97
112) 2-Methylnaphthalene	11.790	142	928898	85.10	ug/L		99
113) 1-Methylnaphthalene	11.904	142	771791	80.41	ug/L		100
115) 2-Propanone	2.227	43	109199	54.02	ug/L		93
116) Acetic Ether	4.004	43	364789	57.68	ug/L	#	95
117) Isopropyl Acetate	5.336	61	195160	70.21	ug/L		97
118) Amyl Acetate	9.225	43	547920	50.42	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	219223	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337292	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292395	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135609	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	38061	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	113822	19.91	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.55%				
45) 1,2-Dichloroethane-d4	5.164	65	101022	20.36	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.80%				
64) Toluene-d8	7.671	98	397010	20.08	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.40%				
85) Bromofluorobenzene	9.433	95	133605	21.13	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 105.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	603175	73.07	ug/L		98
3) Chloromethane	1.282	50	903112	63.39	ug/L		97
4) Vinyl chloride	1.353	62	673194	67.01	ug/L		98
5) Bromomethane	1.568	96	542781	87.23	ug/L		92
6) Chloroethane	1.647	64	401591	76.62	ug/L		96
7) Trichlorofluoromethane	1.826	101	863204m	84.35	ug/L		
8) Ethyl ether	2.020	59	413934	107.84	ug/L		97
9) Acrolein	2.120	56	286960	491.92	ug/L		99
10) 1,1-Dichloroethene	2.206	61	888412	105.60	ug/L		100
11) 1,1,2-Trichlorotrifluo...	2.206	151	443095	92.76	ug/L		95
12) Methyl iodide	2.328	142	485310m	98.59	ug/L		
13) Acetone	2.227	43	157216	91.00	ug/L		93
14) Chloroprene	3.373	53	877349	102.71	ug/L		96
15) Carbon disulfide	2.392	76	2109405	98.40	ug/L		99
16) Allyl chloride	2.499	41	973265m	95.65	ug/L		
17) Methyl acetate	2.478	43	396745	86.09	ug/L		95
18) Acetonitrile	2.499	41	966765m	95.01	ug/L		
19) Methylene chloride	2.607	49	797251	86.35	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	935189	102.60	ug/L		96
21) t-Butanol	2.679	59	343008	534.35	ug/L	#	91
22) Acrylonitrile	2.807	53	228718	98.12	ug/L		92
23) Methyl tert-butyl ether	2.850	73	1271354	96.73	ug/L		98
24) Hexane	3.130	57	767565	64.45	ug/L		94
25) 1,1-Dichloroethane	3.302	63	1186441	105.72	ug/L		99
26) Diisopropyl ether	3.330	45	1507453	87.16	ug/L		85
27) Vinyl acetate	3.295	86	89977	134.27	ug/L	#	39
28) Ethyl tert butyl ether	3.753	59	1397901	92.92	ug/L		99
29) 2,2-Dichloropropane	3.961	77	897050	105.72	ug/L		96
30) cis-1,2-Dichloroethene	3.954	61	1090757	99.51	ug/L		98
31) 2-Butanone	3.939	43	255955	88.64	ug/L		92
32) Ethyl Acetate	4.004	43	527113	83.80	ug/L	#	96
33) Methyl acrylate	4.061	55	552007	107.96	ug/L		98
34) Propionitrile	4.741	54	61276	85.37	ug/L	#	88
35) Bromochloromethane	4.269	49	509511	93.37	ug/L		98
36) Tetrahydrofuran	4.276	42	184230	92.40	ug/L		90
37) Methacrylonitrile	4.211	41	349650	91.60	ug/L		97
38) Chloroform	4.419	83	1157860	101.59	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Cyclohexane	4.741	56	925854	79.34	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	937737	110.71	ug/L		98
43) Carbon tetrachloride	4.870	117	868733	115.53	ug/L		100
44) 1,1-Dichloropropene	4.878	75	883426	100.87	ug/L		99
46) 1,2-Dichloroethane	5.293	62	710080	106.73	ug/L		99
47) Benzene	5.186	78	2528009	100.02	ug/L		100
48) Tertiaryamylmethylether	5.443	73	1313747	93.79	ug/L		98
49) Isobutyl Alcohol	5.443	43	399442	88.38	ug/L		94
50) Heptane	5.766	43	832494	60.89	ug/L		97
51) 1,4-Dioxane	6.804	88	826080	14734.71	ug/L		96
52) Methylcyclohexane	6.654	83	988061	89.06	ug/L		97
53) n-Butanol	6.310	56	185788m	965.09	ug/L		
54) Trichloroethene	6.353	130	700631	98.89	ug/L		98
55) 1,2-Dichloropropane	6.704	63	655151	94.13	ug/L		98
56) Dibromomethane	6.797	93	420964	106.21	ug/L		100
57) Methyl methacrylate	6.819	41	473009	101.09	ug/L		94
58) Bromodichloromethane	7.019	83	871932	109.33	ug/L		99
59) 2-Chloroethyl vinyl ether	7.335	43	235538	153.93	ug/L		90
60) 2-Nitropropane	7.241	43	178080	106.87	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	1060539	117.10	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	531187	90.54	ug/L		96
65) Toluene	7.728	91	2676125	106.10	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	910532	117.28	ug/L		99
67) Chloropicrin	7.943	117	1623752	1433.62	ug/L		95
68) Ethyl methacrylate	8.001	69	715976	109.99	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	545454	105.31	ug/L		94
70) Tetrachloroethene	8.130	166	688275	88.94	ug/L		99
71) 1,3-Dichloropropane	8.201	76	844669	102.71	ug/L		98
72) 2-Hexanone	8.244	43	382486	96.46	ug/L		92
73) Chlorodibromomethane	8.352	129	696769	109.80	ug/L		97
74) Butyl acetate	8.344	43	763461	92.61	ug/L		97
75) 1,2-Dibromoethane	8.423	107	574470	105.49	ug/L		98
76) Chlorobenzene	8.753	112	1707259	105.21	ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	630724	116.97	ug/L		98
78) Ethylbenzene	8.817	91	2889224	108.49	ug/L		100
79) m/p-Xylene	8.896	91	4387285	221.34	ug/L		99
80) Styrene	9.140	104	1772686	116.05	ug/L		98
81) o-Xylene	9.125	91	2223110	109.97	ug/L		99
82) Cyclohexanone	9.383	55	145735	373.39	ug/L		91
83) Bromoform	9.247	173	470961	120.95	ug/L		97
84) Isopropylbenzene	9.333	105	2762700	111.84	ug/L		98
86) Bromobenzene	9.512	77	1307035	101.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	749760	104.87	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	170647	105.09	ug/L		92
89) trans-1,4-Dichloro-2-b...	9.526	53	178584	110.61	ug/L		92
90) n-Propylbenzene	9.562	91	3293190	103.06	ug/L		98
91) 2-Chlorotoluene	9.612	91	1849093	107.87	ug/L		98
92) 4-Chlorotoluene	9.677	91	2129065	108.35	ug/L		99
93) 1,3,5-Trimethylbenzene	9.662	105	2159216	110.70	ug/L		99
94) tert-Butylbenzene	9.827	91	1281033	105.44	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2145024	105.28	ug/L		99
96) sec-Butylbenzene	9.942	105	2868041	105.63	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	1261294	101.03	ug/L		99
99) p-Isopropyltoluene	10.013	119	2341946	108.56	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	1260035	101.48	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

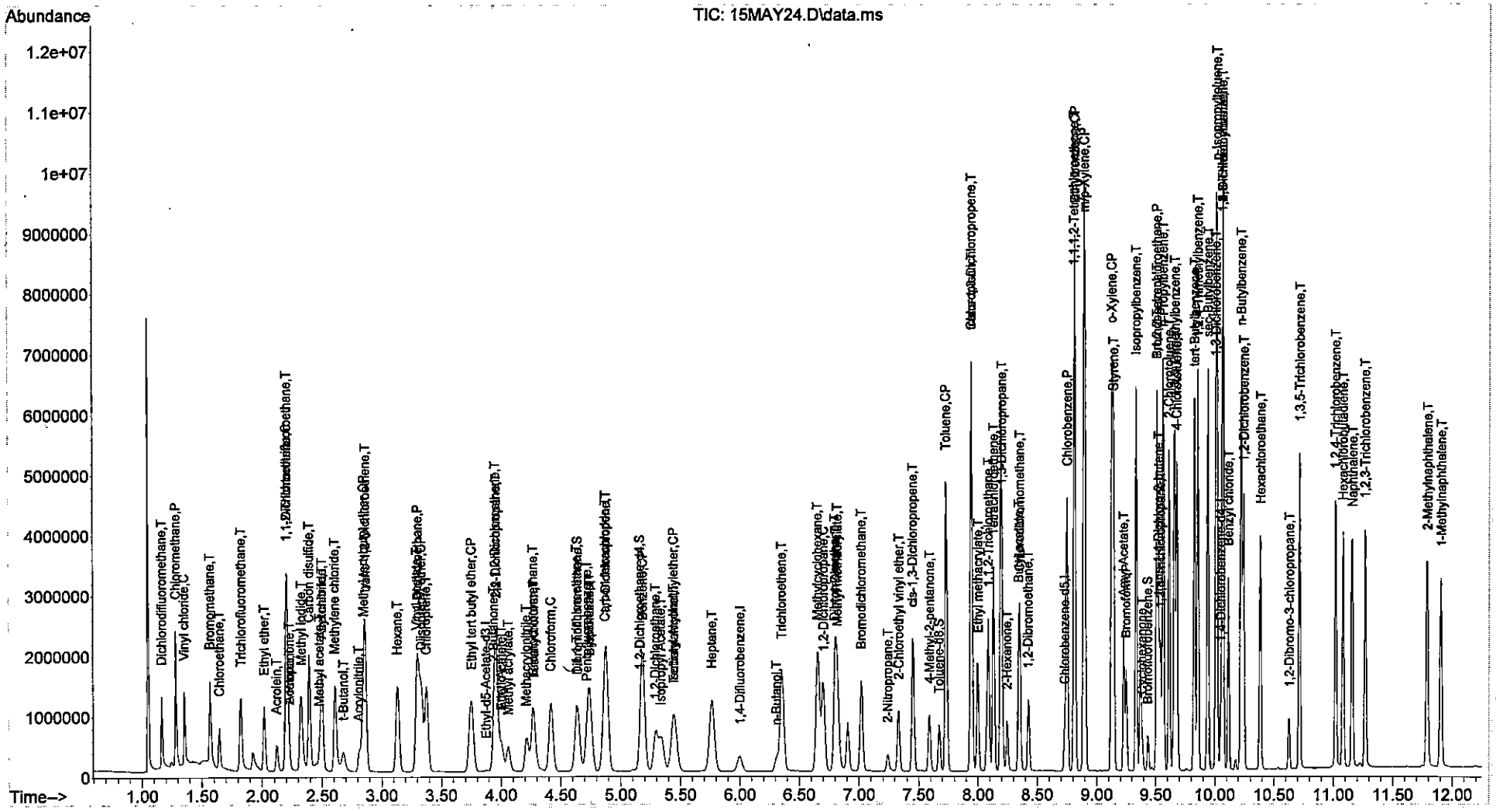
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	2136710	107.45	ug/L		98
102) Benzyl chloride	10.114	91	1321776	155.26	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	1161702	101.02	ug/L		99
104) n-Butylbenzene	10.221	91	2267139	100.38	ug/L		98
105) Hexachloroethane	10.386	117	540789	113.33	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	175943	103.77	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	981701	104.03	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	895907	110.03	ug/L		96
109) Hexachlorobutadiene	11.081	225	498769	105.75	ug/L		97
110) Naphthalene	11.160	128	2155818	121.49	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	826065	114.91	ug/L		97
112) 2-Methylnaphthalene	11.790	142	1356116	121.45	ug/L		99
113) 1-Methylnaphthalene	11.905	142	1157205	120.67	ug/L		99
115) 2-Propanone	2.227	43	157216	73.60	ug/L		92
116) Acetic Ether	4.004	43	524105	76.55	ug/L	#	96
117) Isopropyl Acetate	5.336	61	283805	94.32	ug/L		98
118) Amyl Acetate	9.226	43	769595	65.41	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	228121	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	349027	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	310765	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	145994	20.00 ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	31556	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	118267	19.95 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.75%		
45) 1,2-Dichloroethane-d4	5.164	65	100172	19.20 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.00%		
64) Toluene-d8	7.671	98	402249	19.28 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.40%		
85) Bromofluorobenzene	9.433	95	138310	19.66 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 98.30%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.160	85	169980m	23.39 ug/L	
3) Chloromethane	1.282	50	322437m	32.20 ug/L	
4) Vinyl chloride	1.353	62	236750	32.27 ug/L	100
5) Bromomethane	1.554	96	158492m	24.85 ug/L	
6) Chloroethane	1.633	64	162227m	34.15 ug/L	
7) Trichlorofluoromethane	1.819	101	291239m	29.43 ug/L	
8) Ethyl ether	2.019	59	157140	37.72 ug/L	100
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.199	61	349464	36.37 ug/L	97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	2.327	142	218042	50.83 ug/L	98
13) Acetone	2.227	43	62027	37.08 ug/L	96
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	805610	36.37 ug/L	98
16) Allyl chloride	2.499	41	335987m	32.44 ug/L	
17) Methyl acetate	2.492	43	7687	1.94 ug/L #	1
18) Acetonitrile	2.499	41	327596	31.66 ug/L	100
19) Methylene chloride	2.607	49	324804	41.00 ug/L	99
20) trans-1,2-Dichloroethene	2.858	61	373862	36.83 ug/L	99
21) t-Butanol	2.693	59	149223	210.65 ug/L	96
22) Acrylonitrile	2.815	53	86380	36.77 ug/L	95
23) Methyl tert-butyl ether	2.843	73	557849	45.14 ug/L	100
24) Hexane	3.137	57	26411	0.67 ug/L #	86
25) 1,1-Dichloroethane	3.294	63	456924	38.64 ug/L	99
26) Diisopropyl ether	3.330	45	658165	45.80 ug/L #	47
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	3.746	59	600615	44.80 ug/L	99
29) 2,2-Dichloropropane	3.961	77	352410	38.06 ug/L	99
30) cis-1,2-Dichloroethene	3.953	61	444955	38.37 ug/L	99
31) 2-Butanone	3.946	43	103307	41.32 ug/L	97
32) Ethyl Acetate	4.004	43	209819	41.45 ug/L #	98
33) Methyl acrylate	4.068	55	208973	39.11 ug/L	99
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	4.261	49	195912	36.17 ug/L	98
36) Tetrahydrofuran	4.283	42	63984	33.49 ug/L	95
37) Methacrylonitrile	4.218	41	121453	33.81 ug/L	91
38) Chloroform	4.419	83	440168	34.56 ug/L	99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.713	56	6452	0.31 ug/L #	19
41) 1,1,1-Trichloroethane	4.634	97	373782	36.44 ug/L	98
43) Carbon tetrachloride	4.870	117	316686	37.69 ug/L	99
44) 1,1-Dichloropropene	4.878	75	324168	36.61 ug/L	98
46) 1,2-Dichloroethane	5.293	62	280984	35.60 ug/L	99
47) Benzene	5.178	78	982407	35.22 ug/L	99
48) Tertiaryamylmethylether	5.451	73	575649	44.09 ug/L	98
49) Isobutyl Alcohol	5.451	43	171045	42.78 ug/L #	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.747	88	15857	169.32 ug/L #	76
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	277130	36.03 ug/L	99
55) 1,2-Dichloropropane	6.704	63	258190	36.48 ug/L #	86
56) Dibromomethane	6.797	93	161786	36.49 ug/L	100
57) Methyl methacrylate	6.819	41	174933	32.23 ug/L	98
58) Bromodichloromethane	7.019	83	334592	37.11 ug/L	100
59) 2-Chloroethyl vinyl ether	7.241	43	69883m	25.94 ug/L	
60) 2-Nitropropane	7.241	43	65246	31.82 ug/L #	95
61) cis-1,3-Dichloropropene	7.449	75	405362	36.50 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	297937	48.43 ug/L	82
65) Toluene	7.728	91	1024015	34.39 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	348219	34.10 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	279405	34.04 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	216861	33.45 ug/L	98
70) Tetrachloroethene	8.130	166	274338	34.76 ug/L	99
71) 1,3-Dichloropropane	8.201	76	329972	34.23 ug/L	87
72) 2-Hexanone	8.251	43	154582	37.01 ug/L	98
73) Chlorodibromomethane	8.352	129	264550	34.88 ug/L	98
74) Butyl acetate	8.344	43	314238	38.64 ug/L	100
75) 1,2-Dibromoethane	8.423	107	234507	36.12 ug/L	99
76) Chlorobenzene	8.753	112	668530	35.59 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	248740	34.29 ug/L	98
78) Ethylbenzene	8.817	91	1113151	35.46 ug/L	98
79) m/p-Xylene	8.896	91	1655032	69.96 ug/L	98
80) Styrene	9.140	104	697394	34.48 ug/L	99
81) o-Xylene	9.125	91	857265	35.26 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	176881	34.73 ug/L	100
84) Isopropylbenzene	9.333	105	1053887	36.55 ug/L	100
86) Bromobenzene	9.512	77	512360	33.74 ug/L	100
87) 1,1,2,2-Tetrachloroethane	9.512	83	317493	37.35 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	71343	36.61 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	62118	30.12 ug/L	99
90) n-Propylbenzene	9.562	91	1296417	37.02 ug/L	99
91) 2-Chlorotoluene	9.612	91	742153	37.34 ug/L	99
92) 4-Chlorotoluene	9.677	91	831194	34.38 ug/L	99
93) 1,3,5-Trimethylbenzene	9.662	105	845769	36.37 ug/L	99
94) tert-Butylbenzene	9.827	91	502038	35.68 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	856924	35.30 ug/L	100
96) sec-Butylbenzene	9.942	105	1109122	36.70 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	496623	36.02 ug/L	99
99) p-Isopropyltoluene	10.013	119	904535	35.87 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	500024	35.63 ug/L	100

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	841143	37.16	ug/L		99
102) Benzyl chloride	10.114	91	5040	0.34	ug/L	#	61
103) 1,2-Dichlorobenzene	10.243	146	471111	37.12	ug/L		99
104) n-Butylbenzene	10.221	91	902345	35.28	ug/L		99
105) Hexachloroethane	10.386	117	197912	35.55	ug/L		95
106) 1,2-Dibromo-3-chloropr...	10.629	157	69775	38.14	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	6140	0.59	ug/L	#	79
108) 1,2,4-Trichlorobenzene	11.016	180	354051	36.37	ug/L		100
109) Hexachlorobutadiene	11.081	225	202680	38.28	ug/L		98
110) Naphthalene	11.152	128	859066	37.24	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	335053	35.44	ug/L		96
112) 2-Methylnaphthalene	11.790	142	16652	1.16	ug/L		92
113) 1-Methylnaphthalene	11.904	142	11961	1.00	ug/L		84
115) 2-Propanone	2.227	43	62027	44.32	ug/L		96
116) Acetic Ether	4.004	43	209819	48.11	ug/L	#	94
117) Isopropyl Acetate	5.343	61	117221	50.21	ug/L		99
118) Amyl Acetate	9.225	43	323648	46.78	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
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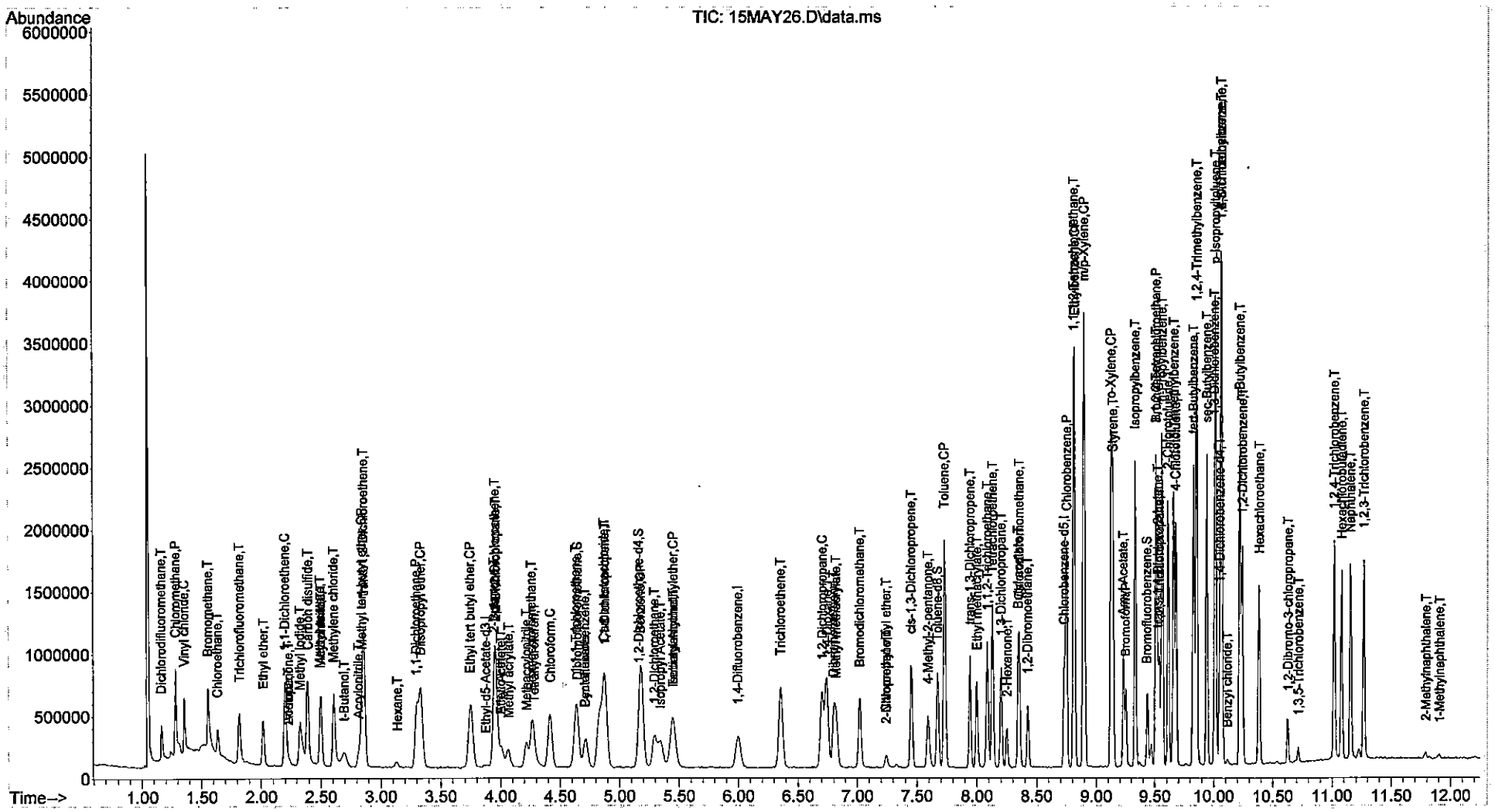

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	40.000	23.386	41.5#	69	0.00
3	P	Chloromethane	40.000	32.196	19.5	91	0.00
4	C	Vinyl chloride	40.000	32.267	19.3	88	0.00
5	T	Bromomethane	40.000	24.852	37.9#	69	-0.02
6	T	Chloroethane	40.000	34.150	14.6	99	-0.01
7	T	Trichlorofluoromethane	40.000	29.432	26.4#	87	0.00
8	T	Ethyl ether	40.000	37.716	5.7	104	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.12#
10	C	1,1-Dichloroethene	40.000	36.367	9.1	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	50.832	-27.1#	141	0.00
13	T	Acetone	40.000	37.076	7.3	103	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	36.373	9.1	99	0.00
16	T	Allyl chloride	40.000	32.437	18.9	92	0.00
17	T	Methyl acetate	40.000	1.939	95.2#	6	0.01
18	T	Acetonitrile	40.000	31.665	20.8#	90	0.00
19	T	Methylene chloride	40.000	41.002	-2.5	104	0.00
20	T	trans-1,2-Dichloroethene	40.000	36.832	7.9	105	0.00
21	T	t-Butanol	200.000	210.650	-5.3	122	0.01
22	T	Acrylonitrile	40.000	36.770	8.1	102	0.00
23	CP	Methyl tert-butyl ether	40.000	45.141	-12.9	128	0.00
24	T	Hexane	40.000	0.675	98.3#	8	0.00
25	P	1,1-Dichloroethane	40.000	38.639	3.4	104	0.00
26	CP	Diisopropyl ether	40.000	45.799	-14.5	128	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	44.798	-12.0	124	0.00
29	T	2,2-Dichloropropane	40.000	38.058	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.373	4.1	109	0.00
31	T	2-Butanone	40.000	41.323	-3.3	117	0.00
32	T	Ethyl Acetate	40.000	41.447	-3.6	115	0.00
33	T	Methyl acrylate	40.000	39.108	2.2	101	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.74#
35	T	Bromochloromethane	40.000	36.169	9.6	104	0.00
36	T	Tetrahydrofuran	40.000	33.488	16.3	97	0.00
37	T	Methacrylonitrile	40.000	33.806	15.5	91	0.00
38	C	Chloroform	40.000	34.564	13.6	102	0.00
39	T	Cyclohexane	40.000	0.313	99.2#	2	-0.03
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	40.000	36.443	8.9	103	0.00
42	S	Dibromofluoromethane	20.000	19.955	0.2	111	0.00
43	T	Carbon tetrachloride	40.000	37.690	5.8	97	0.00
44	T	1,1-Dichloropropene	40.000	36.612	8.5	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.199	4.0	107	0.00
46	T	1,2-Dichloroethane	40.000	35.604	11.0	107	0.00
47	CP	Benzene	40.000	35.224	11.9	105	0.00
48	CP	Tertiaryamylmethylether	40.000	44.091	-10.2	127	0.00
49	T	Isobutyl Alcohol	40.000	42.785	-7.0	123	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	169.322	95.8#	5	-0.06
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.32#
54	T	Trichloroethene	40.000	36.034	9.9	105	0.00
55	C	1,2-Dichloropropane	40.000	36.476	8.8	106	0.00
56	T	Dibromomethane	40.000	36.487	8.8	103	0.00
57	T	Methyl methacrylate	40.000	32.230	19.4	96	0.00
58	T	Bromodichloromethane	40.000	37.108	7.2	103	0.00
59	T	2-Chloroethyl vinyl ether	40.000	25.936	35.2#	77	-0.09
60	T	2-Nitropropane	40.000	31.820	20.4#	98	0.00
61	T	cis-1,3-Dichloropropene	40.000	36.497	8.8	104	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	40.000	48.431	-21.1#	158	0.00
64	S	Toluene-d8	20.000	19.280	3.6	111	0.00
65	CP	Toluene	40.000	34.386	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	40.000	34.101	14.7	103	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	34.038	14.9	103	0.00
69	T	1,1,2-Trichloroethane	40.000	33.455	16.4	106	0.00
70	T	Tetrachloroethene	40.000	34.759	13.1	100	0.00
71	T	1,3-Dichloropropane	40.000	34.228	14.4	105	0.00
72	T	2-Hexanone	40.000	37.013	7.5	110	0.00
73	T	Chlorodibromomethane	40.000	34.879	12.8	100	0.00
74	T	Butyl acetate	40.000	38.636	3.4	114	0.00
75	T	1,2-Dibromoethane	40.000	36.118	9.7	110	0.00
76	P	Chlorobenzene	40.000	35.591	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	34.295	14.3	108	0.00
78	CP	Ethylbenzene	40.000	35.457	11.4	103	0.00
79	CP	m/p-Xylene	80.000	69.959	12.6	100	0.00
80	T	Styrene	40.000	34.481	13.8	102	0.00
81	CP	o-Xylene	40.000	35.256	11.9	104	0.00
82	T	Cyclohexanone	200.000	0.000	100.0#	0	-9.38#
83	P	Bromoform	40.000	34.733	13.2	102	0.00
84	T	Isopropylbenzene	40.000	36.550	8.6	104	0.00
85	S	Bromofluorobenzene	20.000	19.663	1.7	114	0.00
86	T	Bromobenzene	40.000	33.738	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	37.350	6.6	113	0.00
88	T	1,2,3-Trichloropropane	40.000	36.607	8.5	104	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	30.122	24.7#	90	0.00
90	T	n-Propylbenzene	40.000	37.018	7.5	104	0.00
91	T	2-Chlorotoluene	40.000	37.341	6.6	106	0.00
92	T	4-Chlorotoluene	40.000	34.384	14.0	102	0.00
93	T	1,3,5-Trimethylbenzene	40.000	36.370	9.1	104	0.00
94	T	tert-Butylbenzene	40.000	35.676	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	40.000	35.303	11.7	104	0.00
96	T	sec-Butylbenzene	40.000	36.701	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	40.000	36.019	10.0	102	0.00
99	T	p-Isopropyltoluene	40.000	35.867	10.3	101	0.00

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	35.634	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	40.000	37.158	7.1	104	0.00
102	T	Benzyl chloride	40.000	0.341	99.1#	1	0.00
103	T	1,2-Dichlorobenzene	40.000	37.115	7.2	106	0.00
104	T	n-Butylbenzene	40.000	35.280	11.8	101	0.00
105	T	Hexachloroethane	40.000	35.549	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.136	4.7	108	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.586	98.5#	2	0.00
108	T	1,2,4-Trichlorobenzene	40.000	36.366	9.1	107	0.00
109	T	Hexachlorobutadiene	40.000	38.283	4.3	108	0.00
110	T	Naphthalene	40.000	37.237	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	40.000	35.438	11.4	110	0.00
112	T	2-Methylnaphthalene	40.000	1.160	97.1#	4	0.00
113	T	1-Methylnaphthalene	40.000	0.998	97.5#	3	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	92	0.00
115	T	2-Propanone	40.000	44.324	-10.8	103	0.00
116	T	Acetic Ether	40.000	48.111	-20.3#	114	0.00
117	T	Isopropyl Acetate	40.000	50.209	-25.5#	116	0.00
118	T	Amyl Acetate	40.000	46.778	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	0.637	0.373	41.4#	69	0.00
3	P	Chloromethane	0.878	0.707	19.5	91	0.00
4	C	Vinyl chloride	0.643	0.519	19.3	88	0.00
5	T	Bromomethane	0.559	0.347	37.9#	69	-0.02
6	T	Chloroethane	0.416	0.356	14.4	99	-0.01
7	T	Trichlorofluoromethane	0.868	0.638	26.5#	87	0.00
8	T	Ethyl ether	0.365	0.344	5.8	104	0.00
9	T	Acrolein	0.084	0.000#	100.0#	0#	-2.12#
10	C	1,1-Dichloroethene	0.842	0.766	9.0	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.376	0.478	-27.1#	141	0.00
13	T	Acetone	0.340	0.136#	60.0#	103	0.00
14	T	Chloroprene	0.818	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.942	1.766	9.1	99	0.00
16	T	Allyl chloride	0.908	0.736	18.9	92	0.00
17	T	Methyl acetate	0.348	0.017#	95.1#	6#	0.01
18	T	Acetonitrile	0.907	0.718	20.8#	90	0.00
19	T	Methylene chloride	1.642	0.712	56.6#	104	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.819	8.0	105	0.00
21	T	t-Butanol	0.117	0.065#	44.4#	122	0.01
22	T	Acrylonitrile	0.206	0.189#	8.3	102	0.00
23	CP	Methyl tert-butyl ether	1.083	1.223	-12.9	128	0.00
24	T	Hexane	1.281	0.058#	95.5#	8#	0.00
25	P	1,1-Dichloroethane	1.037	1.001	3.5	104	0.00
26	CP	Diisopropyl ether	1.260	1.443	-14.5	128	0.00
27	T	Vinyl acetate	0.093	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.175	1.316	-12.0	124	0.00
29	T	2,2-Dichloropropane	0.812	0.772	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.975	4.1	109	0.00
31	T	2-Butanone	0.251	0.226	10.0	117	0.00
32	T	Ethyl Acetate	0.444	0.460	-3.6	115	0.00
33	T	Methyl acrylate	0.468	0.458	2.1	101	0.00
34	T	Propionitrile	0.083	0.000#	100.0#	0#	-4.74#
35	T	Bromochloromethane	0.475	0.429	9.7	104	0.00
36	T	Tetrahydrofuran	0.206	0.140#	32.0#	97	0.00
37	T	Methacrylonitrile	0.315	0.266	15.6	91	0.00
38	C	Chloroform	1.116	0.965	13.5	102	0.00
39	T	Cyclohexane	1.058	0.014#	98.7#	2#	-0.03
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	0.588	0.535	9.0	103	0.00
42	S	Dibromofluoromethane	0.340	0.339	0.3	111	0.00
43	T	Carbon tetrachloride	0.481	0.454	5.6	97	0.00
44	T	1,1-Dichloropropene	0.568	0.464	18.3	96	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.287	4.0	107	0.00
46	T	1,2-Dichloroethane	0.452	0.403	10.8	107	0.00
47	CP	Benzene	1.598	1.407	12.0	105	0.00
48	CP	Tertiaryamylmethylether	0.748	0.825	-10.3	127	0.00
49	T	Isobutyl Alcohol	0.266	0.245	7.9	123	0.00
50	T	Heptane	0.542	0.000#	100.0#	0#	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.000#	100.0#	5#	-0.06
52	T	Methylcyclohexane	0.630	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.013	0.000#	100.0#	0#	-6.32#
54	T	Trichloroethene	0.441	0.397	10.0	105	0.00
55	C	1,2-Dichloropropane	0.406	0.370	8.9	106	0.00
56	T	Dibromomethane	0.254	0.232	8.7	103	0.00
57	T	Methyl methacrylate	0.311	0.251	19.3	96	0.00
58	T	Bromodichloromethane	0.517	0.479	7.4	103	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.100#	35.1#	77	-0.09
60	T	2-Nitropropane	0.117	0.093#	20.5#	98	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.581	8.6	104	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	0.396	0.479	-21.0#	158	0.00
64	S	Toluene-d8	1.343	1.294	3.6	111	0.00
65	CP	Toluene	1.917	1.648	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.560	14.8	103	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.528	0.450	14.8	103	0.00
69	T	1,1,2-Trichloroethane	0.417	0.349	16.3	106	0.00
70	T	Tetrachloroethene	0.508	0.441	13.2	100	0.00
71	T	1,3-Dichloropropane	0.620	0.531	14.4	105	0.00
72	T	2-Hexanone	0.269	0.249	7.4	110	0.00
73	T	Chlorodibromomethane	0.488	0.426	12.7	100	0.00
74	T	Butyl acetate	0.523	0.506	3.3	114	0.00
75	T	1,2-Dibromoethane	0.418	0.377	9.8	110	0.00
76	P	Chlorobenzene	1.209	1.076	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.400	14.3	108	0.00
78	CP	Ethylbenzene	2.020	1.791	11.3	103	0.00
79	CP	m/p-Xylene	1.523	1.331	12.6	100	0.00
80	T	Styrene	1.302	1.122	13.8	102	0.00
81	CP	o-Xylene	1.565	1.379	11.9	104	0.00
82	T	Cyclohexanone	0.025	0.000#	100.0#	0#	-9.38#
83	P	Bromoform	0.328	0.285	13.1	102	0.00
84	T	Isopropylbenzene	1.856	1.696	8.6	104	0.00
85	S	Bromofluorobenzene	0.453	0.445	1.8	114	0.00
86	T	Bromobenzene	0.977	0.824	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.511	6.6	113	0.00
88	T	1,2,3-Trichloropropane	0.125	0.115#	8.0	104	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.100#	24.8#	90	0.00
90	T	n-Propylbenzene	2.254	2.086	7.5	104	0.00
91	T	2-Chlorotoluene	1.279	1.194	6.6	106	0.00
92	T	4-Chlorotoluene	1.556	1.337	14.1	102	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.361	9.1	104	0.00
94	T	tert-Butylbenzene	0.906	0.808	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.379	11.7	104	0.00
96	T	sec-Butylbenzene	1.945	1.785	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	1.889	1.701	10.0	102	0.00
99	T	p-Isopropyltoluene	3.455	3.098	10.3	101	0.00

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.712	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.881	7.1	104	0.00
102	T	Benzyl chloride	2.023	0.017#	99.2#	1#	0.00
103	T	1,2-Dichlorobenzene	1.739	1.613	7.2	106	0.00
104	T	n-Butylbenzene	3.504	3.090	11.8	101	0.00
105	T	Hexachloroethane	0.763	0.678	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.239	20.3#	108	0.00
107	T	1,3,5-Trichlorobenzene	1.435	0.021#	98.5#	2#	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.213	9.1	107	0.00
109	T	Hexachlorobutadiene	0.725	0.694	4.3	108	0.00
110	T	Naphthalene	3.160	2.942	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.147	11.4	110	0.00
112	T	2-Methylnaphthalene	1.967	0.057#	97.1#	4#	0.00
113	T	1-Methylnaphthalene	1.641	0.041#	97.5#	3#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	92	0.00
115	T	2-Propanone	2.164	0.983	54.6#	103	0.00
116	T	Acetic Ether	2.764	3.325	-20.3#	114	0.00
117	T	Isopropyl Acetate	1.897	1.857	2.1	116	0.00
118	T	Amyl Acetate	4.385	5.128	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2018 May 15 1138 Sequence Log

Starting sequence Tue May 15 08:43:19 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	BLK
16)	Sample	5	15MAY16	8SGO0502	VBLKS1-180515
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV

2018 May 15 1138 Sequence Log

27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK
44)	Sample	33	15MAY44	8GI0502	BLK
45)	Sample	34	15MAY45	8GI0502	ICV
46)	Sample	35	15MAY46	8GI0502	BLK
47)	Sample	36	15MAY47	BFB	VBFB8-180514
48)	Sample	37	15MAY48	8GI0502	VCCV1-180514
49)	Sample	38	15MAY49	8GI0502	VCCV2-180511
50)	Sample	39	15MAY50	8GI0502	VLCSW2-180514

2018 May 15 1138 Sequence Log

51)	Sample	40	15MAY51	8GI0502	LCS-
52)	Sample	41	15MAY52	8GI0502	BLK
53)	Sample	42	15MAY53	8GI0502	VBLKW2-180414
54)	Sample	43	15MAY54	8GI0502	MBLK-
55)	Sample	44	15MAY55	8GI0502	1805671-22A
56)	Sample	45	15MAY56	8GI0502	1805671-11A
57)	Sample	46	15MAY57	8GI0502	1805671-12A
58)	Sample	47	15MAY58	8GI0502	1805671-13A
59)	Sample	48	15MAY59	8GI0502	1805671-14A
60)	Sample	49	15MAY60	8GI0502	1805671-15A
61)	Sample	50	15MAY61	8GI0502	1805671-16A
62)	Sample	51	15MAY62	8GI0502	1805671-17A
63)	Sample	52	15MAY63	8GI0502	1805671-18A
64)	Sample	53	15MAY64	8GI0502	1805671-19A
65)	Sample	54	15MAY65	8GI0502	1805671-20A
66)	Sample	55	15MAY66	8GI0502	1805671-21A
67)	Sample	56	15MAY67	8GI0502	1805671-23A
68)	Sample	57	15MAY68	8GI0502	1805671-24A
69)	Sample	58	15MAY69	8GI0502	1805671-25A
70)	Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)	Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)	Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)	Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)	Sample	63	15MAY74	8GI0502	1805699-01A DF20

2018 May 15 1138 Sequence Log

75) Sample 64 15MAY75 8GI0502 1805699-01A MS DF20

76) Sample 65 15MAY76 8GI0502 1805699-01A MSD DF20

77) Sample 66 15MAY77 8GI0502 BLK

Sequence completed Wed May 16 06:46:15 2018

D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Sequence Log .LOG

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	146	-0.77#
2	CP	Dichlorodifluoromethane	40.000	35.125	12.2	167	-0.13
3	CP	Chloromethane	40.000	29.359	26.6#	101	-0.14
4	CP	Vinyl chloride	40.000	32.811	18.0	121	-0.15
5	CP	Bromomethane	40.000	33.150	17.1	196	-0.17
6	CP	Chloroethane	40.000	32.171	19.6	144	-0.18
7	CP	Trichlorofluoromethane	40.000	34.304	14.2	159	-0.20
8	C	Ethyl ether	40.000	32.616	18.5	111	-0.24
9	C	Acrolein	200.000	240.875	-20.4#	0	-0.25
10	CP	1,1-Dichloroethene	40.000	32.577	18.6	149	-0.26
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	35.728	10.7	193	-0.26
12	C	Methyl iodide	40.000	51.673	-29.2#	675	-0.28
13	CP	Acetone	40.000	32.717	18.2	105	-0.27
14	C	Chloroprene	40.000	33.113	17.2	156	-0.51#
15	CP	Carbon disulfide	40.000	34.525	13.7	179	-0.29
16	C	Allyl chloride	40.000	32.410	19.0	150	-0.31
17	CP	Methyl acetate	40.000	33.804	15.5	106	-0.32
18	C	Acetonitrile	40.000	32.433	18.9	150	-0.31
19	CP	Methylene chloride	40.000	36.936	7.7	137	-0.33
20	CP	trans-1,2-Dichloroethene	40.000	31.430	21.4#	150	-0.38
21	C	t-Butanol	200.000	158.408	20.8#	129	-0.39
22	C	Acrylonitrile	40.000	28.873	27.8#	106	-0.38
23	CP	Methyl tert-butyl ether	40.000	40.424	-1.1	120	-0.40
24	C	Hexane	40.000	33.690	15.8	221	-0.44
25	C	1,1-Dichloroethane	40.000	34.040	14.9	142	-0.48
26	T	Diisopropyl ether	40.000	43.496	-8.7	135	-0.52#
27	C	Vinyl acetate	40.000	32.760	18.1	146	-0.51#
28	C	Ethyl tert butyl ether	40.000	42.526	-6.3	131	-0.63#
29	C	2,2-Dichloropropane	40.000	34.882	12.8	158	-0.65#
30	CP	cis-1,2-Dichloroethene	40.000	32.650	18.4	160	-0.66#
31	CP	2-Butanone	40.000	32.087	19.8	101	-0.67#
32	C	Ethyl Acetate	40.000	36.243	9.4	113	-0.69#
33	C	Methyl acrylate	40.000	30.979	22.6#	114	-0.70#
34	C	Propionitrile	40.000	35.822	10.4	176	-0.74#
35	C	Bromochloromethane	40.000	32.906	17.7	129	-0.71#
36	C	Tetrahydrofuran	40.000	24.510	38.7#	103	-0.73#
37	C	Methacrylonitrile	40.000	29.121	27.2#	97	-0.73#
38	CP	Chloroform	40.000	31.889	20.3#	151	-0.74#
39	CP	Cyclohexane	40.000	36.634	8.4	176	-0.74#
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	135	-0.54#
41	CP	1,1,1-Trichloroethane	40.000	33.955	15.1	155	-0.74#
42	S	Dibromofluoromethane	20.000	19.342	3.3	119	-0.75#
43	CP	Carbon tetrachloride	40.000	38.301	4.2	167	-0.74#
44	C	1,1-Dichloropropene	40.000	36.402	9.0	168	-0.75#
45	S	1,2-Dichloroethane-d4	20.000	18.658	6.7	90	-0.72#
46	CP	1,2-Dichloroethane	40.000	31.359	21.6#	113	-0.70#
47	CP	Benzene	40.000	33.878	15.3	169	-0.72#
48	C	Tertiaryamylmethylether	40.000	42.933	-7.3	132	-0.68#
49	C	Isobutyl Alcohol	40.000	40.968	-2.4	51	-0.62#
50	C	Heptane	40.000	30.414	24.0#	226	-0.61#

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	4000.000	2478.282	38.0#	116	-0.46
52	CP	Methylcyclohexane	40.000	34.429	13.9	206	-0.44
53	C	n-Butanol	400.000	322.188	19.5	106	-0.49
54	CP	Trichloroethene	40.000	35.146	12.1	183	-0.46
55	CP	1,2-Dichloropropane	40.000	32.847	17.9	145	-0.45
56	C	Dibromomethane	40.000	33.226	16.9	121	-0.45
57	C	Methyl methacrylate	40.000	26.905	32.7#	94	-0.45
58	CP	Bromodichloromethane	40.000	34.240	14.4	131	-0.47
59	T	2-Chloroethyl vinyl ether	40.000	24.138	39.7#	84	-0.53#
60	C	2-Nitropropane	40.000	23.819	40.5#	86	-0.51#
61	CP	cis-1,3-Dichloropropene	40.000	33.059	17.4	139	-0.57#
62	I	Chlorobenzene-d5	20.000	20.000	0.0	131	-1.20#
63	CP	4-Methyl-2-pentanone	40.000	29.766	25.6#	108	-0.61#
64	S	Toluene-d8	20.000	18.946	5.3	128	-0.65#
65	CP	Toluene	40.000	33.981	15.0	174	-0.67#
66	CP	trans-1,3-Dichloropropene	40.000	30.395	24.0#	127	-0.74#
67	C	Chloropicrin	400.000	0.000	100.0#	0	-0.75#
68	C	Ethyl methacrylate	40.000	30.368	24.1#	126	-0.78#
69	CP	1,1,2-Trichloroethane	40.000	29.921	25.2#	133	-0.82#
70	CP	Tetrachloroethene	40.000	36.177	9.6	203	-0.84#
71	C	1,3-Dichloropropane	40.000	30.967	22.6#	127	-0.88#
72	CP	2-Hexanone	40.000	32.445	18.9	110	-0.92#
73	CP	Chlorodibromomethane	40.000	33.346	16.6	133	-0.96#
74	C	Butyl acetate	40.000	36.011	10.0	103	-0.97#
75	CP	1,2-Dibromoethane	40.000	32.176	19.6	125	-1.00#
76	CP	Chlorobenzene	40.000	33.760	15.6	178	-1.21#
77	C	1,1,1,2-Tetrachloroethane	40.000	31.518	21.2#	160	-1.27#
78	CP	Ethylbenzene	40.000	34.350	14.1	175	-1.27#
79	CP	m/p-Xylene	80.000	66.731	16.6	159	-1.33#
80	CP	Styrene	40.000	32.165	19.6	169	-1.52#
81	CP	o-Xylene	40.000	32.734	18.2	163	-1.51#
82	C	Cyclohexanone	200.000	182.474	8.8	125	-1.73#
83	CP	Bromoform	40.000	31.756	20.6#	131	-1.60#
84	CP	Isopropylbenzene	40.000	34.398	14.0	174	-1.70#
85	S	Bromofluorobenzene	20.000	18.464	7.7	109	-1.78#
86	C	Bromobenzene	40.000	29.891	25.3#	180	-1.83#
87	CP	1,1,2,2-Tetrachloroethane	40.000	30.203	24.5#	121	-1.86#
88	C	1,2,3-Trichloropropane	40.000	32.410	19.0	131	-1.87#
89	C	trans-1,4-Dichloro-2-butene	40.000	26.185	34.5#	97	-1.88#
90	C	n-Propylbenzene	40.000	35.874	10.3	188	-1.91#
91	C	2-Chlorotoluene	40.000	34.196	14.5	165	-1.94#
92	C	4-Chlorotoluene	40.000	32.352	19.1	171	-2.01#
93	C	1,3,5-Trimethylbenzene	40.000	34.059	14.9	176	-2.00#
94	C	tert-Butylbenzene	40.000	33.205	17.0	177	-2.16#
95	C	1,2,4-Trimethylbenzene	40.000	34.004	15.0	177	-2.19#
96	C	sec-Butylbenzene	40.000	35.031	12.4	192	-2.28#
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	121	-2.37#
98	CP	1,3-Dichlorobenzene	40.000	34.595	13.5	164	-2.33#
99	C	p-Isopropyltoluene	40.000	34.291	14.3	191	-2.37#

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100 CP	1,4-Dichlorobenzene	40.000	34.044	14.9	168	-2.38#
101 C	1,2,3-Trimethylbenzene	40.000	34.325	14.2	159	-2.41#
102 C	Benzyl chloride	40.000	28.443	28.9#	126	-2.44#
103 CP	1,2-Dichlorobenzene	40.000	34.743	13.1	159	-2.56#
104 C	n-Butylbenzene	40.000	32.717	18.2	198	-2.58#
105 C	Hexachloroethane	40.000	34.390	14.0	176	-2.70#
106 CP	1,2-Dibromo-3-chloropropane	40.000	27.987	30.0#	135	-2.98#
107 C	1,3,5-Trichlorobenzene	40.000	36.788	8.0	205	-3.09#
108 CP	1,2,4-Trichlorobenzene	40.000	35.019	12.5	188	-3.42#
109 C	Hexachlorobutadiene	40.000	35.488	11.3	314	-3.51#
110 C	Naphthalene	40.000	31.382	21.5#	138	-3.54#
111 C	1,2,3-Trichlorobenzene	40.000	33.301	16.7	175	-3.66#
112 C	2-Methylnaphthalene	40.000	29.179	27.1#	150	-4.15#
113 C	1-Methylnaphthalene	40.000	30.319	24.2#	159	-4.26#
114 C	Ethyl-d5-Acetate-d3	N/A	20.00	50.0#	10	-6.99#
115 C	2-Propanone	40.000	44.640	-11.6	105	-0.27
116 C	Acetic Ether	40.000	47.324	-18.3	112	-0.69#
117 C	Isopropyl Acetate	40.000	50.048	-25.1#	160	-0.72#
118 C	Amyl Acetate	40.000	45.916	-14.8	97	-1.64#

(#) = Out of Range SPCC's out = 0 CCC's out = 33

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	146	-0.77#
2	CP	Dichlorodifluoromethane	0.548	0.560	-2.2	167#	-0.13
3	CP	Chloromethane	0.937	0.644	31.3#	101	-0.14
4	CP	Vinyl chloride	0.608	0.528	13.2	121	-0.15
5	CP	Bromomethane	0.471	0.463	1.7	196#	-0.17
6	CP	Chloroethane	0.389	0.335	13.9	144	-0.18
7	CP	Trichlorofluoromethane	0.721	0.744	-3.2	159#	-0.20
8	C	Ethyl ether	0.354	0.298	15.8	111	-0.24
9	C	Acrolein	0.000	0.062	0.0	0#	-0.25
10	CP	1,1-Dichloroethene	0.682	0.686	-0.6	149	-0.26
11	CP	1,1,2-Trichlorotrifluoroeth	0.289	0.364	-26.0#	193#	-0.26
12	C	Methyl iodide	0.104	0.486	-367.3#	675#	-0.28
13	CP	Acetone	0.291	0.122	58.1#	105	-0.27
14	C	Chloroprene	0.657	0.677	-3.0	156#	-0.51#
15	CP	Carbon disulfide	1.437	1.676	-16.6	179#	-0.29
16	C	Allyl chloride	0.751	0.736	2.0	150	-0.31
17	CP	Methyl acetate	0.448	0.294	34.4#	106	-0.32
18	C	Acetonitrile	0.741	0.735	0.8	150	-0.31
19	CP	Methylene chloride	0.789	0.644	18.4	137	-0.33
20	CP	trans-1,2-Dichloroethene	0.712	0.699	1.8	150#	-0.38
21	C	t-Butanol	0.062	0.050	19.4	129	-0.39
22	C	Acrylonitrile	0.233	0.149	36.1#	106	-0.38
23	CP	Methyl tert-butyl ether	1.370	1.095	20.1#	120	-0.40
24	C	Hexane	0.532	0.609	-14.5	221#	-0.44
25	C	1,1-Dichloroethane	0.877	0.882	-0.6	142	-0.48
26	T	Diisopropyl ether	1.484	1.370	7.7	135	-0.52#
27	C	Vinyl acetate	0.091	0.076	16.5	146	-0.51#
28	C	Ethyl tert butyl ether	1.415	1.250	11.7	131	-0.63#
29	C	2,2-Dichloropropane	0.683	0.708	-3.7	158#	-0.65#
30	CP	cis-1,2-Dichloroethene	0.811	0.830	-2.3	160#	-0.66#
31	CP	2-Butanone	0.287	0.176	38.7#	101	-0.67#
32	C	Ethyl Acetate	0.520	0.402	22.7#	113	-0.69#
33	C	Methyl acrylate	0.497	0.363	27.0#	114	-0.70#
34	C	Propionitrile	0.038	0.049	-28.9#	176#	-0.74#
35	C	Bromochloromethane	0.473	0.391	17.3	129	-0.71#
36	C	Tetrahydrofuran	0.162	0.103	36.4#	103	-0.73#
37	C	Methacrylonitrile	0.310	0.229	26.1#	97	-0.73#
38	CP	Chloroform	0.887	0.890	-0.3	151#	-0.74#
39	CP	Cyclohexane	0.798	0.747	6.4	176#	-0.74#
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	135	-0.54#
41	CP	1,1,1-Trichloroethane	0.442	0.499	-12.9	155#	-0.74#
42	S	Dibromofluoromethane	0.373	0.328	12.1	119	-0.75#
43	CP	Carbon tetrachloride	0.395	0.461	-16.7	167#	-0.74#
44	C	1,1-Dichloropropene	0.412	0.462	-12.1	168#	-0.75#
45	S	1,2-Dichloroethane-d4	0.415	0.279	32.8#	90	-0.72#
46	CP	1,2-Dichloroethane	0.474	0.355	25.1#	113	-0.70#
47	CP	Benzene	1.126	1.354	-20.2#	169#	-0.72#
48	C	Tertiaryamylmethylether	0.873	0.803	8.0	132	-0.68#
49	C	Isobutyl Alcohol	0.632	0.234	63.0#	51	-0.62#
50	C	Heptane	0.293	0.412	-40.6#	226#	-0.61#

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Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	0.004	0.003	25.0#	116	-0.46
52	CP	Methylcyclohexane	0.390	0.542	-39.0#	206#	-0.44
53	C	n-Butanol	0.010	0.007	30.0#	106	-0.49
54	CP	Trichloroethene	0.312	0.387	-24.0#	183#	-0.46
55	CP	1,2-Dichloropropane	0.325	0.333	-2.5	145	-0.45
56	C	Dibromomethane	0.257	0.211	17.9	121	-0.45
57	C	Methyl methacrylate	0.344	0.209	39.2#	94	-0.45
58	CP	Bromodichloromethane	0.457	0.442	3.3	131	-0.47
59	T	2-Chloroethyl vinyl ether	0.168	0.093	44.6#	84	-0.53#
60	C	2-Nitropropane	0.114	0.070	38.6#	86	-0.51#
61	CP	cis-1,3-Dichloropropene	0.541	0.526	2.8	139	-0.57#
62	I	Chlorobenzene-d5	1.000	1.000	0.0	131	-1.20#
63	CP	4-Methyl-2-pentanone	0.398	0.295	25.9#	108	-0.61#
64	S	Toluene-d8	1.322	1.272	3.8	128	-0.65#
65	CP	Toluene	1.315	1.628	-23.8#	174#	-0.67#
66	CP	trans-1,3-Dichloropropene	0.562	0.499	11.2	127	-0.74#
67	C	Chloropicrin	0.000	0.040	0.0	0#	-0.75#
68	C	Ethyl methacrylate	0.476	0.401	15.8	126	-0.78#
69	CP	1,1,2-Trichloroethane	0.344	0.312	9.3	133	-0.82#
70	CP	Tetrachloroethene	0.335	0.459	-37.0#	203#	-0.84#
71	C	1,3-Dichloropropane	0.534	0.480	10.1	127	-0.88#
72	CP	2-Hexanone	0.287	0.218	24.0#	110	-0.92#
73	CP	Chlorodibromomethane	0.435	0.407	6.4	133	-0.96#
74	C	Butyl acetate	0.647	0.471	27.2#	103	-0.97#
75	CP	1,2-Dibromoethane	0.369	0.336	8.9	125	-1.00#
76	CP	Chlorobenzene	0.851	1.020	-19.9	178#	-1.21#
77	C	1,1,1,2-Tetrachloroethane	0.322	0.368	-14.3	160#	-1.27#
78	CP	Ethylbenzene	1.390	1.735	-24.8#	175#	-1.27#
79	CP	m/p-Xylene	1.070	1.270	-18.7	159#	-1.33#
80	CP	Styrene	0.874	1.047	-19.8	169#	-1.52#
81	CP	o-Xylene	1.165	1.281	-10.0	163#	-1.51#
82	C	Cyclohexanone	0.021	0.018	14.3	125	-1.73#
83	CP	Bromoform	0.275	0.260	5.5	131	-1.60#
84	CP	Isopropylbenzene	1.271	1.596	-25.6#	174#	-1.70#
85	S	Bromofluorobenzene	0.507	0.418	17.6	109	-1.78#
86	C	Bromobenzene	0.579	0.730	-26.1#	180#	-1.83#
87	CP	1,1,2,2-Tetrachloroethane	0.485	0.413	14.8	121	-1.86#
88	C	1,2,3-Trichloropropane	0.133	0.102	23.3#	131	-1.87#
89	C	trans-1,4-Dichloro-2-butene	0.135	0.087	35.6#	97	-1.88#
90	C	n-Propylbenzene	1.564	2.021	-29.2#	188#	-1.91#
91	C	2-Chlorotoluene	0.966	1.094	-13.3	165#	-1.94#
92	C	4-Chlorotoluene	1.121	1.258	-12.2	171#	-2.01#
93	C	1,3,5-Trimethylbenzene	1.056	1.274	-20.6#	176#	-2.00#
94	C	tert-Butylbenzene	0.598	0.752	-25.8#	177#	-2.16#
95	C	1,2,4-Trimethylbenzene	1.107	1.328	-20.0	177#	-2.19#
96	C	sec-Butylbenzene	1.240	1.703	-37.3#	192#	-2.28#
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	121	-2.37#
98	CP	1,3-Dichlorobenzene	1.308	1.634	-24.9#	164#	-2.33#
99	C	p-Isopropyltoluene	2.039	2.962	-45.3#	191#	-2.37#

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
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ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100 CP	1,4-Dichlorobenzene	1.321	1.636	-23.8#	168#	-2.38#
101 C	1,2,3-Trimethylbenzene	2.244	2.661	-18.6	159#	-2.41#
102 C	Benzyl chloride	1.541	1.438	6.7	126	-2.44#
103 CP	1,2-Dichlorobenzene	1.271	1.510	-18.8	159#	-2.56#
104 C	n-Butylbenzene	1.959	2.866	-46.3#	198#	-2.58#
105 C	Hexachloroethane	0.519	0.656	-26.4#	176#	-2.70#
106 CP	1,2-Dibromo-3-chloropropane	0.187	0.175	6.4	135	-2.98#
107 C	1,3,5-Trichlorobenzene	0.909	1.319	-45.1#	205#	-3.09#
108 CP	1,2,4-Trichlorobenzene	0.869	1.168	-34.4#	188#	-3.42#
109 C	Hexachlorobutadiene	0.283	0.643	-127.2#	314#	-3.51#
110 C	Naphthalene	2.439	2.479	-1.6	138	-3.54#
111 C	1,2,3-Trichlorobenzene	0.842	1.078	-28.0#	175#	-3.66#
112 C	2-Methylnaphthalene	1.360	1.435	-5.5	150#	-4.15#
113 C	1-Methylnaphthalene	1.160	1.244	-7.2	159#	-4.26#
114 C	Ethyl-d5-Acetate-d3	N/A	1.00	0.0	10#	-6.99#
115 C	2-Propanone	0.383	0.989	-158.2#	105	-0.27
116 C	Acetic Ether	0.734	3.270	-345.5#	112	-0.69#
117 C	Isopropyl Acetate	0.312	1.851	-493.3#	160#	-0.72#
118 C	Amyl Acetate	1.430	5.034	-252.0#	97	-1.64#

(#) = Out of Range SPCC's out = 0 CCC's out = 50

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Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	216514	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	319521	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	284811	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135560	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	26626	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	104944	19.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 96.70%				
45) 1,2-Dichloroethane-d4	5.171	65	89119	18.66	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 93.30%				
64) Toluene-d8	7.671	98	362283	18.95	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 94.75%				
85) Bromofluorobenzene	9.433	95	119026	18.46	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 92.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	242314	35.13	ug/L		98
3) Chloromethane	1.282	50	279069m	29.36	ug/L		
4) Vinyl chloride	1.360	62	228493	32.81	ug/L		100
5) Bromomethane	1.575	96	200660	33.15	ug/L		98
6) Chloroethane	1.647	64	145049m	32.17	ug/L		
7) Trichlorofluoromethane	1.826	101	322171	34.30	ug/L		100
8) Ethyl ether	2.019	59	128976	32.62	ug/L		94
9) Acrolein	2.127	56	134565	240.88	ug/L		96
10) 1,1-Dichloroethene	2.206	61	297115	32.58	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	157462	35.73	ug/L		97
12) Methyl iodide	2.327	142	210371	51.67	ug/L		99
13) Acetone	2.227	43	52674	32.72	ug/L		99
14) Chloroprene	3.373	53	293152	33.11	ug/L		99
15) Carbon disulfide	2.392	76	725777	34.52	ug/L		100
16) Allyl chloride	2.499	41	318625m	32.41	ug/L		
17) Methyl acetate	2.485	43	127178	33.80	ug/L		95
18) Acetonitrile	2.499	41	318476m	32.43	ug/L		
19) Methylene chloride	2.614	49	278740	36.94	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	302801m	31.43	ug/L		
21) t-Butanol	2.678	59	107708	158.41	ug/L	#	97
22) Acrylonitrile	2.814	53	64377	28.87	ug/L		97
23) Methyl tert-butyl ether	2.850	73	474138	40.42	ug/L		100
24) Hexane	3.137	57	263769	33.69	ug/L		97
25) 1,1-Dichloroethane	3.301	63	382057	34.04	ug/L		99
26) Diisopropyl ether	3.330	45	593265	43.50	ug/L		94
27) Vinyl acetate	3.294	86	32988m	32.76	ug/L		
28) Ethyl tert butyl ether	3.753	59	541147	42.53	ug/L		97
29) 2,2-Dichloropropane	3.960	77	306573	34.88	ug/L		96
30) cis-1,2-Dichloroethene	3.953	61	359326	32.65	ug/L		96
31) 2-Butanone	3.939	43	76360	32.09	ug/L		97
32) Ethyl Acetate	4.003	43	174142	36.24	ug/L	#	99
33) Methyl acrylate	4.061	55	157115	30.98	ug/L		99
34) Propionitrile	4.741	54	21224	35.82	ug/L	#	78
35) Bromochloromethane	4.269	49	169169	32.91	ug/L		94
36) Tetrahydrofuran	4.283	42	44529	24.51	ug/L		96
37) Methacrylonitrile	4.211	41	99298	29.12	ug/L		98
38) Chloroform	4.419	83	385439m	31.89	ug/L		

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	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	323450	36.63	ug/L		98
41)	1,1,1-Trichloroethane	4.641	97	318818	33.95	ug/L		98
43)	Carbon tetrachloride	4.870	117	294619	38.30	ug/L		99
44)	1,1-Dichloropropene	4.877	75	295068	36.40	ug/L		96
46)	1,2-Dichloroethane	5.300	62	226559m	31.36	ug/L		
47)	Benzene	5.185	78	865010	33.88	ug/L		99
48)	Tertiaryamylmethylether	5.450	73	513143	42.93	ug/L		99
49)	Isobutyl Alcohol	5.443	43	149844	40.97	ug/L	#	97
50)	Heptane	5.766	43	263192m	30.41	ug/L		
51)	1,4-Dioxane	6.804	88	212471m	2478.28	ug/L		
52)	Methylcyclohexane	6.661	83	346316	34.43	ug/L		95
53)	n-Butanol	6.303	56	45588	322.19	ug/L	#	90
54)	Trichloroethene	6.353	130	247451	35.15	ug/L		98
55)	1,2-Dichloropropane	6.697	63	212843	32.85	ug/L		96
56)	Dibromomethane	6.797	93	134872	33.23	ug/L		97
57)	Methyl methacrylate	6.819	41	133688	26.91	ug/L		92
58)	Bromodichloromethane	7.019	83	282634	34.24	ug/L		98
59)	2-Chloroethyl vinyl ether	7.327	43	59540	24.14	ug/L		95
60)	2-Nitropropane	7.241	43	44711	23.82	ug/L	#	98
61)	cis-1,3-Dichloropropene	7.449	75	336135	33.06	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	167824	29.77	ug/L		97
65)	Toluene	7.728	91	927455	33.98	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	284455m	30.40	ug/L		
67)	Chloropicrin	7.943	117	226346	No Calib			
68)	Ethyl methacrylate	7.993	69	228465m	30.37	ug/L		
69)	1,1,2-Trichloroethane	8.086	97	177757	29.92	ug/L		98
70)	Tetrachloroethene	8.129	166	261683	36.18	ug/L		98
71)	1,3-Dichloropropane	8.201	76	273599	30.97	ug/L		99
72)	2-Hexanone	8.244	43	124185m	32.44	ug/L		
73)	Chlorodibromomethane	8.351	129	231798	33.35	ug/L		99
74)	Butyl acetate	8.344	43	268426	36.01	ug/L		97
75)	1,2-Dibromoethane	8.423	107	191462	32.18	ug/L		100
76)	Chlorobenzene	8.753	112	581187	33.76	ug/L		98
77)	1,1,1,2-Tetrachloroethane	8.810	131	209505	31.52	ug/L		99
78)	Ethylbenzene	8.817	91	988319	34.35	ug/L		98
79)	m/p-Xylene	8.896	91	1446810	66.73	ug/L		96
80)	Styrene	9.139	104	596225	32.17	ug/L		98
81)	o-Xylene	9.125	91	729469	32.73	ug/L		99
82)	Cyclohexanone	9.383	55	50750	182.47	ug/L		95
83)	Bromoform	9.247	173	148217	31.76	ug/L		99
84)	Isopropylbenzene	9.333	105	908985	34.40	ug/L		100
86)	Bromobenzene	9.512	77	416037	29.89	ug/L		95
87)	1,1,2,2-Tetrachloroethane	9.512	83	235296	30.20	ug/L		99
88)	1,2,3-Trichloropropane	9.540	110	57889	32.41	ug/L		97
89)	trans-1,4-Dichloro-2-b...	9.526	53	49488	26.18	ug/L		94
90)	n-Propylbenzene	9.562	91	1151424	35.87	ug/L		100
91)	2-Chlorotoluene	9.612	91	622888	34.20	ug/L		99
92)	4-Chlorotoluene	9.677	91	716750	32.35	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	725872	34.06	ug/L		100
94)	tert-Butylbenzene	9.827	91	428248	33.21	ug/L		98
95)	1,2,4-Trimethylbenzene	9.856	105	756466	34.00	ug/L		99
96)	sec-Butylbenzene	9.942	105	970244	35.03	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	442898	34.60	ug/L		99
99)	p-Isopropyltoluene	10.013	119	802993	34.29	ug/L		99
100)	1,4-Dichlorobenzene	10.063	146	443574	34.04	ug/L		99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

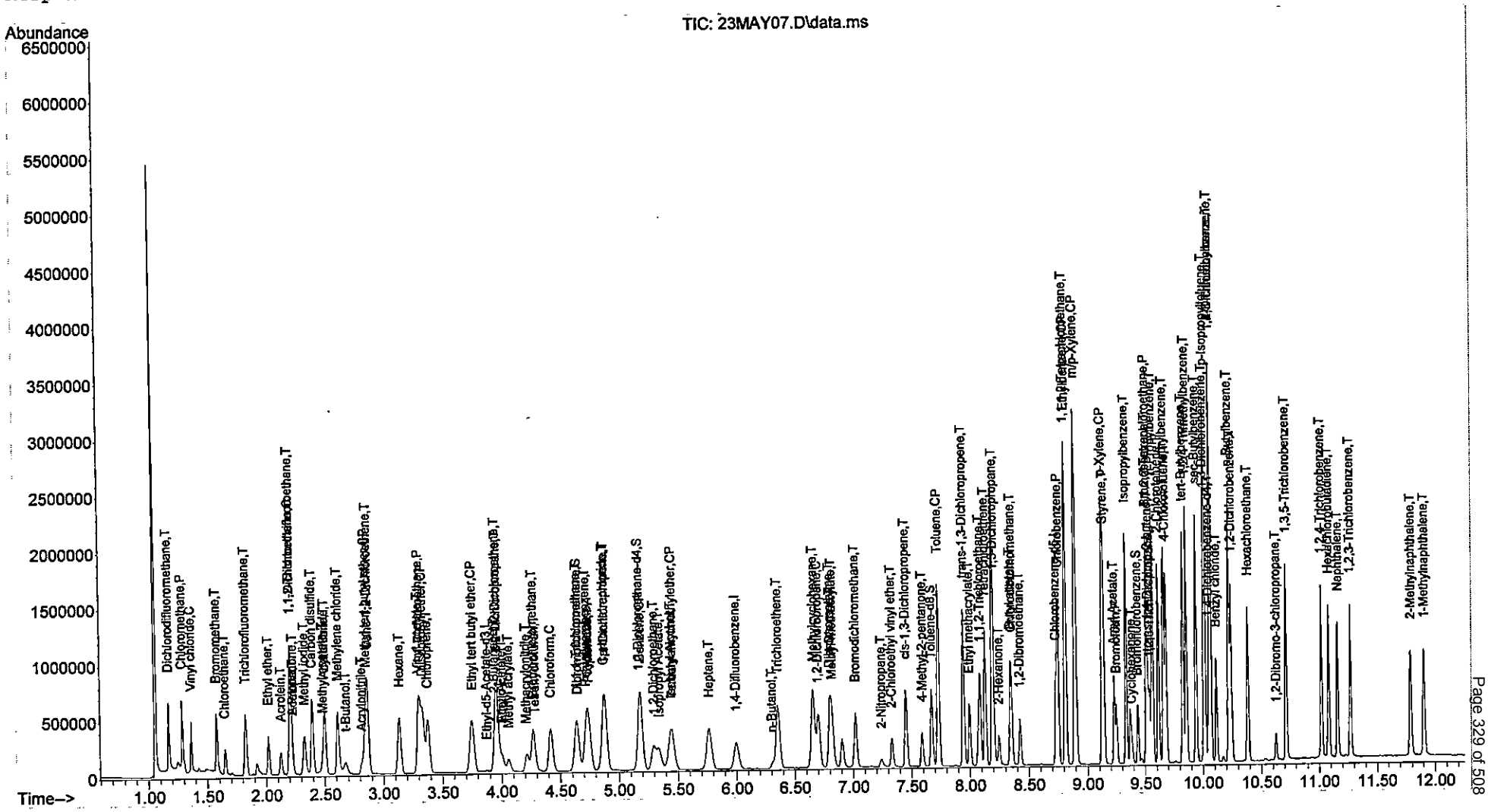
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	721478	34.33	ug/L		97
102) Benzyl chloride	10.114	91	389948	28.44	ug/L		98
103) 1,2-Dichlorobenzene	10.242	146	409479	34.74	ug/L		99
104) n-Butylbenzene	10.221	91	776974	32.72	ug/L		99
105) Hexachloroethane	10.386	117	177774	34.39	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	47540m	27.99	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	357701	36.79	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	316568	35.02	ug/L		98
109) Hexachlorobutadiene	11.081	225	174454	35.49	ug/L		98
110) Naphthalene	11.159	128	672241	31.38	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	292347	33.30	ug/L		99
112) 2-Methylnaphthalene	11.790	142	389079	29.18	ug/L		98
113) 1-Methylnaphthalene	11.904	142	337294	30.32	ug/L		100
115) 2-Propanone	2.227	43	52674	44.64	ug/L		99
116) Acetic Ether	4.003	43	174142	47.32	ug/L	#	97
117) Isopropyl Acetate	5.343	61	98580	50.05	ug/L		99
118) Amyl Acetate	9.225	43	268053	45.92	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 12:59 pm
Operator : EMR
Sample : VCCV3-180523
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 11:38:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	40.000	50.396	-26.0#	124	0.00
3	P	Chloromethane	40.000	40.573	-1.4	96	0.00
4	C	Vinyl chloride	40.000	42.919	-7.3	98	0.00
5	T	Bromomethane	40.000	29.677	25.8#	69	-0.01
6	T	Chloroethane	40.000	35.625	10.9	86	0.00
7	T	Trichlorofluoromethane	40.000	40.428	-1.1	100	0.00
8	T	Ethyl ether	40.000	31.776	20.6#	73	0.00
9	T	Acrolein	200.000	242.814	-21.4#	114	0.00
10	C	1,1-Dichloroethene	40.000	34.250	14.4	81	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	39.410	1.5	89	0.00
12	T	Methyl iodide	40.000	49.440	-23.6#	115	0.00
13	T	Acetone	40.000	29.761	25.6#	71	0.00
14	T	Chloroprene	40.000	34.364	14.1	82	0.00
15	T	Carbon disulfide	40.000	35.250	11.9	80	0.00
16	T	Allyl chloride	40.000	33.365	16.6	80	0.00
17	T	Methyl acetate	40.000	30.290	24.3#	72	0.00
18	T	Acetonitrile	40.000	33.404	16.5	80	0.00
19	T	Methylene chloride	40.000	44.331	-10.8	94	0.00
20	T	trans-1,2-Dichloroethene	40.000	32.988	17.5	79	0.00
21	T	t-Butanol	200.000	123.469	38.3#	61	0.00
22	T	Acrylonitrile	40.000	27.432	31.4#	64	0.00
23	CP	Methyl tert-butyl ether	40.000	36.768	8.1	87	0.00
24	T	Hexane	40.000	38.848	2.9	77	0.00
25	P	1,1-Dichloroethane	40.000	36.064	9.8	81	0.00
26	CP	Diisopropyl ether	40.000	41.435	-3.6	97	0.00
27	T	Vinyl acetate	40.000	30.461	23.8#	81	0.00
28	CP	Ethyl tert butyl ether	40.000	38.848	2.9	90	0.00
29	T	2,2-Dichloropropane	40.000	36.581	8.5	82	0.00
30	T	cis-1,2-Dichloroethene	40.000	33.801	15.5	80	0.00
31	T	2-Butanone	40.000	27.422	31.4#	65	0.00
32	T	Ethyl Acetate	40.000	30.431	23.9#	71	0.00
33	T	Methyl acrylate	40.000	28.251	29.4#	61	0.00
34	T	Propionitrile	40.000	40.835	-2.1	94	0.00
35	T	Bromochloromethane	40.000	32.114	19.7	77	0.00
36	T	Tetrahydrofuran	40.000	21.738	45.7#	53	0.00
37	T	Methacrylonitrile	40.000	26.345	34.1#	59	0.00
38	C	Chloroform	40.000	33.757	15.6	84	0.00
39	T	Cyclohexane	40.000	39.573	1.1	84	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	85	0.00
41	T	1,1,1-Trichloroethane	40.000	37.890	5.3	83	0.00
42	S	Dibromofluoromethane	20.000	18.738	6.3	81	0.00
43	T	Carbon tetrachloride	40.000	43.102	-7.8	86	0.00
44	T	1,1-Dichloropropene	40.000	40.667	-1.7	82	0.00
45	S	1,2-Dichloroethane-d4	20.000	18.812	5.9	81	0.00
46	T	1,2-Dichloroethane	40.000	32.680	18.3	76	0.00
47	CP	Benzene	40.000	36.045	9.9	83	0.00
48	CP	Tertiaryamylmethylether	40.000	40.367	-0.9	90	0.00
49	T	Isobutyl Alcohol	40.000	38.148	4.6	85	-0.01
50	T	Heptane	40.000	34.815	13.0	70	0.00

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	2604.898	34.9#	54	0.00
52	T	Methylcyclohexane	40.000	38.777	3.1	84	0.00
53	T	n-Butanol	400.000	269.149	32.7#	50	0.00
54	T	Trichloroethene	40.000	38.493	3.8	87	0.00
55	C	1,2-Dichloropropane	40.000	35.444	11.4	79	0.00
56	T	Dibromomethane	40.000	34.497	13.8	76	0.00
57	T	Methyl methacrylate	40.000	26.156	34.6#	60	0.00
58	T	Bromodichloromethane	40.000	36.269	9.3	78	0.00
59	T	2-Chloroethyl vinyl ether	40.000	6.371	84.1#	15	0.00
60	T	2-Nitropropane	40.000	21.196	47.0#	50	0.00
61	T	cis-1,3-Dichloropropene	40.000	35.355	11.6	78	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	85	0.00
63	T	4-Methyl-2-pentanone	40.000	27.589	31.0#	68	0.00
64	S	Toluene-d8	20.000	19.344	3.3	84	0.00
65	CP	Toluene	40.000	37.635	5.9	84	0.00
66	T	trans-1,3-Dichloropropene	40.000	31.011	22.5#	70	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	28.556	28.6#	65	0.00
69	T	1,1,2-Trichloroethane	40.000	32.257	19.4	77	0.00
70	T	Tetrachloroethene	40.000	41.545	-3.9	90	0.00
71	T	1,3-Dichloropropane	40.000	31.985	20.0#	74	0.00
72	T	2-Hexanone	40.000	27.372	31.6#	61	0.00
73	T	Chlorodibromomethane	40.000	34.221	14.4	74	0.00
74	T	Butyl acetate	40.000	31.983	20.0#	71	0.00
75	T	1,2-Dibromoethane	40.000	32.660	18.4	75	0.00
76	P	Chlorobenzene	40.000	37.948	5.1	84	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	34.731	13.2	82	0.00
78	CP	Ethylbenzene	40.000	38.307	4.2	84	0.00
79	CP	m/p-Xylene	80.000	75.521	5.6	82	0.00
80	T	Styrene	40.000	35.533	11.2	79	0.00
81	CP	o-Xylene	40.000	36.888	7.8	82	0.00
82	T	Cyclohexanone	200.000	174.416	12.8	74	0.00
83	P	Bromoform	40.000	32.481	18.8	72	0.00
84	T	Isopropylbenzene	40.000	39.008	2.5	83	0.00
85	S	Bromofluorobenzene	20.000	18.354	8.2	80	0.00
86	T	Bromobenzene	40.000	31.046	22.4#	73	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	29.981	25.0#	68	0.00
88	T	1,2,3-Trichloropropane	40.000	30.023	24.9#	64	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	25.617	36.0#	58	0.00
90	T	n-Propylbenzene	40.000	39.589	1.0	84	0.00
91	T	2-Chlorotoluene	40.000	38.504	3.7	83	0.00
92	T	4-Chlorotoluene	40.000	35.895	10.3	80	0.00
93	T	1,3,5-Trimethylbenzene	40.000	38.681	3.3	83	0.00
94	T	tert-Butylbenzene	40.000	38.019	5.0	87	0.00
95	T	1,2,4-Trimethylbenzene	40.000	37.795	5.5	84	0.00
96	T	sec-Butylbenzene	40.000	41.865	-4.7	88	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	87	0.00
98	T	1,3-Dichlorobenzene	40.000	38.862	2.8	86	0.00
99	T	p-Isopropyltoluene	40.000	39.226	1.9	86	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	36.772	8.1	85	0.00
101	T	1,2,3-Trimethylbenzene	40.000	37.788	5.5	83	0.00
102	T	Benzyl chloride	40.000	26.596	33.5#	62	0.00
103	T	1,2-Dichlorobenzene	40.000	37.920	5.2	85	0.00
104	T	n-Butylbenzene	40.000	36.519	8.7	82	0.00
105	T	Hexachloroethane	40.000	39.386	1.5	85	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	29.674	25.8#	66	0.00
107	T	1,3,5-Trichlorobenzene	40.000	38.907	2.7	85	0.00
108	T	1,2,4-Trichlorobenzene	40.000	34.548	13.6	80	0.00
109	T	Hexachlorobutadiene	40.000	40.152	-0.4	89	0.00
110	T	Naphthalene	40.000	30.092	24.8#	70	0.00
111	T	1,2,3-Trichlorobenzene	40.000	32.246	19.4	78	0.00
112	T	2-Methylnaphthalene	40.000	26.990	32.5#	67	0.00
113	T	1-Methylnaphthalene	40.000	26.885	32.8#	64	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	61	0.00
115	T	2-Propanone	40.000	46.640	-16.6	71	0.00
116	T	Acetic Ether	40.000	44.979	-12.4	70	0.00
117	T	Isopropyl Acetate	40.000	49.358	-23.4#	75	-0.01
118	T	Amyl Acetate	40.000	43.237	-8.1	73	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	0.637	0.803	-26.1#	124	0.00
3	P	Chloromethane	0.878	0.891	-1.5	96	0.00
4	C	Vinyl chloride	0.643	0.690	-7.3	98	0.00
5	T	Bromomethane	0.559	0.415	25.8#	69	-0.01
6	T	Chloroethane	0.416	0.371	10.8	86	0.00
7	T	Trichlorofluoromethane	0.868	0.877	-1.0	100	0.00
8	T	Ethyl ether	0.365	0.290	20.5#	73	0.00
9	T	Acrolein	0.084	0.063#	25.0#	114	0.00
10	C	1,1-Dichloroethene	0.842	0.721	14.4	81	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.401	1.5	89	0.00
12	T	Methyl iodide	0.376	0.465	-23.7#	115	0.00
13	T	Acetone	0.340	0.112#	67.1#	71	0.00
14	T	Chloroprene	0.818	0.703	14.1	82	0.00
15	T	Carbon disulfide	1.942	1.711	11.9	80	0.00
16	T	Allyl chloride	0.908	0.757	16.6	80	0.00
17	T	Methyl acetate	0.348	0.263	24.4#	72	0.00
18	T	Acetonitrile	0.907	0.757	16.5	80	0.00
19	T	Methylene chloride	1.642	0.769	53.2#	94	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.734	17.5	79	0.00
21	T	t-Butanol	0.117	0.039#	66.7#	61	0.00
22	T	Acrylonitrile	0.206	0.141#	31.6#	64	0.00
23	CP	Methyl tert-butyl ether	1.083	0.996	8.0	87	0.00
24	T	Hexane	1.281	0.695	45.7#	77	0.00
25	P	1,1-Dichloroethane	1.037	0.935	9.8	81	0.00
26	CP	Diisopropyl ether	1.260	1.305	-3.6	97	0.00
27	T	Vinyl acetate	0.093	0.071#	23.7#	81	0.00
28	CP	Ethyl tert butyl ether	1.175	1.142	2.8	90	0.00
29	T	2,2-Dichloropropane	0.812	0.742	8.6	82	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.859	15.5	80	0.00
31	T	2-Butanone	0.251	0.151#	39.8#	65	0.00
32	T	Ethyl Acetate	0.444	0.338	23.9#	71	0.00
33	T	Methyl acrylate	0.468	0.331	29.3#	61	0.00
34	T	Propionitrile	0.083	0.056#	32.5#	94	0.00
35	T	Bromochloromethane	0.475	0.381	19.8	77	0.00
36	T	Tetrahydrofuran	0.206	0.091#	55.8#	53	0.00
37	T	Methacrylonitrile	0.315	0.207	34.3#	59	0.00
38	C	Chloroform	1.116	0.942	15.6	84	0.00
39	T	Cyclohexane	1.058	0.806	23.8#	84	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	85	0.00
41	T	1,1,1-Trichloroethane	0.588	0.557	5.3	83	0.00
42	S	Dibromofluoromethane	0.340	0.318	6.5	81	0.00
43	T	Carbon tetrachloride	0.481	0.519	-7.9	86	0.00
44	T	1,1-Dichloropropene	0.568	0.516	9.2	82	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.281	6.0	81	0.00
46	T	1,2-Dichloroethane	0.452	0.369	18.4	76	0.00
47	CP	Benzene	1.598	1.440	9.9	83	0.00
48	CP	Tertiaryamylmethylether	0.748	0.755	-0.9	90	0.00
49	T	Isobutyl Alcohol	0.266	0.218	18.0	85	-0.01
50	T	Heptane	0.542	0.471	13.1	70	0.00

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.003#	40.0#	54	0.00
52	T	Methylcyclohexane	0.630	0.610	3.2	84	0.00
53	T	n-Butanol	0.013	0.006#	53.8#	50	0.00
54	T	Trichloroethene	0.441	0.424	3.9	87	0.00
55	C	1,2-Dichloropropane	0.406	0.359	11.6	79	0.00
56	T	Dibromomethane	0.254	0.219	13.8	76	0.00
57	T	Methyl methacrylate	0.311	0.203	34.7#	60	0.00
58	T	Bromodichloromethane	0.517	0.468	9.5	78	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.025#	83.8#	15#	0.00
60	T	2-Nitropropane	0.117	0.062#	47.0#	50	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.563	11.5	78	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	85	0.00
63	T	4-Methyl-2-pentanone	0.396	0.273	31.1#	68	0.00
64	S	Toluene-d8	1.343	1.299	3.3	84	0.00
65	CP	Toluene	1.917	1.803	5.9	84	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.509	22.5#	70	0.00
67	T	Chloropicrin	0.000	0.051#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.528	0.377	28.6#	65	0.00
69	T	1,1,2-Trichloroethane	0.417	0.336	19.4	77	0.00
70	T	Tetrachloroethene	0.508	0.528	-3.9	90	0.00
71	T	1,3-Dichloropropane	0.620	0.496	20.0	74	0.00
72	T	2-Hexanone	0.269	0.184#	31.6#	61	0.00
73	T	Chlorodibromomethane	0.488	0.418	14.3	74	0.00
74	T	Butyl acetate	0.523	0.419	19.9	71	0.00
75	T	1,2-Dibromoethane	0.418	0.341	18.4	75	0.00
76	P	Chlorobenzene	1.209	1.147	5.1	84	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.405	13.3	82	0.00
78	CP	Ethylbenzene	2.020	1.935	4.2	84	0.00
79	CP	m/p-Xylene	1.523	1.437	5.6	82	0.00
80	T	Styrene	1.302	1.156	11.2	79	0.00
81	CP	o-Xylene	1.565	1.443	7.8	82	0.00
82	T	Cyclohexanone	0.025	0.017#	32.0#	74	0.00
83	P	Bromoform	0.328	0.266	18.9	72	0.00
84	T	Isopropylbenzene	1.856	1.810	2.5	83	0.00
85	S	Bromofluorobenzene	0.453	0.415	8.4	80	0.00
86	T	Bromobenzene	0.977	0.759	22.3#	73	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.410	25.0#	68	0.00
88	T	1,2,3-Trichloropropane	0.125	0.094#	24.8#	64	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.085#	36.1#	58	0.00
90	T	n-Propylbenzene	2.254	2.231	1.0	84	0.00
91	T	2-Chlorotoluene	1.279	1.231	3.8	83	0.00
92	T	4-Chlorotoluene	1.556	1.396	10.3	80	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.447	3.3	83	0.00
94	T	tert-Butylbenzene	0.906	0.861	5.0	87	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.476	5.5	84	0.00
96	T	sec-Butylbenzene	1.945	2.036	-4.7	88	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	87	0.00
98	T	1,3-Dichlorobenzene	1.889	1.835	2.9	86	0.00
99	T	p-Isopropyltoluene	3.455	3.388	1.9	86	0.00

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
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Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.767	8.1	85	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.930	5.5	83	0.00
102	T	Benzyl chloride	2.023	1.345	33.5#	62	0.00
103	T	1,2-Dichlorobenzene	1.739	1.648	5.2	85	0.00
104	T	n-Butylbenzene	3.504	3.199	8.7	82	0.00
105	T	Hexachloroethane	0.763	0.751	1.6	85	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.186#	38.0#	66	0.00
107	T	1,3,5-Trichlorobenzene	1.435	1.395	2.8	85	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.152	13.6	80	0.00
109	T	Hexachlorobutadiene	0.725	0.728	-0.4	89	0.00
110	T	Naphthalene	3.160	2.378	24.7#	70	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.044	19.4	78	0.00
112	T	2-Methylnaphthalene	1.967	1.327	32.5#	67	0.00
113	T	1-Methylnaphthalene	1.641	1.103	32.8#	64	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	61	0.00
115	T	2-Propanone	2.164	1.029	52.4#	71	0.00
116	T	Acetic Ether	2.764	3.108	-12.4	70	0.00
117	T	Isopropyl Acetate	1.897	1.825	3.8	75	-0.01
118	T	Amyl Acetate	4.385	4.740	-8.1	73	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
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ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	190742	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	269930	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	234112	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	114176	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	20746	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	85890	18.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 93.70%				
45) 1,2-Dichloroethane-d4	5.157	65	75908	18.81	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 94.05%				
64) Toluene-d8	7.671	98	304036	19.34	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.70%				
85) Bromofluorobenzene	9.433	95	97259	18.35	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	306279	50.40	ug/L		100
3) Chloromethane	1.282	50	339749	40.57	ug/L		100
4) Vinyl chloride	1.353	62	263306	42.92	ug/L		99
5) Bromomethane	1.561	96	158254	29.68	ug/L		93
6) Chloroethane	1.640	64	141506	35.63	ug/L		98
7) Trichlorofluoromethane	1.819	101	334497	40.43	ug/L		100
8) Ethyl ether	2.020	59	110699	31.78	ug/L		96
9) Acrolein	2.120	56	119465	242.81	ug/L		97
10) 1,1-Dichloroethene	2.199	61	275191	34.25	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	153018	39.41	ug/L		96
12) Methyl iodide	2.328	142	177319	49.44	ug/L		98
13) Acetone	2.220	43	42702	29.76	ug/L		95
14) Chloroprene	3.373	53	268021	34.36	ug/L		97
15) Carbon disulfide	2.392	76	652810	35.25	ug/L		99
16) Allyl chloride	2.492	41	288965	33.36	ug/L		98
17) Methyl acetate	2.478	43	100394	30.29	ug/L		97
18) Acetonitrile	2.492	41	288965	33.40	ug/L		97
19) Methylene chloride	2.607	49	293171	44.33	ug/L		94
20) trans-1,2-Dichloroethene	2.858	61	279976	32.99	ug/L		95
21) t-Butanol	2.686	59	74901	123.47	ug/L		94
22) Acrylonitrile	2.815	53	53884	27.43	ug/L		96
23) Methyl tert-butyl ether	2.843	73	379923	36.77	ug/L		99
24) Hexane	3.130	57	265224	38.85	ug/L		98
25) 1,1-Dichloroethane	3.295	63	356598	36.06	ug/L		99
26) Diisopropyl ether	3.323	45	497887	41.43	ug/L		89
27) Vinyl acetate	3.295	86	27022	30.46	ug/L	#	89
28) Ethyl tert butyl ether	3.746	59	435498	38.85	ug/L		99
29) 2,2-Dichloropropane	3.961	77	283234	36.58	ug/L		96
30) cis-1,2-Dichloroethene	3.954	61	327718	33.80	ug/L		96
31) 2-Butanone	3.939	43	57620	27.42	ug/L		97
32) Ethyl Acetate	4.004	43	128810	30.43	ug/L	#	99
33) Methyl acrylate	4.061	55	126222	28.25	ug/L		98
34) Propionitrile	4.734	54	21207	40.84	ug/L	#	67
35) Bromochloromethane	4.262	49	145448	32.11	ug/L		94
36) Tetrahydrofuran	4.283	42	34823	21.74	ug/L		95
37) Methacrylonitrile	4.211	41	79139	26.35	ug/L		93
38) Chloroform	4.412	83	359450	33.76	ug/L		98

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.734	56	307565	39.57 ug/L	97
41) 1,1,1-Trichloroethane	4.634	97	300551	37.89 ug/L	100
43) Carbon tetrachloride	4.863	117	280093	43.10 ug/L	99
44) 1,1-Dichloropropene	4.870	75	278448	40.67 ug/L	97
46) 1,2-Dichloroethane	5.293	62	199462	32.68 ug/L	99
47) Benzene	5.178	78	777501	36.05 ug/L	98
48) Tertiaryamylmethylether	5.436	73	407594	40.37 ug/L	97
49) Isobutyl Alcohol	5.436	43	117745	38.15 ug/L #	94
50) Heptane	5.759	43	254517	34.82 ug/L	98
51) 1,4-Dioxane	6.804	88	188665	2604.90 ug/L	100
52) Methylcyclohexane	6.654	83	329509	38.78 ug/L	95
53) n-Butanol	6.325	56	31696	269.15 ug/L	89
54) Trichloroethene	6.353	130	228952	38.49 ug/L	99
55) 1,2-Dichloropropane	6.697	63	194028	35.44 ug/L	98
56) Dibromomethane	6.797	93	118298	34.50 ug/L	96
57) Methyl methacrylate	6.819	41	109795	26.16 ug/L	92
58) Bromodichloromethane	7.019	83	252913	36.27 ug/L	100
59) 2-Chloroethyl vinyl ether	7.327	43	13275	6.37 ug/L #	67
60) 2-Nitropropane	7.241	43	33612	21.20 ug/L #	97
61) cis-1,3-Dichloropropene	7.449	75	303687	35.35 ug/L	99
63) 4-Methyl-2-pentanone	7.585	43	127858	27.59 ug/L	98
65) Toluene	7.728	91	844328	37.63 ug/L	99
66) trans-1,3-Dichloropropene	7.936	75	238559	31.01 ug/L	93
67) Chloropicrin	7.943	117	238564	No Calib	
68) Ethyl methacrylate	7.994	69	176587	28.56 ug/L	99
69) 1,1,2-Trichloroethane	8.087	97	157522	32.26 ug/L	98
70) Tetrachloroethene	8.130	166	247019	41.54 ug/L	96
71) 1,3-Dichloropropane	8.201	76	232291	31.99 ug/L	99
72) 2-Hexanone	8.244	43	86120	27.37 ug/L	95
73) Chlorodibromomethane	8.352	129	195537	34.22 ug/L	98
74) Butyl acetate	8.345	43	195963	31.98 ug/L	98
75) 1,2-Dibromoethane	8.423	107	159749	32.66 ug/L #	99
76) Chlorobenzene	8.753	112	536995	37.95 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	189767	34.73 ug/L	96
78) Ethylbenzene	8.817	91	905991	38.31 ug/L	98
79) m/p-Xylene	8.896	91	1345924	75.52 ug/L	96
80) Styrene	9.140	104	541407	35.53 ug/L	98
81) o-Xylene	9.125	91	675711	36.89 ug/L	100
82) Cyclohexanone	9.390	55	39908	174.42 ug/L #	95
83) Bromoform	9.247	173	124614	32.48 ug/L	96
84) Isopropylbenzene	9.333	105	847315	39.01 ug/L	98
86) Bromobenzene	9.512	77	355190	31.05 ug/L	90
87) 1,1,2,2-Tetrachloroethane	9.512	83	191994	29.98 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	44079	30.02 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	39797	25.62 ug/L	97
90) n-Propylbenzene	9.562	91	1044476	39.59 ug/L	99
91) 2-Chlorotoluene	9.612	91	576497	38.50 ug/L	99
92) 4-Chlorotoluene	9.677	91	653692	35.90 ug/L	96
93) 1,3,5-Trimethylbenzene	9.662	105	677633	38.68 ug/L	97
94) tert-Butylbenzene	9.827	91	403045	38.02 ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	691137	37.80 ug/L	98
96) sec-Butylbenzene	9.942	105	953112	41.86 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	419035	38.86 ug/L	99
99) p-Isopropyltoluene	10.021	119	773657	39.23 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	403540	36.77 ug/L	99

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 14:50:24 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	668974	37.79 ug/L		97
102) Benzyl chloride	10.114	91	307104	26.60 ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	376427	37.92 ug/L		98
104) n-Butylbenzene	10.221	91	730463	36.52 ug/L		97
105) Hexachloroethane	10.386	117	171485	39.39 ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.630	157	42456	29.67 ug/L		92
107) 1,3,5-Trichlorobenzene	10.715	180	318629	38.91 ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	263046	34.55 ug/L		100
109) Hexachlorobutadiene	11.081	225	166246	40.15 ug/L		99
110) Naphthalene	11.160	128	542931	30.09 ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	238425	32.25 ug/L		98
112) 2-Methylnaphthalene	11.790	142	303121	26.99 ug/L		97
113) 1-Methylnaphthalene	11.905	142	251913	26.89 ug/L		97
115) 2-Propanone	2.220	43	42702	46.64 ug/L		95
116) Acetic Ether	4.004	43	128960	44.98 ug/L	#	92
117) Isopropyl Acetate	5.329	61	75723	49.36 ug/L		99
118) Amyl Acetate	9.226	43	196668	43.24 ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY11.D
Acq On : 24 May 2018 2:37 pm
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
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Quant Time: May 24 14:50:24 2018
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
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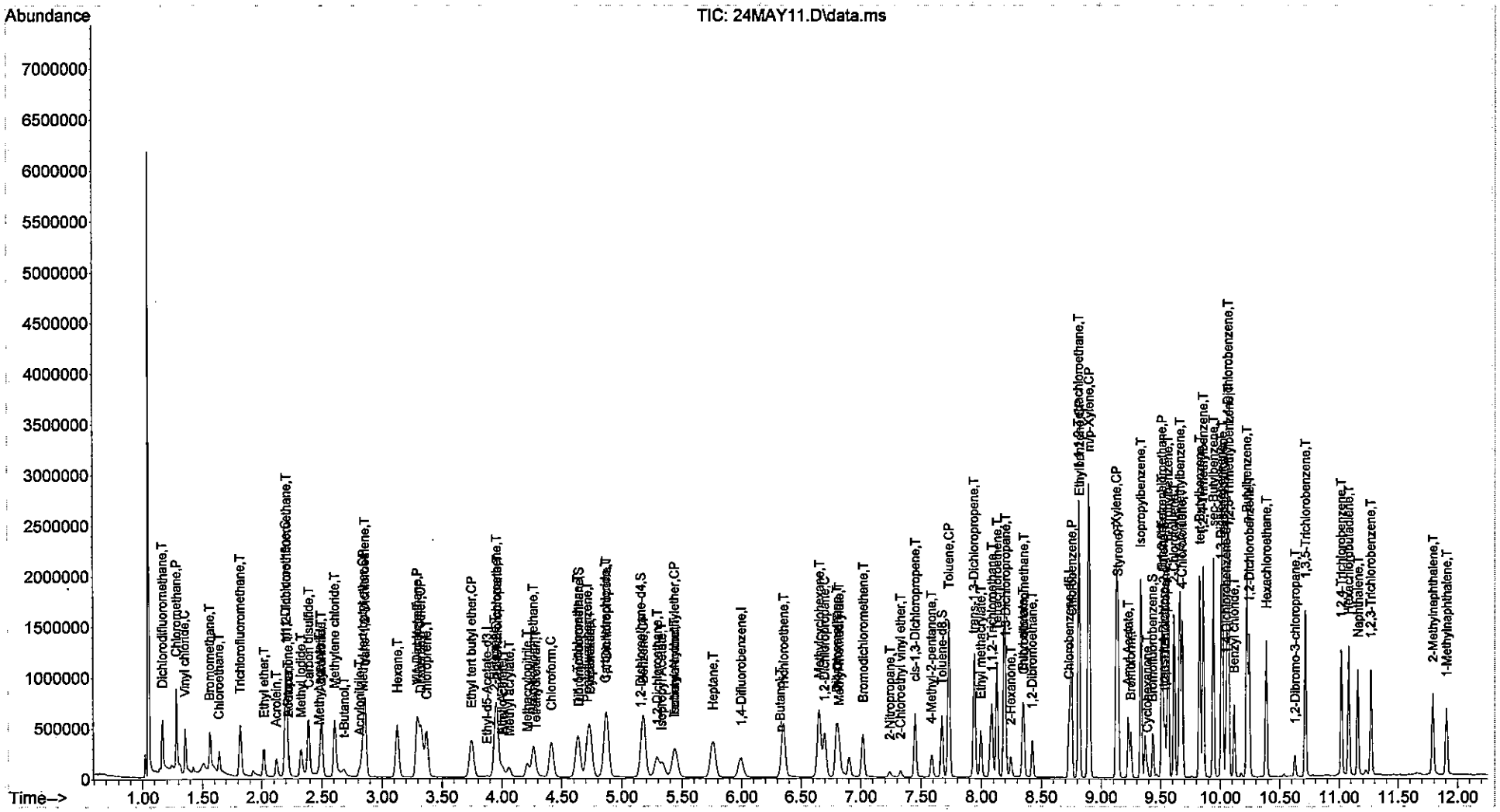


Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	40.000	43.713	-9.3	108	0.00
3	P	Chloromethane	40.000	33.331	16.7	79	0.00
4	C	Vinyl chloride	40.000	38.406	4.0	88	0.00
5	T	Bromomethane	40.000	35.929	10.2	84	0.00
6	T	Chloroethane	40.000	35.157	12.1	86	0.00
7	T	Trichlorofluoromethane	40.000	37.744	5.6	94	0.00
8	T	Ethyl ether	40.000	35.576	11.1	82	0.00
9	T	Acrolein	200.000	212.007	-6.0	101	0.00
10	C	1,1-Dichloroethene	40.000	33.557	16.1	80	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	36.120	9.7	82	0.00
12	T	Methyl iodide	40.000	59.235	-48.1#	138	0.00
13	T	Acetone	40.000	32.866	17.8	78	0.00
14	T	Chloroprene	40.000	34.111	14.7	82	0.00
15	T	Carbon disulfide	40.000	34.512	13.7	79	0.00
16	T	Allyl chloride	40.000	34.340	14.1	82	0.00
17	T	Methyl acetate	40.000	32.099	19.8	77	0.00
18	T	Acetonitrile	40.000	34.380	14.0	82	0.00
19	T	Methylene chloride	40.000	39.939	0.2	85	0.00
20	T	trans-1,2-Dichloroethene	40.000	34.393	14.0	83	0.00
21	T	t-Butanol	200.000	127.959	36.0#	64	0.00
22	T	Acrylonitrile	40.000	29.372	26.6#	68	0.00
23	CP	Methyl tert-butyl ether	40.000	38.773	3.1	92	0.00
24	T	Hexane	40.000	32.105	19.7	65	0.00
25	P	1,1-Dichloroethane	40.000	36.993	7.5	83	0.00
26	CP	Diisopropyl ether	40.000	42.955	-7.4	101	0.00
27	T	Vinyl acetate	40.000	31.490	21.3#	85	0.00
28	CP	Ethyl tert butyl ether	40.000	40.123	-0.3	93	0.00
29	T	2,2-Dichloropropane	40.000	36.001	10.0	82	0.00
30	T	cis-1,2-Dichloroethene	40.000	34.552	13.6	82	0.00
31	T	2-Butanone	40.000	30.892	22.8#	74	0.00
32	T	Ethyl Acetate	40.000	34.533	13.7	81	0.00
33	T	Methyl acrylate	40.000	32.352	19.1	70	0.00
34	T	Propionitrile	40.000	37.604	6.0	87	-0.01
35	T	Bromochloromethane	40.000	34.377	14.1	83	0.00
36	T	Tetrahydrofuran	40.000	23.673	40.8#	58	0.00
37	T	Methacrylonitrile	40.000	36.827	7.9	83	0.00
38	C	Chloroform	40.000	34.886	12.8	87	0.00
39	T	Cyclohexane	40.000	36.572	8.6	78	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	87	-0.01
41	T	1,1,1-Trichloroethane	40.000	36.749	8.1	82	0.00
42	S	Dibromofluoromethane	20.000	19.778	1.1	87	0.00
43	T	Carbon tetrachloride	40.000	41.344	-3.4	84	0.00
44	T	1,1-Dichloropropene	40.000	39.267	1.8	81	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.180	4.1	85	0.00
46	T	1,2-Dichloroethane	40.000	34.834	12.9	83	0.00
47	CP	Benzene	40.000	37.007	7.5	87	0.00
48	CP	Tertiaryamylmethylether	40.000	41.525	-3.8	94	0.00
49	T	Isobutyl Alcohol	40.000	39.629	0.9	90	-0.01
50	T	Heptane	40.000	30.118	24.7#	62	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	2652.536	33.7#	56	0.00
52	T	Methylcyclohexane	40.000	36.351	9.1	80	0.00
53	T	n-Butanol	400.000	288.700	27.8#	55	-0.01
54	T	Trichloroethene	40.000	38.553	3.6	89	0.00
55	C	1,2-Dichloropropane	40.000	37.454	6.4	85	0.00
56	T	Dibromomethane	40.000	37.231	6.9	83	0.00
57	T	Methyl methacrylate	40.000	29.346	26.6#	69	0.00
58	T	Bromodichloromethane	40.000	37.247	6.9	82	0.00
59	T	2-Chloroethyl vinyl ether	40.000	11.820	70.5#	28	0.00
60	T	2-Nitropropane	40.000	22.587	43.5#	55	0.00
61	T	cis-1,3-Dichloropropene	40.000	36.071	9.8	81	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	90	0.00
63	T	4-Methyl-2-pentanone	40.000	29.145	27.1#	76	0.00
64	S	Toluene-d8	20.000	19.434	2.8	89	0.00
65	CP	Toluene	40.000	36.904	7.7	87	0.00
66	T	trans-1,3-Dichloropropene	40.000	32.294	19.3	77	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	31.102	22.2#	75	0.00
69	T	1,1,2-Trichloroethane	40.000	32.847	17.9	83	0.00
70	T	Tetrachloroethene	40.000	38.718	3.2	89	0.00
71	T	1,3-Dichloropropane	40.000	34.173	14.6	83	0.00
72	T	2-Hexanone	40.000	29.605	26.0#	70	0.00
73	T	Chlorodibromomethane	40.000	36.243	9.4	82	0.00
74	T	Butyl acetate	40.000	33.758	15.6	79	0.00
75	T	1,2-Dibromoethane	40.000	35.018	12.5	85	0.00
76	P	Chlorobenzene	40.000	38.287	4.3	89	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	35.080	12.3	88	0.00
78	CP	Ethylbenzene	40.000	36.921	7.7	85	0.00
79	CP	m/p-Xylene	80.000	74.648	6.7	85	0.00
80	T	Styrene	40.000	35.347	11.6	83	0.00
81	CP	o-Xylene	40.000	36.716	8.2	86	0.00
82	T	Cyclohexanone	200.000	153.984	23.0#	69	0.00
83	P	Bromoform	40.000	34.775	13.1	81	0.00
84	T	Isopropylbenzene	40.000	37.179	7.1	84	0.00
85	S	Bromofluorobenzene	20.000	19.042	4.8	88	0.00
86	T	Bromobenzene	40.000	33.152	17.1	82	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	32.135	19.7	77	0.00
88	T	1,2,3-Trichloropropane	40.000	32.424	18.9	73	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	28.688	28.3#	68	0.00
90	T	n-Propylbenzene	40.000	37.932	5.2	85	0.00
91	T	2-Chlorotoluene	40.000	37.571	6.1	85	0.00
92	T	4-Chlorotoluene	40.000	35.719	10.7	84	0.00
93	T	1,3,5-Trimethylbenzene	40.000	37.231	6.9	84	0.00
94	T	tert-Butylbenzene	40.000	36.671	8.3	88	0.00
95	T	1,2,4-Trimethylbenzene	40.000	37.258	6.9	87	0.00
96	T	sec-Butylbenzene.	40.000	39.019	2.5	87	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	92	0.00
98	T	1,3-Dichlorobenzene	40.000	38.125	4.7	90	0.00
99	T	p-Isopropyltoluene	40.000	36.748	8.1	86	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	37.652	5.9	92	0.00
101	T	1,2,3-Trimethylbenzene	40.000	37.979	5.1	89	0.00
102	T	Benzyl chloride	40.000	27.680	30.8#	69	0.00
103	T	1,2-Dichlorobenzene	40.000	37.759	5.6	89	0.00
104	T	n-Butylbenzene	40.000	34.527	13.7	82	0.00
105	T	Hexachloroethane	40.000	36.216	9.5	83	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	29.738	25.7#	70	0.00
107	T	1,3,5-Trichlorobenzene	40.000	37.128	7.2	86	0.00
108	T	1,2,4-Trichlorobenzene	40.000	36.177	9.6	89	0.00
109	T	Hexachlorobutadiene	40.000	36.257	9.4	85	0.00
110	T	Naphthalene	40.000	30.798	23.0#	76	0.00
111	T	1,2,3-Trichlorobenzene	40.000	32.596	18.5	84	0.00
112	T	2-Methylnaphthalene	40.000	25.585	36.0#	67	0.00
113	T	1-Methylnaphthalene	40.000	27.566	31.1#	70	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	64	0.00
115	T	2-Propanone	40.000	43.036	-7.6	69	0.00
116	T	Acetic Ether	40.000	46.705	-16.8	76	0.00
117	T	Isopropyl Acetate	40.000	53.176	-32.9#	85	-0.01
118	T	Amyl Acetate	40.000	46.101	-15.3	82	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	0.637	0.696	-9.3	108	0.00
3	P	Chloromethane	0.878	0.732	16.6	79	0.00
4	C	Vinyl chloride	0.643	0.618	3.9	88	0.00
5	T	Bromomethane	0.559	0.502	10.2	84	0.00
6	T	Chloroethane	0.416	0.366	12.0	86	0.00
7	T	Trichlorofluoromethane	0.868	0.819	5.6	94	0.00
8	T	Ethyl ether	0.365	0.325	11.0	82	0.00
9	T	Acrolein	0.084	0.055#	34.5#	101	0.00
10	C	1,1-Dichloroethene	0.842	0.707	16.0	80	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.368	9.6	82	0.00
12	T	Methyl iodide	0.376	0.557	-48.1#	138	0.00
13	T	Acetone	0.340	0.122#	64.1#	78	0.00
14	T	Chloroprene	0.818	0.697	14.8	82	0.00
15	T	Carbon disulfide	1.942	1.675	13.7	79	0.00
16	T	Allyl chloride	0.908	0.780	14.1	82	0.00
17	T	Methyl acetate	0.348	0.279	19.8	77	0.00
18	T	Acetonitrile	0.907	0.780	14.0	82	0.00
19	T	Methylene chloride	1.642	0.694	57.7#	85	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.765	14.0	83	0.00
21	T	t-Butanol	0.117	0.041#	65.0#	64	0.00
22	T	Acrylonitrile	0.206	0.151#	26.7#	68	0.00
23	CP	Methyl tert-butyl ether	1.083	1.050	3.0	92	0.00
24	T	Hexane	1.281	0.583	54.5#	65	0.00
25	P	1,1-Dichloroethane	1.037	0.959	7.5	83	0.00
26	CP	Diisopropyl ether	1.260	1.353	-7.4	101	0.00
27	T	Vinyl acetate	0.093	0.073#	21.5#	85	0.00
28	CP	Ethyl tert butyl ether	1.175	1.179	-0.3	93	0.00
29	T	2,2-Dichloropropane	0.812	0.731	10.0	82	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.878	13.7	82	0.00
31	T	2-Butanone	0.251	0.170#	32.3#	74	0.00
32	T	Ethyl Acetate	0.444	0.383	13.7	81	0.00
33	T	Methyl acrylate	0.468	0.379	19.0	70	0.00
34	T	Propionitrile	0.083	0.051#	38.6#	87	-0.01
35	T	Bromochloromethane	0.475	0.408	14.1	83	0.00
36	T	Tetrahydrofuran	0.206	0.099#	51.9#	58	0.00
37	T	Methacrylonitrile	0.315	0.290	7.9	83	0.00
38	C	Chloroform	1.116	0.974	12.7	87	0.00
39	T	Cyclohexane	1.058	0.746	29.5#	78	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	87	-0.01
41	T	1,1,1-Trichloroethane	0.588	0.540	8.2	82	0.00
42	S	Dibromofluoromethane	0.340	0.336	1.2	87	0.00
43	T	Carbon tetrachloride	0.481	0.498	-3.5	84	0.00
44	T	1,1-Dichloropropene	0.568	0.498	12.3	81	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.287	4.0	85	0.00
46	T	1,2-Dichloroethane	0.452	0.394	12.8	83	0.00
47	CP	Benzene	1.598	1.479	7.4	87	0.00
48	CP	Tertiaryamylmethylether	0.748	0.777	-3.9	94	0.00
49	T	Isobutyl Alcohol	0.266	0.227	14.7	90	-0.01
50	T	Heptane	0.542	0.408	24.7#	62	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.004#	20.0	56	0.00
52	T	Methylcyclohexane	0.630	0.572	9.2	80	0.00
53	T	n-Butanol	0.013	0.006#	53.8#	55	-0.01
54	T	Trichloroethene	0.441	0.425	3.6	89	0.00
55	C	1,2-Dichloropropane	0.406	0.380	6.4	85	0.00
56	T	Dibromomethane	0.254	0.236	7.1	83	0.00
57	T	Methyl methacrylate	0.311	0.228	26.7#	69	0.00
58	T	Bromodichloromethane	0.517	0.481	7.0	82	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.046#	70.1#	28#	0.00
60	T	2-Nitropropane	0.117	0.066#	43.6#	55	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.574	9.7	81	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	90	0.00
63	T	4-Methyl-2-pentanone	0.396	0.288	27.3#	76	0.00
64	S	Toluene-d8	1.343	1.305	2.8	89	0.00
65	CP	Toluene	1.917	1.768	7.8	87	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.531	19.2	77	0.00
67	T	Chloropicrin	0.000	0.022#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.528	0.411	22.2#	75	0.00
69	T	1,1,2-Trichloroethane	0.417	0.343	17.7	83	0.00
70	T	Tetrachloroethene	0.508	0.492	3.1	89	0.00
71	T	1,3-Dichloropropane	0.620	0.530	14.5	83	0.00
72	T	2-Hexanone	0.269	0.199#	26.0#	70	0.00
73	T	Chlorodibromomethane	0.488	0.442	9.4	82	0.00
74	T	Butyl acetate	0.523	0.442	15.5	79	0.00
75	T	1,2-Dibromoethane	0.418	0.366	12.4	85	0.00
76	P	Chlorobenzene	1.209	1.157	4.3	89	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.409	12.4	88	0.00
78	CP	Ethylbenzene	2.020	1.865	7.7	85	0.00
79	CP	m/p-Xylene	1.523	1.421	6.7	85	0.00
80	T	Styrene	1.302	1.150	11.7	83	0.00
81	CP	o-Xylene	1.565	1.436	8.2	86	0.00
82	T	Cyclohexanone	0.025	0.015#	40.0#	69	0.00
83	P	Bromoform	0.328	0.285	13.1	81	0.00
84	T	Isopropylbenzene	1.856	1.725	7.1	84	0.00
85	S	Bromofluorobenzene	0.453	0.431	4.9	88	0.00
86	T	Bromobenzene	0.977	0.810	17.1	82	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.439	19.7	77	0.00
88	T	1,2,3-Trichloropropane	0.125	0.102#	18.4	73	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.095#	28.6#	68	0.00
90	T	n-Propylbenzene	2.254	2.137	5.2	85	0.00
91	T	2-Chlorotoluene	1.279	1.201	6.1	85	0.00
92	T	4-Chlorotoluene	1.556	1.389	10.7	84	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.393	6.9	84	0.00
94	T	tert-Butylbenzene	0.906	0.830	8.4	88	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.455	6.9	87	0.00
96	T	sec-Butylbenzene	1.945	1.897	2.5	87	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	92	0.00
98	T	1,3-Dichlorobenzene	1.889	1.800	4.7	90	0.00
99	T	p-Isopropyltoluene	3.455	3.174	8.1	86	0.00

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.809	5.9	92	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.944	5.1	89	0.00
102	T	Benzyl chloride	2.023	1.400	30.8#	69	0.00
103	T	1,2-Dichlorobenzene	1.739	1.641	5.6	89	0.00
104	T	n-Butylbenzene	3.504	3.024	13.7	82	0.00
105	T	Hexachloroethane	0.763	0.691	9.4	83	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.186#	38.0#	70	0.00
107	T	1,3,5-Trichlorobenzene	1.435	1.332	7.2	86	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.206	9.6	89	0.00
109	T	Hexachlorobutadiene	0.725	0.657	9.4	85	0.00
110	T	Naphthalene	3.160	2.433	23.0#	76	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.055	18.5	84	0.00
112	T	2-Methylnaphthalene	1.967	1.258	36.0#	67	0.00
113	T	1-Methylnaphthalene	1.641	1.131	31.1#	70	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	64	0.00
115	T	2-Propanone	2.164	0.957	55.8#	69	0.00
116	T	Acetic Ether	2.764	3.227	-16.8	76	0.00
117	T	Isopropyl Acetate	1.897	1.971	-3.9	85	-0.01
118	T	Amyl Acetate	4.385	5.054	-15.3	82	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	191689	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	275051	20.00	ug/L	-0.01
62) Chlorobenzene-d5	8.731	117	246611	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	121394	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	21782	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	92374	19.78	ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%			
45) 1,2-Dichloroethane-d4	5.164	65	78859	19.18	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 95.90%			
64) Toluene-d8	7.671	98	321760	19.43	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.15%			
85) Bromofluorobenzene	9.433	95	106292	19.04	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.20%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.160	85	266984	43.71	ug/L	100
3) Chloromethane	1.282	50	280499	33.33	ug/L	99
4) Vinyl chloride	1.353	62	236789	38.41	ug/L	99
5) Bromomethane	1.575	96	192544	35.93	ug/L	96
6) Chloroethane	1.647	64	140339	35.16	ug/L	99
7) Trichlorofluoromethane	1.819	101	313834	37.74	ug/L	97
8) Ethyl ether	2.012	59	124552	35.58	ug/L	98
9) Acrolein	2.120	56	105411	212.01	ug/L	93
10) 1,1-Dichloroethene	2.199	61	270960	33.56	ug/L	97
11) 1,1,2-Trichlorotrifluo...	2.206	151	140939	36.12	ug/L	95
12) Methyl iodide	2.328	142	213504	59.23	ug/L	98
13) Acetone	2.220	43	46822m	32.87	ug/L	
14) Chloroprene	3.373	53	267367	34.11	ug/L	99
15) Carbon disulfide	2.392	76	642325	34.51	ug/L	99
16) Allyl chloride	2.499	41	298887	34.34	ug/L	96
17) Methyl acetate	2.478	43	106919m	32.10	ug/L	
18) Acetonitrile	2.499	41	298887	34.38	ug/L	96
19) Methylene chloride	2.607	49	266059	39.94	ug/L	94
20) trans-1,2-Dichloroethene	2.858	61	293350	34.39	ug/L	97
21) t-Butanol	2.679	59	77854m	127.96	ug/L	
22) Acrylonitrile	2.807	53	57982	29.37	ug/L	95
23) Methyl tert-butyl ether	2.843	73	402628	38.77	ug/L	100
24) Hexane	3.130	57	223376	32.10	ug/L	99
25) 1,1-Dichloroethane	3.295	63	367595	36.99	ug/L	100
26) Diisopropyl ether	3.330	45	518717	42.96	ug/L	88
27) Vinyl acetate	3.295	86	28073m	31.49	ug/L	
28) Ethyl tert butyl ether	3.746	59	452024	40.12	ug/L	99
29) 2,2-Dichloropropane	3.961	77	280125	36.00	ug/L	97
30) cis-1,2-Dichloroethene	3.946	61	336662	34.55	ug/L	94
31) 2-Butanone	3.932	43	65122m	30.89	ug/L	
32) Ethyl Acetate	3.997	43	146900m	34.53	ug/L	
33) Methyl acrylate	4.061	55	145264m	32.35	ug/L	
34) Propionitrile	4.727	54	19687	37.60	ug/L #	77
35) Bromochloromethane	4.262	49	156469	34.38	ug/L	94
36) Tetrahydrofuran	4.276	42	38087	23.67	ug/L	97
37) Methacrylonitrile	4.211	41	111175m	36.83	ug/L	
38) Chloroform	4.412	83	373315	34.89	ug/L	98

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Cyclohexane	4.734	56	285880	36.57 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	297036	36.75 ug/L		100
43) Carbon tetrachloride	4.863	117	273762	41.34 ug/L		98
44) 1,1-Dichloropropene	4.870	75	273969	39.27 ug/L		96
46) 1,2-Dichloroethane	5.293	62	216640	34.83 ug/L		100
47) Benzene	5.178	78	813378	37.01 ug/L		99
48) Tertiaryamylmethylether	5.436	73	427243	41.53 ug/L		99
49) Isobutyl Alcohol	5.436	43	124712	39.63 ug/L	#	89
50) Heptane	5.759	43	224353m	30.12 ug/L		
51) 1,4-Dioxane	6.797	88	195760	2652.54 ug/L		99
52) Methylcyclohexane	6.654	83	314754	36.35 ug/L		96
53) n-Butanol	6.303	56	34829	288.70 ug/L		92
54) Trichloroethene	6.353	130	233658	38.55 ug/L		99
55) 1,2-Dichloropropane	6.697	63	208921	37.45 ug/L		98
56) Dibromomethane	6.797	93	130094	37.23 ug/L		99
57) Methyl methacrylate	6.819	41	125521m	29.35 ug/L		
58) Bromodichloromethane	7.019	83	264665	37.25 ug/L		98
59) 2-Chloroethyl vinyl ether	7.327	43	25098	11.82 ug/L		96
60) 2-Nitropropane	7.241	43	36497	22.59 ug/L	#	93
61) cis-1,3-Dichloropropene	7.449	75	315713	36.07 ug/L		100
63) 4-Methyl-2-pentanone	7.585	43	142280m	29.14 ug/L		
65) Toluene	7.728	91	872130	36.90 ug/L		98
66) trans-1,3-Dichloropropene	7.936	75	261691	32.29 ug/L		96
67) Chloropicrin	7.943	117	107944	No Calib		
68) Ethyl methacrylate	7.994	69	202602m	31.10 ug/L		
69) 1,1,2-Trichloroethane	8.087	97	168963	32.85 ug/L		98
70) Tetrachloroethene	8.130	166	242505	38.72 ug/L		98
71) 1,3-Dichloropropane	8.201	76	261431	34.17 ug/L		97
72) 2-Hexanone	8.244	43	98118m	29.61 ug/L		
73) Chlorodibromomethane	8.352	129	218145	36.24 ug/L		99
74) Butyl acetate	8.344	43	217884	33.76 ug/L		98
75) 1,2-Dibromoethane	8.423	107	180425	35.02 ug/L	#	97
76) Chlorobenzene	8.753	112	570710	38.29 ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	201911	35.08 ug/L		98
78) Ethylbenzene	8.817	91	919824	36.92 ug/L		98
79) m/p-Xylene	8.896	91	1401401	74.65 ug/L		96
80) Styrene	9.140	104	567330	35.35 ug/L		99
81) o-Xylene	9.125	91	708469	36.72 ug/L		99
82) Cyclohexanone	9.383	55	37210	153.98 ug/L		96
83) Bromoform	9.247	173	140536	34.77 ug/L		97
84) Isopropylbenzene	9.333	105	850718	37.18 ug/L		99
86) Bromobenzene	9.512	77	399532	33.15 ug/L		92
87) 1,1,2,2-Tetrachloroethane	9.512	83	216770	32.13 ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	50146m	32.42 ug/L		
89) trans-1,4-Dichloro-2-b...	9.526	53	46947	28.69 ug/L		96
90) n-Propylbenzene	9.562	91	1054178	37.93 ug/L		99
91) 2-Chlorotoluene	9.612	91	592563	37.57 ug/L		99
92) 4-Chlorotoluene	9.677	91	685216	35.72 ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	687056	37.23 ug/L		99
94) tert-Butylbenzene	9.827	91	409516	36.67 ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	717696	37.26 ug/L		99
96) sec-Butylbenzene	9.942	105	935745	39.02 ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	437078	38.12 ug/L		99
99) p-Isopropyltoluene	10.021	119	770601	36.75 ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	439316	37.65 ug/L		99

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

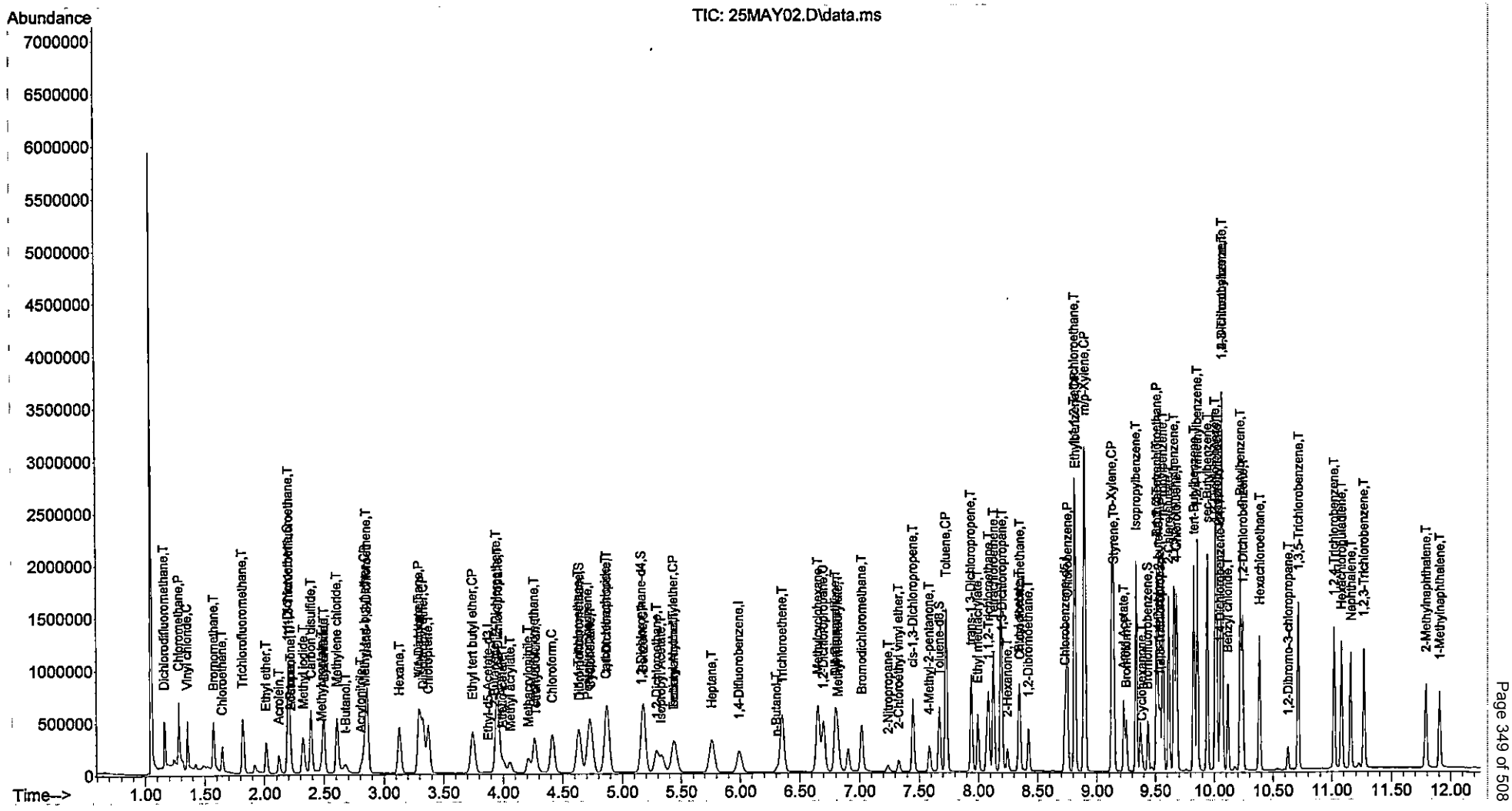
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	714860	37.98	ug/L		97
102) Benzyl chloride	10.114	91	339833	27.68	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	398522	37.76	ug/L		99
104) n-Butylbenzene	10.221	91	734279	34.53	ug/L		99
105) Hexachloroethane	10.386	117	167650	36.22	ug/L		95
106) 1,2-Dibromo-3-chloropr...	10.630	157	45237m	29.74	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	323282	37.13	ug/L		97
108) 1,2,4-Trichlorobenzene	11.016	180	292859	36.18	ug/L		100
109) Hexachlorobutadiene	11.081	225	159609	36.26	ug/L		100
110) Naphthalene	11.160	128	590804m	30.80	ug/L		
111) 1,2,3-Trichlorobenzene	11.267	180	256248	32.60	ug/L		93
112) 2-Methylnaphthalene	11.790	142	305501m	25.58	ug/L		
113) 1-Methylnaphthalene	11.905	142	274617m	27.57	ug/L		
115) 2-Propanone	2.220	43	41693	43.04	ug/L		91
116) Acetic Ether	3.997	43	140598	46.71	ug/L	#	96
117) Isopropyl Acetate	5.329	61	85844	53.18	ug/L		93
118) Amyl Acetate	9.226	43	220166	46.10	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY02.D
Acq On : 25 May 2018 3:13 pm
Operator : EMR
Sample : VCCV1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 25 15:33:18 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	40.000	52.696	-31.7#	135	0.00
3	P	Chloromethane	40.000	37.213	7.0	88	0.00
4	C	Vinyl chloride	40.000	36.464	8.8	88	0.00
5	T	Bromomethane	40.000	68.878	-72.2#	157	0.00
6	T	Chloroethane	40.000	27.960	30.1#	65	0.00
7	T	Trichlorofluoromethane	40.000	44.680	-11.7	107	0.00
8	T	Ethyl ether	40.000	35.102	12.2	83	0.00
9	T	Acrolein	200.000	275.611	-37.8#	132	0.00
10	C	1,1-Dichloroethene	40.000	35.229	11.9	81	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	40.667	-1.7	100	0.00
12	T	Methyl iodide	40.000	42.671	-6.7	97	0.00
13	T	Acetone	40.000	32.451	18.9	82	0.00
14	T	Chloroprene	40.000	37.232	6.9	84	0.00
15	T	Carbon disulfide	40.000	36.563	8.6	85	0.00
16	T	Allyl chloride	40.000	34.544	13.6	80	0.00
17	T	Methyl acetate	40.000	34.225	14.4	76	0.00
18	T	Acetonitrile	40.000	34.732	13.2	80	0.00
19	T	Methylene chloride	40.000	33.503	16.2	79	0.00
20	T	trans-1,2-Dichloroethene	40.000	36.711	8.2	83	0.00
21	T	t-Butanol	200.000	157.743	21.1#	70	-0.01
22	T	Acrylonitrile	40.000	37.255	6.9	83	0.00
23	CP	Methyl tert-butyl ether	40.000	39.358	1.6	84	0.00
24	T	Hexane	40.000	35.929	10.2	93	0.00
25	P	1,1-Dichloroethane	40.000	36.277	9.3	83	0.00
26	CP	Diisopropyl ether	40.000	36.583	8.5	81	0.00
27	T	Vinyl acetate	40.000	41.563	-3.9	107	0.00
28	CP	Ethyl tert butyl ether	40.000	37.171	7.1	83	0.00
29	T	2,2-Dichloropropane	40.000	40.406	-1.0	95	0.00
30	T	cis-1,2-Dichloroethene	40.000	37.505	6.2	85	0.00
31	T	2-Butanone	40.000	33.527	16.2	83	0.00
32	T	Ethyl Acetate	40.000	37.327	6.7	81	0.00
33	T	Methyl acrylate	40.000	36.992	7.5	81	0.00
34	T	Propionitrile	40.000	40.123	-0.3	91	0.00
35	T	Bromochloromethane	40.000	35.812	10.5	82	0.00
36	T	Tetrahydrofuran	40.000	36.333	9.2	79	0.00
37	T	Methacrylonitrile	40.000	36.672	8.3	77	0.00
38	C	Chloroform	40.000	37.768	5.6	87	0.00
39	T	Cyclohexane	40.000	34.599	13.5	84	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	82	0.00
41	T	1,1,1-Trichloroethane	40.000	40.902	-2.3	86	0.00
42	S	Dibromofluoromethane	20.000	19.924	0.4	81	0.00
43	T	Carbon tetrachloride	40.000	45.773	-14.4	92	0.00
44	T	1,1-Dichloropropene	40.000	39.730	0.7	89	0.00
45	S	1,2-Dichloroethane-d4	20.000	18.462	7.7	76	0.00
46	T	1,2-Dichloroethane	40.000	36.633	8.4	82	0.00
47	CP	Benzene	40.000	41.194	-3.0	85	0.00
48	CP	Tertiaryamylmethylether	40.000	42.636	-6.6	86	0.00
49	T	Isobutyl Alcohol	40.000	37.566	6.1	82	0.00
50	T	Heptane	40.000	43.661	-9.2	91	0.00

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	4370.121	-9.3	90	0.00
52	T	Methylcyclohexane	40.000	41.645	-4.1	92	0.00
53	T	n-Butanol	400.000	316.933	20.8#	61	-0.01
54	T	Trichloroethene	40.000	41.760	-4.4	89	0.00
55	C	1,2-Dichloropropane	40.000	38.455	3.9	84	0.00
56	T	Dibromomethane	40.000	41.213	-3.0	87	0.00
57	T	Methyl methacrylate	40.000	36.004	10.0	79	0.00
58	T	Bromodichloromethane	40.000	41.623	-4.1	85	0.00
59	T	2-Chloroethyl vinyl ether	40.000	41.155	-2.9	90	0.00
60	T	2-Nitropropane	40.000	32.106	19.7	74	0.00
61	T	cis-1,3-Dichloropropene	40.000	42.170	-5.4	86	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	88	0.00
63	T	4-Methyl-2-pentanone	40.000	33.428	16.4	78	0.00
64	S	Toluene-d8	20.000	18.472	7.6	82	0.00
65	CP	Toluene	40.000	41.160	-2.9	90	0.00
66	T	trans-1,3-Dichloropropene	40.000	38.203	4.5	87	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	35.364	11.6	82	0.00
69	T	1,1,2-Trichloroethane	40.000	36.464	8.8	90	0.00
70	T	Tetrachloroethene	40.000	44.993	-12.5	102	0.00
71	T	1,3-Dichloropropane	40.000	37.878	5.3	86	0.00
72	T	2-Hexanone	40.000	33.457	16.4	75	0.00
73	T	Chlorodibromomethane	40.000	40.844	-2.1	89	0.00
74	T	Butyl acetate	40.000	34.405	14.0	79	0.00
75	T	1,2-Dibromoethane	40.000	40.559	-1.4	90	0.00
76	P	Chlorobenzene	40.000	41.114	-2.8	91	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	40.040	-0.1	92	0.00
78	CP	Ethylbenzene	40.000	40.858	-2.1	90	0.00
79	CP	m/p-Xylene	80.000	80.147	-0.2	87	0.00
80	T	Styrene	40.000	40.362	-0.9	89	0.00
81	CP	o-Xylene	40.000	39.777	0.6	88	0.00
82	T	Cyclohexanone	200.000	139.387	30.3#	60	0.00
83	P	Bromoform	40.000	42.809	-7.0	90	0.00
84	T	Isopropylbenzene	40.000	40.747	-1.9	91	0.00
85	S	Bromofluorobenzene	20.000	19.030	4.8	82	0.00
86	T	Bromobenzene	40.000	39.327	1.7	86	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.503	-3.8	92	0.00
88	T	1,2,3-Trichloropropane	40.000	38.054	4.9	91	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	35.226	11.9	85	0.00
90	T	n-Propylbenzene	40.000	41.782	-4.5	91	0.00
91	T	2-Chlorotoluene	40.000	40.531	-1.3	89	0.00
92	T	4-Chlorotoluene	40.000	40.500	-1.3	90	0.00
93	T	1,3,5-Trimethylbenzene	40.000	41.430	-3.6	91	0.00
94	T	tert-Butylbenzene	40.000	38.311	4.2	88	0.00
95	T	1,2,4-Trimethylbenzene	40.000	40.526	-1.3	90	0.00
96	T	sec-Butylbenzene	40.000	40.496	-1.2	91	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	96	0.00
98	T	1,3-Dichlorobenzene	40.000	41.042	-2.6	94	0.00
99	T	p-Isopropyltoluene	40.000	39.345	1.6	92	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	41.444	-3.6	97	0.00
101	T	1,2,3-Trimethylbenzene	40.000	38.919	2.7	91	0.00
102	T	Benzyl chloride	40.000	43.091	-7.7	101	0.00
103	T	1,2-Dichlorobenzene	40.000	41.720	-4.3	96	0.00
104	T	n-Butylbenzene	40.000	37.795	5.5	89	0.00
105	T	Hexachloroethane	40.000	37.318	6.7	90	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	36.977	7.6	93	0.00
107	T	1,3,5-Trichlorobenzene	40.000	43.188	-8.0	100	0.00
108	T	1,2,4-Trichlorobenzene	40.000	40.663	-1.7	98	0.00
109	T	Hexachlorobutadiene	40.000	41.496	-3.7	101	0.00
110	T	Naphthalene	40.000	39.623	0.9	92	0.00
111	T	1,2,3-Trichlorobenzene	40.000	41.481	-3.7	93	0.00
112	T	2-Methylnaphthalene	40.000	44.648	-11.6	101	0.00
113	T	1-Methylnaphthalene	40.000	43.763	-9.4	98	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	72	0.00
115	T	2-Propanone	40.000	34.628	13.4	67	0.00
116	T	Acetic Ether	40.000	45.372	-13.4	81	0.00
117	T	Isopropyl Acetate	40.000	44.025	-10.1	83	0.00
118	T	Amyl Acetate	40.000	43.007	-7.5	80	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	89	0.00
2	T	Dichlorodifluoromethane	0.448	0.590	-31.7#	135	0.00
3	P	Chloromethane	0.678	0.630	7.1	88	0.00
4	C	Vinyl chloride	0.531	0.484	8.9	88	0.00
5	T	Bromomethane	0.244	0.280	-14.8	157	0.00
6	T	Chloroethane	0.384	0.195#	49.2#	65	0.00
7	T	Trichlorofluoromethane	0.552	0.616	-11.6	107	0.00
8	T	Ethyl ether	0.408	0.358	12.3	83	0.00
9	T	Acrolein	0.108	0.112#	-3.7	132	0.00
10	C	1,1-Dichloroethene	0.602	0.530	12.0	81	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.332	-1.5	100	0.00
12	T	Methyl iodide	0.433	0.322	25.6#	97	0.00
13	T	Acetone	0.273	0.222	18.7	82	0.00
14	T	Chloroprene	0.609	0.567	6.9	84	0.00
15	T	Carbon disulfide	1.305	1.193	8.6	85	0.00
16	T	Allyl chloride	0.702	0.606	13.7	80	0.00
17	T	Methyl acetate	0.612	0.523	14.5	76	0.00
18	T	Acetonitrile	0.698	0.606	13.2	80	0.00
19	T	Methylene chloride	0.638	0.534	16.3	79	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.601	8.2	83	0.00
21	T	t-Butanol	0.138	0.109#	21.0#	70	-0.01
22	T	Acrylonitrile	0.304	0.283	6.9	83	0.00
23	CP	Methyl tert-butyl ether	1.253	1.233	1.6	84	0.00
24	T	Hexane	0.507	0.455	10.3	93	0.00
25	P	1,1-Dichloroethane	0.895	0.812	9.3	83	0.00
26	CP	Diisopropyl ether	1.320	1.207	8.6	81	0.00
27	T	Vinyl acetate	0.087	0.090#	-3.4	107	0.00
28	CP	Ethyl tert butyl ether	1.304	1.212	7.1	83	0.00
29	T	2,2-Dichloropropane	0.638	0.644	-0.9	95	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.732	6.2	85	0.00
31	T	2-Butanone	0.469	0.393	16.2	83	0.00
32	T	Ethyl Acetate	0.771	0.719	6.7	81	0.00
33	T	Methyl acrylate	0.742	0.686	7.5	81	0.00
34	T	Propionitrile	0.049	0.042#	14.3	91	0.00
35	T	Bromochloromethane	0.411	0.368	10.5	82	0.00
36	T	Tetrahydrofuran	0.281	0.255	9.3	79	0.00
37	T	Methacrylonitrile	0.439	0.403	8.2	77	0.00
38	C	Chloroform	0.907	0.857	5.5	87	0.00
39	T	Cyclohexane	0.717	0.620	13.5	84	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	82	0.00
41	T	1,1,1-Trichloroethane	0.464	0.475	-2.4	86	0.00
42	S	Dibromofluoromethane	0.347	0.346	0.3	81	0.00
43	T	Carbon tetrachloride	0.398	0.456	-14.6	92	0.00
44	T	1,1-Dichloropropene	0.437	0.434	0.7	89	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.312	7.7	76	0.00
46	T	1,2-Dichloroethane	0.444	0.407	8.3	82	0.00
47	CP	Benzene	1.276	1.314	-3.0	85	0.00
48	CP	Tertiaryamylmethylether	0.828	0.883	-6.6	86	0.00
49	T	Isobutyl Alcohol	0.269	0.253	5.9	82	0.00
50	T	Heptane	0.289	0.269	6.9	91	0.00

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.007	0.008#	-14.3	90	0.00
52	T	Methylcyclohexane	0.438	0.456	-4.1	92	0.00
53	T	n-Butanol	0.023	0.018#	21.7#	61	-0.01
54	T	Trichloroethene	0.359	0.375	-4.5	89	0.00
55	C	1,2-Dichloropropane	0.365	0.351	3.8	84	0.00
56	T	Dibromomethane	0.266	0.275	-3.4	87	0.00
57	T	Methyl methacrylate	0.411	0.370	10.0	79	0.00
58	T	Bromodichloromethane	0.464	0.483	-4.1	85	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.174#	-3.0	90	0.00
60	T	2-Nitropropane	0.178	0.143#	19.7	74	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.581	-5.4	86	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	88	0.00
63	T	4-Methyl-2-pentanone	0.622	0.520	16.4	78	0.00
64	S	Toluene-d8	1.305	1.206	7.6	82	0.00
65	CP	Toluene	1.439	1.481	-2.9	90	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.551	4.5	87	0.00
67	T	Chloropicrin	0.000	0.013#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.544	11.5	82	0.00
69	T	1,1,2-Trichloroethane	0.425	0.387	8.9	90	0.00
70	T	Tetrachloroethene	0.376	0.422	-12.2	102	0.00
71	T	1,3-Dichloropropane	0.597	0.565	5.4	86	0.00
72	T	2-Hexanone	0.488	0.409	16.2	75	0.00
73	T	Chlorodibromomethane	0.458	0.468	-2.2	89	0.00
74	T	Butyl acetate	0.814	0.700	14.0	79	0.00
75	T	1,2-Dibromoethane	0.438	0.444	-1.4	90	0.00
76	P	Chlorobenzene	0.971	0.998	-2.8	91	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.375	0.0	92	0.00
78	CP	Ethylbenzene	1.548	1.581	-2.1	90	0.00
79	CP	m/p-Xylene	1.173	1.175	-0.2	87	0.00
80	T	Styrene	1.000	1.009	-0.9	89	0.00
81	CP	o-Xylene	1.245	1.238	0.6	88	0.00
82	T	Cyclohexanone	0.073	0.028#	61.6#	60	0.00
83	P	Bromoform	0.346	0.370	-6.9	90	0.00
84	T	Isopropylbenzene	1.465	1.492	-1.8	91	0.00
85	S	Bromofluorobenzene	0.473	0.450	4.9	82	0.00
86	T	Bromobenzene	0.918	0.902	1.7	86	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.682	-3.6	92	0.00
88	T	1,2,3-Trichloropropane	0.180	0.172#	4.4	91	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.160#	12.1	85	0.00
90	T	n-Propylbenzene	1.688	1.763	-4.4	91	0.00
91	T	2-Chlorotoluene	1.011	1.025	-1.4	89	0.00
92	T	4-Chlorotoluene	1.183	1.198	-1.3	90	0.00
93	T	1,3,5-Trimethylbenzene	1.159	1.201	-3.6	91	0.00
94	T	tert-Butylbenzene	0.693	0.663	4.3	88	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.251	-1.3	90	0.00
96	T	sec-Butylbenzene	1.397	1.414	-1.2	91	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00
98	T	1,3-Dichlorobenzene	1.416	1.453	-2.6	94	0.00
99	T	p-Isopropyltoluene	2.279	2.241	1.7	92	0.00

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.444	1.496	-3.6	97	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.328	2.7	91	0.00
102	T	Benzyl chloride	1.890	2.036	-7.7	101	0.00
103	T	1,2-Dichlorobenzene	1.393	1.453	-4.3	96	0.00
104	T	n-Butylbenzene	2.065	1.951	5.5	89	0.00
105	T	Hexachloroethane	0.513	0.478	6.8	90	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.370	7.5	93	0.00
107	T	1,3,5-Trichlorobenzene	0.950	1.026	-8.0	100	0.00
108	T	1,2,4-Trichlorobenzene	0.974	0.990	-1.6	98	0.00
109	T	Hexachlorobutadiene	0.325	0.338	-4.0	101	0.00
110	T	Naphthalene	3.572	3.539	0.9	92	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.982	-3.7	93	0.00
112	T	2-Methylnaphthalene	1.836	2.049	-11.6	101	0.00
113	T	1-Methylnaphthalene	1.711	1.872	-9.4	98	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	72	0.00
115	T	2-Propanone	0.897	0.776	13.5	67	0.00
116	T	Acetic Ether	2.543	2.885	-13.4	81	0.00
117	T	Isopropyl Acetate	1.145	1.260	-10.0	83	0.00
118	T	Amyl Acetate	3.274	3.520	-7.5	80	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
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Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	302600	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	423532	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	408738	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	225044	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	75472	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.634	111	146363	19.92	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.60%				
45) 1,2-Dichloroethane-d4	5.157	65	132029	18.46	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 92.30%				
64) Toluene-d8	7.671	98	492823	18.47	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 92.35%				
85) Bromofluorobenzene	9.433	95	184070	19.03	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	357299	52.70	ug/L		99
3) Chloromethane	1.275	50	381482m	37.21	ug/L		
4) Vinyl chloride	1.353	62	292924	36.46	ug/L		97
5) Bromomethane	1.568	96	169677	68.88	ug/L		99
6) Chloroethane	1.640	64	118292m	27.96	ug/L		
7) Trichlorofluoromethane	1.812	101	372986	44.68	ug/L		100
8) Ethyl ether	2.012	59	216506	35.10	ug/L		96
9) Acrolein	2.120	56	337577m	275.61	ug/L		
10) 1,1-Dichloroethene	2.199	61	320961	35.23	ug/L		87
11) 1,1,2-Trichlorotrifluo...	2.199	151	201117	40.67	ug/L		97
12) Methyl iodide	2.320	142	194873	42.67	ug/L		98
13) Acetone	2.234	43	134252m	32.45	ug/L		
14) Chloroprene	3.366	53	343104	37.23	ug/L		95
15) Carbon disulfide	2.385	76	722009	36.56	ug/L		98
16) Allyl chloride	2.492	41	366660	34.54	ug/L		95
17) Methyl acetate	2.478	43	316675	34.22	ug/L		99
18) Acetonitrile	2.492	41	366660	34.73	ug/L		98
19) Methylene chloride	2.607	49	323378	33.50	ug/L		90
20) trans-1,2-Dichloroethene	2.858	61	363897	36.71	ug/L		91
21) t-Butanol	2.707	59	328609	157.74	ug/L		96
22) Acrylonitrile	2.815	53	171078	37.25	ug/L		99
23) Methyl tert-butyl ether	2.843	73	746152	39.36	ug/L		99
24) Hexane	3.123	57	275523	35.93	ug/L		95
25) 1,1-Dichloroethane	3.295	63	491323	36.28	ug/L		99
26) Diisopropyl ether	3.330	45	730578	36.58	ug/L		85
27) Vinyl acetate	3.295	86	54752	41.56	ug/L	#	70
28) Ethyl tert butyl ether	3.746	59	733318	37.17	ug/L		98
29) 2,2-Dichloropropane	3.954	77	389799	40.41	ug/L		96
30) cis-1,2-Dichloroethene	3.946	61	442755	37.50	ug/L		94
31) 2-Butanone	3.939	43	238018m	33.53	ug/L		
32) Ethyl Acetate	4.004	43	435398	37.33	ug/L	#	99
33) Methyl acrylate	4.061	55	415101	36.99	ug/L		97
34) Propionitrile	4.727	54	25576	40.12	ug/L	#	84
35) Bromochloromethane	4.262	49	222716	35.81	ug/L		88
36) Tetrahydrofuran	4.283	42	154309	36.33	ug/L		96
37) Methacrylonitrile	4.211	41	243726	36.67	ug/L		97
38) Chloroform	4.412	83	518477	37.77	ug/L		97

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	375185	34.60	ug/L		97
41)	1,1,1-Trichloroethane	4.627	97	402051	40.90	ug/L		99
43)	Carbon tetrachloride	4.856	117	386250	45.77	ug/L		99
44)	1,1-Dichloropropene	4.870	75	367403	39.73	ug/L		98
46)	1,2-Dichloroethane	5.293	62	344603	36.63	ug/L		98
47)	Benzene	5.178	78	1112839	41.19	ug/L		98
48)	Tertiaryamylmethylether	5.443	73	747797	42.64	ug/L		97
49)	Isobutyl Alcohol	5.443	43	214135	37.57	ug/L	#	19
50)	Heptane	5.759	43	227477	43.66	ug/L		96
51)	1,4-Dioxane	6.819	88	655671	4370.12	ug/L		95
52)	Methylcyclohexane	6.654	83	385857	41.65	ug/L		96
53)	n-Butanol	6.332	56	156127	316.93	ug/L		94
54)	Trichloroethene	6.346	130	317490	41.76	ug/L		97
55)	1,2-Dichloropropane	6.697	63	297200	38.46	ug/L		95
56)	Dibromomethane	6.797	93	232583	41.21	ug/L		96
57)	Methyl methacrylate	6.819	41	313165	36.00	ug/L		94
58)	Bromodichloromethane	7.019	83	408759	41.62	ug/L		99
59)	2-Chloroethyl vinyl ether	7.327	43	147609	41.16	ug/L		96
60)	2-Nitropropane	7.234	43	121087	32.11	ug/L	#	97
61)	cis-1,3-Dichloropropene	7.449	75	492375	42.17	ug/L		99
63)	4-Methyl-2-pentanone	7.585	43	424686	33.43	ug/L		97
65)	Toluene	7.729	91	1210367	41.16	ug/L		99
66)	trans-1,3-Dichloropropene	7.936	75	450450	38.20	ug/L		98
67)	Chloropicrin	7.943	117	109420	No Calib			
68)	Ethyl methacrylate	7.994	69	444825	35.36	ug/L		97
69)	1,1,2-Trichloroethane	8.087	97	316366	36.46	ug/L		98
70)	Tetrachloroethene	8.130	166	345377	44.99	ug/L		98
71)	1,3-Dichloropropane	8.194	76	461898	37.88	ug/L		96
72)	2-Hexanone	8.244	43	333987	33.46	ug/L		97
73)	Chlorodibromomethane	8.352	129	382569	40.84	ug/L		99
74)	Butyl acetate	8.345	43	572502	34.41	ug/L		97
75)	1,2-Dibromoethane	8.423	107	362766	40.56	ug/L		100
76)	Chlorobenzene	8.746	112	815678	41.11	ug/L		97
77)	1,1,1,2-Tetrachloroethane	8.810	131	306747	40.04	ug/L		99
78)	Ethylbenzene	8.810	91	1292551	40.86	ug/L		97
79)	m/p-Xylene	8.896	91	1921848	80.15	ug/L		97
80)	Styrene	9.140	104	824804	40.36	ug/L		97
81)	o-Xylene	9.125	91	1012113	39.78	ug/L		98
82)	Cyclohexanone	9.390	55	113400	139.39	ug/L		94
83)	Bromoform	9.247	173	302653	42.81	ug/L		99
84)	Isopropylbenzene	9.333	105	1219590	40.75	ug/L		100
86)	Bromobenzene	9.512	77	737768	39.33	ug/L		92
87)	1,1,2,2-Tetrachloroethane	9.512	83	557728	41.50	ug/L		100
88)	1,2,3-Trichloropropane	9.541	110	140312	38.05	ug/L		95
89)	trans-1,4-Dichloro-2-b...	9.526	53	130795	35.23	ug/L		99
90)	n-Propylbenzene	9.562	91	1441061	41.78	ug/L		99
91)	2-Chlorotoluene	9.612	91	837538	40.53	ug/L		96
92)	4-Chlorotoluene	9.677	91	979511	40.50	ug/L		95
93)	1,3,5-Trimethylbenzene	9.655	105	981413	41.43	ug/L		98
94)	tert-Butylbenzene	9.827	91	542209	38.31	ug/L		96
95)	1,2,4-Trimethylbenzene	9.856	105	1022729	40.53	ug/L		99
96)	sec-Butylbenzene	9.942	105	1156069	40.50	ug/L		98
98)	1,3-Dichlorobenzene	10.006	146	653851	41.04	ug/L		99
99)	p-Isopropyltoluene	10.014	119	1008835	39.34	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	673455	41.44	ug/L		97

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

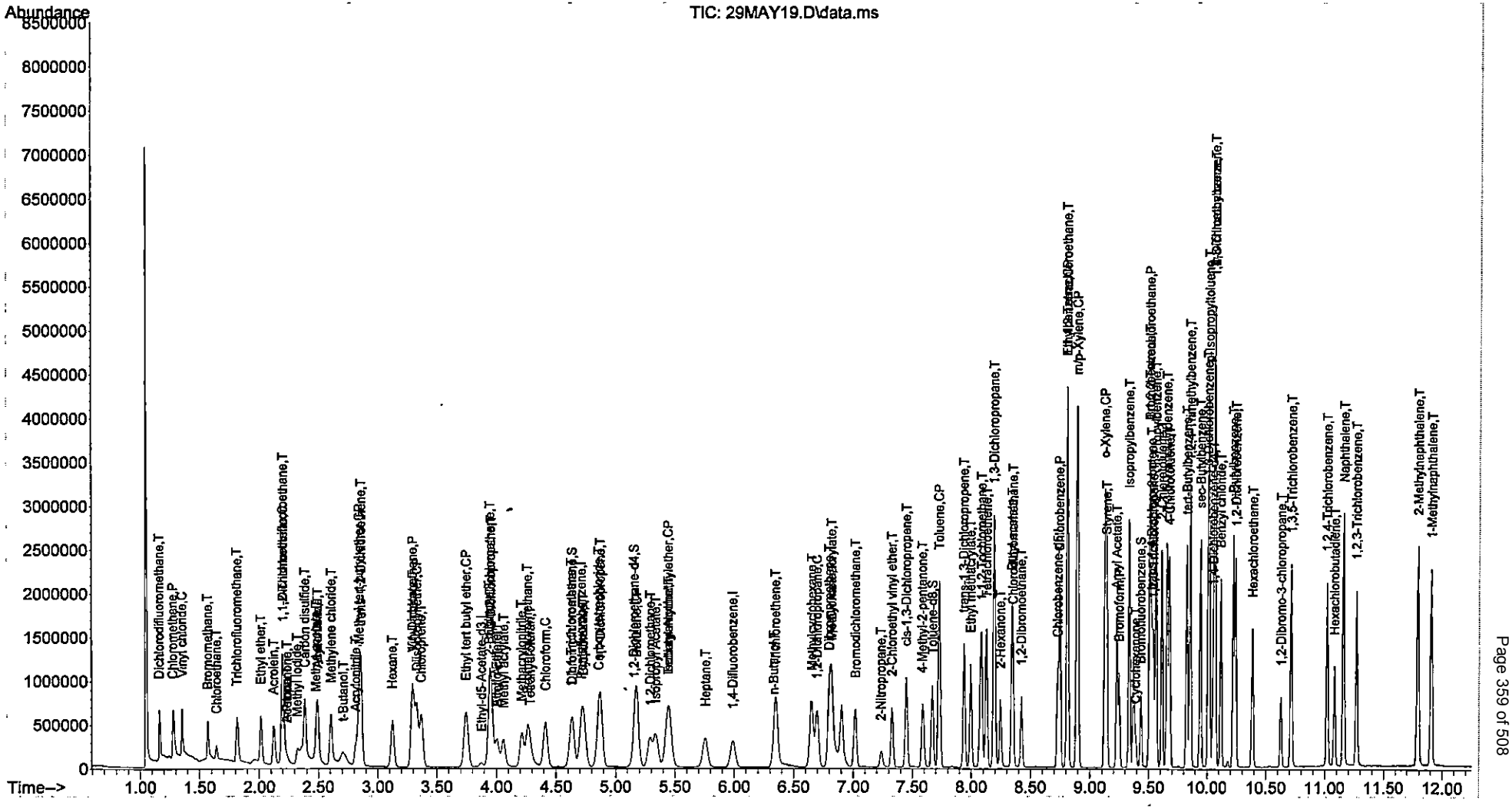
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	1047674	38.92	ug/L		97
102) Benzyl chloride	10.114	91	916492	43.09	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	654133	41.72	ug/L		98
104) n-Butylbenzene	10.221	91	878175	37.80	ug/L		99
105) Hexachloroethane	10.386	117	215283	37.32	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.630	157	166461	36.98	ug/L		95
107) 1,3,5-Trichlorobenzene	10.715	180	461770	43.19	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	445478	40.66	ug/L		99
109) Hexachlorobutadiene	11.081	225	151913	41.50	ug/L		99
110) Naphthalene	11.160	128	1592700	39.62	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	442059	41.48	ug/L		95
112) 2-Methylnaphthalene	11.790	142	922347	44.65	ug/L		99
113) 1-Methylnaphthalene	11.905	142	842584	43.76	ug/L		100
115) 2-Propanone	2.234	43	117201	34.63	ug/L		96
116) Acetic Ether	4.004	43	435398	45.37	ug/L	#	99
117) Isopropyl Acetate	5.336	61	190199	44.02	ug/L		94
118) Amyl Acetate	9.226	43	531277	43.01	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 3:43 pm
Operator : EMR
Sample : VCCV2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

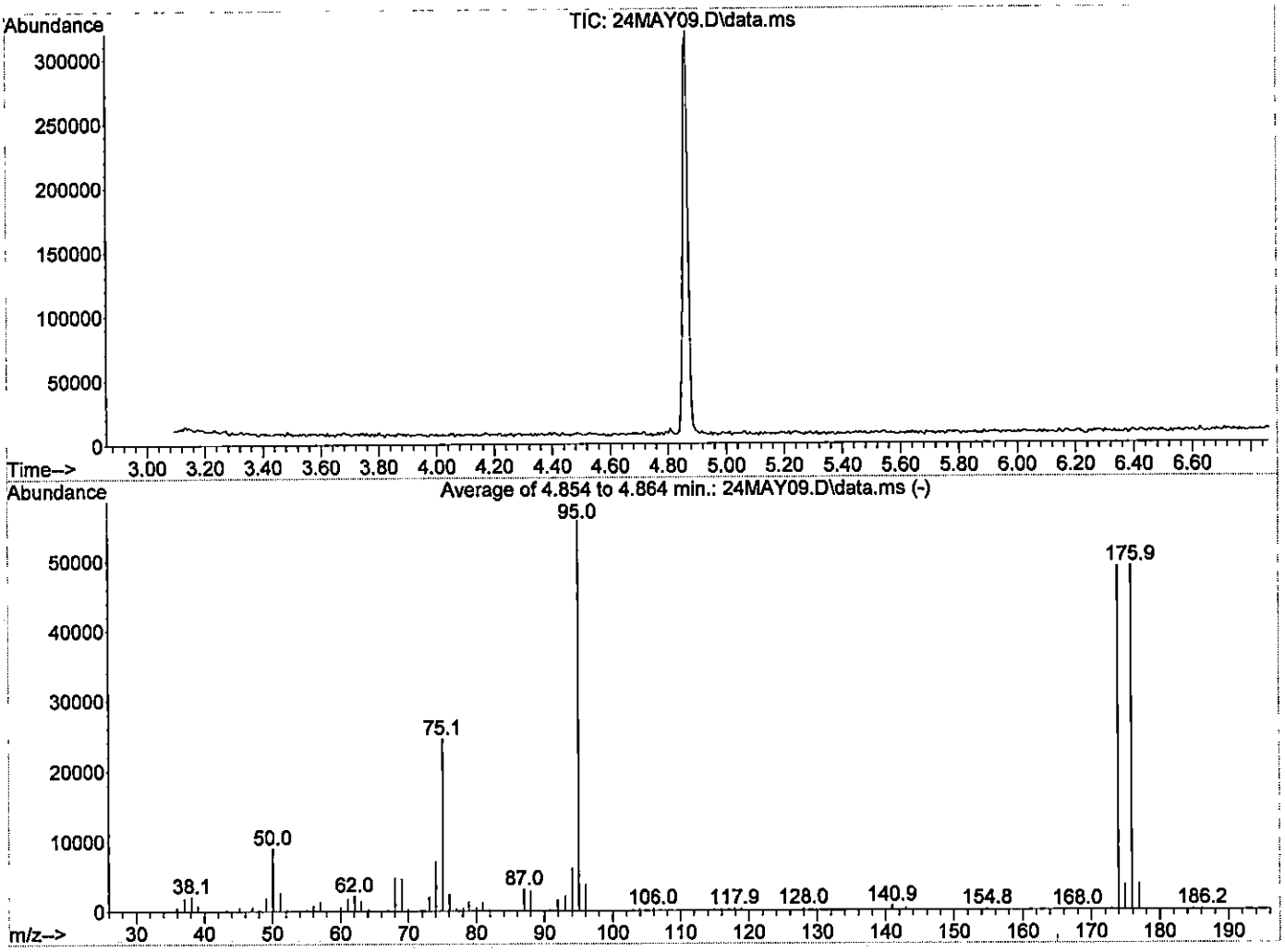
Quant Time: May 30 10:04:49 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY09.D
Acq On : 24 May 2018 1:26 pm
Operator : EMR
Sample : VBFB3-180524
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



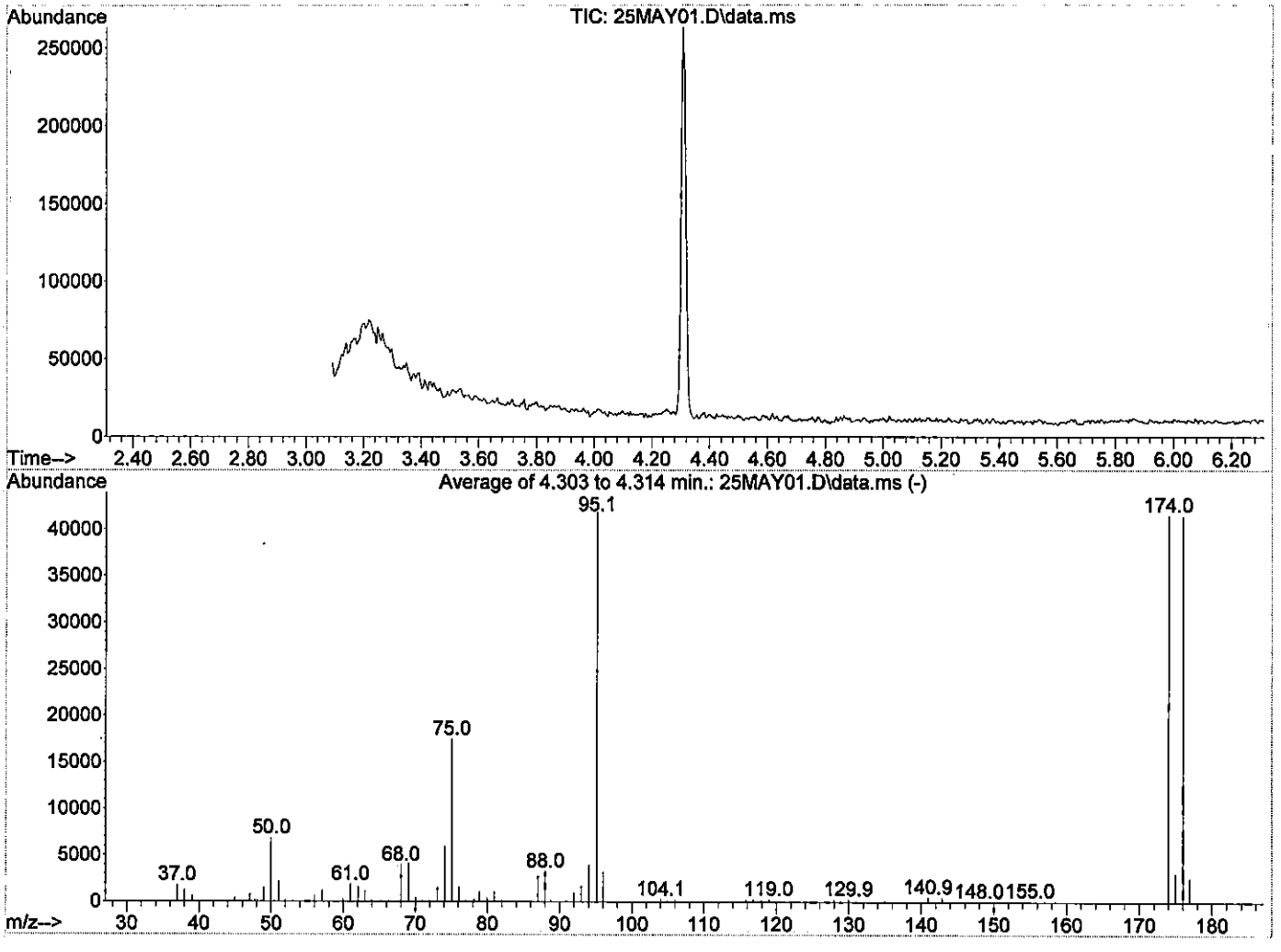
Spectrum Information: Average of 4.854 to 4.864 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	16.0	8948	PASS
75	95	30	80	44.0	24525	PASS
95	95	100	100	100.0	55752	PASS
96	95	5	9	6.7	3763	PASS
173	174	0.00	2	0.3	160	PASS
174	95	50	100	87.7	48867	PASS
175	174	5	9	7.3	3577	PASS
176	174	95	101	100.2	48989	PASS
177	176	5	9	7.4	3620	PASS

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY01.D
Acq On : 25 May 2018 9:11 am
Operator : WH
Sample : VBFB1-180525
Misc : 200-20285
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



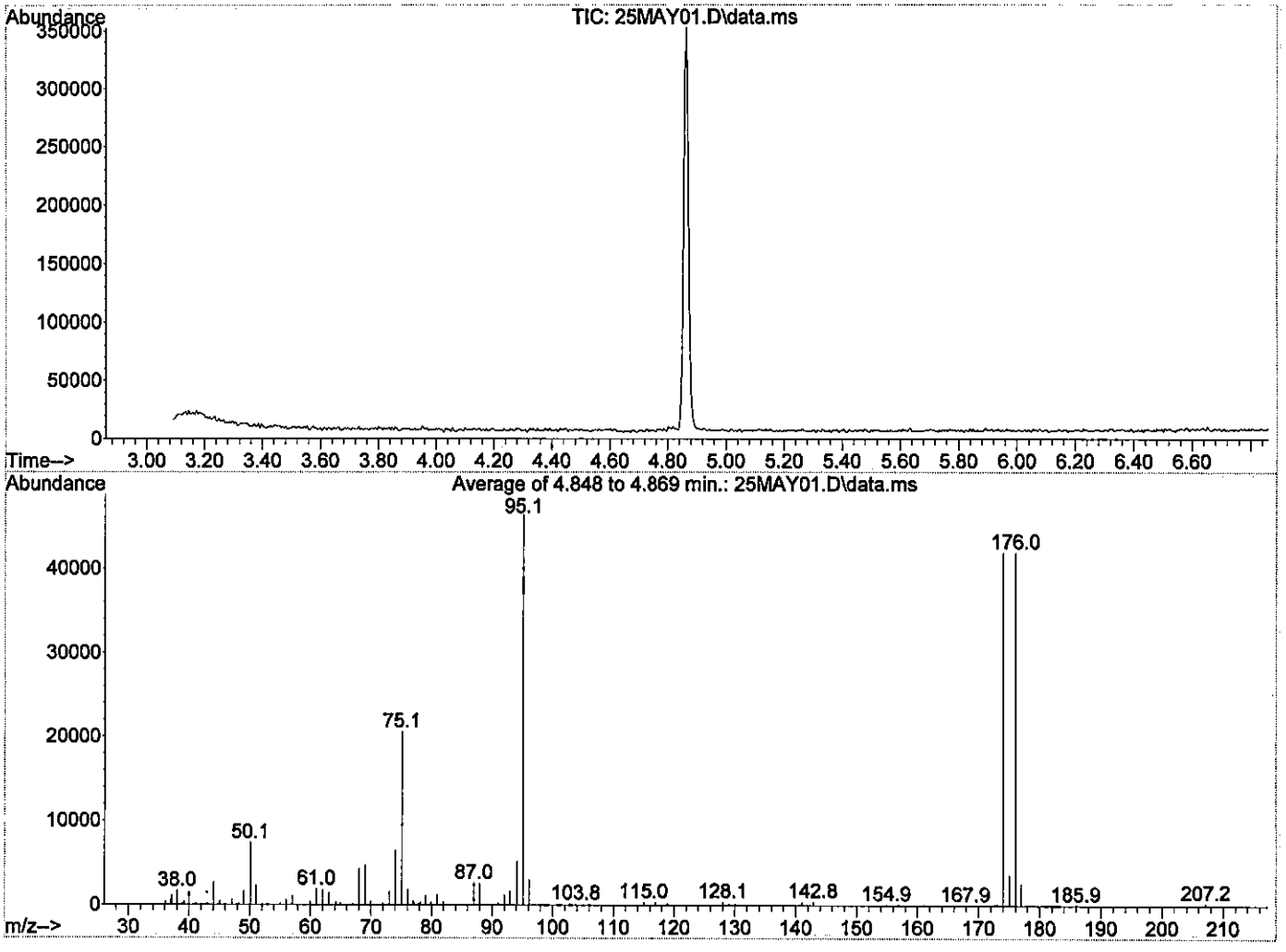
Spectrum Information: Average of 4.303 to 4.314 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	16.3	6812	PASS
75	95	30	80	41.8	17443	PASS
95	95	100	100	100.0	41765	PASS
96	95	5	9	7.8	3238	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	99.2	41448	PASS
175	174	5	9	7.5	3110	PASS
176	174	95	101	99.8	41368	PASS
177	176	5	9	6.2	2566	PASS

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY01.D
Acq On : 25 May 2018 2:49 pm
Operator : EMR
Sample : VBFB1-180525
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



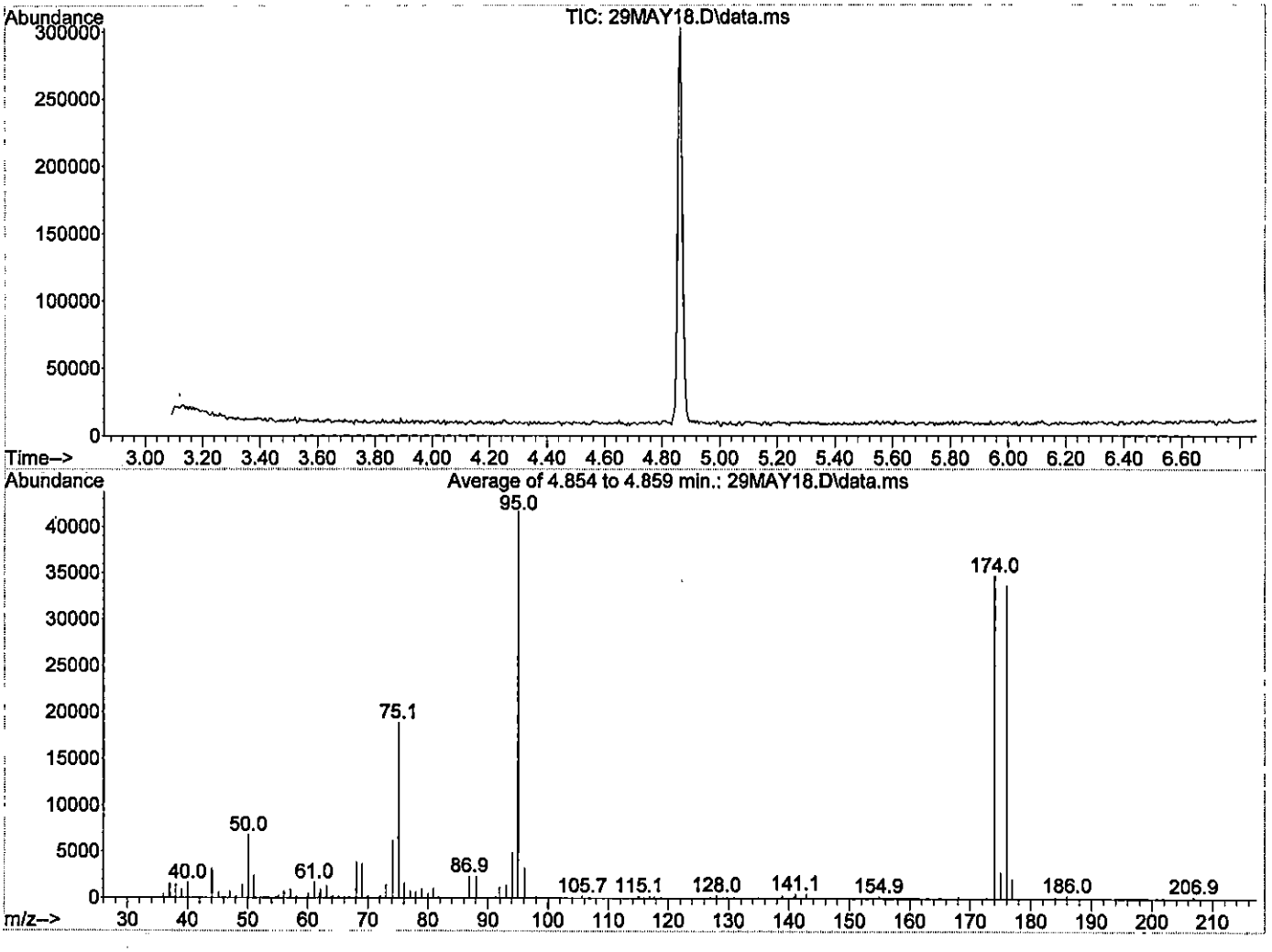
Spectrum Information: Average of 4.848 to 4.869 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	15.9	7359	PASS
75	95	30	80	44.3	20547	PASS
95	95	100	100	100.0	46381	PASS
96	95	5	9	6.4	2948	PASS
173	174	0.00	2	0.3	146	PASS
174	95	50	100	90.1	41808	PASS
175	174	5	9	8.6	3595	PASS
176	174	95	101	100.1	41864	PASS
177	176	5	9	6.0	2516	PASS

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY18.D
Acq On : 29 May 2018 3:20 pm
Operator : EMR
Sample : VBFB2-180529
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\9AC0522.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri May 25 16:06:09 2018



Spectrum Information: Average of 4.854 to 4.859 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	16.2	6749	PASS
75	95	30	80	45.3	18858	PASS
95	95	100	100	100.0	41632	PASS
96	95	5	9	7.8	3236	PASS
173	174	0.00	2	0.3	103	PASS
174	95	50	100	83.2	34652	PASS
175	174	5	9	8.1	2796	PASS
176	174	95	101	96.8	33544	PASS
177	176	5	9	6.3	2128	PASS

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018, 12:15 pm
Operator : WH
Sample : MBLK-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 13:58:46 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.484	168	146095	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	232284	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	206499	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	106309	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.535	46	30255	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	81216	18.76	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 93.80%			
46) 1,2-Dichloroethane-d4	5.883	65	90677	18.80	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.00%			
65) Toluene-d8	8.310	98	264825	19.40	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.00%			
86) Bromofluorobenzene	11.210	95	103527	19.79	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.95%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.	d	
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 12:15 pm
Operator : WH
Sample : MBLK-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 13:58:46 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39)	Chloroform	0.000		0		N.D.	
40)	Cyclohexane	0.000		0		N.D.	
42)	1,1,1-Trichloroethane	0.000		0		N.D.	
44)	Carbon tetrachloride	0.000		0		N.D.	
45)	1,1-Dichloropropene	0.000		0		N.D.	
47)	1,2-Dichloroethane	0.000		0		N.D.	
48)	Benzene	0.000		0		N.D.	
49)	Isobutyl Alcohol	0.000		0		N.D.	
50)	Tertiaryamylmethylether	0.000		0		N.D.	
51)	Heptane	0.000		0		N.D.	
52)	Methylcyclohexane	0.000		0		N.D.	
53)	Trichloroethene	0.000		0		N.D.	
54)	n-Butanol	0.000		0		N.D.	
55)	1,2-Dichloropropane	0.000		0		N.D.	
56)	Dibromomethane	0.000		0		N.D.	
57)	1,4-Dioxane	0.000		0		N.D.	
58)	Methyl methacrylate	0.000		0		N.D.	
59)	Bromodichloromethane	0.000		0		N.D.	
60)	2-Chloroethyl vinyl ether	0.000		0		N.D.	
61)	2-Nitropropane	0.000		0		N.D.	
62)	cis-1,3-Dichloropropene	0.000		0		N.D.	
64)	4-Methyl-2-pentanone	0.000		0		N.D.	
66)	Toluene	0.000		0		N.D.	
67)	trans-1,3-Dichloropropene	0.000		0		N.D.	
68)	Chloropicrin	0.000		0		N.D.	
69)	Ethyl methacrylate	0.000		0		N.D.	
70)	1,1,2-Trichloroethane	0.000		0		N.D.	
71)	Tetrachloroethene	0.000		0		N.D.	
72)	1,3-Dichloropropane	0.000		0		N.D.	
73)	2-Hexanone	0.000		0		N.D.	
74)	Chlorodibromomethane	0.000		0		N.D.	
75)	Butyl acetate	0.000		0		N.D.	
76)	1,2-Dibromoethane	0.000		0		N.D.	
77)	Chlorobenzene	0.000		0		N.D.	
78)	1,1,1,2-Tetrachloroethane	0.000		0		N.D.	
79)	Ethylbenzene	0.000		0		N.D.	
80)	m/p-Xylene	0.000		0		N.D.	
81)	Styrene	0.000		0		N.D.	
82)	o-Xylene	0.000		0		N.D.	
83)	Cyclohexanone	0.000		0		N.D.	
84)	Bromoform	0.000		0		N.D.	
85)	Isopropylbenzene	0.000		0		N.D.	
87)	Bromobenzene	0.000		0		N.D.	
88)	1,1,2,2-Tetrachloroethane	0.000		0		N.D.	
89)	1,2,3-Trichloropropane	0.000		0		N.D.	
90)	trans-1,4-Dichloro-2-b...	0.000		0		N.D.	
91)	n-Propylbenzene	0.000		0		N.D.	
92)	2-Chlorotoluene	0.000		0		N.D.	
93)	4-Chlorotoluene	0.000		0		N.D.	
94)	1,3,5-Trimethylbenzene	0.000		0		N.D.	
95)	tert-Butylbenzene	0.000		0		N.D.	
96)	1,2,4-Trimethylbenzene	0.000		0		N.D.	
97)	sec-Butylbenzene	0.000		0		N.D.	
99)	1,3-Dichlorobenzene	0.000		0		N.D.	
100)	p-Isopropyltoluene	0.000		0		N.D.	

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 12:15 pm
Operator : WH
Sample : MBLK-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 13:58:46 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

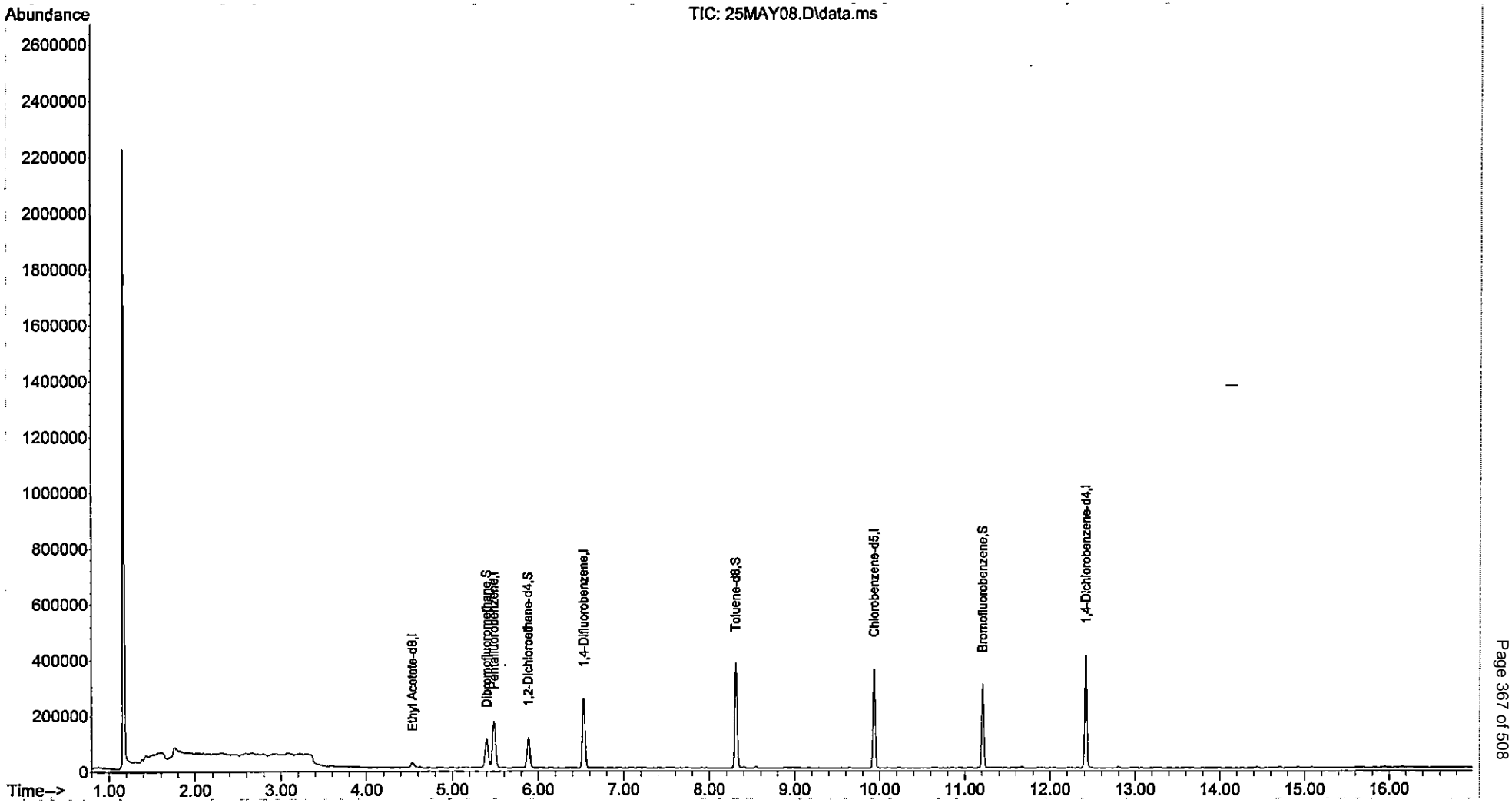
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY08.D
Acq On : 25 May 2018 12:15 pm
Operator : WH
Sample : MBLK-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 25 13:58:46 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY05.D
Acq On : 25 May 2018 11:12 am
Operator : WH
Sample : LCS-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:58:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	133989	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	213931	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	199130	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	99619	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	28995	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	80850	20.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.35%				
46) 1,2-Dichloroethane-d4	5.888	65	88649	19.95	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.75%				
65) Toluene-d8	8.311	98	255882	19.44	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.20%				
86) Bromofluorobenzene	11.210	95	100396	19.90	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.296	85	50902	13.86	ug/L		99
3) Chloromethane	1.427	50	85713	13.65	ug/L		98
4) Vinyl chloride	1.510	62	81966	20.14	ug/L		92
5) Bromomethane	1.757	96	63126	24.58	ug/L		100
6) Chloroethane	1.836	64	47723	18.32	ug/L		99
7) Trichlorofluoromethane	2.035	101	85623	17.73	ug/L		98
8) Ethanol	2.150	45	57900	408.95	ug/L	#	100
9) Ethyl ether	2.260	59	59401	25.03	ug/L		97
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.470	61	108219	23.68	ug/L		96
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.606	142	70107	78.59	ug/L		99
14) Acetone	2.496	43	27916	23.95	ug/L		91
15) Carbon disulfide	2.680	76	219121	22.76	ug/L		99
16) Allyl chloride	2.816	41	105247	20.92	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.816	41	105247	21.19	ug/L		98
19) Methylene chloride	2.947	49	103877	22.01	ug/L		99
20) t-Butanol	3.057	59	44138	106.27	ug/L	#	93
21) trans-1,2-Dichloroethene	3.246	61	105824	22.20	ug/L		95
22) Acrylonitrile	3.193	53	33496	21.48	ug/L		96
23) Methyl tert-butyl ether	3.246	73	206046	22.46	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.786	63	125347	21.33	ug/L		99
26) Diisopropyl ether	3.854	45	198340	19.95	ug/L	#	95
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.378	59	188840	19.92	ug/L		99
30) 2,2-Dichloropropane	4.614	77	94116	20.56	ug/L		95
31) cis-1,2-Dichloroethene	4.609	61	115074	21.18	ug/L		95
32) 2-Butanone	4.609	43	34208	19.13	ug/L	#	94
33) Ethyl Acetate	4.698	43	69438	19.93	ug/L	#	96
34) Methyl acrylate	4.756	55	67652	20.31	ug/L		99
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.976	49	67130	21.20	ug/L		92
37) Tetrahydrofuran	5.008	42	21279	19.64	ug/L		96
38) Methacrylonitrile	4.934	41	48871	21.40	ug/L		93

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY05.D
Acq On : 25 May 2018 11:12 am
Operator : WH
Sample : LCS-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:58:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.160	83	130359	21.95 ug/L	98
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	5.385	97	102291	21.62 ug/L	99
44) Carbon tetrachloride	5.611	119	82368	19.52 ug/L	98
45) 1,1-Dichloropropene	5.626	75	86447	19.61 ug/L	97
47) 1,2-Dichloroethane	5.998	62	104166	20.54 ug/L	96
48) Benzene	5.904	78	255267	21.19 ug/L	99
49) Isobutyl Alcohol	6.056	43	136849	20.23 ug/L #	94
50) Tertiaryamylmethylether	6.135	73	181606	19.46 ug/L	97
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	67255	20.14 ug/L	97
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.141	63	73582	21.15 ug/L	98
56) Dibromomethane	7.246	93	55791	20.30 ug/L	99
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	7.267	41	64949	17.64 ug/L	95
59) Bromodichloromethane	7.488	83	104339	21.36 ug/L	99
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	7.750	43	22651	18.94 ug/L #	97
62) cis-1,3-Dichloropropene	8.012	75	120886	20.90 ug/L	99
64) 4-Methyl-2-pentanone	8.206	43	95764	24.17 ug/L	85
66) Toluene	8.389	91	264054	20.16 ug/L	99
67) trans-1,3-Dichloropropene	8.688	75	111406	19.92 ug/L	99
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	8.777	69	90763	19.14 ug/L	96
70) 1,1,2-Trichloroethane	8.903	97	68105	19.86 ug/L	99
71) Tetrachloroethene	8.971	166	64451	19.35 ug/L	93
72) 1,3-Dichloropropane	9.076	76	105056	19.76 ug/L	94
73) 2-Hexanone	9.155	43	49618	17.38 ug/L	97
74) Chlorodibromomethane	9.307	129	85183	19.65 ug/L	99
75) Butyl acetate	9.312	43	114413	17.77 ug/L	99
76) 1,2-Dibromoethane	9.422	107	77352	21.08 ug/L #	99
77) Chlorobenzene	9.967	112	181024	21.37 ug/L	98
78) 1,1,1,2-Tetrachloroethane	10.072	131	69194	21.58 ug/L	99
79) Ethylbenzene	10.083	91	286594	20.71 ug/L	100
80) m/p-Xylene	10.230	91	449266	42.15 ug/L	99
81) Styrene	10.660	104	181661	20.89 ug/L	97
82) o-Xylene	10.633	91	235733	20.33 ug/L	98
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	10.843	173	54489	19.91 ug/L	99
85) Isopropylbenzene	11.032	105	254508	20.11 ug/L	100
87) Bromobenzene	11.346	77	119295	20.70 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	105055	21.76 ug/L	98
89) 1,2,3-Trichloropropane	11.415	110	20750	19.96 ug/L	94
90) trans-1,4-Dichloro-2-b...	11.404	53	22013	16.43 ug/L #	86
91) n-Propylbenzene	11.467	91	309259	19.86 ug/L	100
92) 2-Chlorotoluene	11.551	91	193430	20.11 ug/L	97
93) 4-Chlorotoluene	11.682	91	222612	19.95 ug/L	98
94) 1,3,5-Trimethylbenzene	11.666	105	202749	19.29 ug/L	100
95) tert-Butylbenzene	11.986	91	118046	19.83 ug/L	97
96) 1,2,4-Trimethylbenzene	12.049	105	214906	19.49 ug/L	99
97) sec-Butylbenzene	12.222	105	240937	19.51 ug/L	98
99) 1,3-Dichlorobenzene	12.332	146	130354	20.01 ug/L	98
100) p-Isopropyltoluene	12.385	119	205814	20.26 ug/L	98

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY05.D
Acq On : 25 May 2018 11:12 am
Operator : WH
Sample : LCS-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:58:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

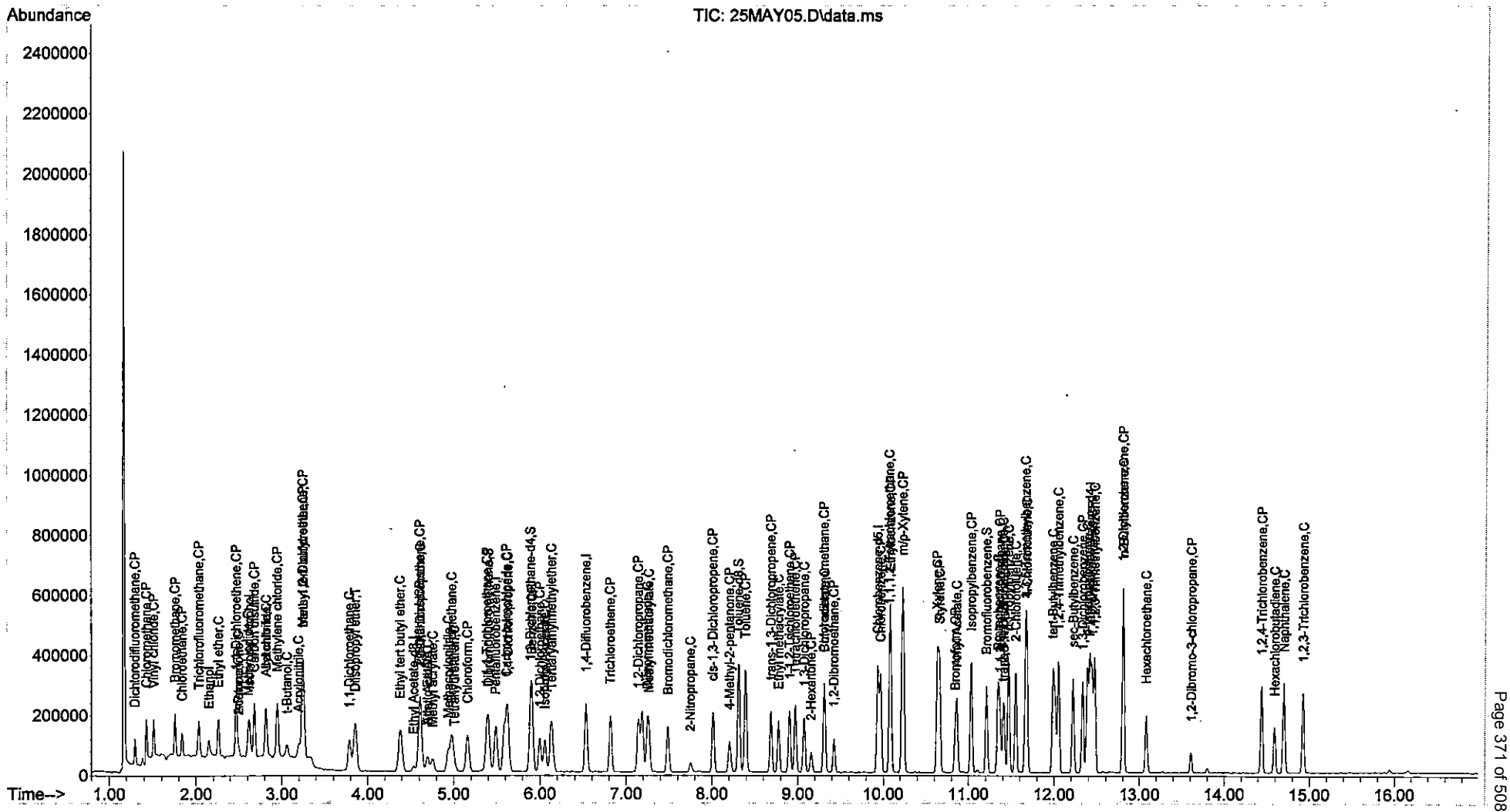
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	133252	20.24 ug/L	97
102) 1,2,3-Trimethylbenzene	12.468	105	221001	19.77 ug/L	99
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	12.799	146	126987	20.05 ug/L	97
105) n-Butylbenzene	12.804	91	193670	19.85 ug/L	98
106) Hexachloroethane	13.082	117	42830	16.56 ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	18893	20.28 ug/L	97
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	14.440	180	89875	20.77 ug/L	99
110) Hexachlorobutadiene	14.592	225	30672	21.75 ug/L	98
111) Naphthalene	14.702	128	239670	19.73 ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	86825	20.70 ug/L	98
113) 2-Methylnaphthalene	0.000		0	N.D. d	
114) 1-Methylnaphthalene	16.165	142	5223	N.D.	
116) 2-Propanone	2.496	43	27916	25.03 ug/L	91
117) Isopropyl Alcohol	2.622	45	101925	422.22 ug/L #	96
118) Acetic Ether	4.698	43	69438	22.17 ug/L #	97
119) Isopropyl Acetate	6.056	61	29306	22.18 ug/L #	93
120) Amyl Acetate	10.859	43	130111	21.50 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY05.D
Acq On : 25 May 2018 11:12 am
Operator : WH
Sample : LCS-118698
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:58:14 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY29.D
Acq On : 25 May 2018 8:17 pm
Operator : WH
Sample : 18051407-07A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 26 07:00:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.484	168	127930	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	199474	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	169104	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	95621	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.535	46	28650	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	78116	21.01	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.05%				
46) 1,2-Dichloroethane-d4	5.883	65	90927	21.95	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 109.75%				
65) Toluene-d8	8.310	98	246214	22.02	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 110.10%#				
86) Bromofluorobenzene	11.210	95	88158	20.58	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	78690	22.45	ug/L		98
3) Chloromethane	1.426	50	101698	16.97	ug/L		99
4) Vinyl chloride	1.510	62	87402	22.49	ug/L		98
5) Bromomethane	1.736	96	62216	25.40	ug/L		96
6) Chloroethane	1.825	64	46324	18.63	ug/L		96
7) Trichlorofluoromethane	2.029	101	102127	22.15	ug/L		99
8) Ethanol	2.160	45	40385	298.75	ug/L	#	100
9) Ethyl ether	2.255	59	56028	24.73	ug/L		96
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.464	61	111494	25.55	ug/L		97
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.606	142	72602	83.01	ug/L		97
14) Acetone	2.496	43	42277	38.99	ug/L		97
15) Carbon disulfide	2.674	76	227602	24.76	ug/L		100
16) Allyl chloride	2.811	41	98512	20.51	ug/L		96
17) Methyl acetate	2.800	43	7499	2.62	ug/L	#	60
18) Acetonitrile	2.811	41	98512	20.77	ug/L		95
19) Methylene chloride	2.942	49	97176	21.55	ug/L		97
20) t-Butanol	3.067	59	33708	85.00	ug/L	#	80
21) trans-1,2-Dichloroethene	3.246	61	100872	22.16	ug/L		98
22) Acrylonitrile	3.193	53	28007	18.81	ug/L		97
23) Methyl tert-butyl ether	3.246	73	189329	21.61	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.786	63	134406	23.95	ug/L		98
26) Diisopropyl ether	3.854	45	201761	21.25	ug/L	#	93
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.383	59	184606	20.39	ug/L		98
30) 2,2-Dichloropropane	4.609	77	62235	14.24	ug/L		93
31) cis-1,2-Dichloroethene	4.609	61	113098	21.80	ug/L		97
32) 2-Butanone	4.614	43	46841	27.32	ug/L	#	94
33) Ethyl Acetate	4.698	43	55491	16.68	ug/L	#	95
34) Methyl acrylate	4.756	55	55085	17.32	ug/L		99
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.976	49	66855	22.11	ug/L		89
37) Tetrahydrofuran	5.007	42	20311	19.63	ug/L		95
38) Methacrylonitrile	4.934	41	48298	22.14	ug/L		95

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY29.D
Acq On : 25 May 2018 8:17 pm
Operator : WH
Sample : 18051407-07A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 26 07:00:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	5.159	83	136073	23.99	ug/L		99
40)	Cyclohexane	0.000		0	N.D.			
42)	1,1,1-Trichloroethane	5.385	97	109809	24.89	ug/L		100
44)	Carbon tetrachloride	5.605	119	89416	22.72	ug/L		98
45)	1,1-Dichloropropene	5.626	75	89936	21.87	ug/L		97
47)	1,2-Dichloroethane	5.993	62	105418	22.29	ug/L		97
48)	Benzene	5.899	78	268479	23.90	ug/L		100
49)	Isobutyl Alcohol	6.056	43	132180	20.95	ug/L	#	95
50)	Tertiaryamylmethylether	6.135	73	179065	20.58	ug/L		97
51)	Heptane	0.000		0	N.D.			
52)	Methylcyclohexane	0.000		0	N.D.			
53)	Trichloroethene	6.816	130	159329	51.17	ug/L		97
54)	n-Butanol	0.000		0	N.D.			
55)	1,2-Dichloropropane	7.141	63	73793	22.75	ug/L		98
56)	Dibromomethane	7.246	93	56419	22.02	ug/L		99
57)	1,4-Dioxane	0.000		0	N.D.			
58)	Methyl methacrylate	7.267	41	57645	16.79	ug/L		94
59)	Bromodichloromethane	7.487	83	99569	21.86	ug/L		100
60)	2-Chloroethyl vinyl ether	0.000		0	N.D.			
61)	2-Nitropropane	7.749	43	10022	8.95	ug/L	#	80
62)	cis-1,3-Dichloropropene	8.012	75	110754	20.54	ug/L		99
64)	4-Methyl-2-pentanone	8.206	43	69575	20.68	ug/L		99
66)	Toluene	8.389	91	250633	22.54	ug/L		99
67)	trans-1,3-Dichloropropene	8.688	75	95551	20.12	ug/L		99
68)	Chloropicrin	0.000		0	N.D.			
69)	Ethyl methacrylate	8.777	69	83532	20.74	ug/L		94
70)	1,1,2-Trichloroethane	8.903	97	67460	23.17	ug/L		99
71)	Tetrachloroethene	8.971	166	120130	42.47	ug/L		94
72)	1,3-Dichloropropane	9.076	76	104053	23.05	ug/L		94
73)	2-Hexanone	9.160	43	72227	29.80	ug/L		97
74)	Chlorodibromomethane	9.307	129	79836	21.69	ug/L		98
75)	Butyl acetate	9.312	43	92267	16.87	ug/L		99
76)	1,2-Dibromoethane	9.422	107	74883	24.03	ug/L	#	99
77)	Chlorobenzene	9.967	112	169267	23.53	ug/L		98
78)	1,1,1,2-Tetrachloroethane	10.072	131	65074	23.90	ug/L		98
79)	Ethylbenzene	10.083	91	281710	23.97	ug/L		100
80)	m/p-Xylene	10.229	91	435252	48.09	ug/L		99
81)	Styrene	10.659	104	170485	23.08	ug/L		94
82)	o-Xylene	10.633	91	220489	22.39	ug/L		99
83)	Cyclohexanone	0.000		0	N.D.			
84)	Bromoform	10.843	173	53668	23.09	ug/L		98
85)	Isopropylbenzene	11.032	105	259121	24.11	ug/L		99
87)	Bromobenzene	11.346	77	110104	22.50	ug/L		90
88)	1,1,2,2-Tetrachloroethane	11.367	83	25188	6.14	ug/L	#	95
89)	1,2,3-Trichloropropane	11.414	110	21247	24.16	ug/L		95
90)	trans-1,4-Dichloro-2-b...	11.404	53	17332	15.23	ug/L	#	88
91)	n-Propylbenzene	11.467	91	286622	21.68	ug/L		98
92)	2-Chlorotoluene	11.551	91	192290	23.54	ug/L		98
93)	4-Chlorotoluene	11.682	91	216019	22.79	ug/L		98
94)	1,3,5-Trimethylbenzene	11.666	105	209201	23.44	ug/L		99
95)	tert-Butylbenzene	11.986	91	115144	22.77	ug/L		97
96)	1,2,4-Trimethylbenzene	12.049	105	205240	21.92	ug/L		100
97)	sec-Butylbenzene	12.222	105	234966	22.40	ug/L		96
99)	1,3-Dichlorobenzene	12.332	146	125648	20.10	ug/L		97
100)	p-Isopropyltoluene	12.384	119	193752	19.87	ug/L		99

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY29.D
Acq On : 25 May 2018 8:17 pm
Operator : WH
Sample : 18051407-07A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 26 07:00:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

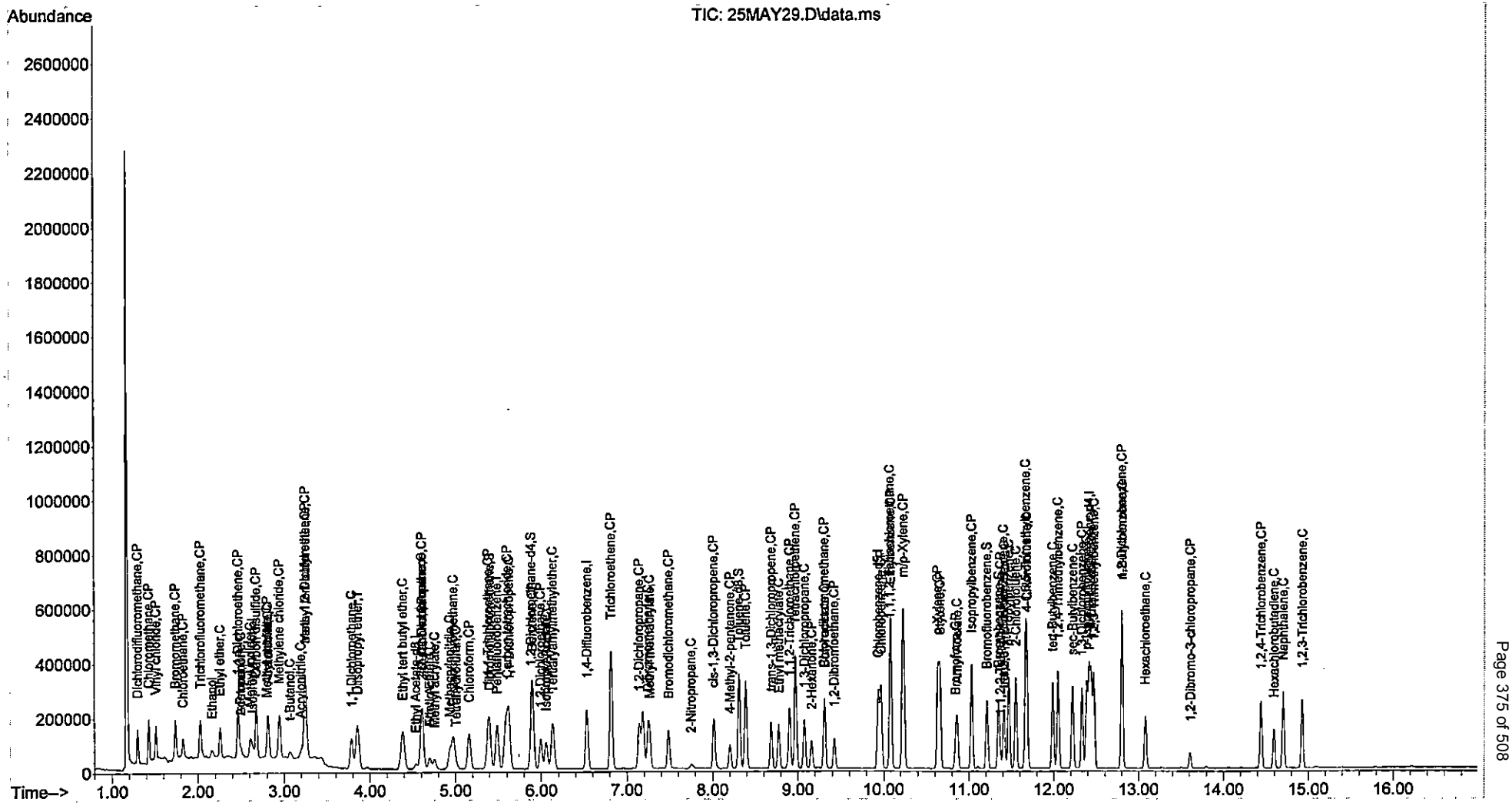
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	135100	21.38 ug/L	97
102) 1,2,3-Trimethylbenzene	12.468	105	204885	19.10 ug/L	99
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	12.798	146	127971	21.05 ug/L	98
105) n-Butylbenzene	12.804	91	186848	19.95 ug/L	98
106) Hexachloroethane	13.082	117	41745	16.81 ug/L	95
107) 1,2-Dibromo-3-chloropr...	13.611	157	15313	17.13 ug/L	89
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	14.440	180	78637	18.93 ug/L	97
110) Hexachlorobutadiene	14.592	225	29240	21.60 ug/L	99
111) Naphthalene	14.702	128	225119	19.31 ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	82041	20.37 ug/L	100
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	2.496	43	42277	39.86 ug/L	97
117) Isopropyl Alcohol	2.632	45	69738	292.37 ug/L	97
118) Acetic Ether	4.698	43	55491	17.93 ug/L	97
119) Isopropyl Acetate	6.056	61	28393	21.75 ug/L	93
120) Amyl Acetate	10.859	43	97663	16.33 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY29.D
Acq On : 25 May 2018 8:17 pm
Operator : WH
Sample : 18051407-07A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 26 07:00:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY30.D
Acq On : 25 May 2018 8:39 pm
Operator : WH
Sample : 18051407-07A MSD
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 26 07:00:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	129813	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	205209	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	165822	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	90902	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	28488	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	76463	19.99	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.95%				
46) 1,2-Dichloroethane-d4	5.883	65	84985	19.94	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.70%				
65) Toluene-d8	8.311	98	228973	20.89	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.45%				
86) Bromofluorobenzene	11.210	95	89060	21.20	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.296	85	54300	15.26	ug/L		100
3) Chloromethane	1.427	50	88267	14.51	ug/L		97
4) Vinyl chloride	1.511	62	77576	19.67	ug/L		99
5) Bromomethane	1.731	96	43834	17.38	ug/L		93
6) Chloroethane	1.825	64	35486	14.06	ug/L		99
7) Trichlorofluoromethane	2.024	101	75126	16.06	ug/L		97
8) Ethanol	2.166	45	41702	304.02	ug/L	#	100
9) Ethyl ether	2.255	59	51166	22.26	ug/L		95
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.465	61	92269	20.84	ug/L		98
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.606	142	64324	75.74	ug/L		97
14) Acetone	2.501	43	41933	38.07	ug/L		96
15) Carbon disulfide	2.674	76	182812	19.60	ug/L		100
16) Allyl chloride	2.811	41	79616	16.33	ug/L		98
17) Methyl acetate	2.800	43	9177	3.16	ug/L	#	60
18) Acetonitrile	2.811	41	79616	16.55	ug/L		97
19) Methylene chloride	2.942	49	90389	19.71	ug/L		98
20) t-Butanol	3.073	59	34276	85.18	ug/L	#	79
21) trans-1,2-Dichloroethene	3.246	61	92809	20.10	ug/L		97
22) Acrylonitrile	3.194	53	31356	20.75	ug/L		96
23) Methyl tert-butyl ether	3.241	73	196336	22.09	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.786	63	115413	20.27	ug/L		98
26) Diisopropyl ether	3.854	45	189117	19.63	ug/L	#	94
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.378	59	176279	19.19	ug/L		98
30) 2,2-Dichloropropane	4.614	77	48178	10.86	ug/L		94
31) cis-1,2-Dichloroethene	4.609	61	98094	18.64	ug/L		95
32) 2-Butanone	4.609	43	49051	28.19	ug/L	#	92
33) Ethyl Acetate	4.698	43	50282	14.90	ug/L	#	97
34) Methyl acrylate	4.756	55	47664	14.77	ug/L	#	92
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.971	49	61090	19.91	ug/L		90
37) Tetrahydrofuran	5.008	42	20220	19.26	ug/L		95
38) Methacrylonitrile	4.934	41	46433	20.99	ug/L		97

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY30.D
Acq On : 25 May 2018 8:39 pm
Operator : WH
Sample : 18051407-07A MSD
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 26 07:00:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Chloroform	5.160	83	119367	20.74 ug/L	99
40)	Cyclohexane	0.000		0	N.D.	
42)	1,1,1-Trichloroethane	5.385	97	86026	18.95 ug/L	98
44)	Carbon tetrachloride	5.611	119	70675	17.46 ug/L	97
45)	1,1-Dichloropropene	5.626	75	74098	17.52 ug/L	95
47)	1,2-Dichloroethane	5.993	62	96772	19.89 ug/L	98
48)	Benzene	5.899	78	231782	20.05 ug/L	99
49)	Isobutyl Alcohol	6.056	43	120609	18.59 ug/L #	96
50)	Tertiaryamylmethylether	6.135	73	161148	18.00 ug/L	97
51)	Heptane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	Trichloroethene	6.816	130	144949	45.25 ug/L	96
54)	n-Butanol	0.000		0	N.D.	
55)	1,2-Dichloropropane	7.142	63	68595	20.56 ug/L	96
56)	Dibromomethane	7.246	93	53565	20.32 ug/L	100
57)	1,4-Dioxane	0.000		0	N.D.	
58)	Methyl methacrylate	7.267	41	53447	15.13 ug/L	93
59)	Bromodichloromethane	7.482	83	94294	20.13 ug/L	99
60)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
61)	2-Nitropropane	7.750	43	6756	5.85 ug/L #	79
62)	cis-1,3-Dichloropropene	8.012	75	100334	18.08 ug/L	99
64)	4-Methyl-2-pentanone	8.206	43	70924	21.50 ug/L	99
66)	Toluene	8.389	91	220363	20.21 ug/L	98
67)	trans-1,3-Dichloropropene	8.683	75	89407	19.20 ug/L	97
68)	Chloropicrin	0.000		0	N.D.	
69)	Ethyl methacrylate	8.777	69	74571	18.88 ug/L	97
70)	1,1,2-Trichloroethane	8.903	97	64533	22.60 ug/L	99
71)	Tetrachloroethene	8.971	166	106036	38.23 ug/L	95
72)	1,3-Dichloropropane	9.076	76	98844	22.33 ug/L	93
73)	2-Hexanone	9.160	43	71419	30.05 ug/L	98
74)	Chlorodibromomethane	9.307	129	75071	20.80 ug/L	99
75)	Butyl acetate	9.312	43	80200	14.96 ug/L	99
76)	1,2-Dibromoethane	9.422	107	74842	24.49 ug/L #	98
77)	Chlorobenzene	9.968	112	152834	21.67 ug/L	98
78)	1,1,1,2-Tetrachloroethane	10.072	131	60973	22.83 ug/L	99
79)	Ethylbenzene	10.083	91	240735	20.89 ug/L	99
80)	m/p-Xylene	10.230	91	373571	42.09 ug/L	99
81)	Styrene	10.660	104	156864	21.66 ug/L	96
82)	o-Xylene	10.633	91	186704	19.34 ug/L	99
83)	Cyclohexanone	0.000		0	N.D.	
84)	Bromoform	10.843	173	47758	20.96 ug/L	99
85)	Isopropylbenzene	11.032	105	209694	19.89 ug/L	98
87)	Bromobenzene	11.341	77	107905	22.48 ug/L	89
88)	1,1,2,2-Tetrachloroethane	11.367	83	12709	3.16 ug/L #	93
89)	1,2,3-Trichloropropane	11.415	110	19489	22.57 ug/L	95
90)	trans-1,4-Dichloro-2-b...	11.404	53	16176	14.50 ug/L #	86
91)	n-Propylbenzene	11.467	91	257076	19.83 ug/L	98
92)	2-Chlorotoluene	11.551	91	159937	19.97 ug/L	97
93)	4-Chlorotoluene	11.682	91	195268	21.01 ug/L	97
94)	1,3,5-Trimethylbenzene	11.666	105	181593	20.75 ug/L	99
95)	tert-Butylbenzene	11.986	91	93239	18.81 ug/L	96
96)	1,2,4-Trimethylbenzene	12.049	105	182875	19.92 ug/L	98
97)	sec-Butylbenzene	12.222	105	183451	17.84 ug/L	96
99)	1,3-Dichlorobenzene	12.332	146	114438	19.26 ug/L	97
100)	p-Isopropyltoluene	12.385	119	147012	15.86 ug/L	98

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY30.D
Acq On : 25 May 2018 8:39 pm
Operator : WH
Sample : 18051407-07A MSD
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 26 07:00:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

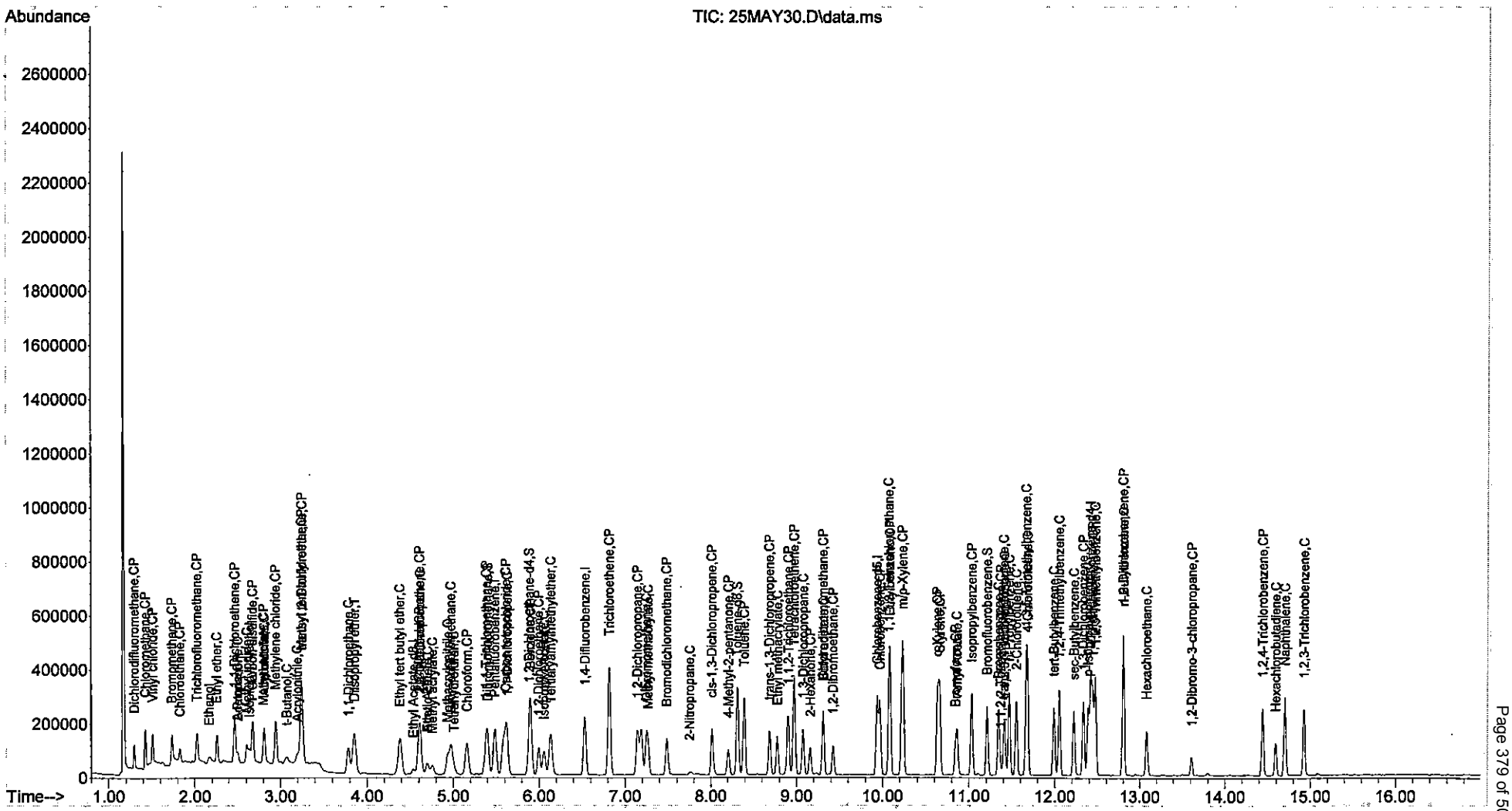
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	123496	20.56	ug/L		97
102) 1,2,3-Trimethylbenzene	12.468	105	206487	20.24	ug/L		100
103) Benzyl chloride	0.000		0	N.D.	d		
104) 1,2-Dichlorobenzene	12.799	146	117997	20.42	ug/L		98
105) n-Butylbenzene	12.804	91	155055	17.42	ug/L		97
106) Hexachloroethane	13.082	117	36344	15.40	ug/L		93
107) 1,2-Dibromo-3-chloropr...	13.611	157	18313	21.55	ug/L		94
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	14.440	180	78434	19.86	ug/L		97
110) Hexachlorobutadiene	14.592	225	24123	18.74	ug/L		98
111) Naphthalene	14.702	128	228263	20.59	ug/L		99
112) 1,2,3-Trichlorobenzene	14.927	180	76842	20.07	ug/L		100
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	0.000		0	N.D.			
116) 2-Propanone	2.501	43	41933	39.75	ug/L		96
117) Isopropyl Alcohol	2.638	45	80646	340.02	ug/L		99
118) Acetic Ether	4.698	43	50282	16.34	ug/L	#	96
119) Isopropyl Acetate	6.056	61	25727	19.82	ug/L		93
120) Amyl Acetate	10.859	43	86027	14.47	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180525\
Data File : 25MAY30.D
Acq On : 25 May 2018 8:39 pm
Operator : WH
Sample : 18051407-07A MSD
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 26 07:00:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.727	168	205128	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	293346	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	251087	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	120792	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.889	46	23936	20.00	ug/L	#	0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.655	111	99113	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	84846	19.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.75%				
64) Toluene-d8	7.678	98	334837	19.86	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 99.30%				
85) Bromofluorobenzene	9.440	95	104427	18.37	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.	d		
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.614	49	46850	3.05	ug/L		96
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	3.137	57	10993	Below Cal		#	83
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

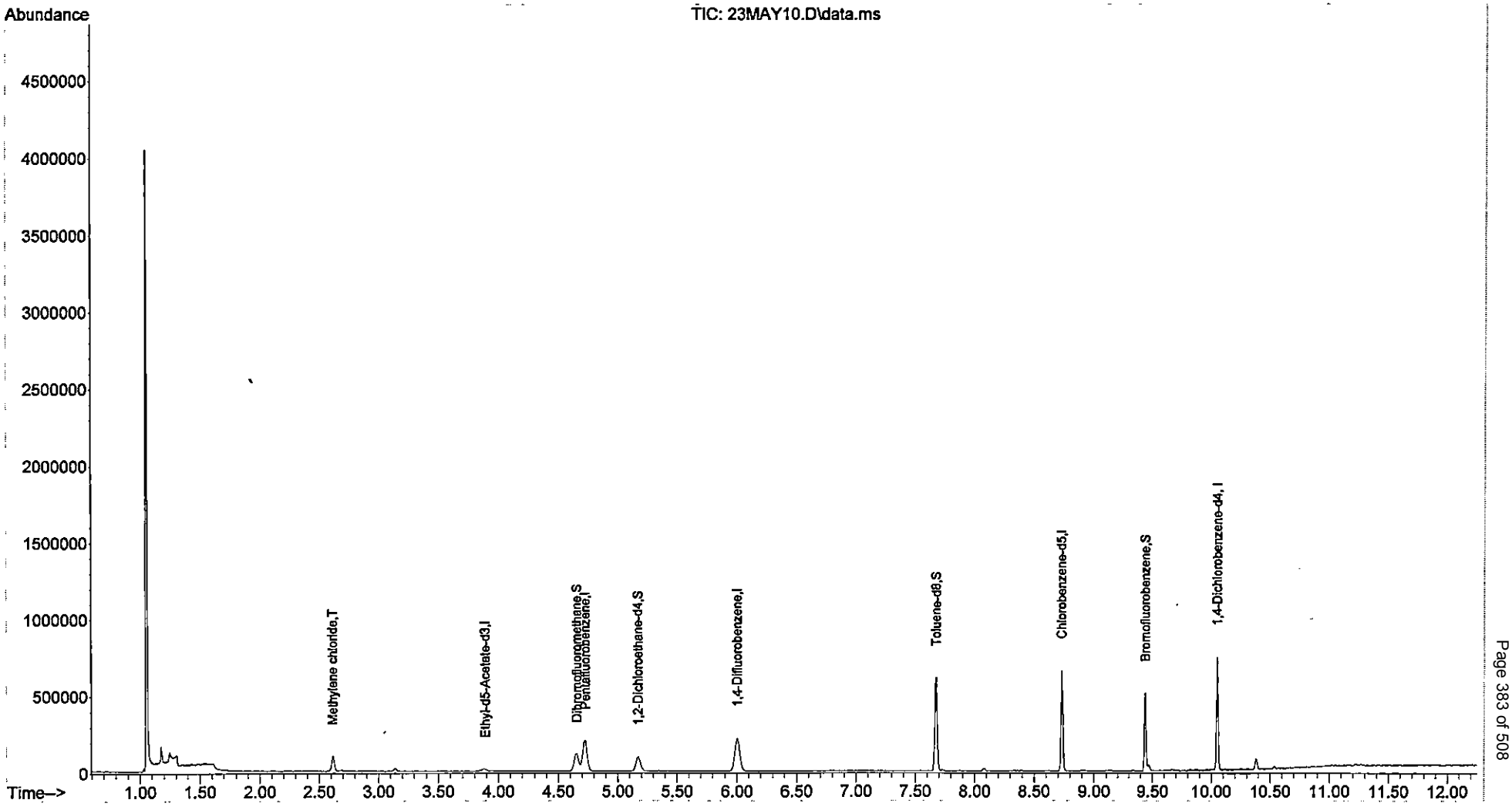
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY10.D
Acq On : 23 May 2018 2:24 pm
Operator : EMR
Sample : VBLKS1-180523
Misc : IS/SS 200-20081
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 24 08:52:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	221847	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	332164	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	291245	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135848	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	23292	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	111576	19.78	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%				
45) 1,2-Dichloroethane-d4	5.164	65	87376	17.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 88.00%				
64) Toluene-d8	7.671	98	379601	19.41	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.05%				
85) Bromofluorobenzene	9.440	95	120878	18.34	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 91.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	118283	16.73	ug/L		98
3) Chloromethane	1.282	50	144973	14.89	ug/L		97
4) Vinyl chloride	1.360	62	139255	19.52	ug/L		100
5) Bromomethane	1.582	96	117808	18.99	ug/L		94
6) Chloroethane	1.654	64	79810	17.28	ug/L		96
7) Trichlorofluoromethane	1.826	101	165340	17.18	ug/L		99
8) Ethyl ether	2.019	59	72672	17.94	ug/L		93
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	176304	18.87	ug/L		94
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	162014	38.84	ug/L		98
13) Acetone	2.227	43	21950	10.73	ug/L		99
14) Chloroprene	3.373	53	7625	0.84	ug/L	#	83
15) Carbon disulfide	2.392	76	452916	21.03	ug/L		100
16) Allyl chloride	2.499	41	176077	17.48	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.614	49	193644	24.19	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	182504	18.49	ug/L		95
21) t-Butanol	2.678	59	45201	60.47	ug/L	#	94
22) Acrylonitrile	2.815	53	32875	14.39	ug/L		98
23) Methyl tert-butyl ether	2.843	73	256881	21.37	ug/L		98
24) Hexane	3.137	57	23636	0.40	ug/L	#	87
25) 1,1-Dichloroethane	3.302	63	227407	19.77	ug/L		100
26) Diisopropyl ether	3.330	45	308998	22.11	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	269266	20.65	ug/L		98
29) 2,2-Dichloropropane	3.968	77	179660	19.95	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	208836	18.52	ug/L		93
31) 2-Butanone	3.939	43	31472	12.65	ug/L	#	87
32) Ethyl Acetate	4.004	43	74685	15.17	ug/L	#	86
33) Methyl acrylate	4.061	55	80330	15.46	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.269	49	98486	18.70	ug/L		96
36) Tetrahydrofuran	4.283	42	20609	10.98	ug/L		92
37) Methacrylonitrile	4.218	41	49867	14.27	ug/L		97
38) Chloroform	4.419	83	224728	18.15	ug/L		99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.734	56	11466	0.89 ug/L #	72
41) 1,1,1-Trichloroethane	4.641	97	186138	19.07 ug/L	100
43) Carbon tetrachloride	4.863	117	162444	20.31 ug/L	99
44) 1,1-Dichloropropene	4.877	75	163904	19.43 ug/L	95
46) 1,2-Dichloroethane	5.293	62	129788	17.28 ug/L	98
47) Benzene	5.186	78	500059	18.84 ug/L	99
48) Tertiaryamylmethylether	5.443	73	255471	20.56 ug/L	97
49) Isobutyl Alcohol	5.443	43	70814	18.94 ug/L #	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	6.661	83	8791	0.84 ug/L #	1
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	140782	19.23 ug/L	98
55) 1,2-Dichloropropane	6.704	63	124068	18.42 ug/L #	85
56) Dibromomethane	6.797	93	74993	17.77 ug/L	98
57) Methyl methacrylate	6.819	41	66754	12.92 ug/L	92
58) Bromodichloromethane	7.019	83	157262	18.33 ug/L	95
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	21634	11.09 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	188071	17.79 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	96177	16.68 ug/L	90
65) Toluene	7.728	91	514324	18.43 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	154197	16.11 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	115019	14.95 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	102623	16.89 ug/L	99
70) Tetrachloroethene	8.130	166	148198	20.04 ug/L	98
71) 1,3-Dichloropropane	8.201	76	146074	16.17 ug/L	91
72) 2-Hexanone	8.244	43	51446	13.14 ug/L	92
73) Chlorodibromomethane	8.352	129	120680	16.98 ug/L	100
74) Butyl acetate	8.344	43	117799	15.45 ug/L	96
75) 1,2-Dibromoethane	8.430	107	105002	17.26 ug/L #	99
76) Chlorobenzene	8.753	112	339865	19.31 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	119633	17.60 ug/L	98
78) Ethylbenzene	8.817	91	550090	18.70 ug/L	98
79) m/p-Xylene	8.896	91	819212	36.95 ug/L	96
80) Styrene	9.139	104	337727	17.82 ug/L	98
81) o-Xylene	9.125	91	424437	18.63 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	76697	16.07 ug/L	99
84) Isopropylbenzene	9.333	105	522051	19.32 ug/L	99
86) Bromobenzene	9.512	77	231545	16.27 ug/L	92
87) 1,1,2,2-Tetrachloroethane	9.512	83	126139	15.83 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	28315	15.50 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	22222	11.50 ug/L	98
90) n-Propylbenzene	9.562	91	621185	18.93 ug/L	99
91) 2-Chlorotoluene	9.612	91	359854	19.32 ug/L	98
92) 4-Chlorotoluene	9.677	91	386402	17.06 ug/L	95
93) 1,3,5-Trimethylbenzene	9.662	105	411731	18.89 ug/L	98
94) tert-Butylbenzene	9.827	91	240497	18.24 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	410613	18.05 ug/L	100
96) sec-Butylbenzene	9.942	105	548241	19.36 ug/L	100
98) 1,3-Dichlorobenzene	10.013	146	250101	19.49 ug/L	99
99) p-Isopropyltoluene	10.021	119	453781	19.34 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	254052	19.46 ug/L	99

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

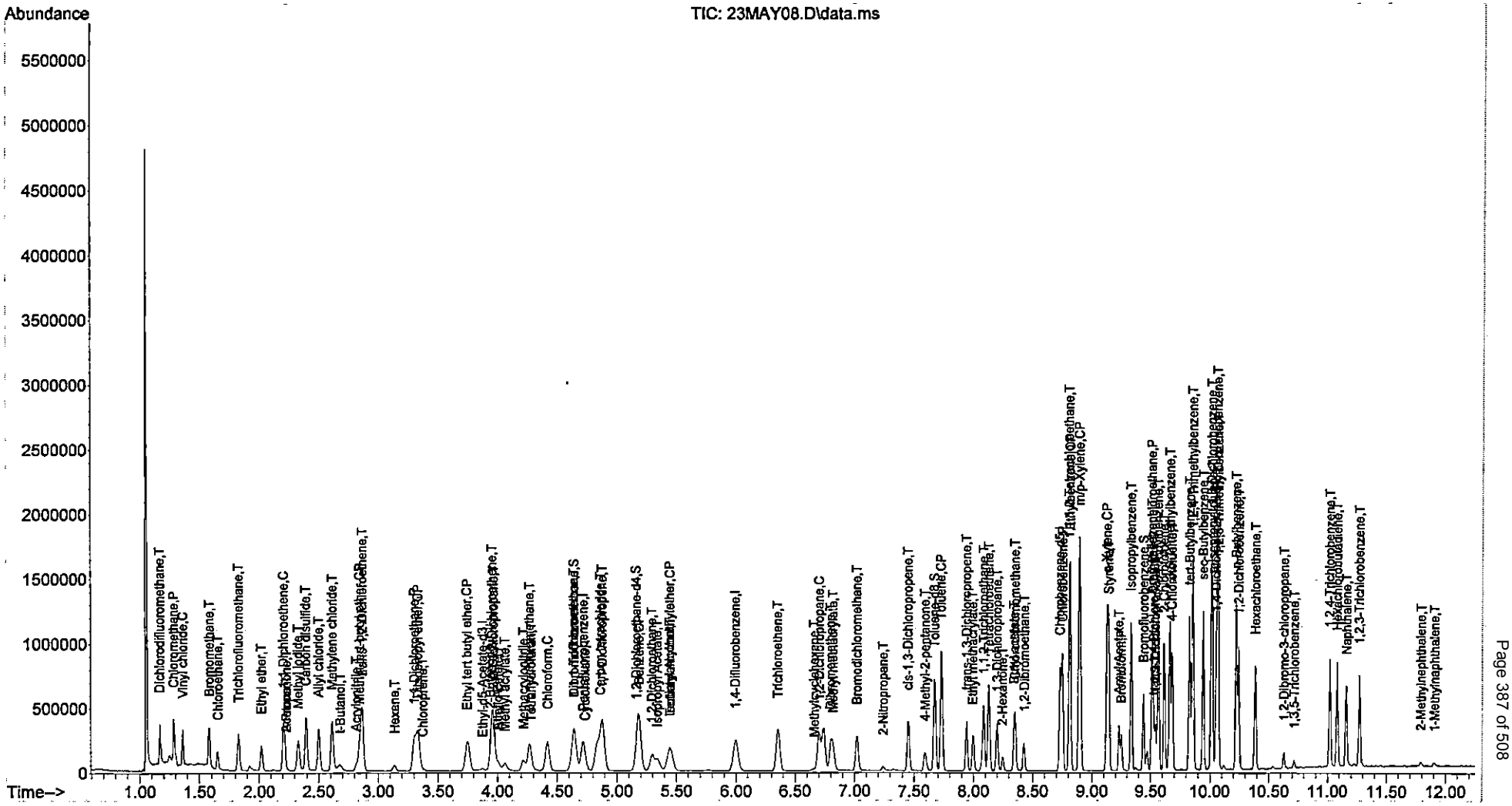
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	396897	18.84	ug/L		97
102) Benzyl chloride	0.000		0	N.D.	d		
103) 1,2-Dichlorobenzene	10.243	146	231759	19.62	ug/L		99
104) n-Butylbenzene	10.221	91	438502	18.43	ug/L		99
105) Hexachloroethane	10.386	117	95627	18.46	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	23036	13.54	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	8737	0.90	ug/L	#	74
108) 1,2,4-Trichlorobenzene	11.016	180	167887	18.53	ug/L		97
109) Hexachlorobutadiene	11.081	225	103373	20.98	ug/L		99
110) Naphthalene	11.159	128	343056	15.98	ug/L		97
111) 1,2,3-Trichlorobenzene	11.267	180	157146	17.86	ug/L		100
112) 2-Methylnaphthalene	11.790	142	12763	0.96	ug/L		88
113) 1-Methylnaphthalene	11.904	142	11307	1.01	ug/L		100
115) 2-Propanone	2.227	43	21950	18.75	ug/L		99
116) Acetic Ether	4.004	43	74685	23.20	ug/L	#	90
117) Isopropyl Acetate	5.336	61	48961	28.60	ug/L		93
118) Amyl Acetate	9.225	43	118740	23.25	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY08.D
Acq On : 23 May 2018 1:30 pm
Operator : EMR
Sample : VLCSS1-180523
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 24 08:42:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	218315	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	328397	20.00	ug/L		-0.01
62) Chlorobenzene-d5	8.731	117	287061	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	134150	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	30207	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	112563	20.19	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.95%				
45) 1,2-Dichloroethane-d4	5.157	65	98843	20.13	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.65%				
64) Toluene-d8	7.671	98	366153	19.00	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.00%				
85) Bromofluorobenzene	9.433	95	125129	19.26	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 96.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	10350	1.49	ug/L	#	50
3) Chloromethane	1.282	50	46888	4.89	ug/L		100
4) Vinyl chloride	1.353	62	40881	5.82	ug/L		97
5) Bromomethane	1.575	96	39393	6.45	ug/L		83
6) Chloroethane	1.647	64	28070	6.17	ug/L		91
7) Trichlorofluoromethane	1.826	101	25241	2.67	ug/L	#	93
8) Ethyl ether	2.019	59	34379	8.62	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	40487	4.40	ug/L		93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	37730	9.19	ug/L		99
13) Acetone	2.220	43	139539	93.01	ug/L		96
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	85947	4.05	ug/L		98
16) Allyl chloride	2.499	41	53826	5.43	ug/L		96
17) Methyl acetate	2.478	43	49905	13.16	ug/L	#	91
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	80239	7.77	ug/L		94
20) trans-1,2-Dichloroethene	2.857	61	46454	4.78	ug/L		94
21) t-Butanol	2.678	59	31367	40.44	ug/L	#	79
22) Acrylonitrile	2.807	53	16188	7.20	ug/L		96
23) Methyl tert-butyl ether	2.843	73	125595	10.62	ug/L		98
24) Hexane	3.130	57	5497	Below Cal		#	53
25) 1,1-Dichloroethane	3.294	63	76090	6.72	ug/L		98
26) Diisopropyl ether	3.330	45	130925	9.52	ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	124196	9.68	ug/L		98
29) 2,2-Dichloropropane	3.961	77	47458	5.36	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	56626	5.10	ug/L		84
31) 2-Butanone	3.939	43	25297	10.25	ug/L	#	82
32) Ethyl Acetate	3.939	43	25297	5.22	ug/L	#	86
33) Methyl acrylate	4.061	55	28114	5.50	ug/L	#	90
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.261	49	36345	7.01	ug/L		91
36) Tetrahydrofuran	4.283	42	11084	5.92	ug/L		87
37) Methacrylonitrile	4.211	41	20032	5.83	ug/L	#	92
38) Chloroform	4.419	83	66294	5.44	ug/L		94

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.		
41)	1,1,1-Trichloroethane	4.627	97	41227	4.27 ug/L		98
43)	Carbon tetrachloride	4.863	117	24216	3.06 ug/L		97
44)	1,1-Dichloropropene	4.870	75	24875	2.95 ug/L		95
46)	1,2-Dichloroethane	5.286	62	47472	6.39 ug/L		94
47)	Benzene	5.178	78	119711	4.56 ug/L		99
48)	Tertiaryamylmethylether	5.436	73	116553	9.49 ug/L		97
49)	Isobutyl Alcohol	5.443	43	32944	9.23 ug/L	#	91
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	0.000		0	N.D.		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.353	130	24426	3.38 ug/L		96
55)	1,2-Dichloropropane	6.697	63	38648	5.80 ug/L	#	82
56)	Dibromomethane	6.797	93	28488	6.83 ug/L		97
57)	Methyl methacrylate	6.819	41	45265	8.86 ug/L		95
58)	Bromodichloromethane	7.019	83	45350	5.35 ug/L		98
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d		
60)	2-Nitropropane	7.234	43	11514	5.97 ug/L	#	82
61)	cis-1,3-Dichloropropene	7.449	75	46991	4.50 ug/L		93
63)	4-Methyl-2-pentanone	7.585	43	44583	7.85 ug/L	#	86
65)	Toluene	7.728	91	95719	3.48 ug/L		99
66)	trans-1,3-Dichloropropene	7.936	75	40086	4.25 ug/L		91
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	7.993	69	14374	1.90 ug/L	#	89
69)	1,1,2-Trichloroethane	8.086	97	33176	5.54 ug/L		96
70)	Tetrachloroethene	8.129	166	12171	1.67 ug/L		96
71)	1,3-Dichloropropane	8.194	76	51122	5.74 ug/L		93
72)	2-Hexanone	8.244	43	24487	6.35 ug/L		89
73)	Chlorodibromomethane	8.351	129	32278	4.61 ug/L		99
74)	Butyl acetate	8.244	43	19964	2.66 ug/L	#	46
75)	1,2-Dibromoethane	8.423	107	34262	5.71 ug/L	#	98
76)	Chlorobenzene	8.745	112	42028	2.42 ug/L		92
77)	1,1,1,2-Tetrachloroethane	8.810	131	23944	3.57 ug/L		92
78)	Ethylbenzene	8.810	91	64611	2.23 ug/L		96
79)	m/p-Xylene	8.896	91	86932	3.98 ug/L		98
80)	Styrene	9.139	104	36364	1.95 ug/L		100
81)	o-Xylene	9.125	91	54074	2.41 ug/L		97
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.247	173	17785	3.78 ug/L		97
84)	Isopropylbenzene	9.333	105	37515	1.41 ug/L		95
86)	Bromobenzene	9.512	77	32940	2.35 ug/L		87
87)	1,1,2,2-Tetrachloroethane	9.505	83	34948	4.45 ug/L	#	96
88)	1,2,3-Trichloropropane	9.541	110	9781	5.43 ug/L		90
89)	trans-1,4-Dichloro-2-b...	9.526	53	5120	2.69 ug/L	#	17
90)	n-Propylbenzene	9.562	91	36726	1.14 ug/L		97
91)	2-Chlorotoluene	9.612	91	25008	1.36 ug/L		93
92)	4-Chlorotoluene	9.677	91	27012	1.21 ug/L		96
93)	1,3,5-Trimethylbenzene	9.655	105	24890	1.16 ug/L		82
94)	tert-Butylbenzene	9.827	91	17102	1.32 ug/L		92
95)	1,2,4-Trimethylbenzene	9.856	105	26023	1.16 ug/L		88
96)	sec-Butylbenzene	9.935	105	25753	0.92 ug/L	#	59
98)	1,3-Dichlorobenzene	10.006	146	14846	1.17 ug/L		92
99)	p-Isopropyltoluene	10.013	119	21106	0.91 ug/L		96
100)	1,4-Dichlorobenzene	10.056	146	14545	1.13 ug/L		89

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

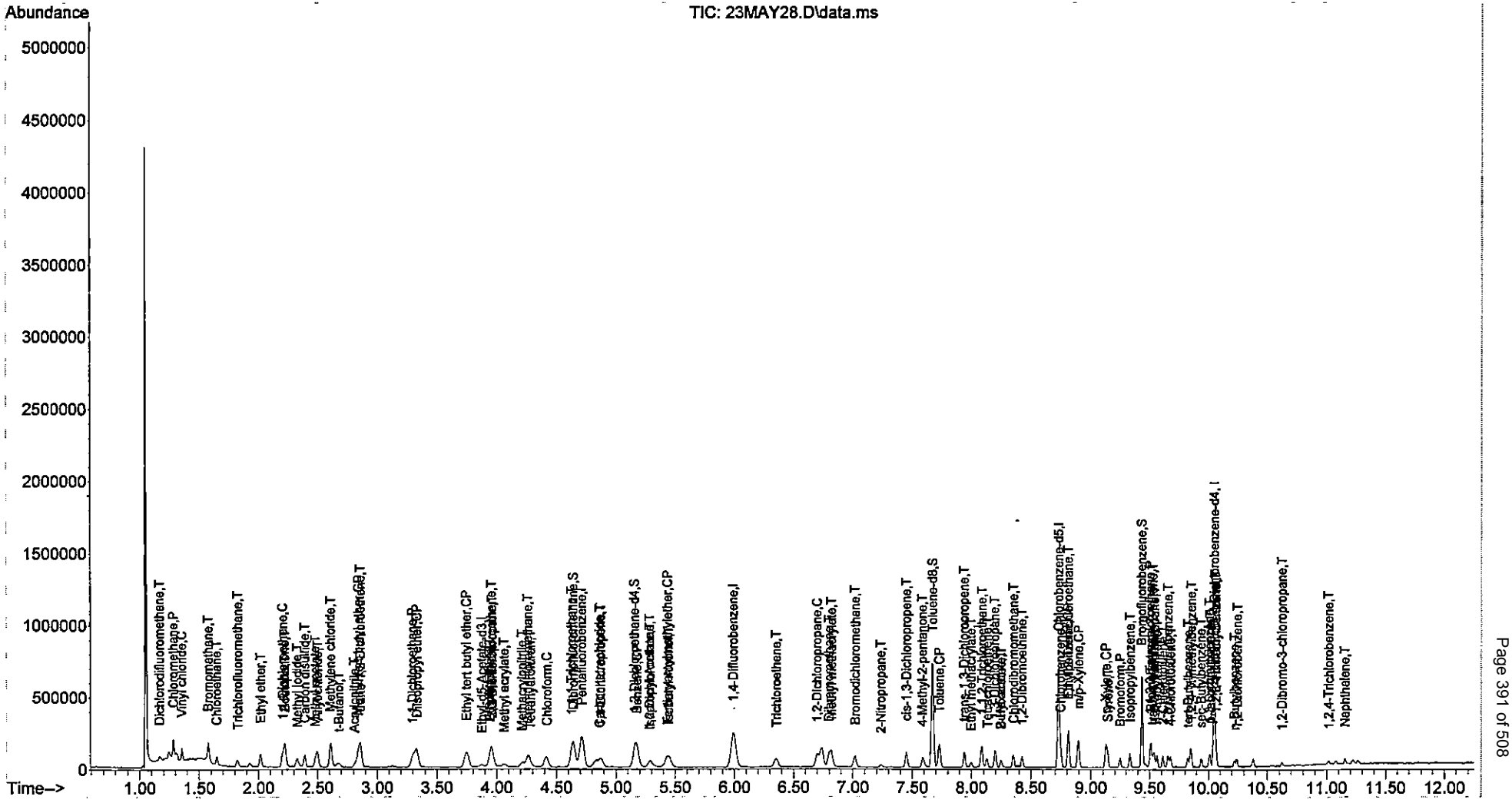
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	31928	1.53 ug/L	99
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	10.243	146	13716	1.18 ug/L	93
104) n-Butylbenzene	10.221	91	15384	0.65 ug/L #	79
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	10.622	157	5559	3.32 ug/L #	50
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	6020	0.67 ug/L #	2
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.152	128	18651	0.88 ug/L #	79
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	139539	110.64 ug/L	96
116) Acetic Ether	3.939	43	23232	5.56 ug/L #	66
117) Isopropyl Acetate	5.286	61	8195	2.98 ug/L #	1
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY28.D
Acq On : 23 May 2018 7:36 pm
Operator : EMR
Sample : 18051384-01A MS
Misc : IS/SS 200-20081
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 24 09:39:07 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 4:52 pm
Operator : EMR
Sample : 18051384-01C MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 24 17:22:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	218995	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	328003	20.00 ug/L	-0.01
62) Chlorobenzene-d5	8.731	117	292449	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	141280	20.00 ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.868	46	25917	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	114222	20.51 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.55%		
45) 1,2-Dichloroethane-d4	5.164	65	98653	20.12 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.60%		
64) Toluene-d8	7.671	98	377336	19.22 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.10%		
85) Bromofluorobenzene	9.433	95	128506	19.41 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 97.05%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.167	85	208296	29.85 ug/L	98
3) Chloromethane	1.282	50	208514	21.69 ug/L	98
4) Vinyl chloride	1.353	62	202271	28.72 ug/L	98
5) Bromomethane	1.575	96	167702	27.39 ug/L	99
6) Chloroethane	1.647	64	120746	26.48 ug/L	97
7) Trichlorofluoromethane	1.819	101	251629	26.49 ug/L	99
8) Ethyl ether	2.019	59	119480	29.87 ug/L	95
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.206	61	255239	27.67 ug/L	94
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	2.328	142	256762	62.35 ug/L	99
13) Acetone	2.220	43	171585	115.00 ug/L	94
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	625104	29.40 ug/L	99
16) Allyl chloride	2.499	41	255678	25.71 ug/L	98
17) Methyl acetate	2.478	43	70394	18.50 ug/L	96
18) Acetonitrile	0.000		0	N.D. d	
19) Methylene chloride	2.607	49	247420	32.16 ug/L	93
20) trans-1,2-Dichloroethene	2.858	61	255199	26.19 ug/L	93
21) t-Butanol	2.678	59	82598	118.30 ug/L	98
22) Acrylonitrile	2.807	53	51894	23.01 ug/L	95
23) Methyl tert-butyl ether	2.843	73	416219	35.08 ug/L	98
24) Hexane	3.130	57	18343	Below Cal #	90
25) 1,1-Dichloroethane	3.295	63	317150	27.94 ug/L	98
26) Diisopropyl ether	3.330	45	474303	34.38 ug/L #	46
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	3.746	59	442300	34.36 ug/L	99
29) 2,2-Dichloropropane	3.961	77	251460	28.29 ug/L	95
30) cis-1,2-Dichloroethene	3.954	61	289193	25.98 ug/L	90
31) 2-Butanone	3.932	43	108879	45.41 ug/L	97
32) Ethyl Acetate	3.996	43	94475	19.44 ug/L #	86
33) Methyl acrylate	4.061	55	129610	25.27 ug/L	98
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	4.262	49	144068	27.71 ug/L	93
36) Tetrahydrofuran	4.276	42	36445	19.80 ug/L	96
37) Methacrylonitrile	4.211	41	83701	24.27 ug/L	96
38) Chloroform	4.412	83	316354	25.88 ug/L	98

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 4:52 pm
Operator : EMR
Sample : 18051384-01C MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 24 17:22:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	4.820	56	177688	19.72 ug/L	#	41
41)	1,1,1-Trichloroethane	4.634	97	259361	26.91 ug/L		99
43)	Carbon tetrachloride	4.856	117	219528	27.80 ug/L		99
44)	1,1-Dichloropropene	4.878	75	218958	26.30 ug/L		97
46)	1,2-Dichloroethane	5.286	62	187845	25.33 ug/L		99
47)	Benzene	5.178	78	677731	25.86 ug/L		99
48)	Tertiaryamylmethylether	5.436	73	426168	34.73 ug/L		97
49)	Isobutyl Alcohol	5.443	43	117742	31.50 ug/L	#	91
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	0.000		0	N.D. d		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.353	130	185476	25.66 ug/L		99
55)	1,2-Dichloropropane	6.697	63	174432	26.22 ug/L	#	86
56)	Dibromomethane	6.797	93	113872	27.33 ug/L		97
57)	Methyl methacrylate	6.819	41	125074	24.52 ug/L		91
58)	Bromodichloromethane	7.019	83	222591	26.27 ug/L		99
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d		
60)	2-Nitropropane	7.241	43	35255	18.30 ug/L	#	93
61)	cis-1,3-Dichloropropene	7.449	75	264427	25.33 ug/L		99
63)	4-Methyl-2-pentanone	7.592	43	192300	33.22 ug/L		88
65)	Toluene	7.728	91	669975	23.91 ug/L		98
66)	trans-1,3-Dichloropropene	7.936	75	221714	23.07 ug/L		99
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	7.993	69	164289	21.27 ug/L		96
69)	1,1,2-Trichloroethane	8.087	97	152185	24.95 ug/L		99
70)	Tetrachloroethene	8.130	166	176363	23.74 ug/L		98
71)	1,3-Dichloropropane	8.201	76	222411	24.52 ug/L		91
72)	2-Hexanone	8.244	43	143513	36.52 ug/L		96
73)	Chlorodibromomethane	8.352	129	169379	23.73 ug/L		97
74)	Butyl acetate	8.344	43	111577	14.58 ug/L		97
75)	1,2-Dibromoethane	8.423	107	160180	26.22 ug/L	#	100
76)	Chlorobenzene	8.753	112	408543	23.11 ug/L		98
77)	1,1,1,2-Tetrachloroethane	8.810	131	162806	23.85 ug/L		96
78)	Ethylbenzene	8.810	91	675062	22.85 ug/L		98
79)	m/p-Xylene	8.896	91	994758	44.68 ug/L		96
80)	Styrene	9.140	104	395897	20.80 ug/L		98
81)	o-Xylene	9.125	91	517476	22.61 ug/L		100
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.247	173	110974	23.16 ug/L		98
84)	Isopropylbenzene	9.333	105	584997	21.56 ug/L		98
86)	Bromobenzene	9.512	77	280766	19.65 ug/L		93
87)	1,1,2,2-Tetrachloroethane	9.512	83	192492	24.06 ug/L		98
88)	1,2,3-Trichloropropane	9.541	110	45668	24.90 ug/L		96
89)	trans-1,4-Dichloro-2-b...	9.526	53	35839	18.47 ug/L		95
90)	n-Propylbenzene	9.562	91	663461	20.13 ug/L		99
91)	2-Chlorotoluene	9.612	91	372770	19.93 ug/L		98
92)	4-Chlorotoluene	9.677	91	413404	18.17 ug/L		97
93)	1,3,5-Trimethylbenzene	9.655	105	430081	19.65 ug/L		98
94)	tert-Butylbenzene	9.827	91	251796	19.01 ug/L		91
95)	1,2,4-Trimethylbenzene	9.856	105	442473	19.37 ug/L		98
96)	sec-Butylbenzene	9.942	105	530139	18.64 ug/L		99
98)	1,3-Dichlorobenzene	10.006	146	244557	18.33 ug/L		99
99)	p-Isopropyltoluene	10.013	119	441412	18.09 ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	251646	18.53 ug/L		99

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 4:52 pm
Operator : EMR
Sample : 18051384-01C MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 24 17:22:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

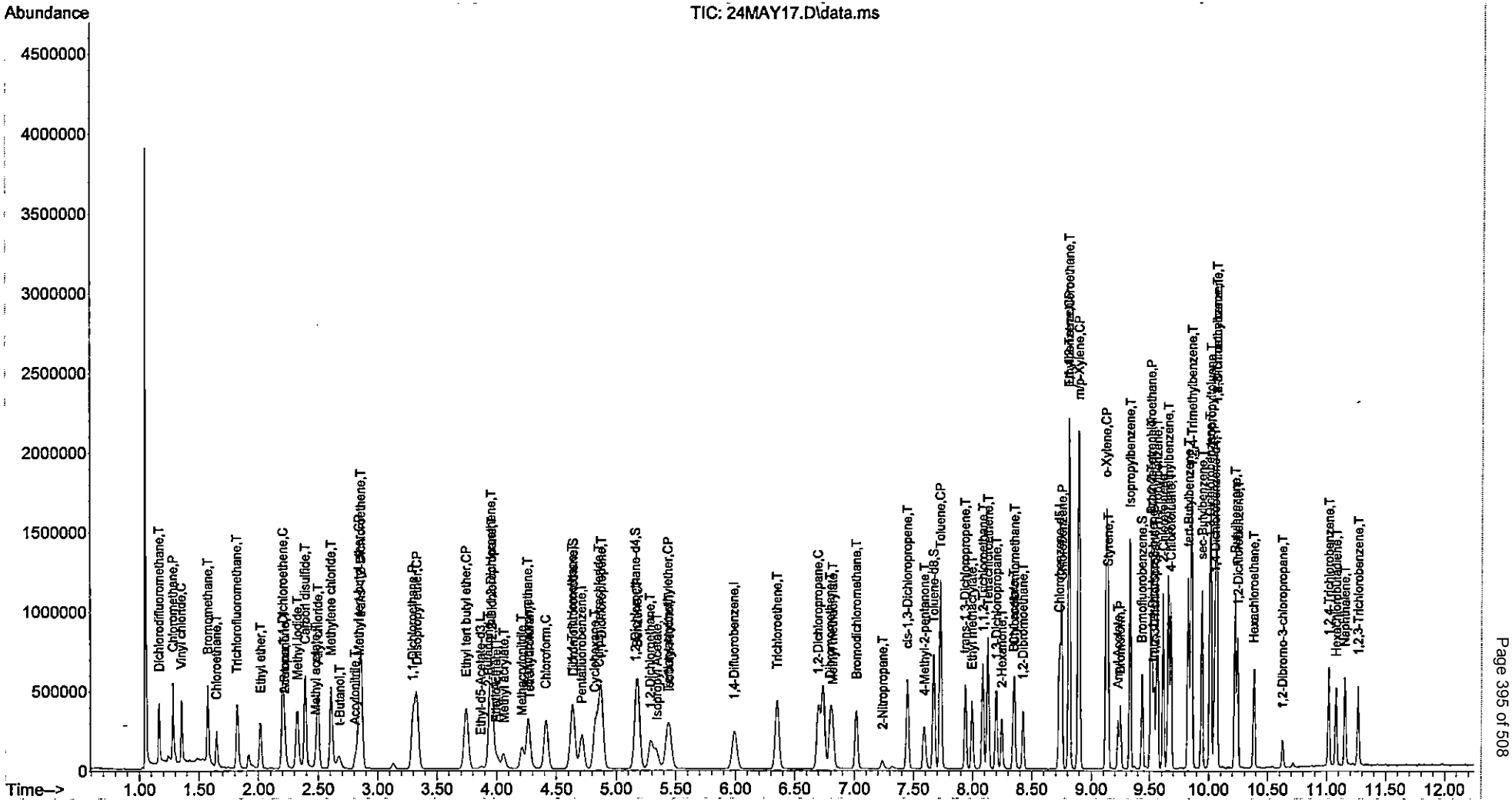
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	444750	20.30 ug/L	97
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	226241	18.42 ug/L	98
104) n-Butylbenzene	10.221	91	372565	15.05 ug/L	98
105) Hexachloroethane	10.379	117	86766	16.10 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.622	157	35382	19.99 ug/L	92
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	119102	12.64 ug/L	100
109) Hexachlorobutadiene	11.081	225	63791	12.45 ug/L	98
110) Naphthalene	11.152	128	298618	13.38 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	106800	11.67 ug/L	100
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	171585	160.64 ug/L	94
116) Acetic Ether	3.996	43	93638	26.14 ug/L #	95
117) Isopropyl Acetate	5.343	61	69931	36.69 ug/L	87
118) Amyl Acetate	9.226	43	98257	17.29 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY17.D
Acq On : 24 May 2018 4:52 pm
Operator : EMR
Sample : 18051384-01C MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 24 17:22:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	252669	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	386008	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	338603	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	167155	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.868	46	31256	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	133952	20.44	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.20%				
45) 1,2-Dichloroethane-d4	5.157	65	116050	20.11	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.55%				
64) Toluene-d8	7.671	98	444671	19.56	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.80%				
85) Bromofluorobenzene	9.433	95	150593	19.65	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 98.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	59305	7.37	ug/L		99
3) Chloromethane	1.282	50	68331	6.16	ug/L		100
4) Vinyl chloride	1.353	62	60572	7.45	ug/L		99
5) Bromomethane	1.575	96	50319	7.12	ug/L	#	76
6) Chloroethane	1.647	64	41725	7.93	ug/L		94
7) Trichlorofluoromethane	1.819	101	69468	6.34	ug/L		96
8) Ethyl ether	2.020	59	51929	11.25	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.199	61	75660	7.11	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.328	142	59313	12.48	ug/L		96
13) Acetone	2.220	43	222126	129.56	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	139365	5.68	ug/L		97
16) Allyl chloride	2.499	41	84560	7.37	ug/L		97
17) Methyl acetate	2.478	43	54511	12.42	ug/L	#	90
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	112609	10.38	ug/L		93
20) trans-1,2-Dichloroethene	2.858	61	78735	7.00	ug/L		94
21) t-Butanol	2.679	59	38988	43.98	ug/L		98
22) Acrylonitrile	2.807	53	22191	8.53	ug/L		89
23) Methyl tert-butyl ether	2.843	73	189385	13.84	ug/L		99
24) Hexane	3.123	57	8218	Below Cal		#	85
25) 1,1-Dichloroethane	3.295	63	124624	9.51	ug/L		99
26) Diisopropyl ether	3.330	45	208743	13.11	ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	194196	13.08	ug/L		100
29) 2,2-Dichloropropane	3.954	77	79399	7.74	ug/L		97
30) cis-1,2-Dichloroethene	3.954	61	101445	7.90	ug/L		88
31) 2-Butanone	3.939	43	34454	12.14	ug/L	#	85
32) Ethyl Acetate	3.939	43	33671	6.01	ug/L	#	86
33) Methyl acrylate	4.061	55	33992	5.74	ug/L	#	92
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.262	49	58945	9.82	ug/L		93
36) Tetrahydrofuran	4.283	42	16693	7.76	ug/L		94
37) Methacrylonitrile	4.211	41	27061	6.80	ug/L		93
38) Chloroform	4.412	83	118608	8.41	ug/L		96

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	4.820	56	54481	4.96 ug/L #	46
41)	1,1,1-Trichloroethane	4.627	97	77707	6.85 ug/L	95
43)	Carbon tetrachloride	4.863	117	58892	6.34 ug/L	99
44)	1,1-Dichloropropene	4.870	75	55028	5.59 ug/L	89
46)	1,2-Dichloroethane	5.286	62	80056	9.17 ug/L	98
47)	Benzene	5.171	78	232634	7.54 ug/L	99
48)	Tertiaryamylmethylether	5.443	73	187639	13.00 ug/L	98
49)	Isobutyl Alcohol	5.436	43	53289	12.47 ug/L #	93
50)	Heptane	0.000		0	N.D.	
51)	1,4-Dioxane	0.000		0	N.D. d	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	6.346	130	51471	6.05 ug/L	99
55)	1,2-Dichloropropane	6.697	63	68765	8.78 ug/L #	82
56)	Dibromomethane	6.797	93	45753	9.33 ug/L	97
57)	Methyl methacrylate	6.819	41	61362	10.22 ug/L	94
58)	Bromodichloromethane	7.012	83	82579	8.28 ug/L	97
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60)	2-Nitropropane	7.241	43	14140	6.24 ug/L #	92
61)	cis-1,3-Dichloropropene	7.449	75	79436	6.47 ug/L	95
63)	4-Methyl-2-pentanone	7.585	43	60964	9.10 ug/L	94
65)	Toluene	7.728	91	194240	5.99 ug/L	98
66)	trans-1,3-Dichloropropene	7.936	75	75507	6.79 ug/L	99
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	7.993	69	18312	2.05 ug/L #	88
69)	1,1,2-Trichloroethane	8.087	97	59461	8.42 ug/L	99
70)	Tetrachloroethene	8.130	166	42265	4.91 ug/L	97
71)	1,3-Dichloropropane	8.194	76	89195	8.49 ug/L	93
72)	2-Hexanone	8.244	43	33633	7.39 ug/L	92
73)	Chlorodibromomethane	8.352	129	61333	7.42 ug/L	96
74)	Butyl acetate	8.244	43	25375	2.86 ug/L #	46
75)	1,2-Dibromoethane	8.423	107	60356	8.53 ug/L #	98
76)	Chlorobenzene	8.746	112	112735	5.51 ug/L	97
77)	1,1,1,2-Tetrachloroethane	8.810	131	53755	6.80 ug/L	94
78)	Ethylbenzene	8.810	91	170821	4.99 ug/L	98
79)	m/p-Xylene	8.896	91	250928	9.73 ug/L	97
80)	Styrene	9.132	104	103067	4.68 ug/L	95
81)	o-Xylene	9.118	91	139899	5.28 ug/L	99
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	9.247	173	36496	6.58 ug/L	99
84)	Isopropylbenzene	9.333	105	143464	4.57 ug/L	100
86)	Bromobenzene	9.512	77	86727	5.24 ug/L	96
87)	1,1,2,2-Tetrachloroethane	9.505	83	66420	7.17 ug/L	99
88)	1,2,3-Trichloropropane	9.541	110	15226	7.17 ug/L	97
89)	trans-1,4-Dichloro-2-b...	9.526	53	9599	4.27 ug/L #	83
90)	n-Propylbenzene	9.562	91	146546	3.84 ug/L	97
91)	2-Chlorotoluene	9.612	91	90620	4.18 ug/L	99
92)	4-Chlorotoluene	9.677	91	99707	3.79 ug/L	99
93)	1,3,5-Trimethylbenzene	9.655	105	100633	3.97 ug/L	95
94)	tert-Butylbenzene	9.820	91	55466	3.62 ug/L	94
95)	1,2,4-Trimethylbenzene	9.849	105	101720	3.85 ug/L	97
96)	sec-Butylbenzene	9.935	105	110571	3.36 ug/L	97
98)	1,3-Dichlorobenzene	10.006	146	57704	3.66 ug/L	97
99)	p-Isopropyltoluene	10.013	119	85259	2.95 ug/L	98
100)	1,4-Dichlorobenzene	10.056	146	59942	3.73 ug/L	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

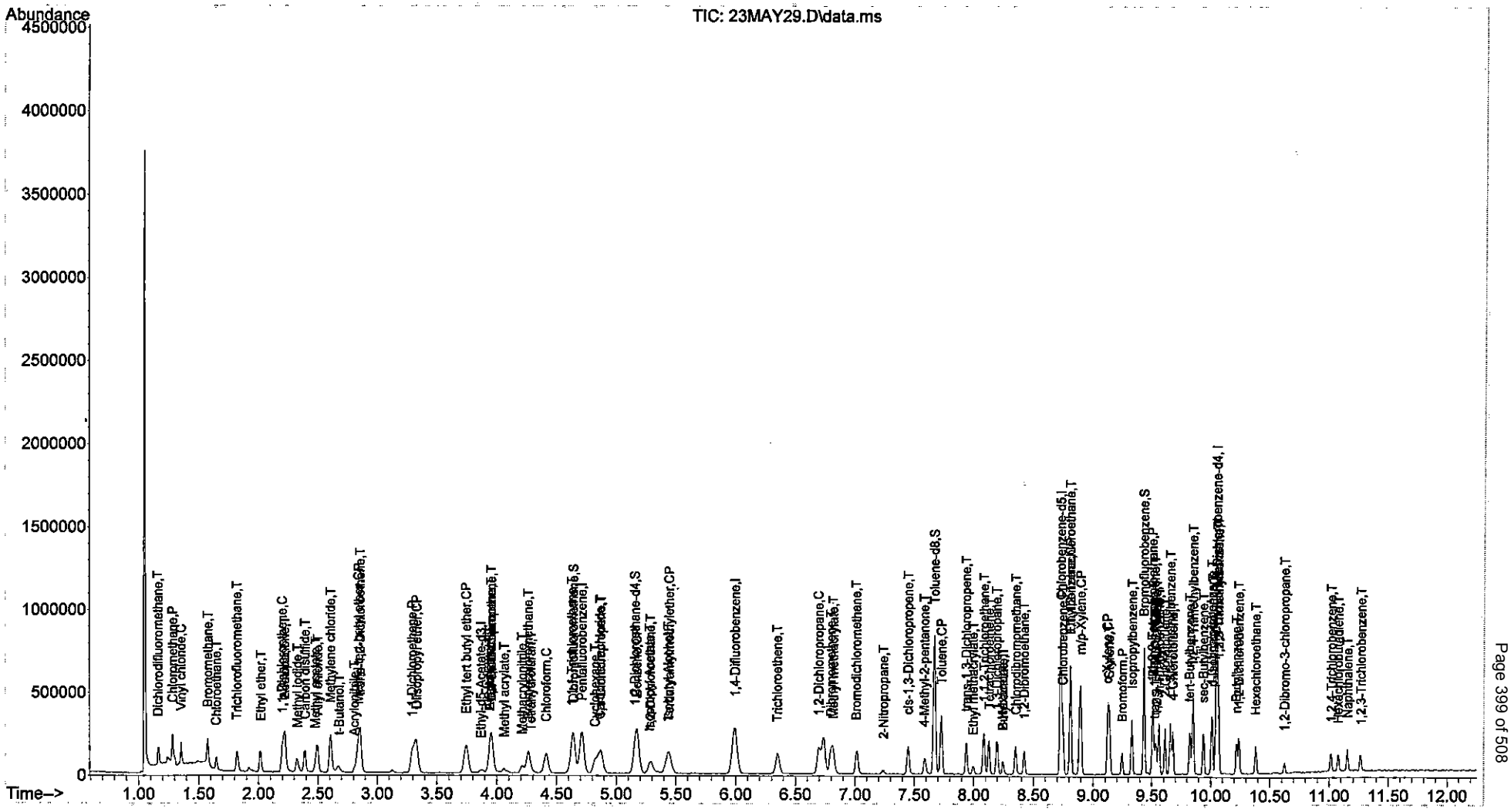
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	108781	4.20 ug/L	97
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.236	146	56236	3.87 ug/L	97
104) n-Butylbenzene	10.214	91	69873	2.39 ug/L	96
105) Hexachloroethane	10.379	117	20167	3.16 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.622	157	11114	5.32 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	24576	2.20 ug/L	98
109) Hexachlorobutadiene	11.074	225	13419	2.21 ug/L	96
110) Naphthalene	11.152	128	64719	2.45 ug/L #	90
111) 1,2,3-Trichlorobenzene	11.267	180	21656	2.00 ug/L	97
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	222126	172.79 ug/L	98
116) Acetic Ether	3.939	43	33671	7.79 ug/L #	66
117) Isopropyl Acetate	5.279	61	10265	3.80 ug/L #	1
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180523\
Data File : 23MAY29.D
Acq On : 23 May 2018 7:53 pm
Operator : EMR
Sample : 18051384-01A MSD
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 24 09:39:22 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 5:08 pm
Operator : EMR
Sample : 18051384-01C MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 24 17:23:06 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	219544	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	324837	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	285395	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	138167	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	29668	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	109371	19.83	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.15%				
45) 1,2-Dichloroethane-d4	5.157	65	99985	20.59	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.95%				
64) Toluene-d8	7.671	98	366432	19.12	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.60%				
85) Bromofluorobenzene	9.433	95	121671	18.84	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	230152	32.90	ug/L		98
3) Chloromethane	1.282	50	220382	22.87	ug/L		99
4) Vinyl chloride	1.360	62	213359	30.22	ug/L		99
5) Bromomethane	1.575	96	166869	27.19	ug/L		98
6) Chloroethane	1.647	64	131660	28.80	ug/L		97
7) Trichlorofluoromethane	1.826	101	275240	28.90	ug/L		99
8) Ethyl ether	2.019	59	132472	33.04	ug/L		96
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	282599	30.56	ug/L		93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	276165	66.90	ug/L		99
13) Acetone	2.220	43	256533	173.64	ug/L		96
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	668193	31.35	ug/L		98
16) Allyl chloride	2.499	41	274735	27.56	ug/L		97
17) Methyl acetate	2.478	43	138495	36.30	ug/L	#	95
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	267538	34.86	ug/L		96
20) trans-1,2-Dichloroethene	2.865	61	275444	28.20	ug/L		94
21) t-Butanol	2.678	59	103553	149.81	ug/L		95
22) Acrylonitrile	2.814	53	61459	27.18	ug/L		96
23) Methyl tert-butyl ether	2.850	73	471583	39.65	ug/L		97
24) Hexane	3.130	57	18152	Below Cal		#	92
25) 1,1-Dichloroethane	3.302	63	343800	30.21	ug/L		99
26) Diisopropyl ether	3.330	45	505442	36.55	ug/L	#	46
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	476064	36.90	ug/L		98
29) 2,2-Dichloropropane	3.961	77	263679	29.59	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	310015	27.78	ug/L		91
31) 2-Butanone	3.932	43	133070	55.45	ug/L		94
32) Ethyl Acetate	4.004	43	72779	14.94	ug/L	#	86
33) Methyl acrylate	4.061	55	148275	28.83	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.269	49	153892	29.52	ug/L		92
36) Tetrahydrofuran	4.283	42	45106	24.48	ug/L		98
37) Methacrylonitrile	4.211	41	96328	27.86	ug/L		96
38) Chloroform	4.412	83	340279	27.76	ug/L		99

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 5:08 pm
Operator : EMR
Sample : 18051384-01C MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 24 17:23:06 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Cyclohexane	0.000		0	N.D.	
41)	1,1,1-Trichloroethane	4.634	97	279111	29.24 ug/L	99
43)	Carbon tetrachloride	4.863	117	241598	30.89 ug/L	98
44)	1,1-Dichloropropene	4.877	75	237225	28.78 ug/L	97
46)	1,2-Dichloroethane	5.293	62	202505	27.57 ug/L	99
47)	Benzene	5.178	78	735012	28.32 ug/L	99
48)	Tertiaryamylmethylether	5.443	73	456816	37.59 ug/L	98
49)	Isobutyl Alcohol	5.443	43	132475	35.70 ug/L #	90
50)	Heptane	0.000		0	N.D.	
51)	1,4-Dioxane	0.000		0	N.D. d	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	n-Butanol	0.000		0	N.D.	
54)	Trichloroethene	6.353	130	199716	27.90 ug/L	99
55)	1,2-Dichloropropane	6.697	63	191434	29.06 ug/L	88
56)	Dibromomethane	6.797	93	126109	30.56 ug/L	98
57)	Methyl methacrylate	6.819	41	154598	30.60 ug/L	91
58)	Bromodichloromethane	7.019	83	241059	28.73 ug/L	98
59)	2-Chloroethyl vinyl ether	7.241	43	37971	15.14 ug/L #	1
60)	2-Nitropropane	7.241	43	40252	21.09 ug/L #	95
61)	cis-1,3-Dichloropropene	7.449	75	278677	26.96 ug/L	98
63)	4-Methyl-2-pentanone	7.592	43	226340	40.06 ug/L	86
65)	Toluene	7.728	91	736944	26.95 ug/L	99
66)	trans-1,3-Dichloropropene	7.943	75	242757	25.89 ug/L	99
67)	Chloropicrin	0.000		0	N.D.	
68)	Ethyl methacrylate	7.993	69	164611	21.84 ug/L	97
69)	1,1,2-Trichloroethane	8.086	97	165612	27.82 ug/L	99
70)	Tetrachloroethene	8.129	166	204921	28.27 ug/L	98
71)	1,3-Dichloropropane	8.201	76	248920	28.12 ug/L	89
72)	2-Hexanone	8.244	43	163560	42.64 ug/L	95
73)	Chlorodibromomethane	8.351	129	188227	27.02 ug/L	98
74)	Butyl acetate	8.344	43	70341	9.42 ug/L	97
75)	1,2-Dibromoethane	8.423	107	173407	29.08 ug/L #	99
76)	Chlorobenzene	8.753	112	436532	25.31 ug/L	97
77)	1,1,1,2-Tetrachloroethane	8.810	131	177618	26.67 ug/L	97
78)	Ethylbenzene	8.817	91	747364	25.92 ug/L	97
79)	m/p-Xylene	8.896	91	1118332	51.47 ug/L	96
80)	Styrene	9.139	104	435412	23.44 ug/L	100
81)	o-Xylene	9.125	91	570558	25.55 ug/L	100
82)	Cyclohexanone	0.000		0	N.D.	
83)	Bromoform	9.247	173	122166	26.12 ug/L	99
84)	Isopropylbenzene	9.333	105	672122	25.38 ug/L	100
86)	Bromobenzene	9.512	77	310153	22.24 ug/L	95
87)	1,1,2,2-Tetrachloroethane	9.512	83	214594	27.49 ug/L	99
88)	1,2,3-Trichloropropane	9.541	110	51726	28.90 ug/L	98
89)	trans-1,4-Dichloro-2-b...	9.526	53	39252	20.73 ug/L	99
90)	n-Propylbenzene	9.562	91	767633	23.87 ug/L	99
91)	2-Chlorotoluene	9.612	91	444394	24.35 ug/L	100
92)	4-Chlorotoluene	9.677	91	482582	21.74 ug/L	97
93)	1,3,5-Trimethylbenzene	9.655	105	495077	23.18 ug/L	99
94)	tert-Butylbenzene	9.827	91	296442	22.94 ug/L	94
95)	1,2,4-Trimethylbenzene	9.856	105	507885	22.78 ug/L	98
96)	sec-Butylbenzene	9.942	105	624490	22.50 ug/L	100
98)	1,3-Dichlorobenzene	10.006	146	282540	21.65 ug/L	98
99)	p-Isopropyltoluene	10.013	119	509291	21.34 ug/L	99
100)	1,4-Dichlorobenzene	10.063	146	276265	20.80 ug/L	98

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 5:08 pm
Operator : EMR
Sample : 18051384-01C MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 24 17:23:06 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

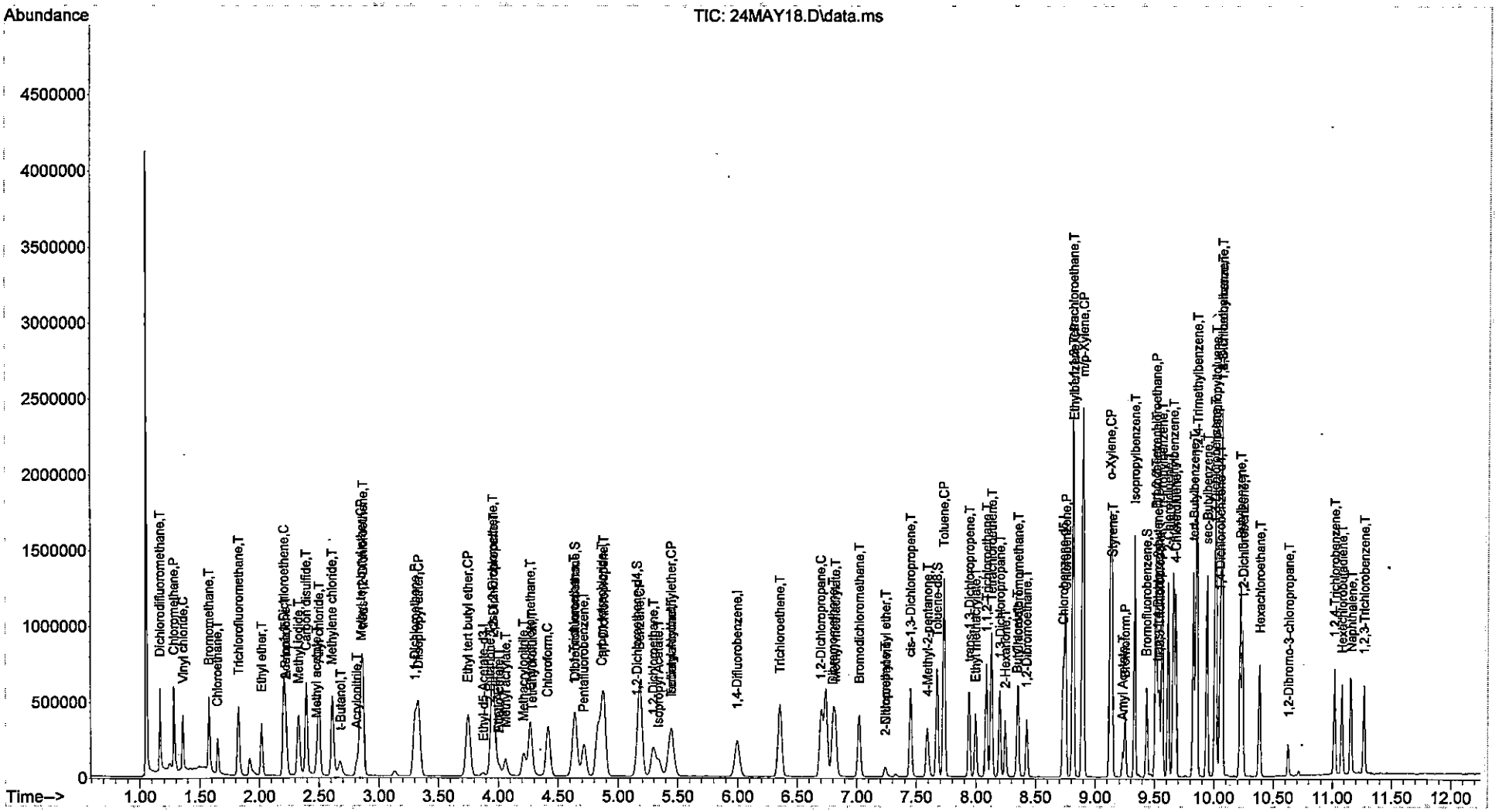
	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101)	1,2,3-Trimethylbenzene	10.063	105	497172	23.21 ug/L	97
102)	Benzyl chloride	0.000		0	N.D. d	
103)	1,2-Dichlorobenzene	10.243	146	269135	22.40 ug/L	99
104)	n-Butylbenzene	10.221	91	445281	18.40 ug/L	98
105)	Hexachloroethane	10.386	117	99847	18.95 ug/L	97
106)	1,2-Dibromo-3-chloropr...	10.629	157	41467	23.95 ug/L	95
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.	
108)	1,2,4-Trichlorobenzene	11.016	180	141091	15.31 ug/L	100
109)	Hexachlorobutadiene	11.081	225	84286	16.82 ug/L	97
110)	Naphthalene	11.159	128	369718	16.93 ug/L	99
111)	1,2,3-Trichlorobenzene	11.267	180	124533	13.92 ug/L	95
112)	2-Methylnaphthalene	0.000		0	N.D.	
113)	1-Methylnaphthalene	0.000		0	N.D.	
115)	2-Propanone	2.220	43	256533	211.28 ug/L	96
116)	Acetic Ether	4.004	43	72789	17.75 ug/L #	97
117)	Isopropyl Acetate	5.336	61	64125	29.41 ug/L #	81
118)	Amyl Acetate	9.225	43	52689	8.10 ug/L	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180524\
Data File : 24MAY18.D
Acq On : 24 May 2018 5:08 pm
Operator : EMR
Sample : 18051384-01C MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 24 17:23:06 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180525\
Data File : 25MAY06.D
Acq On : 25 May 2018 5:04 pm
Operator : EMR
Sample : VBLKS1-180525
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 25 17:17:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	104865	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	137449	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	113516	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	52862	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.882	46	13791	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	44158	18.92 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 94.60%		
45) 1,2-Dichloroethane-d4	5.164	65	40440	19.68 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 98.40%		
64) Toluene-d8	7.671	98	152956	20.07 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.35%		
85) Bromofluorobenzene	9.433	95	49308	19.19 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.95%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D.	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.227	43	5821	4.12 ug/L #	41
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	2.607	49	8142	Below Cal #	66
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D.	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	3.130	57	11410	0.47 ug/L #	93
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180525\
Data File : 25MAY06.D
Acq On : 25 May 2018 5:04 pm
Operator : EMR
Sample : VBLKS1-180525
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 25 17:17:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180525\
Data File : 25MAY06.D
Acq On : 25 May 2018 5:04 pm
Operator : EMR
Sample : VBLKS1-180525
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 25 17:17:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

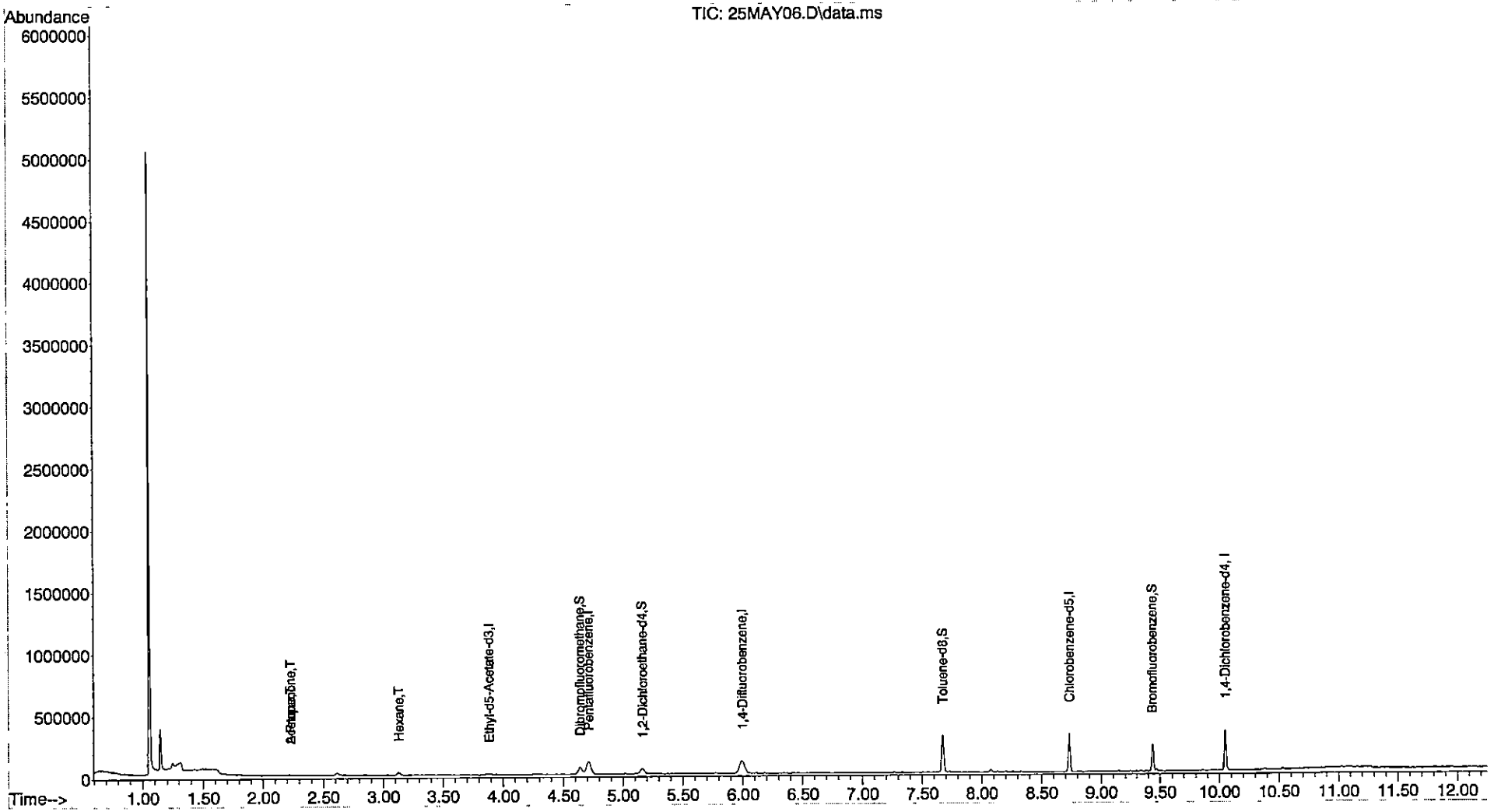
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	5821	5.75 ug/L #	41
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180525\
Data File : 25MAY06.D
Acq On : 25 May 2018 5:04 pm
Operator : EMR
Sample : VBLKS1-180525
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 25 17:17:20 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 3:44 pm
Operator : EMR
Sample : VLCSS1-180525
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 26 08:20:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	185481	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	272994	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	239978	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	117256	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	19171	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	90660	19.56	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.80%				
45) 1,2-Dichloroethane-d4	5.164	65	74168	18.17	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 90.85%				
64) Toluene-d8	7.671	98	313652	19.47	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.35%				
85) Bromofluorobenzene	9.433	95	102863	18.94	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	91392	15.46	ug/L		99
3) Chloromethane	1.282	50	106501	13.08	ug/L		99
4) Vinyl chloride	1.360	62	102003	17.10	ug/L		100
5) Bromomethane	1.575	96	89848	17.33	ug/L		98
6) Chloroethane	1.647	64	67693	17.53	ug/L		98
7) Trichlorofluoromethane	1.826	101	127366	15.83	ug/L		98
8) Ethyl ether	2.019	59	60656	17.91	ug/L		99
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	140081	17.93	ug/L		96
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	129110	37.02	ug/L		99
13) Acetone	2.227	43	25185	16.34	ug/L		99
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	344522	19.13	ug/L		99
16) Allyl chloride	2.499	41	137134	16.28	ug/L		99
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.499	41	137134	16.30	ug/L		98
19) Methylene chloride	2.607	49	145424	21.38	ug/L		96
20) trans-1,2-Dichloroethene	2.865	61	141142	17.10	ug/L		94
21) t-Butanol	2.678	59	46709	76.50	ug/L	#	80
22) Acrylonitrile	2.814	53	25911	13.57	ug/L		95
23) Methyl tert-butyl ether	2.843	73	204237	20.33	ug/L		98
24) Hexane	3.137	57	21401	0.66	ug/L	#	94
25) 1,1-Dichloroethane	3.302	63	179488	18.67	ug/L		97
26) Diisopropyl ether	3.330	45	244957	20.96	ug/L	#	46
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	216000	19.81	ug/L		98
29) 2,2-Dichloropropane	3.961	77	136675	18.15	ug/L		96
30) cis-1,2-Dichloroethene	3.953	61	168502	17.87	ug/L		94
31) 2-Butanone	3.939	43	29844	14.41	ug/L	#	90
32) Ethyl Acetate	4.004	43	65383	15.88	ug/L	#	86
33) Methyl acrylate	4.061	55	67601	15.56	ug/L		97
34) Propionitrile	0.000	-	0	N.D.			
35) Bromochloromethane	4.261	49	80311	18.24	ug/L		96
36) Tetrahydrofuran	4.283	42	20330	12.98	ug/L		98
37) Methacrylonitrile	4.211	41	42092	14.41	ug/L		96
38) Chloroform	4.412	83	174351	16.84	ug/L		99

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 3:44 pm
Operator : EMR
Sample : VLCSS1-180525
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 26 08:20:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.713	56	5437	0.34 ug/L #	23
41) 1,1,1-Trichloroethane	4.634	97	144801	18.05 ug/L	99
43) Carbon tetrachloride	4.863	117	130462	19.85 ug/L	99
44) 1,1-Dichloropropene	4.877	75	127127	18.34 ug/L	96
46) 1,2-Dichloroethane	5.293	62	103133	16.71 ug/L	98
47) Benzene	5.178	78	399042	18.29 ug/L	99
48) Tertiaryamylmethylether	5.443	73	205751	20.15 ug/L	99
49) Isobutyl Alcohol	5.429	43	61034	19.84 ug/L #	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.740	88	6671	91.07 ug/L #	20
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	108280	18.00 ug/L	99
55) 1,2-Dichloropropane	6.697	63	101402	18.32 ug/L #	88
56) Dibromomethane	6.797	93	63793	18.39 ug/L	98
57) Methyl methacrylate	6.819	41	55031	12.96 ug/L	93
58) Bromodichloromethane	7.019	83	124753	17.69 ug/L	99
59) 2-Chloroethyl vinyl ether	7.241	43	15440	7.33 ug/L #	1
60) 2-Nitropropane	7.241	43	16786	10.47 ug/L #	91
61) cis-1,3-Dichloropropene	7.449	75	151788	17.47 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	88391	18.61 ug/L	87
65) Toluene	7.728	91	412126	17.92 ug/L	99
66) trans-1,3-Dichloropropene	7.936	75	122132	15.49 ug/L	94
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	96972	15.30 ug/L	97
69) 1,1,2-Trichloroethane	8.086	97	83717	16.72 ug/L	98
70) Tetrachloroethene	8.129	166	120337	19.74 ug/L	98
71) 1,3-Dichloropropane	8.201	76	124829	16.77 ug/L	87
72) 2-Hexanone	8.244	43	45570	14.13 ug/L	96
73) Chlorodibromomethane	8.351	129	93643	15.99 ug/L	94
74) Butyl acetate	8.344	43	100656	16.03 ug/L	97
75) 1,2-Dibromoethane	8.423	107	86969	17.35 ug/L #	99
76) Chlorobenzene	8.753	112	261064	18.00 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	95663	17.08 ug/L	95
78) Ethylbenzene	8.817	91	431440	17.80 ug/L	97
79) m/p-Xylene	8.896	91	659554	36.10 ug/L	97
80) Styrene	9.139	104	265620	17.01 ug/L	99
81) o-Xylene	9.125	91	335556	17.87 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	61968	15.76 ug/L	99
84) Isopropylbenzene	9.333	105	406061	18.24 ug/L	100
86) Bromobenzene	9.512	77	189981	16.20 ug/L	93
87) 1,1,2,2-Tetrachloroethane	9.512	83	107460	16.37 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	24665	16.39 ug/L	92
89) trans-1,4-Dichloro-2-b...	9.526	53	19868	12.48 ug/L	95
90) n-Propylbenzene	9.562	91	499127	18.46 ug/L	98
91) 2-Chlorotoluene	9.612	91	281729	18.36 ug/L	99
92) 4-Chlorotoluene	9.677	91	320889	17.19 ug/L	95
93) 1,3,5-Trimethylbenzene	9.662	105	317098	17.66 ug/L	98
94) tert-Butylbenzene	9.827	91	179890	16.55 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	322902	17.23 ug/L	100
96) sec-Butylbenzene	9.942	105	434995	18.64 ug/L	98
98) 1,3-Dichlorobenzene	10.006	146	203833	18.41 ug/L	99
99) p-Isopropyltoluene	10.020	119	353530	17.45 ug/L	99
100) 1,4-Dichlorobenzene	10.063	146	204682	18.16 ug/L	98

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 3:44 pm
Operator : EMR
Sample : VLCSS1-180525
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 26 08:20:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

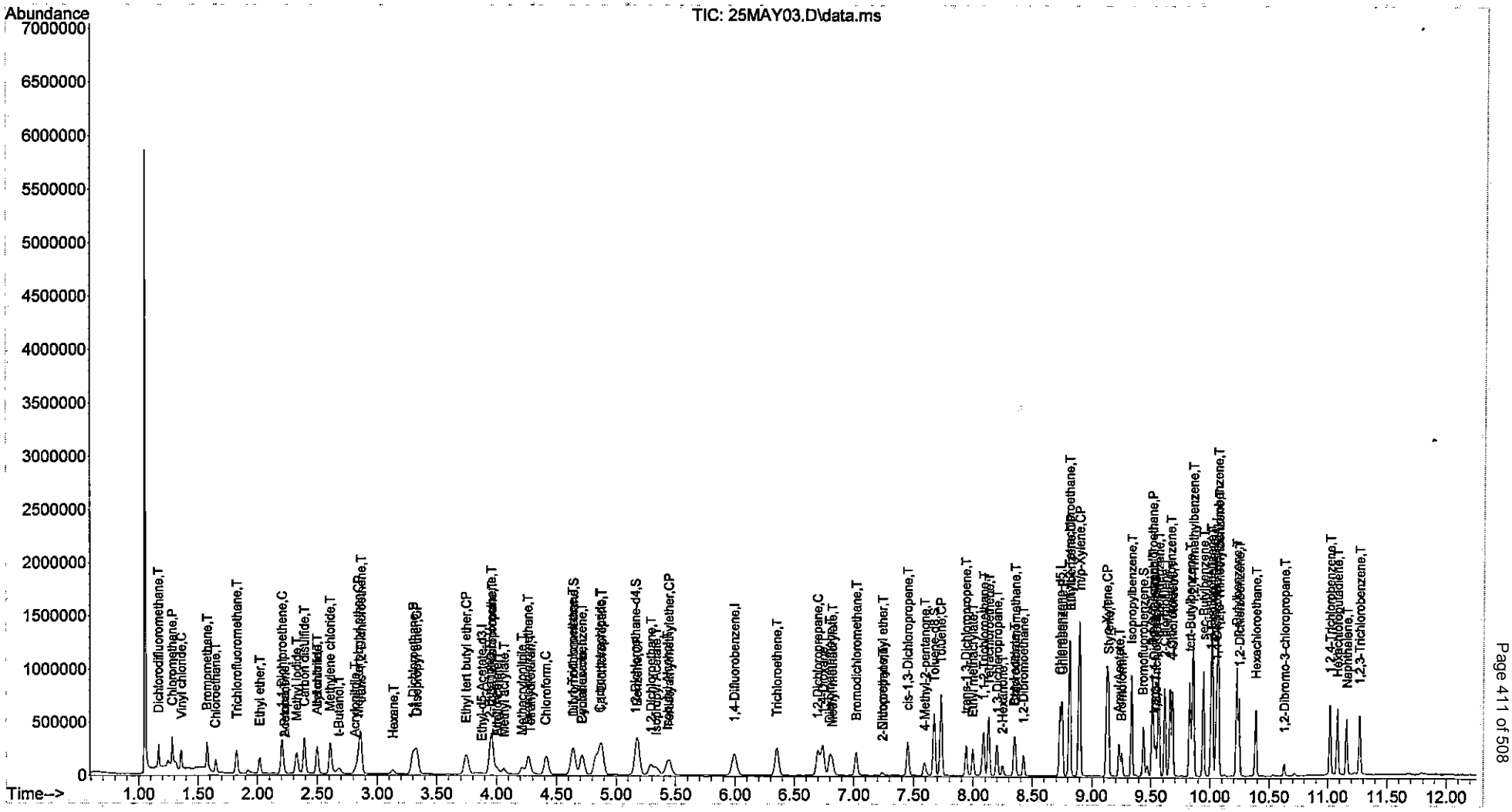
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	313525	17.24 ug/L	97
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	193365	18.97 ug/L	99
104) n-Butylbenzene	10.221	91	348217	16.95 ug/L	99
105) Hexachloroethane	10.386	117	74036	16.56 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.629	157	20794	14.16 ug/L	99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	135670	17.35 ug/L	100
109) Hexachlorobutadiene	11.081	225	79935	18.80 ug/L	99
110) Naphthalene	11.159	128	275228	14.85 ug/L	98
111) 1,2,3-Trichlorobenzene	11.267	180	123278	16.23 ug/L	93
112) 2-Methylnaphthalene	0.000		0	N.D. d	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	25185	28.03 ug/L	99
116) Acetic Ether	4.004	43	66608	25.14 ug/L #	99
117) Isopropyl Acetate	5.336	61	38755	27.50 ug/L	98
118) Amyl Acetate	9.225	43	101466	24.14 ug/L	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY03.D
Acq On : 25 May 2018 3:44 pm
Operator : EMR
Sample : VLCSS1-180525
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 26 08:20:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY09.D
Acq On : 25 May 2018 6:08 pm
Operator : EMR
Sample : 18051407-09A MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 26 08:26:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	195557	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	297638	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	261912	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	123606	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	32195	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	104972	20.77	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 103.85%				
45) 1,2-Dichloroethane-d4	5.164	65	91447	20.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.75%				
64) Toluene-d8	7.671	98	339543	19.31	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.55%				
85) Bromofluorobenzene	9.433	95	111566	18.82	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 94.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	191450	30.73	ug/L		98
3) Chloromethane	1.282	50	188324	21.94	ug/L		99
4) Vinyl chloride	1.353	62	195284	31.05	ug/L		98
5) Bromomethane	1.575	96	151411	27.69	ug/L		100
6) Chloroethane	1.647	64	109453	26.88	ug/L		97
7) Trichlorofluoromethane	1.819	101	234684	27.67	ug/L		98
8) Ethyl ether	2.019	59	114569	32.08	ug/L		99
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	255058	30.96	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	228223	62.07	ug/L		100
13) Acetone	2.220	43	123873	92.14	ug/L		97
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	594108	31.29	ug/L		99
16) Allyl chloride	2.499	41	238093	26.81	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.499	41	238093	26.85	ug/L		98
19) Methylene chloride	2.607	49	246924	36.19	ug/L		99
20) trans-1,2-Dichloroethene	2.865	61	239870	27.57	ug/L		97
21) t-Butanol	2.678	59	94824	154.22	ug/L		96
22) Acrylonitrile	2.807	53	54580	27.10	ug/L		95
23) Methyl tert-butyl ether	2.843	73	395300	37.31	ug/L		99
24) Hexane	3.130	57	54703	5.58	ug/L		96
25) 1,1-Dichloroethane	3.294	63	300440	29.64	ug/L		100
26) Diisopropyl ether	3.330	45	441675	35.85	ug/L	#	46
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	410449	35.71	ug/L		98
29) 2,2-Dichloropropane	3.961	77	232878	29.34	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	279035	28.07	ug/L		96
31) 2-Butanone	3.939	43	119928	56.11	ug/L		96
32) Ethyl Acetate	4.003	43	139340	32.11	ug/L	#	86
33) Methyl acrylate	4.061	55	138756	30.29	ug/L		99
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.261	49	131364	28.29	ug/L		93
36) Tetrahydrofuran	4.276	42	43496	26.52	ug/L		91
37) Methacrylonitrile	4.211	41	85409	27.73	ug/L		95
38) Chloroform	4.419	83	293251	26.86	ug/L		98

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY09.D
Acq On : 25 May 2018 6:08 pm
Operator : EMR
Sample : 18051407-09A MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 26 08:26:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.		
41)	1,1,1-Trichloroethane	4.634	97	244889	28.00 ug/L		100
43)	Carbon tetrachloride	4.863	117	215183	30.03 ug/L		98
44)	1,1-Dichloropropene	4.877	75	204342	27.05 ug/L		99
46)	1,2-Dichloroethane	5.293	62	179636	26.69 ug/L		100
47)	Benzene	5.178	78	644760	27.11 ug/L		99
48)	Tertiaryamylmethylether	5.443	73	398854	35.82 ug/L		97
49)	Isobutyl Alcohol	5.443	43	115260	33.93 ug/L	#	92
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	6.740	88	10507	131.57 ug/L	#	83
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.353	130	249325	38.02 ug/L		99
55)	1,2-Dichloropropane	6.697	63	165919	27.49 ug/L	#	86
56)	Dibromomethane	6.797	93	108066	28.58 ug/L		97
57)	Methyl methacrylate	6.819	41	113292	24.48 ug/L		92
58)	Bromodichloromethane	7.019	83	199289	25.92 ug/L		98
59)	2-Chloroethyl vinyl ether	7.241	43	31459	13.69 ug/L	#	1
60)	2-Nitropropane	7.241	43	34692	19.84 ug/L	#	97
61)	cis-1,3-Dichloropropene	7.449	75	230089	24.29 ug/L		100
63)	4-Methyl-2-pentanone	7.592	43	202208	39.00 ug/L		85
65)	Toluene	7.728	91	642023	25.58 ug/L		99
66)	trans-1,3-Dichloropropene	7.936	75	186599	21.68 ug/L		100
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	7.993	69	180014	26.02 ug/L		97
69)	1,1,2-Trichloroethane	8.086	97	136104	24.91 ug/L		98
70)	Tetrachloroethene	8.129	166	204528	30.75 ug/L		99
71)	1,3-Dichloropropane	8.201	76	200705	24.70 ug/L		88
72)	2-Hexanone	8.244	43	134947	38.34 ug/L		94
73)	Chlorodibromomethane	8.351	129	154254	24.13 ug/L		99
74)	Butyl acetate	8.344	43	177585	25.91 ug/L		99
75)	1,2-Dibromoethane	8.423	107	140089	25.60 ug/L	#	94
76)	Chlorobenzene	8.745	112	327513	20.69 ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	140863	23.04 ug/L		98
78)	Ethylbenzene	8.810	91	586954	22.18 ug/L		98
79)	m/p-Xylene	8.896	91	859637	43.12 ug/L		96
80)	Styrene	9.139	104	303123	17.78 ug/L		99
81)	o-Xylene	9.125	91	435438	21.25 ug/L		100
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.247	173	91436	21.30 ug/L		98
84)	Isopropylbenzene	9.333	105	530175	21.82 ug/L		99
86)	Bromobenzene	9.512	77	233787	18.27 ug/L		93
87)	1,1,2,2-Tetrachloroethane	9.512	83	168465	23.51 ug/L		99
88)	1,2,3-Trichloropropane	9.541	110	40763	24.82 ug/L		98
89)	trans-1,4-Dichloro-2-b...	9.526	53	29388	16.91 ug/L		94
90)	n-Propylbenzene	9.562	91	556567	18.86 ug/L		99
91)	2-Chlorotoluene	9.612	91	284445	16.98 ug/L		99
92)	4-Chlorotoluene	9.677	91	303858	14.91 ug/L		99
93)	1,3,5-Trimethylbenzene	9.655	105	363417	18.54 ug/L		98
94)	tert-Butylbenzene	9.827	91	259429	21.87 ug/L		99
95)	1,2,4-Trimethylbenzene	9.856	105	343753	16.80 ug/L		96
96)	sec-Butylbenzene	9.942	105	484481	19.02 ug/L		99
98)	1,3-Dichlorobenzene	10.006	146	153062	13.11 ug/L		99
99)	p-Isopropyltoluene	10.013	119	366350	17.16 ug/L		99
100)	1,4-Dichlorobenzene	10.063	146	155647	13.10 ug/L		99

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY09.D
Acq On : 25 May 2018 6:08 pm
Operator : EMR
Sample : 18051407-09A MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 26 08:26:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

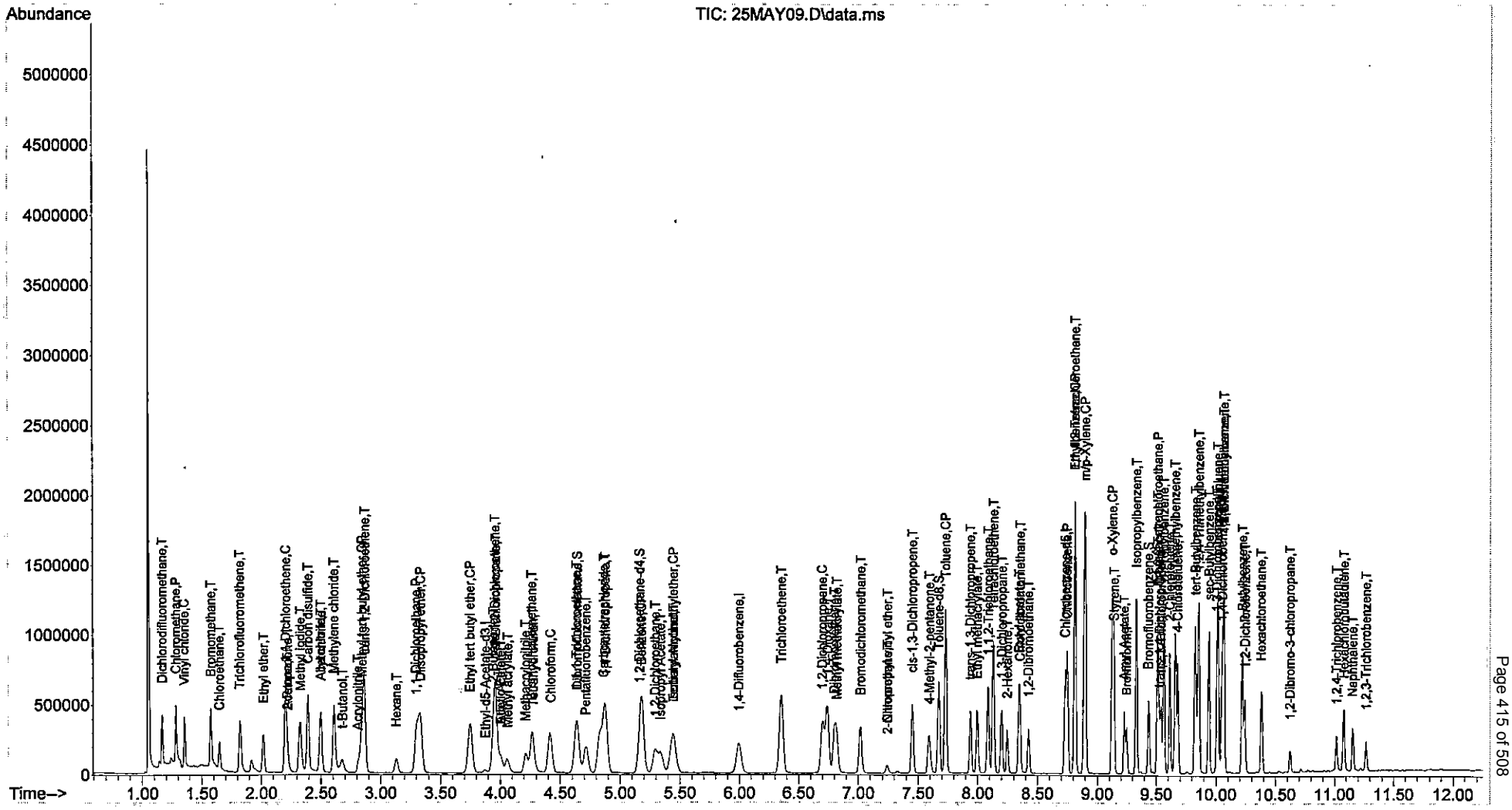
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.063	105	340480	17.77 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	142515	13.26 ug/L	98
104) n-Butylbenzene	10.221	91	313710	14.49 ug/L	99
105) Hexachloroethane	10.379	117	82457	17.49 ug/L	94
106) 1,2-Dibromo-3-chloropr...	10.622	157	29396	18.98 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	48549	5.89 ug/L	89
109) Hexachlorobutadiene	11.081	225	62371	13.91 ug/L	97
110) Naphthalene	11.152	128	171432	8.78 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	43195	5.40 ug/L	94
112) 2-Methylnaphthalene	0.000		0	N.D..	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	123873	91.35 ug/L	97
116) Acetic Ether	4.003	43	143464	32.24 ug/L #	97
117) Isopropyl Acetate	5.336	61	77095	32.59 ug/L	97
118) Amyl Acetate	9.225	43	150034	21.25 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY09.D
Acq On : 25 May 2018 6:08 pm
Operator : EMR
Sample : 18051407-09A MS
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 26 08:26:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY10.D
Acq On : 25 May 2018 6:25 pm
Operator : EMR
Sample : 18051407-09A MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 26 08:26:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	210129	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	313275	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	281325	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	130764	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.868	46	31094	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.641	111	105981	19.92	ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.60%			
45) 1,2-Dichloroethane-d4	5.157	65	96743	20.66	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 103.30%			
64) Toluene-d8	7.671	98	353059	18.69	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 93.45%			
85) Bromofluorobenzene	9.433	95	123076	19.33	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 96.65%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	195287	29.17	ug/L	98
3) Chloromethane	1.282	50	191453	20.75	ug/L	99
4) Vinyl chloride	1.353	62	198254	29.33	ug/L	99
5) Bromomethane	1.575	96	160066	27.25	ug/L	97
6) Chloroethane	1.647	64	115681	26.44	ug/L	97
7) Trichlorofluoromethane	1.819	101	238971	26.22	ug/L	99
8) Ethyl ether	2.019	59	117891	30.72	ug/L	97
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.199	61	257783	29.12	ug/L	96
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.327	142	248054	62.78	ug/L	100
13) Acetone	2.220	43	121804	83.95	ug/L	98
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	604953	29.65	ug/L	100
16) Allyl chloride	2.499	41	236796	24.82	ug/L	98
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	2.499	41	236796	24.85	ug/L	99
19) Methylene chloride	2.607	49	246738	33.52	ug/L	95
20) trans-1,2-Dichloroethene	2.858	61	247187	26.44	ug/L	95
21) t-Butanol	2.671	59	90027	135.39	ug/L	97
22) Acrylonitrile	2.815	53	55572	25.68	ug/L	95
23) Methyl tert-butyl ether	2.843	73	418046	36.72	ug/L	99
24) Hexane	3.130	57	54803	5.02	ug/L	98
25) 1,1-Dichloroethane	3.295	63	312396	28.68	ug/L	98
26) Diisopropyl ether	3.323	45	459346	34.70	ug/L #	46
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.746	59	426621	34.54	ug/L	99
29) 2,2-Dichloropropane	3.954	77	235480	27.61	ug/L	97
30) cis-1,2-Dichloroethene	3.954	61	287208	26.89	ug/L	96
31) 2-Butanone	3.932	43	117437	51.10	ug/L	95
32) Ethyl Acetate	4.004	43	142164	30.49	ug/L #	97
33) Methyl acrylate	4.061	55	141766	28.80	ug/L	97
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	4.261	49	140213	28.10	ug/L	97
36) Tetrahydrofuran	4.276	42	44393	25.18	ug/L	95
37) Methacrylonitrile	4.211	41	88616	26.78	ug/L	97
38) Chloroform	4.412	83	296764	25.30	ug/L	96

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY10.D
Acq On : 25 May 2018 6:25 pm
Operator : EMR
Sample : 18051407-09A MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 26 08:26:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.		
41)	1,1,1-Trichloroethane	4.634	97	255494	27.75 ug/L		98
43)	Carbon tetrachloride	4.863	117	218051	28.91 ug/L		97
44)	1,1-Dichloropropene	4.878	75	207854	26.14 ug/L		98
46)	1,2-Dichloroethane	5.293	62	187323	26.44 ug/L		99
47)	Benzene	5.178	78	646121	25.81 ug/L		100
48)	Tertiaryamylmethylether	5.443	73	408687	34.88 ug/L		98
49)	Isobutyl Alcohol	5.436	43	115580	32.36 ug/L	#	91
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	6.740	88	11946	142.12 ug/L	#	76
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.353	130	251988	36.50 ug/L		98
55)	1,2-Dichloropropane	6.697	63	166411	26.19 ug/L		91
56)	Dibromomethane	6.797	93	108494	27.26 ug/L		98
57)	Methyl methacrylate	6.819	41	113944	23.39 ug/L		94
58)	Bromodichloromethane	7.019	83	207345	25.62 ug/L		99
59)	2-Chloroethyl vinyl ether	7.241	43	33827	13.99 ug/L	#	1
60)	2-Nitropropane	7.241	43	36147	19.64 ug/L	#	93
61)	cis-1,3-Dichloropropene	7.449	75	240574	24.13 ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	197592	35.48 ug/L		83
65)	Toluene	7.728	91	642580	23.84 ug/L		98
66)	trans-1,3-Dichloropropene	7.936	75	200389	21.68 ug/L		99
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	7.993	69	178463	24.02 ug/L		99
69)	1,1,2-Trichloroethane	8.087	97	139885	23.84 ug/L		98
70)	Tetrachloroethene	8.130	166	211304	29.57 ug/L		98
71)	1,3-Dichloropropane	8.201	76	205098	23.50 ug/L		89
72)	2-Hexanone	8.244	43	130022	34.39 ug/L		93
73)	Chlorodibromomethane	8.352	129	153445	22.35 ug/L		97
74)	Butyl acetate	8.344	43	179759	24.41 ug/L		99
75)	1,2-Dibromoethane	8.423	107	143212	24.37 ug/L	#	98
76)	Chlorobenzene	8.746	112	336208	19.77 ug/L		97
77)	1,1,1,2-Tetrachloroethane	8.810	131	144204	21.96 ug/L		100
78)	Ethylbenzene	8.817	91	594691	20.92 ug/L		98
79)	m/p-Xylene	8.896	91	867915	40.53 ug/L		96
80)	Styrene	9.132	104	308003	16.82 ug/L		99
81)	o-Xylene	9.125	91	444439	20.19 ug/L		98
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.247	173	96006	20.82 ug/L		99
84)	Isopropylbenzene	9.333	105	533554	20.44 ug/L		99
86)	Bromobenzene	9.512	77	216202	15.73 ug/L		98
87)	1,1,2,2-Tetrachloroethane	9.512	83	171414	22.28 ug/L		98
88)	1,2,3-Trichloropropane	9.541	110	42309	23.98 ug/L		98
89)	trans-1,4-Dichloro-2-b...	9.526	53	29438	15.77 ug/L		96
90)	n-Propylbenzene	9.562	91	550686	17.37 ug/L		99
91)	2-Chlorotoluene	9.612	91	301725	16.77 ug/L		99
92)	4-Chlorotoluene	9.677	91	311045	14.21 ug/L		99
93)	1,3,5-Trimethylbenzene	9.655	105	365737	17.37 ug/L		95
94)	tert-Butylbenzene	9.827	91	261309	20.51 ug/L		95
95)	1,2,4-Trimethylbenzene	9.856	105	353531	16.09 ug/L		97
96)	sec-Butylbenzene	9.942	105	473845	17.32 ug/L		98
98)	1,3-Dichlorobenzene	10.006	146	158921	12.87 ug/L		97
99)	p-Isopropyltoluene	10.013	119	375952	16.64 ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	154711	12.31 ug/L		100

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY10.D
Acq On : 25 May 2018 6:25 pm
Operator : EMR
Sample : 18051407-09A MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 26 08:26:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

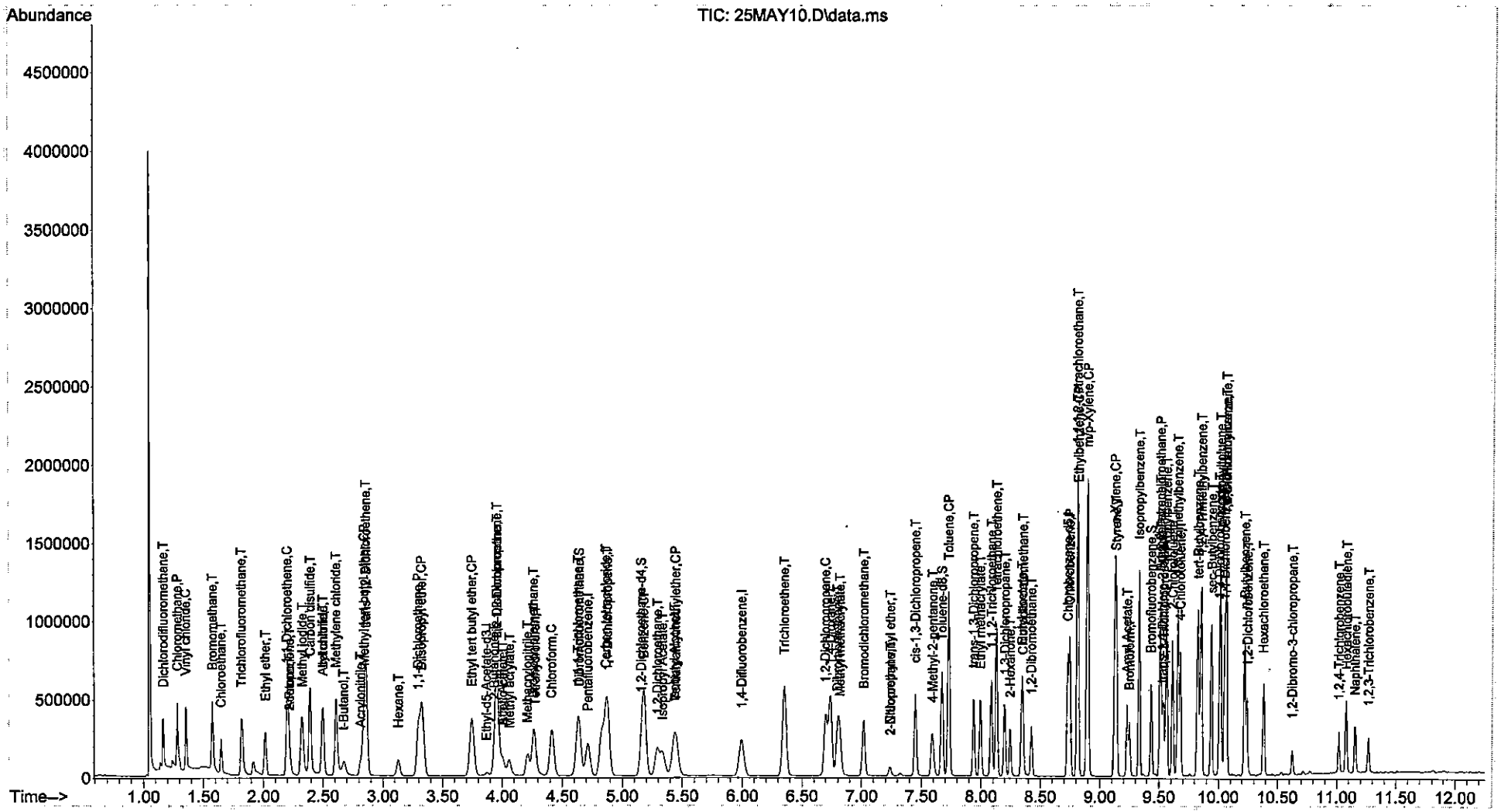
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	340794	16.81 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	141322	12.43 ug/L	99
104) n-Butylbenzene	10.221	91	313161	13.67 ug/L	99
105) Hexachloroethane	10.379	117	82432	16.53 ug/L	91
106) 1,2-Dibromo-3-chloropr...	10.622	157	28729	17.54 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	52580	6.03 ug/L	97
109) Hexachlorobutadiene	11.081	225	64244	13.55 ug/L	98
110) Naphthalene	11.152	128	158865	7.69 ug/L	98
111) 1,2,3-Trichlorobenzene	11.267	180	44858	5.30 ug/L	95
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	121804	93.09 ug/L	98
116) Acetic Ether	4.004	43	140012	32.58 ug/L #	97
117) Isopropyl Acetate	5.336	61	78354	34.28 ug/L	95
118) Amyl Acetate	9.225	43	152215	22.33 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180525\
Data File : 25MAY10.D
Acq On : 25 May 2018 6:25 pm
Operator : EMR
Sample : 18051407-09A MSD
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 26 08:26:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY07.D
Acq On : 27 May 2018 7:42 pm
Operator : WH
Sample : VBLKW1-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 13:23:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.490	168	137453	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	204847	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	183589	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	96869	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.541	46	37146	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	84424	22.11	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 110.55%			
46) 1,2-Dichloroethane-d4	5.888	65	85658	20.13	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.65%			
65) Toluene-d8	8.316	98	248257	20.45	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.25%			
86) Bromofluorobenzene	11.210	95	92720	19.94	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY07.D
Acq On : 27 May 2018 7:42 pm
Operator : WH
Sample : VBLKW1-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 13:23:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.		
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
61) 2-Nitropropane	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) trans-1,3-Dichloropropene	0.000		0	N.D.		
68) Chloropicrin	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.	d	
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY07.D
Acq On : 27 May 2018 7:42 pm
Operator : WH
Sample : VBLKW1-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 13:23:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

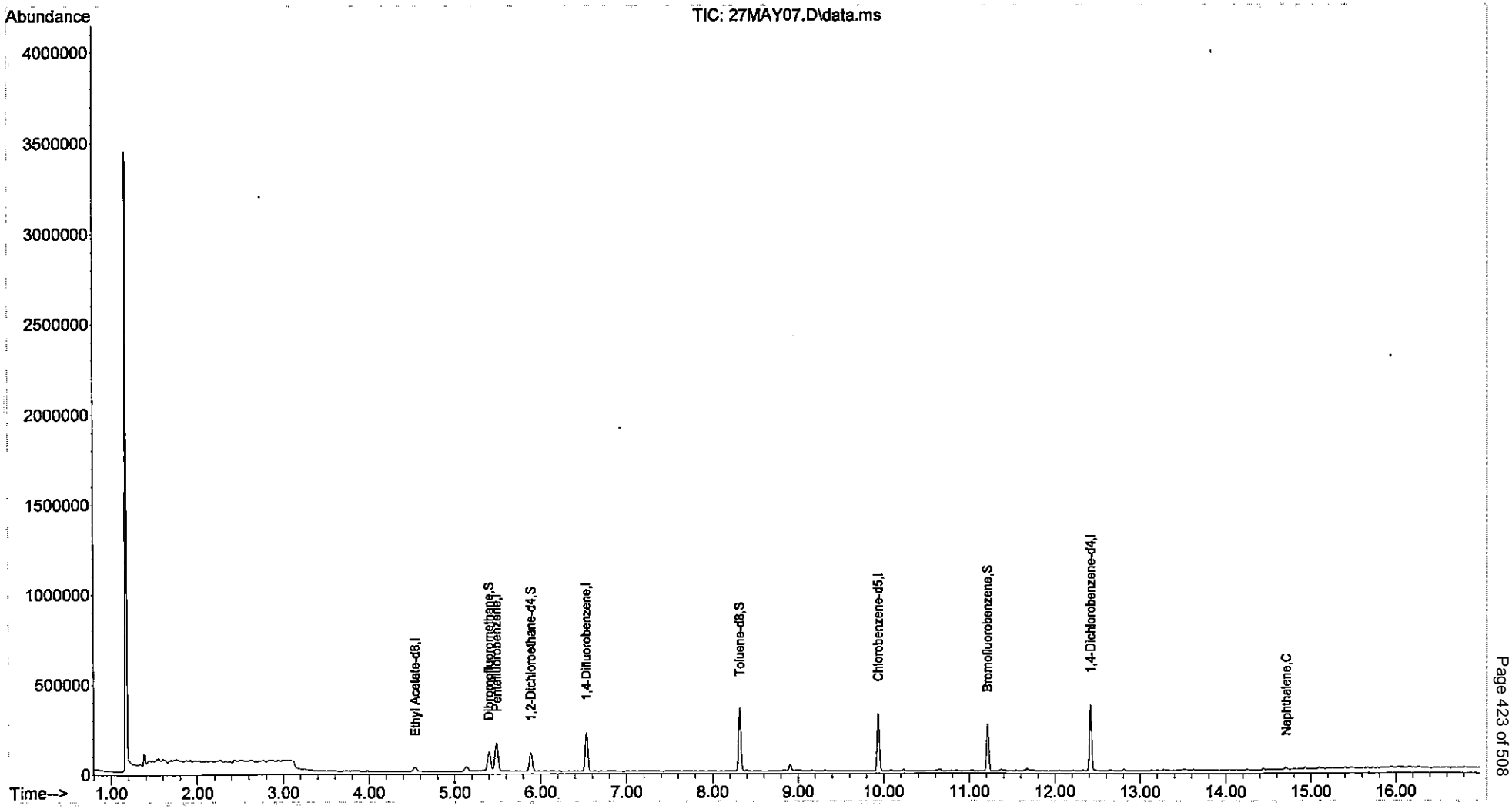
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	14.707	128	8367m	0.71	ug/L	
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY07.D
Acq On : 27 May 2018 7:42 pm
Operator : WH
Sample : VBLKW1-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 13:23:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY05.D
Acq On : 27 May 2018 6:46 pm
Operator : WH
Sample : VLCSW2-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 29 13:23:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.485	168	132067	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.528	114	216203	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	197212	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	95158	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	36320	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.396	111	87433	21.69	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 108.45%				
46) 1,2-Dichloroethane-d4	5.883	65	91689	20.42	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.10%				
65) Toluene-d8	8.311	98	260021	19.94	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.70%				
86) Bromofluorobenzene	11.210	95	97109	19.44	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	91526	25.29	ug/L		99
3) Chloromethane	1.421	50	148230	23.96	ug/L		100
4) Vinyl chloride	1.505	62	99581	24.82	ug/L		98
5) Bromomethane	1.752	96	62160	24.55	ug/L		98
6) Chloroethane	1.830	64	49167	19.15	ug/L		99
7) Trichlorofluoromethane	2.029	101	98403	20.67	ug/L		99
8) Ethanol	2.150	45	57856	414.59	ug/L	#	100
9) Ethyl ether	2.260	59	53291	22.78	ug/L		97
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.465	61	113848	25.27	ug/L		97
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.606	142	15074	24.82	ug/L	#	87
14) Acetone	2.496	43	27643	24.07	ug/L		94
15) Carbon disulfide	2.674	76	227310	23.96	ug/L		100
16) Allyl chloride	2.811	41	93016	18.76	ug/L		99
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.942	49	101035	21.71	ug/L		99
20) t-Butanol	3.062	59	50976	124.52	ug/L		94
21) trans-1,2-Dichloroethene	3.241	61	115595	24.60	ug/L		96
22) Acrylonitrile	3.193	53	31404	20.43	ug/L		94
23) Methyl tert-butyl ether	3.246	73	195869	21.66	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.781	63	152002	26.24	ug/L		99
26) Diisopropyl ether	3.854	45	210005	21.43	ug/L	#	92
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.378	59	201658	21.58	ug/L		97
30) 2,2-Dichloropropane	4.609	77	113034	25.05	ug/L		92
31) cis-1,2-Dichloroethene	4.604	61	135318	25.27	ug/L		93
32) 2-Butanone	4.609	43	44001	24.88	ug/L	#	94
33) Ethyl Acetate	4.698	43	94871	27.63	ug/L	#	98
34) Methyl acrylate	4.756	55	83242	25.36	ug/L		100
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.971	49	79056	25.32	ug/L		87
37) Tetrahydrofuran	5.008	42	26088	24.43	ug/L		98
38) Methacrylonitrile	4.934	41	53242	23.63	ug/L		95

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY05.D
Acq On : 27 May 2018 6:46 pm
Operator : WH
Sample : VLCSW2-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 29 13:23:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	5.160	83	145125	24.79 ug/L	97
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	5.385	97	118717	24.83 ug/L	100
44) Carbon tetrachloride	5.605	119	86338	20.24 ug/L	96
45) 1,1-Dichloropropene	5.626	75	96880	21.74 ug/L	97
47) 1,2-Dichloroethane	5.993	62	111908	21.83 ug/L	98
48) Benzene	5.899	78	290771	23.88 ug/L	99
49) Isobutyl Alcohol	6.056	43	163686	23.94 ug/L #	94
50) Tertiaryamylmethylether	6.135	73	184463	19.56 ug/L	96
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.816	130	77669	23.01 ug/L	94
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.141	63	82045	23.34 ug/L	97
56) Dibromomethane	7.246	93	59833	21.55 ug/L	99
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	7.267	41	68089	18.30 ug/L	90
59) Bromodichloromethane	7.482	83	111832	22.66 ug/L	99
60) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
61) 2-Nitropropane	7.750	43	25101	20.78 ug/L #	92
62) cis-1,3-Dichloropropene	8.012	75	129965	22.23 ug/L	98
64) 4-Methyl-2-pentanone	8.206	43	125185	31.90 ug/L	83
66) Toluene	8.389	91	288941	22.28 ug/L	100
67) trans-1,3-Dichloropropene	8.688	75	116809	21.09 ug/L	98
68) Chloropicrin	0.000		0	N.D.	
69) Ethyl methacrylate	8.777	69	99400	21.16 ug/L	94
70) 1,1,2-Trichloroethane	8.903	97	82800	24.38 ug/L	99
71) Tetrachloroethene	8.971	166	78363	23.76 ug/L	95
72) 1,3-Dichloropropane	9.076	76	112626	21.39 ug/L	94
73) 2-Hexanone	9.160	43	65134	23.04 ug/L	96
74) Chlorodibromomethane	9.307	129	87649	20.42 ug/L	97
75) Butyl acetate	9.312	43	142533	22.35 ug/L	97
76) 1,2-Dibromoethane	9.422	107	91642	25.22 ug/L #	98
77) Chlorobenzene	9.967	112	185260	22.09 ug/L	97
78) 1,1,1,2-Tetrachloroethane	10.072	131	74036	23.31 ug/L	95
79) Ethylbenzene	10.083	91	327071	23.86 ug/L	100
80) m/p-Xylene	10.230	91	469270	44.46 ug/L	98
81) Styrene	10.660	104	194103	22.53 ug/L	96
82) o-Xylene	10.633	91	246631	21.48 ug/L	100
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	10.843	173	59671	22.02 ug/L	96
85) Isopropylbenzene	11.032	105	260597	20.79 ug/L	97
87) Bromobenzene	11.346	77	127002	22.25 ug/L	89
88) 1,1,2,2-Tetrachloroethane	11.367	83	126375	26.43 ug/L	98
89) 1,2,3-Trichloropropane	11.415	110	25938	25.31 ug/L	92
90) trans-1,4-Dichloro-2-b...	11.404	53	24034	18.11 ug/L #	80
91) n-Propylbenzene	11.467	91	321378	20.84 ug/L	97
92) 2-Chlorotoluene	11.551	91	200653	21.07 ug/L	98
93) 4-Chlorotoluene	11.682	91	235414	21.30 ug/L	96
94) 1,3,5-Trimethylbenzene	11.666	105	225981	21.71 ug/L	98
95) tert-Butylbenzene	11.986	91	116519	19.76 ug/L	100
96) 1,2,4-Trimethylbenzene	12.049	105	222861	20.41 ug/L	99
97) sec-Butylbenzene	12.222	105	251381	20.55 ug/L	95
99) 1,3-Dichlorobenzene	12.332	146	129449	20.81 ug/L	96
100) p-Isopropyltoluene	12.384	119	213230	21.98 ug/L	99

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY05.D
Acq On : 27 May 2018 6:46 pm
Operator : WH
Sample : VLCSW2-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 29 13:23:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

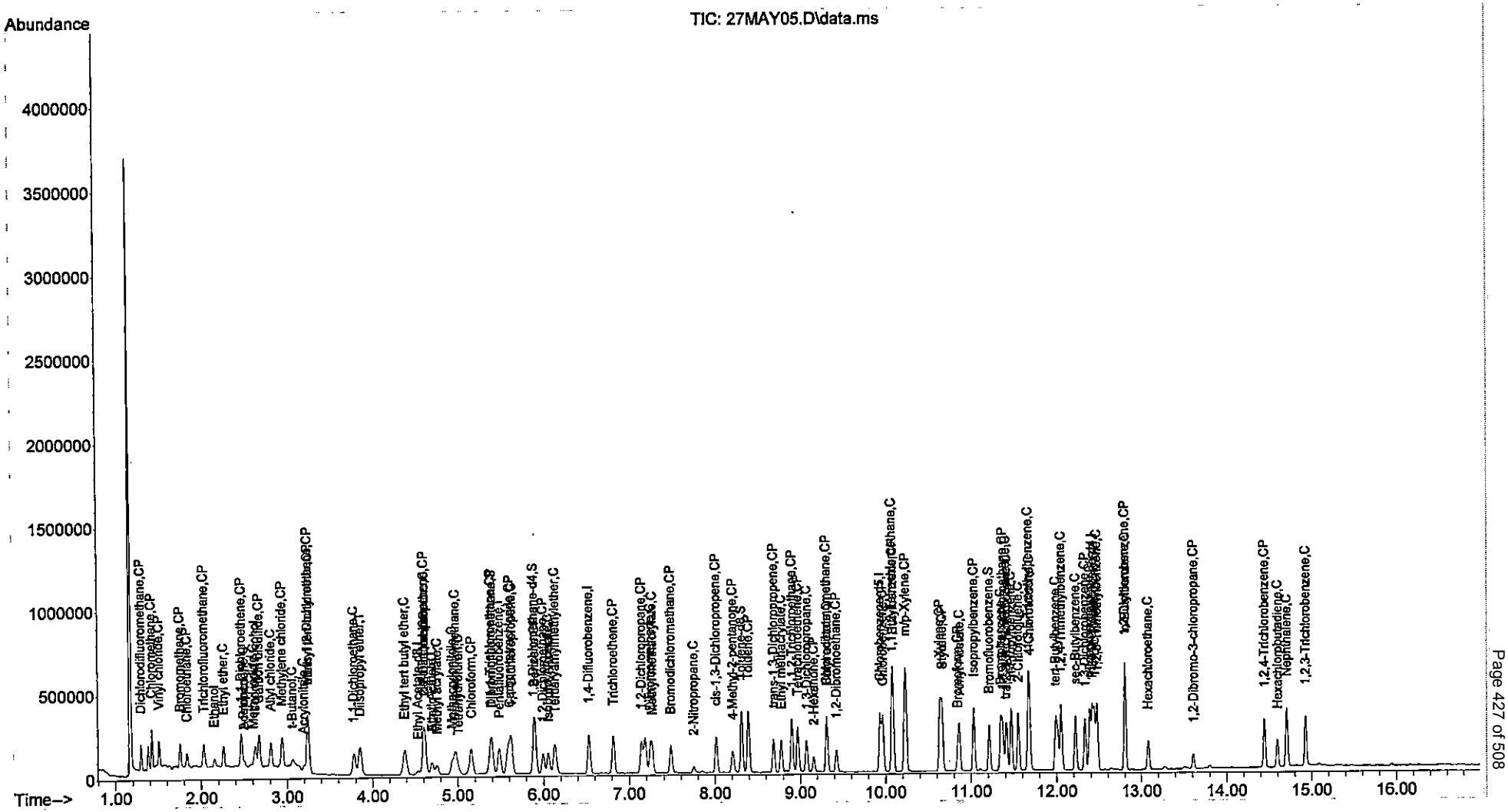
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	139880	22.25 ug/L	98
102) 1,2,3-Trimethylbenzene	12.468	105	224822	21.06 ug/L	99
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	12.799	146	125695	20.78 ug/L	96
105) n-Butylbenzene	12.804	91	208810	22.40 ug/L	97
106) Hexachloroethane	13.082	117	37678	15.25 ug/L	95
107) 1,2-Dibromo-3-chloropr...	13.611	157	22992	25.84 ug/L	94
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	14.440	180	92136	22.29 ug/L	100
110) Hexachlorobutadiene	14.597	225	34320	25.47 ug/L	98
111) Naphthalene	14.702	128	283120	24.40 ug/L	99
112) 1,2,3-Trichlorobenzene	14.927	180	92463	23.07 ug/L	98
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	2.496	43	27643	19.34 ug/L	94
117) Isopropyl Alcohol	2.627	45	139519	461.39 ug/L	94
118) Acetic Ether	4.698	43	94871	24.18 ug/L	99
119) Isopropyl Acetate	6.056	61	34422	20.80 ug/L #	95
120) Amyl Acetate	10.864	43	152739	20.15 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY05.D
Acq On : 27 May 2018 6:46 pm
Operator : WH
Sample : VLCSW2-180527
Misc : V1/3 IS/SS 200-20233
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 29 13:23:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY29.D
Acq On : 28 May 2018 3:31 am
Operator : WH
Sample : 18051296-02A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 13:30:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.490	168	139988	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.533	114	233893	20.00	ug/L		0.00
63) Chlorobenzene-d5	9.936	117	206418	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	101887	20.00	ug/L		0.00
115) Ethyl Acetate-d8	4.536	46	31679	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	5.401	111	86707	19.89	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.45%				
46) 1,2-Dichloroethane-d4	5.888	65	96691	19.90	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.50%				
65) Toluene-d8	8.316	98	264229	19.36	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.80%				
86) Bromofluorobenzene	11.210	95	105356	20.15	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.295	85	82230	21.44	ug/L		99
3) Chloromethane	1.426	50	137109	20.91	ug/L		98
4) Vinyl chloride	1.510	62	107779	25.34	ug/L		98
5) Bromomethane	1.752	96	87363	32.94	ug/L		99
6) Chloroethane	1.835	64	53188	19.54	ug/L		95
7) Trichlorofluoromethane	2.035	101	106747	21.16	ug/L		98
8) Ethanol	2.150	45	52901	357.63	ug/L	#	100
9) Ethyl ether	2.260	59	54399	21.94	ug/L		95
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	2.470	61	123248	25.81	ug/L		97
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.611	142	5674	9.22	ug/L	#	39
14) Acetone	2.501	43	24229	19.59	ug/L		97
15) Carbon disulfide	2.680	76	213864	21.26	ug/L		100
16) Allyl chloride	2.816	41	98073	18.66	ug/L		98
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D. d			
19) Methylene chloride	2.947	49	108714	22.05	ug/L		98
20) t-Butanol	3.062	59	44128	101.69	ug/L	#	90
21) trans-1,2-Dichloroethene	3.246	61	103028	20.69	ug/L		96
22) Acrylonitrile	3.193	53	26839	16.47	ug/L		99
23) Methyl tert-butyl ether	3.246	73	162473	16.95	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.786	63	140553	22.89	ug/L		99
26) Diisopropyl ether	3.854	45	194516	18.72	ug/L	#	94
27) Chloroprene	0.000		0	N.D.			
28) Vinyl acetate	0.000		0	N.D.			
29) Ethyl tert butyl ether	4.383	59	184884	18.66	ug/L		99
30) 2,2-Dichloropropane	4.614	77	81935	17.13	ug/L		97
31) cis-1,2-Dichloroethene	4.609	61	126442	22.28	ug/L		95
32) 2-Butanone	4.614	43	33006	17.68	ug/L	#	91
33) Ethyl Acetate	4.698	43	59987	16.48	ug/L	#	97
34) Methyl acrylate	4.756	55	67160	19.30	ug/L		98
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	4.976	49	70155	21.20	ug/L		90
37) Tetrahydrofuran	5.007	42	19579	17.29	ug/L		97
38) Methacrylonitrile	4.939	41	43050	18.08	ug/L		97

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY29.D
Acq On : 28 May 2018 3:31 am
Operator : WH
Sample : 18051296-02A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 13:30:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Chloroform	5.159	83	140181	22.59 ug/L	98
40)	Cyclohexane	0.000		0	N.D.	
42)	1,1,1-Trichloroethane	5.385	97	108249	20.93 ug/L	100
44)	Carbon tetrachloride	5.610	119	83727	18.15 ug/L	98
45)	1,1-Dichloropropene	5.631	75	94329	19.57 ug/L	97
47)	1,2-Dichloroethane	5.998	62	111126	20.04 ug/L	99
48)	Benzene	5.904	78	278037	21.11 ug/L	100
49)	Isobutyl Alcohol	6.056	43	121499	16.43 ug/L #	96
50)	Tertiaryamylmethylether	6.135	73	158063	15.49 ug/L	96
51)	Heptane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	Trichloroethene	6.816	130	73053	20.01 ug/L	96
54)	n-Butanol	0.000		0	N.D.	
55)	1,2-Dichloropropane	7.147	63	80747	21.23 ug/L	98
56)	Dibromomethane	7.246	93	59644	19.85 ug/L	98
57)	1,4-Dioxane	0.000		0	N.D.	
58)	Methyl methacrylate	7.267	41	61169	15.20 ug/L	93
59)	Bromodichloromethane	7.487	83	104949	19.65 ug/L	99
60)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
61)	2-Nitropropane	7.750	43	18189	13.89 ug/L #	93
62)	cis-1,3-Dichloropropene	8.017	75	118286	18.71 ug/L	99
64)	4-Methyl-2-pentanone	8.206	43	94493	23.01 ug/L	85
66)	Toluene	8.394	91	284985	20.99 ug/L	99
67)	trans-1,3-Dichloropropene	8.688	75	106139	18.31 ug/L	99
68)	Chloropicrin	0.000		0	N.D.	
69)	Ethyl methacrylate	8.777	69	85601	17.41 ug/L	96
70)	1,1,2-Trichloroethane	8.903	97	72303	20.34 ug/L	98
71)	Tetrachloroethene	8.976	166	76090	22.04 ug/L	93
72)	1,3-Dichloropropane	9.076	76	109040	19.78 ug/L	95
73)	2-Hexanone	9.160	43	48822	16.50 ug/L	98
74)	Chlorodibromomethane	9.312	129	81463	18.13 ug/L	99
75)	Butyl acetate	9.312	43	95052	14.24 ug/L	98
76)	1,2-Dibromoethane	9.427	107	81813	21.51 ug/L #	96
77)	Chlorobenzene	9.967	112	177795	20.25 ug/L	97
78)	1,1,1,2-Tetrachloroethane	10.077	131	66663	20.05 ug/L	98
79)	Ethylbenzene	10.088	91	289808	20.20 ug/L	100
80)	m/p-Xylene	10.229	91	463344	41.94 ug/L	99
81)	Styrene	10.659	104	190329	21.11 ug/L	97
82)	o-Xylene	10.638	91	234248	19.49 ug/L	100
83)	Cyclohexanone	0.000		0	N.D.	
84)	Bromoform	10.843	173	50771	17.90 ug/L	99
85)	Isopropylbenzene	11.032	105	281158	21.43 ug/L	99
87)	Bromobenzene	11.346	77	112016	18.75 ug/L	90
88)	1,1,2,2-Tetrachloroethane	11.367	83	103526	20.68 ug/L	99
89)	1,2,3-Trichloropropane	11.420	110	22833	21.22 ug/L	97
90)	trans-1,4-Dichloro-2-b...	11.404	53	17032	12.26 ug/L #	84
91)	n-Propylbenzene	11.472	91	333667	20.68 ug/L	99
92)	2-Chlorotoluene	11.551	91	192443	19.30 ug/L	99
93)	4-Chlorotoluene	11.682	91	215293	18.61 ug/L	99
94)	1,3,5-Trimethylbenzene	11.666	105	200614	18.41 ug/L	97
95)	tert-Butylbenzene	11.986	91	118265	19.16 ug/L	97
96)	1,2,4-Trimethylbenzene	12.054	105	212114	18.56 ug/L	100
97)	sec-Butylbenzene	12.222	105	263813	20.61 ug/L	99
99)	1,3-Dichlorobenzene	12.332	146	128573	19.30 ug/L	97
100)	p-Isopropyltoluene	12.384	119	204540	19.69 ug/L	98

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY29.D
Acq On : 28 May 2018 3:31 am
Operator : WH
Sample : 18051296-02A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 13:30:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

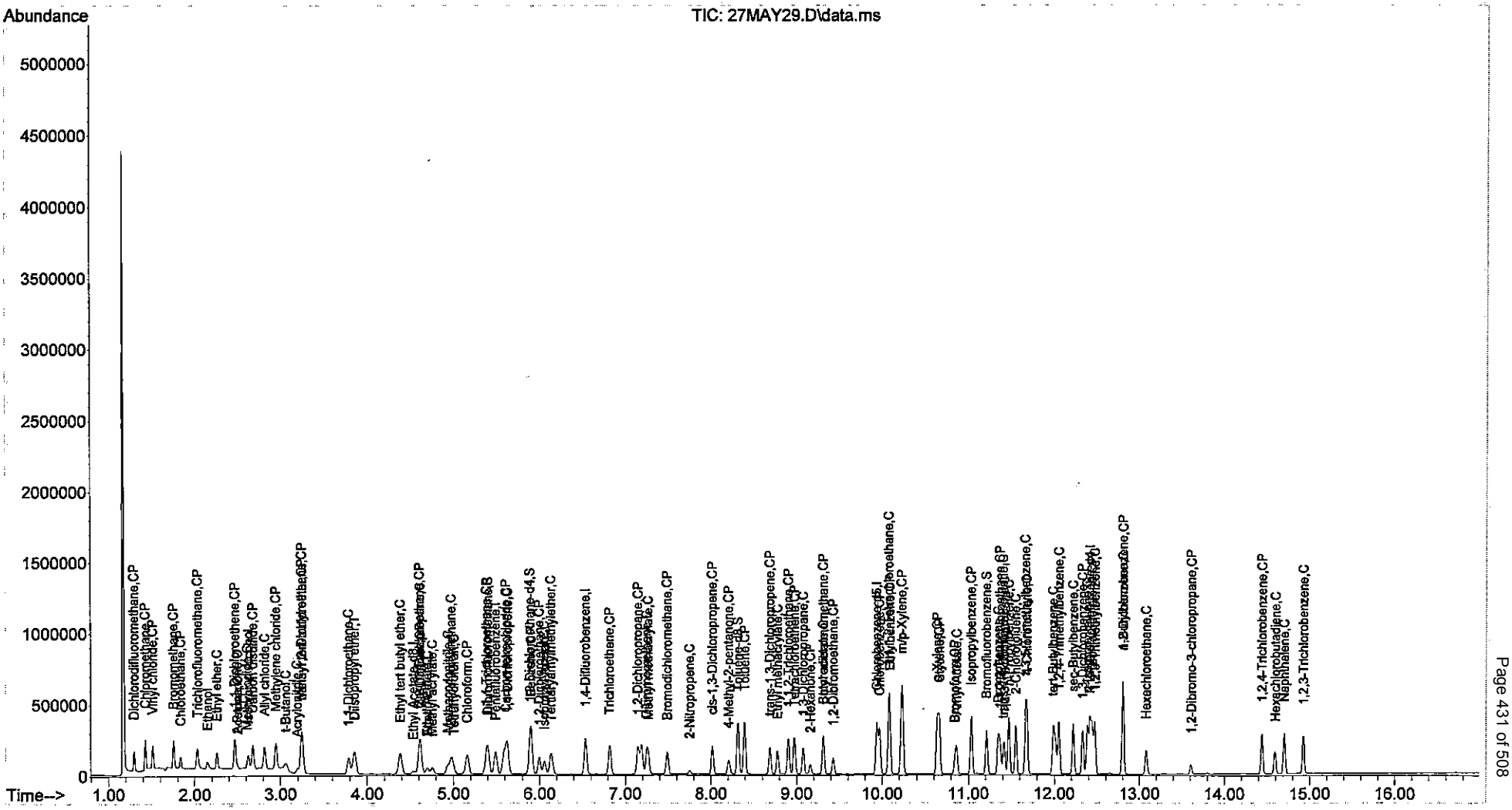
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	12.442	146	137391	20.41	ug/L	98
102) 1,2,3-Trimethylbenzene	12.474	105	217770	19.05	ug/L	99
103) Benzyl chloride	0.000		0	N.D.	d	
104) 1,2-Dichlorobenzene	12.804	146	132193	20.41	ug/L	97
105) n-Butylbenzene	12.804	91	204992	20.54	ug/L	98
106) Hexachloroethane	13.082	117	34961	13.21	ug/L	94
107) 1,2-Dibromo-3-chloropr...	13.611	157	17434	18.30	ug/L	95
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	14.440	180	88707	20.04	ug/L	98
110) Hexachlorobutadiene	14.597	225	31418	21.78	ug/L	98
111) Naphthalene	14.702	128	223101	17.96	ug/L	100
112) 1,2,3-Trichlorobenzene	14.927	180	82992	19.34	ug/L	100
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	2.501	43	24229	19.44	ug/L	97
117) Isopropyl Alcohol	2.627	45	107387	407.16	ug/L	96
118) Acetic Ether	4.698	43	59644	17.43	ug/L	97
119) Isopropyl Acetate	6.056	61	26540	18.38	ug/L	90
120) Amyl Acetate	10.864	43	102809	15.55	ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY29.D
Acq On : 28 May 2018 3:31 am
Operator : WH
Sample : 18051296-02A MS
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 29 13:30:57 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY28.D
Acq On : 28 May 2018 3:10 am
Operator : WH
Sample : 18051296-01ADUP
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 28 03:27:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.490	168	134134	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.533	114	213273	20.00	ug/L	0.00
63) Chlorobenzene-d5	9.936	117	182497	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	12.416	152	92934	20.00	ug/L	0.00
115) Ethyl Acetate-d8	4.536	46	30210	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	5.401	111	83572	21.02	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.10%			
46) 1,2-Dichloroethane-d4	5.888	65	91201	20.59	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.95%			
65) Toluene-d8	8.316	98	251920	20.88	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.40%			
86) Bromofluorobenzene	11.210	95	90635	19.61	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Vinyl acetate	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY28.D
Acq On : 28 May 2018 3:10 am
Operator : WH
Sample : 18051296-01ADUP
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 28 03:27:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39)	Chloroform	0.000		0		N.D.	
40)	Cyclohexane	0.000		0		N.D.	
42)	1,1,1-Trichloroethane	0.000		0		N.D.	
44)	Carbon tetrachloride	0.000		0		N.D.	
45)	1,1-Dichloropropene	0.000		0		N.D.	
47)	1,2-Dichloroethane	0.000		0		N.D.	
48)	Benzene	0.000		0		N.D.	
49)	Isobutyl Alcohol	0.000		0		N.D.	
50)	Tertiaryamylmethylether	0.000		0		N.D.	
51)	Heptane	0.000		0		N.D.	
52)	Methylcyclohexane	0.000		0		N.D.	
53)	Trichloroethene	0.000		0		N.D.	
54)	n-Butanol	0.000		0		N.D.	
55)	1,2-Dichloropropane	0.000		0		N.D.	
56)	Dibromomethane	0.000		0		N.D.	
57)	1,4-Dioxane	0.000		0		N.D.	
58)	Methyl methacrylate	0.000		0		N.D.	
59)	Bromodichloromethane	0.000		0		N.D.	
60)	2-Chloroethyl vinyl ether	0.000		0		N.D.	
61)	2-Nitropropane	0.000		0		N.D.	
62)	cis-1,3-Dichloropropene	0.000		0		N.D.	
64)	4-Methyl-2-pentanone	0.000		0		N.D.	
66)	Toluene	0.000		0		N.D.	
67)	trans-1,3-Dichloropropene	0.000		0		N.D.	
68)	Chloropicrin	0.000		0		N.D.	
69)	Ethyl methacrylate	0.000		0		N.D.	
70)	1,1,2-Trichloroethane	0.000		0		N.D.	
71)	Tetrachloroethene	0.000		0		N.D.	
72)	1,3-Dichloropropane	0.000		0		N.D.	
73)	2-Hexanone	0.000		0		N.D.	
74)	Chlorodibromomethane	0.000		0		N.D.	
75)	Butyl acetate	0.000		0		N.D.	
76)	1,2-Dibromoethane	0.000		0		N.D.	
77)	Chlorobenzene	0.000		0		N.D.	
78)	1,1,1,2-Tetrachloroethane	0.000		0		N.D.	
79)	Ethylbenzene	0.000		0		N.D.	
80)	m/p-Xylene	0.000		0		N.D.	
81)	Styrene	0.000		0		N.D.	
82)	o-Xylene	0.000		0		N.D.	
83)	Cyclohexanone	0.000		0		N.D.	
84)	Bromoform	0.000		0		N.D.	
85)	Isopropylbenzene	0.000		0		N.D.	
87)	Bromobenzene	0.000		0		N.D.	
88)	1,1,2,2-Tetrachloroethane	0.000		0		N.D.	
89)	1,2,3-Trichloropropane	0.000		0		N.D.	
90)	trans-1,4-Dichloro-2-b...	0.000		0		N.D.	
91)	n-Propylbenzene	0.000		0		N.D.	
92)	2-Chlorotoluene	0.000		0		N.D.	
93)	4-Chlorotoluene	0.000		0		N.D.	
94)	1,3,5-Trimethylbenzene	0.000		0		N.D.	
95)	tert-Butylbenzene	0.000		0		N.D.	
96)	1,2,4-Trimethylbenzene	0.000		0		N.D.	
97)	sec-Butylbenzene	0.000		0		N.D.	
99)	1,3-Dichlorobenzene	0.000		0		N.D.	
100)	p-Isopropyltoluene	0.000		0		N.D.	

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY28.D
Acq On : 28 May 2018 3:10 am
Operator : WH
Sample : 18051296-01ADUP
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 28 03:27:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration

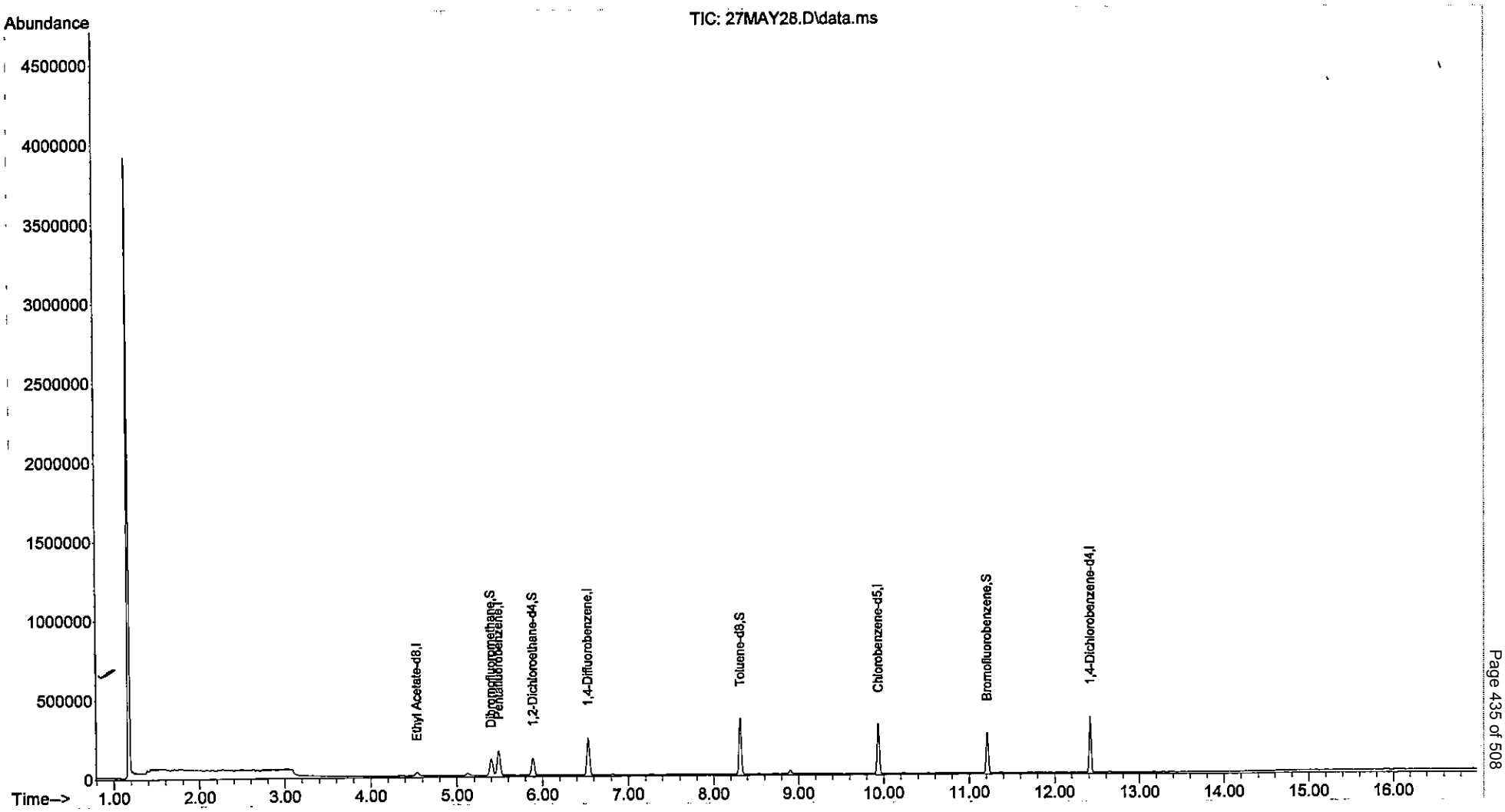
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\7V180527\
Data File : 27MAY28.D
Acq On : 28 May 2018 3:10 am
Operator : WH
Sample : 18051296-01ADUP
Misc : V1/3 IS/SS 200-20233,20308 20PPB
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 28 03:27:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\7AC0524.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 25 09:52:39 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY23.D
Acq On : 29 May 2018 4:57 pm
Operator : EMR
Sample : VBLKW1-180529
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 17:09:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	285049	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	405428	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	364034	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	191915	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	71149	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	140164	19.93	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.65%				
45) 1,2-Dichloroethane-d4	5.157	65	128423	18.76	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.80%				
64) Toluene-d8	7.671	98	461693	19.43	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.15%				
85) Bromofluorobenzene	9.433	95	166142	19.29	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY23.D
Acq On : 29 May 2018 4:57 pm
Operator : EMR
Sample : VBLKW1-180529
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 17:09:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY23.D
Acq On : 29 May 2018 4:57 pm
Operator : EMR
Sample : VBLKW1-180529
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 17:09:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

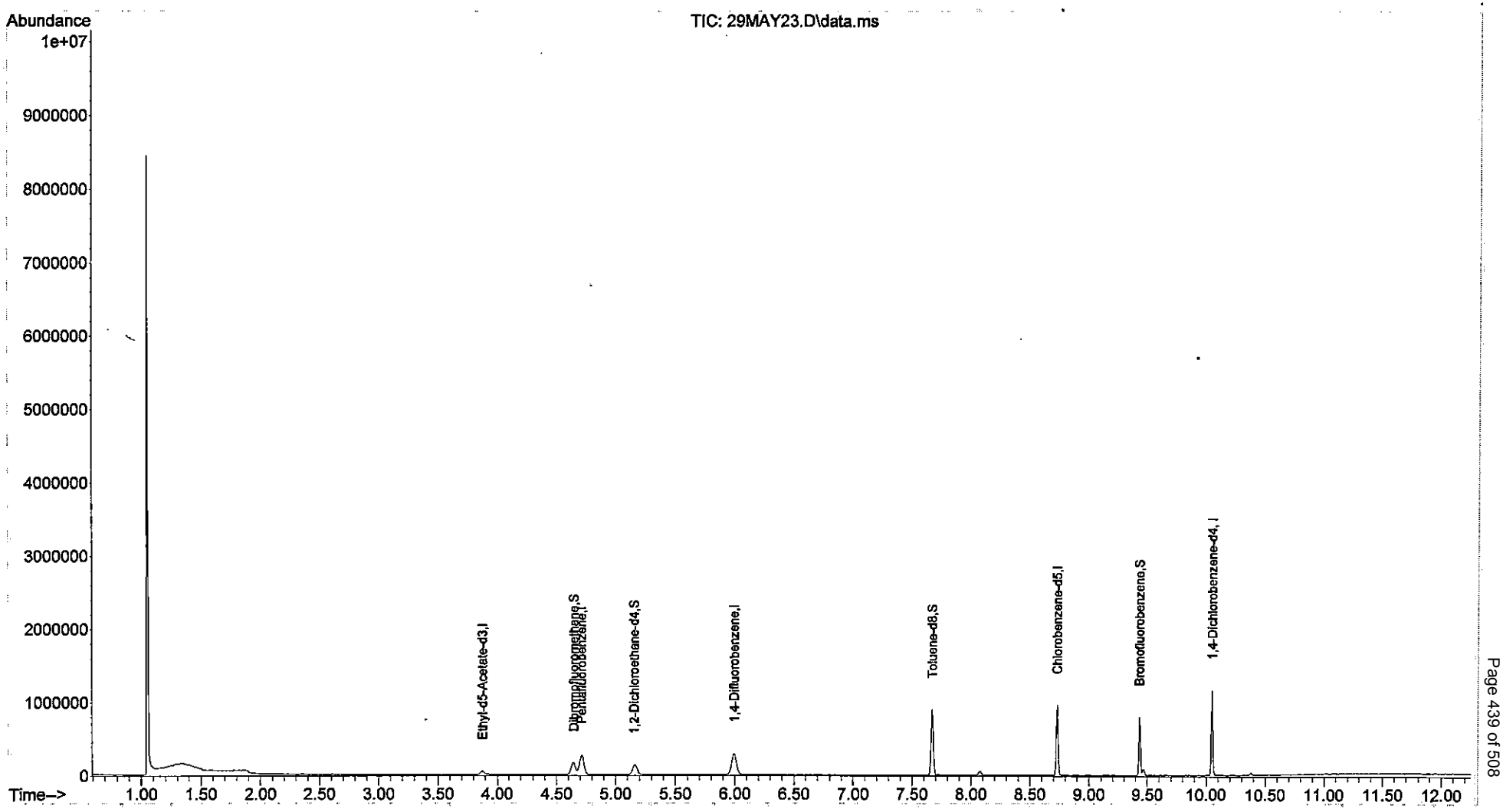
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY23.D
Acq On : 29 May 2018 4:57 pm
Operator : EMR
Sample : VBLKW1-180529
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 29 17:09:34 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 4:08 pm
Operator : EMR
Sample : VLCSW1-180529
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:45:25 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	294609	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.988	114	436909	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	398122	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	216274	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	73433	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	148502	19.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.00%				
45) 1,2-Dichloroethane-d4	5.157	65	135842	18.41	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 92.05%				
64) Toluene-d8	7.671	98	495683	19.07	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.35%				
85) Bromofluorobenzene	9.433	95	180097	19.12	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	138597	21.00	ug/L		98
3) Chloromethane	1.282	50	147296	14.76	ug/L		98
4) Vinyl chloride	1.353	62	137448	17.57	ug/L		85
5) Bromomethane	1.561	96	63597	25.63	ug/L	#	77
6) Chloroethane	1.633	64	55930	11.25	ug/L		91
7) Trichlorofluoromethane	1.812	101	144434	17.77	ug/L		96
8) Ethyl ether	2.012	59	95389	15.89	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.199	61	173511	19.56	ug/L		91
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.320	142	129200	28.34	ug/L		93
13) Acetone	2.234	43	58188	14.45	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.385	76	368225	19.15	ug/L		99
16) Allyl chloride	2.492	41	144936	14.03	ug/L	#	82
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	162029	17.24	ug/L		92
20) trans-1,2-Dichloroethene	2.858	61	184593	19.13	ug/L		91
21) t-Butanol	2.707	59	206761	101.94	ug/L		99
22) Acrylonitrile	2.815	53	76979	17.22	ug/L		96
23) Methyl tert-butyl ether	2.843	73	362279	19.63	ug/L		98
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.295	63	242905	18.42	ug/L		99
26) Diisopropyl ether	3.330	45	344954	17.74	ug/L	#	48
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	328466	17.10	ug/L		98
29) 2,2-Dichloropropane	3.954	77	191644	20.40	ug/L		97
30) cis-1,2-Dichloroethene	3.954	61	222048	19.32	ug/L		93
31) 2-Butanone	3.946	43	106768	15.45	ug/L		96
32) Ethyl Acetate	4.004	43	210851	18.57	ug/L		99
33) Methyl acrylate	4.061	55	182562	16.71	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.262	49	110363	18.23	ug/L		86
36) Tetrahydrofuran	4.283	42	63699	15.41	ug/L		87
37) Methacrylonitrile	4.211	41	108279	16.73	ug/L		95
38) Chloroform	4.412	83	254993	19.08	ug/L		98

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 4:08 pm
Operator : EMR
Sample : VLCSW1-180529
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:45:25 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.713	56	5485	0.52 ug/L #	1
41) 1,1,1-Trichloroethane	4.634	97	197559	19.48 ug/L	99
43) Carbon tetrachloride	4.863	117	178817	20.54 ug/L	100
44) 1,1-Dichloropropene	4.870	75	172816	18.12 ug/L	97
46) 1,2-Dichloroethane	5.293	62	167158	17.23 ug/L	98
47) Benzene	5.178	78	558029	20.02 ug/L	98
48) Tertiaryamylmethylether	5.443	73	352646	19.49 ug/L	98
49) Isobutyl Alcohol	5.443	43	98001	16.67 ug/L	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.346	130	156435	19.95 ug/L	97
55) 1,2-Dichloropropane	6.697	63	144616	18.14 ug/L	90
56) Dibromomethane	6.797	93	115860	19.90 ug/L	97
57) Methyl methacrylate	6.819	41	133710	14.90 ug/L	91
58) Bromodichloromethane	7.019	83	195922	19.34 ug/L	98
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	52121	13.40 ug/L #	98
61) cis-1,3-Dichloropropene	7.449	75	233822	19.41 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	321748	26.00 ug/L	80
65) Toluene	7.728	91	591942	20.67 ug/L	99
66) trans-1,3-Dichloropropene	7.936	75	216832	18.88 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	201801	16.47 ug/L	95
69) 1,1,2-Trichloroethane	8.087	97	158956	18.81 ug/L	95
70) Tetrachloroethene	8.130	166	171221	22.90 ug/L	99
71) 1,3-Dichloropropane	8.201	76	221953	18.69 ug/L	96
72) 2-Hexanone	8.244	43	162521	16.71 ug/L	98
73) Chlorodibromomethane	8.352	129	176264	19.32 ug/L	99
74) Butyl acetate	8.344	43	281230	17.35 ug/L	97
75) 1,2-Dibromoethane	8.423	107	178860	20.53 ug/L #	98
76) Chlorobenzene	8.746	112	397849	20.59 ug/L	96
77) 1,1,1,2-Tetrachloroethane	8.810	131	153005	20.50 ug/L	98
78) Ethylbenzene	8.817	91	632721	20.53 ug/L	99
79) m/p-Xylene	8.896	91	957281	40.99 ug/L	97
80) Styrene	9.140	104	408501	20.52 ug/L	98
81) o-Xylene	9.125	91	486252	19.62 ug/L	97
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	147598	21.43 ug/L	98
84) Isopropylbenzene	9.333	105	584859	20.06 ug/L	99
86) Bromobenzene	9.512	77	352013	19.26 ug/L	91
87) 1,1,2,2-Tetrachloroethane	9.512	83	276950	21.16 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	67438	18.78 ug/L	93
89) trans-1,4-Dichloro-2-b...	9.526	53	50351	13.92 ug/L	98
90) n-Propylbenzene	9.562	91	689563	20.53 ug/L	98
91) 2-Chlorotoluene	9.612	91	408167	20.28 ug/L	96
92) 4-Chlorotoluene	9.677	91	483099	20.51 ug/L	95
93) 1,3,5-Trimethylbenzene	9.655	105	466869	20.23 ug/L	97
94) tert-Butylbenzene	9.827	91	263726	19.13 ug/L	91
95) 1,2,4-Trimethylbenzene	9.856	105	497244	20.23 ug/L	99
96) sec-Butylbenzene	9.942	105	562347	20.22 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	311802	20.37 ug/L	97
99) p-Isopropyltoluene	10.013	119	475683	19.30 ug/L	98
100) 1,4-Dichlorobenzene	10.064	146	325164	20.82 ug/L	99

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 4:08 pm
Operator : EMR
Sample : VLCSW1-180529
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:45:25 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

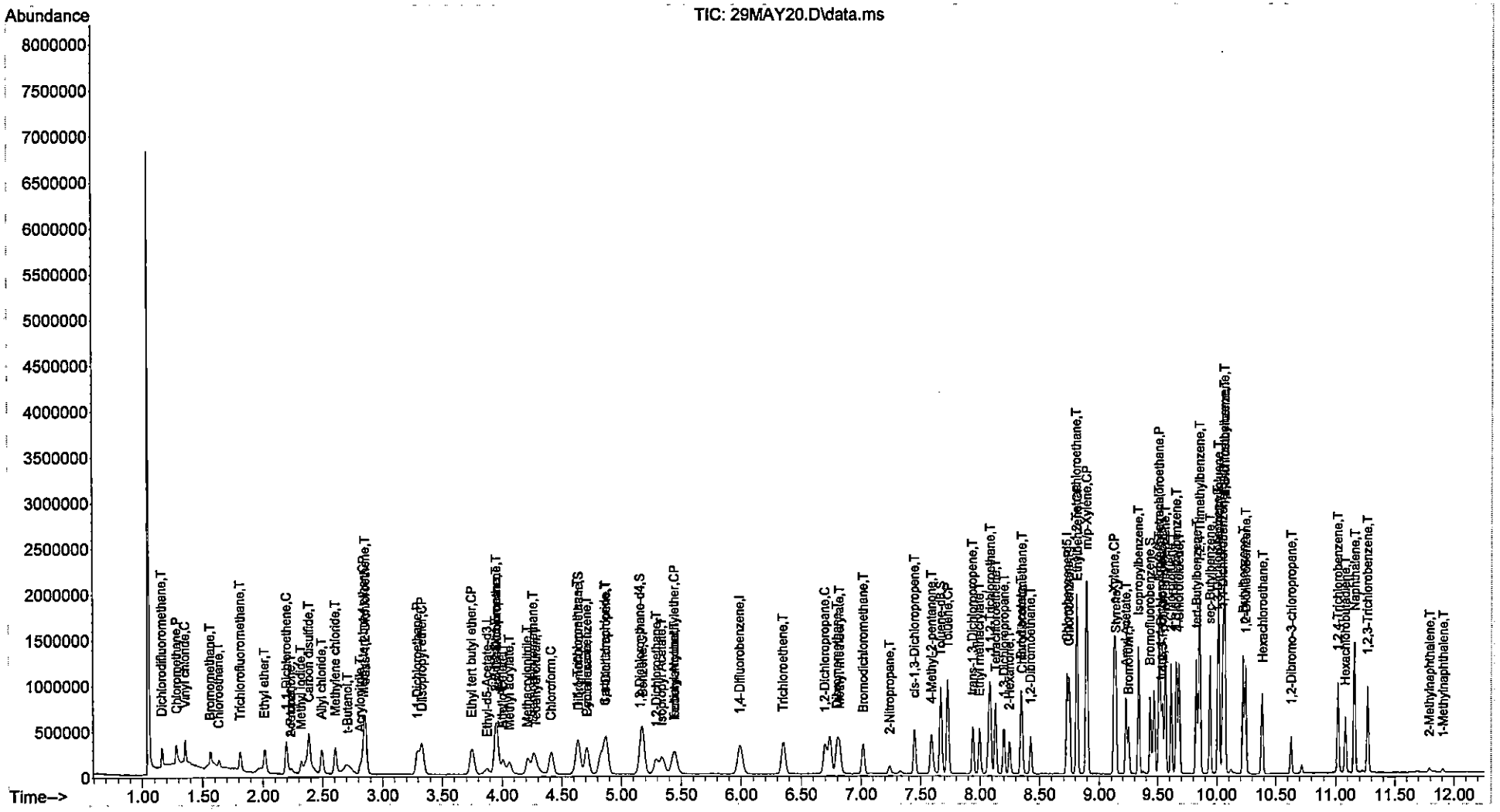
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	489567	18.92 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	308682	20.49 ug/L	99
104) n-Butylbenzene	10.221	91	432885	19.39 ug/L	98
105) Hexachloroethane	10.386	117	90843	16.39 ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.629	157	79721	18.43 ug/L	96
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	216004	20.52 ug/L	99
109) Hexachlorobutadiene	11.081	225	78142	22.21 ug/L	98
110) Naphthalene	11.160	128	762757	19.75 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	209399	20.45 ug/L	96
112) 2-Methylnaphthalene	11.790	142	15084	0.76 ug/L	85
113) 1-Methylnaphthalene	11.905	142	12829	0.69 ug/L	93
115) 2-Propanone	2.234	43	58188	17.67 ug/L	95
116) Acetic Ether	4.004	43	210851	22.58 ug/L #	97
117) Isopropyl Acetate	5.336	61	95814	22.79 ug/L	91
118) Amyl Acetate	9.226	43	261501	21.76 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 4:08 pm
Operator : EMR
Sample : VLCSW1-180529
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:45:25 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY47.D
Acq On : 29 May 2018 11:26 pm
Operator : EMR
Sample : 18051473-03A DUP
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 23:38:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	272686	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	417673	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	375758	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	192561	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	74593	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	138135	19.07	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.35%				
45) 1,2-Dichloroethane-d4	5.164	65	132102	18.73	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.65%				
64) Toluene-d8	7.671	98	475726	19.40	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.00%				
85) Bromofluorobenzene	9.433	95	167907	18.88	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.40%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.647	64	6653	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.			
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	5145	0.29	ug/L	#	76
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.607	49	5154	0.59	ug/L	#	15
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	2.693	59	8924	4.75	ug/L	#	68
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.294	63	584183	47.87	ug/L		98
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	3.946	43	5706	0.89	ug/L	#	52
32) Ethyl Acetate	3.946	43	6075	0.58	ug/L	#	88
33) Methyl acrylate	4.025	55	5827	0.58	ug/L	#	65
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY47.D
Acq On : 29 May 2018 11:26 pm
Operator : EMR
Sample : 18051473-03A DUP
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 23:38:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.634	97	16123	1.66 ug/L #	86
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.185	78	9594	0.36 ug/L #	57
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	26370	0.98 ug/L #	95
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	8.753	112	132748	7.28 ug/L	99
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.896	91	5947	0.20 ug/L #	44
79) m/p-Xylene	8.896	91	6600	0.30 ug/L #	27
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY47.D
Acq On : 29 May 2018 11:26 pm
Operator : EMR
Sample : 18051473-03A DUP
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 23:38:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

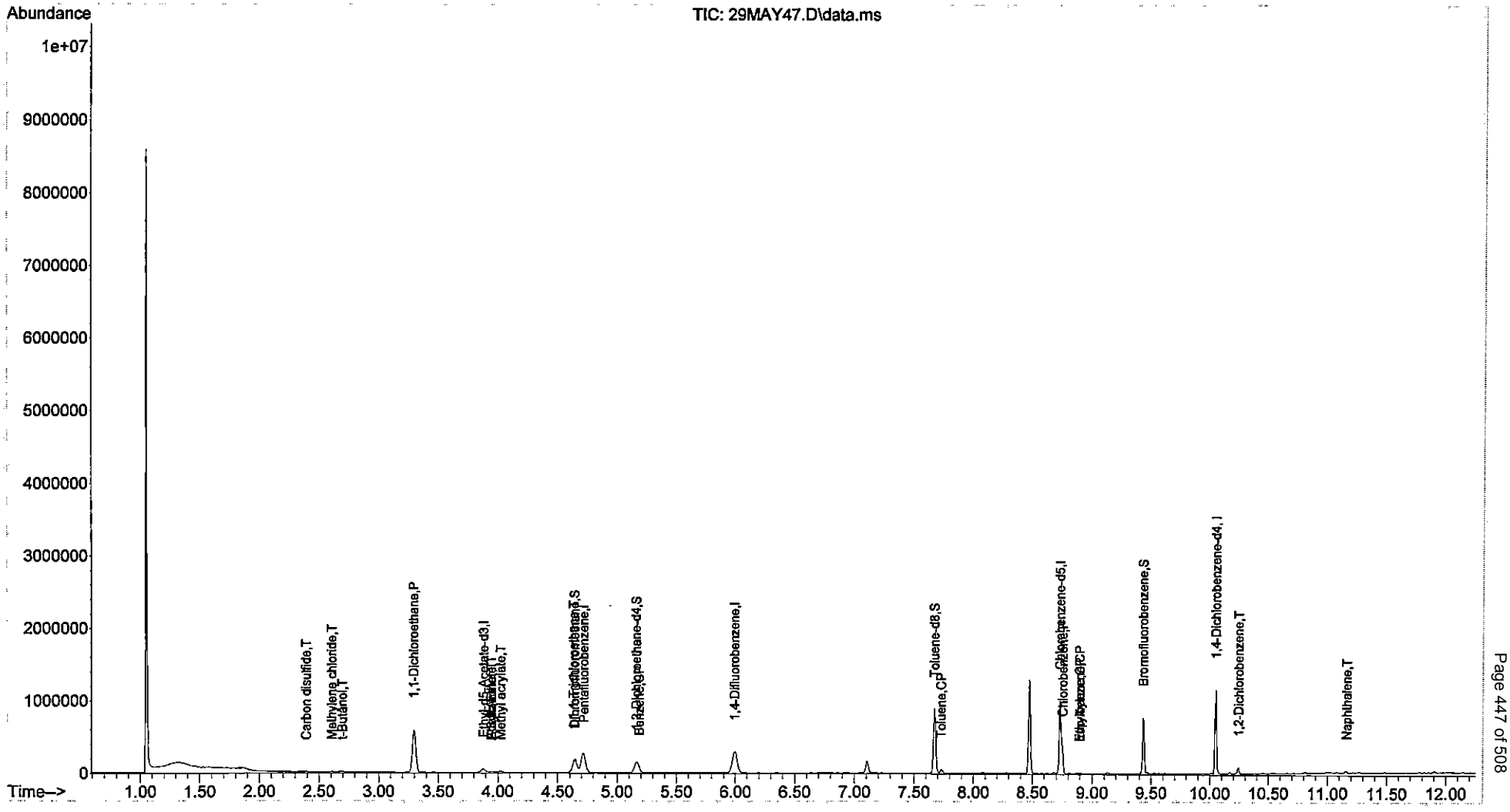
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	10.243	146	24011	1.79 ug/L	95
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.159	128	14334	0.42 ug/L #	78
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	0.000		0	N.D.	
116) Acetic Ether	3.946	43	6075	0.64 ug/L #	66
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180529\
Data File : 29MAY47.D
Acq On : 29 May 2018 11:26 pm
Operator : EMR
Sample : 18051473-03A DUP
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 29 23:38:35 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



2018 May 23 1047 Sequence Log

Starting sequence Wed May 23 10:47:26 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180523.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180523\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	23MAY01	BFB	VBFB1-180523
2)	Sample	1	23MAY02	8SGO0515	VCCV1-180523

Sequence Table edit performed Wed May 23 11:28:34 2018

3)	Sample	1	23MAY03	8SGO0515	VCCV2-180523

Sequence Table edit performed Wed May 23 11:57:18 2018

4)	Sample	1	23MAY04	8SGO0515	BLK
5)	Sample	2	23MAY05	8SGO0515	BLK
6)	Sample	1	23MAY06	BFB	VBFB2-180523
7)	Sample	1	23MAY07	8SGO0515	VCCV3-180523
8)	Sample	2	23MAY08	8SGO0515	VLCSS1-180523
9)	Sample	3	23MAY09	8SGO0515	BLK
10)	Sample	4	23MAY10	8SGO0515	VBLKS1-180523
11)	Sample	5	23MAY11	8SGO0515	18051384-05A
12)	Sample	6	23MAY12	8SGO0515	18051367-03A
13)	Sample	7	23MAY13	8SGO0515	18051367-01A DF0.914
14)	Sample	8	23MAY14	8SGO0515	18051367-02A DF1.12
15)	Sample	9	23MAY15	8SGO0515	18051384-01A DF1.21
16)	Sample	10	23MAY16	8SGO0515	18051384-02A DF1.17
17)	Sample	11	23MAY17	8SGO0515	18051384-03A DF0.703

2018 May 23 1047 Sequence Log

18) Sample 12 23MAY18 8SGO0515 18051384-01A DF0.855

Sequence Table edit performed Wed May 23 17:02:54 2018

19) Sample 13 23MAY19 8SGO0515 18051328-15A DF0.765

20) Sample 14 23MAY20 8SGO0515 18051328-16A DF0.874

21) Sample 15 23MAY21 8SGO0515 18051328-18A DF0.818

22) Sample 16 23MAY22 8SGO0515 18051328-19A DF0.766

23) Sample 17 23MAY23 8SGO0515 18051252-01C DF0.790

24) Sample 18 23MAY24 8SGO0515 18051407-01A

25) Sample 19 23MAY25 8SGO0515 18051407-02A DF0.785

26) Sample 20 23MAY26 8SGO0515 18051407-03A DF0.822

27) Sample 21 23MAY27 8SGO0515 18051407-04A DF0.969

28) Sample 22 23MAY28 8SGO0515 18051384-01A MS

29) Sample 23 23MAY29 8SGO0515 18051384-01A MSD

30) Sample 24 23MAY30 8SGO0515 BLK

31) Sample 25 23MAY31 8SGO0515 BLK

32) Sample 26 23MAY32 BFB VBFB2-180523

33) Sample 27 23MAY33 8GI0515 BLK

34) Sample 28 23MAY34 8GI0515 BLK

35) Sample 29 23MAY35 8GI0515 VBLKW2-180523

36) Sample 30 23MAY36 8GI0515 0.4 PPB

37) Sample 31 23MAY37 8GI0515 0.6PPB

38) Sample 32 23MAY38 8GI0515 2PPB

39) Sample 33 23MAY39 8GI0515 4 PPB

40) Sample 34 23MAY40 8GI0515 10PPB

41) Sample 35 23MAY41 8GI0515 40PPB

2018 May 23 1047 Sequence Log

42)	Sample	36	23MAY42	8GI0515	70PPB
43)	Sample	37	23MAY43	8GI0515	100PPB
44)	Sample	38	23MAY44	8GI0515	BLK
45)	Sample	39	23MAY45	8GI0515	ICV
46)	Sample	40	23MAY46	8GI0515	BLK
47)	Sample	41	23MAY47	BFB	VBFB3-180523
48)	Sample	42	23MAY48	8GI0515	VCCV4-180523
49)	Sample	43	23MAY49	8GI0515	VCCV5-180523
50)	Sample	44	23MAY50	8GI0515	VLCSW3-180523
51)	Sample	45	23MAY51	8GI0515	LCS-
52)	Sample	46	23MAY52	8GI0515	BLK
53)	Sample	47	23MAY53	8GI0515	VBLKW3-180523
54)	Sample	48	23MAY54	8GI0515	MBLK-
55)	Sample	49	23MAY55	8GI0515	18051125-03A
56)	Sample	50	23MAY56	8GI0515	18051158-04A
57)	Sample	51	23MAY57	8GI0515	18051164-02D
58)	Sample	52	23MAY58	8GI0515	18051285-06A
59)	Sample	53	23MAY59	8GI0515	18051285-07A
60)	Sample	54	23MAY60	8GI0515	18051285-08A
61)	Sample	55	23MAY61	8GI0515	18051285-09A
62)	Sample	56	23MAY62	8GI0515	18051285-10A
63)	Sample	57	23MAY63	8GI0515	18051285-11A
64)	Sample	58	23MAY64	8GI0515	18051285-12A
65)	Sample	59	23MAY65	8GI0515	18051285-13A

2018 May 23 1047 Sequence Log

66)	Sample	60	23MAY66	8GI0515	18051285-14A
67)	Sample	61	23MAY67	8GI0515	18051285-15A
68)	Sample	62	23MAY68	8GI0515	18051285-16A
69)	Sample	63	23MAY69	8GI0515	18051285-17A
70)	Sample	64	23MAY70	8GI0515	18051285-18A
71)	Sample	65	23MAY71	8GI0515	18051285-19A
72)	Sample	66	23MAY72	8GI0515	18051285-20A
73)	Sample	67	23MAY73	8GI0515	18051285-21A
74)	Sample	68	23MAY74	8GI0515	18051125-02A DF4
75)	Sample	69	23MAY75	8GI0515	18051285-07A MS
76)	Sample	70	23MAY76	8GI0515	18051285-07A MSD
77)	Sample	71	23MAY77	8GI0515	BLK

Sequence completed Thu May 24 09:20:01 2018

D:\MSDCHEM\1\DATA\8V180523\2018 May 23 1047 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180523\2018 May 23 1047 Sequence Log .LOG

2018 May 24 1436 Sequence Log

Starting sequence Thu May 24 14:36:36 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180524.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180524\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	1	24MAY01	8SGO0515	BLK
2)	Sample	2	24MAY02	8SGO0515	BLK
3)	BFB	1	24MAY03	BFB	VBFB1-180525
4)	BFB	1	24MAY04	BFB	VBFB2-180525
5)	Sample	1	24MAY05	8SGO0515	VCCV1-180524
6)	Sample	1	24MAY06	8SGO0515	VCCV2-180524
7)	Sample	2	24MAY07	8SGO0515	VLCSS1-180524
8)	Sample	2	24MAY08	8SGO0515	BLK
9)	BFB	1	24MAY09	BFB	VBFB2-180524
10)	Sample	1	24MAY10	8SGO0515	VCCV3-180524
11)	Sample	1	24MAY11	8SGO0515	VCCV4-180524

Sequence Table edit performed Thu May 24 14:58:55 2018

12)	Sample	2	24MAY12	8SGO0515	VLCSS1-180524
13)	Sample	3	24MAY13	8SGO0515	BLK
14)	Sample	4	24MAY14	8SGO0515	VBLKS1-180524
15)	Sample	5	24MAY15	8SGO0515	18051252-10A
16)	Sample	6	24MAY16	8SGO0515	18051252-02C DF0.853
17)	Sample	7	24MAY17	8SGO0515	18051384-01C MS
18)	Sample	8	24MAY18	8SGO0515	18051384-01C MSD

2018 May 24 1436 Sequence Log

19) Sample	9	24MAY19	8SGO0515	BLK	
20) Sample	10	24MAY20	8SGO0515	18051252-04C	DF0.975
21) Sample	11	24MAY21	8SGO0515	18051252-05C	DF0.849
22) Sample	12	24MAY22	8SGO0515	18051252-07C	DF0.923
23) Sample	13	24MAY23	8SGO0515	18051252-08C	DF0.904
24) Sample	14	24MAY24	8SGO0515	18051252-09C	DF1.04
25) Sample	15	24MAY25	8SGO0515	18051252-02C	DF0.893
26) Sample	16	24MAY26	8SGO0515	18051252-04C	DF0.894
27) Sample	17	24MAY27	8SGO0515	18051252-05C	DF1.24
28) Sample	18	24MAY28	8SGO0515	18051252-07C	DF0.901
29) Sample	19	24MAY29	8SGO0515	18051252-08C	DF0.896
30) Sample	20	24MAY30	8SGO0515	18051252-09C	DF0.864
31) Sample	21	24MAY31	8SGO0515	18051252-02C	MS
32) Sample	22	24MAY32	8SGO0515	18051252-02C	MSD
33) Sample	23	24MAY33	8SGO0515	BLK	
34) Sample	24	24MAY34	8GI0515	BLK	
35) Sample	25	24MAY35	BFB	VBFB3-180524	
36) Sample	26	24MAY36	8GI0515	VCCV2-180524	
37) Sample	27	24MAY37	8GI0515	VCCV2-180525	
38) Sample	28	24MAY38	8GI0515	VLCSW1-180524	
39) Sample	29	24MAY39	8GI0515	LCS-	
40) Sample	30	24MAY40	8GI0515	BLK	
41) Sample	31	24MAY41	8GI0515	VBLKW2-180524	
42) Sample	32	24MAY42	8GI0515	MBLK-	

2018 May 24 1436 Sequence Log

43) Sample	33	24MAY43	8GI0515	18051186-04A
44) Sample	34	24MAY44	8GI0515	18051186-01A
45) Sample	35	24MAY45	8GI0515	18051186-03A
46) Sample	36	24MAY46	8GI0515	18051186-02A
47) Sample	37	24MAY47	8GI0515	18051304-01A DF10
48) Sample	38	24MAY48	8GI0515	18051304-02A
49) Sample	39	24MAY49	8GI0515	18051153-01A
50) Sample	40	24MAY50	8GI0515	18051153-02A
51) Sample	41	24MAY51	8GI0515	18051153-03A
52) Sample	42	24MAY52	8GI0515	18051153-04A
53) Sample	43	24MAY53	8GI0515	18051153-05A
54) Sample	44	24MAY54	8GI0515	18051153-06A
55) Sample	45	24MAY55	8GI0515	18051153-07A
56) Sample	46	24MAY56	8GI0515	18051153-08A
57) Sample	47	24MAY57	8GI0515	18051153-09A
58) Sample	48	24MAY58	8GI0515	18051153-10A
59) Sample	49	24MAY59	8GI0515	18051153-11A
60) Sample	50	24MAY60	8GI0515	18051153-12A
61) Sample	51	24MAY61	8GI0515	18051153-13A
62) Sample	52	24MAY62	8GI0515	18051304-01A
63) Sample	53	24MAY63	8GI0515	18051304-01A MS DF10
64) Sample	54	24MAY64	8GI0515	18051304-01A MSD DF10
65) Sample	55	24MAY65	8GI0515	BLK
66) Sample	56	24MAY66	BFB	VBFB4-180524

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67) Sample 57 24MAY67 8GI0515 VCCV4-180524

68) Sample 58 24MAY68 8GI0515 VCCV5-180524

69) Sample 59 24MAY69 8GI0515 VLCSW3-180524

70) Sample 60 24MAY70 8GI0515 BLK

71) Sample 61 24MAY71 8GI0515 VBLKW3-180524

72) Sample 62 24MAY72 8GI0515 18051388-16A

73) Sample 63 24MAY73 8GI0515 18051388-01A

74) Sample 64 24MAY74 8GI0515 18051388-02A .

75) Sample 65 24MAY75 8GI0515 18051388-03

76) Sample 66 24MAY76 8GI0515 18051388-04
Sequence Table edit performed Fri May 25 08:55:22 2018

77) Sample 67 24MAY77 8GI0515 18051388-05A

78) Sample 68 24MAY78 8GI0515 18051388-06A

79) Sample 69 24MAY79 8GI0515 18051288-01A

80) Sample 70 24MAY80 8GI0515 18051090-01A DF10

81) Sample 71 24MAY81 8GI0515 18051480-02A DF20

82) Sample 72 24MAY82 8GI0515 18051480-04A DF20

83) Sample 73 24MAY83 8GI0515 18051552-02A DF20

84) Sample 74 24MAY84 8GI0515 18051552-01A DF10

85) Sample 75 24MAY85 8GI0515 18051388-13A DF20

86) Sample 76 24MAY86 8GI0515 18051388-11A DF5

87) Sample 77 24MAY87 8GI0515 18051388-13A DF5

88) Sample 78 24MAY88 8GI0515 18051388-14A DF20

89) Sample 79 24MAY89 8GI0515 18051388-10A DF5

2018 May 24 1436 Sequence Log

90) Sample	80	24MAY90	8GI0515	18051388-12A
91) Sample	1	24MAY91	8GI0515	18051388-15A
92) Sample	2	24MAY92	8GI0515	18051388-06A MS
93) Sample	3	24MAY93	8GI0515	18051388-06A MSD
94) Sample	4	24MAY94	8GI0515	BLK
95) Sample	1	24MAY95	8SGO0515	BLK
96) Sample	2	24MAY96	8SGO0515	BLK

Sequence completed Fri May 25 14:30:21 2018

D:\MSDCHEM\1\DATA\8V180524\2018 May 24 1436 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180524\2018 May 24 1436 Sequence Log .LOG

ANA
5-26-18

Sequence Name: C:\msdchem\1\sequence\VMS7_180525.s
Comment:
Operator: WH
Data Path: D:\MSDCHEM\1\DATA\7V180525\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line		Sample Name/Misc Info			
1)	Sample	1	25MAY01	BFB	VBFB1-180525
2)	Sample	1	25MAY02	7AC0524	VCCV1-180525
3)	Sample	1	25MAY03	7AC0524	VCCV2-180525
4)	Sample	2	25MAY04	7AC0524	VLCSW1-180525
5)	Sample	3	25MAY05	7AC0524	LCS-118698
6)	Sample	4	25MAY06	7AC0524	BLK
7)	Sample	5	25MAY07	7AC0524	VBLKW1-180525
8)	Sample	6	25MAY08	7AC0524	MBLK-118698
9)	Sample	7	25MAY09	7AC0524	18051285-10A
10)	Sample	8	25MAY10	7AC0524	18051285-12A
11)	Sample	9	25MAY11	7AC0524	18051285-15A
12)	Sample	10	25MAY12	7AC0524	18051285-16A
13)	Sample	11	25MAY13	7AC0524	18051407-07A
14)	Sample	12	25MAY14	7AC0524	18051407-09A
15)	Sample	13	25MAY15	7AC0524	18051407-10A
16)	Sample	14	25MAY16	7AC0524	18051285-09A DF10
17)	Sample	15	25MAY17	7AC0524	18051285-11A DF10
18)	Sample	16	25MAY18	7AC0524	18051285-14A DF10
19)	Sample	17	25MAY19	7AC0524	18051773-01A
20)	Sample	18	25MAY20	7AC0524	18051377-02A DF10
21)	Sample	19	25MAY21	7AC0524	18051377-06A DF10
22)	Sample	20	25MAY22	7AC0524	18051287-01A
23)	Sample	21	25MAY23	7AC0524	18051287-02A
24)	Sample	22	25MAY24	7AC0524	18051287-03A
25)	Sample	23	25MAY25	7AC0524	18051287-05A
26)	Sample	24	25MAY26	7AC0524	18051422-02A DF20
27)	Sample	25	25MAY27	7AC0524	18051377-02A MS DF10
28)	Sample	26	25MAY28	7AC0524	18051377-02A MS DF10
29)	Sample	27	25MAY29	7AC0524	18051407-07A MS
30)	Sample	28	25MAY30	7AC0524	18051407-07A MSD
31)	Sample	29	25MAY31	7AC0524	BLK
32)	Sample	30	25MAY32	BFB	VBFB2-180525
33)	Sample	31	25MAY33	7AC0524	VCCV2-180525
34)	Sample	32	25MAY34	7AC0524	VCCV3-180525
35)	Sample	33	25MAY35	7AC0524	VLCSW2-180525
36)	Sample	34	25MAY36	7AC0524	LCS-
37)	Sample	35	25MAY37	7AC0524	BLK
38)	Sample	36	25MAY38	7AC0524	VBLKW2-180525
39)	Sample	37	25MAY39	7AC0524	MBLK-
40)	Sample	38	25MAY40	7AC0524	18051382-01A
41)	Sample	39	25MAY41	7AC0524	18051382-02A
42)	Sample	40	25MAY42	7AC0524	18051382-03A
43)	Sample	41	25MAY43	7AC0524	18051382-04A

Sequence Name: C:\msdchem\1\sequence\VMS7_180525.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	42	25MAY44	7AC0524	18051382-05A
45)		Sample	43	25MAY45	7AC0524	18051406-01A
46)		Sample	44	25MAY46	7AC0524	18051406-02A
47)		Sample	45	25MAY47	7AC0524	18051406-03A
48)		Sample	46	25MAY48	7AC0524	18051446-01A
49)		Sample	47	25MAY49	7AC0524	18051446-02A
50)		Sample	48	25MAY50	7AC0524	18051453-01A
51)		Sample	49	25MAY51	7AC0524	18051453-02A
52)		Sample	50	25MAY52	7AC0524	18051456-01A
53)		Sample	51	25MAY53	7AC0524	18051458-01A
54)		Sample	52	25MAY54	7AC0524	18051459-01A
55)		Sample	53	25MAY55	7AC0524	18051365-12A
56)		Sample	54	25MAY56	7AC0524	18051408-01A
57)		Sample	55	25MAY57	7AC0524	18051408-02A
58)		Sample	56	25MAY58	7AC0524	18051408-03A
59)		Sample	57	25MAY59	7AC0524	18051408-04A
60)		Sample	58	25MAY60	7AC0524	18051406-01A MS
61)		Sample	59	25MAY61	7AC0524	18051406-01A MSD
62)		Sample	60	25MAY62	7AC0524	BLK

2018 May 25 1640 Sequence Log

Starting sequence Fri May 25 16:40:14 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180525.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180525\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	25MAY01	BFB	VBFB1-180525
2)	Sample	1	25MAY02	8SGO0515	VCCV1-180525

Sequence Table edit performed Fri May 25 15:34:44 2018

3)	Sample	2	25MAY03	8SGO0515	VLCSS1-180525
4)	Sample	3	25MAY04	8SGO0515	BLK
5)	Sample	4	25MAY05	8SGO0515	BLK
6)	Sample	5	25MAY06	8SGO0515	VBLKS1-180525
7)	Sample	5	25MAY07	8SGO0515	18051407-09A DF0.952
8)	Sample	6	25MAY08	8SGO0515	18051407-09A DF0.951
9)	Sample	7	25MAY09	8SGO0515	18051407-09A MS
10)	Sample	8	25MAY10	8SGO0515	18051407-09A MSD
11)	Sample	9	25MAY11	8SGO0515	BLK
12)	Sample	10	25MAY12	8GI0515	BLK
13)	Sample	11	25MAY13	BFB	VBFB3-180525
14)	Sample	12	25MAY14	8GI0515	VCCV2-180525
15)	Sample	13	25MAY15	8GI0515	VCCV3-180525
16)	Sample	14	25MAY16	8GI0515	VLCSW1-180525
17)	Sample	15	25MAY17	8GI0515	LCS-
18)	Sample	16	25MAY18	8GI0515	BLK

2018 May 25 1640 Sequence Log

19)	Sample	17	25MAY19	8GI0515	VBLKW1-180525
20)	Sample	18	25MAY20	8GI0515	MBLK-
21)	Sample	19	25MAY21	8GI0515	18051282-18A
22)	Sample	20	25MAY22	8GI0515	18051282-17A
23)	Sample	21	25MAY23	8GI0515	18051282-13A
24)	Sample	22	25MAY24	8GI0515	18051315-11A
25)	Sample	23	25MAY25	8GI0515	18051315-01A
26)	Sample	24	25MAY26	8GI0515	18051315-02A
27)	Sample	25	25MAY27	8GI0515	18051315-03A
28)	Sample	26	25MAY28	8GI0515	18051315-04A
29)	Sample	27	25MAY29	8GI0515	18051315-05A
30)	Sample	28	25MAY30	8GI0515	18051315-06A
31)	Sample	29	25MAY31	8GI0515	18051315-07A
32)	Sample	30	25MAY32	8GI0515	18051315-08A
33)	Sample	31	25MAY33	8GI0515	18051315-09A
34)	Sample	32	25MAY34	8GI0515	18051315-10A
35)	Sample	33	25MAY35	8GI0515	18051328-20A
36)	Sample	34	25MAY36	8GI0515	18051328-17A
37)	Sample	35	25MAY37	8GI0515	18051328-08A
38)	Sample	36	25MAY38	8GI0515	18051328-03A
39)	Sample	37	25MAY39	8GI0515	18051328-04A
40)	Sample	38	25MAY40	8GI0515	18051328-01A
41)	Sample	39	25MAY41	8GI0515	18051315-05A DUP
42)	Sample	40	25MAY42	8GI0515	18051315-06A MS
43)	Sample	41	25MAY43	8GI0515	BLK
44)	Sample	42	25MAY44	BFB	VBFB3-180525

2018 May 25 1640 Sequence Log

45)	Sample	43	25MAY45	8GI0515	VCCV4-180525
46)	Sample	44	25MAY46	8GI0515	VCCV5-180525
47)	Sample	45	25MAY47	8GI0515	VLCSW2-180525
48)	Sample	46	25MAY48	8GI0515	VLCSW3-180525
49)	Sample	47	25MAY49	8GI0515	BLK
50)	Sample	48	25MAY50	8GI0515	VBLKW2-180525
51)	Sample	49	25MAY51	8GI0515	18051400-01A
52)	Sample	50	25MAY52	8GI0515	18051400-02A
53)	Sample	51	25MAY53	8GI0515	18051400-03A DF200
54)	Sample	52	25MAY54	8GI0515	18051400-04A
55)	Sample	53	25MAY55	8GI0515	18051400-05A DF10
56)	Sample	54	25MAY56	8GI0515	18051400-06A DF5
57)	Sample	55	25MAY57	8GI0515	18051400-07A
58)	Sample	56	25MAY58	8GI0515	18051400-08A
59)	Sample	57	25MAY59	8GI0515	18051400-09A
60)	Sample	58	25MAY60	8GI0515	18051400-10A
61)	Sample	59	25MAY61	8GI0515	18051400-11A
62)	Sample	60	25MAY62	8GI0515	18051400-12A
63)	Sample	61	25MAY63	8GI0515	18051400-13A
64)	Sample	62	25MAY64	8GI0515	18051400-14A
65)	Sample	63	25MAY65	8GI0515	18051400-15A DF200
66)	Sample	64	25MAY66	8GI0515	18051400-16A
67)	Sample	65	25MAY67	8GI0515	18051400-17A DF5
68)	Sample	66	25MAY68	8GI0515	18051400-18A
69)	Sample	67	25MAY69	8GI0515	18051400-19A
70)	Sample	68	25MAY70	8GI0515	18051400-20A DF200
71)	Sample	69	25MAY71	8GI0515	18051400-20A MS DF200
72)	Sample	70	25MAY72	8GI0515	18051400-20A MSD DF200
73)	Sample	71	25MAY73	8GI0515	BLK

2018 May 25 1640 Sequence Log

Sequence completed Sat May 26 11:35:29 2018

D:\MSDCHEM\1\DATA\8V180525\2018 May 25 1640 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180525\2018 May 25 1640 Sequence Log .LOG

2018 May 27 1636 Sequence Log

Starting sequence Sun May 27 16:36:55 2018

Instrument Name: VMS7
Sequence File: C:\msdchem\1\sequence\VMS7_180527.s
Comment:
Operator: WH
Data Path: D:\MSDCHEM\1\DATA\7V180527\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	4	27MAY01	7AC0524	BLK
2)	Sample	1	27MAY02	BFB	VBFB1-180527
3)	Sample	1	27MAY03	7AC0524	VCCV1-180527
4)	Sample	2	27MAY04	7AC0524	VLCSW1-180527
5)	Sample	3	27MAY05	7AC0524	VLCSW2-180527
6)	Sample	3	27MAY06	7AC0524	BLK
7)	Sample	4	27MAY07	7AC0524	VBLKW1-180527
8)	Sample	5	27MAY08	7AC0524	18051407-12A
9)	Sample	6	27MAY09	7AC0524	18051296-09A
10)	Sample	7	27MAY10	7AC0524	18051296-17A
11)	Sample	8	27MAY11	7AC0524	18051315-05A
12)	Sample	9	27MAY12	7AC0524	18021296-01A
13)	Sample	10	27MAY13	7AC0524	18021296-02A
14)	Sample	11	27MAY14	7AC0524	18021296-03A
15)	Sample	12	27MAY15	7AC0524	18021296-04A
16)	Sample	13	27MAY16	7AC0524	18021296-05A
17)	Sample	14	27MAY17	7AC0524	18021296-06A
18)	Sample	15	27MAY18	7AC0524	18021296-07A
19)	Sample	16	27MAY19	7AC0524	18021296-08A
20)	Sample	17	27MAY20	7AC0524	18021296-10A
21)	Sample	18	27MAY21	7AC0524	18021296-11A
22)	Sample	19	27MAY22	7AC0524	18021296-12A
23)	Sample	20	27MAY23	7AC0524	18021296-13A
24)	Sample	21	27MAY24	7AC0524	18021296-14A
25)	Sample	22	27MAY25	7AC0524	18021407-05A
26)	Sample	23	27MAY26	7AC0524	18021407-06A
27)	Sample	24	27MAY27	7AC0524	18021407-11A
28)	Sample	25	27MAY28	7AC0524	18051296-01ADUP
29)	Sample	26	27MAY29	7AC0524	18051296-02A MS
30)	Sample	27	27MAY30	7AC0524	BLK
31)	Pause: ' '				

Sequence paused Mon May 28 04:10:02 2018

D:\MSDCHEM\1\DATA\7V180527\2018 May 27 1636 Quality Log.LOG
D:\MSDCHEM\1\DATA\7V180527\2018 May 27 1636 Sequence Log .LOG

2018 May 29 0811 Sequence Log

Starting sequence Tue May 29 08:11:34 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180529.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180529\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	Sample	1	29MAY01	8GI0515	BK
2)	Sample	2	29MAY02	8SGO0515	BLK
3)	Sample	2	29MAY03	8SGO0515	BLK
4)	BFB	1	29MAY04	BFB	VBFB1-180529
5)	Sample	1	29MAY05	8SGO0515	VCCV1-180529
6)	Sample	2	29MAY06	8SGO0515	VLCSW1-180529
7)	Sample	3	29MAY07	8SGO0515	BLK
8)	Sample	4	29MAY08	8SGO0515	VBLKS1-180529
9)	Sample	5	29MAY09	8SGO0515	18051478-02A DF0.842
10)	Sample	6	29MAY10	8SGO0515	18051478-04A DF0.986
11)	Sample	7	29MAY11	8SGO0515	18051478-05A DF0.879
12)	Sample	8	29MAY12	8SGO0515	18051478-06A DF0.996
13)	Sample	9	29MAY13	8SGO0515	18051478-06A DF0.960
14)	Sample	10	29MAY14	8SGO0515	18051478-04A MS
15)	Sample	11	29MAY15	8SGO0515	18051478-04A MSD
16)	Sample	12	29MAY16	8SGO0515	BLK
17)	Sample	13	29MAY17	8SGO0515	BLK
18)	BFB	1	29MAY18	BFB	VBFB2-180529
19)	Sample	1	29MAY19	8GI0515	VCCV2-180529
20)	Sample	2	29MAY20	8GI0515	VLCSW1-180529
21)	Sample	3	29MAY21	8GI0515	LCS-
22)	Sample	4	29MAY22	8GI0515	BLK
23)	Sample	5	29MAY23	8GI0515	VBLKW1-180529
24)	Sample	6	29MAY24	8GI0515	MBLK-
25)	Sample	7	29MAY25	8GI0515	18051407-05A
26)	Sample	8	29MAY26	8GI0515	18051407-11A
27)	Sample	9	29MAY27	8GI0515	18051421-01E
28)	Sample	10	29MAY28	8GI0515	18051416-02A
29)	Sample	11	29MAY29	8GI0515	18051416-03A
30)	Sample	12	29MAY30	8GI0515	18051416-05A
31)	Sample	13	29MAY31	8GI0515	18051416-06A
32)	Sample	14	29MAY32	8GI0515	18051416-10A
33)	Sample	15	29MAY33	8GI0515	18051473-03A DF5
This computer is now swap bound.					
34)	Sample	16	29MAY34	8GI0515	18051473-04A DF5
35)	Sample	17	29MAY35	8GI0515	18051473-05A DF25
36)	Sample	18	29MAY36	8GI0515	18051401-01A

2018 May 29 0811 Sequence Log

```
 37) Sample        19  29MAY37   8GI0515   18051401-02A
 38) Sample        20  29MAY38   8GI0515   18051401-03A
 39) Sample        21  29MAY39   8GI0515   18051416-01A DF25
 40) Sample        22  29MAY40   8GI0515   18051416-09A DF25
 41) Sample        23  29MAY41   8GI0515   18051473-02A DF5
 42) Sample        24  29MAY42   8GI0515   18051473-05A DF5
 43) Sample        25  29MAY43   8GI0515   18051473-03A
 44) Sample        26  29MAY44   8GI0515   18051473-01A DF200
 45) Sample        27  29MAY45   8GI0515   18051401-01A MS
 46) Sample        28  29MAY46   8GI0515   18051401-01A MSD
 47) Sample        29  29MAY47   8GI0515   18051473-03A DUP DF5
 48) Sample        30  29MAY48   8GI0515   BLK
 49) Sample        31  29MAY49   8GI0515   BLK
 50) Sample        32  29MAY50   BFB       VBFB3-180529
 51) Sample        33  29MAY51   8GI0515   VCCV4-180529
 52) Sample        34  29MAY52   8GI0515   VCCV5-180529
 53) Sample        35  29MAY53   8GI0515   VLCSW3-180529
 54) Sample        36  29MAY54   8GI0515   BLK
 55) Sample        37  29MAY55   8GI0515   VBLKW3-180529
 56) Sample        38  29MAY56   8GI0515   18051645-09A
 57) Sample        39  29MAY57   8GI0515   18051605-10A
 58) Sample        40  29MAY58   8GI0515   18051605-01A
 59) Sample        41  29MAY59   8GI0515   18051605-02A
 60) Sample        42  29MAY60   8GI0515   18051605-03A
 61) Sample        43  29MAY61   8GI0515   18051605-04A
 62) Sample        44  29MAY62   8GI0515   18051605-05A
This computer is now swap bound.
 63) Sample        45  29MAY63   8GI0515   18051605-06A
 64) Sample        46  29MAY64   8GI0515   18051605-07A
This computer is now swap bound.
 65) Sample        47  29MAY65   8GI0515   18051605-08A
 66) Sample        48  29MAY66   8GI0515   18051605-09A
 67) Sample        49  29MAY67   8GI0515   18051645-01A
This computer is now swap bound.
 68) Sample        50  29MAY68   8GI0515   18051645-02A
This computer is now swap bound.
 69) Sample        51  29MAY69   8GI0515   18051645-03A
 70) Sample        52  29MAY70   8GI0515   18051645-04A
 71) Sample        53  29MAY71   8GI0515   18051645-05A
 72) Sample        54  29MAY72   8GI0515   18051645-06A
 73) Sample        55  29MAY73   8GI0515   18051645-07A
 74) Sample        56  29MAY74   8GI0515   18051645-08A
 75) Sample        57  29MAY75   8GI0515   18051697-01A DF500
This computer is now swap bound.
 76) Sample        58  29MAY76   8GI0515   18051645-01A DUP
This computer is now swap bound.
 77) Sample        59  29MAY77   8GI0515   18051645-02A MS
 78) Sample        60  29MAY78   8GI0515   BLK
```

Sequence Name: C:\msdchem\1\sequence\8V180530.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180530\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

EMR 5/31/18

Line			Sample Name/Misc Info		
1)	Sample	1	30MAY01	8SGO0515	BK
2)	Sample	2	30MAY02	8SGO0515	BLK
3)	BFB	1	30MAY03	BFB	VBFB1-180530
4)	Sample	1	30MAY04	8SGO0515	VCCV1-180530
5)	Sample	1	30MAY05	8SGO0515	VCCV2-180530
6)	Sample	2	30MAY06	8SGO0515	VLCSS1-180530
7)	Sample	3	30MAY07	8SGO0515	BLK
8)	Sample	4	30MAY08	8SGO0515	BLK
9)	Sample	5	30MAY09	8SGO0515	VBLKS1-180531
10)	Sample	6	30MAY10	8SGO0515	18051689-02C DF0.962
11)	Sample	7	30MAY11	8SGO0515	18051689-06C DF0.960
12)	Sample	8	30MAY12	8SGO0515	18051689-10C DF0.745
13)	Sample	9	30MAY13	8SGO0515	18051689-14C DF0.799
14)	Sample	10	30MAY14	8SGO0515	18051689-18C DF0.824
15)	Sample	11	30MAY15	8SGO0515	18051888-01A DF1.10
16)	Sample	12	30MAY16	8SGO0515	18051888-02A DF1.06
17)	Sample	13	30MAY17	8SGO0515	18051888-03A DF0.996
18)	Sample	14	30MAY18	8SGO0515	18051888-05A DF1.06
19)	Sample	15	30MAY19	8SGO0515	18051888-03A DF1.18
20)	Sample	16	30MAY20	8SGO0515	18051888-05A DF1.75
21)	Sample	17	30MAY21	8SGO0515	18051682-04A DF0.702
22)	Sample	18	30MAY22	8SGO0515	18051061-05A
23)	Sample	19	30MAY23	8SGO0515	18051689-22C DF0.933
24)	Sample	20	30MAY24	8SGO0515	18051689-26C DF0.765
25)	Sample	21	30MAY25	8SGO0515	18051689-30C DF0.904
26)	Sample	22	30MAY26	8SGO0515	18051689-34C DF0.984
27)	Sample	23	30MAY27	8SGO0515	18051682-04A DF0.792
28)	Sample	24	30MAY28	8SGO0515	18051689-38C DF0.935
29)	Sample	25	30MAY29	8SGO0515	18051689-22C DF1.01
30)	Sample	26	30MAY30	8SGO0515	18051689-26C DF0.746
31)	Sample	27	30MAY31	8SGO0515	18051689-30C DF0.914
32)	Sample	28	30MAY32	8SGO0515	18051689-34C DF0.938
33)	Sample	29	30MAY33	8SGO0515	18051689-38C DF1.13
34)	Sample	30	30MAY34	8SGO0515	18051689-10C MS
35)	Sample	31	30MAY35	8SGO0515	18051689-10C MSD
36)	Sample	32	30MAY36	8SGO0515	BLK
37)	Sample	33	30MAY37	8GI0515	BLK
38)	Sample	34	30MAY38	BFB	VBFB2-180530
39)	Sample	35	30MAY39	8GI0515	VCCV2-180530
40)	Sample	36	30MAY40	8GI0515	VCCV3-180530
41)	Sample	37	30MAY41	8GI0515	VLCSW1-180530
42)	Sample	38	30MAY42	8GI0515	LCS-
43)	Sample	39	30MAY43	8GI0515	BLK

Sequence Name: C:\msdchem\1\sequence\8V180530.s

Line	Type	Vial	DataFile	Method	Sample Name
44)	Sample	40	30MAY44	8GI0515	VBLKW2-180530
45)	Sample	41	30MAY45	8GI0515	MBLK-
46)	Sample	42	30MAY46	8GI0515	18051647-21A
47)	Sample	43	30MAY47	8GI0515	18051713-07A
48)	Sample	44	30MAY48	8GI0515	18051713-08A
49)	Sample	45	30MAY49	8GI0515	18051713-09A
50)	Sample	46	30MAY50	8GI0515	18051713-10A
51)	Sample	47	30MAY51	8GI0515	18051689-42A
52)	Sample	48	30MAY52	8GI0515	18051713-06E
53)	Sample	49	30MAY53	8GI0515	18051682-01A
54)	Sample	50	30MAY54	8GI0515	18051682-03A
55)	Sample	51	30MAY55	8GI0515	18051682-02A
56)	Sample	52	30MAY56	8GI0515	18051838-01A DF10
57)	Sample	53	30MAY57	8GI0515	18051842-01A DF10
58)	Sample	54	30MAY58	8GI0515	18051713-01E
59)	Sample	55	30MAY59	8GI0515	18051713-02E
60)	Sample	56	30MAY60	8GI0515	18051713-03E
61)	Sample	57	30MAY61	8GI0515	18051713-04E
62)	Sample	58	30MAY62	8GI0515	18051713-05E
63)	Sample	59	30MAY63	8GI0515	18051713-11E
64)	Sample	60	30MAY64	8GI0515	18051713-12E
65)	Sample	61	30MAY65	8GI0515	18051689-41A
66)	Sample	62	30MAY66	8GI0515	18051473-03A MSD DF5
67)	Sample	63	30MAY67	8GI0515	18051713-11E MS
68)	Sample	64	30MAY68	8GI0515	18051713-11E MSD
69)	Sample	65	30MAY69	8GI0515	BLK
70)	Sample	66	30MAY70	BFB	VBFB3-180530
71)	Sample	67	30MAY71	8GI0515	VCCV4-180530
72)	Sample	68	30MAY72	8GI0515	VCCV5-180530
73)	Sample	69	30MAY73	8GI0515	VLCSW3-180530
74)	Sample	70	30MAY74	8GI0515	BLK
75)	Sample	71	30MAY75	8GI0515	VBLKW3-180530
76)	Sample	72	30MAY76	8GI0515	18051786-03A
77)	Sample	73	30MAY77	8GI0515	18051728-13A
78)	Sample	74	30MAY78	8GI0515	18051728-01A
79)	Sample	75	30MAY79	8GI0515	18051728-02A
80)	Sample	76	30MAY80	8GI0515	18051728-03A
81)	Sample	77	30MAY81	8GI0515	18051728-04A
82)	Sample	78	30MAY82	8GI0515	18051728-05A DF5
83)	Sample	79	30MAY83	8GI0515	18051728-06A DF5
84)	Sample	80	30MAY84	8GI0515	18051728-07A
85)	Sample	1	30MAY85	8GI0515	18051728-08A
86)	Sample	2	30MAY86	8GI0515	18051728-09A
87)	Sample	3	30MAY87	8GI0515	18051728-10A
88)	Sample	4	30MAY88	8GI0515	18051728-11A
89)	Sample	5	30MAY89	8GI0515	18051728-12A
90)	Sample	6	30MAY90	8GI0515	18051728-05A MS DF5
91)	Sample	7	30MAY91	8GI0515	18051728-05A MSD DF5
92)	Sample	8	30MAY92	8GI0515	BLK

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118698** Prep Code: **VOC_5035_S**

Start Date: **5/22/2018 4:32:35 PM** End Date: **5/22/2018 4:32:35 PM**

Technician: **Emily Roberts**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051407-01A			5		0	5	50
Trip blank.							
18051407-02A			5		6.5	5	56.9519
Updated EMR							
18051407-03A			5		6.3	5	56.7236
Updated EMR							
18051407-04A			4.99		7.7	5	58.4509
Updated EMR							
18051407-07A			4.23		23	5	91.6905
Updated EMR							
18051407-07A MS			4.35		23	5	89.5731
Updated EMR							
18051407-07A MS			5		23	5	79.8701
Updated EMR							
18051407-09A			5		5.1	5	55.3741
Updated EMR							
18051407-10A			5		7.8	5	58.4599
Updated EMR							
18051408-01A	Soil		10		15	10	67.6471
Updated EMR							
18051408-02A	Soil		10		15	10	67.6471
Updated EMR							
18051408-03A	Soil		10		13	10	64.9425
Updated EMR							
18051408-04A	Soil		6.85		12	10	89.7644
Updated EMR							

Notes: *Balance 4 MeOH 3081-1-1*

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118698** Prep Code: **VOC_5035_S**

Start Date: **5/22/2018 4:32:35 PM** End Date: **5/22/2018 4:32:35 PM**

Technician: **Emily Roberts**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051408-05A	Soil		8.39		12	10	74.5395
Updated EMR							
18051408-06A	Soil		8.91		11	10	69.2323
Updated EMR							
18051450-01A	Soil		10		24	10	81.5789
Updated EMR							
18051450-02A	Soil		10		25	10	83.3333
Updated EMR							
18051454-01A	Soil		10		16	10	69.0476
Updated EMR							
18051454-01A MS			10		16	10	69.0476
Updated EMR							
18051454-01A MS			10		16	10	69.0476
Updated EMR							
18051454-02A	Soil		10		10	10	61.1111
Updated EMR							
18051454-03A	Soil		10		25	10	83.3333
Updated EMR							
LCS-118698			10		0	10	50
MBLK-118698			10		0	10	50

Notes: *Balance 4 MeOH 3081-1-1*

Book Number 3093

ALS Environmental

Method 5035 Soil Extraction Logsheet

Label Weight (g): 0.31

Balance ID: 4 Methanol ID: 3081-1-1 Analyst: ~~SAA~~ Batch ID: 118698

Sample ID	Vial	Vial Tare Weight	Vial Weight w/Sample	Sample Weight (1)	Methanol Volume (2)	Methanol Additions	Solvent Ratio (3)	Date & Time of Sonication (4)	Date & Time of Aliquot (5)
1805|407 -01A	1/2	TRIP	BLANK	—	5.00	—	50	5/22/18 ~~1540~~ 1545	5/22/18 1615
-02A	3/3	33.43	39.69	5.95	↓	0.76	↓	↓	↓
-03A	↓	32.85	38.54	5.38		0.30			
-04A		32.98	38.28	4.99		—	50		
-07A	1/9	33.50	38.04	4.23		—	59		
-09A	3/3	33.21	38.89	5.37		0.30	50		
-10A	↓	33.14	40.43	6.98	↓	1.58	↓		
1805|408 -01A	2/2	33.41	46.08	12.86	10.00	1.89	50		
-02A		33.10	45.45	12.04		1.63			
-03A		33.30	46.21	12.60		2.08			
-04A		33.42	40.58	6.85		—	73		
-05A		33.29	41.99	8.39		—	60		
-06A	↓	33.33	42.55	8.91	↓	—	56		
~~-07A~~	~~1/1~~	~~TRIP~~	~~BLANK~~	—	10.00	—	50		
1805|490 -01A	2/2	BULK	—	10.00					
-02A	1/2								
1805|454 -01A	1/2								
-02A	2/2								
-03A	↓								
-01AMS	1/2							5/22/18 1615	5/22/18 1640
-01AMSD	↓	↓	↓	↓	↓	↓	↓	↓	↓
1805|407 -07AMS	2/9	33.21	37.87	4.35	5.00	—	57	5/24/18 ~~0930~~ 0945	5/24/18 1030
↓ -07AMSD	7/9	33.05	38.60	5.24	↓	0.19	50	↓	↓

eaa 5/24/18

eaa 5/24/18 moved to other PB (118791)

eaq 5/24/18

Reviewed by:

(1) Sample Weight = (Vial w/Sample Weight) - (Vial Tare Weight) - (Label Weight)
(2) Default = 10 mL
(3) Ratio of methanol to soil must be > 1.0
(4) Sonicate for a minimum of 20 minutes
(5) If not taken immediately after sonication

File Name: 5035 Soil Extraction Log - Pdf - 2015.xls

ALS Environmental

Book Number 3025

Method 5035 Low-Level Soil Logsheet

Analyst: AK

Balance ID: 4

Sample ID	Date	Vial #	Vial Tare Weight (g)	Vial Weight w/Sample (g)	Sample Weight (g) (1)	Fluid Weight (g) (2)	Water	$NaHSO_4$	$Na_5P_3O_{10}$	None	Sample Dilution Factor (3)
1805 1367-1A	5-28-18	1/3	33.52	39.30	5.47			X			0.914
2A		1/3	33.59	38.36	4.46						1.12
~~3A~~			~~33~~								
1805 1384-01A		3/3	33.60	38.03	4.12						
2A		3/3	33.57	38.14	4.26						1.21
3A		1/3	33.68	41.10	7.11						1.17
4A		2/3	33.56	39.72	5.84						0.703
1805 1326-15A		3/3	34.94	41.48	6.54						0.855
-16A		3/3	35.00	40.72	5.72						0.765
-18A		3/3	35.31	41.42	6.11						0.874
-19A		1/3	35.02	41.73	6.53						0.818
1805 1252-01C		1/3	34.85	41.18	6.33						0.766
~~1805 1478-02A~~		2/3	35.83	42.34	6.51						0.790
-04A		2/3	36.03	40.30	4.27						~~0.768~~
1805 1384-01AMS		1/1	—	—	5.20		X				1.17
-01AMD		1/1	—	—	5.00		X				—
1805 1407-01A		2/2	Trip Blank		5.00		X				—
-02A		2/3	35.12	41.49	6.37		X				
-03A		1/3	35.51	41.59	6.08		X				0.785
-04A		2/3	35.44	40.60	5.16		X				0.822
											0.969

AK 5-23-18

TWH 5-28-18

(1) Sample Weight = (Vial Weight w/Sample) - (Vial Tare Weight) - (0.31g for sample label)
(2) Fluid Weight Default = 5.0g
(3) Sample Dilution Factor = (Fluid Weight) / (Sample Weight)

File Name: 5035 LL Soil Log - R1- 2014.xls

Book Number 3025

ALS Environmental

Method 5035 Low-Level Soil Logsheet

Analyst: EMR Balance ID: 4

Sample ID	Date	Vial #	Vial Tare Weight (g)	Vial Weight w/Sample (g)	Sample Weight (g) (1)	Fluid Weight (g) (2)	Water	$NaHSO_4$	$Na_5P_3O_{10}$	None	Sample Dilution Factor (3)
18051407-09A	5/25/18	1/3	35.56	41.12	5.25	5.00	X				0.952
-09A	"	2/3	34.77	40.34	5.26	5.00	X				0.951

(1) Sample Weight = (Vial Weight w/Sample) - (Vial Tare Weight) - (0.31g for sample label)
(2) Fluid Weight Default = 5.0g
(3) Sample Dilution Factor = (Fluid Weight) / (Sample Weight)

Inorganic

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-26

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-02B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.5			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-27

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-03B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	6.3			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-28

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-04B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	7.7			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-31

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-07B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	23			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-32

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-08D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	1.2			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	5.1			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-34

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-10B

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	7.8			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-28

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-04D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	4.98			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-32

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-08D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	5.45			

1

INORGANIC ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	11.6			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-34

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-10D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 0 Date Prep: 5/30/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	9.67			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-26

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-02C

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 6.5 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.14			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-28

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-04C

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 7.7 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.047			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-31

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-07C

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 23 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	3.8			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-32

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-08D

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 1.2 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.24			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-33

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-09C

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 5.1 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.10			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-34

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051407

Matrix: Soil Lab Sample ID: 18051407-10C

Level (low/med): LOW Date Received: 5/19/2018

% Moisture: not dec. 7.8 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.070			

ALS Group, USA

Date: 02-Jul-18

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061452** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061453** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	14.83	0	15	0	98.9	80-120	0			

DUP Sample ID: **18051328-02C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061455** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.18	0	0	0	0		9.93	32.1	20	R

DUP Sample ID: **18051328-02C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061456** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.75	0	0	0	0		9.93	1.83	20	

DUP Sample ID: **18051328-06C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061458** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	23.46	0	0	0	0		24.29	3.48	20	

DUP Sample ID: **18051328-06C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061459** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	24.22	0	0	0	0		24.29	0.289	20	

DUP Sample ID: **18051328-12C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061461** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051328-12C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061462** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

DUP Sample ID: **18051328-14C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061464** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.09	0	0	0	0		8.18	10.5	20	

DUP Sample ID: **18051328-14C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061465** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.68	0	0	0	0		8.18	26.5	20	R

DUP Sample ID: **18051328-16C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061467** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.87	0	0	0	0		7.56	15.9	20	

DUP Sample ID: **18051328-16C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061468** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.18	0	0	0	0		7.56	19.4	20	

DUP Sample ID: **18051328-19C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061470** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.61	0	0	0	0		7.89	8.73	20	

DUP Sample ID: **18051328-19C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061471** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.68	0	0	0	0		7.89	9.54	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051407-04D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-28** Run ID: **WETCHEM_180530H** SeqNo: **5061473** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.83	0	0	0	0		4.98	44.5	20	R

DUP Sample ID: **18051407-04D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-28** Run ID: **WETCHEM_180530H** SeqNo: **5061474** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.97	0	0	0	0		4.98	46.2	20	R

DUP Sample ID: **18051407-08D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-32** Run ID: **WETCHEM_180530H** SeqNo: **5061476** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	12.3	0	0	0	0		5.45	77.2	20	R

DUP Sample ID: **18051407-08D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-32** Run ID: **WETCHEM_180530H** SeqNo: **5061477** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10	0	0	0	0		5.45	58.9	20	R

DUP Sample ID: **18051407-09D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-33** Run ID: **WETCHEM_180530H** SeqNo: **5061479** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.35	0	0	0	0		11.64	11.7	20	

DUP Sample ID: **18051407-09D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-33** Run ID: **WETCHEM_180530H** SeqNo: **5061480** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.74	0	0	0	0		11.64	8.04	20	

DUP Sample ID: **18051407-10D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-34** Run ID: **WETCHEM_180530H** SeqNo: **5061482** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.48	0	0	0	0		9.67	1.98	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP	Sample ID: 18051407-10D DUP3			Units: g/Kg		Analysis Date: 5/30/2018 11:45 AM			
Client ID: 18CP02-34	Run ID: WETCHEM_180530H			SeqNo: 5061483		Prep Date: 5/30/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.03	0	0	0	0		9.67	18.5	20	

The following samples were analyzed in this batch:

18051407-04D	18051407-08D	18051407-09D
18051407-10D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236659** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R236659** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055718** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R236659** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055717** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051389-01B DUP** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055698** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.51	0.050	0	0	0	0-0	17.6	0.513	10	

DUP Sample ID: **18051453-01A DUP** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	36.89	0.050	0	0	0	0-0	38.33	3.83	10	

The following samples were analyzed in this batch:

18051407-02B	18051407-03B	18051407-04B
18051407-07B	18051407-08D	18051407-09B
18051407-10B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236768** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180528-R236768** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: Run ID: **WETCHEM_180528E** SeqNo: **5058392** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180528-R236768** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: Run ID: **WETCHEM_180528E** SeqNo: **5058393** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1102	0.025	0.1	0	110	91-143	0			

MS Sample ID: **18051407-07CMS** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: **18CP02-31** Run ID: **WETCHEM_180528E** SeqNo: **5058397** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	2.819	0.025	0.7752	2.948	-16.7	91-143	0			S

MSD Sample ID: **18051407-07CMSD** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: **18CP02-31** Run ID: **WETCHEM_180528E** SeqNo: **5058398** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	2.894	0.025	0.7937	2.948	-6.85	91-143	2.819	2.62	20	S

The following samples were analyzed in this batch:

18051407-02C	18051407-04C	18051407-07C
18051407-09C	18051407-10C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236999** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063479** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.115	0.025	0.1	0	115	91-143	0			

MS Sample ID: **18051328-06D MS** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8382	0.025	0.4525	0.2628	127	91-143	0			

MSD Sample ID: **18051328-06D MSD** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8296	0.025	0.4386	0.2628	129	91-143	0.8382	1.03	20	

The following samples were analyzed in this batch: 18051407-08D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Moisture

ALS Environmental

Analyst:	NW	Date/Time In:	5/24/18 8:40 PM
Review By:		Date/Time Out:	5/25/18 10:03 AM
Method:	% Moisture (E160.3M)	Batch ID:	MOIST_180524G
SOP:	HN-WC-036	Balance ID:	6

Temp In Deg C:	103
Temp Out Deg C:	104.2
Sand BPL:	2049-158-8

WO:	Btl. #	SampType	Dish ID	Pan Wt	Tare Wt*	Wet Wt	1st Wt	2nd Wt	3rd Wt	Final Wt**	% Solid	%Moisture	Analyte
WBLKS		MBLK	BLK	1.3043	0	0.0000				1.3045	0.02	0.02	Moisture
LCS		LCS	LCS	1.3034	0	7.7111				9.0145	100.00	100.00	Moisture
18051453-01A	1	SAMP	W1	1.2957	0	5.4961				4.685	61.67	38.33	Moisture
18051453-01A DUP	1	DUP	W2	1.3033	0	4.9367				4.4189	63.11	36.89	Moisture
18051453-02A	1	SAMP	W3	1.2993	0	5.0662				3.2394	38.29	61.71	Moisture
18051401-01B	1	SAMP	W4	1.3077	0	5.2116				5.6145	82.64	17.36	Moisture
18051407-02B	1	SAMP	W5	1.456	0	7.3018				8.2817	93.48	6.52	Moisture
18051407-03B	1	SAMP	W6	1.4735	0	9.1212				10.0162	93.66	6.34	Moisture
18051407-04B	1	SAMP	W7	1.3646	0	9.1884				9.8445	92.29	7.71	Moisture
18051407-07B	1	SAMP	W8	1.2894	0	7.0326				6.6989	76.92	23.08	Moisture
18051407-08D	1	SAMP	W9	1.2922	0	6.0303				7.2512	98.82	1.18	Moisture
18051407-09B	1	SAMP	W10	1.3083	0	9.7805				10.5856	94.86	5.14	Moisture
18051407-10B	1	SAMP	W11	1.2932	0	6.1965				7.0076	92.22	7.78	Moisture
18051389-01B	1	SAMP	W12	1.3102	0	8.1921				8.0609	82.40	17.60	Moisture
18051389-01B DUP	1	DUP	W13	1.3054	0	8.3724				8.2118	82.49	17.51	Moisture
18051408-06B	1	SAMP	W14	1.3505	0	7.0781				7.6672	89.24	10.76	Moisture
18051389-02B	1	SAMP	W15	1.344	0	9.8339				9.71	85.07	14.93	Moisture
18051389-03B	1	SAMP	W16	1.4062	0	8.4953				8.224	80.25	19.75	Moisture
18051389-04B	1	SAMP	W17	1.3072	0	8.337				8.346	84.43	15.57	Moisture
18051389-05B	1	SAMP	W18	1.383	0	10.2025				10.372	88.11	11.89	Moisture
18051408-04B	1	SAMP	W19	1.3679	0	8.9928				9.3058	88.27	11.73	Moisture
18051408-05B	1	SAMP	W20	1.4108	0	9.3413				9.653	88.23	11.77	Moisture
18051365-05A	1	SAMP	W21	1.4101	0	6.3124				7.5401	97.11	2.89	Moisture
18051365-11A	1	SAMP	W22	1.2928	0	8.9312				4.7232	38.41	61.59	Moisture

Re-Dry		Temp °C	Analyst
Date/Time In:			
Date/Time Out:			

Analysis Date/Time:	5/25/2018 12:45	NW

: Tare weight must ≤ 0.0005g

****: Weight difference must be <4% or 0.5mg (whichever is smaller)**

% Solid = ((Final Wt - Pan Wt) / Wet Wt)*100

% Moisture = (1- (Final Wt - Pan Wt) / Wet Wt)) * 100

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Oxidant Demand

Batch ID: WC-180530 Date: 5/30/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99996				
0.5						0.008					
50						0.759					
100						1.492					
MBLK- 118941	50	100	20000	96	250	1.213	0.003	81.01	0.03	20246.00	-0.49
LCS- 118941	50	100	20000	96	250	0.756	0.004	50.43	0.09	12584.25	14.83
18051328-02C	50.23	100	20000	96	250	0.898	0.001	59.93	-0.11	15010.00	9.93
18051328-02C	50.15	100	20000	96	250	0.982	0.002	65.55	-0.04	16397.50	7.18
18051328-02C	50.49	100	20000	96	250	0.903	0.002	60.26	-0.04	15075.00	9.75
18051328-06C	50.38	100	20000	96	250	0.465	0.001	30.95	-0.11	7765.00	24.29
18051328-06C	50.53	100	20000	96	250	0.489	0.002	32.55	-0.04	8147.50	23.46
18051328-06C	50.59	100	20000	96	250	0.464	0.001	30.88	-0.11	7747.50	24.22
18051328-12C	50.87	100	20000	96	250	0.866	0.001	57.79	-0.11	14475.00	10.86
18051328-12C	50.28	100	20000	96	250	0.899	0.002	59.99	-0.04	15007.50	9.93
18051328-12C	50.43	100	20000	96	250	0.898	0.002	59.93	-0.04	14992.50	9.93
18051328-14C	50.17	100	20000	96	250	0.952	0.002	63.54	-0.04	15895.00	8.18
18051328-14C	50.67	100	20000	96	250	0.922	0.002	61.54	-0.04	15395.00	9.09
18051328-14C	51.57	100	20000	96	250	0.868	0.002	57.92	-0.04	14490.00	10.68
18051328-16C	51.38	100	20000	96	250	0.964	0.001	64.35	-0.11	16115.00	7.56
18051328-16C	50.23	100	20000	96	250	0.931	0.002	62.14	-0.04	15545.00	8.87
18051328-16C	50.36	100	20000	96	250	0.92	0.001	61.40	-0.11	15377.50	9.18

Vial Lot ID: 1712272 Calcium Chloride BPL: 2049-177-1 Reviewed By:

KMnO4 Standard BPL: 3072-59-13 Sodium Thio (0.019M) BPL: 3072-62-15 Review Date:

File Name: 180530A1

ALS Environmental

Oxidant Demand

Batch ID: WC-180530 Date: 5/30/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99996				
0.5						0.008					
50						0.759					
100						1.492					
MBLK-	50	100	20000	96	250					0.00	40.00
LCS-	50	100	20000	96	250					0.00	40.00
18051328-19C	50.92	100	20000	96	250	0.956	0.001	63.81	-0.11	15980.00	7.89
18051328-19C	52.71	100	20000	96	250	0.925	0.001	61.74	-0.11	15462.50	8.61
18051328-19C	51.3	100	20000	96	250	0.93	0.001	62.07	-0.11	15545.00	8.68
18051407-04D	50.39	100	20000	96	250	1.048	0	69.97	0.00	17492.50	4.98
18051407-04D	50.88	100	20000	96	250	0.958	0.001	63.95	-0.11	16015.00	7.83
18051407-04D	50.96	100	20000	96	250	0.955	0	63.75	0.00	15937.50	7.97
18051407-08D	19.6	100	20000	96	250	1.134	0	75.73	0.00	18932.50	5.45
18051407-08D	20.12	100	20000	96	250	1.05	0	70.10	0.00	17525.00	12.30
18051407-08D	20.4	100	20000	96	250	1.076	0	71.84	0.00	17960.00	10.00
18051407-09D	50.62	100	20000	96	250	0.844	0.001	56.32	-0.11	14107.50	11.64
18051407-09D	50.28	100	20000	96	250	0.887	0	59.19	0.00	14797.50	10.35
18051407-09D	50.78	100	20000	96	250	0.872	0	58.19	0.00	14547.50	10.74
18051407-10D	51.39	100	20000	96	250	0.901	0	60.13	0.00	15032.50	9.67
18051407-10D	50.16	100	20000	96	250	0.912	0.001	60.87	-0.11	15245.00	9.48
18051407-10D	50.61	100	20000	96	250	0.955	0	63.75	0.00	15937.50	8.03

Vial Lot ID: _____ Calcium Chloride BPL: _____ Reviewed By: _____

KMnO4 Standard BPL: _____ Sodium Thio (0.019M) BPL: _____ Review Date: _____

File Name: 180530B

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118941** Prep Code: **OXDMD_PREP**

Start Date: **5/26/2018** End Date: **5/30/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051328-02C	Soil		50		0	100	1
18051328-02C DU			50		0	100	1
18051328-02C DU			50		0	100	1
18051328-06C	Soil		50		0	100	1
18051328-06C DU			50		0	100	1
18051328-06C DU			50		0	100	1
18051328-12C	Soil		50		0	100	1
18051328-12C DU			50		0	100	1
18051328-12C DU			50		0	100	1
18051328-14C	Soil		50		0	100	1
18051328-14C DU			50		0	100	1
18051328-14C DU			50		0	100	1
18051328-16C	Soil		50		0	100	1
18051328-16C DU			50		0	100	1
18051328-16C DU			50		0	100	1
18051328-19C	Soil		50		0	100	1
18051328-19C DU			50		0	100	1
18051328-19C DU			50		0	100	1
18051407-04D	Soil		50		0	100	1
18051407-04D DU			50		0	100	1
18051407-04D DU			50		0	100	1
18051407-08D	Soil		50		0	100	1
18051407-08D DU			50		0	100	1
18051407-08D DU			50		0	100	1

Notes:

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118941** Prep Code: **OXDMD_PREP**

Start Date: **5/26/2018** End Date: **5/30/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051407-09D	Soil		50		0	100	1
18051407-09D DU			50		0	100	1
18051407-09D DU			50		0	100	1
18051407-10D	Soil		50		0	100	1
18051407-10D DU			50		0	100	1
18051407-10D DU			50		0	100	1
LCS-118941			50		0	100	1
MBLK-118941			50		0	100	1

Notes:

TOC Walkley-Black Calculations

Batch ID:
Analyst: KF
Date: 5/28/18 10:20am

Sample ID	g sample	mL FeSO4	meq Fe	%
BLANK	10	21.05	10.525	-0.02048
LCS	10	14.35	7.175	0.110175
18051407-02	2.38	18.35	9.175	0.135189
18051407-04	2.46	19.45	9.725	0.043598
18051407-07	1.25	1.1	0.55	2.9484
18051407-07 MS	1.29	1.35	0.675	2.819186
18051407-07 MSD	1.26	1.3	0.65	2.894048
18051407-09	2.1	18.95	9.475	0.0975
18051407-10	3.34	18.9	9.45	0.064222
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$$\text{TOC \%} = \frac{(\text{Meq } K_2Cr_2O_2 - \text{Meq } FeSO_4) \times .003 \times 100}{\text{grams water free soil}} \times (f)$$

(f) =correction factor of 1.3

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Analyst: DS
Date: 5-28-18 10:20am
Batch ID: [illegible]

$FeSO_4$: 3012-225-11
$K_2Cr_2O_7$: 3012-130-9
Sulfuric Acid:

Sample ID	Sample Size (g)	N $FeSO_4$	Titration			mLs 1.0 N $K_2Cr_2O_7$	% Organic Carbon	Comments
			Finish	Start	Difference (mL)			
Blank	1.09	0.5N	21.05	0	21.05			
LCS	↓		35.40	21.05	14.35			
1805140?-02	2.38		19.10	0.75	18.35			3072-46-11
-04	2.46		38.55	19.10	19.45			
-07	1.25		39.65	38.55	1.10			
-07 MS	1.29		41.00	39.65	1.35			
-07 MSD	1.26		42.30	41.00	1.30			
-09	2.10		12.20/50	0.95/42.30	11.25/7.7 =	18.95		3072-46-11
-10	3.34		31.10	12.20	18.90			↓

5-28-18

OC WalkleyBlack - R2 - 2014

Reviewed By:
Date Reviewed: 5/29/18

TOC Walkley-Black Calculations

Batch ID:
Analyst: KF
Date: 5/31/18 10:45am

Sample ID	g sample	mL FeSO4	meq Fe	%
BLANK	10	20.5	10.25	-0.00975
LCS	10	14.1	7.05	0.11505
18051407-08	2.29	17.2	8.6	0.238428
18051328-02	2.23	18.8	9.4	0.104933
18051328-06	2.3	16.9	8.45	0.262826
18051328-06 MS	2.21	10.5	5.25	0.838235
18051328-06 MSD	2.28	10.3	5.15	0.829605
18051328-12	2.86	18.35	9.175	0.1125
18051328-14	3.05	18.4	9.2	0.102295
18051328-15	3.14	18.45	9.225	0.096258
18051328-16	2.58	18.95	9.475	0.07936
18051328-18	2.77	3.6	1.8	1.154513
18051328-19	3.06	18.85	9.425	0.073284
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$$\text{TOC \%} = \frac{(\text{Meq } K_2Cr_2O_2 - \text{Meq } FeSO_4) \times .003 \times 100}{\text{grams water free soil}} \times (f)$$

(f) =correction factor of 1.3

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Book 1888

Walkley - Black TOC

ALS Environmental

DF
5.31.18 10:45a

FeSO4: 3012-225-11
$K_2Cr_2O_7$: 3012-130-9
Sulfuric Acid:

Sample ID	Sample Size (g)	N $FeSO_4$	Titration			mLs 1.0 N $K_2Cr_2O_7$	% Organic Carbon	Comments
			Finish	Start	Difference (mL)			
Blank	10g	0.511	20.60	0.10	20.50			3072-46-11
LCS	✓		34.70	20.60	14.10			
1805 1407-08	2.29		17.20	0	17.20			
1328-02	2.23		36.00	17.20	18.80			
-06	2.30		17.10	0.20	16.90			
-06 MR	2.21		27.60	17.10	10.50			3072-46-11
-06 MSD	2.28		37.90	27.60	10.30			↓
-12	2.86		19.35	1.00	18.35			
-14	3.05		37.75	19.35	18.40			
-15	3.14		18.75	0.30	18.45			
-16	2.58		37.70	18.75	18.95			
-18	2.77		41.30	37.70	3.60			
-19	3.06		30.60	11.75	18.85			

DF
5-31-18

Reviewed By: [illegible]

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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www.alsglobal.com
RIGHT SOLUTIONS

05-Jun-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051407**

Dear Heather,

ALS Environmental received 12 samples on 19-May-2018 10:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 82.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 05-Jun-18

Client: Jacobs
Project: PMC
Work Order: **18051407**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051407-01	18CP02-25	Soil		5/18/2018 16:00	5/19/2018 10:30	☐
18051407-02	18CP02-26	Soil		5/18/2018 09:00	5/19/2018 10:30	☐
18051407-03	18CP02-27	Soil		5/18/2018 09:15	5/19/2018 10:30	☐
18051407-04	18CP02-28	Soil		5/18/2018 09:35	5/19/2018 10:30	☐
18051407-05	18CP02-29	Groundwater		5/18/2018 14:40	5/19/2018 10:30	☐
18051407-06	18CP02-30	Groundwater		5/18/2018 14:40	5/19/2018 10:30	☐
18051407-07	18CP02-31	Soil		5/18/2018 10:15	5/19/2018 10:30	☐
18051407-08	18CP02-32	Soil		5/18/2018 10:40	5/19/2018 10:30	☐
18051407-09	18CP02-33	Soil		5/18/2018 10:50	5/19/2018 10:30	☐
18051407-10	18CP02-34	Soil		5/18/2018 11:00	5/19/2018 10:30	☐
18051407-11	18CP02-35	Groundwater		5/18/2018 15:20	5/19/2018 10:30	☐
18051407-12	18CP02-36	Water		5/18/2018 16:05	5/19/2018 10:30	☐

Client: Jacobs
Project: PMC
Work Order: 18051407

Case Narrative

Samples for the above noted Work Order were received on 05/19/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch 118698, Method VOC_8260_S, Sample 18051407-07A MS/MSD: The MS/MSD recoveries were above the upper control limits for 2-Hexanone, Acetone, Tetrachloroethene, and Trichloroethene. The corresponding results in the parent sample may be biased high.

Batch 118698, Method VOC_8260_S, Sample 18051407-07A MSD: The RPDs between the MS and MSD were outside the control limits for multiple compounds per the QC report. The corresponding results in the parent sample should be considered estimated.

Batch R236669, Method VOC_8260_SLL, Sample 18051407-09A MS/MSD: The MS/MSD recoveries were above the upper control limits for multiple compounds per the QC report. The corresponding results in the parent sample were non-detect, therefore no qualification is required.

Batch R236669, Method VOC_8260_SLL, Sample 18051407-09A MS/MSD: The MS/MSD recoveries were below the lower control limits for multiple compounds per the QC report. The corresponding results in the parent sample may be biased low.

Batch R236723, Method VOC_8260_W, Sample VLCSW2-180527: The LCS recoveries were above the upper control limits for 1,1,2,2-Tetrachloroethane and Dichlorodifluoromethane. All the sample results in the batch were non-detect. No qualification is required.

Wet Chemistry:

Batch R236768, Method TOC_WBLK_S, Sample 18051407-07C MS/MSD: The MS/MSD recovery was below the lower control limit for TOC. The corresponding result in the parent sample may be biased low.

Batch 118941, Method OXDMD_KMNO4_S, Samples 18051407-04D DUP2, -04D DUP3, -08D DUP2, and -08D DUP3: The RPDs between the samples and the duplicates were out of control. The corresponding sample result should be considered estimated.

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
g/Kg	

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-25
Collection Date: 5/18/2018 04:00 PM

Work Order: 18051407
Lab ID: 18051407-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.79	5.0	µg/Kg	1	5/23/2018 18:28
1,1,2,2-Tetrachloroethane	U		0.27	5.0	µg/Kg	1	5/23/2018 18:28
1,1,2-Trichloroethane	U		0.39	5.0	µg/Kg	1	5/23/2018 18:28
1,1,2-Trichlorotrifluoroethane	U		1.1	5.0	µg/Kg	1	5/23/2018 18:28
1,1-Dichloroethane	U		2.1	5.0	µg/Kg	1	5/23/2018 18:28
1,1-Dichloroethene	U		0.98	5.0	µg/Kg	1	5/23/2018 18:28
1,2,3-Trichlorobenzene	U		0.62	5.0	µg/Kg	1	5/23/2018 18:28
1,2,4-Trichlorobenzene	U		0.73	5.0	µg/Kg	1	5/23/2018 18:28
1,2-Dibromo-3-chloropropane	U		1.4	5.0	µg/Kg	1	5/23/2018 18:28
1,2-Dibromoethane	U		0.36	5.0	µg/Kg	1	5/23/2018 18:28
1,2-Dichlorobenzene	U		0.63	5.0	µg/Kg	1	5/23/2018 18:28
1,2-Dichloroethane	U		0.36	5.0	µg/Kg	1	5/23/2018 18:28
1,2-Dichloropropane	U		0.44	5.0	µg/Kg	1	5/23/2018 18:28
1,3-Dichlorobenzene	U		0.52	5.0	µg/Kg	1	5/23/2018 18:28
1,4-Dichlorobenzene	U		0.36	5.0	µg/Kg	1	5/23/2018 18:28
2-Butanone	U		1.9	10	µg/Kg	1	5/23/2018 18:28
2-Hexanone	U		0.98	5.0	µg/Kg	1	5/23/2018 18:28
4-Methyl-2-pentanone	U		0.81	5.0	µg/Kg	1	5/23/2018 18:28
Acetone	U		2.1	10	µg/Kg	1	5/23/2018 18:28
Benzene	U		0.52	5.0	µg/Kg	1	5/23/2018 18:28
Bromochloromethane	U		0.49	5.0	µg/Kg	1	5/23/2018 18:28
Bromodichloromethane	U		0.32	5.0	µg/Kg	1	5/23/2018 18:28
Bromoform	U		0.31	5.0	µg/Kg	1	5/23/2018 18:28
Bromomethane	U		0.72	10	µg/Kg	1	5/23/2018 18:28
Carbon disulfide	U		0.56	5.0	µg/Kg	1	5/23/2018 18:28
Carbon tetrachloride	U		0.83	5.0	µg/Kg	1	5/23/2018 18:28
Chlorobenzene	U		0.32	5.0	µg/Kg	1	5/23/2018 18:28
Chloroethane	U		0.63	5.0	µg/Kg	1	5/23/2018 18:28
Chloroform	U		0.30	5.0	µg/Kg	1	5/23/2018 18:28
Chloromethane	U		0.46	10	µg/Kg	1	5/23/2018 18:28
cis-1,2-Dichloroethene	U		0.48	5.0	µg/Kg	1	5/23/2018 18:28
cis-1,3-Dichloropropene	U		0.26	5.0	µg/Kg	1	5/23/2018 18:28
Cyclohexane	U		3.0	10	µg/Kg	1	5/23/2018 18:28
Dibromochloromethane	U		0.47	5.0	µg/Kg	1	5/23/2018 18:28
Dichlorodifluoromethane	U		1.1	10	µg/Kg	1	5/23/2018 18:28
Ethylbenzene	U		0.60	5.0	µg/Kg	1	5/23/2018 18:28
Isopropylbenzene	U		0.64	5.0	µg/Kg	1	5/23/2018 18:28
m,p-Xylene	U		1.2	2.5	µg/Kg	1	5/23/2018 18:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-25
Collection Date: 5/18/2018 04:00 PM

Work Order: 18051407
Lab ID: 18051407-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.2	10	µg/Kg	1	5/23/2018 18:28
Methyl tert-butyl ether	U		0.23	5.0	µg/Kg	1	5/23/2018 18:28
Methylcyclohexane	U		1.5	10	µg/Kg	1	5/23/2018 18:28
Methylene chloride	**4.1**	J	**0.86**	**5.0**	**µg/Kg**	1	5/23/2018 18:28
o-Xylene	U		0.47	2.5	µg/Kg	1	5/23/2018 18:28
Styrene	U		0.40	5.0	µg/Kg	1	5/23/2018 18:28
Tetrachloroethene	U		0.89	5.0	µg/Kg	1	5/23/2018 18:28
Toluene	U		0.56	5.0	µg/Kg	1	5/23/2018 18:28
trans-1,2-Dichloroethene	U		0.40	5.0	µg/Kg	1	5/23/2018 18:28
trans-1,3-Dichloropropene	U		0.29	5.0	µg/Kg	1	5/23/2018 18:28
Trichloroethene	U		0.72	5.0	µg/Kg	1	5/23/2018 18:28
Trichlorofluoromethane	U		0.71	5.0	µg/Kg	1	5/23/2018 18:28
Vinyl chloride	U		0.70	5.0	µg/Kg	1	5/23/2018 18:28
Xylenes, Total	U		1.7	5.0	µg/Kg	1	5/23/2018 18:28
Surr: 1,2-Dichloroethane-d4	*96.6*			*83-132*	*%REC*	1	5/23/2018 18:28
Surr: 4-Bromofluorobenzene	*95.0*			*83-111*	*%REC*	1	5/23/2018 18:28
Surr: Dibromofluoromethane	*97.4*			*77-125*	*%REC*	1	5/23/2018 18:28
Surr: Toluene-d8	*95.2*			*86-108*	*%REC*	1	5/23/2018 18:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-26
Collection Date: 5/18/2018 09:00 AM

Work Order: 18051407
Lab ID: 18051407-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.66	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,1,2,2-Tetrachloroethane	U		0.23	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,1,2-Trichloroethane	U		0.33	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,1,2-Trichlorotrifluoroethane	U		0.92	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,1-Dichloroethane	U		1.7	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,1-Dichloroethene	U		0.82	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2,3-Trichlorobenzene	U		0.52	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2,4-Trichlorobenzene	U		0.61	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2-Dibromo-3-chloropropane	U		1.2	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2-Dibromoethane	U		0.30	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2-Dichlorobenzene	U		0.53	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2-Dichloroethane	U		0.30	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,2-Dichloropropane	U		0.37	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,3-Dichlorobenzene	U		0.44	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
1,4-Dichlorobenzene	U		0.30	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
2-Butanone	U		1.6	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
2-Hexanone	U		0.82	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
4-Methyl-2-pentanone	U		0.68	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Acetone	**29**		**1.8**	**8.4**	**µg/Kg-dry**	0.785	5/23/2018 18:45
Benzene	U		0.44	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Bromochloromethane	U		0.41	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Bromodichloromethane	U		0.27	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Bromoform	U		0.26	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Bromomethane	U		0.60	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
Carbon disulfide	U		0.47	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Carbon tetrachloride	U		0.70	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Chlorobenzene	U		0.27	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Chloroethane	U		0.53	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Chloroform	U		0.25	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Chloromethane	U		0.39	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
cis-1,2-Dichloroethene	U		0.40	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
cis-1,3-Dichloropropene	U		0.22	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Cyclohexane	U		2.6	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
Dibromochloromethane	U		0.39	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Dichlorodifluoromethane	U		0.91	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
Ethylbenzene	**0.66**	J	**0.50**	**4.2**	**µg/Kg-dry**	0.785	5/23/2018 18:45
Isopropylbenzene	U		0.54	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
m,p-Xylene	**1.4**	J	**1.0**	**2.1**	**µg/Kg-dry**	0.785	5/23/2018 18:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-26
Collection Date: 5/18/2018 09:00 AM

Work Order: 18051407
Lab ID: 18051407-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.0	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
Methyl tert-butyl ether	U		0.19	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Methylcyclohexane	U		1.3	8.4	µg/Kg-dry	0.785	5/23/2018 18:45
Methylene chloride	U		0.72	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
o-Xylene	**0.55**	J	**0.39**	**2.1**	**µg/Kg-dry**	0.785	5/23/2018 18:45
Styrene	U		0.34	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Tetrachloroethene	U		0.75	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Toluene	**1.8**	J	**0.47**	**4.2**	**µg/Kg-dry**	0.785	5/23/2018 18:45
trans-1,2-Dichloroethene	U		0.34	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
trans-1,3-Dichloropropene	U		0.24	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Trichloroethene	**2.0**	J	**0.60**	**4.2**	**µg/Kg-dry**	0.785	5/23/2018 18:45
Trichlorofluoromethane	U		0.60	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Vinyl chloride	U		0.59	4.2	µg/Kg-dry	0.785	5/23/2018 18:45
Xylenes, Total	**1.9**	J	**1.4**	**4.2**	**µg/Kg-dry**	0.785	5/23/2018 18:45
Surr: 1,2-Dichloroethane-d4	*99.4*			*83-132*	*%REC*	0.785	5/23/2018 18:45
Surr: 4-Bromofluorobenzene	*91.2*			*83-111*	*%REC*	0.785	5/23/2018 18:45
Surr: Dibromofluoromethane	*104*			*77-125*	*%REC*	0.785	5/23/2018 18:45
Surr: Toluene-d8	*98.5*			*86-108*	*%REC*	0.785	5/23/2018 18:45
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**6.5**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.14**		**0.013**	**0.027**	**% by wt-dry**	1	5/28/2018 10:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-27
Collection Date: 5/18/2018 09:15 AM

Work Order: 18051407
Lab ID: 18051407-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.69	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,1,2,2-Tetrachloroethane	U		0.24	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,1,2-Trichloroethane	U		0.34	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,1,2-Trichlorotrifluoroethane	U		0.97	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,1-Dichloroethane	U		1.8	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,1-Dichloroethene	U		0.86	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2,3-Trichlorobenzene	U		0.54	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2,4-Trichlorobenzene	U		0.64	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2-Dibromo-3-chloropropane	U		1.2	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2-Dibromoethane	U		0.32	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2-Dichlorobenzene	U		0.55	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2-Dichloroethane	U		0.32	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,2-Dichloropropane	U		0.39	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,3-Dichlorobenzene	U		0.46	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
1,4-Dichlorobenzene	U		0.32	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
2-Butanone	U		1.7	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
2-Hexanone	U		0.86	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
4-Methyl-2-pentanone	U		0.71	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Acetone	**34**		**1.8**	**8.8**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Benzene	**1.6**	J	**0.46**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Bromochloromethane	U		0.43	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Bromodichloromethane	U		0.28	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Bromoform	U		0.27	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Bromomethane	U		0.63	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
Carbon disulfide	U		0.49	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Carbon tetrachloride	U		0.73	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Chlorobenzene	U		0.28	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Chloroethane	U		0.55	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Chloroform	U		0.26	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Chloromethane	U		0.40	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
cis-1,2-Dichloroethene	U		0.42	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
cis-1,3-Dichloropropene	U		0.23	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Cyclohexane	U		2.7	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
Dibromochloromethane	U		0.41	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Dichlorodifluoromethane	U		0.95	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
Ethylbenzene	**1.5**	J	**0.53**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Isopropylbenzene	U		0.56	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
m,p-Xylene	**4.0**		**1.1**	**2.2**	**µg/Kg-dry**	0.822	5/23/2018 19:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-27
Collection Date: 5/18/2018 09:15 AM

Work Order: 18051407
Lab ID: 18051407-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.1	8.8	µg/Kg-dry	0.822	5/23/2018 19:02
Methyl tert-butyl ether	U		0.20	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Methylcyclohexane	**1.4**	J	**1.3**	**8.8**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Methylene chloride	U		0.75	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
o-Xylene	**1.6**	J	**0.41**	**2.2**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Styrene	U		0.35	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Tetrachloroethene	**1.5**	J	**0.78**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Toluene	**5.8**		**0.49**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
trans-1,2-Dichloroethene	U		0.35	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
trans-1,3-Dichloropropene	U		0.25	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Trichloroethene	**12**		**0.63**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Trichlorofluoromethane	U		0.62	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Vinyl chloride	U		0.61	4.4	µg/Kg-dry	0.822	5/23/2018 19:02
Xylenes, Total	**5.5**		**1.5**	**4.4**	**µg/Kg-dry**	0.822	5/23/2018 19:02
Surr: 1,2-Dichloroethane-d4	*101*			*83-132*	*%REC*	0.822	5/23/2018 19:02
Surr: 4-Bromofluorobenzene	*88.6*			*83-111*	*%REC*	0.822	5/23/2018 19:02
Surr: Dibromofluoromethane	*102*			*77-125*	*%REC*	0.822	5/23/2018 19:02
Surr: Toluene-d8	*96.6*			*86-108*	*%REC*	0.822	5/23/2018 19:02
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**6.3**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-28
Collection Date: 5/18/2018 09:35 AM

Work Order: 18051407
Lab ID: 18051407-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.83	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,1,2,2-Tetrachloroethane	U		0.28	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,1,2-Trichloroethane	U		0.41	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,1,2-Trichlorotrifluoroethane	U		1.2	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,1-Dichloroethane	U		2.2	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,1-Dichloroethene	U		1.0	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2,3-Trichlorobenzene	U		0.65	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2,4-Trichlorobenzene	U		0.77	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2-Dibromo-3-chloropropane	U		1.4	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2-Dibromoethane	U		0.38	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2-Dichlorobenzene	U		0.66	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2-Dichloroethane	U		0.38	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,2-Dichloropropane	U		0.46	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,3-Dichlorobenzene	U		0.55	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
1,4-Dichlorobenzene	U		0.38	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
2-Butanone	U		2.0	10	µg/Kg-dry	0.969	5/23/2018 19:19
2-Hexanone	U		1.0	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
4-Methyl-2-pentanone	U		0.85	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Acetone	U		2.2	10	µg/Kg-dry	0.969	5/23/2018 19:19
Benzene	U		0.55	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Bromochloromethane	U		0.51	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Bromodichloromethane	U		0.34	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Bromoform	U		0.33	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Bromomethane	U		0.76	10	µg/Kg-dry	0.969	5/23/2018 19:19
Carbon disulfide	U		0.59	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Carbon tetrachloride	U		0.87	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Chlorobenzene	U		0.34	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Chloroethane	U		0.66	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Chloroform	U		0.31	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Chloromethane	U		0.48	10	µg/Kg-dry	0.969	5/23/2018 19:19
cis-1,2-Dichloroethene	U		0.50	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
cis-1,3-Dichloropropene	U		0.27	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Cyclohexane	U		3.2	10	µg/Kg-dry	0.969	5/23/2018 19:19
Dibromochloromethane	U		0.49	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Dichlorodifluoromethane	U		1.1	10	µg/Kg-dry	0.969	5/23/2018 19:19
Ethylbenzene	U		0.63	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Isopropylbenzene	U		0.67	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
m,p-Xylene	U		1.3	2.6	µg/Kg-dry	0.969	5/23/2018 19:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-28
Collection Date: 5/18/2018 09:35 AM

Work Order: 18051407
Lab ID: 18051407-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.3	10	µg/Kg-dry	0.969	5/23/2018 19:19
Methyl tert-butyl ether	U		0.24	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Methylcyclohexane	U		1.6	10	µg/Kg-dry	0.969	5/23/2018 19:19
Methylene chloride	U		0.90	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
o-Xylene	U		0.49	2.6	µg/Kg-dry	0.969	5/23/2018 19:19
Styrene	U		0.42	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Tetrachloroethene	**1.3**	J	**0.93**	**5.2**	**µg/Kg-dry**	0.969	5/23/2018 19:19
Toluene	U		0.59	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
trans-1,2-Dichloroethene	U		0.42	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
trans-1,3-Dichloropropene	U		0.30	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Trichloroethene	U		0.76	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Trichlorofluoromethane	U		0.75	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Vinyl chloride	U		0.73	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Xylenes, Total	U		1.8	5.2	µg/Kg-dry	0.969	5/23/2018 19:19
Surr: 1,2-Dichloroethane-d4	*102*			*83-132*	*%REC*	0.969	5/23/2018 19:19
Surr: 4-Bromofluorobenzene	*94.1*			*83-111*	*%REC*	0.969	5/23/2018 19:19
Surr: Dibromofluoromethane	*105*			*77-125*	*%REC*	0.969	5/23/2018 19:19
Surr: Toluene-d8	*91.8*			*86-108*	*%REC*	0.969	5/23/2018 19:19
MOISTURE		Method:	**SW3550C**				Analyst: **NW**
Moisture	**7.7**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
OXIDANT DEMAND (KMNO4)		Method:	**A4500-KMNO4 B-11**		Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**4.98**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method:	**TITRAMETRIC**				Analyst: **KF**
Organic Carbon - W-B	**0.047**		**0.013**	**0.027**	**% by wt-dry**	1	5/28/2018 10:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-29
Collection Date: 5/18/2018 02:40 PM

Work Order: 18051407
Lab ID: 18051407-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/29/2018 17:29
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/29/2018 17:29
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/29/2018 17:29
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/29/2018 17:29
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/29/2018 17:29
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/29/2018 17:29
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/29/2018 17:29
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/29/2018 17:29
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/29/2018 17:29
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/29/2018 17:29
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/29/2018 17:29
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/29/2018 17:29
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/29/2018 17:29
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/29/2018 17:29
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/29/2018 17:29
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/29/2018 17:29
2-Butanone	U		0.47	5.0	µg/L	1	5/29/2018 17:29
2-Hexanone	U		0.50	5.0	µg/L	1	5/29/2018 17:29
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/29/2018 17:29
Acetone	**3.2**	J	**0.47**	**10**	**µg/L**	1	5/29/2018 17:29
Benzene	U		0.42	1.0	µg/L	1	5/29/2018 17:29
Bromochloromethane	U		0.15	1.0	µg/L	1	5/29/2018 17:29
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/29/2018 17:29
Bromoform	U		0.56	1.0	µg/L	1	5/29/2018 17:29
Bromomethane	U		0.29	1.0	µg/L	1	5/29/2018 17:29
Carbon disulfide	U		0.39	1.0	µg/L	1	5/29/2018 17:29
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/29/2018 17:29
Chlorobenzene	U		0.21	1.0	µg/L	1	5/29/2018 17:29
Chloroethane	U		0.68	1.0	µg/L	1	5/29/2018 17:29
Chloroform	U		0.46	1.0	µg/L	1	5/29/2018 17:29
Chloromethane	U		0.68	1.0	µg/L	1	5/29/2018 17:29
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/29/2018 17:29
Cyclohexane	U		0.18	1.0	µg/L	1	5/29/2018 17:29
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/29/2018 17:29
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/29/2018 17:29
Ethylbenzene	U		0.29	1.0	µg/L	1	5/29/2018 17:29
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/29/2018 17:29
m,p-Xylene	U		0.53	2.0	µg/L	1	5/29/2018 17:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-29
Collection Date: 5/18/2018 02:40 PM

Work Order: 18051407
Lab ID: 18051407-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/29/2018 17:29
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/29/2018 17:29
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/29/2018 17:29
Methylene chloride	U		0.16	5.0	µg/L	1	5/29/2018 17:29
o-Xylene	U		0.19	1.0	µg/L	1	5/29/2018 17:29
Styrene	U		0.19	1.0	µg/L	1	5/29/2018 17:29
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/29/2018 17:29
Toluene	U		0.32	1.0	µg/L	1	5/29/2018 17:29
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/29/2018 17:29
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/29/2018 17:29
Trichloroethene	**5.7**		**0.33**	**1.0**	**µg/L**	1	5/29/2018 17:29
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/29/2018 17:29
Vinyl chloride	U		0.53	1.0	µg/L	1	5/29/2018 17:29
Xylenes, Total	U		0.74	3.0	µg/L	1	5/29/2018 17:29
Surr: 1,2-Dichloroethane-d4	*91.2*			*75-120*	*%REC*	1	5/29/2018 17:29
Surr: 4-Bromofluorobenzene	*96.0*			*80-110*	*%REC*	1	5/29/2018 17:29
Surr: Dibromofluoromethane	*101*			*85-115*	*%REC*	1	5/29/2018 17:29
Surr: Toluene-d8	*95.2*			*85-110*	*%REC*	1	5/29/2018 17:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-30
Collection Date: 5/18/2018 02:40 PM

Work Order: 18051407
Lab ID: 18051407-06
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/28/2018 02:27
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/28/2018 02:27
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/28/2018 02:27
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/28/2018 02:27
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/28/2018 02:27
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/28/2018 02:27
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/28/2018 02:27
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/28/2018 02:27
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/28/2018 02:27
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/28/2018 02:27
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/28/2018 02:27
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/28/2018 02:27
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/28/2018 02:27
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/28/2018 02:27
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/28/2018 02:27
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/28/2018 02:27
2-Butanone	U		0.47	5.0	µg/L	1	5/28/2018 02:27
2-Hexanone	U		0.50	5.0	µg/L	1	5/28/2018 02:27
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/28/2018 02:27
Acetone	U		0.47	10	µg/L	1	5/28/2018 02:27
Benzene	U		0.42	1.0	µg/L	1	5/28/2018 02:27
Bromochloromethane	U		0.15	1.0	µg/L	1	5/28/2018 02:27
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/28/2018 02:27
Bromoform	U		0.56	1.0	µg/L	1	5/28/2018 02:27
Bromomethane	U		0.29	1.0	µg/L	1	5/28/2018 02:27
Carbon disulfide	U		0.39	1.0	µg/L	1	5/28/2018 02:27
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/28/2018 02:27
Chlorobenzene	U		0.21	1.0	µg/L	1	5/28/2018 02:27
Chloroethane	U		0.68	1.0	µg/L	1	5/28/2018 02:27
Chloroform	U		0.46	1.0	µg/L	1	5/28/2018 02:27
Chloromethane	U		0.68	1.0	µg/L	1	5/28/2018 02:27
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/28/2018 02:27
Cyclohexane	U		0.18	1.0	µg/L	1	5/28/2018 02:27
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/28/2018 02:27
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/28/2018 02:27
Ethylbenzene	U		0.29	1.0	µg/L	1	5/28/2018 02:27
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/28/2018 02:27
m,p-Xylene	U		0.53	2.0	µg/L	1	5/28/2018 02:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-30
Collection Date: 5/18/2018 02:40 PM

Work Order: 18051407
Lab ID: 18051407-06
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/28/2018 02:27
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/28/2018 02:27
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/28/2018 02:27
Methylene chloride	U		0.16	5.0	µg/L	1	5/28/2018 02:27
o-Xylene	U		0.19	1.0	µg/L	1	5/28/2018 02:27
Styrene	U		0.19	1.0	µg/L	1	5/28/2018 02:27
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/28/2018 02:27
Toluene	U		0.32	1.0	µg/L	1	5/28/2018 02:27
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/28/2018 02:27
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/28/2018 02:27
Trichloroethene	**5.6**		**0.33**	**1.0**	**µg/L**	1	5/28/2018 02:27
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/28/2018 02:27
Vinyl chloride	U		0.53	1.0	µg/L	1	5/28/2018 02:27
Xylenes, Total	U		0.74	3.0	µg/L	1	5/28/2018 02:27
Surr: 1,2-Dichloroethane-d4	*97.8*			*75-120*	*%REC*	1	5/28/2018 02:27
Surr: 4-Bromofluorobenzene	*101*			*80-110*	*%REC*	1	5/28/2018 02:27
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/28/2018 02:27
Surr: Toluene-d8	*97.9*			*85-110*	*%REC*	1	5/28/2018 02:27

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-31
Collection Date: 5/18/2018 10:15 AM

Work Order: 18051407
Lab ID: 18051407-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/22/18		Analyst: **WH**
1,1,1-Trichloroethane	U		25	55	µg/Kg-dry	1	5/25/2018 14:01
1,1,2,2-Tetrachloroethane	U		24	55	µg/Kg-dry	1	5/25/2018 14:01
1,1,2-Trichloroethane	U		23	55	µg/Kg-dry	1	5/25/2018 14:01
1,1,2-Trichlorotrifluoroethane	U		35	55	µg/Kg-dry	1	5/25/2018 14:01
1,1-Dichloroethane	U		20	55	µg/Kg-dry	1	5/25/2018 14:01
1,1-Dichloroethene	U		18	55	µg/Kg-dry	1	5/25/2018 14:01
1,2,3-Trichlorobenzene	U		26	55	µg/Kg-dry	1	5/25/2018 14:01
1,2,4-Trichlorobenzene	U		19	55	µg/Kg-dry	1	5/25/2018 14:01
1,2-Dibromo-3-chloropropane	U		51	180	µg/Kg-dry	1	5/25/2018 14:01
1,2-Dibromoethane	U		15	55	µg/Kg-dry	1	5/25/2018 14:01
1,2-Dichlorobenzene	U		21	55	µg/Kg-dry	1	5/25/2018 14:01
1,2-Dichloroethane	U		24	55	µg/Kg-dry	1	5/25/2018 14:01
1,2-Dichloropropane	U		9.6	55	µg/Kg-dry	1	5/25/2018 14:01
1,3-Dichlorobenzene	U		18	55	µg/Kg-dry	1	5/25/2018 14:01
1,4-Dichlorobenzene	U		13	55	µg/Kg-dry	1	5/25/2018 14:01
2-Butanone	U		45	370	µg/Kg-dry	1	5/25/2018 14:01
2-Hexanone	U		27	55	µg/Kg-dry	1	5/25/2018 14:01
4-Methyl-2-pentanone	U		26	55	µg/Kg-dry	1	5/25/2018 14:01
Acetone	U		57	180	µg/Kg-dry	1	5/25/2018 14:01
Benzene	U		9.4	55	µg/Kg-dry	1	5/25/2018 14:01
Bromochloromethane	U		28	55	µg/Kg-dry	1	5/25/2018 14:01
Bromodichloromethane	U		31	55	µg/Kg-dry	1	5/25/2018 14:01
Bromoform	U		23	55	µg/Kg-dry	1	5/25/2018 14:01
Bromomethane	U		110	180	µg/Kg-dry	1	5/25/2018 14:01
Carbon disulfide	U		28	55	µg/Kg-dry	1	5/25/2018 14:01
Carbon tetrachloride	U		22	55	µg/Kg-dry	1	5/25/2018 14:01
Chlorobenzene	U		18	55	µg/Kg-dry	1	5/25/2018 14:01
Chloroethane	U		19	180	µg/Kg-dry	1	5/25/2018 14:01
Chloroform	U		20	55	µg/Kg-dry	1	5/25/2018 14:01
Chloromethane	U		46	180	µg/Kg-dry	1	5/25/2018 14:01
cis-1,2-Dichloroethene	U		17	55	µg/Kg-dry	1	5/25/2018 14:01
cis-1,3-Dichloropropene	U		21	55	µg/Kg-dry	1	5/25/2018 14:01
Cyclohexane	U		18	55	µg/Kg-dry	1	5/25/2018 14:01
Dibromochloromethane	U		31	55	µg/Kg-dry	1	5/25/2018 14:01
Dichlorodifluoromethane	U		11	55	µg/Kg-dry	1	5/25/2018 14:01
Ethylbenzene	U		12	55	µg/Kg-dry	1	5/25/2018 14:01
Isopropylbenzene	U		17	55	µg/Kg-dry	1	5/25/2018 14:01
m,p-Xylene	U		26	110	µg/Kg-dry	1	5/25/2018 14:01

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-31
Collection Date: 5/18/2018 10:15 AM

Work Order: 18051407
Lab ID: 18051407-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		25	370	µg/Kg-dry	1	5/25/2018 14:01
Methyl tert-butyl ether	U		16	55	µg/Kg-dry	1	5/25/2018 14:01
Methylcyclohexane	U		21	55	µg/Kg-dry	1	5/25/2018 14:01
Methylene chloride	U		24	55	µg/Kg-dry	1	5/25/2018 14:01
o-Xylene	U		21	55	µg/Kg-dry	1	5/25/2018 14:01
Styrene	U		22	55	µg/Kg-dry	1	5/25/2018 14:01
Tetrachloroethene	**35**	J	**16**	**55**	**µg/Kg-dry**	1	5/25/2018 14:01
Toluene	U		15	55	µg/Kg-dry	1	5/25/2018 14:01
trans-1,2-Dichloroethene	U		20	55	µg/Kg-dry	1	5/25/2018 14:01
trans-1,3-Dichloropropene	U		31	55	µg/Kg-dry	1	5/25/2018 14:01
Trichloroethene	**1,100**		**25**	**55**	**µg/Kg-dry**	1	5/25/2018 14:01
Trichlorofluoromethane	U		28	55	µg/Kg-dry	1	5/25/2018 14:01
Vinyl chloride	U		12	55	µg/Kg-dry	1	5/25/2018 14:01
Xylenes, Total	U		47	170	µg/Kg-dry	1	5/25/2018 14:01
Surr: 1,2-Dichloroethane-d4	*98.4*			*70-130*	*%REC*	1	5/25/2018 14:01
Surr: 4-Bromofluorobenzene	*97.2*			*70-130*	*%REC*	1	5/25/2018 14:01
Surr: Dibromofluoromethane	*92.6*			*70-130*	*%REC*	1	5/25/2018 14:01
Surr: Toluene-d8	*98.4*			*70-130*	*%REC*	1	5/25/2018 14:01
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**23**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**3.8**		**0.016**	**0.033**	**% by wt-dry**	1	5/28/2018 10:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-32
Collection Date: 5/18/2018 10:40 AM

Work Order: 18051407
Lab ID: 18051407-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**1.2**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**5.45**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.24**		**0.012**	**0.025**	**% by wt-dry**	1	5/31/2018 10:45

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-33
Collection Date: 5/18/2018 10:50 AM

Work Order: 18051407
Lab ID: 18051407-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/22/18		Analyst: **WH**
Acetone	U		34	110	µg/Kg-dry	1	5/25/2018 14:22
Surr: 1,2-Dichloroethane-d4	*104*			*70-130*	*%REC*	1	5/25/2018 14:22
Surr: 4-Bromofluorobenzene	*103*			*70-130*	*%REC*	1	5/25/2018 14:22
Surr: Dibromofluoromethane	*98.8*			*70-130*	*%REC*	1	5/25/2018 14:22
Surr: Toluene-d8	*104*			*70-130*	*%REC*	1	5/25/2018 14:22
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.79	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,1,2,2-Tetrachloroethane	U		0.27	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,1,2-Trichloroethane	U		0.39	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,1,2-Trichlorotrifluoroethane	U		1.1	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,1-Dichloroethane	U		2.1	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,1-Dichloroethene	U		0.98	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2,3-Trichlorobenzene	U		0.62	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2,4-Trichlorobenzene	U		0.73	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2-Dibromo-3-chloropropane	U		1.4	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2-Dibromoethane	U		0.36	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2-Dichlorobenzene	U		0.63	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2-Dichloroethane	U		0.36	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,2-Dichloropropane	U		0.44	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,3-Dichlorobenzene	U		0.52	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
1,4-Dichlorobenzene	U		0.36	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
2-Butanone	U		1.9	10	µg/Kg-dry	0.951	5/25/2018 17:52
2-Hexanone	U		0.98	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
4-Methyl-2-pentanone	U		0.81	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Benzene	**0.79**	J	**0.52**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Bromochloromethane	U		0.49	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Bromodichloromethane	U		0.32	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Bromoform	U		0.31	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Bromomethane	U		0.72	10	µg/Kg-dry	0.951	5/25/2018 17:52
Carbon disulfide	U		0.56	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Carbon tetrachloride	U		0.83	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Chlorobenzene	U		0.32	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Chloroethane	U		0.63	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Chloroform	U		0.30	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Chloromethane	U		0.46	10	µg/Kg-dry	0.951	5/25/2018 17:52
cis-1,2-Dichloroethene	U		0.48	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
cis-1,3-Dichloropropene	U		0.26	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Cyclohexane	U		3.1	10	µg/Kg-dry	0.951	5/25/2018 17:52

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-33
Collection Date: 5/18/2018 10:50 AM

Work Order: 18051407
Lab ID: 18051407-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	U		0.47	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Dichlorodifluoromethane	U		1.1	10	µg/Kg-dry	0.951	5/25/2018 17:52
Ethylbenzene	**0.92**	J	**0.60**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Isopropylbenzene	U		0.64	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
m,p-Xylene	**2.0**	J	**1.2**	**2.5**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Methyl acetate	U		1.2	10	µg/Kg-dry	0.951	5/25/2018 17:52
Methyl tert-butyl ether	U		0.23	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Methylcyclohexane	U		1.5	10	µg/Kg-dry	0.951	5/25/2018 17:52
Methylene chloride	U		0.86	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
o-Xylene	**0.95**	J	**0.47**	**2.5**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Styrene	U		0.40	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Tetrachloroethene	**2.8**	J	**0.89**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Toluene	**2.7**	J	**0.56**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
trans-1,2-Dichloroethene	U		0.40	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
trans-1,3-Dichloropropene	U		0.29	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Trichloroethene	**23**		**0.72**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Trichlorofluoromethane	U		0.71	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Vinyl chloride	U		0.70	5.0	µg/Kg-dry	0.951	5/25/2018 17:52
Xylenes, Total	**2.9**	J	**1.7**	**5.0**	**µg/Kg-dry**	0.951	5/25/2018 17:52
Surr: 1,2-Dichloroethane-d4	*94.1*			*83-132*	*%REC*	0.951	5/25/2018 17:52
Surr: 4-Bromofluorobenzene	*95.2*			*83-111*	*%REC*	0.951	5/25/2018 17:52
Surr: Dibromofluoromethane	*99.0*			*77-125*	*%REC*	0.951	5/25/2018 17:52
Surr: Toluene-d8	*101*			*86-108*	*%REC*	0.951	5/25/2018 17:52
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**5.1**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**11.6**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.10**		**0.013**	**0.026**	**% by wt-dry**	1	5/28/2018 10:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-34
Collection Date: 5/18/2018 11:00 AM

Work Order: 18051407
Lab ID: 18051407-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/22/18		Analyst: **WH**
1,1,1-Trichloroethane	U		16	35	µg/Kg-dry	1	5/25/2018 14:43
1,1,2,2-Tetrachloroethane	U		15	35	µg/Kg-dry	1	5/25/2018 14:43
1,1,2-Trichloroethane	U		15	35	µg/Kg-dry	1	5/25/2018 14:43
1,1,2-Trichlorotrifluoroethane	U		22	35	µg/Kg-dry	1	5/25/2018 14:43
1,1-Dichloroethane	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
1,1-Dichloroethene	U		11	35	µg/Kg-dry	1	5/25/2018 14:43
1,2,3-Trichlorobenzene	U		17	35	µg/Kg-dry	1	5/25/2018 14:43
1,2,4-Trichlorobenzene	U		12	35	µg/Kg-dry	1	5/25/2018 14:43
1,2-Dibromo-3-chloropropane	U		32	120	µg/Kg-dry	1	5/25/2018 14:43
1,2-Dibromoethane	U		9.9	35	µg/Kg-dry	1	5/25/2018 14:43
1,2-Dichlorobenzene	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
1,2-Dichloroethane	U		15	35	µg/Kg-dry	1	5/25/2018 14:43
1,2-Dichloropropane	U		6.1	35	µg/Kg-dry	1	5/25/2018 14:43
1,3-Dichlorobenzene	U		12	35	µg/Kg-dry	1	5/25/2018 14:43
1,4-Dichlorobenzene	U		8.5	35	µg/Kg-dry	1	5/25/2018 14:43
2-Butanone	U		29	230	µg/Kg-dry	1	5/25/2018 14:43
2-Hexanone	U		17	35	µg/Kg-dry	1	5/25/2018 14:43
4-Methyl-2-pentanone	U		17	35	µg/Kg-dry	1	5/25/2018 14:43
Acetone	U		36	120	µg/Kg-dry	1	5/25/2018 14:43
Benzene	U		6.0	35	µg/Kg-dry	1	5/25/2018 14:43
Bromochloromethane	U		18	35	µg/Kg-dry	1	5/25/2018 14:43
Bromodichloromethane	U		20	35	µg/Kg-dry	1	5/25/2018 14:43
Bromoform	U		15	35	µg/Kg-dry	1	5/25/2018 14:43
Bromomethane	U		67	120	µg/Kg-dry	1	5/25/2018 14:43
Carbon disulfide	U		18	35	µg/Kg-dry	1	5/25/2018 14:43
Carbon tetrachloride	U		14	35	µg/Kg-dry	1	5/25/2018 14:43
Chlorobenzene	U		12	35	µg/Kg-dry	1	5/25/2018 14:43
Chloroethane	U		12	120	µg/Kg-dry	1	5/25/2018 14:43
Chloroform	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
Chloromethane	U		29	120	µg/Kg-dry	1	5/25/2018 14:43
cis-1,2-Dichloroethene	U		11	35	µg/Kg-dry	1	5/25/2018 14:43
cis-1,3-Dichloropropene	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
Cyclohexane	U		11	35	µg/Kg-dry	1	5/25/2018 14:43
Dibromochloromethane	U		20	35	µg/Kg-dry	1	5/25/2018 14:43
Dichlorodifluoromethane	U		7.3	35	µg/Kg-dry	1	5/25/2018 14:43
Ethylbenzene	U		7.4	35	µg/Kg-dry	1	5/25/2018 14:43
Isopropylbenzene	U		11	35	µg/Kg-dry	1	5/25/2018 14:43
m,p-Xylene	U		17	70	µg/Kg-dry	1	5/25/2018 14:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-34
Collection Date: 5/18/2018 11:00 AM

Work Order: 18051407
Lab ID: 18051407-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		16	230	µg/Kg-dry	1	5/25/2018 14:43
Methyl tert-butyl ether	U		10	35	µg/Kg-dry	1	5/25/2018 14:43
Methylcyclohexane	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
Methylene chloride	**42**		**15**	**35**	**µg/Kg-dry**	1	5/25/2018 14:43
o-Xylene	U		14	35	µg/Kg-dry	1	5/25/2018 14:43
Styrene	U		14	35	µg/Kg-dry	1	5/25/2018 14:43
Tetrachloroethene	**33**	J	**10**	**35**	**µg/Kg-dry**	1	5/25/2018 14:43
Toluene	U		9.6	35	µg/Kg-dry	1	5/25/2018 14:43
trans-1,2-Dichloroethene	U		13	35	µg/Kg-dry	1	5/25/2018 14:43
trans-1,3-Dichloropropene	U		20	35	µg/Kg-dry	1	5/25/2018 14:43
Trichloroethene	**1,600**		**16**	**35**	**µg/Kg-dry**	1	5/25/2018 14:43
Trichlorofluoromethane	U		18	35	µg/Kg-dry	1	5/25/2018 14:43
Vinyl chloride	U		7.5	35	µg/Kg-dry	1	5/25/2018 14:43
Xylenes, Total	U		30	110	µg/Kg-dry	1	5/25/2018 14:43
Surr: 1,2-Dichloroethane-d4	*96.0*			*70-130*	*%REC*	1	5/25/2018 14:43
Surr: 4-Bromofluorobenzene	*98.0*			*70-130*	*%REC*	1	5/25/2018 14:43
Surr: Dibromofluoromethane	*94.7*			*70-130*	*%REC*	1	5/25/2018 14:43
Surr: Toluene-d8	*94.6*			*70-130*	*%REC*	1	5/25/2018 14:43
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**7.8**		**0.025**	**0.050**	**% of sample**	1	5/24/2018 20:40
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/30/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**9.67**		**0**		**g/Kg**	1	5/30/2018 11:45
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.070**		**0.013**	**0.027**	**% by wt-dry**	1	5/28/2018 10:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-35
Collection Date: 5/18/2018 03:20 PM

Work Order: 18051407
Lab ID: 18051407-11
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/29/2018 17:46
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/29/2018 17:46
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/29/2018 17:46
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/29/2018 17:46
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/29/2018 17:46
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/29/2018 17:46
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/29/2018 17:46
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/29/2018 17:46
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/29/2018 17:46
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/29/2018 17:46
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/29/2018 17:46
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/29/2018 17:46
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/29/2018 17:46
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/29/2018 17:46
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/29/2018 17:46
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/29/2018 17:46
2-Butanone	**0.88**	J	**0.47**	**5.0**	**µg/L**	1	5/29/2018 17:46
2-Hexanone	U		0.50	5.0	µg/L	1	5/29/2018 17:46
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/29/2018 17:46
Acetone	**4.6**	J	**0.47**	**10**	**µg/L**	1	5/29/2018 17:46
Benzene	U		0.42	1.0	µg/L	1	5/29/2018 17:46
Bromochloromethane	U		0.15	1.0	µg/L	1	5/29/2018 17:46
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/29/2018 17:46
Bromoform	U		0.56	1.0	µg/L	1	5/29/2018 17:46
Bromomethane	U		0.29	1.0	µg/L	1	5/29/2018 17:46
Carbon disulfide	U		0.39	1.0	µg/L	1	5/29/2018 17:46
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/29/2018 17:46
Chlorobenzene	U		0.21	1.0	µg/L	1	5/29/2018 17:46
Chloroethane	U		0.68	1.0	µg/L	1	5/29/2018 17:46
Chloroform	U		0.46	1.0	µg/L	1	5/29/2018 17:46
Chloromethane	U		0.68	1.0	µg/L	1	5/29/2018 17:46
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/29/2018 17:46
Cyclohexane	U		0.18	1.0	µg/L	1	5/29/2018 17:46
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/29/2018 17:46
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/29/2018 17:46
Ethylbenzene	U		0.29	1.0	µg/L	1	5/29/2018 17:46
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/29/2018 17:46
m,p-Xylene	U		0.53	2.0	µg/L	1	5/29/2018 17:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-35
Collection Date: 5/18/2018 03:20 PM

Work Order: 18051407
Lab ID: 18051407-11
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/29/2018 17:46
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/29/2018 17:46
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/29/2018 17:46
Methylene chloride	U		0.16	5.0	µg/L	1	5/29/2018 17:46
o-Xylene	U		0.19	1.0	µg/L	1	5/29/2018 17:46
Styrene	U		0.19	1.0	µg/L	1	5/29/2018 17:46
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/29/2018 17:46
Toluene	**0.54**	J	**0.32**	**1.0**	**µg/L**	1	5/29/2018 17:46
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/29/2018 17:46
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/29/2018 17:46
Trichloroethene	**15**		**0.33**	**1.0**	**µg/L**	1	5/29/2018 17:46
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/29/2018 17:46
Vinyl chloride	U		0.53	1.0	µg/L	1	5/29/2018 17:46
Xylenes, Total	U		0.74	3.0	µg/L	1	5/29/2018 17:46
Surr: 1,2-Dichloroethane-d4	*93.5*			*75-120*	*%REC*	1	5/29/2018 17:46
Surr: 4-Bromofluorobenzene	*92.2*			*80-110*	*%REC*	1	5/29/2018 17:46
Surr: Dibromofluoromethane	*98.1*			*85-115*	*%REC*	1	5/29/2018 17:46
Surr: Toluene-d8	*93.1*			*85-110*	*%REC*	1	5/29/2018 17:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-36
Collection Date: 5/18/2018 04:05 PM

Work Order: 18051407
Lab ID: 18051407-12
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	5/27/2018 20:04
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	5/27/2018 20:04
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	5/27/2018 20:04
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	5/27/2018 20:04
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	5/27/2018 20:04
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	5/27/2018 20:04
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	5/27/2018 20:04
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	5/27/2018 20:04
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	5/27/2018 20:04
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	5/27/2018 20:04
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	5/27/2018 20:04
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	5/27/2018 20:04
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	5/27/2018 20:04
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/27/2018 20:04
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	5/27/2018 20:04
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	5/27/2018 20:04
2-Butanone	U		0.47	5.0	µg/L	1	5/27/2018 20:04
2-Hexanone	U		0.50	5.0	µg/L	1	5/27/2018 20:04
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	5/27/2018 20:04
Acetone	U		0.47	10	µg/L	1	5/27/2018 20:04
Benzene	U		0.42	1.0	µg/L	1	5/27/2018 20:04
Bromochloromethane	U		0.15	1.0	µg/L	1	5/27/2018 20:04
Bromodichloromethane	U		0.22	1.0	µg/L	1	5/27/2018 20:04
Bromoform	U		0.56	1.0	µg/L	1	5/27/2018 20:04
Bromomethane	U		0.29	1.0	µg/L	1	5/27/2018 20:04
Carbon disulfide	U		0.39	1.0	µg/L	1	5/27/2018 20:04
Carbon tetrachloride	U		0.32	1.0	µg/L	1	5/27/2018 20:04
Chlorobenzene	U		0.21	1.0	µg/L	1	5/27/2018 20:04
Chloroethane	U		0.68	1.0	µg/L	1	5/27/2018 20:04
Chloroform	U		0.46	1.0	µg/L	1	5/27/2018 20:04
Chloromethane	U		0.68	1.0	µg/L	1	5/27/2018 20:04
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	5/27/2018 20:04
Cyclohexane	U		0.18	1.0	µg/L	1	5/27/2018 20:04
Dibromochloromethane	U		0.20	1.0	µg/L	1	5/27/2018 20:04
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	5/27/2018 20:04
Ethylbenzene	U		0.29	1.0	µg/L	1	5/27/2018 20:04
Isopropylbenzene	U		0.17	1.0	µg/L	1	5/27/2018 20:04
m,p-Xylene	U		0.53	2.0	µg/L	1	5/27/2018 20:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *05-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-36
Collection Date: 5/18/2018 04:05 PM

Work Order: 18051407
Lab ID: 18051407-12
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	5/27/2018 20:04
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	5/27/2018 20:04
Methylcyclohexane	U		0.090	1.0	µg/L	1	5/27/2018 20:04
Methylene chloride	U		0.16	5.0	µg/L	1	5/27/2018 20:04
o-Xylene	U		0.19	1.0	µg/L	1	5/27/2018 20:04
Styrene	U		0.19	1.0	µg/L	1	5/27/2018 20:04
Tetrachloroethene	U		0.28	1.0	µg/L	1	5/27/2018 20:04
Toluene	U		0.32	1.0	µg/L	1	5/27/2018 20:04
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	5/27/2018 20:04
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	5/27/2018 20:04
Trichloroethene	U		0.33	1.0	µg/L	1	5/27/2018 20:04
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	5/27/2018 20:04
Vinyl chloride	U		0.53	1.0	µg/L	1	5/27/2018 20:04
Xylenes, Total	U		0.74	3.0	µg/L	1	5/27/2018 20:04
Surr: 1,2-Dichloroethane-d4	*99.4*			*75-120*	*%REC*	1	5/27/2018 20:04
Surr: 4-Bromofluorobenzene	*97.0*			*80-110*	*%REC*	1	5/27/2018 20:04
Surr: Dibromofluoromethane	*103*			*85-115*	*%REC*	1	5/27/2018 20:04
Surr: Toluene-d8	*92.0*			*85-110*	*%REC*	1	5/27/2018 20:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MBLK	Sample ID: **MBLK-118698-118698**					Units: **µg/Kg-dry**		Analysis Date: **5/25/2018 12:15 PM**		
Client ID:		Run ID: **VMS7_180525A**				SeqNo: **5056412**	Prep Date: **5/22/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	30								
1,1,2,2-Tetrachloroethane	U	30								
1,1,2-Trichloroethane	U	30								
1,1,2-Trichlorotrifluoroethane	U	30								
1,1-Dichloroethane	U	30								
1,1-Dichloroethene	U	30								
1,2,3-Trichlorobenzene	U	30								
1,2,4-Trichlorobenzene	U	30								
1,2-Dibromo-3-chloropropane	U	100								
1,2-Dibromoethane	U	30								
1,2-Dichlorobenzene	U	30								
1,2-Dichloroethane	U	30								
1,2-Dichloropropane	U	30								
1,3-Dichlorobenzene	U	30								
1,4-Dichlorobenzene	U	30								
2-Butanone	U	200								
2-Hexanone	U	30								
4-Methyl-2-pentanone	U	30								
Acetone	U	100								
Benzene	U	30								
Bromochloromethane	U	30								
Bromodichloromethane	U	30								
Bromoform	U	30								
Bromomethane	U	100								
Carbon disulfide	U	30								
Carbon tetrachloride	U	30								
Chlorobenzene	U	30								
Chloroethane	U	100								
Chloroform	U	30								
Chloromethane	U	100								
cis-1,2-Dichloroethene	U	30								
cis-1,3-Dichloropropene	U	30								
Cyclohexane	U	30								
Dibromochloromethane	U	30								
Dichlorodifluoromethane	U	30								
Ethylbenzene	U	30								
Isopropylbenzene	U	30								
m,p-Xylene	U	60								
Methyl acetate	U	200								
Methyl tert-butyl ether	U	30								
Methylcyclohexane	U	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

Methylene chloride	U	30					
o-Xylene	U	30					
Styrene	U	30					
Tetrachloroethene	U	30					
Toluene	U	30					
trans-1,2-Dichloroethene	U	30					
trans-1,3-Dichloropropene	U	30					
Trichloroethene	U	30					
Trichlorofluoromethane	U	30					
Vinyl chloride	U	30					
Xylenes, Total	U	90					
Surr: 1,2-Dichloroethane-d4	*940*	0	*1000*	0	*94*	*70-130*	0
Surr: 4-Bromofluorobenzene	*989.5*	0	*1000*	0	*99*	*70-130*	0
Surr: Dibromofluoromethane	*938*	0	*1000*	0	*93.8*	*70-130*	0
Surr: Toluene-d8	*970*	0	*1000*	0	*97*	*70-130*	0

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

LCS	Sample ID: **LCS-118698-118698**				Units: **µg/Kg-dry**		Analysis Date: **5/25/2018 11:12 AM**			
Client ID:		Run ID: **VMS7_180525A**			SeqNo: **5056411**		Prep Date: **5/22/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1081	30	1000	0	108	70-135	0			
1,1,2,2-Tetrachloroethane	1088	30	1000	0	109	55-130	0			
1,1,2-Trichloroethane	993	30	1000	0	99.3	60-125	0			
1,1-Dichloroethane	1066	30	1000	0	107	75-125	0			
1,1-Dichloroethene	1184	30	1000	0	118	76-148	0			
1,2,3-Trichlorobenzene	1035	30	1000	0	104	60-135	0			
1,2,4-Trichlorobenzene	1038	30	1000	0	104	65-130	0			
1,2-Dibromo-3-chloropropane	1014	100	1000	0	101	40-135	0			
1,2-Dibromoethane	1054	30	1000	0	105	80-195	0			
1,2-Dichlorobenzene	1002	30	1000	0	100	75-120	0			
1,2-Dichloroethane	1027	30	1000	0	103	70-135	0			
1,2-Dichloropropane	1058	30	1000	0	106	70-120	0			
1,3-Dichlorobenzene	1000	30	1000	0	100	70-125	0			
1,4-Dichlorobenzene	1012	30	1000	0	101	70-125	0			
2-Butanone	956.5	200	1000	0	95.6	30-160	0			
2-Hexanone	869	30	1000	0	86.9	45-145	0			
4-Methyl-2-pentanone	1208	30	1000	0	121	74-176	0			
Acetone	1198	100	1000	0	120	20-160	0			
Benzene	1060	30	1000	0	106	75-125	0			
Bromochloromethane	1060	30	1000	0	106	74-134	0			
Bromodichloromethane	1068	30	1000	0	107	70-130	0			
Bromoform	995.5	30	1000	0	99.6	55-135	0			
Bromomethane	1229	100	1000	0	123	50-170	0			
Carbon disulfide	1138	30	1000	0	114	45-160	0			
Carbon tetrachloride	976	30	1000	0	97.6	65-135	0			
Chlorobenzene	1068	30	1000	0	107	75-125	0			
Chloroethane	916	100	1000	0	91.6	40-155	0			
Chloroform	1098	30	1000	0	110	70-125	0			
Chloromethane	682.5	100	1000	0	68.2	50-144	0			
cis-1,2-Dichloroethene	1059	30	1000	0	106	65-125	0			
cis-1,3-Dichloropropene	1045	30	1000	0	104	70-125	0			
Dibromochloromethane	982.5	30	1000	0	98.2	65-135	0			
Dichlorodifluoromethane	693	30	1000	0	69.3	35-135	0			
Ethylbenzene	1036	30	1000	0	104	75-125	0			
Isopropylbenzene	1006	30	1000	0	101	75-130	0			
m,p-Xylene	2108	60	2000	0	105	80-125	0			
Methyl tert-butyl ether	1123	30	1000	0	112	75-125	0			
Methylene chloride	1100	30	1000	0	110	55-145	0			
o-Xylene	1016	30	1000	0	102	75-125	0			
Styrene	1044	30	1000	0	104	80-138	0			
Tetrachloroethene	967.5	30	1000	0	96.8	67-167	0			
Toluene	1008	30	1000	0	101	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1110	30	1000	0	111	65-135	0
trans-1,3-Dichloropropene	996	30	1000	0	99.6	59-129	0
Trichloroethene	1007	30	1000	0	101	75-125	0
Trichlorofluoromethane	886.5	30	1000	0	88.6	25-185	0
Vinyl chloride	1007	30	1000	0	101	60-125	0
Xylenes, Total	3124	90	3000	0	104	75-125	0
Surr: 1,2-Dichloroethane-d4	*997.5*	0	*1000*	0	*99.8*	*70-130*	0
Surr: 4-Bromofluorobenzene	*995*	0	*1000*	0	*99.5*	*70-130*	0
Surr: Dibromofluoromethane	*1014*	0	*1000*	0	*101*	*70-130*	0
Surr: Toluene-d8	*972*	0	*1000*	0	*97.2*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MS Sample ID: **18051407-07A MS** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 08:17 PM**

Client ID: **18CP02-31** Run ID: **VMS7_180525A** SeqNo: **5056415** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	2229	54	1791	0	124	70-135	0			
1,1,2,2-Tetrachloroethane	550	54	1791	0	30.7	55-130	0			S
1,1,2-Trichloroethane	2075	54	1791	0	116	60-125	0			
1,1-Dichloroethane	2145	54	1791	0	120	75-125	0			
1,1-Dichloroethene	2289	54	1791	0	128	76-148	0			
1,2,3-Trichlorobenzene	1825	54	1791	0	102	60-135	0			
1,2,4-Trichlorobenzene	1696	54	1791	0	94.6	65-130	0			
1,2-Dibromo-3-chloropropane	1534	180	1791	0	85.6	40-135	0			
1,2-Dibromoethane	2152	54	1791	0	120	80-195	0			
1,2-Dichlorobenzene	1886	54	1791	0	105	75-120	0			
1,2-Dichloroethane	1997	54	1791	0	111	70-135	0			
1,2-Dichloropropane	2038	54	1791	0	114	70-120	0			
1,3-Dichlorobenzene	1800	54	1791	0	100	70-125	0			
1,4-Dichlorobenzene	1915	54	1791	0	107	70-125	0			
2-Butanone	2447	360	1791	0	137	30-160	0			
2-Hexanone	2669	54	1791	0	149	45-145	0			S
4-Methyl-2-pentanone	1852	54	1791	0	103	74-176	0			
Acetone	3492	180	1791	0	195	20-160	0			S
Benzene	2141	54	1791	0	120	75-125	0			
Bromochloromethane	1980	54	1791	0	111	74-134	0			
Bromodichloromethane	1958	54	1791	0	109	70-130	0			
Bromoform	2068	54	1791	0	115	55-135	0			
Bromomethane	2275	180	1791	0	127	50-170	0			
Carbon disulfide	2218	54	1791	0	124	45-160	0			
Carbon tetrachloride	2035	54	1791	0	114	65-135	0			
Chlorobenzene	2108	54	1791	0	118	75-125	0			
Chloroethane	1669	180	1791	0	93.2	40-155	0			
Chloroform	2149	54	1791	0	120	70-125	0			
Chloromethane	1520	180	1791	0	84.8	50-144	0			
cis-1,2-Dichloroethene	1953	54	1791	0	109	65-125	0			
cis-1,3-Dichloropropene	1840	54	1791	0	103	70-125	0			
Dibromochloromethane	1943	54	1791	0	108	65-135	0			
Dichlorodifluoromethane	2011	54	1791	0	112	35-135	0			
Ethylbenzene	2147	54	1791	0	120	75-125	0			
Isopropylbenzene	2160	54	1791	0	121	75-130	0			
m,p-Xylene	4308	110	3583	0	120	80-125	0			
Methyl tert-butyl ether	1936	54	1791	0	108	75-125	0			
Methylene chloride	1930	54	1791	0	108	55-145	0			
o-Xylene	2006	54	1791	0	112	75-125	0			
Styrene	2067	54	1791	0	115	80-138	0			
Tetrachloroethene	3804	54	1791	34.84	210	67-167	0			S
Toluene	2019	54	1791	0	113	70-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1985	54	1791	0	111	65-135	0	
trans-1,3-Dichloropropene	1802	54	1791	0	101	59-129	0	
Trichloroethene	4583	54	1791	1150	192	75-125	0	S
Trichlorofluoromethane	1984	54	1791	0	111	25-185	0	
Vinyl chloride	2014	54	1791	0	112	60-125	0	
Xylenes, Total	6313	160	5374	0	117	75-125	0	
Surr: 1,2-Dichloroethane-d4	*1966*	0	*1791*	0	*110*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1843*	0	*1791*	0	*103*	*70-130*	0	
Surr: Dibromofluoromethane	*1882*	0	*1791*	0	*105*	*70-130*	0	
Surr: Toluene-d8	*1972*	0	*1791*	0	*110*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

MSD Sample ID: **18051407-07A MSD** Units: **µg/Kg-dry** Analysis Date: **5/25/2018 08:39 PM**

Client ID: **18CP02-31** Run ID: **VMS7_180525A** SeqNo: **5056416** Prep Date: **5/22/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1514	48	1597	0	94.8	70-135	2229	38.3	30	R
1,1,2,2-Tetrachloroethane	252.4	48	1597	0	15.8	55-130	550	74.2	30	SR
1,1,2-Trichloroethane	1805	48	1597	0	113	60-125	2075	13.9	30	
1,1-Dichloroethane	1619	48	1597	0	101	75-125	2145	28	30	
1,1-Dichloroethene	1664	48	1597	0	104	76-148	2289	31.6	30	R
1,2,3-Trichlorobenzene	1603	48	1597	0	100	60-135	1825	12.9	30	
1,2,4-Trichlorobenzene	1586	48	1597	0	99.3	65-130	1696	6.67	30	
1,2-Dibromo-3-chloropropane	1721	160	1597	0	108	40-135	1534	11.5	30	
1,2-Dibromoethane	1956	48	1597	0	122	80-195	2152	9.56	30	
1,2-Dichlorobenzene	1631	48	1597	0	102	75-120	1886	14.5	30	
1,2-Dichloroethane	1589	48	1597	0	99.4	70-135	1997	22.8	30	
1,2-Dichloropropane	1642	48	1597	0	103	70-120	2038	21.5	30	
1,3-Dichlorobenzene	1538	48	1597	0	96.3	70-125	1800	15.7	30	
1,4-Dichlorobenzene	1642	48	1597	0	103	70-125	1915	15.3	30	
2-Butanone	2252	320	1597	0	141	30-160	2447	8.33	30	
2-Hexanone	2400	48	1597	0	150	45-145	2669	10.6	30	S
4-Methyl-2-pentanone	1717	48	1597	0	108	74-176	1852	7.57	30	
Acetone	3041	160	1597	0	190	20-160	3492	13.8	30	S
Benzene	1601	48	1597	0	100	75-125	2141	28.8	30	
Bromochloromethane	1590	48	1597	0	99.6	74-134	1980	21.9	30	
Bromodichloromethane	1608	48	1597	0	101	70-130	1958	19.6	30	
Bromoform	1674	48	1597	0	105	55-135	2068	21.1	30	
Bromomethane	1388	160	1597	0	86.9	50-170	2275	48.4	30	R
Carbon disulfide	1565	48	1597	0	98	45-160	2218	34.5	30	R
Carbon tetrachloride	1395	48	1597	0	87.3	65-135	2035	37.4	30	R
Chlorobenzene	1731	48	1597	0	108	75-125	2108	19.6	30	
Chloroethane	1123	160	1597	0	70.3	40-155	1669	39.1	30	R
Chloroform	1657	48	1597	0	104	70-125	2149	25.9	30	
Chloromethane	1159	160	1597	0	72.6	50-144	1520	27	30	
cis-1,2-Dichloroethene	1489	48	1597	0	93.2	65-125	1953	27	30	
cis-1,3-Dichloropropene	1444	48	1597	0	90.4	70-125	1840	24.1	30	
Dibromochloromethane	1661	48	1597	0	104	65-135	1943	15.6	30	
Dichlorodifluoromethane	1219	48	1597	0	76.3	35-135	2011	49.1	30	R
Ethylbenzene	1668	48	1597	0	104	75-125	2147	25.1	30	
Isopropylbenzene	1589	48	1597	0	99.4	75-130	2160	30.5	30	R
m,p-Xylene	3362	96	3195	0	105	80-125	4308	24.7	30	
Methyl tert-butyl ether	1764	48	1597	0	110	75-125	1936	9.26	30	
Methylene chloride	1574	48	1597	0	98.6	55-145	1930	20.3	30	
o-Xylene	1545	48	1597	0	96.7	75-125	2006	26	30	
Styrene	1730	48	1597	0	108	80-138	2067	17.8	30	
Tetrachloroethene	3053	48	1597	34.84	189	67-167	3804	21.9	30	S
Toluene	1614	48	1597	0	101	70-125	2019	22.3	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118698** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	1605	48	1597	0	100	65-135	1985	21.1	30	
trans-1,3-Dichloropropene	1534	48	1597	0	96	59-129	1802	16.1	30	
Trichloroethene	3614	48	1597	1150	154	75-125	4583	23.6	30	S
Trichlorofluoromethane	1283	48	1597	0	80.3	25-185	1984	42.9	30	R
Vinyl chloride	1571	48	1597	0	98.4	60-125	2014	24.7	30	
Xylenes, Total	4906	140	4792	0	102	75-125	6313	25.1	30	
Surr: 1,2-Dichloroethane-d4	*1593*	0	*1597*	0	*99.7*	*70-130*	1966	*21*	*30*	
Surr: 4-Bromofluorobenzene	*1693*	0	*1597*	0	*106*	*70-130*	1843	*8.49*	*30*	
Surr: Dibromofluoromethane	*1597*	0	*1597*	0	*100*	*70-130*	1882	*16.4*	*30*	
Surr: Toluene-d8	*1668*	0	*1597*	0	*104*	*70-130*	1972	*16.7*	*30*	

The following samples were analyzed in this batch:

18051407-07A	18051407-09A	18051407-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180523-R236457** Units: **µg/Kg** Analysis Date: **5/23/2018 02:24 PM**
Client ID: Run ID: **VMS8_180523A** SeqNo: **5050337** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	3.05	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*83-111*	0
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	0
Surr: Toluene-d8	*19.86*	0	*20*	0	*99.3*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSS1-180523-R236457**				Units: **µg/Kg**		Analysis Date: **5/23/2018 01:30 PM**			
Client ID:		Run ID: **VMS8_180523A**			SeqNo: **5050336**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.07	5.0	20	0	95.4	73-138	0			
1,1,2,2-Tetrachloroethane	15.83	5.0	20	0	79.2	71-126	0			
1,1,2-Trichloroethane	16.89	5.0	20	0	84.4	77-123	0			
1,1-Dichloroethane	19.77	5.0	20	0	98.8	63-148	0			
1,1-Dichloroethene	18.87	5.0	20	0	94.4	67-156	0			
1,2,3-Trichlorobenzene	17.86	5.0	20	0	89.3	73-129	0			
1,2,4-Trichlorobenzene	18.53	5.0	20	0	92.6	70-132	0			
1,2-Dibromo-3-chloropropane	13.54	5.0	20	0	67.7	48-127	0			
1,2-Dibromoethane	17.26	5.0	20	0	86.3	71-144	0			
1,2-Dichlorobenzene	19.62	5.0	20	0	98.1	77-127	0			
1,2-Dichloroethane	17.28	5.0	20	0	86.4	77-127	0			
1,2-Dichloropropane	18.42	5.0	20	0	92.1	74-130	0			
1,3-Dichlorobenzene	19.49	5.0	20	0	97.4	75-133	0			
1,4-Dichlorobenzene	19.46	5.0	20	0	97.3	74-130	0			
2-Butanone	12.65	10	20	0	63.2	55-132	0			
2-Hexanone	13.14	5.0	20	0	65.7	55-124	0			
4-Methyl-2-pentanone	16.68	5.0	20	0	83.4	67-159	0			
Acetone	10.73	10	20	0	53.6	31-156	0			
Benzene	18.84	5.0	20	0	94.2	77-133	0			
Bromochloromethane	18.7	5.0	20	0	93.5	72-139	0			
Bromodichloromethane	18.33	5.0	20	0	91.6	69-133	0			
Bromoform	16.07	5.0	20	0	80.4	55-126	0			
Bromomethane	18.99	10	20	0	95	31-174	0			
Carbon disulfide	21.03	5.0	20	0	105	45-160	0			
Carbon tetrachloride	20.31	5.0	20	0	102	69-140	0			
Chlorobenzene	19.31	5.0	20	0	96.6	76-130	0			
Chloroethane	17.28	5.0	20	0	86.4	53-150	0			
Chloroform	18.15	5.0	20	0	90.8	72-132	0			
Chloromethane	14.89	10	20	0	74.4	43-150	0			
cis-1,2-Dichloroethene	18.52	5.0	20	0	92.6	74-134	0			
cis-1,3-Dichloropropene	17.79	5.0	20	0	89	62-134	0			
Dibromochloromethane	16.98	5.0	20	0	84.9	57-118	0			
Dichlorodifluoromethane	16.73	10	20	0	83.6	43-126	0			
Ethylbenzene	18.7	5.0	20	0	93.5	75-133	0			
Isopropylbenzene	19.32	5.0	20	0	96.6	74-137	0			
m,p-Xylene	36.95	2.5	40	0	92.4	75-134	0			
Methyl tert-butyl ether	21.37	5.0	20	0	107	62-136	0			
Methylene chloride	24.19	5.0	20	0	121	55-157	0			
o-Xylene	18.63	2.5	20	0	93.2	76-130	0			
Styrene	17.82	5.0	20	0	89.1	72-138	0			
Tetrachloroethene	20.04	5.0	20	0	100	70-171	0			
Toluene	18.43	5.0	20	0	92.2	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.49	5.0	20	0	92.4	65-137	0
trans-1,3-Dichloropropene	16.11	5.0	20	0	80.6	58-126	0
Trichloroethene	19.23	5.0	20	0	96.2	75-135	0
Trichlorofluoromethane	17.18	5.0	20	0	85.9	62-136	0
Vinyl chloride	19.52	5.0	20	0	97.6	57-143	0
Xylenes, Total	55.58	5.0	60	0	92.6	75-132	0
Surr: 1,2-Dichloroethane-d4	*17.6*	0	*20*	0	*88*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.34*	0	*20*	0	*91.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.78*	0	*20*	0	*98.9*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/23/2018 07:36 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5050355** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4.27	1.0	5	0	85.4	73-138	0			
1,1,2,2-Tetrachloroethane	4.45	1.0	5	0	89	71-126	0			
1,1,2-Trichloroethane	5.54	1.0	5	0	111	77-123	0			
1,1-Dichloroethane	6.72	2.0	5	0	134	63-148	0			
1,1-Dichloroethene	4.4	1.0	5	0	88	67-156	0			
1,2,3-Trichlorobenzene	U	1.0	5	0	0	73-129	0			S
1,2,4-Trichlorobenzene	U	1.0	5	0	0	70-132	0			S
1,2-Dibromo-3-chloropropane	3.32	1.0	5	0	66.4	48-127	0			
1,2-Dibromoethane	5.71	1.0	5	0	114	71-144	0			
1,2-Dichlorobenzene	1.18	1.0	5	0	23.6	77-127	0			S
1,2-Dichloroethane	6.39	1.0	5	0	128	77-127	0			S
1,2-Dichloropropane	5.8	1.0	5	0	116	74-130	0			
1,3-Dichlorobenzene	1.17	1.0	5	0	23.4	75-133	0			S
1,4-Dichlorobenzene	1.13	1.0	5	0	22.6	74-130	0			S
2-Butanone	10.25	2.0	5	7.575	53.5	55-132	0			S
2-Hexanone	6.35	1.0	5	0	127	55-124	0			S
4-Methyl-2-pentanone	7.85	1.0	5	0	157	67-159	0			
Acetone	93.01	5.0	5	83.43	192	31-156	0			SO
Benzene	4.56	1.0	5	0	91.2	77-133	0			
Bromochloromethane	7.01	1.0	5	0	140	72-139	0			S
Bromodichloromethane	5.35	1.0	5	0	107	69-133	0			
Bromoform	3.78	1.0	5	0	75.6	55-126	0			
Bromomethane	6.45	1.0	5	0	129	31-174	0			
Carbon disulfide	4.05	1.0	5	1.246	56.1	45-160	0			
Carbon tetrachloride	3.06	1.0	5	0	61.2	69-140	0			S
Chlorobenzene	2.42	1.0	5	0	48.4	76-130	0			S
Chloroethane	6.17	1.0	5	0	123	53-150	0			
Chloroform	5.44	1.0	5	0	109	72-132	0			
Chloromethane	4.89	1.0	5	0	97.8	43-150	0			
cis-1,2-Dichloroethene	5.1	1.0	5	0	102	74-134	0			
cis-1,3-Dichloropropene	4.5	1.0	5	0	90	62-134	0			
Dibromochloromethane	4.61	1.0	5	0	92.2	57-118	0			
Dichlorodifluoromethane	1.49	2.0	5	0	29.8	43-126	0			JS
Ethylbenzene	2.23	1.0	5	0	44.6	75-133	0			S
Isopropylbenzene	1.41	1.0	5	0	28.2	74-137	0			S
m,p-Xylene	3.98	2.5	10	0	39.8	75-134	0			S
Methyl tert-butyl ether	10.62	1.0	5	0	212	62-136	0			S
Methylene chloride	7.77	1.0	5	0	155	55-157	0			B
o-Xylene	2.41	1.0	5	0	48.2	76-130	0			S
Styrene	1.95	1.0	5	0	39	72-138	0			S
Tetrachloroethene	1.67	1.0	5	0	33.4	70-171	0			S
Toluene	3.48	1.0	5	2.154	26.5	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	4.78	1.0	5	0	95.6	65-137	0	
trans-1,3-Dichloropropene	4.25	1.0	5	0	85	58-126	0	
Trichloroethene	3.38	1.0	5	0	67.6	75-135	0	S
Trichlorofluoromethane	2.67	1.0	5	0	53.4	62-136	0	S
Vinyl chloride	5.82	1.0	5	0	116	57-143	0	
Xylenes, Total	6.39	2.0	15	0	42.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.26*	0	*20*	0	*96.3*	*83-111*	0	
Surr: Dibromofluoromethane	*20.19*	0	*20*	0	*101*	*77-125*	0	
Surr: Toluene-d8	*19*	0	*20*	0	*95*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051384-01A MS** Units: **µg/Kg** Analysis Date: **5/24/2018 04:52 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5055162** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	26.91	5.0	20	0	135	73-138	0			
1,1,2,2-Tetrachloroethane	24.06	5.0	20	0	120	71-126	0			
1,1,2-Trichloroethane	24.95	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	27.94	5.0	20	0	140	63-148	0			
1,1-Dichloroethene	27.67	5.0	20	0	138	67-156	0			
1,2,3-Trichlorobenzene	11.67	5.0	20	0	58.4	73-129	0			S
1,2,4-Trichlorobenzene	12.64	5.0	20	0	63.2	70-132	0			S
1,2-Dibromo-3-chloropropane	19.99	5.0	20	0	100	48-127	0			
1,2-Dibromoethane	26.22	5.0	20	0	131	71-144	0			
1,2-Dichlorobenzene	18.42	5.0	20	0	92.1	77-127	0			
1,2-Dichloroethane	25.33	5.0	20	0	127	77-127	0			
1,2-Dichloropropane	26.22	5.0	20	0	131	74-130	0			S
1,3-Dichlorobenzene	18.33	5.0	20	0	91.6	75-133	0			
1,4-Dichlorobenzene	18.53	5.0	20	0	92.6	74-130	0			
2-Butanone	45.41	10	20	7.575	189	55-132	0			S
2-Hexanone	36.52	5.0	20	0	183	55-124	0			S
4-Methyl-2-pentanone	33.22	5.0	20	0	166	67-159	0			S
Acetone	115	10	20	83.43	158	31-156	0			SEO
Benzene	25.86	5.0	20	0	129	77-133	0			
Bromochloromethane	27.71	5.0	20	0	139	72-139	0			
Bromodichloromethane	26.27	5.0	20	0	131	69-133	0			
Bromoform	23.16	5.0	20	0	116	55-126	0			
Bromomethane	27.39	10	20	0	137	31-174	0			
Carbon disulfide	29.4	5.0	20	1.246	141	45-160	0			
Carbon tetrachloride	27.8	5.0	20	0	139	69-140	0			
Chlorobenzene	23.11	5.0	20	0	116	76-130	0			
Chloroethane	26.48	5.0	20	0	132	53-150	0			
Chloroform	25.88	5.0	20	0	129	72-132	0			
Chloromethane	21.69	10	20	0	108	43-150	0			
cis-1,2-Dichloroethene	25.98	5.0	20	0	130	74-134	0			
cis-1,3-Dichloropropene	25.33	5.0	20	0	127	62-134	0			
Dibromochloromethane	23.73	5.0	20	0	119	57-118	0			S
Dichlorodifluoromethane	29.85	10	20	0	149	43-126	0			S
Ethylbenzene	22.85	5.0	20	0	114	75-133	0			
Isopropylbenzene	21.56	5.0	20	0	108	74-137	0			
m,p-Xylene	44.68	2.5	40	0	112	75-134	0			
Methyl tert-butyl ether	35.08	5.0	20	0	175	62-136	0			S
Methylene chloride	32.16	5.0	20	0	161	55-157	0			S
o-Xylene	22.61	2.5	20	0	113	76-130	0			
Styrene	20.8	5.0	20	0	104	72-138	0			
Tetrachloroethene	23.74	5.0	20	0	119	70-171	0			
Toluene	23.91	5.0	20	2.154	109	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	26.19	5.0	20	0	131	65-137	0	
trans-1,3-Dichloropropene	23.07	5.0	20	0	115	58-126	0	
Trichloroethene	25.66	5.0	20	0	128	75-135	0	
Trichlorofluoromethane	26.49	5.0	20	0	132	62-136	0	
Vinyl chloride	28.72	5.0	20	0	144	57-143	0	S
Xylenes, Total	67.29	5.0	60	0	112	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.12*	0	*20*	0	*101*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*19.41*	0	*20*	0	*97*	*83-111*	0	
Surr: Dibromofluoromethane	*20.51*	0	*20*	0	*103*	*77-125*	0	
Surr: Toluene-d8	*19.22*	0	*20*	0	*96.1*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051384-01A MSD** Units: **µg/Kg** Analysis Date: **5/23/2018 07:53 PM**

Client ID: Run ID: **VMS8_180523A** SeqNo: **5050356** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	6.85	1.0	5	0	137	73-138	4.27	46.4	30	R
1,1,2,2-Tetrachloroethane	7.17	1.0	5	0	143	71-126	4.45	46.8	30	SR
1,1,2-Trichloroethane	8.42	1.0	5	0	168	77-123	5.54	41.3	30	SR
1,1-Dichloroethane	9.51	2.0	5	0	190	63-148	6.72	34.4	30	SR
1,1-Dichloroethene	7.11	1.0	5	0	142	67-156	4.4	47.1	30	R
1,2,3-Trichlorobenzene	2	1.0	5	0	40	73-129	0	200	30	SR
1,2,4-Trichlorobenzene	2.2	1.0	5	0	44	70-132	0.67	107	30	SR
1,2-Dibromo-3-chloropropane	5.32	1.0	5	0	106	48-127	3.32	46.3	30	R
1,2-Dibromoethane	8.53	1.0	5	0	171	71-144	5.71	39.6	30	SR
1,2-Dichlorobenzene	3.87	1.0	5	0	77.4	77-127	1.18	107	30	R
1,2-Dichloroethane	9.17	1.0	5	0	183	77-127	6.39	35.7	30	SR
1,2-Dichloropropane	8.78	1.0	5	0	176	74-130	5.8	40.9	30	SR
1,3-Dichlorobenzene	3.66	1.0	5	0	73.2	75-133	1.17	103	30	SR
1,4-Dichlorobenzene	3.73	1.0	5	0	74.6	74-130	1.13	107	30	R
2-Butanone	12.14	2.0	5	7.575	91.3	55-132	10.25	16.9	30	
2-Hexanone	7.39	1.0	5	0	148	55-124	6.35	15.1	30	S
4-Methyl-2-pentanone	9.1	1.0	5	0	182	67-159	7.85	14.7	30	S
Acetone	129.6	5.0	5	83.43	923	31-156	93.01	32.8	30	SREO
Benzene	7.54	1.0	5	0	151	77-133	4.56	49.3	30	SR
Bromochloromethane	9.82	1.0	5	0	196	72-139	7.01	33.4	30	SR
Bromodichloromethane	8.28	1.0	5	0	166	69-133	5.35	43	30	SR
Bromoform	6.58	1.0	5	0	132	55-126	3.78	54.1	30	SR
Bromomethane	7.12	1.0	5	0	142	31-174	6.45	9.87	30	
Carbon disulfide	5.68	1.0	5	1.246	88.7	45-160	4.05	33.5	30	R
Carbon tetrachloride	6.34	1.0	5	0	127	69-140	3.06	69.8	30	R
Chlorobenzene	5.51	1.0	5	0	110	76-130	2.42	77.9	30	R
Chloroethane	7.93	1.0	5	0	159	53-150	6.17	25	30	S
Chloroform	8.41	1.0	5	0	168	72-132	5.44	42.9	30	SR
Chloromethane	6.16	1.0	5	0	123	43-150	4.89	23	30	
cis-1,2-Dichloroethene	7.9	1.0	5	0	158	74-134	5.1	43.1	30	SR
cis-1,3-Dichloropropene	6.47	1.0	5	0	129	62-134	4.5	35.9	30	R
Dibromochloromethane	7.42	1.0	5	0	148	57-118	4.61	46.7	30	SR
Dichlorodifluoromethane	7.37	2.0	5	0	147	43-126	1.49	133	30	SR
Ethylbenzene	4.99	1.0	5	0	99.8	75-133	2.23	76.5	30	R
Isopropylbenzene	4.57	1.0	5	0	91.4	74-137	1.41	106	30	R
m,p-Xylene	9.73	2.5	10	0	97.3	75-134	3.98	83.9	30	R
Methyl tert-butyl ether	13.84	1.0	5	0	277	62-136	10.62	26.3	30	S
Methylene chloride	10.38	1.0	5	0	208	55-157	7.77	28.8	30	BS
o-Xylene	5.28	1.0	5	0	106	76-130	2.41	74.6	30	R
Styrene	4.68	1.0	5	0	93.6	72-138	1.95	82.4	30	R
Tetrachloroethene	4.91	1.0	5	0	98.2	70-171	1.67	98.5	30	R
Toluene	5.99	1.0	5	2.154	76.7	76-130	3.48	53	30	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	7	1.0	5	0	140	65-137	4.78	37.7	30	SR
trans-1,3-Dichloropropene	6.79	1.0	5	0	136	58-126	4.25	46	30	SR
Trichloroethene	6.05	1.0	5	0	121	75-135	3.38	56.6	30	R
Trichlorofluoromethane	6.34	1.0	5	0	127	62-136	2.67	81.5	30	R
Vinyl chloride	7.45	1.0	5	0	149	57-143	5.82	24.6	30	S
Xylenes, Total	15.01	2.0	15	0	100	75-132	6.39	80.6	30	R
Surr: 1,2-Dichloroethane-d4	*20.11*	0	*20*	0	*101*	*83-132*	20.13	*0.0994*	*30*	
Surr: 4-Bromofluorobenzene	*19.65*	0	*20*	0	*98.2*	*83-111*	19.26	*2*	*30*	
Surr: Dibromofluoromethane	*20.44*	0	*20*	0	*102*	*77-125*	20.19	*1.23*	*30*	
Surr: Toluene-d8	*19.56*	0	*20*	0	*97.8*	*86-108*	19	*2.9*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

MSD	Sample ID: **18051384-01A MSD**				Units: **µg/Kg**			Analysis Date: **5/24/2018 05:08 PM**			
Client ID:		Run ID: **VMS8_180523A**			SeqNo: **5055163**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.24	5.0	20	0	146	73-138	26.91	8.3	30	S
1,1,2,2-Tetrachloroethane	27.49	5.0	20	0	137	71-126	24.06	13.3	30	S
1,1,2-Trichloroethane	27.82	5.0	20	0	139	77-123	24.95	10.9	30	S
1,1-Dichloroethane	30.21	5.0	20	0	151	63-148	27.94	7.81	30	S
1,1-Dichloroethene	30.56	5.0	20	0	153	67-156	27.67	9.93	30	
1,2,3-Trichlorobenzene	13.92	5.0	20	0	69.6	73-129	11.67	17.6	30	S
1,2,4-Trichlorobenzene	15.31	5.0	20	0	76.6	70-132	12.64	19.1	30	
1,2-Dibromo-3-chloropropane	23.95	5.0	20	0	120	48-127	19.99	18	30	
1,2-Dibromoethane	29.08	5.0	20	0	145	71-144	26.22	10.3	30	S
1,2-Dichlorobenzene	22.4	5.0	20	0	112	77-127	18.42	19.5	30	
1,2-Dichloroethane	27.57	5.0	20	0	138	77-127	25.33	8.47	30	S
1,2-Dichloropropane	29.06	5.0	20	0	145	74-130	26.22	10.3	30	S
1,3-Dichlorobenzene	21.65	5.0	20	0	108	75-133	18.33	16.6	30	
1,4-Dichlorobenzene	20.8	5.0	20	0	104	74-130	18.53	11.5	30	
2-Butanone	55.45	10	20	7.575	239	55-132	45.41	19.9	30	S
2-Hexanone	42.64	5.0	20	0	213	55-124	36.52	15.5	30	S
4-Methyl-2-pentanone	40.06	5.0	20	0	200	67-159	33.22	18.7	30	S
Acetone	173.6	10	20	83.43	451	31-156	115	40.6	30	SREO
Benzene	28.32	5.0	20	0	142	77-133	25.86	9.08	30	S
Bromochloromethane	29.52	5.0	20	0	148	72-139	27.71	6.33	30	S
Bromodichloromethane	28.73	5.0	20	0	144	69-133	26.27	8.95	30	S
Bromoform	26.12	5.0	20	0	131	55-126	23.16	12	30	S
Bromomethane	27.19	10	20	0	136	31-174	27.39	0.733	30	
Carbon disulfide	31.35	5.0	20	1.246	151	45-160	29.4	6.42	30	
Carbon tetrachloride	30.89	5.0	20	0	154	69-140	27.8	10.5	30	S
Chlorobenzene	25.31	5.0	20	0	127	76-130	23.11	9.09	30	
Chloroethane	28.8	5.0	20	0	144	53-150	26.48	8.39	30	
Chloroform	27.76	5.0	20	0	139	72-132	25.88	7.01	30	S
Chloromethane	22.87	10	20	0	114	43-150	21.69	5.3	30	
cis-1,2-Dichloroethene	27.78	5.0	20	0	139	74-134	25.98	6.7	30	S
cis-1,3-Dichloropropene	26.96	5.0	20	0	135	62-134	25.33	6.23	30	S
Dibromochloromethane	27.02	5.0	20	0	135	57-118	23.73	13	30	S
Dichlorodifluoromethane	32.9	10	20	0	164	43-126	29.85	9.72	30	S
Ethylbenzene	25.92	5.0	20	0	130	75-133	22.85	12.6	30	
Isopropylbenzene	25.38	5.0	20	0	127	74-137	21.56	16.3	30	
m,p-Xylene	51.47	2.5	40	0	129	75-134	44.68	14.1	30	
Methyl tert-butyl ether	39.65	5.0	20	0	198	62-136	35.08	12.2	30	S
Methylene chloride	34.86	5.0	20	0	174	55-157	32.16	8.06	30	S
o-Xylene	25.55	2.5	20	0	128	76-130	22.61	12.2	30	
Styrene	23.44	5.0	20	0	117	72-138	20.8	11.9	30	
Tetrachloroethene	28.27	5.0	20	0	141	70-171	23.74	17.4	30	
Toluene	26.95	5.0	20	2.154	124	76-130	23.91	12	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236457** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	28.2	5.0	20	0	141	65-137	26.19	7.39	30	S
trans-1,3-Dichloropropene	25.89	5.0	20	0	129	58-126	23.07	11.5	30	S
Trichloroethene	27.9	5.0	20	0	140	75-135	25.66	8.36	30	S
Trichlorofluoromethane	28.9	5.0	20	0	144	62-136	26.49	8.7	30	S
Vinyl chloride	30.22	5.0	20	0	151	57-143	28.72	5.09	30	S
Xylenes, Total	77.02	5.0	60	0	128	75-132	67.29	13.5	30	
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0	*103*	*83-132*	20.12	*2.31*	*30*	
Surr: 4-Bromofluorobenzene	*18.84*	0	*20*	0	*94.2*	*83-111*	19.41	*2.98*	*30*	
Surr: Dibromofluoromethane	*19.83*	0	*20*	0	*99.2*	*77-125*	20.51	*3.37*	*30*	
Surr: Toluene-d8	*19.12*	0	*20*	0	*95.6*	*86-108*	19.22	*0.522*	*30*	

The following samples were analyzed in this batch:

18051407-01A	18051407-02A	18051407-03A
18051407-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180525-R236669** Units: **µg/Kg** Analysis Date: **5/25/2018 04:17 PM**
Client ID: Run ID: **VMS8_180525A** SeqNo: **5056444** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	5.27	5.0								
o-Xylene	U	2.5								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.45*	0	*20*	0	*97.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.38*	0	*20*	0	*96.9*	*83-111*	0
Surr: Dibromofluoromethane	*19.5*	0	*20*	0	*97.5*	*77-125*	0
Surr: Toluene-d8	*19.41*	0	*20*	0	*97*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSS1-180525-R236669** Units: **µg/Kg** Analysis Date: **5/25/2018 03:44 PM**

Client ID: Run ID: **VMS8_180525A** SeqNo: **5056443** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.05	5.0	20	0	90.2	73-138	0			
1,1,2,2-Tetrachloroethane	16.37	5.0	20	0	81.8	71-126	0			
1,1,2-Trichloroethane	16.72	5.0	20	0	83.6	77-123	0			
1,1-Dichloroethane	18.67	5.0	20	0	93.4	63-148	0			
1,1-Dichloroethene	17.93	5.0	20	0	89.6	67-156	0			
1,2,3-Trichlorobenzene	16.23	5.0	20	0	81.2	73-129	0			
1,2,4-Trichlorobenzene	17.35	5.0	20	0	86.8	70-132	0			
1,2-Dibromo-3-chloropropane	14.16	5.0	20	0	70.8	48-127	0			
1,2-Dibromoethane	17.35	5.0	20	0	86.8	71-144	0			
1,2-Dichlorobenzene	18.97	5.0	20	0	94.8	77-127	0			
1,2-Dichloroethane	16.71	5.0	20	0	83.6	77-127	0			
1,2-Dichloropropane	18.32	5.0	20	0	91.6	74-130	0			
1,3-Dichlorobenzene	18.41	5.0	20	0	92	75-133	0			
1,4-Dichlorobenzene	18.16	5.0	20	0	90.8	74-130	0			
2-Butanone	14.41	10	20	0	72	55-132	0			
2-Hexanone	14.13	5.0	20	0	70.6	55-124	0			
4-Methyl-2-pentanone	18.61	5.0	20	0	93	67-159	0			
Benzene	18.29	5.0	20	0	91.4	77-133	0			
Bromochloromethane	18.24	5.0	20	0	91.2	72-139	0			
Bromodichloromethane	17.69	5.0	20	0	88.4	69-133	0			
Bromoform	15.76	5.0	20	0	78.8	55-126	0			
Bromomethane	17.33	10	20	0	86.6	31-174	0			
Carbon disulfide	19.13	5.0	20	0	95.6	45-160	0			
Carbon tetrachloride	19.85	5.0	20	0	99.2	69-140	0			
Chlorobenzene	18	5.0	20	0	90	76-130	0			
Chloroethane	17.53	5.0	20	0	87.6	53-150	0			
Chloroform	16.84	5.0	20	0	84.2	72-132	0			
Chloromethane	13.08	10	20	0	65.4	43-150	0			
cis-1,2-Dichloroethene	17.87	5.0	20	0	89.4	74-134	0			
cis-1,3-Dichloropropene	17.47	5.0	20	0	87.4	62-134	0			
Dibromochloromethane	15.99	5.0	20	0	80	57-118	0			
Dichlorodifluoromethane	15.46	10	20	0	77.3	43-126	0			
Ethylbenzene	17.8	5.0	20	0	89	75-133	0			
Isopropylbenzene	18.24	5.0	20	0	91.2	74-137	0			
m,p-Xylene	36.1	2.5	40	0	90.2	75-134	0			
Methyl tert-butyl ether	20.33	5.0	20	0	102	62-136	0			
Methylene chloride	21.38	5.0	20	0	107	55-157	0			B
o-Xylene	17.87	2.5	20	0	89.4	76-130	0			
Styrene	17.01	5.0	20	0	85	72-138	0			
Tetrachloroethene	19.74	5.0	20	0	98.7	70-171	0			
Toluene	17.92	5.0	20	0	89.6	76-130	0			
trans-1,2-Dichloroethene	17.1	5.0	20	0	85.5	65-137	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	15.49	5.0	20	0	77.4	58-126	0
Trichloroethene	18	5.0	20	0	90	75-135	0
Trichlorofluoromethane	15.83	5.0	20	0	79.2	62-136	0
Vinyl chloride	17.1	5.0	20	0	85.5	57-143	0
Xylenes, Total	53.97	5.0	60	0	90	75-132	0
Surr: 1,2-Dichloroethane-d4	*18.17*	0	*20*	0	*90.8*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.94*	0	*20*	0	*94.7*	*83-111*	0
Surr: Dibromofluoromethane	*19.56*	0	*20*	0	*97.8*	*77-125*	0
Surr: Toluene-d8	*19.47*	0	*20*	0	*97.4*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051407-09A MS** Units: **µg/Kg** Analysis Date: **5/25/2018 06:08 PM**
Client ID: **18CP02-33** Run ID: **VMS8_180525A** SeqNo: **5056447** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	28	5.0	20	0	140	73-138	0			S
1,1,2,2-Tetrachloroethane	23.51	5.0	20	0	118	71-126	0			
1,1,2-Trichloroethane	24.91	5.0	20	0	125	77-123	0			S
1,1-Dichloroethane	29.64	5.0	20	0	148	63-148	0			S
1,1-Dichloroethene	30.96	5.0	20	0	155	67-156	0			
1,2,3-Trichlorobenzene	5.4	5.0	20	0	27	73-129	0			S
1,2,4-Trichlorobenzene	5.89	5.0	20	0	29.4	70-132	0			S
1,2-Dibromo-3-chloropropane	18.98	5.0	20	0	94.9	48-127	0			
1,2-Dibromoethane	25.6	5.0	20	0	128	71-144	0			
1,2-Dichlorobenzene	13.26	5.0	20	0	66.3	77-127	0			S
1,2-Dichloroethane	26.69	5.0	20	0	133	77-127	0			S
1,2-Dichloropropane	27.49	5.0	20	0	137	74-130	0			S
1,3-Dichlorobenzene	13.11	5.0	20	0	65.6	75-133	0			S
1,4-Dichlorobenzene	13.1	5.0	20	0	65.5	74-130	0			S
2-Butanone	56.11	10	20	0	281	55-132	0			S
2-Hexanone	38.34	5.0	20	0	192	55-124	0			S
4-Methyl-2-pentanone	39	5.0	20	0	195	67-159	0			S
Benzene	27.11	5.0	20	0.7513	132	77-133	0			
Bromochloromethane	28.29	5.0	20	0	141	72-139	0			S
Bromodichloromethane	25.92	5.0	20	0	130	69-133	0			
Bromoform	21.3	5.0	20	0	106	55-126	0			
Bromomethane	27.69	10	20	0	138	31-174	0			
Carbon disulfide	31.29	5.0	20	0.2853	155	45-160	0			
Carbon tetrachloride	30.03	5.0	20	0	150	69-140	0			S
Chlorobenzene	20.69	5.0	20	0	103	76-130	0			
Chloroethane	26.88	5.0	20	0	134	53-150	0			
Chloroform	26.86	5.0	20	0	134	72-132	0			S
Chloromethane	21.94	10	20	0	110	43-150	0			
cis-1,2-Dichloroethene	28.07	5.0	20	0	140	74-134	0			S
cis-1,3-Dichloropropene	24.29	5.0	20	0	121	62-134	0			
Dibromochloromethane	24.13	5.0	20	0	121	57-118	0			S
Dichlorodifluoromethane	30.73	10	20	0	154	43-126	0			S
Ethylbenzene	22.18	5.0	20	0.8749	107	75-133	0			
Isopropylbenzene	21.82	5.0	20	0	109	74-137	0			
m,p-Xylene	43.12	2.5	40	1.883	103	75-134	0			
Methyl tert-butyl ether	37.31	5.0	20	0	187	62-136	0			S
Methylene chloride	36.19	5.0	20	0	181	55-157	0			BS
o-Xylene	21.25	2.5	20	0.9034	102	76-130	0			
Styrene	17.78	5.0	20	0	88.9	72-138	0			
Tetrachloroethene	30.75	5.0	20	2.663	140	70-171	0			
Toluene	25.58	5.0	20	2.539	115	76-130	0			
trans-1,2-Dichloroethene	27.57	5.0	20	0	138	65-137	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	21.68	5.0	20	0	108	58-126	0	
Trichloroethene	38.02	5.0	20	21.45	82.9	75-135	0	
Trichlorofluoromethane	27.67	5.0	20	0	138	62-136	0	S
Vinyl chloride	31.05	5.0	20	0	155	57-143	0	S
Xylenes, Total	64.37	5.0	60	2.786	103	75-132	0	
Surr: 1,2-Dichloroethane-d4	*20.55*	0	*20*	0	*103*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*18.82*	0	*20*	0	*94.1*	*83-111*	0	
Surr: Dibromofluoromethane	*20.77*	0	*20*	0	*104*	*77-125*	0	
Surr: Toluene-d8	*19.31*	0	*20*	0	*96.6*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

MSD	Sample ID: **18051407-09A MSD**				Units: **µg/Kg**			Analysis Date: **5/25/2018 06:25 PM**			
Client ID: **18CP02-33**		Run ID: **VMS8_180525A**			SeqNo: **5056448**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	27.75	5.0	20	0	139	73-138	28	0.897	30	S
1,1,2,2-Tetrachloroethane	22.28	5.0	20	0	111	71-126	23.51	5.37	30	
1,1,2-Trichloroethane	23.84	5.0	20	0	119	77-123	24.91	4.39	30	
1,1-Dichloroethane	28.68	5.0	20	0	143	63-148	29.64	3.29	30	
1,1-Dichloroethene	29.12	5.0	20	0	146	67-156	30.96	6.13	30	
1,2,3-Trichlorobenzene	5.3	5.0	20	0	26.5	73-129	5.4	1.87	30	S
1,2,4-Trichlorobenzene	6.03	5.0	20	0	30.2	70-132	5.89	2.35	30	S
1,2-Dibromo-3-chloropropane	17.54	5.0	20	0	87.7	48-127	18.98	7.89	30	
1,2-Dibromoethane	24.37	5.0	20	0	122	71-144	25.6	4.92	30	
1,2-Dichlorobenzene	12.43	5.0	20	0	62.2	77-127	13.26	6.46	30	S
1,2-Dichloroethane	26.44	5.0	20	0	132	77-127	26.69	0.941	30	S
1,2-Dichloropropane	26.19	5.0	20	0	131	74-130	27.49	4.84	30	S
1,3-Dichlorobenzene	12.87	5.0	20	0	64.4	75-133	13.11	1.85	30	S
1,4-Dichlorobenzene	12.31	5.0	20	0	61.6	74-130	13.1	6.22	30	S
2-Butanone	51.1	10	20	0	256	55-132	56.11	9.35	30	S
2-Hexanone	34.39	5.0	20	0	172	55-124	38.34	10.9	30	S
4-Methyl-2-pentanone	35.48	5.0	20	0	177	67-159	39	9.45	30	S
Benzene	25.81	5.0	20	0.7513	125	77-133	27.11	4.91	30	
Bromochloromethane	28.1	5.0	20	0	140	72-139	28.29	0.674	30	S
Bromodichloromethane	25.62	5.0	20	0	128	69-133	25.92	1.16	30	
Bromoform	20.82	5.0	20	0	104	55-126	21.3	2.28	30	
Bromomethane	27.25	10	20	0	136	31-174	27.69	1.6	30	
Carbon disulfide	29.65	5.0	20	0.2853	147	45-160	31.29	5.38	30	
Carbon tetrachloride	28.91	5.0	20	0	145	69-140	30.03	3.8	30	S
Chlorobenzene	19.77	5.0	20	0	98.8	76-130	20.69	4.55	30	
Chloroethane	26.44	5.0	20	0	132	53-150	26.88	1.65	30	
Chloroform	25.3	5.0	20	0	126	72-132	26.86	5.98	30	
Chloromethane	20.75	10	20	0	104	43-150	21.94	5.58	30	
cis-1,2-Dichloroethene	26.89	5.0	20	0	134	74-134	28.07	4.29	30	S
cis-1,3-Dichloropropene	24.13	5.0	20	0	121	62-134	24.29	0.661	30	
Dibromochloromethane	22.35	5.0	20	0	112	57-118	24.13	7.66	30	
Dichlorodifluoromethane	29.17	10	20	0	146	43-126	30.73	5.21	30	S
Ethylbenzene	20.92	5.0	20	0.8749	100	75-133	22.18	5.85	30	
Isopropylbenzene	20.44	5.0	20	0	102	74-137	21.82	6.53	30	
m,p-Xylene	40.53	2.5	40	1.883	96.6	75-134	43.12	6.19	30	
Methyl tert-butyl ether	36.72	5.0	20	0	184	62-136	37.31	1.59	30	S
Methylene chloride	33.52	5.0	20	0	168	55-157	36.19	7.66	30	BS
o-Xylene	20.19	2.5	20	0.9034	96.4	76-130	21.25	5.12	30	
Styrene	16.82	5.0	20	0	84.1	72-138	17.78	5.55	30	
Tetrachloroethene	29.57	5.0	20	2.663	135	70-171	30.75	3.91	30	
Toluene	23.84	5.0	20	2.539	107	76-130	25.58	7.04	30	
trans-1,2-Dichloroethene	26.44	5.0	20	0	132	65-137	27.57	4.18	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236669** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	21.68	5.0	20	0	108	58-126	21.68	0	30	
Trichloroethene	36.5	5.0	20	21.45	75.3	75-135	38.02	4.08	30	
Trichlorofluoromethane	26.22	5.0	20	0	131	62-136	27.67	5.38	30	
Vinyl chloride	29.33	5.0	20	0	147	57-143	31.05	5.7	30	S
Xylenes, Total	60.72	5.0	60	2.786	96.6	75-132	64.37	5.84	30	
Surr: 1,2-Dichloroethane-d4	*20.66*	0	*20*	0	*103*	*83-132*	20.55	*0.534*	*30*	
Surr: 4-Bromofluorobenzene	*19.33*	0	*20*	0	*96.6*	*83-111*	18.82	*2.67*	*30*	
Surr: Dibromofluoromethane	*19.92*	0	*20*	0	*99.6*	*77-125*	20.77	*4.18*	*30*	
Surr: Toluene-d8	*18.69*	0	*20*	0	*93.4*	*86-108*	19.31	*3.26*	*30*	

The following samples were analyzed in this batch: 18051407-09A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180527-R236723** Units: **µg/L** Analysis Date: **5/27/2018 07:42 PM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058782** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*20.13*	0	*20*	0	*101*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.94*	0	*20*	0	*99.7*	*80-110*	0
Surr: Dibromofluoromethane	*22.11*	0	*20*	0	*111*	*85-115*	0
Surr: Toluene-d8	*20.45*	0	*20*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

LCS	Sample ID: **VLCSW2-180527-R236723**				Units: **µg/L**		Analysis Date: **5/27/2018 06:46 PM**			
Client ID:		Run ID: **VMS7_180527A**			SeqNo: **5058781**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	24.83	1.0	20	0	124	75-130	0			
1,1,2,2-Tetrachloroethane	26.43	1.0	20	0	132	75-130	0			S
1,1,2-Trichloroethane	24.38	1.0	20	0	122	75-125	0			
1,1-Dichloroethane	26.24	1.0	20	0	131	68-142	0			
1,1-Dichloroethene	25.27	1.0	20	0	126	70-145	0			
1,2,3-Trichlorobenzene	23.07	1.0	20	0	115	70-140	0			
1,2,4-Trichlorobenzene	22.29	1.0	20	0	111	70-135	0			
1,2-Dibromo-3-chloropropane	25.84	1.0	20	0	129	60-130	0			
1,2-Dibromoethane	25.22	1.0	20	0	126	67-155	0			
1,2-Dichlorobenzene	20.78	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	21.83	1.0	20	0	109	78-125	0			
1,2-Dichloropropane	23.34	1.0	20	0	117	75-125	0			
1,3-Dichlorobenzene	20.81	1.0	20	0	104	75-130	0			
1,3-Dichloropropane	21.39	1.0	20	0	107	75-125	0			
1,4-Dichlorobenzene	22.25	1.0	20	0	111	75-130	0			
2-Butanone	24.88	5.0	20	0	124	55-150	0			
2-Hexanone	23.04	5.0	20	0	115	60-135	0			
4-Methyl-2-pentanone	31.9	1.0	20	0	160	77-178	0			
Acetone	24.07	10	20	0	120	60-160	0			
Benzene	23.88	1.0	20	0	119	85-125	0			
Bromochloromethane	25.32	1.0	20	0	127	72-141	0			
Bromodichloromethane	22.66	1.0	20	0	113	75-125	0			
Bromoform	22.02	1.0	20	0	110	60-125	0			
Bromomethane	24.55	1.0	20	0	123	30-185	0			
Carbon disulfide	23.96	1.0	20	0	120	60-165	0			
Carbon tetrachloride	20.24	1.0	20	0	101	65-140	0			
Chlorobenzene	22.09	1.0	20	0	110	80-120	0			
Chloroethane	19.15	1.0	20	0	95.8	50-140	0			
Chloroform	24.79	1.0	20	0	124	80-130	0			
Chloromethane	23.96	1.0	20	0	120	46-148	0			
cis-1,2-Dichloroethene	25.27	1.0	20	0	126	75-134	0			
Dibromochloromethane	20.42	1.0	20	0	102	60-115	0			
Dichlorodifluoromethane	25.29	1.0	20	0	126	20-120	0			S
Ethylbenzene	23.86	1.0	20	0	119	76-123	0			
Isopropylbenzene	20.79	1.0	20	0	104	80-127	0			
m,p-Xylene	44.46	2.0	40	0	111	75-130	0			
Methyl tert-butyl ether	21.66	1.0	20	0	108	68-129	0			
Methylene chloride	21.71	5.0	20	0	109	75-140	0			
o-Xylene	21.48	1.0	20	0	107	76-127	0			
Styrene	22.53	1.0	20	0	113	83-137	0			
Tetrachloroethene	23.76	1.0	20	0	119	68-166	0			
Toluene	22.28	1.0	20	0	111	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	24.6	1.0	20	0	123	80-140	0
trans-1,3-Dichloropropene	21.09	1.0	20	0	105	56-132	0
Trichloroethene	23.01	1.0	20	0	115	84-130	0
Trichlorofluoromethane	20.67	1.0	20	0	103	60-140	0
Vinyl chloride	24.82	1.0	20	0	124	50-136	0
Xylenes, Total	65.94	3.0	60	0	110	76-127	0
Surr: 1,2-Dichloroethane-d4	*20.42*	0	*20*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.44*	0	*20*	0	*97.2*	*80-110*	0
Surr: Dibromofluoromethane	*21.69*	0	*20*	0	*108*	*85-115*	0
Surr: Toluene-d8	*19.94*	0	*20*	0	*99.7*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

MS Sample ID: **18051296-02A MS** Units: **µg/L** Analysis Date: **5/28/2018 03:31 AM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058802** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.93	1.0	20	0	105	75-130	0			
1,1,2,2-Tetrachloroethane	20.68	1.0	20	0	103	75-130	0			
1,1,2-Trichloroethane	20.34	1.0	20	0	102	75-125	0			
1,1-Dichloroethane	22.89	1.0	20	0	114	68-142	0			
1,1-Dichloroethene	25.81	1.0	20	0	129	70-145	0			
1,2,3-Trichlorobenzene	19.34	1.0	20	0	96.7	70-140	0			
1,2,4-Trichlorobenzene	20.04	1.0	20	0	100	70-135	0			
1,2-Dibromo-3-chloropropane	18.3	1.0	20	0	91.5	60-130	0			
1,2-Dibromoethane	21.51	1.0	20	0	108	67-155	0			
1,2-Dichlorobenzene	20.41	1.0	20	0	102	70-130	0			
1,2-Dichloroethane	20.04	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	21.23	1.0	20	0	106	75-125	0			
1,3-Dichlorobenzene	19.3	1.0	20	0	96.5	75-130	0			
1,3-Dichloropropane	19.78	1.0	20	0	98.9	75-125	0			
1,4-Dichlorobenzene	20.41	1.0	20	0	102	75-130	0			
2-Butanone	17.68	5.0	20	0	88.4	55-150	0			
2-Hexanone	16.5	5.0	20	0	82.5	60-135	0			
4-Methyl-2-pentanone	23.01	1.0	20	0	115	77-178	0			
Acetone	19.59	10	20	0	98	60-160	0			
Benzene	21.11	1.0	20	0	106	85-125	0			
Bromochloromethane	21.2	1.0	20	0	106	72-141	0			
Bromodichloromethane	19.65	1.0	20	0	98.2	75-125	0			
Bromoform	17.9	1.0	20	0	89.5	60-125	0			
Bromomethane	32.94	1.0	20	0	165	30-185	0			
Carbon disulfide	21.26	1.0	20	0	106	60-165	0			
Carbon tetrachloride	18.15	1.0	20	0	90.8	65-140	0			
Chlorobenzene	20.25	1.0	20	0	101	80-120	0			
Chloroethane	19.54	1.0	20	0	97.7	50-140	0			
Chloroform	22.59	1.0	20	0	113	80-130	0			
Chloromethane	20.91	1.0	20	0	105	46-148	0			
cis-1,2-Dichloroethene	22.28	1.0	20	0	111	75-134	0			
Dibromochloromethane	18.13	1.0	20	0	90.6	60-115	0			
Dichlorodifluoromethane	21.44	1.0	20	0	107	20-120	0			
Ethylbenzene	20.2	1.0	20	0	101	76-123	0			
Isopropylbenzene	21.43	1.0	20	0	107	80-127	0			
m,p-Xylene	41.94	2.0	40	0	105	75-130	0			
Methyl tert-butyl ether	16.95	1.0	20	0	84.8	68-129	0			
Methylene chloride	22.05	5.0	20	0	110	75-140	0			
o-Xylene	19.49	1.0	20	0	97.4	76-127	0			
Styrene	21.11	1.0	20	0	106	83-137	0			
Tetrachloroethene	22.04	1.0	20	0	110	68-166	0			
Toluene	20.99	1.0	20	0	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

trans-1,2-Dichloroethene	20.69	1.0	20	0	103	80-140	0
trans-1,3-Dichloropropene	18.31	1.0	20	0	91.6	56-132	0
Trichloroethene	20.01	1.0	20	0	100	84-130	0
Trichlorofluoromethane	21.16	1.0	20	0	106	60-140	0
Vinyl chloride	25.34	1.0	20	0	127	50-136	0
Xylenes, Total	61.43	3.0	60	0	102	76-127	0
Surr: 1,2-Dichloroethane-d4	*19.9*	0	*20*	0	*99.5*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.15*	0	*20*	0	*101*	*80-110*	0
Surr: Dibromofluoromethane	*19.89*	0	*20*	0	*99.4*	*85-115*	0
Surr: Toluene-d8	*19.36*	0	*20*	0	*96.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

DUP Sample ID: **18051296-01A DUP** Units: **µg/L** Analysis Date: **5/28/2018 03:10 AM**
Client ID: Run ID: **VMS7_180527A** SeqNo: **5058801** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2,2-Tetrachloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	U	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,1-Dichloroethene	U	1.0	0	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	U	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	U	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
1,3-Dichloropropane	U	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	U	1.0	0	0	0		0	0	30	
2-Butanone	U	5.0	0	0	0		0	0	30	
2-Hexanone	U	5.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	U	1.0	0	0	0		0	0	30	
Acetone	U	10	0	0	0		0	0	30	
Benzene	U	1.0	0	0	0		0	0	30	
Bromochloromethane	U	1.0	0	0	0		0	0	30	
Bromodichloromethane	U	1.0	0	0	0		0	0	30	
Bromoform	U	1.0	0	0	0		0	0	30	
Bromomethane	U	1.0	0	0	0		0	0	30	
Carbon disulfide	U	1.0	0	0	0		0	0	30	
Carbon tetrachloride	U	1.0	0	0	0		0	0	30	
Chlorobenzene	U	1.0	0	0	0		0	0	30	
Chloroethane	U	1.0	0	0	0		0	0	30	
Chloroform	U	1.0	0	0	0		0	0	30	
Chloromethane	U	1.0	0	0	0		0	0	30	
cis-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30	
Cyclohexane	U	1.0	0	0	0		0	0	30	
Dibromochloromethane	U	1.0	0	0	0		0	0	30	
Dichlorodifluoromethane	U	1.0	0	0	0		0	0	30	
Ethylbenzene	U	1.0	0	0	0		0	0	30	
Isopropylbenzene	U	1.0	0	0	0		0	0	30	
m,p-Xylene	U	2.0	0	0	0		0	0	30	
Methyl acetate	U	2.0	0	0	0		0	0	30	
Methyl tert-butyl ether	U	1.0	0	0	0		0	0	30	
Methylcyclohexane	U	1.0	0	0	0		0	0	30	
Methylene chloride	U	5.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236723** Instrument ID **VMS7** Method: **SW8260C**

o-Xylene	U	1.0	0	0	0		0	0	30
Styrene	U	1.0	0	0	0		0	0	30
Tetrachloroethene	U	1.0	0	0	0		0	0	30
Toluene	U	1.0	0	0	0		0	0	30
trans-1,2-Dichloroethene	U	1.0	0	0	0		0	0	30
trans-1,3-Dichloropropene	U	1.0	0	0	0		0	0	30
Trichloroethene	U	1.0	0	0	0		0	0	30
Trichlorofluoromethane	U	1.0	0	0	0		0	0	30
Vinyl chloride	U	1.0	0	0	0		0	0	30
Xylenes, Total	U	3.0	0	0	0		0	0	30
Surr: 1,2-Dichloroethane-d4	*20.59*	0	*20*	0	*103*	*75-120*	19.17	*7.14*	*30*
Surr: 4-Bromofluorobenzene	*19.61*	0	*20*	0	*98*	*80-110*	19.72	*0.559*	*30*
Surr: Dibromofluoromethane	*21.02*	0	*20*	0	*105*	*85-115*	19.59	*7.04*	*30*
Surr: Toluene-d8	*20.88*	0	*20*	0	*104*	*85-110*	19.1	*8.9*	*30*

The following samples were analyzed in this batch:

18051407-05A	18051407-06A	18051407-11A
18051407-12A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180529-R236820a** Units: **µg/L** Analysis Date: **5/29/2018 04:57 PM**
Client ID: Run ID: **VMS8_180529B** SeqNo: **5060721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*18.76*	0	*20*	0	*93.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.29*	0	*20*	0	*96.4*	*80-110*	0
Surr: Dibromofluoromethane	*19.93*	0	*20*	0	*99.6*	*85-115*	0
Surr: Toluene-d8	*19.43*	0	*20*	0	*97.2*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSW1-180529-R236820a**				Units: **µg/L**		Analysis Date: **5/29/2018 04:08 PM**			
Client ID:		Run ID: **VMS8_180529B**			SeqNo: **5060720**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.48	1.0	20	0	97.4	75-130	0			
1,1,2,2-Tetrachloroethane	21.16	1.0	20	0	106	75-130	0			
1,1,2-Trichloroethane	18.81	1.0	20	0	94	75-125	0			
1,1-Dichloroethane	18.42	1.0	20	0	92.1	68-142	0			
1,1-Dichloroethene	19.56	1.0	20	0	97.8	70-145	0			
1,2,3-Trichlorobenzene	20.45	1.0	20	0	102	70-140	0			
1,2,4-Trichlorobenzene	20.52	1.0	20	0	103	70-135	0			
1,2-Dibromo-3-chloropropane	18.43	1.0	20	0	92.2	60-130	0			
1,2-Dibromoethane	20.53	1.0	20	0	103	67-155	0			
1,2-Dichlorobenzene	20.49	1.0	20	0	102	70-130	0			
1,2-Dichloroethane	17.23	1.0	20	0	86.2	78-125	0			
1,2-Dichloropropane	18.14	1.0	20	0	90.7	75-125	0			
1,3-Dichlorobenzene	20.37	1.0	20	0	102	75-130	0			
1,3-Dichloropropane	18.69	1.0	20	0	93.4	75-125	0			
1,4-Dichlorobenzene	20.82	1.0	20	0	104	75-130	0			
2-Butanone	15.45	5.0	20	0	77.2	55-150	0			
2-Hexanone	16.71	5.0	20	0	83.6	60-135	0			
4-Methyl-2-pentanone	26	1.0	20	0	130	77-178	0			
Acetone	14.45	10	20	0	72.2	60-160	0			
Benzene	20.02	1.0	20	0	100	85-125	0			
Bromochloromethane	18.23	1.0	20	0	91.2	72-141	0			
Bromodichloromethane	19.34	1.0	20	0	96.7	75-125	0			
Bromoform	21.43	1.0	20	0	107	60-125	0			
Bromomethane	25.63	1.0	20	0	128	30-185	0			
Carbon disulfide	19.15	1.0	20	0	95.8	60-165	0			
Carbon tetrachloride	20.54	1.0	20	0	103	65-140	0			
Chlorobenzene	20.59	1.0	20	0	103	80-120	0			
Chloroethane	11.25	1.0	20	0	56.2	50-140	0			
Chloroform	19.08	1.0	20	0	95.4	80-130	0			
Chloromethane	14.76	1.0	20	0	73.8	46-148	0			
cis-1,2-Dichloroethene	19.32	1.0	20	0	96.6	75-134	0			
Dibromochloromethane	19.32	1.0	20	0	96.6	60-115	0			
Dichlorodifluoromethane	21	1.0	20	0	105	20-120	0			
Ethylbenzene	20.53	1.0	20	0	103	76-123	0			
Isopropylbenzene	20.06	1.0	20	0	100	80-127	0			
m,p-Xylene	40.99	2.0	40	0	102	75-130	0			
Methyl tert-butyl ether	19.63	1.0	20	0	98.2	68-129	0			
Methylene chloride	17.24	5.0	20	0	86.2	75-140	0			
o-Xylene	19.62	1.0	20	0	98.1	76-127	0			
Styrene	20.52	1.0	20	0	103	83-137	0			
Tetrachloroethene	22.9	1.0	20	0	114	68-166	0			
Toluene	20.67	1.0	20	0	103	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	19.13	1.0	20	0	95.6	80-140	0
trans-1,3-Dichloropropene	18.88	1.0	20	0	94.4	56-132	0
Trichloroethene	19.95	1.0	20	0	99.8	84-130	0
Trichlorofluoromethane	17.77	1.0	20	0	88.8	60-140	0
Vinyl chloride	17.57	1.0	20	0	87.8	50-136	0
Xylenes, Total	60.61	3.0	60	0	101	76-127	0
Surr: 1,2-Dichloroethane-d4	*18.41*	0	*20*	0	*92*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.12*	0	*20*	0	*95.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.6*	0	*20*	0	*98*	*85-115*	0
Surr: Toluene-d8	*19.07*	0	*20*	0	*95.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051473-03A MS** Units: **µg/L** Analysis Date: **5/31/2018 04:45 AM**

Client ID: Run ID: **VMS8_180529B** SeqNo: **5067261** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	111.5	5.0	100	8.44	103	75-130	0			
1,1,2,2-Tetrachloroethane	105.8	5.0	100	0	106	75-130	0			
1,1,2-Trichloroethane	88.3	5.0	100	0	88.3	75-125	0			
1,1-Dichloroethane	235.8	5.0	100	265.2	-29.4	68-142	0			S
1,1-Dichloroethene	109.4	5.0	100	0	109	70-145	0			
1,2,3-Trichlorobenzene	100.6	5.0	100	0	101	70-140	0			
1,2,4-Trichlorobenzene	101.2	5.0	100	0	101	70-135	0			
1,2-Dibromo-3-chloropropane	89.95	5.0	100	0	90	60-130	0			
1,2-Dibromoethane	100.4	5.0	100	0	100	67-155	0			
1,2-Dichlorobenzene	111.7	5.0	100	9.58	102	70-130	0			
1,2-Dichloroethane	97.05	5.0	100	0	97	78-125	0			
1,2-Dichloropropane	101.6	5.0	100	0	102	75-125	0			
1,3-Dichlorobenzene	101.6	5.0	100	0	102	75-130	0			
1,3-Dichloropropane	95.5	5.0	100	0	95.5	75-125	0			
1,4-Dichlorobenzene	103.7	5.0	100	0.87	103	75-130	0			
2-Butanone	80.9	25	100	2.33	78.6	55-150	0			
2-Hexanone	84.2	25	100	0	84.2	60-135	0			
4-Methyl-2-pentanone	131.7	5.0	100	0	132	77-178	0			
Acetone	95	50	100	1.77	93.2	60-160	0			
Benzene	109.6	5.0	100	1.07	108	85-125	0			
Bromochloromethane	94.8	5.0	100	0	94.8	72-141	0			
Bromodichloromethane	98.75	5.0	100	0.69	98.1	75-125	0			
Bromoform	95.5	5.0	100	0	95.5	60-125	0			
Bromomethane	191.2	5.0	100	0	191	30-185	0			S
Carbon disulfide	97.45	5.0	100	0	97.4	60-165	0			
Carbon tetrachloride	112.4	5.0	100	0	112	65-140	0			
Chlorobenzene	127.3	5.0	100	39.02	88.3	80-120	0			
Chloroethane	131.6	5.0	100	0	132	50-140	0			
Chloroform	96.4	5.0	100	0	96.4	80-130	0			
Chloromethane	81.2	5.0	100	0	81.2	46-148	0			
cis-1,2-Dichloroethene	97.65	5.0	100	0	97.6	75-134	0			
Dibromochloromethane	90.95	5.0	100	0	91	60-115	0			
Dichlorodifluoromethane	103.8	5.0	100	0	104	20-120	0			
Ethylbenzene	101.6	5.0	100	0	102	76-123	0			
Isopropylbenzene	101	5.0	100	0	101	80-127	0			
m,p-Xylene	204	10	200	0	102	75-130	0			
Methyl tert-butyl ether	97.8	5.0	100	0	97.8	68-129	0			
Methylene chloride	88.1	25	100	0	88.1	75-140	0			
o-Xylene	101	5.0	100	0.79	100	76-127	0			
Styrene	103.2	5.0	100	0	103	83-137	0			
Tetrachloroethene	111.6	5.0	100	0	112	68-166	0			
Toluene	104.6	5.0	100	4.4	100	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	102.3	5.0	100	0	102	80-140	0
trans-1,3-Dichloropropene	87.35	5.0	100	0	87.4	56-132	0
Trichloroethene	106	5.0	100	0	106	84-130	0
Trichlorofluoromethane	100.4	5.0	100	0	100	60-140	0
Vinyl chloride	105.1	5.0	100	2.63	102	50-136	0
Xylenes, Total	305	15	300	0.79	101	76-127	0
Surr: 1,2-Dichloroethane-d4	*100.6*	0	*100*	0	*101*	*75-120*	0
Surr: 4-Bromofluorobenzene	*93.65*	0	*100*	0	*93.6*	*80-110*	0
Surr: Dibromofluoromethane	*100.2*	0	*100*	0	*100*	*85-115*	0
Surr: Toluene-d8	*92.8*	0	*100*	0	*92.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

DUP Sample ID: **18051473-03A DUP** Units: **µg/L** Analysis Date: **5/29/2018 11:26 PM**

Client ID: Run ID: **VMS8_180529B** SeqNo: **5060739** Prep Date: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	8.3	5.0	100	8.44	-0.14		8.4	1.2	30	
1,1,2,2-Tetrachloroethane	U	5.0	100	0	0		0	0	30	
1,1,2-Trichloroethane	U	5.0	100	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	U	5.0	0	0	0		0	0	30	
1,1-Dichloroethane	239.4	5.0	100	265.2	-25.8		237.2	0.923	30	
1,1-Dichloroethene	U	5.0	100	0	0		0	0	30	
1,2,3-Trichlorobenzene	U	5.0	100	0	0		0	0	30	
1,2,4-Trichlorobenzene	U	5.0	100	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	U	5.0	100	0	0		0	0	30	
1,2-Dibromoethane	U	5.0	100	0	0		0	0	30	
1,2-Dichlorobenzene	8.95	5.0	100	9.58	-0.63		9.35	4.37	30	
1,2-Dichloroethane	U	5.0	100	0	0		0	0	30	
1,2-Dichloropropane	U	5.0	100	0	0		0	0	30	
1,3-Dichlorobenzene	U	5.0	100	0	0		0	0	30	
1,3-Dichloropropane	U	5.0	100	0	0		0	0	30	
1,4-Dichlorobenzene	U	5.0	100	0.87	-0.87		0	0	30	
2-Butanone	4.45	25	100	2.33	2.12		4.65	0	30	J
2-Hexanone	U	25	100	0	0		0	0	30	
4-Methyl-2-pentanone	U	5.0	100	0	0		0	0	30	
Acetone	U	50	100	1.77	-1.77		0	0	30	
Benzene	U	5.0	100	1.07	-1.07		0	0	30	
Bromochloromethane	U	5.0	100	0	0		0	0	30	
Bromodichloromethane	U	5.0	100	0.69	-0.69		0	0	30	
Bromoform	U	5.0	100	0	0		0	0	30	
Bromomethane	U	5.0	100	0	0		0	0	30	
Carbon disulfide	U	5.0	100	0	0		0	0	30	
Carbon tetrachloride	U	5.0	100	0	0		0	0	30	
Chlorobenzene	36.4	5.0	100	39.02	-2.62		37.3	2.44	30	
Chloroethane	U	5.0	100	0	0		0	0	30	
Chloroform	U	5.0	100	0	0		0	0	30	
Chloromethane	U	5.0	100	0	0		0	0	30	
cis-1,2-Dichloroethene	U	5.0	100	0	0		0	0	30	
Cyclohexane	U	5.0	0	0	0		0	0	30	
Dibromochloromethane	U	5.0	100	0	0		0	0	30	
Dichlorodifluoromethane	U	5.0	100	0	0		0	0	30	
Ethylbenzene	U	5.0	100	0	0		0	0	30	
Isopropylbenzene	U	5.0	100	0	0		0	0	30	
m,p-Xylene	U	10	200	0	0		0	0	30	
Methyl acetate	U	10	0	0	0		0	0	30	
Methyl tert-butyl ether	U	5.0	100	0	0		0	0	30	
Methylcyclohexane	U	5.0	0	0	0		0	0	30	
Methylene chloride	2.95	25	100	0	2.95		3.25	0	30	J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236820a** Instrument ID **VMS8** Method: **SW8260C**

o-Xylene	U	5.0	100	0.79	-0.79		0	0	30	
Styrene	U	5.0	100	0	0		0	0	30	
Tetrachloroethene	U	5.0	100	0	0		0	0	30	
Toluene	4.9	5.0	100	4.4	0.5		4.45	0	30	J
trans-1,2-Dichloroethene	U	5.0	100	0	0		0	0	30	
trans-1,3-Dichloropropene	U	5.0	100	0	0		0	0	30	
Trichloroethene	U	5.0	100	0	0		0	0	30	
Trichlorofluoromethane	U	5.0	100	0	0		0	0	30	
Vinyl chloride	U	5.0	100	2.63	-2.63		0	0	30	
Xylenes, Total	U	15	0	0.79	0		0	0	30	
Surr: 1,2-Dichloroethane-d4	*93.65*	0	*100*	0	*93.6*	*75-120*	94.6	*1.01*	*30*	
Surr: 4-Bromofluorobenzene	*94.4*	0	*100*	0	*94.4*	*80-110*	94.4	*0*	*30*	
Surr: Dibromofluoromethane	*95.35*	0	*100*	0	*95.4*	*85-115*	98.6	*3.35*	*30*	
Surr: Toluene-d8	*97*	0	*100*	0	*97*	*85-110*	96.75	*0.258*	*30*	

The following samples were analyzed in this batch:

18051407-05A	18051407-11A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061452** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118941-118941** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061453** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	14.83	0	15	0	98.9	80-120	0			

DUP Sample ID: **18051328-02C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061455** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.18	0	0	0	0		9.93	32.1	20	R

DUP Sample ID: **18051328-02C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061456** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.75	0	0	0	0		9.93	1.83	20	

DUP Sample ID: **18051328-06C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061458** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	23.46	0	0	0	0		24.29	3.48	20	

DUP Sample ID: **18051328-06C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061459** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	24.22	0	0	0	0		24.29	0.289	20	

DUP Sample ID: **18051328-12C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061461** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051328-12C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061462** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.93	0	0	0	0		10.86	8.95	20	

DUP Sample ID: **18051328-14C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061464** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.09	0	0	0	0		8.18	10.5	20	

DUP Sample ID: **18051328-14C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061465** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.68	0	0	0	0		8.18	26.5	20	R

DUP Sample ID: **18051328-16C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061467** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.87	0	0	0	0		7.56	15.9	20	

DUP Sample ID: **18051328-16C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061468** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.18	0	0	0	0		7.56	19.4	20	

DUP Sample ID: **18051328-19C DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061470** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.61	0	0	0	0		7.89	8.73	20	

DUP Sample ID: **18051328-19C DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: Run ID: **WETCHEM_180530H** SeqNo: **5061471** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.68	0	0	0	0		7.89	9.54	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051407-04D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-28** Run ID: **WETCHEM_180530H** SeqNo: **5061473** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.83	0	0	0	0		4.98	44.5	20	R

DUP Sample ID: **18051407-04D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-28** Run ID: **WETCHEM_180530H** SeqNo: **5061474** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	7.97	0	0	0	0		4.98	46.2	20	R

DUP Sample ID: **18051407-08D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-32** Run ID: **WETCHEM_180530H** SeqNo: **5061476** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	12.3	0	0	0	0		5.45	77.2	20	R

DUP Sample ID: **18051407-08D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-32** Run ID: **WETCHEM_180530H** SeqNo: **5061477** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10	0	0	0	0		5.45	58.9	20	R

DUP Sample ID: **18051407-09D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-33** Run ID: **WETCHEM_180530H** SeqNo: **5061479** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.35	0	0	0	0		11.64	11.7	20	

DUP Sample ID: **18051407-09D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-33** Run ID: **WETCHEM_180530H** SeqNo: **5061480** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.74	0	0	0	0		11.64	8.04	20	

DUP Sample ID: **18051407-10D DUP2** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-34** Run ID: **WETCHEM_180530H** SeqNo: **5061482** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.48	0	0	0	0		9.67	1.98	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **118941** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

DUP Sample ID: **18051407-10D DUP3** Units: **g/Kg** Analysis Date: **5/30/2018 11:45 AM**
Client ID: **18CP02-34** Run ID: **WETCHEM_180530H** SeqNo: **5061483** Prep Date: **5/30/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	8.03	0	0	0	0		9.67	18.5	20	

The following samples were analyzed in this batch:

18051407-04D
18051407-08D
18051407-09D
18051407-10D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236659** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R236659** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055718** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R236659** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055717** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051389-01B DUP** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055698** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	17.51	0.050	0	0	0	0-0	17.6	0.513	10	

DUP Sample ID: **18051453-01A DUP** Units: **% of sample** Analysis Date: **5/24/2018 08:40 PM**
Client ID: Run ID: **MOIST_180524G** SeqNo: **5055715** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	36.89	0.050	0	0	0	0-0	38.33	3.83	10	

The following samples were analyzed in this batch:

18051407-02B	18051407-03B	18051407-04B
18051407-07B	18051407-08D	18051407-09B
18051407-10B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236768** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180528-R236768** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: Run ID: **WETCHEM_180528E** SeqNo: **5058392** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180528-R236768** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: Run ID: **WETCHEM_180528E** SeqNo: **5058393** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1102	0.025	0.1	0	110	91-143	0			

MS Sample ID: **18051407-07CMS** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: **18CP02-31** Run ID: **WETCHEM_180528E** SeqNo: **5058397** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	2.819	0.025	0.7752	2.948	-16.7	91-143	0			S

MSD Sample ID: **18051407-07CMSD** Units: **% by wt** Analysis Date: **5/28/2018 10:20 AM**
Client ID: **18CP02-31** Run ID: **WETCHEM_180528E** SeqNo: **5058398** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	2.894	0.025	0.7937	2.948	-6.85	91-143	2.819	2.62	20	S

The following samples were analyzed in this batch:

18051407-02C	18051407-04C	18051407-07C
18051407-09C	18051407-10C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051407
Project: PMC

QC BATCH REPORT

Batch ID: **R236999** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063479** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180531-R236999** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.115	0.025	0.1	0	115	91-143	0			

MS Sample ID: **18051328-06D MS** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8382	0.025	0.4525	0.2628	127	91-143	0			

MSD Sample ID: **18051328-06D MSD** Units: **% by wt** Analysis Date: **5/31/2018 10:45 AM**
Client ID: Run ID: **WETCHEM_180531A** SeqNo: **5063484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.8296	0.025	0.4386	0.2628	129	91-143	0.8382	1.03	20	

The following samples were analyzed in this batch: 18051407-08D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

18051407

USEPA CLP COC (LAB COPY)
DateShipped: 5/18/2018
CarrierName: FedEx
AirbillNo: 7810 2669 6977

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-051818-103244-0003
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-TB-05-051818	18CP02-25	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/18/2018 16:00	
2	PMC-SVB-11-SO/4.5-5.5-051818	18CP02-26	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (1MeOH 1H2O), B (4 C) (4)	PMC-SVB-11	05/18/2018 09:00	
3	PMC-SVB-11-SO/13.0-14.0-051818	18CP02-27	Soil/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (3)	PMC-SVB-11	05/18/2018 09:15	
4	PMC-SVB-11-SO/18.0-19.0-051818	18CP02-28	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-11	05/18/2018 09:35	
5	PMC-SVB-11-GW/7.8-12.8-051818	18CP02-29	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-11	05/18/2018 14:40	
6	PMC-SVB-11-GW/7.8-12.8-051818-FD	18CP02-30	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-11	05/18/2018 14:40	
7	PMC-SVB-12-SO/1.5-2.5-051818	18CP02-31	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (1MeOH 1H2O), B (4 C) (12)	PMC-SVB-12	05/18/2018 10:15	

Sample(s) to be used for Lab QC: PMC-SVB-12-SO/1.5-2.5-051818 Tag A, PMC-SVB-12-SO/1.5-2.5-051818 Tag B

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jen Simms (Jenn Simms/Jacobs)	05/18/18 18:00	ACS	5/19/18 1030	

SRL 4.2°C

18051407

USEPA CLP COC (LAB COPY)

DateShipped: 5/18/2018

CarrierName: FedEx

AirbillNo: 7810 2669 6977

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-051818-103244-0003

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
8	PMC-SVB-12-SO/8.0-9.0-051818	18CP02-32	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 10:40	
9	PMC-SVB-12-SO/12.0-13.0-051818	18CP02-33	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 10:50	
10	PMC-SVB-12-SO/14.0-15.0-051818	18CP02-34	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (1MeOH 1H2O), B (4 C), C (4 C) (5)	PMC-SVB-12	05/18/2018 11:00	
11	PMC-SVB-12-GW/8.5-13.5-051818	18CP02-35	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-12	05/18/2018 15:20	
12	PMC-TB-06-051818	18CP02-36	Blank/ CH2M	Grab	VOC (21)	A (1 HCl pH<2 4C, 1H2O)(2)	PMC-TB	05/18/2018 16:05	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand, VOC=TCL VOCs (groundwater)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	(Tenn Simms/ Jacobs)	05/18/18 1800	ALS	5/19/18 1030	

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **19-May-18 10:30**

Work Order: **18051407** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 21-May-18 (Date) Reviewed by: Alex Csaszar (eSignature) 21-May-18 (Date)

Matrices: Water & Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.2/4.2 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/21/2018 3:12:01 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: Missing Volatiles samples for 1801407-08.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Work Order: 18051560

Project Name:

PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

26-Jun-2018

NELAP ACCREDITED TNI LABORATORY

Certificate No: MI: 0022

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

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Section I

CASE NARRATIVE

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ALS Group, USA

Date: 26-Jun-18

Client: Jacobs
Project: PMC
Work Order: 18051560

Case Narrative

Samples for the above noted Work Order were received on 05/23/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

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ALS Group, USA

Date: 26-Jun-18

Client: Jacobs
Project: PMC
Work Order: **18051560**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051560-01	18CP02-37	Water		5/22/2018 13:00	5/23/2018 11:00	☐
18051560-02	18CP02-38	Groundwater		5/22/2018 14:20	5/23/2018 11:00	☐
18051560-03	18CP02-39	Groundwater		5/22/2018 15:30	5/23/2018 11:00	☐
18051560-04	18CP02-40	Groundwater		5/22/2018 17:00	5/23/2018 11:00	☐

Page 1 of 1

USEPA CLP COC (LAB COPY)
DateShipped: 5/22/2018
CarrierName: FedEx
AirbillNo:

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052218-162644-0005
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Wholton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-TB-06-052218	18CP02-37	Blank/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (2)	PMC-TB	05/22/2018 13:00	
PMC-CMW-01-VAS/45.0-50.0-052218	18CP02-38	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 14:20	
PMC-CMW-01-VAS/40.0-45.0-052218	18CP02-39	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 15:30	
PMC-CMW-01-VAS/20.0-25.0-052218	18CP02-40	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 17:00	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	FED EX	5/22/18 KES	FedEx		
		5/23/18 1100			SRZ 3.2°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **23-May-18 11:00**

Work Order: **18051560** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 23-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 23-May-18 (Date)

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2/3.2 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/23/2018 2:31:31 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

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Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

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GC/MS
Volatile Organics

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1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-37

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051560

Matrix: Water Lab Sample ID: 18051560-01A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/23/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-38

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051560

Matrix: Water Lab Sample ID: 18051560-02A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/23/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-39

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051560

Matrix: Water Lab Sample ID: 18051560-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/23/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-40

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051560

Matrix: Water Lab Sample ID: 18051560-04A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/23/2018

% Moisture: not dec. 0 Date Analyzed: 5/23/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	2.3	

ALS Group, USA

Client: Jacobs
Work Order: 18051560
Project: PMC

Date: 26-Jun-18

QC BATCH REPORT

Batch ID: **R236511A** Instrument ID **VMS10** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180523-R236511A** Units: **µg/L** Analysis Date: **5/23/2018 02:02 PM**
Client ID: Run ID: **VMS10_180523A** SeqNo: **5050269** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*19.9*	0	*20*	0	*99.5*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.13*	0	*20*	0	*101*	*80-110*	0			
Surr: Dibromofluoromethane	*20.25*	0	*20*	0	*101*	*85-115*	0			
Surr: Toluene-d8	*18.77*	0	*20*	0	*93.8*	*85-110*	0			

LCS Sample ID: **VLCSW1-180523-R236511A** Units: **µg/L** Analysis Date: **5/23/2018 01:30 PM**
Client ID: Run ID: **VMS10_180523A** SeqNo: **5050288** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	22.23	1.0	20	0	111	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.82*	0	*20*	0	*99.1*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.8*	0	*20*	0	*104*	*80-110*	0			
Surr: Dibromofluoromethane	*20.58*	0	*20*	0	*103*	*85-115*	0			
Surr: Toluene-d8	*18.82*	0	*20*	0	*94.1*	*85-110*	0			

MS Sample ID: **18051310-02A MS** Units: **µg/L** Analysis Date: **5/23/2018 09:04 PM**
Client ID: Run ID: **VMS10_180523A** SeqNo: **5050232** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	2408	100	2000	0	120	84-130	0			
Surr: 1,2-Dichloroethane-d4	*1925*	0	*2000*	0	*96.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*2145*	0	*2000*	0	*107*	*80-110*	0			
Surr: Dibromofluoromethane	*2000*	0	*2000*	0	*100*	*85-115*	0			
Surr: Toluene-d8	*1858*	0	*2000*	0	*92.9*	*85-110*	0			

MSD Sample ID: **18051310-02A MSD** Units: **µg/L** Analysis Date: **5/23/2018 09:20 PM**
Client ID: Run ID: **VMS10_180523A** SeqNo: **5050233** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	2241	100	2000	0	112	84-130	2408	7.18	30	
Surr: 1,2-Dichloroethane-d4	*1974*	0	*2000*	0	*98.7*	*75-120*	1925	*2.51*	*30*	
Surr: 4-Bromofluorobenzene	*2094*	0	*2000*	0	*105*	*80-110*	2145	*2.41*	*30*	
Surr: Dibromofluoromethane	*2039*	0	*2000*	0	*102*	*85-115*	2000	*1.93*	*30*	
Surr: Toluene-d8	*1866*	0	*2000*	0	*93.3*	*85-110*	1858	*0.43*	*30*	

The following samples were analyzed in this batch:

18051560-01A	18051560-02A	18051560-03A
18051560-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18051560

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS01	103	99	94	104	0
02	VBLK01	101	99	94	101	0
03	18CP02-37	91	102	93	101	0
04	18CP02-38	91	101	92	103	0
05	18CP02-39	91	99	91	101	0
06	18CP02-40	95	99	92	100	0
07	18051310-01A	90	97	94	104	0
08	18051310-01AM	100	96	93	107	0
09	18051310-01AM	102	99	93	105	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051560

Lab File ID: 23MAY09.D Lab Sample ID: VBLKW1-180523

Date Analyzed: 5/23/2018 Time Analyzed: 14:02

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSW1-180523	23MAY07.D	13:30
02	18CP02-37	18051560-01A	23MAY14.D	15:40
03	18CP02-38	18051560-02A	23MAY18.D	16:44
04	18CP02-39	18051560-03A	23MAY19.D	17:00
05	18CP02-40	18051560-04A	23MAY20.D	17:16
06	18051310-01A	18051310-01A DF100	23MAY29.D	19:58
07	18051310-01AMS	18051310-02A MS DF100	23MAY33.D	21:04
08	18051310-01AMSD	18051310-02A MSD DF10	23MAY34.D	21:20

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051560

Lab File ID: 23MAY03.D BFB Injection Date: 5/23/2018

Instrument ID: VMS10 BFB Injection Time: 11:48

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.2
75	30.0 - 66.0% of mass 95	52.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	1.0 (1.8)1
174	50.0 - 120.0% of mass 95	58.8
175	4.0 - 9.0% of mass 174	5.5 (9.3)1
176	93.0 - 101.0% of mass 174	63.7 (108.4)1
177	5.0 - 9.0% of mass 176	5.4 (8.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD02	VCCV2-180523	23MAY05.D	5/23/2018	12:46
02	LCS01	VLCSW1-180523	23MAY07.D	5/23/2018	13:30
03	VBLK01	VBLKW1-180523	23MAY09.D	5/23/2018	14:02
04	18CP02-37	18051560-01A	23MAY14.D	5/23/2018	15:40
05	18CP02-38	18051560-02A	23MAY18.D	5/23/2018	16:44
06	18CP02-39	18051560-03A	23MAY19.D	5/23/2018	17:00
07	18CP02-40	18051560-04A	23MAY20.D	5/23/2018	17:16
08	18051310-01A	18051310-01A DF100	23MAY29.D	5/23/2018	19:58
09	18051310-01AMS	18051310-02A MS DF1	23MAY33.D	5/23/2018	21:04
10	18051310-01AMS	18051310-02A MSD DF	23MAY34.D	5/23/2018	21:20

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051560

Lab File ID (Standard): 23MAY05.D Date Analyzed: 5/23/2018

Instrument ID: 5977_VOA Time Analyzed: 12:46

GC Column: ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	176544	5.00	343250	6.28	321315	8.84
	UPPER LIMIT	353088	5.50	686500	6.78	642630	9.34
	LOWER LIMIT	88272	4.50	171625	5.78	160658	8.34
	EPA SAMPLE NO.						
01	LCS01	163163	5.00	317857	6.28	306886	8.85
02	VBLK01	152042	5.00	297788	6.28	288979	8.85
03	18CP02-37	155108	5.00	307743	6.28	309031	8.85
04	18CP02-38	149403	5.00	295813	6.28	296445	8.85
05	18CP02-39	152154	5.00	301009	6.28	298401	8.85
06	18CP02-40	141815	5.00	291011	6.29	287410	8.85
07	18051310-01A	151807	5.00	301726	6.29	294913	8.84
08	18051310-01A	146265	5.00	294294	6.29	292831	8.85
09	18051310-01A	147220	5.00	293692	6.29	295701	8.85

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051560

Lab File ID (Standard): 23MAY05.D Date Analyzed: 5/23/2018

Instrument ID: 5977_VOA Time Analyzed: 12:46

GC Column: ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	153248	10.15		.00		
	UPPER LIMIT	306496	9.65		-.50		
	LOWER LIMIT	76624	10.65		.50		
	EPA SAMPLE NO.						
01	LCS01	144823	10.15	0	.00		
02	VBLK01	137291	10.15	0	.00		
03	18CP02-37	147038	10.15	0	.00		
04	18CP02-38	138127	10.15	0	.00		
05	18CP02-39	138432	10.15	0	.00		
06	18CP02-40	135221	10.15	0	.00		
07	18051310-01A	144045	10.15	0	.00		
08	18051310-01A	148038	10.15	0	.00		
09	18051310-01A	150336	10.15	0	.00		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 03:40 pm
Operator : AK
Sample : 18051560-01A
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 24 08:55:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	155108	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	307743	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	309031	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	147038	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.131	46	77773	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	89912	18.19	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 90.95%				
45) 1,2-Dichloroethane-d4	5.468	65	130563	20.40	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.00%				
64) Toluene-d8	7.807	98	398098	18.56	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 92.80%				
85) Bromofluorobenzene	9.542	95	152369	20.23	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 101.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D. d			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.401	43	7907m	1.63	ug/L		
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D. d			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 03:40 pm
Operator : AK
Sample : 18051560-01A
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 24 08:55:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	4.692	83	6122m	0.80 ug/L	
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,2,3-Trichloropropane	0.000		0	N.D.	
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
89) n-Propylbenzene	0.000		0	N.D.	
90) 2-Chlorotoluene	0.000		0	N.D.	
91) 4-Chlorotoluene	0.000		0	N.D.	
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
93) tert-Butylbenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 03:40 pm
Operator : AK
Sample : 18051560-01A
Misc :
ALS Vial : 10 Sample Multiplier: 1

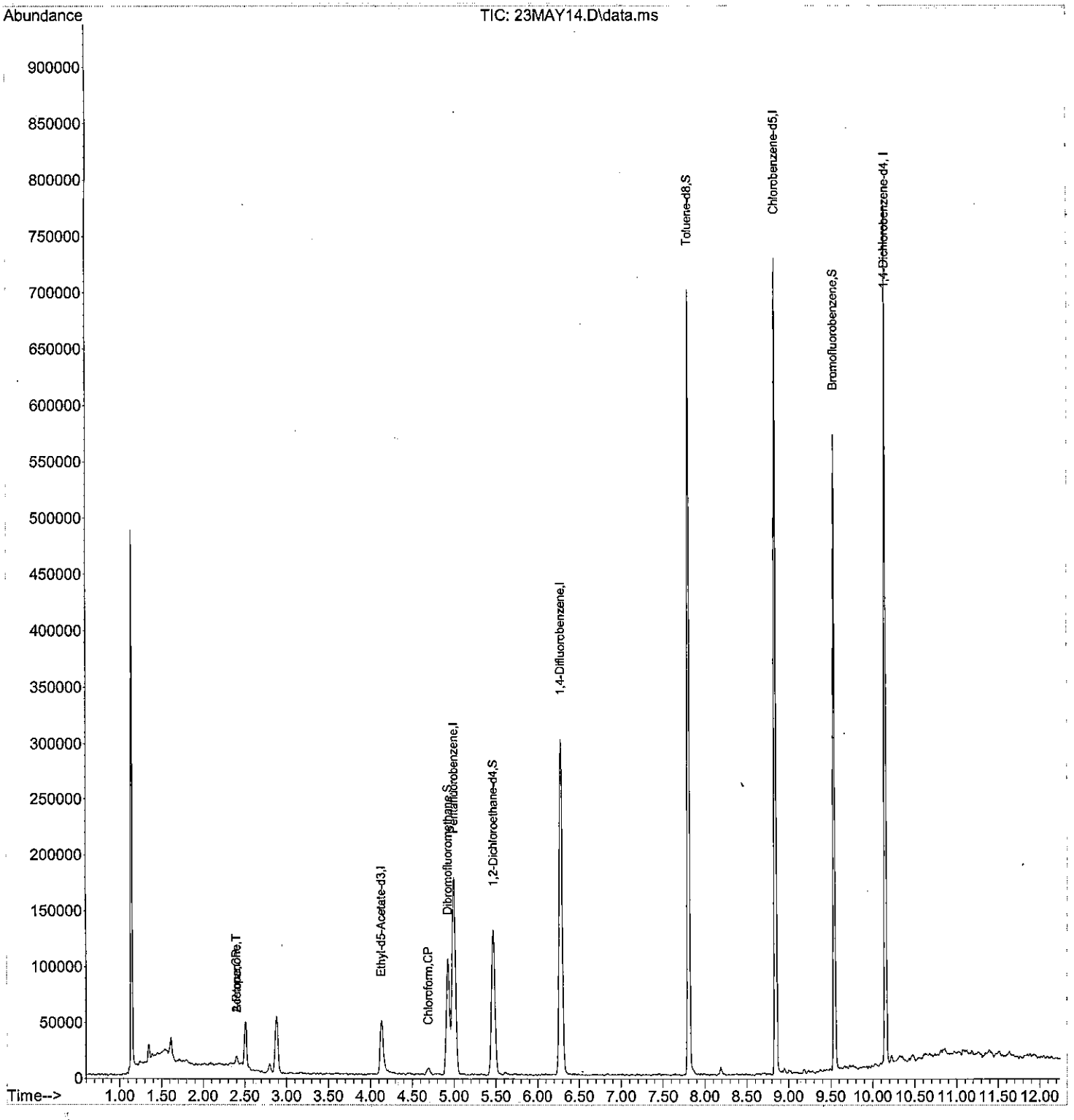
Quant Time: May 24 08:55:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	0.000		0	N.D.	
95)	sec-Butylbenzene	0.000		0	N.D.	
97)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
98)	1,3-Dichlorobenzene	0.000		0	N.D.	
99)	p-Isopropyltoluene	0.000		0	N.D.	
100)	1,4-Dichlorobenzene	0.000		0	N.D.	
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.	
102)	Benzyl chloride	0.000		0	N.D.	
103)	1,2-Dichlorobenzene	0.000		0	N.D.	
104)	n-Butylbenzene	0.000		0	N.D.	
105)	Hexachloroethane	0.000		0	N.D.	
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.	
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.	
109)	Hexachlorobutadiene	0.000		0	N.D.	
110)	Naphthalene	0.000		0	N.D.	
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.	
112)	2-Methylnaphthalene	0.000		0	N.D.	
113)	1-Methylnaphthalene	0.000		0	N.D.	
115)	2-Propanone	2.401	43	7907	1.41 ug/L #	42
116)	Acetic Ether	0.000		0	N.D.	
117)	Isopropyl Acetate	0.000		0	N.D.	
118)	Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY14.D
Acq On : 23 May 2018 03:40 pm
Operator : AK
Sample : 18051560-01A
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 24 08:55:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY18.D
Acq On : 23 May 2018 04:44 pm
Operator : AK
Sample : 18051560-02A
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 08:57:30 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	149403	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	295813	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	296445	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	138127	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	74933	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	86697	18.25	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 91.25%				
45) 1,2-Dichloroethane-d4	5.468	65	124373	20.21	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.05%				
64) Toluene-d8	7.806	98	377888	18.37	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 91.85%				
85) Bromofluorobenzene	9.542	95	148653	20.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.401	43	12308m	3.04	ug/L		
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY18.D
Acq On : 23 May 2018 04:44 pm
Operator : AK
Sample : 18051560-02A
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 08:57:30 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.864	91	12482	0.60 ug/L #	91
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	9.002	91	5013m	0.31 ug/L	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,2,3-Trichloropropane	0.000		0	N.D.	
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
89) n-Propylbenzene	0.000		0	N.D.	
90) 2-Chlorotoluene	0.000		0	N.D.	
91) 4-Chlorotoluene	0.000		0	N.D.	
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
93) tert-Butylbenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY18.D
Acq On : 23 May 2018 04:44 pm
Operator : AK
Sample : 18051560-02A
Misc :
ALS Vial : 14 Sample Multiplier: 1

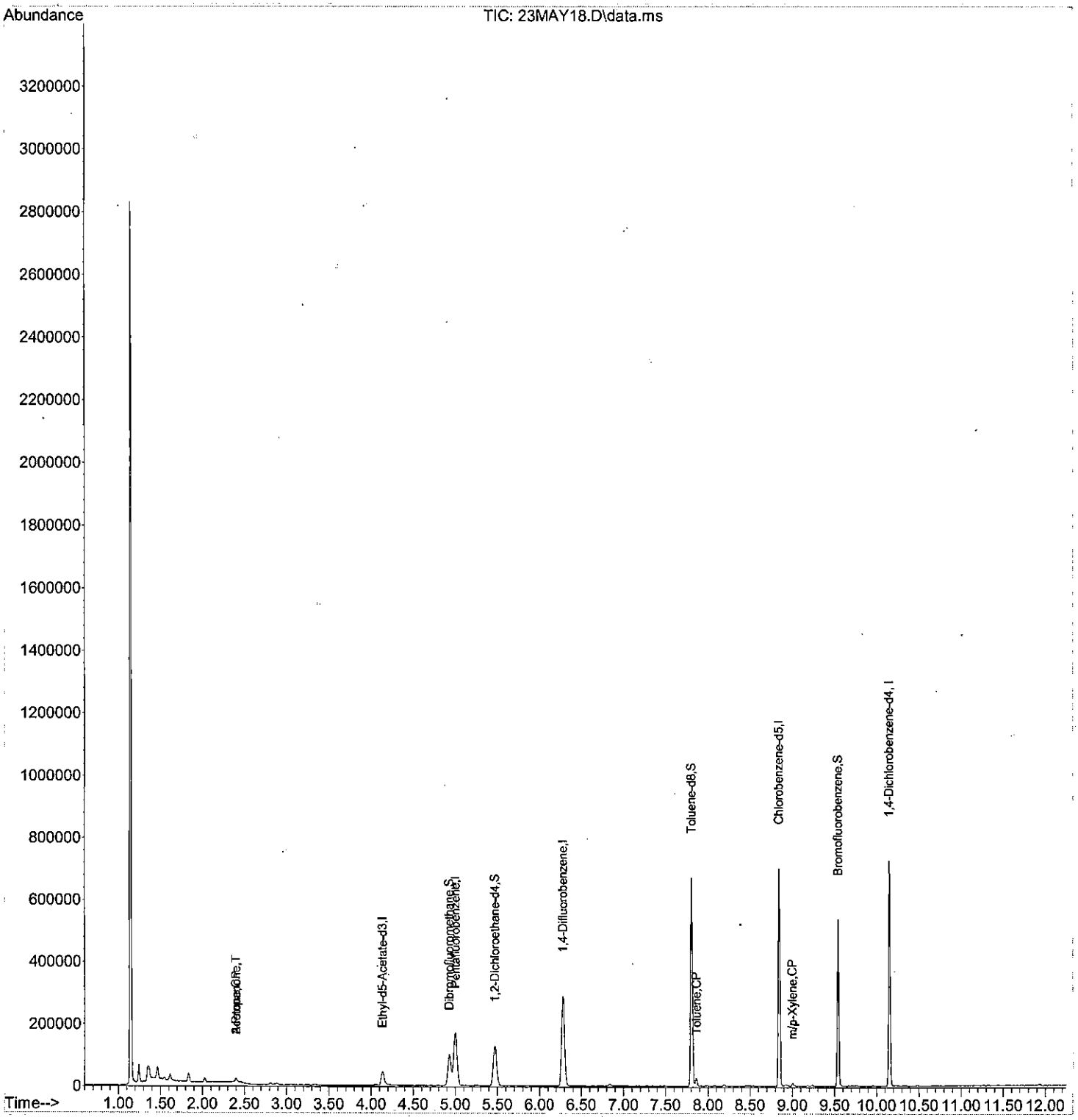
Quant Time: May 24 08:57:30 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	0.000		0	N.D.			
95)	sec-Butylbenzene	0.000		0	N.D.			
97)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.			
98)	1,3-Dichlorobenzene	0.000		0	N.D.			
99)	p-Isopropyltoluene	0.000		0	N.D.			
100)	1,4-Dichlorobenzene	0.000		0	N.D.			
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.			
102)	Benzyl chloride	0.000		0	N.D.			
103)	1,2-Dichlorobenzene	0.000		0	N.D.			
104)	n-Butylbenzene	0.000		0	N.D.			
105)	Hexachloroethane	0.000		0	N.D.			
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.			
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.			
109)	Hexachlorobutadiene	0.000		0	N.D.			
110)	Naphthalene	0.000		0	N.D.			
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.			
112)	2-Methylnaphthalene	0.000		0	N.D.			
113)	1-Methylnaphthalene	0.000		0	N.D.			
115)	2-Propanone	2.401	43	12308	2.74	ug/L	#	42
116)	Acetic Ether	0.000		0	N.D.			
117)	Isopropyl Acetate	0.000		0	N.D.			
118)	Amyl Acetate	0.000		0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY18.D
Acq On : 23 May 2018 04:44 pm
Operator : AK
Sample : 18051560-02A
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 24 08:57:30 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 05:00 pm
Operator : AK
Sample : 18051560-03A
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 08:57:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	152154	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.281	114	301009	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	298401	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	138432	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.136	46	75815	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	88267	18.26	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 91.30%			
45) 1,2-Dichloroethane-d4	5.468	65	124315	19.85	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.25%			
64) Toluene-d8	7.806	98	377802	18.25	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 91.25%			
85) Bromofluorobenzene	9.542	95	146500	20.14	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.401	43	24354	6.53	ug/L	99
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 05:00 pm
Operator : AK
Sample : 18051560-03A
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 08:57:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.484	78	7103m	0.38 ug/L	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.864	91	20723	1.00 ug/L #	94
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.928	91	5099m	0.24 ug/L	
79) m/p-Xylene	9.002	91	7012m	0.43 ug/L	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,2,3-Trichloropropane	0.000		0	N.D.	
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
89) n-Propylbenzene	0.000		0	N.D.	
90) 2-Chlorotoluene	0.000		0	N.D.	
91) 4-Chlorotoluene	0.000		0	N.D.	
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
93) tert-Butylbenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 05:00 pm
Operator : AK
Sample : 18051560-03A
Misc :
ALS Vial : 15 Sample Multiplier: 1

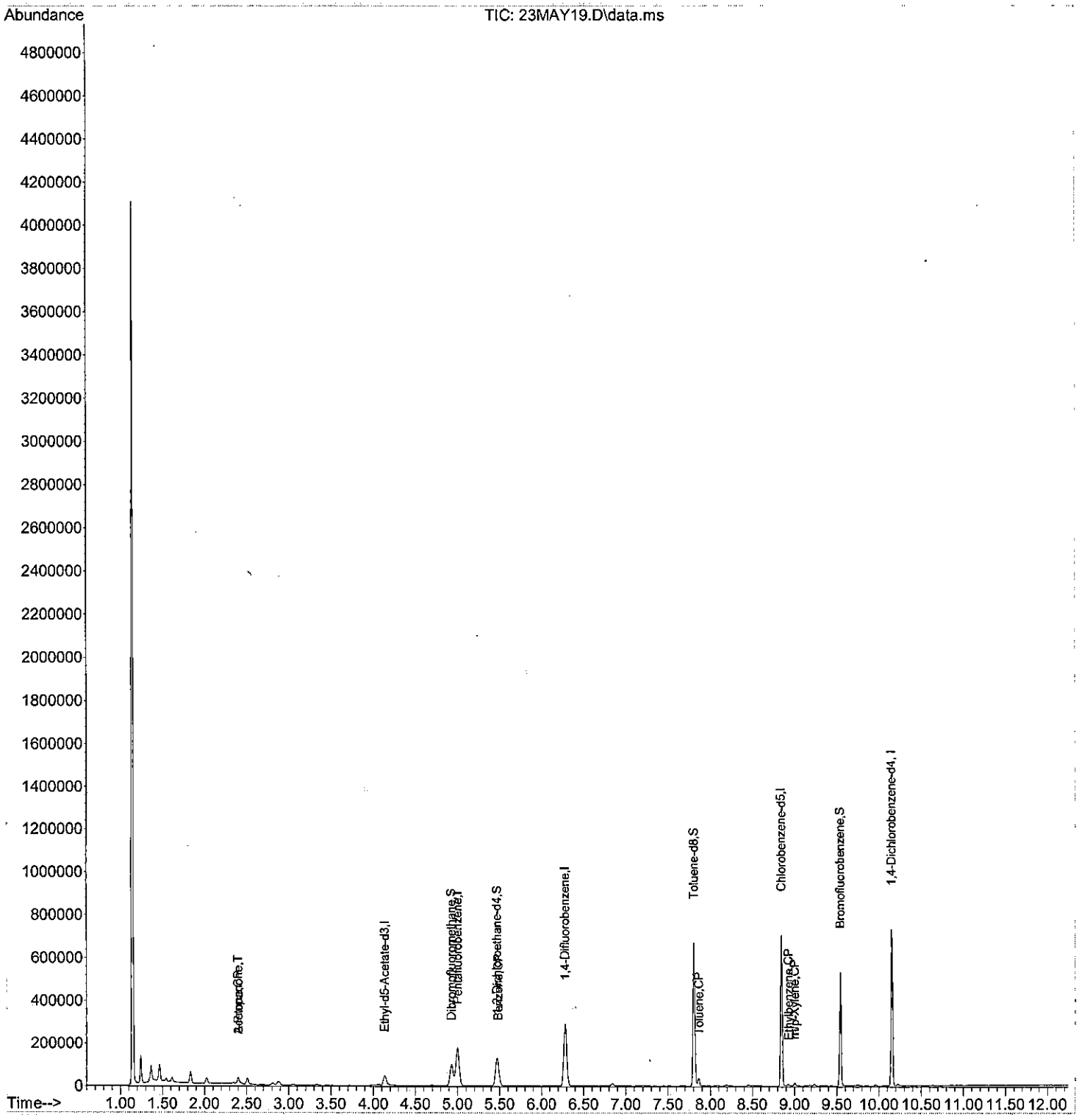
Quant Time: May 24 08:57:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	0.000		0	N.D.		
95)	sec-Butylbenzene	0.000		0	N.D.		
97)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
98)	1,3-Dichlorobenzene	0.000		0	N.D.		
99)	p-Isopropyltoluene	0.000		0	N.D.		
100)	1,4-Dichlorobenzene	0.000		0	N.D.		
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.		
102)	Benzyl chloride	0.000		0	N.D.		
103)	1,2-Dichlorobenzene	0.000		0	N.D.		
104)	n-Butylbenzene	0.000		0	N.D.		
105)	Hexachloroethane	0.000		0	N.D.		
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.		
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.		
109)	Hexachlorobutadiene	0.000		0	N.D.		
110)	Naphthalene	0.000		0	N.D.		
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.		
112)	2-Methylnaphthalene	0.000		0	N.D.		
113)	1-Methylnaphthalene	0.000		0	N.D.		
115)	2-Propanone	2.401	43	24354	6.08	ug/L	99
116)	Acetic Ether	0.000		0	N.D.		
117)	Isopropyl Acetate	0.000		0	N.D.		
118)	Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY19.D
Acq On : 23 May 2018 05:00 pm
Operator : AK
Sample : 18051560-03A
Misc :
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 24 08:57:56 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 05:16 pm
Operator : AK
Sample : 18051560-04A
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 08:58:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	141815	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.286	114	291011	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	287410	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	135221	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.136	46	73759	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	88507	18.94	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 94.70%			
45) 1,2-Dichloroethane-d4	5.468	65	119934	19.81	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.05%			
64) Toluene-d8	7.806	98	366912	18.40	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 92.00%			
85) Bromofluorobenzene	9.542	95	140167	20.01	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.401	43	38266	11.46	ug/L	96
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D. d		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.334	57	7664m	1.80	ug/L	
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 05:16 pm
Operator : AK
Sample : 18051560-04A
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 08:58:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.489	78	9528m	0.53 ug/L	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D. d	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	6.847	83	6269	1.00 ug/L #	58
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.585	130	9649	2.33 ug/L	99
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.859	91	30961	1.55 ug/L #	95
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.923	91	9386m	0.45 ug/L	
79) m/p-Xylene	9.002	91	12838	0.82 ug/L	100
80) Styrene	0.000		0	N.D.	
81) o-Xylene	9.233	91	5260m	0.33 ug/L	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,2,3-Trichloropropane	0.000		0	N.D.	
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
89) n-Propylbenzene	0.000		0	N.D.	
90) 2-Chlorotoluene	0.000		0	N.D.	
91) 4-Chlorotoluene	0.000		0	N.D.	
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
93) tert-Butylbenzene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 05:16 pm
Operator : AK
Sample : 18051560-04A
Misc :
ALS Vial : 16 Sample Multiplier: 1

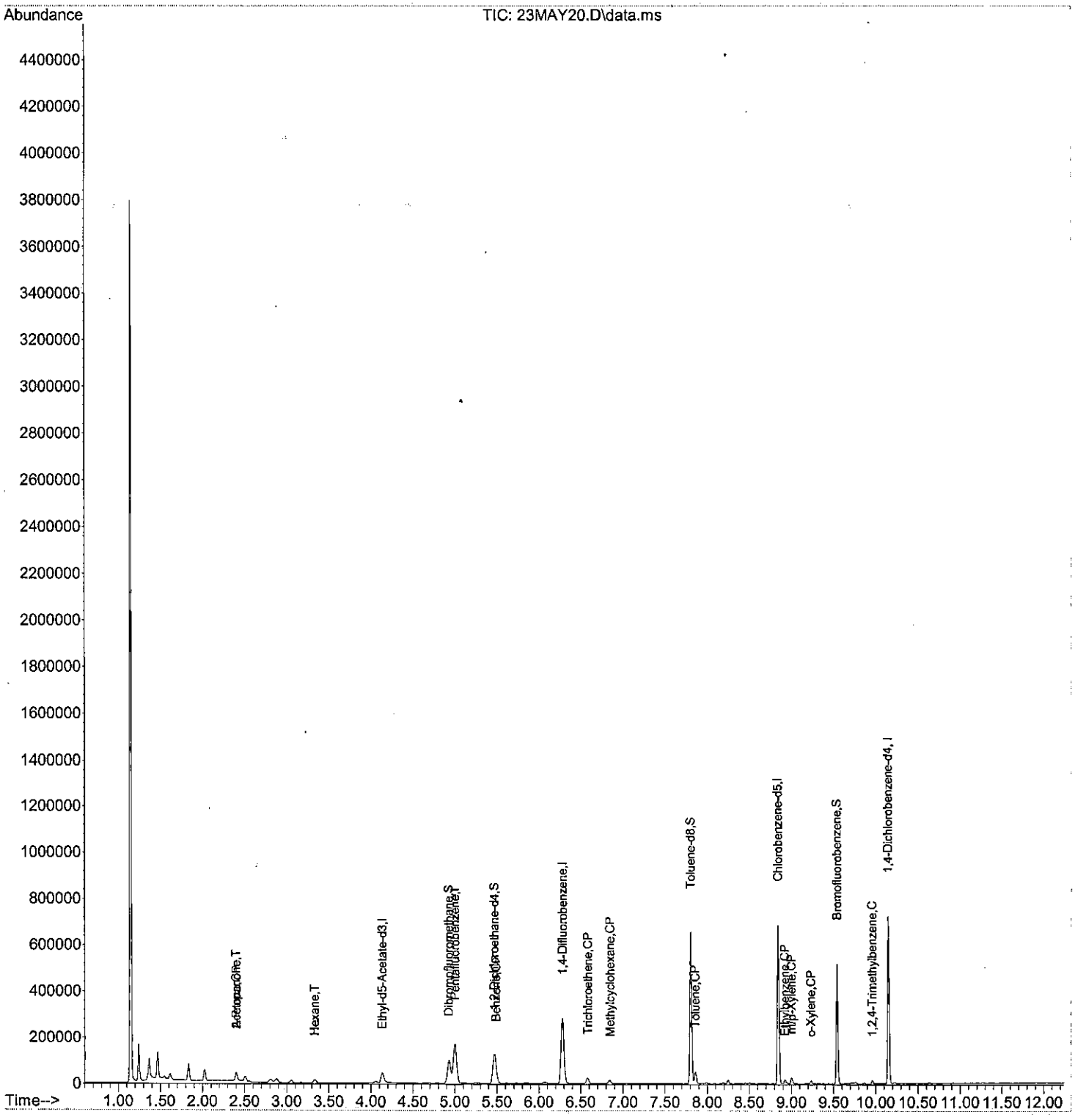
Quant Time: May 24 08:58:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

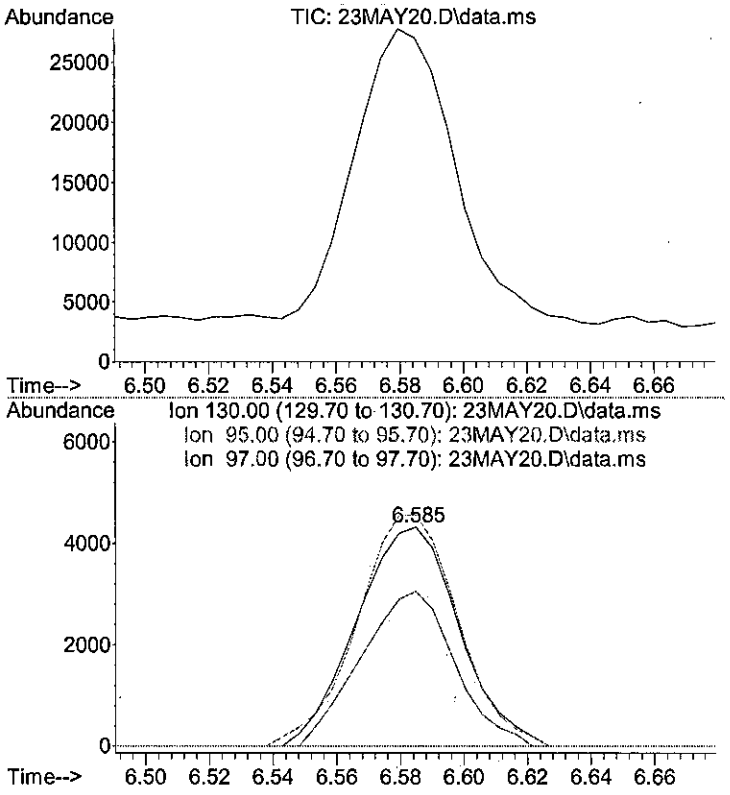
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	6276m	0.41	ug/L	
95)	sec-Butylbenzene	0.000		0	N.D.	d	
97)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
98)	1,3-Dichlorobenzene	0.000		0	N.D.		
99)	p-Isopropyltoluene	0.000		0	N.D.		
100)	1,4-Dichlorobenzene	0.000		0	N.D.		
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.		
102)	Benzyl chloride	0.000		0	N.D.		
103)	1,2-Dichlorobenzene	0.000		0	N.D.		
104)	n-Butylbenzene	0.000		0	N.D.		
105)	Hexachloroethane	0.000		0	N.D.		
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.		
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.		
109)	Hexachlorobutadiene	0.000		0	N.D.		
110)	Naphthalene	0.000		0	N.D.		
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.		
112)	2-Methylnaphthalene	0.000		0	N.D.		
113)	1-Methylnaphthalene	0.000		0	N.D.		
115)	2-Propanone	2.401	43	38266	10.29	ug/L	96
116)	Acetic Ether	0.000		0	N.D.		
117)	Isopropyl Acetate	0.000		0	N.D.		
118)	Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY20.D
Acq On : 23 May 2018 05:16 pm
Operator : AK
Sample : 18051560-04A
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 24 08:58:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

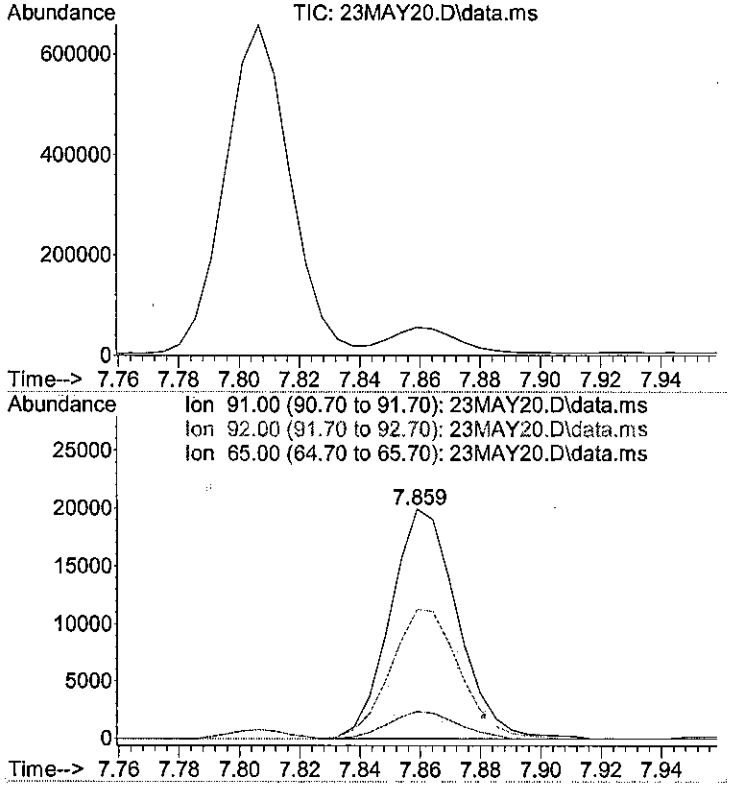




#54
Trichloroethene
Concen: 2.33 ug/L
RT: 6.585 min Scan# 1143
Delta R.T. 0.005 min
Lab File: 23MAY20.D
Acq: 23 May 2018 05:16 pm

Tgt Ion:130 Resp: 9649

Ion	Ratio	Lower	Upper
130	100		
95	104.0	84.7	124.7
97	64.9	46.0	86.0



#65
Toluene
Concen: 1.55 ug/L
RT: 7.859 min Scan# 1386
Delta R.T. -0.000 min
Lab File: 23MAY20.D
Acq: 23 May 2018 05:16 pm

Tgt Ion: 91 Resp: 30961

Ion	Ratio	Lower	Upper
91	100		
92	58.0	37.6	77.6
65	0.0	0.0	31.5

Method Path : C:\msdchem\1\methods\
Method File : 10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018
Response Via : Initial Calibration

Calibration Files
1 =21MAY26.D 2 =21MAY27.D 3 =21MAY28.D 4 =21MAY29.D 5 =21MAY30.D 6 =21MAY31.D 7 =21MAY32.D
8 =21MAY33.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------	ISTD	----------							
2)	CP	Dichlorodifluo...	0.825	0.707	0.667	0.656	0.671	0.608	0.623	0.683	0.680	9.79#
3)	CP	Chloromethane		1.100	0.924	0.922	0.946	0.886	0.975	1.058	0.973	8.04
4)	CP	Vinyl chloride		0.869	0.867	0.816	0.846	0.743	0.788	0.830	0.823	5.50
5)	CP	Bromomethane		0.631	0.511	0.487	0.472	0.408	0.393	0.328	0.461	21.18#
6)	CP	Chloroethane		1.794	0.712	0.537	0.507	0.424	0.431	0.452	0.694	71.37#
7)	CP	Trichlorofluor...		0.969	0.873	0.878	0.911	0.812	0.819	0.865	0.875	6.15#
8)	C	Ethyl ether	0.492	0.647	0.572	0.562	0.537	0.543	0.540	0.517	0.551	8.35#
9)	C	Acrolein			0.157	0.120	0.090	0.078	0.076	0.085	0.101#	31.38#
10)	CP	1,1-Dichloroet...		1.039	0.871	0.827	0.828	0.839	0.709	0.787	0.843	11.94
11)	CP	1,1,2-Trichlor...	0.318	0.299	0.315	0.286	0.310	0.306	0.229	0.288	0.294	9.79#
12)	C	Methyl iodide		0.249	0.236	0.254	0.233	0.230	0.219	0.223	0.235	5.40#
13)	CP	Acetone	1.198	0.896	0.588	0.515	0.487	0.475	0.473	0.422	0.632	43.19#
14)	C	Chloroprene	0.872	0.882	0.779	0.765	0.760	0.808	0.741	0.796	0.800	6.48#
15)	CP	Carbon disulfide		1.466	1.038	1.047	1.129	1.210	1.091	1.266	1.178	12.90#
16)	C	Allyl chloride		1.060	0.829	0.835	0.888	0.941	0.896	0.866	0.902	8.80#
17)	CP	Methyl acetate		1.191	0.967	0.924	0.943	0.970	0.969	0.922	0.984	9.54#
18)	C	Acetonitrile		1.060	0.829	0.835	0.888	0.941	0.896	0.866	0.902	8.80#
19)	CP	Methylene chlo...		1.017	0.763	0.775	0.716	0.725	0.725	0.704	0.775	14.18#
20)	CP	trans-1,2-Dich...	0.855	0.813	0.768	0.725	0.714	0.740	0.703	0.740	0.757	6.93#
21)	C	t-Butanol		0.247	0.214	0.194	0.186	0.183	0.188	0.176	0.198#	12.35#
22)	C	Acrylonitrile	0.510	0.587	0.451	0.484	0.448	0.466	0.470	0.445	0.483	9.78#
23)	CP	Methyl tert-bu...	2.351	1.617	1.688	1.734	1.604	1.651	1.735	1.615	1.749	14.20#
24)	T	Hexane		0.794	0.649	0.575	0.576	0.590	0.435	0.586	0.601	17.84
25)	CP	1,1-Dichloroet...	1.109	1.076	1.050	0.973	0.961	1.001	0.999	0.998	1.021	5.09
26)	CP	Diisopropyl ether		1.845	1.819	1.767	1.741	1.792	1.868	1.785	1.802	2.46#
27)	C	Vinyl acetate		0.070	0.135	0.114	0.123	0.135	0.146	0.132	0.122#	20.54#
28)	CP	Ethyl tert but...		1.637	1.701	1.586	1.553	1.644	1.734	1.640	1.642	3.77#
29)	C	2,2-Dichloropr...	0.768	0.751	0.666	0.665	0.647	0.675	0.660	0.699	0.691	6.48#
30)	CP	cis-1,2-Dichlo...	1.079	1.060	0.866	0.912	0.857	0.887	0.891	0.880	0.929	9.50#
31)	CP	2-Butanone		0.953	0.589	0.610	0.584	0.612	0.652	0.614	0.659	19.93#
32)	C	Ethyl Acetate		1.341	1.396	1.239	1.208	1.191	1.265	1.169	1.258	6.60#
33)	C	Methyl acrylate	1.050	1.101	0.920	0.922	0.894	0.977	1.019	0.969	0.981	7.25#
34)	C	Propionitrile		0.175	0.111	0.091	0.083	0.070	0.056	0.061	0.092#	44.42#
35)	C	Bromochloromet...		0.600	0.542	0.517	0.497	0.503	0.502	0.476	0.520	7.88#
36)	C	Tetrahydrofuran		0.551	0.488	0.382	0.391	0.436	0.448	0.425	0.446	13.11
37)	C	Methacrylonitrile		0.644	0.531	0.875	0.778	0.809	0.660	0.802	0.728	16.49#
38)	CP	Chloroform	1.041	1.180	0.956	0.957	0.927	0.960	0.953	0.926	0.987	8.66

Method Path : C:\msdchem\1\methods\
Method File : 10WGO0522.M
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39)	CP	Cyclohexane	2.204	1.812	1.120	0.996	0.884	0.879	0.718	0.870	1.185	44.78#
40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	CP	1,1,1-Trichlor...	0.426	0.458	0.350	0.369	0.359	0.394	0.358	0.390	0.388	9.68#
42)	S	Dibromofluorom...	0.320	0.318	0.318	0.323	0.318	0.323	0.324	0.326	0.321	0.95
43)	CP	Carbon tetrach...	0.293	0.332	0.288	0.288	0.279	0.310	0.284	0.319	0.299	6.31#
44)	C	1,1-Dichloropr...	0.481	0.461	0.396	0.389	0.386	0.398	0.362	0.387	0.408	10.09#
45)	S	1,2-Dichloroet...	0.422	0.423	0.410	0.417	0.414	0.417	0.413	0.412	0.416	1.07
46)	CP	1,2-Dichloroet...		0.621	0.444	0.448	0.419	0.444	0.431	0.412	0.460	15.74#
47)	CP	Benzene	1.375	1.407	1.179	1.220	1.154	1.195	1.161	1.159	1.231	8.23#
48)	CP	Tertiaryamylme...		0.848	0.839	0.822	0.818	0.862	0.897	0.850	0.848	3.15#
49)	C	Isobutyl Alcohol		0.499	0.282	0.260	0.272	0.300	0.281	0.262	0.308	27.67#
50)	C	Heptane	0.450	0.497	0.252	0.262	0.255	0.269	0.208		0.313	35.77#
51)	C	1,4-Dioxane	0.009	0.009	0.008	0.008	0.008	0.008	0.008	0.009	0.008#	5.00#
52)	CP	Methylcyclohexane	0.432	0.549	0.410	0.419	0.421	0.428	0.348	0.428	0.430	12.92#
53)	T	n-Butanol			0.014	0.013	0.017	0.020	0.024	0.024	0.019#	26.22
54)	CP	Trichloroethene	0.303	0.328	0.267	0.288	0.275	0.280	0.264	0.271	0.285	7.55#
55)	CP	1,2-Dichloropr...	0.369	0.411	0.322	0.325	0.310	0.319	0.323	0.316	0.337	10.32
56)	C	Dibromomethane	0.222	0.244	0.211	0.212	0.202	0.205	0.208	0.198	0.213	6.87#
57)	C	Methyl methacr...	0.469	0.408	0.346	0.381	0.382	0.417	0.431	0.407	0.405	9.09#
58)	CP	Bromodichlorom...	0.371	0.354	0.300	0.320	0.313	0.355	0.369	0.365	0.343	8.17#
59)	C	2-Chloroethyl ...		0.167	0.190	0.170	0.149	0.134	0.127	0.115	0.150#	17.83#
60)	C	2-Nitropropane		0.143	0.109	0.096	0.087	0.114	0.134	0.136	0.117#	18.41#
61)	CP	cis-1,3-Dichlo...	0.381	0.434	0.358	0.376	0.398	0.461	0.482	0.480	0.421	11.73#
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	CP	4-Methyl-2-pen...	0.825	0.634	0.589	0.591	0.591	0.675	0.695	0.645	0.656	12.08#
64)	S	Toluene-d8	1.344	1.362	1.362	1.365	1.404	1.444	1.396	1.424	1.388	2.53
65)	CP	Toluene	1.494	1.578	1.350	1.328	1.321	1.403	1.337	1.337	1.394	6.75
66)	CP	trans-1,3-Dich...		0.366	0.327	0.331	0.357	0.470	0.495	0.496	0.406	19.06#
67)	T	Chloropicrin									0.000#	-1.00
68)	C	Ethyl methacry...	0.513	0.518	0.483	0.493	0.497	0.559	0.577	0.546	0.523	6.46#
69)	CP	1,1,2-Trichlor...	0.407	0.372	0.314	0.329	0.325	0.331	0.323	0.309	0.339	9.94#
70)	CP	Tetrachloroethene	0.263	0.345	0.297	0.294	0.280	0.295	0.269	0.271	0.289	9.02#
71)	C	1,3-Dichloropr...	0.560	0.642	0.547	0.589	0.565	0.590	0.580	0.552	0.578	5.28#
72)	CP	2-Hexanone		0.471	0.464	0.467	0.462	0.523	0.540	0.501	0.490	6.48#
73)	CP	Chlorodibromom...		0.262	0.189	0.234	0.245	0.311	0.324	0.314	0.268	18.68#
74)	T	Butyl acetate	0.992	0.694	0.818	0.727	0.770	0.860	0.883	0.820	0.820	11.50
75)	CP	1,2-Dibromoethane	0.365	0.352	0.339	0.327	0.310	0.195	0.256		0.306	19.80#
76)	CP	Chlorobenzene	0.885	1.022	0.824	0.838	0.802	0.833	0.823	0.786	0.852	8.77
77)	C	1,1,1,2-Tetrac...	0.236	0.283	0.213	0.231	0.237	0.274	0.273	0.265	0.252	10.13#
78)	CP	Ethylbenzene	1.459	1.631	1.378	1.379	1.343	1.483	1.433	1.422	1.441	6.21
79)	CP	m/p-Xylene	1.181	1.152	1.011	1.060	1.040	1.124	1.080	1.071	1.090	5.32#
80)	CP	Styrene	0.715	0.958	0.774	0.820	0.809	0.901	0.880	0.855	0.839	9.09#
81)	CP	o-Xylene	1.137	1.267	1.040	1.083	1.067	1.150	1.127	1.103	1.122	6.18#
82)	C	Cyclohexanone		0.064	0.065	0.059	0.061	0.066	0.070	0.066	0.064#	5.66#
83)	CP	Bromoform		0.172	0.133	0.151	0.145	0.193	0.208	0.204	0.172	17.54
84)	CP	Isopropylbenzene	1.309	1.434	1.233	1.223	1.242	1.340	1.268	1.281	1.291	5.41#

Method Path : C:\msdchem\1\methods\
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85)	S	Bromofluoroben...	0.472	0.481	0.497	0.478	0.489	0.497	0.488	0.498	0.488	2.00
86)	C	Bromobenzene	0.871	0.864	0.821	0.818	0.796	0.880	0.863	0.833	0.844	3.60#
87)	C	1,2,3-Trichlor...	0.194	0.197	0.165	0.172	0.170	0.170	0.171	0.160	0.175#	7.61#
88)	C	trans-1,4-Dich...	0.151	0.221	0.166	0.155	0.163	0.189	0.191	0.185	0.178#	13.16#
89)	C	n-Propylbenzene	1.746	1.679	1.527	1.522	1.571	1.695	1.627	1.617	1.623	4.98#
90)	C	2-Chlorotoluene	1.026	1.105	0.923	0.900	0.907	0.979	0.955	0.928	0.965	7.26#
91)	C	4-Chlorotoluene	1.195	1.154	1.064	1.044	1.069	1.126	1.093	1.058	1.100	4.83#
92)	C	1,3,5-Trimethy...	0.852	1.176	0.918	0.975	0.990	1.068	1.034	1.030	1.005	9.70#
93)	C	tert-Butylbenzene	0.755	0.640	0.569	0.582	0.666	0.631	0.597	0.612	0.631	9.32#
94)	C	1,2,4-Trimethy...	1.034	1.151	1.011	0.984	1.040	1.137	1.109	1.092	1.070	5.72#
95)	C	sec-Butylbenzene	1.274	1.331	1.142	1.143	1.202	1.293	1.228	1.249	1.233	5.54#
96)	I	1,4-Dichlorobenzen...	----------	ISTD	----------							
97)	CP	1,1,2,2-Tetrac...	1.578	1.434	1.159	1.213	1.187	1.210	1.237	1.187	1.276	11.69#
98)	CP	1,3-Dichlorobe...	1.424	1.402	1.112	1.230	1.187	1.236	1.269	1.203	1.258	8.45#
99)	C	p-Isopropyltol...	2.267	2.268	1.923	2.019	2.041	2.184	2.187	2.182	2.134	5.86#
100)	CP	1,4-Dichlorobe...	1.578	1.502	1.264	1.270	1.222	1.245	1.269	1.210	1.320	10.52#
101)	C	1,2,3-Trimethy...	2.406	2.529	2.305	2.388	2.301	2.462	2.499	2.411	2.413	3.43#
102)	C	Benzyl chloride		0.945	0.880	0.936	1.005	1.544	1.811	1.833	1.279	33.84#
103)	CP	1,2-Dichlorobe...	1.425	1.475	1.210	1.260	1.188	1.224	1.244	1.189	1.277	8.65#
104)	T	n-Butylbenzene	2.321	2.249	1.986	1.922	1.922	2.076	2.070	2.099	2.081	6.95
105)	C	Hexachloroethane	0.283	0.313	0.259	0.313	0.315	0.380	0.408	0.424	0.337	17.81#
106)	CP	1,2-Dibromo-3-...		0.217	0.194	0.227	0.241	0.281	0.304	0.295	0.251	16.87#
107)	C	1,3,5-Trichlor...	0.898	0.885	0.734	0.752	0.711	0.770	0.802	0.781	0.792	8.56#
108)	CP	1,2,4-Trichlor...	0.759	0.937	0.683	0.697	0.695	0.730	0.778	0.762	0.755	10.83#
109)	C	Hexachlorobuta...		0.355	0.242	0.239	0.224	0.230	0.226	0.238	0.251	18.51#
110)	C	Naphthalene	3.136	3.359	2.698	2.820	2.908	3.322	3.533	3.409	3.148	9.75#
111)	C	1,2,3-Trichlor...	0.726	0.778	0.711	0.700	0.678	0.756	0.778	0.759	0.736	5.09#
112)	C	2-Methylnaphth...		1.605	1.294	1.389	1.439	1.792	1.937	1.907	1.623	15.98#
113)	C	1-Methylnaphth...		1.586	1.271	1.356	1.458	1.732	1.876	1.815	1.585	14.71#
114)	I	Ethyl-d5-Acetate-d3	----------	ISTD	----------							
115)	T	2-Propanone	2.705	2.073	1.263	1.127	1.058	1.006	1.016	0.876	1.390	46.64
116)	T	Acetic Ether	3.050	2.250	2.981	2.378	2.470	2.525	2.718	2.426	2.600	11.13
117)	T	Isopropyl Acetate	1.007	0.433	0.599	0.613	0.587	0.661	0.734	0.665	0.662	24.78
118)	T	Amyl Acetate	3.473	2.182	2.336	2.308	2.380	2.605	2.856	2.584	2.590	16.02

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018
Response Via : Initial Calibration

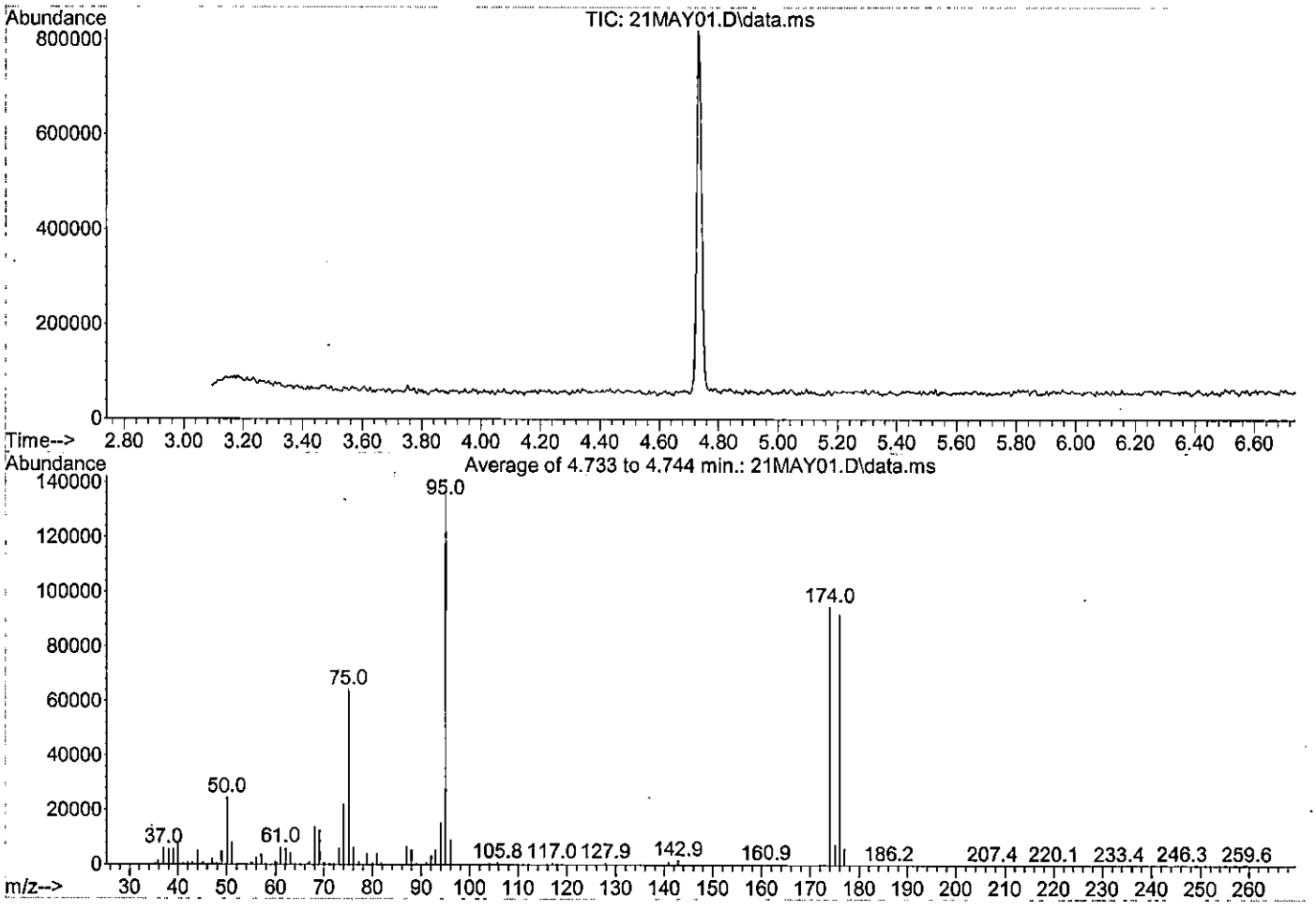
Calibration Files
1 =21MAY26 2 =21MAY27 3 =21MAY28 4 =21MAY29 5 =21MAY30 6 =21MAY31
7 =21MAY32 8 =21MAY33

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	CP	Bromomethane	Quad	0.0043	0.4761	-0.0286	0.9990
6)	CP	Chloroethane	Quad	0.0401	0.3799	0.0124	0.9990
9)	C	Acrolein	Quad	0.0498	0.0647	0.0007	0.9986
13)	CP	Acetone	Lin	0.0147	0.4451	-----	0.9970
27)	C	Vinyl acetate	Lin	-0.0021	0.1376	-----	0.9971
34)	C	Propionitrile	Quad	0.0035	0.0708	-0.0026	0.9936
39)	CP	Cyclohexane	Lin	0.0293	0.8139	-----	0.9922
40)	I	1,4-Difluorobenzene		----------ISTD----------			
49)	C	Isobutyl Alcohol	Lin	0.0048	0.2729	-----	0.9966
50)	C	Heptane	Quad	0.0033	0.2841	-0.0201	0.9916
53)	T	n-Butanol	Lin	-0.0168	0.0239	-----	0.9941
59)	C	2-Chloroethyl vi...	Quad	0.0015	0.1512	-0.0073	0.9990
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
96)	I	1,4-Dichlorobenz...		----------ISTD----------			
102)	C	Benzyl chloride	Quad	-0.0015	0.9559	0.2064	0.9919
105)	C	Hexachloroethane	Quad	-0.0020	0.3351	0.0188	0.9993
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			
115)	T	2-Propanone	Lin	0.0356	0.9391	-----	0.9951
116)	T	Acetic Ether	Lin	0.0050	2.5365	-----	0.9970
117)	T	Isopropyl Acetate	Lin	-0.0015	0.6816	-----	0.9956
118)	T	Amyl Acetate	Lin	-0.0202	2.6703	-----	0.9964

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY01.D
Acq On : 21 May 2018 07:48 am
Operator : AK
Sample : VBFB1-180521
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



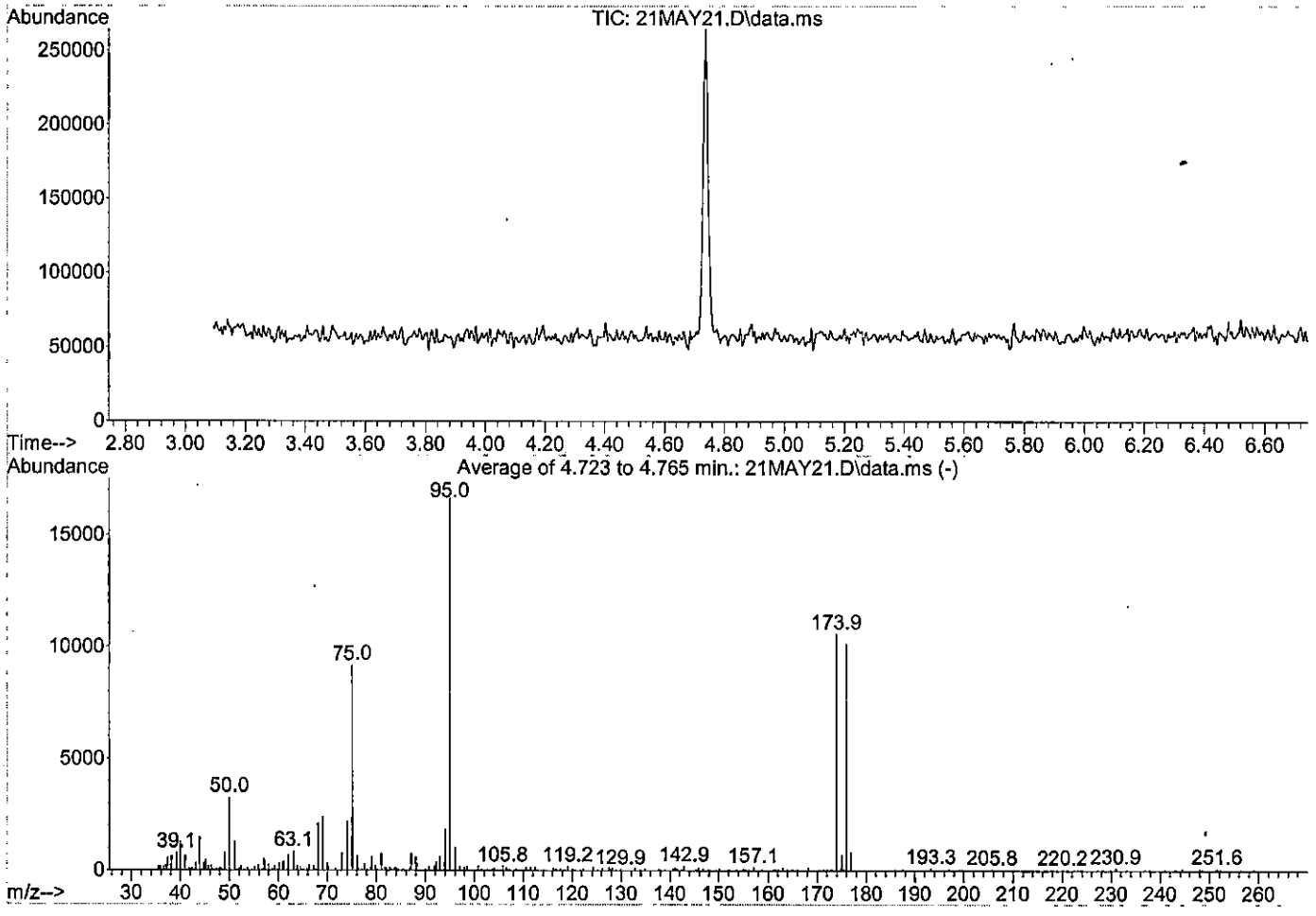
Spectrum Information: Average of 4.733 to 4.744 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.3	24752	PASS
75	95	30	60	47.6	64488	PASS
95	95	100	100	100.0	135600	PASS
96	95	5	9	6.7	9125	PASS
173	174	0.00	2	0.6	563	PASS
174	95	50	100	70.0	94941	PASS
175	174	5	9	8.1	7684	PASS
176	174	95	101	97.0	92117	PASS
177	176	5	9	6.6	6088	PASS

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY21.D
Acq On : 21 May 2018 03:29 pm
Operator : AK
Sample : VBFB2-180521
Misc :
ALS Vial : 15 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



Spectrum Information: Average of 4.723 to 4.765 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.7	3292	PASS
75	95	30	60	55.1	9191	PASS
95	95	100	100	100.0	16685	PASS
96	95	5	9	6.2	1031	PASS
173	174	0.00	2	1.0	109	PASS
174	95	50	100	63.6	10607	PASS
175	174	5	9	6.8	725	PASS
176	174	95	101	95.9	10169	PASS
177	176	5	9	8.4	852	PASS

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY26.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 22 08:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	191652	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	357663	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.844	117	325285	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	146188	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.131	46	84847	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.923	111	114607	20.49	ug/L		-0.01
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.45%				
45) 1,2-Dichloroethane-d4	5.463	65	150797	21.04	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 105.20%				
64) Toluene-d8	7.806	98	437290	19.31	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.55%				
85) Bromofluorobenzene	9.542	95	153631	19.37	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	3163	0.13	ug/L		94
3) Chloromethane	1.394	50	6177	0.19	ug/L		95
4) Vinyl chloride	1.473	62	4697	0.16	ug/L		88
5) Bromomethane	1.703	96	3887	0.15	ug/L		88
6) Chloroethane	1.782	64	4572m	0.25	ug/L		
7) Trichlorofluoromethane	1.960	101	4418	0.14	ug/L		97
8) Ethyl ether	2.170	59	1885	0.10	ug/L		78
9) Acrolein	2.285	56	5114m	Below Cal			
10) 1,1-Dichloroethene	2.364	61	3993	0.13	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.369	151	1217	0.11	ug/L		96
12) Methyl iodide	2.490	142	1486	0.12	ug/L		82
13) Acetone	2.401	43	4591	Below Cal			96
14) Chloroprene	3.596	53	3343	0.12	ug/L		94
15) Carbon disulfide	2.553	76	6126	0.13	ug/L		68
16) Allyl chloride	2.673	41	5873	0.20	ug/L	#	77
17) Methyl acetate	2.663	43	7562	0.25	ug/L		98
18) Acetonitrile	2.673	41	5873	0.20	ug/L	#	76
19) Methylene chloride	2.794	49	3764	0.15	ug/L		92
20) trans-1,2-Dichloroethene	3.051	61	3279	0.13	ug/L		86
21) t-Butanol	2.888	59	7521	0.90	ug/L		99
22) Acrylonitrile	3.025	53	1954	0.12	ug/L		91
23) Methyl tert-butyl ether	3.046	73	9011	0.15	ug/L		90
24) Hexane	3.334	57	2535	0.12	ug/L		89
25) 1,1-Dichloroethane	3.518	63	4249	0.12	ug/L		90
26) Diisopropyl ether	3.554	45	11109	0.17	ug/L		93
27) Vinyl acetate	3.523	86	757m	0.38	ug/L		
28) Ethyl tert butyl ether	3.984	59	9777	0.17	ug/L		94
29) 2,2-Dichloropropane	4.220	77	2944	0.12	ug/L	#	70
30) cis-1,2-Dichloroethene	4.210	61	4135	0.14	ug/L		95
31) 2-Butanone	4.220	43	5308	0.27	ug/L		94
32) Ethyl Acetate	4.288	43	8643m	0.21	ug/L		
33) Methyl acrylate	4.330	55	4025	0.13	ug/L	#	82
34) Propionitrile	5.001	54	543	0.19	ug/L	#	1
35) Bromochloromethane	4.529	49	2418	0.14	ug/L	#	77

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY26.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 22 08:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	4.561	42	1102	0.07 ug/L #	52
37) Methacrylonitrile	0.000		0	N.D. d	
38) Chloroform	4.687	83	3992	0.12 ug/L	95
39) Cyclohexane	4.996	56	8448	0.17 ug/L #	51
41) 1,1,1-Trichloroethane	4.907	97	3049	0.12 ug/L	91
43) Carbon tetrachloride	5.127	117	2097	0.10 ug/L #	85
44) 1,1-Dichloropropene	5.159	75	3444	0.13 ug/L	91
46) 1,2-Dichloroethane	5.599	62	3954	0.14 ug/L	88
47) Benzene	5.478	78	9838	0.13 ug/L	89
48) Tertiaryamylmethylether	5.762	73	8783	0.15 ug/L #	90
49) Isobutyl Alcohol	5.741	43	4729m	Below Cal	
50) Heptane	6.055	43	3222	0.18 ug/L #	54
51) 1,4-Dioxane	6.994	88	6331	11.10 ug/L	91
52) Methylcyclohexane	6.836	83	3093	0.10 ug/L #	92
53) n-Butanol	0.000		0	N.D. d	
54) Trichloroethene	6.585	130	2168	0.11 ug/L	87
55) 1,2-Dichloropropane	6.894	63	2636	0.13 ug/L	97
56) Dibromomethane	6.983	93	1588	0.12 ug/L	98
57) Methyl methacrylate	7.004	41	3353	0.13 ug/L #	83
58) Bromodichloromethane	7.182	83	2652	0.12 ug/L #	85
59) 2-Chloroethyl vinyl ether	7.481	43	994	0.10 ug/L #	36
60) 2-Nitropropane	7.408	43	639	0.19 ug/L #	66
61) cis-1,3-Dichloropropene	7.597	75	2725	0.10 ug/L	99
63) 4-Methyl-2-pentanone	7.738	43	5366	0.13 ug/L	92
65) Toluene	7.859	91	9722	0.12 ug/L	97
66) trans-1,3-Dichloropropene	8.069	75	2021	0.08 ug/L	95
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.121	69	3336	0.10 ug/L	94
69) 1,1,2-Trichloroethane	8.205	97	2649	0.12 ug/L	91
70) Tetrachloroethene	8.247	166	1710	0.09 ug/L	85
71) 1,3-Dichloropropane	8.320	76	3643	0.10 ug/L	98
72) 2-Hexanone	8.373	43	5713	0.17 ug/L	79
73) Chlorodibromomethane	8.467	129	1527	0.09 ug/L	94
74) Butyl acetate	8.456	43	6453	0.12 ug/L #	92
75) 1,2-Dibromoethane	8.540	107	2376	0.14 ug/L #	84
76) Chlorobenzene	8.860	112	5755	0.11 ug/L #	42
77) 1,1,1,2-Tetrachloroethane	8.918	131	1534	0.10 ug/L	85
78) Ethylbenzene	8.923	91	9489	0.11 ug/L	94
79) m/p-Xylene	9.007	91	15371	0.23 ug/L	99
80) Styrene	9.248	104	4652	0.09 ug/L	88
81) o-Xylene	9.232	91	7394	0.11 ug/L	98
82) Cyclohexanone	9.500	55	3031	0.64 ug/L #	86
83) Bromoform	9.353	173	959	0.06 ug/L	93
84) Isopropylbenzene	9.442	105	8515	0.11 ug/L	99
86) Bromobenzene	9.620	77	5669	0.11 ug/L	99
87) 1,2,3-Trichloropropane	9.652	110	1262	0.10 ug/L #	86
88) trans-1,4-Dichloro-2-b...	9.636	53	983	0.08 ug/L #	70
89) n-Propylbenzene	9.668	91	11358	0.11 ug/L	96
90) 2-Chlorotoluene	9.720	91	6675	0.11 ug/L	98
91) 4-Chlorotoluene	9.788	91	7772	0.12 ug/L	100
92) 1,3,5-Trimethylbenzene	9.762	105	5542	0.09 ug/L	85
93) tert-Butylbenzene	9.930	91	4910	0.13 ug/L	94

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY26.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 19 Sample Multiplier: 1

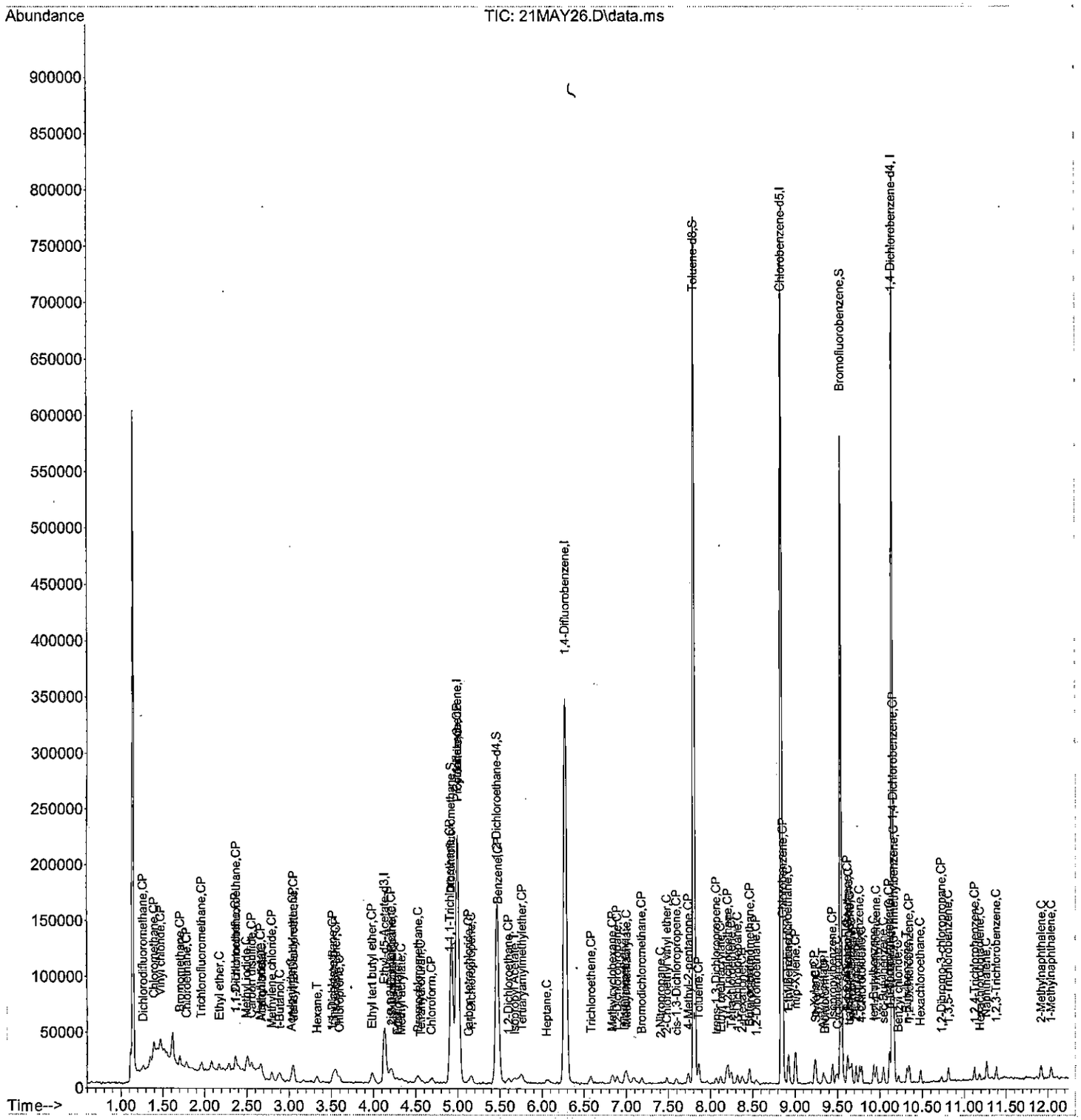
Quant Time: May 22 08:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	6730	0.10	ug/L		85
95)	sec-Butylbenzene	10.045	105	8288	0.11	ug/L		92
97)	1,1,2,2-Tetrachloroethane	9.620	83	4615	0.11	ug/L		96
98)	1,3-Dichlorobenzene	10.113	146	4163	0.12	ug/L		91
99)	p-Isopropyltoluene	10.119	119	6627	0.11	ug/L		90
100)	1,4-Dichlorobenzene	10.166	146	4613m	0.12	ug/L		
101)	1,2,3-Trimethylbenzene	10.171	105	7035	0.10	ug/L		90
102)	Benzyl chloride	10.218	91	2809	0.01	ug/L		84
103)	1,2-Dichlorobenzene	10.349	146	4166	0.11	ug/L		100
104)	n-Butylbenzene	10.323	91	6787	0.12	ug/L		96
105)	Hexachloroethane	10.480	117	827	0.06	ug/L		83
106)	1,2-Dibromo-3-chloropr...	10.732	157	589	0.07	ug/L	#	49
107)	1,3,5-Trichlorobenzene	10.811	180	2626	0.11	ug/L	#	96
108)	1,2,4-Trichlorobenzene	11.125	180	2220	0.10	ug/L		91
109)	Hexachlorobutadiene	11.188	225	857	0.12	ug/L		96
110)	Naphthalene	11.267	128	9168	0.09	ug/L		95
111)	1,2,3-Trichlorobenzene	11.382	180	2124	0.09	ug/L	#	80
112)	2-Methylnaphthalene	11.922	142	4677	0.09	ug/L		97
113)	1-Methylnaphthalene	12.037	142	4192	0.08	ug/L		94
115)	2-Propanone	2.401	43	4591	Below Cal			96
116)	Acetic Ether	4.288	43	5176	0.17	ug/L	#	89
117)	Isopropyl Acetate	5.672	61	1708	0.38	ug/L	#	88
118)	Amyl Acetate	9.332	43	5893	0.26	ug/L	#	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY26.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: May 22 08:14:09 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY27.D
Acq On : 21 May 2018 05:33 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 22 08:17:44 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	186257	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	337958	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	310199	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	145533	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.137	46	80529	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	107370	20.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.60%				
45) 1,2-Dichloroethane-d4	5.468	65	142897	21.10	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 105.50%				
64) Toluene-d8	7.807	98	422445	19.56	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.80%				
85) Bromofluorobenzene	9.542	95	149337	19.74	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.269	85	3950	0.17	ug/L		89
3) Chloromethane	1.394	50	6148	0.19	ug/L		100
4) Vinyl chloride	1.468	62	4857	0.17	ug/L		73
5) Bromomethane	1.704	96	3528	0.14	ug/L		92
6) Chloroethane	1.782	64	10026	0.61	ug/L		75
7) Trichlorofluoromethane	1.966	101	5417	0.18	ug/L		95
8) Ethyl ether	2.170	59	3616	0.20	ug/L		97
9) Acrolein	2.286	56	5776	Below Cal		#	75
10) 1,1-Dichloroethene	2.364	61	5807	0.20	ug/L		90
11) 1,1,2-Trichlorotrifluo...	2.370	151	1673	0.15	ug/L	#	75
12) Methyl iodide	2.495	142	1390	0.11	ug/L		85
13) Acetone	2.401	43	5007	Below Cal			100
14) Chloroprene	3.602	53	4931	0.18	ug/L		95
15) Carbon disulfide	2.558	76	8194	0.18	ug/L		89
16) Allyl chloride	2.679	41	5921	0.21	ug/L		97
17) Methyl acetate	2.668	43	6656m	0.23	ug/L		
18) Acetonitrile	2.679	41	5921	0.20	ug/L		98
19) Methylene chloride	2.794	49	5685	0.23	ug/L		89
20) trans-1,2-Dichloroethene	3.056	61	4543	0.18	ug/L		96
21) t-Butanol	2.889	59	6895	0.85	ug/L	#	92
22) Acrylonitrile	3.025	53	3278	0.20	ug/L		88
23) Methyl tert-butyl ether	3.046	73	9038	0.16	ug/L		82
24) Hexane	3.334	57	4439	0.21	ug/L		80
25) 1,1-Dichloroethane	3.518	63	6013	0.18	ug/L		90
26) Diisopropyl ether	3.555	45	10311	0.17	ug/L		87
27) Vinyl acetate	3.534	86	393	0.31	ug/L	#	1
28) Ethyl tert butyl ether	3.995	59	9145	0.16	ug/L		94
29) 2,2-Dichloropropane	4.205	77	4194	0.18	ug/L	#	90
30) cis-1,2-Dichloroethene	4.215	61	5923	0.21	ug/L		99
31) 2-Butanone	4.226	43	5325	0.28	ug/L		90
32) Ethyl Acetate	4.278	43	7494m	0.18	ug/L		
33) Methyl acrylate	4.346	55	6152	0.20	ug/L	#	95
34) Propionitrile	4.996	54	979	0.34	ug/L	#	36
35) Bromochloromethane	4.535	49	3354	0.21	ug/L		97

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY27.D
Acq On : 21 May 2018 05:33 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 22 08:17:44 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	4.551	42	3080m	0.21 ug/L	
37) Methacrylonitrile	4.504	41	3598	0.11 ug/L #	72
38) Chloroform	4.687	83	6591	0.21 ug/L	91
39) Cyclohexane	4.996	56	10125	0.23 ug/L #	65
41) 1,1,1-Trichloroethane	4.902	97	4643	0.19 ug/L	89
43) Carbon tetrachloride	5.148	117	3365	0.17 ug/L	90
44) 1,1-Dichloropropene	5.175	75	4675	0.18 ug/L	83
46) 1,2-Dichloroethane	5.605	62	6297	0.23 ug/L	97
47) Benzene	5.484	78	14264	0.19 ug/L	94
48) Tertiaryamylmethylether	5.767	73	8602	0.15 ug/L #	68
49) Isobutyl Alcohol	5.746	43	5058m	Below Cal	
50) Heptane	6.055	43	5036	0.30 ug/L #	81
51) 1,4-Dioxane	6.994	88	8695	16.14 ug/L	92
52) Methylcyclohexane	6.842	83	5571	0.20 ug/L	94
53) n-Butanol	0.000		0	N.D. d	
54) Trichloroethene	6.590	130	3322	0.18 ug/L	88
55) 1,2-Dichloropropane	6.894	63	4166	0.21 ug/L	94
56) Dibromomethane	6.983	93	2473	0.20 ug/L	97
57) Methyl methacrylate	7.010	41	4141	0.17 ug/L #	88
58) Bromodichloromethane	7.188	83	3586	0.17 ug/L	90
59) 2-Chloroethyl vinyl ether	7.487	43	1696	0.17 ug/L #	61
60) 2-Nitropropane	7.403	43	1453m	0.33 ug/L	
61) cis-1,3-Dichloropropene	7.597	75	4402	0.16 ug/L	93
63) 4-Methyl-2-pentanone	7.738	43	5898	0.15 ug/L	97
65) Toluene	7.859	91	14684	0.18 ug/L	99
66) trans-1,3-Dichloropropene	8.069	75	3410	0.14 ug/L	97
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.121	69	4824	0.15 ug/L	90
69) 1,1,2-Trichloroethane	8.210	97	3460	0.17 ug/L	91
70) Tetrachloroethene	8.247	166	3212	0.18 ug/L	98
71) 1,3-Dichloropropane	8.320	76	5974	0.18 ug/L	90
72) 2-Hexanone	8.378	43	4386	0.14 ug/L	97
73) Chlorodibromomethane	8.467	129	2441	0.15 ug/L	97
74) Butyl acetate	8.462	43	6456	0.13 ug/L #	97
75) 1,2-Dibromoethane	8.541	107	3278	0.20 ug/L #	98
76) Chlorobenzene	8.860	112	9511	0.19 ug/L #	74
77) 1,1,1,2-Tetrachloroethane	8.923	131	2637	0.17 ug/L	97
78) Ethylbenzene	8.923	91	15180	0.18 ug/L	100
79) m/p-Xylene	9.002	91	21442	0.34 ug/L	95
80) Styrene	9.248	104	8912	0.18 ug/L	98
81) o-Xylene	9.233	91	11790	0.18 ug/L	95
82) Cyclohexanone	9.500	55	2986	0.66 ug/L #	86
83) Bromoform	9.359	173	1597	0.13 ug/L	82
84) Isopropylbenzene	9.442	105	13346	0.18 ug/L	99
86) Bromobenzene	9.621	77	8045	0.17 ug/L	95
87) 1,2,3-Trichloropropane	9.652	110	1832	0.15 ug/L	89
88) trans-1,4-Dichloro-2-b...	9.636	53	2061	0.18 ug/L #	69
89) n-Propylbenzene	9.668	91	15625	0.16 ug/L	99
90) 2-Chlorotoluene	9.720	91	10285m	0.18 ug/L	
91) 4-Chlorotoluene	9.789	91	10737	0.17 ug/L	97
92) 1,3,5-Trimethylbenzene	9.762	105	10940	0.18 ug/L	94
93) tert-Butylbenzene	9.930	91	5955	0.16 ug/L	94

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY27.D
Acq On : 21 May 2018 05:33 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 20 Sample Multiplier: 1

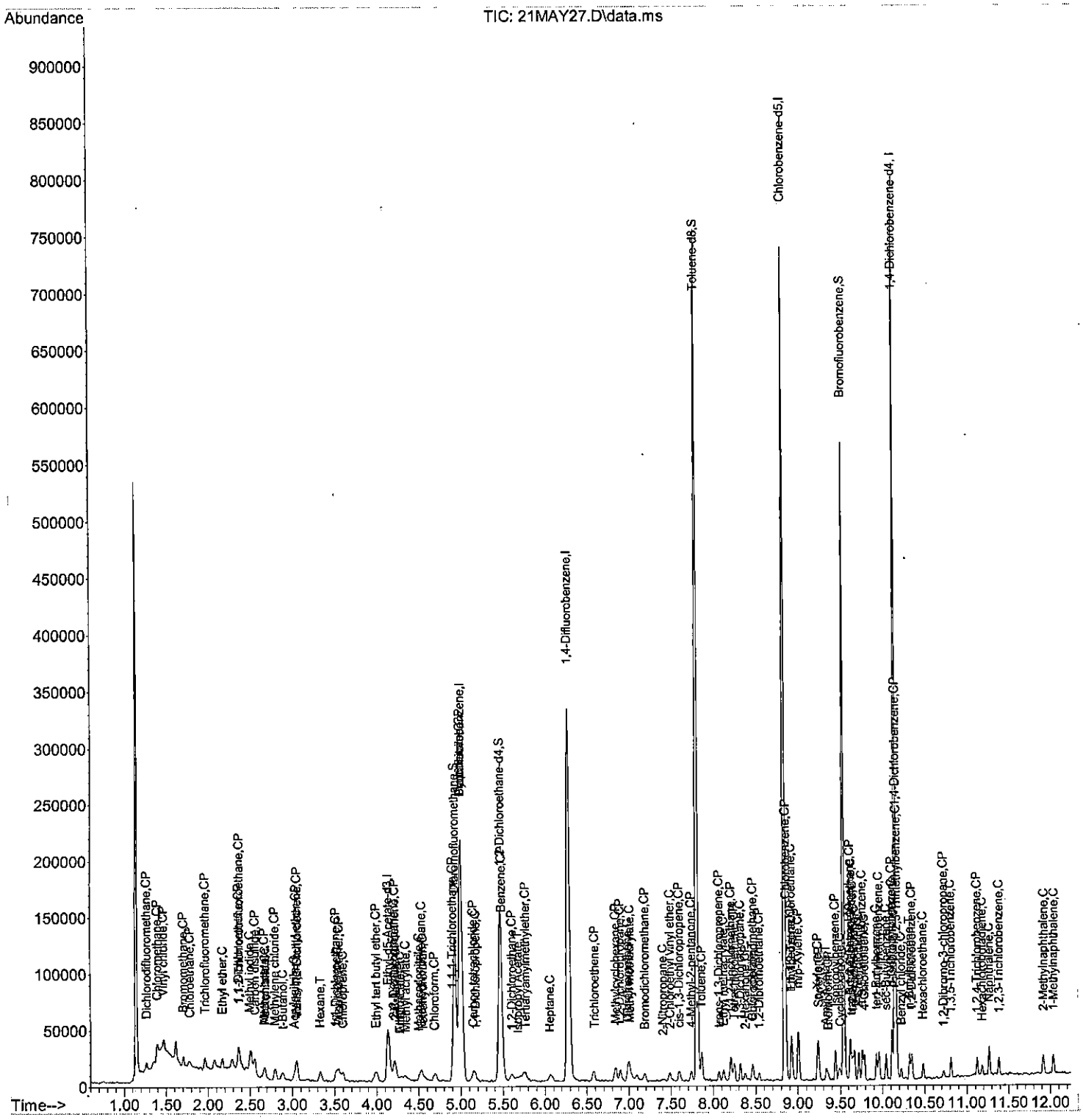
Quant Time: May 22 08:17:44 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.962	105	10715	0.17	ug/L		96
95)	sec-Butylbenzene	10.045	105	12389	0.17	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	6259	0.16	ug/L		96
98)	1,3-Dichlorobenzene	10.114	146	6121	0.17	ug/L		89
99)	p-Isopropyltoluene	10.119	119	9904	0.16	ug/L		94
100)	1,4-Dichlorobenzene	10.166	146	6558m	0.17	ug/L		
101)	1,2,3-Trimethylbenzene	10.171	105	11040	0.16	ug/L		100
102)	Benzyl chloride	10.224	91	4127	0.05	ug/L		87
103)	1,2-Dichlorobenzene	10.350	146	6441	0.18	ug/L		95
104)	n-Butylbenzene	10.323	91	9820	0.17	ug/L		96
105)	Hexachloroethane	10.481	117	1365	0.12	ug/L	#	84
106)	1,2-Dibromo-3-chloropr...	10.727	157	946	0.11	ug/L		87
107)	1,3,5-Trichlorobenzene	10.811	180	3864	0.17	ug/L		95
108)	1,2,4-Trichlorobenzene	11.120	180	4093	0.18	ug/L		84
109)	Hexachlorobutadiene	11.183	225	1548	0.21	ug/L	#	83
110)	Naphthalene	11.267	128	14664	0.14	ug/L		97
111)	1,2,3-Trichlorobenzene	11.382	180	3396	0.14	ug/L		96
112)	2-Methylnaphthalene	11.917	142	7007	0.14	ug/L		99
113)	1-Methylnaphthalene	12.038	142	6926	0.13	ug/L		96
115)	2-Propanone	2.401	43	5007	Below Cal			100
116)	Acetic Ether	4.278	43	5436	0.18	ug/L	#	89
117)	Isopropyl Acetate	5.678	61	1045	0.33	ug/L	#	69
118)	Amyl Acetate	9.332	43	5271	0.26	ug/L	#	88

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY27.D
Acq On : 21 May 2018 05:33 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 20 Sample Multiplier: 1

Quant Time: May 22 08:17:44 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY28.D
Acq On : 21 May 2018 05:59 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 08:19:33 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	186383	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	349504	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	316702	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	147596	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.131	46	86791	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	111203	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.468	65	143443	20.48	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.40%				
64) Toluene-d8	7.807	98	431427	19.57	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.85%				
85) Bromofluorobenzene	9.542	95	157476	20.39	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 101.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	12439	0.52	ug/L		99
3) Chloromethane	1.394	50	17219	0.54	ug/L		99
4) Vinyl chloride	1.473	62	16159	0.57	ug/L		95
5) Bromomethane	1.704	96	9515	0.57	ug/L		99
6) Chloroethane	1.782	64	13266	0.81	ug/L		86
7) Trichlorofluoromethane	1.961	101	16263	0.53	ug/L		98
8) Ethyl ether	2.170	59	10658	0.58	ug/L		98
9) Acrolein	2.286	56	14588	Below Cal			97
10) 1,1-Dichloroethene	2.364	61	16236	0.56	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.364	151	5870	0.54	ug/L		97
12) Methyl iodide	2.495	142	4391	0.35	ug/L		97
13) Acetone	2.401	43	10959	Below Cal			87
14) Chloroprene	3.596	53	14516	0.53	ug/L		96
15) Carbon disulfide	2.553	76	19350	0.43	ug/L		98
16) Allyl chloride	2.679	41	15449	0.54	ug/L		90
17) Methyl acetate	2.663	43	18014	0.62	ug/L	#	95
18) Acetonitrile	2.679	41	15449	0.53	ug/L	#	84
19) Methylene chloride	2.794	49	14216	0.57	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	14311	0.57	ug/L		99
21) t-Butanol	2.889	59	19928	2.45	ug/L		97
22) Acrylonitrile	3.025	53	8408	0.52	ug/L		98
23) Methyl tert-butyl ether	3.046	73	31464	0.55	ug/L		98
24) Hexane	3.334	57	12088	0.57	ug/L		95
25) 1,1-Dichloroethane	3.518	63	19574	0.58	ug/L		98
26) Diisopropyl ether	3.549	45	33896	0.55	ug/L		96
27) Vinyl acetate	3.528	86	2514m	0.78	ug/L		
28) Ethyl tert butyl ether	3.990	59	31695	0.56	ug/L		97
29) 2,2-Dichloropropane	4.210	77	12418	0.52	ug/L		96
30) cis-1,2-Dichloroethene	4.210	61	16147	0.56	ug/L		95
31) 2-Butanone	4.220	43	10978	0.58	ug/L		95
32) Ethyl Acetate	4.278	43	26021m	0.63	ug/L		
33) Methyl acrylate	4.336	55	17147	0.56	ug/L	#	97
34) Propionitrile	4.986	54	2066m	0.73	ug/L		
35) Bromochloromethane	4.535	49	10111	0.62	ug/L		92

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY28.D
Acq On : 21 May 2018 05:59 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 08:19:33 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
36) Tetrahydrofuran	4.561	42	9099m	0.61	ug/L		
37) Methacrylonitrile	4.509	41	9897	0.37	ug/L	#	75
38) Chloroform	4.692	83	17824	0.56	ug/L		100
39) Cyclohexane	5.002	56	20882	0.58	ug/L	#	85
41) 1,1,1-Trichloroethane	4.907	97	12247	0.48	ug/L		96
43) Carbon tetrachloride	5.138	117	10067	0.50	ug/L		93
44) 1,1-Dichloropropene	5.164	75	13855	0.52	ug/L		97
46) 1,2-Dichloroethane	5.599	62	15516	0.55	ug/L		96
47) Benzene	5.479	78	41196	0.54	ug/L		97
48) Tertiaryamylmethylether	5.746	73	29327	0.51	ug/L	#	89
49) Isobutyl Alcohol	5.757	43	9865	0.23	ug/L	#	88
50) Heptane	6.066	43	8818	0.50	ug/L	#	82
51) 1,4-Dioxane	6.989	88	27232m	48.87	ug/L		
52) Methylcyclohexane	6.842	83	14330	0.50	ug/L		92
53) n-Butanol	6.611	56	4777m	32.52	ug/L		
54) Trichloroethene	6.580	130	9342	0.50	ug/L		95
55) 1,2-Dichloropropane	6.894	63	11259	0.55	ug/L		99
56) Dibromomethane	6.983	93	7388	0.57	ug/L		97
57) Methyl methacrylate	7.004	41	12093	0.48	ug/L		96
58) Bromodichloromethane	7.188	83	10488	0.47	ug/L		95
59) 2-Chloroethyl vinyl ether	7.476	43	6633m	0.66	ug/L		
60) 2-Nitropropane	7.408	43	3814	0.70	ug/L	#	92
61) cis-1,3-Dichloropropene	7.597	75	12509	0.45	ug/L		99
63) 4-Methyl-2-pentanone	7.733	43	18655	0.46	ug/L		99
65) Toluene	7.859	91	42765	0.52	ug/L		95
66) trans-1,3-Dichloropropene	8.064	75	10346	0.41	ug/L		89
67) Chloropicrin	0.000		0	N.D.			
68) Ethyl methacrylate	8.121	69	15309	0.46	ug/L		99
69) 1,1,2-Trichloroethane	8.205	97	9930	0.48	ug/L		97
70) Tetrachloroethene	8.247	166	9411	0.53	ug/L		94
71) 1,3-Dichloropropane	8.320	76	17311	0.50	ug/L		97
72) 2-Hexanone	8.373	43	14707	0.46	ug/L		96
73) Chlorodibromomethane	8.467	129	5981	0.36	ug/L		88
74) Butyl acetate	8.457	43	25918m	0.51	ug/L		
75) 1,2-Dibromoethane	8.541	107	10721	0.64	ug/L		90
76) Chlorobenzene	8.860	112	26105	0.52	ug/L		88
77) 1,1,1,2-Tetrachloroethane	8.923	131	6735	0.43	ug/L		96
78) Ethylbenzene	8.923	91	43657	0.52	ug/L		96
79) m/p-Xylene	9.007	91	64013	1.00	ug/L		99
80) Styrene	9.248	104	24526	0.48	ug/L		92
81) o-Xylene	9.233	91	32945	0.49	ug/L		100
82) Cyclohexanone	9.500	55	10250	2.22	ug/L		97
83) Bromoform	9.359	173	4205	0.39	ug/L		99
84) Isopropylbenzene	9.442	105	39056	0.50	ug/L		99
86) Bromobenzene	9.621	77	26016	0.53	ug/L		97
87) 1,2,3-Trichloropropane	9.647	110	5228	0.43	ug/L		96
88) trans-1,4-Dichloro-2-b...	9.636	53	5268	0.44	ug/L	#	70
89) n-Propylbenzene	9.668	91	48359	0.49	ug/L		98
90) 2-Chlorotoluene	9.720	91	29237	0.50	ug/L		97
91) 4-Chlorotoluene	9.788	91	33692	0.52	ug/L		97
92) 1,3,5-Trimethylbenzene	9.762	105	29078	0.47	ug/L		96
93) tert-Butylbenzene	9.930	91	18028	0.48	ug/L		90

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY28.D
Acq On : 21 May 2018 05:59 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

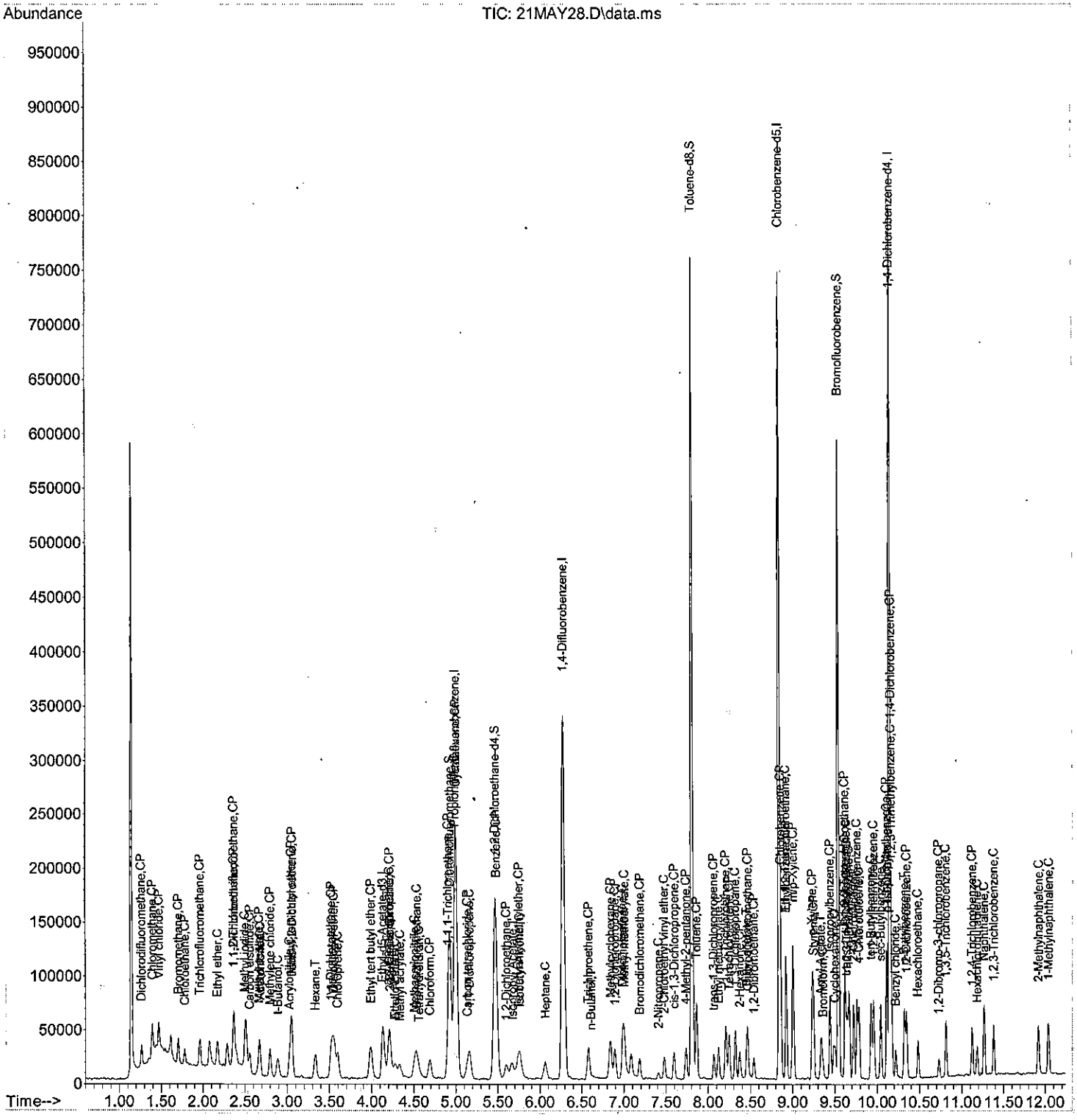
Quant Time: May 22 08:19:33 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	32008	0.49	ug/L		100
95)	sec-Butylbenzene	10.045	105	36170	0.48	ug/L		98
97)	1,1,2,2-Tetrachloroethane	9.621	83	17113	0.42	ug/L	#	97
98)	1,3-Dichlorobenzene	10.114	146	16414	0.45	ug/L		93
99)	p-Isopropyltoluene	10.119	119	28389	0.45	ug/L		98
100)	1,4-Dichlorobenzene	10.166	146	18663	0.48	ug/L		92
101)	1,2,3-Trimethylbenzene	10.171	105	34027	0.49	ug/L		98
102)	Benzyl chloride	10.218	91	12987	0.32	ug/L		92
103)	1,2-Dichlorobenzene	10.349	146	17862	0.48	ug/L		97
104)	n-Butylbenzene	10.323	91	29306	0.50	ug/L		97
105)	Hexachloroethane	10.481	117	3818	0.38	ug/L		87
106)	1,2-Dibromo-3-chloropr...	10.727	157	2863	0.33	ug/L		92
107)	1,3,5-Trichlorobenzene	10.811	180	10835	0.46	ug/L		96
108)	1,2,4-Trichlorobenzene	11.125	180	10078	0.43	ug/L		99
109)	Hexachlorobutadiene	11.183	225	3569	0.48	ug/L		95
110)	Naphthalene	11.267	128	39816	0.38	ug/L		100
111)	1,2,3-Trichlorobenzene	11.382	180	10492	0.43	ug/L		92
112)	2-Methylnaphthalene	11.917	142	19106	0.37	ug/L		92
113)	1-Methylnaphthalene	12.038	142	18766	0.36	ug/L		100
115)	2-Propanone	2.401	43	10959	Below Cal		#	87
116)	Acetic Ether	4.278	43	25870m	0.63	ug/L		
117)	Isopropyl Acetate	5.673	61	5198	0.66	ug/L	#	83
118)	Amyl Acetate	9.332	43	20271	0.56	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY28.D
Acq On : 21 May 2018 05:59 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 08:19:33 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY29.D
Acq On : 21 May 2018 06:15 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 08:20:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	190182	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	348972	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	323334	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	150773	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	86873	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	112690	20.65	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.25%				
45) 1,2-Dichloroethane-d4	5.468	65	145495	20.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.05%				
64) Toluene-d8	7.806	98	441281	19.60	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.00%				
85) Bromofluorobenzene	9.542	95	154409	19.58	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	24964	1.03	ug/L		99
3) Chloromethane	1.394	50	35052	1.08	ug/L		95
4) Vinyl chloride	1.473	62	31029	1.08	ug/L		99
5) Bromomethane	1.704	96	18517	1.18	ug/L		96
6) Chloroethane	1.782	64	20420	1.24	ug/L		96
7) Trichlorofluoromethane	1.960	101	33402	1.08	ug/L		98
8) Ethyl ether	2.170	59	21358	1.13	ug/L		98
9) Acrolein	2.285	56	22797	2.68	ug/L		100
10) 1,1-Dichloroethene	2.364	61	31467	1.06	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.369	151	10897	0.97	ug/L		91
12) Methyl iodide	2.495	142	9672	0.76	ug/L		94
13) Acetone	2.401	43	19578	0.51	ug/L		88
14) Chloroprene	3.601	53	29109	1.04	ug/L		99
15) Carbon disulfide	2.558	76	39814	0.87	ug/L		100
16) Allyl chloride	2.679	41	31749	1.08	ug/L		96
17) Methyl acetate	2.668	43	35142	1.19	ug/L		98
18) Acetonitrile	2.679	41	31749	1.08	ug/L		97
19) Methylene chloride	2.799	49	29479	1.17	ug/L		95
20) trans-1,2-Dichloroethene	3.056	61	27579	1.07	ug/L		98
21) t-Butanol	2.888	59	36904	4.45	ug/L	#	92
22) Acrylonitrile	3.025	53	18426	1.12	ug/L		95
23) Methyl tert-butyl ether	3.046	73	65971	1.13	ug/L		98
24) Hexane	3.334	57	21852	1.01	ug/L		93
25) 1,1-Dichloroethane	3.523	63	36993	1.08	ug/L		97
26) Diisopropyl ether	3.554	45	67196	1.07	ug/L		94
27) Vinyl acetate	3.528	86	4330	1.16	ug/L	#	78
28) Ethyl tert butyl ether	3.989	59	60336	1.05	ug/L		98
29) 2,2-Dichloropropane	4.215	77	25312	1.04	ug/L		92
30) cis-1,2-Dichloroethene	4.215	61	34683	1.18	ug/L		95
31) 2-Butanone	4.220	43	23195	1.19	ug/L		100
32) Ethyl Acetate	4.278	43	47113m	1.13	ug/L		
33) Methyl acrylate	4.336	55	35087	1.11	ug/L		98
34) Propionitrile	5.001	54	3451	1.19	ug/L	#	92
35) Bromochloromethane	4.529	49	19652	1.18	ug/L		98

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY29.D
Acq On : 21 May 2018 06:15 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 08:20:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	4.561	42	14534	0.95 ug/L	97
37) Methacrylonitrile	4.509	41	33267m	1.30 ug/L	
38) Chloroform	4.692	83	36389	1.11 ug/L	96
39) Cyclohexane	5.007	56	37887	1.11 ug/L	93
41) 1,1,1-Trichloroethane	4.912	97	25724	1.01 ug/L	98
43) Carbon tetrachloride	5.143	117	20125	1.01 ug/L	98
44) 1,1-Dichloropropene	5.164	75	27151	1.03 ug/L	97
46) 1,2-Dichloroethane	5.604	62	31291	1.11 ug/L	99
47) Benzene	5.484	78	85148	1.11 ug/L	96
48) Tertiaryamylmethylether	5.756	73	57366	1.00 ug/L #	94
49) Isobutyl Alcohol	5.751	43	18114	0.69 ug/L #	85
50) Heptane	6.071	43	18255	1.04 ug/L	95
51) 1,4-Dioxane	6.989	88	54521	97.99 ug/L	100
52) Methylcyclohexane	6.842	83	29234	1.02 ug/L	98
53) n-Butanol	6.590	56	9234m	35.42 ug/L	
54) Trichloroethene	6.585	130	20092	1.07 ug/L	96
55) 1,2-Dichloropropane	6.894	63	22709	1.11 ug/L	95
56) Dibromomethane	6.983	93	14785	1.15 ug/L	97
57) Methyl methacrylate	7.004	41	26598	1.06 ug/L	98
58) Bromodichloromethane	7.188	83	22339	1.00 ug/L	100
59) 2-Chloroethyl vinyl ether	7.481	43	11864	1.18 ug/L #	61
60) 2-Nitropropane	7.408	43	6696	1.16 ug/L #	97
61) cis-1,3-Dichloropropene	7.597	75	26276	0.95 ug/L	96
63) 4-Methyl-2-pentanone	7.738	43	38208	0.91 ug/L	100
65) Toluene	7.859	91	85898	1.03 ug/L	99
66) trans-1,3-Dichloropropene	8.069	75	21417	0.82 ug/L	96
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.121	69	31908	0.94 ug/L	97
69) 1,1,2-Trichloroethane	8.205	97	21252	1.00 ug/L	95
70) Tetrachloroethene	8.247	166	19040	1.05 ug/L	96
71) 1,3-Dichloropropane	8.320	76	38074	1.08 ug/L	99
72) 2-Hexanone	8.373	43	30221	0.92 ug/L	99
73) Chlorodibromomethane	8.467	129	15105	0.88 ug/L	96
74) Butyl acetate	8.457	43	46994	0.91 ug/L	96
75) 1,2-Dibromoethane	8.540	107	21171	1.23 ug/L	98
76) Chlorobenzene	8.860	112	54195	1.06 ug/L	96
77) 1,1,1,2-Tetrachloroethane	8.923	131	14945	0.94 ug/L	98
78) Ethylbenzene	8.923	91	89171	1.04 ug/L	97
79) m/p-Xylene	9.002	91	137050	2.09 ug/L	99
80) Styrene	9.248	104	52998	1.02 ug/L	98
81) o-Xylene	9.233	91	70002	1.02 ug/L	100
82) Cyclohexanone	9.500	55	18919	4.01 ug/L	97
83) Bromoform	9.353	173	9760	0.93 ug/L	98
84) Isopropylbenzene	9.442	105	79118	1.00 ug/L	98
86) Bromobenzene	9.620	77	52881	1.06 ug/L	97
87) 1,2,3-Trichloropropane	9.647	110	11130	0.90 ug/L	98
88) trans-1,4-Dichloro-2-b...	9.636	53	10033	0.82 ug/L	85
89) n-Propylbenzene	9.668	91	98403	0.98 ug/L	99
90) 2-Chlorotoluene	9.720	91	58206	0.98 ug/L	96
91) 4-Chlorotoluene	9.788	91	67495	1.01 ug/L	100
92) 1,3,5-Trimethylbenzene	9.762	105	63041	1.01 ug/L	97
93) tert-Butylbenzene	9.930	91	37642	0.99 ug/L	97

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY29.D
Acq On : 21 May 2018 06:15 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

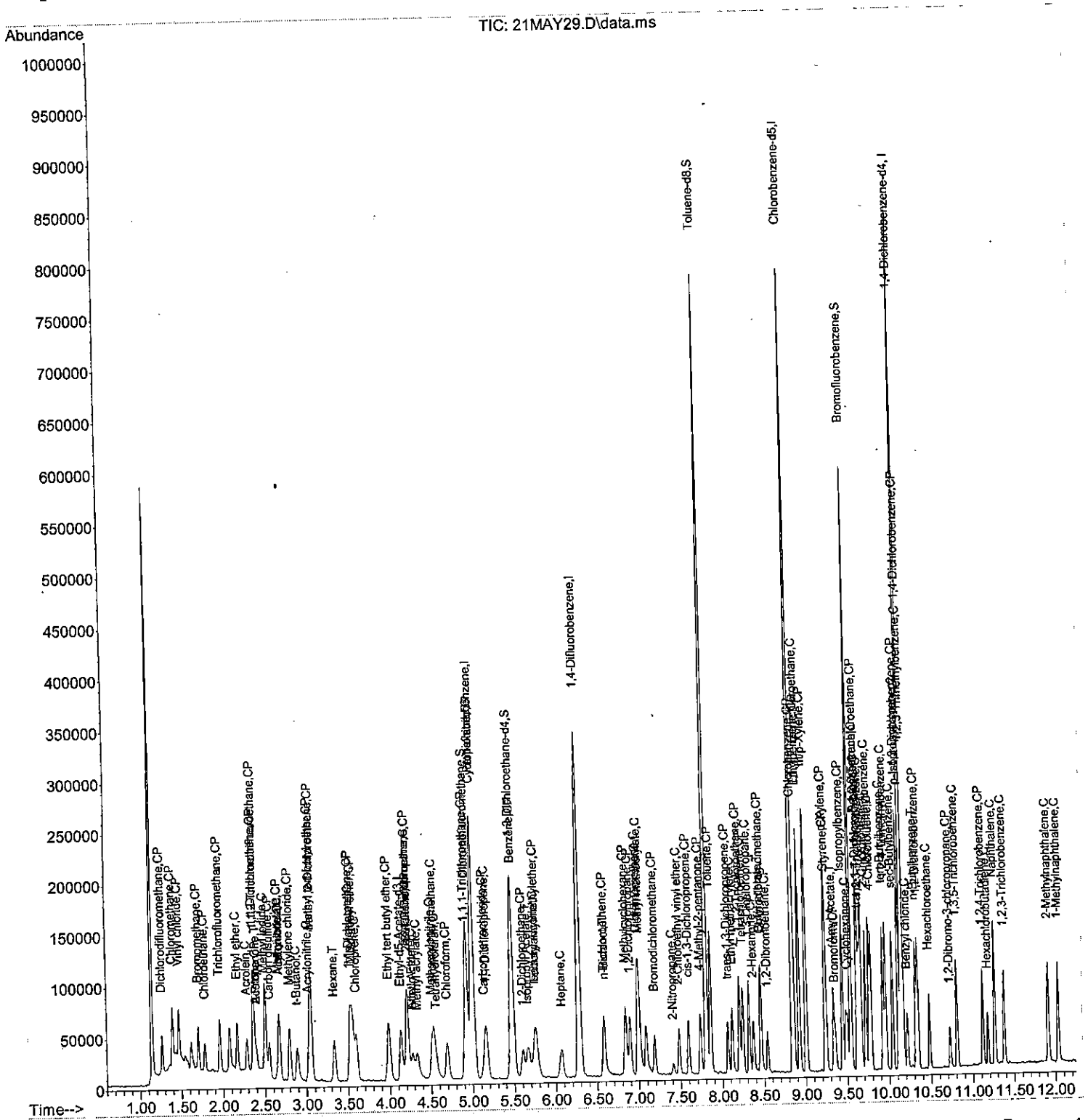
Quant Time: May 22 08:20:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	63649	0.96	ug/L		99
95)	sec-Butylbenzene	10.045	105	73910	0.96	ug/L		100
97)	1,1,2,2-Tetrachloroethane	9.620	83	36571	0.88	ug/L	#	99
98)	1,3-Dichlorobenzene	10.113	146	37082	1.00	ug/L		98
99)	p-Isopropyltoluene	10.119	119	60872	0.95	ug/L		98
100)	1,4-Dichlorobenzene	10.166	146	38304	0.97	ug/L		95
101)	1,2,3-Trimethylbenzene	10.171	105	72004	1.02	ug/L		99
102)	Benzyl chloride	10.218	91	28221	0.77	ug/L		95
103)	1,2-Dichlorobenzene	10.344	146	37986	1.00	ug/L		97
104)	n-Butylbenzene	10.318	91	57957	0.97	ug/L		98
105)	Hexachloroethane	10.480	117	9440	0.95	ug/L		94
106)	1,2-Dibromo-3-chloropr...	10.727	157	6844	0.76	ug/L		97
107)	1,3,5-Trichlorobenzene	10.811	180	22680	0.95	ug/L		98
108)	1,2,4-Trichlorobenzene	11.120	180	21009	0.87	ug/L		99
109)	Hexachlorobutadiene	11.183	225	7199	0.94	ug/L		92
110)	Naphthalene	11.267	128	85038	0.79	ug/L		99
111)	1,2,3-Trichlorobenzene	11.382	180	21116	0.85	ug/L		96
112)	2-Methylnaphthalene	11.917	142	41895	0.79	ug/L		96
113)	1-Methylnaphthalene	12.038	142	40896	0.76	ug/L		99
115)	2-Propanone	2.401	43	19578	0.22	ug/L	#	88
116)	Acetic Ether	4.278	43	41317	0.98	ug/L	#	93
117)	Isopropyl Acetate	5.662	61	10650	1.10	ug/L		94
118)	Amyl Acetate	9.332	43	40101	0.98	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY29.D
Acq On : 21 May 2018 06:15 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 08:20:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY30.D
Acq On : 21 May 2018 06:31 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:21:28 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	195839	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	361872	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	329388	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	157474	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	90069	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	115138	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.468	65	149723	20.65	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.25%				
64) Toluene-d8	7.807	98	462553	20.17	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.85%				
85) Bromofluorobenzene	9.542	95	160986	20.04	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	65673	2.64	ug/L		99
3) Chloromethane	1.394	50	92653	2.77	ug/L		99
4) Vinyl chloride	1.473	62	82824	2.79	ug/L		96
5) Bromomethane	1.704	96	46224	3.03	ug/L		99
6) Chloroethane	1.782	64	49629	2.97	ug/L		97
7) Trichlorofluoromethane	1.961	101	89219	2.79	ug/L		99
8) Ethyl ether	2.170	59	52615	2.71	ug/L		97
9) Acrolein	2.286	56	44150	9.94	ug/L		99
10) 1,1-Dichloroethene	2.364	61	81106	2.66	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.364	151	30378	2.64	ug/L		96
12) Methyl iodide	2.495	142	22836	1.73	ug/L		97
13) Acetone	2.401	43	47647	2.22	ug/L		98
14) Chloroprene	3.596	53	74389	2.58	ug/L		98
15) Carbon disulfide	2.558	76	110557	2.35	ug/L		99
16) Allyl chloride	2.679	41	86942	2.88	ug/L		98
17) Methyl acetate	2.663	43	92304	3.03	ug/L		99
18) Acetonitrile	2.679	41	86942	2.86	ug/L		98
19) Methylene chloride	2.799	49	70109	2.69	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	69935	2.64	ug/L		97
21) t-Butanol	2.889	59	91272	10.70	ug/L		95
22) Acrylonitrile	3.025	53	43862	2.59	ug/L		95
23) Methyl tert-butyl ether	3.046	73	157021	2.61	ug/L		96
24) Hexane	3.334	57	56385	2.54	ug/L		100
25) 1,1-Dichloroethane	3.523	63	94095	2.66	ug/L		98
26) Diisopropyl ether	3.554	45	170522	2.63	ug/L		93
27) Vinyl acetate	3.528	86	12002	2.75	ug/L	#	93
28) Ethyl tert butyl ether	3.990	59	152086	2.57	ug/L		98
29) 2,2-Dichloropropane	4.215	77	63308	2.53	ug/L		96
30) cis-1,2-Dichloroethene	4.210	61	83941	2.78	ug/L		99
31) 2-Butanone	4.215	43	57226	2.85	ug/L		98
32) Ethyl Acetate	4.273	43	118283m	2.75	ug/L		
33) Methyl acrylate	4.330	55	87548	2.70	ug/L		98
34) Propionitrile	5.007	54	8079	2.70	ug/L		90
35) Bromochloromethane	4.535	49	48652	2.85	ug/L		98

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY30.D
Acq On : 21 May 2018 06:31 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:21:28 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
36) Tetrahydrofuran	4.556	42	38281	2.43	ug/L		98
37) Methacrylonitrile	4.503	41	76162	2.91	ug/L		100
38) Chloroform	4.692	83	90746	2.70	ug/L		99
39) Cyclohexane	5.007	56	86518	2.58	ug/L		94
41) 1,1,1-Trichloroethane	4.912	97	65037	2.47	ug/L		98
43) Carbon tetrachloride	5.143	117	50521	2.44	ug/L		94
44) 1,1-Dichloropropene	5.164	75	69890	2.55	ug/L		99
46) 1,2-Dichloroethane	5.604	62	75901	2.59	ug/L		100
47) Benzene	5.484	78	208877	2.63	ug/L		98
48) Tertiaryamylmethylether	5.757	73	147970	2.48	ug/L	#	95
49) Isobutyl Alcohol	5.751	43	49295	2.33	ug/L		100
50) Heptane	6.066	43	46148	2.53	ug/L		98
51) 1,4-Dioxane	6.989	88	148449	257.29	ug/L		99
52) Methylcyclohexane	6.842	83	76096	2.55	ug/L		99
53) n-Butanol	6.580	56	31288m	49.03	ug/L		
54) Trichloroethene	6.580	130	49832	2.56	ug/L		96
55) 1,2-Dichloropropane	6.894	63	56176	2.65	ug/L		99
56) Dibromomethane	6.983	93	36490	2.73	ug/L		97
57) Methyl methacrylate	7.004	41	69035	2.65	ug/L		99
58) Bromodichloromethane	7.188	83	56565	2.45	ug/L		99
59) 2-Chloroethyl vinyl ether	7.476	43	27025	2.59	ug/L	#	68
60) 2-Nitropropane	7.408	43	15674	2.49	ug/L	#	89
61) cis-1,3-Dichloropropene	7.597	75	72031	2.51	ug/L		99
63) 4-Methyl-2-pentanone	7.733	43	97371	2.28	ug/L		99
65) Toluene	7.859	91	217486	2.55	ug/L		98
66) trans-1,3-Dichloropropene	8.063	75	58805	2.22	ug/L		93
67) Chloropicrin	8.069	117	498	Below Cal		#	29
68) Ethyl methacrylate	8.116	69	81866	2.37	ug/L		98
69) 1,1,2-Trichloroethane	8.210	97	53452	2.47	ug/L		98
70) Tetrachloroethene	8.247	166	46096	2.50	ug/L		98
71) 1,3-Dichloropropane	8.320	76	93049	2.59	ug/L		98
72) 2-Hexanone	8.373	43	76013	2.27	ug/L		98
73) Chlorodibromomethane	8.467	129	40328	2.30	ug/L		98
74) Butyl acetate	8.457	43	126779	2.42	ug/L		98
75) 1,2-Dibromoethane	8.541	107	51048	2.92	ug/L		96
76) Chlorobenzene	8.860	112	132060	2.54	ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.923	131	39081	2.42	ug/L		99
78) Ethylbenzene	8.923	91	221187	2.53	ug/L		99
79) m/p-Xylene	9.002	91	342644	5.13	ug/L		99
80) Styrene	9.243	104	133164	2.50	ug/L		96
81) o-Xylene	9.233	91	175743	2.50	ug/L		98
82) Cyclohexanone	9.500	55	50350	10.48	ug/L		99
83) Bromoform	9.358	173	23909	2.27	ug/L		97
84) Isopropylbenzene	9.442	105	204516	2.53	ug/L		99
86) Bromobenzene	9.621	77	131148	2.58	ug/L		97
87) 1,2,3-Trichloropropane	9.647	110	27931	2.23	ug/L		98
88) trans-1,4-Dichloro-2-b...	9.636	53	26867	2.16	ug/L		84
89) n-Propylbenzene	9.668	91	258717	2.52	ug/L		100
90) 2-Chlorotoluene	9.720	91	149337	2.48	ug/L		98
91) 4-Chlorotoluene	9.783	91	176054	2.59	ug/L		99
92) 1,3,5-Trimethylbenzene	9.762	105	163076	2.55	ug/L		98
93) tert-Butylbenzene	9.930	91	109605	2.83	ug/L		93

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY30.D
Acq On : 21 May 2018 06:31 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

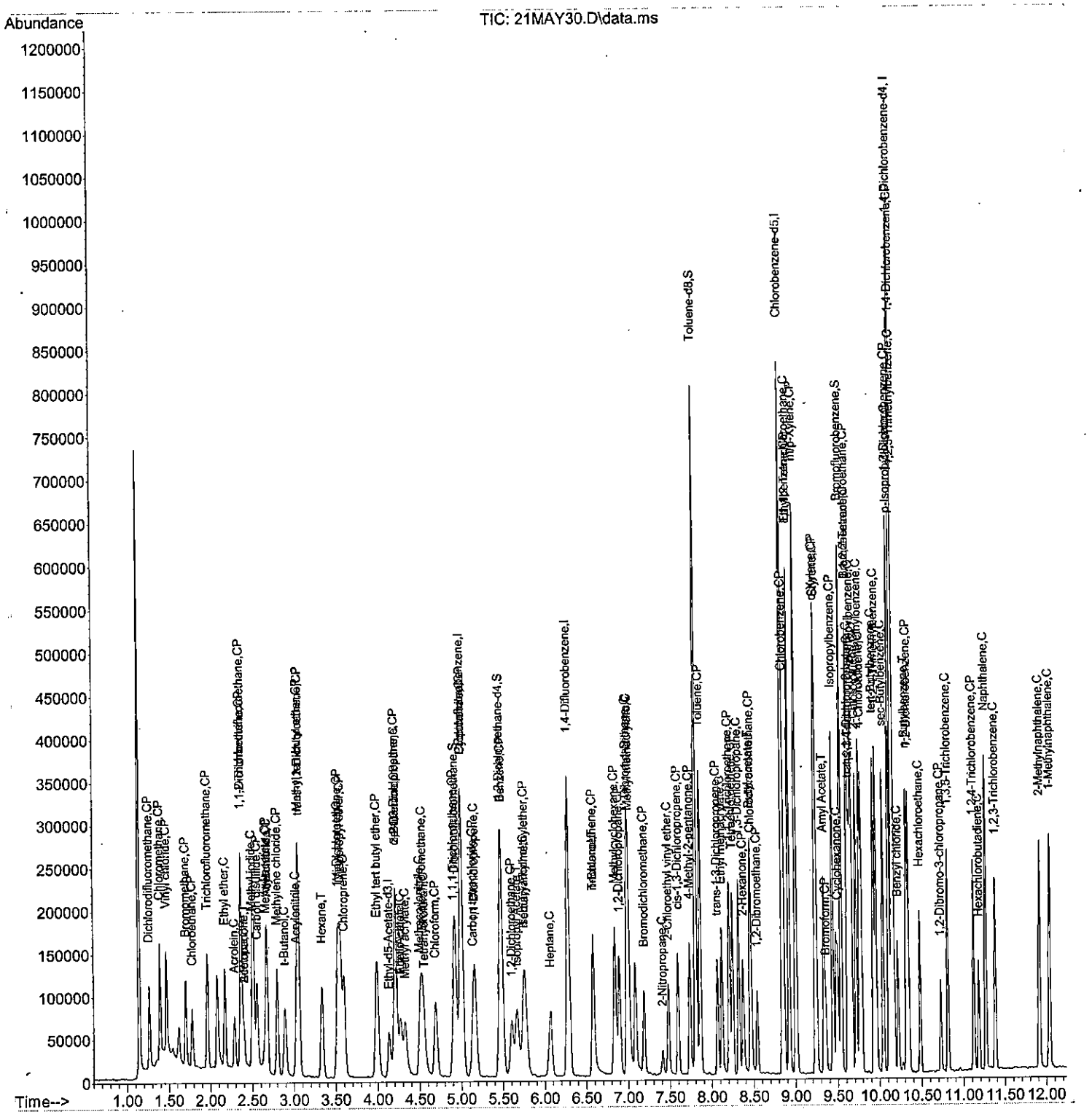
Quant Time: May 22 08:21:28 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	171309	2.54	ug/L		99
95)	sec-Butylbenzene	10.045	105	197892	2.51	ug/L		100
97)	1,1,2,2-Tetrachloroethane	9.621	83	93422	2.16	ug/L	#	99
98)	1,3-Dichlorobenzene	10.114	146	93427	2.41	ug/L		98
99)	p-Isopropyltoluene	10.119	119	160664	2.41	ug/L		99
100)	1,4-Dichlorobenzene	10.166	146	96199	2.33	ug/L		98
101)	1,2,3-Trimethylbenzene	10.171	105	181199	2.45	ug/L		100
102)	Benzyl chloride	10.218	91	79112	2.16	ug/L		98
103)	1,2-Dichlorobenzene	10.344	146	93525	2.35	ug/L		100
104)	n-Butylbenzene	10.318	91	151316	2.42	ug/L		99
105)	Hexachloroethane	10.481	117	24799	2.41	ug/L		99
106)	1,2-Dibromo-3-chloropr...	10.727	157	18995	2.03	ug/L		98
107)	1,3,5-Trichlorobenzene	10.811	180	55967	2.24	ug/L		99
108)	1,2,4-Trichlorobenzene	11.120	180	54685	2.18	ug/L		98
109)	Hexachlorobutadiene	11.183	225	17671	2.21	ug/L		98
110)	Naphthalene	11.267	128	228939	2.04	ug/L		99
111)	1,2,3-Trichlorobenzene	11.382	180	53373	2.05	ug/L		98
112)	2-Methylnaphthalene	11.917	142	113332	2.04	ug/L		98
113)	1-Methylnaphthalene	12.038	142	114774	2.04	ug/L		99
115)	2-Propanone	2.401	43	47647	1.85	ug/L		98
116)	Acetic Ether	4.273	43	111247	2.47	ug/L		98
117)	Isopropyl Acetate	5.667	61	26441	2.30	ug/L		91
118)	Amyl Acetate	9.332	43	107191	2.30	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY30.D
Acq On : 21 May 2018 06:31 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:21:28 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY31.D
Acq On : 21 May 2018 06:46 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 08:24:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	201574	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	371241	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	326772	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	159824	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	95086	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	119856	20.64	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.20%				
45) 1,2-Dichloroethane-d4	5.468	65	154820	20.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.05%				
64) Toluene-d8	7.807	98	471926	20.75	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.75%				
85) Bromofluorobenzene	9.542	95	162432	20.38	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 101.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	245266	9.57	ug/L		99
3) Chloromethane	1.394	50	357306	10.37	ug/L		100
4) Vinyl chloride	1.473	62	299737	9.81	ug/L		100
5) Bromomethane	1.693	96	164285	10.65	ug/L		100
6) Chloroethane	1.777	64	171116	10.02	ug/L		98
7) Trichlorofluoromethane	1.961	101	327530	9.96	ug/L		99
8) Ethyl ether	2.170	59	219040	10.97	ug/L		98
9) Acrolein	2.286	56	156993	46.54	ug/L		99
10) 1,1-Dichloroethene	2.364	61	338317	10.78	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.364	151	123247	10.39	ug/L		99
12) Methyl iodide	2.495	142	92898	6.85	ug/L		98
13) Acetone	2.401	43	191302	10.88	ug/L		99
14) Chloroprene	3.596	53	325757	10.96	ug/L		98
15) Carbon disulfide	2.553	76	487704	10.07	ug/L		100
16) Allyl chloride	2.674	41	379281	12.19	ug/L		97
17) Methyl acetate	2.663	43	391130	12.46	ug/L		99
18) Acetonitrile	2.674	41	379281	12.13	ug/L		98
19) Methylene chloride	2.794	49	292143	10.91	ug/L		97
20) trans-1,2-Dichloroethene	3.056	61	298363	10.95	ug/L		98
21) t-Butanol	2.894	59	368984	42.01	ug/L		99
22) Acrylonitrile	3.025	53	187749	10.77	ug/L		95
23) Methyl tert-butyl ether	3.046	73	665600	10.75	ug/L		99
24) Hexane	3.334	57	237903	10.40	ug/L		97
25) 1,1-Dichloroethane	3.518	63	403533	11.08	ug/L		99
26) Diisopropyl ether	3.555	45	722319	10.80	ug/L		99
27) Vinyl acetate	3.523	86	54535	11.37	ug/L	#	95
28) Ethyl tert butyl ether	3.990	59	662948	10.90	ug/L		99
29) 2,2-Dichloropropane	4.215	77	272135	10.55	ug/L		97
30) cis-1,2-Dichloroethene	4.210	61	357406	11.52	ug/L		99
31) 2-Butanone	4.210	43	246597	11.95	ug/L		99
32) Ethyl Acetate	4.268	43	480136	10.83	ug/L		100
33) Methyl acrylate	4.325	55	393735	11.80	ug/L		100
34) Propionitrile	5.002	54	28403	9.22	ug/L		92
35) Bromochloromethane	4.530	49	202912	11.53	ug/L		98

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY31.D
Acq On : 21 May 2018 06:46 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 08:24:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) Tetrahydrofuran	4.556	42	175897	10.86	ug/L	97
37) Methacrylonitrile	4.503	41	326138	12.08	ug/L	99
38) Chloroform	4.692	83	386948	11.17	ug/L	99
39) Cyclohexane	5.002	56	354510	10.57	ug/L	99
41) 1,1,1-Trichloroethane	4.912	97	292191	10.81	ug/L	98
43) Carbon tetrachloride	5.143	117	229997	10.85	ug/L	98
44) 1,1-Dichloropropene	5.164	75	295833	10.52	ug/L	99
46) 1,2-Dichloroethane	5.605	62	329530	10.96	ug/L	99
47) Benzene	5.484	78	887109	10.90	ug/L	100
48) Tertiaryamylmethylether	5.757	73	640153	10.47	ug/L	98
49) Isobutyl Alcohol	5.757	43	222663m	11.32	ug/L	
50) Heptane	6.066	43	200088	10.69	ug/L	100
51) 1,4-Dioxane	6.989	88	582418	983.96	ug/L	99
52) Methylcyclohexane	6.842	83	317963	10.39	ug/L	99
53) n-Butanol	6.574	56	150571	121.42	ug/L	95
54) Trichloroethene	6.580	130	208091	10.43	ug/L	99
55) 1,2-Dichloropropane	6.894	63	236577	10.88	ug/L	99
56) Dibromomethane	6.983	93	152027	11.09	ug/L	98
57) Methyl methacrylate	7.004	41	309668	11.59	ug/L	99
58) Bromodichloromethane	7.188	83	263904	11.14	ug/L	97
59) 2-Chloroethyl vinyl ether	7.476	43	99233	9.28	ug/L	92
60) 2-Nitropropane	7.408	43	84611	12.14	ug/L	95
61) cis-1,3-Dichloropropene	7.597	75	342380	11.63	ug/L	100
63) 4-Methyl-2-pentanone	7.733	43	441090	10.43	ug/L	99
65) Toluene	7.859	91	917104	10.85	ug/L	99
66) trans-1,3-Dichloropropene	8.064	75	307359	11.69	ug/L	94
67) Chloropicrin	8.064	117	82818	180.49	ug/L	98
68) Ethyl methacrylate	8.116	69	365390	10.67	ug/L	99
69) 1,1,2-Trichloroethane	8.205	97	216144	10.05	ug/L	99
70) Tetrachloroethene	8.247	166	192903	10.54	ug/L	98
71) 1,3-Dichloropropane	8.320	76	385764	10.80	ug/L	99
72) 2-Hexanone	8.368	43	341904	10.30	ug/L	99
73) Chlorodibromomethane	8.467	129	203102	11.69	ug/L	98
74) Butyl acetate	8.457	43	561831	10.80	ug/L	99
75) 1,2-Dibromoethane	8.541	107	127232	7.33	ug/L	99
76) Chlorobenzene	8.860	112	544665	10.54	ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.923	131	179076	11.17	ug/L	98
78) Ethylbenzene	8.923	91	969351	11.18	ug/L	100
79) m/p-Xylene	9.002	91	1469495	22.19	ug/L	99
80) Styrene	9.243	104	588771	11.16	ug/L	99
81) o-Xylene	9.233	91	751902	10.80	ug/L	100
82) Cyclohexanone	9.500	55	216139	45.34	ug/L	99
83) Bromoform	9.359	173	126420	11.78	ug/L	99
84) Isopropylbenzene	9.442	105	875722	10.91	ug/L	99
86) Bromobenzene	9.621	77	575402	11.43	ug/L	99
87) 1,2,3-Trichloropropane	9.647	110	111399	8.95	ug/L	98
88) trans-1,4-Dichloro-2-b...	9.636	53	123238	9.97	ug/L	99
89) n-Propylbenzene	9.668	91	1108069	10.89	ug/L	100
90) 2-Chlorotoluene	9.720	91	639570	10.69	ug/L	99
91) 4-Chlorotoluene	9.783	91	735859	10.91	ug/L	100
92) 1,3,5-Trimethylbenzene	9.762	105	697806	11.01	ug/L	100
93) tert-Butylbenzene	9.930	91	412206	10.73	ug/L	100

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY31.D
Acq On : 21 May 2018 06:46 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

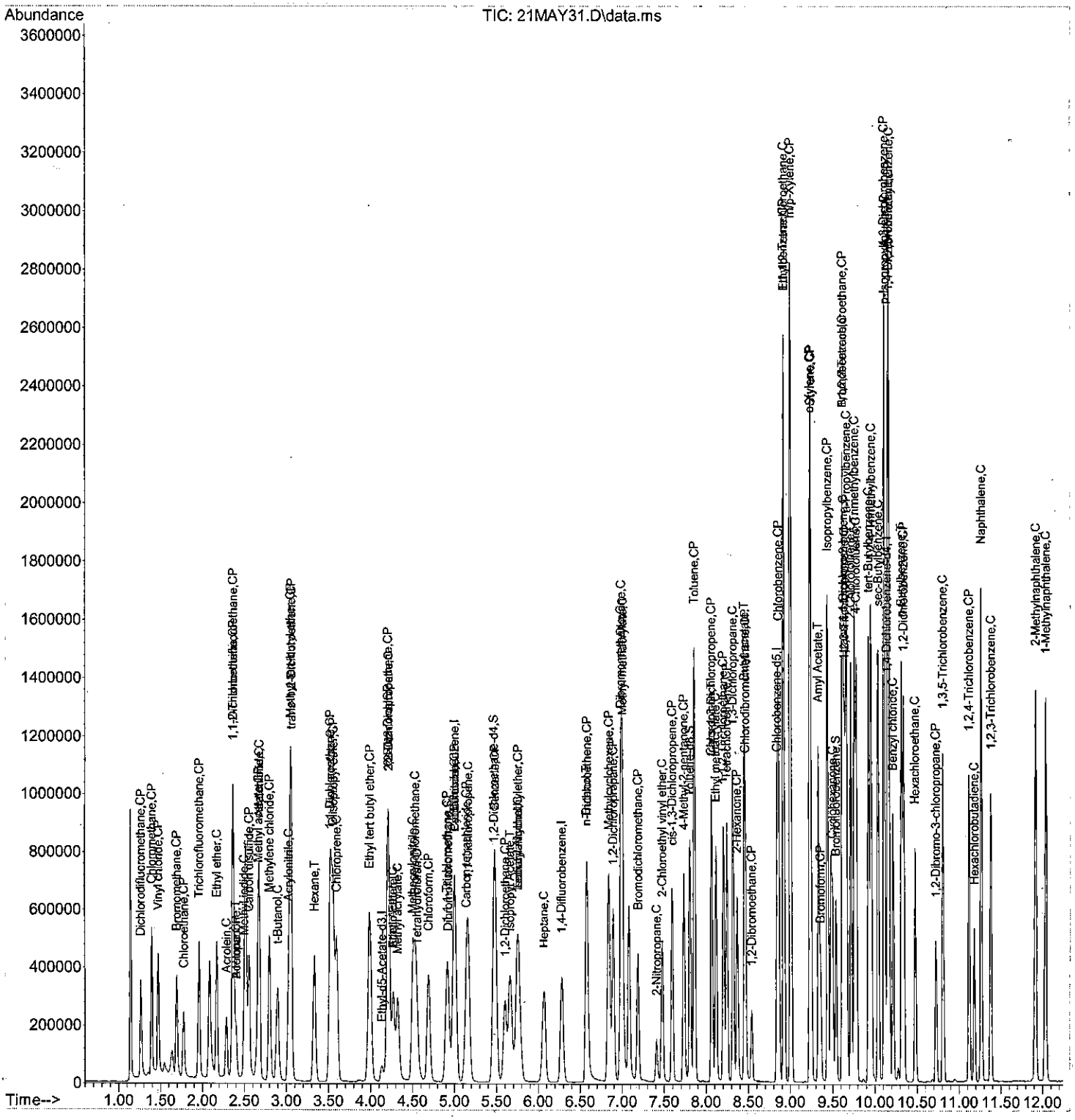
Quant Time: May 22 08:24:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	743277	11.11	ug/L	99
95)	sec-Butylbenzene	10.045	105	845063	10.81	ug/L	99
97)	1,1,2,2-Tetrachloroethane	9.621	83	386716	8.81	ug/L	99
98)	1,3-Dichlorobenzene	10.114	146	395021	10.03	ug/L	99
99)	p-Isopropyltoluene	10.119	119	698000	10.32	ug/L	99
100)	1,4-Dichlorobenzene	10.166	146	398120	9.51	ug/L	98
101)	1,2,3-Trimethylbenzene	10.171	105	786934	10.48	ug/L	99
102)	Benzyl chloride	10.218	91	493393	12.57	ug/L	100
103)	1,2-Dichlorobenzene	10.344	146	391390	9.71	ug/L	99
104)	n-Butylbenzene	10.318	91	663688	10.47	ug/L	99
105)	Hexachloroethane	10.481	117	121612	11.32	ug/L	98
106)	1,2-Dibromo-3-chloropr...	10.727	157	89842	9.44	ug/L	98
107)	1,3,5-Trichlorobenzene	10.811	180	246004	9.71	ug/L	100
108)	1,2,4-Trichlorobenzene	11.120	180	233456	9.17	ug/L	98
109)	Hexachlorobutadiene	11.183	225	73576	9.05	ug/L	97
110)	Naphthalene	11.267	128	1061720	9.32	ug/L	99
111)	1,2,3-Trichlorobenzene	11.382	180	241742	9.14	ug/L	95
112)	2-Methylnaphthalene	11.917	142	572748	10.13	ug/L	99
113)	1-Methylnaphthalene	12.038	142	553622	9.71	ug/L	100
115)	2-Propanone	2.401	43	191302	9.78	ug/L	99
116)	Acetic Ether	4.268	43	480136	9.97	ug/L	100
117)	Isopropyl Acetate	5.662	61	125693	9.52	ug/L	93
118)	Amyl Acetate	9.332	43	495342	9.60	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY31.D
Acq On : 21 May 2018 06:46 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 08:24:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY32.D
Acq On : 21 May 2018 07:02 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 08:14:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	205003	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.281	114	381490	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	342769	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	162469	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.136	46	95402	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	123503	20.70	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 103.50%			
45) 1,2-Dichloroethane-d4	5.468	65	157713	20.63	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.15%			
64) Toluene-d8	7.806	98	478655	20.06	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.30%			
85) Bromofluorobenzene	9.542	95	167256	20.01	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.05%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.263	85	446726	17.14	ug/L	99
3) Chloromethane	1.394	50	699742	19.96	ug/L	99
4) Vinyl chloride	1.473	62	565075	18.19	ug/L	98
5) Bromomethane	1.688	96	282133	17.92	ug/L	100
6) Chloroethane	1.772	64	309003	17.79	ug/L	98
7) Trichlorofluoromethane	1.960	101	587514	17.57	ug/L	99
8) Ethyl ether	2.170	59	387230	19.07	ug/L	98
9) Acrolein	2.285	56	271186	80.41	ug/L	98
10) 1,1-Dichloroethene	2.364	61	508876	15.95	ug/L	98
11) 1,1,2-Trichlorotrifluo...	2.364	151	164027	13.60	ug/L	99
12) Methyl iodide	2.495	142	157469	11.42	ug/L	98
13) Acetone	2.401	43	339186	19.63	ug/L	99
14) Chloroprene	3.596	53	531871	17.60	ug/L	100
15) Carbon disulfide	2.553	76	782707	15.90	ug/L	100
16) Allyl chloride	2.673	41	642566	20.30	ug/L	97
17) Methyl acetate	2.663	43	694934	21.76	ug/L	99
18) Acetonitrile	2.673	41	642566	20.21	ug/L	97
19) Methylene chloride	2.794	49	520155	19.09	ug/L	97
20) trans-1,2-Dichloroethene	3.051	61	504587	18.20	ug/L	99
21) t-Butanol	2.899	59	675478	75.61	ug/L	99
22) Acrylonitrile	3.025	53	337419	19.04	ug/L	97
23) Methyl tert-butyl ether	3.046	73	1244649	19.77	ug/L	98
24) Hexane	3.334	57	312101	13.41	ug/L	98
25) 1,1-Dichloroethane	3.518	63	716653	19.35	ug/L	100
26) Diisopropyl ether	3.554	45	1340423	19.71	ug/L	97
27) Vinyl acetate	3.523	86	105113	21.36	ug/L #	94
28) Ethyl tert butyl ether	3.989	59	1244290	20.12	ug/L	100
29) 2,2-Dichloropropane	4.210	77	473317	18.04	ug/L	99
30) cis-1,2-Dichloroethene	4.210	61	639635	20.27	ug/L	98
31) 2-Butanone	4.210	43	467865	22.29	ug/L	98
32) Ethyl Acetate	4.267	43	907410	20.12	ug/L	99
33) Methyl acrylate	4.325	55	730854	21.54	ug/L	99
34) Propionitrile	5.001	54	40014	12.77	ug/L	93
35) Bromochloromethane	4.529	49	360061	20.12	ug/L	99

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY32.D
Acq On : 21 May 2018 07:02 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 08:14:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
36) Tetrahydrofuran	4.550	42	321271	19.50	ug/L		99
37) Methacrylonitrile	4.503	41	473367	17.15	ug/L	#	81
38) Chloroform	4.692	83	683583	19.40	ug/L		99
39) Cyclohexane	5.001	56	515522	15.16	ug/L		99
41) 1,1,1-Trichloroethane	4.912	97	478218	17.21	ug/L		99
43) Carbon tetrachloride	5.143	117	378716	17.38	ug/L		98
44) 1,1-Dichloropropene	5.164	75	483183	16.71	ug/L		99
46) 1,2-Dichloroethane	5.599	62	575160	18.62	ug/L		99
47) Benzene	5.484	78	1550320	18.54	ug/L		99
48) Tertiaryamylmethylether	5.756	73	1197573	19.07	ug/L		99
49) Isobutyl Alcohol	5.756	43	375324	18.79	ug/L		99
50) Heptane	6.066	43	277123	14.41	ug/L		100
51) 1,4-Dioxane	6.994	88	1073230	1764.45	ug/L		99
52) Methylcyclohexane	6.842	83	465219	14.79	ug/L		99
53) n-Butanol	6.574	56	324279	222.24	ug/L		99
54) Trichloroethene	6.580	130	352421	17.19	ug/L		97
55) 1,2-Dichloropropane	6.894	63	431753	19.32	ug/L		99
56) Dibromomethane	6.983	93	278134	19.74	ug/L		99
57) Methyl methacrylate	7.004	41	575171	20.95	ug/L		97
58) Bromodichloromethane	7.188	83	493142	20.26	ug/L		99
59) 2-Chloroethyl vinyl ether	7.476	43	169476	15.43	ug/L		97
60) 2-Nitropropane	7.408	43	179422	23.67	ug/L		98
61) cis-1,3-Dichloropropene	7.591	75	644231	21.30	ug/L		99
63) 4-Methyl-2-pentanone	7.733	43	833809	18.79	ug/L		99
65) Toluene	7.859	91	1604347	18.10	ug/L		99
66) trans-1,3-Dichloropropene	8.063	75	593715	21.53	ug/L		96
67) Chloropicrin	8.069	117	277219	269.64	ug/L		100
68) Ethyl methacrylate	8.116	69	692626	19.28	ug/L		99
69) 1,1,2-Trichloroethane	8.210	97	387260	17.17	ug/L		98
70) Tetrachloroethene	8.247	166	322694	16.82	ug/L		99
71) 1,3-Dichloropropane	8.320	76	695694	18.57	ug/L		100
72) 2-Hexanone	8.367	43	647787	18.61	ug/L		99
73) Chlorodibromomethane	8.467	129	388270	21.30	ug/L		100
74) Butyl acetate	8.457	43	1059627	19.42	ug/L		100
75) 1,2-Dibromoethane	8.540	107	307235	16.88	ug/L		100
76) Chlorobenzene	8.860	112	986747	18.21	ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.923	131	327954	19.50	ug/L		97
78) Ethylbenzene	8.923	91	1719241	18.90	ug/L		99
79) m/p-Xylene	9.002	91	2590491	37.29	ug/L		100
80) Styrene	9.243	104	1055404	19.08	ug/L		99
81) o-Xylene	9.232	91	1352106	18.51	ug/L		100
82) Cyclohexanone	9.500	55	418983	83.79	ug/L		99
83) Bromoform	9.358	173	249892	21.39	ug/L		100
84) Isopropylbenzene	9.442	105	1520921	18.07	ug/L		100
86) Bromobenzene	9.620	77	1035874	19.61	ug/L		98
87) 1,2,3-Trichloropropane	9.647	110	205223	15.71	ug/L		99
88) trans-1,4-Dichloro-2-b...	9.636	53	229449	17.70	ug/L		93
89) n-Propylbenzene	9.668	91	1951343	18.28	ug/L		99
90) 2-Chlorotoluene	9.720	91	1145841	18.26	ug/L		98
91) 4-Chlorotoluene	9.788	91	1311071	18.53	ug/L		99
92) 1,3,5-Trimethylbenzene	9.762	105	1240516	18.66	ug/L		99
93) tert-Butylbenzene	9.930	91	716655	17.78	ug/L		99

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY32.D
Acq On : 21 May 2018 07:02 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

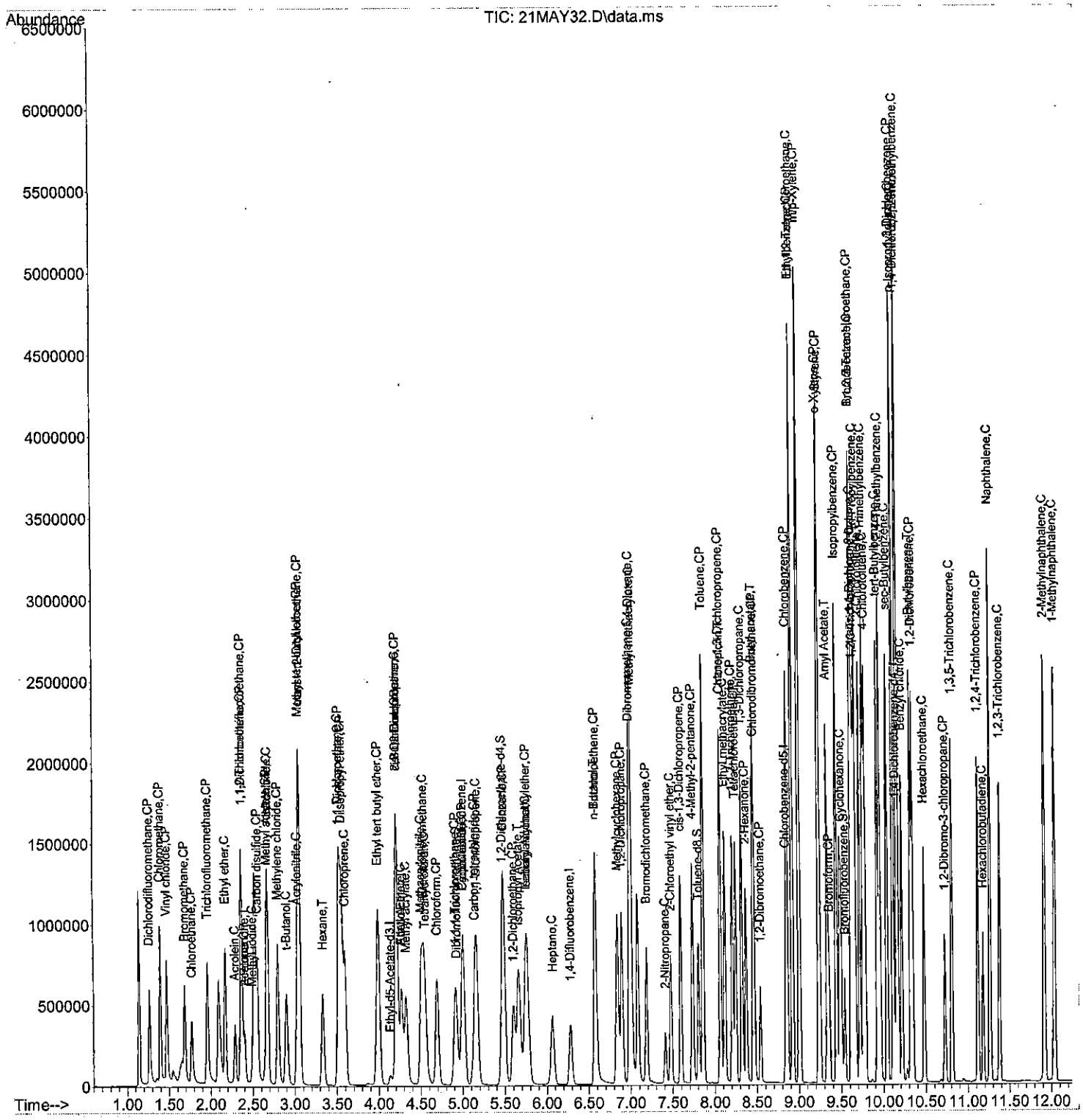
Quant Time: May 22 08:14:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	1330829	18.97	ug/L	99
95)	sec-Butylbenzene	10.045	105	1473716	17.97	ug/L	100
97)	1,1,2,2-Tetrachloroethane	9.620	83	703222	15.76	ug/L	100
98)	1,3-Dichlorobenzene	10.113	146	721779	18.03	ug/L	98
99)	p-Isopropyltoluene	10.119	119	1243635	18.09	ug/L	99
100)	1,4-Dichlorobenzene	10.166	146	721638	16.96	ug/L	99
101)	1,2,3-Trimethylbenzene	10.171	105	1420878	18.61	ug/L	100
102)	Benzyl chloride	10.218	91	1030064	23.86	ug/L	99
103)	1,2-Dichlorobenzene	10.344	146	707624	17.27	ug/L	99
104)	n-Butylbenzene	10.323	91	1176954	18.27	ug/L	100
105)	Hexachloroethane	10.480	117	231837	20.47	ug/L	99
106)	1,2-Dibromo-3-chloropr...	10.727	157	172994	17.89	ug/L	99
107)	1,3,5-Trichlorobenzene	10.811	180	456099	17.71	ug/L	99
108)	1,2,4-Trichlorobenzene	11.120	180	442632	17.10	ug/L	99
109)	Hexachlorobutadiene	11.183	225	128530	15.55	ug/L	97
110)	Naphthalene	11.267	128	2008851	17.35	ug/L	100
111)	1,2,3-Trichlorobenzene	11.382	180	442397	16.46	ug/L	97
112)	2-Methylnaphthalene	11.917	142	1101244	19.17	ug/L	100
113)	1-Methylnaphthalene	12.038	142	1066776	18.41	ug/L	100
115)	2-Propanone	2.401	43	339186	18.04	ug/L	99
116)	Acetic Ether	4.267	43	907410	18.73	ug/L	99
117)	Isopropyl Acetate	5.662	61	245208	18.29	ug/L	94
118)	Amyl Acetate	9.332	43	953524	18.30	ug/L	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY32.D
Acq On : 21 May 2018 07:02 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 08:14:58 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY33.D
Acq On : 21 May 2018 07:18 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 08:15:02 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	213659	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	394330	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	353457	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	168473	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.137	46	102917	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	128520	20.84	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 104.20%				
45) 1,2-Dichloroethane-d4	5.468	65	162526	20.57	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.85%				
64) Toluene-d8	7.807	98	503418	20.46	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.30%				
85) Bromofluorobenzene	9.542	95	176033	20.42	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	730021	26.87	ug/L		99
3) Chloromethane	1.395	50	1130147	30.93	ug/L		99
4) Vinyl chloride	1.473	62	886263	27.37	ug/L		99
5) Bromomethane	1.683	96	350811	21.32	ug/L		99
6) Chloroethane	1.767	64	482760	26.66	ug/L		99
7) Trichlorofluoromethane	1.956	101	924404	26.52	ug/L		98
8) Ethyl ether	2.171	59	552098	26.09	ug/L		97
9) Acrolein	2.286	56	452718	126.85	ug/L		99
10) 1,1-Dichloroethene	2.359	61	840659	25.28	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.365	151	307576	24.47	ug/L		100
12) Methyl iodide	2.496	142	238388	16.58	ug/L		99
13) Acetone	2.401	43	450798	25.34	ug/L		97
14) Chloroprene	3.597	53	849896	26.99	ug/L		99
15) Carbon disulfide	2.553	76	1352304	26.35	ug/L		100
16) Allyl chloride	2.674	41	924797	28.03	ug/L		97
17) Methyl acetate	2.663	43	984741	29.59	ug/L		99
18) Acetonitrile	2.674	41	924797	27.91	ug/L	#	94
19) Methylene chloride	2.794	49	752127	26.49	ug/L		97
20) trans-1,2-Dichloroethene	3.051	61	790012	27.34	ug/L		99
21) t-Butanol	2.905	59	938023	100.75	ug/L		100
22) Acrylonitrile	3.025	53	475561	25.75	ug/L		97
23) Methyl tert-butyl ether	3.046	73	1725711	26.31	ug/L		98
24) Hexane	3.329	57	626266	25.82	ug/L		98
25) 1,1-Dichloroethane	3.518	63	1066069	27.62	ug/L		99
26) Diisopropyl ether	3.555	45	1906795	26.91	ug/L		99
27) Vinyl acetate	3.523	86	141224	27.47	ug/L		97
28) Ethyl tert butyl ether	3.990	59	1751900	27.18	ug/L		99
29) 2,2-Dichloropropane	4.210	77	746717	27.30	ug/L		98
30) cis-1,2-Dichloroethene	4.210	61	940134	28.59	ug/L		98
31) 2-Butanone	4.210	43	656456	30.00	ug/L		97
32) Ethyl Acetate	4.268	43	1248516	26.56	ug/L		99
33) Methyl acrylate	4.325	55	1034882	29.26	ug/L		99
34) Propionitrile	5.002	54	65285	19.99	ug/L		91
35) Bromochloromethane	4.530	49	508285	27.25	ug/L		97

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY33.D
Acq On : 21 May 2018 07:18 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 08:15:02 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) Tetrahydrofuran	4.551	42	454175	26.45	ug/L	98
37) Methacrylonitrile	4.504	41	856683	29.38	ug/L	99
38) Chloroform	4.692	83	989561	26.95	ug/L	99
39) Cyclohexane	5.002	56	928992	26.28	ug/L	99
41) 1,1,1-Trichloroethane	4.913	97	768442	26.75	ug/L	98
43) Carbon tetrachloride	5.143	117	628909	27.92	ug/L	98
44) 1,1-Dichloropropene	5.164	75	763317	25.54	ug/L	99
46) 1,2-Dichloroethane	5.599	62	811507	25.41	ug/L	100
47) Benzene	5.484	78	2284967	26.44	ug/L	99
48) Tertiaryamylmethylether	5.757	73	1676210	25.82	ug/L	99
49) Isobutyl Alcohol	5.752	43	516896	25.16	ug/L	94
50) Heptane	6.066	43	533693	26.85	ug/L	97
51) 1,4-Dioxane	6.994	88	1692831	2692.49	ug/L	99
52) Methylcyclohexane	6.842	83	844409	25.98	ug/L	99
53) n-Butanol	6.580	56	478776	304.83	ug/L	100
54) Trichloroethene	6.580	130	533503	25.18	ug/L	98
55) 1,2-Dichloropropane	6.894	63	623759	27.01	ug/L	98
56) Dibromomethane	6.984	93	389772	26.76	ug/L	98
57) Methyl methacrylate	7.005	41	802538	28.28	ug/L	98
58) Bromodichloromethane	7.188	83	719675	28.60	ug/L	99
59) 2-Chloroethyl vinyl ether	7.476	43	226638	19.96	ug/L	94
60) 2-Nitropropane	7.408	43	267643	32.78	ug/L	98
61) cis-1,3-Dichloropropene	7.592	75	945794	30.25	ug/L	99
63) 4-Methyl-2-pentanone	7.733	43	1139552	24.91	ug/L	100
65) Toluene	7.859	91	2363727	25.86	ug/L	99
66) trans-1,3-Dichloropropene	8.064	75	875908	30.81	ug/L	98
67) Chloropicrin	8.069	117	776805	398.41	ug/L	99
68) Ethyl methacrylate	8.116	69	964515	26.04	ug/L	100
69) 1,1,2-Trichloroethane	8.210	97	545674	23.46	ug/L	99
70) Tetrachloroethene	8.247	166	479479	24.23	ug/L	99
71) 1,3-Dichloropropane	8.321	76	975607	25.26	ug/L	99
72) 2-Hexanone	8.368	43	884556	24.65	ug/L	99
73) Chlorodibromomethane	8.467	129	555356	29.55	ug/L	100
74) Butyl acetate	8.457	43	1449691	25.77	ug/L	100
75) 1,2-Dibromoethane	8.541	107	395023	21.05	ug/L	100
76) Chlorobenzene	8.861	112	1388560	24.85	ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.924	131	467969	26.99	ug/L	98
78) Ethylbenzene	8.924	91	2513706	26.80	ug/L	99
79) m/p-Xylene	9.002	91	3784686	52.84	ug/L	100
80) Styrene	9.243	104	1511779	26.50	ug/L	99
81) o-Xylene	9.233	91	1949410	25.88	ug/L	100
82) Cyclohexanone	9.500	55	579732	112.44	ug/L	99
83) Bromoform	9.359	173	359843	29.00	ug/L	100
84) Isopropylbenzene	9.443	105	2263840	26.08	ug/L	100
86) Bromobenzene	9.621	77	1472888	27.04	ug/L	97
87) 1,2,3-Trichloropropane	9.647	110	282536	20.97	ug/L	98
88) trans-1,4-Dichloro-2-b...	9.637	53	327659	24.51	ug/L	91
89) n-Propylbenzene	9.668	91	2856890	25.95	ug/L	99
90) 2-Chlorotoluene	9.720	91	1640856	25.36	ug/L	99
91) 4-Chlorotoluene	9.783	91	1869367	25.63	ug/L	99
92) 1,3,5-Trimethylbenzene	9.762	105	1819423	26.54	ug/L	98
93) tert-Butylbenzene	9.930	91	1082009	26.03	ug/L	99

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY33.D
Acq On : 21 May 2018 07:18 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

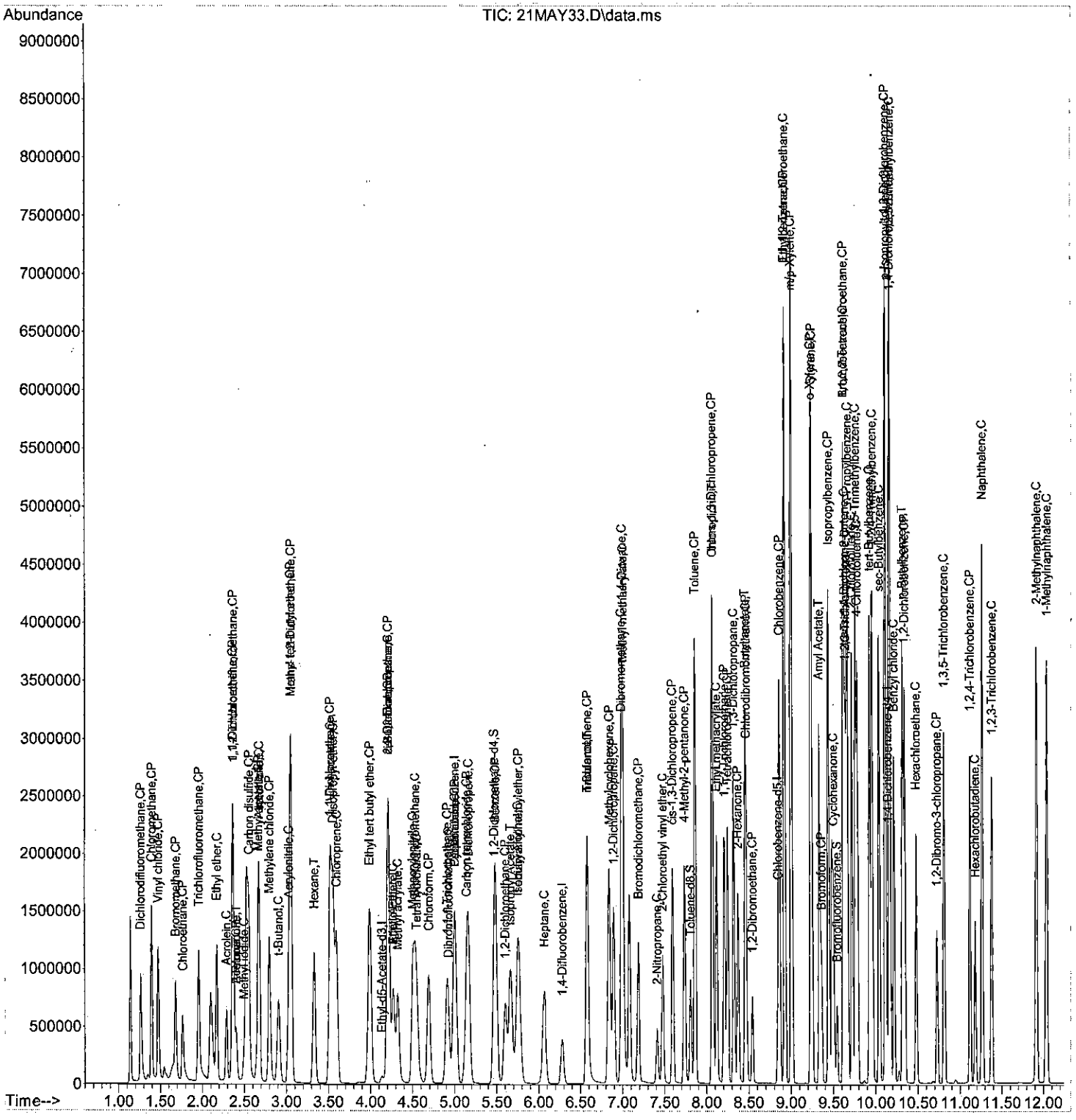
Quant Time: May 22 08:15:02 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.962	105	1930703	26.69	ug/L	98
95)	sec-Butylbenzene	10.046	105	2207791	26.11	ug/L	100
97)	1,1,2,2-Tetrachloroethane	9.621	83	1000233	21.62	ug/L	99
98)	1,3-Dichlorobenzene	10.114	146	1013144	24.40	ug/L	99
99)	p-Isopropyltoluene	10.119	119	1837625	25.78	ug/L	99
100)	1,4-Dichlorobenzene	10.166	146	1018982	23.09	ug/L	99
101)	1,2,3-Trimethylbenzene	10.171	105	2031310	25.66	ug/L	98
102)	Benzyl chloride	10.219	91	1543905	32.56	ug/L	100
103)	1,2-Dichlorobenzene	10.344	146	1001649	23.57	ug/L	98
104)	n-Butylbenzene	10.318	91	1767767	26.46	ug/L	100
105)	Hexachloroethane	10.481	117	357258	29.37	ug/L	99
106)	1,2-Dibromo-3-chloropr...	10.727	157	248661	24.79	ug/L	97
107)	1,3,5-Trichlorobenzene	10.811	180	657954	24.64	ug/L	99
108)	1,2,4-Trichlorobenzene	11.120	180	641787	23.91	ug/L	100
109)	Hexachlorobutadiene	11.183	225	200312	23.37	ug/L	97
110)	Naphthalene	11.267	128	2871300	23.92	ug/L	99
111)	1,2,3-Trichlorobenzene	11.383	180	639059	22.93	ug/L	96
112)	2-Methylnaphthalene	11.917	142	1606141	26.96	ug/L	99
113)	1-Methylnaphthalene	12.038	142	1529254	25.45	ug/L	100
115)	2-Propanone	2.401	43	450798	22.46	ug/L	97
116)	Acetic Ether	4.268	43	1248516	23.88	ug/L	99
117)	Isopropyl Acetate	5.662	61	341970	23.57	ug/L	94
118)	Amyl Acetate	9.332	43	1329932	23.62	ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY33.D
Acq On : 21 May 2018 07:18 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 08:15:02 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0520.M
Quant Title : 8260 Global Optimization Method
QLast Update : Mon May 21 11:58:37 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	205225	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.286	114	382565	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	343904	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	165914	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	99730	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	126525	20.59	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.95%			
45) 1,2-Dichloroethane-d4	5.468	65	160235	20.14	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.70%			
64) Toluene-d8	7.806	98	479584	20.10	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.50%			
85) Bromofluorobenzene	9.542	95	167673	20.00	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.263	85	193055	27.66	ug/L	100
3) Chloromethane	1.394	50	338231	33.88	ug/L	98
4) Vinyl chloride	1.473	62	293642	34.79	ug/L	97
5) Bromomethane	1.698	96	145617	32.87	ug/L	99
6) Chloroethane	1.777	64	177700	40.75	ug/L	98
7) Trichlorofluoromethane	1.960	101	318414	35.45	ug/L	99
8) Ethyl ether	2.170	59	210088	37.15	ug/L	100
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.364	61	361987	41.85	ug/L	99
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.495	142	134315	55.70	ug/L	100
13) Acetone	2.401	43	173641	37.36	ug/L	99
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.558	76	519130	42.94	ug/L	100
16) Allyl chloride	2.679	41	296835	32.08	ug/L	87
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	2.679	41	296835	32.08	ug/L	90
19) Methylene chloride	2.794	49	304465	38.29	ug/L	99
20) trans-1,2-Dichloroethene	3.056	61	321399	41.36	ug/L	100
21) t-Butanol	2.894	59	351181	172.59	ug/L	99
22) Acrylonitrile	3.025	53	179621	36.27	ug/L	99
23) Methyl tert-butyl ether	3.046	73	631093	35.16	ug/L	100
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.518	63	427236	40.79	ug/L	99
26) Diisopropyl ether	3.554	45	630314	34.08	ug/L #	45
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.990	59	571526	33.92	ug/L	100
29) 2,2-Dichloropropane	4.215	77	281694	39.71	ug/L	97
30) cis-1,2-Dichloroethene	4.210	61	381638	40.03	ug/L	99
31) 2-Butanone	4.215	43	239374	35.39	ug/L	98
32) Ethyl Acetate	4.273	43	419842	32.52	ug/L	98
33) Methyl acrylate	4.325	55	379560	37.69	ug/L	99
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	4.535	49	205648	38.57	ug/L	99

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	4.556	42	167676	36.64 ug/L	99
37) Methacrylonitrile	4.503	41	317826	42.53 ug/L	98
38) Chloroform	4.692	83	385197	38.02 ug/L	98
39) Cyclohexane	5.007	56	7058	0.12 ug/L #	38
41) 1,1,1-Trichloroethane	4.912	97	306848	41.34 ug/L	100
43) Carbon tetrachloride	5.143	117	240476	42.03 ug/L	99
44) 1,1-Dichloropropene	5.164	75	302480	38.79 ug/L	99
46) 1,2-Dichloroethane	5.604	62	328513	37.35 ug/L	100
47) Benzene	5.484	78	923712	39.22 ug/L	100
48) Tertiaryamylmethylether	5.756	73	564921	34.82 ug/L	99
49) Isobutyl Alcohol	5.756	43	179263	33.99 ug/L #	89
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.920	88	13138	83.63 ug/L #	75
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.580	130	209712	38.53 ug/L	98
55) 1,2-Dichloropropane	6.894	63	252181	39.12 ug/L #	84
56) Dibromomethane	6.983	93	154005	37.85 ug/L	99
57) Methyl methacrylate	7.004	41	272782	35.20 ug/L	97
58) Bromodichloromethane	7.188	83	265708	40.45 ug/L	97
59) 2-Chloroethyl vinyl ether	7.408	43	85085	31.65 ug/L #	1
60) 2-Nitropropane	7.408	43	85752	38.31 ug/L #	96
61) cis-1,3-Dichloropropene	7.597	75	350454	43.48 ug/L	97
63) 4-Methyl-2-pentanone	7.738	43	609441	54.06 ug/L	81
65) Toluene	7.859	91	926573	38.66 ug/L	100
66) trans-1,3-Dichloropropene	8.063	75	312625	44.78 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.116	69	358731	39.86 ug/L	99
69) 1,1,2-Trichloroethane	8.210	97	229360	39.40 ug/L	99
70) Tetrachloroethene	8.247	166	197172	39.63 ug/L	98
71) 1,3-Dichloropropane	8.320	76	397099	39.95 ug/L	99
72) 2-Hexanone	8.367	43	330086	35.66 ug/L	97
73) Chlorodibromomethane	8.467	129	192878	41.80 ug/L	98
74) Butyl acetate	8.457	43	498119	35.31 ug/L	99
75) 1,2-Dibromoethane	8.541	107	240001	45.57 ug/L	99
76) Chlorobenzene	8.860	112	556610	38.01 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.923	131	184292	42.61 ug/L	99
78) Ethylbenzene	8.923	91	1001173	40.40 ug/L	100
79) m/p-Xylene	9.002	91	1501494	80.12 ug/L	100
80) Styrene	9.243	104	610442	42.32 ug/L	99
81) o-Xylene	9.233	91	782267	40.56 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.358	173	126832	42.82 ug/L	98
84) Isopropylbenzene	9.442	105	895385	40.33 ug/L	100
86) Bromobenzene	9.621	77	575222	39.65 ug/L	100
87) 1,2,3-Trichloropropane	9.647	110	115630	38.45 ug/L	99
88) trans-1,4-Dichloro-2-b...	9.636	53	101634	33.24 ug/L	93
89) n-Propylbenzene	9.668	91	1120427	40.15 ug/L	99
90) 2-Chlorotoluene	9.720	91	664067	40.00 ug/L	98
91) 4-Chlorotoluene	9.783	91	748885	39.59 ug/L	98
92) 1,3,5-Trimethylbenzene	9.762	105	715999	41.42 ug/L	99
93) tert-Butylbenzene	9.930	91	416913	38.40 ug/L	95

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	751036	40.82	ug/L		99
95)	sec-Butylbenzene	10.045	105	862999	40.71	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	423937	40.06	ug/L		98
98)	1,3-Dichlorobenzene	10.113	146	397649	38.11	ug/L		99
99)	p-Isopropyltoluene	10.119	119	699994	39.55	ug/L		99
100)	1,4-Dichlorobenzene	10.166	146	407206	37.18	ug/L		99
101)	1,2,3-Trimethylbenzene	10.171	105	729889	36.47	ug/L		99
102)	Benzyl chloride	10.171	91	71523	8.31	ug/L	#	34
103)	1,2-Dichlorobenzene	10.344	146	393006	37.10	ug/L		99
104)	n-Butylbenzene	10.318	91	676484	39.19	ug/L		99
105)	Hexachloroethane	10.480	117	101968	33.62	ug/L		100
106)	1,2-Dibromo-3-chloropr...	10.727	157	93290	44.74	ug/L		99
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.			
108)	1,2,4-Trichlorobenzene	11.120	180	240625	38.41	ug/L		97
109)	Hexachlorobutadiene	11.183	225	77530	37.31	ug/L		98
110)	Naphthalene	11.267	128	1076966	41.24	ug/L		99
111)	1,2,3-Trichlorobenzene	11.382	180	235598	38.60	ug/L		98
112)	2-Methylnaphthalene	11.917	142	6124	0.45	ug/L	#	6
113)	1-Methylnaphthalene	0.000		0	N.D.			
115)	2-Propanone	2.401	43	173641	36.32	ug/L		99
116)	Acetic Ether	4.273	43	419842	33.15	ug/L		98
117)	Isopropyl Acetate	5.662	61	112421	33.12	ug/L		98
118)	Amyl Acetate	9.332	43	451642	34.07	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
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Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
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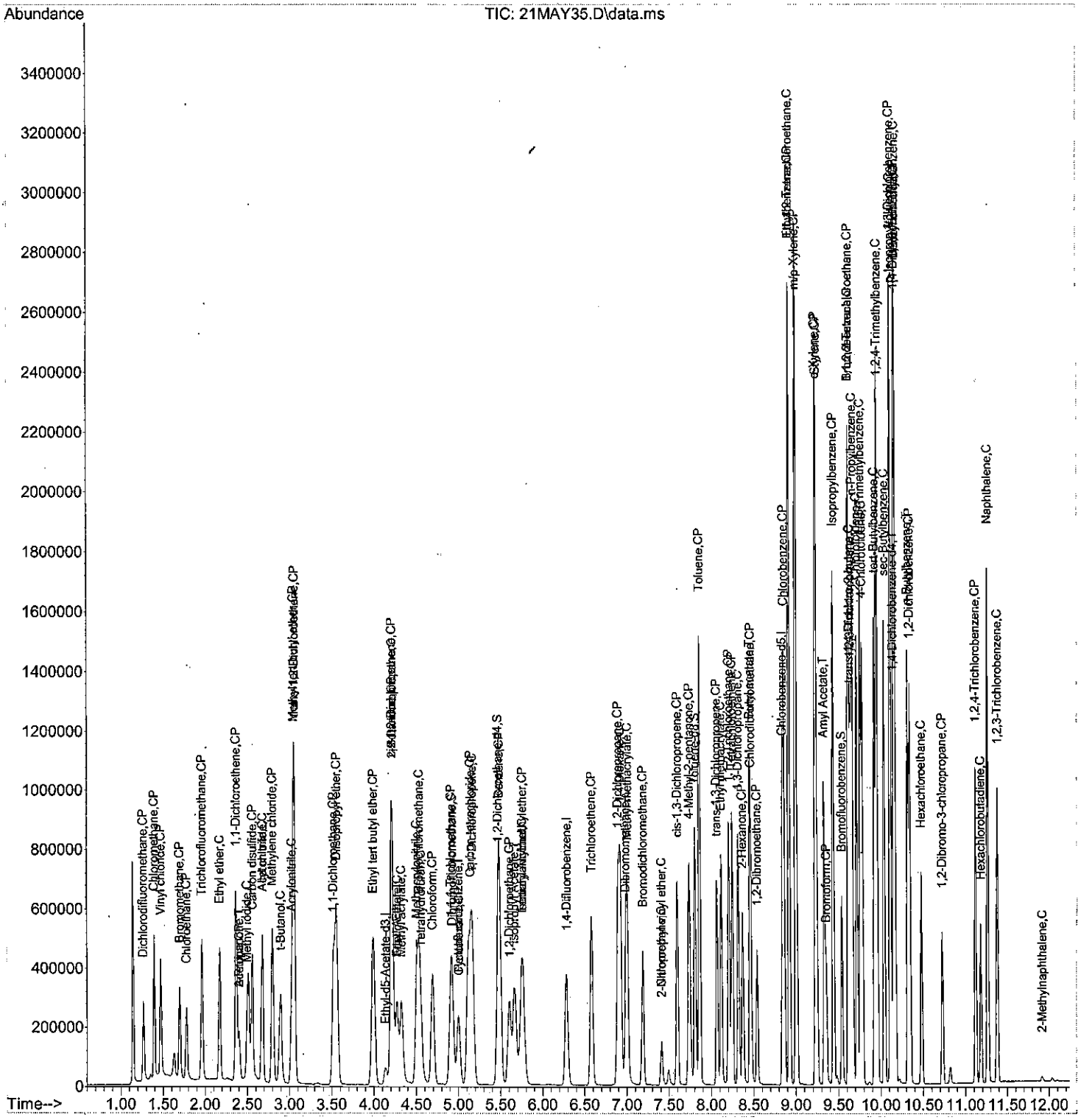

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180521\
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Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	102	0.00
2	CP	Dichlorodifluoromethane	40.000	27.663	30.8#	79	0.00
3	CP	Chloromethane	40.000	33.875	15.3	95	0.00
4	CP	Vinyl chloride	40.000	34.786	13.0	98	0.00
5	CP	Bromomethane	40.000	32.869	17.8	89	0.00
6	CP	Chloroethane	40.000	40.754	-1.9	104	0.00
7	CP	Trichlorofluoromethane	40.000	35.447	11.4	97	0.00
8	C	Ethyl ether	40.000	37.146	7.1	96	0.00
9	C	Acrolein	200.000	0.000	100.0#	0	-2.29#
10	CP	1,1-Dichloroethene	40.000	41.845	-4.6	107	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.36#
12	C	Methyl iodide	40.000	55.704	-39.3#	145	0.00
13	CP	Acetone	40.000	37.359	6.6	91	0.00
14	C	Chloroprene	40.000	0.000	100.0#	0	-3.60#
15	CP	Carbon disulfide	40.000	42.942	-7.4	106	0.00
16	C	Allyl chloride	40.000	32.075	19.8	78	0.00
17	CP	Methyl acetate	40.000	0.000	100.0#	0	-2.66#
18	C	Acetonitrile	40.000	32.075	19.8	78	0.00
19	CP	Methylene chloride	40.000	38.287	4.3	104	0.00
20	CP	trans-1,2-Dichloroethene	40.000	41.359	-3.4	108	0.00
21	C	t-Butanol	200.000	172.594	13.7	95	0.00
22	C	Acrylonitrile	40.000	36.270	9.3	96	0.00
23	CP	Methyl tert-butyl ether	40.000	35.155	12.1	95	0.00
24	T	Hexane	40.000	0.000	100.0#	0	-3.33#
25	CP	1,1-Dichloroethane	40.000	40.789	-2.0	106	0.00
26	CP	Diisopropyl ether	40.000	34.081	14.8	87	0.00
27	C	Vinyl acetate	40.000	0.000	100.0#	0	-3.52#
28	CP	Ethyl tert butyl ether	40.000	33.917	15.2	86	0.00
29	C	2,2-Dichloropropane	40.000	39.710	0.7	104	0.00
30	CP	cis-1,2-Dichloroethene	40.000	40.033	-0.1	107	0.00
31	CP	2-Butanone	40.000	35.388	11.5	97	0.00
32	C	Ethyl Acetate	40.000	32.516	18.7	87	0.00
33	C	Methyl acrylate	40.000	37.689	5.8	96	0.00
34	C	Propionitrile	40.000	0.000	100.0#	0	-5.00#
35	C	Bromochloromethane	40.000	38.571	3.6	101	0.00
36	C	Tetrahydrofuran	40.000	36.642	8.4	95	0.00
37	C	Methacrylonitrile	40.000	42.530	-6.3	97	0.00
38	CP	Chloroform	40.000	38.016	5.0	100	0.00
39	CP	Cyclohexane	40.000	0.124	99.7#	2	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	103	0.00
41	CP	1,1,1-Trichloroethane	40.000	41.344	-3.4	105	0.00
42	S	Dibromofluoromethane	20.000	20.591	-3.0	106	0.00
43	CP	Carbon tetrachloride	40.000	42.028	-5.1	105	0.00
44	C	1,1-Dichloropropene	40.000	38.785	3.0	102	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.136	-0.7	103	0.00
46	CP	1,2-Dichloroethane	40.000	37.347	6.6	100	0.00
47	CP	Benzene	40.000	39.220	2.0	104	0.00

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
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Misc :
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Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
48	CP	Tertiaryamylmethylether	40.000	34.824	12.9	88	0.00
49	C	Isobutyl Alcohol	40.000	33.987	15.0	81	0.00
50	C	Heptane	40.000	0.000	100.0#	0	-6.07#
51	C	1,4-Dioxane	4000.000	83.630	97.9#	2	-0.07
52	CP	Methylcyclohexane	40.000	0.000	100.0#	0	-6.84#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.57#
54	CP	Trichloroethene	40.000	38.534	3.7	101	0.00
55	CP	1,2-Dichloropropane	40.000	39.125	2.2	107	0.00
56	C	Dibromomethane	40.000	37.853	5.4	101	0.00
57	C	Methyl methacrylate	40.000	35.204	12.0	88	0.00
58	CP	Bromodichloromethane	40.000	40.454	-1.1	101	0.00
59	C	2-Chloroethyl vinyl ether	40.000	31.654	20.9#	86	-0.07
60	C	2-Nitropropane	40.000	38.312	4.2	101	0.00
61	CP	cis-1,3-Dichloropropene	40.000	43.481	-8.7	102	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	105	0.00
63	CP	4-Methyl-2-pentanone	40.000	54.065	-35.2#	138	0.00
64	S	Toluene-d8	20.000	20.097	-0.5	102	0.00
65	CP	Toluene	40.000	38.664	3.3	101	0.00
66	CP	trans-1,3-Dichloropropene	40.000	44.778	-11.9	102	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-8.06#
68	C	Ethyl methacrylate	40.000	39.859	0.4	98	0.00
69	CP	1,1,2-Trichloroethane	40.000	39.405	1.5	106	0.00
70	CP	Tetrachloroethene	40.000	39.627	0.9	102	0.00
71	C	1,3-Dichloropropane	40.000	39.950	0.1	103	0.00
72	CP	2-Hexanone	40.000	35.662	10.8	97	0.00
73	CP	Chlorodibromomethane	40.000	41.804	-4.5	95	0.00
74	T	Butyl acetate	40.000	35.307	11.7	89	0.00
75	CP	1,2-Dibromoethane	40.000	45.568	-13.9	189	0.00
76	CP	Chlorobenzene	40.000	38.013	5.0	102	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	42.607	-6.5	103	0.00
78	CP	Ethylbenzene	40.000	40.402	-1.0	103	0.00
79	CP	m/p-Xylene	80.000	80.124	-0.2	102	0.00
80	CP	Styrene	40.000	42.318	-5.8	104	0.00
81	CP	o-Xylene	40.000	40.556	-1.4	104	0.00
82	C	Cyclohexanone	200.000	0.000	100.0#	0	-9.50#
83	CP	Bromoform	40.000	42.819	-7.0	100	0.00
84	CP	Isopropylbenzene	40.000	40.326	-0.8	102	0.00
85	S	Bromofluorobenzene	20.000	20.001	-0.0	103	0.00
86	C	Bromobenzene	40.000	39.655	0.9	100	0.00
87	C	1,2,3-Trichloropropane	40.000	38.453	3.9	104	0.00
88	C	trans-1,4-Dichloro-2-butene	40.000	33.243	16.9	82	0.00
89	C	n-Propylbenzene	40.000	40.151	-0.4	101	0.00
90	C	2-Chlorotoluene	40.000	40.002	-0.0	104	0.00
91	C	4-Chlorotoluene	40.000	39.586	1.0	102	0.00
92	C	1,3,5-Trimethylbenzene	40.000	41.423	-3.6	103	0.00
93	C	tert-Butylbenzene	40.000	38.396	4.0	101	0.00
94	C	1,2,4-Trimethylbenzene	40.000	40.819	-2.0	101	0.00

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
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Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
95	C	sec-Butylbenzene	40.000	40.710	-1.8	102	0.00
96	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	104	0.00
97	CP	1,1,2,2-Tetrachloroethane	40.000	40.063	-0.2	110	0.00
98	CP	1,3-Dichlorobenzene	40.000	38.111	4.7	101	0.00
99	C	p-Isopropyltoluene	40.000	39.546	1.1	100	0.00
100	CP	1,4-Dichlorobenzene	40.000	37.185	7.0	102	0.00
101	C	1,2,3-Trimethylbenzene	40.000	36.467	8.8	93	0.00
102	C	Benzyl chloride	40.000	8.306	79.2#	14	-0.05
103	CP	1,2-Dichlorobenzene	40.000	37.099	7.3	100	0.00
104	T	n-Butylbenzene	40.000	39.194	2.0	102	0.00
105	C	Hexachloroethane	40.000	33.624	15.9	84	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	44.743	-11.9	104	0.00
107	C	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.81#
108	CP	1,2,4-Trichlorobenzene	40.000	38.409	4.0	103	0.00
109	C	Hexachlorobutadiene	40.000	37.308	6.7	105	0.00
110	C	Naphthalene	40.000	41.242	-3.1	101	0.00
111	C	1,2,3-Trichlorobenzene	40.000	38.599	3.5	97	0.00
112	C	2-Methylnaphthalene	40.000	0.455	98.9#	1	0.00
113	C	1-Methylnaphthalene	40.000	0.000	100.0#	0	-12.04#
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	105	0.00
115	T	2-Propanone	40.000	36.320	9.2	91	0.00
116	T	Acetic Ether	40.000	33.154	17.1	87	0.00
117	T	Isopropyl Acetate	40.000	33.121	17.2	89	0.00
118	T	Amyl Acetate	40.000	34.069	14.8	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 19

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180521\
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Acq On : 21 May 2018 07:49 pm
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Quant Title : 8260 Global Optimization Method
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Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	102	0.00
2	CP	Dichlorodifluoromethane	0.680	0.470	30.9#	79	0.00
3	CP	Chloromethane	0.973	0.824	15.3	95	0.00
4	CP	Vinyl chloride	0.823	0.715	13.1	98	0.00
5	CP	Bromomethane	0.461	0.355	23.0#	89	0.00
6	CP	Chloroethane	0.694	0.433	37.6#	104	0.00
7	CP	Trichlorofluoromethane	0.875	0.776	11.3	97	0.00
8	C	Ethyl ether	0.551	0.512	7.1	96	0.00
9	C	Acrolein	0.101	0.000#	100.0#	0#	-2.29#
10	CP	1,1-Dichloroethene	0.843	0.882	-4.6	107	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.294	0.000#	100.0#	0#	-2.36#
12	C	Methyl iodide	0.235	0.327	-39.1#	145	0.00
13	CP	Acetone	0.632	0.423	33.1#	91	0.00
14	C	Chloroprene	0.800	0.000#	100.0#	0#	-3.60#
15	CP	Carbon disulfide	1.178	1.265	-7.4	106	0.00
16	C	Allyl chloride	0.902	0.723	19.8	78	0.00
17	CP	Methyl acetate	0.984	0.000#	100.0#	0#	-2.66#
18	C	Acetonitrile	0.902	0.723	19.8	78	0.00
19	CP	Methylene chloride	0.775	0.742	4.3	104	0.00
20	CP	trans-1,2-Dichloroethene	0.757	0.783	-3.4	108	0.00
21	C	t-Butanol	0.198	0.171#	13.6	95	0.00
22	C	Acrylonitrile	0.483	0.438	9.3	96	0.00
23	CP	Methyl tert-butyl ether	1.749	1.538	12.1	95	0.00
24	T	Hexane	0.601	0.000#	100.0#	0#	-3.33#
25	CP	1,1-Dichloroethane	1.021	1.041	-2.0	106	0.00
26	CP	Diisopropyl ether	1.802	1.536	14.8	87	0.00
27	C	Vinyl acetate	0.122	0.000#	100.0#	0#	-3.52#
28	CP	Ethyl tert butyl ether	1.642	1.392	15.2	86	0.00
29	C	2,2-Dichloropropane	0.691	0.686	0.7	104	0.00
30	CP	cis-1,2-Dichloroethene	0.929	0.930	-0.1	107	0.00
31	CP	2-Butanone	0.659	0.583	11.5	97	0.00
32	C	Ethyl Acetate	1.258	1.023	18.7	87	0.00
33	C	Methyl acrylate	0.981	0.925	5.7	96	0.00
34	C	Propionitrile	0.092	0.000#	100.0#	0#	-5.00#
35	C	Bromochloromethane	0.520	0.501	3.7	101	0.00
36	C	Tetrahydrofuran	0.446	0.409	8.3	95	0.00
37	C	Methacrylonitrile	0.728	0.774	-6.3	97	0.00
38	CP	Chloroform	0.987	0.938	5.0	100	0.00
39	CP	Cyclohexane	1.185	0.017#	98.6#	2#	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	103	0.00
41	CP	1,1,1-Trichloroethane	0.388	0.401	-3.4	105	0.00
42	S	Dibromofluoromethane	0.321	0.331	-3.1	106	0.00
43	CP	Carbon tetrachloride	0.299	0.314	-5.0	105	0.00
44	C	1,1-Dichloropropene	0.408	0.395	3.2	102	0.00
45	S	1,2-Dichloroethane-d4	0.416	0.419	-0.7	103	0.00
46	CP	1,2-Dichloroethane	0.460	0.429	6.7	100	0.00
47	CP	Benzene	1.231	1.207	1.9	104	0.00

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
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Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	CP	Tertiaryamylmethylether	0.848	0.738	13.0	88	0.00
49	C	Isobutyl Alcohol	0.308	0.234	24.0#	81	0.00
50	C	Heptane	0.313	0.000#	100.0#	0#	-6.07#
51	C	1,4-Dioxane	0.008	0.000#	100.0#	2#	-0.07
52	CP	Methylcyclohexane	0.430	0.000#	100.0#	0#	-6.84#
53	T	n-Butanol	0.019	0.000#	100.0#	0#	-6.57#
54	CP	Trichloroethene	0.285	0.274	3.9	101	0.00
55	CP	1,2-Dichloropropane	0.337	0.330	2.1	107	0.00
56	C	Dibromomethane	0.213	0.201	5.6	101	0.00
57	C	Methyl methacrylate	0.405	0.357	11.9	88	0.00
58	CP	Bromodichloromethane	0.343	0.347	-1.2	101	0.00
59	C	2-Chloroethyl vinyl ether	0.150	0.111#	26.0#	86	-0.07
60	C	2-Nitropropane	0.117	0.112#	4.3	101	0.00
61	CP	cis-1,3-Dichloropropene	0.421	0.458	-8.8	102	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	105	0.00
63	CP	4-Methyl-2-pentanone	0.656	0.886	-35.1#	138	0.00
64	S	Toluene-d8	1.388	1.395	-0.5	102	0.00
65	CP	Toluene	1.394	1.347	3.4	101	0.00
66	CP	trans-1,3-Dichloropropene	0.406	0.455	-12.1	102	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-8.06#
68	C	Ethyl methacrylate	0.523	0.522	0.2	98	0.00
69	CP	1,1,2-Trichloroethane	0.339	0.333	1.8	106	0.00
70	CP	Tetrachloroethene	0.289	0.287	0.7	102	0.00
71	C	1,3-Dichloropropane	0.578	0.577	0.2	103	0.00
72	CP	2-Hexanone	0.490	0.480	2.0	97	0.00
73	CP	Chlorodibromomethane	0.268	0.280	-4.5	95	0.00
74	T	Butyl acetate	0.820	0.724	11.7	89	0.00
75	CP	1,2-Dibromoethane	0.306	0.349	-14.1	189	0.00
76	CP	Chlorobenzene	0.852	0.809	5.0	102	0.00
77	C	1,1,1,2-Tetrachloroethane	0.252	0.268	-6.3	103	0.00
78	CP	Ethylbenzene	1.441	1.456	-1.0	103	0.00
79	CP	m/p-Xylene	1.090	1.092	-0.2	102	0.00
80	CP	Styrene	0.839	0.888	-5.8	104	0.00
81	CP	o-Xylene	1.122	1.137	-1.3	104	0.00
82	C	Cyclohexanone	0.064	0.000#	100.0#	0#	-9.50#
83	CP	Bromoform	0.172	0.184	-7.0	100	0.00
84	CP	Isopropylbenzene	1.291	1.302	-0.9	102	0.00
85	S	Bromofluorobenzene	0.488	0.488	0.0	103	0.00
86	C	Bromobenzene	0.844	0.836	0.9	100	0.00
87	C	1,2,3-Trichloropropane	0.175	0.168#	4.0	104	0.00
88	C	trans-1,4-Dichloro-2-butene	0.178	0.148#	16.9	82	0.00
89	C	n-Propylbenzene	1.623	1.629	-0.4	101	0.00
90	C	2-Chlorotoluene	0.965	0.965	0.0	104	0.00
91	C	4-Chlorotoluene	1.100	1.089	1.0	102	0.00
92	C	1,3,5-Trimethylbenzene	1.005	1.041	-3.6	103	0.00
93	C	tert-Butylbenzene	0.631	0.606	4.0	101	0.00
94	C	1,2,4-Trimethylbenzene	1.070	1.092	-2.1	101	0.00

Data Path : C:\msdchem\1\data\10V180521\
Data File : 21MAY35.D
Acq On : 21 May 2018 07:49 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 22 09:08:25 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Tue May 22 09:06:19 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
95	C	sec-Butylbenzene	1.233	1.255	-1.8	102	0.00
96	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	104	0.00
97	CP	1,1,2,2-Tetrachloroethane	1.276	1.278	-0.2	110	0.00
98	CP	1,3-Dichlorobenzene	1.258	1.198	4.8	101	0.00
99	C	p-Isopropyltoluene	2.134	2.110	1.1	100	0.00
100	CP	1,4-Dichlorobenzene	1.320	1.227	7.0	102	0.00
101	C	1,2,3-Trimethylbenzene	2.413	2.200	8.8	93	0.00
102	C	Benzyl chloride	1.279	0.216	83.1#	14#	-0.05
103	CP	1,2-Dichlorobenzene	1.277	1.184	7.3	100	0.00
104	T	n-Butylbenzene	2.081	2.039	2.0	102	0.00
105	C	Hexachloroethane	0.337	0.307	8.9	84	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.251	0.281	-12.0	104	0.00
107	C	1,3,5-Trichlorobenzene	0.792	0.000#	100.0#	0#	-10.81#
108	CP	1,2,4-Trichlorobenzene	0.755	0.725	4.0	103	0.00
109	C	Hexachlorobutadiene	0.251	0.234	6.8	105	0.00
110	C	Naphthalene	3.148	3.246	-3.1	101	0.00
111	C	1,2,3-Trichlorobenzene	0.736	0.710	3.5	97	0.00
112	C	2-Methylnaphthalene	1.623	0.018#	98.9#	1#	0.00
113	C	1-Methylnaphthalene	1.585	0.000#	100.0#	0#	-12.04#
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	105	0.00
115	T	2-Propanone	1.390	0.871	37.3#	91	0.00
116	T	Acetic Ether	2.600	2.105	19.0	87	0.00
117	T	Isopropyl Acetate	0.662	0.564	14.8	89	0.00
118	T	Amyl Acetate	2.590	2.264	12.6	91	0.00

(#) = Out of Range SPCC's out = 4 CCC's out = 23

2018 May 21 1623 Sequence Log

Starting sequence Mon May 21 07:44:34 2018

Instrument Name: 5977_VOA
Sequence File: D:\MassHunter\GCMS\1\sequence\10V180521.sequence.xml
Comment:
Operator: AK
Data Path: D:\MassHunter\GCMS\1\data\10V180521\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
1)	TuneCheck	1	21MAY01	VBFB1-180521
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 10PMI.M				
2)	Sample	1	21MAY02	BLK
3)	Sample	2	21MAY03	BLK
4)	Sample	3	21MAY04	VBLKW1-180520
5)	Sample	5	21MAY05	0.4PPB
6)	Sample	5	21MAY06	0.6PPB
7)	Sample	6	21MAY07	2PPB
8)	Sample	7	21MAY08	4PPB
9)	Sample	8	21MAY09	10PPB
10)	Sample	9	21MAY10	40PPB
11)	Sample	10	21MAY11	70PPB
12)	Pause: ' '			
13)	Sample	11	21MAY12	100PPB
14)	Sample	12	21MAY13	ICV
15)	Sample	13	21MAY14	BLK
16)	Sample	14	21MAY15	VBLKW2-180521
17)	Sample	14	21MAY16	1805819-02A DF10
18)	Sample	14	21MAY17	1805819-05A DF10
19)	Sample	14	21MAY18	1805819-05A MS DF10
20)	Sample	14	21MAY19	1805819-05A MSD DF10
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
21)	Sample	14	21MAY20	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
22)	Sample	15	21MAY21	VBFB2-180521
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
23)	Sample	16	21MAY22	BLK
24)	Sample	17	21MAY23	BLK

2018 May 21 1623 Sequence Log

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M

26)	Sample	18	21MAY25	VBLKW2-180521

Sequence Table edit performed Mon May 21 17:17:32 2018

27)	Sample	19	21MAY26	0.4PPB
28)	Sample	20	21MAY27	0.6PPB
29)	Sample	5	21MAY28	2PPB
30)	Sample	6	21MAY29	4PPB
31)	Sample	7	21MAY30	10PPB
32)	Sample	8	21MAY31	40PPB
33)	Sample	9	21MAY32	70PPB
34)	Sample	10	21MAY33	100PPB
35)	Sample	11	21MAY34	BLK
36)	Sample	12	21MAY35	ICV
37)	Sample	13	21MAY36	BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M

38)	Sample	14	21MAY37	VBFB3-180521

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M

39)	Sample	15	21MAY38	VCCV3-180521
40)	Sample	16	21MAY39	VCCV4-180521
41)	Sample	17	21MAY40	VLCSW2-180521
42)	Sample	18	21MAY41	LCS-
43)	Sample	19	21MAY42	BLK
44)	Sample	20	21MAY43	VBLKW3-180521
45)	Sample	21	21MAY44	MBLK-
46)	Sample	22	21MAY45	18051005-03A
47)	Sample	23	21MAY46	18051040-01B
48)	Sample	24	21MAY47	18051040-02B
49)	Sample	25	21MAY48	18051040-03B
50)	Sample	26	21MAY49	18051040-04B
51)	Sample	27	21MAY50	18051040-05B
52)	Sample	28	21MAY51	18051040-06B
53)	Sample	29	21MAY52	18051040-07B
54)	Sample	30	21MAY53	18051040-08B
55)	Sample	31	21MAY54	18051040-09B
56)	Sample	32	21MAY55	18051040-10B
57)	Sample	33	21MAY56	18051040-11B
58)	Sample	34	21MAY57	18051040-12B
59)	Sample	35	21MAY58	18051005-01A
60)	Sample	36	21MAY59	18051005-02A
61)	Sample	37	21MAY60	18051122-01A
62)	Sample	38	21MAY61	18051122-03A
63)	Sample	39	21MAY62	18051020-01A DF20

2018 May 21 1623 Sequence Log

64)	Sample	40	21MAY63	18051102-02A DF100
65)	Sample	41	21MAY64	18051002-06A DF20
66)	Sample	42	21MAY65	18051040-05BDUP
67)	Sample	43	21MAY66	18051040-04B MS
68)	Sample	44	21MAY67	BLK

Sequence completed Tue May 22 04:28:07 2018

D:\MassHunter\GCMS\1\data\10V180521\2018 May 21 1623 Quality Log.LOG
D:\MassHunter\GCMS\1\data\10V180521\2018 May 21 1623 Sequence Log .LOG

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	88	0.00
2	CP	Dichlorodifluoromethane	40.000	30.726	23.2#	75	0.00
3	CP	Chloromethane	40.000	32.926	17.7	79	0.00
4	CP	Vinyl chloride	40.000	32.545	18.6	79	0.00
5	CP	Bromomethane	40.000	25.578	36.1#	61	0.00
6	CP	Chloroethane	40.000	38.926	2.7	85	0.00
7	CP	Trichlorofluoromethane	40.000	35.195	12.0	83	0.00
8	C	Ethyl ether	40.000	41.360	-3.4	92	0.00
9	C	Acrolein	200.000	333.221	-66.6#	148	0.00
10	CP	1,1-Dichloroethene	40.000	39.094	2.3	86	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	40.765	-1.9	86	0.00
12	C	Methyl iodide	40.000	22.755	43.1#	51	0.00
13	CP	Acetone	40.000	40.817	-2.0	85	0.00
14	C	Chloroprene	40.000	42.947	-7.4	93	0.00
15	CP	Carbon disulfide	40.000	41.918	-4.8	89	0.00
16	C	Allyl chloride	40.000	47.256	-18.1	99	0.00
17	CP	Methyl acetate	40.000	40.153	-0.4	89	0.00
18	C	Acetonitrile	40.000	47.256	-18.1	99	0.00
19	CP	Methylene chloride	40.000	42.204	-5.5	99	0.00
20	CP	trans-1,2-Dichloroethene	40.000	43.088	-7.7	97	0.00
21	C	t-Butanol	200.000	202.539	-1.3	96	0.00
22	C	Acrylonitrile	40.000	44.286	-10.7	100	0.00
23	CP	Methyl tert-butyl ether	40.000	37.913	5.2	88	0.00
24	T	Hexane	40.000	43.308	-8.3	97	0.00
25	CP	1,1-Dichloroethane	40.000	43.529	-8.8	97	0.00
26	CP	Diisopropyl ether	40.000	40.497	-1.2	89	0.00
27	C	Vinyl acetate	40.000	40.703	-1.8	90	0.00
28	CP	Ethyl tert butyl ether	40.000	40.514	-1.3	89	0.00
29	C	2,2-Dichloropropane	40.000	42.058	-5.1	94	0.00
30	CP	cis-1,2-Dichloroethene	40.000	42.080	-5.2	97	0.00
31	CP	2-Butanone	40.000	42.723	-6.8	101	0.00
32	C	Ethyl Acetate	40.000	39.389	1.5	91	0.00
33	C	Methyl acrylate	40.000	46.189	-15.5	102	0.00
34	C	Propionitrile	40.000	42.407	-6.0	88	0.00
35	C	Bromochloromethane	40.000	42.065	-5.2	95	0.00
36	C	Tetrahydrofuran	40.000	46.864	-17.2	105	0.00
37	C	Methacrylonitrile	40.000	39.814	0.5	78	0.00
38	CP	Chloroform	40.000	41.652	-4.1	94	0.00
39	CP	Cyclohexane	40.000	45.536	-13.8	94	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	92	0.00
41	CP	1,1,1-Trichloroethane	40.000	40.596	-1.5	93	0.00
42	S	Dibromofluoromethane	20.000	20.460	-2.3	94	0.00
43	CP	Carbon tetrachloride	40.000	42.374	-5.9	95	0.00
44	C	1,1-Dichloropropene	40.000	39.340	1.6	93	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.783	1.1	91	0.00
46	CP	1,2-Dichloroethane	40.000	39.013	2.5	93	0.00
47	CP	Benzene	40.000	40.425	-1.1	96	0.00

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
48	CP	Tertiaryamylmethylether	40.000	38.940	2.7	89	0.00
49	C	Isobutyl Alcohol	40.000	38.168	4.6	81	0.00
50	C	Heptane	40.000	50.250	-25.6#	101	0.00
51	C	1,4-Dioxane	4000.000	4770.090	-19.3	115	0.00
52	CP	Methylcyclohexane	40.000	39.109	2.2	91	0.00
53	T	n-Butanol	400.000	413.153	-3.3	109	0.00
54	CP	Trichloroethene	40.000	39.935	0.2	94	0.00
55	CP	1,2-Dichloropropane	40.000	41.273	-3.2	101	0.00
56	C	Dibromomethane	40.000	40.547	-1.4	97	0.00
57	C	Methyl methacrylate	40.000	44.822	-12.1	101	0.00
58	CP	Bromodichloromethane	40.000	44.719	-11.8	100	0.00
59	C	2-Chloroethyl vinyl ether	40.000	55.020	-37.6#	125	0.00
60	C	2-Nitropropane	40.000	44.058	-10.1	105	0.00
61	CP	cis-1,3-Dichloropropene	40.000	47.062	-17.7	99	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	98	0.00
63	CP	4-Methyl-2-pentanone	40.000	39.313	1.7	94	0.00
64	S	Toluene-d8	20.000	19.669	1.7	93	0.00
65	CP	Toluene	40.000	38.998	2.5	95	0.00
66	CP	trans-1,3-Dichloropropene	40.000	47.850	-19.6	102	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	C	Ethyl methacrylate	40.000	43.835	-9.6	101	0.00
69	CP	1,1,2-Trichloroethane	40.000	38.837	2.9	98	0.00
70	CP	Tetrachloroethene	40.000	37.512	6.2	90	0.00
71	C	1,3-Dichloropropane	40.000	40.459	-1.1	97	0.00
72	CP	2-Hexanone	40.000	40.074	-0.2	92	0.00
73	CP	Chlorodibromomethane	40.000	47.702	-19.3	101	0.00
74	T	Butyl acetate	40.000	38.551	3.6	90	0.00
75	CP	1,2-Dibromoethane	40.000	33.410	16.5	129	0.00
76	CP	Chlorobenzene	40.000	38.011	5.0	95	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	42.148	-5.4	95	0.00
78	CP	Ethylbenzene	40.000	39.589	1.0	95	0.00
79	CP	m/p-Xylene	80.000	80.107	-0.1	95	0.00
80	CP	Styrene	40.000	41.797	-4.5	96	0.00
81	CP	o-Xylene	40.000	39.959	0.1	96	0.00
82	C	Cyclohexanone	200.000	161.128	19.4	77	0.00
83	CP	Bromoform	40.000	47.261	-18.2	103	0.00
84	CP	Isopropylbenzene	40.000	39.480	1.3	94	0.00
85	S	Bromofluorobenzene	20.000	20.598	-3.0	99	0.00
86	C	Bromobenzene	40.000	40.880	-2.2	96	0.00
87	C	1,2,3-Trichloropropane	40.000	38.449	3.9	97	0.00
88	C	trans-1,4-Dichloro-2-butene	40.000	42.368	-5.9	98	0.00
89	C	n-Propylbenzene	40.000	40.352	-0.9	95	0.00
90	C	2-Chlorotoluene	40.000	38.860	2.9	94	0.00
91	C	4-Chlorotoluene	40.000	39.763	0.6	96	0.00
92	C	1,3,5-Trimethylbenzene	40.000	41.333	-3.3	96	0.00
93	C	tert-Butylbenzene	40.000	38.310	4.2	94	0.00
94	C	1,2,4-Trimethylbenzene	40.000	40.537	-1.3	94	0.00

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
95	C	sec-Butylbenzene	40.000	40.068	-0.2	94	0.00
96	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	96	0.00
97	CP	1,1,2,2-Tetrachloroethane	40.000	39.154	2.1	99	0.00
98	CP	1,3-Dichlorobenzene	40.000	38.348	4.1	94	0.00
99	C	p-Isopropyltoluene	40.000	39.971	0.1	94	0.00
100	CP	1,4-Dichlorobenzene	40.000	36.636	8.4	93	0.00
101	C	1,2,3-Trimethylbenzene	40.000	40.166	-0.4	94	0.00
102	C	Benzyl chloride	40.000	45.059	-12.6	99	0.00
103	CP	1,2-Dichlorobenzene	40.000	38.054	4.9	95	0.00
104	T	n-Butylbenzene	40.000	40.577	-1.4	97	0.00
105	C	Hexachloroethane	40.000	41.464	-3.7	97	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	46.443	-16.1	100	0.00
107	C	1,3,5-Trichlorobenzene	40.000	39.443	1.4	97	0.00
108	CP	1,2,4-Trichlorobenzene	40.000	39.348	1.6	98	0.00
109	C	Hexachlorobutadiene	40.000	37.047	7.4	97	0.00
110	C	Naphthalene	40.000	42.383	-6.0	96	0.00
111	C	1,2,3-Trichlorobenzene	40.000	39.830	0.4	93	0.00
112	C	2-Methylnaphthalene	40.000	44.460	-11.2	97	0.00
113	C	1-Methylnaphthalene	40.000	44.424	-11.1	97	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	93	0.00
115	T	2-Propanone	40.000	38.385	4.0	85	0.00
116	T	Acetic Ether	40.000	39.015	2.5	91	0.00
117	T	Isopropyl Acetate	40.000	38.148	4.6	92	0.00
118	T	Amyl Acetate	40.000	38.322	4.2	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 6

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	88	0.00
2	CP	Dichlorodifluoromethane	0.680	0.522	23.2#	75	0.00
3	CP	Chloromethane	0.973	0.801	17.7	79	0.00
4	CP	Vinyl chloride	0.823	0.669	18.7	79	0.00
5	CP	Bromomethane	0.461	0.283	38.6#	61	0.00
6	CP	Chloroethane	0.694	0.413	40.5#	85	0.00
7	CP	Trichlorofluoromethane	0.875	0.770	12.0	83	0.00
8	C	Ethyl ether	0.551	0.570	-3.4	92	0.00
9	C	Acrolein	0.101	0.131#	-29.7#	148	0.00
10	CP	1,1-Dichloroethene	0.843	0.824	2.3	86	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.294	0.299	-1.7	86	0.00
12	C	Methyl iodide	0.235	0.134#	43.0#	51	0.00
13	CP	Acetone	0.632	0.462	26.9#	85	0.00
14	C	Chloroprene	0.800	0.859	-7.4	93	0.00
15	CP	Carbon disulfide	1.178	1.235	-4.8	89	0.00
16	C	Allyl chloride	0.902	1.065	-18.1	99	0.00
17	CP	Methyl acetate	0.984	0.987	-0.3	89	0.00
18	C	Acetonitrile	0.902	1.065	-18.1	99	0.00
19	CP	Methylene chloride	0.775	0.818	-5.5	99	0.00
20	CP	trans-1,2-Dichloroethene	0.757	0.816	-7.8	97	0.00
21	C	t-Butanol	0.198	0.201	-1.5	96	0.00
22	C	Acrylonitrile	0.483	0.534	-10.6	100	0.00
23	CP	Methyl tert-butyl ether	1.749	1.658	5.2	88	0.00
24	T	Hexane	0.601	0.650	-8.2	97	0.00
25	CP	1,1-Dichloroethane	1.021	1.111	-8.8	97	0.00
26	CP	Diisopropyl ether	1.802	1.825	-1.3	89	0.00
27	C	Vinyl acetate	0.122	0.139#	-13.9	90	0.00
28	CP	Ethyl tert butyl ether	1.642	1.663	-1.3	89	0.00
29	C	2,2-Dichloropropane	0.691	0.727	-5.2	94	0.00
30	CP	cis-1,2-Dichloroethene	0.929	0.977	-5.2	97	0.00
31	CP	2-Butanone	0.659	0.704	-6.8	101	0.00
32	C	Ethyl Acetate	1.258	1.239	1.5	91	0.00
33	C	Methyl acrylate	0.981	1.133	-15.5	102	0.00
34	C	Propionitrile	0.092	0.071#	22.8#	88	0.00
35	C	Bromochloromethane	0.520	0.546	-5.0	95	0.00
36	C	Tetrahydrofuran	0.446	0.522	-17.0	105	0.00
37	C	Methacrylonitrile	0.728	0.725	0.4	78	0.00
38	CP	Chloroform	0.987	1.028	-4.2	94	0.00
39	CP	Cyclohexane	1.185	0.941	20.6#	94	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	92	0.00
41	CP	1,1,1-Trichloroethane	0.388	0.394	-1.5	93	0.00
42	S	Dibromofluoromethane	0.321	0.329	-2.5	94	0.00
43	CP	Carbon tetrachloride	0.299	0.317	-6.0	95	0.00
44	C	1,1-Dichloropropene	0.408	0.401	1.7	93	0.00
45	S	1,2-Dichloroethane-d4	0.416	0.412	1.0	91	0.00
46	CP	1,2-Dichloroethane	0.460	0.449	2.4	93	0.00
47	CP	Benzene	1.231	1.244	-1.1	96	0.00

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	CP	Tertiaryamylmethylether	0.848	0.826	2.6	89	0.00
49	C	Isobutyl Alcohol	0.308	0.263	14.6	81	0.00
50	C	Heptane	0.313	0.295	5.8	101	0.00
51	C	1,4-Dioxane	0.008	0.010#	-25.0#	115	0.00
52	CP	Methylcyclohexane	0.430	0.420	2.3	91	0.00
53	T	n-Butanol	0.019	0.024#	-26.3#	109	0.00
54	CP	Trichloroethene	0.285	0.284	0.4	94	0.00
55	CP	1,2-Dichloropropane	0.337	0.348	-3.3	101	0.00
56	C	Dibromomethane	0.213	0.216	-1.4	97	0.00
57	C	Methyl methacrylate	0.405	0.454	-12.1	101	0.00
58	CP	Bromodichloromethane	0.343	0.384	-12.0	100	0.00
59	C	2-Chloroethyl vinyl ether	0.150	0.181#	-20.7#	125	0.00
60	C	2-Nitropropane	0.117	0.129#	-10.3	105	0.00
61	CP	cis-1,3-Dichloropropene	0.421	0.496	-17.8	99	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	98	0.00
63	CP	4-Methyl-2-pentanone	0.656	0.644	1.8	94	0.00
64	S	Toluene-d8	1.388	1.365	1.7	93	0.00
65	CP	Toluene	1.394	1.359	2.5	95	0.00
66	CP	trans-1,3-Dichloropropene	0.406	0.486	-19.7	102	0.00
67	T	Chloropicrin	0.000	0.050#	0.0	0#	0.00
68	C	Ethyl methacrylate	0.523	0.574	-9.8	101	0.00
69	CP	1,1,2-Trichloroethane	0.339	0.329	2.9	98	0.00
70	CP	Tetrachloroethene	0.289	0.271	6.2	90	0.00
71	C	1,3-Dichloropropane	0.578	0.585	-1.2	97	0.00
72	CP	2-Hexanone	0.490	0.491	-0.2	92	0.00
73	CP	Chlorodibromomethane	0.268	0.320	-19.4	101	0.00
74	T	Butyl acetate	0.820	0.791	3.5	90	0.00
75	CP	1,2-Dibromoethane	0.306	0.256	16.3	129	0.00
76	CP	Chlorobenzene	0.852	0.809	5.0	95	0.00
77	C	1,1,1,2-Tetrachloroethane	0.252	0.265	-5.2	95	0.00
78	CP	Ethylbenzene	1.441	1.426	1.0	95	0.00
79	CP	m/p-Xylene	1.090	1.091	-0.1	95	0.00
80	CP	Styrene	0.839	0.877	-4.5	96	0.00
81	CP	o-Xylene	1.122	1.121	0.1	96	0.00
82	C	Cyclohexanone	0.064	0.052#	18.8	77	0.00
83	CP	Bromoform	0.172	0.204	-18.6	103	0.00
84	CP	Isopropylbenzene	1.291	1.274	1.3	94	0.00
85	S	Bromofluorobenzene	0.488	0.502	-2.9	99	0.00
86	C	Bromobenzene	0.844	0.862	-2.1	96	0.00
87	C	1,2,3-Trichloropropane	0.175	0.168#	4.0	97	0.00
88	C	trans-1,4-Dichloro-2-butene	0.178	0.188#	-5.6	98	0.00
89	C	n-Propylbenzene	1.623	1.637	-0.9	95	0.00
90	C	2-Chlorotoluene	0.965	0.938	2.8	94	0.00
91	C	4-Chlorotoluene	1.100	1.094	0.5	96	0.00
92	C	1,3,5-Trimethylbenzene	1.005	1.039	-3.4	96	0.00
93	C	tert-Butylbenzene	0.631	0.605	4.1	94	0.00
94	C	1,2,4-Trimethylbenzene	1.070	1.084	-1.3	94	0.00

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
95	C	sec-Butylbenzene	1.233	1.235	-0.2	94	0.00
96	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00
97	CP	1,1,2,2-Tetrachloroethane	1.276	1.249	2.1	99	0.00
98	CP	1,3-Dichlorobenzene	1.258	1.206	4.1	94	0.00
99	C	p-Isopropyltoluene	2.134	2.132	0.1	94	0.00
100	CP	1,4-Dichlorobenzene	1.320	1.209	8.4	93	0.00
101	C	1,2,3-Trimethylbenzene	2.413	2.423	-0.4	94	0.00
102	C	Benzyl chloride	1.279	1.600	-25.1#	99	0.00
103	CP	1,2-Dichlorobenzene	1.277	1.215	4.9	95	0.00
104	T	n-Butylbenzene	2.081	2.111	-1.4	97	0.00
105	C	Hexachloroethane	0.337	0.387	-14.8	97	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.251	0.292	-16.3	100	0.00
107	C	1,3,5-Trichlorobenzene	0.792	0.781	1.4	97	0.00
108	CP	1,2,4-Trichlorobenzene	0.755	0.743	1.6	98	0.00
109	C	Hexachlorobutadiene	0.251	0.232	7.6	97	0.00
110	C	Naphthalene	3.148	3.335	-5.9	96	0.00
111	C	1,2,3-Trichlorobenzene	0.736	0.733	0.4	93	0.00
112	C	2-Methylnaphthalene	1.623	1.804	-11.2	97	0.00
113	C	1-Methylnaphthalene	1.585	1.760	-11.0	97	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	93	0.00
115	T	2-Propanone	1.390	0.919	33.9#	85	0.00
116	T	Acetic Ether	2.600	2.477	4.7	91	0.00
117	T	Isopropyl Acetate	0.662	0.649	2.0	92	0.00
118	T	Amyl Acetate	2.590	2.548	1.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 11

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	176544	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	343250	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	321315	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	153248	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.131	46	88655	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	112803	20.46	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.30%				
45) 1,2-Dichloroethane-d4	5.463	65	141250	19.78	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.90%				
64) Toluene-d8	7.807	98	438547	19.67	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.35%				
85) Bromofluorobenzene	9.542	95	161339	20.60	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	184463	30.73	ug/L		100
3) Chloromethane	1.394	50	282810	32.93	ug/L		99
4) Vinyl chloride	1.473	62	236329	32.55	ug/L		99
5) Bromomethane	1.688	96	100001	25.58	ug/L		100
6) Chloroethane	1.772	64	145936	38.93	ug/L		94
7) Trichlorofluoromethane	1.961	101	271967	35.20	ug/L		100
8) Ethyl ether	2.170	59	201230	41.36	ug/L		99
9) Acrolein	2.286	56	231642	333.22	ug/L		100
10) 1,1-Dichloroethene	2.364	61	290926	39.09	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.364	151	105740	40.77	ug/L		99
12) Methyl iodide	2.495	142	47200	22.76	ug/L		98
13) Acetone	2.401	43	162957	40.82	ug/L		98
14) Chloroprene	3.596	53	303435	42.95	ug/L		99
15) Carbon disulfide	2.553	76	435926	41.92	ug/L		100
16) Allyl chloride	2.674	41	376204	47.26	ug/L		97
17) Methyl acetate	2.663	43	348601	40.15	ug/L		100
18) Acetonitrile	2.674	41	376204	47.26	ug/L		96
19) Methylene chloride	2.794	49	288712	42.20	ug/L		100
20) trans-1,2-Dichloroethene	3.051	61	288035	43.09	ug/L		97
21) t-Butanol	2.894	59	354518	202.54	ug/L		99
22) Acrylonitrile	3.025	53	188671	44.29	ug/L		99
23) Methyl tert-butyl ether	3.046	73	585477	37.91	ug/L		99
24) Hexane	3.329	57	229626	43.31	ug/L		98
25) 1,1-Dichloroethane	3.518	63	392211	43.53	ug/L		99
26) Diisopropyl ether	3.549	45	644311	40.50	ug/L		95
27) Vinyl acetate	3.523	86	49055	40.70	ug/L	#	88
28) Ethyl tert butyl ether	3.990	59	587272	40.51	ug/L		99
29) 2,2-Dichloropropane	4.210	77	256653	42.06	ug/L		100
30) cis-1,2-Dichloroethene	4.210	61	345089	42.08	ug/L		99
31) 2-Butanone	4.210	43	248605	42.72	ug/L		97
32) Ethyl Acetate	4.267	43	437511	39.39	ug/L		99
33) Methyl acrylate	4.320	55	400151	46.19	ug/L		99
34) Propionitrile	5.002	54	25030	42.41	ug/L		91
35) Bromochloromethane	4.530	49	192935	42.07	ug/L		98

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
36) Tetrahydrofuran	4.551	42	184480	46.86	ug/L		97
37) Methacrylonitrile	4.498	41	255950	39.81	ug/L	#	81
38) Chloroform	4.687	83	363059	41.65	ug/L		98
39) Cyclohexane	4.996	56	332346	45.54	ug/L		99
41) 1,1,1-Trichloroethane	4.907	97	270335	40.60	ug/L		99
43) Carbon tetrachloride	5.138	117	217538	42.37	ug/L		99
44) 1,1-Dichloropropene	5.159	75	275277	39.34	ug/L		100
46) 1,2-Dichloroethane	5.599	62	307908	39.01	ug/L		99
47) Benzene	5.479	78	854233	40.42	ug/L		99
48) Tertiaryamylmethylether	5.751	73	566780	38.94	ug/L		98
49) Isobutyl Alcohol	5.751	43	180424	38.17	ug/L	#	77
50) Heptane	6.061	43	202594	50.25	ug/L		98
51) 1,4-Dioxane	6.989	88	672353	4770.09	ug/L		100
52) Methylcyclohexane	6.837	83	288308	39.11	ug/L		97
53) n-Butanol	6.569	56	163479	413.15	ug/L		100
54) Trichloroethene	6.580	130	194999	39.93	ug/L		98
55) 1,2-Dichloropropane	6.889	63	238690	41.27	ug/L		98
56) Dibromomethane	6.983	93	148011	40.55	ug/L		99
57) Methyl methacrylate	6.999	41	311616	44.82	ug/L		98
58) Bromodichloromethane	7.183	83	263537	44.72	ug/L		98
59) 2-Chloroethyl vinyl ether	7.476	43	124239	55.02	ug/L	#	80
60) 2-Nitropropane	7.408	43	88478	44.06	ug/L	#	96
61) cis-1,3-Dichloropropene	7.592	75	340335	47.06	ug/L		99
63) 4-Methyl-2-pentanone	7.733	43	414045	39.31	ug/L		100
65) Toluene	7.859	91	873191	39.00	ug/L		100
66) trans-1,3-Dichloropropene	8.063	75	312131	47.85	ug/L		94
67) Chloropicrin	8.063	117	320341	No Calib			
68) Ethyl methacrylate	8.116	69	368602	43.83	ug/L		98
69) 1,1,2-Trichloroethane	8.205	97	211208	38.84	ug/L		99
70) Tetrachloroethene	8.247	166	174389	37.51	ug/L		99
71) 1,3-Dichloropropane	8.320	76	375739	40.46	ug/L		100
72) 2-Hexanone	8.368	43	315306	40.07	ug/L		100
73) Chlorodibromomethane	8.467	129	205633	47.70	ug/L		96
74) Butyl acetate	8.457	43	508150	38.55	ug/L		99
75) 1,2-Dibromoethane	8.541	107	164411	33.41	ug/L	#	97
76) Chlorobenzene	8.860	112	520023	38.01	ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.923	131	170333	42.15	ug/L		99
78) Ethylbenzene	8.923	91	916575	39.59	ug/L		100
79) m/p-Xylene	9.002	91	1402587	80.11	ug/L		99
80) Styrene	9.243	104	563332	41.80	ug/L		100
81) o-Xylene	9.233	91	720127	39.96	ug/L		100
82) Cyclohexanone	9.500	55	166471	161.13	ug/L		98
83) Bromoform	9.358	173	130795	47.26	ug/L		99
84) Isopropylbenzene	9.442	105	819025	39.48	ug/L		99
86) Bromobenzene	9.621	77	554040	40.88	ug/L		97
87) 1,2,3-Trichloropropane	9.647	110	108024	38.45	ug/L		99
88) trans-1,4-Dichloro-2-b...	9.636	53	121025	42.37	ug/L		99
89) n-Propylbenzene	9.668	91	1052076	40.35	ug/L		98
90) 2-Chlorotoluene	9.720	91	602732	38.86	ug/L		99
91) 4-Chlorotoluene	9.788	91	702822	39.76	ug/L		98
92) 1,3,5-Trimethylbenzene	9.762	105	667526	41.33	ug/L		99
93) tert-Butylbenzene	9.930	91	388658	38.31	ug/L		99

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

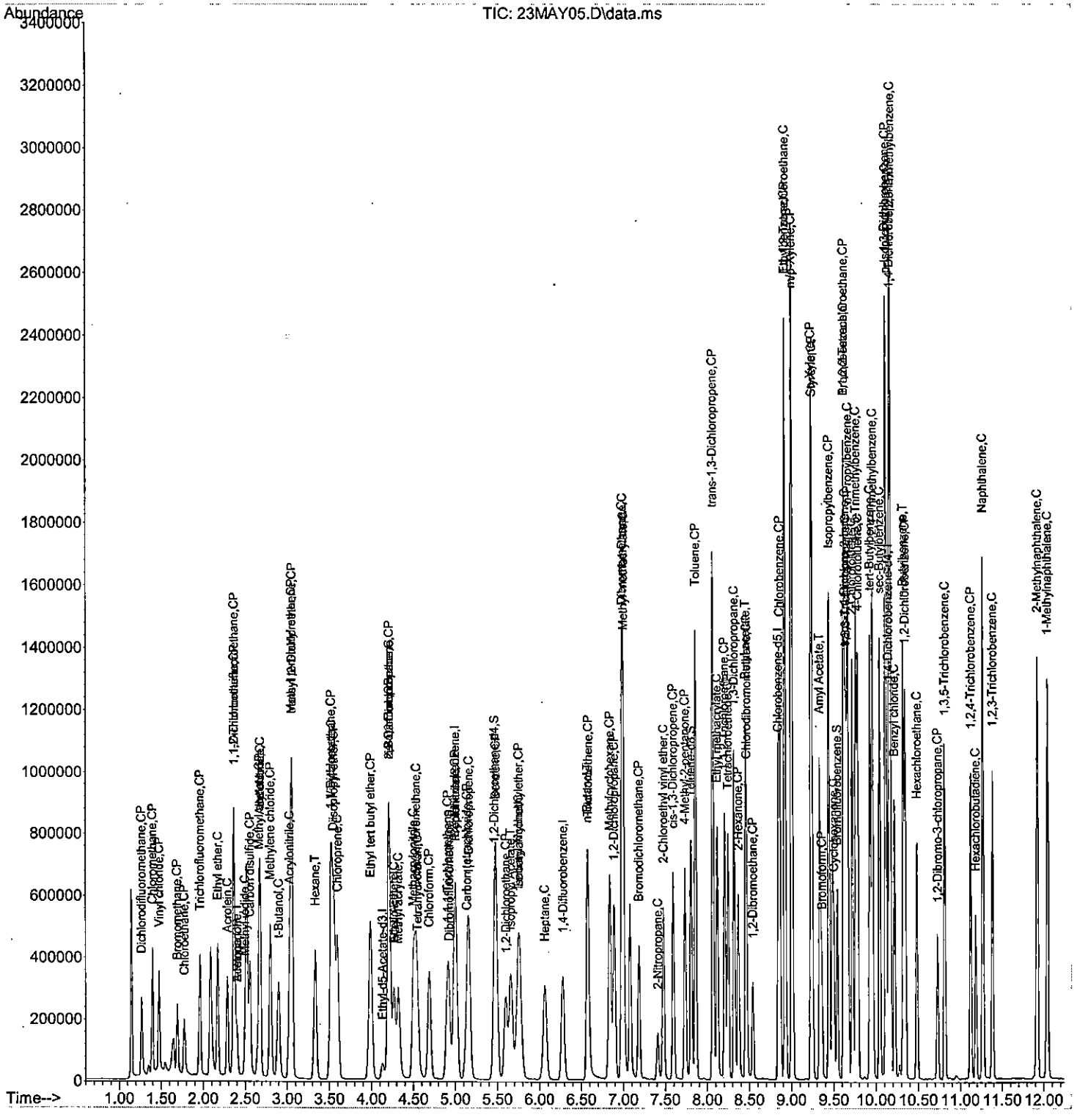
Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	696843	40.54	ug/L	99
95)	sec-Butylbenzene	10.045	105	793594	40.07	ug/L	99
97)	1,1,2,2-Tetrachloroethane	9.621	83	382697	39.15	ug/L	99
98)	1,3-Dichlorobenzene	10.113	146	369573	38.35	ug/L	98
99)	p-Isopropyltoluene	10.119	119	653507	39.97	ug/L	100
100)	1,4-Dichlorobenzene	10.166	146	370564	36.64	ug/L	97
101)	1,2,3-Trimethylbenzene	10.171	105	742552	40.17	ug/L	99
102)	Benzyl chloride	10.218	91	490375	45.06	ug/L	99
103)	1,2-Dichlorobenzene	10.344	146	372351	38.05	ug/L	100
104)	n-Butylbenzene	10.323	91	646886	40.58	ug/L	98
105)	Hexachloroethane	10.486	117	118556	41.46	ug/L	99
106)	1,2-Dibromo-3-chloropr...	10.732	157	89441	46.44	ug/L	98
107)	1,3,5-Trichlorobenzene	10.816	180	239248	39.44	ug/L	99
108)	1,2,4-Trichlorobenzene	11.125	180	227689	39.35	ug/L	97
109)	Hexachlorobutadiene	11.183	225	71110	37.05	ug/L	97
110)	Naphthalene	11.267	128	1022282	42.38	ug/L	99
111)	1,2,3-Trichlorobenzene	11.382	180	224552	39.83	ug/L	96
112)	2-Methylnaphthalene	11.917	142	553020	44.46	ug/L	100
113)	1-Methylnaphthalene	12.038	142	539535	44.42	ug/L	99
115)	2-Propanone	2.401	43	162957	38.39	ug/L	98
116)	Acetic Ether	4.267	43	439114	39.01	ug/L	99
117)	Isopropyl Acetate	5.657	61	115125	38.15	ug/L	98
118)	Amyl Acetate	9.332	43	451821	38.32	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY05.D
Acq On : 23 May 2018 12:46 pm
Operator : AK
Sample : VCCV2-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

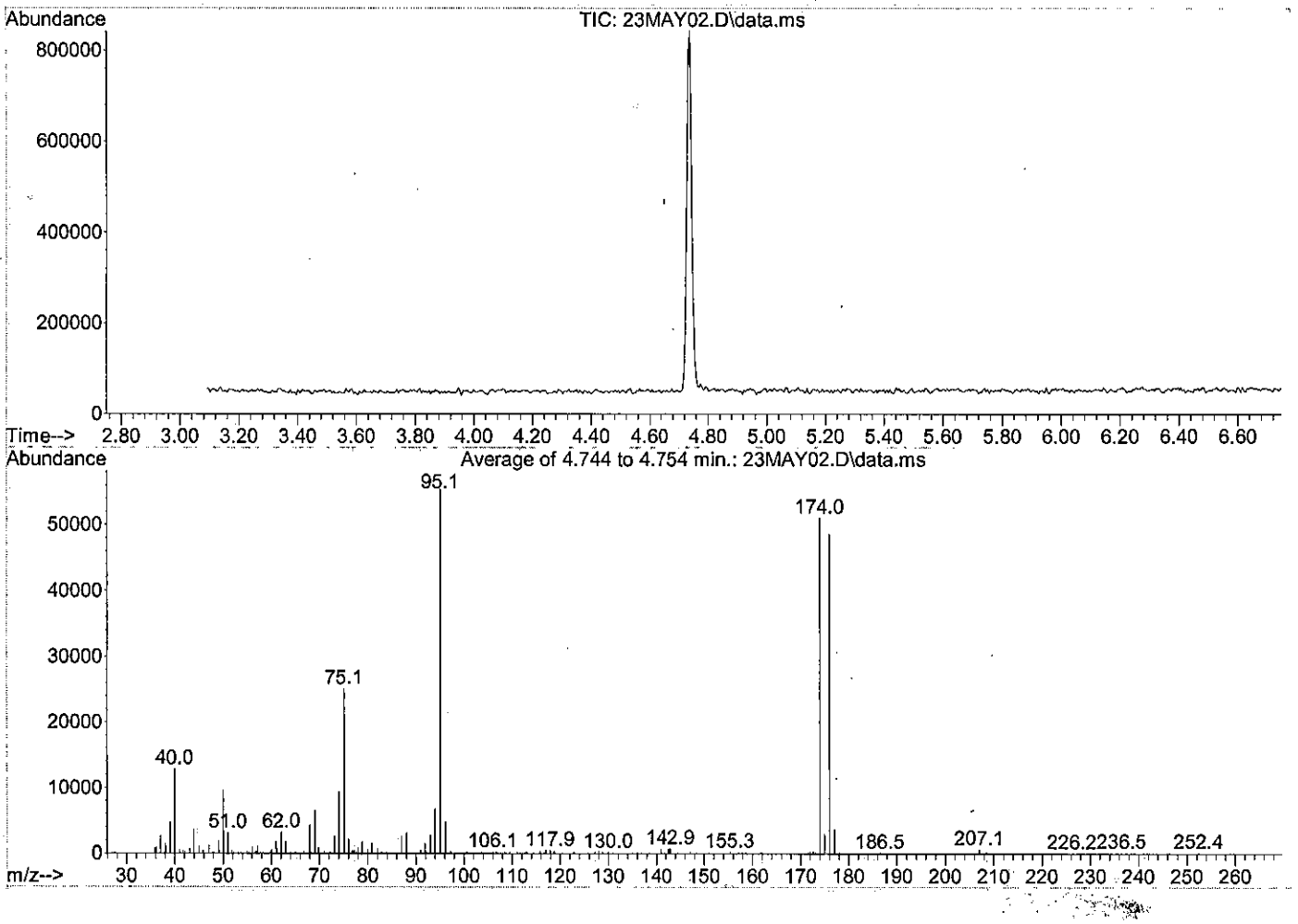
Quant Time: May 24 08:12:50 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY02.D
Acq On : 23 May 2018 11:21 am
Operator : AK
Sample : VBFB1-180523
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



Spectrum Information: Average of 4.744 to 4.754 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.2	9560	PASS
75	95	30	60	45.4	25163	PASS
95	95	100	100	100.0	55472	PASS
96	95	5	9	8.7	4847	PASS
173	174	0.00	2	0.5	238	PASS
174	95	50	100	92.1	51098	PASS
175	174	5	9	5.9	2996	PASS
176	174	95	101	95.1	48596	PASS
177	176	5	9	7.7	3748	PASS

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY09.D
Acq On : 23 May 2018 02:02 pm
Operator : AK
Sample : VBLKW1-180523
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 24 08:12:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.002	168	152042	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.281	114	297788	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	288979	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	137291	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.137	46	78806	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	96861	20.25	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.25%			
45) 1,2-Dichloroethane-d4	5.468	65	123273	19.90	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.50%			
64) Toluene-d8	7.807	98	376406	18.77	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.85%			
85) Bromofluorobenzene	9.542	95	141810	20.13	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.65%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY09.D
Acq On : 23 May 2018 02:02 pm
Operator : AK
Sample : VBLKW1-180523
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 24 08:12:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) Tetrahydrofuran	0.000		0			N.D.
37) Methacrylonitrile	0.000		0			N.D.
38) Chloroform	0.000		0			N.D.
39) Cyclohexane	0.000		0			N.D.
41) 1,1,1-Trichloroethane	0.000		0			N.D.
43) Carbon tetrachloride	0.000		0			N.D.
44) 1,1-Dichloropropene	0.000		0			N.D.
46) 1,2-Dichloroethane	0.000		0			N.D.
47) Benzene	0.000		0			N.D.
48) Tertiaryamylmethylether	0.000		0			N.D.
49) Isobutyl Alcohol	0.000		0			N.D.
50) Heptane	0.000		0			N.D.
51) 1,4-Dioxane	0.000		0			N.D.
52) Methylcyclohexane	0.000		0			N.D.
53) n-Butanol	0.000		0			N.D.
54) Trichloroethene	0.000		0			N.D.
55) 1,2-Dichloropropane	0.000		0			N.D.
56) Dibromomethane	0.000		0			N.D.
57) Methyl methacrylate	0.000		0			N.D.
58) Bromodichloromethane	0.000		0			N.D.
59) 2-Chloroethyl vinyl ether	0.000		0			N.D.
60) 2-Nitropropane	0.000		0			N.D.
61) cis-1,3-Dichloropropene	0.000		0			N.D.
63) 4-Methyl-2-pentanone	0.000		0			N.D.
65) Toluene	0.000		0			N.D.
66) trans-1,3-Dichloropropene	0.000		0			N.D.
67) Chloropicrin	0.000		0			N.D.
68) Ethyl methacrylate	0.000		0			N.D.
69) 1,1,2-Trichloroethane	0.000		0			N.D.
70) Tetrachloroethene	0.000		0			N.D.
71) 1,3-Dichloropropane	0.000		0			N.D.
72) 2-Hexanone	0.000		0			N.D.
73) Chlorodibromomethane	0.000		0			N.D.
74) Butyl acetate	0.000		0			N.D.
75) 1,2-Dibromoethane	0.000		0			N.D.
76) Chlorobenzene	0.000		0			N.D.
77) 1,1,1,2-Tetrachloroethane	0.000		0			N.D.
78) Ethylbenzene	0.000		0			N.D.
79) m/p-Xylene	0.000		0			N.D.
80) Styrene	0.000		0			N.D.
81) o-Xylene	0.000		0			N.D.
82) Cyclohexanone	0.000		0			N.D.
83) Bromoform	0.000		0			N.D.
84) Isopropylbenzene	0.000		0			N.D.
86) Bromobenzene	0.000		0			N.D.
87) 1,2,3-Trichloropropane	0.000		0			N.D.
88) trans-1,4-Dichloro-2-b...	0.000		0			N.D.
89) n-Propylbenzene	0.000		0			N.D.
90) 2-Chlorotoluene	0.000		0			N.D.
91) 4-Chlorotoluene	0.000		0			N.D.
92) 1,3,5-Trimethylbenzene	0.000		0			N.D.
93) tert-Butylbenzene	0.000		0			N.D.

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY09.D
Acq On : 23 May 2018 02:02 pm
Operator : AK
Sample : VBLKW1-180523
Misc :
ALS Vial : 5 Sample Multiplier: 1

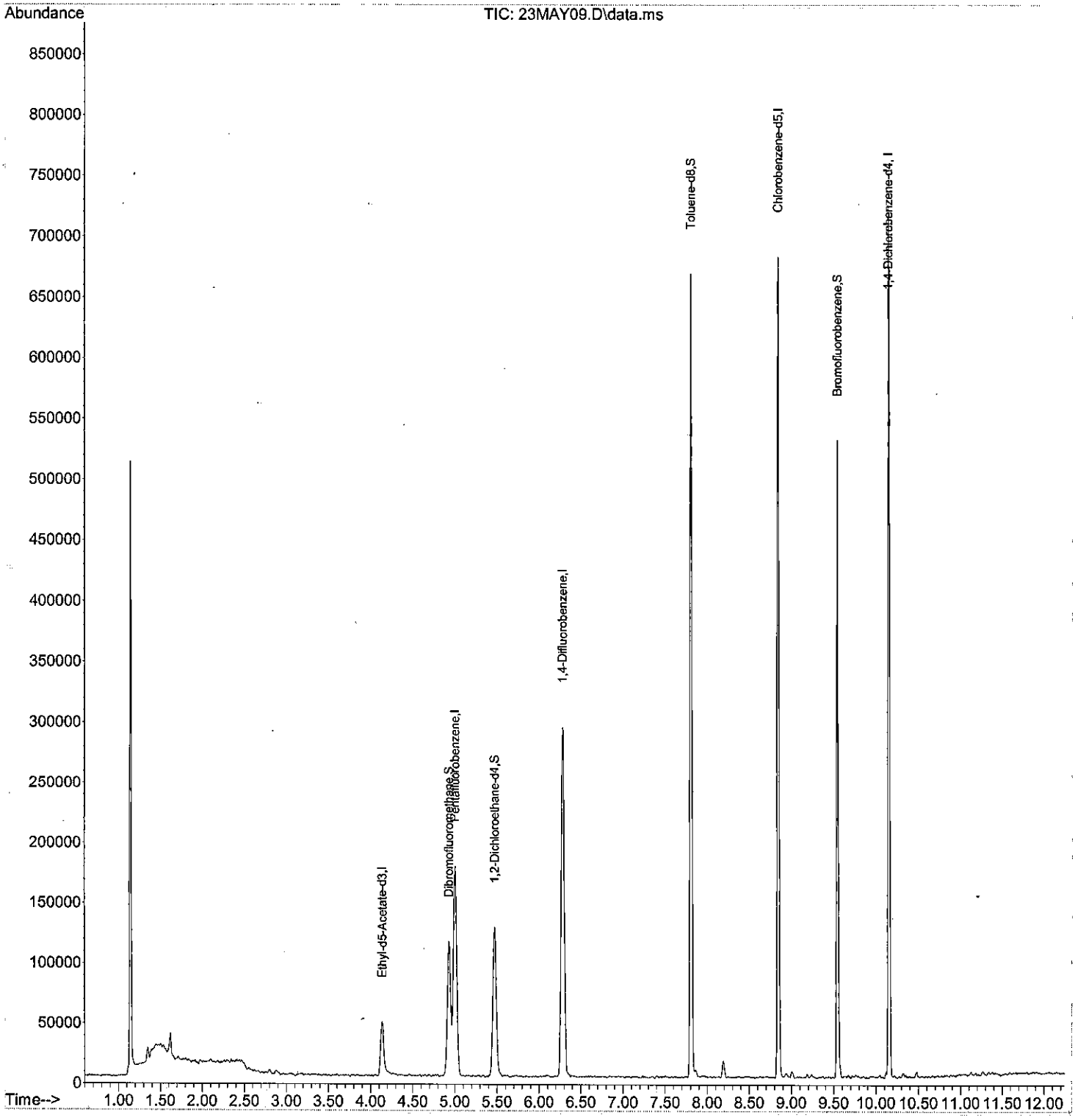
Quant Time: May 24 08:12:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	0.000		0	N.D.		
95)	sec-Butylbenzene	0.000		0	N.D.		
97)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
98)	1,3-Dichlorobenzene	0.000		0	N.D.		
99)	p-Isopropyltoluene	0.000		0	N.D.		
100)	1,4-Dichlorobenzene	0.000		0	N.D.		
101)	1,2,3-Trimethylbenzene	0.000		0	N.D.		
102)	Benzyl chloride	0.000		0	N.D.		
103)	1,2-Dichlorobenzene	0.000		0	N.D.		
104)	n-Butylbenzene	0.000		0	N.D.		
105)	Hexachloroethane	0.000		0	N.D.		
106)	1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.		
108)	1,2,4-Trichlorobenzene	0.000		0	N.D.		
109)	Hexachlorobutadiene	0.000		0	N.D.		
110)	Naphthalene	0.000		0	N.D.		
111)	1,2,3-Trichlorobenzene	0.000		0	N.D.		
112)	2-Methylnaphthalene	0.000		0	N.D.		
113)	1-Methylnaphthalene	0.000		0	N.D.		
115)	2-Propanone	0.000		0	N.D.		
116)	Acetic Ether	0.000		0	N.D.		
117)	Isopropyl Acetate	0.000		0	N.D.		
118)	Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY09.D
Acq On : 23 May 2018 02:02 pm
Operator : AK
Sample : VBLKW1-180523
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 24 08:12:59 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 01:30 pm
Operator : AK
Sample : VLCSW1-180523
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 24 08:52:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	163163	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	317857	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	306886	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	144823	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	85493	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	105063	20.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.90%				
45) 1,2-Dichloroethane-d4	5.468	65	131038	19.82	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.10%				
64) Toluene-d8	7.806	98	400722	18.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.10%				
85) Bromofluorobenzene	9.542	95	155589	20.80	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	91393	16.47	ug/L		100
3) Chloromethane	1.394	50	144781	18.24	ug/L		99
4) Vinyl chloride	1.473	62	136561	20.35	ug/L		98
5) Bromomethane	1.698	96	55718	14.82	ug/L		98
6) Chloroethane	1.777	64	85730	24.56	ug/L		97
7) Trichlorofluoromethane	1.960	101	135179	18.93	ug/L		99
8) Ethyl ether	2.170	59	104875	23.32	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.364	61	162849	23.68	ug/L		99
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.495	142	36739	19.16	ug/L		100
13) Acetone	2.401	43	90022	24.13	ug/L		100
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.558	76	251774	26.20	ug/L		100
16) Allyl chloride	2.679	41	152751	20.76	ug/L		87
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.679	41	152751	20.76	ug/L		90
19) Methylene chloride	2.799	49	152226	24.08	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	158682	25.68	ug/L		98
21) t-Butanol	2.889	59	193480	119.60	ug/L		98
22) Acrylonitrile	3.025	53	96763	24.58	ug/L		100
23) Methyl tert-butyl ether	3.046	73	327708	22.96	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.518	63	208912	25.09	ug/L		99
26) Diisopropyl ether	3.554	45	338681	23.03	ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.990	59	303390	22.65	ug/L		99
29) 2,2-Dichloropropane	4.215	77	134017	23.76	ug/L		98
30) cis-1,2-Dichloroethene	4.210	61	187991	24.80	ug/L		99
31) 2-Butanone	4.215	43	125490	23.33	ug/L		98
32) Ethyl Acetate	4.267	43	235007	22.89	ug/L		100
33) Methyl acrylate	4.325	55	201093	25.12	ug/L		99
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.530	49	109951	25.94	ug/L		96

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 01:30 pm
Operator : AK
Sample : VLCSW1-180523
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 24 08:52:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
36) Tetrahydrofuran	4.551	42	88002	24.19 ug/L	100
37) Methacrylonitrile	4.503	41	170185	28.64 ug/L	98
38) Chloroform	4.692	83	188484	23.40 ug/L	99
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.912	97	141047	22.87 ug/L	99
43) Carbon tetrachloride	5.143	117	108436	22.81 ug/L	98
44) 1,1-Dichloropropene	5.164	75	141536	21.84 ug/L	97
46) 1,2-Dichloroethane	5.599	62	157619	21.57 ug/L	99
47) Benzene	5.484	78	453023	23.15 ug/L	99
48) Tertiaryamylmethylether	5.756	73	292658	21.71 ug/L	99
49) Isobutyl Alcohol	5.756	43	94685	21.48 ug/L	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.920	88	7413	56.79 ug/L #	14
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.580	130	100532	22.23 ug/L	96
55) 1,2-Dichloropropane	6.894	63	122952	22.96 ug/L #	85
56) Dibromomethane	6.983	93	76018	22.49 ug/L	97
57) Methyl methacrylate	7.004	41	143826	22.34 ug/L	97
58) Bromodichloromethane	7.188	83	129540	23.74 ug/L	98
59) 2-Chloroethyl vinyl ether	7.408	43	39301	16.85 ug/L #	1
60) 2-Nitropropane	7.408	43	40261	21.65 ug/L #	99
61) cis-1,3-Dichloropropene	7.592	75	164460	24.56 ug/L	96
63) 4-Methyl-2-pentanone	7.738	43	325609	32.37 ug/L	82
65) Toluene	7.859	91	451026	21.09 ug/L	99
66) trans-1,3-Dichloropropene	8.063	75	144748	23.23 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.116	69	186257	23.19 ug/L	100
69) 1,1,2-Trichloroethane	8.210	97	110375	21.25 ug/L	98
70) Tetrachloroethene	8.247	166	97260	21.90 ug/L	99
71) 1,3-Dichloropropane	8.320	76	196579	22.16 ug/L	98
72) 2-Hexanone	8.367	43	176831	23.53 ug/L	98
73) Chlorodibromomethane	8.467	129	91075	22.12 ug/L	99
74) Butyl acetate	8.457	43	262982	20.89 ug/L	98
75) 1,2-Dibromoethane	8.541	107	116428	24.77 ug/L #	99
76) Chlorobenzene	8.860	112	276822	21.19 ug/L	100
77) 1,1,1,2-Tetrachloroethane	8.923	131	85755	22.22 ug/L	98
78) Ethylbenzene	8.923	91	484038	21.89 ug/L	100
79) m/p-Xylene	9.002	91	728165	43.54 ug/L	98
80) Styrene	9.243	104	297823	23.14 ug/L	99
81) o-Xylene	9.233	91	378797	22.01 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.358	173	60118	22.74 ug/L	98
84) Isopropylbenzene	9.442	105	434365	21.92 ug/L	100
86) Bromobenzene	9.621	77	284497	21.98 ug/L	99
87) 1,2,3-Trichloropropane	9.647	110	57002	21.24 ug/L	97
88) trans-1,4-Dichloro-2-b...	9.636	53	50024	18.34 ug/L	91
89) n-Propylbenzene	9.668	91	540900	21.72 ug/L	100
90) 2-Chlorotoluene	9.720	91	322823	21.79 ug/L	100
91) 4-Chlorotoluene	9.788	91	365832	21.67 ug/L	99
92) 1,3,5-Trimethylbenzene	9.762	105	348598	22.60 ug/L	99
93) tert-Butylbenzene	9.930	91	199857	20.63 ug/L	95

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 01:30 pm
Operator : AK
Sample : VLCSW1-180523
Misc :
ALS Vial : 3 Sample Multiplier: 1

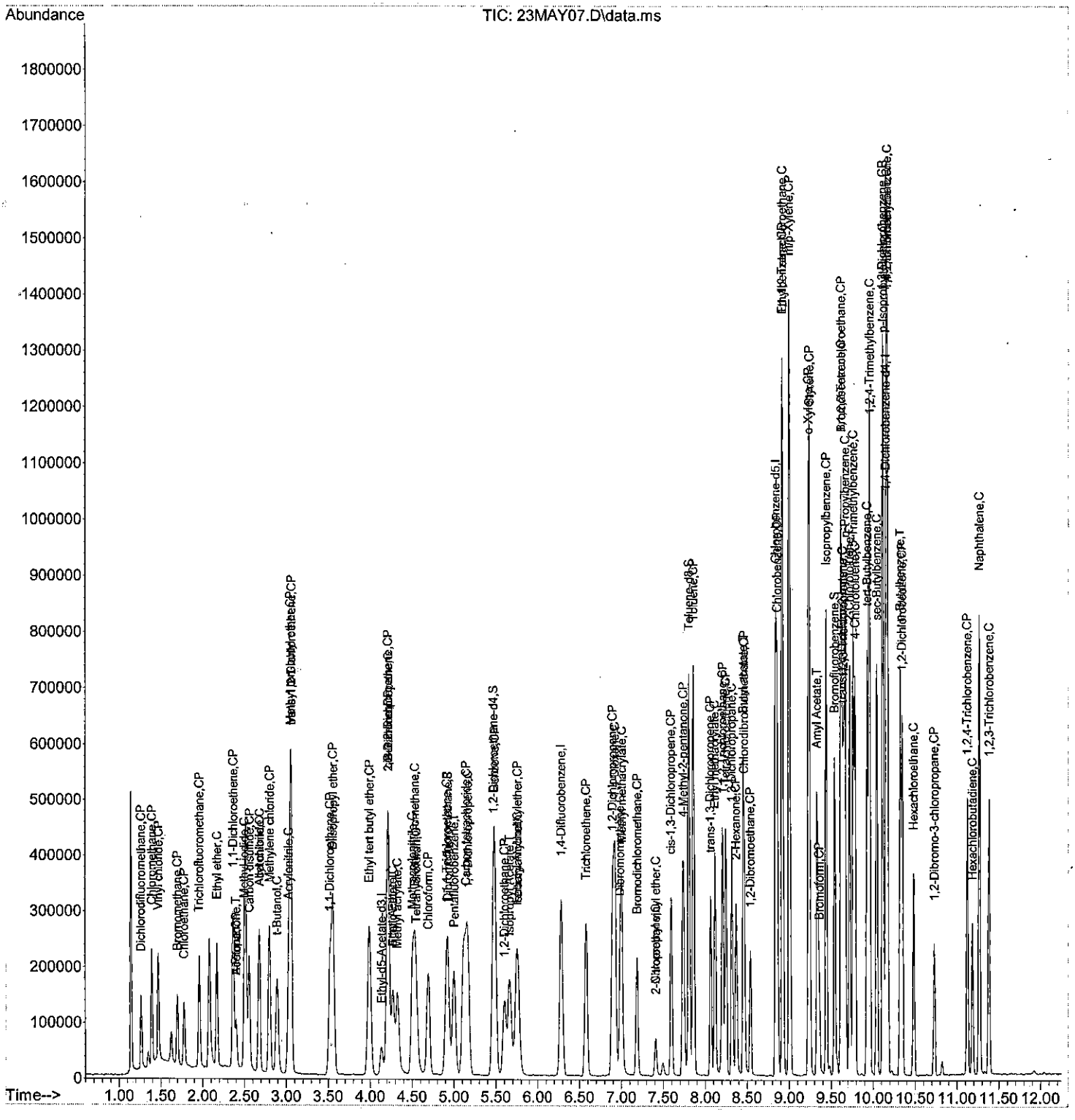
Quant Time: May 24 08:52:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	366680	22.33 ug/L	99
95)	sec-Butylbenzene	10.045	105	411593	21.76 ug/L	99
97)	1,1,2,2-Tetrachloroethane	9.621	83	208345	22.56 ug/L	100
98)	1,3-Dichlorobenzene	10.113	146	194921	21.40 ug/L	99
99)	p-Isopropyltoluene	10.119	119	337714	21.86 ug/L	99
100)	1,4-Dichlorobenzene	10.166	146	204041	21.35 ug/L	99
101)	1,2,3-Trimethylbenzene	10.171	105	378355	21.66 ug/L	99
102)	Benzyl chloride	0.000		0	N.D. d	
103)	1,2-Dichlorobenzene	10.344	146	189590	20.50 ug/L	98
104)	n-Butylbenzene	10.323	91	335045	22.24 ug/L	98
105)	Hexachloroethane	10.480	117	50070	19.67 ug/L	99
106)	1,2-Dibromo-3-chloropr...	10.727	157	43593	23.95 ug/L	98
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.	
108)	1,2,4-Trichlorobenzene	11.120	180	112216	20.52 ug/L	99
109)	Hexachlorobutadiene	11.183	225	36001	19.85 ug/L	97
110)	Naphthalene	11.267	128	500691	21.97 ug/L	100
111)	1,2,3-Trichlorobenzene	11.382	180	113241	21.25 ug/L	100
112)	2-Methylnaphthalene	0.000		0	N.D.	
113)	1-Methylnaphthalene	0.000		0	N.D.	
115)	2-Propanone	2.401	43	90022	21.67 ug/L	100
116)	Acetic Ether	4.267	43	235007	21.63 ug/L	100
117)	Isopropyl Acetate	5.662	61	61642	21.20 ug/L	92
118)	Amyl Acetate	9.332	43	232232	20.50 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY07.D
Acq On : 23 May 2018 01:30 pm
Operator : AK
Sample : VLCSW1-180523
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 24 08:52:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY33.D
Acq On : 23 May 2018 09:04 pm
Operator : AK
Sample : 18051310-02A MS DF100
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 24 09:07:08 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	146265	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.286	114	294294	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	292831	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	148038	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	75658	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	94548	20.00	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.00%			
45) 1,2-Dichloroethane-d4	5.468	65	117822	19.25	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.25%			
64) Toluene-d8	7.806	98	377481	18.58	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 92.90%			
85) Bromofluorobenzene	9.542	95	153091	21.45	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 107.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.263	85	100568	20.22	ug/L	98
3) Chloromethane	1.394	50	130407	18.33	ug/L	99
4) Vinyl chloride	1.468	62	137308	22.82	ug/L	98
5) Bromomethane	1.698	96	59010	17.71	ug/L	99
6) Chloroethane	1.777	64	82201	26.34	ug/L	97
7) Trichlorofluoromethane	1.960	101	133637	20.87	ug/L	98
8) Ethyl ether	2.170	59	101546	25.19	ug/L	100
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.364	61	164604	26.70	ug/L	99
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.495	142	33074	19.25	ug/L #	89
13) Acetone	2.401	43	94851	28.48	ug/L	100
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.553	76	215027	24.96	ug/L	99
16) Allyl chloride	2.679	41	147765	22.40	ug/L	89
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	2.679	41	147765	22.40	ug/L	91
19) Methylene chloride	2.794	49	150594	26.57	ug/L	99
20) trans-1,2-Dichloroethene	3.056	61	152974	27.62	ug/L	98
21) t-Butanol	2.894	59	196749	135.67	ug/L	96
22) Acrylonitrile	3.025	53	98140	27.80	ug/L	100
23) Methyl tert-butyl ether	3.051	73	330036	25.80	ug/L	98
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.518	63	204247	27.36	ug/L	98
26) Diisopropyl ether	3.554	45	338239	25.66	ug/L #	45
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.995	59	300205	25.00	ug/L	99
29) 2,2-Dichloropropane	4.215	77	112219	22.20	ug/L	97
30) cis-1,2-Dichloroethene	4.210	61	177640	26.15	ug/L	98
31) 2-Butanone	4.215	43	130992	27.17	ug/L	98
32) Ethyl Acetate	4.273	43	239242	26.00	ug/L	99
33) Methyl acrylate	4.330	55	197568	27.53	ug/L	99
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	4.535	49	97502	25.66	ug/L	100

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY33.D
Acq On : 23 May 2018 09:04 pm
Operator : AK
Sample : 18051310-02A MS DF100
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 24 09:07:08 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
36) Tetrahydrofuran	4.556	42	91576	28.08	ug/L		97
37) Methacrylonitrile	4.509	41	169156	31.76	ug/L		98
38) Chloroform	4.692	83	185133	25.64	ug/L		98
39) Cyclohexane	5.001	56	9620	0.90	ug/L	#	59
41) 1,1,1-Trichloroethane	4.912	97	137154	24.02	ug/L		100
43) Carbon tetrachloride	5.143	117	99310	22.56	ug/L		99
44) 1,1-Dichloropropene	5.164	75	141143	23.53	ug/L		98
46) 1,2-Dichloroethane	5.604	62	158408	23.41	ug/L		100
47) Benzene	5.484	78	715843	39.51	ug/L		99
48) Tertiaryamylmethylether	5.756	73	286492	22.96	ug/L		97
49) Isobutyl Alcohol	5.756	43	88947	21.80	ug/L		94
50) Heptane	0.000		0	N.D.			
51) 1,4-Dioxane	6.920	88	7719	63.87	ug/L	#	14
52) Methylcyclohexane	6.842	83	5012	0.79	ug/L	#	21
53) n-Butanol	0.000		0	N.D.			
54) Trichloroethene	6.585	130	100826	24.08	ug/L		99
55) 1,2-Dichloropropane	6.894	63	124480	25.10	ug/L	#	85
56) Dibromomethane	6.983	93	73544	23.50	ug/L		99
57) Methyl methacrylate	7.004	41	141068	23.67	ug/L		97
58) Bromodichloromethane	7.188	83	112546	22.27	ug/L		99
59) 2-Chloroethyl vinyl ether	7.408	43	33714	15.54	ug/L	#	1
60) 2-Nitropropane	7.408	43	33899	19.69	ug/L	#	96
61) cis-1,3-Dichloropropene	7.597	75	145819	23.52	ug/L		99
63) 4-Methyl-2-pentanone	7.738	43	304435	31.72	ug/L		84
65) Toluene	7.859	91	1967018	96.39	ug/L		100
66) trans-1,3-Dichloropropene	8.069	75	126133	21.22	ug/L		96
67) Chloropicrin	0.000		0	N.D.			
68) Ethyl methacrylate	8.121	69	184805	24.12	ug/L		98
69) 1,1,2-Trichloroethane	8.210	97	111887	22.58	ug/L		99
70) Tetrachloroethene	8.247	166	100696	23.77	ug/L		99
71) 1,3-Dichloropropane	8.320	76	196715	23.24	ug/L		97
72) 2-Hexanone	8.373	43	179287	25.00	ug/L		95
73) Chlorodibromomethane	8.467	129	78279	19.93	ug/L		98
74) Butyl acetate	8.457	43	271655	22.61	ug/L		98
75) 1,2-Dibromoethane	8.541	107	113119	25.22	ug/L	#	98
76) Chlorobenzene	8.860	112	270817	21.72	ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.923	131	82308	22.35	ug/L		98
78) Ethylbenzene	8.923	91	1455248	68.97	ug/L		99
79) m/p-Xylene	9.002	91	2990450	187.41	ug/L		100
80) Styrene	9.248	104	313929	25.56	ug/L		77
81) o-Xylene	9.233	91	1236715	75.30	ug/L		100
82) Cyclohexanone	0.000		0	N.D.			
83) Bromoform	9.358	173	49509	19.63	ug/L		99
84) Isopropylbenzene	9.442	105	470180	24.87	ug/L		100
86) Bromobenzene	9.621	77	278973	22.59	ug/L		99
87) 1,2,3-Trichloropropane	9.652	110	56869	22.21	ug/L		99
88) trans-1,4-Dichloro-2-b...	9.636	53	48039	18.45	ug/L		81
89) n-Propylbenzene	9.668	91	640539	26.96	ug/L		99
90) 2-Chlorotoluene	9.720	91	375043	26.53	ug/L		92
91) 4-Chlorotoluene	9.788	91	371274	23.05	ug/L		99
92) 1,3,5-Trimethylbenzene	9.762	105	468625	31.84	ug/L		96
93) tert-Butylbenzene	9.930	91	198275	21.44	ug/L		94

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY33.D
Acq On : 23 May 2018 09:04 pm
Operator : AK
Sample : 18051310-02A MS DF100
Misc :
ALS Vial : 29 Sample Multiplier: 1

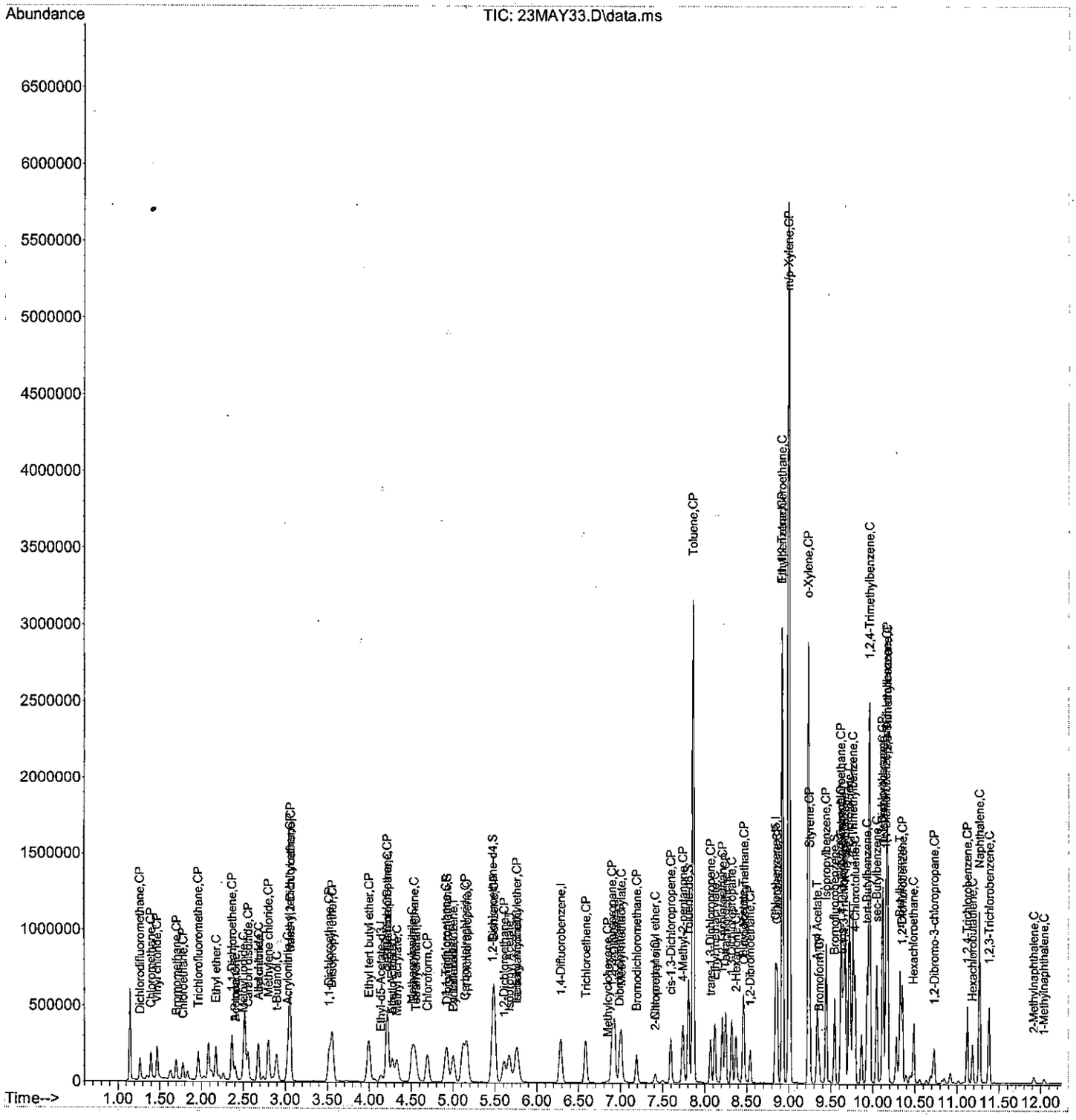
Quant Time: May 24 09:07:08 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	967743	61.77	ug/L		94
95)	sec-Butylbenzene	10.045	105	421576	23.36	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	202426	21.44	ug/L		99
98)	1,3-Dichlorobenzene	10.113	146	189706	20.38	ug/L		99
99)	p-Isopropyltoluene	10.119	119	345928	21.90	ug/L		100
100)	1,4-Dichlorobenzene	10.166	146	197030	20.16	ug/L		99
101)	1,2,3-Trimethylbenzene	10.171	105	565653	31.67	ug/L		100
102)	Benzyl chloride	0.000		0	N.D.	d		
103)	1,2-Dichlorobenzene	10.349	146	194459	20.57	ug/L		99
104)	n-Butylbenzene	10.323	91	332437	21.59	ug/L		97
105)	Hexachloroethane	10.480	117	43776	16.96	ug/L	#	59
106)	1,2-Dibromo-3-chloropr...	10.727	157	38292	20.58	ug/L		97
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.			
108)	1,2,4-Trichlorobenzene	11.120	180	111986	20.03	ug/L		98
109)	Hexachlorobutadiene	11.183	225	34366	18.53	ug/L		98
110)	Naphthalene	11.267	128	685991	29.44	ug/L		99
111)	1,2,3-Trichlorobenzene	11.382	180	116564	21.40	ug/L		99
112)	2-Methylnaphthalene	11.917	142	16641	1.38	ug/L		92
113)	1-Methylnaphthalene	12.038	142	8906	0.76	ug/L		84
115)	2-Propanone	2.401	43	94851	25.94	ug/L		100
116)	Acetic Ether	4.273	43	239242	24.89	ug/L		99
117)	Isopropyl Acetate	5.667	61	59233	23.02	ug/L		97
118)	Amyl Acetate	9.337	43	240408	23.95	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY33.D
Acq On : 23 May 2018 09:04 pm
Operator : AK
Sample : 18051310-02A MS DF100
Misc :
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 24 09:07:08 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY34.D
Acq On : 23 May 2018 09:20 pm
Operator : AK
Sample : 18051310-02A MSD DF100
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 24 09:07:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	147220	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.286	114	293692	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	295701	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	150336	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.142	46	73487	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.933	111	96204	20.39	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.95%				
45) 1,2-Dichloroethane-d4	5.473	65	120577	19.74	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.70%				
64) Toluene-d8	7.806	98	382859	18.66	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.30%				
85) Bromofluorobenzene	9.542	95	150952	20.94	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	94835	18.94	ug/L		99
3) Chloromethane	1.394	50	125482	17.52	ug/L		99
4) Vinyl chloride	1.473	62	129616	21.40	ug/L		98
5) Bromomethane	1.698	96	59943	17.88	ug/L		99
6) Chloroethane	1.777	64	79666	25.33	ug/L		97
7) Trichlorofluoromethane	1.960	101	129168	20.05	ug/L		100
8) Ethyl ether	2.170	59	104717	25.81	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.364	61	152155	24.52	ug/L		99
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.495	142	34601	20.00	ug/L	#	90
13) Acetone	2.401	43	93554	27.89	ug/L		99
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.553	76	205875	23.74	ug/L		97
16) Allyl chloride	2.679	41	140117	21.11	ug/L		89
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.679	41	140117	21.11	ug/L		91
19) Methylene chloride	2.799	49	147784	25.91	ug/L		99
20) trans-1,2-Dichloroethene	3.056	61	145037	26.02	ug/L		99
21) t-Butanol	2.894	59	210821	144.43	ug/L		95
22) Acrylonitrile	3.025	53	97829	27.54	ug/L		99
23) Methyl tert-butyl ether	3.051	73	325293	25.26	ug/L		98
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.518	63	194488	25.88	ug/L		99
26) Diisopropyl ether	3.560	45	324071	24.43	ug/L	#	46
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.995	59	295415	24.44	ug/L		99
29) 2,2-Dichloropropane	4.215	77	103210	20.28	ug/L		96
30) cis-1,2-Dichloroethene	4.210	61	170658	24.96	ug/L		99
31) 2-Butanone	4.215	43	127177	26.21	ug/L		98
32) Ethyl Acetate	4.273	43	240588	25.97	ug/L		99
33) Methyl acrylate	4.330	55	199663	27.64	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.535	49	94505	24.71	ug/L		99

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY34.D
Acq On : 23 May 2018 09:20 pm
Operator : AK
Sample : 18051310-02A MSD DF100
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 24 09:07:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
36) Tetrahydrofuran	4.556	42	91043	27.73 ug/L		97
37) Methacrylonitrile	4.509	41	129742	24.20 ug/L	#	81
38) Chloroform	4.692	83	176299	24.25 ug/L		100
39) Cyclohexane	4.996	56	8732	0.74 ug/L	#	47
41) 1,1,1-Trichloroethane	4.912	97	125437	22.02 ug/L		99
43) Carbon tetrachloride	5.143	117	94975	21.62 ug/L		97
44) 1,1-Dichloropropene	5.164	75	133608	22.32 ug/L		99
46) 1,2-Dichloroethane	5.604	62	149387	22.12 ug/L		97
47) Benzene	5.484	78	699394	38.68 ug/L		100
48) Tertiaryamylmethylether	5.762	73	284947	22.88 ug/L		99
49) Isobutyl Alcohol	5.756	43	89309	21.93 ug/L		91
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	6.920	88	7210	59.78 ug/L	#	14
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	6.585	130	93648	22.41 ug/L		96
55) 1,2-Dichloropropane	6.894	63	116923	23.63 ug/L	#	84
56) Dibromomethane	6.983	93	73476	23.52 ug/L		98
57) Methyl methacrylate	7.004	41	141347	23.76 ug/L		98
58) Bromodichloromethane	7.188	83	108738	21.57 ug/L		97
59) 2-Chloroethyl vinyl ether	7.408	43	33568	15.51 ug/L	#	1
60) 2-Nitropropane	7.408	43	35279	20.53 ug/L	#	92
61) cis-1,3-Dichloropropene	7.597	75	143283	23.16 ug/L		98
63) 4-Methyl-2-pentanone	7.738	43	309934	31.98 ug/L		83
65) Toluene	7.859	91	1934606	93.89 ug/L		99
66) trans-1,3-Dichloropropene	8.069	75	121836	20.30 ug/L		98
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	8.121	69	185001	23.91 ug/L		100
69) 1,1,2-Trichloroethane	8.210	97	109764	21.93 ug/L		98
70) Tetrachloroethene	8.247	166	96217	22.49 ug/L		98
71) 1,3-Dichloropropane	8.320	76	194546	22.76 ug/L		96
72) 2-Hexanone	8.373	43	179753	24.82 ug/L		95
73) Chlorodibromomethane	8.467	129	76420	19.26 ug/L		99
74) Butyl acetate	8.457	43	274171	22.60 ug/L		100
75) 1,2-Dibromoethane	8.540	107	113019	24.96 ug/L	#	98
76) Chlorobenzene	8.860	112	260091	20.66 ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.923	131	77255	20.77 ug/L		98
78) Ethylbenzene	8.923	91	1439307	67.55 ug/L		99
79) m/p-Xylene	9.002	91	2936717	182.26 ug/L		99
80) Styrene	9.248	104	303735	24.49 ug/L		77
81) o-Xylene	9.233	91	1206352	72.74 ug/L		100
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	9.358	173	47590	18.69 ug/L		98
84) Isopropylbenzene	9.442	105	445192	23.32 ug/L		100
86) Bromobenzene	9.620	77	273989	21.97 ug/L		99
87) 1,2,3-Trichloropropane	9.652	110	58311	22.55 ug/L		99
88) trans-1,4-Dichloro-2-b...	9.636	53	49096	18.68 ug/L		80
89) n-Propylbenzene	9.668	91	610775	25.46 ug/L		99
90) 2-Chlorotoluene	9.720	91	364568	25.54 ug/L		92
91) 4-Chlorotoluene	9.788	91	360267	22.15 ug/L		98
92) 1,3,5-Trimethylbenzene	9.762	105	459697	30.93 ug/L		100
93) tert-Butylbenzene	9.930	91	189353	20.28 ug/L		93

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY34.D
Acq On : 23 May 2018 09:20 pm
Operator : AK
Sample : 18051310-02A MSD DF100
Misc :
ALS Vial : 30 Sample Multiplier: 1

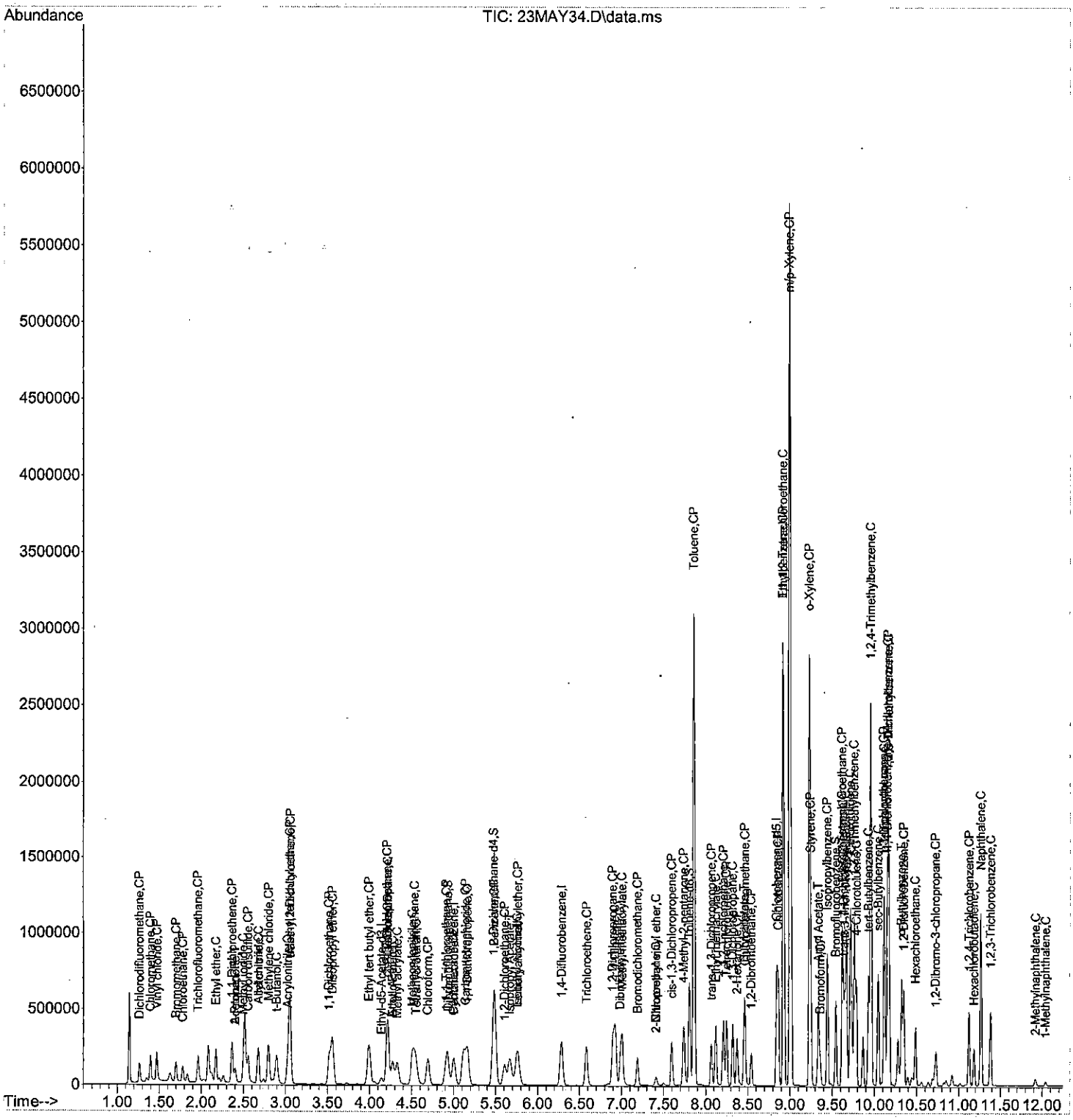
Quant Time: May 24 09:07:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
94)	1,2,4-Trimethylbenzene	9.961	105	967741	61.17 ug/L	94
95)	sec-Butylbenzene	10.045	105	402080	22.06 ug/L	99
97)	1,1,2,2-Tetrachloroethane	9.620	83	201536	21.02 ug/L	99
98)	1,3-Dichlorobenzene	10.113	146	186466	19.72 ug/L	99
99)	p-Isopropyltoluene	10.119	119	331529	20.67 ug/L	100
100)	1,4-Dichlorobenzene	10.166	146	192191	19.37 ug/L	99
101)	1,2,3-Trimethylbenzene	10.171	105	563202	31.06 ug/L	99
102)	Benzyl chloride	0.000		0	N.D. d	
103)	1,2-Dichlorobenzene	10.349	146	187403	19.52 ug/L	99
104)	n-Butylbenzene	10.323	91	313983	20.08 ug/L	98
105)	Hexachloroethane	10.486	117	41449	15.87 ug/L #	56
106)	1,2-Dibromo-3-chloropr...	10.727	157	39698	21.01 ug/L	96
107)	1,3,5-Trichlorobenzene	0.000		0	N.D.	
108)	1,2,4-Trichlorobenzene	11.125	180	111804	19.70 ug/L	97
109)	Hexachlorobutadiene	11.183	225	32146	17.07 ug/L	96
110)	Naphthalene	11.267	128	685464	28.97 ug/L	100
111)	1,2,3-Trichlorobenzene	11.382	180	112047	20.26 ug/L	97
112)	2-Methylnaphthalene	11.917	142	17536	1.44 ug/L	98
113)	1-Methylnaphthalene	12.038	142	10484	0.88 ug/L	98
115)	2-Propanone	2.401	43	93554	26.35 ug/L	99
116)	Acetic Ether	4.273	43	240588	25.77 ug/L	98
117)	Isopropyl Acetate	5.667	61	57855	23.15 ug/L	95
118)	Amyl Acetate	9.337	43	245249	25.15 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180523\
Data File : 23MAY34.D
Acq On : 23 May 2018 09:20 pm
Operator : AK
Sample : 18051310-02A MSD DF100
Misc :
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 24 09:07:16 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10WGO0522.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 23 13:16:26 2018
Response via : Initial Calibration



2018 May 23 1809 Sequence Log

Starting sequence Wed May 23 18:09:37 2018

Instrument Name: 5977_VOA
Sequence File: D:\MassHunter\GCMS\1\sequence\10V180523.sequence.xml
Comment:
Operator: AK
Data Path: D:\MassHunter\GCMS\1\data\10V180523\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
1)	Sample	3	23MAY01	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
2)	TuneCheck	1	23MAY02	VBFB1-180523
3)	TuneCheck	1	23MAY03	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
4)	Sample	1	23MAY04	VCCV1-180523
5)	Sample	1	23MAY05	VCCV2-180523
6)	Sample	2	23MAY06	LCS-
7)	Sample	3	23MAY07	VLCSW1-180523
8)	Sample	4	23MAY08	BLK
9)	Sample	5	23MAY09	VBLKW1-180523
10)	Sample	6	23MAY10	MBLK-
11)	Sample	7	23MAY11	18051330-02A
12)	Sample	8	23MAY12	18051330-03A
13)	Sample	9	23MAY13	18051330-04A
14)	Sample	10	23MAY14	18051560-01A
15)	Sample	11	23MAY15	18051560-02A DF50
16)	Sample	12	23MAY16	18051560-03A DF50
17)	Sample	13	23MAY17	18051560-04A DF50
18)	Sample	14	23MAY18	18051560-02A
19)	Sample	15	23MAY19	18051560-03A
Sequence Table edit performed Wed May 23 17:15:11 2018				
20)	Sample	16	23MAY20	18051560-04A
21)	Sample	17	23MAY21	18051019-01A DF20000
22)	Sample	18	23MAY22	18051043-04A
23)	Sample	19	23MAY23	18051220-04A
24)	Sample	20	23MAY24	18051275-03A
25)	Sample	21	23MAY25	18051294-03A
26)	Sample	22	23MAY26	18051304-03A
27)	Sample	23	23MAY27	18051115-02A DF20
28)	Sample	24	23MAY28	18051454-04A DF100

2018 May 23 1809 Sequence Log

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 29) Sample          25      23MAY29                 18051310-01A DF100
 30) Sample          26      23MAY30                 18051310-02A DF100
 31) Sample          27      23MAY31                 18051304-01A DF500
 32) Sample          28      23MAY32                 18051304-02A DF500
 33) Sample          29      23MAY33                 18051310-02A MS DF100
 34) Sample          30      23MAY34                 18051310-02A MSD DF100
 35) Sample          31      23MAY35                 BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M
 36) Sample          32      23MAY36                 VBFB3-180523

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M
 37) Sample          33      23MAY37                 VCCV3-180523
 38) Sample          34      23MAY38                 VCCV4-180523
 39) Sample          35      23MAY39                 VLCSW2-180523
 40) Sample          36      23MAY40                 LCS-
 41) Sample          37      23MAY41                 BLK
 42) Sample          38      23MAY42                 VBLKW2-180523
 43) Sample          39      23MAY43                 MBLK-
 44) Sample          40      23MAY44                 18051189-02A DF2000
 45) Sample          41      23MAY45                 18051175-09A DF250
 46) Sample          42      23MAY46                 18051137-08B
 47) Sample          43      23MAY47                 18051481-02B
 48) Sample          44      23MAY48                 18051481-04B
 49) Sample          45      23MAY49                 18051481-05B
 50) Sample          46      23MAY50                 18051481-06B
 51) Sample          47      23MAY51                 18051481-07B
 52) Sample          48      23MAY52                 18051481-08B
 53) Sample          49      23MAY53                 18051481-09B
 54) Sample          50      23MAY54                 18051481-10B
 55) Sample          51      23MAY55                 18051481-11B
 56) Sample          52      23MAY56                 18051342-01A
 57) Sample          53      23MAY57                 18051342-02A
 58) Sample          54      23MAY58                 18051342-03A
 59) Sample          55      23MAY59                 18051342-05A
 60) Sample          56      23MAY60                 18051175-10A
 61) Sample          57      23MAY61                 18051175-11A
 62) Sample          58      23MAY62                 18051175-12A
 63) Sample          59      23MAY63                 18051175-13A
 64) Sample          60      23MAY64                 18051560-02A MS DF50
 65) Sample          61      23MAY65                 18051560-02A MSD DF50
 66) Sample          62      23MAY66                 BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M
 67) Sample          63      23MAY67                 VBFB4-180523
```

2018 May 23 1809 Sequence Log

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M

68)	Sample	64	23MAY68	VCCV4-180523
69)	Sample	65	23MAY69	VCCV5-180523
70)	Sample	66	23MAY70	VLCSW3-180523
71)	Sample	67	23MAY71	BLK
72)	Sample	68	23MAY72	VBLKW3-180523
73)	Sample	69	23MAY73	18051388-16A
74)	Sample	70	23MAY74	18051388-01A
75)	Sample	71	23MAY75	18051388-02A
76)	Sample	72	23MAY76	18051388-03A
77)	Sample	66	23MAY77	VLCSW4-180523
78)	Sample	73	23MAY78	18051388-04A
79)	Sample	74	23MAY79	18051388-05A
80)	Sample	75	23MAY80	18051388-06A
81)	Sample	76	23MAY81	18051388-07A
82)	Sample	77	23MAY82	18051388-09A
83)	Sample	78	23MAY83	18051388-10A
84)	Sample	79	23MAY84	18051388-11A
85)	Sample	80	23MAY85	18051388-12A
86)	Sample	1	23MAY86	18051388-13A DF100
87)	Sample	2	23MAY87	18051388-14A DF100
88)	Sample	3	23MAY88	18051388-08A
89)	Sample	4	23MAY89	18051388-15A
90)	Sample	5	23MAY90	18051388-13A MS DF100
91)	Sample	6	23MAY91	18051388-13A MSD DF100
92)	Sample	7	23MAY92	BLK

Sequence completed Thu May 24 13:07:27 2018

D:\MassHunter\GCMS\1\data\10V180523\2018 May 23 1809 Quality Log.LOG
D:\MassHunter\GCMS\1\data\10V180523\2018 May 23 1809 Sequence Log .LOG

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

24-May-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051560**

Dear Heather,

ALS Environmental received 4 samples on 23-May-2018 11:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 24-May-18

Client: Jacobs
Project: PMC
Work Order: **18051560**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051560-01	18CP02-37	Water		5/22/2018 13:00	5/23/2018 11:00	☐
18051560-02	18CP02-38	Groundwater		5/22/2018 14:20	5/23/2018 11:00	☐
18051560-03	18CP02-39	Groundwater		5/22/2018 15:30	5/23/2018 11:00	☐
18051560-04	18CP02-40	Groundwater		5/22/2018 17:00	5/23/2018 11:00	☐

ALS Group, USA

Date: 24-May-18

Client: Jacobs
Project: PMC
Work Order: 18051560

Case Narrative

Samples for the above noted Work Order were received on 05/23/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

ALS Group, USA

Date: 24-May-18

Client: Jacobs
Project: PMC
WorkOrder: **18051560**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter

ALS Group, USA

Date: *24-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-37
Collection Date: 5/22/2018 01:00 PM

Work Order: 18051560
Lab ID: 18051560-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 15:40
Surr: 1,2-Dichloroethane-d4	*102*			*75-120*	*%REC*	1	5/23/2018 15:40
Surr: 4-Bromofluorobenzene	*101*			*80-110*	*%REC*	1	5/23/2018 15:40
Surr: Dibromofluoromethane	*91.0*			*85-115*	*%REC*	1	5/23/2018 15:40
Surr: Toluene-d8	*92.8*			*85-110*	*%REC*	1	5/23/2018 15:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-38
Collection Date: 5/22/2018 02:20 PM

Work Order: 18051560
Lab ID: 18051560-02
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 16:44
Surr: 1,2-Dichloroethane-d4	*101*			*75-120*	*%REC*	1	5/23/2018 16:44
Surr: 4-Bromofluorobenzene	*103*			*80-110*	*%REC*	1	5/23/2018 16:44
Surr: Dibromofluoromethane	*91.2*			*85-115*	*%REC*	1	5/23/2018 16:44
Surr: Toluene-d8	*91.8*			*85-110*	*%REC*	1	5/23/2018 16:44

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-39
Collection Date: 5/22/2018 03:30 PM

Work Order: 18051560
Lab ID: 18051560-03
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
Trichloroethene	U		0.33	1.0	µg/L	1	5/23/2018 17:00
Surr: 1,2-Dichloroethane-d4	*99.2*			*75-120*	*%REC*	1	5/23/2018 17:00
Surr: 4-Bromofluorobenzene	*101*			*80-110*	*%REC*	1	5/23/2018 17:00
Surr: Dibromofluoromethane	*91.3*			*85-115*	*%REC*	1	5/23/2018 17:00
Surr: Toluene-d8	*91.2*			*85-110*	*%REC*	1	5/23/2018 17:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *24-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-40
Collection Date: 5/22/2018 05:00 PM

Work Order: 18051560
Lab ID: 18051560-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
Trichloroethene	**2.3**		**0.33**	**1.0**	**µg/L**	1	5/23/2018 17:16
Surr: 1,2-Dichloroethane-d4	*99.0*			*75-120*	*%REC*	1	5/23/2018 17:16
Surr: 4-Bromofluorobenzene	*100*			*80-110*	*%REC*	1	5/23/2018 17:16
Surr: Dibromofluoromethane	*94.7*			*85-115*	*%REC*	1	5/23/2018 17:16
Surr: Toluene-d8	*92.0*			*85-110*	*%REC*	1	5/23/2018 17:16

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 24-May-18

Client: Jacobs

Work Order: 18051560

Project: PMC

QC BATCH REPORT

Batch ID: **R236511A** Instrument ID **VMS10** Method: **SW8260C**

MBLK Sample ID: **VBLKW1-180523-R236511A** Units: **µg/L** Analysis Date: **5/23/2018 02:02 PM**

Client ID: Run ID: **VMS10_180523A** SeqNo: **5050289** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	ND	1.0								
1,2-Dichloroethane-d4	*19.9*	0	*20*	0	*99.5*	*75-120*	0			
4-Bromofluorobenzene	*20.13*	0	*20*	0	*101*	*80-110*	0			
Dibromofluoromethane	*20.25*	0	*20*	0	*101*	*85-115*	0			
Toluene-d8	*18.77*	0	*20*	0	*93.8*	*85-110*	0			

LCS Sample ID: **VLCSW1-180523-R236511A** Units: **µg/L** Analysis Date: **5/23/2018 01:30 PM**

Client ID: Run ID: **VMS10_180523A** SeqNo: **5050288** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	*22.23*	1.0	20	0	111	84-130	0			
1,2-Dichloroethane-d4	*19.82*	0	*20*	0	*99.1*	*75-120*	0			
4-Bromofluorobenzene	*20.8*	0	*20*	0	*104*	*80-110*	0			
Dibromofluoromethane	*20.58*	0	*20*	0	*103*	*85-115*	0			
Toluene-d8	*18.82*	0	*20*	0	*94.1*	*85-110*	0			

MS Sample ID: **18051310-02A MS** Units: **µg/L** Analysis Date: **5/23/2018 09:04 PM**

Client ID: Run ID: **VMS10_180523A** SeqNo: **5050232** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	2408	100	2000	0	120	84-130	0			
1,2-Dichloroethane-d4	*1925*	0	*2000*	0	*96.2*	*75-120*	0			
4-Bromofluorobenzene	*2145*	0	*2000*	0	*107*	*80-110*	0			
Dibromofluoromethane	*2000*	0	*2000*	0	*100*	*85-115*	0			
Toluene-d8	*1858*	0	*2000*	0	*92.9*	*85-110*	0			

MSD Sample ID: **18051310-02A MSD** Units: **µg/L** Analysis Date: **5/23/2018 09:20 PM**

Client ID: Run ID: **VMS10_180523A** SeqNo: **5050233** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	2241	100	2000	0	112	84-130	2408	7.18	30	
1,2-Dichloroethane-d4	*1974*	0	*2000*	0	*98.7*	*75-120*	1925	*2.51*	*30*	
4-Bromofluorobenzene	*2094*	0	*2000*	0	*105*	*80-110*	2145	*2.41*	*30*	
Dibromofluoromethane	*2039*	0	*2000*	0	*102*	*85-115*	2000	*1.93*	*30*	
Toluene-d8	*1866*	0	*2000*	0	*93.3*	*85-110*	1858	*0.43*	*30*	

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

18051560

Page 1 of 1

USEPA CLP COC (LAB COPY)
DateShipped: 5/22/2018
CarrierName: FedEx
AirbillNo:

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052218-162644-0005
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-TB-06-052218	18CP02-37	Blank/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (2)	PMC-TB	05/22/2018 13:00	
PMC-CMW-01-VAS/45.0-50.0-052218	18CP02-38	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 14:20	
PMC-CMW-01-VAS/40.0-45.0-052218	18CP02-39	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 15:30	
PMC-CMW-01-VAS/20.0-25.0-052218	18CP02-40	Ground Water/ CH2M	Grab	VOC_TCE(24 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 17:00	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	FED EX	5/22/18 5/23/18 1100	FedEx		SR2 3.2°C

1

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **23-May-18 11:00**

Work Order: **18051560** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 23-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 23-May-18 (Date)

Matrices: Groundwater

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.2/3.2 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/23/2018 2:31:31 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Work Order: 18051682

Project Name:
PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

02-Jul-2018

NELAP ACCREDITED LABORATORY

Certificate No: MI: 0022

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

Section I

CASE NARRATIVE

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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RIGHT SOLUTIONS

ALS Group, USA

Date: 02-Jul-18

Client:	Jacobs
Project:	PMC
Work Order:	18051682

Case Narrative

Samples for the above noted Work Order were received on 05/24/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 118942, Method OXDMD_KMNO4_S, Samples 18051682-04D DUP2 and -04D DUP3: The RPDs between the samples and the duplicates were out of control. The corresponding sample results should be considered estimated.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

ALS Group, USA

Date: 02-Jul-18

Client: Jacobs
Project: PMC
Work Order: 18051682

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051682-01	18CP02-41	Water		5/23/2018 09:05	5/24/2018 10:30	☐
18051682-02	18CP02-42	Water		5/23/2018 09:00	5/24/2018 10:30	☐
18051682-03	18CP02-43	Water		5/23/2018 13:55	5/24/2018 10:30	☐
18051682-04	18CP02-45	Soil		5/22/2018 09:00	5/24/2018 10:30	☐

18051082

USEPA CLP COC (LAB COPY)
DateShipped: 5/23/2018
CarrierName: FedEx
AirbillNo: 781099285687

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052318-132603-0007
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-TB-07-052318	18CP02-41	Blank/ CH2M	Grab	VOC_TCE(21)	A (HCl pH<2 4C) (2)	PMC-TB	05/23/2018 09:05	
2	PMC-EB-01-052318	18CP02-42	Blank/ CH2M	Grab	VOC_TCE(~~21~~ 21 Hours)	A (HCl pH<2 4C) (2)	PMC-EB	05/23/2018 09:00	
3	PMC-EB-02-052318	18CP02-43	Blank/ CH2M	Grab	VOC_TCE(21)	A (HCl pH<2 4C) (2)	PMC-EB	05/23/2018 13:55	
4	PMC-CMW-01-SO/35.0-36.0-052218	18CP02-45	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-CMW-01	05/22/2018 09:00	

Special Instructions: Standard TAT

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only , VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	J Mofferay JMM FedEx	5/23 @ 1500	FedEx		
			ARS	5/24/18 1030	

SR2 4.0°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **24-May-18 10:30**

Work Order: **18051682** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 24-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Water & Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/24/2018 3:16:13 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
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GC/MS
Volatile Organics

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
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1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-45

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051682

Matrix: Soil Lab Sample ID: 18051682-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 8.9 Date Analyzed: 5/30/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.79

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	4.3	U
79-34-5	1,1,2,2-Tetrachloroethane	4.3	U
79-00-5	1,1,2-Trichloroethane	4.3	U
76-13-1	1,1,2-Trichlorotrifluoroeth	4.3	U
75-34-3	1,1-Dichloroethane	4.3	U
75-35-4	1,1-Dichloroethene	4.3	U
87-61-6	1,2,3-Trichlorobenzene	4.3	U
120-82-1	1,2,4-Trichlorobenzene	4.3	U
96-12-8	1,2-Dibromo-3-chloropropane	4.3	U
106-93-4	1,2-Dibromoethane	4.3	U
95-50-1	1,2-Dichlorobenzene	4.3	U
107-06-2	1,2-Dichloroethane	4.3	U
78-87-5	1,2-Dichloropropane	4.3	U
541-73-1	1,3-Dichlorobenzene	4.3	U
106-46-7	1,4-Dichlorobenzene	4.3	U
78-93-3	2-Butanone	8.7	U
591-78-6	2-Hexanone	4.3	U
108-10-1	4-Methyl-2-pentanone	4.3	U
67-64-1	Acetone	38	
71-43-2	Benzene	1.8	J
74-97-5	Bromochloromethane	4.3	U
75-27-4	Bromodichloromethane	4.3	U
75-25-2	Bromoform	4.3	U
74-83-9	Bromomethane	8.7	U
75-15-0	Carbon disulfide	1.3	J
56-23-5	Carbon tetrachloride	4.3	U
108-90-7	Chlorobenzene	4.3	U
75-00-3	Chloroethane	4.3	U
67-66-3	Chloroform	4.3	U
74-87-3	Chloromethane	8.7	U
156-59-2	cis-1,2-Dichloroethene	4.3	U
10061-01-5	cis-1,3-Dichloropropene	4.3	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-45

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051682

Matrix: Soil Lab Sample ID: 18051682-04A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 8.9 Date Analyzed: 5/30/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.79

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
110-82-7	Cyclohexane	8.7	U
124-48-1	Dibromochloromethane	4.3	U
75-71-8	Dichlorodifluoromethane	8.7	U
100-41-4	Ethylbenzene	0.83	J
98-82-8	Isopropylbenzene	4.3	U
136777-61-2	m,p-Xylene	1.4	J
79-20-9	Methyl acetate	8.7	U
1634-04-4	Methyl tert-butyl ether	4.3	U
108-87-2	Methylcyclohexane	5.0	J
75-09-2	Methylene chloride	4.3	U
95-47-6	o-Xylene	0.50	J
100-42-5	Styrene	4.3	U
127-18-4	Tetrachloroethene	4.3	U
108-88-3	Toluene	4.2	J
156-60-5	trans-1,2-Dichloroethene	4.3	U
10061-02-6	trans-1,3-Dichloropropene	4.3	U
79-01-6	Trichloroethene	4.3	U
75-69-4	Trichlorofluoromethane	4.3	U
75-01-4	Vinyl chloride	4.3	U
1330-20-7	Xylenes, Total	1.9	J

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-41

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051682

Matrix: Water Lab Sample ID: 18051682-01A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 0 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-42

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051682

Matrix: Water Lab Sample ID: 18051682-02A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 0 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-43

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051682

Matrix: Water Lab Sample ID: 18051682-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 0 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
79-01-6	Trichloroethene	1.0	U

ALS Group, USA

Date: 02-Jul-18

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180531-R236831** Units: **µg/Kg** Analysis Date: **5/30/2018 11:17 AM**

Client ID: Run ID: **VMS8_180530A** SeqNo: **5062231** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

Methylene chloride	U	5.0					
o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.44*	0	*20*	0	*97.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.06*	0	*20*	0	*95.3*	*83-111*	0
Surr: Dibromofluoromethane	*19.74*	0	*20*	0	*98.7*	*77-125*	0
Surr: Toluene-d8	*19.65*	0	*20*	0	*98.2*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

LCS Sample ID: **VLCSS1-180530-R236831** Units: **µg/Kg** Analysis Date: **5/30/2018 10:24 AM**
Client ID: Run ID: **VMS8_180530A** SeqNo: **5062230** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.26	5.0	20	0	96.3	73-138	0			
1,1,2,2-Tetrachloroethane	17.88	5.0	20	0	89.4	71-126	0			
1,1,2-Trichloroethane	17.53	5.0	20	0	87.6	77-123	0			
1,1-Dichloroethane	19.87	5.0	20	0	99.4	63-148	0			
1,1-Dichloroethene	19.57	5.0	20	0	97.8	67-156	0			
1,2,3-Trichlorobenzene	18.64	5.0	20	0	93.2	73-129	0			
1,2,4-Trichlorobenzene	19.29	5.0	20	0	96.4	70-132	0			
1,2-Dibromo-3-chloropropane	16.78	5.0	20	0	83.9	48-127	0			
1,2-Dibromoethane	18.48	5.0	20	0	92.4	71-144	0			
1,2-Dichlorobenzene	19.91	5.0	20	0	99.6	77-127	0			
1,2-Dichloroethane	18.03	5.0	20	0	90.2	77-127	0			
1,2-Dichloropropane	18.85	5.0	20	0	94.2	74-130	0			
1,3-Dichlorobenzene	20.13	5.0	20	0	101	75-133	0			
1,4-Dichlorobenzene	19.81	5.0	20	0	99	74-130	0			
2-Butanone	15.3	10	20	0	76.5	55-132	0			
2-Hexanone	14.22	5.0	20	0	71.1	55-124	0			
4-Methyl-2-pentanone	18.76	5.0	20	0	93.8	67-159	0			
Acetone	14.69	10	20	0	73.4	31-156	0			
Benzene	19.29	5.0	20	0	96.4	77-133	0			
Bromochloromethane	18.86	5.0	20	0	94.3	72-139	0			
Bromodichloromethane	19.28	5.0	20	0	96.4	69-133	0			
Bromoform	16.93	5.0	20	0	84.6	55-126	0			
Bromomethane	20.14	10	20	0	101	31-174	0			
Carbon disulfide	20.37	5.0	20	0	102	45-160	0			
Carbon tetrachloride	20.51	5.0	20	0	103	69-140	0			
Chlorobenzene	19.49	5.0	20	0	97.4	76-130	0			
Chloroethane	18.85	5.0	20	0	94.2	53-150	0			
Chloroform	18.22	5.0	20	0	91.1	72-132	0			
Chloromethane	14.49	10	20	0	72.4	43-150	0			
cis-1,2-Dichloroethene	18.7	5.0	20	0	93.5	74-134	0			
cis-1,3-Dichloropropene	18.85	5.0	20	0	94.2	62-134	0			
Dibromochloromethane	17.38	5.0	20	0	86.9	57-118	0			
Dichlorodifluoromethane	16.19	10	20	0	81	43-126	0			
Ethylbenzene	19.33	5.0	20	0	96.6	75-133	0			
Isopropylbenzene	19.57	5.0	20	0	97.8	74-137	0			
m,p-Xylene	38.35	2.5	40	0	95.9	75-134	0			
Methyl tert-butyl ether	19.77	5.0	20	0	98.8	62-136	0			
Methylene chloride	19.73	5.0	20	0	98.6	55-157	0			
o-Xylene	18.78	2.5	20	0	93.9	76-130	0			
Styrene	18.75	5.0	20	0	93.8	72-138	0			
Tetrachloroethene	21.48	5.0	20	0	107	70-171	0			
Toluene	18.87	5.0	20	0	94.4	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.33	5.0	20	0	91.6	65-137	0
trans-1,3-Dichloropropene	16.61	5.0	20	0	83	58-126	0
Trichloroethene	20.7	5.0	20	0	104	75-135	0
Trichlorofluoromethane	17.12	5.0	20	0	85.6	62-136	0
Vinyl chloride	19.72	5.0	20	0	98.6	57-143	0
Xylenes, Total	57.13	5.0	60	0	95.2	75-132	0
Surr: 1,2-Dichloroethane-d4	*18.65*	0	*20*	0	*93.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.46*	0	*20*	0	*92.3*	*83-111*	0
Surr: Dibromofluoromethane	*19.27*	0	*20*	0	*96.4*	*77-125*	0
Surr: Toluene-d8	*18.94*	0	*20*	0	*94.7*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051689-10C MS** Units: **µg/Kg** Analysis Date: **5/30/2018 08:03 PM**
Client ID: Run ID: **VMS8_180530A** SeqNo: **5062720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.45	5.0	25	0	118	73-138	0			
1,1,2,2-Tetrachloroethane	24.58	5.0	25	0	98.3	71-126	0			
1,1,2-Trichloroethane	24.58	5.0	25	0	98.3	77-123	0			
1,1-Dichloroethane	28.8	5.0	25	0	115	63-148	0			
1,1-Dichloroethene	30.52	5.0	25	0	122	67-156	0			
1,2,3-Trichlorobenzene	18.2	5.0	25	0	72.8	73-129	0			S
1,2,4-Trichlorobenzene	18.89	5.0	25	0	75.6	70-132	0			
1,2-Dibromo-3-chloropropane	22.12	5.0	25	0	88.5	48-127	0			
1,2-Dibromoethane	26.54	5.0	25	0	106	71-144	0			
1,2-Dichlorobenzene	22.81	5.0	25	0	91.2	77-127	0			
1,2-Dichloroethane	24.49	5.0	25	0	98	77-127	0			
1,2-Dichloropropane	26.64	5.0	25	0	107	74-130	0			
1,3-Dichlorobenzene	22.62	5.0	25	0	90.5	75-133	0			
1,4-Dichlorobenzene	22.24	5.0	25	0	89	74-130	0			
2-Butanone	37.64	10	25	0	151	55-132	0			S
2-Hexanone	26.26	5.0	25	0	105	55-124	0			
4-Methyl-2-pentanone	31.11	5.0	25	0	124	67-159	0			
Acetone	57.27	10	25	3.867	214	31-156	0			S
Benzene	27.51	5.0	25	0	110	77-133	0			
Bromochloromethane	26.07	5.0	25	0	104	72-139	0			
Bromodichloromethane	26.22	5.0	25	0	105	69-133	0			
Bromoform	24.76	5.0	25	0	99	55-126	0			
Bromomethane	26.2	10	25	0	105	31-174	0			
Carbon disulfide	29.96	5.0	25	0	120	45-160	0			
Carbon tetrachloride	32.8	5.0	25	0	131	69-140	0			
Chlorobenzene	26.2	5.0	25	0	105	76-130	0			
Chloroethane	23.54	5.0	25	0	94.2	53-150	0			
Chloroform	25.51	5.0	25	0	102	72-132	0			
Chloromethane	20.91	10	25	0	83.6	43-150	0			
cis-1,2-Dichloroethene	27.56	5.0	25	0	110	74-134	0			
cis-1,3-Dichloropropene	24.29	5.0	25	0	97.2	62-134	0			
Dibromochloromethane	24.27	5.0	25	0	97.1	57-118	0			
Dichlorodifluoromethane	31.86	10	25	0	128	43-126	0			S
Ethylbenzene	27.44	5.0	25	0	110	75-133	0			
Isopropylbenzene	29.04	5.0	25	0	116	74-137	0			
m,p-Xylene	53.22	2.5	50	0	106	75-134	0			
Methyl tert-butyl ether	30.37	5.0	25	0	121	62-136	0			
Methylene chloride	29.09	5.0	25	0	116	55-157	0			
o-Xylene	26.03	2.5	25	0	104	76-130	0			
Styrene	24.26	5.0	25	0	97	72-138	0			
Tetrachloroethene	41.03	5.0	25	0	164	70-171	0			
Toluene	26.75	5.0	25	0	107	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	27.73	5.0	25	0	111	65-137	0
trans-1,3-Dichloropropene	22.9	5.0	25	0	91.6	58-126	0
Trichloroethene	29.46	5.0	25	0	118	75-135	0
Trichlorofluoromethane	28.55	5.0	25	0	114	62-136	0
Vinyl chloride	32.6	5.0	25	0	130	57-143	0
Xylenes, Total	79.25	5.0	75	0	106	75-132	0
Surr: 1,2-Dichloroethane-d4	*20.57*	0	*20*	0	*103*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.16*	0	*20*	0	*95.8*	*83-111*	0
Surr: Dibromofluoromethane	*20.28*	0	*20*	0	*101*	*77-125*	0
Surr: Toluene-d8	*19.21*	0	*20*	0	*96*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051689-10C MSD** Units: µg/Kg Analysis Date: **5/30/2018 08:20 PM**
Client ID: Run ID: **VMS8_180530A** SeqNo: **5062721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	30.85	5.0	25	0	123	73-138	29.45	4.64	30	
1,1,2,2-Tetrachloroethane	29.2	5.0	25	0	117	71-126	24.58	17.2	30	
1,1,2-Trichloroethane	27.37	5.0	25	0	109	77-123	24.58	10.7	30	
1,1-Dichloroethane	30.06	5.0	25	0	120	63-148	28.8	4.28	30	
1,1-Dichloroethene	31.6	5.0	25	0	126	67-156	30.52	3.48	30	
1,2,3-Trichlorobenzene	18.97	5.0	25	0	75.9	73-129	18.2	4.14	30	
1,2,4-Trichlorobenzene	19.98	5.0	25	0	79.9	70-132	18.89	5.61	30	
1,2-Dibromo-3-chloropropane	26.32	5.0	25	0	105	48-127	22.12	17.3	30	
1,2-Dibromoethane	28.46	5.0	25	0	114	71-144	26.54	6.98	30	
1,2-Dichlorobenzene	24.84	5.0	25	0	99.4	77-127	22.81	8.52	30	
1,2-Dichloroethane	26.68	5.0	25	0	107	77-127	24.49	8.56	30	
1,2-Dichloropropane	28.48	5.0	25	0	114	74-130	26.64	6.68	30	
1,3-Dichlorobenzene	24.58	5.0	25	0	98.3	75-133	22.62	8.31	30	
1,4-Dichlorobenzene	23.8	5.0	25	0	95.2	74-130	22.24	6.78	30	
2-Butanone	44.82	10	25	0	179	55-132	37.64	17.4	30	S
2-Hexanone	33	5.0	25	0	132	55-124	26.26	22.7	30	S
4-Methyl-2-pentanone	35.46	5.0	25	0	142	67-159	31.11	13.1	30	
Acetone	61.23	10	25	3.867	229	31-156	57.27	6.68	30	S
Benzene	28.28	5.0	25	0	113	77-133	27.51	2.76	30	
Bromochloromethane	28.65	5.0	25	0	115	72-139	26.07	9.43	30	
Bromodichloromethane	28.89	5.0	25	0	116	69-133	26.22	9.69	30	
Bromoform	28.45	5.0	25	0	114	55-126	24.76	13.9	30	
Bromomethane	27.05	10	25	0	108	31-174	26.2	3.19	30	
Carbon disulfide	29.87	5.0	25	0	119	45-160	29.98	0.368	30	
Carbon tetrachloride	32.93	5.0	25	0	132	69-140	32.8	0.396	30	
Chlorobenzene	27.23	5.0	25	0	109	76-130	26.2	3.86	30	
Chloroethane	24.9	5.0	25	0	99.6	53-150	23.54	5.62	30	
Chloroform	27.6	5.0	25	0	110	72-132	25.51	7.87	30	
Chloromethane	21.88	10	25	0	87.5	43-150	20.91	4.53	30	
cis-1,2-Dichloroethene	29.04	5.0	25	0	116	74-134	27.56	5.23	30	
cis-1,3-Dichloropropene	26.32	5.0	25	0	105	62-134	24.29	8.02	30	
Dibromochloromethane	27.71	5.0	25	0	111	57-118	24.27	13.2	30	
Dichlorodifluoromethane	30.48	10	25	0	122	43-126	31.88	4.49	30	
Ethylbenzene	28	5.0	25	0	112	75-133	27.44	2.02	30	
Isopropylbenzene	27.01	5.0	25	0	108	74-137	29.04	7.24	30	
m,p-Xylene	54.17	2.5	50	0	108	75-134	53.22	1.77	30	
Methyl tert-butyl ether	32.9	5.0	25	0	132	62-136	30.37	8	30	
Methylene chloride	31.11	5.0	25	0	124	55-157	29.09	6.71	30	
o-Xylene	26.69	2.5	25	0	107	76-130	26.03	2.5	30	
Styrene	25.55	5.0	25	0	102	72-138	24.26	5.18	30	
Tetrachloroethene	39.09	5.0	25	0	156	70-171	41.03	4.84	30	
Toluene	27.73	5.0	25	0	111	76-130	26.75	3.6	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	27.91	5.0	25	0	112	65-137	27.73	0.647	30
trans-1,3-Dichloropropene	25.25	5.0	25	0	101	58-126	22.9	9.76	30
Trichloroethene	29.86	5.0	25	0	119	75-135	29.46	1.35	30
Trichlorofluoromethane	28.01	5.0	25	0	112	62-136	26.55	1.91	30
Vinyl chloride	31.99	5.0	25	0	128	57-143	32.6	1.89	30
Xylenes, Total	80.86	5.0	75	0	108	75-132	79.25	2.01	30
Surr: 1,2-Dichloroethane-d4	*19.96*	0	*20*	0	*99.8*	*83-132*	20.57	*3.01*	*30*
Surr: 4-Bromofluorobenzene	*19.05*	0	*20*	0	*95.2*	*83-111*	19.16	*0.576*	*30*
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	20.28	*1.89*	*30*
Surr: Toluene-d8	*19.15*	0	*20*	0	*95.8*	*86-108*	19.21	*0.313*	*30*

The following samples were analyzed in this batch: 18051662-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236970A** Instrument ID **VMS8** Method: **SW8260C**

MBLK	Sample ID: VBLKW2-180530-R236970A			Units: µg/L			Analysis Date: 5/30/2018 10:50 PM			
Client ID:	Run ID: VMS8_180530B			SeqNo: 5063102		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*18.97*	0	*20*	0	*94.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.15*	0	*20*	0	*95.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19.35*	0	*20*	0	*96.8*	*85-115*	0			
Surr: Toluene-d8	*18.83*	0	*20*	0	*94.2*	*85-110*	0			

LCS	Sample ID: VLCSW1-180530-R236970A			Units: µg/L			Analysis Date: 5/30/2018 10:18 PM			
Client ID:	Run ID: VMS8_180530B			SeqNo: 5063101		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.8	1.0	20	0	104	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.36*	0	*20*	0	*96.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.83*	0	*20*	0	*99.2*	*80-110*	0			
Surr: Dibromofluoromethane	*19.8*	0	*20*	0	*99*	*85-115*	0			
Surr: Toluene-d8	*19.48*	0	*20*	0	*97.4*	*85-110*	0			

MS	Sample ID: 18051713-11E MS			Units: µg/L			Analysis Date: 5/31/2018 05:01 AM			
Client ID:	Run ID: VMS8_180530B			SeqNo: 5063120		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.02	1.0	20	0	105	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.74*	0	*20*	0	*98.7*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.21*	0	*20*	0	*91*	*80-110*	0			
Surr: Dibromofluoromethane	*19.71*	0	*20*	0	*98.6*	*85-115*	0			
Surr: Toluene-d8	*18.85*	0	*20*	0	*94.2*	*85-110*	0			

MSD	Sample ID: 18051713-11E MSD			Units: µg/L			Analysis Date: 5/31/2018 05:17 AM			
Client ID:	Run ID: VMS8_180530B			SeqNo: 5063121		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.62	1.0	20	0	103	84-130	21.02	1.92	30	
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*75-120*	19.74	*2*	*30*	
Surr: 4-Bromofluorobenzene	*19.51*	0	*20*	0	*97.6*	*80-110*	18.21	*6.89*	*30*	
Surr: Dibromofluoromethane	*20.37*	0	*20*	0	*102*	*85-115*	19.71	*3.29*	*30*	
Surr: Toluene-d8	*19.01*	0	*20*	0	*95*	*85-110*	18.85	*0.845*	*30*	

The following samples were analyzed in this batch:

18051682-01A	18051682-02A	18051682-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VLCS01	96	93	95	92	0
02	VBLK01	99	97	98	95	0
03	18051689-10C	64*	108	92	97	1
04	18CP02-45	108	103	107	86	0
05	18051689-10CM	101	103	96	96	0
06	18051689-10CM	99	100	96	95	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: 180516 SDG No.: _____

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VLCS01	98	95	99	94	0
02	VBLK02	97	95	94	96	0
03	18CO02-41	100	95	95	94	0
04	18CP02-43	102	97	97	97	0
05	18CP02-42	98	95	96	92	0
06	18051713-11E	104	100	97	96	0
07	18051713-11EM	99	99	94	91	0
08	18051713-11EM	102	97	95	98	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID: 30MAY09.D Lab Sample ID: VBLKS1-180531

Date Analyzed: 5/30/2018 Time Analyzed: 11:17

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCS01	VLCSS1-180530	30MAY06.D	10:24
02	18051689-10C	18051689-10C DF0.745	30MAY12.D	12:25
03	18CP02-45	18051682-04A DF0.792	30MAY27.D	18:06
04	18051689-10CMS	18051689-10C MS	30MAY34.D	20:03
05	18051689-10CMSD	18051689-10C MSD	30MAY35.D	20:20

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID: 30MAY44.D Lab Sample ID: VBLKW2-180530

Date Analyzed: 5/30/2018 Time Analyzed: 22:50

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCS01	VLCSW1-180530	30MAY41.D	22:02
02	18CO02-41	18051682-01A	30MAY53.D	1:14
03	18CP02-43	18051682-03A	30MAY54.D	1:30
04	18CP02-42	18051682-02A	30MAY55.D	1:46
05	18051713-11E	18051713-11E	30MAY63.D	3:56
06	18051713-11EMS	18051713-11E MS	30MAY67.D	5:01
07	18051713-11EMSD	18051713-11E MSD	30MAY68.D	5:17

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID: 30MAY03.D BFB Injection Date: 5/30/2018

Instrument ID: VMS8 BFB Injection Time: 8:58

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.7
75	30.0 - 66.0% of mass 95	44.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.5
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	50.0 - 120.0% of mass 95	72.4
175	4.0 - 9.0% of mass 174	5.5 (7.6)1
176	93.0 - 101.0% of mass 174	69.0 (95.3)1
177	5.0 - 9.0% of mass 176	5.8 (8.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD02	VCCV2-180530	30MAY05.D	5/30/2018	9:53
02	VLCS01	VLCSS1-180530	30MAY06.D	5/30/2018	10:24
03	VBLK01	VBLKS1-180531	30MAY09.D	5/30/2018	11:17
04	18051689-10C	18051689-10C DF0.745	30MAY12.D	5/30/2018	12:25
05	18CP02-45	18051682-04A DF0.792	30MAY27.D	5/30/2018	18:06
06	18051689-10CMS	18051689-10C MS	30MAY34.D	5/30/2018	20:03
07	18051689-10CMS	18051689-10C MSD	30MAY35.D	5/30/2018	20:20

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID: 30MAY38.D BFB Injection Date: 5/30/2018

Instrument ID: VMS8 BFB Injection Time: 21:15

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.5
75	30.0 - 66.0% of mass 95	43.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.4 (0.4)1
174	50.0 - 120.0% of mass 95	92.8
175	4.0 - 9.0% of mass 174	7.2 (7.7)1
176	93.0 - 101.0% of mass 174	92.6 (99.7)1
177	5.0 - 9.0% of mass 176	5.8 (6.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD03	VCCV3-180530	30MAY40.D	5/30/2018	21:46
02	VLCS01	VLCSW1-180530	30MAY41.D	5/30/2018	22:02
03	VBLK02	VBLKW2-180530	30MAY44.D	5/30/2018	22:50
04	18CO02-41	18051682-01A	30MAY53.D	5/31/2018	1:14
05	18CP02-43	18051682-03A	30MAY54.D	5/31/2018	1:30
06	18CP02-42	18051682-02A	30MAY55.D	5/31/2018	1:46
07	18051713-11E	18051713-11E	30MAY63.D	5/31/2018	3:56
08	18051713-11EMS	18051713-11E MS	30MAY67.D	5/31/2018	5:01
09	18051713-11EMS	18051713-11E MSD	30MAY68.D	5/31/2018	5:17

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID (Standard): 30MAY05.D Date Analyzed: 5/30/2018

Instrument ID: VMS8 Time Analyzed: 9:53

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	182801	4.71	274989	5.99	242367	8.73
	UPPER LIMIT	365602	5.21	549978	6.49	484734	9.23
	LOWER LIMIT	91401	4.21	137495	5.49	121184	8.23
	EPA SAMPLE NO.						
01	VLCS01	175206	4.71	258556	6.00	227839	8.73
02	VBLK01	181370	4.71	259583	5.99	228896	8.73
03	18051689-10C	224525	4.71	339228	6.00	316067	8.73
04	18CP02-45	208084	4.71	299128	6.00	235894	8.73
05	18051689-10C	194534	4.71	293579	6.00	258065	8.73
06	18051689-10C	186748	4.72	284773	6.00	247321	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID (Standard): 30MAY05.D Date Analyzed: 5/30/2018

Instrument ID: VMS8 Time Analyzed: 9:53

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	116573	10.05				
	UPPER LIMIT	233146	9.55				
	LOWER LIMIT	58287	10.55				
	EPA SAMPLE NO.						
01	VLCS01	110656	10.05				
02	VBLK01	115877	10.05				
03	18051689-10C	161924	10.05				
04	18CP02-45	83448	10.05				
05	18051689-10C	134854	10.05				
06	18051689-10C	124431	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID (Standard): 30MAY40.D Date Analyzed: 5/30/2018

Instrument ID: VMS8 Time Analyzed: 21:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	270267	4.72	399464	6.00	366419	8.73
	UPPER LIMIT	540534	5.22	798928	6.50	732838	9.23
	LOWER LIMIT	135134	4.22	199732	5.50	183210	8.23
	EPA SAMPLE NO.						
01	VLCS01	311544	4.72	450741	6.00	408867	8.73
02	VBLK02	265231	4.72	395491	6.00	366661	8.73
03	18CO02-41	267216	4.72	399570	6.00	368690	8.73
04	18CP02-43	264038	4.72	400598	6.00	365031	8.73
05	18CP02-42	271299	4.71	409992	6.00	365603	8.73
06	18051713-11E	275680	4.71	402427	6.00	370535	8.73
07	18051713-11E	269148	4.72	398841	6.00	368463	8.73
08	18051713-11E	272996	4.72	405162	6.00	376271	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: 180516 SDG No.:

Lab File ID (Standard): 30MAY40.D Date Analyzed: 5/30/2018

Instrument ID: VMS8 Time Analyzed: 21:46

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	201673	10.05				
	UPPER LIMIT	403346	9.55				
	LOWER LIMIT	100837	10.55				
	EPA SAMPLE NO.						
01	VLCS01	212471	10.05				
02	VBLK02	193331	10.05				
03	18CO02-41	190903	10.05				
04	18CP02-43	185063	10.05				
05	18CP02-42	183136	10.05				
06	18051713-11E	190699	10.05				
07	18051713-11E	203255	10.05				
08	18051713-11E	203251	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY27.D
Acq On : 30 May 2018 6:06 pm
Operator : EMR
Sample : 18051682-04A DF0.792
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 18:19:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	208084	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	299128	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	235894	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	83448	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.867	46	28174	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.641	111	109857	21.63 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 108.15%		
45) 1,2-Dichloroethane-d4	5.164	65	92211	20.62 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 103.10%		
64) Toluene-d8	7.671	98	340099	21.47 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 107.35%#		
85) Bromofluorobenzene	9.433	95	91694	17.17 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 85.85%#		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D. d	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D.	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.220	43	65109	43.32 ug/L	96
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	29506m	1.46 ug/L	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	2.607	49	24113	Below Cal	87
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D. d	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	3.130	57	40331	3.01 ug/L	95
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D. d	
32) Ethyl Acetate	0.000		0	N.D. d	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY27.D
Acq On : 30 May 2018 6:06 pm
Operator : EMR
Sample : 18051682-04A DF0.792
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 18:19:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	4.734	56	25396	2.64 ug/L	96
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	5.178	78	48463	2.03 ug/L	92
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	5.758	43	31488	3.89 ug/L	95
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	6.654	83	53665	5.70 ug/L	97
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D. d	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	109071	4.82 ug/L	93
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	8.810	91	22902	0.96 ug/L	99
79) m/p-Xylene	8.896	91	29108	1.62 ug/L	100
80) Styrene	0.000		0	N.D.	
81) o-Xylene	9.118	91	10561m	0.57 ug/L	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	9.333	105	5804m	0.27 ug/L	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	9.562	91	14110m	0.53 ug/L	
91) 2-Chlorotoluene	0.000		0	N.D. d	

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY27.D
Acq On : 30 May 2018 6:06 pm
Operator : EMR
Sample : 18051682-04A DF0.792
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 18:19:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

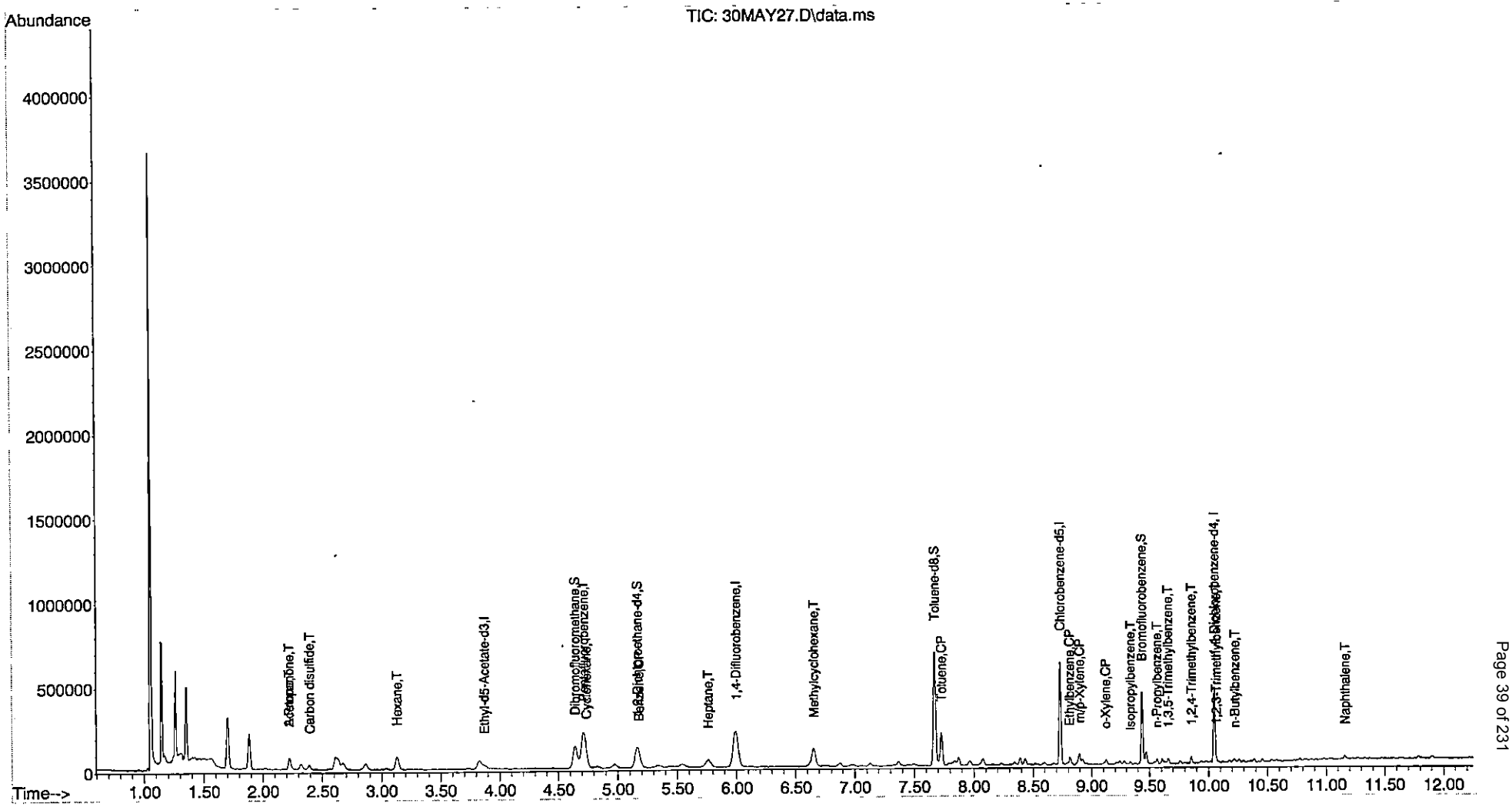
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	9.655	105	5481m	0.31 ug/L	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	9.856	105	13100	0.71 ug/L	98
96) sec-Butylbenzene	0.000		0	N.D. d	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	10.063	105	6280m	0.49 ug/L	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	10.221	91	6998m	0.48 ug/L	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	11.159	128	12472m	0.95 ug/L	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.220	43	65109	52.95 ug/L	96
116) Acetic Ether	0.000		0	N.D. d	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

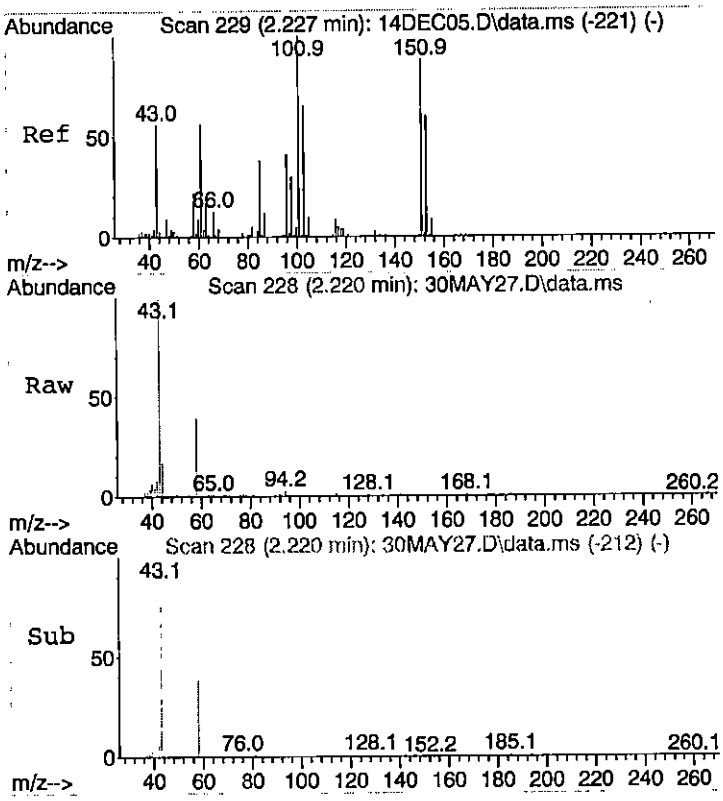
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY27.D
Acq On : 30 May 2018 6:06 pm
Operator : EMR
Sample : 18051682-04A DF0.792
Misc : IS/SS 200-20081
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 18:19:01 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

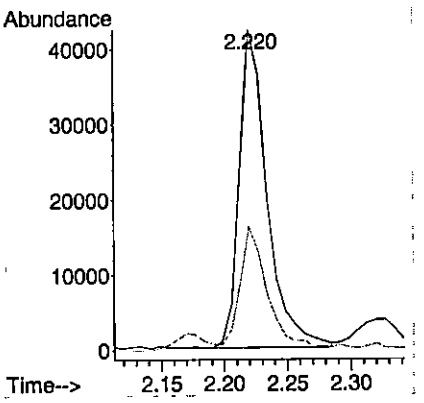


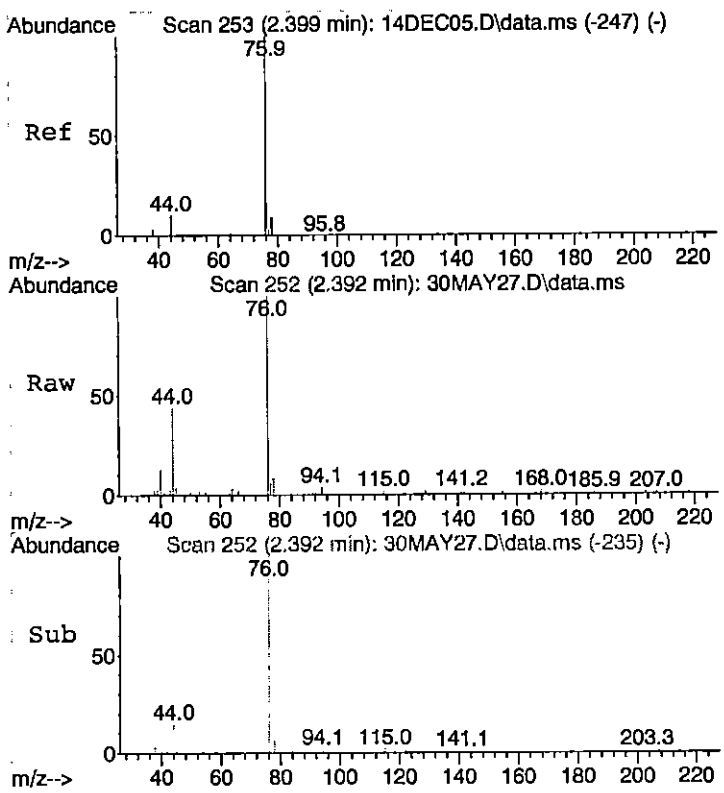


#13
Acetone
Concen: 43.32 ug/L
RT: 2.220 min Scan# 228
Delta R.T. -0.007 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 43 Resp: 65109

Ion	Ratio	Lower	Upper
43	100		
58	36.1	13.5	53.5

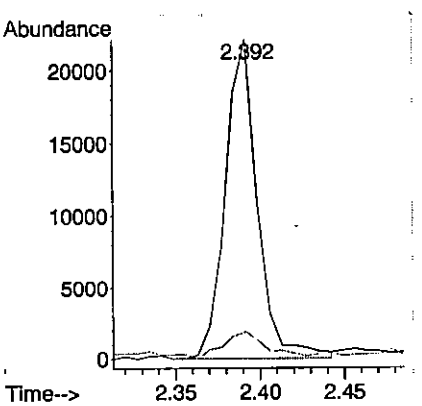


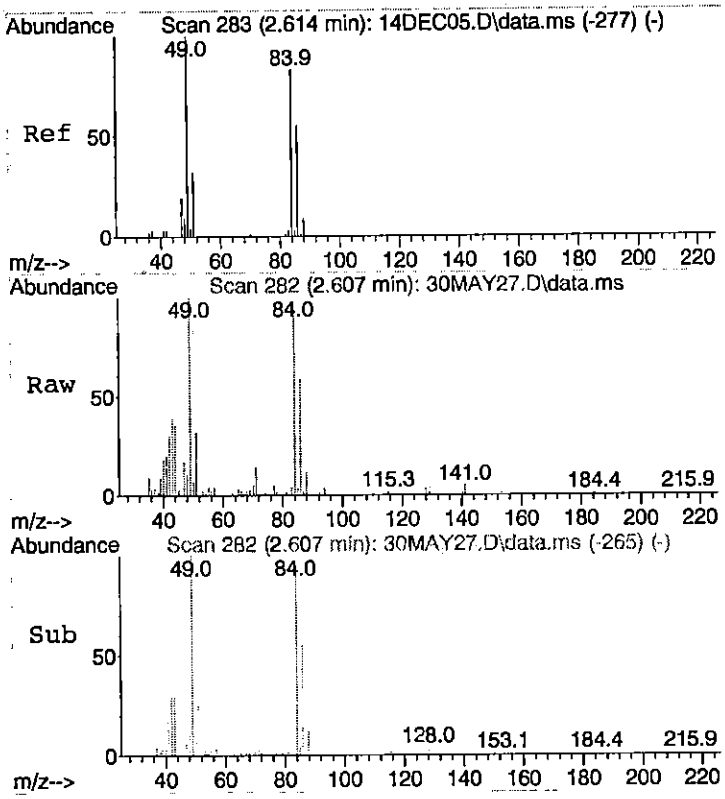


#15
Carbon disulfide
Concen: 1.46 ug/L m
RT: 2.392 min Scan# 252
Delta R.T. -0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 76 Resp: 29506

Ion	Ratio	Lower	Upper
76	100		
78	11.2	0.0	28.7

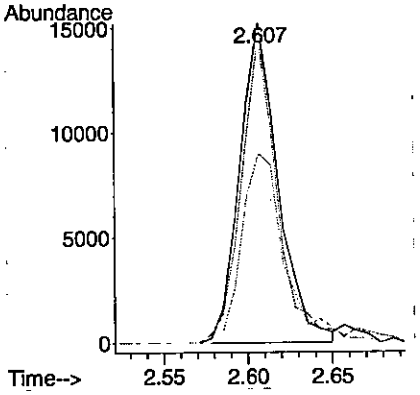


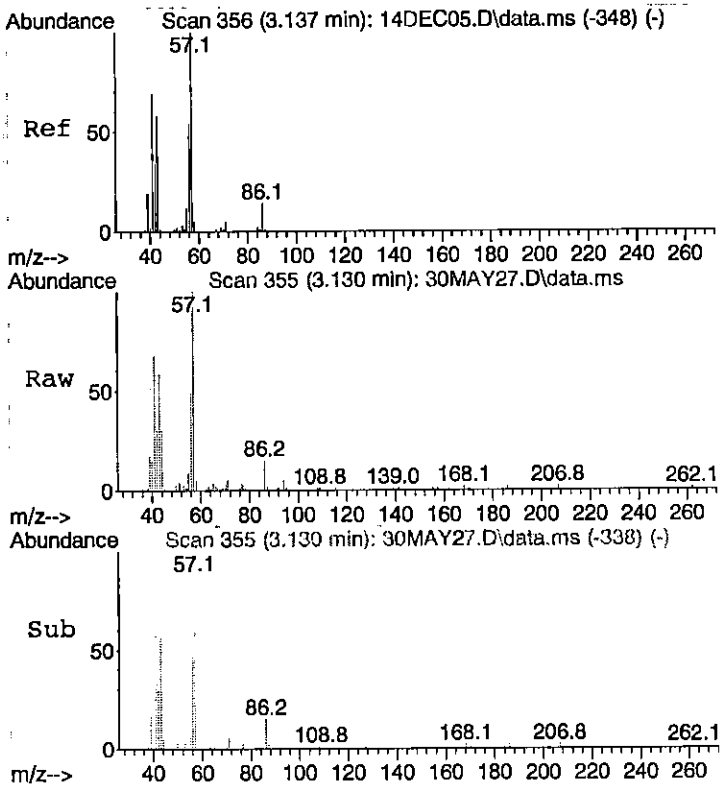


#19
Methylene chloride
Concen: Below Cal
RT: 2.607 min Scan# 282
Delta R.T. -0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 49 Resp: 24113

Ion	Ratio	Lower	Upper
49	100		
84	89.4	61.9	101.9
86	66.0	32.2	72.2

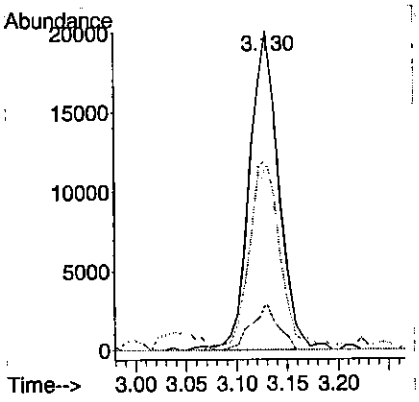


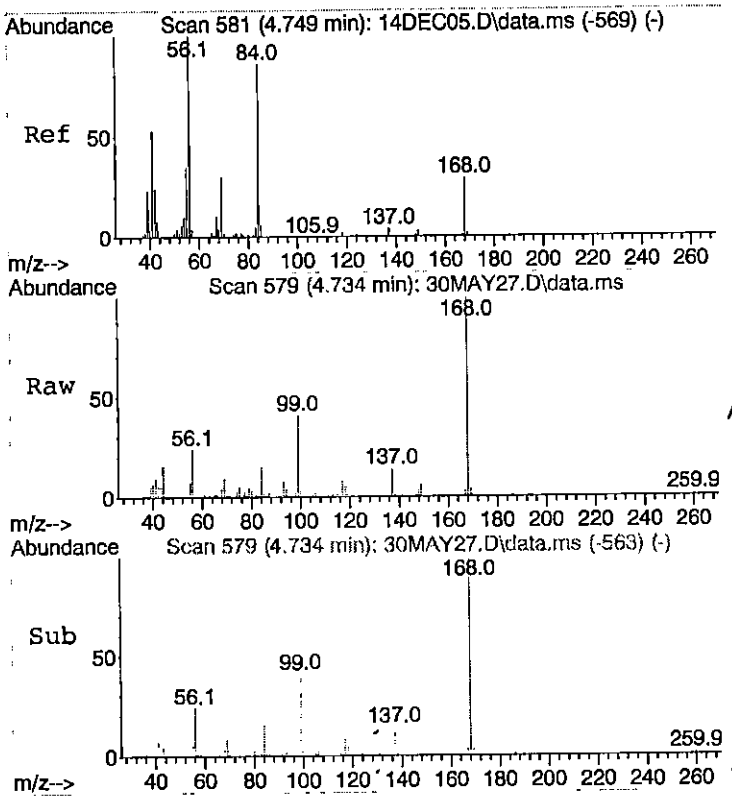


#24
Hexane
Concen: 3.01 ug/L
RT: 3.130 min Scan# 355
Delta R.T. -0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 57 Resp: 40331

Ion	Ratio	Lower	Upper
57	100		
86	13.1	0.0	34.2
43	58.8	43.5	83.5

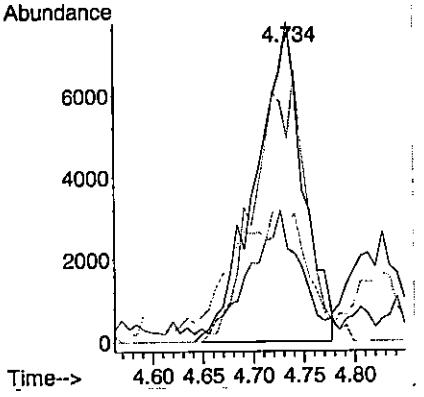


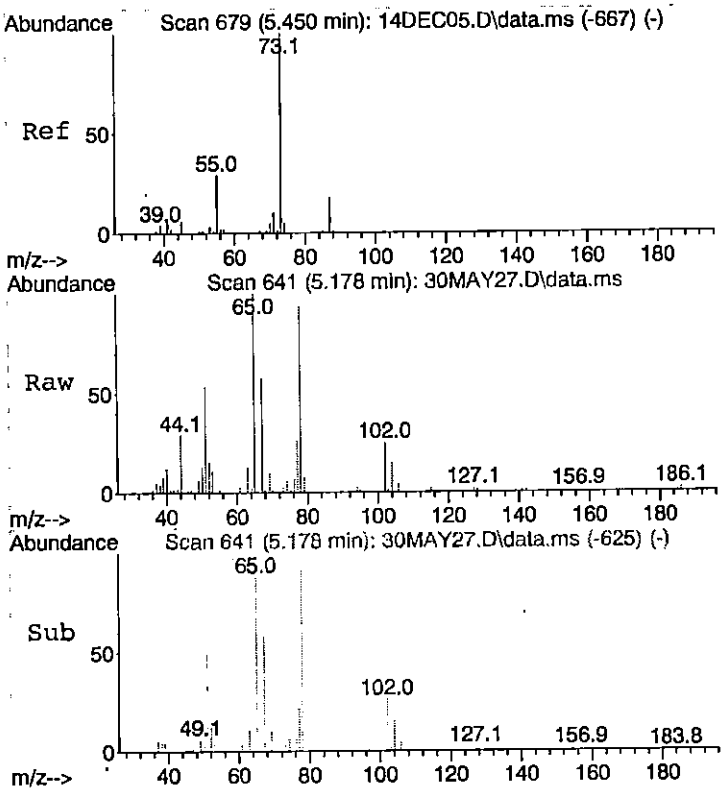


#39
Cyclohexane
Concen: 2.64 ug/L
RT: 4.734 min Scan# 579
Delta R.T. -0.008 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 56 Resp: 25396

Ion	Ratio	Lower	Upper
56	100		
84	89.9	66.7	100.1
41	53.5	42.5	63.7
55	38.2	30.3	45.5

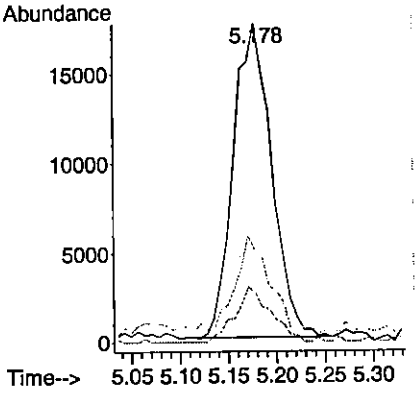


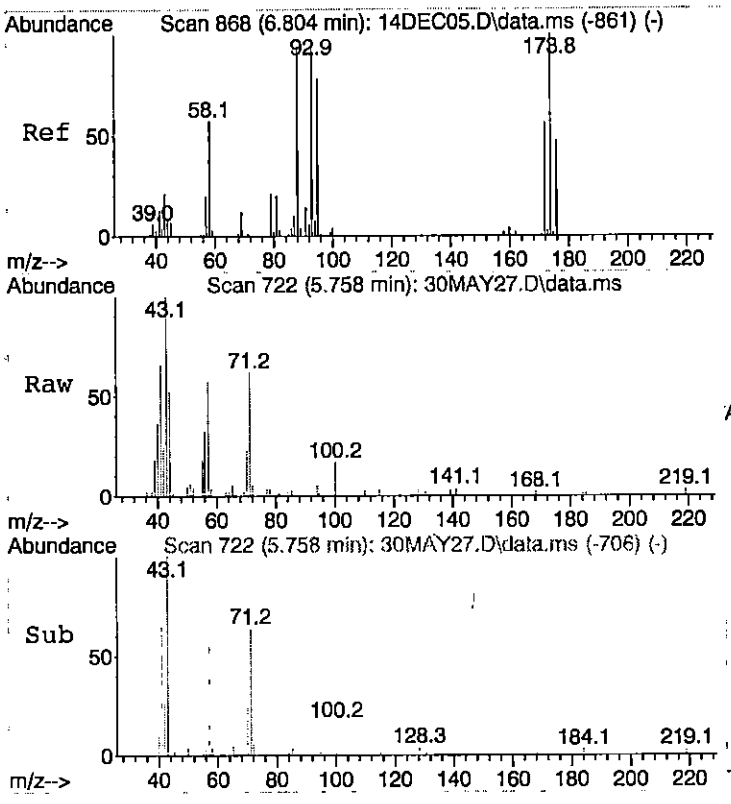


#47
Benzene
Concen: 2.03 ug/L
RT: 5.178 min Scan# 641
Delta R.T. -0.008 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 78 Resp: 48463

Ion	Ratio	Lower	Upper
78	100		
52	16.2	0.0	34.8
77	29.3	3.8	43.8

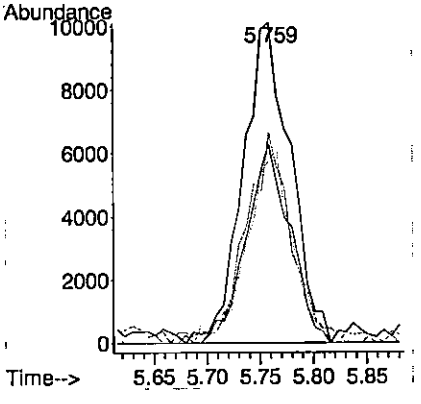


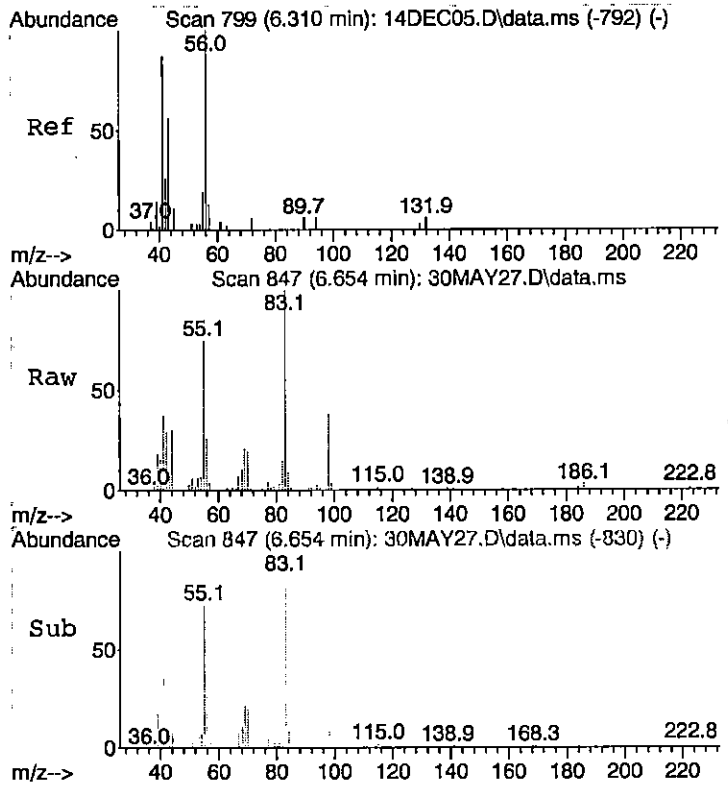


#50
Heptane
Concen: 3.89 ug/L
RT: 5.758 min Scan# 722
Delta R.T. -0.008 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 43 Resp: 31488

Ion	Ratio	Lower	Upper
43	100		
41	62.4	44.4	66.6
57	57.7	44.2	66.2
71	57.6	45.6	68.4

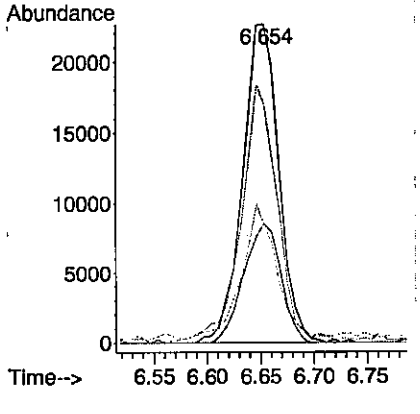


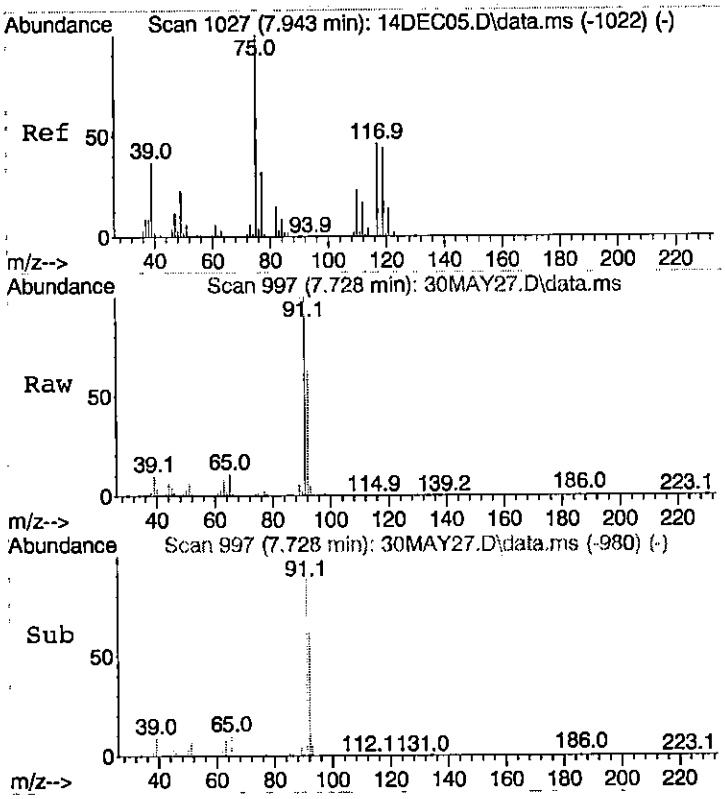


#52
Methylcyclohexane
Concen: 5.70 ug/L
RT: 6.654 min Scan# 847
Delta R.T. -0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 83 Resp: 53665

Ion	Ratio	Lower	Upper
83	100		
55	81.7	63.8	95.6
41	40.2	33.5	50.3
98	38.7	33.8	50.6

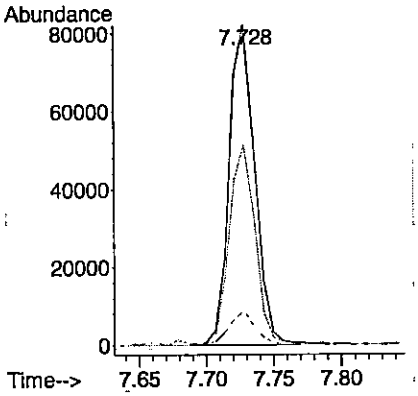


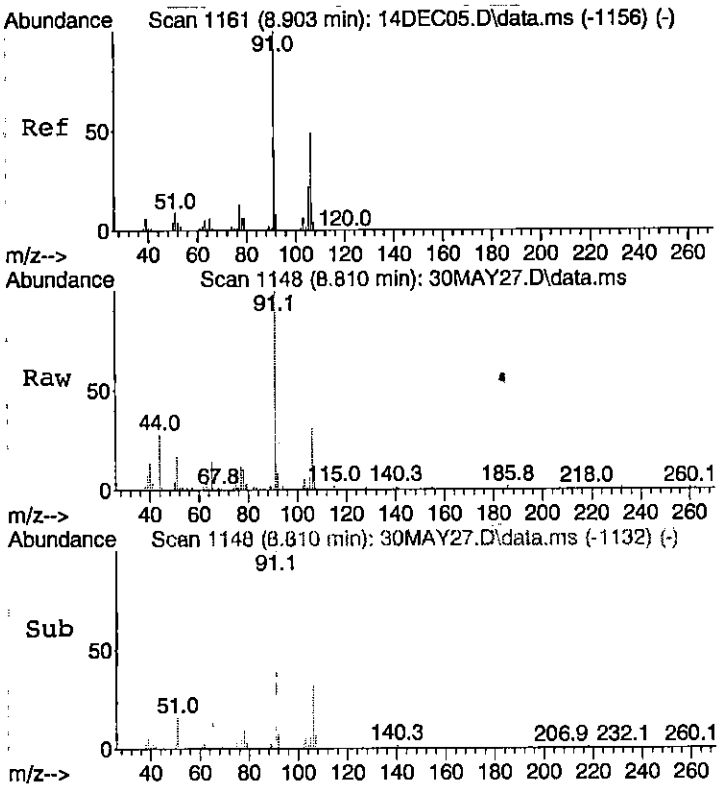


#65
Toluene
Concen: 4.82 ug/L
RT: 7.728 min Scan# 997
Delta R.T. 0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

Tgt Ion: 91 Resp: 109071

Ion	Ratio	Lower	Upper
91	100		
92	63.4	37.8	77.8
65	9.9	0.0	31.0

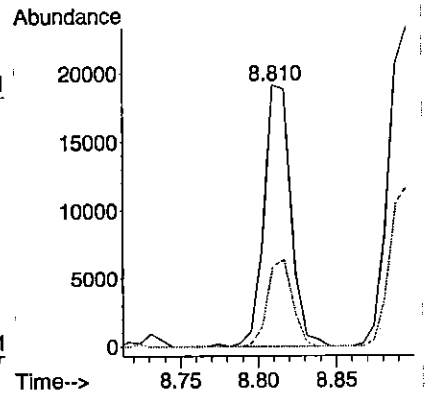


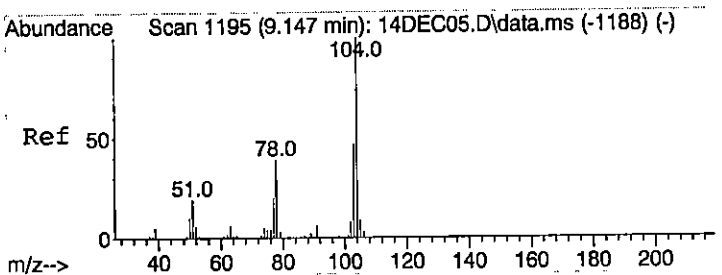


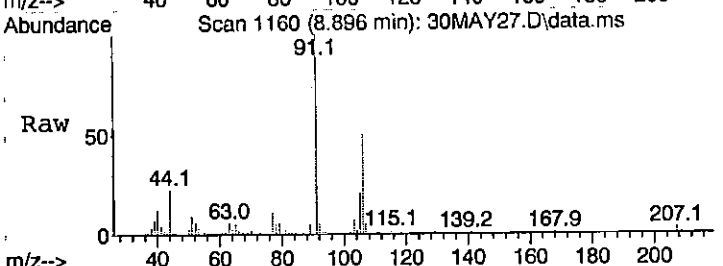
#78
Ethylbenzene
Concen: 0.96 ug/L
RT: 8.810 min Scan# 1148
Delta R.T. -0.007 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

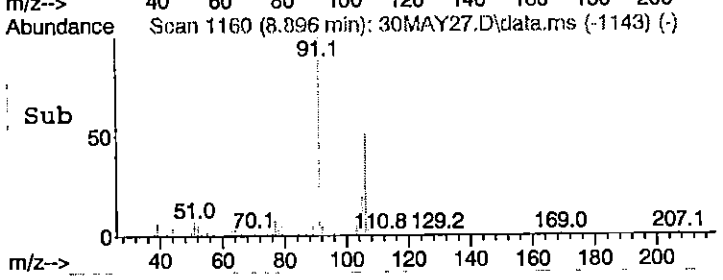
Tgt Ion: 91 Resp: 22902

Ion	Ratio	Lower	Upper
91	100		
106	31.2	10.8	50.8





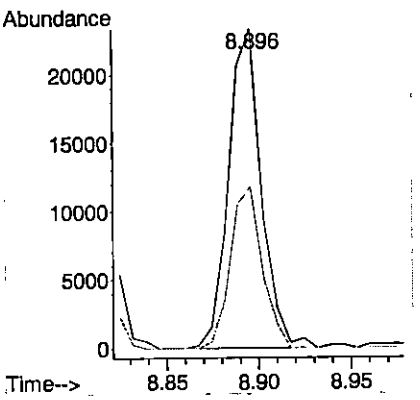


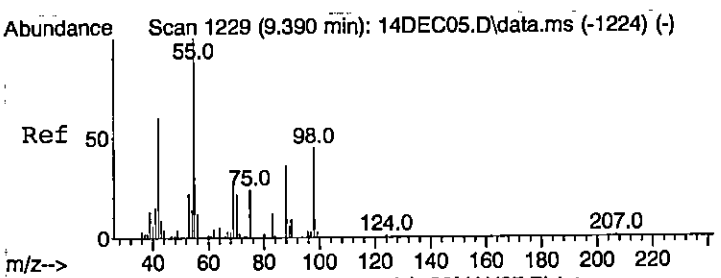


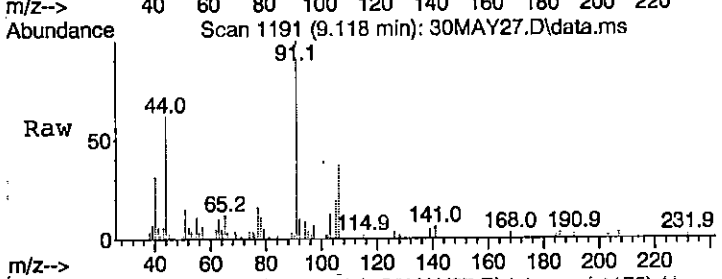
#79
m/p-Xylene
Concen: 1.62 ug/L
RT: 8.896 min Scan# 1160
Delta R.T. -0.000 min
Lab File: 30MAY27.D
Acq: 30 May 2018 6:06 pm

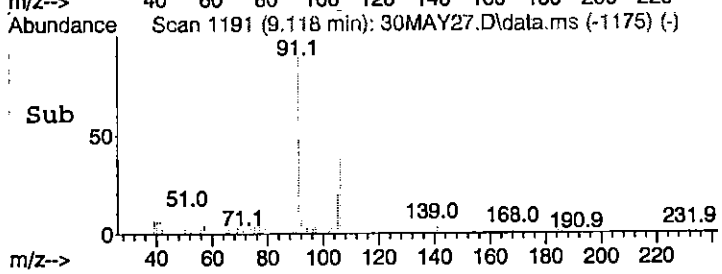
Tgt Ion: 91 Resp: 29108

Ion	Ratio	Lower	Upper
91	100		
106	48.8	28.8	68.8





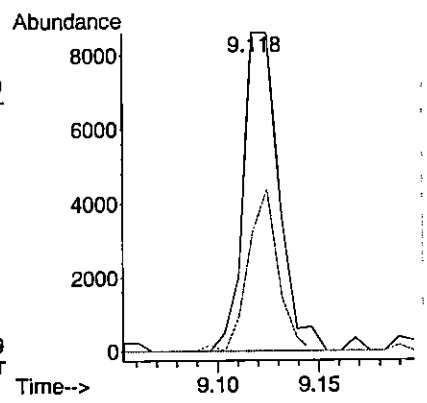




#81
o-Xylene
Concen: 0.57 ug/L m
RT: 9.118 min Scan# 1191
Delta R.T. -0.007 min
Lab File: 30MAY27.D
Acq: 30 May 2018, 6:06 pm

Tgt Ion: 91 Resp: 10561

Ion	Ratio	Lower	Upper
91	100		
106	42.7	28.4	68.4



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY53.D
Acq On : 31 May 2018 1:14 am
Operator : EMR
Sample : 18051682-01A
Misc : IS/SS 200-20081
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 31 01:27:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.720	168	267216	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.002	114	399570	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	368690	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	190903	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	75110	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	139012	20.06	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.30%			
45) 1,2-Dichloroethane-d4	5.171	65	128098	18.99	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.95%			
64) Toluene-d8	7.671	98	457804	19.02	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.10%			
85) Bromofluorobenzene	9.433	95	163706	18.76	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.	d	
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	12793m	3.50	ug/L	
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.	d	
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY53.D
Acq On : 31 May 2018 1:14 am
Operator : EMR
Sample : 18051682-01A
Misc : IS/SS 200-20081
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 31 01:27:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	4.419	83	8661	0.71 ug/L #	89
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	0.000		0	N.D.	
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY53.D
Acq On : 31 May 2018 1:14 am
Operator : EMR
Sample : 18051682-01A
Misc : IS/SS 200-20081
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 31 01:27:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

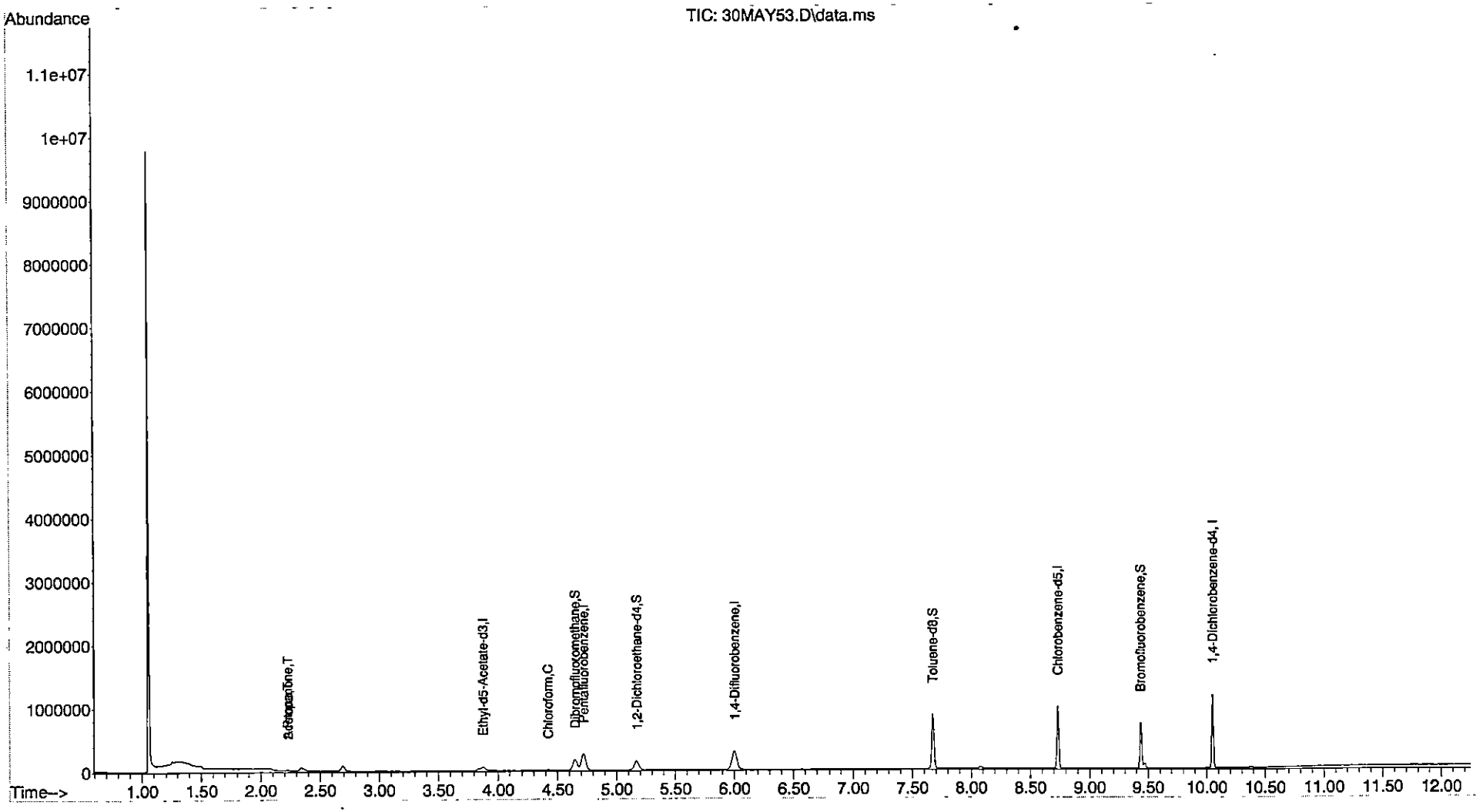
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.			
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.			
94) tert-Butylbenzene	0.000		0	N.D.			
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.			
96) sec-Butylbenzene	0.000		0	N.D.			
98) 1,3-Dichlorobenzene	0.000		0	N.D.			
99) p-Isopropyltoluene	0.000		0	N.D.			
100) 1,4-Dichlorobenzene	0.000		0	N.D.			
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.			
102) Benzyl chloride	0.000		0	N.D.			
103) 1,2-Dichlorobenzene	0.000		0	N.D.			
104) n-Butylbenzene	0.000		0	N.D.			
105) Hexachloroethane	0.000		0	N.D.			
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.			
109) Hexachlorobutadiene	0.000		0	N.D.			
110) Naphthalene	0.000		0	N.D.			
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.			
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	2.227	43	12793	3.80	ug/L	#	39
116) Acetic Ether	0.000		0	N.D.			
117) Isopropyl Acetate	0.000		0	N.D.			
118) Amyl Acetate	0.000		0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY53.D
Acq On : 31 May 2018 1:14 am
Operator : EMR
Sample : 18051682-01A
Misc : IS/SS 200-20081
ALS Vial : 49 Sample Multiplier: 1

Quant Time: May 31 01:27:03 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY55.D
Acq On : 31 May 2018 1:46 am
Operator : EMR
Sample : 18051682-02A
Misc : IS/SS 200-20081
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 31 01:59:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	271299	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.002	114	409992	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	365603	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183136	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	73779	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	139639	19.64	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.20%			
45) 1,2-Dichloroethane-d4	5.164	65	131069	18.93	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.65%			
64) Toluene-d8	7.671	98	460133	19.28	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.40%			
85) Bromofluorobenzene	9.433	95	158655	18.34	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.	d	
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	2.227	43	24678	6.65	ug/L	88
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.	d	
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY55.D
Acq On : 31 May 2018 1:46 am
Operator : EMR
Sample : 18051682-02A
Misc : IS/SS 200-20081
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 31 01:59:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.	d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY55.D
Acq On : 31 May 2018 1:46 am
Operator : EMR
Sample : 18051682-02A
Misc : IS/SS 200-20081
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 31 01:59:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

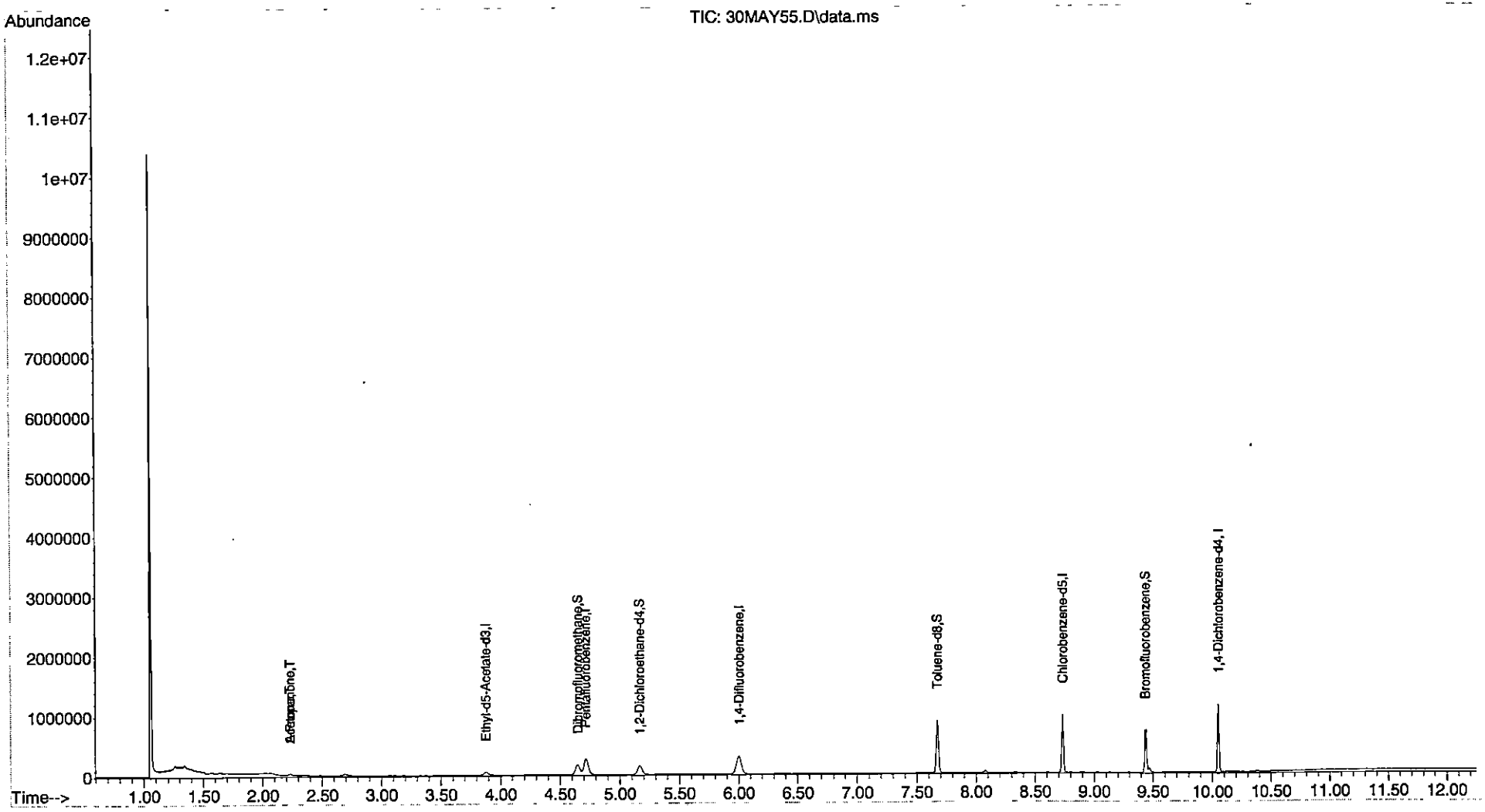
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	24678	7.46 ug/L	88
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY55.D
Acq On : 31 May 2018 1:46 am
Operator : EMR
Sample : 18051682-02A
Misc : IS/SS 200-20081
ALS Vial : 51 Sample Multiplier: 1

Quant Time: May 31 01:59:21 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY54.D
Acq On : 31 May 2018 1:30 am
Operator : EMR
Sample : 18051682-03A
Misc : IS/SS 200-20081
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 31 01:43:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.720	168	264038	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	6.002	114	400598	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	365031	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	185063	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	74467	20.00 ug/L	0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	141371	20.35 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%		
45) 1,2-Dichloroethane-d4	5.164	65	130910	19.35 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.75%		
64) Toluene-d8	7.671	98	461689	19.38 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.90%		
85) Bromofluorobenzene	9.433	95	167308	19.37 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.85%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	0.000		0	N.D.	
4) Vinyl chloride	0.000		0	N.D.	
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	0.000		0	N.D. d	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	0.000		0	N.D.	
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	0.000		0	N.D.	
13) Acetone	2.227	43	14584m	4.04 ug/L	
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	0.000		0	N.D.	
16) Allyl chloride	0.000		0	N.D.	
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	0.000		0	N.D.	
20) trans-1,2-Dichloroethene	0.000		0	N.D.	
21) t-Butanol	0.000		0	N.D. d	
22) Acrylonitrile	0.000		0	N.D.	
23) Methyl tert-butyl ether	0.000		0	N.D.	
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	0.000		0	N.D.	
26) Diisopropyl ether	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	0.000		0	N.D.	
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) cis-1,2-Dichloroethene	0.000		0	N.D.	
31) 2-Butanone	0.000		0	N.D.	
32) Ethyl Acetate	0.000		0	N.D.	
33) Methyl acrylate	0.000		0	N.D.	
34) Propionitrile	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY54.D
Acq On : 31 May 2018 1:30 am
Operator : EMR
Sample : 18051682-03A
Misc : IS/SS 200-20081
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 31 01:43:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY54.D
Acq On : 31 May 2018 1:30 am
Operator : EMR
Sample : 18051682-03A
Misc : IS/SS 200-20081
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 31 01:43:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

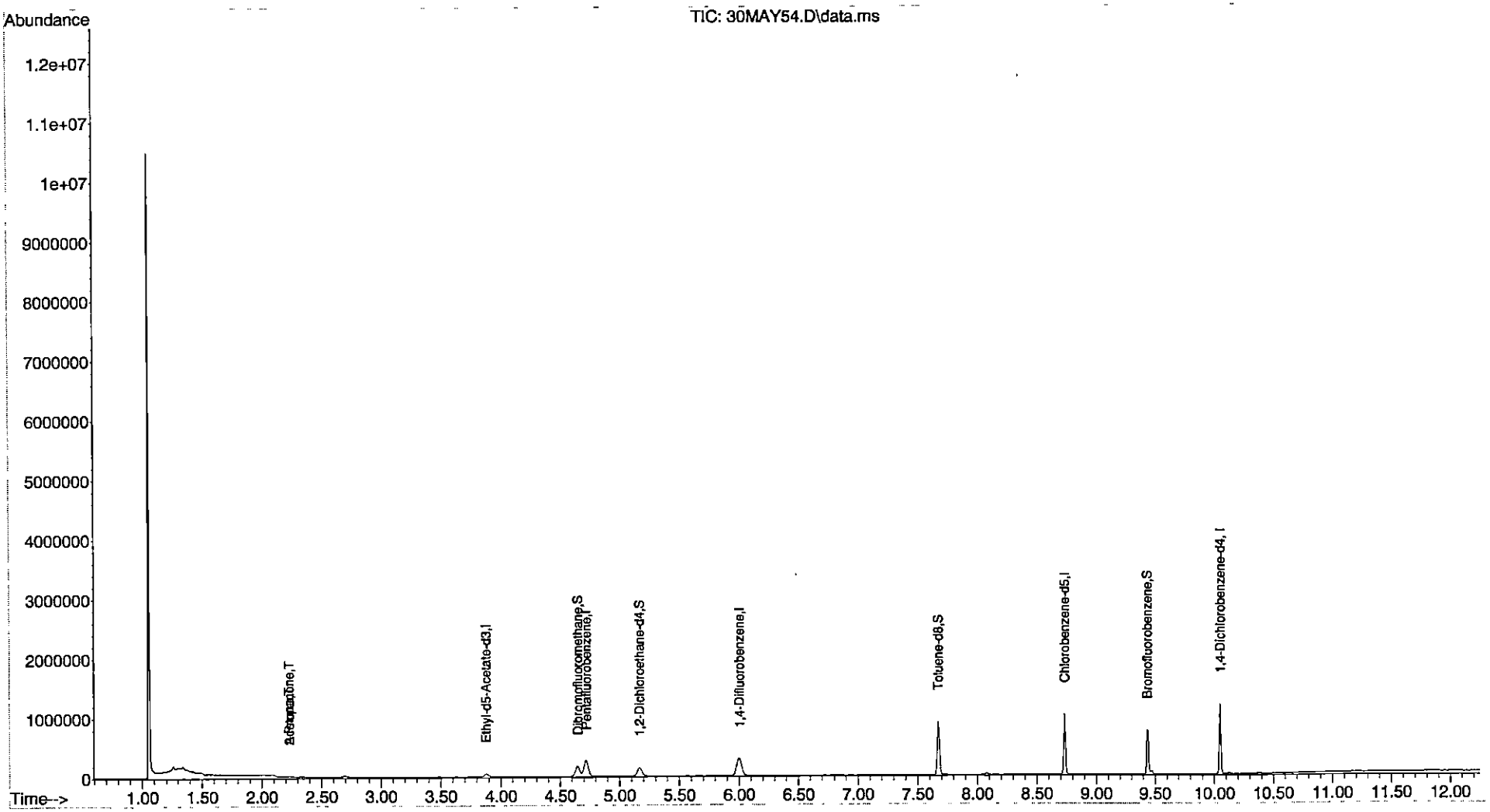
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	14584	4.37 ug/L #	39
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY54.D
Acq On : 31 May 2018 1:30 am
Operator : EMR
Sample : 18051682-03A
Misc : IS/SS 200-20081
ALS Vial : 50 Sample Multiplier: 1

Quant Time: May 31 01:43:12 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Response Factor Report VMS8

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY17.D 2 =15MAY18.D 3 =15MAY19.D 4 =15MAY20.D 5 =15MAY21.D 6 =15MAY22.D 7 =15MAY23.D
8 =15MAY24.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...		0.865	0.627	0.650	0.641	0.574	0.554	0.550	0.637	17.05
3)	P	Chloromethane		1.151	0.853	0.885	0.818	0.822	0.793	0.824	0.878	14.13
4)	C	Vinyl chloride			0.651	0.666	0.695	0.626	0.608	0.614	0.643	5.19
5)	T	Bromomethane			0.656	0.641	0.546	0.532	0.484	0.495	0.559	13.04
6)	T	Chloroethane	0.508	0.497	0.457	0.381	0.381	0.382	0.361	0.366	0.416	14.54
7)	T	Trichlorofluor...		1.137	0.833	0.906	0.863	0.780	0.767	0.788	0.868	14.82
8)	T	Ethyl ether	0.289	0.405	0.419	0.393	0.349	0.352	0.338	0.378	0.365	11.49
9)	T	Acrolein		0.197	0.084	0.085	0.074	0.049	0.048	0.052	0.084#	62.10
10)	C	1,1-Dichloroet...	0.938	1.022	0.838	0.844	0.775	0.792	0.720	0.811	0.842	11.40
11)	T	1,1,2-Trichlor...	0.417	0.521	0.353	0.430	0.390	0.398	0.343	0.404	0.407	13.42
12)	T	Methyl iodide		0.469	0.340	0.328	0.324	0.360	0.369	0.443	0.376	15.22
13)	T	Acetone		1.131	0.329	0.318	0.186	0.140	0.133	0.143	0.340	105.42
14)	T	Chloroprene	0.849	1.012	0.859	0.823	0.738	0.763	0.699	0.800	0.818	11.69
15)	T	Carbon disulfide			2.109	2.101	1.867	1.899	1.750	1.924	1.942	7.19
16)	T	Allyl chloride			0.998	1.047	0.841	0.846	0.829	0.888	0.908	10.16
17)	T	Methyl acetate			0.413	0.333	0.325	0.324	0.328	0.362	0.348	10.06
18)	T	Acetonitrile			0.998	1.047	0.841	0.846	0.828	0.882	0.907	10.21
19)	T	Methylene chlo...		5.461	1.750	1.296	0.846	0.725	0.689	0.727	1.642	105.29
20)	T	trans-1,2-Dich...	1.003	1.094	0.939	0.855	0.794	0.825	0.755	0.853	0.890	12.82
21)	T	t-Butanol	0.281	0.212	0.113	0.085	0.068	0.057	0.056	0.063	0.117#	72.01
22)	T	Acrylonitrile	0.172	0.290	0.199	0.193	0.199	0.197	0.187	0.209	0.206	17.38
23)	CP	Methyl tert-bu...	1.158	1.077	1.126	1.015	1.035	1.015	1.082	1.160	1.083	5.50#
24)	T	Hexane		3.630	1.305	1.023	0.866	0.806	0.637	0.700	1.281	82.69
25)	P	1,1-Dichloroet...	0.859	1.178	1.068	1.089	1.009	1.027	0.983	1.082	1.037	9.02
26)	CP	Diisopropyl ether	1.159	1.348	1.229	1.234	1.242	1.197	1.296	1.375	1.260	5.90#
27)	T	Vinyl acetate			0.114	0.114	0.095	0.077	0.076	0.082	0.093#	18.78
28)	CP	Ethyl tert but...	1.162	1.165	1.236	1.090	1.166	1.127	1.183	1.275	1.175	4.95#
29)	T	2,2-Dichloropr...			0.832	0.872	0.805	0.799	0.744	0.818	0.812	5.16
30)	T	cis-1,2-Dichlo...	1.134	1.203	1.081	0.919	0.941	0.952	0.908	0.995	1.017	10.80
31)	T	2-Butanone		0.480	0.229	0.187	0.214	0.205	0.209	0.234	0.251	40.68
32)	T	Ethyl Acetate	0.429	0.527	0.380	0.428	0.436	0.424	0.446	0.481	0.444	9.84
33)	T	Methyl acrylate			0.443	0.461	0.464	0.483	0.456	0.504	0.468	4.59
34)	T	Propionitrile		0.151	0.112	0.096	0.065	0.053	0.049	0.056	0.083#	45.97
35)	T	Bromochloromet...			0.593	0.467	0.457	0.439	0.429	0.465	0.475	12.55
36)	T	Tetrahydrofuran		0.314	0.267	0.204	0.163	0.154	0.169	0.168	0.206	30.03
37)	T	Methacrylonitrile	0.249	0.362	0.352	0.330	0.309	0.311	0.287	0.319	0.315	11.42
38)	C	Chloroform	1.227	1.557	1.064	1.099	0.991	1.001	0.937	1.056	1.116	17.74
39)	T	Cyclohexane	1.593	1.603	0.993	0.977	0.870	0.852	0.728	0.845	1.058	32.48

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration

40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.713	0.618	0.599	0.554	0.570	0.504	0.556	0.588	11.21
42)	S	Dibromofluorom...	0.353	0.357	0.329	0.333	0.342	0.335	0.331	0.337	0.340	3.06
43)	T	Carbon tetrach...	0.378	0.542	0.443	0.527	0.479	0.513	0.455	0.515	0.481	11.30
44)	T	1,1-Dichloropr...	0.612	0.830	0.558	0.519	0.502	0.534	0.464	0.524	0.568	20.09
45)	S	1,2-Dichloroet...	0.307	0.300	0.299	0.297	0.303	0.294	0.293	0.300	0.299	1.55
46)	T	1,2-Dichloroet...	0.519	0.568	0.469	0.434	0.405	0.414	0.387	0.421	0.452	13.84
47)	CP	Benzene	1.860	1.977	1.570	1.575	1.454	1.480	1.370	1.499	1.598	13.17#
48)	CP	Tertiaryamylme...		0.764	0.758	0.743	0.734	0.717	0.742	0.779	0.748	2.75#
49)	T	Isobutyl Alcohol		0.536	0.226	0.214	0.211	0.219	0.222	0.237	0.266	44.77
50)	T	Heptane			0.561	0.597	0.555	0.571	0.473	0.494	0.542	8.86
51)	T	1,4-Dioxane		0.007	0.005	0.005	0.005	0.006	0.005	0.005	0.005#	11.57
52)	T	Methylcyclohexane		0.847	0.605	0.629	0.596	0.621	0.522	0.586	0.630	16.22
53)	T	n-Butanol	0.019	0.033	0.006	0.007	0.009	0.010	0.009	0.011	0.013#	68.72
54)	T	Trichloroethene		0.603	0.456	0.422	0.397	0.414	0.376	0.415	0.441	17.16
55)	C	1,2-Dichloropr...	0.379	0.524	0.436	0.413	0.367	0.385	0.352	0.388	0.406	13.48
56)	T	Dibromomethane		0.303	0.251	0.264	0.239	0.246	0.225	0.250	0.254	9.75
57)	T	Methyl methacr...		0.351	0.326	0.390	0.282	0.287	0.262	0.280	0.311	14.85
58)	T	Bromodichlorom...	0.482	0.622	0.552	0.486	0.488	0.510	0.475	0.517	0.517	9.59
59)	T	2-Chloroethyl ...		0.174	0.166	0.176	0.155	0.142	0.128	0.140	0.154#	11.95
60)	T	2-Nitropropane		0.114	0.139	0.148	0.119	0.105	0.092	0.106	0.117#	16.82
61)	T	cis-1,3-Dichlo...	0.709	0.673	0.659	0.623	0.609	0.612	0.577	0.629	0.636	6.54
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...		0.477	0.498	0.388	0.370	0.343	0.333	0.363	0.396	16.47
64)	S	Toluene-d8	1.323	1.363	1.357	1.336	1.349	1.324	1.332	1.358	1.343	1.18
65)	CP	Toluene	2.164	2.273	2.008	1.823	1.736	1.828	1.672	1.830	1.917	11.04
66)	T	trans-1,3-Dich...	0.655	0.867	0.651	0.660	0.594	0.618	0.589	0.623	0.657	13.57
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.695	0.614	0.530	0.467	0.487	0.493	0.451	0.490	0.528	15.86
69)	T	1,1,2-Trichlor...	0.536	0.516	0.424	0.405	0.365	0.372	0.347	0.373	0.417	17.12
70)	T	Tetrachloroethene	0.533	0.643	0.499	0.506	0.471	0.499	0.442	0.471	0.508	12.00
71)	T	1,3-Dichloropr...	0.701	0.769	0.667	0.574	0.570	0.571	0.533	0.578	0.620	13.28
72)	T	2-Hexanone		0.345	0.275	0.221	0.273	0.257	0.249	0.262	0.269	14.20
73)	T	Chlorodibromom...	0.444	0.642	0.450	0.498	0.464	0.484	0.447	0.477	0.488	13.30
74)	T	Butyl acetate			0.550	0.520	0.530	0.505	0.514	0.522	0.523	2.95
75)	T	1,2-Dibromoethane		0.527	0.436	0.422	0.390	0.387	0.368	0.393	0.418	12.78
76)	P	Chlorobenzene	1.205	1.545	1.158	1.187	1.150	1.165	1.094	1.168	1.209	11.53
77)	T	1,1,1,2-Tetrac...	0.522	0.640	0.461	0.456	0.405	0.421	0.399	0.431	0.467	17.19
78)	CP	Ethylbenzene	2.236	2.335	2.014	1.928	1.871	1.967	1.836	1.976	2.020	8.66
79)	CP	m/p-Xylene	1.621	1.735	1.486	1.493	1.457	1.502	1.385	1.500	1.523	7.08#
80)	T	Styrene	1.421	1.661	1.314	1.241	1.191	1.243	1.129	1.213	1.302	13.00
81)	CP	o-Xylene	1.716	1.676	1.670	1.594	1.436	1.509	1.397	1.521	1.565	7.53#
82)	T	Cyclohexanone		0.030	0.038	0.026	0.020	0.020	0.018	0.020	0.025#	30.62
83)	P	Bromoform	0.331	0.423	0.304	0.315	0.311	0.316	0.300	0.322	0.328	12.10
84)	T	Isopropylbenzene	1.775	2.123	1.893	1.839	1.742	1.853	1.731	1.890	1.856	6.74
85)	S	Bromofluoroben...	0.448	0.465	0.453	0.449	0.469	0.442	0.439	0.457	0.453	2.32
86)	T	Bromobenzene		1.388	1.056	0.904	0.868	0.889	0.843	0.894	0.977	19.81
87)	P	1,1,2,2-Tetrac...	0.533	0.707	0.518	0.575	0.537	0.513	0.480	0.513	0.547	12.82
88)	T	1,2,3-Trichlor...			0.142	0.122	0.134	0.125	0.112	0.117	0.125#	8.81

Method Path : C:\msdchem\1\methods\
Method File : 8SG00515.M
Title : 8260B/624 Volatile Calibration

89)	T	trans-1,4-Dich...			0.166	0.138	0.127	0.126	0.117	0.122	0.133#	13.49
90)	T	n-Propylbenzene	2.011	2.678	2.209	2.276	2.222	2.274	2.109	2.253	2.254	8.62
91)	T	2-Chlorotoluene	1.179	1.573	1.274	1.251	1.245	1.273	1.173	1.265	1.279	9.78
92)	T	4-Chlorotoluene	1.818	1.737	1.596	1.486	1.469	1.492	1.392	1.456	1.556	9.61
93)	T	1,3,5-Trimethy...	1.505	1.794	1.461	1.473	1.381	1.488	1.394	1.477	1.497	8.56
94)	T	tert-Butylbenzene	0.877	1.143	0.905	0.904	0.877	0.846	0.818	0.876	0.906	11.04
95)	T	1,2,4-Trimethy...	1.783	1.713	1.545	1.583	1.488	1.509	1.409	1.467	1.562	8.14
96)	T	sec-Butylbenzene	1.855	2.013	1.974	2.032	1.930	1.966	1.828	1.962	1.945	3.68
97)	I	1,4-Dichlorobenzen...	----------				ISTD					
98)	T	1,3-Dichlorobe...	1.839	2.396	1.859	1.767	1.792	1.842	1.755	1.860	1.889	11.06
99)	T	p-Isopropyltol...	3.241	3.988	3.485	3.491	3.304	3.402	3.274	3.454	3.455	6.84
100)	T	1,4-Dichlorobe...	2.177	2.176	1.945	1.815	1.829	1.808	1.770	1.858	1.922	8.58
101)	T	1,2,3-Trimethy...	2.842	3.505	3.245	3.057	2.987	3.056	2.966	3.151	3.101	6.55
102)	T	Benzyl chloride	2.250	2.496	2.014	1.892	1.888	1.865	1.827	1.949	2.023	11.52
103)	T	1,2-Dichlorobe...	1.668	2.077	1.810	1.683	1.627	1.690	1.643	1.713	1.739	8.48
104)	T	n-Butylbenzene	3.940	3.850	3.553	3.387	3.319	3.381	3.256	3.344	3.504	7.33
105)	T	Hexachloroethane	0.546	1.062	0.762	0.722	0.694	0.768	0.749	0.798	0.763	18.83
106)	T	1,2-Dibromo-3-...	0.269	0.477	0.389	0.283	0.241	0.246	0.234	0.259	0.300	29.03
107)	T	1,3,5-Trichlor...	1.419	1.607	1.455	1.346	1.406	1.430	1.366	1.448	1.435	5.52
108)	T	1,2,4-Trichlor...	1.482	1.535	1.303	1.234	1.294	1.254	1.247	1.321	1.334	8.45
109)	T	Hexachlorobuta...	0.818	0.845	0.648	0.713	0.654	0.711	0.677	0.736	0.725	9.99
110)	T	Naphthalene	3.183	4.056	3.077	2.996	2.943	2.951	2.897	3.179	3.160	11.95
111)	T	1,2,3-Trichlor...	1.611	1.570	1.295	1.215	1.149	1.156	1.147	1.218	1.295	14.62
112)	T	2-Methylnaphth...	2.688	2.230	1.743	1.682	1.819	1.720	1.856	2.000	1.967	17.36
113)	T	1-Methylnaphth...	1.684	2.223	1.593	1.432	1.458	1.490	1.542	1.707	1.641	15.57
114)	I	Ethyl-d5-Acetate-d3	----------				ISTD					
115)	T	2-Propanone			7.064	2.244	2.149	1.101	0.879	0.887	0.826	2.164	103.69
116)	T	Acetic Ether	2.572	3.247	2.593	2.719	2.574	2.689	2.964	2.754	2.764	8.47
117)	T	Isopropyl Acetate			3.917	2.160	1.168	1.478	1.481	1.586	1.491	1.897	49.50
118)	T	Amyl Acetate	3.446	5.901	4.979	4.246	4.070	3.942	4.453	4.044	4.385	17.18

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018
Response Via : Initial Calibration

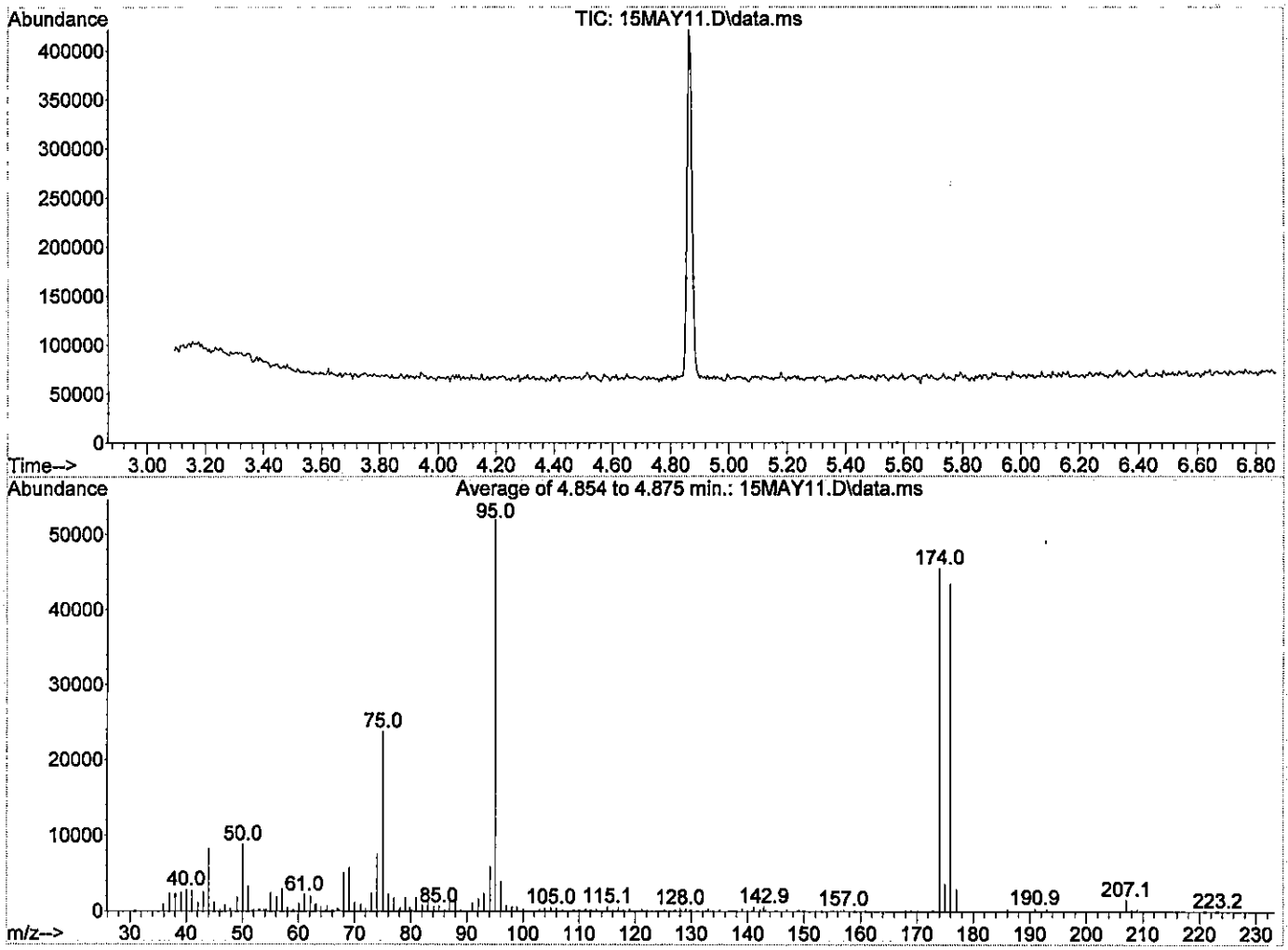
Calibration Files
1 =15MAY17 2 =15MAY18 3 =15MAY19 4 =15MAY20 5 =15MAY21 6 =15MAY22
7 =15MAY23 8 =15MAY24

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
9)	T	Acrolein	Lin	0.0241	0.0496	-----	0.9949
13)	T	Acetone	Lin	0.0285	0.1313	-----	0.9910
19)	T	Methylene chloride	Quad	0.1400	0.5765	0.0243	0.9980
21)	T	t-Butanol	Lin	0.0224	0.0600	-----	0.9922
24)	T	Hexane	Lin	0.0932	0.6679	-----	0.9923
31)	T	2-Butanone	Lin	0.0047	0.2169	-----	0.9938
34)	T	Propionitrile	Lin	0.0040	0.0525	-----	0.9920
36)	T	Tetrahydrofuran	Lin	0.0014	0.1667	-----	0.9985
39)	T	Cyclohexane	Lin	0.0157	0.8070	-----	0.9927
40)	I	1,4-Difluorobenzene		----------ISTD----------			
44)	T	1,1-Dichloropropene	Lin	0.0009	0.5069	-----	0.9950
49)	T	Isobutyl Alcohol	Lin	-0.0068	0.2323	-----	0.9980
53)	T	n-Butanol	Quad	0.0031	0.0076	0.0001	0.9974
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0033	0.0192	-----	0.9958
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
106)	T	1,2-Dibromo-3-ch...	Lin	-0.0002	0.2507	-----	0.9965
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			
115)	T	2-Propanone	Lin	0.1919	0.8004	-----	0.9981
117)	T	Isopropyl Acetate	Quad	0.0637	1.3869	0.0269	0.9956

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY11.D
Acq On : 15 May 2018 11:54 am
Operator : EMR
Sample : VBFB6-180515
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\methods\10WGO0522.M
Title : 8260 Global Optimization Method
Last Update : Fri May 25 09:05:52 2018



Spectrum Information: Average of 4.854 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.9	8785	PASS
75	95	30	60	45.7	23744	PASS
95	95	100	100	100.0	51950	PASS
96	95	5	9	7.5	3919	PASS
173	174	0.00	2	0.4	176	PASS
174	95	50	100	87.4	45401	PASS
175	174	5	9	7.8	3562	PASS
176	174	95	101	95.4	43293	PASS
177	176	5	9	6.8	2940	PASS

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	218396	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	330222	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289404	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	133604	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	32113	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	116506	20.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.10%				
45) 1,2-Dichloroethane-d4	5.171	65	101495	20.89	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 104.45%				
64) Toluene-d8	7.678	98	382987	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	129631	20.71	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	3800	0.46	ug/L	#	43
3) Chloromethane	1.282	50	7313	0.52	ug/L	#	41
4) Vinyl chloride	1.360	62	4244	0.42	ug/L		66
5) Bromomethane	1.575	96	3928	0.23	ug/L	#	3
6) Chloroethane	1.647	64	2217	0.42	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	5732	0.56	ug/L		78
8) Ethyl ether	2.019	59	1262	0.33	ug/L	#	2
9) Acrolein	2.120	56	2494m	4.29	ug/L		
10) 1,1-Dichloroethene	2.206	61	4098	0.49	ug/L		80
11) 1,1,2-Trichlorotrifluo...	2.220	151	1823	0.38	ug/L	#	86
12) Methyl iodide	2.327	142	2601	0.59	ug/L		76
13) Acetone	2.220	43	2898	Below Cal			74
14) Chloroprene	3.380	53	3709m	0.44	ug/L		
15) Carbon disulfide	2.392	76	15165	0.69	ug/L		97
16) Allyl chloride	2.499	41	6525	0.64	ug/L		95
17) Methyl acetate	2.478	43	2344	0.51	ug/L	#	9
18) Acetonitrile	2.499	41	6525	0.64	ug/L	#	81
19) Methylene chloride	2.614	49	33947	0.98	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	4383	0.48	ug/L		92
21) t-Butanol	2.686	59	6129	0.68	ug/L	#	61
22) Acrylonitrile	2.829	53	752m	0.66	ug/L		
23) Methyl tert-butyl ether	2.850	73	5057m	0.39	ug/L		
24) Hexane	3.137	57	25551	0.56	ug/L		98
25) 1,1-Dichloroethane	3.302	63	3751	0.34	ug/L	#	21
26) Diisopropyl ether	3.330	45	5061m	0.29	ug/L		
27) Vinyl acetate	3.309	86	1324	1.98	ug/L	#	1
28) Ethyl tert butyl ether	3.760	59	5075m	0.34	ug/L		
29) 2,2-Dichloropropane	3.961	77	5549	0.66	ug/L	#	93
30) cis-1,2-Dichloroethene	3.968	61	4952	0.45	ug/L		97
31) 2-Butanone	3.953	43	8008	2.87	ug/L	#	60
32) Ethyl Acetate	4.004	43	1875m	0.61	ug/L		
33) Methyl acrylate	4.082	55	2853	0.56	ug/L	#	64
34) Propionitrile	4.741	54	1332	1.99	ug/L	#	1
35) Bromochloromethane	4.269	49	3037	0.56	ug/L	#	80
36) Tetrahydrofuran	4.261	42	1060m	0.53	ug/L		
37) Methacrylonitrile	4.211	41	1086	0.75	ug/L	#	47
38) Chloroform	4.426	83	5359m	0.47	ug/L		

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	6956	0.60	ug/L	#	27
41)	1,1,1-Trichloroethane	4.648	97	2347	0.28	ug/L	#	57
43)	Carbon tetrachloride	4.870	117	2498	0.34	ug/L		87
44)	1,1-Dichloropropene	4.885	75	4040m	0.47	ug/L		
46)	1,2-Dichloroethane	5.293	62	3431	0.53	ug/L		77
47)	Benzene	5.193	78	12287	0.50	ug/L		81
48)	Tertiaryamylmethylether	5.436	73	2413	0.18	ug/L	#	1
49)	Isobutyl Alcohol	5.436	43	1986	0.45	ug/L	#	1
50)	Heptane	5.766	43	3970	0.30	ug/L	#	72
51)	1,4-Dioxane	6.811	88	5881	107.14	ug/L		86
52)	Methylcyclohexane	6.647	83	6259	0.58	ug/L	#	44
53)	n-Butanol	6.346	56	1269m	27.47	ug/L		
54)	Trichloroethene	6.360	130	3948	0.57	ug/L	#	58
55)	1,2-Dichloropropane	6.704	63	2500	0.37	ug/L	#	49
56)	Dibromomethane	6.804	93	3929	1.01	ug/L	#	75
57)	Methyl methacrylate	6.819	41	2963	0.65	ug/L		96
58)	Bromodichloromethane	7.019	83	3185m	0.41	ug/L		
59)	2-Chloroethyl vinyl ether	7.334	43	2663	1.78	ug/L	#	48
60)	2-Nitropropane	7.241	43	4374	2.68	ug/L	#	54
61)	cis-1,3-Dichloropropene	7.456	75	4681m	0.53	ug/L		
63)	4-Methyl-2-pentanone	7.592	43	6668	1.15	ug/L		85
65)	Toluene	7.728	91	12523	0.50	ug/L		96
66)	trans-1,3-Dichloropropene	7.943	75	3791	0.49	ug/L	#	1
67)	Chloropicrin	7.950	117	402m	Below Cal			
68)	Ethyl methacrylate	8.000	69	4021	0.62	ug/L	#	85
69)	1,1,2-Trichloroethane	8.086	97	3103m	0.61	ug/L		
70)	Tetrachloroethene	8.137	166	3083	0.40	ug/L	#	80
71)	1,3-Dichloropropane	8.201	76	4059	0.50	ug/L		99
72)	2-Hexanone	8.251	43	4032	1.03	ug/L	#	83
73)	Chlorodibromomethane	8.359	129	2570	0.41	ug/L	#	46
74)	Butyl acetate	8.351	43	7089	0.87	ug/L	#	65
75)	1,2-Dibromoethane	8.430	107	3654m	0.68	ug/L		
76)	Chlorobenzene	8.753	112	6973	0.43	ug/L	#	51
77)	1,1,1,2-Tetrachloroethane	8.817	131	3021	0.57	ug/L	#	80
78)	Ethylbenzene	8.817	91	12940	0.49	ug/L		91
79)	m/p-Xylene	8.896	91	18764	0.96	ug/L		97
80)	Styrene	9.139	104	8227	0.54	ug/L		74
81)	o-Xylene	9.125	91	9934	0.50	ug/L		93
82)	Cyclohexanone	9.383	55	3167	8.20	ug/L	#	69
83)	Bromoform	9.247	173	1914	0.50	ug/L		89
84)	Isopropylbenzene	9.340	105	10273	0.42	ug/L		90
86)	Bromobenzene	9.512	77	6896	0.54	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	3085	0.44	ug/L	#	39
88)	1,2,3-Trichloropropane	9.541	110	1486	0.92	ug/L	#	67
89)	trans-1,4-Dichloro-2-b...	9.533	53	857m	0.73	ug/L		
90)	n-Propylbenzene	9.569	91	11638	0.37	ug/L		81
91)	2-Chlorotoluene	9.612	91	6825	0.40	ug/L		68
92)	4-Chlorotoluene	9.684	91	10523	0.54	ug/L		93
93)	1,3,5-Trimethylbenzene	9.662	105	8711	0.45	ug/L		86
94)	tert-Butylbenzene	9.827	91	5074m	0.42	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	10318	0.51	ug/L		81
96)	sec-Butylbenzene	9.942	105	10735	0.40	ug/L		99
98)	1,3-Dichlorobenzene	10.013	146	4915	0.40	ug/L		82
99)	p-Isopropyltoluene	10.020	119	8659	0.41	ug/L	#	71
100)	1,4-Dichlorobenzene	10.063	146	5817m	0.48	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

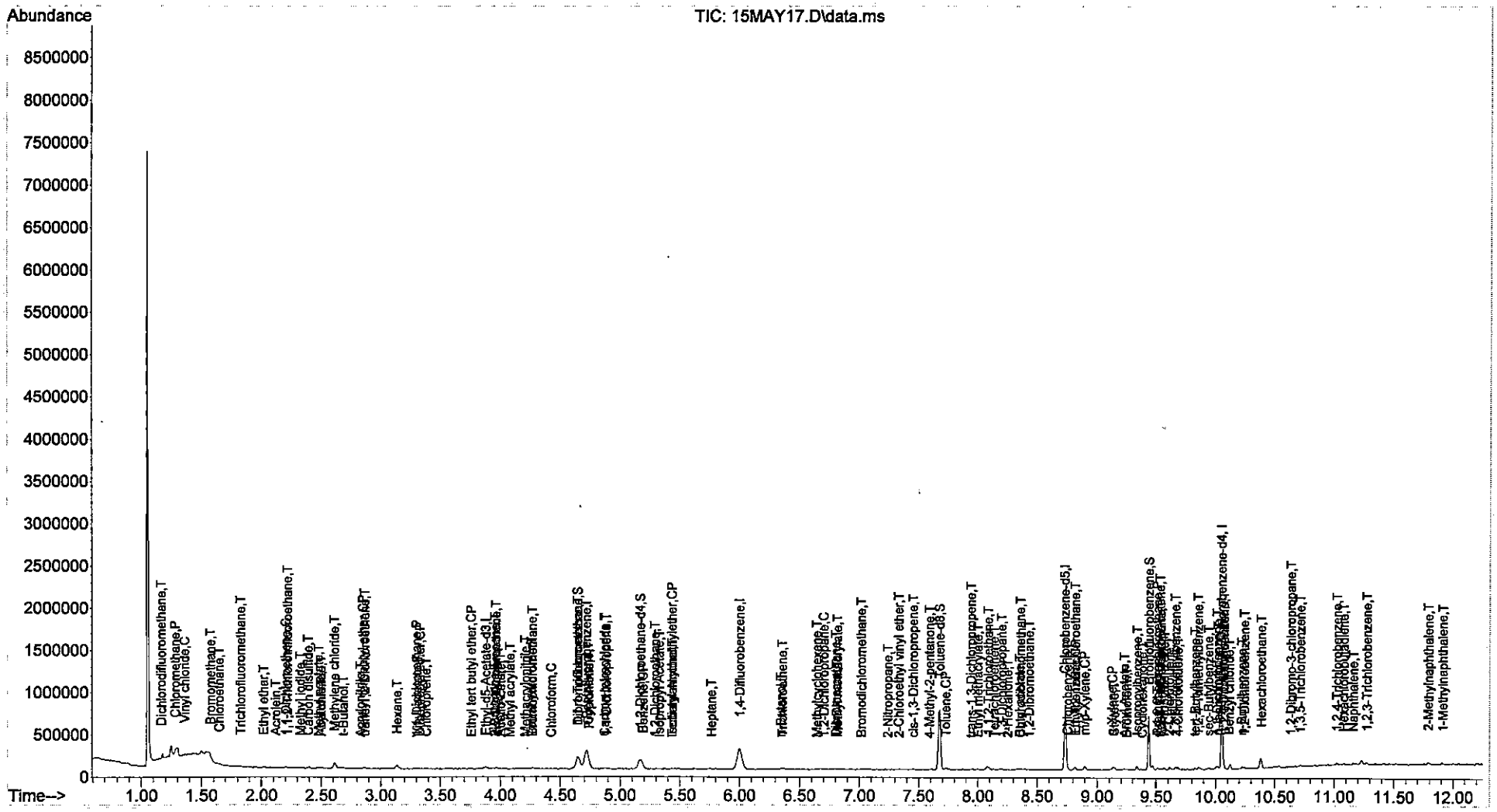
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	7594	0.39	ug/L	#	80
102) Benzyl chloride	10.114	91	6012	0.72	ug/L		78
103) 1,2-Dichlorobenzene	10.243	146	4457	0.39	ug/L	#	79
104) n-Butylbenzene	10.221	91	10527	0.47	ug/L		92
105) Hexachloroethane	10.386	117	1459	0.31	ug/L	#	23
106) 1,2-Dibromo-3-chloropr...	10.636	157	719m	0.61	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	3791	0.41	ug/L	#	78
108) 1,2,4-Trichlorobenzene	11.023	180	3959	0.49	ug/L		90
109) Hexachlorobutadiene	11.081	225	2186	0.47	ug/L		96
110) Naphthalene	11.159	128	8505	0.49	ug/L		81
111) 1,2,3-Trichlorobenzene	11.274	180	4306	0.61	ug/L		100
112) 2-Methylnaphthalene	11.790	142	7183	2.10	ug/L		97
113) 1-Methylnaphthalene	11.912	142	4501	1.61	ug/L	#	81
115) 2-Propanone	2.220	43	2898	Below Cal		#	74
116) Acetic Ether	4.004	43	1652	0.29	ug/L	#	55
117) Isopropyl Acetate	5.329	61	538	0.21	ug/L	#	1
118) Amyl Acetate	9.225	43	2213	0.22	ug/L	#	42

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY17.D
Acq On : 15 May 2018 2:02 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 16 09:55:43 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230763	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	347253	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	293807	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142787	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34624	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	124106m	21.09	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 105.45%				
45) 1,2-Dichloroethane-d4	5.171	65	104078	20.37	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.85%				
64) Toluene-d8	7.678	98	400375	20.15	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.75%				
85) Bromofluorobenzene	9.440	95	136700	21.51	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 107.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	5989m	0.69	ug/L		
3) Chloromethane	1.282	50	7971m	0.53	ug/L		
4) Vinyl chloride	1.361	62	7061m	0.67	ug/L		
5) Bromomethane	1.575	96	6740m	0.62	ug/L		
6) Chloroethane	1.647	64	3439	0.62	ug/L	#	50
7) Trichlorofluoromethane	1.826	101	7868	0.73	ug/L	#	68
8) Ethyl ether	2.020	59	2802	0.69	ug/L	#	58
9) Acrolein	2.127	56	6811	11.09	ug/L		96
10) 1,1-Dichloroethene	2.206	61	7074	0.80	ug/L	#	77
11) 1,1,2-Trichlorotrifluo...	2.213	151	3605	0.72	ug/L		90
12) Methyl iodide	2.328	142	3244	0.66	ug/L	#	34
13) Acetone	2.234	43	7830m	0.77	ug/L		
14) Chloroprene	3.381	53	7003	0.78	ug/L	#	78
15) Carbon disulfide	2.392	76	21727	0.95	ug/L		90
16) Allyl chloride	2.499	41	9756m	0.91	ug/L		
17) Methyl acetate	2.478	43	6139	1.27	ug/L	#	74
18) Acetonitrile	2.499	41	9849m	0.92	ug/L		
19) Methylene chloride	2.607	49	37807	1.19	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	7575	0.79	ug/L		86
21) t-Butanol	2.686	59	7324m	1.96	ug/L		
22) Acrylonitrile	2.822	53	2011	1.15	ug/L		81
23) Methyl tert-butyl ether	2.850	73	7458	0.54	ug/L		64
24) Hexane	3.137	57	25128	0.41	ug/L		88
25) 1,1-Dichloroethane	3.295	63	8155m	0.69	ug/L		
26) Diisopropyl ether	3.330	45	9334	0.51	ug/L	#	35
27) Vinyl acetate	3.302	86	91	0.13	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	8066	0.51	ug/L	#	84
29) 2,2-Dichloropropane	3.975	77	10136	1.13	ug/L	#	91
30) cis-1,2-Dichloroethene	3.954	61	8327	0.72	ug/L		83
31) 2-Butanone	3.939	43	3323m	1.18	ug/L		
32) Ethyl Acetate	4.018	43	3650m	0.87	ug/L		
33) Methyl acrylate	4.061	55	6698	1.24	ug/L	#	75
34) Propionitrile	4.734	54	1042	1.51	ug/L	#	1
35) Bromochloromethane	4.262	49	4907	0.85	ug/L		95
36) Tetrahydrofuran	4.269	42	2176m	1.04	ug/L		
37) Methacrylonitrile	4.211	41	2506	1.09	ug/L	#	68
38) Chloroform	4.426	83	10782	0.90	ug/L		87

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	11098	0.90	ug/L	#	60
41)	1,1,1-Trichloroethane	4.641	97	7426	0.85	ug/L	#	77
43)	Carbon tetrachloride	4.863	117	5643	0.73	ug/L		98
44)	1,1-Dichloropropene	4.899	75	8645	0.96	ug/L		90
46)	1,2-Dichloroethane	5.293	62	5918	0.86	ug/L		73
47)	Benzene	5.186	78	20594	0.79	ug/L	#	68
48)	Tertiaryamylmethylether	5.451	73	7957	0.55	ug/L	#	64
49)	Isobutyl Alcohol	5.458	43	5585m	1.20	ug/L		
50)	Heptane	5.766	43	1546	0.11	ug/L	#	1
51)	1,4-Dioxane	6.804	88	6837	118.45	ug/L	#	74
52)	Methylcyclohexane	6.661	83	8826	0.77	ug/L	#	75
53)	n-Butanol	6.332	56	3445	45.67	ug/L	#	75
54)	Trichloroethene	6.368	130	6283	0.86	ug/L	#	78
55)	1,2-Dichloropropane	6.704	63	5463	0.76	ug/L	#	82
56)	Dibromomethane	6.797	93	3160m	0.77	ug/L		
57)	Methyl methacrylate	6.826	41	3654	0.76	ug/L	#	82
58)	Bromodichloromethane	7.027	83	6483	0.79	ug/L		81
59)	2-Chloroethyl vinyl ether	7.335	43	1814m	1.15	ug/L		
60)	2-Nitropropane	7.249	43	1192	0.69	ug/L	#	25
61)	cis-1,3-Dichloropropene	7.456	75	7013	0.75	ug/L	#	22
63)	4-Methyl-2-pentanone	7.600	43	4200m	0.71	ug/L		
65)	Toluene	7.736	91	20036	0.79	ug/L		93
66)	trans-1,3-Dichloropropene	7.943	75	7646m	0.98	ug/L		
67)	Chloropicrin	7.943	117	670m	Below Cal			
68)	Ethyl methacrylate	8.001	69	5409	0.83	ug/L	#	57
69)	1,1,2-Trichloroethane	8.087	97	4545	0.87	ug/L	#	80
70)	Tetrachloroethene	8.130	166	5665	0.73	ug/L		83
71)	1,3-Dichloropropane	8.201	76	6782m	0.82	ug/L		
72)	2-Hexanone	8.266	43	3042	0.76	ug/L	#	72
73)	Chlorodibromomethane	8.352	129	5655	0.89	ug/L		87
74)	Butyl acetate	8.345	43	10055	1.21	ug/L	#	86
75)	1,2-Dibromoethane	8.430	107	4648	0.85	ug/L		92
76)	Chlorobenzene	8.753	112	13615	0.84	ug/L		85
77)	1,1,1,2-Tetrachloroethane	8.817	131	5641	1.04	ug/L		80
78)	Ethylbenzene	8.817	91	20578	0.77	ug/L		97
79)	m/p-Xylene	8.896	91	30594	1.54	ug/L		99
80)	Styrene	9.140	104	14640	0.95	ug/L		93
81)	o-Xylene	9.125	91	14775	0.73	ug/L		87
82)	Cyclohexanone	9.383	55	1340	3.42	ug/L	#	21
83)	Bromoform	9.247	173	3728	0.95	ug/L		92
84)	Isopropylbenzene	9.333	105	18716	0.75	ug/L		98
86)	Bromobenzene	9.512	77	12231	0.94	ug/L		88
87)	1,1,2,2-Tetrachloroethane	9.512	83	6233	0.87	ug/L		82
88)	1,2,3-Trichloropropane	9.541	110	2272	1.39	ug/L	#	68
89)	trans-1,4-Dichloro-2-b...	9.526	53	2246m	1.58	ug/L		
90)	n-Propylbenzene	9.569	91	23606	0.74	ug/L		100
91)	2-Chlorotoluene	9.612	91	13863	0.80	ug/L		96
92)	4-Chlorotoluene	9.684	91	15313	0.78	ug/L		95
93)	1,3,5-Trimethylbenzene	9.663	105	15815	0.81	ug/L		98
94)	tert-Butylbenzene	9.827	91	10072	0.83	ug/L		81
95)	1,2,4-Trimethylbenzene	9.856	105	15103	0.74	ug/L		89
96)	sec-Butylbenzene	9.942	105	17747	0.65	ug/L		83
98)	1,3-Dichlorobenzene	10.014	146	10263	0.78	ug/L		87
99)	p-Isopropyltoluene	10.021	119	17085	0.75	ug/L		90
100)	1,4-Dichlorobenzene	10.064	146	9323m	0.71	ug/L		

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

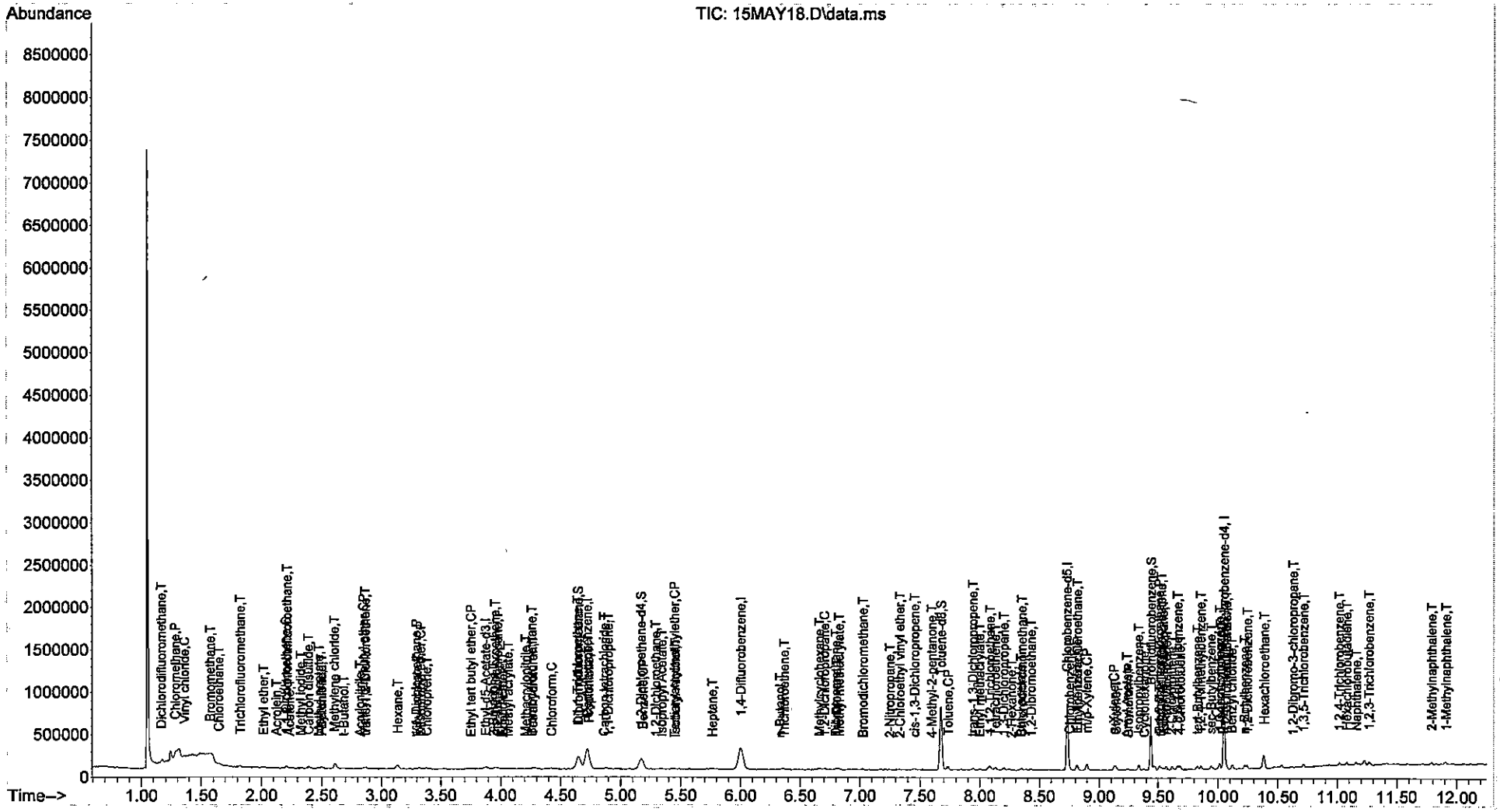
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	15015	0.72	ug/L		90
102) Benzyl chloride	10.114	91	10694	1.19	ug/L		88
103) 1,2-Dichlorobenzene	10.243	146	8895	0.73	ug/L		83
104) n-Butylbenzene	10.221	91	16492	0.69	ug/L		95
105) Hexachloroethane	10.386	117	4550	0.91	ug/L		82
106) 1,2-Dibromo-3-chloropr...	10.630	157	2044m	1.47	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	6882	0.69	ug/L	#	89
108) 1,2,4-Trichlorobenzene	11.016	180	6574	0.77	ug/L		85
109) Hexachlorobutadiene	11.081	225	3620	0.73	ug/L		91
110) Naphthalene	11.160	128	17376	0.93	ug/L		78
111) 1,2,3-Trichlorobenzene	11.267	180	6727	0.89	ug/L		99
112) 2-Methylnaphthalene	11.790	142	9551	2.30	ug/L		97
113) 1-Methylnaphthalene	11.912	142	9523	2.15	ug/L		96
115) 2-Propanone	2.234	43	7338m	Below Cal			
116) Acetic Ether	4.018	43	3373	0.54	ug/L	#	89
117) Isopropyl Acetate	5.343	61	4069m	1.49	ug/L		
118) Amyl Acetate	9.233	43	6130	0.57	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY18.D
Acq On : 15 May 2018 2:19 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 16 10:16:17 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	230239	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	344046	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292144	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	139289	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	33731	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	113188	19.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.05%				
45) 1,2-Dichloroethane-d4	5.164	65	102708	20.29	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.45%				
64) Toluene-d8	7.671	98	396324	20.06	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.30%				
85) Bromofluorobenzene	9.440	95	132295	20.94	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	14447	1.67	ug/L		81
3) Chloromethane	1.282	50	19641	1.31	ug/L		76
4) Vinyl chloride	1.360	62	14986	1.42	ug/L		93
5) Bromomethane	1.575	96	15105	1.91	ug/L	#	75
6) Chloroethane	1.654	64	10513	1.91	ug/L		87
7) Trichlorofluoromethane	1.826	101	19185	1.78	ug/L		97
8) Ethyl ether	2.019	59	9644	2.39	ug/L		97
9) Acrolein	2.127	56	9638	15.73	ug/L	#	62
10) 1,1-Dichloroethene	2.206	61	19303	2.18	ug/L		95
11) 1,1,2-Trichlorotrifluo...	2.213	151	8135	1.62	ug/L		94
12) Methyl iodide	2.327	142	7824	1.33	ug/L		90
13) Acetone	2.227	43	7569	0.63	ug/L		75
14) Chloroprene	3.380	53	19769	2.20	ug/L		94
15) Carbon disulfide	2.392	76	48556	2.14	ug/L		92
16) Allyl chloride	2.499	41	22976	2.15	ug/L		92
17) Methyl acetate	2.485	43	9505m	1.96	ug/L		
18) Acetonitrile	2.499	41	22976	2.15	ug/L		96
19) Methylene chloride	2.614	49	40286	1.46	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	21622	2.26	ug/L		92
21) t-Butanol	2.686	59	12964m	10.49	ug/L		
22) Acrylonitrile	2.822	53	4591m	2.20	ug/L		
23) Methyl tert-butyl ether	2.850	73	25920	1.88	ug/L		97
24) Hexane	3.130	57	30046	0.81	ug/L		95
25) 1,1-Dichloroethane	3.302	63	24586	2.09	ug/L		89
26) Diisopropyl ether	3.337	45	28297	1.56	ug/L	#	74
27) Vinyl acetate	3.294	86	2615	3.72	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	28448	1.80	ug/L		96
29) 2,2-Dichloropropane	3.961	77	19157	2.15	ug/L	#	86
30) cis-1,2-Dichloroethene	3.953	61	24897	2.16	ug/L		94
31) 2-Butanone	3.946	43	5271m	1.82	ug/L		
32) Ethyl Acetate	4.011	43	8746	1.63	ug/L	#	100
33) Methyl acrylate	4.068	55	10207	1.90	ug/L	#	73
34) Propionitrile	4.749	54	2586	3.55	ug/L	#	1
35) Bromochloromethane	4.276	49	13646m	2.38	ug/L		
36) Tetrahydrofuran	4.290	42	6151	2.94	ug/L	#	72
37) Methacrylonitrile	4.211	41	8111m	2.48	ug/L		
38) Chloroform	4.419	83	24503	2.05	ug/L		89

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.727	56	22870	1.87	ug/L	#	81
41)	1,1,1-Trichloroethane	4.634	97	21247	2.46	ug/L		97
43)	Carbon tetrachloride	4.863	117	15228	1.99	ug/L	#	79
44)	1,1-Dichloropropene	4.885	75	19198	2.15	ug/L		95
46)	1,2-Dichloroethane	5.293	62	16124	2.38	ug/L		81
47)	Benzene	5.186	78	54015	2.10	ug/L		96
48)	Tertiaryamylmethylether	5.443	73	26081	1.83	ug/L	#	82
49)	Isobutyl Alcohol	5.443	43	7787	1.69	ug/L	#	90
50)	Heptane	5.766	43	19287	1.38	ug/L	#	88
51)	1,4-Dioxane	6.811	88	18308	320.15	ug/L		95
52)	Methylcyclohexane	6.654	83	20810m	1.84	ug/L		
53)	n-Butanol	6.317	56	2194	35.12	ug/L	#	16
54)	Trichloroethene	6.353	130	15698	2.17	ug/L		96
55)	1,2-Dichloropropane	6.704	63	15001	2.11	ug/L		94
56)	Dibromomethane	6.797	93	8637m	2.14	ug/L		
57)	Methyl methacrylate	6.826	41	11211	2.35	ug/L		91
58)	Bromodichloromethane	7.019	83	19008	2.34	ug/L		93
59)	2-Chloroethyl vinyl ether	7.334	43	5701	3.65	ug/L	#	88
60)	2-Nitropropane	7.241	43	4788	2.82	ug/L	#	70
61)	cis-1,3-Dichloropropene	7.456	75	22668	2.45	ug/L		94
63)	4-Methyl-2-pentanone	7.592	43	14553m	2.48	ug/L		
65)	Toluene	7.728	91	58651	2.33	ug/L		97
66)	trans-1,3-Dichloropropene	7.943	75	19029	2.45	ug/L		78
67)	Chloropicrin	7.950	117	2637	Below Cal		#	70
68)	Ethyl methacrylate	8.001	69	15492m	2.38	ug/L		
69)	1,1,2-Trichloroethane	8.087	97	12392	2.39	ug/L		88
70)	Tetrachloroethene	8.130	166	14575	1.89	ug/L		97
71)	1,3-Dichloropropane	8.201	76	19492m	2.37	ug/L		
72)	2-Hexanone	8.244	43	8025	2.03	ug/L		85
73)	Chlorodibromomethane	8.352	129	13132	2.07	ug/L		83
74)	Butyl acetate	8.344	43	16067	1.95	ug/L	#	76
75)	1,2-Dibromoethane	8.423	107	12747	2.34	ug/L		96
76)	Chlorobenzene	8.753	112	33819	2.09	ug/L		80
77)	1,1,1,2-Tetrachloroethane	8.817	131	13470	2.50	ug/L		93
78)	Ethylbenzene	8.817	91	58848	2.21	ug/L		100
79)	m/p-Xylene	8.896	91	86852	4.39	ug/L		98
80)	Styrene	9.139	104	38382	2.51	ug/L		99
81)	o-Xylene	9.125	91	48793	2.42	ug/L		95
82)	Cyclohexanone	9.383	55	5612	14.39	ug/L	#	78
83)	Bromoform	9.247	173	8895	2.29	ug/L		89
84)	Isopropylbenzene	9.340	105	55299	2.24	ug/L		97
86)	Bromobenzene	9.512	77	30862	2.39	ug/L		92
87)	1,1,2,2-Tetrachloroethane	9.512	83	15132	2.12	ug/L		87
88)	1,2,3-Trichloropropane	9.541	110	4151	2.56	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	4858	3.20	ug/L		85
90)	n-Propylbenzene	9.562	91	64534	2.02	ug/L		93
91)	2-Chlorotoluene	9.619	91	37212	2.17	ug/L		96
92)	4-Chlorotoluene	9.684	91	46619	2.37	ug/L		99
93)	1,3,5-Trimethylbenzene	9.662	105	42673	2.19	ug/L		99
94)	tert-Butylbenzene	9.827	91	26437	2.18	ug/L		85
95)	1,2,4-Trimethylbenzene	9.856	105	45141	2.22	ug/L		94
96)	sec-Butylbenzene	9.942	105	57674	2.13	ug/L		98
98)	1,3-Dichlorobenzene	10.013	146	25894	2.02	ug/L		97
99)	p-Isopropyltoluene	10.021	119	48537	2.19	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	27092	2.12	ug/L		91

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

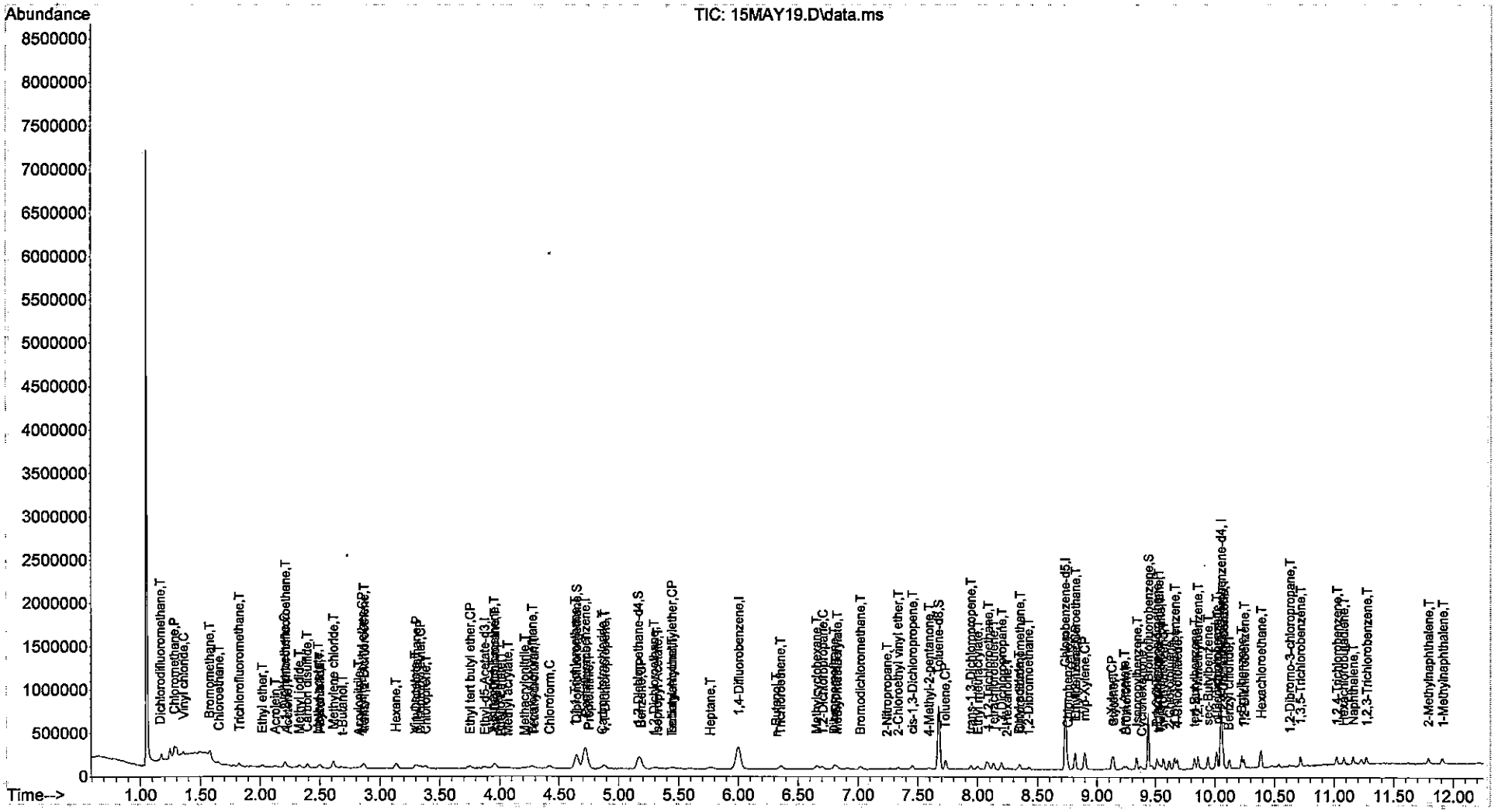
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	45195	2.21	ug/L		95
102) Benzyl chloride	10.114	91	28046	3.21	ug/L		93
103) 1,2-Dichlorobenzene	10.243	146	25212	2.13	ug/L		95
104) n-Butylbenzene	10.221	91	49489	2.13	ug/L		98
105) Hexachloroethane	10.386	117	10608	2.16	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.629	157	5425	3.85	ug/L	#	79
107) 1,3,5-Trichlorobenzene	10.715	180	20270	2.09	ug/L		94
108) 1,2,4-Trichlorobenzene	11.023	180	18156	2.17	ug/L		92
109) Hexachlorobutadiene	11.081	225	9029	1.86	ug/L	#	89
110) Naphthalene	11.159	128	42865	2.35	ug/L		92
111) 1,2,3-Trichlorobenzene	11.274	180	18032	2.44	ug/L		97
112) 2-Methylnaphthalene	11.790	142	24284	3.96	ug/L		99
113) 1-Methylnaphthalene	11.912	142	22195	3.65	ug/L		97
115) 2-Propanone	2.227	43	7569	Below Cal		#	75
116) Acetic Ether	4.011	43	8746	1.44	ug/L	#	78
117) Isopropyl Acetate	5.322	61	7286	2.73	ug/L	#	1
118) Amyl Acetate	9.233	43	16794	1.61	ug/L	#	81

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY19.D
Acq On : 15 May 2018 3:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 16 08:51:38 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volati1e Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223307	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	335192	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	289109	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	138041	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35297	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	111550	19.63	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.15%				
45) 1,2-Dichloroethane-d4	5.164	65	99541	20.18	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 100.90%				
64) Toluene-d8	7.671	98	386199	19.75	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.75%				
85) Bromofluorobenzene	9.440	95	129870	20.77	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 103.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	29028	3.45	ug/L		93
3) Chloromethane	1.282	50	39537	2.72	ug/L		97
4) Vinyl chloride	1.353	62	29729	2.91	ug/L		99
5) Bromomethane	1.575	96	28612	4.12	ug/L		86
6) Chloroethane	1.647	64	16995	3.18	ug/L		96
7) Trichlorofluoromethane	1.826	101	40452	3.88	ug/L		99
8) Ethyl ether	2.019	59	17532	4.48	ug/L		91
9) Acrolein	2.127	56	18903	31.81	ug/L		91
10) 1,1-Dichloroethene	2.206	61	37706	4.40	ug/L		96
11) 1,1,2-Trichlorotrifluo...	2.206	151	19188	3.94	ug/L		93
12) Methyl iodide	2.328	142	14656m	2.41	ug/L		
13) Acetone	2.227	43	14195m	4.68	ug/L		
14) Chloroprene	3.380	53	36738	4.22	ug/L		95
15) Carbon disulfide	2.392	76	93832	4.28	ug/L		98
16) Allyl chloride	2.499	41	46778	4.51	ug/L		94
17) Methyl acetate	2.478	43	14878	3.17	ug/L	#	74
18) Acetonitrile	2.499	41	46778	4.51	ug/L	#	94
19) Methylene chloride	2.614	49	57882	3.53	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	38195	4.11	ug/L		99
21) t-Butanol	2.678	59	19036	20.54	ug/L	#	75
22) Acrylonitrile	2.822	53	8620m	3.95	ug/L		
23) Methyl tert-butyl ether	2.850	73	45342	3.39	ug/L		87
24) Hexane	3.137	57	45693	2.21	ug/L		98
25) 1,1-Dichloroethane	3.302	63	48650	4.26	ug/L		98
26) Diisopropyl ether	3.330	45	55090	3.13	ug/L	#	81
27) Vinyl acetate	3.302	86	5084	7.45	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	48671	3.18	ug/L	#	94
29) 2,2-Dichloropropane	3.961	77	38925	4.50	ug/L		97
30) cis-1,2-Dichloroethene	3.961	61	41038	3.68	ug/L		95
31) 2-Butanone	3.939	43	8354	2.92	ug/L	#	48
32) Ethyl Acetate	4.004	43	19133	3.29	ug/L	#	85
33) Methyl acrylate	4.068	55	20586	3.95	ug/L	#	90
34) Propionitrile	4.749	54	4273	5.96	ug/L	#	54
35) Bromochloromethane	4.269	49	20870	3.75	ug/L		95
36) Tetrahydrofuran	4.276	42	9122	4.49	ug/L	#	81
37) Methacrylonitrile	4.219	41	14732	4.23	ug/L		96
38) Chloroform	4.419	83	49072	4.23	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.734	56	43620	3.67	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	40140	4.77	ug/L		93
43)	Carbon tetrachloride	4.863	117	35332	4.73	ug/L		96
44)	1,1-Dichloropropene	4.885	75	34810	4.00	ug/L		88
46)	1,2-Dichloroethane	5.300	62	29124	4.41	ug/L		91
47)	Benzene	5.186	78	105578	4.20	ug/L		97
48)	Tertiaryamylmethylether	5.451	73	49818	3.58	ug/L		95
49)	Isobutyl Alcohol	5.451	43	14363	3.20	ug/L	#	79
50)	Heptane	5.766	43	40047	2.95	ug/L		93
51)	1,4-Dioxane	6.804	88	34757	623.84	ug/L		92
52)	Methylcyclohexane	6.661	83	42195	3.83	ug/L		95
53)	n-Butanol	6.332	56	4701	57.66	ug/L	#	82
54)	Trichloroethene	6.353	130	28322	4.02	ug/L		92
55)	1,2-Dichloropropane	6.704	63	27708	4.01	ug/L		93
56)	Dibromomethane	6.797	93	17691m	4.49	ug/L		
57)	Methyl methacrylate	6.826	41	26126	5.62	ug/L	#	82
58)	Bromodichloromethane	7.019	83	32585	4.11	ug/L		97
59)	2-Chloroethyl vinyl ether	7.334	43	11789	7.75	ug/L		87
60)	2-Nitropropane	7.241	43	9900	5.98	ug/L	#	80
61)	cis-1,3-Dichloropropene	7.456	75	41746	4.64	ug/L		93
63)	4-Methyl-2-pentanone	7.592	43	22416	3.86	ug/L		92
65)	Toluene	7.728	91	105382	4.23	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	38189	4.97	ug/L		94
67)	Chloropicrin	7.958	117	3280	Below Cal		#	74
68)	Ethyl methacrylate	8.001	69	27023	4.20	ug/L		93
69)	1,1,2-Trichloroethane	8.087	97	23402	4.57	ug/L		90
70)	Tetrachloroethene	8.130	166	29274	3.83	ug/L		98
71)	1,3-Dichloropropane	8.201	76	33178	4.08	ug/L		100
72)	2-Hexanone	8.251	43	12765	3.26	ug/L		81
73)	Chlorodibromomethane	8.352	129	28821m	4.59	ug/L		
74)	Butyl acetate	8.344	43	30059	3.69	ug/L	#	95
75)	1,2-Dibromoethane	8.430	107	24413m	4.53	ug/L		
76)	Chlorobenzene	8.753	112	68640	4.28	ug/L		95
77)	1,1,1,2-Tetrachloroethane	8.817	131	26366	4.95	ug/L		99
78)	Ethylbenzene	8.817	91	111508	4.23	ug/L		94
79)	m/p-Xylene	8.896	91	172648	8.81	ug/L		100
80)	Styrene	9.140	104	71729	4.75	ug/L		94
81)	o-Xylene	9.125	91	92167	4.61	ug/L		100
82)	Cyclohexanone	9.390	55	7435	19.27	ug/L		95
83)	Bromoform	9.247	173	18201	4.73	ug/L		96
84)	Isopropylbenzene	9.340	105	106325	4.35	ug/L		99
86)	Bromobenzene	9.512	77	52285	4.09	ug/L		98
87)	1,1,2,2-Tetrachloroethane	9.512	83	33266	4.71	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	7067	4.40	ug/L		86
89)	trans-1,4-Dichloro-2-b...	9.526	53	7994	5.20	ug/L		88
90)	n-Propylbenzene	9.562	91	131597m	4.17	ug/L		
91)	2-Chlorotoluene	9.612	91	72357	4.27	ug/L		100
92)	4-Chlorotoluene	9.684	91	85902	4.42	ug/L		96
93)	1,3,5-Trimethylbenzene	9.662	105	85190	4.42	ug/L		99
94)	tert-Butylbenzene	9.827	91	52267	4.35	ug/L		98
95)	1,2,4-Trimethylbenzene	9.856	105	91539	4.54	ug/L		83
96)	sec-Butylbenzene	9.942	105	117473	4.38	ug/L		100
98)	1,3-Dichlorobenzene	10.013	146	48786	3.84	ug/L		98
99)	p-Isopropyltoluene	10.021	119	96390	4.39	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	50099	3.96	ug/L		93

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

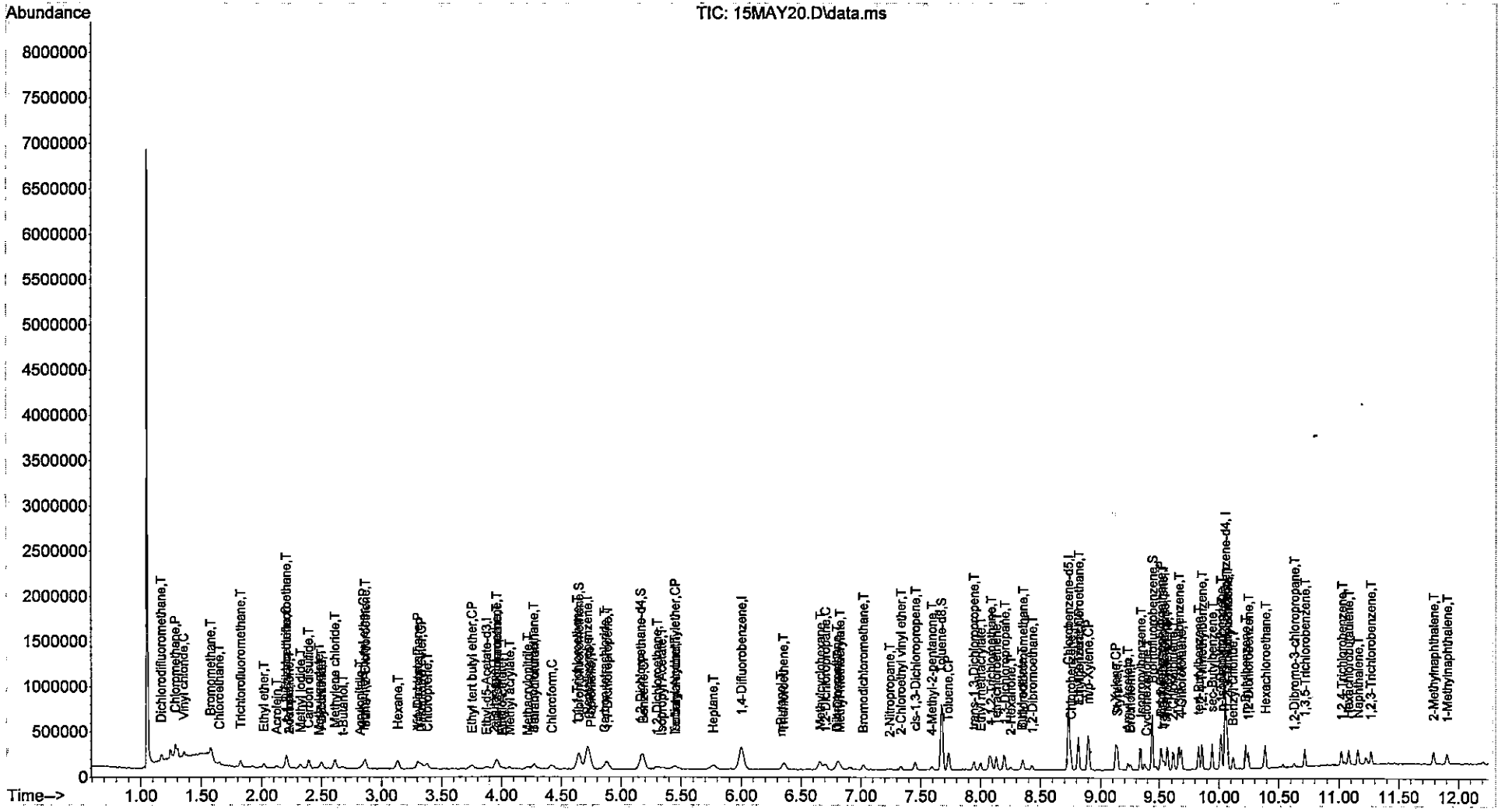
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	84387	4.17	ug/L		97
102) Benzyl chloride	10.114	91	52228	6.03	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	46469	3.97	ug/L		95
104) n-Butylbenzene	10.221	91	93516	4.07	ug/L		99
105) Hexachloroethane	10.386	117	19922	4.10	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	7812	5.53	ug/L		91
107) 1,3,5-Trichlorobenzene	10.715	180	37155	3.87	ug/L		98
108) 1,2,4-Trichlorobenzene	11.023	180	34057	4.11	ug/L		99
109) Hexachlorobutadiene	11.081	225	19698	4.10	ug/L		98
110) Naphthalene	11.160	128	82720	4.58	ug/L		96
111) 1,2,3-Trichlorobenzene	11.267	180	33549	4.58	ug/L		98
112) 2-Methylnaphthalene	11.790	142	46427	6.43	ug/L		96
113) 1-Methylnaphthalene	11.904	142	39547	5.69	ug/L		98
115) 2-Propanone	2.227	43	15169m	2.87	ug/L		
116) Acetic Ether	4.004	43	19193	3.02	ug/L	#	85
117) Isopropyl Acetate	5.336	61	8247	2.96	ug/L	#	66
118) Amyl Acetate	9.226	43	29975	2.75	ug/L	#	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY20.D
Acq On : 15 May 2018 3:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 16 08:53:49 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	223435	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337798	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	291131	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	140591	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	37830	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	115394	20.15	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.75%				
45) 1,2-Dichloroethane-d4	5.164	65	102258	20.58	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.90%				
64) Toluene-d8	7.671	98	392868	19.95	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 99.75%				
85) Bromofluorobenzene	9.441	95	136425	21.67	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 108.35%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	71593	8.51	ug/L		93
3) Chloromethane	1.282	50	91360	6.29	ug/L		92
4) Vinyl chloride	1.353	62	77607	7.58	ug/L		99
5) Bromomethane	1.575	96	61023	9.26	ug/L		90
6) Chloroethane	1.647	64	42523	7.96	ug/L		98
7) Trichlorofluoromethane	1.826	101	96366	9.24	ug/L		98
8) Ethyl ether	2.020	59	38963	9.96	ug/L		91
9) Acrolein	2.127	56	41473	69.76	ug/L		95
10) 1,1-Dichloroethene	2.206	61	86606	10.10	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	43624	8.96	ug/L		96
12) Methyl iodide	2.328	142	36174	5.72	ug/L		97
13) Acetone	2.227	43	20830	8.60	ug/L		98
14) Chloroprene	3.373	53	82418	9.47	ug/L		100
15) Carbon disulfide	2.392	76	208630	9.53	ug/L		98
16) Allyl chloride	2.500	41	93923	9.06	ug/L		98
17) Methyl acetate	2.485	43	36304	7.73	ug/L	#	83
18) Acetonitrile	2.500	41	93923	9.06	ug/L	#	96
19) Methylene chloride	2.607	49	94488	7.54	ug/L		89
20) trans-1,2-Dichloroethene	2.865	61	88700	9.55	ug/L		98
21) t-Butanol	2.679	59	38160	50.25	ug/L	#	76
22) Acrylonitrile	2.815	53	22280m	9.68	ug/L		
23) Methyl tert-butyl ether	2.851	73	115668	8.63	ug/L		100
24) Hexane	3.130	57	96794	6.53	ug/L		95
25) 1,1-Dichloroethane	3.302	63	112670	9.85	ug/L		98
26) Diisopropyl ether	3.330	45	138712	7.87	ug/L	#	80
27) Vinyl acetate	3.302	86	10669	15.62	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	130315	8.50	ug/L		97
29) 2,2-Dichloropropane	3.968	77	89958	10.40	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	105163	9.41	ug/L		98
31) 2-Butanone	3.939	43	23918	8.20	ug/L		78
32) Ethyl Acetate	4.011	43	48682	7.88	ug/L	#	97
33) Methyl acrylate	4.061	55	51786	9.94	ug/L	#	90
34) Propionitrile	4.734	54	7257	10.03	ug/L	#	91
35) Bromochloromethane	4.269	49	51019	9.17	ug/L		100
36) Tetrahydrofuran	4.276	42	18180	8.95	ug/L		82
37) Methacrylonitrile	4.219	41	34561	9.30	ug/L		89
38) Chloroform	4.419	83	110672	9.53	ug/L		97

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	97187	8.17	ug/L		94
41)	1,1,1-Trichloroethane	4.634	97	93632	11.04	ug/L		93
43)	Carbon tetrachloride	4.863	117	80942	10.75	ug/L		98
44)	1,1-Dichloropropene	4.878	75	84841	9.67	ug/L		94
46)	1,2-Dichloroethane	5.293	62	68399	10.27	ug/L		94
47)	Benzene	5.186	78	245583	9.70	ug/L		98
48)	Tertiaryamylmethylether	5.451	73	124004	8.84	ug/L		94
49)	Isobutyl Alcohol	5.451	43	35613	7.87	ug/L	#	81
50)	Heptane	5.766	43	93669	6.84	ug/L		97
51)	1,4-Dioxane	6.805	88	92692	1650.86	ug/L		94
52)	Methylcyclohexane	6.654	83	100734	9.07	ug/L		96
53)	n-Butanol	6.325	56	14616m	137.32	ug/L		
54)	Trichloroethene	6.353	130	67099	9.46	ug/L		96
55)	1,2-Dichloropropane	6.704	63	61987	8.89	ug/L		99
56)	Dibromomethane	6.797	93	40449	10.19	ug/L		93
57)	Methyl methacrylate	6.819	41	47658	10.17	ug/L		97
58)	Bromodichloromethane	7.019	83	82466	10.32	ug/L		96
59)	2-Chloroethyl vinyl ether	7.335	43	26199	17.10	ug/L		96
60)	2-Nitropropane	7.241	43	20055	12.02	ug/L		91
61)	cis-1,3-Dichloropropene	7.456	75	102942	11.35	ug/L		99
63)	4-Methyl-2-pentanone	7.592	43	53793	9.21	ug/L		96
65)	Toluene	7.729	91	252631	10.06	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	86426	11.18	ug/L		97
67)	Chloropicrin	7.943	117	7082	Below Cal		#	86
68)	Ethyl methacrylate	8.001	69	70919	10.94	ug/L		97
69)	1,1,2-Trichloroethane	8.087	97	53073	10.29	ug/L		91
70)	Tetrachloroethene	8.130	166	68538	8.90	ug/L		98
71)	1,3-Dichloropropane	8.201	76	82904	10.13	ug/L		95
72)	2-Hexanone	8.251	43	39670	10.05	ug/L		87
73)	Chlorodibromomethane	8.352	129	67558	10.69	ug/L		97
74)	Butyl acetate	8.345	43	77091	9.39	ug/L	#	91
75)	1,2-Dibromoethane	8.431	107	56843	10.48	ug/L		97
76)	Chlorobenzene	8.753	112	167387	10.36	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	58888	10.97	ug/L		98
78)	Ethylbenzene	8.817	91	272402	10.27	ug/L		100
79)	m/p-Xylene	8.896	91	424087	21.49	ug/L		99
80)	Styrene	9.140	104	173406	11.40	ug/L		100
81)	o-Xylene	9.125	91	209042	10.39	ug/L		99
82)	Cyclohexanone	9.383	55	14345	36.91	ug/L	#	93
83)	Bromoform	9.247	173	45210	11.66	ug/L		97
84)	Isopropylbenzene	9.333	105	253562	10.31	ug/L		98
86)	Bromobenzene	9.512	77	126327	9.81	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	78226	10.99	ug/L		98
88)	1,2,3-Trichloropropane	9.541	110	19496	12.06	ug/L	#	81
89)	trans-1,4-Dichloro-2-b...	9.526	53	18506	11.69	ug/L		91
90)	n-Propylbenzene	9.562	91	323487	10.17	ug/L		99
91)	2-Chlorotoluene	9.612	91	181210	10.62	ug/L		98
92)	4-Chlorotoluene	9.684	91	213790	10.93	ug/L		98
93)	1,3,5-Trimethylbenzene	9.663	105	201016	10.35	ug/L		99
94)	tert-Butylbenzene	9.827	91	127590	10.55	ug/L		95
95)	1,2,4-Trimethylbenzene	9.856	105	216603	10.68	ug/L		98
96)	sec-Butylbenzene	9.942	105	280936	10.39	ug/L		100
98)	1,3-Dichlorobenzene	10.014	146	125978	9.73	ug/L		97
99)	p-Isopropyltoluene	10.021	119	232270	10.38	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	128547	9.99	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

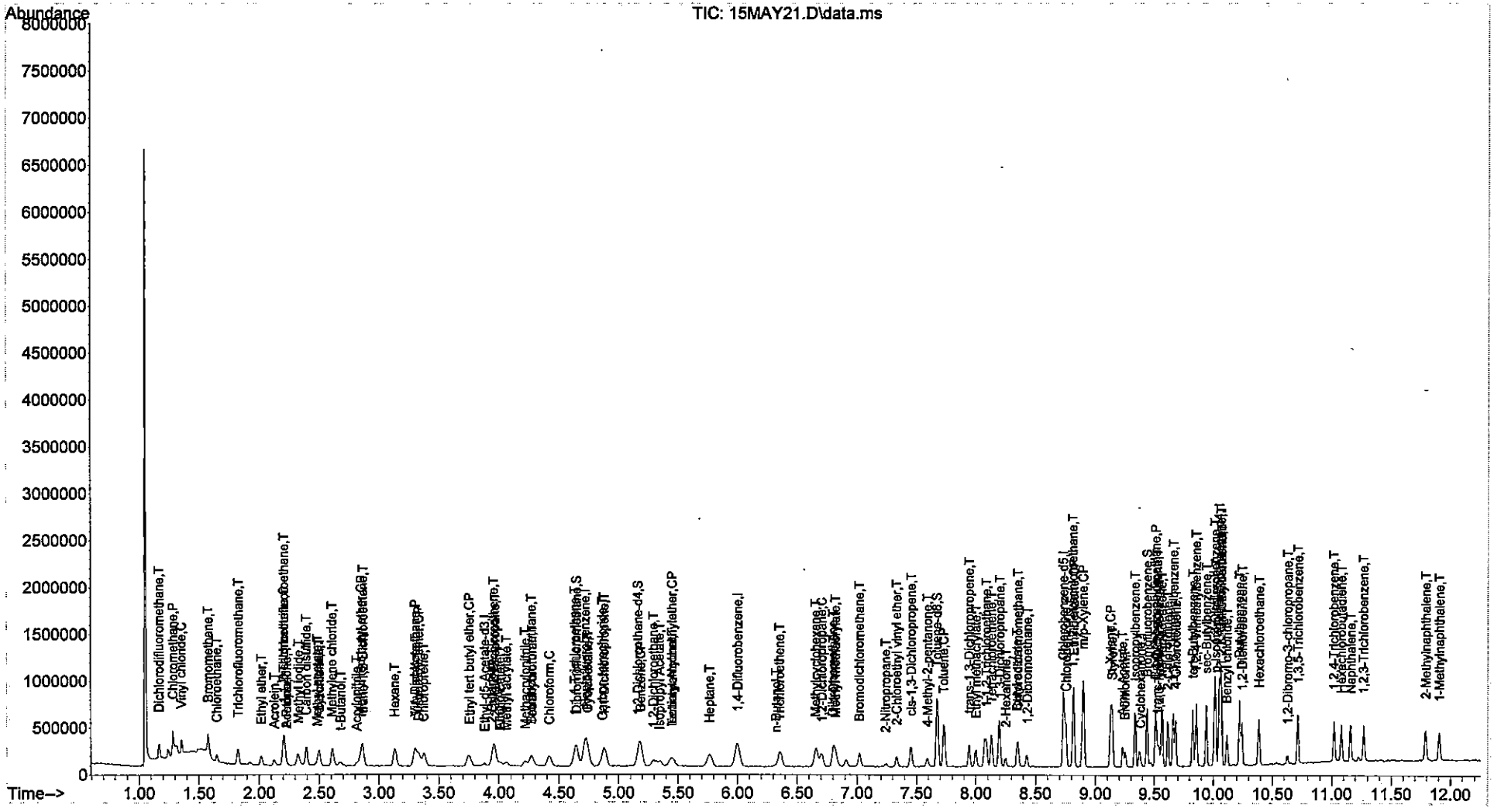
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.071	105	209977	10.18	ug/L		97
102) Benzyl chloride	10.114	91	132710	15.04	ug/L		97
103) 1,2-Dichlorobenzene	10.243	146	114345	9.59	ug/L		98
104) n-Butylbenzene	10.221	91	233344	9.97	ug/L		98
105) Hexachloroethane	10.386	117	48820	9.87	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.630	157	16937m	11.53	ug/L		
107) 1,3,5-Trichlorobenzene	10.716	180	98806	10.10	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	90991	10.78	ug/L		99
109) Hexachlorobutadiene	11.081	225	45997	9.41	ug/L		90
110) Naphthalene	11.160	128	206907	11.25	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	80738	10.83	ug/L		95
112) 2-Methylnaphthalene	11.790	142	127864	14.94	ug/L		97
113) 1-Methylnaphthalene	11.905	142	102485	12.73	ug/L		96
115) 2-Propanone	2.227	43	20830	5.18	ug/L		98
116) Acetic Ether	4.011	43	48682	7.15	ug/L	#	92
117) Isopropyl Acetate	5.343	61	27963	9.35	ug/L		92
118) Amyl Acetate	9.226	43	76991	6.58	ug/L		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY21.D
Acq On : 15 May 2018 3:35 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 16 09:00:02 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	214853	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	317331	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	274150	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	131734	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	34202	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	106371	19.78	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.90%				
45) 1,2-Dichloroethane-d4	5.164	65	93244	19.97	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.85%				
64) Toluene-d8	7.671	98	362916	19.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 97.85%				
85) Bromofluorobenzene	9.440	95	121066	20.42	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 102.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	246454m	30.46	ug/L		
3) Chloromethane	1.282	50	353311	25.30	ug/L		97
4) Vinyl chloride	1.353	62	269086	27.33	ug/L		99
5) Bromomethane	1.575	96	228722	37.27	ug/L		94
6) Chloroethane	1.647	64	164110m	31.95	ug/L		
7) Trichlorofluoromethane	1.826	101	335179m	33.42	ug/L		
8) Ethyl ether	2.020	59	151431	40.25	ug/L		99
9) Acrolein	2.120	56	104464	182.72	ug/L		99
10) 1,1-Dichloroethene	2.206	61	340209	41.26	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	171133	36.56	ug/L		98
12) Methyl iodide	2.328	142	154630m	26.09	ug/L		
13) Acetone	2.227	43	60127	33.24	ug/L		95
14) Chloroprene	3.373	53	327939	39.17	ug/L		98
15) Carbon disulfide	2.392	76	815941	38.82	ug/L		100
16) Allyl chloride	2.499	41	363421	36.44	ug/L		96
17) Methyl acetate	2.478	43	139305	30.84	ug/L	#	92
18) Acetonitrile	2.499	41	363421	36.44	ug/L	#	97
19) Methylene chloride	2.607	49	311711	32.75	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	354467	39.68	ug/L		96
21) t-Butanol	2.679	59	122604	189.12	ug/L	#	90
22) Acrylonitrile	2.807	53	84811	37.33	ug/L		88
23) Methyl tert-butyl ether	2.843	73	435997	33.85	ug/L		97
24) Hexane	3.130	57	346248	28.77	ug/L		95
25) 1,1-Dichloroethane	3.302	63	441230	40.12	ug/L		99
26) Diisopropyl ether	3.330	45	514295	30.34	ug/L	#	83
27) Vinyl acetate	3.295	86	33173	50.51	ug/L	#	28
28) Ethyl tert butyl ether	3.753	59	484177	32.84	ug/L		98
29) 2,2-Dichloropropane	3.961	77	343516	41.31	ug/L		98
30) cis-1,2-Dichloroethene	3.954	61	409000	38.07	ug/L		98
31) 2-Butanone	3.939	43	88032	31.16	ug/L		92
32) Ethyl Acetate	4.004	43	182010	29.73	ug/L	#	95
33) Methyl acrylate	4.061	55	207599	41.43	ug/L		99
34) Propionitrile	4.742	54	22680	32.32	ug/L	#	70
35) Bromochloromethane	4.269	49	188446	35.23	ug/L		97
36) Tetrahydrofuran	4.283	42	65996	33.77	ug/L		85
37) Methacrylonitrile	4.219	41	133804	36.05	ug/L		98
38) Chloroform	4.419	83	429939	38.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.742	56	366241	32.02	ug/L		98
41)	1,1,1-Trichloroethane	4.641	97	361953	45.42	ug/L		99
43)	Carbon tetrachloride	4.870	117	325645	46.03	ug/L		99
44)	1,1-Dichloropropene	4.878	75	339147	41.16	ug/L		97
46)	1,2-Dichloroethane	5.293	62	262513	41.94	ug/L		99
47)	Benzene	5.186	78	939376	39.50	ug/L		100
48)	Tertiaryamylmethylether	5.443	73	454793	34.51	ug/L		98
49)	Isobutyl Alcohol	5.451	43	138707	32.62	ug/L	#	91
50)	Heptane	5.766	43	362340	28.17	ug/L		97
51)	1,4-Dioxane	6.804	88	349756	6630.99	ug/L		99
52)	Methylcyclohexane	6.654	83	394304	37.78	ug/L		98
53)	n-Butanol	6.317	56	63002	462.86	ug/L	#	73
54)	Trichloroethene	6.353	130	262727	39.42	ug/L		97
55)	1,2-Dichloropropane	6.704	63	244490	37.34	ug/L		99
56)	Dibromomethane	6.797	93	156353	41.93	ug/L		99
57)	Methyl methacrylate	6.819	41	181911	41.32	ug/L		96
58)	Bromodichloromethane	7.019	83	323896	43.17	ug/L		99
59)	2-Chloroethyl vinyl ether	7.335	43	90438	62.82	ug/L		92
60)	2-Nitropropane	7.241	43	66601	42.48	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	388654	45.61	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	188041	34.18	ug/L		96
65)	Toluene	7.728	91	1002095	42.37	ug/L		98
66)	trans-1,3-Dichloropropene	7.943	75	338773	46.54	ug/L		95
67)	Chloropicrin	7.943	117	111945	474.19	ug/L		97
68)	Ethyl methacrylate	7.994	69	270115	44.26	ug/L		94
69)	1,1,2-Trichloroethane	8.087	97	204167	42.04	ug/L		94
70)	Tetrachloroethene	8.130	166	273810	37.74	ug/L		97
71)	1,3-Dichloropropane	8.201	76	313218	40.62	ug/L		100
72)	2-Hexanone	8.244	43	141163	37.97	ug/L		95
73)	Chlorodibromomethane	8.352	129	265417	44.61	ug/L		99
74)	Butyl acetate	8.345	43	276690	35.80	ug/L		97
75)	1,2-Dibromoethane	8.423	107	212445	41.61	ug/L		98
76)	Chlorobenzene	8.753	112	638709	41.98	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.810	131	230645	45.62	ug/L		98
78)	Ethylbenzene	8.817	91	1078284	43.19	ug/L		99
79)	m/p-Xylene	8.896	91	1647403	88.64	ug/L		98
80)	Styrene	9.140	104	681802	47.60	ug/L		98
81)	o-Xylene	9.125	91	827310	43.65	ug/L		100
82)	Cyclohexanone	9.383	55	54065	147.74	ug/L		88
83)	Bromoform	9.247	173	173503	47.52	ug/L		96
84)	Isopropylbenzene	9.333	105	1015730	43.85	ug/L		98
86)	Bromobenzene	9.512	77	487338	40.17	ug/L		96
87)	1,1,2,2-Tetrachloroethane	9.512	83	281351	41.97	ug/L		97
88)	1,2,3-Trichloropropane	9.541	110	68751	45.16	ug/L		88
89)	trans-1,4-Dichloro-2-b...	9.526	53	68906	45.64	ug/L		91
90)	n-Propylbenzene	9.562	91	1246601	41.61	ug/L		98
91)	2-Chlorotoluene	9.612	91	697769	43.42	ug/L		100
92)	4-Chlorotoluene	9.677	91	818193	44.41	ug/L		98
93)	1,3,5-Trimethylbenzene	9.662	105	815695	44.60	ug/L		99
94)	tert-Butylbenzene	9.827	91	464001m	40.73	ug/L		
95)	1,2,4-Trimethylbenzene	9.856	105	827364	43.31	ug/L		99
96)	sec-Butylbenzene	9.942	105	1077716	42.33	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	485258	40.01	ug/L		99
99)	p-Isopropyltoluene	10.014	119	896209	42.76	ug/L		99
100)	1,4-Dichlorobenzene	10.064	146	476359	39.49	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

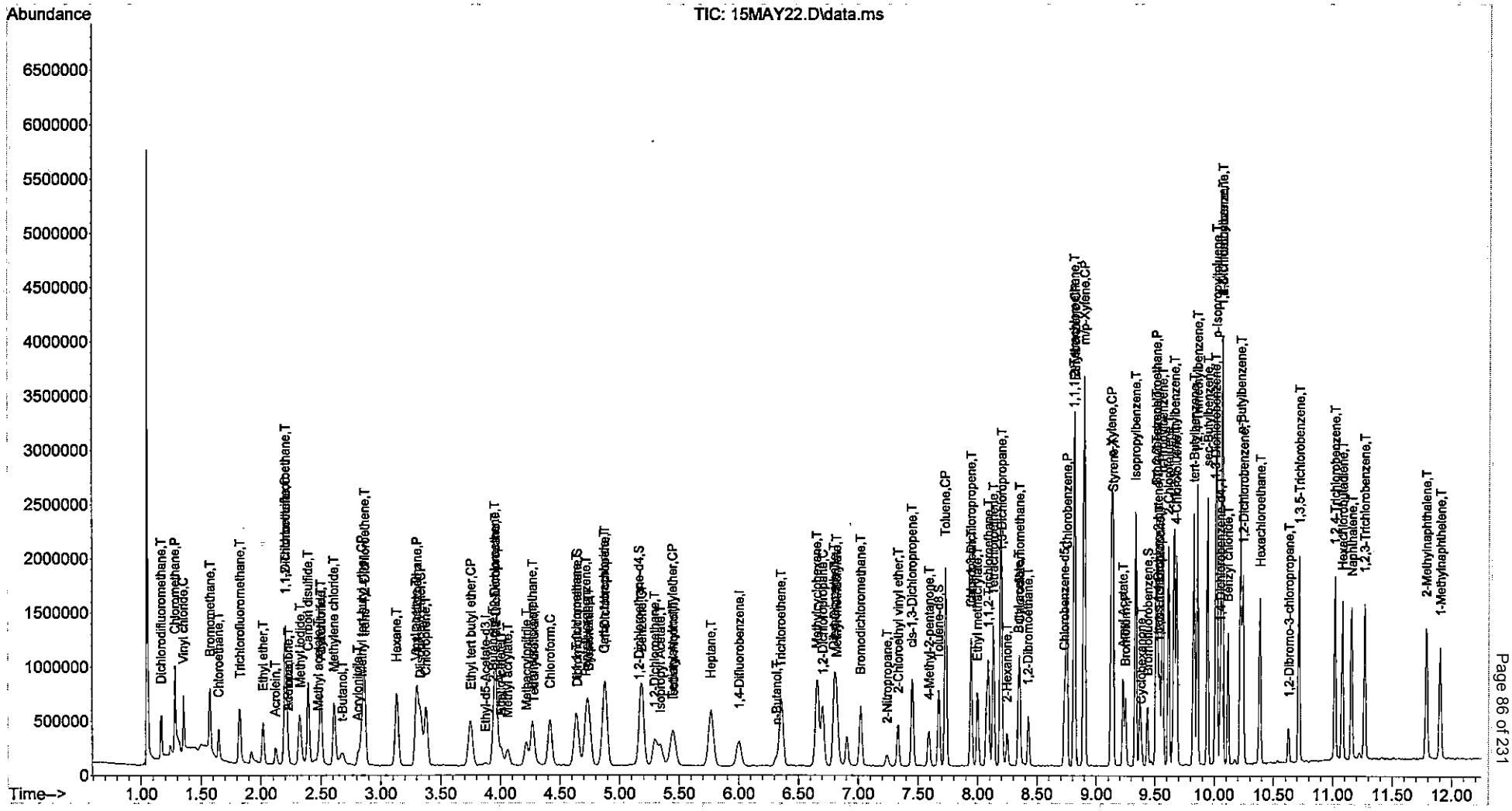
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	805112	41.68	ug/L		96
102) Benzyl chloride	10.114	91	491442	59.42	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	445383	39.87	ug/L		99
104) n-Butylbenzene	10.221	91	890816	40.60	ug/L		98
105) Hexachloroethane	10.386	117	202462	43.68	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	64682	43.84	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	376791	41.10	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	330324	41.76	ug/L		97
109) Hexachlorobutadiene	11.081	225	187240	40.87	ug/L		98
110) Naphthalene	11.160	128	777368	45.10	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	304686	43.63	ug/L		100
112) 2-Methylnaphthalene	11.783	142	453115	49.13	ug/L		98
113) 1-Methylnaphthalene	11.905	142	392569	46.72	ug/L		98
115) 2-Propanone	2.227	43	60127	28.25	ug/L		95
116) Acetic Ether	4.004	43	183944	29.90	ug/L	#	91
117) Isopropyl Acetate	5.343	61	101293	37.46	ug/L		92
118) Amyl Acetate	9.226	43	269615	25.50	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY22.D
Acq On : 15 May 2018 3:51 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 16 09:04:18 2018
Quant Method : C:\msdchem\1\METHODS\8SG00502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	234086	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	357162	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	308260	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	142961	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	35159	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	118099	19.51	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 97.55%				
45) 1,2-Dichloroethane-d4	5.171	65	104696	19.92	ug/L		0.01
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.60%				
64) Toluene-d8	7.671	98	410739	19.70	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.50%				
85) Bromofluorobenzene	9.433	95	135360	20.30	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 101.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	453484	51.45	ug/L		98
3) Chloromethane	1.282	50	649354	42.69	ug/L		98
4) Vinyl chloride	1.353	62	498176	46.44	ug/L		99
5) Bromomethane	1.568	96	396902	59.61	ug/L		95
6) Chloroethane	1.647	64	296177	52.92	ug/L		97
7) Trichlorofluoromethane	1.819	101	628518m	57.52	ug/L		
8) Ethyl ether	2.019	59	277190	67.63	ug/L		99
9) Acrolein	2.120	56	197055	316.35	ug/L		98
10) 1,1-Dichloroethene	2.206	61	589586	65.63	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	280919	55.08	ug/L		95
12) Methyl iodide	2.327	142	302722m	49.83	ug/L		
13) Acetone	2.227	43	109199	57.89	ug/L		93
14) Chloroprene	3.373	53	572761	62.80	ug/L		98
15) Carbon disulfide	2.392	76	1434144	62.64	ug/L		99
16) Allyl chloride	2.499	41	679215m	62.51	ug/L		
17) Methyl acetate	2.478	43	268820	54.63	ug/L		96
18) Acetonitrile	2.499	41	678789m	62.47	ug/L		
19) Methylene chloride	2.607	49	564466m	56.30	ug/L		
20) trans-1,2-Dichloroethene	2.865	61	618855	63.58	ug/L		97
21) t-Butanol	2.678	59	227767	328.87	ug/L	#	89
22) Acrylonitrile	2.815	53	153351	61.73	ug/L		92
23) Methyl tert-butyl ether	2.843	73	886153	63.14	ug/L		97
24) Hexane	3.130	57	521876m	40.44	ug/L		
25) 1,1-Dichloroethane	3.302	63	805027	67.18	ug/L		98
26) Diisopropyl ether	3.330	45	1061999	57.51	ug/L		87
27) Vinyl acetate	3.294	86	62177	86.89	ug/L	#	37
28) Ethyl tert butyl ether	3.746	59	968939	60.32	ug/L		98
29) 2,2-Dichloropropane	3.961	77	609897	67.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	743751	63.55	ug/L		98
31) 2-Butanone	3.939	43	171197	55.56	ug/L		91
32) Ethyl Acetate	4.004	43	365131	54.47	ug/L	#	96
33) Methyl acrylate	4.061	55	373900	68.48	ug/L		99
34) Propionitrile	4.741	54	39879	52.08	ug/L	#	91
35) Bromochloromethane	4.269	49	351734	60.36	ug/L		99
36) Tetrahydrofuran	4.283	42	138657m	65.13	ug/L		
37) Methacrylonitrile	4.218	41	235373	57.92	ug/L		96
38) Chloroform	4.419	83	767774	63.09	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.741	56	596333	47.86	ug/L		98
41)	1,1,1-Trichloroethane	4.634	97	630299	70.28	ug/L		98
43)	Carbon tetrachloride	4.870	117	568563	71.41	ug/L		99
44)	1,1-Dichloropropene	4.878	75	580152	62.56	ug/L		98
46)	1,2-Dichloroethane	5.293	62	484391	68.76	ug/L		98
47)	Benzene	5.186	78	1712920	64.00	ug/L		99
48)	Tertiaryamylmethylether	5.443	73	927719	62.55	ug/L		98
49)	Isobutyl Alcohol	5.443	43	276982	57.88	ug/L		96
50)	Heptane	5.766	43	591101	40.83	ug/L		97
51)	1,4-Dioxane	6.804	88	574819	9682.59	ug/L		97
52)	Methylcyclohexane	6.654	83	652797	55.57	ug/L		98
53)	n-Butanol	6.310	56	117814	673.84	ug/L	#	67
54)	Trichloroethene	6.353	130	470469	62.71	ug/L		97
55)	1,2-Dichloropropane	6.704	63	439798	59.67	ug/L		98
56)	Dibromomethane	6.797	93	281064	66.97	ug/L		99
57)	Methyl methacrylate	6.819	41	326930	65.98	ug/L		95
58)	Bromodichloromethane	7.019	83	593362	70.26	ug/L		99
59)	2-Chloroethyl vinyl ether	7.334	43	159763	98.60	ug/L		90
60)	2-Nitropropane	7.241	43	114916	65.13	ug/L	#	92
61)	cis-1,3-Dichloropropene	7.449	75	721586	75.24	ug/L		98
63)	4-Methyl-2-pentanone	7.592	43	359550	58.13	ug/L		94
65)	Toluene	7.728	91	1804145	67.85	ug/L		99
66)	trans-1,3-Dichloropropene	7.943	75	635250	77.61	ug/L		97
67)	Chloropicrin	7.943	117	658684	934.42	ug/L		95
68)	Ethyl methacrylate	8.001	69	486325	70.87	ug/L		95
69)	1,1,2-Trichloroethane	8.087	97	374063	68.50	ug/L		96
70)	Tetrachloroethene	8.130	166	476951	58.46	ug/L		97
71)	1,3-Dichloropropane	8.201	76	575240	66.35	ug/L		99
72)	2-Hexanone	8.244	43	268951	64.34	ug/L		91
73)	Chlorodibromomethane	8.352	129	482052	72.05	ug/L		98
74)	Butyl acetate	8.344	43	554918	63.85	ug/L		97
75)	1,2-Dibromoethane	8.423	107	397285	69.20	ug/L		98
76)	Chlorobenzene	8.753	112	1180727	69.02	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.817	131	430096	75.66	ug/L		99
78)	Ethylbenzene	8.817	91	1981258	70.57	ug/L		100
79)	m/p-Xylene	8.896	91	2988243	143.00	ug/L		100
80)	Styrene	9.140	104	1218501	75.66	ug/L		99
81)	o-Xylene	9.125	91	1507054	70.71	ug/L		99
82)	Cyclohexanone	9.383	55	96986	235.70	ug/L		91
83)	Bromoform	9.247	173	323605	78.83	ug/L		97
84)	Isopropylbenzene	9.333	105	1867984	71.73	ug/L		98
86)	Bromobenzene	9.512	77	909120	66.65	ug/L		97
87)	1,1,2,2-Tetrachloroethane	9.512	83	517604	68.67	ug/L		99
88)	1,2,3-Trichloropropane	9.541	110	121057	70.71	ug/L		90
89)	trans-1,4-Dichloro-2-b...	9.526	53	126023	74.11	ug/L		94
90)	n-Propylbenzene	9.562	91	2275310	67.54	ug/L		98
91)	2-Chlorotoluene	9.612	91	1266001	70.06	ug/L		98
92)	4-Chlorotoluene	9.677	91	1501961	72.50	ug/L		97
93)	1,3,5-Trimethylbenzene	9.662	105	1503993	73.14	ug/L		99
94)	tert-Butylbenzene	9.827	91	882606	68.91	ug/L		97
95)	1,2,4-Trimethylbenzene	9.856	105	1520096	70.76	ug/L		98
96)	sec-Butylbenzene	9.942	105	1972361	68.90	ug/L		100
98)	1,3-Dichlorobenzene	10.006	146	878070	66.72	ug/L		99
99)	p-Isopropyltoluene	10.013	119	1638260	72.03	ug/L		98
100)	1,4-Dichlorobenzene	10.064	146	885873	67.68	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

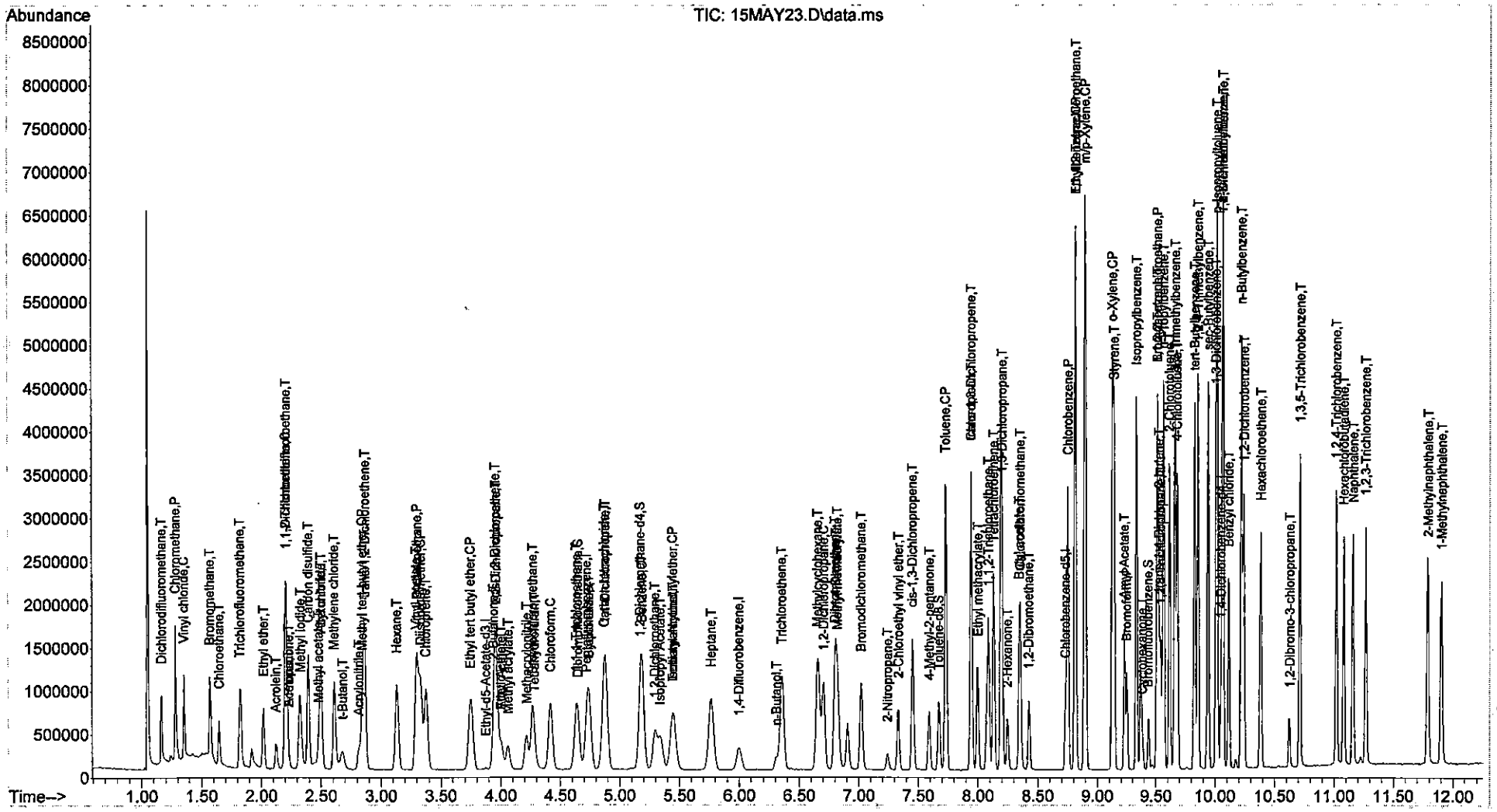
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	1483949	70.78	ug/L		97
102) Benzyl chloride	10.114	91	914284	101.87	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	821988	67.80	ug/L		99
104) n-Butylbenzene	10.221	91	1629272	68.43	ug/L		98
105) Hexachloroethane	10.386	117	375020	74.55	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	117278	69.73	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	683646	68.72	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	623902	72.69	ug/L		98
109) Hexachlorobutadiene	11.081	225	338606	68.10	ug/L		97
110) Naphthalene	11.159	128	1449713	77.50	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	573723	75.70	ug/L		97
112) 2-Methylnaphthalene	11.790	142	928898	85.10	ug/L		99
113) 1-Methylnaphthalene	11.904	142	771791	80.41	ug/L		100
115) 2-Propanone	2.227	43	109199	54.02	ug/L		93
116) Acetic Ether	4.004	43	364789	57.68	ug/L	#	95
117) Isopropyl Acetate	5.336	61	195160	70.21	ug/L		97
118) Amyl Acetate	9.225	43	547920	50.42	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY23.D
Acq On : 15 May 2018 4:08 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 16 09:05:21 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	219223	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	337292	20.00	ug/L		0.01
62) Chlorobenzene-d5	8.731	117	292395	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	135609	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	38061	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	113822	19.91	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.55%				
45) 1,2-Dichloroethane-d4	5.164	65	101022	20.36	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 101.80%				
64) Toluene-d8	7.671	98	397010	20.08	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.40%				
85) Bromofluorobenzene	9.433	95	133605	21.13	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 105.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	603175	73.07	ug/L		98
3) Chloromethane	1.282	50	903112	63.39	ug/L		97
4) Vinyl chloride	1.353	62	673194	67.01	ug/L		98
5) Bromomethane	1.568	96	542781	87.23	ug/L		92
6) Chloroethane	1.647	64	401591	76.62	ug/L		96
7) Trichlorofluoromethane	1.826	101	863204m	84.35	ug/L		
8) Ethyl ether	2.020	59	413934	107.84	ug/L		97
9) Acrolein	2.120	56	286960	491.92	ug/L		99
10) 1,1-Dichloroethene	2.206	61	888412	105.60	ug/L		100
11) 1,1,2-Trichlorotrifluo...	2.206	151	443095	92.76	ug/L		95
12) Methyl iodide	2.328	142	485310m	98.59	ug/L		
13) Acetone	2.227	43	157216	91.00	ug/L		93
14) Chloroprene	3.373	53	877349	102.71	ug/L		96
15) Carbon disulfide	2.392	76	2109405	98.40	ug/L		99
16) Allyl chloride	2.499	41	973265m	95.65	ug/L		
17) Methyl acetate	2.478	43	396745	86.09	ug/L		95
18) Acetonitrile	2.499	41	966765m	95.01	ug/L		
19) Methylene chloride	2.607	49	797251	86.35	ug/L		92
20) trans-1,2-Dichloroethene	2.865	61	935189	102.60	ug/L		96
21) t-Butanol	2.679	59	343008	534.35	ug/L	#	91
22) Acrylonitrile	2.807	53	228718	98.12	ug/L		92
23) Methyl tert-butyl ether	2.850	73	1271354	96.73	ug/L		98
24) Hexane	3.130	57	767565	64.45	ug/L		94
25) 1,1-Dichloroethane	3.302	63	1186441	105.72	ug/L		99
26) Diisopropyl ether	3.330	45	1507453	87.16	ug/L		85
27) Vinyl acetate	3.295	86	89977	134.27	ug/L	#	39
28) Ethyl tert butyl ether	3.753	59	1397901	92.92	ug/L		99
29) 2,2-Dichloropropane	3.961	77	897050	105.72	ug/L		96
30) cis-1,2-Dichloroethene	3.954	61	1090757	99.51	ug/L		98
31) 2-Butanone	3.939	43	255955	88.64	ug/L		92
32) Ethyl Acetate	4.004	43	527113	83.80	ug/L	#	96
33) Methyl acrylate	4.061	55	552007	107.96	ug/L		98
34) Propionitrile	4.741	54	61276	85.37	ug/L	#	88
35) Bromochloromethane	4.269	49	509511	93.37	ug/L		98
36) Tetrahydrofuran	4.276	42	184230	92.40	ug/L		90
37) Methacrylonitrile	4.211	41	349650	91.60	ug/L		97
38) Chloroform	4.419	83	1157860	101.59	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Cyclohexane	4.741	56	925854	79.34	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	937737	110.71	ug/L		98
43) Carbon tetrachloride	4.870	117	868733	115.53	ug/L		100
44) 1,1-Dichloropropene	4.878	75	883426	100.87	ug/L		99
46) 1,2-Dichloroethane	5.293	62	710080	106.73	ug/L		99
47) Benzene	5.186	78	2528009	100.02	ug/L		100
48) Tertiaryamylmethylether	5.443	73	1313747	93.79	ug/L		98
49) Isobutyl Alcohol	5.443	43	399442	88.38	ug/L		94
50) Heptane	5.766	43	832494	60.89	ug/L		97
51) 1,4-Dioxane	6.804	88	826080	14734.71	ug/L		96
52) Methylcyclohexane	6.654	83	988061	89.06	ug/L		97
53) n-Butanol	6.310	56	185788m	965.09	ug/L		
54) Trichloroethene	6.353	130	700631	98.89	ug/L		98
55) 1,2-Dichloropropane	6.704	63	655151	94.13	ug/L		98
56) Dibromomethane	6.797	93	420964	106.21	ug/L		100
57) Methyl methacrylate	6.819	41	473009	101.09	ug/L		94
58) Bromodichloromethane	7.019	83	871932	109.33	ug/L		99
59) 2-Chloroethyl vinyl ether	7.335	43	235538	153.93	ug/L		90
60) 2-Nitropropane	7.241	43	178080	106.87	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	1060539	117.10	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	531187	90.54	ug/L		96
65) Toluene	7.728	91	2676125	106.10	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	910532	117.28	ug/L		99
67) Chloropicrin	7.943	117	1623752	1433.62	ug/L		95
68) Ethyl methacrylate	8.001	69	715976	109.99	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	545454	105.31	ug/L		94
70) Tetrachloroethene	8.130	166	688275	88.94	ug/L		99
71) 1,3-Dichloropropane	8.201	76	844669	102.71	ug/L		98
72) 2-Hexanone	8.244	43	382486	96.46	ug/L		92
73) Chlorodibromomethane	8.352	129	696769	109.80	ug/L		97
74) Butyl acetate	8.344	43	763461	92.61	ug/L		97
75) 1,2-Dibromoethane	8.423	107	574470	105.49	ug/L		98
76) Chlorobenzene	8.753	112	1707259	105.21	ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	630724	116.97	ug/L		98
78) Ethylbenzene	8.817	91	2889224	108.49	ug/L		100
79) m/p-Xylene	8.896	91	4387285	221.34	ug/L		99
80) Styrene	9.140	104	1772686	116.05	ug/L		98
81) o-Xylene	9.125	91	2223110	109.97	ug/L		99
82) Cyclohexanone	9.383	55	145735	373.39	ug/L		91
83) Bromoform	9.247	173	470961	120.95	ug/L		97
84) Isopropylbenzene	9.333	105	2762700	111.84	ug/L		98
86) Bromobenzene	9.512	77	1307035	101.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	749760	104.87	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	170647	105.09	ug/L		92
89) trans-1,4-Dichloro-2-b...	9.526	53	178584	110.61	ug/L		92
90) n-Propylbenzene	9.562	91	3293190	103.06	ug/L		98
91) 2-Chlorotoluene	9.612	91	1849093	107.87	ug/L		98
92) 4-Chlorotoluene	9.677	91	2129065	108.35	ug/L		99
93) 1,3,5-Trimethylbenzene	9.662	105	2159216	110.70	ug/L		99
94) tert-Butylbenzene	9.827	91	1281033	105.44	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2145024	105.28	ug/L		99
96) sec-Butylbenzene	9.942	105	2868041	105.63	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	1261294	101.03	ug/L		99
99) p-Isopropyltoluene	10.013	119	2341946	108.56	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	1260035	101.48	ug/L		99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration

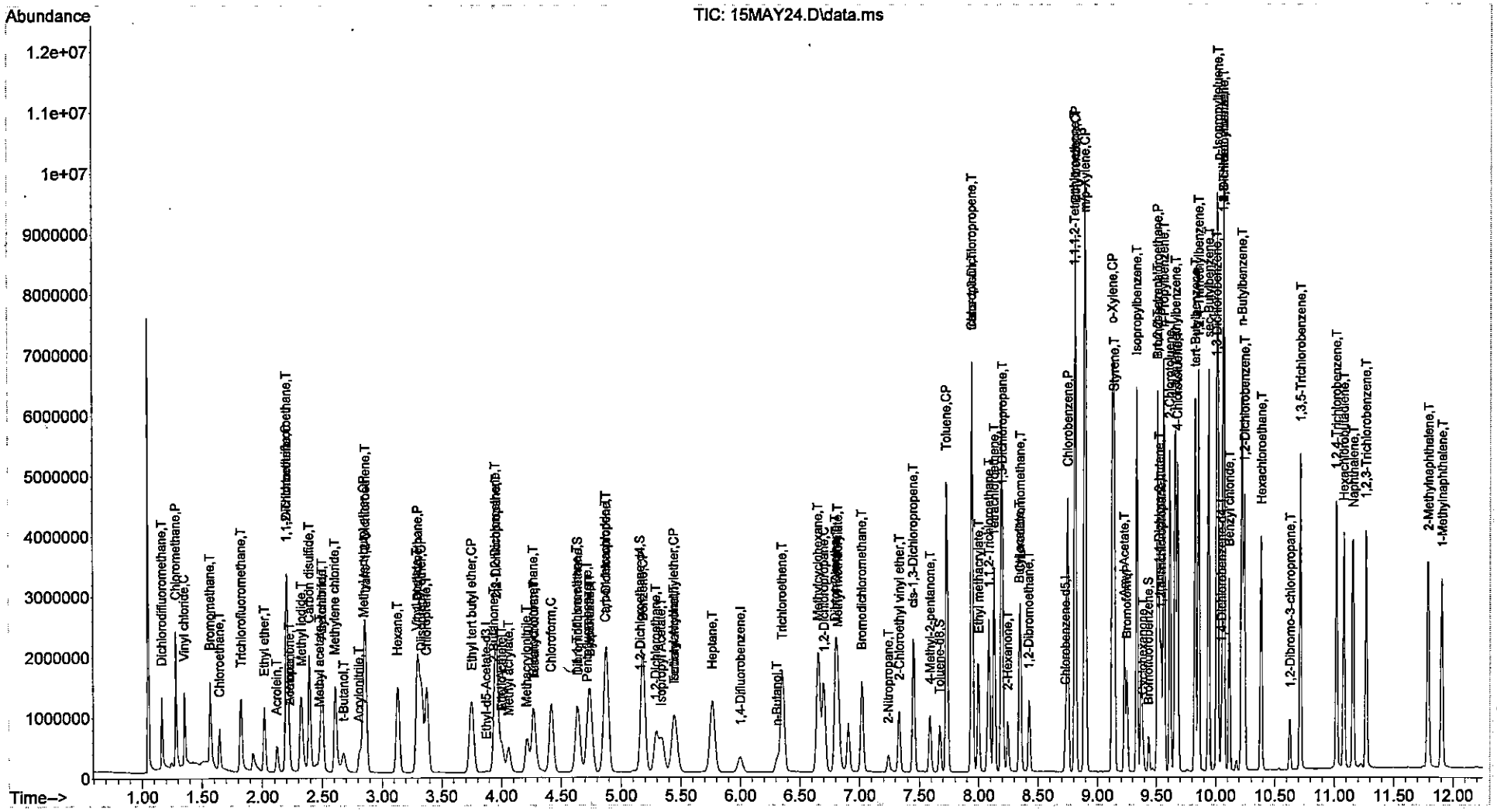
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	2136710	107.45	ug/L		98
102) Benzyl chloride	10.114	91	1321776	155.26	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	1161702	101.02	ug/L		99
104) n-Butylbenzene	10.221	91	2267139	100.38	ug/L		98
105) Hexachloroethane	10.386	117	540789	113.33	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.630	157	175943	103.77	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	981701	104.03	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	895907	110.03	ug/L		96
109) Hexachlorobutadiene	11.081	225	498769	105.75	ug/L		97
110) Naphthalene	11.160	128	2155818	121.49	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	826065	114.91	ug/L		97
112) 2-Methylnaphthalene	11.790	142	1356116	121.45	ug/L		99
113) 1-Methylnaphthalene	11.905	142	1157205	120.67	ug/L		99
115) 2-Propanone	2.227	43	157216	73.60	ug/L		92
116) Acetic Ether	4.004	43	524105	76.55	ug/L	#	96
117) Isopropyl Acetate	5.336	61	283805	94.32	ug/L		98
118) Amyl Acetate	9.226	43	769595	65.41	ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY24.D
Acq On : 15 May 2018 4:24 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 13 Sample Multiplier: 1

Quant Time: May 16 09:50:58 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 03 08:49:22 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.713	168	228121	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	349027	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	310765	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	145994	20.00 ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	31556	20.00 ug/L	# 0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	118267	19.95 ug/L	0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.75%		
45) 1,2-Dichloroethane-d4	5.164	65	100172	19.20 ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 96.00%		
64) Toluene-d8	7.671	98	402249	19.28 ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.40%		
85) Bromofluorobenzene	9.433	95	138310	19.66 ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 98.30%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.160	85	169980m	23.39 ug/L	
3) Chloromethane	1.282	50	322437m	32.20 ug/L	
4) Vinyl chloride	1.353	62	236750	32.27 ug/L	100
5) Bromomethane	1.554	96	158492m	24.85 ug/L	
6) Chloroethane	1.633	64	162227m	34.15 ug/L	
7) Trichlorofluoromethane	1.819	101	291239m	29.43 ug/L	
8) Ethyl ether	2.019	59	157140	37.72 ug/L	100
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.199	61	349464	36.37 ug/L	97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	2.327	142	218042	50.83 ug/L	98
13) Acetone	2.227	43	62027	37.08 ug/L	96
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	805610	36.37 ug/L	98
16) Allyl chloride	2.499	41	335987m	32.44 ug/L	
17) Methyl acetate	2.492	43	7687	1.94 ug/L #	1
18) Acetonitrile	2.499	41	327596	31.66 ug/L	100
19) Methylene chloride	2.607	49	324804	41.00 ug/L	99
20) trans-1,2-Dichloroethene	2.858	61	373862	36.83 ug/L	99
21) t-Butanol	2.693	59	149223	210.65 ug/L	96
22) Acrylonitrile	2.815	53	86380	36.77 ug/L	95
23) Methyl tert-butyl ether	2.843	73	557849	45.14 ug/L	100
24) Hexane	3.137	57	26411	0.67 ug/L #	86
25) 1,1-Dichloroethane	3.294	63	456924	38.64 ug/L	99
26) Diisopropyl ether	3.330	45	658165	45.80 ug/L #	47
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	3.746	59	600615	44.80 ug/L	99
29) 2,2-Dichloropropane	3.961	77	352410	38.06 ug/L	99
30) cis-1,2-Dichloroethene	3.953	61	444955	38.37 ug/L	99
31) 2-Butanone	3.946	43	103307	41.32 ug/L	97
32) Ethyl Acetate	4.004	43	209819	41.45 ug/L #	98
33) Methyl acrylate	4.068	55	208973	39.11 ug/L	99
34) Propionitrile	0.000		0	N.D.	
35) Bromochloromethane	4.261	49	195912	36.17 ug/L	98
36) Tetrahydrofuran	4.283	42	63984	33.49 ug/L	95
37) Methacrylonitrile	4.218	41	121453	33.81 ug/L	91
38) Chloroform	4.419	83	440168	34.56 ug/L	99

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.713	56	6452	0.31 ug/L #	19
41) 1,1,1-Trichloroethane	4.634	97	373782	36.44 ug/L	98
43) Carbon tetrachloride	4.870	117	316686	37.69 ug/L	99
44) 1,1-Dichloropropene	4.878	75	324168	36.61 ug/L	98
46) 1,2-Dichloroethane	5.293	62	280984	35.60 ug/L	99
47) Benzene	5.178	78	982407	35.22 ug/L	99
48) Tertiaryamylmethylether	5.451	73	575649	44.09 ug/L	98
49) Isobutyl Alcohol	5.451	43	171045	42.78 ug/L #	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	6.747	88	15857	169.32 ug/L #	76
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	277130	36.03 ug/L	99
55) 1,2-Dichloropropane	6.704	63	258190	36.48 ug/L #	86
56) Dibromomethane	6.797	93	161786	36.49 ug/L	100
57) Methyl methacrylate	6.819	41	174933	32.23 ug/L	98
58) Bromodichloromethane	7.019	83	334592	37.11 ug/L	100
59) 2-Chloroethyl vinyl ether	7.241	43	69883m	25.94 ug/L	
60) 2-Nitropropane	7.241	43	65246	31.82 ug/L #	95
61) cis-1,3-Dichloropropene	7.449	75	405362	36.50 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	297937	48.43 ug/L	82
65) Toluene	7.728	91	1024015	34.39 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	348219	34.10 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	279405	34.04 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	216861	33.45 ug/L	98
70) Tetrachloroethene	8.130	166	274338	34.76 ug/L	99
71) 1,3-Dichloropropane	8.201	76	329972	34.23 ug/L	87
72) 2-Hexanone	8.251	43	154582	37.01 ug/L	98
73) Chlorodibromomethane	8.352	129	264550	34.88 ug/L	98
74) Butyl acetate	8.344	43	314238	38.64 ug/L	100
75) 1,2-Dibromoethane	8.423	107	234507	36.12 ug/L	99
76) Chlorobenzene	8.753	112	668530	35.59 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	248740	34.29 ug/L	98
78) Ethylbenzene	8.817	91	1113151	35.46 ug/L	98
79) m/p-Xylene	8.896	91	1655032	69.96 ug/L	98
80) Styrene	9.140	104	697394	34.48 ug/L	99
81) o-Xylene	9.125	91	857265	35.26 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	176881	34.73 ug/L	100
84) Isopropylbenzene	9.333	105	1053887	36.55 ug/L	100
86) Bromobenzene	9.512	77	512360	33.74 ug/L	100
87) 1,1,2,2-Tetrachloroethane	9.512	83	317493	37.35 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	71343	36.61 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	62118	30.12 ug/L	99
90) n-Propylbenzene	9.562	91	1296417	37.02 ug/L	99
91) 2-Chlorotoluene	9.612	91	742153	37.34 ug/L	99
92) 4-Chlorotoluene	9.677	91	831194	34.38 ug/L	99
93) 1,3,5-Trimethylbenzene	9.662	105	845769	36.37 ug/L	99
94) tert-Butylbenzene	9.827	91	502038	35.68 ug/L	96
95) 1,2,4-Trimethylbenzene	9.856	105	856924	35.30 ug/L	100
96) sec-Butylbenzene	9.942	105	1109122	36.70 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	496623	36.02 ug/L	99
99) p-Isopropyltoluene	10.013	119	904535	35.87 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	500024	35.63 ug/L	100

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.064	105	841143	37.16	ug/L		99
102) Benzyl chloride	10.114	91	5040	0.34	ug/L	#	61
103) 1,2-Dichlorobenzene	10.243	146	471111	37.12	ug/L		99
104) n-Butylbenzene	10.221	91	902345	35.28	ug/L		99
105) Hexachloroethane	10.386	117	197912	35.55	ug/L		95
106) 1,2-Dibromo-3-chloropr...	10.629	157	69775	38.14	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	6140	0.59	ug/L	#	79
108) 1,2,4-Trichlorobenzene	11.016	180	354051	36.37	ug/L		100
109) Hexachlorobutadiene	11.081	225	202680	38.28	ug/L		98
110) Naphthalene	11.152	128	859066	37.24	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	335053	35.44	ug/L		96
112) 2-Methylnaphthalene	11.790	142	16652	1.16	ug/L		92
113) 1-Methylnaphthalene	11.904	142	11961	1.00	ug/L		84
115) 2-Propanone	2.227	43	62027	44.32	ug/L		96
116) Acetic Ether	4.004	43	209819	48.11	ug/L	#	94
117) Isopropyl Acetate	5.343	61	117221	50.21	ug/L		99
118) Amyl Acetate	9.225	43	323648	46.78	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
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Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
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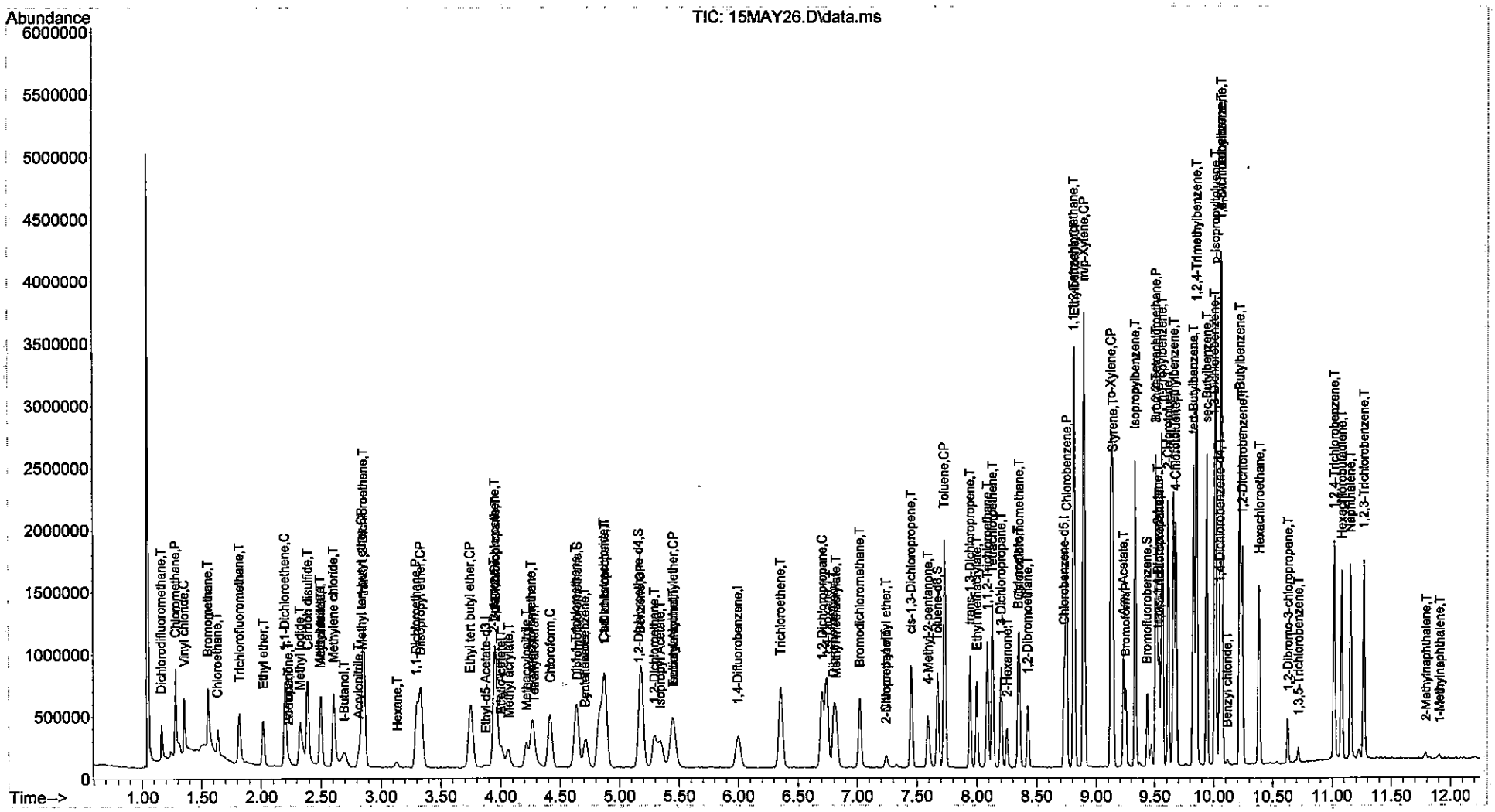

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	40.000	23.386	41.5#	69	0.00
3	P	Chloromethane	40.000	32.196	19.5	91	0.00
4	C	Vinyl chloride	40.000	32.267	19.3	88	0.00
5	T	Bromomethane	40.000	24.852	37.9#	69	-0.02
6	T	Chloroethane	40.000	34.150	14.6	99	-0.01
7	T	Trichlorofluoromethane	40.000	29.432	26.4#	87	0.00
8	T	Ethyl ether	40.000	37.716	5.7	104	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.12#
10	C	1,1-Dichloroethene	40.000	36.367	9.1	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	50.832	-27.1#	141	0.00
13	T	Acetone	40.000	37.076	7.3	103	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	36.373	9.1	99	0.00
16	T	Allyl chloride	40.000	32.437	18.9	92	0.00
17	T	Methyl acetate	40.000	1.939	95.2#	6	0.01
18	T	Acetonitrile	40.000	31.665	20.8#	90	0.00
19	T	Methylene chloride	40.000	41.002	-2.5	104	0.00
20	T	trans-1,2-Dichloroethene	40.000	36.832	7.9	105	0.00
21	T	t-Butanol	200.000	210.650	-5.3	122	0.01
22	T	Acrylonitrile	40.000	36.770	8.1	102	0.00
23	CP	Methyl tert-butyl ether	40.000	45.141	-12.9	128	0.00
24	T	Hexane	40.000	0.675	98.3#	8	0.00
25	P	1,1-Dichloroethane	40.000	38.639	3.4	104	0.00
26	CP	Diisopropyl ether	40.000	45.799	-14.5	128	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	44.798	-12.0	124	0.00
29	T	2,2-Dichloropropane	40.000	38.058	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.373	4.1	109	0.00
31	T	2-Butanone	40.000	41.323	-3.3	117	0.00
32	T	Ethyl Acetate	40.000	41.447	-3.6	115	0.00
33	T	Methyl acrylate	40.000	39.108	2.2	101	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.74#
35	T	Bromochloromethane	40.000	36.169	9.6	104	0.00
36	T	Tetrahydrofuran	40.000	33.488	16.3	97	0.00
37	T	Methacrylonitrile	40.000	33.806	15.5	91	0.00
38	C	Chloroform	40.000	34.564	13.6	102	0.00
39	T	Cyclohexane	40.000	0.313	99.2#	2	-0.03
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	40.000	36.443	8.9	103	0.00
42	S	Dibromofluoromethane	20.000	19.955	0.2	111	0.00
43	T	Carbon tetrachloride	40.000	37.690	5.8	97	0.00
44	T	1,1-Dichloropropene	40.000	36.612	8.5	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.199	4.0	107	0.00
46	T	1,2-Dichloroethane	40.000	35.604	11.0	107	0.00
47	CP	Benzene	40.000	35.224	11.9	105	0.00
48	CP	Tertiaryamylmethylether	40.000	44.091	-10.2	127	0.00
49	T	Isobutyl Alcohol	40.000	42.785	-7.0	123	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	4000.000	169.322	95.8#	5	-0.06
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.32#
54	T	Trichloroethene	40.000	36.034	9.9	105	0.00
55	C	1,2-Dichloropropane	40.000	36.476	8.8	106	0.00
56	T	Dibromomethane	40.000	36.487	8.8	103	0.00
57	T	Methyl methacrylate	40.000	32.230	19.4	96	0.00
58	T	Bromodichloromethane	40.000	37.108	7.2	103	0.00
59	T	2-Chloroethyl vinyl ether	40.000	25.936	35.2#	77	-0.09
60	T	2-Nitropropane	40.000	31.820	20.4#	98	0.00
61	T	cis-1,3-Dichloropropene	40.000	36.497	8.8	104	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	40.000	48.431	-21.1#	158	0.00
64	S	Toluene-d8	20.000	19.280	3.6	111	0.00
65	CP	Toluene	40.000	34.386	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	40.000	34.101	14.7	103	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	34.038	14.9	103	0.00
69	T	1,1,2-Trichloroethane	40.000	33.455	16.4	106	0.00
70	T	Tetrachloroethene	40.000	34.759	13.1	100	0.00
71	T	1,3-Dichloropropane	40.000	34.228	14.4	105	0.00
72	T	2-Hexanone	40.000	37.013	7.5	110	0.00
73	T	Chlorodibromomethane	40.000	34.879	12.8	100	0.00
74	T	Butyl acetate	40.000	38.636	3.4	114	0.00
75	T	1,2-Dibromoethane	40.000	36.118	9.7	110	0.00
76	P	Chlorobenzene	40.000	35.591	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	34.295	14.3	108	0.00
78	CP	Ethylbenzene	40.000	35.457	11.4	103	0.00
79	CP	m/p-Xylene	80.000	69.959	12.6	100	0.00
80	T	Styrene	40.000	34.481	13.8	102	0.00
81	CP	o-Xylene	40.000	35.256	11.9	104	0.00
82	T	Cyclohexanone	200.000	0.000	100.0#	0	-9.38#
83	P	Bromoform	40.000	34.733	13.2	102	0.00
84	T	Isopropylbenzene	40.000	36.550	8.6	104	0.00
85	S	Bromofluorobenzene	20.000	19.663	1.7	114	0.00
86	T	Bromobenzene	40.000	33.738	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	37.350	6.6	113	0.00
88	T	1,2,3-Trichloropropane	40.000	36.607	8.5	104	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	30.122	24.7#	90	0.00
90	T	n-Propylbenzene	40.000	37.018	7.5	104	0.00
91	T	2-Chlorotoluene	40.000	37.341	6.6	106	0.00
92	T	4-Chlorotoluene	40.000	34.384	14.0	102	0.00
93	T	1,3,5-Trimethylbenzene	40.000	36.370	9.1	104	0.00
94	T	tert-Butylbenzene	40.000	35.676	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	40.000	35.303	11.7	104	0.00
96	T	sec-Butylbenzene	40.000	36.701	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	40.000	36.019	10.0	102	0.00
99	T	p-Isopropyltoluene	40.000	35.867	10.3	101	0.00

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
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Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	40.000	35.634	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	40.000	37.158	7.1	104	0.00
102	T	Benzyl chloride	40.000	0.341	99.1#	1	0.00
103	T	1,2-Dichlorobenzene	40.000	37.115	7.2	106	0.00
104	T	n-Butylbenzene	40.000	35.280	11.8	101	0.00
105	T	Hexachloroethane	40.000	35.549	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.136	4.7	108	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.586	98.5#	2	0.00
108	T	1,2,4-Trichlorobenzene	40.000	36.366	9.1	107	0.00
109	T	Hexachlorobutadiene	40.000	38.283	4.3	108	0.00
110	T	Naphthalene	40.000	37.237	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	40.000	35.438	11.4	110	0.00
112	T	2-Methylnaphthalene	40.000	1.160	97.1#	4	0.00
113	T	1-Methylnaphthalene	40.000	0.998	97.5#	3	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	92	0.00
115	T	2-Propanone	40.000	44.324	-10.8	103	0.00
116	T	Acetic Ether	40.000	48.111	-20.3#	114	0.00
117	T	Isopropyl Acetate	40.000	50.209	-25.5#	116	0.00
118	T	Amyl Acetate	40.000	46.778	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
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Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	106	0.00
2	T	Dichlorodifluoromethane	0.637	0.373	41.4#	69	0.00
3	P	Chloromethane	0.878	0.707	19.5	91	0.00
4	C	Vinyl chloride	0.643	0.519	19.3	88	0.00
5	T	Bromomethane	0.559	0.347	37.9#	69	-0.02
6	T	Chloroethane	0.416	0.356	14.4	99	-0.01
7	T	Trichlorofluoromethane	0.868	0.638	26.5#	87	0.00
8	T	Ethyl ether	0.365	0.344	5.8	104	0.00
9	T	Acrolein	0.084	0.000#	100.0#	0#	-2.12#
10	C	1,1-Dichloroethene	0.842	0.766	9.0	103	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.376	0.478	-27.1#	141	0.00
13	T	Acetone	0.340	0.136#	60.0#	103	0.00
14	T	Chloroprene	0.818	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.942	1.766	9.1	99	0.00
16	T	Allyl chloride	0.908	0.736	18.9	92	0.00
17	T	Methyl acetate	0.348	0.017#	95.1#	6#	0.01
18	T	Acetonitrile	0.907	0.718	20.8#	90	0.00
19	T	Methylene chloride	1.642	0.712	56.6#	104	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.819	8.0	105	0.00
21	T	t-Butanol	0.117	0.065#	44.4#	122	0.01
22	T	Acrylonitrile	0.206	0.189#	8.3	102	0.00
23	CP	Methyl tert-butyl ether	1.083	1.223	-12.9	128	0.00
24	T	Hexane	1.281	0.058#	95.5#	8#	0.00
25	P	1,1-Dichloroethane	1.037	1.001	3.5	104	0.00
26	CP	Diisopropyl ether	1.260	1.443	-14.5	128	0.00
27	T	Vinyl acetate	0.093	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.175	1.316	-12.0	124	0.00
29	T	2,2-Dichloropropane	0.812	0.772	4.9	103	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.975	4.1	109	0.00
31	T	2-Butanone	0.251	0.226	10.0	117	0.00
32	T	Ethyl Acetate	0.444	0.460	-3.6	115	0.00
33	T	Methyl acrylate	0.468	0.458	2.1	101	0.00
34	T	Propionitrile	0.083	0.000#	100.0#	0#	-4.74#
35	T	Bromochloromethane	0.475	0.429	9.7	104	0.00
36	T	Tetrahydrofuran	0.206	0.140#	32.0#	97	0.00
37	T	Methacrylonitrile	0.315	0.266	15.6	91	0.00
38	C	Chloroform	1.116	0.965	13.5	102	0.00
39	T	Cyclohexane	1.058	0.014#	98.7#	2#	-0.03
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	110	0.00
41	T	1,1,1-Trichloroethane	0.588	0.535	9.0	103	0.00
42	S	Dibromofluoromethane	0.340	0.339	0.3	111	0.00
43	T	Carbon tetrachloride	0.481	0.454	5.6	97	0.00
44	T	1,1-Dichloropropene	0.568	0.464	18.3	96	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.287	4.0	107	0.00
46	T	1,2-Dichloroethane	0.452	0.403	10.8	107	0.00
47	CP	Benzene	1.598	1.407	12.0	105	0.00
48	CP	Tertiaryamylmethylether	0.748	0.825	-10.3	127	0.00
49	T	Isobutyl Alcohol	0.266	0.245	7.9	123	0.00
50	T	Heptane	0.542	0.000#	100.0#	0#	-5.77#

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	T	1,4-Dioxane	0.005	0.000#	100.0#	5#	-0.06
52	T	Methylcyclohexane	0.630	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.013	0.000#	100.0#	0#	-6.32#
54	T	Trichloroethene	0.441	0.397	10.0	105	0.00
55	C	1,2-Dichloropropane	0.406	0.370	8.9	106	0.00
56	T	Dibromomethane	0.254	0.232	8.7	103	0.00
57	T	Methyl methacrylate	0.311	0.251	19.3	96	0.00
58	T	Bromodichloromethane	0.517	0.479	7.4	103	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.100#	35.1#	77	-0.09
60	T	2-Nitropropane	0.117	0.093#	20.5#	98	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.581	8.6	104	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	113	0.00
63	T	4-Methyl-2-pentanone	0.396	0.479	-21.0#	158	0.00
64	S	Toluene-d8	1.343	1.294	3.6	111	0.00
65	CP	Toluene	1.917	1.648	14.0	102	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.560	14.8	103	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.528	0.450	14.8	103	0.00
69	T	1,1,2-Trichloroethane	0.417	0.349	16.3	106	0.00
70	T	Tetrachloroethene	0.508	0.441	13.2	100	0.00
71	T	1,3-Dichloropropane	0.620	0.531	14.4	105	0.00
72	T	2-Hexanone	0.269	0.249	7.4	110	0.00
73	T	Chlorodibromomethane	0.488	0.426	12.7	100	0.00
74	T	Butyl acetate	0.523	0.506	3.3	114	0.00
75	T	1,2-Dibromoethane	0.418	0.377	9.8	110	0.00
76	P	Chlorobenzene	1.209	1.076	11.0	105	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.400	14.3	108	0.00
78	CP	Ethylbenzene	2.020	1.791	11.3	103	0.00
79	CP	m/p-Xylene	1.523	1.331	12.6	100	0.00
80	T	Styrene	1.302	1.122	13.8	102	0.00
81	CP	o-Xylene	1.565	1.379	11.9	104	0.00
82	T	Cyclohexanone	0.025	0.000#	100.0#	0#	-9.38#
83	P	Bromoform	0.328	0.285	13.1	102	0.00
84	T	Isopropylbenzene	1.856	1.696	8.6	104	0.00
85	S	Bromofluorobenzene	0.453	0.445	1.8	114	0.00
86	T	Bromobenzene	0.977	0.824	15.7	105	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.511	6.6	113	0.00
88	T	1,2,3-Trichloropropane	0.125	0.115#	8.0	104	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.100#	24.8#	90	0.00
90	T	n-Propylbenzene	2.254	2.086	7.5	104	0.00
91	T	2-Chlorotoluene	1.279	1.194	6.6	106	0.00
92	T	4-Chlorotoluene	1.556	1.337	14.1	102	0.00
93	T	1,3,5-Trimethylbenzene	1.497	1.361	9.1	104	0.00
94	T	tert-Butylbenzene	0.906	0.808	10.8	108	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.379	11.7	104	0.00
96	T	sec-Butylbenzene	1.945	1.785	8.2	103	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	111	0.00
98	T	1,3-Dichlorobenzene	1.889	1.701	10.0	102	0.00
99	T	p-Isopropyltoluene	3.455	3.098	10.3	101	0.00

Data Path : C:\msdchem\1\data\8V180515\
Data File : 15MAY26.D
Acq On : 15 May 2018 4:57 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 16 11:44:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	T	1,4-Dichlorobenzene	1.922	1.712	10.9	105	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.881	7.1	104	0.00
102	T	Benzyl chloride	2.023	0.017#	99.2#	1#	0.00
103	T	1,2-Dichlorobenzene	1.739	1.613	7.2	106	0.00
104	T	n-Butylbenzene	3.504	3.090	11.8	101	0.00
105	T	Hexachloroethane	0.763	0.678	11.1	98	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.239	20.3#	108	0.00
107	T	1,3,5-Trichlorobenzene	1.435	0.021#	98.5#	2#	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.213	9.1	107	0.00
109	T	Hexachlorobutadiene	0.725	0.694	4.3	108	0.00
110	T	Naphthalene	3.160	2.942	6.9	111	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.147	11.4	110	0.00
112	T	2-Methylnaphthalene	1.967	0.057#	97.1#	4#	0.00
113	T	1-Methylnaphthalene	1.641	0.041#	97.5#	3#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	92	0.00
115	T	2-Propanone	2.164	0.983	54.6#	103	0.00
116	T	Acetic Ether	2.764	3.325	-20.3#	114	0.00
117	T	Isopropyl Acetate	1.897	1.857	2.1	116	0.00
118	T	Amyl Acetate	4.385	5.128	-16.9	120	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2018 May 15 1138 Sequence Log

Starting sequence Tue May 15 08:43:19 2018

Instrument Name: VMS8
Sequence File: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Method Path: C:\MSDCHEM\1\METHODS\

Line	Type	Vial	DataFile	Method	Sample Name
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	BLK
16)	Sample	5	15MAY16	8SGO0502	VBLKS1-180515
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV

2018 May 15 1138 Sequence Log

27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK
44)	Sample	33	15MAY44	8GI0502	BLK
45)	Sample	34	15MAY45	8GI0502	ICV
46)	Sample	35	15MAY46	8GI0502	BLK
47)	Sample	36	15MAY47	BFB	VBFB8-180514
48)	Sample	37	15MAY48	8GI0502	VCCV1-180514
49)	Sample	38	15MAY49	8GI0502	VCCV2-180511
50)	Sample	39	15MAY50	8GI0502	VLCSW2-180514

2018 May 15 1138 Sequence Log

51)	Sample	40	15MAY51	8GI0502	LCS-
52)	Sample	41	15MAY52	8GI0502	BLK
53)	Sample	42	15MAY53	8GI0502	VBLKW2-180414
54)	Sample	43	15MAY54	8GI0502	MBLK-
55)	Sample	44	15MAY55	8GI0502	1805671-22A
56)	Sample	45	15MAY56	8GI0502	1805671-11A
57)	Sample	46	15MAY57	8GI0502	1805671-12A
58)	Sample	47	15MAY58	8GI0502	1805671-13A
59)	Sample	48	15MAY59	8GI0502	1805671-14A
60)	Sample	49	15MAY60	8GI0502	1805671-15A
61)	Sample	50	15MAY61	8GI0502	1805671-16A
62)	Sample	51	15MAY62	8GI0502	1805671-17A
63)	Sample	52	15MAY63	8GI0502	1805671-18A
64)	Sample	53	15MAY64	8GI0502	1805671-19A
65)	Sample	54	15MAY65	8GI0502	1805671-20A
66)	Sample	55	15MAY66	8GI0502	1805671-21A
67)	Sample	56	15MAY67	8GI0502	1805671-23A
68)	Sample	57	15MAY68	8GI0502	1805671-24A
69)	Sample	58	15MAY69	8GI0502	1805671-25A
70)	Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)	Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)	Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)	Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)	Sample	63	15MAY74	8GI0502	1805699-01A DF20

2018 May 15 1138 Sequence Log

75)	Sample	64	15MAY75	8GI0502	1805699-01A MS DF20
76)	Sample	65	15MAY76	8GI0502	1805699-01A MSD DF20
77)	Sample	66	15MAY77	8GI0502	BLK

Sequence completed Wed May 16 06:46:15 2018

D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Quality Log.LOG
D:\MSDCHEM\1\DATA\8V180515\2018 May 15 1138 Sequence Log .LOG

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	85	0.00
2	T	Dichlorodifluoromethane	40.000	27.441	31.4#	65	0.00
3	P	Chloromethane	40.000	27.509	31.2#	62	0.00
4	C	Vinyl chloride	40.000	32.163	19.6	70	0.00
5	T	Bromomethane	40.000	34.612	13.5	77	0.00
6	T	Chloroethane	40.000	32.980	17.6	77	0.00
7	T	Trichlorofluoromethane	40.000	34.421	13.9	81	0.00
8	T	Ethyl ether	40.000	35.209	12.0	78	0.00
9	T	Acrolein	200.000	310.924	-55.5#	139	0.00
10	C	1,1-Dichloroethene	40.000	33.160	17.1	75	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	38.561	3.6	84	0.00
12	T	Methyl iodide	40.000	55.638	-39.1#	124	0.00
13	T	Acetone	40.000	33.207	17.0	75	0.00
14	T	Chloroprene	40.000	34.208	14.5	78	0.00
15	T	Carbon disulfide	40.000	35.881	10.3	78	0.00
16	T	Allyl chloride	40.000	33.328	16.7	76	0.00
17	T	Methyl acetate	40.000	32.312	19.2	74	0.00
18	T	Acetonitrile	40.000	33.375	16.6	76	0.00
19	T	Methylene chloride	40.000	37.778	5.6	77	0.00
20	T	trans-1,2-Dichloroethene	40.000	33.582	16.0	77	0.00
21	T	t-Butanol	200.000	150.751	24.6#	71	0.00
22	T	Acrylonitrile	40.000	32.201	19.5	71	0.00
23	CP	Methyl tert-butyl ether	40.000	39.196	2.0	89	0.00
24	T	Hexane	40.000	38.898	2.8	73	0.00
25	P	1,1-Dichloroethane	40.000	37.315	6.7	80	0.00
26	CP	Diisopropyl ether	40.000	42.294	-5.7	95	0.00
27	T	Vinyl acetate	40.000	33.405	16.5	86	0.00
28	CP	Ethyl tert butyl ether	40.000	40.887	-2.2	91	0.00
29	T	2,2-Dichloropropane	40.000	36.149	9.6	78	0.00
30	T	cis-1,2-Dichloroethene	40.000	34.225	14.4	78	0.00
31	T	2-Butanone	40.000	32.017	20.0	73	0.00
32	T	Ethyl Acetate	40.000	34.297	14.3	76	0.00
33	T	Methyl acrylate	40.000	32.677	18.3	67	0.00
34	T	Propionitrile	40.000	40.083	-0.2	88	0.00
35	T	Bromochloromethane	40.000	34.104	14.7	79	0.00
36	T	Tetrahydrofuran	40.000	32.367	19.1	75	0.00
37	T	Methacrylonitrile	40.000	39.989	0.0	86	0.00
38	C	Chloroform	40.000	34.627	13.4	82	0.00
39	T	Cyclohexane	40.000	38.579	3.6	78	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	87	0.00
41	T	1,1,1-Trichloroethane	40.000	35.895	10.3	80	0.00
42	S	Dibromofluoromethane	20.000	19.282	3.6	85	0.00
43	T	Carbon tetrachloride	40.000	39.764	0.6	81	0.00
44	T	1,1-Dichloropropene	40.000	37.749	5.6	78	0.00
45	S	1,2-Dichloroethane-d4	20.000	18.321	8.4	81	0.00
46	T	1,2-Dichloroethane	40.000	32.008	20.0	76	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	35.300	11.8	83	0.00
48	CP	Tertiaryamylmethylether	40.000	40.790	-2.0	92	0.00
49	T	Isobutyl Alcohol	40.000	38.863	2.8	88	0.00
50	T	Heptane	40.000	34.212	14.5	70	0.00
51	T	1,4-Dioxane	4000.000	2733.829	31.7#	58	0.00
52	T	Methylcyclohexane	40.000	36.326	9.2	80	0.00
53	T	n-Butanol	400.000	294.367	26.4#	56	0.00
54	T	Trichloroethene	40.000	36.200	9.5	83	0.00
55	C	1,2-Dichloropropane	40.000	34.031	14.9	78	0.00
56	T	Dibromomethane	40.000	35.879	10.3	80	0.00
57	T	Methyl methacrylate	40.000	29.778	25.6#	70	0.00
58	T	Bromodichloromethane	40.000	36.267	9.3	80	0.00
59	T	2-Chloroethyl vinyl ether	40.000	17.622	55.9#	41	0.00
60	T	2-Nitropropane	40.000	24.570	38.6#	60	0.00
61	T	cis-1,3-Dichloropropene	40.000	34.970	12.6	79	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	88	0.00
63	T	4-Methyl-2-pentanone	40.000	28.046	29.9#	72	0.00
64	S	Toluene-d8	20.000	18.604	7.0	83	0.00
65	CP	Toluene	40.000	35.214	12.0	82	0.00
66	T	trans-1,3-Dichloropropene	40.000	32.140	19.6	76	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	31.297	21.8#	74	0.00
69	T	1,1,2-Trichloroethane	40.000	32.434	18.9	80	0.00
70	T	Tetrachloroethene	40.000	38.882	2.8	87	0.00
71	T	1,3-Dichloropropane	40.000	33.183	17.0	80	0.00
72	T	2-Hexanone	40.000	31.391	21.5#	72	0.00
73	T	Chlorodibromomethane	40.000	35.128	12.2	78	0.00
74	T	Butyl acetate	40.000	33.724	15.7	77	0.00
75	T	1,2-Dibromoethane	40.000	34.478	13.8	82	0.00
76	P	Chlorobenzene	40.000	36.935	7.7	85	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	33.529	16.2	82	0.00
78	CP	Ethylbenzene	40.000	36.164	9.6	82	0.00
79	CP	m/p-Xylene	80.000	72.858	8.9	82	0.00
80	T	Styrene	40.000	34.721	13.2	80	0.00
81	CP	o-Xylene	40.000	35.032	12.4	80	0.00
82	T	Cyclohexanone	200.000	122.578	38.7#	54	0.00
83	P	Bromoform	40.000	33.661	15.8	77	0.00
84	T	Isopropylbenzene	40.000	37.079	7.3	82	0.00
85	S	Bromofluorobenzene	20.000	19.148	4.3	87	0.00
86	T	Bromobenzene	40.000	32.344	19.1	79	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	32.801	18.0	77	0.00
88	T	1,2,3-Trichloropropane	40.000	32.955	17.6	73	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	31.470	21.3#	73	0.00
90	T	n-Propylbenzene	40.000	37.672	5.8	83	0.00
91	T	2-Chlorotoluene	40.000	37.252	6.9	83	0.00
92	T	4-Chlorotoluene	40.000	35.464	11.3	82	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	36.451	8.9	81	0.00
94	T	tert-Butylbenzene	40.000	35.138	12.2	83	0.00
95	T	1,2,4-Trimethylbenzene	40.000	35.396	11.5	81	0.00
96	T	sec-Butylbenzene	40.000	38.572	3.6	84	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	88	0.00
98	T	1,3-Dichlorobenzene	40.000	38.427	3.9	87	0.00
99	T	p-Isopropyltoluene	40.000	37.314	6.7	84	0.00
100	T	1,4-Dichlorobenzene	40.000	37.794	5.5	89	0.00
101	T	1,2,3-Trimethylbenzene	40.000	36.966	7.6	83	0.00
102	T	Benzyl chloride	40.000	29.336	26.7#	70	0.00
103	T	1,2-Dichlorobenzene	40.000	38.169	4.6	87	0.00
104	T	n-Butylbenzene	40.000	35.869	10.3	82	0.00
105	T	Hexachloroethane	40.000	36.283	9.3	80	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	31.327	21.7#	71	0.00
107	T	1,3,5-Trichlorobenzene	40.000	39.701	0.7	88	0.00
108	T	1,2,4-Trichlorobenzene	40.000	36.832	7.9	87	0.00
109	T	Hexachlorobutadiene	40.000	38.831	2.9	88	0.00
110	T	Naphthalene	40.000	32.020	19.9	76	0.00
111	T	1,2,3-Trichlorobenzene	40.000	33.803	15.5	84	0.00
112	T	2-Methylnaphthalene	40.000	29.403	26.5#	74	0.00
113	T	1-Methylnaphthalene	40.000	29.293	26.8#	71	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	62	0.00
115	T	2-Propanone	40.000	44.812	-12.0	70	0.00
116	T	Acetic Ether	40.000	47.232	-18.1	75	0.00
117	T	Isopropyl Acetate	40.000	51.383	-28.5#	80	0.00
118	T	Amyl Acetate	40.000	46.087	-15.2	80	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	85	0.00
2	T	Dichlorodifluoromethane	0.637	0.437	31.4#	65	0.00
3	P	Chloromethane	0.878	0.604	31.2#	62	0.00
4	C	Vinyl chloride	0.643	0.517	19.6	70	0.00
5	T	Bromomethane	0.559	0.484	13.4	77	0.00
6	T	Chloroethane	0.416	0.343	17.5	77	0.00
7	T	Trichlorofluoromethane	0.868	0.747	13.9	81	0.00
8	T	Ethyl ether	0.365	0.322	11.8	78	0.00
9	T	Acrolein	0.084	0.080#	4.8	139	0.00
10	C	1,1-Dichloroethene	0.842	0.698	17.1	75	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.407	0.392	3.7	84	0.00
12	T	Methyl iodide	0.376	0.523	-39.1#	124	0.00
13	T	Acetone	0.340	0.123#	63.8#	75	0.00
14	T	Chloroprene	0.818	0.699	14.5	78	0.00
15	T	Carbon disulfide	1.942	1.742	10.3	78	0.00
16	T	Allyl chloride	0.908	0.757	16.6	76	0.00
17	T	Methyl acetate	0.348	0.281	19.3	74	0.00
18	T	Acetonitrile	0.907	0.757	16.5	76	0.00
19	T	Methylene chloride	1.642	0.658	59.9#	77	0.00
20	T	trans-1,2-Dichloroethene	0.890	0.747	16.1	77	0.00
21	T	t-Butanol	0.117	0.047#	59.8#	71	0.00
22	T	Acrylonitrile	0.206	0.166#	19.4	71	0.00
23	CP	Methyl tert-butyl ether	1.083	1.062	1.9	89	0.00
24	T	Hexane	1.281	0.696	45.7#	73	0.00
25	P	1,1-Dichloroethane	1.037	0.967	6.8	80	0.00
26	CP	Diisopropyl ether	1.260	1.332	-5.7	95	0.00
27	T	Vinyl acetate	0.093	0.078#	16.1	86	0.00
28	CP	Ethyl tert butyl ether	1.175	1.202	-2.3	91	0.00
29	T	2,2-Dichloropropane	0.812	0.734	9.6	78	0.00
30	T	cis-1,2-Dichloroethene	1.017	0.870	14.5	78	0.00
31	T	2-Butanone	0.251	0.176#	29.9#	73	0.00
32	T	Ethyl Acetate	0.444	0.381	14.2	76	0.00
33	T	Methyl acrylate	0.468	0.383	18.2	67	0.00
34	T	Propionitrile	0.083	0.055#	33.7#	88	0.00
35	T	Bromochloromethane	0.475	0.405	14.7	79	0.00
36	T	Tetrahydrofuran	0.206	0.136#	34.0#	75	0.00
37	T	Methacrylonitrile	0.315	0.315	0.0	86	0.00
38	C	Chloroform	1.116	0.967	13.4	82	0.00
39	T	Cyclohexane	1.058	0.786	25.7#	78	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	87	0.00
41	T	1,1,1-Trichloroethane	0.588	0.527	10.4	80	0.00
42	S	Dibromofluoromethane	0.340	0.327	3.8	85	0.00
43	T	Carbon tetrachloride	0.481	0.479	0.4	81	0.00
44	T	1,1-Dichloropropene	0.568	0.479	15.7	78	0.00
45	S	1,2-Dichloroethane-d4	0.299	0.274	8.4	81	0.00
46	T	1,2-Dichloroethane	0.452	0.362	19.9	76	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.598	1.410	11.8	83	0.00
48	CP	Tertiaryamylmethylether	0.748	0.763	-2.0	92	0.00
49	T	Isobutyl Alcohol	0.266	0.222	16.5	88	0.00
50	T	Heptane	0.542	0.463	14.6	70	0.00
51	T	1,4-Dioxane	0.005	0.004#	20.0	58	0.00
52	T	Methylcyclohexane	0.630	0.572	9.2	80	0.00
53	T	n-Butanol	0.013	0.006#	53.8#	56	0.00
54	T	Trichloroethene	0.441	0.399	9.5	83	0.00
55	C	1,2-Dichloropropane	0.406	0.345	15.0	78	0.00
56	T	Dibromomethane	0.254	0.228	10.2	80	0.00
57	T	Methyl methacrylate	0.311	0.232	25.4#	70	0.00
58	T	Bromodichloromethane	0.517	0.468	9.5	80	0.00
59	T	2-Chloroethyl vinyl ether	0.154	0.068#	55.8#	41#	0.00
60	T	2-Nitropropane	0.117	0.072#	38.5#	60	0.00
61	T	cis-1,3-Dichloropropene	0.636	0.556	12.6	79	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	88	0.00
63	T	4-Methyl-2-pentanone	0.396	0.278	29.8#	72	0.00
64	S	Toluene-d8	1.343	1.249	7.0	83	0.00
65	CP	Toluene	1.917	1.687	12.0	82	0.00
66	T	trans-1,3-Dichloropropene	0.657	0.528	19.6	76	0.00
67	T	Chloropicrin	0.000	0.049#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.528	0.413	21.8#	74	0.00
69	T	1,1,2-Trichloroethane	0.417	0.338	18.9	80	0.00
70	T	Tetrachloroethene	0.508	0.494	2.8	87	0.00
71	T	1,3-Dichloropropane	0.620	0.515	16.9	80	0.00
72	T	2-Hexanone	0.269	0.211	21.6#	72	0.00
73	T	Chlorodibromomethane	0.488	0.429	12.1	78	0.00
74	T	Butyl acetate	0.523	0.441	15.7	77	0.00
75	T	1,2-Dibromoethane	0.418	0.360	13.9	82	0.00
76	P	Chlorobenzene	1.209	1.116	7.7	85	0.00
77	T	1,1,1,2-Tetrachloroethane	0.467	0.391	16.3	82	0.00
78	CP	Ethylbenzene	2.020	1.827	9.6	82	0.00
79	CP	m/p-Xylene	1.523	1.387	8.9	82	0.00
80	T	Styrene	1.302	1.130	13.2	80	0.00
81	CP	o-Xylene	1.565	1.371	12.4	80	0.00
82	T	Cyclohexanone	0.025	0.012#	52.0#	54	0.00
83	P	Bromoform	0.328	0.276	15.9	77	0.00
84	T	Isopropylbenzene	1.856	1.720	7.3	82	0.00
85	S	Bromofluorobenzene	0.453	0.433	4.4	87	0.00
86	T	Bromobenzene	0.977	0.790	19.1	79	0.00
87	P	1,1,2,2-Tetrachloroethane	0.547	0.449	17.9	77	0.00
88	T	1,2,3-Trichloropropane	0.125	0.103#	17.6	73	0.00
89	T	trans-1,4-Dichloro-2-butene	0.133	0.104#	21.8#	73	0.00
90	T	n-Propylbenzene	2.254	2.123	5.8	83	0.00
91	T	2-Chlorotoluene	1.279	1.191	6.9	83	0.00
92	T	4-Chlorotoluene	1.556	1.379	11.4	82	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.497	1.364	8.9	81	0.00
94	T	tert-Butylbenzene	0.906	0.796	12.1	83	0.00
95	T	1,2,4-Trimethylbenzene	1.562	1.382	11.5	81	0.00
96	T	sec-Butylbenzene	1.945	1.875	3.6	84	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	88	0.00
98	T	1,3-Dichlorobenzene	1.889	1.815	3.9	87	0.00
99	T	p-Isopropyltoluene	3.455	3.223	6.7	84	0.00
100	T	1,4-Dichlorobenzene	1.922	1.816	5.5	89	0.00
101	T	1,2,3-Trimethylbenzene	3.101	2.866	7.6	83	0.00
102	T	Benzyl chloride	2.023	1.483	26.7#	70	0.00
103	T	1,2-Dichlorobenzene	1.739	1.659	4.6	87	0.00
104	T	n-Butylbenzene	3.504	3.142	10.3	82	0.00
105	T	Hexachloroethane	0.763	0.692	9.3	80	0.00
106	T	1,2-Dibromo-3-chloropropane	0.300	0.196#	34.7#	71	0.00
107	T	1,3,5-Trichlorobenzene	1.435	1.424	0.8	88	0.00
108	T	1,2,4-Trichlorobenzene	1.334	1.228	7.9	87	0.00
109	T	Hexachlorobutadiene	0.725	0.704	2.9	88	0.00
110	T	Naphthalene	3.160	2.530	19.9	76	0.00
111	T	1,2,3-Trichlorobenzene	1.295	1.095	15.4	84	0.00
112	T	2-Methylnaphthalene	1.967	1.446	26.5#	74	0.00
113	T	1-Methylnaphthalene	1.641	1.202	26.8#	71	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	62	0.00
115	T	2-Propanone	2.164	0.993	54.1#	70	0.00
116	T	Acetic Ether	2.764	3.264	-18.1	75	0.00
117	T	Isopropyl Acetate	1.897	1.902	-0.3	80	0.00
118	T	Amyl Acetate	4.385	5.052	-15.2	80	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	182801	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	274989	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	242367	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	116573	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.867	46	21256	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	90038	19.28	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 96.40%				
45) 1,2-Dichloroethane-d4	5.164	65	75310	18.32	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 91.60%				
64) Toluene-d8	7.671	98	302715	18.60	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 93.00%				
85) Bromofluorobenzene	9.440	95	105042	19.15	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	159826m	27.44	ug/L		
3) Chloromethane	1.282	50	220766	27.51	ug/L		99
4) Vinyl chloride	1.360	62	189101m	32.16	ug/L		
5) Bromomethane	1.575	96	176888	34.61	ug/L		95
6) Chloroethane	1.647	64	125546m	32.98	ug/L		
7) Trichlorofluoromethane	1.826	101	272935	34.42	ug/L		99
8) Ethyl ether	2.019	59	117552	35.21	ug/L		97
9) Acrolein	2.127	56	145372	310.92	ug/L		96
10) 1,1-Dichloroethene	2.206	61	255341	33.16	ug/L		93
11) 1,1,2-Trichlorotrifluo...	2.206	151	143488	38.56	ug/L		94
12) Methyl iodide	2.327	142	191244	55.64	ug/L		98
13) Acetone	2.227	43	45060m	33.21	ug/L		
14) Chloroprene	3.373	53	255693	34.21	ug/L		97
15) Carbon disulfide	2.392	76	636834	35.88	ug/L		100
16) Allyl chloride	2.499	41	276629m	33.33	ug/L		
17) Methyl acetate	2.478	43	102636	32.31	ug/L		98
18) Acetonitrile	2.499	41	276690m	33.37	ug/L		
19) Methylene chloride	2.607	49	240471	37.78	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	273152	33.58	ug/L		93
21) t-Butanol	2.678	59	86739m	150.75	ug/L		
22) Acrylonitrile	2.814	53	60619m	32.20	ug/L		
23) Methyl tert-butyl ether	2.843	73	388149	39.20	ug/L		99
24) Hexane	3.137	57	254490	38.90	ug/L		97
25) 1,1-Dichloroethane	3.301	63	353603	37.31	ug/L		99
26) Diisopropyl ether	3.330	45	487048	42.29	ug/L		93
27) Vinyl acetate	3.294	86	28400	33.41	ug/L	#	94
28) Ethyl tert butyl ether	3.746	59	439279	40.89	ug/L		98
29) 2,2-Dichloropropane	3.960	77	268238	36.15	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	318012	34.23	ug/L		94
31) 2-Butanone	3.932	43	64333	32.02	ug/L		97
32) Ethyl Acetate	4.003	43	139132	34.30	ug/L	#	99
33) Methyl acrylate	4.061	55	139920m	32.68	ug/L		
34) Propionitrile	4.741	54	19963	40.08	ug/L	#	69

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.261	49	148030	34.10 ug/L		92
36) Tetrahydrofuran	4.276	42	49564m	32.37 ug/L		
37) Methacrylonitrile	4.218	41	115124m	39.99 ug/L		
38) Chloroform	4.419	83	353358	34.63 ug/L		98
39) Cyclohexane	4.734	56	287432	38.58 ug/L		97
41) 1,1,1-Trichloroethane	4.634	97	290062	35.89 ug/L		96
43) Carbon tetrachloride	4.870	117	263240	39.76 ug/L		99
44) 1,1-Dichloropropene	4.877	75	263326	37.75 ug/L		96
46) 1,2-Dichloroethane	5.293	62	199020	32.01 ug/L		99
47) Benzene	5.178	78	775683	35.30 ug/L		99
48) Tertiaryamylmethylether	5.443	73	419585	40.79 ug/L		98
49) Isobutyl Alcohol	5.443	43	122237	38.86 ug/L	#	90
50) Heptane	5.766	43	254797	34.21 ug/L		97
51) 1,4-Dioxane	6.804	88	201714	2733.83 ug/L		99
52) Methylcyclohexane	6.654	83	314464	36.33 ug/L		96
53) n-Butanol	6.317	56	35561	294.37 ug/L		89
54) Trichloroethene	6.353	130	219349	36.20 ug/L		99
55) 1,2-Dichloropropane	6.704	63	189782	34.03 ug/L		97
56) Dibromomethane	6.797	93	125341	35.88 ug/L		98
57) Methyl methacrylate	6.819	41	127341m	29.78 ug/L		
58) Bromodichloromethane	7.019	83	257639	36.27 ug/L		99
59) 2-Chloroethyl vinyl ether	7.327	43	37410	17.62 ug/L		94
60) 2-Nitropropane	7.241	43	39692m	24.57 ug/L		
61) cis-1,3-Dichloropropene	7.449	75	306009	34.97 ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	134562	28.05 ug/L		96
65) Toluene	7.728	91	817872	35.21 ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	255963	32.14 ug/L		94
67) Chloropicrin	7.943	117	236554	No Calib		
68) Ethyl methacrylate	7.993	69	200362m	31.30 ug/L		
69) 1,1,2-Trichloroethane	8.086	97	163969	32.43 ug/L		99
70) Tetrachloroethene	8.129	166	239342	38.88 ug/L		97
71) 1,3-Dichloropropane	8.201	76	249489	33.18 ug/L		99
72) 2-Hexanone	8.244	43	102247m	31.39 ug/L		
73) Chlorodibromomethane	8.351	129	207798	35.13 ug/L		99
74) Butyl acetate	8.344	43	213916	33.72 ug/L		98
75) 1,2-Dibromoethane	8.423	107	174587	34.48 ug/L		100
76) Chlorobenzene	8.753	112	541089	36.94 ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	189662	33.53 ug/L		100
78) Ethylbenzene	8.817	91	885450	36.16 ug/L		98
79) m/p-Xylene	8.896	91	1344251	72.86 ug/L		96
80) Styrene	9.139	104	547688	34.72 ug/L		98
81) o-Xylene	9.125	91	664336	35.03 ug/L		98
82) Cyclohexanone	9.390	55	29275	122.58 ug/L		96
83) Bromoform	9.247	173	133692	33.66 ug/L		99
84) Isopropylbenzene	9.333	105	833817	37.08 ug/L		99
86) Bromobenzene	9.512	77	383085	32.34 ug/L		92
87) 1,1,2,2-Tetrachloroethane	9.512	83	217459	32.80 ug/L		98
88) 1,2,3-Trichloropropane	9.540	110	50090	32.95 ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	50614m	31.47 ug/L		
90) n-Propylbenzene	9.562	91	1028957	37.67 ug/L		98
91) 2-Chlorotoluene	9.612	91	577419	37.25 ug/L		99

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

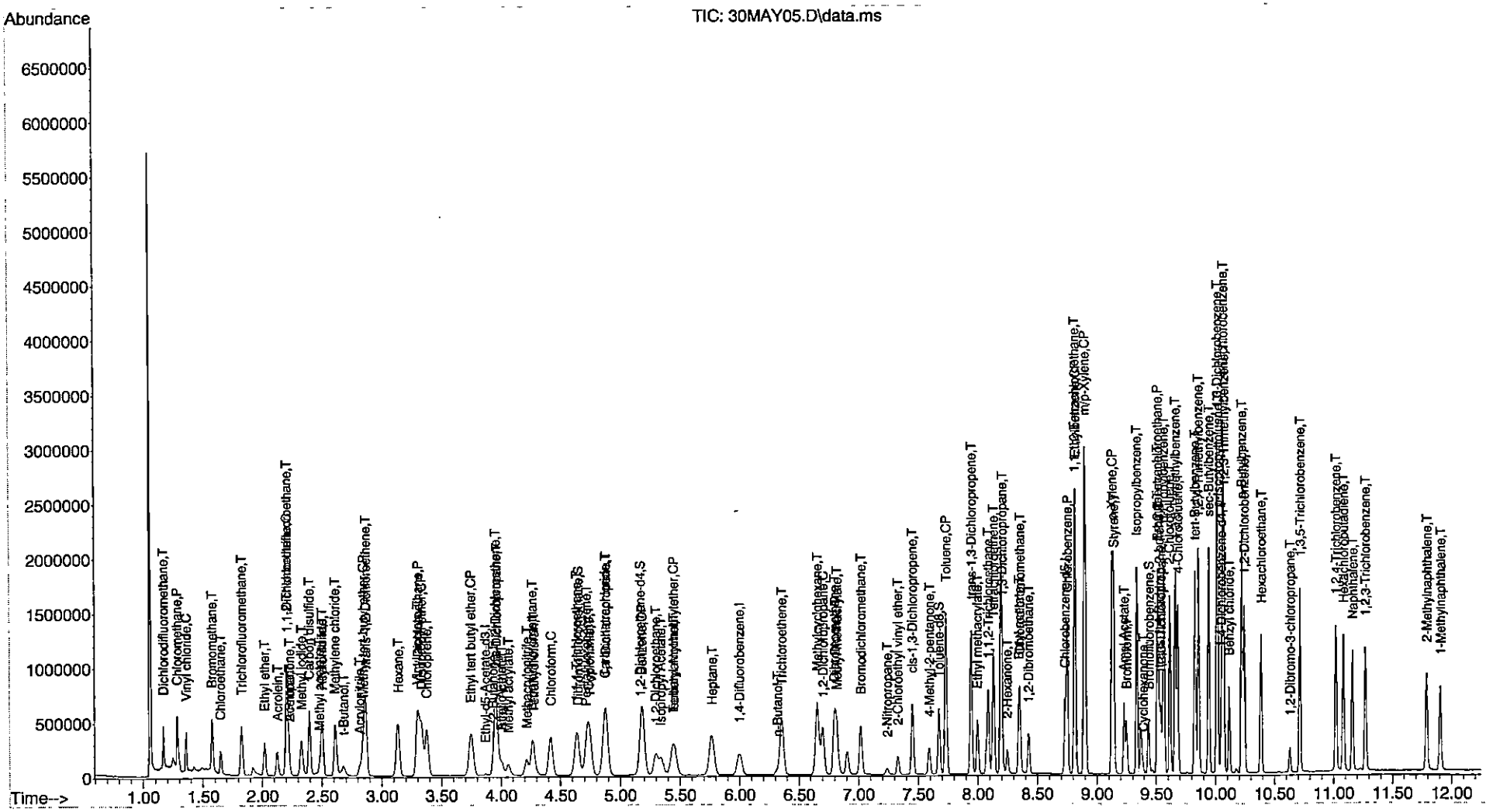
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.684	91	668617	35.46	ug/L		96
93) 1,3,5-Trimethylbenzene	9.662	105	661092	36.45	ug/L		97
94) tert-Butylbenzene	9.827	91	385641	35.14	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	670079	35.40	ug/L		98
96) sec-Butylbenzene	9.942	105	909098	38.57	ug/L		100
98) 1,3-Dichlorobenzene	10.013	146	423051	38.43	ug/L		98
99) p-Isopropyltoluene	10.020	119	751393	37.31	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	423463	37.79	ug/L		98
101) 1,2,3-Trimethylbenzene	10.071	105	668165	36.97	ug/L		96
102) Benzyl chloride	10.114	91	345862m	29.34	ug/L		
103) 1,2-Dichlorobenzene	10.242	146	386847	38.17	ug/L		99
104) n-Butylbenzene	10.221	91	732535	35.87	ug/L		98
105) Hexachloroethane	10.386	117	161292	36.28	ug/L		95
106) 1,2-Dibromo-3-chloropr...	10.629	157	45763m	31.33	ug/L		
107) 1,3,5-Trichlorobenzene	10.715	180	331958	39.70	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	286323	36.83	ug/L		99
109) Hexachlorobutadiene	11.081	225	164152	38.83	ug/L		97
110) Naphthalene	11.159	128	589840m	32.02	ug/L		
111) 1,2,3-Trichlorobenzene	11.267	180	255187	33.80	ug/L		96
112) 2-Methylnaphthalene	11.790	142	337145m	29.40	ug/L		
113) 1-Methylnaphthalene	11.904	142	280233	29.29	ug/L		100
115) 2-Propanone	2.227	43	42197	44.81	ug/L		93
116) Acetic Ether	4.003	43	138751	47.23	ug/L	#	97
117) Isopropyl Acetate	5.336	61	80860	51.38	ug/L		99
118) Amyl Acetate	9.225	43	214785	46.09	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY05.D
Acq On : 30 May 2018 9:53 am
Operator : EMR
Sample : VCCV2-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

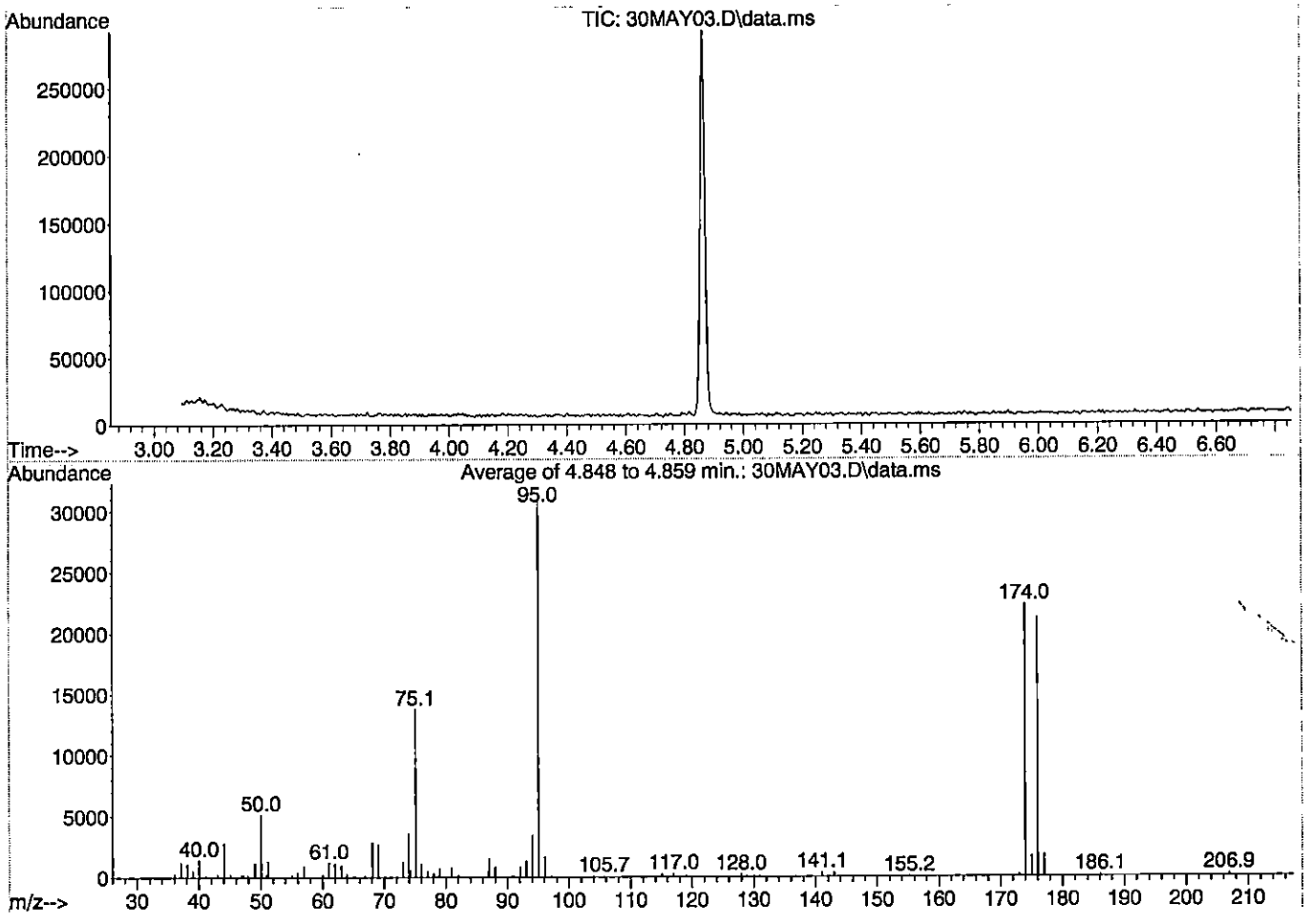
Quant Time: May 30 10:06:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY03.D
Acq On : 30 May 2018 8:58 am
Operator : EMR
Sample : VBFB1-180530
Misc : IS/SS 200-20081
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8SGO0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 12 09:00:34 2018



Spectrum Information: Average of 4.848 to 4.859 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.7	5155	PASS
75	95	30	60	44.6	13755	PASS
95	95	100	100	100.0	30807	PASS
96	95	5	9	5.5	1697	PASS
173	174	0.00	2	0.8	184	PASS
174	95	50	100	72.4	22296	PASS
175	174	5	9	7.6	1690	PASS
176	174	95	101	95.3	21253	PASS
177	176	5	9	8.5	1800	PASS

Response Factor Report VMS8

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY35.D 2 =15MAY36.D 3 =15MAY37.D 4 =15MAY38.D 5 =15MAY39.D 6 =15MAY40.D 7 =15MAY41.D
8 =15MAY42.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...	0.552	0.462	0.476	0.448	0.449	0.388	0.404	0.407	0.448	11.65
3)	P	Chloromethane			0.832	0.691	0.659	0.632	0.637	0.614	0.678	11.87
4)	C	Vinyl chloride	0.636	0.593	0.497	0.536	0.524	0.490	0.494	0.480	0.531	10.49
5)	T	Bromomethane		0.538	0.285	0.227	0.197	0.158	0.149	0.152	0.244	56.84
6)	T	Chloroethane			0.676	0.563	0.338	0.268	0.234	0.227	0.384	49.39
7)	T	Trichlorofluor...	0.601	0.628	0.560	0.544	0.509	0.512	0.547	0.512	0.552	7.94
8)	T	Ethyl ether	0.421	0.539	0.424	0.385	0.386	0.381	0.369	0.355	0.408	14.25
9)	T	Acrolein	0.147	0.152	0.122	0.105	0.103	0.075	0.078	0.083	0.108#	27.87
10)	C	1,1-Dichloroet...	0.657	0.637	0.653	0.585	0.590	0.581	0.567	0.548	0.602	6.84
11)	T	1,1,2-Trichlor...	0.407	0.370	0.314	0.328	0.309	0.295	0.297	0.294	0.327	12.46
12)	T	Methyl iodide	0.777	0.601	0.472	0.407	0.344	0.295	0.281	0.283	0.433	41.05
13)	T	Acetone			0.359	0.261	0.316	0.240	0.233	0.233	0.273	19.11
14)	T	Chloroprene	0.569	0.623	0.653	0.645	0.614	0.601	0.589	0.579	0.609	5.01
15)	T	Carbon disulfide	1.630	1.193	1.388	1.289	1.238	1.250	1.236	1.218	1.305	11.03
16)	T	Allyl chloride	0.862	0.759	0.684	0.694	0.682	0.671	0.643	0.618	0.702	10.96
17)	T	Methyl acetate			0.685	0.654	0.595	0.614	0.560	0.562	0.612	8.21
18)	T	Acetonitrile	0.862	0.729	0.684	0.694	0.682	0.671	0.643	0.618	0.698	10.66
19)	T	Methylene chlo...		0.818	0.685	0.613	0.602	0.601	0.585	0.562	0.638	13.82
20)	T	trans-1,2-Dich...	0.698	0.708	0.678	0.646	0.638	0.640	0.625	0.608	0.655	5.44
21)	T	t-Butanol		0.128	0.163	0.138	0.140	0.138	0.129	0.128	0.138#	8.92
22)	T	Acrylonitrile	0.344	0.279	0.306	0.310	0.303	0.302	0.296	0.289	0.304	6.36
23)	CP	Methyl tert-bu...	1.212	1.240	1.269	1.307	1.262	1.295	1.229	1.211	1.253	2.89#
24)	T	Hexane	0.697	0.560	0.539	0.468	0.468	0.436	0.446	0.441	0.507	17.67
25)	P	1,1-Dichloroet...	1.009	0.892	0.962	0.884	0.883	0.873	0.848	0.810	0.895	7.03
26)	CP	Diisopropyl ether	1.426	1.339	1.370	1.334	1.301	1.320	1.245	1.224	1.320	4.93#
27)	T	Vinyl acetate		0.115	0.098	0.080	0.082	0.075	0.081	0.078	0.087#	16.52
28)	CP	Ethyl tert but...	1.283	1.454	1.364	1.297	1.308	1.292	1.216	1.217	1.304	5.93#
29)	T	2,2-Dichloropr...		0.794	0.650	0.627	0.622	0.603	0.595	0.572	0.638	11.51
30)	T	cis-1,2-Dichlo...	0.935	0.831	0.728	0.757	0.752	0.760	0.754	0.726	0.780	9.00
31)	T	2-Butanone			0.639	0.502	0.462	0.419	0.397	0.396	0.469	19.80
32)	T	Ethyl Acetate		0.618	0.868	0.797	0.781	0.792	0.773	0.768	0.771	9.77
33)	T	Methyl acrylate	0.758	0.806	0.724	0.704	0.732	0.755	0.732	0.722	0.742	4.20
34)	T	Propionitrile			0.061	0.065	0.043	0.041	0.042	0.041	0.049#	22.41
35)	T	Bromochloromet...	0.451	0.475	0.395	0.401	0.395	0.400	0.392	0.380	0.411	8.13
36)	T	Tetrahydrofuran			0.281	0.283	0.276	0.285	0.282	0.277	0.281	1.25
37)	T	Methacrylonitrile	0.348	0.403	0.519	0.427	0.457	0.465	0.448	0.446	0.439	11.33
38)	C	Chloroform	1.055	0.975	0.947	0.866	0.860	0.872	0.854	0.829	0.907	8.52

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

39)	T	Cyclohexane		0.903	0.749	0.710	0.653	0.650	0.635	0.717		14.11
40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.469	0.478	0.488	0.472	0.455	0.446	0.441	0.464	3.73
42)	S	Dibromofluorom...	0.342	0.351	0.346	0.345	0.350	0.353	0.342	0.345	0.347	1.19
43)	T	Carbon tetrach...	0.442	0.333	0.418	0.401	0.387	0.407	0.396	0.404	0.398	7.81
44)	T	1,1-Dichloropr...	0.597	0.396	0.453	0.450	0.415	0.401	0.384	0.397	0.437	15.96
45)	S	1,2-Dichloroet...	0.338	0.342	0.345	0.336	0.333	0.336	0.330	0.342	0.338	1.51
46)	T	1,2-Dichloroet...	0.576	0.504	0.438	0.418	0.416	0.407	0.395	0.399	0.444	14.32
47)	CP	Benzene	1.479	1.271	1.289	1.272	1.216	1.265	1.204	1.209	1.276	6.94#
48)	CP	Tertiaryamylme...	0.675	0.910	0.901	0.857	0.849	0.846	0.785	0.802	0.828	9.09#
49)	T	Isobutyl Alcohol	0.221	0.271	0.363	0.312	0.261	0.253	0.235	0.239	0.269	17.40
50)	T	Heptane	0.292	0.419	0.317	0.286	0.266	0.244	0.240	0.247	0.289	20.47
51)	T	1,4-Dioxane	0.007	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007#	6.01
52)	T	Methylcyclohexane	0.478	0.528	0.406	0.449	0.422	0.406	0.399	0.413	0.438	10.31
53)	T	n-Butanol			0.022	0.022	0.021	0.025	0.024	0.025	0.023#	7.39
54)	T	Trichloroethene	0.388	0.407	0.382	0.344	0.343	0.345	0.332	0.331	0.359	8.10
55)	C	1,2-Dichloropr...		0.441	0.397	0.375	0.338	0.345	0.330	0.329	0.365	11.50
56)	T	Dibromomethane	0.204	0.354	0.266	0.295	0.256	0.261	0.249	0.248	0.266	16.32
57)	T	Methyl methacr...	0.447	0.464	0.424	0.409	0.402	0.383	0.378	0.379	0.411	7.81
58)	T	Bromodichlorom...	0.445	0.478	0.486	0.469	0.463	0.467	0.449	0.454	0.464	3.06
59)	T	2-Chloroethyl ...			0.205	0.164	0.176	0.160	0.158	0.154	0.169#	11.33
60)	T	2-Nitropropane		0.227	0.193	0.181	0.169	0.160	0.157	0.160	0.178#	14.26
61)	T	cis-1,3-Dichlo...	0.551	0.563	0.568	0.546	0.550	0.557	0.531	0.545	0.551	2.10
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...	0.629	0.782	0.563	0.668	0.586	0.586	0.590	0.568	0.622	11.82
64)	S	Toluene-d8	1.319	1.292	1.306	1.290	1.292	1.295	1.341	1.308	1.305	1.33
65)	CP	Toluene	1.508	1.354	1.452	1.490	1.430	1.439	1.470	1.368	1.439	3.80
66)	T	trans-1,3-Dich...	0.574	0.599	0.598	0.574	0.579	0.556	0.575	0.560	0.577	2.70
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.578	0.773	0.648	0.609	0.594	0.581	0.577	0.564	0.615	11.17
69)	T	1,1,2-Trichlor...	0.562	0.512	0.422	0.389	0.386	0.377	0.379	0.369	0.425	17.06
70)	T	Tetrachloroethene	0.382	0.374	0.382	0.389	0.379	0.363	0.375	0.361	0.376	2.54
71)	T	1,3-Dichloropr...	0.596	0.705	0.596	0.579	0.582	0.575	0.587	0.552	0.597	7.72
72)	T	2-Hexanone		0.608	0.481	0.464	0.473	0.476	0.466	0.451	0.488	10.93
73)	T	Chlorodibromom...	0.497	0.421	0.490	0.446	0.443	0.462	0.458	0.450	0.458	5.47
74)	T	Butyl acetate	0.958	0.906	0.792	0.818	0.757	0.781	0.761	0.742	0.814	9.51
75)	T	1,2-Dibromoethane	0.462	0.411	0.491	0.437	0.423	0.430	0.434	0.415	0.438	6.06
76)	P	Chlorobenzene	0.978	0.959	1.040	0.984	0.951	0.956	0.961	0.937	0.971	3.26
77)	T	1,1,1,2-Tetrac...	0.435	0.363	0.396	0.366	0.363	0.356	0.369	0.351	0.375	7.43
78)	CP	Ethylbenzene	1.571	1.470	1.623	1.557	1.508	1.546	1.591	1.517	1.548	3.15
79)	CP	m/p-Xylene	1.242	1.061	1.201	1.206	1.150	1.178	1.211	1.138	1.173	4.84#
80)	T	Styrene	1.078	0.948	1.031	0.995	0.979	0.995	1.001	0.973	1.000	3.98
81)	CP	o-Xylene	1.359	1.172	1.255	1.251	1.240	1.232	1.254	1.199	1.245	4.38#
82)	T	Cyclohexanone		0.204	0.093	0.059	0.043	0.040	0.038	0.037	0.073#	82.88
83)	P	Bromoform	0.327	0.315	0.343	0.341	0.353	0.360	0.368	0.361	0.346	5.23
84)	T	Isopropylbenzene	1.637	1.408	1.452	1.502	1.438	1.435	1.463	1.381	1.465	5.34

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

85)	S	Bromofluoroben...	0.466	0.470	0.474	0.465	0.473	0.481	0.481	0.476	0.473	1.30
86)	T	Bromobenzene	0.773	1.026	0.937	0.934	0.913	0.918	0.942	0.900	0.918	7.61
87)	P	1,1,2,2-Tetrac...	0.603	0.702	0.666	0.668	0.658	0.647	0.674	0.642	0.658	4.34
88)	T	1,2,3-Trichlor...	0.226	0.203	0.168	0.183	0.169	0.166	0.164	0.164	0.180#	12.64
89)	T	trans-1,4-Dich...	0.208	0.194	0.218	0.174	0.163	0.164	0.169	0.163	0.182#	12.07
90)	T	n-Propylbenzene	1.649	1.567	1.765	1.713	1.685	1.695	1.751	1.677	1.688	3.67
91)	T	2-Chlorotoluene	0.934	1.024	1.082	1.021	1.001	1.009	1.036	0.982	1.011	4.21
92)	T	4-Chlorotoluene	1.165	1.251	1.164	1.214	1.169	1.167	1.186	1.152	1.183	2.80
93)	T	1,3,5-Trimethy...	1.058	1.198	1.203	1.231	1.132	1.152	1.174	1.125	1.159	4.73
94)	T	tert-Butylbenzene	0.801	0.727	0.677	0.689	0.669	0.659	0.673	0.646	0.693	7.18
95)	T	1,2,4-Trimethy...	1.287	1.198	1.272	1.241	1.216	1.217	1.254	1.194	1.235	2.77
96)	T	sec-Butylbenzene	1.559	1.350	1.390	1.398	1.341	1.364	1.417	1.356	1.397	5.04
97)	I	1,4-Dichlorobenzen...	----------ISTD----------									
98)	T	1,3-Dichlorobe...	1.377	1.377	1.422	1.476	1.396	1.472	1.425	1.383	1.416	2.84
99)	T	p-Isopropyltol...	2.403	2.110	2.389	2.288	2.269	2.324	2.257	2.190	2.279	4.30
100)	T	1,4-Dichlorobe...	1.439	1.387	1.462	1.503	1.439	1.470	1.450	1.402	1.444	2.57
101)	T	1,2,3-Trimethy...	2.393	2.323	2.402	2.474	2.409	2.459	2.392	2.286	2.392	2.62
102)	T	Benzyl chloride	1.817	2.053	1.998	1.881	1.818	1.921	1.831	1.801	1.890	4.95
103)	T	1,2-Dichlorobe...	1.322	1.353	1.378	1.477	1.417	1.453	1.410	1.337	1.393	3.98
104)	T	n-Butylbenzene	2.141	2.184	2.116	2.106	1.965	2.089	1.976	1.942	2.065	4.40
105)	T	Hexachloroethane	0.572	0.561	0.520	0.491	0.467	0.508	0.493	0.490	0.513	7.18
106)	T	1,2-Dibromo-3-...	0.450	0.417	0.428	0.411	0.362	0.382	0.378	0.373	0.400	7.65
107)	T	1,3,5-Trichlor...	0.913	0.902	1.001	1.018	0.906	0.984	0.954	0.922	0.950	4.85
108)	T	1,2,4-Trichlor...	1.097	0.887	0.978	0.986	0.964	0.967	0.976	0.934	0.974	6.10
109)	T	Hexachlorobuta...	0.336	0.312	0.332	0.347	0.319	0.321	0.317	0.318	0.325	3.67
110)	T	Naphthalene	3.706	3.329	3.593	3.625	3.548	3.696	3.501	3.582	3.572	3.37
111)	T	1,2,3-Trichlor...	0.921	0.888	0.989	0.965	0.932	1.009	0.955	0.917	0.947	4.26
112)	T	2-Methylnaphth...	1.715	1.759	1.786	1.840	1.801	1.934	1.922	1.931	1.836	4.62
113)	T	1-Methylnaphth...	1.547	1.661	1.655	1.660	1.713	1.833	1.825	1.793	1.711	5.84
114)	I	Ethyl-d5-Acetate-d3	----------ISTD----------									
115)	T	2-Propanone			1.204	0.840	1.007	0.838	0.737	0.755	0.897	19.88
116)	T	Acetic Ether		2.167	2.915	2.725	2.490	2.583	2.437	2.484	2.543	9.25
117)	T	Isopropyl Acetate		1.267	1.343	1.132	1.108	1.099	1.016	1.048	1.145	10.31
118)	T	Amyl Acetate	3.219	4.118	3.305	3.109	3.208	3.164	2.999	3.066	3.274	10.83

(#) = Out of Range

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

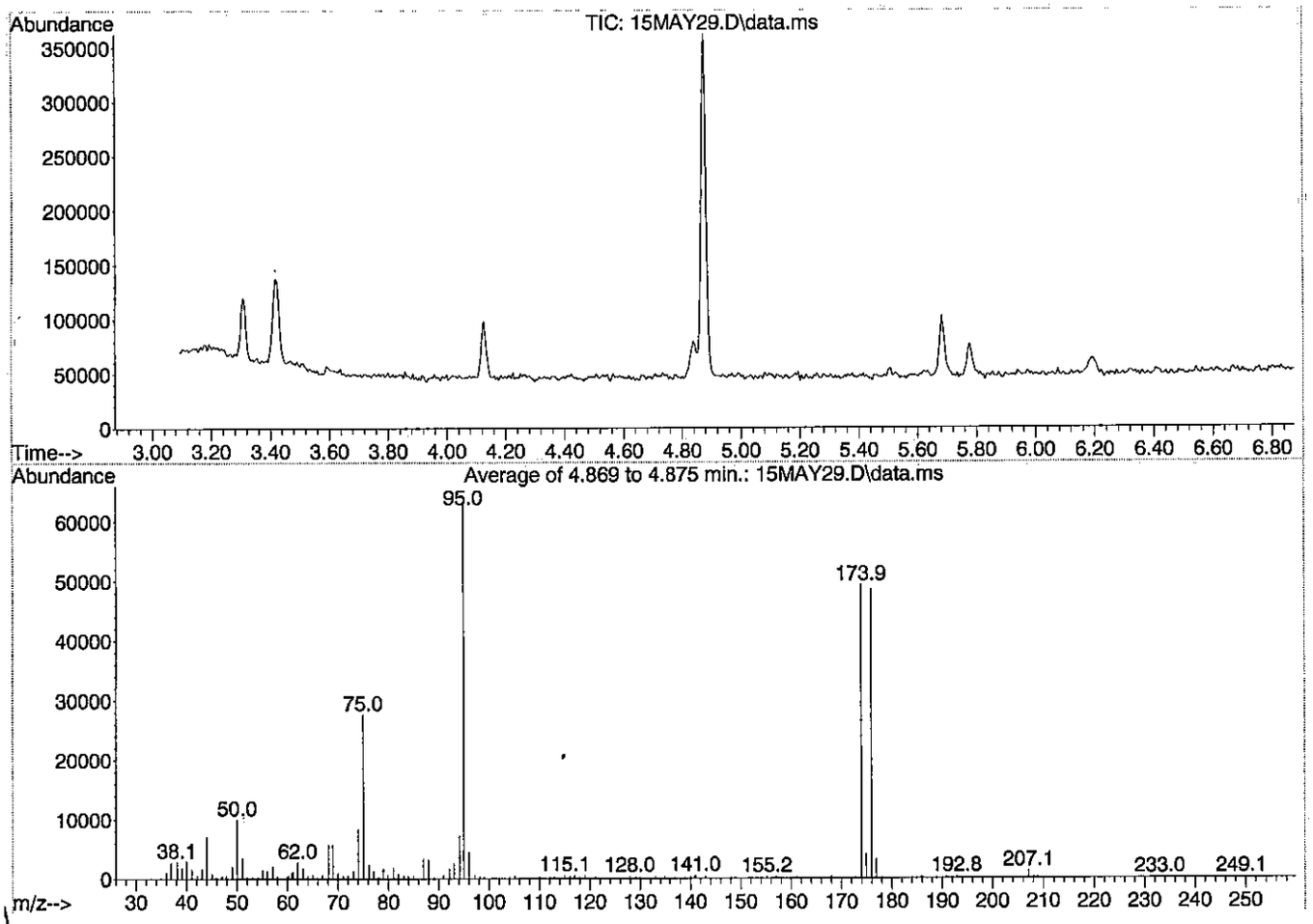
Calibration Files
1 =15MAY35 2 =15MAY36 3 =15MAY37 4 =15MAY38 5 =15MAY39 6 =15MAY40
7 =15MAY41 8 =15MAY42

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	T	Bromomethane	Lin	0.0115	0.1595	-----	0.9936
6)	T	Chloroethane	Quad	0.0477	0.2576	-0.0086	0.9966
9)	T	Acrolein	Lin	0.0110	0.0802	-----	0.9940
12)	T	Methyl iodide	Quad	0.0103	0.3126	-0.0073	0.9983
34)	T	Propionitrile	Lin	0.0023	0.0410	-----	0.9996
40)	I	1,4-Difluorobenzene		----------ISTD----------			
50)	T	Heptane	Lin	0.0035	0.2444	-----	0.9985
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0267	0.0360	-----	0.9994
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY29.D
Acq On : 15 May 2018 5:56 pm
Operator : EMR
Sample : VBFB7-180515
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0502.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 11:00:13 2018



Spectrum Information: Average of 4.869 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.9	10004	PASS
75	95	30	60	43.9	27608	PASS
95	95	100	100	100.0	62836	PASS
96	95	5	9	7.2	4503	PASS
173	174	0.00	2	0.3	125	PASS
174	95	50	100	78.3	49232	PASS
175	174	5	9	8.4	4114	PASS
176	174	95	101	98.6	48536	PASS
177	176	5	9	6.6	3201	PASS

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	362356	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	542314	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	476055	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	241467	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	108075	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	185610	19.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.70%				
45) 1,2-Dichloroethane-d4	5.164	65	183484	20.34	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.70%				
64) Toluene-d8	7.671	98	627892	20.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.55%				
85) Bromofluorobenzene	9.433	95	221780	20.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4000	0.46	ug/L	#	68
3) Chloromethane	1.282	50	11435	0.68	ug/L	#	61
4) Vinyl chloride	1.353	62	4606m	0.39	ug/L		
5) Bromomethane	1.568	96	4640	0.03	ug/L	#	79
6) Chloroethane	1.668	64	15493	Below Cal			81
7) Trichlorofluoromethane	1.819	101	4357	0.37	ug/L	#	71
8) Ethyl ether	2.019	59	3053	0.42	ug/L		99
9) Acrolein	2.127	56	5327m	Below Cal			
10) 1,1-Dichloroethene	2.198	61	4759m	0.48	ug/L		
11) 1,1,2-Trichlorotrifluo...	2.198	151	2947	0.53	ug/L	#	82
12) Methyl iodide	2.320	142	5631	0.80	ug/L		72
13) Acetone	2.234	43	3835	Below Cal			81
14) Chloroprene	3.373	53	4120	0.38	ug/L	#	91
15) Carbon disulfide	2.392	76	11810	0.56	ug/L		96
16) Allyl chloride	2.492	41	6250	0.48	ug/L	#	79
17) Methyl acetate	2.485	43	5158	0.35	ug/L	#	74
18) Acetonitrile	2.492	41	6250	0.48	ug/L	#	69
19) Methylene chloride	2.614	49	7595	0.61	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	5060	0.46	ug/L	#	72
21) t-Butanol	2.707	59	8426	2.83	ug/L	#	86
22) Acrylonitrile	2.822	53	2496	0.53	ug/L		86
23) Methyl tert-butyl ether	2.850	73	8782	0.34	ug/L		81
24) Hexane	3.137	57	5052m	0.66	ug/L		
25) 1,1-Dichloroethane	3.294	63	7314m	0.49	ug/L		
26) Diisopropyl ether	3.337	45	10337	0.36	ug/L	#	35
27) Vinyl acetate	3.301	86	881m	2.18	ug/L		
28) Ethyl tert butyl ether	3.753	59	9297	0.35	ug/L		94
29) 2,2-Dichloropropane	3.968	77	7677m	0.79	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	6774m	0.48	ug/L		
31) 2-Butanone	3.953	43	10025	0.79	ug/L		95
32) Ethyl Acetate	4.011	43	9022m	0.52	ug/L		
33) Methyl acrylate	4.068	55	5491	0.42	ug/L	#	83
34) Propionitrile	4.763	54	774	0.90	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	3268	0.44 ug/L	89
36) Tetrahydrofuran	4.290	42	1396	0.26 ug/L #	51
37) Methacrylonitrile	4.226	41	2521	0.28 ug/L #	71
38) Chloroform	4.426	83	7644	0.48 ug/L	85
39) Cyclohexane	4.720	56	13134m	0.89 ug/L	
41) 1,1,1-Trichloroethane	4.627	97	9572m	0.80 ug/L	
43) Carbon tetrachloride	4.849	117	4796	0.73 ug/L	84
44) 1,1-Dichloropropene	4.885	75	6479	0.58 ug/L #	63
46) 1,2-Dichloroethane	5.293	62	6250	0.53 ug/L	84
47) Benzene	5.178	78	16047	0.46 ug/L	61
48) Tertiaryamylmethylether	5.450	73	7321	0.30 ug/L #	87
49) Isobutyl Alcohol	5.436	43	2397	0.29 ug/L #	75
50) Heptane	5.758	43	3165m	0.48 ug/L	
51) 1,4-Dioxane	6.826	88	8007	36.56 ug/L #	31
52) Methylcyclohexane	6.647	83	5183	0.46 ug/L	96
53) n-Butanol	6.374	56	2527m	4.20 ug/L	
54) Trichloroethene	6.353	130	4211	0.39 ug/L #	81
55) 1,2-Dichloropropane	6.697	63	5801m	0.60 ug/L	
56) Dibromomethane	6.797	93	2211m	0.32 ug/L	
57) Methyl methacrylate	6.826	41	4845	0.44 ug/L #	73
58) Bromodichloromethane	7.019	83	4830	0.42 ug/L #	52
59) 2-Chloroethyl vinyl ether	7.334	43	1749	0.46 ug/L #	25
60) 2-Nitropropane	7.241	43	3105	0.77 ug/L #	75
61) cis-1,3-Dichloropropene	7.456	75	5972	0.45 ug/L	76
63) 4-Methyl-2-pentanone	7.592	43	5990m	0.37 ug/L	
65) Toluene	7.728	91	14362	0.43 ug/L	91
66) trans-1,3-Dichloropropene	7.943	75	5461	0.45 ug/L #	33
67) Chloropicrin	0.000		0	N.D. d	
68) Ethyl methacrylate	8.000	69	5503	0.41 ug/L #	82
69) 1,1,2-Trichloroethane	8.086	97	5349	0.58 ug/L #	79
70) Tetrachloroethene	8.129	166	3641	0.39 ug/L	89
71) 1,3-Dichloropropane	8.201	76	5672	0.41 ug/L #	55
72) 2-Hexanone	8.251	43	6949	0.55 ug/L	73
73) Chlorodibromomethane	8.351	129	4733	0.47 ug/L	83
74) Butyl acetate	8.344	43	9119	0.44 ug/L #	90
75) 1,2-Dibromoethane	8.430	107	4397	0.43 ug/L #	63
76) Chlorobenzene	8.753	112	9315	0.41 ug/L #	40
77) 1,1,1,2-Tetrachloroethane	8.810	131	4143	0.50 ug/L	89
78) Ethylbenzene	8.817	91	14959	0.41 ug/L	98
79) m/p-Xylene	8.896	91	23658	0.89 ug/L	94
80) Styrene	9.139	104	10268	0.45 ug/L	95
81) o-Xylene	9.125	91	12935	0.45 ug/L	86
82) Cyclohexanone	9.390	55	11280	8.08 ug/L #	90
83) Bromoform	9.247	173	3112	0.38 ug/L	94
84) Isopropylbenzene	9.333	105	15584	0.47 ug/L	92
86) Bromobenzene	9.512	77	7363	0.33 ug/L	97
87) 1,1,2,2-Tetrachloroethane	9.512	83	5743	0.38 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2155m	0.50 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	1979	0.51 ug/L	91
90) n-Propylbenzene	9.562	91	15696	0.39 ug/L	88
91) 2-Chlorotoluene	9.612	91	8897	0.36 ug/L	86

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

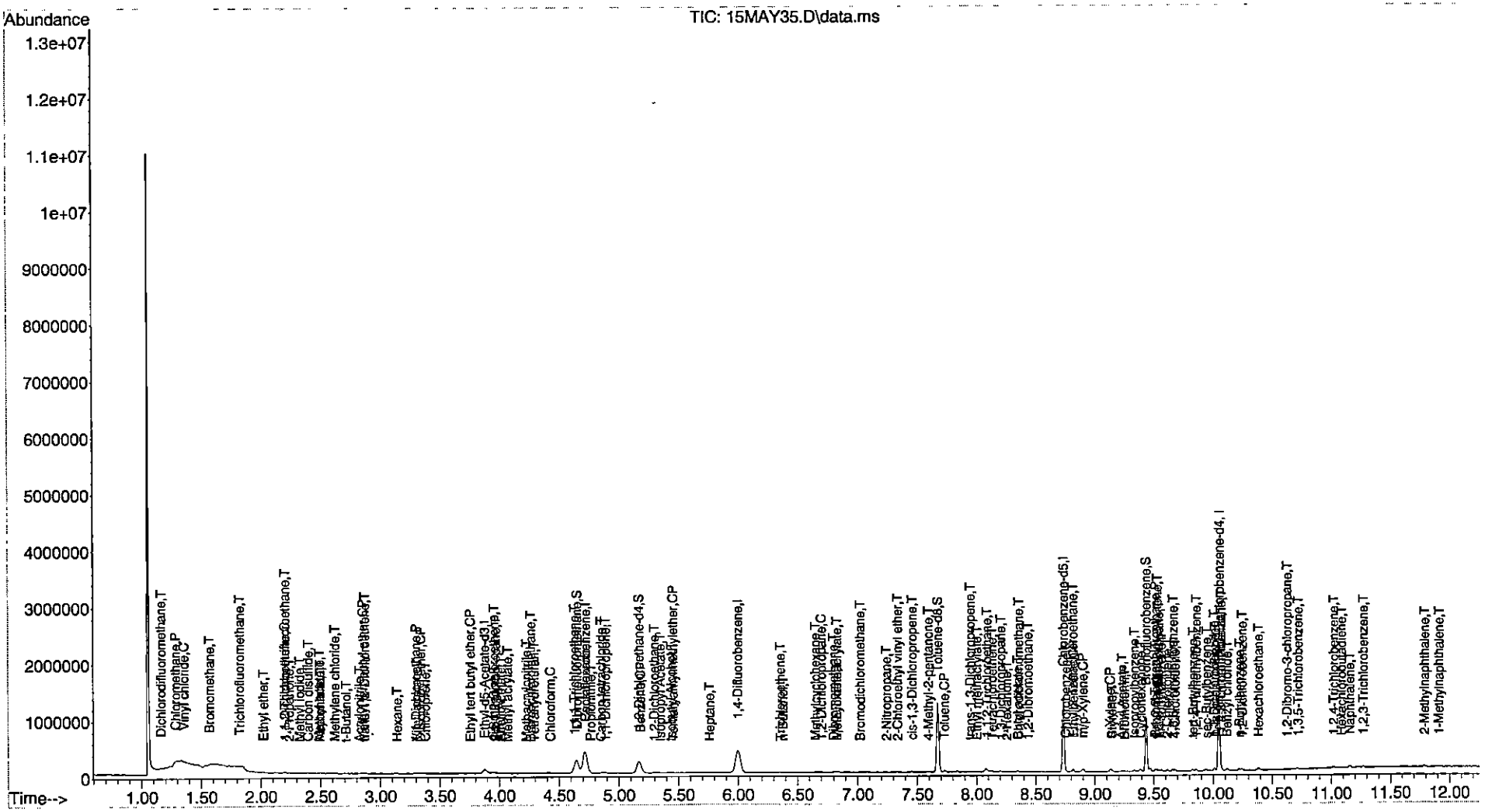
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	11092	0.41	ug/L		98
93) 1,3,5-Trimethylbenzene	9.662	105	10074	0.38	ug/L		90
94) tert-Butylbenzene	9.827	91	7622	0.48	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	12251	0.43	ug/L		92
96) sec-Butylbenzene	9.942	105	14839	0.47	ug/L		92
98) 1,3-Dichlorobenzene	10.006	146	6650	0.37	ug/L		87
99) p-Isopropyltoluene	10.013	119	11607	0.45	ug/L		88
100) 1,4-Dichlorobenzene	10.063	146	6951m	0.38	ug/L		
101) 1,2,3-Trimethylbenzene	10.063	105	11556	0.40	ug/L		95
102) Benzyl chloride	10.114	91	8773	0.65	ug/L		94
103) 1,2-Dichlorobenzene	10.242	146	6385	0.36	ug/L		91
104) n-Butylbenzene	10.221	91	10341m	0.45	ug/L		
105) Hexachloroethane	10.379	117	2764m	0.48	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2171	0.50	ug/L	#	67
107) 1,3,5-Trichlorobenzene	10.715	180	4409	0.36	ug/L	#	92
108) 1,2,4-Trichlorobenzene	11.016	180	5300	0.43	ug/L		94
109) Hexachlorobutadiene	11.081	225	1625	0.41	ug/L	#	81
110) Naphthalene	11.152	128	17898	0.43	ug/L		89
111) 1,2,3-Trichlorobenzene	11.267	180	4447	0.36	ug/L		99
112) 2-Methylnaphthalene	11.783	142	8281	0.43	ug/L		91
113) 1-Methylnaphthalene	11.904	142	7473	0.39	ug/L		85
115) 2-Propanone	2.234	43	5168m	0.25	ug/L		
116) Acetic Ether	4.011	43	11118m	0.55	ug/L		
117) Isopropyl Acetate	5.343	61	718m	0.10	ug/L		
118) Amyl Acetate	9.225	43	6957	0.32	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	345310	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	515573	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	467514	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233707	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	98455	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181076	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.30%				
45) 1,2-Dichloroethane-d4	5.164	65	176535	20.58	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.90%				
64) Toluene-d8	7.671	98	603853	20.28	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.40%				
85) Bromofluorobenzene	9.433	95	219602	20.74	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4787m	0.58	ug/L		
3) Chloromethane	1.282	50	10899m	0.68	ug/L		
4) Vinyl chloride	1.353	62	6139	0.55	ug/L	#	1
5) Bromomethane	1.568	96	5570m	0.17	ug/L		
6) Chloroethane	1.640	64	11699m	Below Cal			
7) Trichlorofluoromethane	1.812	101	6510	0.57	ug/L		90
8) Ethyl ether	2.019	59	5583	0.81	ug/L		87
9) Acrolein	2.127	56	7885	Below Cal		#	60
10) 1,1-Dichloroethene	2.199	61	6603	0.70	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	3831	0.72	ug/L		91
12) Methyl iodide	2.327	142	6226	0.90	ug/L		98
13) Acetone	2.234	43	3840	0.02	ug/L		67
14) Chloroprene	3.373	53	6459	0.63	ug/L	#	87
15) Carbon disulfide	2.392	76	12358	0.62	ug/L		45
16) Allyl chloride	2.499	41	7862	0.64	ug/L	#	80
17) Methyl acetate	2.485	43	13185m	0.93	ug/L		
18) Acetonitrile	2.499	41	7548m	0.61	ug/L		
19) Methylene chloride	2.607	49	8475	0.71	ug/L		90
20) trans-1,2-Dichloroethene	2.858	61	7336	0.69	ug/L		93
21) t-Butanol	2.700	59	6622	2.34	ug/L	#	65
22) Acrylonitrile	2.836	53	2890m	0.62	ug/L		
23) Methyl tert-butyl ether	2.850	73	12843	0.52	ug/L		93
24) Hexane	3.130	57	5801m	0.79	ug/L		
25) 1,1-Dichloroethane	3.302	63	9239	0.65	ug/L		84
26) Diisopropyl ether	3.330	45	13874	0.51	ug/L	#	57
27) Vinyl acetate	3.309	86	1195	2.61	ug/L	#	18
28) Ethyl tert butyl ether	3.753	59	15061	0.60	ug/L		97
29) 2,2-Dichloropropane	3.961	77	8226m	0.88	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	8607m	0.64	ug/L		
31) 2-Butanone	3.968	43	15629	1.50	ug/L		94
32) Ethyl Acetate	4.011	43	6401	0.39	ug/L		98
33) Methyl acrylate	4.075	55	8346	0.68	ug/L	#	69
34) Propionitrile	4.741	54	593	0.72	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	4924	0.69 ug/L	85
36) Tetrahydrofuran	4.290	42	6345	1.23 ug/L #	75
37) Methacrylonitrile	4.219	41	4179	0.49 ug/L #	55
38) Chloroform	4.419	83	10099	0.66 ug/L	98
39) Cyclohexane	4.720	56	12704m	0.91 ug/L	
41) 1,1,1-Trichloroethane	4.641	97	7259	0.64 ug/L #	73
43) Carbon tetrachloride	4.863	117	5153	0.79 ug/L #	61
44) 1,1-Dichloropropene	4.885	75	6130	0.58 ug/L	78
46) 1,2-Dichloroethane	5.293	62	7790	0.70 ug/L	86
47) Benzene	5.178	78	19660	0.59 ug/L	72
48) Tertiaryamylmethylether	5.451	73	14077	0.60 ug/L #	72
49) Isobutyl Alcohol	5.451	43	4184m	0.53 ug/L	
50) Heptane	5.773	43	6485m	1.03 ug/L	
51) 1,4-Dioxane	6.826	88	9467	45.47 ug/L	93
52) Methylcyclohexane	6.647	83	8165	0.76 ug/L	89
53) n-Butanol	6.332	56	1220m	2.13 ug/L	
54) Trichloroethene	6.360	130	6299	0.62 ug/L	94
55) 1,2-Dichloropropane	6.697	63	6821m	0.74 ug/L	
56) Dibromomethane	6.804	93	5481	0.83 ug/L #	79
57) Methyl methacrylate	6.826	41	7181	0.68 ug/L	92
58) Bromodichloromethane	7.026	83	7390	0.67 ug/L #	86
59) 2-Chloroethyl vinyl ether	7.334	43	5262	1.47 ug/L #	66
60) 2-Nitropropane	7.248	43	3515	0.92 ug/L #	70
61) cis-1,3-Dichloropropene	7.456	75	8714m	0.69 ug/L	
63) 4-Methyl-2-pentanone	7.592	43	10970	0.69 ug/L	94
65) Toluene	7.728	91	18987	0.58 ug/L	93
66) trans-1,3-Dichloropropene	7.943	75	8402m	0.70 ug/L	
67) Chloropicrin	7.943	117	791	No Calib	
68) Ethyl methacrylate	8.001	69	10840	0.82 ug/L	90
69) 1,1,2-Trichloroethane	8.087	97	7186	0.79 ug/L #	82
70) Tetrachloroethene	8.130	166	5245	0.58 ug/L	91
71) 1,3-Dichloropropane	8.201	76	9893	0.73 ug/L	92
72) 2-Hexanone	8.251	43	8521m	0.69 ug/L	
73) Chlorodibromomethane	8.352	129	5905	0.60 ug/L #	80
74) Butyl acetate	8.344	43	12702	0.62 ug/L #	89
75) 1,2-Dibromoethane	8.430	107	5761	0.57 ug/L	81
76) Chlorobenzene	8.753	112	13453m	0.60 ug/L	
77) 1,1,1,2-Tetrachloroethane	8.810	131	5086	0.62 ug/L #	84
78) Ethylbenzene	8.817	91	20617	0.58 ug/L	93
79) m/p-Xylene	8.896	91	29748	1.14 ug/L	88
80) Styrene	9.140	104	13290	0.59 ug/L	100
81) o-Xylene	9.125	91	16437	0.58 ug/L	92
82) Cyclohexanone	9.390	55	14288	10.42 ug/L	95
83) Bromoform	9.254	173	4420	0.55 ug/L	84
84) Isopropylbenzene	9.333	105	19744	0.61 ug/L	99
86) Bromobenzene	9.512	77	14391	0.66 ug/L	86
87) 1,1,2,2-Tetrachloroethane	9.512	83	9841	0.67 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2844m	0.67 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	2720	0.72 ug/L	87
90) n-Propylbenzene	9.562	91	21983	0.56 ug/L	97
91) 2-Chlorotoluene	9.612	91	14363m	0.59 ug/L	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

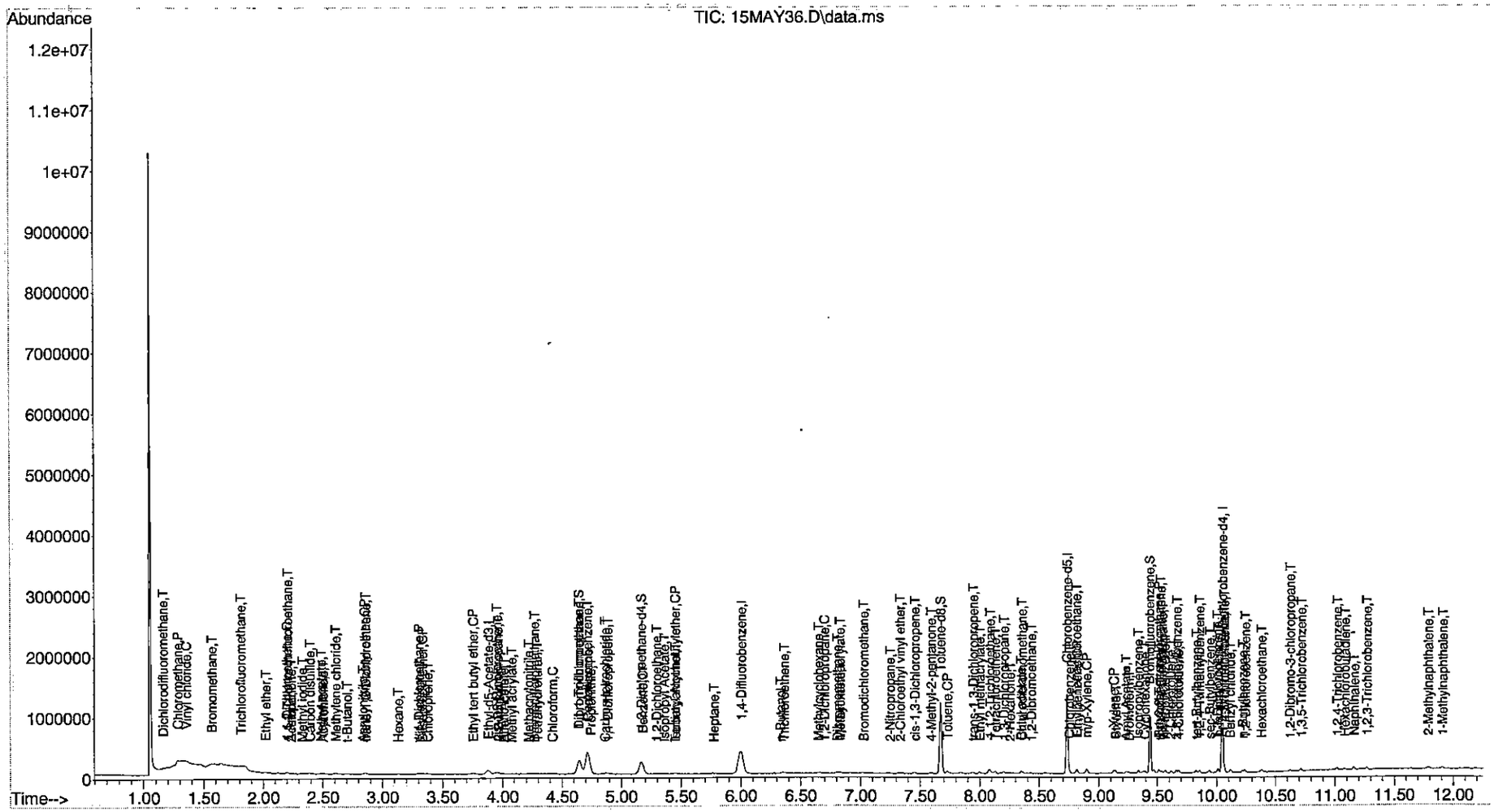
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	17542	0.65	ug/L		93
93) 1,3,5-Trimethylbenzene	9.662	105	16806	0.65	ug/L		91
94) tert-Butylbenzene	9.827	91	10190	0.66	ug/L		82
95) 1,2,4-Trimethylbenzene	9.856	105	16805	0.60	ug/L		97
96) sec-Butylbenzene	9.942	105	18937	0.61	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	9653	0.55	ug/L		94
99) p-Isopropyltoluene	10.013	119	14791	0.59	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	9726m	0.55	ug/L		
101) 1,2,3-Trimethylbenzene	10.064	105	16288	0.58	ug/L		95
102) Benzyl chloride	10.114	91	14397m	1.10	ug/L		
103) 1,2-Dichlorobenzene	10.243	146	9485	0.55	ug/L		90
104) n-Butylbenzene	10.221	91	15309	0.68	ug/L		96
105) Hexachloroethane	10.379	117	3935m	0.70	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2921	0.70	ug/L		88
107) 1,3,5-Trichlorobenzene	10.715	180	6327	0.54	ug/L		95
108) 1,2,4-Trichlorobenzene	11.016	180	6221	0.52	ug/L		90
109) Hexachlorobutadiene	11.081	225	2187	0.56	ug/L	#	88
110) Naphthalene	11.160	128	23337	0.58	ug/L		94
111) 1,2,3-Trichlorobenzene	11.267	180	6224	0.53	ug/L		85
112) 2-Methylnaphthalene	11.783	142	12334	0.65	ug/L		96
113) 1-Methylnaphthalene	11.904	142	11647	0.63	ug/L		98
115) 2-Propanone	2.234	43	6529m	0.55	ug/L		
116) Acetic Ether	4.011	43	6401	0.35	ug/L	#	81
117) Isopropyl Acetate	5.357	61	3741m	0.55	ug/L		
118) Amyl Acetate	9.225	43	12164	0.61	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341663	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	510208	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	459357	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233694	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	101741	20.00	ug/L		-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	176770	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%				
45) 1,2-Dichloroethane-d4	5.164	65	175827	20.71	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.55%				
64) Toluene-d8	7.671	98	600091	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.60%				
85) Bromofluorobenzene	9.433	95	217812	20.94	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	16254	1.99	ug/L		94
3) Chloromethane	1.282	50	28443	1.80	ug/L		93
4) Vinyl chloride	1.353	62	16967	1.53	ug/L	#	60
5) Bromomethane	1.568	96	9751	0.68	ug/L	#	27
6) Chloroethane	1.633	64	23107	Below Cal		#	72
7) Trichlorofluoromethane	1.819	101	19126	1.71	ug/L		92
8) Ethyl ether	2.019	59	14499m	2.13	ug/L		
9) Acrolein	2.127	56	20791	9.56	ug/L		91
10) 1,1-Dichloroethene	2.199	61	22302	2.39	ug/L		92
11) 1,1,2-Trichlorotrifluo...	2.206	151	10738	2.05	ug/L		93
12) Methyl iodide	2.328	142	16131m	2.06	ug/L		
13) Acetone	2.242	43	12253	1.58	ug/L		78
14) Chloroprene	3.373	53	22327	2.19	ug/L	#	93
15) Carbon disulfide	2.385	76	47429	2.39	ug/L		95
16) Allyl chloride	2.499	41	23371	1.91	ug/L		88
17) Methyl acetate	2.485	43	23390	1.67	ug/L	#	90
18) Acetonitrile	2.499	41	23371	1.91	ug/L	#	86
19) Methylene chloride	2.607	49	23407	1.98	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	23150	2.21	ug/L		97
21) t-Butanol	2.729	59	27826	9.92	ug/L	#	87
22) Acrylonitrile	2.822	53	10448	1.96	ug/L		94
23) Methyl tert-butyl ether	2.850	73	43359	1.77	ug/L		98
24) Hexane	3.130	57	18410	2.54	ug/L	#	78
25) 1,1-Dichloroethane	3.295	63	32867	2.35	ug/L		95
26) Diisopropyl ether	3.337	45	46820	1.74	ug/L	#	15
27) Vinyl acetate	3.295	86	3336	5.24	ug/L	#	31
28) Ethyl tert butyl ether	3.746	59	46588	1.88	ug/L		96
29) 2,2-Dichloropropane	3.961	77	22212	2.41	ug/L		93
30) cis-1,2-Dichloroethene	3.954	61	24889	1.86	ug/L		95
31) 2-Butanone	3.954	43	21848	2.25	ug/L		88
32) Ethyl Acetate	4.011	43	29654	1.81	ug/L		98
33) Methyl acrylate	4.068	55	24748	2.03	ug/L	#	88
34) Propionitrile	4.749	54	2077	2.56	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	13503	1.92	ug/L		96
36) Tetrahydrofuran	4.290	42	9602	1.88	ug/L		76
37) Methacrylonitrile	4.226	41	17748	2.11	ug/L		90
38) Chloroform	4.419	83	32339	2.15	ug/L		97
39) Cyclohexane	4.727	56	30864	2.23	ug/L	#	79
41) 1,1,1-Trichloroethane	4.634	97	24366	2.16	ug/L		95
43) Carbon tetrachloride	4.863	117	21310	2.34	ug/L		95
44) 1,1-Dichloropropene	4.885	75	23127	2.22	ug/L		88
46) 1,2-Dichloroethane	5.293	62	22372	2.03	ug/L		96
47) Benzene	5.186	78	65749	2.00	ug/L		94
48) Tertiaryamylmethylether	5.451	73	45975	1.98	ug/L	#	91
49) Isobutyl Alcohol	5.443	43	18503	2.39	ug/L	#	58
50) Heptane	5.759	43	16149	2.59	ug/L		95
51) 1,4-Dioxane	6.826	88	37712	183.02	ug/L		97
52) Methylcyclohexane	6.654	83	20710m	1.95	ug/L		
53) n-Butanol	6.382	56	11429m	20.20	ug/L		
54) Trichloroethene	6.353	130	19494	1.93	ug/L		96
55) 1,2-Dichloropropane	6.697	63	20251	2.23	ug/L		93
56) Dibromomethane	6.797	93	13565	2.06	ug/L		90
57) Methyl methacrylate	6.826	41	21614	2.07	ug/L	#	88
58) Bromodichloromethane	7.019	83	24814	2.27	ug/L		93
59) 2-Chloroethyl vinyl ether	7.334	43	10479	2.95	ug/L	#	82
60) 2-Nitropropane	7.241	43	9866	2.61	ug/L	#	91
61) cis-1,3-Dichloropropene	7.449	75	28961	2.31	ug/L		88
63) 4-Methyl-2-pentanone	7.592	43	25870	1.67	ug/L		93
65) Toluene	7.728	91	66695	2.06	ug/L		96
66) trans-1,3-Dichloropropene	7.943	75	27490	2.32	ug/L		91
67) Chloropicrin	7.950	117	729	No Calib			
68) Ethyl methacrylate	8.001	69	29786	2.31	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	19396	2.17	ug/L		99
70) Tetrachloroethene	8.130	166	17532	1.96	ug/L		90
71) 1,3-Dichloropropane	8.201	76	27398	2.06	ug/L		93
72) 2-Hexanone	8.251	43	22109	1.83	ug/L		93
73) Chlorodibromomethane	8.352	129	22518	2.32	ug/L		99
74) Butyl acetate	8.344	43	36363	1.82	ug/L	#	90
75) 1,2-Dibromoethane	8.423	107	22535	2.27	ug/L		94
76) Chlorobenzene	8.753	112	47771	2.18	ug/L		93
77) 1,1,1,2-Tetrachloroethane	8.810	131	18207	2.26	ug/L		92
78) Ethylbenzene	8.817	91	74547	2.13	ug/L		100
79) m/p-Xylene	8.896	91	110316	4.29	ug/L		100
80) Styrene	9.140	104	47340	2.14	ug/L		96
81) o-Xylene	9.125	91	57643	2.07	ug/L		96
82) Cyclohexanone	9.390	55	21381	15.87	ug/L		92
83) Bromoform	9.247	173	15750	1.98	ug/L		100
84) Isopropylbenzene	9.333	105	66713	2.10	ug/L		98
86) Bromobenzene	9.512	77	43059	2.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	30581	2.11	ug/L		96
88) 1,2,3-Trichloropropane	9.541	110	7695	1.83	ug/L		89
89) trans-1,4-Dichloro-2-b...	9.526	53	10014	2.68	ug/L		82
90) n-Propylbenzene	9.562	91	81080	2.11	ug/L		97
91) 2-Chlorotoluene	9.612	91	49680	2.09	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

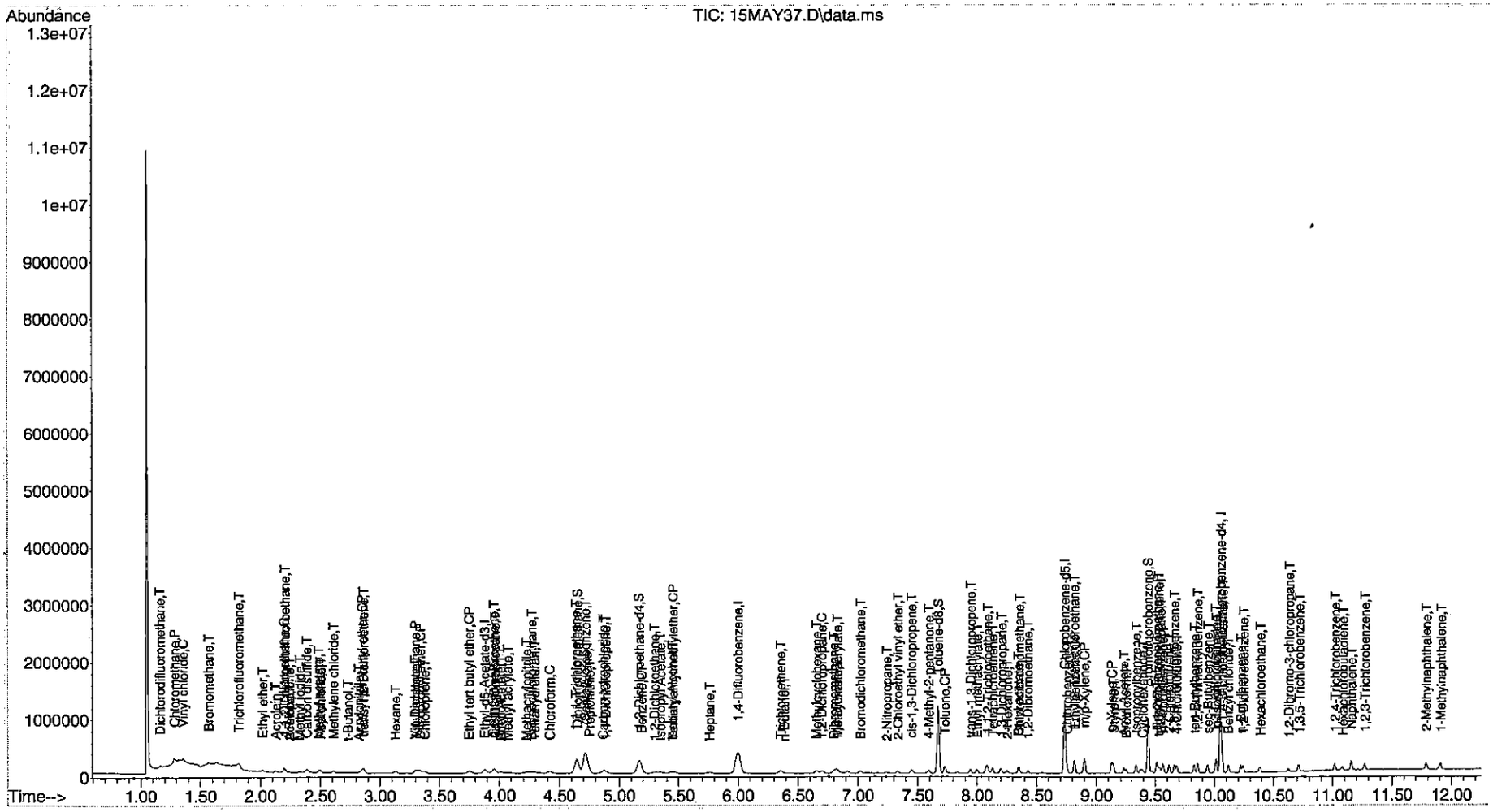
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	53475	2.03	ug/L		99
93) 1,3,5-Trimethylbenzene	9.655	105	55251	2.18	ug/L		96
94) tert-Butylbenzene	9.827	91	31106	2.05	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	58428	2.11	ug/L		94
96) sec-Butylbenzene	9.942	105	63838	2.08	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	33229	1.91	ug/L		97
99) p-Isopropyltoluene	10.013	119	55838	2.25	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	34169	1.93	ug/L		91
101) 1,2,3-Trimethylbenzene	10.064	105	56130	2.00	ug/L		96
102) Benzyl chloride	10.114	91	46703	3.58	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	32202	1.87	ug/L		91
104) n-Butylbenzene	10.221	91	49453	2.21	ug/L		100
105) Hexachloroethane	10.386	117	12149	2.17	ug/L		92
106) 1,2-Dibromo-3-chloropr...	10.629	157	9991	2.40	ug/L		99
107) 1,3,5-Trichlorobenzene	10.715	180	23403	2.00	ug/L		100
108) 1,2,4-Trichlorobenzene	11.016	180	22850	1.90	ug/L		99
109) Hexachlorobutadiene	11.081	225	7764	2.00	ug/L		92
110) Naphthalene	11.152	128	83966	2.09	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	23116	1.95	ug/L		94
112) 2-Methylnaphthalene	11.783	142	41741	2.22	ug/L		96
113) 1-Methylnaphthalene	11.904	142	38682	2.09	ug/L		97
115) 2-Propanone	2.242	43	12253	1.42	ug/L	#	77
116) Acetic Ether	4.011	43	29654	1.55	ug/L	#	81
117) Isopropyl Acetate	5.343	61	13666	1.93	ug/L	#	75
118) Amyl Acetate	9.226	43	33626	1.64	ug/L		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	352448	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	529324	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	477074	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	237433	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109613	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182632	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	177885	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	615517	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	221934	20.54	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	31607	3.74	ug/L		99
3) Chloromethane	1.282	50	48735	2.99	ug/L		90
4) Vinyl chloride	1.353	62	37796	3.31	ug/L	#	38
5) Bromomethane	1.568	96	16036	1.39	ug/L		90
6) Chloroethane	1.640	64	39671	1.21	ug/L	#	61
7) Trichlorofluoromethane	1.812	101	38338	3.31	ug/L		97
8) Ethyl ether	2.019	59	27155	3.86	ug/L		97
9) Acrolein	2.127	56	37040	31.38	ug/L		92
10) 1,1-Dichloroethene	2.199	61	41216	4.28	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.206	151	23118	4.27	ug/L		98
12) Methyl iodide	2.327	142	28724	3.45	ug/L		95
13) Acetone	2.234	43	18409	2.60	ug/L		95
14) Chloroprene	3.373	53	45447	4.31	ug/L		99
15) Carbon disulfide	2.392	76	90839	4.44	ug/L		98
16) Allyl chloride	2.499	41	48925	3.88	ug/L		87
17) Methyl acetate	2.485	43	46105	3.19	ug/L	#	95
18) Acetonitrile	2.499	41	48925	3.88	ug/L		89
19) Methylene chloride	2.607	49	43239	3.55	ug/L		92
20) trans-1,2-Dichloroethene	2.858	61	45556	4.21	ug/L		97
21) t-Butanol	2.729	59	48671	16.82	ug/L	#	76
22) Acrylonitrile	2.822	53	21858	3.87	ug/L		91
23) Methyl tert-butyl ether	2.850	73	92128	3.64	ug/L		97
24) Hexane	3.130	57	32991	4.41	ug/L		94
25) 1,1-Dichloroethane	3.294	63	62323	4.33	ug/L		96
26) Diisopropyl ether	3.337	45	94027	3.38	ug/L	#	23
27) Vinyl acetate	3.302	86	5659	7.82	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	91455	3.59	ug/L		96
29) 2,2-Dichloropropane	3.961	77	44197	4.66	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	53356	3.87	ug/L		99
31) 2-Butanone	3.953	43	35378	3.71	ug/L		90
32) Ethyl Acetate	4.011	43	56163	3.33	ug/L	#	94
33) Methyl acrylate	4.068	55	49635	3.94	ug/L		96
34) Propionitrile	4.741	54	4584	5.47	ug/L	#	81

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.261	49	28260	3.89	ug/L		95
36) Tetrahydrofuran	4.283	42	19978	3.79	ug/L		96
37) Methacrylonitrile	4.226	41	30082	3.47	ug/L	#	92
38) Chloroform	4.412	83	61043	3.93	ug/L		99
39) Cyclohexane	4.734	56	52815	3.69	ug/L	#	88
41) 1,1,1-Trichloroethane	4.634	97	51689	4.41	ug/L		90
43) Carbon tetrachloride	4.863	117	42414	4.20	ug/L		97
44) 1,1-Dichloropropene	4.878	75	47608	4.40	ug/L		97
46) 1,2-Dichloroethane	5.293	62	44292	3.87	ug/L		97
47) Benzene	5.186	78	134612	3.96	ug/L		95
48) Tertiaryamylmethylether	5.451	73	90754	3.76	ug/L		94
49) Isobutyl Alcohol	5.451	43	33041	4.11	ug/L		93
50) Heptane	5.759	43	30311	4.68	ug/L		96
51) 1,4-Dioxane	6.826	88	73339	343.07	ug/L		88
52) Methylcyclohexane	6.654	83	47485	4.30	ug/L		97
53) n-Butanol	6.360	56	22872	38.96	ug/L	#	71
54) Trichloroethene	6.360	130	36432	3.48	ug/L		96
55) 1,2-Dichloropropane	6.704	63	39705m	4.22	ug/L		
56) Dibromomethane	6.797	93	31188	4.57	ug/L		91
57) Methyl methacrylate	6.826	41	43259	3.99	ug/L		99
58) Bromodichloromethane	7.019	83	49614	4.37	ug/L		97
59) 2-Chloroethyl vinyl ether	7.327	43	17369	4.72	ug/L		90
60) 2-Nitropropane	7.241	43	19148	4.88	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	57823	4.44	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	63747	3.95	ug/L		95
65) Toluene	7.728	91	142128	4.23	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	54813	4.46	ug/L		86
67) Chloropicrin	7.950	117	896	No Calib		#	
68) Ethyl methacrylate	8.001	69	58066	4.33	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	37097	4.00	ug/L		99
70) Tetrachloroethene	8.130	166	37079	3.99	ug/L		97
71) 1,3-Dichloropropane	8.201	76	55249	3.99	ug/L		95
72) 2-Hexanone	8.251	43	44283	3.53	ug/L		92
73) Chlorodibromomethane	8.352	129	42511	4.22	ug/L		96
74) Butyl acetate	8.344	43	78027	3.75	ug/L	#	96
75) 1,2-Dibromoethane	8.423	107	41675	4.05	ug/L		98
76) Chlorobenzene	8.753	112	93850	4.12	ug/L		94
77) 1,1,1,2-Tetrachloroethane	8.810	131	34887	4.17	ug/L		97
78) Ethylbenzene	8.817	91	148591	4.08	ug/L		99
79) m/p-Xylene	8.896	91	230052	8.61	ug/L		98
80) Styrene	9.140	104	94891	4.13	ug/L		95
81) o-Xylene	9.125	91	119371	4.13	ug/L		100
82) Cyclohexanone	9.390	55	28261	20.19	ug/L		95
83) Bromoform	9.247	173	32567	3.94	ug/L		93
84) Isopropylbenzene	9.333	105	143269	4.34	ug/L		100
86) Bromobenzene	9.512	77	89162	4.02	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	63732	4.23	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	17461	4.00	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	16630	4.29	ug/L		96
90) n-Propylbenzene	9.562	91	163425	4.10	ug/L		96
91) 2-Chlorotoluene	9.612	91	97397	3.94	ug/L		99

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

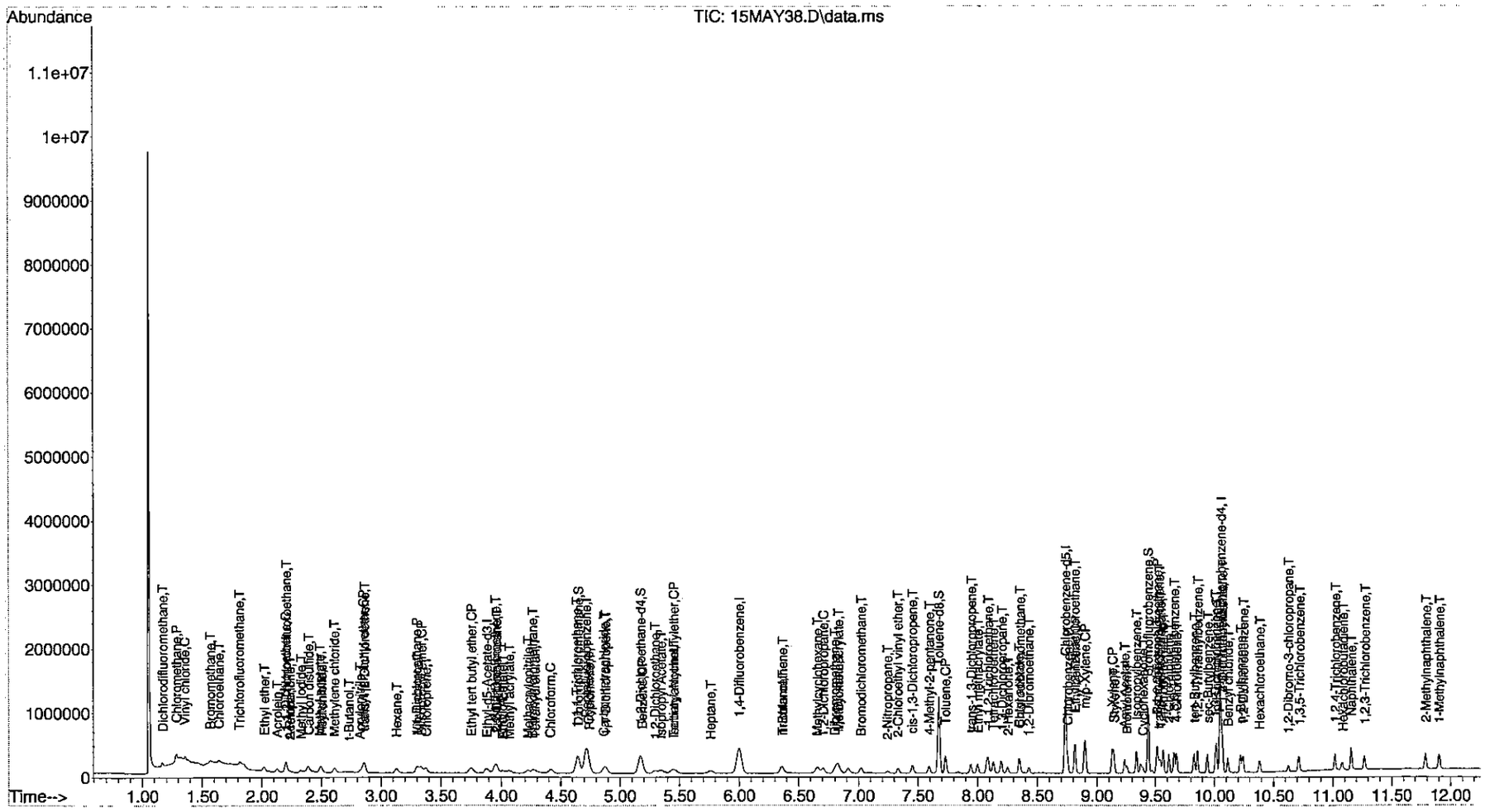
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	115808	4.23	ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	117494	4.46	ug/L	97
94) tert-Butylbenzene	9.827	91	65724	4.17	ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	118426	4.12	ug/L	98
96) sec-Butylbenzene	9.942	105	133408	4.19	ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	70068	3.96	ug/L	99
99) p-Isopropyltoluene	10.013	119	108637	4.30	ug/L	97
100) 1,4-Dichlorobenzene	10.064	146	71386	3.98	ug/L	96
101) 1,2,3-Trimethylbenzene	10.064	105	117499	4.12	ug/L	99
102) Benzyl chloride	10.114	91	89346	6.73	ug/L	99
103) 1,2-Dichlorobenzene	10.243	146	70158	4.02	ug/L	97
104) n-Butylbenzene	10.221	91	100030	4.40	ug/L	99
105) Hexachloroethane	10.379	117	23315	4.09	ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.622	157	19528	4.62	ug/L	96
107) 1,3,5-Trichlorobenzene	10.715	180	48362	4.06	ug/L	95
108) 1,2,4-Trichlorobenzene	11.016	180	46830	3.84	ug/L	99
109) Hexachlorobutadiene	11.081	225	16475	4.18	ug/L	98
110) Naphthalene	11.152	128	172129	4.21	ug/L	100
111) 1,2,3-Trichlorobenzene	11.267	180	45843	3.81	ug/L	97
112) 2-Methylnaphthalene	11.783	142	87362	4.57	ug/L	98
113) 1-Methylnaphthalene	11.897	142	78822	4.19	ug/L	96
115) 2-Propanone	2.234	43	18409	2.19	ug/L	93
116) Acetic Ether	4.011	43	59749m	2.89	ug/L	
117) Isopropyl Acetate	5.343	61	24808	3.26	ug/L	95
118) Amyl Acetate	9.225	43	68161	3.09	ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	340633	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	517885	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	468070	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	240783	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	106804	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181506	20.21	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.05%				
45) 1,2-Dichloroethane-d4	5.164	65	172360	20.00	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.00%				
64) Toluene-d8	7.671	98	604887	20.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.50%				
85) Bromofluorobenzene	9.433	95	221410	20.89	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	76432	9.36	ug/L		96
3) Chloromethane	1.282	50	112231	7.12	ug/L		96
4) Vinyl chloride	1.353	62	89186	8.08	ug/L		71
5) Bromomethane	1.568	96	33561	3.61	ug/L		97
6) Chloroethane	1.640	64	57603	4.42	ug/L		92
7) Trichlorofluoromethane	1.819	101	86710	7.76	ug/L		99
8) Ethyl ether	2.019	59	65726	9.68	ug/L		93
9) Acrolein	2.127	56	87651	102.52	ug/L		97
10) 1,1-Dichloroethene	2.198	61	100483	10.79	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.198	151	52662	10.07	ug/L		97
12) Methyl iodide	2.320	142	58645	7.20	ug/L		99
13) Acetone	2.234	43	53777m	9.23	ug/L		
14) Chloroprene	3.373	53	104594	10.27	ug/L		99
15) Carbon disulfide	2.385	76	210877	10.67	ug/L		98
16) Allyl chloride	2.499	41	116161	9.54	ug/L		94
17) Methyl acetate	2.485	43	101331	7.25	ug/L	#	94
18) Acetonitrile	2.499	41	116161	9.54	ug/L	#	95
19) Methylene chloride	2.607	49	102482	8.71	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	108673	10.40	ug/L		96
21) t-Butanol	2.721	59	119445m	42.70	ug/L		
22) Acrylonitrile	2.822	53	51538	9.29	ug/L		94
23) Methyl tert-butyl ether	2.850	73	214910	8.80	ug/L		100
24) Hexane	3.130	57	79672	11.01	ug/L		96
25) 1,1-Dichloroethane	3.301	63	150448	10.81	ug/L		98
26) Diisopropyl ether	3.330	45	221540	8.24	ug/L	#	17
27) Vinyl acetate	3.294	86	13926	17.71	ug/L	#	1
28) Ethyl tert butyl ether	3.746	59	222810	9.04	ug/L		100
29) 2,2-Dichloropropane	3.961	77	106004	11.56	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	128063	9.61	ug/L		97
31) 2-Butanone	3.953	43	78637	8.93	ug/L		98
32) Ethyl Acetate	4.011	43	132948	8.16	ug/L		95
33) Methyl acrylate	4.068	55	124673	10.24	ug/L	#	96
34) Propionitrile	4.741	54	7327	9.05	ug/L	#	71

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	67233	9.59	ug/L		99
36) Tetrahydrofuran	4.290	42	46966	9.22	ug/L		92
37) Methacrylonitrile	4.218	41	77818	9.28	ug/L		95
38) Chloroform	4.419	83	146546	9.76	ug/L		99
39) Cyclohexane	4.734	56	120921	8.75	ug/L		96
41) 1,1,1-Trichloroethane	4.634	97	122214	10.67	ug/L		98
43) Carbon tetrachloride	4.863	117	100287	9.73	ug/L		98
44) 1,1-Dichloropropene	4.877	75	107449	10.14	ug/L		98
46) 1,2-Dichloroethane	5.293	62	107657	9.61	ug/L		97
47) Benzene	5.178	78	314962	9.46	ug/L		99
48) Tertiaryamylmethylether	5.458	73	219892	9.31	ug/L		98
49) Isobutyl Alcohol	5.450	43	67516	8.59	ug/L		99
50) Heptane	5.758	43	68974	10.88	ug/L		95
51) 1,4-Dioxane	6.826	88	192256	919.22	ug/L		92
52) Methylcyclohexane	6.654	83	109298	10.13	ug/L		98
53) n-Butanol	6.367	56	55250	96.20	ug/L	#	95
54) Trichloroethene	6.353	130	88762	8.67	ug/L		99
55) 1,2-Dichloropropane	6.704	63	87483	9.51	ug/L		98
56) Dibromomethane	6.797	93	66312	9.94	ug/L		99
57) Methyl methacrylate	6.819	41	104038	9.82	ug/L		98
58) Bromodichloromethane	7.019	83	119836	10.80	ug/L		96
59) 2-Chloroethyl vinyl ether	7.334	43	45490	12.63	ug/L		99
60) 2-Nitropropane	7.241	43	43718	11.39	ug/L	#	94
61) cis-1,3-Dichloropropene	7.449	75	142406	11.17	ug/L		98
63) 4-Methyl-2-pentanone	7.592	43	137218	8.68	ug/L		98
65) Toluene	7.728	91	334782	10.16	ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	135420	11.23	ug/L		99
67) Chloropicrin	7.950	117	1907	No Calib		#	
68) Ethyl methacrylate	8.000	69	138970	10.56	ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	90318	9.91	ug/L		99
70) Tetrachloroethene	8.129	166	88639	9.72	ug/L		97
71) 1,3-Dichloropropane	8.201	76	136286	10.04	ug/L		97
72) 2-Hexanone	8.251	43	110634	8.98	ug/L		96
73) Chlorodibromomethane	8.351	129	103601	10.48	ug/L		98
74) Butyl acetate	8.344	43	177057	8.68	ug/L		96
75) 1,2-Dibromoethane	8.423	107	98887	9.79	ug/L		96
76) Chlorobenzene	8.753	112	222506	9.95	ug/L		96
77) 1,1,1,2-Tetrachloroethane	8.810	131	85054	10.35	ug/L		98
78) Ethylbenzene	8.817	91	353024	9.89	ug/L		100
79) m/p-Xylene	8.896	91	538211	20.52	ug/L		99
80) Styrene	9.139	104	229206	10.16	ug/L		96
81) o-Xylene	9.125	91	290111	10.23	ug/L		96
82) Cyclohexanone	9.390	55	50345	36.67	ug/L		96
83) Bromoform	9.247	173	82555	10.17	ug/L		95
84) Isopropylbenzene	9.333	105	336657	10.40	ug/L		98
86) Bromobenzene	9.512	77	213637	9.81	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	154100	10.43	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	39605	9.25	ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	38105	10.02	ug/L		93
90) n-Propylbenzene	9.562	91	394365	10.08	ug/L		97
91) 2-Chlorotoluene	9.612	91	234330	9.67	ug/L		93

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

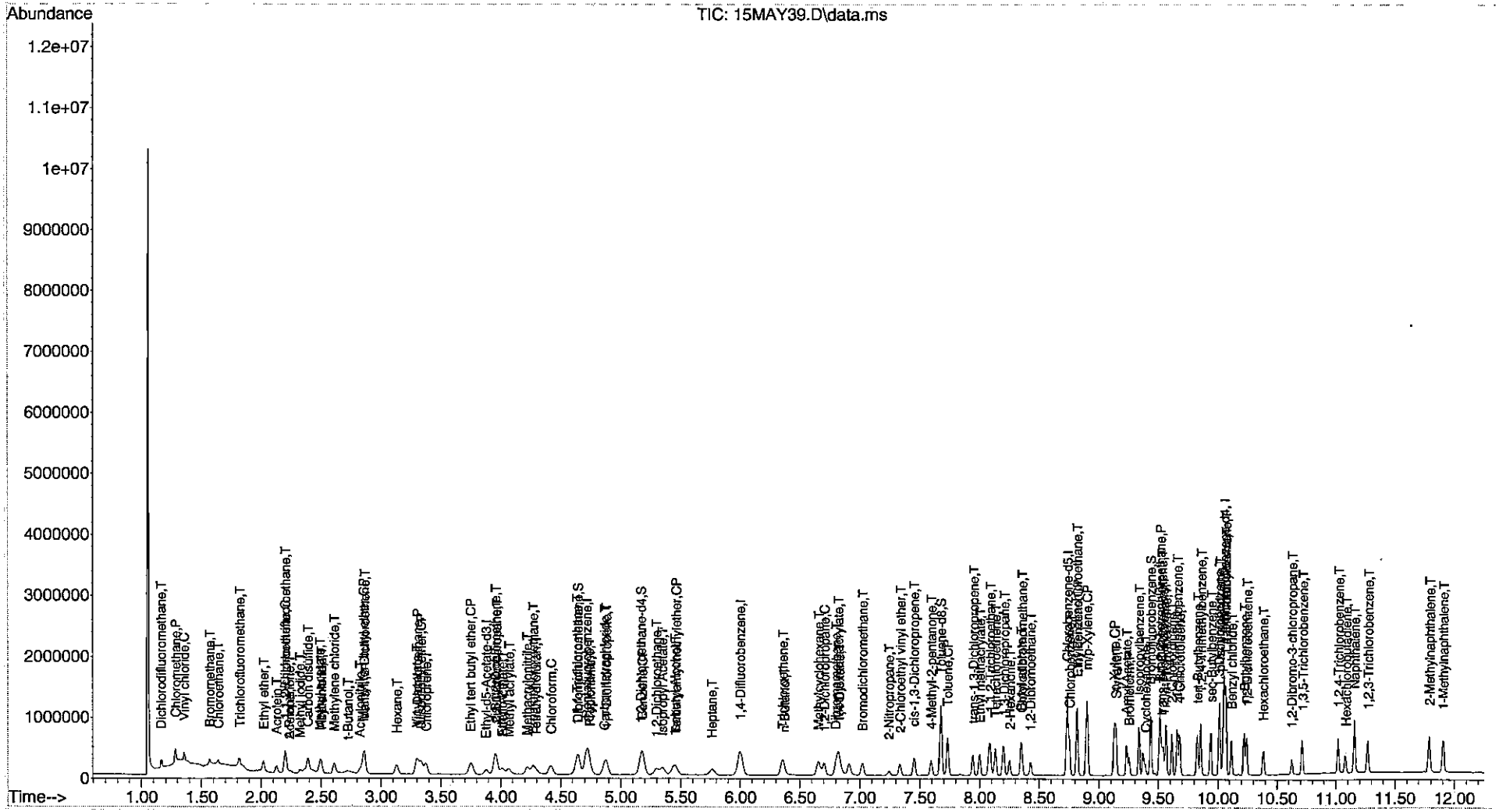
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	273644	10.18	ug/L		95
93) 1,3,5-Trimethylbenzene	9.655	105	264836	10.25	ug/L		99
94) tert-Butylbenzene	9.827	91	156481	10.12	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	284569	10.09	ug/L		95
96) sec-Butylbenzene	9.942	105	313863	10.04	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	168012	9.37	ug/L		99
99) p-Isopropyltoluene	10.013	119	273147	10.66	ug/L		98
100) 1,4-Dichlorobenzene	10.063	146	173185	9.52	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	290064	10.03	ug/L		97
102) Benzyl chloride	10.114	91	218901	16.27	ug/L		99
103) 1,2-Dichlorobenzene	10.242	146	170636	9.63	ug/L		99
104) n-Butylbenzene	10.221	91	236523	10.26	ug/L		99
105) Hexachloroethane	10.379	117	56186	9.72	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.622	157	43607	10.17	ug/L		94
107) 1,3,5-Trichlorobenzene	10.715	180	109119	9.03	ug/L		97
108) 1,2,4-Trichlorobenzene	11.016	180	116016	9.37	ug/L		99
109) Hexachlorobutadiene	11.081	225	38354	9.60	ug/L		99
110) Naphthalene	11.152	128	427113	10.30	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	112225	9.19	ug/L		99
112) 2-Methylnaphthalene	11.783	142	216787	11.17	ug/L		99
113) 1-Methylnaphthalene	11.897	142	206205	10.80	ug/L		97
115) 2-Propanone	2.234	43	53777m	7.60	ug/L		
116) Acetic Ether	4.011	43	132948	6.61	ug/L	#	98
117) Isopropyl Acetate	5.343	61	59190	7.97	ug/L		96
118) Amyl Acetate	9.225	43	171320	7.97	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341042	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	514805	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	466588	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	235133	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	104617	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181633	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.164	65	172998	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	604432	20.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.70%				
85) Bromofluorobenzene	9.433	95	224637	21.26	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	264461	32.36	ug/L		98
3) Chloromethane	1.282	50	431373	27.34	ug/L		98
4) Vinyl chloride	1.353	62	333899	30.23	ug/L		96
5) Bromomethane	1.568	96	107875	13.04	ug/L		97
6) Chloroethane	1.640	64	182788m	25.43	ug/L		
7) Trichlorofluoromethane	1.819	101	349400	31.22	ug/L		99
8) Ethyl ether	2.019	59	260201	38.27	ug/L		99
9) Acrolein	2.127	56	256116	302.57	ug/L		100
10) 1,1-Dichloroethene	2.199	61	396546	42.55	ug/L		94
11) 1,1,2-Trichlorotrifluo...	2.206	151	201533	38.49	ug/L		99
12) Methyl iodide	2.327	142	201505m	26.45	ug/L		
13) Acetone	2.234	43	163480	29.39	ug/L		100
14) Chloroprene	3.373	53	409693	40.19	ug/L		99
15) Carbon disulfide	2.385	76	852539	43.10	ug/L		98
16) Allyl chloride	2.499	41	457352	37.52	ug/L		96
17) Methyl acetate	2.485	43	418992	29.94	ug/L		98
18) Acetonitrile	2.499	41	457352	37.52	ug/L	#	98
19) Methylene chloride	2.607	49	409920	34.78	ug/L		97
20) trans-1,2-Dichloroethene	2.857	61	436320	41.70	ug/L		98
21) t-Butanol	2.721	59	469103m	167.51	ug/L		
22) Acrylonitrile	2.815	53	205871	36.74	ug/L		99
23) Methyl tert-butyl ether	2.850	73	883042	36.10	ug/L		99
24) Hexane	3.130	57	297389	41.05	ug/L		97
25) 1,1-Dichloroethane	3.294	63	595288	42.71	ug/L		98
26) Diisopropyl ether	3.330	45	900154	33.46	ug/L	#	23
27) Vinyl acetate	3.294	86	51291	56.67	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	881030	35.70	ug/L		100
29) 2,2-Dichloropropane	3.961	77	411371	44.80	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	518043	38.83	ug/L		98
31) 2-Butanone	3.946	43	285553	33.22	ug/L		98
32) Ethyl Acetate	4.011	43	540376	33.11	ug/L	#	98
33) Methyl acrylate	4.061	55	515083	42.24	ug/L		99
34) Propionitrile	4.727	54	28092	34.67	ug/L	#	81

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	272530	38.82	ug/L		98
36) Tetrahydrofuran	4.283	42	194100	38.04	ug/L		97
37) Methacrylonitrile	4.218	41	317453	37.80	ug/L		96
38) Chloroform	4.419	83	595101	39.59	ug/L		100
39) Cyclohexane	4.734	56	445159	32.18	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	468714	41.16	ug/L		97
43) Carbon tetrachloride	4.863	117	418577	39.88	ug/L		98
44) 1,1-Dichloropropene	4.877	75	412685	39.18	ug/L		99
46) 1,2-Dichloroethane	5.293	62	419522	37.67	ug/L		98
47) Benzene	5.178	78	1302054	39.34	ug/L		100
48) Tertiaryamylmethylether	5.443	73	871552	37.12	ug/L		99
49) Isobutyl Alcohol	5.443	43	260509	33.34	ug/L		99
50) Heptane	5.759	43	251230	39.86	ug/L		96
51) 1,4-Dioxane	6.826	88	730024	3511.30	ug/L		90
52) Methylcyclohexane	6.654	83	418506	39.01	ug/L		96
53) n-Butanol	6.346	56	257409	450.88	ug/L	#	94
54) Trichloroethene	6.353	130	354970	34.87	ug/L		99
55) 1,2-Dichloropropane	6.704	63	355458	38.86	ug/L		98
56) Dibromomethane	6.797	93	268426	40.47	ug/L		97
57) Methyl methacrylate	6.819	41	394600	37.45	ug/L		97
58) Bromodichloromethane	7.019	83	480420	43.55	ug/L		95
59) 2-Chloroethyl vinyl ether	7.334	43	164604	45.99	ug/L		93
60) 2-Nitropropane	7.241	43	164250	43.06	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	573516	45.27	ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	546854	34.69	ug/L		98
65) Toluene	7.728	91	1342864	40.90	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	518884	43.16	ug/L		99
67) Chloropicrin	7.943	117	35830	No Calib		#	
68) Ethyl methacrylate	8.001	69	541732	41.28	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	351563	38.72	ug/L		99
70) Tetrachloroethene	8.129	166	339156	37.31	ug/L		98
71) 1,3-Dichloropropane	8.201	76	536613	39.65	ug/L		97
72) 2-Hexanone	8.251	43	444478	36.19	ug/L		96
73) Chlorodibromomethane	8.352	129	431353	43.78	ug/L		99
74) Butyl acetate	8.344	43	729024	35.85	ug/L		98
75) 1,2-Dibromoethane	8.423	107	400863	39.81	ug/L		99
76) Chlorobenzene	8.753	112	892014	40.02	ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	331852	40.52	ug/L		98
78) Ethylbenzene	8.817	91	1442302	40.52	ug/L		99
79) m/p-Xylene	8.896	91	2198523	84.09	ug/L		99
80) Styrene	9.139	104	928801	41.31	ug/L		97
81) o-Xylene	9.125	91	1149546	40.65	ug/L		98
82) Cyclohexanone	9.390	55	188808	137.95	ug/L		96
83) Bromoform	9.247	173	335758	41.51	ug/L		98
84) Isopropylbenzene	9.333	105	1339417	41.50	ug/L		100
86) Bromobenzene	9.512	77	856759	39.48	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	604051	41.03	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	154912	36.31	ug/L		96
89) trans-1,4-Dichloro-2-b...	9.526	53	152996	40.37	ug/L		93
90) n-Propylbenzene	9.562	91	1581314	40.53	ug/L		99
91) 2-Chlorotoluene	9.612	91	941697	38.99	ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
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Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1088923	40.63	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1074792	41.72	ug/L		99
94) tert-Butylbenzene	9.827	91	615392	39.91	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	1135887	40.42	ug/L		98
96) sec-Butylbenzene	9.942	105	1272781	40.84	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	692240	39.53	ug/L		98
99) p-Isopropyltoluene	10.013	119	1093083	43.68	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	691504	38.92	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	1156396	40.94	ug/L		99
102) Benzyl chloride	10.114	91	903207	68.73	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	683110	39.49	ug/L		99
104) n-Butylbenzene	10.221	91	982336	43.64	ug/L		100
105) Hexachloroethane	10.379	117	238723	42.29	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	179820	42.93	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	462739	39.22	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	454723	37.62	ug/L		99
109) Hexachlorobutadiene	11.081	225	151025	38.71	ug/L		99
110) Naphthalene	11.152	128	1737952	42.90	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	474629	39.80	ug/L		99
112) 2-Methylnaphthalene	11.783	142	909577	48.01	ug/L		99
113) 1-Methylnaphthalene	11.897	142	862197	46.25	ug/L		97
115) 2-Propanone	2.234	43	175322m	26.51	ug/L		
116) Acetic Ether	4.011	43	540376	27.41	ug/L	#	98
117) Isopropyl Acetate	5.343	61	230031	31.63	ug/L		97
118) Amyl Acetate	9.225	43	661940	31.44	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
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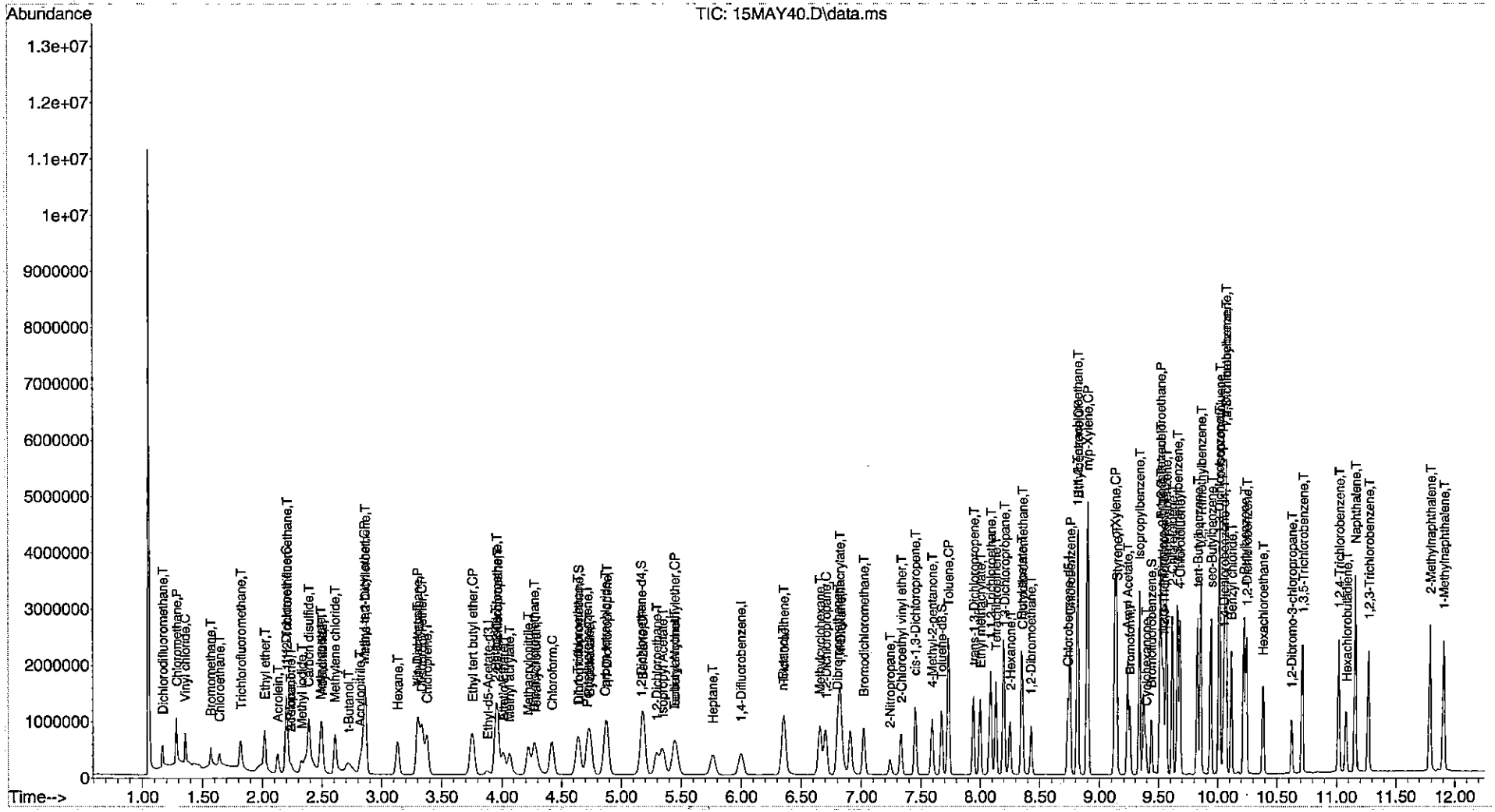
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	352748	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	538528	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	464547	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	247861	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	111377	20.00	ug/L		#-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	184248	19.73	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%				
45) 1,2-Dichloroethane-d4	5.164	65	177505	19.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.05%				
64) Toluene-d8	7.671	98	622745	21.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.25%				
85) Bromofluorobenzene	9.433	95	223431	21.24	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	498675	59.00	ug/L		99
3) Chloromethane	1.282	50	785848	48.16	ug/L		97
4) Vinyl chloride	1.353	62	609541	53.36	ug/L		97
5) Bromomethane	1.568	96	183748	22.43	ug/L		100
6) Chloroethane	1.640	64	288871m	41.81	ug/L		
7) Trichlorofluoromethane	1.812	101	675653m	58.37	ug/L		
8) Ethyl ether	2.019	59	455604	64.79	ug/L		99
9) Acrolein	2.127	56	479389	508.14	ug/L		100
10) 1,1-Dichloroethene	2.199	61	699504	72.56	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.199	151	367043	67.78	ug/L		97
12) Methyl iodide	2.320	142	347481m	49.31	ug/L		
13) Acetone	2.234	43	287382	50.41	ug/L		97
14) Chloroprene	3.373	53	727249	68.97	ug/L		99
15) Carbon disulfide	2.385	76	1526157	74.60	ug/L		100
16) Allyl chloride	2.499	41	793388	62.93	ug/L		95
17) Methyl acetate	2.485	43	691136	47.75	ug/L		97
18) Acetonitrile	2.499	41	793388	62.93	ug/L	#	98
19) Methylene chloride	2.607	49	722014m	59.23	ug/L		
20) trans-1,2-Dichloroethene	2.857	61	771709	71.31	ug/L		98
21) t-Butanol	2.729	59	797655	275.38	ug/L		96
22) Acrylonitrile	2.815	53	365170	62.93	ug/L		97
23) Methyl tert-butyl ether	2.850	73	1516761	59.96	ug/L		98
24) Hexane	3.130	57	550302	73.43	ug/L		95
25) 1,1-Dichloroethane	3.294	63	1046582	72.60	ug/L		98
26) Diisopropyl ether	3.330	45	1537078	55.23	ug/L	#	16
27) Vinyl acetate	3.294	86	99780	96.84	ug/L	#	2
28) Ethyl tert butyl ether	3.753	59	1501703	58.82	ug/L		99
29) 2,2-Dichloropropane	3.961	77	734173	77.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	930982	67.47	ug/L		99
31) 2-Butanone	3.946	43	490334	55.36	ug/L		98
32) Ethyl Acetate	4.011	43	954504	56.55	ug/L	#	98
33) Methyl acrylate	4.061	55	903784	71.66	ug/L		99
34) Propionitrile	4.741	54	51691	61.68	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	483631	66.60 ug/L		97
36) Tetrahydrofuran	4.290	42	348457	66.03 ug/L		97
37) Methacrylonitrile	4.226	41	553120	63.68 ug/L		95
38) Chloroform	4.419	83	1054933	67.85 ug/L		98
39) Cyclohexane	4.734	56	802422	56.08 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	840034	70.52 ug/L		98
43) Carbon tetrachloride	4.863	117	747250	67.84 ug/L		98
44) 1,1-Dichloropropene	4.877	75	723963	65.71 ug/L		98
46) 1,2-Dichloroethane	5.293	62	744154	63.87 ug/L		98
47) Benzene	5.178	78	2270113	65.57 ug/L		99
48) Tertiaryamylmethylether	5.451	73	1478878	60.21 ug/L		98
49) Isobutyl Alcohol	5.451	43	442205	54.10 ug/L		98
50) Heptane	5.759	43	451783	68.53 ug/L		95
51) 1,4-Dioxane	6.826	88	1345358	6185.90 ug/L		91
52) Methylcyclohexane	6.654	83	751822	66.99 ug/L		96
53) n-Butanol	6.346	56	451461	755.94 ug/L	#	95
54) Trichloroethene	6.353	130	625592	58.75 ug/L		99
55) 1,2-Dichloropropane	6.704	63	621073	64.91 ug/L		97
56) Dibromomethane	6.797	93	468488	67.52 ug/L		98
57) Methyl methacrylate	6.819	41	713046	64.69 ug/L		96
58) Bromodichloromethane	7.019	83	845547	73.28 ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	297005	79.32 ug/L		92
60) 2-Nitropropane	7.241	43	295491	74.05 ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1000261	75.48 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	960026	61.16 ug/L		98
65) Toluene	7.728	91	2390402	73.12 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	935489	78.15 ug/L		99
67) Chloropicrin	7.943	117	475300	No Calib	#	
68) Ethyl methacrylate	8.001	69	938963	71.86 ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	616256	68.16 ug/L		99
70) Tetrachloroethene	8.130	166	610385	67.44 ug/L		97
71) 1,3-Dichloropropane	8.201	76	954823	70.86 ug/L		95
72) 2-Hexanone	8.251	43	757709	61.97 ug/L		97
73) Chlorodibromomethane	8.352	129	744243	75.87 ug/L		98
74) Butyl acetate	8.344	43	1237166	61.11 ug/L		97
75) 1,2-Dibromoethane	8.423	107	705715	70.40 ug/L		98
76) Chlorobenzene	8.753	112	1563236	70.45 ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	599990	73.58 ug/L		97
78) Ethylbenzene	8.817	91	2586877	72.99 ug/L		98
79) m/p-Xylene	8.896	91	3939460	151.35 ug/L		98
80) Styrene	9.139	104	1627340	72.69 ug/L		97
81) o-Xylene	9.125	91	2038599	72.41 ug/L		98
82) Cyclohexanone	9.390	55	305153	223.93 ug/L		97
83) Bromoform	9.247	173	598318	74.30 ug/L		97
84) Isopropylbenzene	9.333	105	2378514	74.01 ug/L		100
86) Bromobenzene	9.512	77	1531131	70.86 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	1096044	74.77 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	266704	62.78 ug/L		95
89) trans-1,4-Dichloro-2-b...	9.526	53	274997	72.87 ug/L		94
90) n-Propylbenzene	9.562	91	2847403	73.31 ug/L		99
91) 2-Chlorotoluene	9.612	91	1684565	70.05 ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

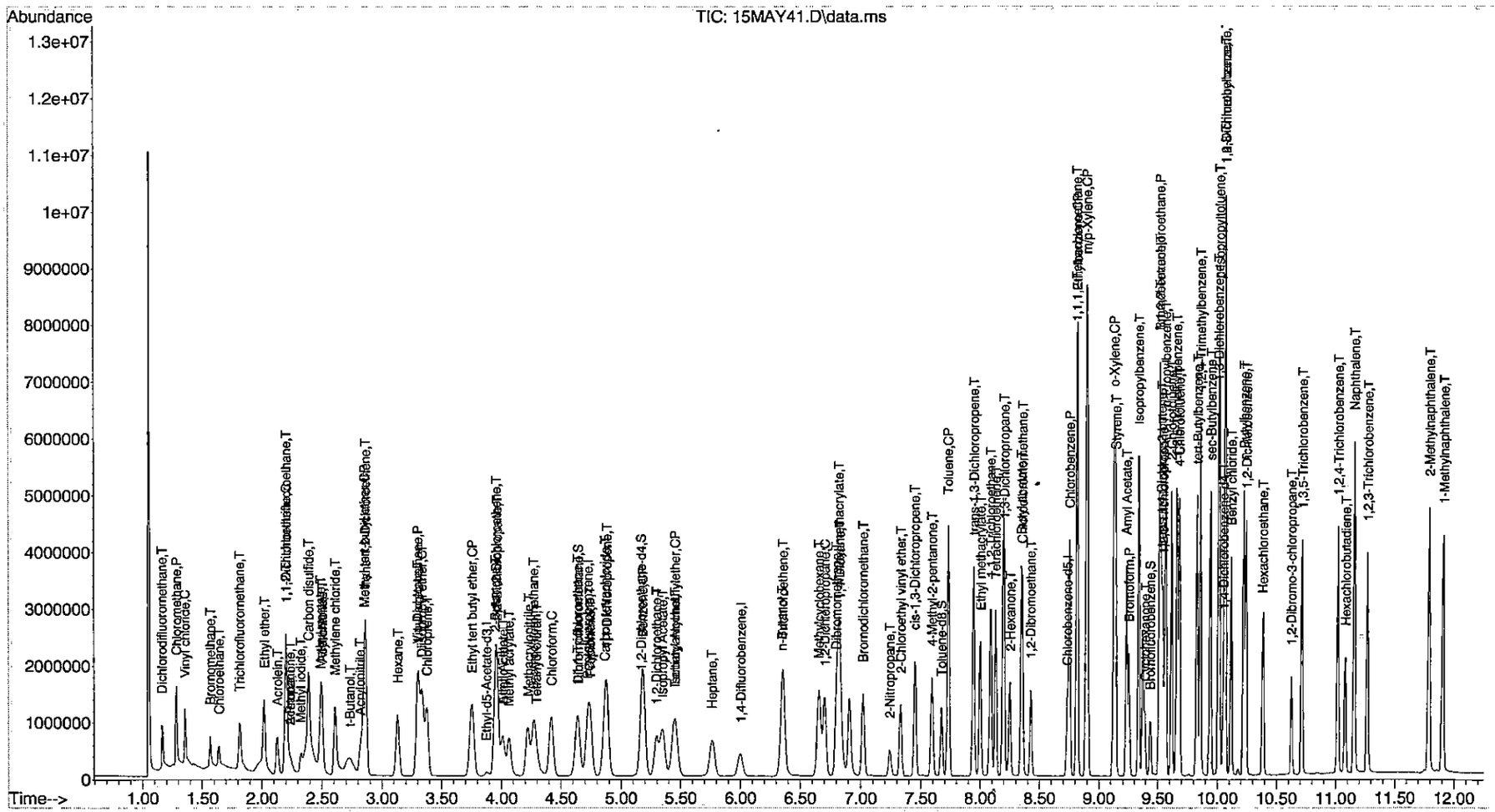
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1928540	72.28	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1908207	74.39	ug/L		99
94) tert-Butylbenzene	9.827	91	1094943	71.33	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2038547	72.85	ug/L		96
96) sec-Butylbenzene	9.942	105	2304509	74.26	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1235868	66.96	ug/L		98
99) p-Isopropyltoluene	10.013	119	1957985	74.23	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1257959	67.16	ug/L		97
101) 1,2,3-Trimethylbenzene	10.064	105	2075226	69.70	ug/L		99
102) Benzyl chloride	10.114	91	1588701	114.69	ug/L		100
103) 1,2-Dichlorobenzene	10.243	146	1222973	67.07	ug/L		99
104) n-Butylbenzene	10.221	91	1714310	72.25	ug/L		99
105) Hexachloroethane	10.379	117	427660	71.86	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	327705	74.21	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	828033	66.58	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	846645	66.44	ug/L		100
109) Hexachlorobutadiene	11.081	225	275124	66.90	ug/L		98
110) Naphthalene	11.152	128	3036904	71.11	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	828579	65.92	ug/L		99
112) 2-Methylnaphthalene	11.783	142	1667628	83.50	ug/L		99
113) 1-Methylnaphthalene	11.904	142	1583542	80.59	ug/L		97
115) 2-Propanone	2.234	43	287382	41.10	ug/L		95
116) Acetic Ether	4.011	43	950130	45.28	ug/L	#	99
117) Isopropyl Acetate	5.343	61	396213	51.17	ug/L		99
118) Amyl Acetate	9.225	43	1169241	52.17	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	355168	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	528490	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	478748	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	251853	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109405	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182207	19.88	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.40%				
45) 1,2-Dichloroethane-d4	5.164	65	180608	20.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.70%				
64) Toluene-d8	7.671	98	626338	20.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.75%				
85) Bromofluorobenzene	9.433	95	227873	21.02	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	721976	84.84	ug/L		100
3) Chloromethane	1.282	50	1089610	66.32	ug/L		98
4) Vinyl chloride	1.353	62	851896	74.07	ug/L		99
5) Bromomethane	1.568	96	270530	34.29	ug/L		98
6) Chloroethane	1.640	64	402774m	60.25	ug/L		
7) Trichlorofluoromethane	1.819	101	909320m	78.02	ug/L		
8) Ethyl ether	2.019	59	630493	89.05	ug/L		100
9) Acrolein	2.127	56	733803	712.86	ug/L		100
10) 1,1-Dichloroethene	2.199	61	972841	100.23	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	522594	95.84	ug/L		98
12) Methyl iodide	2.328	142	503062	90.98	ug/L		99
13) Acetone	2.234	43	413119	72.27	ug/L		97
14) Chloroprene	3.373	53	1027463	96.78	ug/L		100
15) Carbon disulfide	2.385	76	2162401	104.98	ug/L		100
16) Allyl chloride	2.499	41	1096821	86.40	ug/L		92
17) Methyl acetate	2.485	43	997353	68.44	ug/L		98
18) Acetonitrile	2.499	41	1096821	86.40	ug/L	#	97
19) Methylene chloride	2.607	49	997313	81.26	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	1080017	99.12	ug/L		98
21) t-Butanol	2.721	59	1136109	389.56	ug/L		97
22) Acrylonitrile	2.815	53	512540	87.69	ug/L		99
23) Methyl tert-butyl ether	2.850	73	2151294	84.46	ug/L		98
24) Hexane	3.130	57	783747	103.87	ug/L		95
25) 1,1-Dichloroethane	3.295	63	1438757	99.12	ug/L		98
26) Diisopropyl ether	3.330	45	2173870	77.58	ug/L	#	16
27) Vinyl acetate	3.302	86	139251	126.16	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	2161889	84.11	ug/L		100
29) 2,2-Dichloropropane	3.961	77	1015750	106.23	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	1288532	92.75	ug/L		99
31) 2-Butanone	3.946	43	703995	79.07	ug/L		99
32) Ethyl Acetate	4.011	43	1364082	80.26	ug/L	#	99
33) Methyl acrylate	4.061	55	1282725	101.01	ug/L		99
34) Propionitrile	4.741	54	73671	87.31	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	674571	92.26	ug/L		99
36) Tetrahydrofuran	4.290	42	492252	92.64	ug/L		98
37) Methacrylonitrile	4.219	41	792631	90.63	ug/L		97
38) Chloroform	4.419	83	1472361	94.05	ug/L		99
39) Cyclohexane	4.734	56	1127861	78.29	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	1165891	99.74	ug/L		98
43) Carbon tetrachloride	4.863	117	1067303	98.60	ug/L		98
44) 1,1-Dichloropropene	4.878	75	1048902	97.01	ug/L		98
46) 1,2-Dichloroethane	5.293	62	1054076	92.20	ug/L		98
47) Benzene	5.186	78	3195853	94.06	ug/L		99
48) Tertiaryamylmethylether	5.451	73	2119484	87.94	ug/L		98
49) Isobutyl Alcohol	5.443	43	630977	78.66	ug/L		99
50) Heptane	5.766	43	652580	100.87	ug/L		96
51) 1,4-Dioxane	6.826	88	1903822	8919.96	ug/L		90
52) Methylcyclohexane	6.654	83	1090186	98.98	ug/L		97
53) n-Butanol	6.346	56	667985	1139.74	ug/L	#	95
54) Trichloroethene	6.353	130	874547	83.68	ug/L		99
55) 1,2-Dichloropropane	6.704	63	869642	92.62	ug/L		98
56) Dibromomethane	6.797	93	655158	96.22	ug/L		99
57) Methyl methacrylate	6.819	41	1002306	92.67	ug/L		96
58) Bromodichloromethane	7.019	83	1199177	105.90	ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	405960	110.48	ug/L		90
60) 2-Nitropropane	7.241	43	422932	108.00	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1441089	110.81	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	1359185	84.02	ug/L		98
65) Toluene	7.728	91	3273819	97.17	ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	1340493	108.66	ug/L		97
67) Chloropicrin	7.943	117	1494106	No Calib		#	
68) Ethyl methacrylate	8.001	69	1350433	100.28	ug/L		98
69) 1,1,2-Trichloroethane	8.087	97	884106	94.89	ug/L		98
70) Tetrachloroethene	8.130	166	863259	92.55	ug/L		97
71) 1,3-Dichloropropane	8.201	76	1322049	95.20	ug/L		96
72) 2-Hexanone	8.251	43	1079952	85.71	ug/L		97
73) Chlorodibromomethane	8.352	129	1077209	106.56	ug/L		99
74) Butyl acetate	8.344	43	1776725	85.16	ug/L		97
75) 1,2-Dibromoethane	8.423	107	993619	96.18	ug/L		99
76) Chlorobenzene	8.753	112	2242966	98.09	ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	840333	100.00	ug/L		98
78) Ethylbenzene	8.817	91	3631544	99.43	ug/L		98
79) m/p-Xylene	8.896	91	5448438	203.11	ug/L		99
80) Styrene	9.140	104	2328309	100.92	ug/L		98
81) o-Xylene	9.125	91	2868982	98.88	ug/L		97
82) Cyclohexanone	9.390	55	440267	313.50	ug/L		96
83) Bromoform	9.247	173	863611	104.06	ug/L		99
84) Isopropylbenzene	9.333	105	3306667	99.84	ug/L		99
86) Bromobenzene	9.512	77	2153382	96.70	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	1536663	101.72	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	393600	89.91	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	391280	100.61	ug/L		94
90) n-Propylbenzene	9.562	91	4013237	100.26	ug/L		98
91) 2-Chlorotoluene	9.612	91	2350123	94.82	ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

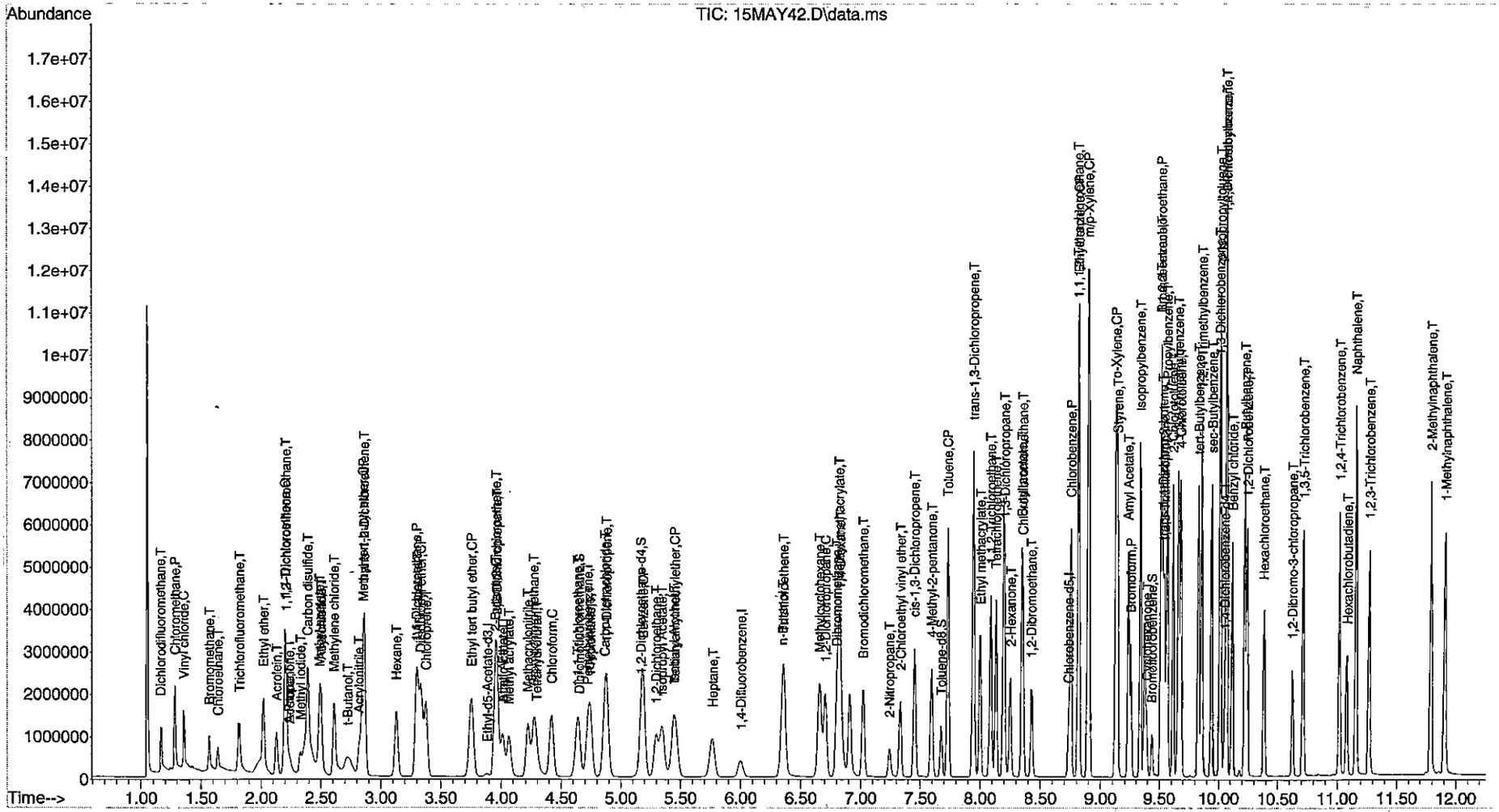
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	2756438	100.24	ug/L		97
93) 1,3,5-Trimethylbenzene	9.655	105	2693676	101.89	ug/L		99
94) tert-Butylbenzene	9.827	91	1545332	97.68	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2857345	99.09	ug/L		96
96) sec-Butylbenzene	9.942	105	3246007	101.50	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1741947	92.88	ug/L		99
99) p-Isopropyltoluene	10.013	119	2757336	102.88	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1765567	92.77	ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	2878995	95.17	ug/L		98
102) Benzyl chloride	10.114	91	2268227	161.15	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	1684083	90.89	ug/L		99
104) n-Butylbenzene	10.221	91	2445950	101.45	ug/L		99
105) Hexachloroethane	10.379	117	616797	102.00	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	470115	104.78	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	1160559	91.84	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	1175905	90.82	ug/L		99
109) Hexachlorobutadiene	11.081	225	400864	95.93	ug/L		100
110) Naphthalene	11.152	128	4510372	103.94	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	1154927	90.43	ug/L		98
112) 2-Methylnaphthalene	11.783	142	2431169	119.80	ug/L		100
113) 1-Methylnaphthalene	11.904	142	2258311	113.11	ug/L		98
115) 2-Propanone	2.234	43	413119	60.39	ug/L		96
116) Acetic Ether	4.011	43	1358808	65.92	ug/L	#	99
117) Isopropyl Acetate	5.343	61	573535	75.41	ug/L		99
118) Amyl Acetate	9.226	43	1677366	76.19	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	349576	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	520240	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	480396	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	243335	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	106735	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	184303	20.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.10%				
45) 1,2-Dichloroethane-d4	5.164	65	182611	20.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.95%				
64) Toluene-d8	7.671	98	622933	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%				
85) Bromofluorobenzene	9.433	95	219771	19.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	193245m	25.80	ug/L		
3) Chloromethane	1.281	50	362841	30.64	ug/L		99
4) Vinyl chloride	1.353	62	297030	32.01	ug/L		97
5) Bromomethane	1.568	96	106474	36.75	ug/L		95
6) Chloroethane	1.640	64	145221	30.07	ug/L		94
7) Trichlorofluoromethane	1.819	101	312759	32.43	ug/L		97
8) Ethyl ether	2.019	59	249960	35.08	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	396976	37.72	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	236303	44.95	ug/L		99
13) Acetone	2.234	43	178045	37.25	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	864685	37.90	ug/L		100
16) Allyl chloride	2.499	41	366268	29.87	ug/L		88
17) Methyl acetate	2.485	43	15854	1.48	ug/L	#	11
18) Acetonitrile	2.499	41	366268	30.03	ug/L	#	90
19) Methylene chloride	2.607	49	389288	34.91	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	434036	37.90	ug/L		99
21) t-Butanol	2.728	59	543389	225.79	ug/L		99
22) Acrylonitrile	2.814	53	196572	37.05	ug/L		100
23) Methyl tert-butyl ether	2.850	73	964202	44.03	ug/L		100
24) Hexane	3.122	57	5424	0.61	ug/L	#	45
25) 1,1-Dichloroethane	3.294	63	582582	37.23	ug/L		100
26) Diisopropyl ether	3.330	45	961172	41.66	ug/L	#	50
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	944303	41.43	ug/L		99
29) 2,2-Dichloropropane	3.960	77	396862	35.61	ug/L		99
30) cis-1,2-Dichloroethene	3.953	61	528908	38.78	ug/L		99
31) 2-Butanone	3.946	43	295041	35.97	ug/L		98
32) Ethyl Acetate	4.011	43	517606	38.41	ug/L	#	100
33) Methyl acrylate	4.068	55	496531	38.30	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.268	49	262487	36.54 ug/L		98
36) Tetrahydrofuran	4.290	42	188428	38.41 ug/L		96
37) Methacrylonitrile	4.218	41	315369	41.07 ug/L		99
38) Chloroform	4.419	83	576850	36.37 ug/L		98
39) Cyclohexane	4.713	56	6230	0.50 ug/L	#	1
41) 1,1,1-Trichloroethane	4.634	97	469321	38.87 ug/L		99
43) Carbon tetrachloride	4.863	117	394649	38.07 ug/L		99
44) 1,1-Dichloropropene	4.884	75	395420	34.81 ug/L		99
46) 1,2-Dichloroethane	5.293	62	416148	36.02 ug/L		98
47) Benzene	5.178	78	1263309	38.07 ug/L		100
48) Tertiaryamylmethylether	5.450	73	957723	44.45 ug/L		99
49) Isobutyl Alcohol	5.443	43	283690	40.52 ug/L		97
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	6.740	88	16952	91.98 ug/L	#	82
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	6.353	130	342718	36.70 ug/L		97
55) 1,2-Dichloropropane	6.704	63	354362	37.33 ug/L		96
56) Dibromomethane	6.797	93	258114	37.23 ug/L		96
57) Methyl methacrylate	6.826	41	378838	35.46 ug/L		97
58) Bromodichloromethane	7.019	83	470946	39.04 ug/L		100
59) 2-Chloroethyl vinyl ether	7.241	43	114870	26.07 ug/L	#	1
60) 2-Nitropropane	7.241	43	165616	35.75 ug/L		100
61) cis-1,3-Dichloropropene	7.449	75	562862	39.25 ug/L		100
63) 4-Methyl-2-pentanone	7.599	43	911834	61.07 ug/L		78
65) Toluene	7.728	91	1330941	38.51 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	511613	36.92 ug/L		100
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	8.000	69	517571	35.01 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	385963	37.85 ug/L		93
70) Tetrachloroethene	8.129	166	354756	39.32 ug/L		98
71) 1,3-Dichloropropane	8.201	76	537324	37.49 ug/L		95
72) 2-Hexanone	8.251	43	455797	38.85 ug/L		98
73) Chlorodibromomethane	8.351	129	409184	37.17 ug/L		99
74) Butyl acetate	8.344	43	676110	34.57 ug/L		99
75) 1,2-Dibromoethane	8.423	107	402182	38.26 ug/L		99
76) Chlorobenzene	8.753	112	870424	37.33 ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.810	131	340613	37.83 ug/L		99
78) Ethylbenzene	8.817	91	1432455	38.53 ug/L		100
79) m/p-Xylene	8.896	91	2131692	75.64 ug/L		100
80) Styrene	9.139	104	937450	39.03 ug/L		99
81) o-Xylene	9.125	91	1124386	37.60 ug/L		100
82) Cyclohexanone	9.390	55	12334	Below Cal	#	22
83) Bromoform	9.247	173	331157	39.85 ug/L		99
84) Isopropylbenzene	9.333	105	1305283	37.10 ug/L		99
86) Bromobenzene	9.512	77	828353	37.57 ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	648517	41.06 ug/L		98
88) 1,2,3-Trichloropropane	9.540	110	155393	35.86 ug/L		93
89) trans-1,4-Dichloro-2-b...	9.526	53	140283	32.15 ug/L		96
90) n-Propylbenzene	9.562	91	1523894	37.59 ug/L		99
91) 2-Chlorotoluene	9.612	91	949275	39.09 ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

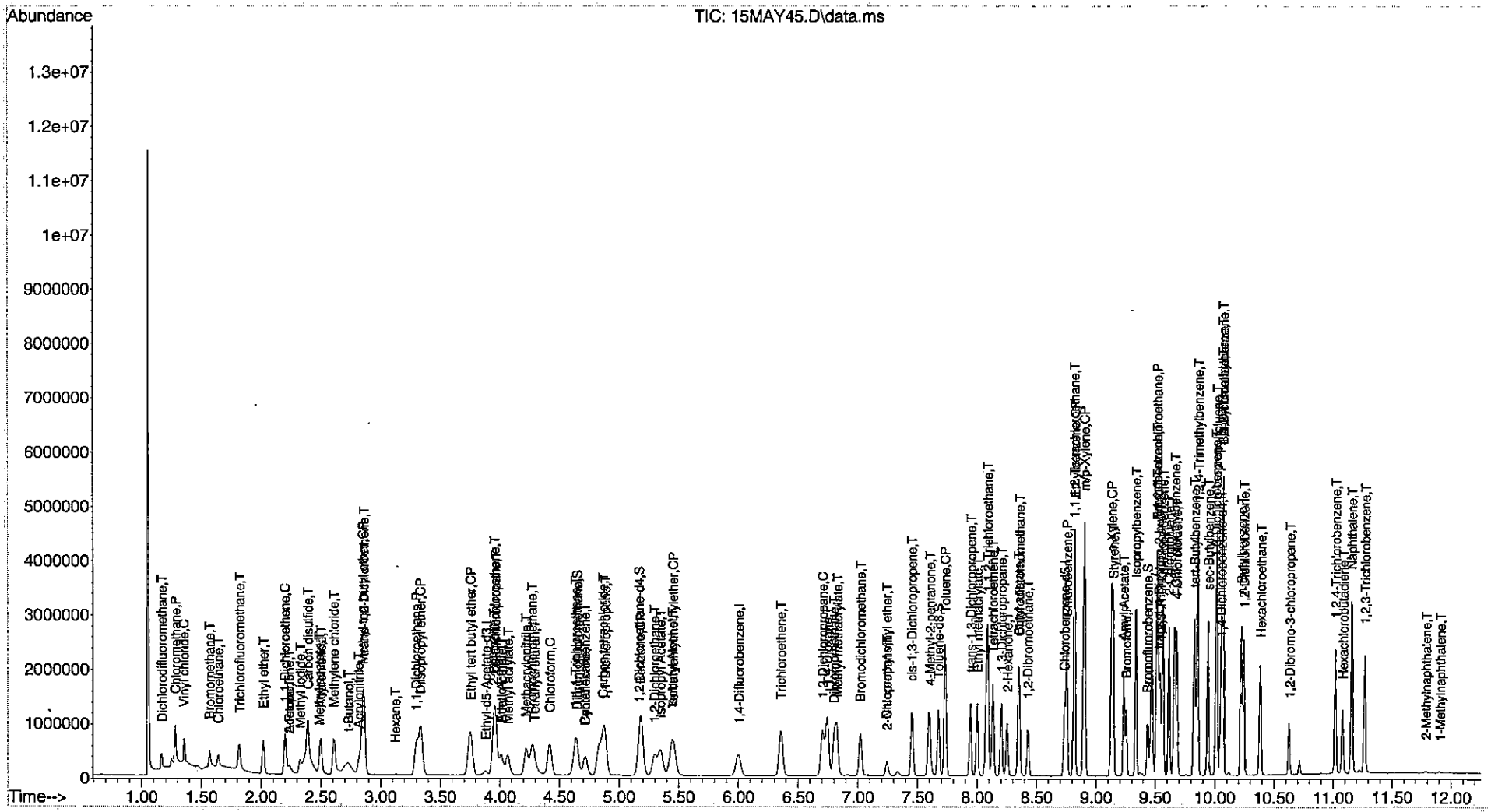
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1082870	38.09	ug/L		100
93) 1,3,5-Trimethylbenzene	9.662	105	1058151	38.01	ug/L		99
94) tert-Butylbenzene	9.827	91	597735	35.93	ug/L		94
95) 1,2,4-Trimethylbenzene	9.856	105	1073925	36.21	ug/L		100
96) sec-Butylbenzene	9.942	105	1244710	37.10	ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	666654	38.70	ug/L		99
99) p-Isopropyltoluene	10.013	119	1057357	38.14	ug/L		100
100) 1,4-Dichlorobenzene	10.063	146	677975	38.59	ug/L		99
101) 1,2,3-Trimethylbenzene	10.063	105	1126981	38.72	ug/L		99
102) Benzyl chloride	10.063	91	105157	4.57	ug/L	#	38
103) 1,2-Dichlorobenzene	10.242	146	674350	39.78	ug/L		100
104) n-Butylbenzene	10.221	91	955877	38.05	ug/L		100
105) Hexachloroethane	10.386	117	225440	36.14	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.629	157	185152	38.04	ug/L		99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	448126	37.83	ug/L		99
109) Hexachlorobutadiene	11.081	225	151652	38.31	ug/L		99
110) Naphthalene	11.152	128	1728966	39.78	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	449389	39.00	ug/L		97
112) 2-Methylnaphthalene	11.782	142	14019	0.63	ug/L		95
113) 1-Methylnaphthalene	11.904	142	8536	0.41	ug/L		82
115) 2-Propanone	2.234	43	178045	37.20	ug/L		95
116) Acetic Ether	4.011	43	517606	38.14	ug/L	#	99
117) Isopropyl Acetate	5.343	61	227826	37.29	ug/L		99
118) Amyl Acetate	9.225	43	636113	36.41	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
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Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	40.000	25.801	35.5#	73	0.00
3	P	Chloromethane	40.000	30.638	23.4#	84	0.00
4	C	Vinyl chloride	40.000	32.007	20.0	89	0.00
5	T	Bromomethane	40.000	36.754	8.1	99	0.00
6	T	Chloroethane	40.000	30.068	24.8#	79	0.00
7	T	Trichlorofluoromethane	40.000	32.431	18.9	90	0.00
8	T	Ethyl ether	40.000	35.080	12.3	96	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.13#
10	C	1,1-Dichloroethene	40.000	37.717	5.7	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	44.950	-12.4	117	0.00
13	T	Acetone	40.000	37.253	6.9	109	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	37.904	5.2	101	0.00
16	T	Allyl chloride	40.000	29.870	25.3#	80	0.00
17	T	Methyl acetate	40.000	1.483	96.3#	4	0.00
18	T	Acetonitrile	40.000	30.033	24.9#	80	0.00
19	T	Methylene chloride	40.000	34.911	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	40.000	37.903	5.2	99	0.00
21	T	t-Butanol	200.000	225.792	-12.9	116	0.00
22	T	Acrylonitrile	40.000	37.054	7.4	95	0.00
23	CP	Methyl tert-butyl ether	40.000	44.026	-10.1	109	0.00
24	T	Hexane	40.000	0.612	98.5#	2	0.00
25	P	1,1-Dichloroethane	40.000	37.235	6.9	98	0.00
26	CP	Diisopropyl ether	40.000	41.662	-4.2	107	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	41.433	-3.6	107	0.00
29	T	2,2-Dichloropropane	40.000	35.610	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.782	3.0	102	0.00
31	T	2-Butanone	40.000	35.975	10.1	103	0.00
32	T	Ethyl Acetate	40.000	38.411	4.0	96	0.00
33	T	Methyl acrylate	40.000	38.302	4.2	96	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.73#
35	T	Bromochloromethane	40.000	36.536	8.7	96	0.00
36	T	Tetrahydrofuran	40.000	38.405	4.0	97	0.00
37	T	Methacrylonitrile	40.000	41.075	-2.7	99	0.00
38	C	Chloroform	40.000	36.374	9.1	97	0.00
39	T	Cyclohexane	40.000	0.497	98.8#	1	-0.02
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	40.000	38.870	2.8	100	0.00
42	S	Dibromofluoromethane	20.000	20.425	-2.1	101	0.00
43	T	Carbon tetrachloride	40.000	38.074	4.8	94	0.00
44	T	1,1-Dichloropropene	40.000	34.811	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.788	-3.9	106	0.00
46	T	1,2-Dichloroethane	40.000	36.015	10.0	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	38.071	4.8	97	0.00
48	CP	Tertiaryamylmethylether	40.000	44.454	-11.1	110	0.00
49	T	Isobutyl Alcohol	40.000	40.517	-1.3	109	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.76#
51	T	1,4-Dioxane	4000.000	91.984	97.7#	2	-0.09
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.35#
54	T	Trichloroethene	40.000	36.699	8.3	97	0.00
55	C	1,2-Dichloropropane	40.000	37.328	6.7	100	0.00
56	T	Dibromomethane	40.000	37.235	6.9	96	0.00
57	T	Methyl methacrylate	40.000	35.458	11.4	96	0.00
58	T	Bromodichloromethane	40.000	39.041	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	40.000	26.074	34.8#	70	-0.09
60	T	2-Nitropropane	40.000	35.750	10.6	101	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.246	1.9	98	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	40.000	61.067	-52.7#	167	0.00
64	S	Toluene-d8	20.000	19.866	0.7	103	0.00
65	CP	Toluene	40.000	38.509	3.7	99	0.00
66	T	trans-1,3-Dichloropropene	40.000	36.918	7.7	99	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	35.010	12.5	96	0.00
69	T	1,1,2-Trichloroethane	40.000	37.850	5.4	110	0.00
70	T	Tetrachloroethene	40.000	39.321	1.7	105	0.00
71	T	1,3-Dichloropropane	40.000	37.490	6.3	100	0.00
72	T	2-Hexanone	40.000	38.849	2.9	103	0.00
73	T	Chlorodibromomethane	40.000	37.169	7.1	95	0.00
74	T	Butyl acetate	40.000	34.571	13.6	93	0.00
75	T	1,2-Dibromoethane	40.000	38.259	4.4	100	0.00
76	P	Chlorobenzene	40.000	37.329	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	37.829	5.4	103	0.00
78	CP	Ethylbenzene	40.000	38.527	3.7	99	0.00
79	CP	m/p-Xylene	80.000	75.638	5.5	97	0.00
80	T	Styrene	40.000	39.032	2.4	101	0.00
81	CP	o-Xylene	40.000	37.598	6.0	98	0.00
82	T	Cyclohexanone	200.000	-0.548	100.3#	7	0.00
83	P	Bromoform	40.000	39.854	0.4	99	0.00
84	T	Isopropylbenzene	40.000	37.105	7.2	97	0.00
85	S	Bromofluorobenzene	20.000	19.332	3.3	98	0.00
86	T	Bromobenzene	40.000	37.569	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.061	-2.7	107	0.00
88	T	1,2,3-Trichloropropane	40.000	35.858	10.4	100	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	32.146	19.6	92	0.00
90	T	n-Propylbenzene	40.000	37.593	6.0	96	0.00
91	T	2-Chlorotoluene	40.000	39.085	2.3	101	0.00
92	T	4-Chlorotoluene	40.000	38.095	4.8	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	38.006	5.0	98	0.00
94	T	tert-Butylbenzene	40.000	35.934	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	40.000	36.207	9.5	95	0.00
96	T	sec-Butylbenzene	40.000	37.097	7.3	98	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	40.000	38.700	3.2	96	0.00
99	T	p-Isopropyltoluene	40.000	38.137	4.7	97	0.00
100	T	1,4-Dichlorobenzene	40.000	38.586	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	40.000	38.718	3.2	97	0.00
102	T	Benzyl chloride	40.000	4.573	88.6#	12	-0.05
103	T	1,2-Dichlorobenzene	40.000	39.777	0.6	99	0.00
104	T	n-Butylbenzene	40.000	38.047	4.9	97	0.00
105	T	Hexachloroethane	40.000	36.141	9.6	94	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.038	4.9	103	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.72#
108	T	1,2,4-Trichlorobenzene	40.000	37.830	5.4	99	0.00
109	T	Hexachlorobutadiene	40.000	38.311	4.2	100	0.00
110	T	Naphthalene	40.000	39.780	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	40.000	38.999	2.5	95	0.00
112	T	2-Methylnaphthalene	40.000	0.628	98.4#	2	0.00
113	T	1-Methylnaphthalene	40.000	0.410	99.0#	1	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	102	0.00
115	T	2-Propanone	40.000	37.197	7.0	102	0.00
116	T	Acetic Ether	40.000	38.140	4.6	96	0.00
117	T	Isopropyl Acetate	40.000	37.288	6.8	99	0.00
118	T	Amyl Acetate	40.000	36.411	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180515\
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Quant Time: May 16 12:41:32 2018
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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	0.448	0.276	38.4#	73	0.00
3	P	Chloromethane	0.678	0.519	23.5#	84	0.00
4	C	Vinyl chloride	0.531	0.425	20.0	89	0.00
5	T	Bromomethane	0.244	0.152#	37.7#	99	0.00
6	T	Chloroethane	0.384	0.208	45.8#	79	0.00
7	T	Trichlorofluoromethane	0.552	0.447	19.0	90	0.00
8	T	Ethyl ether	0.408	0.358	12.3	96	0.00
9	T	Acrolein	0.108	0.000#	100.0#	0#	-2.13#
10	C	1,1-Dichloroethene	0.602	0.568	5.6	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.433	0.338	21.9#	117	0.00
13	T	Acetone	0.273	0.255	6.6	109	0.00
14	T	Chloroprene	0.609	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.305	1.237	5.2	101	0.00
16	T	Allyl chloride	0.702	0.524	25.4#	80	0.00
17	T	Methyl acetate	0.612	0.023#	96.2#	4#	0.00
18	T	Acetonitrile	0.698	0.524	24.9#	80	0.00
19	T	Methylene chloride	0.638	0.557	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.621	5.2	99	0.00
21	T	t-Butanol	0.138	0.155#	-12.3	116	0.00
22	T	Acrylonitrile	0.304	0.281	7.6	95	0.00
23	CP	Methyl tert-butyl ether	1.253	1.379	-10.1	109	0.00
24	T	Hexane	0.507	0.008#	98.4#	2#	0.00
25	P	1,1-Dichloroethane	0.895	0.833	6.9	98	0.00
26	CP	Diisopropyl ether	1.320	1.375	-4.2	107	0.00
27	T	Vinyl acetate	0.087	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.304	1.351	-3.6	107	0.00
29	T	2,2-Dichloropropane	0.638	0.568	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.756	3.1	102	0.00
31	T	2-Butanone	0.469	0.422	10.0	103	0.00
32	T	Ethyl Acetate	0.771	0.740	4.0	96	0.00
33	T	Methyl acrylate	0.742	0.710	4.3	96	0.00
34	T	Propionitrile	0.049	0.000#	100.0#	0#	-4.73#
35	T	Bromochloromethane	0.411	0.375	8.8	96	0.00
36	T	Tetrahydrofuran	0.281	0.270	3.9	97	0.00
37	T	Methacrylonitrile	0.439	0.451	-2.7	99	0.00
38	C	Chloroform	0.907	0.825	9.0	97	0.00
39	T	Cyclohexane	0.717	0.009#	98.7#	1#	-0.02
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	0.464	0.451	2.8	100	0.00
42	S	Dibromofluoromethane	0.347	0.354	-2.0	101	0.00
43	T	Carbon tetrachloride	0.398	0.379	4.8	94	0.00
44	T	1,1-Dichloropropene	0.437	0.380	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.351	-3.8	106	0.00
46	T	1,2-Dichloroethane	0.444	0.400	9.9	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.214	4.9	97	0.00
48	CP	Tertiaryamylmethylether	0.828	0.920	-11.1	110	0.00
49	T	Isobutyl Alcohol	0.269	0.273	-1.5	109	0.00
50	T	Heptane	0.289	0.000#	100.0#	0#	-5.76#
51	T	1,4-Dioxane	0.007	0.000#	100.0#	2#	-0.09
52	T	Methylcyclohexane	0.438	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.023	0.000#	100.0#	0#	-6.35#
54	T	Trichloroethene	0.359	0.329	8.4	97	0.00
55	C	1,2-Dichloropropane	0.365	0.341	6.6	100	0.00
56	T	Dibromomethane	0.266	0.248	6.8	96	0.00
57	T	Methyl methacrylate	0.411	0.364	11.4	96	0.00
58	T	Bromodichloromethane	0.464	0.453	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.110#	34.9#	70	-0.09
60	T	2-Nitropropane	0.178	0.159#	10.7	101	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.541	1.8	98	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	0.622	0.949	-52.6#	167	0.00
64	S	Toluene-d8	1.305	1.297	0.6	103	0.00
65	CP	Toluene	1.439	1.385	3.8	99	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.532	7.8	99	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.615	0.539	12.4	96	0.00
69	T	1,1,2-Trichloroethane	0.425	0.402	5.4	110	0.00
70	T	Tetrachloroethene	0.376	0.369	1.9	105	0.00
71	T	1,3-Dichloropropane	0.597	0.559	6.4	100	0.00
72	T	2-Hexanone	0.488	0.474	2.9	103	0.00
73	T	Chlorodibromomethane	0.458	0.426	7.0	95	0.00
74	T	Butyl acetate	0.814	0.704	13.5	93	0.00
75	T	1,2-Dibromoethane	0.438	0.419	4.3	100	0.00
76	P	Chlorobenzene	0.971	0.906	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.355	5.3	103	0.00
78	CP	Ethylbenzene	1.548	1.491	3.7	99	0.00
79	CP	m/p-Xylene	1.173	1.109	5.5	97	0.00
80	T	Styrene	1.000	0.976	2.4	101	0.00
81	CP	o-Xylene	1.245	1.170	6.0	98	0.00
82	T	Cyclohexanone	0.073	0.003#	95.9#	7#	0.00
83	P	Bromoform	0.346	0.345	0.3	99	0.00
84	T	Isopropylbenzene	1.465	1.359	7.2	97	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	98	0.00
86	T	Bromobenzene	0.918	0.862	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.675	-2.6	107	0.00
88	T	1,2,3-Trichloropropane	0.180	0.162#	10.0	100	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.146#	19.8	92	0.00
90	T	n-Propylbenzene	1.688	1.586	6.0	96	0.00
91	T	2-Chlorotoluene	1.011	0.988	2.3	101	0.00
92	T	4-Chlorotoluene	1.183	1.127	4.7	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.101	5.0	98	0.00
94	T	tert-Butylbenzene	0.693	0.622	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.118	9.5	95	0.00
96	T	sec-Butylbenzene	1.397	1.296	7.2	98	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	1.416	1.370	3.2	96	0.00
99	T	p-Isopropyltoluene	2.279	2.173	4.7	97	0.00
100	T	1,4-Dichlorobenzene	1.444	1.393	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.316	3.2	97	0.00
102	T	Benzyl chloride	1.890	0.216	88.6#	12#	-0.05
103	T	1,2-Dichlorobenzene	1.393	1.386	0.5	99	0.00
104	T	n-Butylbenzene	2.065	1.964	4.9	97	0.00
105	T	Hexachloroethane	0.513	0.463	9.7	94	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.380	5.0	103	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.000#	100.0#	0#	-10.72#
108	T	1,2,4-Trichlorobenzene	0.974	0.921	5.4	99	0.00
109	T	Hexachlorobutadiene	0.325	0.312	4.0	100	0.00
110	T	Naphthalene	3.572	3.553	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.923	2.5	95	0.00
112	T	2-Methylnaphthalene	1.836	0.029#	98.4#	2#	0.00
113	T	1-Methylnaphthalene	1.711	0.018#	98.9#	1#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	102	0.00
115	T	2-Propanone	0.897	0.834	7.0	102	0.00
116	T	Acetic Ether	2.543	2.425	4.6	96	0.00
117	T	Isopropyl Acetate	1.145	1.067	6.8	99	0.00
118	T	Amyl Acetate	3.274	2.980	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Sequence Name: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info		
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	VBLKS1-
16)	Sample	5	15MAY16	8SGO0502	BLK
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV
27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK

EMR 5/16/18

Sequence Name: C:\msdchem\1\sequence\8V180515.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)	Sample	33	15MAY44	8GI0502	BLK	
45)	Sample	34	15MAY45	8GI0502	ICV	
46)	Sample	35	15MAY46	8GI0502	BLK	
47)	Sample	36	15MAY47	BFB	VBFB8-180515	
48)	Sample	37	15MAY48	8GI0502	VCCV1-180515	
49)	Sample	38	15MAY49	8GI0502	VCCV2-180515	
50)	Sample	39	15MAY50	8GI0502	VLCSW2-180515	
51)	Sample	40	15MAY51	8GI0502	LCS-	
52)	Sample	41	15MAY52	8GI0502	BLK	
53)	Sample	42	15MAY53	8GI0502	VBLKW2-180415	
54)	Sample	43	15MAY54	8GI0502	MBLK-	
55)	Sample	44	15MAY55	8GI0502	1805671-22A	
56)	Sample	45	15MAY56	8GI0502	1805671-11A	
57)	Sample	46	15MAY57	8GI0502	1805671-12A	
58)	Sample	47	15MAY58	8GI0502	1805671-13A	
59)	Sample	48	15MAY59	8GI0502	1805671-14A	
60)	Sample	49	15MAY60	8GI0502	1805671-15A	
61)	Sample	50	15MAY61	8GI0502	1805671-16A	
62)	Sample	51	15MAY62	8GI0502	1805671-17A	
63)	Sample	52	15MAY63	8GI0502	1805671-18A	
64)	Sample	53	15MAY64	8GI0502	1805671-19A	
65)	Sample	54	15MAY65	8GI0502	1805671-20A	
66)	Sample	55	15MAY66	8GI0502	1805671-21A	
67)	Sample	56	15MAY67	8GI0502	1805671-23A	
68)	Sample	57	15MAY68	8GI0502	1805671-24A	
69)	Sample	58	15MAY69	8GI0502	1805671-25A	
70)	Sample	59	15MAY70	8GI0502	1805612-04A DF200	
71)	Sample	60	15MAY71	8GI0502	1805721-02A DF20	
72)	Sample	61	15MAY72	8GI0502	1805722-02A DF20	
73)	Sample	62	15MAY73	8GI0502	1805688-02A DF20	
74)	Sample	63	15MAY74	8GI0502	1805699-01A DF20	
75)	Sample	64	15MAY75	8GI0502	1805699-01A MS DF20	
76)	Sample	65	15MAY76	8GI0502	1805699-01A MSD DF20	
77)	Sample	66	15MAY77	8GI0502	BLK	
78)	Sample	67	15MAY78	8SGO0502	BLK	
79)	Sample	68	15MAY79	8SGO0502	BLK	

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	79	0.00
2	T	Dichlorodifluoromethane	40.000	40.553	-1.4	93	0.00
3	P	Chloromethane	40.000	40.960	-2.4	87	0.00
4	C	Vinyl chloride	40.000	39.835	0.4	86	0.00
5	T	Bromomethane	40.000	58.884	-47.2#	121	0.00
6	T	Chloroethane	40.000	35.252	11.9	70	0.00
7	T	Trichlorofluoromethane	40.000	39.066	2.3	83	0.00
8	T	Ethyl ether	40.000	32.101	19.7	68	0.00
9	T	Acrolein	200.000	252.745	-26.4#	108	0.00
10	C	1,1-Dichloroethene	40.000	35.548	11.1	73	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	36.680	8.3	80	0.00
12	T	Methyl iodide	40.000	37.314	6.7	76	0.00
13	T	Acetone	40.000	35.023	12.4	79	0.00
14	T	Chloroprene	40.000	37.677	5.8	76	0.00
15	T	Carbon disulfide	40.000	35.754	10.6	74	0.00
16	T	Allyl chloride	40.000	36.672	8.3	76	0.00
17	T	Methyl acetate	40.000	37.718	5.7	74	0.00
18	T	Acetonitrile	40.000	36.871	7.8	76	0.00
19	T	Methylene chloride	40.000	35.063	12.3	74	0.00
20	T	trans-1,2-Dichloroethene	40.000	37.866	5.3	77	0.00
21	T	t-Butanol	200.000	192.294	3.9	76	0.00
22	T	Acrylonitrile	40.000	38.798	3.0	77	0.00
23	CP	Methyl tert-butyl ether	40.000	39.055	2.4	75	0.00
24	T	Hexane	40.000	31.176	22.1#	72	0.00
25	P	1,1-Dichloroethane	40.000	37.384	6.5	76	0.00
26	CP	Diisopropyl ether	40.000	38.021	4.9	75	0.00
27	T	Vinyl acetate	40.000	30.047	24.9#	69	0.00
28	CP	Ethyl tert butyl ether	40.000	37.178	7.1	74	0.00
29	T	2,2-Dichloropropane	40.000	34.755	13.1	73	0.00
30	T	cis-1,2-Dichloroethene	40.000	37.838	5.4	77	0.00
31	T	2-Butanone	40.000	32.121	19.7	71	0.00
32	T	Ethyl Acetate	40.000	38.448	3.9	74	0.00
33	T	Methyl acrylate	40.000	39.026	2.4	76	0.00
34	T	Propionitrile	40.000	38.463	3.8	78	0.01
35	T	Bromochloromethane	40.000	37.303	6.7	76	0.00
36	T	Tetrahydrofuran	40.000	38.994	2.5	76	0.00
37	T	Methacrylonitrile	40.000	39.262	1.8	73	0.00
38	C	Chloroform	40.000	39.175	2.1	81	0.00
39	T	Cyclohexane	40.000	34.613	13.5	75	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	78	0.00
41	T	1,1,1-Trichloroethane	40.000	39.342	1.6	78	0.00
42	S	Dibromofluoromethane	20.000	20.007	-0.0	76	0.00
43	T	Carbon tetrachloride	40.000	42.163	-5.4	80	0.00
44	T	1,1-Dichloropropene	40.000	37.166	7.1	79	0.00
45	S	1,2-Dichloroethane-d4	20.000	18.772	6.1	73	0.00
46	T	1,2-Dichloroethane	40.000	36.562	8.6	77	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	39.917	0.2	78	0.00
48	CP	Tertiaryamylmethylether	40.000	40.465	-1.2	77	0.00
49	T	Isobutyl Alcohol	40.000	38.508	3.7	79	0.00
50	T	Heptane	40.000	38.391	4.0	75	0.00
51	T	1,4-Dioxane	4000.000	5525.347	-38.1#	107	0.00
52	T	Methylcyclohexane	40.000	37.174	7.1	78	0.00
53	T	n-Butanol	400.000	405.761	-1.4	73	0.01
54	T	Trichloroethene	40.000	40.770	-1.9	82	0.00
55	C	1,2-Dichloropropane	40.000	37.595	6.0	77	0.00
56	T	Dibromomethane	40.000	40.164	-0.4	80	0.00
57	T	Methyl methacrylate	40.000	36.375	9.1	76	0.00
58	T	Bromodichloromethane	40.000	39.904	0.2	77	0.00
59	T	2-Chloroethyl vinyl ether	40.000	40.445	-1.1	83	0.00
60	T	2-Nitropropane	40.000	30.653	23.4#	66	0.00
61	T	cis-1,3-Dichloropropene	40.000	40.121	-0.3	77	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	79	0.00
63	T	4-Methyl-2-pentanone	40.000	33.516	16.2	70	0.00
64	S	Toluene-d8	20.000	19.213	3.9	76	0.00
65	CP	Toluene	40.000	40.721	-1.8	80	0.00
66	T	trans-1,3-Dichloropropene	40.000	37.418	6.5	76	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	36.462	8.8	76	0.00
69	T	1,1,2-Trichloroethane	40.000	36.821	7.9	81	0.00
70	T	Tetrachloroethene	40.000	44.282	-10.7	90	0.00
71	T	1,3-Dichloropropane	40.000	38.817	3.0	79	0.00
72	T	2-Hexanone	40.000	34.774	13.1	70	0.00
73	T	Chlorodibromomethane	40.000	41.970	-4.9	82	0.00
74	T	Butyl acetate	40.000	34.459	13.9	71	0.00
75	T	1,2-Dibromoethane	40.000	41.217	-3.0	82	0.00
76	P	Chlorobenzene	40.000	40.624	-1.6	81	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	40.638	-1.6	84	0.00
78	CP	Ethylbenzene	40.000	40.455	-1.1	80	0.00
79	CP	m/p-Xylene	80.000	81.559	-1.9	80	0.00
80	T	Styrene	40.000	41.912	-4.8	83	0.00
81	CP	o-Xylene	40.000	40.509	-1.3	80	0.00
82	T	Cyclohexanone	200.000	155.927	22.0#	60	0.00
83	P	Bromoform	40.000	42.911	-7.3	81	0.00
84	T	Isopropylbenzene	40.000	40.141	-0.4	80	0.00
85	S	Bromofluorobenzene	20.000	19.324	3.4	75	0.00
86	T	Bromobenzene	40.000	39.999	0.0	79	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.052	-2.6	82	0.00
88	T	1,2,3-Trichloropropane	40.000	37.383	6.5	80	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	34.715	13.2	76	0.00
90	T	n-Propylbenzene	40.000	41.247	-3.1	81	0.00
91	T	2-Chlorotoluene	40.000	41.752	-4.4	82	0.00
92	T	4-Chlorotoluene	40.000	40.103	-0.3	80	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	40.567	-1.4	80	0.00
94	T	tert-Butylbenzene	40.000	38.412	4.0	79	0.00
95	T	1,2,4-Trimethylbenzene	40.000	40.899	-2.2	81	0.00
96	T	sec-Butylbenzene	40.000	41.295	-3.2	83	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	86	0.00
98	T	1,3-Dichlorobenzene	40.000	42.732	-6.8	88	0.00
99	T	p-Isopropyltoluene	40.000	39.266	1.8	83	0.00
100	T	1,4-Dichlorobenzene	40.000	41.931	-4.8	88	0.00
101	T	1,2,3-Trimethylbenzene	40.000	40.419	-1.0	84	0.00
102	T	Benzyl chloride	40.000	35.741	10.6	75	0.00
103	T	1,2-Dichlorobenzene	40.000	41.966	-4.9	86	0.00
104	T	n-Butylbenzene	40.000	38.494	3.8	82	0.00
105	T	Hexachloroethane	40.000	36.588	8.5	79	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.363	4.1	86	0.00
107	T	1,3,5-Trichlorobenzene	40.000	43.237	-8.1	90	0.00
108	T	1,2,4-Trichlorobenzene	40.000	41.792	-4.5	90	0.00
109	T	Hexachlorobutadiene	40.000	42.564	-6.4	92	0.00
110	T	Naphthalene	40.000	38.885	2.8	81	0.00
111	T	1,2,3-Trichlorobenzene	40.000	43.225	-8.1	87	0.00
112	T	2-Methylnaphthalene	40.000	40.137	-0.3	82	0.00
113	T	1-Methylnaphthalene	40.000	42.195	-5.5	84	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	72	0.00
115	T	2-Propanone	40.000	38.102	4.7	74	0.00
116	T	Acetic Ether	40.000	41.276	-3.2	74	0.00
117	T	Isopropyl Acetate	40.000	40.272	-0.7	76	0.00
118	T	Amyl Acetate	40.000	38.597	3.5	72	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	79	0.00
2	T	Dichlorodifluoromethane	0.448	0.454	-1.3	93	0.00
3	P	Chloromethane	0.678	0.694	-2.4	87	0.00
4	C	Vinyl chloride	0.531	0.529	0.4	86	0.00
5	T	Bromomethane	0.244	0.241	1.2	121	0.00
6	T	Chloroethane	0.384	0.237	38.3#	70	0.00
7	T	Trichlorofluoromethane	0.552	0.539	2.4	83	0.00
8	T	Ethyl ether	0.408	0.327	19.9	68	0.00
9	T	Acrolein	0.108	0.102#	5.6	108	0.00
10	C	1,1-Dichloroethene	0.602	0.535	11.1	73	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.300	8.3	80	0.00
12	T	Methyl iodide	0.433	0.284	34.4#	76	0.00
13	T	Acetone	0.273	0.239	12.5	79	0.00
14	T	Chloroprene	0.609	0.574	5.7	76	0.00
15	T	Carbon disulfide	1.305	1.167	10.6	74	0.00
16	T	Allyl chloride	0.702	0.643	8.4	76	0.00
17	T	Methyl acetate	0.612	0.577	5.7	74	0.00
18	T	Acetonitrile	0.698	0.643	7.9	76	0.00
19	T	Methylene chloride	0.638	0.559	12.4	74	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.620	5.3	77	0.00
21	T	t-Butanol	0.138	0.132#	4.3	76	0.00
22	T	Acrylonitrile	0.304	0.294	3.3	77	0.00
23	CP	Methyl tert-butyl ether	1.253	1.223	2.4	75	0.00
24	T	Hexane	0.507	0.395	22.1#	72	0.00
25	P	1,1-Dichloroethane	0.895	0.837	6.5	76	0.00
26	CP	Diisopropyl ether	1.320	1.255	4.9	75	0.00
27	T	Vinyl acetate	0.087	0.065#	25.3#	69	0.00
28	CP	Ethyl tert butyl ether	1.304	1.212	7.1	74	0.00
29	T	2,2-Dichloropropane	0.638	0.554	13.2	73	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.738	5.4	77	0.00
31	T	2-Butanone	0.469	0.377	19.6	71	0.00
32	T	Ethyl Acetate	0.771	0.741	3.9	74	0.00
33	T	Methyl acrylate	0.742	0.724	2.4	76	0.00
34	T	Propionitrile	0.049	0.041#	16.3	78	0.01
35	T	Bromochloromethane	0.411	0.383	6.8	76	0.00
36	T	Tetrahydrofuran	0.281	0.274	2.5	76	0.00
37	T	Methacrylonitrile	0.439	0.431	1.8	73	0.00
38	C	Chloroform	0.907	0.889	2.0	81	0.00
39	T	Cyclohexane	0.717	0.620	13.5	75	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	78	0.00
41	T	1,1,1-Trichloroethane	0.464	0.457	1.5	78	0.00
42	S	Dibromofluoromethane	0.347	0.347	0.0	76	0.00
43	T	Carbon tetrachloride	0.398	0.420	-5.5	80	0.00
44	T	1,1-Dichloropropene	0.437	0.406	7.1	79	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.317	6.2	73	0.00
46	T	1,2-Dichloroethane	0.444	0.406	8.6	77	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.273	0.2	78	0.00
48	CP	Tertiaryamylmethylether	0.828	0.838	-1.2	77	0.00
49	T	Isobutyl Alcohol	0.269	0.259	3.7	79	0.00
50	T	Heptane	0.289	0.236	18.3	75	0.00
51	T	1,4-Dioxane	0.007	0.010#	-42.9#	107	0.00
52	T	Methylcyclohexane	0.438	0.407	7.1	78	0.00
53	T	n-Butanol	0.023	0.024#	-4.3	73	0.01
54	T	Trichloroethene	0.359	0.366	-1.9	82	0.00
55	C	1,2-Dichloropropane	0.365	0.343	6.0	77	0.00
56	T	Dibromomethane	0.266	0.268	-0.8	80	0.00
57	T	Methyl methacrylate	0.411	0.374	9.0	76	0.00
58	T	Bromodichloromethane	0.464	0.463	0.2	77	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.171#	-1.2	83	0.00
60	T	2-Nitropropane	0.178	0.136#	23.6#	66	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.553	-0.4	77	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	79	0.00
63	T	4-Methyl-2-pentanone	0.622	0.521	16.2	70	0.00
64	S	Toluene-d8	1.305	1.254	3.9	76	0.00
65	CP	Toluene	1.439	1.465	-1.8	80	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.540	6.4	76	0.00
67	T	Chloropicrin	0.000	0.008#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.561	8.8	76	0.00
69	T	1,1,2-Trichloroethane	0.425	0.391	8.0	81	0.00
70	T	Tetrachloroethene	0.376	0.416	-10.6	90	0.00
71	T	1,3-Dichloropropane	0.597	0.579	3.0	79	0.00
72	T	2-Hexanone	0.488	0.425	12.9	70	0.00
73	T	Chlorodibromomethane	0.458	0.481	-5.0	82	0.00
74	T	Butyl acetate	0.814	0.701	13.9	71	0.00
75	T	1,2-Dibromoethane	0.438	0.451	-3.0	82	0.00
76	P	Chlorobenzene	0.971	0.986	-1.5	81	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.381	-1.6	84	0.00
78	CP	Ethylbenzene	1.548	1.566	-1.2	80	0.00
79	CP	m/p-Xylene	1.173	1.196	-2.0	80	0.00
80	T	Styrene	1.000	1.048	-4.8	83	0.00
81	CP	o-Xylene	1.245	1.261	-1.3	80	0.00
82	T	Cyclohexanone	0.073	0.031#	57.5#	60	0.00
83	P	Bromoform	0.346	0.371	-7.2	81	0.00
84	T	Isopropylbenzene	1.465	1.470	-0.3	80	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	75	0.00
86	T	Bromobenzene	0.918	0.918	0.0	79	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.675	-2.6	82	0.00
88	T	1,2,3-Trichloropropane	0.180	0.169#	6.1	80	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.158#	13.2	76	0.00
90	T	n-Propylbenzene	1.688	1.740	-3.1	81	0.00
91	T	2-Chlorotoluene	1.011	1.055	-4.4	82	0.00
92	T	4-Chlorotoluene	1.183	1.186	-0.3	80	0.00

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.176	-1.5	80	0.00
94	T	tert-Butylbenzene	0.693	0.665	4.0	79	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.263	-2.3	81	0.00
96	T	sec-Butylbenzene	1.397	1.442	-3.2	83	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00
98	T	1,3-Dichlorobenzene	1.416	1.513	-6.9	88	0.00
99	T	p-Isopropyltoluene	2.279	2.237	1.8	83	0.00
100	T	1,4-Dichlorobenzene	1.444	1.514	-4.8	88	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.417	-1.0	84	0.00
102	T	Benzyl chloride	1.890	1.689	10.6	75	0.00
103	T	1,2-Dichlorobenzene	1.393	1.462	-5.0	86	0.00
104	T	n-Butylbenzene	2.065	1.987	3.8	82	0.00
105	T	Hexachloroethane	0.513	0.469	8.6	79	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.384	4.0	86	0.00
107	T	1,3,5-Trichlorobenzene	0.950	1.027	-8.1	90	0.00
108	T	1,2,4-Trichlorobenzene	0.974	1.017	-4.4	90	0.00
109	T	Hexachlorobutadiene	0.325	0.346	-6.5	92	0.00
110	T	Naphthalene	3.572	3.473	2.8	81	0.00
111	T	1,2,3-Trichlorobenzene	0.947	1.023	-8.0	87	0.00
112	T	2-Methylnaphthalene	1.836	1.842	-0.3	82	0.00
113	T	1-Methylnaphthalene	1.711	1.805	-5.5	84	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	72	0.00
115	T	2-Propanone	0.897	0.854	4.8	74	0.00
116	T	Acetic Ether	2.543	2.624	-3.2	74	0.00
117	T	Isopropyl Acetate	1.145	1.153	-0.7	76	0.00
118	T	Amyl Acetate	3.274	3.159	3.5	72	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	270267	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	399464	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	366419	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	201673	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	75738	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	138622	20.01	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 100.05%				
45) 1,2-Dichloroethane-d4	5.171	65	126621	18.77	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 93.85%				
64) Toluene-d8	7.671	98	459522	19.21	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.05%				
85) Bromofluorobenzene	9.433	95	167561	19.32	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	245583	40.55	ug/L		99
3) Chloromethane	1.282	50	375029	40.96	ug/L		100
4) Vinyl chloride	1.360	62	285808	39.83	ug/L		95
5) Bromomethane	1.568	96	130010	58.88	ug/L		96
6) Chloroethane	1.640	64	128344m	35.25	ug/L		
7) Trichlorofluoromethane	1.819	101	291272	39.07	ug/L		94
8) Ethyl ether	2.019	59	176837	32.10	ug/L		97
9) Acrolein	2.127	56	276739	252.75	ug/L		99
10) 1,1-Dichloroethene	2.199	61	289260	35.55	ug/L		93
11) 1,1,2-Trichlorotrifluo...	2.206	151	162019	36.68	ug/L		97
12) Methyl iodide	2.327	142	153536	37.31	ug/L		100
13) Acetone	2.234	43	129413	35.02	ug/L		96
14) Chloroprene	3.373	53	310108	37.68	ug/L		97
15) Carbon disulfide	2.392	76	630594	35.75	ug/L		99
16) Allyl chloride	2.499	41	347655	36.67	ug/L		98
17) Methyl acetate	2.485	43	311708	37.72	ug/L		99
18) Acetonitrile	2.499	41	347655	36.87	ug/L		98
19) Methylene chloride	2.607	49	302277	35.06	ug/L		95
20) trans-1,2-Dichloroethene	2.857	61	335242	37.87	ug/L		96
21) t-Butanol	2.721	59	357783m	192.29	ug/L		
22) Acrylonitrile	2.815	53	159129	38.80	ug/L		98
23) Methyl tert-butyl ether	2.850	73	661281	39.05	ug/L		100
24) Hexane	3.130	57	213531m	31.18	ug/L		
25) 1,1-Dichloroethane	3.302	63	452212	37.38	ug/L		100
26) Diisopropyl ether	3.337	45	678172	38.02	ug/L		93
27) Vinyl acetate	3.294	86	35353m	30.05	ug/L		
28) Ethyl tert butyl ether	3.753	59	655085	37.18	ug/L		99
29) 2,2-Dichloropropane	3.961	77	299459	34.75	ug/L		98
30) cis-1,2-Dichloroethene	3.953	61	398955	37.84	ug/L		94
31) 2-Butanone	3.953	43	203666	32.12	ug/L		97
32) Ethyl Acetate	4.011	43	400553	38.45	ug/L	#	100
33) Methyl acrylate	4.068	55	391138	39.03	ug/L		99
34) Propionitrile	4.741	54	21924	38.46	ug/L		83

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	207200	37.30 ug/L		91
36) Tetrahydrofuran	4.290	42	147913	38.99 ug/L		98
37) Methacrylonitrile	4.218	41	233059	39.26 ug/L		98
38) Chloroform	4.419	83	480330	39.18 ug/L		98
39) Cyclohexane	4.734	56	335236	34.61 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	364742	39.34 ug/L		100
43) Carbon tetrachloride	4.863	117	335569	42.16 ug/L		100
44) 1,1-Dichloropropene	4.877	75	324164	37.17 ug/L		99
46) 1,2-Dichloroethane	5.293	62	324387	36.56 ug/L		99
47) Benzene	5.178	78	1017067	39.92 ug/L		99
48) Tertiaryamylmethylether	5.451	73	669382	40.46 ug/L	#	97
49) Isobutyl Alcohol	5.443	43	207031	38.51 ug/L	#	1
50) Heptane	5.766	43	188823	38.39 ug/L		98
51) 1,4-Dioxane	6.826	88	781886	5525.35 ug/L		96
52) Methylcyclohexane	6.654	83	324855	37.17 ug/L		97
53) n-Butanol	6.360	56	188526	405.76 ug/L		99
54) Trichloroethene	6.353	130	292348	40.77 ug/L		99
55) 1,2-Dichloropropane	6.697	63	274043	37.60 ug/L		99
56) Dibromomethane	6.797	93	213783	40.16 ug/L		98
57) Methyl methacrylate	6.819	41	298406	36.37 ug/L		97
58) Bromodichloromethane	7.019	83	369609	39.90 ug/L		99
59) 2-Chloroethyl vinyl ether	7.334	43	136817	40.44 ug/L		99
60) 2-Nitropropane	7.241	43	109040	30.65 ug/L	#	96
61) cis-1,3-Dichloropropene	7.449	75	441829	40.12 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	381722	33.52 ug/L		97
65) Toluene	7.728	91	1073462	40.72 ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	395513	37.42 ug/L		98
67) Chloropicrin	7.943	117	55803	No Calib		
68) Ethyl methacrylate	8.001	69	411151	36.46 ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	286388	36.82 ug/L		100
70) Tetrachloroethene	8.130	166	304727	44.28 ug/L		96
71) 1,3-Dichloropropane	8.201	76	424343	38.82 ug/L		95
72) 2-Hexanone	8.251	43	311193	34.77 ug/L		99
73) Chlorodibromomethane	8.352	129	352410	41.97 ug/L		99
74) Butyl acetate	8.344	43	514023	34.46 ug/L		98
75) 1,2-Dibromoethane	8.423	107	330477	41.22 ug/L		99
76) Chlorobenzene	8.753	112	722523	40.62 ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	279093	40.64 ug/L		99
78) Ethylbenzene	8.817	91	1147279	40.45 ug/L		100
79) m/p-Xylene	8.896	91	1753217	81.56 ug/L		99
80) Styrene	9.139	104	767795	41.91 ug/L		98
81) o-Xylene	9.125	91	924021	40.51 ug/L		98
82) Cyclohexanone	9.390	55	112563	155.93 ug/L		96
83) Bromoform	9.247	173	271968	42.91 ug/L		99
84) Isopropylbenzene	9.333	105	1077064	40.14 ug/L		100
86) Bromobenzene	9.512	77	672676	40.00 ug/L		92
87) 1,1,2,2-Tetrachloroethane	9.512	83	494548	41.05 ug/L		100
88) 1,2,3-Trichloropropane	9.541	110	123566	37.38 ug/L		93
89) trans-1,4-Dichloro-2-b...	9.526	53	115551	34.72 ug/L		98
90) n-Propylbenzene	9.562	91	1275330	41.25 ug/L		99
91) 2-Chlorotoluene	9.612	91	773446	41.75 ug/L		98

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

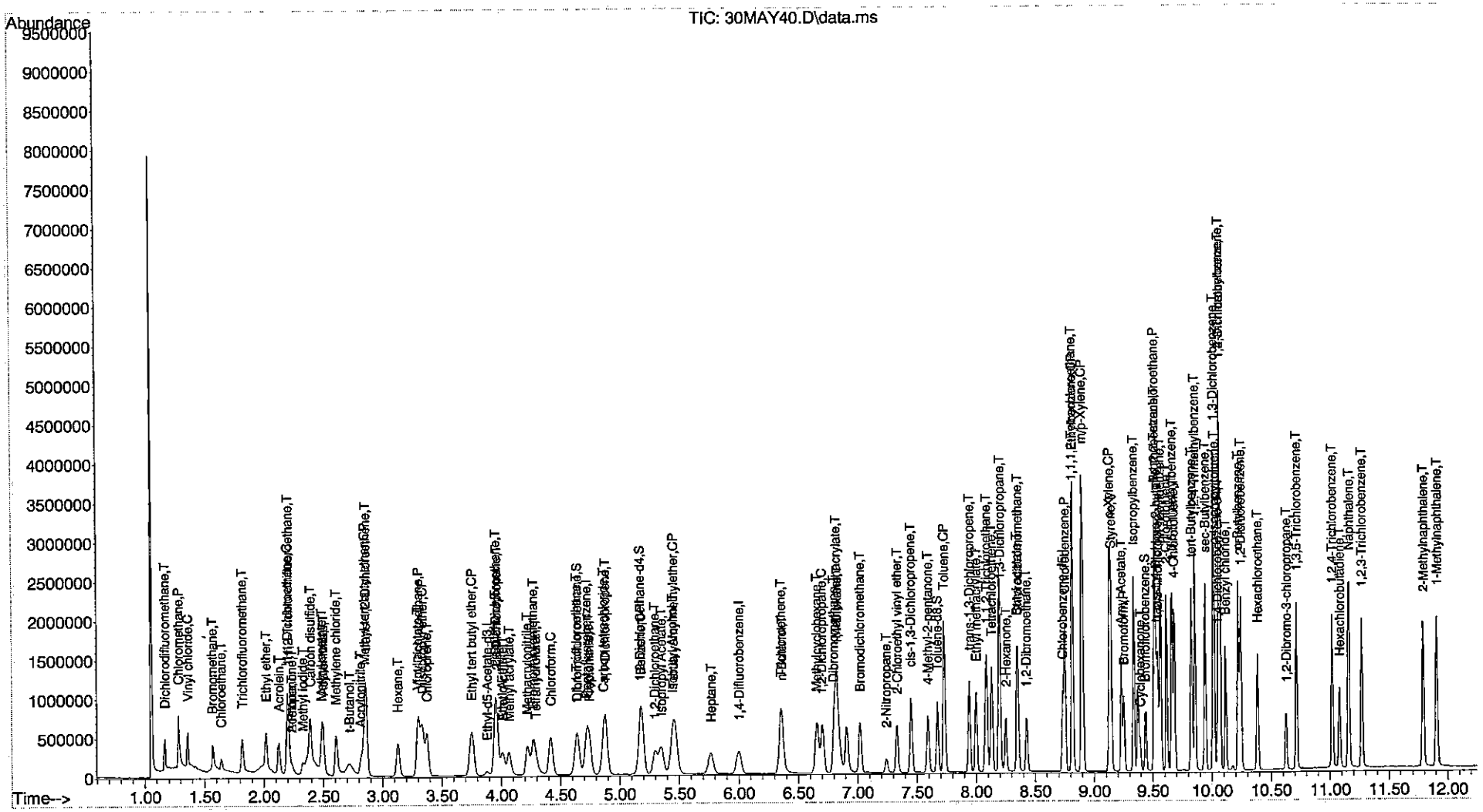
Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	869482	40.10	ug/L		97
93) 1,3,5-Trimethylbenzene	9.662	105	861472	40.57	ug/L		97
94) tert-Butylbenzene	9.827	91	487361	38.41	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	925269	40.90	ug/L		100
96) sec-Butylbenzene	9.942	105	1056819	41.29	ug/L		98
98) 1,3-Dichlorobenzene	10.013	146	610074	42.73	ug/L		99
99) p-Isopropyltoluene	10.021	119	902268	39.27	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	610602	41.93	ug/L		99
101) 1,2,3-Trimethylbenzene	10.064	105	975061	40.42	ug/L		99
102) Benzyl chloride	10.114	91	681214	35.74	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	589659	41.97	ug/L		98
104) n-Butylbenzene	10.221	91	801517	38.49	ug/L		99
105) Hexachloroethane	10.386	117	189151	36.59	ug/L		94
106) 1,2-Dibromo-3-chloropr...	10.629	157	154764	38.36	ug/L		95
107) 1,3,5-Trichlorobenzene	10.715	180	414280	43.24	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	410308	41.79	ug/L		100
109) Hexachlorobutadiene	11.081	225	139640	42.56	ug/L		98
110) Naphthalene	11.159	128	1400702	38.89	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	412808	43.22	ug/L		98
112) 2-Methylnaphthalene	11.790	142	743052	40.14	ug/L		100
113) 1-Methylnaphthalene	11.904	142	728037	42.20	ug/L		98
115) 2-Propanone	2.234	43	129413	38.10	ug/L		96
116) Acetic Ether	4.011	43	397483	41.28	ug/L	#	98
117) Isopropyl Acetate	5.350	61	174597	40.27	ug/L		93
118) Amyl Acetate	9.225	43	478473	38.60	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY40.D
Acq On : 30 May 2018 9:46 pm
Operator : EMR
Sample : VCCV3-180530
Misc : IS/SS 200-20081
ALS Vial : 36 Sample Multiplier: 1

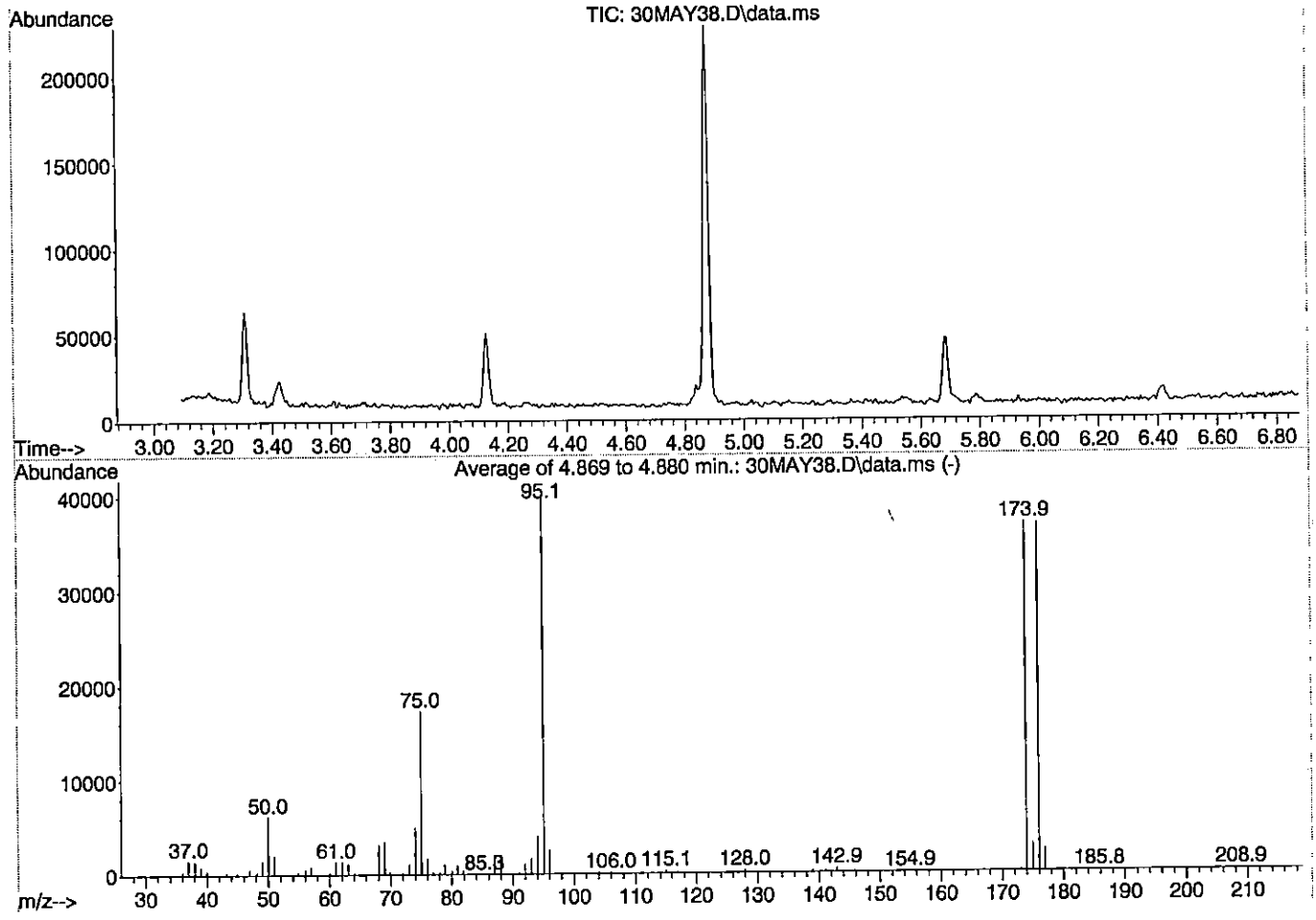
Quant Time: May 30 21:58:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY38.D
Acq On : 30 May 2018 9:15 pm
Operator : EMR
Sample : VBFB2-180530
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed Jun 27 11:02:07 2018



Spectrum Information: Average of 4.869 to 4.880 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.5	6163	PASS
75	95	30	60	43.5	17297	PASS
95	95	100	100	100.0	39805	PASS
96	95	5	9	6.3	2516	PASS
173	174	0.00	2	0.4	162	PASS
174	95	50	100	92.8	36955	PASS
175	174	5	9	7.7	2862	PASS
176	174	95	101	99.7	36861	PASS
177	176	5	9	6.3	2305	PASS

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY09.D
Acq On : 30 May 2018 11:17 am
Operator : EMR
Sample : VBLKS1-180531
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 11:29:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	181370	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	5.988	114	259583	20.00	ug/L	-0.01
62) Chlorobenzene-d5	8.731	117	228896	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	115877	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.867	46	21660	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.634	111	87028	19.74	ug/L	-0.01
Spiked Amount 20.000	Range 85 - 117		Recovery = 98.70%			
45) 1,2-Dichloroethane-d4	5.157	65	75423	19.44	ug/L	0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 97.20%			
64) Toluene-d8	7.671	98	301958	19.65	ug/L	0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 98.25%			
85) Bromofluorobenzene	9.433	95	98752	19.06	ug/L	0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.607	49	12530	Below Cal		99
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.130	57	8351	Below Cal	#	75
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY09.D
Acq On : 30 May 2018 11:17 am
Operator : EMR
Sample : VBLKS1-180531
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 11:29:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY09.D
Acq On : 30 May 2018 11:17 am
Operator : EMR
Sample : VBLKS1-180531
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

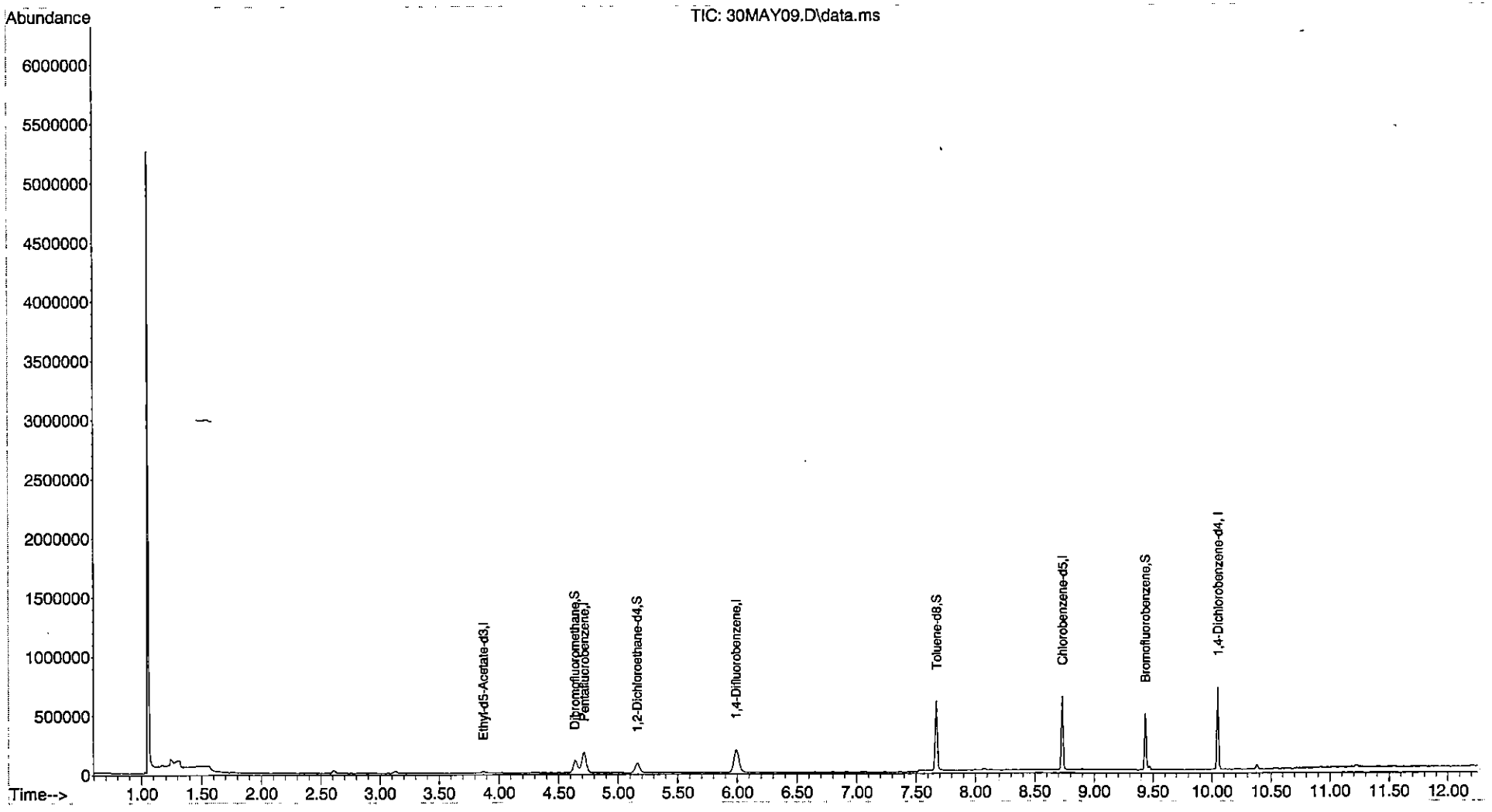
Quant Time: May 30 11:29:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY09.D
Acq On : 30 May 2018 11:17 am
Operator : EMR
Sample : VBLKS1-180531
Misc : IS/SS 200-20081
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 11:29:56 2018
Quant Method : C:\msdchem\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY06.D
Acq On : 30 May 2018 10:24 am
Operator : EMR
Sample : VLCSS1-180530
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:37:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	175206	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	258556	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	227839	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	110656	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	20421	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	84593	19.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 96.35%				
45) 1,2-Dichloroethane-d4	5.164	65	72070	18.65	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 93.25%				
64) Toluene-d8	7.671	98	289726	18.94	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 94.70%				
85) Bromofluorobenzene	9.440	95	95178	18.46	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 92.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	90378	16.19	ug/L		96
3) Chloromethane	1.282	50	111448	14.49	ug/L		99
4) Vinyl chloride	1.360	62	111134	19.72	ug/L		94
5) Bromomethane	1.575	96	98653	20.14	ug/L		97
6) Chloroethane	1.647	64	68792	18.85	ug/L		97
7) Trichlorofluoromethane	1.826	101	130099	17.12	ug/L		98
8) Ethyl ether	2.019	59	53952	16.86	ug/L		93
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	144436	19.57	ug/L		95
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	125345	38.05	ug/L		99
13) Acetone	2.227	43	21891	14.69	ug/L		88
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	346529	20.37	ug/L		99
16) Allyl chloride	2.499	41	134621	16.92	ug/L		97
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	128293	19.73	ug/L		98
20) trans-1,2-Dichloroethene	2.865	61	142867	18.33	ug/L		91
21) t-Butanol	2.678	59	48167	84.20	ug/L	#	85
22) Acrylonitrile	2.815	53	27004	14.97	ug/L		98
23) Methyl tert-butyl ether	2.850	73	187600	19.77	ug/L		98
24) Hexane	3.130	57	14431	Below Cal		#	88
25) 1,1-Dichloroethane	3.302	63	180470	19.87	ug/L		98
26) Diisopropyl ether	3.330	45	229363	20.78	ug/L	#	44
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	203899	19.80	ug/L		99
29) 2,2-Dichloropropane	3.961	77	137398	19.32	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	166548	18.70	ug/L		92
31) 2-Butanone	3.939	43	29883	15.30	ug/L	#	88
32) Ethyl Acetate	4.004	43	71369	18.36	ug/L	#	86
33) Methyl acrylate	4.061	55	68294	16.64	ug/L		98
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY06.D
Acq On : 30 May 2018 10:24 am
Operator : EMR
Sample : VLCSS1-180530
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:37:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.261	49	78475	18.86 ug/L	93
36) Tetrahydrofuran	4.276	42	22308	15.11 ug/L	90
37) Methacrylonitrile	4.218	41	42455	15.39 ug/L	97
38) Chloroform	4.419	83	178169	18.22 ug/L	98
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.634	97	146350	19.26 ug/L	98
43) Carbon tetrachloride	4.870	117	127644	20.51 ug/L	99
44) 1,1-Dichloropropene	4.877	75	130565	19.89 ug/L	95
46) 1,2-Dichloroethane	5.293	62	105395	18.03 ug/L	97
47) Benzene	5.178	78	398508	19.29 ug/L	100
48) Tertiaryamylmethylether	5.451	73	192499	19.90 ug/L	97
49) Isobutyl Alcohol	5.443	43	54000	18.57 ug/L #	94
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	117909	20.70 ug/L	95
55) 1,2-Dichloropropane	6.697	63	98846	18.85 ug/L #	85
56) Dibromomethane	6.797	93	63717	19.40 ug/L	98
57) Methyl methacrylate	6.819	41	55408	13.78 ug/L	91
58) Bromodichloromethane	7.019	83	128792	19.28 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	19217	12.65 ug/L #	86
61) cis-1,3-Dichloropropene	7.449	75	155109	18.85 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	84607	18.76 ug/L	86
65) Toluene	7.728	91	412094	18.87 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	124383	16.61 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	91723	15.24 ug/L	96
69) 1,1,2-Trichloroethane	8.087	97	83325	17.53 ug/L	99
70) Tetrachloroethene	8.130	166	124288	21.48 ug/L	97
71) 1,3-Dichloropropane	8.201	76	122573	17.34 ug/L	90
72) 2-Hexanone	8.244	43	43526	14.22 ug/L	94
73) Chlorodibromomethane	8.352	129	96671	17.38 ug/L	99
74) Butyl acetate	8.344	43	99968	16.76 ug/L	99
75) 1,2-Dibromoethane	8.423	107	87947	18.48 ug/L #	97
76) Chlorobenzene	8.753	112	268400	19.49 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	99370	18.69 ug/L	95
78) Ethylbenzene	8.817	91	444961	19.33 ug/L	98
79) m/p-Xylene	8.896	91	665174	38.35 ug/L	96
80) Styrene	9.139	104	278076	18.75 ug/L	98
81) o-Xylene	9.125	91	334713	18.78 ug/L	98
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	63227	16.93 ug/L	97
84) Isopropylbenzene	9.333	105	413727	19.57 ug/L	98
86) Bromobenzene	9.512	77	188094	16.89 ug/L	90
87) 1,1,2,2-Tetrachloroethane	9.512	83	111426	17.88 ug/L	97
88) 1,2,3-Trichloropropane	9.541	110	25488	17.84 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	17977	11.89 ug/L	95
90) n-Propylbenzene	9.562	91	515776	20.09 ug/L	100
91) 2-Chlorotoluene	9.612	91	294144	20.19 ug/L	98

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY06.D
Acq On : 30 May 2018 10:24 am
Operator : EMR
Sample : VLCSS1-180530
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:37:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

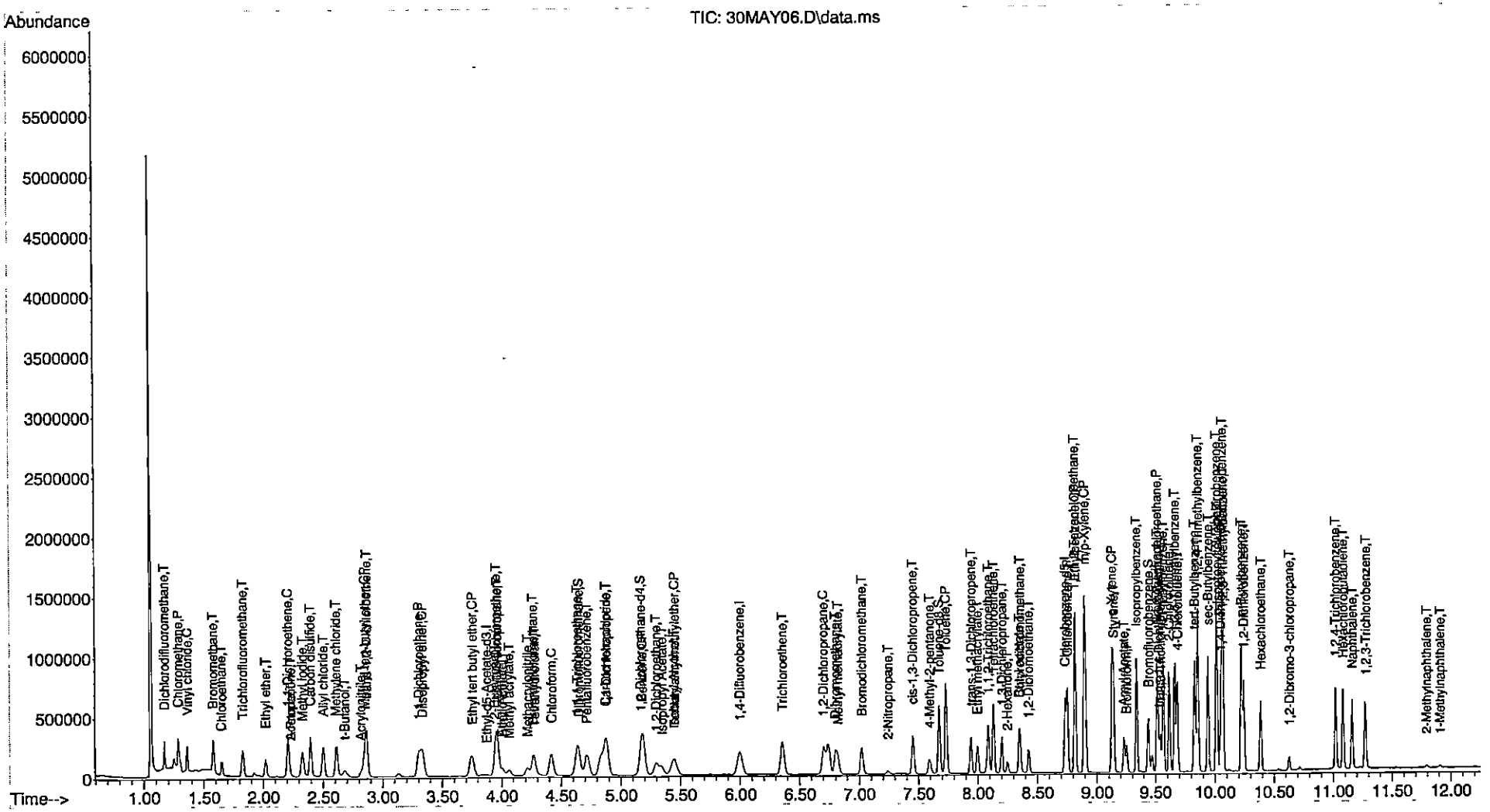
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.684	91	325000	18.34 ug/L	96
93) 1,3,5-Trimethylbenzene	9.662	105	335951	19.70 ug/L	99
94) tert-Butylbenzene	9.827	91	185633	17.99 ug/L	94
95) 1,2,4-Trimethylbenzene	9.856	105	332765	18.70 ug/L	99
96) sec-Butylbenzene	9.942	105	439485	19.84 ug/L	100
98) 1,3-Dichlorobenzene	10.013	146	210390	20.13 ug/L	99
99) p-Isopropyltoluene	10.021	119	358936	18.78 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	210654	19.81 ug/L	99
101) 1,2,3-Trimethylbenzene	10.071	105	314758	18.35 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	191521	19.91 ug/L	98
104) n-Butylbenzene	10.221	91	361510	18.65 ug/L	100
105) Hexachloroethane	10.386	117	65154	15.44 ug/L	92
106) 1,2-Dibromo-3-chloropr...	10.629	157	23257	16.78 ug/L	89
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	142367	19.29 ug/L	99
109) Hexachlorobutadiene	11.081	225	80580	20.08 ug/L	95
110) Naphthalene	11.159	128	290100	16.59 ug/L	99
111) 1,2,3-Trichlorobenzene	11.274	180	133579	18.64 ug/L	99
112) 2-Methylnaphthalene	11.790	142	8547	0.79 ug/L	90
113) 1-Methylnaphthalene	11.904	142	7499	0.83 ug/L #	80
115) 2-Propanone	2.227	43	21891	21.99 ug/L #	88
116) Acetic Ether	4.004	43	70514	24.99 ug/L #	92
117) Isopropyl Acetate	5.343	61	41948	27.95 ug/L	90
118) Amyl Acetate	9.225	43	102276	22.84 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY06.D
Acq On : 30 May 2018 10:24 am
Operator : EMR
Sample : VLCSS1-180530
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 30 10:37:17 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY34.D
Acq On : 30 May 2018 8:03 pm
Operator : EMR
Sample : 18051689-10C MS
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 30 20:16:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.713	168	194534	20.00 ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	293579	20.00 ug/L		0.00
62) Chlorobenzene-d5	8.731	117	258065	20.00 ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	134854	20.00 ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	33102	20.00 ug/L	#	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	101077	20.28 ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 101.40%			
45) 1,2-Dichloroethane-d4	5.164	65	90257	20.57 ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 102.85%			
64) Toluene-d8	7.671	98	332767	19.21 ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 96.05%			
85) Bromofluorobenzene	9.433	95	111923	19.16 ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	197623	31.88 ug/L		99
3) Chloromethane	1.282	50	178588	20.91 ug/L		98
4) Vinyl chloride	1.360	62	203989	32.60 ug/L		99
5) Bromomethane	1.582	96	142464	26.20 ug/L		99
6) Chloroethane	1.654	64	95355	23.54 ug/L		95
7) Trichlorofluoromethane	1.826	101	240938	28.55 ug/L		100
8) Ethyl ether	2.019	59	89086	25.07 ug/L		97
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.206	61	250125	30.52 ug/L		94
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.327	142	217517	59.47 ug/L		98
13) Acetone	2.227	43	78687	57.27 ug/L		97
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	566262	29.98 ug/L		99
16) Allyl chloride	2.499	41	206148	23.34 ug/L		99
17) Methyl acetate	2.492	43	5551	1.64 ug/L	#	1
18) Acetonitrile	0.000		0	N.D. d		
19) Methylene chloride	2.607	49	200365	29.09 ug/L		96
20) trans-1,2-Dichloroethene	2.865	61	240014	27.73 ug/L		93
21) t-Butanol	2.671	59	74705	120.58 ug/L		96
22) Acrylonitrile	2.815	53	42550	21.24 ug/L		98
23) Methyl tert-butyl ether	2.843	73	320071	30.37 ug/L		98
24) Hexane	3.137	57	11891	Below Cal	#	84
25) 1,1-Dichloroethane	3.302	63	290457	28.80 ug/L		99
26) Diisopropyl ether	3.330	45	372164	30.37 ug/L	#	45
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.746	59	334579	29.26 ug/L		98
29) 2,2-Dichloropropane	3.961	77	230420	29.18 ug/L		98
30) cis-1,2-Dichloroethene	3.953	61	272561	27.56 ug/L		96
31) 2-Butanone	3.939	43	80324	37.64 ug/L		97
32) Ethyl Acetate	4.004	43	112261	26.00 ug/L	#	86
33) Methyl acrylate	4.061	55	106915	23.46 ug/L		98
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY34.D
Acq On : 30 May 2018 8:03 pm
Operator : EMR
Sample : 18051689-10C MS
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 30 20:16:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	120410	26.07 ug/L	92
36) Tetrahydrofuran	4.283	42	32656	19.97 ug/L	95
37) Methacrylonitrile	4.218	41	66069	21.57 ug/L	97
38) Chloroform	4.412	83	277064	25.51 ug/L	97
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.634	97	254033	29.45 ug/L	98
43) Carbon tetrachloride	4.870	117	231793	32.80 ug/L	99
44) 1,1-Dichloropropene	4.877	75	222651	29.89 ug/L	95
46) 1,2-Dichloroethane	5.293	62	162564	24.49 ug/L	99
47) Benzene	5.185	78	645417	27.51 ug/L	99
48) Tertiaryamylmethylether	5.443	73	317991	28.96 ug/L	98
49) Isobutyl Alcohol	5.443	43	91939	27.55 ug/L #	90
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	190590	29.46 ug/L	98
55) 1,2-Dichloropropane	6.697	63	158638	26.64 ug/L #	88
56) Dibromomethane	6.797	93	98882	26.51 ug/L	96
57) Methyl methacrylate	6.819	41	91736	20.09 ug/L	92
58) Bromodichloromethane	7.019	83	198879	26.22 ug/L	100
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	28716	16.65 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	226882	24.29 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	158949	31.11 ug/L	84
65) Toluene	7.728	91	661559	26.75 ug/L	98
66) trans-1,3-Dichloropropene	7.936	75	194197	22.90 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	155004	22.74 ug/L	96
69) 1,1,2-Trichloroethane	8.087	97	132303	24.58 ug/L	99
70) Tetrachloroethene	8.130	166	268910	41.03 ug/L	98
71) 1,3-Dichloropropane	8.201	76	197150	24.63 ug/L	87
72) 2-Hexanone	8.244	43	91088	26.26 ug/L	95
73) Chlorodibromomethane	8.352	129	152886	24.27 ug/L	97
74) Butyl acetate	8.344	43	158808	23.51 ug/L	97
75) 1,2-Dibromoethane	8.423	107	143095	26.54 ug/L #	100
76) Chlorobenzene	8.753	112	408680	26.20 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.810	131	151334	25.13 ug/L	99
78) Ethylbenzene	8.817	91	715277	27.44 ug/L	98
79) m/p-Xylene	8.896	91	1045429	53.22 ug/L	96
80) Styrene	9.139	104	407496	24.26 ug/L	96
81) o-Xylene	9.125	91	525580	26.03 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	104716	24.76 ug/L	99
84) Isopropylbenzene	9.333	105	695312	29.04 ug/L	98
86) Bromobenzene	9.512	77	279162	22.14 ug/L	91
87) 1,1,2,2-Tetrachloroethane	9.512	83	173495	24.58 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	41831	25.85 ug/L	97
89) trans-1,4-Dichloro-2-b...	9.526	53	29024	16.95 ug/L	99
90) n-Propylbenzene	9.562	91	788253	27.10 ug/L	99
91) 2-Chlorotoluene	9.612	91	440938	26.72 ug/L	98

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY34.D
Acq On : 30 May 2018 8:03 pm
Operator : EMR
Sample : 18051689-10C MS
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 30 20:16:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

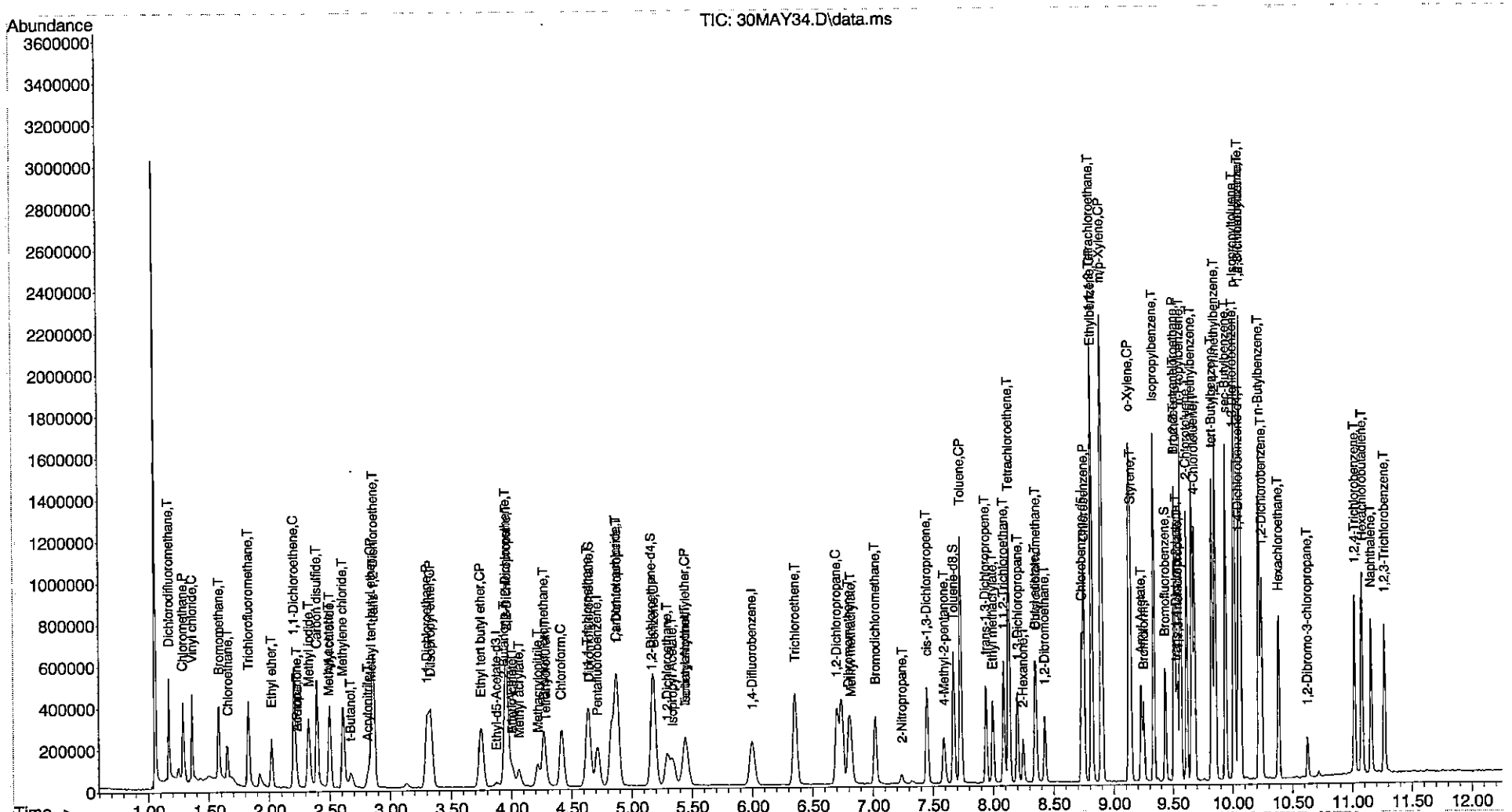
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	475233	23.67 ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	525900	27.23 ug/L	98
94) tert-Butylbenzene	9.827	91	327417	28.02 ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	502327	24.92 ug/L	97
96) sec-Butylbenzene	9.942	105	748461	29.82 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	288112	22.62 ug/L	99
99) p-Isopropyltoluene	10.013	119	579741	24.89 ug/L	99
100) 1,4-Dichlorobenzene	10.064	146	288263	22.24 ug/L	98
101) 1,2,3-Trimethylbenzene	10.064	105	485377	23.21 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	267394	22.81 ug/L	100
104) n-Butylbenzene	10.221	91	550409	23.30 ug/L	98
105) Hexachloroethane	10.379	117	109334	21.26 ug/L	94
106) 1,2-Dibromo-3-chloropr...	10.622	157	37370	22.12 ug/L	96
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	169900	18.89 ug/L	99
109) Hexachlorobutadiene	11.081	225	136044	27.82 ug/L	98
110) Naphthalene	11.152	128	418693	19.65 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	158969	18.20 ug/L	100
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	78687	54.61 ug/L	97
116) Acetic Ether	4.004	43	113313	24.77 ug/L #	96
117) Isopropyl Acetate	5.336	61	67955	27.93 ug/L	96
118) Amyl Acetate	9.225	43	151481	20.87 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY34.D
Acq On : 30 May 2018 8:03 pm
Operator : EMR
Sample : 18051689-10C MS
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 30 20:16:11 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY35.D
Acq On : 30 May 2018 8:20 pm
Operator : EMR
Sample : 18051689-10C MSD
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 30 20:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	186748	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	284773	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	247321	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	124431	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	28158	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	96226	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.164	65	84987	19.96	ug/L		0.00
Spiked Amount 20.000	Range 85 - 113		Recovery = 99.80%				
64) Toluene-d8	7.671	98	318036	19.15	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 95.75%				
85) Bromofluorobenzene	9.433	95	106643	19.05	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 95.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	181334	30.48	ug/L		99
3) Chloromethane	1.282	50	179358	21.88	ug/L		98
4) Vinyl chloride	1.360	62	192124	31.99	ug/L		100
5) Bromomethane	1.575	96	141231	27.05	ug/L		95
6) Chloroethane	1.654	64	96833	24.90	ug/L		91
7) Trichlorofluoromethane	1.826	101	226867	28.01	ug/L		99
8) Ethyl ether	2.019	59	94634	27.75	ug/L		97
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	248583	31.60	ug/L		96
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	223650	63.69	ug/L		99
13) Acetone	2.227	43	80387	61.23	ug/L		97
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	541536	29.87	ug/L		99
16) Allyl chloride	2.499	41	210249	24.80	ug/L		98
17) Methyl acetate	2.478	43	8115	2.50	ug/L	#	1
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	204564	31.11	ug/L		94
20) trans-1,2-Dichloroethene	2.865	61	231930	27.91	ug/L		91
21) t-Butanol	2.678	59	83322	141.31	ug/L		96
22) Acrylonitrile	2.815	53	47260	24.57	ug/L		96
23) Methyl tert-butyl ether	2.843	73	332851	32.90	ug/L		99
24) Hexane	3.137	57	11527	Below Cal		#	90
25) 1,1-Dichloroethane	3.302	63	291007	30.06	ug/L		100
26) Diisopropyl ether	3.330	45	378730	32.19	ug/L	#	46
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	350560	31.94	ug/L		98
29) 2,2-Dichloropropane	3.968	77	224818	29.66	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	275668	29.04	ug/L		96
31) 2-Butanone	3.939	43	91648	44.82	ug/L		94
32) Ethyl Acetate	4.004	43	117947	28.46	ug/L	#	86
33) Methyl acrylate	4.061	55	117464	26.85	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY35.D
Acq On : 30 May 2018 8:20 pm
Operator : EMR
Sample : 18051689-10C MSD
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 30 20:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	127045	28.65 ug/L	95
36) Tetrahydrofuran	4.276	42	35047	22.35 ug/L	96
37) Methacrylonitrile	4.211	41	74045	25.18 ug/L	95
38) Chloroform	4.419	83	287683	27.60 ug/L	97
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.641	97	258190	30.85 ug/L	97
43) Carbon tetrachloride	4.863	117	225782	32.93 ug/L	99
44) 1,1-Dichloropropene	4.878	75	218171	30.19 ug/L	97
46) 1,2-Dichloroethane	5.293	62	171788	26.68 ug/L	99
47) Benzene	5.178	78	643479	28.28 ug/L	99
48) Tertiaryamylmethylether	5.443	73	343547	32.25 ug/L	96
49) Isobutyl Alcohol	5.451	43	91318	28.20 ug/L #	94
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	187348	29.86 ug/L	98
55) 1,2-Dichloropropane	6.697	63	164496	28.48 ug/L #	87
56) Dibromomethane	6.797	93	105892	29.27 ug/L	97
57) Methyl methacrylate	6.819	41	96019	21.68 ug/L	93
58) Bromodichloromethane	7.019	83	212554	28.89 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.234	43	31429	18.79 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	238496	26.32 ug/L	99
63) 4-Methyl-2-pentanone	7.592	43	173595	35.46 ug/L	85
65) Toluene	7.728	91	657175	27.73 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	205205	25.25 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	158936	24.33 ug/L	97
69) 1,1,2-Trichloroethane	8.087	97	141220	27.37 ug/L	98
70) Tetrachloroethene	8.130	166	245541	39.09 ug/L	98
71) 1,3-Dichloropropane	8.201	76	207993	27.11 ug/L	88
72) 2-Hexanone	8.244	43	109697	33.00 ug/L	95
73) Chlorodibromomethane	8.352	129	167268	27.71 ug/L	99
74) Butyl acetate	8.344	43	165688	25.60 ug/L	98
75) 1,2-Dibromoethane	8.423	107	147080	28.46 ug/L #	95
76) Chlorobenzene	8.753	112	406990	27.23 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.810	131	152567	26.43 ug/L	99
78) Ethylbenzene	8.817	91	699701	28.00 ug/L	99
79) m/p-Xylene	8.896	91	1019925	54.17 ug/L	96
80) Styrene	9.140	104	411304	25.55 ug/L	99
81) o-Xylene	9.125	91	516495	26.69 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	115311	28.45 ug/L	97
84) Isopropylbenzene	9.333	105	619858	27.01 ug/L	100
86) Bromobenzene	9.512	77	292626	24.21 ug/L	95
87) 1,1,2,2-Tetrachloroethane	9.512	83	197541	29.20 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	43902	28.31 ug/L	99
89) trans-1,4-Dichloro-2-b...	9.526	53	32012	19.51 ug/L	98
90) n-Propylbenzene	9.562	91	731185	26.23 ug/L	98
91) 2-Chlorotoluene	9.612	91	402490	25.45 ug/L	97

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY35.D
Acq On : 30 May 2018 8:20 pm
Operator : EMR
Sample : 18051689-10C MSD
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 30 20:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration

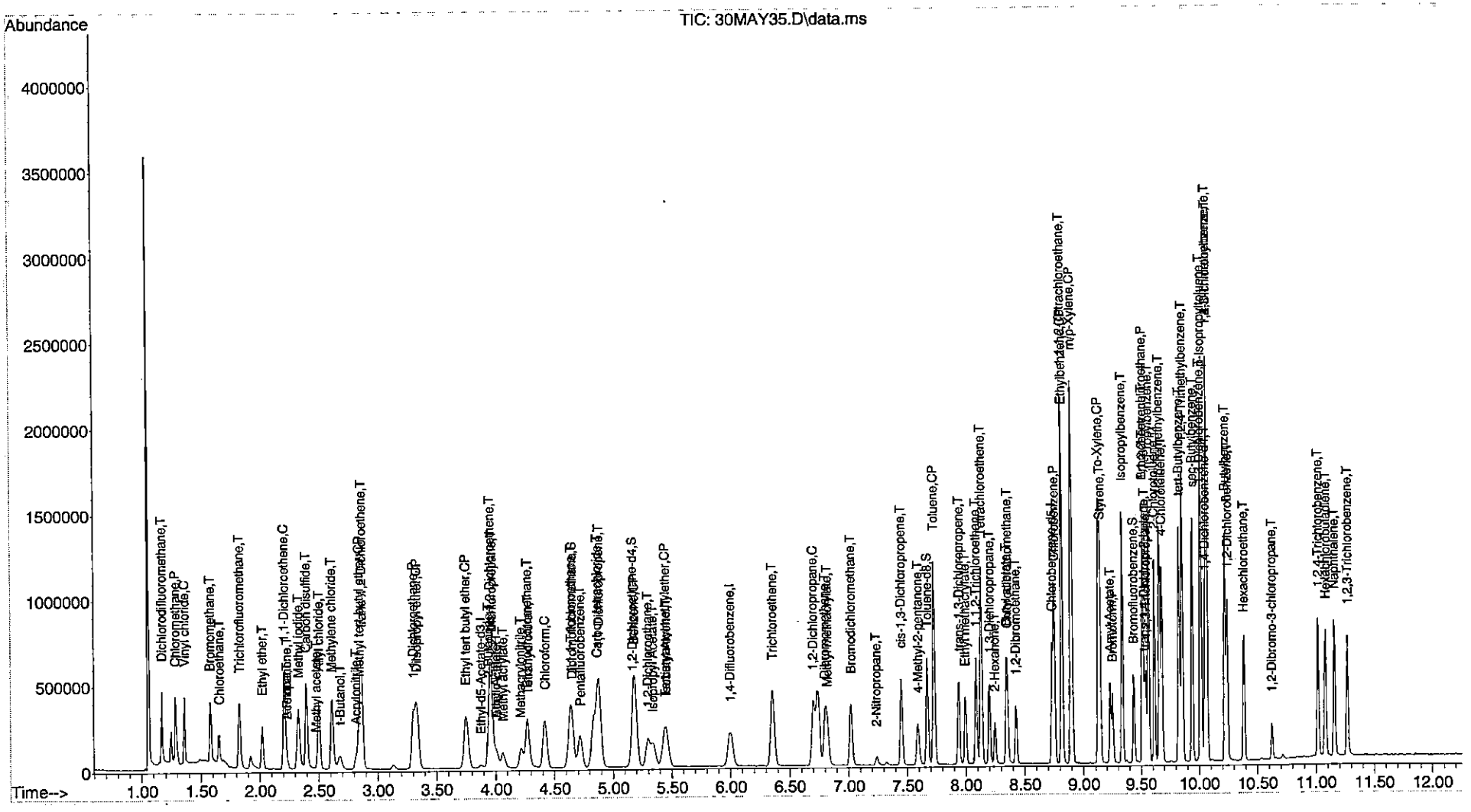
Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	462118	24.02 ug/L		95
93) 1,3,5-Trimethylbenzene	9.655	105	488162	26.38 ug/L		98
94) tert-Butylbenzene	9.827	91	326962	29.19 ug/L		96
95) 1,2,4-Trimethylbenzene	9.856	105	489212	25.32 ug/L		97
96) sec-Butylbenzene	9.942	105	656173	27.28 ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	288885	24.58 ug/L		99
99) p-Isopropyltoluene	10.013	119	530316	24.67 ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	284609	23.80 ug/L		100
101) 1,2,3-Trimethylbenzene	10.064	105	474314	24.58 ug/L		98
102) Benzyl chloride	0.000		0	N.D. d		
103) 1,2-Dichlorobenzene	10.243	146	268685	24.84 ug/L		100
104) n-Butylbenzene	10.221	91	465371	21.35 ug/L		98
105) Hexachloroethane	10.379	117	101952	21.49 ug/L		92
106) 1,2-Dibromo-3-chloropr...	10.622	157	41040	26.32 ug/L		96
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	11.016	180	165783	19.98 ug/L		97
109) Hexachlorobutadiene	11.081	225	104079	23.07 ug/L		98
110) Naphthalene	11.152	128	427027	21.72 ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	152872	18.97 ug/L		99
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.227	43	80387	66.54 ug/L		97
116) Acetic Ether	4.004	43	117947	30.31 ug/L	#	92
117) Isopropyl Acetate	5.336	61	70378	34.01 ug/L		99
118) Amyl Acetate	9.225	43	152753	24.74 ug/L		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY35.D
Acq On : 30 May 2018 8:20 pm
Operator : EMR
Sample : 18051689-10C MSD
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 30 20:32:32 2018
Quant Method : C:\MSDCHEM\1\METHODS\8SGO0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 10:24:37 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY44.D
Acq On : 30 May 2018 10:50 pm
Operator : EMR
Sample : VBLKW2-180530
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 30 23:02:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	265231	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	395491	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	366661	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	193331	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	72560	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	132725	19.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.75%				
45) 1,2-Dichloroethane-d4	5.164	65	126654	18.97	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 94.85%				
64) Toluene-d8	7.671	98	450652	18.83	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.15%				
85) Bromofluorobenzene	9.433	95	166167	19.15	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.75%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.		d	
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.		d	
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY44.D
Acq On : 30 May 2018 10:50 pm
Operator : EMR
Sample : VBLKW2-180530
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 30 23:02:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY44.D
Acq On : 30 May 2018 10:50 pm
Operator : EMR
Sample : VBLKW2-180530
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 30 23:02:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

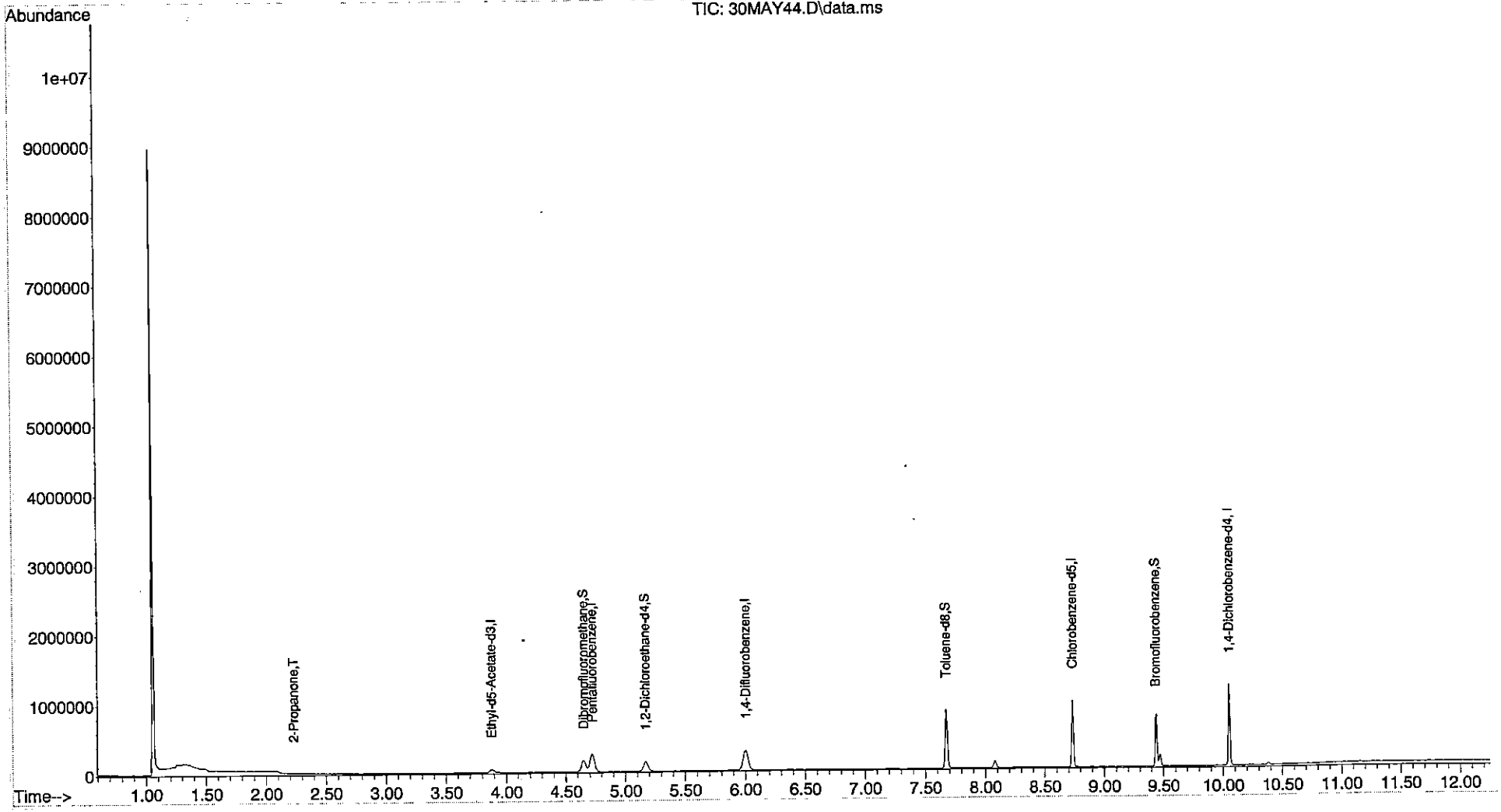
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.	
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
94) tert-Butylbenzene	0.000		0	N.D.	
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
96) sec-Butylbenzene	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.	
102) Benzyl chloride	0.000		0	N.D.	
103) 1,2-Dichlorobenzene	0.000		0	N.D.	
104) n-Butylbenzene	0.000		0	N.D.	
105) Hexachloroethane	0.000		0	N.D.	
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.	
109) Hexachlorobutadiene	0.000		0	N.D.	
110) Naphthalene	0.000		0	N.D.	
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.	
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	5881	1.81 ug/L #	39
116) Acetic Ether	0.000		0	N.D.	
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY44.D
Acq On : 30 May 2018 10:50 pm
Operator : EMR
Sample : VBLKW2-180530
Misc : IS/SS 200-20081
ALS Vial : 40 Sample Multiplier: 1

Quant Time: May 30 23:02:40 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY41.D
Acq On : 30 May 2018 10:02 pm
Operator : EMR
Sample : VLCSW1-180530
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 30 22:14:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.720	168	311544	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.002	114	450741	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.731	117	408867	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	212471	20.00	ug/L	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	90966	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	153336	19.61	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery =	98.05%		
45) 1,2-Dichloroethane-d4	5.171	65	143967	18.92	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery =	94.60%		
64) Toluene-d8	7.671	98	527318	19.76	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery =	98.80%		
85) Bromofluorobenzene	9.440	95	181601	18.77	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery =	93.85%		
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.167	85	72853	10.44	ug/L	92
3) Chloromethane	1.282	50	107460	10.18	ug/L	98
4) Vinyl chloride	1.361	62	97223	11.76	ug/L	91
5) Bromomethane	1.575	96	61863	23.46	ug/L	98
6) Chloroethane	1.647	64	44151	7.39	ug/L	95
7) Trichlorofluoromethane	1.819	101	81829	9.52	ug/L	97
8) Ethyl ether	2.020	59	64414	10.14	ug/L	98
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	2.199	61	115739	12.34	ug/L	94
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.328	142	83232	16.76	ug/L	95
13) Acetone	2.234	43	61014	14.32	ug/L	95
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	2.392	76	226645	11.15	ug/L	98
16) Allyl chloride	2.499	41	100103	9.16	ug/L	88
17) Methyl acetate	2.485	43	8596	0.90	ug/L #	61
18) Acetonitrile	0.000		0	N.D. d		
19) Methylene chloride	2.607	49	113253	11.40	ug/L	95
20) trans-1,2-Dichloroethene	2.858	61	119616	11.72	ug/L	95
21) t-Butanol	2.714	59	174654	81.43	ug/L #	94
22) Acrylonitrile	2.822	53	68632	14.52	ug/L	99
23) Methyl tert-butyl ether	2.850	73	251041	12.86	ug/L	98
24) Hexane	3.137	57	5134	0.65	ug/L #	27
25) 1,1-Dichloroethane	3.295	63	170974	12.26	ug/L	99
26) Diisopropyl ether	3.330	45	246648	12.00	ug/L #	48
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.753	59	245450	12.08	ug/L	99
29) 2,2-Dichloropropane	3.961	77	107647	10.84	ug/L	98
30) cis-1,2-Dichloroethene	3.954	61	146586	12.06	ug/L	92
31) 2-Butanone	3.946	43	101016	13.82	ug/L	99
32) Ethyl Acetate	4.011	43	155391	12.94	ug/L	100
33) Methyl acrylate	4.068	55	150786	13.05	ug/L	97
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY41.D
Acq On : 30 May 2018 10:02 pm
Operator : EMR
Sample : VLCSW1-180530
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 30 22:14:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.262	49	78278	12.23 ug/L	91
36) Tetrahydrofuran	4.290	42	62435	14.28 ug/L	97
37) Methacrylonitrile	4.226	41	89967	13.15 ug/L	96
38) Chloroform	4.419	83	170291	12.05 ug/L	99
39) Cyclohexane	4.720	56	8052	0.72 ug/L #	32
41) 1,1,1-Trichloroethane	4.634	97	130904	12.51 ug/L	99
43) Carbon tetrachloride	4.863	117	112153	12.49 ug/L	100
44) 1,1-Dichloropropene	4.885	75	115963	11.78 ug/L	99
46) 1,2-Dichloroethane	5.300	62	123039	12.29 ug/L	99
47) Benzene	5.178	78	381237	13.26 ug/L	99
48) Tertiaryamylmethylether	5.451	73	246367	13.20 ug/L	98
49) Isobutyl Alcohol	5.451	43	70185	11.57 ug/L	98
50) Heptane	5.766	43	6066	0.81 ug/L #	23
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	103623	12.81 ug/L	98
55) 1,2-Dichloropropane	6.704	63	106463	12.94 ug/L	89
56) Dibromomethane	6.797	93	80889	13.47 ug/L	98
57) Methyl methacrylate	6.826	41	103530	11.18 ug/L	96
58) Bromodichloromethane	7.019	83	135322	12.95 ug/L	100
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	44541	11.10 ug/L #	95
61) cis-1,3-Dichloropropene	7.456	75	157950	12.71 ug/L	97
63) 4-Methyl-2-pentanone	7.600	43	280233	22.05 ug/L	77
65) Toluene	7.728	91	389391	13.24 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	142183	12.05 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	143774	11.43 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	120223	13.85 ug/L	93
70) Tetrachloroethene	8.130	166	108119	14.08 ug/L	98
71) 1,3-Dichloropropane	8.201	76	162048	13.28 ug/L	95
72) 2-Hexanone	8.251	43	139631	13.98 ug/L	98
73) Chlorodibromomethane	8.352	129	117741	12.57 ug/L	99
74) Butyl acetate	8.344	43	187638	11.27 ug/L	97
75) 1,2-Dibromoethane	8.423	107	129062	14.43 ug/L #	100
76) Chlorobenzene	8.753	112	267601	13.48 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	103898	13.56 ug/L	96
78) Ethylbenzene	8.817	91	412333	13.03 ug/L	99
79) m/p-Xylene	8.896	91	617411	25.74 ug/L	97
80) Styrene	9.140	104	270997	13.26 ug/L	98
81) o-Xylene	9.125	91	324958	12.77 ug/L	98
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	94803	13.41 ug/L	99
84) Isopropylbenzene	9.333	105	372932	12.46 ug/L	98
86) Bromobenzene	9.512	77	238410	12.70 ug/L	91
87) 1,1,2,2-Tetrachloroethane	9.512	83	198787	14.79 ug/L	98
88) 1,2,3-Trichloropropane	9.541	110	52610	14.26 ug/L	90
89) trans-1,4-Dichloro-2-b...	9.526	53	40588	10.93 ug/L	87
90) n-Propylbenzene	9.562	91	430438	12.48 ug/L	99
91) 2-Chlorotoluene	9.612	91	276834	13.39 ug/L	98

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY41.D
Acq On : 30 May 2018 10:02 pm
Operator : EMR
Sample : VLCSW1-180530
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 30 22:14:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

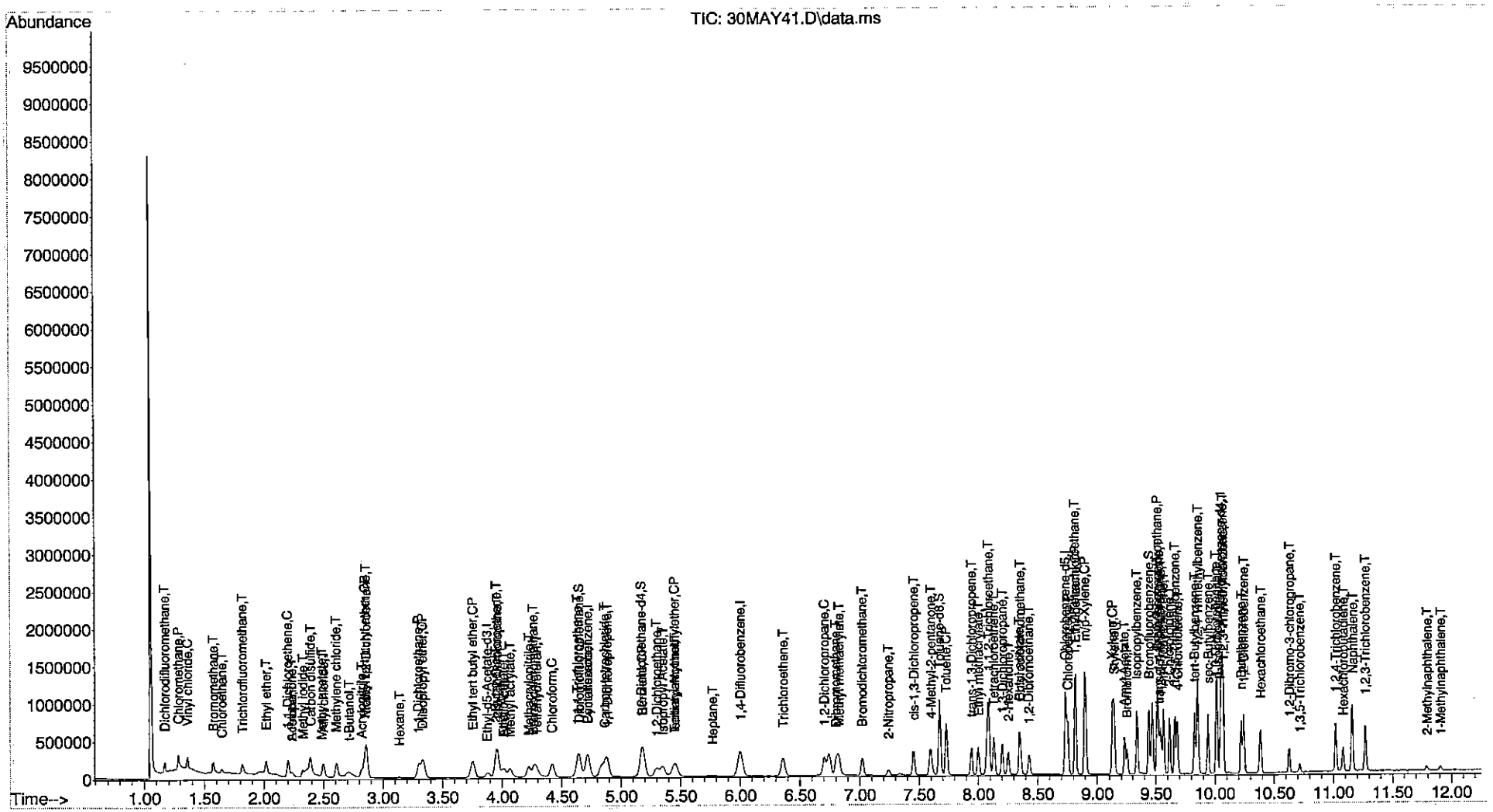
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.684	91	306571	12.67	ug/L		97
93) 1,3,5-Trimethylbenzene	9.662	105	284915	12.02	ug/L		97
94) tert-Butylbenzene	9.827	91	162281	11.46	ug/L		91
95) 1,2,4-Trimethylbenzene	9.856	105	308853	12.23	ug/L		99
96) sec-Butylbenzene	9.942	105	341530	11.96	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	202147	13.44	ug/L		98
99) p-Isopropyltoluene	10.021	119	286569	11.84	ug/L		97
100) 1,4-Dichlorobenzene	10.064	146	205251	13.38	ug/L		99
101) 1,2,3-Trimethylbenzene	10.071	105	315484	12.41	ug/L		98
102) Benzyl chloride	0.000		0	N.D.	d		
103) 1,2-Dichlorobenzene	10.243	146	204146	13.79	ug/L		98
104) n-Butylbenzene	10.221	91	244362	11.14	ug/L		97
105) Hexachloroethane	10.386	117	55098	10.12	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.630	157	65001	15.29	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	8020	0.79	ug/L	#	75
108) 1,2,4-Trichlorobenzene	11.016	180	134057	12.96	ug/L		95
109) Hexachlorobutadiene	11.081	225	40094	11.60	ug/L		93
110) Naphthalene	11.160	128	508804	13.41	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	128812	12.80	ug/L		94
112) 2-Methylnaphthalene	11.790	142	21891	1.12	ug/L		98
113) 1-Methylnaphthalene	11.905	142	21026	1.16	ug/L		93
115) 2-Propanone	2.234	43	61014	14.96	ug/L		95
116) Acetic Ether	4.011	43	155613	13.45	ug/L	#	98
117) Isopropyl Acetate	5.350	61	67784	13.02	ug/L		93
118) Amyl Acetate	9.226	43	169034	11.35	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY41.D
Acq On : 30 May 2018 10:02 pm
Operator : EMR
Sample : VLCSW1-180530
Misc : IS/SS 200-20081
ALS Vial : 37 Sample Multiplier: 1

Quant Time: May 30 22:14:38 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY67.D
Acq On : 31 May 2018 5:01 am
Operator : EMR
Sample : 18051713-11E MS
Misc : IS/SS 200-20081
ALS Vial : 63 Sample Multiplier: 1

Quant Time: May 31 05:13:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.720	168	269148	20.00 ug/L	0.00
40) 1,4-Difluorobenzene	5.995	114	398841	20.00 ug/L	0.00
62) Chlorobenzene-d5	8.731	117	368463	20.00 ug/L	0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	203255	20.00 ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	3.875	46	74286	20.00 ug/L	0.00
System Monitoring Compounds					
42) Dibromofluoromethane	4.648	111	136331	19.71 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.55%		
45) 1,2-Dichloroethane-d4	5.164	65	132947	19.74 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.70%		
64) Toluene-d8	7.671	98	453326	18.85 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 94.25%		
85) Bromofluorobenzene	9.433	95	158780	18.21 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.05%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.167	85	122767	20.36 ug/L	98
3) Chloromethane	1.282	50	149787	16.43 ug/L	99
4) Vinyl chloride	1.361	62	153470	21.48 ug/L	96
5) Bromomethane	1.575	96	111393	50.46 ug/L	96
6) Chloroethane	1.647	64	106314	28.31 ug/L	87
7) Trichlorofluoromethane	1.826	101	154078	20.75 ug/L	97
8) Ethyl ether	2.020	59	83873	15.29 ug/L	99
9) Acrolein	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.206	61	1197156	147.73 ug/L	93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
12) Methyl iodide	2.328	142	135476	32.80 ug/L	98
13) Acetone	2.227	43	69516	18.89 ug/L	98
14) Chloroprene	0.000		0	N.D.	
15) Carbon disulfide	2.392	76	364967	20.78 ug/L	99
16) Allyl chloride	2.499	41	156086	16.53 ug/L	90
17) Methyl acetate	0.000		0	N.D.	
18) Acetonitrile	0.000		0	N.D. d	
19) Methylene chloride	2.607	49	162769	18.96 ug/L	98
20) trans-1,2-Dichloroethene	2.865	61	185743	21.07 ug/L	96
21) t-Butanol	2.700	59	181207	97.80 ug/L	97
22) Acrylonitrile	2.815	53	77903	19.07 ug/L	99
23) Methyl tert-butyl ether	2.850	73	347968	20.64 ug/L	99
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	3.302	63	1034552	85.88 ug/L	100
26) Diisopropyl ether	3.330	45	344291	19.38 ug/L #	47
27) Vinyl acetate	0.000		0	N.D.	
28) Ethyl tert butyl ether	3.753	59	318882	18.17 ug/L	98
29) 2,2-Dichloropropane	3.961	77	131145	15.28 ug/L	98
30) cis-1,2-Dichloroethene	3.954	61	228202	21.73 ug/L	99
31) 2-Butanone	3.946	43	103787	16.44 ug/L	98
32) Ethyl Acetate	4.011	43	148790	14.34 ug/L #	99
33) Methyl acrylate	4.061	55	180799	18.11 ug/L	100
34) Propionitrile	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY67.D
Acq On : 31 May 2018 5:01 am
Operator : EMR
Sample : 18051713-11E MS
Misc : IS/SS 200-20081
ALS Vial : 63 Sample Multiplier: 1

Quant Time: May 31 05:13:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	111985	20.25 ug/L	94
36) Tetrahydrofuran	4.283	42	64833	17.16 ug/L	93
37) Methacrylonitrile	4.219	41	108865	18.42 ug/L	97
38) Chloroform	4.419	83	244244	20.00 ug/L	99
39) Cyclohexane	4.713	56	5189	0.54 ug/L #	1
41) 1,1,1-Trichloroethane	4.634	97	217813	23.53 ug/L	98
43) Carbon tetrachloride	4.863	117	173315	21.81 ug/L	97
44) 1,1-Dichloropropene	4.878	75	170449	19.57 ug/L	97
46) 1,2-Dichloroethane	5.293	62	169056	19.08 ug/L	98
47) Benzene	5.186	78	541636	21.29 ug/L	99
48) Tertiaryamylmethylether	5.443	73	322158	19.51 ug/L	98
49) Isobutyl Alcohol	5.443	43	94303	17.57 ug/L #	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	150501	21.02 ug/L	97
55) 1,2-Dichloropropane	6.704	63	143820	19.76 ug/L	89
56) Dibromomethane	6.797	93	105693	19.89 ug/L	96
57) Methyl methacrylate	6.819	41	133247	16.27 ug/L	97
58) Bromodichloromethane	7.019	83	184446	19.94 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	54946	15.47 ug/L #	96
61) cis-1,3-Dichloropropene	7.449	75	214969	19.55 ug/L	98
63) 4-Methyl-2-pentanone	7.592	43	311479	27.20 ug/L	78
65) Toluene	7.728	91	543941	20.52 ug/L	100
66) trans-1,3-Dichloropropene	7.943	75	189543	17.83 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.001	69	190029	16.76 ug/L	96
69) 1,1,2-Trichloroethane	8.087	97	148353	18.97 ug/L	96
70) Tetrachloroethene	8.130	166	159939	23.11 ug/L	95
71) 1,3-Dichloropropane	8.201	76	213121	19.39 ug/L	96
72) 2-Hexanone	8.244	43	154322	17.15 ug/L	99
73) Chlorodibromomethane	8.352	129	159190	18.85 ug/L	99
74) Butyl acetate	8.345	43	197789	13.19 ug/L	98
75) 1,2-Dibromoethane	8.423	107	165978	20.59 ug/L #	99
76) Chlorobenzene	8.753	112	366081	20.47 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.810	131	136497	19.76 ug/L	99
78) Ethylbenzene	8.817	91	601391	21.09 ug/L	99
79) m/p-Xylene	8.896	91	902392	41.75 ug/L	99
80) Styrene	9.140	104	385541	20.93 ug/L	98
81) o-Xylene	9.125	91	463781	20.22 ug/L	97
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	126034	19.78 ug/L	99
84) Isopropylbenzene	9.333	105	540429	20.03 ug/L	99
86) Bromobenzene	9.512	77	327346	19.36 ug/L	93
87) 1,1,2,2-Tetrachloroethane	9.512	83	257834	21.28 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	60033	18.06 ug/L	95
89) trans-1,4-Dichloro-2-b...	9.526	53	42375	12.66 ug/L	97
90) n-Propylbenzene	9.562	91	651231	20.95 ug/L	100
91) 2-Chlorotoluene	9.612	91	393514	21.12 ug/L	100

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY67.D
Acq On : 31 May 2018 5:01 am
Operator : EMR
Sample : 18051713-11E MS
Misc : IS/SS 200-20081
ALS Vial : 63 Sample Multiplier: 1

Quant Time: May 31 05:13:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

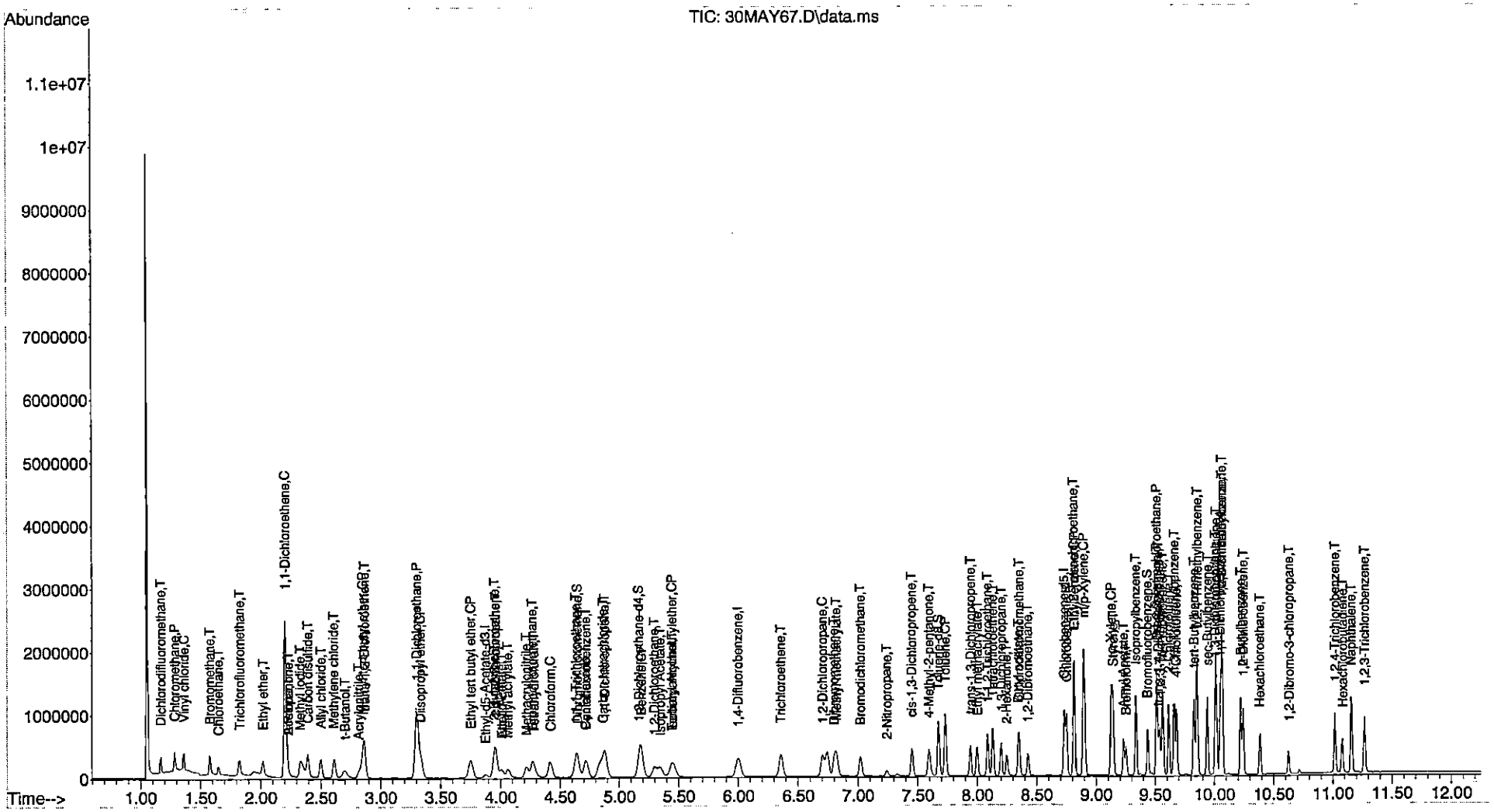
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	439091	20.14 ug/L	97
93) 1,3,5-Trimethylbenzene	9.662	105	430521	20.16 ug/L	98
94) tert-Butylbenzene	9.827	91	257852	20.21 ug/L	93
95) 1,2,4-Trimethylbenzene	9.856	105	445786	19.60 ug/L	98
96) sec-Butylbenzene	9.942	105	547516	21.28 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	289779	20.14 ug/L	100
99) p-Isopropyltoluene	10.013	119	451348	19.49 ug/L	99
100) 1,4-Dichlorobenzene	10.064	146	288925	19.69 ug/L	99
101) 1,2,3-Trimethylbenzene	10.064	105	445202	18.31 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	289689	20.46 ug/L	99
104) n-Butylbenzene	10.221	91	405603	19.33 ug/L	100
105) Hexachloroethane	10.379	117	87225	16.74 ug/L	98
106) 1,2-Dibromo-3-chloropr...	10.630	157	72257	17.77 ug/L	93
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	188051	19.01 ug/L	99
109) Hexachlorobutadiene	11.081	225	70596	21.35 ug/L	100
110) Naphthalene	11.152	128	672878	18.53 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	194067	20.16 ug/L	100
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	69516	20.87 ug/L	98
116) Acetic Ether	4.011	43	150434	15.93 ug/L #	97
117) Isopropyl Acetate	5.343	61	78190	18.39 ug/L	95
118) Amyl Acetate	9.226	43	188259	15.48 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY67.D
Acq On : 31 May 2018 5:01 am
Operator : EMR
Sample : 18051713-11E MS
Misc : IS/SS 200-20081
ALS Vial : 63 Sample Multiplier: 1

Quant Time: May 31 05:13:51 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY68.D
Acq On : 31 May 2018 5:17 am
Operator : EMR
Sample : 18051713-11E MSD
Misc : IS/SS 200-20081
ALS Vial : 64 Sample Multiplier: 1

Quant Time: May 31 05:29:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	272996	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	405162	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	376271	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	203251	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	75600	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	143145	20.37	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.85%				
45) 1,2-Dichloroethane-d4	5.164	65	132349	19.35	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 96.75%				
64) Toluene-d8	7.671	98	466874	19.01	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 95.05%				
85) Bromofluorobenzene	9.433	95	173687	19.51	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	122687	20.06	ug/L		99
3) Chloromethane	1.282	50	149521	16.17	ug/L		99
4) Vinyl chloride	1.360	62	148787	20.53	ug/L		96
5) Bromomethane	1.575	96	111836	49.93	ug/L		99
6) Chloroethane	1.647	64	104075	27.13	ug/L		92
7) Trichlorofluoromethane	1.826	101	152966	20.31	ug/L		97
8) Ethyl ether	2.019	59	80972	14.55	ug/L		92
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.206	61	559595	68.08	ug/L		90
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	136306	32.52	ug/L		100
13) Acetone	2.227	43	71464	19.15	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	367384	20.62	ug/L		98
16) Allyl chloride	2.499	41	157055	16.40	ug/L		91
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	162126	18.62	ug/L		96
20) trans-1,2-Dichloroethene	2.865	61	179237	20.04	ug/L		96
21) t-Butanol	2.700	59	177607	94.50	ug/L	#	95
22) Acrylonitrile	2.814	53	78435	18.93	ug/L		96
23) Methyl tert-butyl ether	2.850	73	342195	20.01	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.301	63	599893	49.10	ug/L		100
26) Diisopropyl ether	3.337	45	340162	18.88	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	322885	18.14	ug/L		99
29) 2,2-Dichloropropane	3.968	77	131366	15.09	ug/L		99
30) cis-1,2-Dichloroethene	3.953	61	209695	19.69	ug/L		94
31) 2-Butanone	3.946	43	106532	16.63	ug/L		97
32) Ethyl Acetate	4.011	43	157914	15.01	ug/L	#	100
33) Methyl acrylate	4.061	55	174288	17.22	ug/L		98
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY68.D
Acq On : 31 May 2018 5:17 am
Operator : EMR
Sample : 18051713-11E MSD
Misc : IS/SS 200-20081
ALS Vial : 64 Sample Multiplier: 1

Quant Time: May 31 05:29:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	114709	20.45 ug/L	92
36) Tetrahydrofuran	4.290	42	65436	17.08 ug/L	96
37) Methacrylonitrile	4.218	41	109228	18.22 ug/L	98
38) Chloroform	4.419	83	2961189	239.10 ug/L	98
39) Cyclohexane	4.827	56	132895	13.58 ug/L #	24
41) 1,1,1-Trichloroethane	4.634	97	355812	37.84 ug/L	100
43) Carbon tetrachloride	4.870	117	1802183	223.25 ug/L	100
44) 1,1-Dichloropropene	4.885	75	170816	19.31 ug/L	97
46) 1,2-Dichloroethane	5.293	62	167829	18.65 ug/L	99
47) Benzene	5.185	78	544738	21.08 ug/L	98
48) Tertiaryamylmethylether	5.450	73	335255	19.98 ug/L	97
49) Isobutyl Alcohol	5.443	43	90660	16.63 ug/L	99
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	149939	20.62 ug/L	99
55) 1,2-Dichloropropane	6.704	63	143267	19.38 ug/L	92
56) Dibromomethane	6.797	93	105756	19.59 ug/L	96
57) Methyl methacrylate	6.819	41	132985	15.98 ug/L	96
58) Bromodichloromethane	7.019	83	186866	19.89 ug/L	98
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	56436	15.64 ug/L #	98
61) cis-1,3-Dichloropropene	7.449	75	209595	18.77 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	310657	26.56 ug/L	80
65) Toluene	7.728	91	562846	20.79 ug/L	100
66) trans-1,3-Dichloropropene	7.943	75	184861	17.03 ug/L	100
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.000	69	187683	16.21 ug/L	99
69) 1,1,2-Trichloroethane	8.086	97	148443	18.59 ug/L	96
70) Tetrachloroethene	8.129	166	166253	23.53 ug/L	99
71) 1,3-Dichloropropane	8.201	76	212111	18.89 ug/L	96
72) 2-Hexanone	8.244	43	159044	17.31 ug/L	98
73) Chlorodibromomethane	8.351	129	163382	18.95 ug/L	97
74) Butyl acetate	8.344	43	205678	13.43 ug/L	99
75) 1,2-Dibromoethane	8.430	107	170335	20.69 ug/L #	98
76) Chlorobenzene	8.753	112	369071	20.21 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	140317	19.90 ug/L	98
78) Ethylbenzene	8.817	91	598163	20.54 ug/L	100
79) m/p-Xylene	8.896	91	924584	41.89 ug/L	99
80) Styrene	9.139	104	370492	19.69 ug/L	99
81) o-Xylene	9.125	91	468544	20.00 ug/L	98
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	128127	19.69 ug/L	99
84) Isopropylbenzene	9.333	105	572295	20.77 ug/L	100
86) Bromobenzene	9.512	77	335008	19.40 ug/L	92
87) 1,1,2,2-Tetrachloroethane	9.512	83	262786	21.24 ug/L	100
88) 1,2,3-Trichloropropane	9.540	110	65375	19.26 ug/L	91
89) trans-1,4-Dichloro-2-b...	9.526	53	41931	12.27 ug/L	95
90) n-Propylbenzene	9.562	91	673326	21.21 ug/L	99
91) 2-Chlorotoluene	9.612	91	395665	20.80 ug/L	97

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY68.D
Acq On : 31 May 2018 5:17 am
Operator : EMR
Sample : 18051713-11E MSD
Misc : IS/SS 200-20081
ALS Vial : 64 Sample Multiplier: 1

Quant Time: May 31 05:29:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

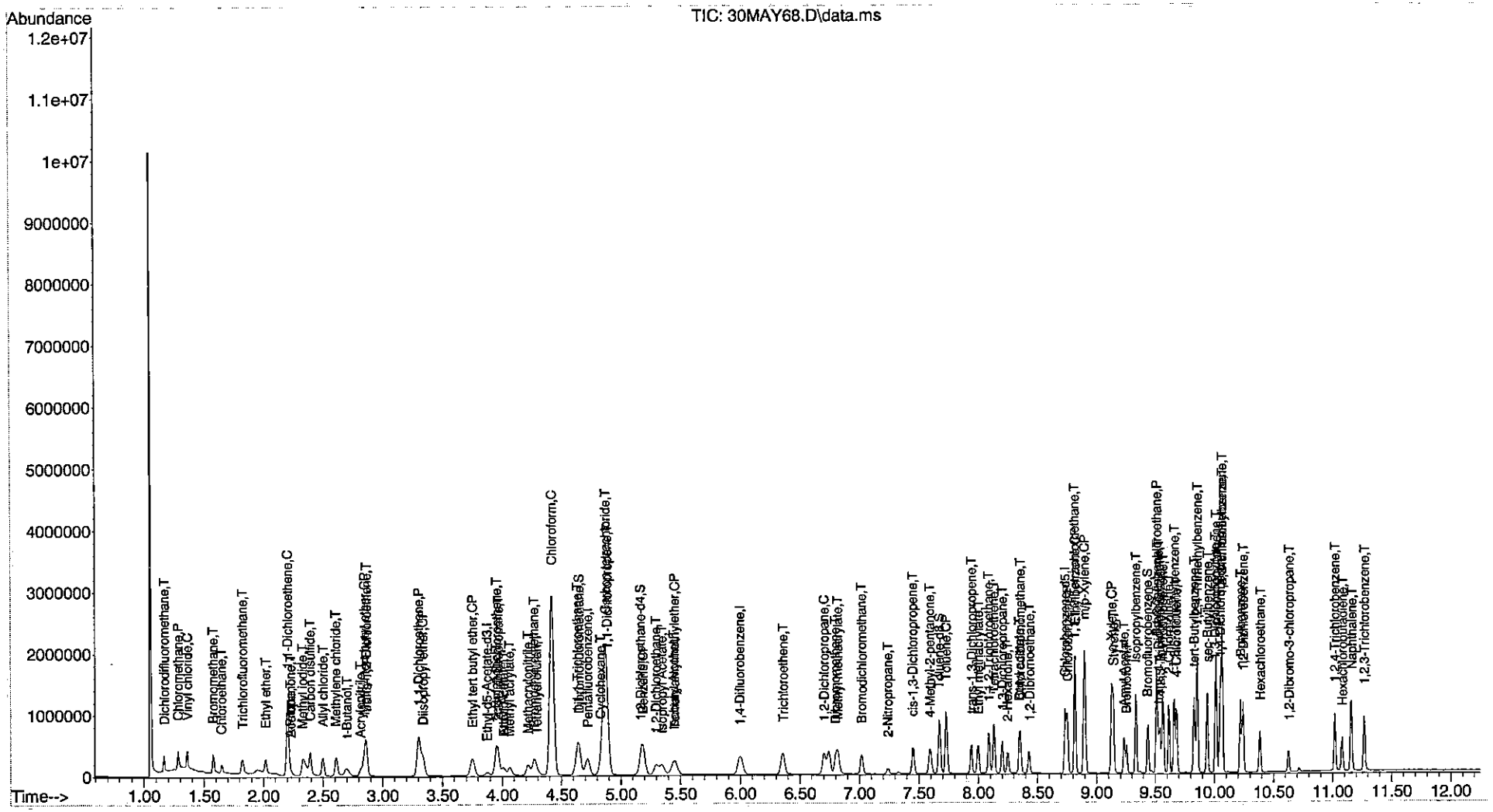
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	448865	20.16 ug/L	97
93) 1,3,5-Trimethylbenzene	9.662	105	447013	20.50 ug/L	98
94) tert-Butylbenzene	9.827	91	260505	19.99 ug/L	93
95) 1,2,4-Trimethylbenzene	9.856	105	463434	19.95 ug/L	97
96) sec-Butylbenzene	9.942	105	566391	21.55 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	290552	20.19 ug/L	99
99) p-Isopropyltoluene	10.013	119	448130	19.35 ug/L	98
100) 1,4-Dichlorobenzene	10.063	146	301744	20.56 ug/L	98
101) 1,2,3-Trimethylbenzene	10.063	105	459156	18.89 ug/L	97
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.242	146	296006	20.90 ug/L	99
104) n-Butylbenzene	10.221	91	417341	19.89 ug/L	99
105) Hexachloroethane	10.386	117	85350	16.38 ug/L	93
106) 1,2-Dibromo-3-chloropr...	10.629	157	69318	17.05 ug/L	97
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	198842	20.10 ug/L	95
109) Hexachlorobutadiene	11.081	225	69984	21.17 ug/L	97
110) Naphthalene	11.159	128	656603	18.09 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	192120	19.96 ug/L	98
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	71464	21.08 ug/L	95
116) Acetic Ether	4.011	43	158061	16.44 ug/L #	98
117) Isopropyl Acetate	5.343	61	79053	18.27 ug/L	92
118) Amyl Acetate	9.225	43	185495	14.99 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180530\
Data File : 30MAY68.D
Acq On : 31 May 2018 5:17 am
Operator : EMR
Sample : 18051713-11E MSD
Misc : IS/SS 200-20081
ALS Vial : 64 Sample Multiplier: 1

Quant Time: May 31 05:29:54 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Sequence Name: C:\msdchem\1\sequence\8V180530.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180530\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info		
1)	Sample	1	30MAY01	8SGO0515	BK
2)	Sample	2	30MAY02	8SGO0515	BLK
3)	BFB	1	30MAY03	BFB	VBFB1-180530
4)	Sample	1	30MAY04	8SGO0515	VCCV1-180530
5)	Sample	1	30MAY05	8SGO0515	VCCV2-180530
6)	Sample	2	30MAY06	8SGO0515	VLCSS1-180530
7)	Sample	3	30MAY07	8SGO0515	BLK
8)	Sample	4	30MAY08	8SGO0515	BLK
9)	Sample	5	30MAY09	8SGO0515	VBLKS1-180531
10)	Sample	6	30MAY10	8SGO0515	18051689-02C DF0.962
11)	Sample	7	30MAY11	8SGO0515	18051689-06C DF0.960
12)	Sample	8	30MAY12	8SGO0515	18051689-10C DF0.745
13)	Sample	9	30MAY13	8SGO0515	18051689-14C DF0.799
14)	Sample	10	30MAY14	8SGO0515	18051689-18C DF0.824
15)	Sample	11	30MAY15	8SGO0515	18051888-01A DF1.10
16)	Sample	12	30MAY16	8SGO0515	18051888-02A DF1.06
17)	Sample	13	30MAY17	8SGO0515	18051888-03A DF0.996
18)	Sample	14	30MAY18	8SGO0515	18051888-05A DF1.06
19)	Sample	15	30MAY19	8SGO0515	18051888-03A DF1.18
20)	Sample	16	30MAY20	8SGO0515	18051888-05A DF1.75
21)	Sample	17	30MAY21	8SGO0515	18051682-04A DF0.702
22)	Sample	18	30MAY22	8SGO0515	18051061-05A
23)	Sample	19	30MAY23	8SGO0515	18051689-22C DF0.933
24)	Sample	20	30MAY24	8SGO0515	18051689-26C DF0.765
25)	Sample	21	30MAY25	8SGO0515	18051689-30C DF0.904
26)	Sample	22	30MAY26	8SGO0515	18051689-34C DF0.984
27)	Sample	23	30MAY27	8SGO0515	18051682-04A DF0.792
28)	Sample	24	30MAY28	8SGO0515	18051689-38C DF0.935
29)	Sample	25	30MAY29	8SGO0515	18051689-22C DF1.01
30)	Sample	26	30MAY30	8SGO0515	18051689-26C DF0.746
31)	Sample	27	30MAY31	8SGO0515	18051689-30C DF0.914
32)	Sample	28	30MAY32	8SGO0515	18051689-34C DF0.938
33)	Sample	29	30MAY33	8SGO0515	18051689-38C DF1.13
34)	Sample	30	30MAY34	8SGO0515	18051689-10C MS
35)	Sample	31	30MAY35	8SGO0515	18051689-10C MSD
36)	Sample	32	30MAY36	8SGO0515	BLK
37)	Sample	33	30MAY37	8GI0515	BLK
38)	Sample	34	30MAY38	BFB	VBFB2-180530
39)	Sample	35	30MAY39	8GI0515	VCCV2-180530
40)	Sample	36	30MAY40	8GI0515	VCCV3-180530
41)	Sample	37	30MAY41	8GI0515	VLCSW1-180530
42)	Sample	38	30MAY42	8GI0515	LCS-
43)	Sample	39	30MAY43	8GI0515	BLK

EMR 5/31/18

Sequence Name: C:\msdchem\1\sequence\8V180530.s

	Line	Type	Vial	DataFile	Method	Sample Name
44)		Sample	40	30MAY44	8GI0515	VBLKW2-180530
45)		Sample	41	30MAY45	8GI0515	MBLK-
46)		Sample	42	30MAY46	8GI0515	18051647-21A
47)		Sample	43	30MAY47	8GI0515	18051713-07A
48)		Sample	44	30MAY48	8GI0515	18051713-08A
49)		Sample	45	30MAY49	8GI0515	18051713-09A
50)		Sample	46	30MAY50	8GI0515	18051713-10A
51)		Sample	47	30MAY51	8GI0515	18051689-42A
52)		Sample	48	30MAY52	8GI0515	18051713-06E
53)		Sample	49	30MAY53	8GI0515	18051682-01A
54)		Sample	50	30MAY54	8GI0515	18051682-03A
55)		Sample	51	30MAY55	8GI0515	18051682-02A
56)		Sample	52	30MAY56	8GI0515	18051838-01A DF10
57)		Sample	53	30MAY57	8GI0515	18051842-01A DF10
58)		Sample	54	30MAY58	8GI0515	18051713-01E
59)		Sample	55	30MAY59	8GI0515	18051713-02E
60)		Sample	56	30MAY60	8GI0515	18051713-03E
61)		Sample	57	30MAY61	8GI0515	18051713-04E
62)		Sample	58	30MAY62	8GI0515	18051713-05E
63)		Sample	59	30MAY63	8GI0515	18051713-11E
64)		Sample	60	30MAY64	8GI0515	18051713-12E
65)		Sample	61	30MAY65	8GI0515	18051689-41A
66)		Sample	62	30MAY66	8GI0515	18051473-03A MSD DF5
67)		Sample	63	30MAY67	8GI0515	18051713-11E MS
68)		Sample	64	30MAY68	8GI0515	18051713-11E MSD
69)		Sample	65	30MAY69	8GI0515	BLK
70)		Sample	66	30MAY70	BFB	VBFB3-180530
71)		Sample	67	30MAY71	8GI0515	VCCV4-180530
72)		Sample	68	30MAY72	8GI0515	VCCV5-180530
73)		Sample	69	30MAY73	8GI0515	VLCSW3-180530
74)		Sample	70	30MAY74	8GI0515	BLK
75)		Sample	71	30MAY75	8GI0515	VBLKW3-180530
76)		Sample	72	30MAY76	8GI0515	18051786-03A
77)		Sample	73	30MAY77	8GI0515	18051728-13A
78)		Sample	74	30MAY78	8GI0515	18051728-01A
79)		Sample	75	30MAY79	8GI0515	18051728-02A
80)		Sample	76	30MAY80	8GI0515	18051728-03A
81)		Sample	77	30MAY81	8GI0515	18051728-04A
82)		Sample	78	30MAY82	8GI0515	18051728-05A DF5
83)		Sample	79	30MAY83	8GI0515	18051728-06A DF5
84)		Sample	80	30MAY84	8GI0515	18051728-07A
85)		Sample	1	30MAY85	8GI0515	18051728-08A
86)		Sample	2	30MAY86	8GI0515	18051728-09A
87)		Sample	3	30MAY87	8GI0515	18051728-10A
88)		Sample	4	30MAY88	8GI0515	18051728-11A
89)		Sample	5	30MAY89	8GI0515	18051728-12A
90)		Sample	6	30MAY90	8GI0515	18051728-05A MS DF5
91)		Sample	7	30MAY91	8GI0515	18051728-05A MSD DF5
92)		Sample	8	30MAY92	8GI0515	BLK

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118884** Prep Code: **VOC_5035_S**

Start Date: **5/25/2018 10:34:28 AM** End Date: **5/25/2018 10:34:28 AM**

Technician: **Eva Ascencio**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051639-01A	Sludge		5.65		9.5	10	103.034
Updated EMR							
18051642-01A			4.48		16	5	75.9566
Updated EMR							
18051642-02A			4.95		17	5	71.0904
Updated EMR							
18051642-03A			4.62		19	5	78.534
Updated EMR							
18051642-03A MS			10		19	10	73.4568
Updated EMR The sample was not preserved within 2 days of the collection date							
18051642-03A MS			10		19	10	73.4568
Updated EMR The sample was not preserved within 2 days of the collection date							
18051642-04A			4.42		18	5	79.9525
Updated EMR							
18051642-05A			5		20	5	75
Updated EMR							
18051642-06A			4.92		19	5	74.4605
Updated EMR							
18051642-07A			5		0	5	50
Trip blank.							
18051680-03A	Waste		1.12		16	10	540.986
Updated EMR Low density material..							
18051682-04A			5		8.9	5	59.7695
Updated EMR							
18051689-02C			4.17		27	5	100.619
Updated EMR							

Notes: *Balance 4 MeOH 3081-1-1*

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118884** Prep Code: **VOC_5035_S**

Start Date: **5/25/2018 10:34:28 AM** End Date: **5/25/2018 10:34:28 AM**

Technician: **Eva Ascencio**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051689-06C			5		30	5	92.8571
	Updated EMR						
18051689-10C			5		19	5	73.4568
	Updated EMR						
18051689-14C			5		19	5	73.4568
	Updated EMR						
18051689-18C			5		13	5	64.9425
	Updated EMR						
18051689-22C			5		23	5	79.8701
	Updated EMR						
18051689-26C			5		16	5	69.0476
	Updated EMR						
18051689-30C			5		31	5	94.9275
	Updated EMR						
18051689-34C			4.37		29	5	100.998
	Updated EMR						
18051689-38C			5		21	5	76.5823
	Updated EMR						
LCS-118884			10		0	10	50
MBLK-118884			10		0	10	50

Notes: *Balance 4 MeOH 3081-1-1*

Book Number 3093

ALS Environmental

Method 5035 Soil Extraction Logsheet

Label Weight (g): 0.31

Balance ID: 4 Methanol ID: 3081-1-1 Analyst: GH Batch ID: 118884

Sample ID	Vial	Vial Tare Weight	Vial Weight w/Sample	Sample Weight (1)	Methanol Volume (2)	Methanol Additions	Solvent Ratio (3)	Date & Time of Sonication (4)	Date & Time of Aliquot (5)
1805 1642-01A	1/3	29.51	34.30	4.48	5.00	–	56	5/25/18 1030	5/25/18 1130
-02A	2/3	29.60	34.86	4.95	↓	–	51	↓	↓
-03A	3/3	29.49	34.42	4.62		–	54		
-04A	1/3	29.66	34.39	4.42		–	57		
-05A	3/3	29.48	35.19	5.40		0.32	50		
-06A	↓	29.53	34.76	4.92		–	51		
-07A	1/3	TRIP	BLANK	–		–	50		
1805 1689-02C	1/3	32.91	37.39	4.17		–	60		
-06C	↓	32.69	38.93	5.93		0.74	50		
-10C		33.19	39.15	5.65		0.52	↓		
-14C		33.16	39.15	5.68		0.54			
-18C		33.15	39.01	5.55		0.44			
-22C		32.80	38.54	5.43		0.34			
-26C		33.33	47.04	13.40		6.72			
-30C		33.08	40.15	6.76		1.41	↓		
-34C	↓	33.36	38.04	4.37		–	57		
-38C	3/3	32.92	38.47	5.24		0.19	50		
1805 1682-04A	↓	33.24	39.83	6.28	↓	1.02	↓		
1805 1639-01A	2/2	BULK	–	5.65	10.00	–	89		
1805 1680-03A	↓			1.12			446		
1805 1642-03AMS	1/1			10.00			50		
-03AMSD	↓	↓	↓	↓	↓	↓	↓	↓	↓

Reviewed by:

(1) Sample Weight = (Vial w/Sample Weight) - (Vial Tare Weight) - (Label Weight)
(2) Default = 10 mL
(3) Ratio of methanol to soil must be > 1.0
(4) Sonicate for a minimum of 20 minutes
(5) If not taken immediately after sonication

File Name: 5035 Soil Extraction Log - R4 - 2015.xls

ALS Environmental

Method 5035 Low-Level Soil Logsheet

Analyst: AK/EMC Balance ID: 4

Sample ID	Date	Vial #	Vial Tare Weight (g)	Vial Weight w/Sample (g)	Sample Weight (g) (1)	Fluid Weight (g) (2)	Water	$NaHSO_4$	$Na_5P_3O_{10}$	None	Sample Dilution Factor (3)
18051682-04A	5/30/18	1/3	34.94	47.37	7.12	5.00	X				0.702
-04A	↓	2/3	35.27	41.89	6.31	5.00	X				0.792
18051689-22C		2/3	35.37	41.04	5.36	5.00			X		0.933
-26C		3/3	34.43	41.28	6.54	↓			↓		0.705
-22C		3/3	34.88	40.15	4.96						1.01
-26C		2/3	35.58	42.68	6.70						0.746
-30C		2/3	35.40	41.28	5.53						0.904
-34C		2/3	35.14	40.53	5.08						0.984
-30C		3/3	34.76	40.54	5.47						0.914
-34C	↓	3/3	34.93	40.57	5.33	↓			↓		0.938
-38C		1/3	34.75	40.41	5.35						0.935
-38C	↓	2/3	34.94	40.69	4.44						1.13

(1) Sample Weight = (Vial Weight w/Sample) - (Vial Tare Weight) - (0.31g for sample label)
(2) Fluid Weight Default = 5.0g
(3) Sample Dilution Factor = (Fluid Weight) / (Sample Weight)

Inorganic

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1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-45

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051682

Matrix: Soil Lab Sample ID: 18051682-04B

Level (low/med): LOW Date Received: 5/24/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	8.9			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-45

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051682

Matrix: Soil Lab Sample ID: 18051682-04D

Level (low/med): LOW Date Received: 5/24/2018

% Moisture: not dec. 0 Date Prep: 5/31/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	8.41			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-45

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051682

Matrix: Soil Lab Sample ID: 18051682-04C

Level (low/med): LOW Date Received: 5/24/2018

% Moisture: not dec. 8.9 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.13			

Date: 02-Jul-18

ALS Group, USA

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **118942** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063673** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063674** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.84	0	15	0	92.3	80-120	0			

DUP Sample ID: **18051682-04D DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-45** Run ID: **WETCHEM_180531G** SeqNo: **5063676** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.29	0	0	0	0		8.41	45	20	R

DUP Sample ID: **18051682-04D DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-45** Run ID: **WETCHEM_180531G** SeqNo: **5063677** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.97	0	0	0	0		8.41	26.4	20	R

DUP Sample ID: **18051778-07A DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063679** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	11.52	0	0	0	0		10.94	5.16	20	

DUP Sample ID: **18051778-07A DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063680** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.91	0	0	0	0		10.94	9.88	20	

The following samples were analyzed in this batch: 18051682-04D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R237002** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237002** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063529** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R237002** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063528** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051689-01A DUP** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063507** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	30.08	0.050	0	0	0	0-0	28.28	6.17	10	

DUP Sample ID: **18051689-03A DUP** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063510** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	29.01	0.050	0	0	0	0-0	29.05	0.138	10	

The following samples were analyzed in this batch: 18051682-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R237238** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069364** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1121	0.025	0.1	0	112	91-143	0			

MS Sample ID: **18051778-06C MS** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.627	0.025	0.4739	1.309	67	91-143	0			S

MSD Sample ID: **18051778-06C MSD** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.65	0.025	0.4739	1.309	71.9	91-143	1.627	1.41	20	S

The following samples were analyzed in this batch: 18051682-04C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Moisture

ALS Environmental

Analyst:	NW	Date/Time In:	5/30/18 8:00 PM	Temp In Deg C:	103
Review By:		Date/Time Out:	5/31/18 7:16 AM	Temp Out Deg C:	104.1
Method:	% Moisture (E160.3M)	Batch ID:	MOIST_180530E	Sand BPL:	2049-158-8
SOP:	HN-WC-036	Balance ID:	6		

WO	Btl. #	SampType	Dish ID	Pan Wt	Tare Wt*	Wet Wt	1st Wt	2nd Wt	3rd Wt	Final Wt**	% Solid	%Moisture	Analyte
WBLKS		MBLK	BLK	1.3052	0	0.0000				1.305	0.02	0.02	Moisture
LCS		LCS	LCS	1.3046	0	6.2706				7.5755	100.00	100.00	Moisture
18051689-01A	1	SAMP	W1	1.3004	0	5.6991				5.3876	71.72	28.28	Moisture
18051689-01A DUP	1	DUP	W2	1.3047	0	8.6336				7.3411	69.92	30.08	Moisture
18051689-02B	1	SAMP	W3	1.3117	0	6.3636				5.9319	72.60	27.40	Moisture
18051689-04A	1	SAMP	W4	1.3175	0	7.2498				6.1515	66.68	33.32	Moisture
18051689-05A	1	SAMP	W5	1.4467	0	8.8469				8.4023	78.62	21.38	Moisture
18051689-06B	1	SAMP	W6	1.452	0	5.2359				5.1375	70.39	29.61	Moisture
18051913-01A	1	SAMP	W7	1.3649	0	6.3549				6.743	84.63	15.37	Moisture
18051714-01B	1	SAMP	W8	1.2889	0	7.4851				6.527	69.98	30.02	Moisture
18051714-02B	1	SAMP	W9	1.2914	0	7.4784				6.8197	73.92	26.08	Moisture
18051714-03B	1	SAMP	W10	1.3055	0	7.661				7.1477	76.26	23.74	Moisture
18051714-04B	1	SAMP	W11	1.2919	0	6.0644				4.341	50.28	49.72	Moisture
18051689-03A	1	SAMP	W12	1.3007	0	7.1617				6.3821	70.95	29.05	Moisture
18051689-03A DUP	1	DUP	W13	1.3032	0	8.7721				7.5306	70.99	29.01	Moisture
18051714-05B	1	SAMP	W14	1.3428	0	5.8298				4.7499	58.44	41.56	Moisture
18051682-04B	1	SAMP	W15	1.3439	0	6.7613				7.502	91.08	8.92	Moisture
18051799-01A	1	SAMP	W16	1.3938	0	5.1316				5.4201	78.46	21.54	Moisture
18051680-03A	1	SAMP	W17	1.3065	0	8.4588				8.4133	84.02	15.98	Moisture
18051777-01A	1	SAMP	W18	1.3782	0	5.0925				5.2078	75.20	24.80	Moisture
18051777-02A	1	SAMP	W19	1.3663	0	6.7047				6.0269	69.51	30.49	Moisture
18051777-03A	1	SAMP	W20	1.3953	0	5.3547				5.4327	75.40	24.60	Moisture
18051777-04A	2	SAMP	W21	1.3962	0	7.1777				7.1511	80.18	19.82	Moisture
18051777-05A	1	SAMP	W22	1.3178	0	5.8293				5.4815	71.43	28.57	Moisture

Re-Dry		Temp °C	Analyst
Date/Time In:			
Date/Time Out:			

Analysis Date/Time:	5/31/2018 11:20	NW

: Tare weight must ≤ 0.0005g

****: Weight difference must be <4% or 0.5mg (whichever is smaller)**

% Solid = ((Final Wt - Pan Wt) / Wet Wt)*100

% Moisture = (1- (Final Wt - Pan Wt) / Wet Wt)) * 100

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Oxidant Demand

Batch ID: WETCHEM-180531C Date: 5/31/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99999				
0.5						0.009					
50						0.742					
100						1.474					
MBLK- 118942	50	100	20000	96	250	1.206	0	81.71	0.00	20427.50	-0.86
LCS- 118942	50	100	20000	96	250	0.773	0	52.33	0.00	13082.50	13.84
18051682-04D	50.59	100	20000	96	250	0.93	0	62.98	0.00	15745.00	8.41
18051682-04D	50.31	100	20000	96	250	0.789	0.004	53.42	0.16	13315.00	13.29
18051682-04D	49.06	100	20000	96	250	0.863	0.001	58.44	-0.04	14620.00	10.97
18051778-07A	50.54	100	20000	96	250	0.855	0	57.89	0.00	14472.50	10.94
18051778-07A	40.61	100	20000	96	250	0.905	0	61.28	0.00	15320.00	11.52
18051778-07A	46.53	100	20000	96	250	0.909	0	61.56	0.00	15390.00	9.91
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!

Vial Lot ID: 1712272 Calcium Chloride BPL: 2049-177-1 Reviewed By:

KMnO4 Standard BPL: 3072-59-13 Sodium Thio (0.019M) BPL: 3072-62-15 Review Date:

File Name: 180531A

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118942** Prep Code: **OXDMD_PREP**

Start Date: **5/27/2018** End Date: **5/31/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051682-04D	Soil		50		0	100	1
18051682-04D DU			50		0	100	1
18051682-04D DU			50		0	100	1
18051778-07A	Soil		50		0	100	1
18051778-07A DU			50		0	100	1
18051778-07A DU			50		0	100	1
LCS-118942			50		0	100	1
MBLK-118942			50		0	100	1

Notes:

TOC Walkley-Black Calculations

Batch ID: WC-180604E
Analyst: KF
Date: 6/4/18 9:37AM

Sample ID	g sample	mL FeSO4	meq Fe	%
BLANK	10	20.75	10.375	-0.01463
LCS	10	14.25	7.125	0.112125
18051682-04	2.5	18.45	9.225	0.1209
18051778-06	2.19	5.3	2.65	1.308904
18051778-06 MS	2.11	2.4	1.2	1.62654
18051778-06 MSD	2.11	2.15	1.075	1.649645
18051778-07	3.46	18.55	9.275	0.08172
			0	#DIV/0!
			0	#DIV/0!
			0	#DIV/0!
			0	#DIV/0!
			0	#DIV/0!
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			0	#DIV/0!

$$\text{TOC \%} = \frac{(\text{Meq K2Cr2O2} - \text{MeqFeSO4}) \times .003 \times 100}{\text{grams water free soil}} \times (f)$$

(f) =correction factor of 1.3

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[redacted]

FeSO4: 3072-325-1
$K_2Cr_2O_7$: 3012-B0-9
Sulfuric Acid:

Sample ID	Sample Size (g)	N $FeSO_4$	Titration			mLs 1.0 N $K_2Cr_2O_7$	% Organic Carbon	Comments
			Finish	Start	Difference (mL)			
Blank	10g	0.5N	20.75	0	20.25			
LCS	"		35.00	20.75	14.25			3072-46-11
1805 1682-04	2.50		18.95	0.50	18.45			
1778-06	2.19		24.25	18.95	5.30			
-06 MS	2.11		26.65	24.25	2.40			3072-46-11
-06 MSD	2.11		28.80	26.65	2.15			
-07	3.46	"	47.25	28.80	18.55			

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

06-Jun-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051682**

Dear Heather,

ALS Environmental received 4 samples on 24-May-2018 10:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 23.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 06-Jun-18

Client: Jacobs
Project: PMC
Work Order: **18051682**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051682-01	18CP02-41	Water		5/23/2018 09:05	5/24/2018 10:30	☐
18051682-02	18CP02-42	Water		5/23/2018 09:00	5/24/2018 10:30	☐
18051682-03	18CP02-43	Water		5/23/2018 13:55	5/24/2018 10:30	☐
18051682-04	18CP02-45	Soil		5/22/2018 09:00	5/24/2018 10:30	☐

Client: Jacobs
Project: PMC
Work Order: 18051682

Case Narrative

Samples for the above noted Work Order were received on 05/24/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

Batch 118942, Method OXDMD_KMNO4_S, Samples 18051682-04D DUP2 and -04D DUP3: The RPDs between the samples and the duplicates were out of control. The corresponding sample results should be considered estimated.

ALS Group, USA

Date: 06-Jun-18

Client: Jacobs
Project: PMC
WorkOrder: **18051682**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
g/Kg	

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-41
Collection Date: 5/23/2018 09:05 AM

Work Order: 18051682
Lab ID: 18051682-01
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
Trichloroethene	U		0.33	1.0	µg/L	1	5/31/2018 01:14
Surr: 1,2-Dichloroethane-d4	*95.0*			*75-120*	*%REC*	1	5/31/2018 01:14
Surr: 4-Bromofluorobenzene	*93.8*			*80-110*	*%REC*	1	5/31/2018 01:14
Surr: Dibromofluoromethane	*100*			*85-115*	*%REC*	1	5/31/2018 01:14
Surr: Toluene-d8	*95.1*			*85-110*	*%REC*	1	5/31/2018 01:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-42
Collection Date: 5/23/2018 09:00 AM

Work Order: 18051682
Lab ID: 18051682-02
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
Trichloroethene	U		0.33	1.0	µg/L	1	5/31/2018 01:46
Surr: 1,2-Dichloroethane-d4	*94.6*			*75-120*	*%REC*	1	5/31/2018 01:46
Surr: 4-Bromofluorobenzene	*91.7*			*80-110*	*%REC*	1	5/31/2018 01:46
Surr: Dibromofluoromethane	*98.2*			*85-115*	*%REC*	1	5/31/2018 01:46
Surr: Toluene-d8	*96.4*			*85-110*	*%REC*	1	5/31/2018 01:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-43
Collection Date: 5/23/2018 01:55 PM

Work Order: 18051682
Lab ID: 18051682-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
Trichloroethene	U		0.33	1.0	µg/L	1	5/31/2018 01:30
Surr: 1,2-Dichloroethane-d4	*96.8*			*75-120*	*%REC*	1	5/31/2018 01:30
Surr: 4-Bromofluorobenzene	*96.8*			*80-110*	*%REC*	1	5/31/2018 01:30
Surr: Dibromofluoromethane	*102*			*85-115*	*%REC*	1	5/31/2018 01:30
Surr: Toluene-d8	*96.9*			*85-110*	*%REC*	1	5/31/2018 01:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-45
Collection Date: 5/22/2018 09:00 AM

Work Order: 18051682
Lab ID: 18051682-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
1,1,1-Trichloroethane	U		0.69	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,1,2,2-Tetrachloroethane	U		0.23	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,1,2-Trichloroethane	U		0.34	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,1,2-Trichlorotrifluoroethane	U		0.96	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,1-Dichloroethane	U		1.8	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,1-Dichloroethene	U		0.85	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2,3-Trichlorobenzene	U		0.54	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2,4-Trichlorobenzene	U		0.63	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2-Dibromo-3-chloropropane	U		1.2	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2-Dibromoethane	U		0.31	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2-Dichlorobenzene	U		0.55	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2-Dichloroethane	U		0.31	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,2-Dichloropropane	U		0.38	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,3-Dichlorobenzene	U		0.45	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
1,4-Dichlorobenzene	U		0.31	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
2-Butanone	U		1.7	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
2-Hexanone	U		0.85	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
4-Methyl-2-pentanone	U		0.70	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Acetone	**38**		**1.8**	**8.7**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Benzene	**1.8**	J	**0.45**	**4.3**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Bromochloromethane	U		0.43	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Bromodichloromethane	U		0.28	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Bromoform	U		0.27	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Bromomethane	U		0.63	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
Carbon disulfide	**1.3**	J	**0.49**	**4.3**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Carbon tetrachloride	U		0.72	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Chlorobenzene	U		0.28	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Chloroethane	U		0.55	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Chloroform	U		0.26	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Chloromethane	U		0.40	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
cis-1,2-Dichloroethene	U		0.42	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
cis-1,3-Dichloropropene	U		0.23	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Cyclohexane	U		2.7	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
Dibromochloromethane	U		0.41	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Dichlorodifluoromethane	U		0.94	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
Ethylbenzene	**0.83**	J	**0.52**	**4.3**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Isopropylbenzene	U		0.56	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
m,p-Xylene	**1.4**	J	**1.1**	**2.2**	**µg/Kg-dry**	0.792	5/30/2018 18:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-45
Collection Date: 5/22/2018 09:00 AM

Work Order: 18051682
Lab ID: 18051682-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.1	8.7	µg/Kg-dry	0.792	5/30/2018 18:06
Methyl tert-butyl ether	U		0.20	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Methylcyclohexane	**5.0**	J	**1.3**	**8.7**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Methylene chloride	U		0.75	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
o-Xylene	**0.50**	J	**0.41**	**2.2**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Styrene	U		0.35	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Tetrachloroethene	U		0.77	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Toluene	**4.2**	J	**0.49**	**4.3**	**µg/Kg-dry**	0.792	5/30/2018 18:06
trans-1,2-Dichloroethene	U		0.35	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
trans-1,3-Dichloropropene	U		0.25	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Trichloroethene	U		0.63	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Trichlorofluoromethane	U		0.62	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Vinyl chloride	U		0.61	4.3	µg/Kg-dry	0.792	5/30/2018 18:06
Xylenes, Total	**1.9**	J	**1.5**	**4.3**	**µg/Kg-dry**	0.792	5/30/2018 18:06
Surr: 1,2-Dichloroethane-d4	*103*			*83-132*	*%REC*	0.792	5/30/2018 18:06
Surr: 4-Bromofluorobenzene	*85.8*			*83-111*	*%REC*	0.792	5/30/2018 18:06
Surr: Dibromofluoromethane	*108*			*77-125*	*%REC*	0.792	5/30/2018 18:06
Surr: Toluene-d8	*107*			*86-108*	*%REC*	0.792	5/30/2018 18:06
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**8.9**		**0.025**	**0.050**	**% of sample**	1	5/30/2018 20:00
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/31/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**8.41**		**0**		**g/Kg**	1	5/31/2018 12:30
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.13**		**0.013**	**0.027**	**% by wt-dry**	1	6/4/2018 09:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MBLK	Sample ID: **VBLKS1-180531-R236831**				Units: **µg/Kg**			Analysis Date: **5/30/2018 11:17 AM**		
Client ID:		Run ID: **VMS8_180530A**			SeqNo: **5062231**	Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

Methylene chloride	U	5.0					
o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*19.44*	0	*20*	0	*97.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.06*	0	*20*	0	*95.3*	*83-111*	0
Surr: Dibromofluoromethane	*19.74*	0	*20*	0	*98.7*	*77-125*	0
Surr: Toluene-d8	*19.65*	0	*20*	0	*98.2*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **VLCSS1-180530-R236831**				Units: **µg/Kg**		Analysis Date: **5/30/2018 10:24 AM**			
Client ID:		Run ID: **VMS8_180530A**			SeqNo: **5062230**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.26	5.0	20	0	96.3	73-138	0			
1,1,2,2-Tetrachloroethane	17.88	5.0	20	0	89.4	71-126	0			
1,1,2-Trichloroethane	17.53	5.0	20	0	87.6	77-123	0			
1,1-Dichloroethane	19.87	5.0	20	0	99.4	63-148	0			
1,1-Dichloroethene	19.57	5.0	20	0	97.8	67-156	0			
1,2,3-Trichlorobenzene	18.64	5.0	20	0	93.2	73-129	0			
1,2,4-Trichlorobenzene	19.29	5.0	20	0	96.4	70-132	0			
1,2-Dibromo-3-chloropropane	16.78	5.0	20	0	83.9	48-127	0			
1,2-Dibromoethane	18.48	5.0	20	0	92.4	71-144	0			
1,2-Dichlorobenzene	19.91	5.0	20	0	99.6	77-127	0			
1,2-Dichloroethane	18.03	5.0	20	0	90.2	77-127	0			
1,2-Dichloropropane	18.85	5.0	20	0	94.2	74-130	0			
1,3-Dichlorobenzene	20.13	5.0	20	0	101	75-133	0			
1,4-Dichlorobenzene	19.81	5.0	20	0	99	74-130	0			
2-Butanone	15.3	10	20	0	76.5	55-132	0			
2-Hexanone	14.22	5.0	20	0	71.1	55-124	0			
4-Methyl-2-pentanone	18.76	5.0	20	0	93.8	67-159	0			
Acetone	14.69	10	20	0	73.4	31-156	0			
Benzene	19.29	5.0	20	0	96.4	77-133	0			
Bromochloromethane	18.86	5.0	20	0	94.3	72-139	0			
Bromodichloromethane	19.28	5.0	20	0	96.4	69-133	0			
Bromoform	16.93	5.0	20	0	84.6	55-126	0			
Bromomethane	20.14	10	20	0	101	31-174	0			
Carbon disulfide	20.37	5.0	20	0	102	45-160	0			
Carbon tetrachloride	20.51	5.0	20	0	103	69-140	0			
Chlorobenzene	19.49	5.0	20	0	97.4	76-130	0			
Chloroethane	18.85	5.0	20	0	94.2	53-150	0			
Chloroform	18.22	5.0	20	0	91.1	72-132	0			
Chloromethane	14.49	10	20	0	72.4	43-150	0			
cis-1,2-Dichloroethene	18.7	5.0	20	0	93.5	74-134	0			
cis-1,3-Dichloropropene	18.85	5.0	20	0	94.2	62-134	0			
Dibromochloromethane	17.38	5.0	20	0	86.9	57-118	0			
Dichlorodifluoromethane	16.19	10	20	0	81	43-126	0			
Ethylbenzene	19.33	5.0	20	0	96.6	75-133	0			
Isopropylbenzene	19.57	5.0	20	0	97.8	74-137	0			
m,p-Xylene	38.35	2.5	40	0	95.9	75-134	0			
Methyl tert-butyl ether	19.77	5.0	20	0	98.8	62-136	0			
Methylene chloride	19.73	5.0	20	0	98.6	55-157	0			
o-Xylene	18.78	2.5	20	0	93.9	76-130	0			
Styrene	18.75	5.0	20	0	93.8	72-138	0			
Tetrachloroethene	21.48	5.0	20	0	107	70-171	0			
Toluene	18.87	5.0	20	0	94.4	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	18.33	5.0	20	0	91.6	65-137	0
trans-1,3-Dichloropropene	16.61	5.0	20	0	83	58-126	0
Trichloroethene	20.7	5.0	20	0	104	75-135	0
Trichlorofluoromethane	17.12	5.0	20	0	85.6	62-136	0
Vinyl chloride	19.72	5.0	20	0	98.6	57-143	0
Xylenes, Total	57.13	5.0	60	0	95.2	75-132	0
Surr: 1,2-Dichloroethane-d4	*18.65*	0	*20*	0	*93.2*	*83-132*	0
Surr: 4-Bromofluorobenzene	*18.46*	0	*20*	0	*92.3*	*83-111*	0
Surr: Dibromofluoromethane	*19.27*	0	*20*	0	*96.4*	*77-125*	0
Surr: Toluene-d8	*18.94*	0	*20*	0	*94.7*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MS Sample ID: **18051689-10C MS** Units: **µg/Kg** Analysis Date: **5/30/2018 08:03 PM**

Client ID: Run ID: **VMS8_180530A** SeqNo: **5062720** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	29.45	5.0	25	0	118	73-138	0			
1,1,2,2-Tetrachloroethane	24.58	5.0	25	0	98.3	71-126	0			
1,1,2-Trichloroethane	24.58	5.0	25	0	98.3	77-123	0			
1,1-Dichloroethane	28.8	5.0	25	0	115	63-148	0			
1,1-Dichloroethene	30.52	5.0	25	0	122	67-156	0			
1,2,3-Trichlorobenzene	18.2	5.0	25	0	72.8	73-129	0			S
1,2,4-Trichlorobenzene	18.89	5.0	25	0	75.6	70-132	0			
1,2-Dibromo-3-chloropropane	22.12	5.0	25	0	88.5	48-127	0			
1,2-Dibromoethane	26.54	5.0	25	0	106	71-144	0			
1,2-Dichlorobenzene	22.81	5.0	25	0	91.2	77-127	0			
1,2-Dichloroethane	24.49	5.0	25	0	98	77-127	0			
1,2-Dichloropropane	26.64	5.0	25	0	107	74-130	0			
1,3-Dichlorobenzene	22.62	5.0	25	0	90.5	75-133	0			
1,4-Dichlorobenzene	22.24	5.0	25	0	89	74-130	0			
2-Butanone	37.64	10	25	0	151	55-132	0			S
2-Hexanone	26.26	5.0	25	0	105	55-124	0			
4-Methyl-2-pentanone	31.11	5.0	25	0	124	67-159	0			
Acetone	57.27	10	25	3.867	214	31-156	0			S
Benzene	27.51	5.0	25	0	110	77-133	0			
Bromochloromethane	26.07	5.0	25	0	104	72-139	0			
Bromodichloromethane	26.22	5.0	25	0	105	69-133	0			
Bromoform	24.76	5.0	25	0	99	55-126	0			
Bromomethane	26.2	10	25	0	105	31-174	0			
Carbon disulfide	29.98	5.0	25	0	120	45-160	0			
Carbon tetrachloride	32.8	5.0	25	0	131	69-140	0			
Chlorobenzene	26.2	5.0	25	0	105	76-130	0			
Chloroethane	23.54	5.0	25	0	94.2	53-150	0			
Chloroform	25.51	5.0	25	0	102	72-132	0			
Chloromethane	20.91	10	25	0	83.6	43-150	0			
cis-1,2-Dichloroethene	27.56	5.0	25	0	110	74-134	0			
cis-1,3-Dichloropropene	24.29	5.0	25	0	97.2	62-134	0			
Dibromochloromethane	24.27	5.0	25	0	97.1	57-118	0			
Dichlorodifluoromethane	31.88	10	25	0	128	43-126	0			S
Ethylbenzene	27.44	5.0	25	0	110	75-133	0			
Isopropylbenzene	29.04	5.0	25	0	116	74-137	0			
m,p-Xylene	53.22	2.5	50	0	106	75-134	0			
Methyl tert-butyl ether	30.37	5.0	25	0	121	62-136	0			
Methylene chloride	29.09	5.0	25	0	116	55-157	0			
o-Xylene	26.03	2.5	25	0	104	76-130	0			
Styrene	24.26	5.0	25	0	97	72-138	0			
Tetrachloroethene	41.03	5.0	25	0	164	70-171	0			
Toluene	26.75	5.0	25	0	107	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	27.73	5.0	25	0	111	65-137	0
trans-1,3-Dichloropropene	22.9	5.0	25	0	91.6	58-126	0
Trichloroethene	29.46	5.0	25	0	118	75-135	0
Trichlorofluoromethane	28.55	5.0	25	0	114	62-136	0
Vinyl chloride	32.6	5.0	25	0	130	57-143	0
Xylenes, Total	79.25	5.0	75	0	106	75-132	0
Surr: 1,2-Dichloroethane-d4	*20.57*	0	*20*	0	*103*	*83-132*	0
Surr: 4-Bromofluorobenzene	*19.16*	0	*20*	0	*95.8*	*83-111*	0
Surr: Dibromofluoromethane	*20.28*	0	*20*	0	*101*	*77-125*	0
Surr: Toluene-d8	*19.21*	0	*20*	0	*96*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

MSD Sample ID: **18051689-10C MSD** Units: **µg/Kg** Analysis Date: **5/30/2018 08:20 PM**

Client ID: Run ID: **VMS8_180530A** SeqNo: **5062721** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	30.85	5.0	25	0	123	73-138	29.45	4.64	30	
1,1,2,2-Tetrachloroethane	29.2	5.0	25	0	117	71-126	24.58	17.2	30	
1,1,2-Trichloroethane	27.37	5.0	25	0	109	77-123	24.58	10.7	30	
1,1-Dichloroethane	30.06	5.0	25	0	120	63-148	28.8	4.28	30	
1,1-Dichloroethene	31.6	5.0	25	0	126	67-156	30.52	3.48	30	
1,2,3-Trichlorobenzene	18.97	5.0	25	0	75.9	73-129	18.2	4.14	30	
1,2,4-Trichlorobenzene	19.98	5.0	25	0	79.9	70-132	18.89	5.61	30	
1,2-Dibromo-3-chloropropane	26.32	5.0	25	0	105	48-127	22.12	17.3	30	
1,2-Dibromoethane	28.46	5.0	25	0	114	71-144	26.54	6.98	30	
1,2-Dichlorobenzene	24.84	5.0	25	0	99.4	77-127	22.81	8.52	30	
1,2-Dichloroethane	26.68	5.0	25	0	107	77-127	24.49	8.56	30	
1,2-Dichloropropane	28.48	5.0	25	0	114	74-130	26.64	6.68	30	
1,3-Dichlorobenzene	24.58	5.0	25	0	98.3	75-133	22.62	8.31	30	
1,4-Dichlorobenzene	23.8	5.0	25	0	95.2	74-130	22.24	6.78	30	
2-Butanone	44.82	10	25	0	179	55-132	37.64	17.4	30	S
2-Hexanone	33	5.0	25	0	132	55-124	26.26	22.7	30	S
4-Methyl-2-pentanone	35.46	5.0	25	0	142	67-159	31.11	13.1	30	
Acetone	61.23	10	25	3.867	229	31-156	57.27	6.68	30	S
Benzene	28.28	5.0	25	0	113	77-133	27.51	2.76	30	
Bromochloromethane	28.65	5.0	25	0	115	72-139	26.07	9.43	30	
Bromodichloromethane	28.89	5.0	25	0	116	69-133	26.22	9.69	30	
Bromoform	28.45	5.0	25	0	114	55-126	24.76	13.9	30	
Bromomethane	27.05	10	25	0	108	31-174	26.2	3.19	30	
Carbon disulfide	29.87	5.0	25	0	119	45-160	29.98	0.368	30	
Carbon tetrachloride	32.93	5.0	25	0	132	69-140	32.8	0.396	30	
Chlorobenzene	27.23	5.0	25	0	109	76-130	26.2	3.86	30	
Chloroethane	24.9	5.0	25	0	99.6	53-150	23.54	5.62	30	
Chloroform	27.6	5.0	25	0	110	72-132	25.51	7.87	30	
Chloromethane	21.88	10	25	0	87.5	43-150	20.91	4.53	30	
cis-1,2-Dichloroethene	29.04	5.0	25	0	116	74-134	27.56	5.23	30	
cis-1,3-Dichloropropene	26.32	5.0	25	0	105	62-134	24.29	8.02	30	
Dibromochloromethane	27.71	5.0	25	0	111	57-118	24.27	13.2	30	
Dichlorodifluoromethane	30.48	10	25	0	122	43-126	31.88	4.49	30	
Ethylbenzene	28	5.0	25	0	112	75-133	27.44	2.02	30	
Isopropylbenzene	27.01	5.0	25	0	108	74-137	29.04	7.24	30	
m,p-Xylene	54.17	2.5	50	0	108	75-134	53.22	1.77	30	
Methyl tert-butyl ether	32.9	5.0	25	0	132	62-136	30.37	8	30	
Methylene chloride	31.11	5.0	25	0	124	55-157	29.09	6.71	30	
o-Xylene	26.69	2.5	25	0	107	76-130	26.03	2.5	30	
Styrene	25.55	5.0	25	0	102	72-138	24.26	5.18	30	
Tetrachloroethene	39.09	5.0	25	0	156	70-171	41.03	4.84	30	
Toluene	27.73	5.0	25	0	111	76-130	26.75	3.6	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236831** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	27.91	5.0	25	0	112	65-137	27.73	0.647	30
trans-1,3-Dichloropropene	25.25	5.0	25	0	101	58-126	22.9	9.76	30
Trichloroethene	29.86	5.0	25	0	119	75-135	29.46	1.35	30
Trichlorofluoromethane	28.01	5.0	25	0	112	62-136	28.55	1.91	30
Vinyl chloride	31.99	5.0	25	0	128	57-143	32.6	1.89	30
Xylenes, Total	80.86	5.0	75	0	108	75-132	79.25	2.01	30
Surr: 1,2-Dichloroethane-d4	*19.96*	0	*20*	0	*99.8*	*83-132*	20.57	*3.01*	*30*
Surr: 4-Bromofluorobenzene	*19.05*	0	*20*	0	*95.2*	*83-111*	19.16	*0.576*	*30*
Surr: Dibromofluoromethane	*19.9*	0	*20*	0	*99.5*	*77-125*	20.28	*1.89*	*30*
Surr: Toluene-d8	*19.15*	0	*20*	0	*95.8*	*86-108*	19.21	*0.313*	*30*

The following samples were analyzed in this batch: 18051682-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R236970A** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-180530-R236970A** Units: **µg/L** Analysis Date: **5/30/2018 10:50 PM**
Client ID: Run ID: **VMS8_180530B** SeqNo: **5063102** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*18.97*	0	*20*	0	*94.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.15*	0	*20*	0	*95.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19.35*	0	*20*	0	*96.8*	*85-115*	0			
Surr: Toluene-d8	*18.83*	0	*20*	0	*94.2*	*85-110*	0			

LCS Sample ID: **VLCSW1-180530-R236970A** Units: **µg/L** Analysis Date: **5/30/2018 10:18 PM**
Client ID: Run ID: **VMS8_180530B** SeqNo: **5063101** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.8	1.0	20	0	104	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.36*	0	*20*	0	*96.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.83*	0	*20*	0	*99.2*	*80-110*	0			
Surr: Dibromofluoromethane	*19.8*	0	*20*	0	*99*	*85-115*	0			
Surr: Toluene-d8	*19.48*	0	*20*	0	*97.4*	*85-110*	0			

MS Sample ID: **18051713-11E MS** Units: **µg/L** Analysis Date: **5/31/2018 05:01 AM**
Client ID: Run ID: **VMS8_180530B** SeqNo: **5063120** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.02	1.0	20	0	105	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.74*	0	*20*	0	*98.7*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.21*	0	*20*	0	*91*	*80-110*	0			
Surr: Dibromofluoromethane	*19.71*	0	*20*	0	*98.6*	*85-115*	0			
Surr: Toluene-d8	*18.85*	0	*20*	0	*94.2*	*85-110*	0			

MSD Sample ID: **18051713-11E MSD** Units: **µg/L** Analysis Date: **5/31/2018 05:17 AM**
Client ID: Run ID: **VMS8_180530B** SeqNo: **5063121** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.62	1.0	20	0	103	84-130	21.02	1.92	30	
Surr: 1,2-Dichloroethane-d4	*19.35*	0	*20*	0	*96.8*	*75-120*	19.74	*2*	*30*	
Surr: 4-Bromofluorobenzene	*19.51*	0	*20*	0	*97.6*	*80-110*	18.21	*6.89*	*30*	
Surr: Dibromofluoromethane	*20.37*	0	*20*	0	*102*	*85-115*	19.71	*3.29*	*30*	
Surr: Toluene-d8	*19.01*	0	*20*	0	*95*	*85-110*	18.85	*0.845*	*30*	

The following samples were analyzed in this batch:

18051682-01A	18051682-02A	18051682-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **118942** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063673** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063674** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.84	0	15	0	92.3	80-120	0			

DUP Sample ID: **18051682-04D DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-45** Run ID: **WETCHEM_180531G** SeqNo: **5063676** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.29	0	0	0	0		8.41	45	20	R

DUP Sample ID: **18051682-04D DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-45** Run ID: **WETCHEM_180531G** SeqNo: **5063677** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.97	0	0	0	0		8.41	26.4	20	R

DUP Sample ID: **18051778-07A DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063679** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	11.52	0	0	0	0		10.94	5.16	20	

DUP Sample ID: **18051778-07A DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063680** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.91	0	0	0	0		10.94	9.88	20	

The following samples were analyzed in this batch: 18051682-04D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R237002** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237002** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063529** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050								

LCS Sample ID: **LCS-R237002** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063528** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051689-01A DUP** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063507** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	30.08	0.050	0	0	0	0-0	28.28	6.17	10	

DUP Sample ID: **18051689-03A DUP** Units: **% of sample** Analysis Date: **5/30/2018 08:00 PM**
Client ID: Run ID: **MOIST_180530E** SeqNo: **5063510** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	29.01	0.050	0	0	0	0-0	29.05	0.138	10	

The following samples were analyzed in this batch: 18051682-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051682
Project: PMC

QC BATCH REPORT

Batch ID: **R237238** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069364** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1121	0.025	0.1	0	112	91-143	0			

MS Sample ID: **18051778-06C MS** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.627	0.025	0.4739	1.309	67	91-143	0			S

MSD Sample ID: **18051778-06C MSD** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.65	0.025	0.4739	1.309	71.9	91-143	1.627	1.41	20	S

The following samples were analyzed in this batch: 18051682-04C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

18051682

USEPA CLP COC (LAB COPY)
DateShipped: 5/23/2018
CarrierName: FedEx
AirbillNo: 781099285687

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052318-132603-0007
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-TB-07-052318	18CP02-41	Blank/ CH2M	Grab	VOC_TCE(21)	A (HCl pH<2 4C) (2)	PMC-TB	05/23/2018 09:05	
2	PMC-EB-01-052318	18CP02-42	Blank/ CH2M	Grab	VOC_TCE(21 Hours)	A (HCl pH<2 4C) (2)	PMC-EB	05/23/2018 09:00	
3	PMC-EB-02-052318	18CP02-43	Blank/ CH2M	Grab	VOC_TCE(21)	A (HCl pH<2 4C) (2)	PMC-EB	05/23/2018 13:55	
4	PMC-CMW-01-SO/35.0-36.0-052218	18CP02-45	Soil/ CH2M	Grab	VOC_s(21), TOC(21), PNOD(21)	A (MeOH), B (4 C), C (4 C) (5)	PMC-CMW-01	05/22/2018 09:00	

Special Instructions: Standard TAT

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only , VOC_s=TCL VOCs (soil), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	J Moffett CH2M FedEx	5/23 @ 1500	FedEx		
			ALS	5/24/18 1030	

SRL 4.0°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **24-May-18 10:30**

Work Order: **18051682** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 24-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Water & Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/24/2018 3:16:13 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

Work Order: 18051688

Project Name:

PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

02-Jul-2018

Certificate No: MI: 0022

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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Section I

CASE NARRATIVE

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

ALS Group, USA

Date: 02-Jul-18

Client:	Jacobs
Project:	PMC
Work Order:	18051688

Case Narrative

Samples for the above noted Work Order were received on 05/24/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

ALS Group, USA

Date: 03-Jul-18

Client: Jacobs
Project: PMC
Work Order: **18051688**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051688-01	18CP02-44	Groundwater		5/22/2018 17:45	5/24/2018 10:30	☐

USEPA CLP COC (LAB COPY)
DateShipped: 5/23/2018
CarrierName: FedEx
AirbillNo: 781099285687

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052318-132231-0006
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-CMW-01-VAS/15.0-20.0-052218	18CP02-44	Ground Water/ CH2M	Grab	VOC_TCE(~~14~~ 21 Hours)	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 17:45	

Special Instructions: 24 hr TAT

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	FedEx	5/23 0800	FedEx		
	FedEx	5/24/18 1030	ALS		

SR2 4.0°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **24-May-18 10:30**

Work Order: **18051688** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 24-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Water
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/24/2018 3:28:24 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

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GC/MS
Volatile Organics

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1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-44

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051688

Matrix: Water Lab Sample ID: 18051688-01A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/24/2018

% Moisture: not dec. 0 Date Analyzed: 5/25/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/L	Q
79-01-6	Trichloroethene	3.9	

Date: 02-Jul-18

ALS Group, USA

Client: Jacobs
Work Order: 18051688
Project: PMC

QC BATCH REPORT

Batch ID: **R236613** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKW3-180524-R236613** Units: **µg/L** Analysis Date: **5/25/2018 07:20 AM**
Client ID: Run ID: **VMS8_180524C** SeqNo: **5055646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*19.95*	0	*20*	0	*99.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19.92*	0	*20*	0	*99.6*	*85-115*	0			
Surr: Toluene-d8	*18.78*	0	*20*	0	*93.9*	*85-110*	0			

LCS Sample ID: **VLCSW3-180524-R236613** Units: **µg/L** Analysis Date: **5/25/2018 06:49 AM**
Client ID: Run ID: **VMS8_180524C** SeqNo: **5055645** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19.43	1.0	20	0	97.2	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.03*	0	*20*	0	*95.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.4*	0	*20*	0	*97*	*80-110*	0			
Surr: Dibromofluoromethane	*19.34*	0	*20*	0	*96.7*	*85-115*	0			
Surr: Toluene-d8	*19.42*	0	*20*	0	*97.1*	*85-110*	0			

MS Sample ID: **18051388-06A MS** Units: **µg/L** Analysis Date: **5/25/2018 12:59 PM**
Client ID: Run ID: **VMS8_180524C** SeqNo: **5055666** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	18.79	1.0	20	0	94	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.46*	0	*20*	0	*97.3*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.73*	0	*20*	0	*98.6*	*80-110*	0			
Surr: Dibromofluoromethane	*20.5*	0	*20*	0	*102*	*85-115*	0			
Surr: Toluene-d8	*19.55*	0	*20*	0	*97.8*	*85-110*	0			

MSD Sample ID: **18051388-06A MSD** Units: **µg/L** Analysis Date: **5/25/2018 01:15 PM**
Client ID: Run ID: **VMS8_180524C** SeqNo: **5055667** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.18	1.0	20	0	106	84-130	18.79	12	30	
Surr: 1,2-Dichloroethane-d4	*20.05*	0	*20*	0	*100*	*75-120*	19.46	*2.99*	*30*	
Surr: 4-Bromofluorobenzene	*18.72*	0	*20*	0	*93.6*	*80-110*	19.73	*5.25*	*30*	
Surr: Dibromofluoromethane	*20.36*	0	*20*	0	*102*	*85-115*	20.5	*0.685*	*30*	
Surr: Toluene-d8	*18.76*	0	*20*	0	*93.8*	*85-110*	19.55	*4.12*	*30*	

The following samples were analyzed in this batch: 18051688-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051688

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	VLCS03	97	95	97	97	0
02	VBLK03	100	100	94	92	0
03	18051388-06A	97	97	96	93	0
04	18CP02-44	97	98	94	94	0
05	18051388-06AM	102	97	98	99	0
06	18051388-06AM	102	100	94	94	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK03

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051688

Lab File ID: 24MAY71.D Lab Sample ID: VBLKW3-180524

Date Analyzed: 5/25/2018 Time Analyzed: 7:20

GC Column: RXI-624 ID: 0.25 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS8

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCS03	VLCSW3-180524	24MAY69.D	6:49
02	18051388-06A	18051388-06A	24MAY78.D	9:13
03	18CP02-44	18051688-01A	24MAY79.D	9:29
04	18051388-06AMS	18051388-06A MS	24MAY92.D	12:59
05	18051388-06AMSD	18051388-06A MSD	24MAY93.D	13:15

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051688

Lab File ID: 24MAY66.D BFB Injection Date: 5/25/2018

Instrument ID: VMS8 BFB Injection Time: 6:02

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.1
75	30.0 - 66.0% of mass 95	41.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.9 (1.2)1
174	50.0 - 120.0% of mass 95	77.2
175	4.0 - 9.0% of mass 174	5.9 (7.6)1
176	93.0 - 101.0% of mass 174	75.2 (97.5)1
177	5.0 - 9.0% of mass 176	5.3 (7.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD05	VCCV5-180524	24MAY68.D	5/25/2018	6:33
02	VLCS03	VLCSW3-180524	24MAY69.D	5/25/2018	6:49
03	VBLK03	VBLKW3-180524	24MAY71.D	5/25/2018	7:20
04	18051388-06A	18051388-06A	24MAY78.D	5/25/2018	9:13
05	18CP02-44	18051688-01A	24MAY79.D	5/25/2018	9:29
06	18051388-06AMS	18051388-06A MS	24MAY92.D	5/25/2018	12:59
07	18051388-06AMS	18051388-06A MSD	24MAY93.D	5/25/2018	13:15

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051688

Lab File ID (Standard): 24MAY68.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 6:33

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	283684	4.72	412067	6.00	377726	8.73
	UPPER LIMIT	567368	5.22	824134	6.50	755452	9.23
	LOWER LIMIT	141842	4.22	206034	5.50	188863	8.23
	EPA SAMPLE NO.						
01	VLCS03	279868	4.71	429351	6.00	380272	8.73
02	VBLK03	282010	4.72	408647	6.00	375055	8.73
03	18051388-06A	273478	4.72	419547	6.00	377508	8.73
04	18CP02-44	264642	4.72	400256	6.00	362645	8.73
05	18051388-06A	259415	4.71	376166	6.00	339682	8.73
06	18051388-06A	251184	4.72	376448	6.00	348829	8.73

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051688

Lab File ID (Standard): 24MAY68.D Date Analyzed: 5/25/2018

Instrument ID: VMS8 Time Analyzed: 6:33

GC Column: RXI-624SIL ID: 0.25 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	201377	10.05				
	UPPER LIMIT	402754	9.55				
	LOWER LIMIT	100689	10.55				
	EPA SAMPLE NO.						
01	VLCS03	197624	10.05				
02	VBLK03	183294	10.05				
03	18051388-06A	193184	10.05				
04	18CP02-44	182678	10.05				
05	18051388-06A	181079	10.05				
06	18051388-06A	184318	10.05				

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY79.D
Acq On : 25 May 2018 9:29 am
Operator : EMR
Sample : 18051688-01A
Misc : IS/SS 200-20081
ALS Vial : 69 Sample Multiplier: 1

Quant Time: May 25 11:08:01 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	264642	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	400256	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	362645	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	182678	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	74560	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	135304	19.49	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.45%				
45) 1,2-Dichloroethane-d4	5.164	65	132752	19.64	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 98.20%				
64) Toluene-d8	7.671	98	442717	18.70	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.50%				
85) Bromofluorobenzene	9.433	95	161011	18.76	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	1.618	64	7370	Below Cal		#	50
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	0.000		0	N.D.	d		
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.	d		
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D.	d		
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY79.D
Acq On : 25 May 2018 9:29 am
Operator : EMR
Sample : 18051688-01A
Misc : IS/SS 200-20081
ALS Vial : 69 Sample Multiplier: 1

Quant Time: May 25 11:08:01 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.	
36) Tetrahydrofuran	0.000		0	N.D.	
37) Methacrylonitrile	0.000		0	N.D.	
38) Chloroform	0.000		0	N.D.	
39) Cyclohexane	0.000		0	N.D. d	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	27733	3.86 ug/L	96
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.728	91	9365	0.36 ug/L #	87
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	8.130	166	5579m	0.82 ug/L	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
88) 1,2,3-Trichloropropane	0.000		0	N.D.	
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
90) n-Propylbenzene	0.000		0	N.D.	
91) 2-Chlorotoluene	0.000		0	N.D.	

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY79.D
Acq On : 25 May 2018 9:29 am
Operator : EMR
Sample : 18051688-01A
Misc : IS/SS 200-20081
ALS Vial : 69 Sample Multiplier: 1

Quant Time: May 25 11:08:01 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

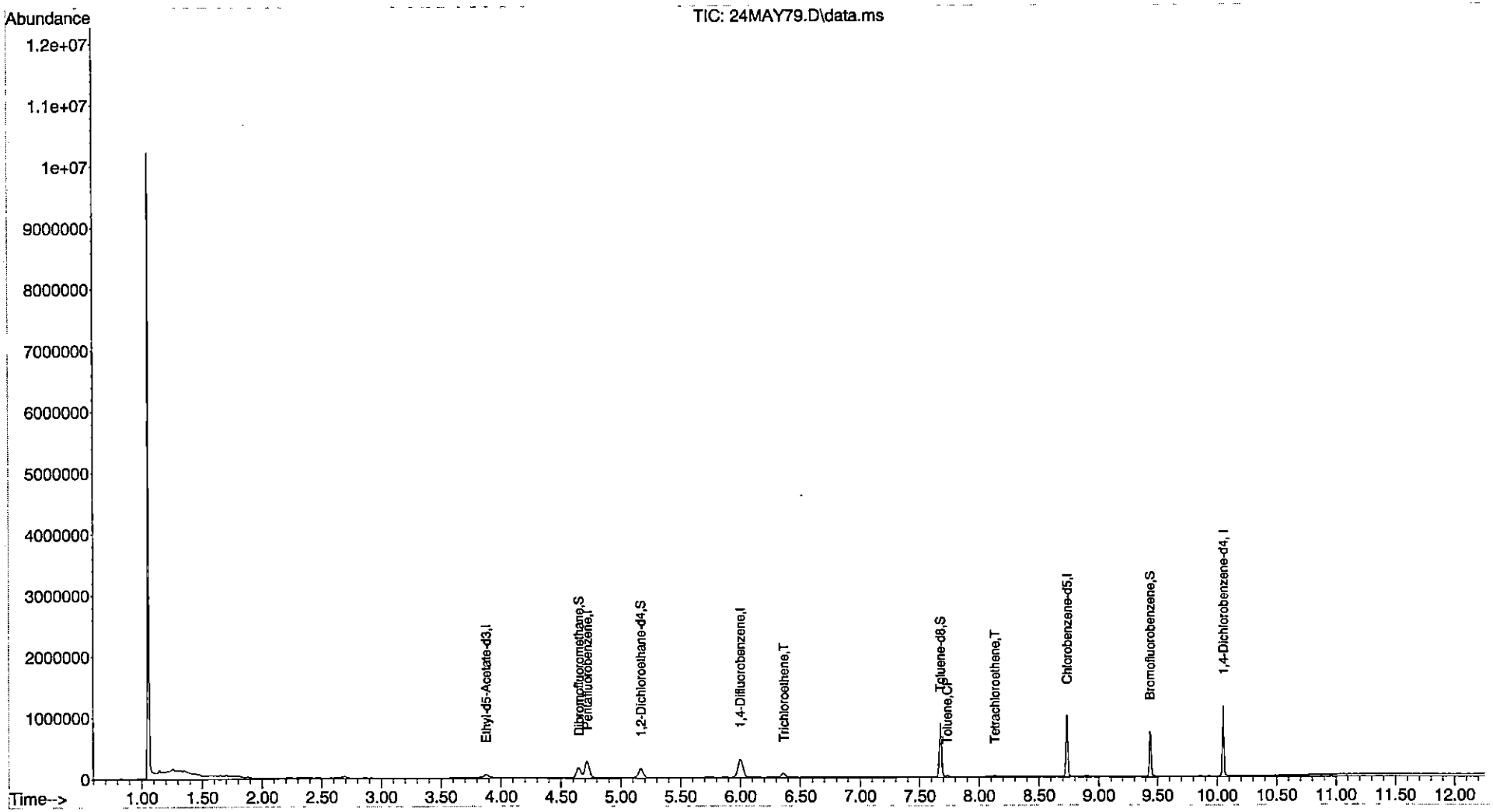
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.	d	
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

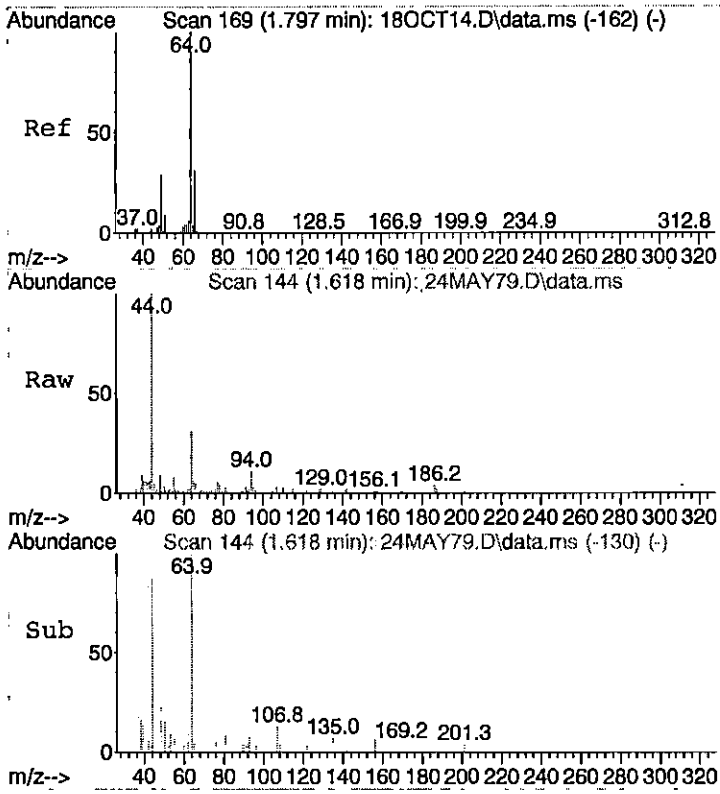
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY79.D
Acq On : 25 May 2018 9:29 am
Operator : EMR
Sample : 18051688-01A
Misc : IS/SS 200-20081
ALS Vial : 69 Sample Multiplier: 1

Quant Time: May 25 11:08:01 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

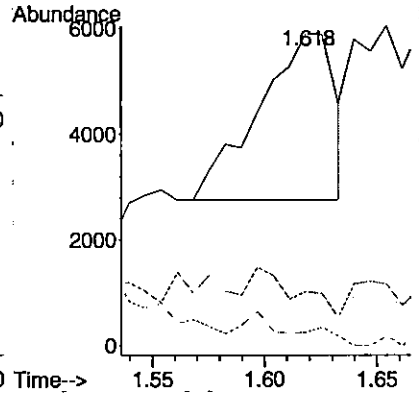


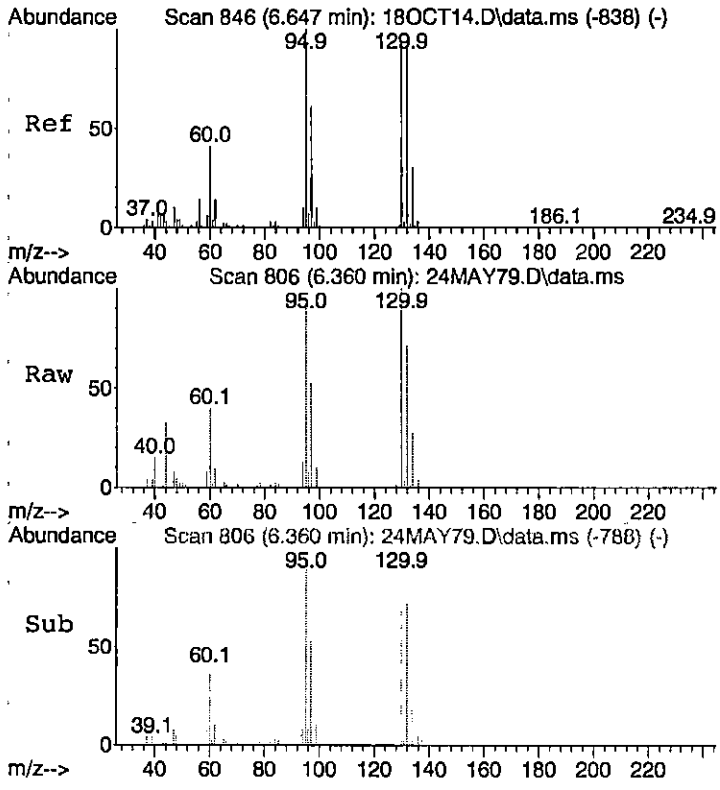


#6
Chloroethane
Concen: Below Cal
RT: 1.618 min Scan# 144
Delta R.T. -0.022 min
Lab File: 24MAY79.D
Acq: 25 May 2018 9:29 am

Tgt Ion: 64 Resp: 7370

Ion	Ratio	Lower	Upper
64	100		
66	0.0	10.8	50.8#
49	0.0	0.0	37.2

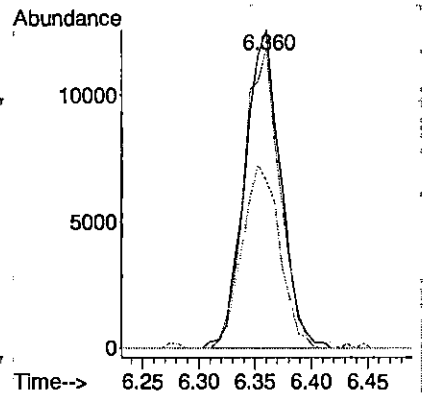




#54
Trichloroethene
Concen: 3.86 ug/L
RT: 6.360 min Scan# 806
Delta R.T. 0.007 min
Lab File: 24MAY79.D
Acq: 25 May 2018 9:29 am

Tgt Ion:130 Resp: 27733

Ion	Ratio	Lower	Upper
130	100		
95	94.3	79.0	119.0
97	61.3	42.5	82.5



Response Factor Report VMS8

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

Calibration Files
1 =15MAY35.D 2 =15MAY36.D 3 =15MAY37.D 4 =15MAY38.D 5 =15MAY39.D 6 =15MAY40.D 7 =15MAY41.D
8 =15MAY42.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------									
2)	T	Dichlorodifluo...	0.552	0.462	0.476	0.448	0.449	0.388	0.404	0.407	0.448	11.65
3)	P	Chloromethane			0.832	0.691	0.659	0.632	0.637	0.614	0.678	11.87
4)	C	Vinyl chloride	0.636	0.593	0.497	0.536	0.524	0.490	0.494	0.480	0.531	10.49
5)	T	Bromomethane		0.538	0.285	0.227	0.197	0.158	0.149	0.152	0.244	56.84
6)	T	Chloroethane			0.676	0.563	0.338	0.268	0.234	0.227	0.384	49.39
7)	T	Trichlorofluor...	0.601	0.628	0.560	0.544	0.509	0.512	0.547	0.512	0.552	7.94
8)	T	Ethyl ether	0.421	0.539	0.424	0.385	0.386	0.381	0.369	0.355	0.408	14.25
9)	T	Acrolein	0.147	0.152	0.122	0.105	0.103	0.075	0.078	0.083	0.108#	27.87
10)	C	1,1-Dichloroet...	0.657	0.637	0.653	0.585	0.590	0.581	0.567	0.548	0.602	6.84
11)	T	1,1,2-Trichlor...	0.407	0.370	0.314	0.328	0.309	0.295	0.297	0.294	0.327	12.46
12)	T	Methyl iodide	0.777	0.601	0.472	0.407	0.344	0.295	0.281	0.283	0.433	41.05
13)	T	Acetone			0.359	0.261	0.316	0.240	0.233	0.233	0.273	19.11
14)	T	Chloroprene	0.569	0.623	0.653	0.645	0.614	0.601	0.589	0.579	0.609	5.01
15)	T	Carbon disulfide	1.630	1.193	1.388	1.289	1.238	1.250	1.236	1.218	1.305	11.03
16)	T	Allyl chloride	0.862	0.759	0.684	0.694	0.682	0.671	0.643	0.618	0.702	10.96
17)	T	Methyl acetate			0.685	0.654	0.595	0.614	0.560	0.562	0.612	8.21
18)	T	Acetonitrile	0.862	0.729	0.684	0.694	0.682	0.671	0.643	0.618	0.698	10.66
19)	T	Methylene chlo...		0.818	0.685	0.613	0.602	0.601	0.585	0.562	0.638	13.82
20)	T	trans-1,2-Dich...	0.698	0.708	0.678	0.646	0.638	0.640	0.625	0.608	0.655	5.44
21)	T	t-Butanol		0.128	0.163	0.138	0.140	0.138	0.129	0.128	0.138#	8.92
22)	T	Acrylonitrile	0.344	0.279	0.306	0.310	0.303	0.302	0.296	0.289	0.304	6.36
23)	CP	Methyl tert-bu...	1.212	1.240	1.269	1.307	1.262	1.295	1.229	1.211	1.253	2.89#
24)	T	Hexane	0.697	0.560	0.539	0.468	0.468	0.436	0.446	0.441	0.507	17.67
25)	P	1,1-Dichloroet...	1.009	0.892	0.962	0.884	0.883	0.873	0.848	0.810	0.895	7.03
26)	CP	Diisopropyl ether	1.426	1.339	1.370	1.334	1.301	1.320	1.245	1.224	1.320	4.93#
27)	T	Vinyl acetate		0.115	0.098	0.080	0.082	0.075	0.081	0.078	0.087#	16.52
28)	CP	Ethyl tert but...	1.283	1.454	1.364	1.297	1.308	1.292	1.216	1.217	1.304	5.93#
29)	T	2,2-Dichloropr...		0.794	0.650	0.627	0.622	0.603	0.595	0.572	0.638	11.51
30)	T	cis-1,2-Dichlo...	0.935	0.831	0.728	0.757	0.752	0.760	0.754	0.726	0.780	9.00
31)	T	2-Butanone			0.639	0.502	0.462	0.419	0.397	0.396	0.469	19.80
32)	T	Ethyl Acetate		0.618	0.868	0.797	0.781	0.792	0.773	0.768	0.771	9.77
33)	T	Methyl acrylate	0.758	0.806	0.724	0.704	0.732	0.755	0.732	0.722	0.742	4.20
34)	T	Propionitrile			0.061	0.065	0.043	0.041	0.042	0.041	0.049#	22.41
35)	T	Bromochloromet...	0.451	0.475	0.395	0.401	0.395	0.400	0.392	0.380	0.411	8.13
36)	T	Tetrahydrofuran			0.281	0.283	0.276	0.285	0.282	0.277	0.281	1.25
37)	T	Methacrylonitrile	0.348	0.403	0.519	0.427	0.457	0.465	0.448	0.446	0.439	11.33
38)	C	Chloroform	1.055	0.975	0.947	0.866	0.860	0.872	0.854	0.829	0.907	8.52

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

39)	T	Cyclohexane		0.903	0.749	0.710	0.653	0.650	0.635	0.717		14.11
40)	I	1,4-Difluorobenzene	----------ISTD----------									
41)	T	1,1,1-Trichlor...		0.469	0.478	0.488	0.472	0.455	0.446	0.441	0.464	3.73
42)	S	Dibromofluorom...	0.342	0.351	0.346	0.345	0.350	0.353	0.342	0.345	0.347	1.19
43)	T	Carbon tetrach...	0.442	0.333	0.418	0.401	0.387	0.407	0.396	0.404	0.398	7.81
44)	T	1,1-Dichloropr...	0.597	0.396	0.453	0.450	0.415	0.401	0.384	0.397	0.437	15.96
45)	S	1,2-Dichloroet...	0.338	0.342	0.345	0.336	0.333	0.336	0.330	0.342	0.338	1.51
46)	T	1,2-Dichloroet...	0.576	0.504	0.438	0.418	0.416	0.407	0.395	0.399	0.444	14.32
47)	CP	Benzene	1.479	1.271	1.289	1.272	1.216	1.265	1.204	1.209	1.276	6.94#
48)	CP	Tertiaryamylme...	0.675	0.910	0.901	0.857	0.849	0.846	0.785	0.802	0.828	9.09#
49)	T	Isobutyl Alcohol	0.221	0.271	0.363	0.312	0.261	0.253	0.235	0.239	0.269	17.40
50)	T	Heptane	0.292	0.419	0.317	0.286	0.266	0.244	0.240	0.247	0.289	20.47
51)	T	1,4-Dioxane	0.007	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007#	6.01
52)	T	Methylcyclohexane	0.478	0.528	0.406	0.449	0.422	0.406	0.399	0.413	0.438	10.31
53)	T	n-Butanol			0.022	0.022	0.021	0.025	0.024	0.025	0.023#	7.39
54)	T	Trichloroethene	0.388	0.407	0.382	0.344	0.343	0.345	0.332	0.331	0.359	8.10
55)	C	1,2-Dichloropr...		0.441	0.397	0.375	0.338	0.345	0.330	0.329	0.365	11.50
56)	T	Dibromomethane	0.204	0.354	0.266	0.295	0.256	0.261	0.249	0.248	0.266	16.32
57)	T	Methyl methacr...	0.447	0.464	0.424	0.409	0.402	0.383	0.378	0.379	0.411	7.81
58)	T	Bromodichlorom...	0.445	0.478	0.486	0.469	0.463	0.467	0.449	0.454	0.464	3.06
59)	T	2-Chloroethyl ...			0.205	0.164	0.176	0.160	0.158	0.154	0.169#	11.33
60)	T	2-Nitropropane		0.227	0.193	0.181	0.169	0.160	0.157	0.160	0.178#	14.26
61)	T	cis-1,3-Dichlo...	0.551	0.563	0.568	0.546	0.550	0.557	0.531	0.545	0.551	2.10
62)	I	Chlorobenzene-d5	----------ISTD----------									
63)	T	4-Methyl-2-pen...	0.629	0.782	0.563	0.668	0.586	0.586	0.590	0.568	0.622	11.82
64)	S	Toluene-d8	1.319	1.292	1.306	1.290	1.292	1.295	1.341	1.308	1.305	1.33
65)	CP	Toluene	1.508	1.354	1.452	1.490	1.430	1.439	1.470	1.368	1.439	3.80
66)	T	trans-1,3-Dich...	0.574	0.599	0.598	0.574	0.579	0.556	0.575	0.560	0.577	2.70
67)	T	Chloropicrin									0.000#	-1.00
68)	T	Ethyl methacry...	0.578	0.773	0.648	0.609	0.594	0.581	0.577	0.564	0.615	11.17
69)	T	1,1,2-Trichlor...	0.562	0.512	0.422	0.389	0.386	0.377	0.379	0.369	0.425	17.06
70)	T	Tetrachloroethene	0.382	0.374	0.382	0.389	0.379	0.363	0.375	0.361	0.376	2.54
71)	T	1,3-Dichloropr...	0.596	0.705	0.596	0.579	0.582	0.575	0.587	0.552	0.597	7.72
72)	T	2-Hexanone		0.608	0.481	0.464	0.473	0.476	0.466	0.451	0.488	10.93
73)	T	Chlorodibromom...	0.497	0.421	0.490	0.446	0.443	0.462	0.458	0.450	0.458	5.47
74)	T	Butyl acetate	0.958	0.906	0.792	0.818	0.757	0.781	0.761	0.742	0.814	9.51
75)	T	1,2-Dibromoethane	0.462	0.411	0.491	0.437	0.423	0.430	0.434	0.415	0.438	6.06
76)	P	Chlorobenzene	0.978	0.959	1.040	0.984	0.951	0.956	0.961	0.937	0.971	3.26
77)	T	1,1,1,2-Tetrac...	0.435	0.363	0.396	0.366	0.363	0.356	0.369	0.351	0.375	7.43
78)	CP	Ethylbenzene	1.571	1.470	1.623	1.557	1.508	1.546	1.591	1.517	1.548	3.15
79)	CP	m/p-Xylene	1.242	1.061	1.201	1.206	1.150	1.178	1.211	1.138	1.173	4.84#
80)	T	Styrene	1.078	0.948	1.031	0.995	0.979	0.995	1.001	0.973	1.000	3.98
81)	CP	o-Xylene	1.359	1.172	1.255	1.251	1.240	1.232	1.254	1.199	1.245	4.38#
82)	T	Cyclohexanone		0.204	0.093	0.059	0.043	0.040	0.038	0.037	0.073#	82.88
83)	P	Bromoform	0.327	0.315	0.343	0.341	0.353	0.360	0.368	0.361	0.346	5.23
84)	T	Isopropylbenzene	1.637	1.408	1.452	1.502	1.438	1.435	1.463	1.381	1.465	5.34

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration

85)	S	Bromofluoroben...	0.466	0.470	0.474	0.465	0.473	0.481	0.481	0.476	0.473	1.30
86)	T	Bromobenzene	0.773	1.026	0.937	0.934	0.913	0.918	0.942	0.900	0.918	7.61
87)	P	1,1,2,2-Tetrac...	0.603	0.702	0.666	0.668	0.658	0.647	0.674	0.642	0.658	4.34
88)	T	1,2,3-Trichlor...	0.226	0.203	0.168	0.183	0.169	0.166	0.164	0.164	0.180#	12.64
89)	T	trans-1,4-Dich...	0.208	0.194	0.218	0.174	0.163	0.164	0.169	0.163	0.182#	12.07
90)	T	n-Propylbenzene	1.649	1.567	1.765	1.713	1.685	1.695	1.751	1.677	1.688	3.67
91)	T	2-Chlorotoluene	0.934	1.024	1.082	1.021	1.001	1.009	1.036	0.982	1.011	4.21
92)	T	4-Chlorotoluene	1.165	1.251	1.164	1.214	1.169	1.167	1.186	1.152	1.183	2.80
93)	T	1,3,5-Trimethy...	1.058	1.198	1.203	1.231	1.132	1.152	1.174	1.125	1.159	4.73
94)	T	tert-Butylbenzene	0.801	0.727	0.677	0.689	0.669	0.659	0.673	0.646	0.693	7.18
95)	T	1,2,4-Trimethy...	1.287	1.198	1.272	1.241	1.216	1.217	1.254	1.194	1.235	2.77
96)	T	sec-Butylbenzene	1.559	1.350	1.390	1.398	1.341	1.364	1.417	1.356	1.397	5.04
97)	I	1,4-Dichlorobenzen...	----------ISTD----------									
98)	T	1,3-Dichlorobe...	1.377	1.377	1.422	1.476	1.396	1.472	1.425	1.383	1.416	2.84
99)	T	p-Isopropyltol...	2.403	2.110	2.389	2.288	2.269	2.324	2.257	2.190	2.279	4.30
100)	T	1,4-Dichlorobe...	1.439	1.387	1.462	1.503	1.439	1.470	1.450	1.402	1.444	2.57
101)	T	1,2,3-Trimethy...	2.393	2.323	2.402	2.474	2.409	2.459	2.392	2.286	2.392	2.62
102)	T	Benzyl chloride	1.817	2.053	1.998	1.881	1.818	1.921	1.831	1.801	1.890	4.95
103)	T	1,2-Dichlorobe...	1.322	1.353	1.378	1.477	1.417	1.453	1.410	1.337	1.393	3.98
104)	T	n-Butylbenzene	2.141	2.184	2.116	2.106	1.965	2.089	1.976	1.942	2.065	4.40
105)	T	Hexachloroethane	0.572	0.561	0.520	0.491	0.467	0.508	0.493	0.490	0.513	7.18
106)	T	1,2-Dibromo-3-...	0.450	0.417	0.428	0.411	0.362	0.382	0.378	0.373	0.400	7.65
107)	T	1,3,5-Trichlor...	0.913	0.902	1.001	1.018	0.906	0.984	0.954	0.922	0.950	4.85
108)	T	1,2,4-Trichlor...	1.097	0.887	0.978	0.986	0.964	0.967	0.976	0.934	0.974	6.10
109)	T	Hexachlorobuta...	0.336	0.312	0.332	0.347	0.319	0.321	0.317	0.318	0.325	3.67
110)	T	Naphthalene	3.706	3.329	3.593	3.625	3.548	3.696	3.501	3.582	3.572	3.37
111)	T	1,2,3-Trichlor...	0.921	0.888	0.989	0.965	0.932	1.009	0.955	0.917	0.947	4.26
112)	T	2-Methylnaphth...	1.715	1.759	1.786	1.840	1.801	1.934	1.922	1.931	1.836	4.62
113)	T	1-Methylnaphth...	1.547	1.661	1.655	1.660	1.713	1.833	1.825	1.793	1.711	5.84
114)	I	Ethyl-d5-Acetate-d3	----------ISTD----------									
115)	T	2-Propanone			1.204	0.840	1.007	0.838	0.737	0.755	0.897	19.88
116)	T	Acetic Ether		2.167	2.915	2.725	2.490	2.583	2.437	2.484	2.543	9.25
117)	T	Isopropyl Acetate		1.267	1.343	1.132	1.108	1.099	1.016	1.048	1.145	10.31
118)	T	Amyl Acetate	3.219	4.118	3.305	3.109	3.208	3.164	2.999	3.066	3.274	10.83

(#) = Out of Range

Method Path : C:\msdchem\1\METHODS\
Method File : 8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 12:33:56 2018
Response Via : Initial Calibration

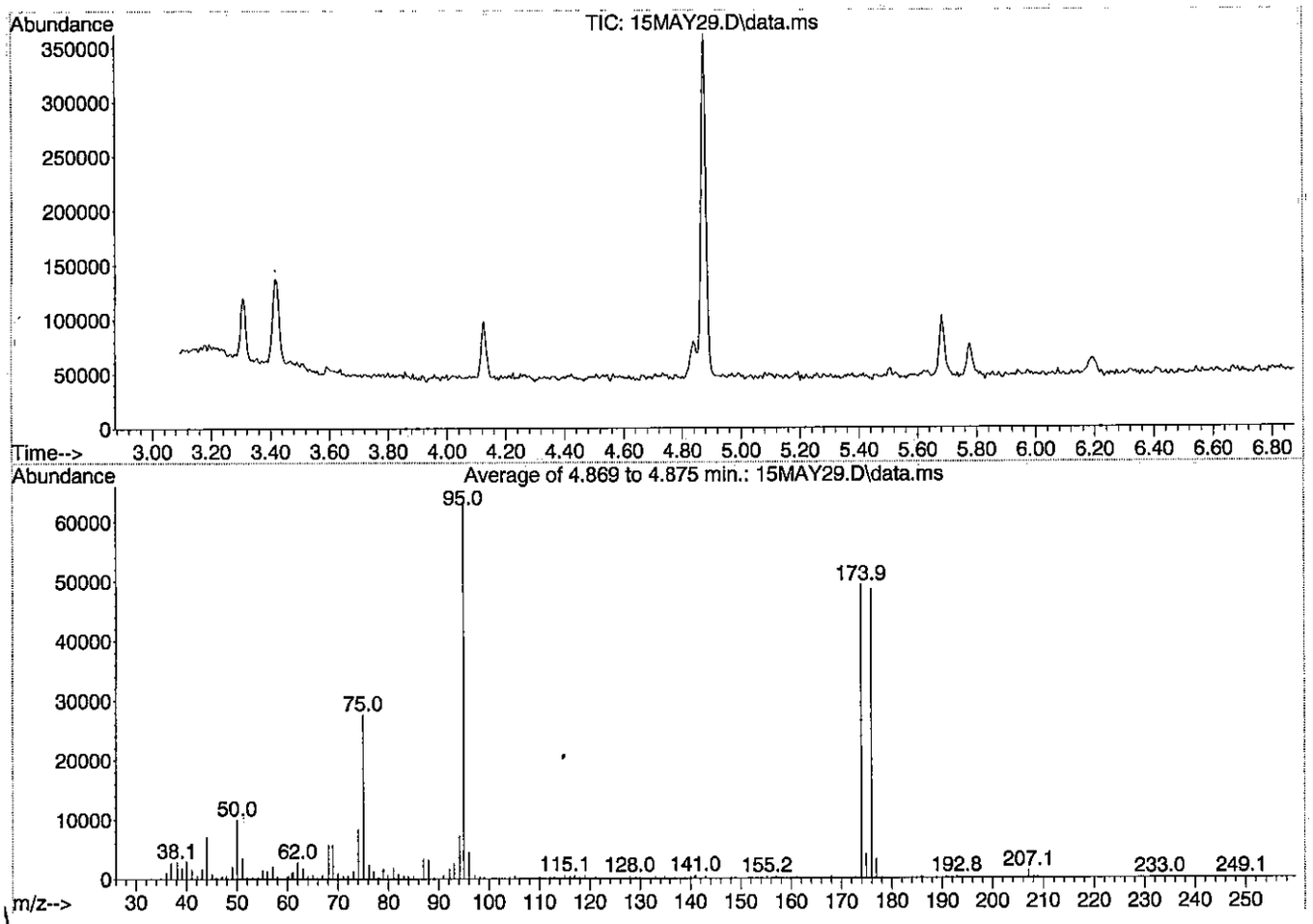
Calibration Files
1 =15MAY35 2 =15MAY36 3 =15MAY37 4 =15MAY38 5 =15MAY39 6 =15MAY40
7 =15MAY41 8 =15MAY42

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
5)	T	Bromomethane	Lin	0.0115	0.1595	-----	0.9936
6)	T	Chloroethane	Quad	0.0477	0.2576	-0.0086	0.9966
9)	T	Acrolein	Lin	0.0110	0.0802	-----	0.9940
12)	T	Methyl iodide	Quad	0.0103	0.3126	-0.0073	0.9983
34)	T	Propionitrile	Lin	0.0023	0.0410	-----	0.9996
40)	I	1,4-Difluorobenzene		----------ISTD----------			
50)	T	Heptane	Lin	0.0035	0.2444	-----	0.9985
62)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
82)	T	Cyclohexanone	Lin	0.0267	0.0360	-----	0.9994
97)	I	1,4-Dichlorobenz...		----------ISTD----------			
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY29.D
Acq On : 15 May 2018 5:56 pm
Operator : EMR
Sample : VBFB7-180515
Misc : IS/SS 200-20081
ALS Vial : 18 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0502.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed May 16 11:00:13 2018



Spectrum Information: Average of 4.869 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.9	10004	PASS
75	95	30	60	43.9	27608	PASS
95	95	100	100	100.0	62836	PASS
96	95	5	9	7.2	4503	PASS
173	174	0.00	2	0.3	125	PASS
174	95	50	100	78.3	49232	PASS
175	174	5	9	8.4	4114	PASS
176	174	95	101	98.6	48536	PASS
177	176	5	9	6.6	3201	PASS

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	362356	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	542314	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	476055	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	241467	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	108075	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	185610	19.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.70%				
45) 1,2-Dichloroethane-d4	5.164	65	183484	20.34	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.70%				
64) Toluene-d8	7.671	98	627892	20.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.55%				
85) Bromofluorobenzene	9.433	95	221780	20.57	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4000	0.46	ug/L	#	68
3) Chloromethane	1.282	50	11435	0.68	ug/L	#	61
4) Vinyl chloride	1.353	62	4606m	0.39	ug/L		
5) Bromomethane	1.568	96	4640	0.03	ug/L	#	79
6) Chloroethane	1.668	64	15493	Below Cal			81
7) Trichlorofluoromethane	1.819	101	4357	0.37	ug/L	#	71
8) Ethyl ether	2.019	59	3053	0.42	ug/L		99
9) Acrolein	2.127	56	5327m	Below Cal			
10) 1,1-Dichloroethene	2.198	61	4759m	0.48	ug/L		
11) 1,1,2-Trichlorotrifluo...	2.198	151	2947	0.53	ug/L	#	82
12) Methyl iodide	2.320	142	5631	0.80	ug/L		72
13) Acetone	2.234	43	3835	Below Cal			81
14) Chloroprene	3.373	53	4120	0.38	ug/L	#	91
15) Carbon disulfide	2.392	76	11810	0.56	ug/L		96
16) Allyl chloride	2.492	41	6250	0.48	ug/L	#	79
17) Methyl acetate	2.485	43	5158	0.35	ug/L	#	74
18) Acetonitrile	2.492	41	6250	0.48	ug/L	#	69
19) Methylene chloride	2.614	49	7595	0.61	ug/L		95
20) trans-1,2-Dichloroethene	2.865	61	5060	0.46	ug/L	#	72
21) t-Butanol	2.707	59	8426	2.83	ug/L	#	86
22) Acrylonitrile	2.822	53	2496	0.53	ug/L		86
23) Methyl tert-butyl ether	2.850	73	8782	0.34	ug/L		81
24) Hexane	3.137	57	5052m	0.66	ug/L		
25) 1,1-Dichloroethane	3.294	63	7314m	0.49	ug/L		
26) Diisopropyl ether	3.337	45	10337	0.36	ug/L	#	35
27) Vinyl acetate	3.301	86	881m	2.18	ug/L		
28) Ethyl tert butyl ether	3.753	59	9297	0.35	ug/L		94
29) 2,2-Dichloropropane	3.968	77	7677m	0.79	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	6774m	0.48	ug/L		
31) 2-Butanone	3.953	43	10025	0.79	ug/L		95
32) Ethyl Acetate	4.011	43	9022m	0.52	ug/L		
33) Methyl acrylate	4.068	55	5491	0.42	ug/L	#	83
34) Propionitrile	4.763	54	774	0.90	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.261	49	3268	0.44	ug/L		89
36) Tetrahydrofuran	4.290	42	1396	0.26	ug/L	#	51
37) Methacrylonitrile	4.226	41	2521	0.28	ug/L	#	71
38) Chloroform	4.426	83	7644	0.48	ug/L		85
39) Cyclohexane	4.720	56	13134m	0.89	ug/L		
41) 1,1,1-Trichloroethane	4.627	97	9572m	0.80	ug/L		
43) Carbon tetrachloride	4.849	117	4796	0.73	ug/L		84
44) 1,1-Dichloropropene	4.885	75	6479	0.58	ug/L	#	63
46) 1,2-Dichloroethane	5.293	62	6250	0.53	ug/L		84
47) Benzene	5.178	78	16047	0.46	ug/L		61
48) Tertiaryamylmethylether	5.450	73	7321	0.30	ug/L	#	87
49) Isobutyl Alcohol	5.436	43	2397	0.29	ug/L	#	75
50) Heptane	5.758	43	3165m	0.48	ug/L		
51) 1,4-Dioxane	6.826	88	8007	36.56	ug/L	#	31
52) Methylcyclohexane	6.647	83	5183	0.46	ug/L		96
53) n-Butanol	6.374	56	2527m	4.20	ug/L		
54) Trichloroethene	6.353	130	4211	0.39	ug/L	#	81
55) 1,2-Dichloropropane	6.697	63	5801m	0.60	ug/L		
56) Dibromomethane	6.797	93	2211m	0.32	ug/L		
57) Methyl methacrylate	6.826	41	4845	0.44	ug/L	#	73
58) Bromodichloromethane	7.019	83	4830	0.42	ug/L	#	52
59) 2-Chloroethyl vinyl ether	7.334	43	1749	0.46	ug/L	#	25
60) 2-Nitropropane	7.241	43	3105	0.77	ug/L	#	75
61) cis-1,3-Dichloropropene	7.456	75	5972	0.45	ug/L		76
63) 4-Methyl-2-pentanone	7.592	43	5990m	0.37	ug/L		
65) Toluene	7.728	91	14362	0.43	ug/L		91
66) trans-1,3-Dichloropropene	7.943	75	5461	0.45	ug/L	#	33
67) Chloropicrin	0.000		0	N.D.	d		
68) Ethyl methacrylate	8.000	69	5503	0.41	ug/L	#	82
69) 1,1,2-Trichloroethane	8.086	97	5349	0.58	ug/L	#	79
70) Tetrachloroethene	8.129	166	3641	0.39	ug/L		89
71) 1,3-Dichloropropane	8.201	76	5672	0.41	ug/L	#	55
72) 2-Hexanone	8.251	43	6949	0.55	ug/L		73
73) Chlorodibromomethane	8.351	129	4733	0.47	ug/L		83
74) Butyl acetate	8.344	43	9119	0.44	ug/L	#	90
75) 1,2-Dibromoethane	8.430	107	4397	0.43	ug/L	#	63
76) Chlorobenzene	8.753	112	9315	0.41	ug/L	#	40
77) 1,1,1,2-Tetrachloroethane	8.810	131	4143	0.50	ug/L		89
78) Ethylbenzene	8.817	91	14959	0.41	ug/L		98
79) m/p-Xylene	8.896	91	23658	0.89	ug/L		94
80) Styrene	9.139	104	10268	0.45	ug/L		95
81) o-Xylene	9.125	91	12935	0.45	ug/L		86
82) Cyclohexanone	9.390	55	11280	8.08	ug/L	#	90
83) Bromoform	9.247	173	3112	0.38	ug/L		94
84) Isopropylbenzene	9.333	105	15584	0.47	ug/L		92
86) Bromobenzene	9.512	77	7363	0.33	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	5743	0.38	ug/L		91
88) 1,2,3-Trichloropropane	9.541	110	2155m	0.50	ug/L		
89) trans-1,4-Dichloro-2-b...	9.526	53	1979	0.51	ug/L		91
90) n-Propylbenzene	9.562	91	15696	0.39	ug/L		88
91) 2-Chlorotoluene	9.612	91	8897	0.36	ug/L		86

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

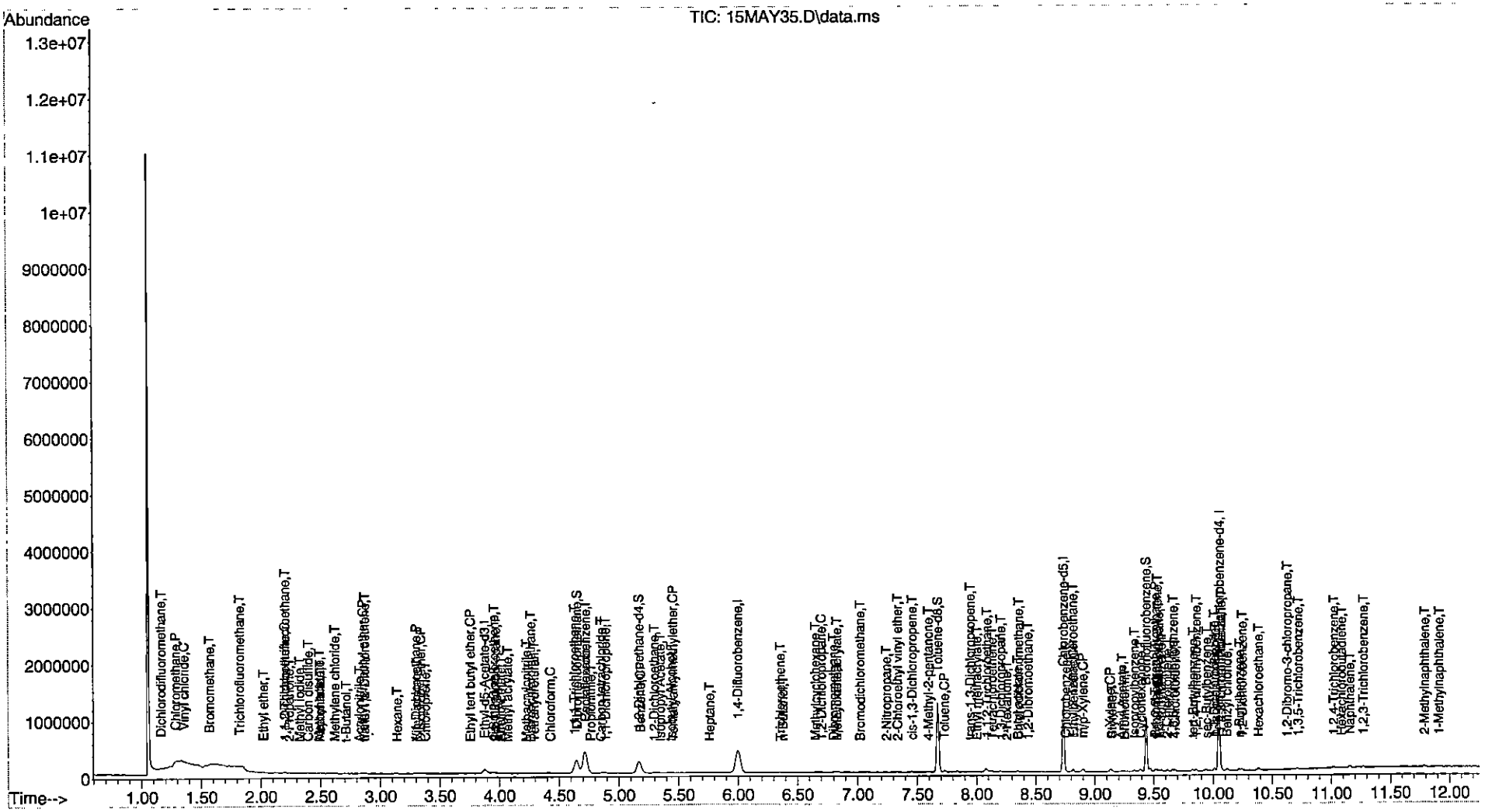
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	11092	0.41	ug/L		98
93) 1,3,5-Trimethylbenzene	9.662	105	10074	0.38	ug/L		90
94) tert-Butylbenzene	9.827	91	7622	0.48	ug/L		98
95) 1,2,4-Trimethylbenzene	9.856	105	12251	0.43	ug/L		92
96) sec-Butylbenzene	9.942	105	14839	0.47	ug/L		92
98) 1,3-Dichlorobenzene	10.006	146	6650	0.37	ug/L		87
99) p-Isopropyltoluene	10.013	119	11607	0.45	ug/L		88
100) 1,4-Dichlorobenzene	10.063	146	6951m	0.38	ug/L		
101) 1,2,3-Trimethylbenzene	10.063	105	11556	0.40	ug/L		95
102) Benzyl chloride	10.114	91	8773	0.65	ug/L		94
103) 1,2-Dichlorobenzene	10.242	146	6385	0.36	ug/L		91
104) n-Butylbenzene	10.221	91	10341m	0.45	ug/L		
105) Hexachloroethane	10.379	117	2764m	0.48	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2171	0.50	ug/L	#	67
107) 1,3,5-Trichlorobenzene	10.715	180	4409	0.36	ug/L	#	92
108) 1,2,4-Trichlorobenzene	11.016	180	5300	0.43	ug/L		94
109) Hexachlorobutadiene	11.081	225	1625	0.41	ug/L	#	81
110) Naphthalene	11.152	128	17898	0.43	ug/L		89
111) 1,2,3-Trichlorobenzene	11.267	180	4447	0.36	ug/L		99
112) 2-Methylnaphthalene	11.783	142	8281	0.43	ug/L		91
113) 1-Methylnaphthalene	11.904	142	7473	0.39	ug/L		85
115) 2-Propanone	2.234	43	5168m	0.25	ug/L		
116) Acetic Ether	4.011	43	11118m	0.55	ug/L		
117) Isopropyl Acetate	5.343	61	718m	0.10	ug/L		
118) Amyl Acetate	9.225	43	6957	0.32	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY35.D
Acq On : 15 May 2018 7:30 pm
Operator : EMR
Sample : 0.4PPB
Misc : IS/SS 200-20081
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 16 10:31:24 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	345310	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	515573	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	467514	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233707	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	98455	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181076	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.30%				
45) 1,2-Dichloroethane-d4	5.164	65	176535	20.58	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.90%				
64) Toluene-d8	7.671	98	603853	20.28	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.40%				
85) Bromofluorobenzene	9.433	95	219602	20.74	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 103.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	4787m	0.58	ug/L		
3) Chloromethane	1.282	50	10899m	0.68	ug/L		
4) Vinyl chloride	1.353	62	6139	0.55	ug/L	#	1
5) Bromomethane	1.568	96	5570m	0.17	ug/L		
6) Chloroethane	1.640	64	11699m	Below Cal			
7) Trichlorofluoromethane	1.812	101	6510	0.57	ug/L		90
8) Ethyl ether	2.019	59	5583	0.81	ug/L		87
9) Acrolein	2.127	56	7885	Below Cal		#	60
10) 1,1-Dichloroethene	2.199	61	6603	0.70	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	3831	0.72	ug/L		91
12) Methyl iodide	2.327	142	6226	0.90	ug/L		98
13) Acetone	2.234	43	3840	0.02	ug/L		67
14) Chloroprene	3.373	53	6459	0.63	ug/L	#	87
15) Carbon disulfide	2.392	76	12358	0.62	ug/L		45
16) Allyl chloride	2.499	41	7862	0.64	ug/L	#	80
17) Methyl acetate	2.485	43	13185m	0.93	ug/L		
18) Acetonitrile	2.499	41	7548m	0.61	ug/L		
19) Methylene chloride	2.607	49	8475	0.71	ug/L		90
20) trans-1,2-Dichloroethene	2.858	61	7336	0.69	ug/L		93
21) t-Butanol	2.700	59	6622	2.34	ug/L	#	65
22) Acrylonitrile	2.836	53	2890m	0.62	ug/L		
23) Methyl tert-butyl ether	2.850	73	12843	0.52	ug/L		93
24) Hexane	3.130	57	5801m	0.79	ug/L		
25) 1,1-Dichloroethane	3.302	63	9239	0.65	ug/L		84
26) Diisopropyl ether	3.330	45	13874	0.51	ug/L	#	57
27) Vinyl acetate	3.309	86	1195	2.61	ug/L	#	18
28) Ethyl tert butyl ether	3.753	59	15061	0.60	ug/L		97
29) 2,2-Dichloropropane	3.961	77	8226m	0.88	ug/L		
30) cis-1,2-Dichloroethene	3.953	61	8607m	0.64	ug/L		
31) 2-Butanone	3.968	43	15629	1.50	ug/L		94
32) Ethyl Acetate	4.011	43	6401	0.39	ug/L		98
33) Methyl acrylate	4.075	55	8346	0.68	ug/L	#	69
34) Propionitrile	4.741	54	593	0.72	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	4924	0.69 ug/L	85
36) Tetrahydrofuran	4.290	42	6345	1.23 ug/L #	75
37) Methacrylonitrile	4.219	41	4179	0.49 ug/L #	55
38) Chloroform	4.419	83	10099	0.66 ug/L	98
39) Cyclohexane	4.720	56	12704m	0.91 ug/L	
41) 1,1,1-Trichloroethane	4.641	97	7259	0.64 ug/L #	73
43) Carbon tetrachloride	4.863	117	5153	0.79 ug/L #	61
44) 1,1-Dichloropropene	4.885	75	6130	0.58 ug/L	78
46) 1,2-Dichloroethane	5.293	62	7790	0.70 ug/L	86
47) Benzene	5.178	78	19660	0.59 ug/L	72
48) Tertiaryamylmethylether	5.451	73	14077	0.60 ug/L #	72
49) Isobutyl Alcohol	5.451	43	4184m	0.53 ug/L	
50) Heptane	5.773	43	6485m	1.03 ug/L	
51) 1,4-Dioxane	6.826	88	9467	45.47 ug/L	93
52) Methylcyclohexane	6.647	83	8165	0.76 ug/L	89
53) n-Butanol	6.332	56	1220m	2.13 ug/L	
54) Trichloroethene	6.360	130	6299	0.62 ug/L	94
55) 1,2-Dichloropropane	6.697	63	6821m	0.74 ug/L	
56) Dibromomethane	6.804	93	5481	0.83 ug/L #	79
57) Methyl methacrylate	6.826	41	7181	0.68 ug/L	92
58) Bromodichloromethane	7.026	83	7390	0.67 ug/L #	86
59) 2-Chloroethyl vinyl ether	7.334	43	5262	1.47 ug/L #	66
60) 2-Nitropropane	7.248	43	3515	0.92 ug/L #	70
61) cis-1,3-Dichloropropene	7.456	75	8714m	0.69 ug/L	
63) 4-Methyl-2-pentanone	7.592	43	10970	0.69 ug/L	94
65) Toluene	7.728	91	18987	0.58 ug/L	93
66) trans-1,3-Dichloropropene	7.943	75	8402m	0.70 ug/L	
67) Chloropicrin	7.943	117	791	No Calib	
68) Ethyl methacrylate	8.001	69	10840	0.82 ug/L	90
69) 1,1,2-Trichloroethane	8.087	97	7186	0.79 ug/L #	82
70) Tetrachloroethene	8.130	166	5245	0.58 ug/L	91
71) 1,3-Dichloropropane	8.201	76	9893	0.73 ug/L	92
72) 2-Hexanone	8.251	43	8521m	0.69 ug/L	
73) Chlorodibromomethane	8.352	129	5905	0.60 ug/L #	80
74) Butyl acetate	8.344	43	12702	0.62 ug/L #	89
75) 1,2-Dibromoethane	8.430	107	5761	0.57 ug/L	81
76) Chlorobenzene	8.753	112	13453m	0.60 ug/L	
77) 1,1,1,2-Tetrachloroethane	8.810	131	5086	0.62 ug/L #	84
78) Ethylbenzene	8.817	91	20617	0.58 ug/L	93
79) m/p-Xylene	8.896	91	29748	1.14 ug/L	88
80) Styrene	9.140	104	13290	0.59 ug/L	100
81) o-Xylene	9.125	91	16437	0.58 ug/L	92
82) Cyclohexanone	9.390	55	14288	10.42 ug/L	95
83) Bromoform	9.254	173	4420	0.55 ug/L	84
84) Isopropylbenzene	9.333	105	19744	0.61 ug/L	99
86) Bromobenzene	9.512	77	14391	0.66 ug/L	86
87) 1,1,2,2-Tetrachloroethane	9.512	83	9841	0.67 ug/L	91
88) 1,2,3-Trichloropropane	9.541	110	2844m	0.67 ug/L	
89) trans-1,4-Dichloro-2-b...	9.526	53	2720	0.72 ug/L	87
90) n-Propylbenzene	9.562	91	21983	0.56 ug/L	97
91) 2-Chlorotoluene	9.612	91	14363m	0.59 ug/L	

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

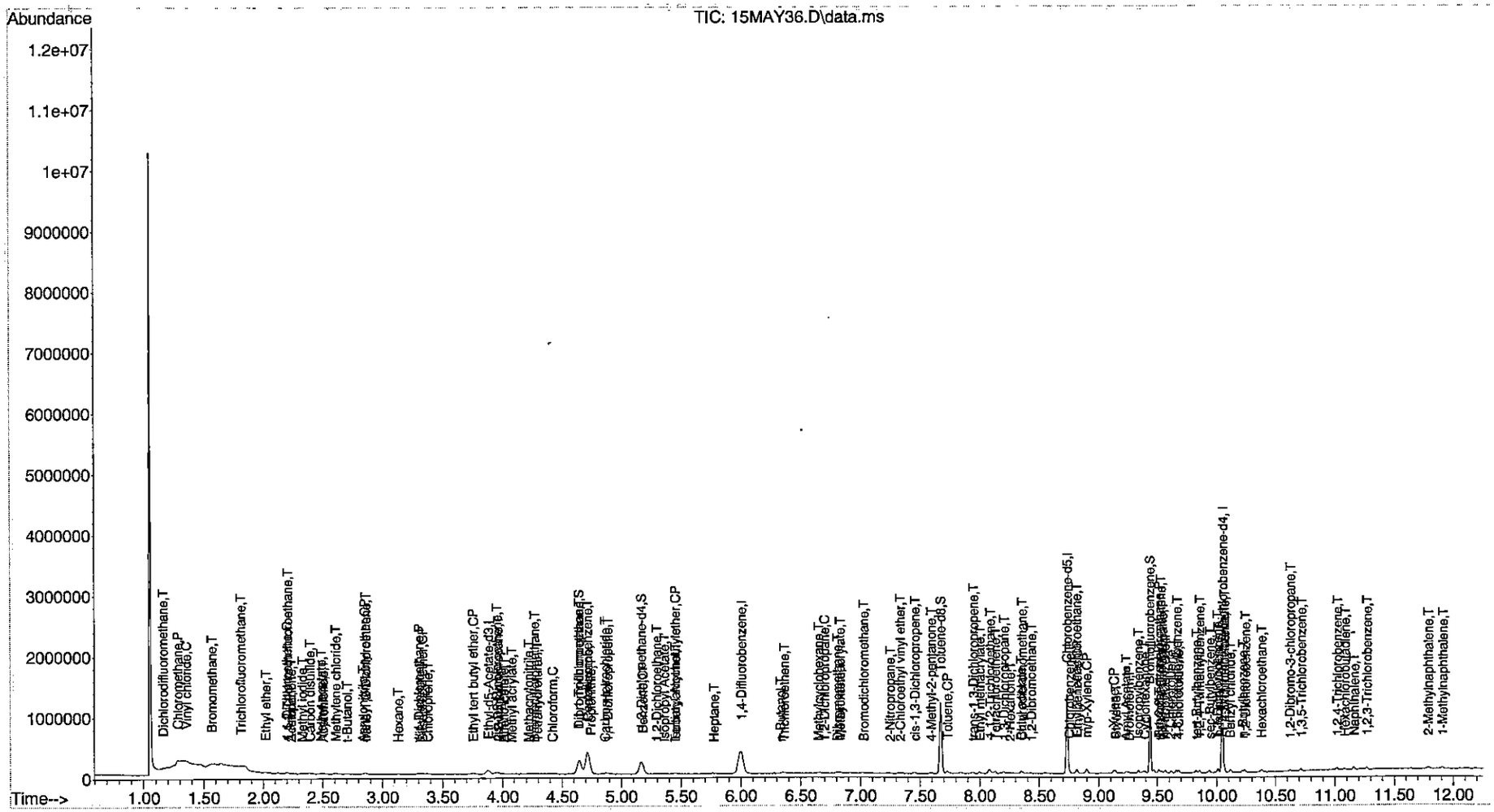
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	17542	0.65	ug/L		93
93) 1,3,5-Trimethylbenzene	9.662	105	16806	0.65	ug/L		91
94) tert-Butylbenzene	9.827	91	10190	0.66	ug/L		82
95) 1,2,4-Trimethylbenzene	9.856	105	16805	0.60	ug/L		97
96) sec-Butylbenzene	9.942	105	18937	0.61	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	9653	0.55	ug/L		94
99) p-Isopropyltoluene	10.013	119	14791	0.59	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	9726m	0.55	ug/L		
101) 1,2,3-Trimethylbenzene	10.064	105	16288	0.58	ug/L		95
102) Benzyl chloride	10.114	91	14397m	1.10	ug/L		
103) 1,2-Dichlorobenzene	10.243	146	9485	0.55	ug/L		90
104) n-Butylbenzene	10.221	91	15309	0.68	ug/L		96
105) Hexachloroethane	10.379	117	3935m	0.70	ug/L		
106) 1,2-Dibromo-3-chloropr...	10.622	157	2921	0.70	ug/L		88
107) 1,3,5-Trichlorobenzene	10.715	180	6327	0.54	ug/L		95
108) 1,2,4-Trichlorobenzene	11.016	180	6221	0.52	ug/L		90
109) Hexachlorobutadiene	11.081	225	2187	0.56	ug/L	#	88
110) Naphthalene	11.160	128	23337	0.58	ug/L		94
111) 1,2,3-Trichlorobenzene	11.267	180	6224	0.53	ug/L		85
112) 2-Methylnaphthalene	11.783	142	12334	0.65	ug/L		96
113) 1-Methylnaphthalene	11.904	142	11647	0.63	ug/L		98
115) 2-Propanone	2.234	43	6529m	0.55	ug/L		
116) Acetic Ether	4.011	43	6401	0.35	ug/L	#	81
117) Isopropyl Acetate	5.357	61	3741m	0.55	ug/L		
118) Amyl Acetate	9.225	43	12164	0.61	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY36.D
Acq On : 15 May 2018 7:46 pm
Operator : EMR
Sample : 0.6PPB
Misc : IS/SS 200-20081
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 16 10:31:27 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341663	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	510208	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	459357	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	233694	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	101741	20.00	ug/L		-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	176770	19.98	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.90%				
45) 1,2-Dichloroethane-d4	5.164	65	175827	20.71	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.55%				
64) Toluene-d8	7.671	98	600091	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.60%				
85) Bromofluorobenzene	9.433	95	217812	20.94	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	16254	1.99	ug/L		94
3) Chloromethane	1.282	50	28443	1.80	ug/L		93
4) Vinyl chloride	1.353	62	16967	1.53	ug/L	#	60
5) Bromomethane	1.568	96	9751	0.68	ug/L	#	27
6) Chloroethane	1.633	64	23107	Below Cal		#	72
7) Trichlorofluoromethane	1.819	101	19126	1.71	ug/L		92
8) Ethyl ether	2.019	59	14499m	2.13	ug/L		
9) Acrolein	2.127	56	20791	9.56	ug/L		91
10) 1,1-Dichloroethene	2.199	61	22302	2.39	ug/L		92
11) 1,1,2-Trichlorotrifluo...	2.206	151	10738	2.05	ug/L		93
12) Methyl iodide	2.328	142	16131m	2.06	ug/L		
13) Acetone	2.242	43	12253	1.58	ug/L		78
14) Chloroprene	3.373	53	22327	2.19	ug/L	#	93
15) Carbon disulfide	2.385	76	47429	2.39	ug/L		95
16) Allyl chloride	2.499	41	23371	1.91	ug/L		88
17) Methyl acetate	2.485	43	23390	1.67	ug/L	#	90
18) Acetonitrile	2.499	41	23371	1.91	ug/L	#	86
19) Methylene chloride	2.607	49	23407	1.98	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	23150	2.21	ug/L		97
21) t-Butanol	2.729	59	27826	9.92	ug/L	#	87
22) Acrylonitrile	2.822	53	10448	1.96	ug/L		94
23) Methyl tert-butyl ether	2.850	73	43359	1.77	ug/L		98
24) Hexane	3.130	57	18410	2.54	ug/L	#	78
25) 1,1-Dichloroethane	3.295	63	32867	2.35	ug/L		95
26) Diisopropyl ether	3.337	45	46820	1.74	ug/L	#	15
27) Vinyl acetate	3.295	86	3336	5.24	ug/L	#	31
28) Ethyl tert butyl ether	3.746	59	46588	1.88	ug/L		96
29) 2,2-Dichloropropane	3.961	77	22212	2.41	ug/L		93
30) cis-1,2-Dichloroethene	3.954	61	24889	1.86	ug/L		95
31) 2-Butanone	3.954	43	21848	2.25	ug/L		88
32) Ethyl Acetate	4.011	43	29654	1.81	ug/L		98
33) Methyl acrylate	4.068	55	24748	2.03	ug/L	#	88
34) Propionitrile	4.749	54	2077	2.56	ug/L	#	1

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	13503	1.92	ug/L		96
36) Tetrahydrofuran	4.290	42	9602	1.88	ug/L		76
37) Methacrylonitrile	4.226	41	17748	2.11	ug/L		90
38) Chloroform	4.419	83	32339	2.15	ug/L		97
39) Cyclohexane	4.727	56	30864	2.23	ug/L	#	79
41) 1,1,1-Trichloroethane	4.634	97	24366	2.16	ug/L		95
43) Carbon tetrachloride	4.863	117	21310	2.34	ug/L		95
44) 1,1-Dichloropropene	4.885	75	23127	2.22	ug/L		88
46) 1,2-Dichloroethane	5.293	62	22372	2.03	ug/L		96
47) Benzene	5.186	78	65749	2.00	ug/L		94
48) Tertiaryamylmethylether	5.451	73	45975	1.98	ug/L	#	91
49) Isobutyl Alcohol	5.443	43	18503	2.39	ug/L	#	58
50) Heptane	5.759	43	16149	2.59	ug/L		95
51) 1,4-Dioxane	6.826	88	37712	183.02	ug/L		97
52) Methylcyclohexane	6.654	83	20710m	1.95	ug/L		
53) n-Butanol	6.382	56	11429m	20.20	ug/L		
54) Trichloroethene	6.353	130	19494	1.93	ug/L		96
55) 1,2-Dichloropropane	6.697	63	20251	2.23	ug/L		93
56) Dibromomethane	6.797	93	13565	2.06	ug/L		90
57) Methyl methacrylate	6.826	41	21614	2.07	ug/L	#	88
58) Bromodichloromethane	7.019	83	24814	2.27	ug/L		93
59) 2-Chloroethyl vinyl ether	7.334	43	10479	2.95	ug/L	#	82
60) 2-Nitropropane	7.241	43	9866	2.61	ug/L	#	91
61) cis-1,3-Dichloropropene	7.449	75	28961	2.31	ug/L		88
63) 4-Methyl-2-pentanone	7.592	43	25870	1.67	ug/L		93
65) Toluene	7.728	91	66695	2.06	ug/L		96
66) trans-1,3-Dichloropropene	7.943	75	27490	2.32	ug/L		91
67) Chloropicrin	7.950	117	729	No Calib			
68) Ethyl methacrylate	8.001	69	29786	2.31	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	19396	2.17	ug/L		99
70) Tetrachloroethene	8.130	166	17532	1.96	ug/L		90
71) 1,3-Dichloropropane	8.201	76	27398	2.06	ug/L		93
72) 2-Hexanone	8.251	43	22109	1.83	ug/L		93
73) Chlorodibromomethane	8.352	129	22518	2.32	ug/L		99
74) Butyl acetate	8.344	43	36363	1.82	ug/L	#	90
75) 1,2-Dibromoethane	8.423	107	22535	2.27	ug/L		94
76) Chlorobenzene	8.753	112	47771	2.18	ug/L		93
77) 1,1,1,2-Tetrachloroethane	8.810	131	18207	2.26	ug/L		92
78) Ethylbenzene	8.817	91	74547	2.13	ug/L		100
79) m/p-Xylene	8.896	91	110316	4.29	ug/L		100
80) Styrene	9.140	104	47340	2.14	ug/L		96
81) o-Xylene	9.125	91	57643	2.07	ug/L		96
82) Cyclohexanone	9.390	55	21381	15.87	ug/L		92
83) Bromoform	9.247	173	15750	1.98	ug/L		100
84) Isopropylbenzene	9.333	105	66713	2.10	ug/L		98
86) Bromobenzene	9.512	77	43059	2.02	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	30581	2.11	ug/L		96
88) 1,2,3-Trichloropropane	9.541	110	7695	1.83	ug/L		89
89) trans-1,4-Dichloro-2-b...	9.526	53	10014	2.68	ug/L		82
90) n-Propylbenzene	9.562	91	81080	2.11	ug/L		97
91) 2-Chlorotoluene	9.612	91	49680	2.09	ug/L		98

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

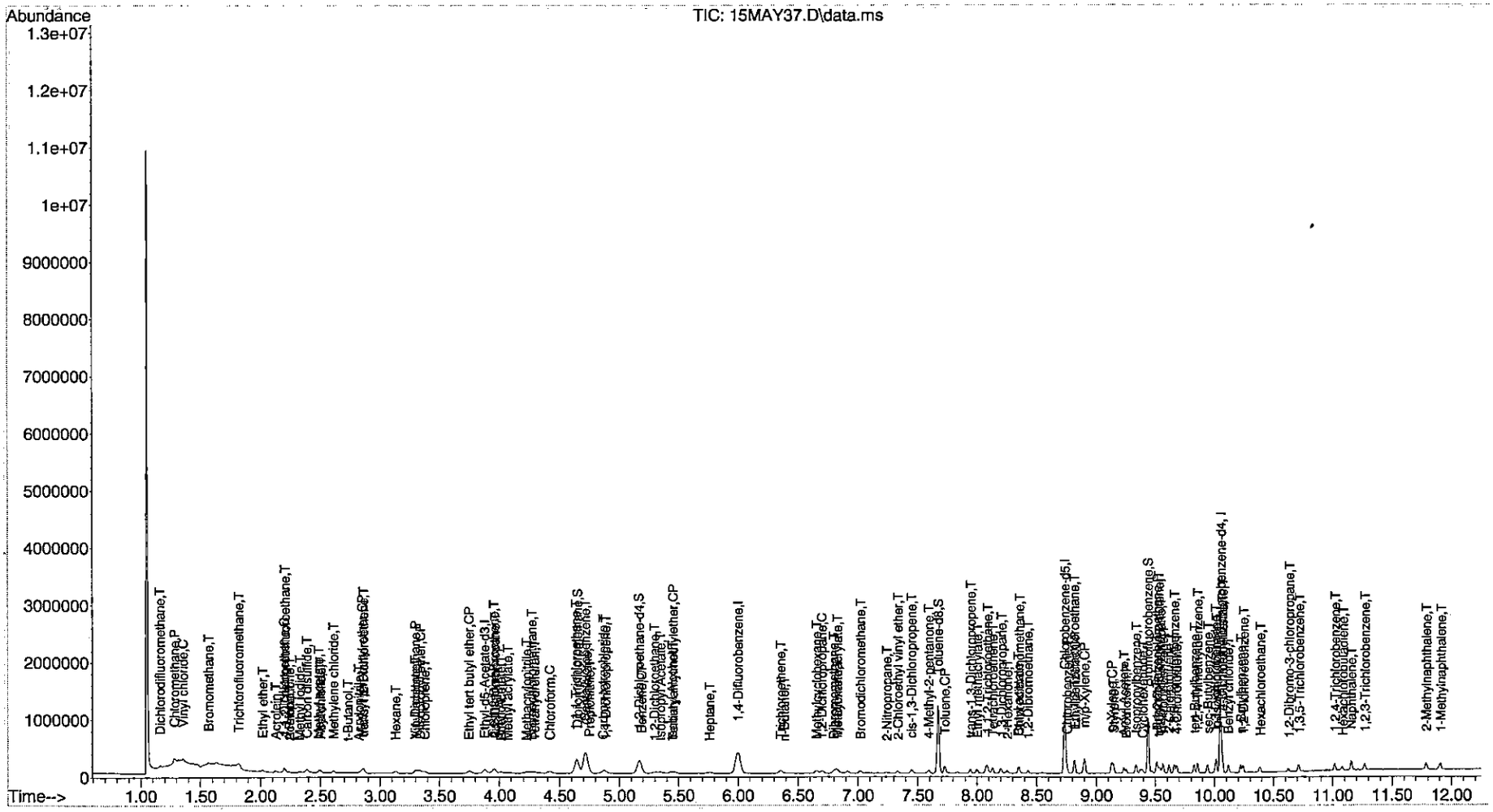
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	53475	2.03	ug/L		99
93) 1,3,5-Trimethylbenzene	9.655	105	55251	2.18	ug/L		96
94) tert-Butylbenzene	9.827	91	31106	2.05	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	58428	2.11	ug/L		94
96) sec-Butylbenzene	9.942	105	63838	2.08	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	33229	1.91	ug/L		97
99) p-Isopropyltoluene	10.013	119	55838	2.25	ug/L		98
100) 1,4-Dichlorobenzene	10.064	146	34169	1.93	ug/L		91
101) 1,2,3-Trimethylbenzene	10.064	105	56130	2.00	ug/L		96
102) Benzyl chloride	10.114	91	46703	3.58	ug/L		98
103) 1,2-Dichlorobenzene	10.243	146	32202	1.87	ug/L		91
104) n-Butylbenzene	10.221	91	49453	2.21	ug/L		100
105) Hexachloroethane	10.386	117	12149	2.17	ug/L		92
106) 1,2-Dibromo-3-chloropr...	10.629	157	9991	2.40	ug/L		99
107) 1,3,5-Trichlorobenzene	10.715	180	23403	2.00	ug/L		100
108) 1,2,4-Trichlorobenzene	11.016	180	22850	1.90	ug/L		99
109) Hexachlorobutadiene	11.081	225	7764	2.00	ug/L		92
110) Naphthalene	11.152	128	83966	2.09	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	23116	1.95	ug/L		94
112) 2-Methylnaphthalene	11.783	142	41741	2.22	ug/L		96
113) 1-Methylnaphthalene	11.904	142	38682	2.09	ug/L		97
115) 2-Propanone	2.242	43	12253	1.42	ug/L	#	77
116) Acetic Ether	4.011	43	29654	1.55	ug/L	#	81
117) Isopropyl Acetate	5.343	61	13666	1.93	ug/L	#	75
118) Amyl Acetate	9.226	43	33626	1.64	ug/L		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY37.D
Acq On : 15 May 2018 8:02 pm
Operator : EMR
Sample : 2PPB
Misc : IS/SS 200-20081
ALS Vial : 26 Sample Multiplier: 1

Quant Time: May 16 10:31:30 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	352448	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	529324	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	477074	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	237433	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109613	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182632	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.171	65	177885	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	615517	20.26	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.30%				
85) Bromofluorobenzene	9.433	95	221934	20.54	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	31607	3.74	ug/L		99
3) Chloromethane	1.282	50	48735	2.99	ug/L		90
4) Vinyl chloride	1.353	62	37796	3.31	ug/L	#	38
5) Bromomethane	1.568	96	16036	1.39	ug/L		90
6) Chloroethane	1.640	64	39671	1.21	ug/L	#	61
7) Trichlorofluoromethane	1.812	101	38338	3.31	ug/L		97
8) Ethyl ether	2.019	59	27155	3.86	ug/L		97
9) Acrolein	2.127	56	37040	31.38	ug/L		92
10) 1,1-Dichloroethene	2.199	61	41216	4.28	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.206	151	23118	4.27	ug/L		98
12) Methyl iodide	2.327	142	28724	3.45	ug/L		95
13) Acetone	2.234	43	18409	2.60	ug/L		95
14) Chloroprene	3.373	53	45447	4.31	ug/L		99
15) Carbon disulfide	2.392	76	90839	4.44	ug/L		98
16) Allyl chloride	2.499	41	48925	3.88	ug/L		87
17) Methyl acetate	2.485	43	46105	3.19	ug/L	#	95
18) Acetonitrile	2.499	41	48925	3.88	ug/L		89
19) Methylene chloride	2.607	49	43239	3.55	ug/L		92
20) trans-1,2-Dichloroethene	2.858	61	45556	4.21	ug/L		97
21) t-Butanol	2.729	59	48671	16.82	ug/L	#	76
22) Acrylonitrile	2.822	53	21858	3.87	ug/L		91
23) Methyl tert-butyl ether	2.850	73	92128	3.64	ug/L		97
24) Hexane	3.130	57	32991	4.41	ug/L		94
25) 1,1-Dichloroethane	3.294	63	62323	4.33	ug/L		96
26) Diisopropyl ether	3.337	45	94027	3.38	ug/L	#	23
27) Vinyl acetate	3.302	86	5659	7.82	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	91455	3.59	ug/L		96
29) 2,2-Dichloropropane	3.961	77	44197	4.66	ug/L		97
30) cis-1,2-Dichloroethene	3.953	61	53356	3.87	ug/L		99
31) 2-Butanone	3.953	43	35378	3.71	ug/L		90
32) Ethyl Acetate	4.011	43	56163	3.33	ug/L	#	94
33) Methyl acrylate	4.068	55	49635	3.94	ug/L		96
34) Propionitrile	4.741	54	4584	5.47	ug/L	#	81

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.261	49	28260	3.89	ug/L		95
36) Tetrahydrofuran	4.283	42	19978	3.79	ug/L		96
37) Methacrylonitrile	4.226	41	30082	3.47	ug/L	#	92
38) Chloroform	4.412	83	61043	3.93	ug/L		99
39) Cyclohexane	4.734	56	52815	3.69	ug/L	#	88
41) 1,1,1-Trichloroethane	4.634	97	51689	4.41	ug/L		90
43) Carbon tetrachloride	4.863	117	42414	4.20	ug/L		97
44) 1,1-Dichloropropene	4.878	75	47608	4.40	ug/L		97
46) 1,2-Dichloroethane	5.293	62	44292	3.87	ug/L		97
47) Benzene	5.186	78	134612	3.96	ug/L		95
48) Tertiaryamylmethylether	5.451	73	90754	3.76	ug/L		94
49) Isobutyl Alcohol	5.451	43	33041	4.11	ug/L		93
50) Heptane	5.759	43	30311	4.68	ug/L		96
51) 1,4-Dioxane	6.826	88	73339	343.07	ug/L		88
52) Methylcyclohexane	6.654	83	47485	4.30	ug/L		97
53) n-Butanol	6.360	56	22872	38.96	ug/L	#	71
54) Trichloroethene	6.360	130	36432	3.48	ug/L		96
55) 1,2-Dichloropropane	6.704	63	39705m	4.22	ug/L		
56) Dibromomethane	6.797	93	31188	4.57	ug/L		91
57) Methyl methacrylate	6.826	41	43259	3.99	ug/L		99
58) Bromodichloromethane	7.019	83	49614	4.37	ug/L		97
59) 2-Chloroethyl vinyl ether	7.327	43	17369	4.72	ug/L		90
60) 2-Nitropropane	7.241	43	19148	4.88	ug/L	#	86
61) cis-1,3-Dichloropropene	7.449	75	57823	4.44	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	63747	3.95	ug/L		95
65) Toluene	7.728	91	142128	4.23	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	54813	4.46	ug/L		86
67) Chloropicrin	7.950	117	896	No Calib		#	
68) Ethyl methacrylate	8.001	69	58066	4.33	ug/L		95
69) 1,1,2-Trichloroethane	8.087	97	37097	4.00	ug/L		99
70) Tetrachloroethene	8.130	166	37079	3.99	ug/L		97
71) 1,3-Dichloropropane	8.201	76	55249	3.99	ug/L		95
72) 2-Hexanone	8.251	43	44283	3.53	ug/L		92
73) Chlorodibromomethane	8.352	129	42511	4.22	ug/L		96
74) Butyl acetate	8.344	43	78027	3.75	ug/L	#	96
75) 1,2-Dibromoethane	8.423	107	41675	4.05	ug/L		98
76) Chlorobenzene	8.753	112	93850	4.12	ug/L		94
77) 1,1,1,2-Tetrachloroethane	8.810	131	34887	4.17	ug/L		97
78) Ethylbenzene	8.817	91	148591	4.08	ug/L		99
79) m/p-Xylene	8.896	91	230052	8.61	ug/L		98
80) Styrene	9.140	104	94891	4.13	ug/L		95
81) o-Xylene	9.125	91	119371	4.13	ug/L		100
82) Cyclohexanone	9.390	55	28261	20.19	ug/L		95
83) Bromoform	9.247	173	32567	3.94	ug/L		93
84) Isopropylbenzene	9.333	105	143269	4.34	ug/L		100
86) Bromobenzene	9.512	77	89162	4.02	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	63732	4.23	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	17461	4.00	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	16630	4.29	ug/L		96
90) n-Propylbenzene	9.562	91	163425	4.10	ug/L		96
91) 2-Chlorotoluene	9.612	91	97397	3.94	ug/L		99

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

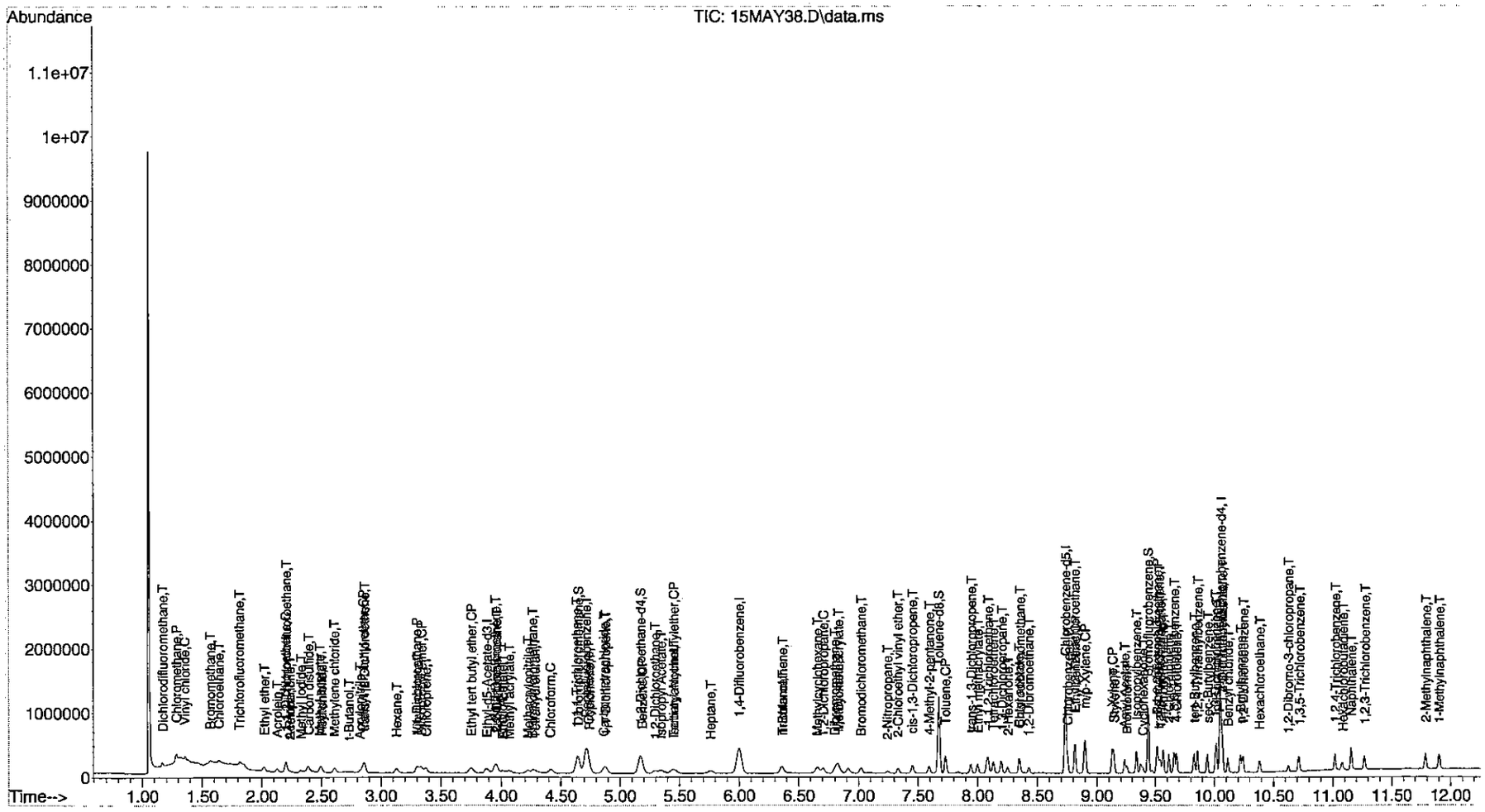
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	115808	4.23 ug/L	96
93) 1,3,5-Trimethylbenzene	9.655	105	117494	4.46 ug/L	97
94) tert-Butylbenzene	9.827	91	65724	4.17 ug/L	97
95) 1,2,4-Trimethylbenzene	9.856	105	118426	4.12 ug/L	98
96) sec-Butylbenzene	9.942	105	133408	4.19 ug/L	100
98) 1,3-Dichlorobenzene	10.006	146	70068	3.96 ug/L	99
99) p-Isopropyltoluene	10.013	119	108637	4.30 ug/L	97
100) 1,4-Dichlorobenzene	10.064	146	71386	3.98 ug/L	96
101) 1,2,3-Trimethylbenzene	10.064	105	117499	4.12 ug/L	99
102) Benzyl chloride	10.114	91	89346	6.73 ug/L	99
103) 1,2-Dichlorobenzene	10.243	146	70158	4.02 ug/L	97
104) n-Butylbenzene	10.221	91	100030	4.40 ug/L	99
105) Hexachloroethane	10.379	117	23315	4.09 ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.622	157	19528	4.62 ug/L	96
107) 1,3,5-Trichlorobenzene	10.715	180	48362	4.06 ug/L	95
108) 1,2,4-Trichlorobenzene	11.016	180	46830	3.84 ug/L	99
109) Hexachlorobutadiene	11.081	225	16475	4.18 ug/L	98
110) Naphthalene	11.152	128	172129	4.21 ug/L	100
111) 1,2,3-Trichlorobenzene	11.267	180	45843	3.81 ug/L	97
112) 2-Methylnaphthalene	11.783	142	87362	4.57 ug/L	98
113) 1-Methylnaphthalene	11.897	142	78822	4.19 ug/L	96
115) 2-Propanone	2.234	43	18409	2.19 ug/L	93
116) Acetic Ether	4.011	43	59749m	2.89 ug/L	
117) Isopropyl Acetate	5.343	61	24808	3.26 ug/L	95
118) Amyl Acetate	9.225	43	68161	3.09 ug/L	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY38.D
Acq On : 15 May 2018 8:18 pm
Operator : EMR
Sample : 4PPB
Misc : IS/SS 200-20081
ALS Vial : 27 Sample Multiplier: 1

Quant Time: May 16 10:31:33 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	340633	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	517885	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	468070	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	240783	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	106804	20.00	ug/L	#	-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181506	20.21	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.05%				
45) 1,2-Dichloroethane-d4	5.164	65	172360	20.00	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.00%				
64) Toluene-d8	7.671	98	604887	20.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.50%				
85) Bromofluorobenzene	9.433	95	221410	20.89	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	76432	9.36	ug/L		96
3) Chloromethane	1.282	50	112231	7.12	ug/L		96
4) Vinyl chloride	1.353	62	89186	8.08	ug/L		71
5) Bromomethane	1.568	96	33561	3.61	ug/L		97
6) Chloroethane	1.640	64	57603	4.42	ug/L		92
7) Trichlorofluoromethane	1.819	101	86710	7.76	ug/L		99
8) Ethyl ether	2.019	59	65726	9.68	ug/L		93
9) Acrolein	2.127	56	87651	102.52	ug/L		97
10) 1,1-Dichloroethene	2.198	61	100483	10.79	ug/L		98
11) 1,1,2-Trichlorotrifluo...	2.198	151	52662	10.07	ug/L		97
12) Methyl iodide	2.320	142	58645	7.20	ug/L		99
13) Acetone	2.234	43	53777m	9.23	ug/L		
14) Chloroprene	3.373	53	104594	10.27	ug/L		99
15) Carbon disulfide	2.385	76	210877	10.67	ug/L		98
16) Allyl chloride	2.499	41	116161	9.54	ug/L		94
17) Methyl acetate	2.485	43	101331	7.25	ug/L	#	94
18) Acetonitrile	2.499	41	116161	9.54	ug/L	#	95
19) Methylene chloride	2.607	49	102482	8.71	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	108673	10.40	ug/L		96
21) t-Butanol	2.721	59	119445m	42.70	ug/L		
22) Acrylonitrile	2.822	53	51538	9.29	ug/L		94
23) Methyl tert-butyl ether	2.850	73	214910	8.80	ug/L		100
24) Hexane	3.130	57	79672	11.01	ug/L		96
25) 1,1-Dichloroethane	3.301	63	150448	10.81	ug/L		98
26) Diisopropyl ether	3.330	45	221540	8.24	ug/L	#	17
27) Vinyl acetate	3.294	86	13926	17.71	ug/L	#	1
28) Ethyl tert butyl ether	3.746	59	222810	9.04	ug/L		100
29) 2,2-Dichloropropane	3.961	77	106004	11.56	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	128063	9.61	ug/L		97
31) 2-Butanone	3.953	43	78637	8.93	ug/L		98
32) Ethyl Acetate	4.011	43	132948	8.16	ug/L		95
33) Methyl acrylate	4.068	55	124673	10.24	ug/L	#	96
34) Propionitrile	4.741	54	7327	9.05	ug/L	#	71

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	67233	9.59 ug/L		99
36) Tetrahydrofuran	4.290	42	46966	9.22 ug/L		92
37) Methacrylonitrile	4.218	41	77818	9.28 ug/L		95
38) Chloroform	4.419	83	146546	9.76 ug/L		99
39) Cyclohexane	4.734	56	120921	8.75 ug/L		96
41) 1,1,1-Trichloroethane	4.634	97	122214	10.67 ug/L		98
43) Carbon tetrachloride	4.863	117	100287	9.73 ug/L		98
44) 1,1-Dichloropropene	4.877	75	107449	10.14 ug/L		98
46) 1,2-Dichloroethane	5.293	62	107657	9.61 ug/L		97
47) Benzene	5.178	78	314962	9.46 ug/L		99
48) Tertiaryamylmethylether	5.458	73	219892	9.31 ug/L		98
49) Isobutyl Alcohol	5.450	43	67516	8.59 ug/L		99
50) Heptane	5.758	43	68974	10.88 ug/L		95
51) 1,4-Dioxane	6.826	88	192256	919.22 ug/L		92
52) Methylcyclohexane	6.654	83	109298	10.13 ug/L		98
53) n-Butanol	6.367	56	55250	96.20 ug/L	#	95
54) Trichloroethene	6.353	130	88762	8.67 ug/L		99
55) 1,2-Dichloropropane	6.704	63	87483	9.51 ug/L		98
56) Dibromomethane	6.797	93	66312	9.94 ug/L		99
57) Methyl methacrylate	6.819	41	104038	9.82 ug/L		98
58) Bromodichloromethane	7.019	83	119836	10.80 ug/L		96
59) 2-Chloroethyl vinyl ether	7.334	43	45490	12.63 ug/L		99
60) 2-Nitropropane	7.241	43	43718	11.39 ug/L	#	94
61) cis-1,3-Dichloropropene	7.449	75	142406	11.17 ug/L		98
63) 4-Methyl-2-pentanone	7.592	43	137218	8.68 ug/L		98
65) Toluene	7.728	91	334782	10.16 ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	135420	11.23 ug/L		99
67) Chloropicrin	7.950	117	1907	No Calib	#	
68) Ethyl methacrylate	8.000	69	138970	10.56 ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	90318	9.91 ug/L		99
70) Tetrachloroethene	8.129	166	88639	9.72 ug/L		97
71) 1,3-Dichloropropane	8.201	76	136286	10.04 ug/L		97
72) 2-Hexanone	8.251	43	110634	8.98 ug/L		96
73) Chlorodibromomethane	8.351	129	103601	10.48 ug/L		98
74) Butyl acetate	8.344	43	177057	8.68 ug/L		96
75) 1,2-Dibromoethane	8.423	107	98887	9.79 ug/L		96
76) Chlorobenzene	8.753	112	222506	9.95 ug/L		96
77) 1,1,1,2-Tetrachloroethane	8.810	131	85054	10.35 ug/L		98
78) Ethylbenzene	8.817	91	353024	9.89 ug/L		100
79) m/p-Xylene	8.896	91	538211	20.52 ug/L		99
80) Styrene	9.139	104	229206	10.16 ug/L		96
81) o-Xylene	9.125	91	290111	10.23 ug/L		96
82) Cyclohexanone	9.390	55	50345	36.67 ug/L		96
83) Bromoform	9.247	173	82555	10.17 ug/L		95
84) Isopropylbenzene	9.333	105	336657	10.40 ug/L		98
86) Bromobenzene	9.512	77	213637	9.81 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	154100	10.43 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	39605	9.25 ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	38105	10.02 ug/L		93
90) n-Propylbenzene	9.562	91	394365	10.08 ug/L		97
91) 2-Chlorotoluene	9.612	91	234330	9.67 ug/L		93

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

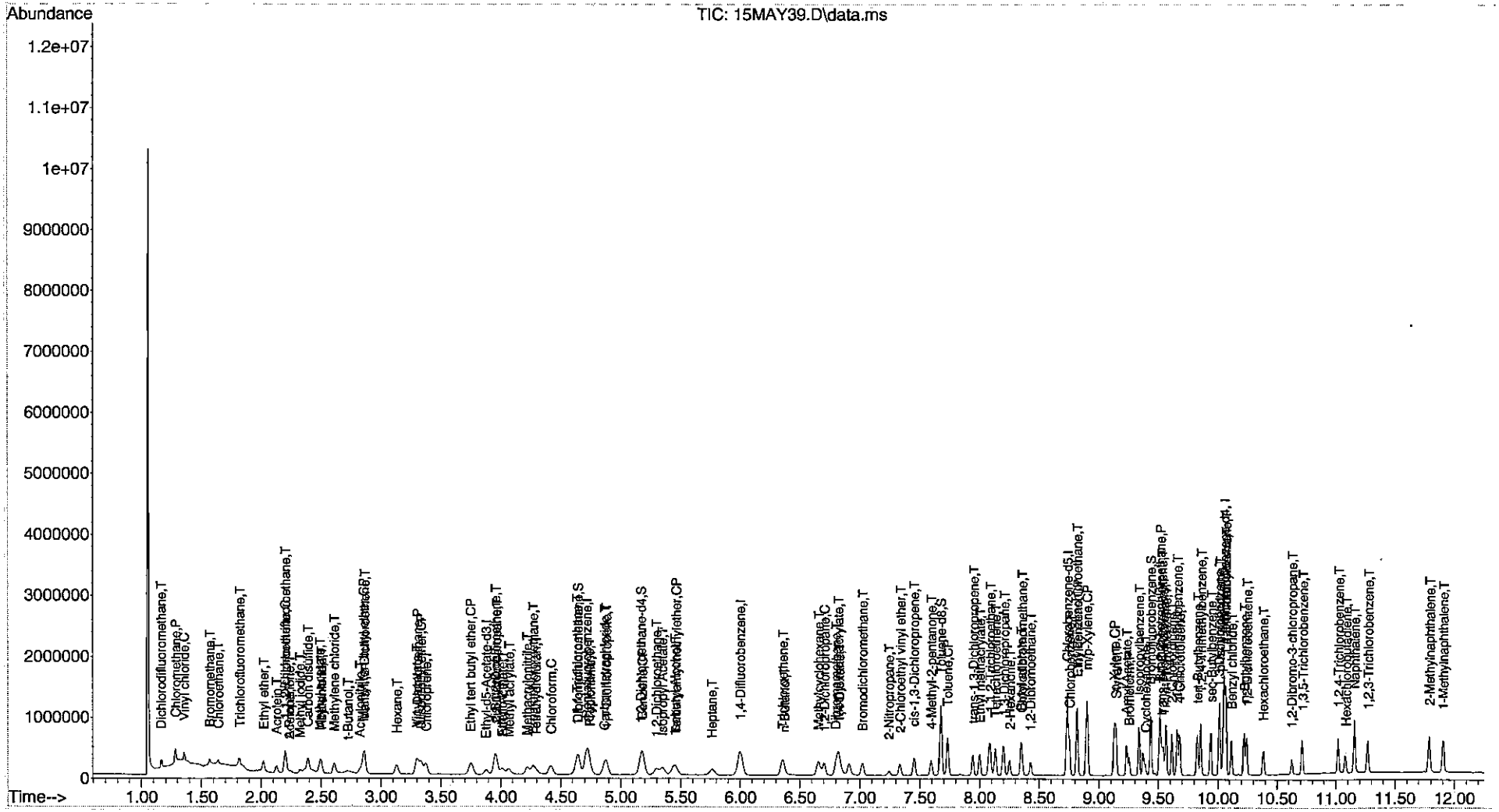
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	273644	10.18	ug/L		95
93) 1,3,5-Trimethylbenzene	9.655	105	264836	10.25	ug/L		99
94) tert-Butylbenzene	9.827	91	156481	10.12	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	284569	10.09	ug/L		95
96) sec-Butylbenzene	9.942	105	313863	10.04	ug/L		99
98) 1,3-Dichlorobenzene	10.006	146	168012	9.37	ug/L		99
99) p-Isopropyltoluene	10.013	119	273147	10.66	ug/L		98
100) 1,4-Dichlorobenzene	10.063	146	173185	9.52	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	290064	10.03	ug/L		97
102) Benzyl chloride	10.114	91	218901	16.27	ug/L		99
103) 1,2-Dichlorobenzene	10.242	146	170636	9.63	ug/L		99
104) n-Butylbenzene	10.221	91	236523	10.26	ug/L		99
105) Hexachloroethane	10.379	117	56186	9.72	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.622	157	43607	10.17	ug/L		94
107) 1,3,5-Trichlorobenzene	10.715	180	109119	9.03	ug/L		97
108) 1,2,4-Trichlorobenzene	11.016	180	116016	9.37	ug/L		99
109) Hexachlorobutadiene	11.081	225	38354	9.60	ug/L		99
110) Naphthalene	11.152	128	427113	10.30	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	112225	9.19	ug/L		99
112) 2-Methylnaphthalene	11.783	142	216787	11.17	ug/L		99
113) 1-Methylnaphthalene	11.897	142	206205	10.80	ug/L		97
115) 2-Propanone	2.234	43	53777m	7.60	ug/L		
116) Acetic Ether	4.011	43	132948	6.61	ug/L	#	98
117) Isopropyl Acetate	5.343	61	59190	7.97	ug/L		96
118) Amyl Acetate	9.225	43	171320	7.97	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY39.D
Acq On : 15 May 2018 8:34 pm
Operator : EMR
Sample : 10PPB
Misc : IS/SS 200-20081
ALS Vial : 28 Sample Multiplier: 1

Quant Time: May 16 10:31:36 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	341042	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	514805	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	466588	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	235133	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	104617	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	181633	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.75%				
45) 1,2-Dichloroethane-d4	5.164	65	172998	20.20	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.00%				
64) Toluene-d8	7.671	98	604432	20.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.70%				
85) Bromofluorobenzene	9.433	95	224637	21.26	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.30%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	264461	32.36	ug/L		98
3) Chloromethane	1.282	50	431373	27.34	ug/L		98
4) Vinyl chloride	1.353	62	333899	30.23	ug/L		96
5) Bromomethane	1.568	96	107875	13.04	ug/L		97
6) Chloroethane	1.640	64	182788m	25.43	ug/L		
7) Trichlorofluoromethane	1.819	101	349400	31.22	ug/L		99
8) Ethyl ether	2.019	59	260201	38.27	ug/L		99
9) Acrolein	2.127	56	256116	302.57	ug/L		100
10) 1,1-Dichloroethene	2.199	61	396546	42.55	ug/L		94
11) 1,1,2-Trichlorotrifluo...	2.206	151	201533	38.49	ug/L		99
12) Methyl iodide	2.327	142	201505m	26.45	ug/L		
13) Acetone	2.234	43	163480	29.39	ug/L		100
14) Chloroprene	3.373	53	409693	40.19	ug/L		99
15) Carbon disulfide	2.385	76	852539	43.10	ug/L		98
16) Allyl chloride	2.499	41	457352	37.52	ug/L		96
17) Methyl acetate	2.485	43	418992	29.94	ug/L		98
18) Acetonitrile	2.499	41	457352	37.52	ug/L	#	98
19) Methylene chloride	2.607	49	409920	34.78	ug/L		97
20) trans-1,2-Dichloroethene	2.857	61	436320	41.70	ug/L		98
21) t-Butanol	2.721	59	469103m	167.51	ug/L		
22) Acrylonitrile	2.815	53	205871	36.74	ug/L		99
23) Methyl tert-butyl ether	2.850	73	883042	36.10	ug/L		99
24) Hexane	3.130	57	297389	41.05	ug/L		97
25) 1,1-Dichloroethane	3.294	63	595288	42.71	ug/L		98
26) Diisopropyl ether	3.330	45	900154	33.46	ug/L	#	23
27) Vinyl acetate	3.294	86	51291	56.67	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	881030	35.70	ug/L		100
29) 2,2-Dichloropropane	3.961	77	411371	44.80	ug/L		94
30) cis-1,2-Dichloroethene	3.953	61	518043	38.83	ug/L		98
31) 2-Butanone	3.946	43	285553	33.22	ug/L		98
32) Ethyl Acetate	4.011	43	540376	33.11	ug/L	#	98
33) Methyl acrylate	4.061	55	515083	42.24	ug/L		99
34) Propionitrile	4.727	54	28092	34.67	ug/L	#	81

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	272530	38.82	ug/L		98
36) Tetrahydrofuran	4.283	42	194100	38.04	ug/L		97
37) Methacrylonitrile	4.218	41	317453	37.80	ug/L		96
38) Chloroform	4.419	83	595101	39.59	ug/L		100
39) Cyclohexane	4.734	56	445159	32.18	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	468714	41.16	ug/L		97
43) Carbon tetrachloride	4.863	117	418577	39.88	ug/L		98
44) 1,1-Dichloropropene	4.877	75	412685	39.18	ug/L		99
46) 1,2-Dichloroethane	5.293	62	419522	37.67	ug/L		98
47) Benzene	5.178	78	1302054	39.34	ug/L		100
48) Tertiaryamylmethylether	5.443	73	871552	37.12	ug/L		99
49) Isobutyl Alcohol	5.443	43	260509	33.34	ug/L		99
50) Heptane	5.759	43	251230	39.86	ug/L		96
51) 1,4-Dioxane	6.826	88	730024	3511.30	ug/L		90
52) Methylcyclohexane	6.654	83	418506	39.01	ug/L		96
53) n-Butanol	6.346	56	257409	450.88	ug/L	#	94
54) Trichloroethene	6.353	130	354970	34.87	ug/L		99
55) 1,2-Dichloropropane	6.704	63	355458	38.86	ug/L		98
56) Dibromomethane	6.797	93	268426	40.47	ug/L		97
57) Methyl methacrylate	6.819	41	394600	37.45	ug/L		97
58) Bromodichloromethane	7.019	83	480420	43.55	ug/L		95
59) 2-Chloroethyl vinyl ether	7.334	43	164604	45.99	ug/L		93
60) 2-Nitropropane	7.241	43	164250	43.06	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	573516	45.27	ug/L		99
63) 4-Methyl-2-pentanone	7.592	43	546854	34.69	ug/L		98
65) Toluene	7.728	91	1342864	40.90	ug/L		98
66) trans-1,3-Dichloropropene	7.943	75	518884	43.16	ug/L		99
67) Chloropicrin	7.943	117	35830	No Calib		#	
68) Ethyl methacrylate	8.001	69	541732	41.28	ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	351563	38.72	ug/L		99
70) Tetrachloroethene	8.129	166	339156	37.31	ug/L		98
71) 1,3-Dichloropropane	8.201	76	536613	39.65	ug/L		97
72) 2-Hexanone	8.251	43	444478	36.19	ug/L		96
73) Chlorodibromomethane	8.352	129	431353	43.78	ug/L		99
74) Butyl acetate	8.344	43	729024	35.85	ug/L		98
75) 1,2-Dibromoethane	8.423	107	400863	39.81	ug/L		99
76) Chlorobenzene	8.753	112	892014	40.02	ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	331852	40.52	ug/L		98
78) Ethylbenzene	8.817	91	1442302	40.52	ug/L		99
79) m/p-Xylene	8.896	91	2198523	84.09	ug/L		99
80) Styrene	9.139	104	928801	41.31	ug/L		97
81) o-Xylene	9.125	91	1149546	40.65	ug/L		98
82) Cyclohexanone	9.390	55	188808	137.95	ug/L		96
83) Bromoform	9.247	173	335758	41.51	ug/L		98
84) Isopropylbenzene	9.333	105	1339417	41.50	ug/L		100
86) Bromobenzene	9.512	77	856759	39.48	ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	604051	41.03	ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	154912	36.31	ug/L		96
89) trans-1,4-Dichloro-2-b...	9.526	53	152996	40.37	ug/L		93
90) n-Propylbenzene	9.562	91	1581314	40.53	ug/L		99
91) 2-Chlorotoluene	9.612	91	941697	38.99	ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

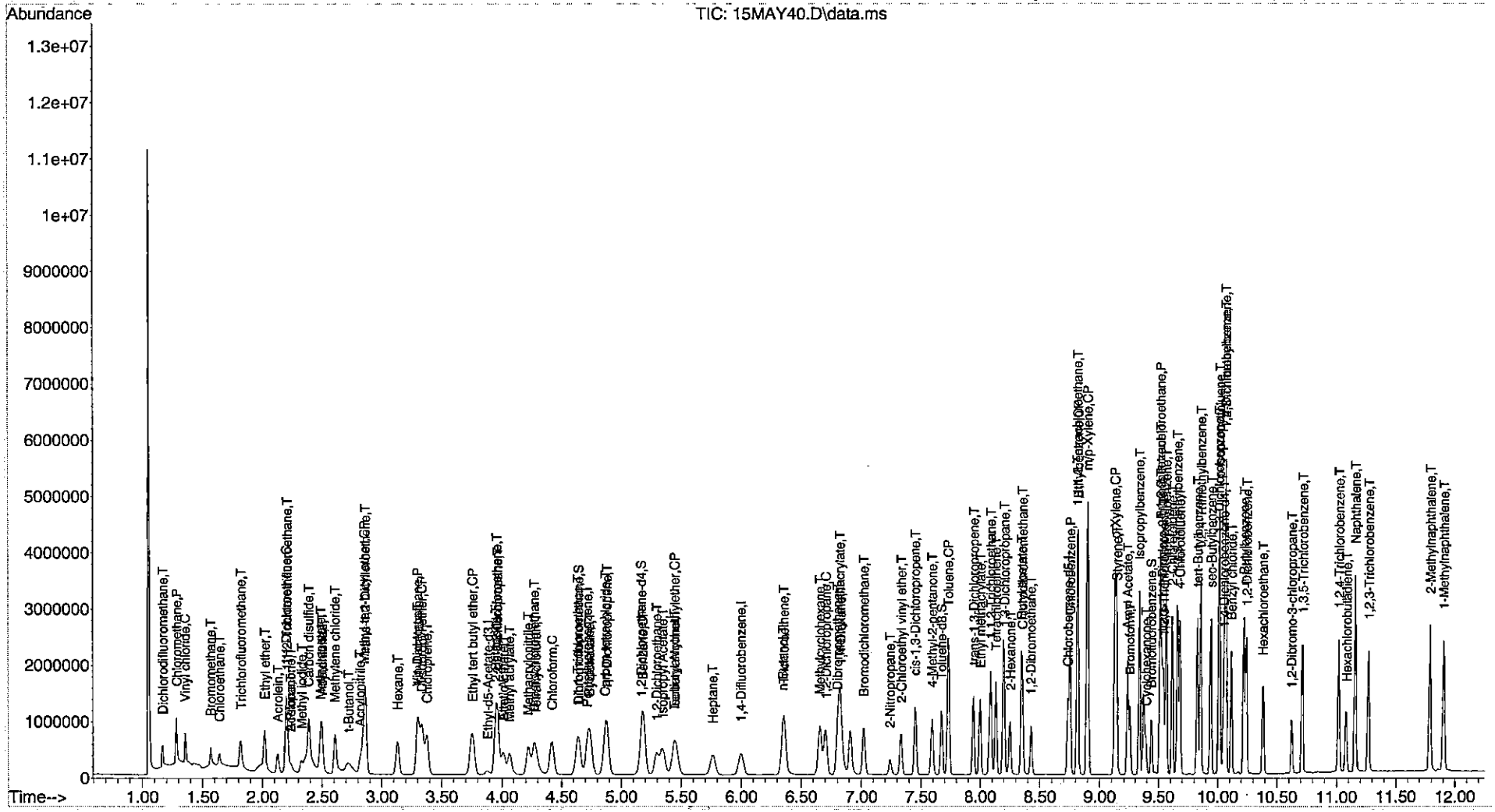
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1088923	40.63	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1074792	41.72	ug/L		99
94) tert-Butylbenzene	9.827	91	615392	39.91	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	1135887	40.42	ug/L		98
96) sec-Butylbenzene	9.942	105	1272781	40.84	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	692240	39.53	ug/L		98
99) p-Isopropyltoluene	10.013	119	1093083	43.68	ug/L		99
100) 1,4-Dichlorobenzene	10.063	146	691504	38.92	ug/L		97
101) 1,2,3-Trimethylbenzene	10.063	105	1156396	40.94	ug/L		99
102) Benzyl chloride	10.114	91	903207	68.73	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	683110	39.49	ug/L		99
104) n-Butylbenzene	10.221	91	982336	43.64	ug/L		100
105) Hexachloroethane	10.379	117	238723	42.29	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	179820	42.93	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	462739	39.22	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	454723	37.62	ug/L		99
109) Hexachlorobutadiene	11.081	225	151025	38.71	ug/L		99
110) Naphthalene	11.152	128	1737952	42.90	ug/L		100
111) 1,2,3-Trichlorobenzene	11.267	180	474629	39.80	ug/L		99
112) 2-Methylnaphthalene	11.783	142	909577	48.01	ug/L		99
113) 1-Methylnaphthalene	11.897	142	862197	46.25	ug/L		97
115) 2-Propanone	2.234	43	175322m	26.51	ug/L		
116) Acetic Ether	4.011	43	540376	27.41	ug/L	#	98
117) Isopropyl Acetate	5.343	61	230031	31.63	ug/L		97
118) Amyl Acetate	9.225	43	661940	31.44	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY40.D
Acq On : 15 May 2018 8:50 pm
Operator : EMR
Sample : 40PPB
Misc : IS/SS 200-20081
ALS Vial : 29 Sample Multiplier: 1

Quant Time: May 16 10:31:39 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	352748	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	538528	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	464547	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	247861	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	111377	20.00	ug/L		#-0.01
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	184248	19.73	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%				
45) 1,2-Dichloroethane-d4	5.164	65	177505	19.81	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.05%				
64) Toluene-d8	7.671	98	622745	21.05	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.25%				
85) Bromofluorobenzene	9.433	95	223431	21.24	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	498675	59.00	ug/L		99
3) Chloromethane	1.282	50	785848	48.16	ug/L		97
4) Vinyl chloride	1.353	62	609541	53.36	ug/L		97
5) Bromomethane	1.568	96	183748	22.43	ug/L		100
6) Chloroethane	1.640	64	288871m	41.81	ug/L		
7) Trichlorofluoromethane	1.812	101	675653m	58.37	ug/L		
8) Ethyl ether	2.019	59	455604	64.79	ug/L		99
9) Acrolein	2.127	56	479389	508.14	ug/L		100
10) 1,1-Dichloroethene	2.199	61	699504	72.56	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.199	151	367043	67.78	ug/L		97
12) Methyl iodide	2.320	142	347481m	49.31	ug/L		
13) Acetone	2.234	43	287382	50.41	ug/L		97
14) Chloroprene	3.373	53	727249	68.97	ug/L		99
15) Carbon disulfide	2.385	76	1526157	74.60	ug/L		100
16) Allyl chloride	2.499	41	793388	62.93	ug/L		95
17) Methyl acetate	2.485	43	691136	47.75	ug/L		97
18) Acetonitrile	2.499	41	793388	62.93	ug/L	#	98
19) Methylene chloride	2.607	49	722014m	59.23	ug/L		
20) trans-1,2-Dichloroethene	2.857	61	771709	71.31	ug/L		98
21) t-Butanol	2.729	59	797655	275.38	ug/L		96
22) Acrylonitrile	2.815	53	365170	62.93	ug/L		97
23) Methyl tert-butyl ether	2.850	73	1516761	59.96	ug/L		98
24) Hexane	3.130	57	550302	73.43	ug/L		95
25) 1,1-Dichloroethane	3.294	63	1046582	72.60	ug/L		98
26) Diisopropyl ether	3.330	45	1537078	55.23	ug/L	#	16
27) Vinyl acetate	3.294	86	99780	96.84	ug/L	#	2
28) Ethyl tert butyl ether	3.753	59	1501703	58.82	ug/L		99
29) 2,2-Dichloropropane	3.961	77	734173	77.31	ug/L		95
30) cis-1,2-Dichloroethene	3.953	61	930982	67.47	ug/L		99
31) 2-Butanone	3.946	43	490334	55.36	ug/L		98
32) Ethyl Acetate	4.011	43	954504	56.55	ug/L	#	98
33) Methyl acrylate	4.061	55	903784	71.66	ug/L		99
34) Propionitrile	4.741	54	51691	61.68	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.269	49	483631	66.60 ug/L		97
36) Tetrahydrofuran	4.290	42	348457	66.03 ug/L		97
37) Methacrylonitrile	4.226	41	553120	63.68 ug/L		95
38) Chloroform	4.419	83	1054933	67.85 ug/L		98
39) Cyclohexane	4.734	56	802422	56.08 ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	840034	70.52 ug/L		98
43) Carbon tetrachloride	4.863	117	747250	67.84 ug/L		98
44) 1,1-Dichloropropene	4.877	75	723963	65.71 ug/L		98
46) 1,2-Dichloroethane	5.293	62	744154	63.87 ug/L		98
47) Benzene	5.178	78	2270113	65.57 ug/L		99
48) Tertiaryamylmethylether	5.451	73	1478878	60.21 ug/L		98
49) Isobutyl Alcohol	5.451	43	442205	54.10 ug/L		98
50) Heptane	5.759	43	451783	68.53 ug/L		95
51) 1,4-Dioxane	6.826	88	1345358	6185.90 ug/L		91
52) Methylcyclohexane	6.654	83	751822	66.99 ug/L		96
53) n-Butanol	6.346	56	451461	755.94 ug/L	#	95
54) Trichloroethene	6.353	130	625592	58.75 ug/L		99
55) 1,2-Dichloropropane	6.704	63	621073	64.91 ug/L		97
56) Dibromomethane	6.797	93	468488	67.52 ug/L		98
57) Methyl methacrylate	6.819	41	713046	64.69 ug/L		96
58) Bromodichloromethane	7.019	83	845547	73.28 ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	297005	79.32 ug/L		92
60) 2-Nitropropane	7.241	43	295491	74.05 ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1000261	75.48 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	960026	61.16 ug/L		98
65) Toluene	7.728	91	2390402	73.12 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	935489	78.15 ug/L		99
67) Chloropicrin	7.943	117	475300	No Calib	#	
68) Ethyl methacrylate	8.001	69	938963	71.86 ug/L		97
69) 1,1,2-Trichloroethane	8.087	97	616256	68.16 ug/L		99
70) Tetrachloroethene	8.130	166	610385	67.44 ug/L		97
71) 1,3-Dichloropropane	8.201	76	954823	70.86 ug/L		95
72) 2-Hexanone	8.251	43	757709	61.97 ug/L		97
73) Chlorodibromomethane	8.352	129	744243	75.87 ug/L		98
74) Butyl acetate	8.344	43	1237166	61.11 ug/L		97
75) 1,2-Dibromoethane	8.423	107	705715	70.40 ug/L		98
76) Chlorobenzene	8.753	112	1563236	70.45 ug/L		97
77) 1,1,1,2-Tetrachloroethane	8.810	131	599990	73.58 ug/L		97
78) Ethylbenzene	8.817	91	2586877	72.99 ug/L		98
79) m/p-Xylene	8.896	91	3939460	151.35 ug/L		98
80) Styrene	9.139	104	1627340	72.69 ug/L		97
81) o-Xylene	9.125	91	2038599	72.41 ug/L		98
82) Cyclohexanone	9.390	55	305153	223.93 ug/L		97
83) Bromoform	9.247	173	598318	74.30 ug/L		97
84) Isopropylbenzene	9.333	105	2378514	74.01 ug/L		100
86) Bromobenzene	9.512	77	1531131	70.86 ug/L		93
87) 1,1,2,2-Tetrachloroethane	9.512	83	1096044	74.77 ug/L		98
88) 1,2,3-Trichloropropane	9.541	110	266704	62.78 ug/L		95
89) trans-1,4-Dichloro-2-b...	9.526	53	274997	72.87 ug/L		94
90) n-Propylbenzene	9.562	91	2847403	73.31 ug/L		99
91) 2-Chlorotoluene	9.612	91	1684565	70.05 ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

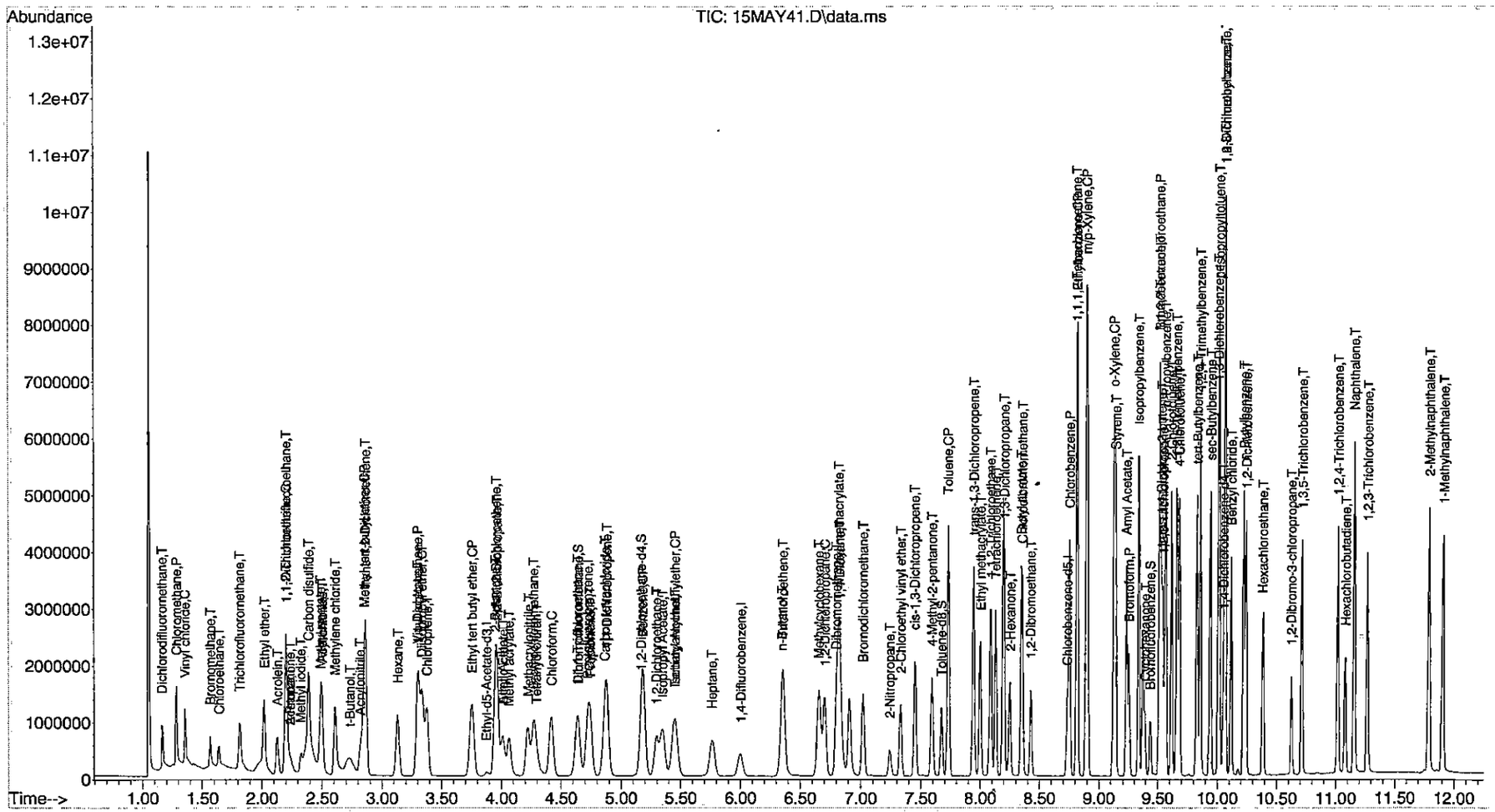
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1928540	72.28	ug/L		96
93) 1,3,5-Trimethylbenzene	9.655	105	1908207	74.39	ug/L		99
94) tert-Butylbenzene	9.827	91	1094943	71.33	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2038547	72.85	ug/L		96
96) sec-Butylbenzene	9.942	105	2304509	74.26	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1235868	66.96	ug/L		98
99) p-Isopropyltoluene	10.013	119	1957985	74.23	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1257959	67.16	ug/L		97
101) 1,2,3-Trimethylbenzene	10.064	105	2075226	69.70	ug/L		99
102) Benzyl chloride	10.114	91	1588701	114.69	ug/L		100
103) 1,2-Dichlorobenzene	10.243	146	1222973	67.07	ug/L		99
104) n-Butylbenzene	10.221	91	1714310	72.25	ug/L		99
105) Hexachloroethane	10.379	117	427660	71.86	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	327705	74.21	ug/L		97
107) 1,3,5-Trichlorobenzene	10.715	180	828033	66.58	ug/L		98
108) 1,2,4-Trichlorobenzene	11.016	180	846645	66.44	ug/L		100
109) Hexachlorobutadiene	11.081	225	275124	66.90	ug/L		98
110) Naphthalene	11.152	128	3036904	71.11	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	828579	65.92	ug/L		99
112) 2-Methylnaphthalene	11.783	142	1667628	83.50	ug/L		99
113) 1-Methylnaphthalene	11.904	142	1583542	80.59	ug/L		97
115) 2-Propanone	2.234	43	287382	41.10	ug/L		95
116) Acetic Ether	4.011	43	950130	45.28	ug/L	#	99
117) Isopropyl Acetate	5.343	61	396213	51.17	ug/L		99
118) Amyl Acetate	9.225	43	1169241	52.17	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY41.D
Acq On : 15 May 2018 9:06 pm
Operator : EMR
Sample : 70PPB
Misc : IS/SS 200-20081
ALS Vial : 30 Sample Multiplier: 1

Quant Time: May 16 10:31:42 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	355168	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	528490	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	478748	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	251853	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.882	46	109405	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	182207	19.88	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.40%				
45) 1,2-Dichloroethane-d4	5.164	65	180608	20.54	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 102.70%				
64) Toluene-d8	7.671	98	626338	20.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.75%				
85) Bromofluorobenzene	9.433	95	227873	21.02	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.10%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.160	85	721976	84.84	ug/L		100
3) Chloromethane	1.282	50	1089610	66.32	ug/L		98
4) Vinyl chloride	1.353	62	851896	74.07	ug/L		99
5) Bromomethane	1.568	96	270530	34.29	ug/L		98
6) Chloroethane	1.640	64	402774m	60.25	ug/L		
7) Trichlorofluoromethane	1.819	101	909320m	78.02	ug/L		
8) Ethyl ether	2.019	59	630493	89.05	ug/L		100
9) Acrolein	2.127	56	733803	712.86	ug/L		100
10) 1,1-Dichloroethene	2.199	61	972841	100.23	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.206	151	522594	95.84	ug/L		98
12) Methyl iodide	2.328	142	503062	90.98	ug/L		99
13) Acetone	2.234	43	413119	72.27	ug/L		97
14) Chloroprene	3.373	53	1027463	96.78	ug/L		100
15) Carbon disulfide	2.385	76	2162401	104.98	ug/L		100
16) Allyl chloride	2.499	41	1096821	86.40	ug/L		92
17) Methyl acetate	2.485	43	997353	68.44	ug/L		98
18) Acetonitrile	2.499	41	1096821	86.40	ug/L	#	97
19) Methylene chloride	2.607	49	997313	81.26	ug/L		95
20) trans-1,2-Dichloroethene	2.858	61	1080017	99.12	ug/L		98
21) t-Butanol	2.721	59	1136109	389.56	ug/L		97
22) Acrylonitrile	2.815	53	512540	87.69	ug/L		99
23) Methyl tert-butyl ether	2.850	73	2151294	84.46	ug/L		98
24) Hexane	3.130	57	783747	103.87	ug/L		95
25) 1,1-Dichloroethane	3.295	63	1438757	99.12	ug/L		98
26) Diisopropyl ether	3.330	45	2173870	77.58	ug/L	#	16
27) Vinyl acetate	3.302	86	139251	126.16	ug/L	#	1
28) Ethyl tert butyl ether	3.753	59	2161889	84.11	ug/L		100
29) 2,2-Dichloropropane	3.961	77	1015750	106.23	ug/L		95
30) cis-1,2-Dichloroethene	3.954	61	1288532	92.75	ug/L		99
31) 2-Butanone	3.946	43	703995	79.07	ug/L		99
32) Ethyl Acetate	4.011	43	1364082	80.26	ug/L	#	99
33) Methyl acrylate	4.061	55	1282725	101.01	ug/L		99
34) Propionitrile	4.741	54	73671	87.31	ug/L	#	87

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.269	49	674571	92.26	ug/L		99
36) Tetrahydrofuran	4.290	42	492252	92.64	ug/L		98
37) Methacrylonitrile	4.219	41	792631	90.63	ug/L		97
38) Chloroform	4.419	83	1472361	94.05	ug/L		99
39) Cyclohexane	4.734	56	1127861	78.29	ug/L		98
41) 1,1,1-Trichloroethane	4.634	97	1165891	99.74	ug/L		98
43) Carbon tetrachloride	4.863	117	1067303	98.60	ug/L		98
44) 1,1-Dichloropropene	4.878	75	1048902	97.01	ug/L		98
46) 1,2-Dichloroethane	5.293	62	1054076	92.20	ug/L		98
47) Benzene	5.186	78	3195853	94.06	ug/L		99
48) Tertiaryamylmethylether	5.451	73	2119484	87.94	ug/L		98
49) Isobutyl Alcohol	5.443	43	630977	78.66	ug/L		99
50) Heptane	5.766	43	652580	100.87	ug/L		96
51) 1,4-Dioxane	6.826	88	1903822	8919.96	ug/L		90
52) Methylcyclohexane	6.654	83	1090186	98.98	ug/L		97
53) n-Butanol	6.346	56	667985	1139.74	ug/L	#	95
54) Trichloroethene	6.353	130	874547	83.68	ug/L		99
55) 1,2-Dichloropropane	6.704	63	869642	92.62	ug/L		98
56) Dibromomethane	6.797	93	655158	96.22	ug/L		99
57) Methyl methacrylate	6.819	41	1002306	92.67	ug/L		96
58) Bromodichloromethane	7.019	83	1199177	105.90	ug/L		97
59) 2-Chloroethyl vinyl ether	7.334	43	405960	110.48	ug/L		90
60) 2-Nitropropane	7.241	43	422932	108.00	ug/L		91
61) cis-1,3-Dichloropropene	7.449	75	1441089	110.81	ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	1359185	84.02	ug/L		98
65) Toluene	7.728	91	3273819	97.17	ug/L		100
66) trans-1,3-Dichloropropene	7.943	75	1340493	108.66	ug/L		97
67) Chloropicrin	7.943	117	1494106	No Calib		#	
68) Ethyl methacrylate	8.001	69	1350433	100.28	ug/L		98
69) 1,1,2-Trichloroethane	8.087	97	884106	94.89	ug/L		98
70) Tetrachloroethene	8.130	166	863259	92.55	ug/L		97
71) 1,3-Dichloropropane	8.201	76	1322049	95.20	ug/L		96
72) 2-Hexanone	8.251	43	1079952	85.71	ug/L		97
73) Chlorodibromomethane	8.352	129	1077209	106.56	ug/L		99
74) Butyl acetate	8.344	43	1776725	85.16	ug/L		97
75) 1,2-Dibromoethane	8.423	107	993619	96.18	ug/L		99
76) Chlorobenzene	8.753	112	2242966	98.09	ug/L		98
77) 1,1,1,2-Tetrachloroethane	8.810	131	840333	100.00	ug/L		98
78) Ethylbenzene	8.817	91	3631544	99.43	ug/L		98
79) m/p-Xylene	8.896	91	5448438	203.11	ug/L		99
80) Styrene	9.140	104	2328309	100.92	ug/L		98
81) o-Xylene	9.125	91	2868982	98.88	ug/L		97
82) Cyclohexanone	9.390	55	440267	313.50	ug/L		96
83) Bromoform	9.247	173	863611	104.06	ug/L		99
84) Isopropylbenzene	9.333	105	3306667	99.84	ug/L		99
86) Bromobenzene	9.512	77	2153382	96.70	ug/L		94
87) 1,1,2,2-Tetrachloroethane	9.512	83	1536663	101.72	ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	393600	89.91	ug/L		98
89) trans-1,4-Dichloro-2-b...	9.526	53	391280	100.61	ug/L		94
90) n-Propylbenzene	9.562	91	4013237	100.26	ug/L		98
91) 2-Chlorotoluene	9.612	91	2350123	94.82	ug/L		96

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration

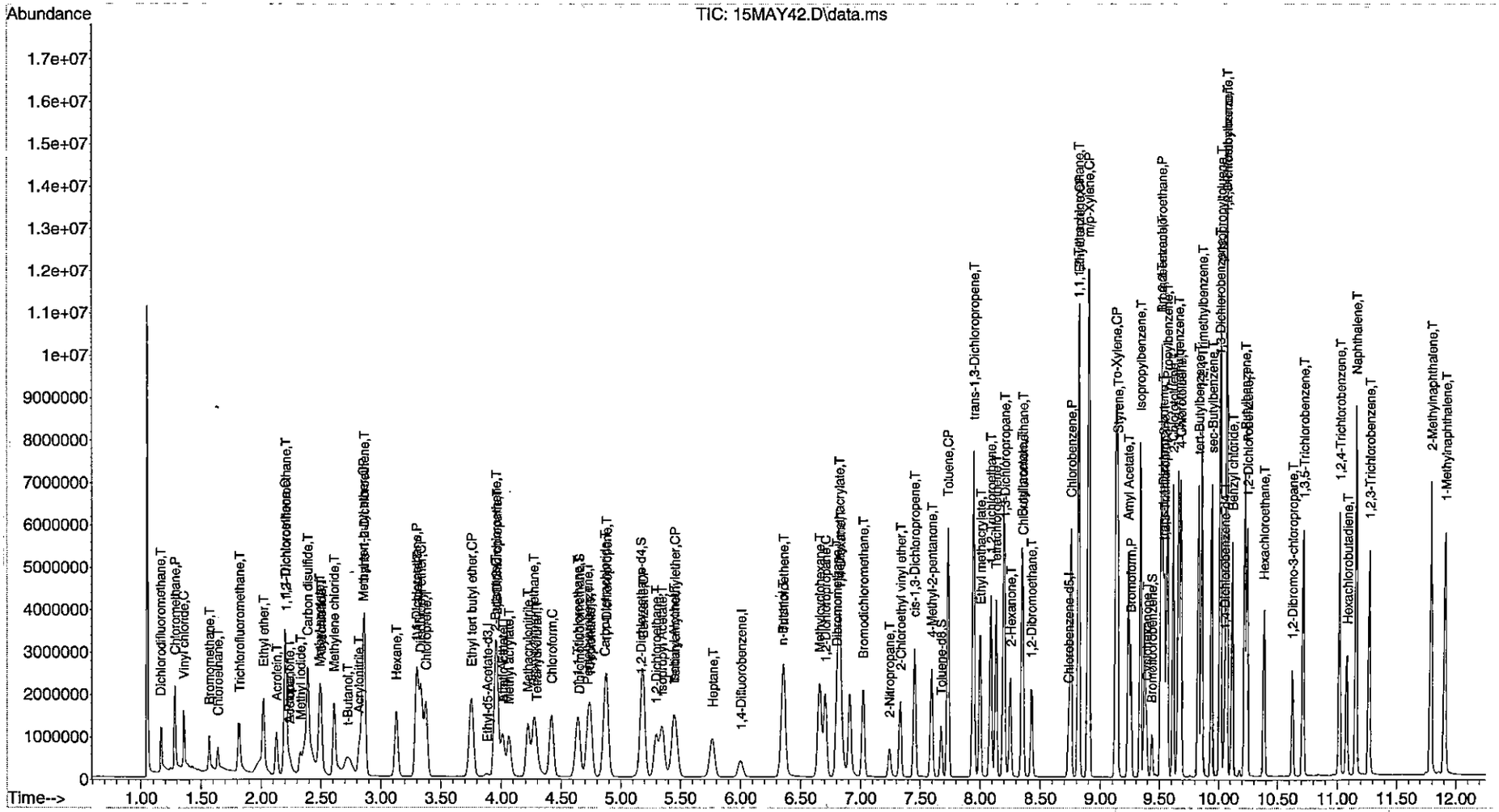
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	2756438	100.24	ug/L		97
93) 1,3,5-Trimethylbenzene	9.655	105	2693676	101.89	ug/L		99
94) tert-Butylbenzene	9.827	91	1545332	97.68	ug/L		95
95) 1,2,4-Trimethylbenzene	9.856	105	2857345	99.09	ug/L		96
96) sec-Butylbenzene	9.942	105	3246007	101.50	ug/L		98
98) 1,3-Dichlorobenzene	10.006	146	1741947	92.88	ug/L		99
99) p-Isopropyltoluene	10.013	119	2757336	102.88	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	1765567	92.77	ug/L		98
101) 1,2,3-Trimethylbenzene	10.064	105	2878995	95.17	ug/L		98
102) Benzyl chloride	10.114	91	2268227	161.15	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	1684083	90.89	ug/L		99
104) n-Butylbenzene	10.221	91	2445950	101.45	ug/L		99
105) Hexachloroethane	10.379	117	616797	102.00	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.622	157	470115	104.78	ug/L		98
107) 1,3,5-Trichlorobenzene	10.715	180	1160559	91.84	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	1175905	90.82	ug/L		99
109) Hexachlorobutadiene	11.081	225	400864	95.93	ug/L		100
110) Naphthalene	11.152	128	4510372	103.94	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	1154927	90.43	ug/L		98
112) 2-Methylnaphthalene	11.783	142	2431169	119.80	ug/L		100
113) 1-Methylnaphthalene	11.904	142	2258311	113.11	ug/L		98
115) 2-Propanone	2.234	43	413119	60.39	ug/L		96
116) Acetic Ether	4.011	43	1358808	65.92	ug/L	#	99
117) Isopropyl Acetate	5.343	61	573535	75.41	ug/L		99
118) Amyl Acetate	9.226	43	1677366	76.19	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY42.D
Acq On : 15 May 2018 9:21 pm
Operator : EMR
Sample : 100PPB
Misc : IS/SS 200-20081
ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 16 10:31:45 2018
Quant Method : C:\msdchem\1\METHODS\8GI0502.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Mon May 14 09:33:41 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	349576	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	520240	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	480396	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	243335	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.882	46	106735	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	184303	20.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.10%				
45) 1,2-Dichloroethane-d4	5.164	65	182611	20.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.95%				
64) Toluene-d8	7.671	98	622933	19.87	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.35%				
85) Bromofluorobenzene	9.433	95	219771	19.33	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	193245m	25.80	ug/L		
3) Chloromethane	1.281	50	362841	30.64	ug/L		99
4) Vinyl chloride	1.353	62	297030	32.01	ug/L		97
5) Bromomethane	1.568	96	106474	36.75	ug/L		95
6) Chloroethane	1.640	64	145221	30.07	ug/L		94
7) Trichlorofluoromethane	1.819	101	312759	32.43	ug/L		97
8) Ethyl ether	2.019	59	249960	35.08	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	396976	37.72	ug/L		97
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	236303	44.95	ug/L		99
13) Acetone	2.234	43	178045	37.25	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	864685	37.90	ug/L		100
16) Allyl chloride	2.499	41	366268	29.87	ug/L		88
17) Methyl acetate	2.485	43	15854	1.48	ug/L	#	11
18) Acetonitrile	2.499	41	366268	30.03	ug/L	#	90
19) Methylene chloride	2.607	49	389288	34.91	ug/L		100
20) trans-1,2-Dichloroethene	2.857	61	434036	37.90	ug/L		99
21) t-Butanol	2.728	59	543389	225.79	ug/L		99
22) Acrylonitrile	2.814	53	196572	37.05	ug/L		100
23) Methyl tert-butyl ether	2.850	73	964202	44.03	ug/L		100
24) Hexane	3.122	57	5424	0.61	ug/L	#	45
25) 1,1-Dichloroethane	3.294	63	582582	37.23	ug/L		100
26) Diisopropyl ether	3.330	45	961172	41.66	ug/L	#	50
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	944303	41.43	ug/L		99
29) 2,2-Dichloropropane	3.960	77	396862	35.61	ug/L		99
30) cis-1,2-Dichloroethene	3.953	61	528908	38.78	ug/L		99
31) 2-Butanone	3.946	43	295041	35.97	ug/L		98
32) Ethyl Acetate	4.011	43	517606	38.41	ug/L	#	100
33) Methyl acrylate	4.068	55	496531	38.30	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
35) Bromochloromethane	4.268	49	262487	36.54	ug/L		98
36) Tetrahydrofuran	4.290	42	188428	38.41	ug/L		96
37) Methacrylonitrile	4.218	41	315369	41.07	ug/L		99
38) Chloroform	4.419	83	576850	36.37	ug/L		98
39) Cyclohexane	4.713	56	6230	0.50	ug/L	#	1
41) 1,1,1-Trichloroethane	4.634	97	469321	38.87	ug/L		99
43) Carbon tetrachloride	4.863	117	394649	38.07	ug/L		99
44) 1,1-Dichloropropene	4.884	75	395420	34.81	ug/L		99
46) 1,2-Dichloroethane	5.293	62	416148	36.02	ug/L		98
47) Benzene	5.178	78	1263309	38.07	ug/L		100
48) Tertiaryamylmethylether	5.450	73	957723	44.45	ug/L		99
49) Isobutyl Alcohol	5.443	43	283690	40.52	ug/L		97
50) Heptane	0.000		0	N.D.			
51) 1,4-Dioxane	6.740	88	16952	91.98	ug/L	#	82
52) Methylcyclohexane	0.000		0	N.D.			
53) n-Butanol	0.000		0	N.D.			
54) Trichloroethene	6.353	130	342718	36.70	ug/L		97
55) 1,2-Dichloropropane	6.704	63	354362	37.33	ug/L		96
56) Dibromomethane	6.797	93	258114	37.23	ug/L		96
57) Methyl methacrylate	6.826	41	378838	35.46	ug/L		97
58) Bromodichloromethane	7.019	83	470946	39.04	ug/L		100
59) 2-Chloroethyl vinyl ether	7.241	43	114870	26.07	ug/L	#	1
60) 2-Nitropropane	7.241	43	165616	35.75	ug/L		100
61) cis-1,3-Dichloropropene	7.449	75	562862	39.25	ug/L		100
63) 4-Methyl-2-pentanone	7.599	43	911834	61.07	ug/L		78
65) Toluene	7.728	91	1330941	38.51	ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	511613	36.92	ug/L		100
67) Chloropicrin	0.000		0	N.D.			
68) Ethyl methacrylate	8.000	69	517571	35.01	ug/L		98
69) 1,1,2-Trichloroethane	8.086	97	385963	37.85	ug/L		93
70) Tetrachloroethene	8.129	166	354756	39.32	ug/L		98
71) 1,3-Dichloropropane	8.201	76	537324	37.49	ug/L		95
72) 2-Hexanone	8.251	43	455797	38.85	ug/L		98
73) Chlorodibromomethane	8.351	129	409184	37.17	ug/L		99
74) Butyl acetate	8.344	43	676110	34.57	ug/L		99
75) 1,2-Dibromoethane	8.423	107	402182	38.26	ug/L		99
76) Chlorobenzene	8.753	112	870424	37.33	ug/L		100
77) 1,1,1,2-Tetrachloroethane	8.810	131	340613	37.83	ug/L		99
78) Ethylbenzene	8.817	91	1432455	38.53	ug/L		100
79) m/p-Xylene	8.896	91	2131692	75.64	ug/L		100
80) Styrene	9.139	104	937450	39.03	ug/L		99
81) o-Xylene	9.125	91	1124386	37.60	ug/L		100
82) Cyclohexanone	9.390	55	12334	Below Cal		#	22
83) Bromoform	9.247	173	331157	39.85	ug/L		99
84) Isopropylbenzene	9.333	105	1305283	37.10	ug/L		99
86) Bromobenzene	9.512	77	828353	37.57	ug/L		97
87) 1,1,2,2-Tetrachloroethane	9.512	83	648517	41.06	ug/L		98
88) 1,2,3-Trichloropropane	9.540	110	155393	35.86	ug/L		93
89) trans-1,4-Dichloro-2-b...	9.526	53	140283	32.15	ug/L		96
90) n-Propylbenzene	9.562	91	1523894	37.59	ug/L		99
91) 2-Chlorotoluene	9.612	91	949275	39.09	ug/L		98

Quantitation Report (QT Reviewed)

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Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	1082870	38.09	ug/L		100
93) 1,3,5-Trimethylbenzene	9.662	105	1058151	38.01	ug/L		99
94) tert-Butylbenzene	9.827	91	597735	35.93	ug/L		94
95) 1,2,4-Trimethylbenzene	9.856	105	1073925	36.21	ug/L		100
96) sec-Butylbenzene	9.942	105	1244710	37.10	ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	666654	38.70	ug/L		99
99) p-Isopropyltoluene	10.013	119	1057357	38.14	ug/L		100
100) 1,4-Dichlorobenzene	10.063	146	677975	38.59	ug/L		99
101) 1,2,3-Trimethylbenzene	10.063	105	1126981	38.72	ug/L		99
102) Benzyl chloride	10.063	91	105157	4.57	ug/L	#	38
103) 1,2-Dichlorobenzene	10.242	146	674350	39.78	ug/L		100
104) n-Butylbenzene	10.221	91	955877	38.05	ug/L		100
105) Hexachloroethane	10.386	117	225440	36.14	ug/L		100
106) 1,2-Dibromo-3-chloropr...	10.629	157	185152	38.04	ug/L		99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.016	180	448126	37.83	ug/L		99
109) Hexachlorobutadiene	11.081	225	151652	38.31	ug/L		99
110) Naphthalene	11.152	128	1728966	39.78	ug/L		99
111) 1,2,3-Trichlorobenzene	11.267	180	449389	39.00	ug/L		97
112) 2-Methylnaphthalene	11.782	142	14019	0.63	ug/L		95
113) 1-Methylnaphthalene	11.904	142	8536	0.41	ug/L		82
115) 2-Propanone	2.234	43	178045	37.20	ug/L		95
116) Acetic Ether	4.011	43	517606	38.14	ug/L	#	99
117) Isopropyl Acetate	5.343	61	227826	37.29	ug/L		99
118) Amyl Acetate	9.225	43	636113	36.41	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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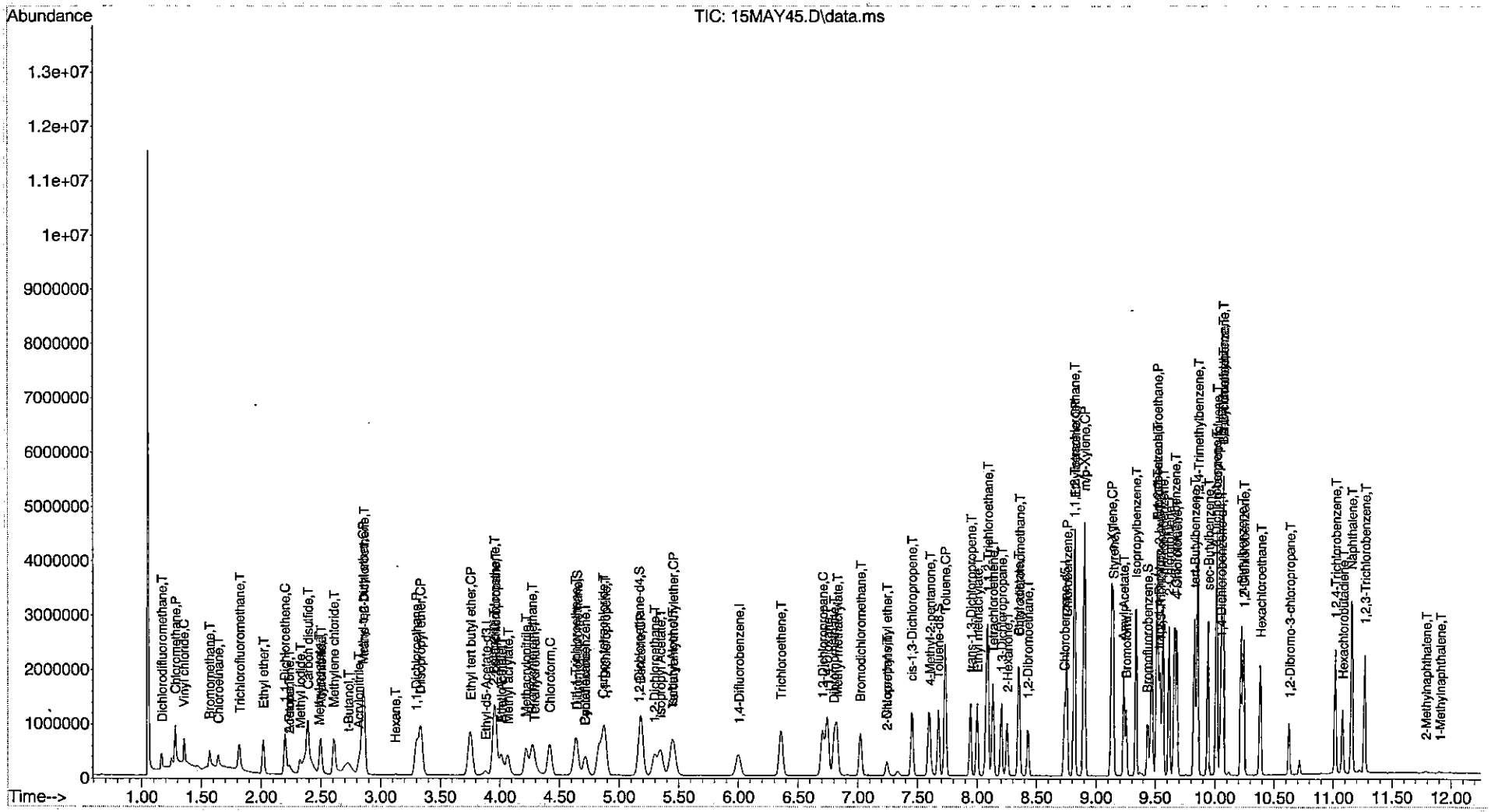
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration



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Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	40.000	25.801	35.5#	73	0.00
3	P	Chloromethane	40.000	30.638	23.4#	84	0.00
4	C	Vinyl chloride	40.000	32.007	20.0	89	0.00
5	T	Bromomethane	40.000	36.754	8.1	99	0.00
6	T	Chloroethane	40.000	30.068	24.8#	79	0.00
7	T	Trichlorofluoromethane	40.000	32.431	18.9	90	0.00
8	T	Ethyl ether	40.000	35.080	12.3	96	0.00
9	T	Acrolein	200.000	0.000	100.0#	0	-2.13#
10	C	1,1-Dichloroethene	40.000	37.717	5.7	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.21#
12	T	Methyl iodide	40.000	44.950	-12.4	117	0.00
13	T	Acetone	40.000	37.253	6.9	109	0.00
14	T	Chloroprene	40.000	0.000	100.0#	0	-3.37#
15	T	Carbon disulfide	40.000	37.904	5.2	101	0.00
16	T	Allyl chloride	40.000	29.870	25.3#	80	0.00
17	T	Methyl acetate	40.000	1.483	96.3#	4	0.00
18	T	Acetonitrile	40.000	30.033	24.9#	80	0.00
19	T	Methylene chloride	40.000	34.911	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	40.000	37.903	5.2	99	0.00
21	T	t-Butanol	200.000	225.792	-12.9	116	0.00
22	T	Acrylonitrile	40.000	37.054	7.4	95	0.00
23	CP	Methyl tert-butyl ether	40.000	44.026	-10.1	109	0.00
24	T	Hexane	40.000	0.612	98.5#	2	0.00
25	P	1,1-Dichloroethane	40.000	37.235	6.9	98	0.00
26	CP	Diisopropyl ether	40.000	41.662	-4.2	107	0.00
27	T	Vinyl acetate	40.000	0.000	100.0#	0	-3.29#
28	CP	Ethyl tert butyl ether	40.000	41.433	-3.6	107	0.00
29	T	2,2-Dichloropropane	40.000	35.610	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	40.000	38.782	3.0	102	0.00
31	T	2-Butanone	40.000	35.975	10.1	103	0.00
32	T	Ethyl Acetate	40.000	38.411	4.0	96	0.00
33	T	Methyl acrylate	40.000	38.302	4.2	96	0.00
34	T	Propionitrile	40.000	0.000	100.0#	0	-4.73#
35	T	Bromochloromethane	40.000	36.536	8.7	96	0.00
36	T	Tetrahydrofuran	40.000	38.405	4.0	97	0.00
37	T	Methacrylonitrile	40.000	41.075	-2.7	99	0.00
38	C	Chloroform	40.000	36.374	9.1	97	0.00
39	T	Cyclohexane	40.000	0.497	98.8#	1	-0.02
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	40.000	38.870	2.8	100	0.00
42	S	Dibromofluoromethane	20.000	20.425	-2.1	101	0.00
43	T	Carbon tetrachloride	40.000	38.074	4.8	94	0.00
44	T	1,1-Dichloropropene	40.000	34.811	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.788	-3.9	106	0.00
46	T	1,2-Dichloroethane	40.000	36.015	10.0	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
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Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	38.071	4.8	97	0.00
48	CP	Tertiaryamylmethylether	40.000	44.454	-11.1	110	0.00
49	T	Isobutyl Alcohol	40.000	40.517	-1.3	109	0.00
50	T	Heptane	40.000	0.000	100.0#	0	-5.76#
51	T	1,4-Dioxane	4000.000	91.984	97.7#	2	-0.09
52	T	Methylcyclohexane	40.000	0.000	100.0#	0	-6.65#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.35#
54	T	Trichloroethene	40.000	36.699	8.3	97	0.00
55	C	1,2-Dichloropropane	40.000	37.328	6.7	100	0.00
56	T	Dibromomethane	40.000	37.235	6.9	96	0.00
57	T	Methyl methacrylate	40.000	35.458	11.4	96	0.00
58	T	Bromodichloromethane	40.000	39.041	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	40.000	26.074	34.8#	70	-0.09
60	T	2-Nitropropane	40.000	35.750	10.6	101	0.00
61	T	cis-1,3-Dichloropropene	40.000	39.246	1.9	98	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	40.000	61.067	-52.7#	167	0.00
64	S	Toluene-d8	20.000	19.866	0.7	103	0.00
65	CP	Toluene	40.000	38.509	3.7	99	0.00
66	T	trans-1,3-Dichloropropene	40.000	36.918	7.7	99	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-7.94#
68	T	Ethyl methacrylate	40.000	35.010	12.5	96	0.00
69	T	1,1,2-Trichloroethane	40.000	37.850	5.4	110	0.00
70	T	Tetrachloroethene	40.000	39.321	1.7	105	0.00
71	T	1,3-Dichloropropane	40.000	37.490	6.3	100	0.00
72	T	2-Hexanone	40.000	38.849	2.9	103	0.00
73	T	Chlorodibromomethane	40.000	37.169	7.1	95	0.00
74	T	Butyl acetate	40.000	34.571	13.6	93	0.00
75	T	1,2-Dibromoethane	40.000	38.259	4.4	100	0.00
76	P	Chlorobenzene	40.000	37.329	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	37.829	5.4	103	0.00
78	CP	Ethylbenzene	40.000	38.527	3.7	99	0.00
79	CP	m/p-Xylene	80.000	75.638	5.5	97	0.00
80	T	Styrene	40.000	39.032	2.4	101	0.00
81	CP	o-Xylene	40.000	37.598	6.0	98	0.00
82	T	Cyclohexanone	200.000	-0.548	100.3#	7	0.00
83	P	Bromoform	40.000	39.854	0.4	99	0.00
84	T	Isopropylbenzene	40.000	37.105	7.2	97	0.00
85	S	Bromofluorobenzene	20.000	19.332	3.3	98	0.00
86	T	Bromobenzene	40.000	37.569	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	41.061	-2.7	107	0.00
88	T	1,2,3-Trichloropropane	40.000	35.858	10.4	100	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	32.146	19.6	92	0.00
90	T	n-Propylbenzene	40.000	37.593	6.0	96	0.00
91	T	2-Chlorotoluene	40.000	39.085	2.3	101	0.00
92	T	4-Chlorotoluene	40.000	38.095	4.8	99	0.00

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ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	38.006	5.0	98	0.00
94	T	tert-Butylbenzene	40.000	35.934	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	40.000	36.207	9.5	95	0.00
96	T	sec-Butylbenzene	40.000	37.097	7.3	98	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	40.000	38.700	3.2	96	0.00
99	T	p-Isopropyltoluene	40.000	38.137	4.7	97	0.00
100	T	1,4-Dichlorobenzene	40.000	38.586	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	40.000	38.718	3.2	97	0.00
102	T	Benzyl chloride	40.000	4.573	88.6#	12	-0.05
103	T	1,2-Dichlorobenzene	40.000	39.777	0.6	99	0.00
104	T	n-Butylbenzene	40.000	38.047	4.9	97	0.00
105	T	Hexachloroethane	40.000	36.141	9.6	94	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	38.038	4.9	103	0.00
107	T	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.72#
108	T	1,2,4-Trichlorobenzene	40.000	37.830	5.4	99	0.00
109	T	Hexachlorobutadiene	40.000	38.311	4.2	100	0.00
110	T	Naphthalene	40.000	39.780	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	40.000	38.999	2.5	95	0.00
112	T	2-Methylnaphthalene	40.000	0.628	98.4#	2	0.00
113	T	1-Methylnaphthalene	40.000	0.410	99.0#	1	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	102	0.00
115	T	2-Propanone	40.000	37.197	7.0	102	0.00
116	T	Acetic Ether	40.000	38.140	4.6	96	0.00
117	T	Isopropyl Acetate	40.000	37.288	6.8	99	0.00
118	T	Amyl Acetate	40.000	36.411	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	103	0.00
2	T	Dichlorodifluoromethane	0.448	0.276	38.4#	73	0.00
3	P	Chloromethane	0.678	0.519	23.5#	84	0.00
4	C	Vinyl chloride	0.531	0.425	20.0	89	0.00
5	T	Bromomethane	0.244	0.152#	37.7#	99	0.00
6	T	Chloroethane	0.384	0.208	45.8#	79	0.00
7	T	Trichlorofluoromethane	0.552	0.447	19.0	90	0.00
8	T	Ethyl ether	0.408	0.358	12.3	96	0.00
9	T	Acrolein	0.108	0.000#	100.0#	0#	-2.13#
10	C	1,1-Dichloroethene	0.602	0.568	5.6	100	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.000#	100.0#	0#	-2.21#
12	T	Methyl iodide	0.433	0.338	21.9#	117	0.00
13	T	Acetone	0.273	0.255	6.6	109	0.00
14	T	Chloroprene	0.609	0.000#	100.0#	0#	-3.37#
15	T	Carbon disulfide	1.305	1.237	5.2	101	0.00
16	T	Allyl chloride	0.702	0.524	25.4#	80	0.00
17	T	Methyl acetate	0.612	0.023#	96.2#	4#	0.00
18	T	Acetonitrile	0.698	0.524	24.9#	80	0.00
19	T	Methylene chloride	0.638	0.557	12.7	95	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.621	5.2	99	0.00
21	T	t-Butanol	0.138	0.155#	-12.3	116	0.00
22	T	Acrylonitrile	0.304	0.281	7.6	95	0.00
23	CP	Methyl tert-butyl ether	1.253	1.379	-10.1	109	0.00
24	T	Hexane	0.507	0.008#	98.4#	2#	0.00
25	P	1,1-Dichloroethane	0.895	0.833	6.9	98	0.00
26	CP	Diisopropyl ether	1.320	1.375	-4.2	107	0.00
27	T	Vinyl acetate	0.087	0.000#	100.0#	0#	-3.29#
28	CP	Ethyl tert butyl ether	1.304	1.351	-3.6	107	0.00
29	T	2,2-Dichloropropane	0.638	0.568	11.0	96	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.756	3.1	102	0.00
31	T	2-Butanone	0.469	0.422	10.0	103	0.00
32	T	Ethyl Acetate	0.771	0.740	4.0	96	0.00
33	T	Methyl acrylate	0.742	0.710	4.3	96	0.00
34	T	Propionitrile	0.049	0.000#	100.0#	0#	-4.73#
35	T	Bromochloromethane	0.411	0.375	8.8	96	0.00
36	T	Tetrahydrofuran	0.281	0.270	3.9	97	0.00
37	T	Methacrylonitrile	0.439	0.451	-2.7	99	0.00
38	C	Chloroform	0.907	0.825	9.0	97	0.00
39	T	Cyclohexane	0.717	0.009#	98.7#	1#	-0.02
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	101	0.00
41	T	1,1,1-Trichloroethane	0.464	0.451	2.8	100	0.00
42	S	Dibromofluoromethane	0.347	0.354	-2.0	101	0.00
43	T	Carbon tetrachloride	0.398	0.379	4.8	94	0.00
44	T	1,1-Dichloropropene	0.437	0.380	13.0	96	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.351	-3.8	106	0.00
46	T	1,2-Dichloroethane	0.444	0.400	9.9	99	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.214	4.9	97	0.00
48	CP	Tertiaryamylmethylether	0.828	0.920	-11.1	110	0.00
49	T	Isobutyl Alcohol	0.269	0.273	-1.5	109	0.00
50	T	Heptane	0.289	0.000#	100.0#	0#	-5.76#
51	T	1,4-Dioxane	0.007	0.000#	100.0#	2#	-0.09
52	T	Methylcyclohexane	0.438	0.000#	100.0#	0#	-6.65#
53	T	n-Butanol	0.023	0.000#	100.0#	0#	-6.35#
54	T	Trichloroethene	0.359	0.329	8.4	97	0.00
55	C	1,2-Dichloropropane	0.365	0.341	6.6	100	0.00
56	T	Dibromomethane	0.266	0.248	6.8	96	0.00
57	T	Methyl methacrylate	0.411	0.364	11.4	96	0.00
58	T	Bromodichloromethane	0.464	0.453	2.4	98	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.110#	34.9#	70	-0.09
60	T	2-Nitropropane	0.178	0.159#	10.7	101	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.541	1.8	98	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	103	0.00
63	T	4-Methyl-2-pentanone	0.622	0.949	-52.6#	167	0.00
64	S	Toluene-d8	1.305	1.297	0.6	103	0.00
65	CP	Toluene	1.439	1.385	3.8	99	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.532	7.8	99	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-7.94#
68	T	Ethyl methacrylate	0.615	0.539	12.4	96	0.00
69	T	1,1,2-Trichloroethane	0.425	0.402	5.4	110	0.00
70	T	Tetrachloroethene	0.376	0.369	1.9	105	0.00
71	T	1,3-Dichloropropane	0.597	0.559	6.4	100	0.00
72	T	2-Hexanone	0.488	0.474	2.9	103	0.00
73	T	Chlorodibromomethane	0.458	0.426	7.0	95	0.00
74	T	Butyl acetate	0.814	0.704	13.5	93	0.00
75	T	1,2-Dibromoethane	0.438	0.419	4.3	100	0.00
76	P	Chlorobenzene	0.971	0.906	6.7	98	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.355	5.3	103	0.00
78	CP	Ethylbenzene	1.548	1.491	3.7	99	0.00
79	CP	m/p-Xylene	1.173	1.109	5.5	97	0.00
80	T	Styrene	1.000	0.976	2.4	101	0.00
81	CP	o-Xylene	1.245	1.170	6.0	98	0.00
82	T	Cyclohexanone	0.073	0.003#	95.9#	7#	0.00
83	P	Bromoform	0.346	0.345	0.3	99	0.00
84	T	Isopropylbenzene	1.465	1.359	7.2	97	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	98	0.00
86	T	Bromobenzene	0.918	0.862	6.1	97	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.675	-2.6	107	0.00
88	T	1,2,3-Trichloropropane	0.180	0.162#	10.0	100	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.146#	19.8	92	0.00
90	T	n-Propylbenzene	1.688	1.586	6.0	96	0.00
91	T	2-Chlorotoluene	1.011	0.988	2.3	101	0.00
92	T	4-Chlorotoluene	1.183	1.127	4.7	99	0.00

Data Path : D:\msdchem\1\DATA\8V180515\
Data File : 15MAY45.D
Acq On : 15 May 2018 10:09 pm
Operator : EMR
Sample : ICV
Misc : IS/SS 200-20081
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 16 12:41:32 2018
Quant Method : C:\msdchem\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:41:30 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.101	5.0	98	0.00
94	T	tert-Butylbenzene	0.693	0.622	10.2	97	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.118	9.5	95	0.00
96	T	sec-Butylbenzene	1.397	1.296	7.2	98	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	103	0.00
98	T	1,3-Dichlorobenzene	1.416	1.370	3.2	96	0.00
99	T	p-Isopropyltoluene	2.279	2.173	4.7	97	0.00
100	T	1,4-Dichlorobenzene	1.444	1.393	3.5	98	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.316	3.2	97	0.00
102	T	Benzyl chloride	1.890	0.216	88.6#	12#	-0.05
103	T	1,2-Dichlorobenzene	1.393	1.386	0.5	99	0.00
104	T	n-Butylbenzene	2.065	1.964	4.9	97	0.00
105	T	Hexachloroethane	0.513	0.463	9.7	94	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.380	5.0	103	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.000#	100.0#	0#	-10.72#
108	T	1,2,4-Trichlorobenzene	0.974	0.921	5.4	99	0.00
109	T	Hexachlorobutadiene	0.325	0.312	4.0	100	0.00
110	T	Naphthalene	3.572	3.553	0.5	99	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.923	2.5	95	0.00
112	T	2-Methylnaphthalene	1.836	0.029#	98.4#	2#	0.00
113	T	1-Methylnaphthalene	1.711	0.018#	98.9#	1#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	102	0.00
115	T	2-Propanone	0.897	0.834	7.0	102	0.00
116	T	Acetic Ether	2.543	2.425	4.6	96	0.00
117	T	Isopropyl Acetate	1.145	1.067	6.8	99	0.00
118	T	Amyl Acetate	3.274	2.980	9.0	96	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Sequence Name: C:\msdchem\1\sequence\8V180515.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180515\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

Line			Sample Name/Misc Info		
1)	BFB	1	15MAY01	BFB	VBFB1-180515
2)	BFB	2	15MAY02	BFB	VBFB2-180515
3)	BFB	3	15MAY03	BFB	VBFB3-180515
4)	Sample	1	15MAY04	8GI0502	CCV1
5)	Sample	2	15MAY05	8GI0502	CCV2
6)	Sample	1	15MAY06	8GI0502	CCV3
7)	Sample	2	15MAY07	8GI0502	CCV4
8)	Sample	3	15MAY08	8GI0502	BLK
9)	BFB	1	15MAY09	BFB	VBFB4-180515
10)	BFB	1	15MAY10	BFB	VBFB5-180515
11)	BFB	1	15MAY11	BFB	VBFB6-180515
12)	Sample	1	15MAY12	8SGO0502	BLK
13)	Sample	2	15MAY13	8SGO0502	BLK
14)	Sample	3	15MAY14	8SGO0502	BLK
15)	Sample	4	15MAY15	8SGO0502	VBLKS1-
16)	Sample	5	15MAY16	8SGO0502	BLK
17)	Sample	6	15MAY17	8SGO0502	0.4PPB
18)	Sample	7	15MAY18	8SGO0502	0.6PPB
19)	Sample	8	15MAY19	8SGO0502	2PPB
20)	Sample	9	15MAY20	8SGO0502	4PPB
21)	Sample	10	15MAY21	8SGO0502	10PPB
22)	Sample	11	15MAY22	8SGO0502	40PPB
23)	Sample	12	15MAY23	8SGO0502	70PPB
24)	Sample	13	15MAY24	8SGO0502	100PPB
25)	Sample	14	15MAY25	8SGO0502	BLK
26)	Sample	15	15MAY26	8SGO0502	ICV
27)	Sample	16	15MAY27	8SGO0502	BLK
28)	Sample	17	15MAY28	8GI0502	BLK
29)	Sample	18	15MAY29	BFB	VBFB7-180515
30)	Sample	19	15MAY30	8GI0502	BLK
31)	Sample	20	15MAY31	8GI0502	BLK
32)	Sample	21	15MAY32	8GI0502	BLK
33)	Sample	22	15MAY33	8GI0502	BLK
34)	Sample	23	15MAY34	8GI0502	VBLKW1-180515
35)	Sample	24	15MAY35	8GI0502	0.4PPB
36)	Sample	25	15MAY36	8GI0502	0.6PPB
37)	Sample	26	15MAY37	8GI0502	2PPB
38)	Sample	27	15MAY38	8GI0502	4PPB
39)	Sample	28	15MAY39	8GI0502	10PPB
40)	Sample	29	15MAY40	8GI0502	40PPB
41)	Sample	30	15MAY41	8GI0502	70PPB
42)	Sample	31	15MAY42	8GI0502	100PPB
43)	Sample	32	15MAY43	8GI0502	BLK

EMR 5/16/18

Sequence Name: C:\msdchem\1\sequence\8V180515.s

Line	Type	Vial	DataFile	Method	Sample Name
44)	Sample	33	15MAY44	8GI0502	BLK
45)	Sample	34	15MAY45	8GI0502	ICV
46)	Sample	35	15MAY46	8GI0502	BLK
47)	Sample	36	15MAY47	BFB	VBFB8-180515
48)	Sample	37	15MAY48	8GI0502	VCCV1-180515
49)	Sample	38	15MAY49	8GI0502	VCCV2-180515
50)	Sample	39	15MAY50	8GI0502	VLCSW2-180515
51)	Sample	40	15MAY51	8GI0502	LCS-
52)	Sample	41	15MAY52	8GI0502	BLK
53)	Sample	42	15MAY53	8GI0502	VBLKW2-180415
54)	Sample	43	15MAY54	8GI0502	MBLK-
55)	Sample	44	15MAY55	8GI0502	1805671-22A
56)	Sample	45	15MAY56	8GI0502	1805671-11A
57)	Sample	46	15MAY57	8GI0502	1805671-12A
58)	Sample	47	15MAY58	8GI0502	1805671-13A
59)	Sample	48	15MAY59	8GI0502	1805671-14A
60)	Sample	49	15MAY60	8GI0502	1805671-15A
61)	Sample	50	15MAY61	8GI0502	1805671-16A
62)	Sample	51	15MAY62	8GI0502	1805671-17A
63)	Sample	52	15MAY63	8GI0502	1805671-18A
64)	Sample	53	15MAY64	8GI0502	1805671-19A
65)	Sample	54	15MAY65	8GI0502	1805671-20A
66)	Sample	55	15MAY66	8GI0502	1805671-21A
67)	Sample	56	15MAY67	8GI0502	1805671-23A
68)	Sample	57	15MAY68	8GI0502	1805671-24A
69)	Sample	58	15MAY69	8GI0502	1805671-25A
70)	Sample	59	15MAY70	8GI0502	1805612-04A DF200
71)	Sample	60	15MAY71	8GI0502	1805721-02A DF20
72)	Sample	61	15MAY72	8GI0502	1805722-02A DF20
73)	Sample	62	15MAY73	8GI0502	1805688-02A DF20
74)	Sample	63	15MAY74	8GI0502	1805699-01A DF20
75)	Sample	64	15MAY75	8GI0502	1805699-01A MS DF20
76)	Sample	65	15MAY76	8GI0502	1805699-01A MSD DF20
77)	Sample	66	15MAY77	8GI0502	BLK
78)	Sample	67	15MAY78	8SGO0502	BLK
79)	Sample	68	15MAY79	8SGO0502	BLK

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	83	0.00
2	T	Dichlorodifluoromethane	40.000	32.734	18.2	79	0.00
3	P	Chloromethane	40.000	36.233	9.4	81	0.00
4	C	Vinyl chloride	40.000	34.270	14.3	77	0.00
5	T	Bromomethane	40.000	80.139	-100.3#	171	0.00
6	T	Chloroethane	40.000	44.112	-10.3	89	0.00
7	T	Trichlorofluoromethane	40.000	37.474	6.3	84	0.00
8	T	Ethyl ether	40.000	34.873	12.8	77	0.00
9	T	Acrolein	200.000	333.468	-66.7#	149	0.00
10	C	1,1-Dichloroethene	40.000	35.533	11.2	77	0.00
11	T	1,1,2-Trichlorotrifluoroeth	40.000	33.698	15.8	78	0.00
12	T	Methyl iodide	40.000	43.948	-9.9	93	0.00
13	T	Acetone	40.000	35.156	12.1	83	0.00
14	T	Chloroprene	40.000	35.726	10.7	75	0.00
15	T	Carbon disulfide	40.000	33.991	15.0	74	0.00
16	T	Allyl chloride	40.000	36.965	7.6	80	0.00
17	T	Methyl acetate	40.000	38.019	5.0	79	0.00
18	T	Acetonitrile	40.000	37.166	7.1	80	0.00
19	T	Methylene chloride	40.000	34.972	12.6	77	0.00
20	T	trans-1,2-Dichloroethene	40.000	35.771	10.6	76	0.00
21	T	t-Butanol	200.000	169.657	15.2	71	-0.02
22	T	Acrylonitrile	40.000	38.211	4.5	80	0.00
23	CP	Methyl tert-butyl ether	40.000	40.264	-0.7	81	0.00
24	T	Hexane	40.000	25.830	35.4#	62	0.00
25	P	1,1-Dichloroethane	40.000	36.458	8.9	78	0.00
26	CP	Diisopropyl ether	40.000	39.950	0.1	83	0.00
27	T	Vinyl acetate	40.000	35.230	11.9	85	0.00
28	CP	Ethyl tert butyl ether	40.000	39.308	1.7	83	0.00
29	T	2,2-Dichloropropane	40.000	29.756	25.6#	65	0.00
30	T	cis-1,2-Dichloroethene	40.000	36.988	7.5	79	0.00
31	T	2-Butanone	40.000	34.294	14.3	80	0.00
32	T	Ethyl Acetate	40.000	39.316	1.7	80	0.00
33	T	Methyl acrylate	40.000	38.114	4.7	78	0.00
34	T	Propionitrile	40.000	35.906	10.2	77	0.00
35	T	Bromochloromethane	40.000	38.587	3.5	83	0.00
36	T	Tetrahydrofuran	40.000	37.923	5.2	78	0.00
37	T	Methacrylonitrile	40.000	39.703	0.7	78	0.00
38	C	Chloroform	40.000	38.234	4.4	83	0.00
39	T	Cyclohexane	40.000	32.849	17.9	75	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	80	0.00
41	T	1,1,1-Trichloroethane	40.000	37.796	5.5	77	0.00
42	S	Dibromofluoromethane	20.000	20.604	-3.0	81	0.00
43	T	Carbon tetrachloride	40.000	39.258	1.9	77	0.00
44	T	1,1-Dichloropropene	40.000	35.963	10.1	78	0.00
45	S	1,2-Dichloroethane-d4	20.000	19.844	0.8	80	0.00
46	T	1,2-Dichloroethane	40.000	36.865	7.8	80	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
47	CP	Benzene	40.000	39.633	0.9	80	0.00
48	CP	Tertiaryamylmethylether	40.000	42.605	-6.5	83	0.00
49	T	Isobutyl Alcohol	40.000	37.364	6.6	80	0.00
50	T	Heptane	40.000	29.149	27.1#	59	0.00
51	T	1,4-Dioxane	4000.000	4322.236	-8.1	86	-0.01
52	T	Methylcyclohexane	40.000	34.555	13.6	74	0.00
53	T	n-Butanol	400.000	358.455	10.4	67	-0.01
54	T	Trichloroethene	40.000	39.661	0.8	83	0.00
55	C	1,2-Dichloropropane	40.000	37.452	6.4	79	0.00
56	T	Dibromomethane	40.000	40.598	-1.5	83	0.00
57	T	Methyl methacrylate	40.000	36.898	7.8	79	0.00
58	T	Bromodichloromethane	40.000	39.632	0.9	79	0.00
59	T	2-Chloroethyl vinyl ether	40.000	31.453	21.4#	67	0.00
60	T	2-Nitropropane	40.000	31.391	21.5#	70	0.00
61	T	cis-1,3-Dichloropropene	40.000	37.906	5.2	75	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	81	0.00
63	T	4-Methyl-2-pentanone	40.000	34.721	13.2	75	0.00
64	S	Toluene-d8	20.000	19.763	1.2	81	0.00
65	CP	Toluene	40.000	41.495	-3.7	84	0.00
66	T	trans-1,3-Dichloropropene	40.000	37.015	7.5	78	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	T	Ethyl methacrylate	40.000	35.633	10.9	76	0.00
69	T	1,1,2-Trichloroethane	40.000	36.254	9.4	83	0.00
70	T	Tetrachloroethene	40.000	42.273	-5.7	88	0.00
71	T	1,3-Dichloropropane	40.000	39.255	1.9	82	0.00
72	T	2-Hexanone	40.000	35.257	11.9	73	0.00
73	T	Chlorodibromomethane	40.000	40.023	-0.1	80	0.00
74	T	Butyl acetate	40.000	36.354	9.1	77	0.00
75	T	1,2-Dibromoethane	40.000	41.017	-2.5	85	0.00
76	P	Chlorobenzene	40.000	40.352	-0.9	83	0.00
77	T	1,1,1,2-Tetrachloroethane	40.000	39.631	0.9	85	0.00
78	CP	Ethylbenzene	40.000	40.960	-2.4	83	0.00
79	CP	m/p-Xylene	80.000	80.919	-1.1	82	0.00
80	T	Styrene	40.000	39.069	2.3	79	0.00
81	CP	o-Xylene	40.000	39.180	2.1	80	0.00
82	T	Cyclohexanone	200.000	207.958	-4.0	80	0.00
83	P	Bromoform	40.000	41.826	-4.6	81	0.00
84	T	Isopropylbenzene	40.000	38.398	4.0	79	0.00
85	S	Bromofluorobenzene	20.000	19.323	3.4	77	0.00
86	T	Bromobenzene	40.000	38.911	2.7	79	0.00
87	P	1,1,2,2-Tetrachloroethane	40.000	40.801	-2.0	84	0.00
88	T	1,2,3-Trichloropropane	40.000	36.520	8.7	80	0.00
89	T	trans-1,4-Dichloro-2-butene	40.000	32.795	18.0	74	0.00
90	T	n-Propylbenzene	40.000	39.738	0.7	80	0.00
91	T	2-Chlorotoluene	40.000	39.791	0.5	81	0.00
92	T	4-Chlorotoluene	40.000	39.984	0.0	82	0.00

Evaluate Continuing Calibration Report

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	40.000	39.404	1.5	80	0.00
94	T	tert-Butylbenzene	40.000	37.411	6.5	80	0.00
95	T	1,2,4-Trimethylbenzene	40.000	39.867	0.3	82	0.00
96	T	sec-Butylbenzene	40.000	38.587	3.5	80	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	86	0.00
98	T	1,3-Dichlorobenzene	40.000	41.690	-4.2	86	0.00
99	T	p-Isopropyltoluene	40.000	37.786	5.5	79	0.00
100	T	1,4-Dichlorobenzene	40.000	41.199	-3.0	87	0.00
101	T	1,2,3-Trimethylbenzene	40.000	40.394	-1.0	84	0.00
102	T	Benzyl chloride	40.000	27.649	30.9#	58	0.00
103	T	1,2-Dichlorobenzene	40.000	43.492	-8.7	89	0.00
104	T	n-Butylbenzene	40.000	36.056	9.9	76	0.00
105	T	Hexachloroethane	40.000	36.739	8.2	79	0.00
106	T	1,2-Dibromo-3-chloropropane	40.000	35.854	10.4	80	0.00
107	T	1,3,5-Trichlorobenzene	40.000	42.006	-5.0	87	0.00
108	T	1,2,4-Trichlorobenzene	40.000	41.128	-2.8	89	0.00
109	T	Hexachlorobutadiene	40.000	39.843	0.4	86	0.00
110	T	Naphthalene	40.000	39.838	0.4	82	0.00
111	T	1,2,3-Trichlorobenzene	40.000	42.154	-5.4	85	0.00
112	T	2-Methylnaphthalene	40.000	33.337	16.7	68	0.00
113	T	1-Methylnaphthalene	40.000	35.592	11.0	71	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	75	0.00
115	T	2-Propanone	40.000	38.634	3.4	78	0.00
116	T	Acetic Ether	40.000	42.591	-6.5	79	0.00
117	T	Isopropyl Acetate	40.000	41.570	-3.9	81	0.00
118	T	Amyl Acetate	40.000	40.543	-1.4	79	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	83	0.00
2	T	Dichlorodifluoromethane	0.448	0.367	18.1	79	0.00
3	P	Chloromethane	0.678	0.614	9.4	81	0.00
4	C	Vinyl chloride	0.531	0.455	14.3	77	0.00
5	T	Bromomethane	0.244	0.325	-33.2#	171	0.00
6	T	Chloroethane	0.384	0.287	25.3#	89	0.00
7	T	Trichlorofluoromethane	0.552	0.517	6.3	84	0.00
8	T	Ethyl ether	0.408	0.355	13.0	77	0.00
9	T	Acrolein	0.108	0.135#	-25.0#	149	0.00
10	C	1,1-Dichloroethene	0.602	0.535	11.1	77	0.00
11	T	1,1,2-Trichlorotrifluoroeth	0.327	0.275	15.9	78	0.00
12	T	Methyl iodide	0.433	0.331	23.6#	93	0.00
13	T	Acetone	0.273	0.240	12.1	83	0.00
14	T	Chloroprene	0.609	0.544	10.7	75	0.00
15	T	Carbon disulfide	1.305	1.109	15.0	74	0.00
16	T	Allyl chloride	0.702	0.648	7.7	80	0.00
17	T	Methyl acetate	0.612	0.581	5.1	79	0.00
18	T	Acetonitrile	0.698	0.648	7.2	80	0.00
19	T	Methylene chloride	0.638	0.558	12.5	77	0.00
20	T	trans-1,2-Dichloroethene	0.655	0.586	10.5	76	0.00
21	T	t-Butanol	0.138	0.117#	15.2	71	-0.02
22	T	Acrylonitrile	0.304	0.290	4.6	80	0.00
23	CP	Methyl tert-butyl ether	1.253	1.261	-0.6	81	0.00
24	T	Hexane	0.507	0.327	35.5#	62	0.00
25	P	1,1-Dichloroethane	0.895	0.816	8.8	78	0.00
26	CP	Diisopropyl ether	1.320	1.318	0.2	83	0.00
27	T	Vinyl acetate	0.087	0.077#	11.5	85	0.00
28	CP	Ethyl tert butyl ether	1.304	1.281	1.8	83	0.00
29	T	2,2-Dichloropropane	0.638	0.474	25.7#	65	0.00
30	T	cis-1,2-Dichloroethene	0.780	0.721	7.6	79	0.00
31	T	2-Butanone	0.469	0.402	14.3	80	0.00
32	T	Ethyl Acetate	0.771	0.758	1.7	80	0.00
33	T	Methyl acrylate	0.742	0.707	4.7	78	0.00
34	T	Propionitrile	0.049	0.038#	22.4#	77	0.00
35	T	Bromochloromethane	0.411	0.397	3.4	83	0.00
36	T	Tetrahydrofuran	0.281	0.266	5.3	78	0.00
37	T	Methacrylonitrile	0.439	0.436	0.7	78	0.00
38	C	Chloroform	0.907	0.867	4.4	83	0.00
39	T	Cyclohexane	0.717	0.589	17.9	75	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	80	0.00
41	T	1,1,1-Trichloroethane	0.464	0.439	5.4	77	0.00
42	S	Dibromofluoromethane	0.347	0.357	-2.9	81	0.00
43	T	Carbon tetrachloride	0.398	0.391	1.8	77	0.00
44	T	1,1-Dichloropropene	0.437	0.393	10.1	78	0.00
45	S	1,2-Dichloroethane-d4	0.338	0.335	0.9	80	0.00
46	T	1,2-Dichloroethane	0.444	0.409	7.9	80	0.00

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
47	CP	Benzene	1.276	1.264	0.9	80	0.00
48	CP	Tertiaryamylmethylether	0.828	0.882	-6.5	83	0.00
49	T	Isobutyl Alcohol	0.269	0.251	6.7	80	0.00
50	T	Heptane	0.289	0.180#	37.7#	59	0.00
51	T	1,4-Dioxane	0.007	0.008#	-14.3	86	-0.01
52	T	Methylcyclohexane	0.438	0.378	13.7	74	0.00
53	T	n-Butanol	0.023	0.021#	8.7	67	-0.01
54	T	Trichloroethene	0.359	0.356	0.8	83	0.00
55	C	1,2-Dichloropropane	0.365	0.342	6.3	79	0.00
56	T	Dibromomethane	0.266	0.270	-1.5	83	0.00
57	T	Methyl methacrylate	0.411	0.379	7.8	79	0.00
58	T	Bromodichloromethane	0.464	0.459	1.1	79	0.00
59	T	2-Chloroethyl vinyl ether	0.169	0.133#	21.3#	67	0.00
60	T	2-Nitropropane	0.178	0.140#	21.3#	70	0.00
61	T	cis-1,3-Dichloropropene	0.551	0.522	5.3	75	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	81	0.00
63	T	4-Methyl-2-pentanone	0.622	0.540	13.2	75	0.00
64	S	Toluene-d8	1.305	1.290	1.1	81	0.00
65	CP	Toluene	1.439	1.493	-3.8	84	0.00
66	T	trans-1,3-Dichloropropene	0.577	0.534	7.5	78	0.00
67	T	Chloropicrin	0.000	0.030#	0.0	0#	0.00
68	T	Ethyl methacrylate	0.615	0.548	10.9	76	0.00
69	T	1,1,2-Trichloroethane	0.425	0.385	9.4	83	0.00
70	T	Tetrachloroethene	0.376	0.397	-5.6	88	0.00
71	T	1,3-Dichloropropane	0.597	0.586	1.8	82	0.00
72	T	2-Hexanone	0.488	0.431	11.7	73	0.00
73	T	Chlorodibromomethane	0.458	0.459	-0.2	80	0.00
74	T	Butyl acetate	0.814	0.740	9.1	77	0.00
75	T	1,2-Dibromoethane	0.438	0.449	-2.5	85	0.00
76	P	Chlorobenzene	0.971	0.979	-0.8	83	0.00
77	T	1,1,1,2-Tetrachloroethane	0.375	0.371	1.1	85	0.00
78	CP	Ethylbenzene	1.548	1.585	-2.4	83	0.00
79	CP	m/p-Xylene	1.173	1.187	-1.2	82	0.00
80	T	Styrene	1.000	0.977	2.3	79	0.00
81	CP	o-Xylene	1.245	1.220	2.0	80	0.00
82	T	Cyclohexanone	0.073	0.040#	45.2#	80	0.00
83	P	Bromoform	0.346	0.362	-4.6	81	0.00
84	T	Isopropylbenzene	1.465	1.406	4.0	79	0.00
85	S	Bromofluorobenzene	0.473	0.457	3.4	77	0.00
86	T	Bromobenzene	0.918	0.893	2.7	79	0.00
87	P	1,1,2,2-Tetrachloroethane	0.658	0.671	-2.0	84	0.00
88	T	1,2,3-Trichloropropane	0.180	0.165#	8.3	80	0.00
89	T	trans-1,4-Dichloro-2-butene	0.182	0.149#	18.1	74	0.00
90	T	n-Propylbenzene	1.688	1.677	0.7	80	0.00
91	T	2-Chlorotoluene	1.011	1.006	0.5	81	0.00
92	T	4-Chlorotoluene	1.183	1.183	0.0	82	0.00

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY68.D
Acq On : 25 May 2018 6:33 am
Operator : EMR
Sample : VCCV5-180524
Misc : IS/SS 200-20081
ALS Vial : 58 Sample Multiplier: 1

Quant Time: May 25 06:46:10 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
93	T	1,3,5-Trimethylbenzene	1.159	1.142	1.5	80	0.00
94	T	tert-Butylbenzene	0.693	0.648	6.5	80	0.00
95	T	1,2,4-Trimethylbenzene	1.235	1.231	0.3	82	0.00
96	T	sec-Butylbenzene	1.397	1.348	3.5	80	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00
98	T	1,3-Dichlorobenzene	1.416	1.476	-4.2	86	0.00
99	T	p-Isopropyltoluene	2.279	2.153	5.5	79	0.00
100	T	1,4-Dichlorobenzene	1.444	1.487	-3.0	87	0.00
101	T	1,2,3-Trimethylbenzene	2.392	2.416	-1.0	84	0.00
102	T	Benzyl chloride	1.890	1.307	30.8#	58	0.00
103	T	1,2-Dichlorobenzene	1.393	1.515	-8.8	89	0.00
104	T	n-Butylbenzene	2.065	1.861	9.9	76	0.00
105	T	Hexachloroethane	0.513	0.471	8.2	79	0.00
106	T	1,2-Dibromo-3-chloropropane	0.400	0.359	10.3	80	0.00
107	T	1,3,5-Trichlorobenzene	0.950	0.998	-5.1	87	0.00
108	T	1,2,4-Trichlorobenzene	0.974	1.001	-2.8	89	0.00
109	T	Hexachlorobutadiene	0.325	0.324	0.3	86	0.00
110	T	Naphthalene	3.572	3.558	0.4	82	0.00
111	T	1,2,3-Trichlorobenzene	0.947	0.998	-5.4	85	0.00
112	T	2-Methylnaphthalene	1.836	1.530	16.7	68	0.00
113	T	1-Methylnaphthalene	1.711	1.523	11.0	71	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	75	0.00
115	T	2-Propanone	0.897	0.866	3.5	78	0.00
116	T	Acetic Ether	2.543	2.708	-6.5	79	0.00
117	T	Isopropyl Acetate	1.145	1.190	-3.9	81	0.00
118	T	Amyl Acetate	3.274	3.318	-1.3	79	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY67.D
Acq On : 25 May 2018 6:18 am
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 57 Sample Multiplier: 1

Quant Time: May 25 06:30:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	272493	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	398756	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	363557	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	201051	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	75708	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	139916	20.23	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.15%				
45) 1,2-Dichloroethane-d4	5.164	65	131325	19.50	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.50%				
64) Toluene-d8	7.671	98	457908	19.30	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 96.50%				
85) Bromofluorobenzene	9.433	95	162435	18.88	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.40%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	202789	33.21	ug/L		99
3) Chloromethane	1.282	50	344213	37.29	ug/L		99
4) Vinyl chloride	1.353	62	259487	35.87	ug/L		93
5) Bromomethane	1.561	96	199133	90.20	ug/L		96
6) Chloroethane	1.640	64	188644	55.15	ug/L		(86
7) Trichlorofluoromethane	1.819	101	288297	38.35	ug/L		96
8) Ethyl ether	2.019	59	199439	35.91	ug/L		95
9) Acrolein	2.120	56	363177	329.81	ug/L		98
10) 1,1-Dichloroethene	2.199	61	313378	38.20	ug/L		91
11) 1,1,2-Trichlorotrifluo...	2.206	151	164352	36.90	ug/L		98
12) Methyl iodide	2.320	142	195473	47.92	ug/L		98
13) Acetone	2.227	43	137298	36.85	ug/L		98
14) Chloroprene	3.373	53	327001	39.41	ug/L		99
15) Carbon disulfide	2.385	76	650535	36.58	ug/L		99
16) Allyl chloride	2.492	41	374120	39.14	ug/L		98
17) Methyl acetate	2.478	43	342971	41.16	ug/L		99
18) Acetonitrile	2.492	41	374120	39.35	ug/L	#	95
19) Methylene chloride	2.607	49	326950	37.62	ug/L		98
20) trans-1,2-Dichloroethene	2.857	61	343115	38.44	ug/L		95
21) t-Butanol	2.700	59	329275	175.53	ug/L		97
22) Acrylonitrile	2.807	53	165833	40.10	ug/L		96
23) Methyl tert-butyl ether	2.850	73	729572	42.74	ug/L		100
24) Hexane	3.130	57	198013	28.67	ug/L		97
25) 1,1-Dichloroethane	3.294	63	476170	39.04	ug/L		99
26) Diisopropyl ether	3.330	45	757622	42.13	ug/L		89
27) Vinyl acetate	3.294	86	37398	31.53	ug/L		100
28) Ethyl tert butyl ether	3.746	59	718141	40.42	ug/L		99
29) 2,2-Dichloropropane	3.953	77	273230	31.45	ug/L		98
30) cis-1,2-Dichloroethene	3.953	61	410686	38.63	ug/L		94
31) 2-Butanone	3.939	43	230673	36.08	ug/L		97
32) Ethyl Acetate	4.004	43	417926	39.79	ug/L	#	99
33) Methyl acrylate	4.061	55	396295	39.22	ug/L		99
34) Propionitrile	4.734	54	24728	43.16	ug/L	#	77

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY67.D
Acq On : 25 May 2018 6:18 am
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 57 Sample Multiplier: 1

Quant Time: May 25 06:30:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
35) Bromochloromethane	4.261	49	227942	40.70 ug/L		93
36) Tetrahydrofuran	4.283	42	150940	39.47 ug/L		100
37) Methacrylonitrile	4.211	41	242564	40.53 ug/L		99
38) Chloroform	4.419	83	502471	40.65 ug/L		97
39) Cyclohexane	4.734	56	347055	35.54 ug/L		99
41) 1,1,1-Trichloroethane	4.634	97	374524	40.47 ug/L		98
43) Carbon tetrachloride	4.863	117	332047	41.79 ug/L		99
44) 1,1-Dichloropropene	4.877	75	330212	37.93 ug/L		98
46) 1,2-Dichloroethane	5.293	62	338625	38.23 ug/L		99
47) Benzene	5.178	78	1042504	40.99 ug/L		99
48) Tertiaryamylmethylether	5.443	73	725100	43.91 ug/L		98
49) Isobutyl Alcohol	5.443	43	209980	39.13 ug/L	#	97
50) Heptane	5.759	43	155619	31.65 ug/L		98
51) 1,4-Dioxane	6.811	88	636691	4507.29 ug/L		97
52) Methylcyclohexane	6.654	83	315624	36.18 ug/L		98
53) n-Butanol	6.324	56	168489	363.28 ug/L		97
54) Trichloroethene	6.353	130	298966	41.77 ug/L		99
55) 1,2-Dichloropropane	6.704	63	289241	39.75 ug/L		97
56) Dibromomethane	6.797	93	221380	41.66 ug/L		95
57) Methyl methacrylate	6.819	41	311619	38.05 ug/L		97
58) Bromodichloromethane	7.019	83	385142	41.66 ug/L		100
59) 2-Chloroethyl vinyl ether	7.327	43	112827	33.41 ug/L		95
60) 2-Nitropropane	7.241	43	108373	30.52 ug/L	#	99
61) cis-1,3-Dichloropropene	7.449	75	437804	39.83 ug/L		100
63) 4-Methyl-2-pentanone	7.592	43	404452	35.79 ug/L		99
65) Toluene	7.728	91	1148581	43.91 ug/L		99
66) trans-1,3-Dichloropropene	7.943	75	398673	38.01 ug/L		98
67) Chloropicrin	7.943	117	190789	No Calib		
68) Ethyl methacrylate	7.993	69	425046	37.99 ug/L		98
69) 1,1,2-Trichloroethane	8.087	97	297041	38.49 ug/L		98
70) Tetrachloroethene	8.130	166	300388	43.99 ug/L		97
71) 1,3-Dichloropropane	8.201	76	437140	40.30 ug/L		96
72) 2-Hexanone	8.244	43	316328	35.63 ug/L		99
73) Chlorodibromomethane	8.352	129	349501	41.95 ug/L		100
74) Butyl acetate	8.344	43	562681	38.02 ug/L		99
75) 1,2-Dibromoethane	8.423	107	333889	41.97 ug/L		99
76) Chlorobenzene	8.753	112	742936	42.10 ug/L		99
77) 1,1,1,2-Tetrachloroethane	8.810	131	280468	41.16 ug/L		98
78) Ethylbenzene	8.817	91	1190484	42.31 ug/L		99
79) m/p-Xylene	8.896	91	1803662	84.57 ug/L		99
80) Styrene	9.139	104	739832	40.70 ug/L		98
81) o-Xylene	9.125	91	905510	40.01 ug/L		98
82) Cyclohexanone	9.390	55	148243	211.82 ug/L		99
83) Bromoform	9.247	173	269060	42.79 ug/L		99
84) Isopropylbenzene	9.333	105	1089020	40.91 ug/L		100
86) Bromobenzene	9.512	77	670143	40.16 ug/L		91
87) 1,1,2,2-Tetrachloroethane	9.512	83	487382	40.78 ug/L		99
88) 1,2,3-Trichloropropane	9.541	110	122701	37.41 ug/L		97
89) trans-1,4-Dichloro-2-b...	9.526	53	108276	32.79 ug/L		96
90) n-Propylbenzene	9.562	91	1290798	42.08 ug/L		99
91) 2-Chlorotoluene	9.612	91	786184	42.77 ug/L		98

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY67.D
Acq On : 25 May 2018 6:18 am
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 57 Sample Multiplier: 1

Quant Time: May 25 06:30:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

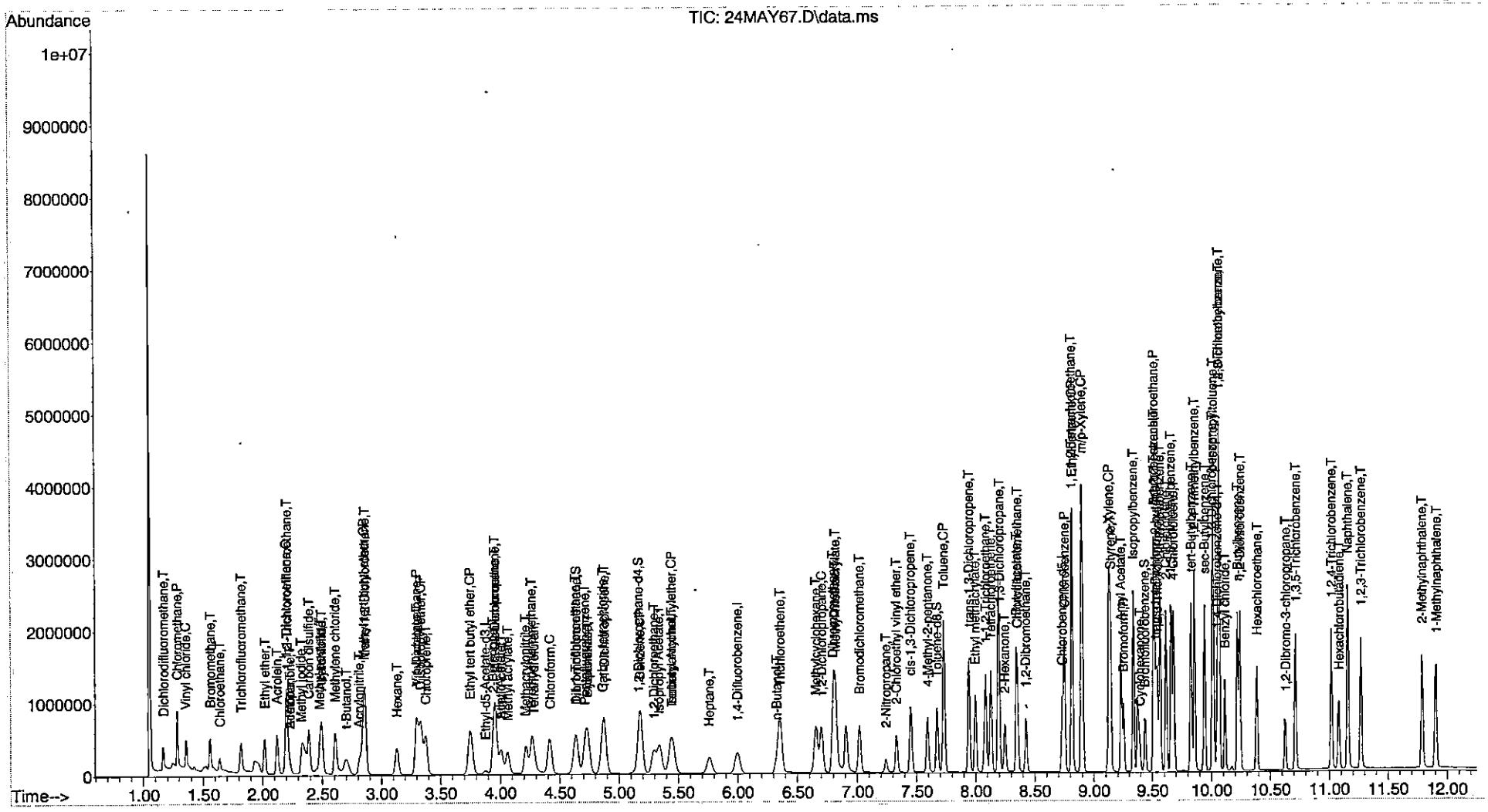
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
92) 4-Chlorotoluene	9.677	91	889978	41.37	ug/L		98
93) 1,3,5-Trimethylbenzene	9.655	105	866937	41.15	ug/L		98
94) tert-Butylbenzene	9.827	91	489501	38.88	ug/L		97
95) 1,2,4-Trimethylbenzene	9.856	105	896540	39.94	ug/L		98
96) sec-Butylbenzene	9.942	105	1038206	40.89	ug/L		100
98) 1,3-Dichlorobenzene	10.006	146	595473	41.84	ug/L		98
99) p-Isopropyltoluene	10.013	119	866325	37.82	ug/L		99
100) 1,4-Dichlorobenzene	10.064	146	614962	42.36	ug/L		97
101) 1,2,3-Trimethylbenzene	10.064	105	979989	40.75	ug/L		99
102) Benzyl chloride	10.114	91	519262	27.33	ug/L		99
103) 1,2-Dichlorobenzene	10.243	146	596732	42.60	ug/L		99
104) n-Butylbenzene	10.221	91	756483	36.44	ug/L		99
105) Hexachloroethane	10.386	117	197426	38.31	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.629	157	142620	35.46	ug/L		96
107) 1,3,5-Trichlorobenzene	10.715	180	388439	40.67	ug/L		99
108) 1,2,4-Trichlorobenzene	11.016	180	394722	40.33	ug/L		98
109) Hexachlorobutadiene	11.081	225	127658	39.03	ug/L		98
110) Naphthalene	11.152	128	1402121	39.04	ug/L		98
111) 1,2,3-Trichlorobenzene	11.267	180	389894	40.95	ug/L		99
112) 2-Methylnaphthalene	11.783	142	586283	31.77	ug/L		98
113) 1-Methylnaphthalene	11.904	142	568235	33.04	ug/L		99
115) 2-Propanone	2.227	43	137298	40.44	ug/L		98
116) Acetic Ether	4.004	43	417926	43.42	ug/L	#	99
117) Isopropyl Acetate	5.336	61	191840	44.27	ug/L		94
118) Amyl Acetate	9.225	43	518393	41.83	ug/L		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY67.D
Acq On : 25 May 2018 6:18 am
Operator : EMR
Sample : VCCV4-180524
Misc : IS/SS 200-20081
ALS Vial : 57 Sample Multiplier: 1

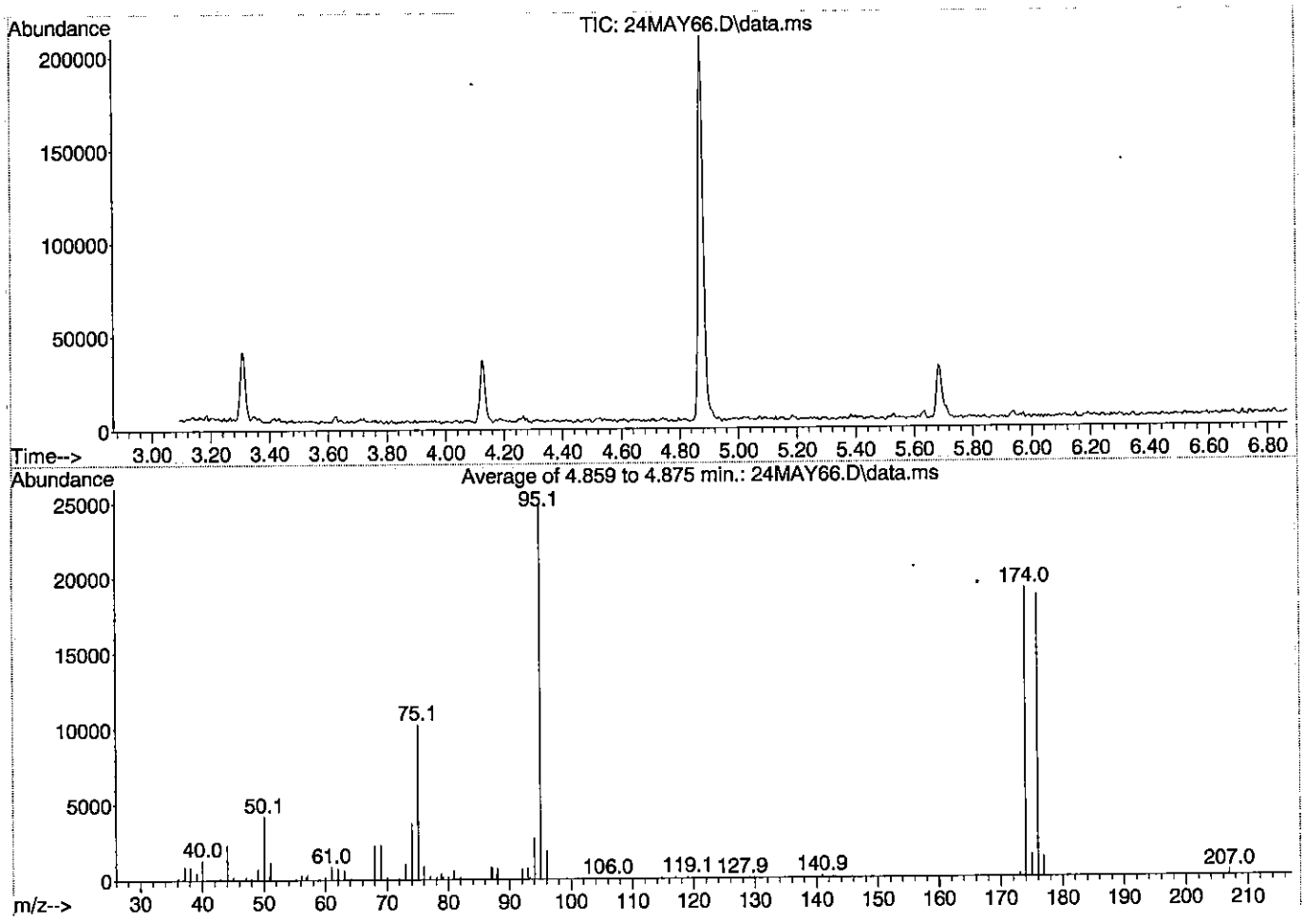
Quant Time: May 25 06:30:31 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY66.D
Acq On : 25 May 2018 6:02 am
Operator : EMR
Sample : VBFB4-180524
Misc : IS/SS 200-20081
ALS Vial : 56 Sample Multiplier: 1

Integration File: 8260.P

Method : C:\msdchem\1\METHODS\8GI0515.M
Title : 8260B/624 Volatile Calibration
Last Update : Wed Jun 27 11:02:07 2018



Spectrum Information: Average of 4.859 to 4.875 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.1	4229	PASS
75	95	30	60	41.6	10283	PASS
95	95	100	100	100.0	24741	PASS
96	95	5	9	7.6	1876	PASS
173	174	0.00	2	1.2	228	PASS
174	95	50	100	77.2	19094	PASS
175	174	5	9	7.6	1453	PASS
176	174	95	101	97.5	18617	PASS
177	176	5	9	7.0	1303	PASS

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY71.D
Acq On : 25 May 2018 7:20 am
Operator : EMR
Sample : VBLKW3-180524
Misc : IS/SS 200-20081
ALS Vial : 61 Sample Multiplier: 1

Quant Time: May 25 07:33:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.720	168	282010	20.00 ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	408647	20.00 ug/L		0.00
62) Chlorobenzene-d5	8.731	117	375055	20.00 ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	183294	20.00 ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	73195	20.00 ug/L		0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.648	111	141222	19.92 ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.60%			
45) 1,2-Dichloroethane-d4	5.164	65	137658	19.95 ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 99.75%			
64) Toluene-d8	7.671	98	459642	18.78 ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.90%			
85) Bromofluorobenzene	9.433	95	163075	18.37 ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.85%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	1.604	64	9259	Below Cal	#	50
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D. d		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY71.D
Acq On : 25 May 2018 7:20 am
Operator : EMR
Sample : VBLKW3-180524
Misc : IS/SS 200-20081
ALS Vial : 61 Sample Multiplier: 1

Quant Time: May 25 07:33:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
88) 1,2,3-Trichloropropane	0.000		0	N.D.		
89) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
90) n-Propylbenzene	0.000		0	N.D.		
91) 2-Chlorotoluene	0.000		0	N.D.		

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY71.D
Acq On : 25 May 2018 7:20 am
Operator : EMR
Sample : VBLKW3-180524
Misc : IS/SS 200-20081
ALS Vial : 61 Sample Multiplier: 1

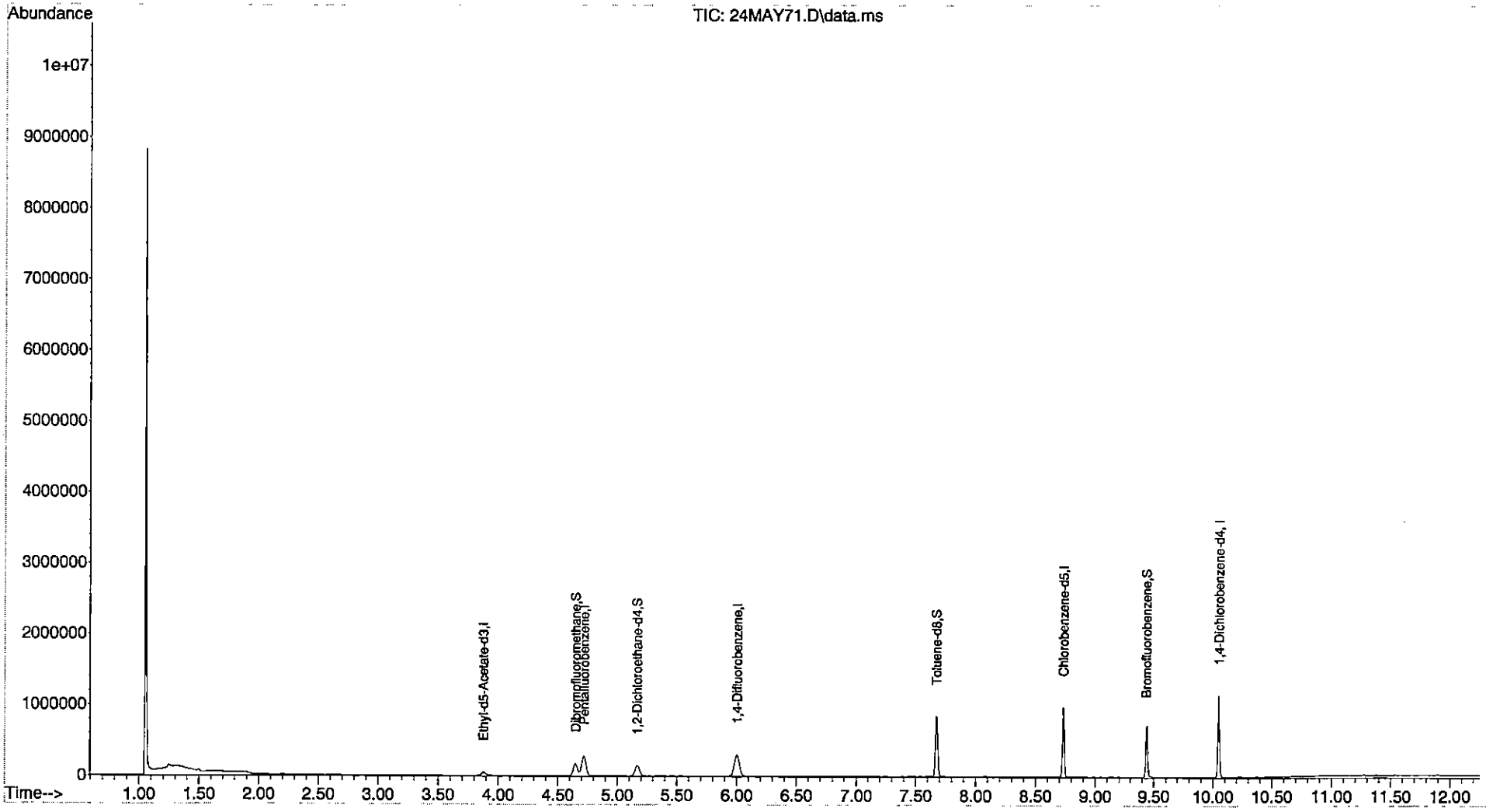
Quant Time: May 25 07:33:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) 4-Chlorotoluene	0.000		0	N.D.		
93) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
94) tert-Butylbenzene	0.000		0	N.D.		
95) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
96) sec-Butylbenzene	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY71.D
Acq On : 25 May 2018 7:20 am
Operator : EMR
Sample : VBLKW3-180524
Misc : IS/SS 200-20081
ALS Vial : 61 Sample Multiplier: 1

Quant Time: May 25 07:33:16 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY69.D
Acq On : 25 May 2018 6:49 am
Operator : EMR
Sample : VLCSW3-180524
Misc : IS/SS 200-20081
ALS Vial : 59 Sample Multiplier: 1

Quant Time: May 25 07:01:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	279868	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.002	114	429351	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	380272	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	197624	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	75668	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.648	111	144008	19.34	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.70%				
45) 1,2-Dichloroethane-d4	5.164	65	137937	19.03	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 95.15%				
64) Toluene-d8	7.671	98	482123	19.42	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.10%				
85) Bromofluorobenzene	9.440	95	174547	19.40	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	109873	17.52	ug/L		98
3) Chloromethane	1.282	50	161229	17.00	ug/L		99
4) Vinyl chloride	1.360	62	135777	18.27	ug/L		96
5) Bromomethane	1.561	96	101597	44.08	ug/L		99
6) Chloroethane	1.640	64	94818	23.53	ug/L		88
7) Trichlorofluoromethane	1.819	101	131108	16.98	ug/L		98
8) Ethyl ether	2.019	59	103703	18.18	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.198	61	178847	21.22	ug/L		93
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	138046	32.10	ug/L		98
13) Acetone	2.227	43	73622	19.24	ug/L		100
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	391653	21.44	ug/L		99
16) Allyl chloride	2.499	41	174201	17.75	ug/L		92
17) Methyl acetate	2.485	43	5149	0.60	ug/L	#	1
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	172281	19.30	ug/L		96
20) trans-1,2-Dichloroethene	2.865	61	181293	19.78	ug/L		96
21) t-Butanol	2.700	59	177219	91.98	ug/L		96
22) Acrylonitrile	2.814	53	85295	20.08	ug/L		95
23) Methyl tert-butyl ether	2.843	73	385579	21.99	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.301	63	238903	19.07	ug/L		98
26) Diisopropyl ether	3.330	45	379111	20.53	ug/L	#	49
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.753	59	368769	20.21	ug/L		98
29) 2,2-Dichloropropane	3.961	77	136051	15.25	ug/L		98
30) cis-1,2-Dichloroethene	3.953	61	215966	19.78	ug/L		93
31) 2-Butanone	3.946	43	112565	17.14	ug/L		99
32) Ethyl Acetate	4.011	43	174299	16.16	ug/L	#	99
33) Methyl acrylate	4.061	55	204579	19.71	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY69.D
Acq On : 25 May 2018 6:49 am
Operator : EMR
Sample : VLCSW3-180524
Misc : IS/SS 200-20081
ALS Vial : 59 Sample Multiplier: 1

Quant Time: May 25 07:01:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	119576	20.79 ug/L	97
36) Tetrahydrofuran	4.283	42	72412	18.43 ug/L	96
37) Methacrylonitrile	4.218	41	123143	20.03 ug/L	98
38) Chloroform	4.419	83	251485	19.81 ug/L	97
39) Cyclohexane	4.720	56	5781	0.58 ug/L #	24
41) 1,1,1-Trichloroethane	4.641	97	195718	19.64 ug/L	98
43) Carbon tetrachloride	4.870	117	164701	19.25 ug/L	100
44) 1,1-Dichloropropene	4.877	75	168013	17.92 ug/L	98
46) 1,2-Dichloroethane	5.293	62	173571	18.20 ug/L	99
47) Benzene	5.185	78	552636	20.18 ug/L	98
48) Tertiaryamylmethylether	5.450	73	367635	20.68 ug/L	98
49) Isobutyl Alcohol	5.450	43	107539	18.61 ug/L	98
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.360	130	149765	19.43 ug/L	98
55) 1,2-Dichloropropane	6.704	63	143567	18.32 ug/L #	87
56) Dibromomethane	6.797	93	109429	19.13 ug/L	95
57) Methyl methacrylate	6.819	41	148144	16.80 ug/L	96
58) Bromodichloromethane	7.019	83	189094	18.99 ug/L	99
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	56884	14.88 ug/L #	96
61) cis-1,3-Dichloropropene	7.456	75	216038	18.25 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	325180	27.51 ug/L	81
65) Toluene	7.728	91	581977	21.27 ug/L	99
66) trans-1,3-Dichloropropene	7.943	75	198595	18.10 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.000	69	211235	18.05 ug/L	97
69) 1,1,2-Trichloroethane	8.086	97	154059	19.09 ug/L	97
70) Tetrachloroethene	8.129	166	161414	22.60 ug/L	95
71) 1,3-Dichloropropane	8.201	76	220762	19.46 ug/L	95
72) 2-Hexanone	8.251	43	158313	17.05 ug/L	98
73) Chlorodibromomethane	8.351	129	162014	18.59 ug/L	99
74) Butyl acetate	8.344	43	221847	14.33 ug/L	100
75) 1,2-Dibromoethane	8.430	107	174837	21.01 ug/L #	97
76) Chlorobenzene	8.753	112	382820	20.74 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	140592	19.73 ug/L	98
78) Ethylbenzene	8.817	91	609161	20.70 ug/L	99
79) m/p-Xylene	8.896	91	935609	41.94 ug/L	99
80) Styrene	9.139	104	397686	20.92 ug/L	98
81) o-Xylene	9.125	91	490537	20.72 ug/L	97
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	126634	19.25 ug/L	100
84) Isopropylbenzene	9.333	105	560073	20.11 ug/L	99
86) Bromobenzene	9.512	77	342211	19.61 ug/L	92
87) 1,1,2,2-Tetrachloroethane	9.512	83	268327	21.46 ug/L	100
88) 1,2,3-Trichloropropane	9.541	110	62275	18.15 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	46743	13.53 ug/L	92
90) n-Propylbenzene	9.562	91	662304	20.64 ug/L	100
91) 2-Chlorotoluene	9.612	91	405684	21.10 ug/L	98

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY69.D
Acq On : 25 May 2018 6:49 am
Operator : EMR
Sample : VLCSW3-180524
Misc : IS/SS 200-20081
ALS Vial : 59 Sample Multiplier: 1

Quant Time: May 25 07:01:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

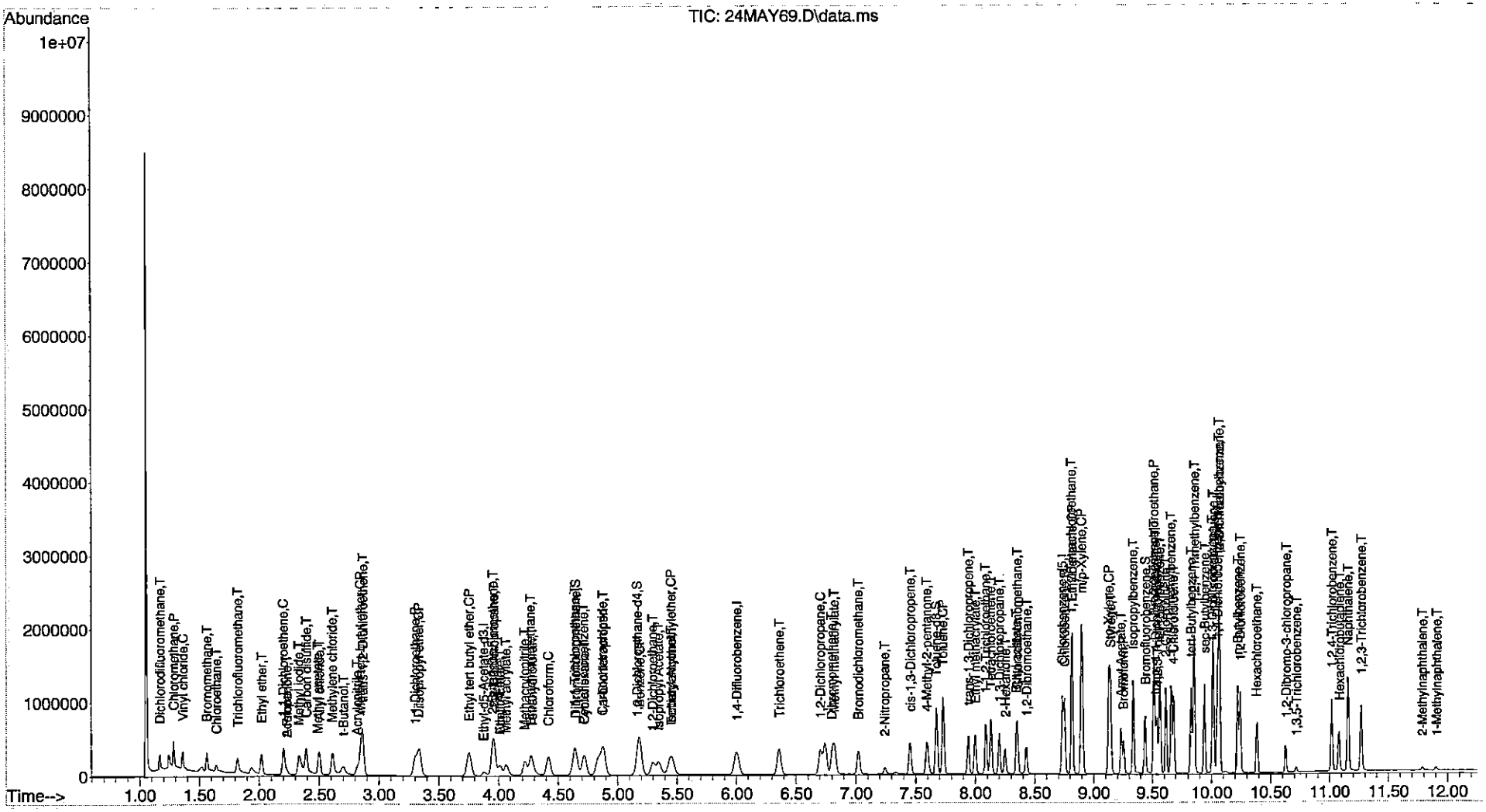
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	451279	20.06 ug/L	97
93) 1,3,5-Trimethylbenzene	9.655	105	446965	20.28 ug/L	99
94) tert-Butylbenzene	9.827	91	246341	18.71 ug/L	91
95) 1,2,4-Trimethylbenzene	9.856	105	455090	19.38 ug/L	99
96) sec-Butylbenzene	9.942	105	526405	19.82 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	299589	21.41 ug/L	98
99) p-Isopropyltoluene	10.013	119	431590	19.17 ug/L	99
100) 1,4-Dichlorobenzene	10.063	146	308231	21.60 ug/L	99
101) 1,2,3-Trimethylbenzene	10.063	105	475851	20.13 ug/L	98
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.242	146	307330	22.32 ug/L	96
104) n-Butylbenzene	10.221	91	399092	19.56 ug/L	99
105) Hexachloroethane	10.379	117	88633	17.50 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.629	157	68716	17.38 ug/L	99
107) 1,3,5-Trichlorobenzene	10.715	180	5285	0.56 ug/L #	18
108) 1,2,4-Trichlorobenzene	11.016	180	197590	20.54 ug/L	98
109) Hexachlorobutadiene	11.081	225	75222	23.40 ug/L	98
110) Naphthalene	11.152	128	682037	19.32 ug/L	98
111) 1,2,3-Trichlorobenzene	11.267	180	199385	21.31 ug/L	98
112) 2-Methylnaphthalene	11.783	142	15674	0.86 ug/L	97
113) 1-Methylnaphthalene	11.904	142	15911	0.94 ug/L	98
115) 2-Propanone	2.227	43	73622	21.70 ug/L	100
116) Acetic Ether	4.011	43	174299	18.12 ug/L #	98
117) Isopropyl Acetate	5.343	61	85497	19.74 ug/L	94
118) Amyl Acetate	9.225	43	200491	16.19 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY69.D
Acq On : 25 May 2018 6:49 am
Operator : EMR
Sample : VLCSW3-180524
Misc : IS/SS 200-20081
ALS Vial : 59 Sample Multiplier: 1

Quant Time: May 25 07:01:50 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY92.D
Acq On : 25 May 2018 12:59 pm
Operator : EMR
Sample : 18051388-06A MS
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 13:11:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.713	168	259415	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	376166	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	339682	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	181079	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	3.875	46	70667	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	133728	20.50	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.50%				
45) 1,2-Dichloroethane-d4	5.164	65	123586	19.46	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 97.30%				
64) Toluene-d8	7.671	98	433428	19.55	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.75%				
85) Bromofluorobenzene	9.433	95	158636	19.73	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	88133	15.16	ug/L		96
3) Chloromethane	1.282	50	124163	14.13	ug/L		99
4) Vinyl chloride	1.353	62	120525	17.50	ug/L		98
5) Bromomethane	1.575	96	101463	47.61	ug/L		98
6) Chloroethane	1.647	64	79180	20.72	ug/L		91
7) Trichlorofluoromethane	1.819	101	108994	15.23	ug/L		96
8) Ethyl ether	2.020	59	100120	18.93	ug/L		99
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.199	61	157865	20.21	ug/L		92
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.328	142	146507	37.08	ug/L		98
13) Acetone	2.234	43	76110	21.46	ug/L		97
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	326337	19.28	ug/L		97
16) Allyl chloride	2.499	41	157668	17.33	ug/L		90
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	155633	18.81	ug/L		96
20) trans-1,2-Dichloroethene	2.858	61	164746	19.39	ug/L		96
21) t-Butanol	2.693	59	215093	120.44	ug/L		98
22) Acrylonitrile	2.815	53	81661	20.74	ug/L		98
23) Methyl tert-butyl ether	2.843	73	376998	23.20	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.295	63	223542	19.25	ug/L		99
26) Diisopropyl ether	3.330	45	354880	20.73	ug/L	#	48
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	339828	20.09	ug/L		98
29) 2,2-Dichloropropane	3.961	77	111785	13.52	ug/L		98
30) cis-1,2-Dichloroethene	3.954	61	190769	18.85	ug/L		91
31) 2-Butanone	3.946	43	114317	18.78	ug/L		98
32) Ethyl Acetate	4.004	43	192997	19.30	ug/L	#	99
33) Methyl acrylate	4.061	55	198923	20.68	ug/L		99
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY92.D
Acq On : 25 May 2018 12:59 pm
Operator : EMR
Sample : 18051388-06A MS
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 13:11:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.262	49	107212	20.11 ug/L	94
36) Tetrahydrofuran	4.290	42	70481	19.36 ug/L	95
37) Methacrylonitrile	4.211	41	121504	21.33 ug/L	97
38) Chloroform	4.412	83	228422	19.41 ug/L	97
39) Cyclohexane	4.706	56	6563	0.71 ug/L #	23
41) 1,1,1-Trichloroethane	4.641	97	172733	19.79 ug/L	98
43) Carbon tetrachloride	4.863	117	131498	17.55 ug/L	100
44) 1,1-Dichloropropene	4.878	75	136253	16.59 ug/L	98
46) 1,2-Dichloroethane	5.293	62	161066	19.28 ug/L	99
47) Benzene	5.178	78	496162	20.68 ug/L	100
48) Tertiaryamylmethylether	5.443	73	351113	22.54 ug/L	98
49) Isobutyl Alcohol	5.451	43	102338	20.21 ug/L	96
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	126900	18.79 ug/L	99
55) 1,2-Dichloropropane	6.697	63	132606	19.32 ug/L #	87
56) Dibromomethane	6.797	93	103532	20.66 ug/L	97
57) Methyl methacrylate	6.819	41	142482	18.44 ug/L	96
58) Bromodichloromethane	7.019	83	173098	19.85 ug/L	97
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.241	43	57296	17.10 ug/L #	98
61) cis-1,3-Dichloropropene	7.449	75	188713	18.20 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	341426	32.34 ug/L	80
65) Toluene	7.728	91	502572	20.57 ug/L	100
66) trans-1,3-Dichloropropene	7.936	75	172778	17.63 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.994	69	202225	19.35 ug/L	98
69) 1,1,2-Trichloroethane	8.087	97	140061	19.43 ug/L	97
70) Tetrachloroethene	8.130	166	119023	18.66 ug/L	97
71) 1,3-Dichloropropane	8.201	76	204905	20.22 ug/L	97
72) 2-Hexanone	8.244	43	171736	20.70 ug/L	99
73) Chlorodibromomethane	8.352	129	146825	18.86 ug/L	99
74) Butyl acetate	8.345	43	263261	19.04 ug/L	98
75) 1,2-Dibromoethane	8.423	107	161433	21.72 ug/L #	99
76) Chlorobenzene	8.746	112	323926	19.65 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.810	131	125994	19.79 ug/L	98
78) Ethylbenzene	8.817	91	502579	19.12 ug/L	100
79) m/p-Xylene	8.896	91	751378	37.71 ug/L	98
80) Styrene	9.140	104	327544	19.29 ug/L	97
81) o-Xylene	9.125	91	403503	19.08 ug/L	100
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	118358	20.14 ug/L	98
84) Isopropylbenzene	9.333	105	415879	16.72 ug/L	99
86) Bromobenzene	9.512	77	291660	18.71 ug/L	91
87) 1,1,2,2-Tetrachloroethane	9.512	83	251841	22.55 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	63382	20.68 ug/L	92
89) trans-1,4-Dichloro-2-b...	9.526	53	43504	14.10 ug/L	96
90) n-Propylbenzene	9.562	91	467586	16.31 ug/L	100
91) 2-Chlorotoluene	9.612	91	316451	18.43 ug/L	99

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY92.D
Acq On : 25 May 2018 12:59 pm
Operator : EMR
Sample : 18051388-06A MS
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 13:11:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

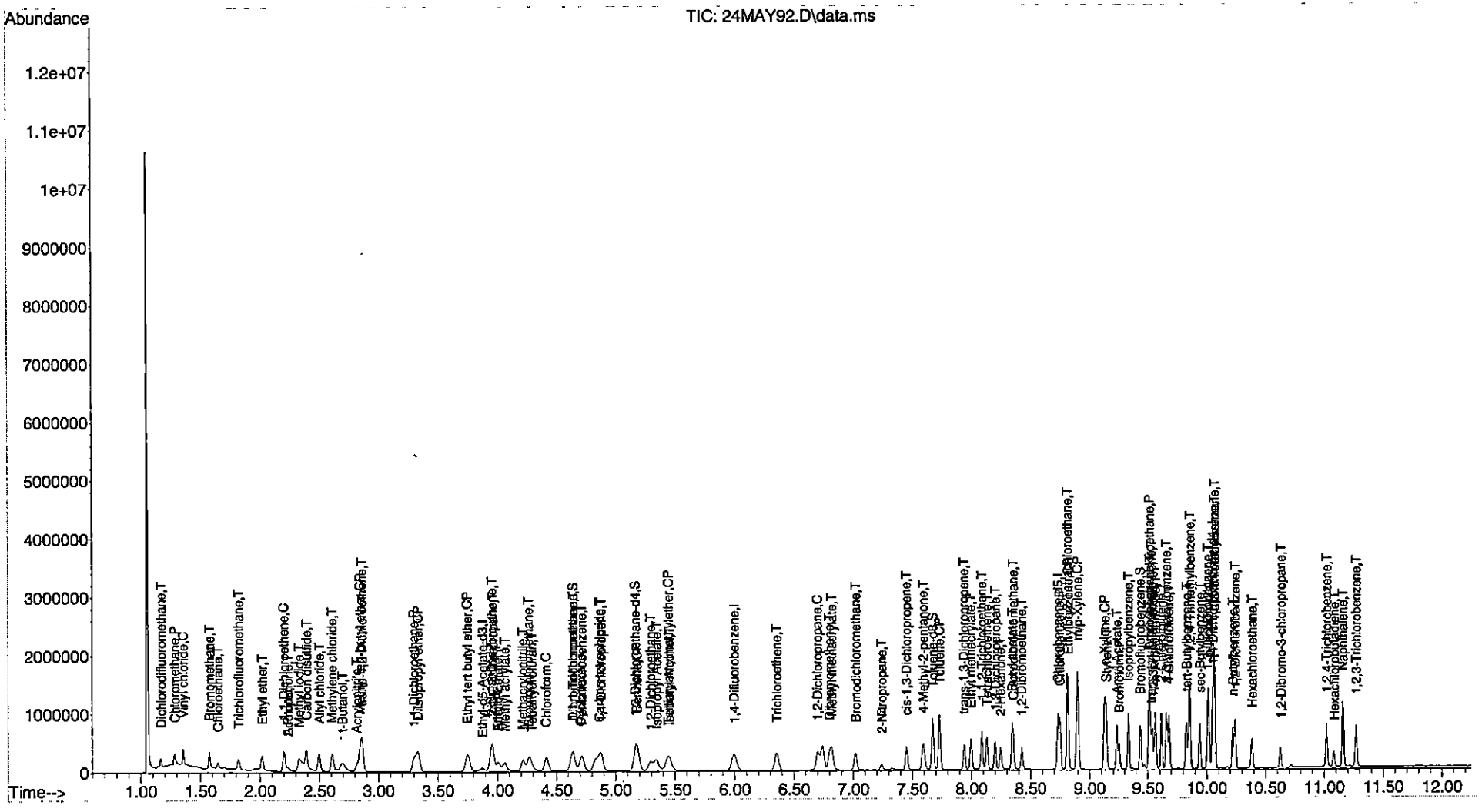
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	358056	17.81 ug/L	97
93) 1,3,5-Trimethylbenzene	9.655	105	327768	16.65 ug/L	96
94) tert-Butylbenzene	9.827	91	177918	15.13 ug/L	91
95) 1,2,4-Trimethylbenzene	9.856	105	365964	17.45 ug/L	97
96) sec-Butylbenzene	9.942	105	344460	14.52 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	236309	18.43 ug/L	98
99) p-Isopropyltoluene	10.014	119	300767	14.58 ug/L	100
100) 1,4-Dichlorobenzene	10.064	146	241073	18.44 ug/L	99
101) 1,2,3-Trimethylbenzene	10.064	105	392232	18.11 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	236560	18.75 ug/L	98
104) n-Butylbenzene	10.221	91	244509	13.08 ug/L	99
105) Hexachloroethane	10.386	117	66122	14.24 ug/L	94
106) 1,2-Dibromo-3-chloropr...	10.630	157	69506	19.19 ug/L	95
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	150810	17.11 ug/L	97
109) Hexachlorobutadiene	11.081	225	35790	12.15 ug/L	100
110) Naphthalene	11.152	128	616280	19.05 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	153761	17.93 ug/L	100
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.234	43	76110	24.02 ug/L	97
116) Acetic Ether	4.004	43	192997	21.48 ug/L #	97
117) Isopropyl Acetate	5.343	61	89479	22.12 ug/L	99
118) Amyl Acetate	9.226	43	244866	21.17 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY92.D
Acq On : 25 May 2018 12:59 pm
Operator : EMR
Sample : 18051388-06A MS
Misc : IS/SS 200-20081
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 25 13:11:42 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY93.D
Acq On : 25 May 2018 1:15 pm
Operator : EMR
Sample : 18051388-06A MSD
Misc : IS/SS 200-20081
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:28:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.720	168	251184	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	5.995	114	376448	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.731	117	348829	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	10.049	152	184318	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	3.875	46	74259	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.641	111	132948	20.36	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.80%				
45) 1,2-Dichloroethane-d4	5.164	65	127461	20.05	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.25%				
64) Toluene-d8	7.671	98	427044	18.76	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 93.80%				
85) Bromofluorobenzene	9.433	95	154541	18.72	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.167	85	124372	22.10	ug/L		98
3) Chloromethane	1.282	50	130175	15.30	ug/L		96
4) Vinyl chloride	1.353	62	135135	20.27	ug/L		96
5) Bromomethane	1.575	96	108861	52.91	ug/L		93
6) Chloroethane	1.647	64	89472	25.00	ug/L		95
7) Trichlorofluoromethane	1.819	101	159058	22.95	ug/L		99
8) Ethyl ether	2.019	59	99662	19.47	ug/L		100
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.199	61	185590	24.54	ug/L		92
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.327	142	162161	42.78	ug/L		97
13) Acetone	2.227	43	74242	21.62	ug/L		95
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.392	76	383671	23.41	ug/L		98
16) Allyl chloride	2.499	41	170747	19.38	ug/L		92
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.607	49	160925	20.08	ug/L		98
20) trans-1,2-Dichloroethene	2.857	61	182106	22.13	ug/L		96
21) t-Butanol	2.693	59	200096	115.71	ug/L		98
22) Acrylonitrile	2.815	53	83279	21.85	ug/L		98
23) Methyl tert-butyl ether	2.843	73	382622	24.31	ug/L		99
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.294	63	232917	20.72	ug/L		98
26) Diisopropyl ether	3.330	45	362415	21.86	ug/L	#	48
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.746	59	335837	20.51	ug/L		100
29) 2,2-Dichloropropane	3.961	77	118397	14.78	ug/L		96
30) cis-1,2-Dichloroethene	3.953	61	216216	22.06	ug/L		99
31) 2-Butanone	3.939	43	113941	19.34	ug/L		98
32) Ethyl Acetate	4.004	43	152078	15.71	ug/L	#	98
33) Methyl acrylate	4.061	55	194075	20.84	ug/L		100
34) Propionitrile	0.000		0	N.D.			

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY93.D
Acq On : 25 May 2018 1:15 pm
Operator : EMR
Sample : 18051388-06A MSD
Misc : IS/SS 200-20081
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:28:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
35) Bromochloromethane	4.269	49	111189	21.54 ug/L	92
36) Tetrahydrofuran	4.283	42	75280	21.35 ug/L	98
37) Methacrylonitrile	4.218	41	116900	21.19 ug/L	98
38) Chloroform	4.412	83	233088	20.45 ug/L	100
39) Cyclohexane	4.827	56	160535	17.83 ug/L #	43
41) 1,1,1-Trichloroethane	4.627	97	193439	22.14 ug/L	100
43) Carbon tetrachloride	4.863	117	168280	22.44 ug/L	99
44) 1,1-Dichloropropene	4.877	75	170240	20.71 ug/L	98
46) 1,2-Dichloroethane	5.293	62	166172	19.87 ug/L	98
47) Benzene	5.178	78	523254	21.79 ug/L	99
48) Tertiaryamylmethylether	5.443	73	349292	22.41 ug/L	99
49) Isobutyl Alcohol	5.451	43	102850	20.30 ug/L	97
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D. d	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.353	130	143119	21.18 ug/L	99
55) 1,2-Dichloropropane	6.697	63	137884	20.07 ug/L	97
56) Dibromomethane	6.797	93	103704	20.67 ug/L	97
57) Methyl methacrylate	6.819	41	147522	19.08 ug/L	96
58) Bromodichloromethane	7.019	83	177711	20.36 ug/L	98
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.234	43	57017	17.01 ug/L #	95
61) cis-1,3-Dichloropropene	7.449	75	200747	19.34 ug/L	100
63) 4-Methyl-2-pentanone	7.592	43	346445	31.95 ug/L	80
65) Toluene	7.728	91	556323	22.17 ug/L	99
66) trans-1,3-Dichloropropene	7.936	75	182833	18.17 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	7.993	69	203920	19.00 ug/L	99
69) 1,1,2-Trichloroethane	8.087	97	143900	19.43 ug/L	97
70) Tetrachloroethene	8.130	166	151664	23.15 ug/L	97
71) 1,3-Dichloropropane	8.201	76	212856	20.45 ug/L	97
72) 2-Hexanone	8.244	43	178345	20.93 ug/L	99
73) Chlorodibromomethane	8.352	129	155525	19.46 ug/L	99
74) Butyl acetate	8.344	43	199153	14.02 ug/L	99
75) 1,2-Dibromoethane	8.423	107	162033	21.23 ug/L #	99
76) Chlorobenzene	8.753	112	360824	21.31 ug/L	99
77) 1,1,1,2-Tetrachloroethane	8.810	131	136225	20.84 ug/L	100
78) Ethylbenzene	8.810	91	589966	21.85 ug/L	98
79) m/p-Xylene	8.896	91	888087	43.40 ug/L	98
80) Styrene	9.140	104	371957	21.33 ug/L	97
81) o-Xylene	9.125	91	455713	20.99 ug/L	97
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.247	173	119752	19.85 ug/L	98
84) Isopropylbenzene	9.333	105	546793	21.41 ug/L	99
86) Bromobenzene	9.512	77	326959	20.42 ug/L	93
87) 1,1,2,2-Tetrachloroethane	9.512	83	257164	22.42 ug/L	99
88) 1,2,3-Trichloropropane	9.541	110	61487	19.54 ug/L	96
89) trans-1,4-Dichloro-2-b...	9.526	53	44501	14.04 ug/L	99
90) n-Propylbenzene	9.562	91	644994	21.91 ug/L	99
91) 2-Chlorotoluene	9.612	91	387289	21.96 ug/L	98

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY93.D
Acq On : 25 May 2018 1:15 pm
Operator : EMR
Sample : 18051388-06A MSD
Misc : IS/SS 200-20081
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:28:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration

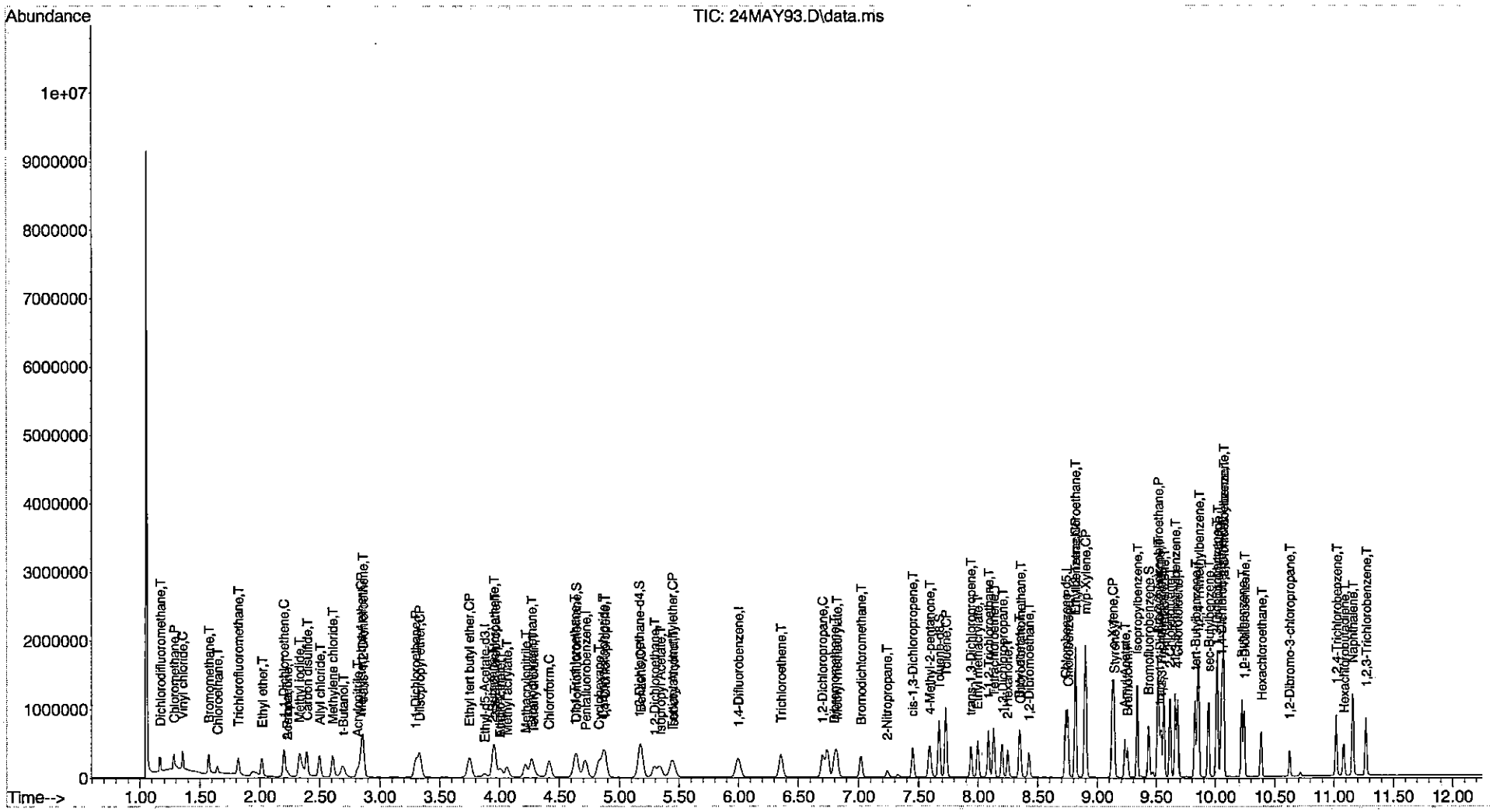
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
92) 4-Chlorotoluene	9.677	91	438008	21.22 ug/L	98
93) 1,3,5-Trimethylbenzene	9.655	105	426939	21.12 ug/L	98
94) tert-Butylbenzene	9.827	91	250052	20.70 ug/L	92
95) 1,2,4-Trimethylbenzene	9.856	105	437880	20.33 ug/L	97
96) sec-Butylbenzene	9.942	105	523370	21.48 ug/L	99
98) 1,3-Dichlorobenzene	10.006	146	286946	21.99 ug/L	98
99) p-Isopropyltoluene	10.013	119	429202	20.44 ug/L	99
100) 1,4-Dichlorobenzene	10.064	146	287595	21.61 ug/L	99
101) 1,2,3-Trimethylbenzene	10.064	105	455545	20.66 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.243	146	284169	22.13 ug/L	98
104) n-Butylbenzene	10.221	91	380621	20.00 ug/L	98
105) Hexachloroethane	10.386	117	87269	18.47 ug/L	97
106) 1,2-Dibromo-3-chloropr...	10.622	157	66782	18.11 ug/L	99
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.016	180	179039	19.95 ug/L	98
109) Hexachlorobutadiene	11.081	225	66630	22.22 ug/L	97
110) Naphthalene	11.152	128	653604	19.85 ug/L	99
111) 1,2,3-Trichlorobenzene	11.267	180	183034	20.97 ug/L	99
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.227	43	74242	22.29 ug/L	95
116) Acetic Ether	4.004	43	152078	16.11 ug/L #	99
117) Isopropyl Acetate	5.343	61	80146	18.85 ug/L	90
118) Amyl Acetate	9.225	43	181860	14.96 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\msdchem\1\DATA\8V180524\
Data File : 24MAY93.D
Acq On : 25 May 2018 1:15 pm
Operator : EMR
Sample : 18051388-06A MSD
Misc : IS/SS 200-20081
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 25 13:28:00 2018
Quant Method : C:\MSDCHEM\1\METHODS\8GI0515.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Wed May 16 12:33:56 2018
Response via : Initial Calibration



Sequence Name: C:\msdchem\1\sequence\8V180524.s
Comment:
Operator: EMR
Data Path: D:\MSDCHEM\1\DATA\8V180524\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

Sequence Barcode Options
(X) On Mismatch, Inject Anyway
( ) On Mismatch, Don't Inject
( ) Barcode Disabled

EMR 5/25/18

Line			Sample Name/Misc Info		
1)	Sample	1	24MAY01	8SGO0515	BLK
2)	Sample	2	24MAY02	8SGO0515	BLK
3)	BFB	1	24MAY03	BFB	VBFB1-180525
4)	BFB	1	24MAY04	BFB	VBFB2-180525
5)	Sample	1	24MAY05	8SGO0515	VCCV1-180524
6)	Sample	1	24MAY06	8SGO0515	VCCV2-180524
7)	Sample	2	24MAY07	8SGO0515	VLCSS1-180524
8)	Sample	2	24MAY08	8SGO0515	BLK
9)	BFB	1	24MAY09	BFB	VBFB2-180524
10)	Sample	1	24MAY10	8SGO0515	VCCV3-180524
11)	Sample	1	24MAY11	8SGO0515	VCCV4-180524
12)	Sample	2	24MAY12	8SGO0515	VLCSS1-180524
13)	Sample	3	24MAY13	8SGO0515	BLK
14)	Sample	4	24MAY14	8SGO0515	VBLKS1-180524
15)	Sample	5	24MAY15	8SGO0515	18051252-10A
16)	Sample	6	24MAY16	8SGO0515	18051252-02C DF0.853
17)	Sample	7	24MAY17	8SGO0515	18051384-01C MS
18)	Sample	8	24MAY18	8SGO0515	18051384-01C MSD
19)	Sample	9	24MAY19	8SGO0515	BLK
20)	Sample	10	24MAY20	8SGO0515	18051252-04C DF0.975
21)	Sample	11	24MAY21	8SGO0515	18051252-05C DF0.849
22)	Sample	12	24MAY22	8SGO0515	18051252-07C DF0.923
23)	Sample	13	24MAY23	8SGO0515	18051252-08C DF0.904
24)	Sample	14	24MAY24	8SGO0515	18051252-09C DF1.04
25)	Sample	15	24MAY25	8SGO0515	18051252-02C DF0.893
26)	Sample	16	24MAY26	8SGO0515	18051252-04C DF0.894
27)	Sample	17	24MAY27	8SGO0515	18051252-05C DF1.24
28)	Sample	18	24MAY28	8SGO0515	18051252-07C DF0.901
29)	Sample	19	24MAY29	8SGO0515	18051252-08C DF0.896
30)	Sample	20	24MAY30	8SGO0515	18051252-09C DF0.864
31)	Sample	21	24MAY31	8SGO0515	18051252-02C MS
32)	Sample	22	24MAY32	8SGO0515	18051252-02C MSD
33)	Sample	23	24MAY33	8SGO0515	BLK
34)	Sample	24	24MAY34	8GI0515	BLK
35)	Sample	25	24MAY35	BFB	VBFB3-180524
36)	Sample	26	24MAY36	8GI0515	VCCV2-180524
37)	Sample	27	24MAY37	8GI0515	VCCV2-180525
38)	Sample	28	24MAY38	8GI0515	VLCSW1-180524
39)	Sample	29	24MAY39	8GI0515	LCS-
40)	Sample	30	24MAY40	8GI0515	BLK
41)	Sample	31	24MAY41	8GI0515	VBLKW2-180524
42)	Sample	32	24MAY42	8GI0515	MBLK-
43)	Sample	33	24MAY43	8GI0515	18051186-04A

Sequence Name: C:\msdchem\1\sequence\8V180524.s

Line	Type	Vial	DataFile	Method	Sample Name
[redacted])	Sample	34	24MAY44	8GI0515	18051186-01A
[redacted])	Sample	35	24MAY45	8GI0515	18051186-03A
[redacted])	Sample	36	24MAY46	8GI0515	18051186-02A
47)	Sample	37	24MAY47	8GI0515	18051304-01A DF10
48)	Sample	38	24MAY48	8GI0515	18051304-02A
49)	Sample	39	24MAY49	8GI0515	18051153-01A
50)	Sample	40	24MAY50	8GI0515	18051153-02A
51)	Sample	41	24MAY51	8GI0515	18051153-03A
52)	Sample	42	24MAY52	8GI0515	18051153-04A
53)	Sample	43	24MAY53	8GI0515	18051153-05A
54)	Sample	44	24MAY54	8GI0515	18051153-06A
55)	Sample	45	24MAY55	8GI0515	18051153-07A
56)	Sample	46	24MAY56	8GI0515	18051153-08A
57)	Sample	47	24MAY57	8GI0515	18051153-09A
58)	Sample	48	24MAY58	8GI0515	18051153-10A
59)	Sample	49	24MAY59	8GI0515	18051153-11A
60)	Sample	50	24MAY60	8GI0515	18051153-12A
61)	Sample	51	24MAY61	8GI0515	18051153-13A
62)	Sample	52	24MAY62	8GI0515	18051304-01A
63)	Sample	53	24MAY63	8GI0515	18051304-01A MS DF10
64)	Sample	54	24MAY64	8GI0515	18051304-01A MSD DF10
65)	Sample	55	24MAY65	8GI0515	BLK
66)	Sample	56	24MAY66	BFB	VBFB4-180524
67)	Sample	57	24MAY67	8GI0515	VCCV4-180524
68)	Sample	58	24MAY68	8GI0515	VCCV5-180524
69)	Sample	59	24MAY69	8GI0515	VLCSW3-180524
70)	Sample	60	24MAY70	8GI0515	BLK
71)	Sample	61	24MAY71	8GI0515	VBLKW3-180524
72)	Sample	62	24MAY72	8GI0515	18051388-16A
73)	Sample	63	24MAY73	8GI0515	18051388-01A
[redacted])	Sample	64	24MAY74	8GI0515	18051388-02A
[redacted])	Sample	65	24MAY75	8GI0515	18051388-03A
76)	Sample	66	24MAY76	8GI0515	18051388-04A
77)	Sample	67	24MAY77	8GI0515	18051388-05A
78)	Sample	68	24MAY78	8GI0515	18051388-06A
79)	Sample	69	24MAY79	8GI0515	18051688-01A
80)	Sample	70	24MAY80	8GI0515	18051090-01A DF10
81)	Sample	71	24MAY81	8GI0515	18051480-02A DF20
82)	Sample	72	24MAY82	8GI0515	18051480-04A DF20
83)	Sample	73	24MAY83	8GI0515	18051552-02A DF20
84)	Sample	74	24MAY84	8GI0515	18051552-01A DF10
85)	Sample	75	24MAY85	8GI0515	18051388-13A DF20
86)	Sample	76	24MAY86	8GI0515	18051388-11A DF5
87)	Sample	77	24MAY87	8GI0515	18051388-13A DF5
88)	Sample	78	24MAY88	8GI0515	18051388-14A DF20
89)	Sample	79	24MAY89	8GI0515	18051388-10A DF5
90)	Sample	80	24MAY90	8GI0515	18051388-12A
91)	Sample	1	24MAY91	8GI0515	18051388-15A
92)	Sample	2	24MAY92	8GI0515	18051388-06A MS
93)	Sample	3	24MAY93	8GI0515	18051388-06A MSD
94)	Sample	4	24MAY94	8GI0515	BLK
95)	Sample	1	24MAY95	8SGO0515	BLK
96)	Sample	2	24MAY96	8SGO0515	BLK

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

25-May-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051688**

Dear Heather,

ALS Environmental received 1 sample on 24-May-2018 10:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 25-May-18

Client: Jacobs
Project: PMC
Work Order: **18051688**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051688-01	18CP02-44	Groundwater		5/22/2018 17:45	5/24/2018 10:30	☐

ALS Group, USA

Date: 25-May-18

Client: Jacobs
Project: PMC
Work Order: 18051688

Case Narrative

Samples for the above noted Work Order were received on 05/24/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

ALS Group, USA

Date: 25-May-18

Client: Jacobs
Project: PMC
WorkOrder: **18051688**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter

ALS Group, USA

Date: *25-May-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-44
Collection Date: 5/22/2018 05:45 PM

Work Order: 18051688
Lab ID: 18051688-01
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **EMR**
Trichloroethene	**3.9**		**0.33**	**1.0**	**µg/L**	1	5/25/2018 09:29
Surr: 1,2-Dichloroethane-d4	*98.2*			*75-120*	*%REC*	1	5/25/2018 09:29
Surr: 4-Bromofluorobenzene	*93.8*			*80-110*	*%REC*	1	5/25/2018 09:29
Surr: Dibromofluoromethane	*97.4*			*85-115*	*%REC*	1	5/25/2018 09:29
Surr: Toluene-d8	*93.5*			*85-110*	*%REC*	1	5/25/2018 09:29

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Jacobs

Work Order: 18051688

Project: PMC

QC BATCH REPORT

Batch ID: **R236613** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **VBLKW3-180524-R236613** Units: **µg/L** Analysis Date: **5/25/2018 07:20 AM**

Client ID: Run ID: **VMS8_180524C** SeqNo: **5055646** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	U	1.0								
Surr: 1,2-Dichloroethane-d4	*19.95*	0	*20*	0	*99.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*18.37*	0	*20*	0	*91.8*	*80-110*	0			
Surr: Dibromofluoromethane	*19.92*	0	*20*	0	*99.6*	*85-115*	0			
Surr: Toluene-d8	*18.78*	0	*20*	0	*93.9*	*85-110*	0			

LCS Sample ID: **VLCSW3-180524-R236613** Units: **µg/L** Analysis Date: **5/25/2018 06:49 AM**

Client ID: Run ID: **VMS8_180524C** SeqNo: **5055645** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	19.43	1.0	20	0	97.2	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.03*	0	*20*	0	*95.2*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.4*	0	*20*	0	*97*	*80-110*	0			
Surr: Dibromofluoromethane	*19.34*	0	*20*	0	*96.7*	*85-115*	0			
Surr: Toluene-d8	*19.42*	0	*20*	0	*97.1*	*85-110*	0			

MS Sample ID: **18051388-06A MS** Units: **µg/L** Analysis Date: **5/25/2018 12:59 PM**

Client ID: Run ID: **VMS8_180524C** SeqNo: **5055666** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	18.79	1.0	20	0	94	84-130	0			
Surr: 1,2-Dichloroethane-d4	*19.46*	0	*20*	0	*97.3*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*19.73*	0	*20*	0	*98.6*	*80-110*	0			
Surr: Dibromofluoromethane	*20.5*	0	*20*	0	*102*	*85-115*	0			
Surr: Toluene-d8	*19.55*	0	*20*	0	*97.8*	*85-110*	0			

MSD Sample ID: **18051388-06A MSD** Units: **µg/L** Analysis Date: **5/25/2018 01:15 PM**

Client ID: Run ID: **VMS8_180524C** SeqNo: **5055667** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	21.18	1.0	20	0	106	84-130	18.79	12	30	
Surr: 1,2-Dichloroethane-d4	*20.05*	0	*20*	0	*100*	*75-120*	19.46	*2.99*	*30*	
Surr: 4-Bromofluorobenzene	*18.72*	0	*20*	0	*93.6*	*80-110*	19.73	*5.25*	*30*	
Surr: Dibromofluoromethane	*20.36*	0	*20*	0	*102*	*85-115*	20.5	*0.685*	*30*	
Surr: Toluene-d8	*18.76*	0	*20*	0	*93.8*	*85-110*	19.55	*4.12*	*30*	

The following samples were analyzed in this batch: 18051688-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

USEPA CLP COC (LAB COPY)
DateShipped: 5/23/2018
CarrierName: FedEx
AirbillNo: 781099285687

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052318-132231-0006
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-CMW-01-VAS/15.0-20.0-052218	18CP02-44	Ground Water/ CH2M	Grab	VOC_TCE(21 Hours) 21	A (HCl pH<2 4C) (3)	PMC-CMW-01	05/22/2018 17:45	

Special Instructions: 24 hr TAT

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: VOC_TCE=VOCs - TCE only

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	FedEx	5/23 0800	FedEx		
	FedEx	5/24/18 1030	AIS		

SR2 4.0°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **24-May-18 10:30**

Work Order: **18051688** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 24-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/24/2018 3:28:24 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental

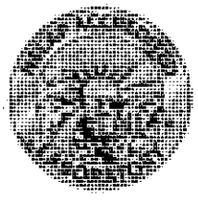
Work Order: 18051778

Project Name:
PMC

Jacobs

Heather Hodach
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

03-Jul-2018



Certificate No: MI: 0022

Contents

Section I: Case Narrative

Section II: Sample Receipt

Section III: Analytical Data

Section IV: Attachments

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Section I

CASE NARRATIVE

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ALS Group, USA

Date: 03-Jul-18

Client:	Jacobs
Project:	PMC
Work Order:	18051778

Case Narrative

Samples for the above noted Work Order were received on 05/25/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch R237279A, Method VOC_8260_W, Sample VLCSW4-180601: The LCS recovery was above the upper control limit for 1,2-Dichloroethane. All the sample results in the batch were non-detect. No qualification is required.

Wet Chemistry:

Batch R237238, Method TOC_WBLK_S, Sample 18051778-06C MS/MSD: The MS/MSD recovery was below the lower control limit for TOC. The corresponding result in the parent sample may be biased low.

Section II

SAMPLE RECEIPT

-Sample Summary

-Shipping Documents*

-Chain of Custody

-Receipt Checklist

(* = As applicable)

ALS Group, USA

Date: 03-Jul-18

Client: Jacobs
Project: PMC
Work Order: **18051778**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051778-01	18CP02-46	Soil		5/23/2018 16:50	5/25/2018 09:30	☐
18051778-02	18CP02-47	Soil		5/24/2018 14:45	5/25/2018 09:30	☐
18051778-03	18CP02-48	Water		5/24/2018 14:40	5/25/2018 09:30	☐
18051778-04	18CP02-49	Groundwater		5/24/2018 14:10	5/25/2018 09:30	☐
18051778-05	18CP02-50	Groundwater		5/24/2018 14:15	5/25/2018 09:30	☐
18051778-06	18CP02-51	Soil		5/24/2018 11:55	5/25/2018 09:30	☐
18051778-07	18CP02-52	Soil		5/24/2018 12:00	5/25/2018 09:30	☐
18051778-08	18CP02-53	Groundwater		5/24/2018 16:00	5/25/2018 09:30	☐

18051778

USEPA CLP COC (LAB COPY)
DateShipped: 5/24/2018
CarrierName: FedEx
AirbillNo: 7811 1892 5418

CHAIN OF CUSTODY RECORD

Case #:
Cooler #:

No: 5-052418-150543-0008
Lab: ALS Laboratory Group - Holland
Lab Contact: Chad Whelton
Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-CMW-02-SO/29.0-30.0-052318	18CP02-46	Soil/ CH2M	Grab	MET(21)	A (4 C) (1)	PMC-CMW-02	05/23/2018 16:50	
PMC-TB-10-052418	18CP02-47	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/24/2018 14:45	
PMC-TB-09-052418	18CP02-48	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (2)	PMC-TB	05/24/2018 14:40	
PMC-SVB-05-GW/9.7-14.7-052418	18CP02-49	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-05	05/24/2018 14:10	
PMC-SVB-05-GW/9.7-14.7-052418-FD	18CP02-50	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-05	05/24/2018 14:15	
PMC-SVB-05-SO/3.5-4.0-052418	18CP02-51	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (HCl pH<2 4C), B (4 C) (4)	PMC-SVB-05	05/24/2018 11:55	
PMC-SVB-05-SO/14.5-15.0-052418	18CP02-52	Soil/ CH2M	Grab	PNOD(21), TOC(21), MET(21)	A (4 C), B (4 C), C (4 C) (5)	PMC-SVB-05	05/24/2018 12:00	
PMC-SVB-06-GW/5.0-10.0-052418	18CP02-53	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-06	05/24/2018 16:00	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: MET=TAL Metals, VOC_s=TCL VOCs (soil), VOC=TCL VOCs (groundwater), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Anne Leeney Kjaer FEDEX	5/24/18 1730	FedEx		
	FEDEX	5/25/18 0930	ALS		

SRL 5.4°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **25-May-18 09:30**

Work Order: **18051778** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 25-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Soil & Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.4/5.4 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/25/2018 2:27:16 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Section III

Analytical Data

-Analysis Data Sheet

-QC Summary

-QC Batch Report

-Summary Forms (if applicable)

-Raw Data

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Raw Data Format

Organic Ordering

-Field Sample Data

-Calibration Data

-Initial

-Continuing

-Instrument QC Data (BFB, DFTPP, etc. as applicable)

-QC Data

-Sequence Logs

-Extraction Logs

Inorganic Ordering

-Instrument Data

-Digestion/Preparation Data

-Calculation Data (if applicable)

Organic

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GC/MS
Volatile Organics

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1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-51

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-06A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: µg/Kg-dry	Q
67-64-1	Acetone	120	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-47

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg	Q
71-55-6	1,1,1-Trichloroethane	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
78-93-3	2-Butanone	10	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	5.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	5.0	U
74-97-5	Bromochloromethane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
75-25-2	Bromoform	5.0	U
74-83-9	Bromomethane	10	U
75-15-0	Carbon disulfide	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
108-90-7	Chlorobenzene	5.0	U
75-00-3	Chloroethane	5.0	U
67-66-3	Chloroform	5.0	U
74-87-3	Chloromethane	10	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-47

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-02A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg	Q
110-82-7	Cyclohexane	10	U
124-48-1	Dibromochloromethane	5.0	U
75-71-8	Dichlorodifluoromethane	10	U
100-41-4	Ethylbenzene	5.0	U
98-82-8	Isopropylbenzene	5.0	U
136777-61-2	m,p-Xylene	2.5	U
79-20-9	Methyl acetate	10	U
1634-04-4	Methyl tert-butyl ether	5.0	U
108-87-2	Methylcyclohexane	10	U
75-09-2	Methylene chloride	3.0	J
95-47-6	o-Xylene	2.5	U
100-42-5	Styrene	5.0	U
127-18-4	Tetrachloroethene	5.0	U
108-88-3	Toluene	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-01-6	Trichloroethene	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
1330-20-7	Xylenes, Total	5.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-51

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-06A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 11 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.95

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
71-55-6	1,1,1-Trichloroethane	5.3	U
79-34-5	1,1,2,2-Tetrachloroethane	5.3	U
79-00-5	1,1,2-Trichloroethane	5.3	U
76-13-1	1,1,2-Trichlorotrifluoroeth	5.3	U
75-34-3	1,1-Dichloroethane	5.3	U
75-35-4	1,1-Dichloroethene	5.3	U
87-61-6	1,2,3-Trichlorobenzene	5.3	U
120-82-1	1,2,4-Trichlorobenzene	5.3	U
96-12-8	1,2-Dibromo-3-chloropropane	5.3	U
106-93-4	1,2-Dibromoethane	5.3	U
95-50-1	1,2-Dichlorobenzene	5.3	U
107-06-2	1,2-Dichloroethane	5.3	U
78-87-5	1,2-Dichloropropane	5.3	U
541-73-1	1,3-Dichlorobenzene	5.3	U
106-46-7	1,4-Dichlorobenzene	5.3	U
78-93-3	2-Butanone	11	U
591-78-6	2-Hexanone	5.3	U
108-10-1	4-Methyl-2-pentanone	5.3	U
71-43-2	Benzene	5.3	U
74-97-5	Bromochloromethane	5.3	U
75-27-4	Bromodichloromethane	5.3	U
75-25-2	Bromoform	5.3	U
74-83-9	Bromomethane	11	U
75-15-0	Carbon disulfide	5.3	U
56-23-5	Carbon tetrachloride	5.3	U
108-90-7	Chlorobenzene	5.3	U
75-00-3	Chloroethane	5.3	U
67-66-3	Chloroform	5.3	U
74-87-3	Chloromethane	11	U
156-59-2	cis-1,2-Dichloroethene	5.3	U
10061-01-5	cis-1,3-Dichloropropene	5.3	U
110-82-7	Cyclohexane	11	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-51

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-06A

Sample wt/vol: 5.00 (g/mL) g Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 11 Date Analyzed: 5/31/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 0.95

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/Kg-dry	Q
124-48-1	Dibromochloromethane	5.3	U
75-71-8	Dichlorodifluoromethane	11	U
100-41-4	Ethylbenzene	5.3	U
98-82-8	Isopropylbenzene	5.3	U
136777-61-2	m,p-Xylene	2.7	U
79-20-9	Methyl acetate	11	U
1634-04-4	Methyl tert-butyl ether	5.3	U
108-87-2	Methylcyclohexane	11	U
75-09-2	Methylene chloride	5.3	U
95-47-6	o-Xylene	2.7	U
100-42-5	Styrene	5.3	U
127-18-4	Tetrachloroethene	5.3	U
108-88-3	Toluene	1.0	J
156-60-5	trans-1,2-Dichloroethene	5.3	U
10061-02-6	trans-1,3-Dichloropropene	5.3	U
79-01-6	Trichloroethene	3.4	J
75-69-4	Trichlorofluoromethane	5.3	U
75-01-4	Vinyl chloride	5.3	U
1330-20-7	Xylenes, Total	5.3	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-48

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-48

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-03A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-49

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-04A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-49

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-04A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	5.4	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-50

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-50

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-05A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	5.5	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18CP02-53

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-08A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
76-13-1	1,1,2-Trichlorotrifluoroeth	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
87-61-6	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
78-93-3	2-Butanone	5.0	U
591-78-6	2-Hexanone	5.0	U
108-10-1	4-Methyl-2-pentanone	1.0	U
67-64-1	Acetone	10	U
71-43-2	Benzene	0.44	J
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
75-15-0	Carbon disulfide	1.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U

1A

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

18CP02-53

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No.: SAS No.: SDG No. 18051778

Matrix: Water Lab Sample ID: 18051778-08A

Sample wt/vol: 5.00 (g/mL) mL Lab File ID:

Level: (low/med) low Date Received: 5/25/2018

% Moisture: not dec. 0 Date Analyzed: 6/2/2018

GC Column: DB624 ID: 0.18 (mm Dilution Factor: 1.00

Soil Extract Volume: _____ (mL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	µg/L	Q
110-82-7	Cyclohexane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
98-82-8	Isopropylbenzene	1.0	U
136777-61-2	m,p-Xylene	2.0	U
79-20-9	Methyl acetate	2.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
108-87-2	Methylcyclohexane	1.0	U
75-09-2	Methylene chloride	5.0	U
95-47-6	o-Xylene	1.0	U
100-42-5	Styrene	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.95	J
156-60-5	trans-1,2-Dichloroethene	1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-01-6	Trichloroethene	2.0	
75-69-4	Trichlorofluoromethane	1.0	U
75-01-4	Vinyl chloride	1.0	U
1330-20-7	Xylenes, Total	3.0	U

ALS Group, USA

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **118957** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **MBLK-118957-118957** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 03:35 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060577** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	U	100	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	*1138*	0	*1000*	0	*114*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1050*	0	*1000*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*956*	0	*1000*	0	*95.6*	*70-130*	0			
Surr: Toluene-d8	*1020*	0	*1000*	0	*102*	*70-130*	0			

LCS Sample ID: **LCS-118957-118957** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 05:51 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060591** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1077	100	1000	0	108	20-160	0			
Surr: 1,2-Dichloroethane-d4	*1096*	0	*1000*	0	*110*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1046*	0	*1000*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*958*	0	*1000*	0	*95.8*	*70-130*	0			
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0			

MS Sample ID: **18051776-01A MS** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 06:13 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060593** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1296	130	1273	0	102	20-160	0			
Surr: 1,2-Dichloroethane-d4	*1422*	0	*1273*	0	*112*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1376*	0	*1273*	0	*108*	*70-130*	0			
Surr: Dibromofluoromethane	*1231*	0	*1273*	0	*96.8*	*70-130*	0			
Surr: Toluene-d8	*1298*	0	*1273*	0	*102*	*70-130*	0			

MSD Sample ID: **18051776-01A MSD** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 06:36 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060595** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1352	130	1273	0	106	20-160	1296	4.18	30	
Surr: 1,2-Dichloroethane-d4	*1415*	0	*1273*	0	*111*	*70-130*	1422	*0.494*	*30*	
Surr: 4-Bromofluorobenzene	*1309*	0	*1273*	0	*103*	*70-130*	1376	*4.98*	*30*	
Surr: Dibromofluoromethane	*1254*	0	*1273*	0	*98.6*	*70-130*	1231	*1.84*	*30*	
Surr: Toluene-d8	*1284*	0	*1273*	0	*101*	*70-130*	1298	*1.13*	*30*	

The following samples were analyzed in this batch: 18051778-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MBLK Sample ID: **VBLKS1-180531-R236992** Units: **µg/Kg** Analysis Date: **5/31/2018 12:59 PM**
Client ID: Run ID: **VMS10_180531A** SeqNo: **5065091** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	1.68	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*20.83*	0	*20*	0	*104*	*83-132*	0
Surr: 4-Bromofluorobenzene	*20.12*	0	*20*	0	*101*	*83-111*	0
Surr: Dibromofluoromethane	*19.73*	0	*20*	0	*98.6*	*77-125*	0
Surr: Toluene-d8	*20.09*	0	*20*	0	*100*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

LCS	Sample ID: VLCSS1-180531-R236992			Units: µg/Kg			Analysis Date: 5/31/2018 11:06 AM			
Client ID:	Run ID: VMS10_180531A			SeqNo: 5065089		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.56	5.0	20	0	103	73-138	0			
1,1,2,2-Tetrachloroethane	18.67	5.0	20	0	93.4	71-126	0			
1,1,2-Trichloroethane	20.61	5.0	20	0	103	77-123	0			
1,1-Dichloroethane	20.12	5.0	20	0	101	63-148	0			
1,1-Dichloroethene	21.19	5.0	20	0	106	67-156	0			
1,2,3-Trichlorobenzene	18.41	5.0	20	0	92	73-129	0			
1,2,4-Trichlorobenzene	19.54	5.0	20	0	97.7	70-132	0			
1,2-Dibromo-3-chloropropane	17.49	5.0	20	0	87.4	48-127	0			
1,2-Dibromoethane	21.86	5.0	20	0	109	71-144	0			
1,2-Dichlorobenzene	18.6	5.0	20	0	93	77-127	0			
1,2-Dichloroethane	19.67	5.0	20	0	98.4	77-127	0			
1,2-Dichloropropane	20.37	5.0	20	0	102	74-130	0			
1,3-Dichlorobenzene	18.87	5.0	20	0	94.4	75-133	0			
1,4-Dichlorobenzene	19.54	5.0	20	0	97.7	74-130	0			
2-Butanone	17.62	10	20	0	88.1	55-132	0			
2-Hexanone	16.96	5.0	20	0	84.8	55-124	0			
4-Methyl-2-pentanone	22.22	5.0	20	0	111	67-159	0			
Acetone	19.32	10	20	0	96.6	31-156	0			
Benzene	19.63	5.0	20	0	98.2	77-133	0			
Bromochloromethane	20.71	5.0	20	0	104	72-139	0			
Bromodichloromethane	17.7	5.0	20	0	88.5	69-133	0			
Bromoform	16.28	5.0	20	0	81.4	55-126	0			
Bromomethane	16.73	10	20	0	83.6	31-174	0			
Carbon disulfide	18.3	5.0	20	0	91.5	45-160	0			
Carbon tetrachloride	20.55	5.0	20	0	103	69-140	0			
Chlorobenzene	19.7	5.0	20	0	98.5	76-130	0			
Chloroethane	19.23	5.0	20	0	96.2	53-150	0			
Chloroform	21.25	5.0	20	0	106	72-132	0			
Chloromethane	17.93	10	20	0	89.6	43-150	0			
cis-1,2-Dichloroethene	21.99	5.0	20	0	110	74-134	0			
cis-1,3-Dichloropropene	20.19	5.0	20	0	101	62-134	0			
Dibromochloromethane	18.93	5.0	20	0	94.6	57-118	0			
Dichlorodifluoromethane	14.08	10	20	0	70.4	43-126	0			
Ethylbenzene	20	5.0	20	0	100	75-133	0			
Isopropylbenzene	20.4	5.0	20	0	102	74-137	0			
m,p-Xylene	40.97	2.5	40	0	102	75-134	0			
Methyl tert-butyl ether	22.1	5.0	20	0	110	62-136	0			
Methylene chloride	19.81	5.0	20	0	99	55-157	0			
o-Xylene	20.62	2.5	20	0	103	76-130	0			
Styrene	20.42	5.0	20	0	102	72-138	0			
Tetrachloroethene	20.85	5.0	20	0	104	70-171	0			
Toluene	19.19	5.0	20	0	96	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	20.45	5.0	20	0	102	65-137	0
trans-1,3-Dichloropropene	19.64	5.0	20	0	98.2	58-126	0
Trichloroethene	20.17	5.0	20	0	101	75-135	0
Trichlorofluoromethane	16.63	5.0	20	0	83.2	62-136	0
Vinyl chloride	17.79	5.0	20	0	89	57-143	0
Xylenes, Total	61.59	5.0	60	0	103	75-132	0
Surr: 1,2-Dichloroethane-d4	*20.36*	0	*20*	0	*102*	*83-132*	0
Surr: 4-Bromofluorobenzene	*20.53*	0	*20*	0	*103*	*83-111*	0
Surr: Dibromofluoromethane	*20.57*	0	*20*	0	*103*	*77-125*	0
Surr: Toluene-d8	*19.84*	0	*20*	0	*99.2*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Client: Jacobs
Work Order: 18051778
Project: PMC

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MS Sample ID: **18051930-01A MS** Units: **µg/Kg** Analysis Date: **5/31/2018 09:27 PM**
Client ID: Run ID: **VMS10_180531A** SeqNo: **5065130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	15.01	5.0	20	0	75	73-138	0			
1,1,2,2-Tetrachloroethane	13.07	5.0	20	0	65.4	71-126	0			S
1,1,2-Trichloroethane	15.53	5.0	20	0	77.6	77-123	0			
1,1-Dichloroethane	15.13	5.0	20	0	75.6	63-148	0			
1,1-Dichloroethene	16.04	5.0	20	0	80.2	67-156	0			
1,2,3-Trichlorobenzene	4.34	5.0	20	0	21.7	73-129	0			JS
1,2,4-Trichlorobenzene	4.38	5.0	20	0	21.9	70-132	0			JS
1,2-Dibromo-3-chloropropane	11.75	5.0	20	0	58.8	48-127	0			
1,2-Dibromoethane	16.09	5.0	20	0	80.4	71-144	0			
1,2-Dichlorobenzene	7.76	5.0	20	0	38.8	77-127	0			S
1,2-Dichloroethane	16.51	5.0	20	0	82.6	77-127	0			
1,2-Dichloropropane	14.93	5.0	20	0	74.6	74-130	0			
1,3-Dichlorobenzene	7.46	5.0	20	0	37.3	75-133	0			S
1,4-Dichlorobenzene	7.75	5.0	20	0	38.8	74-130	0			S
2-Butanone	32.45	10	20	0	162	55-132	0			S
2-Hexanone	17.12	5.0	20	0	85.6	55-124	0			
4-Methyl-2-pentanone	15.12	5.0	20	0	75.6	67-159	0			
Acetone	218.2	10	20	0	1090	31-156	0			SE
Benzene	13.9	5.0	20	0	69.5	77-133	0			S
Bromochloromethane	16.47	5.0	20	0	82.4	72-139	0			
Bromodichloromethane	12.25	5.0	20	0	61.2	69-133	0			S
Bromoform	11.01	5.0	20	0	55	55-126	0			
Bromomethane	10.54	10	20	0	52.7	31-174	0			
Carbon disulfide	12.02	5.0	20	0	60.1	45-160	0			
Carbon tetrachloride	14.36	5.0	20	0	71.8	69-140	0			
Chlorobenzene	11.34	5.0	20	0	56.7	76-130	0			S
Chloroethane	14.46	5.0	20	0	72.3	53-150	0			
Chloroform	15.36	5.0	20	0	76.8	72-132	0			
Chloromethane	11.72	10	20	0	58.6	43-150	0			
cis-1,2-Dichloroethene	15.26	5.0	20	0	76.3	74-134	0			
cis-1,3-Dichloropropene	11.99	5.0	20	0	60	62-134	0			S
Dibromochloromethane	12.88	5.0	20	0	64.4	57-118	0			
Dichlorodifluoromethane	12.42	10	20	0	82.1	43-126	0			
Ethylbenzene	11.47	5.0	20	0	57.4	75-133	0			S
Isopropylbenzene	10.82	5.0	20	0	54.1	74-137	0			S
m,p-Xylene	21.84	2.5	40	0	54.6	75-134	0			S
Methyl tert-butyl ether	19.73	5.0	20	0	98.6	62-136	0			
Methylene chloride	19.93	5.0	20	0	99.6	55-157	0			
o-Xylene	11.51	2.5	20	0	57.6	76-130	0			S
Styrene	10.52	5.0	20	0	52.6	72-138	0			S
Tetrachloroethene	19.42	5.0	20	0	97.1	70-171	0			
Toluene	12.27	5.0	20	0	61.4	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	14.71	5.0	20	0	73.6	65-137	0	
trans-1,3-Dichloropropene	12.36	5.0	20	0	61.8	58-126	0	
Trichloroethene	13.73	5.0	20	0	68.6	75-135	0	S
Trichlorofluoromethane	13.11	5.0	20	0	65.6	62-136	0	
Vinyl chloride	13.71	5.0	20	0	68.6	57-143	0	
Xylenes, Total	33.35	5.0	60	0	55.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*23.17*	0	*20*	0	*116*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*20.19*	0	*20*	0	*101*	*83-111*	0	
Surr: Dibromofluoromethane	*21.08*	0	*20*	0	*105*	*77-125*	0	
Surr: Toluene-d8	*20.44*	0	*20*	0	*102*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MSD Sample ID: **18051930-01A MSD** Units: **µg/Kg** Analysis Date: **5/31/2018 09:45 PM**
Client ID: Run ID: **VMS10_180531A** SeqNo: **5065132** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12.57	5.0	20	0	62.8	73-138	15.01	17.7	30	S
1,1,2,2-Tetrachloroethane	13.06	5.0	20	0	65.3	71-126	13.07	0.0765	30	S
1,1,2-Trichloroethane	15.06	5.0	20	0	75.3	77-123	15.53	3.07	30	S
1,1-Dichloroethane	13.42	5.0	20	0	67.1	63-148	15.13	12	30	
1,1-Dichloroethene	13.75	5.0	20	0	68.8	67-156	16.04	15.4	30	
1,2,3-Trichlorobenzene	3.48	5.0	20	0	17.4	73-129	4.34	0	30	JS
1,2,4-Trichlorobenzene	3.79	5.0	20	0	19	70-132	4.38	0	30	JS
1,2-Dibromo-3-chloropropane	11.82	5.0	20	0	59.1	48-127	11.75	0.594	30	
1,2-Dibromoethane	15.3	5.0	20	0	76.5	71-144	16.09	5.03	30	
1,2-Dichlorobenzene	6.96	5.0	20	0	34.8	77-127	7.76	10.9	30	S
1,2-Dichloroethane	15.8	5.0	20	0	79	77-127	16.51	4.39	30	
1,2-Dichloropropane	13.26	5.0	20	0	66.3	74-130	14.93	11.8	30	S
1,3-Dichlorobenzene	6.88	5.0	20	0	34.4	75-133	7.46	8.09	30	S
1,4-Dichlorobenzene	7	5.0	20	0	35	74-130	7.75	10.2	30	S
2-Butanone	30.99	10	20	0	155	55-132	32.45	4.6	30	S
2-Hexanone	15.7	5.0	20	0	78.5	55-124	17.12	8.65	30	
4-Methyl-2-pentanone	12.9	5.0	20	0	64.5	67-159	15.12	15.8	30	S
Acetone	252	10	20	0	1260	31-156	218.2	14.4	30	SE
Benzene	12.23	5.0	20	0	61.2	77-133	13.9	12.8	30	S
Bromochloromethane	15.49	5.0	20	0	77.4	72-139	16.47	6.13	30	
Bromodichloromethane	11.56	5.0	20	0	57.8	69-133	12.25	5.8	30	S
Bromoform	10.65	5.0	20	0	53.2	55-126	11.01	3.32	30	S
Bromomethane	9.42	10	20	0	47.1	31-174	10.54	0	30	J
Carbon disulfide	10.1	5.0	20	0	50.5	45-160	12.02	17.4	30	
Carbon tetrachloride	12.15	5.0	20	0	60.8	69-140	14.36	16.7	30	S
Chlorobenzene	10.38	5.0	20	0	51.9	76-130	11.34	8.84	30	S
Chloroethane	12.19	5.0	20	0	61	53-150	14.46	17	30	
Chloroform	13.67	5.0	20	0	68.4	72-132	15.36	11.6	30	S
Chloromethane	10.39	10	20	0	52	43-150	11.72	12	30	
cis-1,2-Dichloroethene	13	5.0	20	0	65	74-134	15.26	16	30	S
cis-1,3-Dichloropropene	9.93	5.0	20	0	49.6	62-134	11.99	18.8	30	S
Dibromochloromethane	12.22	5.0	20	0	61.1	57-118	12.88	5.26	30	
Dichlorodifluoromethane	10.09	10	20	0	50.4	43-126	12.42	20.7	30	
Ethylbenzene	9.93	5.0	20	0	49.6	75-133	11.47	14.4	30	S
Isopropylbenzene	9.52	5.0	20	0	47.6	74-137	10.82	12.8	30	S
m,p-Xylene	19.09	2.5	40	0	47.7	75-134	21.84	13.4	30	S
Methyl tert-butyl ether	18.62	5.0	20	0	93.1	62-136	19.73	5.79	30	
Methylene chloride	18.61	5.0	20	0	93	55-157	19.93	6.65	30	
o-Xylene	10.26	2.5	20	0	51.3	76-130	11.51	11.5	30	S
Styrene	9.13	5.0	20	0	45.6	72-138	10.52	14.1	30	S
Tetrachloroethene	15.32	5.0	20	0	76.6	70-171	19.42	23.6	30	
Toluene	10.4	5.0	20	0	52	76-130	12.27	16.5	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	13.08	5.0	20	0	65.4	65-137	14.71	11.7	30	
trans-1,3-Dichloropropene	10.74	5.0	20	0	53.7	58-126	12.36	14	30	S
Trichloroethene	12.13	5.0	20	0	60.6	75-135	13.73	12.4	30	S
Trichlorofluoromethane	11.11	5.0	20	0	55.6	62-136	13.11	16.5	30	S
Vinyl chloride	11.59	5.0	20	0	58	57-143	13.71	16.8	30	
Xylenes, Total	29.35	5.0	60	0	48.9	75-132	33.35	12.8	30	S
Surr: 1,2-Dichloroethane-d4	*23.85*	0	*20*	0	*119*	*83-132*	23.17	*2.89*	*30*	
Surr: 4-Bromofluorobenzene	*19.67*	0	*20*	0	*98.4*	*83-111*	20.19	*2.61*	*30*	
Surr: Dibromofluoromethane	*21.7*	0	*20*	0	*108*	*77-125*	21.08	*2.9*	*30*	
Surr: Toluene-d8	*19.96*	0	*20*	0	*99.8*	*86-108*	20.44	*2.38*	*30*	

The following samples were analyzed in this batch:

18051778-02A	18051778-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-180601-R237279A** Units: µg/L Analysis Date: **6/2/2018 12:27 PM**
Client ID: Run ID: **VMS11_180601B** SeqNo: **5070742** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*23.1*	0	*20*	0	*116*	*75-120*	0
Surr: 4-Bromofluorobenzene	*21.01*	0	*20*	0	*105*	*80-110*	0
Surr: Dibromofluoromethane	*19.79*	0	*20*	0	*99*	*85-115*	0
Surr: Toluene-d8	*20.2*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

LCS Sample ID: **VLCSW4-180601-R237279A** Units: µg/L Analysis Date: **6/1/2018 11:43 PM**
Client ID: Run ID: **VMS11_180601B** SeqNo: **5070714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.04	1.0	20	0	115	75-130	0			
1,1,2,2-Tetrachloroethane	21.67	1.0	20	0	108	75-130	0			
1,1,2-Trichloroethane	20.1	1.0	20	0	100	75-125	0			
1,1-Dichloroethane	22.27	1.0	20	0	111	68-142	0			
1,1-Dichloroethene	25.81	1.0	20	0	129	70-145	0			
1,2,3-Trichlorobenzene	19.56	1.0	20	0	97.8	70-140	0			
1,2,4-Trichlorobenzene	19.57	1.0	20	0	97.8	70-135	0			
1,2-Dibromo-3-chloropropane	15.44	1.0	20	0	77.2	60-130	0			
1,2-Dibromoethane	22.6	1.0	20	0	113	67-155	0			
1,2-Dichlorobenzene	19.59	1.0	20	0	98	70-130	0			
1,2-Dichloroethane	25.45	1.0	20	0	127	78-125	0			S
1,2-Dichloropropane	22.93	1.0	20	0	115	75-125	0			
1,3-Dichlorobenzene	19.6	1.0	20	0	98	75-130	0			
1,3-Dichloropropane	22.38	1.0	20	0	112	75-125	0			
1,4-Dichlorobenzene	20.38	1.0	20	0	102	75-130	0			
2-Butanone	21.36	5.0	20	0	107	55-150	0			
2-Hexanone	21.6	5.0	20	0	108	60-135	0			
4-Methyl-2-pentanone	27.95	1.0	20	0	140	77-178	0			
Acetone	20.58	10	20	0	103	60-160	0			
Benzene	22.54	1.0	20	0	113	85-125	0			
Bromochloromethane	23.68	1.0	20	0	118	72-141	0			
Bromodichloromethane	20.84	1.0	20	0	104	75-125	0			
Bromoform	15.92	1.0	20	0	79.6	60-125	0			
Bromomethane	15.81	1.0	20	0	79	30-185	0			
Carbon disulfide	20.94	1.0	20	0	105	60-165	0			
Carbon tetrachloride	21.47	1.0	20	0	107	65-140	0			
Chlorobenzene	20.56	1.0	20	0	103	80-120	0			
Chloroethane	18.67	1.0	20	0	93.4	50-140	0			
Chloroform	21.58	1.0	20	0	108	80-130	0			
Chloromethane	21.64	1.0	20	0	108	46-148	0			
cis-1,2-Dichloroethene	22.9	1.0	20	0	114	75-134	0			
Dibromochloromethane	17.62	1.0	20	0	88.1	60-115	0			
Dichlorodifluoromethane	16.21	1.0	20	0	81	20-120	0			
Ethylbenzene	22.09	1.0	20	0	110	76-123	0			
Isopropylbenzene	21.42	1.0	20	0	107	80-127	0			
m,p-Xylene	44.33	2.0	40	0	111	75-130	0			
Methyl tert-butyl ether	20.49	1.0	20	0	102	68-129	0			
Methylene chloride	25.17	5.0	20	0	126	75-140	0			
o-Xylene	22.21	1.0	20	0	111	76-127	0			
Styrene	21.72	1.0	20	0	109	83-137	0			
Tetrachloroethene	19.62	1.0	20	0	98.1	68-166	0			
Toluene	21.73	1.0	20	0	109	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	23.87	1.0	20	0	119	80-140	0
trans-1,3-Dichloropropene	21.11	1.0	20	0	106	56-132	0
Trichloroethene	20.61	1.0	20	0	103	84-130	0
Trichlorofluoromethane	20.04	1.0	20	0	100	60-140	0
Vinyl chloride	18.87	1.0	20	0	94.4	50-136	0
Xylenes, Total	66.54	3.0	60	0	111	76-127	0
Surr: 1,2-Dichloroethane-d4	*23.02*	0	*20*	0	*115*	*75-120*	0
Surr: 4-Bromofluorobenzene	*21.9*	0	*20*	0	*110*	*80-110*	0
Surr: Dibromofluoromethane	*19.93*	0	*20*	0	*99.6*	*85-115*	0
Surr: Toluene-d8	*20.13*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MS Sample ID: **18051738-03A MS** Units: **µg/L** Analysis Date: **6/2/2018 08:10 AM**
Client ID: Run ID: **VMS11_180601B** SeqNo: **5070740** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	221.5	10	200	0	111	75-130	0			
1,1,2,2-Tetrachloroethane	204.5	10	200	0	102	75-130	0			
1,1,2-Trichloroethane	188.2	10	200	0	94.1	75-125	0			
1,1-Dichloroethane	215.6	10	200	0	108	68-142	0			
1,1-Dichloroethene	235.9	10	200	0	118	70-145	0			
1,2,3-Trichlorobenzene	177	10	200	0	88.5	70-140	0			
1,2,4-Trichlorobenzene	178.9	10	200	0	89.4	70-135	0			
1,2-Dibromo-3-chloropropane	153.2	10	200	0	76.6	60-130	0			
1,2-Dibromoethane	212.9	10	200	0	106	67-155	0			
1,2-Dichlorobenzene	189.2	10	200	0	94.6	70-130	0			
1,2-Dichloroethane	240	10	200	0	120	78-125	0			
1,2-Dichloropropane	216.1	10	200	0	108	75-125	0			
1,3-Dichlorobenzene	184.6	10	200	0	92.3	75-130	0			
1,3-Dichloropropane	216.7	10	200	0	108	75-125	0			
1,4-Dichlorobenzene	191	10	200	0	95.5	75-130	0			
2-Butanone	221.9	50	200	0	111	55-150	0			
2-Hexanone	209.7	50	200	0	105	60-135	0			
4-Methyl-2-pentanone	267	10	200	0	134	77-178	0			
Acetone	236	100	200	0	118	60-160	0			
Benzene	217.7	10	200	0	109	85-125	0			
Bromochloromethane	226	10	200	0	113	72-141	0			
Bromodichloromethane	192.9	10	200	0	96.4	75-125	0			
Bromoform	149	10	200	0	74.5	60-125	0			
Bromomethane	58.9	10	200	0	29.4	30-185	0			S
Carbon disulfide	194.7	10	200	0	97.4	60-165	0			
Carbon tetrachloride	208.5	10	200	0	104	65-140	0			
Chlorobenzene	199.9	10	200	0	100	80-120	0			
Chloroethane	181.4	10	200	0	90.7	50-140	0			
Chloroform	207.7	10	200	0	104	80-130	0			
Chloromethane	191	10	200	0	95.5	46-148	0			
cis-1,2-Dichloroethene	218.7	10	200	0	109	75-134	0			
Dibromochloromethane	164.9	10	200	0	82.4	60-115	0			
Dichlorodifluoromethane	158.9	10	200	0	79.4	20-120	0			
Ethylbenzene	248.3	10	200	31.7	108	76-123	0			
Isopropylbenzene	206.3	10	200	4.7	101	80-127	0			
m,p-Xylene	470.1	20	400	43.5	107	75-130	0			
Methyl tert-butyl ether	195.3	10	200	0	97.6	68-129	0			
Methylene chloride	238	50	200	0	119	75-140	0			
o-Xylene	223.3	10	200	5.3	109	76-127	0			
Styrene	205.3	10	200	0	103	83-137	0			
Tetrachloroethene	188.4	10	200	0	94.2	68-166	0			
Toluene	213.9	10	200	3.7	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	233.8	10	200	0	117	80-140	0
trans-1,3-Dichloropropene	186.7	10	200	0	93.4	56-132	0
Trichloroethene	203.7	10	200	0	102	84-130	0
Trichlorofluoromethane	192.9	10	200	0	96.4	60-140	0
Vinyl chloride	175	10	200	0	87.5	50-136	0
Xylenes, Total	693.4	30	600	48.8	107	76-127	0
Surr: 1,2-Dichloroethane-d4	*226.3*	0	*200*	0	*113*	*75-120*	0
Surr: 4-Bromofluorobenzene	*216.8*	0	*200*	0	*108*	*80-110*	0
Surr: Dibromofluoromethane	*191.5*	0	*200*	0	*95.8*	*85-115*	0
Surr: Toluene-d8	*198.8*	0	*200*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MSD Sample ID: **18051738-03A MSD** Units: µg/L Analysis Date: **6/2/2018 08:32 AM**
Client ID: Run ID: **VMS11_180601B** SeqNo: **5070741** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	230.5	10	200	0	115	75-130	221.5	3.98	30	
1,1,2,2-Tetrachloroethane	217	10	200	0	108	75-130	204.5	5.93	30	
1,1,2-Trichloroethane	195.9	10	200	0	98	75-125	188.2	4.01	30	
1,1-Dichloroethane	221.4	10	200	0	111	68-142	215.6	2.65	30	
1,1-Dichloroethene	245	10	200	0	122	70-145	235.9	3.78	30	
1,2,3-Trichlorobenzene	187.2	10	200	0	93.6	70-140	177	5.6	30	
1,2,4-Trichlorobenzene	187.7	10	200	0	93.8	70-135	176.9	5.92	30	
1,2-Dibromo-3-chloropropane	160.2	10	200	0	80.1	60-130	153.2	4.47	30	
1,2-Dibromoethane	215.3	10	200	0	108	67-155	212.9	1.12	30	
1,2-Dichlorobenzene	194.1	10	200	0	97	70-130	189.2	2.56	30	
1,2-Dichloroethane	253.1	10	200	0	127	78-125	240	5.31	30	S
1,2-Dichloropropane	223.6	10	200	0	112	75-125	216.1	3.41	30	
1,3-Dichlorobenzene	189.6	10	200	0	94.8	75-130	184.6	2.67	30	
1,3-Dichloropropane	225	10	200	0	112	75-125	216.7	3.76	30	
1,4-Dichlorobenzene	202.1	10	200	0	101	75-130	191	5.65	30	
2-Butanone	220.2	50	200	0	110	55-150	221.9	0.769	30	
2-Hexanone	220.7	50	200	0	110	60-135	209.7	5.11	30	
4-Methyl-2-pentanone	276.4	10	200	0	138	77-178	267	3.46	30	
Acetone	248.9	100	200	0	124	60-160	236	5.32	30	
Benzene	225.7	10	200	0	113	85-125	217.7	3.61	30	
Bromochloromethane	232.1	10	200	0	116	72-141	226	2.66	30	
Bromodichloromethane	203.1	10	200	0	102	75-125	192.9	5.15	30	
Bromoform	157.1	10	200	0	78.6	60-125	149	5.29	30	
Bromomethane	79.1	10	200	0	39.6	30-185	58.9	29.3	30	
Carbon disulfide	198.4	10	200	0	99.2	60-165	194.7	1.88	30	
Carbon tetrachloride	212.7	10	200	0	106	65-140	208.5	1.99	30	
Chlorobenzene	207.9	10	200	0	104	80-120	199.9	3.92	30	
Chloroethane	195.4	10	200	0	97.7	50-140	181.4	7.43	30	
Chloroform	215.4	10	200	0	108	80-130	207.7	3.64	30	
Chloromethane	194.2	10	200	0	97.1	46-148	191	1.66	30	
cis-1,2-Dichloroethene	222.9	10	200	0	111	75-134	218.7	1.9	30	
Dibromochloromethane	173.4	10	200	0	86.7	60-115	164.9	5.03	30	
Dichlorodifluoromethane	156.4	10	200	0	78.2	20-120	158.9	1.59	30	
Ethylbenzene	253.6	10	200	31.7	111	76-123	248.3	2.11	30	
Isopropylbenzene	213.1	10	200	4.7	104	80-127	206.3	3.24	30	
m,p-Xylene	478.7	20	400	43.5	109	75-130	470.1	1.81	30	
Methyl tert-butyl ether	200.9	10	200	0	100	68-129	195.3	2.83	30	
Methylene chloride	244.1	50	200	0	122	75-140	238	2.53	30	
o-Xylene	226.6	10	200	5.3	111	76-127	223.3	1.47	30	
Styrene	212.7	10	200	0	106	83-137	205.3	3.54	30	
Tetrachloroethene	188.1	10	200	0	94	68-166	188.4	0.159	30	
Toluene	220.8	10	200	3.7	109	76-125	213.9	3.17	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	232	10	200	0	116	80-140	233.8	0.773	30
trans-1,3-Dichloropropene	197.7	10	200	0	98.8	56-132	186.7	5.72	30
Trichloroethene	211	10	200	0	106	84-130	203.7	3.52	30
Trichlorofluoromethane	193.4	10	200	0	96.7	60-140	192.9	0.259	30
Vinyl chloride	176.7	10	200	0	88.4	50-136	175	0.967	30
Xylenes, Total	705.3	30	600	48.8	109	76-127	693.4	1.7	30
Surr: 1,2-Dichloroethane-d4	*220.4*	0	*200*	0	*110*	*75-120*	226.3	*2.64*	*30*
Surr: 4-Bromofluorobenzene	*215.3*	0	*200*	0	*108*	*80-110*	216.8	*0.694*	*30*
Surr: Dibromofluoromethane	*191.2*	0	*200*	0	*95.6*	*85-115*	191.5	*0.157*	*30*
Surr: Toluene-d8	*200.6*	0	*200*	0	*100*	*85-110*	198.8	*0.901*	*30*

The following samples were analyzed in this batch:

18051778-03A	18051778-04A	18051778-05A
18051778-08A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	MBLK-118957	96	114	102	105	0
02	18051776-01A	99	111	100	107	0
03	LCS-118957	96	110	102	105	0
04	18051776-01AM	97	112	102	108	0
05	18051776-01AM	99	111	101	103	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(7-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18051778

Level: (low/med) LOW

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS01	103	102	99	103	0
02	VBLK01	99	104	100	101	0
03	18051930-01A	99	108	106	92	0
04	18CP02-47	101	108	99	101	0
05	18CP02-51	104	119	105	94	0
06	18051930-01AM	105	116	102	101	0
07	18051930-01AM	109	119	100	98	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(7-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	LCS04	100	115	101	110	0
02	VBLK02	99	116	101	105	0
03	18CP02-53	95	115	100	106	0
04	18CP02-50	96	118	98	105	0
05	18CP02-49	96	118	100	105	0
06	18CP02-48	94	114	97	106	0
07	18051738-03A	94	115	99	106	0
08	18051738-03A	96	113	99	108	0
09	18051738-03A	96	110	100	108	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(75-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: _____

Lab Code: MI01262 Case No.: _____ SAS No.: _____ SDG No.: 18051778

Level: (low/med) MED

	EPA SAMPLE NO.	SMC1 BFB #	SMC2 DCE #	SMC3 TOL #	SMC4 BFB #	TOT OUT
01	MBLK-118957	96	114	102	105	0
02	18CP02-51	93	117	98	106	0

QC LIMITS

SMC1	BFB	=	Dibromofluoromethane	(85-115)
SMC2	DCE	=	1,2-Dichloroethane-d4	(7-120)
SMC3	TOL	=	Toluene-d8	(85-110)
SMC4	BFB	=	Bromofluorobenzene	(80-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118957

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 29MAY19.D Lab Sample ID: MBLK-118957

Date Analyzed: 5/29/2018 Time Analyzed: 15:35

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS11

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	18051776-01A	18051776-01A	29MAY23.D	17:06
02	LCS-118957	LCS-118957	29MAY25.D	17:51
03	18051776-01AMS	18051776-01A MS	29MAY26.D	18:13
04	18051776-01AMSD	18051776-01A MSD	29MAY27.D	18:36

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK01

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 31MAY10.D Lab Sample ID: VBLKS1-180531

Date Analyzed: 5/31/2018 Time Analyzed: 12:59

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) Y

Instrument ID: VMS10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS01	VLCSS1-180531	31MAY06.D	11:06
02	18051930-01A	18051930-01A DF0.712	31MAY11.D	13:39
03	18CP02-47	18051778-02A	31MAY15.D	14:48
04	18CP02-51	18051778-06A DF0.947	31MAY22.D	16:51
05	18051930-01AMS	18051930-01A MS	31MAY38.D	21:27
06	18051930-01AMSD	18051930-01A MSD	31MAY39.D	21:45

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 01JUN40.D Lab Sample ID: VBLKW2-180601

Date Analyzed: 6/2/2018 Time Analyzed: 0:27

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS11

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS04	VLCSW4-180601	01JUN38.D	23:43
02	18CP02-53	18051778-08A	01JUN44.D	1:56
03	18CP02-50	18051778-05A	01JUN45.D	2:18
04	18CP02-49	18051778-04A	01JUN46.D	2:40
05	18CP02-48	18051778-03A	01JUN47.D	3:02
06	18051738-03A MS	18051738-03A MS DF10	01JUN61.D	8:10
07	18051738-03A MSD	18051738-03A MSD DF10	01JUN62.D	8:32

COMMENTS:

4A

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

MBLK-118957

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 29MAY19.D Lab Sample ID: MBLK-118957

Date Analyzed: 5/29/2018 Time Analyzed: 15:35

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VMS11

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED

COMMENTS:

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 29MAY03.D BFB Injection Date: 5/29/2018

Instrument ID: VMS11 BFB Injection Time: 9:26

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.1
75	30.0 - 66.0% of mass 95	52.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.6
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	50.0 - 120.0% of mass 95	63.5
175	4.0 - 9.0% of mass 174	5.4 (8.6)1
176	93.0 - 101.0% of mass 174	61.4 (96.8)1
177	5.0 - 9.0% of mass 176	5.5 (9.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD01	VCCV1-180529	29MAY04.D	5/29/2018	9:48
02	MBLK-118957	MBLK-118957	29MAY19.D	5/29/2018	15:35
03	18051776-01A	18051776-01A	29MAY23.D	5/29/2018	17:06
04	LCS-118957	LCS-118957	29MAY25.D	5/29/2018	17:51
05	18051776-01AMS	18051776-01A MS	29MAY26.D	5/29/2018	18:13
06	18051776-01AMS	18051776-01A MSD	29MAY27.D	5/29/2018	18:36

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 31MAY03.D BFB Injection Date: 5/31/2018

Instrument ID: VMS10 BFB Injection Time: 9:15

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) Y

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.0
75	30.0 - 66.0% of mass 95	50.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 120.0% of mass 95	77.4
175	4.0 - 9.0% of mass 174	6.3 (8.1)1
176	93.0 - 101.0% of mass 174	73.7 (95.1)1
177	5.0 - 9.0% of mass 176	4.9 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD02	VCCV2-180531	31MAY05.D	5/31/2018	10:36
02	LCS01	VLCSS1-180531	31MAY06.D	5/31/2018	11:06
03	VBLK01	VBLKS1-180531	31MAY10.D	5/31/2018	12:59
04	18051930-01A	18051930-01A DF0.712	31MAY11.D	5/31/2018	13:39
05	18CP02-47	18051778-02A	31MAY15.D	5/31/2018	14:48
06	18CP02-51	18051778-06A DF0.947	31MAY22.D	5/31/2018	16:51
07	18051930-01AMS	18051930-01A MS	31MAY38.D	5/31/2018	21:27
08	18051930-01AMS	18051930-01A MSD	31MAY39.D	5/31/2018	21:45

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID: 01JUN34.D BFB Injection Date: 6/1/2018

Instrument ID: VMS11 BFB Injection Time: 22:14

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.0
75	30.0 - 66.0% of mass 95	53.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.3 (0.4)1
174	50.0 - 120.0% of mass 95	66.7
175	4.0 - 9.0% of mass 174	3.4 (5.1)1
176	93.0 - 101.0% of mass 174	65.6 (98.5)1
177	5.0 - 9.0% of mass 176	5.8 (8.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD04	VCCV4-150601	01JUN36.D	6/1/2018	22:58
02	LCS04	VLCSW4-180601	01JUN38.D	6/1/2018	23:43
03	VBLK02	VBLKW2-180601	01JUN40.D	6/2/2018	0:27
04	18CP02-51	18051778-06A	01JUN43.D	6/2/2018	1:33
05	18CP02-53	18051778-08A	01JUN44.D	6/2/2018	1:56
06	18CP02-50	18051778-05A	01JUN45.D	6/2/2018	2:18
07	18CP02-49	18051778-04A	01JUN46.D	6/2/2018	2:40
08	18CP02-48	18051778-03A	01JUN47.D	6/2/2018	3:02
09	18051738-03A	18051738-03A DF10	01JUN56.D	6/2/2018	6:20
10	18051738-03A MS	18051738-03A MS DF1	01JUN61.D	6/2/2018	8:10
11	18051738-03A MS	18051738-03A MSD DF	01JUN62.D	6/2/2018	8:32

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 29MAY04.D Date Analyzed: 5/29/2018

Instrument ID: VMS11 Time Analyzed: 9:48

GC Column: ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	106935	4.77	194212	6.25	188553	10.81
	UPPER LIMIT	213870	5.27	388424	6.75	377106	11.31
	LOWER LIMIT	53468	4.27	97106	5.75	94277	10.31
	EPA SAMPLE NO.						
01	18051776-01A	107555	4.77	199513	6.25	194202	10.81
02	LCS-118957	111900	4.77	199999	6.25	192881	10.81
03	18051776-01A	106877	4.77	196247	6.25	190179	10.81
04	18051776-01A	106372	4.77	197900	6.25	193013	10.81

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 29MAY04.D Date Analyzed: 5/29/2018

Instrument ID: VMS11 Time Analyzed: 9:48

GC Column: ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	92528	13.42	35249	3.77		
	UPPER LIMIT	185056	12.92	70498	3.27		
	LOWER LIMIT	46264	13.92	17625	4.27		
	EPA SAMPLE NO.						
01	18051776-01A	89304	13.42	36032	3.76		
02	LCS-118957	91788	13.42	39603	3.76		
03	18051776-01A	90943	13.42	38075	3.75		
04	18051776-01A	94941	13.42	38965	3.76		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 31MAY05.D Date Analyzed: 5/31/2018

Instrument ID: VMS10 Time Analyzed: 10:36

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	58089	10.16		.00		
	UPPER LIMIT	116178	9.66		-.50		
	LOWER LIMIT	29045	10.66		.50		
	EPA SAMPLE NO.						
01	LCS01	56175	10.15	0	.00		
02	VBLK01	55227	10.15	0	.00		
03	18051930-01A	24798*	10.15	0	.00		
04	18CP02-47	54005	10.15	0	.00		
05	18CP02-51	36730	10.15	0	.00		
06	18051930-01A	48326	10.15	0	.00		
07	18051930-01A	49574	10.15	0	.00		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 31MAY05.D Date Analyzed: 5/31/2018

Instrument ID: VMS10 Time Analyzed: 10:36

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	90713	5.00	150354	6.28	127925	8.84
	UPPER LIMIT	181426	5.50	300708	6.78	255850	9.34
	LOWER LIMIT	45357	4.50	75177	5.78	63963	8.34
	EPA SAMPLE NO.						
01	LCS01	85003	5.00	140195	6.28	122997	8.85
02	VBLK01	82026	5.00	138048	6.28	118965	8.85
03	18051930-01A	54386	5.00	86771	6.28	65432	8.85
04	18CP02-47	80184	5.00	133844	6.29	115800	8.85
05	18CP02-51	71933	5.00	118990	6.29	98990	8.85
06	18051930-01A	76448	5.00	127561	6.29	109268	8.85
07	18051930-01A	77839	5.01	130038	6.29	115388	8.85

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 01JUN36.D Date Analyzed: 6/1/2018

Instrument ID: VMS11 Time Analyzed: 22:58

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): N

		IS1PFB AREA #	RT #	IS2DFB AREA #	RT #	IS3CBZ AREA #	RT #
	12 HOUR STD	86050	4.77	164238	6.25	162125	10.81
	UPPER LIMIT	172100	5.27	328476	6.75	324250	11.31
	LOWER LIMIT	43025	4.27	82119	5.75	81063	10.31
	EPA SAMPLE NO.						
01	LCS04	89629	4.77	165314	6.25	162769	10.81
02	VBLK02	86651	4.77	160723	6.25	159888	10.81
03	18CP02-51	89253	4.77	161851	6.25	162073	10.81
04	18CP02-53	87541	4.77	157667	6.25	156822	10.81
05	18CP02-50	87776	4.77	157526	6.25	159814	10.81
06	18CP02-49	86189	4.77	159793	6.25	159032	10.81
07	18CP02-48	89265	4.77	162344	6.25	161892	10.81
08	18051738-03A	92964	4.77	166666	6.25	166246	10.81
09	18051738-03A	92615	4.77	171420	6.25	169101	10.81
10	18051738-03A	93042	4.77	169087	6.25	167994	10.81

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: MI01262 Case No.: SAS No.: SDG No.: 18051778

Lab File ID (Standard): 01JUN36.D Date Analyzed: 6/1/2018

Instrument ID: VMS11 Time Analyzed: 22:58

GC Column: RXI-624 ID: 0.18 (mm) Heated Purge (Y/N): Y

		IS4DCB AREA #	RT #	IS5 AREA #	RT #	AREA #	RT #
	12 HOUR STD	76932	13.42	33269	3.75		
	UPPER LIMIT	153864	12.92	66538	3.25		
	LOWER LIMIT	38466	13.92	16635	4.25		
	EPA SAMPLE NO.						
01	LCS04	76016	13.42	32242	3.75		
02	VBLK02	74421	13.42	30222	3.75		
03	18CP02-51	74627	13.42	29394	3.75		
04	18CP02-53	73065	13.42	29027	3.75		
05	18CP02-50	73898	13.42	28610	3.75		
06	18CP02-49	73902	13.42	27990	3.75		
07	18CP02-48	75745	13.42	30093	3.75		
08	18051738-03A	77360	13.42	29703	3.75		
09	18051738-03A	79785	13.42	32998	3.75		
10	18051738-03A	79184	13.42	33138	3.75		

IS1 PFB = Pentafluorobenzene
IS2 DFB = 1,4-Difluorobenzene
IS3 CBZ = Chlorobenzene-d5
IS4 DCB = 1,4-Dichlorobenzene-d4
IS5 = Ethyl Acetate-d8

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.
* Values outside of contract required QC limits

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN43.D
Acq On : 02 Jun 2018 01:33 am
Operator : LNS
Sample : 18051778-06A
Misc :
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Jun 04 13:09:19 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	89253	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.250	114	161851	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	162073	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	74627	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.754	46	29394	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.625	111	48275	18.63	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 93.15%				
46) 1,2-Dichloroethane-d4	5.238	65	71501	23.36	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 116.80%				
65) Toluene-d8	8.903	98	206598	19.69	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 98.45%				
86) Bromofluorobenzene	12.191	95	88219	21.23	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.15%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN43.D
Acq On : 02 Jun 2018 01:33 am
Operator : LNS
Sample : 18051778-06A
Misc :
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Jun 04 13:09:19 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	7.089	83	7800	1.51 ug/L #	57
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	9.003	91	9257	0.61 ug/L #	92
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	11.152	91	17387	1.33 ug/L	96
81) Styrene	0.000		0	N.D.	
82) o-Xylene	11.588	91	5225m	0.40 ug/L	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	13.071	105	5073m	0.43 ug/L	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN43.D
Acq On : 02 Jun 2018 01:33 am
Operator : LNS
Sample : 18051778-06A
Misc :
ALS Vial : 39 Sample Multiplier: 1

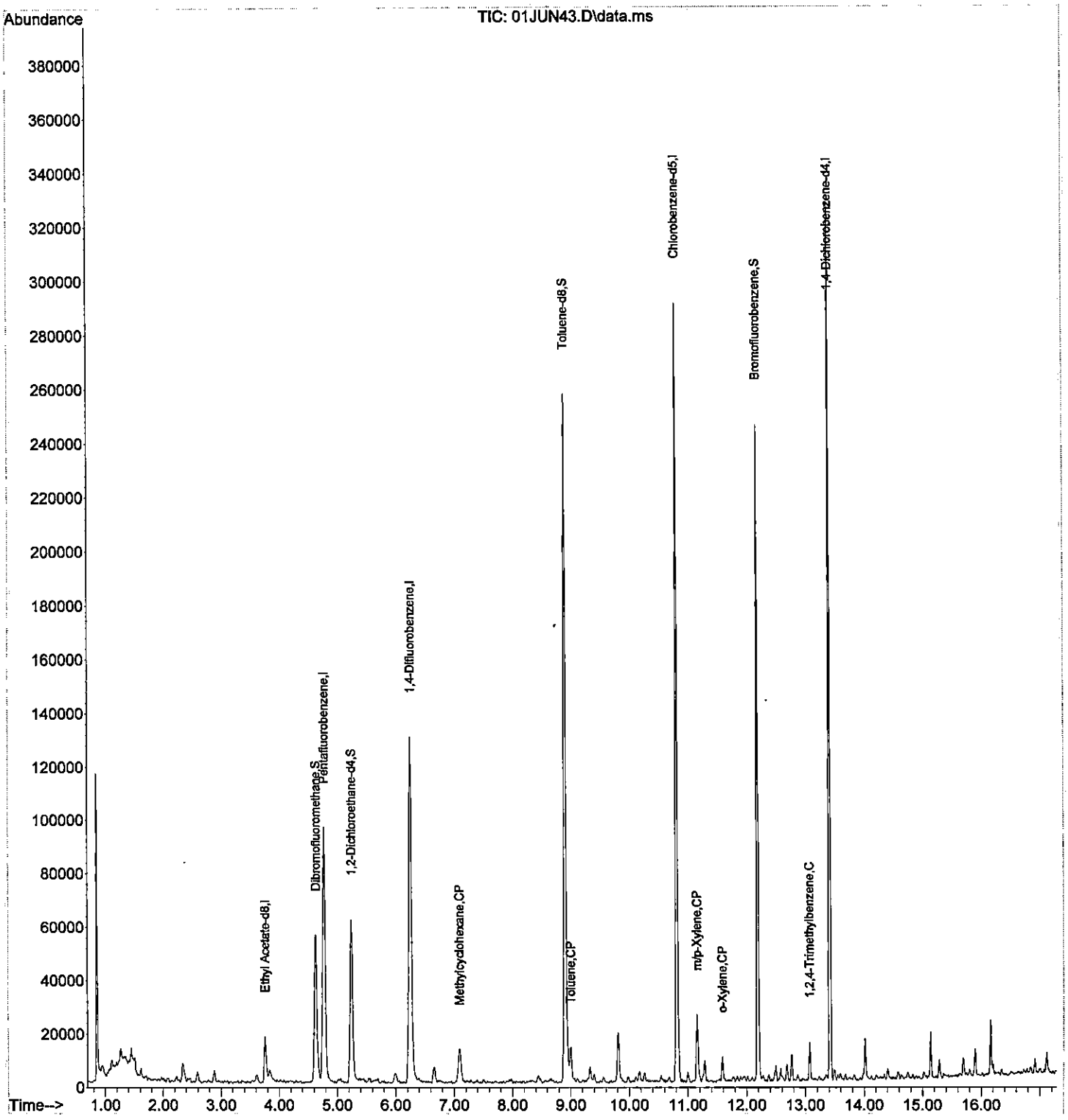
Quant Time: Jun 04 13:09:19 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN43.D
Acq On : 02 Jun 2018 01:33 am
Operator : LNS
Sample : 18051778-06A
Misc :
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Jun 04 13:09:19 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY15.D
Acq On : 31 May 2018 02:48 pm
Operator : AK
Sample : 18051778-02A
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 31 15:45:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.002	168	80184	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.286	114	133844	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	115800	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	54005	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.136	46	14594	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	42430	20.21	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 101.05%			
45) 1,2-Dichloroethane-d4	5.473	65	54714	21.52	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 107.60%			
64) Toluene-d8	7.807	98	160745	19.88	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.40%			
85) Bromofluorobenzene	9.542	95	56405	20.15	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.75%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.799	49	17392	2.98	ug/L	99
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY15.D
Acq On : 31 May 2018 02:48 pm
Operator : AK
Sample : 18051778-02A
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 31 15:45:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.		
41) 1,1,1-Trichloroethane	0.000		0	N.D.		
43) Carbon tetrachloride	0.000		0	N.D.		
44) 1,1-Dichloropropene	0.000		0	N.D.		
46) 1,2-Dichloroethane	0.000		0	N.D.		
47) Benzene	0.000		0	N.D.		
48) Tertiaryamylmethylether	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Heptane	0.000		0	N.D.		
51) 1,4-Dioxane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) n-Butanol	0.000		0	N.D.		
54) Trichloroethene	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) Methyl methacrylate	0.000		0	N.D.		
58) Bromodichloromethane	0.000		0	N.D.		
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) cis-1,3-Dichloropropene	0.000		0	N.D.		
63) 4-Methyl-2-pentanone	0.000		0	N.D.		
65) Toluene	0.000		0	N.D.		
66) trans-1,3-Dichloropropene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) Ethyl methacrylate	0.000		0	N.D.		
69) 1,1,2-Trichloroethane	0.000		0	N.D.		
70) Tetrachloroethene	0.000		0	N.D.		
71) 1,3-Dichloropropane	0.000		0	N.D.		
72) 2-Hexanone	0.000		0	N.D.		
73) Chlorodibromomethane	0.000		0	N.D.		
74) Butyl acetate	0.000		0	N.D.		
75) 1,2-Dibromoethane	0.000		0	N.D.		
76) Chlorobenzene	0.000		0	N.D.		
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
78) Ethylbenzene	0.000		0	N.D.		
79) m/p-Xylene	0.000		0	N.D.		
80) Styrene	0.000		0	N.D.		
81) o-Xylene	0.000		0	N.D.		
82) Cyclohexanone	0.000		0	N.D.		
83) Bromoform	0.000		0	N.D.		
84) Isopropylbenzene	0.000		0	N.D.		
86) Bromobenzene	0.000		0	N.D.		
87) 1,2,3-Trichloropropane	0.000		0	N.D.		
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
89) n-Propylbenzene	0.000		0	N.D.		
90) 2-Chlorotoluene	0.000		0	N.D.		
91) 4-Chlorotoluene	0.000		0	N.D.		
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
93) tert-Butylbenzene	0.000		0	N.D.		
94) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
95) sec-Butylbenzene	0.000		0	N.D.		
97) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
98) 1,3-Dichlorobenzene	0.000		0	N.D.		
99) p-Isopropyltoluene	0.000		0	N.D.		
100) 1,4-Dichlorobenzene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY15.D
Acq On : 31 May 2018 02:48 pm
Operator : AK
Sample : 18051778-02A
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 31 15:45:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

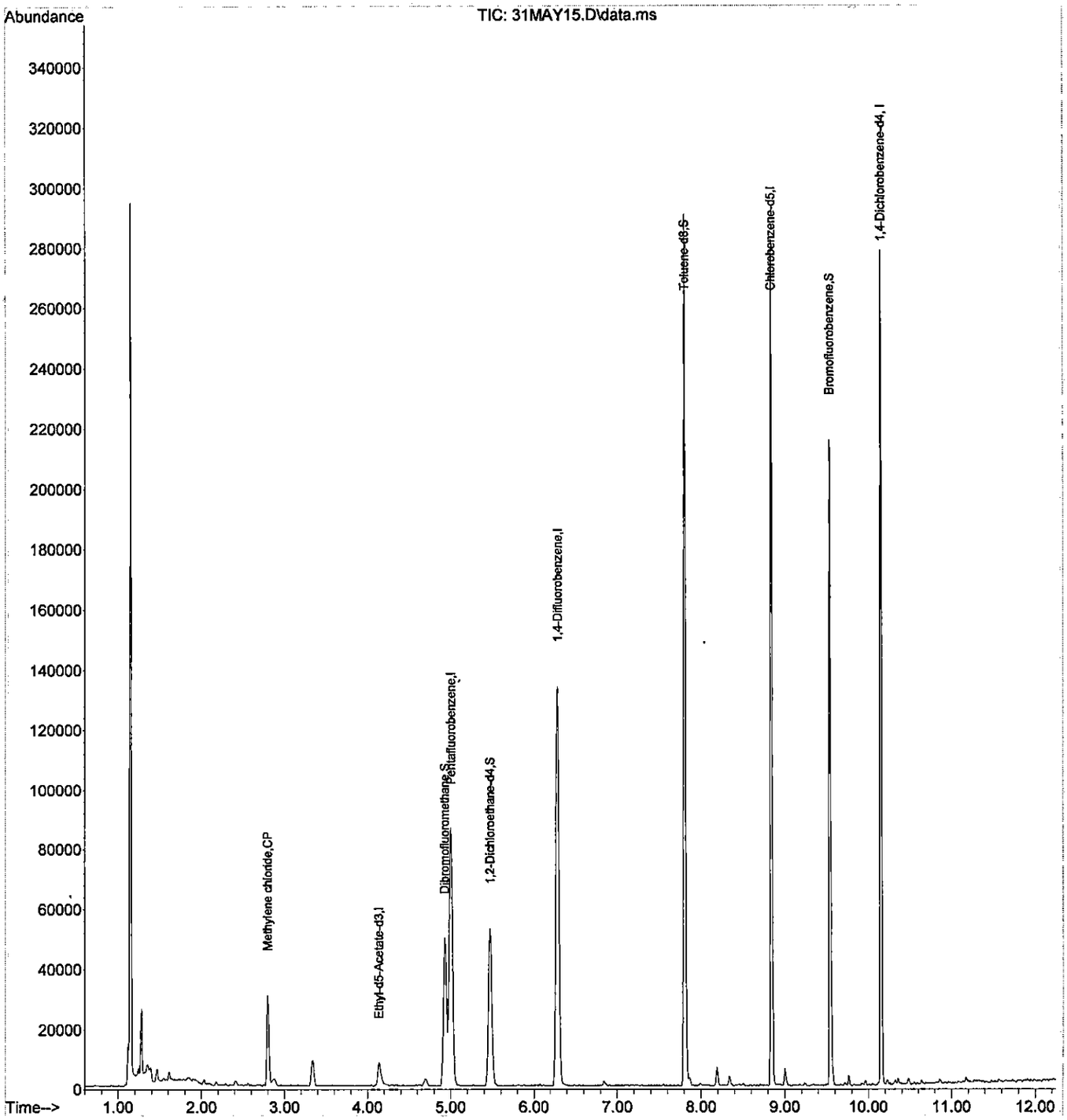
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

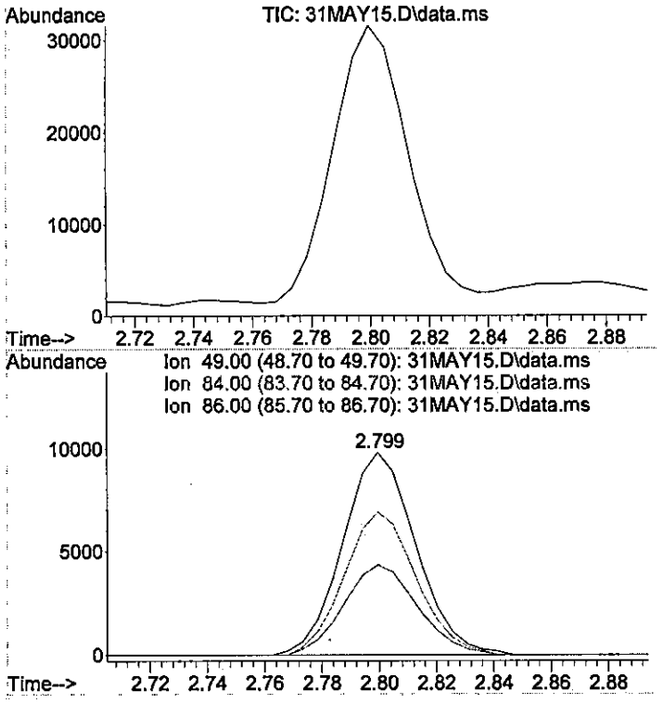
(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY15.D
Acq On : 31 May 2018 02:48 pm
Operator : AK
Sample : 18051778-02A
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 31 15:45:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration





#19
Methylene chloride
Concen: 2.98 ug/L
RT: 2.799 min Scan# 421
Delta R.T. -0.001 min
Lab File: 31MAY15.D
Acq: 31 May 2018 02:48 pm

Tgt Ion: 49 Resp: 17392

Ion	Ratio	Lower	Upper
49	100		
84	69.3	50.5	90.5
86	44.8	24.6	64.6

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY22.D
Acq On : 31 May 2018 04:51 pm
Operator : AK
Sample : 18051778-06A DF0.947
Misc :
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 01 08:06:03 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	71933	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.286	114	118990	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	98990	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.151	152	36730	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.137	46	15254	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.929	111	38838	20.81	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 104.05%				
45) 1,2-Dichloroethane-d4	5.469	65	54023	23.90	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 119.50%				
64) Toluene-d8	7.807	98	144803	20.95	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.75%				
85) Bromofluorobenzene	9.542	95	44908	18.76	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 93.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethyl ether	0.000		0	N.D.			
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	0.000		0	N.D.			
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	0.000		0	N.D.			
13) Acetone	2.401	43	80394	156.59	ug/L		99
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.800	49	7818	Below Cal		#	73
20) trans-1,2-Dichloroethene	0.000		0	N.D.			
21) t-Butanol	0.000		0	N.D. d			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	0.000		0	N.D.			
29) 2,2-Dichloropropane	0.000		0	N.D.			
30) cis-1,2-Dichloroethene	0.000		0	N.D.			
31) 2-Butanone	0.000		0	N.D.			
32) Ethyl Acetate	0.000		0	N.D.			
33) Methyl acrylate	0.000		0	N.D.			
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	0.000		0	N.D.			
36) Tetrahydrofuran	0.000		0	N.D.			
37) Methacrylonitrile	0.000		0	N.D.			
38) Chloroform	0.000		0	N.D.			

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY22.D
Acq On : 31 May 2018 04:51 pm
Operator : AK
Sample : 18051778-06A DF0.947
Misc :
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 01 08:06:03 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	0.000		0	N.D.	
43) Carbon tetrachloride	0.000		0	N.D.	
44) 1,1-Dichloropropene	0.000		0	N.D.	
46) 1,2-Dichloroethane	0.000		0	N.D.	
47) Benzene	0.000		0	N.D.	
48) Tertiaryamylmethylether	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.585	130	5428	3.15 ug/L #	66
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) Methyl methacrylate	0.000		0	N.D.	
58) Bromodichloromethane	0.000		0	N.D.	
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) cis-1,3-Dichloropropene	0.000		0	N.D.	
63) 4-Methyl-2-pentanone	0.000		0	N.D.	
65) Toluene	7.859	91	6944	0.95 ug/L #	30
66) trans-1,3-Dichloropropene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	0.000		0	N.D.	
70) Tetrachloroethene	0.000		0	N.D.	
71) 1,3-Dichloropropane	0.000		0	N.D.	
72) 2-Hexanone	0.000		0	N.D.	
73) Chlorodibromomethane	0.000		0	N.D.	
74) Butyl acetate	0.000		0	N.D.	
75) 1,2-Dibromoethane	0.000		0	N.D.	
76) Chlorobenzene	0.000		0	N.D.	
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
78) Ethylbenzene	0.000		0	N.D.	
79) m/p-Xylene	0.000		0	N.D.	
80) Styrene	0.000		0	N.D.	
81) o-Xylene	0.000		0	N.D.	
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	0.000		0	N.D.	
84) Isopropylbenzene	0.000		0	N.D.	
86) Bromobenzene	0.000		0	N.D.	
87) 1,2,3-Trichloropropane	0.000		0	N.D.	
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
89) n-Propylbenzene	0.000		0	N.D.	
90) 2-Chlorotoluene	0.000		0	N.D.	
91) 4-Chlorotoluene	0.000		0	N.D.	
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
93) tert-Butylbenzene	0.000		0	N.D.	
94) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
95) sec-Butylbenzene	0.000		0	N.D.	
97) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
98) 1,3-Dichlorobenzene	0.000		0	N.D.	
99) p-Isopropyltoluene	0.000		0	N.D.	
100) 1,4-Dichlorobenzene	0.000		0	N.D.	

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY22.D
Acq On : 31 May 2018 04:51 pm
Operator : AK
Sample : 18051778-06A DF0.947
Misc :
ALS Vial : 18 Sample Multiplier: 1

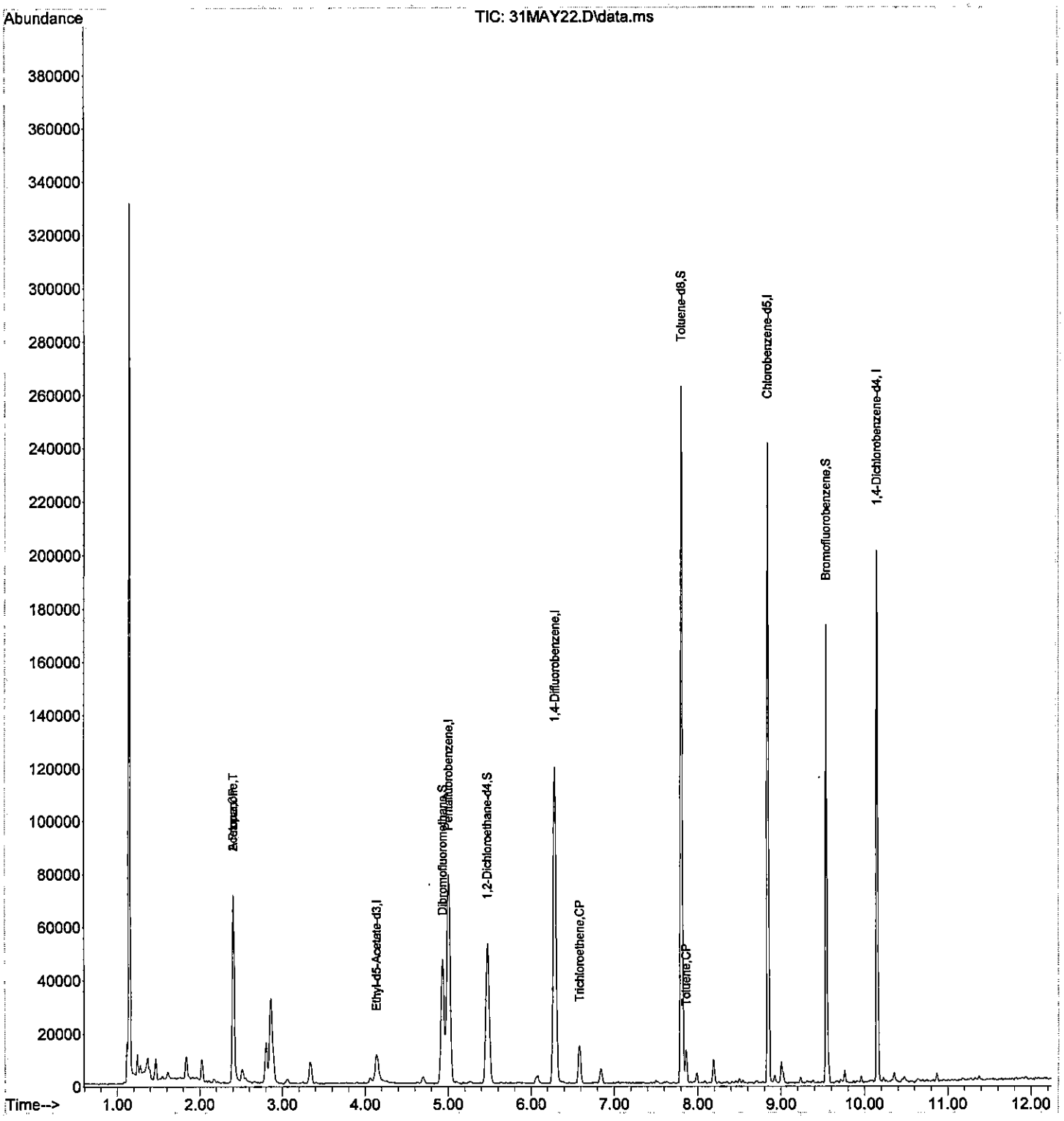
Quant Time: Jun 01 08:06:03 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

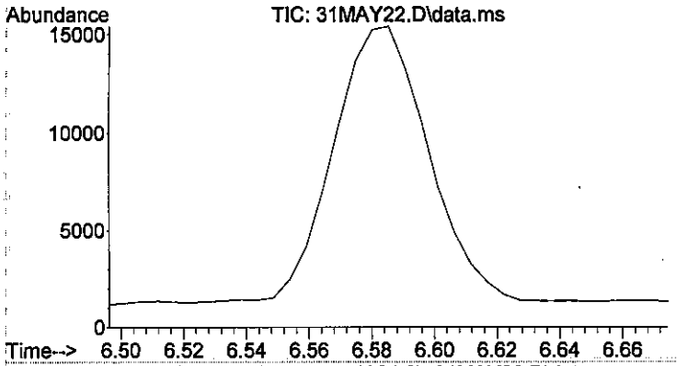
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	2.401	43	80394	161.50	ug/L	100
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY22.D
Acq On : 31 May 2018 04:51 pm
Operator : AK
Sample : 18051778-06A DF0.947
Misc :
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 01 08:06:03 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

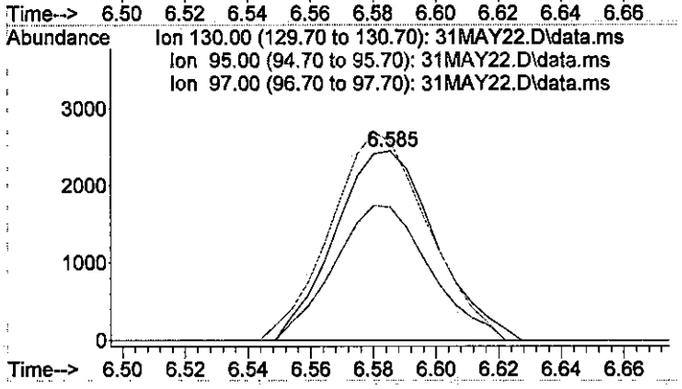


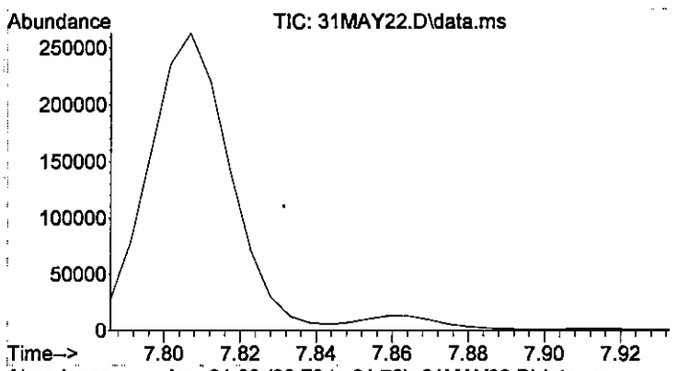


#54
Trichloroethene
Concen: 3.15 ug/L
RT: 6.585 min Scan# 1143
Delta R.T. 0.005 min
Lab File: 31MAY22.D
Acq: 31 May 2018 04:51 pm

Tgt Ion:130 Resp: 5428

Ion	Ratio	Lower	Upper
130	100		
95	106.7	84.1	124.1
97	0.0	46.5	86.5#

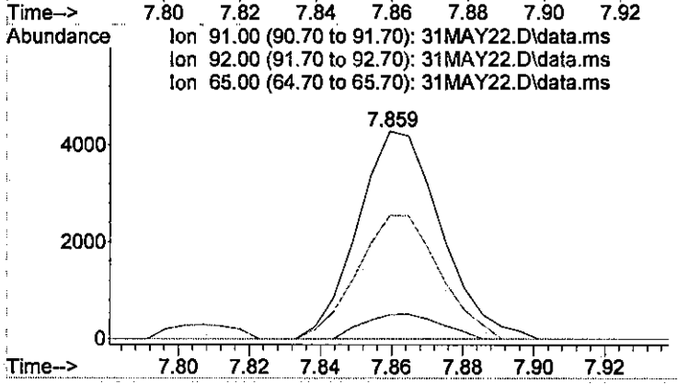




#65
Toluene
Concen: 0.95 ug/L
RT: 7.859 min Scan# 1386
Delta R.T. 0.000 min
Lab File: 31MAY22.D
Acq: 31 May 2018 04:51 pm

Tgt Ion: 91 Resp: 6944

Ion	Ratio	Lower	Upper
91	100		
92	0.0	37.9	77.9#
65	0.0	0.0	32.2



No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN47.D
Acq On : 02 Jun 2018 03:02 am
Operator : LNS
Sample : 18051778-03A
Misc :
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Jun 04 13:10:42 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	89265	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.245	114	162344	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.806	117	161892	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	75745	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.754	46	30093	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.619	111	48710	18.74	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 93.70%			
46) 1,2-Dichloroethane-d4	5.233	65	69878	22.76	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 113.80%			
65) Toluene-d8	8.903	98	203345	19.40	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.00%			
86) Bromofluorobenzene	12.191	95	87837	21.16	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN47.D
Acq On : 02 Jun 2018 03:02 am
Operator : LNS
Sample : 18051778-03A
Misc :
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Jun 04 13:10:42 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0	N.D.		
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	0.000		0	N.D.		
44) Carbon tetrachloride	0.000		0	N.D.		
45) 1,1-Dichloropropene	0.000		0	N.D.	d	
47) 1,2-Dichloroethane	0.000		0	N.D.		
48) Benzene	0.000		0	N.D.		
49) Isobutyl Alcohol	0.000		0	N.D.		
50) Tertiaryamylmethylether	0.000		0	N.D.		
51) Heptane	0.000		0	N.D.		
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	0.000		0	N.D.		
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	0.000		0	N.D.		
56) Dibromomethane	0.000		0	N.D.		
57) 1,4-Dioxane	0.000		0	N.D.		
58) Methyl methacrylate	0.000		0	N.D.		
59) Bromodichloromethane	0.000		0	N.D.		
60) 2-Nitropropane	0.000		0	N.D.		
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	0.000		0	N.D.		
64) 4-Methyl-2-pentanone	0.000		0	N.D.		
66) Toluene	0.000		0	N.D.		
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	0.000		0	N.D.		
69) Ethyl methacrylate	0.000		0	N.D.		
70) 1,1,2-Trichloroethane	0.000		0	N.D.		
71) Tetrachloroethene	0.000		0	N.D.		
72) 1,3-Dichloropropane	0.000		0	N.D.		
73) 2-Hexanone	0.000		0	N.D.		
74) Chlorodibromomethane	0.000		0	N.D.		
75) Butyl acetate	0.000		0	N.D.		
76) 1,2-Dibromoethane	0.000		0	N.D.		
77) Chlorobenzene	0.000		0	N.D.		
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.		
79) Ethylbenzene	0.000		0	N.D.		
80) m/p-Xylene	0.000		0	N.D.		
81) Styrene	0.000		0	N.D.		
82) o-Xylene	0.000		0	N.D.		
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	0.000		0	N.D.		
85) Isopropylbenzene	0.000		0	N.D.		
87) Bromobenzene	0.000		0	N.D.		
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.		
89) 1,2,3-Trichloropropane	0.000		0	N.D.		
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.		
91) n-Propylbenzene	0.000		0	N.D.		
92) 2-Chlorotoluene	0.000		0	N.D.		
93) 4-Chlorotoluene	0.000		0	N.D.		
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.		
95) tert-Butylbenzene	0.000		0	N.D.		
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.		
97) sec-Butylbenzene	0.000		0	N.D.		
99) 1,3-Dichlorobenzene	0.000		0	N.D.		
100) p-Isopropyltoluene	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN47.D
Acq On : 02 Jun 2018 03:02 am
Operator : LNS
Sample : 18051778-03A
Misc :
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Jun 04 13:10:42 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

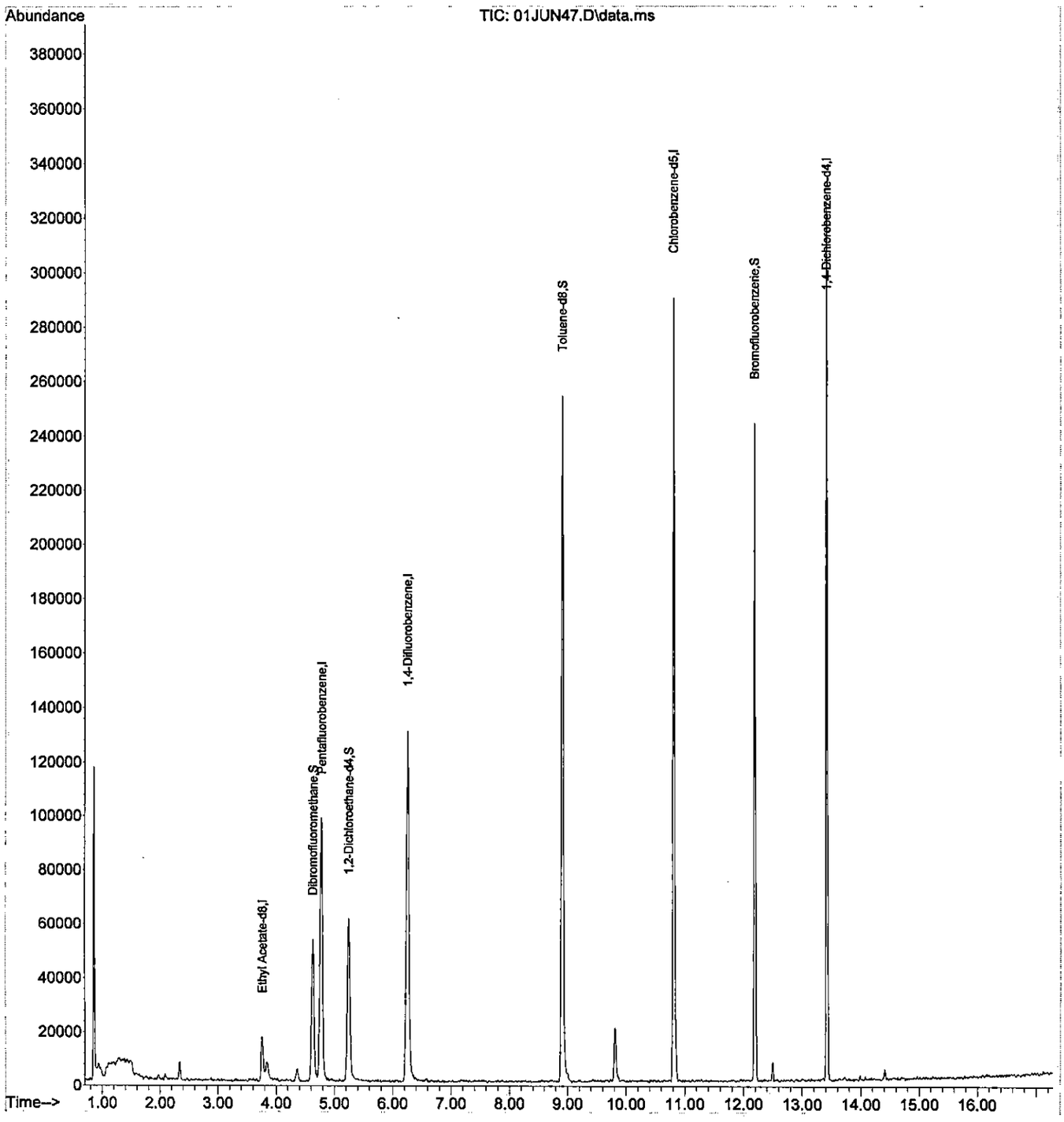
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN47.D
Acq On : 02 Jun 2018 03:02 am
Operator : LNS
Sample : 18051778-03A
Misc :
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Jun 04 13:10:42 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN46.D
Acq On : 02 Jun 2018 02:40 am
Operator : LNS
Sample : 18051778-04A
Misc :
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Jun 04 13:10:20 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 08:59:08 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	86189	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.245	114	159793	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.806	117	159032	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	73902	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.754	46	27990	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.619	111	49259	19.26	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.30%			
46) 1,2-Dichloroethane-d4	5.233	65	71379	23.62	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 118.10%			
65) Toluene-d8	8.903	98	205810	19.99	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.95%			
86) Bromofluorobenzene	12.190	95	85729	21.02	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN46.D
Acq On : 02 Jun 2018 02:40 am
Operator : LNS
Sample : 18051778-04A
Misc :
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Jun 04 13:10:20 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 08:59:08 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.659	130	18726	5.42 ug/L	91
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN46.D
Acq On : 02 Jun 2018 02:40 am
Operator : LNS
Sample : 18051778-04A
Misc :
ALS Vial : 42 Sample Multiplier: 1

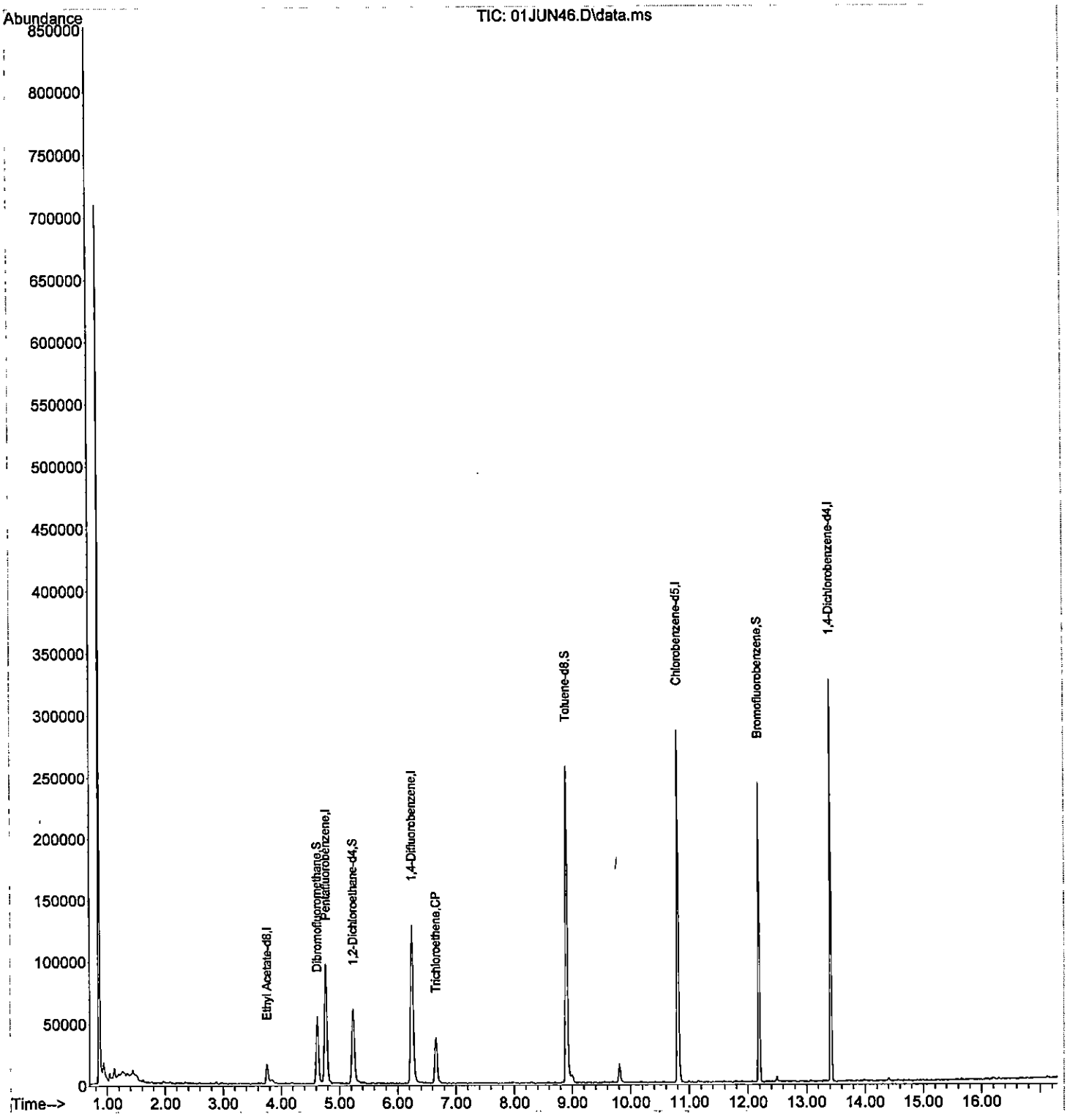
Quant Time: Jun 04 13:10:20 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 08:59:08 2018
Response via : Initial Calibration

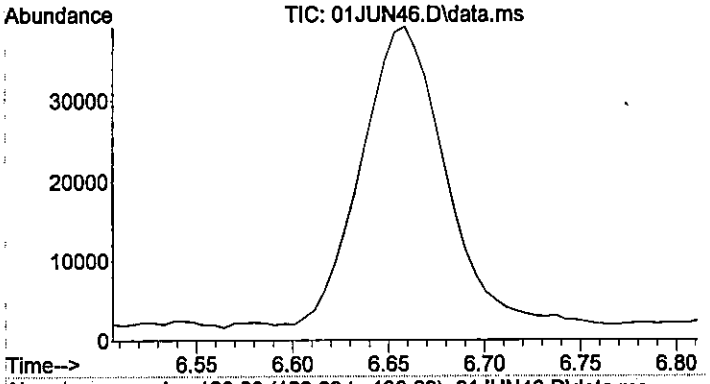
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

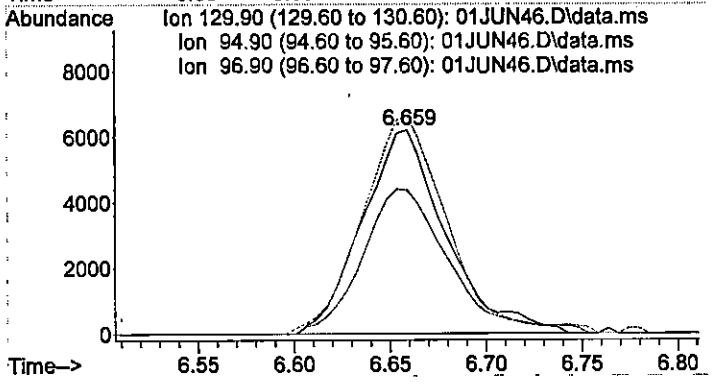
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN46.D
Acq On : 02 Jun 2018 02:40 am
Operator : LNS
Sample : 18051778-04A
Misc :
ALS Vial : 42 Sample Multiplier: 1

Quant Time: Jun 04 13:10:20 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 08:59:08 2018
Response via : Initial Calibration







#53
Trichloroethene
Concen: 5.42 ug/L
RT: 6.659 min Scan# 1138
Delta R.T. -0.000 min
Lab File: 01JUN46.D
Acq: 02 Jun 2018 02:40 am

Tgt Ion:130 Resp: 18726

Ion	Ratio	Lower	Upper
130	100		
95	106.7	69.5	129.5
97	73.8	33.8	93.8

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN45.D
Acq On : 02 Jun 2018 02:18 am
Operator : LNS
Sample : 18051778-05A
Misc :
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Jun 04 13:09:57 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	87776	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	157526	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	159814	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	73898	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.754	46	28610	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.619	111	48629	19.29	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.45%				
46) 1,2-Dichloroethane-d4	5.233	65	70465	23.65	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 118.25%				
65) Toluene-d8	8.903	98	201762	19.50	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 97.50%				
86) Bromofluorobenzene	12.190	95	85886	20.96	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN45.D
Acq On : 02 Jun 2018 02:18 am
Operator : LNS
Sample : 18051778-05A
Misc :
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Jun 04 13:09:57 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D. d	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.659	130	18790	5.52 ug/L	89
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN45.D
Acq On : 02 Jun 2018 02:18 am
Operator : LNS
Sample : 18051778-05A
Misc :
ALS Vial : 41 Sample Multiplier: 1

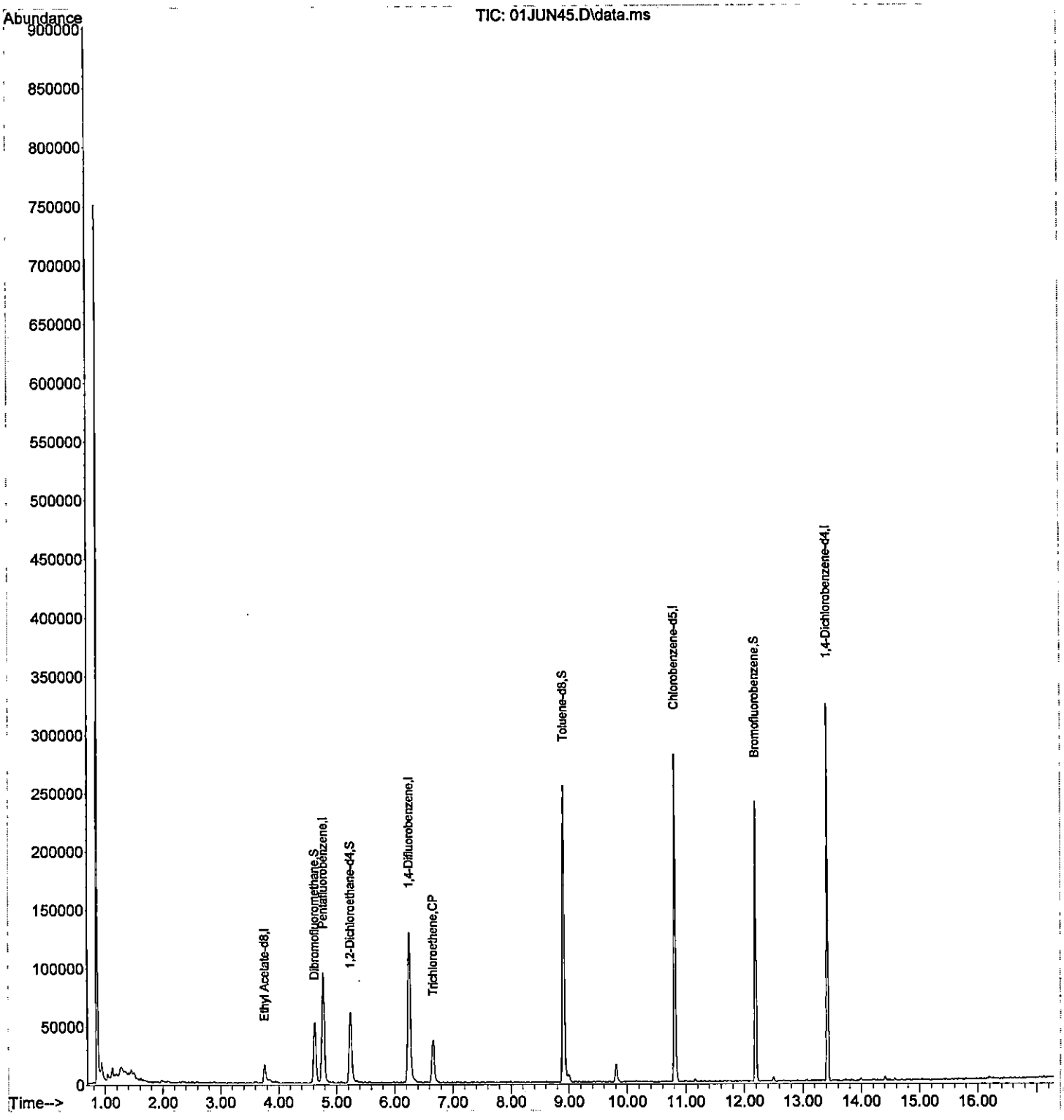
Quant Time: Jun 04 13:09:57 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

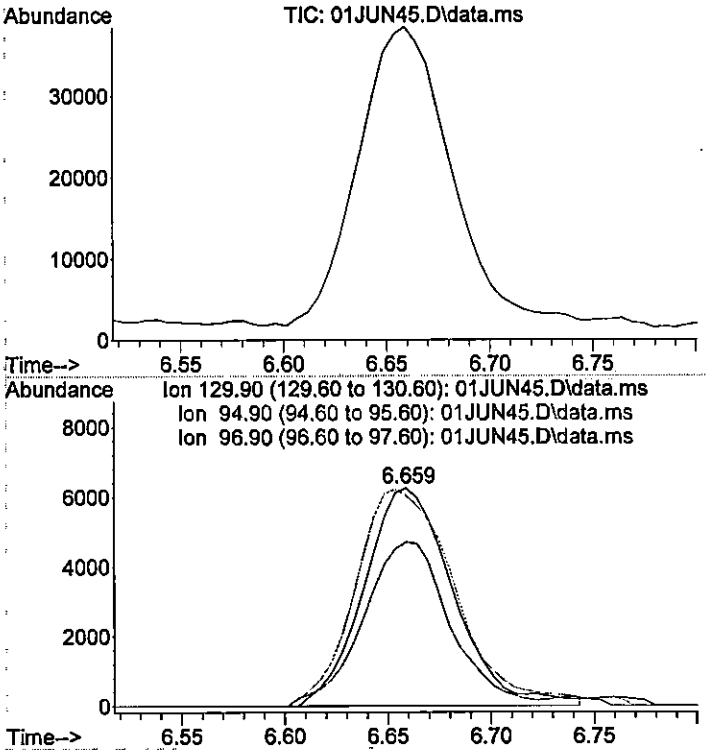
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN45.D
Acq On : 02 Jun 2018 02:18 am
Operator : LNS
Sample : 18051778-05A
Misc :
ALS Vial : 41 Sample Multiplier: 1

Quant Time: Jun 04 13:09:57 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration





#53
Trichloroethene
Concen: 5.52 ug/L
RT: 6.659 min Scan# 1138
Delta R.T. -0.000 min
Lab File: 01JUN45.D
Acq: 02 Jun 2018 02:18 am

Tgt Ion:130 Resp: 18790

Ion	Ratio	Lower	Upper
130	100		
95	110.8	69.5	129.5
97	73.0	33.8	93.8

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN44.D
Acq On : 02 Jun 2018 01:56 am
Operator : LNS
Sample : 18051778-08A
Misc :
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jun 04 13:09:34 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	87541	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.245	114	157667	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.806	117	156822	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	73065	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.754	46	29027	20.00	ug/L	# 0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.619	111	47972	19.01	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.05%			
46) 1,2-Dichloroethane-d4	5.238	65	68823	23.08	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 115.40%			
65) Toluene-d8	8.903	98	203543	20.05	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.25%			
86) Bromofluorobenzene	12.190	95	85108	21.16	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.80%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN44.D
Acq On : 02 Jun 2018 01:56 am
Operator : LNS
Sample : 18051778-08A
Misc :
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jun 04 13:09:34 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Titl e : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39)	Chloroform	0.000		0	N.D.	
40)	Cyclohexane	0.000		0	N.D.	
42)	1,1,1-Trichloroethane	0.000		0	N.D.	
44)	Carbon tetrachloride	0.000		0	N.D.	
45)	1,1-Dichloropropene	0.000		0	N.D.	
47)	1,2-Dichloroethane	0.000		0	N.D.	
48)	Benzene	5.222	78	5838m	0.44 ug/L	
49)	Isobutyl Alcohol	0.000		0	N.D.	
50)	Tertiaryamylmethylether	0.000		0	N.D.	
51)	Heptane	0.000		0	N.D.	
52)	Methylcyclohexane	0.000		0	N.D.	
53)	Trichloroethene	6.654	130	6649	1.95 ug/L #	60
54)	n-Butanol	0.000		0	N.D.	
55)	1,2-Dichloropropane	0.000		0	N.D.	
56)	Dibromomethane	0.000		0	N.D.	
57)	1,4-Dioxane	0.000		0	N.D.	
58)	Methyl methacrylate	0.000		0	N.D.	
59)	Bromodichloromethane	0.000		0	N.D.	
60)	2-Nitropropane	0.000		0	N.D.	
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.	
62)	cis-1,3-Dichloropropene	0.000		0	N.D.	
64)	4-Methyl-2-pentanone	0.000		0	N.D.	
66)	Toluene	8.997	91	14050	0.95 ug/L #	95
67)	Chloropicrin	0.000		0	N.D.	
68)	trans-1,3-Dichloropropene	0.000		0	N.D.	
69)	Ethyl methacrylate	0.000		0	N.D.	
70)	1,1,2-Trichloroethane	0.000		0	N.D.	
71)	Tetrachloroethene	0.000		0	N.D.	
72)	1,3-Dichloropropane	0.000		0	N.D.	
73)	2-Hexanone	0.000		0	N.D.	
74)	Chlorodibromomethane	0.000		0	N.D.	
75)	Butyl acetate	0.000		0	N.D.	
76)	1,2-Dibromoethane	0.000		0	N.D.	
77)	Chlorobenzene	0.000		0	N.D.	
78)	1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79)	Ethylbenzene	0.000		0	N.D.	
80)	m/p-Xylene	0.000		0	N.D.	
81)	Styrene	0.000		0	N.D.	
82)	o-Xylene	0.000		0	N.D.	
83)	Cyclohexanone	0.000		0	N.D.	
84)	Bromoform	0.000		0	N.D.	
85)	Isopropylbenzene	0.000		0	N.D.	
87)	Bromobenzene	0.000		0	N.D.	
88)	1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89)	1,2,3-Trichloropropane	0.000		0	N.D.	
90)	trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91)	n-Propylbenzene	0.000		0	N.D.	
92)	2-Chlorotoluene	0.000		0	N.D.	
93)	4-Chlorotoluene	0.000		0	N.D.	
94)	1,3,5-Trimethylbenzene	0.000		0	N.D.	
95)	tert-Butylbenzene	0.000		0	N.D.	
96)	1,2,4-Trimethylbenzene	0.000		0	N.D.	
97)	sec-Butylbenzene	0.000		0	N.D.	
99)	1,3-Dichlorobenzene	0.000		0	N.D.	
100)	p-Isopropyltoluene	0.000		0	N.D.	

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN44.D
Acq On : 02 Jun 2018 01:56 am
Operator : LNS
Sample : 18051778-08A
Misc :
ALS Vial : 40 Sample Multiplier: 1

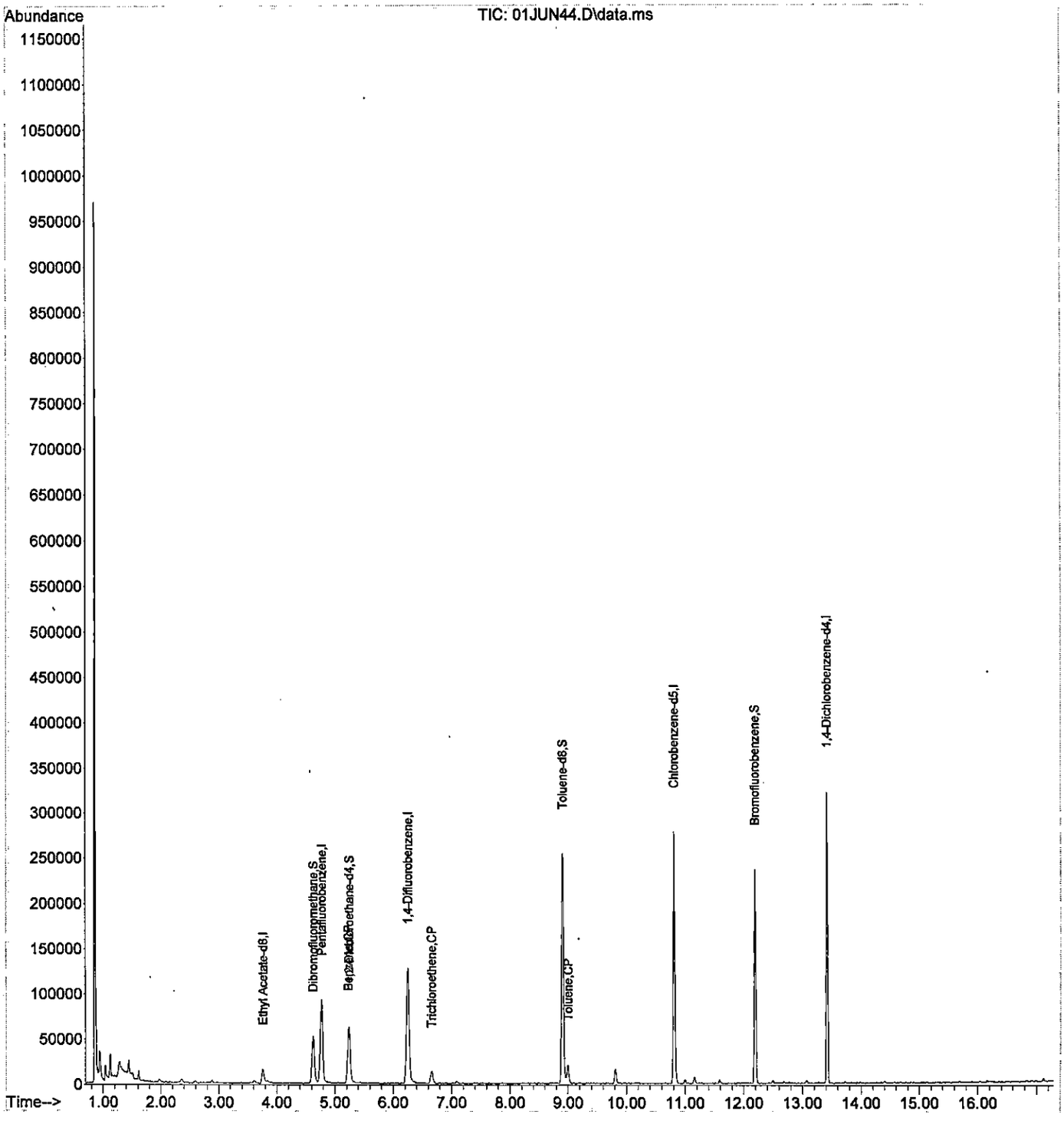
Quant Time: Jun 04 13:09:34 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

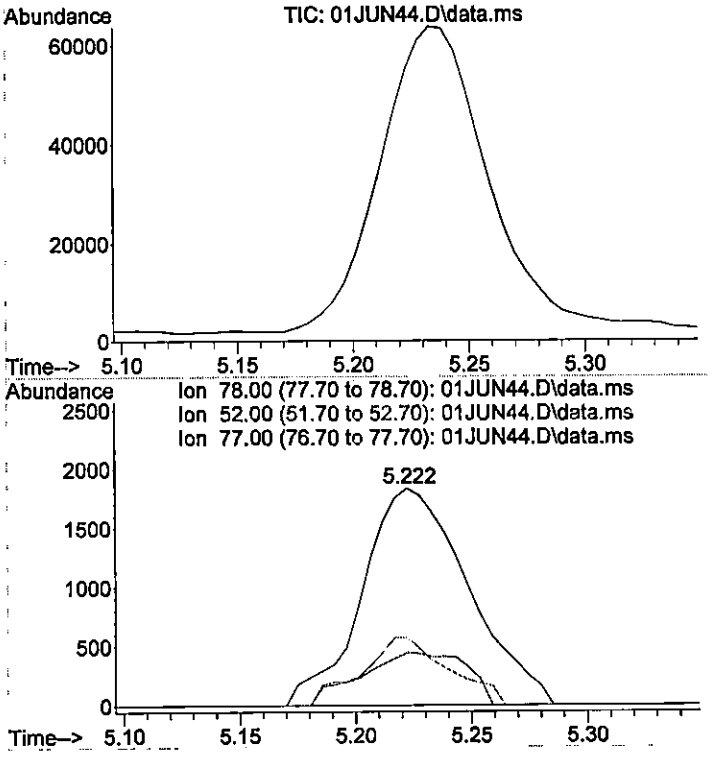
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN44.D
Acq On : 02 Jun 2018 01:56 am
Operator : LNS
Sample : 18051778-08A
Misc :
ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jun 04 13:09:34 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

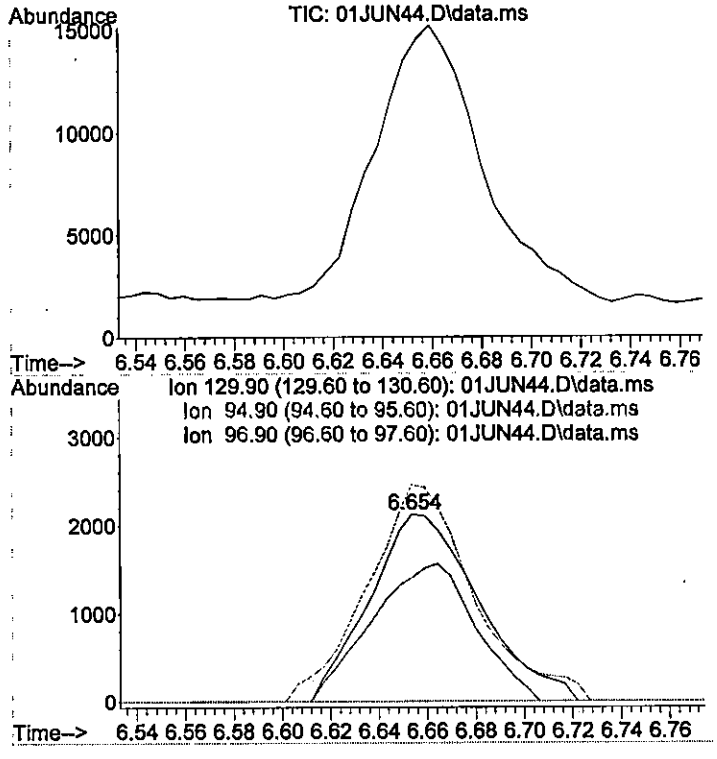




#48
Benzene
Concen: 0.44 ug/L m
RT: 5.222 min Scan# 864
Delta R.T. -0.006 min
Lab File: 01JUN44.D
Acq: 02 Jun 2018 01:56 am

Tgt Ion: 78 Resp: 5838

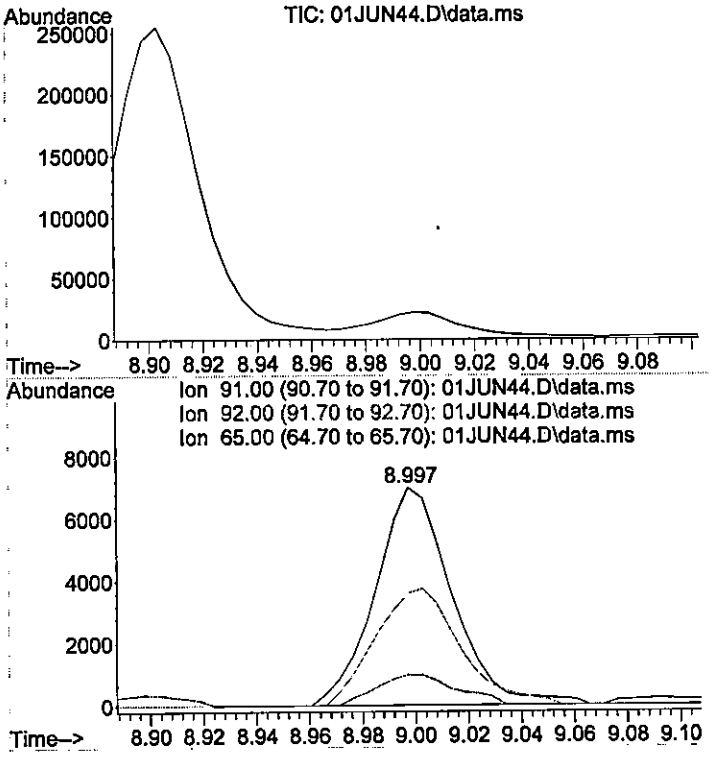
Ion	Ratio	Lower	Upper
78	100		
52	25.8	0.0	46.9
77	0.0	0.0	53.8



#53
Trichloroethene
Concen: 1.95 ug/L
RT: 6.654 min Scan# 1137
Delta R.T. -0.005 min
Lab File: 01JUN44.D
Acq: 02 Jun 2018 01:56 am

Tgt Ion:130 Resp: 6649

Ion	Ratio	Lower	Upper
130	100		
95	113.5	69.5	129.5
97	0.0	33.8	93.8#



#66
Toluene
Concen: 0.95 ug/L
RT: 8.997 min Scan# 1584
Delta R.T. -0.001 min
Lab File: 01JUN44.D
Acq: 02 Jun 2018 01:56 am

Tgt Ion: 91 Resp: 14050

Ion	Ratio	Lower	Upper
91	100		
92	59.2	29.2	89.2
65	0.0	0.0	41.8

Response Factor Report 5977_VOA

Method Path : C:\msdchem\1\methods\
Method File : 10SGO0529.M
Title : 8260 Global Optimization Method
Last Update : Fri Jun 22 14:47:39 2018
Response Via : Initial Calibration

Calibration Files
1 =29MAY11.D 2 =29MAY12.D 3 =29MAY13.D 4 =29MAY14.D 5 =29MAY15.D 6 =29MAY16.D 8 =29MAY18.D

		Compound	1	2	3	4	5	6	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------ISTD----------								
2)	CP	Dichlorodifluo...	0.825	0.866	0.710	0.588	0.610	0.604	0.574	0.682	17.65#
3)	CP	Chloromethane	1.313	1.053	0.733	0.657	0.661	0.716	0.657	0.827	30.98#
4)	CP	Vinyl chloride	0.715	0.688	0.588	0.512	0.502	0.530	0.500	0.576	15.75
5)	CP	Bromomethane		0.427	0.352	0.335	0.295	0.275	0.259	0.324	18.97#
6)	CP	Chloroethane		0.426	0.329	0.284	0.298	0.294	0.284	0.319	17.22#
7)	CP	Trichlorofluor...		1.040	0.829	0.682	0.713	0.718	0.682	0.777	17.96#
8)	C	Ethyl ether	0.321	0.452	0.360	0.416	0.373	0.395	0.386	0.386	10.78#
9)	C	Acrolein	0.100	0.099	0.059	0.068	0.032	0.039	0.072	0.067#	39.52#
10)	CP	1,1-Dichloroet...	0.695	0.759	0.701	0.777	0.669	0.679	0.650	0.704	6.67
11)	CP	1,1,2-Trichlor...		0.307	0.289	0.321	0.285	0.281	0.267	0.292	6.71#
12)	C	Methyl iodide	0.180	0.152	0.127	0.142	0.140	0.174	0.280	0.171#	30.41#
13)	CP	Acetone		0.762	0.359	0.258	0.167	0.153	0.143	0.307	77.36#
14)	C	Chloroprene	0.575	0.854	0.747	0.796	0.735	0.740	0.725	0.739	11.54#
15)	CP	Carbon disulfide		1.635	1.164	1.304	1.112	1.178	1.212	1.267	15.06#
16)	C	Allyl chloride		1.186	0.797	0.885	0.771	0.800	0.816	0.876	17.90#
17)	CP	Methyl acetate	0.463	0.468	0.375	0.319	0.310	0.345	0.365	0.378	17.00#
18)	C	Acetonitrile		1.186	0.797	0.885	0.771	0.800	0.816	0.876	17.90#
19)	CP	Methylene chlo...		4.530	1.811	1.330	0.932	0.733	0.672	1.668	87.83#
20)	CP	trans-1,2-Dich...	0.660	0.857	0.697	0.810	0.673	0.689	0.675	0.723	10.73#
21)	C	t-Butanol		0.152	0.061	0.066	0.052	0.055	0.051	0.073#	54.03#
22)	C	Acrylonitrile		0.115	0.165	0.211	0.171	0.202	0.190	0.175#	19.78#
23)	CP	Methyl tert-bu...	1.049	1.190	0.950	1.035	1.090	1.108	1.190	1.088	7.92#
24)	T	Hexane		1.725	0.867	0.766	0.667	0.590	0.564	0.863	50.65
25)	CP	1,1-Dichloroet...	0.861	1.049	0.907	1.019	0.909	0.913	0.885	0.935	7.56
26)	CP	Diisopropyl ether	1.402	1.546	1.364	1.384	1.516	1.463	1.574	1.464	5.68#
27)	C	Vinyl acetate			0.048	0.076	0.077	0.087	0.089	0.075#	21.67#
28)	CP	Ethyl tert but...	1.057	1.262	1.140	1.097	1.208	1.195	1.327	1.184	7.93#
29)	C	2,2-Dichloropr...	0.584	0.754	0.620	0.734	0.620	0.633	0.655	0.657	9.60#
30)	CP	cis-1,2-Dichlo...	0.753	0.929	0.813	0.924	0.764	0.858	0.849	0.842	8.35#
31)	CP	2-Butanone		0.385	0.220	0.213	0.175	0.223	0.219	0.239	30.73#
32)	C	Ethyl Acetate	0.764	0.831	0.531	0.550	0.497	0.497	0.516	0.598	23.25#
33)	C	Methyl acrylate		0.454	0.350	0.506	0.386	0.489	0.458	0.441	13.76#
34)	C	Propionitrile			0.056	0.078	0.063	0.056	0.052	0.061#	16.92#
35)	C	Bromochloromet...	0.478	0.502	0.449	0.525	0.443	0.457	0.429	0.469	7.37#
36)	C	Tetrahydrofuran	0.268	0.248	0.179	0.255	0.158	0.189	0.169	0.209	21.91
37)	C	Methacrylonitrile		0.486	0.468	0.540	0.400	0.432	0.406	0.455	11.76#
38)	CP	Chloroform	2.364	2.076	1.140	1.135	0.895	0.863	0.838	1.330	47.03#
39)	CP	Cyclohexane		1.807	1.060	1.018	0.866	0.803	0.766	1.053	36.77#
40)	I	1,4-Difluorobenzene	----------ISTD----------								

Method Path : C:\msdchem\1\methods\
Method File : 10SGO0529.M

41)	CP	1,1,1-Trichlor...	0.347	0.463	0.371	0.454	0.396	0.411	0.402	0.406	10.21#
42)	S	Dibromofluorom...	0.301	0.306	0.303	0.314	0.309	0.332	0.331	0.314	4.12
43)	CP	Carbon tetrach...	0.236	0.351	0.294	0.368	0.316	0.344	0.343	0.322	13.95#
44)	C	1,1-Dichloropr...	0.387	0.434	0.404	0.465	0.393	0.394	0.378	0.408	7.56#
45)	S	1,2-Dichloroet...	0.368	0.378	0.375	0.389	0.373	0.387	0.389	0.380	2.25
46)	CP	1,2-Dichloroet...	0.418	0.529	0.402	0.495	0.385	0.414	0.395	0.434	12.77#
47)	CP	Benzene	1.183	1.462	1.134	1.338	1.126	1.149	1.109	1.214	11.02#
48)	CP	Tertiaryamylme...	0.600	0.684	0.582	0.580	0.627	0.658	0.712	0.635	8.10#
49)	C	Isobutyl Alcohol		0.353	0.291	0.293	0.230	0.227	0.254	0.274	17.42#
50)	C	Heptane		0.629	0.420	0.473	0.432	0.396	0.377	0.454	20.16#
51)	C	1,4-Dioxane	0.004	0.005	0.003	0.004	0.003	0.004	0.003	0.004#	18.99#
52)	CP	Methylcyclohexane	0.386	0.557	0.464	0.541	0.447	0.460	0.436	0.470	12.69#
53)	T	n-Butanol								0.000#	-1.00
54)	CP	Trichloroethene	0.345	0.301	0.260	0.306	0.276	0.274	0.269	0.290	10.12#
55)	CP	1,2-Dichloropr...	0.287	0.358	0.275	0.366	0.316	0.322	0.312	0.320	10.52
56)	C	Dibromomethane	0.140	0.212	0.153	0.201	0.167	0.181	0.173	0.175#	14.45#
57)	C	Methyl methacr...	0.397	0.394	0.283	0.298	0.235	0.288	0.281	0.311	19.75#
58)	CP	Bromodichlorom...	0.474	0.512	0.349	0.391	0.339	0.371	0.378	0.402	16.29#
59)	C	2-Chloroethyl ...		0.107	0.061	0.082	0.051	0.069	0.073	0.074#	26.27#
60)	C	2-Nitropropane		0.107	0.061	0.082	0.051	0.069	0.073	0.074#	26.27#
61)	CP	cis-1,3-Dichlo...	0.344	0.454	0.392	0.472	0.398	0.467	0.478	0.429	11.99#
62)	I	Chlorobenzene-d5	----------ISTD----------								
63)	CP	4-Methyl-2-pen...	0.400	0.475	0.276	0.307	0.291	0.324	0.341	0.345	20.32#
64)	S	Toluene-d8	1.393	1.395	1.419	1.365	1.411	1.391	1.402	1.397	1.25
65)	CP	Toluene	1.546	1.713	1.465	1.557	1.381	1.351	1.313	1.475	9.54
66)	CP	trans-1,3-Dich...	0.367	0.405	0.358	0.445	0.400	0.472	0.499	0.421	12.63#
67)	T	Chloropicrin								0.000#	-1.00
68)	C	Ethyl methacry...	0.360	0.408	0.379	0.431	0.382	0.429	0.428	0.402	7.13#
69)	CP	1,1,2-Trichlor...	0.236	0.358	0.256	0.316	0.265	0.280	0.272	0.283	14.46#
70)	CP	Tetrachloroethene	0.393	0.376	0.350	0.369	0.328	0.307	0.292	0.345	10.82#
71)	C	1,3-Dichloropr...	0.498	0.575	0.466	0.573	0.506	0.519	0.500	0.520	7.79#
72)	CP	2-Hexanone	0.294	0.323	0.183	0.178	0.192	0.222	0.227	0.231	24.50#
73)	CP	Chlorodibromom...	0.187	0.284	0.247	0.298	0.275	0.320	0.324	0.276	17.14#
74)	T	Butyl acetate	0.631	0.680	0.366	0.423	0.431	0.491	0.521	0.506	22.57
75)	CP	1,2-Dibromoethane	0.196	0.272	0.262	0.288	0.261	0.275	0.263	0.260	11.44#
76)	CP	Chlorobenzene	0.822	0.973	0.853	1.005	0.848	0.841	0.815	0.880	8.71
77)	C	1,1,1,2-Tetrac...	0.219	0.314	0.256	0.297	0.272	0.294	0.299	0.278	11.65#
78)	CP	Ethylbenzene	1.501	1.727	1.511	1.654	1.476	1.470	1.426	1.538	7.14
79)	CP	m/p-Xylene	1.139	1.379	1.167	1.253	1.148	1.118	1.082	1.184	8.54#
80)	CP	Styrene	0.784	0.991	0.819	0.990	0.884	0.889	0.874	0.890	8.78#
81)	CP	o-Xylene	1.167	1.357	1.133	1.352	1.160	1.155	1.132	1.208	8.37#
82)	C	Cyclohexanone	0.037	0.036	0.013	0.015	0.013	0.012	0.012	0.020#	58.06#
83)	CP	Bromoform		0.210	0.135	0.167	0.154	0.191	0.196	0.175	16.17
84)	CP	Isopropylbenzene	1.358	1.562	1.402	1.538	1.376	1.350	1.308	1.414	6.93#
85)	S	Bromofluoroben...	0.470	0.477	0.480	0.471	0.497	0.495	0.495	0.484	2.44
86)	C	Bromobenzene	0.874	0.917	0.802	0.915	0.789	0.800	0.769	0.838	7.44#
87)	C	1,2,3-Trichlor...	0.077	0.147	0.103	0.119	0.102	0.117	0.103	0.110#	19.61#
88)	C	trans-1,4-Dich...	0.085	0.122	0.083	0.126	0.102	0.119	0.111	0.107#	16.40#
89)	C	n-Propylbenzene	1.707	2.057	1.675	1.931	1.698	1.682	1.609	1.765	9.27#
90)	C	2-Chlorotoluene	1.010	1.316	1.019	1.169	1.004	1.003	0.958	1.068	11.95#

Method Path : C:\msdchem\1\methods\
Method File : 10SGO0529.M

91)	C	4-Chlorotoluene	1.239	1.490	1.196	1.318	1.167	1.146	1.097	1.236	10.72#
92)	C	1,3,5-Trimethy...	1.150	1.262	1.118	1.257	1.125	1.110	1.087	1.159	6.17#
93)	C	tert-Butylbenzene		1.029	0.811	0.804	0.687	0.694	0.669	0.782	17.35#
94)	C	1,2,4-Trimethy...	1.150	1.362	1.208	1.307	1.168	1.166	1.124	1.212	7.30#
95)	C	sec-Butylbenzene	1.468	1.818	1.445	1.657	1.460	1.429	1.363	1.520	10.48#
96)	I	1,4-Dichlorobenzen...	----------	ISTD	----------						
97)	CP	1,1,2,2-Tetrac...	0.980	1.152	0.858	0.976	0.801	0.896	0.811	0.925	13.31#
98)	CP	1,3-Dichlorobe...	1.641	1.834	1.453	1.603	1.409	1.363	1.299	1.515	12.35#
99)	C	p-Isopropyltol...	2.830	3.152	2.643	3.028	2.671	2.589	2.473	2.769	8.89#
100)	CP	1,4-Dichlorobe...		1.967	1.443	1.544	1.384	1.354	1.280	1.495	16.57#
101)	C	1,2,3-Trimethy...	2.882	3.282	2.667	2.969	2.684	2.611	2.537	2.805	9.25#
102)	C	Benzyl chloride	0.959	0.862	0.749	0.880	0.803	1.217	1.332	0.972	22.59#
103)	CP	1,2-Dichlorobe...	1.671	1.800	1.313	1.485	1.334	1.310	1.248	1.452	14.49#
104)	T	n-Butylbenzene		4.313	2.910	3.035	2.608	2.505	2.359	2.955	24.07
105)	C	Hexachloroethane		0.340	0.330	0.444	0.411	0.492	0.507	0.421	17.78#
106)	CP	1,2-Dibromo-3-...		0.163	0.113	0.142	0.116	0.157	0.148	0.140	15.05#
107)	C	1,3,5-Trichlor...		1.375	1.073	1.126	1.037	0.991	0.954	1.092	13.81#
108)	CP	1,2,4-Trichlor...		1.187	0.991	1.064	0.944	0.904	0.882	0.995	11.48#
109)	C	Hexachlorobuta...		0.659	0.529	0.538	0.515	0.478	0.446	0.528	13.85#
110)	C	Naphthalene	2.707	3.323	2.265	2.649	2.216	2.427	2.337	2.560	14.99#
111)	C	1,2,3-Trichlor...		1.372	0.964	1.042	0.894	0.881	0.857	1.002	19.34#
112)	C	2-Methylnaphth...	1.539	1.841	1.398	1.521	1.295	1.504	1.491	1.513	11.11#
113)	C	1-Methylnaphth...	1.397	1.776	1.174	1.460	1.203	1.348	1.312	1.381	14.56#
114)	I	Ethyl-d5-Acetate-d3	----------	ISTD	----------						
115)	T	2-Propanone	6.369	3.775	1.944	1.296	0.792	0.686	0.664	2.218	96.31
116)	T	Acetic Ether	2.749	1.756	1.962	2.248	2.407	2.168	2.393	2.240	14.42
117)	T	Isopropyl Acetate		0.177	0.639	0.616	0.782	0.643	0.757	0.602	36.38
118)	T	Amyl Acetate	4.485	4.756	3.063	2.543	3.030	2.964	3.399	3.463	24.05

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 10SGO0529.M
Title : 8260 Global Optimization Method
Last Update : Fri Jun 22 14:47:39 2018
Response Via : Initial Calibration

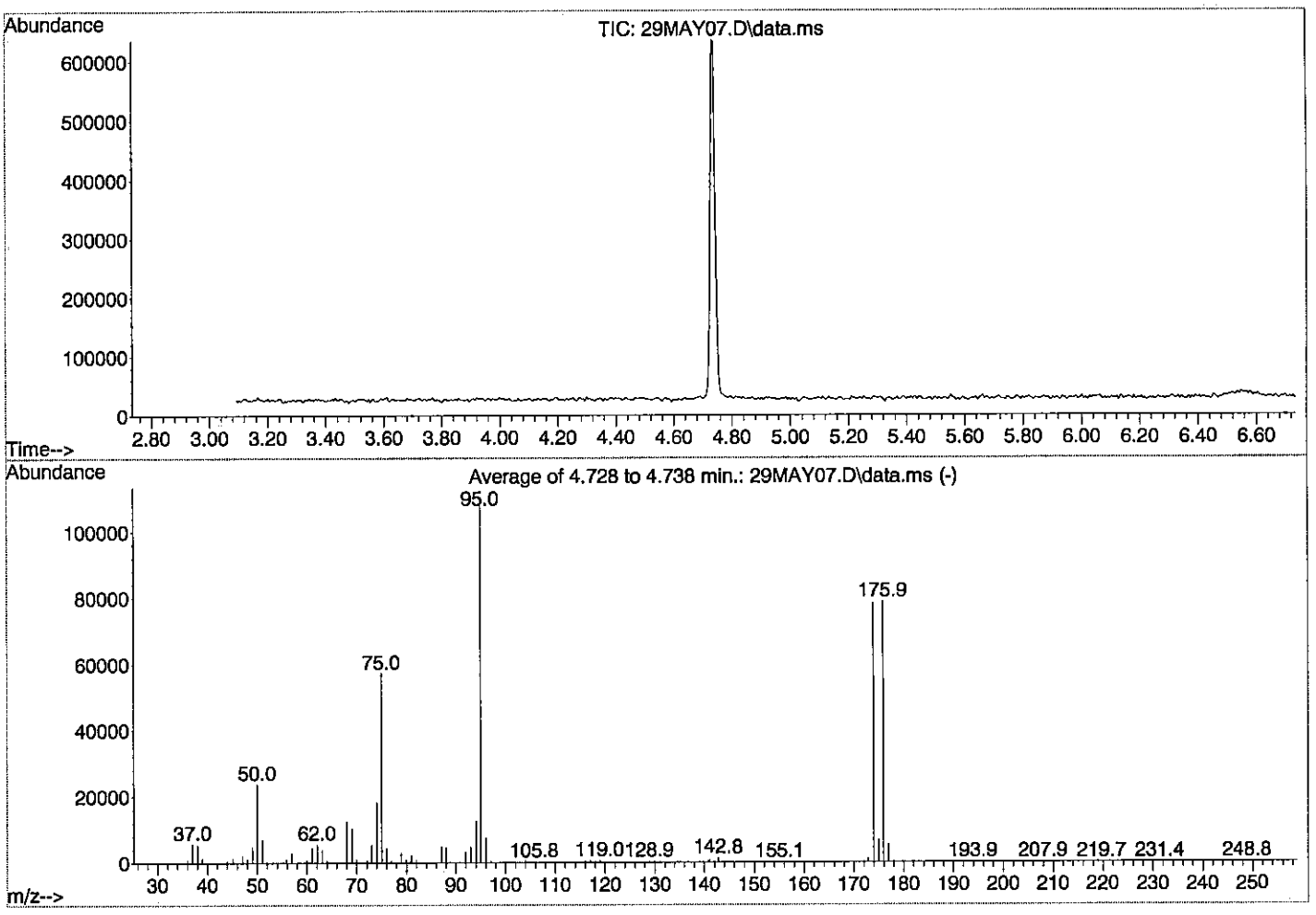
Calibration Files
1 =29MAY11 2 =29MAY12 3 =29MAY13 4 =29MAY14 5 =29MAY15 6 =29MAY16
8 =29MAY18

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
3)	CP	Chloromethane	Lin	0.0111	0.6663	-----	0.9981
5)	CP	Bromomethane	Lin	0.0070	0.2640	-----	0.9982
9)	C	Acrolein	Quad	0.0241	0.0140	0.0023	0.9995
12)	C	Methyl iodide	Quad	0.0015	0.1116	0.0335	0.9997
13)	CP	Acetone	Lin	0.0196	0.1402	-----	0.9982
19)	CP	Methylene chloride	Lin	0.1186	0.6597	-----	0.9990
21)	C	t-Butanol	Lin	0.0136	0.0508	-----	0.9993
24)	T	Hexane	Lin	0.0352	0.5635	-----	0.9994
27)	C	Vinyl acetate	Lin	-0.0039	0.0893	-----	0.9996
31)	CP	2-Butanone	Quad	0.0041	0.1984	0.0043	0.9967
32)	C	Ethyl Acetate	Lin	0.0063	0.5070	-----	0.9992
36)	C	Tetrahydrofuran	Lin	0.0024	0.1740	-----	0.9922
38)	CP	Chloroform	Lin	0.0341	0.8375	-----	0.9991
39)	CP	Cyclohexane	Lin	0.0333	0.7704	-----	0.9992
40)	I	1,4-Difluorobenzene		----------ISTD----------			
50)	C	Heptane	Lin	0.0084	0.3826	-----	0.9984
53)	T	n-Butanol	Quad	-----	-----	-----	0.0000
59)	C	2-Chloroethyl vi...	Quad	0.0012	0.0601	0.0026	0.9954
60)	C	2-Nitropropane	Quad	0.0012	0.0601	0.0026	0.9954
62)	I	Chlorobenzene-d5		----------ISTD----------			
63)	CP	4-Methyl-2-penta...	Lin	0.0009	0.3313	-----	0.9971
66)	CP	trans-1,3-Dichlo...	Quad	-0.0007	0.4094	0.0197	0.9944
67)	T	Chloropicrin	Quad	-----	-----	-----	0.0000
72)	CP	2-Hexanone	Lin	0.0007	0.2217	-----	0.9959
74)	T	Butyl acetate	Lin	0.0001	0.5043	-----	0.9953
82)	C	Cyclohexanone	Lin	0.0026	0.0121	-----	0.9999
96)	I	1,4-Dichlorobenz...		----------ISTD----------			
102)	C	Benzyl chloride	Quad	-0.0062	0.9779	0.0737	0.9962
104)	T	n-Butylbenzene	Lin	0.0660	2.3936	-----	0.9988
114)	I	Ethyl-d5-Acetate-d3		----------ISTD----------			
115)	T	2-Propanone	Lin	0.1094	0.6391	-----	0.9939
116)	T	Acetic Ether	Lin	-0.0063	2.3313	-----	0.9975
117)	T	Isopropyl Acetate	Lin	-0.0155	0.7343	-----	0.9945
118)	T	Amyl Acetate	Lin	-0.1423	3.3736	-----	0.9974

Data Path : D:\MassHunter\GCMS\1\data\10V180529\
Data File : 29MAY07.D
Acq On : 29 May 2018 10:41 am
Operator : AK
Sample : VBFB5180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : D:\MassHunter\GCMS\1\methods\10SG00627.M
Title : 8260 Global Optimization Method
Last Update : Thu Jun 28 09:26:27 2018



Spectrum Information: Average of 4.728 to 4.738 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.0	23778	PASS
75	95	30	60	53.0	57283	PASS
95	95	100	100	100.0	108093	PASS
96	95	5	9	6.9	7483	PASS
173	174	0.00	2	1.5	1197	PASS
174	95	50	100	72.3	78200	PASS
175	174	5	9	8.5	6619	PASS
176	174	95	101	100.8	78811	PASS
177	176	5	9	6.8	5391	PASS

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY11.D
Acq On : 29 May 2018 12:44 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 30 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	94806	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	155907	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	130649	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	56806	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	18864	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.923	111	46895	19.90	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 99.50%				
45) 1,2-Dichloroethane-d4	5.463	65	57331	25.07	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 125.35%				
64) Toluene-d8	7.807	98	181966	20.59	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 102.95%				
85) Bromofluorobenzene	9.542	95	61430	20.96	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 104.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	1565	0.07	ug/L		89
3) Chloromethane	1.394	50	2490	0.73	ug/L		96
4) Vinyl chloride	1.473	62	1355	0.45	ug/L		84
5) Bromomethane	1.704	96	838	0.52	ug/L		93
6) Chloroethane	1.772	64	947	0.10	ug/L		89
7) Trichlorofluoromethane	1.966	101	1909	0.47	ug/L		92
8) Ethyl ether	2.170	59	609	0.33	ug/L		94
9) Acrolein	2.291	56	945	No Calib			
10) 1,1-Dichloroethene	2.364	61	1318	0.37	ug/L		80
11) 1,1,2-Trichlorotrifluo...	2.369	151	260	Below Cal		#	77
12) Methyl iodide	2.495	142	342	Below Cal		#	43
13) Acetone	2.406	43	2403	Below Cal			78
14) Chloroprene	3.596	53	1091	0.31	ug/L	#	68
15) Carbon disulfide	2.558	76	3356	0.05	ug/L		100
16) Allyl chloride	2.679	41	2557	0.76	ug/L	#	63
17) Methyl acetate	2.668	43	878	0.60	ug/L	#	68
18) Acetonitrile	2.679	41	2557	0.76	ug/L	#	72
19) Methylene chloride	2.799	49	12564	2.51	ug/L		84
20) trans-1,2-Dichloroethene	3.056	61	1252	0.32	ug/L		91
21) t-Butanol	2.883	59	2218	6.53	ug/L	#	92
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	3.041	73	1989	0.34	ug/L		97
24) Hexane	3.334	57	4009	0.44	ug/L	#	76
25) 1,1-Dichloroethane	3.518	63	1633	0.34	ug/L	#	83
26) Diisopropyl ether	3.549	45	2659	0.36	ug/L	#	88
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.990	59	2005	0.33	ug/L	#	87
29) 2,2-Dichloropropane	4.205	77	1107	0.36	ug/L	#	44
30) cis-1,2-Dichloroethene	4.210	61	1427	0.33	ug/L		86
31) 2-Butanone	4.220	43	1567	1.76	ug/L	#	45
32) Ethyl Acetate	4.273	43	1449m	0.75	ug/L		
33) Methyl acrylate	4.346	55	462	0.26	ug/L	#	64
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.540	49	907	0.44	ug/L	#	24
36) Tetrahydrofuran	4.561	42	508	0.76	ug/L	#	28
37) Methacrylonitrile	4.514	41	387	0.27	ug/L	#	48
38) Chloroform	4.692	83	4482	0.44	ug/L		91

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY11.D
Acq On : 29 May 2018 12:44 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 30 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	4.991	56	3400	0.12 ug/L	#	67
41)	1,1,1-Trichloroethane	4.907	97	1082	0.31 ug/L	#	70
43)	Carbon tetrachloride	5.138	117	736	0.23 ug/L		81
44)	1,1-Dichloropropene	5.164	75	1207	0.30 ug/L	#	67
46)	1,2-Dichloroethane	5.599	62	1302	0.41 ug/L	#	66
47)	Benzene	5.479	78	3688	0.30 ug/L		85
48)	Tertiaryamylmethylether	5.751	73	1872	0.36 ug/L	#	75
49)	Isobutyl Alcohol	5.741	43	1279m	1.04 ug/L		
50)	Heptane	6.055	43	1641	0.30 ug/L	#	68
51)	1,4-Dioxane	6.994	88	1129	37.67 ug/L	#	78
52)	Methylcyclohexane	6.842	83	1205	0.24 ug/L	#	43
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.580	130	1075	0.35 ug/L		89
55)	1,2-Dichloropropane	6.894	63	894	0.32 ug/L	#	56
56)	Dibromomethane	6.983	93	437	0.28 ug/L	#	87
57)	Methyl methacrylate	7.010	41	1239	0.77 ug/L	#	49
58)	Bromodichloromethane	7.183	83	1479	0.46 ug/L	#	81
59)	2-Chloroethyl vinyl ether	7.419	43	524	0.61 ug/L	#	32
60)	2-Nitropropane	7.419	43	524	0.68 ug/L	#	91
61)	cis-1,3-Dichloropropene	7.592	75	1072	0.30 ug/L		85
63)	4-Methyl-2-pentanone	7.738	43	1046	0.62 ug/L	#	65
65)	Toluene	7.859	91	4039	0.33 ug/L		96
66)	trans-1,3-Dichloropropene	8.069	75	958	0.35 ug/L		85
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	8.121	69	940	0.38 ug/L	#	12
69)	1,1,2-Trichloroethane	8.205	97	616	0.28 ug/L		92
70)	Tetrachloroethene	8.247	166	1026	0.33 ug/L		90
71)	1,3-Dichloropropane	8.320	76	1302	0.35 ug/L		85
72)	2-Hexanone	8.373	43	769	0.74 ug/L	#	48
73)	Chlorodibromomethane	8.467	129	489	0.22 ug/L	#	77
74)	Butyl acetate	8.462	43	1648	0.66 ug/L	#	70
75)	1,2-Dibromoethane	8.541	107	512	0.25 ug/L	#	90
76)	Chlorobenzene	8.860	112	2148	0.29 ug/L	#	43
77)	1,1,1,2-Tetrachloroethane	8.918	131	572	0.26 ug/L	#	87
78)	Ethylbenzene	8.923	91	3922	0.32 ug/L		98
79)	m/p-Xylene	9.002	91	5953	0.65 ug/L		98
80)	Styrene	9.248	104	2049	0.29 ug/L		93
81)	o-Xylene	9.233	91	3049	0.33 ug/L		97
82)	Cyclohexanone	9.500	55	488	No Calib	#	
83)	Bromoform	9.353	173	281	0.23 ug/L	#	55
84)	Isopropylbenzene	9.442	105	3548	0.31 ug/L		96
86)	Bromobenzene	9.621	77	2285	0.39 ug/L		79
87)	1,2,3-Trichloropropane	9.652	110	201	0.25 ug/L	#	31
88)	trans-1,4-Dichloro-2-b...	9.636	53	222	0.37 ug/L	#	73
89)	n-Propylbenzene	9.668	91	4460	0.31 ug/L		99
90)	2-Chlorotoluene	9.720	91	2639	0.32 ug/L		93
91)	4-Chlorotoluene	9.788	91	3237	0.35 ug/L		91
92)	1,3,5-Trimethylbenzene	9.762	105	3006	0.33 ug/L		90
93)	tert-Butylbenzene	9.930	91	2253	0.38 ug/L	#	56
94)	1,2,4-Trimethylbenzene	9.961	105	3004	0.32 ug/L		92
95)	sec-Butylbenzene	10.045	105	3835	0.30 ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	1113	0.40 ug/L	#	88
98)	1,3-Dichlorobenzene	10.113	146	1864	0.35 ug/L		88
99)	p-Isopropyltoluene	10.119	119	3215	0.33 ug/L		90
100)	1,4-Dichlorobenzene	10.166	146	2062m	0.38 ug/L		

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY11.D
Acq On : 29 May 2018 12:44 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

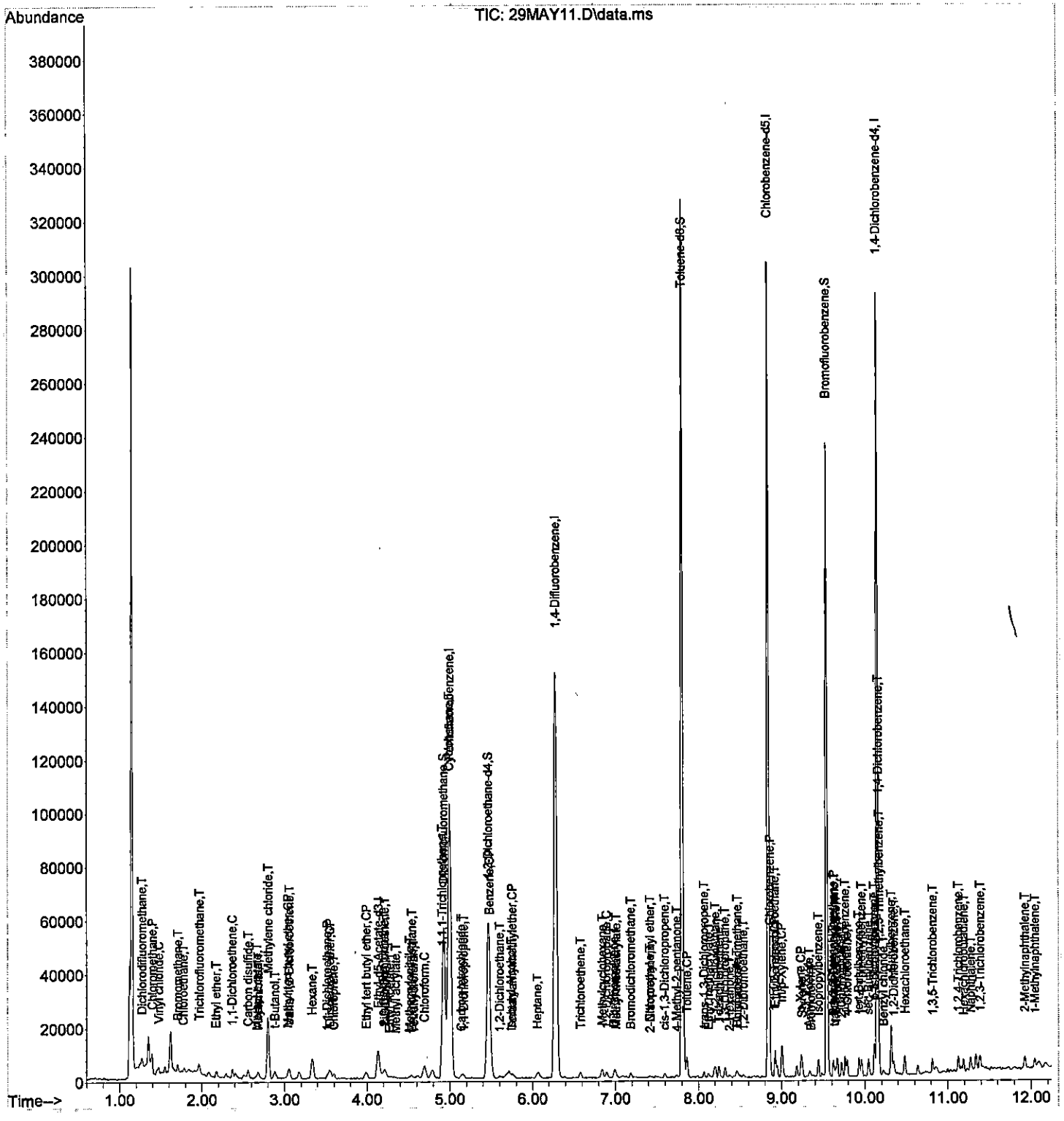
Quant Time: May 30 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	3274	0.37	ug/L		99
102) Benzyl chloride	10.224	91	1089	0.56	ug/L	#	68
103) 1,2-Dichlorobenzene	10.349	146	1899	0.39	ug/L		89
104) n-Butylbenzene	10.318	91	5958	0.62	ug/L	#	71
105) Hexachloroethane	10.486	117	312	0.19	ug/L	#	75
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.			
107) 1,3,5-Trichlorobenzene	10.816	180	1330	0.34	ug/L		94
108) 1,2,4-Trichlorobenzene	11.125	180	1473	0.43	ug/L		98
109) Hexachlorobutadiene	11.188	225	676	0.35	ug/L		92
110) Naphthalene	11.272	128	3075	0.43	ug/L		89
111) 1,2,3-Trichlorobenzene	11.388	180	1363	0.43	ug/L		83
112) 2-Methylnaphthalene	11.922	142	1749	0.61	ug/L		95
113) 1-Methylnaphthalene	12.043	142	1587	0.64	ug/L		97
115) 2-Propanone	2.406	43	2403	Below Cal		#	78
116) Acetic Ether	4.273	43	1037	Below Cal		#	67
117) Isopropyl Acetate	0.000		0	N.D.			
118) Amyl Acetate	9.332	43	1692	1.48	ug/L	#	66

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY11.D
Acq On : 29 May 2018 12:44 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 30 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY12.D
Acq On : 29 May 2018 01:01 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 30 08:34:51 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	96900	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	158770	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	135191	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	58874	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	19549	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	48642	20.27	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 101.35%				
45) 1,2-Dichloroethane-d4	5.468	65	60060	25.79	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 128.95%#				
64) Toluene-d8	7.806	98	188613	20.63	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 103.15%				
85) Bromofluorobenzene	9.542	95	64484	21.27	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 106.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	2517	0.38	ug/L		90
3) Chloromethane	1.394	50	3060	0.88	ug/L		95
4) Vinyl chloride	1.473	62	1999	0.65	ug/L		87
5) Bromomethane	1.709	96	1241	0.82	ug/L		87
6) Chloroethane	1.782	64	1239	0.26	ug/L		87
7) Trichlorofluoromethane	1.966	101	3022	0.73	ug/L		95
8) Ethyl ether	2.175	59	1314	0.70	ug/L		88
9) Acrolein	2.291	56	1435	No Calib			
10) 1,1-Dichloroethene	2.369	61	2205	0.60	ug/L		97
11) 1,1,2-Trichlorotrifluo...	2.369	151	893	0.14	ug/L		90
12) Methyl iodide	2.495	142	441	Below Cal		#	43
13) Acetone	2.406	43	2214	Below Cal			75
14) Chloroprene	3.601	53	2483	0.70	ug/L	#	74
15) Carbon disulfide	2.558	76	4752	0.21	ug/L		98
16) Allyl chloride	2.679	41	3448	1.01	ug/L	#	78
17) Methyl acetate	2.673	43	1361	0.91	ug/L	#	65
18) Acetonitrile	2.679	41	3448	1.01	ug/L	#	87
19) Methylene chloride	2.799	49	13168	2.62	ug/L		80
20) trans-1,2-Dichloroethene	3.056	61	2491	0.62	ug/L		85
21) t-Butanol	2.883	59	2213	6.26	ug/L	#	85
22) Acrylonitrile	3.040	53	333	0.37	ug/L		91
23) Methyl tert-butyl ether	3.046	73	3459	0.57	ug/L		86
24) Hexane	3.339	57	5015	0.71	ug/L		90
25) 1,1-Dichloroethane	3.523	63	3049	0.62	ug/L		92
26) Diisopropyl ether	3.549	45	4495	0.60	ug/L	#	95
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.995	59	3669	0.59	ug/L	#	90
29) 2,2-Dichloropropane	4.215	77	2191	0.70	ug/L	#	67
30) cis-1,2-Dichloroethene	4.215	61	2701	0.60	ug/L		88
31) 2-Butanone	4.236	43	1118m	1.23	ug/L		
32) Ethyl Acetate	4.283	43	2417m	1.23	ug/L		
33) Methyl acrylate	4.351	55	1320	0.72	ug/L	#	64
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.540	49	1460	0.70	ug/L	#	66
36) Tetrahydrofuran	4.566	42	720	1.06	ug/L	#	28
37) Methacrylonitrile	4.524	41	1414	0.95	ug/L	#	74
38) Chloroform	4.697	83	6034	0.76	ug/L		95

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY12.D
Acq On : 29 May 2018 01:01 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 30 08:34:51 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	5.001	56	5253	0.54 ug/L #	80
41) 1,1,1-Trichloroethane	4.917	97	2205	0.61 ug/L #	81
43) Carbon tetrachloride	5.138	117	1673	0.50 ug/L	90
44) 1,1-Dichloropropene	5.164	75	2069	0.51 ug/L	96
46) 1,2-Dichloroethane	5.604	62	2522	0.78 ug/L #	83
47) Benzene	5.489	78	6966	0.56 ug/L	89
48) Tertiaryamylmethylether	5.756	73	3258	0.62 ug/L #	83
49) Isobutyl Alcohol	5.751	43	1681	1.30 ug/L #	47
50) Heptane	6.071	43	2996	0.69 ug/L #	79
51) 1,4-Dioxane	6.988	88	2523	82.67 ug/L #	81
52) Methylcyclohexane	6.842	83	2653	0.52 ug/L #	75
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.585	130	1435	0.45 ug/L	88
55) 1,2-Dichloropropane	6.894	63	1705	0.60 ug/L #	71
56) Dibromomethane	6.983	93	1011	0.65 ug/L	96
57) Methyl methacrylate	7.009	41	1879	1.15 ug/L #	58
58) Bromodichloromethane	7.188	83	2440	0.75 ug/L #	87
59) 2-Chloroethyl vinyl ether	7.403	43	510	0.53 ug/L #	20
60) 2-Nitropropane	7.403	43	510	0.58 ug/L #	49
61) cis-1,3-Dichloropropene	7.597	75	2162	0.60 ug/L	97
63) 4-Methyl-2-pentanone	7.733	43	1926	1.10 ug/L #	69
65) Toluene	7.859	91	6947	0.55 ug/L	95
66) trans-1,3-Dichloropropene	8.069	75	1644	0.58 ug/L	83
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.121	69	1656	0.65 ug/L #	40
69) 1,1,2-Trichloroethane	8.210	97	1451	0.63 ug/L	92
70) Tetrachloroethene	8.247	166	1525	0.47 ug/L	93
71) 1,3-Dichloropropane	8.320	76	2332	0.60 ug/L	94
72) 2-Hexanone	8.378	43	1312	1.22 ug/L #	76
73) Chlorodibromomethane	8.467	129	1151	0.50 ug/L	91
74) Butyl acetate	8.457	43	2759	1.07 ug/L #	75
75) 1,2-Dibromoethane	8.540	107	1105	0.52 ug/L #	93
76) Chlorobenzene	8.860	112	3948	0.51 ug/L #	55
77) 1,1,1,2-Tetrachloroethane	8.923	131	1272	0.56 ug/L	96
78) Ethylbenzene	8.923	91	7006	0.56 ug/L	100
79) m/p-Xylene	9.007	91	11189	1.18 ug/L	93
80) Styrene	9.248	104	4018	0.55 ug/L	89
81) o-Xylene	9.232	91	5505	0.57 ug/L	89
82) Cyclohexanone	9.500	55	731	No Calib #	
83) Bromoform	9.358	173	852	0.66 ug/L #	69
84) Isopropylbenzene	9.442	105	6337	0.53 ug/L	97
86) Bromobenzene	9.620	77	3718	0.61 ug/L	88
87) 1,2,3-Trichloropropane	9.652	110	597	0.71 ug/L	88
88) trans-1,4-Dichloro-2-b...	9.636	53	496	0.79 ug/L #	50
89) n-Propylbenzene	9.668	91	8344	0.55 ug/L	100
90) 2-Chlorotoluene	9.720	91	5336	0.63 ug/L	89
91) 4-Chlorotoluene	9.788	91	6045	0.62 ug/L	88
92) 1,3,5-Trimethylbenzene	9.762	105	5117	0.54 ug/L	100
93) tert-Butylbenzene	9.930	91	4174	0.68 ug/L	77
94) 1,2,4-Trimethylbenzene	9.961	105	5523	0.57 ug/L	81
95) sec-Butylbenzene	10.045	105	7372	0.56 ug/L	95
97) 1,1,2,2-Tetrachloroethane	9.620	83	2035	0.70 ug/L #	89
98) 1,3-Dichlorobenzene	10.113	146	3239	0.59 ug/L	96
99) p-Isopropyltoluene	10.119	119	5568	0.55 ug/L	91
100) 1,4-Dichlorobenzene	10.166	146	3475m	0.62 ug/L	

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY12.D
Acq On : 29 May 2018 01:01 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

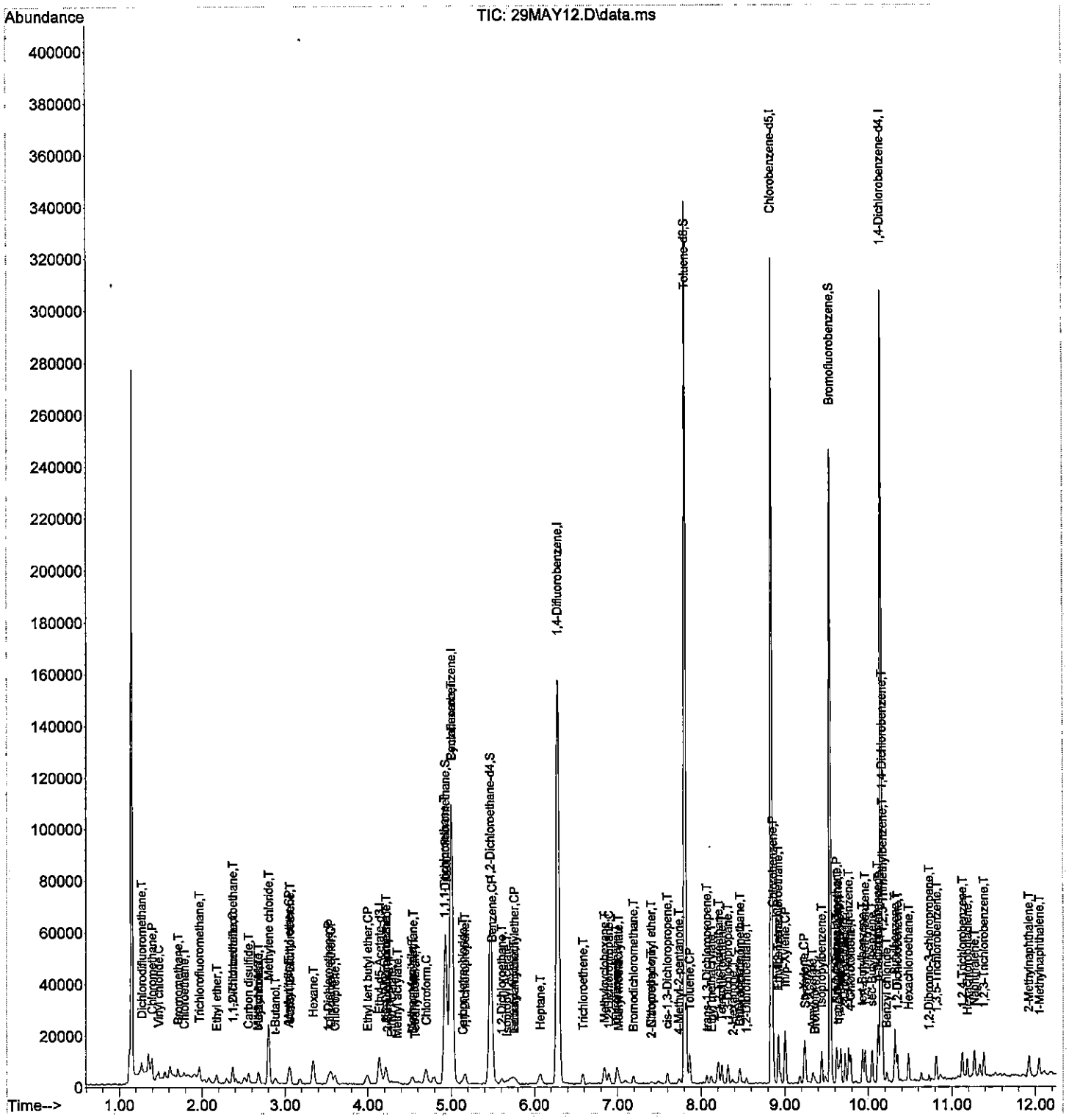
Quant Time: May 30 08:34:51 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	5797	0.63	ug/L		96
102) Benzyl chloride	10.218	91	1523	0.73	ug/L		98
103) 1,2-Dichlorobenzene	10.349	146	3179	0.63	ug/L		96
104) n-Butylbenzene	10.318	91	7617	0.76	ug/L		83
105) Hexachloroethane	10.480	117	600	0.36	ug/L	#	70
106) 1,2-Dibromo-3-chloropr...	10.727	157	288	0.67	ug/L	#	82
107) 1,3,5-Trichlorobenzene	10.816	180	2428	0.60	ug/L	#	93
108) 1,2,4-Trichlorobenzene	11.125	180	2096	0.59	ug/L	#	67
109) Hexachlorobutadiene	11.183	225	1164	0.58	ug/L		90
110) Naphthalene	11.267	128	5869	0.79	ug/L		97
111) 1,2,3-Trichlorobenzene	11.382	180	2424	0.73	ug/L		99
112) 2-Methylnaphthalene	11.917	142	3251	1.06	ug/L		99
113) 1-Methylnaphthalene	12.043	142	3137	1.12	ug/L		93
115) 2-Propanone	2.406	43	2214	Below Cal		#	75
116) Acetic Ether	4.283	43	1030	Below Cal		#	86
117) Isopropyl Acetate	5.667	61	104	1.17	ug/L	#	1
118) Amyl Acetate	9.332	43	2789	1.68	ug/L	#	72

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY12.D
Acq On : 29 May 2018 01:01 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 30 08:34:51 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY13.D
Acq On : 29 May 2018 01:20 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 08:35:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	94738	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	154424	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	130627	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	58517	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17514	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	46746	20.02	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 100.10%				
45) 1,2-Dichloroethane-d4	5.468	65	57931	25.57	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 127.85%#				
64) Toluene-d8	7.807	98	185366	20.98	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 104.90%				
85) Bromofluorobenzene	9.542	95	62664	21.39	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 106.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	6727	1.84	ug/L		95
3) Chloromethane	1.394	50	6945	2.04	ug/L		97
4) Vinyl chloride	1.473	62	5575	1.85	ug/L		99
5) Bromomethane	1.709	96	3332	2.46	ug/L		92
6) Chloroethane	1.782	64	3118	1.45	ug/L		86
7) Trichlorofluoromethane	1.966	101	7856	1.95	ug/L		96
8) Ethyl ether	2.170	59	3414	1.85	ug/L		88
9) Acrolein	2.291	56	2808	No Calib			
10) 1,1-Dichloroethene	2.364	61	6637	1.86	ug/L		85
11) 1,1,2-Trichlorotrifluo...	2.370	151	2734	1.15	ug/L		100
12) Methyl iodide	2.495	142	1207	Below Cal		#	91
13) Acetone	2.406	43	3404	1.14	ug/L		83
14) Chloroprene	3.602	53	7075	2.03	ug/L	#	78
15) Carbon disulfide	2.558	76	11028	1.00	ug/L		100
16) Allyl chloride	2.679	41	7546	2.25	ug/L	#	89
17) Methyl acetate	2.674	43	3552	2.42	ug/L	#	82
18) Acetonitrile	2.679	41	7546	2.25	ug/L	#	93
19) Methylene chloride	2.799	49	17158	4.03	ug/L	#	79
20) trans-1,2-Dichloroethene	3.056	61	6601	1.68	ug/L		88
21) t-Butanol	2.883	59	2899	9.99	ug/L	#	71
22) Acrylonitrile	3.035	53	1563	1.79	ug/L		80
23) Methyl tert-butyl ether	3.046	73	9003	1.52	ug/L		97
24) Hexane	3.334	57	8214	1.69	ug/L		85
25) 1,1-Dichloroethane	3.523	63	8591	1.78	ug/L		95
26) Diisopropyl ether	3.554	45	12927	1.77	ug/L	#	96
27) Vinyl acetate	3.539	86	455	1.53	ug/L	#	1
28) Ethyl tert butyl ether	3.984	59	10803	1.76	ug/L		94
29) 2,2-Dichloropropane	4.215	77	5878	1.93	ug/L	#	78
30) cis-1,2-Dichloroethene	4.215	61	7706	1.76	ug/L		87
31) 2-Butanone	4.236	43	2084	2.35	ug/L	#	55
32) Ethyl Acetate	4.278	43	5035m	2.61	ug/L		
33) Methyl acrylate	4.341	55	3313	1.84	ug/L	#	75
34) Propionitrile	5.002	54	529	0.81	ug/L	#	1
35) Bromochloromethane	4.530	49	4250	2.08	ug/L	#	75
36) Tetrahydrofuran	4.561	42	1694	2.54	ug/L	#	31
37) Methacrylonitrile	4.519	41	4432	3.04	ug/L	#	71
38) Chloroform	4.692	83	10798	1.85	ug/L		96

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY13.D
Acq On : 29 May 2018 01:20 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 08:35:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	5.002	56	10042	1.71 ug/L #	90
41) 1,1,1-Trichloroethane	4.912	97	5735	1.63 ug/L	98
43) Carbon tetrachloride	5.143	117	4542	1.41 ug/L	98
44) 1,1-Dichloropropene	5.164	75	6239	1.58 ug/L	95
46) 1,2-Dichloroethane	5.599	62	6210	1.98 ug/L	96
47) Benzene	5.484	78	17517	1.44 ug/L	93
48) Tertiaryamylmethylether	5.757	73	8989	1.75 ug/L	95
49) Isobutyl Alcohol	5.751	43	4487m	3.29 ug/L	
50) Heptane	6.071	43	6492	1.77 ug/L #	82
51) 1,4-Dioxane	6.989	88	5359	180.54 ug/L	84
52) Methylcyclohexane	6.842	83	7161	1.43 ug/L #	81
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.580	130	4018	1.30 ug/L	87
55) 1,2-Dichloropropane	6.894	63	4251	1.53 ug/L #	77
56) Dibromomethane	6.989	93	2362	1.55 ug/L	95
57) Methyl methacrylate	7.010	41	4373	2.75 ug/L #	65
58) Bromodichloromethane	7.188	83	5393	1.71 ug/L	97
59) 2-Chloroethyl vinyl ether	7.403	43	941	2.07 ug/L #	86
60) 2-Nitropropane	7.403	43	941	2.36 ug/L #	58
61) cis-1,3-Dichloropropene	7.597	75	6059	1.73 ug/L	95
63) 4-Methyl-2-pentanone	7.733	43	3603	2.14 ug/L	81
65) Toluene	7.859	91	19132	1.57 ug/L	98
66) trans-1,3-Dichloropropene	8.063	75	4676	1.71 ug/L	92
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.116	69	4948	2.02 ug/L #	66
69) 1,1,2-Trichloroethane	8.210	97	3349	1.50 ug/L	92
70) Tetrachloroethene	8.247	166	4576	1.46 ug/L	99
71) 1,3-Dichloropropane	8.320	76	6083	1.62 ug/L	90
72) 2-Hexanone	8.373	43	2387m	2.31 ug/L	
73) Chlorodibromomethane	8.467	129	3227	1.46 ug/L	96
74) Butyl acetate	8.457	43	4781	1.93 ug/L #	92
75) 1,2-Dibromoethane	8.541	107	3424	1.66 ug/L #	89
76) Chlorobenzene	8.860	112	11141	1.50 ug/L	82
77) 1,1,1,2-Tetrachloroethane	8.923	131	3343	1.52 ug/L	96
78) Ethylbenzene	8.923	91	19740	1.62 ug/L	95
79) m/p-Xylene	9.002	91	30482	3.32 ug/L	94
80) Styrene	9.248	104	10692	1.53 ug/L	87
81) o-Xylene	9.233	91	14801	1.59 ug/L	95
82) Cyclohexanone	9.500	55	854	No Calib #	
83) Bromoform	9.358	173	1761	1.42 ug/L	95
84) Isopropylbenzene	9.442	105	18319	1.58 ug/L	99
86) Bromobenzene	9.621	77	10480	1.79 ug/L	88
87) 1,2,3-Trichloropropane	9.647	110	1349	1.66 ug/L	89
88) trans-1,4-Dichloro-2-b...	9.636	53	1087	1.79 ug/L #	74
89) n-Propylbenzene	9.668	91	21876	1.50 ug/L	98
90) 2-Chlorotoluene	9.720	91	13309	1.61 ug/L	92
91) 4-Chlorotoluene	9.788	91	15620	1.67 ug/L	94
92) 1,3,5-Trimethylbenzene	9.762	105	14606	1.59 ug/L	95
93) tert-Butylbenzene	9.930	91	10595	1.78 ug/L	86
94) 1,2,4-Trimethylbenzene	9.961	105	15786	1.68 ug/L	80
95) sec-Butylbenzene	10.045	105	18878	1.48 ug/L	99
97) 1,1,2,2-Tetrachloroethane	9.621	83	5022	1.74 ug/L	98
98) 1,3-Dichlorobenzene	10.113	146	8503	1.55 ug/L	98
99) p-Isopropyltoluene	10.119	119	15467	1.54 ug/L	93
100) 1,4-Dichlorobenzene	10.166	146	8445	1.52 ug/L	87

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY13.D
Acq On : 29 May 2018 01:20 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

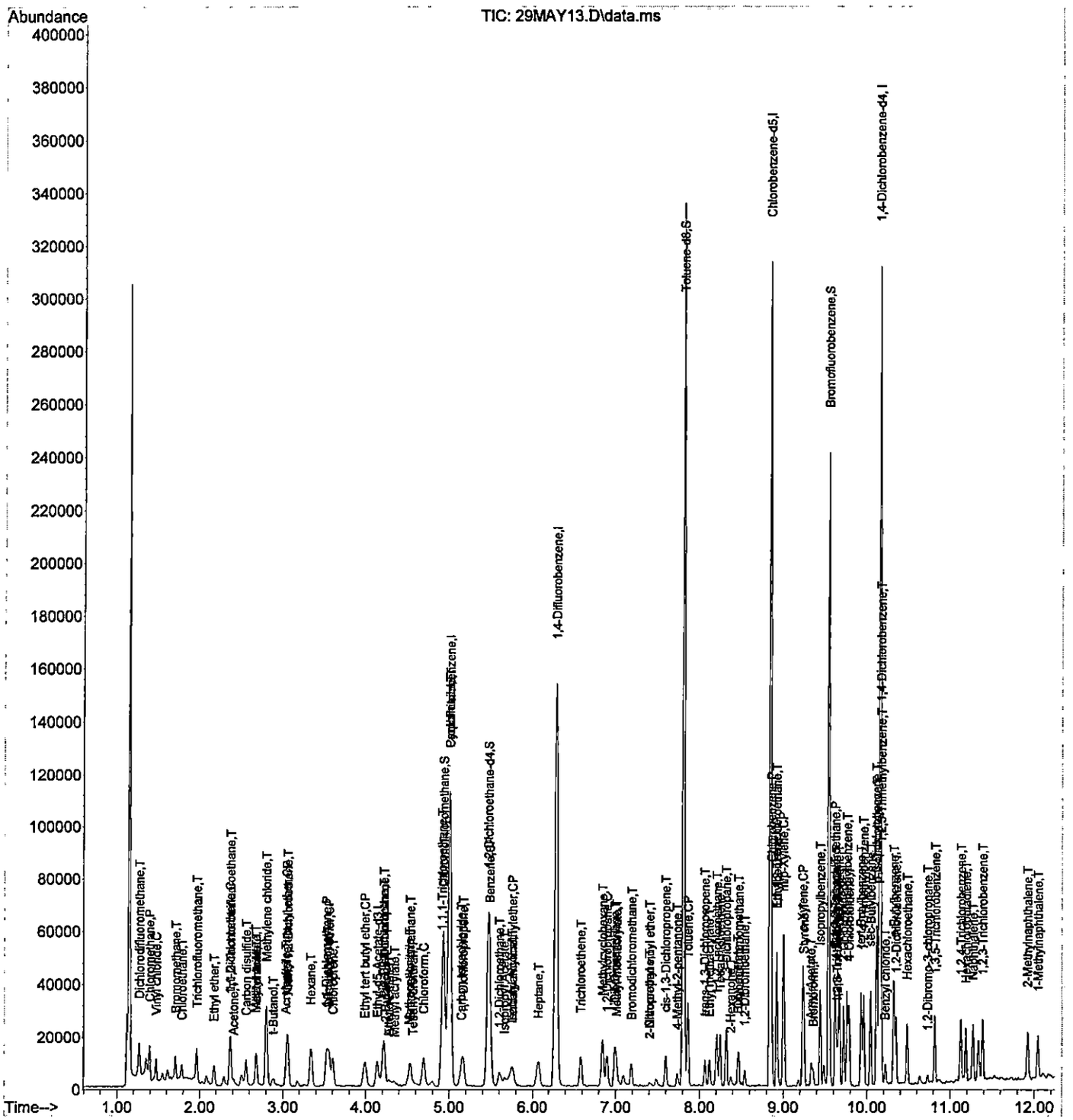
Quant Time: May 30 08:35:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	15605	1.71	ug/L		97
102) Benzyl chloride	10.218	91	4380	1.98	ug/L		87
103) 1,2-Dichlorobenzene	10.349	146	7681	1.53	ug/L		94
104) n-Butylbenzene	10.323	91	17030	1.72	ug/L		96
105) Hexachloroethane	10.480	117	1930	1.16	ug/L	#	82
106) 1,2-Dibromo-3-chloropr...	10.727	157	661	1.54	ug/L	#	77
107) 1,3,5-Trichlorobenzene	10.816	180	6276	1.56	ug/L		94
108) 1,2,4-Trichlorobenzene	11.125	180	5797	1.65	ug/L		94
109) Hexachlorobutadiene	11.183	225	3093	1.56	ug/L		94
110) Naphthalene	11.267	128	13256	1.80	ug/L		98
111) 1,2,3-Trichlorobenzene	11.382	180	5642	1.71	ug/L		94
112) 2-Methylnaphthalene	11.917	142	8181	2.58	ug/L		90
113) 1-Methylnaphthalene	12.043	142	6871	2.33	ug/L		99
115) 2-Propanone	2.406	43	3404	Below Cal		#	83
116) Acetic Ether	4.278	43	3436	0.41	ug/L	#	85
117) Isopropyl Acetate	5.662	61	1119	1.95	ug/L	#	48
118) Amyl Acetate	9.332	43	5365	2.28	ug/L	#	76

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY13.D
Acq On : 29 May 2018 01:20 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 30 08:35:49 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY14.D
Acq On : 29 May 2018 01:37 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 30 09:14:46 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	94168	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	152697	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	134753	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	61021	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	18713	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	48002	20.80	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 104.00%				
45) 1,2-Dichloroethane-d4	5.468	65	59421	26.53	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 132.65%#				
64) Toluene-d8	7.807	98	183878	20.18	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 100.90%				
85) Bromofluorobenzene	9.542	95	63491	21.01	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 105.05%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	11070	3.35	ug/L		95
3) Chloromethane	1.389	50	12375	3.66	ug/L		94
4) Vinyl chloride	1.468	62	9644	3.22	ug/L		99
5) Bromomethane	1.704	96	6310	4.81	ug/L		97
6) Chloroethane	1.782	64	5356	2.86	ug/L		98
7) Trichlorofluoromethane	1.961	101	12837	3.20	ug/L		98
8) Ethyl ether	2.170	59	7842	4.28	ug/L		92
9) Acrolein	2.291	56	6444	No Calib			
10) 1,1-Dichloroethene	2.364	61	14636	4.13	ug/L		86
11) 1,1,2-Trichlorotrifluo...	2.370	151	6054	2.97	ug/L		92
12) Methyl iodide	2.495	142	2666	7.34	ug/L		98
13) Acetone	2.406	43	4852	3.74	ug/L		80
14) Chloroprene	3.602	53	14998	4.34	ug/L	#	85
15) Carbon disulfide	2.558	76	24564	2.71	ug/L		100
16) Allyl chloride	2.679	41	16666	5.01	ug/L	#	90
17) Methyl acetate	2.674	43	6006	4.12	ug/L	#	86
18) Acetonitrile	2.679	41	16666	5.01	ug/L	#	97
19) Methylene chloride	2.799	49	25040	6.68	ug/L		81
20) trans-1,2-Dichloroethene	3.056	61	15254	3.92	ug/L		87
21) t-Butanol	2.883	59	6213	26.98	ug/L	#	86
22) Acrylonitrile	3.035	53	3983	4.59	ug/L		99
23) Methyl tert-butyl ether	3.046	73	19490	3.31	ug/L		93
24) Hexane	3.334	57	14428	3.56	ug/L		84
25) 1,1-Dichloroethane	3.523	63	19196	4.00	ug/L		99
26) Diisopropyl ether	3.549	45	26074	3.60	ug/L	#	96
27) Vinyl acetate	3.533	86	1436	3.55	ug/L	#	28
28) Ethyl tert butyl ether	3.984	59	20655	3.39	ug/L		96
29) 2,2-Dichloropropane	4.215	77	13821	4.57	ug/L	#	87
30) cis-1,2-Dichloroethene	4.210	61	17411	4.00	ug/L		86
31) 2-Butanone	4.220	43	4009	4.54	ug/L		80
32) Ethyl Acetate	4.278	43	10363m	5.41	ug/L		
33) Methyl acrylate	4.336	55	9532	5.33	ug/L	#	92
34) Propionitrile	5.007	54	1475	3.15	ug/L	#	34
35) Bromochloromethane	4.530	49	9882	4.86	ug/L		78
36) Tetrahydrofuran	4.572	42	4801m	7.24	ug/L		
37) Methacrylonitrile	4.509	41	10170m	7.02	ug/L		
38) Chloroform	4.692	83	21381	4.24	ug/L		97

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY14.D
Acq On : 29 May 2018 01:37 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 30 09:14:46 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.007	56	19177	3.92	ug/L	#	90
41)	1,1,1-Trichloroethane	4.912	97	13856	3.99	ug/L		95
43)	Carbon tetrachloride	5.143	117	11228	3.52	ug/L		97
44)	1,1-Dichloropropene	5.169	75	14192	3.64	ug/L		96
46)	1,2-Dichloroethane	5.604	62	15107	4.87	ug/L		97
47)	Benzene	5.484	78	40856	3.41	ug/L		95
48)	Tertiaryamylmethylether	5.751	73	17713	3.49	ug/L	#	90
49)	Isobutyl Alcohol	5.746	43	8948m	6.46	ug/L		
50)	Heptane	6.071	43	14437	4.21	ug/L	#	83
51)	1,4-Dioxane	6.989	88	10969	373.72	ug/L		90
52)	Methylcyclohexane	6.842	83	16520	3.34	ug/L	#	84
53)	n-Butanol	0.000		0	N.D.	d		
54)	Trichloroethene	6.580	130	9335	3.06	ug/L		91
55)	1,2-Dichloropropane	6.894	63	11188	4.07	ug/L		89
56)	Dibromomethane	6.983	93	6133	4.08	ug/L		94
57)	Methyl methacrylate	7.004	41	9093	5.77	ug/L	#	81
58)	Bromodichloromethane	7.188	83	11930	3.83	ug/L		100
59)	2-Chloroethyl vinyl ether	7.408	43	2506	7.59	ug/L	#	74
60)	2-Nitropropane	7.408	43	2506	8.43	ug/L	#	87
61)	cis-1,3-Dichloropropene	7.597	75	14413	4.16	ug/L		94
63)	4-Methyl-2-pentanone	7.733	43	8283	4.76	ug/L		85
65)	Toluene	7.859	91	41961	3.34	ug/L		98
66)	trans-1,3-Dichloropropene	8.063	75	12001	4.26	ug/L		91
67)	Chloropicrin	8.063	117	168	50.94	ug/L	#	69
68)	Ethyl methacrylate	8.116	69	11603	4.60	ug/L	#	73
69)	1,1,2-Trichloroethane	8.205	97	8527	3.69	ug/L		97
70)	Tetrachloroethene	8.247	166	9933	3.07	ug/L		97
71)	1,3-Dichloropropane	8.320	76	15437	3.99	ug/L		99
72)	2-Hexanone	8.373	43	4794	4.49	ug/L		91
73)	Chlorodibromomethane	8.467	129	8029	3.53	ug/L		97
74)	Butyl acetate	8.457	43	11411	4.45	ug/L		91
75)	1,2-Dibromoethane	8.541	107	7770	3.64	ug/L		94
76)	Chlorobenzene	8.860	112	27086	3.53	ug/L		91
77)	1,1,1,2-Tetrachloroethane	8.923	131	8002	3.52	ug/L		95
78)	Ethylbenzene	8.923	91	44567	3.55	ug/L		98
79)	m/p-Xylene	9.002	91	67544	7.12	ug/L		96
80)	Styrene	9.243	104	26668	3.69	ug/L		91
81)	o-Xylene	9.233	91	36440	3.80	ug/L		93
82)	Cyclohexanone	9.500	55	1966	No Calib		#	
83)	Bromoform	9.353	173	4493	3.52	ug/L		95
84)	Isopropylbenzene	9.442	105	41460	3.48	ug/L		99
86)	Bromobenzene	9.621	77	24664	4.09	ug/L		90
87)	1,2,3-Trichloropropane	9.647	110	3210	3.83	ug/L		83
88)	trans-1,4-Dichloro-2-b...	9.636	53	3406	5.43	ug/L	#	73
89)	n-Propylbenzene	9.668	91	52051	3.47	ug/L		97
90)	2-Chlorotoluene	9.720	91	31494	3.70	ug/L		93
91)	4-Chlorotoluene	9.788	91	35529	3.67	ug/L		96
92)	1,3,5-Trimethylbenzene	9.762	105	33881	3.58	ug/L		97
93)	tert-Butylbenzene	9.930	91	21661	3.52	ug/L		89
94)	1,2,4-Trimethylbenzene	9.961	105	35211	3.64	ug/L		82
95)	sec-Butylbenzene	10.045	105	44644	3.40	ug/L		98
97)	1,1,2,2-Tetrachloroethane	9.615	83	11916	3.96	ug/L		98
98)	1,3-Dichlorobenzene	10.114	146	19562	3.43	ug/L		98
99)	p-Isopropyltoluene	10.119	119	36951	3.52	ug/L		95
100)	1,4-Dichlorobenzene	10.166	146	18842	3.25	ug/L		94

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY14.D
Acq On : 29 May 2018 01:37 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

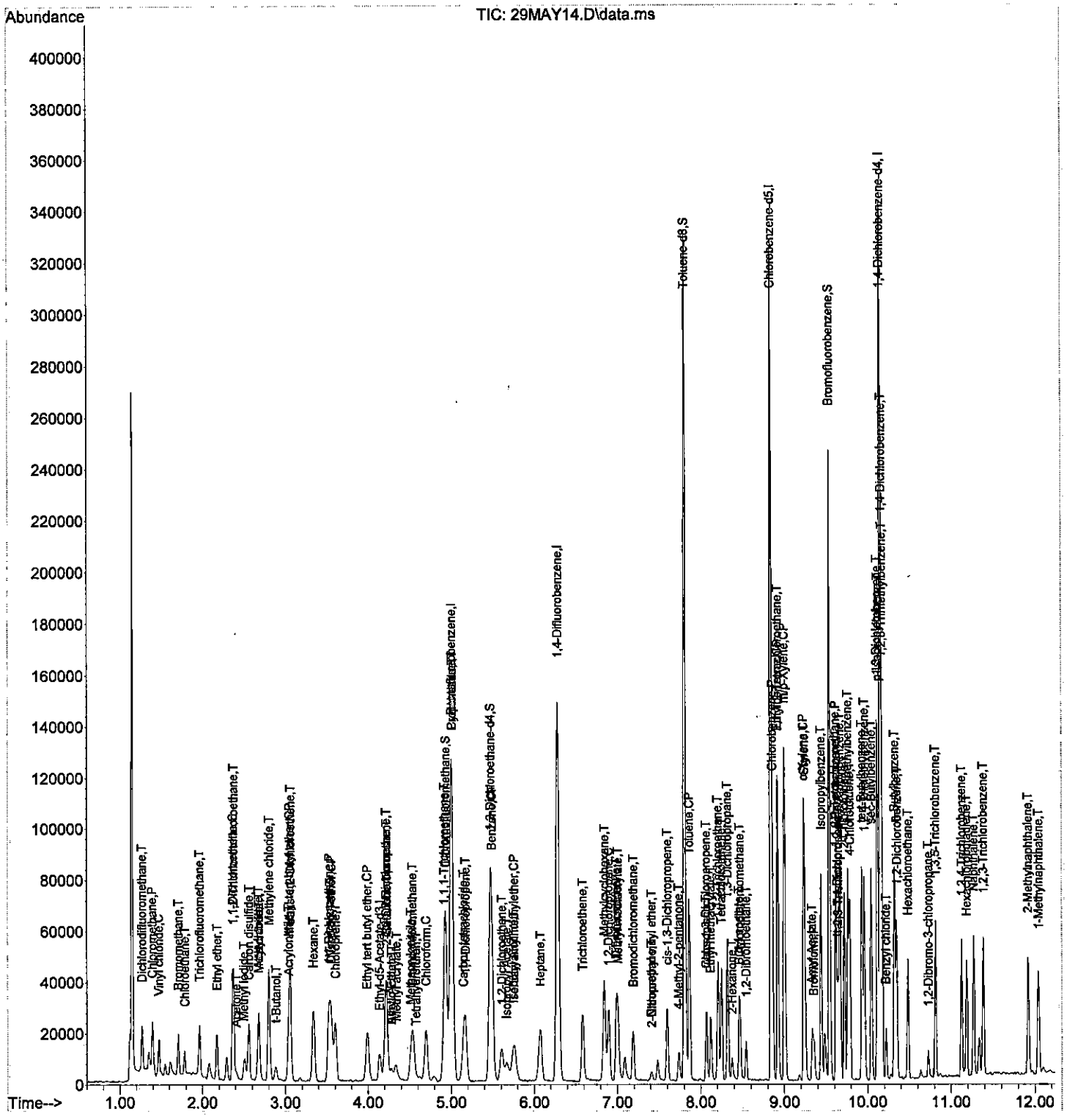
Quant Time: May 30 09:14:46 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	36232	3.80 ug/L	95
102) Benzyl chloride	10.218	91	10742	4.50 ug/L	95
103) 1,2-Dichlorobenzene	10.349	146	18121	3.46 ug/L	95
104) n-Butylbenzene	10.323	91	37039	3.58 ug/L	94
105) Hexachloroethane	10.480	117	5414	3.12 ug/L	95
106) 1,2-Dibromo-3-chloropr...	10.727	157	1728	3.87 ug/L	86
107) 1,3,5-Trichlorobenzene	10.811	180	13737	3.28 ug/L	97
108) 1,2,4-Trichlorobenzene	11.125	180	12991	3.55 ug/L	98
109) Hexachlorobutadiene	11.183	225	6568	3.18 ug/L	92
110) Naphthalene	11.267	128	32326	4.20 ug/L	98
111) 1,2,3-Trichlorobenzene	11.382	180	12722	3.70 ug/L	97
112) 2-Methylnaphthalene	11.917	142	18564	5.47 ug/L	95
113) 1-Methylnaphthalene	12.043	142	17813	5.53 ug/L	98
115) 2-Propanone	2.406	43	4852	Below Cal #	80
116) Acetic Ether	4.278	43	8415	1.68 ug/L #	89
117) Isopropyl Acetate	5.662	61	2304	2.75 ug/L #	48
118) Amyl Acetate	9.332	43	9516	3.03 ug/L	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY14.D
Acq On : 29 May 2018 01:37 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 30 09:14:46 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY15.D
Acq On : 29 May 2018 01:56 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 09:16:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	94492	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	155724	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	133057	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	60089	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17685	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	48098	20.43	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 102.15%				
45) 1,2-Dichloroethane-d4	5.468	65	58109	25.44	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 127.20%#				
64) Toluene-d8	7.806	98	187733	20.86	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 104.30%				
85) Bromofluorobenzene	9.542	95	66132	22.16	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 110.80%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	28810	9.42	ug/L		96
3) Chloromethane	1.389	50	31231	9.20	ug/L		100
4) Vinyl chloride	1.468	62	23705	7.89	ug/L		100
5) Bromomethane	1.704	96	13949	10.72	ug/L		92
6) Chloroethane	1.782	64	14065	8.27	ug/L		96
7) Trichlorofluoromethane	1.960	101	33665	8.37	ug/L		99
8) Ethyl ether	2.170	59	17609	9.58	ug/L		89
9) Acrolein	2.291	56	7543	No Calib			
10) 1,1-Dichloroethene	2.364	61	31613	8.88	ug/L		86
11) 1,1,2-Trichlorotrifluo...	2.369	151	13469	7.00	ug/L		99
12) Methyl iodide	2.495	142	6598	17.83	ug/L		92
13) Acetone	2.406	43	7892m	9.07	ug/L		
14) Chloroprene	3.602	53	34711	10.00	ug/L	#	86
15) Carbon disulfide	2.558	76	52546	6.20	ug/L		98
16) Allyl chloride	2.679	41	36448	10.92	ug/L	#	89
17) Methyl acetate	2.668	43	14642	10.01	ug/L	#	87
18) Acetonitrile	2.679	41	36448	10.92	ug/L	#	95
19) Methylene chloride	2.799	49	44050	12.92	ug/L	#	79
20) trans-1,2-Dichloroethene	3.056	61	31806	8.14	ug/L		89
21) t-Butanol	2.883	59	12248	57.55	ug/L	#	94
22) Acrylonitrile	3.035	53	8059	9.27	ug/L		100
23) Methyl tert-butyl ether	3.046	73	51520	8.73	ug/L		96
24) Hexane	3.339	57	31497	8.63	ug/L		86
25) 1,1-Dichloroethane	3.518	63	42965	8.93	ug/L		99
26) Diisopropyl ether	3.549	45	71631	9.86	ug/L	#	93
27) Vinyl acetate	3.528	86	3648	8.09	ug/L	#	1
28) Ethyl tert butyl ether	3.990	59	57076	9.34	ug/L		96
29) 2,2-Dichloropropane	4.215	77	29286	9.64	ug/L	#	88
30) cis-1,2-Dichloroethene	4.210	61	36092	8.27	ug/L		90
31) 2-Butanone	4.215	43	8278	9.35	ug/L		91
32) Ethyl Acetate	4.273	43	23497m	12.22	ug/L		
33) Methyl acrylate	4.330	55	18239	10.16	ug/L		94
34) Propionitrile	5.007	54	2989	6.94	ug/L	#	58
35) Bromochloromethane	4.530	49	20928	10.25	ug/L		79
36) Tetrahydrofuran	4.561	42	7457	11.21	ug/L		77
37) Methacrylonitrile	4.509	41	18917m	13.00	ug/L		
38) Chloroform	4.692	83	42305	8.90	ug/L		96

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY15.D
Acq On : 29 May 2018 01:56 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 09:16:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.001	56	40912	9.11	ug/L	#	89
41)	1,1,1-Trichloroethane	4.912	97	30862	8.72	ug/L		96
43)	Carbon tetrachloride	5.143	117	24611	7.56	ug/L		100
44)	1,1-Dichloropropene	5.164	75	30567	7.69	ug/L		97
46)	1,2-Dichloroethane	5.604	62	29942	9.46	ug/L		99
47)	Benzene	5.484	78	87665	7.17	ug/L		96
48)	Tertiaryamylmethylether	5.751	73	48791	9.42	ug/L	#	90
49)	Isobutyl Alcohol	5.746	43	17896	12.52	ug/L		95
50)	Heptane	6.066	43	33640	9.85	ug/L	#	85
51)	1,4-Dioxane	6.989	88	24397	815.06	ug/L		88
52)	Methylcyclohexane	6.842	83	34841	6.91	ug/L	#	84
53)	n-Butanol	6.606	56	4298m	140.94	ug/L		
54)	Trichloroethene	6.580	130	21453	6.90	ug/L		96
55)	1,2-Dichloropropane	6.894	63	24622	8.78	ug/L		91
56)	Dibromomethane	6.983	93	13038	8.51	ug/L		98
57)	Methyl methacrylate	7.004	41	18260	11.37	ug/L	#	80
58)	Bromodichloromethane	7.188	83	26416	8.31	ug/L		99
59)	2-Chloroethyl vinyl ether	7.408	43	3975	12.46	ug/L	#	97
60)	2-Nitropropane	7.408	43	3975	13.45	ug/L	#	81
61)	cis-1,3-Dichloropropene	7.597	75	30965	8.76	ug/L		100
63)	4-Methyl-2-pentanone	7.733	43	19389	11.30	ug/L		85
65)	Toluene	7.859	91	91908	7.41	ug/L		99
66)	trans-1,3-Dichloropropene	8.063	75	26626	9.58	ug/L		88
67)	Chloropicrin	8.063	117	1567	52.79	ug/L	#	89
68)	Ethyl methacrylate	8.116	69	25442	10.21	ug/L	#	76
69)	1,1,2-Trichloroethane	8.205	97	17653	7.74	ug/L		93
70)	Tetrachloroethene	8.247	166	21824	6.84	ug/L		97
71)	1,3-Dichloropropane	8.320	76	33684	8.82	ug/L		99
72)	2-Hexanone	8.373	43	12797	12.13	ug/L		87
73)	Chlorodibromomethane	8.467	129	18317	8.16	ug/L		98
74)	Butyl acetate	8.457	43	28692	11.34	ug/L	#	86
75)	1,2-Dibromoethane	8.541	107	17386	8.25	ug/L		98
76)	Chlorobenzene	8.860	112	56426	7.46	ug/L		93
77)	1,1,1,2-Tetrachloroethane	8.923	131	18084	8.06	ug/L		97
78)	Ethylbenzene	8.923	91	98207	7.93	ug/L		98
79)	m/p-Xylene	9.007	91	152709	16.31	ug/L		94
80)	Styrene	9.243	104	58808	8.24	ug/L		91
81)	o-Xylene	9.233	91	77180	8.16	ug/L		96
82)	Cyclohexanone	9.500	55	4435	No Calib		#	
83)	Bromoform	9.353	173	10262	8.13	ug/L		96
84)	Isopropylbenzene	9.442	105	91549	7.77	ug/L		99
86)	Bromobenzene	9.621	77	52505	8.81	ug/L		91
87)	1,2,3-Trichloropropane	9.647	110	6764	8.18	ug/L		88
88)	trans-1,4-Dichloro-2-b...	9.636	53	6805	10.99	ug/L		81
89)	n-Propylbenzene	9.668	91	112963	7.63	ug/L		97
90)	2-Chlorotoluene	9.720	91	66792	7.95	ug/L		97
91)	4-Chlorotoluene	9.788	91	77659	8.13	ug/L		96
92)	1,3,5-Trimethylbenzene	9.762	105	74871	8.01	ug/L		97
93)	tert-Butylbenzene	9.930	91	45682	7.52	ug/L		91
94)	1,2,4-Trimethylbenzene	9.961	105	77738	8.14	ug/L		95
95)	sec-Butylbenzene	10.045	105	97154	7.49	ug/L		98
97)	1,1,2,2-Tetrachloroethane	9.621	83	24067	8.13	ug/L		98
98)	1,3-Dichlorobenzene	10.113	146	42320	7.53	ug/L		99
99)	p-Isopropyltoluene	10.119	119	80258	7.77	ug/L		97
100)	1,4-Dichlorobenzene	10.166	146	41569	7.27	ug/L		96

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY15.D
Acq On : 29 May 2018 01:56 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

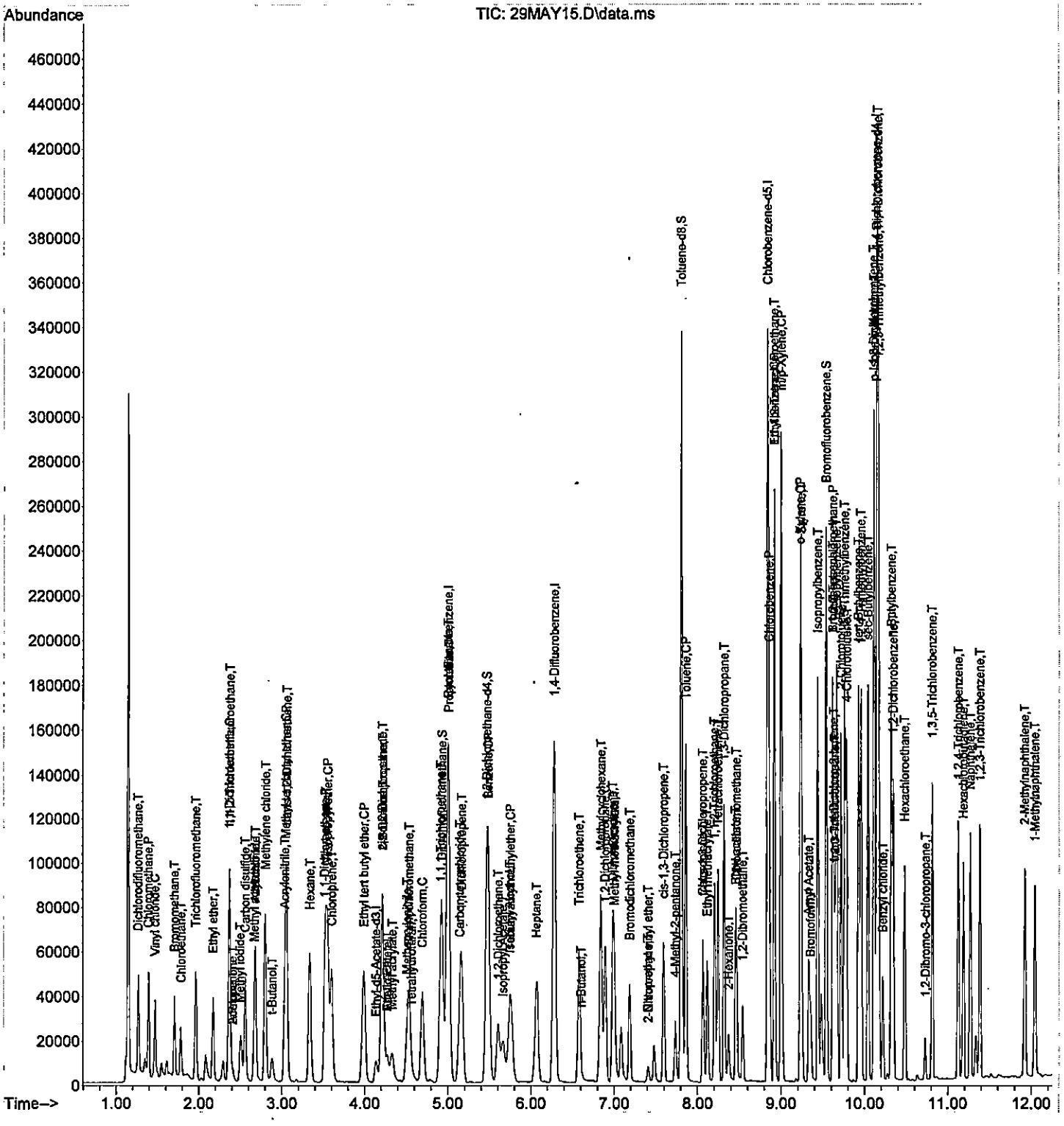
Quant Time: May 30 09:16:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	80639	8.59	ug/L		97
102) Benzyl chloride	10.218	91	24118	9.85	ug/L		96
103) 1,2-Dichlorobenzene	10.344	146	40082	7.78	ug/L		98
104) n-Butylbenzene	10.323	91	78348	7.69	ug/L		99
105) Hexachloroethane	10.480	117	12360	7.24	ug/L		97
106) 1,2-Dibromo-3-chloropr...	10.732	157	3484	7.92	ug/L	#	79
107) 1,3,5-Trichlorobenzene	10.811	180	31164	7.56	ug/L		99
108) 1,2,4-Trichlorobenzene	11.125	180	28366	7.87	ug/L		99
109) Hexachlorobutadiene	11.183	225	15484	7.62	ug/L		99
110) Naphthalene	11.267	128	66570	8.78	ug/L		99
111) 1,2,3-Trichlorobenzene	11.382	180	26855	7.92	ug/L		99
112) 2-Methylnaphthalene	11.917	142	38909	11.20	ug/L		97
113) 1-Methylnaphthalene	12.038	142	36137	10.99	ug/L		97
115) 2-Propanone	2.406	43	7001	0.51	ug/L		90
116) Acetic Ether	4.273	43	21283	5.43	ug/L	#	94
117) Isopropyl Acetate	5.662	61	6914	6.34	ug/L	#	70
118) Amyl Acetate	9.332	43	26794	6.74	ug/L	#	84

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY15.D
Acq On : 29 May 2018 01:56 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 30 09:16:57 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY16.D
Acq On : 29 May 2018 02:13 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 09:26:40 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	93329	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	151472	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	132873	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	60735	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	21385	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	50261	21.95	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 109.75%				
45) 1,2-Dichloroethane-d4	5.468	65	58560	26.36	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 131.80%#				
64) Toluene-d8	7.807	98	184826	20.57	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 102.85%				
85) Bromofluorobenzene	9.542	95	65814	22.08	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 110.40%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	112789	38.73	ug/L		98
3) Chloromethane	1.389	50	133697	39.88	ug/L		99
4) Vinyl chloride	1.468	62	98901	33.33	ug/L		98
5) Bromomethane	1.698	96	51390	39.92	ug/L		97
6) Chloroethane	1.777	64	54930	34.17	ug/L		96
7) Trichlorofluoromethane	1.961	101	134021	33.75	ug/L		100
8) Ethyl ether	2.170	59	73649	40.55	ug/L		91
9) Acrolein	2.291	56	36003	No Calib			
10) 1,1-Dichloroethene	2.364	61	126707	36.05	ug/L		87
11) 1,1,2-Trichlorotrifluo...	2.370	151	52419	28.56	ug/L		98
12) Methyl iodide	2.495	142	32560	45.70	ug/L		90
13) Acetone	2.401	43	28574m	46.16	ug/L		
14) Chloroprene	3.602	53	138151	40.31	ug/L	#	85
15) Carbon disulfide	2.558	76	219792	27.45	ug/L		100
16) Allyl chloride	2.679	41	149377	45.29	ug/L	#	90
17) Methyl acetate	2.668	43	64442	44.60	ug/L	#	92
18) Acetonitrile	2.679	41	149377	45.29	ug/L		97
19) Methylene chloride	2.800	49	136862	44.13	ug/L		80
20) trans-1,2-Dichloroethene	3.056	61	128525	33.30	ug/L		87
21) t-Butanol	2.883	59	50971	257.62	ug/L	#	86
22) Acrylonitrile	3.025	53	37630	43.80	ug/L		97
23) Methyl tert-butyl ether	3.046	73	206831	35.48	ug/L		97
24) Hexane	3.334	57	110127	32.46	ug/L		85
25) 1,1-Dichloroethane	3.518	63	170338	35.85	ug/L		99
26) Diisopropyl ether	3.549	45	273115	38.05	ug/L	#	89
27) Vinyl acetate	3.523	86	16229	34.34	ug/L	#	27
28) Ethyl tert butyl ether	3.990	59	223049	36.94	ug/L		96
29) 2,2-Dichloropropane	4.215	77	118205	39.41	ug/L		91
30) cis-1,2-Dichloroethene	4.210	61	160223	37.18	ug/L		83
31) 2-Butanone	4.210	43	41641	47.61	ug/L		84
32) Ethyl Acetate	4.268	43	92716	48.82	ug/L	#	94
33) Methyl acrylate	4.325	55	91279	51.46	ug/L		95
34) Propionitrile	5.002	54	10518	27.87	ug/L	#	58
35) Bromochloromethane	4.530	49	85233	42.27	ug/L		80
36) Tetrahydrofuran	4.551	42	35280	53.71	ug/L		79
37) Methacrylonitrile	4.503	41	80573	56.08	ug/L	#	87
38) Chloroform	4.692	83	161174	35.93	ug/L		97

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY16.D
Acq On : 29 May 2018 02:13 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 09:26:40 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.007	56	149796	35.65	ug/L	#	89
41)	1,1,1-Trichloroethane	4.912	97	124508	36.16	ug/L		99
43)	Carbon tetrachloride	5.143	117	104270	32.94	ug/L		99
44)	1,1-Dichloropropene	5.164	75	119508	30.91	ug/L		96
46)	1,2-Dichloroethane	5.599	62	125325	40.71	ug/L		97
47)	Benzene	5.484	78	348022	29.26	ug/L		97
48)	Tertiaryamylmethylether	5.751	73	199190	39.52	ug/L	#	90
49)	Isobutyl Alcohol	5.751	43	68784	49.02	ug/L	#	90
50)	Heptane	6.066	43	119908	36.60	ug/L	#	88
51)	1,4-Dioxane	6.983	88	120250	4130.10	ug/L		90
52)	Methylcyclohexane	6.842	83	139426	28.43	ug/L	#	87
53)	n-Butanol	6.569	56	23691m	574.61	ug/L		
54)	Trichloroethene	6.580	130	82926	27.41	ug/L		94
55)	1,2-Dichloropropane	6.894	63	97582	35.78	ug/L		92
56)	Dibromomethane	6.983	93	54708	36.70	ug/L		98
57)	Methyl methacrylate	7.004	41	87337	55.91	ug/L	#	80
58)	Bromodichloromethane	7.188	83	112498	36.39	ug/L		99
59)	2-Chloroethyl vinyl ether	7.408	43	20904	72.59	ug/L	#	98
60)	2-Nitropropane	7.408	43	20904	61.04	ug/L		100
61)	cis-1,3-Dichloropropene	7.592	75	141509	41.16	ug/L		97
63)	4-Methyl-2-pentanone	7.733	43	86031	50.19	ug/L		88
65)	Toluene	7.859	91	358916	28.99	ug/L		98
66)	trans-1,3-Dichloropropene	8.064	75	125457	45.21	ug/L		93
67)	Chloropicrin	8.069	117	107721	177.64	ug/L		97
68)	Ethyl methacrylate	8.116	69	113965	45.81	ug/L	#	76
69)	1,1,2-Trichloroethane	8.205	97	74490	32.71	ug/L		97
70)	Tetrachloroethene	8.247	166	81634	25.62	ug/L		98
71)	1,3-Dichloropropane	8.320	76	138015	36.20	ug/L		99
72)	2-Hexanone	8.368	43	59053	56.07	ug/L		87
73)	Chlorodibromomethane	8.467	129	84983	37.92	ug/L		98
74)	Butyl acetate	8.457	43	130601	51.71	ug/L	#	89
75)	1,2-Dibromoethane	8.541	107	73051	34.72	ug/L		99
76)	Chlorobenzene	8.860	112	223439	29.57	ug/L		94
77)	1,1,1,2-Tetrachloroethane	8.923	131	78019	34.82	ug/L		99
78)	Ethylbenzene	8.923	91	390694	31.59	ug/L		97
79)	m/p-Xylene	9.002	91	594015	63.54	ug/L		95
80)	Styrene	9.243	104	236255	33.15	ug/L		89
81)	o-Xylene	9.233	91	306961	32.49	ug/L		95
82)	Cyclohexanone	9.500	55	16605	No Calib		#	
83)	Bromoform	9.359	173	50655	40.20	ug/L		98
84)	Isopropylbenzene	9.442	105	358821	30.50	ug/L		99
86)	Bromobenzene	9.621	77	212547	35.71	ug/L		91
87)	1,2,3-Trichloropropane	9.647	110	31098	37.68	ug/L		94
88)	trans-1,4-Dichloro-2-b...	9.636	53	31677	51.23	ug/L		95
89)	n-Propylbenzene	9.668	91	446893	30.22	ug/L		97
90)	2-Chlorotoluene	9.720	91	266421	31.76	ug/L		96
91)	4-Chlorotoluene	9.783	91	304536	31.94	ug/L		96
92)	1,3,5-Trimethylbenzene	9.762	105	295008	31.61	ug/L		98
93)	tert-Butylbenzene	9.930	91	184409	30.41	ug/L		92
94)	1,2,4-Trimethylbenzene	9.961	105	309910	32.48	ug/L		85
95)	sec-Butylbenzene	10.045	105	379868	29.32	ug/L		100
97)	1,1,2,2-Tetrachloroethane	9.621	83	108804	36.36	ug/L		100
98)	1,3-Dichlorobenzene	10.114	146	165619	29.17	ug/L		98
99)	p-Isopropyltoluene	10.119	119	314452	30.13	ug/L		97
100)	1,4-Dichlorobenzene	10.166	146	164416	28.46	ug/L		98

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY16.D
Acq On : 29 May 2018 02:13 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

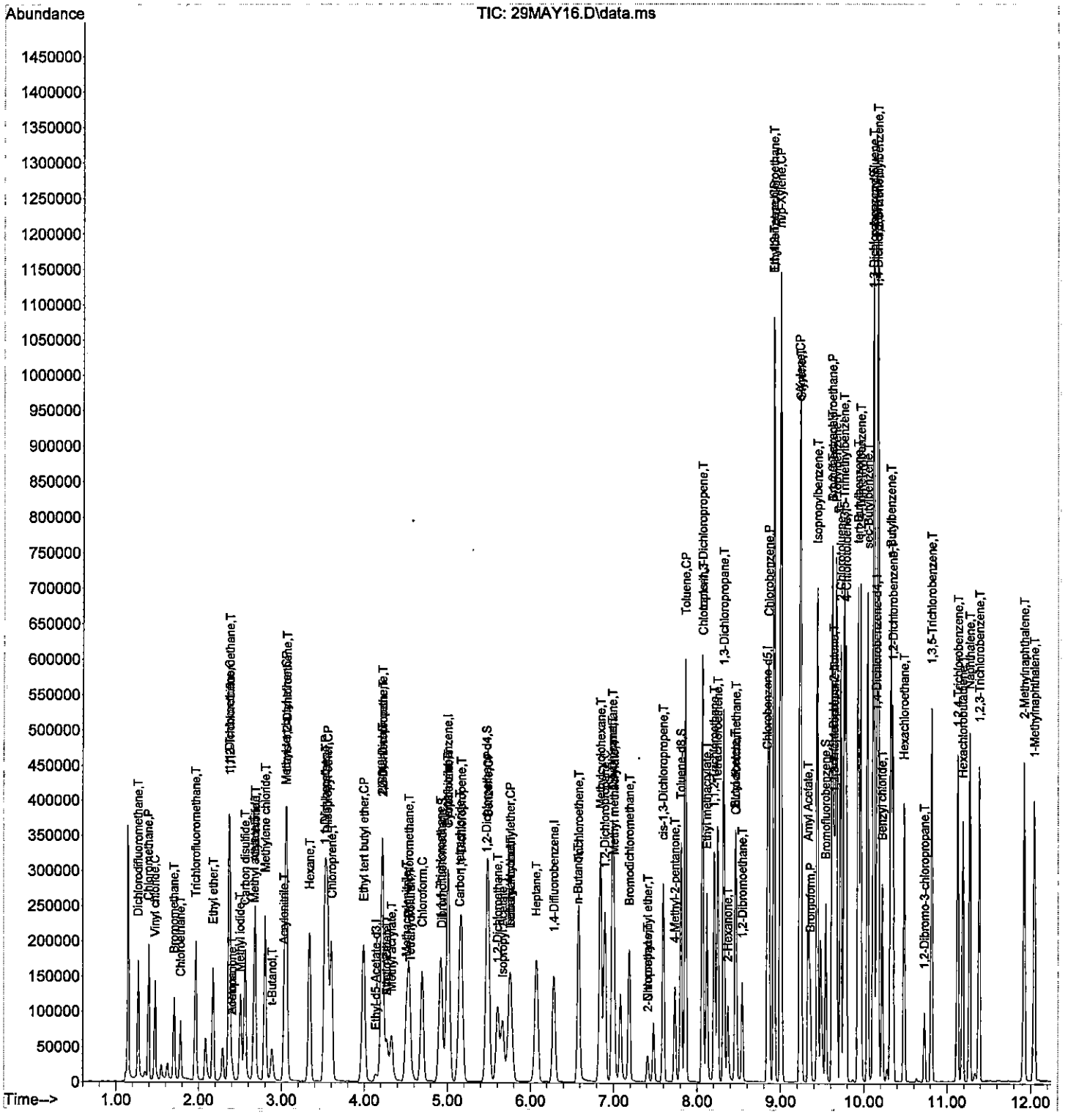
Quant Time: May 30 09:26:40 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	317190	33.44	ug/L		95
102) Benzyl chloride	10.218	91	147885	48.13	ug/L		98
103) 1,2-Dichlorobenzene	10.344	146	159086	30.56	ug/L		99
104) n-Butylbenzene	10.323	91	304334	29.54	ug/L		98
105) Hexachloroethane	10.481	117	59743	34.62	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.727	157	19118	43.00	ug/L		88
107) 1,3,5-Trichlorobenzene	10.811	180	120338	28.89	ug/L		98
108) 1,2,4-Trichlorobenzene	11.125	180	109760	30.12	ug/L		99
109) Hexachlorobutadiene	11.183	225	58076	28.26	ug/L		99
110) Naphthalene	11.267	128	294794	38.47	ug/L		98
111) 1,2,3-Trichlorobenzene	11.382	180	106977	31.22	ug/L		99
112) 2-Methylnaphthalene	11.917	142	182672	43.45	ug/L		99
113) 1-Methylnaphthalene	12.038	142	163775	42.64	ug/L		100
115) 2-Propanone	2.401	43	29335	17.38	ug/L		88
116) Acetic Ether	4.268	43	92716	21.05	ug/L	#	97
117) Isopropyl Acetate	5.662	61	27496	18.34	ug/L	#	61
118) Amyl Acetate	9.332	43	126762	23.00	ug/L	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY16.D
Acq On : 29 May 2018 02:13 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 30 09:26:40 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY17.D
Acq On : 29 May 2018 02:42 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 30 09:32:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	96876	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	160703	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	135920	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	58063	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	16916	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	52406	21.57	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 107.85%				
45) 1,2-Dichloroethane-d4	5.468	65	59170	25.10	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 125.50%				
64) Toluene-d8	7.807	98	195438	21.26	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 106.30%				
85) Bromofluorobenzene	9.542	95	65722	21.56	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 107.80%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	205267	68.25	ug/L		97
3) Chloromethane	1.394	50	238536	68.55	ug/L		96
4) Vinyl chloride	1.473	62	177434	57.61	ug/L		98
5) Bromomethane	1.698	96	91616	68.00	ug/L		97
6) Chloroethane	1.777	64	101067	60.94	ug/L		95
7) Trichlorofluoromethane	1.961	101	242822	58.91	ug/L		99
8) Ethyl ether	2.170	59	129368	68.62	ug/L		91
9) Acrolein	2.291	56	68069	No Calib			
10) 1,1-Dichloroethene	2.364	61	228480	62.62	ug/L		87
11) 1,1,2-Trichlorotrifluo...	2.370	151	92130	48.60	ug/L		99
12) Methyl iodide	2.495	142	82086	72.45	ug/L		93
13) Acetone	2.401	43	41023m	65.70	ug/L		
14) Chloroprene	3.596	53	252060	70.86	ug/L	#	86
15) Carbon disulfide	2.558	76	415175	50.26	ug/L		100
16) Allyl chloride	2.679	41	272674	79.65	ug/L		89
17) Methyl acetate	2.668	43	98984	66.00	ug/L	#	91
18) Acetonitrile	2.679	41	272674	79.65	ug/L		96
19) Methylene chloride	2.799	49	237946	75.01	ug/L		80
20) trans-1,2-Dichloroethene	3.056	61	236501	59.03	ug/L		88
21) t-Butanol	2.883	59	64376	314.48	ug/L	#	88
22) Acrylonitrile	3.025	53	56806	63.70	ug/L		97
23) Methyl tert-butyl ether	3.046	73	372144	61.50	ug/L		97
24) Hexane	3.334	57	190004	54.44	ug/L		87
25) 1,1-Dichloroethane	3.518	63	312115	63.28	ug/L		99
26) Diisopropyl ether	3.549	45	526889	70.72	ug/L	#	92
27) Vinyl acetate	3.523	86	28165	57.02	ug/L	#	4
28) Ethyl tert butyl ether	3.984	59	433252	69.13	ug/L		96
29) 2,2-Dichloropropane	4.210	77	227377	73.04	ug/L		95
30) cis-1,2-Dichloroethene	4.210	61	293622	65.64	ug/L		84
31) 2-Butanone	4.210	43	55738	61.40	ug/L		89
32) Ethyl Acetate	4.268	43	142039	72.05	ug/L	#	94
33) Methyl acrylate	4.325	55	131442	71.39	ug/L		96
34) Propionitrile	5.007	54	19090	54.13	ug/L	#	72
35) Bromochloromethane	4.530	49	153474	73.33	ug/L		79
36) Tetrahydrofuran	4.551	42	45898	67.32	ug/L		80
37) Methacrylonitrile	4.498	41	118112	79.20	ug/L	#	87
38) Chloroform	4.692	83	294243	63.61	ug/L		96

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY17.D
Acq On : 29 May 2018 02:42 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 30 09:32:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.007	56	263663	60.93	ug/L	#	89
41)	1,1,1-Trichloroethane	4.912	97	227028	62.14	ug/L		99
43)	Carbon tetrachloride	5.143	117	193321	57.57	ug/L		99
44)	1,1-Dichloropropene	5.164	75	214440	52.28	ug/L		96
46)	1,2-Dichloroethane	5.599	62	217050	66.46	ug/L		98
47)	Benzene	5.484	78	638274	50.59	ug/L		96
48)	Tertiaryamylmethylether	5.751	73	369475	69.10	ug/L	#	90
49)	Isobutyl Alcohol	5.751	43	130030	87.22	ug/L	#	89
50)	Heptane	6.066	43	207269	59.75	ug/L	#	87
51)	1,4-Dioxane	6.983	88	156874	5078.49	ug/L		90
52)	Methylcyclohexane	6.842	83	242495	46.61	ug/L	#	86
53)	n-Butanol	6.569	56	31025m	676.32	ug/L		
54)	Trichloroethene	6.580	130	152827	47.62	ug/L		94
55)	1,2-Dichloropropane	6.894	63	179503	62.04	ug/L		92
56)	Dibromomethane	6.983	93	95640	60.48	ug/L		97
57)	Methyl methacrylate	6.999	41	137009	82.66	ug/L	#	79
58)	Bromodichloromethane	7.188	83	211163	64.39	ug/L		99
59)	2-Chloroethyl vinyl ether	7.408	43	31218	102.66	ug/L	#	100
60)	2-Nitropropane	7.408	43	31218	79.47	ug/L	#	98
61)	cis-1,3-Dichloropropene	7.592	75	262458	71.95	ug/L		97
63)	4-Methyl-2-pentanone	7.733	43	129793	74.02	ug/L		87
65)	Toluene	7.859	91	652069	51.49	ug/L		98
66)	trans-1,3-Dichloropropene	8.063	75	232008	81.73	ug/L		97
67)	Chloropicrin	8.063	117	537610	524.19	ug/L		98
68)	Ethyl methacrylate	8.116	69	187482	73.68	ug/L	#	77
69)	1,1,2-Trichloroethane	8.205	97	127661	54.80	ug/L		97
70)	Tetrachloroethene	8.247	166	143150	43.91	ug/L		97
71)	1,3-Dichloropropane	8.320	76	236805	60.72	ug/L		99
72)	2-Hexanone	8.368	43	83658	77.66	ug/L		86
73)	Chlorodibromomethane	8.467	129	150972	65.85	ug/L		97
74)	Butyl acetate	8.457	43	206652	79.98	ug/L	#	88
75)	1,2-Dibromoethane	8.541	107	121231	56.32	ug/L		98
76)	Chlorobenzene	8.860	112	399880	51.73	ug/L		93
77)	1,1,1,2-Tetrachloroethane	8.923	131	144721	63.14	ug/L		99
78)	Ethylbenzene	8.923	91	701126	55.42	ug/L		98
79)	m/p-Xylene	9.002	91	1070032	111.89	ug/L		95
80)	Styrene	9.243	104	420178	57.63	ug/L		90
81)	o-Xylene	9.233	91	551517	57.06	ug/L		95
82)	Cyclohexanone	9.500	55	22391	No Calib			
83)	Bromoform	9.353	173	86168	66.86	ug/L		99
84)	Isopropylbenzene	9.442	105	642159	53.36	ug/L		99
86)	Bromobenzene	9.621	77	362460	59.54	ug/L		92
87)	1,2,3-Trichloropropane	9.647	110	44457	52.65	ug/L		89
88)	trans-1,4-Dichloro-2-b...	9.636	53	49541	78.33	ug/L		94
89)	n-Propylbenzene	9.668	91	785463	51.92	ug/L		97
90)	2-Chlorotoluene	9.720	91	466025	54.30	ug/L		96
91)	4-Chlorotoluene	9.783	91	532466	54.59	ug/L		96
92)	1,3,5-Trimethylbenzene	9.762	105	524400	54.93	ug/L		97
93)	tert-Butylbenzene	9.930	91	323188	52.10	ug/L		93
94)	1,2,4-Trimethylbenzene	9.961	105	538275	55.15	ug/L		97
95)	sec-Butylbenzene	10.045	105	655804	49.49	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	158616	55.45	ug/L		99
98)	1,3-Dichlorobenzene	10.113	146	284968	52.49	ug/L		98
99)	p-Isopropyltoluene	10.119	119	553740	55.50	ug/L		97
100)	1,4-Dichlorobenzene	10.166	146	278910	50.51	ug/L		97

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY17.D
Acq On : 29 May 2018 02:42 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

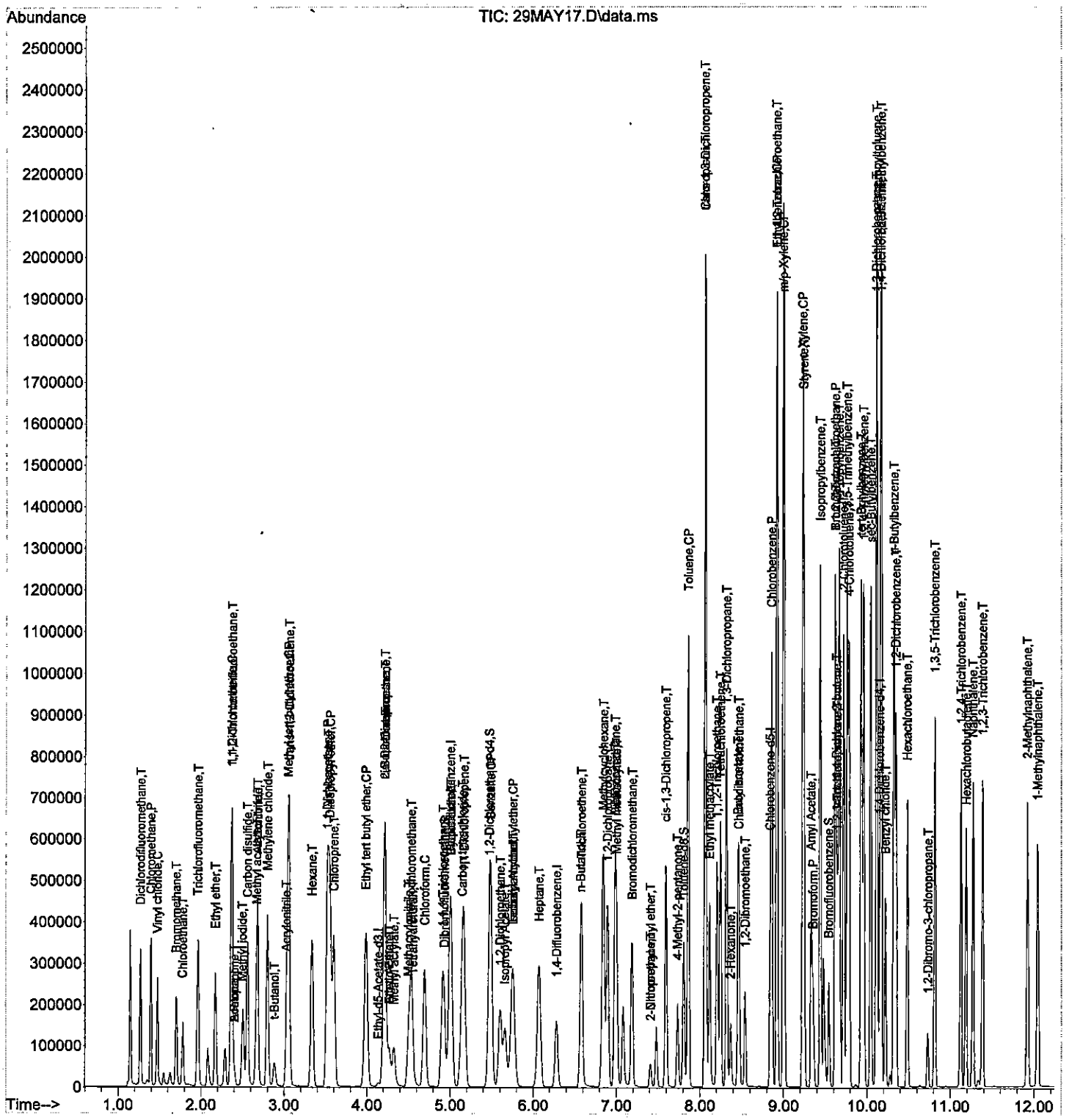
Quant Time: May 30 09:32:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	553693	61.05	ug/L		96
102) Benzyl chloride	10.218	91	243411	73.54	ug/L		97
103) 1,2-Dichlorobenzene	10.344	146	265619	53.37	ug/L		98
104) n-Butylbenzene	10.323	91	520273	52.82	ug/L		99
105) Hexachloroethane	10.480	117	109733	66.52	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.732	157	25925	61.00	ug/L		90
107) 1,3,5-Trichlorobenzene	10.811	180	205774	51.68	ug/L		99
108) 1,2,4-Trichlorobenzene	11.125	180	185445	53.23	ug/L		99
109) Hexachlorobutadiene	11.188	225	98230	50.00	ug/L		97
110) Naphthalene	11.267	128	440717	60.16	ug/L		98
111) 1,2,3-Trichlorobenzene	11.382	180	179209	54.71	ug/L		99
112) 2-Methylnaphthalene	11.917	142	282384	63.74	ug/L		100
113) 1-Methylnaphthalene	12.038	142	241318	61.10	ug/L		98
115) 2-Propanone	2.401	43	40755	35.31	ug/L		90
116) Acetic Ether	4.268	43	142039	41.30	ug/L	#	97
117) Isopropyl Acetate	5.657	61	44955	36.73	ug/L	#	60
118) Amyl Acetate	9.332	43	206904	46.24	ug/L	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY17.D
Acq On : 29 May 2018 02:42 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 30 09:32:00 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY18.D
Acq On : 29 May 2018 02:59 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 30 09:20:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	97288	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	158822	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	137886	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	62854	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	20966	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	52613	21.91	ug/L		0.00
Spiked Amount 20.000	Range 85 - 117		Recovery = 109.55%				
45) 1,2-Dichloroethane-d4	5.468	65	61833	26.54	ug/L		0.00
Spiked Amount 20.000	Range 87 - 127		Recovery = 132.70%#				
64) Toluene-d8	7.807	98	193381	20.74	ug/L		0.00
Spiked Amount 20.000	Range 90 - 107		Recovery = 103.70%				
85) Bromofluorobenzene	9.542	95	68206	22.06	ug/L		0.00
Spiked Amount 20.000	Range 86 - 108		Recovery = 110.30%#				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.263	85	279012	92.54	ug/L		98
3) Chloromethane	1.394	50	319408	91.40	ug/L		97
4) Vinyl chloride	1.468	62	243008	78.56	ug/L		98
5) Bromomethane	1.693	96	126076	92.45	ug/L		99
6) Chloroethane	1.772	64	137934	82.99	ug/L		96
7) Trichlorofluoromethane	1.961	101	331839	80.16	ug/L		99
8) Ethyl ether	2.170	59	187706	99.15	ug/L		92
9) Acrolein	2.286	56	174867	No Calib			
10) 1,1-Dichloroethene	2.364	61	315982	86.23	ug/L		86
11) 1,1,2-Trichlorotrifluo...	2.364	151	129813	68.32	ug/L		98
12) Methyl iodide	2.495	142	136381	93.61	ug/L		93
13) Acetone	2.401	43	69631	114.40	ug/L		90
14) Chloroprene	3.596	53	352645	98.72	ug/L	#	85
15) Carbon disulfide	2.558	76	589630	71.23	ug/L		100
16) Allyl chloride	2.679	41	396828	115.43	ug/L		90
17) Methyl acetate	2.663	43	177345	117.75	ug/L	#	92
18) Acetonitrile	2.679	41	396828	115.43	ug/L		97
19) Methylene chloride	2.799	49	327004	103.24	ug/L	#	80
20) trans-1,2-Dichloroethene	3.056	61	328148	81.56	ug/L		87
21) t-Butanol	2.883	59	124004	607.52	ug/L	#	87
22) Acrylonitrile	3.025	53	92245	103.00	ug/L		96
23) Methyl tert-butyl ether	3.046	73	578845	95.26	ug/L		98
24) Hexane	3.334	57	274192	78.56	ug/L		87
25) 1,1-Dichloroethane	3.518	63	430418	86.90	ug/L		100
26) Diisopropyl ether	3.549	45	765550	102.32	ug/L	#	88
27) Vinyl acetate	3.523	86	43265	86.91	ug/L	#	7
28) Ethyl tert butyl ether	3.990	59	645669	102.59	ug/L		95
29) 2,2-Dichloropropane	4.210	77	318756	101.96	ug/L		95
30) cis-1,2-Dichloroethene	4.210	61	412932	91.92	ug/L		82
31) 2-Butanone	4.210	43	106332	116.63	ug/L		85
32) Ethyl Acetate	4.267	43	250836	126.70	ug/L	#	94
33) Methyl acrylate	4.325	55	222865	120.54	ug/L		95
34) Propionitrile	5.007	54	25435	80.07	ug/L	#	60
35) Bromochloromethane	4.530	49	208565	99.23	ug/L		80
36) Tetrahydrofuran	4.551	42	82159	120.00	ug/L		80
37) Methacrylonitrile	4.498	41	197332	131.76	ug/L	#	86
38) Chloroform	4.692	83	407441	87.93	ug/L		97

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY18.D
Acq On : 29 May 2018 02:59 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 30 09:20:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.001	56	372582	86.02	ug/L	#	88
41)	1,1,1-Trichloroethane	4.912	97	319360	88.45	ug/L		99
43)	Carbon tetrachloride	5.143	117	272713	82.18	ug/L		100
44)	1,1-Dichloropropene	5.164	75	299977	74.00	ug/L		97
46)	1,2-Dichloroethane	5.599	62	313941	97.26	ug/L		99
47)	Benzene	5.484	78	880892	70.64	ug/L		96
48)	Tertiaryamylmethylether	5.751	73	565012	106.92	ug/L	#	88
49)	Isobutyl Alcohol	5.751	43	201350	136.56	ug/L	#	87
50)	Heptane	6.066	43	299130	87.33	ug/L	#	87
51)	1,4-Dioxane	6.983	88	266932	8743.75	ug/L		90
52)	Methylcyclohexane	6.842	83	346404	67.37	ug/L	#	87
53)	n-Butanol	6.564	56	60895	1123.86	ug/L	#	85
54)	Trichloroethene	6.580	130	213798	67.41	ug/L		94
55)	1,2-Dichloropropane	6.894	63	247726	86.63	ug/L		92
56)	Dibromomethane	6.983	93	137078	87.71	ug/L		96
57)	Methyl methacrylate	6.999	41	223239	136.28	ug/L	#	79
58)	Bromodichloromethane	7.188	83	300115	92.59	ug/L		99
59)	2-Chloroethyl vinyl ether	7.408	43	57945	193.85	ug/L	#	99
60)	2-Nitropropane	7.408	43	57945	125.31	ug/L		100
61)	cis-1,3-Dichloropropene	7.592	75	379520	105.28	ug/L		97
63)	4-Methyl-2-pentanone	7.733	43	234841	132.02	ug/L		87
65)	Toluene	7.859	91	905187	70.46	ug/L		99
66)	trans-1,3-Dichloropropene	8.063	75	344291	119.56	ug/L		100
67)	Chloropicrin	8.069	117	1188208	881.03	ug/L		98
68)	Ethyl methacrylate	8.116	69	294741	114.18	ug/L	#	76
69)	1,1,2-Trichloroethane	8.205	97	187801	79.46	ug/L		97
70)	Tetrachloroethene	8.247	166	201229	60.85	ug/L		97
71)	1,3-Dichloropropane	8.320	76	344518	87.08	ug/L		97
72)	2-Hexanone	8.368	43	156543	143.24	ug/L		85
73)	Chlorodibromomethane	8.467	129	223120	95.93	ug/L		98
74)	Butyl acetate	8.457	43	359456	137.14	ug/L	#	89
75)	1,2-Dibromoethane	8.541	107	181568	83.15	ug/L		98
76)	Chlorobenzene	8.860	112	561895	71.65	ug/L		95
77)	1,1,1,2-Tetrachloroethane	8.923	131	205866	88.53	ug/L		99
78)	Ethylbenzene	8.923	91	983077	76.60	ug/L		98
79)	m/p-Xylene	9.002	91	1492464	153.84	ug/L		95
80)	Styrene	9.243	104	602361	81.45	ug/L		90
81)	o-Xylene	9.233	91	780259	79.58	ug/L		95
82)	Cyclohexanone	9.500	55	41908	No Calib		#	
83)	Bromoform	9.353	173	134972	103.23	ug/L		99
84)	Isopropylbenzene	9.442	105	901491	73.85	ug/L		99
86)	Bromobenzene	9.621	77	530453	85.89	ug/L		90
87)	1,2,3-Trichloropropane	9.647	110	70855	82.72	ug/L		89
88)	trans-1,4-Dichloro-2-b...	9.636	53	76838	119.75	ug/L		98
89)	n-Propylbenzene	9.668	91	1108990	72.27	ug/L		97
90)	2-Chlorotoluene	9.720	91	660409	75.85	ug/L		97
91)	4-Chlorotoluene	9.788	91	756297	76.43	ug/L		96
92)	1,3,5-Trimethylbenzene	9.762	105	749335	77.37	ug/L		96
93)	tert-Butylbenzene	9.930	91	460945	73.25	ug/L		93
94)	1,2,4-Trimethylbenzene	9.961	105	775173	78.29	ug/L		84
95)	sec-Butylbenzene	10.045	105	939358	69.88	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	254864	82.30	ug/L		98
98)	1,3-Dichlorobenzene	10.113	146	408362	69.49	ug/L		99
99)	p-Isopropyltoluene	10.119	119	777123	71.96	ug/L		97
100)	1,4-Dichlorobenzene	10.166	146	402361	67.31	ug/L		98

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY18.D
Acq On : 29 May 2018 02:59 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

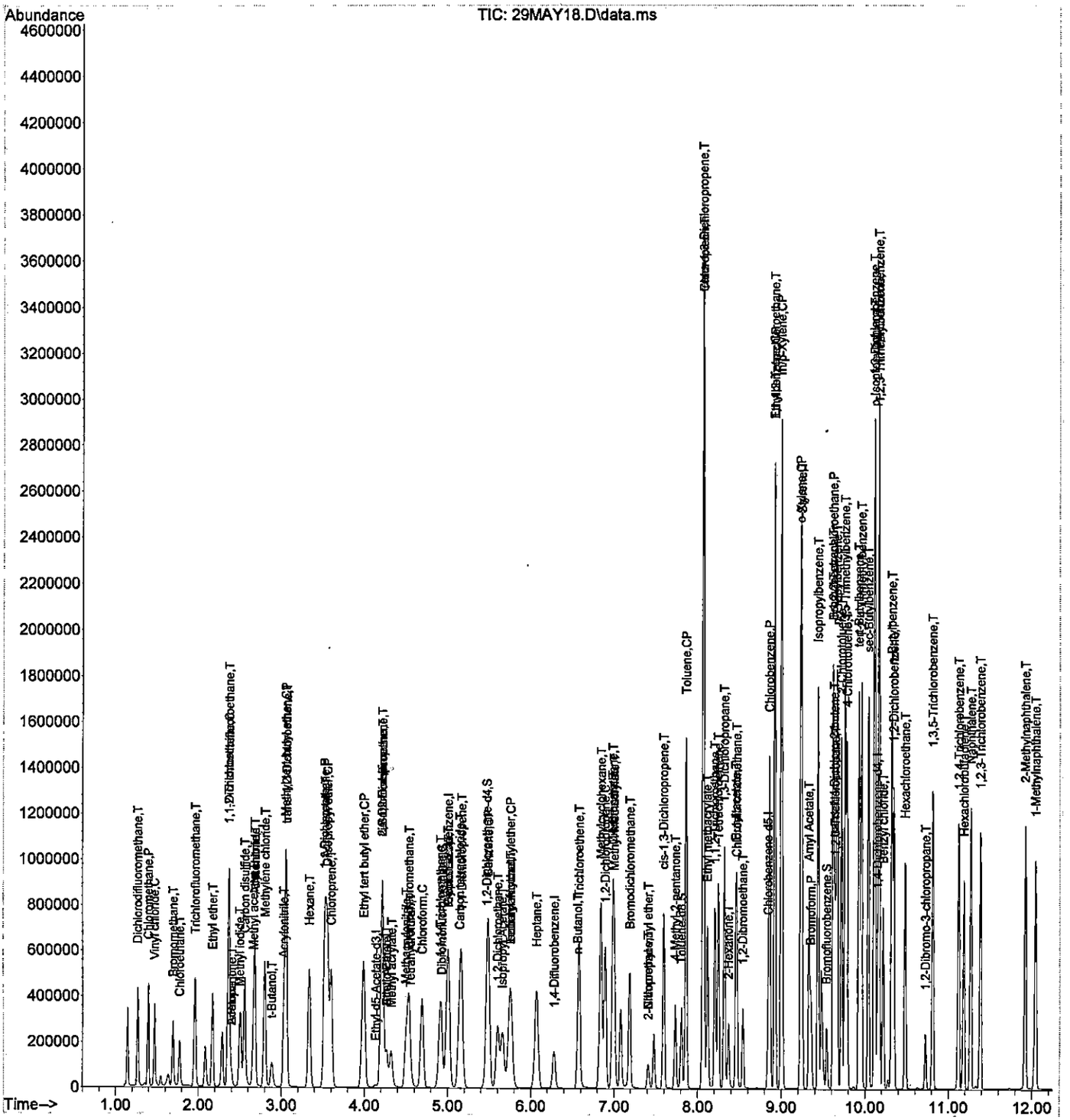
Quant Time: May 30 09:20:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	797284	81.21	ug/L		95
102) Benzyl chloride	10.218	91	418602	103.25	ug/L		98
103) 1,2-Dichlorobenzene	10.344	146	392266	72.81	ug/L		98
104) n-Butylbenzene	10.323	91	741400	69.53	ug/L		99
105) Hexachloroethane	10.480	117	159343	89.23	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.727	157	46631	101.35	ug/L	#	88
107) 1,3,5-Trichlorobenzene	10.811	180	299691	69.53	ug/L		99
108) 1,2,4-Trichlorobenzene	11.125	180	277182	73.50	ug/L		100
109) Hexachlorobutadiene	11.183	225	140093	65.87	ug/L		98
110) Naphthalene	11.267	128	734490	92.63	ug/L		98
111) 1,2,3-Trichlorobenzene	11.382	180	269356	75.97	ug/L		99
112) 2-Methylnaphthalene	11.917	142	468569	87.97	ug/L		99
113) 1-Methylnaphthalene	12.038	142	412347	87.61	ug/L		100
115) 2-Propanone	2.401	43	69631	51.08	ug/L		90
116) Acetic Ether	4.267	43	250836	59.08	ug/L	#	97
117) Isopropyl Acetate	5.657	61	79405	51.88	ug/L	#	62
118) Amyl Acetate	9.332	43	356344	63.80	ug/L	#	82

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY18.D
Acq On : 29 May 2018 02:59 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 30 09:20:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO418.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed Apr 18 10:47:26 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	100776	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.286	114	167630	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	144053	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	63302	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	22706	20.00	ug/L		0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	55442	21.08	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.40%				
45) 1,2-Dichloroethane-d4	5.468	65	66168	20.78	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.90%				
64) Toluene-d8	7.806	98	204709	20.35	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.75%				
85) Bromofluorobenzene	9.542	95	71361	20.49	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	64569	18.78	ug/L		97
3) Chloromethane	1.394	50	89637	26.36	ug/L		98
4) Vinyl chloride	1.473	62	84894	29.24	ug/L		99
5) Bromomethane	1.698	96	49893	36.98	ug/L		99
6) Chloroethane	1.777	64	50490	31.39	ug/L		99
7) Trichlorofluoromethane	1.960	101	110773	28.29	ug/L		99
8) Ethyl ether	2.170	59	72428	37.22	ug/L		99
9) Acrolein	2.265	56	532	Below Cal		#	1
10) 1,1-Dichloroethene	2.364	61	131011	36.93	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.375	151	50	0.03	ug/L	#	1
12) Methyl iodide	2.495	142	56111	54.63	ug/L		98
13) Acetone	2.406	43	29482	38.93	ug/L		98
14) Chloroprene	3.607	53	680	0.18	ug/L	#	32
15) Carbon disulfide	2.558	76	209845	32.86	ug/L		99
16) Allyl chloride	2.679	41	135250	30.65	ug/L		95
17) Methyl acetate	2.679	43	1121	0.59	ug/L	#	1
18) Acetonitrile	2.679	41	135250	30.65	ug/L	#	95
19) Methylene chloride	2.799	49	145857	40.28	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	136365	37.44	ug/L		99
21) t-Butanol	2.883	59	59834	228.46	ug/L		98
22) Acrylonitrile	3.030	53	36205	40.95	ug/L		99
23) Methyl tert-butyl ether	3.046	73	243674	44.47	ug/L		98
24) Hexane	3.334	57	3576	N.D.			
25) 1,1-Dichloroethane	3.523	63	173089	36.75	ug/L		100
26) Diisopropyl ether	3.554	45	291047	39.44	ug/L	#	51
27) Vinyl acetate	3.560	86	183	1.28	ug/L	#	1
28) Ethyl tert butyl ether	3.990	59	244012	40.91	ug/L		99
29) 2,2-Dichloropropane	4.215	77	123473	37.29	ug/L		99
30) cis-1,2-Dichloroethene	4.210	61	170126	40.12	ug/L		100
31) 2-Butanone	4.210	43	43952	41.69	ug/L		98
32) Ethyl Acetate	4.267	43	106654	41.50	ug/L	#	99
33) Methyl acrylate	4.325	55	87707	39.51	ug/L		98
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.535	49	86760	36.72	ug/L		99
36) Tetrahydrofuran	4.551	42	33518	37.95	ug/L		99
37) Methacrylonitrile	4.503	41	78850	34.37	ug/L		98
38) Chloroform	4.692	83	164053	38.06	ug/L		100

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.001	56	2804	Below Cal		#	36
41)	1,1,1-Trichloroethane	4.912	97	128622	37.76	ug/L		98
43)	Carbon tetrachloride	5.143	117	105835	39.24	ug/L		99
44)	1,1-Dichloropropene	5.164	75	116210	33.99	ug/L		99
46)	1,2-Dichloroethane	5.604	62	133150	36.61	ug/L		100
47)	Benzene	5.484	78	357738	35.14	ug/L		100
48)	Tertiaryamylmethylether	5.751	73	220134	41.39	ug/L		99
49)	Isobutyl Alcohol	5.751	43	78026	33.92	ug/L		97
50)	Heptane	6.071	43	462	Below Cal		#	44
51)	1,4-Dioxane	6.994	88	1054	33.29	ug/L	#	26
52)	Methylcyclohexane	6.842	83	427	0.11	ug/L	#	30
53)	n-Butanol	0.000		0	N.D.			
54)	Trichloroethene	6.580	130	85073	34.99	ug/L		99
55)	1,2-Dichloropropane	6.894	63	101155	37.77	ug/L	#	83
56)	Dibromomethane	6.983	93	57562	39.19	ug/L		99
57)	Methyl methacrylate	7.004	41	84718	32.51	ug/L		99
58)	Bromodichloromethane	7.188	83	116143	34.46	ug/L		100
59)	2-Chloroethyl vinyl ether	7.408	43	21626	39.21	ug/L	#	100
60)	2-Nitropropane	7.408	43	21626	39.21	ug/L		95
61)	cis-1,3-Dichloropropene	7.597	75	146472	40.71	ug/L		98
63)	4-Methyl-2-pentanone	7.733	43	132772	55.58	ug/L		85
65)	Toluene	7.859	91	360963	33.98	ug/L		100
66)	trans-1,3-Dichloropropene	8.063	75	128479	39.80	ug/L		94
67)	Chloropicrin	0.000		0	N.D.			
68)	Ethyl methacrylate	8.116	69	118764	40.99	ug/L		98
69)	1,1,2-Trichloroethane	8.205	97	80492	39.42	ug/L		99
70)	Tetrachloroethene	8.247	166	86180	34.69	ug/L		99
71)	1,3-Dichloropropane	8.320	76	146138	39.05	ug/L		96
72)	2-Hexanone	8.367	43	67974	42.50	ug/L		96
73)	Chlorodibromomethane	8.467	129	80866	40.62	ug/L		99
74)	Butyl acetate	8.457	43	154279	42.47	ug/L		99
75)	1,2-Dibromoethane	8.540	107	81320	43.46	ug/L		98
76)	Chlorobenzene	8.860	112	223202	35.23	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.923	131	79388	39.58	ug/L		99
78)	Ethylbenzene	8.923	91	391708	35.36	ug/L		100
79)	m/p-Xylene	9.002	91	598112	70.15	ug/L		100
80)	Styrene	9.243	104	236961	36.97	ug/L		99
81)	o-Xylene	9.233	91	314204	36.11	ug/L		99
82)	Cyclohexanone	9.500	55	1010	7.24	ug/L	#	1
83)	Bromoform	9.358	173	49161	38.92	ug/L		99
84)	Isopropylbenzene	9.442	105	361738	35.53	ug/L		100
86)	Bromobenzene	9.621	77	214614	35.55	ug/L		99
87)	1,2,3-Trichloropropane	9.647	110	31446	39.80	ug/L		97
88)	trans-1,4-Dichloro-2-b...	9.636	53	27683	35.88	ug/L		92
89)	n-Propylbenzene	9.668	91	437660	34.42	ug/L		100
90)	2-Chlorotoluene	9.720	91	265420	34.50	ug/L		100
91)	4-Chlorotoluene	9.788	91	300076	33.70	ug/L		100
92)	1,3,5-Trimethylbenzene	9.762	105	291853	34.98	ug/L		100
93)	tert-Butylbenzene	9.930	91	181983	32.30	ug/L		96
94)	1,2,4-Trimethylbenzene	9.961	105	303722	34.79	ug/L		99
95)	sec-Butylbenzene	10.045	105	377131	34.45	ug/L		100
97)	1,1,2,2-Tetrachloroethane	9.621	83	115503	39.46	ug/L		100
98)	1,3-Dichlorobenzene	10.113	146	161414	33.67	ug/L		99
99)	p-Isopropyltoluene	10.119	119	308312	35.17	ug/L		99
100)	1,4-Dichlorobenzene	10.166	146	163451	34.54	ug/L		99

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	300220	33.82	ug/L		98
102) Benzyl chloride	10.218	91	660	0.34	ug/L	#	62
103) 1,2-Dichlorobenzene	10.344	146	157476	34.28	ug/L		99
104) n-Butylbenzene	10.323	91	302624	39.39	ug/L		99
105) Hexachloroethane	10.480	117	46684	35.07	ug/L		96
106) 1,2-Dibromo-3-chloropr...	10.727	157	19913	44.97	ug/L		95
107) 1,3,5-Trichlorobenzene	10.811	180	1288	0.37	ug/L	#	96
108) 1,2,4-Trichlorobenzene	11.125	180	111107	35.27	ug/L		100
109) Hexachlorobutadiene	11.183	225	56746	33.99	ug/L		98
110) Naphthalene	11.267	128	304465	37.57	ug/L		100
111) 1,2,3-Trichlorobenzene	11.382	180	111539	35.18	ug/L		98
112) 2-Methylnaphthalene	11.917	142	5809	1.21	ug/L		99
113) 1-Methylnaphthalene	12.038	142	5075	1.16	ug/L		99
115) 2-Propanone	2.406	43	29482	37.21	ug/L		99
116) Acetic Ether	4.267	43	106654	40.35	ug/L	#	100
117) Isopropyl Acetate	5.662	61	33543	40.66	ug/L		99
118) Amyl Acetate	9.332	43	150698	40.19	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
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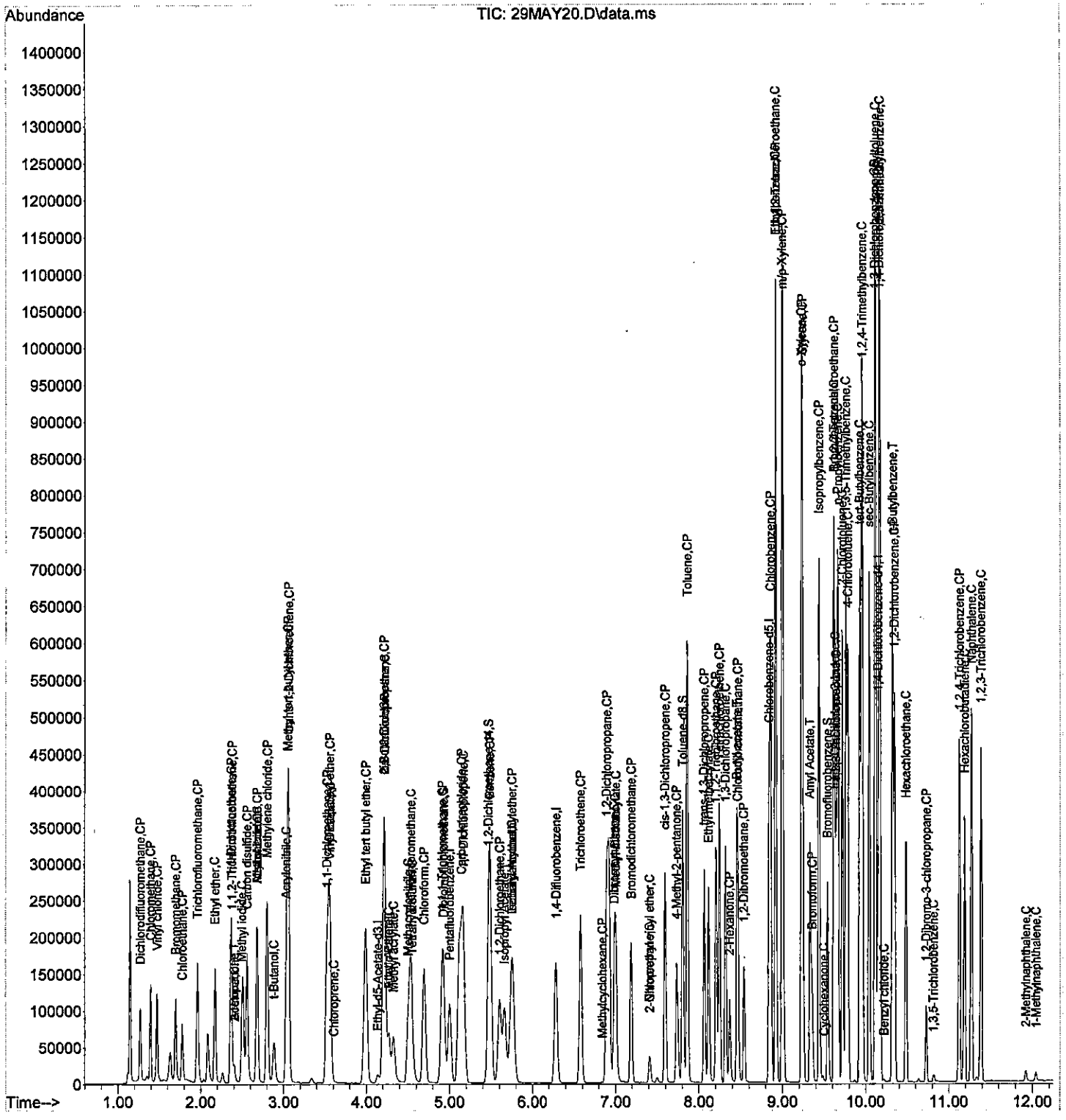


Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	108	0.00
2	CP	Dichlorodifluoromethane	40.000	18.779	53.1#	57	0.00
3	CP	Chloromethane	40.000	26.363	34.1#	67	0.00
4	CP	Vinyl chloride	40.000	29.236	26.9#	86	0.00
5	CP	Bromomethane	40.000	36.977	7.6	97	0.00
6	CP	Chloroethane	40.000	31.391	21.5#	92	0.00
7	CP	Trichlorofluoromethane	40.000	28.287	29.3#	83	0.00
8	C	Ethyl ether	40.000	37.223	6.9	98	0.00
9	C	Acrolein	200.000	-1.000	100.5#	1	-0.03
10	CP	1,1-Dichloroethene	40.000	36.926	7.7	103	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.034	99.9#	0	0.00
12	C	Methyl iodide	40.000	54.635	-36.6#	172	0.00
13	CP	Acetone	40.000	38.925	2.7	103	0.00
14	C	Chloroprene	40.000	0.183	99.5#	0	0.00
15	CP	Carbon disulfide	40.000	32.857	17.9	95	0.00
16	C	Allyl chloride	40.000	30.647	23.4#	91	0.00
17	CP	Methyl acetate	40.000	0.589	98.5#	2	0.01
18	C	Acetonitrile	40.000	30.647	23.4#	91	0.00
19	CP	Methylene chloride	40.000	40.285	-0.7	107	0.00
20	CP	trans-1,2-Dichloroethene	40.000	37.437	6.4	106	0.00
21	C	t-Butanol	200.000	228.461	-14.2	117	0.00
22	C	Acrylonitrile	40.000	40.948	-2.4	96	0.00
23	CP	Methyl tert-butyl ether	40.000	44.468	-11.2	118	0.00
24	T	Hexane	40.000	0.009	100.0#	3	0.00
25	CP	1,1-Dichloroethane	40.000	36.751	8.1	102	0.00
26	CP	Diisopropyl ether	40.000	39.444	1.4	107	0.00
27	C	Vinyl acetate	40.000	1.283	96.8#	1	0.04
28	CP	Ethyl tert butyl ether	40.000	40.906	-2.3	109	0.00
29	C	2,2-Dichloropropane	40.000	37.287	6.8	104	0.00
30	CP	cis-1,2-Dichloroethene	40.000	40.121	-0.3	106	0.00
31	CP	2-Butanone	40.000	41.690	-4.2	106	0.00
32	C	Ethyl Acetate	40.000	41.503	-3.8	115	0.00
33	C	Methyl acrylate	40.000	39.513	1.2	96	0.00
34	C	Propionitrile	40.000	0.000	100.0#	0	-5.00#
35	C	Bromochloromethane	40.000	36.722	8.2	102	0.00
36	C	Tetrahydrofuran	40.000	37.947	5.1	95	0.00
37	C	Methacrylonitrile	40.000	34.368	14.1	98	0.00
38	CP	Chloroform	40.000	38.061	4.8	102	0.00
39	CP	Cyclohexane	40.000	-0.141	100.4#	2	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	111	0.00
41	CP	1,1,1-Trichloroethane	40.000	37.764	5.6	103	0.00
42	S	Dibromofluoromethane	20.000	21.084	-5.4	110	0.00
43	CP	Carbon tetrachloride	40.000	39.237	1.9	102	0.00
44	C	1,1-Dichloropropene	40.000	33.995	15.0	97	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.780	-3.9	113	0.00
46	CP	1,2-Dichloroethane	40.000	36.611	8.5	106	0.00
47	CP	Benzene	40.000	35.144	12.1	103	0.00
48	CP	Tertiaryamylmethylether	40.000	41.388	-3.5	111	0.00
49	C	Isobutyl Alcohol	40.000	33.915	15.2	113	0.00
50	C	Heptane	40.000	-0.297	100.7#	0	0.00

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	4000.000	33.288	99.2#	1	0.01
52	CP	Methylcyclohexane	40.000	0.108	99.7#	0	0.00
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.57#
54	CP	Trichloroethene	40.000	34.994	12.5	103	0.00
55	CP	1,2-Dichloropropane	40.000	37.773	5.6	104	0.00
56	C	Dibromomethane	40.000	39.185	2.0	105	0.00
57	C	Methyl methacrylate	40.000	32.505	18.7	97	0.00
58	CP	Bromodichloromethane	40.000	34.458	13.9	103	0.00
59	C	2-Chloroethyl vinyl ether	40.000	39.213	2.0#	103	0.00
60	C	2-Nitropropane	40.000	39.213	2.0	103	0.00
61	CP	cis-1,3-Dichloropropene	40.000	40.712	-1.8	104	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	108	0.00
63	CP	4-Methyl-2-pentanone	40.000	55.576	-38.9#	154	0.00
64	S	Toluene-d8	20.000	20.351	-1.8	111	0.00
65	CP	Toluene	40.000	33.976	15.1	101	0.00
66	CP	trans-1,3-Dichloropropene	40.000	39.799	0.5	102	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-8.07#
68	C	Ethyl methacrylate	40.000	40.986	-2.5	104	0.00
69	CP	1,1,2-Trichloroethane	40.000	39.422	1.4	108	0.00
70	CP	Tetrachloroethene	40.000	34.686	13.3	106	0.00
71	C	1,3-Dichloropropane	40.000	39.049	2.4	106	0.00
72	CP	2-Hexanone	40.000	42.500	-6.3	115	0.00
73	CP	Chlorodibromomethane	40.000	40.623	-1.6	95	0.00
74	T	Butyl acetate	40.000	42.469	-6.2	118	0.00
75	CP	1,2-Dibromoethane	40.000	43.462	-8.7	111	0.00
76	CP	Chlorobenzene	40.000	35.230	11.9	100	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	39.579	1.1	102	0.00
78	CP	Ethylbenzene	40.000	35.362	11.6	100	0.00
79	CP	m/p-Xylene	80.000	70.152	12.3	101	0.00
80	CP	Styrene	40.000	36.968	7.6	100	0.00
81	CP	o-Xylene	40.000	36.111	9.7	102	0.00
82	C	Cyclohexanone	200.000	7.238	96.4#	6	0.00
83	CP	Bromoform	40.000	38.919	2.7	97	0.00
84	CP	Isopropylbenzene	40.000	35.529	11.2	101	0.00
85	S	Bromofluorobenzene	20.000	20.488	-2.4	108	0.00
86	C	Bromobenzene	40.000	35.550	11.1	101	0.00
87	C	1,2,3-Trichloropropane	40.000	39.795	0.5	101	0.00
88	C	trans-1,4-Dichloro-2-butene	40.000	35.882	10.3	87	0.00
89	C	n-Propylbenzene	40.000	34.418	14.0	98	0.00
90	C	2-Chlorotoluene	40.000	34.497	13.8	100	0.00
91	C	4-Chlorotoluene	40.000	33.701	15.7	99	0.00
92	C	1,3,5-Trimethylbenzene	40.000	34.975	12.6	99	0.00
93	C	tert-Butylbenzene	40.000	32.302	19.2	99	0.00
94	C	1,2,4-Trimethylbenzene	40.000	34.786	13.0	98	0.00
95	C	sec-Butylbenzene	40.000	34.450	13.9	99	0.00
96	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	104	0.00
97	CP	1,1,2,2-Tetrachloroethane	40.000	39.457	1.4	106	0.00
98	CP	1,3-Dichlorobenzene	40.000	33.672	15.8	97	0.00
99	C	p-Isopropyltoluene	40.000	35.173	12.1	98	0.00

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Titl e : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	40.000	34.535	13.7	99	0.00
101	C	1,2,3-Trimethylbenzene	40.000	33.822	15.4	95	0.00
102	C	Benzyl chloride	40.000	0.339	99.2#	0	0.00
103	CP	1,2-Dichlorobenzene	40.000	34.277	14.3	99	0.00
104	T	n-Butylbenzene	40.000	39.394	1.5	99	0.00
105	C	Hexachloroethane	40.000	35.071	12.3	78	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	44.974	-12.4	104	0.00
107	C	1,3,5-Trichlorobenzene	40.000	0.373	99.1#	1	0.00
108	CP	1,2,4-Trichlorobenzene	40.000	35.271	11.8	101	0.00
109	C	Hexachlorobutadiene	40.000	33.988	15.0	98	0.00
110	C	Naphthalene	40.000	37.569	6.1	103	0.00
111	C	1,2,3-Trichlorobenzene	40.000	35.178	12.1	104	0.00
112	C	2-Methylnaphthalene	40.000	1.213	97.0#	3	0.00
113	C	1-Methylnaphthalene	40.000	1.161	97.1#	3	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	106	0.00
115	T	2-Propanone	40.000	37.207	7.0	101	0.00
116	T	Acetic Ether	40.000	40.351	-0.9	115	0.00
117	T	Isopropyl Acetate	40.000	40.660	-1.6	122	0.00
118	T	Amyl Acetate	40.000	40.190	-0.5	119	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 25

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	108	0.00
2	CP	Dichlorodifluoromethane	0.682	0.320	53.1#	57	0.00
3	CP	Chloromethane	0.827	0.445	46.2#	67	0.00
4	CP	Vinyl chloride	0.576	0.421	26.9#	86	0.00
5	CP	Bromomethane	0.324	0.248	23.5#	97	0.00
6	CP	Chloroethane	0.319	0.251	21.3#	92	0.00
7	CP	Trichlorofluoromethane	0.777	0.550	29.2#	83	0.00
8	C	Ethyl ether	0.386	0.359	7.0	98	0.00
9	C	Acrolein	0.067	0.001#	98.5#	1#	-0.03
10	CP	1,1-Dichloroethene	0.704	0.650	7.7	103	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.292	0.000#	100.0#	0#	0.00
12	C	Methyl iodide	0.171	0.278	-62.6#	172	0.00
13	CP	Acetone	0.307	0.146	52.4#	103	0.00
14	C	Chloroprene	0.739	0.003#	99.6#	0#	0.00
15	CP	Carbon disulfide	1.267	1.041	17.8	95	0.00
16	C	Allyl chloride	0.876	0.671	23.4#	91	0.00
17	CP	Methyl acetate	0.378	0.006#	98.4#	2#	0.01
18	C	Acetonitrile	0.876	0.671	23.4#	91	0.00
19	CP	Methylene chloride	1.668	0.724	56.6#	107	0.00
20	CP	trans-1,2-Dichloroethene	0.723	0.677	6.4	106	0.00
21	C	t-Butanol	0.073	0.059#	19.2	117	0.00
22	C	Acrylonitrile	0.175	0.180#	-2.9	96	0.00
23	CP	Methyl tert-butyl ether	1.088	1.209	-11.1	118	0.00
24	T	Hexane	0.863	0.018#	97.9#	3#	0.00
25	CP	1,1-Dichloroethane	0.935	0.859	8.1	102	0.00
26	CP	Diisopropyl ether	1.464	1.444	1.4	107	0.00
27	C	Vinyl acetate	0.075	0.001#	98.7#	1#	0.04
28	CP	Ethyl tert butyl ether	1.184	1.211	-2.3	109	0.00
29	C	2,2-Dichloropropane	0.657	0.613	6.7	104	0.00
30	CP	cis-1,2-Dichloroethene	0.842	0.844	-0.2	106	0.00
31	CP	2-Butanone	0.239	0.218	8.8	106	0.00
32	C	Ethyl Acetate	0.598	0.529	11.5	115	0.00
33	C	Methyl acrylate	0.441	0.435	1.4	96	0.00
34	C	Propionitrile	0.061	0.000#	100.0#	0#	-5.00#
35	C	Bromochloromethane	0.469	0.430	8.3	102	0.00
36	C	Tetrahydrofuran	0.209	0.166#	20.6#	95	0.00
37	C	Methacrylonitrile	0.455	0.391	14.1	98	0.00
38	CP	Chloroform	1.330	0.814	38.8#	102	0.00
39	CP	Cyclohexane	1.053	0.014#	98.7#	2#	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	111	0.00
41	CP	1,1,1-Trichloroethane	0.406	0.384	5.4	103	0.00
42	S	Dibromofluoromethane	0.314	0.331	-5.4	110	0.00
43	CP	Carbon tetrachloride	0.322	0.316	1.9	102	0.00
44	C	1,1-Dichloropropene	0.408	0.347	15.0	97	0.00
45	S	1,2-Dichloroethane-d4	0.380	0.395	-3.9	113	0.00
46	CP	1,2-Dichloroethane	0.434	0.397	8.5	106	0.00
47	CP	Benzene	1.214	1.067	12.1	103	0.00
48	CP	Tertiaryamylmethylether	0.635	0.657	-3.5	111	0.00
49	C	Isobutyl Alcohol	0.274	0.233	15.0	113	0.00
50	C	Heptane	0.454	0.001#	99.8#	0#	0.00

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Globa1 Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	0.004	0.000#	100.0#	1#	0.01
52	CP	Methylcyc1ohexane	0.470	0.001#	99.8#	0#	0.00
53	T	n-Butanol	0.000	0.000#	0.0	0#	-6.57#
54	CP	Trichloroethene	0.290	0.254	12.4	103	0.00
55	CP	1,2-Dichloropropane	0.320	0.302	5.6	104	0.00
56	C	Dibromomethane	0.175	0.172#	1.7	105	0.00
57	C	Methyl methacrylate	0.311	0.253	18.6	97	0.00
58	CP	Bromodichloromethane	0.402	0.346	13.9	103	0.00
59	C	2-Chloroethyl vinyl ether	0.074	0.065#	12.2#	103	0.00
60	C	2-Nitropropane	0.074	0.065#	12.2	103	0.00
61	CP	cis-1,3-Dichloropropene	0.429	0.437	-1.9	104	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	108	0.00
63	CP	4-Methyl-2-pentanone	0.345	0.461	-33.6#	154	0.00
64	S	Toluene-d8	1.397	1.421	-1.7	111	0.00
65	CP	Toluene	1.475	1.253	15.1	101	0.00
66	CP	trans-1,3-Dichloropropene	0.421	0.446	-5.9	102	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-8.07#
68	C	Ethyl methacrylate	0.402	0.412	-2.5	104	0.00
69	CP	1,1,2-Trichloroethane	0.283	0.279	1.4	108	0.00
70	CP	Tetrachloroethene	0.345	0.299	13.3	106	0.00
71	C	1,3-Dichloropropane	0.520	0.507	2.5	106	0.00
72	CP	2-Hexanone	0.231	0.236	-2.2	115	0.00
73	CP	Chlorodibromomethane	0.276	0.281	-1.8	95	0.00
74	T	Butyl acetate	0.506	0.535	-5.7	118	0.00
75	CP	1,2-Dibromoethane	0.260	0.282	-8.5	111	0.00
76	CP	Chlorobenzene	0.880	0.775	11.9	100	0.00
77	C	1,1,1,2-Tetrachloroethane	0.278	0.276	0.7	102	0.00
78	CP	Ethylbenzene	1.538	1.360	11.6	100	0.00
79	CP	m/p-Xylene	1.184	1.038	12.3	101	0.00
80	CP	Styrene	0.890	0.822	7.6	100	0.00
81	CP	o-Xylene	1.208	1.091	9.7	102	0.00
82	C	Cyclohexanone	0.020	0.001#	95.0#	6#	0.00
83	CP	Bromoform	0.175	0.171	2.3	97	0.00
84	CP	Isopropylbenzene	1.414	1.256	11.2	101	0.00
85	S	Bromofluorobenzene	0.484	0.495	-2.3	108	0.00
86	C	Bromobenzene	0.838	0.745	11.1	101	0.00
87	C	1,2,3-Trich1oropropane	0.110	0.109#	0.9	101	0.00
88	C	trans-1,4-Dichloro-2-butene	0.107	0.096#	10.3	87	0.00
89	C	n-Propylbenzene	1.765	1.519	13.9	98	0.00
90	C	2-Ch1orotoluene	1.068	0.921	13.8	100	0.00
91	C	4-Chlorotoluene	1.236	1.042	15.7	99	0.00
92	C	1,3,5-Trimethylbenzene	1.159	1.013	12.6	99	0.00
93	C	tert-Butylbenzene	0.782	0.632	19.2	99	0.00
94	C	1,2,4-Trimethylbenzene	1.212	1.054	13.0	98	0.00
95	C	sec-Butylbenzene	1.520	1.309	13.9	99	0.00
96	I	1,4-Dich1orobenzene-d4	1.000	1.000	0.0	104	0.00
97	CP	1,1,2,2-Tetrachloroethane	0.925	0.912	1.4	106	0.00
98	CP	1,3-Dichlorobenzene	1.515	1.275	15.8	97	0.00
99	C	p-Isopropyltoluene	2.769	2.435	12.1	98	0.00

Data Path : C:\msdchem\1\data\10V180529\
Data File : 29MAY20.D
Acq On : 29 May 2018 03:38 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 30 10:58:06 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	1.495	1.291	13.6	99	0.00
101	C	1,2,3-Trimethylbenzene	2.805	2.371	15.5	95	0.00
102	C	Benzyl chloride	0.972	0.005#	99.5#	0#	0.00
103	CP	1,2-Dichlorobenzene	1.452	1.244	14.3	99	0.00
104	T	n-Butylbenzene	2.955	2.390	19.1	99	0.00
105	C	Hexachloroethane	0.421	0.369	12.4	78	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.140	0.157	-12.1	104	0.00
107	C	1,3,5-Trichlorobenzene	1.092	0.010#	99.1#	1#	0.00
108	CP	1,2,4-Trichlorobenzene	0.995	0.878	11.8	101	0.00
109	C	Hexachlorobutadiene	0.528	0.448	15.2	98	0.00
110	C	Naphthalene	2.560	2.405	6.1	103	0.00
111	C	1,2,3-Trichlorobenzene	1.002	0.881	12.1	104	0.00
112	C	2-Methylnaphthalene	1.513	0.046#	97.0#	3#	0.00
113	C	1-Methylnaphthalene	1.381	0.040#	97.1#	3#	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	106	0.00
115	T	2-Propanone	2.218	0.649	70.7#	101	0.00
116	T	Acetic Ether	2.240	2.349	-4.9	115	0.00
117	T	Isopropyl Acetate	0.602	0.739	-22.8#	122	0.00
118	T	Amyl Acetate	3.463	3.318	4.2	119	0.00

(#) = Out of Range SPCC's out = 4 CCC's out = 30

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	89691	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	147479	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	129962	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	60555	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17056	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	48742	21.07	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.35%				
45) 1,2-Dichloroethane-d4	5.463	65	59811	21.35	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 106.75%				
64) Toluene-d8	7.807	98	183567	20.23	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.15%				
85) Bromofluorobenzene	9.542	95	63490	20.20	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 101.00%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.269	85	81295	26.57	ug/L		98
3) Chloromethane	1.394	50	90418	29.92	ug/L		96
4) Vinyl chloride	1.473	62	80286	31.07	ug/L		99
5) Bromomethane	1.704	96	33589	27.84	ug/L		97
6) Chloroethane	1.782	64	45016	31.45	ug/L		98
7) Trichlorofluoromethane	1.961	101	102603	29.44	ug/L		99
8) Ethyl ether	2.170	59	62785	36.26	ug/L		98
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.364	61	116119	36.77	ug/L		98
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.495	142	27625	35.73	ug/L	#	90
13) Acetone	2.401	43	23286	34.23	ug/L		100
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.558	76	181286	31.89	ug/L		100
16) Allyl chloride	2.679	41	113505	28.90	ug/L		95
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	2.679	41	113505	28.90	ug/L	#	95
19) Methylene chloride	2.800	49	120066	36.99	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	116175	35.84	ug/L		100
21) t-Butanol	2.883	59	43917	187.47	ug/L	#	94
22) Acrylonitrile	3.025	53	28838	36.65	ug/L		96
23) Methyl tert-butyl ether	3.046	73	196392	40.27	ug/L		99
24) Hexane	3.334	57	5565	0.95	ug/L	#	24
25) 1,1-Dichloroethane	3.518	63	147225	35.12	ug/L		98
26) Diisopropyl ether	3.549	45	242289	36.89	ug/L	#	51
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.984	59	204051	38.43	ug/L		99
29) 2,2-Dichloropropane	4.210	77	104557	35.48	ug/L		99
30) cis-1,2-Dichloroethene	4.210	61	143224	37.95	ug/L		100
31) 2-Butanone	4.210	43	29970	32.16	ug/L	#	91
32) Ethyl Acetate	4.268	43	81485	35.59	ug/L	#	89
33) Methyl acrylate	4.325	55	69533	35.20	ug/L		99
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.530	49	76814	36.53	ug/L		99
36) Tetrahydrofuran	4.551	42	26024	33.07	ug/L		99
37) Methacrylonitrile	4.503	41	60691	29.72	ug/L		99
38) Chloroform	4.692	83	138364	36.03	ug/L		99

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.			
41)	1,1,1-Trichloroethane	4.912	97	108650	36.26	ug/L		100
43)	Carbon tetrachloride	5.143	117	88803	37.42	ug/L		99
44)	1,1-Dichloropropene	5.164	75	100517	33.42	ug/L		100
46)	1,2-Dichloroethane	5.599	62	112515	35.16	ug/L		100
47)	Benzene	5.484	78	301579	33.68	ug/L		100
48)	Tertiaryamylmethylether	5.751	73	181745	38.84	ug/L		98
49)	Isobutyl Alcohol	5.746	43	65614	32.42	ug/L		96
50)	Heptane	0.000		0	N.D.			
51)	1,4-Dioxane	0.000		0	N.D.			
52)	Methylcyclohexane	0.000		0	N.D.			
53)	n-Butanol	0.000		0	N.D.			
54)	Trichloroethene	6.580	130	74722	34.94	ug/L		98
55)	1,2-Dichloropropane	6.889	63	85643	36.35	ug/L	#	82
56)	Dibromomethane	6.983	93	47493	36.75	ug/L		99
57)	Methyl methacrylate	6.999	41	64984	28.34	ug/L		99
58)	Bromodichloromethane	7.183	83	93905	31.67	ug/L		98
59)	2-Chloroethyl vinyl ether	7.408	43	14445	30.23	ug/L	#	88
60)	2-Nitropropane	7.408	43	14445	30.23	ug/L	#	82
61)	cis-1,3-Dichloropropene	7.592	75	119607	37.79	ug/L		98
63)	4-Methyl-2-pentanone	7.733	43	95645	44.36	ug/L		88
65)	Toluene	7.859	91	313754	32.73	ug/L		100
66)	trans-1,3-Dichloropropene	8.063	75	105351	36.44	ug/L		95
67)	Chloropicrin	0.000		0	N.D.			
68)	Ethyl methacrylate	8.116	69	92730	35.47	ug/L		100
69)	1,1,2-Trichloroethane	8.205	97	66694	36.21	ug/L		100
70)	Tetrachloroethene	8.247	166	81037	36.15	ug/L		99
71)	1,3-Dichloropropane	8.320	76	125678	37.22	ug/L		94
72)	2-Hexanone	8.368	43	51244	35.50	ug/L		93
73)	Chlorodibromomethane	8.467	129	63519	35.37	ug/L		99
74)	Butyl acetate	8.457	43	118673	36.21	ug/L		99
75)	1,2-Dibromoethane	8.541	107	67605	40.05	ug/L	#	100
76)	Chlorobenzene	8.860	112	195987	34.29	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.923	131	66617	36.81	ug/L		99
78)	Ethylbenzene	8.923	91	341539	34.18	ug/L		99
79)	m/p-Xylene	9.002	91	527179	68.54	ug/L		100
80)	Styrene	9.243	104	204681	35.39	ug/L		99
81)	o-Xylene	9.233	91	273181	34.80	ug/L		98
82)	Cyclohexanone	0.000		0	N.D.			
83)	Bromoform	9.353	173	36346	31.89	ug/L		97
84)	Isopropylbenzene	9.442	105	318746	34.70	ug/L		99
86)	Bromobenzene	9.621	77	184756	33.92	ug/L		99
87)	1,2,3-Trichloropropane	9.647	110	26726	37.49	ug/L		99
88)	trans-1,4-Dichloro-2-b...	9.636	53	18517	26.60	ug/L	#	84
89)	n-Propylbenzene	9.668	91	392241	34.19	ug/L		100
90)	2-Chlorotoluene	9.720	91	237497	34.21	ug/L		99
91)	4-Chlorotoluene	9.788	91	270717	33.70	ug/L		99
92)	1,3,5-Trimethylbenzene	9.762	105	261844	34.78	ug/L		99
93)	tert-Butylbenzene	9.930	91	162223	31.92	ug/L		97
94)	1,2,4-Trimethylbenzene	9.961	105	268541	34.09	ug/L		99
95)	sec-Butylbenzene	10.045	105	341713	34.60	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	94863	33.88	ug/L		99
98)	1,3-Dichlorobenzene	10.114	146	147014	32.06	ug/L		99
99)	p-Isopropyltoluene	10.119	119	279802	33.37	ug/L		99
100)	1,4-Dichlorobenzene	10.166	146	146524	32.36	ug/L		98

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

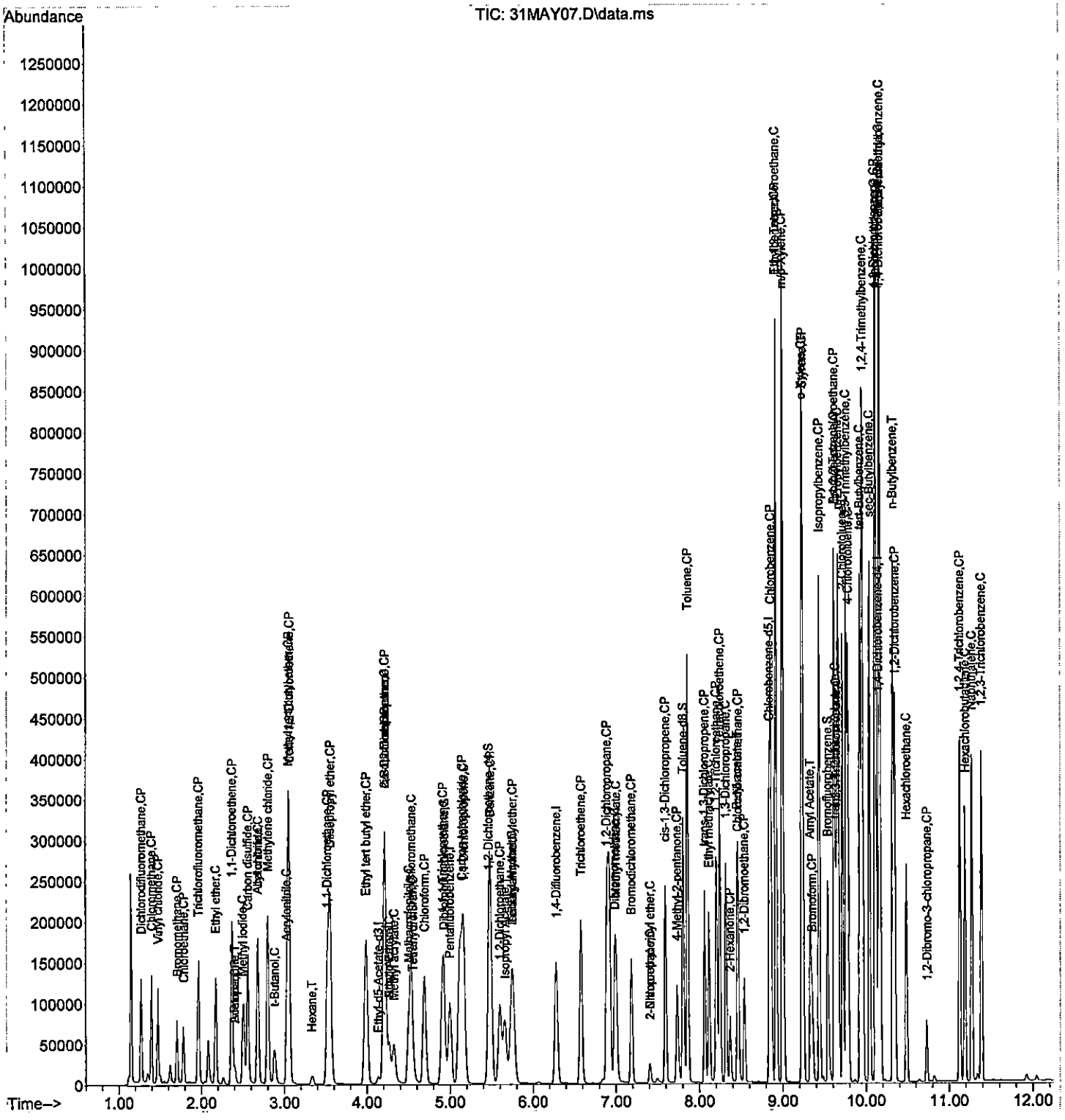
Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	267820	31.54 ug/L	100
102) Benzyl chloride	10.171	91	27303	9.04 ug/L #	38
103) 1,2-Dichlorobenzene	10.349	146	137803	31.36 ug/L	99
104) n-Butylbenzene	10.323	91	283183	38.52 ug/L	99
105) Hexachloroethane	10.486	117	34400	27.01 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.732	157	14387	33.97 ug/L	98
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.125	180	102620	34.05 ug/L	98
109) Hexachlorobutadiene	11.188	225	53611	33.57 ug/L	99
110) Naphthalene	11.267	128	241462	31.15 ug/L	99
111) 1,2,3-Trichlorobenzene	11.382	180	96804	31.92 ug/L	100
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.401	43	23286	39.30 ug/L	98
116) Acetic Ether	4.268	43	81756	41.18 ug/L #	98
117) Isopropyl Acetate	5.662	61	24249	39.15 ug/L	92
118) Amyl Acetate	9.332	43	116252	41.25 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	96	0.00
2	CP	Dichlorodifluoromethane	40.000	26.565	33.6#	72	0.00
3	CP	Chloromethane	40.000	29.924	25.2#	68	0.00
4	CP	Vinyl chloride	40.000	31.066	22.3#	81	0.00
5	CP	Bromomethane	40.000	27.841	30.4#	65	0.00
6	CP	Chloroethane	40.000	31.447	21.4#	82	0.00
7	CP	Trichlorofluoromethane	40.000	29.438	26.4#	77	0.00
8	C	Ethyl ether	40.000	36.256	9.4	85	0.00
9	C	Acrolein	200.000	0.000	100.0#	0	-2.29#
10	CP	1,1-Dichloroethene	40.000	36.774	8.1	92	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-2.37#
12	C	Methyl iodide	40.000	35.730	10.7	85	0.00
13	CP	Acetone	40.000	34.230	14.4	81	0.00
14	C	Chloroprene	40.000	0.000	100.0#	0	-3.60#
15	CP	Carbon disulfide	40.000	31.894	20.3#	82	0.00
16	C	Allyl chloride	40.000	28.898	27.8#	76	0.00
17	CP	Methyl acetate	40.000	0.000	100.0#	0	-2.67#
18	C	Acetonitrile	40.000	28.898	27.8#	76	0.00
19	CP	Methylene chloride	40.000	36.990	7.5	88	0.00
20	CP	trans-1,2-Dichloroethene	40.000	35.836	10.4	90	0.00
21	C	t-Butanol	200.000	187.474	6.3	86	0.00
22	C	Acrylonitrile	40.000	36.647	8.4	77	0.00
23	CP	Methyl tert-butyl ether	40.000	40.269	-0.7	95	0.00
24	T	Hexane	40.000	0.952	97.6#	5	0.00
25	CP	1,1-Dichloroethane	40.000	35.123	12.2	86	0.00
26	CP	Diisopropyl ether	40.000	36.895	7.8	89	0.00
27	C	Vinyl acetate	40.000	0.000	100.0#	0	-3.52#
28	CP	Ethyl tert butyl ether	40.000	38.435	3.9	91	0.00
29	C	2,2-Dichloropropane	40.000	35.477	11.3	88	0.00
30	CP	cis-1,2-Dichloroethene	40.000	37.951	5.1	89	0.00
31	CP	2-Butanone	40.000	32.163	19.6	72	0.00
32	C	Ethyl Acetate	40.000	35.593	11.0	88	0.00
33	C	Methyl acrylate	40.000	35.197	12.0	76	0.00
34	C	Propionitrile	40.000	0.000	100.0#	0	-5.00#
35	C	Bromochloromethane	40.000	36.530	8.7	90	0.00
36	C	Tetrahydrofuran	40.000	33.068	17.3	74	0.00
37	C	Methacrylonitrile	40.000	29.722	25.7#	75	0.00
38	CP	Chloroform	40.000	36.025	9.9	86	0.00
39	CP	Cyclohexane	40.000	0.000	100.0#	0	-5.01#
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	97	0.00
41	CP	1,1,1-Trichloroethane	40.000	36.259	9.4	87	0.00
42	S	Dibromofluoromethane	20.000	21.068	-5.3	97	0.00
43	CP	Carbon tetrachloride	40.000	37.421	6.4	85	0.00
44	C	1,1-Dichloropropene	40.000	33.422	16.4	84	0.00
45	S	1,2-Dichloroethane-d4	20.000	21.350	-6.8	102	0.00
46	CP	1,2-Dichloroethane	40.000	35.164	12.1	90	0.00
47	CP	Benzene	40.000	33.675	15.8	87	0.00
48	CP	Tertiaryamylmethylether	40.000	38.839	2.9	91	0.00
49	C	Isobutyl Alcohol	40.000	32.417	19.0	95	0.00
50	C	Heptane	40.000	0.000	100.0#	0	-6.07#

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	4000.000	0.000	100.0#	0	-6.98#
52	CP	Methylcyclohexane	40.000	0.000	100.0#	0	-6.84#
53	T	n-Butanol	400.000	0.000	100.0#	0	-6.57#
54	CP	Trichloroethene	40.000	34.936	12.7	90	0.00
55	CP	1,2-Dichloropropane	40.000	36.350	9.1	88	0.00
56	C	Dibromomethane	40.000	36.749	8.1	87	0.00
57	C	Methyl methacrylate	40.000	28.340	29.1#	74	0.00
58	CP	Bromodichloromethane	40.000	31.667	20.8#	83	0.00
59	C	2-Chloroethyl vinyl ether	40.000	30.225	24.4#	69	0.00
60	C	2-Nitropropane	40.000	30.225	24.4#	69	0.00
61	CP	cis-1,3-Dichloropropene	40.000	37.788	5.5	85	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	98	0.00
63	CP	4-Methyl-2-pentanone	40.000	44.365	-10.9	111	0.00
64	S	Toluene-d8	20.000	20.228	-1.1	99	0.00
65	CP	Toluene	40.000	32.734	18.2	87	0.00
66	CP	trans-1,3-Dichloropropene	40.000	36.444	8.9	84	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	-8.07#
68	C	Ethyl methacrylate	40.000	35.471	11.3	81	0.00
69	CP	1,1,2-Trichloroethane	40.000	36.206	9.5	90	0.00
70	CP	Tetrachloroethene	40.000	36.153	9.6	99	0.00
71	C	1,3-Dichloropropane	40.000	37.223	6.9	91	0.00
72	CP	2-Hexanone	40.000	35.504	11.2	87	0.00
73	CP	Chlorodibromomethane	40.000	35.368	11.6	75	0.00
74	T	Butyl acetate	40.000	36.208	9.5	91	0.00
75	CP	1,2-Dibromoethane	40.000	40.050	-0.1	93	0.00
76	CP	Chlorobenzene	40.000	34.288	14.3	88	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	36.813	8.0	85	0.00
78	CP	Ethylbenzene	40.000	34.176	14.6	87	0.00
79	CP	m/p-Xylene	80.000	68.536	14.3	89	0.00
80	CP	Styrene	40.000	35.394	11.5	87	0.00
81	CP	o-Xylene	40.000	34.800	13.0	89	0.00
82	C	Cyclohexanone	200.000	0.000	100.0#	0	-9.50#
83	CP	Bromoform	40.000	31.894	20.3#	72	0.00
84	CP	Isopropylbenzene	40.000	34.701	13.2	89	0.00
85	S	Bromofluorobenzene	20.000	20.205	-1.0	96	0.00
86	C	Bromobenzene	40.000	33.923	15.2	87	0.00
87	C	1,2,3-Trichloropropane	40.000	37.489	6.3	86	0.00
88	C	trans-1,4-Dichloro-2-butene	40.000	26.604	33.5#	58	0.00
89	C	n-Propylbenzene	40.000	34.190	14.5	88	0.00
90	C	2-Chlorotoluene	40.000	34.215	14.5	89	0.00
91	C	4-Chlorotoluene	40.000	33.700	15.7	89	0.00
92	C	1,3,5-Trimethylbenzene	40.000	34.781	13.0	89	0.00
93	C	tert-Butylbenzene	40.000	31.916	20.2#	88	0.00
94	C	1,2,4-Trimethylbenzene	40.000	34.092	14.8	87	0.00
95	C	sec-Butylbenzene	40.000	34.599	13.5	90	0.00
96	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	100	0.00
97	CP	1,1,2,2-Tetrachloroethane	40.000	33.876	15.3	87	0.00
98	CP	1,3-Dichlorobenzene	40.000	32.059	19.9	89	0.00
99	C	p-Isopropyltoluene	40.000	33.369	16.6	89	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	40.000	32.363	19.1	89	0.00
101	C	1,2,3-Trimethylbenzene	40.000	31.540	21.2#	84	0.00
102	C	Benzyl chloride	40.000	9.040	77.4#	18	-0.05
103	CP	1,2-Dichlorobenzene	40.000	31.355	21.6#	87	0.00
104	T	n-Butylbenzene	40.000	38.524	3.7	93	0.00
105	C	Hexachloroethane	40.000	27.015	32.5#	58	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	33.968	15.1	75	0.00
107	C	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-10.81#
108	CP	1,2,4-Trichlorobenzene	40.000	34.055	14.9	93	0.00
109	C	Hexachlorobutadiene	40.000	33.567	16.1	92	0.00
110	C	Naphthalene	40.000	31.146	22.1#	82	0.00
111	C	1,2,3-Trichlorobenzene	40.000	31.916	20.2#	90	0.00
112	C	2-Methylnaphthalene	40.000	0.000	100.0#	0	-11.92#
113	C	1-Methylnaphthalene	40.000	0.000	100.0#	0	-12.04#
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	80	0.00
115	T	2-Propanone	40.000	39.298	1.8	79	0.00
116	T	Acetic Ether	40.000	41.176	-2.9	88	0.00
117	T	Isopropyl Acetate	40.000	39.147	2.1	88	0.00
118	T	Amyl Acetate	40.000	41.251	-3.1	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 37

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	96	0.00
2	CP	Dichlorodifluoromethane	0.682	0.453	33.6#	72	0.00
3	CP	Chloromethane	0.827	0.504	39.1#	68	0.00
4	CP	Vinyl chloride	0.576	0.448	22.2#	81	0.00
5	CP	Bromomethane	0.324	0.187	42.3#	65	0.00
6	CP	Chloroethane	0.319	0.251	21.3#	82	0.00
7	CP	Trichlorofluoromethane	0.777	0.572	26.4#	77	0.00
8	C	Ethyl ether	0.386	0.350	9.3	85	0.00
9	C	Acrolein	0.067	0.000#	100.0#	0#	-2.29#
10	CP	1,1-Dichloroethene	0.704	0.647	8.1	92	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.292	0.000#	100.0#	0#	-2.37#
12	C	Methyl iodide	0.171	0.154#	9.9	85	0.00
13	CP	Acetone	0.307	0.130	57.7#	81	0.00
14	C	Chloroprene	0.739	0.000#	100.0#	0#	-3.60#
15	CP	Carbon disulfide	1.267	1.011	20.2#	82	0.00
16	C	Allyl chloride	0.876	0.633	27.7#	76	0.00
17	CP	Methyl acetate	0.378	0.000#	100.0#	0#	-2.67#
18	C	Acetonitrile	0.876	0.633	27.7#	76	0.00
19	CP	Methylene chloride	1.668	0.669	59.9#	88	0.00
20	CP	trans-1,2-Dichloroethene	0.723	0.648	10.4	90	0.00
21	C	t-Butanol	0.073	0.049#	32.9#	86	0.00
22	C	Acrylonitrile	0.175	0.161#	8.0	77	0.00
23	CP	Methyl tert-butyl ether	1.088	1.095	-0.6	95	0.00
24	T	Hexane	0.863	0.031#	96.4#	5#	0.00
25	CP	1,1-Dichloroethane	0.935	0.821	12.2	86	0.00
26	CP	Diisopropyl ether	1.464	1.351	7.7	89	0.00
27	C	Vinyl acetate	0.075	0.000#	100.0#	0#	-3.52#
28	CP	Ethyl tert butyl ether	1.184	1.138	3.9	91	0.00
29	C	2,2-Dichloropropane	0.657	0.583	11.3	88	0.00
30	CP	cis-1,2-Dichloroethene	0.842	0.798	5.2	89	0.00
31	CP	2-Butanone	0.239	0.167	30.1#	72	0.00
32	C	Ethyl Acetate	0.598	0.454	24.1#	88	0.00
33	C	Methyl acrylate	0.441	0.388	12.0	76	0.00
34	C	Propionitrile	0.061	0.000#	100.0#	0#	-5.00#
35	C	Bromochloromethane	0.469	0.428	8.7	90	0.00
36	C	Tetrahydrofuran	0.209	0.145#	30.6#	74	0.00
37	C	Methacrylonitrile	0.455	0.338	25.7#	75	0.00
38	CP	Chloroform	1.330	0.771	42.0#	86	0.00
39	CP	Cyclohexane	1.053	0.000#	100.0#	0#	-5.01#
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	97	0.00
41	CP	1,1,1-Trichloroethane	0.406	0.368	9.4	87	0.00
42	S	Dibromofluoromethane	0.314	0.331	-5.4	97	0.00
43	CP	Carbon tetrachloride	0.322	0.301	6.5	85	0.00
44	C	1,1-Dichloropropene	0.408	0.341	16.4	84	0.00
45	S	1,2-Dichloroethane-d4	0.380	0.406	-6.8	102	0.00
46	CP	1,2-Dichloroethane	0.434	0.381	12.2	90	0.00
47	CP	Benzene	1.214	1.022	15.8	87	0.00
48	CP	Tertiaryamylmethylether	0.635	0.616	3.0	91	0.00
49	C	Isobutyl Alcohol	0.274	0.222	19.0	95	0.00
50	C	Heptane	0.454	0.000#	100.0#	0#	-6.07#

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	0.004	0.000#	100.0#	0#	-6.98#
52	CP	Methylcyclohexane	0.470	0.000#	100.0#	0#	-6.84#
53	T	n-Butanol	0.000	0.000#	0.0	0#	-6.57#
54	CP	Trichloroethene	0.290	0.253	12.8	90	0.00
55	CP	1,2-Dichloropropane	0.320	0.290	9.4	88	0.00
56	C	Dibromomethane	0.175	0.161#	8.0	87	0.00
57	C	Methyl methacrylate	0.311	0.220	29.3#	74	0.00
58	CP	Bromodichloromethane	0.402	0.318	20.9#	83	0.00
59	C	2-Chloroethyl vinyl ether	0.074	0.049#	33.8#	69	0.00
60	C	2-Nitropropane	0.074	0.049#	33.8#	69	0.00
61	CP	cis-1,3-Dichloropropene	0.429	0.406	5.4	85	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	98	0.00
63	CP	4-Methyl-2-pentanone	0.345	0.368	-6.7	111	0.00
64	S	Toluene-d8	1.397	1.412	-1.1	99	0.00
65	CP	Toluene	1.475	1.207	18.2	87	0.00
66	CP	trans-1,3-Dichloropropene	0.421	0.405	3.8	84	0.00
67	T	Chloropicrin	0.000	0.000#	0.0	0#	-8.07#
68	C	Ethyl methacrylate	0.402	0.357	11.2	81	0.00
69	CP	1,1,2-Trichloroethane	0.283	0.257	9.2	90	0.00
70	CP	Tetrachloroethene	0.345	0.312	9.6	99	0.00
71	C	1,3-Dichloropropane	0.520	0.484	6.9	91	0.00
72	CP	2-Hexanone	0.231	0.197	14.7	87	0.00
73	CP	Chlorodibromomethane	0.276	0.244	11.6	75	0.00
74	T	Butyl acetate	0.506	0.457	9.7	91	0.00
75	CP	1,2-Dibromoethane	0.260	0.260	0.0	93	0.00
76	CP	Chlorobenzene	0.880	0.754	14.3	88	0.00
77	C	1,1,1,2-Tetrachloroethane	0.278	0.256	7.9	85	0.00
78	CP	Ethylbenzene	1.538	1.314	14.6	87	0.00
79	CP	m/p-Xylene	1.184	1.014	14.4	89	0.00
80	CP	Styrene	0.890	0.787	11.6	87	0.00
81	CP	o-Xylene	1.208	1.051	13.0	89	0.00
82	C	Cyclohexanone	0.020	0.000#	100.0#	0#	-9.50#
83	CP	Bromoform	0.175	0.140	20.0	72	0.00
84	CP	Isopropylbenzene	1.414	1.226	13.3	89	0.00
85	S	Bromofluorobenzene	0.484	0.489	-1.0	96	0.00
86	C	Bromobenzene	0.838	0.711	15.2	87	0.00
87	C	1,2,3-Trichloropropane	0.110	0.103#	6.4	86	0.00
88	C	trans-1,4-Dichloro-2-butene	0.107	0.071#	33.6#	58	0.00
89	C	n-Propylbenzene	1.765	1.509	14.5	88	0.00
90	C	2-Chlorotoluene	1.068	0.914	14.4	89	0.00
91	C	4-Chlorotoluene	1.236	1.042	15.7	89	0.00
92	C	1,3,5-Trimethylbenzene	1.159	1.007	13.1	89	0.00
93	C	tert-Butylbenzene	0.782	0.624	20.2#	88	0.00
94	C	1,2,4-Trimethylbenzene	1.212	1.033	14.8	87	0.00
95	C	sec-Butylbenzene	1.520	1.315	13.5	90	0.00
96	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00
97	CP	1,1,2,2-Tetrachloroethane	0.925	0.783	15.4	87	0.00
98	CP	1,3-Dichlorobenzene	1.515	1.214	19.9	89	0.00
99	C	p-Isopropyltoluene	2.769	2.310	16.6	89	0.00

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY07.D
Acq On : 31 May 2018 11:41 am
Operator : AK
Sample : ICV
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 31 12:00:32 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	1.495	1.210	19.1	89	0.00
101	C	1,2,3-Trimethylbenzene	2.805	2.211	21.2#	84	0.00
102	C	Benzyl chloride	0.972	0.225	76.9#	18#	-0.05
103	CP	1,2-Dichlorobenzene	1.452	1.138	21.6#	87	0.00
104	T	n-Butylbenzene	2.955	2.338	20.9#	93	0.00
105	C	Hexachloroethane	0.421	0.284	32.5#	58	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.140	0.119	15.0	75	0.00
107	C	1,3,5-Trichlorobenzene	1.092	0.000#	100.0#	0#	-10.81#
108	CP	1,2,4-Trichlorobenzene	0.995	0.847	14.9	93	0.00
109	C	Hexachlorobutadiene	0.528	0.443	16.1	92	0.00
110	C	Naphthalene	2.560	1.994	22.1#	82	0.00
111	C	1,2,3-Trichlorobenzene	1.002	0.799	20.3#	90	0.00
112	C	2-Methylnaphthalene	1.513	0.000#	100.0#	0#	-11.92#
113	C	1-Methylnaphthalene	1.381	0.000#	100.0#	0#	-12.04#
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	80	0.00
115	T	2-Propanone	2.218	0.683	69.2#	79	0.00
116	T	Acetic Ether	2.240	2.397	-7.0	88	0.00
117	T	Isopropyl Acetate	0.602	0.711	-18.1	88	0.00
118	T	Amyl Acetate	3.463	3.408	1.6	92	0.00

(#) = Out of Range SPCC's out = 4 CCC's out = 43

2018 May 30 0806 Sequence Log

Starting sequence Tue May 29 09:04:24 2018

Instrument Name: 5977_VOA
Sequence File: D:\MassHunter\GCMS\1\sequence\10V180529.sequence.xml
Comment:
Operator: AK
Data Path: D:\MassHunter\GCMS\1\data\10V180529\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
1)	TuneCheck	1	29MAY01	VBFB1-180529
2)	TuneCheck	1	29MAY02	VBFB2-180529
3)	TuneCheck	1	29MAY03	VBFB3-180529
4)	TuneCheck	1	29MAY04	VBFB4-180529
6)	TuneCheck	1	29MAY06	VBFB5180529
7)	TuneCheck	1	29MAY07	VBFB5180529
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
8)	Sample	1	29MAY08	BLK
9)	Sample	1	29MAY09	BLK
10)	Sample	2	29MAY10	VBLKW1-180529
11)	Sample	3	29MAY11	0.4PPB
12)	Sample	4	29MAY12	0.6PPB
13)	Sample	5	29MAY13	2PPB
14)	Sample	6	29MAY14	4PPB
15)	Sample	7	29MAY15	10PPB
16)	Sample	8	29MAY16	40PPB
17)	Sample	9	29MAY17	70PPB
18)	Sample	10	29MAY18	100PPB
19)	Sample	11	29MAY19	BLK
20)	Sample	12	29MAY20	ICV
21)	Sample	13	29MAY21	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
22)	Sample	16	29MAY22	VBFB2-180529
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
23)	Sample	17	29MAY23	BLK
24)	Sample	18	29MAY24	BLK
25)	Sample	19	29MAY25	VBLKW2-180529
26)	Sample	20	29MAY26	0.4PPB
27)	Sample	21	29MAY27	0.6PPB
28)	Sample	22	29MAY28	2PPB

2018 May 30 0806 Sequence Log

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 29) Sample          23      29MAY29                 4PPB
 30) Sample          24      29MAY30                 10PPB
 31) Sample          25      29MAY31                 40PPB
 32) Sample          26      29MAY32                 70PPB
 33) Sample          27      29MAY33                 100PPB
 34) Sample          28      29MAY34                 BLK
 35) Sample          29      29MAY35                 ICV
 36) Sample          30      29MAY36                 BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M
 37) Sample          31      29MAY37                 VBFB3-180529

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M
 38) Sample          32      29MAY38                 VCCV1-180529
 39) Sample          33      29MAY39                 VCCV2-180529
 40) Sample          34      29MAY40                 VLCSW1-180529
 41) Sample          35      29MAY41                 LCS-
 42) Sample          36      29MAY42                 BLK
 43) Sample          37      29MAY43                 VBLKW3-180529
 44) Sample          38      29MAY44                 18051698-02A
 45) Sample          39      29MAY45                 18051663-15A
 46) Sample          40      29MAY46                 18051663-07A
 47) Sample          41      29MAY47                 18051663-04A
 48) Sample          42      29MAY48                 18051608-01A
 49) Sample          43      29MAY49                 18051608-02A
 50) Sample          44      29MAY50                 18051608-03A
 51) Sample          45      29MAY51                 18051663-01A
 52) Sample          46      29MAY52                 18051663-02A
 53) Sample          47      29MAY53                 18051663-03A
 54) Sample          48      29MAY54                 18051663-05A
 55) Sample          49      29MAY55                 18051663-06A
 56) Sample          50      29MAY56                 18051663-08A
 57) Sample          51      29MAY57                 18051663-09A
 58) Sample          52      29MAY58                 18051663-10A
 59) Sample          53      29MAY59                 18051663-11A DF20
 60) Sample          54      29MAY60                 18051663-12A
 61) Sample          55      29MAY61                 18051663-13A DF200
 62) Sample          56      29MAY62                 18051663-14A DF200
 63) Sample          57      29MAY63                 18051698-01E
 64) Sample          58      29MAY64                 18051663-11A MS DF20
 65) Sample          59      29MAY65                 18051663-11A MSD DF20
 66) Sample          60      29MAY66                 BLK
 67) Pause: ' '

Sequence paused Wed May 30 04:22:15 2018
```

2018 May 30 0806 Sequence Log

```
67) Sample          60      29MAY67                 BLK
68) Sample          60      29MAY68                 BLK
69) Sample          60      29MAY69                 BLK
70) Pause: ' '

Sequence paused Wed May 30 08:56:14 2018

  D:\MassHunter\GCMS\1\data\10V180529\2018 May 30 0806 Quality Log.LOG
  D:\MassHunter\GCMS\1\data\10V180529\2018 May 30 0806 Sequence Log .LOG
```

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	97	0.00
2	CP	Dichlorodifluoromethane	40.000	38.358	4.1	105	0.00
3	CP	Chloromethane	40.000	46.719	-16.8	106	0.00
4	CP	Vinyl chloride	40.000	39.990	0.0	106	0.00
5	CP	Bromomethane	40.000	33.578	16.1	79	0.00
6	CP	Chloroethane	40.000	40.947	-2.4	108	0.00
7	CP	Trichlorofluoromethane	40.000	40.276	-0.7	106	0.00
8	C	Ethyl ether	40.000	41.144	-2.9	98	0.00
9	C	Acrolein	200.000	108.352	45.8#	42	0.00
10	CP	1,1-Dichloroethene	40.000	39.409	1.5	99	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	39.253	1.9	99	0.00
12	C	Methyl iodide	40.000	25.880	35.3#	56	0.00
13	CP	Acetone	40.000	40.205	-0.5	96	0.00
14	C	Chloroprene	40.000	42.115	-5.3	102	0.00
15	CP	Carbon disulfide	40.000	36.123	9.7	94	0.00
16	C	Allyl chloride	40.000	35.387	11.5	94	0.00
17	CP	Methyl acetate	40.000	34.859	12.9	93	0.00
18	C	Acetonitrile	40.000	35.387	11.5	94	0.00
19	CP	Methylene chloride	40.000	39.728	0.7	95	0.00
20	CP	trans-1,2-Dichloroethene	40.000	40.168	-0.4	102	0.00
21	C	t-Butanol	200.000	166.188	16.9	78	0.00
22	C	Acrylonitrile	40.000	38.267	4.3	81	0.00
23	CP	Methyl tert-butyl ether	40.000	44.122	-10.3	105	0.00
24	T	Hexane	40.000	45.651	-14.1	109	0.00
25	CP	1,1-Dichloroethane	40.000	40.052	-0.1	100	0.00
26	CP	Diisopropyl ether	40.000	45.139	-12.8	110	0.00
27	C	Vinyl acetate	40.000	37.228	6.9	91	0.00
28	CP	Ethyl tert butyl ether	40.000	46.654	-16.6	112	0.00
29	C	2,2-Dichloropropane	40.000	41.113	-2.8	104	0.00
30	CP	cis-1,2-Dichloroethene	40.000	41.387	-3.5	99	0.00
31	CP	2-Butanone	40.000	35.905	10.2	81	0.00
32	C	Ethyl Acetate	40.000	36.467	8.8	91	0.00
33	C	Methyl acrylate	40.000	36.672	8.3	80	0.00
34	C	Propionitrile	40.000	40.096	-0.2	106	0.00
35	C	Bromochloromethane	40.000	39.954	0.1	100	0.00
36	C	Tetrahydrofuran	40.000	35.360	11.6	80	0.00
37	C	Methacrylonitrile	40.000	32.445	18.9	83	0.00
38	CP	Chloroform	40.000	41.906	-4.8	101	0.00
39	CP	Cyclohexane	40.000	43.417	-8.5	103	0.00
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	99	0.00
41	CP	1,1,1-Trichloroethane	40.000	41.317	-3.3	101	0.00
42	S	Dibromofluoromethane	20.000	20.523	-2.6	96	0.00
43	CP	Carbon tetrachloride	40.000	43.604	-9.0	101	0.00
44	C	1,1-Dichloropropene	40.000	40.310	-0.8	103	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.730	-3.7	101	0.00
46	CP	1,2-Dichloroethane	40.000	37.755	5.6	98	0.00
47	CP	Benzene	40.000	38.771	3.1	102	0.00
48	CP	Tertiaryamylmethylether	40.000	44.396	-11.0	106	0.00
49	C	Isobutyl Alcohol	40.000	36.778	8.1	110	0.00
50	C	Heptane	40.000	46.159	-15.4	112	0.00

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	4000.000	3222.082	19.4	76	0.00
52	CP	Methylcyclohexane	40.000	41.304	-3.3	105	0.00
53	T	n-Butanol	400.000	0.000	100.0#	0	0.00
54	CP	Trichloroethene	40.000	40.011	-0.0	105	0.00
55	CP	1,2-Dichloropropane	40.000	40.026	-0.1	99	0.00
56	C	Dibromomethane	40.000	39.632	0.9	95	0.00
57	C	Methyl methacrylate	40.000	33.064	17.3	89	0.00
58	CP	Bromodichloromethane	40.000	35.375	11.6	95	0.00
59	C	2-Chloroethyl vinyl ether	40.000	30.208	24.5#	70	0.00
60	C	2-Nitropropane	40.000	30.208	24.5#	70	0.00
61	CP	cis-1,3-Dichloropropene	40.000	41.931	-4.8	96	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	96	0.00
63	CP	4-Methyl-2-pentanone	40.000	34.864	12.8	86	0.00
64	S	Toluene-d8	20.000	19.949	0.3	96	0.00
65	CP	Toluene	40.000	38.640	3.4	102	0.00
66	CP	trans-1,3-Dichloropropene	40.000	41.485	-3.7	95	0.00
67	T	Chloropicrin	400.000	0.000	100.0#	0	0.00
68	C	Ethyl methacrylate	40.000	40.372	-0.9	91	0.00
69	CP	1,1,2-Trichloroethane	40.000	39.704	0.7	97	0.00
70	CP	Tetrachloroethene	40.000	39.291	1.8	106	0.00
71	C	1,3-Dichloropropane	40.000	39.644	0.9	95	0.00
72	CP	2-Hexanone	40.000	34.314	14.2	83	0.00
73	CP	Chlorodibromomethane	40.000	44.672	-11.7	93	0.00
74	T	Butyl acetate	40.000	37.642	5.9	93	0.00
75	CP	1,2-Dibromoethane	40.000	41.542	-3.9	94	0.00
76	CP	Chlorobenzene	40.000	40.031	-0.1	101	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	43.189	-8.0	99	0.00
78	CP	Ethylbenzene	40.000	40.646	-1.6	102	0.00
79	CP	m/p-Xylene	80.000	82.265	-2.8	105	0.00
80	CP	Styrene	40.000	41.132	-2.8	99	0.00
81	CP	o-Xylene	40.000	41.065	-2.7	103	0.00
82	C	Cyclohexanone	200.000	194.056	3.0	92	0.00
83	CP	Bromoform	40.000	39.556	1.1	88	0.00
84	CP	Isopropylbenzene	40.000	41.222	-3.1	104	0.00
85	S	Bromofluorobenzene	20.000	20.587	-2.9	97	0.00
86	C	Bromobenzene	40.000	38.552	3.6	97	0.00
87	C	1,2,3-Trichloropropane	40.000	37.710	5.7	85	0.00
88	C	trans-1,4-Dichloro-2-butene	40.000	36.259	9.4	78	0.00
89	C	n-Propylbenzene	40.000	41.098	-2.7	104	0.00
90	C	2-Chlorotoluene	40.000	39.742	0.6	102	0.00
91	C	4-Chlorotoluene	40.000	40.496	-1.2	105	0.00
92	C	1,3,5-Trimethylbenzene	40.000	41.878	-4.7	105	0.00
93	C	tert-Butylbenzene	40.000	43.621	-9.1	118	0.00
94	C	1,2,4-Trimethylbenzene	40.000	41.408	-3.5	104	0.00
95	C	sec-Butylbenzene	40.000	40.673	-1.7	104	0.00
96	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	96	0.00
97	CP	1,1,2,2-Tetrachloroethane	40.000	35.919	10.2	89	0.00
98	CP	1,3-Dichlorobenzene	40.000	38.610	3.5	103	0.00
99	C	p-Isopropyltoluene	40.000	41.439	-3.6	106	0.00

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	40.000	38.722	3.2	102	0.00
101	C	1,2,3-Trimethylbenzene	40.000	40.120	-0.3	103	0.00
102	C	Benzyl chloride	40.000	35.705	10.7	78	0.00
103	CP	1,2-Dichlorobenzene	40.000	37.505	6.2	99	0.00
104	T	n-Butylbenzene	40.000	47.012	-17.5	109	0.00
105	C	Hexachloroethane	40.000	44.781	-12.0	92	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	34.583	13.5	73	0.00
107	C	1,3,5-Trichlorobenzene	40.000	40.808	-2.0	108	0.00
108	CP	1,2,4-Trichlorobenzene	40.000	40.704	-1.8	107	0.00
109	C	Hexachlorobutadiene	40.000	39.908	0.2	105	0.00
110	C	Naphthalene	40.000	35.002	12.5	88	0.00
111	C	1,2,3-Trichlorobenzene	40.000	37.453	6.4	102	0.00
112	C	2-Methylnaphthalene	40.000	36.964	7.6	89	0.00
113	C	1-Methylnaphthalene	40.000	35.731	10.7	88	0.00
114	I	Ethyl-d5-Acetate-d3	20.000	20.000	0.0	82	0.00
115	T	2-Propanone	40.000	45.329	-13.3	93	0.00
116	T	Acetic Ether	40.000	41.499	-3.7	91	0.00
117	T	Isopropyl Acetate	40.000	42.112	-5.3	98	0.00
118	T	Amyl Acetate	40.000	41.153	-2.9	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 4

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	97	0.00
2	CP	Dichlorodifluoromethane	0.682	0.654	4.1	105	0.00
3	CP	Chloromethane	0.827	0.784	5.2	106	0.00
4	CP	Vinyl chloride	0.576	0.576	0.0	106	0.00
5	CP	Bromomethane	0.324	0.225	30.6#	79	0.00
6	CP	Chloroethane	0.319	0.327	-2.5	108	0.00
7	CP	Trichlorofluoromethane	0.777	0.783	-0.8	106	0.00
8	C	Ethyl ether	0.386	0.397	-2.8	98	0.00
9	C	Acrolein	0.067	0.017#	74.6#	42#	0.00
10	CP	1,1-Dichloroethene	0.704	0.694	1.4	99	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.292	0.286	2.1	99	0.00
12	C	Methyl iodide	0.171	0.101#	40.9#	56	0.00
13	CP	Acetone	0.307	0.151	50.8#	96	0.00
14	C	Chloroprene	0.739	0.778	-5.3	102	0.00
15	CP	Carbon disulfide	1.267	1.145	9.6	94	0.00
16	C	Allyl chloride	0.876	0.775	11.5	94	0.00
17	CP	Methyl acetate	0.378	0.329	13.0	93	0.00
18	C	Acetonitrile	0.876	0.775	11.5	94	0.00
19	CP	Methylene chloride	1.668	0.714	57.2#	95	0.00
20	CP	trans-1,2-Dichloroethene	0.723	0.726	-0.4	102	0.00
21	C	t-Butanol	0.073	0.044#	39.7#	78	0.00
22	C	Acrylonitrile	0.175	0.168#	4.0	81	0.00
23	CP	Methyl tert-butyl ether	1.088	1.200	-10.3	105	0.00
24	T	Hexane	0.863	0.661	23.4#	109	0.00
25	CP	1,1-Dichloroethane	0.935	0.936	-0.1	100	0.00
26	CP	Diisopropyl ether	1.464	1.653	-12.9	110	0.00
27	C	Vinyl acetate	0.075	0.081#	-8.0	91	0.00
28	CP	Ethyl tert butyl ether	1.184	1.381	-16.6	112	0.00
29	C	2,2-Dichloropropane	0.657	0.675	-2.7	104	0.00
30	CP	cis-1,2-Dichloroethene	0.842	0.871	-3.4	99	0.00
31	CP	2-Butanone	0.239	0.187	21.8#	81	0.00
32	C	Ethyl Acetate	0.598	0.465	22.2#	91	0.00
33	C	Methyl acrylate	0.441	0.404	8.4	80	0.00
34	C	Propionitrile	0.061	0.061#	0.0	106	0.00
35	C	Bromochloromethane	0.469	0.468	0.2	100	0.00
36	C	Tetrahydrofuran	0.209	0.155#	25.8#	80	0.00
37	C	Methacrylonitrile	0.455	0.369	18.9	83	0.00
38	CP	Chloroform	1.330	0.894	32.8#	101	0.00
39	CP	Cyclohexane	1.053	0.853	19.0	103	0.00
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	99	0.00
41	CP	1,1,1-Trichloroethane	0.406	0.420	-3.4	101	0.00
42	S	Dibromofluoromethane	0.314	0.322	-2.5	96	0.00
43	CP	Carbon tetrachloride	0.322	0.351	-9.0	101	0.00
44	C	1,1-Dichloropropene	0.408	0.411	-0.7	103	0.00
45	S	1,2-Dichloroethane-d4	0.380	0.394	-3.7	101	0.00
46	CP	1,2-Dichloroethane	0.434	0.410	5.5	98	0.00
47	CP	Benzene	1.214	1.177	3.0	102	0.00
48	CP	Tertiaryamylmethylether	0.635	0.704	-10.9	106	0.00
49	C	Isobutyl Alcohol	0.274	0.252	8.0	110	0.00
50	C	Heptane	0.454	0.446	1.8	112	0.00

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	1,4-Dioxane	0.004	0.003#	25.0#	76	0.00
52	CP	Methylcyclohexane	0.470	0.486	-3.4	105	0.00
53	T	n-Butanol	0.000	0.005#	0.0	0#	0.00
54	CP	Trichloroethene	0.290	0.290	0.0	105	0.00
55	CP	1,2-Dichloropropane	0.320	0.320	0.0	99	0.00
56	C	Dibromomethane	0.175	0.174#	0.6	95	0.00
57	C	Methyl methacrylate	0.311	0.257	17.4	89	0.00
58	CP	Bromodichloromethane	0.402	0.356	11.4	95	0.00
59	C	2-Chloroethyl vinyl ether	0.074	0.049#	33.8#	70	0.00
60	C	2-Nitropropane	0.074	0.049#	33.8#	70	0.00
61	CP	cis-1,3-Dichloropropene	0.429	0.450	-4.9	96	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	96	0.00
63	CP	4-Methyl-2-pentanone	0.345	0.289	16.2	86	0.00
64	S	Toluene-d8	1.397	1.393	0.3	96	0.00
65	CP	Toluene	1.475	1.425	3.4	102	0.00
66	CP	trans-1,3-Dichloropropene	0.421	0.467	-10.9	95	0.00
67	T	Chloropicrin	0.000	0.043#	0.0	0#	0.00
68	C	Ethyl methacrylate	0.402	0.406	-1.0	91	0.00
69	CP	1,1,2-Trichloroethane	0.283	0.281	0.7	97	0.00
70	CP	Tetrachloroethene	0.345	0.339	1.7	106	0.00
71	C	1,3-Dichloropropane	0.520	0.515	1.0	95	0.00
72	CP	2-Hexanone	0.231	0.191	17.3	83	0.00
73	CP	Chlorodibromomethane	0.276	0.309	-12.0	93	0.00
74	T	Butyl acetate	0.506	0.475	6.1	93	0.00
75	CP	1,2-Dibromoethane	0.260	0.270	-3.8	94	0.00
76	CP	Chlorobenzene	0.880	0.880	0.0	101	0.00
77	C	1,1,1,2-Tetrachloroethane	0.278	0.301	-8.3	99	0.00
78	CP	Ethylbenzene	1.538	1.563	-1.6	102	0.00
79	CP	m/p-Xylene	1.184	1.217	-2.8	105	0.00
80	CP	Styrene	0.890	0.915	-2.8	99	0.00
81	CP	o-Xylene	1.208	1.240	-2.6	103	0.00
82	C	Cyclohexanone	0.020	0.012#	40.0#	92	0.00
83	CP	Bromoform	0.175	0.173	1.1	88	0.00
84	CP	Isopropylbenzene	1.414	1.457	-3.0	104	0.00
85	S	Bromofluorobenzene	0.484	0.498	-2.9	97	0.00
86	C	Bromobenzene	0.838	0.808	3.6	97	0.00
87	C	1,2,3-Trichloropropane	0.110	0.103#	6.4	85	0.00
88	C	trans-1,4-Dichloro-2-butene	0.107	0.097#	9.3	78	0.00
89	C	n-Propylbenzene	1.765	1.814	-2.8	104	0.00
90	C	2-Chlorotoluene	1.068	1.061	0.7	102	0.00
91	C	4-Chlorotoluene	1.236	1.252	-1.3	105	0.00
92	C	1,3,5-Trimethylbenzene	1.159	1.213	-4.7	105	0.00
93	C	tert-Butylbenzene	0.782	0.853	-9.1	118	0.00
94	C	1,2,4-Trimethylbenzene	1.212	1.255	-3.5	104	0.00
95	C	sec-Butylbenzene	1.520	1.545	-1.6	104	0.00
96	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	96	0.00
97	CP	1,1,2,2-Tetrachloroethane	0.925	0.831	10.2	89	0.00
98	CP	1,3-Dichlorobenzene	1.515	1.462	3.5	103	0.00
99	C	p-Isopropyltoluene	2.769	2.869	-3.6	106	0.00

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Min. RRF : 0.200 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	1.495	1.448	3.1	102	0.00
101	C	1,2,3-Trimethylbenzene	2.805	2.813	-0.3	103	0.00
102	C	Benzyl chloride	0.972	0.987	-1.5	78	0.00
103	CP	1,2-Dichlorobenzene	1.452	1.361	6.3	99	0.00
104	T	n-Butylbenzene	2.955	2.846	3.7	109	0.00
105	C	Hexachloroethane	0.421	0.471	-11.9	92	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.140	0.121	13.6	73	0.00
107	C	1,3,5-Trichlorobenzene	1.092	1.114	-2.0	108	0.00
108	CP	1,2,4-Trichlorobenzene	0.995	1.013	-1.8	107	0.00
109	C	Hexachlorobutadiene	0.528	0.526	0.4	105	0.00
110	C	Naphthalene	2.560	2.241	12.5	88	0.00
111	C	1,2,3-Trichlorobenzene	1.002	0.938	6.4	102	0.00
112	C	2-Methylnaphthalene	1.513	1.398	7.6	89	0.00
113	C	1-Methylnaphthalene	1.381	1.234	10.6	88	0.00
114	I	Ethyl-d5-Acetate-d3	1.000	1.000	0.0	82	0.00
115	T	2-Propanone	2.218	0.779	64.9#	93	0.00
116	T	Acetic Ether	2.240	2.415	-7.8	91	0.00
117	T	Isopropyl Acetate	0.602	0.765	-27.1#	98	0.00
118	T	Amyl Acetate	3.463	3.400	1.8	94	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 14

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.996	168	90713	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	150354	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	127925	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	58089	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17556	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	48406	20.52	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.60%				
45) 1,2-Dichloroethane-d4	5.463	65	59205	20.73	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 103.65%				
64) Toluene-d8	7.807	98	178202	19.95	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.75%				
85) Bromofluorobenzene	9.542	95	63676	20.59	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.269	85	118720	38.36	ug/L		99
3) Chloromethane	1.394	50	142207	46.72	ug/L		98
4) Vinyl chloride	1.473	62	104526	39.99	ug/L		100
5) Bromomethane	1.704	96	40841	33.58	ug/L		99
6) Chloroethane	1.782	64	59284	40.95	ug/L		99
7) Trichlorofluoromethane	1.961	101	141976	40.28	ug/L		99
8) Ethyl ether	2.170	59	72063	41.14	ug/L		98
9) Acrolein	2.291	56	15142	108.35	ug/L		99
10) 1,1-Dichloroethene	2.364	61	125859	39.41	ug/L		99
11) 1,1,2-Trichlorotrifluo...	2.370	151	51927	39.25	ug/L		100
12) Methyl iodide	2.495	142	18335	25.88	ug/L	#	91
13) Acetone	2.401	43	27352	40.20	ug/L		92
14) Chloroprene	3.596	53	141148	42.12	ug/L		99
15) Carbon disulfide	2.558	76	207663	36.12	ug/L		100
16) Allyl chloride	2.679	41	140574	35.39	ug/L		98
17) Methyl acetate	2.668	43	59738	34.86	ug/L	#	96
18) Acetonitrile	2.679	41	140574	35.39	ug/L		99
19) Methylene chloride	2.799	49	129626	39.73	ug/L		99
20) trans-1,2-Dichloroethene	3.056	61	131702	40.17	ug/L		100
21) t-Butanol	2.883	59	39514	166.19	ug/L	#	91
22) Acrylonitrile	3.025	53	30456	38.27	ug/L		95
23) Methyl tert-butyl ether	3.046	73	217634	44.12	ug/L		100
24) Hexane	3.334	57	119865	45.65	ug/L		99
25) 1,1-Dichloroethane	3.518	63	169802	40.05	ug/L		99
26) Diisopropyl ether	3.549	45	299807	45.14	ug/L		95
27) Vinyl acetate	3.523	86	14730	37.23	ug/L	#	65
28) Ethyl tert butyl ether	3.984	59	250509	46.65	ug/L		98
29) 2,2-Dichloropropane	4.210	77	122546	41.11	ug/L		98
30) cis-1,2-Dichloroethene	4.210	61	157972	41.39	ug/L		98
31) 2-Butanone	4.210	43	33924	35.90	ug/L	#	92
32) Ethyl Acetate	4.268	43	84423	36.47	ug/L	#	89
33) Methyl acrylate	4.325	55	73273	36.67	ug/L		98
34) Propionitrile	5.002	54	11132	40.10	ug/L	#	91
35) Bromochloromethane	4.530	49	84971	39.95	ug/L		99
36) Tetrahydrofuran	4.551	42	28129	35.36	ug/L		96
37) Methacrylonitrile	4.498	41	67006	32.45	ug/L		98
38) Chloroform	4.692	83	162278	41.91	ug/L		99

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	5.002	56	154720	43.42	ug/L		99
41)	1,1,1-Trichloroethane	4.912	97	126220	41.32	ug/L		99
43)	Carbon tetrachloride	5.143	117	105495	43.60	ug/L		100
44)	1,1-Dichloropropene	5.164	75	123597	40.31	ug/L		99
46)	1,2-Dichloroethane	5.599	62	123161	37.76	ug/L		98
47)	Benzene	5.479	78	353983	38.77	ug/L		100
48)	Tertiaryamylmethylether	5.751	73	211796	44.40	ug/L		98
49)	Isobutyl Alcohol	5.746	43	75893	36.78	ug/L		98
50)	Heptane	6.066	43	134041	46.16	ug/L		99
51)	1,4-Dioxane	6.983	88	91506	3222.08	ug/L		99
52)	Methylcyclohexane	6.837	83	146031	41.30	ug/L		98
53)	n-Butanol	6.569	56	15323	No Calib		#	
54)	Trichloroethene	6.580	130	87245	40.01	ug/L		98
55)	1,2-Dichloropropane	6.889	63	96143	40.03	ug/L		99
56)	Dibromomethane	6.983	93	52218	39.63	ug/L		99
57)	Methyl methacrylate	6.999	41	77294	33.06	ug/L		97
58)	Bromodichloromethane	7.183	83	106945	35.37	ug/L		99
59)	2-Chloroethyl vinyl ether	7.403	43	14718	30.21	ug/L	#	88
60)	2-Nitropropane	7.403	43	14718	30.21	ug/L	#	84
61)	cis-1,3-Dichloropropene	7.592	75	135309	41.93	ug/L		98
63)	4-Methyl-2-pentanone	7.733	43	74011	34.86	ug/L		99
65)	Toluene	7.859	91	364560	38.64	ug/L		100
66)	trans-1,3-Dichloropropene	8.063	75	119372	41.48	ug/L		100
67)	Chloropicrin	8.063	117	110516	No Calib			
68)	Ethyl methacrylate	8.116	69	103887	40.37	ug/L		99
69)	1,1,2-Trichloroethane	8.205	97	71990	39.70	ug/L		99
70)	Tetrachloroethene	8.247	166	86690	39.29	ug/L		99
71)	1,3-Dichloropropane	8.320	76	131752	39.64	ug/L		100
72)	2-Hexanone	8.368	43	48754	34.31	ug/L		98
73)	Chlorodibromomethane	8.467	129	78970	44.67	ug/L		100
74)	Butyl acetate	8.457	43	121437	37.64	ug/L		99
75)	1,2-Dibromoethane	8.541	107	69025	41.54	ug/L	#	98
76)	Chlorobenzene	8.860	112	225226	40.03	ug/L		99
77)	1,1,1,2-Tetrachloroethane	8.923	131	76930	43.19	ug/L		98
78)	Ethylbenzene	8.923	91	399832	40.65	ug/L		99
79)	m/p-Xylene	9.002	91	622865	82.27	ug/L		100
80)	Styrene	9.243	104	234134	41.13	ug/L		99
81)	o-Xylene	9.233	91	317304	41.06	ug/L		98
82)	Cyclohexanone	9.500	55	15328	194.06	ug/L	#	69
83)	Bromoform	9.358	173	44371	39.56	ug/L		98
84)	Isopropylbenzene	9.442	105	372713	41.22	ug/L		100
86)	Bromobenzene	9.621	77	206681	38.55	ug/L		99
87)	1,2,3-Trichloropropane	9.647	110	26462	37.71	ug/L		98
88)	trans-1,4-Dichloro-2-b...	9.636	53	24842	36.26	ug/L	#	86
89)	n-Propylbenzene	9.668	91	464096	41.10	ug/L		100
90)	2-Chlorotoluene	9.720	91	271538	39.74	ug/L		100
91)	4-Chlorotoluene	9.788	91	320212	40.50	ug/L		99
92)	1,3,5-Trimethylbenzene	9.762	105	310331	41.88	ug/L		100
93)	tert-Butylbenzene	9.930	91	218241	43.62	ug/L		92
94)	1,2,4-Trimethylbenzene	9.961	105	321063	41.41	ug/L		88
95)	sec-Butylbenzene	10.045	105	395407	40.67	ug/L		99
97)	1,1,2,2-Tetrachloroethane	9.621	83	96487	35.92	ug/L		98
98)	1,3-Dichlorobenzene	10.114	146	169843	38.61	ug/L		100
99)	p-Isopropyltoluene	10.119	119	333325	41.44	ug/L		100
100)	1,4-Dichlorobenzene	10.166	146	168172	38.72	ug/L		99

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

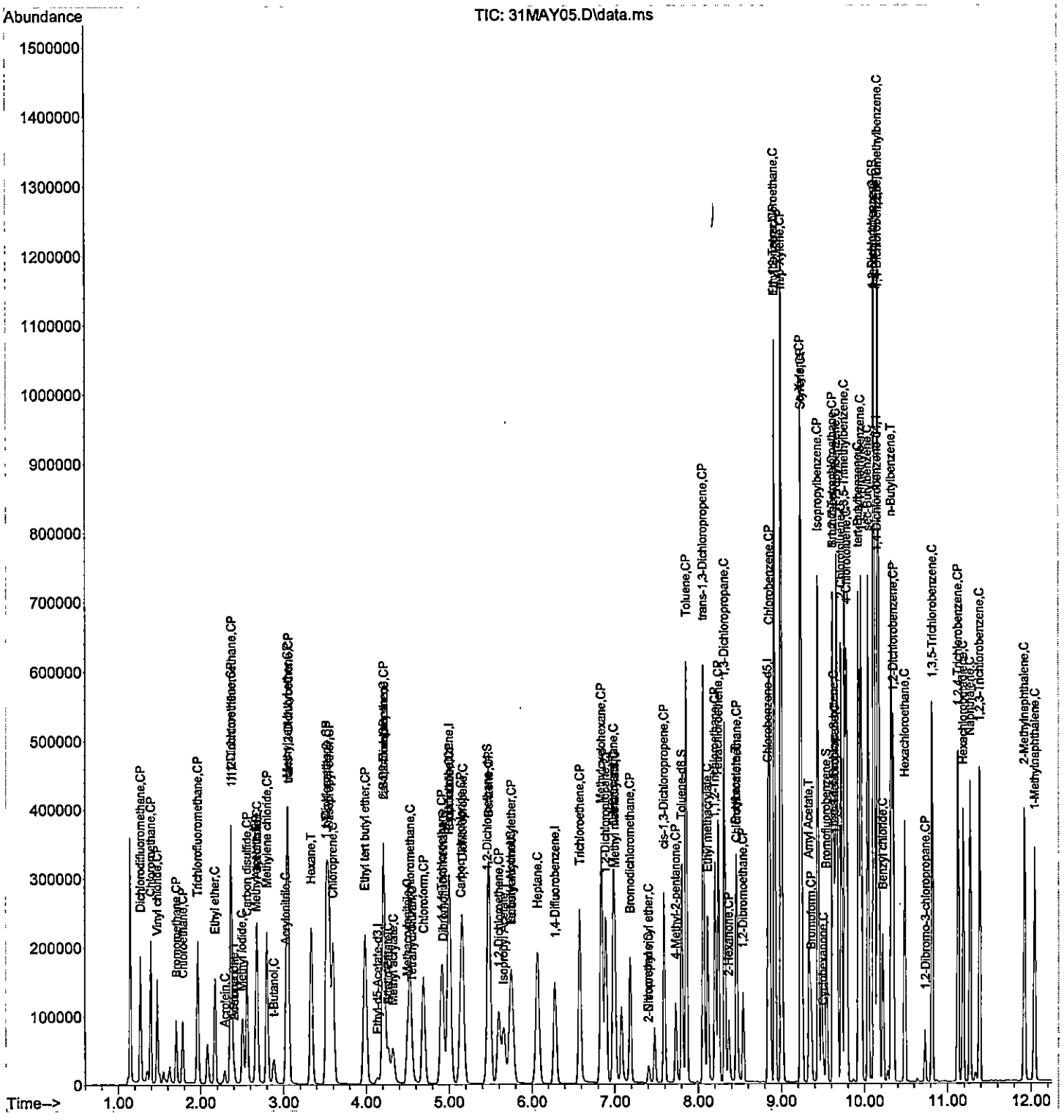
Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	326802	40.12	ug/L		100
102) Benzyl chloride	10.218	91	114691	35.70	ug/L		98
103) 1,2-Dichlorobenzene	10.349	146	158117	37.50	ug/L		99
104) n-Butylbenzene	10.323	91	330663	47.01	ug/L		99
105) Hexachloroethane	10.486	117	54700	44.78	ug/L		98
106) 1,2-Dibromo-3-chloropr...	10.732	157	14051	34.58	ug/L		94
107) 1,3,5-Trichlorobenzene	10.816	180	129475	40.81	ug/L		100
108) 1,2,4-Trichlorobenzene	11.125	180	117663	40.70	ug/L		98
109) Hexachlorobutadiene	11.183	225	61143	39.91	ug/L		98
110) Naphthalene	11.267	128	260301	35.00	ug/L		99
111) 1,2,3-Trichlorobenzene	11.382	180	108973	37.45	ug/L		100
112) 2-Methylnaphthalene	11.917	142	162407	36.96	ug/L		99
113) 1-Methylnaphthalene	12.043	142	143360	35.73	ug/L		99
115) 2-Propanone	2.401	43	27352	45.33	ug/L		93
116) Acetic Ether	4.268	43	84813	41.50	ug/L	#	99
117) Isopropyl Acetate	5.657	61	26871	42.11	ug/L		94
118) Amyl Acetate	9.332	43	119368	41.15	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY05.D
Acq On : 31 May 2018 10:36 am
Operator : AK
Sample : VCCV2-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

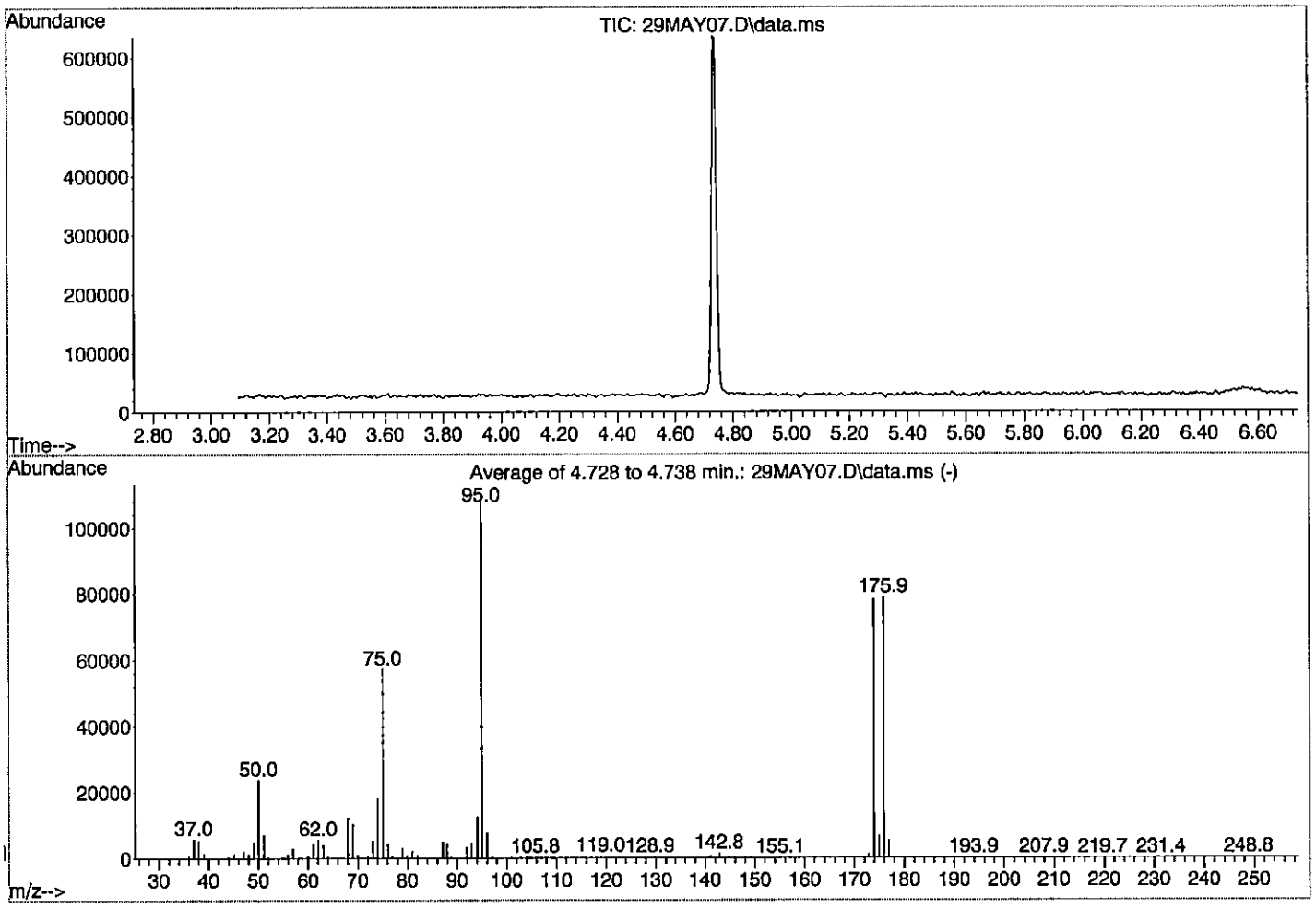
Quant Time: May 31 10:52:55 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Data Path : D:\MassHunter\GCMS\1\data\10V180529\
Data File : 29MAY07.D
Acq On : 29 May 2018 10:41 am
Operator : AK
Sample : VBFB5180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : D:\MassHunter\GCMS\1\methods\10SGO0627.M
Title : 8260 Global Optimization Method
Last Update : Thu Jun 28 09:26:27 2018



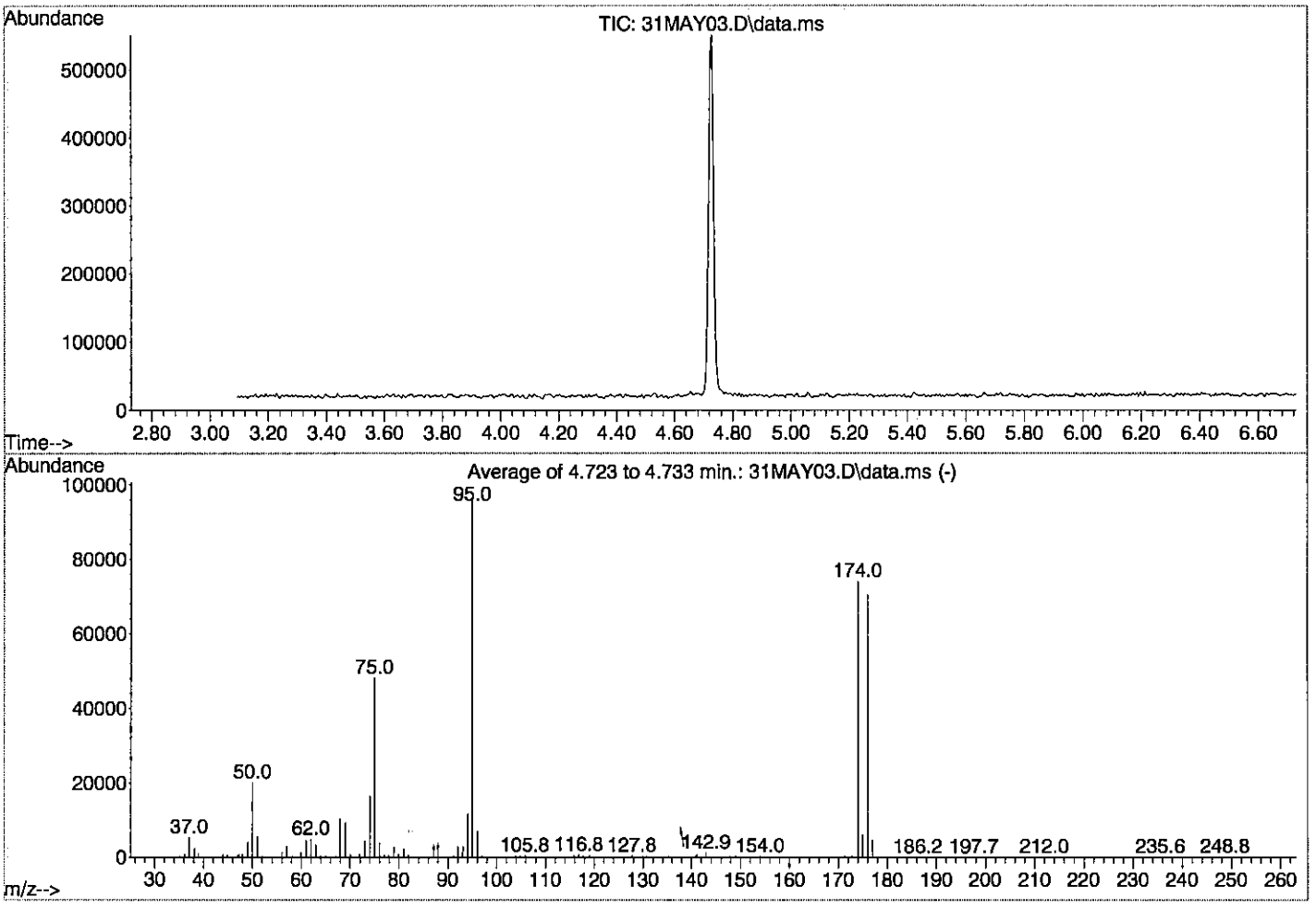
Spectrum Information: Average of 4.728 to 4.738 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.0	23778	PASS
75	95	30	60	53.0	57283	PASS
95	95	100	100	100.0	108093	PASS
96	95	5	9	6.9	7483	PASS
173	174	0.00	2	1.5	1197	PASS
174	95	50	100	72.3	78200	PASS
175	174	5	9	8.5	6619	PASS
176	174	95	101	100.8	78811	PASS
177	176	5	9	6.8	5391	PASS

Data Path : D:\MassHunter\GCMS\1\data\10V180531\
Data File : 31MAY03.D
Acq On : 31 May 2018 09:15 am
Operator : AK
Sample : VBFB1-180531
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: 8260.P

Method : D:\MassHunter\GCMS\1\methods\10WGO0627.M
Title : 8260 Global Optimization Method
Last Update : Thu Jun 28 10:39:22 2018



Spectrum Information: Average of 4.723 to 4.733 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.0	20121	PASS
75	95	30	60	50.3	48160	PASS
95	95	100	100	100.0	95776	PASS
96	95	5	9	7.3	7038	PASS
173	174	0.00	2	0.5	364	PASS
174	95	50	100	77.4	74144	PASS
175	174	5	9	8.1	6035	PASS
176	174	95	101	95.1	70547	PASS
177	176	5	9	6.7	4728	PASS

Response Factor Report VMS11

Method Path : C:\msdchem\1\methods\
Method File : 11AC0521.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri Jun 22 11:12:10 2018
Response Via : Initial Calibration

Calibration Files
1 =21MAY12.D 2 =21MAY13.D 3 =21MAY14.D 4 =21MAY15.D 5 =21MAY16.D 6 =21MAY18.D 7 =21MAY19.D
8 =21MAY20.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD
1)	I	Pentafluorobenzene	----------	----------	ISTD	----------	----------	----------	----------	----------		
2)	CP	Dichlorodifluo...	1.422	1.179	0.982	1.032	1.065	0.986	1.046	1.173	1.111	13.19
3)	CP	Chloromethane	2.139	1.449	1.184	1.095	1.168	1.095	1.177	1.278	1.323	26.37
4)	CP	Vinyl chloride	1.748	1.181	1.051	0.980	1.051	0.994	1.055	1.149	1.151	21.80
5)	CP	Bromomethane	0.861	0.732	0.538	0.474	0.519	0.514	0.552	0.632	0.603	21.96#
6)	CP	Chloroethane	1.454	0.660	0.539	0.546	0.624	0.577	0.624	0.669	0.712	42.69#
7)	CP	Trichlorofluor...	1.592	1.204	1.215	1.181	1.311	1.221	1.299	1.392	1.302	10.49#
8)		Ethanol									0.000	-1.00
9)	C	Ethyl ether	0.699	0.855	0.629	0.656	0.708	0.652	0.636	0.672	0.688	10.57#
10)	C	Acrolein	0.150	0.122	0.076	0.074	0.058	0.095	0.112	0.127	0.102	30.82#
11)	CP	1,1-Dichloroet...	1.144	1.215	1.133	1.147	1.191	1.126	0.915	1.134	1.126	8.06
12)	CP	1,1,2-Trichlor...	0.585	0.634	0.563	0.518	0.550	0.534	0.388	0.543	0.540	13.10#
13)	C	Methyl iodide	1.297	0.993	0.794	0.829	0.881	0.964	0.922	0.953	0.954	16.18#
14)	CP	Acetone	0.746	0.549	0.423	0.306	0.305	0.273	0.261	0.278	0.393	44.12#
15)	CP	Carbon disulfide	3.053	2.674	2.426	2.251	2.330	2.262	1.900	2.355	2.406	14.05#
16)	C	Allyl chloride	1.626	1.754	1.385	1.368	1.417	1.384	1.281	1.415	1.454	10.69#
17)	CP	Methyl acetate	1.243	0.914	0.725	0.664	0.704	0.768	0.752	0.810	0.823	22.61#
18)	C	Acetonitrile						0.037	0.032	0.035	0.035	7.87#
19)	CP	Methylene chlo...	1.446	1.511	1.101	1.083	1.048	1.014	0.966	1.043	1.152	17.93#
20)	C	t-Butanol	0.141	0.100	0.057	0.056	0.052	0.068	0.056	0.057	0.073	42.87#
21)	CP	trans-1,2-Dich...	1.368	1.243	1.091	1.092	1.131	1.102	0.989	1.119	1.142	10.05#
22)	C	Acrylonitrile	0.473	0.604	0.361	0.368	0.366	0.375	0.363	0.394	0.413	20.72#
23)	CP	Methyl tert-bu...	3.556	2.544	2.416	2.302	2.291	2.436	2.337	2.413	2.537	16.55#
24)	C	Hexane	0.952	1.272	0.905	0.952	0.982	0.938	0.674	0.977	0.957	16.93#
25)	C	1,1-Dichloroet...	1.735	1.877	1.498	1.481	1.509	1.422	1.326	1.440	1.536	11.74
26)	C	Diisopropyl ether	4.156	2.699	2.760	2.687	2.749	2.833	2.686	2.817	2.923	17.14#
27)	C	Vinyl acetate	0.343	0.217	0.193	0.172	0.200	0.176	0.177	0.177	0.207	27.56#
28)	C	Chloroprene	1.814	1.435	1.219	1.279	1.288	1.248	1.101	1.291	1.334	16.09#
29)	C	Ethyl tert but...	3.892	2.575	2.554	2.541	2.554	2.648	2.512	2.631	2.738	17.10#
30)	C	2,2-Dichloropr...	1.593	1.647	1.248	1.164	1.232	1.162	1.021	1.168	1.279	17.30#
31)	CP	cis-1,2-Dichlo...	1.396	1.515	1.301	1.243	1.314	1.245	1.164	1.281	1.308	8.18#
32)	CP	2-Butanone	0.737	0.624	0.541	0.448	0.399	0.453	0.437	0.446	0.510	22.74#
33)	C	Ethyl Acetate	1.503	0.879	1.266	0.972	0.980	1.036	1.005	1.205	1.106	18.51#
34)	C	Methyl acrylate	0.826	0.944	0.821	0.831	0.909	0.897	0.894	0.958	0.885	6.06#
35)	C	Propionitrile	0.346	0.257	0.206	0.148	0.142	0.129	0.120	0.128	0.185	43.65#
36)	C	Bromochloromet...	0.745	0.815	0.675	0.701	0.702	0.680	0.662	0.683	0.708	7.04#
37)	C	Tetrahydrofuran	0.448	0.626	0.406	0.337	0.325	0.316	0.304	0.328	0.386	28.19
38)	C	Methacrylonitrile	0.731	0.543	0.444	0.398	0.407	0.410	0.396	0.422	0.469	24.82#
39)	CP	Chloroform	1.879	1.440	1.334	1.389	1.366	1.315	1.277	1.366	1.421	13.48
40)	CP	Cyclohexane	1.310	1.924	1.334	1.363	1.447	1.381	1.072	1.446	1.410	16.95#

Method Path : C:\msdchem\1\methods\
Method File : 11AC0521.M
Title : 8260B/624 Volatile Calibration

41)	I	1,4-Difluorobenzene	----------ISTD----------									
42)	CP	1,1,1-Trichlor...	0.765	0.723	0.637	0.601	0.611	0.597	0.532	0.605	0.634	11.80#
43)	S	Dibromofluorom...	0.312	0.316	0.323	0.316	0.320	0.321	0.328	0.324	0.320	1.55
44)	CP	Carbon tetrach...	0.677	0.643	0.553	0.480	0.529	0.495	0.424	0.511	0.539	15.63#
45)	C	1,1-Dichloropr...	0.704	0.697	0.563	0.556	0.569	0.547	0.482	0.575	0.587	12.97#
46)	S	1,2-Dichloroet...	0.377	0.376	0.384	0.389	0.368	0.368	0.384	0.380	0.378	1.98
47)	CP	1,2-Dichloroet...	0.578	0.691	0.580	0.525	0.548	0.528	0.513	0.537	0.563	10.20#
48)	CP	Benzene	1.980	1.962	1.676	1.550	1.674	1.602	1.493	1.631	1.696	10.64#
49)	C	Isobutyl Alcohol	0.334	0.704	0.433	0.446	0.436	0.411	0.304		0.438	29.51#
50)	C	Tertiaryamylme...	1.882	1.226	1.293	1.182	1.233	1.269	1.212	1.258	1.319	17.42#
51)	C	Heptane	0.334	0.580	0.433	0.446	0.436	0.411	0.304	0.432	0.422	19.57#
52)	CP	Methylcyclohexane	0.627	0.842	0.631	0.624	0.639	0.616	0.480	0.640	0.637	15.43#
53)	CP	Trichloroethene	0.482	0.483	0.429	0.413	0.432	0.413	0.383	0.425	0.432	7.98#
54)	C	n-Butanol					0.005	0.007	0.005	0.006	0.006	15.90#
55)	CP	1,2-Dichloropr...	0.528	0.572	0.448	0.441	0.443	0.418	0.401	0.429	0.460	12.79
56)	C	Dibromomethane	0.261	0.360	0.251	0.258	0.263	0.248	0.243	0.254	0.267	14.20#
57)	C	1,4-Dioxane		0.002	0.001	0.002	0.001	0.002	0.002		0.002	20.15#
58)	C	Methyl methacr...	0.520	0.645	0.555	0.470	0.465	0.453	0.450	0.479	0.505	13.32#
59)	CP	Bromodichlorom...	0.697	0.681	0.551	0.546	0.563	0.545	0.530	0.567	0.585	11.18#
60)	C	2-Nitropropane	0.246	0.234	0.185	0.161	0.166	0.150	0.147	0.161	0.181	21.05#
61)	T	2-Chloroethyl ...	0.369	0.423	0.360	0.337	0.340	0.321	0.315	0.319	0.348	10.31
62)	CP	cis-1,3-Dichlo...	0.696	0.781	0.714	0.680	0.716	0.685	0.672	0.707	0.706	4.82#
63)	I	Chlorobenzene-d5	----------ISTD----------									
64)	CP	4-Methyl-2-pen...	0.890	0.557	0.675	0.609	0.591	0.620	0.585	0.628	0.644	16.32#
65)	S	Toluene-d8	1.293	1.280	1.289	1.315	1.288	1.286	1.294	1.312	1.295	0.95
66)	CP	Toluene	2.057	2.023	1.860	1.819	1.865	1.828	1.691	1.870	1.877	6.19
67)	T	Chloropicrin			0.001	0.046	0.110	0.211	0.236	0.270	0.146	75.11
68)	CP	trans-1,3-Dich...	0.675	0.791	0.674	0.672	0.688	0.688	0.653	0.700	0.692	6.07#
69)	C	Ethyl methacry...	0.897	0.780	0.643	0.686	0.690	0.665	0.649	0.689	0.713	12.04#
70)	CP	1,1,2-Trichlor...	0.542	0.552	0.400	0.397	0.400	0.389	0.368	0.392	0.430	16.98#
71)	CP	Tetrachloroethene	0.535	0.515	0.423	0.452	0.460	0.453	0.398	0.450	0.461	9.75#
72)	C	1,3-Dichloropr...	0.788	0.798	0.704	0.686	0.722	0.691	0.663	0.699	0.719	6.76#
73)	CP	2-Hexanone	0.709	0.414	0.421	0.404	0.410	0.442	0.415	0.448	0.458	22.38#
74)	CP	Chlorodibromom...	0.480	0.526	0.407	0.435	0.441	0.446	0.429	0.458	0.453	8.07#
75)	C	Butyl acetate	1.372	0.932	0.983	0.919	0.917	0.972	0.921	0.980	0.999	15.34#
76)	CP	1,2-Dibromoethane	0.442	0.483	0.422	0.406	0.417	0.366	0.341	0.346	0.403	12.24#
77)	CP	Chlorobenzene	1.263	1.361	1.147	1.158	1.162	1.143	1.097	1.169	1.188	7.08
78)	C	1,1,1,2-Tetrac...	0.448	0.511	0.399	0.390	0.406	0.403	0.386	0.415	0.420	9.86#
79)	CP	Ethylbenzene	2.112	2.374	1.965	2.003	2.111	2.073	1.907	2.113	2.082	6.76
80)	CP	m/p-Xylene	1.726	1.852	1.503	1.554	1.637	1.587	1.464	1.606	1.616	7.70#
81)	CP	Styrene	1.320	1.332	1.136	1.245	1.286	1.261	1.206	1.288	1.259	5.08#
82)	CP	o-Xylene	1.761	1.808	1.499	1.572	1.637	1.594	1.501	1.625	1.624	6.87#
83)	C	Cyclohexanone	0.025	0.031	0.014	0.017	0.013	0.019	0.014		0.019	35.70#
84)	CP	Bromoform	0.312	0.341	0.283	0.301	0.305	0.315	0.308	0.327	0.311	5.63
85)	CP	Isopropylbenzene	2.080	2.200	1.773	1.874	1.919	1.864	1.709	1.905	1.916	8.27#
86)	S	Bromofluoroben...	0.508	0.516	0.493	0.521	0.518	0.509	0.514	0.523	0.513	1.87
87)	C	Bromobenzene	0.948	0.953	0.718	0.798	0.786	0.780	0.750	0.799	0.816	10.63#
88)	CP	1,1,2,2-Tetrac...	0.777	0.635	0.592	0.580	0.621	0.583	0.564	0.604	0.619	10.93

Method Path : C:\msdchem\1\methods\
Method File : 11AC0521.M
Title : 8260B/624 Volatile Calibration

89)	C	1,2,3-Trichlor...	0.210	0.246	0.177	0.176	0.181	0.177	0.171	0.183	0.190	13.41#
90)	C	trans-1,4-Dich...	0.234	0.287	0.218	0.186	0.204	0.201	0.197	0.212	0.217	14.59#
91)	C	n-Propylbenzene	2.366	2.389	1.986	2.187	2.254	2.244	2.060	2.314	2.225	6.39#
92)	C	2-Chlorotoluene	2.554	2.389	1.986	2.187	2.254	2.244	2.060	2.314	2.249	7.98#
93)	C	4-Chlorotoluene	1.628	1.617	1.361	1.494	1.508	1.524	1.434	1.573	1.518	5.95#
94)	C	1,3,5-Trimethy...	1.553	1.672	1.317	1.405	1.428	1.422	1.335	1.479	1.451	8.03#
95)	C	tert-Butylbenzene	0.780	0.849	0.745	0.738	0.777	0.776	0.716	0.811	0.774	5.46#
96)	C	1,2,4-Trimethy...	1.569	1.557	1.261	1.392	1.468	1.449	1.377	1.511	1.448	7.11#
97)	C	sec-Butylbenzene	1.846	1.843	1.510	1.628	1.623	1.624	1.493	1.718	1.661	8.06#
98)	I	1,4-Dichlorobenzen...	----------ISTD----------									
99)	CP	1,3-Dichlorobe...	1.943	1.776	1.488	1.536	1.596	1.582	1.502	1.584	1.626	9.58#
100)	C	p-Isopropyltol...	2.986	3.212	2.730	2.695	2.822	2.769	2.571	2.840	2.828	6.94#
101)	CP	1,4-Dichlorobe...	1.715	1.789	1.508	1.551	1.594	1.596	1.518	1.589	1.608	6.06#
102)	C	1,2,3-Trimethy...	3.329	3.285	2.846	2.924	3.049	3.015	2.851	2.986	3.036	6.01#
103)	C	Benzyl chloride	3.261	2.526	2.409	2.196	2.345	2.325	2.230	2.319	2.451	13.97#
104)	CP	1,2-Dichlorobe...	1.492	1.726	1.407	1.348	1.421	1.434	1.375	1.446	1.456	8.06#
105)	C	n-Butylbenzene	2.451	2.794	2.347	2.348	2.462	2.431	2.246	2.516	2.449	6.65#
106)	C	Hexachloroethane	0.577	0.545	0.478	0.449	0.497	0.503	0.483	0.535	0.508	8.15#
107)	CP	1,2-Dibromo-3-...	0.273	0.277	0.269	0.259	0.265	0.262	0.256	0.269	0.266	2.68#
108)	C	1,3,5-Trichlor...	0.969	0.980	0.824	0.815	0.858	0.862	0.811	0.870	0.874	7.57#
109)	CP	1,2,4-Trichlor...	0.821	0.693	0.695	0.696	0.716	0.738	0.701	0.750	0.726	6.02#
110)	C	Hexachlorobuta...	0.387	0.342	0.335	0.304	0.304	0.300	0.282	0.322	0.322	10.19#
111)	C	Naphthalene	2.638	2.913	2.486	2.396	2.605	2.671	2.592	2.723	2.628	5.89#
112)	C	1,2,3-Trichlor...	0.506	0.739	0.604	0.567	0.591	0.603	0.590	0.639	0.605	10.95#
113)	C	2-Methylnaphth...	0.906	1.063	0.760	0.816	0.844	0.882	0.858	0.950	0.885	10.42#
114)	C	1-Methylnaphth...	0.848	0.839	0.651	0.595	0.689	0.721	0.688	0.757	0.723	12.18#
115)	I	Ethyl Acetate-d8	----------ISTD----------									
116)	C	2-Propanone	2.255	1.639	1.273	0.915	0.906	0.790	0.718	0.731	1.153	47.29#
117)		Isopropyl Alcohol	0.071	0.059	0.038	0.079	0.059	0.084	0.064		0.065	23.32
118)	C	Acetic Ether	4.543	3.450	3.112	3.514	2.912	3.012	2.776	2.832	3.269	17.79#
119)	C	Isopropyl Acetate	1.209	0.862	0.839	0.775	0.795	0.810	0.740	0.742	0.847	E1 18.01#
120)	C	Amyl Acetate	7.415	6.322	5.391	5.184	5.306	5.474	4.997	5.043	5.642	14.67#

(#) = Out of Range

Method Path : C:\msdchem\1\methods\
Method File : 11AC0521.M
Title : 8260B/624 Volatile Calibration
Last Update : Fri Jun 22 11:12:10 2018
Response Via : Initial Calibration

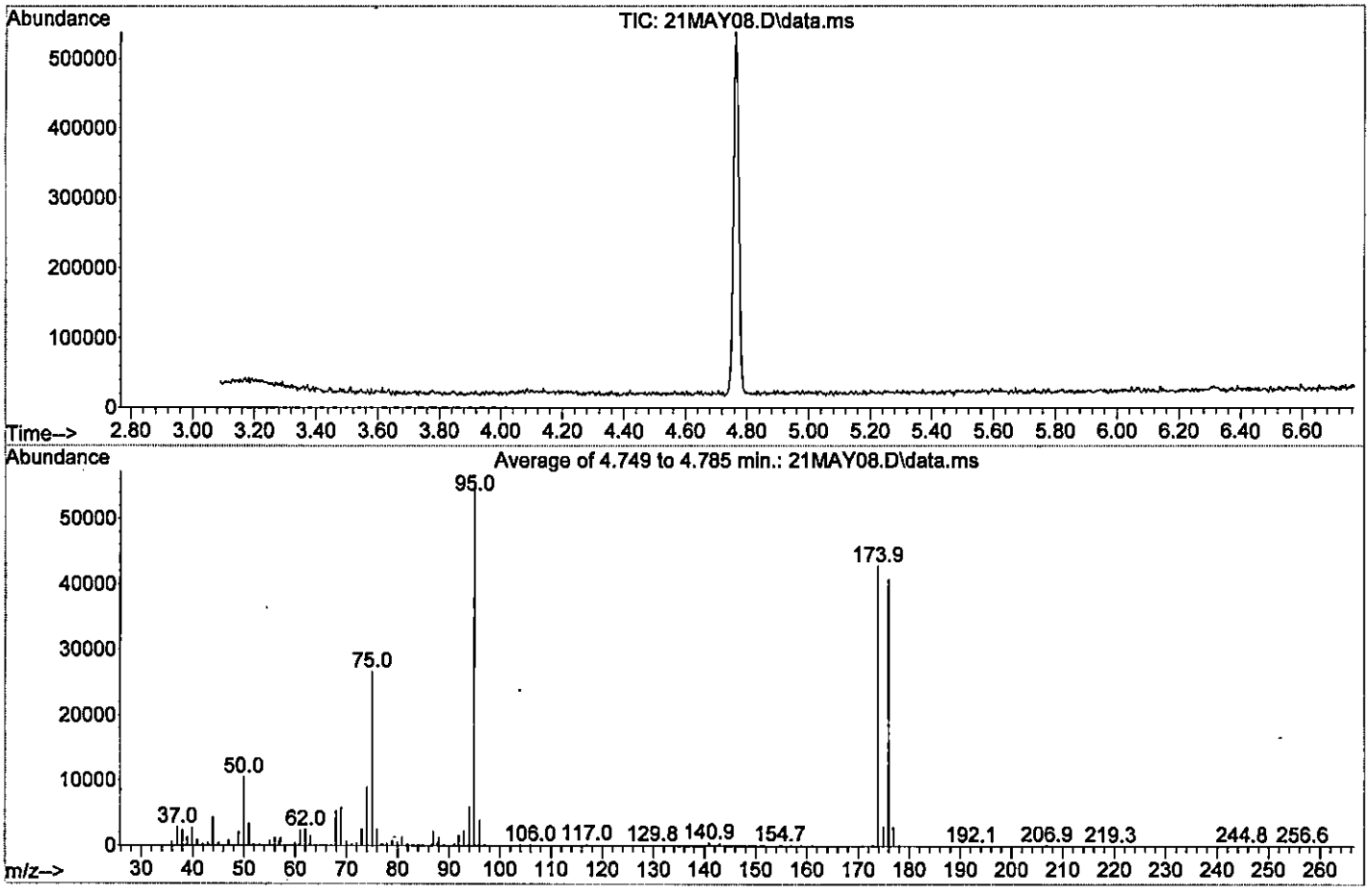
Calibration Files
1 =21MAY12 2 =21MAY13 3 =21MAY14 4 =21MAY15 5 =21MAY16 6 =21MAY18
7 =21MAY19 8 =21MAY20

		Compound	Fit	Constant	Linear	Quad	RSD/Cf
1)	I	Pentafluorobenzene		----------ISTD----------			
3)	CP	Chloromethane	Quad	0.0338	0.9501	0.0639	0.9999
4)	CP	Vinyl chloride	Lin	-0.0462	1.1182	-----	0.9962
5)	CP	Bromomethane	Lin	0.0020	0.5771	-----	0.9913
6)	CP	Chloroethane	Lin	0.0064	0.6304	-----	0.9942
10)	C	Acrolein	Quad	0.0075	0.0646	0.0026	0.9986
14)	CP	Acetone	Lin	0.0097	0.2694	-----	0.9985
17)	CP	Methyl acetate	Lin	-0.0239	0.7945	-----	0.9982
18)	C	Acetonitrile	Quad	0.0677	-0.0087	0.0061	1.0000
19)	CP	Methylene chloride	Lin	-0.0002	1.0180	-----	0.9981
20)	C	t-Butanol	Lin	0.0112	0.0571	-----	0.9941
22)	C	Acrylonitrile	Lin	-0.0070	0.3848	-----	0.9978
27)	C	Vinyl acetate	Lin	0.0028	0.1763	-----	0.9998
32)	CP	2-Butanone	Lin	0.0011	0.4433	-----	0.9996
35)	C	Propionitrile	Lin	0.0053	0.1246	-----	0.9986
37)	C	Tetrahydrofuran	Lin	0.0011	0.3191	-----	0.9981
38)	C	Methacrylonitrile	Lin	-0.0028	0.4138	-----	0.9987
41)	I	1,4-Difluorobenzene		----------ISTD----------			
49)	C	Isobutyl Alcohol	Quad	-0.0110	0.5453	-0.0677	0.9989
54)	C	n-Butanol	Lin	-0.0027	0.0059	-----	0.9805
57)	C	1,4-Dioxane	Quad	-0.0154	0.0024	-0.0000	0.9943
60)	C	2-Nitropropane	Lin	-0.0009	0.1563	-----	0.9968
63)	I	Chlorobenzene-d5		----------ISTD----------			
67)	T	Chloropicrin	Quad	-0.2658	0.1805	0.0019	0.9997
68)	CP	trans-1,3-Dichlo...	Quad	0.0019	0.6597	0.0058	0.9992
73)	CP	2-Hexanone	Lin	-0.0071	0.4396	-----	0.9981
83)	C	Cyclohexanone	Quad	-0.0053	0.0236	-0.0005	0.9923
98)	I	1,4-Dichlorobenz...		----------ISTD----------			
113)	C	2-Methylnaphthalene	Quad	0.0039	0.7960	0.0280	0.9990
114)	C	1-Methylnaphthalene	Quad	0.0037	0.6491	0.0195	0.9987
115)	I	Ethyl Acetate-d8		----------ISTD----------			
116)	C	2-Propanone	Lin	0.0555	0.7188	-----	0.9989
117)		Isopropyl Alcohol	Quad	-0.1175	0.1060	-0.0006	0.9938
120)	C	Amyl Acetate	Lin	0.1312	5.0368	-----	0.9990

Data Path : C:\GCMS\1\data\11V180521\
Data File : 21MAY08.D
Acq On : 21 May 2018 01:32 pm
Operator : AK
Sample : VBFB1-180521
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : D:\MassHunter\GCMS\1\methods\11AC0625.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 26 14:01:57 2018



Spectrum Information: Average of 4.749 to 4.785 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	19.3	10493	PASS
75	95	30	80	48.8	26581	PASS
95	95	100	100	100.0	54481	PASS
96	95	5	9	7.2	3911	PASS
173	174	0.00	2	0.4	190	PASS
174	95	50	100	78.5	42761	PASS
175	174	5	9	6.9	2940	PASS
176	174	95	101	95.1	40666	PASS
177	176	5	9	7.2	2941	PASS

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY12.D
Acq On : 21 May 2018 03:26 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 22 08:32:56 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	165708	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.245	114	311441	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	293393	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	137154	20.00	ug/L	#	0.00
114) Ethyl Acetate-d8	3.754	46	54818	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	97306	18.88	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 94.40%				
45) 1,2-Dichloroethane-d4	5.238	65	117298	17.16	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.80%				
64) Toluene-d8	8.898	98	379383	20.79	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.95%				
85) Bromofluorobenzene	12.185	95	149101	18.91	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.55%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	4714	0.68	ug/L		92
3) Chloromethane	1.070	50	7089	0.29	ug/L		91
4) Vinyl chloride	1.128	62	5793	0.73	ug/L		98
5) Bromomethane	1.332	94	2853m	2.65	ug/L		
6) Chloroethane	1.395	64	4819m	Below Cal			
7) Trichlorofluoromethane	1.557	101	5275	0.85	ug/L		87
8) Ethyl ether	1.757	59	2315	0.43	ug/L		99
9) Acrolein	1.856	56	2488	Below Cal			94
10) 1,1-Dichloroethene	1.919	61	3790	0.51	ug/L		60
11) 1,1,2-Trichlorotrifluo...	1.935	151	1939	0.86	ug/L		76
12) Methyl iodide	2.035	142	4298	3.29	ug/L		81
13) Acetone	1.972	43	2472	Below Cal		#	28
14) Carbon disulfide	2.082	76	10118	0.85	ug/L		86
15) Allyl chloride	2.223	41	5389m	0.55	ug/L		
16) Methyl acetate	2.229	43	4121	0.58	ug/L	#	90
17) Acetonitrile	0.000		0	N.D.	d		
18) Methylene chloride	2.339	49	4792	0.27	ug/L		72
19) t-Butanol	2.465	59	2336	3.62	ug/L	#	55
20) trans-1,2-Dichloroethene	2.585	61	4534	0.58	ug/L		80
21) Acrylonitrile	2.575	53	1569m	0.44	ug/L		
22) Methyl tert-butyl ether	2.590	73	11784	0.99	ug/L		97
23) Hexane	2.879	57	3154	0.45	ug/L		87
24) 1,1-Dichloroethane	3.057	63	5749	0.59	ug/L		94
25) Diisopropyl ether	3.130	45	13772	0.72	ug/L	#	24
26) Vinyl acetate	3.094	86	1136	1.14	ug/L	#	88
27) Chloroprene	3.136	53	6012	0.74	ug/L		93
28) Ethyl tert butyl ether	3.592	59	12898	1.15	ug/L		96
29) 2,2-Dichloropropane	3.786	77	5281	1.16	ug/L	#	54
30) cis-1,2-Dichloroethene	3.791	61	4627	0.53	ug/L		85
31) 2-Butanone	3.828	43	2443	Below Cal			93
32) Ethyl Acetate	3.922	43	4981	0.66	ug/L		96
33) Methyl acrylate	3.964	55	2738	0.42	ug/L	#	87
34) Propionitrile	3.896	54	1148	0.88	ug/L	#	1
35) Bromochloromethane	4.142	49	2469	0.46	ug/L		89
36) Tetrahydrofuran	4.184	42	1485	0.63	ug/L	#	24
37) Methacrylonitrile	4.137	67	2424m	0.80	ug/L		
38) Chloroform	4.357	83	6228	0.69	ug/L		89

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY12.D
Acq On : 21 May 2018 03:26 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 22 08:32:56 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	4.651	56	4343	0.54 ug/L	#	77
41)	1,1,1-Trichloroethane	4.562	97	4762	0.84 ug/L		90
43)	Carbon tetrachloride	4.829	119	4220	0.93 ug/L	#	17
44)	1,1-Dichloropropene	4.871	75	4388	0.63 ug/L		73
46)	1,2-Dichloroethane	5.395	62	3602	0.46 ug/L		57
47)	Benzene	5.228	78	12332	0.54 ug/L		89
48)	Isobutyl Alcohol	5.993	43	2078	0.33 ug/L	#	79
49)	Tertiaryamylmethylether	5.621	73	11721	1.19 ug/L	#	71
50)	Heptane	5.993	43	2078	0.33 ug/L	#	81
51)	Methylcyclohexane	7.084	83	3904	0.55 ug/L	#	66
52)	Trichloroethene	6.659	130	3001	0.63 ug/L		91
53)	n-Butanol	0.000		0	N.D. d		
54)	1,2-Dichloropropane	7.215	63	3290	0.56 ug/L		92
55)	Dibromomethane	7.372	93	1628	0.44 ug/L	#	26
56)	1,4-Dioxane	0.000		0	N.D. d		
57)	Methyl methacrylate	7.535	41	3238m	0.55 ug/L		
58)	Bromodichloromethane	7.797	83	4341	0.68 ug/L		93
59)	2-Nitropropane	8.211	43	1535m	1.13 ug/L		
60)	2-Chloroethyl vinyl ether	8.389	63	2298	0.77 ug/L	#	73
61)	cis-1,3-Dichloropropene	8.547	75	4337	0.65 ug/L		57
63)	4-Methyl-2-pentanone	8.845	43	5223	0.83 ug/L	#	91
65)	Toluene	8.997	91	12071	0.58 ug/L		92
66)	Chloropicrin	0.000		0	N.D.		
67)	trans-1,3-Dichloropropene	9.427	75	3960	0.96 ug/L		99
68)	Ethyl methacrylate	9.585	69	5266m	0.97 ug/L		
69)	1,1,2-Trichloroethane	9.674	97	3179	0.60 ug/L	#	75
70)	Tetrachloroethene	9.690	166	3141	0.67 ug/L		92
71)	1,3-Dichloropropane	9.863	76	4621	0.49 ug/L		93
72)	2-Hexanone	10.020	43	4158	0.89 ug/L		91
73)	Chlorodibromomethane	10.119	129	2816	0.62 ug/L		98
74)	Butyl acetate	10.224	43	8053	1.04 ug/L		94
75)	1,2-Dibromoethane	10.214	107	2593	0.63 ug/L	#	91
76)	Chlorobenzene	10.838	112	7412	0.54 ug/L	#	56
77)	1,1,1,2-Tetrachloroethane	10.979	131	2627	0.67 ug/L		95
78)	Ethylbenzene	10.990	91	12394	0.57 ug/L		97
79)	m/p-Xylene	11.158	91	20254	1.22 ug/L		96
80)	Styrene	11.619	104	7747	0.58 ug/L		74
81)	o-Xylene	11.582	91	10331	0.60 ug/L		95
82)	Cyclohexanone	12.086	55	744	2.26 ug/L	#	19
83)	Bromoform	11.792	173	1829	0.66 ug/L		96
84)	Isopropylbenzene	12.017	105	12206	0.63 ug/L		95
86)	Bromobenzene	12.306	77	5561	0.51 ug/L		95
87)	1,1,2,2-Tetrachloroethane	12.395	83	4559	0.50 ug/L		97
88)	1,2,3-Trichloropropane	12.421	110	1233	0.52 ug/L	#	73
89)	trans-1,4-Dichloro-2-b...	12.432	53	1376	0.54 ug/L		72
90)	n-Propylbenzene	12.468	91	13882	0.53 ug/L		94
91)	2-Chlorotoluene	12.468	91	14984m	0.91 ug/L		
92)	4-Chlorotoluene	12.673	91	9551	0.52 ug/L		97
93)	1,3,5-Trimethylbenzene	12.683	105	9115	0.56 ug/L		99
94)	tert-Butylbenzene	13.003	91	4576	0.47 ug/L		93
95)	1,2,4-Trimethylbenzene	13.071	105	9204	0.54 ug/L		93
96)	sec-Butylbenzene	13.239	105	10830	0.52 ug/L		93
98)	1,3-Dichlorobenzene	13.328	146	5329	0.54 ug/L		89
99)	p-Isopropyltoluene	13.417	119	8192	0.55 ug/L		91
100)	1,4-Dichlorobenzene	13.438	146	4705	0.46 ug/L		89

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY12.D
Acq On : 21 May 2018 03:26 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

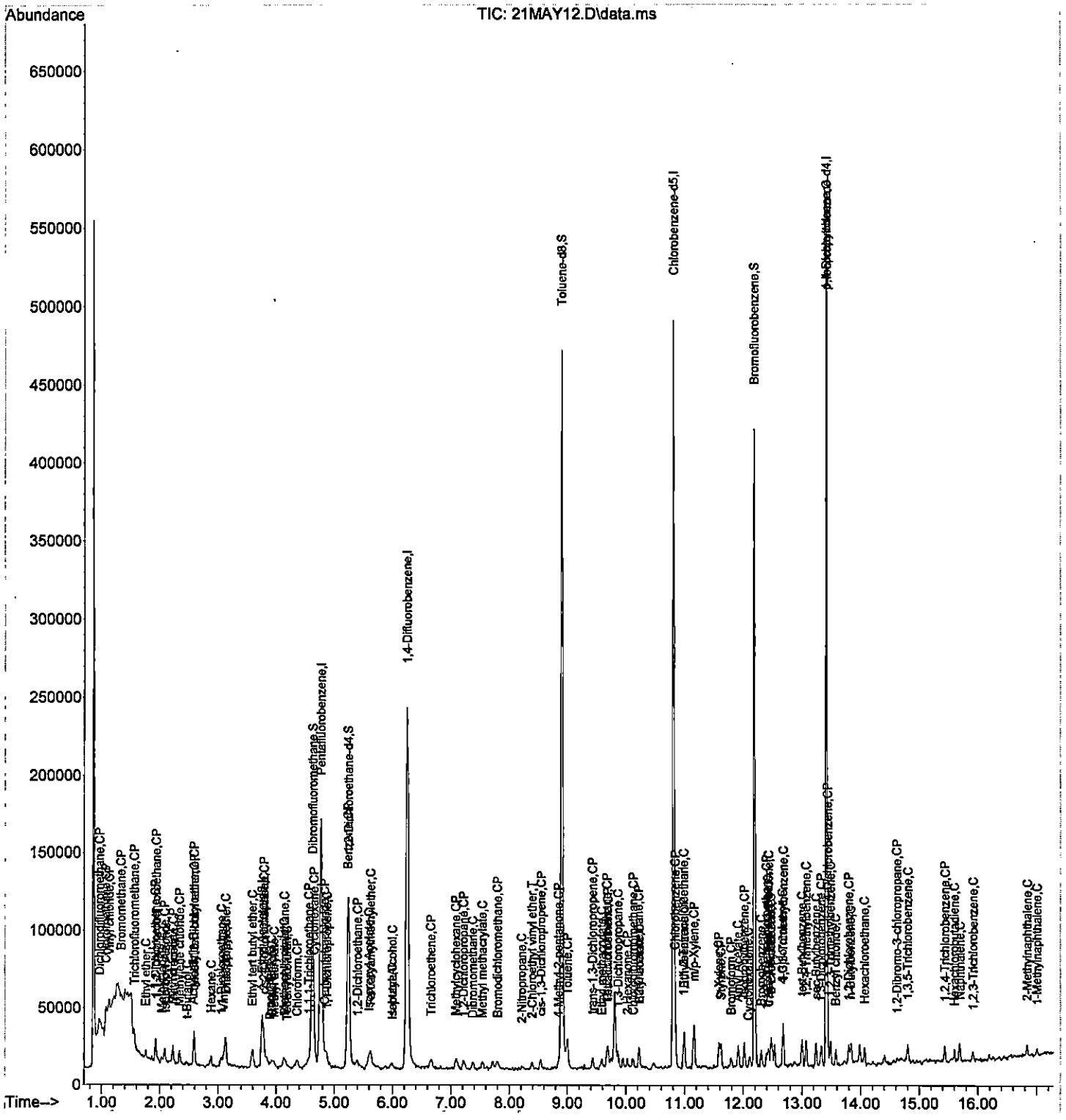
Quant Time: May 22 08:32:56 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	9131	0.56 ug/L		96
102) Benzyl chloride	13.575	91	8944	1.77 ug/L		93
103) 1,2-Dichlorobenzene	13.800	146	4093	0.41 ug/L		90
104) n-Butylbenzene	13.832	91	6724	0.41 ug/L		97
105) Hexachloroethane	14.068	117	1584	0.62 ug/L		96
106) 1,2-Dibromo-3-chloropr...	14.618	157	749	0.69 ug/L	#	53
107) 1,3,5-Trichlorobenzene	14.802	180	2659	0.40 ug/L		92
108) 1,2,4-Trichlorobenzene	15.436	180	2252	0.35 ug/L		96
109) Hexachlorobutadiene	15.599	225	1062	0.47 ug/L		95
110) Naphthalene	15.693	128	7237	0.40 ug/L		88
111) 1,2,3-Trichlorobenzene	15.918	180	1389	0.22 ug/L		92
112) 2-Methylnaphthalene	16.836	142	2485	0.54 ug/L		92
113) 1-Methylnaphthalene	17.004	142	2326	0.67 ug/L		89
115) 2-Propanone	1.972	43	2472	Below Cal	#	28
116) Isopropyl Alcohol	2.098	45	1546	3.78 ug/L	#	87
117) Acetic Ether	3.922	43	4981	0.49 ug/L	#	82
118) Isopropyl Acetate	5.595	43	13250	0.79 ug/L	#	78
119) Amyl Acetate	11.907	43	8130	2.34 ug/L	#	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY12.D
Acq On : 21 May 2018 03:26 pm
Operator : AK
Sample : 0.4PPB
Misc :
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 22 08:32:56 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY13.D
Acq On : 21 May 2018 03:48 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:44:12 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	161426	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.250	114	304358	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	294711	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.418	152	138420	20.00	ug/L	#	0.00
114) Ethyl Acetate-d8	3.760	46	55232	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	96255	19.11	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.55%				
45) 1,2-Dichloroethane-d4	5.238	65	114360	17.12	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 85.60%				
64) Toluene-d8	8.903	98	377360	20.59	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.95%				
85) Bromofluorobenzene	12.185	95	152151	19.21	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.05%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	5711	0.85	ug/L		91
3) Chloromethane	1.070	50	7016	0.30	ug/L		81
4) Vinyl chloride	1.128	62	5720	0.74	ug/L		62
5) Bromomethane	1.327	94	3547	3.54	ug/L		88
6) Chloroethane	1.395	64	3196	Below Cal		#	66
7) Trichlorofluoromethane	1.558	101	5829	0.96	ug/L		82
8) Ethyl ether	1.757	59	4139	0.80	ug/L		96
9) Acrolein	1.862	56	2950m	0.39	ug/L		
10) 1,1-Dichloroethene	1.925	61	5885	0.81	ug/L		75
11) 1,1,2-Trichlorotrifluo...	1.935	151	3069	1.39	ug/L		86
12) Methyl iodide	2.035	142	4808	3.86	ug/L		93
13) Acetone	1.972	43	2657	Below Cal		#	42
14) Carbon disulfide	2.082	76	12949	1.11	ug/L		89
15) Allyl chloride	2.223	41	8492	0.88	ug/L	#	91
16) Methyl acetate	2.229	43	4425	0.64	ug/L	#	86
17) Acetonitrile	0.000		0	N.D.	d		
18) Methylene chloride	2.339	49	7316	0.60	ug/L		82
19) t-Butanol	2.470	59	2413	3.84	ug/L	#	57
20) trans-1,2-Dichloroethene	2.591	61	6018	0.79	ug/L		78
21) Acrylonitrile	2.575	53	2923m	0.84	ug/L		
22) Methyl tert-butyl ether	2.591	73	12318	1.06	ug/L		98
23) Hexane	2.879	57	6160	0.90	ug/L		92
24) 1,1-Dichloroethane	3.057	63	9092	0.95	ug/L		92
25) Diisopropyl ether	3.125	45	13072	0.71	ug/L	#	31
26) Vinyl acetate	3.089	86	1051	1.08	ug/L	#	89
27) Chloroprene	3.136	53	6949	0.88	ug/L		91
28) Ethyl tert butyl ether	3.592	59	12468	1.14	ug/L		92
29) 2,2-Dichloropropane	3.781	77	7974	1.80	ug/L	#	58
30) cis-1,2-Dichloroethene	3.791	61	7337	0.86	ug/L	#	66
31) 2-Butanone	3.833	43	3020	0.15	ug/L		83
32) Ethyl Acetate	3.917	43	4256	0.58	ug/L	#	77
33) Methyl acrylate	3.959	55	4573	0.72	ug/L	#	75
34) Propionitrile	3.943	54	1245m	0.98	ug/L		
35) Bromochloromethane	4.142	49	3945	0.75	ug/L		88
36) Tetrahydrofuran	4.184	42	3031m	1.33	ug/L		
37) Methacrylonitrile	4.137	67	2630	0.89	ug/L	#	84
38) Chloroform	4.352	83	6976m	0.79	ug/L		

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY13.D
Acq On : 21 May 2018 03:48 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:44:12 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.656	56	9317	1.18	ug/L	#	89
41)	1,1,1-Trichloroethane	4.557	97	6598	1.19	ug/L		90
43)	Carbon tetrachloride	4.819	119	5869	1.33	ug/L	#	15
44)	1,1-Dichloropropene	4.871	75	6366	0.93	ug/L		96
46)	1,2-Dichloroethane	5.396	62	6313	0.83	ug/L		81
47)	Benzene	5.223	78	17910	0.80	ug/L		89
48)	Isobutyl Alcohol	5.993	43	6427m	1.03	ug/L		
49)	Tertiaryamylmethylether	5.621	73	11193	1.17	ug/L	#	62
50)	Heptane	5.993	43	5294	0.85	ug/L		82
51)	Methylcyclohexane	7.089	83	7691	1.11	ug/L	#	80
52)	Trichloroethene	6.664	130	4413	0.94	ug/L		90
53)	n-Butanol	0.000		0	N.D.	d		
54)	1,2-Dichloropropane	7.215	63	5222	0.90	ug/L		96
55)	Dibromomethane	7.372	93	3286	0.91	ug/L		87
56)	1,4-Dioxane	7.461	88	1509m	15.58	ug/L		
57)	Methyl methacrylate	7.535	41	5890	1.02	ug/L		84
58)	Bromodichloromethane	7.797	83	6218	1.00	ug/L		97
59)	2-Nitropropane	8.211	43	2134	1.60	ug/L	#	85
60)	2-Chloroethyl vinyl ether	8.389	63	3859	1.32	ug/L	#	83
61)	cis-1,3-Dichloropropene	8.541	75	7129	1.09	ug/L		75
63)	4-Methyl-2-pentanone	8.851	43	4927	0.78	ug/L	#	80
65)	Toluene	8.998	91	17890	0.86	ug/L		91
66)	Chloropicrin	0.000		0	N.D.	d		
67)	trans-1,3-Dichloropropene	9.428	75	6992	1.59	ug/L		83
68)	Ethyl methacrylate	9.585	69	6897	1.22	ug/L		79
69)	1,1,2-Trichloroethane	9.669	97	4880	0.92	ug/L	#	70
70)	Tetrachloroethene	9.690	166	4556	0.96	ug/L		91
71)	1,3-Dichloropropane	9.857	76	7051	0.75	ug/L		83
72)	2-Hexanone	10.020	43	3663	0.78	ug/L		71
73)	Chlorodibromomethane	10.114	129	4652	1.02	ug/L		92
74)	Butyl acetate	10.224	43	8244m	1.05	ug/L		
75)	1,2-Dibromoethane	10.214	107	4268	1.03	ug/L	#	91
76)	Chlorobenzene	10.838	112	12032	0.87	ug/L		76
77)	1,1,1,2-Tetrachloroethane	10.979	131	4515	1.15	ug/L		91
78)	Ethylbenzene	10.995	91	20988	0.97	ug/L		100
79)	m/p-Xylene	11.158	91	32740	1.96	ug/L		99
80)	Styrene	11.614	104	11777	0.88	ug/L		73
81)	o-Xylene	11.582	91	15985	0.93	ug/L		97
82)	Cyclohexanone	12.081	55	1385	4.19	ug/L		97
83)	Bromoform	11.792	173	3014	1.09	ug/L		98
84)	Isopropylbenzene	12.012	105	19453	0.99	ug/L		95
86)	Bromobenzene	12.306	77	8422	0.77	ug/L		98
87)	1,1,2,2-Tetrachloroethane	12.395	83	5613	0.61	ug/L		72
88)	1,2,3-Trichloropropane	12.421	110	2171	0.91	ug/L		94
89)	trans-1,4-Dichloro-2-b...	12.432	53	2540m	0.99	ug/L		
90)	n-Propylbenzene	12.469	91	21122	0.80	ug/L		90
91)	2-Chlorotoluene	12.469	91	21122	1.27	ug/L		48
92)	4-Chlorotoluene	12.673	91	14296	0.77	ug/L		95
93)	1,3,5-Trimethylbenzene	12.683	105	14785	0.90	ug/L		96
94)	tert-Butylbenzene	13.003	91	7507	0.78	ug/L		93
95)	1,2,4-Trimethylbenzene	13.066	105	13768	0.81	ug/L		97
96)	sec-Butylbenzene	13.239	105	16291	0.78	ug/L		98
98)	1,3-Dichlorobenzene	13.328	146	7374	0.74	ug/L		91
99)	p-Isopropyltoluene	13.418	119	13337	0.88	ug/L		93
100)	1,4-Dichlorobenzene	13.438	146	7431	0.72	ug/L	#	65

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY13.D
Acq On : 21 May 2018 03:48 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

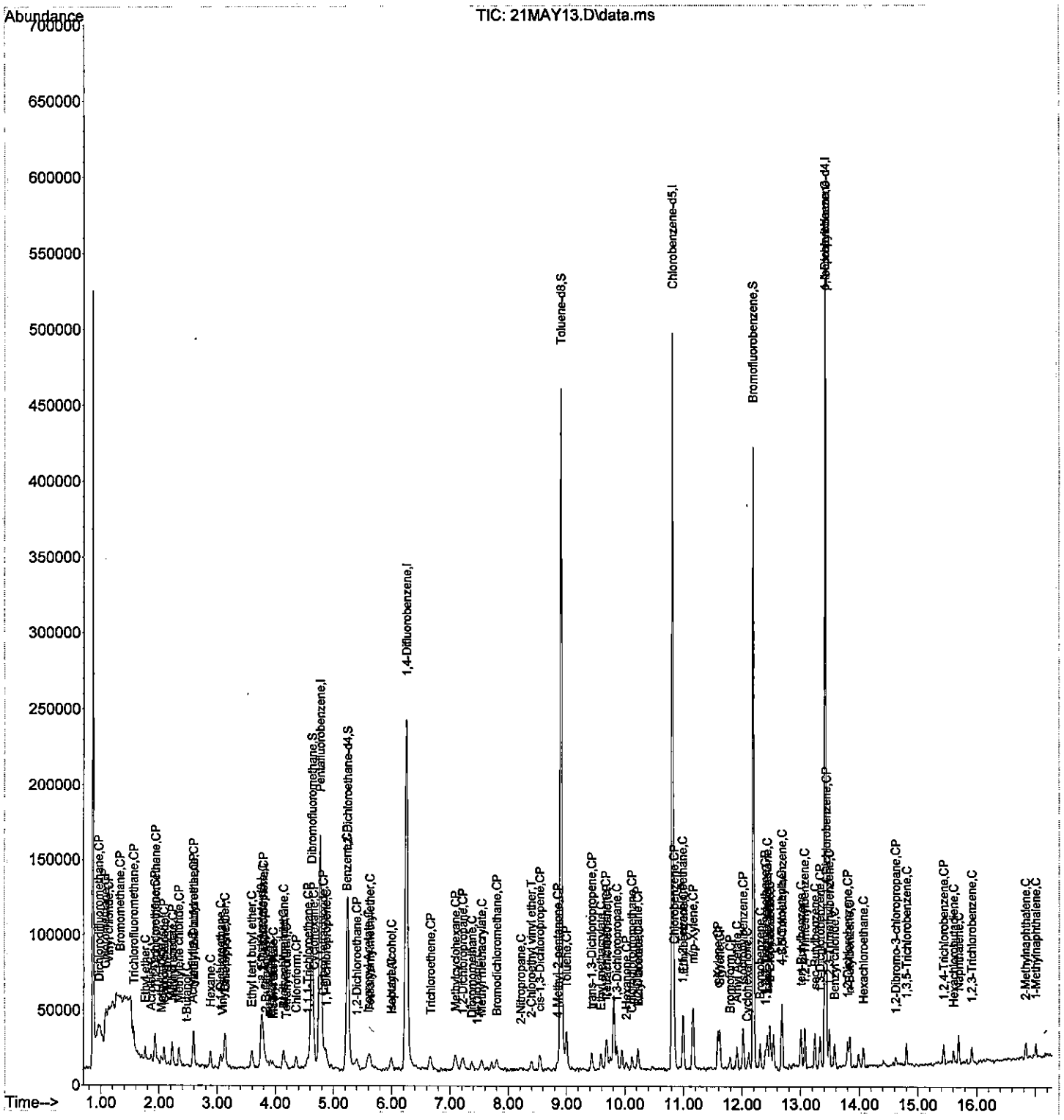
Quant Time: May 22 09:44:12 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	13640	0.82 ug/L		96
102) Benzyl chloride	13.575	91	10489	2.07 ug/L		89
103) 1,2-Dichlorobenzene	13.800	146	7166	0.71 ug/L		93
104) n-Butylbenzene	13.832	91	11602	0.71 ug/L		98
105) Hexachloroethane	14.068	117	2263	0.88 ug/L	#	76
106) 1,2-Dibromo-3-chloropr...	14.618	157	1150	1.05 ug/L		81
107) 1,3,5-Trichlorobenzene	14.802	180	4070	0.60 ug/L		97
108) 1,2,4-Trichlorobenzene	15.436	180	2878	0.45 ug/L		86
109) Hexachlorobutadiene	15.604	225	1420	0.62 ug/L		92
110) Naphthalene	15.688	128	12095	0.67 ug/L		96
111) 1,2,3-Trichlorobenzene	15.913	180	3069	0.48 ug/L		89
112) 2-Methylnaphthalene	16.831	142	4416	0.74 ug/L		96
113) 1-Methylnaphthalene	17.004	142	3485	0.79 ug/L		88
115) 2-Propanone	1.972	43	2716	Below Cal	#	44
116) Isopropyl Alcohol	2.087	45	1971m	4.36 ug/L		
117) Acetic Ether	3.917	43	5716m	0.56 ug/L		
118) Isopropyl Acetate	5.595	43	14290m	0.84 ug/L		
119) Amyl Acetate	11.908	43	10476m	2.49 ug/L		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY13.D
Acq On : 21 May 2018 03:48 pm
Operator : AK
Sample : 0.6PPB
Misc :
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 22 09:44:12 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY14.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:43:49 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.756	168	175582	20.00	ug/L	-0.02
40) 1,4-Difluorobenzene	6.234	114	324870	20.00	ug/L	-0.02
62) Chlorobenzene-d5	10.801	117	316631	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	144002	20.00	ug/L	# 0.00
114) Ethyl Acetate-d8	3.744	46	58383	20.00	ug/L	#-0.02
System Monitoring Compounds						
42) Dibromofluoromethane	4.609	111	104941	19.52	ug/L	-0.02
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.60%			
45) 1,2-Dichloroethane-d4	5.222	65	124606	17.48	ug/L	-0.02
Spiked Amount 20.000	Range 75 - 120		Recovery = 87.40%			
64) Toluene-d8	8.893	98	408171	20.73	ug/L	-0.01
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.65%			
85) Bromofluorobenzene	12.185	95	156095	18.34	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 91.70%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.955	85	17242	2.35	ug/L	96
3) Chloromethane	1.059	50	20796	1.44	ug/L	95
4) Vinyl chloride	1.122	62	18445	2.21	ug/L	97
5) Bromomethane	1.322	94	9446	9.51	ug/L	96
6) Chloroethane	1.390	64	9469	Below Cal		83
7) Trichlorofluoromethane	1.552	101	21330	3.23	ug/L	97
8) Ethyl ether	1.751	59	11036	1.95	ug/L	90
9) Acrolein	1.851	56	6666	8.87	ug/L	100
10) 1,1-Dichloroethene	1.914	61	19888	2.52	ug/L	88
11) 1,1,2-Trichlorotrifluo...	1.930	151	9890	4.13	ug/L	84
12) Methyl iodide	2.029	142	13938	10.92	ug/L	97
13) Acetone	1.961	43	7431	1.58	ug/L	78
14) Carbon disulfide	2.077	76	42604	3.36	ug/L	94
15) Allyl chloride	2.213	41	24319	2.32	ug/L #	90
16) Methyl acetate	2.218	43	12727	1.70	ug/L #	92
17) Acetonitrile	0.000		0	N.D. d		
18) Methylene chloride	2.328	49	19339	1.89	ug/L	83
19) t-Butanol	2.449	59	4979	7.29	ug/L #	54
20) trans-1,2-Dichloroethene	2.580	61	19155	2.31	ug/L	79
21) Acrylonitrile	2.559	53	6330	1.67	ug/L	76
22) Methyl tert-butyl ether	2.585	73	42414	3.36	ug/L	97
23) Hexane	2.868	57	15898	2.12	ug/L	95
24) 1,1-Dichloroethane	3.047	63	26306	2.53	ug/L	91
25) Diisopropyl ether	3.115	45	48469	2.40	ug/L #	27
26) Vinyl acetate	3.083	86	3380	3.19	ug/L #	40
27) Chloroprene	3.125	53	21398	2.49	ug/L	87
28) Ethyl tert butyl ether	3.581	59	44846	3.76	ug/L	97
29) 2,2-Dichloropropane	3.775	77	21912	4.55	ug/L #	61
30) cis-1,2-Dichloroethene	3.775	61	22839	2.45	ug/L	90
31) 2-Butanone	3.817	43	9492	1.66	ug/L	94
32) Ethyl Acetate	3.901	43	22220m	2.79	ug/L	
33) Methyl acrylate	3.943	55	14422	2.10	ug/L #	91
34) Propionitrile	3.906	54	3617m	2.62	ug/L	
35) Bromochloromethane	4.132	49	11856	2.06	ug/L	85
36) Tetrahydrofuran	4.163	42	7120m	2.87	ug/L	
37) Methacrylonitrile	4.121	67	7802m	2.42	ug/L	
38) Chloroform	4.342	83	23427m	2.45	ug/L	

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY14.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:43:49 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.646	56	23417	2.73	ug/L		96
41)	1,1,1-Trichloroethane	4.551	97	20697	3.51	ug/L		98
43)	Carbon tetrachloride	4.813	119	17979	3.81	ug/L	#	17
44)	1,1-Dichloropropene	4.855	75	18275	2.50	ug/L		93
46)	1,2-Dichloroethane	5.380	62	18830	2.33	ug/L		95
47)	Benzene	5.217	78	54437	2.28	ug/L		94
48)	Isobutyl Alcohol	5.977	43	14069	2.12	ug/L	#	97
49)	Tertiaryamylmethylether	5.610	73	42014	4.10	ug/L	#	68
50)	Heptane	5.977	43	14069	2.12	ug/L		90
51)	Methylcyclohexane	7.078	83	20515	2.78	ug/L		89
52)	Trichloroethene	6.649	130	13922	2.78	ug/L		93
53)	n-Butanol	0.000		0	N.D.	d		
54)	1,2-Dichloropropane	7.204	63	14564	2.36	ug/L		92
55)	Dibromomethane	7.362	93	8156	2.11	ug/L		86
56)	1,4-Dioxane	7.440	88	3872m	37.46	ug/L		
57)	Methyl methacrylate	7.524	41	18043m	2.93	ug/L		
58)	Bromodichloromethane	7.786	83	17885m	2.69	ug/L		
59)	2-Nitropropane	8.206	43	5999m	4.22	ug/L		
60)	2-Chloroethyl vinyl ether	8.384	63	11680	3.75	ug/L		94
61)	cis-1,3-Dichloropropene	8.536	75	23203	3.31	ug/L		88
63)	4-Methyl-2-pentanone	8.840	43	21378	3.16	ug/L	#	89
65)	Toluene	8.992	91	58891	2.64	ug/L		99
66)	Chloropicrin	9.401	117	465	No Calib			
67)	trans-1,3-Dichloropropene	9.422	75	21328	4.24	ug/L		96
68)	Ethyl methacrylate	9.579	69	20364	3.09	ug/L		98
69)	1,1,2-Trichloroethane	9.669	97	12670	2.22	ug/L		96
70)	Tetrachloroethene	9.690	166	13406	2.64	ug/L		94
71)	1,3-Dichloropropane	9.857	76	22283	2.20	ug/L		92
72)	2-Hexanone	10.015	43	13340	2.63	ug/L		87
73)	Chlorodibromomethane	10.114	129	12888	2.63	ug/L		97
74)	Butyl acetate	10.214	43	31116	2.89	ug/L		96
75)	1,2-Dibromoethane	10.209	107	13351	3.00	ug/L		100
76)	Chlorobenzene	10.838	112	36331	2.45	ug/L		93
77)	1,1,1,2-Tetrachloroethane	10.974	131	12618	3.00	ug/L		92
78)	Ethylbenzene	10.990	91	62212	2.67	ug/L		97
79)	m/p-Xylene	11.158	91	95188	5.31	ug/L		100
80)	Styrene	11.614	104	35985	2.51	ug/L		79
81)	o-Xylene	11.582	91	47459	2.57	ug/L		96
82)	Cyclohexanone	12.086	55	2256	6.35	ug/L	#	91
83)	Bromoform	11.787	173	8945	3.00	ug/L		97
84)	Isopropylbenzene	12.012	105	56154	2.67	ug/L		95
86)	Bromobenzene	12.301	77	22743	1.93	ug/L		87
87)	1,1,2,2-Tetrachloroethane	12.395	83	18734	1.90	ug/L		96
88)	1,2,3-Trichloropropane	12.421	110	5590	2.19	ug/L	#	70
89)	trans-1,4-Dichloro-2-b...	12.432	53	6907	2.51	ug/L		61
90)	n-Propylbenzene	12.468	91	62879	2.22	ug/L		97
91)	2-Chlorotoluene	12.468	91	62879	3.52	ug/L		47
92)	4-Chlorotoluene	12.673	91	43108	2.16	ug/L		96
93)	1,3,5-Trimethylbenzene	12.683	105	41697	2.38	ug/L		100
94)	tert-Butylbenzene	12.998	91	23602	2.27	ug/L		95
95)	1,2,4-Trimethylbenzene	13.066	105	39913	2.18	ug/L		99
96)	sec-Butylbenzene	13.239	105	47807	2.13	ug/L		96
98)	1,3-Dichlorobenzene	13.328	146	21433	2.07	ug/L		97
99)	p-Isopropyltoluene	13.417	119	39317	2.50	ug/L		99
100)	1,4-Dichlorobenzene	13.438	146	21722	2.02	ug/L		91

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY14.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:43:49 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

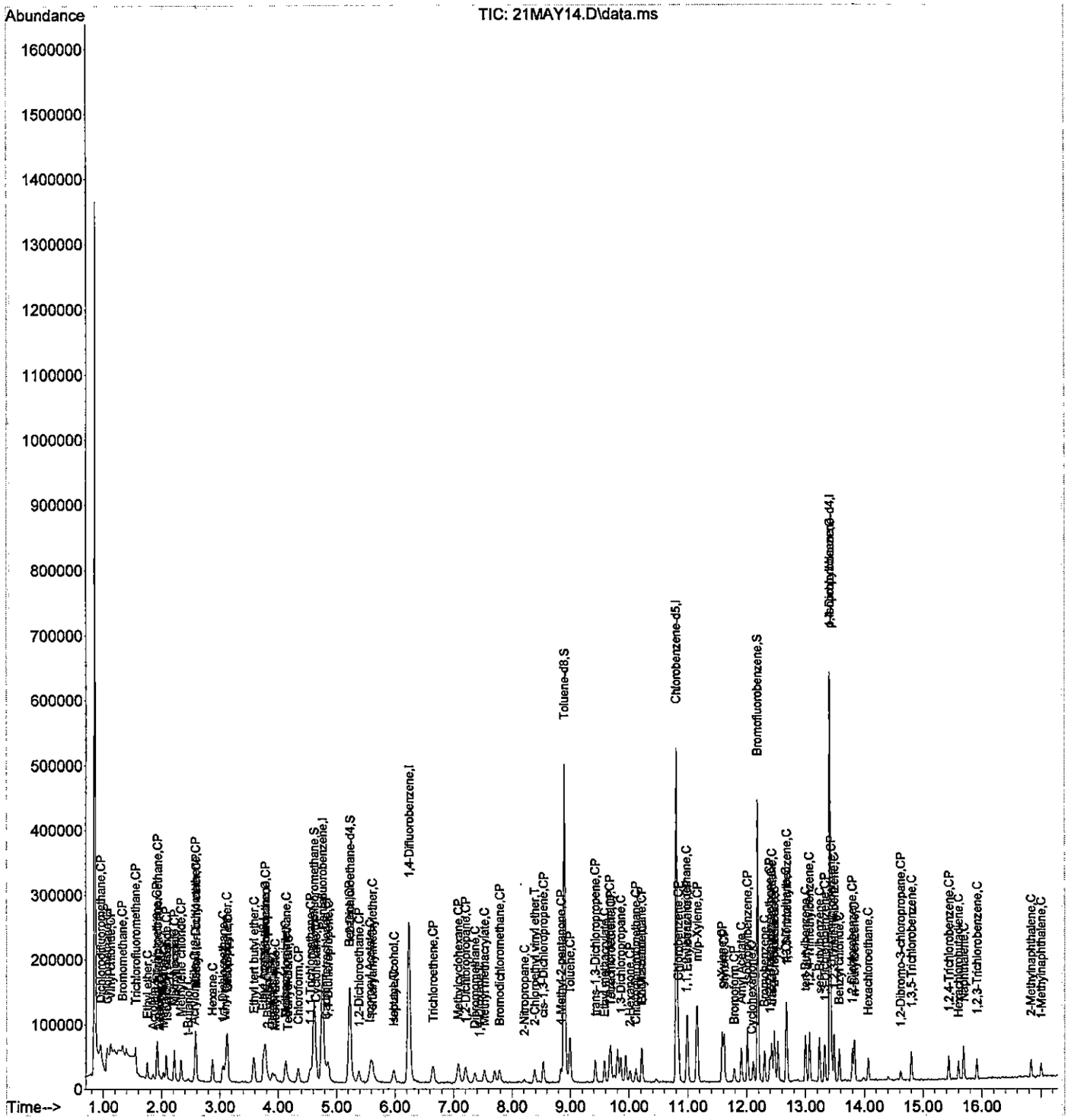
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	40986	2.38	ug/L		99
102) Benzyl chloride	13.575	91	34686	6.52	ug/L		95
103) 1,2-Dichlorobenzene	13.795	146	20268	1.94	ug/L		96
104) n-Butylbenzene	13.832	91	33799	1.97	ug/L		94
105) Hexachloroethane	14.062	117	6889	2.56	ug/L		90
106) 1,2-Dibromo-3-chloropr...	14.618	157	3871	3.39	ug/L		85
107) 1,3,5-Trichlorobenzene	14.802	180	11863	1.69	ug/L		95
108) 1,2,4-Trichlorobenzene	15.436	180	10011	1.50	ug/L		99
109) Hexachlorobutadiene	15.599	225	4820	2.03	ug/L		97
110) Naphthalene	15.688	128	35803	1.89	ug/L		96
111) 1,2,3-Trichlorobenzene	15.913	180	8697	1.30	ug/L		99
112) 2-Methylnaphthalene	16.831	142	10941	1.38	ug/L		97
113) 1-Methylnaphthalene	17.004	142	9374	1.37	ug/L		94
115) 2-Propanone	1.961	43	7431	0.64	ug/L	#	78
116) Isopropyl Alcohol	2.087	45	4443	7.46	ug/L		94
117) Acetic Ether	3.901	43	18168	1.69	ug/L	#	91
118) Isopropyl Acetate	5.568	43	48979	2.73	ug/L	#	92
119) Amyl Acetate	11.907	43	31475	3.69	ug/L		93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY14.D
Acq On : 21 May 2018 05:18 pm
Operator : AK
Sample : 2PPB
Misc :
ALS Vial : 5 Sample Multiplier: 1

Quant Time: May 22 09:43:49 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY15.D
Acq On : 21 May 2018 05:41 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:49:21 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	157170	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.245	114	303800	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	286951	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.418	152	138860	20.00	ug/L	#	0.00
114) Ethyl Acetate-d8	3.754	46	52577	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.620	111	96151	19.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.60%				
45) 1,2-Dichloroethane-d4	5.233	65	118319	17.75	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 88.75%				
64) Toluene-d8	8.898	98	377221	21.14	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.70%				
85) Bromofluorobenzene	12.185	95	149543	19.39	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	32442	4.94	ug/L		97
3) Chloromethane	1.070	50	34409	2.97	ug/L		96
4) Vinyl chloride	1.128	62	30799	4.12	ug/L		99
5) Bromomethane	1.327	94	14898	17.20	ug/L		90
6) Chloroethane	1.395	64	17162	1.21	ug/L		95
7) Trichlorofluoromethane	1.558	101	37128	6.28	ug/L		96
8) Ethyl ether	1.757	59	20627	4.07	ug/L		89
9) Acrolein	1.856	56	11625m	23.83	ug/L		
10) 1,1-Dichloroethene	1.919	61	36041	5.11	ug/L		92
11) 1,1,2-Trichlorotrifluo...	1.935	151	16290	7.60	ug/L		90
12) Methyl iodide	2.035	142	26067	21.98	ug/L		95
13) Acetone	1.972	43	9626	2.77	ug/L		93
14) Carbon disulfide	2.082	76	70753	6.24	ug/L		99
15) Allyl chloride	2.223	41	43017	4.59	ug/L	#	92
16) Methyl acetate	2.223	43	20884	3.11	ug/L		89
17) Acetonitrile	0.000		0	N.D.	d		
18) Methylene chloride	2.339	49	34045	4.02	ug/L		84
19) t-Butanol	2.465	59	8756	14.32	ug/L	#	58
20) trans-1,2-Dichloroethene	2.585	61	34323	4.62	ug/L		83
21) Acrylonitrile	2.570	53	11559	3.41	ug/L		97
22) Methyl tert-butyl ether	2.590	73	72362	6.41	ug/L		94
23) Hexane	2.879	57	29918	4.47	ug/L		95
24) 1,1-Dichloroethane	3.052	63	46548	4.99	ug/L		98
25) Diisopropyl ether	3.125	45	84451	4.68	ug/L	#	67
26) Vinyl acetate	3.089	86	5421	5.72	ug/L	#	75
27) Chloroprene	3.131	53	40210m	5.24	ug/L		
28) Ethyl tert butyl ether	3.592	59	79883	7.49	ug/L		98
29) 2,2-Dichloropropane	3.781	77	36582	8.48	ug/L	#	62
30) cis-1,2-Dichloroethene	3.791	61	39087	4.68	ug/L		92
31) 2-Butanone	3.823	43	14084	3.18	ug/L		92
32) Ethyl Acetate	3.912	43	30561	4.28	ug/L		93
33) Methyl acrylate	3.954	55	26116	4.24	ug/L	#	90
34) Propionitrile	3.912	54	4637m	3.75	ug/L		
35) Bromochloromethane	4.137	49	22021	4.28	ug/L		87
36) Tetrahydrofuran	4.169	42	10603	4.77	ug/L		92
37) Methacrylonitrile	4.132	67	12501	4.33	ug/L		79
38) Chloroform	4.352	83	43654	5.10	ug/L		97

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY15.D
Acq On : 21 May 2018 05:41 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:49:21 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.646	56	42855	5.59 ug/L	98
41) 1,1,1-Trichloroethane	4.557	97	36495	6.62 ug/L	99
43) Carbon tetrachloride	4.819	119	29147	6.61 ug/L #	74
44) 1,1-Dichloropropene	4.866	75	33769	4.95 ug/L	99
46) 1,2-Dichloroethane	5.390	62	31915	4.22 ug/L	96
47) Benzene	5.223	78	94162	4.22 ug/L	97
48) Isobutyl Alcohol	5.988	43	27123	4.37 ug/L #	91
49) Tertiaryamylmethylether	5.621	73	71831	7.49 ug/L #	70
50) Heptane	5.988	43	27123	4.37 ug/L	92
51) Methylcyclohexane	7.089	83	37910	5.50 ug/L	92
52) Trichloroethene	6.654	130	25066	5.36 ug/L	99
53) n-Butanol	0.000		0	N.D. d	
54) 1,2-Dichloropropane	7.215	63	26802	4.65 ug/L	95
55) Dibromomethane	7.367	93	15680	4.35 ug/L	97
56) 1,4-Dioxane	7.440	88	11551m	119.49 ug/L	
57) Methyl methacrylate	7.535	41	28566m	4.97 ug/L	
58) Bromodichloromethane	7.792	83	33173	5.33 ug/L	98
59) 2-Nitropropane	8.211	43	9803	7.38 ug/L	85
60) 2-Chloroethyl vinyl ether	8.389	63	20449	7.01 ug/L	96
61) cis-1,3-Dichloropropene	8.541	75	41315	6.30 ug/L	92
63) 4-Methyl-2-pentanone	8.840	43	34931	5.69 ug/L #	86
65) Toluene	8.998	91	104408	5.17 ug/L	100
66) Chloropicrin	9.386	117	26358	No Calib	
67) trans-1,3-Dichloropropene	9.428	75	38562	8.16 ug/L	91
68) Ethyl methacrylate	9.585	69	39395	6.36 ug/L	97
69) 1,1,2-Trichloroethane	9.674	97	22774	4.41 ug/L	97
70) Tetrachloroethene	9.690	166	25912	5.62 ug/L	97
71) 1,3-Dichloropropane	9.857	76	39350	4.29 ug/L	97
72) 2-Hexanone	10.015	43	23212	5.06 ug/L	94
73) Chlorodibromomethane	10.114	129	24939	5.62 ug/L	97
74) Butyl acetate	10.219	43	52731	5.13 ug/L	92
75) 1,2-Dibromoethane	10.214	107	23323	5.79 ug/L	98
76) Chlorobenzene	10.838	112	66436	4.94 ug/L	98
77) 1,1,1,2-Tetrachloroethane	10.979	131	22399	5.88 ug/L	99
78) Ethylbenzene	10.995	91	114967	5.44 ug/L	98
79) m/p-Xylene	11.158	91	178410	10.97 ug/L	97
80) Styrene	11.614	104	71426	5.50 ug/L	83
81) o-Xylene	11.582	91	90205	5.39 ug/L	97
82) Cyclohexanone	12.081	55	4855m	15.08 ug/L	
83) Bromoform	11.787	173	17250	6.39 ug/L	98
84) Isopropylbenzene	12.012	105	107558	5.64 ug/L	98
86) Bromobenzene	12.306	77	45788	4.28 ug/L	88
87) 1,1,2,2-Tetrachloroethane	12.395	83	33291	3.73 ug/L	98
88) 1,2,3-Trichloropropane	12.421	110	10076	4.35 ug/L #	73
89) trans-1,4-Dichloro-2-b...	12.432	53	10677	4.28 ug/L #	49
90) n-Propylbenzene	12.469	91	125499	4.90 ug/L	100
91) 2-Chlorotoluene	12.469	91	125499	7.76 ug/L	47
92) 4-Chlorotoluene	12.673	91	85753	4.73 ug/L	99
93) 1,3,5-Trimethylbenzene	12.683	105	80632	5.07 ug/L	99
94) tert-Butylbenzene	13.003	91	42350	4.49 ug/L	91
95) 1,2,4-Trimethylbenzene	13.066	105	79911	4.82 ug/L	98
96) sec-Butylbenzene	13.239	105	93447	4.59 ug/L	100
98) 1,3-Dichlorobenzene	13.328	146	42646	4.27 ug/L	98
99) p-Isopropyltoluene	13.418	119	74836	4.93 ug/L	98
100) 1,4-Dichlorobenzene	13.438	146	43078	4.14 ug/L	95

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY15.D
Acq On : 21 May 2018 05:41 pm
Operator : AK
Sample : 4PPB
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 22 09:49:21 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	81212	4.89	ug/L		100
102) Benzyl chloride	13.575	91	60987	11.53	ug/L		95
103) 1,2-Dichlorobenzene	13.800	146	37448	3.72	ug/L		99
104) n-Butylbenzene	13.832	91	65209	3.95	ug/L		98
105) Hexachloroethane	14.068	117	12471	4.81	ug/L		90
106) 1,2-Dibromo-3-chloropr...	14.618	157	7192	6.54	ug/L		84
107) 1,3,5-Trichlorobenzene	14.802	180	22648	3.35	ug/L		97
108) 1,2,4-Trichlorobenzene	15.436	180	19339	3.01	ug/L		100
109) Hexachlorobutadiene	15.604	225	8453	3.69	ug/L		95
110) Naphthalene	15.688	128	66538	3.65	ug/L		99
111) 1,2,3-Trichlorobenzene	15.913	180	15756	2.44	ug/L		97
112) 2-Methylnaphthalene	16.836	142	22651	2.64	ug/L		98
113) 1-Methylnaphthalene	17.004	142	16513	2.14	ug/L		93
115) 2-Propanone	1.972	43	9626	1.53	ug/L		93
116) Isopropyl Alcohol	2.098	45	16591m	25.81	ug/L		
117) Acetic Ether	3.912	43	36947m	3.82	ug/L		
118) Isopropyl Acetate	5.584	43	81485	5.04	ug/L	#	92
119) Amyl Acetate	11.907	43	54513	5.40	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY15.D
Acq On : 21 May 2018 05:41 pm
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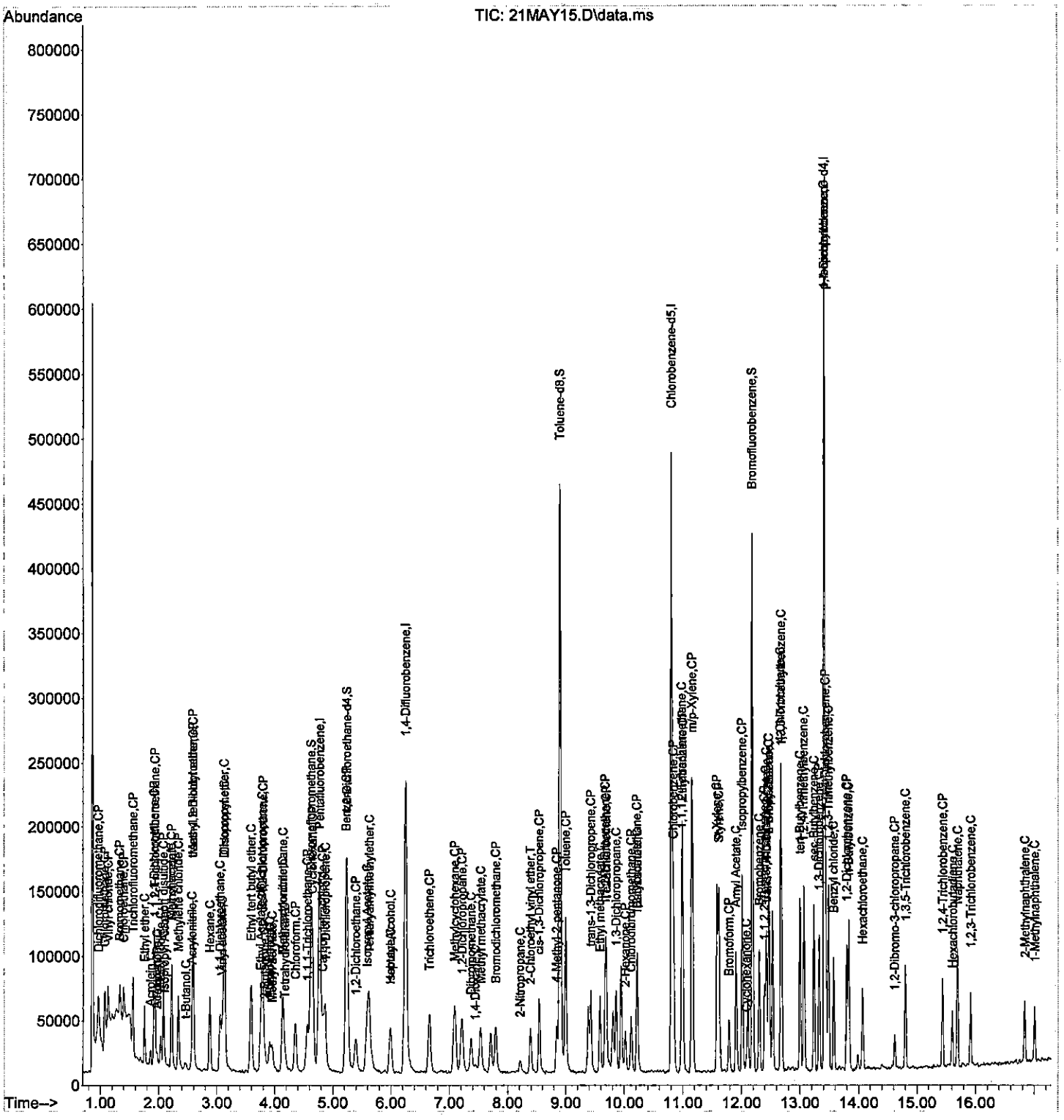
Quant Time: May 22 09:49:21 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY16.D
Acq On : 21 May 2018 06:03 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:57:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.772	168	157558	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.245	114	300815	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	290376	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	138736	20.00	ug/L		0.00
114) Ethyl Acetate-d8	3.754	46	53054	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	96212	19.33	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.65%				
45) 1,2-Dichloroethane-d4	5.233	65	110839	16.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 83.95%				
64) Toluene-d8	8.898	98	373880	20.70	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.50%				
85) Bromofluorobenzene	12.185	95	150400	19.27	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 96.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	83891	12.74	ug/L		99
3) Chloromethane	1.070	50	92051	8.55	ug/L		98
4) Vinyl chloride	1.128	62	82770	11.03	ug/L		99
5) Bromomethane	1.332	94	40878	48.07	ug/L		97
6) Chloroethane	1.395	64	49186	8.91	ug/L		98
7) Trichlorofluoromethane	1.558	101	103245	17.42	ug/L		98
8) Ethyl ether	1.757	59	55749	10.98	ug/L		99
9) Acrolein	1.856	56	22893	51.72	ug/L		98
10) 1,1-Dichloroethene	1.919	61	93792	13.25	ug/L		88
11) 1,1,2-Trichlorotrifluo...	1.935	151	43348	20.19	ug/L		87
12) Methyl iodide	2.035	142	69439	50.67	ug/L		97
13) Acetone	1.972	43	24023m	8.50	ug/L		
14) Carbon disulfide	2.082	76	183527	16.15	ug/L		100
15) Allyl chloride	2.223	41	111637	11.88	ug/L		92
16) Methyl acetate	2.223	43	55481	8.24	ug/L		93
17) Acetonitrile	0.000		0	N.D.	d		
18) Methylene chloride	2.339	49	82577	10.16	ug/L		82
19) t-Butanol	2.459	59	20360	33.21	ug/L	#	59
20) trans-1,2-Dichloroethene	2.585	61	89118	11.97	ug/L		88
21) Acrylonitrile	2.564	53	28851	8.48	ug/L		92
22) Methyl tert-butyl ether	2.590	73	180493	15.95	ug/L		94
23) Hexane	2.879	57	77387	11.52	ug/L		94
24) 1,1-Dichloroethane	3.057	63	118861	12.72	ug/L		99
25) Diisopropyl ether	3.125	45	216573	11.97	ug/L	#	50
26) Vinyl acetate	3.094	86	15783	16.61	ug/L	#	55
27) Chloroprene	3.136	53	101484	13.19	ug/L		93
28) Ethyl tert butyl ether	3.592	59	201192	18.82	ug/L		97
29) 2,2-Dichloropropane	3.786	77	97052	22.45	ug/L	#	61
30) cis-1,2-Dichloroethene	3.791	61	103538	12.38	ug/L		99
31) 2-Butanone	3.823	43	31422	7.87	ug/L		89
32) Ethyl Acetate	3.906	43	77236	10.79	ug/L		99
33) Methyl acrylate	3.954	55	71637	11.61	ug/L		98
34) Propionitrile	3.912	54	11186	9.01	ug/L	#	90
35) Bromochloromethane	4.142	49	55298	10.73	ug/L		86
36) Tetrahydrofuran	4.169	42	25612	11.51	ug/L		95
37) Methacrylonitrile	4.132	67	32060	11.07	ug/L		73
38) Chloroform	4.352	83	107575	12.54	ug/L		99

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY16.D
Acq On : 21 May 2018 06:03 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:57:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.651	56	113969	14.82 ug/L	98
41) 1,1,1-Trichloroethane	4.562	97	91907	16.84 ug/L	100
43) Carbon tetrachloride	4.824	119	79586	18.23 ug/L	98
44) 1,1-Dichloropropene	4.866	75	85650	12.67 ug/L	94
46) 1,2-Dichloroethane	5.390	62	82427	11.00 ug/L	97
47) Benzene	5.228	78	251763	11.39 ug/L	99
48) Isobutyl Alcohol	5.988	43	65536	10.66 ug/L #	92
49) Tertiaryamylmethylether	5.616	73	185479	19.54 ug/L #	70
50) Heptane	5.988	43	65536	10.66 ug/L	95
51) Methylcyclohexane	7.089	83	96116	14.09 ug/L	95
52) Trichloroethene	6.659	130	64918	14.01 ug/L	94
53) n-Butanol	6.843	56	7199m	50.11 ug/L	
54) 1,2-Dichloropropane	7.215	63	66701	11.68 ug/L	96
55) Dibromomethane	7.367	93	39552	11.07 ug/L	98
56) 1,4-Dioxane	7.446	88	19046m	198.97 ug/L	
57) Methyl methacrylate	7.529	41	69939	12.29 ug/L	96
58) Bromodichloromethane	7.797	83	84709	13.75 ug/L	99
59) 2-Nitropropane	8.211	43	24966	18.97 ug/L	84
60) 2-Chloroethyl vinyl ether	8.389	63	51174	17.73 ug/L	97
61) cis-1,3-Dichloropropene	8.541	75	107733	16.60 ug/L	100
63) 4-Methyl-2-pentanone	8.845	43	85861	13.82 ug/L	96
65) Toluene	8.997	91	270765	13.25 ug/L	99
66) Chloropicrin	9.385	117	159913	No Calib	
67) trans-1,3-Dichloropropene	9.427	75	99865	19.48 ug/L	89
68) Ethyl methacrylate	9.585	69	100150	15.25 ug/L	96
69) 1,1,2-Trichloroethane	9.674	97	58003	11.10 ug/L	94
70) Tetrachloroethene	9.690	166	66784	14.32 ug/L	98
71) 1,3-Dichloropropane	9.857	76	104858	11.30 ug/L	100
72) 2-Hexanone	10.015	43	59475	12.81 ug/L	94
73) Chlorodibromomethane	10.120	129	64037	14.26 ug/L	98
74) Butyl acetate	10.219	43	133102	12.31 ug/L	96
75) 1,2-Dibromoethane	10.214	107	60580	14.86 ug/L	97
76) Chlorobenzene	10.838	112	168684	12.40 ug/L	99
77) 1,1,1,2-Tetrachloroethane	10.979	131	58947	15.29 ug/L	97
78) Ethylbenzene	10.995	91	306528	14.35 ug/L	99
79) m/p-Xylene	11.158	91	475396	28.89 ug/L	98
80) Styrene	11.614	104	186672	14.22 ug/L	88
81) o-Xylene	11.582	91	237634	14.02 ug/L	99
82) Cyclohexanone	12.080	55	9394	28.84 ug/L #	90
83) Bromoform	11.787	173	44238	16.19 ug/L	99
84) Isopropylbenzene	12.012	105	278583	14.44 ug/L	98
86) Bromobenzene	12.306	77	114135	10.55 ug/L	89
87) 1,1,2,2-Tetrachloroethane	12.395	83	90143	9.98 ug/L	98
88) 1,2,3-Trichloropropane	12.426	110	26280	11.20 ug/L	80
89) trans-1,4-Dichloro-2-b...	12.432	53	29656	11.74 ug/L	55
90) n-Propylbenzene	12.468	91	327232	12.62 ug/L	98
91) 2-Chlorotoluene	12.468	91	327232	20.00 ug/L	47
92) 4-Chlorotoluene	12.673	91	218985	11.94 ug/L	96
93) 1,3,5-Trimethylbenzene	12.683	105	207340	12.88 ug/L	97
94) tert-Butylbenzene	13.003	91	112870	11.83 ug/L	93
95) 1,2,4-Trimethylbenzene	13.066	105	213208	12.72 ug/L	100
96) sec-Butylbenzene	13.239	105	235685	11.43 ug/L	97
98) 1,3-Dichlorobenzene	13.328	146	110691	11.08 ug/L	99
99) p-Isopropyltoluene	13.417	119	195791	12.90 ug/L	99
100) 1,4-Dichlorobenzene	13.444	146	110554	10.65 ug/L	96

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY16.D
Acq On : 21 May 2018 06:03 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:57:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

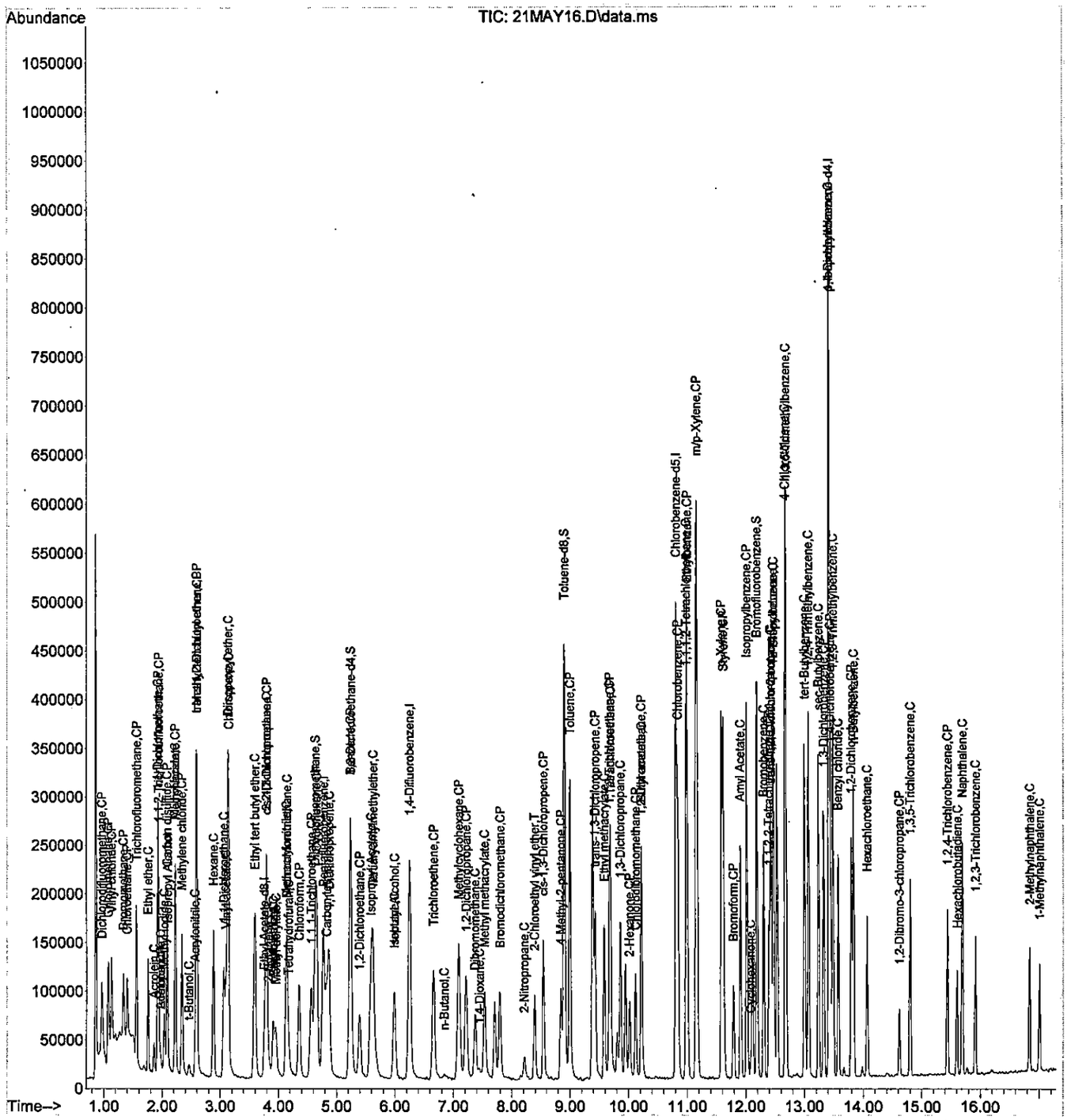
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	211489	12.74	ug/L		99
102) Benzyl chloride	13.575	91	162652	27.74	ug/L		95
103) 1,2-Dichlorobenzene	13.800	146	98599	9.80	ug/L		98
104) n-Butylbenzene	13.837	91	170753	10.36	ug/L		98
105) Hexachloroethane	14.068	117	34470	13.31	ug/L		94
106) 1,2-Dibromo-3-chloropr...	14.618	157	18408	16.75	ug/L		89
107) 1,3,5-Trichlorobenzene	14.802	180	59520	8.81	ug/L		98
108) 1,2,4-Trichlorobenzene	15.436	180	49655	7.74	ug/L		99
109) Hexachlorobutadiene	15.604	225	21115	9.23	ug/L		99
110) Naphthalene	15.688	128	180681	9.92	ug/L		99
111) 1,2,3-Trichlorobenzene	15.913	180	40974	6.35	ug/L		99
112) 2-Methylnaphthalene	16.836	142	58539	6.31	ug/L		99
113) 1-Methylnaphthalene	17.004	142	47763	5.36	ug/L		97
115) 2-Propanone	1.972	43	24023m	5.83	ug/L		
116) Isopropyl Alcohol	2.092	45	31302	46.85	ug/L	#	81
117) Acetic Ether	3.906	43	77236	7.91	ug/L		98
118) Isopropyl Acetate	5.584	43	210874	12.92	ug/L	#	90
119) Amyl Acetate	11.907	43	140756	10.97	ug/L	#	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY16.D
Acq On : 21 May 2018 06:03 pm
Operator : AK
Sample : 10PPB
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 22 08:57:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY17.D
Acq On : 21 May 2018 06:26 pm
Operator : AK
Sample : 20PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:00:44 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.771	168	155429	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.250	114	301810	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	291140	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	138959	20.00	ug/L		0.00
114) Ethyl Acetate-d8	3.754	46	54930	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	94974	19.02	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.10%				
45) 1,2-Dichloroethane-d4	5.238	65	112456	16.98	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 84.90%				
64) Toluene-d8	8.903	98	375505	20.74	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.70%				
85) Bromofluorobenzene	12.190	95	150128	19.18	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.90%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	170979	26.33	ug/L		99
3) Chloromethane	1.070	50	184896	17.78	ug/L		100
4) Vinyl chloride	1.127	62	168063	22.71	ug/L		99
5) Bromomethane	1.332	94	80644	96.71	ug/L		98
6) Chloroethane	1.395	64	95381	20.36	ug/L		97
7) Trichlorofluoromethane	1.557	101	206765	35.36	ug/L		98
8) Ethyl ether	1.757	59	101465	20.26	ug/L		94
9) Acrolein	1.856	56	48891	110.78	ug/L		93
10) 1,1-Dichloroethene	1.919	61	174194	24.95	ug/L		88
11) 1,1,2-Trichlorotrifluo...	1.935	151	85734	40.47	ug/L		88
12) Methyl iodide	2.035	142	147064	90.73	ug/L		97
13) Acetone	1.972	43	39849	15.02	ug/L		97
14) Carbon disulfide	2.082	76	351934	31.40	ug/L		100
15) Allyl chloride	2.223	41	213659	23.05	ug/L	#	92
16) Methyl acetate	2.223	43	116716	17.57	ug/L		95
17) Acetonitrile	2.092	41	4172	2.18	ug/L	#	1
18) Methylene chloride	2.339	49	157767	19.97	ug/L		84
19) t-Butanol	2.459	59	36919	61.05	ug/L	#	60
20) trans-1,2-Dichloroethene	2.585	61	166801	22.70	ug/L		85
21) Acrylonitrile	2.564	53	55609	16.57	ug/L		97
22) Methyl tert-butyl ether	2.590	73	375331	33.63	ug/L		94
23) Hexane	2.879	57	149094	22.51	ug/L		94
24) 1,1-Dichloroethane	3.057	63	217624	23.61	ug/L		98
25) Diisopropyl ether	3.125	45	442960	24.82	ug/L	#	49
26) Vinyl acetate	3.088	86	29045	30.99	ug/L	#	23
27) Chloroprene	3.136	53	194877	25.67	ug/L		92
28) Ethyl tert butyl ether	3.592	59	410275	38.91	ug/L		97
29) 2,2-Dichloropropane	3.786	77	179196	42.02	ug/L	#	62
30) cis-1,2-Dichloroethene	3.791	61	193764	23.48	ug/L		98
31) 2-Butanone	3.817	43	64867	17.18	ug/L		94
32) Ethyl Acetate	3.906	43	183877m	26.05	ug/L		
33) Methyl acrylate	3.954	55	136189	22.37	ug/L		97
34) Propionitrile	3.912	54	16567	13.53	ug/L	#	86
35) Bromochloromethane	4.142	49	105006	20.65	ug/L		87
36) Tetrahydrofuran	4.163	42	45893	20.90	ug/L		97
37) Methacrylonitrile	4.132	67	61882	21.67	ug/L		78
38) Chloroform	4.352	83	205727	24.30	ug/L		98

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY17.D
Acq On : 21 May 2018 06:26 pm
Operator : AK
Sample : 20PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:00:44 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.651	56	213098	28.10	ug/L		97
41)	1,1,1-Trichloroethane	4.562	97	178339	32.57	ug/L		99
43)	Carbon tetrachloride	4.824	119	152955	34.91	ug/L		97
44)	1,1-Dichloropropene	4.866	75	166809	24.60	ug/L		97
46)	1,2-Dichloroethane	5.395	62	153900	20.46	ug/L		99
47)	Benzene	5.228	78	479903	21.63	ug/L		99
48)	Isobutyl Alcohol	5.988	43	123865	20.09	ug/L	#	92
49)	Tertiaryamylmethylether	5.616	73	384558	40.38	ug/L	#	68
50)	Heptane	5.988	43	123865	20.09	ug/L		95
51)	Methylcyclohexane	7.094	83	187451	27.38	ug/L		95
52)	Trichloroethene	6.659	130	125567	27.00	ug/L		92
53)	n-Butanol	6.842	56	14659m	94.98	ug/L		
54)	1,2-Dichloropropane	7.215	63	127244	22.20	ug/L		98
55)	Dibromomethane	7.372	93	74238	20.71	ug/L		98
56)	1,4-Dioxane	7.435	88	48035m	500.16	ug/L		
57)	Methyl methacrylate	7.529	41	133853	23.43	ug/L		96
58)	Bromodichloromethane	7.797	83	164088	26.54	ug/L		99
59)	2-Nitropropane	8.211	43	44103	33.41	ug/L		89
60)	2-Chloroethyl vinyl ether	8.389	63	95396	32.94	ug/L		98
61)	cis-1,3-Dichloropropene	8.546	75	203113	31.20	ug/L		98
63)	4-Methyl-2-pentanone	8.840	43	174136	27.96	ug/L		97
65)	Toluene	8.997	91	518546	25.30	ug/L		99
66)	Chloropicrin	9.385	117	452769	No Calib			
67)	trans-1,3-Dichloropropene	9.427	75	192162	34.58	ug/L		99
68)	Ethyl methacrylate	9.585	69	188357	27.24	ug/L		98
69)	1,1,2-Trichloroethane	9.674	97	110220	21.04	ug/L		92
70)	Tetrachloroethene	9.689	166	127764	27.32	ug/L		97
71)	1,3-Dichloropropane	9.863	76	198604	21.35	ug/L		98
72)	2-Hexanone	10.015	43	124034	26.64	ug/L		97
73)	Chlorodibromomethane	10.119	129	124343	27.62	ug/L		99
74)	Butyl acetate	10.219	43	273690	24.90	ug/L		95
75)	1,2-Dibromoethane	10.214	107	110063	26.93	ug/L		98
76)	Chlorobenzene	10.838	112	326706	23.95	ug/L		97
77)	1,1,1,2-Tetrachloroethane	10.979	131	114779	29.69	ug/L		97
78)	Ethylbenzene	10.995	91	590630	27.57	ug/L		98
79)	m/p-Xylene	11.158	91	908443	55.06	ug/L		98
80)	Styrene	11.619	104	358110	27.20	ug/L		86
81)	o-Xylene	11.582	91	457105	26.90	ug/L		99
82)	Cyclohexanone	12.080	55	18649	57.10	ug/L	#	95
83)	Bromoform	11.792	173	86664	31.63	ug/L		99
84)	Isopropylbenzene	12.012	105	528918	27.34	ug/L		98
86)	Bromobenzene	12.306	77	219509	20.23	ug/L		89
87)	1,1,2,2-Tetrachloroethane	12.395	83	166724	18.41	ug/L		99
88)	1,2,3-Trichloropropane	12.426	110	52066	22.14	ug/L		82
89)	trans-1,4-Dichloro-2-b...	12.432	53	58595	23.14	ug/L		58
90)	n-Propylbenzene	12.468	91	632309	24.33	ug/L		98
91)	2-Chlorotoluene	12.468	91	632309	38.54	ug/L		47
92)	4-Chlorotoluene	12.673	91	426629	23.21	ug/L		98
93)	1,3,5-Trimethylbenzene	12.683	105	403149	24.97	ug/L		99
94)	tert-Butylbenzene	13.003	91	214367	22.42	ug/L		94
95)	1,2,4-Trimethylbenzene	13.071	105	401510	23.88	ug/L		99
96)	sec-Butylbenzene	13.239	105	454350	21.99	ug/L		99
98)	1,3-Dichlorobenzene	13.328	146	210206	21.01	ug/L		98
99)	p-Isopropyltoluene	13.417	119	376079	24.74	ug/L		99
100)	1,4-Dichlorobenzene	13.444	146	220727	21.22	ug/L		99

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY17.D
Acq On : 21 May 2018 06:26 pm
Operator : AK
Sample : 20PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

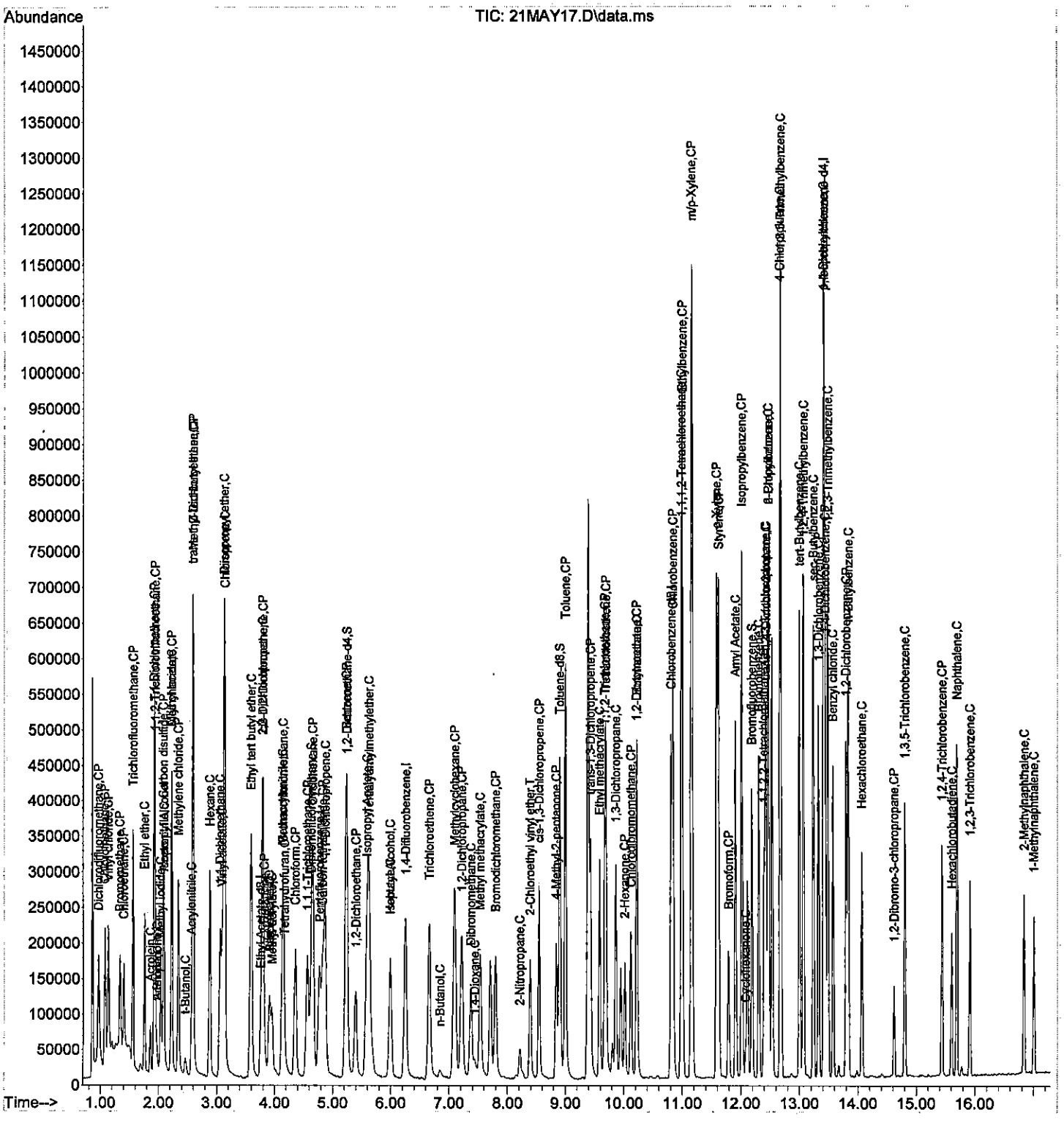
Quant Time: May 22 09:00:44 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	406916	24.47	ug/L		99
102) Benzyl chloride	13.575	91	312127	47.35	ug/L		95
103) 1,2-Dichlorobenzene	13.800	146	189757	18.84	ug/L		98
104) n-Butylbenzene	13.837	91	327259	19.82	ug/L		97
105) Hexachloroethane	14.067	117	66918	25.79	ug/L		93
106) 1,2-Dibromo-3-chloropr...	14.618	157	34137	31.02	ug/L		91
107) 1,3,5-Trichlorobenzene	14.802	180	112207	16.59	ug/L		98
108) 1,2,4-Trichlorobenzene	15.436	180	95322	14.83	ug/L		99
109) Hexachlorobutadiene	15.604	225	40159	17.52	ug/L		98
110) Naphthalene	15.688	128	350563	19.21	ug/L		100
111) 1,2,3-Trichlorobenzene	15.913	180	80998	12.54	ug/L		99
112) 2-Methylnaphthalene	16.836	142	116657	12.03	ug/L		100
113) 1-Methylnaphthalene	17.004	142	94701	10.10	ug/L		96
115) 2-Propanone	1.972	43	39849	10.18	ug/L		97
116) Isopropyl Alcohol	2.092	45	62447	88.77	ug/L	#	81
117) Acetic Ether	3.906	43	158039	15.64	ug/L		99
118) Isopropyl Acetate	5.584	43	428891	25.38	ug/L	#	92
119) Amyl Acetate	11.907	43	288360	19.91	ug/L	#	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY17.D
Acq On : 21 May 2018 06:26 pm
Operator : AK
Sample : 20PPB
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 22 09:00:44 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY18.D
Acq On : 21 May 2018 06:48 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:02:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	154624	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.245	114	300207	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	287352	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.418	152	139737	20.00	ug/L		0.00
114) Ethyl Acetate-d8	3.754	46	53414	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.620	111	96419	19.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.05%				
45) 1,2-Dichloroethane-d4	5.238	65	110607	16.79	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 83.95%				
64) Toluene-d8	8.903	98	369651	20.69	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 103.45%				
85) Bromofluorobenzene	12.185	95	146226	18.93	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 94.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	304794	47.18	ug/L		100
3) Chloromethane	1.070	50	338651	33.05	ug/L		98
4) Vinyl chloride	1.128	62	307385	41.75	ug/L		99
5) Bromomethane	1.327	94	158896	192.11	ug/L		96
6) Chloroethane	1.395	64	178503	40.88	ug/L		97
7) Trichlorofluoromethane	1.552	101	377589	64.92	ug/L		98
8) Ethyl ether	1.757	59	201719	40.48	ug/L		94
9) Acrolein	1.856	56	146521	282.59	ug/L		98
10) 1,1-Dichloroethene	1.919	61	348337	50.16	ug/L		90
11) 1,1,2-Trichlorotrifluo...	1.935	151	165064	78.32	ug/L		88
12) Methyl iodide	2.035	142	298006	148.64	ug/L		96
13) Acetone	1.967	43	84357	33.18	ug/L		94
14) Carbon disulfide	2.082	76	699537	62.73	ug/L		99
15) Allyl chloride	2.218	41	427991	46.41	ug/L	#	92
16) Methyl acetate	2.224	43	237448	35.94	ug/L		96
17) Acetonitrile	2.092	41	11523	6.96	ug/L	#	1
18) Methylene chloride	2.339	49	313703	40.22	ug/L		83
19) t-Butanol	2.459	59	105767	175.82	ug/L	#	61
20) trans-1,2-Dichloroethene	2.585	61	340734	46.62	ug/L		87
21) Acrylonitrile	2.564	53	116105	34.77	ug/L		96
22) Methyl tert-butyl ether	2.591	73	753237	67.83	ug/L		93
23) Hexane	2.879	57	290097	44.02	ug/L		94
24) 1,1-Dichloroethane	3.057	63	439885	47.97	ug/L		98
25) Diisopropyl ether	3.125	45	875967	49.33	ug/L	#	68
26) Vinyl acetate	3.089	86	54314	58.25	ug/L	#	81
27) Chloroprene	3.136	53	386072	51.11	ug/L		94
28) Ethyl tert butyl ether	3.592	59	818963	78.07	ug/L		97
29) 2,2-Dichloropropane	3.786	77	359387	84.70	ug/L	#	62
30) cis-1,2-Dichloroethene	3.791	61	385147	46.92	ug/L		100
31) 2-Butanone	3.817	43	140094	38.07	ug/L		97
32) Ethyl Acetate	3.907	43	320303	45.61	ug/L		99
33) Methyl acrylate	3.948	55	277339	45.79	ug/L		98
34) Propionitrile	3.912	54	40019	32.86	ug/L	#	86
35) Bromochloromethane	4.137	49	210404	41.60	ug/L		87
36) Tetrahydrofuran	4.163	42	97709	44.72	ug/L		99
37) Methacrylonitrile	4.127	67	126929	44.68	ug/L		77
38) Chloroform	4.352	83	406674	48.29	ug/L		99

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY18.D
Acq On : 21 May 2018 06:48 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:02:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	4.651	56	427189	56.62 ug/L	97
41) 1,1,1-Trichloroethane	4.562	97	358582	65.83 ug/L	99
43) Carbon tetrachloride	4.819	119	296975	68.15 ug/L	97
44) 1,1-Dichloropropene	4.866	75	328408	48.68 ug/L	96
46) 1,2-Dichloroethane	5.390	62	317280	42.42 ug/L	99
47) Benzene	5.228	78	961727	43.59 ug/L	99
48) Isobutyl Alcohol	5.988	43	247003	40.27 ug/L #	92
49) Tertiaryamylmethylether	5.616	73	762172	80.45 ug/L #	70
50) Heptane	5.988	43	247003	40.27 ug/L	96
51) Methylcyclohexane	7.089	83	369797	54.30 ug/L	95
52) Trichloroethene	6.659	130	247953	53.61 ug/L	93
53) n-Butanol	6.837	56	41232	256.62 ug/L	88
54) 1,2-Dichloropropane	7.215	63	251022	44.03 ug/L	96
55) Dibromomethane	7.372	93	148942	41.77 ug/L	99
56) 1,4-Dioxane	7.435	88	119465m	1250.57 ug/L	
57) Methyl methacrylate	7.530	41	271950	47.87 ug/L	97
58) Bromodichloromethane	7.797	83	327204	53.21 ug/L	98
59) 2-Nitropropane	8.211	43	90127	68.63 ug/L	89
60) 2-Chloroethyl vinyl ether	8.389	63	192516	66.83 ug/L	98
61) cis-1,3-Dichloropropene	8.541	75	411448	63.53 ug/L	98
63) 4-Methyl-2-pentanone	8.840	43	356121	57.93 ug/L	99
65) Toluene	8.998	91	1050453	51.93 ug/L	99
66) Chloropicrin	9.386	117	1214246	No Calib	
67) trans-1,3-Dichloropropene	9.428	75	395326	63.25 ug/L	100
68) Ethyl methacrylate	9.585	69	382300	51.36 ug/L	98
69) 1,1,2-Trichloroethane	9.674	97	223801	43.28 ug/L	92
70) Tetrachloroethene	9.690	166	260106	56.35 ug/L	97
71) 1,3-Dichloropropane	9.863	76	397399	43.28 ug/L	100
72) 2-Hexanone	10.015	43	253835	55.23 ug/L	99
73) Chlorodibromomethane	10.120	129	256402	57.70 ug/L	99
74) Butyl acetate	10.219	43	558638	51.15 ug/L	95
75) 1,2-Dibromoethane	10.214	107	210098	52.09 ug/L	99
76) Chlorobenzene	10.838	112	657136	48.80 ug/L	97
77) 1,1,1,2-Tetrachloroethane	10.979	131	231411	60.65 ug/L	97
78) Ethylbenzene	10.995	91	1191144	56.33 ug/L	98
79) m/p-Xylene	11.158	91	1824534	112.05 ug/L	98
80) Styrene	11.619	104	724899	55.79 ug/L	86
81) o-Xylene	11.582	91	916087	54.61 ug/L	98
82) Cyclohexanone	12.081	55	54048	167.66 ug/L	95
83) Bromoform	11.787	173	181168	67.00 ug/L	99
84) Isopropylbenzene	12.012	105	1071287	56.11 ug/L	98
86) Bromobenzene	12.306	77	448301	41.86 ug/L	89
87) 1,1,2,2-Tetrachloroethane	12.395	83	334963	37.48 ug/L	99
88) 1,2,3-Trichloropropane	12.427	110	101840	43.87 ug/L	82
89) trans-1,4-Dichloro-2-b...	12.432	53	115510	46.22 ug/L #	51
90) n-Propylbenzene	12.469	91	1289771	50.27 ug/L	98
91) 2-Chlorotoluene	12.469	91	1289771	79.65 ug/L	47
92) 4-Chlorotoluene	12.673	91	876026	48.28 ug/L	98
93) 1,3,5-Trimethylbenzene	12.684	105	817497	51.31 ug/L	98
94) tert-Butylbenzene	13.003	91	446066	47.26 ug/L	94
95) 1,2,4-Trimethylbenzene	13.066	105	832699	50.18 ug/L	99
96) sec-Butylbenzene	13.239	105	933590	45.77 ug/L	98
98) 1,3-Dichlorobenzene	13.328	146	442106	43.94 ug/L	99
99) p-Isopropyltoluene	13.418	119	773977	50.63 ug/L	99
100) 1,4-Dichlorobenzene	13.444	146	446003	42.64 ug/L	100

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY18.D
Acq On : 21 May 2018 06:48 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

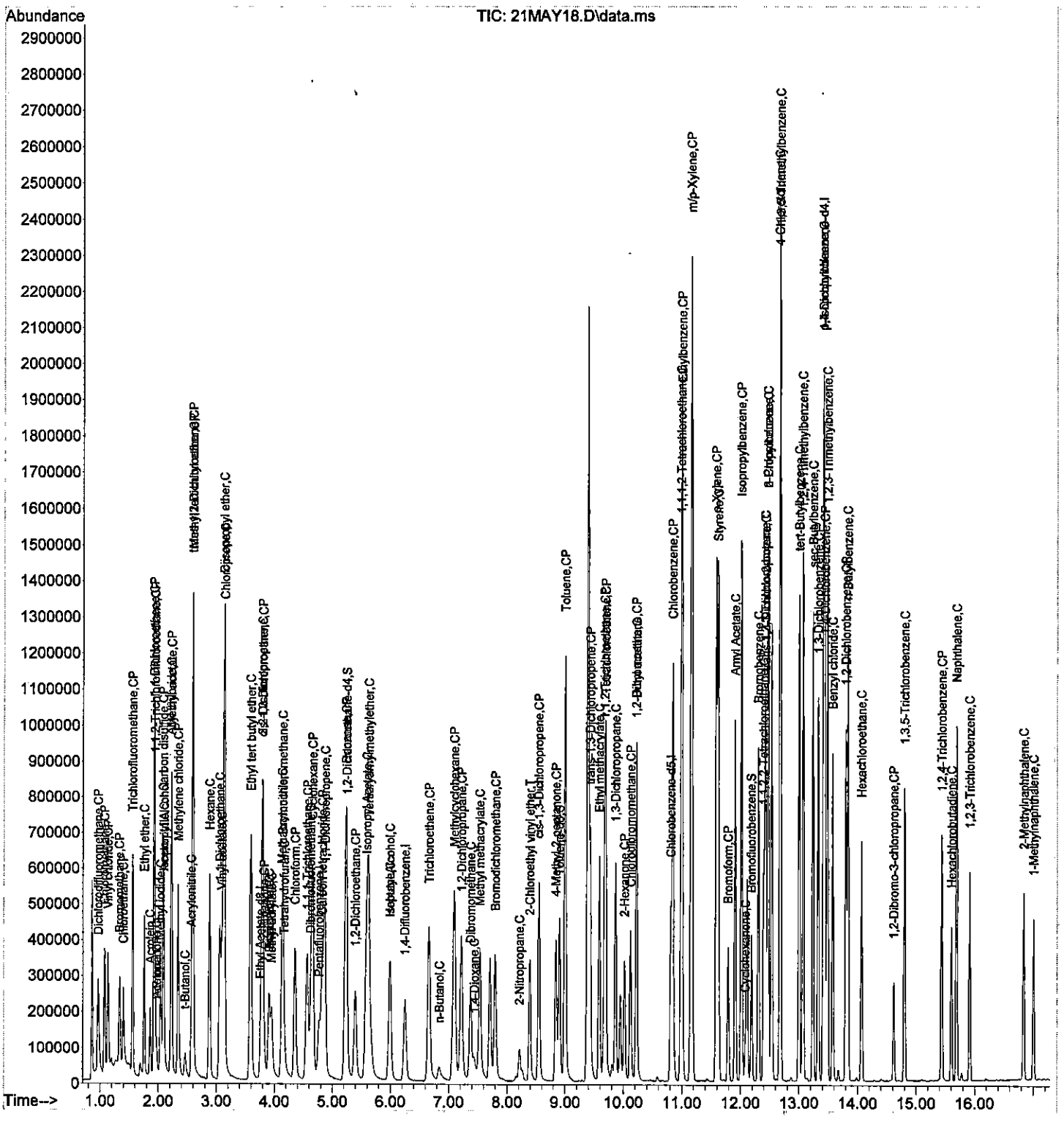
Quant Time: May 22 09:02:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	842665	50.40	ug/L		100
102) Benzyl chloride	13.575	91	649832	82.08	ug/L		96
103) 1,2-Dichlorobenzene	13.800	146	400861	39.57	ug/L		98
104) n-Butylbenzene	13.832	91	679416	40.91	ug/L		97
105) Hexachloroethane	14.068	117	140592	53.88	ug/L		93
106) 1,2-Dibromo-3-chloropr...	14.618	157	73202	66.15	ug/L		90
107) 1,3,5-Trichlorobenzene	14.802	180	240941	35.42	ug/L		99
108) 1,2,4-Trichlorobenzene	15.436	180	206383	31.93	ug/L		98
109) Hexachlorobutadiene	15.604	225	83786	36.35	ug/L		98
110) Naphthalene	15.688	128	746492	40.67	ug/L		100
111) 1,2,3-Trichlorobenzene	15.913	180	168451	25.93	ug/L		98
112) 2-Methylnaphthalene	16.836	142	246475	23.98	ug/L		98
113) 1-Methylnaphthalene	17.004	142	201597	20.44	ug/L		100
115) 2-Propanone	1.967	43	84357	23.81	ug/L		94
116) Isopropyl Alcohol	2.092	45	179023	258.55	ug/L	#	80
117) Acetic Ether	3.907	43	321770	32.74	ug/L		99
118) Isopropyl Acetate	5.584	43	865187	52.66	ug/L	#	89
119) Amyl Acetate	11.908	43	584748	39.53	ug/L	#	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY18.D
Acq On : 21 May 2018 06:48 pm
Operator : AK
Sample : 40PPB
Misc :
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 22 09:02:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY19.D
Acq On : 21 May 2018 07:11 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:50:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	153923	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.250	114	299877	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	291013	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	143839	20.00	ug/L		0.00
114) Ethyl Acetate-d8	3.754	46	56084	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	98348	19.82	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.10%				
45) 1,2-Dichloroethane-d4	5.238	65	115157	17.50	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 87.50%				
64) Toluene-d8	8.903	98	376545	20.81	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 104.05%				
85) Bromofluorobenzene	12.185	95	149701	19.14	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 95.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	563701	87.65	ug/L		99
3) Chloromethane	1.070	50	633967	62.47	ug/L		100
4) Vinyl chloride	1.128	62	568154	77.52	ug/L		99
5) Bromomethane	1.327	94	297365	361.66	ug/L		97
6) Chloroethane	1.395	64	336124	79.94	ug/L		98
7) Trichlorofluoromethane	1.552	101	699624	120.83	ug/L		98
8) Ethyl ether	1.757	59	342670	69.08	ug/L		94
9) Acrolein	1.856	56	302125	485.14	ug/L		94
10) 1,1-Dichloroethene	1.919	61	492764	71.28	ug/L		89
11) 1,1,2-Trichlorotrifluo...	1.935	151	209279	99.76	ug/L		88
12) Methyl iodide	2.035	142	496457	207.39	ug/L		96
13) Acetone	1.966	43	140851	56.38	ug/L		98
14) Carbon disulfide	2.082	76	1023544	92.21	ug/L		99
15) Allyl chloride	2.218	41	690378	75.21	ug/L		93
16) Methyl acetate	2.223	43	404985	61.58	ug/L		95
17) Acetonitrile	2.092	41	17150	10.61	ug/L	#	1
18) Methylene chloride	2.339	49	520397	67.23	ug/L		84
19) t-Butanol	2.459	59	151706	253.33	ug/L	#	59
20) trans-1,2-Dichloroethene	2.585	61	532550	73.20	ug/L		86
21) Acrylonitrile	2.564	53	195469	58.81	ug/L		96
22) Methyl tert-butyl ether	2.590	73	1258823	113.88	ug/L		94
23) Hexane	2.879	57	362994	55.33	ug/L		93
24) 1,1-Dichloroethane	3.057	63	714386	78.26	ug/L		98
25) Diisopropyl ether	3.125	45	1447035	81.86	ug/L	#	50
26) Vinyl acetate	3.088	86	95425	102.81	ug/L	#	18
27) Chloroprene	3.136	53	593141	78.89	ug/L		93
28) Ethyl tert butyl ether	3.592	59	1353194	129.58	ug/L		97
29) 2,2-Dichloropropane	3.786	77	550075	130.24	ug/L	#	63
30) cis-1,2-Dichloroethene	3.791	61	627228	76.76	ug/L		98
31) 2-Butanone	3.817	43	235170	64.65	ug/L		96
32) Ethyl Acetate	3.906	43	541201	77.41	ug/L		99
33) Methyl acrylate	3.948	55	481386	79.85	ug/L		98
34) Propionitrile	3.912	54	64905	53.53	ug/L	#	86
35) Bromochloromethane	4.142	49	356801	70.87	ug/L		89
36) Tetrahydrofuran	4.158	42	163689	75.27	ug/L		97
37) Methacrylonitrile	4.132	67	213298	75.42	ug/L		75
38) Chloroform	4.352	83	688010	82.08	ug/L		98

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY19.D
Acq On : 21 May 2018 07:11 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:50:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.651	56	577500	76.89	ug/L		98
41)	1,1,1-Trichloroethane	4.562	97	558191	102.59	ug/L		99
43)	Carbon tetrachloride	4.824	119	445310	102.30	ug/L		95
44)	1,1-Dichloropropene	4.866	75	506038	75.10	ug/L		97
46)	1,2-Dichloroethane	5.390	62	538107	72.02	ug/L		99
47)	Benzene	5.228	78	1566957	71.09	ug/L		99
48)	Isobutyl Alcohol	5.988	43	319040	52.07	ug/L	#	91
49)	Tertiaryamylmethylether	5.616	73	1271666	134.38	ug/L	#	70
50)	Heptane	5.988	43	319040	52.07	ug/L		96
51)	Methylcyclohexane	7.089	83	503398	74.00	ug/L		94
52)	Trichloroethene	6.659	130	401994	87.01	ug/L		92
53)	n-Butanol	6.832	56	54786	339.20	ug/L		89
54)	1,2-Dichloropropane	7.215	63	420448	73.83	ug/L		98
55)	Dibromomethane	7.372	93	255244	71.66	ug/L		99
56)	1,4-Dioxane	7.435	88	173680m	1820.10	ug/L		
57)	Methyl methacrylate	7.529	41	472412	83.24	ug/L		96
58)	Bromodichloromethane	7.797	83	555897	90.50	ug/L		98
59)	2-Nitropropane	8.211	43	154022	117.42	ug/L		89
60)	2-Chloroethyl vinyl ether	8.389	63	330565	114.88	ug/L		97
61)	cis-1,3-Dichloropropene	8.547	75	705141	109.00	ug/L		99
63)	4-Methyl-2-pentanone	8.840	43	596040	95.73	ug/L		99
65)	Toluene	8.997	91	1722786	84.10	ug/L		100
66)	Chloropicrin	9.385	117	2408140	No Calib			
67)	trans-1,3-Dichloropropene	9.427	75	665483	93.24	ug/L		100
68)	Ethyl methacrylate	9.585	69	661449	79.97	ug/L		99
69)	1,1,2-Trichloroethane	9.674	97	374616	71.54	ug/L		93
70)	Tetrachloroethene	9.690	166	405401	86.73	ug/L		96
71)	1,3-Dichloropropane	9.863	76	675139	72.60	ug/L		99
72)	2-Hexanone	10.015	43	422434	90.75	ug/L		97
73)	Chlorodibromomethane	10.120	129	436485	96.99	ug/L		100
74)	Butyl acetate	10.219	43	937805	84.58	ug/L		95
75)	1,2-Dibromoethane	10.214	107	347020	84.96	ug/L		98
76)	Chlorobenzene	10.838	112	1116985	81.91	ug/L		96
77)	1,1,1,2-Tetrachloroethane	10.979	131	393526	101.85	ug/L		98
78)	Ethylbenzene	10.995	91	1942006	90.69	ug/L		98
79)	m/p-Xylene	11.158	91	2982540	180.86	ug/L		97
80)	Styrene	11.614	104	1228351	93.35	ug/L		87
81)	o-Xylene	11.582	91	1528507	89.98	ug/L		99
82)	Cyclohexanone	12.080	55	72207	221.18	ug/L		97
83)	Bromoform	11.787	173	313273	114.39	ug/L		100
84)	Isopropylbenzene	12.012	105	1740388	90.01	ug/L		98
86)	Bromobenzene	12.306	77	763460	70.40	ug/L		90
87)	1,1,2,2-Tetrachloroethane	12.395	83	574067	63.43	ug/L		99
88)	1,2,3-Trichloropropane	12.426	110	173847	73.95	ug/L		82
89)	trans-1,4-Dichloro-2-b...	12.432	53	200660	79.28	ug/L		55
90)	n-Propylbenzene	12.468	91	2098489	80.77	ug/L		98
91)	2-Chlorotoluene	12.468	91	2098489	127.96	ug/L		47
92)	4-Chlorotoluene	12.673	91	1460974	79.51	ug/L		98
93)	1,3,5-Trimethylbenzene	12.683	105	1359448	84.25	ug/L		99
94)	tert-Butylbenzene	13.003	91	729683	76.33	ug/L		94
95)	1,2,4-Trimethylbenzene	13.066	105	1402201	83.44	ug/L		99
96)	sec-Butylbenzene	13.239	105	1520367	73.60	ug/L		98
98)	1,3-Dichlorobenzene	13.328	146	756289	73.03	ug/L		99
99)	p-Isopropyltoluene	13.417	119	1294084	82.24	ug/L		99
100)	1,4-Dichlorobenzene	13.444	146	764349	71.00	ug/L		98

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No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY19.D
Acq On : 21 May 2018 07:11 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:50:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

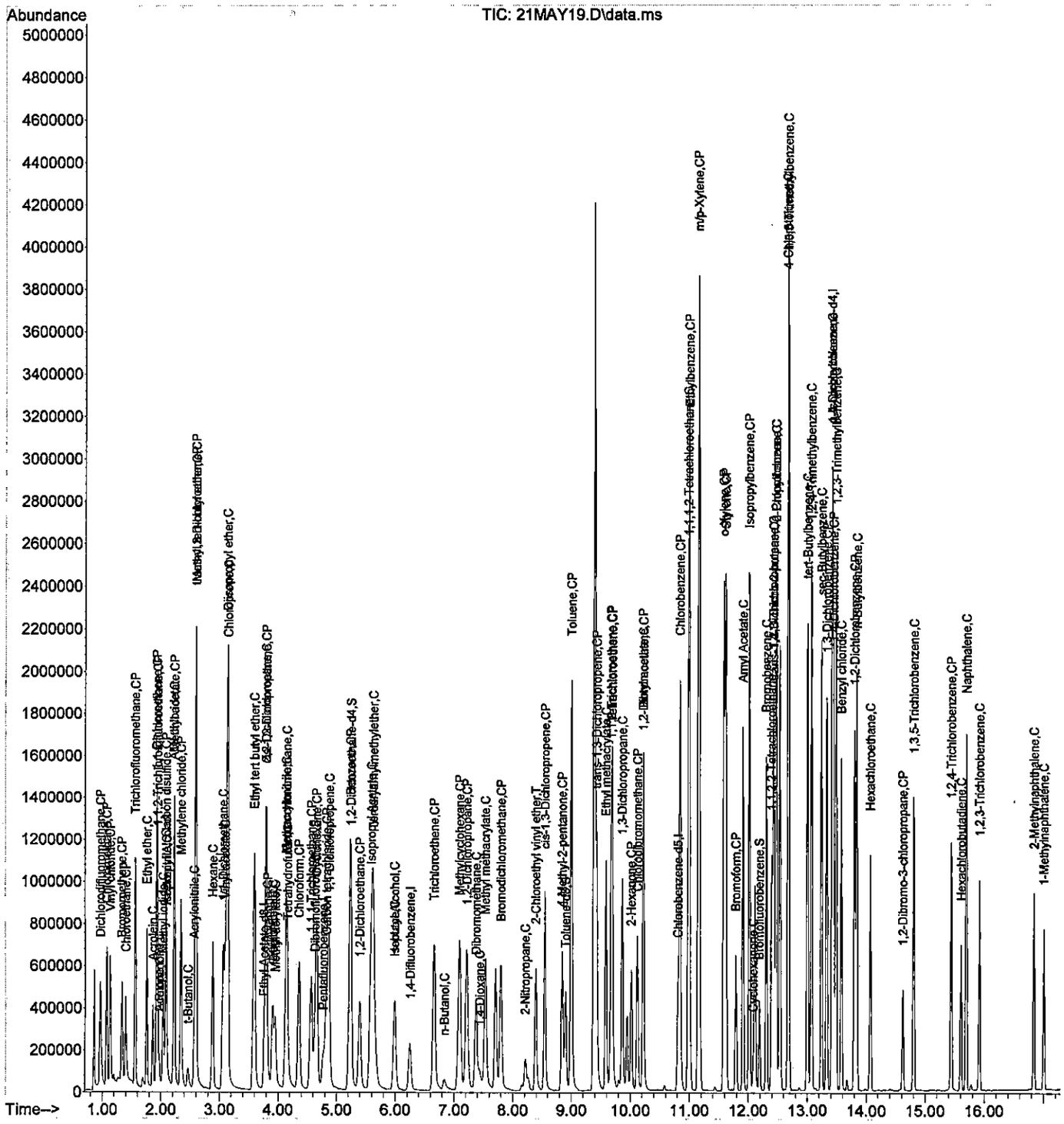
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	1435426	83.40	ug/L		99
102) Benzyl chloride	13.575	91	1122803	117.94	ug/L		96
103) 1,2-Dichlorobenzene	13.800	146	692067	66.37	ug/L		98
104) n-Butylbenzene	13.837	91	1130754	66.15	ug/L		97
105) Hexachloroethane	14.068	117	243299	90.59	ug/L		94
106) 1,2-Dibromo-3-chloropr...	14.618	157	128758	113.04	ug/L		91
107) 1,3,5-Trichlorobenzene	14.802	180	408298	58.32	ug/L		98
108) 1,2,4-Trichlorobenzene	15.436	180	352991	53.05	ug/L		99
109) Hexachlorobutadiene	15.604	225	141871	59.79	ug/L		99
110) Naphthalene	15.693	128	1304732	69.06	ug/L		99
111) 1,2,3-Trichlorobenzene	15.913	180	297004	44.42	ug/L		100
112) 2-Methylnaphthalene	16.836	142	431968	38.73	ug/L		100
113) 1-Methylnaphthalene	17.004	142	346482	32.95	ug/L		100
115) 2-Propanone	1.966	43	140851	38.68	ug/L		98
116) Isopropyl Alcohol	2.092	45	250901	344.56	ug/L	#	80
117) Acetic Ether	3.906	43	544978	52.81	ug/L		99
118) Isopropyl Acetate	5.584	43	1453336	84.24	ug/L	#	90
119) Amyl Acetate	11.907	43	980798	62.05	ug/L	#	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY19.D
Acq On : 21 May 2018 07:11 pm
Operator : AK
Sample : 70PPB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 22 09:50:28 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY20.D
Acq On : 21 May 2018 07:33 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 22 09:12:54 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	150433	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.245	114	294309	20.00	ug/L		0.00
62) Chlorobenzene-d5	10.806	117	281781	20.00	ug/L		0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	143006	20.00	ug/L	#	0.00
114) Ethyl Acetate-d8	3.754	46	57124	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.625	111	95334	19.57	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 97.85%				
45) 1,2-Dichloroethane-d4	5.238	65	111847	17.32	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 86.60%				
64) Toluene-d8	8.903	98	369677	21.10	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 105.50%				
85) Bromofluorobenzene	12.185	95	147332	19.45	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 97.25%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	881923	140.31	ug/L		99
3) Chloromethane	1.070	50	961572	97.16	ug/L		100
4) Vinyl chloride	1.128	62	864328	120.67	ug/L		100
5) Bromomethane	1.327	94	475366	591.93	ug/L		98
6) Chloroethane	1.395	64	503070	123.99	ug/L		98
7) Trichlorofluoromethane	1.552	101	1047130	185.04	ug/L		98
8) Ethyl ether	1.757	59	505803	104.34	ug/L		94
9) Acrolein	1.856	56	477470	674.33	ug/L		97
10) 1,1-Dichloroethene	1.919	61	853239	126.28	ug/L		89
11) 1,1,2-Trichlorotrifluo...	1.930	151	408661	199.32	ug/L		88
12) Methyl iodide	2.035	142	716648	263.97	ug/L		97
13) Acetone	1.967	43	208726	86.04	ug/L		99
14) Carbon disulfide	2.082	76	1771002	163.24	ug/L		100
15) Allyl chloride	2.218	41	1063950	118.59	ug/L	#	92
16) Methyl acetate	2.223	43	609227	94.78	ug/L		95
17) Acetonitrile	2.092	41	26414m	16.86	ug/L		
18) Methylene chloride	2.339	49	784850	103.91	ug/L		85
19) t-Butanol	2.459	59	213615	364.99	ug/L	#	60
20) trans-1,2-Dichloroethene	2.585	61	841701	118.38	ug/L		85
21) Acrylonitrile	2.564	53	296396	91.24	ug/L		99
22) Methyl tert-butyl ether	2.590	73	1814922	168.00	ug/L		94
23) Hexane	2.879	57	734953	114.63	ug/L		94
24) 1,1-Dichloroethane	3.057	63	1083141	121.41	ug/L		98
25) Diisopropyl ether	3.125	45	2118620	122.64	ug/L	#	50
26) Vinyl acetate	3.089	86	133158	146.80	ug/L	#	77
27) Chloroprene	3.136	53	970771	132.10	ug/L		94
28) Ethyl tert butyl ether	3.592	59	1979306	193.93	ug/L		97
29) 2,2-Dichloropropane	3.781	77	878419	212.80	ug/L	#	63
30) cis-1,2-Dichloroethene	3.791	61	963690	120.68	ug/L		99
31) 2-Butanone	3.812	43	335475	94.66	ug/L		97
32) Ethyl Acetate	3.906	43	906102m	132.61	ug/L		
33) Methyl acrylate	3.948	55	720709	122.32	ug/L		99
34) Propionitrile	3.912	54	96216	81.20	ug/L	#	94
35) Bromochloromethane	4.142	49	513804	104.42	ug/L		87
36) Tetrahydrofuran	4.158	42	246348	115.90	ug/L		96
37) Methacrylonitrile	4.127	67	317385	114.83	ug/L		76
38) Chloroform	4.352	83	1027639	125.44	ug/L		98

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY20.D
Acq On : 21 May 2018 07:33 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 22 09:12:54 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	4.651	56	1087407	148.15	ug/L		97
41)	1,1,1-Trichloroethane	4.562	97	890265	166.72	ug/L		98
43)	Carbon tetrachloride	4.824	119	751878	176.00	ug/L		94
44)	1,1-Dichloropropene	4.866	75	846314	127.97	ug/L		98
46)	1,2-Dichloroethane	5.390	62	789822	107.70	ug/L		99
47)	Benzene	5.228	78	2399700	110.94	ug/L		99
48)	Isobutyl Alcohol	5.988	43	635462	105.68	ug/L	#	92
49)	Tertiaryamylmethylether	5.616	73	1851025	199.31	ug/L	#	70
50)	Heptane	5.988	43	635462	105.68	ug/L		96
51)	Methylcyclohexane	7.089	83	941716	141.06	ug/L		95
52)	Trichloroethene	6.659	130	624690	137.77	ug/L		93
53)	n-Butanol	6.832	56	85828	537.54	ug/L	#	86
54)	1,2-Dichloropropane	7.215	63	630615	112.83	ug/L		97
55)	Dibromomethane	7.372	93	374380	107.09	ug/L		100
56)	1,4-Dioxane	7.430	88	332559m	3551.02	ug/L		
57)	Methyl methacrylate	7.529	41	704359	126.46	ug/L		97
58)	Bromodichloromethane	7.797	83	834667	138.45	ug/L		100
59)	2-Nitropropane	8.211	43	237575	184.54	ug/L		86
60)	2-Chloroethyl vinyl ether	8.389	63	469856	166.38	ug/L		97
61)	cis-1,3-Dichloropropene	8.541	75	1040288	163.85	ug/L		100
63)	4-Methyl-2-pentanone	8.840	43	884090	146.65	ug/L		99
65)	Toluene	8.998	91	2635335	132.86	ug/L		100
66)	Chloropicrin	9.386	117	3806629	No Calib			
67)	trans-1,3-Dichloropropene	9.427	75	985569	126.68	ug/L		99
68)	Ethyl methacrylate	9.585	69	971291	110.77	ug/L		98
69)	1,1,2-Trichloroethane	9.674	97	551725	108.81	ug/L		93
70)	Tetrachloroethene	9.690	166	633788	140.03	ug/L		98
71)	1,3-Dichloropropane	9.863	76	985192	109.42	ug/L		98
72)	2-Hexanone	10.015	43	631892	140.20	ug/L		98
73)	Chlorodibromomethane	10.120	129	644810	147.97	ug/L		99
74)	Butyl acetate	10.219	43	1380828	128.44	ug/L		95
75)	1,2-Dibromoethane	10.214	107	487037	123.15	ug/L		98
76)	Chlorobenzene	10.838	112	1647147	124.75	ug/L		97
77)	1,1,1,2-Tetrachloroethane	10.979	131	584991	156.36	ug/L		97
78)	Ethylbenzene	10.995	91	2976919	143.57	ug/L		98
79)	m/p-Xylene	11.158	91	4524530	283.36	ug/L		98
80)	Styrene	11.614	104	1815250	142.46	ug/L		87
81)	o-Xylene	11.582	91	2289528	139.19	ug/L		98
82)	Cyclohexanone	12.086	55	116804	369.50	ug/L		97
83)	Bromoform	11.787	173	461251	173.95	ug/L		99
84)	Isopropylbenzene	12.012	105	2684110	143.37	ug/L		98
86)	Bromobenzene	12.306	77	1126063	107.24	ug/L		90
87)	1,1,2,2-Tetrachloroethane	12.395	83	850780	97.08	ug/L		99
88)	1,2,3-Trichloropropane	12.427	110	258218	113.43	ug/L		82
89)	trans-1,4-Dichloro-2-b...	12.432	53	298209	121.69	ug/L	#	52
90)	n-Propylbenzene	12.468	91	3260808	129.62	ug/L		98
91)	2-Chlorotoluene	12.468	91	3260808	205.34	ug/L		47
92)	4-Chlorotoluene	12.673	91	2216707	124.59	ug/L		99
93)	1,3,5-Trimethylbenzene	12.683	105	2083267	133.34	ug/L		99
94)	tert-Butylbenzene	13.003	91	1143131	123.50	ug/L		93
95)	1,2,4-Trimethylbenzene	13.066	105	2128863	130.83	ug/L		99
96)	sec-Butylbenzene	13.239	105	2420800	121.03	ug/L		98
98)	1,3-Dichlorobenzene	13.328	146	1132756	110.02	ug/L		99
99)	p-Isopropyltoluene	13.417	119	2030379	129.79	ug/L		99
100)	1,4-Dichlorobenzene	13.444	146	1136071	106.14	ug/L		98

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY20.D
Acq On : 21 May 2018 07:33 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 11 Sample Multiplier: 1

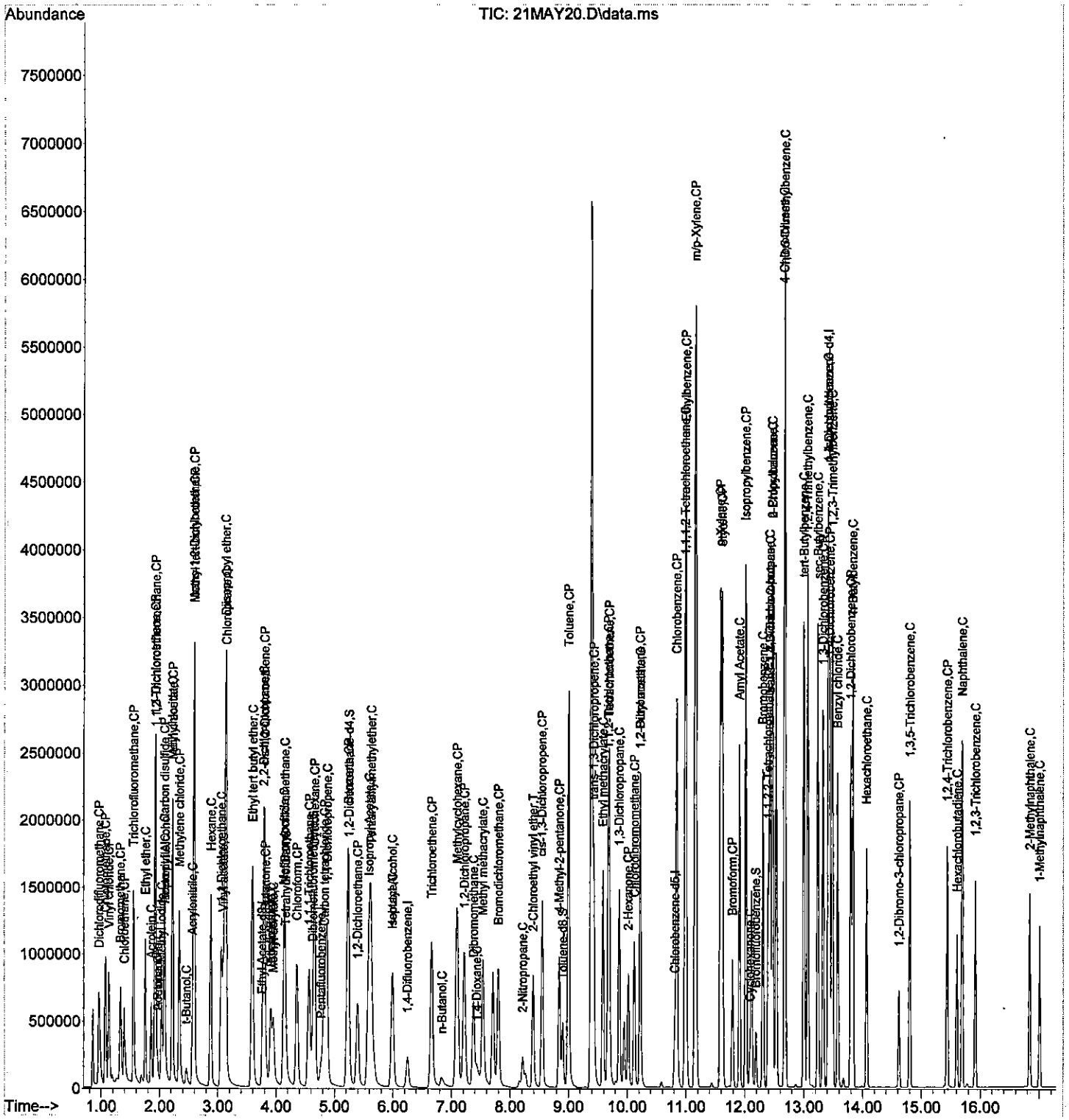
Quant Time: May 22 09:12:54 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	2134977	124.77	ug/L		99
102) Benzyl chloride	13.575	91	1658181	153.36	ug/L		96
103) 1,2-Dichlorobenzene	13.800	146	1033963	99.73	ug/L		98
104) n-Butylbenzene	13.832	91	1799159	105.86	ug/L		97
105) Hexachloroethane	14.068	117	382412	143.21	ug/L		93
106) 1,2-Dibromo-3-chloropr...	14.618	157	192374	169.87	ug/L		91
107) 1,3,5-Trichlorobenzene	14.802	180	622339	89.41	ug/L		98
108) 1,2,4-Trichlorobenzene	15.436	180	536333	81.07	ug/L		100
109) Hexachlorobutadiene	15.604	225	229951	97.48	ug/L		99
110) Naphthalene	15.688	128	1946844	103.65	ug/L		99
111) 1,2,3-Trichlorobenzene	15.913	180	456822	68.72	ug/L		98
112) 2-Methylnaphthalene	16.836	142	679596	57.65	ug/L		100
113) 1-Methylnaphthalene	17.004	142	541237	49.77	ug/L		99
115) 2-Propanone	1.967	43	208726	56.92	ug/L		99
116) Isopropyl Alcohol	2.092	45	402423	541.65	ug/L	#	81
117) Acetic Ether	3.906	43	808917	76.96	ug/L		100
118) Isopropyl Acetate	5.584	43	2119798	120.64	ug/L	#	90
119) Amyl Acetate	11.907	43	1440397	88.66	ug/L	#	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY20.D
Acq On : 21 May 2018 07:33 pm
Operator : AK
Sample : 100PPB
Misc :
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 22 09:12:54 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\5AC8260.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Fri May 18 09:00:13 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	153844	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.245	114	299343	20.00	ug/L	0.00
62) Chlorobenzene-d5	10.806	117	289972	20.00	ug/L	0.00
97) 1,4-Dichlorobenzene-d4	13.417	152	138801	20.00	ug/L	0.00
114) Ethyl Acetate-d8	3.754	46	54103	20.00	ug/L	0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.619	111	94520	19.73	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%			
45) 1,2-Dichloroethane-d4	5.233	65	114196	20.17	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 100.85%			
64) Toluene-d8	8.903	98	372296	19.83	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.15%			
85) Bromofluorobenzene	12.191	95	147389	19.82	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 99.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.960	85	228729	26.77	ug/L	99
3) Chloromethane	1.070	50	303472	36.37	ug/L	98
4) Vinyl chloride	1.128	62	279904	33.37	ug/L	97
5) Bromomethane	1.327	94	162997	36.65	ug/L	98
6) Chloroethane	1.395	64	172653	35.40	ug/L	99
7) Trichlorofluoromethane	1.552	101	350730	35.03	ug/L	99
8) Ethyl ether	1.757	59	198737	37.54	ug/L	99
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	1.919	61	376036	43.43	ug/L	99
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	2.035	142	286623	39.06	ug/L	98
13) Acetone	1.966	43	79721	37.75	ug/L	91
14) Carbon disulfide	2.082	76	724971	39.17	ug/L	100
15) Allyl chloride	2.218	41	395324	35.35	ug/L	98
16) Methyl acetate	0.000		0	N.D.		
17) Acetonitrile	0.000		0	N.D.		
18) Methylene chloride	2.339	49	332253	42.44	ug/L	98
19) t-Butanol	2.459	59	94935	212.09	ug/L	98
20) trans-1,2-Dichloroethene	2.585	61	365451	41.61	ug/L	99
21) Acrylonitrile	2.564	53	114635	39.09	ug/L	95
22) Methyl tert-butyl ether	2.590	73	681905	34.95	ug/L	100
23) Hexane	0.000		0	N.D.		
24) 1,1-Dichloroethane	3.057	63	467668	39.58	ug/L	100
25) Diisopropyl ether	3.125	45	742117	33.00	ug/L #	76
26) Vinyl acetate	0.000		0	N.D.		
27) Chloroprene	0.000		0	N.D.		
28) Ethyl tert butyl ether	3.592	59	681922	32.37	ug/L	99
29) 2,2-Dichloropropane	3.786	77	358837	36.46	ug/L	99
30) cis-1,2-Dichloroethene	3.791	61	413417	41.10	ug/L	99
31) 2-Butanone	3.817	43	128203	37.54	ug/L	98
32) Ethyl Acetate	3.906	43	263261	30.96	ug/L	98
33) Methyl acrylate	3.948	55	276528	40.62	ug/L	98
34) Propionitrile	3.906	54	40767	41.70	ug/L #	92
35) Bromochloromethane	4.142	49	223213	40.99	ug/L	98
36) Tetrahydrofuran	4.163	42	94626	38.48	ug/L	98
37) Methacrylonitrile	4.127	67	122428	38.59	ug/L	99
38) Chloroform	4.352	83	425258	38.91	ug/L	99

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.			
41)	1,1,1-Trichloroethane	4.562	97	383243	40.40	ug/L		99
43)	Carbon tetrachloride	4.824	119	312244	38.70	ug/L		99
44)	1,1-Dichloropropene	4.866	75	330979	37.69	ug/L		99
46)	1,2-Dichloroethane	5.390	62	331153	39.33	ug/L		99
47)	Benzene	5.228	78	1002952	39.52	ug/L		99
48)	Isobutyl Alcohol	0.000		0	N.D.			
49)	Tertiaryamylmethylether	5.616	73	649469	32.89	ug/L		99
50)	Heptane	0.000		0	N.D.			
51)	Methylcyclohexane	0.000		0	N.D.			
52)	Trichloroethene	6.659	130	260716	40.30	ug/L		99
53)	n-Butanol	0.000		0	N.D.			
54)	1,2-Dichloropropane	7.215	63	266829	38.75	ug/L		98
55)	Dibromomethane	7.372	93	153176	38.28	ug/L		99
56)	1,4-Dioxane	7.377	88	17610	644.13	ug/L	#	79
57)	Methyl methacrylate	7.529	41	261672	34.64	ug/L		99
58)	Bromodichloromethane	7.797	83	332828	38.02	ug/L		99
59)	2-Nitropropane	8.216	43	88900	38.12	ug/L	#	97
60)	2-Chloroethyl vinyl ether	0.000		0	N.D.			
61)	cis-1,3-Dichloropropene	8.547	75	418572	39.59	ug/L		100
63)	4-Methyl-2-pentanone	8.840	43	450862	48.26	ug/L		83
65)	Toluene	8.997	91	1090742	40.08	ug/L		99
66)	Chloropicrin	0.000		0	N.D.			
67)	trans-1,3-Dichloropropene	9.427	75	385888	39.60	ug/L		99
68)	Ethyl methacrylate	9.585	69	367206	35.54	ug/L		100
69)	1,1,2-Trichloroethane	9.674	97	229213	36.78	ug/L		96
70)	Tetrachloroethene	9.690	166	270939	40.56	ug/L		99
71)	1,3-Dichloropropane	9.863	76	414311	39.76	ug/L		100
72)	2-Hexanone	10.015	43	233693	36.99	ug/L		97
73)	Chlorodibromomethane	10.120	129	243792	37.15	ug/L		100
74)	Butyl acetate	10.219	43	448833	30.97	ug/L		100
75)	1,2-Dibromoethane	10.214	107	249278	42.69	ug/L		98
76)	Chlorobenzene	10.838	112	682071	39.62	ug/L		98
77)	1,1,1,2-Tetrachloroethane	10.979	131	240315	39.49	ug/L		99
78)	Ethylbenzene	10.995	91	1245043	41.24	ug/L		99
79)	m/p-Xylene	11.158	91	1874638	80.00	ug/L		100
80)	Styrene	11.619	104	763766	41.83	ug/L		99
81)	o-Xylene	11.588	91	955556	40.57	ug/L		100
82)	Cyclohexanone	0.000		0	N.D.			
83)	Bromoform	11.792	173	167391	37.09	ug/L		99
84)	Isopropylbenzene	12.018	105	1106101	39.83	ug/L		99
86)	Bromobenzene	12.306	77	463772	39.18	ug/L		98
87)	1,1,2,2-Tetrachloroethane	12.395	83	366023	40.76	ug/L		99
88)	1,2,3-Trichloropropane	12.426	110	105641	38.35	ug/L		98
89)	trans-1,4-Dichloro-2-b...	12.432	53	84964	26.95	ug/L		92
90)	n-Propylbenzene	12.474	91	1308964	40.58	ug/L		99
91)	2-Chlorotoluene	12.474	91	1308964	40.15	ug/L		99
92)	4-Chlorotoluene	12.673	91	882442	40.11	ug/L		100
93)	1,3,5-Trimethylbenzene	12.683	105	841553	39.99	ug/L		99
94)	tert-Butylbenzene	13.003	91	456087	40.63	ug/L		96
95)	1,2,4-Trimethylbenzene	13.071	105	838081	39.92	ug/L		100
96)	sec-Butylbenzene	13.239	105	960545	39.89	ug/L		100
98)	1,3-Dichlorobenzene	13.328	146	440451	39.04	ug/L		98
99)	p-Isopropyltoluene	13.417	119	789350	40.22	ug/L		100
100)	1,4-Dichlorobenzene	13.444	146	455651	40.84	ug/L		99

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

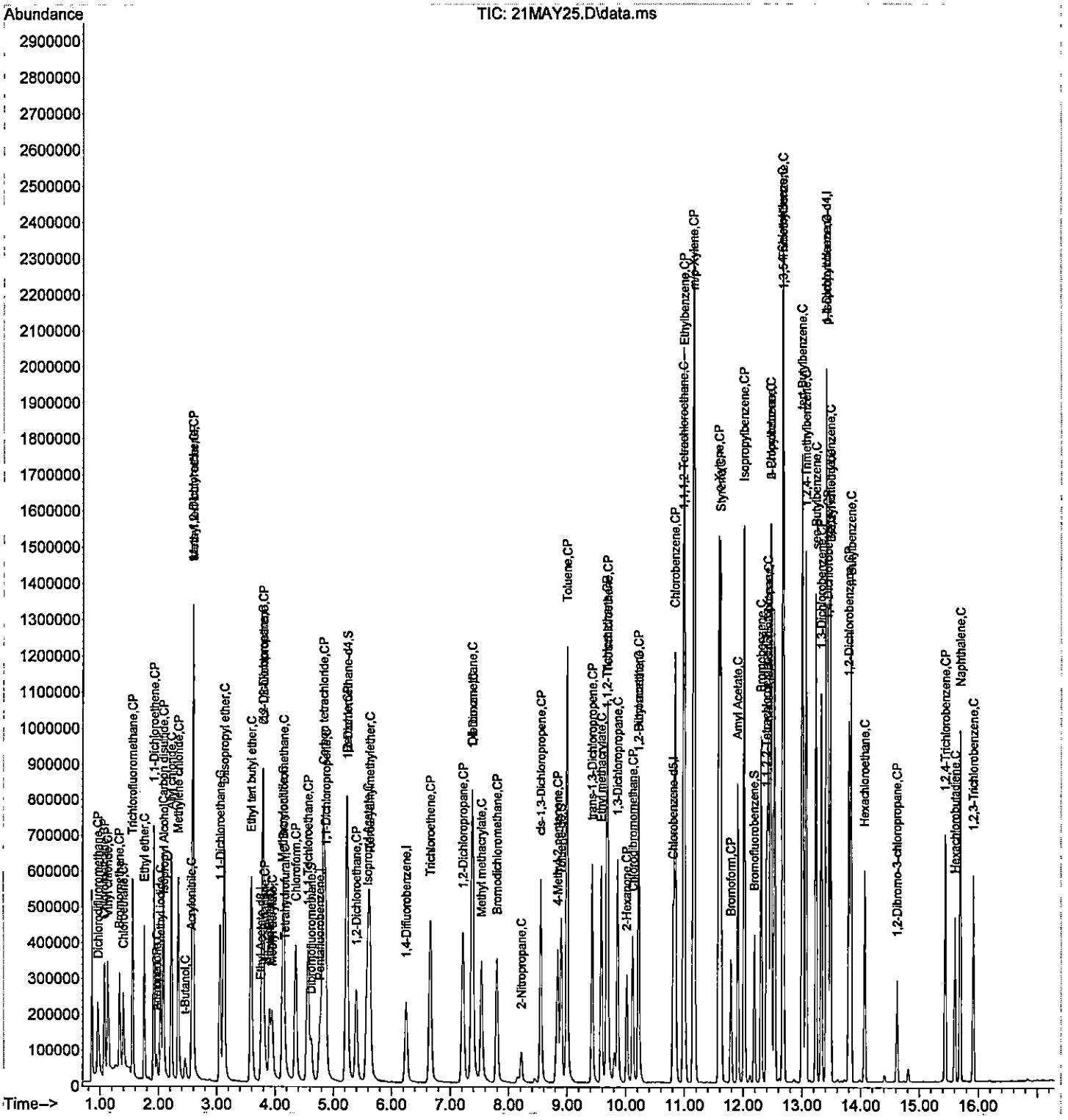
Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	13.486	105	782314	37.13	ug/L		100
102) Benzyl chloride	13.486	91	75119	4.42	ug/L	#	38
103) 1,2-Dichlorobenzene	13.800	146	403723	39.95	ug/L		99
104) n-Butylbenzene	13.837	91	713157	41.95	ug/L		100
105) Hexachloroethane	14.068	117	122549	34.73	ug/L		100
106) 1,2-Dibromo-3-chloropr...	14.618	157	75088	40.64	ug/L		97
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	15.436	180	205520	40.77	ug/L		99
109) Hexachlorobutadiene	15.604	225	90854	40.66	ug/L		99
110) Naphthalene	15.693	128	753272	41.30	ug/L		100
111) 1,2,3-Trichlorobenzene	15.913	180	170496	40.62	ug/L		98
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	1.966	43	79721	39.46	ug/L		91
116) Isopropyl Alcohol	2.092	45	64114	264.58	ug/L	#	93
117) Acetic Ether	3.906	43	263261	29.77	ug/L		98
118) Isopropyl Acetate	5.584	43	731123	31.93	ug/L		97
119) Amyl Acetate	11.907	43	475123	34.35	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	99	0.00
2	CP	Dichlorodifluoromethane	40.000	26.773	33.1#	75	0.00
3	CP	Chloromethane	40.000	36.366	9.1	90	0.00
4	CP	Vinyl chloride	40.000	33.369	16.6	91	0.00
5	CP	Bromomethane	40.000	36.645	8.4	103	0.00
6	CP	Chloroethane	40.000	35.401	11.5	97	0.00
7	CP	Trichlorofluoromethane	40.000	35.028	12.4	93	0.00
8	C	Ethyl ether	40.000	37.536	6.2	99	0.00
9	C	Acrolein	200.000	0.000	100.0#	0	-1.86#
10	CP	1,1-Dichloroethene	40.000	43.434	-8.6	108	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	40.000	0.000	100.0#	0	-1.94#
12	C	Methyl iodide	40.000	39.057	2.4	96	0.00
13	CP	Acetone	40.000	37.747	5.6	95	0.00
14	CP	Carbon disulfide	40.000	39.167	2.1	104	0.00
15	C	Allyl chloride	40.000	35.351	11.6	92	0.00
16	CP	Methyl acetate	40.000	0.000	100.0#	0	-2.22#
17	C	Acetonitrile	40.000	0.000	100.0#	0	-2.09#
18	CP	Methylene chloride	40.000	42.436	-6.1	106	0.00
19	C	t-Butanol	200.000	212.094	-6.0	90	0.00
20	CP	trans-1,2-Dichloroethene	40.000	41.610	-4.0	107	0.00
21	C	Acrylonitrile	40.000	39.094	2.3	99	0.00
22	CP	Methyl tert-butyl ether	40.000	34.947	12.6	91	0.00
23	C	Hexane	40.000	0.000	100.0#	0	-2.88#
24	C	1,1-Dichloroethane	40.000	39.580	1.1	106	0.00
25	C	Diisopropyl ether	40.000	33.003	17.5	85	0.00
26	C	Vinyl acetate	40.000	0.000	100.0#	0	-3.09#
27	C	Chloroprene	40.000	0.000	100.0#	0	-3.14#
28	C	Ethyl tert butyl ether	40.000	32.373	19.1	83	0.00
29	C	2,2-Dichloropropane	40.000	36.464	8.8	100	0.00
30	CP	cis-1,2-Dichloroethene	40.000	41.103	-2.8	107	0.00
31	CP	2-Butanone	40.000	37.545	6.1	92	0.00
32	C	Ethyl Acetate	40.000	30.955	22.6#	82	0.00
33	C	Methyl acrylate	40.000	40.617	-1.5	100	0.00
34	C	Propionitrile	40.000	41.704	-4.3	102	0.00
35	C	Bromochloromethane	40.000	40.993	-2.5	106	0.00
36	C	Tetrahydrofuran	40.000	38.475	3.8	97	0.00
37	C	Methacrylonitrile	40.000	38.594	3.5	96	0.00
38	CP	Chloroform	40.000	38.910	2.7	105	0.00
39	CP	Cyclohexane	40.000	0.000	100.0#	0	-4.65#
40	I	1,4-Difluorobenzene	20.000	20.000	0.0	100	0.00
41	CP	1,1,1-Trichloroethane	40.000	40.404	-1.0	107	0.00
42	S	Dibromofluoromethane	20.000	19.726	1.4	98	0.00
43	CP	Carbon tetrachloride	40.000	38.702	3.2	105	0.00
44	C	1,1-Dichloropropene	40.000	37.691	5.8	101	0.00
45	S	1,2-Dichloroethane-d4	20.000	20.169	-0.8	103	0.00
46	CP	1,2-Dichloroethane	40.000	39.330	1.7	104	0.00
47	CP	Benzene	40.000	39.516	1.2	104	0.00
48	C	Isobutyl Alcohol	40.000	0.000	100.0#	0	-5.99#
49	C	Tertiaryamylmethylether	40.000	32.889	17.8	85	0.00
50	C	Heptane	40.000	0.000	100.0#	0	-5.99#

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	CP	Methylcyclohexane	40.000	0.000	100.0#	0	-7.09#
52	CP	Trichloroethene	40.000	40.296	-0.7	105	0.00
53	C	n-Butanol	400.000	0.000	100.0#	0	-6.84#
54	CP	1,2-Dichloropropane	40.000	38.754	3.1	106	0.00
55	C	Dibromomethane	40.000	38.276	4.3	103	0.00
56	C	1,4-Dioxane	4000.000	644.128	83.9#	15	-0.06
57	C	Methyl methacrylate	40.000	34.645	13.4	96	0.00
58	CP	Bromodichloromethane	40.000	38.017	5.0	102	0.00
59	C	2-Nitropropane	40.000	38.118	4.7	99	0.00
60	T	2-Chloroethyl vinyl ether	40.000	0.000	100.0#	0	-8.39#
61	CP	cis-1,3-Dichloropropene	40.000	39.587	1.0	102	0.00
62	I	Chlorobenzene-d5	20.000	20.000	0.0	101	0.00
63	CP	4-Methyl-2-pentanone	40.000	48.260	-20.6#	127	0.00
64	S	Toluene-d8	20.000	19.834	0.8	101	0.00
65	CP	Toluene	40.000	40.085	-0.2	104	0.00
66	T	Chloropicrin	400.000	0.000	100.0#	0	-9.39#
67	CP	trans-1,3-Dichloropropene	40.000	39.601	1.0	98	0.00
68	C	Ethyl methacrylate	40.000	35.541	11.1	96	0.00
69	CP	1,1,2-Trichloroethane	40.000	36.776	8.1	102	0.00
70	CP	Tetrachloroethene	40.000	40.559	-1.4	104	0.00
71	C	1,3-Dichloropropane	40.000	39.756	0.6	104	0.00
72	CP	2-Hexanone	40.000	36.994	7.5	92	0.00
73	CP	Chlorodibromomethane	40.000	37.149	7.1	95	0.00
74	C	Butyl acetate	40.000	30.973	22.6#	80	0.00
75	CP	1,2-Dibromoethane	40.000	42.691	-6.7	119	0.00
76	CP	Chlorobenzene	40.000	39.616	1.0	104	0.00
77	C	1,1,1,2-Tetrachloroethane	40.000	39.495	1.3	104	0.00
78	CP	Ethylbenzene	40.000	41.242	-3.1	105	0.00
79	CP	m/p-Xylene	80.000	80.004	-0.0	103	0.00
80	CP	Styrene	40.000	41.830	-4.6	105	0.00
81	CP	o-Xylene	40.000	40.571	-1.4	104	0.00
82	C	Cyclohexanone	200.000	0.000	100.0#	0	-12.08#
83	CP	Bromoform	40.000	37.085	7.3	92	0.00
84	CP	Isopropylbenzene	40.000	39.826	0.4	103	0.00
85	S	Bromofluorobenzene	20.000	19.823	0.9	101	0.00
86	C	Bromobenzene	40.000	39.180	2.1	103	0.00
87	CP	1,1,2,2-Tetrachloroethane	40.000	40.762	-1.9	109	0.00
88	C	1,2,3-Trichloropropane	40.000	38.350	4.1	104	0.00
89	C	trans-1,4-Dichloro-2-butene	40.000	26.945	32.6#	74	0.00
90	C	n-Propylbenzene	40.000	40.576	-1.4	101	0.00
91	C	2-Chlorotoluene	40.000	40.152	-0.4	101	0.00
92	C	4-Chlorotoluene	40.000	40.106	-0.3	101	0.00
93	C	1,3,5-Trimethylbenzene	40.000	39.991	0.0	103	0.00
94	C	tert-Butylbenzene	40.000	40.632	-1.6	102	0.00
95	C	1,2,4-Trimethylbenzene	40.000	39.921	0.2	101	0.00
96	C	sec-Butylbenzene	40.000	39.895	0.3	103	0.00
97	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	99	0.00
98	CP	1,3-Dichlorobenzene	40.000	39.036	2.4	100	0.00
99	C	p-Isopropyltoluene	40.000	40.217	-0.5	102	0.00

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	40.000	40.840	-2.1	102	0.00
101	C	1,2,3-Trimethylbenzene	40.000	37.134	7.2	93	0.00
102	C	Benzyl chloride	40.000	4.416	89.0#	12	-0.09
103	CP	1,2-Dichlorobenzene	40.000	39.947	0.1	101	0.00
104	C	n-Butylbenzene	40.000	41.953	-4.9	105	0.00
105	C	Hexachloroethane	40.000	34.727	13.2	87	0.00
106	CP	1,2-Dibromo-3-chloropropane	40.000	40.639	-1.6	103	0.00
107	C	1,3,5-Trichlorobenzene	40.000	0.000	100.0#	0	-14.80#
108	CP	1,2,4-Trichlorobenzene	40.000	40.768	-1.9	100	0.00
109	C	Hexachlorobutadiene	40.000	40.659	-1.6	108	0.00
110	C	Naphthalene	40.000	41.303	-3.3	101	0.00
111	C	1,2,3-Trichlorobenzene	40.000	40.615	-1.5	101	0.00
112	C	2-Methylnaphthalene	40.000	0.000	100.0#	0	-16.84#
113	C	1-Methylnaphthalene	40.000	0.000	100.0#	0	-17.00#
114	I	Ethyl Acetate-d8	20.000	20.000	0.0	101	0.00
115	C	2-Propanone	40.000	39.456	1.4	95	0.00
116		Isopropyl Alcohol	800.000	264.580	66.9#	36	0.00
117	C	Acetic Ether	40.000	29.772	25.6#	82	0.00
118	C	Isopropyl Acetate	40.000	31.927	20.2#	85	0.00
119	C	Amyl Acetate	40.000	34.349	14.1	81	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 25

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	99	0.00
2	CP	Dichlorodifluoromethane	1.111	0.743	33.1#	75	0.00
3	CP	Chloromethane	1.323	0.986	25.5#	90	0.00
4	CP	Vinyl chloride	1.151	0.910	20.9#	91	0.00
5	CP	Bromomethane	0.603	0.530	12.1	103	0.00
6	CP	Chloroethane	0.712	0.561	21.2#	97	0.00
7	CP	Trichlorofluoromethane	1.302	1.140	12.4	93	0.00
8	C	Ethyl ether	0.688	0.646	6.1	99	0.00
9	C	Acrolein	0.102	0.000	100.0#	0#	-1.86#
10	CP	1,1-Dichloroethene	1.126	1.222	-8.5	108	0.00
11	CP	1,1,2-Trichlorotrifluoroeth	0.540	0.000#	100.0#	0#	-1.94#
12	C	Methyl iodide	0.954	0.932	2.3	96	0.00
13	CP	Acetone	0.393	0.259	34.1#	95	0.00
14	CP	Carbon disulfide	2.406	2.356	2.1	104	0.00
15	C	Allyl chloride	1.454	1.285	11.6	92	0.00
16	CP	Methyl acetate	0.823	0.000#	100.0#	0#	-2.22#
17	C	Acetonitrile	0.035	0.000	100.0#	0#	-2.09#
18	CP	Methylene chloride	1.152	1.080	6.2	106	0.00
19	C	t-Butanol	0.073	0.062	15.1	90	0.00
20	CP	trans-1,2-Dichloroethene	1.142	1.188	-4.0	107	0.00
21	C	Acrylonitrile	0.413	0.373	9.7	99	0.00
22	CP	Methyl tert-butyl ether	2.537	2.216	12.7	91	0.00
23	C	Hexane	0.957	0.000	100.0#	0#	-2.88#
24	C	1,1-Dichloroethane	1.536	1.520	1.0	106	0.00
25	C	Diisopropyl ether	2.923	2.412	17.5	85	0.00
26	C	Vinyl acetate	0.207	0.000	100.0#	0#	-3.09#
27	C	Chloroprene	1.334	0.000	100.0#	0#	-3.14#
28	C	Ethyl tert butyl ether	2.738	2.216	19.1	83	0.00
29	C	2,2-Dichloropropane	1.279	1.166	8.8	100	0.00
30	CP	cis-1,2-Dichloroethene	1.308	1.344	-2.8	107	0.00
31	CP	2-Butanone	0.510	0.417	18.2	92	0.00
32	C	Ethyl Acetate	1.106	0.856	22.6#	82	0.00
33	C	Methyl acrylate	0.885	0.899	-1.6	100	0.00
34	C	Propionitrile	0.185	0.132	28.6#	102	0.00
35	C	Bromochloromethane	0.708	0.725	-2.4	106	0.00
36	C	Tetrahydrofuran	0.386	0.308	20.2#	97	0.00
37	C	Methacrylonitrile	0.469	0.398	15.1	96	0.00
38	CP	Chloroform	1.421	1.382	2.7	105	0.00
39	CP	Cyclohexane	1.410	0.000#	100.0#	0#	-4.65#
40	I	1,4-Difluorobenzene	1.000	1.000	0.0	100	0.00
41	CP	1,1,1-Trichloroethane	0.634	0.640	-0.9	107	0.00
42	S	Dibromofluoromethane	0.320	0.316	1.3	98	0.00
43	CP	Carbon tetrachloride	0.539	0.522	3.2	105	0.00
44	C	1,1-Dichloropropene	0.587	0.553	5.8	101	0.00
45	S	1,2-Dichloroethane-d4	0.378	0.381	-0.8	103	0.00
46	CP	1,2-Dichloroethane	0.563	0.553	1.8	104	0.00
47	CP	Benzene	1.696	1.675	1.2	104	0.00
48	C	Isobutyl Alcohol	0.438	0.000	100.0#	0#	-5.99#
49	C	Tertiaryamylmethylether	1.319	1.085	17.7	85	0.00
50	C	Heptane	0.422	0.000	100.0#	0#	-5.99#

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	CP	Methylcyclohexane	0.637	0.000#	100.0#	0#	-7.09#
52	CP	Trichloroethene	0.432	0.435	-0.7	105	0.00
53	C	n-Butanol	0.006	0.000	100.0#	0#	-6.84#
54	CP	1,2-Dichloropropane	0.460	0.446	3.0	106	0.00
55	C	Dibromomethane	0.267	0.256	4.1	103	0.00
56	C	1,4-Dioxane	0.002	0.000	100.0#	15#	-0.06
57	C	Methyl methacrylate	0.505	0.437	13.5	96	0.00
58	CP	Bromodichloromethane	0.585	0.556	5.0	102	0.00
59	C	2-Nitropropane	0.181	0.148	18.2	99	0.00
60	T	2-Chloroethyl vinyl ether	0.348	0.000	100.0#	0#	-8.39#
61	CP	cis-1,3-Dichloropropene	0.706	0.699	1.0	102	0.00
62	I	Chlorobenzene-d5	1.000	1.000	0.0	101	0.00
63	CP	4-Methyl-2-pentanone	0.644	0.777	-20.7#	127	0.00
64	S	Toluene-d8	1.295	1.284	0.8	101	0.00
65	CP	Toluene	1.877	1.881	-0.2	104	0.00
66	T	Chloropicrin	0.146	0.000	100.0#	0#	-9.39#
67	CP	trans-1,3-Dichloropropene	0.692	0.665	3.9	98	0.00
68	C	Ethyl methacrylate	0.713	0.633	11.2	96	0.00
69	CP	1,1,2-Trichloroethane	0.430	0.395	8.1	102	0.00
70	CP	Tetrachloroethene	0.461	0.467	-1.3	104	0.00
71	C	1,3-Dichloropropane	0.719	0.714	0.7	104	0.00
72	CP	2-Hexanone	0.458	0.403	12.0	92	0.00
73	CP	Chlorodibromomethane	0.453	0.420	7.3	95	0.00
74	C	Butyl acetate	0.999	0.774	22.5#	80	0.00
75	CP	1,2-Dibromoethane	0.403	0.430	-6.7	119	0.00
76	CP	Chlorobenzene	1.188	1.176	1.0	104	0.00
77	C	1,1,1,2-Tetrachloroethane	0.420	0.414	1.4	104	0.00
78	CP	Ethylbenzene	2.082	2.147	-3.1	105	0.00
79	CP	m/p-Xylene	1.616	1.616	0.0	103	0.00
80	CP	Styrene	1.259	1.317	-4.6	105	0.00
81	CP	o-Xylene	1.624	1.648	-1.5	104	0.00
82	C	Cyclohexanone	0.019	0.000	100.0#	0#	-12.08#
83	CP	Bromoform	0.311	0.289	7.1	92	0.00
84	CP	Isopropylbenzene	1.916	1.907	0.5	103	0.00
85	S	Bromofluorobenzene	0.513	0.508	1.0	101	0.00
86	C	Bromobenzene	0.816	0.800	2.0	103	0.00
87	CP	1,1,2,2-Tetrachloroethane	0.619	0.631	-1.9	109	0.00
88	C	1,2,3-Trichloropropane	0.190	0.182	4.2	104	0.00
89	C	trans-1,4-Dichloro-2-butene	0.217	0.147	32.3#	74	0.00
90	C	n-Propylbenzene	2.225	2.257	-1.4	101	0.00
91	C	2-Chlorotoluene	2.249	2.257	-0.4	101	0.00
92	C	4-Chlorotoluene	1.518	1.522	-0.3	101	0.00
93	C	1,3,5-Trimethylbenzene	1.451	1.451	0.0	103	0.00
94	C	tert-Butylbenzene	0.774	0.786	-1.6	102	0.00
95	C	1,2,4-Trimethylbenzene	1.448	1.445	0.2	101	0.00
96	C	sec-Butylbenzene	1.661	1.656	0.3	103	0.00
97	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	99	0.00
98	CP	1,3-Dichlorobenzene	1.626	1.587	2.4	100	0.00
99	C	p-Isopropyltoluene	2.828	2.843	-0.5	102	0.00

Data Path : C:\msdchem\1\data\11V180521\
Data File : 21MAY25.D
Acq On : 21 May 2018 09:25 pm
Operator : AK
Sample : ICV
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 22 09:54:30 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Tue May 22 09:53:21 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	CP	1,4-Dichlorobenzene	1.608	1.641	-2.1	102	0.00
101	C	1,2,3-Trimethylbenzene	3.036	2.818	7.2	93	0.00
102	C	Benzyl chloride	2.451	0.271	88.9#	12#	-0.09
103	CP	1,2-Dichlorobenzene	1.456	1.454	0.1	101	0.00
104	C	n-Butylbenzene	2.449	2.569	-4.9	105	0.00
105	C	Hexachloroethane	0.508	0.441	13.2	87	0.00
106	CP	1,2-Dibromo-3-chloropropane	0.266	0.270	-1.5	103	0.00
107	C	1,3,5-Trichlorobenzene	0.874	0.000	100.0#	0#	-14.80#
108	CP	1,2,4-Trichlorobenzene	0.726	0.740	-1.9	100	0.00
109	C	Hexachlorobutadiene	0.322	0.327	-1.6	108	0.00
110	C	Naphthalene	2.628	2.713	-3.2	101	0.00
111	C	1,2,3-Trichlorobenzene	0.605	0.614	-1.5	101	0.00
112	C	2-Methylnaphthalene	0.885	0.000	100.0#	0#	-16.84#
113	C	1-Methylnaphthalene	0.723	0.000	100.0#	0#	-17.00#
114	I	Ethyl Acetate-d8	1.000	1.000	0.0	101	0.00
115	C	2-Propanone	1.153	0.737	36.1#	95	0.00
116		Isopropyl Alcohol	0.065	0.030	53.8#	36#	0.00
117	C	Acetic Ether	3.269	2.433	25.6#	82	0.00
118	C	Isopropyl Acetate	8.465	6.757	20.2#	85	0.00
119	C	Amyl Acetate	5.642	4.391	22.2#	81	0.00

(#) = Out of Range SPCC's out = 4 CCC's out = 33

2018 May 21 1258 Sequence Log

Starting sequence Mon May 21 10:24:51 2018

Instrument Name: VMS11
Sequence File: D:\MassHunter\GCMS\1\sequence\11V180521.sequence.xml
Comment:
Operator: AK
Data Path: C:\GCMS\1\data\11V180521\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 5AC8260.M				
1)	Sample	1	21MAY01	blk
2)	Sample	1	21MAY02	blk
3)	Pause: ' '			
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: bfb.M				
8)	TuneCheck	1	21MAY08	VBFB1-180521
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 5AC8260.M				
9)	Sample	1	21MAY09	blk
10)	Sample	1	21MAY10	BLK
11)	Sample	2	21MAY11	VBLKW1-180521
12)	Sample	3	21MAY12	0.4PPB
13)	Sample	4	21MAY13	0.6PPB
Sequence Table edit performed Mon May 21 17:17:57 2018				
14)	Sample	5	21MAY14	2PPB
15)	Sample	6	21MAY15	4PPB
16)	Sample	7	21MAY16	10PPB
17)	Sample	8	21MAY17	20PPB
18)	Sample	9	21MAY18	40PPB
19)	Sample	10	21MAY19	70PPB
20)	Sample	11	21MAY20	100PPB
21)	Sample	12	21MAY21	BLK
22)	Sample	13	21MAY22	BLK
23)	Sample	14	21MAY23	BLK
24)	Sample	15	21MAY24	DW ICV
25)	Sample	16	21MAY25	ICV
26)	Sample	17	21MAY26	BLK

Sequence completed Mon May 21 22:04:57 2018

C:\GCMS\1\data\11V180521\2018 May 21 1258 Quality Log.LOG
C:\GCMS\1\data\11V180521\2018 May 21 1258 Sequence Log .LOG

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	76	0.00
2	CP	Dichlorodifluoromethane	40.000	37.996	5.0	81	0.00
3	CP	Chloromethane	40.000	44.591	-11.5	85	0.00
4	CP	Vinyl chloride	40.000	37.742	5.6	78	0.00
5	CP	Bromomethane	40.000	32.918	17.7	70	0.00
6	CP	Chloroethane	40.000	39.484	1.3	82	0.00
7	CP	Trichlorofluoromethane	40.000	38.060	4.8	77	0.00
8		Ethanol	800.000	0.000	100.0#	0	0.00
9	C	Ethyl ether	40.000	38.842	2.9	77	0.00
10	C	Acrolein	200.000	276.989	-38.5#	111	0.00
11	CP	1,1-Dichloroethene	40.000	38.716	3.2	73	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	32.559	18.6	62	0.00
13	C	Methyl iodide	40.000	24.437	38.9#	46	0.00
14	CP	Acetone	40.000	42.866	-7.2	81	0.00
15	CP	Carbon disulfide	40.000	34.817	13.0	70	0.00
16	C	Allyl chloride	40.000	39.734	0.7	79	0.00
17	CP	Methyl acetate	40.000	38.711	3.2	74	0.00
18	C	Acetonitrile	40.000	72.576	-81.4#	117	0.00
19	CP	Methylene chloride	40.000	41.453	-3.6	79	0.00
20	C	t-Butanol	200.000	283.899	-41.9#	91	0.00
21	CP	trans-1,2-Dichloroethene	40.000	38.384	4.0	75	0.00
22	C	Acrylonitrile	40.000	44.808	-12.0	86	0.00
23	CP	Methyl tert-butyl ether	40.000	34.039	14.9	67	0.00
24	C	Hexane	40.000	38.437	3.9	74	0.00
25	C	1,1-Dichloroethane	40.000	37.292	6.8	76	0.00
26	C	Diisopropyl ether	40.000	35.639	10.9	69	0.00
27	C	Vinyl acetate	40.000	43.725	-9.3	83	0.00
28	C	Chloroprene	40.000	38.254	4.4	77	0.00
29	C	Ethyl tert butyl ether	40.000	34.332	14.2	67	0.00
30	C	2,2-Dichloropropane	40.000	36.452	8.9	76	0.00
31	CP	cis-1,2-Dichloroethene	40.000	38.970	2.6	77	0.00
32	CP	2-Butanone	40.000	42.565	-6.4	79	-0.01
33	C	Ethyl Acetate	40.000	37.086	7.3	75	0.00
34	C	Methyl acrylate	40.000	44.597	-11.5	83	0.00
35	C	Propionitrile	40.000	48.536	-21.3#	90	-0.01
36	C	Bromochloromethane	40.000	40.012	-0.0	79	0.00
37	C	Tetrahydrofuran	40.000	44.225	-10.6	84	-0.01
38	C	Methacrylonitrile	40.000	40.650	-1.6	77	0.00
39	CP	Chloroform	40.000	37.723	5.7	77	0.00
40	CP	Cyclohexane	40.000	35.341	11.6	68	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	69	0.00
42	CP	1,1,1-Trichloroethane	40.000	39.000	2.5	71	0.00
43	S	Dibromofluoromethane	20.000	19.853	0.7	68	0.00
44	CP	Carbon tetrachloride	40.000	36.885	7.8	69	0.00
45	C	1,1-Dichloropropene	40.000	38.927	2.7	72	0.00
46	S	1,2-Dichloroethane-d4	20.000	22.590	-13.0	80	-0.01
47	CP	1,2-Dichloroethane	40.000	43.515	-8.8	80	0.00
48	CP	Benzene	40.000	40.118	-0.3	73	0.00
49	C	Isobutyl Alcohol	40.000	46.443	-16.1	75	0.00
50	C	Tertiaryamylmethylether	40.000	37.051	7.4	67	0.00

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	42.187	-5.5	75	0.00
52	CP	Methylcyclohexane	40.000	36.682	8.3	66	0.00
53	CP	Trichloroethene	40.000	37.572	6.1	68	0.00
54	C	n-Butanol	400.000	627.112	-56.8#	91	-0.01
55	CP	1,2-Dichloropropane	40.000	39.927	0.2	76	0.00
56	C	Dibromomethane	40.000	40.636	-1.6	76	0.00
57	C	1,4-Dioxane	4000.000	4279.115	-7.0	70	-0.01
58	C	Methyl methacrylate	40.000	41.634	-4.1	80	0.00
59	CP	Bromodichloromethane	40.000	40.193	-0.5	75	0.00
60	C	2-Nitropropane	40.000	45.749	-14.4	82	0.00
61	T	2-Chloroethyl vinyl ether	40.000	35.894	10.3	67	0.00
62	CP	cis-1,3-Dichloropropene	40.000	41.467	-3.7	74	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	69	0.00
64	CP	4-Methyl-2-pentanone	40.000	40.636	-1.6	73	0.00
65	S	Toluene-d8	20.000	20.412	-2.1	71	0.00
66	CP	Toluene	40.000	40.228	-0.6	72	0.00
67	T	Chloropicrin	400.000	424.501	-6.1	73	0.00
68	CP	trans-1,3-Dichloropropene	40.000	43.729	-9.3	74	0.00
69	C	Ethyl methacrylate	40.000	40.184	-0.5	75	0.00
70	CP	1,1,2-Trichloroethane	40.000	37.281	6.8	71	0.00
71	CP	Tetrachloroethene	40.000	35.340	11.6	62	0.00
72	C	1,3-Dichloropropane	40.000	41.736	-4.3	75	0.00
73	CP	2-Hexanone	40.000	44.341	-10.9	76	0.00
74	CP	Chlorodibromomethane	40.000	39.632	0.9	70	0.00
75	C	Butyl acetate	40.000	39.924	0.2	71	0.00
76	CP	1,2-Dibromoethane	40.000	35.910	10.2	69	0.00
77	CP	Chlorobenzene	40.000	39.198	2.0	71	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	38.406	4.0	70	0.00
79	CP	Ethylbenzene	40.000	41.186	-3.0	72	0.00
80	CP	m/p-Xylene	80.000	82.574	-3.2	73	0.00
81	CP	Styrene	40.000	41.185	-3.0	71	0.00
82	CP	o-Xylene	40.000	41.778	-4.4	74	0.00
83	C	Cyclohexanone	200.000	127.991	36.0#	46	0.00
84	CP	Bromoform	40.000	38.068	4.8	65	0.00
85	CP	Isopropylbenzene	40.000	39.339	1.7	70	0.00
86	S	Bromofluorobenzene	20.000	21.337	-6.7	75	0.00
87	C	Bromobenzene	40.000	41.279	-3.2	75	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	40.553	-1.4	75	0.00
89	C	1,2,3-Trichloropropane	40.000	40.069	-0.2	75	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	43.149	-7.9	81	0.00
91	C	n-Propylbenzene	40.000	42.038	-5.1	72	0.00
92	C	2-Chlorotoluene	40.000	41.599	-4.0	72	0.00
93	C	4-Chlorotoluene	40.000	42.502	-6.3	73	0.00
94	C	1,3,5-Trimethylbenzene	40.000	41.207	-3.0	73	0.00
95	C	tert-Butylbenzene	40.000	42.386	-6.0	73	0.00
96	C	1,2,4-Trimethylbenzene	40.000	41.870	-4.7	73	0.00
97	C	sec-Butylbenzene	40.000	39.450	1.4	70	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	68	0.00
99	CP	1,3-Dichlorobenzene	40.000	39.271	1.8	68	0.00

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	40.384	-1.0	70	0.00
101	CP	1,4-Dichlorobenzene	40.000	40.445	-1.1	69	0.00
102	C	1,2,3-Trimethylbenzene	40.000	41.490	-3.7	71	0.00
103	C	Benzyl chloride	40.000	42.341	-5.9	76	0.00
104	CP	1,2-Dichlorobenzene	40.000	39.879	0.3	69	0.00
105	C	n-Butylbenzene	40.000	43.558	-8.9	74	0.00
106	C	Hexachloroethane	40.000	38.979	2.6	67	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	38.644	3.4	67	0.00
108	C	1,3,5-Trichlorobenzene	40.000	39.147	2.1	67	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	40.511	-1.3	67	0.00
110	C	Hexachlorobutadiene	40.000	35.643	10.9	65	0.00
111	C	Naphthalene	40.000	40.885	-2.2	68	0.00
112	C	1,2,3-Trichlorobenzene	40.000	40.092	-0.2	68	0.00
113	C	2-Methylnaphthalene	40.000	35.791	10.5	58	0.00
114	C	1-Methylnaphthalene	40.000	33.865	15.3	54	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	79	0.00
116	C	2-Propanone	40.000	43.521	-8.8	81	0.00
117		Isopropyl Alcohol	800.000	1348.663	-68.6#	105	0.00
118	C	Acetic Ether	40.000	35.170	12.1	76	0.00
119	C	Isopropyl Acetate	40.000	33.919	15.2#	70	0.00
120	C	Amyl Acetate	40.000	37.790	5.5	70	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 8

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	76	0.00
2	CP	Dichlorodifluoromethane	1.111	1.055	5.0	81	0.00
3	CP	Chloromethane	1.323	1.235	6.7	85	0.00
4	CP	Vinyl chloride	1.151	1.032	10.3	78	0.00
5	CP	Bromomethane	0.603	0.476	21.1#	70	0.00
6	CP	Chloroethane	0.712	0.625	12.2	82	0.00
7	CP	Trichlorofluoromethane	1.302	1.239	4.8	77	0.00
8		Ethanol	0.000	0.009	0.0	0#	0.00
9	C	Ethyl ether	0.688	0.668	2.9	77	0.00
10	C	Acrolein	0.102	0.139	-36.3#	111	0.00
11	CP	1,1-Dichloroethene	1.126	1.089	3.3	73	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.540	0.439	18.7	62	0.00
13	C	Methyl iodide	0.954	0.583	38.9#	46#	0.00
14	CP	Acetone	0.393	0.294	25.2#	81	0.00
15	CP	Carbon disulfide	2.406	2.095	12.9	70	0.00
16	C	Allyl chloride	1.454	1.444	0.7	79	0.00
17	CP	Methyl acetate	0.823	0.757	8.0	74	0.00
18	C	Acetonitrile	0.035	0.058	-65.7#	117	0.00
19	CP	Methylene chloride	1.152	1.055	8.4	79	0.00
20	C	t-Butanol	0.073	0.082	-12.3	91	0.00
21	CP	trans-1,2-Dichloroethene	1.142	1.096	4.0	75	0.00
22	C	Acrylonitrile	0.413	0.428	-3.6	86	0.00
23	CP	Methyl tert-butyl ether	2.537	2.159	14.9	67	0.00
24	C	Hexane	0.957	0.919	4.0	74	0.00
25	C	1,1-Dichloroethane	1.536	1.432	6.8	76	0.00
26	C	Diisopropyl ether	2.923	2.605	10.9	69	0.00
27	C	Vinyl acetate	0.207	0.194	6.3	83	0.00
28	C	Chloroprene	1.334	1.276	4.3	77	0.00
29	C	Ethyl tert butyl ether	2.738	2.350	14.2	67	0.00
30	C	2,2-Dichloropropane	1.279	1.166	8.8	76	0.00
31	CP	cis-1,2-Dichloroethene	1.308	1.274	2.6	77	0.00
32	CP	2-Butanone	0.510	0.472	7.5	79	-0.01
33	C	Ethyl Acetate	1.106	1.025	7.3	75	0.00
34	C	Methyl acrylate	0.885	0.987	-11.5	83	0.00
35	C	Propionitrile	0.185	0.154	16.8	90	-0.01
36	C	Bromochloromethane	0.708	0.708	0.0	79	0.00
37	C	Tetrahydrofuran	0.386	0.353	8.5	84	-0.01
38	C	Methacrylonitrile	0.469	0.419	10.7	77	0.00
39	CP	Chloroform	1.421	1.340	5.7	77	0.00
40	CP	Cyclohexane	1.410	1.245	11.7	68	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	69	0.00
42	CP	1,1,1-Trichloroethane	0.634	0.618	2.5	71	0.00
43	S	Dibromofluoromethane	0.320	0.318	0.6	68	0.00
44	CP	Carbon tetrachloride	0.539	0.497	7.8	69	0.00
45	C	1,1-Dichloropropene	0.587	0.571	2.7	72	0.00
46	S	1,2-Dichloroethane-d4	0.378	0.427	-13.0	80	-0.01
47	CP	1,2-Dichloroethane	0.563	0.612	-8.7	80	0.00
48	CP	Benzene	1.696	1.701	-0.3	73	0.00
49	C	Isobutyl Alcohol	0.438	0.445	-1.6	75	0.00
50	C	Tertiaryamylmethylether	1.319	1.222	7.4	67	0.00

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.422	0.445	-5.5	75	0.00
52	CP	Methylcyclohexane	0.637	0.585	8.2	66	0.00
53	CP	Trichloroethene	0.432	0.406	6.0	68	0.00
54	C	n-Butanol	0.006	0.009	-50.0#	91	-0.01
55	CP	1,2-Dichloropropane	0.460	0.459	0.2	76	0.00
56	C	Dibromomethane	0.267	0.272	-1.9	76	0.00
57	C	1,4-Dioxane	0.002	0.002	0.0	70	-0.01
58	C	Methyl methacrylate	0.505	0.525	-4.0	80	0.00
59	CP	Bromodichloromethane	0.585	0.588	-0.5	75	0.00
60	C	2-Nitropropane	0.181	0.178	1.7	82	0.00
61	T	2-Chloroethyl vinyl ether	0.348	0.312	10.3	67	0.00
62	CP	cis-1,3-Dichloropropene	0.706	0.732	-3.7	74	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	69	0.00
64	CP	4-Methyl-2-pentanone	0.644	0.655	-1.7	73	0.00
65	S	Toluene-d8	1.295	1.321	-2.0	71	0.00
66	CP	Toluene	1.877	1.888	-0.6	72	0.00
67	T	Chloropicrin	0.146	0.221	-51.4#	73	0.00
68	CP	trans-1,3-Dichloropropene	0.692	0.736	-6.4	74	0.00
69	C	Ethyl methacrylate	0.713	0.716	-0.4	75	0.00
70	CP	1,1,2-Trichloroethane	0.430	0.401	6.7	71	0.00
71	CP	Tetrachloroethene	0.461	0.407	11.7	62	0.00
72	C	1,3-Dichloropropane	0.719	0.750	-4.3	75	0.00
73	CP	2-Hexanone	0.458	0.484	-5.7	76	0.00
74	CP	Chlorodibromomethane	0.453	0.448	1.1	70	0.00
75	C	Butyl acetate	0.999	0.998	0.1	71	0.00
76	CP	1,2-Dibromoethane	0.403	0.362	10.2	69	0.00
77	CP	Chlorobenzene	1.188	1.164	2.0	71	0.00
78	C	1,1,1,2-Tetrachloroethane	0.420	0.403	4.0	70	0.00
79	CP	Ethylbenzene	2.082	2.144	-3.0	72	0.00
80	CP	m/p-Xylene	1.616	1.668	-3.2	73	0.00
81	CP	Styrene	1.259	1.297	-3.0	71	0.00
82	CP	o-Xylene	1.624	1.697	-4.5	74	0.00
83	C	Cyclohexanone	0.019	0.012	36.8#	46#	0.00
84	CP	Bromoform	0.311	0.296	4.8	65	0.00
85	CP	Isopropylbenzene	1.916	1.884	1.7	70	0.00
86	S	Bromofluorobenzene	0.513	0.547	-6.6	75	0.00
87	C	Bromobenzene	0.816	0.843	-3.3	75	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.619	0.628	-1.5	75	0.00
89	C	1,2,3-Trichloropropane	0.190	0.190	0.0	75	0.00
90	C	trans-1,4-Dichloro-2-butene	0.217	0.235	-8.3	81	0.00
91	C	n-Propylbenzene	2.225	2.338	-5.1	72	0.00
92	C	2-Chlorotoluene	2.249	2.338	-4.0	72	0.00
93	C	4-Chlorotoluene	1.518	1.613	-6.3	73	0.00
94	C	1,3,5-Trimethylbenzene	1.451	1.495	-3.0	73	0.00
95	C	tert-Butylbenzene	0.774	0.820	-5.9	73	0.00
96	C	1,2,4-Trimethylbenzene	1.448	1.516	-4.7	73	0.00
97	C	sec-Butylbenzene	1.661	1.638	1.4	70	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	68	0.00
99	CP	1,3-Dichlorobenzene	1.626	1.596	1.8	68	0.00

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.828	2.855	-1.0	70	0.00
101	CP	1,4-Dichlorobenzene	1.608	1.626	-1.1	69	0.00
102	C	1,2,3-Trimethylbenzene	3.036	3.149	-3.7	71	0.00
103	C	Benzyl chloride	2.451	2.595	-5.9	76	0.00
104	CP	1,2-Dichlorobenzene	1.456	1.452	0.3	69	0.00
105	C	n-Butylbenzene	2.449	2.667	-8.9	74	0.00
106	C	Hexachloroethane	0.508	0.496	2.4	67	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.266	0.257	3.4	67	0.00
108	C	1,3,5-Trichlorobenzene	0.874	0.855	2.2	67	0.00
109	CP	1,2,4-Trichlorobenzene	0.726	0.736	-1.4	67	0.00
110	C	Hexachlorobutadiene	0.322	0.287	10.9	65	0.00
111	C	Naphthalene	2.628	2.686	-2.2	68	0.00
112	C	1,2,3-Trichlorobenzene	0.605	0.606	-0.2	68	0.00
113	C	2-Methylnaphthalene	0.885	0.759	14.2	58	0.00
114	C	1-Methylnaphthalene	0.723	0.579	19.9	54	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	79	0.00
116	C	2-Propanone	1.153	0.810	29.7#	81	0.00
117		Isopropyl Alcohol	0.065	0.111	-70.8#	105	0.00
118	C	Acetic Ether	3.269	2.874	12.1	76	0.00
119	C	Isopropyl Acetate	8.465	7.178	15.2#	70	0.00
120	C	Amyl Acetate	5.642	4.824	14.5	70	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 9

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.761	168	116771	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	207425	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	199578	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.418	152	94646	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.749	46	42332	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.620	111	65918	19.85	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.25%				
46) 1,2-Dichloroethane-d4	5.228	65	88629	22.59	ug/L		-0.01
Spiked Amount 20.000	Range 75 - 120		Recovery = 112.95%				
65) Toluene-d8	8.903	98	263698	20.41	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.05%				
86) Bromofluorobenzene	12.191	95	109193	21.34	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 106.70%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.955	85	246382	38.00	ug/L		99
3) Chloromethane	1.065	50	288383	44.59	ug/L		99
4) Vinyl chloride	1.128	62	241003	37.74	ug/L		99
5) Bromomethane	1.327	94	111159	32.92	ug/L		99
6) Chloroethane	1.395	64	146077	39.48	ug/L		98
7) Trichlorofluoromethane	1.552	101	289260	38.06	ug/L		100
8) Ethanol	1.683	45	40433	No Calib		#	
9) Ethyl ether	1.752	59	156095	38.84	ug/L		97
10) Acrolein	1.851	56	162447	276.99	ug/L		97
11) 1,1-Dichloroethene	1.919	61	254417	38.72	ug/L		94
12) 1,1,2-Trichlorotrifluo...	1.930	151	102559	32.56	ug/L		95
13) Methyl iodide	2.035	142	136118m	24.44	ug/L		
14) Acetone	1.961	43	68561	42.87	ug/L		94
15) Carbon disulfide	2.082	76	489156	34.82	ug/L		99
16) Allyl chloride	2.218	41	337258	39.73	ug/L		98
17) Methyl acetate	2.218	43	176778	38.71	ug/L		99
18) Acetonitrile	2.087	41	13529	72.58	ug/L	#	54
19) Methylene chloride	2.334	49	246347	41.45	ug/L		95
20) t-Butanol	2.454	59	96010	283.90	ug/L		97
21) trans-1,2-Dichloroethene	2.585	61	255879	38.38	ug/L		95
22) Acrylonitrile	2.559	53	99846	44.81	ug/L		94
23) Methyl tert-butyl ether	2.585	73	504132	34.04	ug/L		99
24) Hexane	2.874	57	214661	38.44	ug/L		99
25) 1,1-Dichloroethane	3.052	63	334445	37.29	ug/L		99
26) Diisopropyl ether	3.120	45	608272	35.64	ug/L	#	53
27) Vinyl acetate	3.083	86	45338	43.73	ug/L	#	4
28) Chloroprene	3.131	53	298035	38.25	ug/L		95
29) Ethyl tert butyl ether	3.587	59	548904	34.33	ug/L		99
30) 2,2-Dichloropropane	3.781	77	272277	36.45	ug/L		95
31) cis-1,2-Dichloroethene	3.786	61	297507	38.97	ug/L		95
32) 2-Butanone	3.807	43	110304	42.57	ug/L		99
33) Ethyl Acetate	3.901	43	239395	37.09	ug/L		99
34) Methyl acrylate	3.943	55	230458	44.60	ug/L		97
35) Propionitrile	3.901	54	35912	48.54	ug/L	#	97
36) Bromochloromethane	4.132	49	165373	40.01	ug/L		90
37) Tetrahydrofuran	4.153	42	82536	44.22	ug/L		96
38) Methacrylonitrile	4.121	67	97893	40.65	ug/L		94

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	4.347	83	312936	37.72	ug/L		99
40)	Cyclohexane	4.646	56	290867	35.34	ug/L		97
42)	1,1,1-Trichloroethane	4.557	97	256338	39.00	ug/L		99
44)	Carbon tetrachloride	4.819	119	206209	36.89	ug/L		99
45)	1,1-Dichloropropene	4.861	75	236866	38.93	ug/L		99
47)	1,2-Dichloroethane	5.385	62	253885	43.52	ug/L		98
48)	Benzene	5.223	78	705568	40.12	ug/L		99
49)	Isobutyl Alcohol	5.983	43	184629	46.44	ug/L	#	100
50)	Tertiaryamylmethylether	5.611	73	506997	37.05	ug/L		96
51)	Heptane	5.983	43	184629	42.19	ug/L		99
52)	Methylcyclohexane	7.089	83	242480	36.68	ug/L		97
53)	Trichloroethene	6.654	130	168448	37.57	ug/L		94
54)	n-Butanol	6.827	56	37658	627.11	ug/L		97
55)	1,2-Dichloropropane	7.210	63	190493	39.93	ug/L		96
56)	Dibromomethane	7.367	93	112684	40.64	ug/L		99
57)	1,4-Dioxane	7.425	88	84033	4279.12	ug/L	#	84
58)	Methyl methacrylate	7.524	41	217905	41.63	ug/L		96
59)	Bromodichloromethane	7.792	83	243826	40.19	ug/L		100
60)	2-Nitropropane	8.211	43	73973	45.75	ug/L	#	98
61)	2-Chloroethyl vinyl ether	8.389	63	129492	35.89	ug/L		97
62)	cis-1,3-Dichloropropene	8.541	75	303816	41.47	ug/L		99
64)	4-Methyl-2-pentanone	8.840	43	261292	40.64	ug/L		96
66)	Toluene	8.998	91	753407	40.23	ug/L		99
67)	Chloropicrin	9.386	117	881546	424.50	ug/L		99
68)	trans-1,3-Dichloropropene	9.427	75	293761	43.73	ug/L		100
69)	Ethyl methacrylate	9.585	69	285751	40.18	ug/L		96
70)	1,1,2-Trichloroethane	9.674	97	159922	37.28	ug/L		95
71)	Tetrachloroethene	9.690	166	162483	35.34	ug/L		95
72)	1,3-Dichloropropane	9.863	76	299354	41.74	ug/L		99
73)	2-Hexanone	10.015	43	193071	44.34	ug/L		97
74)	Chlorodibromomethane	10.120	129	179007	39.63	ug/L		99
75)	Butyl acetate	10.219	43	398192	39.92	ug/L		98
76)	1,2-Dibromoethane	10.214	107	144319	35.91	ug/L	#	95
77)	Chlorobenzene	10.838	112	464503	39.20	ug/L		98
78)	1,1,1,2-Tetrachloroethane	10.979	131	160839	38.41	ug/L		100
79)	Ethylbenzene	10.995	91	855765	41.19	ug/L		99
80)	m/p-Xylene	11.158	91	1331714	82.57	ug/L		97
81)	Styrene	11.619	104	517570	41.19	ug/L		95
82)	o-Xylene	11.588	91	677241	41.78	ug/L		97
83)	Cyclohexanone	12.086	55	24870	127.99	ug/L		96
84)	Bromoform	11.792	173	118263	38.07	ug/L		99
85)	Isopropylbenzene	12.018	105	751984	39.34	ug/L		98
87)	Bromobenzene	12.306	77	336299	41.28	ug/L		92
88)	1,1,2,2-Tetrachloroethane	12.395	83	250632	40.55	ug/L		100
89)	1,2,3-Trichloropropane	12.427	110	75968	40.07	ug/L		93
90)	trans-1,4-Dichloro-2-b...	12.432	53	93644	43.15	ug/L		90
91)	n-Propylbenzene	12.474	91	933380	42.04	ug/L		99
92)	2-Chlorotoluene	12.474	91	933380	41.60	ug/L		100
93)	4-Chlorotoluene	12.673	91	643645	42.50	ug/L		96
94)	1,3,5-Trimethylbenzene	12.683	105	596829	41.21	ug/L		96
95)	tert-Butylbenzene	13.003	91	327457	42.39	ug/L		96
96)	1,2,4-Trimethylbenzene	13.071	105	604996	41.87	ug/L		97
97)	sec-Butylbenzene	13.239	105	653731	39.45	ug/L		98
99)	1,3-Dichlorobenzene	13.328	146	302142	39.27	ug/L		97
100)	p-Isopropyltoluene	13.418	119	540486	40.38	ug/L		97

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

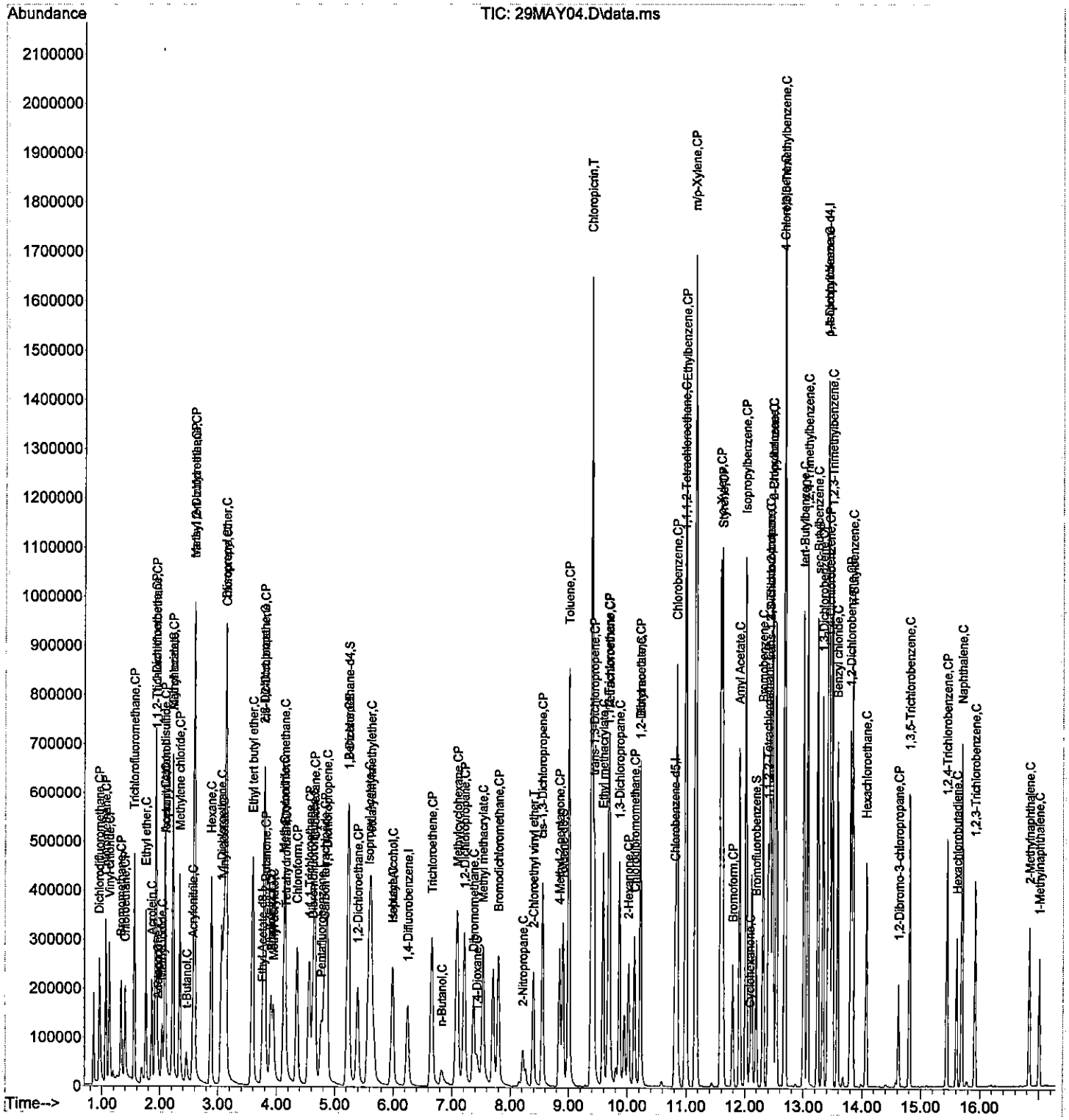
Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	13:444	146	307696	40.45	ug/L	99
102) 1,2,3-Trimethylbenzene	13.486	105	596026	41.49	ug/L	98
103) Benzyl chloride	13.575	91	491166	42.34	ug/L	98
104) 1,2-Dichlorobenzene	13.800	146	274824	39.88	ug/L	98
105) n-Butylbenzene	13.837	91	504895	43.56	ug/L	99
106) Hexachloroethane	14.068	117	93797	38.98	ug/L	95
107) 1,2-Dibromo-3-chloropr...	14.618	157	48687	38.64	ug/L	87
108) 1,3,5-Trichlorobenzene	14.802	180	161875	39.15	ug/L	98
109) 1,2,4-Trichlorobenzene	15.436	180	139255	40.51	ug/L	100
110) Hexachlorobutadiene	15.604	225	54308	35.64	ug/L	99
111) Naphthalene	15.693	128	508446	40.88	ug/L	99
112) 1,2,3-Trichlorobenzene	15.913	180	114759	40.09	ug/L	99
113) 2-Methylnaphthalene	16.836	142	143685	35.79	ug/L	99
114) 1-Methylnaphthalene	17.004	142	109662	33.87	ug/L	98
116) 2-Propanone	1.961	43	68561	43.52	ug/L	94
117) Isopropyl Alcohol	2.087	45	188043	1348.66	ug/L	96
118) Acetic Ether	3.901	43	243334	35.17	ug/L	99
119) Isopropyl Acetate	5.579	43	607742	33.92	ug/L	95
120) Amyl Acetate	11.907	43	408434	37.79	ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY04.D
Acq On : 29 May 2018 09:48 am
Operator : AK
Sample : VCCV1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Quant Time: May 29 12:43:27 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	61	0.00
2	CP	Dichlorodifluoromethane	40.000	34.934	12.7	60	0.00
3	CP	Chloromethane	40.000	43.183	-8.0	66	0.00
4	CP	Vinyl chloride	40.000	36.922	7.7	62	0.00
5	CP	Bromomethane	40.000	34.602	13.5	59	0.00
6	CP	Chloroethane	40.000	36.299	9.3	60	0.00
7	CP	Trichlorofluoromethane	40.000	39.632	0.9	64	0.00
8		Ethanol	800.000	0.000	100.0#	0	0.00
9	C	Ethyl ether	40.000	42.403	-6.0	68	0.00
10	C	Acrolein	200.000	192.329	3.8	55	0.00
11	CP	1,1-Dichloroethene	40.000	42.548	-6.4	64	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	35.239	11.9	54	0.00
13	C	Methyl iodide	40.000	18.008	55.0#	27	0.00
14	CP	Acetone	40.000	51.215	-28.0#	78	0.00
15	CP	Carbon disulfide	40.000	36.656	8.4	59	0.00
16	C	Allyl chloride	40.000	43.714	-9.3	70	0.00
17	CP	Methyl acetate	40.000	44.288	-10.7	68	0.00
18	C	Acetonitrile	40.000	86.059	-115.1#	116	0.00
19	CP	Methylene chloride	40.000	46.501	-16.3	71	0.00
20	C	t-Butanol	200.000	376.721	-88.4#	96	0.00
21	CP	trans-1,2-Dichloroethene	40.000	43.693	-9.2	69	0.00
22	C	Acrylonitrile	40.000	47.664	-19.2	73	0.00
23	CP	Methyl tert-butyl ether	40.000	38.958	2.6	61	0.00
24	C	Hexane	40.000	40.362	-0.9	62	0.00
25	C	1,1-Dichloroethane	40.000	42.200	-5.5	69	0.00
26	C	Diisopropyl ether	40.000	41.324	-3.3	65	0.00
27	C	Vinyl acetate	40.000	46.604	-16.5	71	0.00
28	C	Chloroprene	40.000	43.504	-8.8	70	0.00
29	C	Ethyl tert butyl ether	40.000	39.684	0.8	62	0.00
30	C	2,2-Dichloropropane	40.000	42.605	-6.5	71	0.00
31	CP	cis-1,2-Dichloroethene	40.000	44.813	-12.0	71	0.00
32	CP	2-Butanone	40.000	50.265	-25.7#	75	0.00
33	C	Ethyl Acetate	40.000	42.564	-6.4	69	0.00
34	C	Methyl acrylate	40.000	48.093	-20.2#	72	0.00
35	C	Propionitrile	40.000	55.998	-40.0#	83	0.00
36	C	Bromochloromethane	40.000	42.653	-6.6	67	0.00
37	C	Tetrahydrofuran	40.000	50.512	-26.3#	77	0.00
38	C	Methacrylonitrile	40.000	45.136	-12.8	69	0.00
39	CP	Chloroform	40.000	42.707	-6.8	70	0.00
40	CP	Cyclohexane	40.000	40.329	-0.8	62	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	58	0.00
42	CP	1,1,1-Trichloroethane	40.000	43.741	-9.4	67	0.00
43	S	Dibromofluoromethane	20.000	20.012	-0.1	57	0.00
44	CP	Carbon tetrachloride	40.000	41.103	-2.8	64	0.00
45	C	1,1-Dichloropropene	40.000	43.322	-8.3	67	0.00
46	S	1,2-Dichloroethane-d4	20.000	22.803	-14.0	67	0.00
47	CP	1,2-Dichloroethane	40.000	47.727	-19.3	73	0.00
48	CP	Benzene	40.000	43.551	-8.9	66	0.00
49	C	Isobutyl Alcohol	40.000	50.913	-27.3#	66	0.00
50	C	Tertiaryamylmethylether	40.000	40.134	-0.3	60	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	44.472	-11.2	66	0.00
52	CP	Methylcyclohexane	40.000	38.959	2.6	58	0.00
53	CP	Trichloroethene	40.000	39.433	1.4	59	0.00
54	C	n-Butanol	400.000	859.843	-115.0#	105	-0.01
55	CP	1,2-Dichloropropane	40.000	43.353	-8.4	69	0.00
56	C	Dibromomethane	40.000	43.027	-7.6	67	0.00
57	C	1,4-Dioxane	4000.000	7046.421	-76.2#	85	0.00
58	C	Methyl methacrylate	40.000	44.259	-10.6	71	0.00
59	CP	Bromodichloromethane	40.000	42.693	-6.7	66	0.00
60	C	2-Nitropropane	40.000	47.576	-18.9	71	0.00
61	T	2-Chloroethyl vinyl ether	40.000	39.544	1.1	62	0.00
62	CP	cis-1,3-Dichloropropene	40.000	44.303	-10.8	66	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	59	0.00
64	CP	4-Methyl-2-pentanone	40.000	43.184	-8.0	66	0.00
65	S	Toluene-d8	20.000	20.477	-2.4	60	0.00
66	CP	Toluene	40.000	43.147	-7.9	65	0.00
67	T	Chloropicrin	400.000	436.714	-9.2	63	0.00
68	CP	trans-1,3-Dichloropropene	40.000	45.995	-15.0	66	0.00
69	C	Ethyl methacrylate	40.000	42.351	-5.9	66	0.00
70	CP	1,1,2-Trichloroethane	40.000	38.493	3.8	62	0.00
71	CP	Tetrachloroethene	40.000	36.588	8.5	55	0.00
72	C	1,3-Dichloropropane	40.000	43.972	-9.9	67	0.00
73	CP	2-Hexanone	40.000	48.552	-21.4#	70	0.00
74	CP	Chlorodibromomethane	40.000	40.784	-2.0	61	0.00
75	C	Butyl acetate	40.000	43.325	-8.3	65	0.00
76	CP	1,2-Dibromoethane	40.000	35.135	12.2	57	0.00
77	CP	Chlorobenzene	40.000	40.738	-1.8	62	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	40.858	-2.1	62	0.00
79	CP	Ethylbenzene	40.000	43.058	-7.6	63	0.00
80	CP	m/p-Xylene	80.000	85.286	-6.6	64	0.00
81	CP	Styrene	40.000	42.015	-5.0	61	0.00
82	CP	o-Xylene	40.000	43.084	-7.7	64	0.00
83	C	Cyclohexanone	200.000	209.243	-4.6	58	0.00
84	CP	Bromoform	40.000	37.791	5.5	55	0.00
85	CP	Isopropylbenzene	40.000	39.910	0.2	60	0.00
86	S	Bromofluorobenzene	20.000	21.479	-7.4	63	0.00
87	C	Bromobenzene	40.000	42.540	-6.3	65	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	42.559	-6.4	66	0.00
89	C	1,2,3-Trichloropropane	40.000	42.028	-5.1	66	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	45.127	-12.8	72	0.00
91	C	n-Propylbenzene	40.000	42.460	-6.2	62	0.00
92	C	2-Chlorotoluene	40.000	42.017	-5.0	62	0.00
93	C	4-Chlorotoluene	40.000	42.771	-6.9	62	0.00
94	C	1,3,5-Trimethylbenzene	40.000	39.951	0.1	60	0.00
95	C	tert-Butylbenzene	40.000	42.868	-7.2	63	0.00
96	C	1,2,4-Trimethylbenzene	40.000	40.970	-2.4	60	0.00
97	C	sec-Butylbenzene	40.000	39.751	0.6	60	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	57	0.00
99	CP	1,3-Dichlorobenzene	40.000	38.344	4.1	56	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	40.714	-1.8	59	0.00
101	CP	1,4-Dichlorobenzene	40.000	39.156	2.1	56	0.00
102	C	1,2,3-Trimethylbenzene	40.000	41.691	-4.2	60	0.00
103	C	Benzyl chloride	40.000	42.443	-6.1	64	0.00
104	CP	1,2-Dichlorobenzene	40.000	39.133	2.2	57	0.00
105	C	n-Butylbenzene	40.000	44.451	-11.1	64	0.00
106	C	Hexachloroethane	40.000	38.707	3.2	56	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	39.864	0.3	58	0.00
108	C	1,3,5-Trichlorobenzene	40.000	39.694	0.8	57	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	40.889	-2.2	57	0.00
110	C	Hexachlorobutadiene	40.000	38.956	2.6	60	0.00
111	C	Naphthalene	40.000	42.679	-6.7	60	0.00
112	C	1,2,3-Trichlorobenzene	40.000	42.778	-6.9	61	0.00
113	C	2-Methylnaphthalene	40.000	47.751	-19.4	67	0.00
114	C	1-Methylnaphthalene	40.000	47.160	-17.9	65	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	68	0.00
116	C	2-Propanone	40.000	48.941	-22.4#	78	0.00
117		Isopropyl Alcohol	800.000	-20.000	102.5#	107	0.00
118	C	Acetic Ether	40.000	37.421	6.4	69	0.00
119	C	Isopropyl Acetate	40.000	36.077	9.8#	64	0.00
120	C	Amyl Acetate	40.000	40.636	-1.6	64	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 14

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	61	0.00
2	CP	Dichlorodifluoromethane	1.111	0.970	12.7	60	0.00
3	CP	Chloromethane	1.323	1.192	9.9	66	0.00
4	CP	Vinyl chloride	1.151	1.009	12.3	62	0.00
5	CP	Bromomethane	0.603	0.500	17.1	59	0.00
6	CP	Chloroethane	0.712	0.575	19.2	60	0.00
7	CP	Trichlorofluoromethane	1.302	1.290	0.9	64	0.00
8		Ethanol	0.000	0.013	0.0	0#	0.00
9	C	Ethyl ether	0.688	0.730	-6.1	68	0.00
10	C	Acrolein	0.102	0.086	15.7	55	0.00
11	CP	1,1-Dichloroethene	1.126	1.197	-6.3	64	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.540	0.475	12.0	54	0.00
13	C	Methyl iodide	0.954	0.430	54.9#	27#	0.00
14	CP	Acetone	0.393	0.350	10.9	78	0.00
15	CP	Carbon disulfide	2.406	2.205	8.4	59	0.00
16	C	Allyl chloride	1.454	1.589	-9.3	70	0.00
17	CP	Methyl acetate	0.823	0.868	-5.5	68	0.00
18	C	Acetonitrile	0.035	0.071	-102.9#	116	0.00
19	CP	Methylene chloride	1.152	1.183	-2.7	71	0.00
20	C	t-Butanol	0.073	0.109	-49.3#	96	0.00
21	CP	trans-1,2-Dichloroethene	1.142	1.247	-9.2	69	0.00
22	C	Acrylonitrile	0.413	0.455	-10.2	73	0.00
23	CP	Methyl tert-butyl ether	2.537	2.471	2.6	61	0.00
24	C	Hexane	0.957	0.965	-0.8	62	0.00
25	C	1,1-Dichloroethane	1.536	1.621	-5.5	69	0.00
26	C	Diisopropyl ether	2.923	3.020	-3.3	65	0.00
27	C	Vinyl acetate	0.207	0.207	0.0	71	0.00
28	C	Chloroprene	1.334	1.451	-8.8	70	0.00
29	C	Ethyl tert butyl ether	2.738	2.717	0.8	62	0.00
30	C	2,2-Dichloropropane	1.279	1.363	-6.6	71	0.00
31	CP	cis-1,2-Dichloroethene	1.308	1.465	-12.0	71	0.00
32	CP	2-Butanone	0.510	0.558	-9.4	75	0.00
33	C	Ethyl Acetate	1.106	1.176	-6.3	69	0.00
34	C	Methyl acrylate	0.885	1.064	-20.2#	72	0.00
35	C	Propionitrile	0.185	0.177	4.3	83	0.00
36	C	Bromochloromethane	0.708	0.755	-6.6	67	0.00
37	C	Tetrahydrofuran	0.386	0.404	-4.7	77	0.00
38	C	Methacrylonitrile	0.469	0.466	0.6	69	0.00
39	CP	Chloroform	1.421	1.517	-6.8	70	0.00
40	CP	Cyclohexane	1.410	1.421	-0.8	62	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	58	0.00
42	CP	1,1,1-Trichloroethane	0.634	0.693	-9.3	67	0.00
43	S	Dibromofluoromethane	0.320	0.320	0.0	57	0.00
44	CP	Carbon tetrachloride	0.539	0.554	-2.8	64	0.00
45	C	1,1-Dichloropropene	0.587	0.635	-8.2	67	0.00
46	S	1,2-Dichloroethane-d4	0.378	0.431	-14.0	67	0.00
47	CP	1,2-Dichloroethane	0.563	0.671	-19.2	73	0.00
48	CP	Benzene	1.696	1.846	-8.8	66	0.00
49	C	Isobutyl Alcohol	0.438	0.469	-7.1	66	0.00
50	C	Tertiaryamylmethylether	1.319	1.324	-0.4	60	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.422	0.469	-11.1	66	0.00
52	CP	Methylcyclohexane	0.637	0.621	2.5	58	0.00
53	CP	Trichloroethene	0.432	0.426	1.4	59	0.00
54	C	n-Butanol	0.006	0.012	-100.0#	105	-0.01
55	CP	1,2-Dichloropropane	0.460	0.499	-8.5	69	0.00
56	C	Dibromomethane	0.267	0.288	-7.9	67	0.00
57	C	1,4-Dioxane	0.002	0.003	-50.0#	85	0.00
58	C	Methyl methacrylate	0.505	0.558	-10.5	71	0.00
59	CP	Bromodichloromethane	0.585	0.624	-6.7	66	0.00
60	C	2-Nitropropane	0.181	0.185	-2.2	71	0.00
61	T	2-Chloroethyl vinyl ether	0.348	0.344	1.1	62	0.00
62	CP	cis-1,3-Dichloropropene	0.706	0.782	-10.8	66	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	59	0.00
64	CP	4-Methyl-2-pentanone	0.644	0.696	-8.1	66	0.00
65	S	Toluene-d8	1.295	1.326	-2.4	60	0.00
66	CP	Toluene	1.877	2.024	-7.8	65	0.00
67	T	Chloropicrin	0.146	0.229	-56.8#	63	0.00
68	CP	trans-1,3-Dichloropropene	0.692	0.775	-12.0	66	0.00
69	C	Ethyl methacrylate	0.713	0.754	-5.8	66	0.00
70	CP	1,1,2-Trichloroethane	0.430	0.414	3.7	62	0.00
71	CP	Tetrachloroethene	0.461	0.421	8.7	55	0.00
72	C	1,3-Dichloropropane	0.719	0.790	-9.9	67	0.00
73	CP	2-Hexanone	0.458	0.530	-15.7	70	0.00
74	CP	Chlorodibromomethane	0.453	0.462	-2.0	61	0.00
75	C	Butyl acetate	0.999	1.083	-8.4	65	0.00
76	CP	1,2-Dibromoethane	0.403	0.354	12.2	57	0.00
77	CP	Chlorobenzene	1.188	1.209	-1.8	62	0.00
78	C	1,1,1,2-Tetrachloroethane	0.420	0.429	-2.1	62	0.00
79	CP	Ethylbenzene	2.082	2.241	-7.6	63	0.00
80	CP	m/p-Xylene	1.616	1.723	-6.6	64	0.00
81	CP	Styrene	1.259	1.323	-5.1	61	0.00
82	CP	o-Xylene	1.624	1.750	-7.8	64	0.00
83	C	Cyclohexanone	0.019	0.019	0.0	58	0.00
84	CP	Bromoform	0.311	0.294	5.5	55	0.00
85	CP	Isopropylbenzene	1.916	1.911	0.3	60	0.00
86	S	Bromofluorobenzene	0.513	0.551	-7.4	63	0.00
87	C	Bromobenzene	0.816	0.868	-6.4	65	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.619	0.659	-6.5	66	0.00
89	C	1,2,3-Trichloropropane	0.190	0.200	-5.3	66	0.00
90	C	trans-1,4-Dichloro-2-butene	0.217	0.245	-12.9	72	0.00
91	C	n-Propylbenzene	2.225	2.362	-6.2	62	0.00
92	C	2-Chlorotoluene	2.249	2.362	-5.0	62	0.00
93	C	4-Chlorotoluene	1.518	1.623	-6.9	62	0.00
94	C	1,3,5-Trimethylbenzene	1.451	1.450	0.1	60	0.00
95	C	tert-Butylbenzene	0.774	0.830	-7.2	63	0.00
96	C	1,2,4-Trimethylbenzene	1.448	1.483	-2.4	60	0.00
97	C	sec-Butylbenzene	1.661	1.650	0.7	60	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	57	0.00
99	CP	1,3-Dichlorobenzene	1.626	1.558	4.2	56	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN05.D
Acq On : 01 Jun 2018 11:00 am
Operator : LNS
Sample : VCCV2-180601
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 11:19:50 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.828	2.879	-1.8	59	0.00
101	CP	1,4-Dichlorobenzene	1.608	1.574	2.1	56	0.00
102	C	1,2,3-Trimethylbenzene	3.036	3.164	-4.2	60	0.00
103	C	Benzyl chloride	2.451	2.601	-6.1	64	0.00
104	CP	1,2-Dichlorobenzene	1.456	1.425	2.1	57	0.00
105	C	n-Butylbenzene	2.449	2.722	-11.1	64	0.00
106	C	Hexachloroethane	0.508	0.492	3.1	56	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.266	0.265	0.4	58	0.00
108	C	1,3,5-Trichlorobenzene	0.874	0.867	0.8	57	0.00
109	CP	1,2,4-Trichlorobenzene	0.726	0.743	-2.3	57	0.00
110	C	Hexachlorobutadiene	0.322	0.314	2.5	60	0.00
111	C	Naphthalene	2.628	2.804	-6.7	60	0.00
112	C	1,2,3-Trichlorobenzene	0.605	0.647	-6.9	61	0.00
113	C	2-Methylnaphthalene	0.885	1.032	-16.6	67	0.00
114	C	1-Methylnaphthalene	0.723	0.821	-13.6	65	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	68	0.00
116	C	2-Propanone	1.153	0.907	21.3#	78	0.00
117		Isopropyl Alcohol	0.065	0.133	-104.6#	107	0.00
118	C	Acetic Ether	3.269	3.058	6.5	69	0.00
119	C	Isopropyl Acetate	8.465	7.635	9.8#	64	0.00
120	C	Amyl Acetate	5.642	5.183	8.1	64	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 8

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	20.000	20.000	0.0	56	0.00
2	CP	Dichlorodifluoromethane	40.000	31.801	20.5#	50	0.00
3	CP	Chloromethane	40.000	43.036	-7.6	60	0.00
4	CP	Vinyl chloride	40.000	37.065	7.3	57	0.00
5	CP	Bromomethane	40.000	33.555	16.1	53	0.00
6	CP	Chloroethane	40.000	38.532	3.7	59	0.00
7	CP	Trichlorofluoromethane	40.000	39.378	1.6	58	0.00
8		Ethanol	800.000	0.000	100.0#	0	0.00
9	C	Ethyl ether	40.000	43.485	-8.7	64	0.00
10	C	Acrolein	200.000	174.845	12.6	45	0.00
11	CP	1,1-Dichloroethene	40.000	42.152	-5.4	59	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	40.000	32.901	17.7	46	0.00
13	C	Methyl iodide	40.000	24.391	39.0#	34	0.00
14	CP	Acetone	40.000	42.596	-6.5	60	0.00
15	CP	Carbon disu1fide	40.000	35.010	12.5	52	0.00
16	C	Allyl chloride	40.000	42.155	-5.4	62	0.00
17	CP	Methyl acetate	40.000	44.595	-11.5	63	0.00
18	C	Acetonitrile	40.000	32.530	18.7	52	0.00
19	CP	Methylene chloride	40.000	47.543	-18.9	66	0.00
20	C	t-Butanol	200.000	206.768	-3.4	49	0.00
21	CP	trans-1,2-Dichloroethene	40.000	43.288	-8.2	62	0.00
22	C	Acrylonitrile	40.000	44.341	-10.9	63	0.00
23	CP	Methyl tert-butyl ether	40.000	42.204	-5.5	61	0.00
24	C	Hexane	40.000	34.656	13.4	49	0.00
25	C	1,1-Dichloroethane	40.000	41.976	-4.9	63	0.00
26	C	Diisopropyl ether	40.000	44.648	-11.6	64	0.00
27	C	Vinyl acetate	40.000	40.252	-0.6	57	0.00
28	C	Chloroprene	40.000	43.102	-7.8	64	0.00
29	C	Ethyl tert butyl ether	40.000	42.833	-7.1	62	0.00
30	C	2,2-Dichloropropane	40.000	35.490	11.3	54	0.00
31	CP	cis-1,2-Dichloroethene	40.000	43.039	-7.6	63	0.00
32	CP	2-Butanone	40.000	42.451	-6.1	58	0.00
33	C	Ethyl Acetate	40.000	42.091	-5.2	63	0.00
34	C	Methyl acrylate	40.000	45.914	-14.8	63	0.00
35	C	Propionitrile	40.000	44.694	-11.7	61	0.00
36	C	Bromochloromethane	40.000	46.242	-15.6	67	0.00
37	C	Tetrahydrofuran	40.000	43.759	-9.4	62	0.00
38	C	Methacrylonitrile	40.000	43.117	-7.8	60	0.00
39	CP	Chloroform	40.000	43.726	-9.3	66	0.00
40	CP	Cyclohexane	40.000	39.715	0.7	56	0.00
41	I	1,4-Difluorobenzene	20.000	20.000	0.0	55	0.00
42	CP	1,1,1-Trichloroethane	40.000	41.349	-3.4	60	0.00
43	S	Dibromofluoromethane	20.000	19.706	1.5	54	0.00
44	CP	Carbon tetrachloride	40.000	39.217	2.0	58	0.00
45	C	1,1-Dichloropropene	40.000	41.571	-3.9	61	0.00
46	S	1,2-Dich1oroethane-d4	20.000	23.014	-15.1	65	0.00
47	CP	1,2-Dichloroethane	40.000	47.838	-19.6	70	0.00
48	CP	Benzene	40.000	41.957	-4.9	61	0.00
49	C	Isobuty1 Alcohol	40.000	37.410	6.5	51	0.00
50	C	Tertiaryamy1methylether	40.000	42.212	-5.5	60	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
51	C	Heptane	40.000	36.593	8.5	51	0.00
52	CP	Methylcyclohexane	40.000	35.539	11.2	50	0.00
53	CP	Trichloroethene	40.000	38.877	2.8	56	0.00
54	C	n-Butanol	400.000	464.343	-16.1	53	0.00
55	CP	1,2-Dichloropropane	40.000	42.013	-5.0	63	0.00
56	C	Dibromomethane	40.000	42.218	-5.5	62	0.00
57	C	1,4-Dioxane	4000.000	3989.785	0.3	53	0.00
58	C	Methyl methacrylate	40.000	42.791	-7.0	65	0.00
59	CP	Bromodichloromethane	40.000	41.904	-4.8	62	0.00
60	C	2-Nitropropane	40.000	40.699	-1.7	58	0.00
61	T	2-Chloroethyl vinyl ether	40.000	37.593	6.0	56	0.00
62	CP	cis-1,3-Dichloropropene	40.000	42.644	-6.6	60	0.00
63	I	Chlorobenzene-d5	20.000	20.000	0.0	56	0.00
64	CP	4-Methyl-2-pentanone	40.000	40.550	-1.4	59	0.00
65	S	Toluene-d8	20.000	20.024	-0.1	57	0.00
66	CP	Toluene	40.000	40.919	-2.3	59	0.00
67	T	Chloropicrin	400.000	366.960	8.3	49	0.00
68	CP	trans-1,3-Dichloropropene	40.000	43.577	-8.9	60	0.00
69	C	Ethyl methacrylate	40.000	40.708	-1.8	62	0.00
70	CP	1,1,2-Trichloroethane	40.000	37.685	5.8	59	0.00
71	CP	Tetrachloroethene	40.000	33.821	15.4	49	0.00
72	C	1,3-Dichloropropane	40.000	42.634	-6.6	63	0.00
73	CP	2-Hexanone	40.000	42.871	-7.2	60	0.00
74	CP	Chlorodibromomethane	40.000	39.087	2.3	56	0.00
75	C	Butyl acetate	40.000	42.516	-6.3	62	0.00
76	CP	1,2-Dibromoethane	40.000	35.152	12.1	55	0.00
77	CP	Chlorobenzene	40.000	39.908	0.2	58	0.00
78	C	1,1,1,2-Tetrachloroethane	40.000	38.209	4.5	56	0.00
79	CP	Ethylbenzene	40.000	41.963	-4.9	59	0.00
80	CP	m/p-Xylene	80.000	83.371	-4.2	60	0.00
81	CP	Styrene	40.000	40.026	-0.1	56	0.00
82	CP	o-Xylene	40.000	42.151	-5.4	61	0.00
83	C	Cyclohexanone	200.000	136.372	31.8#	39	0.00
84	CP	Bromoform	40.000	35.478	11.3	49	0.00
85	CP	Isopropylbenzene	40.000	39.171	2.1	57	0.00
86	S	Bromofluorobenzene	20.000	21.688	-8.4	62	0.00
87	C	Bromobenzene	40.000	42.477	-6.2	63	0.00
88	CP	1,1,2,2-Tetrachloroethane	40.000	39.209	2.0	59	0.00
89	C	1,2,3-Trichloropropane	40.000	39.421	1.4	60	0.00
90	C	trans-1,4-Dichloro-2-butene	40.000	40.399	-1.0	62	0.00
91	C	n-Propylbenzene	40.000	41.162	-2.9	58	0.00
92	C	2-Chlorotoluene	40.000	40.732	-1.8	58	0.00
93	C	4-Chlorotoluene	40.000	42.898	-7.2	60	0.00
94	C	1,3,5-Trimethylbenzene	40.000	39.409	1.5	57	0.00
95	C	tert-Butylbenzene	40.000	42.750	-6.9	60	0.00
96	C	1,2,4-Trimethylbenzene	40.000	40.991	-2.5	58	0.00
97	C	sec-Butylbenzene	40.000	38.527	3.7	56	0.00
98	I	1,4-Dichlorobenzene-d4	20.000	20.000	0.0	55	0.00
99	CP	1,3-Dichlorobenzene	40.000	38.019	5.0	54	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	40.000	38.909	2.7	55	0.00
101	CP	1,4-Dichlorobenzene	40.000	38.816	3.0	54	0.00
102	C	1,2,3-Trimethylbenzene	40.000	41.427	-3.6	57	0.00
103	C	Benzyl chloride	40.000	30.735	23.2#	45	0.00
104	CP	1,2-Dichlorobenzene	40.000	38.471	3.8	54	0.00
105	C	n-Butylbenzene	40.000	42.438	-6.1	59	0.00
106	C	Hexachloroethane	40.000	37.300	6.8	52	0.00
107	CP	1,2-Dibromo-3-chloropropane	40.000	34.053	14.9	48	0.00
108	C	1,3,5-Trichlorobenzene	40.000	36.763	8.1	51	0.00
109	CP	1,2,4-Trichlorobenzene	40.000	38.727	3.2	52	0.00
110	C	Hexachlorobutadiene	40.000	36.022	9.9	53	0.00
111	C	Naphthalene	40.000	38.800	3.0	53	0.00
112	C	1,2,3-Trichlorobenzene	40.000	39.786	0.5	55	0.00
113	C	2-Methylnaphthalene	40.000	35.114	12.2	46	0.00
114	C	1-Methylnaphthalene	40.000	33.369	16.6	44	0.00
115	I	Ethyl Acetate-d8	20.000	20.000	0.0	62	0.00
116	C	2-Propanone	40.000	40.450	-1.1	60	0.00
117		Isopropyl Alcohol	800.000	678.697	15.2	52	0.00
118	C	Acetic Ether	40.000	36.822	7.9	62	0.00
119	C	Isopropyl Acetate	40.000	38.215	4.5#	62	0.00
120	C	Amyl Acetate	40.000	42.734	-6.8	62	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 5

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.000	1.000	0.0	56	0.00
2	CP	Dichlorodifluoromethane	1.111	0.883	20.5#	50#	0.00
3	CP	Chloromethane	1.323	1.187	10.3	60	0.00
4	CP	Vinyl chloride	1.151	1.013	12.0	57	0.00
5	CP	Bromomethane	0.603	0.485	19.6	53	0.00
6	CP	Chloroethane	0.712	0.610	14.3	59	0.00
7	CP	Trichlorofluoromethane	1.302	1.281	1.6	58	0.00
8		Ethanol	0.000	0.008	0.0	0#	0.00
9	C	Ethyl ether	0.688	0.748	-8.7	64	0.00
10	C	Acrolein	0.102	0.077	24.5#	45#	0.00
11	CP	1,1-Dichloroethene	1.126	1.186	-5.3	59	0.00
12	CP	1,1,2-Trichlorotrifluoroeth	0.540	0.444	17.8	46#	0.00
13	C	Methyl iodide	0.954	0.582	39.0#	34#	0.00
14	CP	Acetone	0.393	0.292	25.7#	60	0.00
15	CP	Carbon disulfide	2.406	2.106	12.5	52	0.00
16	C	Allyl chloride	1.454	1.532	-5.4	62	0.00
17	CP	Methyl acetate	0.823	0.874	-6.2	63	0.00
18	C	Acetonitrile	0.035	0.035	0.0	52	0.00
19	CP	Methylene chloride	1.152	1.210	-5.0	66	0.00
20	C	t-Butanol	0.073	0.060	17.8	49#	0.00
21	CP	trans-1,2-Dichloroethene	1.142	1.236	-8.2	62	0.00
22	C	Acrylonitrile	0.413	0.423	-2.4	63	0.00
23	CP	Methyl tert-butyl ether	2.537	2.676	-5.5	61	0.00
24	C	Hexane	0.957	0.829	13.4	49#	0.00
25	C	1,1-Dichloroethane	1.536	1.612	-4.9	63	0.00
26	C	Diisopropyl ether	2.923	3.263	-11.6	64	0.00
27	C	Vinyl acetate	0.207	0.179	13.5	57	0.00
28	C	Chloroprene	1.334	1.438	-7.8	64	0.00
29	C	Ethyl tert butyl ether	2.738	2.932	-7.1	62	0.00
30	C	2,2-Dichloropropane	1.279	1.135	11.3	54	0.00
31	CP	cis-1,2-Dichloroethene	1.308	1.407	-7.6	63	0.00
32	CP	2-Butanone	0.510	0.471	7.6	58	0.00
33	C	Ethyl Acetate	1.106	1.163	-5.2	63	0.00
34	C	Methyl acrylate	0.885	1.016	-14.8	63	0.00
35	C	Propionitrile	0.185	0.142	23.2#	61	0.00
36	C	Bromochloromethane	0.708	0.818	-15.5	67	0.00
37	C	Tetrahydrofuran	0.386	0.350	9.3	62	0.00
38	C	Methacrylonitrile	0.469	0.445	5.1	60	0.00
39	CP	Chloroform	1.421	1.553	-9.3	66	0.00
40	CP	Cyclohexane	1.410	1.400	0.7	56	0.00
41	I	1,4-Difluorobenzene	1.000	1.000	0.0	55	0.00
42	CP	1,1,1-Trichloroethane	0.634	0.655	-3.3	60	0.00
43	S	Dibromofluoromethane	0.320	0.315	1.6	54	0.00
44	CP	Carbon tetrachloride	0.539	0.528	2.0	58	0.00
45	C	1,1-Dichloropropene	0.587	0.610	-3.9	61	0.00
46	S	1,2-Dichloroethane-d4	0.378	0.435	-15.1	65	0.00
47	CP	1,2-Dichloroethane	0.563	0.673	-19.5	70	0.00
48	CP	Benzene	1.696	1.779	-4.9	61	0.00
49	C	Isobutyl Alcohol	0.438	0.386	11.9	51	0.00
50	C	Tertiaryamylmethylether	1.319	1.392	-5.5	60	0.00

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	C	Heptane	0.422	0.386	8.5	51	0.00
52	CP	Methylcyclohexane	0.637	0.566	11.1	50	0.00
53	CP	Trichloroethene	0.432	0.420	2.8	56	0.00
54	C	n-Butanol	0.006	0.007	-16.7	53	0.00
55	CP	1,2-Dichloropropane	0.460	0.483	-5.0	63	0.00
56	C	Dibromomethane	0.267	0.282	-5.6	62	0.00
57	C	1,4-Dioxane	0.002	0.002	0.0	53	0.00
58	C	Methyl methacrylate	0.505	0.540	-6.9	65	0.00
59	CP	Bromodichloromethane	0.585	0.613	-4.8	62	0.00
60	C	2-Nitropropane	0.181	0.159	12.2	58	0.00
61	T	2-Chloroethyl vinyl ether	0.348	0.327	6.0	56	0.00
62	CP	cis-1,3-Dichloropropene	0.706	0.753	-6.7	60	0.00
63	I	Chlorobenzene-d5	1.000	1.000	0.0	56	0.00
64	CP	4-Methyl-2-pentanone	0.644	0.653	-1.4	59	0.00
65	S	Toluene-d8	1.295	1.296	-0.1	57	0.00
66	CP	Toluene	1.877	1.920	-2.3	59	0.00
67	T	Chloropicrin	0.146	0.184	-26.0#	49#	0.00
68	CP	trans-1,3-Dichloropropene	0.692	0.733	-5.9	60	0.00
69	C	Ethyl methacrylate	0.713	0.725	-1.7	62	0.00
70	CP	1,1,2-Trichloroethane	0.430	0.405	5.8	59	0.00
71	CP	Tetrachloroethene	0.461	0.390	15.4	49#	0.00
72	C	1,3-Dichloropropane	0.719	0.766	-6.5	63	0.00
73	CP	2-Hexanone	0.458	0.468	-2.2	60	0.00
74	CP	Chlorodibromomethane	0.453	0.442	2.4	56	0.00
75	C	Butyl acetate	0.999	1.062	-6.3	62	0.00
76	CP	1,2-Dibromoethane	0.403	0.354	12.2	55	0.00
77	CP	Chlorobenzene	1.188	1.185	0.3	58	0.00
78	C	1,1,1,2-Tetrachloroethane	0.420	0.401	4.5	56	0.00
79	CP	Ethylbenzene	2.082	2.184	-4.9	59	0.00
80	CP	m/p-Xylene	1.616	1.684	-4.2	60	0.00
81	CP	Styrene	1.259	1.260	-0.1	56	0.00
82	CP	o-Xylene	1.624	1.712	-5.4	61	0.00
83	C	Cyclohexanone	0.019	0.013	31.6#	39#	0.00
84	CP	Bromoform	0.311	0.276	11.3	49#	0.00
85	CP	Isopropylbenzene	1.916	1.876	2.1	57	0.00
86	S	Bromofluorobenzene	0.513	0.556	-8.4	62	0.00
87	C	Bromobenzene	0.816	0.867	-6.3	63	0.00
88	CP	1,1,2,2-Tetrachloroethane	0.619	0.607	1.9	59	0.00
89	C	1,2,3-Trichloropropane	0.190	0.187	1.6	60	0.00
90	C	trans-1,4-Dichloro-2-butene	0.217	0.220	-1.4	62	0.00
91	C	n-Propylbenzene	2.225	2.290	-2.9	58	0.00
92	C	2-Chlorotoluene	2.249	2.290	-1.8	58	0.00
93	C	4-Chlorotoluene	1.518	1.628	-7.2	60	0.00
94	C	1,3,5-Trimethylbenzene	1.451	1.430	1.4	57	0.00
95	C	tert-Butylbenzene	0.774	0.827	-6.8	60	0.00
96	C	1,2,4-Trimethylbenzene	1.448	1.484	-2.5	58	0.00
97	C	sec-Butylbenzene	1.661	1.599	3.7	56	0.00
98	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	55	0.00
99	CP	1,3-Dichlorobenzene	1.626	1.545	5.0	54	0.00

Evaluate Continuing Calibration Report

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	C	p-Isopropyltoluene	2.828	2.751	2.7	55	0.00
101	CP	1,4-Dichlorobenzene	1.608	1.560	3.0	54	0.00
102	C	1,2,3-Trimethylbenzene	3.036	3.144	-3.6	57	0.00
103	C	Benzyl chloride	2.451	1.884	23.1#	45#	0.00
104	CP	1,2-Dichlorobenzene	1.456	1.401	3.8	54	0.00
105	C	n-Butylbenzene	2.449	2.599	-6.1	59	0.00
106	C	Hexachloroethane	0.508	0.474	6.7	52	0.00
107	CP	1,2-Dibromo-3-chloropropane	0.266	0.227	14.7	48#	0.00
108	C	1,3,5-Trichlorobenzene	0.874	0.803	8.1	51	0.00
109	CP	1,2,4-Trichlorobenzene	0.726	0.703	3.2	52	0.00
110	C	Hexachlorobutadiene	0.322	0.290	9.9	53	0.00
111	C	Naphthalene	2.628	2.549	3.0	53	0.00
112	C	1,2,3-Trichlorobenzene	0.605	0.602	0.5	55	0.00
113	C	2-Methylnaphthalene	0.885	0.744	15.9	46#	0.00
114	C	1-Methylnaphthalene	0.723	0.570	21.2#	44#	0.00
115	I	Ethyl Acetate-d8	1.000	1.000	0.0	62	0.00
116	C	2-Propanone	1.153	0.755	34.5#	60	0.00
117		Isopropyl Alcohol	0.065	0.071	-9.2	52	0.00
118	C	Acetic Ether	3.269	3.009	8.0	62	0.00
119	C	Isopropyl Acetate	8.465	8.087	4.5#	62	0.00
120	C	Amyl Acetate	5.642	5.447	3.5	62	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 10

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	86050	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.250	114	164238	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	162125	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	76932	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.754	46	33269	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.624	111	51807	19.71	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.55%				
46) 1,2-Dichloroethane-d4	5.238	65	71493	23.01	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 115.05%				
65) Toluene-d8	8.903	98	210143	20.02	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.10%				
86) Bromofluorobenzene	12.190	95	90162	21.69	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 108.45%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.959	85	151963	31.80	ug/L		99
3) Chloromethane	1.064	50	204286	43.04	ug/L		99
4) Vinyl chloride	1.127	62	174340	37.07	ug/L		100
5) Bromomethane	1.326	94	83496	33.55	ug/L		99
6) Chloroethane	1.395	64	105064	38.53	ug/L		98
7) Trichlorofluoromethane	1.557	101	220539	39.38	ug/L		98
8) Ethanol	1.683	45	29218	No Calib		#	
9) Ethyl ether	1.756	59	128778	43.49	ug/L		95
10) Acrolein	1.856	56	66001	174.85	ug/L		98
11) 1,1-Dichloroethene	1.919	61	204121	42.15	ug/L		92
12) 1,1,2-Trichlorotrifluo...	1.935	151	76370	32.90	ug/L		92
13) Methyl iodide	2.034	142	100115	24.39	ug/L		91
14) Acetone	1.966	43	50210	42.60	ug/L		86
15) Carbon disulfide	2.081	76	362456	35.01	ug/L		99
16) Allyl chloride	2.223	41	263677	42.16	ug/L		96
17) Methyl acetate	2.223	43	150382	44.60	ug/L		96
18) Acetonitrile	2.092	41	5987	32.53	ug/L	#	93
19) Methylene chloride	2.338	49	208209	47.54	ug/L		91
20) t-Butanol	2.459	59	51791	206.77	ug/L		97
21) trans-1,2-Dichloroethene	2.590	61	212653	43.29	ug/L		93
22) Acrylonitrile	2.564	53	72806	44.34	ug/L		98
23) Methyl tert-butyl ether	2.590	73	460618	42.20	ug/L		98
24) Hexane	2.878	57	142624	34.66	ug/L		98
25) 1,1-Dichloroethane	3.057	63	277415	41.98	ug/L		99
26) Diisopropyl ether	3.125	45	561551	44.65	ug/L		97
27) Vinyl acetate	3.088	86	30776	40.25	ug/L	#	75
28) Chloroprene	3.135	53	247456	43.10	ug/L		93
29) Ethyl tert butyl ether	3.591	59	504659	42.83	ug/L		98
30) 2,2-Dichloropropane	3.785	77	195351	35.49	ug/L		94
31) cis-1,2-Dichloroethene	3.791	61	242133	43.04	ug/L		95
32) 2-Butanone	3.817	43	81067	42.45	ug/L		99
33) Ethyl Acetate	3.906	43	200222	42.09	ug/L		97
34) Methyl acrylate	3.948	55	174840	45.91	ug/L		98
35) Propionitrile	3.911	54	24405	44.69	ug/L	#	95
36) Bromochloromethane	4.137	49	140838	46.24	ug/L		87
37) Tetrahydrofuran	4.158	42	60183	43.76	ug/L		96
38) Methacrylonitrile	4.126	67	76532	43.12	ug/L		91

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39) Chloroform	4.352	83	267304	43.73	ug/L		98
40) Cyclohexane	4.651	56	240872	39.72	ug/L		94
42) 1,1,1-Trichloroethane	4.561	97	215188	41.35	ug/L		99
44) Carbon tetrachloride	4.824	119	173598	39.22	ug/L		98
45) 1,1-Dichloropropene	4.866	75	200288	41.57	ug/L		97
47) 1,2-Dichloroethane	5.390	62	220995	47.84	ug/L		98
48) Benzene	5.227	78	584272	41.96	ug/L		97
49) Isobutyl Alcohol	5.988	43	126802	37.41	ug/L	#	97
50) Tertiaryamylmethylether	5.615	73	457357	42.21	ug/L		97
51) Heptane	5.988	43	126802	36.59	ug/L		98
52) Methylcyclohexane	7.089	83	186015	35.54	ug/L		95
53) Trichloroethene	6.659	130	138010	38.88	ug/L		90
54) n-Butanol	6.832	56	21965	464.34	ug/L	#	89
55) 1,2-Dichloropropane	7.214	63	158713	42.01	ug/L		96
56) Dibromomethane	7.372	93	92697	42.22	ug/L		98
57) 1,4-Dioxane	7.435	88	62754	3989.78	ug/L		86
58) Methyl methacrylate	7.529	41	177327	42.79	ug/L		95
59) Bromodichloromethane	7.796	83	201279	41.90	ug/L		98
60) 2-Nitropropane	8.216	43	52089	40.70	ug/L	#	96
61) 2-Chloroethyl vinyl ether	8.389	63	107383	37.59	ug/L		98
62) cis-1,3-Dichloropropene	8.546	75	247391	42.64	ug/L		97
64) 4-Methyl-2-pentanone	8.845	43	211808	40.55	ug/L		98
66) Toluene	8.997	91	622542	40.92	ug/L		97
67) Chloropicrin	9.390	117	597041	366.96	ug/L		99
68) trans-1,3-Dichloropropene	9.427	75	237791	43.58	ug/L		97
69) Ethyl methacrylate	9.584	69	235155	40.71	ug/L		95
70) 1,1,2-Trichloroethane	9.673	97	131320	37.68	ug/L		96
71) Tetrachloroethene	9.694	166	126316	33.82	ug/L		95
72) 1,3-Dichloropropane	9.862	76	248411	42.63	ug/L		99
73) 2-Hexanone	10.014	43	151601	42.87	ug/L		99
74) Chlorodibromomethane	10.119	129	143415	39.09	ug/L		100
75) Butyl acetate	10.219	43	344475	42.52	ug/L		98
76) 1,2-Dibromoethane	10.214	107	114759	35.15	ug/L	#	99
77) Chlorobenzene	10.837	112	384160	39.91	ug/L		97
78) 1,1,1,2-Tetrachloroethane	10.979	131	129988	38.21	ug/L		99
79) Ethylbenzene	10.995	91	708280	41.96	ug/L		97
80) m/p-Xylene	11.157	91	1092237	83.37	ug/L		96
81) Styrene	11.619	104	408611	40.03	ug/L		92
82) o-Xylene	11.587	91	555054	42.15	ug/L		95
83) Cyclohexanone	12.085	55	21345	136.37	ug/L		95
84) Bromoform	11.792	173	89533	35.48	ug/L		100
85) Isopropylbenzene	12.017	105	608259	39.17	ug/L		98
87) Bromobenzene	12.306	77	281120	42.48	ug/L		88
88) 1,1,2,2-Tetrachloroethane	12.395	83	196852	39.21	ug/L		98
89) 1,2,3-Trichloropropane	12.426	110	60715	39.42	ug/L		89
90) trans-1,4-Dichloro-2-b...	12.431	53	71223	40.40	ug/L		85
91) n-Propylbenzene	12.473	91	742419	41.16	ug/L		98
92) 2-Chlorotoluene	12.473	91	742419	40.73	ug/L		99
93) 4-Chlorotoluene	12.673	91	527722	42.90	ug/L		95
94) 1,3,5-Trimethylbenzene	12.683	105	463674	39.41	ug/L		96
95) tert-Butylbenzene	13.003	91	268292	42.75	ug/L		95
96) 1,2,4-Trimethylbenzene	13.071	105	481141	40.99	ug/L		95
97) sec-Butylbenzene	13.239	105	518635	38.53	ug/L		97
99) 1,3-Dichlorobenzene	13.328	146	237763	38.02	ug/L		97
100) p-Isopropyltoluene	13.417	119	423278	38.91	ug/L		96

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

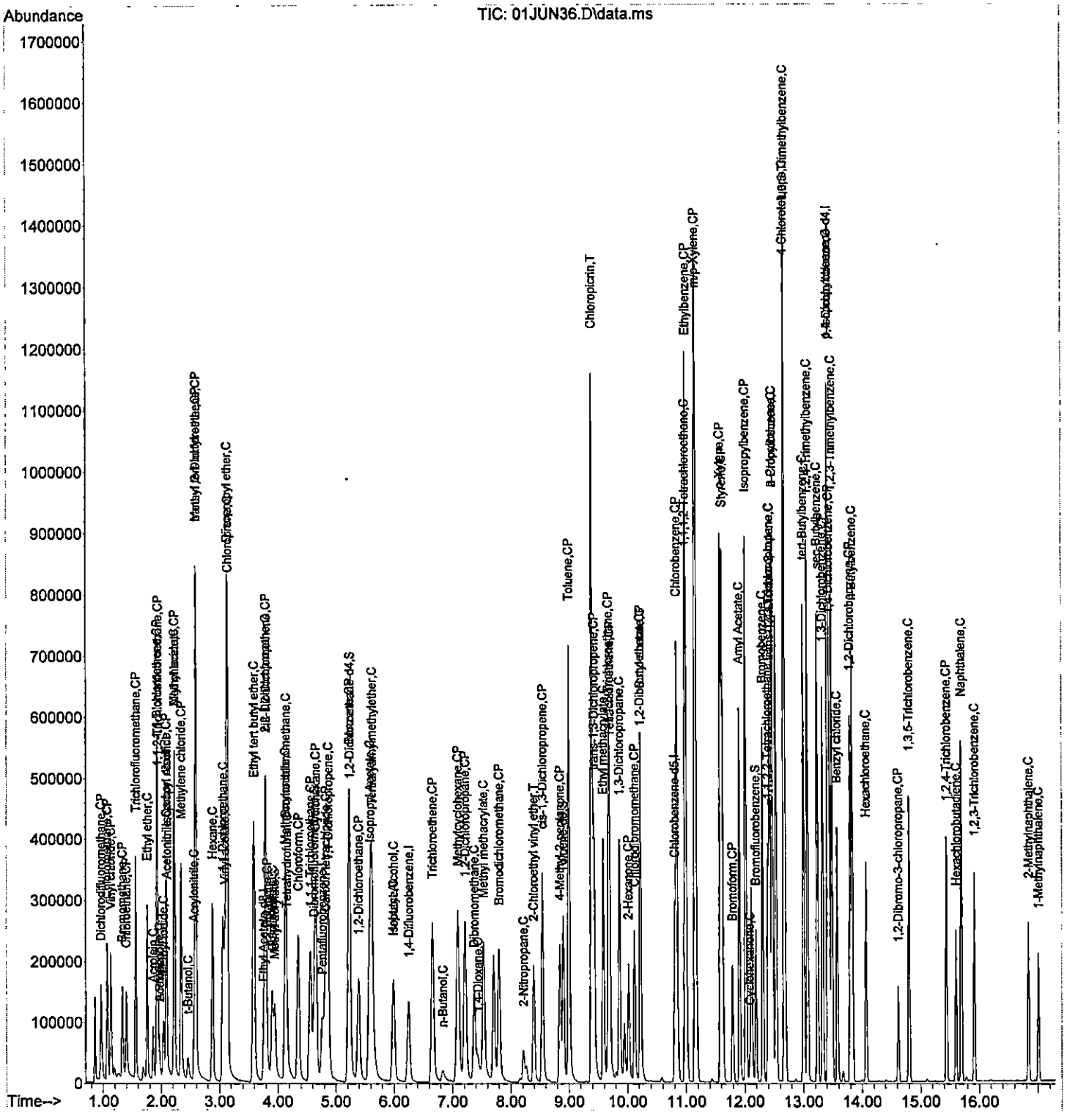
Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.443	146	240035	38.82 ug/L	98
102) 1,2,3-Trimethylbenzene	13.485	105	483738	41.43 ug/L	97
103) Benzyl chloride	13.574	91	289804	30.73 ug/L	96
104) 1,2-Dichlorobenzene	13.800	146	215504	38.47 ug/L	96
105) n-Butylbenzene	13.836	91	399848	42.44 ug/L	97
106) Hexachloroethane	14.067	117	72957	37.30 ug/L	93
107) 1,2-Dibromo-3-chloropr...	14.618	157	34873	34.05 ug/L	83
108) 1,3,5-Trichlorobenzene	14.801	180	123566	36.76 ug/L	99
109) 1,2,4-Trichlorobenzene	15.441	180	108207	38.73 ug/L	99
110) Hexachlorobutadiene	15.603	225	44614	36.02 ug/L	97
111) Naphthalene	15.693	128	392213	38.80 ug/L	98
112) 1,2,3-Trichlorobenzene	15.918	180	92570	39.79 ug/L	98
113) 2-Methylnaphthalene	16.836	142	114459	35.11 ug/L	99
114) 1-Methylnaphthalene	17.003	142	87775	33.37 ug/L	100
116) 2-Propanone	1.966	43	50210	40.45 ug/L #	86
117) Isopropyl Alcohol	2.087	45	93948	678.70 ug/L #	95
118) Acetic Ether	3.906	43	200222	36.82 ug/L	98
119) Isopropyl Acetate	5.584	43	538124	38.21 ug/L	97
120) Amyl Acetate	11.907	43	362410	42.73 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN36.D
Acq On : 01 Jun 2018 10:58 pm
Operator : LNS
Sample : VCCV4-150601
Misc :
ALS Vial : 32 Sample Multiplier: 1

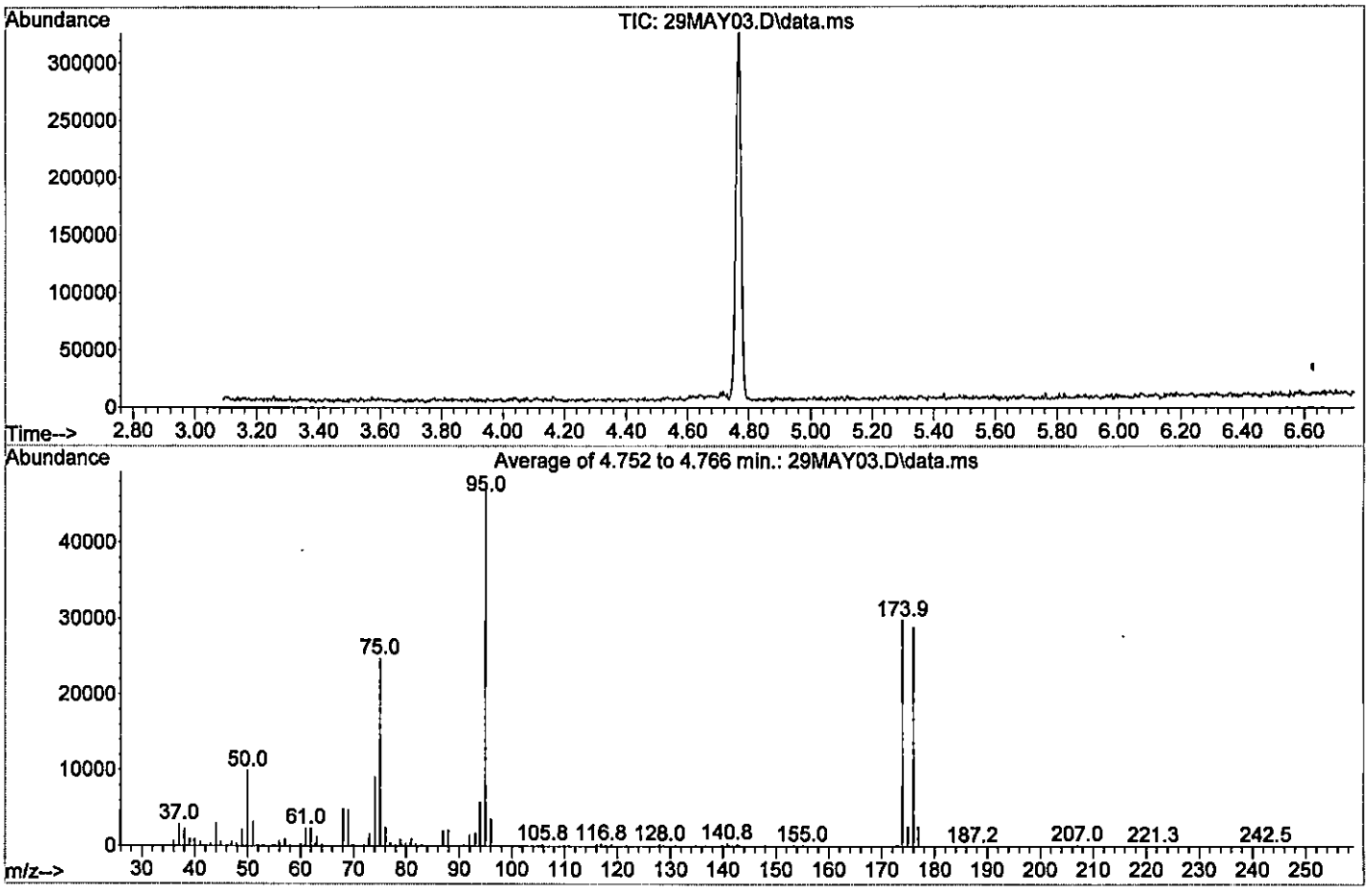
Quant Time: Jun 04 13:03:31 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\GCMS\1\data\11V180529\
Data File : 29MAY03.D
Acq On : 29 May 2018 09:26 am
Operator : AK
Sample : VBFB1-180529
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : D:\MassHunter\GCMS\1\methods\11AC0625.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 26 14:01:57 2018



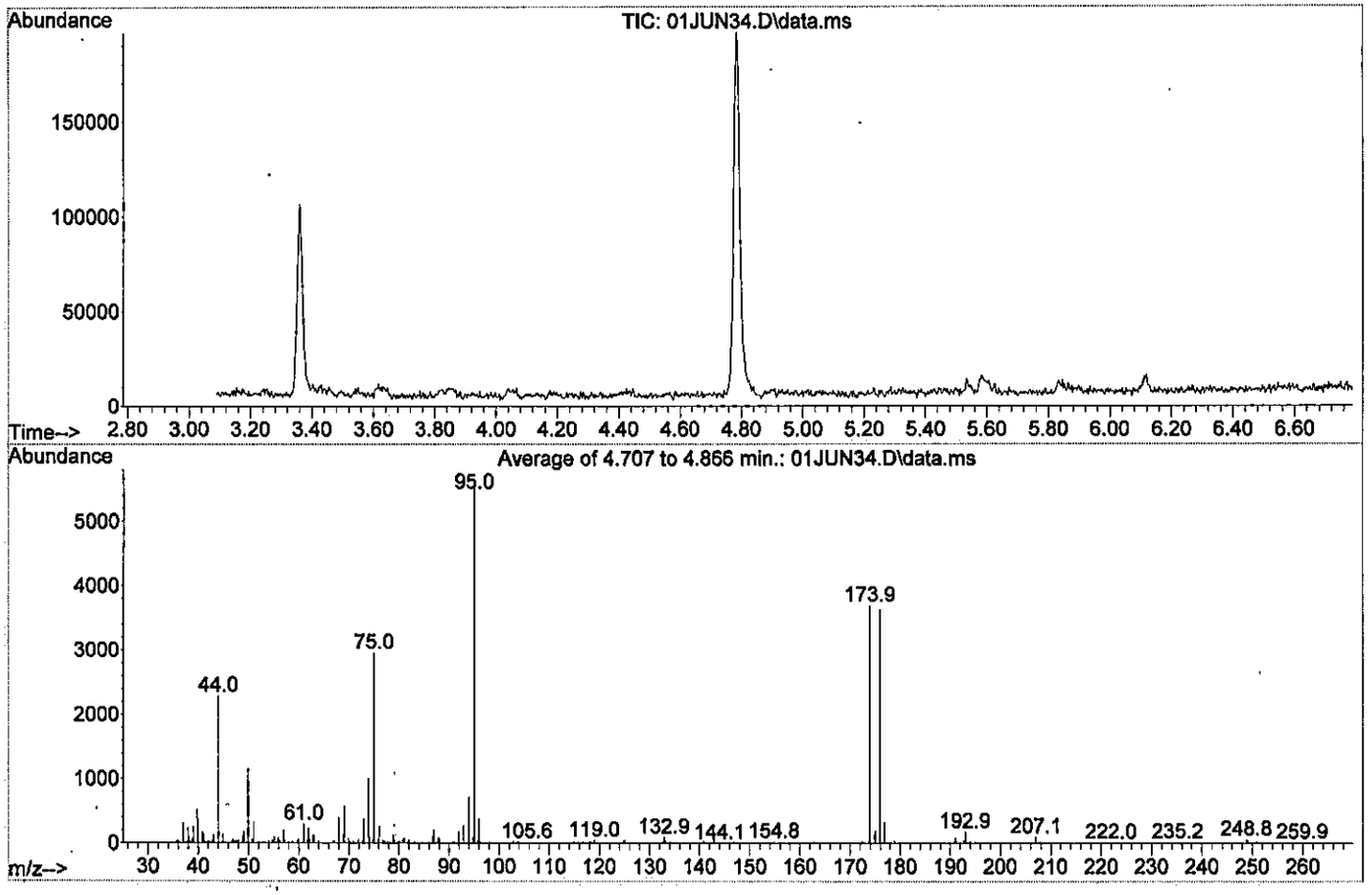
Spectrum Information: Average of 4.752 to 4.766 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	21.1	9899	PASS
75	95	30	80	52.7	24719	PASS
95	95	100	100	100.0	46904	PASS
96	95	5	9	7.6	3542	PASS
173	174	0.00	2	0.6	176	PASS
174	95	50	100	63.5	29761	PASS
175	174	5	9	8.6	2551	PASS
176	174	95	101	96.8	28822	PASS
177	176	5	9	9.0	2590	PASS

Data Path : C:\GCMS\1\data\11V180601\
Data File : 01JUN34.D
Acq On : 01 Jun 2018 10:14 pm
Operator : LNS
Sample : VBFB2-180601
Misc :
ALS Vial : 30 Sample Multiplier: 1

Integration File: rteint.p

Method : D:\MassHunter\GCMS\1\methods\11AC0625.M
Title : 8260B/624 Volatile Calibration
Last Update : Tue Jun 26 14:01:57 2018



Spectrum Information: Average of 4.707 to 4.866 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	60	21.0	1160	PASS
75	95	30	80	53.4	2951	PASS
95	95	100	100	100.0	5525	PASS
96	95	5	9	6.7	369	PASS
173	174	0.00	2	0.4	16	PASS
174	95	50	100	66.7	3683	PASS
175	174	5	9	5.1	188	PASS
176	174	95	101	98.4	3626	PASS
177	176	5	9	8.9	321	PASS

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 03:35 pm
Operator : AK
Sample : MBLK-118957
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 29 16:43:35 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	106935	20.00	ug/L	0.00
41) 1,4-Difluorobenzene	6.250	114	194212	20.00	ug/L	0.00
63) Chlorobenzene-d5	10.806	117	188553	20.00	ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	92528	20.00	ug/L	# 0.00
115) Ethyl Acetate-d8	3.765	46	35249	20.00	ug/L	# 0.01
System Monitoring Compounds						
43) Dibromofluoromethane	4.625	111	59444	19.12	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.60%			
46) 1,2-Dichloroethane-d4	5.238	65	83592	22.76	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 113.80%			
65) Toluene-d8	8.903	98	249068	20.41	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.05%			
86) Bromofluorobenzene	12.191	95	101541	21.00	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethanol	0.000		0	N.D.		
9) Ethyl ether	0.000		0	N.D.		
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	0.000		0	N.D.		
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	0.000		0	N.D.		
14) Acetone	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	0.000		0	N.D.		
20) t-Butanol	0.000		0	N.D.		
21) trans-1,2-Dichloroethene	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	0.000		0	N.D.		
30) 2,2-Dichloropropane	0.000		0	N.D.		
31) cis-1,2-Dichloroethene	0.000		0	N.D.		
32) 2-Butanone	0.000		0	N.D.		
33) Ethyl Acetate	0.000		0	N.D.		
34) Methyl acrylate	0.000		0	N.D.		
35) Propionitrile	0.000		0	N.D.		
36) Bromochloromethane	0.000		0	N.D.		
37) Tetrahydrofuran	0.000		0	N.D.		
38) Methacrylonitrile	0.000		0	N.D.		

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 03:35 pm
Operator : AK
Sample : MBLK-118957
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 29 16:43:35 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	0.000		0	N.D.	
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	0.000		0	N.D.	
44) Carbon tetrachloride	0.000		0	N.D.	
45) 1,1-Dichloropropene	0.000		0	N.D.	
47) 1,2-Dichloroethane	0.000		0	N.D.	
48) Benzene	0.000		0	N.D.	
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	0.000		0	N.D.	
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	0.000		0	N.D.	
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	0.000		0	N.D.	
56) Dibromomethane	0.000		0	N.D.	
57) 1,4-Dioxane	0.000		0	N.D.	
58) Methyl methacrylate	0.000		0	N.D.	
59) Bromodichloromethane	0.000		0	N.D.	
60) 2-Nitropropane	0.000		0	N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	0.000		0	N.D.	
64) 4-Methyl-2-pentanone	0.000		0	N.D.	
66) Toluene	0.000		0	N.D.	
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	0.000		0	N.D.	
69) Ethyl methacrylate	0.000		0	N.D.	
70) 1,1,2-Trichloroethane	0.000		0	N.D.	
71) Tetrachloroethene	0.000		0	N.D.	
72) 1,3-Dichloropropane	0.000		0	N.D.	
73) 2-Hexanone	0.000		0	N.D.	
74) Chlorodibromomethane	0.000		0	N.D.	
75) Butyl acetate	0.000		0	N.D.	
76) 1,2-Dibromoethane	0.000		0	N.D.	
77) Chlorobenzene	0.000		0	N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.	
79) Ethylbenzene	0.000		0	N.D.	
80) m/p-Xylene	0.000		0	N.D.	
81) Styrene	0.000		0	N.D.	
82) o-Xylene	0.000		0	N.D.	
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	0.000		0	N.D.	
85) Isopropylbenzene	0.000		0	N.D.	
87) Bromobenzene	0.000		0	N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.	
89) 1,2,3-Trichloropropane	0.000		0	N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0	N.D.	
91) n-Propylbenzene	0.000		0	N.D.	
92) 2-Chlorotoluene	0.000		0	N.D.	
93) 4-Chlorotoluene	0.000		0	N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0	N.D.	
95) tert-Butylbenzene	0.000		0	N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0	N.D.	
97) sec-Butylbenzene	0.000		0	N.D.	
99) 1,3-Dichlorobenzene	0.000		0	N.D.	
100) p-Isopropyltoluene	0.000		0	N.D.	

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 03:35 pm
Operator : AK
Sample : MBLK-118957
Misc :
ALS Vial : 16 Sample Multiplier: 1

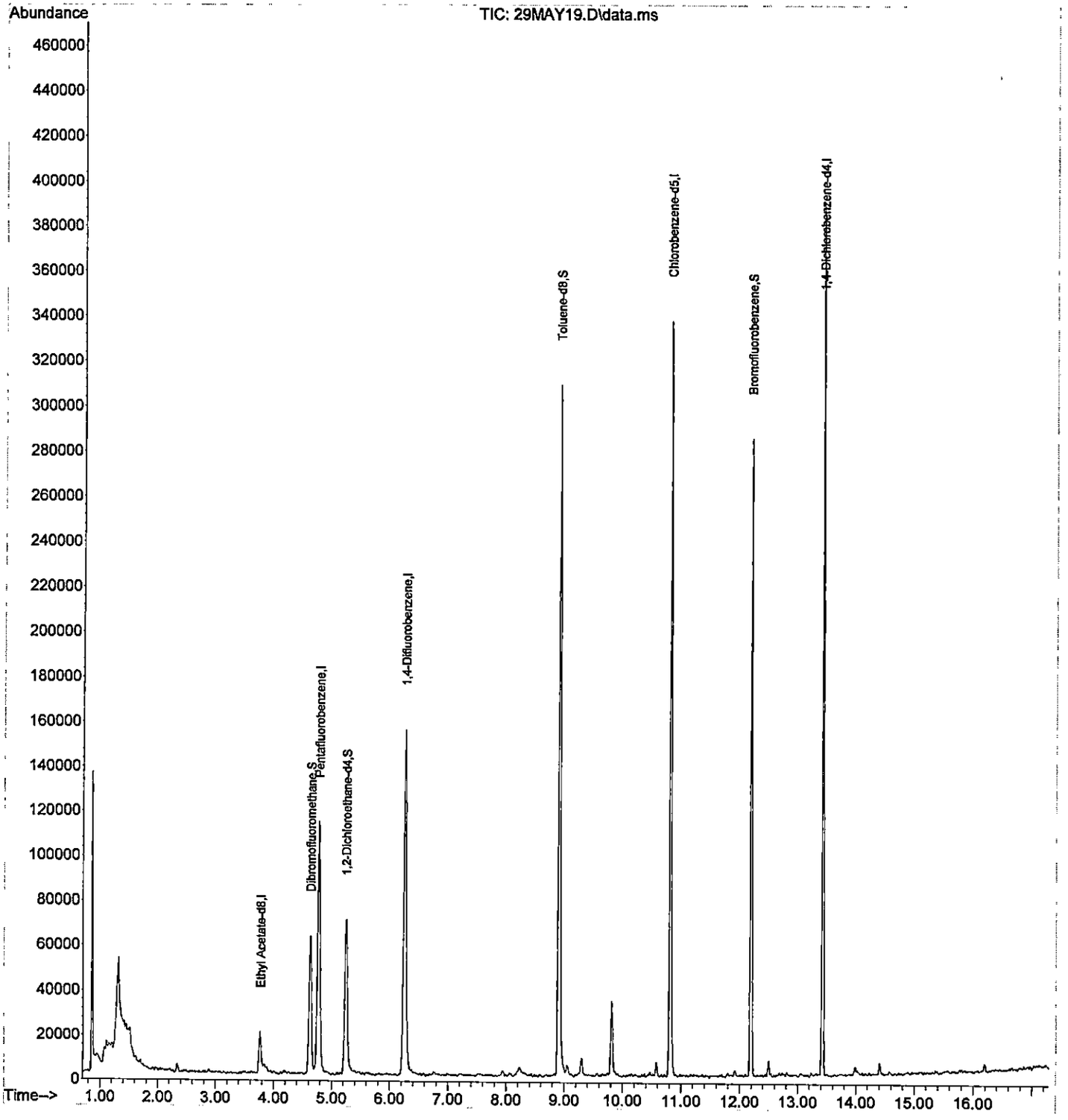
Quant Time: May 29 16:43:35 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY19.D
Acq On : 29 May 2018 03:35 pm
Operator : AK
Sample : MBLK-118957
Misc :
ALS Vial : 16 Sample Multiplier: 1

Quant Time: May 29 16:43:35 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 05:51 pm
Operator : AK
Sample : LCS-118957
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 30 08:28:11 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	111900	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.250	114	199999	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	192881	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	91788	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.760	46	39603	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.625	111	61341	19.16	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.80%				
46) 1,2-Dichloroethane-d4	5.233	65	82977	21.93	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 109.65%				
65) Toluene-d8	8.903	98	255814	20.49	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.45%				
86) Bromofluorobenzene	12.190	95	103470	20.92	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 104.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.960	85	91662	14.75	ug/L		98
3) Chloromethane	1.070	50	112384	19.19	ug/L		100
4) Vinyl chloride	1.128	62	106195	17.80	ug/L		97
5) Bromomethane	1.327	94	53542	16.51	ug/L		98
6) Chloroethane	1.395	64	63778	17.88	ug/L		95
7) Trichlorofluoromethane	1.552	101	121645	16.70	ug/L		99
8) Ethanol	1.689	45	17481	No Calib	#		
9) Ethyl ether	1.757	59	76212	19.79	ug/L		97
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.919	61	141467	22.46	ug/L		96
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.035	142	46531	8.72	ug/L		93
14) Acetone	1.966	43	33550	21.54	ug/L		95
15) Carbon disulfide	2.082	76	244762	18.18	ug/L		99
16) Allyl chloride	2.218	41	144565	17.77	ug/L		96
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.339	49	132836	23.33	ug/L		93
20) t-Butanol	2.459	59	43456	132.02	ug/L	#	91
21) trans-1,2-Dichloroethene	2.585	61	138810	21.73	ug/L		95
22) Acrylonitrile	2.564	53	44641	21.10	ug/L		99
23) Methyl tert-butyl ether	2.590	73	262152	18.47	ug/L		100
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.057	63	177056	20.60	ug/L		98
26) Diisopropyl ether	3.125	45	300457	18.37	ug/L	#	75
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.592	59	263978	17.23	ug/L		98
30) 2,2-Dichloropropane	3.786	77	130669	18.26	ug/L		93
31) cis-1,2-Dichloroethene	3.791	61	158517	21.67	ug/L		97
32) 2-Butanone	3.817	43	52346	21.05	ug/L	#	94
33) Ethyl Acetate	3.906	43	107961	17.45	ug/L	#	96
34) Methyl acrylate	3.954	55	106829	21.57	ug/L		97
35) Propionitrile	3.912	54	15811	21.84	ug/L	#	58
36) Bromochloromethane	4.142	49	86639	21.88	ug/L		90
37) Tetrahydrofuran	4.163	42	39171	21.87	ug/L		97
38) Methacrylonitrile	4.132	67	44890	19.52	ug/L		90

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 05:51 pm
Operator : AK
Sample : LCS-118957
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 30 08:28:11 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
39)	Chloroform	4.352	83	162640	20.46	ug/L		99
40)	Cyclohexane	0.000		0	N.D.			
42)	1,1,1-Trichloroethane	4.562	97	136890	21.60	ug/L		99
44)	Carbon tetrachloride	4.824	119	106469	19.75	ug/L		95
45)	1,1-Dichloropropene	4.866	75	122420	20.87	ug/L		98
47)	1,2-Dichloroethane	5.390	62	138802	24.67	ug/L		97
48)	Benzene	5.228	78	368939	21.76	ug/L		97
49)	Isobutyl Alcohol	0.000		0	N.D.			
50)	Tertiaryamylmethylether	5.616	73	244030	18.50	ug/L		96
51)	Heptane	0.000		0	N.D.			
52)	Methylcyclohexane	0.000		0	N.D.			
53)	Trichloroethene	6.659	130	88031	20.36	ug/L		94
54)	n-Butanol	0.000		0	N.D.			
55)	1,2-Dichloropropane	7.215	63	102249	22.23	ug/L		95
56)	Dibromomethane	7.372	93	56525	21.14	ug/L		99
57)	1,4-Dioxane	7.367	88	7302	446.97	ug/L	#	22
58)	Methyl methacrylate	7.535	41	99374	19.69	ug/L		98
59)	Bromodichloromethane	7.797	83	120461	20.59	ug/L		98
60)	2-Nitropropane	8.216	43	32173	20.70	ug/L	#	99
61)	2-Chloroethyl vinyl ether	0.000		0	N.D.			
62)	cis-1,3-Dichloropropene	8.547	75	151660	21.47	ug/L		96
64)	4-Methyl-2-pentanone	8.845	43	172976	27.84	ug/L		83
66)	Toluene	8.997	91	399676	22.08	ug/L		99
67)	Chloropicrin	0.000		0	N.D.			
68)	trans-1,3-Dichloropropene	9.427	75	138835	21.56	ug/L		99
69)	Ethyl methacrylate	9.585	69	134481	19.57	ug/L		97
70)	1,1,2-Trichloroethane	9.674	97	83786	20.21	ug/L		93
71)	Tetrachloroethene	9.695	166	87402	19.67	ug/L		96
72)	1,3-Dichloropropane	9.863	76	159412	23.00	ug/L		100
73)	2-Hexanone	10.020	43	91580	21.93	ug/L		98
74)	Chlorodibromomethane	10.119	129	81968	18.78	ug/L		99
75)	Butyl acetate	10.219	43	184308	19.12	ug/L		97
76)	1,2-Dibromoethane	10.219	107	87398	22.50	ug/L	#	99
77)	Chlorobenzene	10.838	112	248084	21.66	ug/L		96
78)	1,1,1,2-Tetrachloroethane	10.979	131	79995	19.76	ug/L		99
79)	Ethylbenzene	10.995	91	451221	22.47	ug/L		98
80)	m/p-Xylene	11.158	91	700501	44.94	ug/L		98
81)	Styrene	11.619	104	271581	22.36	ug/L		95
82)	o-Xylene	11.588	91	359566	22.95	ug/L		97
83)	Cyclohexanone	0.000		0	N.D.			
84)	Bromoform	11.792	173	50356	16.77	ug/L		98
85)	Isopropylbenzene	12.017	105	405613	21.96	ug/L		98
87)	Bromobenzene	12.306	77	178890	22.72	ug/L		91
88)	1,1,2,2-Tetrachloroethane	12.395	83	133926	22.42	ug/L		99
89)	1,2,3-Trichloropropane	12.426	110	39772	21.71	ug/L		91
90)	trans-1,4-Dichloro-2-b...	12.432	53	33800	16.11	ug/L		83
91)	n-Propylbenzene	12.474	91	493837	23.01	ug/L		99
92)	2-Chlorotoluene	12.531	91	289428	13.35	ug/L		24
93)	4-Chlorotoluene	12.673	91	338519	23.13	ug/L		96
94)	1,3,5-Trimethylbenzene	12.683	105	313776	22.42	ug/L		96
95)	tert-Butylbenzene	13.003	91	176194	23.60	ug/L		98
96)	1,2,4-Trimethylbenzene	13.071	105	312697	22.39	ug/L		97
97)	sec-Butylbenzene	13.239	105	345136	21.55	ug/L		98
99)	1,3-Dichlorobenzene	13.328	146	155172	20.80	ug/L		96
100)	p-Isopropyltoluene	13.417	119	281332	21.68	ug/L		97

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 05:51 pm
Operator : AK
Sample : LCS-118957
Misc :
ALS Vial : 22 Sample Multiplier: 1

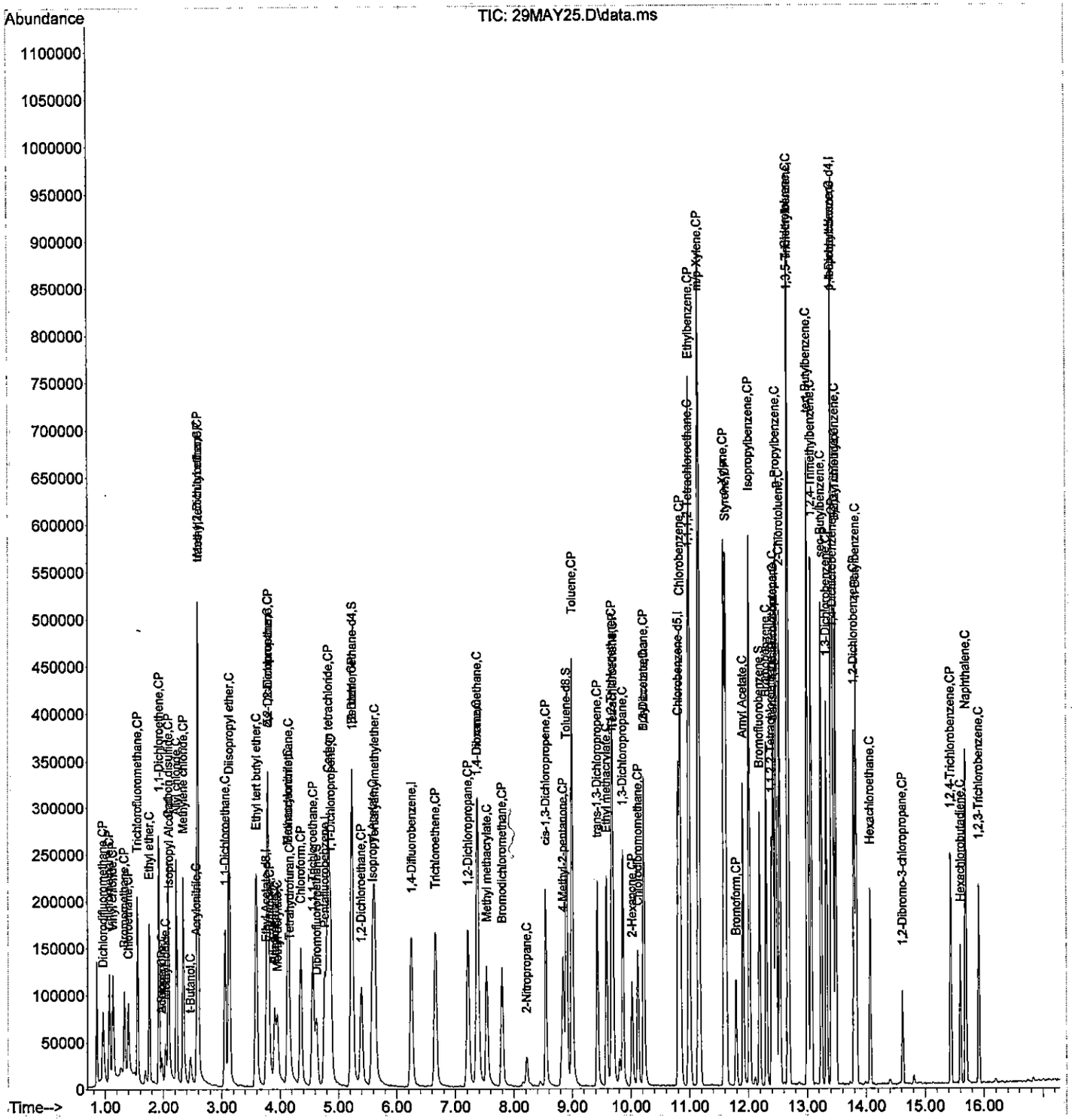
Quant Time: May 30 08:28:11 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.444	146	159731	21.65 ug/L	99
102) 1,2,3-Trimethylbenzene	13.486	105	304062	21.83 ug/L	98
103) Benzyl chloride	13.486	91	31287	2.78 ug/L #	35
104) 1,2-Dichlorobenzene	13.800	146	140713	21.05 ug/L	98
105) n-Butylbenzene	13.832	91	263936	23.48 ug/L	98
106) Hexachloroethane	14.068	117	38944	16.69 ug/L	93
107) 1,2-Dibromo-3-chloropr...	14.618	157	22609	18.50 ug/L	85
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.436	180	66310	19.89 ug/L	98
110) Hexachlorobutadiene	15.604	225	26017	17.61 ug/L	99
111) Naphthalene	15.693	128	261797	21.71 ug/L	98
112) 1,2,3-Trichlorobenzene	15.913	180	56419	20.32 ug/L	98
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.966	43	33550	22.03 ug/L	95
117) Isopropyl Alcohol	2.092	45	80824	465.44 ug/L #	85
118) Acetic Ether	3.906	43	107961	16.68 ug/L	99
119) Isopropyl Acetate	5.584	43	290949	17.36 ug/L #	90
120) Amyl Acetate	11.907	43	192324	18.76 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY25.D
Acq On : 29 May 2018 05:51 pm
Operator : AK
Sample : LCS-118957
Misc :
ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 30 08:28:11 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 06:13 pm
Operator : AK
Sample : 18051776-01A MS
Misc :
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 08:28:13 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	106877	20.00 ug/L		0.00
41) 1,4-Difluorobenzene	6.250	114	196247	20.00 ug/L		0.00
63) Chlorobenzene-d5	10.806	117	190179	20.00 ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	90943	20.00 ug/L		0.00
115) Ethyl Acetate-d8	3.754	46	38075	20.00 ug/L	#	0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.619	111	60769	19.35 ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 96.75%			
46) 1,2-Dichloroethane-d4	5.238	65	82923	22.34 ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 111.70%			
65) Toluene-d8	8.903	98	251087	20.40 ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.00%			
86) Bromofluorobenzene	12.190	95	105447	21.62 ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 108.10%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.960	85	86423	14.56 ug/L		99
3) Chloromethane	1.065	50	100423	17.98 ug/L		99
4) Vinyl chloride	1.128	62	101042	17.74 ug/L		100
5) Bromomethane	1.322	94	46436	14.99 ug/L		93
6) Chloroethane	1.395	64	58031	17.02 ug/L		95
7) Trichlorofluoromethane	1.552	101	115706	16.63 ug/L		99
8) Ethanol	1.694	45	18766	No Calib	#	
9) Ethyl ether	1.757	59	71740	19.50 ug/L		95
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	1.919	61	131813	21.92 ug/L		94
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	2.035	142	46784	9.18 ug/L		92
14) Acetone	1.966	43	30367	20.37 ug/L		100
15) Carbon disulfide	2.082	76	225649	17.55 ug/L		99
16) Allyl chloride	2.218	41	129903	16.72 ug/L		95
17) Methyl acetate	2.229	43	6601	2.16 ug/L	#	18
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.339	49	126381	23.24 ug/L		94
20) t-Butanol	2.465	59	34333	108.53 ug/L	#	80
21) trans-1,2-Dichloroethene	2.585	61	127396	20.88 ug/L		96
22) Acrylonitrile	2.564	53	40766	20.19 ug/L		98
23) Methyl tert-butyl ether	2.590	73	239660	17.68 ug/L		100
24) Hexane	0.000		0	N.D.		
25) 1,1-Dichloroethane	3.052	63	160491	19.55 ug/L		100
26) Diisopropyl ether	3.125	45	271590	17.39 ug/L	#	76
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	3.592	59	247026	16.88 ug/L		99
30) 2,2-Dichloropropane	3.781	77	119866	17.53 ug/L		94
31) cis-1,2-Dichloroethene	3.791	61	144087	20.62 ug/L		98
32) 2-Butanone	3.817	43	48006	20.21 ug/L	#	95
33) Ethyl Acetate	3.912	43	104459	17.68 ug/L	#	96
34) Methyl acrylate	3.954	55	92040	19.46 ug/L		98
35) Propionitrile	3.912	54	14965	21.64 ug/L	#	58
36) Bromochloromethane	4.137	49	81769	21.62 ug/L		87
37) Tetrahydrofuran	4.163	42	35451	20.72 ug/L		96
38) Methacrylonitrile	4.132	67	42674	19.43 ug/L		97

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 06:13 pm
Operator : AK
Sample : 18051776-01A MS
Misc :
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 08:28:13 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	4.352	83	147812	19.47 ug/L	97
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	4.562	97	126128	20.28 ug/L	99
44) Carbon tetrachloride	4.819	119	100361	18.97 ug/L	97
45) 1,1-Dichloropropene	4.866	75	113349	19.69 ug/L	96
47) 1,2-Dichloroethane	5.390	62	126691	22.95 ug/L	98
48) Benzene	5.222	78	343697	20.66 ug/L	98
49) Isobutyl Alcohol	6.014	43	6160	1.57 ug/L #	31
50) Tertiaryamylmethylether	5.616	73	225233	17.40 ug/L	95
51) Heptane	6.014	43	6160	1.49 ug/L #	24
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.659	130	87993	20.74 ug/L	93
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.215	63	94049	20.84 ug/L	95
56) Dibromomethane	7.372	93	52565	20.04 ug/L	98
57) 1,4-Dioxane	7.372	88	6413	413.44 ug/L #	22
58) Methyl methacrylate	7.535	41	90544	18.29 ug/L	96
59) Bromodichloromethane	7.797	83	110308	19.22 ug/L	99
60) 2-Nitropropane	8.216	43	25666	16.85 ug/L #	93
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.547	75	140645	20.29 ug/L	99
64) 4-Methyl-2-pentanone	8.845	43	138159	22.55 ug/L	88
66) Toluene	8.997	91	365459	20.48 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.427	75	128355	20.22 ug/L	99
69) Ethyl methacrylate	9.585	69	123159	18.18 ug/L	97
70) 1,1,2-Trichloroethane	9.674	97	79070	19.34 ug/L	94
71) Tetrachloroethene	9.695	166	144936	33.08 ug/L	97
72) 1,3-Dichloropropane	9.863	76	147136	21.53 ug/L	100
73) 2-Hexanone	10.020	43	82259	20.01 ug/L	96
74) Chlorodibromomethane	10.119	129	73823	17.15 ug/L	98
75) Butyl acetate	10.219	43	176518	18.57 ug/L	99
76) 1,2-Dibromoethane	10.214	107	81988	21.41 ug/L #	98
77) Chlorobenzene	10.838	112	223815	19.82 ug/L	96
78) 1,1,1,2-Tetrachloroethane	10.979	131	72975	18.29 ug/L	98
79) Ethylbenzene	10.995	91	419240	21.17 ug/L	98
80) m/p-Xylene	11.158	91	677329	44.07 ug/L	98
81) Styrene	11.619	104	247458	20.66 ug/L	93
82) o-Xylene	11.582	91	333509	21.59 ug/L	98
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.787	173	45742	15.45 ug/L	99
85) Isopropylbenzene	12.017	105	374271	20.55 ug/L	98
87) Bromobenzene	12.306	77	162626	20.95 ug/L	93
88) 1,1,2,2-Tetrachloroethane	12.395	83	104098	17.68 ug/L	100
89) 1,2,3-Trichloropropane	12.426	110	37157	20.57 ug/L	94
90) trans-1,4-Dichloro-2-b...	12.432	53	29562	14.29 ug/L	81
91) n-Propylbenzene	12.468	91	455597	21.53 ug/L	98
92) 2-Chlorotoluene	12.468	91	455597	21.31 ug/L #	96
93) 4-Chlorotoluene	12.673	91	314755	21.81 ug/L	95
94) 1,3,5-Trimethylbenzene	12.683	105	312296	22.63 ug/L	96
95) tert-Butylbenzene	13.003	91	162540	22.08 ug/L	96
96) 1,2,4-Trimethylbenzene	13.066	105	307284	22.32 ug/L	97
97) sec-Butylbenzene	13.239	105	332841	21.08 ug/L	97
99) 1,3-Dichlorobenzene	13.328	146	147612	19.97 ug/L	98
100) p-Isopropyltoluene	13.417	119	263400	20.48 ug/L	97

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 06:13 pm
Operator : AK
Sample : 18051776-01A MS
Misc :
ALS Vial : 23 Sample Multiplier: 1

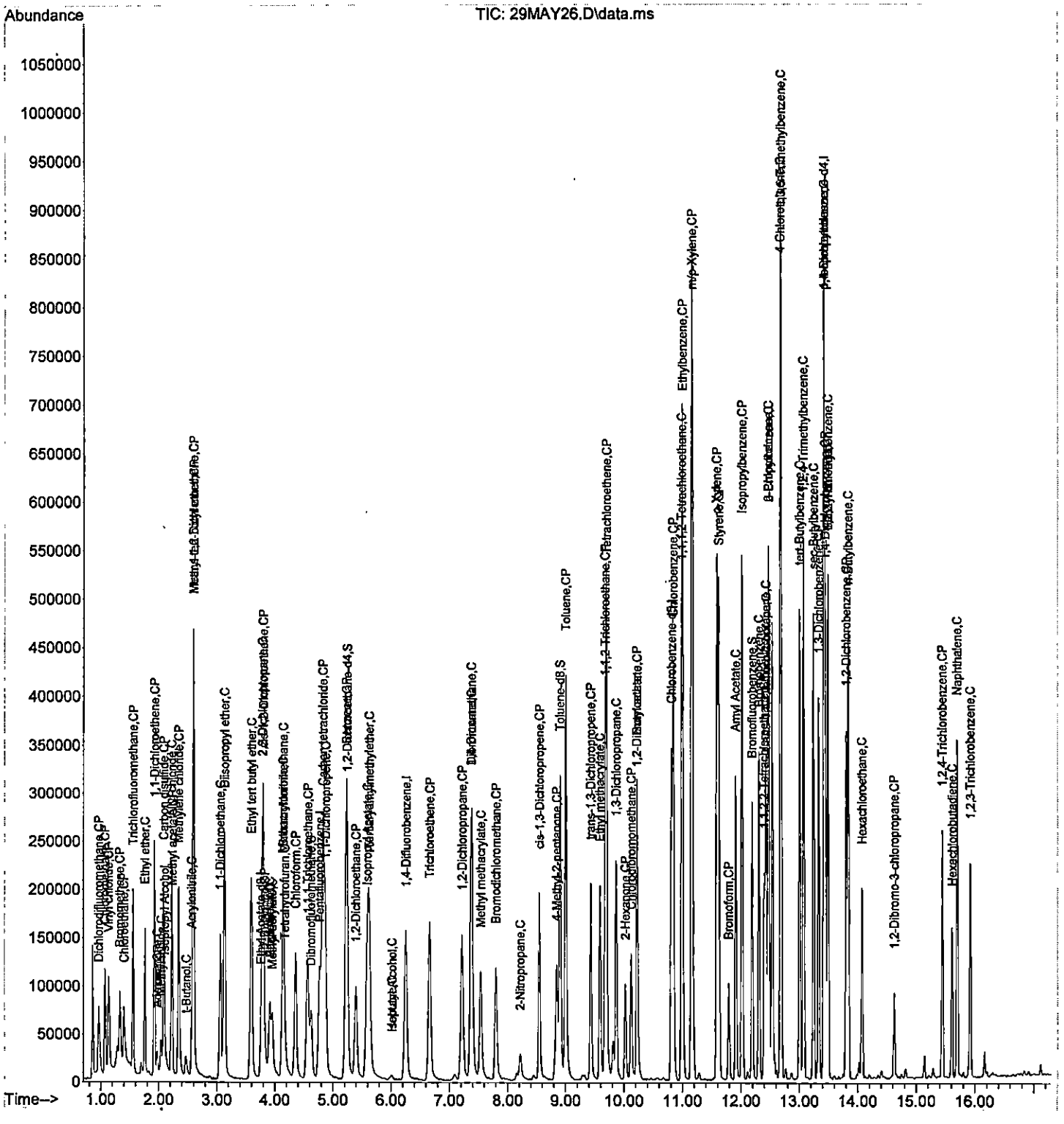
Quant Time: May 30 08:28:13 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.438	146	154401	21.12	ug/L		99
102) 1,2,3-Trimethylbenzene	13.486	105	287747	20.85	ug/L		97
103) Benzyl chloride	13.486	91	29019	2.60	ug/L	#	35
104) 1,2-Dichlorobenzene	13.800	146	135058	20.40	ug/L		96
105) n-Butylbenzene	13.832	91	258633	23.22	ug/L		98
106) Hexachloroethane	14.068	117	35588	15.39	ug/L		96
107) 1,2-Dibromo-3-chloropr...	14.618	157	20361	16.82	ug/L		88
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	15.436	180	67771	20.52	ug/L		98
110) Hexachlorobutadiene	15.604	225	27764	18.96	ug/L		99
111) Naphthalene	15.688	128	254146	21.27	ug/L		99
112) 1,2,3-Trichlorobenzene	15.913	180	57471	20.90	ug/L		99
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	0.000		0	N.D.			
116) 2-Propanone	1.966	43	30367	20.65	ug/L		100
117) Isopropyl Alcohol	2.098	45	72847	433.70	ug/L	#	87
118) Acetic Ether	3.912	43	104459	16.79	ug/L		99
119) Isopropyl Acetate	5.584	43	269759	16.74	ug/L		97
120) Amyl Acetate	11.907	43	184912	18.76	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY26.D
Acq On : 29 May 2018 06:13 pm
Operator : AK
Sample : 18051776-01A MS
Misc :
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 30 08:28:13 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY27.D
Acq On : 29 May 2018 06:36 pm
Operator : AK
Sample : 18051776-01A MSD
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 30 08:28:15 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.766	168	106372	20.00 ug/L	0.00
41) 1,4-Difluorobenzene	6.245	114	197900	20.00 ug/L	0.00
63) Chlorobenzene-d5	10.807	117	193013	20.00 ug/L	0.00
98) 1,4-Dichlorobenzene-d4	13.418	152	94941	20.00 ug/L	0.00
115) Ethyl Acetate-d8	3.760	46	38965	20.00 ug/L	# 0.00
System Monitoring Compounds					
43) Dibromofluoromethane	4.625	111	62435	19.71 ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.55%		
46) 1,2-Dichloroethane-d4	5.238	65	83221	22.23 ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 111.15%		
65) Toluene-d8	8.903	98	251968	20.17 ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.85%		
86) Bromofluorobenzene	12.191	95	101802	20.57 ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.85%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.965	85	86027	14.56 ug/L	99
3) Chloromethane	1.070	50	104434	18.77 ug/L	97
4) Vinyl chloride	1.133	62	100399	17.71 ug/L	98
5) Bromomethane	1.316	94	51552	16.72 ug/L	97
6) Chloroethane	1.390	64	54507	16.05 ug/L	91
7) Trichlorofluoromethane	1.547	101	113036	16.33 ug/L	99
8) Ethanol	1.699	45	13693	No Calib #	
9) Ethyl ether	1.757	59	71440	19.51 ug/L	92
10) Acrolein	0.000		0	N.D.	
11) 1,1-Dichloroethene	1.919	61	131861	22.03 ug/L	95
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.	
13) Methyl iodide	2.035	142	49269	9.71 ug/L	93
14) Acetone	1.972	43	31466	21.24 ug/L	98
15) Carbon disulfide	2.077	76	226242	17.68 ug/L	99
16) Allyl chloride	2.218	41	129978	16.81 ug/L	95
17) Methyl acetate	2.229	43	5752	1.96 ug/L #	5
18) Acetonitrile	0.000		0	N.D.	
19) Methylene chloride	2.339	49	128926	23.82 ug/L	93
20) t-Butanol	2.475	59	34473	109.52 ug/L #	80
21) trans-1,2-Dichloroethene	2.585	61	129117	21.26 ug/L	95
22) Acrylonitrile	2.570	53	40195	20.00 ug/L	98
23) Methyl tert-butyl ether	2.591	73	239621	17.76 ug/L	100
24) Hexane	0.000		0	N.D.	
25) 1,1-Dichloroethane	3.052	63	166184	20.34 ug/L	98
26) Diisopropyl ether	3.125	45	279655	17.99 ug/L #	74
27) Vinyl acetate	0.000		0	N.D.	
28) Chloroprene	0.000		0	N.D.	
29) Ethyl tert butyl ether	3.592	59	246275	16.91 ug/L	99
30) 2,2-Dichloropropane	3.781	77	120614	17.73 ug/L	95
31) cis-1,2-Dichloroethene	3.791	61	148914	21.41 ug/L	97
32) 2-Butanone	3.823	43	49187	20.81 ug/L #	95
33) Ethyl Acetate	3.912	43	101244	17.22 ug/L #	95
34) Methyl acrylate	3.954	55	94477	20.07 ug/L	97
35) Propionitrile	3.917	54	15261	22.19 ug/L #	58
36) Bromochloromethane	4.137	49	81032	21.52 ug/L	88
37) Tetrahydrofuran	4.169	42	34880	20.48 ug/L	97
38) Methacrylonitrile	4.132	67	41154	18.83 ug/L	91

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY27.D
Acq On : 29 May 2018 06:36 pm
Operator : AK
Sample : 18051776-01A MSD
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 30 08:28:15 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39) Chloroform	4.352	83	151786	20.09 ug/L		98
40) Cyclohexane	0.000		0	N.D.		
42) 1,1,1-Trichloroethane	4.562	97	126790	20.22 ug/L		98
44) Carbon tetrachloride	4.819	119	99476	18.65 ug/L		94
45) 1,1-Dichloropropene	4.866	75	112981	19.46 ug/L		98
47) 1,2-Dichloroethane	5.390	62	126371	22.70 ug/L		96
48) Benzene	5.228	78	350623	20.90 ug/L		99
49) Isobutyl Alcohol	6.009	43	7444	1.80 ug/L	#	31
50) Tertiaryamylmethylether	5.616	73	228876	17.53 ug/L		96
51) Heptane	6.009	43	7444	1.78 ug/L	#	24
52) Methylcyclohexane	0.000		0	N.D.		
53) Trichloroethene	6.659	130	83989	19.64 ug/L		93
54) n-Butanol	0.000		0	N.D.		
55) 1,2-Dichloropropane	7.215	63	94942	20.86 ug/L		97
56) Dibromomethane	7.372	93	53049	20.05 ug/L		98
57) 1,4-Dioxane	7.378	88	6685	423.07 ug/L	#	22
58) Methyl methacrylate	7.535	41	89644	17.95 ug/L		97
59) Bromodichloromethane	7.797	83	112114	19.37 ug/L		99
60) 2-Nitropropane	8.216	43	27385	17.82 ug/L	#	97
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.		
62) cis-1,3-Dichloropropene	8.547	75	140760	20.14 ug/L		97
64) 4-Methyl-2-pentanone	8.846	43	150365	24.18 ug/L		83
66) Toluene	8.998	91	377254	20.83 ug/L		98
67) Chloropicrin	0.000		0	N.D.		
68) trans-1,3-Dichloropropene	9.428	75	127967	19.87 ug/L		99
69) Ethyl methacrylate	9.585	69	124573	18.11 ug/L		98
70) 1,1,2-Trichloroethane	9.674	97	77192	18.61 ug/L		93
71) Tetrachloroethene	9.695	166	127654	28.71 ug/L		96
72) 1,3-Dichloropropane	9.863	76	147742	21.30 ug/L		98
73) 2-Hexanone	10.020	43	80959	19.41 ug/L		98
74) Chlorodibromomethane	10.120	129	76802	17.58 ug/L		98
75) Butyl acetate	10.219	43	179242	18.58 ug/L		99
76) 1,2-Dibromoethane	10.214	107	81827	21.05 ug/L	#	99
77) Chlorobenzene	10.838	112	229377	20.02 ug/L		98
78) 1,1,1,2-Tetrachloroethane	10.980	131	75765	18.71 ug/L		97
79) Ethylbenzene	10.995	91	426994	21.25 ug/L		98
80) m/p-Xylene	11.158	91	675778	43.33 ug/L		97
81) Styrene	11.619	104	254386	20.93 ug/L		95
82) o-Xylene	11.588	91	340775	21.74 ug/L		96
83) Cyclohexanone	0.000		0	N.D.		
84) Bromoform	11.792	173	46583	15.50 ug/L		97
85) Isopropylbenzene	12.012	105	373354	20.20 ug/L		98
87) Bromobenzene	12.306	77	166825	21.17 ug/L		90
88) 1,1,2,2-Tetrachloroethane	12.395	83	117955	19.73 ug/L		99
89) 1,2,3-Trichloropropane	12.427	110	36617	19.97 ug/L		93
90) trans-1,4-Dichloro-2-b...	12.432	53	27784	13.24 ug/L		85
91) n-Propylbenzene	12.469	91	456851	21.28 ug/L		99
92) 2-Chlorotoluene	12.469	91	456851	21.05 ug/L	#	96
93) 4-Chlorotoluene	12.673	91	317136	21.65 ug/L		96
94) 1,3,5-Trimethylbenzene	12.684	105	304427	21.73 ug/L		96
95) tert-Butylbenzene	13.003	91	166027	22.22 ug/L		97
96) 1,2,4-Trimethylbenzene	13.066	105	302804	21.67 ug/L		98
97) sec-Butylbenzene	13.239	105	327599	20.44 ug/L		98
99) 1,3-Dichlorobenzene	13.328	146	147041	19.05 ug/L		95
100) p-Isopropyltoluene	13.418	119	269980	20.11 ug/L		96

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY27.D
Acq On : 29 May 2018 06:36 pm
Operator : AK
Sample : 18051776-01A MSD
Misc :
ALS Vial : 24 Sample Multiplier: 1

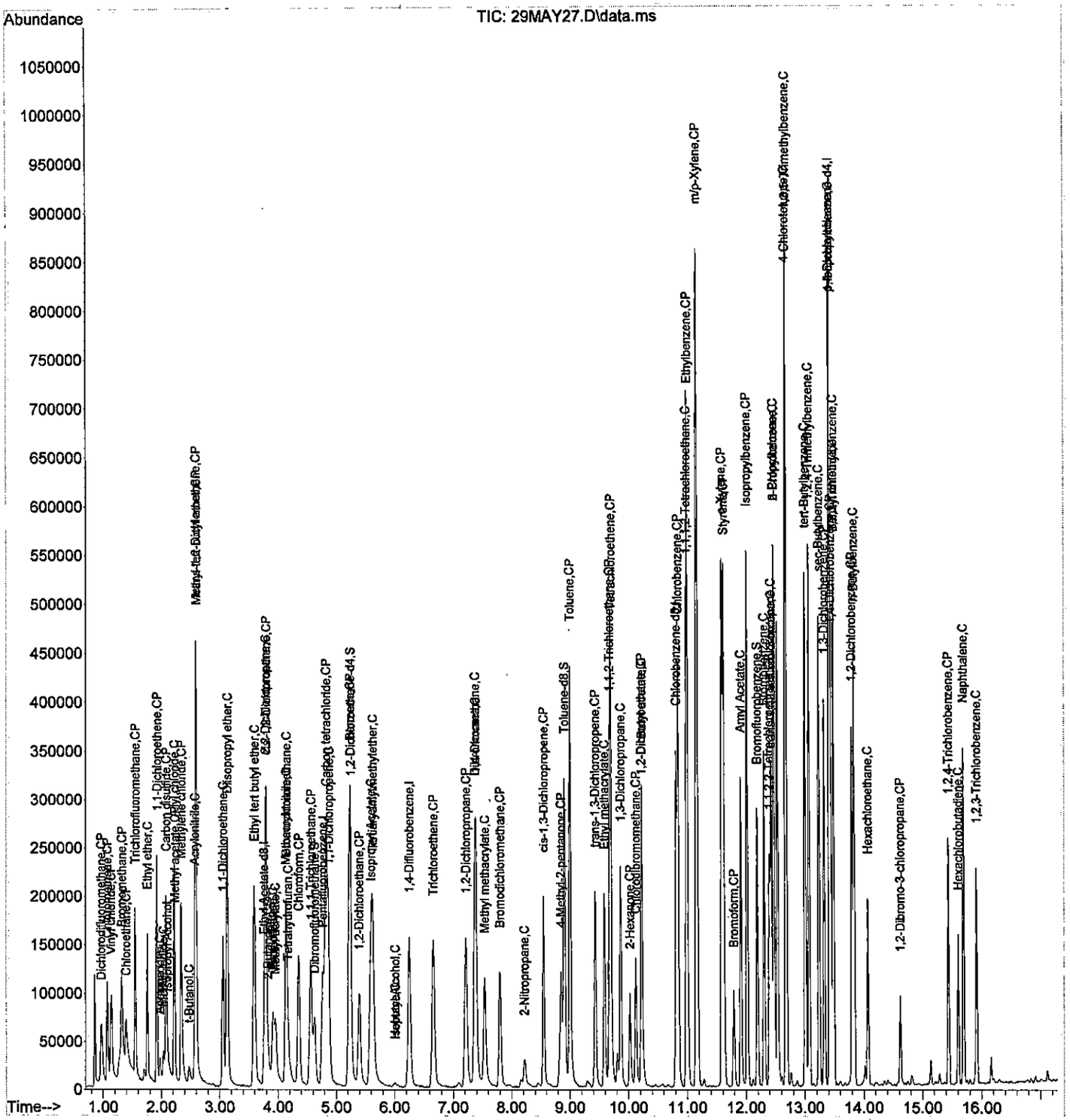
Quant Time: May 30 08:28:15 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.444	146	153881	20.16	ug/L		99
102) 1,2,3-Trimethylbenzene	13.486	105	285516	19.81	ug/L		98
103) Benzyl chloride	13.486	91	29007	2.49	ug/L	#	33
104) 1,2-Dichlorobenzene	13.800	146	136935	19.81	ug/L		97
105) n-Butylbenzene	13.832	91	255190	21.95	ug/L		98
106) Hexachloroethane	14.068	117	35421	14.67	ug/L		94
107) 1,2-Dibromo-3-chloropr...	14.618	157	20277	16.04	ug/L		86
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	15.436	180	67859	19.68	ug/L		99
110) Hexachlorobutadiene	15.604	225	28116	18.40	ug/L		98
111) Naphthalene	15.688	128	250324	20.07	ug/L		98
112) 1,2,3-Trichlorobenzene	15.913	180	58798	20.48	ug/L		98
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	0.000		0	N.D.			
116) 2-Propanone	1.972	43	31466	20.93	ug/L		98
117) Isopropyl Alcohol	2.103	45	69963	405.03	ug/L	#	88
118) Acetic Ether	3.912	43	101244	15.90	ug/L		98
119) Isopropyl Acetate	5.590	43	270894	16.43	ug/L		96
120) Amyl Acetate	11.908	43	186296	18.46	ug/L		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180529\
Data File : 29MAY27.D
Acq On : 29 May 2018 06:36 pm
Operator : AK
Sample : 18051776-01A MSD
Misc :
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 30 08:28:15 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY10.D
Acq On : 31 May 2018 12:59 pm
Operator : AK
Sample : VBLKS1-180531
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 31 13:12:20 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	5.001	168	82026	20.00	ug/L	0.00
40) 1,4-Difluorobenzene	6.281	114	138048	20.00	ug/L	0.00
62) Chlorobenzene-d5	8.845	117	118965	20.00	ug/L	0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	55227	20.00	ug/L	# 0.00
114) Ethyl-d5-Acetate-d3	4.136	46	14903	20.00	ug/L	# 0.00
System Monitoring Compounds						
42) Dibromofluoromethane	4.928	111	42729	19.73	ug/L	0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.65%			
45) 1,2-Dichloroethane-d4	5.468	65	54616	20.83	ug/L	0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 104.15%			
64) Toluene-d8	7.806	98	166907	20.09	ug/L	0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.45%			
85) Bromofluorobenzene	9.542	95	57877	20.12	ug/L	0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.		
3) Chloromethane	0.000		0	N.D.		
4) Vinyl chloride	0.000		0	N.D.		
5) Bromomethane	0.000		0	N.D.		
6) Chloroethane	0.000		0	N.D.		
7) Trichlorofluoromethane	0.000		0	N.D.		
8) Ethyl ether	0.000		0	N.D.		
9) Acrolein	0.000		0	N.D.		
10) 1,1-Dichloroethene	0.000		0	N.D.		
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
12) Methyl iodide	0.000		0	N.D.		
13) Acetone	0.000		0	N.D.		
14) Chloroprene	0.000		0	N.D.		
15) Carbon disulfide	0.000		0	N.D.		
16) Allyl chloride	0.000		0	N.D.		
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.799	49	14281	1.68	ug/L	97
20) trans-1,2-Dichloroethene	0.000		0	N.D.		
21) t-Butanol	0.000		0	N.D.		
22) Acrylonitrile	0.000		0	N.D.		
23) Methyl tert-butyl ether	0.000		0	N.D.		
24) Hexane	3.334	57	24757	9.46	ug/L #	92
25) 1,1-Dichloroethane	0.000		0	N.D.		
26) Diisopropyl ether	0.000		0	N.D.		
27) Vinyl acetate	0.000		0	N.D.		
28) Ethyl tert butyl ether	0.000		0	N.D.		
29) 2,2-Dichloropropane	0.000		0	N.D.		
30) cis-1,2-Dichloroethene	0.000		0	N.D.		
31) 2-Butanone	0.000		0	N.D.		
32) Ethyl Acetate	0.000		0	N.D.		
33) Methyl acrylate	0.000		0	N.D.		
34) Propionitrile	0.000		0	N.D.		
35) Bromochloromethane	0.000		0	N.D.		
36) Tetrahydrofuran	0.000		0	N.D.		
37) Methacrylonitrile	0.000		0	N.D.		
38) Chloroform	0.000		0	N.D.		

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY10.D
Acq On : 31 May 2018 12:59 pm
Operator : AK
Sample : VBLKS1-180531
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 31 13:12:20 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units Dev(Min)
39) Cyclohexane	0.000		0	N.D.
41) 1,1,1-Trichloroethane	0.000		0	N.D.
43) Carbon tetrachloride	0.000		0	N.D.
44) 1,1-Dichloropropene	0.000		0	N.D.
46) 1,2-Dichloroethane	0.000		0	N.D.
47) Benzene	0.000		0	N.D.
48) Tertiaryamylmethylether	0.000		0	N.D.
49) Isobutyl Alcohol	0.000		0	N.D.
50) Heptane	0.000		0	N.D.
51) 1,4-Dioxane	0.000		0	N.D.
52) Methylcyclohexane	0.000		0	N.D.
53) n-Butanol	0.000		0	N.D.
54) Trichloroethene	0.000		0	N.D.
55) 1,2-Dichloropropane	0.000		0	N.D.
56) Dibromomethane	0.000		0	N.D.
57) Methyl methacrylate	0.000		0	N.D.
58) Bromodichloromethane	0.000		0	N.D.
59) 2-Chloroethyl vinyl ether	0.000		0	N.D.
60) 2-Nitropropane	0.000		0	N.D.
61) cis-1,3-Dichloropropene	0.000		0	N.D.
63) 4-Methyl-2-pentanone	0.000		0	N.D.
65) Toluene	0.000		0	N.D.
66) trans-1,3-Dichloropropene	0.000		0	N.D.
67) Chloropicrin	0.000		0	N.D.
68) Ethyl methacrylate	0.000		0	N.D.
69) 1,1,2-Trichloroethane	0.000		0	N.D.
70) Tetrachloroethene	0.000		0	N.D.
71) 1,3-Dichloropropane	0.000		0	N.D.
72) 2-Hexanone	0.000		0	N.D.
73) Chlorodibromomethane	0.000		0	N.D.
74) Butyl acetate	0.000		0	N.D.
75) 1,2-Dibromoethane	0.000		0	N.D.
76) Chlorobenzene	0.000		0	N.D.
77) 1,1,1,2-Tetrachloroethane	0.000		0	N.D.
78) Ethylbenzene	0.000		0	N.D.
79) m/p-Xylene	0.000		0	N.D.
80) Styrene	0.000		0	N.D.
81) o-Xylene	0.000		0	N.D.
82) Cyclohexanone	0.000		0	N.D.
83) Bromoform	0.000		0	N.D.
84) Isopropylbenzene	0.000		0	N.D.
86) Bromobenzene	0.000		0	N.D.
87) 1,2,3-Trichloropropane	0.000		0	N.D.
88) trans-1,4-Dichloro-2-b...	0.000		0	N.D.
89) n-Propylbenzene	0.000		0	N.D.
90) 2-Chlorotoluene	0.000		0	N.D.
91) 4-Chlorotoluene	0.000		0	N.D.
92) 1,3,5-Trimethylbenzene	0.000		0	N.D.
93) tert-Butylbenzene	0.000		0	N.D.
94) 1,2,4-Trimethylbenzene	0.000		0	N.D.
95) sec-Butylbenzene	0.000		0	N.D.
97) 1,1,2,2-Tetrachloroethane	0.000		0	N.D.
98) 1,3-Dichlorobenzene	0.000		0	N.D.
99) p-Isopropyltoluene	0.000		0	N.D.
100) 1,4-Dichlorobenzene	0.000		0	N.D.

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY10.D
Acq On : 31 May 2018 12:59 pm
Operator : AK
Sample : VBLKS1-180531
Misc :
ALS Vial : 6 Sample Multiplier: 1

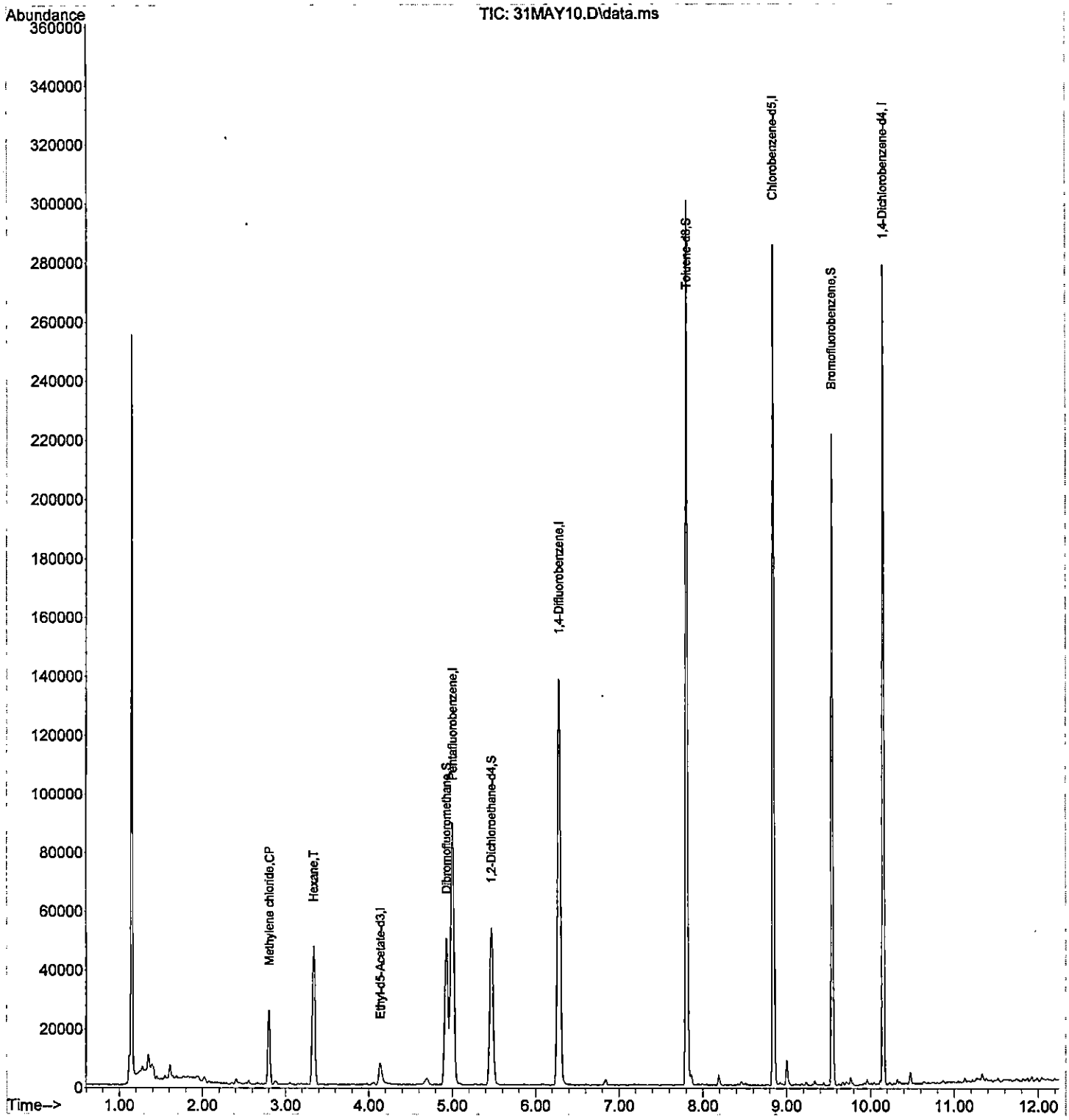
Quant Time: May 31 13:12:20 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
102) Benzyl chloride	0.000		0	N.D.		
103) 1,2-Dichlorobenzene	0.000		0	N.D.		
104) n-Butylbenzene	0.000		0	N.D.		
105) Hexachloroethane	0.000		0	N.D.		
106) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
108) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
109) Hexachlorobutadiene	0.000		0	N.D.		
110) Naphthalene	0.000		0	N.D.		
111) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
112) 2-Methylnaphthalene	0.000		0	N.D.		
113) 1-Methylnaphthalene	0.000		0	N.D.		
115) 2-Propanone	0.000		0	N.D.		
116) Acetic Ether	0.000		0	N.D.		
117) Isopropyl Acetate	0.000		0	N.D.		
118) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY10.D
Acq On : 31 May 2018 12:59 pm
Operator : AK
Sample : VBLKS1-180531
Misc :
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 31 13:12:20 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY06.D
Acq On : 31 May 2018 11:06 am
Operator : AK
Sample : VLCSS1-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 08:02:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.001	168	85003	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.281	114	140195	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	122997	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.155	152	56175	20.00	ug/L		0.00
114) Ethyl-d5-Acetate-d3	4.136	46	14437	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	45234	20.57	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 102.85%				
45) 1,2-Dichloroethane-d4	5.463	65	54216	20.36	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 101.80%				
64) Toluene-d8	7.806	98	170406	19.84	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.20%				
85) Bromofluorobenzene	9.542	95	61049	20.53	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 102.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	40830	14.08	ug/L		96
3) Chloromethane	1.389	50	51730	17.93	ug/L		98
4) Vinyl chloride	1.473	62	43572	17.79	ug/L		97
5) Bromomethane	1.704	96	19369	16.73	ug/L	#	91
6) Chloroethane	1.782	64	26095	19.23	ug/L		99
7) Trichlorofluoromethane	1.960	101	54941	16.63	ug/L		100
8) Ethyl ether	2.170	59	32129	19.58	ug/L		100
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.364	61	63401	21.19	ug/L		98
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.495	142	12937	20.61	ug/L	#	91
13) Acetone	2.401	43	13184	19.32	ug/L	#	44
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.558	76	98591	18.30	ug/L		99
16) Allyl chloride	2.679	41	60987	16.38	ug/L		94
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.799	49	65632	19.81	ug/L		98
20) trans-1,2-Dichloroethene	3.056	61	62827	20.45	ug/L		99
21) t-Butanol	2.883	59	21974	96.46	ug/L	#	84
22) Acrylonitrile	3.030	53	14400	19.31	ug/L		96
23) Methyl tert-butyl ether	3.046	73	102136	22.10	ug/L		98
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.518	63	79918	20.12	ug/L		100
26) Diisopropyl ether	3.549	45	129589	20.82	ug/L	#	53
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.984	59	107980	21.46	ug/L		99
29) 2,2-Dichloropropane	4.210	77	55746	19.96	ug/L		98
30) cis-1,2-Dichloroethene	4.210	61	78644	21.99	ug/L		98
31) 2-Butanone	4.215	43	15483	17.62	ug/L	#	55
32) Ethyl Acetate	4.267	43	38655	17.69	ug/L	#	89
33) Methyl acrylate	4.330	55	32915	17.58	ug/L	#	68
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.529	49	41265	20.71	ug/L		97
36) Tetrahydrofuran	4.556	42	13143	17.49	ug/L	#	41
37) Methacrylonitrile	4.503	41	30409	15.71	ug/L		99
38) Chloroform	4.692	83	78551	21.25	ug/L		99

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY06.D
Acq On : 31 May 2018 11:06 am
Operator : AK
Sample : VLCSS1-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 08:02:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
39)	Cyclohexane	0.000		0	N.D.		
41)	1,1,1-Trichloroethane	4.912	97	58552	20.56 ug/L		99
43)	Carbon tetrachloride	5.143	117	46348	20.55 ug/L		99
44)	1,1-Dichloropropene	5.164	75	56168	19.65 ug/L		99
46)	1,2-Dichloroethane	5.599	62	59832	19.67 ug/L	#	93
47)	Benzene	5.478	78	167108	19.63 ug/L		100
48)	Tertiaryamylmethylether	5.746	73	93828	21.09 ug/L		98
49)	Isobutyl Alcohol	5.751	43	32418	16.85 ug/L		93
50)	Heptane	0.000		0	N.D.		
51)	1,4-Dioxane	0.000		0	N.D.		
52)	Methylcyclohexane	0.000		0	N.D.		
53)	n-Butanol	0.000		0	N.D.		
54)	Trichloroethene	6.580	130	41015	20.17 ug/L		100
55)	1,2-Dichloropropane	6.894	63	45622	20.37 ug/L	#	78
56)	Dibromomethane	6.983	93	24624	20.04 ug/L		99
57)	Methyl methacrylate	7.004	41	32948	15.12 ug/L		99
58)	Bromodichloromethane	7.188	83	49892	17.70 ug/L		99
59)	2-Chloroethyl vinyl ether	0.000		0	N.D. d		
60)	2-Nitropropane	7.408	43	7504	16.80 ug/L	#	75
61)	cis-1,3-Dichloropropene	7.591	75	60742	20.19 ug/L		96
63)	4-Methyl-2-pentanone	7.733	43	45397	22.22 ug/L	#	82
65)	Toluene	7.859	91	174042	19.19 ug/L		100
66)	trans-1,3-Dichloropropene	8.063	75	51704	19.64 ug/L		95
67)	Chloropicrin	0.000		0	N.D.		
68)	Ethyl methacrylate	8.116	69	45869	18.54 ug/L		95
69)	1,1,2-Trichloroethane	8.205	97	35922	20.61 ug/L		99
70)	Tetrachloroethene	8.247	166	44230	20.85 ug/L		98
71)	1,3-Dichloropropane	8.320	76	64968	20.33 ug/L		94
72)	2-Hexanone	8.373	43	23205	16.96 ug/L	#	88
73)	Chlorodibromomethane	8.467	129	32174	18.93 ug/L		98
74)	Butyl acetate	8.457	43	57892	18.66 ug/L		100
75)	1,2-Dibromoethane	8.540	107	34928	21.86 ug/L	#	99
76)	Chlorobenzene	8.860	112	106592	19.70 ug/L		97
77)	1,1,1,2-Tetrachloroethane	8.923	131	35522	20.74 ug/L		99
78)	Ethylbenzene	8.923	91	189167	20.00 ug/L		99
79)	m/p-Xylene	9.002	91	298265	40.97 ug/L		99
80)	Styrene	9.243	104	111750	20.42 ug/L		99
81)	o-Xylene	9.232	91	153185	20.62 ug/L		97
82)	Cyclohexanone	0.000		0	N.D.		
83)	Bromoform	9.358	173	17555	16.28 ug/L		96
84)	Isopropylbenzene	9.442	105	177374	20.40 ug/L		99
86)	Bromobenzene	9.620	77	99465	19.30 ug/L		99
87)	1,2,3-Trichloropropane	9.647	110	13418	19.89 ug/L		93
88)	trans-1,4-Dichloro-2-b...	9.636	53	8813	13.38 ug/L	#	79
89)	n-Propylbenzene	9.668	91	220136	20.28 ug/L		99
90)	2-Chlorotoluene	9.720	91	131133	19.96 ug/L		99
91)	4-Chlorotoluene	9.788	91	150451	19.79 ug/L		99
92)	1,3,5-Trimethylbenzene	9.762	105	149037	20.92 ug/L		99
93)	tert-Butylbenzene	9.930	91	90500	18.81 ug/L		96
94)	1,2,4-Trimethylbenzene	9.961	105	152543	20.46 ug/L		90
95)	sec-Butylbenzene	10.045	105	188737	20.19 ug/L		100
97)	1,1,2,2-Tetrachloroethane	9.620	83	48510	18.67 ug/L	#	96
98)	1,3-Dichlorobenzene	10.113	146	80277	18.87 ug/L		99
99)	p-Isopropyltoluene	10.119	119	156311	20.09 ug/L		99
100)	1,4-Dichlorobenzene	10.166	146	82085	19.54 ug/L		99

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY06.D
Acq On : 31 May 2018 11:06 am
Operator : AK
Sample : VLCSS1-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

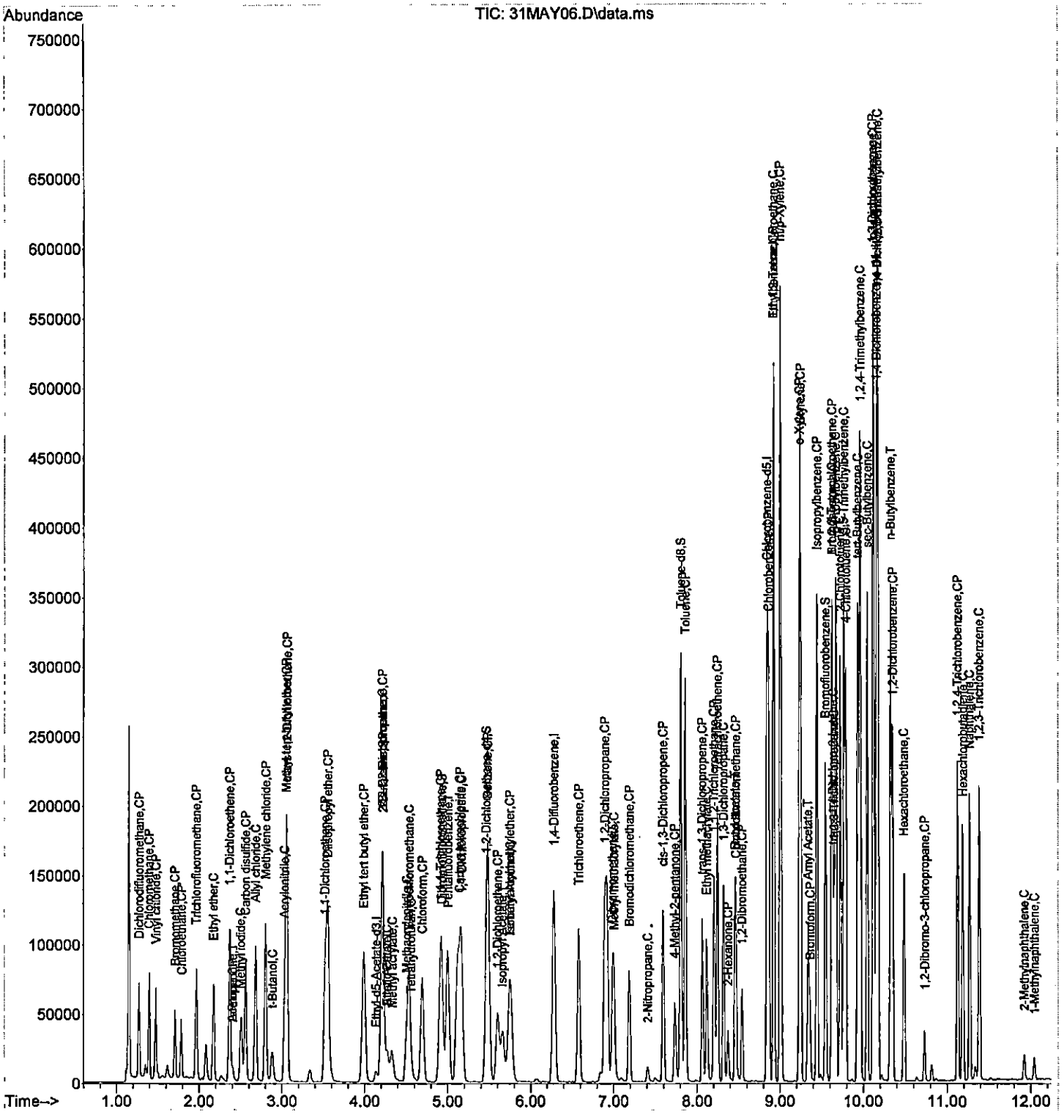
Quant Time: Jun 01 08:02:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	150000	19.04 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.349	146	75832	18.60 ug/L	99
104) n-Butylbenzene	10.323	91	157394	22.86 ug/L	99
105) Hexachloroethane	10.480	117	18562	15.71 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.732	157	6871	17.49 ug/L	97
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.125	180	54620	19.54 ug/L	98
109) Hexachlorobutadiene	11.188	225	28690	19.36 ug/L	99
110) Naphthalene	11.267	128	123744	17.21 ug/L	100
111) 1,2,3-Trichlorobenzene	11.382	180	51790	18.41 ug/L	98
112) 2-Methylnaphthalene	11.922	142	7933	1.87 ug/L	96
113) 1-Methylnaphthalene	12.043	142	6706	1.73 ug/L	97
115) 2-Propanone	2.401	43	13184	25.15 ug/L #	45
116) Acetic Ether	4.267	43	38655	23.02 ug/L #	88
117) Isopropyl Acetate	5.657	61	12631	24.25 ug/L	95
118) Amyl Acetate	9.332	43	55934	23.81 ug/L	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY06.D
Acq On : 31 May 2018 11:06 am
Operator : AK
Sample : VLCSS1-180531
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jun 01 08:02:19 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY38.D
Acq On : 31 May 2018 09:27 pm
Operator : AK
Sample : 18051930-01A MS
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 01 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.002	168	76448	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.286	114	127561	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	109268	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	48326	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17304	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.928	111	42186	21.08	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 105.40%				
45) 1,2-Dichloroethane-d4	5.473	65	56146	23.17	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 115.85%				
64) Toluene-d8	7.807	98	155956	20.44	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 102.20%				
85) Bromofluorobenzene	9.542	95	53337	20.19	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 100.95%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.269	85	32394	12.42	ug/L	#	90
3) Chloromethane	1.394	50	30698	11.72	ug/L		99
4) Vinyl chloride	1.473	62	30206	13.71	ug/L		99
5) Bromomethane	1.704	96	11172	10.54	ug/L	#	90
6) Chloroethane	1.782	64	17646	14.46	ug/L		98
7) Trichlorofluoromethane	1.966	101	38961	13.11	ug/L		99
8) Ethyl ether	2.176	59	25236	17.10	ug/L		94
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.370	61	43181	16.04	ug/L		98
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.501	142	6682	12.89	ug/L	#	37
13) Acetone	2.401	43	118451	218.17	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.564	76	58236	12.02	ug/L		98
16) Allyl chloride	2.684	41	39638	11.84	ug/L		94
17) Methyl acetate	2.668	43	24208	16.76	ug/L	#	60
18) Acetonitrile	2.684	41	39638	11.84	ug/L		93
19) Methylene chloride	2.799	49	59314	19.93	ug/L		97
20) trans-1,2-Dichloroethene	3.056	61	40650	14.71	ug/L		98
21) t-Butanol	2.883	59	20094	98.16	ug/L	#	80
22) Acrylonitrile	3.030	53	9998	14.91	ug/L		95
23) Methyl tert-butyl ether	3.046	73	82002	19.73	ug/L		98
24) Hexane	3.340	57	14851	5.64	ug/L	#	89
25) 1,1-Dichloroethane	3.523	63	54043	15.13	ug/L		100
26) Diisopropyl ether	3.554	45	92544	16.53	ug/L	#	52
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.990	59	78839	17.42	ug/L		97
29) 2,2-Dichloropropane	4.215	77	33137	13.19	ug/L		91
30) cis-1,2-Dichloroethene	4.215	61	49084	15.26	ug/L		98
31) 2-Butanone	4.215	43	25777	32.45	ug/L	#	86
32) Ethyl Acetate	4.215	43	26322	13.33	ug/L	#	89
33) Methyl acrylate	4.336	55	14613	8.68	ug/L	#	68
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.535	49	29517	16.47	ug/L		97
36) Tetrahydrofuran	4.556	42	11860	17.55	ug/L	#	41
37) Methacrylonitrile	4.509	41	20300	11.66	ug/L	#	86
38) Chloroform	4.692	83	51796	15.36	ug/L		98

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY38.D
Acq On : 31 May 2018 09:27 pm
Operator : AK
Sample : 18051930-01A MS
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 01 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.912	97	38910	15.01 ug/L #	93
43) Carbon tetrachloride	5.148	117	29483	14.36 ug/L	100
44) 1,1-Dichloropropene	5.169	75	34177	13.14 ug/L	99
46) 1,2-Dichloroethane	5.604	62	45690	16.51 ug/L #	95
47) Benzene	5.489	78	107662	13.90 ug/L	100
48) Tertiaryamylmethylether	5.757	73	69116	17.08 ug/L	93
49) Isobutyl Alcohol	5.757	43	26723	15.26 ug/L #	92
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.585	130	25399	13.73 ug/L	100
55) 1,2-Dichloropropane	6.894	63	30420	14.93 ug/L #	76
56) Dibromomethane	6.989	93	17693	15.83 ug/L #	85
57) Methyl methacrylate	7.004	41	31378	15.82 ug/L	97
58) Bromodichloromethane	7.188	83	31428	12.25 ug/L #	94
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.408	43	5456	13.44 ug/L #	19
61) cis-1,3-Dichloropropene	7.597	75	32839	11.99 ug/L	99
63) 4-Methyl-2-pentanone	7.738	43	27474	15.12 ug/L #	87
65) Toluene	7.859	91	98862	12.27 ug/L	99
66) trans-1,3-Dichloropropene	8.069	75	28387	12.36 ug/L	94
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	8.121	69	7724	3.51 ug/L #	85
69) 1,1,2-Trichloroethane	8.210	97	24046	15.53 ug/L	98
70) Tetrachloroethene	8.247	166	36592	19.42 ug/L	97
71) 1,3-Dichloropropane	8.320	76	43800	15.43 ug/L	96
72) 2-Hexanone	8.373	43	20816	17.12 ug/L #	84
73) Chlorodibromomethane	8.467	129	19449	12.88 ug/L #	87
74) Butyl acetate	8.373	43	19125	6.94 ug/L #	46
75) 1,2-Dibromoethane	8.541	107	22830	16.09 ug/L #	98
76) Chlorobenzene	8.860	112	54495	11.34 ug/L	97
77) 1,1,1,2-Tetrachloroethane	8.923	131	20775	13.65 ug/L	98
78) Ethylbenzene	8.923	91	96405	11.47 ug/L	100
79) m/p-Xylene	9.007	91	141228	21.84 ug/L	99
80) Styrene	9.248	104	51126	10.52 ug/L	95
81) o-Xylene	9.233	91	75964	11.51 ug/L	99
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.359	173	10550	11.01 ug/L	97
84) Isopropylbenzene	9.442	105	83562	10.82 ug/L	99
86) Bromobenzene	9.621	77	48627	10.62 ug/L	96
87) 1,2,3-Trichloropropane	9.647	110	8786	14.66 ug/L	90
88) trans-1,4-Dichloro-2-b...	9.636	53	4970m	8.49 ug/L	
89) n-Propylbenzene	9.668	91	91720	9.51 ug/L	98
90) 2-Chlorotoluene	9.720	91	58136	9.96 ug/L	96
91) 4-Chlorotoluene	9.788	91	59565	8.82 ug/L	99
92) 1,3,5-Trimethylbenzene	9.762	105	61519	9.72 ug/L	97
93) tert-Butylbenzene	9.930	91	47027	11.00 ug/L	93
94) 1,2,4-Trimethylbenzene	9.961	105	59854	9.04 ug/L	98
95) sec-Butylbenzene	10.045	105	78124	9.41 ug/L	99
97) 1,1,2,2-Tetrachloroethane	9.621	83	29203	13.07 ug/L #	96
98) 1,3-Dichlorobenzene	10.114	146	27293	7.46 ug/L	97
99) p-Isopropyltoluene	10.119	119	54318	8.12 ug/L	98
100) 1,4-Dichlorobenzene	10.166	146	27994	7.75 ug/L	97

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY38.D
Acq On : 31 May 2018 09:27 pm
Operator : AK
Sample : 18051930-01A MS
Misc :
ALS Vial : 34 Sample Multiplier: 1

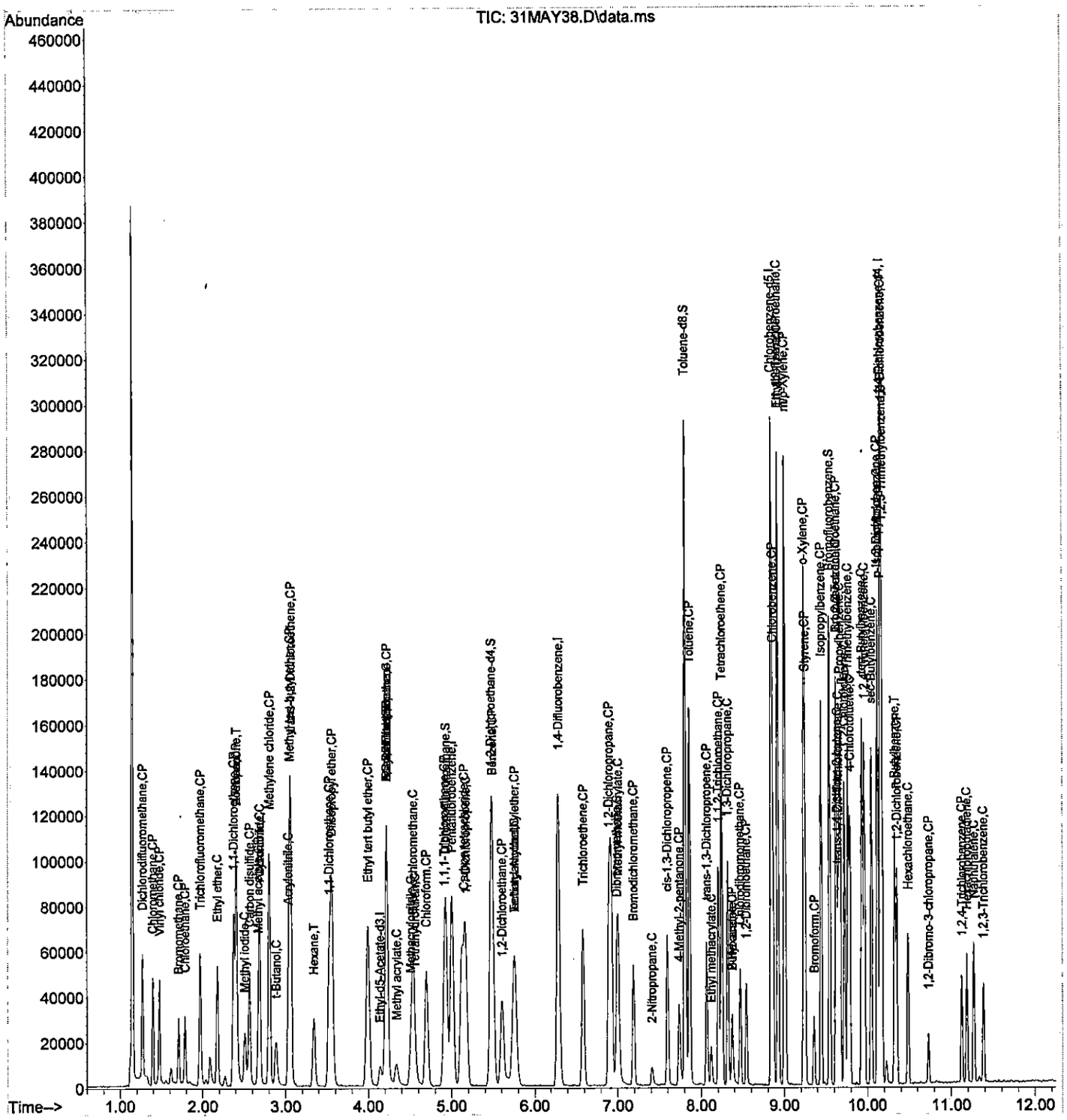
Quant Time: Jun 01 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	63396	9.36 ug/L	99
102) Benzyl chloride	0.000		0	N.D. d	
103) 1,2-Dichlorobenzene	10.349	146	27228	7.76 ug/L	99
104) n-Butylbenzene	10.323	91	50223	8.13 ug/L	97
105) Hexachloroethane	10.481	117	8069	7.94 ug/L	96
106) 1,2-Dibromo-3-chloropr...	10.727	157	3972m	11.75 ug/L	
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
108) 1,2,4-Trichlorobenzene	11.125	180	10532	4.38 ug/L	96
109) Hexachlorobutadiene	11.183	225	8274	6.49 ug/L	95
110) Naphthalene	11.267	128	36926	5.97 ug/L #	77
111) 1,2,3-Trichlorobenzene	11.382	180	10511	4.34 ug/L	94
112) 2-Methylnaphthalene	0.000		0	N.D.	
113) 1-Methylnaphthalene	0.000		0	N.D.	
115) 2-Propanone	2.401	43	118451	210.78 ug/L	99
116) Acetic Ether	4.215	43	26322	13.10 ug/L #	68
117) Isopropyl Acetate	0.000		0	N.D.	
118) Amyl Acetate	0.000		0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY38.D
Acq On : 31 May 2018 09:27 pm
Operator : AK
Sample : 18051930-01A MS
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 01 08:33:36 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY39.D
Acq On : 31 May 2018 09:45 pm
Operator : AK
Sample : 18051930-01A MSD
Misc :
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Jun 01 08:34:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	5.007	168	77839	20.00	ug/L		0.00
40) 1,4-Difluorobenzene	6.286	114	130038	20.00	ug/L		0.00
62) Chlorobenzene-d5	8.845	117	115388	20.00	ug/L		0.00
96) 1,4-Dichlorobenzene-d4	10.150	152	49574	20.00	ug/L	#	0.00
114) Ethyl-d5-Acetate-d3	4.136	46	17729	20.00	ug/L	#	0.00
System Monitoring Compounds							
42) Dibromofluoromethane	4.933	111	44262	21.70	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 108.50%				
45) 1,2-Dichloroethane-d4	5.468	65	58903	23.85	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 119.25%				
64) Toluene-d8	7.806	98	160794	19.96	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.80%				
85) Bromofluorobenzene	9.542	95	54876	19.67	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 98.35%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.268	85	26803	10.09	ug/L	#	89
3) Chloromethane	1.394	50	27802	10.39	ug/L		99
4) Vinyl chloride	1.473	62	25999	11.59	ug/L		100
5) Bromomethane	1.704	96	10228	9.42	ug/L	#	93
6) Chloroethane	1.782	64	15149	12.19	ug/L	#	44
7) Trichlorofluoromethane	1.966	101	33597	11.11	ug/L	#	93
8) Ethyl ether	2.175	59	23992	15.96	ug/L		99
9) Acrolein	0.000		0	N.D.			
10) 1,1-Dichloroethene	2.369	61	37694	13.75	ug/L		96
11) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
12) Methyl iodide	2.495	142	5619	10.89	ug/L	#	37
13) Acetone	2.401	43	139094	252.04	ug/L		98
14) Chloroprene	0.000		0	N.D.			
15) Carbon disulfide	2.563	76	49845	10.10	ug/L	#	74
16) Allyl chloride	2.684	41	34465	10.11	ug/L		96
17) Methyl acetate	2.668	43	25070	17.05	ug/L	#	79
18) Acetonitrile	0.000		0	N.D.	d		
19) Methylene chloride	2.799	49	57000	18.61	ug/L		96
20) trans-1,2-Dichloroethene	3.061	61	36812	13.08	ug/L		98
21) t-Butanol	2.883	59	21263	102.23	ug/L	#	75
22) Acrylonitrile	3.030	53	9844	14.41	ug/L		88
23) Methyl tert-butyl ether	3.046	73	78818	18.62	ug/L		100
24) Hexane	3.339	57	14299	5.27	ug/L	#	88
25) 1,1-Dichloroethane	3.523	63	48811	13.42	ug/L		98
26) Diisopropyl ether	3.554	45	88042	15.45	ug/L	#	52
27) Vinyl acetate	0.000		0	N.D.			
28) Ethyl tert butyl ether	3.990	59	75367	16.36	ug/L		98
29) 2,2-Dichloropropane	4.215	77	29156	11.40	ug/L		91
30) cis-1,2-Dichloroethene	4.215	61	42584	13.00	ug/L		94
31) 2-Butanone	4.215	43	25042	30.99	ug/L	#	87
32) Ethyl Acetate	4.215	43	26101	12.98	ug/L	#	89
33) Methyl acrylate	4.336	55	11264	6.57	ug/L	#	68
34) Propionitrile	0.000		0	N.D.			
35) Bromochloromethane	4.535	49	28275	15.49	ug/L		97
36) Tetrahydrofuran	4.556	42	12356	17.96	ug/L	#	41
37) Methacrylonitrile	4.514	41	20521	11.58	ug/L	#	78
38) Chloroform	4.697	83	47226	13.67	ug/L		99

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY39.D
Acq On : 31 May 2018 09:45 pm
Operator : AK
Sample : 18051930-01A MSD
Misc :
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Jun 01 08:34:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Cyclohexane	0.000		0	N.D.	
41) 1,1,1-Trichloroethane	4.918	97	33206	12.57 ug/L #	94
43) Carbon tetrachloride	5.148	117	25418	12.15 ug/L	100
44) 1,1-Dichloropropene	5.169	75	30470	11.49 ug/L	97
46) 1,2-Dichloroethane	5.604	62	44585	15.80 ug/L #	94
47) Benzene	5.484	78	96573	12.23 ug/L	99
48) Tertiaryamylmethylether	5.756	73	67415	16.34 ug/L #	90
49) Isobutyl Alcohol	5.756	43	28672	16.07 ug/L	92
50) Heptane	0.000		0	N.D.	
51) 1,4-Dioxane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) n-Butanol	0.000		0	N.D.	
54) Trichloroethene	6.585	130	22870	12.13 ug/L	98
55) 1,2-Dichloropropane	6.894	63	27537	13.26 ug/L #	71
56) Dibromomethane	6.989	93	18094	15.88 ug/L	98
57) Methyl methacrylate	7.004	41	30404	15.04 ug/L	98
58) Bromodichloromethane	7.188	83	30227	11.56 ug/L #	96
59) 2-Chloroethyl vinyl ether	0.000		0	N.D. d	
60) 2-Nitropropane	7.408	43	5938	14.35 ug/L #	84
61) cis-1,3-Dichloropropene	7.597	75	27711	9.93 ug/L	95
63) 4-Methyl-2-pentanone	7.733	43	24772	12.90 ug/L #	88
65) Toluene	7.859	91	88468	10.40 ug/L	100
66) trans-1,3-Dichloropropene	8.069	75	25943	10.74 ug/L	95
67) Chloropicrin	0.000		0	N.D.	
68) Ethyl methacrylate	0.000		0	N.D.	
69) 1,1,2-Trichloroethane	8.210	97	24631	15.06 ug/L	99
70) Tetrachloroethene	8.247	166	30480	15.32 ug/L	97
71) 1,3-Dichloropropane	8.320	76	44463	14.83 ug/L	95
72) 2-Hexanone	8.373	43	20163	15.70 ug/L #	83
73) Chlorodibromomethane	8.467	129	19493	12.22 ug/L #	87
74) Butyl acetate	8.373	43	18174	6.24 ug/L #	46
75) 1,2-Dibromoethane	8.540	107	22928	15.30 ug/L #	99
76) Chlorobenzene	8.860	112	52681	10.38 ug/L	98
77) 1,1,1,2-Tetrachloroethane	8.923	131	20399	12.70 ug/L	96
78) Ethylbenzene	8.923	91	88112	9.93 ug/L	99
79) m/p-Xylene	9.007	91	130374	19.09 ug/L	99
80) Styrene	9.248	104	46889	9.13 ug/L	98
81) o-Xylene	9.233	91	71491	10.26 ug/L	97
82) Cyclohexanone	0.000		0	N.D.	
83) Bromoform	9.358	173	10779	10.65 ug/L	97
84) Isopropylbenzene	9.442	105	77621	9.52 ug/L	99
86) Bromobenzene	9.621	77	36498	7.55 ug/L	86
87) 1,2,3-Trichloropropane	9.647	110	9680	15.29 ug/L	96
88) trans-1,4-Dichloro-2-b...	9.636	53	3841m	6.22 ug/L	
89) n-Propylbenzene	9.668	91	80647	7.92 ug/L	98
90) 2-Chlorotoluene	9.720	91	51214	8.31 ug/L	99
91) 4-Chlorotoluene	9.788	91	55170	7.74 ug/L	99
92) 1,3,5-Trimethylbenzene	9.762	105	55875	8.36 ug/L	97
93) tert-Butylbenzene	9.930	91	42823	9.49 ug/L	95
94) 1,2,4-Trimethylbenzene	9.961	105	55148	7.89 ug/L	99
95) sec-Butylbenzene	10.045	105	67807	7.73 ug/L	99
97) 1,1,2,2-Tetrachloroethane	9.621	83	29949	13.06 ug/L #	95
98) 1,3-Dichlorobenzene	10.113	146	25826	6.88 ug/L	97
99) p-Isopropyltoluene	10.119	119	47659	6.94 ug/L	98
100) 1,4-Dichlorobenzene	10.166	146	25959	7.00 ug/L	97

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY39.D
Acq On : 31 May 2018 09:45 pm
Operator : AK
Sample : 18051930-01A MSD
Misc :
ALS Vial : 35 Sample Multiplier: 1

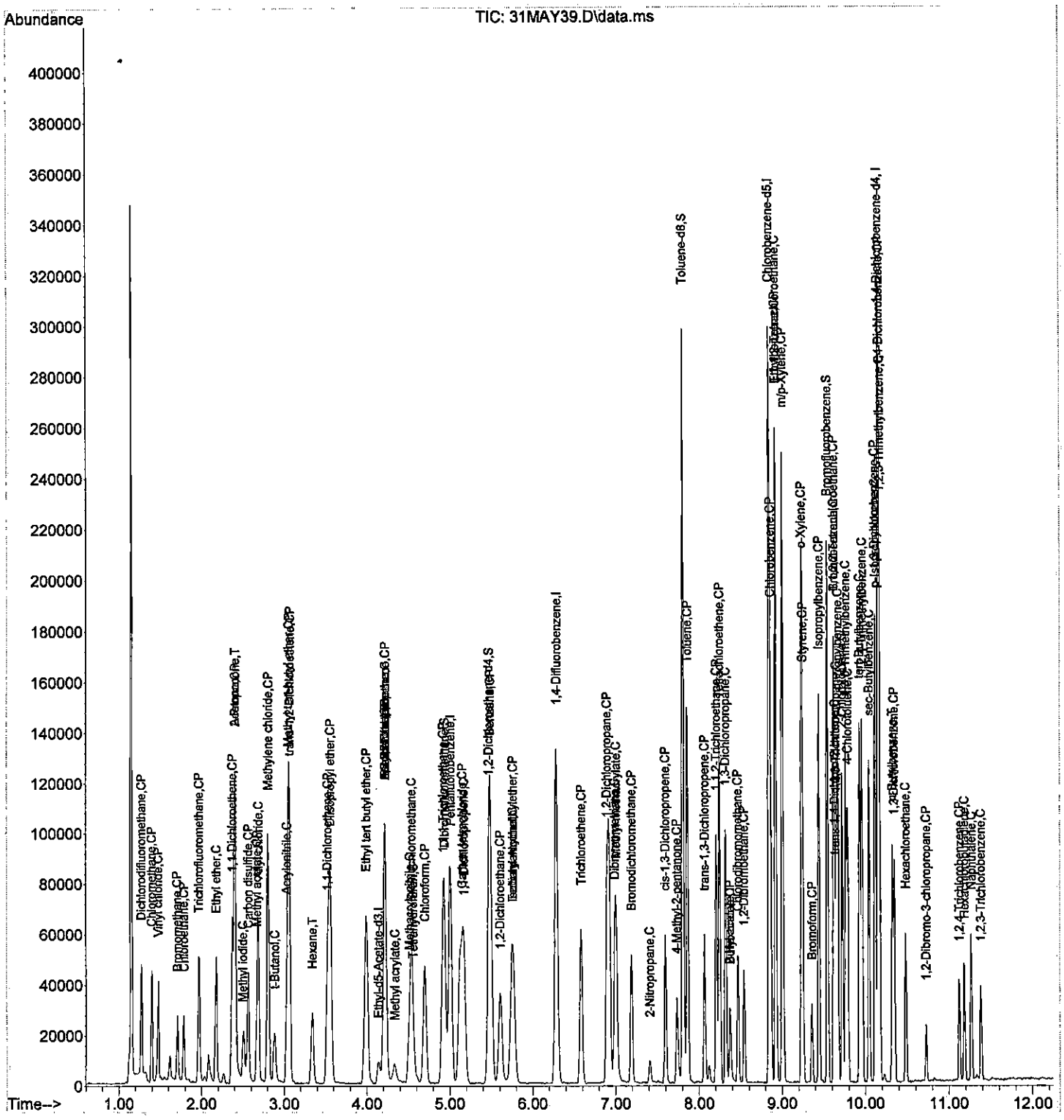
Quant Time: Jun 01 08:34:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,2,3-Trimethylbenzene	10.171	105	59714	8.59	ug/L		96
102) Benzyl chloride	0.000		0	N.D.	d		
103) 1,2-Dichlorobenzene	10.344	146	25048	6.96	ug/L		99
104) n-Butylbenzene	10.323	91	41636	6.47	ug/L		98
105) Hexachloroethane	10.480	117	6685	6.41	ug/L	#	59
106) 1,2-Dibromo-3-chloropr...	10.727	157	4099m	11.82	ug/L		
107) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
108) 1,2,4-Trichlorobenzene	11.125	180	9338	3.79	ug/L		99
109) Hexachlorobutadiene	11.183	225	7537	5.76	ug/L	#	19
110) Naphthalene	11.267	128	34167	5.38	ug/L	#	77
111) 1,2,3-Trichlorobenzene	11.382	180	8635	3.48	ug/L		98
112) 2-Methylnaphthalene	0.000		0	N.D.			
113) 1-Methylnaphthalene	0.000		0	N.D.			
115) 2-Propanone	2.401	43	139094	242.08	ug/L		99
116) Acetic Ether	4.215	43	26100	12.68	ug/L	#	68
117) Isopropyl Acetate	0.000		0	N.D.			
118) Amyl Acetate	0.000		0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\10V180531\
Data File : 31MAY39.D
Acq On : 31 May 2018 09:45 pm
Operator : AK
Sample : 18051930-01A MSD
Misc :
ALS Vial : 35 Sample Multiplier: 1

Quant Time: Jun 01 08:34:01 2018
Quant Method : D:\MassHunter\GCMS\1\methods\10SGO0529.M
Quant Title : 8260 Global Optimization Method
QLast Update : Wed May 30 10:57:07 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN40.D
Acq On : 02 Jun 2018 12:27 am
Operator : LNS
Sample : VBLKW2-180601
Misc :
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 04 13:04:25 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	86651	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	160723	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	159888	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	74421	20.00	ug/L	#	0.00
115) Ethyl Acetate-d8	3.754	46	30222	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.619	111	50922	19.79	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 98.95%				
46) 1,2-Dichloroethane-d4	5.233	65	70221	23.10	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 115.50%				
65) Toluene-d8	8.903	98	209047	20.20	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 101.00%				
86) Bromofluorobenzene	12.191	95	86131	21.01	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 105.05%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.			
3) Chloromethane	0.000		0	N.D.			
4) Vinyl chloride	0.000		0	N.D.			
5) Bromomethane	0.000		0	N.D.			
6) Chloroethane	0.000		0	N.D.			
7) Trichlorofluoromethane	0.000		0	N.D.			
8) Ethanol	0.000		0	N.D.			
9) Ethyl ether	0.000		0	N.D.			
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	0.000		0	N.D.			
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	0.000		0	N.D.			
14) Acetone	0.000		0	N.D.			
15) Carbon disulfide	0.000		0	N.D.			
16) Allyl chloride	0.000		0	N.D.			
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	0.000		0	N.D.			
20) t-Butanol	0.000		0	N.D.			
21) trans-1,2-Dichloroethene	0.000		0	N.D.			
22) Acrylonitrile	0.000		0	N.D.			
23) Methyl tert-butyl ether	0.000		0	N.D.			
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	0.000		0	N.D.			
26) Diisopropyl ether	0.000		0	N.D.			
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	0.000		0	N.D.			
30) 2,2-Dichloropropane	0.000		0	N.D.			
31) cis-1,2-Dichloroethene	0.000		0	N.D.			
32) 2-Butanone	0.000		0	N.D.			
33) Ethyl Acetate	0.000		0	N.D.			
34) Methyl acrylate	0.000		0	N.D.			
35) Propionitrile	0.000		0	N.D.			
36) Bromochloromethane	0.000		0	N.D.			
37) Tetrahydrofuran	0.000		0	N.D.			
38) Methacrylonitrile	0.000		0	N.D.			

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN40.D
Acq On : 02 Jun 2018 12:27 am
Operator : LNS
Sample : VBLKW2-180601
Misc :
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 04 13:04:25 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
39) Chloroform	0.000		0		N.D.	
40) Cyclohexane	0.000		0		N.D.	
42) 1,1,1-Trichloroethane	0.000		0		N.D.	
44) Carbon tetrachloride	0.000		0		N.D.	
45) 1,1-Dichloropropene	0.000		0		N.D.	
47) 1,2-Dichloroethane	0.000		0		N.D.	
48) Benzene	0.000		0		N.D.	
49) Isobutyl Alcohol	0.000		0		N.D.	
50) Tertiaryamylmethylether	0.000		0		N.D.	
51) Heptane	0.000		0		N.D.	
52) Methylcyclohexane	0.000		0		N.D.	
53) Trichloroethene	0.000		0		N.D.	
54) n-Butanol	0.000		0		N.D.	
55) 1,2-Dichloropropane	0.000		0		N.D.	
56) Dibromomethane	0.000		0		N.D.	
57) 1,4-Dioxane	0.000		0		N.D.	
58) Methyl methacrylate	0.000		0		N.D.	
59) Bromodichloromethane	0.000		0		N.D.	
60) 2-Nitropropane	0.000		0		N.D.	
61) 2-Chloroethyl vinyl ether	0.000		0		N.D.	
62) cis-1,3-Dichloropropene	0.000		0		N.D.	
64) 4-Methyl-2-pentanone	0.000		0		N.D.	
66) Toluene	0.000		0		N.D.	
67) Chloropicrin	0.000		0		N.D.	
68) trans-1,3-Dichloropropene	0.000		0		N.D.	
69) Ethyl methacrylate	0.000		0		N.D.	
70) 1,1,2-Trichloroethane	0.000		0		N.D.	
71) Tetrachloroethene	0.000		0		N.D.	
72) 1,3-Dichloropropane	0.000		0		N.D.	
73) 2-Hexanone	0.000		0		N.D.	
74) Chlorodibromomethane	0.000		0		N.D.	
75) Butyl acetate	0.000		0		N.D.	
76) 1,2-Dibromoethane	0.000		0		N.D.	
77) Chlorobenzene	0.000		0		N.D.	
78) 1,1,1,2-Tetrachloroethane	0.000		0		N.D.	
79) Ethylbenzene	0.000		0		N.D.	
80) m/p-Xylene	0.000		0		N.D.	
81) Styrene	0.000		0		N.D.	
82) o-Xylene	0.000		0		N.D.	
83) Cyclohexanone	0.000		0		N.D.	
84) Bromoform	0.000		0		N.D.	
85) Isopropylbenzene	0.000		0		N.D.	
87) Bromobenzene	0.000		0		N.D.	
88) 1,1,2,2-Tetrachloroethane	0.000		0		N.D.	
89) 1,2,3-Trichloropropane	0.000		0		N.D.	
90) trans-1,4-Dichloro-2-b...	0.000		0		N.D.	
91) n-Propylbenzene	0.000		0		N.D.	
92) 2-Chlorotoluene	0.000		0		N.D.	
93) 4-Chlorotoluene	0.000		0		N.D.	
94) 1,3,5-Trimethylbenzene	0.000		0		N.D.	
95) tert-Butylbenzene	0.000		0		N.D.	
96) 1,2,4-Trimethylbenzene	0.000		0		N.D.	
97) sec-Butylbenzene	0.000		0		N.D.	
99) 1,3-Dichlorobenzene	0.000		0		N.D.	
100) p-Isopropyltoluene	0.000		0		N.D.	

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN40.D
Acq On : 02 Jun 2018 12:27 am
Operator : LNS
Sample : VBLKW2-180601
Misc :
ALS Vial : 36 Sample Multiplier: 1

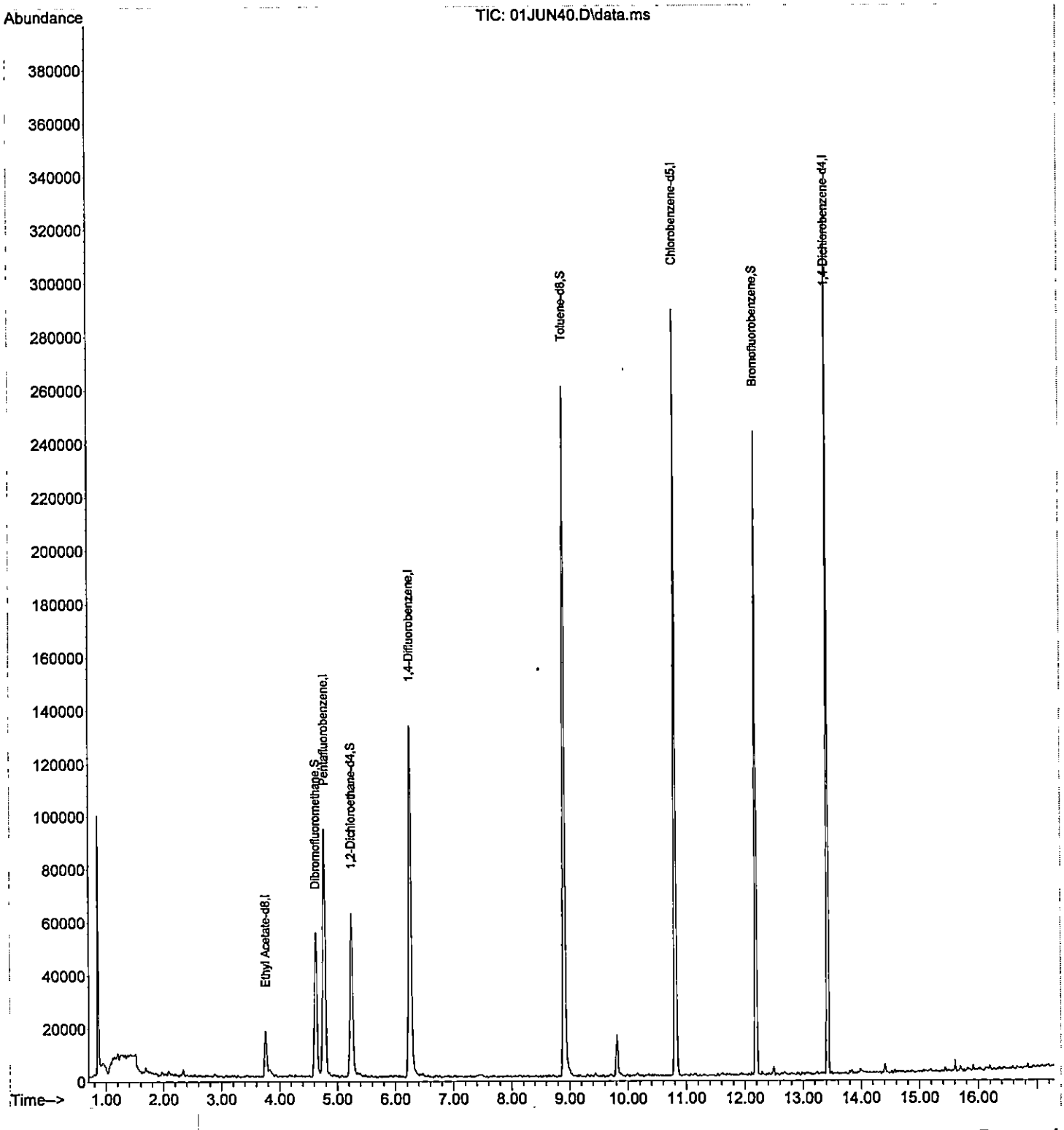
Quant Time: Jun 04 13:04:25 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
101) 1,4-Dichlorobenzene	0.000		0	N.D.		
102) 1,2,3-Trimethylbenzene	0.000		0	N.D.		
103) Benzyl chloride	0.000		0	N.D.		
104) 1,2-Dichlorobenzene	0.000		0	N.D.		
105) n-Butylbenzene	0.000		0	N.D.		
106) Hexachloroethane	0.000		0	N.D.		
107) 1,2-Dibromo-3-chloropr...	0.000		0	N.D.		
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.		
109) 1,2,4-Trichlorobenzene	0.000		0	N.D.		
110) Hexachlorobutadiene	0.000		0	N.D.		
111) Naphthalene	0.000		0	N.D.		
112) 1,2,3-Trichlorobenzene	0.000		0	N.D.		
113) 2-Methylnaphthalene	0.000		0	N.D.		
114) 1-Methylnaphthalene	0.000		0	N.D.		
116) 2-Propanone	0.000		0	N.D.		
117) Isopropyl Alcohol	0.000		0	N.D.		
118) Acetic Ether	0.000		0	N.D.		
119) Isopropyl Acetate	0.000		0	N.D.		
120) Amyl Acetate	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN40.D
Acq On : 02 Jun 2018 12:27 am
Operator : LNS
Sample : VBLKW2-180601
Misc :
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 04 13:04:25 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN38.D
Acq On : 01 Jun 2018 11:43 pm
Operator : LNS
Sample : VLCSW4-180601
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 04 13:04:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	89629	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	165314	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	162769	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	76016	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.754	46	32242	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.620	111	52744	19.93	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 99.65%				
46) 1,2-Dichloroethane-d4	5.238	65	71970	23.02	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 115.10%				
65) Toluene-d8	8.903	98	212135	20.13	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.65%				
86) Bromofluorobenzene	12.191	95	91404	21.90	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 109.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.955	85	80680	16.21	ug/L		99
3) Chloromethane	1.065	50	101886	21.64	ug/L		99
4) Vinyl chloride	1.128	62	90411	18.87	ug/L		100
5) Bromomethane	1.327	94	41063	15.81	ug/L		98
6) Chloroethane	1.395	64	53328	18.67	ug/L		99
7) Trichlorofluoromethane	1.558	101	116911	20.04	ug/L		99
8) Ethanol	1.683	45	20309	No Calib		#	
9) Ethyl ether	1.757	59	68240	22.12	ug/L		96
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.919	61	130163	25.81	ug/L		90
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.035	142	55813	13.05	ug/L		92
14) Acetone	1.967	43	25719	20.58	ug/L		95
15) Carbon disulfide	2.082	76	225843	20.94	ug/L		98
16) Allyl chloride	2.223	41	134592	20.66	ug/L		95
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.339	49	114790	25.17	ug/L		92
20) t-Butanol	2.454	59	27525	103.58	ug/L	#	81
21) trans-1,2-Dichloroethene	2.585	61	122158	23.87	ug/L		94
22) Acrylonitrile	2.564	53	38688	22.80	ug/L		99
23) Methyl tert-butyl ether	2.590	73	232939	20.49	ug/L		97
24) Hexane	0.000		0	N.D.			
25) 1,1-Dichloroethane	3.057	63	153296	22.27	ug/L		99
26) Diisopropyl ether	3.125	45	272833	20.83	ug/L	#	76
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.587	59	240191	19.57	ug/L		98
30) 2,2-Dichloropropane	3.781	77	104893	18.30	ug/L		91
31) cis-1,2-Dichloroethene	3.791	61	134187	22.90	ug/L		96
32) 2-Butanone	3.817	43	42525	21.36	ug/L	#	95
33) Ethyl Acetate	3.906	43	86169	17.39	ug/L	#	97
34) Methyl acrylate	3.948	55	92291	23.27	ug/L		97
35) Propionitrile	3.912	54	13725	23.74	ug/L	#	58
36) Bromochloromethane	4.137	49	75129	23.68	ug/L		86
37) Tetrahydrofuran	4.158	42	32683	22.78	ug/L		92
38) Methacrylonitrile	4.127	67	40075	21.74	ug/L		91

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN38.D
Acq On : 01 Jun 2018 11:43 pm
Operator : LNS
Sample : VLCSW4-180601
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 04 13:04:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	4.352	83	137387	21.58 ug/L	99
40) Cyclohexane	0.000		0	N.D.	
42) 1,1,1-Trichloroethane	4.562	97	120714	23.04 ug/L	99
44) Carbon tetrachloride	4.819	119	95652	21.47 ug/L	95
45) 1,1-Dichloropropene	4.866	75	105947	21.85 ug/L	98
47) 1,2-Dichloroethane	5.390	62	118323	25.45 ug/L	99
48) Benzene	5.228	78	315984	22.54 ug/L	98
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.616	73	219798	20.15 ug/L	96
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	0.000		0	N.D.	
53) Trichloroethene	6.659	130	73642	20.61 ug/L	91
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.215	63	87186	22.93 ug/L	94
56) Dibromomethane	7.372	93	47403	21.45 ug/L	98
57) 1,4-Dioxane	7.435	88	10053	661.80 ug/L	91
58) Methyl methacrylate	7.529	41	89876	21.55 ug/L	95
59) Bromodichloromethane	7.797	83	100738	20.84 ug/L	99
60) 2-Nitropropane	8.216	43	26925	20.96 ug/L #	98
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.547	75	124271	21.28 ug/L	99
64) 4-Methyl-2-pentanone	8.845	43	146595	27.95 ug/L	83
66) Toluene	8.998	91	331843	21.73 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.427	75	114717	21.11 ug/L	98
69) Ethyl methacrylate	9.585	69	119071	20.53 ug/L	94
70) 1,1,2-Trichloroethane	9.674	97	70309	20.10 ug/L	95
71) Tetrachloroethene	9.695	166	73566	19.62 ug/L	96
72) 1,3-Dichloropropane	9.863	76	130908	22.38 ug/L	100
73) 2-Hexanone	10.020	43	76101	21.60 ug/L	99
74) Chlorodibromomethane	10.120	129	64897	17.62 ug/L	98
75) Butyl acetate	10.219	43	142961	17.57 ug/L	99
76) 1,2-Dibromoethane	10.214	107	74075	22.60 ug/L #	96
77) Chlorobenzene	10.843	112	198667	20.56 ug/L	95
78) 1,1,1,2-Tetrachloroethane	10.979	131	67637	19.80 ug/L	97
79) Ethylbenzene	10.995	91	374318	22.09 ug/L	98
80) m/p-Xylene	11.158	91	583068	44.33 ug/L	96
81) Styrene	11.619	104	222567	21.72 ug/L	91
82) o-Xylene	11.588	91	293579	22.21 ug/L	97
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.792	173	40346	15.92 ug/L	99
85) Isopropylbenzene	12.018	105	333943	21.42 ug/L	98
87) Bromobenzene	12.306	77	144292	21.72 ug/L	90
88) 1,1,2,2-Tetrachloroethane	12.395	83	109233	21.67 ug/L	98
89) 1,2,3-Trichloropropane	12.427	110	32815	21.22 ug/L	88
90) trans-1,4-Dichloro-2-b...	12.432	53	27644	15.62 ug/L	84
91) n-Propylbenzene	12.474	91	395792	21.86 ug/L	98
92) 2-Chlorotoluene	12.531	91	228977	12.51 ug/L	24
93) 4-Chlorotoluene	12.673	91	276863	22.42 ug/L	95
94) 1,3,5-Trimethylbenzene	12.683	105	246590	20.88 ug/L	95
95) tert-Butylbenzene	13.003	91	141488	22.46 ug/L	98
96) 1,2,4-Trimethylbenzene	13.071	105	247809	21.03 ug/L	97
97) sec-Butylbenzene	13.239	105	274840	20.34 ug/L	98
99) 1,3-Dichlorobenzene	13.328	146	121120	19.60 ug/L	95
100) p-Isopropyltoluene	13.417	119	225923	21.02 ug/L	96

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN38.D
Acq On : 01 Jun 2018 11:43 pm
Operator : LNS
Sample : VLCSW4-180601
Misc :
ALS Vial : 34 Sample Multiplier: 1

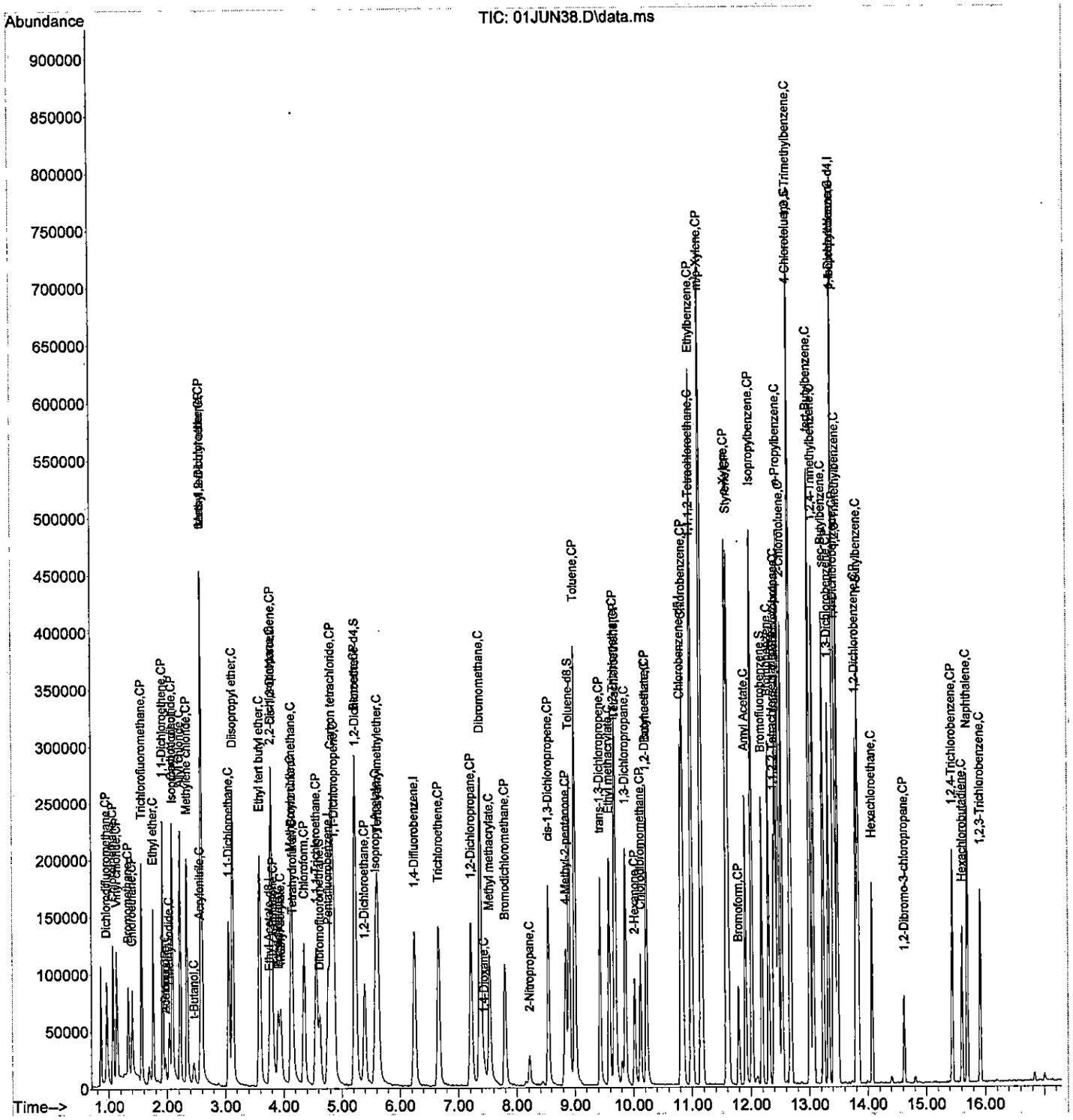
Quant Time: Jun 04 13:04:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.444	146	124543	20.38 ug/L	98
102) 1,2,3-Trimethylbenzene	13.486	105	234907	20.36 ug/L	96
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	13.800	146	108437	19.59 ug/L	96
105) n-Butylbenzene	13.837	91	216255	23.23 ug/L	98
106) Hexachloroethane	14.068	117	33031	17.09 ug/L	92
107) 1,2-Dibromo-3-chloropr...	14.618	157	15627	15.44 ug/L #	79
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.436	180	54037	19.57 ug/L	99
110) Hexachlorobutadiene	15.604	225	23689	19.36 ug/L	98
111) Naphthalene	15.693	128	191434	19.17 ug/L	98
112) 1,2,3-Trichlorobenzene	15.913	180	44972	19.56 ug/L	97
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.967	43	25719	20.65 ug/L	95
117) Isopropyl Alcohol	2.087	45	64350	454.16 ug/L #	84
118) Acetic Ether	3.906	43	86169	16.35 ug/L	98
119) Isopropyl Acetate	5.584	43	241801	17.72 ug/L	97
120) Amyl Acetate	11.907	43	153482	18.38 ug/L	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN38.D
Acq On : 01 Jun 2018 11:43 pm
Operator : LNS
Sample : VLCSW4-180601
Misc :
ALS Vial : 34 Sample Multiplier: 1

Quant Time: Jun 04 13:04:14 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN61.D
Acq On : 02 Jun 2018 08:10 am
Operator : LNS
Sample : 18051738-03A MS DF10
Misc :
ALS Vial : 57 Sample Multiplier: 1

Quant Time: Jun 04 13:25:32 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units		Dev(Min)
Internal Standards						
1) Pentafluorobenzene	4.766	168	92615	20.00 ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	171420	20.00 ug/L		0.00
63) Chlorobenzene-d5	10.806	117	169101	20.00 ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	79785	20.00 ug/L		0.00
115) Ethyl Acetate-d8	3.754	46	32998	20.00 ug/L	#	0.00
System Monitoring Compounds						
43) Dibromofluoromethane	4.619	111	52556	19.15 ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.75%			
46) 1,2-Dichloroethane-d4	5.233	65	73379	22.63 ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 113.15%			
65) Toluene-d8	8.903	98	217606	19.88 ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 99.40%			
86) Bromofluorobenzene	12.191	95	94020	21.68 ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 108.40%			
Target Compounds						Qvalue
2) Dichlorodifluoromethane	0.955	85	81739	15.89 ug/L		100
3) Chloromethane	1.065	50	92539	19.10 ug/L		97
4) Vinyl chloride	1.128	62	86324	17.50 ug/L		77
5) Bromomethane	1.327	94	15930	5.89 ug/L	#	95
6) Chloroethane	1.395	64	53564	18.14 ug/L		98
7) Trichlorofluoromethane	1.558	101	116281	19.29 ug/L		98
8) Ethanol	1.683	45	9922	No Calib	#	
9) Ethyl ether	1.757	59	67747	21.25 ug/L		96
10) Acrolein	0.000		0	N.D.		
11) 1,1-Dichloroethene	1.919	61	122972	23.59 ug/L		97
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.		
13) Methyl iodide	2.035	142	21529	4.87 ug/L	#	83
14) Acetone	1.966	43	30345	23.60 ug/L		92
15) Carbon disulfide	2.082	76	216962	19.47 ug/L		99
16) Allyl chloride	2.218	41	126532	18.80 ug/L		95
17) Methyl acetate	0.000		0	N.D.		
18) Acetonitrile	0.000		0	N.D.		
19) Methylene chloride	2.339	49	112192	23.80 ug/L		92
20) t-Butanol	2.454	59	29566	107.83 ug/L	#	82
21) trans-1,2-Dichloroethene	2.585	61	123596	23.38 ug/L		93
22) Acrylonitrile	2.564	53	37678	21.51 ug/L		98
23) Methyl tert-butyl ether	2.590	73	229417	19.53 ug/L		93
24) Hexane	2.879	57	5215	1.18 ug/L	#	26
25) 1,1-Dichloroethane	3.052	63	153381	21.56 ug/L		98
26) Diisopropyl ether	3.125	45	264239	19.52 ug/L	#	75
27) Vinyl acetate	0.000		0	N.D.		
28) Chloroprene	0.000		0	N.D.		
29) Ethyl tert butyl ether	3.587	59	231942	18.29 ug/L		98
30) 2,2-Dichloropropane	3.781	77	82144	13.87 ug/L		95
31) cis-1,2-Dichloroethene	3.791	61	132412	21.87 ug/L		97
32) 2-Butanone	3.812	43	45656	22.19 ug/L	#	94
33) Ethyl Acetate	3.906	43	92197	18.01 ug/L	#	96
34) Methyl acrylate	3.948	55	90515	22.08 ug/L		96
35) Propionitrile	3.912	54	13765	23.02 ug/L	#	58
36) Bromochloromethane	4.137	49	74082	22.60 ug/L		87
37) Tetrahydrofuran	4.158	42	32682	22.04 ug/L		96
38) Methacrylonitrile	4.127	67	39259	20.62 ug/L		91

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN61.D
Acq On : 02 Jun 2018 08:10 am
Operator : LNS
Sample : 18051738-03A MS DF10
Misc :
ALS Vial : 57 Sample Multiplier: 1

Quant Time: Jun 04 13:25:32 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	4.352	83	136657	20.77 ug/L	99
40) Cyclohexane	4.651	56	32175	4.93 ug/L	94
42) 1,1,1-Trichloroethane	4.562	97	120299	22.15 ug/L	98
44) Carbon tetrachloride	4.819	119	96315	20.85 ug/L	97
45) 1,1-Dichloropropene	4.866	75	106299	21.14 ug/L	98
47) 1,2-Dichloroethane	5.390	62	115742	24.00 ug/L	99
48) Benzene	5.228	78	316460	21.77 ug/L	98
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.616	73	214579	18.98 ug/L	97
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	7.084	83	8877	1.62 ug/L #	65
53) Trichloroethene	6.659	130	75479	20.37 ug/L	93
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.210	63	85197	21.61 ug/L	97
56) Dibromomethane	7.372	93	46828	20.43 ug/L	97
57) 1,4-Dioxane	7.372	88	5758	421.41 ug/L #	22
58) Methyl methacrylate	7.529	41	84138	19.45 ug/L	97
59) Bromodichloromethane	7.792	83	96691	19.29 ug/L	98
60) 2-Nitropropane	8.211	43	23953	18.00 ug/L #	97
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.547	75	114728	18.95 ug/L	99
64) 4-Methyl-2-pentanone	8.840	43	145455	26.70 ug/L	83
66) Toluene	8.997	91	339465	21.39 ug/L	98
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.427	75	105321	18.67 ug/L	98
69) Ethyl methacrylate	9.585	69	115407	19.15 ug/L	94
70) 1,1,2-Trichloroethane	9.674	97	68395	18.82 ug/L	93
71) Tetrachloroethene	9.695	166	73383	18.84 ug/L	92
72) 1,3-Dichloropropane	9.863	76	131673	21.67 ug/L	99
73) 2-Hexanone	10.015	43	76718	20.97 ug/L	98
74) Chlorodibromomethane	10.120	129	63121	16.49 ug/L	97
75) Butyl acetate	10.219	43	164500	19.47 ug/L	99
76) 1,2-Dibromoethane	10.214	107	72496	21.29 ug/L #	99
77) Chlorobenzene	10.838	112	200748	19.99 ug/L	95
78) 1,1,1,2-Tetrachloroethane	10.979	131	67123	18.92 ug/L	98
79) Ethylbenzene	10.995	91	437202	24.83 ug/L	98
80) m/p-Xylene	11.158	91	642420	47.01 ug/L	96
81) Styrene	11.619	104	218572	20.53 ug/L	92
82) o-Xylene	11.588	91	306650	22.33 ug/L	95
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.792	173	39227	14.90 ug/L	99
85) Isopropylbenzene	12.018	105	334202	20.63 ug/L	98
87) Bromobenzene	12.306	77	147075	21.31 ug/L	88
88) 1,1,2,2-Tetrachloroethane	12.395	83	107107	20.45 ug/L	99
89) 1,2,3-Trichloropropane	12.426	110	31497	19.61 ug/L	90
90) trans-1,4-Dichloro-2-b...	12.432	53	25896	14.08 ug/L #	72
91) n-Propylbenzene	12.474	91	404127	21.48 ug/L	100
92) 2-Chlorotoluene	12.531	91	229315	12.06 ug/L	23
93) 4-Chlorotoluene	12.673	91	275768	21.49 ug/L	95
94) 1,3,5-Trimethylbenzene	12.683	105	255598	20.83 ug/L	94
95) tert-Butylbenzene	13.003	91	143287	21.89 ug/L	99
96) 1,2,4-Trimethylbenzene	13.071	105	287600	23.49 ug/L	97
97) sec-Butylbenzene	13.239	105	277718	19.78 ug/L	99
99) 1,3-Dichlorobenzene	13.328	146	119722	18.46 ug/L	95
100) p-Isopropyltoluene	13.417	119	221348	19.62 ug/L	97

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN61.D
Acq On : 02 Jun 2018 08:10 am
Operator : LNS
Sample : 18051738-03A MS DF10
Misc :
ALS Vial : 57 Sample Multiplier: 1

Quant Time: Jun 04 13:25:32 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
101) 1,4-Dichlorobenzene	13.444	146	122495	19.10	ug/L		98
102) 1,2,3-Trimethylbenzene	13.486	105	248090	20.49	ug/L		95
103) Benzyl chloride	0.000		0	N.D.	d		
104) 1,2-Dichlorobenzene	13.800	146	109923	18.92	ug/L		96
105) n-Butylbenzene	13.837	91	209549	21.45	ug/L		98
106) Hexachloroethane	14.068	117	32506	16.02	ug/L		85
107) 1,2-Dibromo-3-chloropr...	14.618	157	16273	15.32	ug/L		86
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.			
109) 1,2,4-Trichlorobenzene	15.441	180	51274	17.69	ug/L		98
110) Hexachlorobutadiene	15.604	225	21698	16.89	ug/L		100
111) Naphthalene	15.693	128	200738	19.15	ug/L		98
112) 1,2,3-Trichlorobenzene	15.918	180	42708	17.70	ug/L		95
113) 2-Methylnaphthalene	0.000		0	N.D.			
114) 1-Methylnaphthalene	17.004	142	11024	4.12	ug/L		95
116) 2-Propanone	1.966	43	30345	24.04	ug/L		92
117) Isopropyl Alcohol	2.087	45	50844	344.85	ug/L	#	89
118) Acetic Ether	3.906	43	92197	17.10	ug/L		98
119) Isopropyl Acetate	5.584	43	252250	18.06	ug/L		97
120) Amyl Acetate	11.907	43	167071	19.58	ug/L		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

No Name Entered Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN61.D
Acq On : 02 Jun 2018 08:10 am
Operator : LNS
Sample : 18051738-03A MS DF10
Misc :
ALS Vial : 57 Sample Multiplier: 1

Quant Time: Jun 04 13:25:32 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
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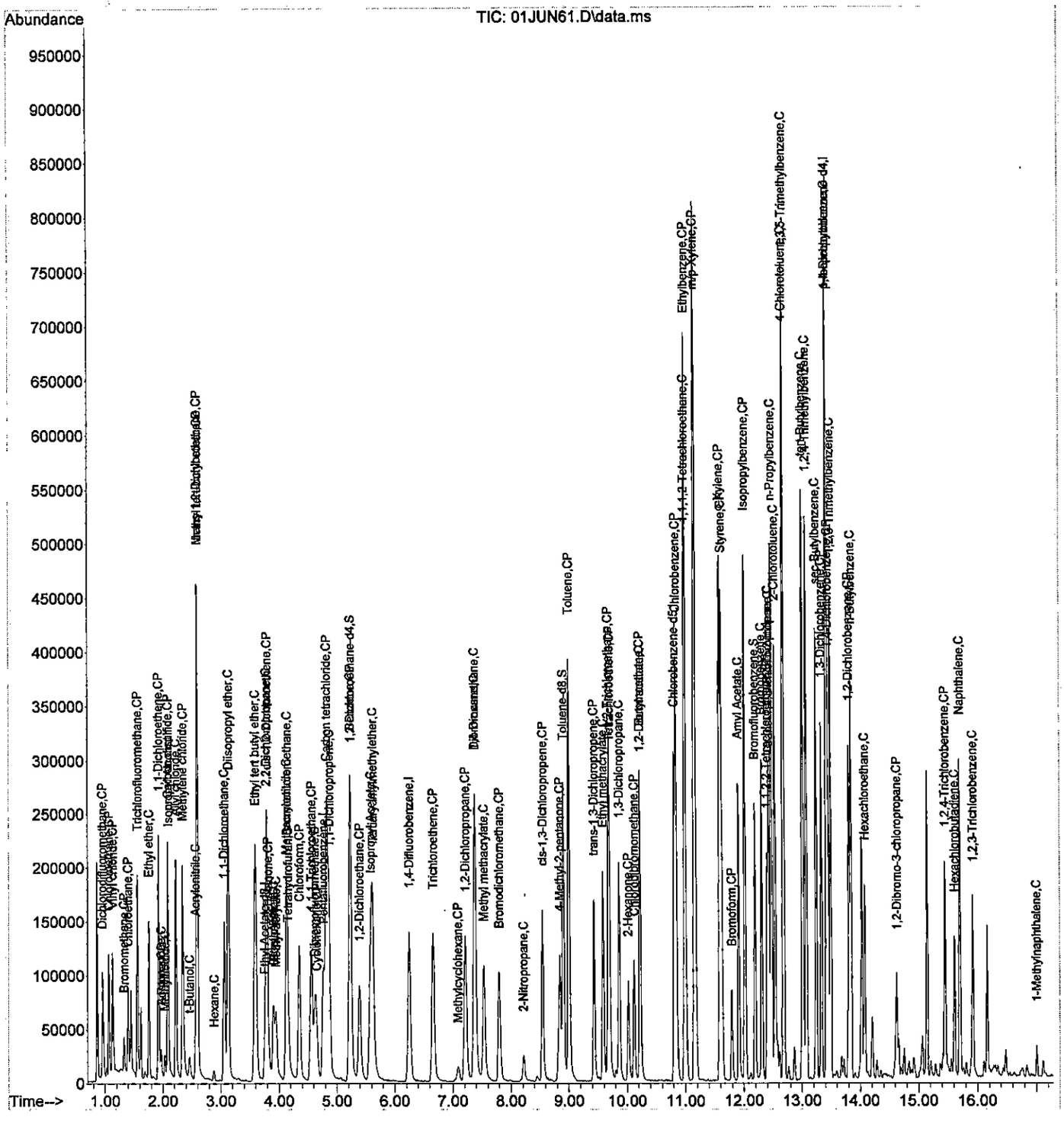


Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN62.D
Acq On : 02 Jun 2018 08:32 am
Operator : LNS
Sample : 18051738-03A MSD DF10
Misc :
ALS Vial : 58 Sample Multiplier: 1

Quant Time: Jun 04 13:25:45 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.766	168	93042	20.00	ug/L		0.00
41) 1,4-Difluorobenzene	6.245	114	169087	20.00	ug/L		0.00
63) Chlorobenzene-d5	10.806	117	167994	20.00	ug/L		0.00
98) 1,4-Dichlorobenzene-d4	13.417	152	79184	20.00	ug/L		0.00
115) Ethyl Acetate-d8	3.754	46	33138	20.00	ug/L	#	0.00
System Monitoring Compounds							
43) Dibromofluoromethane	4.620	111	51756	19.12	ug/L		0.00
Spiked Amount 20.000	Range 85 - 115		Recovery = 95.60%				
46) 1,2-Dichloroethane-d4	5.233	65	70482	22.04	ug/L		0.00
Spiked Amount 20.000	Range 75 - 120		Recovery = 110.20%				
65) Toluene-d8	8.903	98	218112	20.06	ug/L		0.00
Spiked Amount 20.000	Range 85 - 110		Recovery = 100.30%				
86) Bromofluorobenzene	12.191	95	92763	21.53	ug/L		0.00
Spiked Amount 20.000	Range 80 - 110		Recovery = 107.65%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	0.955	85	80832	15.64	ug/L		99
3) Chloromethane	1.059	50	94589	19.42	ug/L		99
4) Vinyl chloride	1.128	62	87614	17.67	ug/L		86
5) Bromomethane	1.327	94	21414	7.91	ug/L	#	95
6) Chloroethane	1.395	64	57897	19.54	ug/L		98
7) Trichlorofluoromethane	1.558	101	117132	19.34	ug/L		98
8) Ethanol	1.683	45	15647	No Calib		#	
9) Ethyl ether	1.757	59	69389	21.67	ug/L		98
10) Acrolein	0.000		0	N.D.			
11) 1,1-Dichloroethene	1.919	61	128271	24.50	ug/L		92
12) 1,1,2-Trichlorotrifluo...	0.000		0	N.D.			
13) Methyl iodide	2.035	142	32958	7.43	ug/L	#	86
14) Acetone	1.967	43	32103	24.89	ug/L		94
15) Carbon disulfide	2.082	76	222040	19.84	ug/L		100
16) Allyl chloride	2.218	41	131227	19.40	ug/L		95
17) Methyl acetate	0.000		0	N.D.			
18) Acetonitrile	0.000		0	N.D.			
19) Methylene chloride	2.339	49	115579	24.41	ug/L		93
20) t-Butanol	2.454	59	30262	109.93	ug/L	#	67
21) trans-1,2-Dichloroethene	2.585	61	123255	23.20	ug/L		94
22) Acrylonitrile	2.564	53	40093	22.76	ug/L		95
23) Methyl tert-butyl ether	2.590	73	237026	20.09	ug/L		93
24) Hexane	2.879	57	5819	1.31	ug/L	#	26
25) 1,1-Dichloroethane	3.057	63	158228	22.14	ug/L		97
26) Diisopropyl ether	3.125	45	271661	19.98	ug/L	#	75
27) Vinyl acetate	0.000		0	N.D.			
28) Chloroprene	0.000		0	N.D.			
29) Ethyl tert butyl ether	3.587	59	241977	18.99	ug/L		97
30) 2,2-Dichloropropane	3.781	77	85078	14.29	ug/L		97
31) cis-1,2-Dichloroethene	3.791	61	135574	22.29	ug/L		96
32) 2-Butanone	3.812	43	45520	22.02	ug/L	#	93
33) Ethyl Acetate	3.906	43	98556	19.16	ug/L	#	97
34) Methyl acrylate	3.948	55	94483	22.95	ug/L		98
35) Propionitrile	3.906	54	13742	22.87	ug/L	#	58
36) Bromochloromethane	4.137	49	76449	23.21	ug/L		88
37) Tetrahydrofuran	4.158	42	32956	22.13	ug/L		94
38) Methacrylonitrile	4.127	67	43090	22.52	ug/L		99

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN62.D
Acq On : 02 Jun 2018 08:32 am
Operator : LNS
Sample : 18051738-03A MSD DF10
Misc :
ALS Vial : 58 Sample Multiplier: 1

Quant Time: Jun 04 13:25:45 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
39) Chloroform	4.352	83	142379	21.54 ug/L	99
40) Cyclohexane	4.651	56	31482	4.80 ug/L	94
42) 1,1,1-Trichloroethane	4.562	97	123516	23.05 ug/L	99
44) Carbon tetrachloride	4.824	119	96937	21.27 ug/L	96
45) 1,1-Dichloropropene	4.866	75	107793	21.73 ug/L	97
47) 1,2-Dichloroethane	5.390	62	120366	25.31 ug/L	99
48) Benzene	5.228	78	323581	22.57 ug/L	97
49) Isobutyl Alcohol	0.000		0	N.D.	
50) Tertiaryamylmethylether	5.616	73	218298	19.57 ug/L	96
51) Heptane	0.000		0	N.D.	
52) Methylcyclohexane	7.084	83	8857	1.64 ug/L #	59
53) Trichloroethene	6.659	130	77100	21.10 ug/L	94
54) n-Butanol	0.000		0	N.D.	
55) 1,2-Dichloropropane	7.210	63	86958	22.36 ug/L	96
56) Dibromomethane	7.372	93	47277	20.91 ug/L	97
57) 1,4-Dioxane	7.372	88	5812	428.26 ug/L #	22
58) Methyl methacrylate	7.529	41	88691	20.79 ug/L	95
59) Bromodichloromethane	7.797	83	100440	20.31 ug/L	98
60) 2-Nitropropane	8.216	43	24343	18.54 ug/L #	93
61) 2-Chloroethyl vinyl ether	0.000		0	N.D.	
62) cis-1,3-Dichloropropene	8.547	75	122030	20.43 ug/L	99
64) 4-Methyl-2-pentanone	8.840	43	149581	27.64 ug/L	83
66) Toluene	8.998	91	348116	22.08 ug/L	99
67) Chloropicrin	0.000		0	N.D.	
68) trans-1,3-Dichloropropene	9.427	75	110805	19.77 ug/L	98
69) Ethyl methacrylate	9.585	69	120513	20.13 ug/L	97
70) 1,1,2-Trichloroethane	9.674	97	70730	19.59 ug/L	94
71) Tetrachloroethene	9.695	166	72804	18.81 ug/L	93
72) 1,3-Dichloropropane	9.863	76	135868	22.50 ug/L	100
73) 2-Hexanone	10.015	43	80288	22.07 ug/L	97
74) Chlorodibromomethane	10.120	129	65910	17.34 ug/L	97
75) Butyl acetate	10.219	43	164729	19.62 ug/L	97
76) 1,2-Dibromoethane	10.214	107	72843	21.53 ug/L #	96
77) Chlorobenzene	10.838	112	207390	20.79 ug/L	97
78) 1,1,1,2-Tetrachloroethane	10.979	131	69820	19.81 ug/L	99
79) Ethylbenzene	10.995	91	443611	25.36 ug/L	97
80) m/p-Xylene	11.158	91	649826	47.87 ug/L	96
81) Styrene	11.619	104	225025	21.27 ug/L	93
82) o-Xylene	11.588	91	309229	22.66 ug/L	96
83) Cyclohexanone	0.000		0	N.D.	
84) Bromoform	11.792	173	41081	15.71 ug/L	99
85) Isopropylbenzene	12.018	105	342853	21.31 ug/L	97
87) Bromobenzene	12.306	77	149949	21.87 ug/L	89
88) 1,1,2,2-Tetrachloroethane	12.395	83	112874	21.70 ug/L	100
89) 1,2,3-Trichloropropane	12.427	110	33562	21.03 ug/L	91
90) trans-1,4-Dichloro-2-b...	12.432	53	25691	14.06 ug/L #	70
91) n-Propylbenzene	12.474	91	410584	21.97 ug/L	98
92) 2-Chlorotoluene	12.531	91	234973	12.44 ug/L	24
93) 4-Chlorotoluene	12.673	91	274712	21.55 ug/L	96
94) 1,3,5-Trimethylbenzene	12.683	105	259777	21.31 ug/L	96
95) tert-Butylbenzene	13.003	91	145553	22.38 ug/L	98
96) 1,2,4-Trimethylbenzene	13.071	105	281041	23.11 ug/L	96
97) sec-Butylbenzene	13.239	105	283112	20.30 ug/L	98
99) 1,3-Dichlorobenzene	13.328	146	122031	18.96 ug/L	97
100) p-Isopropyltoluene	13.417	119	225394	20.13 ug/L	98

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN62.D
Acq On : 02 Jun 2018 08:32 am
Operator : LNS
Sample : 18051738-03A MSD DF10
Misc :
ALS Vial : 58 Sample Multiplier: 1

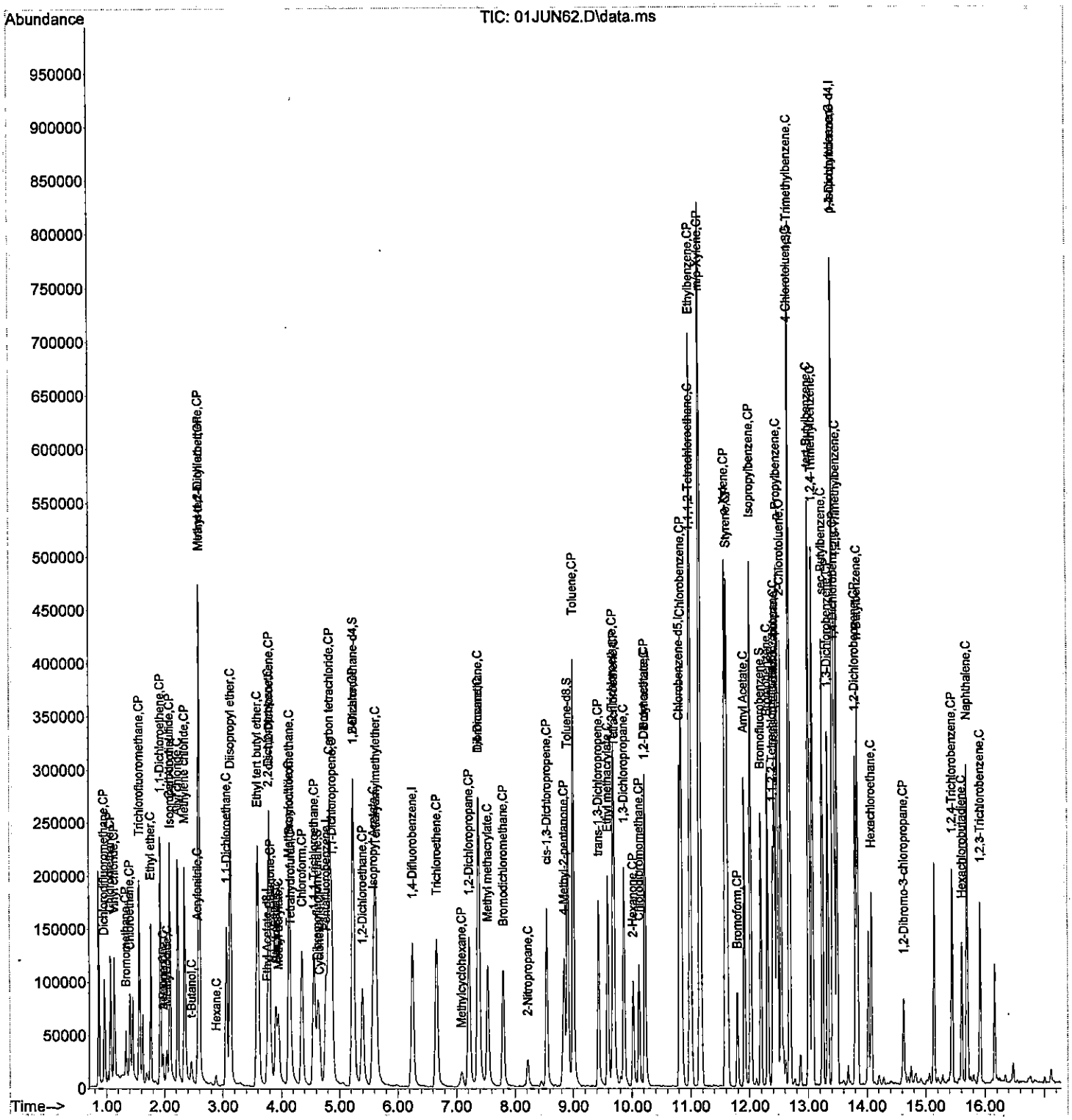
Quant Time: Jun 04 13:25:45 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
101) 1,4-Dichlorobenzene	13.444	146	128626	20.21 ug/L	96
102) 1,2,3-Trimethylbenzene	13.486	105	250391	20.83 ug/L	97
103) Benzyl chloride	0.000		0	N.D. d	
104) 1,2-Dichlorobenzene	13.800	146	111897	19.41 ug/L	97
105) n-Butylbenzene	13.837	91	207956	21.44 ug/L	99
106) Hexachloroethane	14.068	117	32890	16.34 ug/L	91
107) 1,2-Dibromo-3-chloropr...	14.618	157	16886	16.02 ug/L	86
108) 1,3,5-Trichlorobenzene	0.000		0	N.D.	
109) 1,2,4-Trichlorobenzene	15.441	180	53986	18.77 ug/L	100
110) Hexachlorobutadiene	15.604	225	23558	18.48 ug/L	94
111) Naphthalene	15.693	128	205039	19.71 ug/L	97
112) 1,2,3-Trichlorobenzene	15.918	180	44836	18.72 ug/L	98
113) 2-Methylnaphthalene	0.000		0	N.D.	
114) 1-Methylnaphthalene	0.000		0	N.D.	
116) 2-Propanone	1.967	43	32103	25.41 ug/L	94
117) Isopropyl Alcohol	2.087	45	60017	408.79 ug/L #	92
118) Acetic Ether	3.906	43	98556	18.20 ug/L	99
119) Isopropyl Acetate	5.579	43	258730	18.45 ug/L	97
120) Amyl Acetate	11.907	43	173702	20.29 ug/L	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\data\11V180601\
Data File : 01JUN62.D
Acq On : 02 Jun 2018 08:32 am
Operator : LNS
Sample : 18051738-03A MSD DF10
Misc :
ALS Vial : 58 Sample Multiplier: 1

Quant Time: Jun 04 13:25:45 2018
Quant Method : D:\MassHunter\GCMS\1\METHODS\11AC0521.M
Quant Title : 8260B/624 Volatile Calibration
QLast Update : Thu May 24 15:08:31 2018
Response via : Initial Calibration



2018 May 29 0938 Sequence Log

Starting sequence Tue May 29 08:24:09 2018

Instrument Name: VMS11
Sequence File: D:\MassHunter\GCMS\1\sequence\11V180529.sequence.xml
Comment:
Operator: AK
Data Path: C:\GCMS\1\data\11V180529\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 11AC8260.M				
1)	Sample	1	29MAY01	BLK
2)	Sample	2	29MAY02	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: bfb.M				
3)	Sample	1	29MAY03	VBFB1-180529
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 11AC8260.M				
5)	Sample	1	29MAY04	VCCV1-180529
6)	Sample	2	29MAY05	VLCSW1-180529
7)	Sample	3	29MAY06	BLK
8)	Sample	4	29MAY07	VBLKW1-180529
9)	Sample	5	29MAY08	18051696-12A
10)	Sample	6	29MAY09	18051696-13A
11)	Sample	7	29MAY10	18051696-14A
12)	Sample	8	29MAY11	18051696-17A
13)	Sample	9	29MAY12	18051378-01A
14)	Sample	10	29MAY13	18051091-04A
15)	Sample	11	29MAY14	18051390-15A
16)	Sample	12	29MAY15	18051390-21A
17)	Sample	13	29MAY16	18051378-01A
18)	Sample	14	29MAY17	18051378-02A
19)	Sample	15	29MAY18	18051790-04A
20)	Sample	16	29MAY19	MBLK-118957
21)	Sample	17	29MAY20	18051790-01A
22)	Sample	18	29MAY21	18051790-02A DF100
23)	Sample	19	29MAY22	18051790-03A DF100
24)	Sample	20	29MAY23	18051776-01A
25)	Sample	21	29MAY24	18051829-01A DF20
26)	Sample	22	29MAY25	LCS-118957
27)	Sample	23	29MAY26	18051776-01A MS
28)	Sample	24	29MAY27	18051776-01A MSD
29)	Sample	25	29MAY28	18051378-01A MS

2018 May 29 0938 Sequence Log

30) Sample	26	29MAY29	18051378-01A MSD
31) Sample	27	29MAY30	BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M

32) Sample	28	29MAY31	VBFB2-180529

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: 11AC8260.M

33) Sample	29	29MAY32	VCCV3-150529
34) Sample	30	29MAY33	VCCV4-150529
35) Sample	31	29MAY34	VLCSW3-180529
36) Sample	32	29MAY35	VLCSW4-180529
37) Sample	33	29MAY36	BLK
38) Sample	34	29MAY37	VBLKW2-180529
39) Sample	35	29MAY38	MBLK-
40) Sample	36	29MAY39	18051400-19A
41) Sample	37	29MAY40	18051400-18A DF100
42) Sample	38	29MAY41	18051400-20A
43) Sample	39	29MAY42	18051401-07A
44) Sample	40	29MAY43	18051347-08A
45) Sample	41	29MAY44	18051347-10A DF5
46) Sample	42	29MAY45	18051347-11A DF10
47) Sample	43	29MAY46	18051347-13A DF5
48) Sample	44	29MAY47	18051347-14A DF250
49) Sample	45	29MAY48	18051347-07A DF50
50) Sample	46	29MAY49	18051350-01A
51) Sample	47	29MAY50	18051350-02A
52) Sample	48	29MAY51	18051546-10A
53) Sample	49	29MAY52	18051585-02A F10
54) Sample	50	29MAY53	18051400-15A
55) Sample	51	29MAY54	18051546-11A DF20
56) Sample	52	29MAY55	18051546-12A DF20
57) Sample	53	29MAY56	18051682-01B DF200
58) Sample	54	29MAY57	18051350-01A MS
59) Sample	55	29MAY58	18051350-01A MSD
60) Sample	56	29MAY59	18051347-07A MS DF50
61) Sample	57	29MAY60	18051347-07A MSD DF50
62) Sample	58	29MAY61	BLK

Sequence completed Wed May 30 07:29:08 2018

C:\GCMS\1\data\11V180529\2018 May 29 0938 Quality Log.LOG
C:\GCMS\1\data\11V180529\2018 May 29 0938 Sequence Log .LOG

2018 May 31 0834 Sequence Log

Starting sequence Thu May 31 08:34:15 2018

Instrument Name: 5977_VOA
Sequence File: D:\MassHunter\GCMS\1\sequence\10V180531.sequence.xml
Comment:
Operator: AK
Data Path: D:\MassHunter\GCMS\1\data\10V180531\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
1)	Sample	4	31MAY01	BLK
2)	Sample	4	31MAY02	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: BFB.M				
3)	Sample	1	31MAY03	VBFB1-180531
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: U10GO8260.M				
4)	Sample	1	31MAY04	VCCV1-180531
5)	Sample	2	31MAY05	VCCV2-180531
6)	Sample	2	31MAY06	VLCSS1-180531
7)	Sample	3	31MAY07	ICV
8)	Sample	4	31MAY08	BLK
9)	Sample	5	31MAY09	BLK
10)	Sample	6	31MAY10	VBLKS1-180531
Sequence Table edit performed Thu May 31 13:26:21 2018				
11)	Sample	7	31MAY11	18051930-01A DF0.712
12)	Sample	8	31MAY12	18051930-02A DF0.759
13)	Sample	9	31MAY13	18051930-03A DF0.965
14)	Sample	10	31MAY14	18051998-12A
15)	Sample	11	31MAY15	18051778-02A
16)	Sample	12	31MAY16	18051998-01A DF0.838
17)	Sample	13	31MAY17	18051998-02A DF0.844
18)	Sample	14	31MAY18	18051998-03A DF1.27
19)	Sample	15	31MAY19	18051998-04A DF0.990
20)	Sample	16	31MAY20	18051998-05A DF0.945
21)	Sample	17	31MAY21	18051930-01A DF0.810
22)	Sample	18	31MAY22	18051778-06A DF0.947
23)	Sample	19	31MAY23	18051998-06A DF1.14
24)	Sample	20	31MAY24	18051998-07A DF0.899
25)	Sample	21	31MAY25	18051998-08A DF1.34
26)	Sample	22	31MAY26	18051998-09A DF0.827
27)	Sample	23	31MAY27	18051998-10A DF0.818

2018 May 31 0834 Sequence Log

28) Sample	24	31MAY28	18051998-11A	DF0.627
29) Sample	25	31MAY29	18051778-06A	DF0.883
30) Sample	26	31MAY30	18051998-03A	DF1.18
31) Sample	27	31MAY31	18051998-04A	DF1.03
32) Sample	28	31MAY32	18051998-05A	DF0.707
33) Sample	29	31MAY33	18051998-06A	DF1.10
34) Sample	30	31MAY34	18051998-08A	DF0.718
35) Sample	31	31MAY35	18051998-09A	DF0.849
36) Sample	32	31MAY36	18051998-10A	DF0.751
37) Sample	33	31MAY37	18051998-11A	DF1.10
38) Sample	34	31MAY38	18051930-01A	MS
39) Sample	35	31MAY39	18051930-01A	MSD
40) Sample	36	31MAY40	BLK	
41) Sample	37	31MAY41	BLK	

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M

42) Sample	38	31MAY42	VBFB2-180531	

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: U10GO8260.M

43) Sample	39	31MAY43	VCCV2-180531	
44) Sample	40	31MAY44	VCCV3-180531	
45) Sample	41	31MAY45	VLCSW2-180531	
46) Sample	42	31MAY46	LCS-	
47) Sample	43	31MAY47	BLK	
48) Sample	44	31MAY48	VBLKW2-180531	
49) Sample	45	31MAY49	MBLK-	
50) Sample	46	31MAY50	18051861-03A	
51) Sample	47	31MAY51	18051770-10A	
52) Sample	48	31MAY52	18052006-02A	
53) Sample	49	31MAY53	18052006-01A	
54) Sample	50	31MAY54	18051770-01A	
55) Sample	51	31MAY55	18051770-02A	
56) Sample	52	31MAY56	18051770-03A	
57) Sample	53	31MAY57	18051770-04A	
58) Sample	54	31MAY58	18051770-05A	
59) Sample	55	31MAY59	18051770-06A	
60) Sample	56	31MAY60	18051770-07A	
61) Sample	57	31MAY61	18051770-08A	
62) Sample	58	31MAY62	18051770-09A	DF5
63) Sample	59	31MAY63	18051770-11A	
64) Sample	60	31MAY64	18051770-12A	
65) Sample	61	31MAY65	18051779-01A	DF200
66) Sample	62	31MAY66	18051799-02A	DF100
67) Sample	63	31MAY67	18051861-02A	
68) Sample	64	31MAY68	18051861-01A	DF100
69) Sample	65	31MAY69	18051787-04A	DF2000

2018 Jun 01 0911 Sequence Log

Starting sequence Fri Jun 01 09:11:39 2018

Instrument Name: VMS11
Sequence File: D:\MassHunter\GCMS\1\sequence\11V180601.sequence.xml
Comment:
Operator: LNS
Data Path: C:\GCMS\1\data\11V180601\

Line	Type	Vials	DataFile	Sample Name
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 11AC8260.M				
2)	Sample	1	01JUN02	BLK
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: bfb.M				
3)	Sample	1	01JUN03	VBFB1-180601
Acquisition Method Path: D:\MassHunter\GCMS\1\methods\				
Acquisition Method File: 11AC8260.M				
4)	Sample	1	01JUN04	VCCV1-180601
5)	Sample	2	01JUN05	VCCV2-180601
6)	Sample	2	01JUN06	VLCSW1-180601
7)	Sample	3	01JUN07	LCS-
8)	Sample	4	01JUN08	BLK
9)	Sample	5	01JUN09	VBLKW1-180601
10)	Sample	6	01JUN10	MBLK-
11)	Sample	7	01JUN11	18051906-01A
12)	Sample	8	01JUN12	18051906-02A
13)	Sample	9	01JUN13	18051906-03A
14)	Sample	10	01JUN14	18051906-04A
15)	Sample	11	01JUN15	18051906-06A
16)	Sample	12	01JUN16	1806036-21A
17)	Sample	13	01JUN17	1806036-24A
18)	Sample	14	01JUN18	1806036-25A
19)	Sample	15	01JUN19	1806036-26A
20)	Sample	16	01JUN20	1806036-27A
21)	Sample	17	01JUN21	1806036-28A
22)	Sample	18	01JUN22	1806036-29A
23)	Sample	19	01JUN23	1806036-30A
24)	Sample	20	01JUN24	18051685-04A
25)	Sample	21	01JUN25	18051728-06A
26)	Sample	22	01JUN26	18051685-03A
27)	Sample	23	01JUN27	18051906-05A
28)	Sample	24	01JUN28	18051703-02A DF20
29)	Sample	25	01JUN29	18051749-01A DF20
30)	Sample	26	01JUN30	18051787-02A DF20
31)	Sample	27	01JUN31	18051787-02A MS DF20

2018 Jun 01 0911 Sequence Log

32) Sample	28	01JUN32	18051787-02A MSD DF20
33) Sample	29	01JUN33	BLK

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: BFB.M

34) Sample	30	01JUN34	VBFB2-180601

Acquisition Method Path: D:\MassHunter\GCMS\1\methods\
Acquisition Method File: 11AC8260.M

35) Sample	31	01JUN35	VCCV3-150601
36) Sample	32	01JUN36	VCCV4-150601
37) Sample	33	01JUN37	VLCSW3-180601
38) Sample	34	01JUN38	VLCSW4-180601
39) Sample	35	01JUN39	BLK
40) Sample	36	01JUN40	VBLKW2-180601
41) Sample	37	01JUN41	18051838-04A DF100
42) Sample	38	01JUN42	18051861-01A
43) Sample	39	01JUN43	18051778-06A
44) Sample	40	01JUN44	18051778-08A
45) Sample	41	01JUN45	18051778-05A
46) Sample	42	01JUN46	18051778-04A
47) Sample	43	01JUN47	18051778-03A
48) Sample	44	01JUN48	18051759-21A
49) Sample	45	01JUN49	18051759-22A
50) Sample	46	01JUN50	18051826-02A DF10
51) Sample	47	01JUN51	18051738-01A
52) Sample	48	01JUN52	18051738-02A
53) Sample	49	01JUN53	18051779-01A DF200
54) Sample	50	01JUN54	18051738-05A
55) Sample	51	01JUN55	18051738-06A
56) Sample	52	01JUN56	18051738-03A DF10
57) Sample	53	01JUN57	18051738-04A DF10
58) Sample	54	01JUN58	18051840-04A DF200
59) Sample	55	01JUN59	18051840-02A DF20
60) Sample	56	01JUN60	18051862-02A DF2
61) Sample	57	01JUN61	18051738-03A MS DF10
62) Sample	58	01JUN62	18051738-03A MSD DF10
63) Sample	59	01JUN63	BLK

Sequence completed Sat Jun 02 09:12:16 2018

C:\GCMS\1\data\11V180601\2018 Jun 01 0911 Quality Log.LOG
C:\GCMS\1\data\11V180601\2018 Jun 01 0911 Sequence Log .LOG

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118957** Prep Code: **VOC_5035_S**

Start Date: **5/29/2018 12:48:59 PM** End Date: **5/29/2018 12:48:59 PM**

Technician: **Eva Ascencio**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051718-11A	Soil		10		17	10	70.4819
Updated EMR							
18051718-12A	Soil		10		16	10	69.0476
Updated EMR							
18051759-21A	Soil		10		6.8	10	57.2961
Updated EMR							
18051759-22A	Soil		10		0	10	50
Trip blank.							
18051776-01A	Soil		10		12	10	63.6364
Updated EMR							
18051776-01A MS			10		12	10	63.6364
Updated EMR							
18051776-01A MS			10		12	10	63.6364
Updated EMR							
18051777-01A	Soil		10		25	10	83.3333
Updated EMR. The sample was not preserved within 2 days of the collection date							
18051777-02A	Soil		10		30	10	92.8571
Updated EMR The sample was not preserved within 2 days of the collection date							
18051777-03A	Soil		10		25	10	83.3333
Updated EMR The sample was not preserved within 2 days of the collection date							
18051777-04A	Soil		10		20	10	75
Updated EMR. The sample was not preserved within 2 days of the collection date							
18051777-05A	Soil		10		29	10	90.8451
Updated EMR. The sample was not preserved within 2 days of the collection date							
18051778-02A			5		0	5	50
Trip blank.							

Notes: *Balance 4 MeOH 3081-1-1*

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118957** Prep Code: **VOC_5035_S**

Start Date: **5/29/2018 12:48:59 PM** End Date: **5/29/2018 12:48:59 PM**

Technician: **Eva Ascencio**

InitSamp Wt/Vol:	10 g
FinSampVol:	10 mL
OriginalFac:	50
PrepUnitFac:	50

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051778-06A			5		11	5	62.3596
Updated EMR.							
18051779-01A	Soil		6.02		91	10	1428.41
Updated EMR The sample was not preserved within 2 days of the collection date							
18051780-01A	Soil		10		32	10	97.0588
Updated EMR The sample was not preserved within 2 days of the collection date							
18051790-01A	Soil		10		20	10	75
Updated EMR							
18051790-02A	Soil		10		15	10	67.6471
Updated EMR							
18051790-03A	Soil		10		13	10	64.9425
Updated EMR							
18051790-04A	Soil		10		0	10	50
Trip blank.							
LCS-118957			10		0	10	50
MBLK-118957			10		0	10	50

Notes: *Balance 4 MeOH 3081-1-1*

Method 5035 Soil Extraction Logsheet

ALS Environmental

Label Weight (g): 0.31 | Analyst: GAA | Batch ID: 118957

Balance ID: GAA-4 | Methanol ID: 3081-1-1-

Sample ID	Vial	Vial Tare Weight	Vial Weight w/Sample	Sample Weight (1)	Methanol Volume (2)	Methanol Additions	Solvent Ratio (3)	Date & Time of Sonication (4)	Date & Time of Aliquot (5)
1805 1776-01A	1/2	BULK	—	10.00	10.00	—	50	5/29/18 1240	5/29/18 1430
↓ -01AMS	↓	↓	↓	↓	↓	↓	↓		
-01AMSD	↓	↓	↓	↓	↓	↓	—		
1805 1718-11A	3	See	VOC	PB	# 118866		—		
-12A	3								
1805 1759-21A	1/1	33.27	43.92	10.34	10.00	0.27	50		
-22A	↓	TRIP	BLANK	—	↓	—	50		
1805 1790-01A	2/2	33.34	45.14	11.49		1.19			
-02A	↓	33.36	44.10	10.43		0.34			
-03A	↓	33.03	44.26	10.92	↓	0.74	↓		
-04A	1/1	TRIP	BLANK	—	10.00	—	50		
1805 1779-01A	1/2	BULK	—	6.02			83		
1805 1777-01A	1/2			10.00			50		
-02A	↓								
-03A	↓								
-04A	2/2								
-05A	1/2								
1805 1780-01A	1/2 1/1	↓	↓	—	5.00	—	50		
1805 1778-02A	2/3 1/2	TRIP	BLANK	5.35	↓	0.28	↓		
-06A	2/3	33.04	38.70	5.35	10.00	—	43		
~~1805 1678-03A~~	~~1/1~~	BULK	—	1.19	↓	↓	420		
~~1805 1640-03A~~	↓	↓	↓						

5/30/18 laa moved to PB# 119012

Reviewed by:

(1) Sample Weight = (Vial w/Sample Weight) - (Vial Tare Weight) - (Label Weight)
(2) Default = 10 mL
(3) Ratio of methanol to soil must be > 1.0
(4) Sonicate for a minimum of 20 minutes
(5) If not taken immediately after sonication

File Name: 5035 Soil Extraction Log - R4 - 2015.xls

Book Number 3025

ALS Environmental

Method 5035 Low-Level Soil Logsheet

Analyst: EMR Balance ID: 4

Sample ID	Date	Vial #	Vial Tare Weight (g)	Vial Weight w/Sample (g)	Sample Weight (g) (1)	Fluid Weight (g) (2)	Water	$NaHSO_4$	$Na_5P_3O_{10}$	None	Sample Dilution Factor (3)
18051778-02A	5/31/18		TRIP	BLANK	——	5.00	X				1.00
-06A		1/3	34.74	40.33	5.28		X				0.947
-08A		3/3	34.95	40.92	5.66		X				0.883
18051998-01A		2/3	32.95	38.85	5.59			X			0.894
-02A		2/3	33.62	39.19	5.26						0.951
-03A		1/3	33.62	38.37	4.25						1.18
-04A		3/3	33.81	38.81	4.87						1.03
-05A		2/3	33.63	41.12	7.07						0.707
-06A		1/3	33.74	38.27	4.53						1.10
-08A		1/3	33.60	38.44	6.96						0.718
-09A		3/3	33.55	40.82	5.89						0.849
-10A		2/3	33.82	40.02	6.66						0.751
-11A		1/3	33.65	40.02	3.54						1.41

(1) Sample Weight = (Vial Weight w/Sample) - (Vial Tare Weight) - (0.31g for sample label)
(2) Fluid Weight Default = 5.0g
(3) Sample Dilution Factor = (Fluid Weight) / (Sample Weight)

File Name: 5035 LL Soil Log - R1- 2014.xls

RELEASED

Inorganic

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com

Metals

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
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ICP

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1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-46

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-01A

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 5.5 Date Prep: 6/1/2018

CONCENTRATION UNITS: mg/Kg-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7429-90-5	Aluminum	1,800			P
7440-36-0	Antimony	0.43	U		P
7440-38-2	Arsenic	1.1			P
7440-39-3	Barium	11			P
7440-41-7	Beryllium	0.032	J		P
7440-43-9	Cadmium	0.86	U		P
7440-70-2	Calcium	230,000			P
7440-47-3	Chromium	3.2			P
7440-48-4	Cobalt	1.3			P
7440-50-8	Copper	4.9			P
7439-89-6	Iron	3,300			P
7439-92-1	Lead	1.2			P
7439-95-4	Magnesium	26,000			P
7439-96-5	Manganese	150			P
7440-02-0	Nickel	5.0			P
7440-09-7	Potassium	560			P
7782-49-2	Selenium	0.86	U		P
7440-22-4	Silver	0.43	U		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	0.86	U		P
7440-62-2	Vanadium	5.3			P
7440-66-6	Zinc	30			P

1 CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-52

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-07C

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 9.8 Date Prep: 6/1/2018

CONCENTRATION UNITS: mg/Kg-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7429-90-5	Aluminum	980			P
7440-36-0	Antimony	0.40	U		P
7440-38-2	Arsenic	1.2			P
7440-39-3	Barium	6.0			P
7440-41-7	Beryllium	0.032	J		P
7440-43-9	Cadmium	0.35	J		P
7440-70-2	Calcium	340,000			P
7440-47-3	Chromium	2.2			P
7440-48-4	Cobalt	1.3			P
7440-50-8	Copper	4.3			P
7439-89-6	Iron	2,200			P
7439-92-1	Lead	0.25	J		P
7439-95-4	Magnesium	12,000			P
7439-96-5	Manganese	190			P
7440-02-0	Nickel	4.9			P
7440-09-7	Potassium	500			P
7782-49-2	Selenium	0.80	U		P
7440-22-4	Silver	0.40	U		P
7440-23-5	Sodium	290			P
7440-28-0	Thallium	0.80	U		P
7440-62-2	Vanadium	3.7			P
7440-66-6	Zinc	120			P

ALS Group, USA

Client: Jacobs
Work Order: 18051778
Project: PMC

Date: 02-Jul-18

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 11:05 AM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066368** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.50								
Antimony	0.1039	0.25								J
Arsenic	U	0.25								
Beryllium	U	0.10								
Cadmium	U	0.50								
Calcium	U	25								
Chromium	0.01542	0.25								J
Cobalt	U	0.25								
Copper	U	0.50								
Lead	U	0.25								
Magnesium	U	10								
Manganese	0.02214	0.25								J
Nickel	U	0.25								
Potassium	U	10								
Selenium	U	0.50								
Silver	0.07235	0.25								J
Sodium	U	10								
Thallium	U	0.50								
Vanadium	U	0.25								
Zinc	0.1217	0.50								J

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 05:56 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070240** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	0.91	4.0								J

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/4/2018 11:42 AM**
Client ID: Run ID: **ICP2_180604A** SeqNo: **5070607** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	U	0.25								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

LCS Sample ID: **LCS-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 11:11 AM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066369** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5.409	0.50	5	0	108	80-120	0			
Antimony	5.033	0.25	5	0	101	80-120	0			
Arsenic	4.46	0.25	5	0	89.2	80-120	0			
Beryllium	4.984	0.10	5	0	99.7	80-120	0			
Cadmium	4.899	0.50	5	0	98	80-120	0			
Calcium	516.1	25	500	0	103	80-120	0			
Chromium	5.086	0.25	5	0	102	80-120	0			
Cobalt	5.215	0.25	5	0	104	80-120	0			
Copper	5.206	0.50	5	0	104	80-120	0			
Lead	4.857	0.25	5	0	97.1	80-120	0			
Magnesium	473	10	500	0	94.6	80-120	0			
Manganese	4.786	0.25	5	0	95.7	80-120	0			
Nickel	5.013	0.25	5	0	100	80-120	0			
Potassium	537.3	10	500	0	107	80-120	0			
Selenium	4.649	0.50	5	0	93	80-120	0			
Silver	4.927	0.25	5	0	98.5	80-120	0			
Sodium	534.6	10	500	0	107	80-120	0			
Thallium	5.015	0.50	5	0	100	80-120	0			
Vanadium	5.357	0.25	5	0	107	80-120	0			
Zinc	5.08	0.50	5	0	102	80-120	0			

LCS Sample ID: **LCS-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 06:02 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070241** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	5.756	0.25	5	0	115	80-120	0			
Iron	538.8	4.0	500	0	108	80-120	0			

MS Sample ID: **18051996-01AMS** Units: **mg/Kg** Analysis Date: **6/1/2018 12:13 PM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066379** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	17.46	0.41	8.251	9.981	90.7	75-125	0			
Cadmium	9.254	0.83	8.251	1.925	88.8	75-125	0			
Lead	242.6	0.41	8.251	269	-320	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MS Sample ID: **18051996-01AMS** Units: **mg/Kg** Analysis Date: **6/1/2018 06:14 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070243** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7005	0.83	8.251	3999	36400	75-125	0			SO
Antimony	13.46	0.41	8.251	6.3	86.8	75-125	0			
Barium	199.6	0.41	8.251	124.1	915	75-125	0			SO
Beryllium	9.166	0.17	8.251	0.6456	103	75-125	0			
Calcium	31050	41	825.1	20310	1300	75-125	0			SO
Chromium	23.26	0.41	8.251	14.67	104	75-125	0			
Cobalt	10.53	0.41	8.251	3.002	91.3	75-125	0			
Copper	60.19	0.83	8.251	46.37	168	75-125	0			SO
Iron	10270	6.6	825.1	12710	-296	75-125	0			SO
Magnesium	12650	17	825.1	9852	339	75-125	0			SO
Manganese	572.1	0.41	8.251	318.9	3070	75-125	0			SO
Nickel	17.27	0.41	8.251	10.15	86.3	75-125	0			
Potassium	1588	17	825.1	337.2	152	75-125	0			S
Selenium	8.445	0.83	8.251	0.5979	95.1	75-125	0			
Silver	8.765	0.41	8.251	0.09293	105	75-125	0			
Sodium	1133	17	825.1	119	123	75-125	0			
Thallium	7.384	0.83	8.251	-0.05962	90.2	75-125	0			
Vanadium	25.61	0.41	8.251	15.01	129	75-125	0			S
Zinc	480.1	0.83	8.251	450.4	361	75-125	0			SO

MSD Sample ID: **18051996-01AMSD** Units: **mg/Kg** Analysis Date: **6/1/2018 12:19 PM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066360** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	17.73	0.41	8.224	9.981	94.2	75-125	17.46	1.52	20	
Cadmium	9.396	0.82	8.224	1.925	90.8	75-125	9.254	1.52	20	
Lead	269.6	0.41	8.224	269	7.47	75-125	242.6	10.5	20	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MSD	Sample ID: 18051996-01AMSD			Units: mg/Kg			Analysis Date: 6/1/2018 06:20 PM			
Client ID:	Run ID: ICP2_180601A			SeqNo: 5070244		Prep Date: 6/1/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7834	0.82	8.224	3999	46600	75-125	7005	11.2	20	SO
Antimony	13.75	0.41	8.224	6.3	90.5	75-125	13.46	2.08	20	
Barium	142.9	0.41	8.224	124.1	228	75-125	199.6	33.1	20	SRO
Beryllium	8.774	0.16	8.224	0.6456	98.8	75-125	9.166	4.36	20	
Calcium	18480	41	822.4	20310	-223	75-125	31050	50.8	20	SRO
Chromium	28.22	0.41	8.224	14.67	165	75-125	23.26	19.3	20	S
Cobalt	11.14	0.41	8.224	3.002	99	75-125	10.53	5.63	20	
Copper	67.14	0.82	8.224	46.37	253	75-125	60.19	10.9	20	SO
Iron	13800	6.6	822.4	12710	132	75-125	10270	29.3	20	SRO
Magnesium	9311	16	822.4	9852	-65.8	75-125	12650	30.4	20	SRO
Manganese	358.3	0.41	8.224	318.9	479	75-125	572.1	45.9	20	SRO
Nickel	20.18	0.41	8.224	10.15	122	75-125	17.27	15.5	20	
Potassium	1649	16	822.4	337.2	160	75-125	1588	3.75	20	S
Selenium	8.459	0.82	8.224	0.5979	95.6	75-125	8.445	0.172	20	
Silver	8.748	0.41	8.224	0.09293	105	75-125	8.765	0.195	20	
Sodium	1045	16	822.4	119	113	75-125	1133	8.14	20	
Thallium	7.048	0.82	8.224	-0.05962	86.4	75-125	7.384	4.67	20	
Vanadium	31.78	0.41	8.224	15.01	204	75-125	25.61	21.5	20	SR
Zinc	475.9	0.82	8.224	450.4	311	75-125	480.1	0.874	20	SO

The following samples were analyzed in this batch:

18051778-01A	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 1) 05/31 11:57 and 2) 05/31 13:18					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2513.64	101	2500.12	100	P
Antimony	1000.0	988.39	99	500.0	503.84	101	501.07	100	P
Arsenic	1000.0	968.26	97	500.0	501.75	100	494.59	99	P
Barium	1000.0	1006.69	101	2500.0	2573.34	103	2550.57	102	P
Beryllium	1000.0	990.76	99	500.0	519.35	104	516.78	103	P
Cadmium	1000.0	995.01	100	500.0	505.84	101	498.89	100	P
Calcium	6000.0	6018.15	100	2500.0	2531.31	101	2521.02	101	P
Chromium	1000.0	1001.08	100	500.0	507.47	101	502.50	100	P
Cobalt	1000.0	995.64	100	2500.0	2568.67	103	2564.45	103	P
Copper	1000.0	1008.21	101	2500.0	2552.63	102	2526.21	101	P
Iron	1000.0	1001.82	100	2500.0	2531.03	101	2431.31	97	P
Lead	1000.0	1021.70	102	500.0	513.95	103	505.43	101	P
Magnesium	1000.0	979.90	98	2500.0	2501.26	100	2459.17	98	P
Manganese	1000.0	1018.95	102	500.0	509.82	102	496.52	99	P
Nickel	1000.0	1019.65	102	2500.0	2560.85	102	2537.99	102	P
Potassium	21000.0	21133.16	101	50000.0	51003.88	102	51049.24	102	P
Selenium	1000.0	999.94	100	2500.0	2527.39	101	2509.40	100	P
Silver	1000.0	1035.39	104	500.0	498.48	100	493.07	99	P
Sodium	21000.0	21966.89	105	50000.0	51761.21	104	51356.13	103	P
Thallium	1000.0	1039.08	104	500.0	520.09	104	514.10	103	P
Vanadium	1000.0	1012.64	101	500.0	511.38	102	508.60	102	P
Zinc	1000.0	978.30	98	1250.0	1267.40	101	1244.35	100	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 3) 05/31 14:40 and 4) 05/31 16:06					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2468.62	99	2448.25	98	P
Antimony	1000.0	988.39	99	500.0	496.33	99	498.32	100	P
Arsenic	1000.0	968.26	97	500.0	494.00	99	492.17	98	P
Barium	1000.0	1006.69	101	2500.0	2523.52	101	2539.71	102	P
Beryllium	1000.0	990.76	99	500.0	509.08	102	511.88	102	P
Cadmium	1000.0	995.01	100	500.0	496.19	99	494.84	99	P
Calcium	6000.0	6018.15	100	2500.0	2481.55	99	2516.42	101	P
Chromium	1000.0	1001.08	100	500.0	498.79	100	498.21	100	P
Cobalt	1000.0	995.64	100	2500.0	2534.84	101	2531.33	101	P
Copper	1000.0	1008.21	101	2500.0	2504.38	100	2528.77	101	P
Iron	1000.0	1001.82	100	2500.0	2436.56	97	2419.33	97	P
Lead	1000.0	1021.70	102	500.0	503.07	101	501.79	100	P
Magnesium	1000.0	979.90	98	2500.0	2422.45	97	2399.37	96	P
Manganese	1000.0	1018.95	102	500.0	493.78	99	497.31	99	P
Nickel	1000.0	1019.65	102	2500.0	2517.48	101	2506.59	100	P
Potassium	21000.0	21133.16	101	50000.0	50732.35	101	49648.90	99	P
Selenium	1000.0	999.94	100	2500.0	2502.34	100	2503.15	100	P
Silver	1000.0	1035.39	104	500.0	492.26	98	492.25	98	P
Sodium	21000.0	21966.89	105	50000.0	50920.84	102	49633.02	99	P
Thallium	1000.0	1039.08	104	500.0	511.32	102	510.89	102	P
Vanadium	1000.0	1012.64	101	500.0	502.56	101	506.73	101	P
Zinc	1000.0	978.30	98	1250.0	1239.92	99	1237.53	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 5) 05/31 17:25 and 6) 05/31 18:51 True	Found	%R(1)	Found	%R(1)	M
Aluminum	1000.0	1014.60	101	2500.0	2514.38	101	2514.78	101	P
Antimony	1000.0	988.39	99	500.0	504.69	101	499.84	100	P
Arsenic	1000.0	968.26	97	500.0	495.11	99	489.63	98	P
Barium	1000.0	1006.69	101	2500.0	2608.30	104	2578.52	103	P
Beryllium	1000.0	990.76	99	500.0	523.34	105	522.49	104	P
Cadmium	1000.0	995.01	100	500.0	499.36	100	494.19	99	P
Calcium	6000.0	6018.15	100	2500.0	2594.93	104	2596.13	104	P
Chromium	1000.0	1001.08	100	500.0	508.73	102	506.88	101	P
Cobalt	1000.0	995.64	100	2500.0	2579.26	103	2569.32	103	P
Copper	1000.0	1008.21	101	2500.0	2560.63	102	2535.80	101	P
Iron	1000.0	1001.82	100	2500.0	2414.39	97	2363.03	95	P
Lead	1000.0	1021.70	102	500.0	503.37	101	498.57	100	P
Magnesium	1000.0	979.90	98	2500.0	2461.72	98	2453.65	98	P
Manganese	1000.0	1018.95	102	500.0	494.90	99	488.65	98	P
Nickel	1000.0	1019.65	102	2500.0	2535.66	101	2519.03	101	P
Potassium	21000.0	21133.16	101	50000.0	51147.64	102	51301.45	103	P
Selenium	1000.0	999.94	100	2500.0	2540.14	102	2517.95	101	P
Silver	1000.0	1035.39	104	500.0	498.63	100	494.54	99	P
Sodium	21000.0	21966.89	105	50000.0	50744.71	101	50114.97	100	P
Thallium	1000.0	1039.08	104	500.0	516.02	103	512.25	102	P
Vanadium	1000.0	1012.64	101	500.0	517.17	103	515.42	103	P
Zinc	1000.0	978.30	98	1250.0	1243.77	100	1229.13	98	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 7) 05/31 20:12 and 8) 05/31 21:32 True	Found	%R(1)	Found	%R(1)	M
Aluminum	1000.0	1014.60	101	2500.0	2504.98	100	2474.22	99	P
Antimony	1000.0	988.39	99	500.0	494.75	99	493.47	99	P
Arsenic	1000.0	968.26	97	500.0	484.96	97	483.50	97	P
Barium	1000.0	1006.69	101	2500.0	2566.71	103	2532.78	101	P
Beryllium	1000.0	990.76	99	500.0	512.23	102	509.53	102	P
Cadmium	1000.0	995.01	100	500.0	489.68	98	487.68	98	P
Calcium	6000.0	6018.15	100	2500.0	2557.17	102	2520.60	101	P
Chromium	1000.0	1001.08	100	500.0	498.50	100	498.78	100	P
Cobalt	1000.0	995.64	100	2500.0	2543.87	102	2514.88	101	P
Copper	1000.0	1008.21	101	2500.0	2516.17	101	2498.63	100	P
Iron	1000.0	1001.82	100	2500.0	2341.92	94	2342.43	94	P
Lead	1000.0	1021.70	102	500.0	493.06	99	493.23	99	P
Magnesium	1000.0	979.90	98	2500.0	2380.45	95	2391.51	96	P
Manganese	1000.0	1018.95	102	500.0	479.80	96	485.71	97	P
Nickel	1000.0	1019.65	102	2500.0	2494.80	100	2479.61	99	P
Potassium	21000.0	21133.16	101	50000.0	50780.90	102	50312.62	101	P
Selenium	1000.0	999.94	100	2500.0	2496.15	100	2471.75	99	P
Silver	1000.0	1035.39	104	500.0	490.86	98	487.70	98	P
Sodium	21000.0	21966.89	105	50000.0	50224.22	100	49142.91	98	P
Thallium	1000.0	1039.08	104	500.0	507.43	101	504.17	101	P
Vanadium	1000.0	1012.64	101	500.0	507.78	102	504.80	101	P
Zinc	1000.0	978.30	98	1250.0	1215.49	97	1213.08	97	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 9) 05/31 22:36 and 10) 06/01 00:03 True	Found	%R(1)	Found	%R(1)	M
Aluminum	1000.0	1014.60	101	2500.0	2514.10	101	2501.52	100	P
Antimony	1000.0	988.39	99	500.0	488.22	98	496.85	99	P
Arsenic	1000.0	968.26	97	500.0	481.51	96	489.73	98	P
Barium	1000.0	1006.69	101	2500.0	2542.29	102	2561.77	102	P
Beryllium	1000.0	990.76	99	500.0	510.17	102	510.30	102	P
Cadmium	1000.0	995.01	100	500.0	486.72	97	496.13	99	P
Calcium	6000.0	6018.15	100	2500.0	2522.14	101	2487.99	100	P
Chromium	1000.0	1001.08	100	500.0	498.97	100	502.85	101	P
Cobalt	1000.0	995.64	100	2500.0	2515.40	101	2529.92	101	P
Copper	1000.0	1008.21	101	2500.0	2478.78	99	2509.28	100	P
Iron	1000.0	1001.82	100	2500.0	2327.57	93	2360.88	94	P
Lead	1000.0	1021.70	102	500.0	492.20	98	500.46	100	P
Magnesium	1000.0	979.90	98	2500.0	2412.04	96	2401.95	96	P
Manganese	1000.0	1018.95	102	500.0	484.42	97	495.47	99	P
Nickel	1000.0	1019.65	102	2500.0	2477.45	99	2507.53	100	P
Potassium	21000.0	21133.16	101	50000.0	50963.33	102	50850.66	102	P
Selenium	1000.0	999.94	100	2500.0	2469.05	99	2491.63	100	P
Silver	1000.0	1035.39	104	500.0	489.30	98	494.01	99	P
Sodium	21000.0	21966.89	105	50000.0	50513.43	101	49432.79	99	P
Thallium	1000.0	1039.08	104	500.0	504.35	101	511.34	102	P
Vanadium	1000.0	1012.64	101	500.0	503.40	101	504.93	101	P
Zinc	1000.0	978.30	98	1250.0	1210.68	97	1236.20	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 11) 06/01 01:31 and 12) 06/01 02:51					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2528.35	101	2529.66	101	P
Antimony	1000.0	988.39	99	500.0	498.36	100	494.71	99	P
Arsenic	1000.0	968.26	97	500.0	495.67	99	491.25	98	P
Barium	1000.0	1006.69	101	2500.0	2571.59	103	2565.31	103	P
Beryllium	1000.0	990.76	99	500.0	511.52	102	515.55	103	P
Cadmium	1000.0	995.01	100	500.0	500.13	100	497.94	100	P
Calcium	6000.0	6018.15	100	2500.0	2529.26	101	2523.47	101	P
Chromium	1000.0	1001.08	100	500.0	504.86	101	510.07	102	P
Cobalt	1000.0	995.64	100	2500.0	2539.58	102	2531.64	101	P
Copper	1000.0	1008.21	101	2500.0	2524.89	101	2521.83	101	P
Iron	1000.0	1001.82	100	2500.0	2404.53	96	2409.02	96	P
Lead	1000.0	1021.70	102	500.0	508.20	102	507.63	102	P
Magnesium	1000.0	979.90	98	2500.0	2440.34	98	2449.49	98	P
Manganese	1000.0	1018.95	102	500.0	501.83	100	504.74	101	P
Nickel	1000.0	1019.65	102	2500.0	2528.82	101	2521.57	101	P
Potassium	21000.0	21133.16	101	50000.0	50924.17	102	51482.66	103	P
Selenium	1000.0	999.94	100	2500.0	2496.73	100	2482.36	99	P
Silver	1000.0	1035.39	104	500.0	497.98	100	497.49	99	P
Sodium	21000.0	21966.89	105	50000.0	48187.85	96	51359.68	103	P
Thallium	1000.0	1039.08	104	500.0	515.95	103	513.43	103	P
Vanadium	1000.0	1012.64	101	500.0	505.90	101	509.84	102	P
Zinc	1000.0	978.30	98	1250.0	1249.63	100	1243.76	100	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 13) 06/01 04:16 and 14) 06/01 05:48					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2530.70	101	2542.66	102	P
Antimony	1000.0	988.39	99	500.0	499.74	100	495.90	99	P
Arsenic	1000.0	968.26	97	500.0	495.32	99	489.74	98	P
Barium	1000.0	1006.69	101	2500.0	2606.17	104	2596.45	104	P
Beryllium	1000.0	990.76	99	500.0	518.91	104	517.71	104	P
Cadmium	1000.0	995.01	100	500.0	502.01	100	497.19	99	P
Calcium	6000.0	6018.15	100	2500.0	2539.83	102	2601.34	104	P
Chromium	1000.0	1001.08	100	500.0	513.06	103	510.32	102	P
Cobalt	1000.0	995.64	100	2500.0	2559.72	102	2550.52	102	P
Copper	1000.0	1008.21	101	2500.0	2551.77	102	2521.57	101	P
Iron	1000.0	1001.82	100	2500.0	2454.63	98	2357.70	94	P
Lead	1000.0	1021.70	102	500.0	509.11	102	502.73	101	P
Magnesium	1000.0	979.90	98	2500.0	2417.54	97	2433.46	97	P
Manganese	1000.0	1018.95	102	500.0	506.85	101	499.01	100	P
Nickel	1000.0	1019.65	102	2500.0	2537.63	102	2518.59	101	P
Potassium	21000.0	21133.16	101	50000.0	51451.46	103	51180.91	102	P
Selenium	1000.0	999.94	100	2500.0	2505.93	100	2490.08	100	P
Silver	1000.0	1035.39	104	500.0	500.48	100	495.84	99	P
Sodium	21000.0	21966.89	105	50000.0	51947.81	104	51933.14	104	P
Thallium	1000.0	1039.08	104	500.0	518.02	104	514.17	103	P
Vanadium	1000.0	1012.64	101	500.0	513.78	103	512.75	103	P
Zinc	1000.0	978.30	98	1250.0	1249.36	100	1236.32	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 15) 06/01 07:09 and 16) 06/01 08:36					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2559.34	102	2565.04	103	P
Antimony	1000.0	988.39	99	500.0	495.28	99	491.03	98	P
Arsenic	1000.0	968.26	97	500.0	488.09	98	485.46	97	P
Barium	1000.0	1006.69	101	2500.0	2589.11	104	2607.11	104	P
Beryllium	1000.0	990.76	99	500.0	514.60	103	513.98	103	P
Cadmium	1000.0	995.01	100	500.0	494.38	99	488.86	98	P
Calcium	6000.0	6018.15	100	2500.0	2563.98	103	2597.63	104	P
Chromium	1000.0	1001.08	100	500.0	507.37	101	506.58	101	P
Cobalt	1000.0	995.64	100	2500.0	2542.36	102	2540.11	102	P
Copper	1000.0	1008.21	101	2500.0	2511.40	100	2486.87	99	P
Iron	1000.0	1001.82	100	2500.0	2330.50	93	2280.92	91	P
Lead	1000.0	1021.70	102	500.0	501.61	100	496.04	99	P
Magnesium	1000.0	979.90	98	2500.0	2417.84	97	2407.24	96	P
Manganese	1000.0	1018.95	102	500.0	493.07	99	484.67	97	P
Nickel	1000.0	1019.65	102	2500.0	2512.38	100	2496.38	100	P
Potassium	21000.0	21133.16	101	50000.0	51651.12	103	52292.77	105	P
Selenium	1000.0	999.94	100	2500.0	2484.39	99	2481.57	99	P
Silver	1000.0	1035.39	104	500.0	496.81	99	494.50	99	P
Sodium	21000.0	21966.89	105	50000.0	51755.76	104	51783.40	104	P
Thallium	1000.0	1039.08	104	500.0	510.70	102	505.84	101	P
Vanadium	1000.0	1012.64	101	500.0	509.48	102	506.64	101	P
Zinc	1000.0	978.30	98	1250.0	1229.28	98	1212.70	97	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 17) 06/01 08:42 and 18) 06/01 10:11					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2579.74	103	2510.60	100	P
Antimony	1000.0	988.39	99	500.0	493.57	99	485.37	97	P
Arsenic	1000.0	968.26	97	500.0	484.22	97	474.79	95	P
Barium	1000.0	1006.69	101	2500.0	2607.36	104	2629.40	105	P
Beryllium	1000.0	990.76	99	500.0	519.58	104	514.60	103	P
Cadmium	1000.0	995.01	100	500.0	489.23	98	480.25	96	P
Calcium	6000.0	6018.15	100	2500.0	2617.94	105	2584.92	103	P
Chromium	1000.0	1001.08	100	500.0	508.53	102	502.20	100	P
Cobalt	1000.0	995.64	100	2500.0	2543.88	102	2521.76	101	P
Copper	1000.0	1008.21	101	2500.0	2502.73	100	2479.49	99	P
Iron	1000.0	1001.82	100	2500.0	2279.32	91	2176.47	87	P
Lead	1000.0	1021.70	102	500.0	495.85	99	483.08	97	P
Magnesium	1000.0	979.90	98	2500.0	2448.23	98	2367.82	95	P
Manganese	1000.0	1018.95	102	500.0	485.23	97	469.59	94	P
Nickel	1000.0	1019.65	102	2500.0	2494.45	100	2446.08	98	P
Potassium	21000.0	21133.16	101	50000.0	52429.04	105	52155.02	104	P
Selenium	1000.0	999.94	100	2500.0	2485.53	99	2467.69	99	P
Silver	1000.0	1035.39	104	500.0	494.36	99	487.49	97	P
Sodium	21000.0	21966.89	105	50000.0	51930.68	104	51176.90	102	P
Thallium	1000.0	1039.08	104	500.0	506.23	101	500.00	100	P
Vanadium	1000.0	1012.64	101	500.0	512.32	102	510.50	102	P
Zinc	1000.0	978.30	98	1250.0	1213.74	97	1185.82	95	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180531A

Continuing Calibration Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 19) 06/01 11:42 and 20) 06/01 12:25					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1014.60	101	2500.0	2486.99	99	2498.48	100	P
Antimony	1000.0	988.39	99	500.0	483.76	97	486.91	97	P
Arsenic	1000.0	968.26	97	500.0	464.63	93	463.93	93	P
Barium	1000.0	1006.69	101	2500.0	2647.90	106	2636.14	105	P
Beryllium	1000.0	990.76	99	500.0	513.74	103	516.01	103	P
Cadmium	1000.0	995.01	100	500.0	474.05	95	475.03	95	P
Calcium	6000.0	6018.15	100	2500.0	2575.60	103	2652.29	106	P
Chromium	1000.0	1001.08	100	500.0	494.71	99	495.11	99	P
Cobalt	1000.0	995.64	100	2500.0	2515.99	101	2523.79	101	P
Copper	1000.0	1008.21	101	2500.0	2483.28	99	2503.57	100	P
Iron	1000.0	1001.82	100	2500.0	2077.30	83	2097.98	84	P
Lead	1000.0	1021.70	102	500.0	470.73	94	470.47	94	P
Magnesium	1000.0	979.90	98	2500.0	2289.79	92	2282.93	91	P
Manganese	1000.0	1018.95	102	500.0	450.73	90	450.83	90	P
Nickel	1000.0	1019.65	102	2500.0	2406.09	96	2402.46	96	P
Potassium	21000.0	21133.16	101	50000.0	52706.54	105	52216.17	104	P
Selenium	1000.0	999.94	100	2500.0	2463.74	99	2475.45	99	P
Silver	1000.0	1035.39	104	500.0	480.04	96	480.63	96	P
Sodium	21000.0	21966.89	105	50000.0	51033.18	102	50342.07	101	P
Thallium	1000.0	1039.08	104	500.0	493.42	99	493.00	99	P
Vanadium	1000.0	1012.64	101	500.0	511.41	102	515.77	103	P
Zinc	1000.0	978.30	98	1250.0	1161.00	93	1161.50	93	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 1) 06/01 17:07 and 2) 06/01 18:26					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2593.29	104	2620.42	105	P
Antimony	1000.0	969.73	97	500.0	496.45	99	497.82	100	P
Arsenic	1000.0	972.83	97	500.0	493.63	99	490.43	98	P
Barium	1000.0	985.66	99	2500.0	2490.94	100	2503.32	100	P
Beryllium	1000.0	978.63	98	500.0	495.32	99	496.60	99	P
Cadmium	1000.0	986.57	99	500.0	502.53	101	506.29	101	P
Calcium	6000.0	5946.39	99	2500.0	2548.22	102	2548.52	102	P
Chromium	1000.0	985.31	99	500.0	503.74	101	505.83	101	P
Cobalt	1000.0	983.70	98	2500.0	2509.23	100	2498.06	100	P
Copper	1000.0	984.71	98	2500.0	2462.77	99	2501.92	100	P
Iron	1000.0	995.74	100	2500.0	2499.19	100	2543.97	102	P
Lead	1000.0	1009.17	101	500.0	515.33	103	519.25	104	P
Magnesium	1000.0	1001.00	100	2500.0	2615.87	105	2657.06	106	P
Manganese	1000.0	1000.75	100	500.0	491.59	98	488.73	98	P
Nickel	1000.0	1006.76	101	2500.0	2545.39	102	2545.36	102	P
Potassium	21000.0	21003.30	100	50000.0	50674.21	101	51498.52	103	P
Selenium	1000.0	988.88	99	2500.0	2488.14	100	2486.83	99	P
Silver	1000.0	1033.53	103	500.0	484.68	97	491.09	98	P
Sodium	21000.0	21626.57	103	50000.0	52180.53	104	52789.64	106	P
Thallium	1000.0	1019.34	102	500.0	514.99	103	517.14	103	P
Vanadium	1000.0	989.48	99	500.0	492.26	98	495.77	99	P
Zinc	1000.0	972.56	97	1250.0	1248.52	100	1246.54	100	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	CCV 3) 06/01 19:26 and 4) 06/01 20:46 True	Found	%R(1)	Found	%R(1)	M
Aluminum	1000.0	1012.40	101	2500.0	2535.38	101	2627.64	105	P
Antimony	1000.0	969.73	97	500.0	492.01	98	495.66	99	P
Arsenic	1000.0	972.83	97	500.0	486.41	97	489.16	98	P
Barium	1000.0	985.66	99	2500.0	2473.70	99	2529.90	101	P
Beryllium	1000.0	978.63	98	500.0	487.28	97	495.17	99	P
Cadmium	1000.0	986.57	99	500.0	501.77	100	505.66	101	P
Calcium	6000.0	5946.39	99	2500.0	2430.34	97	2503.64	100	P
Chromium	1000.0	985.31	99	500.0	496.92	99	504.22	101	P
Cobalt	1000.0	983.70	98	2500.0	2480.31	99	2497.18	100	P
Copper	1000.0	984.71	98	2500.0	2455.74	98	2493.90	100	P
Iron	1000.0	995.74	100	2500.0	2374.55	95	2438.09	98	P
Lead	1000.0	1009.17	101	500.0	513.36	103	516.85	103	P
Magnesium	1000.0	1001.00	100	2500.0	2526.58	101	2599.72	104	P
Manganese	1000.0	1000.75	100	500.0	479.57	96	487.37	97	P
Nickel	1000.0	1006.76	101	2500.0	2524.14	101	2544.73	102	P
Potassium	21000.0	21003.30	100	50000.0	51049.77	102	52314.51	105	P
Selenium	1000.0	988.88	99	2500.0	2471.28	99	2481.18	99	P
Silver	1000.0	1033.53	103	500.0	483.04	97	490.90	98	P
Sodium	21000.0	21626.57	103	50000.0	51784.16	104	52844.52	106	P
Thallium	1000.0	1019.34	102	500.0	513.24	103	516.33	103	P
Vanadium	1000.0	989.48	99	500.0	486.55	97	494.31	99	P
Zinc	1000.0	972.56	97	1250.0	1291.01	103	1262.93	101	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/01 22:05 and 6) 06/01 23:30					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2581.46	103	2594.69	104	P
Antimony	1000.0	969.73	97	500.0	491.76	98	484.36	97	P
Arsenic	1000.0	972.83	97	500.0	485.55	97	483.12	97	P
Barium	1000.0	985.66	99	2500.0	2518.14	101	2512.72	101	P
Beryllium	1000.0	978.63	98	500.0	492.52	99	488.52	98	P
Cadmium	1000.0	986.57	99	500.0	500.89	100	496.79	99	P
Calcium	6000.0	5946.39	99	2500.0	2482.58	99	2472.00	99	P
Chromium	1000.0	985.31	99	500.0	500.64	100	499.42	100	P
Cobalt	1000.0	983.70	98	2500.0	2479.95	99	2462.91	99	P
Copper	1000.0	984.71	98	2500.0	2474.33	99	2443.17	98	P
Iron	1000.0	995.74	100	2500.0	2402.93	96	2378.36	95	P
Lead	1000.0	1009.17	101	500.0	512.17	102	511.21	102	P
Magnesium	1000.0	1001.00	100	2500.0	2527.46	101	2549.93	102	P
Manganese	1000.0	1000.75	100	500.0	486.29	97	482.66	97	P
Nickel	1000.0	1006.76	101	2500.0	2519.13	101	2510.61	100	P
Potassium	21000.0	21003.30	100	50000.0	51933.27	104	51443.94	103	P
Selenium	1000.0	988.88	99	2500.0	2463.47	99	2439.04	98	P
Silver	1000.0	1033.53	103	500.0	488.22	98	479.37	96	P
Sodium	21000.0	21626.57	103	50000.0	52361.72	105	52208.36	104	P
Thallium	1000.0	1019.34	102	500.0	514.43	103	510.26	102	P
Vanadium	1000.0	989.48	99	500.0	492.12	98	487.36	97	P
Zinc	1000.0	972.56	97	1250.0	1246.36	100	1233.02	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/02 00:48 and 8) 06/02 02:19					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2612.35	104	2619.61	105	P
Antimony	1000.0	969.73	97	500.0	482.32	96	487.70	98	P
Arsenic	1000.0	972.83	97	500.0	475.46	95	482.70	97	P
Barium	1000.0	985.66	99	2500.0	2485.34	99	2521.42	101	P
Beryllium	1000.0	978.63	98	500.0	477.83	96	487.06	97	P
Cadmium	1000.0	986.57	99	500.0	491.48	98	500.29	100	P
Calcium	6000.0	5946.39	99	2500.0	2478.71	99	2478.08	99	P
Chromium	1000.0	985.31	99	500.0	492.01	98	499.45	100	P
Cobalt	1000.0	983.70	98	2500.0	2430.11	97	2464.13	99	P
Copper	1000.0	984.71	98	2500.0	2393.20	96	2451.08	98	P
Iron	1000.0	995.74	100	2500.0	2373.18	95	2363.33	95	P
Lead	1000.0	1009.17	101	500.0	506.45	101	514.57	103	P
Magnesium	1000.0	1001.00	100	2500.0	2544.49	102	2552.57	102	P
Manganese	1000.0	1000.75	100	500.0	472.59	95	480.17	96	P
Nickel	1000.0	1006.76	101	2500.0	2479.58	99	2519.53	101	P
Potassium	21000.0	21003.30	100	50000.0	51000.11	102	51498.36	103	P
Selenium	1000.0	988.88	99	2500.0	2402.80	96	2438.38	98	P
Silver	1000.0	1033.53	103	500.0	469.57	94	479.57	96	P
Sodium	21000.0	21626.57	103	50000.0	52088.06	104	51940.96	104	P
Thallium	1000.0	1019.34	102	500.0	503.55	101	512.49	102	P
Vanadium	1000.0	989.48	99	500.0	476.71	95	486.83	97	P
Zinc	1000.0	972.56	97	1250.0	1216.21	97	1233.82	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 9) 06/02 03:39 and 10) 06/02 05:00					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2607.97	104	2604.46	104	P
Antimony	1000.0	969.73	97	500.0	488.93	98	484.20	97	P
Arsenic	1000.0	972.83	97	500.0	482.87	97	478.75	96	P
Barium	1000.0	985.66	99	2500.0	2537.26	101	2516.02	101	P
Beryllium	1000.0	978.63	98	500.0	488.34	98	480.84	96	P
Cadmium	1000.0	986.57	99	500.0	499.14	100	495.46	99	P
Calcium	6000.0	5946.39	99	2500.0	2439.96	98	2456.72	98	P
Chromium	1000.0	985.31	99	500.0	499.85	100	494.69	99	P
Cobalt	1000.0	983.70	98	2500.0	2465.24	99	2444.15	98	P
Copper	1000.0	984.71	98	2500.0	2455.65	98	2417.26	97	P
Iron	1000.0	995.74	100	2500.0	2340.95	94	2309.70	92	P
Lead	1000.0	1009.17	101	500.0	513.38	103	509.96	102	P
Magnesium	1000.0	1001.00	100	2500.0	2530.63	101	2501.20	100	P
Manganese	1000.0	1000.75	100	500.0	481.74	96	474.92	95	P
Nickel	1000.0	1006.76	101	2500.0	2516.23	101	2494.56	100	P
Potassium	21000.0	21003.30	100	50000.0	51763.24	104	51754.35	104	P
Selenium	1000.0	988.88	99	2500.0	2441.29	98	2418.91	97	P
Silver	1000.0	1033.53	103	500.0	481.30	96	472.68	95	P
Sodium	21000.0	21626.57	103	50000.0	51603.52	103	52113.42	104	P
Thallium	1000.0	1019.34	102	500.0	510.11	102	506.85	101	P
Vanadium	1000.0	989.48	99	500.0	487.91	98	480.41	96	P
Zinc	1000.0	972.56	97	1250.0	1233.54	99	1223.14	98	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 11) 06/02 06:19 and 12) 06/02 07:39					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2626.87	105	2625.52	105	P
Antimony	1000.0	969.73	97	500.0	486.13	97	485.14	97	P
Arsenic	1000.0	972.83	97	500.0	479.75	96	477.85	96	P
Barium	1000.0	985.66	99	2500.0	2537.44	101	2525.98	101	P
Beryllium	1000.0	978.63	98	500.0	483.05	97	479.13	96	P
Cadmium	1000.0	986.57	99	500.0	498.70	100	496.81	99	P
Calcium	6000.0	5946.39	99	2500.0	2434.65	97	2412.68	97	P
Chromium	1000.0	985.31	99	500.0	498.74	100	495.93	99	P
Cobalt	1000.0	983.70	98	2500.0	2453.31	98	2438.23	98	P
Copper	1000.0	984.71	98	2500.0	2432.42	97	2417.72	97	P
Iron	1000.0	995.74	100	2500.0	2314.91	93	2289.24	92	P
Lead	1000.0	1009.17	101	500.0	513.66	103	512.15	102	P
Magnesium	1000.0	1001.00	100	2500.0	2541.15	102	2513.28	101	P
Manganese	1000.0	1000.75	100	500.0	476.08	95	471.86	94	P
Nickel	1000.0	1006.76	101	2500.0	2512.75	101	2499.76	100	P
Potassium	21000.0	21003.30	100	50000.0	52275.89	105	52181.67	104	P
Selenium	1000.0	988.88	99	2500.0	2426.27	97	2409.83	96	P
Silver	1000.0	1033.53	103	500.0	474.57	95	471.00	94	P
Sodium	21000.0	21626.57	103	50000.0	52936.30	106	53011.00	106	P
Thallium	1000.0	1019.34	102	500.0	511.50	102	507.52	102	P
Vanadium	1000.0	989.48	99	500.0	482.73	97	479.00	96	P
Zinc	1000.0	972.56	97	1250.0	1227.53	98	1220.70	98	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 13) 06/02 08:58 and 14) 06/02 10:18					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2625.75	105	2608.91	104	P
Antimony	1000.0	969.73	97	500.0	483.08	97	482.16	96	P
Arsenic	1000.0	972.83	97	500.0	479.67	96	477.68	96	P
Barium	1000.0	985.66	99	2500.0	2538.51	102	2534.01	101	P
Beryllium	1000.0	978.63	98	500.0	481.88	96	481.91	96	P
Cadmium	1000.0	986.57	99	500.0	496.54	99	494.32	99	P
Calcium	6000.0	5946.39	99	2500.0	2420.98	97	2411.57	96	P
Chromium	1000.0	985.31	99	500.0	496.28	99	494.80	99	P
Cobalt	1000.0	983.70	98	2500.0	2444.43	98	2437.68	98	P
Copper	1000.0	984.71	98	2500.0	2426.99	97	2419.26	97	P
Iron	1000.0	995.74	100	2500.0	2282.80	91	2271.05	91	P
Lead	1000.0	1009.17	101	500.0	511.94	102	508.65	102	P
Magnesium	1000.0	1001.00	100	2500.0	2519.92	101	2497.19	100	P
Manganese	1000.0	1000.75	100	500.0	475.03	95	476.17	95	P
Nickel	1000.0	1006.76	101	2500.0	2502.31	100	2490.42	100	P
Potassium	21000.0	21003.30	100	50000.0	52580.39	105	52490.54	105	P
Selenium	1000.0	988.88	99	2500.0	2415.13	97	2410.81	96	P
Silver	1000.0	1033.53	103	500.0	474.25	95	475.14	95	P
Sodium	21000.0	21626.57	103	50000.0	53502.98	107	52950.17	106	P
Thallium	1000.0	1019.34	102	500.0	507.47	101	506.15	101	P
Vanadium	1000.0	989.48	99	500.0	481.46	96	480.16	96	P
Zinc	1000.0	972.56	97	1250.0	1223.18	98	1218.69	97	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2_180601A

Continuing Calibration Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 15) 06/02 11:44 and 16) 06/02 12:32					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	1012.40	101	2500.0	2605.47	104	2597.27	104	P
Antimony	1000.0	969.73	97	500.0	481.56	96	483.53	97	P
Arsenic	1000.0	972.83	97	500.0	474.95	95	476.36	95	P
Barium	1000.0	985.66	99	2500.0	2535.45	101	2541.06	102	P
Beryllium	1000.0	978.63	98	500.0	478.58	96	480.15	96	P
Cadmium	1000.0	986.57	99	500.0	495.56	99	496.82	99	P
Calcium	6000.0	5946.39	99	2500.0	2424.09	97	2396.09	96	P
Chromium	1000.0	985.31	99	500.0	491.94	98	492.84	99	P
Cobalt	1000.0	983.70	98	2500.0	2424.59	97	2429.30	97	P
Copper	1000.0	984.71	98	2500.0	2419.74	97	2430.43	97	P
Iron	1000.0	995.74	100	2500.0	2263.35	91	2254.59	90	P
Lead	1000.0	1009.17	101	500.0	510.65	102	511.80	102	P
Magnesium	1000.0	1001.00	100	2500.0	2478.92	99	2493.34	100	P
Manganese	1000.0	1000.75	100	500.0	470.19	94	470.93	94	P
Nickel	1000.0	1006.76	101	2500.0	2485.84	99	2496.99	100	P
Potassium	21000.0	21003.30	100	50000.0	52658.92	105	52887.72	106	P
Selenium	1000.0	988.88	99	2500.0	2403.73	96	2409.10	96	P
Silver	1000.0	1033.53	103	500.0	472.29	94	476.22	95	P
Sodium	21000.0	21626.57	103	50000.0	53427.65	107	53500.13	107	P
Thallium	1000.0	1019.34	102	500.0	506.83	101	506.93	101	P
Vanadium	1000.0	989.48	99	500.0	479.17	96	480.85	96	P
Zinc	1000.0	972.56	97	1250.0	1214.62	97	1217.05	97	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180604A

Continuing Calibration Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 1) 06/04 11:24 and 2) 06/04 14:37					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	995.90	100	2500.0	2484.11	99	2423.26	97	P
Antimony	1000.0	973.38	97	500.0	505.67	101	498.06	100	P
Arsenic	1000.0	954.94	95	500.0	499.46	100	489.95	98	P
Barium	1000.0	988.61	99	2500.0	2530.31	101	2495.25	100	P
Beryllium	1000.0	980.52	98	500.0	509.67	102	500.20	100	P
Cadmium	1000.0	980.87	98	500.0	506.29	101	496.46	99	P
Calcium	6000.0	5915.35	99	2500.0	2483.92	99	2415.76	97	P
Chromium	1000.0	978.33	98	500.0	502.88	101	490.76	98	P
Cobalt	1000.0	978.85	98	2500.0	2539.92	102	2498.54	100	P
Copper	1000.0	990.19	99	2500.0	2571.76	103	2531.48	101	P
Iron	1000.0	990.61	99	2500.0	2535.72	101	2420.21	97	P
Lead	1000.0	999.27	100	500.0	507.26	101	494.83	99	P
Magnesium	1000.0	970.79	97	2500.0	2481.75	99	2403.74	96	P
Manganese	1000.0	1005.40	101	500.0	508.52	102	500.52	100	P
Nickel	1000.0	998.61	100	2500.0	2528.90	101	2477.07	99	P
Potassium	21000.0	20885.63	99	50000.0	50268.34	101	49909.81	100	P
Selenium	1000.0	982.73	98	2500.0	2527.77	101	2497.10	100	P
Silver	1000.0	1017.37	102	500.0	504.35	101	494.79	99	P
Sodium	21000.0	21720.54	103	50000.0	51000.48	102	49656.32	99	P
Thallium	1000.0	1007.11	101	500.0	514.73	103	507.15	101	P
Vanadium	1000.0	995.15	100	500.0	512.04	102	501.77	100	P
Zinc	1000.0	966.00	97	1250.0	1265.90	101	1238.89	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180604A

Continuing Calibration Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 3) 06/04 16:03 and 4) 06/04 17:23					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	995.90	100	2500.0	2457.34	98	2427.67	97	P
Antimony	1000.0	973.38	97	500.0	503.39	101	507.16	101	P
Arsenic	1000.0	954.94	95	500.0	493.87	99	499.91	100	P
Barium	1000.0	988.61	99	2500.0	2522.02	101	2530.60	101	P
Beryllium	1000.0	980.52	98	500.0	505.17	101	507.10	101	P
Cadmium	1000.0	980.87	98	500.0	500.55	100	508.41	102	P
Calcium	6000.0	5915.35	99	2500.0	2442.95	98	2405.81	96	P
Chromium	1000.0	978.33	98	500.0	498.48	100	498.63	100	P
Cobalt	1000.0	978.85	98	2500.0	2523.70	101	2539.67	102	P
Copper	1000.0	990.19	99	2500.0	2551.21	102	2579.26	103	P
Iron	1000.0	990.61	99	2500.0	2439.59	98	2472.09	99	P
Lead	1000.0	999.27	100	500.0	498.63	100	506.52	101	P
Magnesium	1000.0	970.79	97	2500.0	2417.65	97	2387.00	95	P
Manganese	1000.0	1005.40	101	500.0	506.42	101	504.07	101	P
Nickel	1000.0	998.61	100	2500.0	2496.72	100	2526.08	101	P
Potassium	21000.0	20885.63	99	50000.0	50434.87	101	50372.12	101	P
Selenium	1000.0	982.73	98	2500.0	2523.86	101	2543.86	102	P
Silver	1000.0	1017.37	102	500.0	499.55	100	501.70	100	P
Sodium	21000.0	21720.54	103	50000.0	49868.82	100	50512.71	101	P
Thallium	1000.0	1007.11	101	500.0	512.01	102	517.97	104	P
Vanadium	1000.0	995.15	100	500.0	506.12	101	509.40	102	P
Zinc	1000.0	966.00	97	1250.0	1247.24	100	1271.07	102	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2_180604A

Continuing Calibration Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/04 18:19 and 6) 06/04 19:21					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	995.90	100	2500.0	2450.55	98	2385.86	95	P
Antimony	1000.0	973.38	97	500.0	497.92	100	492.63	99	P
Arsenic	1000.0	954.94	95	500.0	490.67	98	483.15	97	P
Barium	1000.0	988.61	99	2500.0	2545.61	102	2478.45	99	P
Beryllium	1000.0	980.52	98	500.0	507.37	101	492.01	98	P
Cadmium	1000.0	980.87	98	500.0	497.33	99	490.57	98	P
Calcium	6000.0	5915.35	99	2500.0	2441.30	98	2384.07	95	P
Chromium	1000.0	978.33	98	500.0	499.35	100	483.53	97	P
Cobalt	1000.0	978.85	98	2500.0	2504.56	100	2465.67	99	P
Copper	1000.0	990.19	99	2500.0	2559.82	102	2504.35	100	P
Iron	1000.0	990.61	99	2500.0	2436.64	97	2320.34	93	P
Lead	1000.0	999.27	100	500.0	494.66	99	485.77	97	P
Magnesium	1000.0	970.79	97	2500.0	2407.78	96	2303.87	92	P
Manganese	1000.0	1005.40	101	500.0	507.31	101	493.90	99	P
Nickel	1000.0	998.61	100	2500.0	2480.09	99	2437.22	97	P
Potassium	21000.0	20885.63	99	50000.0	50883.96	102	49582.59	99	P
Selenium	1000.0	982.73	98	2500.0	2498.24	100	2471.37	99	P
Silver	1000.0	1017.37	102	500.0	497.56	100	489.07	98	P
Sodium	21000.0	21720.54	103	50000.0	50615.98	101	48944.03	98	P
Thallium	1000.0	1007.11	101	500.0	507.11	101	499.69	100	P
Vanadium	1000.0	995.15	100	500.0	509.78	102	495.00	99	P
Zinc	1000.0	966.00	97	1250.0	1239.69	99	1220.19	98	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180604A

Continuing Calibration Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/04 20:46 and 8) 06/04 22:06					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	995.90	100	2500.0	2391.80	96	3160.16	126	P
Antimony	1000.0	973.38	97	500.0	494.22	99	501.13	100	P
Arsenic	1000.0	954.94	95	500.0	484.86	97	489.73	98	P
Barium	1000.0	988.61	99	2500.0	2494.08	100	2523.40	101	P
Beryllium	1000.0	980.52	98	500.0	492.88	99	494.58	99	P
Cadmium	1000.0	980.87	98	500.0	492.28	98	495.39	99	P
Calcium	6000.0	5915.35	99	2500.0	2415.04	97	2360.55	94	P
Chromium	1000.0	978.33	98	500.0	484.37	97	486.57	97	P
Cobalt	1000.0	978.85	98	2500.0	2473.93	99	2477.32	99	P
Copper	1000.0	990.19	99	2500.0	2509.58	100	2537.31	101	P
Iron	1000.0	990.61	99	2500.0	2322.82	93	2370.48	95	P
Lead	1000.0	999.27	100	500.0	486.83	97	490.42	98	P
Magnesium	1000.0	970.79	97	2500.0	2313.91	93	2295.28	92	P
Manganese	1000.0	1005.40	101	500.0	494.52	99	493.88	99	P
Nickel	1000.0	998.61	100	2500.0	2445.39	98	2472.33	99	P
Potassium	21000.0	20885.63	99	50000.0	49753.30	100	50406.22	101	P
Selenium	1000.0	982.73	98	2500.0	2477.05	99	2487.02	99	P
Silver	1000.0	1017.37	102	500.0	488.54	98	492.92	99	P
Sodium	21000.0	21720.54	103	50000.0	49592.50	99	50786.70	102	P
Thallium	1000.0	1007.11	101	500.0	502.21	100	505.30	101	P
Vanadium	1000.0	995.15	100	500.0	495.12	99	497.69	100	P
Zinc	1000.0	966.00	97	1250.0	1224.67	98	1236.68	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: ICP2 180604A

Continuing Calibration Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 9) 06/04 23:25 and 10) 06/04 23:55					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	1000.0	995.90	100	2500.0	2467.57	99	2444.68	98	P
Antimony	1000.0	973.38	97	500.0	499.79	100	498.27	100	P
Arsenic	1000.0	954.94	95	500.0	489.12	98	490.14	98	P
Barium	1000.0	988.61	99	2500.0	2532.88	101	2522.05	101	P
Beryllium	1000.0	980.52	98	500.0	498.35	100	495.00	99	P
Cadmium	1000.0	980.87	98	500.0	496.68	99	497.05	99	P
Calcium	6000.0	5915.35	99	2500.0	2396.35	96	2536.48	101	P
Chromium	1000.0	978.33	98	500.0	490.42	98	487.53	98	P
Cobalt	1000.0	978.85	98	2500.0	2496.56	100	2483.11	99	P
Copper	1000.0	990.19	99	2500.0	2535.40	101	2529.73	101	P
Iron	1000.0	990.61	99	2500.0	2374.40	95	2403.49	96	P
Lead	1000.0	999.27	100	500.0	491.74	98	491.62	98	P
Magnesium	1000.0	970.79	97	2500.0	2337.08	93	2338.36	94	P
Manganese	1000.0	1005.40	101	500.0	499.85	100	494.59	99	P
Nickel	1000.0	998.61	100	2500.0	2468.37	99	2464.49	99	P
Potassium	21000.0	20885.63	99	50000.0	51026.76	102	50547.79	101	P
Selenium	1000.0	982.73	98	2500.0	2495.93	100	2488.04	100	P
Silver	1000.0	1017.37	102	500.0	493.53	99	492.89	99	P
Sodium	21000.0	21720.54	103	50000.0	51112.81	102	50891.03	102	P
Thallium	1000.0	1007.11	101	500.0	507.94	102	506.61	101	P
Vanadium	1000.0	995.15	100	500.0	501.39	100	498.31	100	P
Zinc	1000.0	966.00	97	1250.0	1235.86	99	1238.40	99	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 1) 05/31 12:09 and 2) 05/31 13:30				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.20	102	10.0	10.20	102	9.84	98
Antimony	5.0	5.52	110	5.0	5.52	110	5.99	120
Arsenic	5.0	5.03	101	5.0	5.03	101	4.32	86
Barium	5.0	5.47	109	5.0	5.47	109	5.14	103
Beryllium	2.0	2.10	105	2.0	2.10	105	2.03	102
Cadmium	10.0	10.50	105	10.0	10.50	105	10.30	103
Calcium	500.0	500.79	100	500.0	500.79	100	503.68	101
Chromium	5.0	5.09	102	5.0	5.09	102	5.05	101
Cobalt	5.0	5.38	108	5.0	5.38	108	5.33	107
Copper	10.0	10.80	108	10.0	10.80	108	10.80	108
Iron	80.0	93.00	116	80.0	93.00	116	88.10	110
Lead	5.0	5.19	104	5.0	5.19	104	5.28	106
Magnesium	200.0	194.65	97	200.0	194.65	97	188.43	94
Manganese	5.0	5.32	106	5.0	5.32	106	5.20	104
Nickel	5.0	5.28	106	5.0	5.28	106	5.37	107
Potassium	200.0	202.58	101	200.0	202.58	101	174.62	87
Selenium	10.0	9.73	97	10.0	9.73	97	9.46	95
Silver	5.0	5.47	109	5.0	5.47	109	5.82	116
Sodium	200.0	201.80	101	200.0	201.80	101	197.62	99
Thallium	10.0	11.70	117	10.0	11.70	117	10.90	109
Vanadium	5.0	4.71	94	5.0	4.71	94	4.92	98
Zinc	10.0	10.50	105	10.0	10.50	105	10.20	102

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 3) 05/31 14:52 and 4) 05/31 16:19				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.24	102	10.0	10.24	102	10.30	103
Antimony	5.0	5.99	120	5.0	5.99	120	6.05	121
Arsenic	5.0	4.33	87	5.0	4.33	87	4.68	94
Barium	5.0	5.53	111	5.0	5.53	111	5.51	110
Beryllium	2.0	2.05	103	2.0	2.05	103	2.14	107
Cadmium	10.0	10.45	105	10.0	10.45	105	10.50	105
Calcium	500.0	497.97	100	500.0	497.97	100	499.58	100
Chromium	5.0	5.02	100	5.0	5.02	100	5.04	101
Cobalt	5.0	5.25	105	5.0	5.25	105	5.33	107
Copper	10.0	10.93	109	10.0	10.93	109	11.70	117
Iron	80.0	89.67	112	80.0	89.67	112	88.70	111
Lead	5.0	4.62	92	5.0	4.62	92	4.75	95
Magnesium	200.0	214.00	107	200.0	214.00	107	184.38	92
Manganese	5.0	5.27	105	5.0	5.27	105	5.37	107
Nickel	5.0	5.30	106	5.0	5.30	106	5.13	103
Potassium	200.0	197.37	99	200.0	197.37	99	205.01	103
Selenium	10.0	8.99	90	10.0	8.99	90	9.83	98
Silver	5.0	5.59	112	5.0	5.59	112	5.40	108
Sodium	200.0	197.38	99	200.0	197.38	99	184.20	92
Thallium	10.0	10.92	109	10.0	10.92	109	11.40	114
Vanadium	5.0	4.72	94	5.0	4.72	94	4.88	98
Zinc	10.0	10.22	102	10.0	10.22	102	10.40	104

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 05/31 17:37 and 6) 05/31 19:03				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.40	104	10.0	10.40	104	9.93	99
Antimony	5.0	5.26	105	5.0	5.26	105	5.43	109
Arsenic	5.0	4.20	84	5.0	4.20	84	3.99	80
Barium	5.0	5.53	111	5.0	5.53	111	5.43	109
Beryllium	2.0	2.10	105	2.0	2.10	105	2.01	100
Cadmium	10.0	10.50	105	10.0	10.50	105	10.30	103
Calcium	500.0	498.44	100	500.0	498.44	100	505.50	101
Chromium	5.0	5.06	101	5.0	5.06	101	4.96	99
Cobalt	5.0	5.51	110	5.0	5.51	110	5.41	108
Copper	10.0	11.10	111	10.0	11.10	111	11.30	113
Iron	80.0	86.80	108	80.0	86.80	108	85.00	106
Lead	5.0	5.06	101	5.0	5.06	101	4.77	95
Magnesium	200.0	198.40	99	200.0	198.40	99	194.59	97
Manganese	5.0	5.21	104	5.0	5.21	104	5.16	103
Nickel	5.0	5.30	106	5.0	5.30	106	5.31	106
Potassium	200.0	177.67	89	200.0	177.67	89	218.73	109
Selenium	10.0	9.77	98	10.0	9.77	98	8.67	87
Silver	5.0	5.80	116	5.0	5.80	116	5.82	116
Sodium	200.0	177.71	89	200.0	177.71	89	192.87	96
Thallium	10.0	11.03	110	10.0	11.03	110	11.90	119
Vanadium	5.0	4.67	93	5.0	4.67	93	4.93	99
Zinc	10.0	10.30	103	10.0	10.30	103	10.10	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 7) 05/31 20:24 and 8) 05/31 21:44				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.00	100	10.0	10.00	100	9.98	100
Antimony	5.0	4.95	99	5.0	4.95	99	5.64	113
Arsenic	5.0	5.05	101	5.0	5.05	101	4.55	91
Barium	5.0	5.20	104	5.0	5.20	104	5.53	111
Beryllium	2.0	1.97	98	2.0	1.97	98	2.00	100
Cadmium	10.0	10.30	103	10.0	10.30	103	10.35	103
Calcium	500.0	501.62	100	500.0	501.62	100	499.46	100
Chromium	5.0	5.05	101	5.0	5.05	101	4.98	100
Cobalt	5.0	5.47	109	5.0	5.47	109	5.34	107
Copper	10.0	11.10	111	10.0	11.10	111	11.10	111
Iron	80.0	81.20	102	80.0	81.20	102	83.70	105
Lead	5.0	5.24	105	5.0	5.24	105	5.27	105
Magnesium	200.0	184.89	92	200.0	184.89	92	182.80	91
Manganese	5.0	5.04	101	5.0	5.04	101	5.16	103
Nickel	5.0	5.37	107	5.0	5.37	107	5.26	105
Potassium	200.0	225.59	113	200.0	225.59	113	206.15	103
Selenium	10.0	9.46	95	10.0	9.46	95	7.94	79
Silver	5.0	6.10	122	5.0	6.10	122	5.88	118
Sodium	200.0	199.09	100	200.0	199.09	100	212.63	106
Thallium	10.0	11.70	117	10.0	11.70	117	11.40	114
Vanadium	5.0	5.10	102	5.0	5.10	102	4.42	88
Zinc	10.0	10.10	101	10.0	10.10	101	10.10	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 05/31 22:48 and 10) 06/01 00:16				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.73	97	10.0	9.73	97	10.20	102
Antimony	5.0	4.86	97	5.0	4.86	97	5.27	105
Arsenic	5.0	4.02	80	5.0	4.02	80	4.36	87
Barium	5.0	5.10	102	5.0	5.10	102	5.65	113
Beryllium	2.0	1.88	94	2.0	1.88	94	2.04	102
Cadmium	10.0	10.00	100	10.0	10.00	100	10.40	104
Calcium	500.0	505.23	101	500.0	505.23	101	499.10	100
Chromium	5.0	4.85	97	5.0	4.85	97	5.03	101
Cobalt	5.0	5.18	104	5.0	5.18	104	5.23	105
Copper	10.0	10.50	105	10.0	10.50	105	10.80	108
Iron	80.0	83.10	104	80.0	83.10	104	85.40	107
Lead	5.0	4.86	97	5.0	4.86	97	5.40	108
Magnesium	200.0	190.66	95	200.0	190.66	95	200.54	100
Manganese	5.0	4.96	99	5.0	4.96	99	5.26	105
Nickel	5.0	4.99	100	5.0	4.99	100	5.18	104
Potassium	200.0	197.05	99	200.0	197.05	99	193.84	97
Selenium	10.0	9.25	92	10.0	9.25	92	7.75	78
Silver	5.0	5.86	117	5.0	5.86	117	5.23	105
Sodium	200.0	213.91	107	200.0	213.91	107	272.40	136
Thallium	10.0	10.30	103	10.0	10.30	103	11.70	117
Vanadium	5.0	4.85	97	5.0	4.85	97	4.81	96
Zinc	10.0	9.72	97	10.0	9.72	97	10.10	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/01 00:22 and 12) 06/01 01:43				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.97	100	10.0	9.97	100	10.47	105
Antimony	5.0	5.39	108	5.0	5.39	108	5.58	112
Arsenic	5.0	4.33	87	5.0	4.33	87	4.15	83
Barium	5.0	5.44	109	5.0	5.44	109	5.39	108
Beryllium	2.0	1.99	100	2.0	1.99	100	2.06	103
Cadmium	10.0	10.30	103	10.0	10.30	103	10.50	105
Calcium	500.0	500.43	100	500.0	500.43	100	502.81	101
Chromium	5.0	4.94	99	5.0	4.94	99	5.06	101
Cobalt	5.0	5.26	105	5.0	5.26	105	5.34	107
Copper	10.0	10.70	107	10.0	10.70	107	11.00	110
Iron	80.0	84.30	105	80.0	84.30	105	87.30	109
Lead	5.0	5.05	101	5.0	5.05	101	4.97	99
Magnesium	200.0	195.30	98	200.0	195.30	98	189.43	95
Manganese	5.0	5.17	103	5.0	5.17	103	5.33	107
Nickel	5.0	5.24	105	5.0	5.24	105	5.24	105
Potassium	200.0	188.63	94	200.0	188.63	94	209.33	105
Selenium	10.0	9.45	94	10.0	9.45	94	9.25	92
Silver	5.0	5.52	110	5.0	5.52	110	5.40	108
Sodium	200.0	263.11	132	200.0	263.11	132	285.21	143
Thallium	10.0	11.40	114	10.0	11.40	114	10.89	109
Vanadium	5.0	4.99	100	5.0	4.99	100	5.02	100
Zinc	10.0	10.00	100	10.0	10.00	100	10.30	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 13) 06/01 03:03 and 14) 06/01 04:28				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.80	108	10.0	10.80	108	10.50	105
Antimony	5.0	5.15	103	5.0	5.15	103	5.84	117
Arsenic	5.0	4.73	95	5.0	4.73	95	4.76	95
Barium	5.0	5.64	113	5.0	5.64	113	5.64	113
Beryllium	2.0	2.09	104	2.0	2.09	104	2.10	105
Cadmium	10.0	10.40	104	10.0	10.40	104	10.50	105
Calcium	500.0	504.60	101	500.0	504.60	101	510.93	102
Chromium	5.0	4.99	100	5.0	4.99	100	4.95	99
Cobalt	5.0	5.36	107	5.0	5.36	107	5.46	109
Copper	10.0	11.10	111	10.0	11.10	111	11.40	114
Iron	80.0	88.10	110	80.0	88.10	110	87.71	110
Lead	5.0	5.21	104	5.0	5.21	104	5.64	113
Magnesium	200.0	191.84	96	200.0	191.84	96	202.91	101
Manganese	5.0	5.39	108	5.0	5.39	108	5.35	107
Nickel	5.0	5.45	109	5.0	5.45	109	5.46	109
Potassium	200.0	205.53	103	200.0	205.53	103	231.45	116
Selenium	10.0	9.60	96	10.0	9.60	96	10.30	103
Silver	5.0	5.32	106	5.0	5.32	106	5.81	116
Sodium	200.0	227.27	114	200.0	227.27	114	212.41	106
Thallium	10.0	11.20	112	10.0	11.20	112	12.10	121
Vanadium	5.0	4.75	95	5.0	4.75	95	4.93	99
Zinc	10.0	10.30	103	10.0	10.30	103	10.30	103

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 15) 06/01 04:34 and 16) 06/01 06:00				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.60	106	10.0	10.60	106	10.60	106
Antimony	5.0	4.77	95	5.0	4.77	95	5.66	113
Arsenic	5.0	4.33	87	5.0	4.33	87	3.81	76
Barium	5.0	5.72	114	5.0	5.72	114	5.59	112
Beryllium	2.0	2.07	104	2.0	2.07	104	2.07	104
Cadmium	10.0	10.60	106	10.0	10.60	106	10.50	105
Calcium	500.0	511.32	102	500.0	511.32	102	511.82	102
Chromium	5.0	5.01	100	5.0	5.01	100	5.04	101
Cobalt	5.0	5.40	108	5.0	5.40	108	5.41	108
Copper	10.0	10.90	109	10.0	10.90	109	11.20	112
Iron	80.0	85.90	107	80.0	85.90	107	86.10	108
Lead	5.0	5.16	103	5.0	5.16	103	5.20	104
Magnesium	200.0	181.88	91	200.0	181.88	91	182.42	91
Manganese	5.0	5.33	107	5.0	5.33	107	5.24	105
Nickel	5.0	5.32	106	5.0	5.32	106	5.42	108
Potassium	200.0	227.75	114	200.0	227.75	114	237.26	119
Selenium	10.0	8.56	86	10.0	8.56	86	9.86	99
Silver	5.0	5.60	112	5.0	5.60	112	5.75	115
Sodium	200.0	211.37	106	200.0	211.37	106	209.97	105
Thallium	10.0	10.94	109	10.0	10.94	109	11.10	111
Vanadium	5.0	4.96	99	5.0	4.96	99	4.80	96
Zinc	10.0	10.30	103	10.0	10.30	103	10.10	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 17) 06/01 07:21 and 18) 06/01 08:56				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.50	105	10.0	10.50	105	10.39	104
Antimony	5.0	5.56	111	5.0	5.56	111	5.56	111
Arsenic	5.0	4.26	85	5.0	4.26	85	4.46	89
Barium	5.0	5.78	116	5.0	5.78	116	5.60	112
Beryllium	2.0	2.00	100	2.0	2.00	100	1.97	99
Cadmium	10.0	10.40	104	10.0	10.40	104	10.34	103
Calcium	500.0	515.61	103	500.0	515.61	103	528.53	106
Chromium	5.0	5.05	101	5.0	5.05	101	5.03	101
Cobalt	5.0	5.38	108	5.0	5.38	108	5.40	108
Copper	10.0	10.70	107	10.0	10.70	107	11.16	112
Iron	80.0	85.20	106	80.0	85.20	106	81.87	102
Lead	5.0	5.14	103	5.0	5.14	103	4.81	96
Magnesium	200.0	188.54	94	200.0	188.54	94	192.88	96
Manganese	5.0	5.18	104	5.0	5.18	104	5.10	102
Nickel	5.0	5.39	108	5.0	5.39	108	5.29	106
Potassium	200.0	225.01	113	200.0	225.01	113	203.08	102
Selenium	10.0	10.50	105	10.0	10.50	105	9.80	98
Silver	5.0	5.92	118	5.0	5.92	118	6.15	123
Sodium	200.0	210.57	105	200.0	210.57	105	203.82	102
Thallium	10.0	11.30	113	10.0	11.30	113	11.69	117
Vanadium	5.0	5.02	100	5.0	5.02	100	5.01	100
Zinc	10.0	10.50	105	10.0	10.50	105	10.18	102

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 19) 06/01 10:23 and 20) 06/01 10:29				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.46	105	10.0	10.46	105	10.13	101
Antimony	5.0	5.64	113	5.0	5.64	113	5.94	119
Arsenic	5.0	3.76	75	5.0	3.76	75	3.85	77
Barium	5.0	5.80	116	5.0	5.80	116	5.69	114
Beryllium	2.0	1.95	98	2.0	1.95	98	1.96	98
Cadmium	10.0	10.25	102	10.0	10.25	102	10.27	103
Calcium	500.0	522.23	104	500.0	522.23	104	522.52	105
Chromium	5.0	5.01	100	5.0	5.01	100	5.05	101
Cobalt	5.0	5.39	108	5.0	5.39	108	5.27	105
Copper	10.0	11.61	116	10.0	11.61	116	11.76	118
Iron	80.0	77.93	97	80.0	77.93	97	78.76	98
Lead	5.0	4.67	93	5.0	4.67	93	4.89	98
Magnesium	200.0	197.40	99	200.0	197.40	99	185.90	93
Manganese	5.0	5.03	101	5.0	5.03	101	4.97	99
Nickel	5.0	5.44	109	5.0	5.44	109	5.46	109
Potassium	200.0	157.30	79	200.0	157.30	79	160.42	80
Selenium	10.0	9.03	90	10.0	9.03	90	9.68	97
Silver	5.0	6.54	131	5.0	6.54	131	6.48	130
Sodium	200.0	187.19	94	200.0	187.19	94	189.58	95
Thallium	10.0	11.14	111	10.0	11.14	111	11.23	112
Vanadium	5.0	4.74	95	5.0	4.74	95	4.94	99
Zinc	10.0	9.89	99	10.0	9.89	99	9.91	99

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 21) 06/01 11:54 and 22) 06/01 12:00				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.71	97	10.0	9.71	97	9.58	96
Antimony	5.0	5.54	111	5.0	5.54	111	5.55	111
Arsenic	5.0	3.90	78	5.0	3.90	78	3.46	69
Barium	5.0	5.83	117	5.0	5.83	117	6.09	122
Beryllium	2.0	1.92	96	2.0	1.92	96	1.91	96
Cadmium	10.0	10.32	103	10.0	10.32	103	10.14	101
Calcium	500.0	520.44	104	500.0	520.44	104	524.43	105
Chromium	5.0	4.95	99	5.0	4.95	99	4.93	99
Cobalt	5.0	5.42	108	5.0	5.42	108	5.37	107
Copper	10.0	11.98	120	10.0	11.98	120	12.14	121
Iron	80.0	74.61	93	80.0	74.61	93	75.96	95
Lead	5.0	4.41	88	5.0	4.41	88	4.56	91
Magnesium	200.0	186.55	93	200.0	186.55	93	173.65	87
Manganese	5.0	4.82	96	5.0	4.82	96	4.83	97
Nickel	5.0	5.42	108	5.0	5.42	108	5.25	105
Potassium	200.0	150.97	75	200.0	150.97	75	152.64	76
Selenium	10.0	7.69	77	10.0	7.69	77	8.04	80
Silver	5.0	7.04	141	5.0	7.04	141	6.89	138
Sodium	200.0	181.39	91	200.0	181.39	91	181.07	91
Thallium	10.0	11.25	112	10.0	11.25	112	11.28	113
Vanadium	5.0	4.72	94	5.0	4.72	94	4.94	99
Zinc	10.0	9.79	98	10.0	9.79	98	9.76	98

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180531A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 23) 06/01 12:37 and				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.91	99	10.0	9.91	99		
Antimony	5.0	5.20	104	5.0	5.20	104		
Arsenic	5.0	4.61	92	5.0	4.61	92		
Barium	5.0	5.77	115	5.0	5.77	115		
Beryllium	2.0	1.92	96	2.0	1.92	96		
Cadmium	10.0	10.18	102	10.0	10.18	102		
Calcium	500.0	513.99	103	500.0	513.99	103		
Chromium	5.0	4.96	99	5.0	4.96	99		
Cobalt	5.0	5.41	108	5.0	5.41	108		
Copper	10.0	12.40	124	10.0	12.40	124		
Iron	80.0	73.25	92	80.0	73.25	92		
Lead	5.0	4.24	85	5.0	4.24	85		
Magnesium	200.0	174.32	87	200.0	174.32	87		
Manganese	5.0	4.91	98	5.0	4.91	98		
Nickel	5.0	5.18	104	5.0	5.18	104		
Potassium	200.0	129.90	65	200.0	129.90	65		
Selenium	10.0	9.19	92	10.0	9.19	92		
Silver	5.0	6.93	139	5.0	6.93	139		
Sodium	200.0	184.26	92	200.0	184.26	92		
Thallium	10.0	10.97	110	10.0	10.97	110		
Vanadium	5.0	4.92	98	5.0	4.92	98		
Zinc	10.0	9.79	98	10.0	9.79	98		

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 1) 06/01 17:19 and 2) 06/01 17:25				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.20	102	10.0	10.20	102	10.10	101
Antimony	5.0	4.83	97	5.0	4.83	97	5.86	117
Arsenic	5.0	4.53	91	5.0	4.53	91	5.00	100
Barium	5.0	5.43	109	5.0	5.43	109	5.08	102
Beryllium	2.0	2.11	106	2.0	2.11	106	2.07	104
Cadmium	10.0	10.20	102	10.0	10.20	102	10.10	101
Calcium	500.0	513.66	103	500.0	513.66	103	506.34	101
Chromium	5.0	5.01	100	5.0	5.01	100	4.97	99
Cobalt	5.0	5.22	104	5.0	5.22	104	5.16	103
Copper	10.0	9.92	99	10.0	9.92	99	9.93	99
Iron	80.0	84.10	105	80.0	84.10	105	84.53	106
Lead	5.0	4.91	98	5.0	4.91	98	5.08	102
Magnesium	200.0	233.04	117	200.0	233.04	117	218.42	109
Manganese	5.0	5.26	105	5.0	5.26	105	5.19	104
Nickel	5.0	5.27	105	5.0	5.27	105	5.21	104
Potassium	200.0	151.37	76	200.0	151.37	76	131.36	66
Selenium	10.0	11.00	110	10.0	11.00	110	10.80	108
Silver	5.0	5.23	105	5.0	5.23	105	5.36	107
Sodium	200.0	230.14	115	200.0	230.14	115	215.57	108
Thallium	10.0	11.50	115	10.0	11.50	115	11.50	115
Vanadium	5.0	5.51	110	5.0	5.51	110	5.42	108
Zinc	10.0	9.03	90	10.0	9.03	90	9.12	91

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 3) 06/01 18:43 and 4) 06/01 19:38				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.20	102	10.0	10.20	102	10.41	104
Antimony	5.0	5.46	109	5.0	5.46	109	5.18	104
Arsenic	5.0	4.45	89	5.0	4.45	89	5.19	104
Barium	5.0	5.28	106	5.0	5.28	106	5.27	105
Beryllium	2.0	2.10	105	2.0	2.10	105	2.10	105
Cadmium	10.0	10.20	102	10.0	10.20	102	10.20	102
Calcium	500.0	502.36	100	500.0	502.36	100	502.07	100
Chromium	5.0	4.94	99	5.0	4.94	99	4.91	98
Cobalt	5.0	5.14	103	5.0	5.14	103	5.19	104
Copper	10.0	9.62	96	10.0	9.62	96	10.30	103
Iron	80.0	85.90	107	80.0	85.90	107	81.90	102
Lead	5.0	4.95	99	5.0	4.95	99	5.62	112
Magnesium	200.0	235.30	118	200.0	235.30	118	222.00	111
Manganese	5.0	5.17	103	5.0	5.17	103	5.22	104
Nickel	5.0	5.23	105	5.0	5.23	105	5.29	106
Potassium	200.0	143.48	72	200.0	143.48	72	165.83	83
Selenium	10.0	10.70	107	10.0	10.70	107	10.60	106
Silver	5.0	4.96	99	5.0	4.96	99	5.84	117
Sodium	200.0	228.96	114	200.0	228.96	114	223.98	112
Thallium	10.0	11.90	119	10.0	11.90	119	11.30	113
Vanadium	5.0	5.48	110	5.0	5.48	110	5.49	110
Zinc	10.0	9.07	91	10.0	9.07	91	37.50	375

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 06/01 20:58 and 6) 06/01 22:17				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.30	103	10.0	10.30	103	10.20	102
Antimony	5.0	4.34	87	5.0	4.34	87	4.87	97
Arsenic	5.0	5.17	103	5.0	5.17	103	4.11	82
Barium	5.0	5.59	112	5.0	5.59	112	5.24	105
Beryllium	2.0	2.09	104	2.0	2.09	104	1.98	99
Cadmium	10.0	10.20	102	10.0	10.20	102	9.86	99
Calcium	500.0	505.74	101	500.0	505.74	101	494.09	99
Chromium	5.0	4.99	100	5.0	4.99	100	4.82	96
Cobalt	5.0	5.16	103	5.0	5.16	103	5.01	100
Copper	10.0	10.00	100	10.0	10.00	100	9.09	91
Iron	80.0	84.90	106	80.0	84.90	106	79.50	99
Lead	5.0	4.38	88	5.0	4.38	88	4.45	89
Magnesium	200.0	230.61	115	200.0	230.61	115	210.04	105
Manganese	5.0	5.19	104	5.0	5.19	104	5.04	101
Nickel	5.0	5.21	104	5.0	5.21	104	4.98	100
Potassium	200.0	200.54	100	200.0	200.54	100	197.88	99
Selenium	10.0	10.80	108	10.0	10.80	108	10.70	107
Silver	5.0	5.38	108	5.0	5.38	108	5.29	106
Sodium	200.0	248.12	124	200.0	248.12	124	219.07	110
Thallium	10.0	11.80	118	10.0	11.80	118	11.50	115
Vanadium	5.0	5.34	107	5.0	5.34	107	5.29	106
Zinc	10.0	21.60	216	10.0	21.60	216	16.30	163

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 7) 06/01 23:42 and 8) 06/02 01:06				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.20	102	10.0	10.20	102	10.10	101
Antimony	5.0	4.81	96	5.0	4.81	96	4.95	99
Arsenic	5.0	4.77	95	5.0	4.77	95	4.72	94
Barium	5.0	5.29	106	5.0	5.29	106	5.22	104
Beryllium	2.0	2.01	100	2.0	2.01	100	2.01	100
Cadmium	10.0	9.89	99	10.0	9.89	99	9.91	99
Calcium	500.0	496.42	99	500.0	496.42	99	498.76	100
Chromium	5.0	4.86	97	5.0	4.86	97	4.89	98
Cobalt	5.0	5.06	101	5.0	5.06	101	5.04	101
Copper	10.0	9.41	94	10.0	9.41	94	9.01	90
Iron	80.0	80.20	100	80.0	80.20	100	80.70	101
Lead	5.0	4.41	88	5.0	4.41	88	4.63	93
Magnesium	200.0	213.55	107	200.0	213.55	107	207.58	104
Manganese	5.0	5.04	101	5.0	5.04	101	5.05	101
Nickel	5.0	4.87	97	5.0	4.87	97	4.96	99
Potassium	200.0	190.28	95	200.0	190.28	95	192.55	96
Selenium	10.0	9.90	99	10.0	9.90	99	11.30	113
Silver	5.0	4.90	98	5.0	4.90	98	4.76	95
Sodium	200.0	217.97	109	200.0	217.97	109	219.22	110
Thallium	10.0	11.80	118	10.0	11.80	118	11.40	114
Vanadium	5.0	5.35	107	5.0	5.35	107	5.36	107
Zinc	10.0	13.70	137	10.0	13.70	137	12.50	125

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/02 02:31 and 10) 06/02 03:51				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.27	103	10.0	10.27	103	9.73	97
Antimony	5.0	4.89	98	5.0	4.89	98	5.04	101
Arsenic	5.0	4.87	97	5.0	4.87	97	4.57	91
Barium	5.0	5.36	107	5.0	5.36	107	5.20	104
Beryllium	2.0	2.06	103	2.0	2.06	103	1.96	98
Cadmium	10.0	9.94	99	10.0	9.94	99	9.79	98
Calcium	500.0	494.56	99	500.0	494.56	99	483.71	97
Chromium	5.0	4.89	98	5.0	4.89	98	4.73	95
Cobalt	5.0	5.05	101	5.0	5.05	101	5.04	101
Copper	10.0	9.39	94	10.0	9.39	94	8.56	86
Iron	80.0	79.80	100	80.0	79.80	100	77.60	97
Lead	5.0	4.72	94	5.0	4.72	94	4.27	85
Magnesium	200.0	234.79	117	200.0	234.79	117	224.15	112
Manganese	5.0	5.11	102	5.0	5.11	102	4.94	99
Nickel	5.0	5.19	104	5.0	5.19	104	5.05	101
Potassium	200.0	180.56	90	200.0	180.56	90	149.55	75
Selenium	10.0	10.28	103	10.0	10.28	103	10.00	100
Silver	5.0	4.73	95	5.0	4.73	95	5.06	101
Sodium	200.0	249.97	125	200.0	249.97	125	265.33	133
Thallium	10.0	11.30	113	10.0	11.30	113	11.10	111
Vanadium	5.0	5.49	110	5.0	5.49	110	5.37	107
Zinc	10.0	11.90	119	10.0	11.90	119	10.80	108

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/02 05:12 and 12) 06/02 06:31				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.91	99	10.0	9.91	99	9.99	100
Antimony	5.0	4.42	88	5.0	4.42	88	5.46	109
Arsenic	5.0	4.63	93	5.0	4.63	93	4.77	95
Barium	5.0	5.35	107	5.0	5.35	107	5.28	106
Beryllium	2.0	2.03	102	2.0	2.03	102	1.96	98
Cadmium	10.0	9.99	100	10.0	9.99	100	9.89	99
Calcium	500.0	481.07	96	500.0	481.07	96	484.51	97
Chromium	5.0	4.81	96	5.0	4.81	96	4.83	97
Cobalt	5.0	5.14	103	5.0	5.14	103	4.97	99
Copper	10.0	9.57	96	10.0	9.57	96	8.61	86
Iron	80.0	76.70	96	80.0	76.70	96	76.50	96
Lead	5.0	4.63	93	5.0	4.63	93	4.72	94
Magnesium	200.0	203.43	102	200.0	203.43	102	211.73	106
Manganese	5.0	4.99	100	5.0	4.99	100	4.94	99
Nickel	5.0	4.97	99	5.0	4.97	99	5.06	101
Potassium	200.0	134.35	67	200.0	134.35	67	140.24	70
Selenium	10.0	11.60	116	10.0	11.60	116	11.30	113
Silver	5.0	4.96	99	5.0	4.96	99	4.76	95
Sodium	200.0	259.41	130	200.0	259.41	130	251.29	126
Thallium	10.0	11.40	114	10.0	11.40	114	11.90	119
Vanadium	5.0	5.41	108	5.0	5.41	108	5.17	103
Zinc	10.0	10.40	104	10.0	10.40	104	10.10	101

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 13) 06/02 07:51 and 14) 06/02 09:10				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.30	103	10.0	10.30	103	10.00	100
Antimony	5.0	5.71	114	5.0	5.71	114	3.95	79
Arsenic	5.0	4.85	97	5.0	4.85	97	4.56	91
Barium	5.0	5.47	109	5.0	5.47	109	5.21	104
Beryllium	2.0	2.01	100	2.0	2.01	100	1.99	100
Cadmium	10.0	10.02	100	10.0	10.02	100	9.91	99
Calcium	500.0	493.22	99	500.0	493.22	99	483.32	97
Chromium	5.0	4.84	97	5.0	4.84	97	4.78	96
Cobalt	5.0	5.02	100	5.0	5.02	100	5.12	102
Copper	10.0	8.71	87	10.0	8.71	87	9.23	92
Iron	80.0	77.50	97	80.0	77.50	97	77.40	97
Lead	5.0	5.13	103	5.0	5.13	103	5.27	105
Magnesium	200.0	228.40	114	200.0	228.40	114	208.32	104
Manganese	5.0	5.08	102	5.0	5.08	102	5.02	100
Nickel	5.0	5.11	102	5.0	5.11	102	4.97	99
Potassium	200.0	141.01	71	200.0	141.01	71	147.40	74
Selenium	10.0	11.10	111	10.0	11.10	111	10.70	107
Silver	5.0	5.05	101	5.0	5.05	101	5.18	104
Sodium	200.0	258.61	129	200.0	258.61	129	256.79	128
Thallium	10.0	11.00	110	10.0	11.00	110	10.70	107
Vanadium	5.0	5.67	113	5.0	5.67	113	5.26	105
Zinc	10.0	9.93	99	10.0	9.93	99	9.61	96

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 15) 06/02 10:30 and 16) 06/02 10:36				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.10	101	10.0	10.10	101	10.10	101
Antimony	5.0	4.41	88	5.0	4.41	88	5.31	106
Arsenic	5.0	4.35	87	5.0	4.35	87	4.86	97
Barium	5.0	5.32	106	5.0	5.32	106	5.48	110
Beryllium	2.0	1.99	100	2.0	1.99	100	1.97	98
Cadmium	10.0	9.95	100	10.0	9.95	100	9.93	99
Calcium	500.0	489.30	98	500.0	489.30	98	482.81	97
Chromium	5.0	4.81	96	5.0	4.81	96	4.80	96
Cobalt	5.0	5.06	101	5.0	5.06	101	5.00	100
Copper	10.0	9.16	92	10.0	9.16	92	8.75	88
Iron	80.0	75.50	94	80.0	75.50	94	77.00	96
Lead	5.0	5.13	103	5.0	5.13	103	4.46	89
Magnesium	200.0	210.45	105	200.0	210.45	105	209.00	104
Manganese	5.0	5.08	102	5.0	5.08	102	4.98	100
Nickel	5.0	5.21	104	5.0	5.21	104	5.06	101
Potassium	200.0	124.98	62	200.0	124.98	62	125.64	63
Selenium	10.0	11.80	118	10.0	11.80	118	9.35	94
Silver	5.0	4.74	95	5.0	4.74	95	4.96	99
Sodium	200.0	264.05	132	200.0	264.05	132	246.26	123
Thallium	10.0	11.74	117	10.0	11.74	117	11.60	116
Vanadium	5.0	5.17	103	5.0	5.17	103	5.39	108
Zinc	10.0	9.49	95	10.0	9.49	95	9.45	94

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180601A

ICP CRDL Standard Source: Start: 6/1/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 17) 06/02 11:56 and 18) 06/02 12:44				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.10	101	10.0	10.10	101	10.10	101
Antimony	5.0	5.03	101	5.0	5.03	101	5.58	112
Arsenic	5.0	5.25	105	5.0	5.25	105	4.37	87
Barium	5.0	5.44	109	5.0	5.44	109	5.70	114
Beryllium	2.0	1.99	100	2.0	1.99	100	2.00	100
Cadmium	10.0	9.89	99	10.0	9.89	99	9.87	99
Calcium	500.0	478.97	96	500.0	478.97	96	479.94	96
Chromium	5.0	4.75	95	5.0	4.75	95	4.77	95
Cobalt	5.0	5.13	103	5.0	5.13	103	5.04	101
Copper	10.0	8.90	89	10.0	8.90	89	8.98	90
Iron	80.0	75.60	94	80.0	75.60	94	77.60	97
Lead	5.0	5.05	101	5.0	5.05	101	4.69	94
Magnesium	200.0	215.22	108	200.0	215.22	108	210.23	105
Manganese	5.0	4.96	99	5.0	4.96	99	4.98	100
Nickel	5.0	5.15	103	5.0	5.15	103	5.10	102
Potassium	200.0	125.02	63	200.0	125.02	63	134.71	67
Selenium	10.0	11.30	113	10.0	11.30	113	9.92	99
Silver	5.0	5.13	103	5.0	5.13	103	4.90	98
Sodium	200.0	257.59	129	200.0	257.59	129	259.95	130
Thallium	10.0	11.40	114	10.0	11.40	114	11.20	112
Vanadium	5.0	5.17	103	5.0	5.17	103	5.14	103
Zinc	10.0	9.29	93	10.0	9.29	93	9.17	92

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 1) 06/04 11:36 and 2) 06/04 13:01				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	8.60	86	10.0	8.60	86	8.71	87
Antimony	5.0	5.64	113	5.0	5.64	113	6.31	126
Arsenic	5.0	4.20	84	5.0	4.20	84	4.40	88
Barium	5.0	5.42	108	5.0	5.42	108	5.51	110
Beryllium	2.0	2.11	106	2.0	2.11	106	2.14	107
Cadmium	10.0	10.26	103	10.0	10.26	103	10.25	102
Calcium	500.0	495.87	99	500.0	495.87	99	494.06	99
Chromium	5.0	5.07	101	5.0	5.07	101	5.00	100
Cobalt	5.0	5.24	105	5.0	5.24	105	5.25	105
Copper	10.0	11.78	118	10.0	11.78	118	11.94	119
Iron	80.0	83.67	105	80.0	83.67	105	83.86	105
Lead	5.0	4.57	91	5.0	4.57	91	5.42	108
Magnesium	200.0	197.80	99	200.0	197.80	99	203.00	101
Manganese	5.0	5.50	110	5.0	5.50	110	5.57	111
Nickel	5.0	5.38	108	5.0	5.38	108	5.49	110
Potassium	200.0	21.47	11	200.0	21.47	11	-4.47	-2
Selenium	10.0	9.22	92	10.0	9.22	92	8.68	87
Silver	5.0	5.69	114	5.0	5.69	114	6.04	121
Sodium	200.0	203.77	102	200.0	203.77	102	201.89	101
Thallium	10.0	10.59	106	10.0	10.59	106	10.56	106
Vanadium	5.0	4.66	93	5.0	4.66	93	4.79	96
Zinc	10.0	8.68	87	10.0	8.68	87	8.52	85

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 3) 06/04 14:49 and 4) 06/04 14:55				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	8.89	89	10.0	8.89	89	8.91	89
Antimony	5.0	6.85	137	5.0	6.85	137	5.70	114
Arsenic	5.0	3.91	78	5.0	3.91	78	4.03	81
Barium	5.0	5.38	108	5.0	5.38	108	5.17	103
Beryllium	2.0	2.12	106	2.0	2.12	106	2.12	106
Cadmium	10.0	10.09	101	10.0	10.09	101	10.26	103
Calcium	500.0	485.55	97	500.0	485.55	97	485.82	97
Chromium	5.0	4.89	98	5.0	4.89	98	4.99	100
Cobalt	5.0	5.14	103	5.0	5.14	103	5.21	104
Copper	10.0	12.16	122	10.0	12.16	122	12.06	121
Iron	80.0	82.03	103	80.0	82.03	103	82.48	103
Lead	5.0	5.54	111	5.0	5.54	111	4.91	98
Magnesium	200.0	193.68	97	200.0	193.68	97	193.70	97
Manganese	5.0	5.46	109	5.0	5.46	109	5.46	109
Nickel	5.0	5.24	105	5.0	5.24	105	5.36	107
Potassium	200.0	-22.61	-11	200.0	-22.61	-11	-31.82	-16
Selenium	10.0	8.73	87	10.0	8.73	87	8.92	89
Silver	5.0	5.65	113	5.0	5.65	113	5.53	111
Sodium	200.0	225.76	113	200.0	225.76	113	209.97	105
Thallium	10.0	10.38	104	10.0	10.38	104	10.46	105
Vanadium	5.0	4.80	96	5.0	4.80	96	4.86	97
Zinc	10.0	8.07	81	10.0	8.07	81	8.10	81

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 06/04 16:15 and 6) 06/04 17:35				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.29	93	10.0	9.29	93	9.59	96
Antimony	5.0	6.43	129	5.0	6.43	129	5.88	118
Arsenic	5.0	4.32	86	5.0	4.32	86	4.26	85
Barium	5.0	5.58	112	5.0	5.58	112	5.46	109
Beryllium	2.0	2.16	108	2.0	2.16	108	2.16	108
Cadmium	10.0	10.34	103	10.0	10.34	103	10.39	104
Calcium	500.0	503.14	101	500.0	503.14	101	482.15	96
Chromium	5.0	5.11	102	5.0	5.11	102	5.05	101
Cobalt	5.0	5.33	107	5.0	5.33	107	5.25	105
Copper	10.0	12.22	122	10.0	12.22	122	12.41	124
Iron	80.0	82.47	103	80.0	82.47	103	84.56	106
Lead	5.0	5.02	100	5.0	5.02	100	4.80	96
Magnesium	200.0	199.94	100	200.0	199.94	100	187.64	94
Manganese	5.0	5.53	111	5.0	5.53	111	5.52	110
Nickel	5.0	5.40	108	5.0	5.40	108	5.48	110
Potassium	200.0	-5.07	-3	200.0	-5.07	-3	-26.91	-13
Selenium	10.0	9.54	95	10.0	9.54	95	8.59	86
Silver	5.0	5.94	119	5.0	5.94	119	5.47	109
Sodium	200.0	246.24	123	200.0	246.24	123	216.82	108
Thallium	10.0	11.15	111	10.0	11.15	111	10.30	103
Vanadium	5.0	4.93	99	5.0	4.93	99	4.92	98
Zinc	10.0	8.06	81	10.0	8.06	81	8.01	80

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 7) 06/04 18:31 and 8) 06/04 19:38				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.33	93	10.0	9.33	93	9.20	92
Antimony	5.0	5.81	116	5.0	5.81	116	5.47	109
Arsenic	5.0	4.30	86	5.0	4.30	86	4.10	82
Barium	5.0	5.54	111	5.0	5.54	111	5.40	108
Beryllium	2.0	2.10	105	2.0	2.10	105	2.12	106
Cadmium	10.0	10.18	102	10.0	10.18	102	10.22	102
Calcium	500.0	482.01	96	500.0	482.01	96	478.52	96
Chromium	5.0	4.91	98	5.0	4.91	98	4.90	98
Cobalt	5.0	5.19	104	5.0	5.19	104	5.21	104
Copper	10.0	11.99	120	10.0	11.99	120	12.37	124
Iron	80.0	82.96	104	80.0	82.96	104	81.36	102
Lead	5.0	4.38	88	5.0	4.38	88	4.51	90
Magnesium	200.0	213.97	107	200.0	213.97	107	190.20	95
Manganese	5.0	5.49	110	5.0	5.49	110	5.42	108
Nickel	5.0	5.44	109	5.0	5.44	109	5.23	105
Potassium	200.0	-8.59	-4	200.0	-8.59	-4	8.32	4
Selenium	10.0	8.46	85	10.0	8.46	85	8.69	87
Silver	5.0	5.51	110	5.0	5.51	110	5.68	114
Sodium	200.0	221.49	111	200.0	221.49	111	219.23	110
Thallium	10.0	10.65	107	10.0	10.65	107	9.99	100
Vanadium	5.0	4.49	90	5.0	4.49	90	4.74	95
Zinc	10.0	7.75	78	10.0	7.75	78	7.68	77

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/04 20:58 and 10) 06/04 22:18				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	9.27	93	10.0	9.27	93	10.12	101
Antimony	5.0	6.02	120	5.0	6.02	120	5.56	111
Arsenic	5.0	4.14	83	5.0	4.14	83	4.84	97
Barium	5.0	5.46	109	5.0	5.46	109	5.35	107
Beryllium	2.0	2.13	106	2.0	2.13	106	2.18	109
Cadmium	10.0	10.16	102	10.0	10.16	102	10.27	103
Calcium	500.0	486.98	97	500.0	486.98	97	472.12	94
Chromium	5.0	4.88	98	5.0	4.88	98	4.99	100
Cobalt	5.0	5.25	105	5.0	5.25	105	5.26	105
Copper	10.0	12.09	121	10.0	12.09	121	11.89	119
Iron	80.0	80.56	101	80.0	80.56	101	81.09	101
Lead	5.0	4.81	96	5.0	4.81	96	4.57	91
Magnesium	200.0	188.52	94	200.0	188.52	94	188.48	94
Manganese	5.0	5.46	109	5.0	5.46	109	5.42	108
Nickel	5.0	5.34	107	5.0	5.34	107	5.83	117
Potassium	200.0	-4.08	-2	200.0	-4.08	-2	27.91	14
Selenium	10.0	7.95	80	10.0	7.95	80	8.42	84
Silver	5.0	5.86	117	5.0	5.86	117	5.83	117
Sodium	200.0	216.84	108	200.0	216.84	108	201.94	101
Thallium	10.0	10.88	109	10.0	10.88	109	10.56	106
Vanadium	5.0	4.87	97	5.0	4.87	97	4.94	99
Zinc	10.0	7.59	76	10.0	7.59	76	7.58	76

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: ICP2_180604A

ICP CRDL Standard Source: Start: 6/4/2018

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/04 23:37 and 12) 06/05 00:07				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Aluminum	10.0	10.33	103	10.0	10.33	103	10.35	104
Antimony	5.0	6.02	120	5.0	6.02	120	6.98	140
Arsenic	5.0	3.95	79	5.0	3.95	79	4.16	83
Barium	5.0	5.40	108	5.0	5.40	108	5.34	107
Beryllium	2.0	2.16	108	2.0	2.16	108	2.15	108
Cadmium	10.0	10.22	102	10.0	10.22	102	10.25	103
Calcium	500.0	480.40	96	500.0	480.40	96	474.08	95
Chromium	5.0	5.05	101	5.0	5.05	101	4.95	99
Cobalt	5.0	5.22	104	5.0	5.22	104	5.21	104
Copper	10.0	11.74	117	10.0	11.74	117	12.09	121
Iron	80.0	85.42	107	80.0	85.42	107	82.69	103
Lead	5.0	4.81	96	5.0	4.81	96	5.18	104
Magnesium	200.0	191.08	96	200.0	191.08	96	192.64	96
Manganese	5.0	5.43	109	5.0	5.43	109	5.43	109
Nickel	5.0	5.36	107	5.0	5.36	107	5.28	106
Potassium	200.0	9.00	5	200.0	9.00	5	29.51	15
Selenium	10.0	8.04	80	10.0	8.04	80	9.04	90
Silver	5.0	5.93	119	5.0	5.93	119	5.68	114
Sodium	200.0	201.71	101	200.0	201.71	101	198.33	99
Thallium	10.0	10.34	103	10.0	10.34	103	10.18	102
Vanadium	5.0	4.75	95	5.0	4.75	95	4.46	89
Zinc	10.0	7.60	76	10.0	7.60	76	7.60	76

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 12:02	C	2) 13:23	C	3) 14:46	C	Prepa-ration Blank	C	M
Barium	5.000	U	0.800	J	5.000	U	5.000	U	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 16:13	C	5) 17:30	C	6) 18:57	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	0.780	J	5.000	U	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 20:18	C	8) 21:38	C	9) 22:41	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	5.000	U	2.000	J	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 00:09	C	11) 01:37	C	12) 02:57	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	5.000	U	0.790	J	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 04:22	C	14) 05:53	C	15) 07:15	C	Prepa-ration Blank	C	M
Barium	5.000	U	2.700	J	5.000	U	5.000	U	0.000		P
Iron	80.000	U	8.000	J	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 08:47	C	17) 10:16	C	18) 11:48	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	5.000	U	1.500	J	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 19) 12:31	C	20	C	21	C	Prepa-ration Blank	C	M
Barium	5.000	U	1.100	J					0.000		P
Iron	80.000	U	80.000	U					0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 12:02	C	2) 13:23	C	3) 14:46	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	2.000	U	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	-0.310		0.330	J	5.000	U	0.072	B	P
Sodium	-13.400		200.000	U	200.000	U	-16.000		10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	-0.490		0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 16:13	C	5) 17:30	C	6) 18:57	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	2.000	U	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	0.520	J	0.580	J	0.720	J	0.072	B	P
Sodium	-13.400		-27.000		-31.000		200.000	U	10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 20:18	C	8) 21:38	C	9) 22:41	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	2.000	U	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	5.000	U	5.000	U	0.620	J	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	0.440	J	0.250	U	P
Potassium	200.000	U	68.200	J	200.000	U	52.800	J	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	0.740	J	0.570	J	0.530	J	0.072	B	P
Sodium	-13.400		-14.000		21.800	J	47.100	J	10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 00:09	C	11) 01:37	C	12) 02:57	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	0.290	J	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	5.000	U	5.000	U	0.500	J	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	0.220	J	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.072	B	P
Sodium	-13.400		82.000	J	132.000	J	21.600	J	10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 04:22	C	14) 05:53	C	15) 07:15	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	0.230	J	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	0.500	J	5.000	U	5.000	U	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	-17.000		-14.000		200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Potassium	200.000	U	200.000	U	59.800	J	200.000	U	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	0.330	J	5.000	U	0.720	J	0.072	B	P
Sodium	-13.400		200.000	U	200.000	U	200.000	U	10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2_180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 08:47	C	17) 10:16	C	18) 11:48	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.104	B	P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Beryllium	2.000	U	2.000	U	2.000	U	2.000	U	0.100	U	P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	25.000	U	P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.032	U	P
Cobalt	5.000	U	0.460	J	5.000	U	0.450	J	0.250	U	P
Copper	10.000	U	10.000	U	10.000	U	1.900	J	0.500	U	P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	10.000	U	P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.025	U	P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U	P
Potassium	200.000	U	57.900	J	200.000	U	200.000	U	10.000	U	P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Silver	5.000	U	0.850	J	1.100	J	1.800	J	0.072	B	P
Sodium	-13.400		200.000	U	-25.000		-19.000		10.000	U	P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.500	U	P
Vanadium	5.000	U	5.000	U	5.000	U	-0.510		0.250	U	P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180531A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 19) 12:31	C	20	C	21	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U					0.500	U	P
Antimony	5.000	U	5.000	U					0.104	B	P
Arsenic	5.000	U	5.000	U					0.250	U	P
Beryllium	2.000	U	2.000	U					0.100	U	P
Cadmium	10.000	U	10.000	U					0.500	U	P
Calcium	500.000	U	500.000	U					25.000	U	P
Chromium	5.000	U	5.000	U					0.032	U	P
Cobalt	5.000	U	5.000	U					0.250	U	P
Copper	10.000	U	2.100	J					0.500	U	P
Lead	5.000	U	5.000	U					0.250	U	P
Magnesium	200.000	U	-27.000						10.000	U	P
Manganese	5.000	U	0.180	J					0.025	U	P
Nickel	5.000	U	5.000	U					0.250	U	P
Potassium	200.000	U	200.000	U					10.000	U	P
Selenium	10.000	U	10.000	U					0.500	U	P
Silver	5.000	U	1.900	J					0.072	B	P
Sodium	-13.400		-25.000						10.000	U	P
Thallium	10.000	U	1.200	J					0.500	U	P
Vanadium	5.000	U	5.000	U					0.250	U	P
Zinc	10.000	U	10.000	U					0.122	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2_180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 17:13	C	2) 18:37	C	3) 19:32	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Beryllium	0.234	J	2.000	U	2.000	U	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	-15.700		500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	15.500	J	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	5.000	U	-0.820		5.000	U	5.000	U	0.000		P
Sodium	17.000	J	27.800	J	40.300	J	18.500	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	0.554	J	0.490	J	5.000	U	5.000	U	0.000		P
Zinc	10.000	U	-1.500		10.000	U	29.600		0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 20:52	C	5) 22:11	C	6) 23:36	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Barium	5.000	U	0.760	J	5.000	U	5.000	U	0.000		P
Beryllium	0.234	J	2.000	U	2.000	U	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	-15.700		500.000	U	500.000	U	-17.000		0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	5.000	U	5.000	U	0.500	J	0.000		P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	200.000	U	97.000	J	67.800	J	99.300	J	0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Sodium	17.000	J	61.000	J	21.200	J	21.200	J	0.000		P
Thallium	10.000	U	1.200	J	10.000	U	10.000	U	0.000		P
Vanadium	0.554	J	0.460	J	0.650	J	0.710	J	0.000		P
Zinc	10.000	U	11.200		6.100	J	3.500	J	0.000		P

Note: MDLs are used, not IDLs

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2_180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 01:00	C	8) 02:25	C	9) 03:45	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Barium	5.000	U	5.000	U	5.000	U	0.820	J	0.000		P
Beryllium	0.234	J	2.000	U	2.000	U	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	-15.700		500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	0.530	J	0.480	J	0.590	J	0.000		P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	200.000	U	140.000	J	52.000	J	200.000	U	0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Sodium	17.000	J	19.900	J	65.400	J	115.000	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	0.554	J	0.600	J	0.480	J	0.450	J	0.000		P
Zinc	10.000	U	2.400	J	1.600	J	10.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 05:05	C	11) 06:25	C	12) 07:44	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Barium	5.000	U	5.000	U	5.000	U	0.830	J	0.000		P
Beryllium	0.234	J	2.000	U	0.260	J	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	-15.700		500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	0.600	J	0.540	J	0.560	J	0.000		P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	5.000	U	5.000	U	5.000	U	0.330	J	0.000		P
Sodium	17.000	J	78.500	J	64.600	J	74.800	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	0.554	J	5.000	U	0.740	J	0.530	J	0.000		P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 09:04	C	14) 10:23	C	15) 11:49	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Barium	5.000	U	0.820	J	5.000	U	5.000	U	0.000		P
Beryllium	0.234	J	2.000	U	2.000	U	0.240	J	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	-15.700		500.000	U	-18.000		500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	0.610	J	0.620	J	0.470	J	0.000		P
Copper	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	19.300	J	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	5.000	U	5.000	U	-0.550		5.000	U	0.000		P
Sodium	17.000	J	66.300	J	65.900	J	84.800	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	0.554	J	0.530	J	0.560	J	0.600	J	0.000		P
Zinc	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 12:38	C	17	C	18	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U					0.000		P
Antimony	5.000	U	5.000	U					0.000		P
Arsenic	5.000	U	5.000	U					0.000		P
Barium	5.000	U	0.960	J					0.000		P
Beryllium	0.234	J	2.000	U					0.000		P
Cadmium	10.000	U	10.000	U					0.000		P
Calcium	-15.700		500.000	U					0.000		P
Chromium	5.000	U	5.000	U					0.000		P
Cobalt	5.000	U	0.440	J					0.000		P
Copper	10.000	U	10.000	U					0.000		P
Lead	5.000	U	5.000	U					0.000		P
Magnesium	200.000	U	200.000	U					0.000		P
Manganese	5.000	U	5.000	U					0.000		P
Nickel	5.000	U	5.000	U					0.000		P
Potassium	200.000	U	200.000	U					0.000		P
Selenium	10.000	U	10.000	U					0.000		P
Silver	5.000	U	5.000	U					0.000		P
Sodium	17.000	J	72.000	J					0.000		P
Thallium	10.000	U	10.000	U					0.000		P
Vanadium	0.554	J	0.490	J					0.000		P
Zinc	10.000	U	10.000	U					0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 17:13	C	2) 18:37	C	3) 19:32	C	Prepa-ration Blank	C	M
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.910	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2_180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 20:52	C	5) 22:11	C	6) 23:36	C	Prepa-ration Blank	C		M
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.910	B		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 01:00	C	8) 02:25	C	9) 03:45	C	Prepa-ration Blank	C		M
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.910	B		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 05:05	C	11) 06:25	C	12) 07:44	C	Prepa-ration Blank	C		M
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.910	B		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 09:04	C	14) 10:23	C	15) 11:49	C	Prepa-ration Blank	C	M
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.910	B	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180601A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 12:38	C	17	C	18	C	Prepa-ration Blank	C		M
Iron	80.000	U	80.000	U					0.910	B		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 11:29	C	2) 12:55	C	3) 14:43	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Beryllium	2.000	U	2.000	U	2.000	U	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Copper	10.000	U	10.000	U	1.900	J	10.000	U	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	-117.161		-76.000		-99.000		-120.000		0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	-0.378		5.000	U	0.290	J	0.830	J	0.000		P
Sodium	200.000	U	200.000	U	200.000	U	52.600	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	-0.562		-0.610		-0.590		-0.710		0.000		P
Zinc	10.000	U	-1.700		-1.800		-2.300		0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 16:08	C	5) 17:29	C	6) 18:25	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Beryllium	2.000	U	2.000	U	0.230	J	2.000	U	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Copper	10.000	U	2.000	J	10.000	U	10.000	U	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Potassium	-117.161		-120.000		-120.000		-110.000		0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	-0.378		5.000	U	5.000	U	0.410	J	0.000		P
Sodium	200.000	U	84.000	J	36.000	J	47.300	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	-0.562		5.000	U	-0.480		5.000	U	0.000		P
Zinc	10.000	U	-2.400		-2.600		-2.700		0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 19:32	C	8) 20:51	C	9) 22:12	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	10.000	U	10.000	U	46.100		0.000		P
Antimony	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Arsenic	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Beryllium	2.000	U	2.000	U	2.000	U	0.230	J	0.000		P
Cadmium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Calcium	500.000	U	500.000	U	500.000	U	500.000	U	0.000		P
Chromium	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Cobalt	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Copper	10.000	U	2.000	J	10.000	U	2.000	J	0.000		P
Iron	80.000	U	80.000	U	80.000	U	80.000	U	0.000		P
Lead	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Magnesium	200.000	U	200.000	U	200.000	U	200.000	U	0.000		P
Manganese	5.000	U	5.000	U	5.000	U	5.000	U	0.000		P
Nickel	5.000	U	5.000	U	5.000	U	2.900	J	0.000		P
Potassium	-117.161		-110.000		-110.000		-110.000		0.000		P
Selenium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Silver	-0.378		5.000	U	0.320	J	0.480	J	0.000		P
Sodium	200.000	U	35.200	J	26.800	J	17.200	J	0.000		P
Thallium	10.000	U	10.000	U	10.000	U	10.000	U	0.000		P
Vanadium	-0.562		5.000	U	-0.700		-0.550		0.000		P
Zinc	10.000	U	-2.700		-2.700		-2.800		0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): WATER Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 23:31	C	11) 00:01	C	12	C	Prepa-ration Blank	C	M
Aluminum	10.000	U	2.400	J	3.400	J			0.000		P
Antimony	5.000	U	5.000	U	5.000	U			0.000		P
Arsenic	5.000	U	5.000	U	5.000	U			0.000		P
Beryllium	2.000	U	2.000	U	0.270	J			0.000		P
Cadmium	10.000	U	10.000	U	10.000	U			0.000		P
Calcium	500.000	U	500.000	U	500.000	U			0.000		P
Chromium	5.000	U	5.000	U	5.000	U			0.000		P
Cobalt	5.000	U	5.000	U	5.000	U			0.000		P
Copper	10.000	U	1.800	J	2.200	J			0.000		P
Iron	80.000	U	80.000	U	80.000	U			0.000		P
Lead	5.000	U	5.000	U	5.000	U			0.000		P
Magnesium	200.000	U	-15.000		200.000	U			0.000		P
Manganese	5.000	U	5.000	U	0.230	J			0.000		P
Nickel	5.000	U	5.000	U	0.470	J			0.000		P
Potassium	-117.161		-110.000		-85.000				0.000		P
Selenium	10.000	U	10.000	U	10.000	U			0.000		P
Silver	-0.378		0.620	J	0.380	J			0.000		P
Sodium	200.000	U	200.000	U	200.000	U			0.000		P
Thallium	10.000	U	10.000	U	10.000	U			0.000		P
Vanadium	-0.562		5.000	U	5.000	U			0.000		P
Zinc	10.000	U	-2.900		-2.800				0.000		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 11:29	C	2) 12:55	C	3) 14:43	C	Prepa-ration Blank	C		M
Barium	5.000	U	5.000	U	5.000	U	5.000	U	0.250	U		P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 16:08	C	5) 17:29	C	6) 18:25	C	Prepa-ration Blank	C	M
Barium	5.000	U	1.100	J	5.000	U	5.000	U	0.250	U	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 19:32	C	8) 20:51	C	9) 22:12	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	5.000	U	1.200	J	0.250	U	P

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: ICP2 180604A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 23:31	C	11) 00:01	C	12	C	Prepa-ration Blank	C	M
Barium	5.000	U	5.000	U	5.000	U			0.250	U	P

Note: MDLs are used, not IDLs

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. SAS No.: SDG No.: 18051778

ICP ID Number: ICP2 Run: ICP2_180531A

ICS Source: Start: 5/31/2018

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	30000.00		29400			30500		
Antimony			-4.3			-2.4		
Arsenic	2500.00		2530			2480		
Barium	750.00		777			800		
Beryllium	250.00		263			268		
Cadmium	750.00		788			779		
Calcium	50000.00		145000			153000		
Chromium	750.00		755			772		
Cobalt	750.00		740			748		
Copper	750.00		787			784		
Iron	25000.00		121000			115000		
Lead	2500.00		2480			2440		
Magnesium	75000.00		74000			74900		
Manganese	500.00		501			488		
Nickel	750.00		747			743		
Potassium	50000.00		52500			55000		
Selenium	1250.00		1290			1280		
Silver	750.00		803			805		
Sodium	25000.00		26400			27100		
Thallium	2500.00		2480			2450		
Vanadium	750.00		790			804		
Zinc	750.00		778			760		

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. SAS No.: SDG No.: 18051778

ICP ID Number: ICP2 Run: ICP2 180601A

ICS Source: Start: 6/1/2018

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	30000.00		32300			31800		
Antimony			-3.4			-3.2		
Arsenic	2500.00		2640			2610		
Barium	750.00		814			815		
Beryllium	250.00		270			264		
Cadmium	750.00		819			821		
Calcium	50000.00		157000			149000		
Chromium	750.00		804			790		
Cobalt	750.00		760			752		
Copper	750.00		812			802		
Iron	25000.00		130000			121000		
Lead	2500.00		2600			2610		
Magnesium	75000.00		81500			78500		
Manganese	500.00		522			505		
Nickel	750.00		773			773		
Potassium	50000.00		56400			56800		
Selenium	1250.00		1320			1320		
Silver	750.00		840			829		
Sodium	25000.00		28400			28300		
Thallium	2500.00		2570			2570		
Vanadium	750.00		813			798		
Zinc	750.00		797			796		

4
ICP INTERFERENCE CHECK SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. SAS No.: SDG No.: 18051778

ICP ID Number: ICP2 Run: ICP2 180604A

ICS Source: Start: 6/4/2018

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	30000.00		31400			27800		
Antimony			-2.3			-1.8		
Arsenic	2500.00		2720			2460		
Barium	750.00		845			777		
Beryllium	250.00		285			254		
Cadmium	750.00		860			776		
Calcium	50000.00		156000			135000		
Chromium	750.00		823			734		
Cobalt	750.00		802			723		
Copper	750.00		867			790		
Iron	25000.00		131000			113000		
Lead	2500.00		2660			2400		
Magnesium	75000.00		78600			67200		
Manganese	500.00		553			495		
Nickel	750.00		804			723		
Potassium	50000.00		57600			52400		
Selenium	1250.00		1400			1270		
Silver	750.00		880			793		
Sodium	25000.00		28500			25700		
Thallium	2500.00		2670			2440		
Vanadium	750.00		865			777		
Zinc	750.00		841			758		

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 18051778

Matrix Spike - Client SampID: ZZZZZZ Level:(low/med) LOW

COMPOUND	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC #	QC. LIMITS REC.
Aluminum	8.251	3999	7005	36400 *	75-125
Antimony	8.251	6.300	13.46	86.8	75-125
Arsenic	8.251	9.981	17.46	90.7	75-125
Barium	8.251	124.1	199.6	915 *	75-125
Beryllium	8.251	0.6456	9.166	103	75-125
Boron	41.25	32.09	77.53	110	75-125
Cadmium	8.251	1.925	9.254	88.8	75-125
Calcium	825.1	20310	31050	1300 *	75-125
Chromium	8.251	14.67	23.26	104	75-125
Cobalt	8.251	3.002	10.53	91.3	75-125
Copper	8.251	46.37	60.19	168 *	75-125
Iron	825.1	12710	10270	-296 *	75-125
Lead	8.251	269.0	242.6	-320 *	75-125
Lithium	8.251	4.062	16.59	152 *	75-125
Magnesium	825.1	9852	12650	339 *	75-125
Manganese	8.251	318.9	572.1	3070 *	75-125
Molybdenum	8.251	1.439	9.305	95.3	75-125
Nickel	8.251	10.15	17.27	86.3	75-125
Potassium	825.1	337.2	1588	152 *	75-125
Selenium	8.251	0.5979	8.445	95.1	75-125
Silicon	825.1	721.6	1742	124	75-125
Silver	8.251	0.09293	8.765	105	75-125
Sodium	825.1	119.0	1133	123	75-125
Strontium	8.251	51.05	93.46	514 *	75-125
Thallium	8.251	-0.05962	7.384	90.2	75-125
Tin	8.251	10.63	16.55	71.7 *	75-125
Titanium	8.251	104.2	180.9	929 *	75-125
Vanadium	8.251	15.01	25.61	129 *	75-125
Zinc	8.251	450.4	480.1	361 *	75-125

	SPIKE ADDED	MSD CONCENTRATION	MSD %	%	QC LIMITS

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 7 out of 29 outside limits

Spike Recovery: 29 out of 58 outside limits

COMMENTS:

FORM V

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 18051778

Matrix Spike - Client SampID: ZZZZZZ Level:(low/med) LOW

COMPOUND	ADDED mg/Kg	CONCENTRATION mg/Kg	% REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aluminum	8.224	7834	46600 *	11.2	20	75-125
Antimony	8.224	13.75	90.5	2.08	20	75-125
Arsenic	8.224	17.73	94.2	1.52	20	75-125
Barium	8.224	142.9	228 *	33.1	20	75-125
Beryllium	8.224	8.774	98.8	4.36	20	75-125
Boron	41.12	77.12	110	0.537	20	75-125
Cadmium	8.224	9.396	90.8	1.52	20	75-125
Calcium	822.4	18480	-223 *	50.8	20	75-125
Chromium	8.224	28.22	165 *	19.3	20	75-125
Cobalt	8.224	11.14	99.0	5.63	20	75-125
Copper	8.224	67.14	253 *	10.9	20	75-125
Iron	822.4	13800	132 *	29.3	20	75-125
Lead	8.224	269.6	7.47 *	10.5	20	75-125
Lithium	8.224	17.40	162 *	4.76	20	75-125
Magnesium	822.4	9311	-65.8 *	30.4	20	75-125
Manganese	8.224	358.3	479 *	45.9	20	75-125
Molybdenum	8.224	10.04	105	7.62	20	75-125
Nickel	8.224	20.18	122	15.5	20	75-125
Potassium	822.4	1649	160 *	3.75	20	75-125
Selenium	8.224	8.459	95.6	0.172	20	75-125
Silicon	822.4	1605	107	8.19	20	75-125
Silver	8.224	8.748	105	0.195	20	75-125
Sodium	822.4	1045	113	8.14	20	75-125
Strontium	8.224	58.22	87.1	46.5	20	75-125
Thallium	8.224	7.048	86.4	4.67	20	75-125
Tin	8.224	19.18	104	14.7	20	75-125
Titanium	8.224	169.3	791 *	6.65	20	75-125
Vanadium	8.224	31.78	204 *	21.5	20	75-125
Zinc	8.224	475.9	311 *	0.874	20	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 7 out of 29 outside limits

Spike Recovery: 29 out of 58 outside limits

COMMENTS:

7
LABORATORY CONTROL SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

LCS Source: LCS-119140

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				5.0	5.4		80.0	120.0	108
Antimony				5.0	5.0		80.0	120.0	101
Arsenic				5.0	4.5		80.0	120.0	89
Barium				5.0	5.8		80.0	120.0	115
Beryllium				5.0	5.0		80.0	120.0	100
Boron				25.0	25.1		80.0	120.0	100
Cadmium				5.0	4.9		80.0	120.0	98
Calcium				500.0	516.1		80.0	120.0	103
Chromium				5.0	5.1		80.0	120.0	102
Cobalt				5.0	5.2		80.0	120.0	104
Copper				5.0	5.2		80.0	120.0	104
Iron				500.0	538.8		80.0	120.0	108
Lead				5.0	4.9		80.0	120.0	97
Lithium				5.0	5.0		80.0	120.0	100
Magnesium				500.0	473.0		80.0	120.0	95
Manganese				5.0	4.8		80.0	120.0	96
Molybdenum				5.0	5.1		80.0	120.0	103
Nickel				5.0	5.0		80.0	120.0	100
Potassium				500.0	537.3		80.0	120.0	107
Selenium				5.0	4.6		80.0	120.0	93
Silicon				500.0	430.9		80.0	120.0	86
Silver				5.0	4.9		80.0	120.0	99
Sodium				500.0	534.6		80.0	120.0	107
Strontium				5.0	5.4		80.0	120.0	109
Thallium				5.0	5.0		80.0	120.0	100
Tin				5.0	4.9		80.0	120.0	98
Titanium				5.0	5.1		80.0	120.0	101
Vanadium				5.0	5.4		80.0	120.0	107
Zinc				5.0	5.1		80.0	120.0	102

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 18051778

Instrument Type: ICP Instrument ID: ICP2 Date: 11/13/2014

Concentration Units (ug/L, mg/kg, or ug): mg/Kg

Analyte	Wave-length (nm)	Back-ground	PQL mg/Kg	MDL mg/Kg	M
Aluminum	0		0.50	0.087	P
Antimony	0		0.25	0.076	P
Arsenic	0		0.25	0.085	P
Barium	0		0.25	0.075	P
Beryllium	0		0.10	0.012	P
Boron	0		1.00	0.301	P
Cadmium	0		0.50	0.033	P
Calcium	0		25.00	1.505	P
Chromium	0		0.25	0.032	P
Cobalt	0		0.25	0.091	P
Copper	0		0.50	0.116	P
Iron	0		4.00	0.345	P
Lead	0		0.25	0.083	P
Lithium	0		0.50	0.106	P
Magnesium	0		10.00	1.429	P
Manganese	0		0.25	0.025	P
Molybdenum	0		0.25	0.086	P
Nickel	0		0.25	0.081	P
Potassium	0		10.00	3.211	P
Selenium	0		0.50	0.131	P
Silver	0		0.25	0.057	P
Sodium	0		10.00	2.333	P
Strontium	0		0.25	0.025	P
Thallium	0		0.50	0.059	P
Tin	0		0.50	0.045	P
Titanium	0		0.25	0.072	P
Vanadium	0		0.25	0.041	P
Zinc	0		0.50	0.07	P

Comments:

12-IN

PREPARATION LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUK SAS No.: SDG No.: 18051778

Method: MP 6010 S Batch ID: 119140

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
18CP02-46	6/1/2018	0.61	50
18CP02-52	6/1/2018	0.69	50
LCSS	6/1/2018	1.00	50
PBS	6/1/2018	1.00	50
ZZZZZZ	6/1/2018	0.61	50
ZZZZZZ	6/1/2018	0.61	50

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 5/31/2018 End Date: 6/1/2018 Run: ICP2 180531A

EPA Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	1125	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X			X	X
ICB	1	1131	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1151	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-1	1	1157	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-1	1	1202	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-1	1	1209	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-2	1	1318	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-2	1	1323	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-2	1	1330	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-3	1	1440	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-3	1	1446	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-3	1	1452	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-4	1	1600	0																												
CCV-5	1	1606	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-4	1	1613	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-4	1	1619	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-6	1	1719	0																												
CCV-7	1	1725	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-5	1	1730	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-5	1	1737	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-8	1	1845	0																												
CCV-9	1	1851	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-6	1	1857	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-6	1	1903	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-10	1	2012	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-7	1	2018	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-7	1	2024	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-11	1	2132	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-8	1	2138	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-8	1	2144	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-12	1	2236	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB-9	1	2241	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-9	1	2248	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	2254	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV-13	1	0003	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 5/31/2018 End Date: 6/1/2018 Run: ICP2 180531A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
CCB~10	1	0009	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~10	1	0016	0																											
LLCCV~11	1	0022	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~14	1	0131	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~11	1	0137	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~12	1	0143	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~15	1	0251	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~12	1	0257	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~13	1	0303	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~16	1	0410	0																											
CCV~17	1	0416	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~13	1	0422	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~14	1	0428	0																											
LLCCV~15	1	0434	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~18	1	0542	0																											
CCV~19	1	0548	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~14	1	0553	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~16	1	0600	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~20	1	0709	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~15	1	0715	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~17	1	0721	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~21	1	0836	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~22	1	0842	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~16	1	0847	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~18	1	0856	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~23	1	1005	0																											
CCV~24	1	1011	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~17	1	1016	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~19	1	1023	0																											
LLCCV~20	1	1029	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
PBS	1	1105	0	X	X	X		X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LCSS	1	1111	0	X	X	X		X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~25	1	1136	0																											
CCV~26	1	1142	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~18	1	1148	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 5/31/2018 End Date: 6/1/2018 Run: ICP2 180531A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN		
LLCCV-21	1	1154	0																													
LLCCV-22	1	1200	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	1213	0			X			X						X																	
ZZZZZZ	1	1219	0			X			X						X																	
CCV-27	1	1225	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
CCB-19	1	1231	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
LLCCV-23	1	1237	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1243	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 6/1/2018 End Date: 6/2/2018 Run: ICP2 180601A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	1431	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X			X	X
ICB	1	1437	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1656	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~1	1	1701	0																											
CCV~2	1	1707	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~1	1	1713	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~1	1	1719	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~2	1	1725	0																											
PBS	1	1756	0											X																
LCSS	1	1802	0				X							X																
ZZZZZZ	1	1814	0	X	X		X	X		X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	1820	0	X	X		X	X		X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~3	1	1826	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~4	1	1831	0																											
CCB~2	1	1837	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~3	1	1843	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
18CP02-46	1	1902	0	X	X	X	X	X	X		X	X	X	X	X	X	X			X	X	X	X	X		X			X	X
18CP02-52	1	1908	0	X	X	X	X	X	X		X	X	X	X	X	X	X			X	X	X	X	X		X			X	X
CCV~5	1	1926	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~3	1	1932	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~4	1	1938	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~6	1	2046	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~4	1	2052	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~5	1	2058	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~7	1	2205	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~5	1	2211	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~6	1	2217	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~8	1	2324	0																											
CCV~9	1	2330	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~6	1	2336	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~7	1	2342	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~10	1	0048	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~11	1	0054	0																											
CCB~7	1	0100	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~8	1	0106	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 6/1/2018 End Date: 6/2/2018 Run: ICP2_180601A

EPA Sample No.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICSA	1	0112	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~12	1	0219	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~8	1	0225	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~9	1	0231	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~13	1	0339	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~9	1	0345	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~10	1	0351	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~14	1	0500	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~10	1	0505	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~11	1	0512	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~15	1	0619	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~11	1	0625	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~12	1	0631	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~16	1	0739	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~12	1	0744	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~13	1	0751	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~17	1	0858	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~13	1	0904	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~14	1	0910	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~18	1	1018	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~14	1	1023	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~15	1	1030	0																											
LLCCV~16	1	1036	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~19	1	1144	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~15	1	1149	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~17	1	1156	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~20	1	1232	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~16	1	1238	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~18	1	1244	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1251	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 6/4/2018 End Date: 6/5/2018 Run: ICP2 180604A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	1053	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X		X			X	X
ICB	1	1059	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
ICSA	1	1118	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~1	1	1124	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~1	1	1129	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~1	1	1136	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
PBS	1	1142	0				X																							
18CP02-46	100	1231	0							X																				
18CP02-52	100	1237	0							X																				
CCV~2	1	1243	0																											
CCV~3	1	1249	0																											
CCB~2	1	1255	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~2	1	1301	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~4	1	1437	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~3	1	1443	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~3	1	1449	0																											
LLCCV~4	1	1455	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~5	1	1603	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~4	1	1608	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~5	1	1615	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~6	1	1723	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~5	1	1729	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~6	1	1735	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~7	1	1819	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~6	1	1825	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~7	1	1831	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~8	1	1921	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~9	1	1926	0																											
CCB~7	1	1932	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~8	1	1938	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~10	1	2046	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~8	1	2051	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
LLCCV~9	1	2058	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCV~11	1	2206	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
CCB~9	1	2212	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X

FORM XIII - IN

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: ICP2 Method: SW846 6010C

Start Date: 6/4/2018 End Date: 6/5/2018 Run: ICP2_180604A

EPA Sample No.	D/F	Time	% R	Analytes																												
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN		
LLCCV-10	1	2218	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
CCV-12	1	2325	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
CCB-10	1	2331	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
LLCCV-11	1	2337	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
CCV-13	1	2355	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
CCB-11	1	0001	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
LLCCV-12	1	0007	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		
ICSA	1	0013	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		

ALS Group, USA

Analytical Run Summary

02-Jul-18

Run ID ICP2_180531A

Analyst Royce Hughes

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5063806	ICAL1	ICP_6010_W	SAMP		5/31/2018 10:55	1	R237016		32
5063807	ICAL2	ICP_6010_W	SAMP		5/31/2018 11:01	1	R237016		32
5063808	ICAL3	ICP_6010_W	SAMP		5/31/2018 11:07	1	R237016		32
5063809	ICAL4	ICP_6010_W	SAMP		5/31/2018 11:13	1	R237016		32
5063810	ICAL5	ICP_6010_W	SAMP		5/31/2018 11:19	1	R237016		32
5063811	ICV/QCS	ICP_6010_W	ICV		5/31/2018 11:25	1	R237016		32
5063813	ICB	ICP_6010_W	ICB		5/31/2018 11:31	1	R237016		32
5063814	ICVLL	ICP_6010_W	LLICV		5/31/2018 11:38	1	R237016		0
5063816	ICVLL	ICP_6010_W	LLICV		5/31/2018 11:44	1	R237016		32
5063817	ICSAB	ICP_6010_W	ICSA		5/31/2018 11:51	1	R237016		32
5063819	CCV	ICP_6010_W	CCV		5/31/2018 11:57	1	R237016		32
5063820	CCB	ICP_6010_W	CCB		5/31/2018 12:02	1	R237016		32
5063821	CCVLL	ICP_6010_W	LLCCV		5/31/2018 12:09	1	R237016		32
5063822	18051174-01A	ICP_6010_W	SAMP		5/31/2018 12:15	1	118858	5/25/2018	1
5063823	18051174-01AMS	ICP_6010_W	MS		5/31/2018 12:21	1	118858	5/25/2018	1
5063824	18051174-01AMSD	ICP_6010_W	MSD		5/31/2018 12:27	1	118858	5/25/2018	1
5063825	18051472-05A	ICP_6010_W	SAMP		5/31/2018 12:33	100	118858	5/25/2018	2
5063826	18051472-07A	ICP_6010_W	SAMP		5/31/2018 12:40	100	118858	5/25/2018	2
5063827	18051472-08A	ICP_6010_W	SAMP		5/31/2018 12:46	100	118858	5/25/2018	2
5063828	18051472-09A	ICP_6010_W	SAMP		5/31/2018 12:52	100	118858	5/25/2018	2
5063829	18051472-10A	ICP_6010_W	SAMP		5/31/2018 12:59	100	118858	5/25/2018	2
5063830	18051472-11A	ICP_6010_W	SAMP		5/31/2018 13:05	100	118858	5/25/2018	2
5063831	18051472-14A	ICP_6010_W	SAMP		5/31/2018 13:11	100	118858	5/25/2018	2
5063832	CCV	ICP_6010_W	CCV		5/31/2018 13:18	1	R237016		32
5063833	CCB	ICP_6010_W	CCB		5/31/2018 13:23	1	R237016		32
5063834	CCVLL	ICP_6010_W	LLCCV		5/31/2018 13:30	1	R237016		32
5064167	MBLK-119018	ICP_6010_W	MBLK		5/31/2018 13:40	1	119018	5/30/2018	7
5064168	LCS-119018	ICP_6010_W	LCS		5/31/2018 13:46	1	119018	5/30/2018	10
5064169	18051528-01A	ICP_6010_W	SAMP		5/31/2018 13:52	1	119018	5/30/2018	5
5064170	18051772-03A	TCICP_6010_S	SAMP		5/31/2018 13:58	1	119018	5/30/2018	0
5064171	18051772-03AMS	TCICP_6010_S	MS		5/31/2018 14:05	1	119018	5/30/2018	4
5064172	18051772-03AMSD	TCICP_6010_S	MSD		5/31/2018 14:11	1	119018	5/30/2018	4
5064173	LCS-118963	ICP_6010_S	LCS		5/31/2018 14:17	1	118963	5/29/2018	1
5064174	18051519-15A	ICP_6010_S	SAMP		5/31/2018 14:23	1	118963	5/29/2018	1
5064175	18051519-15AMS	ICP_6010_S	MS		5/31/2018 14:29	1	118963	5/29/2018	1
	MS01	*The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Pb*							
5064176	18051519-15AMSD	ICP_6010_S	MSD		5/31/2018 14:35	1	118963	5/29/2018	1
	MSD01	*The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Pb*							
5064177	CCV	ICP_6010_W	CCV		5/31/2018 14:40	1	R237016		32
5064178	CCB	ICP_6010_W	CCB		5/31/2018 14:46	1	R237016		32
5064179	CCVLL	ICP_6010_W	LLCCV		5/31/2018 14:52	1	R237016		32
5064507	18051513-01A	ICP_6010_S	SAMP		5/31/2018 14:59	1	118963	5/29/2018	1
5064508	18051513-02A	ICP_6010_S	SAMP		5/31/2018 15:05	1	118963	5/29/2018	1
5064510	18051513-03A	ICP_6010_S	SAMP		5/31/2018 15:11	1	118963	5/29/2018	1
5064512	18051513-04A	ICP_6010_S	SAMP		5/31/2018 15:18	1	118963	5/29/2018	1
5064515	18051513-05A	ICP_6010_S	SAMP		5/31/2018 15:24	1	118963	5/29/2018	1
5064517	18051519-01A	ICP_6010_S	SAMP		5/31/2018 15:29	1	118963	5/29/2018	1
5064519	18051519-02A	ICP_6010_S	SAMP		5/31/2018 15:36	1	118963	5/29/2018	1
5064522	18051519-03A	ICP_6010_S	SAMP		5/31/2018 15:42	1	118963	5/29/2018	1
5064523	18051519-04A	ICP_6010_S	SAMP		5/31/2018 15:48	1	118963	5/29/2018	1
5064525	18051519-05A	ICP_6010_S	SAMP		5/31/2018 15:54	1	118963	5/29/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5064527	CCV	ICP_6010_W	CCV		5/31/2018 16:00	1	R237016		0
5064529	CCV	ICP_6010_W	CCV		5/31/2018 16:06	1	R237016		32
5065002	CCB	ICP_6010_W	CCB		5/31/2018 16:13	1	R237016		32
5065003	CCVLL	ICP_6010_W	LLCCV		5/31/2018 16:19	1	R237016		32
5065004	18051519-06A	ICP_6010_S	SAMP		5/31/2018 16:25	1	118963	5/29/2018	1
5065005	18051519-07A	ICP_6010_S	SAMP		5/31/2018 16:31	1	118963	5/29/2018	1
5065006	18051519-08A	ICP_6010_S	SAMP		5/31/2018 16:37	1	118963	5/29/2018	1
5065007	18051519-09A	ICP_6010_S	SAMP		5/31/2018 16:43	1	118963	5/29/2018	1
5065008	18051519-10A	ICP_6010_S	SAMP		5/31/2018 16:49	1	118963	5/29/2018	1
5065009	18051519-11A	ICP_6010_S	SAMP		5/31/2018 16:55	1	118963	5/29/2018	1
5065010	18051519-12A	ICP_6010_S	SAMP		5/31/2018 17:01	1	118963	5/29/2018	1
5065011	18051519-13A	ICP_6010_S	SAMP		5/31/2018 17:07	1	118963	5/29/2018	1
5065012	18051519-14A	ICP_6010_S	SAMP		5/31/2018 17:13	1	118963	5/29/2018	1
5065013	CCV	ICP_6010_W	CCV		5/31/2018 17:19	1	R237016		0
5065014	CCV	ICP_6010_W	CCV		5/31/2018 17:25	1	R237016		32
5065015	CCB	ICP_6010_W	CCB		5/31/2018 17:30	1	R237016		32
5065016	CCVLL	ICP_6010_W	LLCCV		5/31/2018 17:37	1	R237016		32
5065017	MBLK-118854	ICP_200.7_WW	MBLK		5/31/2018 17:43	1	118856	5/25/2018	1
5065018	LCS-118854	ICP_200.7_WW	LCS		5/31/2018 17:49	1	118856	5/25/2018	0
5065019	MBLK-118856	ICP_200.7_WW	MBLK		5/31/2018 17:55	1	118856	5/25/2018	1
5065020	LCS-118856	ICP_200.7_WW	LCS		5/31/2018 18:01	1	118856	5/25/2018	0
5065021	18051455-01D	EM_ICP_200.7_W	SAMP		5/31/2018 18:07	1	118856	5/25/2018	2
5065022	18051455-01DMS	EM_ICP_200.7_W	MS		5/31/2018 18:14	1	118856	5/25/2018	0
5065023	18051455-01DMSD	EM_ICP_200.7_W	MSD		5/31/2018 18:20	1	118856	5/25/2018	0
5065024	18051455-02D	EM_ICP_200.7_W	SAMP		5/31/2018 18:26	1	118856	5/25/2018	1
5065025	18051455-03D	EM_ICP_200.7_W	SAMP		5/31/2018 18:33	1	118856	5/25/2018	1
5065026	18051455-04D	EM_ICP_200.7_W	SAMP		5/31/2018 18:39	1	118856	5/25/2018	1
5065027	CCV	ICP_6010_W	CCV		5/31/2018 18:45	1	R237016		0
5065028	CCV	ICP_6010_W	CCV		5/31/2018 18:51	1	R237016		32
5065029	CCB	ICP_6010_W	CCB		5/31/2018 18:57	1	R237016		32
5065030	CCVLL	ICP_6010_W	LLCCV		5/31/2018 19:03	1	R237016		32
5065031	MBLK-119005	ICP_200.7_WW	MBLK		5/31/2018 19:09	1	119008	5/30/2018	30
5065032	LCS-119005	ICP_200.7_WW	LCS		5/31/2018 19:16	1	119008	5/30/2018	30
5065033	MBLK-119008	ICP_200.7_WW	MBLK		5/31/2018 19:22	1	119008	5/30/2018	30
5065034	LCS-119008	ICP_200.7_WW	LCS		5/31/2018 19:28	1	119008	5/30/2018	30
5065035	18051506-01B	ICP_200.7_WW	SAMP		5/31/2018 19:34	1	119008	5/30/2018	1
5065036	18051506-02B	ICP_200.7_WW	SAMP		5/31/2018 19:40	1	119008	5/30/2018	1
5065037	18051506-03B	ICP_200.7_WW	SAMP		5/31/2018 19:47	1	119008	5/30/2018	1
5065038	18051506-04B	ICP_200.7_WW	SAMP		5/31/2018 19:53	1	119008	5/30/2018	1
5065039	18051590-01C	ICP_200.7_WW	SAMP		5/31/2018 19:59	1	119008	5/30/2018	1
5065040	18051698-01F	ICP_200.7WV_W	SAMP		5/31/2018 20:06	1	119008	5/30/2018	10
5065041	CCV	ICP_6010_W	CCV		5/31/2018 20:12	1	R237016		32
5065042	CCB	ICP_6010_W	CCB		5/31/2018 20:18	1	R237016		32
5065043	CCVLL	ICP_6010_W	LLCCV		5/31/2018 20:24	1	R237016		32
5065044	18051455-17D	EM_ICP_200.7_W	SAMP		5/31/2018 20:30	1	119008	5/30/2018	20
5065045	18051455-17DMS	EM_ICP_200.7_W	MS		5/31/2018 20:37	1	119008	5/30/2018	30
5065046	18051455-17DMSD	EM_ICP_200.7_W	MSD		5/31/2018 20:43	1	119008	5/30/2018	30
5065047	18051455-18C	EM_ICP_200.7_WD	SAMP		5/31/2018 20:49	1	119008	5/30/2018	15
5065048	18051455-18D	EM_ICP_200.7_W	SAMP		5/31/2018 20:55	1	119008	5/30/2018	20
5065049	18051455-18DMS	EM_ICP_200.7_W	MS		5/31/2018 21:01	1	119008	5/30/2018	30
5065050	18051455-18DMSD	EM_ICP_200.7_W	MSD		5/31/2018 21:07	1	119008	5/30/2018	30
5065051	18051455-19C	EM_ICP_200.7_WD	SAMP		5/31/2018 21:13	1	119008	5/30/2018	15
5065052	18051455-19D	EM_ICP_200.7_W	SAMP		5/31/2018 21:20	1	119008	5/30/2018	20
5065053	18051455-20C	EM_ICP_200.7_WD	SAMP		5/31/2018 21:26	1	119008	5/30/2018	15
5065054	CCV	ICP_6010_W	CCV		5/31/2018 21:32	1	R237016		32
5065055	CCB	ICP_6010_W	CCB		5/31/2018 21:38	1	R237016		32
5065056	CCVLL	ICP_6010_W	LLCCV		5/31/2018 21:44	1	R237016		32
5065057	18051455-20D	EM_ICP_200.7_W	SAMP		5/31/2018 21:51	1	119008	5/30/2018	20
5065058	18051455-21C	EM_ICP_200.7_WD	SAMP		5/31/2018 21:57	1	119008	5/30/2018	15

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5065059	18051455-21D	EM_ICP_200.7_W	SAMP		5/31/2018 22:04	1	119008	5/30/2018	20
5065060	18051455-22C	EM_ICP_200.7_WD	SAMP		5/31/2018 22:10	1	119008	5/30/2018	15
5065061	18051455-22D	EM_ICP_200.7_W	SAMP		5/31/2018 22:17	1	119008	5/30/2018	20
5065062	MBLK-118927	ICP_200.7_WW	MBLK		5/31/2018 22:23	1	118948	5/29/2018	20
5065063	LCS-118927	ICP_200.7_WW	LCS		5/31/2018 22:30	1	118948	5/29/2018	20
5065064	CCV	ICP_6010_W	CCV		5/31/2018 22:36	1	R237016		32
5065065	CCB	ICP_6010_W	CCB		5/31/2018 22:41	1	R237016		32
5065066	CCVLL	ICP_6010_W	LLCCV		5/31/2018 22:48	1	R237016		32
5065067	ICSAB	ICP_6010_W	ICSA		5/31/2018 22:54	1	R237016		32
5065068	MBLK-118948	ICP_200.7_WW	MBLK		5/31/2018 23:00	1	118948	5/29/2018	19
5065069	LCS-118948	ICP_200.7_WW	LCS		5/31/2018 23:06	1	118948	5/29/2018	20
5065070	18051455-07C	EM_ICP_200.7_W	SAMP		5/31/2018 23:12	1	118948	5/29/2018	1
5065071	18051455-08B	EM_ICP_200.7_WD	SAMP		5/31/2018 23:19	1	118948	5/29/2018	2
5065072	18051455-08C	EM_ICP_200.7_W	SAMP		5/31/2018 23:25	1	118948	5/29/2018	2
5065073	18051455-09C	EM_ICP_200.7_WD	SAMP		5/31/2018 23:32	1	118948	5/29/2018	15
5065074	18051455-09D	EM_ICP_200.7_W	SAMP		5/31/2018 23:38	1	118948	5/29/2018	20
5065075	18051455-10C	EM_ICP_200.7_WD	SAMP		5/31/2018 23:44	1	118948	5/29/2018	15
5065076	18051455-10D	EM_ICP_200.7_W	SAMP		5/31/2018 23:51	1	118948	5/29/2018	20
5065077	18051455-11C	EM_ICP_200.7_WD	SAMP		5/31/2018 23:57	1	118948	5/29/2018	15
5065078	CCV	ICP_6010_W	CCV		6/1/2018 00:03	1	R237016		32
5065079	CCB	ICP_6010_W	CCB		6/1/2018 00:09	1	R237016		32
5065080	CCVLL	ICP_6010_W	LLCCV		6/1/2018 00:16	1	R237016		0
5065081	CCVLL	ICP_6010_W	LLCCV		6/1/2018 00:22	1	R237016		32
5065082	18051455-11D	EM_ICP_200.7_W	SAMP		6/1/2018 00:28	1	118948	5/29/2018	20
5065083	18051455-12C	EM_ICP_200.7_WD	SAMP		6/1/2018 00:35	1	118948	5/29/2018	15
5065084	18051455-12D	EM_ICP_200.7_W	SAMP		6/1/2018 00:41	1	118948	5/29/2018	20
5065085	18051455-13C	EM_ICP_200.7_WD	SAMP		6/1/2018 00:47	1	118948	5/29/2018	15
5065086	18051455-13D	EM_ICP_200.7_W	SAMP		6/1/2018 00:54	1	118948	5/29/2018	20
5065087	18051455-14C	EM_ICP_200.7_WD	SAMP		6/1/2018 01:00	1	118948	5/29/2018	15
5065088	18051455-14D	EM_ICP_200.7_W	SAMP		6/1/2018 01:06	1	118948	5/29/2018	20
5065090	18051455-14DMS	EM_ICP_200.7_W	MS		6/1/2018 01:13	1	118948	5/29/2018	20
5065093	18051455-14DMSD	EM_ICP_200.7_W	MSD		6/1/2018 01:19	1	118948	5/29/2018	20
5065095	18051455-15B	EM_ICP_200.7_WD	SAMP		6/1/2018 01:25	1	118948	5/29/2018	2
5065097	CCV	ICP_6010_W	CCV		6/1/2018 01:31	1	R237016		32
5065099	CCB	ICP_6010_W	CCB		6/1/2018 01:37	1	R237016		32
5065102	CCVLL	ICP_6010_W	LLCCV		6/1/2018 01:43	1	R237016		32
5065104	18051455-15C	EM_ICP_200.7_W	SAMP		6/1/2018 01:49	1	118948	5/29/2018	2
5065106	18051455-16C	EM_ICP_200.7_WD	SAMP		6/1/2018 01:56	1	118948	5/29/2018	15
5065108	18051455-16D	EM_ICP_200.7_W	SAMP		6/1/2018 02:02	1	118948	5/29/2018	20
5065111	18051455-16DMS	EM_ICP_200.7_W	MS		6/1/2018 02:09	1	118948	5/29/2018	20
5065113	18051455-16DMSD	EM_ICP_200.7_W	MSD		6/1/2018 02:15	1	118948	5/29/2018	20
	MSD07	*The MSD recovery was outside of the control limit. However, the MS recovery and the RPD between the MS and MSD was in control. No qualification is required for this analyte: Al*							
5065115	18051455-17C	EM_ICP_200.7_WD	SAMP		6/1/2018 02:21	1	118948	5/29/2018	15
5065117	MBLK-119031	ICP_6010_S	MBLK		6/1/2018 02:27	1	119031	5/30/2018	29
5065123	LCS-119031	ICP_6010_S	LCS		6/1/2018 02:33	1	119031	5/30/2018	29
5065125	18051599-01A	ICP_6010_S	SAMP		6/1/2018 02:39	1	119031	5/30/2018	1
5065127	18051599-02A	ICP_6010_S	SAMP		6/1/2018 02:45	1	119031	5/30/2018	1
5065129	CCV	ICP_6010_W	CCV		6/1/2018 02:51	1	R237016		32
5065131	CCB	ICP_6010_W	CCB		6/1/2018 02:57	1	R237016		32
5065133	CCVLL	ICP_6010_W	LLCCV		6/1/2018 03:03	1	R237016		32
5065134	18051599-03A	ICP_6010_S	SAMP		6/1/2018 03:09	1	119031	5/30/2018	1
5065135	18051599-04A	ICP_6010_S	SAMP		6/1/2018 03:15	1	119031	5/30/2018	1
5065136	18051599-05A	ICP_6010_S	SAMP		6/1/2018 03:21	1	119031	5/30/2018	1
5065137	18051599-06A	ICP_6010_S	SAMP		6/1/2018 03:27	1	119031	5/30/2018	1
5065138	18051599-07A	ICP_6010_S	SAMP		6/1/2018 03:33	1	119031	5/30/2018	1
5065139	18051599-08A	ICP_6010_S	SAMP		6/1/2018 03:40	1	119031	5/30/2018	1
5065140	18051599-09A	ICP_6010_S	SAMP		6/1/2018 03:46	1	119031	5/30/2018	1
5065141	18051599-10A	ICP_6010_S	SAMP		6/1/2018 03:52	1	119031	5/30/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5065143	18051673-01A	ICP_6010_S	SAMP		6/1/2018 03:58	1	119031	5/30/2018	7
5065144	18051674-01A	ICP_6010_S	SAMP		6/1/2018 04:04	1	119031	5/30/2018	7
5065146	CCV	ICP_6010_W	CCV		6/1/2018 04:10	1	R237016		0
5065147	CCV	ICP_6010_W	CCV		6/1/2018 04:16	1	R237016		32
5065148	CCB	ICP_6010_W	CCB		6/1/2018 04:22	1	R237016		32
5065149	CCVLL	ICP_6010_W	LLCCV		6/1/2018 04:28	1	R237016		0
5065150	CCVLL	ICP_6010_W	LLCCV		6/1/2018 04:34	1	R237016		32
5065151	18051676-01A	ICP_6010_S	SAMP		6/1/2018 04:41	1	119031	5/30/2018	9
5065152	18051676-02A	ICP_6010_S	SAMP		6/1/2018 04:47	1	119031	5/30/2018	9
5065153	18051676-02AMS	ICP_6010_S	MS		6/1/2018 04:53	1	119031	5/30/2018	29

MS02 *The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Ba, Mn*

MS05 *The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Ti*

5065154	18051676-02AMSD	ICP_6010_S	MSD		6/1/2018 04:59	1	119031	5/30/2018	29

MSD02 *The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Ba, Mn, Fe*

MSD05 *The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Ti*

5065155	18051676-03A	ICP_6010_S	SAMP		6/1/2018 05:05	1	119031	5/30/2018	9
5065156	18051689-01A	ICP_6010_S	SAMP		6/1/2018 05:11	1	119031	5/30/2018	7
5065157	18051689-02A	ICP_6010_S	SAMP		6/1/2018 05:17	1	119031	5/30/2018	7
5065158	18051689-03A	ICP_6010_S	SAMP		6/1/2018 05:23	1	119031	5/30/2018	3
5065159	18051689-04A	ICP_6010_S	SAMP		6/1/2018 05:29	1	119031	5/30/2018	7
5065160	18051689-05A	ICP_6010_S	SAMP		6/1/2018 05:35	1	119031	5/30/2018	7
5065161	CCV	ICP_6010_W	CCV		6/1/2018 05:42	1	R237016		0
5065162	CCV	ICP_6010_W	CCV		6/1/2018 05:48	1	R237016		32
5065163	CCB	ICP_6010_W	CCB		6/1/2018 05:53	1	R237016		32
5065164	CCVLL	ICP_6010_W	LLCCV		6/1/2018 06:00	1	R237016		32
5065165	MBLK-119060	ICP_6010_W	MBLK		6/1/2018 06:06	1	119085	5/31/2018	29
5065166	LCS-119060	ICP_6010_W	LCS		6/1/2018 06:12	1	119085	5/31/2018	30
5065167	MBLK-119085	ICP_6010_W	MBLK		6/1/2018 06:18	1	119085	5/31/2018	30
5065168	LCS-119085	ICP_6010_W	LCS		6/1/2018 06:25	1	119085	5/31/2018	30
5065169	18051703-02B	TCICP_6010_S	SAMP		6/1/2018 06:31	1	119085	5/31/2018	7
5065170	18051726-01A	ICP_6010_WD	SAMP		6/1/2018 06:37	1	119085	5/31/2018	6
5065171	18051749-01A	TCICP_6010_S	SAMP		6/1/2018 06:43	1	119085	5/31/2018	7
5065177	18051772-04A	TCICP_6010_S	SAMP		6/1/2018 06:50	1	119085	5/31/2018	7
5065178	18051772-06A	TCICP_6010_S	SAMP		6/1/2018 06:56	1	119085	5/31/2018	7
5065179	18051799-02A	TCICP_6010_S	SAMP		6/1/2018 07:03	1	119085	5/31/2018	7
5065180	CCV	ICP_6010_W	CCV		6/1/2018 07:09	1	R237016		32
5065181	CCB	ICP_6010_W	CCB		6/1/2018 07:15	1	R237016		32
5065182	CCVLL	ICP_6010_W	LLCCV		6/1/2018 07:21	1	R237016		32
5065183	18051800-02A	TCICP_6010_S	SAMP		6/1/2018 07:28	1	119085	5/31/2018	7
5065184	18051800-04A	TCICP_6010_S	SAMP		6/1/2018 07:34	1	119085	5/31/2018	7
5065261	18051800-04AMS	ICP_6010_W	MS		6/1/2018 07:46	1	119085	5/31/2018	30
5065262	18051800-04AMSD	ICP_6010_W	MSD		6/1/2018 07:52	1	119085	5/31/2018	30
5065263	18051820-01A	ICP_6010_WD	SAMP		6/1/2018 07:58	1	119085	5/31/2018	6
5065264	18051821-01A	ICP_6010_WD	SAMP		6/1/2018 08:05	1	119085	5/31/2018	6
5065265	18051879-02A	TCICP_6010_S	SAMP		6/1/2018 08:11	1	119085	5/31/2018	7
5065266	18051879-04A	TCICP_6010_S	SAMP		6/1/2018 08:18	1	119085	5/31/2018	7
5065267	18051913-02A	TCICP_6010_S	SAMP		6/1/2018 08:28	1	119085	5/31/2018	7
5065268	CCV	ICP_6010_W	CCV		6/1/2018 08:36	1	R237016		32
5065269	CCV	ICP_6010_W	CCV		6/1/2018 08:42	1	R237016		32
5065270	CCB	ICP_6010_W	CCB		6/1/2018 08:47	1	R237016		32
5066069	CCVLL	ICP_6010_W	LLCCV		6/1/2018 08:56	1	R237016		32
5066070	18051455-01DMS	EM_ICP_200.7_W	MS		6/1/2018 09:03	1	118856	5/25/2018	0
5066071	MBLK-118948	ICP_200.7_WW	MBLK		6/1/2018 09:09	1	118948	5/29/2018	1
5066072	18051455-07C	EM_ICP_200.7_W	SAMP		6/1/2018 09:15	10	118948	5/29/2018	0
5066073	18051673-01A	ICP_6010_S	SAMP		6/1/2018 09:22	10	119031	5/30/2018	1

Seq No.	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5066074	18051674-01A	ICP_6010_S	SAMP		6/1/2018 09:28	10	119031	5/30/2018	1
5066075	MBLK-119106	ICP_6010_S	MBLK		6/1/2018 09:34	1	119106	5/31/2018	10
5066076	LCS-119106	ICP_6010_S	LCS		6/1/2018 09:41	1	119106	5/31/2018	10
5066077	18052001-01A	ICP_6010_S	SAMP		6/1/2018 09:47	1	119106	5/31/2018	10
5066078	18052001-01AMS	ICP_6010_S	MS		6/1/2018 09:53	1	119106	5/31/2018	10
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba*							
5066079	18052001-01AMSD	ICP_6010_S	MSD		6/1/2018 09:59	1	119106	5/31/2018	10
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba*							
5066080	CCV	ICP_6010_W	CCV		6/1/2018 10:05	1	R237016		0
5066081	CCV	ICP_6010_W	CCV		6/1/2018 10:11	1	R237016		32
5066082	CCB	ICP_6010_W	CCB		6/1/2018 10:16	1	R237016		32
5066083	CCVLL	ICP_6010_W	LLCCV		6/1/2018 10:23	1	R237016		0
5066084	CCVLL	ICP_6010_W	LLCCV		6/1/2018 10:29	1	R237016		32
5066085	18051779-01A	ICP_6010_S	SAMP		6/1/2018 10:35	1	119106	5/31/2018	7
5066365	18051932-01A	ICP_6010_S	SAMP		6/1/2018 10:45	10	119106	5/31/2018	1
5066366	18051932-02A	ICP_6010_S	SAMP		6/1/2018 10:51	10	119106	5/31/2018	1
5066367	18051932-03A	ICP_6010_S	SAMP		6/1/2018 10:58	10	119106	5/31/2018	1
5066368	MBLK-119140	ICP_6010_S	MBLK		6/1/2018 11:05	1	119140	6/1/2018	27
5066369	LCS-119140	ICP_6010_S	LCS		6/1/2018 11:11	1	119140	6/1/2018	27
5066370	18051993-01A	ICP_6010_S	SAMP		6/1/2018 11:17	10	119140	6/1/2018	2
5066371	18051993-02A	ICP_6010_S	SAMP		6/1/2018 11:23	10	119140	6/1/2018	2
5066372	18051993-03A	ICP_6010_S	SAMP		6/1/2018 11:30	10	119140	6/1/2018	2
5066373	CCV	ICP_6010_W	CCV		6/1/2018 11:36	1	R237016		0
5066374	CCV	ICP_6010_W	CCV		6/1/2018 11:42	1	R237016		32
5066375	CCB	ICP_6010_W	CCB		6/1/2018 11:48	1	R237016		32
5066376	CCVLL	ICP_6010_W	LLCCV		6/1/2018 11:54	1	R237016		0
5066377	CCVLL	ICP_6010_W	LLCCV		6/1/2018 12:00	1	R237016		32
5066378	18051996-01A	ICP_6010_S	SAMP		6/1/2018 12:07	1	119140	6/1/2018	2
5066379	18051996-01AMS	ICP_6010_S	MS		6/1/2018 12:13	1	119140	6/1/2018	3
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Pb*							
5066380	18051996-01AMSD	ICP_6010_S	MSD		6/1/2018 12:19	1	119140	6/1/2018	3
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Pb*							
5066381	CCV	ICP_6010_W	CCV		6/1/2018 12:25	1	R237016		32
5066382	CCB	ICP_6010_W	CCB		6/1/2018 12:31	1	R237016		32
5066383	CCVLL	ICP_6010_W	LLCCV		6/1/2018 12:37	1	R237016		32
5066384	ICSAB	ICP_6010_W	ICSA		6/1/2018 12:43	1	R237016		32

Calibration Summary

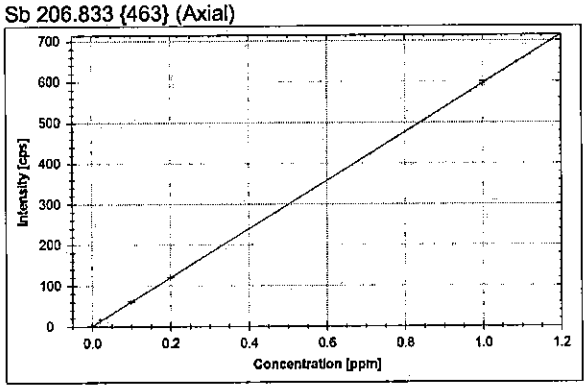
6/26/2018 5:50:19 PM

QTEGRA

Labbook 180531A2.imexp

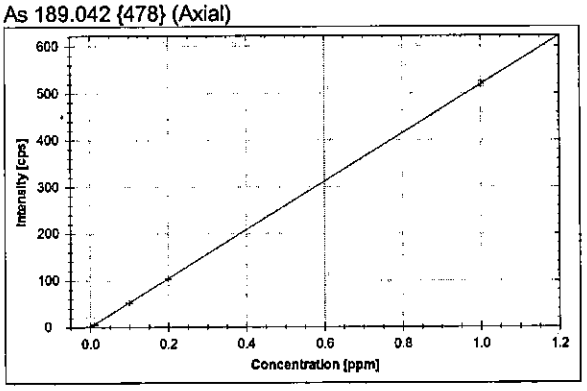
Calibration Graphs

Sb 206.833 {463} (Axial)



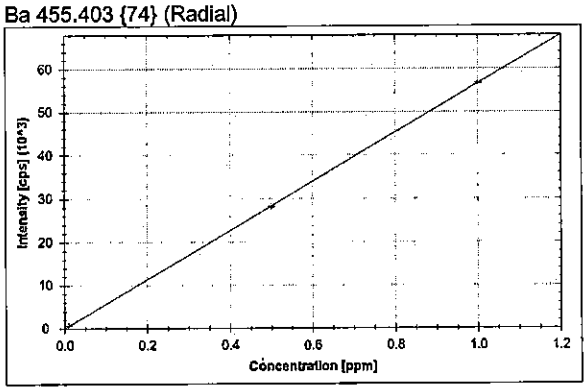
f(x) = 594.2862*x + 0.7955
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0019 ppm

As 189.042 {478} (Axial)



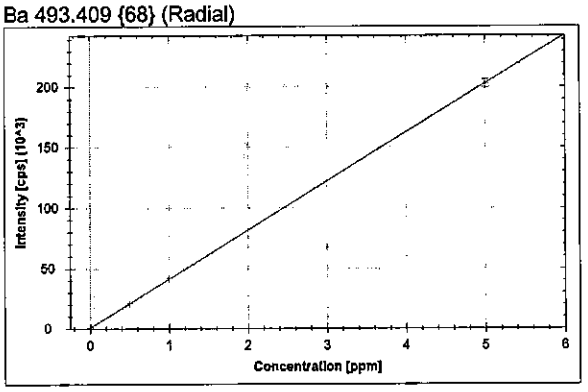
f(x) = 517.9509*x + 0.4153
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0023 ppm

Ba 455.403 {74} (Radial)



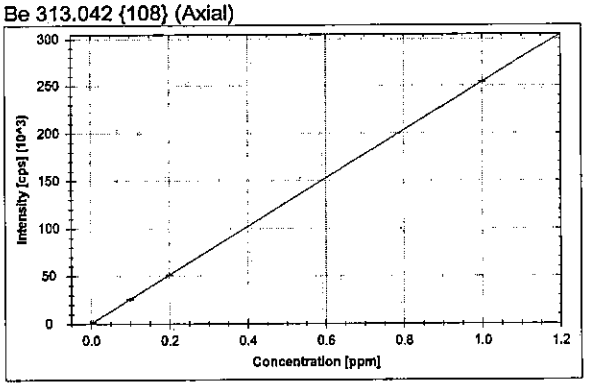
f(x) = 56541.0871*x + -1.3829
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Ba 493.409 {68} (Radial)



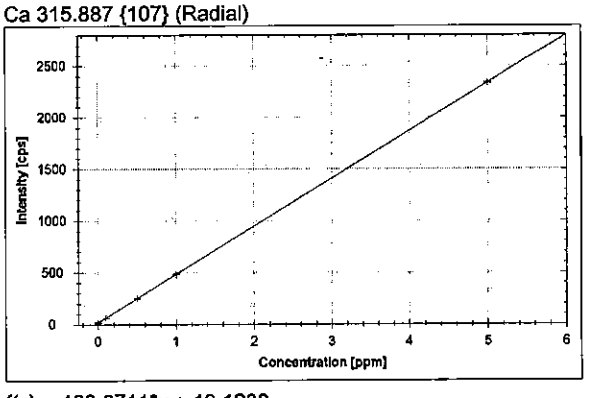
f(x) = 40422.4573*x + 612.4265
R^2 = 1.0000
BEC = 0.015 ppm
LoD = 0.0004 ppm

Be 313.042 {108} (Axial)



f(x) = 253481.6034*x + 326.7228
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0000 ppm

Ca 315.887 {107} (Radial)



f(x) = 463.6711*x + 19.1283
R^2 = 1.0000
BEC = 0.041 ppm
LoD = 0.0247 ppm

Calibration Summary

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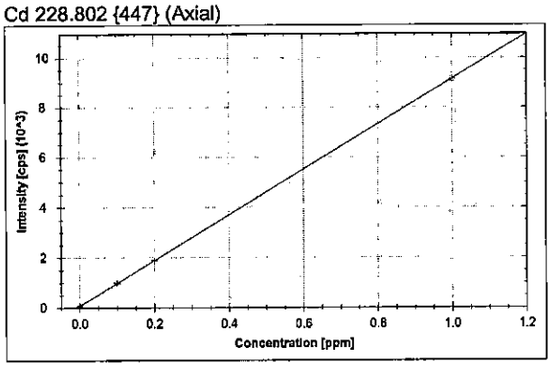
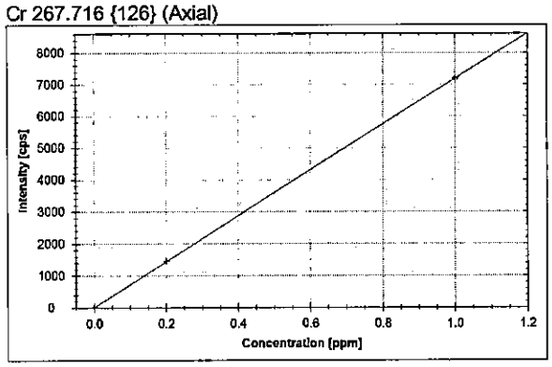
QTEGRA

Cd 228.802 {447} (Axial)



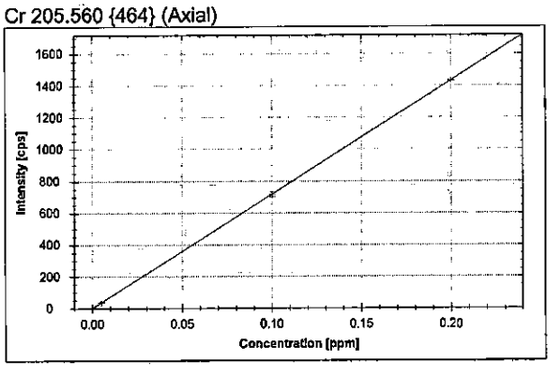
f(x) = 9070.4126*x + 67.7164
R^2 = 1.0000
BEC = 0.007 ppm
LoD = 0.0006 ppm

Cr 267.716 {126} (Axial)



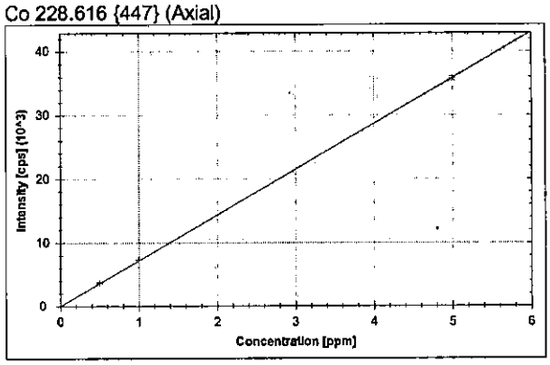
f(x) = 7176.2381*x + 2.2329
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0007 ppm

Cr 205.560 {464} (Axial)



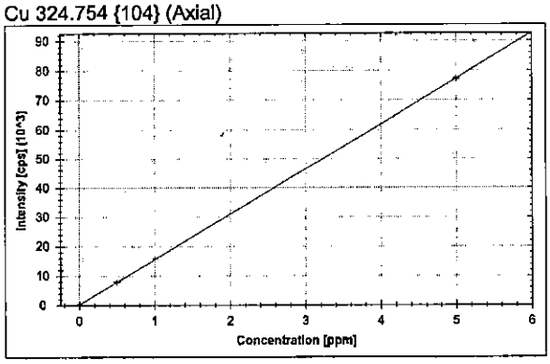
f(x) = 7149.8467*x + 1.2633
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Co 228.616 {447} (Axial)



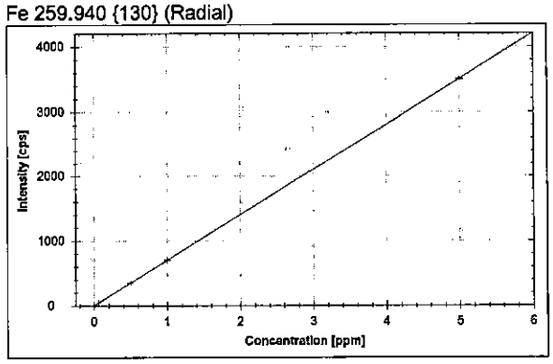
f(x) = 7156.2458*x + -2.3750
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0002 ppm

Cu 324.754 {104} (Axial)



f(x) = 15409.5394*x + 177.6717
R^2 = 1.0000
BEC = 0.012 ppm
LoD = 0.0007 ppm

Fe 259.940 {130} (Radial)



f(x) = 699.5355*x + 4.3917
R^2 = 1.0000
BEC = 0.006 ppm
LoD = 0.0048 ppm

Calibration Summary

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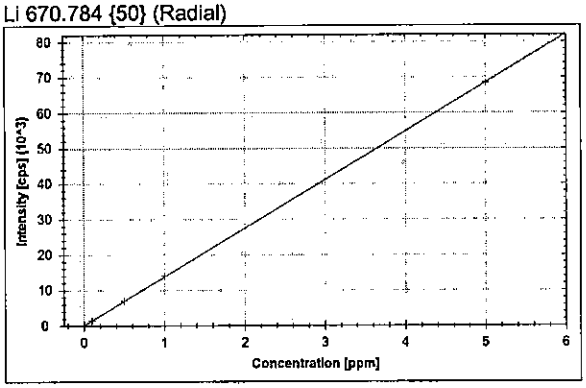
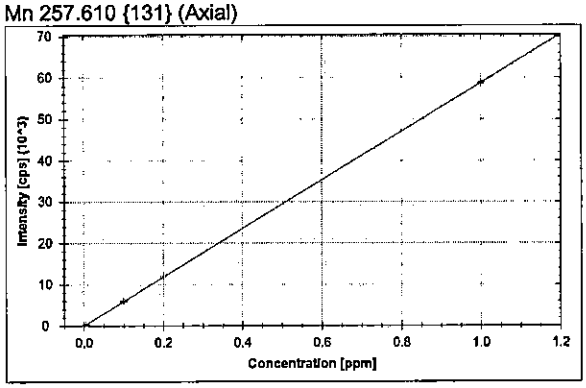
Li 670.784 {50} (Radial)



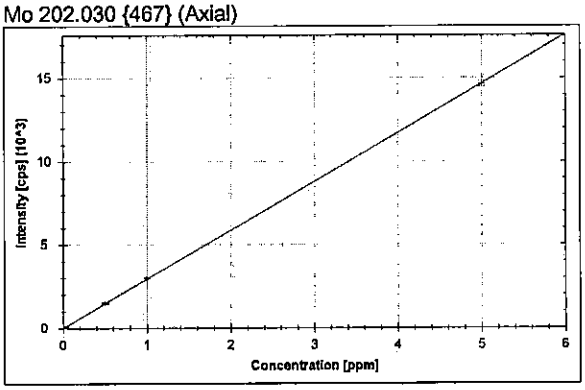
f(x) = 13661.6788*x + 76.6163
R^2 = 1.0000
BEC = 0.006 ppm
LoD = 0.0018 ppm

Mn 257.610 {131} (Axial)



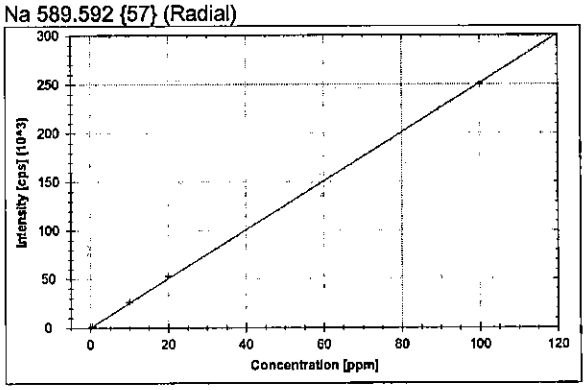
f(x) = 58696.5499*x + 25.2401
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Mo 202.030 {467} (Axial)



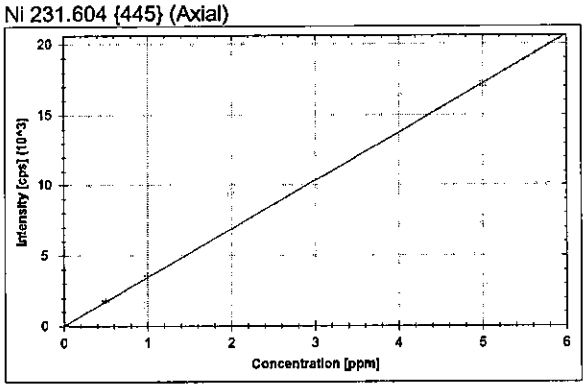
f(x) = 2926.4728*x + -0.6207
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0005 ppm

Na 589.592 {57} (Radial)



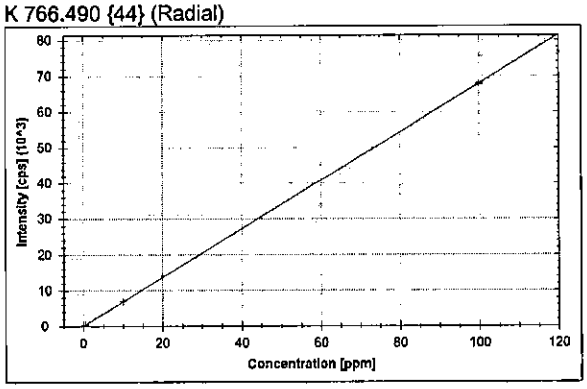
f(x) = 2509.0947*x + 110.7877
R^2 = 0.9999
BEC = 0.044 ppm
LoD = 0.0191 ppm

Ni 231.604 {445} (Axial)



f(x) = 3438.6221*x + -0.9611
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0006 ppm

K 766.490 {44} (Radial)



f(x) = 677.7994*x + 70.1023
R^2 = 1.0000
BEC = 0.103 ppm
LoD = 0.0466 ppm

Calibration Summary

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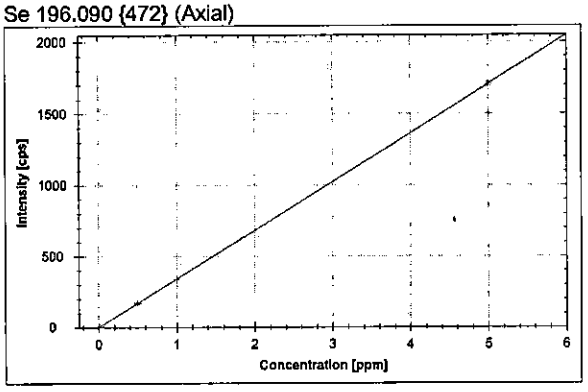
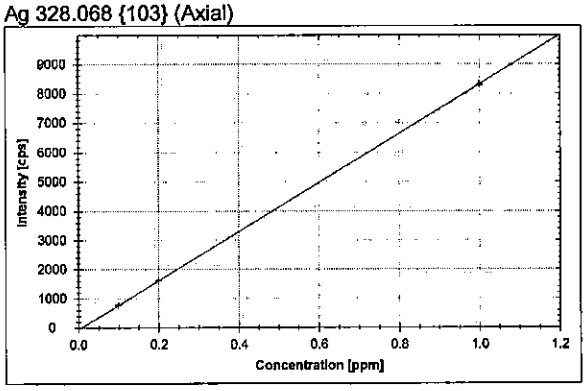
Se 196.090 {472} (Axial)



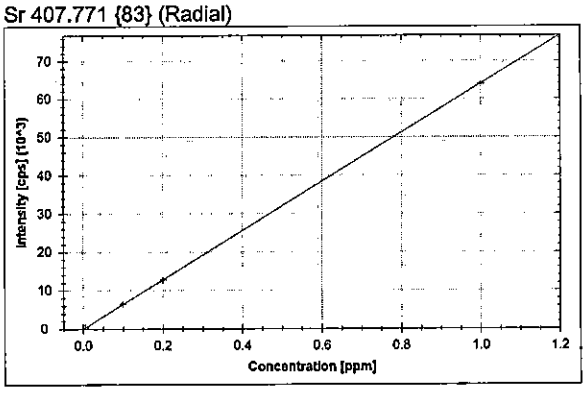
f(x) = 340.8021*x + 0.8160
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0018 ppm

Ag 328.068 {103} (Axial)



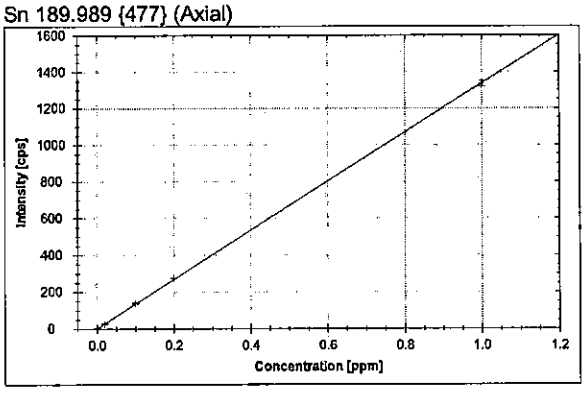
f(x) = 8380.6465*x + -68.5955
R^2 = 1.0000
BEC = -0.008 ppm
LoD = 0.0007 ppm

Sr 407.771 {83} (Radial)



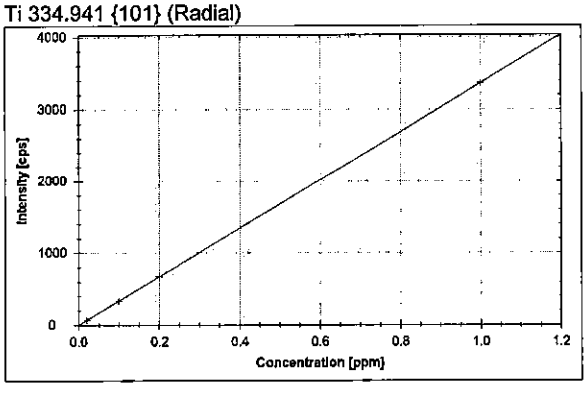
f(x) = 63903.6311*x + 12.1748
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Sn 189.989 {477} (Axial)



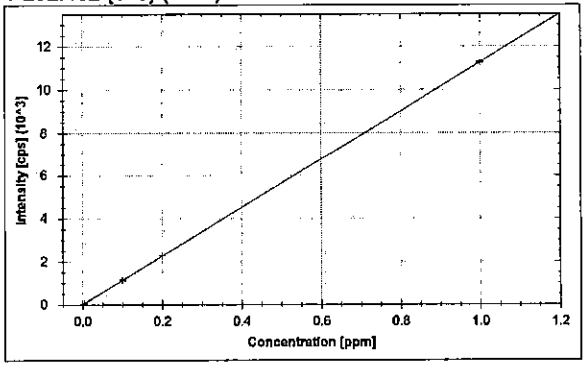
f(x) = 1334.8073*x + 0.9800
R^2 = 0.9999
BEC = 0.001 ppm
LoD = 0.0019 ppm

Ti 334.941 {101} (Radial)



f(x) = 3360.9118*x + -2.1580
R^2 = 1.0000
BEC = -0.001 ppm
LoD = 0.0017 ppm

V 292.402 {115} (Axial)



f(x) = 11237.8902*x + 12.0970
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0007 ppm

Calibration Summary

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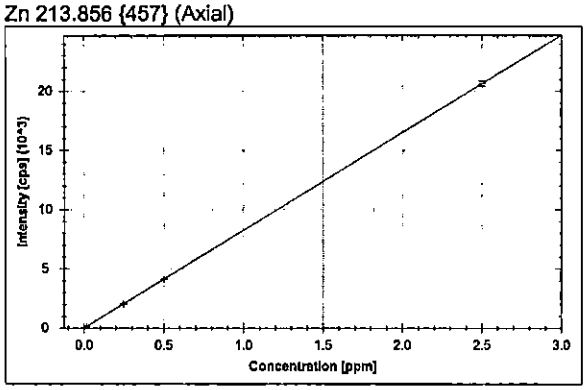
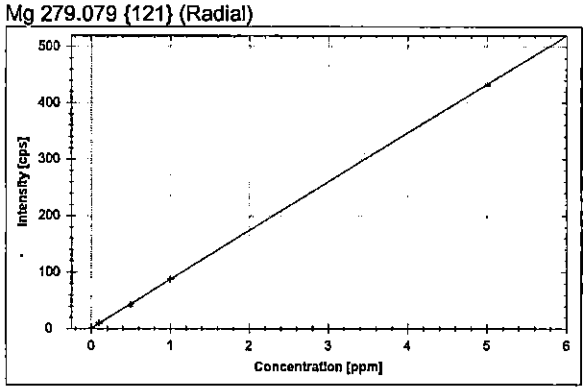
Zn 213.856 {457} (Axial)



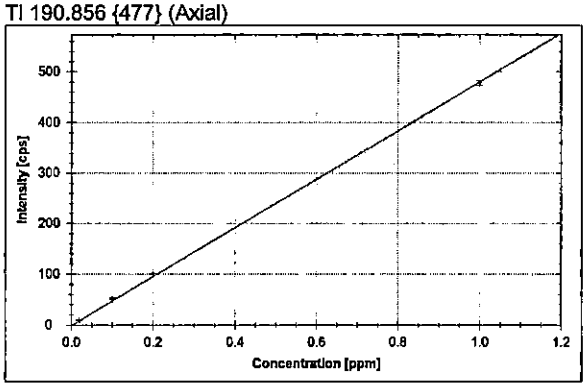
f(x) = 8246.3324*x + 5.4787
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0006 ppm

Mg 279.079 {121} (Radial)



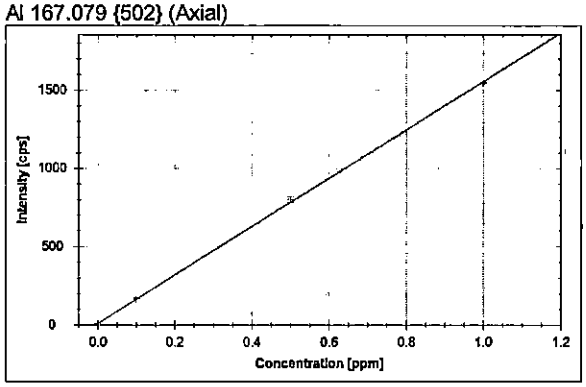
f(x) = 86.4444*x + 0.5552
R^2 = 1.0000
BEC = 0.006 ppm
LoD = 0.0278 ppm

Tl 190.856 {477} (Axial)



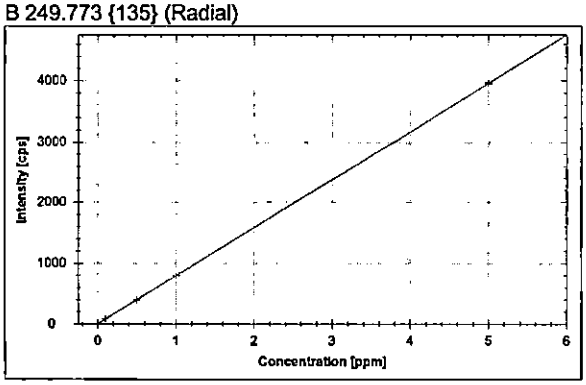
f(x) = 480.9145*x + -1.1874
R^2 = 0.9997
BEC = -0.002 ppm
LoD = 0.0008 ppm

Al 167.079 {502} (Axial)



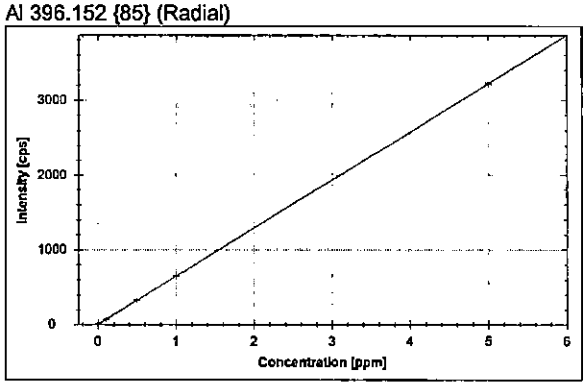
f(x) = 1545.1404*x + 8.9946
R^2 = 0.9997
BEC = 0.006 ppm
LoD = 0.0015 ppm

B 249.773 {135} (Radial)



f(x) = 790.5877*x + 2.8845
R^2 = 1.0000
BEC = 0.004 ppm
LoD = 0.0038 ppm

Al 396.152 {85} (Radial)



f(x) = 642.9158*x + 4.1499
R^2 = 1.0000
BEC = 0.006 ppm
LoD = 0.0204 ppm

Calibration Summary

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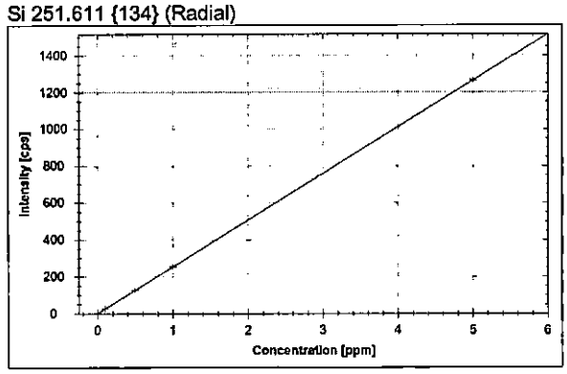
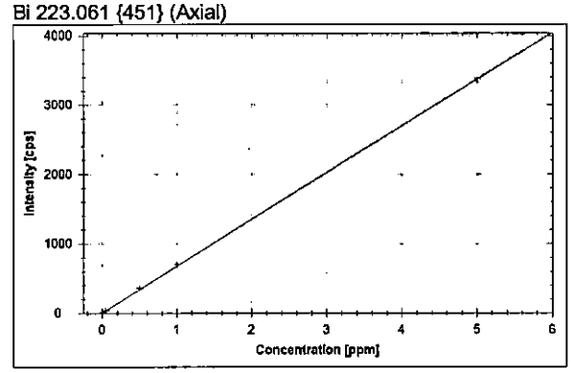
Si 251.611 {134} (Radial)



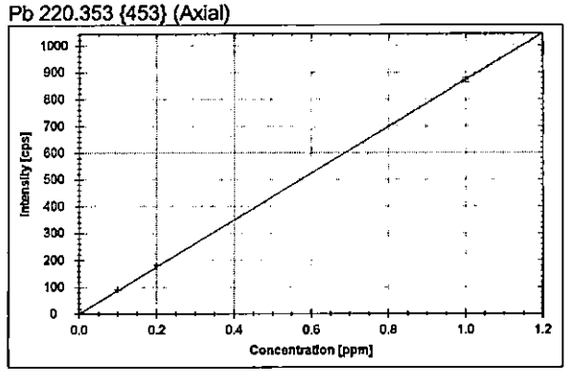
f(x) = 252.4575*x + 1.3687
R^2 = 1.0000
BEC = 0.005 ppm
LoD = 0.0203 ppm

Bi 223.061 {451} (Axial)



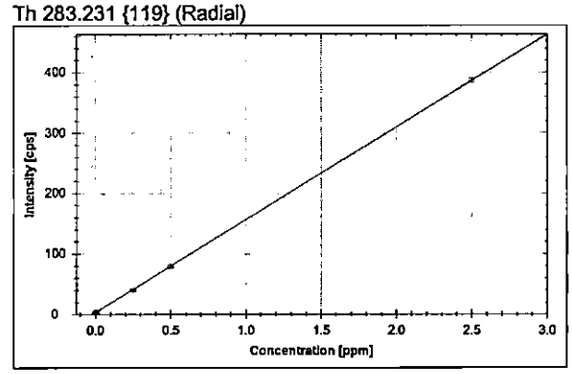
f(x) = 673.6400*x + 1.8298
R^2 = 0.9999
BEC = 0.003 ppm
LoD = 0.0023 ppm

Pb 220.353 {453} (Axial)



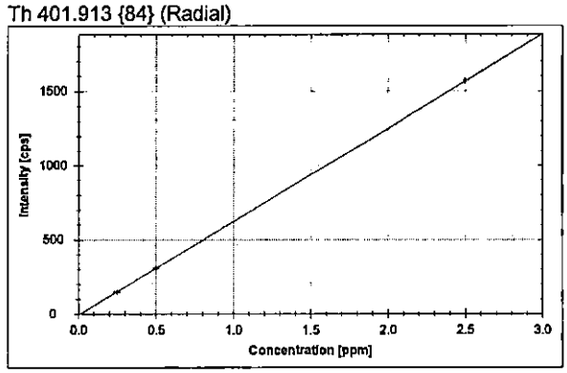
f(x) = 871.8614*x + -0.1594
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0015 ppm

Th 283.231 {119} (Radial)



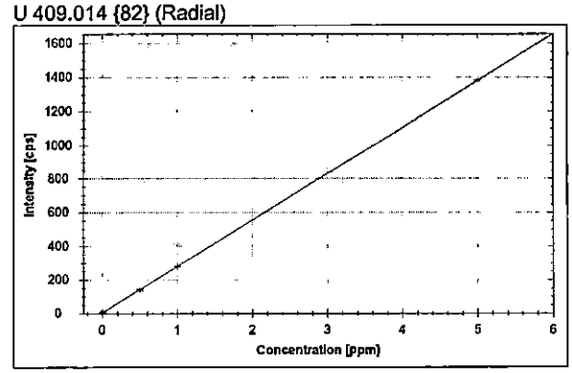
f(x) = 153.1793*x + 3.0415
R^2 = 1.0000
BEC = 0.020 ppm
LoD = 0.0366 ppm

Th 401.913 {84} (Radial)



f(x) = 629.4279*x + -8.6244
R^2 = 1.0000
BEC = -0.014 ppm
LoD = 0.0190 ppm

U 409.014 {82} (Radial)



f(x) = 274.8284*x + 4.7506
R^2 = 1.0000
BEC = 0.017 ppm
LoD = 0.0722 ppm

Calibration Summary

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QTEGRA

Standards

Standard ICAL2
Analysis Date 5/31/2018 11:01:28 AM
Stock Solution ICAL2
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.0257 ppm	3.2 %	0.0200 ppm
As 189.042 {478} (Axial)	0.0087 ppm	5.3 %	0.0100 ppm
Ba 455.403 {74} (Radial)	0.0107 ppm	1.3 %	0.0100 ppm
Ba 493.409 {68} (Radial)	N/A	N/A	N/A
Be 313.042 {108} (Axial)	0.0040 ppm	0.6 %	0.0040 ppm
Ca 315.887 {107} (Radial)	0.0900 ppm	3.6 %	0.1000 ppm
Cd 228.802 {447} (Axial)	0.0023 ppm	2.5 %	0.0020 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.0050 ppm	1.9 %	0.0050 ppm
Co 228.616 {447} (Axial)	0.0053 ppm	1.2 %	0.0050 ppm
Cu 324.754 {104} (Axial)	0.0105 ppm	3.3 %	0.0100 ppm
Fe 259.940 {130} (Radial)	0.0569 ppm	3.0 %	0.0600 ppm
Li 670.784 {50} (Radial)	0.1048 ppm	0.3 %	0.1000 ppm
Mn 257.610 {131} (Axial)	0.0052 ppm	0.6 %	0.0050 ppm
Mo 202.030 {467} (Axial)	0.0204 ppm	0.6 %	0.0200 ppm
Na 589.592 {57} (Radial)	0.5150 ppm	0.8 %	0.5000 ppm
Ni 231.604 {445} (Axial)	0.0208 ppm	1.1 %	0.0200 ppm
K 766.490 {44} (Radial)	0.4802 ppm	1.5 %	0.5000 ppm
Se 196.090 {472} (Axial)	0.0186 ppm	7.2 %	0.0200 ppm
Ag 328.068 {103} (Axial)	0.0000 ppm	376.5 %	0.0040 ppm
Sr 407.771 {83} (Radial)	0.0051 ppm	0.8 %	0.0050 ppm
Sn 189.989 {477} (Axial)	0.0205 ppm	2.0 %	0.0200 ppm
Tl 334.941 {101} (Radial)	0.0209 ppm	2.7 %	0.0200 ppm
V 292.402 {115} (Axial)	0.0050 ppm	4.4 %	0.0050 ppm
Zn 213.856 {457} (Axial)	0.0199 ppm	0.5 %	0.0200 ppm
Sc 357.253 {94} (Axial)	103.2337 %		
Sc 188.060 {479} (Axial)	101.4045 %		
Mg 279.079 {121} (Radial)	0.0999 ppm	11.1 %	0.1000 ppm
Tl 190.856 {477} (Axial)	0.0215 ppm	4.9 %	0.0200 ppm
Al 167.079 {502} (Axial)	0.1023 ppm	0.6 %	0.1000 ppm
Sc 227.318 {448} (Axial)	101.5031 %		
B 249.773 {135} (Radial)	0.1038 ppm	2.6 %	0.1000 ppm
Al 396.152 {85} (Radial)	0.0988 ppm	6.1 %	0.1000 ppm
Si 251.611 {134} (Radial)	0.1040 ppm	1.9 %	0.1000 ppm
Bi 223.061 {451} (Axial)	0.0517 ppm	1.1 %	0.0500 ppm
Pb 220.353 {453} (Axial)	0.0062 ppm	4.7 %	0.0060 ppm
Th 283.231 {119} (Radial)	0.0065 ppm	166.2 %	0.0060 ppm
Th 401.913 {84} (Radial)	0.0097 ppm	51.3 %	0.0060 ppm
U 409.014 {82} (Radial)	0.0143 ppm	134.3 %	0.0060 ppm
Y 224.306 {450} (Axial)	101.1934 %		
Sc 361.384 {93} (Radial)	106.2986 %		

Calibration Summary

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QTEGRA

Standards

Standard ICAL3
Analysis Date 5/31/2018 11:07:43 AM
Stock Solution ICAL3
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.1006 ppm	1.5 %	0.1000 ppm
As 189.042 {478} (Axial)	0.0969 ppm	1.9 %	0.1000 ppm
Ba 455.403 {74} (Radial)	0.4981 ppm	0.3 %	0.5000 ppm
Ba 493.409 {68} (Radial)	0.5056 ppm	0.3 %	0.5000 ppm
Be 313.042 {108} (Axial)	0.0984 ppm	0.7 %	0.1000 ppm
Ca 315.887 {107} (Radial)	0.4936 ppm	0.8 %	0.5000 ppm
Cd 228.802 {447} (Axial)	0.1003 ppm	2.6 %	0.1000 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.1000 ppm	2.3 %	0.1000 ppm
Co 228.616 {447} (Axial)	0.5155 ppm	2.3 %	0.5000 ppm
Cu 324.754 {104} (Axial)	0.5097 ppm	0.9 %	0.5000 ppm
Fe 259.940 {130} (Radial)	0.4963 ppm	0.6 %	0.5000 ppm
Li 670.784 {50} (Radial)	0.5100 ppm	0.3 %	0.5000 ppm
Mn 257.610 {131} (Axial)	0.1018 ppm	0.7 %	0.1000 ppm
Mo 202.030 {467} (Axial)	0.5085 ppm	2.3 %	0.5000 ppm
Na 589.592 {57} (Radial)	10.4328 ppm	0.3 %	10.0000 ppm
Ni 231.604 {445} (Axial)	0.5191 ppm	2.4 %	0.5000 ppm
K 766.490 {44} (Radial)	10.1889 ppm	0.3 %	10.0000 ppm
Se 196.090 {472} (Axial)	0.4929 ppm	1.7 %	0.5000 ppm
Ag 328.068 {103} (Axial)	0.1005 ppm	1.4 %	0.1000 ppm
Sr 407.771 {83} (Radial)	0.1002 ppm	0.4 %	0.1000 ppm
Sn 189.989 {477} (Axial)	0.1029 ppm	2.2 %	0.1000 ppm
Tl 334.941 {101} (Radial)	0.0999 ppm	0.6 %	0.1000 ppm
V 292.402 {115} (Axial)	0.0999 ppm	1.1 %	0.1000 ppm
Zn 213.856 {457} (Axial)	0.2496 ppm	2.3 %	0.2500 ppm
Sc 357.253 {94} (Axial)	102.8259 %		
Sc 188.060 {479} (Axial)	99.8399 %		
Mg 279.079 {121} (Radial)	0.4806 ppm	5.4 %	0.5000 ppm
Tl 190.856 {477} (Axial)	0.1082 ppm	3.0 %	0.1000 ppm
Al 167.079 {502} (Axial)	0.5114 ppm	2.3 %	0.5000 ppm
Sc 227.318 {448} (Axial)	101.4986 %		
B 249.773 {135} (Radial)	0.4974 ppm	0.7 %	0.5000 ppm
Al 396.152 {85} (Radial)	0.5006 ppm	1.0 %	0.5000 ppm
Si 251.611 {134} (Radial)	0.4991 ppm	0.6 %	0.5000 ppm
Bi 223.061 {451} (Axial)	0.5260 ppm	2.4 %	0.5000 ppm
Pb 220.353 {453} (Axial)	0.1042 ppm	2.1 %	0.1000 ppm
Th 283.231 {119} (Radial)	0.2400 ppm	5.4 %	0.2500 ppm
Th 401.913 {84} (Radial)	0.2451 ppm	3.2 %	0.2500 ppm
U 409.014 {82} (Radial)	0.4872 ppm	4.4 %	0.5000 ppm
Y 224.306 {450} (Axial)	99.9734 %		
Sc 361.384 {93} (Radial)	108.0046 %		

Calibration Summary

6/26/2018 5:50:19 PM

QTEGRA

Standards

Standard ICAL4
Analysis Date 5/31/2018 11:13:39 AM
Stock Solution ICAL4
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.2011 ppm	0.4 %	0.2000 ppm
As 189.042 {478} (Axial)	0.1981 ppm	0.6 %	0.2000 ppm
Ba 455.403 {74} (Radial)	1.0010 ppm	0.2 %	1.0000 ppm
Ba 493.409 {68} (Radial)	1.0141 ppm	0.2 %	1.0000 ppm
Be 313.042 {108} (Axial)	0.1996 ppm	0.1 %	0.2000 ppm
Ca 315.887 {107} (Radial)	1.0045 ppm	0.8 %	1.0000 ppm
Cd 228.802 {447} (Axial)	0.2002 ppm	0.3 %	0.2000 ppm
Cr 267.716 {126} (Axial)	0.2020 ppm	0.2 %	0.2000 ppm
Cr 205.560 {464} (Axial)	0.2000 ppm	0.2 %	0.2000 ppm
Co 228.616 {447} (Axial)	1.0248 ppm	0.2 %	1.0000 ppm
Cu 324.754 {104} (Axial)	1.0134 ppm	0.2 %	1.0000 ppm
Fe 259.940 {130} (Radial)	0.9968 ppm	0.8 %	1.0000 ppm
Li 670.784 {50} (Radial)	1.0161 ppm	0.4 %	1.0000 ppm
Mn 257.610 {131} (Axial)	0.2029 ppm	0.1 %	0.2000 ppm
Mo 202.030 {467} (Axial)	1.0145 ppm	0.2 %	1.0000 ppm
Na 589.592 {57} (Radial)	20.8943 ppm	0.1 %	20.0000 ppm
Ni 231.604 {445} (Axial)	1.0285 ppm	0.2 %	1.0000 ppm
K 766.490 {44} (Radial)	20.4155 ppm	0.2 %	20.0000 ppm
Se 196.090 {472} (Axial)	0.9940 ppm	0.3 %	1.0000 ppm
Ag 328.068 {103} (Axial)	0.2001 ppm	0.2 %	0.2000 ppm
Sr 407.771 {83} (Radial)	0.2005 ppm	0.2 %	0.2000 ppm
Sn 189.989 {477} (Axial)	0.2054 ppm	0.6 %	0.2000 ppm
Ti 334.941 {101} (Radial)	0.2001 ppm	0.4 %	0.2000 ppm
V 292.402 {115} (Axial)	0.2014 ppm	0.2 %	0.2000 ppm
Zn 213.856 {457} (Axial)	0.5015 ppm	0.3 %	0.5000 ppm
Sc 357.253 {94} (Axial)	101.5371 %		
Sc 188.060 {479} (Axial)	97.8545 %		
Mg 279.079 {121} (Radial)	1.0087 ppm	0.9 %	1.0000 ppm
Tl 190.856 {477} (Axial)	0.2126 ppm	0.5 %	0.2000 ppm
Al 167.079 {502} (Axial)	0.9941 ppm	0.3 %	1.0000 ppm
Sc 227.318 {448} (Axial)	100.9410 %		
B 249.773 {135} (Radial)	0.9973 ppm	0.5 %	1.0000 ppm
Al 396.152 {85} (Radial)	1.0013 ppm	1.1 %	1.0000 ppm
Si 251.611 {134} (Radial)	0.9985 ppm	0.3 %	1.0000 ppm
Bi 223.061 {451} (Axial)	1.0390 ppm	0.2 %	1.0000 ppm
Pb 220.353 {453} (Axial)	0.2070 ppm	0.7 %	0.2000 ppm
Th 283.231 {119} (Radial)	0.4941 ppm	3.2 %	0.5000 ppm
Th 401.913 {84} (Radial)	0.5015 ppm	1.5 %	0.5000 ppm
U 409.014 {82} (Radial)	1.0003 ppm	1.8 %	1.0000 ppm
Y 224.306 {450} (Axial)	98.9434 %		
Sc 361.384 {93} (Radial)	107.1369 %		

Calibration Summary

6/26/2018 5:50:19 PM

QTEGRA

Standards

Standard ICAL5
Analysis Date 5/31/2018 11:19:29 AM
Stock Solution ICAL5
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.9996 ppm	1.0 %	1.0000 ppm
As 189.042 {478} (Axial)	1.0007 ppm	1.0 %	1.0000 ppm
Ba 455.403 {74} (Radial)	N/A	N/A	N/A
Ba 493.409 {68} (Radial)	4.9966 ppm	1.7 %	5.0000 ppm
Be 313.042 {108} (Axial)	1.0002 ppm	0.2 %	1.0000 ppm
Ca 315.887 {107} (Radial)	4.9999 ppm	0.4 %	5.0000 ppm
Cd 228.802 {447} (Axial)	0.9999 ppm	0.9 %	1.0000 ppm
Cr 267.716 {126} (Axial)	0.9996 ppm	0.3 %	1.0000 ppm
Cr 205.560 {464} (Axial)	N/A	N/A	N/A
Co 228.616 {447} (Axial)	4.9935 ppm	0.9 %	5.0000 ppm
Cu 324.754 {104} (Axial)	4.9963 ppm	0.3 %	5.0000 ppm
Fe 259.940 {130} (Radial)	5.0011 ppm	0.1 %	5.0000 ppm
Li 670.784 {50} (Radial)	4.9957 ppm	0.2 %	5.0000 ppm
Mn 257.610 {131} (Axial)	0.9992 ppm	0.3 %	1.0000 ppm
Mo 202.030 {467} (Axial)	4.9963 ppm	1.0 %	5.0000 ppm
Na 589.592 {57} (Radial)	99.7778 ppm	0.2 %	100.0000 ppm
Ni 231.604 {445} (Axial)	4.9924 ppm	1.0 %	5.0000 ppm
K 766.490 {44} (Radial)	99.8981 ppm	0.2 %	100.0000 ppm
Se 196.090 {472} (Axial)	5.0019 ppm	0.9 %	5.0000 ppm
Ag 328.068 {103} (Axial)	0.9999 ppm	0.4 %	1.0000 ppm
Sr 407.771 {83} (Radial)	0.9999 ppm	0.2 %	1.0000 ppm
Sn 189.989 {477} (Axial)	0.9986 ppm	1.2 %	1.0000 ppm
Ti 334.941 {101} (Radial)	1.0000 ppm	0.3 %	1.0000 ppm
V 292.402 {115} (Axial)	0.9997 ppm	0.3 %	1.0000 ppm
Zn 213.856 {457} (Axial)	2.4997 ppm	1.0 %	2.5000 ppm
Sc 357.253 {94} (Axial)	96.9455 %		
Sc 188.060 {479} (Axial)	91.1604 %		
Mg 279.079 {121} (Radial)	5.0002 ppm	0.5 %	5.0000 ppm
Tl 190.856 {477} (Axial)	0.9966 ppm	1.0 %	1.0000 ppm
Al 167.079 {502} (Axial)	N/A	N/A	N/A
Sc 227.318 {448} (Axial)	105.8129 %		
B 249.773 {135} (Radial)	5.0007 ppm	0.2 %	5.0000 ppm
Al 396.152 {85} (Radial)	4.9997 ppm	0.5 %	5.0000 ppm
Si 251.611 {134} (Radial)	5.0003 ppm	0.3 %	5.0000 ppm
Bi 223.061 {451} (Axial)	4.9896 ppm	0.8 %	5.0000 ppm
Pb 220.353 {453} (Axial)	0.9982 ppm	1.0 %	1.0000 ppm
Th 283.231 {119} (Radial)	2.5022 ppm	1.0 %	2.5000 ppm
Th 401.913 {84} (Radial)	2.5002 ppm	0.5 %	2.5000 ppm
U 409.014 {82} (Radial)	5.0012 ppm	0.4 %	5.0000 ppm
Y 224.306 {450} (Axial)	95.5152 %		
Sc 361.384 {93} (Radial)	105.8587 %		

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICAL1

Sample Type BLK Analysis Date 5/31/2018 10:55:13 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0000 ppm	0.5 %
As 189.042 {478} (Axial)	0.0000 ppm	1.0 %
Ba 455.403 {74} (Radial)	0.0000 ppm	-2.0 %
Ba 493.409 {68} (Radial)	0.0000 ppm	0.0 %
Be 313.042 {108} (Axial)	0.0000 ppm	0.0 %
Ca 315.887 {107} (Radial)	0.0000 ppm	0.2 %
Cd 228.802 {447} (Axial)	0.0000 ppm	0.0 %
Cr 267.716 {126} (Axial)	0.0000 ppm	0.8 %
Cr 205.560 {464} (Axial)	0.0000 ppm	0.3 %
Co 228.616 {447} (Axial)	0.0000 ppm	-0.2 %
Cu 324.754 {104} (Axial)	0.0000 ppm	0.0 %
Fe 259.940 {130} (Radial)	0.0000 ppm	0.3 %
Li 670.784 {50} (Radial)	0.0000 ppm	0.1 %
Mn 257.610 {131} (Axial)	0.0000 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.0000 ppm	-0.8 %
Na 589.592 {57} (Radial)	0.0000 ppm	0.1 %
Ni 231.604 {445} (Axial)	0.0000 ppm	-0.7 %
K 766.490 {44} (Radial)	0.0000 ppm	0.2 %
Se 196.090 {472} (Axial)	0.0000 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.0000 ppm	0.0 %
Sr 407.771 {83} (Radial)	0.0000 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.0000 ppm	0.9 %
Ti 334.941 {101} (Radial)	0.0000 ppm	-0.9 %
V 292.402 {115} (Axial)	0.0000 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.0000 ppm	0.3 %
Sc 357.253 {94} (Axial)	100.0000 %	
Sc 188.060 {479} (Axial)	100.0000 %	
Mg 279.079 {121} (Radial)	0.0000 ppm	1.4 %
Tl 190.856 {477} (Axial)	0.0000 ppm	-0.1 %
Al 167.079 {502} (Axial)	0.0000 ppm	0.1 %
Sc 227.318 {448} (Axial)	100.0000 %	
B 249.773 {135} (Radial)	0.0000 ppm	0.3 %
Al 396.152 {85} (Radial)	0.0000 ppm	1.1 %
Si 251.611 {134} (Radial)	0.0000 ppm	1.2 %
Bi 223.061 {451} (Axial)	0.0000 ppm	0.3 %
Pb 220.353 {453} (Axial)	0.0000 ppm	-2.8 %
Th 283.231 {119} (Radial)	0.0000 ppm	0.6 %
Th 401.913 {84} (Radial)	0.0000 ppm	-0.5 %
U 409.014 {82} (Radial)	0.0000 ppm	1.4 %
Y 224.306 {450} (Axial)	100.0000 %	
Sc 361.384 {93} (Radial)	100.0000 %	

Simple sample report

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QTEGRA

ICAL2

Sample Type STD Analysis Date 5/31/2018 11:01:28 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0257 ppm	3.2 %
As 189.042 {478} (Axial)	0.0087 ppm	5.3 %
Ba 455.403 {74} (Radial)	0.0107 ppm	1.3 %
Ba 493.409 {68} (Radial)	N/A	N/A
Be 313.042 {108} (Axial)	0.0040 ppm	0.6 %
Ca 315.887 {107} (Radial)	0.0900 ppm	3.6 %
Cd 228.802 {447} (Axial)	0.0023 ppm	2.5 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.0050 ppm	1.9 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.2 %
Cu 324.754 {104} (Axial)	0.0105 ppm	3.3 %
Fe 259.940 {130} (Radial)	0.0569 ppm	3.0 %
Li 670.784 {50} (Radial)	0.1048 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.0052 ppm	0.6 %
Mo 202.030 {467} (Axial)	0.0204 ppm	0.6 %
Na 589.592 {57} (Radial)	0.5150 ppm	0.8 %
Ni 231.604 {445} (Axial)	0.0208 ppm	1.1 %
K 766.490 {44} (Radial)	0.4802 ppm	1.5 %
Se 196.090 {472} (Axial)	0.0186 ppm	7.2 %
Ag 328.068 {103} (Axial)	0.0000 ppm	376.5 %
Sr 407.771 {83} (Radial)	0.0051 ppm	0.8 %
Sn 189.989 {477} (Axial)	0.0205 ppm	2.0 %
Ti 334.941 {101} (Radial)	0.0209 ppm	2.7 %
V 292.402 {115} (Axial)	0.0050 ppm	4.4 %
Zn 213.856 {457} (Axial)	0.0199 ppm	0.5 %
Sc 357.253 {94} (Axial)	103.2337 %	
Sc 188.060 {479} (Axial)	101.4045 %	
Mg 279.079 {121} (Radial)	0.0999 ppm	11.1 %
Tl 190.856 {477} (Axial)	0.0215 ppm	4.9 %
Al 167.079 {502} (Axial)	0.1023 ppm	0.6 %
Sc 227.318 {448} (Axial)	101.5031 %	
B 249.773 {135} (Radial)	0.1038 ppm	2.6 %
Al 396.152 {85} (Radial)	0.0988 ppm	6.1 %
Si 251.611 {134} (Radial)	0.1040 ppm	1.9 %
Bi 223.061 {451} (Axial)	0.0517 ppm	1.1 %
Pb 220.353 {453} (Axial)	0.0062 ppm	4.7 %
Th 283.231 {119} (Radial)	0.0065 ppm	166.2 %
Th 401.913 {84} (Radial)	0.0097 ppm	51.3 %
U 409.014 {82} (Radial)	0.0143 ppm	134.3 %
Y 224.306 {450} (Axial)	101.1934 %	
Sc 361.384 {93} (Radial)	106.2986 %	

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICAL3

Sample Type STD Analysis Date 5/31/2018 11:07:43 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1006 ppm	1.5 %
As 189.042 {478} (Axial)	0.0969 ppm	1.9 %
Ba 455.403 {74} (Radial)	0.4981 ppm	0.3 %
Ba 493.409 {68} (Radial)	0.5056 ppm	0.3 %
Be 313.042 {108} (Axial)	0.0984 ppm	0.7 %
Ca 315.887 {107} (Radial)	0.4936 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.1003 ppm	2.6 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.1000 ppm	2.3 %
Co 228.616 {447} (Axial)	0.5155 ppm	2.3 %
Cu 324.754 {104} (Axial)	0.5097 ppm	0.9 %
Fe 259.940 {130} (Radial)	0.4963 ppm	0.6 %
Li 670.784 {50} (Radial)	0.5100 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.1018 ppm	0.7 %
Mo 202.030 {467} (Axial)	0.5085 ppm	2.3 %
Na 589.592 {57} (Radial)	10.4328 ppm	0.3 %
Ni 231.604 {445} (Axial)	0.5191 ppm	2.4 %
K 766.490 {44} (Radial)	10.1889 ppm	0.3 %
Se 196.090 {472} (Axial)	0.4929 ppm	1.7 %
Ag 328.068 {103} (Axial)	0.1005 ppm	1.4 %
Sr 407.771 {83} (Radial)	0.1002 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.1029 ppm	2.2 %
Ti 334.941 {101} (Radial)	0.0999 ppm	0.6 %
V 292.402 {115} (Axial)	0.0999 ppm	1.1 %
Zn 213.856 {457} (Axial)	0.2496 ppm	2.3 %
Sc 357.253 {94} (Axial)	102.8259 %	
Sc 188.060 {479} (Axial)	99.8399 %	
Mg 279.079 {121} (Radial)	0.4806 ppm	5.4 %
Tl 190.856 {477} (Axial)	0.1082 ppm	3.0 %
Al 167.079 {502} (Axial)	0.5114 ppm	2.3 %
Sc 227.318 {448} (Axial)	101.4986 %	
B 249.773 {135} (Radial)	0.4974 ppm	0.7 %
Al 396.152 {85} (Radial)	0.5006 ppm	1.0 %
Si 251.611 {134} (Radial)	0.4991 ppm	0.6 %
Bi 223.061 {451} (Axial)	0.5260 ppm	2.4 %
Pb 220.353 {453} (Axial)	0.1042 ppm	2.1 %
Th 283.231 {119} (Radial)	0.2400 ppm	5.4 %
Th 401.913 {84} (Radial)	0.2451 ppm	3.2 %
U 409.014 {82} (Radial)	0.4872 ppm	4.4 %
Y 224.306 {450} (Axial)	99.9734 %	
Sc 361.384 {93} (Radial)	108.0046 %	

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICAL4

Sample Type STD Analysis Date 5/31/2018 11:13:39 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.2011 ppm	0.4 %
As 189.042 {478} (Axial)	0.1981 ppm	0.6 %
Ba 455.403 {74} (Radial)	1.0010 ppm	0.2 %
Ba 493.409 {68} (Radial)	1.0141 ppm	0.2 %
Be 313.042 {108} (Axial)	0.1996 ppm	0.1 %
Ca 315.887 {107} (Radial)	1.0045 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.2002 ppm	0.3 %
Cr 267.716 {126} (Axial)	0.2020 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.2000 ppm	0.2 %
Co 228.616 {447} (Axial)	1.0248 ppm	0.2 %
Cu 324.754 {104} (Axial)	1.0134 ppm	0.2 %
Fe 259.940 {130} (Radial)	0.9968 ppm	0.8 %
Li 670.784 {50} (Radial)	1.0161 ppm	0.4 %
Mn 257.610 {131} (Axial)	0.2029 ppm	0.1 %
Mo 202.030 {467} (Axial)	1.0145 ppm	0.2 %
Na 589.592 {57} (Radial)	20.8943 ppm	0.1 %
Ni 231.604 {445} (Axial)	1.0285 ppm	0.2 %
K 766.490 {44} (Radial)	20.4155 ppm	0.2 %
Se 196.090 {472} (Axial)	0.9940 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.2001 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.2005 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.2054 ppm	0.6 %
Ti 334.941 {101} (Radial)	0.2001 ppm	0.4 %
V 292.402 {115} (Axial)	0.2014 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.5015 ppm	0.3 %
Sc 357.253 {94} (Axial)	101.5371 %	
Sc 188.060 {479} (Axial)	97.8545 %	
Mg 279.079 {121} (Radial)	1.0087 ppm	0.9 %
Tl 190.856 {477} (Axial)	0.2126 ppm	0.5 %
Al 167.079 {502} (Axial)	0.9941 ppm	0.3 %
Sc 227.318 {448} (Axial)	100.9410 %	
B 249.773 {135} (Radial)	0.9973 ppm	0.5 %
Al 396.152 {85} (Radial)	1.0013 ppm	1.1 %
Si 251.611 {134} (Radial)	0.9985 ppm	0.3 %
Bi 223.061 {451} (Axial)	1.0390 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.2070 ppm	0.7 %
Th 283.231 {119} (Radial)	0.4941 ppm	3.2 %
Th 401.913 {84} (Radial)	0.5015 ppm	1.5 %
U 409.014 {82} (Radial)	1.0003 ppm	1.8 %
Y 224.306 {450} (Axial)	98.9434 %	
Sc 361.384 {93} (Radial)	107.1369 %	

Simple sample report

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QTEGRA

ICAL5

Sample Type STD Analysis Date 5/31/2018 11:19:29 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.9996 ppm	1.0 %
As 189.042 {478} (Axial)	1.0007 ppm	1.0 %
Ba 455.403 {74} (Radial)	N/A	N/A
Ba 493.409 {68} (Radial)	4.9966 ppm	1.7 %
Be 313.042 {108} (Axial)	1.0002 ppm	0.2 %
Ca 315.887 {107} (Radial)	4.9999 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.9999 ppm	0.9 %
Cr 267.716 {126} (Axial)	0.9996 ppm	0.3 %
Cr 205.560 {464} (Axial)	N/A	N/A
Co 228.616 {447} (Axial)	4.9935 ppm	0.9 %
Cu 324.754 {104} (Axial)	4.9963 ppm	0.3 %
Fe 259.940 {130} (Radial)	5.0011 ppm	0.1 %
Li 670.784 {50} (Radial)	4.9957 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.9992 ppm	0.3 %
Mo 202.030 {467} (Axial)	4.9963 ppm	1.0 %
Na 589.592 {57} (Radial)	99.7778 ppm	0.2 %
Ni 231.604 {445} (Axial)	4.9924 ppm	1.0 %
K 766.490 {44} (Radial)	99.8981 ppm	0.2 %
Se 196.090 {472} (Axial)	5.0019 ppm	0.9 %
Ag 328.068 {103} (Axial)	0.9999 ppm	0.4 %
Sr 407.771 {83} (Radial)	0.9999 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.9986 ppm	1.2 %
Ti 334.941 {101} (Radial)	1.0000 ppm	0.3 %
V 292.402 {115} (Axial)	0.9997 ppm	0.3 %
Zn 213.856 {457} (Axial)	2.4997 ppm	1.0 %
Sc 357.253 {94} (Axial)	96.9455 %	
Sc 188.060 {479} (Axial)	91.1604 %	
Mg 279.079 {121} (Radial)	5.0002 ppm	0.5 %
Tl 190.856 {477} (Axial)	0.9966 ppm	1.0 %
Al 167.079 {502} (Axial)	N/A	N/A
Sc 227.318 {448} (Axial)	105.8129 %	
B 249.773 {135} (Radial)	5.0007 ppm	0.2 %
Al 396.152 {85} (Radial)	4.9997 ppm	0.5 %
Si 251.611 {134} (Radial)	5.0003 ppm	0.3 %
Bi 223.061 {451} (Axial)	4.9896 ppm	0.8 %
Pb 220.353 {453} (Axial)	0.9982 ppm	1.0 %
Th 283.231 {119} (Radial)	2.5022 ppm	1.0 %
Th 401.913 {84} (Radial)	2.5002 ppm	0.5 %
U 409.014 {82} (Radial)	5.0012 ppm	0.4 %
Y 224.306 {450} (Axial)	95.5152 %	
Sc 361.384 {93} (Radial)	105.8587 %	

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICV/QCS

Sample Type QC Analysis Date 5/31/2018 11:25:45 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.9884 ppm	0.7 %
As 189.042 {478} (Axial)	0.9683 ppm	0.8 %
Ba 455.403 {74} (Radial)	0.9902 ppm	0.3 %
Ba 493.409 {68} (Radial)	1.0067 ppm	0.5 %
Be 313.042 {108} (Axial)	0.9908 ppm	0.2 %
Ca 315.887 {107} (Radial)	6.0182 ppm	0.2 %
Cd 228.802 {447} (Axial)	0.9950 ppm	0.8 %
Cr 267.716 {126} (Axial)	1.0011 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.9671 ppm	0.8 %
Co 228.616 {447} (Axial)	0.9956 ppm	0.8 %
Cu 324.754 {104} (Axial)	1.0082 ppm	0.1 %
Fe 259.940 {130} (Radial)	1.0018 ppm	1.1 %
Li 670.784 {50} (Radial)	1.0321 ppm	0.4 %
Mn 257.610 {131} (Axial)	1.0189 ppm	0.2 %
Mo 202.030 {467} (Axial)	1.0087 ppm	0.8 %
Na 589.592 {57} (Radial)	21.9669 ppm	0.3 %
Ni 231.604 {445} (Axial)	1.0197 ppm	0.8 %
K 766.490 {44} (Radial)	21.1332 ppm	0.2 %
Se 196.090 {472} (Axial)	0.9999 ppm	0.8 %
Ag 328.068 {103} (Axial)	1.0354 ppm	0.3 %
Sr 407.771 {83} (Radial)	0.9956 ppm	0.4 %
Sn 189.989 {477} (Axial)	1.0129 ppm	0.8 %
Ti 334.941 {101} (Radial)	0.9921 ppm	0.4 %
V 292.402 {115} (Axial)	1.0126 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.9783 ppm	0.8 %
Sc 357.253 {94} (Axial)	98.6158 %	0.1 %
Sc 188.060 {479} (Axial)	97.0196 %	0.5 %
Mg 279.079 {121} (Radial)	0.9799 ppm	0.7 %
Tl 190.856 {477} (Axial)	1.0391 ppm	0.9 %
Al 167.079 {502} (Axial)	0.9857 ppm	1.0 %
Sc 227.318 {448} (Axial)	97.5542 %	0.6 %
B 249.773 {135} (Radial)	1.0209 ppm	0.7 %
Al 396.152 {85} (Radial)	1.0146 ppm	0.6 %
Si 251.611 {134} (Radial)	1.0268 ppm	0.5 %
Bi 223.061 {451} (Axial)	1.0677 ppm	0.8 %
Pb 220.353 {453} (Axial)	1.0217 ppm	0.8 %
Th 283.231 {119} (Radial)	0.0026 ppm	444.5 %
Th 401.913 {84} (Radial)	0.0026 ppm	297.5 %
U 409.014 {82} (Radial)	0.0040 ppm	210.2 %
Y 224.306 {450} (Axial)	97.8093 %	0.5 %
Sc 361.384 {93} (Radial)	105.6272 %	0.5 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICB

Sample Type UNKNOWN Analysis Date 5/31/2018 11:31:40 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0000 ppm	1,791.9 %
As 189.042 {478} (Axial)	-0.0005 ppm	119.0 %
Ba 455.403 {74} (Radial)	0.0003 ppm	41.6 %
Ba 493.409 {68} (Radial)	-0.0006 ppm	26.2 %
Be 313.042 {108} (Axial)	0.0002 ppm	3.0 %
Ca 315.887 {107} (Radial)	-0.0113 ppm	19.3 %
Cd 228.802 {447} (Axial)	0.0003 ppm	14.5 %
Cr 267.716 {126} (Axial)	0.0000 ppm	609.7 %
Cr 205.560 {464} (Axial)	0.0000 ppm	59.0 %
Co 228.616 {447} (Axial)	0.0001 ppm	63.1 %
Cu 324.754 {104} (Axial)	0.0003 ppm	157.4 %
Fe 259.940 {130} (Radial)	-0.0040 ppm	42.9 %
Li 670.784 {50} (Radial)	0.0034 ppm	19.0 %
Mn 257.610 {131} (Axial)	-0.0001 ppm	30.9 %
Mo 202.030 {467} (Axial)	0.0003 ppm	44.2 %
Na 589.592 {57} (Radial)	-0.0134 ppm	32.7 %
Ni 231.604 {445} (Axial)	-0.0001 ppm	190.0 %
K 766.490 {44} (Radial)	0.0231 ppm	121.1 %
Se 196.090 {472} (Axial)	-0.0008 ppm	197.2 %
Ag 328.068 {103} (Axial)	-0.0002 ppm	36.1 %
Sr 407.771 {83} (Radial)	0.0000 ppm	177.9 %
Sn 189.989 {477} (Axial)	0.0002 ppm	131.4 %
Ti 334.941 {101} (Radial)	0.0004 ppm	82.0 %
V 292.402 {115} (Axial)	-0.0001 ppm	121.6 %
Zn 213.856 {457} (Axial)	-0.0003 ppm	24.6 %
Sc 357.253 {94} (Axial)	102.4277 %	0.2 %
Sc 188.060 {479} (Axial)	102.8333 %	0.2 %
Mg 279.079 {121} (Radial)	-0.0120 ppm	131.3 %
Tl 190.856 {477} (Axial)	0.0001 ppm	1,367.4 %
Al 167.079 {502} (Axial)	-0.0010 ppm	10.1 %
Sc 227.318 {448} (Axial)	102.9359 %	0.3 %
B 249.773 {135} (Radial)	0.0073 ppm	13.1 %
Al 396.152 {85} (Radial)	-0.0008 ppm	1,097.1 %
Si 251.611 {134} (Radial)	0.0059 ppm	62.2 %
Bi 223.061 {451} (Axial)	0.0002 ppm	627.4 %
Pb 220.353 {453} (Axial)	0.0000 ppm	2,744.9 %
Th 283.231 {119} (Radial)	-0.0043 ppm	186.3 %
Th 401.913 {84} (Radial)	-0.0025 ppm	242.0 %
U 409.014 {82} (Radial)	0.0031 ppm	489.8 %
Y 224.306 {450} (Axial)	101.3898 %	0.1 %
Sc 361.384 {93} (Radial)	107.1068 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 5/31/2018 11:37:59 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0058 ppm	5.7 %
As 189.042 {478} (Axial)	0.0040 ppm	18.5 %
Ba 455.403 {74} (Radial)	0.0053 ppm	2.0 %
Ba 493.409 {68} (Radial)	0.0046 ppm	9.1 %
Be 313.042 {108} (Axial)	0.0021 ppm	0.9 %
Ca 315.887 {107} (Radial)	0.4988 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0106 ppm	0.7 %
Cr 267.716 {126} (Axial)	0.0052 ppm	9.5 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.3 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.2 %
Cu 324.754 {104} (Axial)	0.0108 ppm	2.4 %
Fe 259.940 {130} (Radial)	0.0916 ppm	1.4 %
Li 670.784 {50} (Radial)	0.0131 ppm	3.3 %
Mn 257.610 {131} (Axial)	0.0054 ppm	1.3 %
Mo 202.030 {467} (Axial)	0.0052 ppm	2.5 %
Na 589.592 {57} (Radial)	0.2000 ppm	3.1 %
Ni 231.604 {445} (Axial)	0.0054 ppm	1.8 %
K 766.490 {44} (Radial)	0.2038 ppm	7.2 %
Se 196.090 {472} (Axial)	0.0097 ppm	14.3 %
Ag 328.068 {103} (Axial)	0.0052 ppm	9.6 %
Sr 407.771 {83} (Radial)	0.0051 ppm	0.8 %
Sn 189.989 {477} (Axial)	0.0104 ppm	3.7 %
Ti 334.941 {101} (Radial)	0.0052 ppm	2.2 %
V 292.402 {115} (Axial)	0.0051 ppm	5.5 %
Zn 213.856 {457} (Axial)	0.0105 ppm	0.8 %
Sc 357.253 {94} (Axial)	103.0996 %	0.2 %
Sc 188.060 {479} (Axial)	102.3846 %	0.1 %
Mg 279.079 {121} (Radial)	0.2052 ppm	1.6 %
Tl 190.856 {477} (Axial)	0.0111 ppm	6.4 %
Al 167.079 {502} (Axial)	0.0103 ppm	1.9 %
Sc 227.318 {448} (Axial)	102.3878 %	0.1 %
B 249.773 {135} (Radial)	0.0253 ppm	7.3 %
Al 396.152 {85} (Radial)	0.0081 ppm	84.4 %
Si 251.611 {134} (Radial)	0.4326 ppm	1.0 %
Bi 223.061 {451} (Axial)	-0.0014 ppm	53.7 %
Pb 220.353 {453} (Axial)	0.0051 ppm	12.3 %
Th 283.231 {119} (Radial)	-0.0038 ppm	144.1 %
Th 401.913 {84} (Radial)	0.0021 ppm	434.9 %
U 409.014 {82} (Radial)	0.0245 ppm	138.2 %
Y 224.306 {450} (Axial)	101.1608 %	0.2 %
Sc 361.384 {93} (Radial)	107.3178 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 5/31/2018 11:44:16 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0056 ppm	26.1 %
As 189.042 {478} (Axial)	0.0052 ppm	8.5 %
Ba 455.403 {74} (Radial)	0.0054 ppm	2.0 %
Ba 493.409 {68} (Radial)	0.0044 ppm	4.5 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.3 %
Ca 315.887 {107} (Radial)	0.4979 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0105 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.0054 ppm	2.8 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.3 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.1 %
Cu 324.754 {104} (Axial)	0.0108 ppm	4.7 %
Fe 259.940 {130} (Radial)	0.0922 ppm	2.4 %
Li 670.784 {50} (Radial)	0.0121 ppm	4.7 %
Mn 257.610 {131} (Axial)	0.0054 ppm	0.6 %
Mo 202.030 {467} (Axial)	0.0053 ppm	2.2 %
Na 589.592 {57} (Radial)	0.1998 ppm	1.3 %
Ni 231.604 {445} (Axial)	0.0053 ppm	3.6 %
K 766.490 {44} (Radial)	0.2187 ppm	5.7 %
Se 196.090 {472} (Axial)	0.0100 ppm	12.9 %
Ag 328.068 {103} (Axial)	0.0048 ppm	7.6 %
Sr 407.771 {83} (Radial)	0.0052 ppm	1.0 %
Sn 189.989 {477} (Axial)	0.0109 ppm	3.6 %
Ti 334.941 {101} (Radial)	0.0049 ppm	6.2 %
V 292.402 {115} (Axial)	0.0050 ppm	5.5 %
Zn 213.856 {457} (Axial)	0.0105 ppm	0.4 %
Sc 357.253 {94} (Axial)	103.0330 %	0.1 %
Sc 188.060 {479} (Axial)	102.5665 %	0.0 %
Mg 279.079 {121} (Radial)	0.1953 ppm	8.6 %
Tl 190.856 {477} (Axial)	0.0115 ppm	9.3 %
Al 167.079 {502} (Axial)	0.0101 ppm	2.1 %
Sc 227.318 {448} (Axial)	102.6603 %	0.1 %
B 249.773 {135} (Radial)	0.0234 ppm	5.3 %
Al 396.152 {85} (Radial)	0.0086 ppm	69.1 %
Si 251.611 {134} (Radial)	0.4341 ppm	1.0 %
Bi 223.061 {451} (Axial)	-0.0007 ppm	202.0 %
Pb 220.353 {453} (Axial)	0.0052 ppm	16.3 %
Th 283.231 {119} (Radial)	-0.0097 ppm	36.5 %
Th 401.913 {84} (Radial)	0.0047 ppm	115.6 %
U 409.014 {82} (Radial)	0.0292 ppm	76.0 %
Y 224.306 {450} (Axial)	101.1965 %	0.0 %
Sc 361.384 {93} (Radial)	107.5004 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICSAB

Sample Type QC Analysis Date 5/31/2018 11:51:21 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0043 ppm	24.3 %
As 189.042 {478} (Axial)	2.5266 ppm	0.6 %
Ba 455.403 {74} (Radial)	0.7604 ppm	0.3 %
Ba 493.409 {68} (Radial)	0.7766 ppm	0.4 %
Be 313.042 {108} (Axial)	0.2628 ppm	0.3 %
Ca 315.887 {107} (Radial)	144.5673 ppm	0.1 %
Cd 228.802 {447} (Axial)	0.7877 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.7552 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.7442 ppm	0.5 %
Co 228.616 {447} (Axial)	0.7399 ppm	0.5 %
Cu 324.754 {104} (Axial)	0.7873 ppm	0.3 %
Fe 259.940 {130} (Radial)	121.3552 ppm	0.3 %
Li 670.784 {50} (Radial)	0.0042 ppm	6.9 %
Mn 257.610 {131} (Axial)	0.5015 ppm	0.3 %
Mo 202.030 {467} (Axial)	-0.0001 ppm	128.7 %
Na 589.592 {57} (Radial)	26.3888 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.7472 ppm	0.5 %
K 766.490 {44} (Radial)	52.5222 ppm	0.1 %
Se 196.090 {472} (Axial)	1.2892 ppm	0.5 %
Ag 328.068 {103} (Axial)	0.8028 ppm	0.2 %
Sr 407.771 {83} (Radial)	-0.0055 ppm	0.5 %
Sn 189.989 {477} (Axial)	-0.0036 ppm	14.8 %
Ti 334.941 {101} (Radial)	0.0033 ppm	13.6 %
V 292.402 {115} (Axial)	0.7898 ppm	0.4 %
Zn 213.856 {457} (Axial)	0.7776 ppm	0.4 %
Sc 357.253 {94} (Axial)	95.0849 %	0.3 %
Sc 188.060 {479} (Axial)	87.1982 %	0.6 %
Mg 279.079 {121} (Radial)	74.0071 ppm	0.2 %
Tl 190.856 {477} (Axial)	2.4800 ppm	0.5 %
Al 167.079 {502} (Axial)	11.9295 ppm	0.4 %
Sc 227.318 {448} (Axial)	87.1609 %	0.4 %
B 249.773 {135} (Radial)	0.1497 ppm	1.0 %
Al 396.152 {85} (Radial)	29.3624 ppm	0.2 %
Si 251.611 {134} (Radial)	-0.0068 ppm	58.3 %
Bi 223.061 {451} (Axial)	0.0057 ppm	16.5 %
Pb 220.353 {453} (Axial)	2.4836 ppm	0.4 %
Th 283.231 {119} (Radial)	0.1216 ppm	6.0 %
Th 401.913 {84} (Radial)	0.0142 ppm	21.1 %
U 409.014 {82} (Radial)	0.0344 ppm	29.7 %
Y 224.306 {450} (Axial)	93.1886 %	0.4 %
Sc 361.384 {93} (Radial)	105.9614 %	0.1 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 5/31/2018 11:57:15 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.5038 ppm	0.7 %
As 189.042 {478} (Axial)	0.5017 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5279 ppm	0.2 %
Ba 493.409 {68} (Radial)	2.5733 ppm	0.2 %
Be 313.042 {108} (Axial)	0.5193 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.5313 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.5058 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.5075 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.4983 ppm	0.3 %
Co 228.616 {447} (Axial)	2.5687 ppm	0.3 %
Cu 324.754 {104} (Axial)	2.5526 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.5310 ppm	0.4 %
Li 670.784 {50} (Radial)	2.5324 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.5098 ppm	0.2 %
Mo 202.030 {467} (Axial)	2.5510 ppm	0.2 %
Na 589.592 {57} (Radial)	51.7612 ppm	0.2 %
Ni 231.604 {445} (Axial)	2.5608 ppm	0.3 %
K 766.490 {44} (Radial)	51.0039 ppm	0.1 %
Se 196.090 {472} (Axial)	2.5274 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.4985 ppm	0.3 %
Sr 407.771 {83} (Radial)	0.5074 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.5129 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.5023 ppm	0.4 %
V 292.402 {115} (Axial)	0.5114 ppm	0.1 %
Zn 213.856 {457} (Axial)	1.2674 ppm	0.3 %
Sc 357.253 {94} (Axial)	97.9045 %	0.1 %
Sc 188.060 {479} (Axial)	93.6071 %	0.1 %
Mg 279.079 {121} (Radial)	2.5013 ppm	0.9 %
Tl 190.856 {477} (Axial)	0.5201 ppm	0.4 %
Al 167.079 {502} (Axial)	2.3338 ppm	0.2 %
Sc 227.318 {448} (Axial)	101.0594 %	0.2 %
B 249.773 {135} (Radial)	2.5298 ppm	0.2 %
Al 396.152 {85} (Radial)	2.5136 ppm	0.4 %
Si 251.611 {134} (Radial)	2.5467 ppm	0.3 %
Bi 223.061 {451} (Axial)	2.5458 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.5140 ppm	0.4 %
Th 283.231 {119} (Radial)	1.2499 ppm	1.5 %
Th 401.913 {84} (Radial)	1.2598 ppm	0.5 %
U 409.014 {82} (Radial)	2.5260 ppm	0.4 %
Y 224.306 {450} (Axial)	96.4860 %	0.2 %
Sc 361.384 {93} (Radial)	106.2377 %	0.4 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 5/31/2018 12:02:57 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0002 ppm	491.1 %
As 189.042 {478} (Axial)	-0.0001 ppm	2,226.6 %
Ba 455.403 {74} (Radial)	0.0008 ppm	16.6 %
Ba 493.409 {68} (Radial)	0.0002 ppm	94.6 %
Be 313.042 {108} (Axial)	0.0002 ppm	9.9 %
Ca 315.887 {107} (Radial)	-0.0089 ppm	18.9 %
Cd 228.802 {447} (Axial)	0.0002 ppm	27.5 %
Cr 267.716 {126} (Axial)	0.0003 ppm	106.2 %
Cr 205.560 {464} (Axial)	0.0000 ppm	587.9 %
Co 228.616 {447} (Axial)	0.0002 ppm	33.0 %
Cu 324.754 {104} (Axial)	0.0007 ppm	46.9 %
Fe 259.940 {130} (Radial)	-0.0021 ppm	160.7 %
Li 670.784 {50} (Radial)	0.0019 ppm	19.0 %
Mn 257.610 {131} (Axial)	0.0000 ppm	261.5 %
Mo 202.030 {467} (Axial)	0.0003 ppm	19.7 %
Na 589.592 {57} (Radial)	-0.0029 ppm	113.4 %
Ni 231.604 {445} (Axial)	0.0000 ppm	684.4 %
K 766.490 {44} (Radial)	0.0400 ppm	36.6 %
Se 196.090 {472} (Axial)	0.0002 ppm	989.4 %
Ag 328.068 {103} (Axial)	-0.0003 ppm	118.6 %
Sr 407.771 {83} (Radial)	0.0001 ppm	46.3 %
Sn 189.989 {477} (Axial)	0.0001 ppm	287.3 %
Ti 334.941 {101} (Radial)	0.0007 ppm	34.4 %
V 292.402 {115} (Axial)	-0.0003 ppm	31.9 %
Zn 213.856 {457} (Axial)	-0.0002 ppm	37.8 %
Sc 357.253 {94} (Axial)	102.7345 %	0.3 %
Sc 188.060 {479} (Axial)	102.8729 %	0.2 %
Mg 279.079 {121} (Radial)	-0.0071 ppm	115.8 %
Tl 190.856 {477} (Axial)	0.0000 ppm	728.6 %
Al 167.079 {502} (Axial)	-0.0006 ppm	58.2 %
Sc 227.318 {448} (Axial)	102.8776 %	0.1 %
B 249.773 {135} (Radial)	0.0083 ppm	20.4 %
Al 396.152 {85} (Radial)	0.0016 ppm	63.6 %
Si 251.611 {134} (Radial)	0.0053 ppm	71.2 %
Bi 223.061 {451} (Axial)	-0.0011 ppm	164.7 %
Pb 220.353 {453} (Axial)	-0.0008 ppm	117.1 %
Th 283.231 {119} (Radial)	-0.0025 ppm	317.1 %
Th 401.913 {84} (Radial)	0.0014 ppm	796.7 %
U 409.014 {82} (Radial)	0.0012 ppm	1,476.1 %
Y 224.306 {450} (Axial)	101.6669 %	0.1 %
Sc 361.384 {93} (Radial)	107.6769 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 5/31/2018 12:09:17 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0055 ppm	10.2 %
As 189.042 {478} (Axial)	0.0050 ppm	23.6 %
Ba 455.403 {74} (Radial)	0.0055 ppm	1.5 %
Ba 493.409 {68} (Radial)	0.0047 ppm	2.1 %
Be 313.042 {108} (Axial)	0.0021 ppm	0.7 %
Ca 315.887 {107} (Radial)	0.5008 ppm	1.1 %
Cd 228.802 {447} (Axial)	0.0105 ppm	0.7 %
Cr 267.716 {126} (Axial)	0.0053 ppm	2.4 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0054 ppm	0.5 %
Cu 324.754 {104} (Axial)	0.0108 ppm	5.5 %
Fe 259.940 {130} (Radial)	0.0930 ppm	2.0 %
Li 670.784 {50} (Radial)	0.0103 ppm	7.7 %
Mn 257.610 {131} (Axial)	0.0053 ppm	0.4 %
Mo 202.030 {467} (Axial)	0.0053 ppm	2.5 %
Na 589.592 {57} (Radial)	0.2018 ppm	1.6 %
Ni 231.604 {445} (Axial)	0.0053 ppm	4.0 %
K 766.490 {44} (Radial)	0.2026 ppm	7.0 %
Se 196.090 {472} (Axial)	0.0097 ppm	13.8 %
Ag 328.068 {103} (Axial)	0.0055 ppm	8.4 %
Sr 407.771 {83} (Radial)	0.0052 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.0103 ppm	1.6 %
Ti 334.941 {101} (Radial)	0.0054 ppm	7.9 %
V 292.402 {115} (Axial)	0.0047 ppm	9.0 %
Zn 213.856 {457} (Axial)	0.0105 ppm	1.0 %
Sc 357.253 {94} (Axial)	103.3735 %	0.1 %
Sc 188.060 {479} (Axial)	102.7229 %	0.1 %
Mg 279.079 {121} (Radial)	0.1946 ppm	3.1 %
Tl 190.856 {477} (Axial)	0.0117 ppm	10.1 %
Al 167.079 {502} (Axial)	0.0102 ppm	1.6 %
Sc 227.318 {448} (Axial)	102.5688 %	0.1 %
B 249.773 {135} (Radial)	0.0242 ppm	7.6 %
Al 396.152 {85} (Radial)	0.0096 ppm	55.2 %
Si 251.611 {134} (Radial)	0.4371 ppm	0.4 %
Bi 223.061 {451} (Axial)	-0.0020 ppm	65.1 %
Pb 220.353 {453} (Axial)	0.0052 ppm	15.4 %
Th 283.231 {119} (Radial)	0.0079 ppm	111.5 %
Th 401.913 {84} (Radial)	0.0050 ppm	184.7 %
U 409.014 {82} (Radial)	0.0396 ppm	50.0 %
Y 224.306 {450} (Axial)	101.8115 %	0.0 %
Sc 361.384 {93} (Radial)	107.0567 %	0.1 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 5/31/2018 10:36:01 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4882 ppm	0.2 %
As 189.042 {478} (Axial)	0.4815 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5150 ppm	0.4 %
Ba 493.409 {68} (Radial)	2.5423 ppm	0.3 %
Be 313.042 {108} (Axial)	0.5102 ppm	0.0 %
Ca 315.887 {107} (Radial)	2.5221 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.4867 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.4990 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.4871 ppm	0.3 %
Co 228.616 {447} (Axial)	2.5154 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.4788 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.3276 ppm	0.4 %
Li 670.784 {50} (Radial)	2.5062 ppm	0.4 %
Mn 257.610 {131} (Axial)	0.4844 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.4545 ppm	0.1 %
Na 589.592 {57} (Radial)	50.5134 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4775 ppm	0.2 %
K 766.490 {44} (Radial)	50.9633 ppm	0.2 %
Se 196.090 {472} (Axial)	2.4691 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.4893 ppm	0.1 %
Sr 407.771 {83} (Radial)	0.5055 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.4927 ppm	0.1 %
Tl 334.941 {101} (Radial)	0.4889 ppm	0.6 %
V 292.402 {115} (Axial)	0.5034 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.2107 ppm	0.2 %
Sc 357.253 {94} (Axial)	98.6676 %	0.2 %
Sc 188.060 {479} (Axial)	94.5844 %	0.2 %
Mg 279.079 {121} (Radial)	2.4120 ppm	0.5 %
Tl 190.856 {477} (Axial)	0.5044 ppm	0.2 %
Al 167.079 {502} (Axial)	2.2797 ppm	0.2 %
Sc 227.318 {448} (Axial)	101.8721 %	0.2 %
B 249.773 {135} (Radial)	2.4297 ppm	0.6 %
Al 396.152 {85} (Radial)	2.5141 ppm	0.7 %
Si 251.611 {134} (Radial)	2.4637 ppm	0.2 %
Bi 223.061 {451} (Axial)	2.4823 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.4922 ppm	0.1 %
Th 283.231 {119} (Radial)	1.2199 ppm	0.9 %
Th 401.913 {84} (Radial)	1.2680 ppm	0.8 %
U 409.014 {82} (Radial)	2.5297 ppm	1.2 %
Y 224.306 {450} (Axial)	98.4477 %	0.2 %
Sc 361.384 {93} (Radial)	103.1462 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 5/31/2018 10:41:42 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0009 ppm	77.8 %
As 189.042 {478} (Axial)	-0.0002 ppm	318.3 %
Ba 455.403 {74} (Radial)	0.0020 ppm	44.0 %
Ba 493.409 {68} (Radial)	0.0018 ppm	43.5 %
Be 313.042 {108} (Axial)	0.0001 ppm	12.3 %
Ca 315.887 {107} (Radial)	-0.0033 ppm	98.5 %
Cd 228.802 {447} (Axial)	0.0003 ppm	20.4 %
Cr 267.716 {126} (Axial)	0.0001 ppm	484.4 %
Cr 205.560 {464} (Axial)	0.0001 ppm	146.9 %
Co 228.616 {447} (Axial)	0.0006 ppm	28.4 %
Cu 324.754 {104} (Axial)	0.0005 ppm	69.1 %
Fe 259.940 {130} (Radial)	-0.0022 ppm	88.1 %
Li 670.784 {50} (Radial)	-0.0003 ppm	381.7 %
Mn 257.610 {131} (Axial)	-0.0001 ppm	72.8 %
Mo 202.030 {467} (Axial)	0.0007 ppm	33.7 %
Na 589.592 {57} (Radial)	0.0471 ppm	38.7 %
Ni 231.604 {445} (Axial)	0.0004 ppm	52.5 %
K 766.490 {44} (Radial)	0.0528 ppm	40.2 %
Se 196.090 {472} (Axial)	0.0006 ppm	226.9 %
Ag 328.068 {103} (Axial)	0.0005 ppm	28.7 %
Sr 407.771 {83} (Radial)	0.0004 ppm	36.1 %
Sn 189.989 {477} (Axial)	0.0003 ppm	130.9 %
Ti 334.941 {101} (Radial)	0.0008 ppm	36.4 %
V 292.402 {115} (Axial)	-0.0001 ppm	610.1 %
Zn 213.856 {457} (Axial)	-0.0003 ppm	48.2 %
Sc 357.253 {94} (Axial)	102.8416 %	0.3 %
Sc 188.060 {479} (Axial)	102.3201 %	0.6 %
Mg 279.079 {121} (Radial)	-0.0102 ppm	70.3 %
Tl 190.856 {477} (Axial)	0.0004 ppm	204.9 %
Al 167.079 {502} (Axial)	-0.0004 ppm	53.3 %
Sc 227.318 {448} (Axial)	101.9614 %	0.6 %
B 249.773 {135} (Radial)	0.0087 ppm	21.7 %
Al 396.152 {85} (Radial)	0.0017 ppm	207.0 %
Si 251.611 {134} (Radial)	0.0022 ppm	134.7 %
Bi 223.061 {451} (Axial)	-0.0001 ppm	938.6 %
Pb 220.353 {453} (Axial)	0.0000 ppm	14,655.6 %
Th 283.231 {119} (Radial)	-0.0054 ppm	270.2 %
Th 401.913 {84} (Radial)	0.0109 ppm	47.1 %
U 409.014 {82} (Radial)	0.0176 ppm	75.3 %
Y 224.306 {450} (Axial)	102.5469 %	0.5 %
Sc 361.384 {93} (Radial)	101.7021 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 5/31/2018 10:48:02 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0049 ppm	24.6 %
As 189.042 {478} (Axial)	0.0040 ppm	10.3 %
Ba 455.403 {74} (Radial)	0.0051 ppm	2.8 %
Ba 493.409 {68} (Radial)	0.0046 ppm	4.0 %
Be 313.042 {108} (Axial)	0.0019 ppm	1.5 %
Ca 315.887 {107} (Radial)	0.5052 ppm	1.0 %
Cd 228.802 {447} (Axial)	0.0100 ppm	0.6 %
Cr 267.716 {126} (Axial)	0.0052 ppm	2.8 %
Cr 205.560 {464} (Axial)	0.0048 ppm	0.5 %
Co 228.616 {447} (Axial)	0.0052 ppm	1.4 %
Cu 324.754 {104} (Axial)	0.0105 ppm	1.9 %
Fe 259.940 {130} (Radial)	0.0831 ppm	2.1 %
Li 670.784 {50} (Radial)	0.0080 ppm	7.1 %
Mn 257.610 {131} (Axial)	0.0050 ppm	1.2 %
Mo 202.030 {467} (Axial)	0.0050 ppm	2.6 %
Na 589.592 {57} (Radial)	0.2139 ppm	1.7 %
Ni 231.604 {445} (Axial)	0.0050 ppm	1.9 %
K 766.490 {44} (Radial)	0.1970 ppm	8.7 %
Se 196.090 {472} (Axial)	0.0092 ppm	10.6 %
Ag 328.068 {103} (Axial)	0.0059 ppm	5.4 %
Sr 407.771 {83} (Radial)	0.0052 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.0102 ppm	2.5 %
Ti 334.941 {101} (Radial)	0.0054 ppm	12.4 %
V 292.402 {115} (Axial)	0.0048 ppm	5.8 %
Zn 213.856 {457} (Axial)	0.0097 ppm	0.5 %
Sc 357.253 {94} (Axial)	106.1040 %	0.1 %
Sc 188.060 {479} (Axial)	104.7784 %	0.1 %
Mg 279.079 {121} (Radial)	0.1907 ppm	6.9 %
Tl 190.856 {477} (Axial)	0.0103 ppm	13.1 %
Al 167.079 {502} (Axial)	0.0097 ppm	0.8 %
Sc 227.318 {448} (Axial)	104.4932 %	0.1 %
B 249.773 {135} (Radial)	0.0232 ppm	6.9 %
Al 396.152 {85} (Radial)	0.0068 ppm	128.6 %
Si 251.611 {134} (Radial)	0.4220 ppm	1.5 %
Bi 223.061 {451} (Axial)	-0.0014 ppm	70.9 %
Pb 220.353 {453} (Axial)	0.0049 ppm	8.9 %
Th 283.231 {119} (Radial)	0.0010 ppm	873.1 %
Th 401.913 {84} (Radial)	0.0102 ppm	51.9 %
U 409.014 {82} (Radial)	0.0521 ppm	33.2 %
Y 224.306 {450} (Axial)	105.0969 %	0.1 %
Sc 361.384 {93} (Radial)	104.3174 %	0.8 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICSAB

Sample Type QC Analysis Date 5/31/2018 10:54:19 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0024 ppm	32.0 %
As 189.042 {478} (Axial)	2.4839 ppm	0.5 %
Ba 455.403 {74} (Radial)	0.7911 ppm	0.2 %
Ba 493.409 {68} (Radial)	0.8000 ppm	0.3 %
Be 313.042 {108} (Axial)	0.2681 ppm	0.0 %
Ca 315.887 {107} (Radial)	152.7338 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.7794 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.7718 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.7523 ppm	0.4 %
Co 228.616 {447} (Axial)	0.7477 ppm	0.2 %
Cu 324.754 {104} (Axial)	0.7838 ppm	0.2 %
Fe 259.940 {130} (Radial)	115.3446 ppm	0.3 %
Li 670.784 {50} (Radial)	-0.0006 ppm	147.8 %
Mn 257.610 {131} (Axial)	0.4878 ppm	0.1 %
Mo 202.030 {467} (Axial)	-0.0004 ppm	48.5 %
Na 589.592 {57} (Radial)	27.0913 ppm	0.3 %
Ni 231.604 {445} (Axial)	0.7431 ppm	0.3 %
K 766.490 {44} (Radial)	54.9684 ppm	0.1 %
Se 196.090 {472} (Axial)	1.2834 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.8048 ppm	0.2 %
Sr 407.771 {83} (Radial)	-0.0058 ppm	0.8 %
Sn 189.989 {477} (Axial)	-0.0038 ppm	14.8 %
Ti 334.941 {101} (Radial)	0.0040 ppm	21.8 %
V 292.402 {115} (Axial)	0.8037 ppm	0.1 %
Zn 213.856 {457} (Axial)	0.7598 ppm	0.3 %
Sc 357.253 {94} (Axial)	95.1715 %	0.2 %
Sc 188.060 {479} (Axial)	87.0256 %	0.2 %
Mg 279.079 {121} (Radial)	74.8946 ppm	0.6 %
Tl 190.856 {477} (Axial)	2.4526 ppm	0.3 %
Al 167.079 {502} (Axial)	11.9694 ppm	0.2 %
Sc 227.318 {448} (Axial)	86.8143 %	0.2 %
B 249.773 {135} (Radial)	0.1713 ppm	0.6 %
Al 396.152 {85} (Radial)	30.5211 ppm	0.5 %
Si 251.611 {134} (Radial)	-0.0028 ppm	92.1 %
Bi 223.061 {451} (Axial)	0.0067 ppm	19.3 %
Pb 220.353 {453} (Axial)	2.4433 ppm	0.2 %
Th 283.231 {119} (Radial)	0.1582 ppm	4.2 %
Th 401.913 {84} (Radial)	0.0137 ppm	30.4 %
U 409.014 {82} (Radial)	0.0522 ppm	32.4 %
Y 224.306 {450} (Axial)	94.5800 %	0.2 %
Sc 361.384 {93} (Radial)	100.1307 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 12:03:57 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4968 ppm	0.5 %
As 189.042 {478} (Axial)	0.4897 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5193 ppm	0.4 %
Ba 493.409 {68} (Radial)	2.5618 ppm	0.3 %
Be 313.042 {108} (Axial)	0.5103 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.4880 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.4961 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.5028 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.4907 ppm	0.3 %
Co 228.616 {447} (Axial)	2.5299 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.5093 ppm	0.3 %
Fe 259.940 {130} (Radial)	2.3609 ppm	0.6 %
Li 670.784 {50} (Radial)	2.5233 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.4955 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.4941 ppm	0.1 %
Na 589.592 {57} (Radial)	49.4328 ppm	0.5 %
Ni 231.604 {445} (Axial)	2.5075 ppm	0.1 %
K 766.490 {44} (Radial)	50.8507 ppm	0.3 %
Se 196.090 {472} (Axial)	2.4916 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4940 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.5045 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.5011 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.4908 ppm	0.5 %
V 292.402 {115} (Axial)	0.5049 ppm	0.1 %
Zn 213.856 {457} (Axial)	1.2362 ppm	0.0 %
Sc 357.253 {94} (Axial)	98.4746 %	0.2 %
Sc 188.060 {479} (Axial)	94.7007 %	0.2 %
Mg 279.079 {121} (Radial)	2.4020 ppm	1.4 %
Tl 190.856 {477} (Axial)	0.5113 ppm	0.1 %
Al 167.079 {502} (Axial)	2.3146 ppm	0.1 %
Sc 227.318 {448} (Axial)	102.0153 %	0.1 %
B 249.773 {135} (Radial)	2.4150 ppm	0.9 %
Al 396.152 {85} (Radial)	2.5015 ppm	1.1 %
Si 251.611 {134} (Radial)	2.4426 ppm	0.3 %
Bi 223.061 {451} (Axial)	2.5122 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.5005 ppm	0.2 %
Th 283.231 {119} (Radial)	1.2205 ppm	1.4 %
Th 401.913 {84} (Radial)	1.2552 ppm	1.0 %
U 409.014 {82} (Radial)	2.5187 ppm	0.7 %
Y 224.306 {450} (Axial)	97.8606 %	0.1 %
Sc 361.384 {93} (Radial)	103.0597 %	0.5 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 12:09:38 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0001 ppm	2,037.9 %
As 189.042 {478} (Axial)	-0.0007 ppm	105.0 %
Ba 455.403 {74} (Radial)	0.0005 ppm	36.5 %
Ba 493.409 {68} (Radial)	-0.0003 ppm	111.7 %
Be 313.042 {108} (Axial)	0.0002 ppm	10.4 %
Ca 315.887 {107} (Radial)	-0.0051 ppm	87.2 %
Cd 228.802 {447} (Axial)	0.0003 ppm	42.3 %
Cr 267.716 {126} (Axial)	0.0003 ppm	48.4 %
Cr 205.560 {464} (Axial)	0.0000 ppm	206.2 %
Co 228.616 {447} (Axial)	0.0004 ppm	53.2 %
Cu 324.754 {104} (Axial)	0.0008 ppm	26.2 %
Fe 259.940 {130} (Radial)	-0.0037 ppm	48.6 %
Li 670.784 {50} (Radial)	0.0006 ppm	82.2 %
Mn 257.610 {131} (Axial)	0.0001 ppm	41.9 %
Mo 202.030 {467} (Axial)	0.0004 ppm	59.1 %
Na 589.592 {57} (Radial)	0.0820 ppm	14.5 %
Ni 231.604 {445} (Axial)	0.0002 ppm	223.5 %
K 766.490 {44} (Radial)	0.0203 ppm	52.6 %
Se 196.090 {472} (Axial)	-0.0020 ppm	45.8 %
Ag 328.068 {103} (Axial)	0.0002 ppm	81.8 %
Sr 407.771 {83} (Radial)	0.0000 ppm	183.3 %
Sn 189.989 {477} (Axial)	0.0004 ppm	86.1 %
Ti 334.941 {101} (Radial)	0.0004 ppm	110.4 %
V 292.402 {115} (Axial)	-0.0002 ppm	89.4 %
Zn 213.856 {457} (Axial)	-0.0004 ppm	10.7 %
Sc 357.253 {94} (Axial)	103.9814 %	0.1 %
Sc 188.060 {479} (Axial)	103.9855 %	0.4 %
Mg 279.079 {121} (Radial)	-0.0116 ppm	94.5 %
Tl 190.856 {477} (Axial)	0.0001 ppm	826.3 %
Al 167.079 {502} (Axial)	-0.0006 ppm	24.9 %
Sc 227.318 {448} (Axial)	104.0909 %	0.1 %
B 249.773 {135} (Radial)	0.0060 ppm	24.6 %
Al 396.152 {85} (Radial)	-0.0028 ppm	292.8 %
Si 251.611 {134} (Radial)	0.0063 ppm	45.6 %
Bi 223.061 {451} (Axial)	-0.0012 ppm	35.4 %
Pb 220.353 {453} (Axial)	-0.0001 ppm	443.9 %
Th 283.231 {119} (Radial)	-0.0101 ppm	94.5 %
Th 401.913 {84} (Radial)	-0.0021 ppm	320.3 %
U 409.014 {82} (Radial)	-0.0107 ppm	123.7 %
Y 224.306 {450} (Axial)	103.2361 %	0.1 %
Sc 361.384 {93} (Radial)	104.4214 %	0.4 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 12:15:59 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0053 ppm	23.2 %
As 189.042 {478} (Axial)	0.0044 ppm	17.7 %
Ba 455.403 {74} (Radial)	0.0057 ppm	3.6 %
Ba 493.409 {68} (Radial)	0.0049 ppm	4.9 %
Be 313.042 {108} (Axial)	0.0020 ppm	1.4 %
Ca 315.887 {107} (Radial)	0.4991 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.0104 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.0052 ppm	5.0 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0052 ppm	1.7 %
Cu 324.754 {104} (Axial)	0.0108 ppm	3.0 %
Fe 259.940 {130} (Radial)	0.0854 ppm	2.0 %
Li 670.784 {50} (Radial)	0.0104 ppm	5.7 %
Mn 257.610 {131} (Axial)	0.0053 ppm	0.6 %
Mo 202.030 {467} (Axial)	0.0052 ppm	2.2 %
Na 589.592 {57} (Radial)	0.2724 ppm	0.8 %
Ni 231.604 {445} (Axial)	0.0052 ppm	0.7 %
K 766.490 {44} (Radial)	0.1938 ppm	6.4 %
Se 196.090 {472} (Axial)	0.0078 ppm	15.0 %
Ag 328.068 {103} (Axial)	0.0052 ppm	9.2 %
Sr 407.771 {83} (Radial)	0.0052 ppm	1.5 %
Sn 189.989 {477} (Axial)	0.0100 ppm	5.5 %
Ti 334.941 {101} (Radial)	0.0052 ppm	9.5 %
V 292.402 {115} (Axial)	0.0048 ppm	5.9 %
Zn 213.856 {457} (Axial)	0.0101 ppm	0.5 %
Sc 357.253 {94} (Axial)	103.9434 %	0.2 %
Sc 188.060 {479} (Axial)	104.5258 %	0.0 %
Mg 279.079 {121} (Radial)	0.2005 ppm	3.3 %
Tl 190.856 {477} (Axial)	0.0117 ppm	6.4 %
Al 167.079 {502} (Axial)	0.0102 ppm	0.2 %
Sc 227.318 {448} (Axial)	104.4440 %	0.1 %
B 249.773 {135} (Radial)	0.0233 ppm	7.6 %
Al 396.152 {85} (Radial)	0.0109 ppm	54.6 %
Si 251.611 {134} (Radial)	0.4235 ppm	1.3 %
Bi 223.061 {451} (Axial)	-0.0018 ppm	36.5 %
Pb 220.353 {453} (Axial)	0.0054 ppm	18.8 %
Th 283.231 {119} (Radial)	0.0057 ppm	183.4 %
Th 401.913 {84} (Radial)	0.0046 ppm	91.9 %
U 409.014 {82} (Radial)	0.0312 ppm	43.5 %
Y 224.306 {450} (Axial)	103.5746 %	0.1 %
Sc 361.384 {93} (Radial)	103.7092 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 12:22:17 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0054 ppm	9.4 %
As 189.042 {478} (Axial)	0.0043 ppm	8.1 %
Ba 455.403 {74} (Radial)	0.0054 ppm	5.2 %
Ba 493.409 {68} (Radial)	0.0045 ppm	3.4 %
Be 313.042 {108} (Axial)	0.0020 ppm	0.5 %
Ca 315.887 {107} (Radial)	0.5004 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.0103 ppm	0.7 %
Cr 267.716 {126} (Axial)	0.0050 ppm	3.8 %
Cr 205.560 {464} (Axial)	0.0049 ppm	1.2 %
Co 228.616 {447} (Axial)	0.0053 ppm	2.1 %
Cu 324.754 {104} (Axial)	0.0107 ppm	1.9 %
Fe 259.940 {130} (Radial)	0.0843 ppm	2.2 %
Li 670.784 {50} (Radial)	0.0096 ppm	9.5 %
Mn 257.610 {131} (Axial)	0.0052 ppm	0.8 %
Mo 202.030 {467} (Axial)	0.0050 ppm	3.3 %
Na 589.592 {57} (Radial)	0.2631 ppm	1.1 %
Ni 231.604 {445} (Axial)	0.0052 ppm	3.1 %
K 766.490 {44} (Radial)	0.1886 ppm	4.8 %
Se 196.090 {472} (Axial)	0.0095 ppm	12.5 %
Ag 328.068 {103} (Axial)	0.0055 ppm	4.8 %
Sr 407.771 {83} (Radial)	0.0052 ppm	1.1 %
Sn 189.989 {477} (Axial)	0.0104 ppm	3.6 %
Ti 334.941 {101} (Radial)	0.0055 ppm	5.7 %
V 292.402 {115} (Axial)	0.0050 ppm	3.5 %
Zn 213.856 {457} (Axial)	0.0100 ppm	0.1 %
Sc 357.253 {94} (Axial)	104.9571 %	0.1 %
Sc 188.060 {479} (Axial)	104.7988 %	0.1 %
Mg 279.079 {121} (Radial)	0.1953 ppm	4.7 %
Tl 190.856 {477} (Axial)	0.0114 ppm	5.2 %
Al 167.079 {502} (Axial)	0.0100 ppm	0.8 %
Sc 227.318 {448} (Axial)	104.6144 %	0.0 %
B 249.773 {135} (Radial)	0.0205 ppm	2.5 %
Al 396.152 {85} (Radial)	0.0082 ppm	29.0 %
Si 251.611 {134} (Radial)	0.4222 ppm	1.1 %
Bi 223.061 {451} (Axial)	-0.0021 ppm	66.5 %
Pb 220.353 {453} (Axial)	0.0051 ppm	9.5 %
Th 283.231 {119} (Radial)	-0.0004 ppm	2,270.2 %
Th 401.913 {84} (Radial)	0.0066 ppm	68.0 %
U 409.014 {82} (Radial)	0.0232 ppm	61.0 %
Y 224.306 {450} (Axial)	104.0682 %	0.1 %
Sc 361.384 {93} (Radial)	104.2118 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 10:05:30 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4906 ppm	0.7 %
As 189.042 {478} (Axial)	0.4774 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5826 ppm	0.3 %
Ba 493.409 {68} (Radial)	2.6405 ppm	0.4 %
Be 313.042 {108} (Axial)	0.5196 ppm	0.2 %
Ca 315.887 {107} (Radial)	2.7615 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.4836 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.5059 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.4892 ppm	0.1 %
Co 228.616 {447} (Axial)	2.5466 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.4956 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.2252 ppm	0.8 %
Li 670.784 {50} (Radial)	2.5689 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.4713 ppm	0.3 %
Mo 202.030 {467} (Axial)	2.4325 ppm	0.1 %
Na 589.592 {57} (Radial)	51.5916 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4670 ppm	0.1 %
K 766.490 {44} (Radial)	52.6340 ppm	0.2 %
Se 196.090 {472} (Axial)	2.4830 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4869 ppm	0.4 %
Sr 407.771 {83} (Radial)	0.5224 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.4910 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.4943 ppm	0.5 %
V 292.402 {115} (Axial)	0.5137 ppm	0.3 %
Zn 213.856 {457} (Axial)	1.1936 ppm	0.1 %
Sc 357.253 {94} (Axial)	98.3284 %	0.3 %
Sc 188.060 {479} (Axial)	94.8853 %	0.2 %
Mg 279.079 {121} (Radial)	2.4212 ppm	0.9 %
Tl 190.856 {477} (Axial)	0.5024 ppm	0.4 %
Al 167.079 {502} (Axial)	2.3054 ppm	0.3 %
Sc 227.318 {448} (Axial)	101.8540 %	0.0 %
B 249.773 {135} (Radial)	2.3897 ppm	0.6 %
Al 396.152 {85} (Radial)	2.5680 ppm	0.8 %
Si 251.611 {134} (Radial)	2.4626 ppm	0.5 %
Bi 223.061 {451} (Axial)	2.4770 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.4870 ppm	0.4 %
Th 283.231 {119} (Radial)	1.2180 ppm	1.0 %
Th 401.913 {84} (Radial)	1.3200 ppm	0.9 %
U 409.014 {82} (Radial)	2.6002 ppm	0.9 %
Y 224.306 {450} (Axial)	99.2232 %	0.1 %
Sc 361.384 {93} (Radial)	97.9676 %	0.5 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 10:11:13 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4854 ppm	0.3 %
As 189.042 {478} (Axial)	0.4748 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5695 ppm	0.0 %
Ba 493.409 {68} (Radial)	2.6294 ppm	0.1 %
Be 313.042 {108} (Axial)	0.5146 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.5849 ppm	0.2 %
Cd 228.802 {447} (Axial)	0.4803 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.5022 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.4839 ppm	0.1 %
Co 228.616 {447} (Axial)	2.5218 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.4795 ppm	0.1 %
Fe 259.940 {130} (Radial)	2.1765 ppm	0.0 %
Li 670.784 {50} (Radial)	2.5484 ppm	0.1 %
Mn 257.610 {131} (Axial)	0.4696 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.4062 ppm	0.0 %
Na 589.592 {57} (Radial)	51.1769 ppm	0.2 %
Ni 231.604 {445} (Axial)	2.4461 ppm	0.1 %
K 766.490 {44} (Radial)	52.1550 ppm	0.2 %
Se 196.090 {472} (Axial)	2.4677 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.4875 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.5192 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.4860 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.4884 ppm	0.3 %
V 292.402 {115} (Axial)	0.5105 ppm	0.3 %
Zn 213.856 {457} (Axial)	1.1858 ppm	0.1 %
Sc 357.253 {94} (Axial)	98.0418 %	0.1 %
Sc 188.060 {479} (Axial)	95.4324 %	0.2 %
Mg 279.079 {121} (Radial)	2.3678 ppm	0.5 %
Tl 190.856 {477} (Axial)	0.5000 ppm	0.4 %
Al 167.079 {502} (Axial)	2.2733 ppm	0.2 %
Sc 227.318 {448} (Axial)	102.2866 %	0.2 %
B 249.773 {135} (Radial)	2.3838 ppm	0.2 %
Al 396.152 {85} (Radial)	2.5106 ppm	0.4 %
Si 251.611 {134} (Radial)	2.4301 ppm	0.3 %
Bi 223.061 {451} (Axial)	2.4587 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.4831 ppm	0.2 %
Th 283.231 {119} (Radial)	1.2059 ppm	0.8 %
Th 401.913 {84} (Radial)	1.3154 ppm	0.4 %
U 409.014 {82} (Radial)	2.6096 ppm	0.4 %
Y 224.306 {450} (Axial)	99.3143 %	0.1 %
Sc 361.384 {93} (Radial)	98.1105 %	0.4 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 10:16:54 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0012 ppm	75.7 %
As 189.042 {478} (Axial)	-0.0001 ppm	817.4 %
Ba 455.403 {74} (Radial)	0.0004 ppm	52.4 %
Ba 493.409 {68} (Radial)	0.0010 ppm	49.8 %
Be 313.042 {108} (Axial)	0.0001 ppm	27.2 %
Ca 315.887 {107} (Radial)	-0.0062 ppm	78.0 %
Cd 228.802 {447} (Axial)	0.0003 ppm	15.4 %
Cr 267.716 {126} (Axial)	0.0001 ppm	174.0 %
Cr 205.560 {464} (Axial)	0.0000 ppm	227.2 %
Co 228.616 {447} (Axial)	0.0004 ppm	38.3 %
Cu 324.754 {104} (Axial)	0.0016 ppm	13.3 %
Fe 259.940 {130} (Radial)	-0.0043 ppm	50.7 %
Li 670.784 {50} (Radial)	-0.0008 ppm	57.3 %
Mn 257.610 {131} (Axial)	0.0000 ppm	275.6 %
Mo 202.030 {467} (Axial)	0.0006 ppm	22.1 %
Na 589.592 {57} (Radial)	-0.0245 ppm	22.0 %
Ni 231.604 {445} (Axial)	0.0001 ppm	216.0 %
K 766.490 {44} (Radial)	0.0070 ppm	40.6 %
Se 196.090 {472} (Axial)	-0.0015 ppm	90.6 %
Ag 328.068 {103} (Axial)	0.0011 ppm	37.0 %
Sr 407.771 {83} (Radial)	0.0000 ppm	147.1 %
Sn 189.989 {477} (Axial)	0.0005 ppm	45.9 %
Ti 334.941 {101} (Radial)	0.0002 ppm	54.0 %
V 292.402 {115} (Axial)	-0.0002 ppm	133.2 %
Zn 213.856 {457} (Axial)	-0.0002 ppm	54.9 %
Sc 357.253 {94} (Axial)	102.4286 %	0.3 %
Sc 188.060 {479} (Axial)	103.3004 %	0.3 %
Mg 279.079 {121} (Radial)	-0.0055 ppm	415.4 %
Tl 190.856 {477} (Axial)	0.0007 ppm	103.7 %
Al 167.079 {502} (Axial)	0.0003 ppm	82.1 %
Sc 227.318 {448} (Axial)	102.2453 %	0.2 %
B 249.773 {135} (Radial)	0.0109 ppm	15.0 %
Al 396.152 {85} (Radial)	0.0000 ppm	42,412.4 %
Si 251.611 {134} (Radial)	0.0083 ppm	40.8 %
Bi 223.061 {451} (Axial)	-0.0018 ppm	50.8 %
Pb 220.353 {453} (Axial)	-0.0002 ppm	265.1 %
Th 283.231 {119} (Radial)	-0.0097 ppm	101.3 %
Th 401.913 {84} (Radial)	0.0034 ppm	93.8 %
U 409.014 {82} (Radial)	0.0020 ppm	399.2 %
Y 224.306 {450} (Axial)	103.6122 %	0.1 %
Sc 361.384 {93} (Radial)	98.2874 %	0.6 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 10:23:14 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0056 ppm	24.5 %
As 189.042 {478} (Axial)	0.0038 ppm	16.9 %
Ba 455.403 {74} (Radial)	0.0058 ppm	4.0 %
Ba 493.409 {68} (Radial)	0.0060 ppm	3.7 %
Be 313.042 {108} (Axial)	0.0020 ppm	0.4 %
Ca 315.887 {107} (Radial)	0.5222 ppm	0.7 %
Cd 228.802 {447} (Axial)	0.0102 ppm	1.1 %
Cr 267.716 {126} (Axial)	0.0053 ppm	6.3 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.1 %
Co 228.616 {447} (Axial)	0.0054 ppm	2.7 %
Cu 324.754 {104} (Axial)	0.0116 ppm	3.1 %
Fe 259.940 {130} (Radial)	0.0779 ppm	1.6 %
Li 670.784 {50} (Radial)	0.0090 ppm	11.6 %
Mn 257.610 {131} (Axial)	0.0050 ppm	0.6 %
Mo 202.030 {467} (Axial)	0.0051 ppm	2.3 %
Na 589.592 {57} (Radial)	0.1872 ppm	1.3 %
Ni 231.604 {445} (Axial)	0.0054 ppm	1.4 %
K 766.490 {44} (Radial)	0.1573 ppm	9.0 %
Se 196.090 {472} (Axial)	0.0090 ppm	18.9 %
Ag 328.068 {103} (Axial)	0.0065 ppm	5.5 %
Sr 407.771 {83} (Radial)	0.0054 ppm	1.2 %
Sn 189.989 {477} (Axial)	0.0102 ppm	2.2 %
Ti 334.941 {101} (Radial)	0.0052 ppm	3.5 %
V 292.402 {115} (Axial)	0.0047 ppm	4.8 %
Zn 213.856 {457} (Axial)	0.0099 ppm	0.8 %
Sc 357.253 {94} (Axial)	102.5023 %	0.2 %
Sc 188.060 {479} (Axial)	103.1260 %	0.3 %
Mg 279.079 {121} (Radial)	0.1974 ppm	7.0 %
Tl 190.856 {477} (Axial)	0.0111 ppm	2.9 %
Al 167.079 {502} (Axial)	0.0105 ppm	3.6 %
Sc 227.318 {448} (Axial)	101.9810 %	0.5 %
B 249.773 {135} (Radial)	0.0253 ppm	7.3 %
Al 396.152 {85} (Radial)	0.0117 ppm	17.6 %
Si 251.611 {134} (Radial)	0.4366 ppm	0.9 %
Bi 223.061 {451} (Axial)	-0.0016 ppm	32.3 %
Pb 220.353 {453} (Axial)	0.0047 ppm	7.7 %
Th 283.231 {119} (Radial)	-0.0022 ppm	163.3 %
Th 401.913 {84} (Radial)	0.0153 ppm	41.3 %
U 409.014 {82} (Radial)	0.0346 ppm	20.6 %
Y 224.306 {450} (Axial)	103.5986 %	0.3 %
Sc 361.384 {93} (Radial)	98.6856 %	0.5 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 10:29:32 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0059 ppm	8.7 %
As 189.042 {478} (Axial)	0.0038 ppm	18.7 %
Ba 455.403 {74} (Radial)	0.0057 ppm	0.7 %
Ba 493.409 {68} (Radial)	0.0062 ppm	1.4 %
Be 313.042 {108} (Axial)	0.0020 ppm	1.1 %
Ca 315.887 {107} (Radial)	0.5225 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0103 ppm	0.3 %
Cr 267.716 {126} (Axial)	0.0056 ppm	3.5 %
Cr 205.560 {464} (Axial)	0.0050 ppm	0.7 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.6 %
Cu 324.754 {104} (Axial)	0.0118 ppm	1.6 %
Fe 259.940 {130} (Radial)	0.0788 ppm	2.4 %
Li 670.784 {50} (Radial)	0.0083 ppm	5.5 %
Mn 257.610 {131} (Axial)	0.0050 ppm	0.7 %
Mo 202.030 {467} (Axial)	0.0051 ppm	3.6 %
Na 589.592 {57} (Radial)	0.1896 ppm	4.2 %
Ni 231.604 {445} (Axial)	0.0055 ppm	3.2 %
K 766.490 {44} (Radial)	0.1604 ppm	2.5 %
Se 196.090 {472} (Axial)	0.0097 ppm	10.6 %
Ag 328.068 {103} (Axial)	0.0065 ppm	8.0 %
Sr 407.771 {83} (Radial)	0.0055 ppm	1.0 %
Sn 189.989 {477} (Axial)	0.0104 ppm	3.3 %
Ti 334.941 {101} (Radial)	0.0058 ppm	5.8 %
V 292.402 {115} (Axial)	0.0049 ppm	6.9 %
Zn 213.856 {457} (Axial)	0.0099 ppm	0.4 %
Sc 357.253 {94} (Axial)	101.9700 %	0.1 %
Sc 188.060 {479} (Axial)	102.8736 %	0.1 %
Mg 279.079 {121} (Radial)	0.1859 ppm	4.5 %
Tl 190.856 {477} (Axial)	0.0112 ppm	7.0 %
Al 167.079 {502} (Axial)	0.0101 ppm	0.2 %
Sc 227.318 {448} (Axial)	101.8560 %	0.1 %
B 249.773 {135} (Radial)	0.0227 ppm	13.9 %
Al 396.152 {85} (Radial)	0.0098 ppm	60.8 %
Si 251.611 {134} (Radial)	0.4359 ppm	1.0 %
Bi 223.061 {451} (Axial)	-0.0013 ppm	80.3 %
Pb 220.353 {453} (Axial)	0.0049 ppm	6.1 %
Th 283.231 {119} (Radial)	0.0027 ppm	234.3 %
Th 401.913 {84} (Radial)	0.0159 ppm	45.7 %
U 409.014 {82} (Radial)	0.0439 ppm	25.0 %
Y 224.306 {450} (Axial)	103.3311 %	0.1 %
Sc 361.384 {93} (Radial)	98.5207 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

MBLK-119140

Sample Type UNKNOWN Analysis Date 6/1/2018 11:05:00 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0021 ppm	34.2 %
As 189.042 {478} (Axial)	-0.0020 ppm	25.9 %
Ba 455.403 {74} (Radial)	0.0052 ppm	13.3 %
Ba 493.409 {68} (Radial)	0.0056 ppm	13.6 %
Be 313.042 {108} (Axial)	-0.0001 ppm	23.8 %
Ca 315.887 {107} (Radial)	0.0185 ppm	37.3 %
Cd 228.802 {447} (Axial)	0.0004 ppm	19.4 %
Cr 267.716 {126} (Axial)	0.0006 ppm	15.6 %
Cr 205.560 {464} (Axial)	0.0003 ppm	26.8 %
Co 228.616 {447} (Axial)	-0.0002 ppm	52.1 %
Cu 324.754 {104} (Axial)	0.0013 ppm	19.9 %
Fe 259.940 {130} (Radial)	0.0065 ppm	22.5 %
Li 670.784 {50} (Radial)	-0.0051 ppm	10.3 %
Mn 257.610 {131} (Axial)	0.0004 ppm	8.4 %
Mo 202.030 {467} (Axial)	0.0000 ppm	677.7 %
Na 589.592 {57} (Radial)	-0.0374 ppm	6.5 %
Ni 231.604 {445} (Axial)	-0.0002 ppm	58.9 %
K 766.490 {44} (Radial)	-0.0907 ppm	22.0 %
Se 196.090 {472} (Axial)	-0.0028 ppm	52.1 %
Ag 328.068 {103} (Axial)	0.0014 ppm	8.2 %
Sr 407.771 {83} (Radial)	0.0049 ppm	49.0 %
Sn 189.989 {477} (Axial)	0.0007 ppm	73.4 %
Ti 334.941 {101} (Radial)	0.0001 ppm	263.1 %
V 292.402 {115} (Axial)	-0.0004 ppm	107.3 %
Zn 213.856 {457} (Axial)	0.0024 ppm	1.6 %
Sc 357.253 {94} (Axial)	103.4813 %	0.1 %
Sc 188.060 {479} (Axial)	98.3133 %	0.1 %
Mg 279.079 {121} (Radial)	-0.0138 ppm	30.9 %
Tl 190.856 {477} (Axial)	-0.0015 ppm	64.7 %
Al 167.079 {502} (Axial)	0.0011 ppm	5.6 %
Sc 227.318 {448} (Axial)	97.0449 %	0.1 %
B 249.773 {135} (Radial)	0.0007 ppm	246.2 %
Al 396.152 {85} (Radial)	0.0004 ppm	1,104.7 %
Si 251.611 {134} (Radial)	0.0029 ppm	148.1 %
Bi 223.061 {451} (Axial)	-0.0081 ppm	12.1 %
Pb 220.353 {453} (Axial)	0.0001 ppm	418.1 %
Th 283.231 {119} (Radial)	-0.0085 ppm	110.4 %
Th 401.913 {84} (Radial)	0.0078 ppm	89.0 %
U 409.014 {82} (Radial)	-0.0041 ppm	367.4 %
Y 224.306 {450} (Axial)	102.8797 %	0.1 %
Sc 361.384 {93} (Radial)	101.1210 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

LCS-119140

Sample Type UNKNOWN Analysis Date 6/1/2018 11:11:23 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1007 ppm	1.7 %
As 189.042 {478} (Axial)	0.0892 ppm	1.4 %
Ba 455.403 {74} (Radial)	0.1096 ppm	0.3 %
Ba 493.409 {68} (Radial)	0.1123 ppm	0.3 %
Be 313.042 {108} (Axial)	0.0997 ppm	0.2 %
Ca 315.887 {107} (Radial)	10.3222 ppm	0.1 %
Cd 228.802 {447} (Axial)	0.0980 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.1032 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.1017 ppm	0.1 %
Co 228.616 {447} (Axial)	0.1043 ppm	0.3 %
Cu 324.754 {104} (Axial)	0.1041 ppm	0.5 %
Fe 259.940 {130} (Radial)	8.7248 ppm	0.3 %
Li 670.784 {50} (Radial)	0.1004 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.0957 ppm	0.3 %
Mo 202.030 {467} (Axial)	0.1025 ppm	0.5 %
Na 589.592 {57} (Radial)	10.6926 ppm	0.1 %
Ni 231.604 {445} (Axial)	0.1003 ppm	0.1 %
K 766.490 {44} (Radial)	10.7463 ppm	0.3 %
Se 196.090 {472} (Axial)	0.0930 ppm	0.9 %
Ag 328.068 {103} (Axial)	0.0985 ppm	0.5 %
Sr 407.771 {83} (Radial)	0.1088 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.0981 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.1011 ppm	0.5 %
V 292.402 {115} (Axial)	0.1071 ppm	0.3 %
Zn 213.856 {457} (Axial)	0.1016 ppm	0.3 %
Sc 357.253 {94} (Axial)	100.6319 %	0.0 %
Sc 188.060 {479} (Axial)	94.4444 %	0.1 %
Mg 279.079 {121} (Radial)	9.4608 ppm	0.4 %
Tl 190.856 {477} (Axial)	0.1003 ppm	0.7 %
Al 167.079 {502} (Axial)	0.1155 ppm	0.4 %
Sc 227.318 {448} (Axial)	93.3231 %	0.2 %
B 249.773 {135} (Radial)	0.5013 ppm	0.3 %
Al 396.152 {85} (Radial)	0.1082 ppm	2.7 %
Si 251.611 {134} (Radial)	8.6187 ppm	0.6 %
Bi 223.061 {451} (Axial)	-0.0069 ppm	14.0 %
Pb 220.353 {453} (Axial)	0.0971 ppm	0.4 %
Th 283.231 {119} (Radial)	0.1105 ppm	9.8 %
Th 401.913 {84} (Radial)	0.1123 ppm	4.7 %
U 409.014 {82} (Radial)	0.1678 ppm	4.0 %
Y 224.306 {450} (Axial)	100.2245 %	0.0 %
Sc 361.384 {93} (Radial)	99.8143 %	0.0 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 11:36:48 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4837 ppm	0.2 %
As 189.042 {478} (Axial)	0.4650 ppm	0.2 %
Ba 455.403 {74} (Radial)	2.5785 ppm	0.2 %
Ba 493.409 {68} (Radial)	2.6366 ppm	0.2 %
Be 313.042 {108} (Axial)	0.5119 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.5475 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.4739 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.4948 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.4786 ppm	0.1 %
Co 228.616 {447} (Axial)	2.5117 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.4853 ppm	0.1 %
Fe 259.940 {130} (Radial)	2.0617 ppm	0.5 %
Li 670.784 {50} (Radial)	2.5376 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.4505 ppm	0.2 %
Mo 202.030 {467} (Axial)	2.3661 ppm	0.1 %
Na 589.592 {57} (Radial)	50.7749 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4012 ppm	0.1 %
K 766.490 {44} (Radial)	52.5029 ppm	0.3 %
Se 196.090 {472} (Axial)	2.4645 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.4808 ppm	0.3 %
Sr 407.771 {83} (Radial)	0.5241 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.4761 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.4796 ppm	0.5 %
V 292.402 {115} (Axial)	0.5101 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.1608 ppm	0.1 %
Sc 357.253 {94} (Axial)	96.8936 %	0.1 %
Sc 188.060 {479} (Axial)	94.1298 %	0.1 %
Mg 279.079 {121} (Radial)	2.2458 ppm	0.7 %
Tl 190.856 {477} (Axial)	0.4918 ppm	0.1 %
Al 167.079 {502} (Axial)	2.2071 ppm	0.1 %
Sc 227.318 {448} (Axial)	100.5916 %	0.1 %
B 249.773 {135} (Radial)	2.3331 ppm	0.4 %
Al 396.152 {85} (Radial)	2.4771 ppm	0.5 %
Si 251.611 {134} (Radial)	2.3946 ppm	0.8 %
Bi 223.061 {451} (Axial)	2.4535 ppm	0.3 %
Pb 220.353 {453} (Axial)	0.4715 ppm	0.2 %
Th 283.231 {119} (Radial)	1.1918 ppm	1.3 %
Th 401.913 {84} (Radial)	1.3242 ppm	0.9 %
U 409.014 {82} (Radial)	2.6226 ppm	0.9 %
Y 224.306 {450} (Axial)	98.5710 %	0.2 %
Sc 361.384 {93} (Radial)	99.4103 %	0.7 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 11:42:32 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4838 ppm	0.2 %
As 189.042 {478} (Axial)	0.4646 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5907 ppm	0.5 %
Ba 493.409 {68} (Radial)	2.6479 ppm	0.5 %
Be 313.042 {108} (Axial)	0.5137 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.5756 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.4741 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.4947 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.4791 ppm	0.2 %
Co 228.616 {447} (Axial)	2.5160 ppm	0.2 %
Cu 324.754 {104} (Axial)	2.4833 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.0773 ppm	0.8 %
Li 670.784 {50} (Radial)	2.5439 ppm	0.6 %
Mn 257.610 {131} (Axial)	0.4507 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.3668 ppm	0.2 %
Na 589.592 {57} (Radial)	51.0332 ppm	0.7 %
Ni 231.604 {445} (Axial)	2.4061 ppm	0.2 %
K 766.490 {44} (Radial)	52.7065 ppm	0.6 %
Se 196.090 {472} (Axial)	2.4637 ppm	0.4 %
Ag 328.068 {103} (Axial)	0.4800 ppm	0.1 %
Sr 407.771 {83} (Radial)	0.5271 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.4764 ppm	0.3 %
Ti 334.941 {101} (Radial)	0.4827 ppm	0.5 %
V 292.402 {115} (Axial)	0.5114 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.1610 ppm	0.3 %
Sc 357.253 {94} (Axial)	97.0454 %	0.2 %
Sc 188.060 {479} (Axial)	94.3461 %	0.1 %
Mg 279.079 {121} (Radial)	2.2898 ppm	1.0 %
Tl 190.856 {477} (Axial)	0.4934 ppm	0.5 %
Al 167.079 {502} (Axial)	2.2095 ppm	0.2 %
Sc 227.318 {448} (Axial)	100.7725 %	0.2 %
B 249.773 {135} (Radial)	2.3575 ppm	0.3 %
Al 396.152 {85} (Radial)	2.4870 ppm	0.7 %
Si 251.611 {134} (Radial)	2.4198 ppm	0.7 %
Bi 223.061 {451} (Axial)	2.4469 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.4707 ppm	0.4 %
Th 283.231 {119} (Radial)	1.1999 ppm	0.1 %
Th 401.913 {84} (Radial)	1.3302 ppm	0.6 %
U 409.014 {82} (Radial)	2.6160 ppm	0.7 %
Y 224.306 {450} (Axial)	98.7992 %	0.1 %
Sc 361.384 {93} (Radial)	98.1142 %	0.6 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 11:48:14 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0002 ppm	156.6 %
As 189.042 {478} (Axial)	0.0000 ppm	1,904.4 %
Ba 455.403 {74} (Radial)	0.0015 ppm	58.2 %
Ba 493.409 {68} (Radial)	0.0026 ppm	30.8 %
Be 313.042 {108} (Axial)	0.0000 ppm	92.8 %
Ca 315.887 {107} (Radial)	-0.0085 ppm	40.6 %
Cd 228.802 {447} (Axial)	0.0005 ppm	16.2 %
Cr 267.716 {126} (Axial)	0.0001 ppm	182.7 %
Cr 205.560 {464} (Axial)	0.0001 ppm	127.0 %
Co 228.616 {447} (Axial)	0.0005 ppm	41.7 %
Cu 324.754 {104} (Axial)	0.0019 ppm	10.9 %
Fe 259.940 {130} (Radial)	-0.0017 ppm	137.3 %
Li 670.784 {50} (Radial)	-0.0006 ppm	194.5 %
Mn 257.610 {131} (Axial)	0.0000 ppm	177.3 %
Mo 202.030 {467} (Axial)	0.0006 ppm	19.9 %
Na 589.592 {57} (Radial)	-0.0190 ppm	112.8 %
Ni 231.604 {445} (Axial)	0.0003 ppm	47.7 %
K 766.490 {44} (Radial)	0.0085 ppm	243.3 %
Se 196.090 {472} (Axial)	-0.0008 ppm	235.2 %
Ag 328.068 {103} (Axial)	0.0018 ppm	13.1 %
Sr 407.771 {83} (Radial)	0.0002 ppm	112.0 %
Sn 189.989 {477} (Axial)	0.0006 ppm	58.2 %
Ti 334.941 {101} (Radial)	0.0007 ppm	58.8 %
V 292.402 {115} (Axial)	-0.0005 ppm	71.4 %
Zn 213.856 {457} (Axial)	0.0000 ppm	288.9 %
Sc 357.253 {94} (Axial)	101.3467 %	0.3 %
Sc 188.060 {479} (Axial)	101.9242 %	0.2 %
Mg 279.079 {121} (Radial)	-0.0096 ppm	205.7 %
Tl 190.856 {477} (Axial)	0.0009 ppm	44.6 %
Al 167.079 {502} (Axial)	-0.0006 ppm	30.1 %
Sc 227.318 {448} (Axial)	100.4160 %	0.2 %
B 249.773 {135} (Radial)	0.0078 ppm	54.7 %
Al 396.152 {85} (Radial)	-0.0025 ppm	155.9 %
Si 251.611 {134} (Radial)	0.0033 ppm	180.1 %
Bi 223.061 {451} (Axial)	-0.0007 ppm	96.9 %
Pb 220.353 {453} (Axial)	0.0000 ppm	6,264.0 %
Th 283.231 {119} (Radial)	-0.0026 ppm	228.4 %
Th 401.913 {84} (Radial)	0.0038 ppm	295.1 %
U 409.014 {82} (Radial)	-0.0120 ppm	114.6 %
Y 224.306 {450} (Axial)	102.9537 %	0.2 %
Sc 361.384 {93} (Radial)	98.7038 %	0.7 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 11:54:34 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0055 ppm	16.3 %
As 189.042 {478} (Axial)	0.0039 ppm	9.7 %
Ba 455.403 {74} (Radial)	0.0058 ppm	2.5 %
Ba 493.409 {68} (Radial)	0.0070 ppm	4.8 %
Be 313.042 {108} (Axial)	0.0019 ppm	0.7 %
Ca 315.887 {107} (Radial)	0.5204 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0103 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.0051 ppm	6.9 %
Cr 205.560 {464} (Axial)	0.0050 ppm	2.1 %
Co 228.616 {447} (Axial)	0.0054 ppm	1.9 %
Cu 324.754 {104} (Axial)	0.0120 ppm	2.1 %
Fe 259.940 {130} (Radial)	0.0746 ppm	0.6 %
Li 670.784 {50} (Radial)	0.0080 ppm	6.6 %
Mn 257.610 {131} (Axial)	0.0048 ppm	1.1 %
Mo 202.030 {467} (Axial)	0.0052 ppm	2.6 %
Na 589.592 {57} (Radial)	0.1814 ppm	2.7 %
Ni 231.604 {445} (Axial)	0.0054 ppm	2.7 %
K 766.490 {44} (Radial)	0.1510 ppm	14.4 %
Se 196.090 {472} (Axial)	0.0077 ppm	18.5 %
Ag 328.068 {103} (Axial)	0.0070 ppm	4.3 %
Sr 407.771 {83} (Radial)	0.0055 ppm	0.8 %
Sn 189.989 {477} (Axial)	0.0102 ppm	1.8 %
Ti 334.941 {101} (Radial)	0.0052 ppm	6.3 %
V 292.402 {115} (Axial)	0.0047 ppm	5.9 %
Zn 213.856 {457} (Axial)	0.0098 ppm	0.5 %
Sc 357.253 {94} (Axial)	101.5909 %	0.2 %
Sc 188.060 {479} (Axial)	102.2056 %	0.3 %
Mg 279.079 {121} (Radial)	0.1865 ppm	6.7 %
Tl 190.856 {477} (Axial)	0.0112 ppm	8.2 %
Al 167.079 {502} (Axial)	0.0097 ppm	1.4 %
Sc 227.318 {448} (Axial)	100.6327 %	0.3 %
B 249.773 {135} (Radial)	0.0219 ppm	5.2 %
Al 396.152 {85} (Radial)	0.0093 ppm	73.7 %
Si 251.611 {134} (Radial)	0.4278 ppm	0.5 %
Bi 223.061 {451} (Axial)	-0.0019 ppm	20.8 %
Pb 220.353 {453} (Axial)	0.0044 ppm	16.6 %
Th 283.231 {119} (Radial)	0.0082 ppm	71.0 %
Th 401.913 {84} (Radial)	0.0112 ppm	20.5 %
U 409.014 {82} (Radial)	0.0407 ppm	45.7 %
Y 224.306 {450} (Axial)	103.2441 %	0.2 %
Sc 361.384 {93} (Radial)	99.0701 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 12:00:53 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0056 ppm	10.4 %
As 189.042 {478} (Axial)	0.0035 ppm	16.1 %
Ba 455.403 {74} (Radial)	0.0061 ppm	2.3 %
Ba 493.409 {68} (Radial)	0.0074 ppm	2.5 %
Be 313.042 {108} (Axial)	0.0019 ppm	1.0 %
Ca 315.887 {107} (Radial)	0.5244 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.0101 ppm	0.8 %
Cr 267.716 {126} (Axial)	0.0052 ppm	5.4 %
Cr 205.560 {464} (Axial)	0.0049 ppm	1.1 %
Co 228.616 {447} (Axial)	0.0054 ppm	0.5 %
Cu 324.754 {104} (Axial)	0.0121 ppm	3.0 %
Fe 259.940 {130} (Radial)	0.0760 ppm	3.0 %
Li 670.784 {50} (Radial)	0.0079 ppm	8.4 %
Mn 257.610 {131} (Axial)	0.0048 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.0050 ppm	3.6 %
Na 589.592 {57} (Radial)	0.1811 ppm	2.6 %
Ni 231.604 {445} (Axial)	0.0053 ppm	2.0 %
K 766.490 {44} (Radial)	0.1526 ppm	5.2 %
Se 196.090 {472} (Axial)	0.0080 ppm	8.7 %
Ag 328.068 {103} (Axial)	0.0069 ppm	5.0 %
Sr 407.771 {83} (Radial)	0.0055 ppm	1.2 %
Sn 189.989 {477} (Axial)	0.0101 ppm	2.1 %
Ti 334.941 {101} (Radial)	0.0052 ppm	11.4 %
V 292.402 {115} (Axial)	0.0049 ppm	7.2 %
Zn 213.856 {457} (Axial)	0.0098 ppm	0.8 %
Sc 357.253 {94} (Axial)	101.3317 %	0.2 %
Sc 188.060 {479} (Axial)	102.2017 %	0.2 %
Mg 279.079 {121} (Radial)	0.1737 ppm	5.6 %
Tl 190.856 {477} (Axial)	0.0113 ppm	1.7 %
Al 167.079 {502} (Axial)	0.0096 ppm	2.2 %
Sc 227.318 {448} (Axial)	100.7019 %	0.1 %
B 249.773 {135} (Radial)	0.0235 ppm	5.4 %
Al 396.152 {85} (Radial)	0.0084 ppm	84.1 %
Si 251.611 {134} (Radial)	0.4296 ppm	0.3 %
Bi 223.061 {451} (Axial)	-0.0020 ppm	37.8 %
Pb 220.353 {453} (Axial)	0.0046 ppm	3.5 %
Th 283.231 {119} (Radial)	-0.0038 ppm	143.4 %
Th 401.913 {84} (Radial)	0.0096 ppm	55.9 %
U 409.014 {82} (Radial)	0.0241 ppm	96.9 %
Y 224.306 {450} (Axial)	103.2209 %	0.1 %
Sc 361.384 {93} (Radial)	98.9095 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

18051996-01AMS

Sample Type UNKNOWN Analysis Date 6/1/2018 12:13:10 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1572 ppm	0.8 %
As 189.042 {478} (Axial)	0.2117 ppm	0.4 %
Ba 455.403 {74} (Radial)	2.4176 ppm	0.3 %
Ba 493.409 {68} (Radial)	2.4856 ppm	0.4 %
Be 313.042 {108} (Axial)	0.1118 ppm	0.3 %
Ca 315.887 {107} (Radial)	370.8625 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.1122 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.2672 ppm	0.6 %
Cr 205.560 {464} (Axial)	0.2512 ppm	0.1 %
Co 228.616 {447} (Axial)	0.1256 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.7137 ppm	0.2 %
Fe 259.940 {130} (Radial)	98.6682 ppm	0.3 %
Li 670.784 {50} (Radial)	0.1911 ppm	0.4 %
Mn 257.610 {131} (Axial)	6.1675 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.1039 ppm	0.2 %
Na 589.592 {57} (Radial)	12.9250 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.1944 ppm	0.2 %
K 766.490 {44} (Radial)	18.8868 ppm	0.3 %
Se 196.090 {472} (Axial)	0.0966 ppm	1.3 %
Ag 328.068 {103} (Axial)	0.1031 ppm	0.7 %
Sr 407.771 {83} (Radial)	1.1454 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.1840 ppm	0.5 %
Ti 334.941 {101} (Radial)	1.9303 ppm	0.4 %
V 292.402 {115} (Axial)	0.3135 ppm	0.1 %
Zn 213.856 {457} (Axial)	5.2826 ppm	0.1 %
Sc 357.253 {94} (Axial)	91.1645 %	0.2 %
Sc 188.060 {479} (Axial)	79.8830 %	0.1 %
Mg 279.079 {121} (Radial)	131.0751 ppm	0.2 %
Tl 190.856 {477} (Axial)	0.0732 ppm	0.5 %
Al 167.079 {502} (Axial)	12.6658 ppm	0.3 %
Sc 227.318 {448} (Axial)	78.9186 %	0.2 %
B 249.773 {135} (Radial)	0.8319 ppm	0.5 %
Al 396.152 {85} (Radial)	79.2760 ppm	0.3 %
Si 251.611 {134} (Radial)	9.2132 ppm	0.3 %
Bi 223.061 {451} (Axial)	0.0038 ppm	52.4 %
Pb 220.353 {453} (Axial)	2.9406 ppm	0.1 %
Th 283.231 {119} (Radial)	0.2933 ppm	1.5 %
Th 401.913 {84} (Radial)	0.1326 ppm	8.2 %
U 409.014 {82} (Radial)	0.1953 ppm	14.4 %
Y 224.306 {450} (Axial)	97.6407 %	0.0 %
Sc 361.384 {93} (Radial)	99.1067 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

18051996-01AMSD

Sample Type UNKNOWN Analysis Date 6/1/2018 12:19:15 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1635 ppm	1.0 %
As 189.042 {478} (Axial)	0.2156 ppm	0.3 %
Ba 455.403 {74} (Radial)	1.7474 ppm	0.5 %
Ba 493.409 {68} (Radial)	1.7945 ppm	0.5 %
Be 313.042 {108} (Axial)	0.1061 ppm	0.2 %
Ca 315.887 {107} (Radial)	224.2377 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.1142 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.3247 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.3058 ppm	0.1 %
Co 228.616 {447} (Axial)	0.1334 ppm	0.2 %
Cu 324.754 {104} (Axial)	0.8001 ppm	0.4 %
Fe 259.940 {130} (Radial)	133.1257 ppm	0.3 %
Li 670.784 {50} (Radial)	0.2019 ppm	0.3 %
Mn 257.610 {131} (Axial)	3.8562 ppm	0.2 %
Mo 202.030 {467} (Axial)	0.1129 ppm	0.4 %
Na 589.592 {57} (Radial)	12.0350 ppm	0.4 %
Ni 231.604 {445} (Axial)	0.2283 ppm	0.3 %
K 766.490 {44} (Radial)	19.7605 ppm	0.3 %
Se 196.090 {472} (Axial)	0.0993 ppm	1.2 %
Ag 328.068 {103} (Axial)	0.1018 ppm	0.7 %
Sr 407.771 {83} (Radial)	0.7258 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.2136 ppm	0.3 %
Ti 334.941 {101} (Radial)	1.8156 ppm	0.6 %
V 292.402 {115} (Axial)	0.3874 ppm	0.1 %
Zn 213.856 {457} (Axial)	5.2525 ppm	0.1 %
Sc 357.253 {94} (Axial)	93.0232 %	0.0 %
Sc 188.060 {479} (Axial)	81.0730 %	0.3 %
Mg 279.079 {121} (Radial)	96.7733 ppm	0.7 %
Tl 190.856 {477} (Axial)	0.0716 ppm	1.3 %
Al 167.079 {502} (Axial)	12.7883 ppm	0.1 %
Sc 227.318 {448} (Axial)	79.9604 %	0.1 %
B 249.773 {135} (Radial)	0.8380 ppm	0.3 %
Al 396.152 {85} (Radial)	89.4682 ppm	0.5 %
Si 251.611 {134} (Radial)	10.3594 ppm	0.5 %
Bi 223.061 {451} (Axial)	0.0110 ppm	10.6 %
Pb 220.353 {453} (Axial)	3.2785 ppm	0.1 %
Th 283.231 {119} (Radial)	0.3502 ppm	1.6 %
Th 401.913 {84} (Radial)	0.1256 ppm	4.8 %
U 409.014 {82} (Radial)	0.2006 ppm	3.4 %
Y 224.306 {450} (Axial)	98.1408 %	0.1 %
Sc 361.384 {93} (Radial)	100.1854 %	0.5 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 12:25:20 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4869 ppm	0.5 %
As 189.042 {478} (Axial)	0.4639 ppm	0.1 %
Ba 455.403 {74} (Radial)	2.5829 ppm	0.4 %
Ba 493.409 {68} (Radial)	2.6361 ppm	0.3 %
Be 313.042 {108} (Axial)	0.5160 ppm	0.2 %
Ca 315.887 {107} (Radial)	2.6523 ppm	1.5 %
Cd 228.802 {447} (Axial)	0.4750 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.4951 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.4791 ppm	0.2 %
Co 228.616 {447} (Axial)	2.5238 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.5036 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.0980 ppm	1.3 %
Li 670.784 {50} (Radial)	2.5083 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.4508 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.3664 ppm	0.1 %
Na 589.592 {57} (Radial)	50.3421 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4025 ppm	0.1 %
K 766.490 {44} (Radial)	52.2162 ppm	0.2 %
Se 196.090 {472} (Axial)	2.4755 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4806 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.5268 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.4772 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.4710 ppm	0.5 %
V 292.402 {115} (Axial)	0.5158 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.1615 ppm	0.1 %
Sc 357.253 {94} (Axial)	96.2974 %	0.1 %
Sc 188.060 {479} (Axial)	93.8423 %	0.2 %
Mg 279.079 {121} (Radial)	2.2829 ppm	1.2 %
Tl 190.856 {477} (Axial)	0.4930 ppm	0.5 %
Al 167.079 {502} (Axial)	2.2076 ppm	0.3 %
Sc 227.318 {448} (Axial)	100.1219 %	0.1 %
B 249.773 {135} (Radial)	2.3209 ppm	0.8 %
Al 396.152 {85} (Radial)	2.4985 ppm	0.3 %
Si 251.611 {134} (Radial)	2.3998 ppm	0.5 %
Bi 223.061 {451} (Axial)	2.4525 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.4705 ppm	0.3 %
Th 283.231 {119} (Radial)	1.1861 ppm	0.5 %
Th 401.913 {84} (Radial)	1.3206 ppm	1.0 %
U 409.014 {82} (Radial)	2.6081 ppm	0.9 %
Y 224.306 {450} (Axial)	98.3684 %	0.1 %
Sc 361.384 {93} (Radial)	99.4476 %	0.3 %

Simple sample report

6/26/2018 5:50:46 PM

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 12:31:02 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0004 ppm	83.9 %
As 189.042 {478} (Axial)	-0.0007 ppm	97.5 %
Ba 455.403 {74} (Radial)	0.0011 ppm	23.3 %
Ba 493.409 {68} (Radial)	0.0026 ppm	13.2 %
Be 313.042 {108} (Axial)	0.0000 ppm	112.1 %
Ca 315.887 {107} (Radial)	-0.0015 ppm	341.2 %
Cd 228.802 {447} (Axial)	0.0005 ppm	7.6 %
Cr 267.716 {126} (Axial)	0.0000 ppm	582.0 %
Cr 205.560 {464} (Axial)	0.0000 ppm	202.2 %
Co 228.616 {447} (Axial)	0.0003 ppm	51.1 %
Cu 324.754 {104} (Axial)	0.0021 ppm	15.9 %
Fe 259.940 {130} (Radial)	0.0007 ppm	298.1 %
Li 670.784 {50} (Radial)	-0.0046 ppm	14.3 %
Mn 257.610 {131} (Axial)	0.0002 ppm	21.6 %
Mo 202.030 {467} (Axial)	0.0005 ppm	22.9 %
Na 589.592 {57} (Radial)	-0.0245 ppm	22.8 %
Ni 231.604 {445} (Axial)	0.0001 ppm	78.6 %
K 766.490 {44} (Radial)	-0.0435 ppm	34.9 %
Se 196.090 {472} (Axial)	0.0000 ppm	4,102.0 %
Ag 328.068 {103} (Axial)	0.0019 ppm	12.5 %
Sr 407.771 {83} (Radial)	0.0001 ppm	26.1 %
Sn 189.989 {477} (Axial)	0.0005 ppm	91.4 %
Ti 334.941 {101} (Radial)	-0.0001 ppm	549.4 %
V 292.402 {115} (Axial)	-0.0002 ppm	160.0 %
Zn 213.856 {457} (Axial)	-0.0001 ppm	264.2 %
Sc 357.253 {94} (Axial)	100.4895 %	0.2 %
Sc 188.060 {479} (Axial)	101.5059 %	0.2 %
Mg 279.079 {121} (Radial)	-0.0275 ppm	65.6 %
Tl 190.856 {477} (Axial)	0.0012 ppm	37.4 %
Al 167.079 {502} (Axial)	0.0012 ppm	90.0 %
Sc 227.318 {448} (Axial)	99.9772 %	0.1 %
B 249.773 {135} (Radial)	0.0074 ppm	27.3 %
Al 396.152 {85} (Radial)	0.0069 ppm	43.3 %
Si 251.611 {134} (Radial)	0.0061 ppm	33.5 %
Bi 223.061 {451} (Axial)	-0.0014 ppm	15.4 %
Pb 220.353 {453} (Axial)	-0.0006 ppm	121.6 %
Th 283.231 {119} (Radial)	-0.0002 ppm	2,574.2 %
Th 401.913 {84} (Radial)	0.0049 ppm	84.1 %
U 409.014 {82} (Radial)	0.0001 ppm	45,343.0 %
Y 224.306 {450} (Axial)	102.7600 %	0.2 %
Sc 361.384 {93} (Radial)	99.2434 %	0.4 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 12:37:23 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0052 ppm	10.1 %
As 189.042 {478} (Axial)	0.0046 ppm	18.0 %
Ba 455.403 {74} (Radial)	0.0058 ppm	2.5 %
Ba 493.409 {68} (Radial)	0.0072 ppm	1.5 %
Be 313.042 {108} (Axial)	0.0019 ppm	1.9 %
Ca 315.887 {107} (Radial)	0.5140 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.0102 ppm	1.3 %
Cr 267.716 {126} (Axial)	0.0053 ppm	7.9 %
Cr 205.560 {464} (Axial)	0.0050 ppm	0.7 %
Co 228.616 {447} (Axial)	0.0054 ppm	1.8 %
Cu 324.754 {104} (Axial)	0.0124 ppm	2.1 %
Fe 259.940 {130} (Radial)	0.0732 ppm	1.7 %
Li 670.784 {50} (Radial)	0.0057 ppm	20.7 %
Mn 257.610 {131} (Axial)	0.0049 ppm	1.0 %
Mo 202.030 {467} (Axial)	0.0051 ppm	1.3 %
Na 589.592 {57} (Radial)	0.1843 ppm	1.6 %
Ni 231.604 {445} (Axial)	0.0052 ppm	1.6 %
K 766.490 {44} (Radial)	0.1299 ppm	11.5 %
Se 196.090 {472} (Axial)	0.0092 ppm	9.6 %
Ag 328.068 {103} (Axial)	0.0069 ppm	0.7 %
Sr 407.771 {83} (Radial)	0.0055 ppm	1.4 %
Sn 189.989 {477} (Axial)	0.0103 ppm	4.6 %
Ti 334.941 {101} (Radial)	0.0054 ppm	6.2 %
V 292.402 {115} (Axial)	0.0049 ppm	2.2 %
Zn 213.856 {457} (Axial)	0.0098 ppm	0.7 %
Sc 357.253 {94} (Axial)	100.4636 %	0.3 %
Sc 188.060 {479} (Axial)	101.9352 %	0.2 %
Mg 279.079 {121} (Radial)	0.1743 ppm	7.5 %
Tl 190.856 {477} (Axial)	0.0110 ppm	6.5 %
Al 167.079 {502} (Axial)	0.0099 ppm	2.2 %
Sc 227.318 {448} (Axial)	100.1762 %	0.3 %
B 249.773 {135} (Radial)	0.0229 ppm	4.1 %
Al 396.152 {85} (Radial)	0.0133 ppm	14.1 %
Si 251.611 {134} (Radial)	0.4298 ppm	0.6 %
Bi 223.061 {451} (Axial)	-0.0004 ppm	195.5 %
Pb 220.353 {453} (Axial)	0.0042 ppm	14.5 %
Th 283.231 {119} (Radial)	0.0082 ppm	124.5 %
Th 401.913 {84} (Radial)	0.0149 ppm	26.0 %
U 409.014 {82} (Radial)	0.0487 ppm	27.0 %
Y 224.306 {450} (Axial)	102.9559 %	0.1 %
Sc 361.384 {93} (Radial)	100.0192 %	0.2 %

Simple sample report

6/26/2018 5:50:46 PM

QTEGRA

ICSAB

Sample Type QC Analysis Date 6/1/2018 12:43:41 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0024 ppm	37.6 %
As 189.042 {478} (Axial)	2.4395 ppm	0.2 %
Ba 455.403 {74} (Radial)	0.8158 ppm	0.3 %
Ba 493.409 {68} (Radial)	0.8421 ppm	0.4 %
Be 313.042 {108} (Axial)	0.2755 ppm	0.1 %
Ca 315.887 {107} (Radial)	151.5781 ppm	0.2 %
Cd 228.802 {447} (Axial)	0.7808 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.7688 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.7513 ppm	0.1 %
Co 228.616 {447} (Axial)	0.7617 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.8119 ppm	0.3 %
Fe 259.940 {130} (Radial)	102.2221 ppm	0.4 %
Li 670.784 {50} (Radial)	-0.0028 ppm	8.8 %
Mn 257.610 {131} (Axial)	0.4661 ppm	0.2 %
Mo 202.030 {467} (Axial)	0.0001 ppm	203.0 %
Na 589.592 {57} (Radial)	26.9045 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.7319 ppm	0.1 %
K 766.490 {44} (Radial)	56.3452 ppm	0.2 %
Se 196.090 {472} (Axial)	1.3127 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.7950 ppm	0.4 %
Sr 407.771 {83} (Radial)	-0.0057 ppm	0.3 %
Sn 189.989 {477} (Axial)	-0.0031 ppm	8.6 %
Ti 334.941 {101} (Radial)	0.0052 ppm	6.8 %
V 292.402 {115} (Axial)	0.8328 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.7468 ppm	0.1 %
Sc 357.253 {94} (Axial)	91.9001 %	0.2 %
Sc 188.060 {479} (Axial)	85.4128 %	0.1 %
Mg 279.079 {121} (Radial)	68.6183 ppm	0.5 %
Tl 190.856 {477} (Axial)	2.4515 ppm	0.2 %
Al 167.079 {502} (Axial)	11.4922 ppm	0.2 %
Sc 227.318 {448} (Axial)	84.1502 %	0.1 %
B 249.773 {135} (Radial)	0.1862 ppm	0.5 %
Al 396.152 {85} (Radial)	29.7256 ppm	0.2 %
Si 251.611 {134} (Radial)	-0.0087 ppm	28.9 %
Bi 223.061 {451} (Axial)	0.0078 ppm	11.6 %
Pb 220.353 {453} (Axial)	2.3757 ppm	0.1 %
Th 283.231 {119} (Radial)	0.1945 ppm	7.3 %
Th 401.913 {84} (Radial)	0.0108 ppm	52.5 %
U 409.014 {82} (Radial)	0.0444 ppm	27.2 %
Y 224.306 {450} (Axial)	93.5913 %	0.0 %
Sc 361.384 {93} (Radial)	97.8593 %	0.4 %

ALS Group, USA

Analytical Run Summary

02-Jul-18

Run ID ICP2_180601A

Analyst Royce Hughes

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070194	ICAL1	ICP_6010_W	SAMP		6/1/2018 14:01	1	R237221		32
5070195	ICAL2	ICP_6010_W	SAMP		6/1/2018 14:08	1	R237221		32
5070197	ICAL3	ICP_6010_W	SAMP		6/1/2018 14:14	1	R237221		32
5070199	ICAL4	ICP_6010_W	SAMP		6/1/2018 14:20	1	R237221		32
5070201	ICAL5	ICP_6010_W	SAMP		6/1/2018 14:25	1	R237221		32
5070203	ICV/QCS	ICP_6010_W	ICV		6/1/2018 14:31	1	R237221		32
5070205	ICB	ICP_6010_W	ICB		6/1/2018 14:37	1	R237221		32
5070208	ICVLL	ICP_6010_W	LLICV		6/1/2018 14:44	1	R237221		0
5070222	ICVLL	ICP_6010_W	LLICV		6/1/2018 14:50	1	R237221		32
5070225	ICSAB	ICP_6010_W	ICSA		6/1/2018 16:56	1	R237221		32
5070228	CCV	ICP_6010_W	CCV		6/1/2018 17:01	1	R237221		0
5070231	CCV	ICP_6010_W	CCV		6/1/2018 17:07	1	R237221		32
5070233	CCB	ICP_6010_W	CCB		6/1/2018 17:13	1	R237221		32
5070234	CCVLL	ICP_6010_W	LLCCV		6/1/2018 17:19	1	R237221		32
5070235	CCVLL	ICP_6010_W	LLCCV		6/1/2018 17:25	1	R237221		0
5070236	18051455-07C	EM_ICP_200.7_W	SAMP		6/1/2018 17:32	10	118948	5/29/2018	1
5070237	18051673-01A	ICP_6010_S	SAMP		6/1/2018 17:38	10	119031	5/30/2018	0
5070238	18051674-01A	ICP_6010_S	SAMP		6/1/2018 17:44	10	119031	5/30/2018	0
5070239	18051689-03A	ICP_6010_S	SAMP		6/1/2018 17:50	10	119031	5/30/2018	4
	RL04	*The reporting limits are elevated due to internal standard failure in the undiluted run for these analytes:*							
5070240	MBLK-119140	ICP_6010_S	MBLK		6/1/2018 17:56	1	119140	6/1/2018	1
5070241	LCS-119140	ICP_6010_S	LCS		6/1/2018 18:02	1	119140	6/1/2018	2
5070242	18051996-01A	ICP_6010_S	SAMP		6/1/2018 18:08	1	119140	6/1/2018	0
5070243	18051996-01AMS	ICP_6010_S	MS		6/1/2018 18:14	1	119140	6/1/2018	26
	MS01	*The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Sn*							
	MS02	*The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Li, K*							
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Ba, Ca, Cu, Fe, Mg, Mn, Sr, Ti, Zn*							
5070244	18051996-01AMSD	ICP_6010_S	MSD		6/1/2018 18:20	1	119140	6/1/2018	26
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Li, K, V*							
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al, Ba, Ca, Cu, Fe, Mg, Mn, Ti, Zn*							
	MSD08	*The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Ba, Ca, Fe, Mg, Mn, Sr*							
5070245	CCV	ICP_6010_W	CCV		6/1/2018 18:26	1	R237221		32
5070246	CCV	ICP_6010_W	CCV		6/1/2018 18:31	1	R237221		0
5070248	CCB	ICP_6010_W	CCB		6/1/2018 18:37	1	R237221		32
5070249	CCVLL	ICP_6010_W	LLCCV		6/1/2018 18:43	1	R237221		32
5070250	18051772-05A	ICP_6010_S	SAMP		6/1/2018 18:49	1	119140	6/1/2018	2
5070252	18051772-07A	ICP_6010_S	SAMP		6/1/2018 18:56	1	119140	6/1/2018	3
5070254	18051778-01A	ICP_6010_S	SAMP		6/1/2018 19:02	1	119140	6/1/2018	21
5070255	18051778-07C	ICP_6010_S	SAMP		6/1/2018 19:08	1	119140	6/1/2018	21
5070256	18051780-01A	ICP_6010_S	SAMP		6/1/2018 19:14	1	119140	6/1/2018	7
5070257	MBLK-119161	ICP_6010_W	MBLK		6/1/2018 19:20	1	119161	6/1/2018	7
5070258	CCV	ICP_6010_W	CCV		6/1/2018 19:26	1	R237221		32
5070259	CCB	ICP_6010_W	CCB		6/1/2018 19:32	1	R237221		32
5070260	CCVLL	ICP_6010_W	LLCCV		6/1/2018 19:38	1	R237221		32
5070261	LCS-119161	ICP_6010_W	LCS		6/1/2018 19:45	1	119161	6/1/2018	7
5070262	18051834-01A	TCICP_6010_S	SAMP		6/1/2018 19:51	1	119161	6/1/2018	7
5070263	18051834-03A	TCICP_6010_S	SAMP		6/1/2018 19:57	1	119161	6/1/2018	7

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070264	18051996-02A	TCICP_6010_S	SAMP		6/1/2018 20:03	1	119161	6/1/2018	2
5070265	18051996-02AMS	TCICP_6010_S	MS		6/1/2018 20:10	1	119161	6/1/2018	7
5070266	18051996-02AMSD	TCICP_6010_S	MSD		6/1/2018 20:16	1	119161	6/1/2018	7
5070267	MBLK-119100	ICP_6010_S	MBLK		6/1/2018 20:22	1	119100	5/31/2018	7
5070268	LCS-119100	ICP_6010_S	LCS		6/1/2018 20:28	1	119100	5/31/2018	7
5070276	18051689-06A	ICP_6010_S	SAMP		6/1/2018 20:34	1	119100	5/31/2018	7
5070277	18051689-07A	ICP_6010_S	SAMP		6/1/2018 20:40	1	119100	5/31/2018	7
5070278	CCV	ICP_6010_W	CCV		6/1/2018 20:46	1	R237221		32
5070279	CCB	ICP_6010_W	CCB		6/1/2018 20:52	1	R237221		32
5070280	CCVLL	ICP_6010_W	LLCCV		6/1/2018 20:58	1	R237221		32
5070281	18051689-08A	ICP_6010_S	SAMP		6/1/2018 21:04	1	119100	5/31/2018	7
5070282	18051689-09A	ICP_6010_S	SAMP		6/1/2018 21:10	1	119100	5/31/2018	3
5070283	18051689-10A	ICP_6010_S	SAMP		6/1/2018 21:16	1	119100	5/31/2018	7
5070284	18051689-11A	ICP_6010_S	SAMP		6/1/2018 21:23	1	119100	5/31/2018	3
5070285	18051689-12A	ICP_6010_S	SAMP		6/1/2018 21:29	1	119100	5/31/2018	7
5070286	18051689-13A	ICP_6010_S	SAMP		6/1/2018 21:35	1	119100	5/31/2018	7
5070287	18051689-14A	ICP_6010_S	SAMP		6/1/2018 21:41	1	119100	5/31/2018	7
5070288	18051689-15A	ICP_6010_S	SAMP		6/1/2018 21:47	1	119100	5/31/2018	7
5070290	18051689-16A	ICP_6010_S	SAMP		6/1/2018 21:53	1	119100	5/31/2018	7
5070293	18051689-17A	ICP_6010_S	SAMP		6/1/2018 21:59	1	119100	5/31/2018	7
5070297	CCV	ICP_6010_W	CCV		6/1/2018 22:05	1	R237221		32
5070300	CCB	ICP_6010_W	CCB		6/1/2018 22:11	1	R237221		32
5070303	CCVLL	ICP_6010_W	LLCCV		6/1/2018 22:17	1	R237221		32
5070307	18051689-17AMS	ICP_6010_S	MS		6/1/2018 22:23	1	119100	5/31/2018	7

MS02 *The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Cr*

MS05 *The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba*

5070311	18051689-17AMSD	ICP_6010_S	MSD		6/1/2018 22:29	1	119100	5/31/2018	7

MSD02 *The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Cr*

MSD05 *The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba*

MSD08 *The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Cr*

5070314	18051689-18A	ICP_6010_S	SAMP		6/1/2018 22:35	1	119100	5/31/2018	7
5070316	18051689-19A	ICP_6010_S	SAMP		6/1/2018 22:41	1	119100	5/31/2018	7
5070318	18051689-20A	ICP_6010_S	SAMP		6/1/2018 22:47	1	119100	5/31/2018	7
5070319	18051689-21A	ICP_6010_S	SAMP		6/1/2018 22:54	1	119100	5/31/2018	7
5070320	18051689-22A	ICP_6010_S	SAMP		6/1/2018 23:00	1	119100	5/31/2018	7
5070321	18051689-23A	ICP_6010_S	SAMP		6/1/2018 23:06	1	119100	5/31/2018	7
5070322	18051689-24A	ICP_6010_S	SAMP		6/1/2018 23:12	1	119100	5/31/2018	7
5070323	18051689-25A	ICP_6010_S	SAMP		6/1/2018 23:18	1	119100	5/31/2018	7
5070324	CCV	ICP_6010_W	CCV		6/1/2018 23:24	1	R237221		0
5070325	CCV	ICP_6010_W	CCV		6/1/2018 23:30	1	R237221		32
5070326	CCB	ICP_6010_W	CCB		6/1/2018 23:36	1	R237221		32
5070327	CCVLL	ICP_6010_W	LLCCV		6/1/2018 23:42	1	R237221		32
5070328	18051689-26A	ICP_6010_S	SAMP		6/1/2018 23:48	1	119106	5/31/2018	7
5070329	18051689-27A	ICP_6010_S	SAMP		6/1/2018 23:55	1	119106	5/31/2018	7
5070330	18051689-28A	ICP_6010_S	SAMP		6/2/2018 00:00	1	119106	5/31/2018	7
5070331	18051689-29A	ICP_6010_S	SAMP		6/2/2018 00:06	1	119106	5/31/2018	7
5070332	18051689-30A	ICP_6010_S	SAMP		6/2/2018 00:13	1	119106	5/31/2018	7
5070333	18051689-31A	ICP_6010_S	SAMP		6/2/2018 00:18	1	119106	5/31/2018	3
5070334	18051689-32A	ICP_6010_S	SAMP		6/2/2018 00:24	1	119106	5/31/2018	7
5070335	18051689-33A	ICP_6010_S	SAMP		6/2/2018 00:30	1	119106	5/31/2018	7
5070336	18051689-34A	ICP_6010_S	SAMP		6/2/2018 00:36	1	119106	5/31/2018	7
5070337	18051689-35A	ICP_6010_S	SAMP		6/2/2018 00:42	1	119106	5/31/2018	7
5070338	CCV	ICP_6010_W	CCV		6/2/2018 00:48	1	R237221		32
5070339	CCV	ICP_6010_W	CCV		6/2/2018 00:54	1	R237221		0

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070340	CCB	ICP_6010_W	CCB		6/2/2018 01:00	1	R237221		32
5070341	CCVLL	ICP_6010_W	LLCCV		6/2/2018 01:06	1	R237221		32
5070342	ICSAB	ICP_6010_W	ICSA		6/2/2018 01:12	1	R237221		32
5070343	18051689-36A	ICP_6010_S	SAMP		6/2/2018 01:18	1	119106	5/31/2018	7
5070344	18051689-37A	ICP_6010_S	SAMP		6/2/2018 01:24	1	119106	5/31/2018	7
5070345	18051689-38A	ICP_6010_S	SAMP		6/2/2018 01:30	1	119106	5/31/2018	7
5070346	18051689-39A	ICP_6010_S	SAMP		6/2/2018 01:36	1	119106	5/31/2018	7
5070347	18051689-40A	ICP_6010_S	SAMP		6/2/2018 01:42	1	119106	5/31/2018	7
5070348	MBLK-119078	ICP_200.7_WW	MBLK		6/2/2018 01:48	1	119078	5/31/2018	29
5070349	LCS-119078	ICP_200.7_WW	LCS		6/2/2018 01:54	1	119078	5/31/2018	30
5070350	18051610-01C	EM_ICP_200.7_WD	SAMP		6/2/2018 02:00	1	119078	5/31/2018	2
5070351	18051610-01D	EM_ICP_200.7_W	SAMP		6/2/2018 02:07	1	119078	5/31/2018	2
5070352	18051610-02C	EM_ICP_200.7_WD	SAMP		6/2/2018 02:13	1	119078	5/31/2018	2
5070353	CCV	ICP_6010_W	CCV		6/2/2018 02:19	1	R237221		32
5070354	CCB	ICP_6010_W	CCB		6/2/2018 02:25	1	R237221		32
5070355	CCVLL	ICP_6010_W	LLCCV		6/2/2018 02:31	1	R237221		32
5070356	18051610-02D	EM_ICP_200.7_W	SAMP		6/2/2018 02:37	1	119078	5/31/2018	2
5070357	18051627-01C	EM_ICP_200.7_WD	SAMP		6/2/2018 02:44	1	119078	5/31/2018	15
5070358	18051627-01D	EM_ICP_200.7_W	SAMP		6/2/2018 02:50	1	119078	5/31/2018	20
5070359	18051627-01DMS	EM_ICP_200.7_W	MS		6/2/2018 02:56	1	119078	5/31/2018	30
5070360	18051627-01DMSD	EM_ICP_200.7_W	MSD		6/2/2018 03:02	1	119078	5/31/2018	30
5070361	18051627-02B	EM_ICP_200.7_WD	SAMP		6/2/2018 03:09	1	119078	5/31/2018	2
5070362	18051627-02C	EM_ICP_200.7_W	SAMP		6/2/2018 03:15	1	119078	5/31/2018	2
5070363	18051627-02CMS	EM_ICP_200.7_W	MS		6/2/2018 03:21	1	119078	5/31/2018	30
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al*							
5070364	18051627-02CMSD	EM_ICP_200.7_W	MSD		6/2/2018 03:27	1	119078	5/31/2018	30
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Al*							
5070365	18051627-03B	EM_ICP_200.7_WD	SAMP		6/2/2018 03:33	1	119078	5/31/2018	2
5070366	CCV	ICP_6010_W	CCV		6/2/2018 03:39	1	R237221		32
5070367	CCB	ICP_6010_W	CCB		6/2/2018 03:45	1	R237221		32
5070368	CCVLL	ICP_6010_W	LLCCV		6/2/2018 03:51	1	R237221		32
5070369	18051627-03C	EM_ICP_200.7_W	SAMP		6/2/2018 03:57	1	119078	5/31/2018	2
5070370	18051627-04C	EM_ICP_200.7_WD	SAMP		6/2/2018 04:04	1	119078	5/31/2018	15
5070371	18051627-04D	EM_ICP_200.7_W	SAMP		6/2/2018 04:10	1	119078	5/31/2018	20
5070372	18051627-05C	EM_ICP_200.7_WD	SAMP		6/2/2018 04:16	1	119078	5/31/2018	15
5070373	18051627-05D	EM_ICP_200.7_W	SAMP		6/2/2018 04:22	1	119078	5/31/2018	20
5070374	18051627-06C	EM_ICP_200.7_WD	SAMP		6/2/2018 04:29	1	119078	5/31/2018	15
5070375	18051627-06D	EM_ICP_200.7_W	SAMP		6/2/2018 04:35	1	119078	5/31/2018	20
5070376	18051627-07C	EM_ICP_200.7_WD	SAMP		6/2/2018 04:41	1	119078	5/31/2018	15
5070377	18051627-07D	EM_ICP_200.7_W	SAMP		6/2/2018 04:47	1	119078	5/31/2018	20
5070378	18051627-08C	EM_ICP_200.7_WD	SAMP		6/2/2018 04:53	1	119078	5/31/2018	15
5070379	CCV	ICP_6010_W	CCV		6/2/2018 05:00	1	R237221		32
5070380	CCB	ICP_6010_W	CCB		6/2/2018 05:05	1	R237221		32
5070381	CCVLL	ICP_6010_W	LLCCV		6/2/2018 05:12	1	R237221		32
5070382	18051627-08D	EM_ICP_200.7_W	SAMP		6/2/2018 05:18	1	119078	5/31/2018	20
5070383	MBLK-119144	ICP_200.7_WW	MBLK		6/2/2018 05:24	1	119148	6/1/2018	30
5070384	LCS-119144	ICP_200.7_WW	LCS		6/2/2018 05:30	1	119148	6/1/2018	30
5070385	MBLK-119148	ICP_200.7_WW	MBLK		6/2/2018 05:36	1	119148	6/1/2018	30
5070386	LCS-119148	ICP_200.7_WW	LCS		6/2/2018 05:42	1	119148	6/1/2018	30
5070387	18051627-09C	EM_ICP_200.7_WD	SAMP		6/2/2018 05:48	1	119148	6/1/2018	15
5070388	18051627-09D	EM_ICP_200.7_W	SAMP		6/2/2018 05:55	1	119148	6/1/2018	20
5070389	18051627-10C	EM_ICP_200.7_WD	SAMP		6/2/2018 06:01	1	119148	6/1/2018	15
5070390	18051627-10D	EM_ICP_200.7_W	SAMP		6/2/2018 06:07	1	119148	6/1/2018	20
5070392	18051627-11C	EM_ICP_200.7_WD	SAMP		6/2/2018 06:13	1	119148	6/1/2018	15
5070395	CCV	ICP_6010_W	CCV		6/2/2018 06:19	1	R237221		32
5070396	CCB	ICP_6010_W	CCB		6/2/2018 06:25	1	R237221		32
5070397	CCVLL	ICP_6010_W	LLCCV		6/2/2018 06:31	1	R237221		32

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070398	18051627-11D	EM_ICP_200.7_W	SAMP		6/2/2018 06:37	1	119148	6/1/2018	20
5070399	18051627-12C	EM_ICP_200.7_WD	SAMP		6/2/2018 06:44	1	119148	6/1/2018	15
5070400	18051627-12D	EM_ICP_200.7_W	SAMP		6/2/2018 06:50	1	119148	6/1/2018	20
5070401	18051627-13C	EM_ICP_200.7_WD	SAMP		6/2/2018 06:56	1	119148	6/1/2018	15
5070402	18051627-13D	EM_ICP_200.7_W	SAMP		6/2/2018 07:02	1	119148	6/1/2018	20
5070403	18051768-01C	EM_ICP_200.7_WD	SAMP		6/2/2018 07:08	1	119148	6/1/2018	15
5070404	18051768-01D	EM_ICP_200.7_W	SAMP		6/2/2018 07:15	1	119148	6/1/2018	20
5070405	18051768-01DMS	EM_ICP_200.7_W	MS		6/2/2018 07:21	1	119148	6/1/2018	30
	MS02	*The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
5070406	18051768-01DMSD	EM_ICP_200.7_W	MSD		6/2/2018 07:27	1	119148	6/1/2018	30
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
5070407	18051768-02C	EM_ICP_200.7_WD	SAMP		6/2/2018 07:33	1	119148	6/1/2018	15
5070408	CCV	ICP_6010_W	CCV		6/2/2018 07:39	1	R237221		32
5070409	CCB	ICP_6010_W	CCB		6/2/2018 07:44	1	R237221		32
5070410	CCVLL	ICP_6010_W	LLCCV		6/2/2018 07:51	1	R237221		32
5070411	18051768-02D	EM_ICP_200.7_W	SAMP		6/2/2018 07:57	1	119148	6/1/2018	20
5070412	18051768-03C	EM_ICP_200.7_WD	SAMP		6/2/2018 08:03	1	119148	6/1/2018	15
5070413	18051768-03D	EM_ICP_200.7_W	SAMP		6/2/2018 08:09	1	119148	6/1/2018	20
5070414	18051768-03DMS	EM_ICP_200.7_W	MS		6/2/2018 08:15	1	119148	6/1/2018	30
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Na*							
5070415	18051768-03DMSD	EM_ICP_200.7_W	MSD		6/2/2018 08:21	1	119148	6/1/2018	30
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
5070416	18051768-04C	EM_ICP_200.7_WD	SAMP		6/2/2018 08:27	1	119148	6/1/2018	15
5070417	18051768-04D	EM_ICP_200.7_W	SAMP		6/2/2018 08:33	1	119148	6/1/2018	20
5070418	18051768-05C	EM_ICP_200.7_WD	SAMP		6/2/2018 08:40	1	119148	6/1/2018	15
5070419	18051768-05D	EM_ICP_200.7_W	SAMP		6/2/2018 08:46	1	119148	6/1/2018	20
5070420	MBLK-119153	ICP_200.7_WW	MBLK		6/2/2018 08:52	1	119153	6/1/2018	30
5070421	CCV	ICP_6010_W	CCV		6/2/2018 08:58	1	R237221		32
5070422	CCB	ICP_6010_W	CCB		6/2/2018 09:04	1	R237221		32
5070423	CCVLL	ICP_6010_W	LLCCV		6/2/2018 09:10	1	R237221		32
5070424	LCS-119153	ICP_200.7_WW	LCS		6/2/2018 09:16	1	119153	6/1/2018	30
5070425	18051768-06C	EM_ICP_200.7_WD	SAMP		6/2/2018 09:22	1	119153	6/1/2018	15
5070426	18051768-06D	EM_ICP_200.7_W	SAMP		6/2/2018 09:29	1	119153	6/1/2018	20
5070427	18051768-07C	EM_ICP_200.7_WD	SAMP		6/2/2018 09:35	1	119153	6/1/2018	15
5070428	18051768-07D	EM_ICP_200.7_W	SAMP		6/2/2018 09:41	1	119153	6/1/2018	20
5070429	18051768-08C	EM_ICP_200.7_WD	SAMP		6/2/2018 09:47	1	119153	6/1/2018	15
5070430	18051768-08D	EM_ICP_200.7_W	SAMP		6/2/2018 09:53	1	119153	6/1/2018	20
5070431	18051768-09C	EM_ICP_200.7_WD	SAMP		6/2/2018 09:59	1	119153	6/1/2018	15
5070432	18051768-09D	EM_ICP_200.7_W	SAMP		6/2/2018 10:05	1	119153	6/1/2018	20
5070433	18051768-10C	EM_ICP_200.7_WD	SAMP		6/2/2018 10:12	1	119153	6/1/2018	15
5070434	CCV	ICP_6010_W	CCV		6/2/2018 10:18	1	R237221		32
5070435	CCB	ICP_6010_W	CCB		6/2/2018 10:23	1	R237221		32
5070436	CCVLL	ICP_6010_W	LLCCV		6/2/2018 10:30	1	R237221		0
5070437	CCVLL	ICP_6010_W	LLCCV		6/2/2018 10:36	1	R237221		32
5070438	18051768-10D	EM_ICP_200.7_W	SAMP		6/2/2018 10:42	1	119153	6/1/2018	20
5070439	18051768-11C	EM_ICP_200.7_WD	SAMP		6/2/2018 10:48	1	119153	6/1/2018	15
5070440	18051768-11D	EM_ICP_200.7_W	SAMP		6/2/2018 10:55	1	119153	6/1/2018	20
5070441	18051831-01C	EM_ICP_200.7_WD	SAMP		6/2/2018 11:01	1	119153	6/1/2018	15
5070442	18051831-01D	EM_ICP_200.7_W	SAMP		6/2/2018 11:07	1	119153	6/1/2018	20
5070443	18051831-01DMS	EM_ICP_200.7_W	MS		6/2/2018 11:13	1	119153	6/1/2018	30
5070444	18051831-01DMSD	EM_ICP_200.7_W	MSD		6/2/2018 11:19	1	119153	6/1/2018	30
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mn*							

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070445	18051831-02C	EM_ICP_200.7_WD	SAMP		6/2/2018 11:25	1	119153	6/1/2018	15
5070446	18051831-02D	EM_ICP_200.7_W	SAMP		6/2/2018 11:31	1	119153	6/1/2018	20
5070447	18051831-02DMS	EM_ICP_200.7_W	MS		6/2/2018 11:38	1	119153	6/1/2018	30
	MS02	*The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
5070448	CCV	ICP_6010_W	CCV		6/2/2018 11:44	1	R237221		32
5070449	CCB	ICP_6010_W	CCB		6/2/2018 11:49	1	R237221		32
5070450	CCVLL	ICP_6010_W	LLCCV		6/2/2018 11:56	1	R237221		32
5070451	18051831-02DMSD	EM_ICP_200.7_W	MSD		6/2/2018 12:02	1	119153	6/1/2018	30
	MSD02	*The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al*							
5070452	18051831-03C	EM_ICP_200.7_WD	SAMP		6/2/2018 12:08	1	119153	6/1/2018	15
5070453	18051831-03D	EM_ICP_200.7_W	SAMP		6/2/2018 12:14	1	119153	6/1/2018	20
5070454	18051831-04C	EM_ICP_200.7_WD	SAMP		6/2/2018 12:20	1	119153	6/1/2018	15
5070455	18051831-04D	EM_ICP_200.7_W	SAMP		6/2/2018 12:26	1	119153	6/1/2018	20
5070456	CCV	ICP_6010_W	CCV		6/2/2018 12:32	1	R237221		32
5070457	CCB	ICP_6010_W	CCB		6/2/2018 12:38	1	R237221		32
5070458	CCVLL	ICP_6010_W	LLCCV		6/2/2018 12:44	1	R237221		32
5070459	ICSAB	ICP_6010_W	ICSA		6/2/2018 12:51	1	R237221		32
5070460	RINSE	ICP_6010_W	SAMP		6/2/2018 12:57	1	R237221		32
5070461	RINSE	ICP_6010_W	SAMP		6/2/2018 13:03	1	R237221		32
5070462	RINSE	ICP_6010_W	SAMP		6/2/2018 13:09	1	R237221		32
5070463	RINSE	ICP_6010_W	SAMP		6/2/2018 13:15	1	R237221		32
5070464	RINSE	ICP_6010_W	SAMP		6/2/2018 13:22	1	R237221		32

Calibration Summary

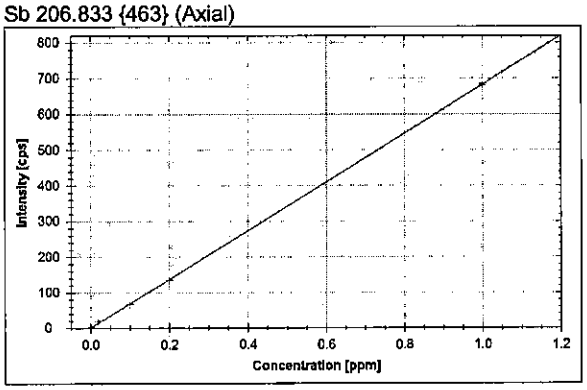
6/26/2018 5:54:35 PM

QTEGRA

Labbook 180601A.imexp

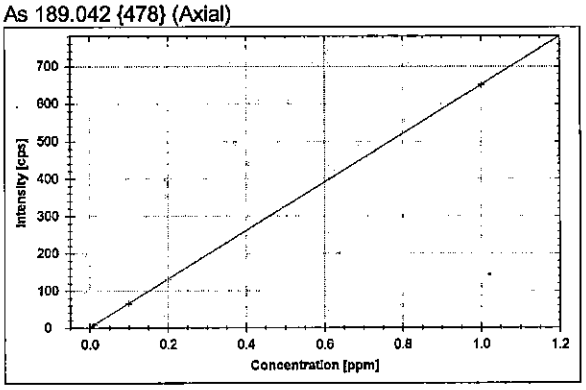
Calibration Graphs

Sb 206.833 {463} (Axial)



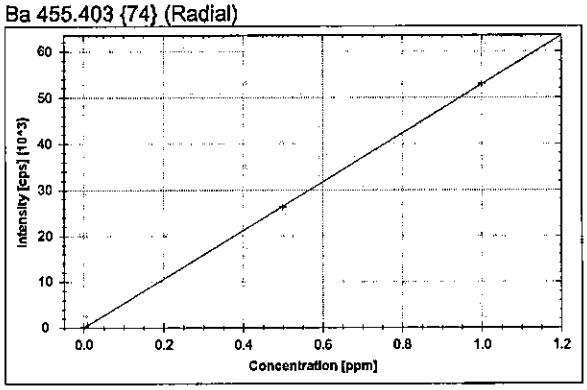
f(x) = 681.8363*x + 0.3803
R^2 = 0.9999
BEC = 0.001 ppm
LoD = 0.0019 ppm

As 189.042 {478} (Axial)



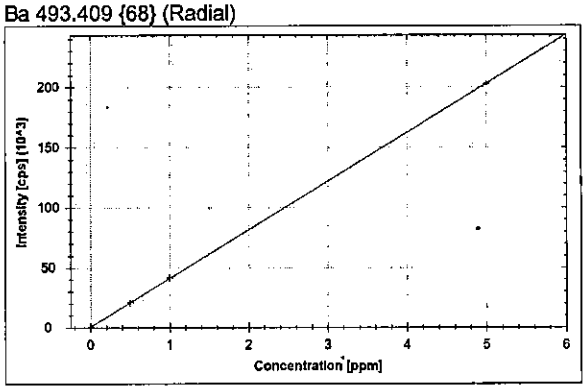
f(x) = 649.2574*x + 1.0868
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0003 ppm

Ba 455.403 {74} (Radial)



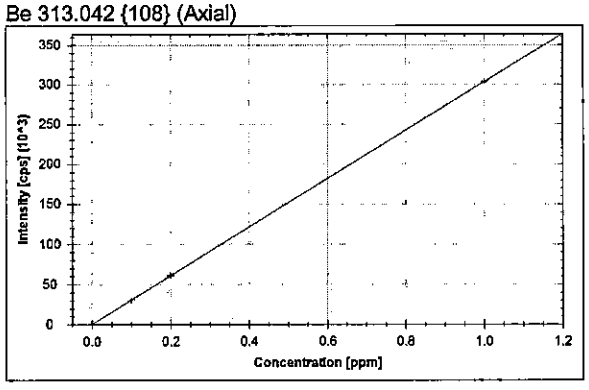
f(x) = 52811.7910*x + 12.9598
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0007 ppm

Ba 493.409 {68} (Radial)



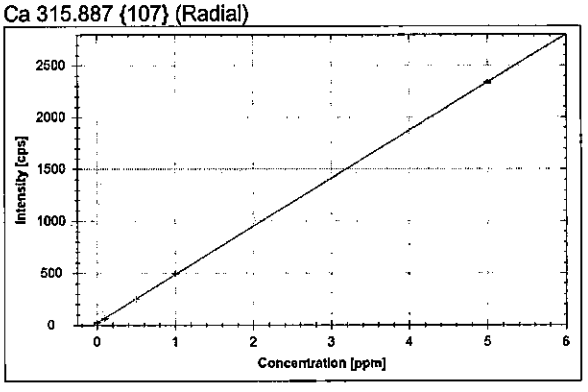
f(x) = 40451.0440*x + 602.9840
R^2 = 1.0000
BEC = 0.015 ppm
LoD = 0.0004 ppm

Be 313.042 {108} (Axial)



f(x) = 302855.2858*x + 251.3730
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0000 ppm

Ca 315.887 {107} (Radial)



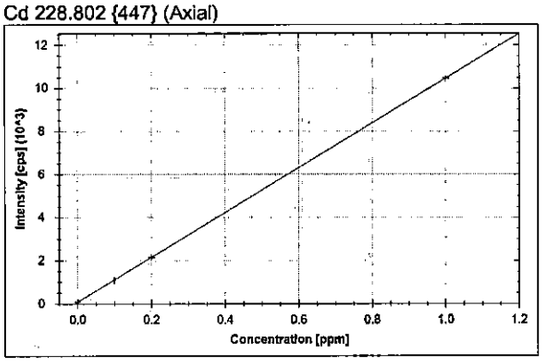
f(x) = 462.7699*x + 23.2567
R^2 = 1.0000
BEC = 0.050 ppm
LoD = 0.0148 ppm

Calibration Summary

6/26/2018 5:54:35 PM

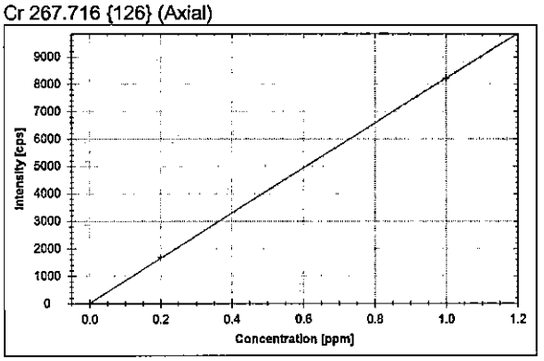
QTEGRA

Cd 228.802 {447} (Axial)



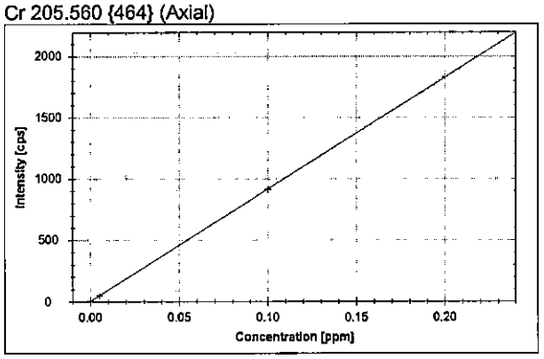
f(x) = 10381.0629*x + 71.9302
R^2 = 1.0000
BEC = 0.007 ppm
LoD = 0.0003 ppm

Cr 267.716 {126} (Axial)



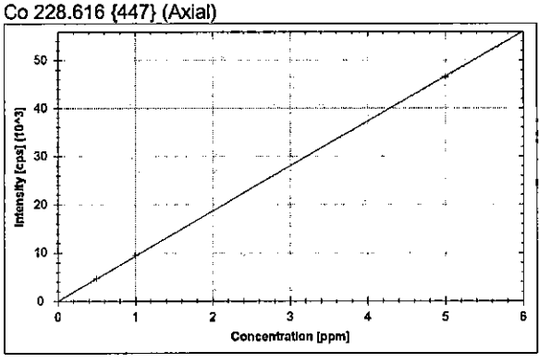
f(x) = 8214.2352*x + 3.7222
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0011 ppm

Cr 205.560 {464} (Axial)



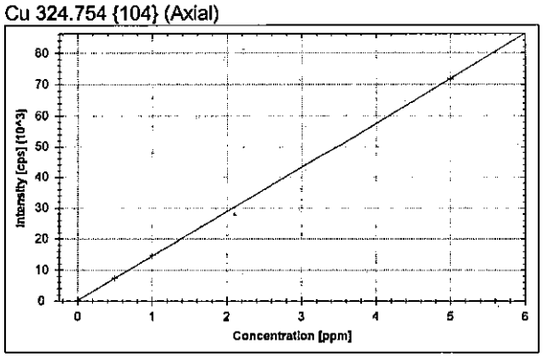
f(x) = 9122.7933*x + 3.0909
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0002 ppm

Co 228.616 {447} (Axial)



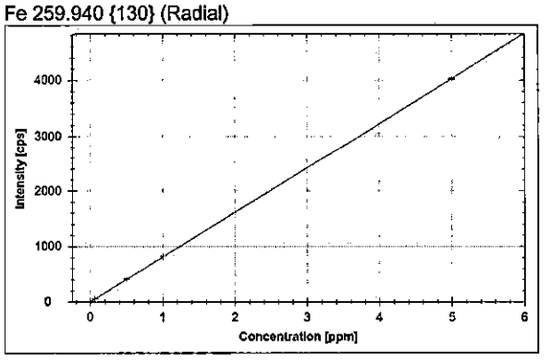
f(x) = 9322.6920*x + -1.9669
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Cu 324.754 {104} (Axial)



f(x) = 14325.7502*x + 194.4987
R^2 = 1.0000
BEC = 0.014 ppm
LoD = 0.0004 ppm

Fe 259.940 {130} (Radial)



f(x) = 804.0072*x + 5.2363
R^2 = 1.0000
BEC = 0.007 ppm
LoD = 0.0026 ppm

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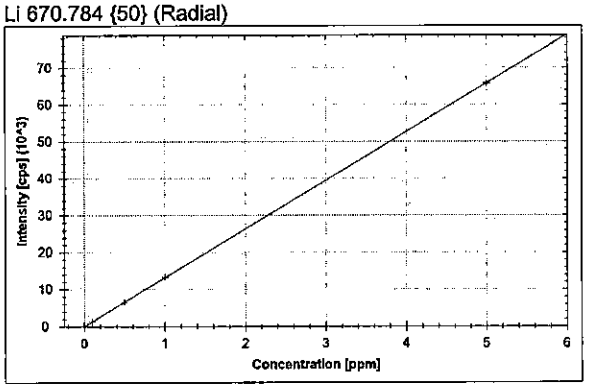
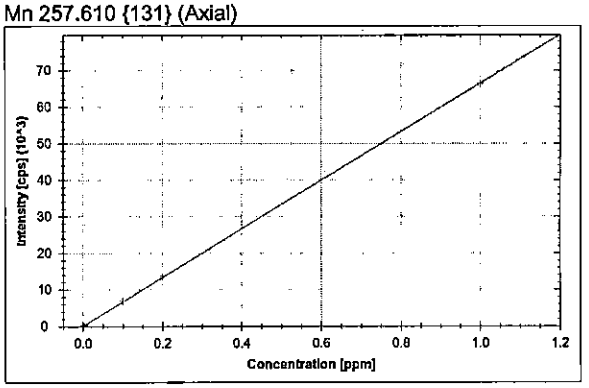
Li 670.784 {50} (Radial)



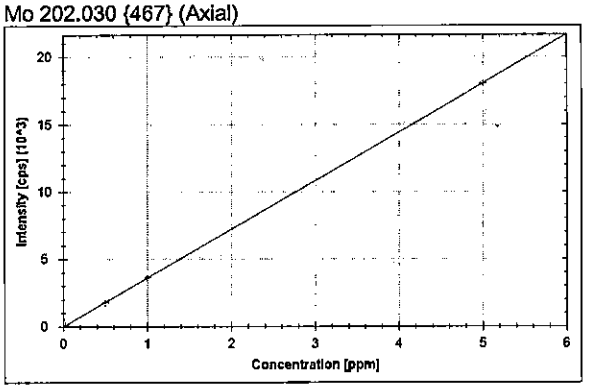
f(x) = 13138.0835*x + 22.9673
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0022 ppm

Mn 257.610 {131} (Axial)



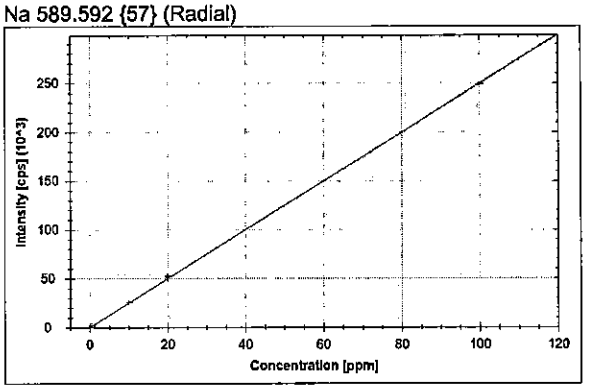
f(x) = 66461.1474*x + 34.9552
R^2 = 0.9999
BEC = 0.001 ppm
LoD = 0.0002 ppm

Mo 202.030 {467} (Axial)



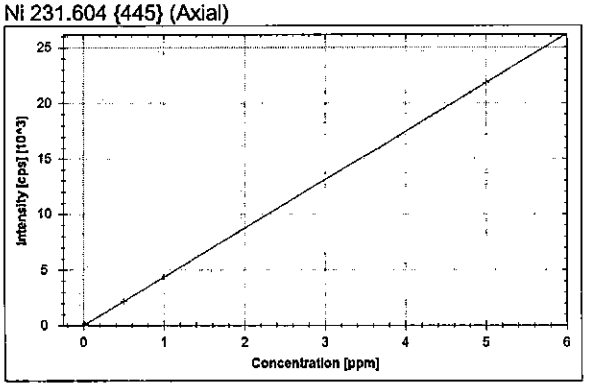
f(x) = 3605.7554*x + -0.6321
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0004 ppm

Na 589.592 {57} (Radial)



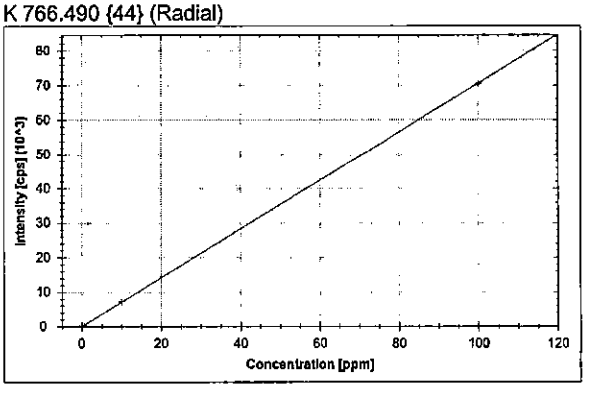
f(x) = 2492.0019*x + 31.4432
R^2 = 0.9999
BEC = 0.013 ppm
LoD = 0.0068 ppm

Ni 231.604 {445} (Axial)



f(x) = 4363.4974*x + 0.8867
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0003 ppm

K 766.490 {44} (Radial)



f(x) = 704.8524*x + 66.6311
R^2 = 1.0000
BEC = 0.095 ppm
LoD = 0.0433 ppm

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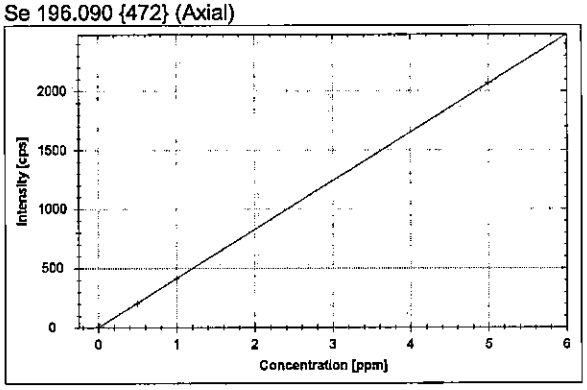
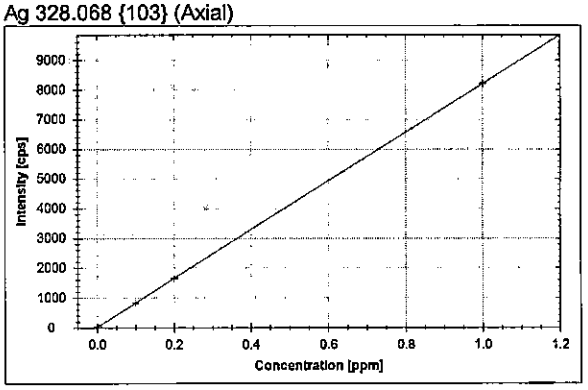
Se 196.090 {472} (Axial)



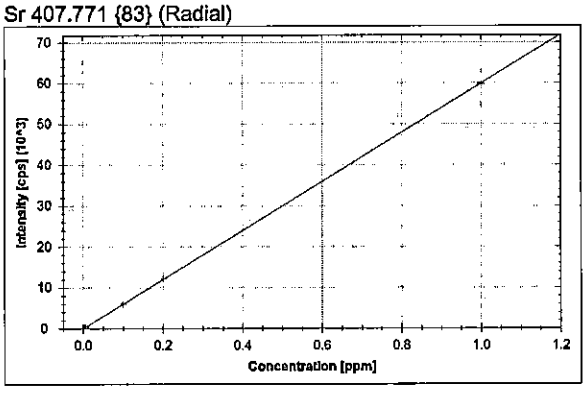
f(x) = 412.7994*x + 0.9924
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0055 ppm

Ag 328.068 {103} (Axial)



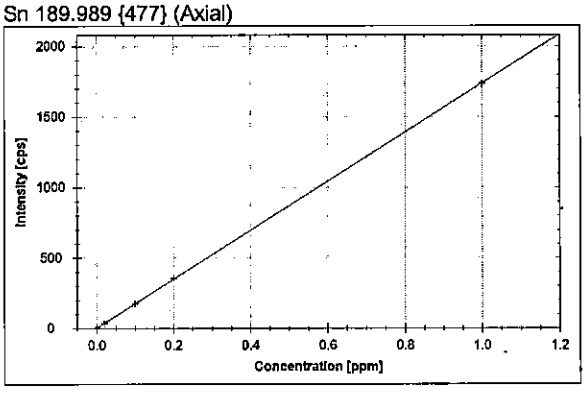
f(x) = 8188.3997*x + 14.0328
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0009 ppm

Sr 407.771 {83} (Radial)



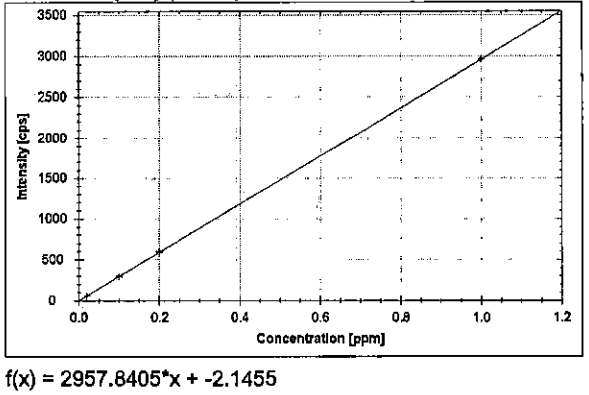
f(x) = 59842.1056*x + 9.2879
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0002 ppm

Sn 189.989 {477} (Axial)



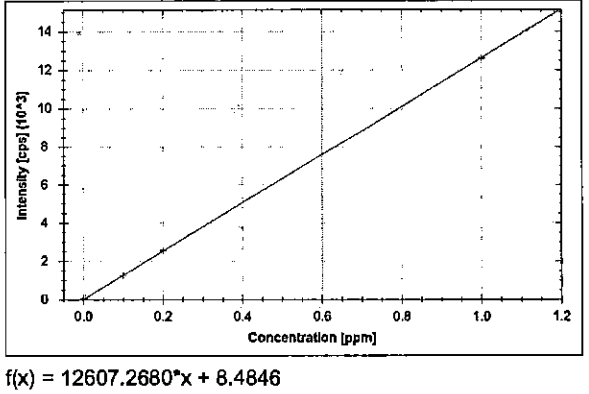
f(x) = 1734.0430*x + 1.9425
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0011 ppm

Ti 334.941 {101} (Radial)



f(x) = 2957.8405*x + -2.1455
R^2 = 1.0000
BEC = -0.001 ppm
LoD = 0.0020 ppm

V 292.402 {115} (Axial)



f(x) = 12607.2680*x + 8.4846
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0008 ppm

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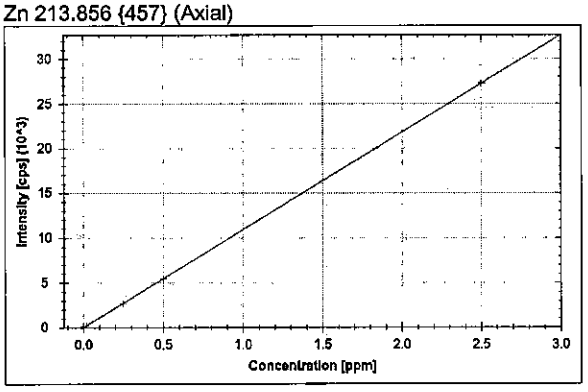
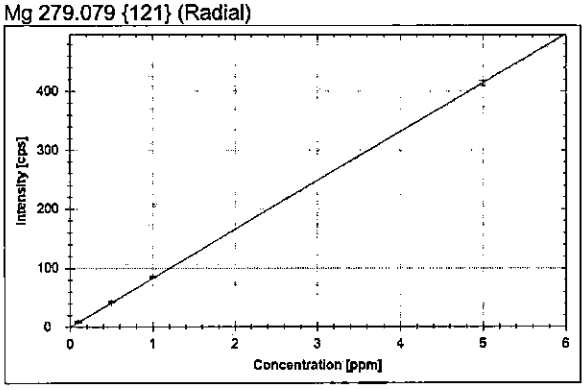
Zn 213.856 {457} (Axial)



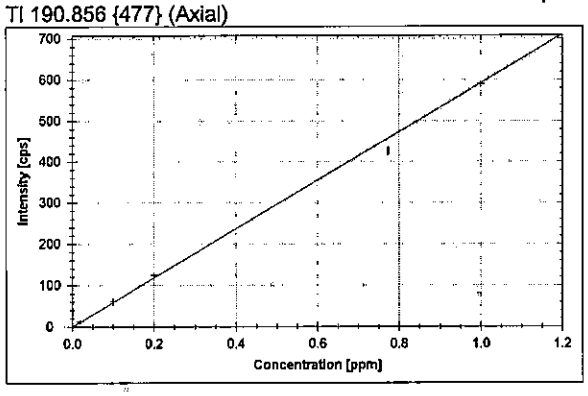
f(x) = 10884.5592*x + 19.5060
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0005 ppm

Mg 279.079 {121} (Radial)



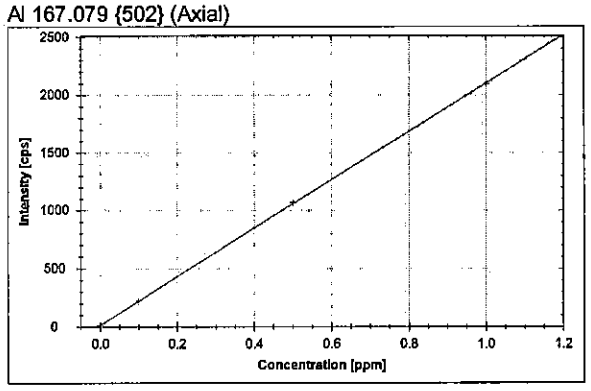
f(x) = 82.9127*x + -0.6759
R^2 = 0.9999
BEC = -0.008 ppm
LoD = 0.0628 ppm

Tl 190.856 {477} (Axial)



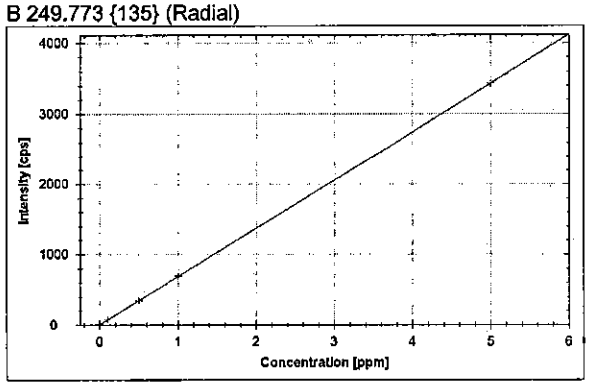
f(x) = 592.0562*x + -0.6322
R^2 = 0.9998
BEC = -0.001 ppm
LoD = 0.0020 ppm

Al 167.079 {502} (Axial)



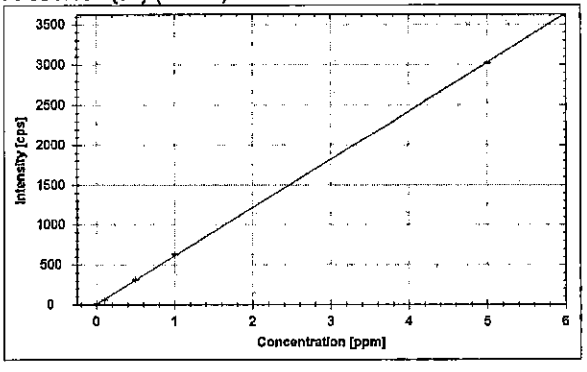
f(x) = 2088.3873*x + 12.3122
R^2 = 0.9999
BEC = 0.006 ppm
LoD = 0.0005 ppm

B 249.773 {135} (Radial)



f(x) = 685.4880*x + 2.4732
R^2 = 1.0000
BEC = 0.004 ppm
LoD = 0.0046 ppm

Al 396.152 {85} (Radial)



f(x) = 603.8244*x + 6.3722
R^2 = 1.0000
BEC = 0.011 ppm
LoD = 0.0147 ppm

Calibration Summary

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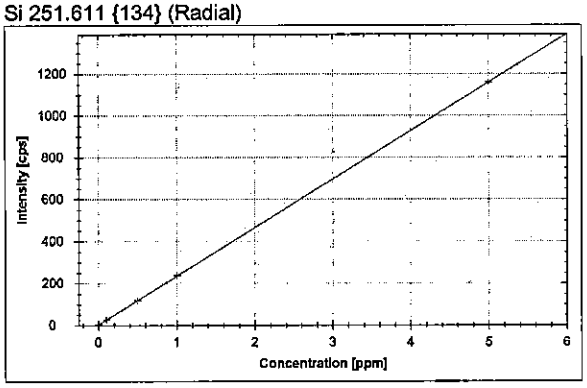
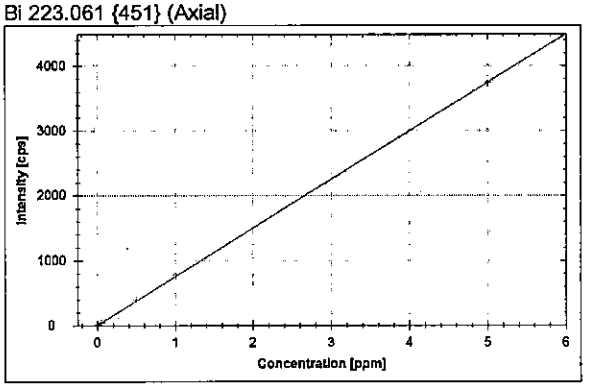
Si 251.611 {134} (Radial)



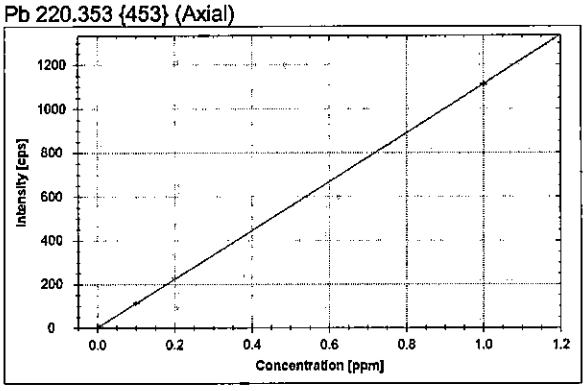
f(x) = 231.1116*x + 2.9523
R^2 = 1.0000
BEC = 0.013 ppm
LoD = 0.0165 ppm

Bi 223.061 {451} (Axial)



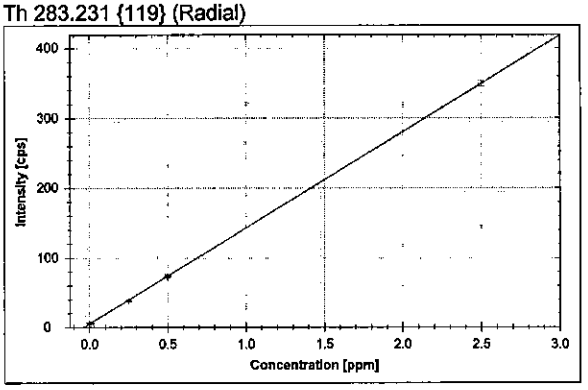
f(x) = 747.9206*x + 5.5857
R^2 = 0.9999
BEC = 0.007 ppm
LoD = 0.0021 ppm

Pb 220.353 {453} (Axial)



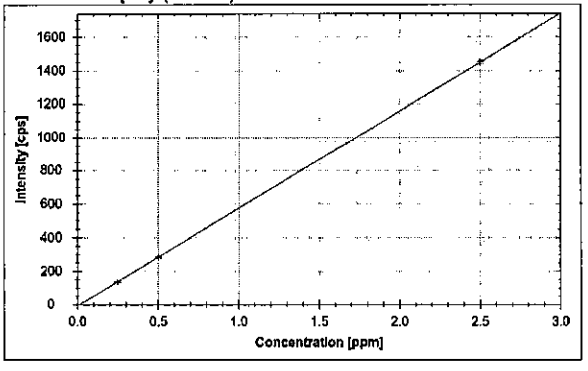
f(x) = 1111.1633*x + 0.6548
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0009 ppm

Th 283.231 {119} (Radial)



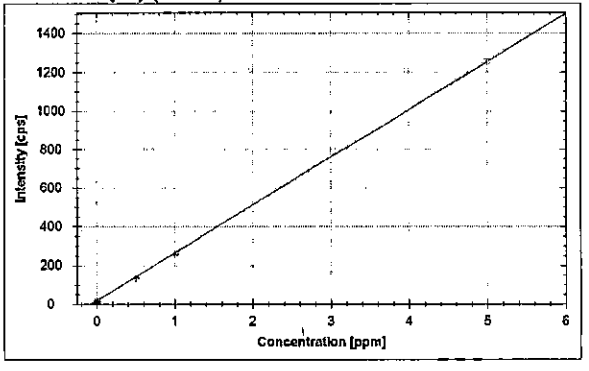
f(x) = 137.5868*x + 5.0467
R^2 = 0.9999
BEC = 0.037 ppm
LoD = 0.0330 ppm

Th 401.913 {84} (Radial)



f(x) = 582.2506*x + -7.7272
R^2 = 1.0000
BEC = -0.013 ppm
LoD = 0.0375 ppm

U 409.014 {82} (Radial)



f(x) = 246.9568*x + 18.2591
R^2 = 0.9997
BEC = 0.074 ppm
LoD = 0.0737 ppm

Calibration Summary

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QTEGRA

Standards

Standard ICAL2
Analysis Date 6/1/2018 2:08:03 PM
Stock Solution ICAL2
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.0263 ppm	3.2 %	0.0200 ppm
As 189.042 {478} (Axial)	0.0097 ppm	7.8 %	0.0100 ppm
Ba 455.403 {74} (Radial)	0.0104 ppm	0.6 %	0.0100 ppm
Ba 493.409 {68} (Radial)	N/A	N/A	N/A
Be 313.042 {108} (Axial)	0.0040 ppm	0.4 %	0.0040 ppm
Ca 315.887 {107} (Radial)	0.0883 ppm	3.5 %	0.1000 ppm
Cd 228.802 {447} (Axial)	0.0020 ppm	3.3 %	0.0020 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.0048 ppm	2.1 %	0.0050 ppm
Co 228.616 {447} (Axial)	0.0051 ppm	2.2 %	0.0050 ppm
Cu 324.754 {104} (Axial)	0.0100 ppm	1.9 %	0.0100 ppm
Fe 259.940 {130} (Radial)	0.0582 ppm	5.6 %	0.0600 ppm
Li 670.784 {50} (Radial)	0.0989 ppm	0.5 %	0.1000 ppm
Mn 257.610 {131} (Axial)	0.0053 ppm	0.7 %	0.0050 ppm
Mo 202.030 {467} (Axial)	0.0203 ppm	0.5 %	0.0200 ppm
Na 589.592 {57} (Radial)	0.5098 ppm	0.7 %	0.5000 ppm
Ni 231.604 {445} (Axial)	0.0199 ppm	1.0 %	0.0200 ppm
K 766.490 {44} (Radial)	0.4399 ppm	4.7 %	0.5000 ppm
Se 196.090 {472} (Axial)	0.0204 ppm	7.6 %	0.0200 ppm
Ag 328.068 {103} (Axial)	-0.0002 ppm	341.4 %	0.0040 ppm
Sr 407.771 {83} (Radial)	0.0052 ppm	1.4 %	0.0050 ppm
Sn 189.989 {477} (Axial)	0.0191 ppm	2.3 %	0.0200 ppm
Ti 334.941 {101} (Radial)	0.0208 ppm	2.6 %	0.0200 ppm
V 292.402 {115} (Axial)	0.0055 ppm	6.0 %	0.0050 ppm
Zn 213.856 {457} (Axial)	0.0187 ppm	0.3 %	0.0200 ppm
Sc 357.253 {94} (Axial)	100.2931 %		
Sc 188.060 {479} (Axial)	100.9747 %		
Mg 279.079 {121} (Radial)	0.1048 ppm	20.5 %	0.1000 ppm
Tl 190.856 {477} (Axial)	0.0219 ppm	1.3 %	0.0200 ppm
Al 167.079 {502} (Axial)	0.1007 ppm	0.5 %	0.1000 ppm
Sc 227.318 {448} (Axial)	100.6876 %		
B 249.773 {135} (Radial)	0.1038 ppm	1.6 %	0.1000 ppm
Al 396.152 {85} (Radial)	0.0917 ppm	8.2 %	0.1000 ppm
Si 251.611 {134} (Radial)	0.0967 ppm	2.8 %	0.1000 ppm
Bi 223.061 {451} (Axial)	0.0508 ppm	3.7 %	0.0500 ppm
Pb 220.353 {453} (Axial)	0.0056 ppm	11.9 %	0.0060 ppm
Th 283.231 {119} (Radial)	-0.0095 ppm	118.7 %	0.0060 ppm
Th 401.913 {84} (Radial)	-0.0018 ppm	230.3 %	0.0060 ppm
U 409.014 {82} (Radial)	-0.0497 ppm	36.7 %	0.0060 ppm
Y 224.306 {450} (Axial)	100.6575 %		
Sc 361.384 {93} (Radial)	99.5099 %		

Calibration Summary

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QTEGRA

Standards

Standard ICAL3
Analysis Date 6/1/2018 2:14:10 PM
Stock Solution ICAL3
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.0978 ppm	0.5 %	0.1000 ppm
As 189.042 {478} (Axial)	0.0971 ppm	0.7 %	0.1000 ppm
Ba 455.403 {74} (Radial)	0.4965 ppm	0.2 %	0.5000 ppm
Ba 493.409 {68} (Radial)	0.5023 ppm	0.3 %	0.5000 ppm
Be 313.042 {108} (Axial)	0.0984 ppm	0.2 %	0.1000 ppm
Ca 315.887 {107} (Radial)	0.4922 ppm	0.3 %	0.5000 ppm
Cd 228.802 {447} (Axial)	0.0984 ppm	0.1 %	0.1000 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.0994 ppm	0.4 %	0.1000 ppm
Co 228.616 {447} (Axial)	0.5074 ppm	0.1 %	0.5000 ppm
Cu 324.754 {104} (Axial)	0.4999 ppm	0.4 %	0.5000 ppm
Fe 259.940 {130} (Radial)	0.5037 ppm	0.9 %	0.5000 ppm
Li 670.784 {50} (Radial)	0.4974 ppm	0.1 %	0.5000 ppm
Mn 257.610 {131} (Axial)	0.1029 ppm	0.2 %	0.1000 ppm
Mo 202.030 {467} (Axial)	0.4979 ppm	0.1 %	0.5000 ppm
Na 589.592 {57} (Radial)	10.2688 ppm	0.1 %	10.0000 ppm
Ni 231.604 {445} (Axial)	0.5069 ppm	0.1 %	0.5000 ppm
K 766.490 {44} (Radial)	10.1318 ppm	0.3 %	10.0000 ppm
Se 196.090 {472} (Axial)	0.4874 ppm	0.5 %	0.5000 ppm
Ag 328.068 {103} (Axial)	0.0992 ppm	1.1 %	0.1000 ppm
Sr 407.771 {83} (Radial)	0.1006 ppm	0.3 %	0.1000 ppm
Sn 189.989 {477} (Axial)	0.1002 ppm	0.5 %	0.1000 ppm
Ti 334.941 {101} (Radial)	0.0999 ppm	1.3 %	0.1000 ppm
V 292.402 {115} (Axial)	0.0992 ppm	0.1 %	0.1000 ppm
Zn 213.856 {457} (Axial)	0.2463 ppm	0.1 %	0.2500 ppm
Sc 357.253 {94} (Axial)	101.8810 %		
Sc 188.060 {479} (Axial)	100.6655 %		
Mg 279.079 {121} (Radial)	0.5221 ppm	2.1 %	0.5000 ppm
Tl 190.856 {477} (Axial)	0.1041 ppm	0.7 %	0.1000 ppm
Al 167.079 {502} (Axial)	0.5061 ppm	0.2 %	0.5000 ppm
Sc 227.318 {448} (Axial)	102.2522 %		
B 249.773 {135} (Radial)	0.4980 ppm	1.1 %	0.5000 ppm
Al 396.152 {85} (Radial)	0.5069 ppm	2.1 %	0.5000 ppm
Si 251.611 {134} (Radial)	0.4972 ppm	0.6 %	0.5000 ppm
Bi 223.061 {451} (Axial)	0.5138 ppm	0.2 %	0.5000 ppm
Pb 220.353 {453} (Axial)	0.1015 ppm	0.7 %	0.1000 ppm
Th 283.231 {119} (Radial)	0.2398 ppm	3.9 %	0.2500 ppm
Th 401.913 {84} (Radial)	0.2431 ppm	1.9 %	0.2500 ppm
U 409.014 {82} (Radial)	0.4751 ppm	2.9 %	0.5000 ppm
Y 224.306 {450} (Axial)	99.6154 %		
Sc 361.384 {93} (Radial)	100.7534 %		

Calibration Summary

6/26/2018 5:54:35 PM

QTEGRA

Standards

Standard ICAL4
Analysis Date 6/1/2018 2:20:02 PM
Stock Solution ICAL4
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.1979 ppm	0.4 %	0.2000 ppm
As 189.042 {478} (Axial)	0.1977 ppm	0.2 %	0.2000 ppm
Ba 455.403 {74} (Radial)	1.0017 ppm	0.2 %	1.0000 ppm
Ba 493.409 {68} (Radial)	1.0131 ppm	0.2 %	1.0000 ppm
Be 313.042 {108} (Axial)	0.2009 ppm	0.2 %	0.2000 ppm
Ca 315.887 {107} (Radial)	1.0227 ppm	1.0 %	1.0000 ppm
Cd 228.802 {447} (Axial)	0.1991 ppm	0.2 %	0.2000 ppm
Cr 267.716 {126} (Axial)	0.2052 ppm	0.9 %	0.2000 ppm
Cr 205.560 {464} (Axial)	0.2003 ppm	0.1 %	0.2000 ppm
Co 228.616 {447} (Axial)	1.0219 ppm	0.1 %	1.0000 ppm
Cu 324.754 {104} (Axial)	1.0063 ppm	0.1 %	1.0000 ppm
Fe 259.940 {130} (Radial)	1.0206 ppm	0.7 %	1.0000 ppm
Li 670.784 {50} (Radial)	1.0067 ppm	0.2 %	1.0000 ppm
Mn 257.610 {131} (Axial)	0.2066 ppm	0.2 %	0.2000 ppm
Mo 202.030 {467} (Axial)	1.0077 ppm	0.2 %	1.0000 ppm
Na 589.592 {57} (Radial)	20.7232 ppm	0.3 %	20.0000 ppm
Ni 231.604 {445} (Axial)	1.0204 ppm	0.1 %	1.0000 ppm
K 766.490 {44} (Radial)	20.5036 ppm	0.1 %	20.0000 ppm
Se 196.090 {472} (Axial)	0.9937 ppm	0.1 %	1.0000 ppm
Ag 328.068 {103} (Axial)	0.1994 ppm	0.2 %	0.2000 ppm
Sr 407.771 {83} (Radial)	0.2023 ppm	0.1 %	0.2000 ppm
Sn 189.989 {477} (Axial)	0.2035 ppm	0.5 %	0.2000 ppm
Tl 334.941 {101} (Radial)	0.2019 ppm	0.7 %	0.2000 ppm
V 292.402 {115} (Axial)	0.2029 ppm	0.2 %	0.2000 ppm
Zn 213.856 {457} (Axial)	0.5006 ppm	0.1 %	0.5000 ppm
Sc 357.253 {94} (Axial)	100.2037 %		
Sc 188.060 {479} (Axial)	98.7603 %		
Mg 279.079 {121} (Radial)	1.0296 ppm	1.7 %	1.0000 ppm
Tl 190.856 {477} (Axial)	0.2097 ppm	0.6 %	0.2000 ppm
Al 167.079 {502} (Axial)	0.9969 ppm	0.3 %	1.0000 ppm
Sc 227.318 {448} (Axial)	102.0167 %		
B 249.773 {135} (Radial)	1.0109 ppm	0.5 %	1.0000 ppm
Al 396.152 {85} (Radial)	1.0258 ppm	0.7 %	1.0000 ppm
Si 251.611 {134} (Radial)	1.0083 ppm	0.8 %	1.0000 ppm
Bi 223.061 {451} (Axial)	1.0303 ppm	0.2 %	1.0000 ppm
Pb 220.353 {453} (Axial)	0.2051 ppm	0.4 %	0.2000 ppm
Th 283.231 {119} (Radial)	0.4942 ppm	3.5 %	0.5000 ppm
Th 401.913 {84} (Radial)	0.4965 ppm	2.6 %	0.5000 ppm
U 409.014 {82} (Radial)	0.9608 ppm	2.1 %	1.0000 ppm
Y 224.306 {450} (Axial)	97.9896 %		
Sc 361.384 {93} (Radial)	99.8231 %		

Calibration Summary

6/26/2018 5:54:35 PM

QTEGRA

Standards

Standard ICAL5
Analysis Date 6/1/2018 2:25:51 PM
Stock Solution ICAL5
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	1.0005 ppm	0.4 %	1.0000 ppm
As 189.042 {478} (Axial)	1.0008 ppm	0.2 %	1.0000 ppm
Ba 455.403 {74} (Radial)	N/A	N/A	N/A
Ba 493.409 {68} (Radial)	4.9972 ppm	0.4 %	5.0000 ppm
Be 313.042 {108} (Axial)	1.0000 ppm	0.3 %	1.0000 ppm
Ca 315.887 {107} (Radial)	4.9965 ppm	0.5 %	5.0000 ppm
Cd 228.802 {447} (Axial)	1.0004 ppm	0.2 %	1.0000 ppm
Cr 267.716 {126} (Axial)	0.9990 ppm	0.2 %	1.0000 ppm
Cr 205.560 {464} (Axial)	N/A	N/A	N/A
Co 228.616 {447} (Axial)	4.9949 ppm	0.2 %	5.0000 ppm
Cu 324.754 {104} (Axial)	4.9988 ppm	0.1 %	5.0000 ppm
Fe 259.940 {130} (Radial)	4.9955 ppm	0.2 %	5.0000 ppm
Li 670.784 {50} (Radial)	4.9989 ppm	0.2 %	5.0000 ppm
Mn 257.610 {131} (Axial)	0.9984 ppm	0.2 %	1.0000 ppm
Mo 202.030 {467} (Axial)	4.9987 ppm	0.1 %	5.0000 ppm
Na 589.592 {57} (Radial)	99.8284 ppm	0.2 %	100.0000 ppm
Ni 231.604 {445} (Axial)	4.9952 ppm	0.1 %	5.0000 ppm
K 766.490 {44} (Radial)	99.8864 ppm	0.4 %	100.0000 ppm
Se 196.090 {472} (Axial)	5.0025 ppm	0.1 %	5.0000 ppm
Ag 328.068 {103} (Axial)	1.0002 ppm	0.2 %	1.0000 ppm
Sr 407.771 {83} (Radial)	0.9995 ppm	0.2 %	1.0000 ppm
Sn 189.989 {477} (Axial)	0.9993 ppm	0.4 %	1.0000 ppm
Tl 334.941 {101} (Radial)	0.9996 ppm	0.3 %	1.0000 ppm
V 292.402 {115} (Axial)	0.9995 ppm	0.1 %	1.0000 ppm
Zn 213.856 {457} (Axial)	2.5003 ppm	0.1 %	2.5000 ppm
Sc 357.253 {94} (Axial)	97.1748 %		
Sc 188.060 {479} (Axial)	93.9888 %		
Mg 279.079 {121} (Radial)	4.9918 ppm	1.1 %	5.0000 ppm
Tl 190.856 {477} (Axial)	0.9976 ppm	0.2 %	1.0000 ppm
Al 167.079 {502} (Axial)	N/A	N/A	N/A
Sc 227.318 {448} (Axial)	110.5445 %		
B 249.773 {135} (Radial)	4.9980 ppm	0.1 %	5.0000 ppm
Al 396.152 {85} (Radial)	4.9943 ppm	0.1 %	5.0000 ppm
Si 251.611 {134} (Radial)	4.9987 ppm	0.3 %	5.0000 ppm
Bi 223.061 {451} (Axial)	4.9925 ppm	0.1 %	5.0000 ppm
Pb 220.353 {453} (Axial)	0.9988 ppm	0.2 %	1.0000 ppm
Th 283.231 {119} (Radial)	2.5022 ppm	1.1 %	2.5000 ppm
Th 401.913 {84} (Radial)	2.5014 ppm	0.6 %	2.5000 ppm
U 409.014 {82} (Radial)	5.0104 ppm	0.7 %	5.0000 ppm
Y 224.306 {450} (Axial)	94.5226 %		
Sc 361.384 {93} (Radial)	98.5572 %		

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICAL1

Sample Type BLK Analysis Date 6/1/2018 2:01:49 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0000 ppm	1.1 %
As 189.042 {478} (Axial)	0.0000 ppm	0.1 %
Ba 455.403 {74} (Radial)	0.0000 ppm	0.9 %
Ba 493.409 {68} (Radial)	0.0000 ppm	0.0 %
Be 313.042 {108} (Axial)	0.0000 ppm	0.0 %
Ca 315.887 {107} (Radial)	0.0000 ppm	0.1 %
Cd 228.802 {447} (Axial)	0.0000 ppm	0.0 %
Cr 267.716 {126} (Axial)	0.0000 ppm	0.8 %
Cr 205.560 {464} (Axial)	0.0000 ppm	0.2 %
Co 228.616 {447} (Axial)	0.0000 ppm	-0.2 %
Cu 324.754 {104} (Axial)	0.0000 ppm	0.0 %
Fe 259.940 {130} (Radial)	0.0000 ppm	0.1 %
Li 670.784 {50} (Radial)	0.0000 ppm	0.4 %
Mn 257.610 {131} (Axial)	0.0000 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.0000 ppm	-0.7 %
Na 589.592 {57} (Radial)	0.0000 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.0000 ppm	0.5 %
K 766.490 {44} (Radial)	0.0000 ppm	0.2 %
Se 196.090 {472} (Axial)	0.0000 ppm	0.8 %
Ag 328.068 {103} (Axial)	0.0000 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.0000 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.0000 ppm	0.3 %
Ti 334.941 {101} (Radial)	0.0000 ppm	-0.9 %
V 292.402 {115} (Axial)	0.0000 ppm	0.4 %
Zn 213.856 {457} (Axial)	0.0000 ppm	0.1 %
Sc 357.253 {94} (Axial)	100.0000 %	
Sc 188.060 {479} (Axial)	100.0000 %	
Mg 279.079 {121} (Radial)	0.0000 ppm	-2.6 %
Tl 190.856 {477} (Axial)	0.0000 ppm	-0.6 %
Al 167.079 {502} (Axial)	0.0000 ppm	0.0 %
Sc 227.318 {448} (Axial)	100.0000 %	
B 249.773 {135} (Radial)	0.0000 ppm	0.4 %
Al 396.152 {85} (Radial)	0.0000 ppm	0.5 %
Si 251.611 {134} (Radial)	0.0000 ppm	0.4 %
Bi 223.061 {451} (Axial)	0.0000 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.0000 ppm	0.5 %
Th 283.231 {119} (Radial)	0.0000 ppm	0.3 %
Th 401.913 {84} (Radial)	0.0000 ppm	-0.9 %
U 409.014 {82} (Radial)	0.0000 ppm	0.3 %
Y 224.306 {450} (Axial)	100.0000 %	
Sc 361.384 {93} (Radial)	100.0000 %	

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICAL2

Sample Type STD Analysis Date 6/1/2018 2:08:03 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0263 ppm	3.2 %
As 189.042 {478} (Axial)	0.0097 ppm	7.8 %
Ba 455.403 {74} (Radial)	0.0104 ppm	0.6 %
Ba 493.409 {68} (Radial)	N/A	N/A
Be 313.042 {108} (Axial)	0.0040 ppm	0.4 %
Ca 315.887 {107} (Radial)	0.0883 ppm	3.5 %
Cd 228.802 {447} (Axial)	0.0020 ppm	3.3 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.0048 ppm	2.1 %
Co 228.616 {447} (Axial)	0.0051 ppm	2.2 %
Cu 324.754 {104} (Axial)	0.0100 ppm	1.9 %
Fe 259.940 {130} (Radial)	0.0582 ppm	5.6 %
Li 670.784 {50} (Radial)	0.0989 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.0053 ppm	0.7 %
Mo 202.030 {467} (Axial)	0.0203 ppm	0.5 %
Na 589.592 {57} (Radial)	0.5098 ppm	0.7 %
Ni 231.604 {445} (Axial)	0.0199 ppm	1.0 %
K 766.490 {44} (Radial)	0.4399 ppm	4.7 %
Se 196.090 {472} (Axial)	0.0204 ppm	7.6 %
Ag 328.068 {103} (Axial)	-0.0002 ppm	341.4 %
Sr 407.771 {83} (Radial)	0.0052 ppm	1.4 %
Sn 189.989 {477} (Axial)	0.0191 ppm	2.3 %
Ti 334.941 {101} (Radial)	0.0208 ppm	2.6 %
V 292.402 {115} (Axial)	0.0055 ppm	6.0 %
Zn 213.856 {457} (Axial)	0.0187 ppm	0.3 %
Sc 357.253 {94} (Axial)	100.2931 %	
Sc 188.060 {479} (Axial)	100.9747 %	
Mg 279.079 {121} (Radial)	0.1048 ppm	20.5 %
Tl 190.856 {477} (Axial)	0.0219 ppm	1.3 %
Al 167.079 {502} (Axial)	0.1007 ppm	0.5 %
Sc 227.318 {448} (Axial)	100.6876 %	
B 249.773 {135} (Radial)	0.1038 ppm	1.6 %
Al 396.152 {85} (Radial)	0.0917 ppm	8.2 %
Si 251.611 {134} (Radial)	0.0967 ppm	2.8 %
Bi 223.061 {451} (Axial)	0.0508 ppm	3.7 %
Pb 220.353 {453} (Axial)	0.0056 ppm	11.9 %
Th 283.231 {119} (Radial)	-0.0095 ppm	118.7 %
Th 401.913 {84} (Radial)	-0.0018 ppm	230.3 %
U 409.014 {82} (Radial)	-0.0497 ppm	36.7 %
Y 224.306 {450} (Axial)	100.6575 %	
Sc 361.384 {93} (Radial)	99.5099 %	

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICAL3

Sample Type STD Analysis Date 6/1/2018 2:14:10 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0978 ppm	0.5 %
As 189.042 {478} (Axial)	0.0971 ppm	0.7 %
Ba 455.403 {74} (Radial)	0.4965 ppm	0.2 %
Ba 493.409 {68} (Radial)	0.5023 ppm	0.3 %
Be 313.042 {108} (Axial)	0.0984 ppm	0.2 %
Ca 315.887 {107} (Radial)	0.4922 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.0984 ppm	0.1 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.0994 ppm	0.4 %
Co 228.616 {447} (Axial)	0.5074 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.4999 ppm	0.4 %
Fe 259.940 {130} (Radial)	0.5037 ppm	0.9 %
Li 670.784 {50} (Radial)	0.4974 ppm	0.1 %
Mn 257.610 {131} (Axial)	0.1029 ppm	0.2 %
Mo 202.030 {467} (Axial)	0.4979 ppm	0.1 %
Na 589.592 {57} (Radial)	10.2688 ppm	0.1 %
Ni 231.604 {445} (Axial)	0.5069 ppm	0.1 %
K 766.490 {44} (Radial)	10.1318 ppm	0.3 %
Se 196.090 {472} (Axial)	0.4874 ppm	0.5 %
Ag 328.068 {103} (Axial)	0.0992 ppm	1.1 %
Sr 407.771 {83} (Radial)	0.1006 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.1002 ppm	0.5 %
Ti 334.941 {101} (Radial)	0.0999 ppm	1.3 %
V 292.402 {115} (Axial)	0.0992 ppm	0.1 %
Zn 213.856 {457} (Axial)	0.2463 ppm	0.1 %
Sc 357.253 {94} (Axial)	101.8810 %	
Sc 188.060 {479} (Axial)	100.6655 %	
Mg 279.079 {121} (Radial)	0.5221 ppm	2.1 %
Tl 190.856 {477} (Axial)	0.1041 ppm	0.7 %
Al 167.079 {502} (Axial)	0.5061 ppm	0.2 %
Sc 227.318 {448} (Axial)	102.2522 %	
B 249.773 {135} (Radial)	0.4980 ppm	1.1 %
Al 396.152 {85} (Radial)	0.5069 ppm	2.1 %
Si 251.611 {134} (Radial)	0.4972 ppm	0.6 %
Bi 223.061 {451} (Axial)	0.5138 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.1015 ppm	0.7 %
Th 283.231 {119} (Radial)	0.2398 ppm	3.9 %
Th 401.913 {84} (Radial)	0.2431 ppm	1.9 %
U 409.014 {82} (Radial)	0.4751 ppm	2.9 %
Y 224.306 {450} (Axial)	99.6154 %	
Sc 361.384 {93} (Radial)	100.7534 %	

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICAL4

Sample Type STD Analysis Date 6/1/2018 2:20:02 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1979 ppm	0.4 %
As 189.042 {478} (Axial)	0.1977 ppm	0.2 %
Ba 455.403 {74} (Radial)	1.0017 ppm	0.2 %
Ba 493.409 {68} (Radial)	1.0131 ppm	0.2 %
Be 313.042 {108} (Axial)	0.2009 ppm	0.2 %
Ca 315.887 {107} (Radial)	1.0227 ppm	1.0 %
Cd 228.802 {447} (Axial)	0.1991 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.2052 ppm	0.9 %
Cr 205.560 {464} (Axial)	0.2003 ppm	0.1 %
Co 228.616 {447} (Axial)	1.0219 ppm	0.1 %
Cu 324.754 {104} (Axial)	1.0063 ppm	0.1 %
Fe 259.940 {130} (Radial)	1.0206 ppm	0.7 %
Li 670.784 {50} (Radial)	1.0067 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.2066 ppm	0.2 %
Mo 202.030 {467} (Axial)	1.0077 ppm	0.2 %
Na 589.592 {57} (Radial)	20.7232 ppm	0.3 %
Ni 231.604 {445} (Axial)	1.0204 ppm	0.1 %
K 766.490 {44} (Radial)	20.5036 ppm	0.1 %
Se 196.090 {472} (Axial)	0.9937 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.1994 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.2023 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.2035 ppm	0.5 %
Ti 334.941 {101} (Radial)	0.2019 ppm	0.7 %
V 292.402 {115} (Axial)	0.2029 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.5006 ppm	0.1 %
Sc 357.253 {94} (Axial)	100.2037 %	
Sc 188.060 {479} (Axial)	98.7603 %	
Mg 279.079 {121} (Radial)	1.0296 ppm	1.7 %
Tl 190.856 {477} (Axial)	0.2097 ppm	0.6 %
Al 167.079 {502} (Axial)	0.9969 ppm	0.3 %
Sc 227.318 {448} (Axial)	102.0167 %	
B 249.773 {135} (Radial)	1.0109 ppm	0.5 %
Al 396.152 {85} (Radial)	1.0258 ppm	0.7 %
Si 251.611 {134} (Radial)	1.0083 ppm	0.8 %
Bi 223.061 {451} (Axial)	1.0303 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.2051 ppm	0.4 %
Th 283.231 {119} (Radial)	0.4942 ppm	3.5 %
Th 401.913 {84} (Radial)	0.4965 ppm	2.6 %
U 409.014 {82} (Radial)	0.9608 ppm	2.1 %
Y 224.306 {450} (Axial)	97.9896 %	
Sc 361.384 {93} (Radial)	99.8231 %	

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICAL5

Sample Type STD Analysis Date 6/1/2018 2:25:51 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	1.0005 ppm	0.4 %
As 189.042 {478} (Axial)	1.0008 ppm	0.2 %
Ba 455.403 {74} (Radial)	N/A	N/A
Ba 493.409 {68} (Radial)	4.9972 ppm	0.4 %
Be 313.042 {108} (Axial)	1.0000 ppm	0.3 %
Ca 315.887 {107} (Radial)	4.9965 ppm	0.5 %
Cd 228.802 {447} (Axial)	1.0004 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.9990 ppm	0.2 %
Cr 205.560 {464} (Axial)	N/A	N/A
Co 228.616 {447} (Axial)	4.9949 ppm	0.2 %
Cu 324.754 {104} (Axial)	4.9988 ppm	0.1 %
Fe 259.940 {130} (Radial)	4.9955 ppm	0.2 %
Li 670.784 {50} (Radial)	4.9989 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.9984 ppm	0.2 %
Mo 202.030 {467} (Axial)	4.9987 ppm	0.1 %
Na 589.592 {57} (Radial)	99.8284 ppm	0.2 %
Ni 231.604 {445} (Axial)	4.9952 ppm	0.1 %
K 766.490 {44} (Radial)	99.8864 ppm	0.4 %
Se 196.090 {472} (Axial)	5.0025 ppm	0.1 %
Ag 328.068 {103} (Axial)	1.0002 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.9995 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.9993 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.9996 ppm	0.3 %
V 292.402 {115} (Axial)	0.9995 ppm	0.1 %
Zn 213.856 {457} (Axial)	2.5003 ppm	0.1 %
Sc 357.253 {94} (Axial)	97.1748 %	
Sc 188.060 {479} (Axial)	93.9888 %	
Mg 279.079 {121} (Radial)	4.9918 ppm	1.1 %
Tl 190.856 {477} (Axial)	0.9976 ppm	0.2 %
Al 167.079 {502} (Axial)	N/A	N/A
Sc 227.318 {448} (Axial)	110.5445 %	
B 249.773 {135} (Radial)	4.9980 ppm	0.1 %
Al 396.152 {85} (Radial)	4.9943 ppm	0.1 %
Si 251.611 {134} (Radial)	4.9987 ppm	0.3 %
Bi 223.061 {451} (Axial)	4.9925 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.9988 ppm	0.2 %
Th 283.231 {119} (Radial)	2.5022 ppm	1.1 %
Th 401.913 {84} (Radial)	2.5014 ppm	0.6 %
U 409.014 {82} (Radial)	5.0104 ppm	0.7 %
Y 224.306 {450} (Axial)	94.5226 %	
Sc 361.384 {93} (Radial)	98.5572 %	

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICV/QCS

Sample Type QC Analysis Date 6/1/2018 2:31:58 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.9697 ppm	0.3 %
As 189.042 {478} (Axial)	0.9728 ppm	0.2 %
Ba 455.403 {74} (Radial)	0.9789 ppm	0.2 %
Ba 493.409 {68} (Radial)	0.9857 ppm	0.1 %
Be 313.042 {108} (Axial)	0.9786 ppm	0.3 %
Ca 315.887 {107} (Radial)	5.9464 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.9866 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.9853 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.9658 ppm	0.1 %
Co 228.616 {447} (Axial)	0.9837 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.9847 ppm	0.1 %
Fe 259.940 {130} (Radial)	0.9957 ppm	0.7 %
Li 670.784 {50} (Radial)	1.0177 ppm	0.1 %
Mn 257.610 {131} (Axial)	1.0008 ppm	0.1 %
Mo 202.030 {467} (Axial)	1.0023 ppm	0.2 %
Na 589.592 {57} (Radial)	21.6266 ppm	0.2 %
Ni 231.604 {445} (Axial)	1.0068 ppm	0.2 %
K 766.490 {44} (Radial)	21.0033 ppm	0.2 %
Se 196.090 {472} (Axial)	0.9889 ppm	0.1 %
Ag 328.068 {103} (Axial)	1.0335 ppm	0.4 %
Sr 407.771 {83} (Radial)	0.9864 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.9993 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.9905 ppm	0.5 %
V 292.402 {115} (Axial)	0.9895 ppm	0.1 %
Zn 213.856 {457} (Axial)	0.9726 ppm	0.1 %
Sc 357.253 {94} (Axial)	99.1747 %	0.3 %
Sc 188.060 {479} (Axial)	98.2043 %	0.1 %
Mg 279.079 {121} (Radial)	1.0010 ppm	0.8 %
Tl 190.856 {477} (Axial)	1.0193 ppm	0.2 %
Al 167.079 {502} (Axial)	0.9836 ppm	0.2 %
Sc 227.318 {448} (Axial)	98.4494 %	0.1 %
B 249.773 {135} (Radial)	1.0144 ppm	0.4 %
Al 396.152 {85} (Radial)	1.0124 ppm	0.7 %
Si 251.611 {134} (Radial)	1.0203 ppm	0.8 %
Bi 223.061 {451} (Axial)	1.0476 ppm	0.1 %
Pb 220.353 {453} (Axial)	1.0092 ppm	0.1 %
Th 283.231 {119} (Radial)	-0.0062 ppm	149.0 %
Th 401.913 {84} (Radial)	0.0154 ppm	64.0 %
U 409.014 {82} (Radial)	-0.0635 ppm	66.8 %
Y 224.306 {450} (Axial)	96.9374 %	0.1 %
Sc 361.384 {93} (Radial)	98.7552 %	0.4 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICB

Sample Type UNKNOWN Analysis Date 6/1/2018 2:37:54 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0002 ppm	647.5 %
As 189.042 {478} (Axial)	0.0002 ppm	421.7 %
Ba 455.403 {74} (Radial)	0.0002 ppm	142.3 %
Ba 493.409 {68} (Radial)	0.0001 ppm	318.3 %
Be 313.042 {108} (Axial)	0.0002 ppm	23.3 %
Ca 315.887 {107} (Radial)	-0.0157 ppm	27.9 %
Cd 228.802 {447} (Axial)	0.0001 ppm	130.7 %
Cr 267.716 {126} (Axial)	0.0002 ppm	96.2 %
Cr 205.560 {464} (Axial)	0.0000 ppm	299.5 %
Co 228.616 {447} (Axial)	0.0003 ppm	50.7 %
Cu 324.754 {104} (Axial)	0.0003 ppm	162.7 %
Fe 259.940 {130} (Radial)	-0.0032 ppm	34.0 %
Li 670.784 {50} (Radial)	0.0004 ppm	127.5 %
Mn 257.610 {131} (Axial)	0.0001 ppm	81.9 %
Mo 202.030 {467} (Axial)	0.0005 ppm	8.2 %
Na 589.592 {57} (Radial)	0.0170 ppm	31.5 %
Ni 231.604 {445} (Axial)	-0.0002 ppm	24.0 %
K 766.490 {44} (Radial)	0.0124 ppm	113.3 %
Se 196.090 {472} (Axial)	0.0009 ppm	207.9 %
Ag 328.068 {103} (Axial)	-0.0001 ppm	453.3 %
Sr 407.771 {83} (Radial)	0.0001 ppm	104.7 %
Sn 189.989 {477} (Axial)	-0.0003 ppm	105.4 %
Ti 334.941 {101} (Radial)	0.0006 ppm	98.0 %
V 292.402 {115} (Axial)	0.0006 ppm	72.5 %
Zn 213.856 {457} (Axial)	-0.0014 ppm	8.6 %
Sc 357.253 {94} (Axial)	98.4280 %	0.5 %
Sc 188.060 {479} (Axial)	98.7859 %	0.2 %
Mg 279.079 {121} (Radial)	0.0006 ppm	1,645.4 %
Tl 190.856 {477} (Axial)	0.0007 ppm	113.1 %
Al 167.079 {502} (Axial)	-0.0008 ppm	23.7 %
Sc 227.318 {448} (Axial)	98.7044 %	0.0 %
B 249.773 {135} (Radial)	0.0083 ppm	31.5 %
Al 396.152 {85} (Radial)	-0.0001 ppm	4,662.3 %
Si 251.611 {134} (Radial)	0.0014 ppm	322.1 %
Bi 223.061 {451} (Axial)	-0.0002 ppm	814.6 %
Pb 220.353 {453} (Axial)	-0.0009 ppm	102.3 %
Th 283.231 {119} (Radial)	-0.0105 ppm	88.6 %
Th 401.913 {84} (Radial)	-0.0046 ppm	181.1 %
U 409.014 {82} (Radial)	-0.0443 ppm	50.9 %
Y 224.306 {450} (Axial)	98.0985 %	0.1 %
Sc 361.384 {93} (Radial)	97.1212 %	0.6 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 6/1/2018 2:44:09 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0053 ppm	17.4 %
As 189.042 {478} (Axial)	0.0047 ppm	8.7 %
Ba 455.403 {74} (Radial)	0.0056 ppm	4.7 %
Ba 493.409 {68} (Radial)	0.0052 ppm	6.6 %
Be 313.042 {108} (Axial)	0.0021 ppm	0.4 %
Ca 315.887 {107} (Radial)	0.5325 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0104 ppm	0.9 %
Cr 267.716 {126} (Axial)	0.0053 ppm	2.9 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.5 %
Cu 324.754 {104} (Axial)	0.0110 ppm	3.3 %
Fe 259.940 {130} (Radial)	0.0957 ppm	0.7 %
Li 670.784 {50} (Radial)	0.0093 ppm	13.5 %
Mn 257.610 {131} (Axial)	0.0056 ppm	0.7 %
Mo 202.030 {467} (Axial)	0.0054 ppm	1.7 %
Na 589.592 {57} (Radial)	0.2318 ppm	2.3 %
Ni 231.604 {445} (Axial)	0.0051 ppm	4.9 %
K 766.490 {44} (Radial)	0.1705 ppm	7.7 %
Se 196.090 {472} (Axial)	0.0111 ppm	13.2 %
Ag 328.068 {103} (Axial)	0.0055 ppm	12.4 %
Sr 407.771 {83} (Radial)	0.0054 ppm	1.0 %
Sn 189.989 {477} (Axial)	0.0100 ppm	4.2 %
Ti 334.941 {101} (Radial)	0.0050 ppm	14.8 %
V 292.402 {115} (Axial)	0.0057 ppm	4.4 %
Zn 213.856 {457} (Axial)	0.0096 ppm	0.8 %
Sc 357.253 {94} (Axial)	98.3487 %	0.1 %
Sc 188.060 {479} (Axial)	98.9370 %	0.1 %
Mg 279.079 {121} (Radial)	0.2347 ppm	8.7 %
Tl 190.856 {477} (Axial)	0.0115 ppm	1.6 %
Al 167.079 {502} (Axial)	0.0105 ppm	1.1 %
Sc 227.318 {448} (Axial)	98.8671 %	0.2 %
B 249.773 {135} (Radial)	0.0296 ppm	7.7 %
Al 396.152 {85} (Radial)	0.0031 ppm	249.0 %
Si 251.611 {134} (Radial)	0.4657 ppm	1.0 %
Bi 223.061 {451} (Axial)	0.0010 ppm	124.9 %
Pb 220.353 {453} (Axial)	0.0049 ppm	20.8 %
Th 283.231 {119} (Radial)	-0.0087 ppm	87.0 %
Th 401.913 {84} (Radial)	0.0073 ppm	91.2 %
U 409.014 {82} (Radial)	0.0035 ppm	460.9 %
Y 224.306 {450} (Axial)	98.2002 %	0.2 %
Sc 361.384 {93} (Radial)	96.5209 %	0.3 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 6/1/2018 2:50:22 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0062 ppm	24.9 %
As 189.042 {478} (Axial)	0.0053 ppm	6.9 %
Ba 455.403 {74} (Radial)	0.0056 ppm	2.6 %
Ba 493.409 {68} (Radial)	0.0050 ppm	4.3 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.6 %
Ca 315.887 {107} (Radial)	0.5230 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.0104 ppm	1.3 %
Cr 267.716 {126} (Axial)	0.0052 ppm	7.0 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.6 %
Co 228.616 {447} (Axial)	0.0054 ppm	2.0 %
Cu 324.754 {104} (Axial)	0.0105 ppm	2.6 %
Fe 259.940 {130} (Radial)	0.0937 ppm	2.2 %
Li 670.784 {50} (Radial)	0.0089 ppm	8.9 %
Mn 257.610 {131} (Axial)	0.0055 ppm	0.9 %
Mo 202.030 {467} (Axial)	0.0055 ppm	4.7 %
Na 589.592 {57} (Radial)	0.2193 ppm	2.6 %
Ni 231.604 {445} (Axial)	0.0054 ppm	2.4 %
K 766.490 {44} (Radial)	0.1590 ppm	9.9 %
Se 196.090 {472} (Axial)	0.0109 ppm	11.1 %
Ag 328.068 {103} (Axial)	0.0057 ppm	13.1 %
Sr 407.771 {83} (Radial)	0.0053 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.0099 ppm	0.7 %
Ti 334.941 {101} (Radial)	0.0050 ppm	20.8 %
V 292.402 {115} (Axial)	0.0056 ppm	4.4 %
Zn 213.856 {457} (Axial)	0.0095 ppm	0.9 %
Sc 357.253 {94} (Axial)	99.3628 %	0.2 %
Sc 188.060 {479} (Axial)	99.8583 %	0.1 %
Mg 279.079 {121} (Radial)	0.2133 ppm	11.0 %
Tl 190.856 {477} (Axial)	0.0119 ppm	6.9 %
Al 167.079 {502} (Axial)	0.0102 ppm	0.8 %
Sc 227.318 {448} (Axial)	99.7398 %	0.1 %
B 249.773 {135} (Radial)	0.0266 ppm	7.0 %
Al 396.152 {85} (Radial)	0.0055 ppm	96.7 %
Si 251.611 {134} (Radial)	0.4532 ppm	0.9 %
Bi 223.061 {451} (Axial)	0.0000 ppm	23,206.3 %
Pb 220.353 {453} (Axial)	0.0045 ppm	9.1 %
Th 283.231 {119} (Radial)	-0.0072 ppm	134.5 %
Th 401.913 {84} (Radial)	0.0081 ppm	88.1 %
U 409.014 {82} (Radial)	0.0107 ppm	103.9 %
Y 224.306 {450} (Axial)	98.9414 %	0.1 %
Sc 361.384 {93} (Radial)	97.4383 %	0.3 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

ICSAB

Sample Type QC Analysis Date 6/1/2018 4:56:06 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0034 ppm	26.1 %
As 189.042 {478} (Axial)	2.6365 ppm	0.7 %
Ba 455.403 {74} (Radial)	0.8126 ppm	0.5 %
Ba 493.409 {68} (Radial)	0.8139 ppm	0.5 %
Be 313.042 {108} (Axial)	0.2700 ppm	0.2 %
Ca 315.887 {107} (Radial)	156.8164 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.8192 ppm	0.6 %
Cr 267.716 {126} (Axial)	0.8035 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.7791 ppm	0.8 %
Co 228.616 {447} (Axial)	0.7596 ppm	0.6 %
Cu 324.754 {104} (Axial)	0.8125 ppm	0.3 %
Fe 259.940 {130} (Radial)	129.6842 ppm	0.6 %
Li 670.784 {50} (Radial)	0.0024 ppm	61.9 %
Mn 257.610 {131} (Axial)	0.5223 ppm	0.2 %
Mo 202.030 {467} (Axial)	0.0000 ppm	857.7 %
Na 589.592 {57} (Radial)	28.3760 ppm	0.5 %
Ni 231.604 {445} (Axial)	0.7726 ppm	0.7 %
K 766.490 {44} (Radial)	56.3607 ppm	0.4 %
Se 196.090 {472} (Axial)	1.3206 ppm	0.5 %
Ag 328.068 {103} (Axial)	0.8402 ppm	0.4 %
Sr 407.771 {83} (Radial)	-0.0064 ppm	2.0 %
Sn 189.989 {477} (Axial)	-0.0049 ppm	14.0 %
Ti 334.941 {101} (Radial)	0.0057 ppm	8.8 %
V 292.402 {115} (Axial)	0.8134 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.7975 ppm	0.7 %
Sc 357.253 {94} (Axial)	94.9490 %	0.3 %
Sc 188.060 {479} (Axial)	90.1209 %	0.4 %
Mg 279.079 {121} (Radial)	81.5404 ppm	0.7 %
Tl 190.856 {477} (Axial)	2.5698 ppm	0.6 %
Al 167.079 {502} (Axial)	12.7476 ppm	0.6 %
Sc 227.318 {448} (Axial)	90.2395 %	0.5 %
B 249.773 {135} (Radial)	0.2214 ppm	1.2 %
Al 396.152 {85} (Radial)	32.2506 ppm	0.7 %
Si 251.611 {134} (Radial)	-0.0121 ppm	65.3 %
Bi 223.061 {451} (Axial)	0.0117 ppm	8.5 %
Pb 220.353 {453} (Axial)	2.5956 ppm	0.6 %
Th 283.231 {119} (Radial)	0.1903 ppm	3.1 %
Th 401.913 {84} (Radial)	0.0041 ppm	181.4 %
U 409.014 {82} (Radial)	-0.0121 ppm	95.2 %
Y 224.306 {450} (Axial)	92.3709 %	0.5 %
Sc 361.384 {93} (Radial)	93.0302 %	0.6 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 5:01:57 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4977 ppm	0.3 %
As 189.042 {478} (Axial)	0.4975 ppm	0.4 %
Ba 455.403 {74} (Radial)	2.5370 ppm	0.1 %
Ba 493.409 {68} (Radial)	2.5205 ppm	0.1 %
Be 313.042 {108} (Axial)	0.5029 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.6062 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.5049 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.5124 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.4995 ppm	0.2 %
Co 228.616 {447} (Axial)	2.5297 ppm	0.2 %
Cu 324.754 {104} (Axial)	2.4962 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.5458 ppm	0.3 %
Li 670.784 {50} (Radial)	2.5891 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.5006 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.5491 ppm	0.1 %
Na 589.592 {57} (Radial)	52.8362 ppm	0.2 %
Ni 231.604 {445} (Axial)	2.5611 ppm	0.2 %
K 766.490 {44} (Radial)	51.3781 ppm	0.1 %
Se 196.090 {472} (Axial)	2.5016 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.4911 ppm	0.4 %
Sr 407.771 {83} (Radial)	0.5068 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.5149 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.5188 ppm	0.3 %
V 292.402 {115} (Axial)	0.4999 ppm	0.3 %
Zn 213.856 {457} (Axial)	1.2575 ppm	0.2 %
Sc 357.253 {94} (Axial)	98.4909 %	0.2 %
Sc 188.060 {479} (Axial)	96.4740 %	0.1 %
Mg 279.079 {121} (Radial)	2.6598 ppm	0.3 %
Tl 190.856 {477} (Axial)	0.5198 ppm	0.3 %
Al 167.079 {502} (Axial)	2.4127 ppm	0.2 %
Sc 227.318 {448} (Axial)	105.0221 %	0.0 %
B 249.773 {135} (Radial)	2.5547 ppm	0.4 %
Al 396.152 {85} (Radial)	2.6377 ppm	0.5 %
Si 251.611 {134} (Radial)	2.5657 ppm	0.3 %
Bi 223.061 {451} (Axial)	2.5358 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.5175 ppm	0.3 %
Th 283.231 {119} (Radial)	1.2804 ppm	1.9 %
Th 401.913 {84} (Radial)	1.2637 ppm	0.8 %
U 409.014 {82} (Radial)	2.5170 ppm	0.4 %
Y 224.306 {450} (Axial)	95.3626 %	0.1 %
Sc 361.384 {93} (Radial)	94.6917 %	0.6 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 5:07:40 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4965 ppm	0.4 %
As 189.042 {478} (Axial)	0.4936 ppm	0.6 %
Ba 455.403 {74} (Radial)	2.5100 ppm	0.6 %
Ba 493.409 {68} (Radial)	2.4909 ppm	0.4 %
Be 313.042 {108} (Axial)	0.4953 ppm	0.4 %
Ca 315.887 {107} (Radial)	2.5482 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.5025 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.5037 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.4958 ppm	0.4 %
Co 228.616 {447} (Axial)	2.5092 ppm	0.4 %
Cu 324.754 {104} (Axial)	2.4628 ppm	0.4 %
Fe 259.940 {130} (Radial)	2.4992 ppm	0.5 %
Li 670.784 {50} (Radial)	2.5623 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.4916 ppm	0.3 %
Mo 202.030 {467} (Axial)	2.5348 ppm	0.4 %
Na 589.592 {57} (Radial)	52.1805 ppm	0.4 %
Ni 231.604 {445} (Axial)	2.5454 ppm	0.5 %
K 766.490 {44} (Radial)	50.6742 ppm	0.3 %
Se 196.090 {472} (Axial)	2.4881 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.4847 ppm	0.5 %
Sr 407.771 {83} (Radial)	0.5012 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.5122 ppm	0.4 %
Ti 334.941 {101} (Radial)	0.5139 ppm	1.0 %
V 292.402 {115} (Axial)	0.4923 ppm	0.3 %
Zn 213.856 {457} (Axial)	1.2485 ppm	0.4 %
Sc 357.253 {94} (Axial)	99.5183 %	0.3 %
Sc 188.060 {479} (Axial)	97.1641 %	0.3 %
Mg 279.079 {121} (Radial)	2.6159 ppm	1.2 %
Tl 190.856 {477} (Axial)	0.5150 ppm	0.4 %
Al 167.079 {502} (Axial)	2.3959 ppm	0.5 %
Sc 227.318 {448} (Axial)	105.6341 %	0.3 %
B 249.773 {135} (Radial)	2.5426 ppm	0.4 %
Al 396.152 {85} (Radial)	2.5933 ppm	0.7 %
Si 251.611 {134} (Radial)	2.5462 ppm	0.1 %
Bi 223.061 {451} (Axial)	2.5208 ppm	0.5 %
Pb 220.353 {453} (Axial)	0.5153 ppm	0.3 %
Th 283.231 {119} (Radial)	1.2607 ppm	0.5 %
Th 401.913 {84} (Radial)	1.2455 ppm	0.6 %
U 409.014 {82} (Radial)	2.5080 ppm	0.5 %
Y 224.306 {450} (Axial)	95.7617 %	0.3 %
Sc 361.384 {93} (Radial)	95.3634 %	0.5 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 5:13:21 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0007 ppm	96.8 %
As 189.042 {478} (Axial)	0.0003 ppm	185.0 %
Ba 455.403 {74} (Radial)	0.0002 ppm	149.7 %
Ba 493.409 {68} (Radial)	-0.0009 ppm	13.3 %
Be 313.042 {108} (Axial)	0.0001 ppm	2.4 %
Ca 315.887 {107} (Radial)	-0.0107 ppm	20.7 %
Cd 228.802 {447} (Axial)	-0.0001 ppm	69.7 %
Cr 267.716 {126} (Axial)	-0.0001 ppm	246.4 %
Cr 205.560 {464} (Axial)	-0.0001 ppm	30.7 %
Co 228.616 {447} (Axial)	0.0002 ppm	36.8 %
Cu 324.754 {104} (Axial)	-0.0007 ppm	33.1 %
Fe 259.940 {130} (Radial)	-0.0024 ppm	112.7 %
Li 670.784 {50} (Radial)	0.0003 ppm	236.4 %
Mn 257.610 {131} (Axial)	-0.0002 ppm	17.2 %
Mo 202.030 {467} (Axial)	0.0003 ppm	37.8 %
Na 589.592 {57} (Radial)	0.0278 ppm	24.1 %
Ni 231.604 {445} (Axial)	-0.0003 ppm	64.9 %
K 766.490 {44} (Radial)	0.0255 ppm	88.6 %
Se 196.090 {472} (Axial)	0.0019 ppm	42.7 %
Ag 328.068 {103} (Axial)	-0.0008 ppm	52.0 %
Sr 407.771 {83} (Radial)	0.0000 ppm	708.5 %
Sn 189.989 {477} (Axial)	-0.0007 ppm	33.9 %
Ti 334.941 {101} (Radial)	0.0001 ppm	893.0 %
V 292.402 {115} (Axial)	0.0005 ppm	19.1 %
Zn 213.856 {457} (Axial)	-0.0015 ppm	1.8 %
Sc 357.253 {94} (Axial)	100.1745 %	0.2 %
Sc 188.060 {479} (Axial)	101.4971 %	0.1 %
Mg 279.079 {121} (Radial)	0.0076 ppm	108.0 %
Tl 190.856 {477} (Axial)	0.0007 ppm	77.3 %
Al 167.079 {502} (Axial)	-0.0008 ppm	11.8 %
Sc 227.318 {448} (Axial)	101.6467 %	0.2 %
B 249.773 {135} (Radial)	0.0083 ppm	19.7 %
Al 396.152 {85} (Radial)	-0.0074 ppm	85.2 %
Si 251.611 {134} (Radial)	-0.0064 ppm	77.5 %
Bi 223.061 {451} (Axial)	-0.0002 ppm	500.2 %
Pb 220.353 {453} (Axial)	-0.0005 ppm	111.6 %
Th 283.231 {119} (Radial)	0.0006 ppm	515.2 %
Th 401.913 {84} (Radial)	0.0004 ppm	2,095.7 %
U 409.014 {82} (Radial)	-0.0364 ppm	79.6 %
Y 224.306 {450} (Axial)	99.6073 %	0.1 %
Sc 361.384 {93} (Radial)	94.7843 %	0.3 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 5:19:36 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0048 ppm	26.9 %
As 189.042 {478} (Axial)	0.0045 ppm	24.8 %
Ba 455.403 {74} (Radial)	0.0054 ppm	5.8 %
Ba 493.409 {68} (Radial)	0.0043 ppm	15.1 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.3 %
Ca 315.887 {107} (Radial)	0.5137 ppm	1.0 %
Cd 228.802 {447} (Axial)	0.0102 ppm	0.6 %
Cr 267.716 {126} (Axial)	0.0053 ppm	6.3 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.5 %
Co 228.616 {447} (Axial)	0.0052 ppm	0.8 %
Cu 324.754 {104} (Axial)	0.0099 ppm	3.9 %
Fe 259.940 {130} (Radial)	0.0841 ppm	3.0 %
Li 670.784 {50} (Radial)	0.0087 ppm	6.6 %
Mn 257.610 {131} (Axial)	0.0053 ppm	1.1 %
Mo 202.030 {467} (Axial)	0.0055 ppm	4.6 %
Na 589.592 {57} (Radial)	0.2301 ppm	0.8 %
Ni 231.604 {445} (Axial)	0.0053 ppm	4.8 %
K 766.490 {44} (Radial)	0.1514 ppm	7.4 %
Se 196.090 {472} (Axial)	0.0110 ppm	25.4 %
Ag 328.068 {103} (Axial)	0.0052 ppm	10.7 %
Sr 407.771 {83} (Radial)	0.0053 ppm	0.8 %
Sn 189.989 {477} (Axial)	0.0098 ppm	1.6 %
Ti 334.941 {101} (Radial)	0.0053 ppm	25.0 %
V 292.402 {115} (Axial)	0.0055 ppm	4.2 %
Zn 213.856 {457} (Axial)	0.0090 ppm	0.6 %
Sc 357.253 {94} (Axial)	99.7335 %	0.2 %
Sc 188.060 {479} (Axial)	101.1557 %	0.1 %
Mg 279.079 {121} (Radial)	0.2330 ppm	9.8 %
Tl 190.856 {477} (Axial)	0.0115 ppm	6.8 %
Al 167.079 {502} (Axial)	0.0102 ppm	0.6 %
Sc 227.318 {448} (Axial)	101.5877 %	0.1 %
B 249.773 {135} (Radial)	0.0272 ppm	4.3 %
Al 396.152 {85} (Radial)	0.0057 ppm	172.9 %
Si 251.611 {134} (Radial)	0.4542 ppm	2.1 %
Bi 223.061 {451} (Axial)	-0.0004 ppm	201.5 %
Pb 220.353 {453} (Axial)	0.0049 ppm	8.7 %
Th 283.231 {119} (Radial)	-0.0026 ppm	588.7 %
Th 401.913 {84} (Radial)	0.0014 ppm	701.1 %
U 409.014 {82} (Radial)	-0.0108 ppm	158.1 %
Y 224.306 {450} (Axial)	98.9999 %	0.1 %
Sc 361.384 {93} (Radial)	94.6742 %	0.5 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 5:25:47 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0059 ppm	22.2 %
As 189.042 {478} (Axial)	0.0050 ppm	15.6 %
Ba 455.403 {74} (Radial)	0.0051 ppm	8.4 %
Ba 493.409 {68} (Radial)	0.0039 ppm	2.9 %
Be 313.042 {108} (Axial)	0.0021 ppm	0.7 %
Ca 315.887 {107} (Radial)	0.5063 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.0101 ppm	0.6 %
Cr 267.716 {126} (Axial)	0.0054 ppm	3.1 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.2 %
Co 228.616 {447} (Axial)	0.0052 ppm	1.4 %
Cu 324.754 {104} (Axial)	0.0099 ppm	3.2 %
Fe 259.940 {130} (Radial)	0.0845 ppm	2.2 %
Li 670.784 {50} (Radial)	0.0072 ppm	12.5 %
Mn 257.610 {131} (Axial)	0.0052 ppm	0.5 %
Mo 202.030 {467} (Axial)	0.0053 ppm	3.8 %
Na 589.592 {57} (Radial)	0.2156 ppm	2.1 %
Ni 231.604 {445} (Axial)	0.0052 ppm	2.1 %
K 766.490 {44} (Radial)	0.1314 ppm	22.1 %
Se 196.090 {472} (Axial)	0.0108 ppm	8.6 %
Ag 328.068 {103} (Axial)	0.0054 ppm	2.8 %
Sr 407.771 {83} (Radial)	0.0052 ppm	1.2 %
Sn 189.989 {477} (Axial)	0.0096 ppm	4.6 %
Ti 334.941 {101} (Radial)	0.0054 ppm	12.6 %
V 292.402 {115} (Axial)	0.0054 ppm	6.1 %
Zn 213.856 {457} (Axial)	0.0091 ppm	1.6 %
Sc 357.253 {94} (Axial)	100.1888 %	0.3 %
Sc 188.060 {479} (Axial)	101.3745 %	0.1 %
Mg 279.079 {121} (Radial)	0.2184 ppm	9.0 %
Tl 190.856 {477} (Axial)	0.0115 ppm	5.6 %
Al 167.079 {502} (Axial)	0.0101 ppm	2.8 %
Sc 227.318 {448} (Axial)	101.6655 %	0.1 %
B 249.773 {135} (Radial)	0.0248 ppm	7.1 %
Al 396.152 {85} (Radial)	0.0076 ppm	53.5 %
Si 251.611 {134} (Radial)	0.4467 ppm	1.3 %
Bi 223.061 {451} (Axial)	0.0002 ppm	1,000.3 %
Pb 220.353 {453} (Axial)	0.0051 ppm	12.6 %
Th 283.231 {119} (Radial)	-0.0031 ppm	417.2 %
Th 401.913 {84} (Radial)	0.0018 ppm	677.9 %
U 409.014 {82} (Radial)	-0.0233 ppm	205.1 %
Y 224.306 {450} (Axial)	99.2539 %	0.1 %
Sc 361.384 {93} (Radial)	95.5086 %	0.4 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

MBLK-119140

Sample Type UNKNOWN Analysis Date 6/1/2018 5:56:01 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0011 ppm	75.0 %
As 189.042 {478} (Axial)	-0.0004 ppm	205.8 %
Ba 455.403 {74} (Radial)	0.0095 ppm	2.5 %
Ba 493.409 {68} (Radial)	0.0083 ppm	8.3 %
Be 313.042 {108} (Axial)	0.0001 ppm	12.7 %
Ca 315.887 {107} (Radial)	0.0085 ppm	42.2 %
Cd 228.802 {447} (Axial)	-0.0003 ppm	10.9 %
Cr 267.716 {126} (Axial)	0.0004 ppm	35.1 %
Cr 205.560 {464} (Axial)	0.0003 ppm	46.8 %
Co 228.616 {447} (Axial)	-0.0001 ppm	53.5 %
Cu 324.754 {104} (Axial)	-0.0007 ppm	45.9 %
Fe 259.940 {130} (Radial)	0.0182 ppm	11.1 %
Li 670.784 {50} (Radial)	-0.0054 ppm	14.9 %
Mn 257.610 {131} (Axial)	0.0005 ppm	7.1 %
Mo 202.030 {467} (Axial)	0.0002 ppm	86.9 %
Na 589.592 {57} (Radial)	-0.0004 ppm	687.3 %
Ni 231.604 {445} (Axial)	-0.0004 ppm	41.4 %
K 766.490 {44} (Radial)	-0.1062 ppm	14.3 %
Se 196.090 {472} (Axial)	0.0010 ppm	65.9 %
Ag 328.068 {103} (Axial)	-0.0003 ppm	169.1 %
Sr 407.771 {83} (Radial)	0.0007 ppm	5.1 %
Sn 189.989 {477} (Axial)	-0.0003 ppm	135.5 %
Ti 334.941 {101} (Radial)	0.0005 ppm	77.6 %
V 292.402 {115} (Axial)	0.0005 ppm	83.0 %
Zn 213.856 {457} (Axial)	0.0013 ppm	3.5 %
Sc 357.253 {94} (Axial)	99.1837 %	0.1 %
Sc 188.060 {479} (Axial)	97.1428 %	0.1 %
Mg 279.079 {121} (Radial)	0.0032 ppm	234.2 %
Tl 190.856 {477} (Axial)	-0.0009 ppm	54.6 %
Al 167.079 {502} (Axial)	0.0017 ppm	21.1 %
Sc 227.318 {448} (Axial)	97.5859 %	0.1 %
B 249.773 {135} (Radial)	0.0024 ppm	72.4 %
Al 396.152 {85} (Radial)	-0.0011 ppm	307.5 %
Si 251.611 {134} (Radial)	0.0123 ppm	30.1 %
Bi 223.061 {451} (Axial)	-0.0033 ppm	47.5 %
Pb 220.353 {453} (Axial)	-0.0003 ppm	98.3 %
Th 283.231 {119} (Radial)	-0.0141 ppm	61.6 %
Th 401.913 {84} (Radial)	-0.0014 ppm	681.8 %
U 409.014 {82} (Radial)	-0.0246 ppm	104.4 %
Y 224.306 {450} (Axial)	97.9063 %	0.0 %
Sc 361.384 {93} (Radial)	93.4380 %	0.5 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

LCS-119140

Sample Type UNKNOWN Analysis Date 6/1/2018 6:02:17 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1055 ppm	0.5 %
As 189.042 {478} (Axial)	0.0995 ppm	1.0 %
Ba 455.403 {74} (Radial)	0.1151 ppm	0.2 %
Ba 493.409 {68} (Radial)	0.1128 ppm	0.3 %
Be 313.042 {108} (Axial)	0.1017 ppm	0.3 %
Ca 315.887 {107} (Radial)	10.4627 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.1062 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.1093 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.1076 ppm	0.2 %
Co 228.616 {447} (Axial)	0.1067 ppm	0.3 %
Cu 324.754 {104} (Axial)	0.1065 ppm	0.3 %
Fe 259.940 {130} (Radial)	10.7753 ppm	0.2 %
Li 670.784 {50} (Radial)	0.1036 ppm	1.3 %
Mn 257.610 {131} (Axial)	0.1066 ppm	0.3 %
Mo 202.030 {467} (Axial)	0.1127 ppm	0.4 %
Na 589.592 {57} (Radial)	11.3930 ppm	0.1 %
Ni 231.604 {445} (Axial)	0.1085 ppm	0.3 %
K 766.490 {44} (Radial)	10.8340 ppm	0.2 %
Se 196.090 {472} (Axial)	0.1022 ppm	1.7 %
Ag 328.068 {103} (Axial)	0.1044 ppm	0.4 %
Sr 407.771 {83} (Radial)	0.1086 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.1083 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.1108 ppm	0.4 %
V 292.402 {115} (Axial)	0.1081 ppm	0.4 %
Zn 213.856 {457} (Axial)	0.1121 ppm	0.2 %
Sc 357.253 {94} (Axial)	98.6860 %	0.2 %
Sc 188.060 {479} (Axial)	95.8420 %	0.2 %
Mg 279.079 {121} (Radial)	11.1230 ppm	0.2 %
Tl 190.856 {477} (Axial)	0.1093 ppm	0.7 %
Al 167.079 {502} (Axial)	0.1313 ppm	0.8 %
Sc 227.318 {448} (Axial)	96.0172 %	0.2 %
B 249.773 {135} (Radial)	0.5664 ppm	0.6 %
Al 396.152 {85} (Radial)	0.1171 ppm	9.1 %
Si 251.611 {134} (Radial)	9.4739 ppm	0.3 %
Bi 223.061 {451} (Axial)	-0.0028 ppm	41.8 %
Pb 220.353 {453} (Axial)	0.1113 ppm	0.4 %
Th 283.231 {119} (Radial)	0.1115 ppm	8.6 %
Th 401.913 {84} (Radial)	0.1017 ppm	10.3 %
U 409.014 {82} (Radial)	0.1415 ppm	21.9 %
Y 224.306 {450} (Axial)	95.6211 %	0.2 %
Sc 361.384 {93} (Radial)	93.7279 %	0.2 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

18051996-01AMS

Sample Type UNKNOWN Analysis Date 6/1/2018 6:14:13 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1632 ppm	1.5 %
As 189.042 {478} (Axial)	0.2344 ppm	0.2 %
Ba 455.403 {74} (Radial)	2.4309 ppm	0.6 %
Ba 493.409 {68} (Radial)	2.4187 ppm	0.6 %
Be 313.042 {108} (Axial)	0.1111 ppm	0.1 %
Ca 315.887 {107} (Radial)	376.2754 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.1209 ppm	0.4 %
Cr 267.716 {126} (Axial)	0.2819 ppm	0.5 %
Cr 205.560 {464} (Axial)	0.2636 ppm	0.1 %
Co 228.616 {447} (Axial)	0.1277 ppm	0.2 %
Cu 324.754 {104} (Axial)	0.7296 ppm	0.3 %
Fe 259.940 {130} (Radial)	124.5176 ppm	0.5 %
Li 670.784 {50} (Radial)	0.2010 ppm	0.5 %
Mn 257.610 {131} (Axial)	6.9338 ppm	0.5 %
Mo 202.030 {467} (Axial)	0.1128 ppm	0.2 %
Na 589.592 {57} (Radial)	13.7375 ppm	0.6 %
Ni 231.604 {445} (Axial)	0.2094 ppm	0.3 %
K 766.490 {44} (Radial)	19.2523 ppm	0.5 %
Se 196.090 {472} (Axial)	0.1024 ppm	1.7 %
Ag 328.068 {103} (Axial)	0.1062 ppm	0.6 %
Sr 407.771 {83} (Radial)	1.1328 ppm	0.6 %
Sn 189.989 {477} (Axial)	0.2006 ppm	0.3 %
Ti 334.941 {101} (Radial)	2.1924 ppm	0.9 %
V 292.402 {115} (Axial)	0.3105 ppm	0.2 %
Zn 213.856 {457} (Axial)	5.8191 ppm	0.1 %
Sc 357.253 {94} (Axial)	93.3839 %	0.1 %
Sc 188.060 {479} (Axial)	85.2464 %	0.1 %
Mg 279.079 {121} (Radial)	153.2946 ppm	0.7 %
Tl 190.856 {477} (Axial)	0.0895 ppm	0.4 %
Al 167.079 {502} (Axial)	14.0017 ppm	0.3 %
Sc 227.318 {448} (Axial)	85.4296 %	0.2 %
B 249.773 {135} (Radial)	0.9397 ppm	0.6 %
Al 396.152 {85} (Radial)	84.9020 ppm	0.8 %
Si 251.611 {134} (Radial)	21.1189 ppm	0.4 %
Bi 223.061 {451} (Axial)	0.0080 ppm	12.0 %
Pb 220.353 {453} (Axial)	3.3075 ppm	0.1 %
Th 283.231 {119} (Radial)	0.2891 ppm	3.8 %
Th 401.913 {84} (Radial)	0.1196 ppm	3.2 %
U 409.014 {82} (Radial)	0.1354 ppm	8.9 %
Y 224.306 {450} (Axial)	95.4300 %	0.1 %
Sc 361.384 {93} (Radial)	93.4858 %	0.5 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

18051996-01AMSD

Sample Type UNKNOWN Analysis Date 6/1/2018 6:20:09 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1671 ppm	1.0 %
As 189.042 {478} (Axial)	0.2371 ppm	0.4 %
Ba 455.403 {74} (Radial)	1.7464 ppm	0.6 %
Ba 493.409 {68} (Radial)	1.7373 ppm	0.6 %
Be 313.042 {108} (Axial)	0.1067 ppm	0.4 %
Ca 315.887 {107} (Radial)	224.6812 ppm	0.7 %
Cd 228.802 {447} (Axial)	0.1228 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.3431 ppm	0.6 %
Cr 205.560 {464} (Axial)	0.3211 ppm	0.1 %
Co 228.616 {447} (Axial)	0.1355 ppm	0.2 %
Cu 324.754 {104} (Axial)	0.8164 ppm	0.2 %
Fe 259.940 {130} (Radial)	167.7771 ppm	0.8 %
Li 670.784 {50} (Radial)	0.2115 ppm	0.7 %
Mn 257.610 {131} (Axial)	4.3574 ppm	0.4 %
Mo 202.030 {467} (Axial)	0.1221 ppm	0.3 %
Na 589.592 {57} (Radial)	12.7045 ppm	0.6 %
Ni 231.604 {445} (Axial)	0.2454 ppm	0.2 %
K 766.490 {44} (Radial)	20.0531 ppm	0.7 %
Se 196.090 {472} (Axial)	0.1029 ppm	2.1 %
Ag 328.068 {103} (Axial)	0.1064 ppm	0.7 %
Sr 407.771 {83} (Radial)	0.7079 ppm	0.6 %
Sn 189.989 {477} (Axial)	0.2333 ppm	0.4 %
Ti 334.941 {101} (Radial)	2.0582 ppm	0.5 %
V 292.402 {115} (Axial)	0.3864 ppm	0.3 %
Zn 213.856 {457} (Axial)	5.7875 ppm	0.2 %
Sc 357.253 {94} (Axial)	94.4313 %	0.2 %
Sc 188.060 {479} (Axial)	86.8383 %	0.2 %
Mg 279.079 {121} (Radial)	113.2157 ppm	0.6 %
Tl 190.856 {477} (Axial)	0.0857 ppm	0.3 %
Al 167.079 {502} (Axial)	14.4500 ppm	0.0 %
Sc 227.318 {448} (Axial)	87.1046 %	0.1 %
B 249.773 {135} (Radial)	0.9378 ppm	0.8 %
Al 396.152 {85} (Radial)	95.2634 ppm	0.6 %
Si 251.611 {134} (Radial)	19.5220 ppm	0.5 %
Bi 223.061 {451} (Axial)	0.0157 ppm	9.7 %
Pb 220.353 {453} (Axial)	3.7109 ppm	0.3 %
Th 283.231 {119} (Radial)	0.3195 ppm	4.5 %
Th 401.913 {84} (Radial)	0.1147 ppm	12.3 %
U 409.014 {82} (Radial)	0.1407 ppm	14.6 %
Y 224.306 {450} (Axial)	96.2405 %	0.1 %
Sc 361.384 {93} (Radial)	94.6770 %	0.7 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 6:26:07 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4978 ppm	0.4 %
As 189.042 {478} (Axial)	0.4904 ppm	0.4 %
Ba 455.403 {74} (Radial)	2.5305 ppm	0.2 %
Ba 493.409 {68} (Radial)	2.5033 ppm	0.2 %
Be 313.042 {108} (Axial)	0.4966 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.5485 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.5063 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.5058 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.4930 ppm	0.3 %
Co 228.616 {447} (Axial)	2.4981 ppm	0.2 %
Cu 324.754 {104} (Axial)	2.5019 ppm	0.1 %
Fe 259.940 {130} (Radial)	2.5440 ppm	0.3 %
Li 670.784 {50} (Radial)	2.5923 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.4887 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.5450 ppm	0.3 %
Na 589.592 {57} (Radial)	52.7896 ppm	0.1 %
Ni 231.604 {445} (Axial)	2.5454 ppm	0.3 %
K 766.490 {44} (Radial)	51.4985 ppm	0.1 %
Se 196.090 {472} (Axial)	2.4868 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.4911 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.5025 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.5141 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.5107 ppm	0.3 %
V 292.402 {115} (Axial)	0.4958 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.2465 ppm	0.3 %
Sc 357.253 {94} (Axial)	98.4488 %	0.1 %
Sc 188.060 {479} (Axial)	97.8376 %	0.1 %
Mg 279.079 {121} (Radial)	2.6571 ppm	0.4 %
Tl 190.856 {477} (Axial)	0.5171 ppm	0.2 %
Al 167.079 {502} (Axial)	2.4034 ppm	0.2 %
Sc 227.318 {448} (Axial)	106.2625 %	0.2 %
B 249.773 {135} (Radial)	2.5419 ppm	0.2 %
Al 396.152 {85} (Radial)	2.6204 ppm	0.6 %
Si 251.611 {134} (Radial)	2.5954 ppm	0.6 %
Bi 223.061 {451} (Axial)	2.5173 ppm	0.3 %
Pb 220.353 {453} (Axial)	0.5193 ppm	0.5 %
Th 283.231 {119} (Radial)	1.2794 ppm	1.2 %
Th 401.913 {84} (Radial)	1.2420 ppm	0.6 %
U 409.014 {82} (Radial)	2.5092 ppm	0.4 %
Y 224.306 {450} (Axial)	95.6521 %	0.2 %
Sc 361.384 {93} (Radial)	94.7216 %	0.3 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 6:31:48 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4988 ppm	0.3 %
As 189.042 {478} (Axial)	0.4920 ppm	0.3 %
Ba 455.403 {74} (Radial)	2.5480 ppm	0.4 %
Ba 493.409 {68} (Radial)	2.5209 ppm	0.4 %
Be 313.042 {108} (Axial)	0.4987 ppm	0.2 %
Ca 315.887 {107} (Radial)	2.5121 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.5082 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.5069 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.4948 ppm	0.2 %
Co 228.616 {447} (Axial)	2.5080 ppm	0.2 %
Cu 324.754 {104} (Axial)	2.5066 ppm	0.3 %
Fe 259.940 {130} (Radial)	2.5125 ppm	0.5 %
Li 670.784 {50} (Radial)	2.6167 ppm	0.4 %
Mn 257.610 {131} (Axial)	0.4904 ppm	0.3 %
Mo 202.030 {467} (Axial)	2.5546 ppm	0.2 %
Na 589.592 {57} (Radial)	52.9948 ppm	0.2 %
Ni 231.604 {445} (Axial)	2.5561 ppm	0.2 %
K 766.490 {44} (Radial)	51.6214 ppm	0.2 %
Se 196.090 {472} (Axial)	2.4941 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.4920 ppm	0.5 %
Sr 407.771 {83} (Radial)	0.5068 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.5169 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.5144 ppm	0.4 %
V 292.402 {115} (Axial)	0.4974 ppm	0.1 %
Zn 213.856 {457} (Axial)	1.2515 ppm	0.2 %
Sc 357.253 {94} (Axial)	98.3365 %	0.1 %
Sc 188.060 {479} (Axial)	97.5626 %	0.2 %
Mg 279.079 {121} (Radial)	2.6551 ppm	0.7 %
Tl 190.856 {477} (Axial)	0.5203 ppm	0.4 %
Al 167.079 {502} (Axial)	2.4080 ppm	0.2 %
Sc 227.318 {448} (Axial)	106.0259 %	0.2 %
B 249.773 {135} (Radial)	2.5687 ppm	0.4 %
Al 396.152 {85} (Radial)	2.6158 ppm	0.5 %
Si 251.611 {134} (Radial)	2.5867 ppm	0.5 %
Bi 223.061 {451} (Axial)	2.5272 ppm	0.3 %
Pb 220.353 {453} (Axial)	0.5205 ppm	0.3 %
Th 283.231 {119} (Radial)	1.2843 ppm	1.2 %
Th 401.913 {84} (Radial)	1.2555 ppm	0.9 %
U 409.014 {82} (Radial)	2.5205 ppm	0.6 %
Y 224.306 {450} (Axial)	95.4231 %	0.3 %
Sc 361.384 {93} (Radial)	94.3991 %	0.2 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 6:37:29 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0011 ppm	122.5 %
As 189.042 {478} (Axial)	0.0000 ppm	2,170.1 %
Ba 455.403 {74} (Radial)	0.0005 ppm	28.7 %
Ba 493.409 {68} (Radial)	-0.0007 ppm	80.1 %
Be 313.042 {108} (Axial)	0.0002 ppm	13.1 %
Ca 315.887 {107} (Radial)	-0.0124 ppm	25.9 %
Cd 228.802 {447} (Axial)	-0.0001 ppm	39.7 %
Cr 267.716 {126} (Axial)	-0.0001 ppm	78.7 %
Cr 205.560 {464} (Axial)	-0.0001 ppm	36.3 %
Co 228.616 {447} (Axial)	0.0003 ppm	21.5 %
Cu 324.754 {104} (Axial)	-0.0005 ppm	78.2 %
Fe 259.940 {130} (Radial)	-0.0018 ppm	11.9 %
Li 670.784 {50} (Radial)	-0.0005 ppm	187.9 %
Mn 257.610 {131} (Axial)	-0.0001 ppm	76.6 %
Mo 202.030 {467} (Axial)	0.0005 ppm	13.0 %
Na 589.592 {57} (Radial)	0.0403 ppm	11.6 %
Ni 231.604 {445} (Axial)	-0.0001 ppm	143.6 %
K 766.490 {44} (Radial)	0.0207 ppm	97.6 %
Se 196.090 {472} (Axial)	0.0017 ppm	15.9 %
Ag 328.068 {103} (Axial)	0.0003 ppm	138.5 %
Sr 407.771 {83} (Radial)	0.0000 ppm	365.6 %
Sn 189.989 {477} (Axial)	-0.0006 ppm	54.6 %
Ti 334.941 {101} (Radial)	0.0007 ppm	47.4 %
V 292.402 {115} (Axial)	0.0004 ppm	87.4 %
Zn 213.856 {457} (Axial)	-0.0014 ppm	4.9 %
Sc 357.253 {94} (Axial)	99.5688 %	0.2 %
Sc 188.060 {479} (Axial)	101.3795 %	0.1 %
Mg 279.079 {121} (Radial)	0.0155 ppm	60.8 %
Tl 190.856 {477} (Axial)	0.0008 ppm	42.6 %
Al 167.079 {502} (Axial)	-0.0003 ppm	43.0 %
Sc 227.318 {448} (Axial)	101.7657 %	0.1 %
B 249.773 {135} (Radial)	0.0113 ppm	14.3 %
Al 396.152 {85} (Radial)	-0.0011 ppm	395.0 %
Si 251.611 {134} (Radial)	0.0081 ppm	77.2 %
Bi 223.061 {451} (Axial)	0.0010 ppm	183.7 %
Pb 220.353 {453} (Axial)	-0.0003 ppm	146.7 %
Th 283.231 {119} (Radial)	-0.0050 ppm	310.6 %
Th 401.913 {84} (Radial)	-0.0036 ppm	283.0 %
U 409.014 {82} (Radial)	-0.0234 ppm	140.1 %
Y 224.306 {450} (Axial)	99.1918 %	0.1 %
Sc 361.384 {93} (Radial)	94.1126 %	0.2 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 6:43:44 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0055 ppm	20.8 %
As 189.042 {478} (Axial)	0.0044 ppm	9.6 %
Ba 455.403 {74} (Radial)	0.0053 ppm	3.5 %
Ba 493.409 {68} (Radial)	0.0041 ppm	12.5 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.3 %
Ca 315.887 {107} (Radial)	0.5024 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.0102 ppm	0.7 %
Cr 267.716 {126} (Axial)	0.0053 ppm	3.2 %
Cr 205.560 {464} (Axial)	0.0049 ppm	0.6 %
Co 228.616 {447} (Axial)	0.0051 ppm	1.7 %
Cu 324.754 {104} (Axial)	0.0096 ppm	4.7 %
Fe 259.940 {130} (Radial)	0.0859 ppm	1.4 %
Li 670.784 {50} (Radial)	0.0073 ppm	10.0 %
Mn 257.610 {131} (Axial)	0.0052 ppm	0.9 %
Mo 202.030 {467} (Axial)	0.0054 ppm	1.8 %
Na 589.592 {57} (Radial)	0.2290 ppm	1.9 %
Ni 231.604 {445} (Axial)	0.0052 ppm	5.8 %
K 766.490 {44} (Radial)	0.1435 ppm	8.0 %
Se 196.090 {472} (Axial)	0.0107 ppm	13.4 %
Ag 328.068 {103} (Axial)	0.0050 ppm	7.9 %
Sr 407.771 {83} (Radial)	0.0053 ppm	0.8 %
Sn 189.989 {477} (Axial)	0.0095 ppm	3.9 %
Ti 334.941 {101} (Radial)	0.0046 ppm	15.7 %
V 292.402 {115} (Axial)	0.0055 ppm	2.0 %
Zn 213.856 {457} (Axial)	0.0091 ppm	1.5 %
Sc 357.253 {94} (Axial)	99.9871 %	0.2 %
Sc 188.060 {479} (Axial)	102.0894 %	0.1 %
Mg 279.079 {121} (Radial)	0.2353 ppm	1.0 %
Tl 190.856 {477} (Axial)	0.0119 ppm	5.2 %
Al 167.079 {502} (Axial)	0.0102 ppm	1.0 %
Sc 227.318 {448} (Axial)	102.3792 %	0.2 %
B 249.773 {135} (Radial)	0.0264 ppm	8.4 %
Al 396.152 {85} (Radial)	0.0016 ppm	252.1 %
Si 251.611 {134} (Radial)	0.4629 ppm	1.9 %
Bi 223.061 {451} (Axial)	0.0005 ppm	86.8 %
Pb 220.353 {453} (Axial)	0.0049 ppm	10.7 %
Th 283.231 {119} (Radial)	-0.0064 ppm	201.6 %
Th 401.913 {84} (Radial)	0.0043 ppm	207.9 %
U 409.014 {82} (Radial)	-0.0131 ppm	210.2 %
Y 224.306 {450} (Axial)	99.3323 %	0.1 %
Sc 361.384 {93} (Radial)	94.7770 %	0.2 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

18051778-01A

Sample Type UNKNOWN Analysis Date 6/1/2018 7:02:32 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0057 ppm	8.3 %
As 189.042 {478} (Axial)	0.0129 ppm	9.3 %
Ba 455.403 {74} (Radial)	0.1291 ppm	0.6 %
Ba 493.409 {68} (Radial)	0.1302 ppm	0.4 %
Be 313.042 {108} (Axial)	0.0004 ppm	7.0 %
Ca 315.887 {107} (Radial)	2,148.4270 ppm	1.2 %
Cd 228.802 {447} (Axial)	-0.0008 ppm	8.8 %
Cr 267.716 {126} (Axial)	0.0373 ppm	1.2 %
Cr 205.560 {464} (Axial)	0.0372 ppm	0.2 %
Co 228.616 {447} (Axial)	0.0156 ppm	0.7 %
Cu 324.754 {104} (Axial)	0.0572 ppm	1.2 %
Fe 259.940 {130} (Radial)	37.6658 ppm	0.2 %
Li 670.784 {50} (Radial)	0.0800 ppm	1.0 %
Mn 257.610 {131} (Axial)	1.6799 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.0059 ppm	4.0 %
Na 589.592 {57} (Radial)	2.0480 ppm	0.4 %
Ni 231.604 {445} (Axial)	0.0574 ppm	0.4 %
K 766.490 {44} (Radial)	6.4907 ppm	1.0 %
Se 196.090 {472} (Axial)	-0.0007 ppm	229.8 %
Ag 328.068 {103} (Axial)	-0.0011 ppm	89.8 %
Sr 407.771 {83} (Radial)	1.3129 ppm	0.3 %
Sn 189.989 {477} (Axial)	-0.0013 ppm	30.3 %
Ti 334.941 {101} (Radial)	0.6842 ppm	0.8 %
V 292.402 {115} (Axial)	0.0615 ppm	0.9 %
Zn 213.856 {457} (Axial)	0.3492 ppm	13.8 %
Sc 357.253 {94} (Axial)	82.6017 %	0.4 %
Sc 188.060 {479} (Axial)	72.6463 %	0.1 %
Mg 279.079 {121} (Radial)	305.6011 ppm	0.2 %
Tl 190.856 {477} (Axial)	0.0007 ppm	193.0 %
Al 167.079 {502} (Axial)	10.0194 ppm	0.1 %
Sc 227.318 {448} (Axial)	72.5652 %	0.2 %
B 249.773 {135} (Radial)	0.1237 ppm	1.5 %
Al 396.152 {85} (Radial)	20.3862 ppm	0.2 %
Si 251.611 {134} (Radial)	9.1995 ppm	0.4 %
Bi 223.061 {451} (Axial)	-0.0010 ppm	161.3 %
Pb 220.353 {453} (Axial)	0.0134 ppm	4.4 %
Th 283.231 {119} (Radial)	0.0611 ppm	16.6 %
Th 401.913 {84} (Radial)	0.0287 ppm	42.1 %
U 409.014 {82} (Radial)	0.0534 ppm	43.3 %
Y 224.306 {450} (Axial)	80.0845 %	0.1 %
Sc 361.384 {93} (Radial)	84.3720 %	0.3 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

18051778-07C

Sample Type UNKNOWN Analysis Date 6/1/2018 7:08:40 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0084 ppm	9.8 %
As 189.042 {478} (Axial)	0.0153 ppm	10.0 %
Ba 455.403 {74} (Radial)	0.0747 ppm	0.9 %
Ba 493.409 {68} (Radial)	0.0785 ppm	0.7 %
Be 313.042 {108} (Axial)	0.0004 ppm	1.2 %
Ca 315.887 {107} (Radial)	3,583.9370 ppm	1.0 %
Cd 228.802 {447} (Axial)	0.0043 ppm	2.0 %
Cr 267.716 {126} (Axial)	0.0264 ppm	0.3 %
Cr 205.560 {464} (Axial)	0.0269 ppm	0.3 %
Co 228.616 {447} (Axial)	0.0156 ppm	1.4 %
Cu 324.754 {104} (Axial)	0.0534 ppm	1.9 %
Fe 259.940 {130} (Radial)	27.9546 ppm	0.4 %
Li 670.784 {50} (Radial)	0.1133 ppm	1.5 %
Mn 257.610 {131} (Axial)	2.3874 ppm	0.3 %
Mo 202.030 {467} (Axial)	0.0078 ppm	2.6 %
Na 589.592 {57} (Radial)	3.6346 ppm	0.4 %
Ni 231.604 {445} (Axial)	0.0606 ppm	0.4 %
K 766.490 {44} (Radial)	6.2037 ppm	1.0 %
Se 196.090 {472} (Axial)	-0.0020 ppm	112.5 %
Ag 328.068 {103} (Axial)	-0.0011 ppm	24.6 %
Sr 407.771 {83} (Radial)	2.6531 ppm	0.3 %
Sn 189.989 {477} (Axial)	-0.0004 ppm	83.7 %
Ti 334.941 {101} (Radial)	0.2344 ppm	1.4 %
V 292.402 {115} (Axial)	0.0461 ppm	0.5 %
Zn 213.856 {457} (Axial)	1.5138 ppm	0.4 %
Sc 357.253 {94} (Axial)	78.2676 %	0.3 %
Sc 188.060 {479} (Axial)	68.8822 %	0.2 %
Mg 279.079 {121} (Radial)	146.0210 ppm	0.3 %
Tl 190.856 {477} (Axial)	0.0035 ppm	27.6 %
Al 167.079 {502} (Axial)	7.4502 ppm	0.1 %
Sc 227.318 {448} (Axial)	68.5475 %	0.0 %
B 249.773 {135} (Radial)	0.1129 ppm	2.8 %
Al 396.152 {85} (Radial)	12.2534 ppm	0.4 %
Si 251.611 {134} (Radial)	9.9252 ppm	0.2 %
Bi 223.061 {451} (Axial)	0.0040 ppm	19.8 %
Pb 220.353 {453} (Axial)	0.0031 ppm	44.0 %
Th 283.231 {119} (Radial)	0.0370 ppm	27.4 %
Th 401.913 {84} (Radial)	-0.0318 ppm	30.8 %
U 409.014 {82} (Radial)	-0.0016 ppm	2,101.1 %
Y 224.306 {450} (Axial)	76.5914 %	0.0 %
Sc 361.384 {93} (Radial)	81.4791 %	0.4 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/1/2018 7:26:59 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4920 ppm	0.2 %
As 189.042 {478} (Axial)	0.4864 ppm	0.5 %
Ba 455.403 {74} (Radial)	2.4890 ppm	1.0 %
Ba 493.409 {68} (Radial)	2.4737 ppm	1.0 %
Be 313.042 {108} (Axial)	0.4873 ppm	0.3 %
Ca 315.887 {107} (Radial)	2.4303 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.5018 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.4969 ppm	0.6 %
Cr 205.560 {464} (Axial)	0.4891 ppm	0.3 %
Co 228.616 {447} (Axial)	2.4803 ppm	0.2 %
Cu 324.754 {104} (Axial)	2.4557 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.3745 ppm	1.3 %
Li 670.784 {50} (Radial)	2.5377 ppm	0.9 %
Mn 257.610 {131} (Axial)	0.4796 ppm	0.3 %
Mo 202.030 {467} (Axial)	2.5239 ppm	0.2 %
Na 589.592 {57} (Radial)	51.7842 ppm	0.7 %
Ni 231.604 {445} (Axial)	2.5241 ppm	0.2 %
K 766.490 {44} (Radial)	51.0498 ppm	0.7 %
Se 196.090 {472} (Axial)	2.4713 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4830 ppm	0.1 %
Sr 407.771 {83} (Radial)	0.4947 ppm	1.0 %
Sn 189.989 {477} (Axial)	0.5100 ppm	0.3 %
Ti 334.941 {101} (Radial)	0.4984 ppm	1.2 %
V 292.402 {115} (Axial)	0.4866 ppm	0.3 %
Zn 213.856 {457} (Axial)	1.2910 ppm	0.2 %
Sc 357.253 {94} (Axial)	99.3204 %	0.2 %
Sc 188.060 {479} (Axial)	98.1640 %	0.2 %
Mg 279.079 {121} (Radial)	2.5266 ppm	0.8 %
Tl 190.856 {477} (Axial)	0.5132 ppm	0.3 %
Al 167.079 {502} (Axial)	2.3753 ppm	0.2 %
Sc 227.318 {448} (Axial)	106.2694 %	0.1 %
B 249.773 {135} (Radial)	2.4293 ppm	1.3 %
Al 396.152 {85} (Radial)	2.5354 ppm	0.9 %
Si 251.611 {134} (Radial)	2.4367 ppm	1.0 %
Bi 223.061 {451} (Axial)	2.4998 ppm	0.3 %
Pb 220.353 {453} (Axial)	0.5134 ppm	0.4 %
Th 283.231 {119} (Radial)	1.2339 ppm	1.3 %
Th 401.913 {84} (Radial)	1.2208 ppm	1.9 %
U 409.014 {82} (Radial)	2.4441 ppm	1.3 %
Y 224.306 {450} (Axial)	95.9164 %	0.1 %
Sc 361.384 {93} (Radial)	93.8971 %	0.6 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/1/2018 7:32:40 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0004 ppm	288.2 %
As 189.042 {478} (Axial)	0.0005 ppm	30.5 %
Ba 455.403 {74} (Radial)	0.0003 ppm	59.6 %
Ba 493.409 {68} (Radial)	-0.0009 ppm	32.7 %
Be 313.042 {108} (Axial)	0.0002 ppm	5.6 %
Ca 315.887 {107} (Radial)	-0.0112 ppm	15.3 %
Cd 228.802 {447} (Axial)	-0.0001 ppm	70.3 %
Cr 267.716 {126} (Axial)	0.0001 ppm	147.9 %
Cr 205.560 {464} (Axial)	-0.0001 ppm	104.0 %
Co 228.616 {447} (Axial)	0.0002 ppm	58.9 %
Cu 324.754 {104} (Axial)	-0.0003 ppm	57.1 %
Fe 259.940 {130} (Radial)	-0.0043 ppm	36.1 %
Li 670.784 {50} (Radial)	0.0011 ppm	109.7 %
Mn 257.610 {131} (Axial)	-0.0001 ppm	69.2 %
Mo 202.030 {467} (Axial)	0.0003 ppm	36.0 %
Na 589.592 {57} (Radial)	0.0185 ppm	35.7 %
Ni 231.604 {445} (Axial)	-0.0003 ppm	69.7 %
K 766.490 {44} (Radial)	0.0252 ppm	80.7 %
Se 196.090 {472} (Axial)	0.0020 ppm	121.0 %
Ag 328.068 {103} (Axial)	0.0001 ppm	250.7 %
Sr 407.771 {83} (Radial)	0.0001 ppm	78.8 %
Sn 189.989 {477} (Axial)	-0.0002 ppm	178.9 %
Ti 334.941 {101} (Radial)	0.0002 ppm	251.3 %
V 292.402 {115} (Axial)	0.0004 ppm	66.3 %
Zn 213.856 {457} (Axial)	0.0296 ppm	2.8 %
Sc 357.253 {94} (Axial)	99.3625 %	0.3 %
Sc 188.060 {479} (Axial)	101.5157 %	0.2 %
Mg 279.079 {121} (Radial)	0.0024 ppm	285.2 %
Tl 190.856 {477} (Axial)	0.0007 ppm	121.6 %
Al 167.079 {502} (Axial)	-0.0004 ppm	40.1 %
Sc 227.318 {448} (Axial)	101.7349 %	0.2 %
B 249.773 {135} (Radial)	0.0068 ppm	54.4 %
Al 396.152 {85} (Radial)	-0.0039 ppm	189.3 %
Si 251.611 {134} (Radial)	-0.0013 ppm	613.4 %
Bi 223.061 {451} (Axial)	0.0004 ppm	342.9 %
Pb 220.353 {453} (Axial)	-0.0006 ppm	110.2 %
Th 283.231 {119} (Radial)	-0.0106 ppm	129.0 %
Th 401.913 {84} (Radial)	-0.0091 ppm	89.3 %
U 409.014 {82} (Radial)	-0.0319 ppm	45.7 %
Y 224.306 {450} (Axial)	99.2484 %	0.3 %
Sc 361.384 {93} (Radial)	91.9378 %	0.6 %

Simple sample report

6/26/2018 5:56:09 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/1/2018 7:38:54 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0052 ppm	17.5 %
As 189.042 {478} (Axial)	0.0052 ppm	15.2 %
Ba 455.403 {74} (Radial)	0.0053 ppm	5.6 %
Ba 493.409 {68} (Radial)	0.0045 ppm	5.1 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.0 %
Ca 315.887 {107} (Radial)	0.5021 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0102 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.0052 ppm	10.1 %
Cr 205.560 {464} (Axial)	0.0049 ppm	0.9 %
Co 228.616 {447} (Axial)	0.0052 ppm	1.4 %
Cu 324.754 {104} (Axial)	0.0103 ppm	2.9 %
Fe 259.940 {130} (Radial)	0.0819 ppm	2.3 %
Li 670.784 {50} (Radial)	0.0100 ppm	1.3 %
Mn 257.610 {131} (Axial)	0.0052 ppm	0.7 %
Mo 202.030 {467} (Axial)	0.0054 ppm	2.6 %
Na 589.592 {57} (Radial)	0.2240 ppm	1.3 %
Ni 231.604 {445} (Axial)	0.0053 ppm	3.9 %
K 766.490 {44} (Radial)	0.1658 ppm	21.2 %
Se 196.090 {472} (Axial)	0.0106 ppm	2.8 %
Ag 328.068 {103} (Axial)	0.0058 ppm	10.1 %
Sr 407.771 {83} (Radial)	0.0053 ppm	1.6 %
Sn 189.989 {477} (Axial)	0.0096 ppm	2.7 %
Ti 334.941 {101} (Radial)	0.0049 ppm	11.7 %
V 292.402 {115} (Axial)	0.0055 ppm	3.9 %
Zn 213.856 {457} (Axial)	0.0375 ppm	1.9 %
Sc 357.253 {94} (Axial)	99.4081 %	0.4 %
Sc 188.060 {479} (Axial)	101.8078 %	0.1 %
Mg 279.079 {121} (Radial)	0.2220 ppm	5.7 %
Tl 190.856 {477} (Axial)	0.0113 ppm	7.7 %
Al 167.079 {502} (Axial)	0.0104 ppm	3.1 %
Sc 227.318 {448} (Axial)	102.0131 %	0.1 %
B 249.773 {135} (Radial)	0.0237 ppm	8.2 %
Al 396.152 {85} (Radial)	0.0149 ppm	80.0 %
Si 251.611 {134} (Radial)	0.4453 ppm	1.5 %
Bi 223.061 {451} (Axial)	0.0007 ppm	217.9 %
Pb 220.353 {453} (Axial)	0.0056 ppm	10.6 %
Th 283.231 {119} (Radial)	-0.0027 ppm	465.3 %
Th 401.913 {84} (Radial)	0.0078 ppm	102.0 %
U 409.014 {82} (Radial)	-0.0200 ppm	202.4 %
Y 224.306 {450} (Axial)	99.1817 %	0.1 %
Sc 361.384 {93} (Radial)	91.6298 %	0.2 %

ALS Group, USA

Analytical Run Summary

02-Jul-18

Run ID ICP2_180604A

Analyst Royce Hughes

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5070591	ICAL1	ICP_6010_W	SAMP		6/4/2018 10:23	1	R237274		32
5070592	ICAL2	ICP_6010_W	SAMP		6/4/2018 10:29	1	R237274		32
5070593	ICAL3	ICP_6010_W	SAMP		6/4/2018 10:35	1	R237274		32
5070594	ICAL4	ICP_6010_W	SAMP		6/4/2018 10:41	1	R237274		32
5070595	ICAL5	ICP_6010_W	SAMP		6/4/2018 10:47	1	R237274		32
5070596	ICV/QCS	ICP_6010_W	ICV		6/4/2018 10:53	1	R237274		32
5070597	ICB	ICP_6010_W	ICB		6/4/2018 10:59	1	R237274		32
5070598	ICVLL	ICP_6010_W	LLICV		6/4/2018 11:05	1	R237274		32
5070599	ICVLL	ICP_6010_W	LLICV		6/4/2018 11:12	1	R237274		0
5070600	ICSAB	ICP_6010_W	ICSA		6/4/2018 11:18	1	R237274		32
5070603	CCV	ICP_6010_W	CCV		6/4/2018 11:24	1	R237274		32
5070605	CCB	ICP_6010_W	CCB		6/4/2018 11:29	1	R237274		32
5070606	CCVLL	ICP_6010_W	LLCCV		6/4/2018 11:36	1	R237274		32
5070607	MBLK-119140	ICP_6010_S	MBLK		6/4/2018 11:42	1	119140	6/1/2018	1
5070608	18051673-01A	ICP_6010_S	SAMP		6/4/2018 11:48	100	119031	5/30/2018	1
5070609	18051674-01A	ICP_6010_S	SAMP		6/4/2018 11:54	100	119031	5/30/2018	1
5070610	18051689-09A	ICP_6010_S	SAMP		6/4/2018 12:00	10	119100	5/31/2018	4
5070611	18051689-11A	ICP_6010_S	SAMP		6/4/2018 12:06	10	119100	5/31/2018	4
5070612	18051689-31A	ICP_6010_S	SAMP		6/4/2018 12:12	10	119106	5/31/2018	4
5070613	18051772-05A	ICP_6010_S	SAMP		6/4/2018 12:18	100	119140	6/1/2018	3
5070614	18051772-07A	ICP_6010_S	SAMP		6/4/2018 12:25	100	119140	6/1/2018	2
5070615	18051778-01A	ICP_6010_S	SAMP		6/4/2018 12:31	100	119140	6/1/2018	1
5070616	18051778-07C	ICP_6010_S	SAMP		6/4/2018 12:37	100	119140	6/1/2018	1
5070617	CCV	ICP_6010_W	CCV		6/4/2018 12:43	1	R237274		0
5070618	CCV	ICP_6010_W	CCV		6/4/2018 12:49	1	R237274		0
5070619	CCB	ICP_6010_W	CCB		6/4/2018 12:55	1	R237274		32
5070620	CCVLL	ICP_6010_W	LLCCV		6/4/2018 13:01	1	R237274		32
5071334	MBLK-119078	ICP_200.7_WW	MBLK		6/4/2018 13:41	1	119078	5/31/2018	1
5071335	18051772-05A	ICP_6010_S	SAMP		6/4/2018 13:48	1000	119140	6/1/2018	1
5071336	18051772-07A	ICP_6010_S	SAMP		6/4/2018 13:54	1000	119140	6/1/2018	1
5071337	MBLK-119209	ICP_6010_W	MBLK		6/4/2018 14:00	1	119209	6/4/2018	7
5071338	LCS-119209	ICP_6010_W	LCS		6/4/2018 14:06	1	119209	6/4/2018	7
5071339	18051949-01A	TCICP_6010_S	SAMP		6/4/2018 14:12	1	119209	6/4/2018	7
5071340	1806052-02A	TCICP_6010_S	SAMP		6/4/2018 14:19	1	119209	6/4/2018	1
5071341	1806052-02AMS	TCICP_6010_S	MS		6/4/2018 14:25	1	119209	6/4/2018	7
5071342	1806052-02AMSD	TCICP_6010_S	MSD		6/4/2018 14:31	1	119209	6/4/2018	7
5071343	CCV	ICP_6010_W	CCV		6/4/2018 14:37	1	R237274		32
5071344	CCB	ICP_6010_W	CCB		6/4/2018 14:43	1	R237274		32
5071345	CCVLL	ICP_6010_W	LLCCV		6/4/2018 14:49	1	R237274		0
5071346	CCVLL	ICP_6010_W	LLCCV		6/4/2018 14:55	1	R237274		32
5071347	MBLK-119195	ICP_6010_W	MBLK		6/4/2018 15:01	1	119199	6/3/2018	28
5071348	LCS-119195	ICP_6010_W	LCS		6/4/2018 15:08	1	119199	6/3/2018	30
5071349	MBLK-119199	ICP_6010_W	MBLK		6/4/2018 15:13	1	119199	6/3/2018	27
	MB03	*The concentration in the Method Blank was greater than the quantitation limit. All samples in the batch were non-detect; therefore, no qualification is needed for this analyte: Fe*							
5071350	LCS-119199	ICP_6010_W	LCS		6/4/2018 15:20	1	119199	6/3/2018	30
5071351	18051618-01A	ICP_6010_W	SAMP		6/4/2018 15:26	1	119199	6/3/2018	6
5071352	18051910-01C	ICP_6010_W	SAMP		6/4/2018 15:32	1	119199	6/3/2018	1
5071353	18051995-01C	ICP_6010_W	SAMP		6/4/2018 15:38	1	119199	6/3/2018	1
5071354	18052017-01A	ICP_6010_WD	SAMP		6/4/2018 15:44	1	119199	6/3/2018	4
5071355	18052017-01AMS	ICP_6010_WD	MS		6/4/2018 15:50	1	119199	6/3/2018	29

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5071356	18052017-01AMSD	ICP_6010_WD	MSD		6/4/2018 15:57	1	119199	6/3/2018	29
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Na*							
5071357	CCV	ICP_6010_W	CCV		6/4/2018 16:03	1	R237274		32
5071358	CCB	ICP_6010_W	CCB		6/4/2018 16:08	1	R237274		32
5071359	CCVLL	ICP_6010_W	LLCCV		6/4/2018 16:15	1	R237274		32
5071360	1806004-01A	ICP_6010_W	SAMP		6/4/2018 16:21	1	119199	6/3/2018	1
5071361	1806004-02A	ICP_6010_W	SAMP		6/4/2018 16:27	1	119199	6/3/2018	4
5071362	1806004-03A	ICP_6010_W	SAMP		6/4/2018 16:33	1	119199	6/3/2018	1
5071363	1806004-04A	ICP_6010_W	SAMP		6/4/2018 16:40	1	119199	6/3/2018	1
5071364	1806004-05A	ICP_6010_W	SAMP		6/4/2018 16:46	1	119199	6/3/2018	6
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
5071365	1806004-06A	ICP_6010_W	SAMP		6/4/2018 16:52	1	119199	6/3/2018	1
5071366	1806004-07A	ICP_6010_W	SAMP		6/4/2018 16:58	1	119199	6/3/2018	1
5071367	1806004-08A	ICP_6010_W	SAMP		6/4/2018 17:05	1	119199	6/3/2018	1
5071368	1806004-09A	ICP_6010_W	SAMP		6/4/2018 17:11	1	119199	6/3/2018	0
5071369	1806004-10A	ICP_6010_W	SAMP		6/4/2018 17:17	1	119199	6/3/2018	3
5071370	CCV	ICP_6010_W	CCV		6/4/2018 17:23	1	R237274		32
5071371	CCB	ICP_6010_W	CCB		6/4/2018 17:29	1	R237274		32
5071372	CCVLL	ICP_6010_W	LLCCV		6/4/2018 17:35	1	R237274		32
5071373	1806004-11A	ICP_6010_W	SAMP		6/4/2018 17:42	1	119199	6/3/2018	0
5071374	1806004-12A	ICP_6010_W	SAMP		6/4/2018 17:48	1	119199	6/3/2018	0
5071375	1806004-13A	ICP_6010_W	SAMP		6/4/2018 17:54	1	119199	6/3/2018	5
	RL02	*The reporting limit is elevated due to dilution for high concentrations of non-target analytes.*							
5071376	1806004-14A	ICP_6010_W	SAMP		6/4/2018 18:00	1	119199	6/3/2018	0
5071377	1806004-15A	ICP_6010_W	SAMP		6/4/2018 18:07	1	119199	6/3/2018	0
5071378	1806004-16A	ICP_6010_W	SAMP		6/4/2018 18:13	1	119199	6/3/2018	0
5071379	CCV	ICP_6010_W	CCV		6/4/2018 18:19	1	R237274		32
5071380	CCB	ICP_6010_W	CCB		6/4/2018 18:25	1	R237274		32
5071381	CCVLL	ICP_6010_W	LLCCV		6/4/2018 18:31	1	R237274		32
5071382	MBLK-119197	ICP_200.7_WW	MBLK		6/4/2018 18:37	1	119197	6/3/2018	28
5071383	LCS-119197	ICP_200.7_WW	LCS		6/4/2018 18:44	1	119197	6/3/2018	28
5071384	18051831-05C	EM_ICP_200.7_WD	SAMP		6/4/2018 18:49	1	119197	6/3/2018	15
5071385	18051831-05D	EM_ICP_200.7_W	SAMP		6/4/2018 18:56	1	119197	6/3/2018	20
5071386	18051831-06C	EM_ICP_200.7_WD	SAMP		6/4/2018 19:02	1	119197	6/3/2018	14
5071387	18051831-06D	EM_ICP_200.7_W	SAMP		6/4/2018 19:08	1	119197	6/3/2018	19
5071388	18051831-06DMS	EM_ICP_200.7_W	MS		6/4/2018 19:15	1	119197	6/3/2018	28
	MS05	*The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mn, Na*							
5071389	CCV	ICP_6010_W	CCV		6/4/2018 19:21	1	R237274		32
5071390	CCV	ICP_6010_W	CCV		6/4/2018 19:26	1	R237274		0
5071391	CCB	ICP_6010_W	CCB		6/4/2018 19:32	1	R237274		32
5071392	CCVLL	ICP_6010_W	LLCCV		6/4/2018 19:38	1	R237274		32
5071393	18051831-06DMSD	EM_ICP_200.7_W	MSD		6/4/2018 19:45	1	119197	6/3/2018	28
	MSD05	*The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mn*							
5071394	18051831-07C	EM_ICP_200.7_WD	SAMP		6/4/2018 19:51	1	119197	6/3/2018	15
5071395	18051831-07D	EM_ICP_200.7_W	SAMP		6/4/2018 19:57	1	119197	6/3/2018	20
5071396	18051831-08C	EM_ICP_200.7_WD	SAMP		6/4/2018 20:03	1	119197	6/3/2018	15
5071397	18051831-08D	EM_ICP_200.7_W	SAMP		6/4/2018 20:09	1	119197	6/3/2018	20
5071398	18051831-08DMS	EM_ICP_200.7_W	MS		6/4/2018 20:15	1	119197	6/3/2018	28
5071399	18051831-08DMSD	EM_ICP_200.7_W	MSD		6/4/2018 20:21	1	119197	6/3/2018	28
5071400	18051831-09C	EM_ICP_200.7_WD	SAMP		6/4/2018 20:27	1	119197	6/3/2018	15
5071401	18051831-09D	EM_ICP_200.7_W	SAMP		6/4/2018 20:33	1	119197	6/3/2018	20
5071402	18051831-10C	EM_ICP_200.7_WD	SAMP		6/4/2018 20:40	1	119197	6/3/2018	15
5071403	CCV	ICP_6010_W	CCV		6/4/2018 20:46	1	R237274		32
5071404	CCB	ICP_6010_W	CCB		6/4/2018 20:51	1	R237274		32
5071405	CCVLL	ICP_6010_W	LLCCV		6/4/2018 20:58	1	R237274		32
5071406	18051831-10D	EM_ICP_200.7_W	SAMP		6/4/2018 21:04	1	119197	6/3/2018	18

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5071407	18051911-01D	ICP_200.7_WW	SAMP		6/4/2018 21:10	1	119197	6/3/2018	5
5071408	18051925-01B	ICP_200.7_WW	SAMP		6/4/2018 21:16	1	119197	6/3/2018	1
5071409	18051925-02B	ICP_200.7_WW	SAMP		6/4/2018 21:22	1	119197	6/3/2018	1
5071410	18051925-03B	ICP_200.7_WW	SAMP		6/4/2018 21:29	1	119197	6/3/2018	1
5071411	18051925-04A	ICP_200.7_WW	SAMP		6/4/2018 21:35	1	119197	6/3/2018	1
5071412	MBLK-119203	ICP_6010_S	MBLK		6/4/2018 21:41	1	119203	6/3/2018	24
5071413	LCS-119203	ICP_6010_S	LCS		6/4/2018 21:48	1	119203	6/3/2018	24
5071414	18051789-01A	ICP_6010WV_S	SAMP		6/4/2018 21:53	1	119203	6/3/2018	0
5071415	18051800-01A	ICP_6010_S	SAMP		6/4/2018 22:00	1	119203	6/3/2018	9
5071416	CCV	ICP_6010_W	CCV		6/4/2018 22:06	1	R237274		32
5071417	CCB	ICP_6010_W	CCB		6/4/2018 22:12	1	R237274		32
5071418	CCVLL	ICP_6010_W	LLCCV		6/4/2018 22:18	1	R237274		32
5071419	18051800-03A	ICP_6010_S	SAMP		6/4/2018 22:24	1	119203	6/3/2018	15
5071420	18051865-01A	ICP_6010_S	SAMP		6/4/2018 22:31	1	119203	6/3/2018	7
5071421	18051944-01A	ICP_6010_S	SAMP		6/4/2018 22:37	1	119203	6/3/2018	6
5071422	1806007-01A	ICP_6010_S	SAMP		6/4/2018 22:43	10000	119203	6/3/2018	1
5071423	1806010-01A	ICP_6010_S	SAMP		6/4/2018 22:49	10000	119203	6/3/2018	1
5071424	1806037-01B	ICP_6010_S	SAMP		6/4/2018 22:55	1	119203	6/3/2018	9
5071425	1806037-02B	ICP_6010_S	SAMP		6/4/2018 23:01	1	119203	6/3/2018	9
5071426	1806037-02BMS	ICP_6010_S	MS		6/4/2018 23:07	1	119203	6/3/2018	24

MS02 *The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Ba, V, Zn*

MS05 *The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Fe, Mn, Ti*

5071427	1806037-02BMSD	ICP_6010_S	MSD		6/4/2018 23:13	1	119203	6/3/2018	24

MSD02 *The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Ba, V*

MSD05 *The MSD recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ca, Mn, Ti*

5071428	1806037-03B	ICP_6010_S	SAMP		6/4/2018 23:19	1	119203	6/3/2018	9
5071429	CCV	ICP_6010_W	CCV		6/4/2018 23:25	1	R237274		32
5071430	CCB	ICP_6010_W	CCB		6/4/2018 23:31	1	R237274		32
5071431	CCVLL	ICP_6010_W	LLCCV		6/4/2018 23:37	1	R237274		32
5071432	1806037-04B	ICP_6010_S	SAMP		6/4/2018 23:43	1	119203	6/3/2018	9
5071433	1806037-05B	ICP_6010_S	SAMP		6/4/2018 23:49	1	119203	6/3/2018	9
5071434	CCV	ICP_6010_W	CCV		6/4/2018 23:55	1	R237274		32
5071435	CCB	ICP_6010_W	CCB		6/5/2018 00:01	1	R237274		32
5071436	CCVLL	ICP_6010_W	LLCCV		6/5/2018 00:07	1	R237274		32
5071438	ICSAB	ICP_6010_W	ICSA		6/5/2018 00:13	1	R237274		32
5071442	RINSE	ICP_6010_W	SAMP		6/5/2018 00:19	1	R237274		32
5071445	RINSE	ICP_6010_W	SAMP		6/5/2018 00:25	1	R237274		32
5071449	RINSE	ICP_6010_W	SAMP		6/5/2018 00:32	1	R237274		32
5071453	RINSE	ICP_6010_W	SAMP		6/5/2018 00:38	1	R237274		32
5071456	RINSE	ICP_6010_W	SAMP		6/5/2018 00:44	1	R237274		32

Calibration Summary

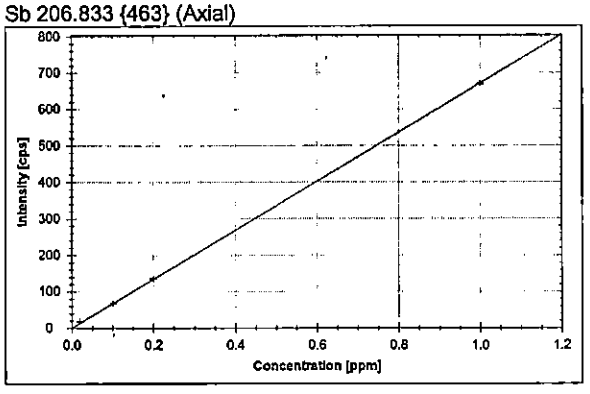
6/26/2018 5:57:50 PM

QTEGRA

Labbook 180604A.lmexp

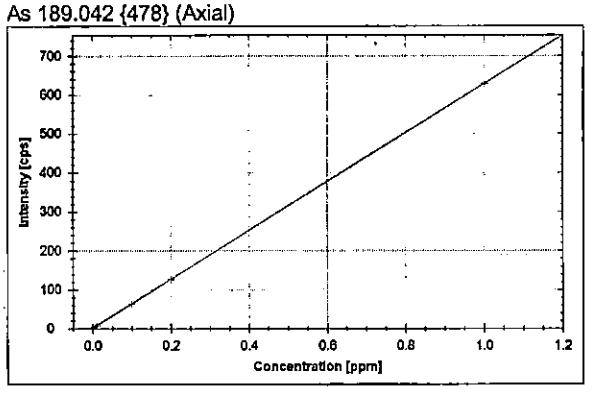
Calibration Graphs

Sb 206.833 {463} (Axial)



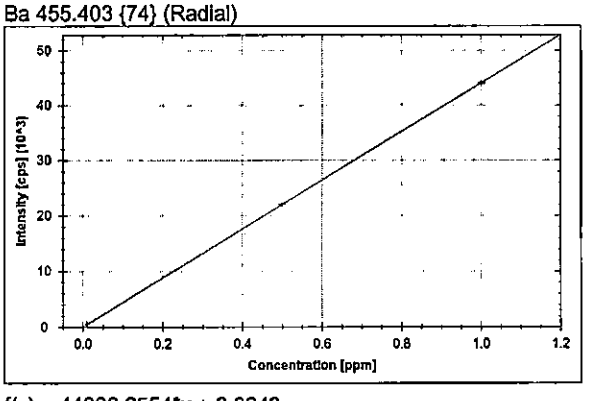
f(x) = 669.9303*x + -0.0656
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0028 ppm

As 189.042 {478} (Axial)



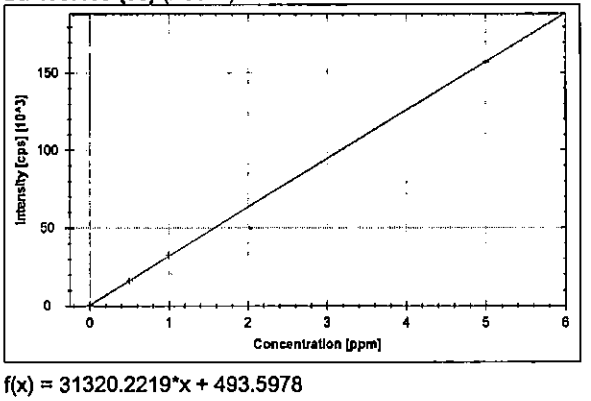
f(x) = 626.2890*x + 1.5813
R^2 = 1.0000
BEC = 0.003 ppm
LoD = 0.0007 ppm

Ba 455.403 {74} (Radial)



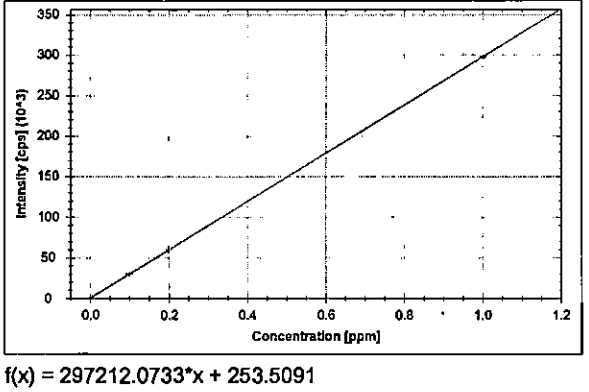
f(x) = 44006.2554*x + 3.8243
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0005 ppm

Ba 493.409 {68} (Radial)



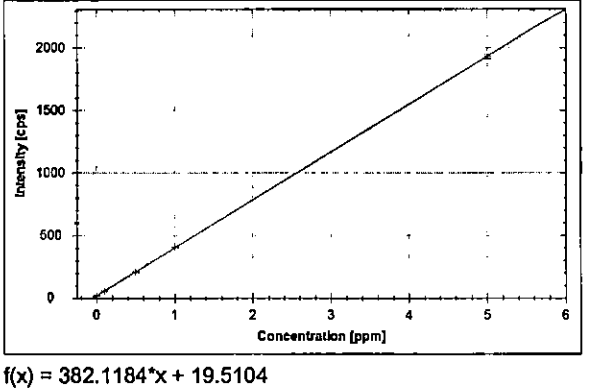
f(x) = 31320.2219*x + 493.5978
R^2 = 1.0000
BEC = 0.016 ppm
LoD = 0.0012 ppm

Be 313.042 {108} (Axial)



f(x) = 297212.0733*x + 253.5091
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0000 ppm

Ca 315.887 {107} (Radial)



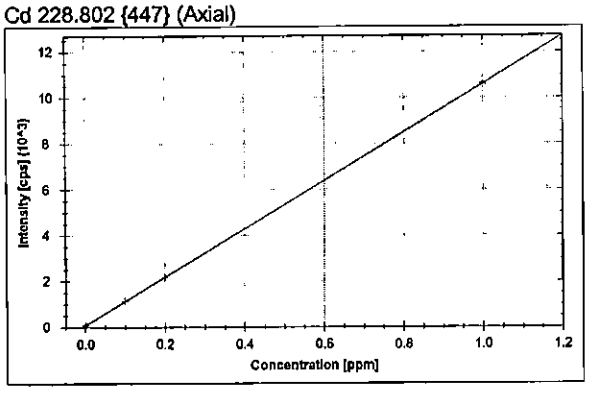
f(x) = 382.1184*x + 19.5104
R^2 = 1.0000
BEC = 0.051 ppm
LoD = 0.0127 ppm

Calibration Summary

6/26/2018 5:57:50 PM

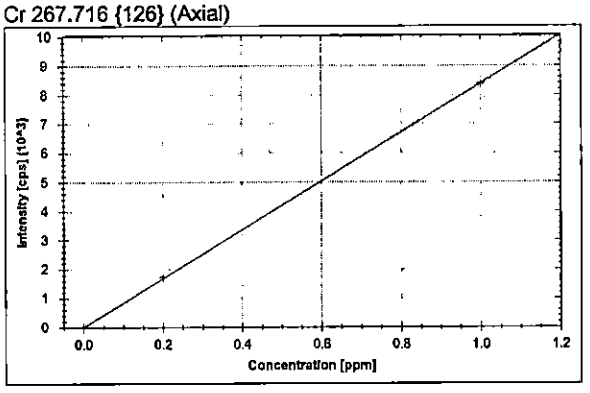
QTEGRA

Cd 228.802 {447} (Axial)



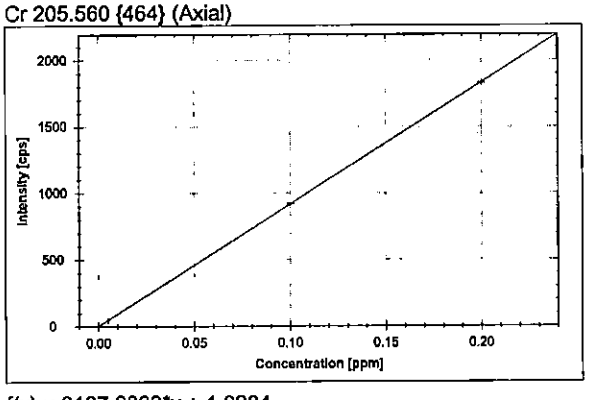
f(x) = 10501.8093*x + 71.8675
R^2 = 1.0000
BEC = 0.007 ppm
LoD = 0.0002 ppm

Cr 267.716 {126} (Axial)



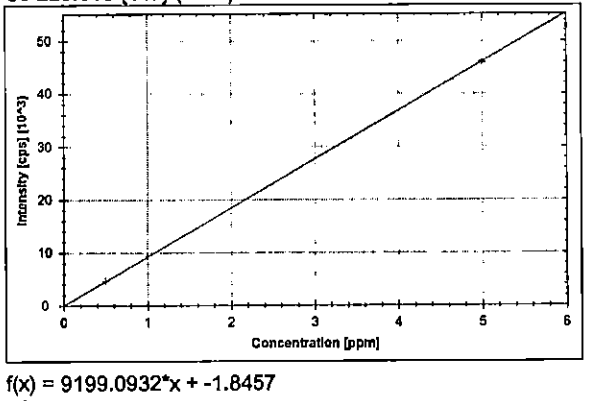
f(x) = 8375.4892*x + 1.4098
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0007 ppm

Cr 205.560 {464} (Axial)



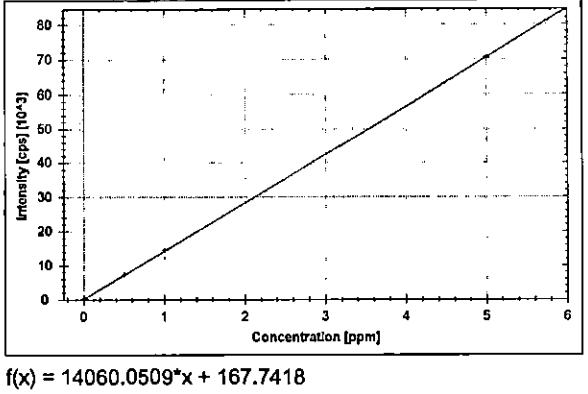
f(x) = 9137.0869*x + 1.9284
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0001 ppm

Co 228.616 {447} (Axial)



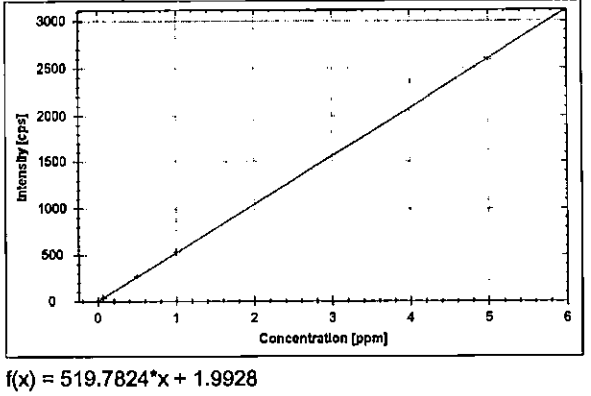
f(x) = 9199.0932*x + -1.8457
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0002 ppm

Cu 324.754 {104} (Axial)



f(x) = 14060.0509*x + 167.7418
R^2 = 1.0000
BEC = 0.012 ppm
LoD = 0.0009 ppm

Fe 259.940 {130} (Radial)



f(x) = 519.7824*x + 1.9928
R^2 = 1.0000
BEC = 0.004 ppm
LoD = 0.0084 ppm

Calibration Summary

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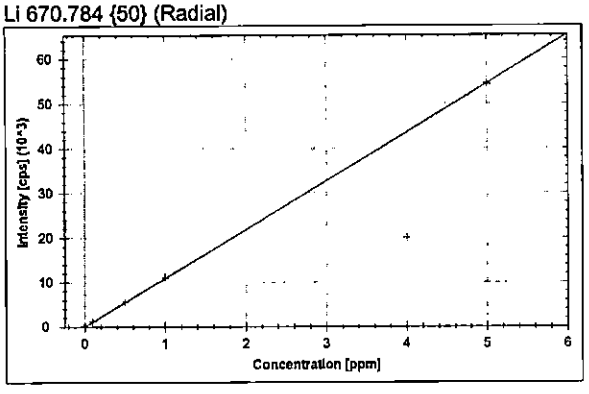
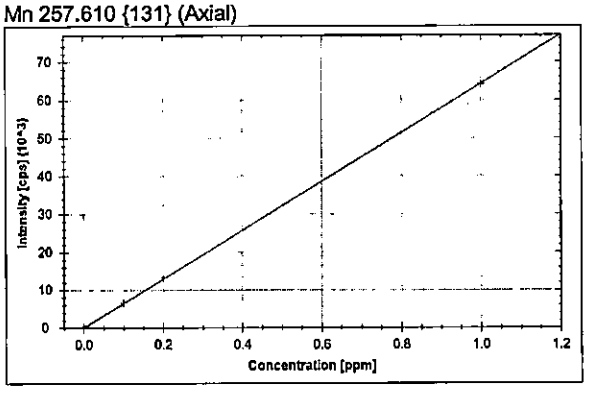
QTEGRA

Li 670.784 {50} (Radial)



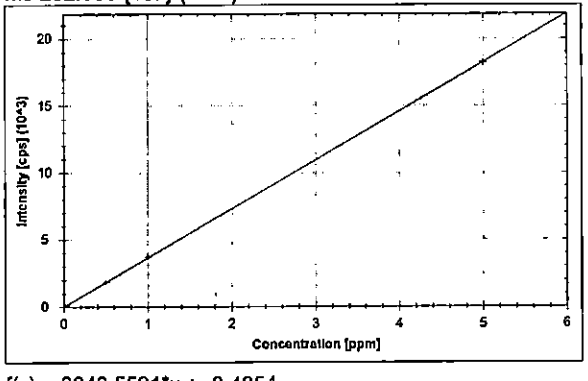
f(x) = 10879.5687*x + 30.3835
R^2 = 1.0000
BEC = 0.003 ppm
LoD = 0.0028 ppm

Mn 257.610 {131} (Axial)



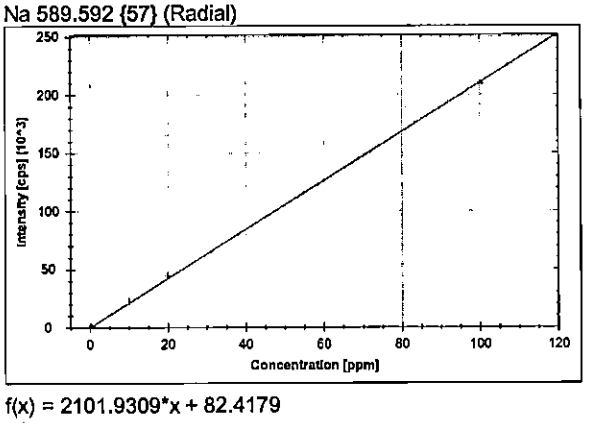
f(x) = 64174.6410*x + 23.2246
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0001 ppm

Mo 202.030 {467} (Axial)



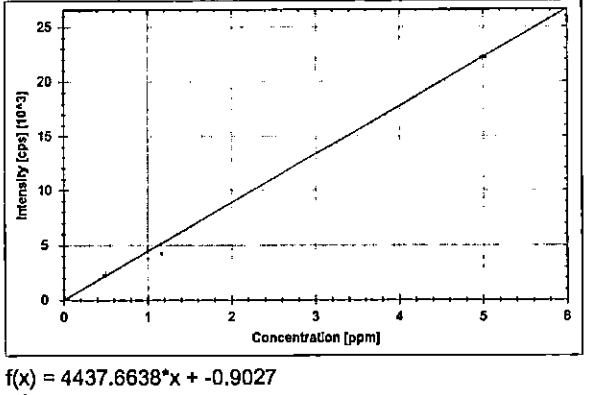
f(x) = 3643.5521*x + -0.4354
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0004 ppm

Na 589.592 {57} (Radial)



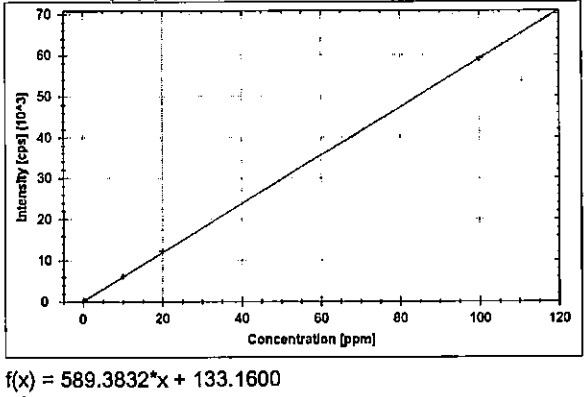
f(x) = 2101.9309*x + 82.4179
R^2 = 0.9998
BEC = 0.039 ppm
LoD = 0.0048 ppm

Ni 231.604 {445} (Axial)



f(x) = 4437.6638*x + -0.9027
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0006 ppm

K 766.490 {44} (Radial)



f(x) = 589.3832*x + 133.1600
R^2 = 0.9999
BEC = 0.226 ppm
LoD = 0.0612 ppm

Calibration Summary

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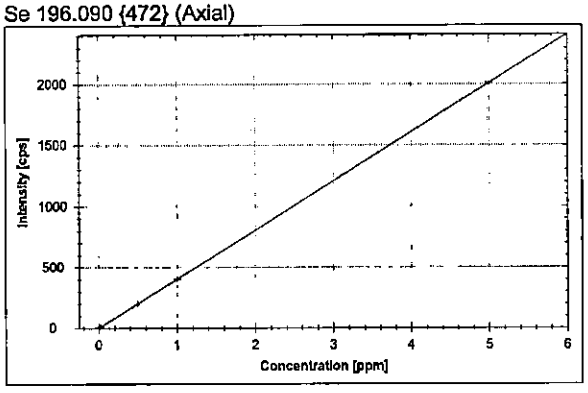
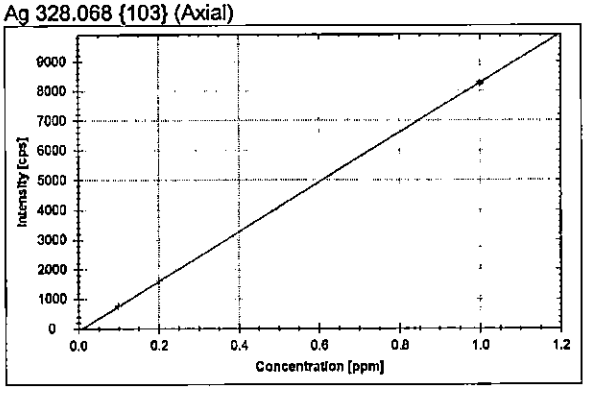
QTEGRA

Se 196.090 {472} (Axial)



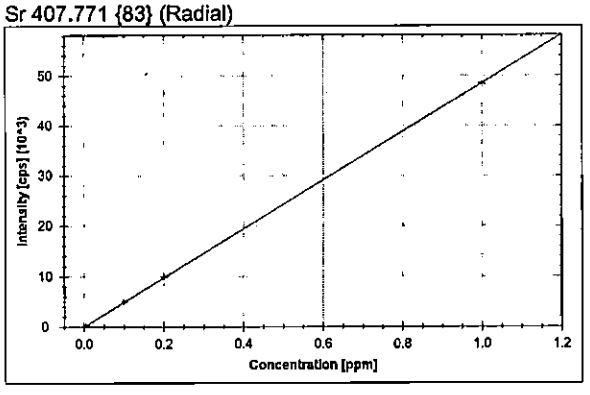
f(x) = 401.2124*x + 1.8469
R^2 = 1.0000
BEC = 0.005 ppm
LoD = 0.0038 ppm

Ag 328.068 {103} (Axial)



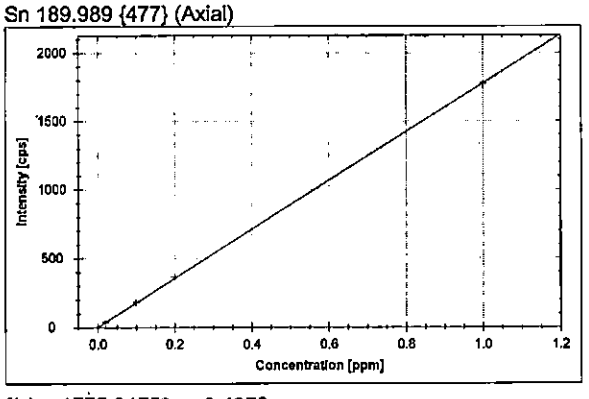
f(x) = 8346.8316*x + -82.1787
R^2 = 0.9999
BEC = -0.010 ppm
LoD = 0.0011 ppm

Sr 407.771 {83} (Radial)



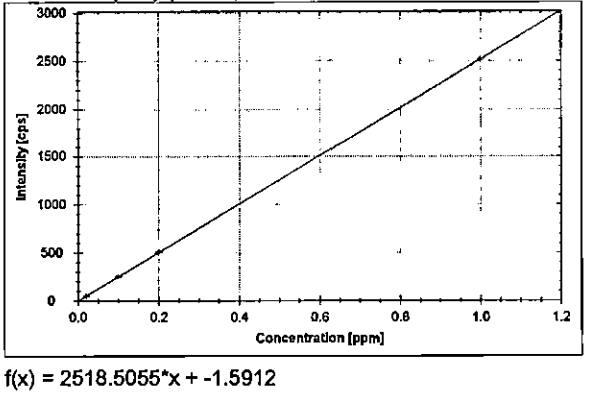
f(x) = 48497.6840*x + 11.7810
R^2 = 1.0000
BEC = 0.000 ppm
LoD = 0.0004 ppm

Sn 189.989 {477} (Axial)



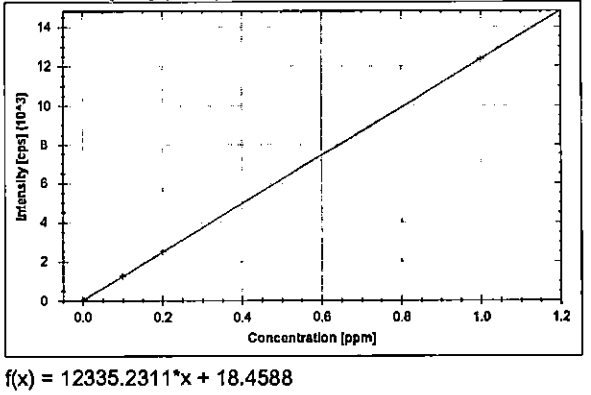
f(x) = 1775.3475*x + 0.4379
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0010 ppm

Ti 334.941 {101} (Radial)



f(x) = 2518.5055*x + -1.5912
R^2 = 1.0000
BEC = -0.001 ppm
LoD = 0.0014 ppm

V 292.402 {115} (Axial)



f(x) = 12335.2311*x + 18.4588
R^2 = 1.0000
BEC = 0.001 ppm
LoD = 0.0011 ppm

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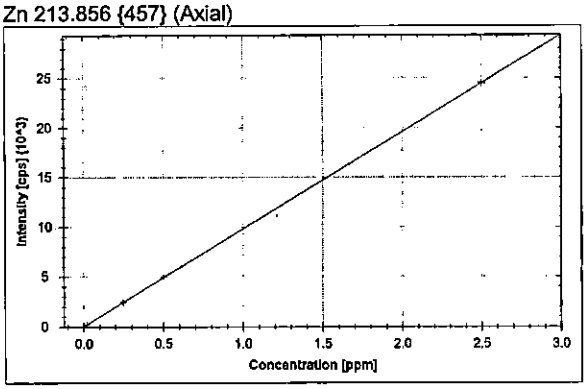
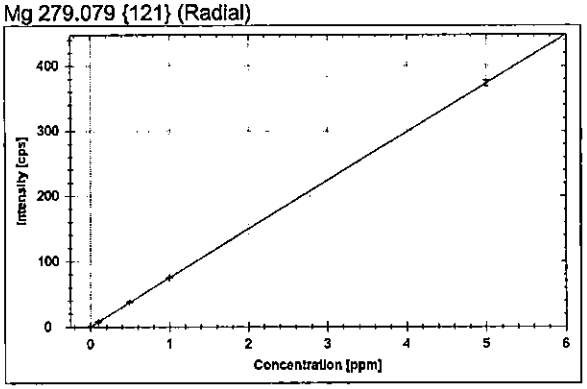
Zn 213.856 {457} (Axial)



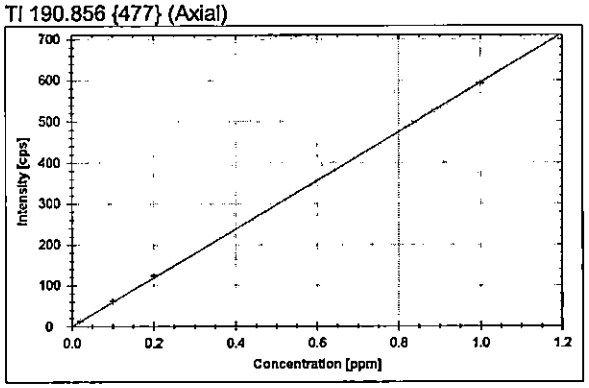
f(x) = 9774.9935*x + 28.9353
R^2 = 1.0000
BEC = 0.003 ppm
LoD = 0.0004 ppm

Mg 279.079 {121} (Radial)



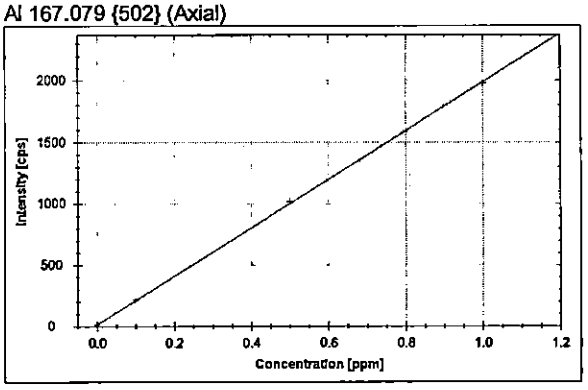
f(x) = 74.6053*x + 0.1329
R^2 = 1.0000
BEC = 0.002 ppm
LoD = 0.0565 ppm

Tl 190.856 {477} (Axial)



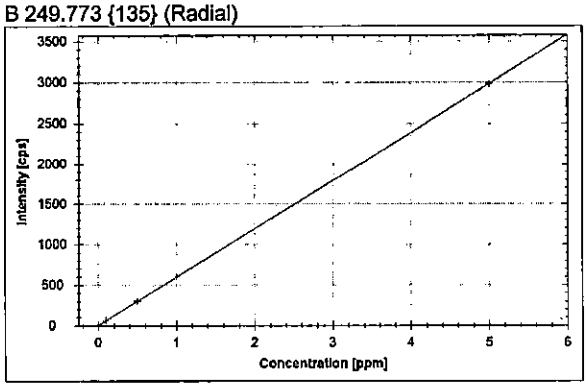
f(x) = 593.8317*x + -0.1602
R^2 = 0.9998
BEC = 0.000 ppm
LoD = 0.0021 ppm

Al 167.079 {502} (Axial)



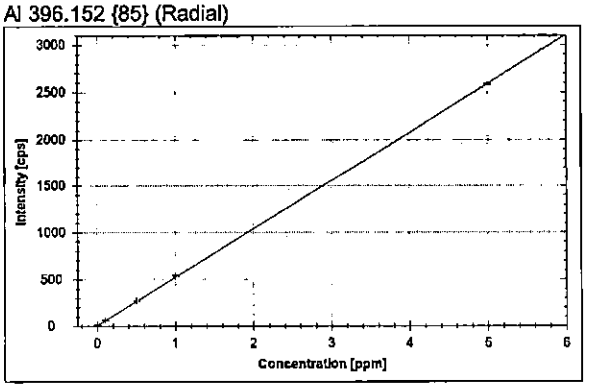
f(x) = 1971.1464*x + 14.2311
R^2 = 0.9998
BEC = 0.007 ppm
LoD = 0.0003 ppm

B 249.773 {135} (Radial)



f(x) = 595.5834*x + 2.5015
R^2 = 1.0000
BEC = 0.004 ppm
LoD = 0.0055 ppm

Al 396.152 {85} (Radial)



f(x) = 516.4210*x + 5.3460
R^2 = 0.9999
BEC = 0.010 ppm
LoD = 0.0232 ppm

Calibration Summary

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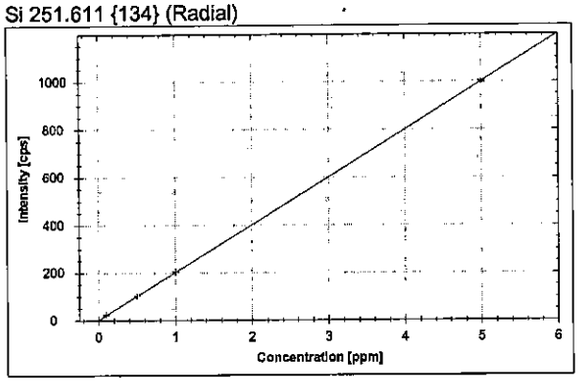
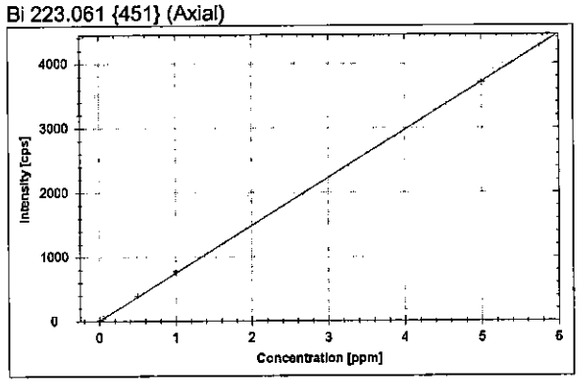
Si 251.611 {134} (Radial)



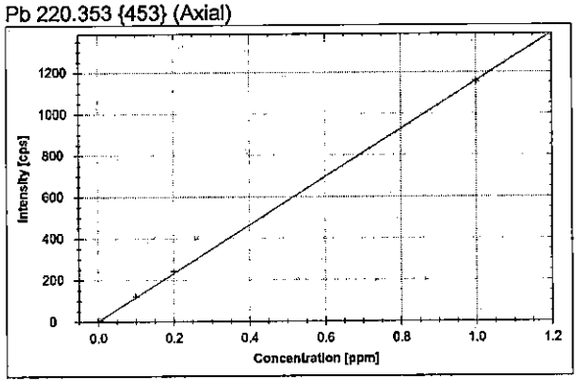
f(x) = 199.1819*x + 2.2969
R^2 = 1.0000
BEC = 0.012 ppm
LoD = 0.0124 ppm

Bi 223.061 {451} (Axial)



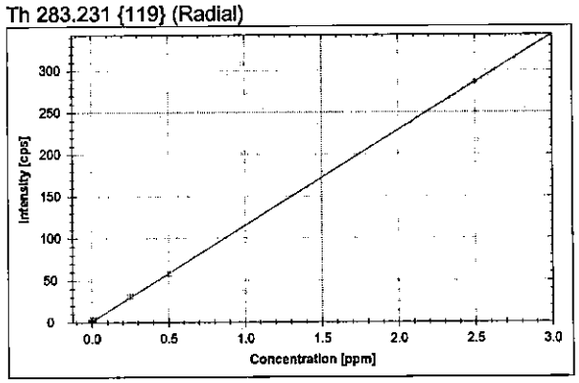
f(x) = 740.4377*x + 6.9321
R^2 = 0.9999
BEC = 0.009 ppm
LoD = 0.0062 ppm

Pb 220.353 {453} (Axial)



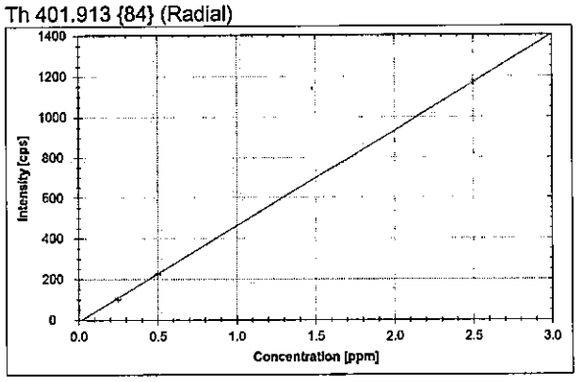
f(x) = 1156.7503*x + 0.5607
R^2 = 0.9999
BEC = 0.000 ppm
LoD = 0.0027 ppm

Th 283.231 {119} (Radial)



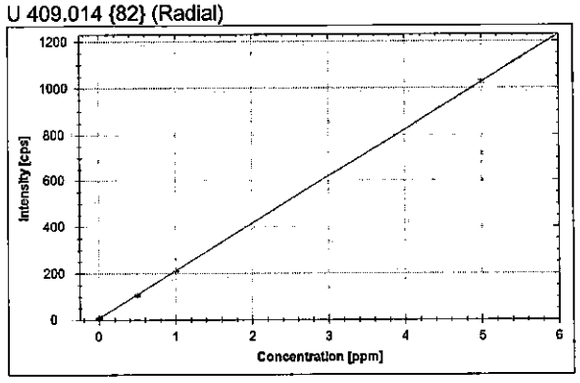
f(x) = 113.9268*x + 1.0301
R^2 = 0.9999
BEC = 0.009 ppm
LoD = 0.0414 ppm

Th 401.913 {84} (Radial)



f(x) = 471.0005*x + -9.3826
R^2 = 1.0000
BEC = -0.020 ppm
LoD = 0.0174 ppm

U 409.014 {82} (Radial)



f(x) = 203.3952*x + 8.0603
R^2 = 1.0000
BEC = 0.040 ppm
LoD = 0.0488 ppm

Calibration Summary

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QTEGRA

Standards

Standard ICAL2
Analysis Date 6/4/2018 10:29:53 AM
Stock Solution ICAL2
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.0259 ppm	1.5 %	0.0200 ppm
As 189.042 {478} (Axial)	0.0094 ppm	4.1 %	0.0100 ppm
Ba 455.403 {74} (Radial)	0.0108 ppm	0.6 %	0.0100 ppm
Ba 493.409 {68} (Radial)	N/A	N/A	N/A
Be 313.042 {108} (Axial)	0.0041 ppm	0.2 %	0.0040 ppm
Ca 315.887 {107} (Radial)	0.0940 ppm	4.3 %	0.1000 ppm
Cd 228.802 {447} (Axial)	0.0020 ppm	2.9 %	0.0020 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.0051 ppm	1.4 %	0.0050 ppm
Co 228.616 {447} (Axial)	0.0052 ppm	0.6 %	0.0050 ppm
Cu 324.754 {104} (Axial)	0.0109 ppm	2.8 %	0.0100 ppm
Fe 259.940 {130} (Radial)	0.0631 ppm	4.9 %	0.0600 ppm
Li 670.784 {50} (Radial)	0.1027 ppm	0.6 %	0.1000 ppm
Mn 257.610 {131} (Axial)	0.0056 ppm	1.3 %	0.0050 ppm
Mo 202.030 {467} (Axial)	0.0206 ppm	1.0 %	0.0200 ppm
Na 589.592 {57} (Radial)	0.5396 ppm	1.2 %	0.5000 ppm
Ni 231.604 {445} (Axial)	0.0208 ppm	0.5 %	0.0200 ppm
K 766.490 {44} (Radial)	0.4244 ppm	3.7 %	0.5000 ppm
Se 196.090 {472} (Axial)	0.0181 ppm	9.0 %	0.0200 ppm
Ag 328.068 {103} (Axial)	0.0000 ppm	1,017.9 %	0.0040 ppm
Sr 407.771 {83} (Radial)	0.0052 ppm	0.2 %	0.0050 ppm
Sn 189.989 {477} (Axial)	0.0204 ppm	2.4 %	0.0200 ppm
Ti 334.941 {101} (Radial)	0.0202 ppm	6.0 %	0.0200 ppm
V 292.402 {115} (Axial)	0.0051 ppm	7.0 %	0.0050 ppm
Zn 213.856 {457} (Axial)	0.0199 ppm	0.3 %	0.0200 ppm
Sc 357.253 {94} (Axial)	100.1260 %		
Sc 188.060 {479} (Axial)	100.4105 %		
Mg 279.079 {121} (Radial)	0.0940 ppm	13.5 %	0.1000 ppm
Tl 190.856 {477} (Axial)	0.0209 ppm	4.1 %	0.0200 ppm
Al 167.079 {502} (Axial)	0.1018 ppm	0.2 %	0.1000 ppm
Sc 227.318 {448} (Axial)	100.1474 %		
B 249.773 {135} (Radial)	0.1051 ppm	2.9 %	0.1000 ppm
Al 396.152 {85} (Radial)	0.1081 ppm	0.6 %	0.1000 ppm
Si 251.611 {134} (Radial)	0.1039 ppm	4.0 %	0.1000 ppm
Bi 223.061 {451} (Axial)	0.0511 ppm	2.7 %	0.0500 ppm
Pb 220.353 {453} (Axial)	0.0062 ppm	4.8 %	0.0060 ppm
Th 283.231 {119} (Radial)	0.0232 ppm	82.1 %	0.0060 ppm
Th 401.913 {84} (Radial)	0.0018 ppm	712.3 %	0.0060 ppm
U 409.014 {82} (Radial)	0.0046 ppm	890.5 %	0.0060 ppm
Y 224.306 {450} (Axial)	100.2473 %		
Sc 361.384 {93} (Radial)	102.6312 %		

Calibration Summary

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QTEGRA

Standards

Standard ICAL3
Analysis Date 6/4/2018 10:35:58 AM
Stock Solution ICAL3
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.1003 ppm	0.9 %	0.1000 ppm
As 189.042 {478} (Axial)	0.0984 ppm	0.5 %	0.1000 ppm
Ba 455.403 {74} (Radial)	0.5006 ppm	0.1 %	0.5000 ppm
Ba 493.409 {68} (Radial)	0.5086 ppm	0.2 %	0.5000 ppm
Be 313.042 {108} (Axial)	0.0998 ppm	0.2 %	0.1000 ppm
Ca 315.887 {107} (Radial)	0.4949 ppm	0.8 %	0.5000 ppm
Cd 228.802 {447} (Axial)	0.1005 ppm	0.1 %	0.1000 ppm
Cr 267.716 {126} (Axial)	N/A	N/A	N/A
Cr 205.560 {464} (Axial)	0.1002 ppm	0.2 %	0.1000 ppm
Co 228.616 {447} (Axial)	0.5129 ppm	0.2 %	0.5000 ppm
Cu 324.754 {104} (Axial)	0.5100 ppm	0.3 %	0.5000 ppm
Fe 259.940 {130} (Radial)	0.5107 ppm	0.4 %	0.5000 ppm
Li 670.784 {50} (Radial)	0.5100 ppm	0.5 %	0.5000 ppm
Mn 257.610 {131} (Axial)	0.1037 ppm	0.1 %	0.1000 ppm
Mo 202.030 {467} (Axial)	0.5073 ppm	0.1 %	0.5000 ppm
Na 589.592 {57} (Radial)	10.6413 ppm	0.2 %	10.0000 ppm
Ni 231.604 {445} (Axial)	0.5166 ppm	0.1 %	0.5000 ppm
K 766.490 {44} (Radial)	10.2600 ppm	0.2 %	10.0000 ppm
Se 196.090 {472} (Axial)	0.4941 ppm	0.3 %	0.5000 ppm
Ag 328.068 {103} (Axial)	0.1019 ppm	0.6 %	0.1000 ppm
Sr 407.771 {83} (Radial)	0.1016 ppm	0.1 %	0.1000 ppm
Sn 189.989 {477} (Axial)	0.1026 ppm	0.5 %	0.1000 ppm
Ti 334.941 {101} (Radial)	0.1010 ppm	1.1 %	0.1000 ppm
V 292.402 {115} (Axial)	0.1007 ppm	0.6 %	0.1000 ppm
Zn 213.856 {457} (Axial)	0.2503 ppm	0.3 %	0.2500 ppm
Sc 357.253 {94} (Axial)	100.4751 %		
Sc 188.060 {479} (Axial)	99.8390 %		
Mg 279.079 {121} (Radial)	0.5044 ppm	3.2 %	0.5000 ppm
Tl 190.856 {477} (Axial)	0.1054 ppm	1.3 %	0.1000 ppm
Al 167.079 {502} (Axial)	0.5098 ppm	0.1 %	0.5000 ppm
Sc 227.318 {448} (Axial)	101.0595 %		
B 249.773 {135} (Radial)	0.5048 ppm	0.3 %	0.5000 ppm
Al 396.152 {85} (Radial)	0.5137 ppm	0.9 %	0.5000 ppm
Si 251.611 {134} (Radial)	0.5047 ppm	1.0 %	0.5000 ppm
Bi 223.061 {451} (Axial)	0.5205 ppm	0.4 %	0.5000 ppm
Pb 220.353 {453} (Axial)	0.1036 ppm	0.3 %	0.1000 ppm
Th 283.231 {119} (Radial)	0.2612 ppm	8.0 %	0.2500 ppm
Th 401.913 {84} (Radial)	0.2408 ppm	5.2 %	0.2500 ppm
U 409.014 {82} (Radial)	0.4762 ppm	5.5 %	0.5000 ppm
Y 224.306 {450} (Axial)	98.4009 %		
Sc 361.384 {93} (Radial)	104.2865 %		

Calibration Summary

6/26/2018 5:57:50 PM

QTEGRA

Standards

Standard ICAL4
Analysis Date 6/4/2018 10:41:52 AM
Stock Solution ICAL4
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.2022 ppm	0.7 %	0.2000 ppm
As 189.042 {478} (Axial)	0.1988 ppm	0.6 %	0.2000 ppm
Ba 455.403 {74} (Radial)	0.9997 ppm	0.2 %	1.0000 ppm
Ba 493.409 {68} (Radial)	1.0206 ppm	0.2 %	1.0000 ppm
Be 313.042 {108} (Axial)	0.2020 ppm	0.2 %	0.2000 ppm
Ca 315.887 {107} (Radial)	1.0080 ppm	0.4 %	1.0000 ppm
Cd 228.802 {447} (Axial)	0.2016 ppm	0.0 %	0.2000 ppm
Cr 267.716 {126} (Axial)	0.2054 ppm	0.6 %	0.2000 ppm
Cr 205.560 {464} (Axial)	0.1999 ppm	0.2 %	0.2000 ppm
Co 228.616 {447} (Axial)	1.0243 ppm	0.0 %	1.0000 ppm
Cu 324.754 {104} (Axial)	1.0266 ppm	0.2 %	1.0000 ppm
Fe 259.940 {130} (Radial)	1.0188 ppm	0.3 %	1.0000 ppm
Li 670.784 {50} (Radial)	1.0157 ppm	0.3 %	1.0000 ppm
Mn 257.610 {131} (Axial)	0.2064 ppm	0.0 %	0.2000 ppm
Mo 202.030 {467} (Axial)	1.0184 ppm	0.1 %	1.0000 ppm
Na 589.592 {57} (Radial)	21.1127 ppm	0.2 %	20.0000 ppm
Ni 231.604 {445} (Axial)	1.0288 ppm	0.1 %	1.0000 ppm
K 766.490 {44} (Radial)	20.5725 ppm	0.2 %	20.0000 ppm
Se 196.090 {472} (Axial)	0.9991 ppm	0.2 %	1.0000 ppm
Ag 328.068 {103} (Axial)	0.2039 ppm	0.2 %	0.2000 ppm
Sr 407.771 {83} (Radial)	0.2034 ppm	0.2 %	0.2000 ppm
Sn 189.989 {477} (Axial)	0.2057 ppm	0.2 %	0.2000 ppm
Ti 334.941 {101} (Radial)	0.2027 ppm	0.5 %	0.2000 ppm
V 292.402 {115} (Axial)	0.2040 ppm	0.3 %	0.2000 ppm
Zn 213.856 {457} (Axial)	0.5042 ppm	0.1 %	0.5000 ppm
Sc 357.253 {94} (Axial)	98.8575 %		
Sc 188.060 {479} (Axial)	98.2177 %		
Mg 279.079 {121} (Radial)	1.0054 ppm	1.7 %	1.0000 ppm
Tl 190.856 {477} (Axial)	0.2103 ppm	0.7 %	0.2000 ppm
Al 167.079 {502} (Axial)	0.9949 ppm	0.2 %	1.0000 ppm
Sc 227.318 {448} (Axial)	100.8702 %		
B 249.773 {135} (Radial)	1.0149 ppm	0.1 %	1.0000 ppm
Al 396.152 {85} (Radial)	1.0249 ppm	0.6 %	1.0000 ppm
Si 251.611 {134} (Radial)	1.0090 ppm	0.9 %	1.0000 ppm
Bi 223.061 {451} (Axial)	1.0352 ppm	0.4 %	1.0000 ppm
Pb 220.353 {453} (Axial)	0.2066 ppm	0.4 %	0.2000 ppm
Th 283.231 {119} (Radial)	0.4994 ppm	4.1 %	0.5000 ppm
Th 401.913 {84} (Radial)	0.4943 ppm	1.8 %	0.5000 ppm
U 409.014 {82} (Radial)	0.9858 ppm	1.5 %	1.0000 ppm
Y 224.306 {450} (Axial)	97.1222 %		
Sc 361.384 {93} (Radial)	104.0919 %		

Calibration Summary

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QTEGRA

Standards

Standard ICAL5
Analysis Date 6/4/2018 10:47:41 AM
Stock Solution ICAL5
Dilution Factor 1

Category	Concentration average	Concentration RSD	Standard Concentration
Sb 206.833 {463} (Axial)	0.9994 ppm	0.5 %	1.0000 ppm
As 189.042 {478} (Axial)	1.0004 ppm	0.2 %	1.0000 ppm
Ba 455.403 {74} (Radial)	N/A	N/A	N/A
Ba 493.409 {68} (Radial)	4.9950 ppm	0.3 %	5.0000 ppm
Be 313.042 {108} (Axial)	0.9996 ppm	0.4 %	1.0000 ppm
Ca 315.887 {107} (Radial)	4.9990 ppm	1.0 %	5.0000 ppm
Cd 228.802 {447} (Axial)	0.9996 ppm	0.2 %	1.0000 ppm
Cr 267.716 {126} (Axial)	0.9989 ppm	0.3 %	1.0000 ppm
Cr 205.560 {464} (Axial)	N/A	N/A	N/A
Co 228.616 {447} (Axial)	4.9939 ppm	0.2 %	5.0000 ppm
Cu 324.754 {104} (Axial)	4.9937 ppm	0.2 %	5.0000 ppm
Fe 259.940 {130} (Radial)	4.9951 ppm	0.5 %	5.0000 ppm
Li 670.784 {50} (Radial)	4.9958 ppm	0.3 %	5.0000 ppm
Mn 257.610 {131} (Axial)	0.9983 ppm	0.2 %	1.0000 ppm
Mo 202.030 {467} (Axial)	4.9956 ppm	0.2 %	5.0000 ppm
Na 589.592 {57} (Radial)	99.7131 ppm	0.3 %	100.0000 ppm
Ni 231.604 {445} (Axial)	4.9926 ppm	0.3 %	5.0000 ppm
K 766.490 {44} (Radial)	99.8599 ppm	0.5 %	100.0000 ppm
Se 196.090 {472} (Axial)	5.0008 ppm	0.3 %	5.0000 ppm
Ag 328.068 {103} (Axial)	0.9990 ppm	0.5 %	1.0000 ppm
Sr 407.771 {83} (Radial)	0.9992 ppm	0.3 %	1.0000 ppm
Sn 189.989 {477} (Axial)	0.9986 ppm	0.3 %	1.0000 ppm
Tl 334.941 {101} (Radial)	0.9994 ppm	0.5 %	1.0000 ppm
V 292.402 {115} (Axial)	0.9991 ppm	0.3 %	1.0000 ppm
Zn 213.856 {457} (Axial)	2.4991 ppm	0.3 %	2.5000 ppm
Sc 357.253 {94} (Axial)	96.9837 %		
Sc 188.060 {479} (Axial)	93.3956 %		
Mg 279.079 {121} (Radial)	4.9986 ppm	1.1 %	5.0000 ppm
Tl 190.856 {477} (Axial)	0.9974 ppm	0.3 %	1.0000 ppm
Al 167.079 {502} (Axial)	N/A	N/A	N/A
Sc 227.318 {448} (Axial)	107.7212 %		
B 249.773 {135} (Radial)	4.9964 ppm	0.4 %	5.0000 ppm
Al 396.152 {85} (Radial)	4.9935 ppm	0.2 %	5.0000 ppm
Si 251.611 {134} (Radial)	4.9977 ppm	0.4 %	5.0000 ppm
Bi 223.061 {451} (Axial)	4.9909 ppm	0.2 %	5.0000 ppm
Pb 220.353 {453} (Axial)	0.9983 ppm	0.3 %	1.0000 ppm
Th 283.231 {119} (Radial)	2.4990 ppm	0.8 %	2.5000 ppm
Th 401.913 {84} (Radial)	2.5021 ppm	0.6 %	2.5000 ppm
U 409.014 {82} (Radial)	5.0052 ppm	0.6 %	5.0000 ppm
Y 224.306 {450} (Axial)	94.0856 %		
Sc 361.384 {93} (Radial)	103.7093 %		

Simple sample report

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QTEGRA

ICAL1

Sample Type BLK Analysis Date 6/4/2018 10:23:40 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0000 ppm	-9.6 %
As 189.042 {478} (Axial)	0.0000 ppm	0.1 %
Ba 455.403 {74} (Radial)	0.0000 ppm	2.1 %
Ba 493.409 {68} (Radial)	0.0000 ppm	0.0 %
Be 313.042 {108} (Axial)	0.0000 ppm	0.0 %
Ca 315.887 {107} (Radial)	0.0000 ppm	0.1 %
Cd 228.802 {447} (Axial)	0.0000 ppm	0.0 %
Cr 267.716 {126} (Axial)	0.0000 ppm	1.3 %
Cr 205.560 {464} (Axial)	0.0000 ppm	0.2 %
Co 228.616 {447} (Axial)	0.0000 ppm	-0.3 %
Cu 324.754 {104} (Axial)	0.0000 ppm	0.0 %
Fe 259.940 {130} (Radial)	0.0000 ppm	0.7 %
Li 670.784 {50} (Radial)	0.0000 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.0000 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.0000 ppm	-1.0 %
Na 589.592 {57} (Radial)	0.0000 ppm	0.0 %
Ni 231.604 {445} (Axial)	0.0000 ppm	-1.0 %
K 766.490 {44} (Radial)	0.0000 ppm	0.1 %
Se 196.090 {472} (Axial)	0.0000 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.0000 ppm	0.0 %
Sr 407.771 {83} (Radial)	0.0000 ppm	0.5 %
Sn 189.989 {477} (Axial)	0.0000 ppm	1.3 %
Ti 334.941 {101} (Radial)	0.0000 ppm	-0.8 %
V 292.402 {115} (Axial)	0.0000 ppm	0.3 %
Zn 213.856 {457} (Axial)	0.0000 ppm	0.1 %
Sc 357.253 {94} (Axial)	100.0000 %	
Sc 188.060 {479} (Axial)	100.0000 %	
Mg 279.079 {121} (Radial)	0.0000 ppm	10.6 %
Tl 190.856 {477} (Axial)	0.0000 ppm	-2.6 %
Al 167.079 {502} (Axial)	0.0000 ppm	0.0 %
Sc 227.318 {448} (Axial)	100.0000 %	
B 249.773 {135} (Radial)	0.0000 ppm	0.4 %
Al 396.152 {85} (Radial)	0.0000 ppm	0.7 %
Si 251.611 {134} (Radial)	0.0000 ppm	0.4 %
Bi 223.061 {451} (Axial)	0.0000 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.0000 ppm	1.9 %
Th 283.231 {119} (Radial)	0.0000 ppm	1.5 %
Th 401.913 {84} (Radial)	0.0000 ppm	-0.3 %
U 409.014 {82} (Radial)	0.0000 ppm	0.4 %
Y 224.306 {450} (Axial)	100.0000 %	
Sc 361.384 {93} (Radial)	100.0000 %	

Simple sample report

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QTEGRA

ICAL2

Sample Type STD Analysis Date 6/4/2018 10:29:53 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0259 ppm	1.5 %
As 189.042 {478} (Axial)	0.0094 ppm	4.1 %
Ba 455.403 {74} (Radial)	0.0108 ppm	0.6 %
Ba 493.409 {68} (Radial)	N/A	N/A
Be 313.042 {108} (Axial)	0.0041 ppm	0.2 %
Ca 315.887 {107} (Radial)	0.0940 ppm	4.3 %
Cd 228.802 {447} (Axial)	0.0020 ppm	2.9 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.0051 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0052 ppm	0.6 %
Cu 324.754 {104} (Axial)	0.0109 ppm	2.8 %
Fe 259.940 {130} (Radial)	0.0631 ppm	4.9 %
Li 670.784 {50} (Radial)	0.1027 ppm	0.6 %
Mn 257.610 {131} (Axial)	0.0056 ppm	1.3 %
Mo 202.030 {467} (Axial)	0.0206 ppm	1.0 %
Na 589.592 {57} (Radial)	0.5396 ppm	1.2 %
Ni 231.604 {445} (Axial)	0.0208 ppm	0.5 %
K 766.490 {44} (Radial)	0.4244 ppm	3.7 %
Se 196.090 {472} (Axial)	0.0181 ppm	9.0 %
Ag 328.068 {103} (Axial)	0.0000 ppm	1,017.9 %
Sr 407.771 {83} (Radial)	0.0052 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.0204 ppm	2.4 %
Ti 334.941 {101} (Radial)	0.0202 ppm	6.0 %
V 292.402 {115} (Axial)	0.0051 ppm	7.0 %
Zn 213.856 {457} (Axial)	0.0199 ppm	0.3 %
Sc 357.253 {94} (Axial)	100.1260 %	
Sc 188.060 {479} (Axial)	100.4105 %	
Mg 279.079 {121} (Radial)	0.0940 ppm	13.5 %
Tl 190.856 {477} (Axial)	0.0209 ppm	4.1 %
Al 167.079 {502} (Axial)	0.1018 ppm	0.2 %
Sc 227.318 {448} (Axial)	100.1474 %	
B 249.773 {135} (Radial)	0.1051 ppm	2.9 %
Al 396.152 {85} (Radial)	0.1081 ppm	0.6 %
Si 251.611 {134} (Radial)	0.1039 ppm	4.0 %
Bi 223.061 {451} (Axial)	0.0511 ppm	2.7 %
Pb 220.353 {453} (Axial)	0.0062 ppm	4.8 %
Th 283.231 {119} (Radial)	0.0232 ppm	82.1 %
Th 401.913 {84} (Radial)	0.0018 ppm	712.3 %
U 409.014 {82} (Radial)	0.0046 ppm	890.5 %
Y 224.306 {450} (Axial)	100.2473 %	
Sc 361.384 {93} (Radial)	102.6312 %	

Simple sample report

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QTEGRA

ICAL3

Sample Type STD Analysis Date 6/4/2018 10:35:58 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.1003 ppm	0.9 %
As 189.042 {478} (Axial)	0.0984 ppm	0.5 %
Ba 455.403 {74} (Radial)	0.5006 ppm	0.1 %
Ba 493.409 {68} (Radial)	0.5086 ppm	0.2 %
Be 313.042 {108} (Axial)	0.0998 ppm	0.2 %
Ca 315.887 {107} (Radial)	0.4949 ppm	0.8 %
Cd 228.802 {447} (Axial)	0.1005 ppm	0.1 %
Cr 267.716 {126} (Axial)	N/A	N/A
Cr 205.560 {464} (Axial)	0.1002 ppm	0.2 %
Co 228.616 {447} (Axial)	0.5129 ppm	0.2 %
Cu 324.754 {104} (Axial)	0.5100 ppm	0.3 %
Fe 259.940 {130} (Radial)	0.5107 ppm	0.4 %
Li 670.784 {50} (Radial)	0.5100 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.1037 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.5073 ppm	0.1 %
Na 589.592 {57} (Radial)	10.6413 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.5166 ppm	0.1 %
K 766.490 {44} (Radial)	10.2600 ppm	0.2 %
Se 196.090 {472} (Axial)	0.4941 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.1019 ppm	0.6 %
Sr 407.771 {83} (Radial)	0.1016 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.1026 ppm	0.5 %
Ti 334.941 {101} (Radial)	0.1010 ppm	1.1 %
V 292.402 {115} (Axial)	0.1007 ppm	0.6 %
Zn 213.856 {457} (Axial)	0.2503 ppm	0.3 %
Sc 357.253 {94} (Axial)	100.4751 %	
Sc 188.060 {479} (Axial)	99.8390 %	
Mg 279.079 {121} (Radial)	0.5044 ppm	3.2 %
Tl 190.856 {477} (Axial)	0.1054 ppm	1.3 %
Al 167.079 {502} (Axial)	0.5098 ppm	0.1 %
Sc 227.318 {448} (Axial)	101.0595 %	
B 249.773 {135} (Radial)	0.5048 ppm	0.3 %
Al 396.152 {85} (Radial)	0.5137 ppm	0.9 %
Si 251.611 {134} (Radial)	0.5047 ppm	1.0 %
Bi 223.061 {451} (Axial)	0.5205 ppm	0.4 %
Pb 220.353 {453} (Axial)	0.1036 ppm	0.3 %
Th 283.231 {119} (Radial)	0.2612 ppm	8.0 %
Th 401.913 {84} (Radial)	0.2408 ppm	5.2 %
U 409.014 {82} (Radial)	0.4762 ppm	5.5 %
Y 224.306 {450} (Axial)	98.4009 %	
Sc 361.384 {93} (Radial)	104.2865 %	

Simple sample report

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QTEGRA

ICAL4

Sample Type STD Analysis Date 6/4/2018 10:41:52 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.2022 ppm	0.7 %
As 189.042 {478} (Axial)	0.1988 ppm	0.6 %
Ba 455.403 {74} (Radial)	0.9997 ppm	0.2 %
Ba 493.409 {68} (Radial)	1.0206 ppm	0.2 %
Be 313.042 {108} (Axial)	0.2020 ppm	0.2 %
Ca 315.887 {107} (Radial)	1.0080 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.2016 ppm	0.0 %
Cr 267.716 {126} (Axial)	0.2054 ppm	0.6 %
Cr 205.560 {464} (Axial)	0.1999 ppm	0.2 %
Co 228.616 {447} (Axial)	1.0243 ppm	0.0 %
Cu 324.754 {104} (Axial)	1.0266 ppm	0.2 %
Fe 259.940 {130} (Radial)	1.0188 ppm	0.3 %
Li 670.784 {50} (Radial)	1.0157 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.2064 ppm	0.0 %
Mo 202.030 {467} (Axial)	1.0184 ppm	0.1 %
Na 589.592 {57} (Radial)	21.1127 ppm	0.2 %
Ni 231.604 {445} (Axial)	1.0288 ppm	0.1 %
K 766.490 {44} (Radial)	20.5725 ppm	0.2 %
Se 196.090 {472} (Axial)	0.9991 ppm	0.2 %
Ag 328.068 {103} (Axial)	0.2039 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.2034 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.2057 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.2027 ppm	0.5 %
V 292.402 {115} (Axial)	0.2040 ppm	0.3 %
Zn 213.856 {457} (Axial)	0.5042 ppm	0.1 %
Sc 357.253 {94} (Axial)	98.8575 %	
Sc 188.060 {479} (Axial)	98.2177 %	
Mg 279.079 {121} (Radial)	1.0054 ppm	1.7 %
Tl 190.856 {477} (Axial)	0.2103 ppm	0.7 %
Al 167.079 {502} (Axial)	0.9949 ppm	0.2 %
Sc 227.318 {448} (Axial)	100.8702 %	
B 249.773 {135} (Radial)	1.0149 ppm	0.1 %
Al 396.152 {85} (Radial)	1.0249 ppm	0.6 %
Si 251.611 {134} (Radial)	1.0090 ppm	0.9 %
Bi 223.061 {451} (Axial)	1.0352 ppm	0.4 %
Pb 220.353 {453} (Axial)	0.2066 ppm	0.4 %
Th 283.231 {119} (Radial)	0.4994 ppm	4.1 %
Th 401.913 {84} (Radial)	0.4943 ppm	1.8 %
U 409.014 {82} (Radial)	0.9858 ppm	1.5 %
Y 224.306 {450} (Axial)	97.1222 %	
Sc 361.384 {93} (Radial)	104.0919 %	

Simple sample report

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QTEGRA

ICAL5

Sample Type STD Analysis Date 6/4/2018 10:47:41 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.9994 ppm	0.5 %
As 189.042 {478} (Axial)	1.0004 ppm	0.2 %
Ba 455.403 {74} (Radial)	N/A	N/A
Ba 493.409 {68} (Radial)	4.9950 ppm	0.3 %
Be 313.042 {108} (Axial)	0.9996 ppm	0.4 %
Ca 315.887 {107} (Radial)	4.9990 ppm	1.0 %
Cd 228.802 {447} (Axial)	0.9996 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.9989 ppm	0.3 %
Cr 205.560 {464} (Axial)	N/A	N/A
Co 228.616 {447} (Axial)	4.9939 ppm	0.2 %
Cu 324.754 {104} (Axial)	4.9937 ppm	0.2 %
Fe 259.940 {130} (Radial)	4.9951 ppm	0.5 %
Li 670.784 {50} (Radial)	4.9958 ppm	0.3 %
Mn 257.610 {131} (Axial)	0.9983 ppm	0.2 %
Mo 202.030 {467} (Axial)	4.9956 ppm	0.2 %
Na 589.592 {57} (Radial)	99.7131 ppm	0.3 %
Ni 231.604 {445} (Axial)	4.9926 ppm	0.3 %
K 766.490 {44} (Radial)	99.8599 ppm	0.5 %
Se 196.090 {472} (Axial)	5.0008 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.9990 ppm	0.5 %
Sr 407.771 {83} (Radial)	0.9992 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.9986 ppm	0.3 %
Ti 334.941 {101} (Radial)	0.9994 ppm	0.5 %
V 292.402 {115} (Axial)	0.9991 ppm	0.3 %
Zn 213.856 {457} (Axial)	2.4991 ppm	0.3 %
Sc 357.253 {94} (Axial)	96.9837 %	
Sc 188.060 {479} (Axial)	93.3956 %	
Mg 279.079 {121} (Radial)	4.9986 ppm	1.1 %
Tl 190.856 {477} (Axial)	0.9974 ppm	0.3 %
Al 167.079 {502} (Axial)	N/A	N/A
Sc 227.318 {448} (Axial)	107.7212 %	
B 249.773 {135} (Radial)	4.9964 ppm	0.4 %
Al 396.152 {85} (Radial)	4.9935 ppm	0.2 %
Si 251.611 {134} (Radial)	4.9977 ppm	0.4 %
Bi 223.061 {451} (Axial)	4.9909 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.9983 ppm	0.3 %
Th 283.231 {119} (Radial)	2.4990 ppm	0.8 %
Th 401.913 {84} (Radial)	2.5021 ppm	0.6 %
U 409.014 {82} (Radial)	5.0052 ppm	0.6 %
Y 224.306 {450} (Axial)	94.0856 %	
Sc 361.384 {93} (Radial)	103.7093 %	

Simple sample report

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QTEGRA

ICV/QCS

Sample Type QC Analysis Date 6/4/2018 10:53:45 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.9734 ppm	0.4 %
As 189.042 {478} (Axial)	0.9549 ppm	0.1 %
Ba 455.403 {74} (Radial)	0.9687 ppm	0.1 %
Ba 493.409 {68} (Radial)	0.9886 ppm	0.2 %
Be 313.042 {108} (Axial)	0.9805 ppm	0.3 %
Ca 315.887 {107} (Radial)	5.9154 ppm	0.6 %
Cd 228.802 {447} (Axial)	0.9809 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.9783 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.9544 ppm	0.1 %
Co 228.616 {447} (Axial)	0.9788 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.9902 ppm	0.2 %
Fe 259.940 {130} (Radial)	0.9906 ppm	0.3 %
Li 670.784 {50} (Radial)	1.0154 ppm	0.2 %
Mn 257.610 {131} (Axial)	1.0054 ppm	0.1 %
Mo 202.030 {467} (Axial)	0.9946 ppm	0.0 %
Na 589.592 {57} (Radial)	21.7205 ppm	0.2 %
Ni 231.604 {445} (Axial)	0.9986 ppm	0.2 %
K 766.490 {44} (Radial)	20.8856 ppm	0.3 %
Se 196.090 {472} (Axial)	0.9827 ppm	0.1 %
Ag 328.068 {103} (Axial)	1.0174 ppm	0.1 %
Sr 407.771 {83} (Radial)	0.9865 ppm	0.1 %
Sn 189.989 {477} (Axial)	0.9908 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.9804 ppm	0.4 %
V 292.402 {115} (Axial)	0.9952 ppm	0.2 %
Zn 213.856 {457} (Axial)	0.9660 ppm	0.1 %
Sc 357.253 {94} (Axial)	98.4736 %	0.2 %
Sc 188.060 {479} (Axial)	97.7458 %	0.1 %
Mg 279.079 {121} (Radial)	0.9708 ppm	4.4 %
Tl 190.856 {477} (Axial)	1.0071 ppm	0.1 %
Al 167.079 {502} (Axial)	0.9651 ppm	0.1 %
Sc 227.318 {448} (Axial)	97.4692 %	0.1 %
B 249.773 {135} (Radial)	1.0059 ppm	0.3 %
Al 396.152 {85} (Radial)	0.9959 ppm	0.8 %
Si 251.611 {134} (Radial)	1.0154 ppm	0.8 %
Bi 223.061 {451} (Axial)	1.0424 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.9993 ppm	0.1 %
Th 283.231 {119} (Radial)	0.0140 ppm	71.7 %
Th 401.913 {84} (Radial)	0.0150 ppm	66.1 %
U 409.014 {82} (Radial)	0.0149 ppm	223.5 %
Y 224.306 {450} (Axial)	96.7077 %	0.1 %
Sc 361.384 {93} (Radial)	105.1233 %	0.4 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

ICB

Sample Type UNKNOWN Analysis Date 6/4/2018 10:59:43 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0009 ppm	103.7 %
As 189.042 {478} (Axial)	-0.0002 ppm	316.2 %
Ba 455.403 {74} (Radial)	0.0002 ppm	220.8 %
Ba 493.409 {68} (Radial)	0.0010 ppm	26.1 %
Be 313.042 {108} (Axial)	0.0002 ppm	11.9 %
Ca 315.887 {107} (Radial)	-0.0058 ppm	95.4 %
Cd 228.802 {447} (Axial)	0.0001 ppm	83.5 %
Cr 267.716 {126} (Axial)	0.0002 ppm	180.5 %
Cr 205.560 {464} (Axial)	0.0000 ppm	585.7 %
Co 228.616 {447} (Axial)	0.0002 ppm	83.3 %
Cu 324.754 {104} (Axial)	0.0007 ppm	20.1 %
Fe 259.940 {130} (Radial)	-0.0001 ppm	1,753.9 %
Li 670.784 {50} (Radial)	-0.0020 ppm	42.3 %
Mn 257.610 {131} (Axial)	0.0001 ppm	13.3 %
Mo 202.030 {467} (Axial)	0.0002 ppm	54.7 %
Na 589.592 {57} (Radial)	0.0040 ppm	149.6 %
Ni 231.604 {445} (Axial)	-0.0001 ppm	295.0 %
K 766.490 {44} (Radial)	-0.1172 ppm	25.6 %
Se 196.090 {472} (Axial)	0.0004 ppm	649.2 %
Ag 328.068 {103} (Axial)	-0.0004 ppm	159.4 %
Sr 407.771 {83} (Radial)	0.0002 ppm	55.4 %
Sn 189.989 {477} (Axial)	0.0001 ppm	193.2 %
Ti 334.941 {101} (Radial)	0.0008 ppm	15.1 %
V 292.402 {115} (Axial)	-0.0006 ppm	57.4 %
Zn 213.856 {457} (Axial)	-0.0014 ppm	4.1 %
Sc 357.253 {94} (Axial)	97.0497 %	0.1 %
Sc 188.060 {479} (Axial)	98.3022 %	0.1 %
Mg 279.079 {121} (Radial)	-0.0023 ppm	322.1 %
Tl 190.856 {477} (Axial)	0.0005 ppm	131.3 %
Al 167.079 {502} (Axial)	-0.0003 ppm	53.6 %
Sc 227.318 {448} (Axial)	97.6836 %	0.1 %
B 249.773 {135} (Radial)	0.0070 ppm	20.1 %
Al 396.152 {85} (Radial)	-0.0055 ppm	79.8 %
Si 251.611 {134} (Radial)	-0.0031 ppm	259.5 %
Bi 223.061 {451} (Axial)	0.0003 ppm	619.8 %
Pb 220.353 {453} (Axial)	0.0001 ppm	320.8 %
Th 283.231 {119} (Radial)	0.0122 ppm	66.9 %
Th 401.913 {84} (Radial)	0.0033 ppm	132.1 %
U 409.014 {82} (Radial)	0.0081 ppm	129.0 %
Y 224.306 {450} (Axial)	97.5606 %	0.1 %
Sc 361.384 {93} (Radial)	103.5164 %	0.3 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 6/4/2018 11:05:57 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0065 ppm	13.8 %
As 189.042 {478} (Axial)	0.0045 ppm	23.8 %
Ba 455.403 {74} (Radial)	0.0056 ppm	3.9 %
Ba 493.409 {68} (Radial)	0.0058 ppm	2.4 %
Be 313.042 {108} (Axial)	0.0022 ppm	0.9 %
Ca 315.887 {107} (Radial)	0.5023 ppm	1.2 %
Cd 228.802 {447} (Axial)	0.0103 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.0056 ppm	2.3 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0053 ppm	1.7 %
Cu 324.754 {104} (Axial)	0.0118 ppm	2.2 %
Fe 259.940 {130} (Radial)	0.0836 ppm	2.6 %
Li 670.784 {50} (Radial)	0.0080 ppm	7.0 %
Mn 257.610 {131} (Axial)	0.0055 ppm	1.0 %
Mo 202.030 {467} (Axial)	0.0053 ppm	2.6 %
Na 589.592 {57} (Radial)	0.2075 ppm	3.1 %
Ni 231.604 {445} (Axial)	0.0054 ppm	3.3 %
K 766.490 {44} (Radial)	0.0212 ppm	46.6 %
Se 196.090 {472} (Axial)	0.0092 ppm	6.8 %
Ag 328.068 {103} (Axial)	0.0052 ppm	6.3 %
Sr 407.771 {83} (Radial)	0.0053 ppm	2.0 %
Sn 189.989 {477} (Axial)	0.0104 ppm	1.5 %
Ti 334.941 {101} (Radial)	0.0043 ppm	15.7 %
V 292.402 {115} (Axial)	0.0049 ppm	5.2 %
Zn 213.856 {457} (Axial)	0.0091 ppm	1.4 %
Sc 357.253 {94} (Axial)	97.7800 %	0.3 %
Sc 188.060 {479} (Axial)	98.8345 %	0.1 %
Mg 279.079 {121} (Radial)	0.2127 ppm	8.2 %
Tl 190.856 {477} (Axial)	0.0108 ppm	7.3 %
Al 167.079 {502} (Axial)	0.0087 ppm	2.3 %
Sc 227.318 {448} (Axial)	98.2446 %	0.2 %
B 249.773 {135} (Radial)	0.0253 ppm	11.6 %
Al 396.152 {85} (Radial)	0.0143 ppm	49.6 %
Si 251.611 {134} (Radial)	0.4446 ppm	1.1 %
Bi 223.061 {451} (Axial)	-0.0015 ppm	31.2 %
Pb 220.353 {453} (Axial)	0.0045 ppm	8.7 %
Th 283.231 {119} (Radial)	0.0233 ppm	19.8 %
Th 401.913 {84} (Radial)	0.0116 ppm	78.2 %
U 409.014 {82} (Radial)	0.0353 ppm	60.2 %
Y 224.306 {450} (Axial)	98.3728 %	0.2 %
Sc 361.384 {93} (Radial)	103.8540 %	0.2 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

ICVLL

Sample Type QC Analysis Date 6/4/2018 11:12:10 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0054 ppm	13.4 %
As 189.042 {478} (Axial)	0.0040 ppm	15.0 %
Ba 455.403 {74} (Radial)	0.0056 ppm	6.3 %
Ba 493.409 {68} (Radial)	0.0059 ppm	8.2 %
Be 313.042 {108} (Axial)	0.0021 ppm	2.3 %
Ca 315.887 {107} (Radial)	0.4989 ppm	1.1 %
Cd 228.802 {447} (Axial)	0.0102 ppm	1.0 %
Cr 267.716 {126} (Axial)	0.0053 ppm	5.0 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.7 %
Co 228.616 {447} (Axial)	0.0052 ppm	1.7 %
Cu 324.754 {104} (Axial)	0.0120 ppm	5.9 %
Fe 259.940 {130} (Radial)	0.0848 ppm	3.4 %
Li 670.784 {50} (Radial)	0.0060 ppm	12.2 %
Mn 257.610 {131} (Axial)	0.0055 ppm	0.9 %
Mo 202.030 {467} (Axial)	0.0052 ppm	2.3 %
Na 589.592 {57} (Radial)	0.2062 ppm	3.0 %
Ni 231.604 {445} (Axial)	0.0055 ppm	3.3 %
K 766.490 {44} (Radial)	-0.0075 ppm	140.0 %
Se 196.090 {472} (Axial)	0.0086 ppm	22.1 %
Ag 328.068 {103} (Axial)	0.0057 ppm	2.0 %
Sr 407.771 {83} (Radial)	0.0052 ppm	0.6 %
Sn 189.989 {477} (Axial)	0.0104 ppm	4.9 %
Ti 334.941 {101} (Radial)	0.0049 ppm	13.1 %
V 292.402 {115} (Axial)	0.0050 ppm	3.8 %
Zn 213.856 {457} (Axial)	0.0090 ppm	0.5 %
Sc 357.253 {94} (Axial)	97.9633 %	0.3 %
Sc 188.060 {479} (Axial)	98.9212 %	0.1 %
Mg 279.079 {121} (Radial)	0.2038 ppm	8.2 %
Tl 190.856 {477} (Axial)	0.0111 ppm	3.4 %
Al 167.079 {502} (Axial)	0.0085 ppm	2.3 %
Sc 227.318 {448} (Axial)	98.3251 %	0.1 %
B 249.773 {135} (Radial)	0.0256 ppm	10.3 %
Al 396.152 {85} (Radial)	0.0029 ppm	246.7 %
Si 251.611 {134} (Radial)	0.4325 ppm	1.6 %
Bi 223.061 {451} (Axial)	-0.0012 ppm	169.5 %
Pb 220.353 {453} (Axial)	0.0046 ppm	6.1 %
Th 283.231 {119} (Radial)	0.0125 ppm	92.4 %
Th 401.913 {84} (Radial)	0.0081 ppm	113.9 %
U 409.014 {82} (Radial)	0.0347 ppm	76.6 %
Y 224.306 {450} (Axial)	98.3828 %	0.1 %
Sc 361.384 {93} (Radial)	104.5589 %	0.4 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

ICSAB

Sample Type QC Analysis Date 6/4/2018 11:18:21 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0023 ppm	33.0 %
As 189.042 {478} (Axial)	2.7224 ppm	0.1 %
Ba 455.403 {74} (Radial)	0.8234 ppm	0.4 %
Ba 493.409 {68} (Radial)	0.8446 ppm	0.4 %
Be 313.042 {108} (Axial)	0.2850 ppm	0.2 %
Ca 315.887 {107} (Radial)	155.8714 ppm	0.5 %
Cd 228.802 {447} (Axial)	0.8600 ppm	0.2 %
Cr 267.716 {126} (Axial)	0.8233 ppm	0.4 %
Cr 205.560 {464} (Axial)	0.8077 ppm	0.0 %
Co 228.616 {447} (Axial)	0.8023 ppm	0.1 %
Cu 324.754 {104} (Axial)	0.8668 ppm	0.4 %
Fe 259.940 {130} (Radial)	131.1827 ppm	0.3 %
Li 670.784 {50} (Radial)	-0.0014 ppm	-83.8 %
Mn 257.610 {131} (Axial)	0.5530 ppm	0.2 %
Mo 202.030 {467} (Axial)	-0.0001 ppm	290.0 %
Na 589.592 {57} (Radial)	28.5424 ppm	0.3 %
Ni 231.604 {445} (Axial)	0.8038 ppm	0.1 %
K 766.490 {44} (Radial)	57.5721 ppm	0.3 %
Se 196.090 {472} (Axial)	1.4018 ppm	0.4 %
Ag 328.068 {103} (Axial)	0.8798 ppm	0.2 %
Sr 407.771 {83} (Radial)	-0.0065 ppm	1.4 %
Sn 189.989 {477} (Axial)	-0.0036 ppm	10.2 %
Ti 334.941 {101} (Radial)	0.0044 ppm	17.7 %
V 292.402 {115} (Axial)	0.8648 ppm	0.3 %
Zn 213.856 {457} (Axial)	0.8409 ppm	0.1 %
Sc 357.253 {94} (Axial)	92.7473 %	0.3 %
Sc 188.060 {479} (Axial)	87.2603 %	0.2 %
Mg 279.079 {121} (Radial)	78.6011 ppm	0.5 %
Tl 190.856 {477} (Axial)	2.6742 ppm	0.1 %
Al 167.079 {502} (Axial)	12.7109 ppm	0.2 %
Sc 227.318 {448} (Axial)	86.7038 %	0.1 %
B 249.773 {135} (Radial)	0.2041 ppm	1.4 %
Al 396.152 {85} (Radial)	31.4178 ppm	0.7 %
Si 251.611 {134} (Radial)	-0.0137 ppm	25.5 %
Bi 223.061 {451} (Axial)	0.0091 ppm	10.0 %
Pb 220.353 {453} (Axial)	2.6640 ppm	0.2 %
Th 283.231 {119} (Radial)	0.1938 ppm	13.2 %
Th 401.913 {84} (Radial)	0.0080 ppm	202.5 %
U 409.014 {82} (Radial)	0.0473 ppm	65.7 %
Y 224.306 {450} (Axial)	90.3203 %	0.2 %
Sc 361.384 {93} (Radial)	103.1751 %	0.6 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/4/2018 11:24:14 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.5057 ppm	0.2 %
As 189.042 {478} (Axial)	0.4995 ppm	0.1 %
Ba 455.403 {74} (Radial)	2.4741 ppm	0.3 %
Ba 493.409 {68} (Radial)	2.5303 ppm	0.3 %
Be 313.042 {108} (Axial)	0.5097 ppm	0.3 %
Ca 315.887 {107} (Radial)	2.4839 ppm	0.3 %
Cd 228.802 {447} (Axial)	0.5063 ppm	0.0 %
Cr 267.716 {126} (Axial)	0.5029 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.4924 ppm	0.1 %
Co 228.616 {447} (Axial)	2.5399 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.5718 ppm	0.2 %
Fe 259.940 {130} (Radial)	2.5357 ppm	0.7 %
Li 670.784 {50} (Radial)	2.4918 ppm	0.5 %
Mn 257.610 {131} (Axial)	0.5085 ppm	0.2 %
Mo 202.030 {467} (Axial)	2.5207 ppm	0.1 %
Na 589.592 {57} (Radial)	51.0005 ppm	0.2 %
Ni 231.604 {445} (Axial)	2.5289 ppm	0.1 %
K 766.490 {44} (Radial)	50.2683 ppm	0.3 %
Se 196.090 {472} (Axial)	2.5278 ppm	0.3 %
Ag 328.068 {103} (Axial)	0.5043 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.5011 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.5060 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.4935 ppm	0.7 %
V 292.402 {115} (Axial)	0.5120 ppm	0.4 %
Zn 213.856 {457} (Axial)	1.2659 ppm	0.0 %
Sc 357.253 {94} (Axial)	95.1999 %	0.3 %
Sc 188.060 {479} (Axial)	93.8856 %	0.3 %
Mg 279.079 {121} (Radial)	2.4817 ppm	1.2 %
Tl 190.856 {477} (Axial)	0.5147 ppm	0.1 %
Al 167.079 {502} (Axial)	2.3294 ppm	0.2 %
Sc 227.318 {448} (Axial)	100.5975 %	0.1 %
B 249.773 {135} (Radial)	2.4923 ppm	0.7 %
Al 396.152 {85} (Radial)	2.4841 ppm	0.2 %
Si 251.611 {134} (Radial)	2.5194 ppm	0.7 %
Bi 223.061 {451} (Axial)	2.5447 ppm	0.2 %
Pb 220.353 {453} (Axial)	0.5073 ppm	0.1 %
Th 283.231 {119} (Radial)	1.2403 ppm	0.9 %
Th 401.913 {84} (Radial)	1.2357 ppm	0.7 %
U 409.014 {82} (Radial)	2.4617 ppm	1.1 %
Y 224.306 {450} (Axial)	93.3643 %	0.0 %
Sc 361.384 {93} (Radial)	104.4211 %	0.2 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/4/2018 11:29:55 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0007 ppm	132.4 %
As 189.042 {478} (Axial)	-0.0004 ppm	143.1 %
Ba 455.403 {74} (Radial)	0.0005 ppm	22.0 %
Ba 493.409 {68} (Radial)	0.0014 ppm	9.5 %
Be 313.042 {108} (Axial)	0.0001 ppm	15.8 %
Ca 315.887 {107} (Radial)	-0.0135 ppm	26.9 %
Cd 228.802 {447} (Axial)	0.0001 ppm	33.7 %
Cr 267.716 {126} (Axial)	0.0003 ppm	33.0 %
Cr 205.560 {464} (Axial)	0.0000 ppm	46.2 %
Co 228.616 {447} (Axial)	0.0002 ppm	68.1 %
Cu 324.754 {104} (Axial)	0.0010 ppm	45.2 %
Fe 259.940 {130} (Radial)	-0.0006 ppm	476.3 %
Li 670.784 {50} (Radial)	-0.0020 ppm	14.7 %
Mn 257.610 {131} (Axial)	0.0001 ppm	63.7 %
Mo 202.030 {467} (Axial)	0.0002 ppm	87.5 %
Na 589.592 {57} (Radial)	0.0011 ppm	282.2 %
Ni 231.604 {445} (Axial)	0.0000 ppm	437.5 %
K 766.490 {44} (Radial)	-0.0762 ppm	19.9 %
Se 196.090 {472} (Axial)	-0.0001 ppm	501.9 %
Ag 328.068 {103} (Axial)	-0.0001 ppm	372.5 %
Sr 407.771 {83} (Radial)	0.0000 ppm	147.1 %
Sn 189.989 {477} (Axial)	-0.0002 ppm	229.3 %
Ti 334.941 {101} (Radial)	-0.0002 ppm	310.4 %
V 292.402 {115} (Axial)	-0.0006 ppm	58.0 %
Zn 213.856 {457} (Axial)	-0.0017 ppm	3.8 %
Sc 357.253 {94} (Axial)	96.3529 %	0.2 %
Sc 188.060 {479} (Axial)	97.3988 %	0.1 %
Mg 279.079 {121} (Radial)	-0.0051 ppm	412.1 %
Tl 190.856 {477} (Axial)	0.0003 ppm	114.2 %
Al 167.079 {502} (Axial)	-0.0001 ppm	76.6 %
Sc 227.318 {448} (Axial)	96.7572 %	0.1 %
B 249.773 {135} (Radial)	0.0065 ppm	39.8 %
Al 396.152 {85} (Radial)	0.0015 ppm	473.8 %
Si 251.611 {134} (Radial)	0.0033 ppm	120.5 %
Bi 223.061 {451} (Axial)	-0.0015 ppm	61.0 %
Pb 220.353 {453} (Axial)	-0.0008 ppm	62.9 %
Th 283.231 {119} (Radial)	0.0169 ppm	50.4 %
Th 401.913 {84} (Radial)	0.0028 ppm	469.1 %
U 409.014 {82} (Radial)	0.0297 ppm	171.4 %
Y 224.306 {450} (Axial)	96.7893 %	0.1 %
Sc 361.384 {93} (Radial)	103.5714 %	0.1 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/4/2018 11:36:10 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0056 ppm	13.2 %
As 189.042 {478} (Axial)	0.0042 ppm	15.4 %
Ba 455.403 {74} (Radial)	0.0054 ppm	3.9 %
Ba 493.409 {68} (Radial)	0.0060 ppm	8.1 %
Be 313.042 {108} (Axial)	0.0021 ppm	1.0 %
Ca 315.887 {107} (Radial)	0.4959 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.0103 ppm	0.9 %
Cr 267.716 {126} (Axial)	0.0056 ppm	3.3 %
Cr 205.560 {464} (Axial)	0.0051 ppm	1.4 %
Co 228.616 {447} (Axial)	0.0052 ppm	2.6 %
Cu 324.754 {104} (Axial)	0.0118 ppm	5.0 %
Fe 259.940 {130} (Radial)	0.0837 ppm	1.0 %
Li 670.784 {50} (Radial)	0.0060 ppm	22.6 %
Mn 257.610 {131} (Axial)	0.0055 ppm	1.1 %
Mo 202.030 {467} (Axial)	0.0052 ppm	1.8 %
Na 589.592 {57} (Radial)	0.2038 ppm	2.7 %
Ni 231.604 {445} (Axial)	0.0054 ppm	2.9 %
K 766.490 {44} (Radial)	0.0215 ppm	61.3 %
Se 196.090 {472} (Axial)	0.0092 ppm	17.4 %
Ag 328.068 {103} (Axial)	0.0057 ppm	8.1 %
Sr 407.771 {83} (Radial)	0.0052 ppm	2.4 %
Sn 189.989 {477} (Axial)	0.0102 ppm	3.8 %
Ti 334.941 {101} (Radial)	0.0051 ppm	16.8 %
V 292.402 {115} (Axial)	0.0047 ppm	6.6 %
Zn 213.856 {457} (Axial)	0.0087 ppm	1.3 %
Sc 357.253 {94} (Axial)	97.7085 %	0.1 %
Sc 188.060 {479} (Axial)	98.4080 %	0.2 %
Mg 279.079 {121} (Radial)	0.1978 ppm	8.6 %
Tl 190.856 {477} (Axial)	0.0106 ppm	6.9 %
Al 167.079 {502} (Axial)	0.0086 ppm	1.3 %
Sc 227.318 {448} (Axial)	97.6897 %	0.1 %
B 249.773 {135} (Radial)	0.0230 ppm	7.3 %
Al 396.152 {85} (Radial)	0.0116 ppm	42.0 %
Si 251.611 {134} (Radial)	0.4365 ppm	1.8 %
Bi 223.061 {451} (Axial)	-0.0012 ppm	137.3 %
Pb 220.353 {453} (Axial)	0.0046 ppm	12.5 %
Th 283.231 {119} (Radial)	0.0188 ppm	61.7 %
Th 401.913 {84} (Radial)	0.0073 ppm	134.0 %
U 409.014 {82} (Radial)	0.0261 ppm	57.1 %
Y 224.306 {450} (Axial)	98.0550 %	0.1 %
Sc 361.384 {93} (Radial)	104.5633 %	0.3 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

MBLK-119140

Sample Type UNKNOWN Analysis Date 6/4/2018 11:42:20 AM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0008 ppm	105.2 %
As 189.042 {478} (Axial)	-0.0007 ppm	111.1 %
Ba 455.403 {74} (Radial)	0.0000 ppm	2,957.4 %
Ba 493.409 {68} (Radial)	0.0007 ppm	75.8 %
Be 313.042 {108} (Axial)	0.0001 ppm	26.0 %
Ca 315.887 {107} (Radial)	0.0030 ppm	137.0 %
Cd 228.802 {447} (Axial)	0.0000 ppm	223.0 %
Cr 267.716 {126} (Axial)	0.0005 ppm	45.5 %
Cr 205.560 {464} (Axial)	0.0004 ppm	9.6 %
Co 228.616 {447} (Axial)	-0.0002 ppm	70.5 %
Cu 324.754 {104} (Axial)	0.0011 ppm	33.6 %
Fe 259.940 {130} (Radial)	0.0155 ppm	5.0 %
Li 670.784 {50} (Radial)	-0.0079 ppm	24.5 %
Mn 257.610 {131} (Axial)	0.0006 ppm	6.4 %
Mo 202.030 {467} (Axial)	0.0000 ppm	2,544.7 %
Na 589.592 {57} (Radial)	-0.0252 ppm	4.2 %
Ni 231.604 {445} (Axial)	-0.0001 ppm	151.0 %
K 766.490 {44} (Radial)	-0.2404 ppm	3.9 %
Se 196.090 {472} (Axial)	-0.0025 ppm	21.2 %
Ag 328.068 {103} (Axial)	0.0002 ppm	117.3 %
Sr 407.771 {83} (Radial)	-0.0001 ppm	84.4 %
Sn 189.989 {477} (Axial)	0.0003 ppm	64.8 %
Ti 334.941 {101} (Radial)	0.0007 ppm	51.2 %
V 292.402 {115} (Axial)	-0.0002 ppm	99.1 %
Zn 213.856 {457} (Axial)	0.0007 ppm	11.4 %
Sc 357.253 {94} (Axial)	97.8635 %	0.1 %
Sc 188.060 {479} (Axial)	95.4198 %	0.1 %
Mg 279.079 {121} (Radial)	-0.0129 ppm	135.4 %
Tl 190.856 {477} (Axial)	-0.0012 ppm	14.0 %
Al 167.079 {502} (Axial)	0.0002 ppm	65.9 %
Sc 227.318 {448} (Axial)	94.7329 %	0.1 %
B 249.773 {135} (Radial)	0.0003 ppm	308.1 %
Al 396.152 {85} (Radial)	0.0020 ppm	504.1 %
Si 251.611 {134} (Radial)	-0.0008 ppm	1,043.6 %
Bi 223.061 {451} (Axial)	-0.0056 ppm	19.3 %
Pb 220.353 {453} (Axial)	0.0000 ppm	1,371.7 %
Th 283.231 {119} (Radial)	0.0073 ppm	105.1 %
Th 401.913 {84} (Radial)	-0.0004 ppm	2,190.9 %
U 409.014 {82} (Radial)	-0.0017 ppm	1,154.7 %
Y 224.306 {450} (Axial)	97.7567 %	0.1 %
Sc 361.384 {93} (Radial)	104.3817 %	0.4 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

18051778-01A

Sample Type UNKNOWN Analysis Date 6/4/2018 12:31:21 PM

Dilution Factor 100

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	-0.0017 ppm	2,247.3 %
As 189.042 {478} (Axial)	-0.0527 ppm	156.8 %
Ba 455.403 {74} (Radial)	0.1612 ppm	13.1 %
Ba 493.409 {68} (Radial)	0.3052 ppm	19.6 %
Be 313.042 {108} (Axial)	0.0099 ppm	11.1 %
Ca 315.887 {107} (Radial)	2,696.3751 ppm	0.9 %
Cd 228.802 {447} (Axial)	0.0091 ppm	82.6 %
Cr 267.716 {126} (Axial)	0.0976 ppm	27.9 %
Cr 205.560 {464} (Axial)	0.0395 ppm	17.1 %
Co 228.616 {447} (Axial)	0.0239 ppm	41.8 %
Cu 324.754 {104} (Axial)	0.1869 ppm	23.1 %
Fe 259.940 {130} (Radial)	45.4040 ppm	1.7 %
Li 670.784 {50} (Radial)	-0.7171 ppm	11.6 %
Mn 257.610 {131} (Axial)	2.1814 ppm	1.0 %
Mo 202.030 {467} (Axial)	0.0119 ppm	32.1 %
Na 589.592 {57} (Radial)	-1.4862 ppm	29.2 %
Ni 231.604 {445} (Axial)	0.0486 ppm	12.8 %
K 766.490 {44} (Radial)	-20.3080 ppm	5.6 %
Se 196.090 {472} (Axial)	-0.1947 ppm	14.5 %
Ag 328.068 {103} (Axial)	0.0459 ppm	47.9 %
Sr 407.771 {83} (Radial)	1.6200 ppm	1.2 %
Sn 189.989 {477} (Axial)	0.0090 ppm	128.5 %
Ti 334.941 {101} (Radial)	1.0292 ppm	5.8 %
V 292.402 {115} (Axial)	0.0452 ppm	51.0 %
Zn 213.856 {457} (Axial)	0.2911 ppm	8.0 %
Sc 357.253 {94} (Axial)	96.8845 %	0.3 %
Sc 188.060 {479} (Axial)	96.2275 %	0.2 %
Mg 279.079 {121} (Radial)	341.7380 ppm	0.5 %
Tl 190.856 {477} (Axial)	-0.0305 ppm	118.0 %
Al 167.079 {502} (Axial)	22.4456 ppm	5.2 %
Sc 227.318 {448} (Axial)	95.3726 %	0.1 %
B 249.773 {135} (Radial)	0.7418 ppm	32.1 %
Al 396.152 {85} (Radial)	24.7966 ppm	1.2 %
Si 251.611 {134} (Radial)	18.5656 ppm	3.1 %
Bi 223.061 {451} (Axial)	-0.1306 ppm	45.1 %
Pb 220.353 {453} (Axial)	-0.1001 ppm	85.4 %
Th 283.231 {119} (Radial)	0.2326 ppm	539.5 %
Th 401.913 {84} (Radial)	1.4705 ppm	59.1 %
U 409.014 {82} (Radial)	1.3164 ppm	180.7 %
Y 224.306 {450} (Axial)	97.4830 %	0.1 %
Sc 361.384 {93} (Radial)	106.0123 %	0.3 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

18051778-07C

Sample Type UNKNOWN Analysis Date 6/4/2018 12:37:32 PM

Dilution Factor 100

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0619 ppm	86.1 %
As 189.042 {478} (Axial)	-0.0093 ppm	281.6 %
Ba 455.403 {74} (Radial)	0.1026 ppm	29.5 %
Ba 493.409 {68} (Radial)	0.2427 ppm	12.5 %
Be 313.042 {108} (Axial)	0.0112 ppm	4.0 %
Ca 315.887 {107} (Radial)	4,271.5230 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.0177 ppm	16.0 %
Cr 267.716 {126} (Axial)	0.0844 ppm	22.6 %
Cr 205.560 {464} (Axial)	0.0345 ppm	11.9 %
Co 228.616 {447} (Axial)	0.0218 ppm	27.4 %
Cu 324.754 {104} (Axial)	0.1284 ppm	40.6 %
Fe 259.940 {130} (Radial)	30.4360 ppm	0.5 %
Li 670.784 {50} (Radial)	-0.7182 ppm	17.5 %
Mn 257.610 {131} (Axial)	2.7790 ppm	0.3 %
Mo 202.030 {467} (Axial)	0.0237 ppm	82.0 %
Na 589.592 {57} (Radial)	-0.2402 ppm	75.6 %
Ni 231.604 {445} (Axial)	0.0663 ppm	26.4 %
K 766.490 {44} (Radial)	-23.3095 ppm	6.9 %
Se 196.090 {472} (Axial)	-0.1133 ppm	114.5 %
Ag 328.068 {103} (Axial)	0.0453 ppm	158.5 %
Sr 407.771 {83} (Radial)	2.8348 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.0250 ppm	128.0 %
Ti 334.941 {101} (Radial)	0.5650 ppm	12.1 %
V 292.402 {115} (Axial)	-0.0032 ppm	1,113.1 %
Zn 213.856 {457} (Axial)	1.2814 ppm	2.2 %
Sc 357.253 {94} (Axial)	96.9922 %	0.2 %
Sc 188.060 {479} (Axial)	95.3034 %	0.2 %
Mg 279.079 {121} (Radial)	153.9755 ppm	1.6 %
Tl 190.856 {477} (Axial)	-0.1079 ppm	68.2 %
Al 167.079 {502} (Axial)	13.2938 ppm	0.5 %
Sc 227.318 {448} (Axial)	94.3926 %	0.1 %
B 249.773 {135} (Radial)	0.5551 ppm	43.5 %
Al 396.152 {85} (Radial)	13.1656 ppm	6.9 %
Si 251.611 {134} (Radial)	9.0611 ppm	4.1 %
Bi 223.061 {451} (Axial)	-0.2229 ppm	56.7 %
Pb 220.353 {453} (Axial)	-0.0991 ppm	32.2 %
Th 283.231 {119} (Radial)	-0.0554 ppm	1,856.0 %
Th 401.913 {84} (Radial)	0.4867 ppm	286.8 %
U 409.014 {82} (Radial)	1.4595 ppm	162.9 %
Y 224.306 {450} (Axial)	97.0151 %	0.2 %
Sc 361.384 {93} (Radial)	105.7149 %	0.5 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/4/2018 12:43:42 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4958 ppm	0.2 %
As 189.042 {478} (Axial)	0.4898 ppm	0.2 %
Ba 455.403 {74} (Radial)	2.4555 ppm	0.4 %
Ba 493.409 {68} (Radial)	2.5060 ppm	0.4 %
Be 313.042 {108} (Axial)	0.5035 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.4222 ppm	0.4 %
Cd 228.802 {447} (Axial)	0.4970 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.4943 ppm	0.2 %
Cr 205.560 {464} (Axial)	0.4843 ppm	0.2 %
Co 228.616 {447} (Axial)	2.5064 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.5407 ppm	0.1 %
Fe 259.940 {130} (Radial)	2.4043 ppm	0.2 %
Li 670.784 {50} (Radial)	2.4606 ppm	0.4 %
Mn 257.610 {131} (Axial)	0.5057 ppm	0.1 %
Mo 202.030 {467} (Axial)	2.4715 ppm	0.1 %
Na 589.592 {57} (Radial)	50.4272 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4768 ppm	0.1 %
K 766.490 {44} (Radial)	50.4088 ppm	0.2 %
Se 196.090 {472} (Axial)	2.5114 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4944 ppm	0.2 %
Sr 407.771 {83} (Radial)	0.4984 ppm	0.4 %
Sn 189.989 {477} (Axial)	0.4948 ppm	0.2 %
Ti 334.941 {101} (Radial)	0.4844 ppm	0.8 %
V 292.402 {115} (Axial)	0.5055 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.2372 ppm	0.1 %
Sc 357.253 {94} (Axial)	95.6418 %	0.1 %
Sc 188.060 {479} (Axial)	94.2121 %	0.2 %
Mg 279.079 {121} (Radial)	2.3748 ppm	0.8 %
Tl 190.856 {477} (Axial)	0.5061 ppm	0.4 %
Al 167.079 {502} (Axial)	2.3006 ppm	0.2 %
Sc 227.318 {448} (Axial)	100.5968 %	0.2 %
B 249.773 {135} (Radial)	2.4400 ppm	0.5 %
Al 396.152 {85} (Radial)	2.4231 ppm	0.9 %
Si 251.611 {134} (Radial)	2.4821 ppm	0.5 %
Bi 223.061 {451} (Axial)	2.5171 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.4938 ppm	0.2 %
Th 283.231 {119} (Radial)	1.2153 ppm	1.0 %
Th 401.913 {84} (Radial)	1.2290 ppm	2.0 %
U 409.014 {82} (Radial)	2.4695 ppm	1.6 %
Y 224.306 {450} (Axial)	94.0197 %	0.1 %
Sc 361.384 {93} (Radial)	106.2079 %	0.1 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCV

Sample Type QC Analysis Date 6/4/2018 12:49:23 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.4983 ppm	0.3 %
As 189.042 {478} (Axial)	0.4880 ppm	0.2 %
Ba 455.403 {74} (Radial)	2.4635 ppm	0.2 %
Ba 493.409 {68} (Radial)	2.5125 ppm	0.3 %
Be 313.042 {108} (Axial)	0.5015 ppm	0.1 %
Ca 315.887 {107} (Radial)	2.4374 ppm	0.2 %
Cd 228.802 {447} (Axial)	0.4949 ppm	0.1 %
Cr 267.716 {126} (Axial)	0.4926 ppm	0.1 %
Cr 205.560 {464} (Axial)	0.4830 ppm	0.1 %
Co 228.616 {447} (Axial)	2.5015 ppm	0.1 %
Cu 324.754 {104} (Axial)	2.5298 ppm	0.3 %
Fe 259.940 {130} (Radial)	2.4091 ppm	0.2 %
Li 670.784 {50} (Radial)	2.4775 ppm	0.2 %
Mn 257.610 {131} (Axial)	0.5032 ppm	0.0 %
Mo 202.030 {467} (Axial)	2.4608 ppm	0.1 %
Na 589.592 {57} (Radial)	50.5392 ppm	0.3 %
Ni 231.604 {445} (Axial)	2.4706 ppm	0.1 %
K 766.490 {44} (Radial)	50.1292 ppm	0.3 %
Se 196.090 {472} (Axial)	2.5077 ppm	0.1 %
Ag 328.068 {103} (Axial)	0.4949 ppm	0.1 %
Sr 407.771 {83} (Radial)	0.4995 ppm	0.3 %
Sn 189.989 {477} (Axial)	0.4943 ppm	0.1 %
Ti 334.941 {101} (Radial)	0.4871 ppm	0.2 %
V 292.402 {115} (Axial)	0.5028 ppm	0.2 %
Zn 213.856 {457} (Axial)	1.2316 ppm	0.1 %
Sc 357.253 {94} (Axial)	96.3229 %	0.1 %
Sc 188.060 {479} (Axial)	94.4405 %	0.1 %
Mg 279.079 {121} (Radial)	2.3936 ppm	1.3 %
Tl 190.856 {477} (Axial)	0.5052 ppm	0.2 %
Al 167.079 {502} (Axial)	2.2952 ppm	0.1 %
Sc 227.318 {448} (Axial)	100.7716 %	0.1 %
B 249.773 {135} (Radial)	2.4694 ppm	0.3 %
Al 396.152 {85} (Radial)	2.4382 ppm	0.3 %
Si 251.611 {134} (Radial)	2.5009 ppm	0.2 %
Bi 223.061 {451} (Axial)	2.5077 ppm	0.1 %
Pb 220.353 {453} (Axial)	0.4930 ppm	0.3 %
Th 283.231 {119} (Radial)	1.2335 ppm	1.3 %
Th 401.913 {84} (Radial)	1.2449 ppm	0.5 %
U 409.014 {82} (Radial)	2.4730 ppm	0.7 %
Y 224.306 {450} (Axial)	94.2897 %	0.1 %
Sc 361.384 {93} (Radial)	105.8961 %	0.4 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCB

Sample Type UNKNOWN Analysis Date 6/4/2018 12:55:05 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0014 ppm	76.8 %
As 189.042 {478} (Axial)	-0.0005 ppm	94.6 %
Ba 455.403 {74} (Radial)	0.0004 ppm	63.4 %
Ba 493.409 {68} (Radial)	0.0018 ppm	14.9 %
Be 313.042 {108} (Axial)	0.0001 ppm	14.2 %
Ca 315.887 {107} (Radial)	-0.0099 ppm	9.3 %
Cd 228.802 {447} (Axial)	0.0002 ppm	52.2 %
Cr 267.716 {126} (Axial)	0.0002 ppm	72.7 %
Cr 205.560 {464} (Axial)	0.0000 ppm	104.2 %
Co 228.616 {447} (Axial)	0.0002 ppm	13.3 %
Cu 324.754 {104} (Axial)	0.0019 ppm	11.3 %
Fe 259.940 {130} (Radial)	-0.0002 ppm	742.8 %
Li 670.784 {50} (Radial)	-0.0024 ppm	102.8 %
Mn 257.610 {131} (Axial)	0.0001 ppm	14.3 %
Mo 202.030 {467} (Axial)	0.0004 ppm	42.7 %
Na 589.592 {57} (Radial)	0.0021 ppm	245.9 %
Ni 231.604 {445} (Axial)	0.0003 ppm	30.5 %
K 766.490 {44} (Radial)	-0.0986 ppm	32.9 %
Se 196.090 {472} (Axial)	-0.0006 ppm	69.3 %
Ag 328.068 {103} (Axial)	0.0003 ppm	151.8 %
Sr 407.771 {83} (Radial)	0.0000 ppm	282.2 %
Sn 189.989 {477} (Axial)	0.0004 ppm	32.1 %
Ti 334.941 {101} (Radial)	0.0001 ppm	477.3 %
V 292.402 {115} (Axial)	-0.0006 ppm	38.1 %
Zn 213.856 {457} (Axial)	-0.0018 ppm	2.5 %
Sc 357.253 {94} (Axial)	96.2045 %	0.2 %
Sc 188.060 {479} (Axial)	96.8658 %	0.1 %
Mg 279.079 {121} (Radial)	-0.0054 ppm	249.5 %
Tl 190.856 {477} (Axial)	-0.0003 ppm	250.5 %
Al 167.079 {502} (Axial)	-0.0003 ppm	68.7 %
Sc 227.318 {448} (Axial)	96.0298 %	0.1 %
B 249.773 {135} (Radial)	0.0066 ppm	14.0 %
Al 396.152 {85} (Radial)	-0.0038 ppm	156.5 %
Si 251.611 {134} (Radial)	0.0063 ppm	90.4 %
Bi 223.061 {451} (Axial)	-0.0013 ppm	137.5 %
Pb 220.353 {453} (Axial)	-0.0007 ppm	99.2 %
Th 283.231 {119} (Radial)	0.0083 ppm	73.8 %
Th 401.913 {84} (Radial)	0.0093 ppm	46.6 %
U 409.014 {82} (Radial)	-0.0103 ppm	131.2 %
Y 224.306 {450} (Axial)	96.6405 %	0.1 %
Sc 361.384 {93} (Radial)	104.5864 %	0.2 %

Simple sample report

6/26/2018 5:58:35 PM

QTEGRA

CCVLL

Sample Type QC Analysis Date 6/4/2018 1:01:21 PM

Dilution Factor 1

	Concentration average	Concentration RSD
Sb 206.833 {463} (Axial)	0.0063 ppm	19.7 %
As 189.042 {478} (Axial)	0.0044 ppm	8.8 %
Ba 455.403 {74} (Radial)	0.0055 ppm	2.6 %
Ba 493.409 {68} (Radial)	0.0069 ppm	5.4 %
Be 313.042 {108} (Axial)	0.0021 ppm	0.9 %
Ca 315.887 {107} (Radial)	0.4941 ppm	1.6 %
Cd 228.802 {447} (Axial)	0.0102 ppm	0.5 %
Cr 267.716 {126} (Axial)	0.0053 ppm	4.3 %
Cr 205.560 {464} (Axial)	0.0050 ppm	1.5 %
Co 228.616 {447} (Axial)	0.0053 ppm	2.4 %
Cu 324.754 {104} (Axial)	0.0119 ppm	2.1 %
Fe 259.940 {130} (Radial)	0.0839 ppm	2.2 %
Li 670.784 {50} (Radial)	0.0066 ppm	15.2 %
Mn 257.610 {131} (Axial)	0.0056 ppm	0.4 %
Mo 202.030 {467} (Axial)	0.0051 ppm	2.2 %
Na 589.592 {57} (Radial)	0.2019 ppm	2.3 %
Ni 231.604 {445} (Axial)	0.0055 ppm	3.2 %
K 766.490 {44} (Radial)	-0.0045 ppm	287.2 %
Se 196.090 {472} (Axial)	0.0087 ppm	16.4 %
Ag 328.068 {103} (Axial)	0.0060 ppm	5.2 %
Sr 407.771 {83} (Radial)	0.0053 ppm	0.2 %
Sn 189.989 {477} (Axial)	0.0103 ppm	3.4 %
Ti 334.941 {101} (Radial)	0.0052 ppm	4.7 %
V 292.402 {115} (Axial)	0.0048 ppm	3.3 %
Zn 213.856 {457} (Axial)	0.0085 ppm	0.8 %
Sc 357.253 {94} (Axial)	97.0803 %	0.3 %
Sc 188.060 {479} (Axial)	97.6234 %	0.1 %
Mg 279.079 {121} (Radial)	0.2030 ppm	7.5 %
Tl 190.856 {477} (Axial)	0.0106 ppm	5.7 %
Al 167.079 {502} (Axial)	0.0087 ppm	1.2 %
Sc 227.318 {448} (Axial)	96.6378 %	0.1 %
B 249.773 {135} (Radial)	0.0247 ppm	4.2 %
Al 396.152 {85} (Radial)	-0.0031 ppm	472.3 %
Si 251.611 {134} (Radial)	0.4404 ppm	1.2 %
Bi 223.061 {451} (Axial)	-0.0025 ppm	63.9 %
Pb 220.353 {453} (Axial)	0.0054 ppm	12.9 %
Th 283.231 {119} (Radial)	0.0080 ppm	254.7 %
Th 401.913 {84} (Radial)	0.0131 ppm	33.1 %
U 409.014 {82} (Radial)	0.0371 ppm	100.3 %
Y 224.306 {450} (Axial)	97.4799 %	0.0 %
Sc 361.384 {93} (Radial)	105.1601 %	0.4 %

ALS Group, USA

PREP BATCH REPORT

Batch ID: **119140** Prep Code: **MP_6010_S**

Start Date: **6/1/2018 8:52:02 AM** End Date: **6/1/2018 10:05:33 AM**

Technician: **Carrie LeBoeuf**

InitSamp Wt/Vol:	1 g
FinSampVol:	50 mL
OriginalFac:	50
PrepUnitFac:	

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051772-05A	Solid		0.675		0	50	74.0741
18051772-07A	Solid		0.655		0	50	76.3359
18051778-01A	Soil		0.612		0	50	81.6993
18051778-07C	Soil		0.692		0	50	72.2543
18051780-01A	Soil		0.729		0	50	68.5871
18051993-01A	Solid		0.728		0	50	68.6813
18051993-02A	Solid		0.629		0	50	79.4913
18051993-03A	Solid		0.622		0	50	80.3859
18051996-01A	Soil		0.608		0	50	82.2368
18051996-01AMS			0.606		0	50	82.5083
18051996-01AMS			0.608		0	50	82.2368
LCS-119140			1		0	50	50
MBLK-119140			1		0	50	50

Notes: *All samples are B1/D2unless otherwise noted. Spike BPL: 2049-165-10/1461-86-5/1461-83-15/1461-84-9; HNO3: 2049-158-10; HCl: 2049-169-7; Block 54 @95/95'C; Digestion Cups: 1705110; Pipette: ME-31.*

Cold Vapor

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-46

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-01A

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 5.5 Date Prep: 6/5/2018

CONCENTRATION UNITS: mg/Kg-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7439-97-6	Mercury	0.0049	J		CV

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-52

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-07C

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 9.8 Date Prep: 6/5/2018

CONCENTRATION UNITS: mg/Kg-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
7439-97-6	Mercury	0.0049	J		CV

Date: 02-Jul-18

ALS Group, USA

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119256** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-119256-119256** Units: **mg/Kg** Analysis Date: **6/5/2018 08:10 AM**
Client ID: Run ID: **HG1_180605A** SeqNo: **5072444** Prep Date: **6/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	0.020								

LCS Sample ID: **LCS-119256-119256** Units: **mg/Kg** Analysis Date: **6/5/2018 08:13 AM**
Client ID: Run ID: **HG1_180605A** SeqNo: **5072445** Prep Date: **6/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.175	0.020	0.1665	0	105	80-120	0			

MS Sample ID: **18052001-01AMS** Units: **mg/Kg** Analysis Date: **6/5/2018 08:20 AM**
Client ID: Run ID: **HG1_180605A** SeqNo: **5072446** Prep Date: **6/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1536	0.018	0.1505	0.006822	97.6	75-125	0			

MSD Sample ID: **18052001-01AMSD** Units: **mg/Kg** Analysis Date: **6/5/2018 08:23 AM**
Client ID: Run ID: **HG1_180605A** SeqNo: **5072449** Prep Date: **6/5/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1637	0.018	0.1507	0.006822	104	75-125	0.1536	6.33	35	

The following samples were analyzed in this batch:

18051778-01A	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 1) 06/05 06:21 and 2) 06/05 07:07					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	2.00	100	2.03	102	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 3) 06/05 07:41 and 4) 06/05 08:26					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	1.97	98	2.08	104	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 5) 06/05 09:01 and 6) 06/05 09:35						M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)		
Mercury	2.0	1.94	97	2.0	1.98	99	2.06	103		CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 7) 06/05 10:13 and 8) 06/05 11:07					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	2.12	106	2.13	106	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 9) 06/05 12:03 and 10) 06/05 12:44					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	1.98	99	2.13	106	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 11) 06/05 13:17 and 12) 06/05 13:53					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	2.16	108	2.05	102	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 13) 06/05 14:27 and 14) 06/05 15:12					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	2.18	109	2.20	110	CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

Initial Calibration Source: Run: HG1 180605A

Continuing Calibration Source: Start: 6/5/2018

Concentration Units: ug/L

Analyte	Initial Calibration			CCV 15) 06/05 15:45 and					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Mercury	2.0	1.94	97	2.0	2.12	106			CV

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 1) 06/05 06:24 and 2) 06/05 07:10				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.20	100					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 3) 06/05 07:43 and 4) 06/05 08:28				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.21	104					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 5) 06/05 09:04 and 6) 06/05 09:37				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.21	106					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 7) 06/05 10:15 and 8) 06/05 11:09				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.22	108					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 9) 06/05 12:06 and 10) 06/05 12:46				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.20	100					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 11) 06/05 13:19 and 12) 06/05 13:56				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.20	101					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

	CRDL Standard for AA			LLCCV 13) 06/05 14:29 and 14) 06/05 15:14				
				Initial			Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.17	86					

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

AA CRDL Standard Source: Run: HG1_180605A

ICP CRDL Standard Source: Start:

Concentration Units: ug/L

Analyte	CRDL Standard for AA			LLCCV 15) 06/05 15:47 and 16) 06/05 16:16				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.2	0.18	91					

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1) 06:26	C	2) 07:13	C	3) 07:46	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.039		-0.034		-0.037		0.020	U	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 4) 08:31	C	5) 09:07	C	6) 09:40	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.034		-0.038		-0.042		0.020	U	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 7) 10:18	C	8) 11:12	C	9) 12:08	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.040		-0.039		-0.037		0.020	U	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 10) 12:49	C	11) 13:22	C	12) 13:59	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.040		-0.044		-0.040		0.020	U	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 13) 14:32	C	14) 15:17	C	15) 15:50	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.039		-0.042		-0.044		0.020	U	CV

Note: MDLs are used, not IDLs

3
BLANKS

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKEE SAS No.: SDG No.: 18051778

Preparation Blank Matrix (soil/water): SOIL Run: HG1 180605A

Preparation Blank Concentration Units (ug/L or mg/kg): mg/Kg

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 16) 16:18	C	17	C	18	C	Prepa-ration Blank	C	M
Mercury	-0.041		-0.042						0.020	U	CV

Note: MDLs are used, not IDLs

5A

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MIL SAS No.: SDG No.: 18051778

Matrix Spike - Client SampID: ZZZZZZ Level:(low/med) LOW

COMPOUND	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC #	QC. LIMITS REC.
Mercury	0.1505	0.006822	0.1536	97.6	75-125

COMPOUND	SPIKE ADDED mg/Kg	MSD CONCENTRATION mg/Kg	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Mercury	0.1507	0.1637	104	6.33	35	75-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 0 out of 2 outside limits

COMMENTS:

7

LABORATORY CONTROL SAMPLE

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUKE SAS No.: SDG No.: 18051778

LCS Source: LCS-119256

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Mercury				0.2	0.2		80.0	120.0	105

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWA SAS No.: JACOBS - SDG No.: 18051778

Instrument Type: HG Instrument ID: HG1 Date: 11/2/2017

Concentration Units (ug/L, mg/kg, or ug): mg/Kg

Analyte	Wave-length (nm)	Back-ground	PQL mg/Kg	MDL mg/Kg	M
Mercury	0		0.02	0.002	CV

Comments:

12-IN

PREPARATION LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No.: JACOBS - MILWAUK SAS No.: SDG No.: 18051778

Method: HGPR 7471 S Batch ID: 119256

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
18CP02-46	6/5/2018	0.76	50
18CP02-52	6/5/2018	0.68	50
LCSS	6/5/2018	0.60	50
PBS	6/5/2018	0.60	50
ZZZZZZ	6/5/2018	0.66	50
ZZZZZZ	6/5/2018	0.66	50

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: HG1 Method: SW7471B

Start Date: 6/5/2018 End Date: 6/5/2018 Run: HG1 180605A

EPA Sample No.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	0616	0															X												
ICB	1	0618	0															X												
CCV~1	1	0621	0															X												
CRA	1	0624	0															X												
CCB~1	1	0626	0															X												
CCV~2	1	0707	0															X												
CRA	1	0710	0															X												
CCB~2	1	0713	0															X												
CCV~3	1	0741	0															X												
CRA	1	0743	0															X												
CCB~3	1	0746	0															X												
PBS	1	0810	0															X												
LCSS	1	0813	0															X												
ZZZZZZ	1	0820	0															X												
ZZZZZZ	1	0823	0															X												
CCV~4	1	0826	0															X												
CRA	1	0828	0															X												
CCB~4	1	0831	0															X												
CCV~5	1	0901	0															X												
CRA	1	0904	0															X												
CCB~5	1	0907	0															X												
CCV~6	1	0935	0															X												
CRA	1	0937	0															X												
CCB~6	1	0940	0															X												
CCV~7	1	1013	0															X												
CRA	1	1015	0															X												
CCB~7	1	1018	0															X												
CCV~8	1	1107	0															X												
CRA	1	1109	0															X												
CCB~8	1	1112	0															X												
18CP02-46	1	1124	0															X												
18CP02-52	1	1127	0															X												
CCV~9	1	1203	0															X												
CRA	1	1206	0															X												
CCB~9	1	1208	0															X												

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: HG1 Method: SW7471B

Start Date: 6/5/2018 End Date: 6/5/2018 Run: HG1_180605A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
CCV~10	1	1244	0															X												
CRA	1	1246	0															X												
CCB~10	1	1249	0															X												
CCV~11	1	1317	0															X												
CRA	1	1319	0															X												
CCB~11	1	1322	0															X												
CCV~12	1	1353	0															X												
CRA	1	1356	0															X												
CCB~12	1	1359	0															X												
CCV~13	1	1427	0															X												
CRA	1	1429	0															X												
CCB~13	1	1432	0															X												
CCV~14	1	1509	0																											
CCV~15	1	1512	0															X												
CRA	1	1514	0															X												
CCB~14	1	1517	0															X												
CCV~16	1	1545	0															X												
CRA	1	1547	0															X												
CCB~15	1	1550	0															X												
CCV~17	1	1611	0																											
CCV~18	1	1613	0																											
CRA	1	1616	0															X												
CCB~16	1	1618	0															X												

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: HG1 Method: SW7470A

Start Date: 6/5/2018 End Date: 6/5/2018 Run: HG1 180605A

EPA Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN
ICV	1	0616	0															X												
ICB	1	0618	0															X												
CCV-19	1	0621	0															X												
CRA	1	0624	0															X												
CCB-17	1	0626	0															X												
CCV-20	1	0707	0															X												
CRA	1	0710	0															X												
CCB-18	1	0713	0															X												
CCV-21	1	0741	0															X												
CRA	1	0743	0															X												
CCB-19	1	0746	0															X												
PBS	1	0810	0															X												
LCSS	1	0813	0															X												
ZZZZZZ	1	0820	0															X												
ZZZZZZ	1	0823	0															X												
CCV-22	1	0826	0															X												
CRA	1	0828	0															X												
CCB-20	1	0831	0															X												
CCV-23	1	0901	0															X												
CRA	1	0904	0															X												
CCB-21	1	0907	0															X												
CCV-24	1	0935	0															X												
CRA	1	0937	0															X												
CCB-22	1	0940	0															X												
CCV-25	1	1013	0															X												
CRA	1	1015	0															X												
CCB-23	1	1018	0															X												
CCV-26	1	1107	0															X												
CRA	1	1109	0															X												
CCB-24	1	1112	0															X												
18CP02-46	1	1124	0															X												
18CP02-52	1	1127	0															X												
CCV-27	1	1203	0															X												
CRA	1	1206	0															X												
CCB-25	1	1208	0															X												

13-IN

ANALYSIS RUN LOG

Lab Name: ALS Group USA, Corp Contract:

Lab Code: MI01262 Case No. JACOBS - MIL SAS No.: SDG No.: 18051778

Instrument ID Number: HG1 Method: SW7470A

Start Date: 6/5/2018 End Date: 6/5/2018 Run: HG1 180605A

EPA Sample No.	D/F	Time	% R	Analytes																														
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	MO	NI	K	SE	AG	NA	SR	TL	SN	TI	V	ZN				
CCV-28	1	1244	0															X																
CRA	1	1246	0															X																
CCB-26	1	1249	0															X																
CCV-29	1	1317	0															X																
CRA	1	1319	0															X																
CCB-27	1	1322	0															X																
CCV-30	1	1353	0															X																
CRA	1	1356	0															X																
CCB-28	1	1359	0															X																
CCV-31	1	1427	0															X																
CRA	1	1429	0															X																
CCB-29	1	1432	0															X																
CCV-32	1	1509	0																															
CCV-33	1	1512	0															X																
CRA	1	1514	0															X																
CCB-30	1	1517	0															X																
CCV-34	1	1545	0															X																
CRA	1	1547	0															X																
CCB-31	1	1550	0															X																
CCV-35	1	1611	0																															
CCV-36	1	1613	0																															
CRA	1	1616	0															X																
CCB-32	1	1618	0															X																

FORM XIII - IN

ALS Group, USA

Analytical Run Summary

Run ID HG1_180605A

06-Jun-18

Analyst Rob Haney

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5072352	Calibration Blank	HG_7470_GW	SAMP		6/5/2018 06:00	1	R237346		1
5072353	Standard #1 (0.2 ppb	HG_7470_GW	SAMP		6/5/2018 06:03	1	R237346		1
5072354	Standard #2 (0.5 ppb	HG_7470_GW	SAMP		6/5/2018 06:05	1	R237346		1
5072362	Standard #3 (1.0 ppb	HG_7470_GW	SAMP		6/5/2018 06:08	1	R237346		1
5072363	Standard #4 (2.0 ppb	HG_7470_GW	SAMP		6/5/2018 06:11	1	R237346		1
5072364	Standard #5 (4.0 ppb	HG_7470_GW	SAMP		6/5/2018 06:13	1	R237346		1
5072365	ICV	HG_7470_GW	ICV		6/5/2018 06:16	1	R237346		1
5072366	ICB	HG_7470_GW	ICB		6/5/2018 06:18	1	R237346		1
5072367	IPC/CCV	HG_7470_GW	CCV		6/5/2018 06:21	1	R237346		1
5072368	CRDL	HG_7470_GW	CRA		6/5/2018 06:24	1	R237346		1
5072369	CCB	HG_7470_GW	CCB		6/5/2018 06:26	1	R237346		1
5072414	MBLK-119245	HG_7471_S	MBLK		6/5/2018 06:42	1	119245	6/4/2018	1
5072415	LCS-119245	HG_7471_S	LCS		6/5/2018 06:44	1	119245	6/4/2018	1
5072416	18051689-01A	HG_7471_S	SAMP		6/5/2018 06:47	1	119245	6/4/2018	1
5072417	18051689-01AMS	HG_7471_S	MS		6/5/2018 06:50	1	119245	6/4/2018	1
5072418	18051689-01AMSD	HG_7471_S	MSD		6/5/2018 06:52	1	119245	6/4/2018	1
5072419	18051689-02A	HG_7471_S	SAMP		6/5/2018 06:55	1	119245	6/4/2018	1
5072420	18051689-03A	HG_7471_S	SAMP		6/5/2018 06:57	1	119245	6/4/2018	1
5072421	18051689-04A	HG_7471_S	SAMP		6/5/2018 07:00	1	119245	6/4/2018	1
5072422	18051689-05A	HG_7471_S	SAMP		6/5/2018 07:02	1	119245	6/4/2018	1
5072423	18051689-06A	HG_7471_S	SAMP		6/5/2018 07:05	1	119245	6/4/2018	1
5072424	IPC/CCV	HG_7470_GW	CCV		6/5/2018 07:07	1	R237346		1
5072425	CRDL	HG_7470_GW	CRA		6/5/2018 07:10	1	R237346		1
5072426	CCB	HG_7470_GW	CCB		6/5/2018 07:13	1	R237346		1
5072427	18051689-07A	HG_7471_S	SAMP		6/5/2018 07:15	1	119245	6/4/2018	1
5072428	18051689-08A	HG_7471_S	SAMP		6/5/2018 07:18	1	119245	6/4/2018	1
5072429	18051689-09A	HG_7471_S	SAMP		6/5/2018 07:20	1	119245	6/4/2018	1
5072430	18051689-10A	HG_7471_S	SAMP		6/5/2018 07:23	1	119245	6/4/2018	1
5072431	18051689-11A	HG_7471_S	SAMP		6/5/2018 07:25	1	119245	6/4/2018	1
5072432	18051689-12A	HG_7471_S	SAMP		6/5/2018 07:28	1	119245	6/4/2018	1
5072433	18051689-13A	HG_7471_S	SAMP		6/5/2018 07:30	1	119245	6/4/2018	1
5072434	18051689-14A	HG_7471_S	SAMP		6/5/2018 07:33	1	119245	6/4/2018	1
5072435	18051689-15A	HG_7471_S	SAMP		6/5/2018 07:35	1	119245	6/4/2018	1
5072436	18051689-16A	HG_7471_S	SAMP		6/5/2018 07:38	1	119245	6/4/2018	1
5072437	IPC/CCV	HG_7470_GW	CCV		6/5/2018 07:41	1	R237346		1
5072438	CRDL	HG_7470_GW	CRA		6/5/2018 07:43	1	R237346		1
5072439	CCB	HG_7470_GW	CCB		6/5/2018 07:46	1	R237346		1
5072440	18051689-17A	HG_7471_S	SAMP		6/5/2018 07:48	1	119245	6/4/2018	1
5072441	18051689-18A	HG_7471_S	SAMP		6/5/2018 07:51	1	119245	6/4/2018	1
5072442	18051689-19A	HG_7471_S	SAMP		6/5/2018 07:53	1	119245	6/4/2018	1
5072443	18051689-20A	HG_7471_S	SAMP		6/5/2018 07:56	1	119245	6/4/2018	1
5072444	MBLK-119256	HG_7471_S	MBLK		6/5/2018 08:10	1	119256	6/5/2018	1
5072445	LCS-119256	HG_7471_S	LCS		6/5/2018 08:13	1	119256	6/5/2018	1
5072446	1806095-01A	HG_7471_S	SAMP		6/5/2018 08:15	1	119256	6/5/2018	1
5072447	18052001-01A	HG_7471_S	SAMP		6/5/2018 08:18	1	119256	6/5/2018	1
5072448	18052001-01AMS	HG_7471_S	MS		6/5/2018 08:20	1	119256	6/5/2018	1
5072449	18052001-01AMSD	HG_7471_S	MSD		6/5/2018 08:23	1	119256	6/5/2018	1
5072450	IPC/CCV	HG_7470_GW	CCV		6/5/2018 08:26	1	R237346		1
5072451	CRDL	HG_7470_GW	CRA		6/5/2018 08:28	1	R237346		1
5072452	CCB	HG_7470_GW	CCB		6/5/2018 08:31	1	R237346		1
5072453	18051780-01A	HG_7471_S	SAMP		6/5/2018 08:33	1	119256	6/5/2018	1
5072454	18051779-01A	HG_7471_S	SAMP		6/5/2018 08:36	1	119256	6/5/2018	0
5072455	MBLK-119255	HG_7471_S	MBLK		6/5/2018 08:38	1	119255	6/5/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5072456	LCS-119255	HG_7471_S	LCS		6/5/2018 08:41	1	119255	6/5/2018	1
5072457	18051689-21A	HG_7471_S	SAMP		6/5/2018 08:44	1	119255	6/5/2018	1
5072458	18051689-22A	HG_7471_S	SAMP		6/5/2018 08:46	1	119255	6/5/2018	1
5072459	18051689-23A	HG_7471_S	SAMP		6/5/2018 08:49	1	119255	6/5/2018	1
5072460	18051689-24A	HG_7471_S	SAMP		6/5/2018 08:51	1	119255	6/5/2018	1
5072461	18051689-25A	HG_7471_S	SAMP		6/5/2018 08:54	1	119255	6/5/2018	1
5072462	18051689-26A	HG_7471_S	SAMP		6/5/2018 08:56	1	119255	6/5/2018	1
5072463	18051689-27A	HG_7471_S	SAMP		6/5/2018 08:59	1	119255	6/5/2018	1
5072464	IPC/CCV	HG_7470_GW	CCV		6/5/2018 09:01	1	R237346		1
5072465	CRDL	HG_7470_GW	CRA		6/5/2018 09:04	1	R237346		1
5072466	CCB	HG_7470_GW	CCB		6/5/2018 09:07	1	R237346		1
5072467	18051689-28A	HG_7471_S	SAMP		6/5/2018 09:09	1	119255	6/5/2018	1
5072468	18051689-29A	HG_7471_S	SAMP		6/5/2018 09:12	1	119255	6/5/2018	1
5072469	18051689-30A	HG_7471_S	SAMP		6/5/2018 09:14	1	119255	6/5/2018	1
5072470	18051689-31A	HG_7471_S	SAMP		6/5/2018 09:17	1	119255	6/5/2018	1
5072471	18051689-32A	HG_7471_S	SAMP		6/5/2018 09:19	1	119255	6/5/2018	1
5072472	18051689-32AMS	HG_7471_S	MS		6/5/2018 09:22	1	119255	6/5/2018	1
	MS01	*The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg*							
5072473	18051689-32AMSD	HG_7471_S	MSD		6/5/2018 09:24	1	119255	6/5/2018	1
	MSD01	*The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg*							
	MSD08	*The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Hg*							
5072474	18051689-33A	HG_7471_S	SAMP		6/5/2018 09:27	1	119255	6/5/2018	1
5072475	18051689-34A	HG_7471_S	SAMP		6/5/2018 09:29	1	119255	6/5/2018	1
5072476	18051689-35A	HG_7471_S	SAMP		6/5/2018 09:32	1	119255	6/5/2018	1
5072477	IPC/CCV	HG_7470_GW	CCV		6/5/2018 09:35	1	R237346		1
5072478	CRDL	HG_7470_GW	CRA		6/5/2018 09:37	1	R237346		1
5072479	CCB	HG_7470_GW	CCB		6/5/2018 09:40	1	R237346		1
5072480	18051689-36A	HG_7471_S	SAMP		6/5/2018 09:42	1	119255	6/5/2018	1
5072481	18051689-37A	HG_7471_S	SAMP		6/5/2018 09:45	1	119255	6/5/2018	1
5072482	18051689-38A	HG_7471_S	SAMP		6/5/2018 09:47	1	119255	6/5/2018	1
5072483	18051689-39A	HG_7471_S	SAMP		6/5/2018 09:50	1	119255	6/5/2018	1
5072484	18051689-40A	HG_7471_S	SAMP		6/5/2018 09:52	1	119255	6/5/2018	1
5072485	18051779-01A	HG_7471_S	SAMP		6/5/2018 10:10	2	119256	6/5/2018	1
5072486	IPC/CCV	HG_7470_GW	CCV		6/5/2018 10:13	1	R237346		1
5072487	CRDL	HG_7470_GW	CRA		6/5/2018 10:15	1	R237346		1
5072488	CCB	HG_7470_GW	CCB		6/5/2018 10:18	1	R237346		1
5072489	18051729-01A	HG_7471_S	SAMP		6/5/2018 10:41	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072490	18051729-02A	HG_7471_S	SAMP		6/5/2018 10:44	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072491	18051729-03A	HG_7471_S	SAMP		6/5/2018 10:46	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072492	18051729-04A	HG_7471_S	SAMP		6/5/2018 10:49	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072493	18051729-05A	HG_7471_S	SAMP		6/5/2018 10:51	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072494	18051729-06A	HG_7471_S	SAMP		6/5/2018 10:54	1	119256	6/5/2018	1
	HT05	*Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated. Hg*							
5072495	18051774-21A	HG_7471_S	SAMP		6/5/2018 10:56	1	119256	6/5/2018	1
5072496	18051774-22A	HG_7471_S	SAMP		6/5/2018 10:59	1	119256	6/5/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5072497	18051774-23A	HG_7471_S	SAMP		6/5/2018 11:01	1	119256	6/5/2018	1
5072498	18051774-24A	HG_7471_S	SAMP		6/5/2018 11:04	1	119256	6/5/2018	1
5072499	IPC/CCV	HG_7470_GW	CCV		6/5/2018 11:07	1	R237346		1
5072500	CRDL	HG_7470_GW	CRA		6/5/2018 11:09	1	R237346		1
5072501	CCB	HG_7470_GW	CCB		6/5/2018 11:12	1	R237346		1
5072502	18051774-25A	HG_7471_S	SAMP		6/5/2018 11:14	1	119256	6/5/2018	1
5072503	18051774-26A	HG_7471_S	SAMP		6/5/2018 11:17	1	119256	6/5/2018	1
5072504	18051774-27A	HG_7471_S	SAMP		6/5/2018 11:19	1	119256	6/5/2018	1
5072505	18051774-28A	HG_7471_S	SAMP		6/5/2018 11:22	1	119256	6/5/2018	1
5072506	18051778-01A	HG_7471_S	SAMP		6/5/2018 11:24	1	119256	6/5/2018	1
5072507	18051778-07C	HG_7471_S	SAMP		6/5/2018 11:27	1	119256	6/5/2018	1
5072508	IPC/CCV	HG_7470_GW	CCV		6/5/2018 12:03	1	R237346		1
5072509	CRDL	HG_7470_GW	CRA		6/5/2018 12:06	1	R237346		1
5072510	CCB	HG_7470_GW	CCB		6/5/2018 12:08	1	R237346		1
5072511	MBLK-119269	HG_7471_S	MBLK		6/5/2018 12:18	1	119269	6/5/2018	1
5072512	LCS-119269	HG_7471_S	LCS		6/5/2018 12:21	1	119269	6/5/2018	1
5072513	18051774-01A	HG_7471_S	SAMP		6/5/2018 12:23	1	119269	6/5/2018	1
5072514	18051774-02A	HG_7471_S	SAMP		6/5/2018 12:26	1	119269	6/5/2018	1
5072515	18051774-03A	HG_7471_S	SAMP		6/5/2018 12:28	1	119269	6/5/2018	1
5072712	18051774-04A	HG_7471_S	SAMP		6/5/2018 12:31	1	119269	6/5/2018	1
5072713	18051774-05A	HG_7471_S	SAMP		6/5/2018 12:33	1	119269	6/5/2018	1
5072714	18051774-06A	HG_7471_S	SAMP		6/5/2018 12:36	1	119269	6/5/2018	1
5072715	18051774-07A	HG_7471_S	SAMP		6/5/2018 12:38	1	119269	6/5/2018	1
5072716	18051774-08A	HG_7471_S	SAMP		6/5/2018 12:41	1	119269	6/5/2018	1
5072717	IPC/CCV	HG_7470_GW	CCV		6/5/2018 12:44	1	R237346		1
5072718	CRDL	HG_7470_GW	CRA		6/5/2018 12:46	1	R237346		1
5072719	CCB	HG_7470_GW	CCB		6/5/2018 12:49	1	R237346		1
5072720	18051774-08AMS	HG_7471_S	MS		6/5/2018 12:51	1	119269	6/5/2018	1
	MS01	*The MS recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg*							
5072721	18051774-08AMSD	HG_7471_S	MSD		6/5/2018 12:54	1	119269	6/5/2018	1
	MSD01	*The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Hg*							
5072722	18051774-09A	HG_7471_S	SAMP		6/5/2018 12:56	1	119269	6/5/2018	1
5072723	18051774-10A	HG_7471_S	SAMP		6/5/2018 12:59	1	119269	6/5/2018	1
5072724	18051774-11A	HG_7471_S	SAMP		6/5/2018 13:01	1	119269	6/5/2018	1
5072725	18051774-12A	HG_7471_S	SAMP		6/5/2018 13:04	1	119269	6/5/2018	1
5072727	18051774-13A	HG_7471_S	SAMP		6/5/2018 13:07	1	119269	6/5/2018	1
5072729	18051774-14A	HG_7471_S	SAMP		6/5/2018 13:09	1	119269	6/5/2018	1
5072731	18051774-15A	HG_7471_S	SAMP		6/5/2018 13:12	1	119269	6/5/2018	1
5072733	18051774-16A	HG_7471_S	SAMP		6/5/2018 13:14	1	119269	6/5/2018	1
5072735	IPC/CCV	HG_7470_GW	CCV		6/5/2018 13:17	1	R237346		1
5072737	CRDL	HG_7470_GW	CRA		6/5/2018 13:19	1	R237346		1
5072739	CCB	HG_7470_GW	CCB		6/5/2018 13:22	1	R237346		1
5072741	18051774-17A	HG_7471_S	SAMP		6/5/2018 13:25	1	119269	6/5/2018	1
5072743	18051774-18A	HG_7471_S	SAMP		6/5/2018 13:27	1	119269	6/5/2018	1
5072745	18051774-19A	HG_7471_S	SAMP		6/5/2018 13:30	1	119269	6/5/2018	1
5072747	18051774-20A	HG_7471_S	SAMP		6/5/2018 13:32	1	119269	6/5/2018	1
5072972	MBLK-119285	HG_7470_GW	MBLK		6/5/2018 13:38	1	119285	6/5/2018	1
5072973	LCS-119285	HG_7470_GW	LCS		6/5/2018 13:41	1	119285	6/5/2018	1
5073135	18051756-01B	HG_7470_GW	SAMP		6/5/2018 13:43	1	119285	6/5/2018	1
5073136	18051756-01C	HG_7470_WD	SAMP		6/5/2018 13:46	1	119285	6/5/2018	1
5073137	18051756-02B	HG_7470_GW	SAMP		6/5/2018 13:48	1	119285	6/5/2018	1
5073138	18051756-02C	HG_7470_WD	SAMP		6/5/2018 13:51	1	119285	6/5/2018	1
5073139	IPC/CCV	HG_7470_GW	CCV		6/5/2018 13:53	1	R237346		1
5073140	CRDL	HG_7470_GW	CRA		6/5/2018 13:56	1	R237346		1
5073141	CCB	HG_7470_GW	CCB		6/5/2018 13:59	1	R237346		1
5073142	18051756-03B	HG_7470_GW	SAMP		6/5/2018 14:01	1	119285	6/5/2018	1
5073143	18051756-03C	HG_7470_WD	SAMP		6/5/2018 14:04	1	119285	6/5/2018	1

Seq No	Sample ID	Test Code	SampType	File ID	Analysis Date	DF	Batch ID	Prep Date	Rpt
5073144	18051756-04B	HG_7470_GW	SAMP		6/5/2018 14:06	1	119285	6/5/2018	1
5073145	18051756-04C	HG_7470_WD	SAMP		6/5/2018 14:09	1	119285	6/5/2018	1
5073146	18051766-01A	HG_7470_GW	SAMP		6/5/2018 14:11	1	119285	6/5/2018	1
5073147	18051772-02A	TCHG_7470_S	SAMP		6/5/2018 14:14	1	119285	6/5/2018	1
5073148	18051772-03A	TCHG_7470_S	SAMP		6/5/2018 14:16	1	119285	6/5/2018	1
5073149	18051772-03AMS	TCHG_7470_S	MS		6/5/2018 14:19	1	119285	6/5/2018	1
5073151	18051772-03AMSD	TCHG_7470_S	MSD		6/5/2018 14:22	1	119285	6/5/2018	1
5073154	18051772-04A	TCHG_7470_S	SAMP		6/5/2018 14:24	1	119285	6/5/2018	1
5073157	IPC/CCV	HG_7470_GW	CCV		6/5/2018 14:27	1	R237346		1
5073159	CRDL	HG_7470_GW	CRA		6/5/2018 14:29	1	R237346		1
5073161	CCB	HG_7470_GW	CCB		6/5/2018 14:32	1	R237346		1
5073163	18051772-06A	TCHG_7470_S	SAMP		6/5/2018 14:34	1	119285	6/5/2018	1
5073166	18051774-29A	HG_7470_GW	SAMP		6/5/2018 14:37	1	119285	6/5/2018	1
5073169	18051794-02A	TCHG_7470_S	SAMP		6/5/2018 14:40	1	119285	6/5/2018	1
5073171	18051794-04A	TCHG_7470_S	SAMP		6/5/2018 14:42	1	119285	6/5/2018	1
5073173	18051794-06A	TCHG_7470_S	SAMP		6/5/2018 14:45	1	119285	6/5/2018	1
5073175	18051834-01A	TCHG_7470_S	SAMP		6/5/2018 14:47	1	119285	6/5/2018	1
5073177	18051834-03A	TCHG_7470_S	SAMP		6/5/2018 14:50	1	119285	6/5/2018	1
5073179	18051838-02C	TCHG_7470_S	SAMP		6/5/2018 14:52	1	119285	6/5/2018	1
5073181	MBLK-119287	HG_7470_GW	MBLK		6/5/2018 15:01	1	119287	6/5/2018	1
5073184	LCS-119287	HG_7470_GW	LCS		6/5/2018 15:04	1	119287	6/5/2018	1
5073186	18051838-04A	TCHG_7470_S	SAMP		6/5/2018 15:06	1	119287	6/5/2018	1
5073188	IPC/CCV	HG_7470_GW	CCV		6/5/2018 15:09	1	R237346		0
5073190	IPC/CCV	HG_7470_GW	CCV		6/5/2018 15:12	1	R237346		1
5073193	CRDL	HG_7470_GW	CRA		6/5/2018 15:14	1	R237346		1
5073289	CCB	HG_7470_GW	CCB		6/5/2018 15:17	1	R237346		1
5073290	18051840-02C	TCHG_7470_S	SAMP		6/5/2018 15:19	1	119287	6/5/2018	1
5073291	18051840-04A	TCHG_7470_S	SAMP		6/5/2018 15:22	1	119287	6/5/2018	1
5073292	18051841-01B	HG_7470_GW	SAMP		6/5/2018 15:24	1	119287	6/5/2018	1
5073293	18051841-02B	HG_7470_GW	SAMP		6/5/2018 15:27	1	119287	6/5/2018	1
5073294	18051841-02BMS	HG_7470_GW	MS		6/5/2018 15:29	1	119287	6/5/2018	1
5073297	18051841-02BMSD	HG_7470_GW	MSD		6/5/2018 15:32	1	119287	6/5/2018	1
5073298	18051841-03B	HG_7470_GW	SAMP		6/5/2018 15:35	1	119287	6/5/2018	1
5073300	18051841-16B	HG_7470_GW	SAMP		6/5/2018 15:37	1	119287	6/5/2018	1
5073301	18051841-17B	HG_7470_GW	SAMP		6/5/2018 15:40	1	119287	6/5/2018	1
5073477	18051841-18B	HG_7470_GW	SAMP		6/5/2018 15:42	1	119287	6/5/2018	1
5073500	18051841-18B	HG_7470_GW	SAMP		6/5/2018 15:42	1	119287	6/5/2018	1
5073501	IPC/CCV	HG_7470_GW	CCV		6/5/2018 15:45	1	R237346		1
5073502	CRDL	HG_7470_GW	CRA		6/5/2018 15:47	1	R237346		1
5073503	CCB	HG_7470_GW	CCB		6/5/2018 15:50	1	R237346		1
5073504	18051841-19B	HG_7470_GW	SAMP		6/5/2018 15:53	1	119287	6/5/2018	1
5073505	18051841-34B	HG_7470_GW	SAMP		6/5/2018 15:55	1	119287	6/5/2018	1
5073506	18051841-35B	HG_7470_GW	SAMP		6/5/2018 15:58	1	119287	6/5/2018	1
5073507	18051842-02C	TCHG_7470_S	SAMP		6/5/2018 16:00	1	119287	6/5/2018	1
5073508	18051879-02A	TCHG_7470_S	SAMP		6/5/2018 16:03	1	119287	6/5/2018	1
5073509	18051879-04A	TCHG_7470_S	SAMP		6/5/2018 16:05	1	119287	6/5/2018	1
5073511	18052038-08A	HG_7470_GW	SAMP		6/5/2018 16:08	1	119287	6/5/2018	1
5073513	IPC/CCV	HG_7470_GW	CCV		6/5/2018 16:11	1	R237346		0
5073516	IPC/CCV	HG_7470_GW	CCV		6/5/2018 16:13	1	R237346		0
5073518	CRDL	HG_7470_GW	CRA		6/5/2018 16:16	1	R237346		1
5073520	CCB	HG_7470_GW	CCB		6/5/2018 16:18	1	R237346		1

Method 245.1 / 7470A / 7471B

Report Generated By CETAC QuickTrace
Analyst: alshn.hg
Worksheet file: C:\Program Files\QuickTrace\Worksheets\180605A.wsz
Date Started: 6/5/2018 5:56:03 AM
Comment:

Hg | 180605A

Results

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
Calibration Blank				STD	06/05/18 06:00:54 am	0.000	-10	393.99	
Replicates	-41.4	-41.3	31.9	12.7					
Standard #1 (0.2 ppb)				STD	06/05/18 06:03:26 am	0.200	2788	3.22	
Replicates	2680.4	2757.7	2822.9	2890.4					
Standard #2 (0.5 ppb)				STD	06/05/18 06:05:58 am	0.500	6447	2.90	
Replicates	6198.7	6455.9	6482.2	6651.2					
Standard #3 (1.0 ppb)				STD	06/05/18 06:08:31 am	1.000	13549	2.79	
Replicates	13070.2	13458.3	13717.0	13952.5					
Standard #4 (2.0 ppb)				STD	06/05/18 06:11:05 am	2.000	23192	2.65	
Replicates	22430.0	23011.9	23462.6	23861.9					
Standard #5 (4.0 ppb)				STD	06/05/18 06:13:38 am	4.000	47934	2.40	
Replicates	46555.9	47520.2	48442.0	49217.7					

Calibration

Equation: A = 470.080 + 11828.550C
R2: 0.99831
SEE: 821.3832
Flags:

ICV				ICV	06/05/18 06:16:13 am	1.940	23361	2.23	
Replicates	22715.1	23207.5	23604.0	23919.0					
% Recovery	96.76								

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
ICB				ICB	06/05/18 06:18:48 am	-0.040	-9	273.43	
Replicates	11.4	-13.6	-43.1	8.4					
IPC/CCV				CCV	06/05/18 06:21:24 am	2.000	24100	2.40	
Replicates	23388.2	23943.3	24318.8	24749.1					
% Recovery	99.88								
CRDL				CRDL	06/05/18 06:24:00 am	0.201	2853	2.76	
Replicates	2772.8	2800.9	2902.6	2936.9					
% Recovery	100.74								
CCB				CCB	06/05/18 06:26:35 am	-0.039	12	478.03	
Replicates	-66.5	58.5	45.0	10.0					
MBLK-119245				UNK	06/05/18 06:42:28 am	0.015	643	3.62	
Replicates	632.2	651.8	617.3	670.8					
LCS-119245				UNK	06/05/18 06:44:59 am	1.980	23890	2.22	
Replicates	23259.4	23685.7	24136.7	24477.2					
18051689-01A				UNK	06/05/18 06:47:30 am	0.774	9628	2.56	
Replicates	9324.9	9567.5	9704.7	9913.2					
18051689-01AMS				UNK	06/05/18 06:50:01 am	2.870	34394	2.35	
Replicates	33408.9	34147.0	34724.3	35296.5					
18051689-01AMSD				UNK	06/05/18 06:52:33 am	2.770	33274	2.45	
Replicates	32248.6	33062.7	33633.7	34150.0					
18051689-02A				UNK	06/05/18 06:55:05 am	0.989	12167	3.69	
Replicates	11619.2	12032.1	12342.1	12673.4					
18051689-03A				UNK	06/05/18 06:57:38 am	0.884	10932	2.20	
Replicates	10656.3	10853.0	10990.5	11229.0					
18051689-04A				UNK	06/05/18 07:00:11 am	0.320	4257	3.13	
Replicates	4113.0	4177.7	4347.2	4391.2					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051689-05A				UNK	06/05/18 07:02:44 am	0.431	5574	1.75	
Replicates	5507.8	5483.8	5607.1	5696.1					
18051689-06A				UNK	06/05/18 07:05:17 am	1.010	12439	1.89	
Replicates	12126.6	12399.6	12572.4	12658.6					
IPC/CCV				CCV	06/05/18 07:07:52 am	2.030	24443	2.40	√RSH
Replicates	23736.1	24249.6	24684.1	25101.4					
% Recovery	101.33								
CRDL				CRDL	06/05/18 07:10:29 am	0.208	2927	4.44	
Replicates	2849.6	2792.5	2988.3	3078.3					
% Recovery	103.86								
CCB				CCB	06/05/18 07:13:04 am	-0.034	68	109.93	
Replicates	154.9	106.1	2.9	8.4					
18051689-07A				UNK	06/05/18 07:15:37 am	1.110	13616	2.38	
Replicates	13226.2	13500.4	13764.9	13972.9					
18051689-08A				UNK	06/05/18 07:18:11 am	0.759	9449	2.43	
Replicates	9160.4	9419.1	9498.9	9716.4					
18051689-09A				UNK	06/05/18 07:20:42 am	0.270	3662	1.81	
Replicates	3563.9	3684.5	3699.8	3701.5					
18051689-10A				UNK	06/05/18 07:23:13 am	0.467	5999	2.54	
Replicates	5817.9	5930.4	6103.4	6144.1					
18051689-11A				UNK	06/05/18 07:25:44 am	0.701	8757	2.12	
Replicates	8529.0	8684.0	8889.2	8926.7					
18051689-12A				UNK	06/05/18 07:28:16 am	0.620	7808	2.59	
Replicates	7582.2	7715.1	7887.4	8046.9					
18051689-13A				UNK	06/05/18 07:30:48 am	0.553	7006	2.23	
Replicates	6799.9	6972.0	7098.0	7152.3					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051689-14A				UNK	06/05/18 07:33:20 am	0.914	11281	2.12	
Replicates	10997.8	11178.5	11416.0	11532.5					
18051689-15A				UNK	06/05/18 07:35:52 am	0.640	8039	2.25	
Replicates	7817.4	7976.6	8130.6	8230.3					
18051689-16A				UNK	06/05/18 07:38:25 am	1.340	16274	2.17	
Replicates	15856.7	16147.3	16410.3	16682.0					
IPC/CCV				CCV	06/05/18 07:41:00 am	1.970	23783	2.33	
Replicates	23102.2	23624.3	24000.1	24405.8					
% Recovery	98.55								
CRDL				CRDL	06/05/18 07:43:37 am	0.207	2916	3.79	
Replicates	2767.6	2924.6	2938.8	3034.3					
% Recovery	103.40								
CCB				CCB	06/05/18 07:46:12 am	-0.037	28	57.27	
Replicates	48.7	18.3	13.1	30.3					
18051689-17A				UNK	06/05/18 07:48:45 am	0.359	4717	1.99	
Replicates	4639.9	4635.3	4769.3	4822.0					
18051689-18A				UNK	06/05/18 07:51:18 am	0.254	3470	2.39	
Replicates	3376.6	3441.8	3487.0	3574.3					
18051689-19A				UNK	06/05/18 07:53:51 am	0.714	8912	2.34	
Replicates	8679.8	8842.8	8946.3	9178.0					
18051689-20A				UNK	06/05/18 07:56:25 am	0.630	7924	2.47	
Replicates	7676.3	7883.0	7995.3	8140.8					
MBLK-119256				UNK	06/05/18 08:10:53 am	-0.019	247	19.43	
Replicates	290.4	255.7	264.5	178.7					
LCS-119256				UNK	06/05/18 08:13:24 am	2.100	25305	2.20	
Replicates	24612.4	25145.9	25549.4	25912.7					

Sample Name					Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
1806095-01A					UNK	06/05/18 08:15:56 am	0.004	516	4.40	
Replicates	543.0	522.9	507.4	489.7						
18052001-01A					UNK	06/05/18 08:18:27 am	0.091	1541	2.71	
Replicates	1487.3	1556.5	1534.8	1586.3						
18052001-01AMS					UNK	06/05/18 08:20:59 am	2.040	24628	2.17	
Replicates	23979.2	24444.4	24883.9	25205.4						
18052001-01AMSD					UNK	06/05/18 08:23:31 am	2.170	26113	1.96	
Replicates	25489.0	25940.7	26348.4	26671.9						
IPC/CCV					CCV	06/05/18 08:26:07 am	2.080	25069	2.39	
Replicates	24357.8	24851.9	25315.6	25751.6						
% Recovery	103.98									
CRDL					CRDL	06/05/18 08:28:43 am	0.208	2936	3.00	
Replicates	2810.0	2939.5	2997.3	2996.5						
% Recovery	104.23									
CCB					CCB	06/05/18 08:31:18 am	-0.034	65	88.42	
Replicates	44.7	-2.0	133.8	85.0						
18051780-01A					UNK	06/05/18 08:33:50 am	0.108	1752	1.52	
Replicates	1720.7	1741.1	1781.1	1765.1						
18051779-01A					UNK	06/05/18 08:36:23 am	O/R	61065	1.10	O
Replicates	60224.7	60858.0	61426.0	61751.0						
MBLK-119255					UNK	06/05/18 08:38:56 am	-0.052	-142	23.22	
Replicates	-188.8	-115.1	-141.3	-123.3						
LCS-119255					UNK	06/05/18 08:41:29 am	2.180	26279	1.94	
Replicates	25661.5	26136.0	26447.2	26870.0						
18051689-21A					UNK	06/05/18 08:44:03 am	0.330	4378	2.43	
Replicates	4238.6	4355.9	4438.9	4479.1						

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051689-22A				UNK	06/05/18 08:46:37 am	0.320	4258	1.85	
Replicates	4149.5	4308.1	4251.6	4322.9					
18051689-23A				UNK	06/05/18 08:49:08 am	0.832	10314	2.12	
Replicates	10048.5	10225.4	10457.1	10526.6					
18051689-24A				UNK	06/05/18 08:51:39 am	0.702	8779	1.69	
Replicates	8592.9	8752.0	8820.0	8950.0					
18051689-25A				UNK	06/05/18 08:54:11 am	0.489	6260	2.47	
Replicates	6098.1	6166.2	6340.7	6434.2					
18051689-26A				UNK	06/05/18 08:56:42 am	0.412	5343	2.81	
Replicates	5147.6	5316.0	5410.0	5499.3					
18051689-27A				UNK	06/05/18 08:59:14 am	0.611	7702	1.91	
Replicates	7551.2	7604.6	7790.3	7860.1					
IPC/CCV				CCV	06/05/18 09:01:50 am	1.980	23899	2.22	
Replicates	23222.0	23783.3	24126.3	24464.8					
% Recovery	99.04								
CRDL				CRDL	06/05/18 09:04:26 am	0.211	2968	2.33	
Replicates	2873.2	2973.3	2989.5	3037.5					
% Recovery	105.60								
CCB				CCB	06/05/18 09:07:01 am	-0.038	19	125.50	
Replicates	42.3	35.7	-6.3	3.9					
18051689-28A				UNK	06/05/18 09:09:33 am	0.509	6489	1.75	
Replicates	6349.3	6444.1	6585.1	6577.6					
18051689-29A				UNK	06/05/18 09:12:05 am	0.173	2520	2.06	
Replicates	2458.0	2498.1	2551.8	2572.3					
18051689-30A				UNK	06/05/18 09:14:38 am	1.160	14177	2.03	
Replicates	13832.3	14076.2	14299.2	14500.5					

RSM

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051689-31A				UNK	06/05/18 09:17:11 am	1.670	20236	1.95	
Replicates	19736.0	20156.0	20380.8	20670.3					
18051689-32A				UNK	06/05/18 09:19:45 am	2.720	32691	2.11	
Replicates	31845.0	32465.8	33012.0	33441.5					
18051689-32AMS				UNK	06/05/18 09:22:18 am	1.570	19005	2.15	
Replicates	18522.3	18844.9	19198.2	19456.2					
18051689-32AMSD				UNK	06/05/18 09:24:52 am	2.350	28223	2.12	
Replicates	27507.6	28021.6	28460.9	28902.6					
18051689-33A				UNK	06/05/18 09:27:23 am	0.237	3279	2.47	
Replicates	3178.7	3262.4	3303.6	3372.4					
18051689-34A				UNK	06/05/18 09:29:55 am	1.010	12378	2.06	
Replicates	12059.2	12304.5	12496.7	12650.0					
18051689-35A				UNK	06/05/18 09:32:27 am	1.450	17614	1.98	
Replicates	17165.8	17552.4	17744.9	17993.9					
IPC/CCV				CCV	06/05/18 09:35:02 am	2.060	24819	1.97	
Replicates	24206.6	24694.1	25028.4	25348.4					
% Recovery	102.93								
CRDL				CRDL	06/05/18 09:37:38 am	0.217	3033	3.32	
Replicates	2904.9	3000.3	3103.3	3122.0					
% Recovery	108.32								
CCB				CCB	06/05/18 09:40:14 am	-0.042	-28	56.15	
Replicates	-28.6	-18.7	-49.2	-14.2					
18051689-36A				UNK	06/05/18 09:42:45 am	0.804	9982	2.20	
Replicates	9741.0	9881.5	10054.0	10250.2					
18051689-37A				UNK	06/05/18 09:45:17 am	0.411	5334	2.99	
Replicates	5123.8	5318.7	5387.7	5504.9					

√ RSA

Sample Name				Type Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051689-38A				UNK 06/05/18 09:47:49 am	0.337	4458	1.94	
Replicates	4370.3	4400.0	4510.5	4551.5				
18051689-39A				UNK 06/05/18 09:50:22 am	0.895	11052	2.27	
Replicates	10733.9	10997.9	11146.9	11327.4				
18051689-40A				UNK 06/05/18 09:52:54 am	0.335	4434	1.73	
Replicates	4331.7	4452.5	4433.0	4516.8				
18051779-01A DF2				UNK 06/05/18 10:10:45 am	3.860	46181	1.56	✓
Replicates	45258.2	46000.9	46546.2	46917.9				
IPC/CCV				CCV 06/05/18 10:13:20 am	2.120	25596	2.03	✓ LCSH
Replicates	24980.1	25413.0	25798.5	26194.0				
% Recovery	106.21							
CRDL				CRDL 06/05/18 10:15:57 am	0.215	3012	2.71	
Replicates	2890.4	3039.6	3058.1	3059.6				
% Recovery	107.44							
CCB				CCB 06/05/18 10:18:32 am	-0.040	-4	324.65	
Replicates	24.9	-83.8	5.9	36.4				
18051729-01A				UNK 06/05/18 10:41:32 am	0.027	790	5.47	
Replicates	740.5	792.9	780.2	845.2				
18051729-02A				UNK 06/05/18 10:44:06 am	0.081	1429	3.50	
Replicates	1376.3	1459.6	1397.6	1481.9				
18051729-03A				UNK 06/05/18 10:46:40 am	0.113	1811	2.75	
Replicates	1781.1	1758.0	1843.3	1863.0				
18051729-04A				UNK 06/05/18 10:49:12 am	0.012	615	5.79	
Replicates	617.4	564.6	642.8	637.1				
18051729-05A				UNK 06/05/18 10:51:44 am	-0.013	320	7.00	
Replicates	325.0	349.1	297.8	308.1				

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051729-06A				UNK	06/05/18 10:54:16 am	0.010	592	8.30	
Replicates	639.0	524.1	612.6	591.6					
18051774-21A				UNK	06/05/18 10:56:48 am	1.420	17285	1.91	
Replicates	16842.6	17253.2	17427.2	17617.0					
18051774-22A				UNK	06/05/18 10:59:20 am	2.300	27706	2.02	
Replicates	27010.0	27554.8	27933.8	28325.1					
18051774-23A				UNK	06/05/18 11:01:52 am	2.600	31197	1.85	
Replicates	30515.2	30991.4	31418.4	31863.7					
18051774-24A				UNK	06/05/18 11:04:24 am	2.590	31110	2.04	
Replicates	30320.8	30956.2	31338.2	31822.9					
IPC/CCV				CCV	06/05/18 11:07:00 am	2.130	25676	2.16	
Replicates	24999.7	25506.2	25904.0	26294.0					
% Recovery	106.55								
CRDL				CRDL	06/05/18 11:09:36 am	0.201	2852	3.41	
Replicates	2740.4	2799.7	2932.2	2933.7					
% Recovery	100.67								
CCB				CCB	06/05/18 11:12:11 am	-0.039	7	676.08	
Replicates	38.7	30.5	-67.3	27.7					
18051774-25A				UNK	06/05/18 11:14:44 am	0.708	8841	1.86	
Replicates	8637.3	8794.3	8909.3	9021.3					
18051774-26A				UNK	06/05/18 11:17:17 am	0.737	9184	2.09	
Replicates	8949.3	9120.3	9273.0	9392.3					
18051774-27A				UNK	06/05/18 11:19:50 am	1.160	14181	1.90	
Replicates	13853.6	14088.5	14306.5	14475.0					
18051774-28A				UNK	06/05/18 11:22:24 am	0.858	10613	1.76	
Replicates	10357.3	10630.3	10662.8	10803.5					

RSH

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051778-01A				UNK	06/05/18 11:24:57 am	0.070	1303	2.94	
Replicates	1283.9	1260.0	1322.7	1345.2					
18051778-07C				UNK	06/05/18 11:27:30 am	0.060	1183	2.80	
Replicates	1134.1	1189.6	1201.1	1206.1					
IPC/CCV				CCV	06/05/18 12:03:31 pm	1.980	23879	1.78	
Replicates	23340.0	23777.9	24061.9	24335.1					
% Recovery	98.95								
CRDL				CRDL	06/05/18 12:06:07 pm	0.199	2819	2.81	
Replicates	2711.0	2809.8	2885.0	2871.5					
% Recovery	99.30								
CCB				CCB	06/05/18 12:08:42 pm	-0.037	32	155.74	
Replicates	86.6	29.1	-34.1	47.9					
MBLK-119269				UNK	06/05/18 12:18:34 pm	-0.015	291	8.66	
Replicates	273.4	313.9	312.1	265.9					
LCS-119269				UNK	06/05/18 12:21:07 pm	2.140	25768	2.09	
Replicates	25109.8	25601.6	26001.3	26360.8					
18051774-01A				UNK	06/05/18 12:23:39 pm	1.370	16721	2.09	
Replicates	16278.2	16660.4	16828.1	17115.9					
18051774-02A				UNK	06/05/18 12:26:11 pm	1.650	20020	2.03	
Replicates	19568.7	19825.7	20193.0	20494.2					
18051774-03A				UNK	06/05/18 12:28:44 pm	2.010	24260	2.11	
Replicates	23628.9	24111.2	24474.0	24827.5					
18051774-04A				UNK	06/05/18 12:31:16 pm	2.900	34795	1.91	
Replicates	33956.7	34641.0	35071.0	35513.2					
18051774-05A				UNK	06/05/18 12:33:49 pm	3.100	37126	2.00	
Replicates	36210.8	36912.3	37439.6	37942.6					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051774-06A				UNK	06/05/18 12:36:22 pm	2.600	31280	1.59	
Replicates	30660.8	31130.1	31512.9	31815.1					
18051774-07A				UNK	06/05/18 12:38:55 pm	2.420	29143	1.90	
Replicates	28438.3	29003.0	29410.7	29718.7					
18051774-08A				UNK	06/05/18 12:41:28 pm	2.900	34768	2.02	
Replicates	33897.0	34550.7	35101.9	35521.9					
IPC/CCV				CCV	06/05/18 12:44:04 pm	2.130	25674	2.02	
Replicates	25012.4	25563.4	25881.9	26236.7					
% Recovery	106.54								
CRDL				CRDL	06/05/18 12:46:40 pm	0.200	2836	2.94	
Replicates	2725.7	2819.7	2882.7	2915.2					
% Recovery	100.00								
CCB				CCB	06/05/18 12:49:15 pm	-0.040	-5	275.82	
Replicates	9.6	-16.1	-19.8	4.9					
18051774-08AMS				UNK	06/05/18 12:51:49 pm	O/R	50871	1.78	O
Replicates	49763.7	50613.2	51207.2	51901.7					
18051774-08AMSD				UNK	06/05/18 12:54:22 pm	O/R	49951	1.92	O
Replicates	48778.3	49655.9	50355.4	51016.4					
18051774-09A				UNK	06/05/18 12:56:54 pm	2.470	29685	1.68	
Replicates	29055.3	29605.1	29830.1	30250.1					
18051774-10A				UNK	06/05/18 12:59:27 pm	2.320	27873	2.13	
Replicates	27132.3	27726.6	28096.1	28535.1					
18051774-11A				UNK	06/05/18 01:01:59 pm	0.918	11330	2.61	
Replicates	10991.4	11212.8	11436.3	11681.3					
18051774-12A				UNK	06/05/18 01:04:32 pm	0.674	8448	2.22	
Replicates	8232.1	8388.5	8490.7	8679.0					

√RSH

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051774-13A				UNK	06/05/18 01:07:04 pm	1.090	13315	1.84	
Replicates	12976.2	13313.9	13423.9	13545.6					
18051774-14A				UNK	06/05/18 01:09:37 pm	1.040	12792	1.67	
Replicates	12528.4	12739.2	12865.7	13034.5					
18051774-15A				UNK	06/05/18 01:12:10 pm	0.926	11425	2.30	
Replicates	11100.6	11346.8	11538.0	11713.0					
18051774-16A				UNK	06/05/18 01:14:43 pm	1.000	12353	2.04	
Replicates	12046.9	12309.4	12397.6	12658.4					
IPC/CCV				CCV	06/05/18 01:17:18 pm	2.160	25974	2.05	
Replicates	25342.3	25769.6	26219.9	26564.1					
% Recovery	107.81								
CRDL				CRDL	06/05/18 01:19:54 pm	0.202	2865	1.55	
Replicates	2815.9	2840.3	2913.3	2888.8					
% Recovery	101.22								
CCB				CCB	06/05/18 01:22:30 pm	-0.044	-51	26.29	
Replicates	-54.4	-32.7	-64.9	-53.2					
18051774-17A				UNK	06/05/18 01:25:03 pm	1.330	16191	1.80	
Replicates	15836.1	16074.6	16380.6	16471.6					
18051774-18A				UNK	06/05/18 01:27:36 pm	1.480	17958	2.09	
Replicates	17462.9	17893.3	18143.0	18331.8					
18051774-19A				UNK	06/05/18 01:30:10 pm	1.250	15269	1.94	
Replicates	14898.6	15214.1	15354.9	15608.6					
18051774-20A				UNK	06/05/18 01:32:43 pm	1.160	14249	2.31	
Replicates	13862.3	14108.5	14424.5	14601.0					
MBLK-119285				UNK	06/05/18 01:38:31 pm	-0.021	225	11.32	
Replicates	229.2	247.5	188.8	235.8					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
LCS-119285				UNK	06/05/18 01:41:04 pm	1.860	22464	2.65	
Replicates	21735.3	22242.0	22810.5	23066.5					
18051756-01B				UNK	06/05/18 01:43:37 pm	-0.024	180	10.01	
Replicates	188.9	167.1	201.1	163.1					
18051756-01C				UNK	06/05/18 01:46:10 pm	-0.020	233	21.16	
Replicates	206.3	265.4	281.9	177.1					
18051756-02B				UNK	06/05/18 01:48:43 pm	-0.023	203	30.25	
Replicates	166.2	140.8	229.8	276.5					
18051756-02C				UNK	06/05/18 01:51:15 pm	-0.028	138	28.88	
Replicates	128.6	119.9	195.9	106.6					
IPC/CCV				CCV	06/05/18 01:53:51 pm	2.050	24687	2.19	
Replicates	24016.8	24562.2	24861.4	25307.4					
% Recovery	102.37								
CRDL				CRDL	06/05/18 01:56:27 pm	0.184	2646	3.32	
Replicates	2524.8	2647.8	2679.3	2731.8					
% Recovery	91.98								
CCB				CCB	06/05/18 01:59:02 pm	-0.040	-7	230.70	
Replicates	14.7	-11.3	-6.8	-25.6					
18051756-03B				UNK	06/05/18 02:01:35 pm	-0.032	93	27.63	
Replicates	97.3	58.7	120.7	93.5					
18051756-03C				UNK	06/05/18 02:04:08 pm	-0.030	113	21.45	
Replicates	96.3	148.3	98.0	109.3					
18051756-04B				UNK	06/05/18 02:06:41 pm	-0.036	48	28.06	
Replicates	38.9	41.9	67.6	42.4					
18051756-04C				UNK	06/05/18 02:09:15 pm	-0.031	102	41.62	
Replicates	139.0	76.9	138.2	55.7					

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Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051766-01A				UNK	06/05/18 02:11:49 pm	-0.024	181	17.49	
Replicates	180.1	189.3	216.1	139.6					
18051772-02A				UNK	06/05/18 02:14:22 pm	-0.033	85	27.29	
Replicates	55.5	85.8	86.5	112.3					
18051772-03A				UNK	06/05/18 02:16:55 pm	-0.031	106	18.31	
Replicates	119.3	118.3	77.8	107.8					
18051772-03AMS				UNK	06/05/18 02:19:28 pm	1.940	23430	2.20	
Replicates	22836.4	23241.3	23592.6	24049.8					
18051772-03AMSD				UNK	06/05/18 02:22:01 pm	1.970	23746	2.32	
Replicates	23065.1	23597.3	23955.3	24366.0					
18051772-04A				UNK	06/05/18 02:24:34 pm	-0.036	41	119.28	
Replicates	32.5	-24.3	70.2	84.4					
IPC/CCV				CCV	06/05/18 02:27:10 pm	2.180	26296	2.11	
Replicates	25616.2	26134.9	26508.4	26923.6					
% Recovery	109.17								
CRDL				CRDL	06/05/18 02:29:46 pm	0.172	2508	3.37	
Replicates	2398.7	2497.7	2532.4	2601.4					
% Recovery	86.13								
CCB				CCB	06/05/18 02:32:21 pm	-0.039	9	282.27	
Replicates	38.9	-16.3	-9.0	23.7					
18051772-06A				UNK	06/05/18 02:34:54 pm	-0.033	75	33.86	
Replicates	77.3	63.8	50.5	110.0					
18051774-29A				UNK	06/05/18 02:37:27 pm	-0.034	64	24.58	
Replicates	59.0	47.1	84.9	66.1					
18051794-02A				UNK	06/05/18 02:40:00 pm	-0.031	106	36.04	
Replicates	136.4	142.2	75.2	71.2					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051794-04A				UNK	06/05/18 02:42:33 pm	-0.029	131	16.36	
Replicates	105.0	137.4	124.9	155.9					
18051794-06A				UNK	06/05/18 02:45:06 pm	-0.029	123	21.14	
Replicates	105.2	114.3	110.3	161.3					
18051834-01A				UNK	06/05/18 02:47:40 pm	-0.034	73	72.14	
Replicates	121.8	25.5	115.5	29.5					
18051834-03A				UNK	06/05/18 02:50:14 pm	-0.028	138	15.73	
Replicates	160.5	146.5	109.0	137.0					
18051838-02C				UNK	06/05/18 02:52:47 pm	0.130	2009	3.55	
Replicates	1975.2	1947.9	2000.7	2110.7					
MBLK-119287				UNK	06/05/18 03:01:41 pm	-0.021	223	12.62	
Replicates	211.1	188.8	249.8	241.5					
LCS-119287				UNK	06/05/18 03:04:15 pm	1.900	22971	2.28	
Replicates	22357.0	22782.9	23157.4	23586.2					
18051838-04A				UNK	06/05/18 03:06:48 pm	-0.017	270	15.79	
Replicates	243.7	333.6	254.4	248.4					
IPC/CCV				CCV	06/05/18 03:09:24 pm	2.230	26879	2.05	Q
Replicates	26181.3	26771.4	27075.9	27487.2					
% Recovery	111.63								
IPC/CCV				CCV	06/05/18 03:12:00 pm	2.200	26447	2.03	
Replicates	25815.7	26246.9	26663.7	27062.7					
% Recovery	109.81								
CRDL				CRDL	06/05/18 03:14:36 pm	0.185	2663	1.77	
Replicates	2653.2	2617.3	2652.1	2728.8					
% Recovery	92.69								
CCB				CCB	06/05/18 03:17:11 pm	-0.042	-28	33.02	
Replicates	-21.7	-31.7	-18.5	-38.2					

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Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051840-02C				UNK	06/05/18 03:19:44 pm	-0.017	270	16.47	
Replicates	269.0	324.0	269.8	215.3					
18051840-04A				UNK	06/05/18 03:22:18 pm	-0.022	213	16.69	
Replicates	208.1	245.3	164.8	232.8					
18051841-01B				UNK	06/05/18 03:24:51 pm	-0.023	202	6.28	
Replicates	186.0	215.5	198.5	207.5					
18051841-02B				UNK	06/05/18 03:27:25 pm	-0.020	233	15.61	
Replicates	238.6	199.9	282.4	212.6					
18051841-02BMS				UNK	06/05/18 03:29:59 pm	1.880	22662	2.04	
Replicates	22108.0	22496.0	22866.8	23177.8					
18051841-02BMSD				UNK	06/05/18 03:32:32 pm	1.940	23442	2.07	
Replicates	22842.9	23301.5	23648.0	23974.2					
18051841-03B				UNK	06/05/18 03:35:06 pm	-0.028	136	27.23	
Replicates	140.2	133.1	90.4	180.9					
18051841-16B				UNK	06/05/18 03:37:40 pm	-0.022	209	9.76	
Replicates	186.1	234.6	201.6	211.9					
18051841-17B				UNK	06/05/18 03:40:13 pm	-0.018	256	17.91	
Replicates	273.4	189.1	268.1	293.1					
18051841-18B				UNK	06/05/18 03:42:47 pm	-0.002	443	5.10	
Replicates	413.9	468.3	439.5	449.0					
IPC/CCV				CCV	06/05/18 03:45:23 pm	2.120	25495	1.84	
Replicates	24905.3	25353.2	25748.7	25972.5					
% Recovery	105.78								
CRDL				CRDL	06/05/18 03:47:59 pm	0.182	2629	2.60	
Replicates	2544.6	2606.4	2701.4	2661.9					
% Recovery	91.24								

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
CCB				CCB	06/05/18 03:50:34 pm	-0.044	-57	56.41	
Replicates	-26.3	-71.7	-34.5	-94.5					
18051841-19B				UNK	06/05/18 03:53:08 pm	-0.016	282	11.48	
Replicates	253.2	264.0	284.0	326.5					
18051841-34B				UNK	06/05/18 03:55:41 pm	-0.020	230	19.38	
Replicates	232.2	177.5	286.5	225.0					
18051841-35B				UNK	06/05/18 03:58:15 pm	-0.022	215	17.59	
Replicates	263.3	220.5	172.2	204.7					
18051842-02C				UNK	06/05/18 04:00:49 pm	0.028	796	3.57	
Replicates	817.1	756.3	795.6	816.1					
18051879-02A				UNK	06/05/18 04:03:23 pm	-0.007	386	11.41	
Replicates	343.0	357.8	406.0	438.8					
18051879-04A				UNK	06/05/18 04:05:57 pm	-0.002	441	6.29	
Replicates	414.9	443.6	479.1	427.9					
18052038-08A				UNK	06/05/18 04:08:30 pm	0.007	556	8.60	
Replicates	531.2	514.7	623.5	555.7					
IPC/CCV				CCV	06/05/18 04:11:06 pm	2.220	26709	1.89	Q
Replicates	26108.8	26534.9	26905.7	27284.7					
% Recovery	110.91								
IPC/CCV				CCV	06/05/18 04:13:42 pm	2.210	26647	1.78	Q
Replicates	26058.2	26555.1	26781.6	27193.1					
% Recovery	110.65								
CRDL				CRDL	06/05/18 04:16:18 pm	0.206	2912	1.74	
Replicates	2866.7	2880.4	2920.4	2979.4					
% Recovery	103.21								
CCB				CCB	06/05/18 04:18:53 pm	-0.042	-27	180.25	
Replicates	-33.9	-90.6	23.1	-6.1					

Sample Name				Type	Date/Time	Conc (ppb)	µAbs	%RSD	Flags
18051972-01A DF10				UNK	06/05/18 04:25:11 pm	2.410	28967	2.28	
Replicates	28140.3	28792.0	29242.8	29691.0					
18051972-02A DF10				UNK	06/05/18 04:27:45 pm	1.440	17450	2.37	
Replicates	16927.6	17360.6	17604.4	17908.1					
18051972-02AMS DF10				UNK	06/05/18 04:30:19 pm	1.800	21736	1.97	
Replicates	21205.4	21609.4	21932.2	22197.7					
18051972-02AMSD DF10				UNK	06/05/18 04:32:53 pm	1.680	20289	2.16	
Replicates	19740.3	20164.1	20500.9	20750.4					
18051972-03A				UNK	06/05/18 04:35:27 pm	0.087	1501	1.88	
Replicates	1462.1	1497.7	1523.5	1520.2					
18051972-03ADUP				UNK	06/05/18 04:38:01 pm	0.085	1471	2.30	
Replicates	1469.7	1431.2	1513.9	1468.2					
IPC/CCV				CCV	06/05/18 04:40:37 pm	2.180	26255	2.14	
Replicates	25610.7	26049.2	26426.9	26931.4					
% Recovery	108.99								
CRDL				CRDL	06/05/18 04:43:13 pm	0.178	2573	1.74	
Replicates	2523.3	2598.0	2549.7	2621.7					
% Recovery	88.90								
CCB				CCB	06/05/18 04:45:48 pm	-0.039	9	434.54	
Replicates	52.2	14.2	-38.3	6.0					

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PREP BATCH REPORT

Batch ID: **119256** Prep Code: **HGPR_7471_S**

Start Date: **6/5/2018 7:08:33 AM** End Date: **6/5/2018 7:40:55 AM**

Technician: **Rob Haney**

InitSamp Wt/Vol: 0.6 g
FinSampVol: 50 mL
OriginalFac: 83.3333
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051729-01A	Soil		0.764		0	50	65.445
The prep HoldTime was exceeded by 18 days.							
18051729-02A	Soil		0.637		0	50	78.4929
The prep HoldTime was exceeded by 18 days.							
18051729-03A	Soil		0.767		0	50	65.189
The prep HoldTime was exceeded by 18 days.							
18051729-04A	Soil		0.697		0	50	71.736
The prep HoldTime was exceeded by 18 days.							
18051729-05A	Soil		0.755		0	50	66.2252
The prep HoldTime was exceeded by 18 days.							
18051729-06A	Soil		0.629		0	50	79.4913
The prep HoldTime was exceeded by 18 days.							
18051774-21A	Soil		0.692		0	50	72.2543
18051774-22A	Soil		0.646		0	50	77.3994
18051774-23A	Soil		0.71		0	50	70.4225
18051774-24A	Soil		0.662		0	50	75.5287
18051774-25A	Soil		0.697		0	50	71.736
18051774-26A	Soil		0.73		0	50	68.4932
18051774-27A	Soil		0.691		0	50	72.3589
18051774-28A	Soil		0.63		0	50	79.3651
18051778-01A	Soil		0.756		0	50	66.1376
18051778-07C	Soil		0.676		0	50	73.9645
18051779-01A	Soil		0.689		0	50	72.5689
18051780-01A	Soil		0.761		0	50	65.703
18052001-01A	Soil		0.667		0	50	74.9625

Notes: *ALL SAMPLES ARE B1/D1 UNLESS OTHERWISE NOTED. BLOCK A 96 degrees C // Digestion Cups: 180304 Auto Sampler Tubes: 274134 // Boiling Chips: 26397-103/1920-174-2*

ALS Group, USA

PREP BATCH REPORT

Batch ID: **119256** Prep Code: **HGPR_7471_S**

Start Date: **6/5/2018 7:08:33 AM** End Date: **6/5/2018 7:40:55 AM**

Technician: **Rob Haney**

InitSamp Wt/Vol: 0.6 g
FinSampVol: 50 mL
OriginalFac: 83.3333
PrepUnitFac:

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18052001-01AMS			0.664		0	50	75.3012
18052001-01AMS			0.663		0	50	75.4148
1806095-01A	Soil		0.662		0	50	75.5287
LCS-119256			0.6		0	50	83.3333
MBLK-119256			0.6		0	50	83.3333

Notes: *ALL SAMPLES ARE B1/D1 UNLESS OTHERWISE NOTED. BLOCK A 96 degrees C // Digestion Cups: 180304 Auto Sampler Tubes: 274134 // Boiling Chips: 26397-103/1920-174-2*

Wet Chemistry

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA | PHONE +1 616 399 6070 | FAX +1 616 399 6185
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1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-46

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-01A

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	5.5			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-51

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-06B

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	11			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-52

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-07C

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 0 Date Prep:

CONCENTRATION UNITS: % of sample

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
MOIST	Moisture	9.8			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-52

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-07A

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 0 Date Prep: 5/31/2018

CONCENTRATION UNITS: g/Kg

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
OXDEMAND	Oxidant Demand (KMnO	10.9			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-51

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-06C

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 11 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	1.5			

1

CLIENT SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

18CP02-52

Lab Name: ALS Group, USA

Lab Code: MI01262 Case No. SAS No SDG No. 18051778

Matrix: Soil Lab Sample ID: 18051778-07B

Level (low/med): LOW Date Received: 5/25/2018

% Moisture: not dec. 9.8 Date Prep:

CONCENTRATION UNITS: % by wt-dry

CAS NO.	COMPOUND	CONCENTRATION	C	Q	M
ORGANICCARB	Organic Carbon - W-B	0.091			

ALS Group, USA

Date: 02-Jul-18

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **118942** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063673** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063674** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.84	0	15	0	92.3	80-120	0			

DUP Sample ID: **18051682-04D DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063676** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.29	0	0	0	0		8.41	45	20	R

DUP Sample ID: **18051682-04D DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063677** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.97	0	0	0	0		8.41	26.4	20	R

DUP Sample ID: **18051778-07A DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-52** Run ID: **WETCHEM_180531G** SeqNo: **5063679** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	11.52	0	0	0	0		10.94	5.16	20	

DUP Sample ID: **18051778-07A DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-52** Run ID: **WETCHEM_180531G** SeqNo: **5063680** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.91	0	0	0	0		10.94	9.88	20	

The following samples were analyzed in this batch: 18051778-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237207** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237207** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068125** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R237207** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068124** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051774-19A DUP** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068106** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.48	0.050	0	0	0	0-0	18.13	1.91	10	

DUP Sample ID: **1806095-01A DUP** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068123** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.22	0.050	0	0	0	0-0	14.18	0.282	10	

The following samples were analyzed in this batch:

18051778-01A	18051778-06B	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237238** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069364** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1121	0.025	0.1	0	112	91-143	0			

MS Sample ID: **18051778-06C MS** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: **18CP02-51** Run ID: **WETCHEM_180604E** SeqNo: **5069368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.627	0.025	0.4739	1.309	67	91-143	0			S

MSD Sample ID: **18051778-06C MSD** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: **18CP02-51** Run ID: **WETCHEM_180604E** SeqNo: **5069369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.65	0.025	0.4739	1.309	71.9	91-143	1.627	1.41	20	S

The following samples were analyzed in this batch:

18051778-06C	18051778-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Moisture

ALS Environmental

Analyst:	NW	Date/Time In:	6/1/18 7:50 PM
Review By:		Date/Time Out:	6/2/18 11:28 AM
Method:	% Moisture (E160.3M)	Batch ID:	MOIST_180601G
SOP:	HN-WC-036	Balance ID:	6

Temp In Deg C:	104.2
Temp Out Deg C:	104.2
Sand BPL:	2049-158-8

WO	Btl. #	SampType	Dish ID	Pan Wt *	Tare Wt*	Wet Wt	1st Wt	2nd Wt	3rd Wt	Final Wt**	% Solid	%Moisture	Analyte
WBLKS		MBLK	BLK	1.2944	0	0.0000				1.2947	0.03	0.03	Moisture
LCS		LCS	LCS	1.2956	0	9.1319		OVEN 5		10.428	100.01	100.01	Moisture
18051774-19A	1	SAMP	D1	1.3285	0	7.8115				7.7235	81.87	18.13	Moisture
18051774-19A DUP	1	DUP	D2	1.3125	0	8.7337				8.432	81.52	18.48	Moisture
18051774-20A	1	SAMP	D3	1.3359	0	8.0489				7.558	77.30	22.70	Moisture
18051774-21A	1	SAMP	D4	1.3571	0	8.0022				7.9223	82.04	17.96	Moisture
18051774-22A	1	SAMP	D5	1.3454	0	7.4802				7.2436	78.85	21.15	Moisture
18051774-23A	1	SAMP	D6	1.2918	0	7.8507				7.6621	81.14	18.86	Moisture
18051774-24A	1	SAMP	D7	1.3332	0	9.0382				8.4216	78.43	21.57	Moisture
18051774-25A	1	SAMP	D8	1.3776	0	7.9599				7.2376	73.62	26.38	Moisture
18051774-26A	1	SAMP	D9	1.3599	0	7.4159				7.0867	77.22	22.78	Moisture
18051774-27A	1	SAMP	D10	1.3664	0	6.3425				6.207	76.32	23.68	Moisture
18051774-28A	1	SAMP	D11	1.37	0	8.546				8.2089	80.02	19.98	Moisture
1806095-01A	1	SAMP	D12	1.313	0	9.4299				9.4053	85.82	14.18	Moisture
1806095-01A DUP	1	DUP	D13	1.2909	0	9.186				9.1707	85.78	14.22	Moisture
18051996-01A	1	SAMP	D14	1.3206	0	7.6383				7.8955	86.08	13.92	Moisture
18051778-01A	1	SAMP	D15	1.2976	0	10.6572				11.3688	94.50	5.50	Moisture
18051778-06B	1	SAMP	D16	1.3389	0	9.3711				9.6447	88.63	11.37	Moisture
18051778-07C	1	SAMP	D17	1.3124	0	8.511				8.994	90.25	9.75	Moisture
18051879-01A	1	SAMP	D18	1.388	0	1.1406				2.4787	95.63	4.37	Moisture
18051879-03A	1	SAMP	D19	1.3933	0	1.5359				2.4671	69.91	30.09	Moisture
18051520-06A	1	SAMP	D20	1.3898	0	8.5759				9.2953	92.18	7.82	Moisture
18051520-42A	1	SAMP	D21	1.3964	0	9.2918				10.0023	92.62	7.38	Moisture
18051520-46A	1	SAMP	D22	1.3673	0	8.8207				9.4695	91.85	8.15	Moisture

Re-Dry		Temp °C	Analyst
Date/Time In:			
Date/Time Out:			

Analysis Date/Time:	6/2/2018 20:25	NW

: Tare weight must ≤ 0.0005g

****: Weight difference must be <4% or 0.5mg (whichever is smaller)**

% Solid = ((Final Wt - Pan Wt) / Wet Wt)*100

% Moisture = (1- (Final Wt - Pan Wt) / Wet Wt)) * 100

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Oxidant Demand

Batch ID: WETCHEM-180531G Date: 5/31/2018 Wavelength: 525 nm Analyst: JJG

Sample ID	Sample Wt. (g)	Final Volume (mL)	KMnO4 Dose (mg/L)	Contact Time (hours)	Dilution	Absorbance A	Absorbance B	Observed KMnO4 Conc. (mg/L)	Blank KMnO4 Conc. (mg/L)	Final KMnO4 Concentration (mg/L)	Oxidant Demand (g/Kg)
0						0	r = 0.99999				
0.5						0.009					
50						0.742					
100						1.474					
MBLK- 118942	50	100	20000	96	250	1.206	0	81.71	0.00	20427.50	-0.86
LCS- 118942	50	100	20000	96	250	0.773	0	52.33	0.00	13082.50	13.84
18051682-04D	50.59	100	20000	96	250	0.93	0	62.98	0.00	15745.00	8.41
18051682-04D	50.31	100	20000	96	250	0.789	0.004	53.42	0.16	13315.00	13.29
18051682-04D	49.06	100	20000	96	250	0.863	0.001	58.44	-0.04	14620.00	10.97
18051778-07A	50.54	100	20000	96	250	0.855	0	57.89	0.00	14472.50	10.94
18051778-07A	40.61	100	20000	96	250	0.905	0	61.28	0.00	15320.00	11.52
18051778-07A	46.53	100	20000	96	250	0.909	0	61.56	0.00	15390.00	9.91
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!
Samp (1)		100	20000	96	250					0.00	#DIV/0!
Samp (2)		100	20000	96	250					0.00	#DIV/0!
Samp (3)		100	20000	96	250					0.00	#DIV/0!

Vial Lot ID: 1712272 Calcium Chloride BPL: 2049-177-1 Reviewed By:

KMnO4 Standard BPL: 3072-59-13 Sodium Thio (0.019M) BPL: 3072-62-15 Review Date:

File Name: 180531A

ALS Group, USA

PREP BATCH REPORT

Batch ID: **118942** Prep Code: **OXDMD_PREP**

Start Date: **5/27/2018** End Date: **5/31/2018**

Technician: **Jenny Jones-Grzan**

InitSamp Wt/Vol:	50 g
FinSampVol:	100 mL
OriginalFac:	1
PrepUnitFac:	0.5

Sample ID	Matrix	pH	Init wt	Init vol	PMoisture	Fin Vol (mL)	Factor
18051682-04D	Soil		50		0	100	1
18051682-04D DU			50		0	100	1
18051682-04D DU			50		0	100	1
18051778-07A	Soil		50		0	100	1
18051778-07A DU			50		0	100	1
18051778-07A DU			50		0	100	1
LCS-118942			50		0	100	1
MBLK-118942			50		0	100	1

Notes:

TOC Walkley-Black Calculations

Batch ID: WC-180604E
Analyst: KF
Date: 6/4/18 9:37AM

Sample ID	g sample	mL FeSO4	meq Fe	%
BLANK	10	20.75	10.375	-0.01463
LCS	10	14.25	7.125	0.112125
18051682-04	2.5	18.45	9.225	0.1209
18051778-06	2.19	5.3	2.65	1.308904
18051778-06 MS	2.11	2.4	1.2	1.62654
18051778-06 MSD	2.11	2.15	1.075	1.649645
18051778-07	3.46	18.55	9.275	0.08172
			0	#DIV/0!
			0	#DIV/0!
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$$\text{TOC \%} = \frac{(\text{Meq } K_2Cr_2O_2 - \text{MeqFeSO4}) \times .003 \times 100}{\text{grams water free soil}} \times (f)$$

(f) =correction factor of 1.3

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FeSO4: 3012-225-1...
$K_2Cr_2O_7$: 3012-100-9
Sulfuric Acid:

Sample ID	Sample Size (g)	N $FeSO_4$	Titration			mLs 1.0 N $K_2Cr_2O_7$	% Organic Carbon	Comments
			Finish	Start	Difference (mL)			
Blank	10g	0.5N	20.75	0	20.25			
LCS	↓		35.00	20.75	14.25			3072-46-11
1805 1682-04	2.50		18.95	0.50	18.45			
1778-06	2.19		24.25	18.95	5.30			
-06 MS	2.11		26.65	24.25	2.40			3072-46-11
-06 MSD	2.11		28.80	26.65	2.15			
-07	3.46	↓	47.25	28.80	18.55			

6.418

Reviewed By:
Date Reviewed: 6/4/18

Section IV

ATTACHMENTS

-Previously Issued Report(s)

ADDRESS 3352 128th Avenue, Holland Michigan 49424-9236 USA PHONE +1 616 399 6070 FAX +1 616 399 6185
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06-Jun-2018

Heather Hodach
Jacobs
135 S. 84th Street
Suite 400
Milwaukee, WI 53214

Re: **PMC** Work Order: **18051778**

Dear Heather,

ALS Environmental received 8 samples on 25-May-2018 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 06-Jun-18

Client: Jacobs
Project: PMC
Work Order: **18051778**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18051778-01	18CP02-46	Soil		5/23/2018 16:50	5/25/2018 09:30	☐
18051778-02	18CP02-47	Soil		5/24/2018 14:45	5/25/2018 09:30	☐
18051778-03	18CP02-48	Water		5/24/2018 14:40	5/25/2018 09:30	☐
18051778-04	18CP02-49	Groundwater		5/24/2018 14:10	5/25/2018 09:30	☐
18051778-05	18CP02-50	Groundwater		5/24/2018 14:15	5/25/2018 09:30	☐
18051778-06	18CP02-51	Soil		5/24/2018 11:55	5/25/2018 09:30	☐
18051778-07	18CP02-52	Soil		5/24/2018 12:00	5/25/2018 09:30	☐
18051778-08	18CP02-53	Groundwater		5/24/2018 16:00	5/25/2018 09:30	☐

ALS Group, USA

Date: 06-Jun-18

Client: Jacobs
Project: PMC
Work Order: 18051778

Case Narrative

Samples for the above noted Work Order were received on 05/25/2018. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch R237279A, Method VOC_8260_W, Sample VLCSW4-180601: The LCS recovery was above the upper control limit for 1,2-Dichloroethane. All the sample results in the batch were non-detect. No qualification is required.

Wet Chemistry:

Batch R237238, Method TOC_WBLK_S, Sample 18051778-06C MS/MSD: The MS/MSD recovery was below the lower control limit for TOC. The corresponding result in the parent sample may be biased low.

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
g/Kg	
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-46
Collection Date: 5/23/2018 04:50 PM

Work Order: 18051778
Lab ID: 18051778-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 6/5/18		Analyst: **RSH**
Mercury	**0.0049**	J	**0.0017**	**0.017**	**mg/Kg-dry**	1	6/5/2018 11:24
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 6/1/18		Analyst: **RH**
Aluminum	**1,800**		**0.13**	**0.86**	**mg/Kg-dry**	1	6/1/2018 19:02
Antimony	U		0.15	0.43	mg/Kg-dry	1	6/1/2018 19:02
Arsenic	**1.1**		**0.11**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Barium	**11**		**0.17**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Beryllium	**0.032**	J	**0.014**	**0.17**	**mg/Kg-dry**	1	6/1/2018 19:02
Cadmium	U		0.041	0.86	mg/Kg-dry	1	6/1/2018 19:02
Calcium	**230,000**		**280**	**4,300**	**mg/Kg-dry**	100	6/4/2018 12:31
Chromium	**3.2**		**0.024**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Cobalt	**1.3**		**0.035**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Copper	**4.9**		**0.19**	**0.86**	**mg/Kg-dry**	1	6/1/2018 19:02
Iron	**3,300**		**0.52**	**6.9**	**mg/Kg-dry**	1	6/1/2018 19:02
Lead	**1.2**		**0.092**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Magnesium	**26,000**		**1.5**	**17**	**mg/Kg-dry**	1	6/1/2018 19:02
Manganese	**150**		**0.026**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Nickel	**5.0**		**0.17**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Potassium	**560**		**3.1**	**17**	**mg/Kg-dry**	1	6/1/2018 19:02
Selenium	U		0.24	0.86	mg/Kg-dry	1	6/1/2018 19:02
Silver	U		0.054	0.43	mg/Kg-dry	1	6/1/2018 19:02
Sodium	**180**		**1.7**	**17**	**mg/Kg-dry**	1	6/1/2018 19:02
Thallium	U		0.36	0.86	mg/Kg-dry	1	6/1/2018 19:02
Vanadium	**5.3**		**0.045**	**0.43**	**mg/Kg-dry**	1	6/1/2018 19:02
Zinc	**30**		**0.069**	**0.86**	**mg/Kg-dry**	1	6/1/2018 19:02
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**5.5**		**0.025**	**0.050**	**% of sample**	1	6/1/2018 19:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-47
Collection Date: 5/24/2018 02:45 PM

Work Order: 18051778
Lab ID: 18051778-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **AK**
1,1,1-Trichloroethane	U		0.79	5.0	µg/Kg	1	5/31/2018 14:48
1,1,2,2-Tetrachloroethane	U		0.27	5.0	µg/Kg	1	5/31/2018 14:48
1,1,2-Trichloroethane	U		0.39	5.0	µg/Kg	1	5/31/2018 14:48
1,1,2-Trichlorotrifluoroethane	U		1.1	5.0	µg/Kg	1	5/31/2018 14:48
1,1-Dichloroethane	U		2.1	5.0	µg/Kg	1	5/31/2018 14:48
1,1-Dichloroethene	U		0.98	5.0	µg/Kg	1	5/31/2018 14:48
1,2,3-Trichlorobenzene	U		0.62	5.0	µg/Kg	1	5/31/2018 14:48
1,2,4-Trichlorobenzene	U		0.73	5.0	µg/Kg	1	5/31/2018 14:48
1,2-Dibromo-3-chloropropane	U		1.4	5.0	µg/Kg	1	5/31/2018 14:48
1,2-Dibromoethane	U		0.36	5.0	µg/Kg	1	5/31/2018 14:48
1,2-Dichlorobenzene	U		0.63	5.0	µg/Kg	1	5/31/2018 14:48
1,2-Dichloroethane	U		0.36	5.0	µg/Kg	1	5/31/2018 14:48
1,2-Dichloropropane	U		0.44	5.0	µg/Kg	1	5/31/2018 14:48
1,3-Dichlorobenzene	U		0.52	5.0	µg/Kg	1	5/31/2018 14:48
1,4-Dichlorobenzene	U		0.36	5.0	µg/Kg	1	5/31/2018 14:48
2-Butanone	U		1.9	10	µg/Kg	1	5/31/2018 14:48
2-Hexanone	U		0.98	5.0	µg/Kg	1	5/31/2018 14:48
4-Methyl-2-pentanone	U		0.81	5.0	µg/Kg	1	5/31/2018 14:48
Acetone	U		2.1	10	µg/Kg	1	5/31/2018 14:48
Benzene	U		0.52	5.0	µg/Kg	1	5/31/2018 14:48
Bromochloromethane	U		0.49	5.0	µg/Kg	1	5/31/2018 14:48
Bromodichloromethane	U		0.32	5.0	µg/Kg	1	5/31/2018 14:48
Bromoform	U		0.31	5.0	µg/Kg	1	5/31/2018 14:48
Bromomethane	U		0.72	10	µg/Kg	1	5/31/2018 14:48
Carbon disulfide	U		0.56	5.0	µg/Kg	1	5/31/2018 14:48
Carbon tetrachloride	U		0.83	5.0	µg/Kg	1	5/31/2018 14:48
Chlorobenzene	U		0.32	5.0	µg/Kg	1	5/31/2018 14:48
Chloroethane	U		0.63	5.0	µg/Kg	1	5/31/2018 14:48
Chloroform	U		0.30	5.0	µg/Kg	1	5/31/2018 14:48
Chloromethane	U		0.46	10	µg/Kg	1	5/31/2018 14:48
cis-1,2-Dichloroethene	U		0.48	5.0	µg/Kg	1	5/31/2018 14:48
cis-1,3-Dichloropropene	U		0.26	5.0	µg/Kg	1	5/31/2018 14:48
Cyclohexane	U		3.0	10	µg/Kg	1	5/31/2018 14:48
Dibromochloromethane	U		0.47	5.0	µg/Kg	1	5/31/2018 14:48
Dichlorodifluoromethane	U		1.1	10	µg/Kg	1	5/31/2018 14:48
Ethylbenzene	U		0.60	5.0	µg/Kg	1	5/31/2018 14:48
Isopropylbenzene	U		0.64	5.0	µg/Kg	1	5/31/2018 14:48
m,p-Xylene	U		1.2	2.5	µg/Kg	1	5/31/2018 14:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-47
Collection Date: 5/24/2018 02:45 PM

Work Order: 18051778
Lab ID: 18051778-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		1.2	10	µg/Kg	1	5/31/2018 14:48
Methyl tert-butyl ether	U		0.23	5.0	µg/Kg	1	5/31/2018 14:48
Methylcyclohexane	U		1.5	10	µg/Kg	1	5/31/2018 14:48
Methylene chloride	**3.0**	J	**0.86**	**5.0**	**µg/Kg**	1	5/31/2018 14:48
o-Xylene	U		0.47	2.5	µg/Kg	1	5/31/2018 14:48
Styrene	U		0.40	5.0	µg/Kg	1	5/31/2018 14:48
Tetrachloroethene	U		0.89	5.0	µg/Kg	1	5/31/2018 14:48
Toluene	U		0.56	5.0	µg/Kg	1	5/31/2018 14:48
trans-1,2-Dichloroethene	U		0.40	5.0	µg/Kg	1	5/31/2018 14:48
trans-1,3-Dichloropropene	U		0.29	5.0	µg/Kg	1	5/31/2018 14:48
Trichloroethene	U		0.72	5.0	µg/Kg	1	5/31/2018 14:48
Trichlorofluoromethane	U		0.71	5.0	µg/Kg	1	5/31/2018 14:48
Vinyl chloride	U		0.70	5.0	µg/Kg	1	5/31/2018 14:48
Xylenes, Total	U		1.7	5.0	µg/Kg	1	5/31/2018 14:48
Surr: 1,2-Dichloroethane-d4	*108*			*83-132*	*%REC*	1	5/31/2018 14:48
Surr: 4-Bromofluorobenzene	*101*			*83-111*	*%REC*	1	5/31/2018 14:48
Surr: Dibromofluoromethane	*101*			*77-125*	*%REC*	1	5/31/2018 14:48
Surr: Toluene-d8	*99.4*			*86-108*	*%REC*	1	5/31/2018 14:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-48
Collection Date: 5/24/2018 02:40 PM

Work Order: 18051778
Lab ID: 18051778-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/2/2018 03:02
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/2/2018 03:02
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/2/2018 03:02
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/2/2018 03:02
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/2/2018 03:02
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/2/2018 03:02
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/2/2018 03:02
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/2/2018 03:02
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/2/2018 03:02
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/2/2018 03:02
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/2/2018 03:02
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/2/2018 03:02
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/2/2018 03:02
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 03:02
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/2/2018 03:02
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 03:02
2-Butanone	U		0.47	5.0	µg/L	1	6/2/2018 03:02
2-Hexanone	U		0.50	5.0	µg/L	1	6/2/2018 03:02
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/2/2018 03:02
Acetone	U		0.47	10	µg/L	1	6/2/2018 03:02
Benzene	U		0.42	1.0	µg/L	1	6/2/2018 03:02
Bromochloromethane	U		0.15	1.0	µg/L	1	6/2/2018 03:02
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/2/2018 03:02
Bromoform	U		0.56	1.0	µg/L	1	6/2/2018 03:02
Bromomethane	U		0.29	1.0	µg/L	1	6/2/2018 03:02
Carbon disulfide	U		0.39	1.0	µg/L	1	6/2/2018 03:02
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/2/2018 03:02
Chlorobenzene	U		0.21	1.0	µg/L	1	6/2/2018 03:02
Chloroethane	U		0.68	1.0	µg/L	1	6/2/2018 03:02
Chloroform	U		0.46	1.0	µg/L	1	6/2/2018 03:02
Chloromethane	U		0.68	1.0	µg/L	1	6/2/2018 03:02
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/2/2018 03:02
Cyclohexane	U		0.18	1.0	µg/L	1	6/2/2018 03:02
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/2/2018 03:02
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/2/2018 03:02
Ethylbenzene	U		0.29	1.0	µg/L	1	6/2/2018 03:02
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/2/2018 03:02
m,p-Xylene	U		0.53	2.0	µg/L	1	6/2/2018 03:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-48
Collection Date: 5/24/2018 02:40 PM

Work Order: 18051778
Lab ID: 18051778-03
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/2/2018 03:02
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/2/2018 03:02
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/2/2018 03:02
Methylene chloride	U		0.16	5.0	µg/L	1	6/2/2018 03:02
o-Xylene	U		0.19	1.0	µg/L	1	6/2/2018 03:02
Styrene	U		0.19	1.0	µg/L	1	6/2/2018 03:02
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/2/2018 03:02
Toluene	U		0.32	1.0	µg/L	1	6/2/2018 03:02
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/2/2018 03:02
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/2/2018 03:02
Trichloroethene	U		0.33	1.0	µg/L	1	6/2/2018 03:02
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/2/2018 03:02
Vinyl chloride	U		0.53	1.0	µg/L	1	6/2/2018 03:02
Xylenes, Total	U		0.74	3.0	µg/L	1	6/2/2018 03:02
Surr: 1,2-Dichloroethane-d4	*114*			*75-120*	*%REC*	1	6/2/2018 03:02
Surr: 4-Bromofluorobenzene	*106*			*80-110*	*%REC*	1	6/2/2018 03:02
Surr: Dibromofluoromethane	*93.7*			*85-115*	*%REC*	1	6/2/2018 03:02
Surr: Toluene-d8	*97.0*			*85-110*	*%REC*	1	6/2/2018 03:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-49
Collection Date: 5/24/2018 02:10 PM

Work Order: 18051778
Lab ID: 18051778-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/2/2018 02:40
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/2/2018 02:40
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/2/2018 02:40
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/2/2018 02:40
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/2/2018 02:40
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/2/2018 02:40
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/2/2018 02:40
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/2/2018 02:40
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/2/2018 02:40
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/2/2018 02:40
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/2/2018 02:40
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/2/2018 02:40
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/2/2018 02:40
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 02:40
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/2/2018 02:40
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 02:40
2-Butanone	U		0.47	5.0	µg/L	1	6/2/2018 02:40
2-Hexanone	U		0.50	5.0	µg/L	1	6/2/2018 02:40
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/2/2018 02:40
Acetone	U		0.47	10	µg/L	1	6/2/2018 02:40
Benzene	U		0.42	1.0	µg/L	1	6/2/2018 02:40
Bromochloromethane	U		0.15	1.0	µg/L	1	6/2/2018 02:40
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/2/2018 02:40
Bromoform	U		0.56	1.0	µg/L	1	6/2/2018 02:40
Bromomethane	U		0.29	1.0	µg/L	1	6/2/2018 02:40
Carbon disulfide	U		0.39	1.0	µg/L	1	6/2/2018 02:40
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/2/2018 02:40
Chlorobenzene	U		0.21	1.0	µg/L	1	6/2/2018 02:40
Chloroethane	U		0.68	1.0	µg/L	1	6/2/2018 02:40
Chloroform	U		0.46	1.0	µg/L	1	6/2/2018 02:40
Chloromethane	U		0.68	1.0	µg/L	1	6/2/2018 02:40
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/2/2018 02:40
Cyclohexane	U		0.18	1.0	µg/L	1	6/2/2018 02:40
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/2/2018 02:40
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/2/2018 02:40
Ethylbenzene	U		0.29	1.0	µg/L	1	6/2/2018 02:40
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/2/2018 02:40
m,p-Xylene	U		0.53	2.0	µg/L	1	6/2/2018 02:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-49
Collection Date: 5/24/2018 02:10 PM

Work Order: 18051778
Lab ID: 18051778-04
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/2/2018 02:40
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/2/2018 02:40
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/2/2018 02:40
Methylene chloride	U		0.16	5.0	µg/L	1	6/2/2018 02:40
o-Xylene	U		0.19	1.0	µg/L	1	6/2/2018 02:40
Styrene	U		0.19	1.0	µg/L	1	6/2/2018 02:40
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/2/2018 02:40
Toluene	U		0.32	1.0	µg/L	1	6/2/2018 02:40
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/2/2018 02:40
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/2/2018 02:40
Trichloroethene	**5.4**		**0.33**	**1.0**	**µg/L**	1	6/2/2018 02:40
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/2/2018 02:40
Vinyl chloride	U		0.53	1.0	µg/L	1	6/2/2018 02:40
Xylenes, Total	U		0.74	3.0	µg/L	1	6/2/2018 02:40
Surr: 1,2-Dichloroethane-d4	*118*			*75-120*	*%REC*	1	6/2/2018 02:40
Surr: 4-Bromofluorobenzene	*105*			*80-110*	*%REC*	1	6/2/2018 02:40
Surr: Dibromofluoromethane	*96.3*			*85-115*	*%REC*	1	6/2/2018 02:40
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	6/2/2018 02:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-50
Collection Date: 5/24/2018 02:15 PM

Work Order: 18051778
Lab ID: 18051778-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/2/2018 02:18
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/2/2018 02:18
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/2/2018 02:18
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/2/2018 02:18
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/2/2018 02:18
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/2/2018 02:18
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/2/2018 02:18
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/2/2018 02:18
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/2/2018 02:18
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/2/2018 02:18
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/2/2018 02:18
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/2/2018 02:18
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/2/2018 02:18
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 02:18
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/2/2018 02:18
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 02:18
2-Butanone	U		0.47	5.0	µg/L	1	6/2/2018 02:18
2-Hexanone	U		0.50	5.0	µg/L	1	6/2/2018 02:18
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/2/2018 02:18
Acetone	U		0.47	10	µg/L	1	6/2/2018 02:18
Benzene	U		0.42	1.0	µg/L	1	6/2/2018 02:18
Bromochloromethane	U		0.15	1.0	µg/L	1	6/2/2018 02:18
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/2/2018 02:18
Bromoform	U		0.56	1.0	µg/L	1	6/2/2018 02:18
Bromomethane	U		0.29	1.0	µg/L	1	6/2/2018 02:18
Carbon disulfide	U		0.39	1.0	µg/L	1	6/2/2018 02:18
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/2/2018 02:18
Chlorobenzene	U		0.21	1.0	µg/L	1	6/2/2018 02:18
Chloroethane	U		0.68	1.0	µg/L	1	6/2/2018 02:18
Chloroform	U		0.46	1.0	µg/L	1	6/2/2018 02:18
Chloromethane	U		0.68	1.0	µg/L	1	6/2/2018 02:18
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/2/2018 02:18
Cyclohexane	U		0.18	1.0	µg/L	1	6/2/2018 02:18
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/2/2018 02:18
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/2/2018 02:18
Ethylbenzene	U		0.29	1.0	µg/L	1	6/2/2018 02:18
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/2/2018 02:18
m,p-Xylene	U		0.53	2.0	µg/L	1	6/2/2018 02:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-50
Collection Date: 5/24/2018 02:15 PM

Work Order: 18051778
Lab ID: 18051778-05
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/2/2018 02:18
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/2/2018 02:18
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/2/2018 02:18
Methylene chloride	U		0.16	5.0	µg/L	1	6/2/2018 02:18
o-Xylene	U		0.19	1.0	µg/L	1	6/2/2018 02:18
Styrene	U		0.19	1.0	µg/L	1	6/2/2018 02:18
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/2/2018 02:18
Toluene	U		0.32	1.0	µg/L	1	6/2/2018 02:18
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/2/2018 02:18
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/2/2018 02:18
Trichloroethene	**5.5**		**0.33**	**1.0**	**µg/L**	1	6/2/2018 02:18
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/2/2018 02:18
Vinyl chloride	U		0.53	1.0	µg/L	1	6/2/2018 02:18
Xylenes, Total	U		0.74	3.0	µg/L	1	6/2/2018 02:18
Surr: 1,2-Dichloroethane-d4	*118*			*75-120*	*%REC*	1	6/2/2018 02:18
Surr: 4-Bromofluorobenzene	*105*			*80-110*	*%REC*	1	6/2/2018 02:18
Surr: Dibromofluoromethane	*96.4*			*85-115*	*%REC*	1	6/2/2018 02:18
Surr: Toluene-d8	*97.5*			*85-110*	*%REC*	1	6/2/2018 02:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-51
Collection Date: 5/24/2018 11:55 AM

Work Order: 18051778
Lab ID: 18051778-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**			Prep: SW5035 / 5/29/18		Analyst: **LSY**
Acetone	U		39	120	µg/Kg-dry	1	6/2/2018 01:33
Surr: 1,2-Dichloroethane-d4	*117*			*70-130*	*%REC*	1	6/2/2018 01:33
Surr: 4-Bromofluorobenzene	*106*			*70-130*	*%REC*	1	6/2/2018 01:33
Surr: Dibromofluoromethane	*93.2*			*70-130*	*%REC*	1	6/2/2018 01:33
Surr: Toluene-d8	*98.4*			*70-130*	*%REC*	1	6/2/2018 01:33
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **AK**
1,1,1-Trichloroethane	U		0.84	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,1,2,2-Tetrachloroethane	U		0.29	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,1,2-Trichloroethane	U		0.42	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,1,2-Trichlorotrifluoroethane	U		1.2	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,1-Dichloroethane	U		2.2	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,1-Dichloroethene	U		1.0	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2,3-Trichlorobenzene	U		0.66	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2,4-Trichlorobenzene	U		0.78	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2-Dibromo-3-chloropropane	U		1.5	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2-Dibromoethane	U		0.38	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2-Dichlorobenzene	U		0.67	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2-Dichloroethane	U		0.38	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,2-Dichloropropane	U		0.47	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,3-Dichlorobenzene	U		0.56	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
1,4-Dichlorobenzene	U		0.38	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
2-Butanone	U		2.0	11	µg/Kg-dry	0.947	5/31/2018 16:51
2-Hexanone	U		1.0	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
4-Methyl-2-pentanone	U		0.87	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Benzene	U		0.56	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Bromochloromethane	U		0.52	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Bromodichloromethane	U		0.34	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Bromoform	U		0.33	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Bromomethane	U		0.77	11	µg/Kg-dry	0.947	5/31/2018 16:51
Carbon disulfide	U		0.60	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Carbon tetrachloride	U		0.89	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Chlorobenzene	U		0.34	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Chloroethane	U		0.67	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Chloroform	U		0.32	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Chloromethane	U		0.49	11	µg/Kg-dry	0.947	5/31/2018 16:51
cis-1,2-Dichloroethene	U		0.51	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
cis-1,3-Dichloropropene	U		0.28	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Cyclohexane	U		3.3	11	µg/Kg-dry	0.947	5/31/2018 16:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-51
Collection Date: 5/24/2018 11:55 AM

Work Order: 18051778
Lab ID: 18051778-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	U		0.50	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Dichlorodifluoromethane	U		1.2	11	µg/Kg-dry	0.947	5/31/2018 16:51
Ethylbenzene	U		0.64	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Isopropylbenzene	U		0.68	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
m,p-Xylene	U		1.3	2.7	µg/Kg-dry	0.947	5/31/2018 16:51
Methyl acetate	U		1.3	11	µg/Kg-dry	0.947	5/31/2018 16:51
Methyl tert-butyl ether	U		0.25	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Methylcyclohexane	U		1.6	11	µg/Kg-dry	0.947	5/31/2018 16:51
Methylene chloride	U		0.92	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
o-Xylene	U		0.50	2.7	µg/Kg-dry	0.947	5/31/2018 16:51
Styrene	U		0.43	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Tetrachloroethene	U		0.95	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Toluene	**1.0**	J	**0.60**	**5.3**	**µg/Kg-dry**	0.947	5/31/2018 16:51
trans-1,2-Dichloroethene	U		0.43	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
trans-1,3-Dichloropropene	U		0.31	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Trichloroethene	**3.4**	J	**0.77**	**5.3**	**µg/Kg-dry**	0.947	5/31/2018 16:51
Trichlorofluoromethane	U		0.76	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Vinyl chloride	U		0.75	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Xylenes, Total	U		1.8	5.3	µg/Kg-dry	0.947	5/31/2018 16:51
Surr: 1,2-Dichloroethane-d4	*120*			*83-132*	*%REC*	0.947	5/31/2018 16:51
Surr: 4-Bromofluorobenzene	*93.8*			*83-111*	*%REC*	0.947	5/31/2018 16:51
Surr: Dibromofluoromethane	*104*			*77-125*	*%REC*	0.947	5/31/2018 16:51
Surr: Toluene-d8	*105*			*86-108*	*%REC*	0.947	5/31/2018 16:51
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**11**		**0.025**	**0.050**	**% of sample**	1	6/1/2018 19:50
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**1.5**		**0.014**	**0.028**	**% by wt-dry**	1	6/4/2018 09:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-52
Collection Date: 5/24/2018 12:00 PM

Work Order: 18051778
Lab ID: 18051778-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 6/5/18		Analyst: **RSH**
Mercury	**0.0049**	J	**0.0020**	**0.020**	**mg/Kg-dry**	1	6/5/2018 11:27
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 6/1/18		Analyst: **RH**
Aluminum	**980**		**0.12**	**0.80**	**mg/Kg-dry**	1	6/1/2018 19:08
Antimony	U		0.14	0.40	mg/Kg-dry	1	6/1/2018 19:08
Arsenic	**1.2**		**0.10**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Barium	**6.0**		**0.16**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Beryllium	**0.032**	J	**0.013**	**0.16**	**mg/Kg-dry**	1	6/1/2018 19:08
Cadmium	**0.35**	J	**0.038**	**0.80**	**mg/Kg-dry**	1	6/1/2018 19:08
Calcium	**340,000**		**260**	**4,000**	**mg/Kg-dry**	100	6/4/2018 12:37
Chromium	**2.2**		**0.022**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Cobalt	**1.3**		**0.032**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Copper	**4.3**		**0.18**	**0.80**	**mg/Kg-dry**	1	6/1/2018 19:08
Iron	**2,200**		**0.48**	**6.4**	**mg/Kg-dry**	1	6/1/2018 19:08
Lead	**0.25**	J	**0.085**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Magnesium	**12,000**		**1.4**	**16**	**mg/Kg-dry**	1	6/1/2018 19:08
Manganese	**190**		**0.024**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Nickel	**4.9**		**0.16**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Potassium	**500**		**2.9**	**16**	**mg/Kg-dry**	1	6/1/2018 19:08
Selenium	U		0.22	0.80	mg/Kg-dry	1	6/1/2018 19:08
Silver	U		0.050	0.40	mg/Kg-dry	1	6/1/2018 19:08
Sodium	**290**		**1.6**	**16**	**mg/Kg-dry**	1	6/1/2018 19:08
Thallium	U		0.34	0.80	mg/Kg-dry	1	6/1/2018 19:08
Vanadium	**3.7**		**0.042**	**0.40**	**mg/Kg-dry**	1	6/1/2018 19:08
Zinc	**120**		**0.064**	**0.80**	**mg/Kg-dry**	1	6/1/2018 19:08
MOISTURE		Method: **SW3550C**					Analyst: **NW**
Moisture	**9.8**		**0.025**	**0.050**	**% of sample**	1	6/1/2018 19:50
OXIDANT DEMAND (KMNO4)		Method: **A4500-KMNO4 B-11**			Prep: D7262-11 / 5/31/18		Analyst: **JJG**
Oxidant Demand (KMnO4)	**10.9**		**0**		**g/Kg**	1	5/31/2018 12:30
ORGANIC CARBON - WALKLEY-BLACK		Method: **TITRAMETRIC**					Analyst: **KF**
Organic Carbon - W-B	**0.091**		**0.013**	**0.028**	**% by wt-dry**	1	6/4/2018 09:37

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *06-Jun-18*

Client: Jacobs
Project: PMC
Sample ID: 18CP02-53
Collection Date: 5/24/2018 04:00 PM

Work Order: 18051778
Lab ID: 18051778-08
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS		Method: **SW8260C**					Analyst: **LSY**
1,1,1-Trichloroethane	U		0.33	1.0	µg/L	1	6/2/2018 01:56
1,1,2,2-Tetrachloroethane	U		0.17	1.0	µg/L	1	6/2/2018 01:56
1,1,2-Trichloroethane	U		0.22	1.0	µg/L	1	6/2/2018 01:56
1,1,2-Trichlorotrifluoroethane	U		0.18	1.0	µg/L	1	6/2/2018 01:56
1,1-Dichloroethane	U		0.48	1.0	µg/L	1	6/2/2018 01:56
1,1-Dichloroethene	U		0.36	1.0	µg/L	1	6/2/2018 01:56
1,2,3-Trichlorobenzene	U		0.29	1.0	µg/L	1	6/2/2018 01:56
1,2,4-Trichlorobenzene	U		0.25	1.0	µg/L	1	6/2/2018 01:56
1,2-Dibromo-3-chloropropane	U		0.43	1.0	µg/L	1	6/2/2018 01:56
1,2-Dibromoethane	U		0.17	1.0	µg/L	1	6/2/2018 01:56
1,2-Dichlorobenzene	U		0.12	1.0	µg/L	1	6/2/2018 01:56
1,2-Dichloroethane	U		0.11	1.0	µg/L	1	6/2/2018 01:56
1,2-Dichloropropane	U		0.34	1.0	µg/L	1	6/2/2018 01:56
1,3-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 01:56
1,3-Dichloropropane	U		0.14	1.0	µg/L	1	6/2/2018 01:56
1,4-Dichlorobenzene	U		0.13	1.0	µg/L	1	6/2/2018 01:56
2-Butanone	U		0.47	5.0	µg/L	1	6/2/2018 01:56
2-Hexanone	U		0.50	5.0	µg/L	1	6/2/2018 01:56
4-Methyl-2-pentanone	U		0.52	1.0	µg/L	1	6/2/2018 01:56
Acetone	U		0.47	10	µg/L	1	6/2/2018 01:56
Benzene	**0.44**	J	**0.42**	**1.0**	**µg/L**	1	6/2/2018 01:56
Bromochloromethane	U		0.15	1.0	µg/L	1	6/2/2018 01:56
Bromodichloromethane	U		0.22	1.0	µg/L	1	6/2/2018 01:56
Bromoform	U		0.56	1.0	µg/L	1	6/2/2018 01:56
Bromomethane	U		0.29	1.0	µg/L	1	6/2/2018 01:56
Carbon disulfide	U		0.39	1.0	µg/L	1	6/2/2018 01:56
Carbon tetrachloride	U		0.32	1.0	µg/L	1	6/2/2018 01:56
Chlorobenzene	U		0.21	1.0	µg/L	1	6/2/2018 01:56
Chloroethane	U		0.68	1.0	µg/L	1	6/2/2018 01:56
Chloroform	U		0.46	1.0	µg/L	1	6/2/2018 01:56
Chloromethane	U		0.68	1.0	µg/L	1	6/2/2018 01:56
cis-1,2-Dichloroethene	U		0.38	1.0	µg/L	1	6/2/2018 01:56
Cyclohexane	U		0.18	1.0	µg/L	1	6/2/2018 01:56
Dibromochloromethane	U		0.20	1.0	µg/L	1	6/2/2018 01:56
Dichlorodifluoromethane	U		0.30	1.0	µg/L	1	6/2/2018 01:56
Ethylbenzene	U		0.29	1.0	µg/L	1	6/2/2018 01:56
Isopropylbenzene	U		0.17	1.0	µg/L	1	6/2/2018 01:56
m,p-Xylene	U		0.53	2.0	µg/L	1	6/2/2018 01:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Jacobs
Project: PMC
Sample ID: 18CP02-53
Collection Date: 5/24/2018 04:00 PM

Work Order: 18051778
Lab ID: 18051778-08
Matrix: GROUNDWATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methyl acetate	U		0.26	2.0	µg/L	1	6/2/2018 01:56
Methyl tert-butyl ether	U		0.21	1.0	µg/L	1	6/2/2018 01:56
Methylcyclohexane	U		0.090	1.0	µg/L	1	6/2/2018 01:56
Methylene chloride	U		0.16	5.0	µg/L	1	6/2/2018 01:56
o-Xylene	U		0.19	1.0	µg/L	1	6/2/2018 01:56
Styrene	U		0.19	1.0	µg/L	1	6/2/2018 01:56
Tetrachloroethene	U		0.28	1.0	µg/L	1	6/2/2018 01:56
Toluene	**0.95**	J	**0.32**	**1.0**	**µg/L**	1	6/2/2018 01:56
trans-1,2-Dichloroethene	U		0.48	1.0	µg/L	1	6/2/2018 01:56
trans-1,3-Dichloropropene	U		0.15	1.0	µg/L	1	6/2/2018 01:56
Trichloroethene	**2.0**		**0.33**	**1.0**	**µg/L**	1	6/2/2018 01:56
Trichlorofluoromethane	U		0.24	1.0	µg/L	1	6/2/2018 01:56
Vinyl chloride	U		0.53	1.0	µg/L	1	6/2/2018 01:56
Xylenes, Total	U		0.74	3.0	µg/L	1	6/2/2018 01:56
Surr: 1,2-Dichloroethane-d4	*115*			*75-120*	*%REC*	1	6/2/2018 01:56
Surr: 4-Bromofluorobenzene	*106*			*80-110*	*%REC*	1	6/2/2018 01:56
Surr: Dibromofluoromethane	*95.0*			*85-115*	*%REC*	1	6/2/2018 01:56
Surr: Toluene-d8	*100*			*85-110*	*%REC*	1	6/2/2018 01:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-18

Client: Jacobs

Work Order: 18051778

Project: PMC

QC BATCH REPORT

Batch ID: **119256** Instrument ID **HG1** Method: **SW7471B**

MBLK	Sample ID: **MBLK-119256-119256**				Units: **mg/Kg**			Analysis Date: **6/5/2018 08:10 AM**			
Client ID:	Run ID: **HG1_180605A**				SeqNo: **5072444**			Prep Date: **6/5/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	U	0.020									

LCS	Sample ID: **LCS-119256-119256**				Units: **mg/Kg**			Analysis Date: **6/5/2018 08:13 AM**			
Client ID:	Run ID: **HG1_180605A**				SeqNo: **5072445**			Prep Date: **6/5/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.175	0.020	0.1665	0	105	80-120	0				

MS	Sample ID: **18052001-01AMS**				Units: **mg/Kg**			Analysis Date: **6/5/2018 08:20 AM**			
Client ID:	Run ID: **HG1_180605A**				SeqNo: **5072448**			Prep Date: **6/5/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.1536	0.018	0.1505	0.006822	97.6	75-125	0				

MSD	Sample ID: **18052001-01AMSD**				Units: **mg/Kg**			Analysis Date: **6/5/2018 08:23 AM**			
Client ID:	Run ID: **HG1_180605A**				SeqNo: **5072449**			Prep Date: **6/5/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.1637	0.018	0.1507	0.006822	104	75-125	0.1536	6.33	35		

The following samples were analyzed in this batch:

18051778-01A	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 11:05 AM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066368** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	U	0.50								
Antimony	0.1039	0.25								J
Arsenic	U	0.25								
Beryllium	U	0.10								
Cadmium	U	0.50								
Calcium	U	25								
Chromium	0.01542	0.25								J
Cobalt	U	0.25								
Copper	U	0.50								
Lead	U	0.25								
Magnesium	U	10								
Manganese	0.02214	0.25								J
Nickel	U	0.25								
Potassium	U	10								
Selenium	U	0.50								
Silver	0.07235	0.25								J
Sodium	U	10								
Thallium	U	0.50								
Vanadium	U	0.25								
Zinc	0.1217	0.50								J

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 05:56 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070240** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Iron	0.91	4.0								J

MBLK Sample ID: **MBLK-119140-119140** Units: **mg/Kg** Analysis Date: **6/4/2018 11:42 AM**
Client ID: Run ID: **ICP2_180604A** SeqNo: **5070607** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	U	0.25								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

LCS Sample ID: **LCS-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 11:11 AM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066369** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	5.409	0.50	5	0	108	80-120	0			
Antimony	5.033	0.25	5	0	101	80-120	0			
Arsenic	4.46	0.25	5	0	89.2	80-120	0			
Beryllium	4.984	0.10	5	0	99.7	80-120	0			
Cadmium	4.899	0.50	5	0	98	80-120	0			
Calcium	516.1	25	500	0	103	80-120	0			
Chromium	5.086	0.25	5	0	102	80-120	0			
Cobalt	5.215	0.25	5	0	104	80-120	0			
Copper	5.206	0.50	5	0	104	80-120	0			
Lead	4.857	0.25	5	0	97.1	80-120	0			
Magnesium	473	10	500	0	94.6	80-120	0			
Manganese	4.786	0.25	5	0	95.7	80-120	0			
Nickel	5.013	0.25	5	0	100	80-120	0			
Potassium	537.3	10	500	0	107	80-120	0			
Selenium	4.649	0.50	5	0	93	80-120	0			
Silver	4.927	0.25	5	0	98.5	80-120	0			
Sodium	534.6	10	500	0	107	80-120	0			
Thallium	5.015	0.50	5	0	100	80-120	0			
Vanadium	5.357	0.25	5	0	107	80-120	0			
Zinc	5.08	0.50	5	0	102	80-120	0			

LCS Sample ID: **LCS-119140-119140** Units: **mg/Kg** Analysis Date: **6/1/2018 06:02 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070241** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	5.756	0.25	5	0	115	80-120	0			
Iron	538.8	4.0	500	0	108	80-120	0			

MS Sample ID: **18051996-01AMS** Units: **mg/Kg** Analysis Date: **6/1/2018 12:13 PM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066379** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	17.46	0.41	8.251	9.981	90.7	75-125	0			
Cadmium	9.254	0.83	8.251	1.925	88.8	75-125	0			
Lead	242.6	0.41	8.251	269	-320	75-125	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MS Sample ID: **18051996-01AMS** Units: **mg/Kg** Analysis Date: **6/1/2018 06:14 PM**
Client ID: Run ID: **ICP2_180601A** SeqNo: **5070243** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7005	0.83	8.251	3999	36400	75-125	0			SO
Antimony	13.46	0.41	8.251	6.3	86.8	75-125	0			
Barium	199.6	0.41	8.251	124.1	915	75-125	0			SO
Beryllium	9.166	0.17	8.251	0.6456	103	75-125	0			
Calcium	31050	41	825.1	20310	1300	75-125	0			SO
Chromium	23.26	0.41	8.251	14.67	104	75-125	0			
Cobalt	10.53	0.41	8.251	3.002	91.3	75-125	0			
Copper	60.19	0.83	8.251	46.37	168	75-125	0			SO
Iron	10270	6.6	825.1	12710	-296	75-125	0			SO
Magnesium	12650	17	825.1	9852	339	75-125	0			SO
Manganese	572.1	0.41	8.251	318.9	3070	75-125	0			SO
Nickel	17.27	0.41	8.251	10.15	86.3	75-125	0			
Potassium	1588	17	825.1	337.2	152	75-125	0			S
Selenium	8.445	0.83	8.251	0.5979	95.1	75-125	0			
Silver	8.765	0.41	8.251	0.09293	105	75-125	0			
Sodium	1133	17	825.1	119	123	75-125	0			
Thallium	7.384	0.83	8.251	-0.05962	90.2	75-125	0			
Vanadium	25.61	0.41	8.251	15.01	129	75-125	0			S
Zinc	480.1	0.83	8.251	450.4	361	75-125	0			SO

MSD Sample ID: **18051996-01AMSD** Units: **mg/Kg** Analysis Date: **6/1/2018 12:19 PM**
Client ID: Run ID: **ICP2_180531A** SeqNo: **5066380** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	17.73	0.41	8.224	9.981	94.2	75-125	17.46	1.52	20	
Cadmium	9.396	0.82	8.224	1.925	90.8	75-125	9.254	1.52	20	
Lead	269.6	0.41	8.224	269	7.47	75-125	242.6	10.5	20	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **119140** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **18051996-01AMSD** Units: **mg/Kg** Analysis Date: **6/1/2018 06:20 PM**

Client ID: Run ID: **ICP2_180601A** SeqNo: **5070244** Prep Date: **6/1/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	7834	0.82	8.224	3999	46600	75-125	7005	11.2	20	SO
Antimony	13.75	0.41	8.224	6.3	90.5	75-125	13.46	2.08	20	
Barium	142.9	0.41	8.224	124.1	228	75-125	199.6	33.1	20	SRO
Beryllium	8.774	0.16	8.224	0.6456	98.8	75-125	9.166	4.36	20	
Calcium	18480	41	822.4	20310	-223	75-125	31050	50.8	20	SRO
Chromium	28.22	0.41	8.224	14.67	165	75-125	23.26	19.3	20	S
Cobalt	11.14	0.41	8.224	3.002	99	75-125	10.53	5.63	20	
Copper	67.14	0.82	8.224	46.37	253	75-125	60.19	10.9	20	SO
Iron	13800	6.6	822.4	12710	132	75-125	10270	29.3	20	SRO
Magnesium	9311	16	822.4	9852	-65.8	75-125	12650	30.4	20	SRO
Manganese	358.3	0.41	8.224	318.9	479	75-125	572.1	45.9	20	SRO
Nickel	20.18	0.41	8.224	10.15	122	75-125	17.27	15.5	20	
Potassium	1649	16	822.4	337.2	160	75-125	1588	3.75	20	S
Selenium	8.459	0.82	8.224	0.5979	95.6	75-125	8.445	0.172	20	
Silver	8.748	0.41	8.224	0.09293	105	75-125	8.765	0.195	20	
Sodium	1045	16	822.4	119	113	75-125	1133	8.14	20	
Thallium	7.048	0.82	8.224	-0.05962	86.4	75-125	7.384	4.67	20	
Vanadium	31.78	0.41	8.224	15.01	204	75-125	25.61	21.5	20	SR
Zinc	475.9	0.82	8.224	450.4	311	75-125	480.1	0.874	20	SO

The following samples were analyzed in this batch:

18051778-01A	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **118957** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **MBLK-118957-118957** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 03:35 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060577** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	U	100	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	*1138*	0	*1000*	0	*114*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1050*	0	*1000*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*956*	0	*1000*	0	*95.6*	*70-130*	0			
Surr: Toluene-d8	*1020*	0	*1000*	0	*102*	*70-130*	0			

LCS Sample ID: **LCS-118957-118957** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 05:51 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060591** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1077	100	1000	0	108	20-160	0			
Surr: 1,2-Dichloroethane-d4	*1096*	0	*1000*	0	*110*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1046*	0	*1000*	0	*105*	*70-130*	0			
Surr: Dibromofluoromethane	*958*	0	*1000*	0	*95.8*	*70-130*	0			
Surr: Toluene-d8	*1024*	0	*1000*	0	*102*	*70-130*	0			

MS Sample ID: **18051776-01A MS** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 06:13 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060593** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1296	130	1273	0	102	20-160	0			
Surr: 1,2-Dichloroethane-d4	*1422*	0	*1273*	0	*112*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1376*	0	*1273*	0	*108*	*70-130*	0			
Surr: Dibromofluoromethane	*1231*	0	*1273*	0	*96.8*	*70-130*	0			
Surr: Toluene-d8	*1298*	0	*1273*	0	*102*	*70-130*	0			

MSD Sample ID: **18051776-01A MSD** Units: **µg/Kg-dry** Analysis Date: **5/29/2018 06:36 PM**
Client ID: Run ID: **VMS11_180529A** SeqNo: **5060595** Prep Date: **5/29/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1352	130	1273	0	106	20-160	1296	4.18	30	
Surr: 1,2-Dichloroethane-d4	*1415*	0	*1273*	0	*111*	*70-130*	1422	*0.494*	*30*	
Surr: 4-Bromofluorobenzene	*1309*	0	*1273*	0	*103*	*70-130*	1376	*4.98*	*30*	
Surr: Dibromofluoromethane	*1254*	0	*1273*	0	*98.6*	*70-130*	1231	*1.84*	*30*	
Surr: Toluene-d8	*1284*	0	*1273*	0	*101*	*70-130*	1298	*1.13*	*30*	

The following samples were analyzed in this batch: 18051778-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MBLK	Sample ID: **VBLKS1-180531-R236992**			Units: **µg/Kg**		Analysis Date: **5/31/2018 12:59 PM**			
Client ID:		Run ID: **VMS10_180531A**		SeqNo: **5065091**		Prep Date:		DF: **1**	

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,3-Trichlorobenzene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromochloromethane	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	10								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	1.68	5.0								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

o-Xylene	U	2.5					
Styrene	U	5.0					
Tetrachloroethene	U	5.0					
Toluene	U	5.0					
trans-1,2-Dichloroethene	U	5.0					
trans-1,3-Dichloropropene	U	5.0					
Trichloroethene	U	5.0					
Trichlorofluoromethane	U	5.0					
Vinyl chloride	U	5.0					
Xylenes, Total	U	5.0					
Surr: 1,2-Dichloroethane-d4	*20.83*	0	*20*	0	*104*	*83-132*	0
Surr: 4-Bromofluorobenzene	*20.12*	0	*20*	0	*101*	*83-111*	0
Surr: Dibromofluoromethane	*19.73*	0	*20*	0	*98.6*	*77-125*	0
Surr: Toluene-d8	*20.09*	0	*20*	0	*100*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

LCS	Sample ID: **VLCSS1-180531-R236992**			Units: **µg/Kg**		Analysis Date: **5/31/2018 11:06 AM**				
Client ID:		Run ID: **VMS10_180531A**		SeqNo: **5065089**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.56	5.0	20	0	103	73-138	0			
1,1,2,2-Tetrachloroethane	18.67	5.0	20	0	93.4	71-126	0			
1,1,2-Trichloroethane	20.61	5.0	20	0	103	77-123	0			
1,1-Dichloroethane	20.12	5.0	20	0	101	63-148	0			
1,1-Dichloroethene	21.19	5.0	20	0	106	67-156	0			
1,2,3-Trichlorobenzene	18.41	5.0	20	0	92	73-129	0			
1,2,4-Trichlorobenzene	19.54	5.0	20	0	97.7	70-132	0			
1,2-Dibromo-3-chloropropane	17.49	5.0	20	0	87.4	48-127	0			
1,2-Dibromoethane	21.86	5.0	20	0	109	71-144	0			
1,2-Dichlorobenzene	18.6	5.0	20	0	93	77-127	0			
1,2-Dichloroethane	19.67	5.0	20	0	98.4	77-127	0			
1,2-Dichloropropane	20.37	5.0	20	0	102	74-130	0			
1,3-Dichlorobenzene	18.87	5.0	20	0	94.4	75-133	0			
1,4-Dichlorobenzene	19.54	5.0	20	0	97.7	74-130	0			
2-Butanone	17.62	10	20	0	88.1	55-132	0			
2-Hexanone	16.96	5.0	20	0	84.8	55-124	0			
4-Methyl-2-pentanone	22.22	5.0	20	0	111	67-159	0			
Acetone	19.32	10	20	0	96.6	31-156	0			
Benzene	19.63	5.0	20	0	98.2	77-133	0			
Bromochloromethane	20.71	5.0	20	0	104	72-139	0			
Bromodichloromethane	17.7	5.0	20	0	88.5	69-133	0			
Bromoform	16.28	5.0	20	0	81.4	55-126	0			
Bromomethane	16.73	10	20	0	83.6	31-174	0			
Carbon disulfide	18.3	5.0	20	0	91.5	45-160	0			
Carbon tetrachloride	20.55	5.0	20	0	103	69-140	0			
Chlorobenzene	19.7	5.0	20	0	98.5	76-130	0			
Chloroethane	19.23	5.0	20	0	96.2	53-150	0			
Chloroform	21.25	5.0	20	0	106	72-132	0			
Chloromethane	17.93	10	20	0	89.6	43-150	0			
cis-1,2-Dichloroethene	21.99	5.0	20	0	110	74-134	0			
cis-1,3-Dichloropropene	20.19	5.0	20	0	101	62-134	0			
Dibromochloromethane	18.93	5.0	20	0	94.6	57-118	0			
Dichlorodifluoromethane	14.08	10	20	0	70.4	43-126	0			
Ethylbenzene	20	5.0	20	0	100	75-133	0			
Isopropylbenzene	20.4	5.0	20	0	102	74-137	0			
m,p-Xylene	40.97	2.5	40	0	102	75-134	0			
Methyl tert-butyl ether	22.1	5.0	20	0	110	62-136	0			
Methylene chloride	19.81	5.0	20	0	99	55-157	0			
o-Xylene	20.62	2.5	20	0	103	76-130	0			
Styrene	20.42	5.0	20	0	102	72-138	0			
Tetrachloroethene	20.85	5.0	20	0	104	70-171	0			
Toluene	19.19	5.0	20	0	96	76-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	20.45	5.0	20	0	102	65-137	0
trans-1,3-Dichloropropene	19.64	5.0	20	0	98.2	58-126	0
Trichloroethene	20.17	5.0	20	0	101	75-135	0
Trichlorofluoromethane	16.63	5.0	20	0	83.2	62-136	0
Vinyl chloride	17.79	5.0	20	0	89	57-143	0
Xylenes, Total	61.59	5.0	60	0	103	75-132	0
Surr: 1,2-Dichloroethane-d4	*20.36*	0	*20*	0	*102*	*83-132*	0
Surr: 4-Bromofluorobenzene	*20.53*	0	*20*	0	*103*	*83-111*	0
Surr: Dibromofluoromethane	*20.57*	0	*20*	0	*103*	*77-125*	0
Surr: Toluene-d8	*19.84*	0	*20*	0	*99.2*	*86-108*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MS Sample ID: **18051930-01A MS** Units: **µg/Kg** Analysis Date: **5/31/2018 09:27 PM**
Client ID: Run ID: **VMS10_180531A** SeqNo: **5065130** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	15.01	5.0	20	0	75	73-138	0			
1,1,2,2-Tetrachloroethane	13.07	5.0	20	0	65.4	71-126	0			S
1,1,2-Trichloroethane	15.53	5.0	20	0	77.6	77-123	0			
1,1-Dichloroethane	15.13	5.0	20	0	75.6	63-148	0			
1,1-Dichloroethene	16.04	5.0	20	0	80.2	67-156	0			
1,2,3-Trichlorobenzene	4.34	5.0	20	0	21.7	73-129	0			JS
1,2,4-Trichlorobenzene	4.38	5.0	20	0	21.9	70-132	0			JS
1,2-Dibromo-3-chloropropane	11.75	5.0	20	0	58.8	48-127	0			
1,2-Dibromoethane	16.09	5.0	20	0	80.4	71-144	0			
1,2-Dichlorobenzene	7.76	5.0	20	0	38.8	77-127	0			S
1,2-Dichloroethane	16.51	5.0	20	0	82.6	77-127	0			
1,2-Dichloropropane	14.93	5.0	20	0	74.6	74-130	0			
1,3-Dichlorobenzene	7.46	5.0	20	0	37.3	75-133	0			S
1,4-Dichlorobenzene	7.75	5.0	20	0	38.8	74-130	0			S
2-Butanone	32.45	10	20	0	162	55-132	0			S
2-Hexanone	17.12	5.0	20	0	85.6	55-124	0			
4-Methyl-2-pentanone	15.12	5.0	20	0	75.6	67-159	0			
Acetone	218.2	10	20	0	1090	31-156	0			SE
Benzene	13.9	5.0	20	0	69.5	77-133	0			S
Bromochloromethane	16.47	5.0	20	0	82.4	72-139	0			
Bromodichloromethane	12.25	5.0	20	0	61.2	69-133	0			S
Bromoform	11.01	5.0	20	0	55	55-126	0			
Bromomethane	10.54	10	20	0	52.7	31-174	0			
Carbon disulfide	12.02	5.0	20	0	60.1	45-160	0			
Carbon tetrachloride	14.36	5.0	20	0	71.8	69-140	0			
Chlorobenzene	11.34	5.0	20	0	56.7	76-130	0			S
Chloroethane	14.46	5.0	20	0	72.3	53-150	0			
Chloroform	15.36	5.0	20	0	76.8	72-132	0			
Chloromethane	11.72	10	20	0	58.6	43-150	0			
cis-1,2-Dichloroethene	15.26	5.0	20	0	76.3	74-134	0			
cis-1,3-Dichloropropene	11.99	5.0	20	0	60	62-134	0			S
Dibromochloromethane	12.88	5.0	20	0	64.4	57-118	0			
Dichlorodifluoromethane	12.42	10	20	0	62.1	43-126	0			
Ethylbenzene	11.47	5.0	20	0	57.4	75-133	0			S
Isopropylbenzene	10.82	5.0	20	0	54.1	74-137	0			S
m,p-Xylene	21.84	2.5	40	0	54.6	75-134	0			S
Methyl tert-butyl ether	19.73	5.0	20	0	98.6	62-136	0			
Methylene chloride	19.93	5.0	20	0	99.6	55-157	0			
o-Xylene	11.51	2.5	20	0	57.6	76-130	0			S
Styrene	10.52	5.0	20	0	52.6	72-138	0			S
Tetrachloroethene	19.42	5.0	20	0	97.1	70-171	0			
Toluene	12.27	5.0	20	0	61.4	76-130	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	14.71	5.0	20	0	73.6	65-137	0	
trans-1,3-Dichloropropene	12.36	5.0	20	0	61.8	58-126	0	
Trichloroethene	13.73	5.0	20	0	68.6	75-135	0	S
Trichlorofluoromethane	13.11	5.0	20	0	65.6	62-136	0	
Vinyl chloride	13.71	5.0	20	0	68.6	57-143	0	
Xylenes, Total	33.35	5.0	60	0	55.6	75-132	0	S
Surr: 1,2-Dichloroethane-d4	*23.17*	0	*20*	0	*116*	*83-132*	0	
Surr: 4-Bromofluorobenzene	*20.19*	0	*20*	0	*101*	*83-111*	0	
Surr: Dibromofluoromethane	*21.08*	0	*20*	0	*105*	*77-125*	0	
Surr: Toluene-d8	*20.44*	0	*20*	0	*102*	*86-108*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

MSD	Sample ID: **18051930-01A MSD**				Units: **µg/Kg**			Analysis Date: **5/31/2018 09:45 PM**			
Client ID:		Run ID: **VMS10_180531A**			SeqNo: **5065132**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	12.57	5.0	20	0	62.8	73-138	15.01	17.7	30	S
1,1,2,2-Tetrachloroethane	13.06	5.0	20	0	65.3	71-126	13.07	0.0765	30	S
1,1,2-Trichloroethane	15.06	5.0	20	0	75.3	77-123	15.53	3.07	30	S
1,1-Dichloroethane	13.42	5.0	20	0	67.1	63-148	15.13	12	30	
1,1-Dichloroethene	13.75	5.0	20	0	68.8	67-156	16.04	15.4	30	
1,2,3-Trichlorobenzene	3.48	5.0	20	0	17.4	73-129	4.34	0	30	JS
1,2,4-Trichlorobenzene	3.79	5.0	20	0	19	70-132	4.38	0	30	JS
1,2-Dibromo-3-chloropropane	11.82	5.0	20	0	59.1	48-127	11.75	0.594	30	
1,2-Dibromoethane	15.3	5.0	20	0	76.5	71-144	16.09	5.03	30	
1,2-Dichlorobenzene	6.96	5.0	20	0	34.8	77-127	7.76	10.9	30	S
1,2-Dichloroethane	15.8	5.0	20	0	79	77-127	16.51	4.39	30	
1,2-Dichloropropane	13.26	5.0	20	0	66.3	74-130	14.93	11.8	30	S
1,3-Dichlorobenzene	6.88	5.0	20	0	34.4	75-133	7.46	8.09	30	S
1,4-Dichlorobenzene	7	5.0	20	0	35	74-130	7.75	10.2	30	S
2-Butanone	30.99	10	20	0	155	55-132	32.45	4.6	30	S
2-Hexanone	15.7	5.0	20	0	78.5	55-124	17.12	8.65	30	
4-Methyl-2-pentanone	12.9	5.0	20	0	64.5	67-159	15.12	15.8	30	S
Acetone	252	10	20	0	1260	31-156	218.2	14.4	30	SE
Benzene	12.23	5.0	20	0	61.2	77-133	13.9	12.8	30	S
Bromochloromethane	15.49	5.0	20	0	77.4	72-139	16.47	6.13	30	
Bromodichloromethane	11.56	5.0	20	0	57.8	69-133	12.25	5.8	30	S
Bromoform	10.65	5.0	20	0	53.2	55-126	11.01	3.32	30	S
Bromomethane	9.42	10	20	0	47.1	31-174	10.54	0	30	J
Carbon disulfide	10.1	5.0	20	0	50.5	45-160	12.02	17.4	30	
Carbon tetrachloride	12.15	5.0	20	0	60.8	69-140	14.36	16.7	30	S
Chlorobenzene	10.38	5.0	20	0	51.9	76-130	11.34	8.84	30	S
Chloroethane	12.19	5.0	20	0	61	53-150	14.46	17	30	
Chloroform	13.67	5.0	20	0	68.4	72-132	15.36	11.6	30	S
Chloromethane	10.39	10	20	0	52	43-150	11.72	12	30	
cis-1,2-Dichloroethene	13	5.0	20	0	65	74-134	15.26	16	30	S
cis-1,3-Dichloropropene	9.93	5.0	20	0	49.6	62-134	11.99	18.8	30	S
Dibromochloromethane	12.22	5.0	20	0	61.1	57-118	12.88	5.26	30	
Dichlorodifluoromethane	10.09	10	20	0	50.4	43-126	12.42	20.7	30	
Ethylbenzene	9.93	5.0	20	0	49.6	75-133	11.47	14.4	30	S
Isopropylbenzene	9.52	5.0	20	0	47.6	74-137	10.82	12.8	30	S
m,p-Xylene	19.09	2.5	40	0	47.7	75-134	21.84	13.4	30	S
Methyl tert-butyl ether	18.62	5.0	20	0	93.1	62-136	19.73	5.79	30	
Methylene chloride	18.61	5.0	20	0	93	55-157	19.93	6.85	30	
o-Xylene	10.26	2.5	20	0	51.3	76-130	11.51	11.5	30	S
Styrene	9.13	5.0	20	0	45.6	72-138	10.52	14.1	30	S
Tetrachloroethene	15.32	5.0	20	0	76.6	70-171	19.42	23.6	30	
Toluene	10.4	5.0	20	0	52	76-130	12.27	16.5	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R236992** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	13.08	5.0	20	0	65.4	65-137	14.71	11.7	30	
trans-1,3-Dichloropropene	10.74	5.0	20	0	53.7	58-126	12.36	14	30	S
Trichloroethene	12.13	5.0	20	0	60.6	75-135	13.73	12.4	30	S
Trichlorofluoromethane	11.11	5.0	20	0	55.6	62-136	13.11	16.5	30	S
Vinyl chloride	11.59	5.0	20	0	58	57-143	13.71	16.8	30	
Xylenes, Total	29.35	5.0	60	0	48.9	75-132	33.35	12.8	30	S
Surr: 1,2-Dichloroethane-d4	*23.85*	0	*20*	0	*119*	*83-132*	23.17	*2.89*	*30*	
Surr: 4-Bromofluorobenzene	*19.67*	0	*20*	0	*98.4*	*83-111*	20.19	*2.61*	*30*	
Surr: Dibromofluoromethane	*21.7*	0	*20*	0	*108*	*77-125*	21.08	*2.9*	*30*	
Surr: Toluene-d8	*19.96*	0	*20*	0	*99.8*	*86-108*	20.44	*2.38*	*30*	

The following samples were analyzed in this batch:

18051778-02A	18051778-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MBLK Sample ID: **VBLKW2-180601-R237279A** Units: **µg/L** Analysis Date: **6/2/2018 12:27 PM**

Client ID: Run ID: **VMS11_180601B** SeqNo: **5070742** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,3-Trichlorobenzene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,3-Dichloropropane	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromochloromethane	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

o-Xylene	U	1.0					
Styrene	U	1.0					
Tetrachloroethene	U	1.0					
Toluene	U	1.0					
trans-1,2-Dichloroethene	U	1.0					
trans-1,3-Dichloropropene	U	1.0					
Trichloroethene	U	1.0					
Trichlorofluoromethane	U	1.0					
Vinyl chloride	U	1.0					
Xylenes, Total	U	3.0					
Surr: 1,2-Dichloroethane-d4	*23.1*	0	*20*	0	*116*	*75-120*	0
Surr: 4-Bromofluorobenzene	*21.01*	0	*20*	0	*105*	*80-110*	0
Surr: Dibromofluoromethane	*19.79*	0	*20*	0	*99*	*85-115*	0
Surr: Toluene-d8	*20.2*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

LCS	Sample ID: **VLCSW4-180601-R237279A**				Units: **µg/L**		Analysis Date: **6/1/2018 11:43 PM**			
Client ID:		Run ID: **VMS11_180601B**			SeqNo: **5070714**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.04	1.0	20	0	115	75-130	0			
1,1,2,2-Tetrachloroethane	21.67	1.0	20	0	108	75-130	0			
1,1,2-Trichloroethane	20.1	1.0	20	0	100	75-125	0			
1,1-Dichloroethane	22.27	1.0	20	0	111	68-142	0			
1,1-Dichloroethene	25.81	1.0	20	0	129	70-145	0			
1,2,3-Trichlorobenzene	19.56	1.0	20	0	97.8	70-140	0			
1,2,4-Trichlorobenzene	19.57	1.0	20	0	97.8	70-135	0			
1,2-Dibromo-3-chloropropane	15.44	1.0	20	0	77.2	60-130	0			
1,2-Dibromoethane	22.6	1.0	20	0	113	67-155	0			
1,2-Dichlorobenzene	19.59	1.0	20	0	98	70-130	0			
1,2-Dichloroethane	25.45	1.0	20	0	127	78-125	0			S
1,2-Dichloropropane	22.93	1.0	20	0	115	75-125	0			
1,3-Dichlorobenzene	19.6	1.0	20	0	98	75-130	0			
1,3-Dichloropropane	22.38	1.0	20	0	112	75-125	0			
1,4-Dichlorobenzene	20.38	1.0	20	0	102	75-130	0			
2-Butanone	21.36	5.0	20	0	107	55-150	0			
2-Hexanone	21.6	5.0	20	0	108	60-135	0			
4-Methyl-2-pentanone	27.95	1.0	20	0	140	77-178	0			
Acetone	20.58	10	20	0	103	60-160	0			
Benzene	22.54	1.0	20	0	113	85-125	0			
Bromochloromethane	23.68	1.0	20	0	118	72-141	0			
Bromodichloromethane	20.84	1.0	20	0	104	75-125	0			
Bromoform	15.92	1.0	20	0	79.6	60-125	0			
Bromomethane	15.81	1.0	20	0	79	30-185	0			
Carbon disulfide	20.94	1.0	20	0	105	60-165	0			
Carbon tetrachloride	21.47	1.0	20	0	107	65-140	0			
Chlorobenzene	20.56	1.0	20	0	103	80-120	0			
Chloroethane	18.67	1.0	20	0	93.4	50-140	0			
Chloroform	21.58	1.0	20	0	108	80-130	0			
Chloromethane	21.64	1.0	20	0	108	46-148	0			
cis-1,2-Dichloroethene	22.9	1.0	20	0	114	75-134	0			
Dibromochloromethane	17.62	1.0	20	0	88.1	60-115	0			
Dichlorodifluoromethane	16.21	1.0	20	0	81	20-120	0			
Ethylbenzene	22.09	1.0	20	0	110	76-123	0			
Isopropylbenzene	21.42	1.0	20	0	107	80-127	0			
m,p-Xylene	44.33	2.0	40	0	111	75-130	0			
Methyl tert-butyl ether	20.49	1.0	20	0	102	68-129	0			
Methylene chloride	25.17	5.0	20	0	126	75-140	0			
o-Xylene	22.21	1.0	20	0	111	76-127	0			
Styrene	21.72	1.0	20	0	109	83-137	0			
Tetrachloroethene	19.62	1.0	20	0	98.1	68-166	0			
Toluene	21.73	1.0	20	0	109	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	23.87	1.0	20	0	119	80-140	0
trans-1,3-Dichloropropene	21.11	1.0	20	0	106	56-132	0
Trichloroethene	20.61	1.0	20	0	103	84-130	0
Trichlorofluoromethane	20.04	1.0	20	0	100	60-140	0
Vinyl chloride	18.87	1.0	20	0	94.4	50-136	0
Xylenes, Total	66.54	3.0	60	0	111	76-127	0
Surr: 1,2-Dichloroethane-d4	*23.02*	0	*20*	0	*115*	*75-120*	0
Surr: 4-Bromofluorobenzene	*21.9*	0	*20*	0	*110*	*80-110*	0
Surr: Dibromofluoromethane	*19.93*	0	*20*	0	*99.6*	*85-115*	0
Surr: Toluene-d8	*20.13*	0	*20*	0	*101*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MS	Sample ID: **18051738-03A MS**			Units: **µg/L**			Analysis Date: **6/2/2018 08:10 AM**			
Client ID:		Run ID: **VMS11_180601B**		SeqNo: **5070740**		Prep Date:		DF: **10**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	221.5	10	200	0	111	75-130	0			
1,1,2,2-Tetrachloroethane	204.5	10	200	0	102	75-130	0			
1,1,2-Trichloroethane	188.2	10	200	0	94.1	75-125	0			
1,1-Dichloroethane	215.6	10	200	0	108	68-142	0			
1,1-Dichloroethene	235.9	10	200	0	118	70-145	0			
1,2,3-Trichlorobenzene	177	10	200	0	88.5	70-140	0			
1,2,4-Trichlorobenzene	176.9	10	200	0	88.4	70-135	0			
1,2-Dibromo-3-chloropropane	153.2	10	200	0	76.6	60-130	0			
1,2-Dibromoethane	212.9	10	200	0	106	67-155	0			
1,2-Dichlorobenzene	189.2	10	200	0	94.6	70-130	0			
1,2-Dichloroethane	240	10	200	0	120	78-125	0			
1,2-Dichloropropane	216.1	10	200	0	108	75-125	0			
1,3-Dichlorobenzene	184.6	10	200	0	92.3	75-130	0			
1,3-Dichloropropane	216.7	10	200	0	108	75-125	0			
1,4-Dichlorobenzene	191	10	200	0	95.5	75-130	0			
2-Butanone	221.9	50	200	0	111	55-150	0			
2-Hexanone	209.7	50	200	0	105	60-135	0			
4-Methyl-2-pentanone	267	10	200	0	134	77-178	0			
Acetone	236	100	200	0	118	60-160	0			
Benzene	217.7	10	200	0	109	85-125	0			
Bromochloromethane	226	10	200	0	113	72-141	0			
Bromodichloromethane	192.9	10	200	0	96.4	75-125	0			
Bromoform	149	10	200	0	74.5	60-125	0			
Bromomethane	58.9	10	200	0	29.4	30-185	0			S
Carbon disulfide	194.7	10	200	0	97.4	60-165	0			
Carbon tetrachloride	208.5	10	200	0	104	65-140	0			
Chlorobenzene	199.9	10	200	0	100	80-120	0			
Chloroethane	181.4	10	200	0	90.7	50-140	0			
Chloroform	207.7	10	200	0	104	80-130	0			
Chloromethane	191	10	200	0	95.5	46-148	0			
cis-1,2-Dichloroethene	218.7	10	200	0	109	75-134	0			
Dibromochloromethane	164.9	10	200	0	82.4	60-115	0			
Dichlorodifluoromethane	158.9	10	200	0	79.4	20-120	0			
Ethylbenzene	248.3	10	200	31.7	108	76-123	0			
Isopropylbenzene	206.3	10	200	4.7	101	80-127	0			
m,p-Xylene	470.1	20	400	43.5	107	75-130	0			
Methyl tert-butyl ether	195.3	10	200	0	97.6	68-129	0			
Methylene chloride	238	50	200	0	119	75-140	0			
o-Xylene	223.3	10	200	5.3	109	76-127	0			
Styrene	205.3	10	200	0	103	83-137	0			
Tetrachloroethene	188.4	10	200	0	94.2	68-166	0			
Toluene	213.9	10	200	3.7	105	76-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	233.8	10	200	0	117	80-140	0
trans-1,3-Dichloropropene	186.7	10	200	0	93.4	56-132	0
Trichloroethene	203.7	10	200	0	102	84-130	0
Trichlorofluoromethane	192.9	10	200	0	96.4	60-140	0
Vinyl chloride	175	10	200	0	87.5	50-136	0
Xylenes, Total	693.4	30	600	48.8	107	76-127	0
Surr: 1,2-Dichloroethane-d4	*226.3*	0	*200*	0	*113*	*75-120*	0
Surr: 4-Bromofluorobenzene	*216.8*	0	*200*	0	*108*	*80-110*	0
Surr: Dibromofluoromethane	*191.5*	0	*200*	0	*95.8*	*85-115*	0
Surr: Toluene-d8	*198.8*	0	*200*	0	*99.4*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

MSD Sample ID: **18051738-03A MSD** Units: **µg/L** Analysis Date: **6/2/2018 08:32 AM**

Client ID: Run ID: **VMS11_180601B** SeqNo: **5070741** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	230.5	10	200	0	115	75-130	221.5	3.98	30	
1,1,2,2-Tetrachloroethane	217	10	200	0	108	75-130	204.5	5.93	30	
1,1,2-Trichloroethane	195.9	10	200	0	98	75-125	188.2	4.01	30	
1,1-Dichloroethane	221.4	10	200	0	111	68-142	215.6	2.65	30	
1,1-Dichloroethene	245	10	200	0	122	70-145	235.9	3.78	30	
1,2,3-Trichlorobenzene	187.2	10	200	0	93.6	70-140	177	5.6	30	
1,2,4-Trichlorobenzene	187.7	10	200	0	93.8	70-135	176.9	5.92	30	
1,2-Dibromo-3-chloropropane	160.2	10	200	0	80.1	60-130	153.2	4.47	30	
1,2-Dibromoethane	215.3	10	200	0	108	67-155	212.9	1.12	30	
1,2-Dichlorobenzene	194.1	10	200	0	97	70-130	189.2	2.56	30	
1,2-Dichloroethane	253.1	10	200	0	127	78-125	240	5.31	30	S
1,2-Dichloropropane	223.6	10	200	0	112	75-125	216.1	3.41	30	
1,3-Dichlorobenzene	189.6	10	200	0	94.8	75-130	184.6	2.67	30	
1,3-Dichloropropane	225	10	200	0	112	75-125	216.7	3.76	30	
1,4-Dichlorobenzene	202.1	10	200	0	101	75-130	191	5.65	30	
2-Butanone	220.2	50	200	0	110	55-150	221.9	0.769	30	
2-Hexanone	220.7	50	200	0	110	60-135	209.7	5.11	30	
4-Methyl-2-pentanone	276.4	10	200	0	138	77-178	267	3.46	30	
Acetone	248.9	100	200	0	124	60-160	236	5.32	30	
Benzene	225.7	10	200	0	113	85-125	217.7	3.61	30	
Bromochloromethane	232.1	10	200	0	116	72-141	226	2.66	30	
Bromodichloromethane	203.1	10	200	0	102	75-125	192.9	5.15	30	
Bromoform	157.1	10	200	0	78.6	60-125	149	5.29	30	
Bromomethane	79.1	10	200	0	39.6	30-185	58.9	29.3	30	
Carbon disulfide	198.4	10	200	0	99.2	60-165	194.7	1.88	30	
Carbon tetrachloride	212.7	10	200	0	106	65-140	208.5	1.99	30	
Chlorobenzene	207.9	10	200	0	104	80-120	199.9	3.92	30	
Chloroethane	195.4	10	200	0	97.7	50-140	181.4	7.43	30	
Chloroform	215.4	10	200	0	108	80-130	207.7	3.64	30	
Chloromethane	194.2	10	200	0	97.1	46-148	191	1.66	30	
cis-1,2-Dichloroethene	222.9	10	200	0	111	75-134	218.7	1.9	30	
Dibromochloromethane	173.4	10	200	0	86.7	60-115	164.9	5.03	30	
Dichlorodifluoromethane	156.4	10	200	0	78.2	20-120	158.9	1.59	30	
Ethylbenzene	253.6	10	200	31.7	111	76-123	248.3	2.11	30	
Isopropylbenzene	213.1	10	200	4.7	104	80-127	206.3	3.24	30	
m,p-Xylene	478.7	20	400	43.5	109	75-130	470.1	1.81	30	
Methyl tert-butyl ether	200.9	10	200	0	100	68-129	195.3	2.83	30	
Methylene chloride	244.1	50	200	0	122	75-140	238	2.53	30	
o-Xylene	226.6	10	200	5.3	111	76-127	223.3	1.47	30	
Styrene	212.7	10	200	0	106	83-137	205.3	3.54	30	
Tetrachloroethene	188.1	10	200	0	94	68-166	188.4	0.159	30	
Toluene	220.8	10	200	3.7	109	76-125	213.9	3.17	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R237279A** Instrument ID **VMS11** Method: **SW8260C**

trans-1,2-Dichloroethene	232	10	200	0	116	80-140	233.8	0.773	30
trans-1,3-Dichloropropene	197.7	10	200	0	98.8	56-132	186.7	5.72	30
Trichloroethene	211	10	200	0	106	84-130	203.7	3.52	30
Trichlorofluoromethane	193.4	10	200	0	96.7	60-140	192.9	0.259	30
Vinyl chloride	176.7	10	200	0	88.4	50-136	175	0.967	30
Xylenes, Total	705.3	30	600	48.8	109	76-127	693.4	1.7	30
Surr: 1,2-Dichloroethane-d4	*220.4*	0	*200*	0	*110*	*75-120*	226.3	*2.64*	*30*
Surr: 4-Bromofluorobenzene	*215.3*	0	*200*	0	*108*	*80-110*	216.8	*0.694*	*30*
Surr: Dibromofluoromethane	*191.2*	0	*200*	0	*95.6*	*85-115*	191.5	*0.157*	*30*
Surr: Toluene-d8	*200.6*	0	*200*	0	*100*	*85-110*	198.8	*0.901*	*30*

The following samples were analyzed in this batch:

18051778-03A	18051778-04A	18051778-05A
18051778-08A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **118942** Instrument ID **WETCHEM** Method: **A4500-KMnO4 B-1**

MBLK Sample ID: **MBLK-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063673** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	U	0	0	0	0		0			

LCS Sample ID: **LCS-118942-118942** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063674** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.84	0	15	0	92.3	80-120	0			

DUP Sample ID: **18051682-04D DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063676** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	13.29	0	0	0	0		8.41	45	20	R

DUP Sample ID: **18051682-04D DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: Run ID: **WETCHEM_180531G** SeqNo: **5063677** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	10.97	0	0	0	0		8.41	26.4	20	R

DUP Sample ID: **18051778-07A DUP2** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-52** Run ID: **WETCHEM_180531G** SeqNo: **5063679** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	11.52	0	0	0	0		10.94	5.16	20	

DUP Sample ID: **18051778-07A DUP3** Units: **g/Kg** Analysis Date: **5/31/2018 12:30 PM**
Client ID: **18CP02-52** Run ID: **WETCHEM_180531G** SeqNo: **5063680** Prep Date: **5/31/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oxidant Demand (KMnO4)	9.91	0	0	0	0		10.94	9.88	20	

The following samples were analyzed in this batch: 18051778-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237207** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R237207** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068125** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	0.03	0.050								J

LCS Sample ID: **LCS-R237207** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068124** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **18051774-19A DUP** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068106** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.48	0.050	0	0	0	0-0	18.13	1.91	10	

DUP Sample ID: **1806095-01A DUP** Units: **% of sample** Analysis Date: **6/1/2018 07:50 PM**
Client ID: Run ID: **MOIST_180601G** SeqNo: **5068123** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.22	0.050	0	0	0	0-0	14.18	0.282	10	

The following samples were analyzed in this batch:

18051778-01A	18051778-06B	18051778-07C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Jacobs
Work Order: 18051778
Project: PMC

QC BATCH REPORT

Batch ID: **R237238** Instrument ID **WETCHEM** Method: **TITRAMETRIC**

MBLK Sample ID: **WBLKS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069364** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	U	0.025								

LCS Sample ID: **WLCSS1-180604-R237238** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: Run ID: **WETCHEM_180604E** SeqNo: **5069365** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	0.1121	0.025	0.1	0	112	91-143	0			

MS Sample ID: **18051778-06C MS** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: **18CP02-51** Run ID: **WETCHEM_180604E** SeqNo: **5069368** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.627	0.025	0.4739	1.309	67	91-143	0			S

MSD Sample ID: **18051778-06C MSD** Units: **% by wt** Analysis Date: **6/4/2018 09:37 AM**
Client ID: **18CP02-51** Run ID: **WETCHEM_180604E** SeqNo: **5069369** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon - W-B	1.65	0.025	0.4739	1.309	71.9	91-143	1.627	1.41	20	S

The following samples were analyzed in this batch:

18051778-06C	18051778-07B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

18051778

USEPA CLP COC (LAB COPY)

DateShipped: 5/24/2018

CarrierName: FedEx

AirbillNo: 7811 1892 5418

CHAIN OF CUSTODY RECORD

Case #:

Cooler #:

No: 5-052418-150543-0008

Lab: ALS Laboratory Group - Holland

Lab Contact: Chad Whelton

Lab Phone: 616 399 6070

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-CMW-02-SO/29.0-30.0-052318	18CP02-46	Soil/ CH2M	Grab	MET(21)	A (4 C) (1)	PMC-CMW-02	05/23/2018 16:50	
PMC-TB-10-052418	18CP02-47	Blank/ CH2M	Grab	VOC_s(21)	A (1MeOH 1H2O) (2)	PMC-TB	05/24/2018 14:45	
PMC-TB-09-052418	18CP02-48	Blank/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (2)	PMC-TB	05/24/2018 14:40	
PMC-SVB-05-GW/9.7-14.7-052418	18CP02-49	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-05	05/24/2018 14:10	
PMC-SVB-05-GW/9.7-14.7-052418-FD	18CP02-50	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-05	05/24/2018 14:15	
PMC-SVB-05-SO/3.5-4.0-052418	18CP02-51	Soil/ CH2M	Grab	VOC_s(21), TOC(21)	A (HCl pH<2 4C), B (4 C) (4)	PMC-SVB-05	05/24/2018 11:55	
PMC-SVB-05-SO/14.5-15.0-052418	18CP02-52	Soil/ CH2M	Grab	PNOD(21), TOC(21), MET(21)	A (4 C), B (4 C), C (4 C) (5)	PMC-SVB-05	05/24/2018 12:00	
PMC-SVB-06-GW/5.0-10.0-052418	18CP02-53	Ground Water/ CH2M	Grab	VOC(21)	A (HCl pH<2 4C) (3)	PMC-SVB-06	05/24/2018 16:00	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: MET=TAL Metals, VOC_s=TCL VOCs (soil), VOC=TCL VOCs (groundwater), TOC=TOC, PNOD=Permanganate Natural Oxidant Demand

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Anna Jeenay Kjaer FEDEX	5/24/18 1730	FedEx		
	FEDEX	5/25/18 0930	ALS		

SRL 5.4°C

ALS Group, USA

Sample Receipt Checklist

Client Name: **JACOBS - MILWAUKEE** Date/Time Received: **25-May-18 09:30**

Work Order: **18051778** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 25-May-18 (Date) Reviewed by: Chad Whelton (eSignature) 25-May-18 (Date)

Matrices: Soil & Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	5.4/5.4 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/25/2018 2:27:16 PM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

October 23, 2018

Rachel Grand
Jacobs
1034 South Brentwood Blvd Suite 2300
St. Louis, MO 63117

RE: PMC

Dear Rachel:

Enclosed are the results of the samples submitted to our laboratory on October 13, 2018. For your reference, these analyses have been assigned our service request number P1805476.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 4:05 pm, 10/23/18

Kate Kaneko
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Jacobs
Project: PMC

Service Request No: P1805476

CASE NARRATIVE

The samples were received intact under chain of custody on October 13, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in scan and SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The upper control criterion was exceeded for naphthalene in the Continuing Calibration Verification (CCV) analyzed on October 16, 2018. Therefore, a potential for a high bias exists for those associated sample concentrations reported with positive results. The data has been qualified accordingly.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Jacobs
Project ID: PMC

Service Request: P1805476

Date Received: 10/13/2018
Time Received: 10:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans	TO-15 - VOC SIM
19CP01-33	P1805476-001	Air	10/11/2018	13:28	AS01129	-4.03	3.66	X	X
19CP01-44	P1805476-002	Air	10/11/2018	13:27	AC02290	-3.69	3.83	X	X
19CP01-34	P1805476-003	Air	10/11/2018	13:26	AC00343	-3.80	4.07	X	X
19CP01-35	P1805476-004	Air	10/11/2018	13:26	AC02191	-3.88	3.66	X	X
19CP01-36	P1805476-005	Air	10/11/2018	13:33	AC02158	-3.95	3.81	X	X
19CP01-37	P1805476-006	Air	10/10/2018	15:10	1BV12879	-2.64	5.17	X	
19CP01-38	P1805476-007	Air	10/10/2018	15:34	1BV12876	-2.18	5.35	X	

P805476

USEPA
DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

CHAIN OF CUSTODY RECORD
Site #: PMC
Contact Name: Heather Hodach
Contact Phone: 414-847-0428

No: 5-101118-223457-0019
Cooler #:
Lab: ALS Laboratory Group - Simi Valley
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
1	PMC-09-IA01-101118	PMC-09-IA01	VOCs - TO-15 (6L Can - 48hrTAT)	Air	10/11/2018	13:28	1	6 L Summa Canister	None	N
2	PMC-09-IA02-101118	PMC-09-IA02	VOCs - TO-15 (6L Can - 48hrTAT)	Air	10/11/2018	13:27	1	6 L Summa Canister	None	N
3	PMC-09-IA03-101118	PMC-09-IA03	VOCs - TO-15 (6L Can - 48hrTAT)	Air	10/11/2018	13:26	1	6 L Summa Canister	None	N
4	PMC-09-IA03-101118-FD	PMC-09-IA03	VOCs - TO-15 (6L Can - 48hrTAT)	Air	10/11/2018	13:26	1	6 L Summa Canister	None	N
5	PMC-09-OA01-101118	PMC-09-OA01	VOCs - TO-15 (6L Can - 48hrTAT)	Air	10/11/2018	13:33	1	6 L Summa Canister	None	N
6	PMC-09-SS01-101018	PMC-09-SS01	VOCs - TO-15 (bottle - 48hrTAT)	Air	10/10/2018	15:10	1	6 L Summa Canister 1L BV	None	N
7	PMC-09-SS02-101018	PMC-09-SS02	VOCs - TO-15 (bottle - 48hrTAT)	Air	10/10/2018	15:34	1	6 L Summa Canister 1L BV	None	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	10/12/18 1900	ALS	10-13-18	GOOD!
				1015	CUSTODY SEALS INTACT

USEPA CLP COC (LAB COPY) | **COC - Petoskey Michigan Site (PMC)** | **No: 5-101118-223457-0019**

DateShipped: 10/12/2018 | Lab: ALS Laboratory Group - Simi Valley

CarrierName: FedEx Overnight | Case #: | Lab Contact: Kate Kaneko

AirbillNo: | Cooler #: | Lab Phone: 805-526-7161

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-09-IA01-101118	19CP01-33	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-IA01	10/11/2018 13:28	
PMC-09-IA02-101118	19CP01-34	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-IA02	10/11/2018 13:27	
PMC-09-IA03-101118	19CP01-34	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-IA03	10/11/2018 13:26	
PMC-09-IA03-101118-FD	19CP01-35	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-IA03	10/11/2018 13:26	
PMC-09-OA01-101118	19CP01-36	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-OA01	10/11/2018 13:33	
PMC-09-SS01-101018	19CP01-37	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-SS01	10/10/2018 15:10	
PMC-09-SS02-101018	19CP01-38	Air/ Jacobs	Grab	TO-15(48 Hours)	A (None) (1)	PMC-09-SS02	10/10/2018 15:34	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (6L Can - 48hrTAT)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			Corrected CoC received via email 10/15/18 Kate Kaneko		

ALS Environmental
Sample Acceptance Check Form

Client: Jacobs Work order: P1805476

Project: PMC 2018

Sample(s) received on: 10/13/18 Date opened: 10/13/18 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805476-001.01	6.0 L Silonite Can					
P1805476-002.01	6.0 L Ambient Can					
P1805476-003.01	6.0 L Ambient Can					
P1805476-004.01	6.0 L Ambient Can					
P1805476-005.01	6.0 L Ambient Can					
P1805476-006.01	1.0 L Bottle-Vac™					
P1805476-007.01	1.0 L Bottle-Vac™					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-33**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS01129

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -4.03 Final Pressure (psig): 3.66

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.9**	0.89	0.22	**2.3**	0.52	0.13	
64-17-5	Ethanol	**54**	8.8	0.64	**29**	4.7	0.34	
75-05-8	Acetonitrile	**0.28**	0.89	0.22	**0.17**	0.53	0.13	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**15**	3.6	0.38	**6.2**	1.5	0.15	
107-13-1	Acrylonitrile	0.19	0.89	0.19	0.087	0.41	0.087	**U**
75-15-0	Carbon Disulfide	**1.7**	1.9	0.28	**0.55**	0.61	0.088	**J**
108-05-4	Vinyl Acetate	2.1	9.1	2.1	0.59	2.6	0.59	**U**
78-93-3	2-Butanone (MEK)	**0.84**	1.7	0.19	**0.29**	0.58	0.064	**J**
110-54-3	n-Hexane	0.19	0.93	0.19	0.054	0.26	0.054	**U**
71-36-3	1-Butanol	**3.0**	1.7	0.24	**0.99**	0.57	0.079	
110-82-7	Cyclohexane	0.26	1.7	0.26	0.075	0.50	0.075	**U**
108-10-1	4-Methyl-2-pentanone	0.13	0.91	0.13	0.031	0.22	0.031	**U**
591-78-6	2-Hexanone	**0.17**	0.93	0.11	**0.040**	0.23	0.028	**J**
75-25-2	Bromoform	0.19	0.91	0.19	0.018	0.088	0.018	**U**
100-44-7	Benzyl Chloride	0.21	1.9	0.21	0.040	0.37	0.040	**U**
526-73-8	1,2,3-Trimethylbenzene	0.13	0.89	0.13	0.026	0.18	0.026	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.43	0.86	0.43	0.12	0.24	0.12	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-44**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC02290

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.69 Final Pressure (psig): 3.83

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.3**	0.87	0.22	**1.9**	0.51	0.13	
64-17-5	Ethanol	**61**	8.6	0.62	**32**	4.5	0.33	
75-05-8	Acetonitrile	**0.50**	0.87	0.22	**0.30**	0.52	0.13	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**14**	3.5	0.37	**5.7**	1.4	0.15	
107-13-1	Acrylonitrile	0.18	0.87	0.18	0.085	0.40	0.085	**U**
75-15-0	Carbon Disulfide	**2.9**	1.8	0.27	**0.93**	0.59	0.086	
108-05-4	Vinyl Acetate	2.0	8.9	2.0	0.57	2.5	0.57	**U**
78-93-3	2-Butanone (MEK)	**0.95**	1.7	0.18	**0.32**	0.57	0.063	**J**
110-54-3	n-Hexane	0.18	0.91	0.18	0.052	0.26	0.052	**U**
71-36-3	1-Butanol	**2.6**	1.7	0.24	**0.86**	0.55	0.078	
110-82-7	Cyclohexane	0.25	1.7	0.25	0.073	0.49	0.073	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.89	0.12	0.030	0.22	0.030	**U**
591-78-6	2-Hexanone	**0.20**	0.91	0.11	**0.050**	0.22	0.027	**J**
75-25-2	Bromoform	0.18	0.89	0.18	0.018	0.086	0.018	**U**
100-44-7	Benzyl Chloride	0.20	1.8	0.20	0.039	0.36	0.039	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.87	0.12	0.025	0.18	0.025	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.42	0.84	0.42	0.12	0.24	0.12	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-34**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC00343

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.80 Final Pressure (psig): 4.07

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.5**	0.89	0.22	**2.0**	0.52	0.13	
64-17-5	Ethanol	**59**	8.8	0.64	**31**	4.7	0.34	
75-05-8	Acetonitrile	**0.33**	0.89	0.22	**0.19**	0.53	0.13	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**15**	3.6	0.38	**5.9**	1.5	0.15	
107-13-1	Acrylonitrile	0.19	0.89	0.19	0.087	0.41	0.087	**U**
75-15-0	Carbon Disulfide	**2.0**	1.9	0.28	**0.63**	0.61	0.088	
108-05-4	Vinyl Acetate	**2.3**	9.1	2.1	**0.64**	2.6	0.59	**J**
78-93-3	2-Butanone (MEK)	**1.7**	1.7	0.19	**0.56**	0.58	0.064	**J**
110-54-3	n-Hexane	**0.24**	0.93	0.19	**0.067**	0.26	0.054	**J**
71-36-3	1-Butanol	**4.1**	1.7	0.24	**1.4**	0.57	0.079	
110-82-7	Cyclohexane	0.26	1.7	0.26	0.075	0.50	0.075	**U**
108-10-1	4-Methyl-2-pentanone	**0.18**	0.91	0.13	**0.045**	0.22	0.031	**J**
591-78-6	2-Hexanone	**0.43**	0.93	0.11	**0.10**	0.23	0.028	**J**
75-25-2	Bromoform	0.19	0.91	0.19	0.018	0.088	0.018	**U**
100-44-7	Benzyl Chloride	0.21	1.9	0.21	0.040	0.37	0.040	**U**
526-73-8	1,2,3-Trimethylbenzene	0.13	0.89	0.13	0.026	0.18	0.026	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.43	0.86	0.43	0.12	0.24	0.12	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-35**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC02191

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.88 Final Pressure (psig): 3.66

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.3**	0.88	0.22	**1.9**	0.51	0.13	
64-17-5	Ethanol	**57**	8.7	0.63	**30**	4.6	0.33	
75-05-8	Acetonitrile	**0.30**	0.88	0.22	**0.18**	0.53	0.13	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**14**	3.6	0.37	**5.6**	1.5	0.15	
107-13-1	Acrylonitrile	0.19	0.88	0.19	0.086	0.41	0.086	**U**
75-15-0	Carbon Disulfide	**1.9**	1.9	0.27	**0.62**	0.60	0.087	
108-05-4	Vinyl Acetate	2.0	9.0	2.0	0.58	2.6	0.58	**U**
78-93-3	2-Butanone (MEK)	**0.79**	1.7	0.19	**0.27**	0.58	0.063	**J**
110-54-3	n-Hexane	0.19	0.92	0.19	0.053	0.26	0.053	**U**
71-36-3	1-Butanol	**3.5**	1.7	0.24	**1.2**	0.56	0.079	
110-82-7	Cyclohexane	0.26	1.7	0.26	0.074	0.49	0.074	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.90	0.12	0.030	0.22	0.030	**U**
591-78-6	2-Hexanone	**0.26**	0.92	0.11	**0.064**	0.22	0.027	**J**
75-25-2	Bromoform	0.19	0.90	0.19	0.018	0.087	0.018	**U**
100-44-7	Benzyl Chloride	0.20	1.9	0.20	0.039	0.36	0.039	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.88	0.12	0.025	0.18	0.025	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.43	0.85	0.43	0.12	0.24	0.12	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-36**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC02158

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.95 Final Pressure (psig): 3.81

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.32**	0.89	0.22	**0.19**	0.52	0.13	**J**
64-17-5	Ethanol	**5.8**	8.8	0.64	**3.1**	4.7	0.34	**J**
75-05-8	Acetonitrile	0.22	0.89	0.22	0.13	0.53	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.75**	3.6	0.38	**0.31**	1.5	0.15	**J**
107-13-1	Acrylonitrile	0.19	0.89	0.19	0.087	0.41	0.087	**U**
75-15-0	Carbon Disulfide	0.28	1.9	0.28	0.088	0.61	0.088	**U**
108-05-4	Vinyl Acetate	**2.5**	9.1	2.1	**0.70**	2.6	0.59	**J**
78-93-3	2-Butanone (MEK)	**1.9**	1.7	0.19	**0.65**	0.58	0.064	
110-54-3	n-Hexane	0.19	0.93	0.19	0.054	0.26	0.054	**U**
71-36-3	1-Butanol	**0.85**	1.7	0.24	**0.28**	0.57	0.079	**J**
110-82-7	Cyclohexane	0.26	1.7	0.26	0.075	0.50	0.075	**U**
108-10-1	4-Methyl-2-pentanone	0.13	0.91	0.13	0.031	0.22	0.031	**U**
591-78-6	2-Hexanone	**0.27**	0.93	0.11	**0.066**	0.23	0.028	**J**
75-25-2	Bromoform	0.19	0.91	0.19	0.018	0.088	0.018	**U**
100-44-7	Benzyl Chloride	0.21	1.9	0.21	0.040	0.37	0.040	**U**
526-73-8	1,2,3-Trimethylbenzene	0.13	0.89	0.13	0.026	0.18	0.026	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.43	0.86	0.43	0.12	0.24	0.12	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-37** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-006

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12879

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.17

Container Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.54	2.1	0.54	0.31	1.2	0.31	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	2.1	0.36	**0.48**	0.43	0.073	
74-87-3	Chloromethane	0.35	2.1	0.35	0.17	1.0	0.17	**U**
75-01-4	Vinyl Chloride	0.24	2.2	0.24	0.092	0.86	0.092	**U**
106-99-0	1,3-Butadiene	0.36	2.1	0.36	0.16	0.97	0.16	**U**
74-83-9	Bromomethane	0.31	2.1	0.31	0.079	0.53	0.079	**U**
75-00-3	Chloroethane	0.27	2.1	0.27	0.10	0.80	0.10	**U**
64-17-5	Ethanol	**4.8**	21	1.5	**2.6**	11	0.81	**J**
75-05-8	Acetonitrile	0.54	2.1	0.54	0.32	1.3	0.32	**U**
107-02-8	Acrolein	0.62	4.1	0.62	0.27	1.8	0.27	**U**
67-64-1	Acetone	**5.0**	22	5.0	**2.1**	9.4	2.1	**J**
75-69-4	Trichlorofluoromethane	**1.3**	2.2	0.33	**0.24**	0.39	0.059	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.96**	8.7	0.91	**0.39**	3.5	0.37	**J**
107-13-1	Acrylonitrile	0.45	2.1	0.45	0.21	0.99	0.21	**U**
75-35-4	1,1-Dichloroethene	0.31	2.2	0.31	0.077	0.56	0.077	**U**
75-09-2	Methylene Chloride	**1.8**	2.2	0.62	**0.53**	0.64	0.18	**J**
76-13-1	Trichlorotrifluoroethane	**0.47**	2.2	0.31	**0.061**	0.29	0.041	**J**
75-15-0	Carbon Disulfide	0.66	4.5	0.66	0.21	1.5	0.21	**U**
75-34-3	1,1-Dichloroethane	0.32	2.1	0.32	0.080	0.53	0.080	**U**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-37** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-006

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12879

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.17

Container Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.26	2.2	0.26	0.072	0.62	0.072	**U**
108-05-4	Vinyl Acetate	5.0	22	5.0	1.4	6.2	1.4	**U**
78-93-3	2-Butanone (MEK)	**0.60**	4.1	0.45	**0.20**	1.4	0.15	**J**
156-59-2	cis-1,2-Dichloroethene	0.31	2.2	0.31	0.078	0.55	0.078	**U**
110-54-3	n-Hexane	0.45	2.2	0.45	0.13	0.63	0.13	**U**
67-66-3	Chloroform	0.29	2.2	0.29	0.060	0.46	0.060	**U**
107-06-2	1,2-Dichloroethane	0.24	2.2	0.24	0.060	0.54	0.060	**U**
71-55-6	1,1,1-Trichloroethane	0.27	2.2	0.27	0.050	0.41	0.050	**U**
71-36-3	1-Butanol	**1.8**	4.1	0.58	**0.58**	1.4	0.19	**J**
71-43-2	Benzene	0.32	2.1	0.32	0.099	0.67	0.099	**U**
110-82-7	Cyclohexane	0.62	4.1	0.62	0.18	1.2	0.18	**U**
78-87-5	1,2-Dichloropropane	0.27	2.2	0.27	0.059	0.48	0.059	**U**
75-27-4	Bromodichloromethane	0.32	2.2	0.32	0.047	0.33	0.047	**U**
79-01-6	Trichloroethene	**4.5**	2.2	0.30	**0.84**	0.41	0.055	
123-91-1	1,4-Dioxane	0.26	2.2	0.26	0.072	0.61	0.072	**U**
10061-01-5	cis-1,3-Dichloropropene	0.34	2.3	0.34	0.075	0.51	0.075	**U**
108-10-1	4-Methyl-2-pentanone	0.30	2.2	0.30	0.074	0.53	0.074	**U**
10061-02-6	trans-1,3-Dichloropropene	0.45	2.2	0.45	0.10	0.48	0.10	**U**
79-00-5	1,1,2-Trichloroethane	0.22	2.2	0.22	0.041	0.41	0.041	**U**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-37** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-006

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12879

Initial Pressure (psig): -2.64 Final Pressure (psig): 5.17

Container Dilution Factor: 1.65

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**3.9**	2.2	0.27	**1.0**	0.58	0.071	
591-78-6	2-Hexanone	0.27	2.2	0.27	0.066	0.54	0.066	**U**
106-93-4	1,2-Dibromoethane	0.26	2.2	0.26	0.033	0.29	0.033	**U**
127-18-4	Tetrachloroethene	**0.53**	2.2	0.28	**0.079**	0.32	0.042	**J**
100-41-4	Ethylbenzene	**0.89**	2.1	0.31	**0.20**	0.49	0.071	**J**
179601-23-1	m,p-Xylenes	**4.1**	4.5	0.58	**0.94**	1.0	0.13	**J**
75-25-2	Bromoform	0.45	2.2	0.45	0.044	0.21	0.044	**U**
100-42-5	Styrene	**0.54**	2.2	0.35	**0.13**	0.51	0.083	**J**
95-47-6	o-Xylene	**1.7**	2.2	0.32	**0.39**	0.50	0.073	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.31	2.2	0.31	0.044	0.32	0.044	**U**
108-67-8	1,3,5-Trimethylbenzene	**1.2**	2.2	0.32	**0.23**	0.44	0.065	**J**
95-63-6	1,2,4-Trimethylbenzene	**4.6**	2.2	0.31	**0.93**	0.44	0.062	
100-44-7	Benzyl Chloride	0.50	4.5	0.50	0.096	0.88	0.096	**U**
541-73-1	1,3-Dichlorobenzene	0.33	2.2	0.33	0.055	0.37	0.055	**U**
106-46-7	1,4-Dichlorobenzene	0.34	2.2	0.34	0.056	0.37	0.056	**U**
526-73-8	1,2,3-Trimethylbenzene	**1.2**	2.1	0.30	**0.25**	0.44	0.061	**J**
95-50-1	1,2-Dichlorobenzene	0.33	2.2	0.33	0.054	0.37	0.054	**U**
120-82-1	1,2,4-Trichlorobenzene	0.54	2.2	0.54	0.072	0.29	0.072	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	1.0	2.1	1.0	0.29	0.58	0.29	**U, X**

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X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-38**
Client Project ID: **PMC**

ALS Project ID: P1805476
ALS Sample ID: P1805476-007

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan/Topacio De Leon
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12876

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/16/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.35

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.52	2.1	0.52	0.30	1.2	0.30	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.6**	2.1	0.35	**0.53**	0.42	0.070	
74-87-3	Chloromethane	0.34	2.0	0.34	0.17	0.97	0.17	**U**
75-01-4	Vinyl Chloride	0.23	2.1	0.23	0.089	0.83	0.089	**U**
106-99-0	1,3-Butadiene	0.35	2.1	0.35	0.16	0.94	0.16	**U**
74-83-9	Bromomethane	0.30	2.0	0.30	0.076	0.52	0.076	**U**
75-00-3	Chloroethane	0.26	2.0	0.26	0.10	0.77	0.10	**U**
64-17-5	Ethanol	**5.1**	20	1.5	**2.7**	11	0.79	**J**
75-05-8	Acetonitrile	0.52	2.1	0.52	0.31	1.2	0.31	**U**
107-02-8	Acrolein	0.60	4.0	0.60	0.26	1.7	0.26	**U**
67-64-1	Acetone	**5.0**	22	4.8	**2.1**	9.1	2.0	**J**
75-69-4	Trichlorofluoromethane	**1.8**	2.1	0.32	**0.32**	0.38	0.058	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.88	8.4	0.88	0.36	3.4	0.36	**U**
107-13-1	Acrylonitrile	0.44	2.1	0.44	0.20	0.96	0.20	**U**
75-35-4	1,1-Dichloroethene	0.30	2.2	0.30	0.075	0.55	0.075	**U**
75-09-2	Methylene Chloride	**1.6**	2.2	0.60	**0.46**	0.62	0.17	**J**
76-13-1	Trichlorotrifluoroethane	**0.44**	2.1	0.30	**0.057**	0.28	0.040	**J**
75-15-0	Carbon Disulfide	0.64	4.4	0.64	0.21	1.4	0.21	**U**
75-34-3	1,1-Dichloroethane	0.31	2.1	0.31	0.077	0.51	0.077	**U**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-38** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-007

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12876

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.35

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.25	2.2	0.25	0.070	0.60	0.070	**U**
108-05-4	Vinyl Acetate	4.8	21	4.8	1.4	6.0	1.4	**U**
78-93-3	2-Butanone (MEK)	**0.63**	4.0	0.44	**0.21**	1.4	0.15	**J**
156-59-2	cis-1,2-Dichloroethene	0.30	2.1	0.30	0.076	0.53	0.076	**U**
110-54-3	n-Hexane	0.44	2.2	0.44	0.12	0.61	0.12	**U**
67-66-3	Chloroform	**0.33**	2.2	0.28	**0.067**	0.44	0.058	**J**
107-06-2	1,2-Dichloroethane	0.24	2.1	0.24	0.058	0.52	0.058	**U**
71-55-6	1,1,1-Trichloroethane	**0.58**	2.2	0.26	**0.11**	0.40	0.048	**J**
71-36-3	1-Butanol	**1.4**	4.0	0.56	**0.46**	1.3	0.18	**J**
71-43-2	Benzene	0.31	2.1	0.31	0.096	0.65	0.096	**U**
110-82-7	Cyclohexane	0.60	4.0	0.60	0.17	1.2	0.17	**U**
78-87-5	1,2-Dichloropropane	0.26	2.2	0.26	0.057	0.47	0.057	**U**
75-27-4	Bromodichloromethane	0.31	2.1	0.31	0.046	0.32	0.046	**U**
79-01-6	Trichloroethene	**380**	21	2.9	**72**	3.9	0.54	**D**
123-91-1	1,4-Dioxane	0.25	2.1	0.25	0.070	0.59	0.070	**U**
10061-01-5	cis-1,3-Dichloropropene	0.33	2.2	0.33	0.073	0.49	0.073	**U**
108-10-1	4-Methyl-2-pentanone	0.29	2.1	0.29	0.071	0.52	0.071	**U**
10061-02-6	trans-1,3-Dichloropropene	0.44	2.1	0.44	0.097	0.47	0.097	**U**
79-00-5	1,1,2-Trichloroethane	0.22	2.2	0.22	0.040	0.40	0.040	**U**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-38** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-007

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12876

Initial Pressure (psig): -2.18 Final Pressure (psig): 5.35

Container Dilution Factor: 1.60

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**3.5**	2.1	0.26	**0.94**	0.56	0.069	
591-78-6	2-Hexanone	0.26	2.2	0.26	0.064	0.53	0.064	**U**
106-93-4	1,2-Dibromoethane	0.25	2.2	0.25	0.032	0.28	0.032	**U**
127-18-4	Tetrachloroethene	**35**	2.1	0.28	**5.1**	0.31	0.041	
100-41-4	Ethylbenzene	**0.96**	2.1	0.30	**0.22**	0.48	0.069	**J**
179601-23-1	m,p-Xylenes	**4.2**	4.4	0.56	**0.96**	1.0	0.13	**J**
75-25-2	Bromoform	0.44	2.1	0.44	0.043	0.21	0.043	**U**
100-42-5	Styrene	**0.52**	2.1	0.34	**0.12**	0.50	0.081	**J**
95-47-6	o-Xylene	**1.8**	2.1	0.31	**0.40**	0.49	0.071	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.30	2.1	0.30	0.043	0.31	0.043	**U**
108-67-8	1,3,5-Trimethylbenzene	**1.2**	2.1	0.31	**0.24**	0.43	0.063	**J**
95-63-6	1,2,4-Trimethylbenzene	**4.6**	2.1	0.30	**0.93**	0.43	0.060	
100-44-7	Benzyl Chloride	0.48	4.4	0.48	0.093	0.85	0.093	**U**
541-73-1	1,3-Dichlorobenzene	0.32	2.2	0.32	0.053	0.36	0.053	**U**
106-46-7	1,4-Dichlorobenzene	0.33	2.2	0.33	0.055	0.36	0.055	**U**
526-73-8	1,2,3-Trimethylbenzene	**1.2**	2.1	0.29	**0.25**	0.42	0.059	**J**
95-50-1	1,2-Dichlorobenzene	0.32	2.2	0.32	0.053	0.36	0.053	**U**
120-82-1	1,2,4-Trichlorobenzene	0.52	2.1	0.52	0.070	0.29	0.070	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	1.0	2.0	1.0	0.28	0.57	0.28	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	**U**
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	**U**
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	**U**
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	**U**
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	**U**
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	**U**
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	**U**
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	**U**
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	**U**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	0.065	0.53	0.065	0.017	0.14	0.017	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805476

Test Code: EPA TO-15 / EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 10/10 - 10/11/18
Analyst: Lusine Hakobyan/Topacio De Leon Date(s) Received: 10/13/18
Sample Type: 6.0 L Silonite Canister(s) / 6.0 L Summa Canister(s) / 1.0 L Bottle-Vac™(s) Date(s) Analyzed: 10/16/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181016-MB	**101**	**112**	**118**	70-130	
Lab Control Sample	P181016-LCS	**101**	**110**	**119**	70-130	
Duplicate Lab Control Sample	P181016-DLCS	**102**	**109**	**118**	70-130	
19CP01-33	P1805476-001	**100**	**111**	**119**	70-130	
19CP01-44	P1805476-002	**101**	**111**	**120**	70-130	
19CP01-34	P1805476-003	**100**	**111**	**120**	70-130	
19CP01-35	P1805476-004	**100**	**111**	**119**	70-130	
19CP01-36	P1805476-005	**100**	**111**	**121**	70-130	
19CP01-37	P1805476-006	**103**	**109**	**122**	70-130	
19CP01-38	P1805476-007	**104**	**109**	**122**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	163	163	**77**	**77**	54-133	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	208	206	**99**	**98**	64-115	1	25	
74-87-3	Chloromethane	211	193	194	**91**	**92**	47-140	1	25	
75-01-4	Vinyl Chloride	214	187	188	**87**	**88**	63-127	1	25	
106-99-0	1,3-Butadiene	210	195	197	**93**	**94**	57-149	1	25	
74-83-9	Bromomethane	212	194	199	**92**	**94**	63-132	2	25	
75-00-3	Chloroethane	214	175	180	**82**	**84**	68-129	2	25	
64-17-5	Ethanol	1,020	961	988	**94**	**97**	62-131	3	25	
75-05-8	Acetonitrile	206	180	186	**87**	**90**	56-136	3	25	
107-02-8	Acrolein	205	180	182	**88**	**89**	60-132	1	25	
67-64-1	Acetone	1,060	904	919	**85**	**87**	63-124	2	25	
75-69-4	Trichlorofluoromethane	211	212	214	**100**	**101**	65-113	1	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	405	412	**98**	**100**	62-135	2	25	
107-13-1	Acrylonitrile	207	186	190	**90**	**92**	68-138	2	25	
75-35-4	1,1-Dichloroethene	218	199	201	**91**	**92**	72-118	1	25	
75-09-2	Methylene Chloride	217	192	194	**88**	**89**	67-116	1	25	
76-13-1	Trichlorotrifluoroethane	216	218	221	**101**	**102**	68-113	1	25	
75-15-0	Carbon Disulfide	218	193	195	**89**	**89**	68-120	0	25	
75-34-3	1,1-Dichloroethane	216	191	192	**88**	**89**	68-118	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	205	206	**96**	**96**	60-123	0	25	
108-05-4	Vinyl Acetate	1,060	1100	1110	**104**	**105**	73-135	1	25	
78-93-3	2-Butanone (MEK)	208	194	195	**93**	**94**	70-129	1	25	
156-59-2	cis-1,2-Dichloroethene	211	190	191	**90**	**91**	69-121	1	25	
110-54-3	n-Hexane	216	171	173	**79**	**80**	61-124	1	25	
67-66-3	Chloroform	217	208	208	**96**	**96**	69-113	0	25	
107-06-2	1,2-Dichloroethane	215	214	214	**100**	**100**	62-120	0	25	
71-55-6	1,1,1-Trichloroethane	215	230	227	**107**	**106**	65-116	0.9	25	
71-36-3	1-Butanol	413	423	425	**102**	**103**	62-141	1	25	
71-43-2	Benzene	211	192	191	**91**	**91**	66-111	0	25	
110-82-7	Cyclohexane	416	393	389	**94**	**94**	69-115	0	25	
78-87-5	1,2-Dichloropropane	216	193	193	**89**	**89**	69-121	0	25	
75-27-4	Bromodichloromethane	215	228	228	**106**	**106**	69-123	0	25	
79-01-6	Trichloroethene	213	219	217	**103**	**102**	69-112	1	25	
123-91-1	1,4-Dioxane	214	212	212	**99**	**99**	74-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	214	215	214	**100**	**100**	74-129	0	25	
108-10-1	4-Methyl-2-pentanone	209	199	198	**95**	**95**	66-138	0	25	
10061-02-6	trans-1,3-Dichloropropene	213	226	226	**106**	**106**	75-130	0	25	
79-00-5	1,1,2-Trichloroethane	215	216	214	**100**	**100**	73-117	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181016-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	196	194	**92**	**92**	66-114	0	25	
591-78-6	2-Hexanone	214	207	208	**97**	**97**	58-146	0	25	
106-93-4	1,2-Dibromoethane	216	227	225	**105**	**104**	70-127	1	25	
127-18-4	Tetrachloroethene	213	226	223	**106**	**105**	62-119	0.9	25	
100-41-4	Ethylbenzene	212	203	202	**96**	**95**	69-117	1	25	
179601-23-1	m,p-Xylenes	426	417	414	**98**	**97**	67-117	1	25	
75-25-2	Bromoform	213	265	263	**124**	**123**	67-135	0.8	25	
100-42-5	Styrene	212	224	223	**106**	**105**	70-128	0.9	25	
95-47-6	o-Xylene	214	211	209	**99**	**98**	67-118	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	214	212	**100**	**99**	70-125	1	25	
108-67-8	1,3,5-Trimethylbenzene	214	214	212	**100**	**99**	65-117	1	25	
95-63-6	1,2,4-Trimethylbenzene	215	224	222	**104**	**103**	67-124	1	25	
100-44-7	Benzyl Chloride	217	250	249	**115**	**115**	75-142	0	25	
541-73-1	1,3-Dichlorobenzene	216	238	236	**110**	**109**	70-124	0.9	25	
106-46-7	1,4-Dichlorobenzene	216	238	236	**110**	**109**	63-124	0.9	25	
526-73-8	1,2,3-Trimethylbenzene	216	232	227	**107**	**105**	66-128	2	25	
95-50-1	1,2-Dichlorobenzene	216	243	239	**113**	**111**	66-125	2	25	
120-82-1	1,2,4-Trichlorobenzene	214	292	291	**136**	**136**	70-141	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs** ALS Project ID: P1805476
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10161804.D
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 01:45
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181016-LCS	10161805.D	02:18
Duplicate Lab Control Sample	P181016-DLCS	10161806.D	02:51
19CP01-33	P1805476-001	10161829.D	16:52
19CP01-44	P1805476-002	10161830.D	17:59
19CP01-34	P1805476-003	10161831.D	18:32
19CP01-35	P1805476-004	10161832.D	19:13
19CP01-36	P1805476-005	10161833.D	19:47
19CP01-37	P1805476-006	10161834.D	20:20
19CP01-38	P1805476-007	10161835.D	20:54
19CP01-38 (Dilution)	P1805476-007	10161836.D	21:27

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs** ALS Project ID: P1805476
Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10161802.D
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/16/18
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 00:38
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	211276		11.33		858896		13.43		355009		17.72	
	Upper Limit	295786		11.66		1202454		13.76		497013		18.05	
	Lower Limit	126766		11.00		515338		13.10		213005		17.39	
	Client Sample ID												
01	Method Blank	196843		11.31		832742		13.43		337655		17.72	
02	Lab Control Sample	204416		11.33		827896		13.43		340364		17.72	
03	Duplicate Lab Control Sample	206475		11.33		844274		13.43		348001		17.72	
04	19CP01-33	213979		11.31		899208		13.43		370654		17.72	
05	19CP01-44	209515		11.32		883085		13.43		364196		17.72	
06	19CP01-34	205232		11.32		859926		13.43		355894		17.72	
07	19CP01-35	209728		11.31		880480		13.43		362037		17.72	
08	19CP01-36	202083		11.31		846220		13.43		354057		17.72	
09	19CP01-37	198941		11.31		841784		13.43		355999		17.72	
10	19CP01-38	200706		11.31		852446		13.43		359755		17.72	
11	19CP01-38 (Dilution)	221807		11.32		913207		13.43		382036		17.72	
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-33** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-001

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01129

Initial Pressure (psig): -4.03 Final Pressure (psig): 3.66

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**		0.086	0.029	**0.46**		0.017	0.0059	
74-87-3	Chloromethane	**0.33**		0.086	0.033	**0.16**		0.042	0.016	
75-01-4	Vinyl Chloride		0.013	0.043	0.013		0.0051	0.017	0.0051	**U**
106-99-0	1,3-Butadiene		0.024	0.086	0.024		0.011	0.039	0.011	**U**
74-83-9	Bromomethane	**0.033**		0.043	0.016	**0.0084**		0.011	0.0041	**J**
75-00-3	Chloroethane	**0.097**		0.043	0.015	**0.037**		0.016	0.0055	
107-02-8	Acrolein	**0.69**		0.34	0.067	**0.30**		0.15	0.029	
67-64-1	Acetone	**15**		4.3	0.096	**6.4**		1.8	0.041	**B**
75-69-4	Trichlorofluoromethane	**1.2**		0.086	0.026	**0.22**		0.015	0.0046	
75-35-4	1,1-Dichloroethene		0.015	0.043	0.015		0.0037	0.011	0.0037	**U**
75-09-2	Methylene Chloride	**0.47**		0.17	0.022	**0.14**		0.050	0.0064	
76-13-1	Trichlorotrifluoroethane	**0.12**		0.043	0.015	**0.016**		0.0056	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.043	0.010		0.0026	0.011	0.0026	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.043	0.016		0.0044	0.012	0.0044	**U**
156-59-2	cis-1,2-Dichloroethene		0.016	0.043	0.016		0.0040	0.011	0.0040	**U**
67-66-3	Chloroform	**0.091**		0.17	0.031	**0.019**		0.035	0.0063	**J**
107-06-2	1,2-Dichloroethane	**0.086**		0.043	0.014	**0.021**		0.011	0.0036	
71-55-6	1,1,1-Trichloroethane		0.010	0.043	0.010		0.0019	0.0079	0.0019	**U**
71-43-2	Benzene	**0.047**		0.13	0.034	**0.015**		0.040	0.011	**J**
78-87-5	1,2-Dichloropropane	**0.81**		0.043	0.013	**0.18**		0.0093	0.0027	

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-33** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-001

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01129
Initial Pressure (psig): -4.03 Final Pressure (psig): 3.66

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane		0.012	0.043	0.012		0.0018	0.0064	0.0018	**U**
79-01-6	Trichloroethene	**0.11**		0.043	0.015	**0.021**		0.0080	0.0027	
123-91-1	1,4-Dioxane	**0.035**		0.17	0.015	**0.0098**		0.048	0.0041	**J**
10061-01-5	cis-1,3-Dichloropropene		0.011	0.043	0.011		0.0023	0.0095	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	**0.010**		0.043	0.0095	**0.0022**		0.0095	0.0021	**J**
79-00-5	1,1,2-Trichloroethane		0.014	0.17	0.014		0.0025	0.032	0.0025	**U**
108-88-3	Toluene	**0.64**		0.17	0.019	**0.17**		0.046	0.0050	
106-93-4	1,2-Dibromoethane		0.014	0.043	0.014		0.0018	0.0056	0.0018	**U**
127-18-4	Tetrachloroethene		0.014	0.043	0.014		0.0021	0.0063	0.0021	**U**
100-41-4	Ethylbenzene	**0.092**		0.17	0.017	**0.021**		0.040	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.20**		0.17	0.033	**0.047**		0.040	0.0075	
100-42-5	Styrene	**0.21**		0.17	0.013	**0.049**		0.040	0.0030	
95-47-6	o-Xylene	**0.15**		0.17	0.015	**0.034**		0.040	0.0035	**J**
79-34-5	1,1,2,2-Tetrachloroethane		0.012	0.043	0.012		0.0018	0.0063	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.029**		0.17	0.013	**0.0058**		0.035	0.0026	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.11**		0.17	0.014	**0.023**		0.035	0.0029	**J**
541-73-1	1,3-Dichlorobenzene		0.015	0.043	0.015		0.0024	0.0072	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	**0.017**		0.043	0.014	**0.0028**		0.0072	0.0023	**J**
95-50-1	1,2-Dichlorobenzene		0.014	0.043	0.014		0.0024	0.0072	0.0024	**U**
120-82-1	1,2,4-Trichlorobenzene		0.022	0.086	0.022		0.0030	0.012	0.0030	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-44** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-002

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02290
Initial Pressure (psig): -3.69 Final Pressure (psig): 3.83

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**		0.084	0.029	**0.46**		0.017	0.0058	
74-87-3	Chloromethane	**0.34**		0.084	0.032	**0.17**		0.041	0.015	
75-01-4	Vinyl Chloride		0.013	0.042	0.013		0.0050	0.016	0.0050	**U**
106-99-0	1,3-Butadiene		0.024	0.084	0.024		0.011	0.038	0.011	**U**
74-83-9	Bromomethane	**0.032**		0.042	0.016	**0.0083**		0.011	0.0040	**J**
75-00-3	Chloroethane	**0.10**		0.042	0.014	**0.039**		0.016	0.0054	
107-02-8	Acrolein	**0.67**		0.34	0.066	**0.29**		0.15	0.029	
67-64-1	Acetone	**18**		4.2	0.094	**7.4**		1.8	0.040	**B**
75-69-4	Trichlorofluoromethane	**1.2**		0.084	0.025	**0.21**		0.015	0.0045	
75-35-4	1,1-Dichloroethene		0.014	0.042	0.014		0.0036	0.011	0.0036	**U**
75-09-2	Methylene Chloride	**0.47**		0.17	0.022	**0.14**		0.048	0.0063	
76-13-1	Trichlorotrifluoroethane	**0.093**		0.042	0.015	**0.012**		0.0055	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.042	0.010		0.0025	0.010	0.0025	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.042	0.016		0.0043	0.012	0.0043	**U**
156-59-2	cis-1,2-Dichloroethene		0.015	0.042	0.015		0.0039	0.011	0.0039	**U**
67-66-3	Chloroform	**0.090**		0.17	0.030	**0.018**		0.034	0.0062	**J**
107-06-2	1,2-Dichloroethane	**0.11**		0.042	0.014	**0.027**		0.010	0.0035	
71-55-6	1,1,1-Trichloroethane		0.0099	0.042	0.0099		0.0018	0.0077	0.0018	**U**
71-43-2	Benzene	**0.046**		0.13	0.034	**0.014**		0.039	0.011	**J**
78-87-5	1,2-Dichloropropane	**1.2**		0.042	0.012	**0.25**		0.0091	0.0027	

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-44** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-002

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02290
Initial Pressure (psig): -3.69 Final Pressure (psig): 3.83

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.012	0.042	0.012	0.0017	0.0063	0.0017	**U**
79-01-6	Trichloroethene	**0.22**	0.042	0.014	**0.042**	0.0078	0.0027	
123-91-1	1,4-Dioxane	**0.047**	0.17	0.014	**0.013**	0.047	0.0040	**J**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.042	0.010	0.0023	0.0093	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0092	0.042	0.0092	0.0020	0.0093	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0024	0.031	0.0024	**U**
108-88-3	Toluene	**0.50**	0.17	0.018	**0.13**	0.045	0.0049	
106-93-4	1,2-Dibromoethane	0.013	0.042	0.013	0.0017	0.0055	0.0017	**U**
127-18-4	Tetrachloroethene	0.014	0.042	0.014	0.0020	0.0062	0.0020	**U**
100-41-4	Ethylbenzene	**0.060**	0.17	0.016	**0.014**	0.039	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.12**	0.17	0.032	**0.027**	0.039	0.0074	**J**
100-42-5	Styrene	**0.21**	0.17	0.012	**0.049**	0.039	0.0029	
95-47-6	o-Xylene	**0.062**	0.17	0.015	**0.014**	0.039	0.0034	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.042	0.012	0.0018	0.0061	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	0.012	0.17	0.012	0.0025	0.034	0.0025	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.046**	0.17	0.014	**0.0095**	0.034	0.0028	**J**
541-73-1	1,3-Dichlorobenzene	0.014	0.042	0.014	0.0024	0.0070	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0070	0.0023	**U**
95-50-1	1,2-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0070	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.084	0.022	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-34** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-003

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00343
Initial Pressure (psig): -3.80 Final Pressure (psig): 4.07

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**		0.086	0.029	**0.46**		0.017	0.0059	
74-87-3	Chloromethane	**0.36**		0.086	0.033	**0.17**		0.042	0.016	
75-01-4	Vinyl Chloride		0.013	0.043	0.013		0.0051	0.017	0.0051	**U**
106-99-0	1,3-Butadiene		0.024	0.086	0.024		0.011	0.039	0.011	**U**
74-83-9	Bromomethane	**0.033**		0.043	0.016	**0.0085**		0.011	0.0041	**J**
75-00-3	Chloroethane	**0.11**		0.043	0.015	**0.042**		0.016	0.0055	
107-02-8	Acrolein	**1.2**		0.34	0.067	**0.50**		0.15	0.029	
67-64-1	Acetone	**26**		4.3	0.096	**11**		1.8	0.041	**B**
75-69-4	Trichlorofluoromethane	**1.2**		0.086	0.026	**0.21**		0.015	0.0046	
75-35-4	1,1-Dichloroethene		0.015	0.043	0.015		0.0037	0.011	0.0037	**U**
75-09-2	Methylene Chloride	**0.50**		0.17	0.022	**0.14**		0.050	0.0064	
76-13-1	Trichlorotrifluoroethane	**0.11**		0.043	0.015	**0.015**		0.0056	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.043	0.010		0.0026	0.011	0.0026	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.043	0.016		0.0044	0.012	0.0044	**U**
156-59-2	cis-1,2-Dichloroethene		0.016	0.043	0.016		0.0040	0.011	0.0040	**U**
67-66-3	Chloroform	**0.10**		0.17	0.031	**0.021**		0.035	0.0063	**J**
107-06-2	1,2-Dichloroethane	**0.12**		0.043	0.014	**0.030**		0.011	0.0036	
71-55-6	1,1,1-Trichloroethane		0.010	0.043	0.010		0.0019	0.0079	0.0019	**U**
71-43-2	Benzene	**0.063**		0.13	0.034	**0.020**		0.040	0.011	**J**
78-87-5	1,2-Dichloropropane	**1.3**		0.043	0.013	**0.28**		0.0093	0.0027	

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-34** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-003

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00343
Initial Pressure (psig): -3.80 Final Pressure (psig): 4.07

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.012	0.043	0.012	0.0018	0.0064	0.0018	**U**
79-01-6	Trichloroethene	**0.30**	0.043	0.015	**0.055**	0.0080	0.0027	
123-91-1	1,4-Dioxane	**0.076**	0.17	0.015	**0.021**	0.048	0.0041	**J**
10061-01-5	cis-1,3-Dichloropropene	0.011	0.043	0.011	0.0023	0.0095	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0095	0.043	0.0095	0.0021	0.0095	0.0021	**U**
79-00-5	1,1,2-Trichloroethane	0.014	0.17	0.014	0.0025	0.032	0.0025	**U**
108-88-3	Toluene	**0.82**	0.17	0.019	**0.22**	0.046	0.0050	
106-93-4	1,2-Dibromoethane	0.014	0.043	0.014	0.0018	0.0056	0.0018	**U**
127-18-4	Tetrachloroethene	0.014	0.043	0.014	0.0021	0.0063	0.0021	**U**
100-41-4	Ethylbenzene	**0.10**	0.17	0.017	**0.023**	0.040	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.24**	0.17	0.033	**0.055**	0.040	0.0075	
100-42-5	Styrene	**0.33**	0.17	0.013	**0.078**	0.040	0.0030	
95-47-6	o-Xylene	**0.18**	0.17	0.015	**0.042**	0.040	0.0035	
79-34-5	1,1,2,2-Tetrachloroethane	**0.13**	0.043	0.012	**0.019**	0.0063	0.0018	
108-67-8	1,3,5-Trimethylbenzene	**0.029**	0.17	0.013	**0.0058**	0.035	0.0026	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.17**	0.17	0.014	**0.034**	0.035	0.0029	**J**
541-73-1	1,3-Dichlorobenzene	0.015	0.043	0.015	0.0024	0.0072	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	0.014	0.043	0.014	0.0023	0.0072	0.0023	**U**
95-50-1	1,2-Dichlorobenzene	0.014	0.043	0.014	0.0024	0.0072	0.0024	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.086	0.022	0.0030	0.012	0.0030	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-35** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-004

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02191
Initial Pressure (psig): -3.88 Final Pressure (psig): 3.66

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**		0.085	0.029	**0.47**		0.017	0.0058	
74-87-3	Chloromethane	**0.34**		0.085	0.032	**0.16**		0.041	0.016	
75-01-4	Vinyl Chloride		0.013	0.043	0.013		0.0051	0.017	0.0051	**U**
106-99-0	1,3-Butadiene		0.024	0.085	0.024		0.011	0.038	0.011	**U**
74-83-9	Bromomethane	**0.034**		0.043	0.016	**0.0086**		0.011	0.0041	**J**
75-00-3	Chloroethane	**0.11**		0.043	0.014	**0.040**		0.016	0.0055	
107-02-8	Acrolein	**0.97**		0.34	0.066	**0.42**		0.15	0.029	
67-64-1	Acetone	**22**		4.3	0.095	**9.3**		1.8	0.040	**B**
75-69-4	Trichlorofluoromethane	**1.2**		0.085	0.026	**0.22**		0.015	0.0045	
75-35-4	1,1-Dichloroethene		0.015	0.043	0.015		0.0037	0.011	0.0037	**U**
75-09-2	Methylene Chloride	**0.47**		0.17	0.022	**0.13**		0.049	0.0064	
76-13-1	Trichlorotrifluoroethane	**0.11**		0.043	0.015	**0.014**		0.0055	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.043	0.010		0.0026	0.011	0.0026	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.043	0.016		0.0044	0.012	0.0044	**U**
156-59-2	cis-1,2-Dichloroethene		0.016	0.043	0.016		0.0039	0.011	0.0039	**U**
67-66-3	Chloroform	**0.10**		0.17	0.031	**0.021**		0.035	0.0063	**J**
107-06-2	1,2-Dichloroethane	**0.12**		0.043	0.014	**0.030**		0.011	0.0035	
71-55-6	1,1,1-Trichloroethane		0.010	0.043	0.010		0.0018	0.0078	0.0018	**U**
71-43-2	Benzene	**0.055**		0.13	0.034	**0.017**		0.040	0.011	**J**
78-87-5	1,2-Dichloropropane	**1.3**		0.043	0.012	**0.27**		0.0092	0.0027	

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-35** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-004

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02191
Initial Pressure (psig): -3.88 Final Pressure (psig): 3.66

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.012	0.043	0.012	0.0018	0.0063	0.0018	**U**
79-01-6	Trichloroethene	**0.31**	0.043	0.014	**0.058**	0.0079	0.0027	
123-91-1	1,4-Dioxane	**0.071**	0.17	0.014	**0.020**	0.047	0.0040	**J**
10061-01-5	cis-1,3-Dichloropropene	0.011	0.043	0.011	0.0023	0.0094	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0094	0.043	0.0094	0.0021	0.0094	0.0021	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0025	0.031	0.0025	**U**
108-88-3	Toluene	**0.78**	0.17	0.019	**0.21**	0.045	0.0050	
106-93-4	1,2-Dibromoethane	0.013	0.043	0.013	0.0017	0.0055	0.0017	**U**
127-18-4	Tetrachloroethene	0.014	0.043	0.014	0.0021	0.0063	0.0021	**U**
100-41-4	Ethylbenzene	**0.082**	0.17	0.016	**0.019**	0.039	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.16**	0.17	0.032	**0.037**	0.039	0.0074	**J**
100-42-5	Styrene	**0.32**	0.17	0.013	**0.074**	0.040	0.0030	
95-47-6	o-Xylene	**0.078**	0.17	0.015	**0.018**	0.039	0.0035	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.043	0.012	0.0018	0.0062	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.016**	0.17	0.012	**0.0032**	0.035	0.0025	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.083**	0.17	0.014	**0.017**	0.035	0.0029	**J**
541-73-1	1,3-Dichlorobenzene	0.014	0.043	0.014	0.0024	0.0071	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	0.014	0.043	0.014	0.0023	0.0071	0.0023	**U**
95-50-1	1,2-Dichlorobenzene	0.014	0.043	0.014	0.0023	0.0071	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.085	0.022	0.0030	0.011	0.0030	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-36** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-005

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02158
Initial Pressure (psig): -3.95 Final Pressure (psig): 3.81

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**		0.086	0.029	**0.43**		0.017	0.0059	
74-87-3	Chloromethane	**0.30**		0.086	0.033	**0.15**		0.042	0.016	
75-01-4	Vinyl Chloride		0.013	0.043	0.013		0.0051	0.017	0.0051	**U**
106-99-0	1,3-Butadiene		0.024	0.086	0.024		0.011	0.039	0.011	**U**
74-83-9	Bromomethane	**0.027**		0.043	0.016	**0.0069**		0.011	0.0041	**J**
75-00-3	Chloroethane		0.015	0.043	0.015		0.0055	0.016	0.0055	**U**
107-02-8	Acrolein	**0.61**		0.34	0.067	**0.26**		0.15	0.029	
67-64-1	Acetone	**7.4**		4.3	0.096	**3.1**		1.8	0.041	**B**
75-69-4	Trichlorofluoromethane	**1.1**		0.086	0.026	**0.19**		0.015	0.0046	
75-35-4	1,1-Dichloroethene		0.015	0.043	0.015		0.0037	0.011	0.0037	**U**
75-09-2	Methylene Chloride	**0.17**		0.17	0.022	**0.048**		0.050	0.0064	**J**
76-13-1	Trichlorotrifluoroethane	**0.38**		0.043	0.015	**0.050**		0.0056	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.043	0.010		0.0026	0.011	0.0026	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.043	0.016		0.0044	0.012	0.0044	**U**
156-59-2	cis-1,2-Dichloroethene		0.016	0.043	0.016		0.0040	0.011	0.0040	**U**
67-66-3	Chloroform	**0.079**		0.17	0.031	**0.016**		0.035	0.0063	**J**
107-06-2	1,2-Dichloroethane	**0.053**		0.043	0.014	**0.013**		0.011	0.0036	
71-55-6	1,1,1-Trichloroethane		0.010	0.043	0.010		0.0019	0.0079	0.0019	**U**
71-43-2	Benzene	**0.18**		0.13	0.034	**0.058**		0.040	0.011	
78-87-5	1,2-Dichloropropane		0.013	0.043	0.013		0.0027	0.0093	0.0027	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-36** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P1805476-005

Test Code: EPA TO-15 SIM Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02158
Initial Pressure (psig): -3.95 Final Pressure (psig): 3.81

Container Dilution Factor: 1.72

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.012	0.043	0.012	0.0018	0.0064	0.0018	**U**
79-01-6	Trichloroethene	0.015	0.043	0.015	0.0027	0.0080	0.0027	**U**
123-91-1	1,4-Dioxane	0.015	0.17	0.015	0.0041	0.048	0.0041	**U**
10061-01-5	cis-1,3-Dichloropropene	0.011	0.043	0.011	0.0023	0.0095	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0095	0.043	0.0095	0.0021	0.0095	0.0021	**U**
79-00-5	1,1,2-Trichloroethane	0.014	0.17	0.014	0.0025	0.032	0.0025	**U**
108-88-3	Toluene	**0.61**	0.17	0.019	**0.16**	0.046	0.0050	
106-93-4	1,2-Dibromoethane	0.014	0.043	0.014	0.0018	0.0056	0.0018	**U**
127-18-4	Tetrachloroethene	**0.027**	0.043	0.014	**0.0040**	0.0063	0.0021	**J**
100-41-4	Ethylbenzene	**0.075**	0.17	0.017	**0.017**	0.040	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.26**	0.17	0.033	**0.060**	0.040	0.0075	
100-42-5	Styrene	**0.078**	0.17	0.013	**0.018**	0.040	0.0030	**J**
95-47-6	o-Xylene	**0.25**	0.17	0.015	**0.056**	0.040	0.0035	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.043	0.012	0.0018	0.0063	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.033**	0.17	0.013	**0.0067**	0.035	0.0026	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.11**	0.17	0.014	**0.023**	0.035	0.0029	**J**
541-73-1	1,3-Dichlorobenzene	0.015	0.043	0.015	0.0024	0.0072	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	**0.27**	0.043	0.014	**0.044**	0.0072	0.0023	
95-50-1	1,2-Dichlorobenzene	0.014	0.043	0.014	0.0024	0.0072	0.0024	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.086	0.022	0.0030	0.012	0.0030	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181015-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	0.017	0.050	0.017	0.0034	0.010	0.0034	**U**
74-87-3	Chloromethane	0.019	0.050	0.019	0.0092	0.024	0.0092	**U**
75-01-4	Vinyl Chloride	0.0076	0.025	0.0076	0.0030	0.0098	0.0030	**U**
106-99-0	1,3-Butadiene	0.014	0.050	0.014	0.0063	0.023	0.0063	**U**
74-83-9	Bromomethane	0.0093	0.025	0.0093	0.0024	0.0064	0.0024	**U**
75-00-3	Chloroethane	0.0085	0.025	0.0085	0.0032	0.0095	0.0032	**U**
107-02-8	Acrolein	0.039	0.20	0.039	0.017	0.087	0.017	**U**
67-64-1	Acetone	**0.34**	2.5	0.056	**0.14**	1.1	0.024	**J**
75-69-4	Trichlorofluoromethane	0.015	0.050	0.015	0.0027	0.0089	0.0027	**U**
75-35-4	1,1-Dichloroethene	0.0086	0.025	0.0086	0.0022	0.0063	0.0022	**U**
75-09-2	Methylene Chloride	0.013	0.10	0.013	0.0037	0.029	0.0037	**U**
76-13-1	Trichlorotrifluoroethane	0.0089	0.025	0.0089	0.0012	0.0033	0.0012	**U**
75-34-3	1,1-Dichloroethane	0.0061	0.025	0.0061	0.0015	0.0062	0.0015	**U**
1634-04-4	Methyl tert-Butyl Ether	0.0093	0.025	0.0093	0.0026	0.0069	0.0026	**U**
156-59-2	cis-1,2-Dichloroethene	0.0092	0.025	0.0092	0.0023	0.0063	0.0023	**U**
67-66-3	Chloroform	0.018	0.10	0.018	0.0037	0.020	0.0037	**U**
107-06-2	1,2-Dichloroethane	0.0084	0.025	0.0084	0.0021	0.0062	0.0021	**U**
71-55-6	1,1,1-Trichloroethane	0.0059	0.025	0.0059	0.0011	0.0046	0.0011	**U**
71-43-2	Benzene	0.020	0.075	0.020	0.0063	0.023	0.0063	**U**
78-87-5	1,2-Dichloropropane	0.0073	0.025	0.0073	0.0016	0.0054	0.0016	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181015-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.0069	0.025	0.0069	0.0010	0.0037	0.0010	**U**
79-01-6	Trichloroethene	0.0085	0.025	0.0085	0.0016	0.0047	0.0016	**U**
123-91-1	1,4-Dioxane	0.0085	0.10	0.0085	0.0024	0.028	0.0024	**U**
10061-01-5	cis-1,3-Dichloropropene	0.0062	0.025	0.0062	0.0014	0.0055	0.0014	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0055	0.025	0.0055	0.0012	0.0055	0.0012	**U**
79-00-5	1,1,2-Trichloroethane	0.0079	0.10	0.0079	0.0014	0.018	0.0014	**U**
108-88-3	Toluene	0.011	0.10	0.011	0.0029	0.027	0.0029	**U**
106-93-4	1,2-Dibromoethane	0.0079	0.025	0.0079	0.0010	0.0033	0.0010	**U**
127-18-4	Tetrachloroethene	0.0082	0.025	0.0082	0.0012	0.0037	0.0012	**U**
100-41-4	Ethylbenzene	0.0097	0.10	0.0097	0.0022	0.023	0.0022	**U**
179601-23-1	m,p-Xylenes	0.019	0.10	0.019	0.0044	0.023	0.0044	**U**
100-42-5	Styrene	0.0074	0.10	0.0074	0.0017	0.023	0.0017	**U**
95-47-6	o-Xylene	0.0089	0.10	0.0089	0.0020	0.023	0.0020	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.0072	0.025	0.0072	0.0010	0.0036	0.0010	**U**
108-67-8	1,3,5-Trimethylbenzene	0.0073	0.10	0.0073	0.0015	0.020	0.0015	**U**
95-63-6	1,2,4-Trimethylbenzene	0.0083	0.10	0.0083	0.0017	0.020	0.0017	**U**
541-73-1	1,3-Dichlorobenzene	0.0085	0.025	0.0085	0.0014	0.0042	0.0014	**U**
106-46-7	1,4-Dichlorobenzene	0.0081	0.025	0.0081	0.0013	0.0042	0.0013	**U**
95-50-1	1,2-Dichlorobenzene	0.0083	0.025	0.0083	0.0014	0.0042	0.0014	**U**
120-82-1	1,2,4-Trichlorobenzene	0.013	0.050	0.013	0.0018	0.0067	0.0018	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805476

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 10/11/18
Analyst: Wida Ang Date(s) Received: 10/13/18
Sample Type: 6.0 L Silonite Canister(s) / 6.0 L Summa Canister(s) Date(s) Analyzed: 10/15/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181015-MB	**99**	**105**	**104**	70-130	
Lab Control Sample	P181015-LCS	**97**	**100**	**110**	70-130	
Duplicate Lab Control Sample	P181015-DLCS	**97**	**100**	**111**	70-130	
19CP01-33	P1805476-001	**92**	**105**	**110**	70-130	
19CP01-44	P1805476-002	**91**	**105**	**109**	70-130	
19CP01-34	P1805476-003	**92**	**105**	**107**	70-130	
19CP01-35	P1805476-004	**91**	**106**	**109**	70-130	
19CP01-36	P1805476-005	**92**	**105**	**106**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181015-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	8.42	7.93	7.85	**94**	**93**	80-130	1	25	
74-87-3	Chloromethane	8.44	7.68	7.57	**91**	**90**	54-144	1	25	
75-01-4	Vinyl Chloride	8.55	7.85	7.85	**92**	**92**	65-136	0	25	
106-99-0	1,3-Butadiene	8.41	6.96	6.78	**83**	**81**	27-154	2	25	
74-83-9	Bromomethane	8.47	7.52	7.47	**89**	**88**	71-126	1	25	
75-00-3	Chloroethane	8.56	7.66	7.63	**89**	**89**	71-129	0	25	
107-02-8	Acrolein	8.20	7.47	7.35	**91**	**90**	49-117	1	25	
67-64-1	Acetone	42.3	39.9	39.4	**94**	**93**	62-158	1	25	
75-69-4	Trichlorofluoromethane	8.45	7.82	7.78	**93**	**92**	82-122	1	25	
75-35-4	1,1-Dichloroethene	8.71	9.10	9.08	**104**	**104**	76-120	0	25	
75-09-2	Methylene Chloride	8.66	7.88	7.82	**91**	**90**	76-120	1	25	
76-13-1	Trichlorotrifluoroethane	8.62	7.78	7.82	**90**	**91**	77-118	1	25	
75-34-3	1,1-Dichloroethane	8.62	7.90	7.84	**92**	**91**	73-126	1	25	
1634-04-4	Methyl tert-Butyl Ether	8.58	8.04	8.00	**94**	**93**	69-125	1	25	
156-59-2	cis-1,2-Dichloroethene	8.43	8.06	7.97	**96**	**95**	76-121	1	25	
67-66-3	Chloroform	8.66	7.77	7.58	**90**	**88**	80-121	2	25	
107-06-2	1,2-Dichloroethane	8.59	7.97	7.84	**93**	**91**	68-126	2	25	
71-55-6	1,1,1-Trichloroethane	8.61	7.97	7.87	**93**	**91**	75-121	2	25	
71-43-2	Benzene	8.44	8.01	7.60	**95**	**90**	76-126	5	25	
78-87-5	1,2-Dichloropropane	8.63	8.09	8.01	**94**	**93**	65-126	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805476
Client Project ID: **PMC** ALS Sample ID: P181015-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-27-4	Bromodichloromethane	8.58	8.21	8.07	**96**	**94**	72-119	2	25	
79-01-6	Trichloroethene	8.54	8.43	8.28	**99**	**97**	73-121	2	25	
123-91-1	1,4-Dioxane	8.55	8.49	8.39	**99**	**98**	66-119	1	25	
10061-01-5	cis-1,3-Dichloropropene	8.57	8.12	8.01	**95**	**93**	60-122	2	25	
10061-02-6	trans-1,3-Dichloropropene	8.51	8.23	8.13	**97**	**96**	58-122	1	25	
79-00-5	1,1,2-Trichloroethane	8.59	8.20	8.09	**95**	**94**	68-124	1	25	
108-88-3	Toluene	8.48	8.02	7.92	**95**	**93**	69-122	2	25	
106-93-4	1,2-Dibromoethane	8.65	8.25	8.12	**95**	**94**	71-119	1	25	
127-18-4	Tetrachloroethene	8.51	8.21	8.12	**96**	**95**	72-118	1	25	
100-41-4	Ethylbenzene	8.49	8.74	8.62	**103**	**102**	76-122	1	25	
179601-23-1	m,p-Xylenes	17.0	17.6	17.3	**104**	**102**	73-126	2	25	
100-42-5	Styrene	8.48	8.91	8.74	**105**	**103**	53-129	2	25	
95-47-6	o-Xylene	8.56	8.74	8.66	**102**	**101**	70-129	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	8.58	8.07	8.07	**94**	**94**	73-123	0	25	
108-67-8	1,3,5-Trimethylbenzene	8.55	8.96	8.85	**105**	**104**	63-132	1	25	
95-63-6	1,2,4-Trimethylbenzene	8.61	9.09	8.95	**106**	**104**	57-134	2	25	
541-73-1	1,3-Dichlorobenzene	8.63	8.61	8.52	**100**	**99**	59-133	1	25	
106-46-7	1,4-Dichlorobenzene	8.64	8.43	8.29	**98**	**96**	59-125	2	25	
95-50-1	1,2-Dichlorobenzene	8.62	8.78	8.66	**102**	**100**	60-127	2	25	
120-82-1	1,2,4-Trichlorobenzene	8.57	9.37	9.22	**109**	**108**	36-136	0.9	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805476

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 10151805.D
Analyst: Wida Ang Date Analyzed: 10/15/18
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 11:37
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181015-LCS	10151806.D	12:19
Duplicate Lab Control Sample	P181015-DLCS	10151807.D	12:51
19CP01-33	P1805476-001	10151809.D	14:44
19CP01-44	P1805476-002	10151810.D	15:15
19CP01-34	P1805476-003	10151811.D	15:47
19CP01-35	P1805476-004	10151812.D	16:26
19CP01-36	P1805476-005	10151813.D	16:58

Client: **Jacobs**

Client Project ID: **PMC** ALS Project ID: P1805476

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 10151803.D

Analyst: Wida Ang Date Analyzed: 10/15/18

Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 10:35

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	20044		9.62	91857		11.58		11698		15.92	
	Upper Limit	28062		9.95	128600		11.91		16377		16.25	
	Lower Limit	12026		9.29	55114		11.25		7019		15.59	
	Client Sample ID											
01	Method Blank	18004		9.62	76738		11.58		10142		15.92	
02	Lab Control Sample	19169		9.62	87279		11.58		10975		15.92	
03	Duplicate Lab Control Sample	19384		9.62	88119		11.58		11029		15.91	
04	19CP01-33	18514		9.62	83862		11.57		10913		15.92	
05	19CP01-44	18829		9.62	85343		11.57		11039		15.91	
06	19CP01-34	19049		9.62	87087		11.58		11884		15.92	
07	19CP01-35	18894		9.62	86739		11.57		11294		15.91	
08	19CP01-36	18568		9.62	85594		11.58		11786		15.92	
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 10:23:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	213979	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	899208	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	370654	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	264474	12.493	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.92%				
57) Toluene-d8 (SS2)	15.87	98	785377	13.852	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.80%				
73) Bromofluorobenzene (SS3)	19.09	174	344192	14.937	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.52%				
Target Compounds							Qvalue
2) Propene	4.05	42	55862	2.293	ng		87
3) Dichlorodifluoromethan...	4.23	85	53489	1.344	ng		99
4) Chloromethane	4.53	50	2926	0.098	ng		86
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	2024	0.088	ng		87
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.16	54	133	N.D.			
8) Bromomethane	5.71	94	125	N.D.			
9) Chloroethane	6.03	64	493	N.D.			
10) Ethanol	6.42	45	469714	31.534	ng		100
11) Acetonitrile	6.72	41	6474	0.163	ng		74
12) Acrolein	6.91	56	5493	0.382	ng		97
13) Acetone	7.10	58	160784	9.605	ng		86
14) Trichlorofluoromethane	7.35	101	26297	0.763	ng		99
15) 2-Propanol (Isopropanol)	7.61	45	455040	8.845	ng		99
16) Acrylonitrile	7.95	53	1239	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	8.57	84	6273	0.265	ng		99
20) 3-Chloro-1-propene (Al...	8.67	41	128	N.D.			
21) Trichlorotrifluoroethane	8.99	151	1747	0.084	ng		90
22) Carbon Disulfide	8.85	76	86198	0.994	ng		100
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.25	73	1619	N.D.			
26) Vinyl Acetate	10.34	86	1490	0.308	ng	#	34
27) 2-Butanone (MEK)	10.64	72	7636	0.490	ng		98
28) cis-1,2-Dichloroethene	11.02	61	952	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.45	61	3183	0.398	ng		95
31) n-Hexane	11.41	57	1996	0.056	ng	#	89
32) Chloroform	11.48	83	1672	N.D.			
34) Tetrahydrofuran (THF)	11.93	72	1698	0.110	ng	#	1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	1382	0.054	ng		88
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.01	56	36670	1.736	ng	#	73
41) Benzene	13.04	78	2542	N.D.			
42) Carbon Tetrachloride	13.19	117	1323	N.D.			
43) Cyclohexane	13.32	84	2333	0.068	ng		88
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	13.89	63	9940	0.446	ng		99
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	1781	0.070	ng		89
48) 1,4-Dioxane	14.14	88	104	N.D.			
49) 2,2,4-Trimethylpentane...	14.19	57	1376	N.D.			

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 10:23:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

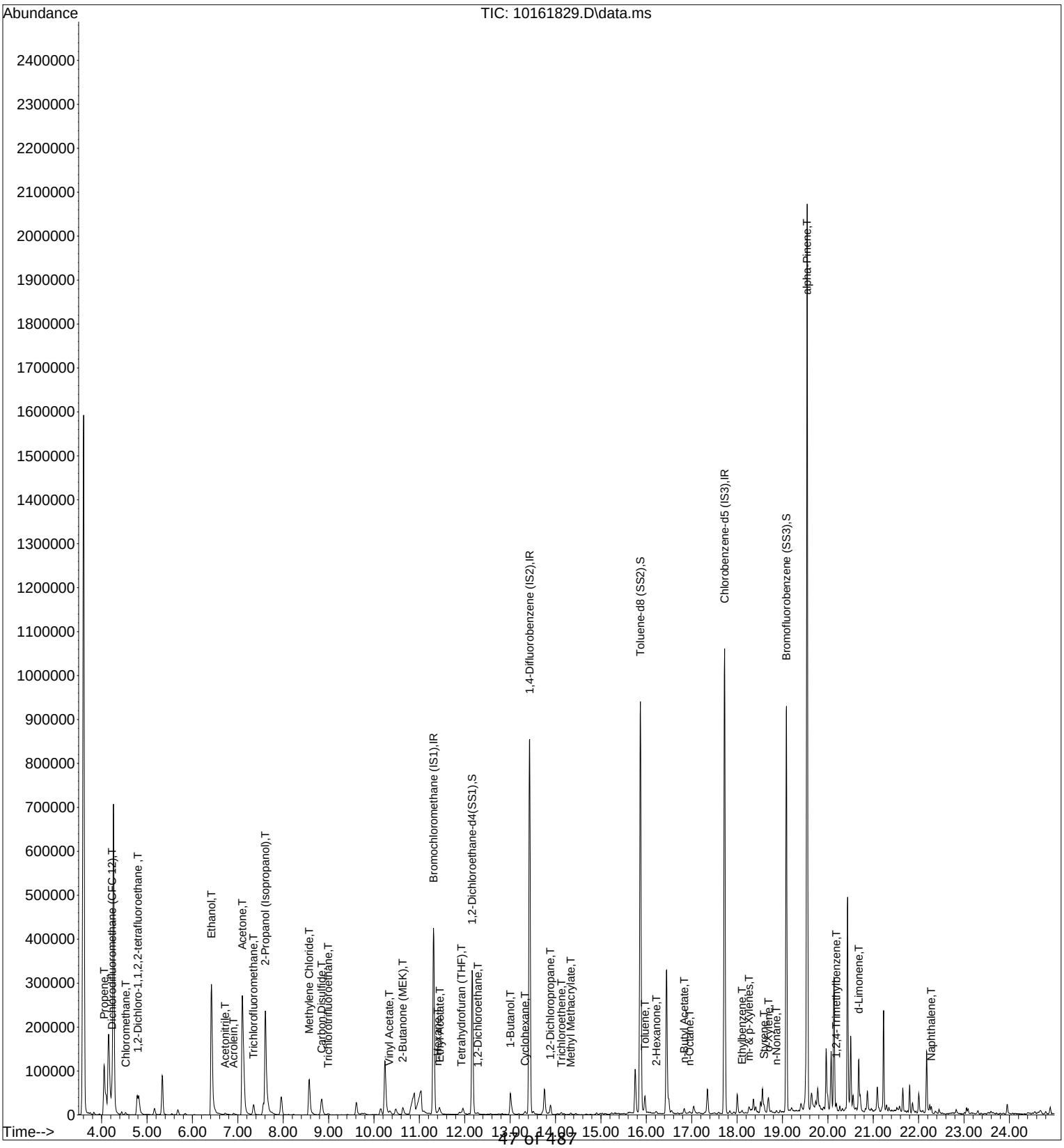
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	682	0.073 ng	#	86
51) n-Heptane	14.44	71	853	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	1039	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	37225	0.384 ng		99
59) 2-Hexanone	16.22	43	4439	0.096 ng		83
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	9215	0.179 ng		94
63) n-Octane	16.95	57	1892	0.100 ng	#	85
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	17.77	112	258	N.D.		
66) Ethylbenzene	18.11	91	6868	0.064 ng		93
67) m- & p-Xylenes	18.26	91	12346	0.155 ng		91
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	7357	0.114 ng		93
70) o-Xylene	18.69	91	6135	0.076 ng		89
71) n-Nonane	18.87	43	2732	0.067 ng	#	75
72) 1,1,2,2-Tetrachloroethane	18.68	83	337	N.D.		
74) Cumene	19.20	105	1828	N.D.		
75) alpha-Pinene	19.54	93	899559	16.600 ng		96
76) n-Propylbenzene	19.64	91	3004	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	3450	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	2395	N.D.		
80) alpha-Methylstyrene	19.97	118	1353	N.D.		
81) 2-Ethyltoluene	20.00	105	2609	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	6607	0.079 ng		87
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.31	91	1073	N.D.		
85) 1,3-Dichlorobenzene	20.39	146	705	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	705	N.D.		
87) sec-Butylbenzene	20.42	105	356	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	1806	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	28624	0.913 ng	#	49
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	11723	0.123 ng		99
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	19.98	119	2257	N.D.		
100) n-Butylbenzene	20.92	91	2681	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 10:23:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 10:23:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

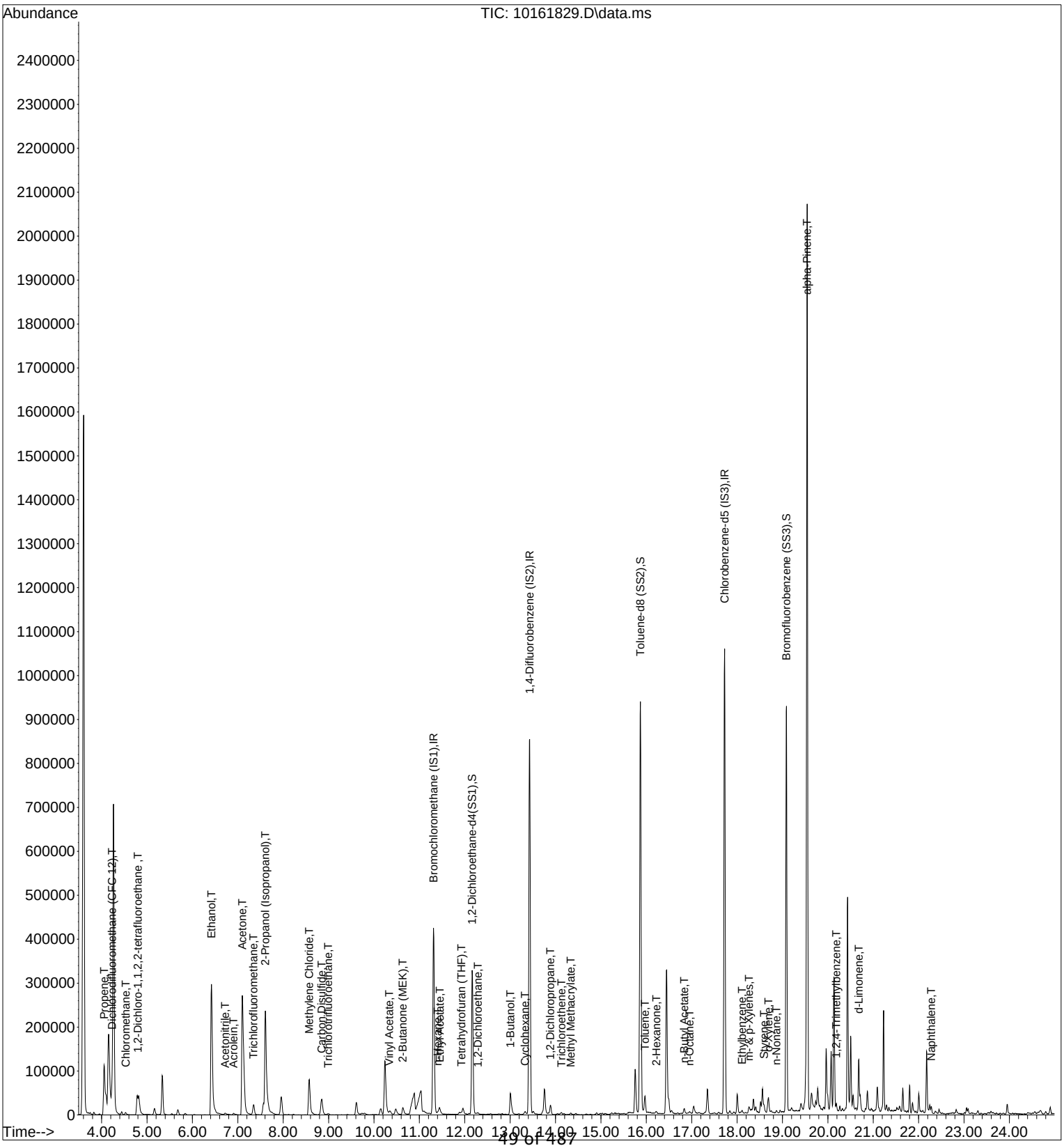
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	213979	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	899208	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	370654	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	264474	12.493	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.92%				
57) Toluene-d8 (SS2)	15.87	98	785377	13.852	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.80%				
73) Bromofluorobenzene (SS3)	19.09	174	344192	14.937	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.52%				
Target Compounds							Qvalue
2) Propene	4.05	42	55862	2.293	ng		87
3) Dichlorodifluoromethan...	4.23	85	53489	1.344	ng		99
4) Chloromethane	4.53	50	2926	0.098	ng		86
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	2024	0.088	ng		87
10) Ethanol	6.42	45	469714	31.534	ng		100
11) Acetonitrile	6.72	41	6474	0.163	ng		74
12) Acrolein	6.91	56	5493	0.382	ng		97
13) Acetone	7.10	58	160784	9.605	ng		86
14) Trichlorofluoromethane	7.35	101	26297	0.763	ng		99
15) 2-Propanol (Isopropanol)	7.61	45	455040	8.845	ng		99
19) Methylene Chloride	8.57	84	6273	0.265	ng		99
21) Trichlorotrifluoroethane	8.99	151	1747	0.084	ng		90
22) Carbon Disulfide	8.85	76	86198	0.994	ng		100
26) Vinyl Acetate	10.34	86	1490	0.308	ng	#	34
27) 2-Butanone (MEK)	10.64	72	7636	0.490	ng		98
30) Ethyl Acetate	11.45	61	3183	0.398	ng		95
31) n-Hexane	11.41	57	1996	0.056	ng	#	89
34) Tetrahydrofuran (THF)	11.93	72	1698	0.110	ng	#	1
36) 1,2-Dichloroethane	12.29	62	1382	0.054	ng		88
40) 1-Butanol	13.01	56	36670	1.736	ng	#	73
43) Cyclohexane	13.32	84	2333	0.068	ng		88
45) 1,2-Dichloropropane	13.89	63	9940	0.446	ng		99
47) Trichloroethene	14.13	130	1781	0.070	ng		89
50) Methyl Methacrylate	14.34	100	682	0.073	ng	#	86
58) Toluene	15.97	91	37225	0.384	ng		99
59) 2-Hexanone	16.22	43	4439	0.096	ng		83
62) n-Butyl Acetate	16.84	43	9215	0.179	ng		94
63) n-Octane	16.95	57	1892	0.100	ng	#	85
66) Ethylbenzene	18.11	91	6868	0.064	ng		93
67) m- & p-Xylenes	18.26	91	12346	0.155	ng		91
69) Styrene	18.59	104	7357	0.114	ng		93
70) o-Xylene	18.69	91	6135	0.076	ng		89
71) n-Nonane	18.87	43	2732	0.067	ng	#	75
75) alpha-Pinene	19.54	93	899559	16.600	ng		96
82) 1,2,4-Trimethylbenzene	20.19	105	6607	0.079	ng		87
91) d-Limonene	20.68	68	28624	0.913	ng	#	49
95) Naphthalene	22.28	128	11723	0.123	ng		99

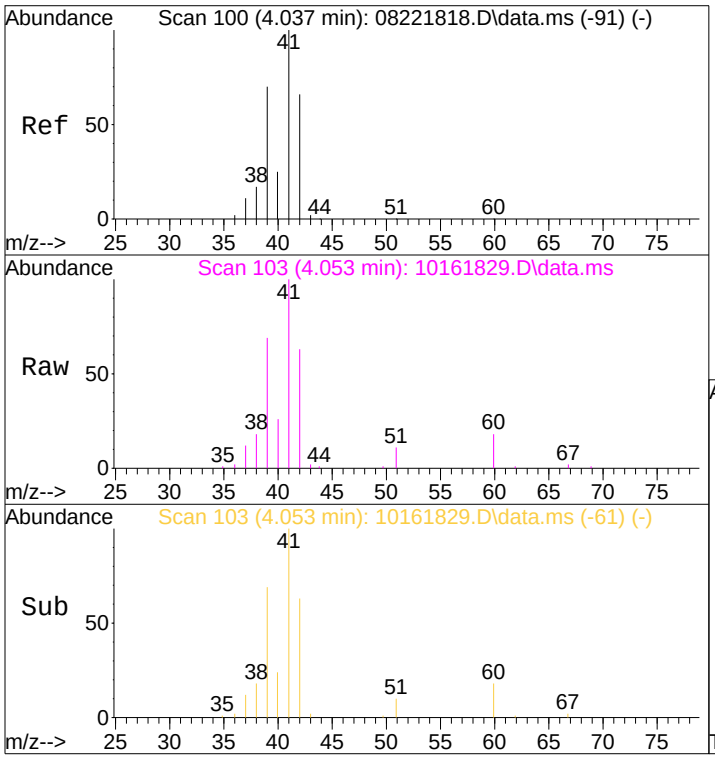
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 10:23:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

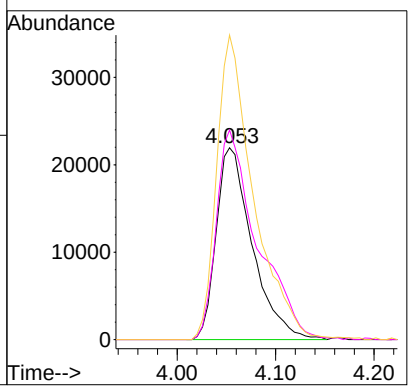


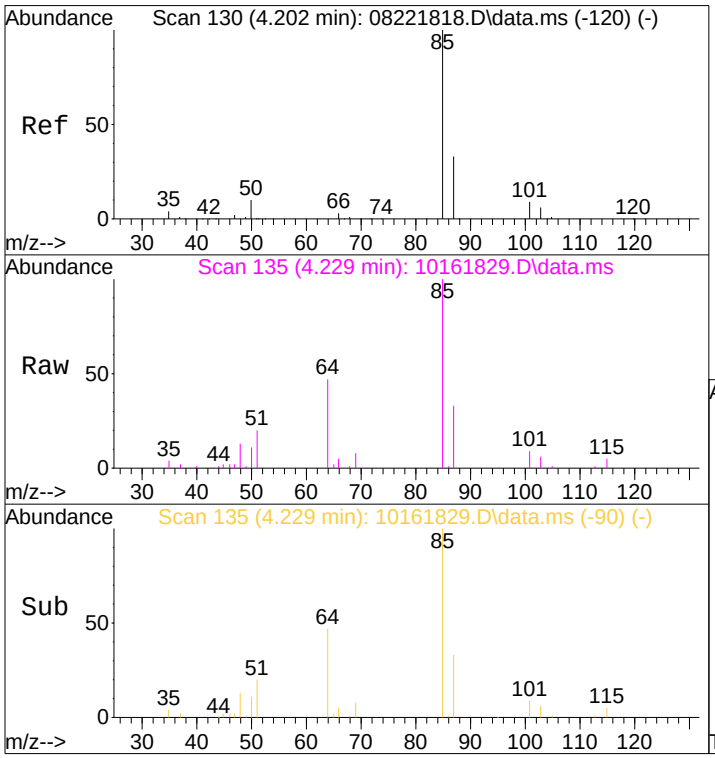


#2
Propene
Concen: 2.29 ng
RT: 4.05 min Scan# 103
Delta R.T. -0.016 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 42 Resp: 55862

Ion	Ratio	Lower	Upper
42	100		
39	124.8	85.6	125.6
41	163.3	131.4	171.4

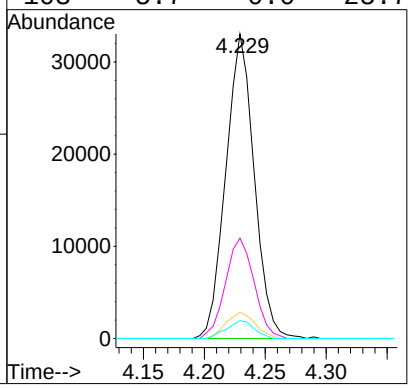


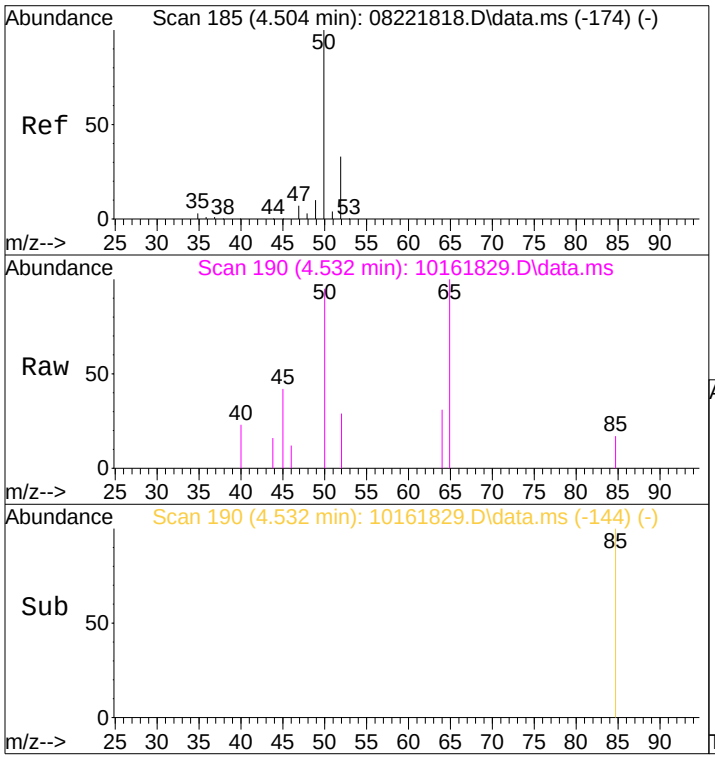


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.34 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 85 Resp: 53489

Ion	Ratio	Lower	Upper
85	100		
87	33.3	12.6	52.6
101	8.8	0.0	28.8
103	5.7	0.0	25.7

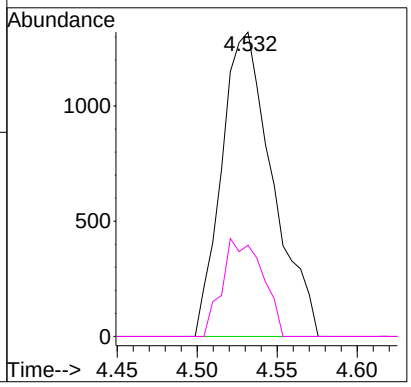


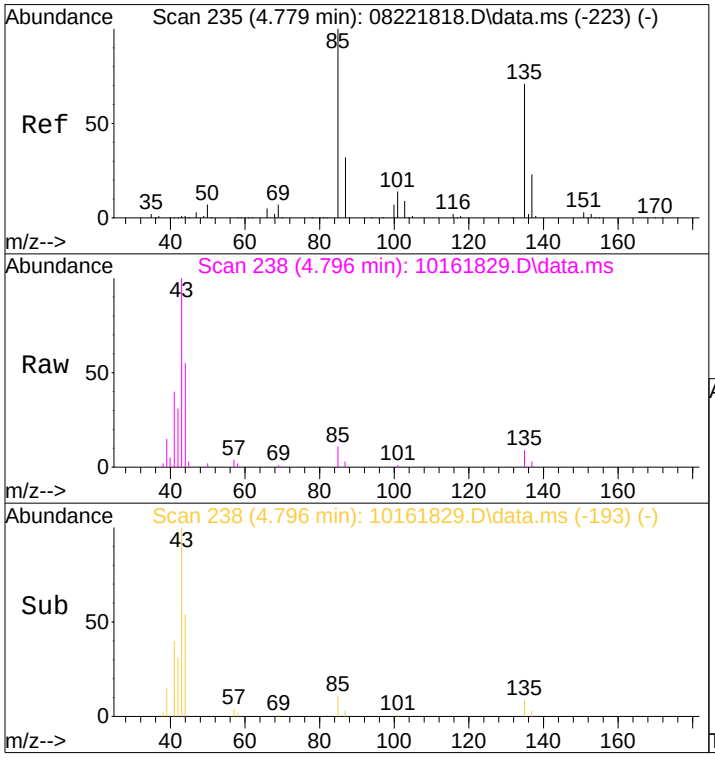


#4
Chloromethane
Concen: 0.10 ng
RT: 4.53 min Scan# 190
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 50 Resp: 2926

Ion	Ratio	Lower	Upper
50	100		
52	25.5	13.2	53.2

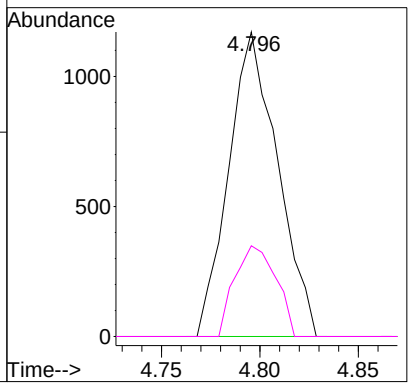


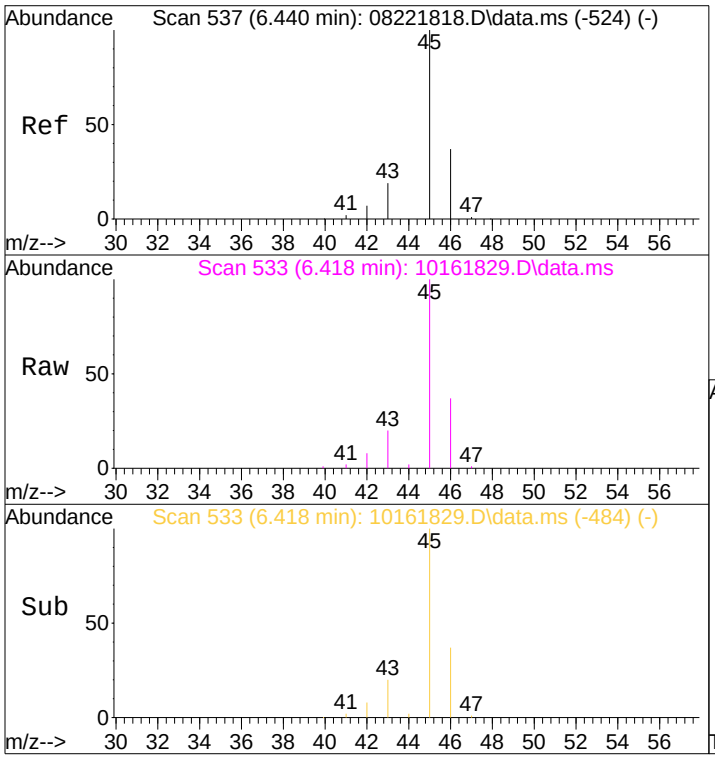


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.09 ng
RT: 4.80 min Scan# 238
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:135 Resp: 2024

Ion	Ratio	Lower	Upper
135	100		
137	25.2	12.3	52.3

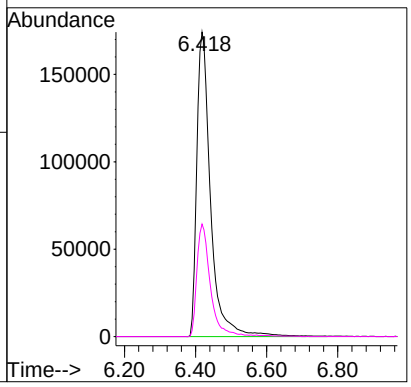


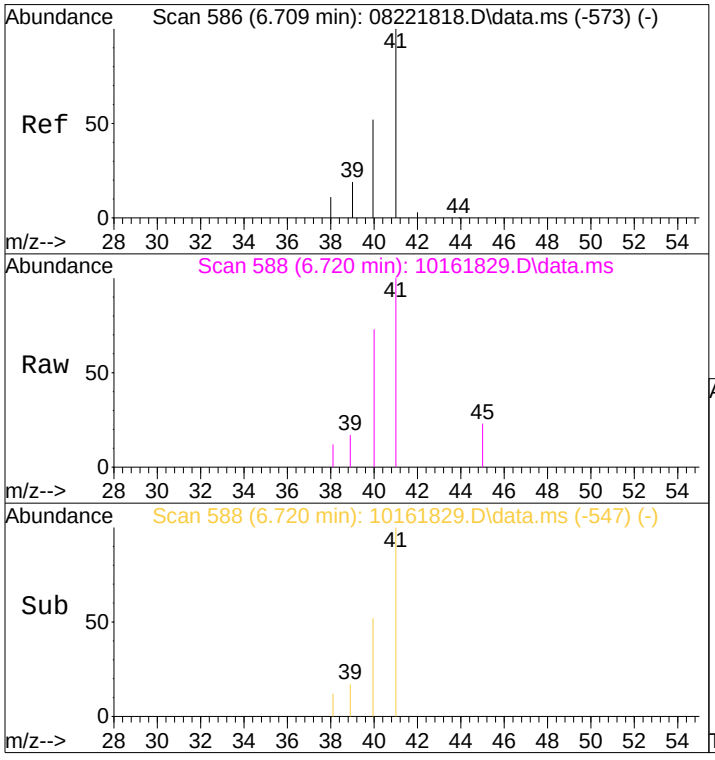


#10
Ethanol
Concen: 31.53 ng
RT: 6.42 min Scan# 533
Delta R.T. 0.022 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 45 Resp: 469714

Ion	Ratio	Lower	Upper
45	100		
46	36.6	16.7	56.7

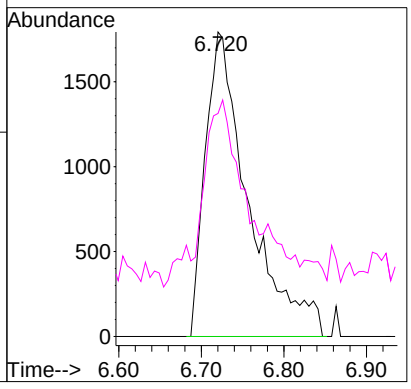


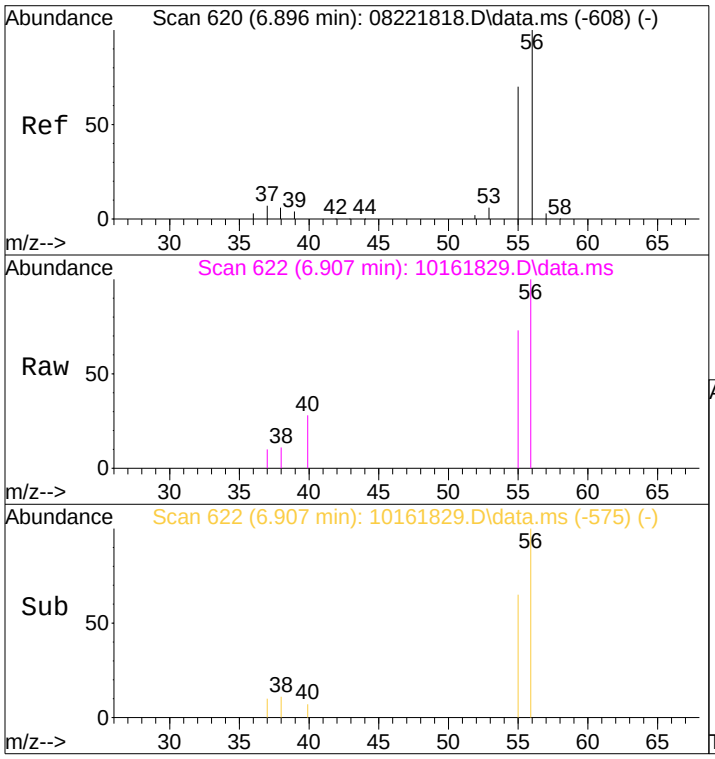


#11
Acetonitrile
Concen: 0.16 ng
RT: 6.72 min Scan# 588
Delta R.T. 0.028 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 41 Resp: 6474

Ion	Ratio	Lower	Upper
41	100		
40	70.4	32.2	72.2

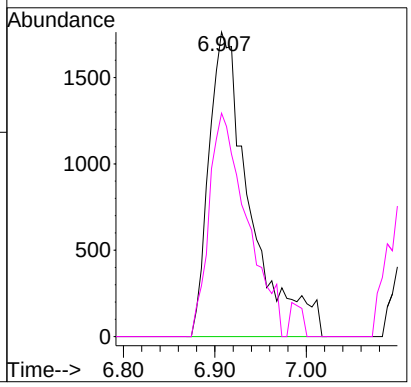


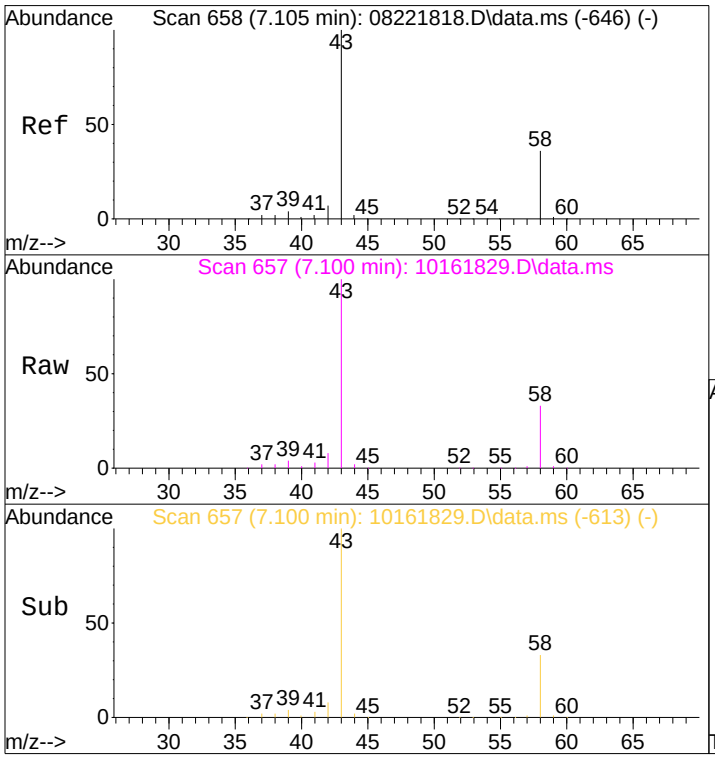


#12
Acrolein
Concen: 0.38 ng
RT: 6.91 min Scan# 622
Delta R.T. 0.011 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 56 Resp: 5493

Ion	Ratio	Lower	Upper
56	100		
55	67.8	49.9	89.9

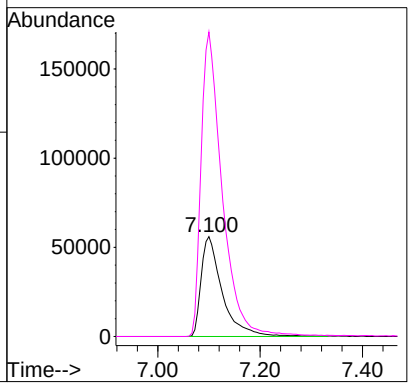


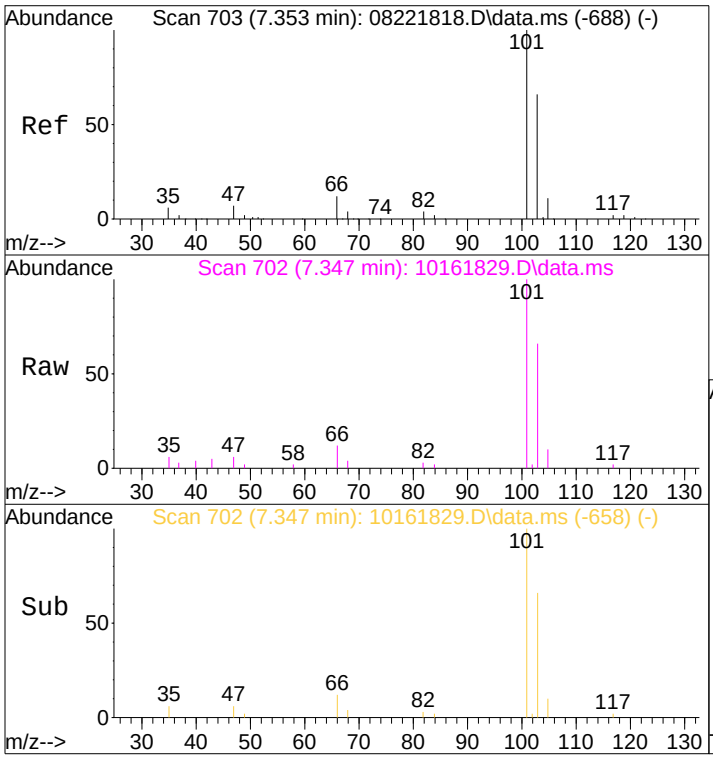


#13
Acetone
Concen: 9.61 ng
RT: 7.10 min Scan# 657
Delta R.T. -0.005 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 58 Resp: 160784

Ion	Ratio	Lower	Upper
58	100		
43	304.3	247.7	307.7

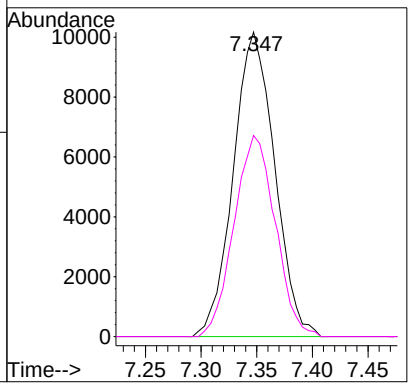


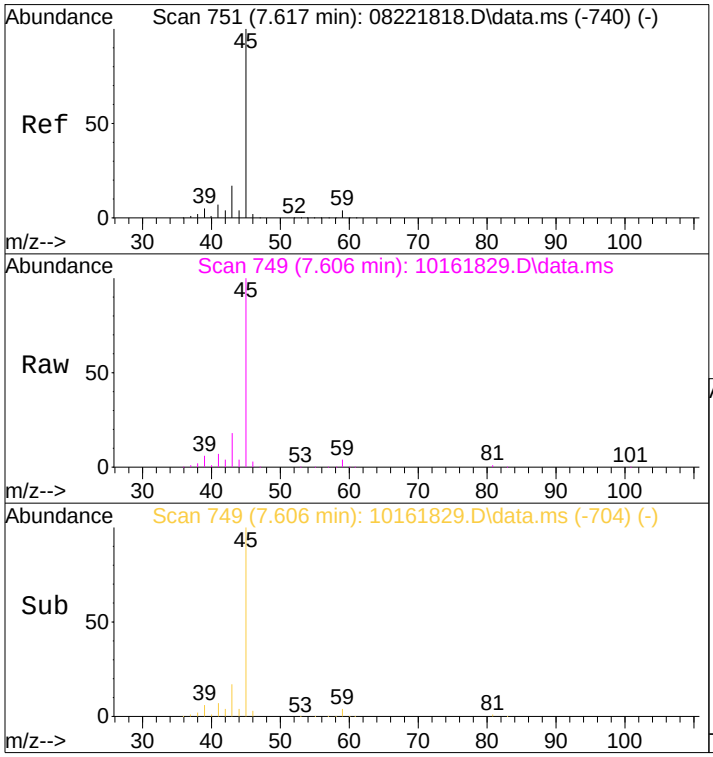


#14
Trichlorofluoromethane
Concen: 0.76 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.005 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:101 Resp: 26297

Ion	Ratio	Lower	Upper
101	100		
103	65.8	45.1	85.1

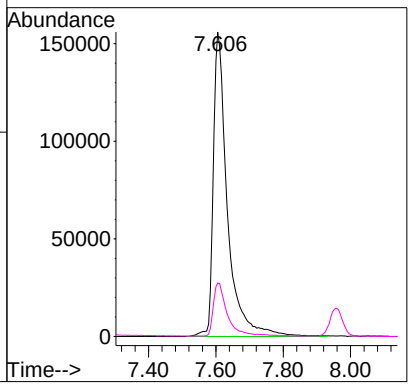


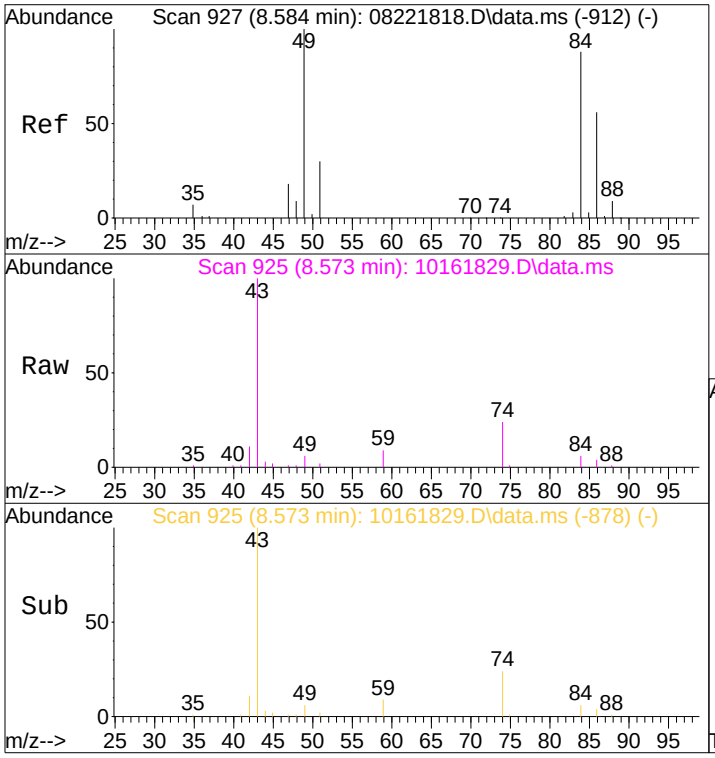


#15
2-Propanol (Isopropanol)
Concen: 8.84 ng
RT: 7.61 min Scan# 749
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 45 Resp: 455040

Ion	Ratio	Lower	Upper
45	100		
43	17.3	0.0	36.8

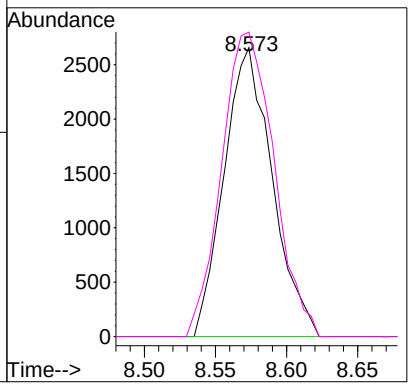


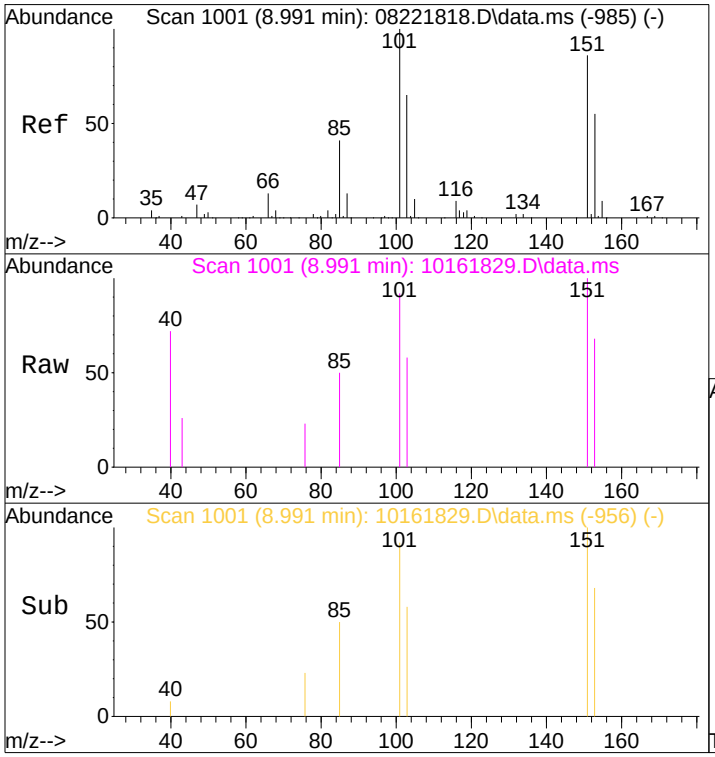


#19
Methylene Chloride
Concen: 0.27 ng
RT: 8.57 min Scan# 925
Delta R.T. 0.011 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 84 Resp: 6273

Ion	Ratio	Lower	Upper
84	100		
49	114.7	90.8	140.8

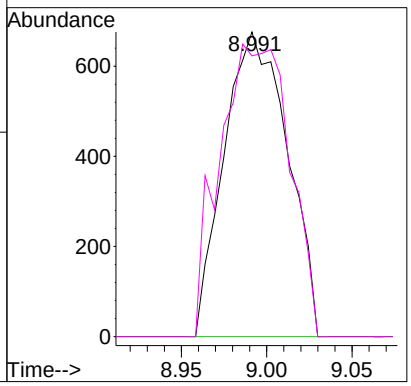


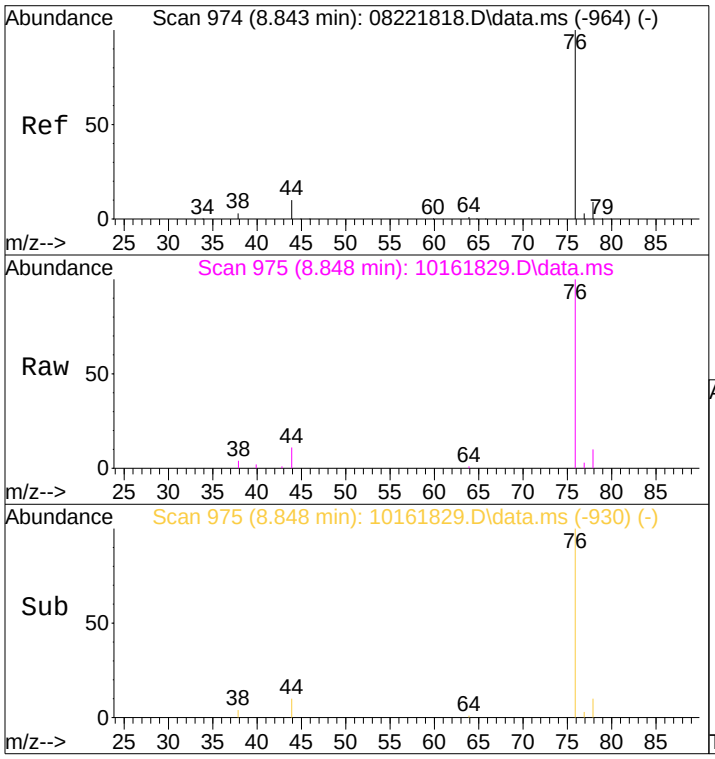


#21
Trichlorotrifluoroethane
Concen: 0.08 ng
RT: 8.99 min Scan# 1001
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:151 Resp: 1747

Ion	Ratio	Lower	Upper
151	100		
101	106.0	97.4	137.4

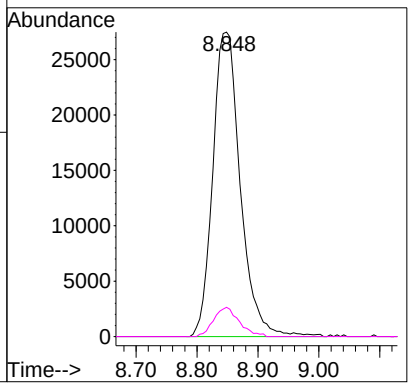


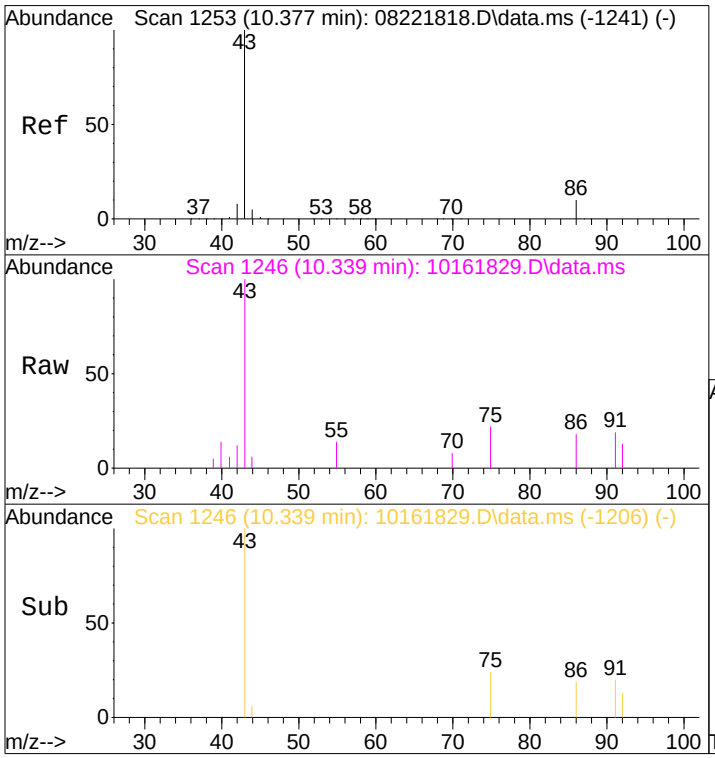


#22
Carbon Disulfide
Concen: 0.99 ng
RT: 8.85 min Scan# 975
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 76 Resp: 86198

Ion	Ratio	Lower	Upper
76	100		
78	8.9	0.0	29.1

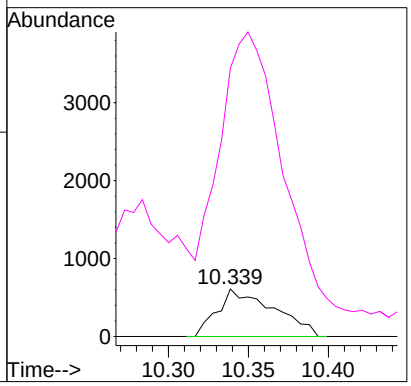


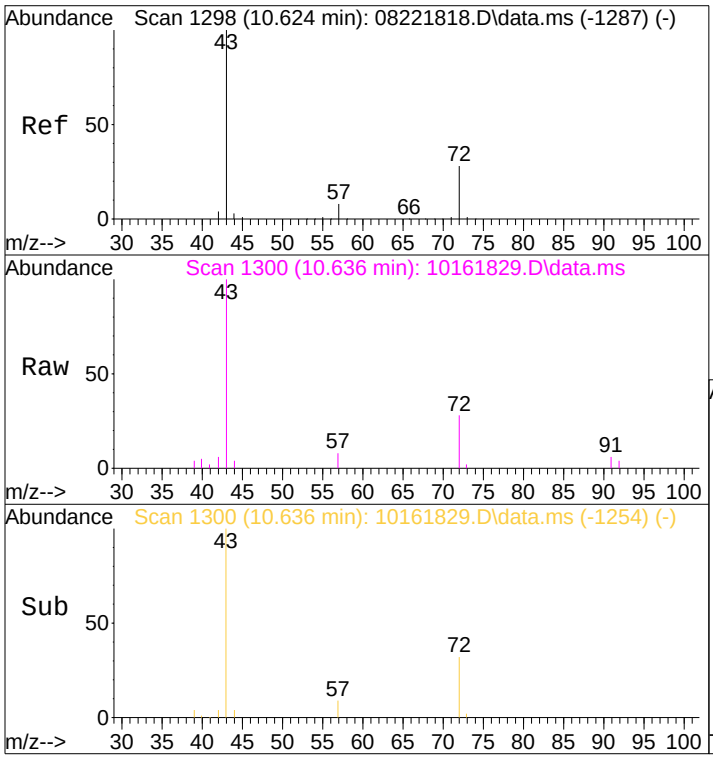


#26
Vinyl Acetate
Concen: 0.31 ng
RT: 10.34 min Scan# 1246
Delta R.T. -0.027 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 86 Resp: 1490

Ion	Ratio	Lower	Upper
86	100		
43	718.7	994.0	1034.0#

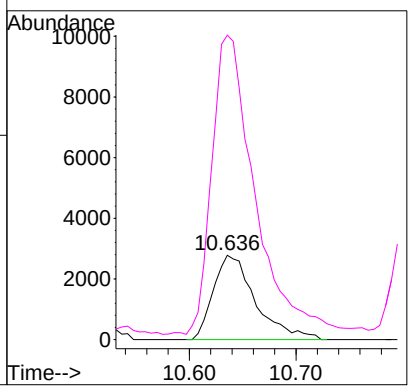


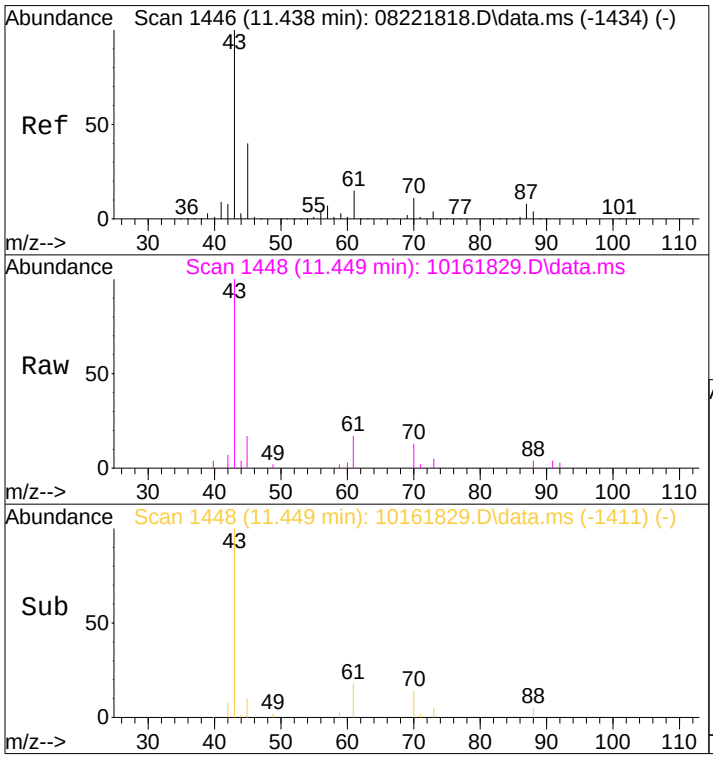


#27
2-Butanone (MEK)
Concen: 0.49 ng
RT: 10.64 min Scan# 1300
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 72 Resp: 7636

Ion	Ratio	Lower	Upper
72	100		
43	366.4	341.9	381.9

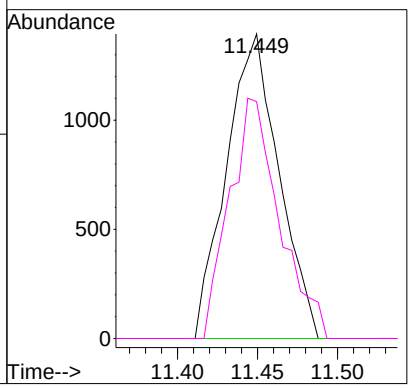


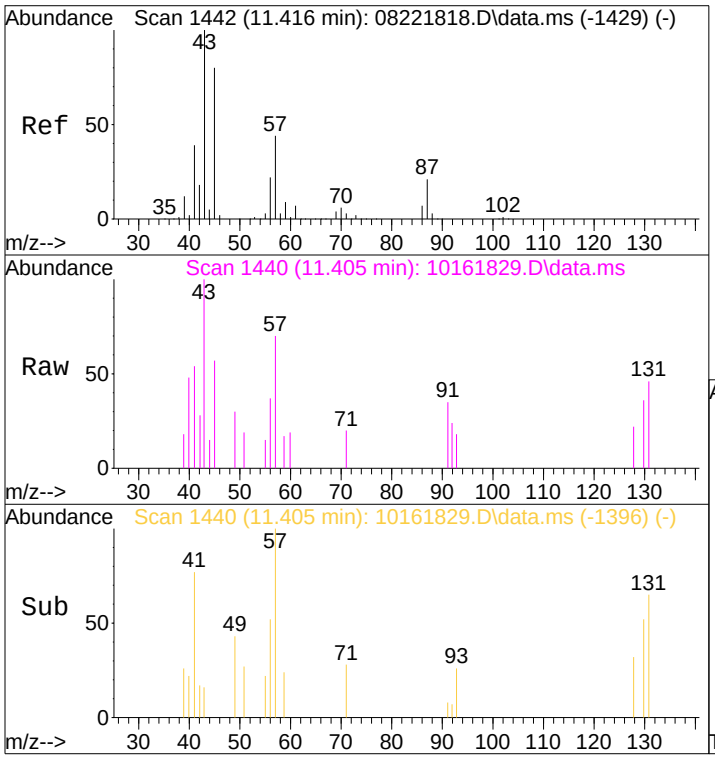


#30
Ethyl Acetate
Concen: 0.40 ng
RT: 11.45 min Scan# 1448
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 61 Resp: 3183

Ion	Ratio	Lower	Upper
61	100		
70	75.0	59.8	99.8

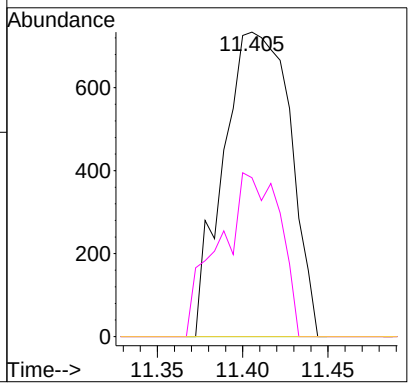


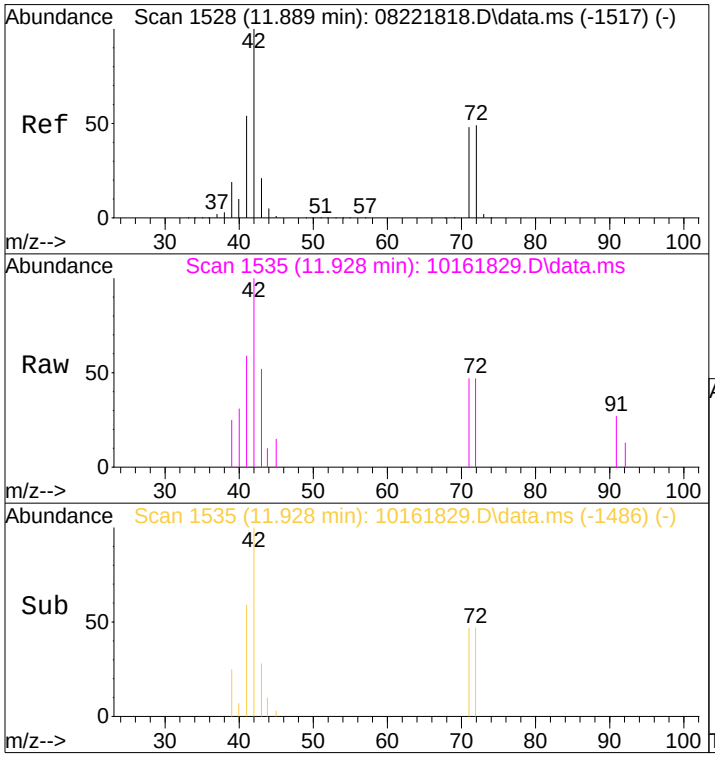


#31
n-Hexane
Concen: 0.06 ng
RT: 11.41 min Scan# 1440
Delta R.T. -0.005 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 57 Resp: 1996

Ion	Ratio	Lower	Upper
57	100		
56	48.8	41.2	61.8
86	0.0	12.4	18.6#

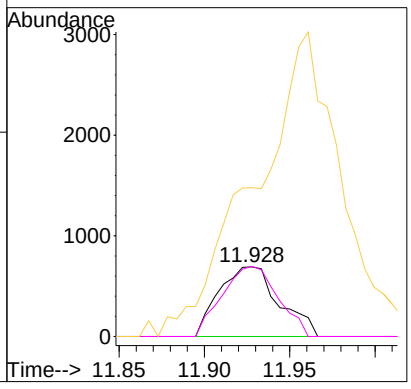


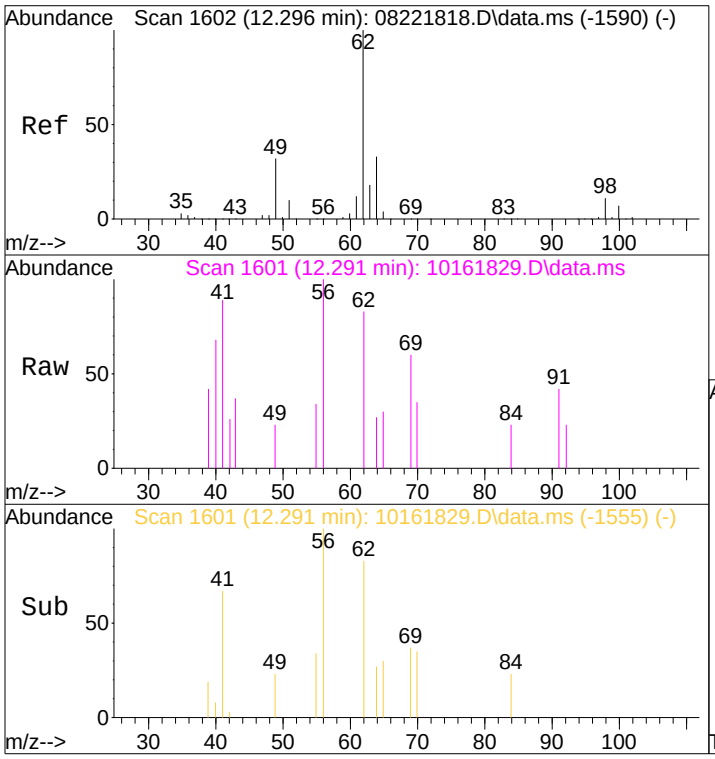


#34
Tetrahydrofuran (THF)
Concen: 0.11 ng
RT: 11.93 min Scan# 1535
Delta R.T. 0.022 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 72 Resp: 1698

Ion	Ratio	Lower	Upper
72	100		
71	93.2	77.8	117.8
42	646.3	185.7	225.7#

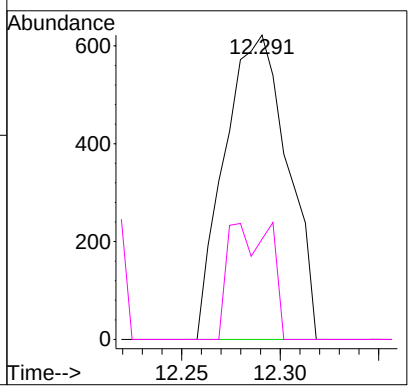


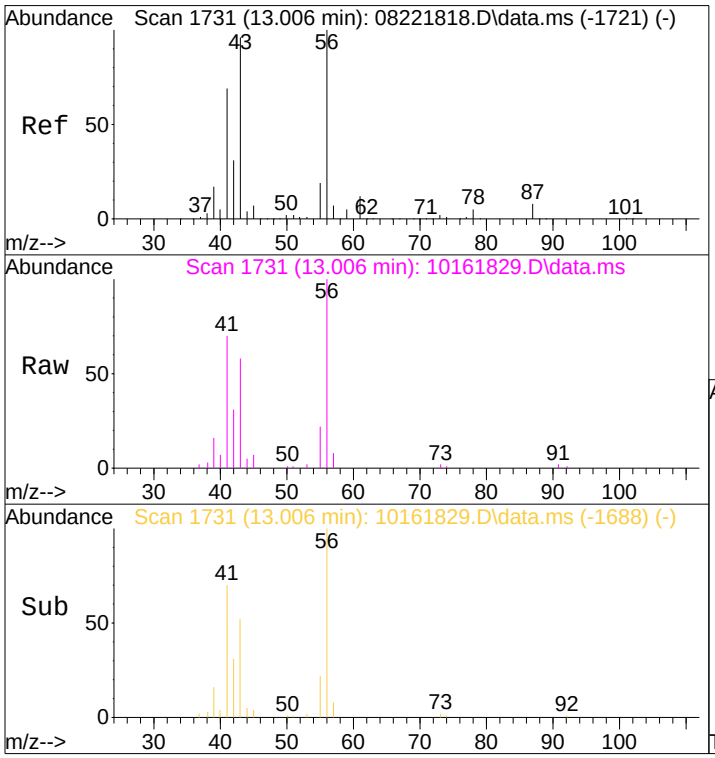


#36
1,2-Dichloroethane
Concen: 0.05 ng
RT: 12.29 min Scan# 1601
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 62 Resp: 1382

Ion	Ratio	Lower	Upper
62	100		
64	25.9	12.6	52.6

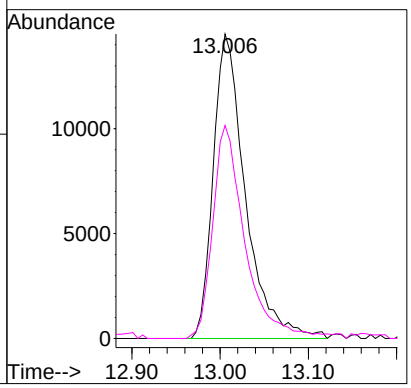


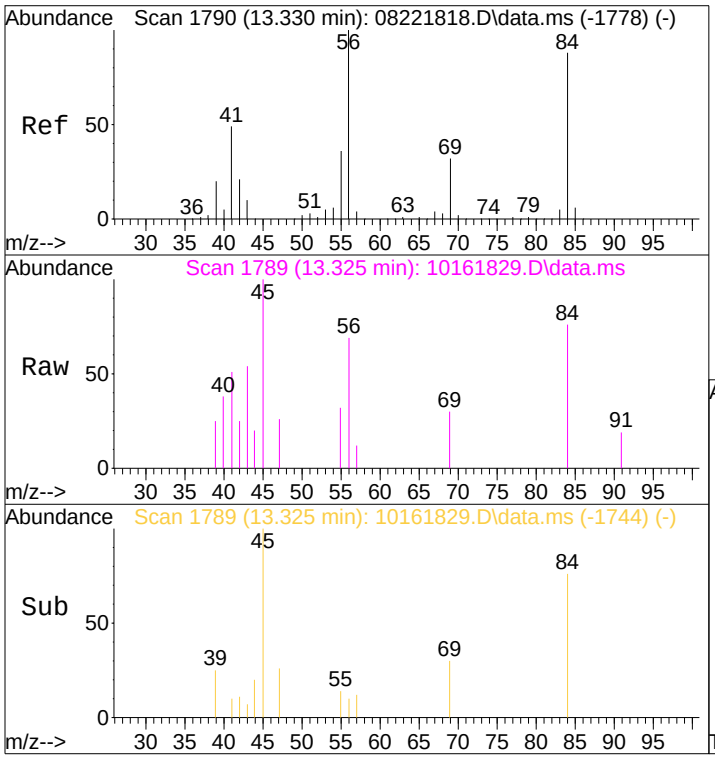


#40
1-Butanol
Concen: 1.74 ng
RT: 13.01 min Scan# 1731
Delta R.T. -0.011 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 56 Resp: 36670

Ion	Ratio	Lower	Upper
56	100		
41	70.4	77.1	117.1#

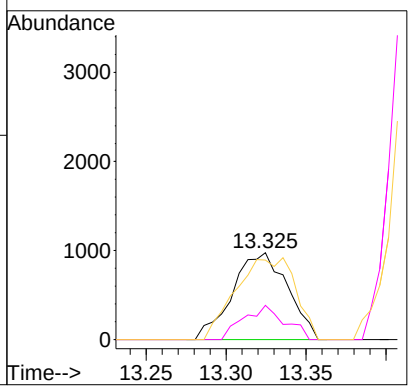


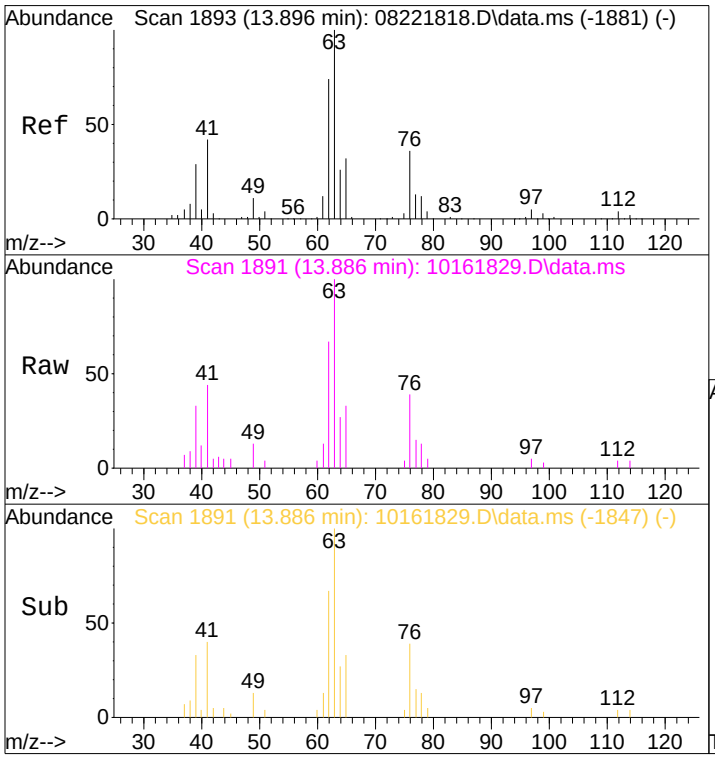


#43
Cyclohexane
Concen: 0.07 ng
RT: 13.32 min Scan# 1789
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 84 Resp: 2333

Ion	Ratio	Lower	Upper
84	100		
69	29.4	16.6	56.6
56	101.9	94.4	134.4

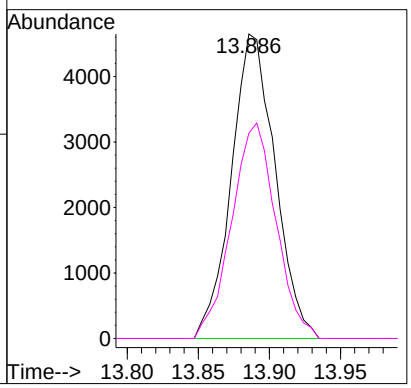


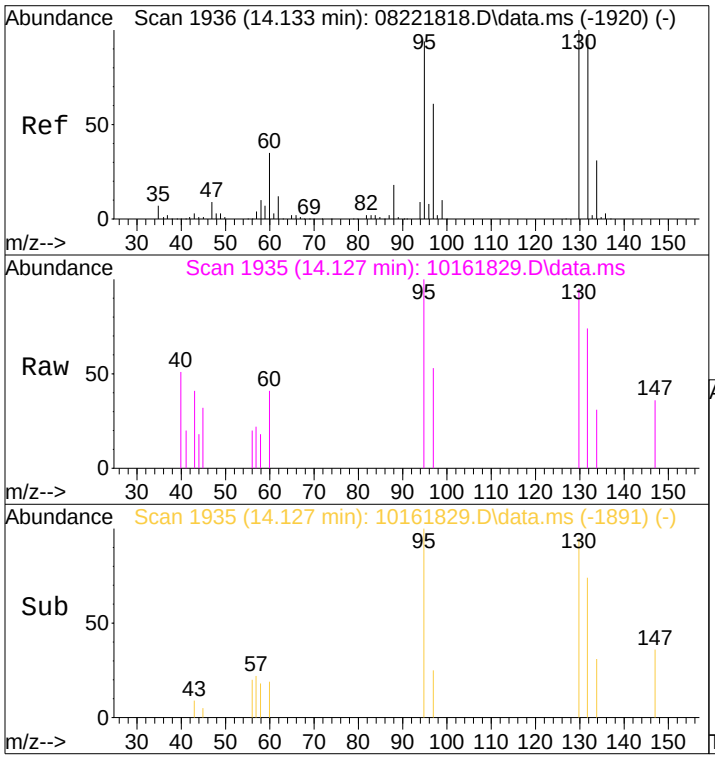


#45
1,2-Dichloropropane
Concen: 0.45 ng
RT: 13.89 min Scan# 1891
Delta R.T. -0.005 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 63 Resp: 9940

Ion	Ratio	Lower	Upper
63	100		
62	71.9	52.7	92.7

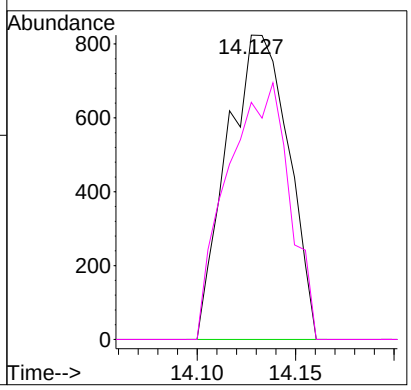


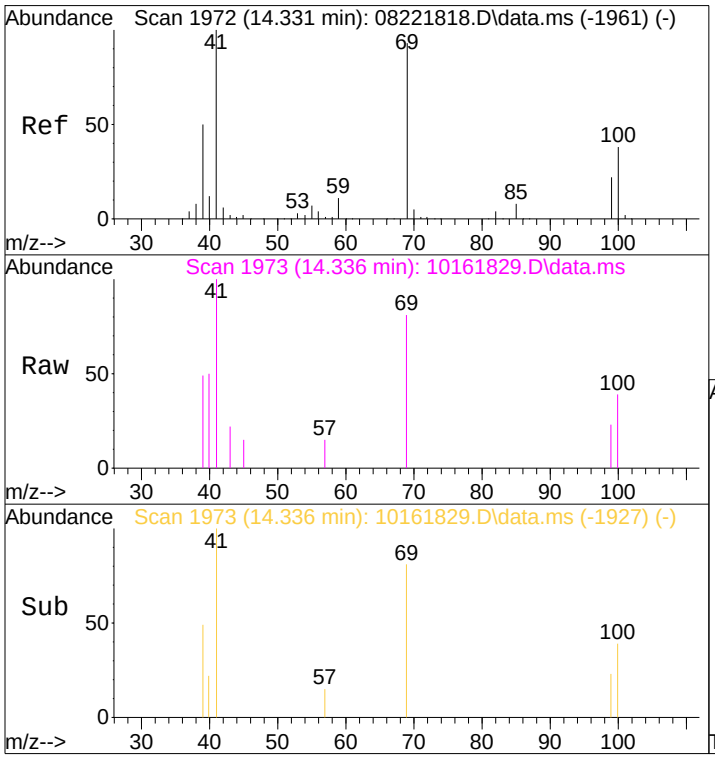


#47
Trichloroethene
Concen: 0.07 ng
RT: 14.13 min Scan# 1935
Delta R.T. -0.005 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:130 Resp: 1781

Ion	Ratio	Lower	Upper
130	100		
132	85.1	76.2	116.2

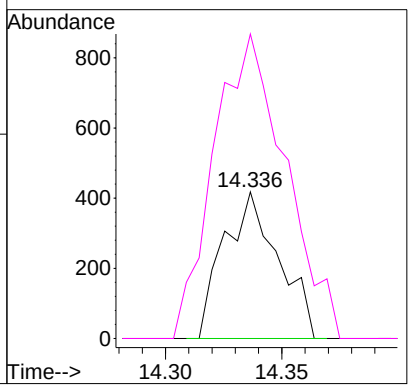


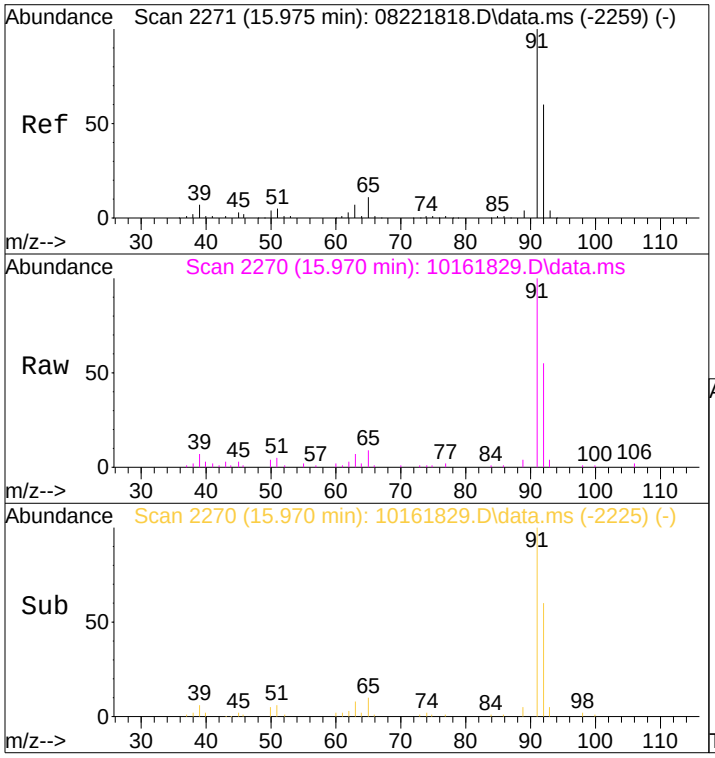


#50
Methyl Methacrylate
Concen: 0.07 ng
RT: 14.34 min Scan# 1973
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:100 Resp: 682

Ion	Ratio	Lower	Upper
100	100		
69	272.6	227.6	267.6#

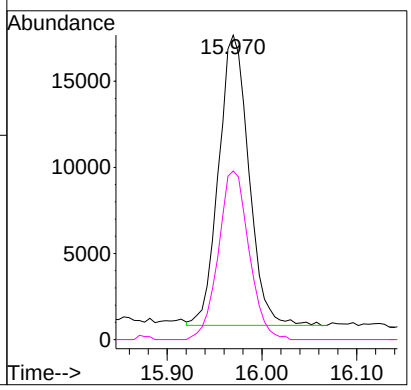


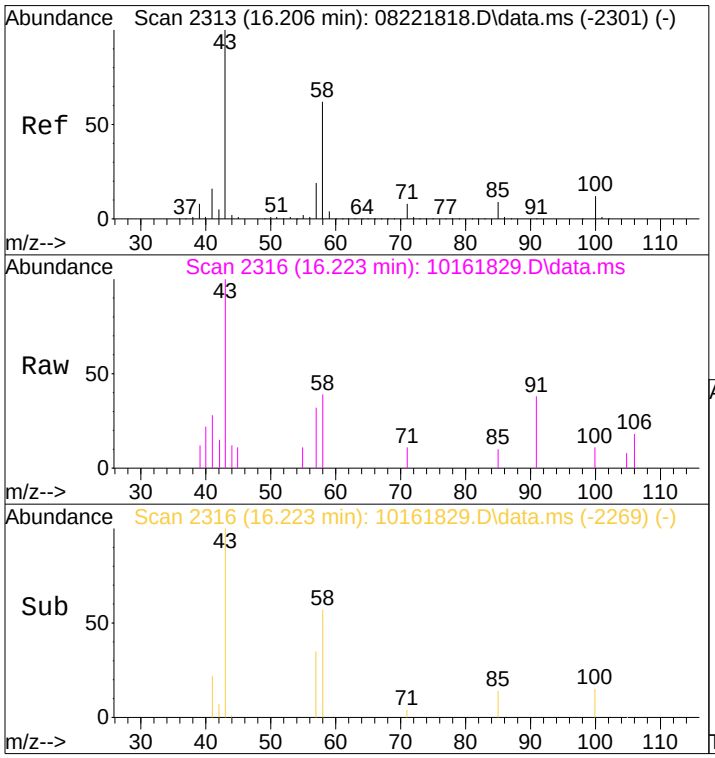


#58
Toluene
Concen: 0.38 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 91 Resp: 37225

Ion	Ratio	Lower	Upper
91	100		
92	59.0	39.6	79.6

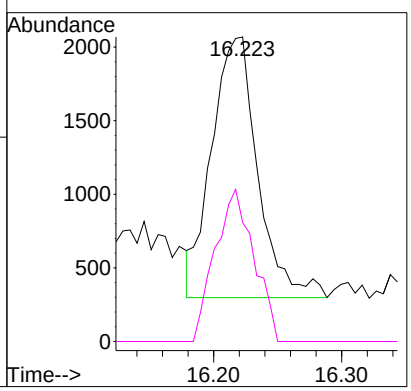


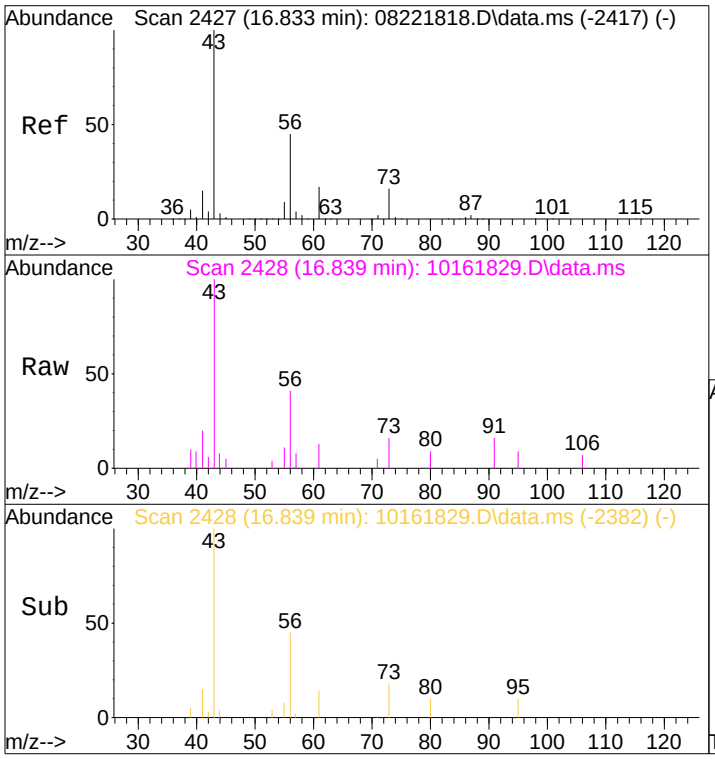


#59
2-Hexanone
Concen: 0.10 ng
RT: 16.22 min Scan# 2316
Delta R.T. 0.011 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 43 Resp: 4439

Ion	Ratio	Lower	Upper
43	100		
58	49.0	41.9	81.9

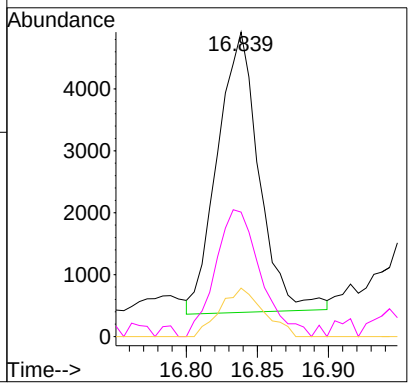


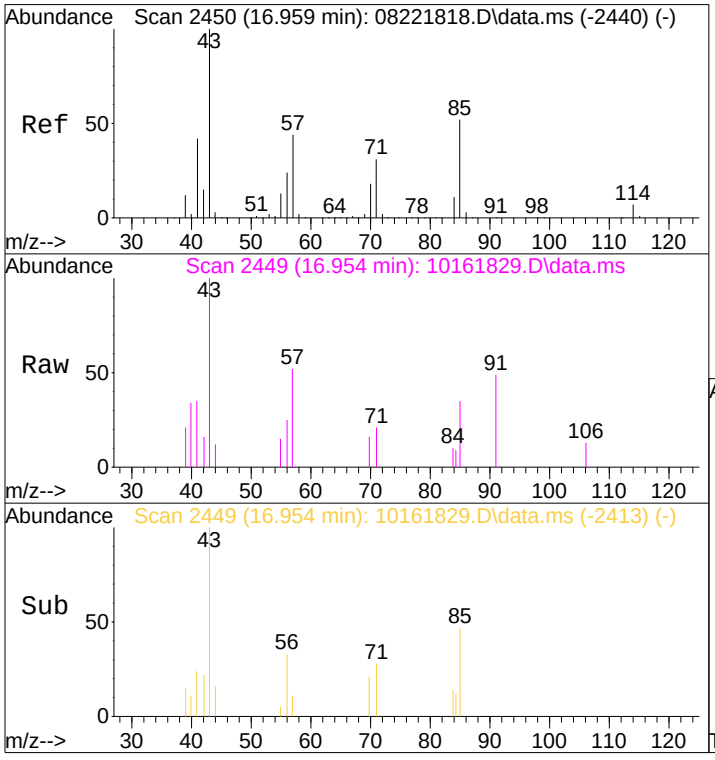


#62
n-Butyl Acetate
Concen: 0.18 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.006 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 43 Resp: 9215

Ion	Ratio	Lower	Upper
43	100		
56	48.9	24.7	64.7
73	18.1	0.0	35.9

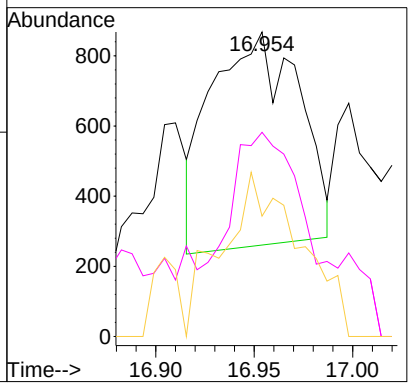


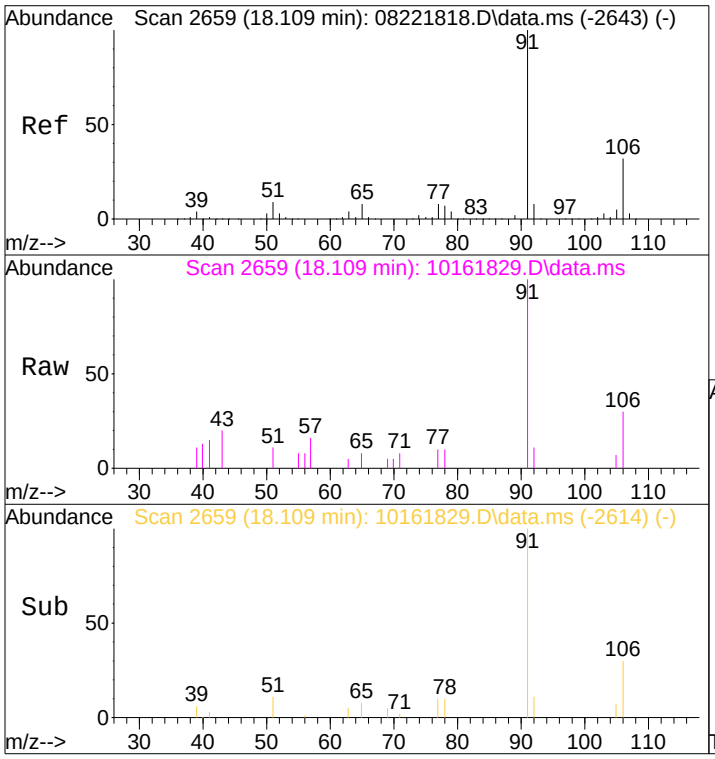


#63
n-Octane
Concen: 0.10 ng
RT: 16.95 min Scan# 2449
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 57 Resp: 1892

Ion	Ratio	Lower	Upper
57	100		
85	92.6	93.2	139.8#
71	68.2	57.0	85.4

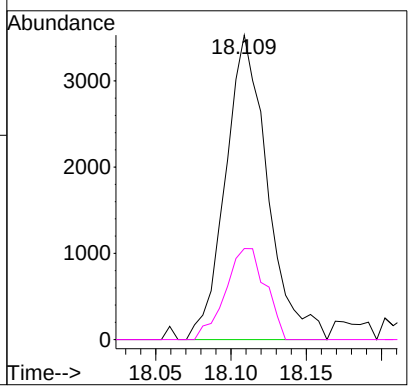


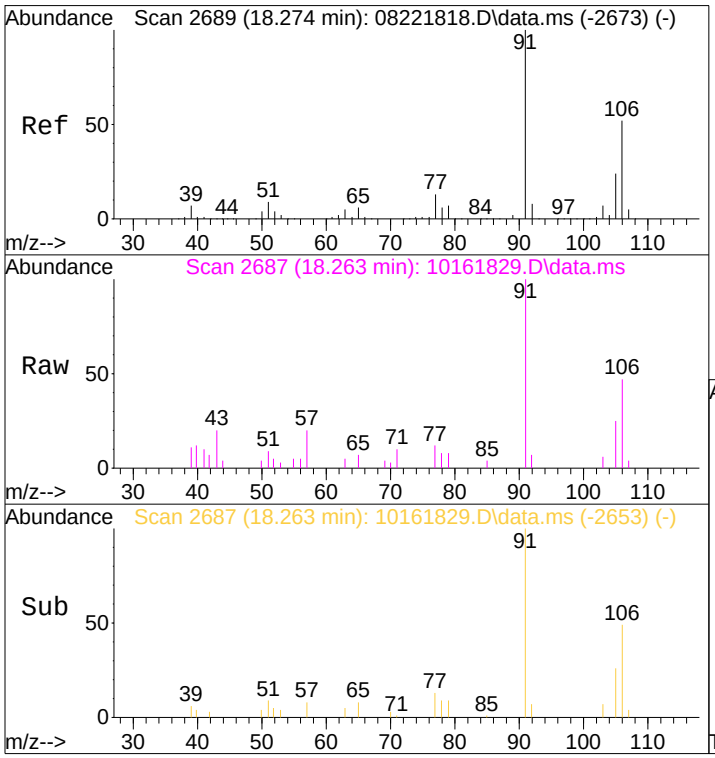


#66
Ethylbenzene
Concen: 0.06 ng
RT: 18.11 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 91 Resp: 6868

Ion	Ratio	Lower	Upper
91	100		
106	28.4	12.4	52.4

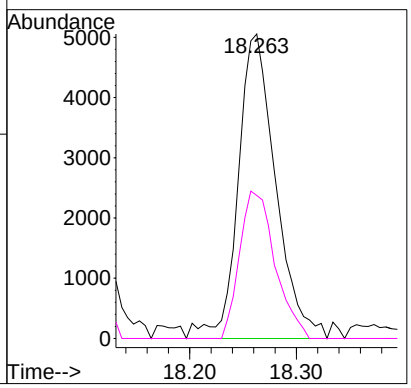


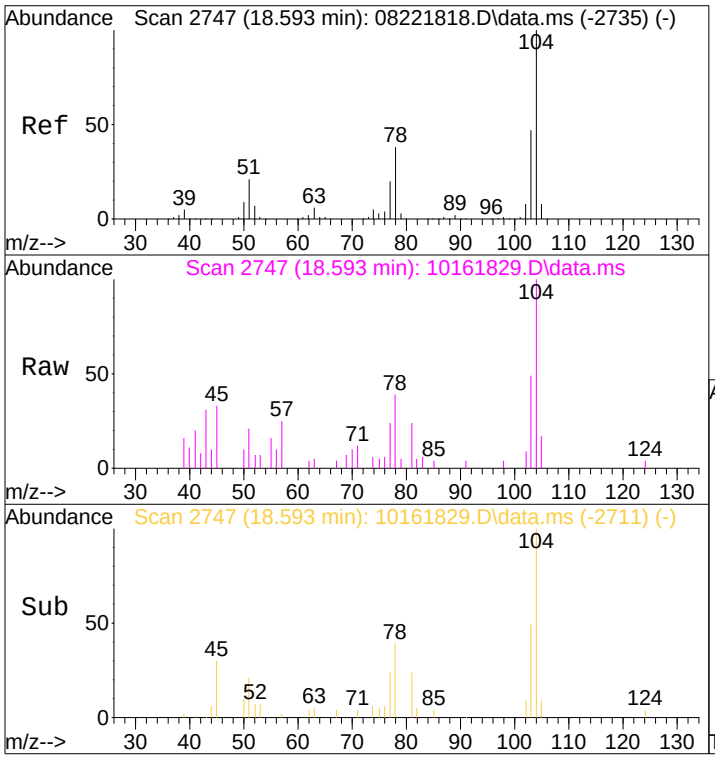


#67
m- & p-Xylenes
Concen: 0.16 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.011 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 91 Resp: 12346

Ion	Ratio	Lower	Upper
91	100		
106	45.7	32.2	72.2

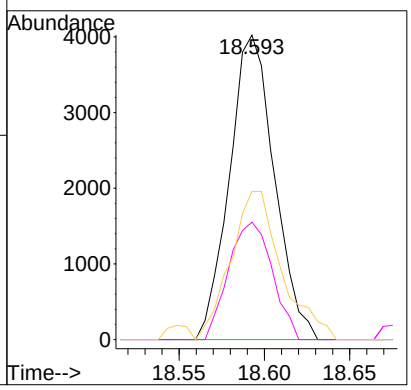


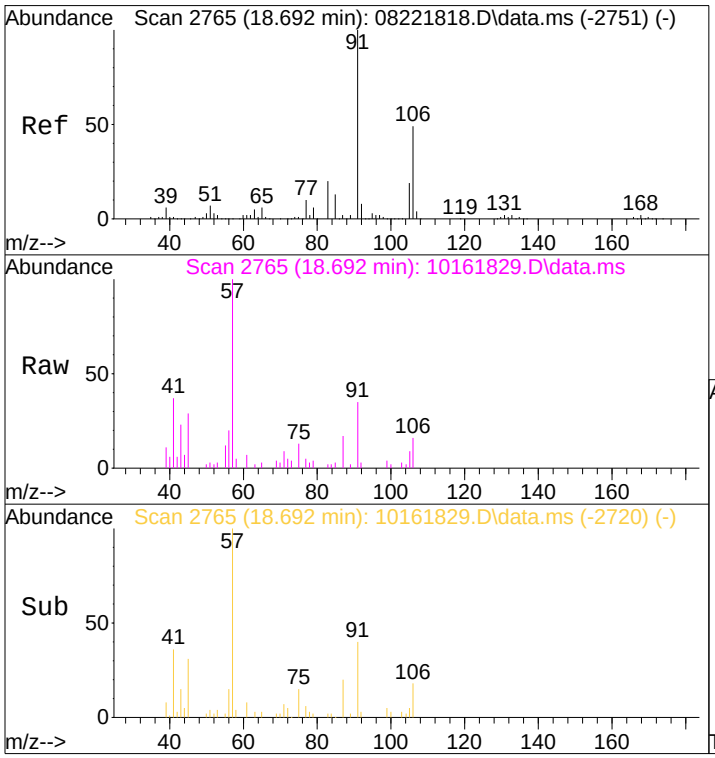


#69
Styrene
Concen: 0.11 ng
RT: 18.59 min Scan# 2747
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:104 Resp: 7357

Ion	Ratio	Lower	Upper
104	100		
78	37.6	18.4	58.4
103	55.3	27.0	67.0

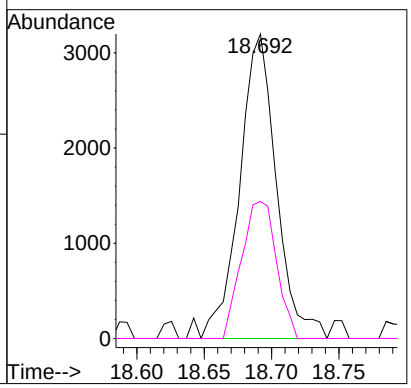


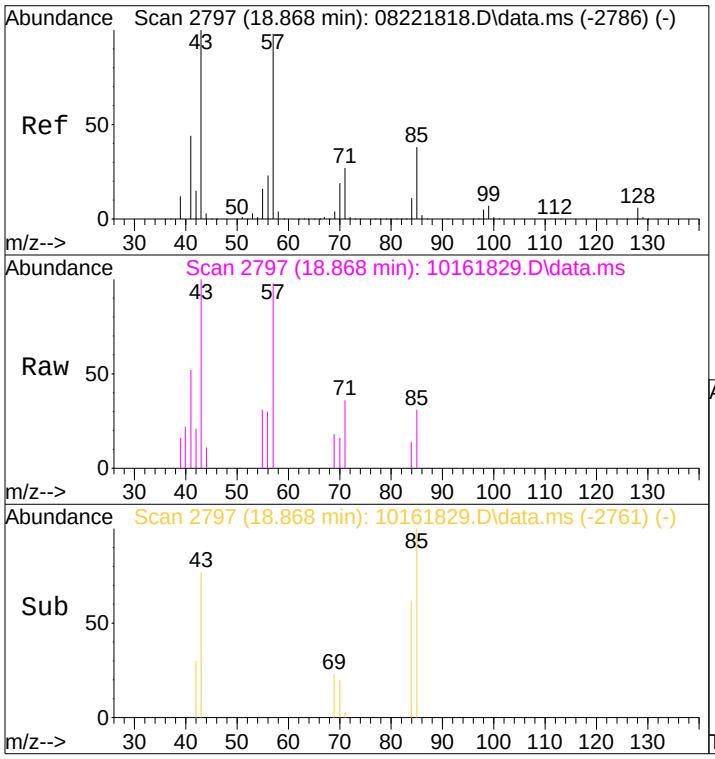


#70
o-Xylene
Concen: 0.08 ng
RT: 18.69 min Scan# 2765
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 91 Resp: 6135

Ion	Ratio	Lower	Upper
91	100		
106	42.2	29.6	69.6

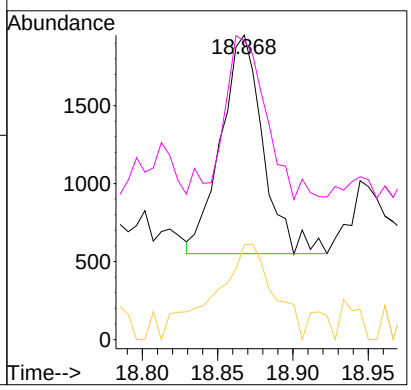


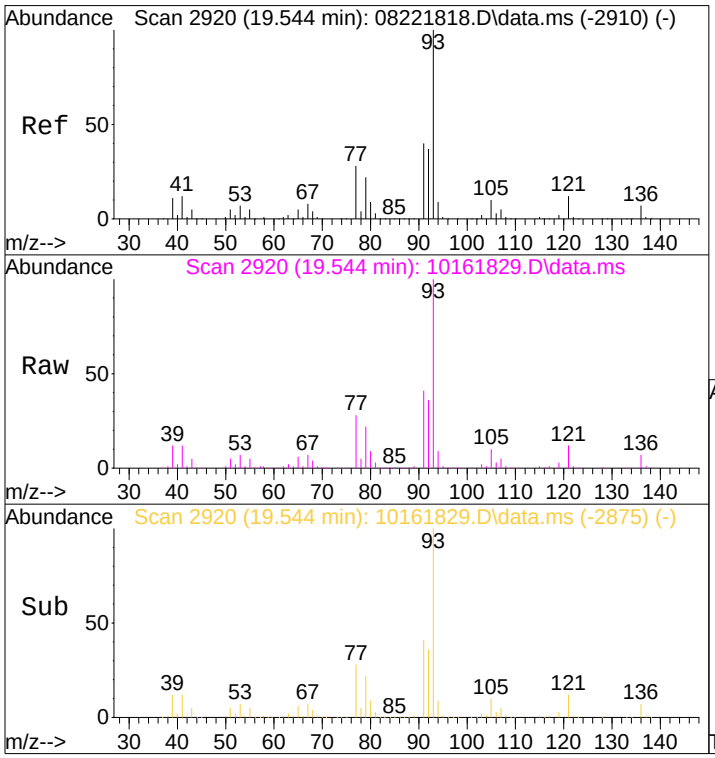


#71
n-Nonane
Concen: 0.07 ng
RT: 18.87 min Scan# 2797
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 43 Resp: 2732

Ion	Ratio	Lower	Upper
43	100		
57	80.1	77.3	117.3
85	63.8	17.7	57.7#

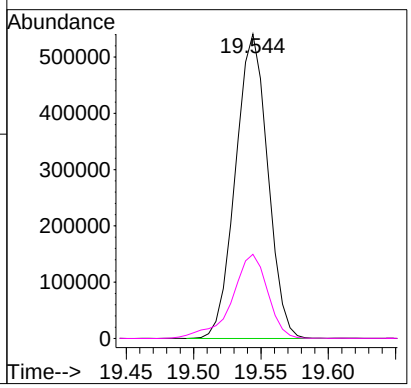


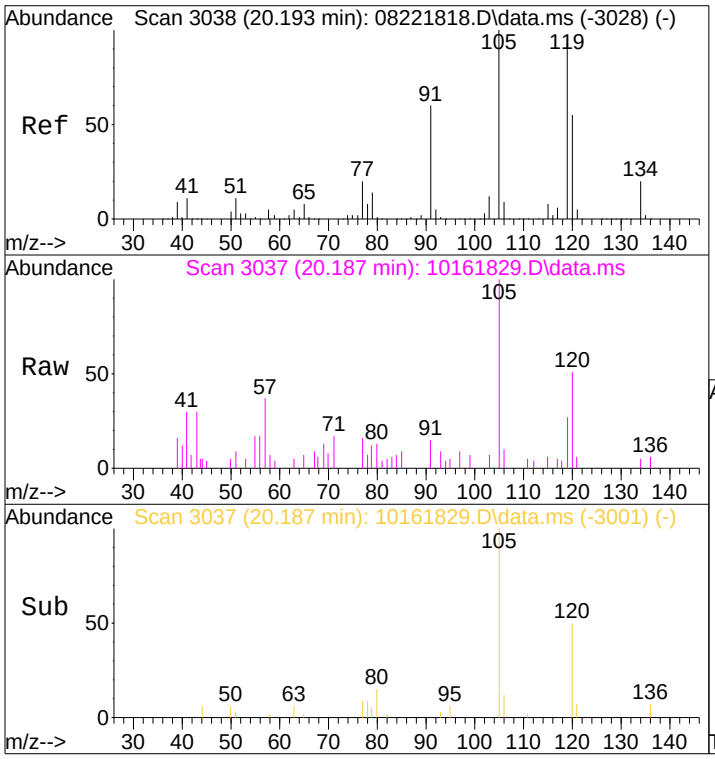


#75
alpha-Pinene
Concen: 16.60 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 93 Resp: 899559

Ion	Ratio	Lower	Upper
93	100		
77	30.7	8.7	48.7

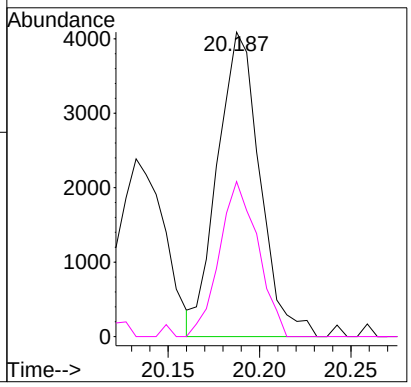


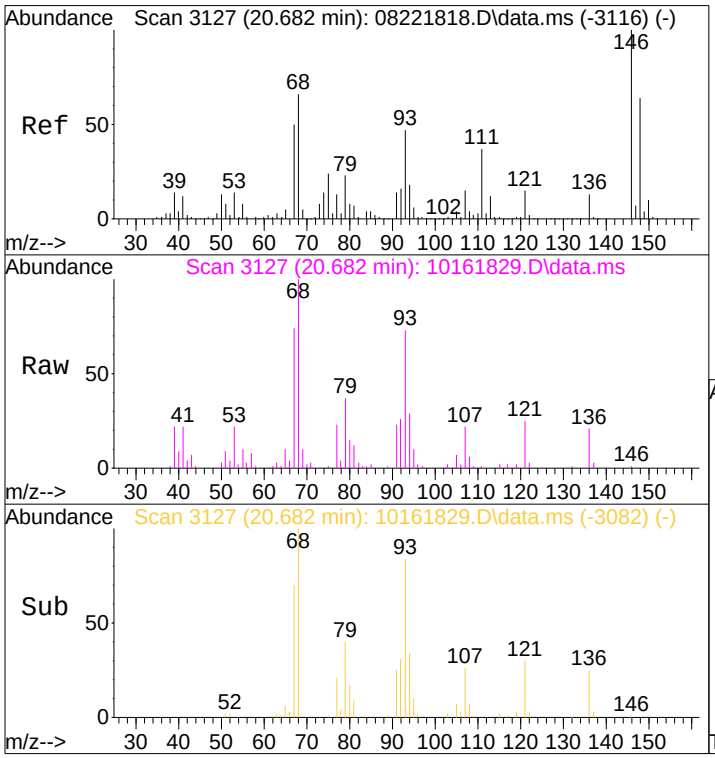


#82
1,2,4-Trimethylbenzene
Concen: 0.08 ng
RT: 20.19 min Scan# 3037
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:105 Resp: 6607

Ion	Ratio	Lower	Upper
105	100		
120	46.3	36.1	76.1

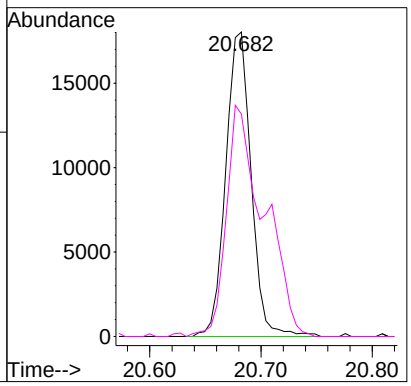


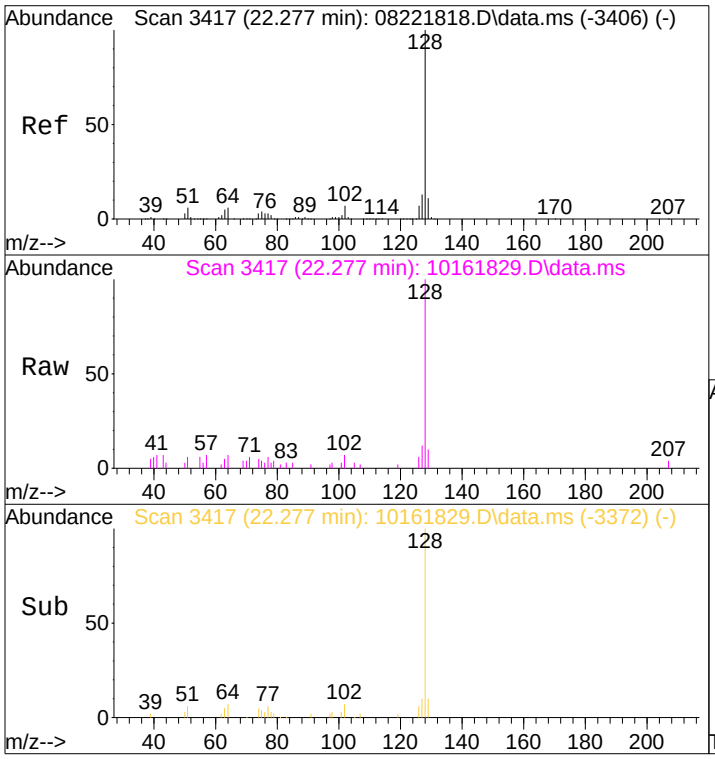


#91
d-Limonene
Concen: 0.91 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion: 68 Resp: 28624

Ion	Ratio	Lower	Upper
68	100		
93	112.4	50.5	90.5#

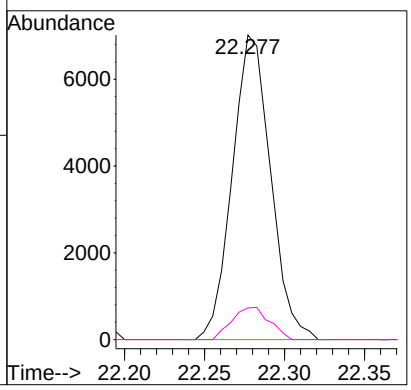




#95
Naphthalene
Concen: 0.12 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161829.D
Acq: 16 Oct 2018 16:52

Tgt Ion:128 Resp: 11723

Ion	Ratio	Lower	Upper
128	100		
129	10.3	0.0	30.9



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 11:58:06 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

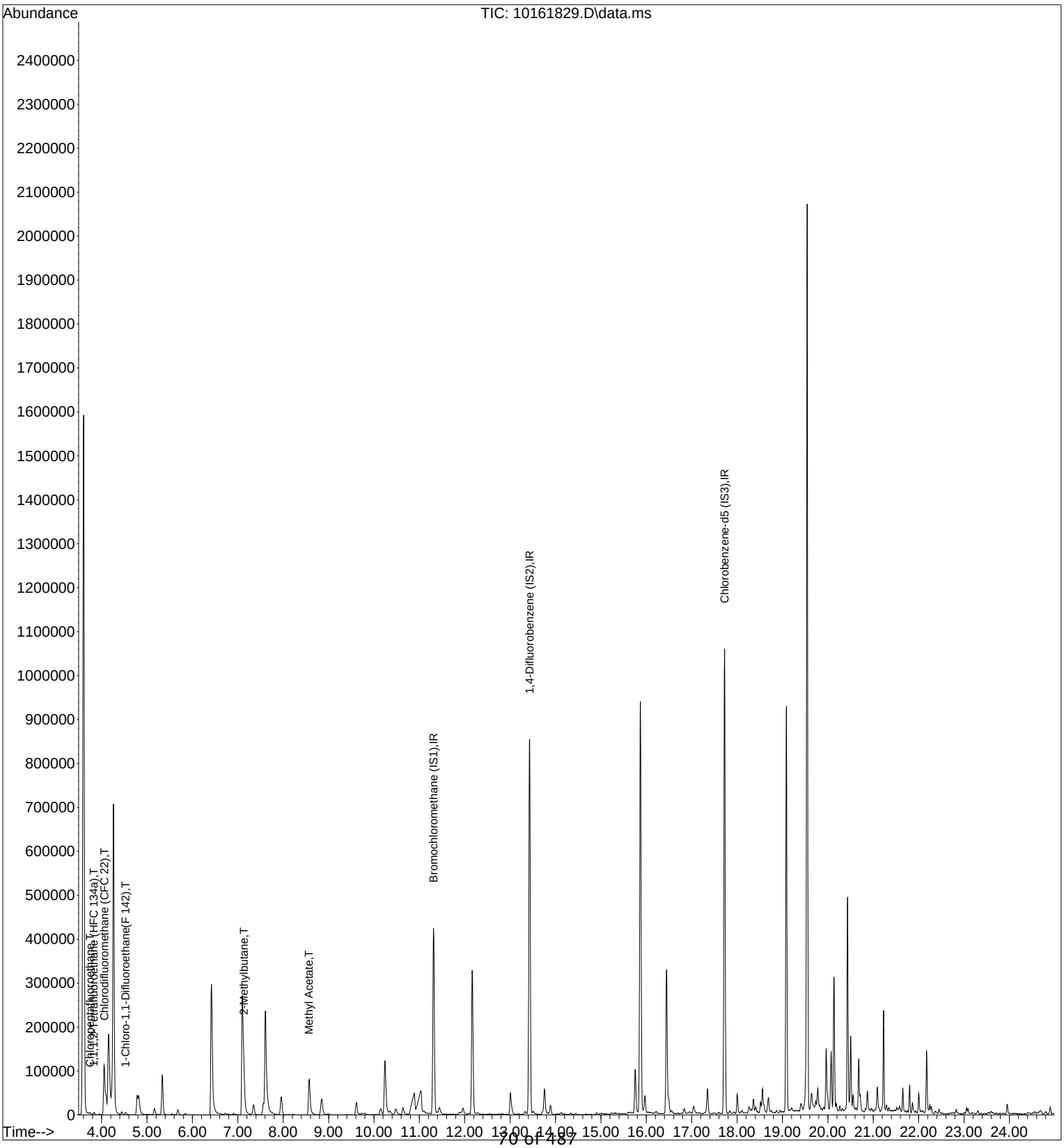
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	213979	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	899447	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	370654	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	2706	0.106	ng	#	36
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	2675	0.151	ng	#	52
4) 1,1-Difluoroethane	3.95	65	815	N.D.			
5) Chlorodifluoromethane ...	4.06	67	1062	0.199	ng	#	95
6) 1-Chloro-1,1-Difluoroe...	4.53	65	2644	0.081	ng	#	92
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	24311	1.044	ng	#	51
11) Methyl Acetate	8.57	43	134366	2.628	ng		97
12) 2-Methylpentane	10.37	71	691	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	51	N.D.			
17) 2,3-Dimethylpentane	13.59	56	54	N.D.			
18) Dibromomethane	13.85	174	173	N.D.			
20) Methyl Cyclohexane	15.10	55	700	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.64	131	64	N.D.			
23) 1-Chlorohexane	17.93	91	57	N.D.			
24) 1,2,3-Trichloropropane	18.79	75	491	N.D.			
25) Bromobenzene	19.26	77	100	N.D.			
26) 2-Chlorotoluene	19.64	91	2345	N.D.			
27) 4-Chlorotoluene	19.64	91	2207	N.D.			
28) Indan	20.73	117	1070	N.D.			
29) Indene	20.81	115	122	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	478	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	636	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	607	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

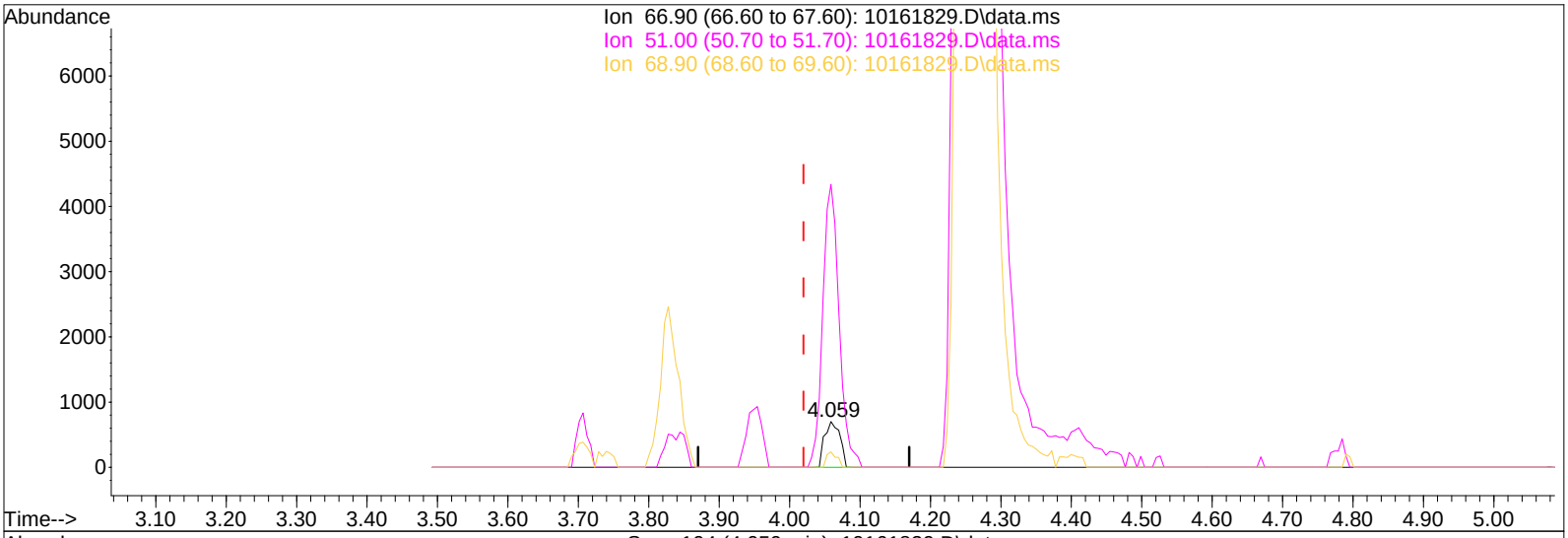
Quant Time: Oct 17 11:58:06 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

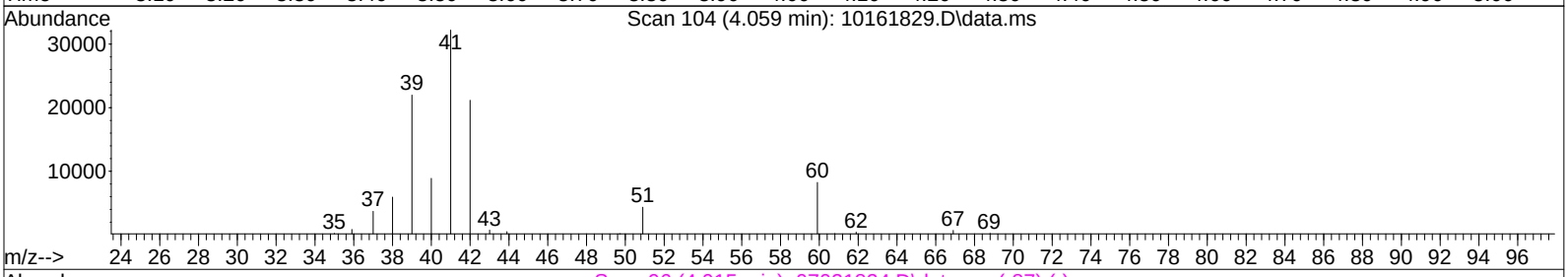


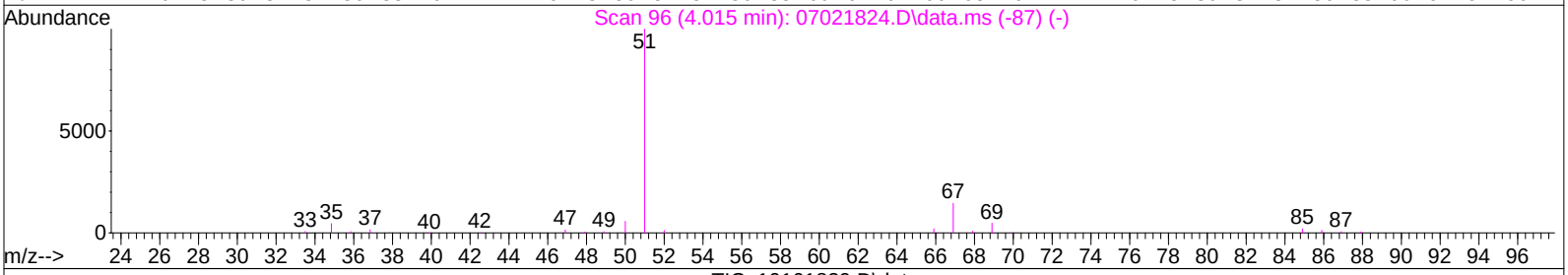
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161829.D
Acq On : 16 Oct 2018 16:52 Operator: LH/TD
Sample : P1805476-001 (1000mL)
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 17 11:53:32 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161829.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.039) 0.20ng

response 1062

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	663.37
68.90	32.10	23.07#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:25:25 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	209515	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	883085	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	364196	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	260854	12.585	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.64%				
57) Toluene-d8 (SS2)	15.87	98	769777	13.817	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.56%				
73) Bromofluorobenzene (SS3)	19.09	174	339119	14.977	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.84%				
Target Compounds							Qvalue
2) Propene	4.06	42	46744	1.960	ng	#	84
3) Dichlorodifluoromethan...	4.23	85	58405	1.499	ng		99
4) Chloromethane	4.53	50	3119	0.107	ng		89
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1973	0.087	ng		98
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	5.70	94	280	N.D.			
9) Chloroethane	6.04	64	985	0.060	ng	#	62
10) Ethanol	6.43	45	527894	36.195	ng		100
11) Acetonitrile	6.73	41	11617	0.299	ng		73
12) Acrolein	6.91	56	6400	0.454	ng		97
13) Acetone	7.11	58	199175	12.152	ng		86
14) Trichlorofluoromethane	7.35	101	29329	0.869	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	418646	8.311	ng		98
16) Acrylonitrile	7.96	53	1390	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	8.58	84	8922	0.386	ng		97
20) 3-Chloro-1-propene (Al...	8.67	41	104	N.D.			
21) Trichlorotrifluoroethane	9.00	151	1484	0.073	ng		93
22) Carbon Disulfide	8.85	76	145810	1.717	ng		100
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	10.64	72	8613	0.565	ng	#	87
28) cis-1,2-Dichloroethene	11.14	61	1186	N.D.			
29) Diisopropyl Ether	11.49	87	115	N.D.			
30) Ethyl Acetate	11.44	61	4315	0.552	ng		83
31) n-Hexane	11.41	57	3748	0.107	ng	#	94
32) Chloroform	11.48	83	2761	0.077	ng		93
34) Tetrahydrofuran (THF)	11.92	72	4003	0.264	ng		97
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	1922	0.077	ng		87
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.01	56	32352	1.559	ng	#	71
41) Benzene	13.04	78	4766	0.051	ng		99
42) Carbon Tetrachloride	13.19	117	1130	N.D.			
43) Cyclohexane	13.33	84	2562	0.076	ng		93
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	13.89	63	14636	0.669	ng		99
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	19609	0.786	ng		98
48) 1,4-Dioxane	14.12	88	572	N.D.			
49) 2,2,4-Trimethylpentane...	14.18	57	1776	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:25:25 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

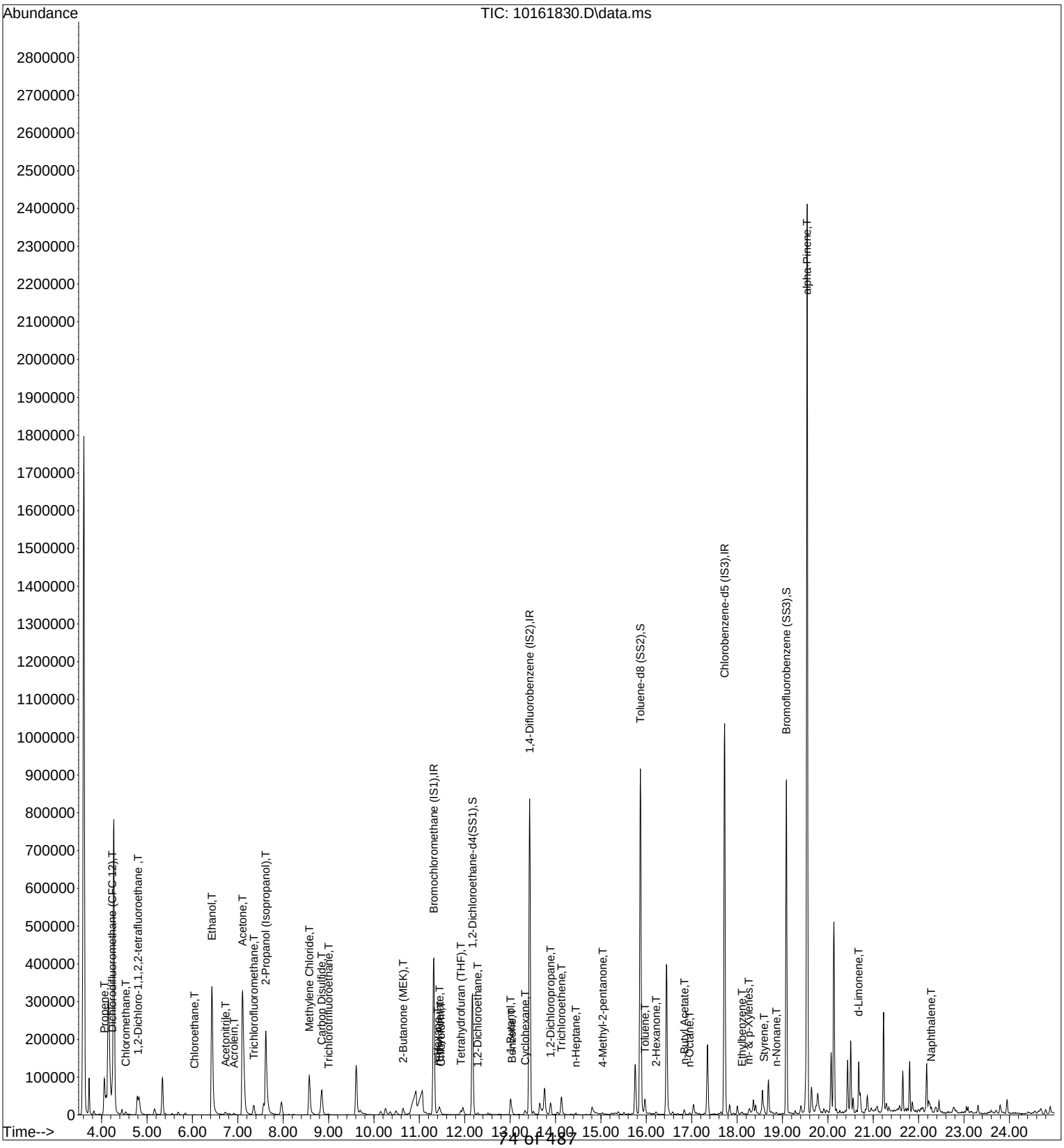
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	168	N.D.		
51) n-Heptane	14.45	71	1211	0.056 ng		88
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.04	58	1038	0.051 ng	#	65
54) trans-1,3-Dichloropropene	15.51	75	161	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	36789	0.386 ng		99
59) 2-Hexanone	16.22	43	5517	0.122 ng		85
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	11002	0.218 ng		95
63) n-Octane	16.95	57	1576	0.085 ng	#	59
64) Tetrachloroethene	17.11	166	1351	N.D.		
65) Chlorobenzene	17.76	112	1003	N.D.		
66) Ethylbenzene	18.11	91	5484	0.052 ng		98
67) m- & p-Xylenes	18.26	91	9470	0.121 ng		98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	7527	0.119 ng		96
70) o-Xylene	18.69	91	3928	N.D.		
71) n-Nonane	18.87	43	2003	0.050 ng		86
72) 1,1,2,2-Tetrachloroethane	18.69	83	1048	N.D.		
74) Cumene	19.20	105	1056	N.D.		
75) alpha-Pinene	19.54	93	1068351	20.064 ng		96
76) n-Propylbenzene	19.64	91	2689	N.D.		
77) 3-Ethyltoluene	19.73	105	2841	N.D.		
78) 4-Ethyltoluene	19.77	105	2781	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	1224	N.D.		
80) alpha-Methylstyrene	19.97	118	860	N.D.		
81) 2-Ethyltoluene	20.01	105	1506	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	3861	N.D.		
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.36	91	999	N.D.		
85) 1,3-Dichlorobenzene	20.33	146	471	N.D.		
86) 1,4-Dichlorobenzene	20.38	146	913	N.D.		
87) sec-Butylbenzene	20.42	105	534	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	2037	N.D.		
90) 1,2-Dichlorobenzene	20.69	146	299	N.D.		
91) d-Limonene	20.68	68	32919	1.068 ng	#	48
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.18	180	605	N.D.		
95) Naphthalene	22.28	128	8993	0.096 ng		97
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	20.91	91	953	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:25:25 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:25:25 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

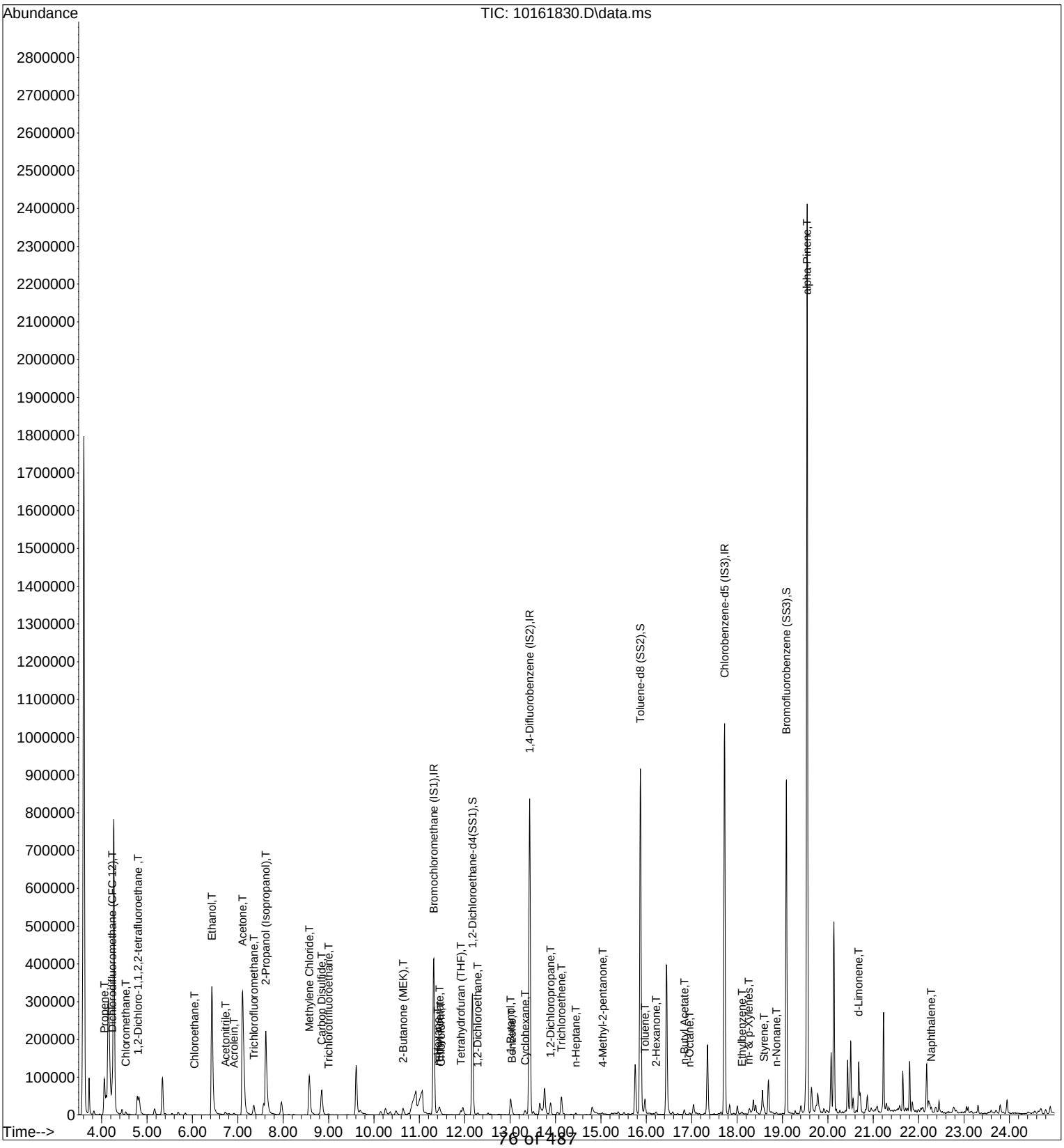
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	209515	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	883085	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	364196	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	260854	12.585	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.64%				
57) Toluene-d8 (SS2)	15.87	98	769777	13.817	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.56%				
73) Bromofluorobenzene (SS3)	19.09	174	339119	14.977	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.84%				
Target Compounds							Qvalue
2) Propene	4.06	42	46744	1.960	ng	#	84
3) Dichlorodifluoromethan...	4.23	85	58405	1.499	ng		99
4) Chloromethane	4.53	50	3119	0.107	ng		89
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1973	0.087	ng		98
9) Chloroethane	6.04	64	985	0.060	ng	#	62
10) Ethanol	6.43	45	527894	36.195	ng		100
11) Acetonitrile	6.73	41	11617	0.299	ng		73
12) Acrolein	6.91	56	6400	0.454	ng		97
13) Acetone	7.11	58	199175	12.152	ng		86
14) Trichlorofluoromethane	7.35	101	29329	0.869	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	418646	8.311	ng		98
19) Methylene Chloride	8.58	84	8922	0.386	ng		97
21) Trichlorotrifluoroethane	9.00	151	1484	0.073	ng		93
22) Carbon Disulfide	8.85	76	145810	1.717	ng		100
27) 2-Butanone (MEK)	10.64	72	8613	0.565	ng	#	87
30) Ethyl Acetate	11.44	61	4315	0.552	ng		83
31) n-Hexane	11.41	57	3748	0.107	ng	#	94
32) Chloroform	11.48	83	2761	0.077	ng		93
34) Tetrahydrofuran (THF)	11.92	72	4003	0.264	ng		97
36) 1,2-Dichloroethane	12.29	62	1922	0.077	ng		87
40) 1-Butanol	13.01	56	32352	1.559	ng	#	71
41) Benzene	13.04	78	4766	0.051	ng		99
43) Cyclohexane	13.33	84	2562	0.076	ng		93
45) 1,2-Dichloropropane	13.89	63	14636	0.669	ng		99
47) Trichloroethene	14.13	130	19609	0.786	ng		98
51) n-Heptane	14.45	71	1211	0.056	ng		88
53) 4-Methyl-2-pentanone	15.04	58	1038	0.051	ng	#	65
58) Toluene	15.97	91	36789	0.386	ng		99
59) 2-Hexanone	16.22	43	5517	0.122	ng		85
62) n-Butyl Acetate	16.84	43	11002	0.218	ng		95
63) n-Octane	16.95	57	1576	0.085	ng	#	59
66) Ethylbenzene	18.11	91	5484	0.052	ng		98
67) m- & p-Xylenes	18.26	91	9470	0.121	ng		98
69) Styrene	18.59	104	7527	0.119	ng		96
71) n-Nonane	18.87	43	2003	0.050	ng		86
75) alpha-Pinene	19.54	93	1068351	20.064	ng		96
91) d-Limonene	20.68	68	32919	1.068	ng	#	48
95) Naphthalene	22.28	128	8993	0.096	ng		97

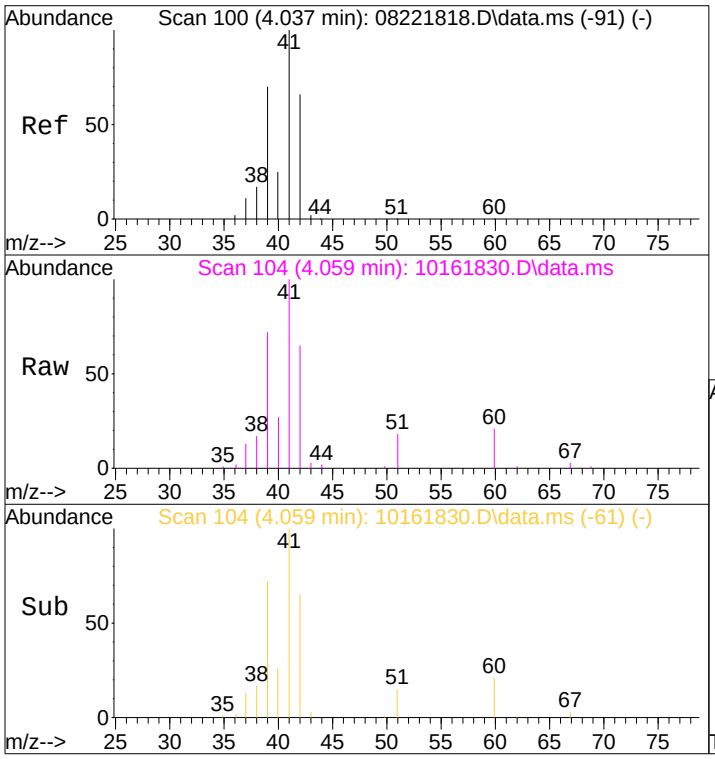
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:25:25 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

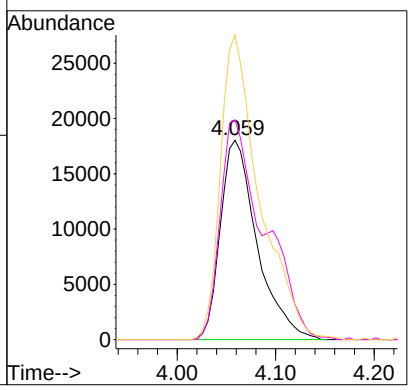


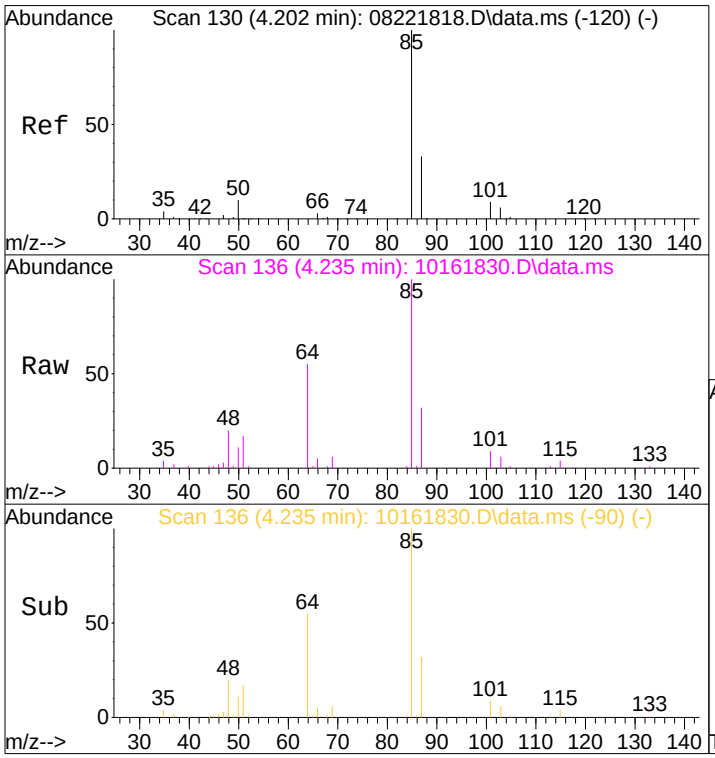


#2
Propene
Concen: 1.96 ng
RT: 4.06 min Scan# 104
Delta R.T. -0.011 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 42 Resp: 46744

Ion	Ratio	Lower	Upper
42	100		
39	132.5	85.6	125.6#
41	163.4	131.4	171.4

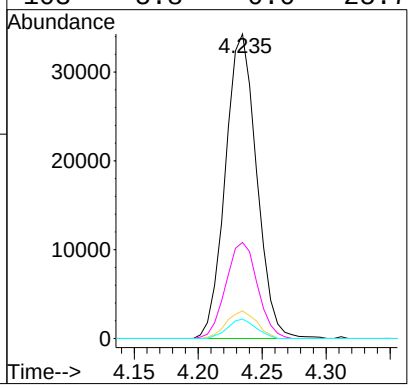


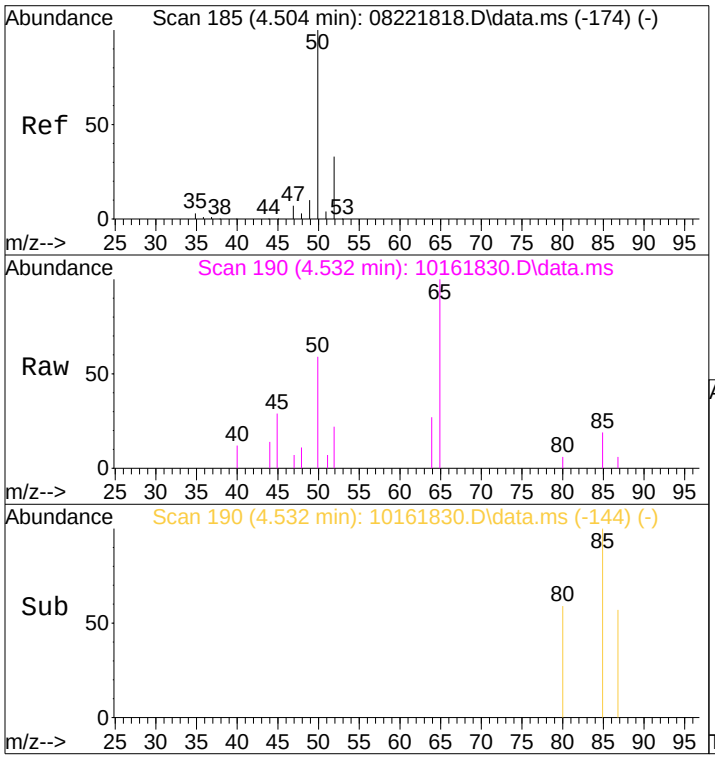


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.50 ng
RT: 4.23 min Scan# 136
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 85 Resp: 58405

Ion	Ratio	Lower	Upper
85	100		
87	31.9	12.6	52.6
101	8.7	0.0	28.8
103	5.8	0.0	25.7

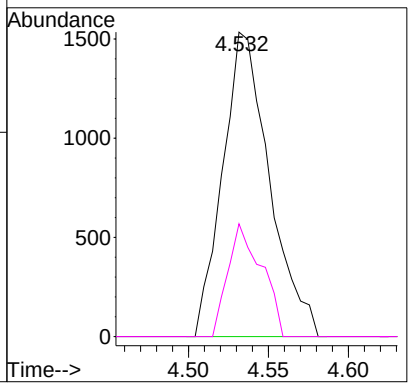


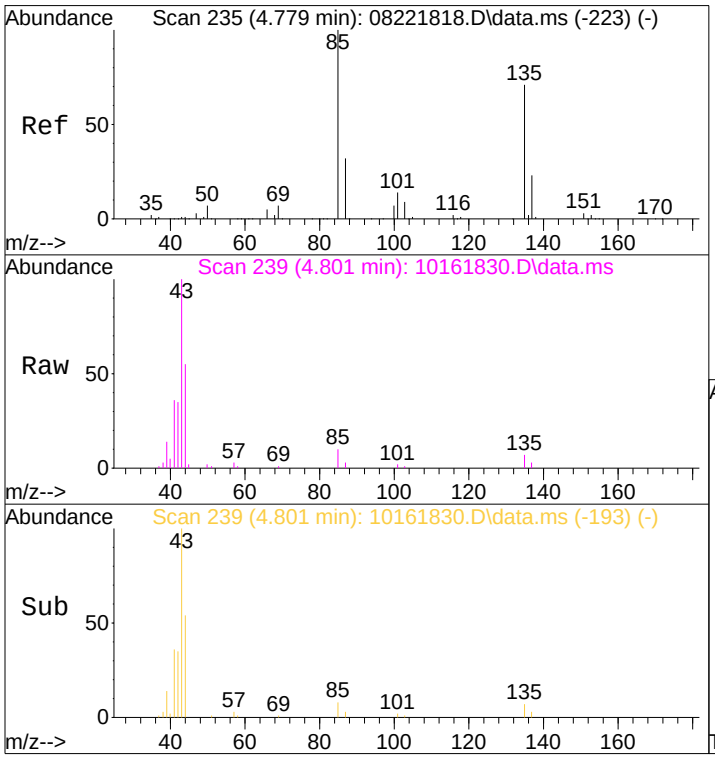


#4
Chloromethane
Concen: 0.11 ng
RT: 4.53 min Scan# 190
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 50 Resp: 3119

Ion	Ratio	Lower	Upper
50	100		
52	26.7	13.2	53.2

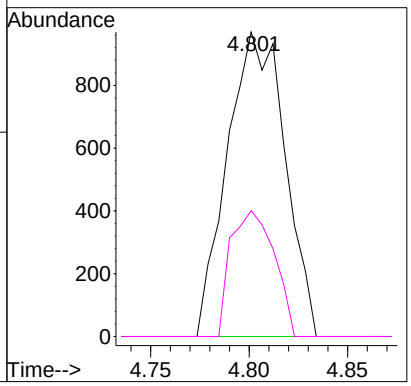


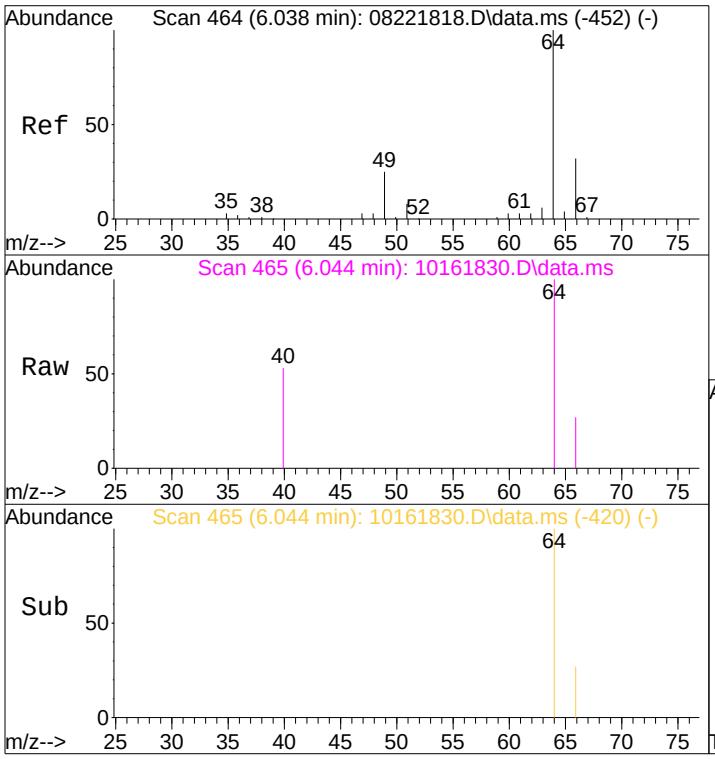


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.09 ng
RT: 4.80 min Scan# 239
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:135 Resp: 1973

Ion	Ratio	Lower	Upper
135	100		
137	31.2	12.3	52.3

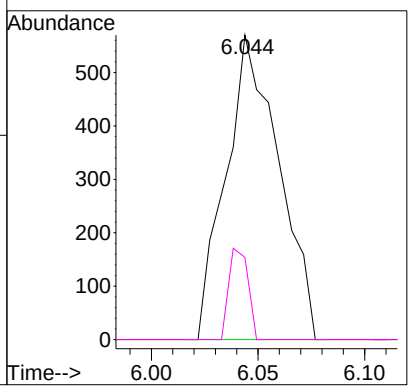


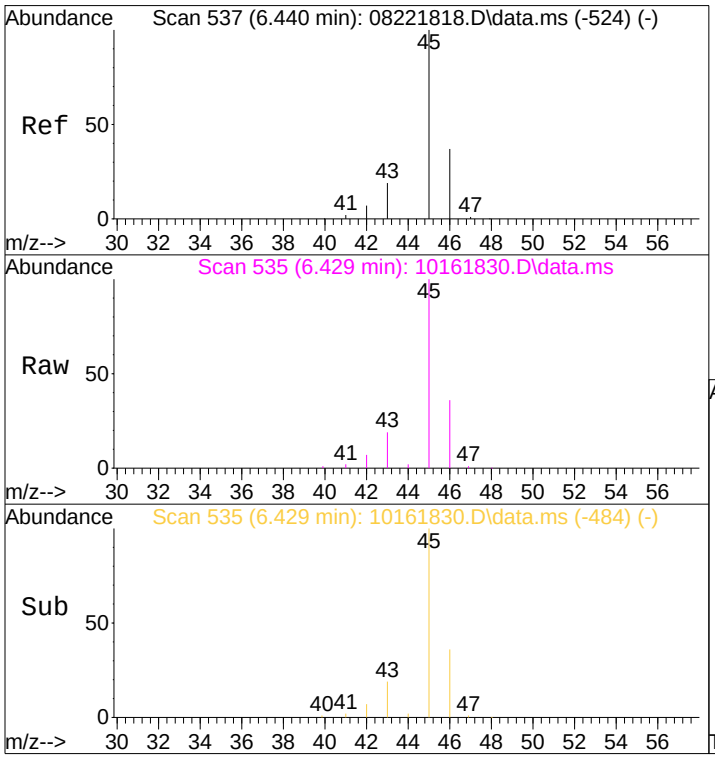


#9
Chloroethane
Concen: 0.06 ng
RT: 6.04 min Scan# 465
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 64 Resp: 985

Ion	Ratio	Lower	Upper
64	100		
66	10.9	12.0	52.0#

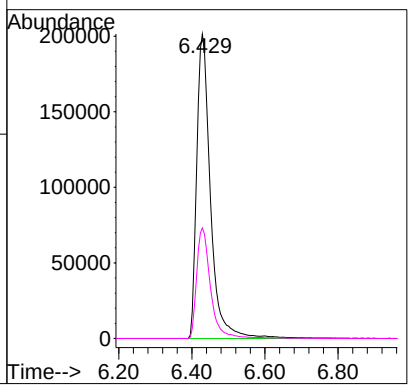


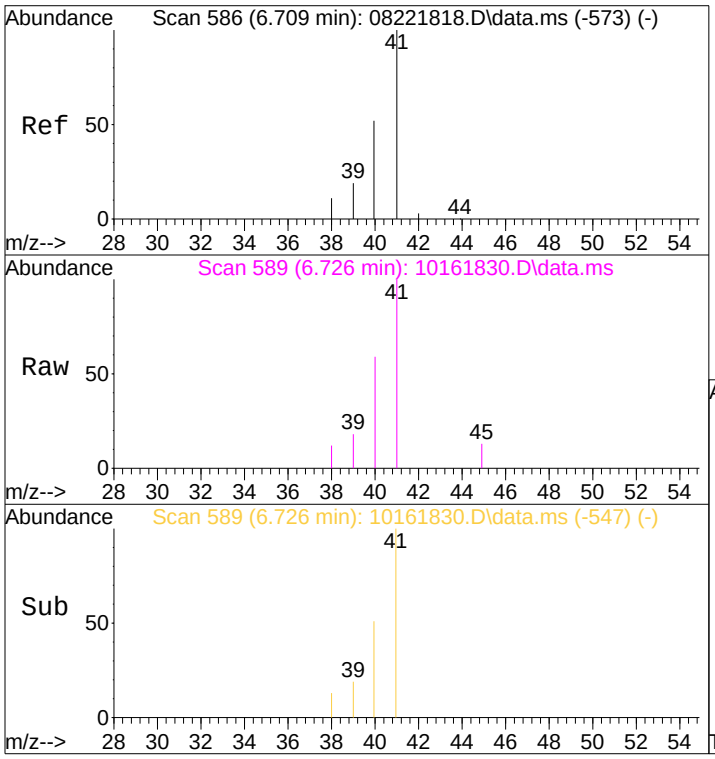


#10
Ethanol
Concen: 36.20 ng
RT: 6.43 min Scan# 535
Delta R.T. 0.033 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 45 Resp: 527894

Ion	Ratio	Lower	Upper
45	100		
46	36.6	16.7	56.7

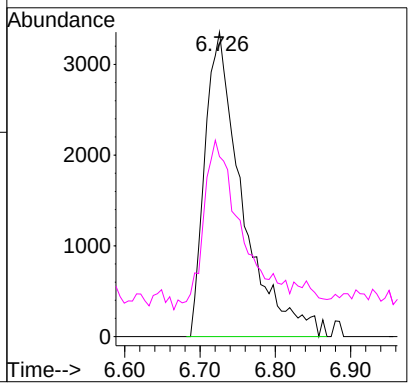


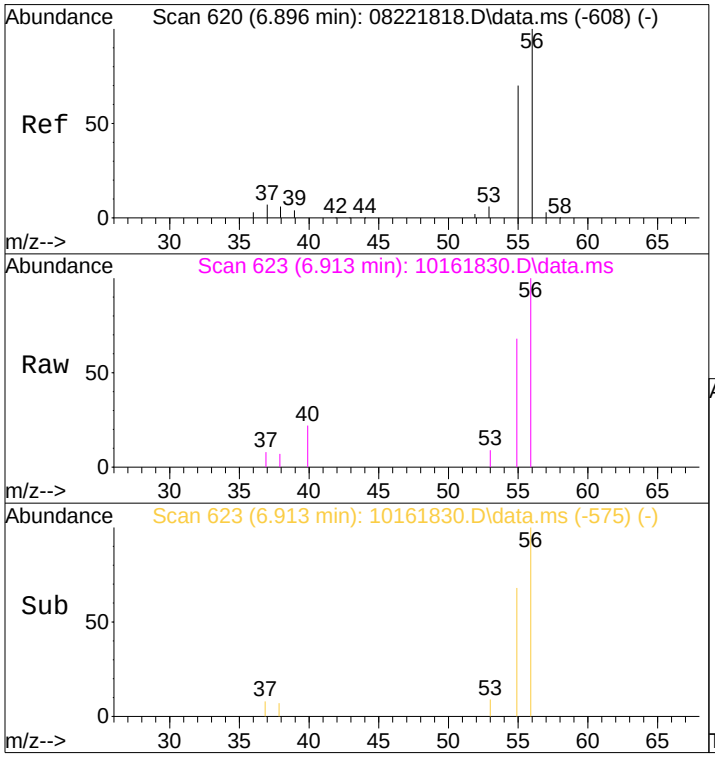


#11
Acetonitrile
Concen: 0.30 ng
RT: 6.73 min Scan# 589
Delta R.T. 0.033 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 41 Resp: 11617

Ion	Ratio	Lower	Upper
41	100		
40	71.0	32.2	72.2

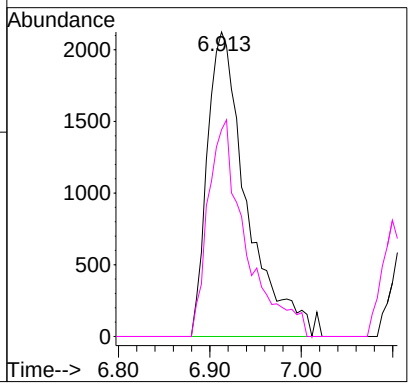


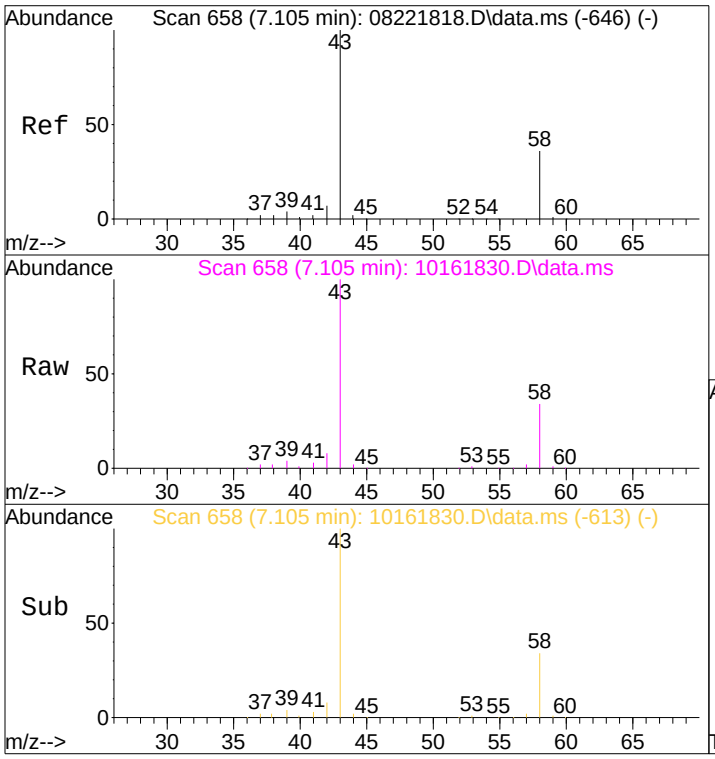


#12
Acrolein
Concen: 0.45 ng
RT: 6.91 min Scan# 623
Delta R.T. 0.017 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 56 Resp: 6400

Ion	Ratio	Lower	Upper
56	100		
55	67.4	49.9	89.9

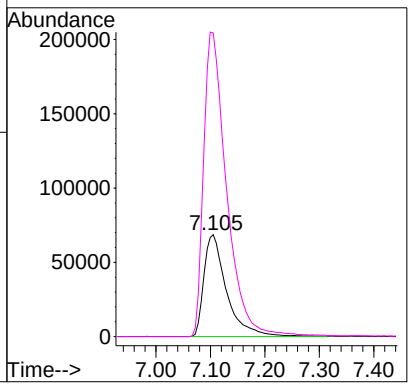


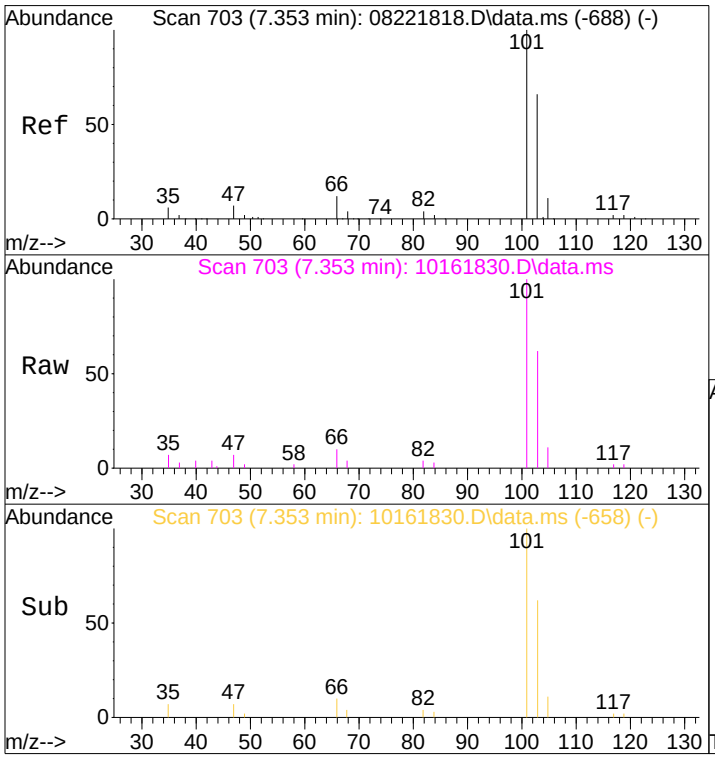


#13
Acetone
Concen: 12.15 ng
RT: 7.11 min Scan# 658
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 58 Resp: 199175

Ion	Ratio	Lower	Upper
58	100		
43	302.9	247.7	307.7

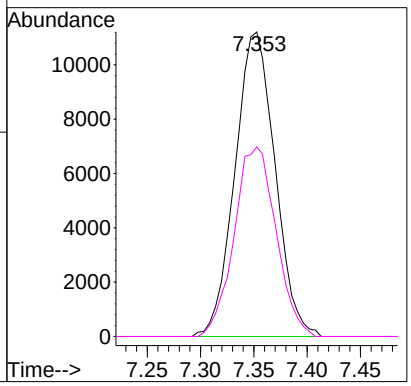


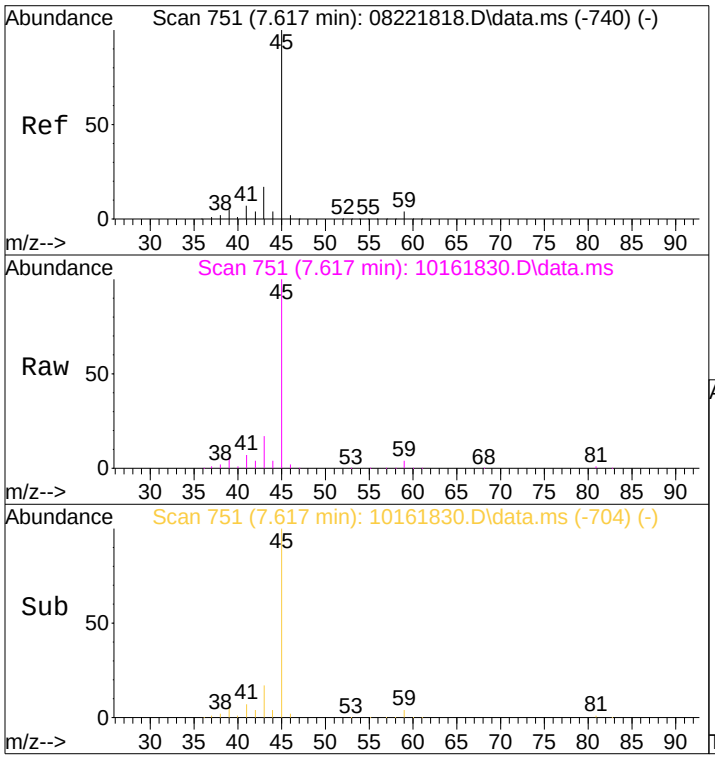


#14
Trichlorofluoromethane
Concen: 0.87 ng
RT: 7.35 min Scan# 703
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:101 Resp: 29329

Ion	Ratio	Lower	Upper
101	100		
103	65.0	45.1	85.1

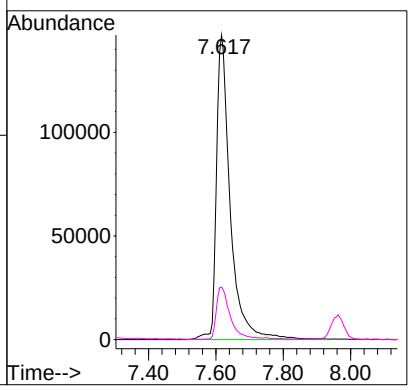


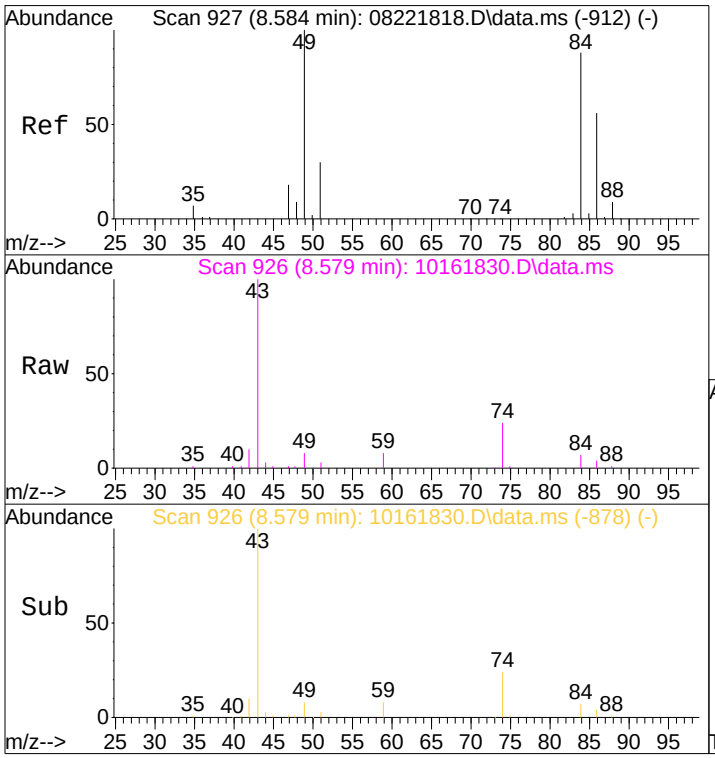


#15
2-Propanol (Isopropanol)
Concen: 8.31 ng
RT: 7.62 min Scan# 751
Delta R.T. 0.011 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 45 Resp: 418646

Ion	Ratio	Lower	Upper
45	100		
43	17.5	0.0	36.8

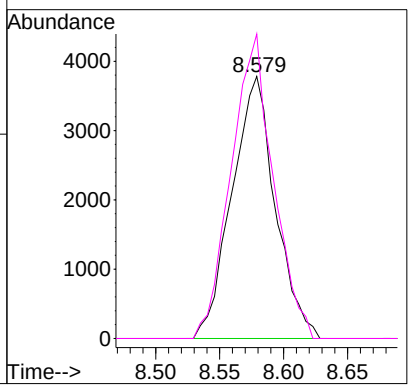


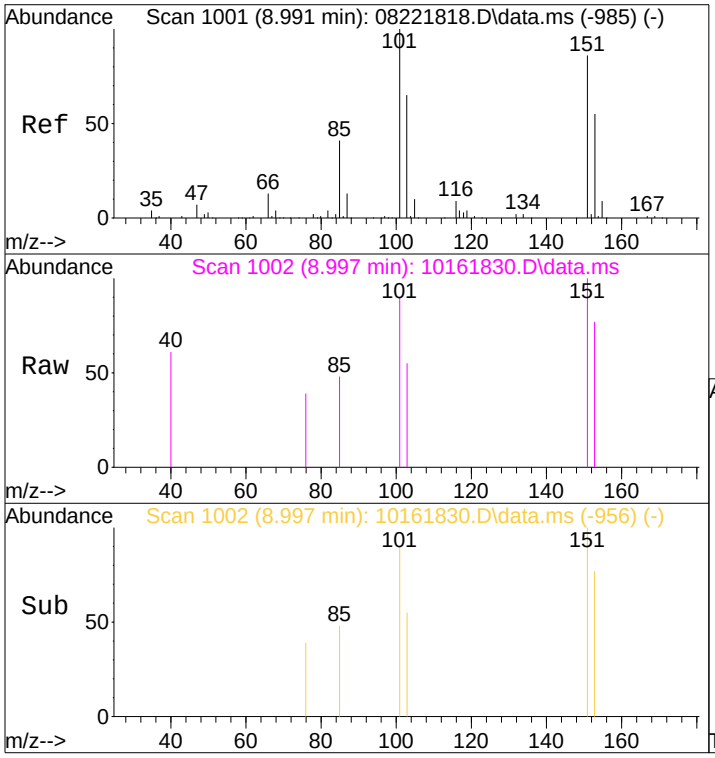


#19
Methylene Chloride
Concen: 0.39 ng
RT: 8.58 min Scan# 926
Delta R.T. 0.017 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 84 Resp: 8922

Ion	Ratio	Lower	Upper
84	100		
49	112.8	90.8	140.8

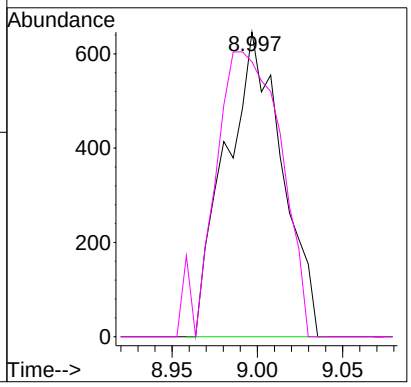


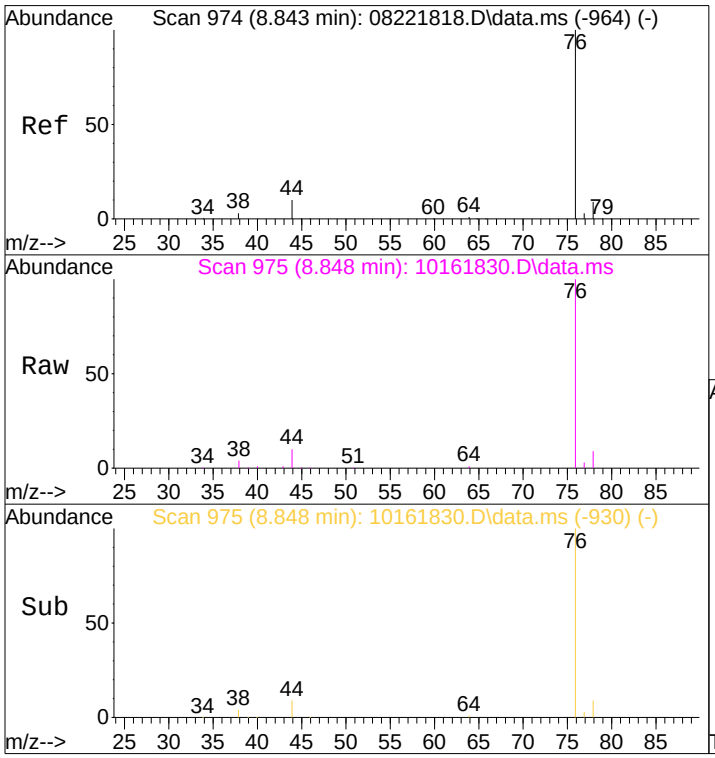


#21
Trichlorotrifluoroethane
Concen: 0.07 ng
RT: 9.00 min Scan# 1002
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:151 Resp: 1484

Ion	Ratio	Lower	Upper
151	100		
101	109.4	97.4	137.4

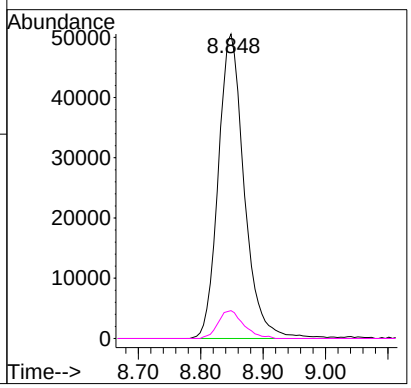


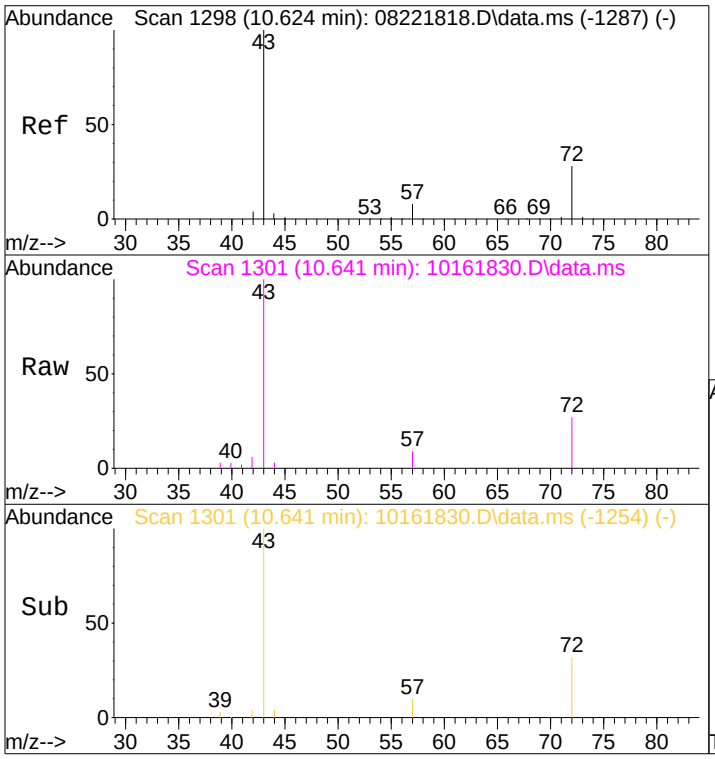


#22
Carbon Disulfide
Concen: 1.72 ng
RT: 8.85 min Scan# 975
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 76 Resp: 145810

Ion	Ratio	Lower	Upper
76	100		
78	9.0	0.0	29.1

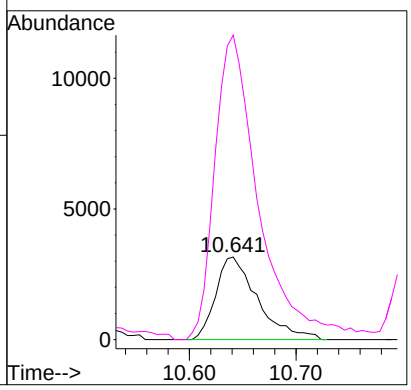


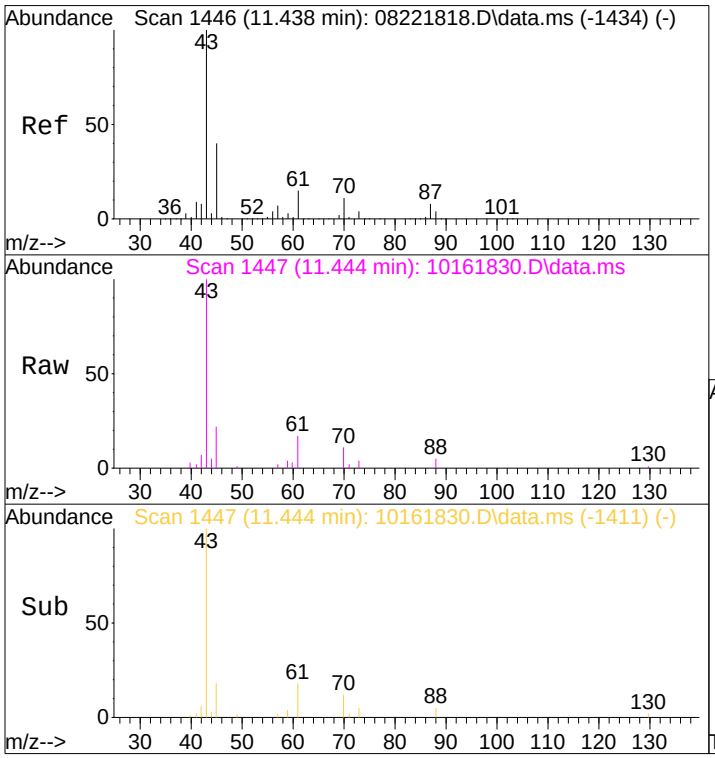


#27
2-Butanone (MEK)
Concen: 0.56 ng
RT: 10.64 min Scan# 1301
Delta R.T. 0.011 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 72 Resp: 8613

Ion	Ratio	Lower	Upper
72	100		
43	390.8	341.9	381.9#

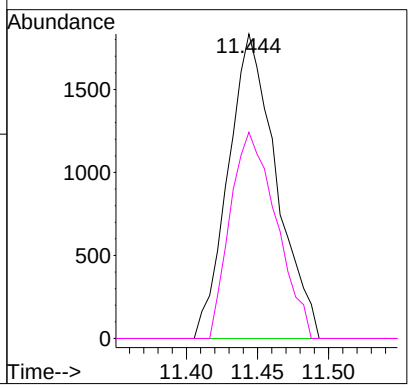


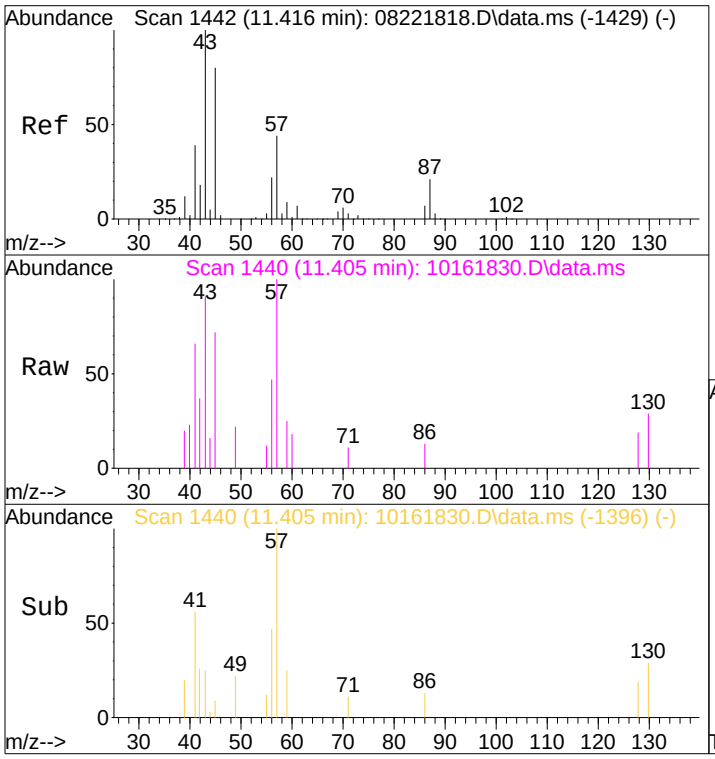


#30
Ethyl Acetate
Concen: 0.55 ng
RT: 11.44 min Scan# 1447
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 61 Resp: 4315

Ion	Ratio	Lower	Upper
61	100		
70	64.8	59.8	99.8

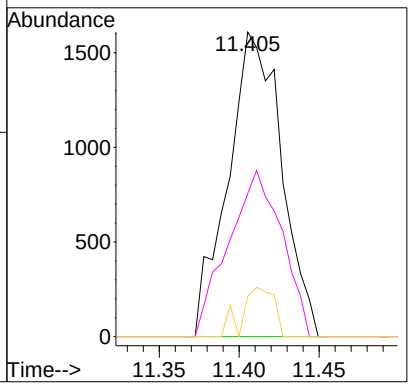


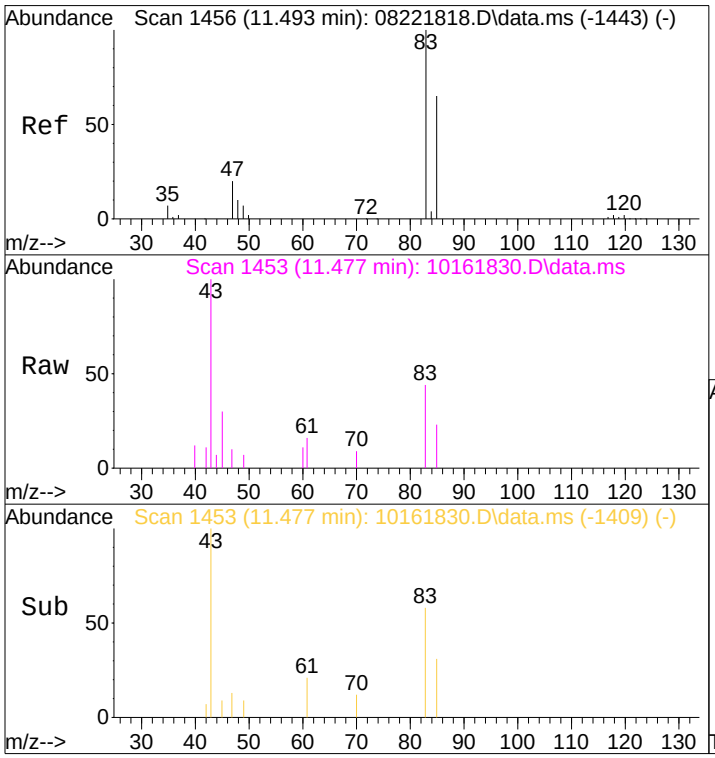


#31
n-Hexane
Concen: 0.11 ng
RT: 11.41 min Scan# 1440
Delta R.T. -0.005 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 57 Resp: 3748

Ion	Ratio	Lower	Upper
57	100		
56	54.4	41.2	61.8
86	9.7	12.4	18.6#

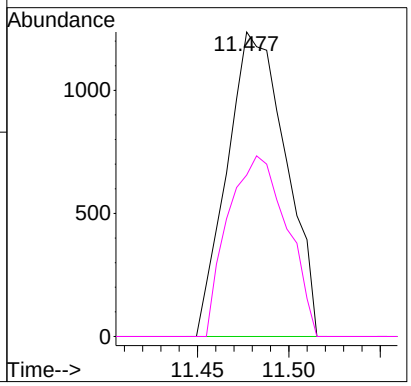


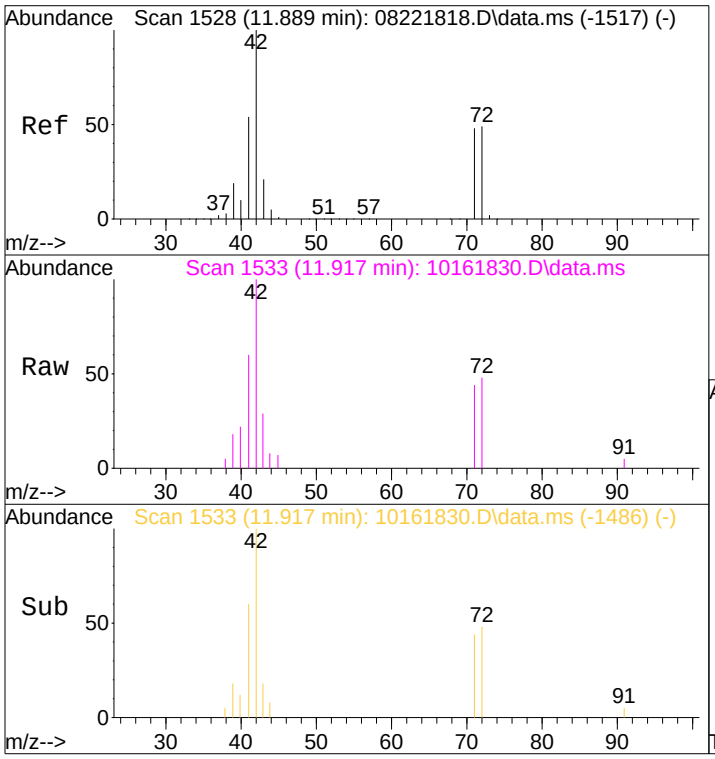


#32
Chloroform
Concen: 0.08 ng
RT: 11.48 min Scan# 1453
Delta R.T. -0.005 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 83 Resp: 2761

Ion	Ratio	Lower	Upper
83	100		
85	59.7	45.0	85.0

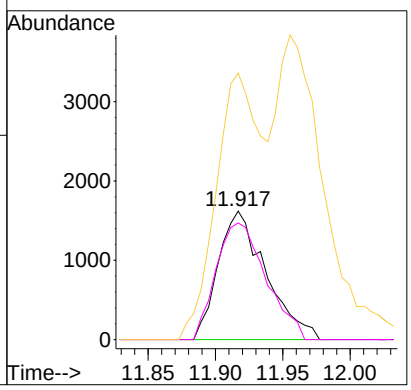


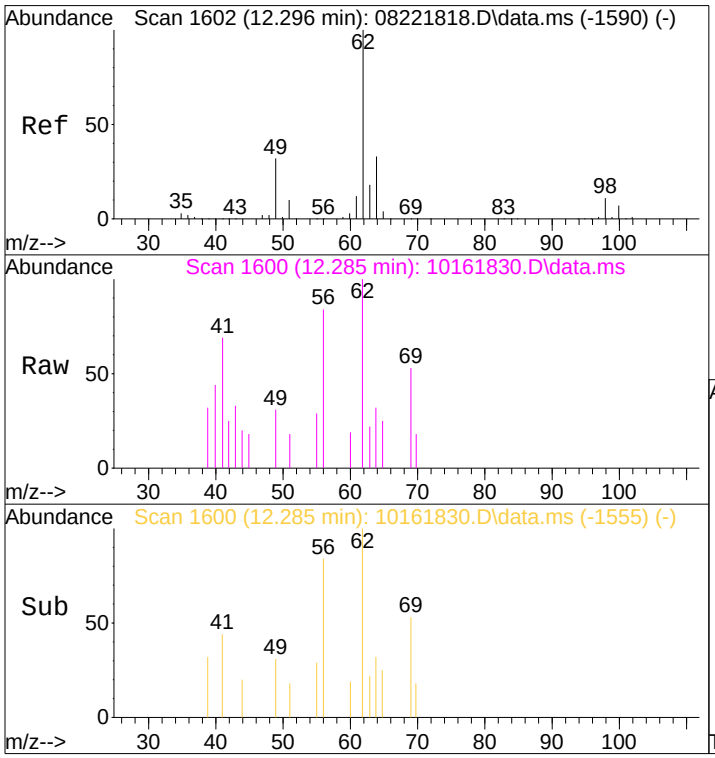


#34
Tetrahydrofuran (THF)
Concen: 0.26 ng
RT: 11.92 min Scan# 1533
Delta R.T. 0.011 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 72 Resp: 4003

Ion	Ratio	Lower	Upper
72	100		
71	94.3	77.8	117.8
42	200.7	185.7	225.7

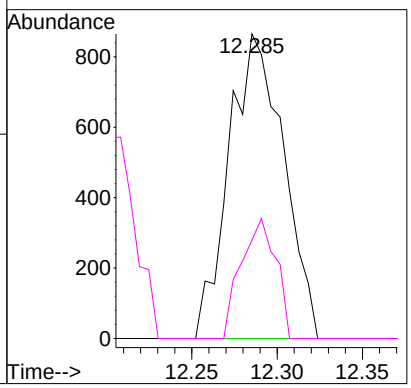


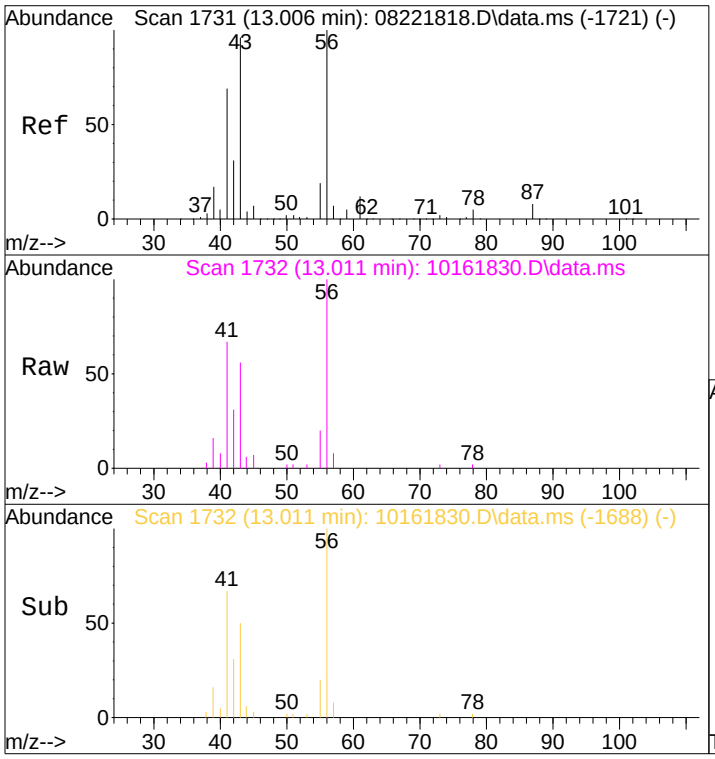


#36
1,2-Dichloroethane
Concen: 0.08 ng
RT: 12.29 min Scan# 1600
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 62 Resp: 1922

Ion	Ratio	Lower	Upper
62	100		
64	25.2	12.6	52.6

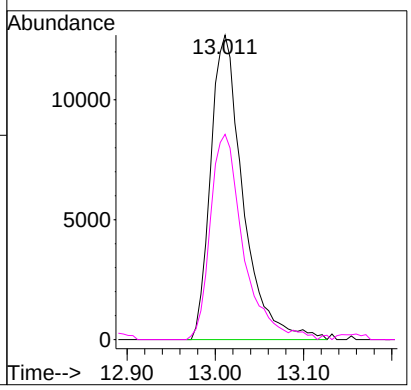


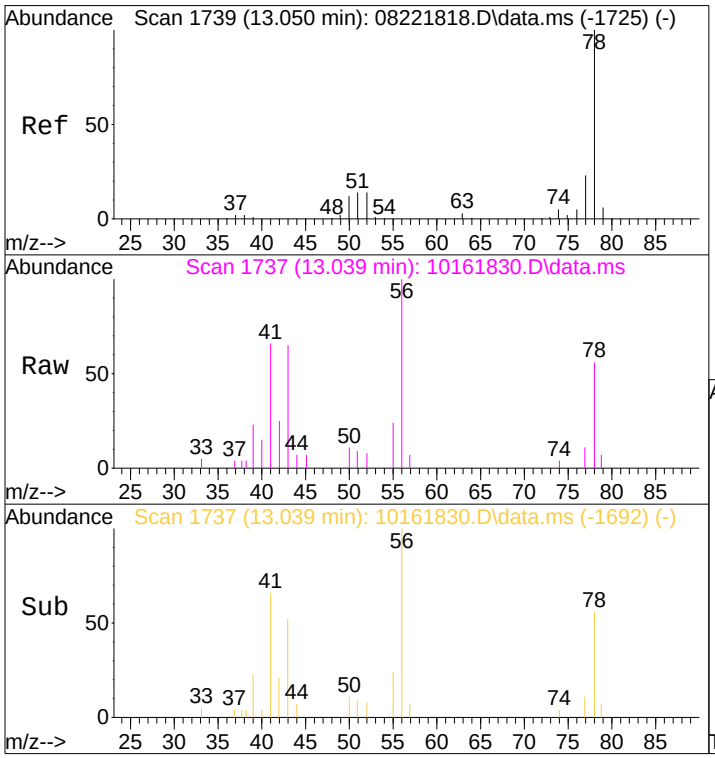


#40
1-Butanol
Concen: 1.56 ng
RT: 13.01 min Scan# 1732
Delta R.T. -0.005 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 56 Resp: 32352

Ion	Ratio	Lower	Upper
56	100		
41	68.8	77.1	117.1#

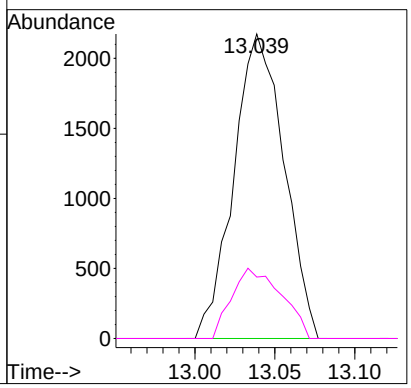


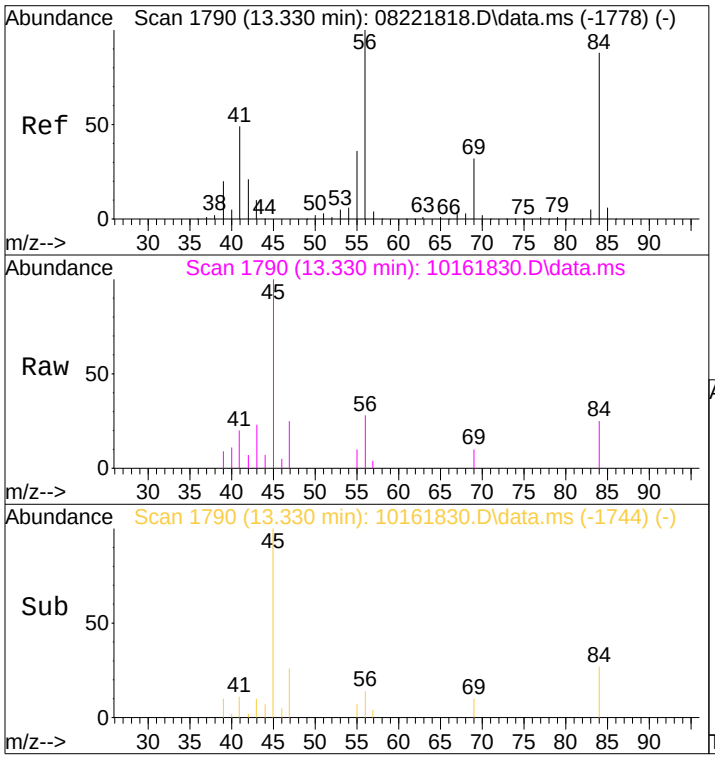


#41
Benzene
Concen: 0.05 ng
RT: 13.04 min Scan# 1737
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 78 Resp: 4766

Ion	Ratio	Lower	Upper
78	100		
77	22.8	3.2	43.2

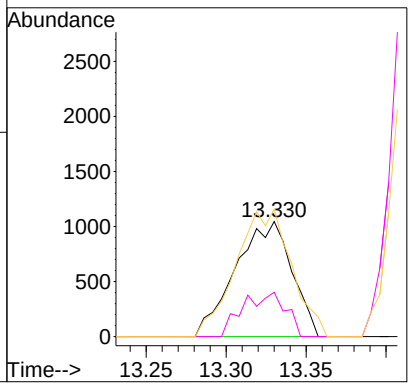


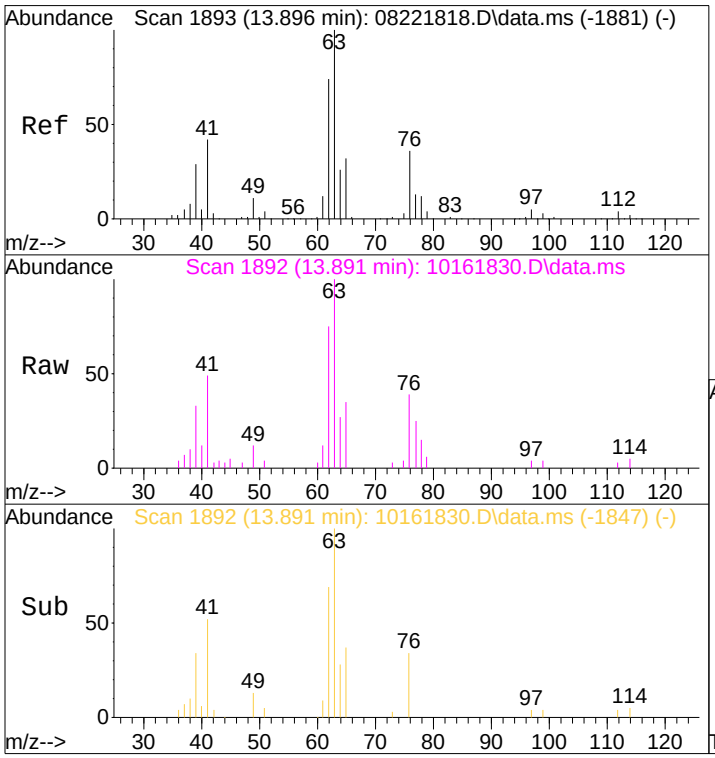


#43
Cyclohexane
Concen: 0.08 ng
RT: 13.33 min Scan# 1790
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 84 Resp: 2562

Ion	Ratio	Lower	Upper
84	100		
69	29.3	16.6	56.6
56	109.1	94.4	134.4

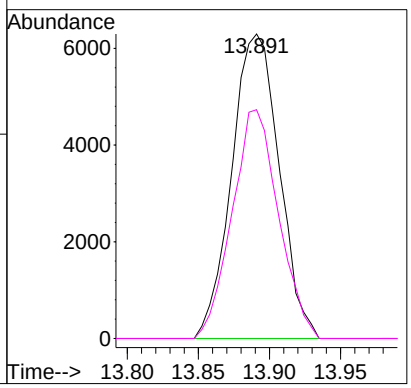


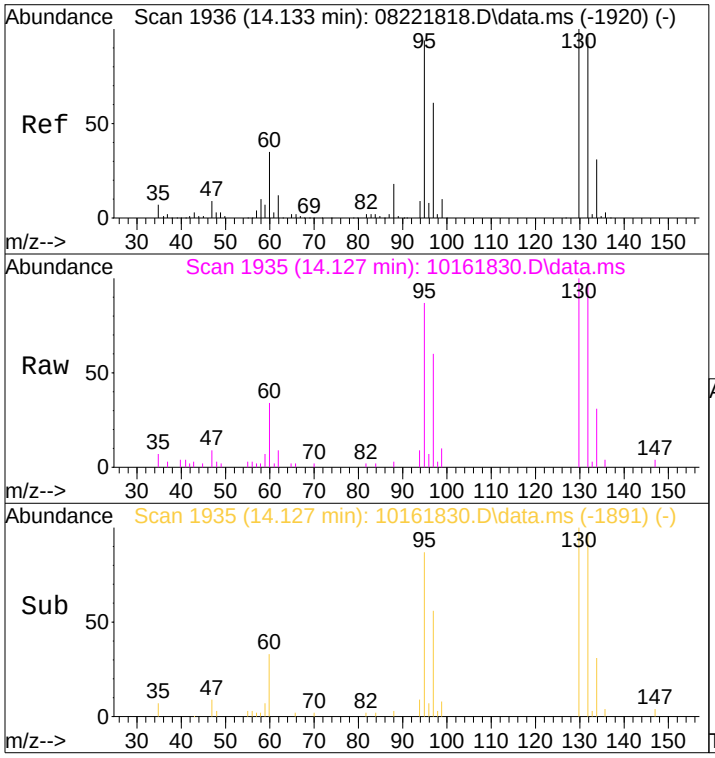


#45
1,2-Dichloropropane
Concen: 0.67 ng
RT: 13.89 min Scan# 1892
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 63 Resp: 14636

Ion	Ratio	Lower	Upper
63	100		
62	73.6	52.7	92.7

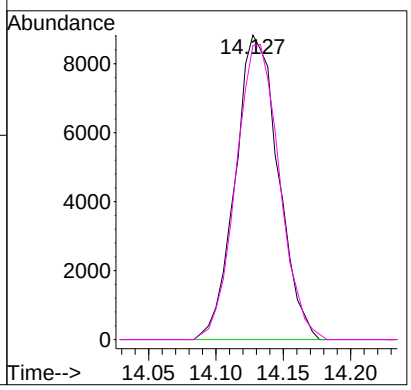


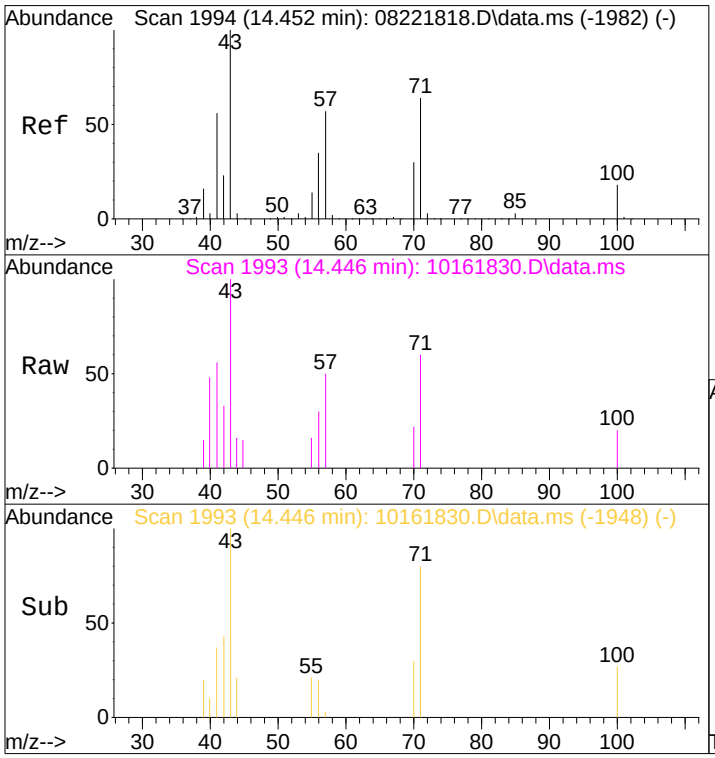


#47
Trichloroethene
Concen: 0.79 ng
RT: 14.13 min Scan# 1935
Delta R.T. -0.005 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:130 Resp: 19609

Ion	Ratio	Lower	Upper
130	100		
132	98.4	76.2	116.2

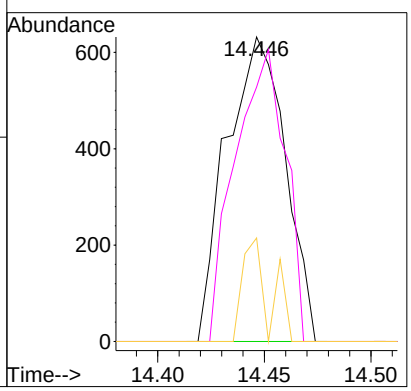


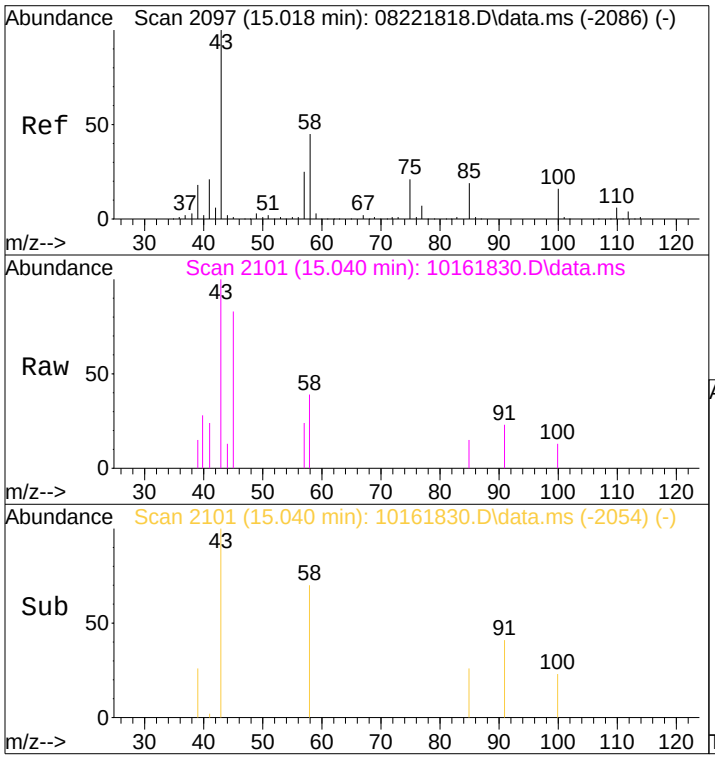


#51
n-Heptane
Concen: 0.06 ng
RT: 14.45 min Scan# 1993
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 71 Resp: 1211

Ion	Ratio	Lower	Upper
71	100		
57	81.8	69.4	109.4
100	15.4	7.6	47.6

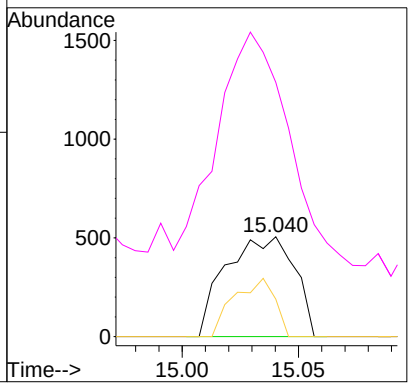


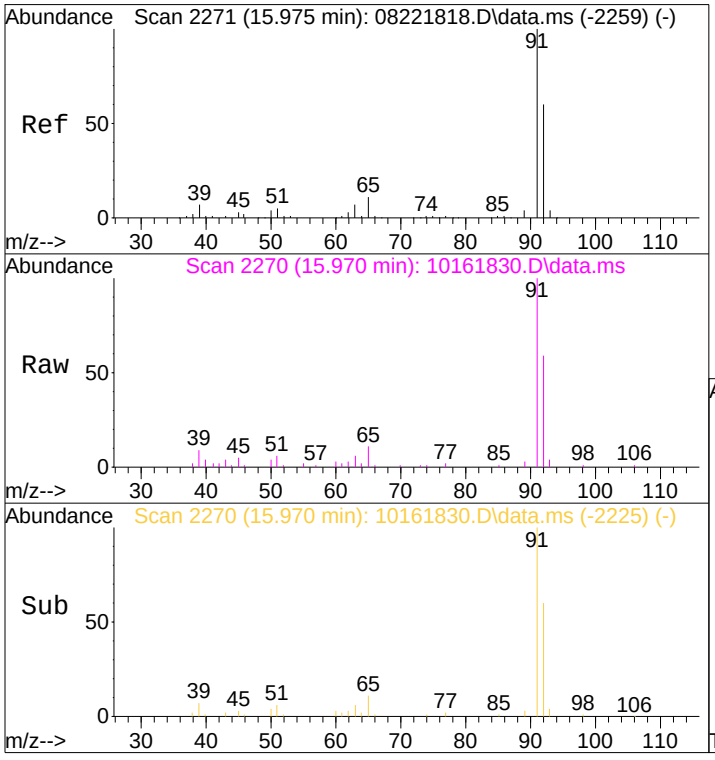


#53
4-Methyl-2-pentanone
Concen: 0.05 ng
RT: 15.04 min Scan# 2101
Delta R.T. 0.011 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 58 Resp: 1038

Ion	Ratio	Lower	Upper
58	100		
43	288.5	180.6	271.0#
85	34.8	36.2	54.2#

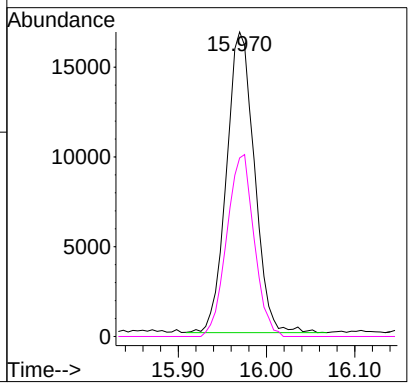


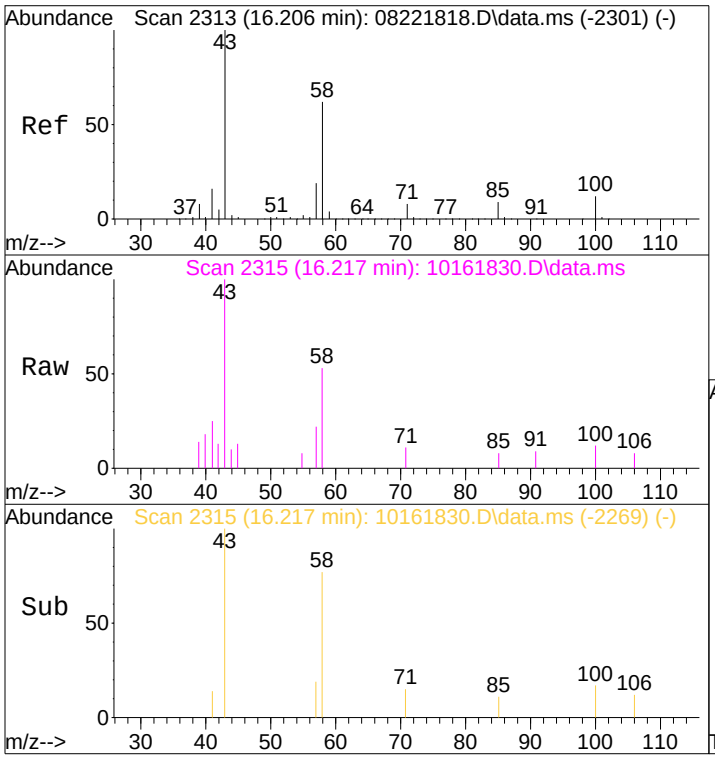


#58
Toluene
Concen: 0.39 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 91 Resp: 36789

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.6	79.6

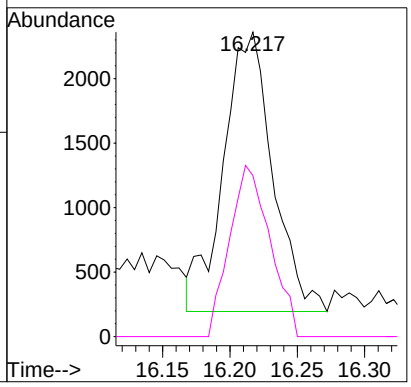


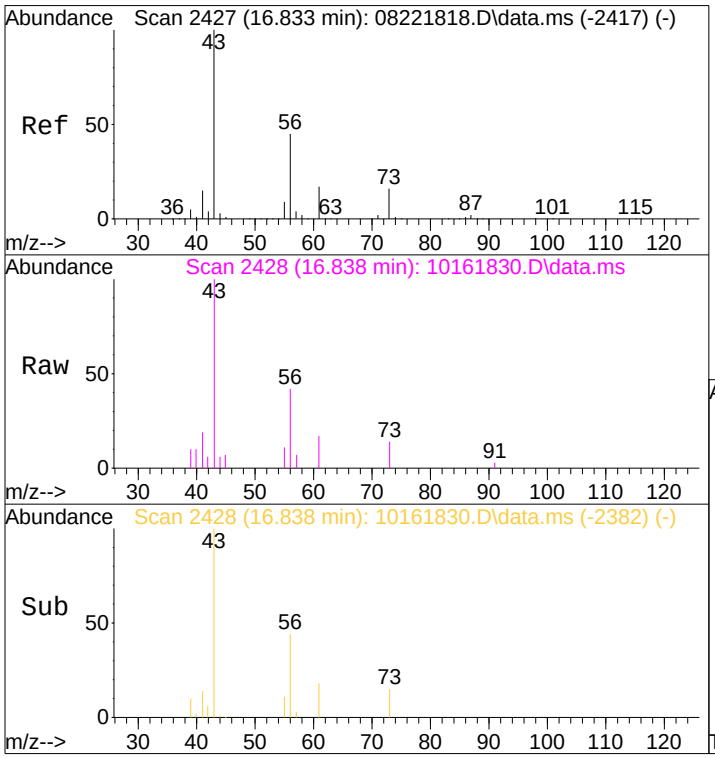


#59
2-Hexanone
Concen: 0.12 ng
RT: 16.22 min Scan# 2315
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 43 Resp: 5517

Ion	Ratio	Lower	Upper
43	100		
58	50.2	41.9	81.9

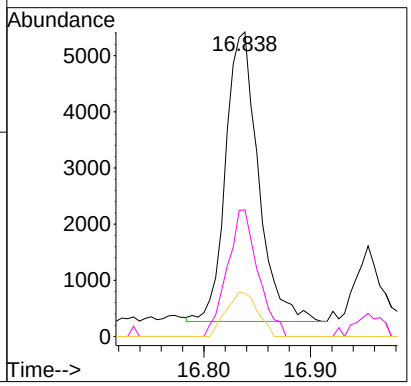


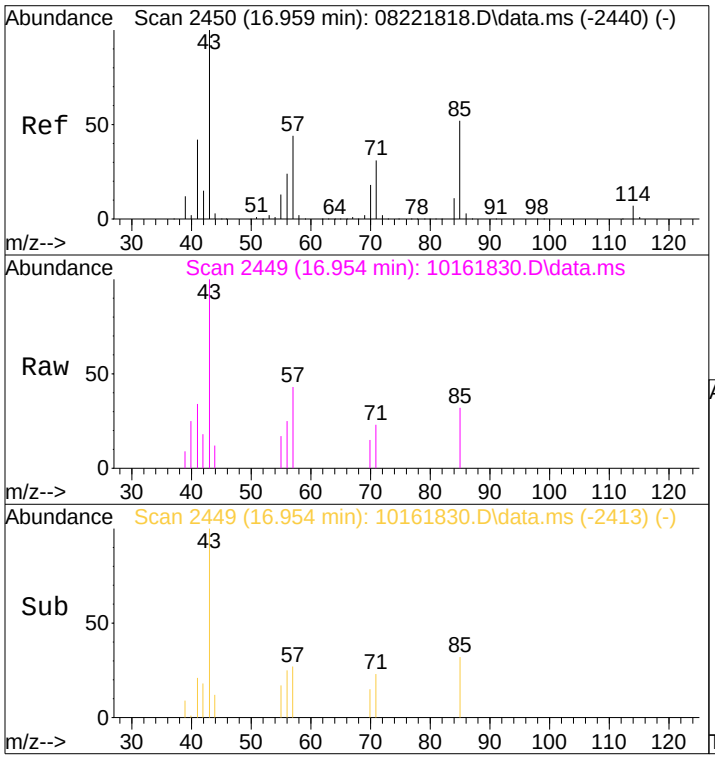


#62
n-Butyl Acetate
Concen: 0.22 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.006 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 43 Resp: 11002

Ion	Ratio	Lower	Upper
43	100		
56	40.9	24.7	64.7
73	14.6	0.0	35.9

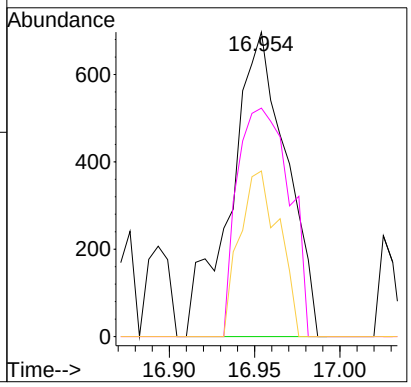


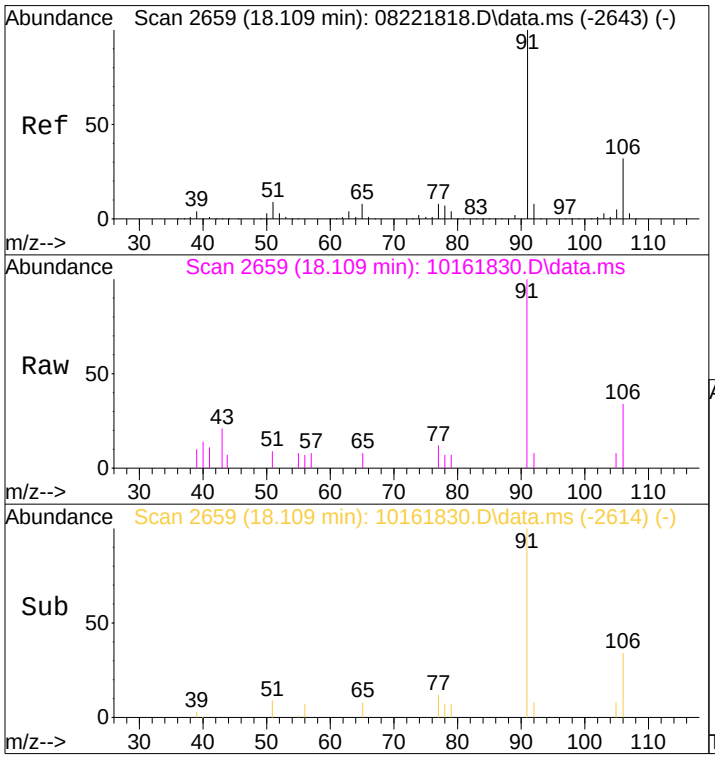


#63
n-Octane
Concen: 0.08 ng
RT: 16.95 min Scan# 2449
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 57 Resp: 1576

Ion	Ratio	Lower	Upper
57	100		
85	70.4	93.2	139.8#
71	38.8	57.0	85.4#

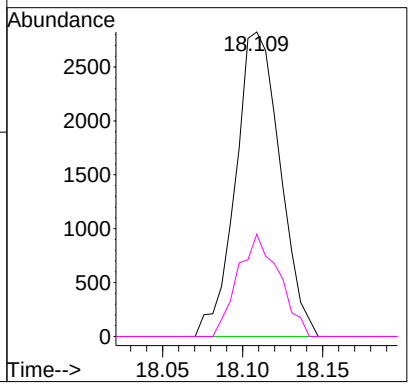


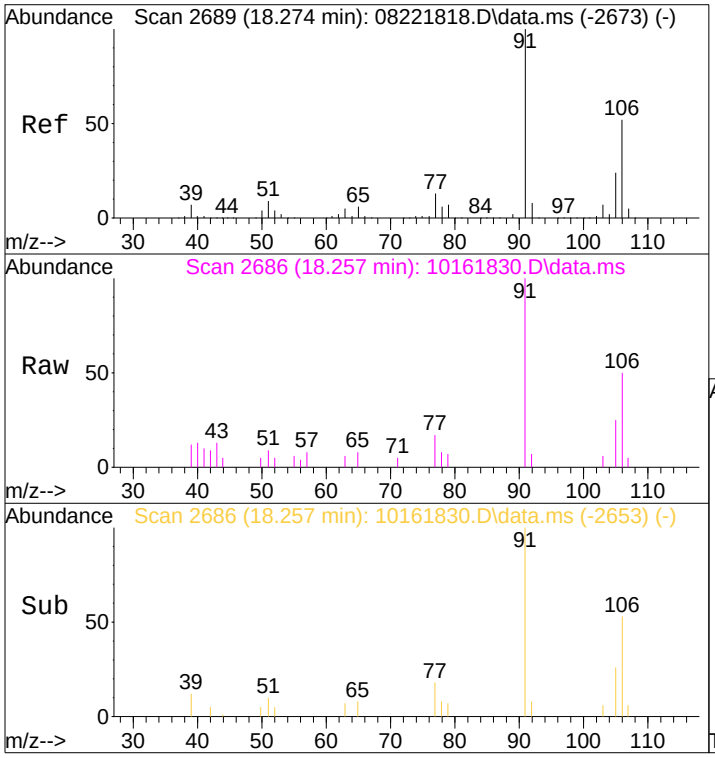


#66
Ethylbenzene
Concen: 0.05 ng
RT: 18.11 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 91 Resp: 5484

Ion	Ratio	Lower	Upper
91	100		
106	31.1	12.4	52.4

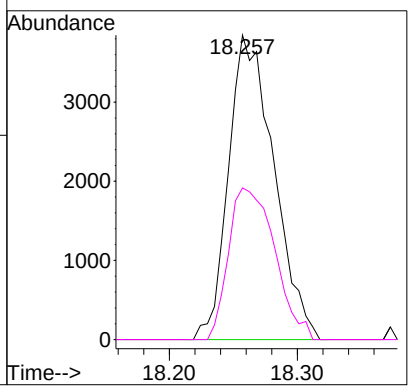


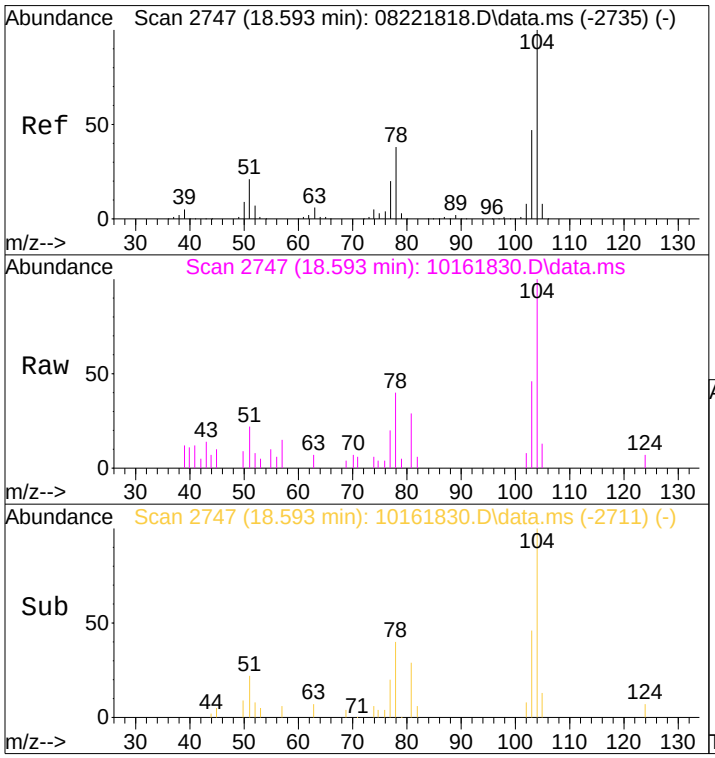


#67
m- & p-Xylenes
Concen: 0.12 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.016 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 91 Resp: 9470

Ion	Ratio	Lower	Upper
91	100		
106	50.6	32.2	72.2

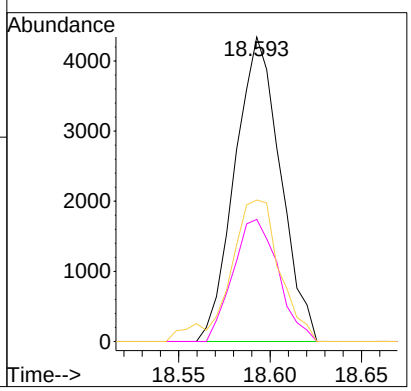


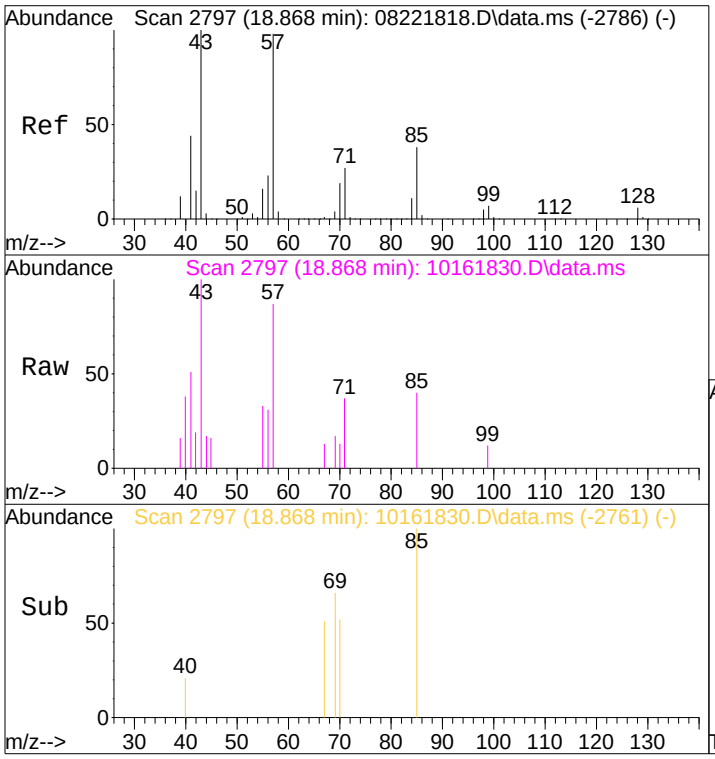


#69
Styrene
Concen: 0.12 ng
RT: 18.59 min Scan# 2747
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:104 Resp: 7527

Ion	Ratio	Lower	Upper
104	100		
78	39.9	18.4	58.4
103	50.7	27.0	67.0

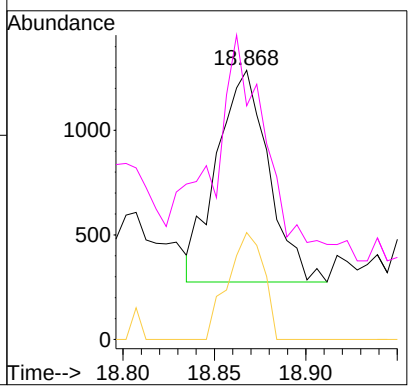


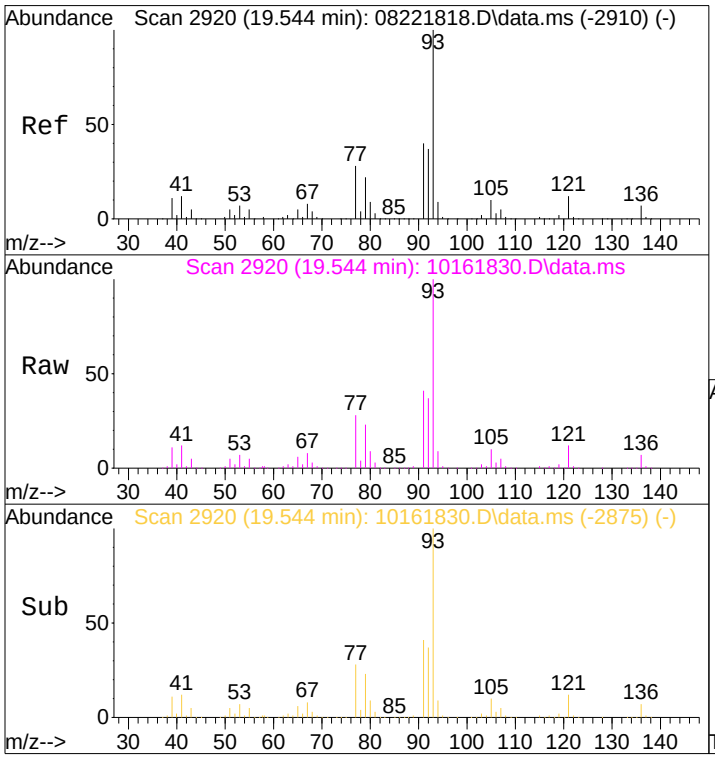


#71
n-Nonane
Concen: 0.05 ng
RT: 18.87 min Scan# 2797
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 43 Resp: 2003

Ion	Ratio	Lower	Upper
43	100		
57	114.9	77.3	117.3
85	34.7	17.7	57.7

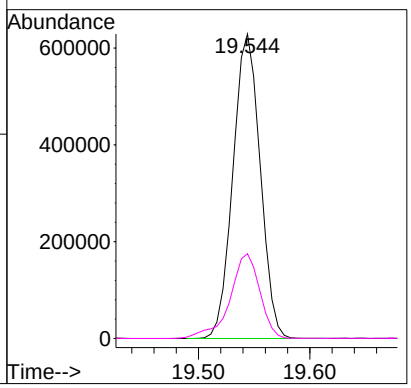


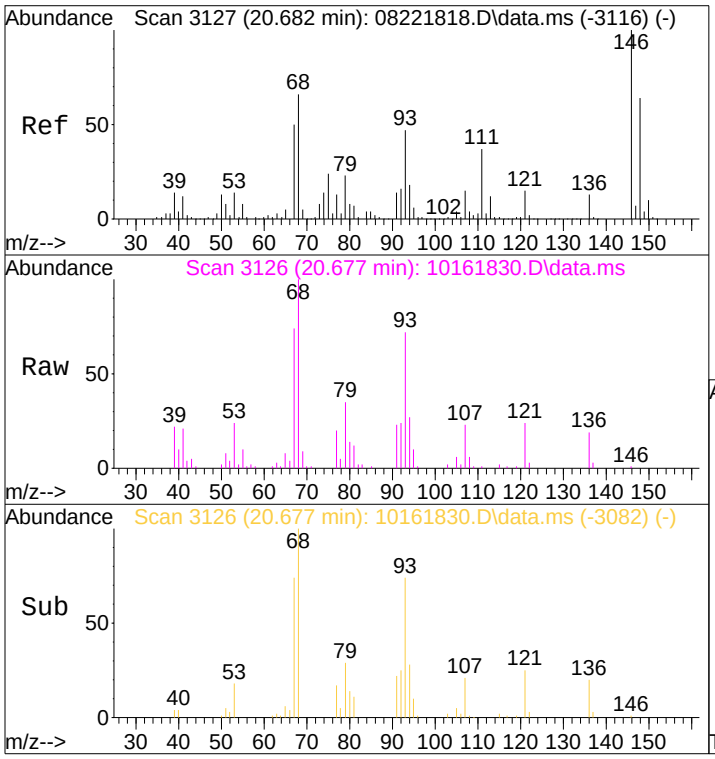


#75
alpha-Pinene
Concen: 20.06 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 93 Resp: 1068351

Ion	Ratio	Lower	Upper
93	100		
77	30.6	8.7	48.7

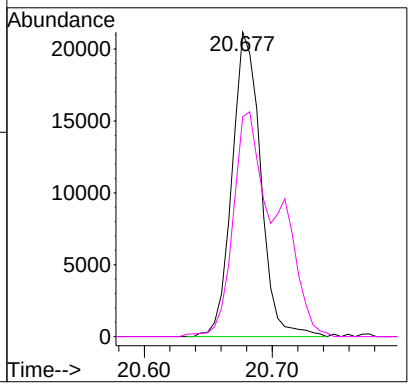


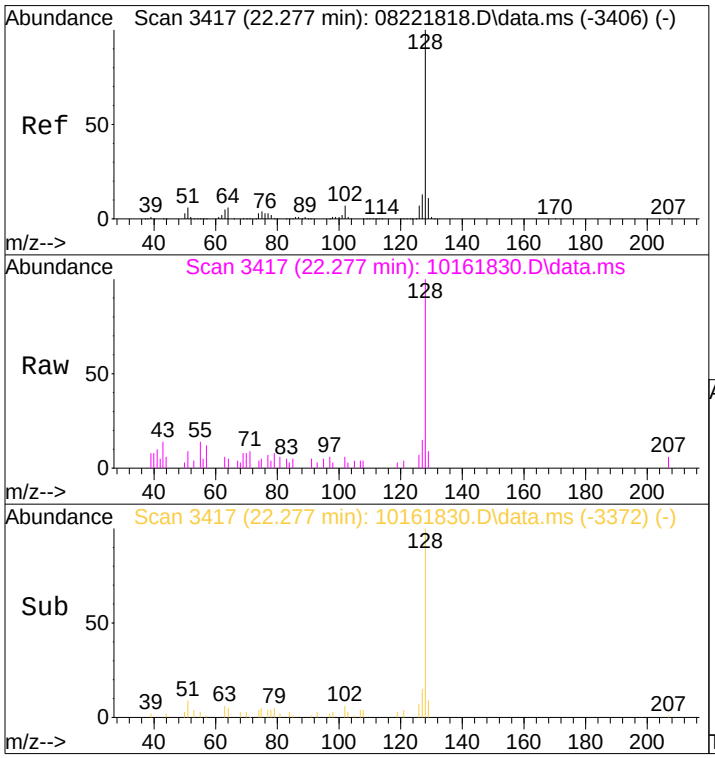


#91
d-Limonene
Concen: 1.07 ng
RT: 20.68 min Scan# 3126
Delta R.T. -0.005 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion: 68 Resp: 32919

Ion	Ratio	Lower	Upper
68	100		
93	113.0	50.5	90.5#

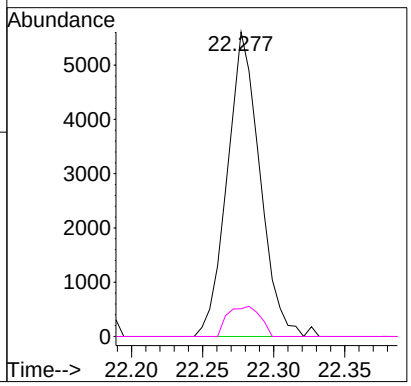




#95
Naphthalene
Concen: 0.10 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161830.D
Acq: 16 Oct 2018 17:59

Tgt Ion:128 Resp: 8993

Ion	Ratio	Lower	Upper
128	100		
129	9.8	0.0	30.9



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 12:01:43 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

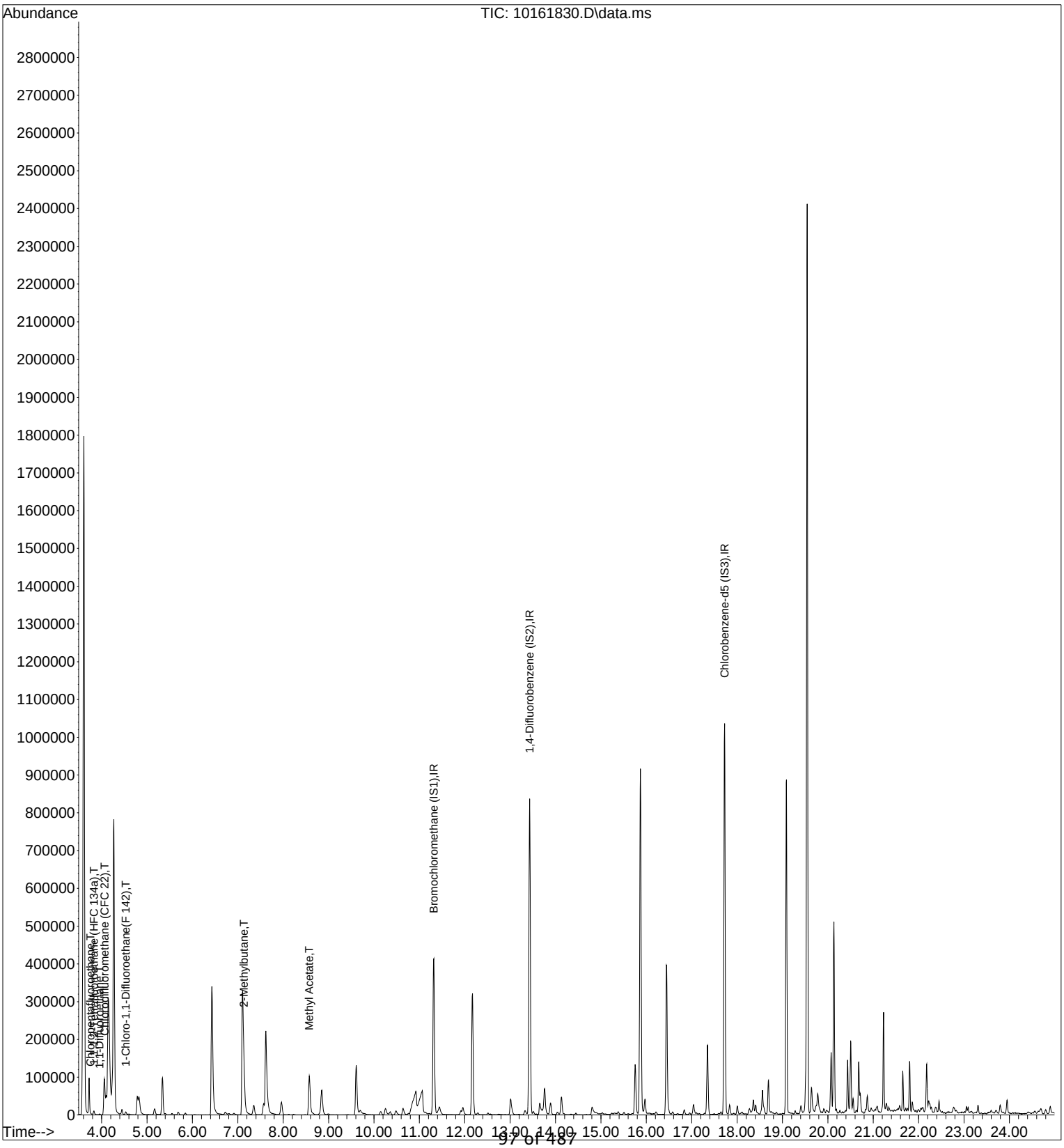
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	209515	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	883085	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	364196	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	2265	0.091	ng	#	35
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	3107	0.179	ng	#	1
4) 1,1-Difluoroethane	3.95	65	1049	0.055	ng		97
5) Chlorodifluoromethane ...	4.06	67	1061	0.203	ng	#	84
6) 1-Chloro-1,1-Difluoroe...	4.53	65	4837	0.152	ng	#	92
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	25051	1.098	ng	#	39
11) Methyl Acetate	8.57	43	162522	3.246	ng		97
12) 2-Methylpentane	10.36	71	906	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.17	84	50	N.D.			
17) 2,3-Dimethylpentane	13.59	56	275	N.D.			
18) Dibromomethane	13.85	174	319	N.D.			
20) Methyl Cyclohexane	15.11	55	431	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D. d			
22) 1,1,1,2-Tetrachloroethane	17.71	131	122	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.79	75	888	N.D.			
25) Bromobenzene	19.30	77	58	N.D.			
26) 2-Chlorotoluene	19.64	91	2510	N.D.			
27) 4-Chlorotoluene	19.64	91	2689	N.D.			
28) Indan	20.74	117	893	N.D.			
29) Indene	20.82	115	194	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	666	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	855	N.D.			
32) 1,2,3,5-Tetramethylben...	22.00	119	200	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

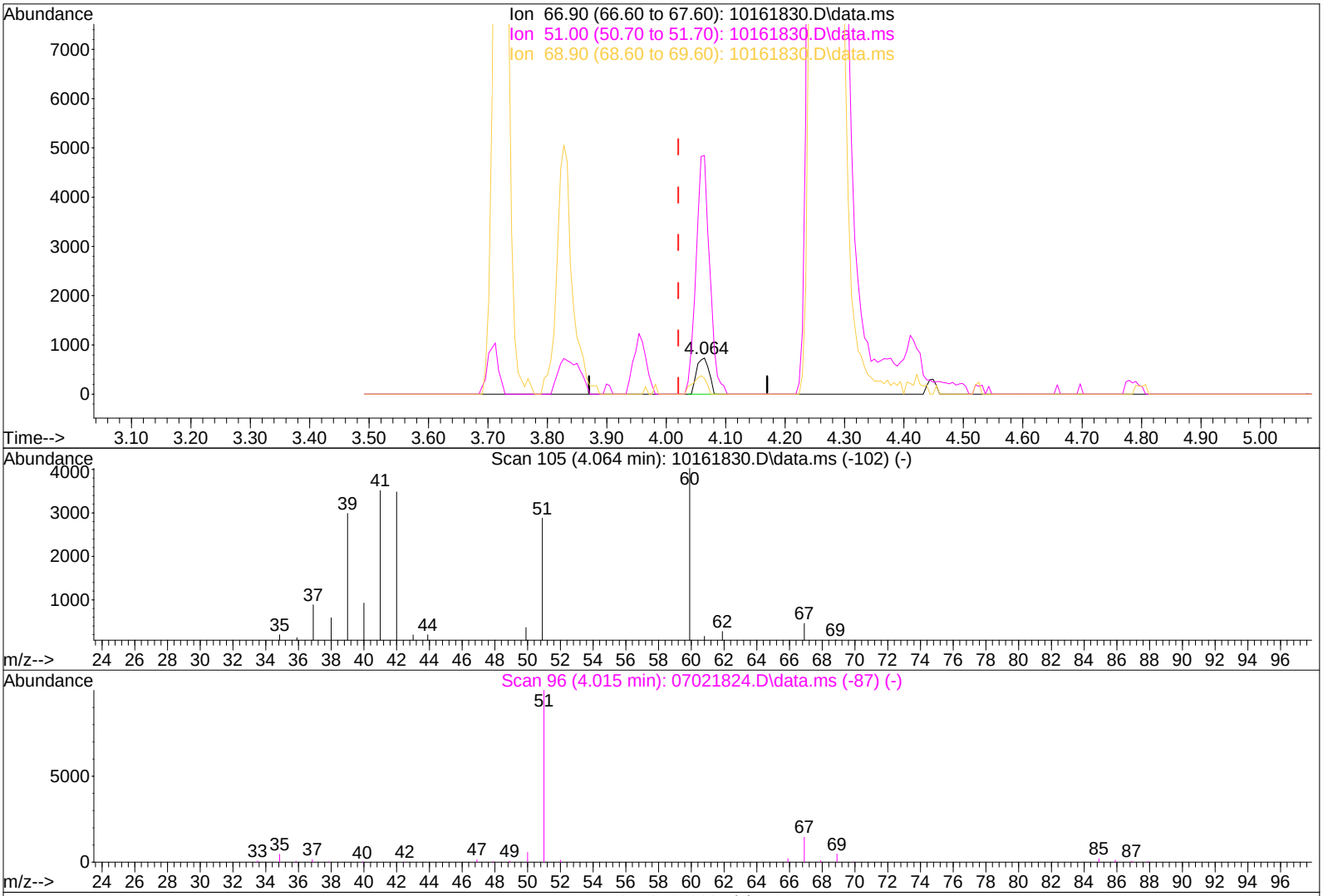
Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 12:01:43 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2018_10\16\10161830.D
Acq On : 16 Oct 2018 17:59 Operator: LH/TD
Sample : P1805476-002 (1000mL)
Misc : S31-09141801
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 17 11:53:34 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10161830.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.064min (+0.044) 0.20ng

response 1061

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	731.10
68.90	32.10	56.74#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:22:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	205232	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	859926	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	355894	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	254824	12.550	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.40%				
57) Toluene-d8 (SS2)	15.87	98	755908	13.885	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.04%				
73) Bromofluorobenzene (SS3)	19.09	174	331280	14.972	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.76%				
Target Compounds							Qvalue
2) Propene	4.05	42	47808	2.046	ng	#	84
3) Dichlorodifluoromethan...	4.22	85	54428	1.426	ng		99
4) Chloromethane	4.52	50	3022	0.106	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1882	0.085	ng		91
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.16	54	204	N.D.			
8) Bromomethane	5.71	94	295	N.D.			
9) Chloroethane	6.04	64	975	0.061	ng	#	43
10) Ethanol	6.42	45	491580	34.409	ng		100
11) Acetonitrile	6.71	41	7178	0.189	ng	#	53
12) Acrolein	6.91	56	8710	0.631	ng		100
13) Acetone	7.09	58	265214	16.519	ng		90
14) Trichlorofluoromethane	7.35	101	26445	0.800	ng		97
15) 2-Propanol (Isopropanol)	7.61	45	418051	8.472	ng		99
16) Acrylonitrile	0.00	53	0	N.D. d			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	8.57	84	6654	0.294	ng		97
20) 3-Chloro-1-propene (Al...	8.64	41	721	N.D.			
21) Trichlorotrifluoroethane	8.99	151	1484	0.074	ng		95
22) Carbon Disulfide	8.85	76	95416	1.147	ng		99
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.25	73	247	N.D.			
26) Vinyl Acetate	10.34	86	6093	1.312	ng	#	20
27) 2-Butanone (MEK)	10.63	72	14387	0.963	ng		97
28) cis-1,2-Dichloroethene	11.03	61	115	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.45	61	5004	0.653	ng		91
31) n-Hexane	11.41	57	4715	0.137	ng	#	94
32) Chloroform	11.48	83	1709	N.D.			
34) Tetrahydrofuran (THF)	11.92	72	2456	0.166	ng	#	1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	2002	0.082	ng		98
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.01	56	48081	2.380	ng	#	71
41) Benzene	13.04	78	3393	N.D.			
42) Carbon Tetrachloride	13.19	117	1322	0.050	ng		88
43) Cyclohexane	13.32	84	3888	0.119	ng	#	79
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	13.89	63	15825	0.743	ng		96
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	4431	0.182	ng		95
48) 1,4-Dioxane	14.13	88	651	N.D.			
49) 2,2,4-Trimethylpentane...	14.19	57	2571	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:22:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

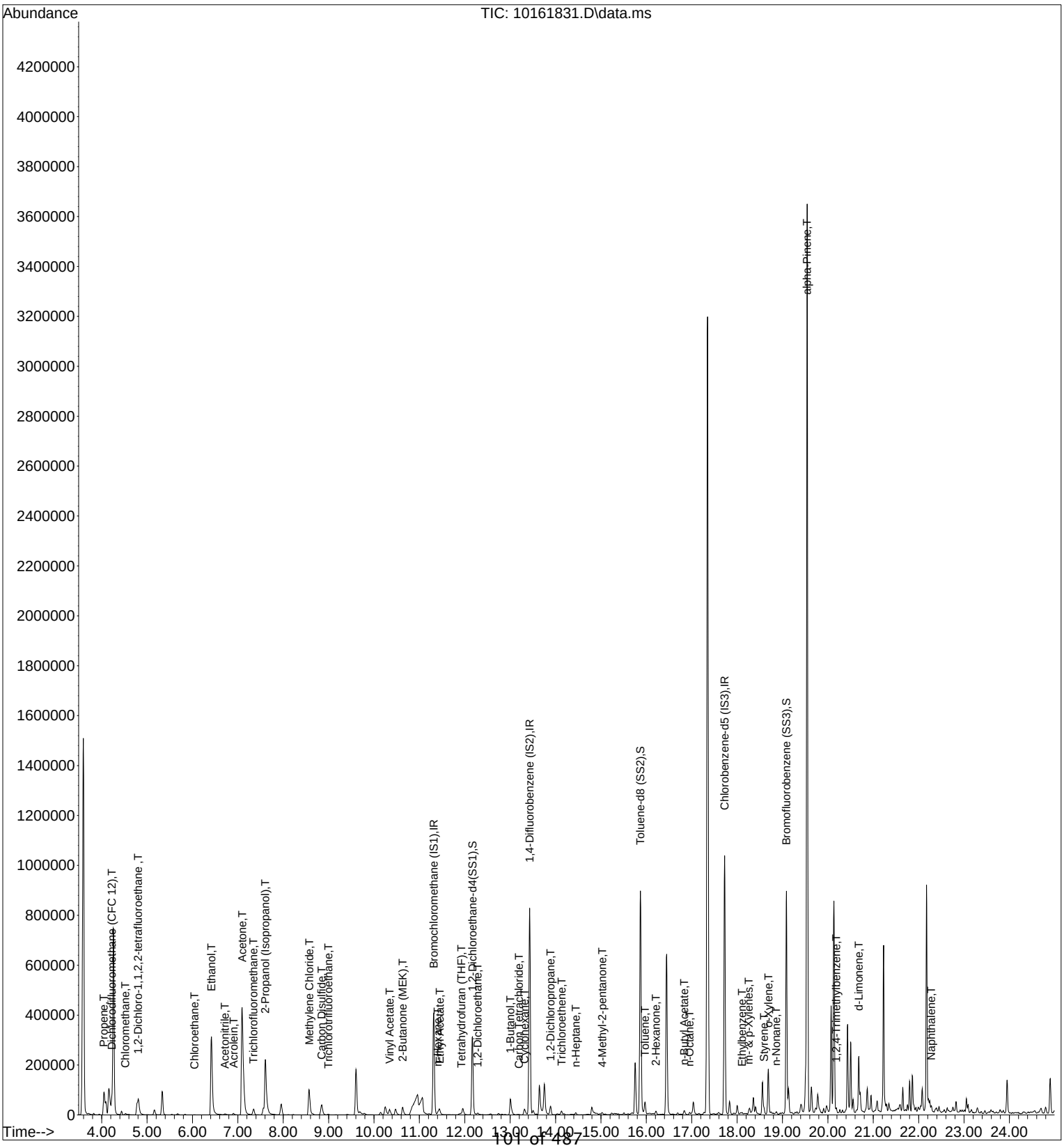
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	408	N.D.		
51) n-Heptane	14.45	71	2255	0.107 ng		91
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	2119	0.106 ng	#	32
54) trans-1,3-Dichloropropene	15.50	75	114	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	45961	0.493 ng		98
59) 2-Hexanone	16.21	43	11007	0.249 ng		95
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	14489	0.294 ng		98
63) n-Octane	16.95	57	2242	0.123 ng		85
64) Tetrachloroethene	17.11	166	160	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.11	91	6430	0.062 ng		99
67) m- & p-Xylenes	18.26	91	11143	0.146 ng		97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	11386	0.184 ng		96
70) o-Xylene	18.69	91	4720	0.061 ng		90
71) n-Nonane	18.86	43	4481	0.114 ng		93
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
74) Cumene	19.20	105	836	N.D.		
75) alpha-Pinene	19.54	93	1590900	30.575 ng		94
76) n-Propylbenzene	19.64	91	3075	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	4386	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	1667	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D. d		
81) 2-Ethyltoluene	19.99	105	2198	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	9076	0.114 ng		89
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.39	91	2151	N.D.		
85) 1,3-Dichlorobenzene	20.39	146	557	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	557	N.D.		
87) sec-Butylbenzene	20.43	105	3421	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	3615	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	55071	1.829 ng	#	55
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.17	180	163	N.D.		
95) Naphthalene	22.28	128	15570	0.170 ng		98
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1594	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:22:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:22:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

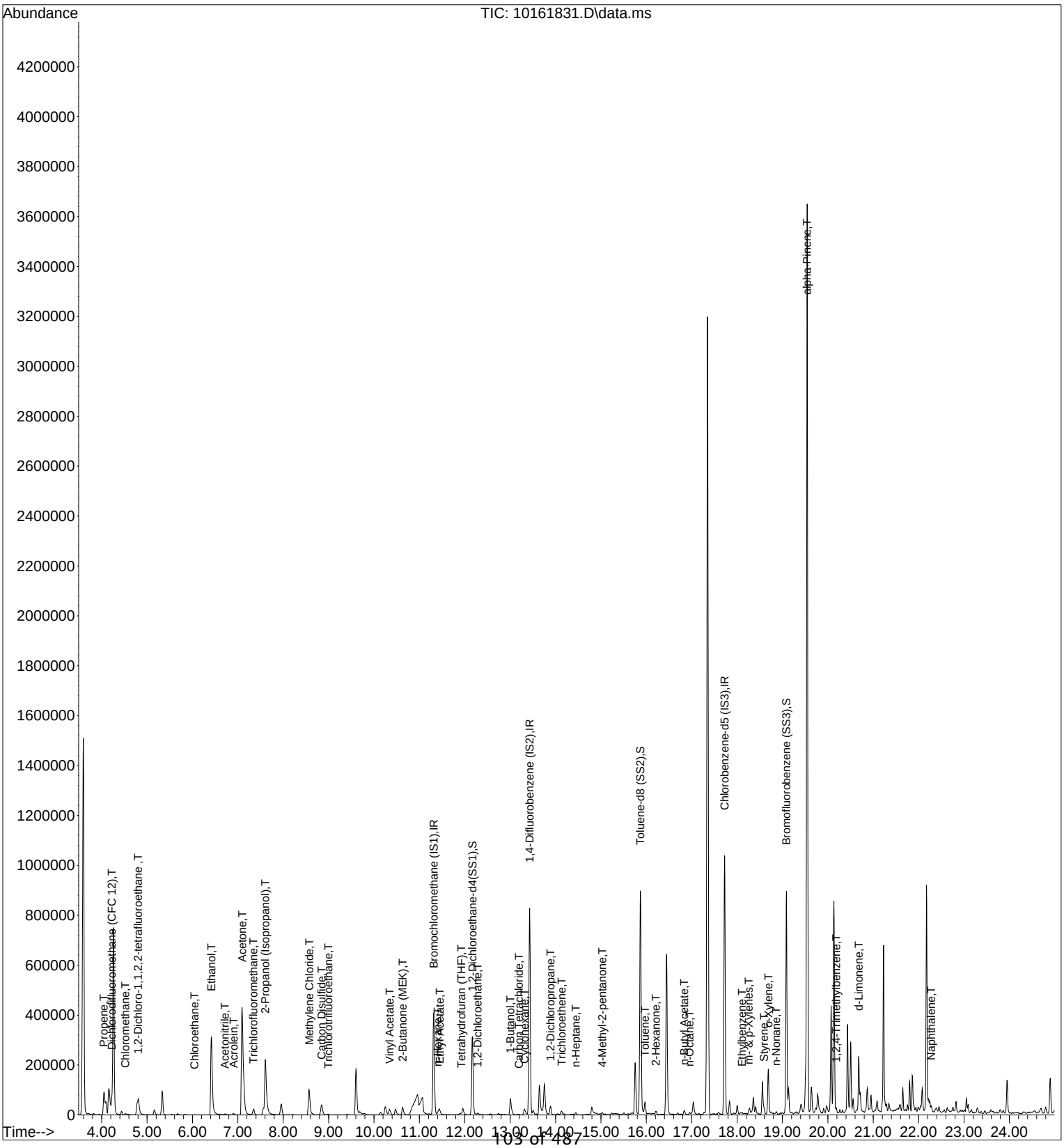
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	205232	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	859926	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	355894	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	254824	12.550	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.40%				
57) Toluene-d8 (SS2)	15.87	98	755908	13.885	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.04%				
73) Bromofluorobenzene (SS3)	19.09	174	331280	14.972	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.76%				
Target Compounds							Qvalue
2) Propene	4.05	42	47808	2.046	ng	#	84
3) Dichlorodifluoromethan...	4.22	85	54428	1.426	ng		99
4) Chloromethane	4.52	50	3022	0.106	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1882	0.085	ng		91
9) Chloroethane	6.04	64	975	0.061	ng	#	43
10) Ethanol	6.42	45	491580	34.409	ng		100
11) Acetonitrile	6.71	41	7178	0.189	ng	#	53
12) Acrolein	6.91	56	8710	0.631	ng		100
13) Acetone	7.09	58	265214	16.519	ng		90
14) Trichlorofluoromethane	7.35	101	26445	0.800	ng		97
15) 2-Propanol (Isopropanol)	7.61	45	418051	8.472	ng		99
19) Methylene Chloride	8.57	84	6654	0.294	ng		97
21) Trichlorotrifluoroethane	8.99	151	1484	0.074	ng		95
22) Carbon Disulfide	8.85	76	95416	1.147	ng		99
26) Vinyl Acetate	10.34	86	6093	1.312	ng	#	20
27) 2-Butanone (MEK)	10.63	72	14387	0.963	ng		97
30) Ethyl Acetate	11.45	61	5004	0.653	ng		91
31) n-Hexane	11.41	57	4715	0.137	ng	#	94
34) Tetrahydrofuran (THF)	11.92	72	2456	0.166	ng	#	1
36) 1,2-Dichloroethane	12.29	62	2002	0.082	ng		98
40) 1-Butanol	13.01	56	48081	2.380	ng	#	71
42) Carbon Tetrachloride	13.19	117	1322	0.050	ng		88
43) Cyclohexane	13.32	84	3888	0.119	ng	#	79
45) 1,2-Dichloropropane	13.89	63	15825	0.743	ng		96
47) Trichloroethene	14.13	130	4431	0.182	ng		95
51) n-Heptane	14.45	71	2255	0.107	ng		91
53) 4-Methyl-2-pentanone	15.03	58	2119	0.106	ng	#	32
58) Toluene	15.97	91	45961	0.493	ng		98
59) 2-Hexanone	16.21	43	11007	0.249	ng		95
62) n-Butyl Acetate	16.84	43	14489	0.294	ng		98
63) n-Octane	16.95	57	2242	0.123	ng		85
66) Ethylbenzene	18.11	91	6430	0.062	ng		99
67) m- & p-Xylenes	18.26	91	11143	0.146	ng		97
69) Styrene	18.59	104	11386	0.184	ng		96
70) o-Xylene	18.69	91	4720	0.061	ng		90
71) n-Nonane	18.86	43	4481	0.114	ng		93
75) alpha-Pinene	19.54	93	1590900	30.575	ng		94
82) 1,2,4-Trimethylbenzene	20.19	105	9076	0.114	ng		89
91) d-Limonene	20.68	68	55071	1.829	ng	#	55
95) Naphthalene	22.28	128	15570	0.170	ng		98

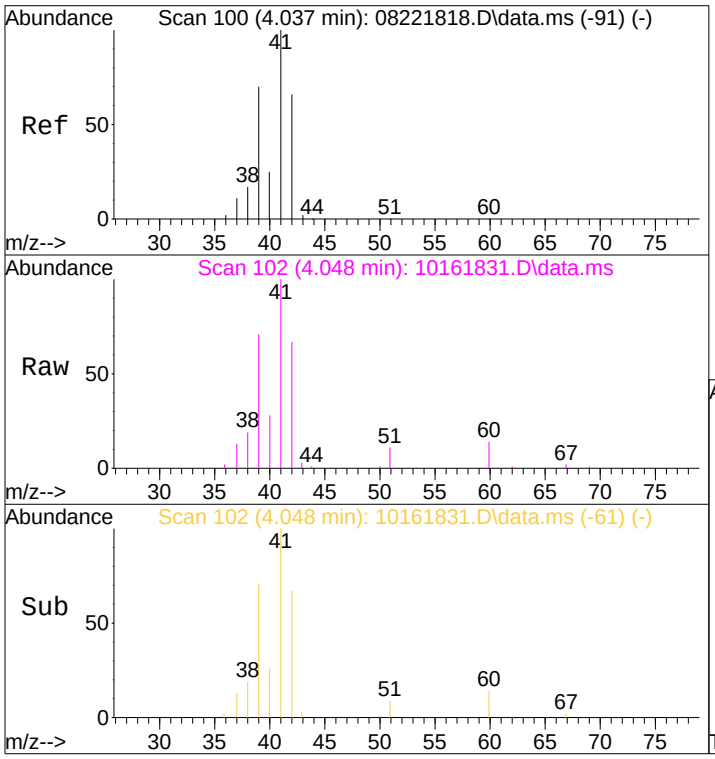
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:22:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

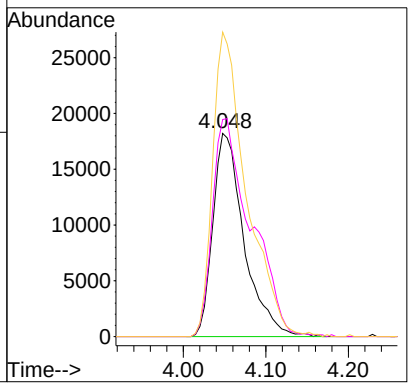


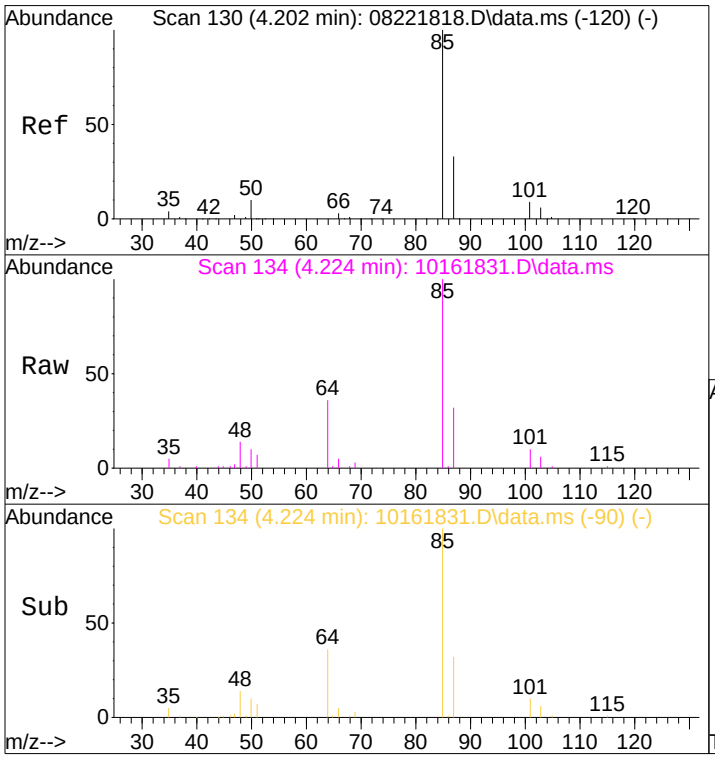


#2
Propene
Concen: 2.05 ng
RT: 4.05 min Scan# 102
Delta R.T. -0.022 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 42 Resp: 47808

Ion	Ratio	Lower	Upper
42	100		
39	132.9	85.6	125.6#
41	163.0	131.4	171.4

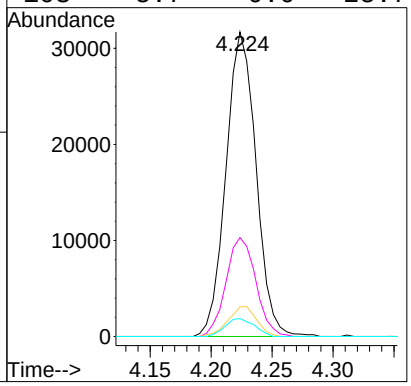


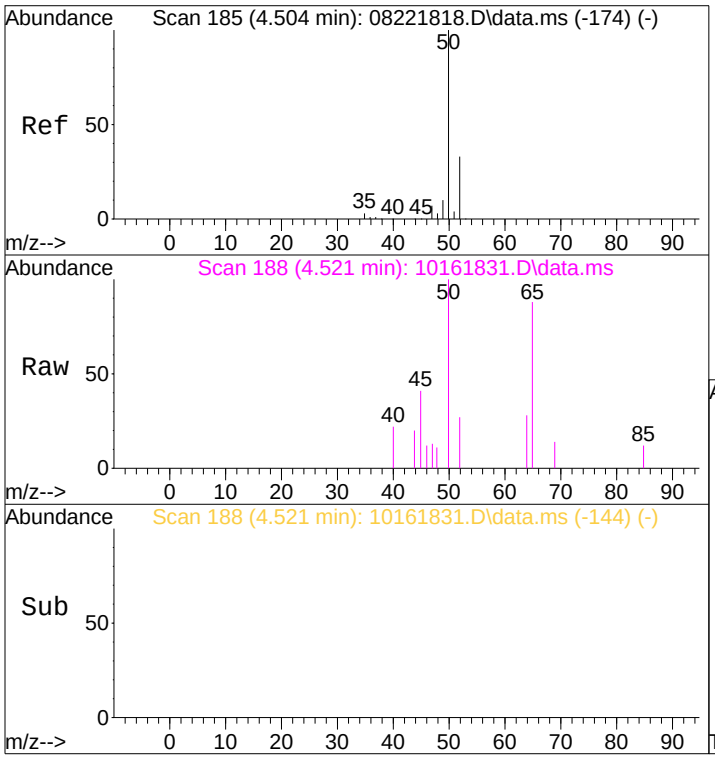


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.43 ng
RT: 4.22 min Scan# 134
Delta R.T. -0.006 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 85 Resp: 54428

Ion	Ratio	Lower	Upper
85	100		
87	32.2	12.6	52.6
101	9.3	0.0	28.8
103	5.7	0.0	25.7

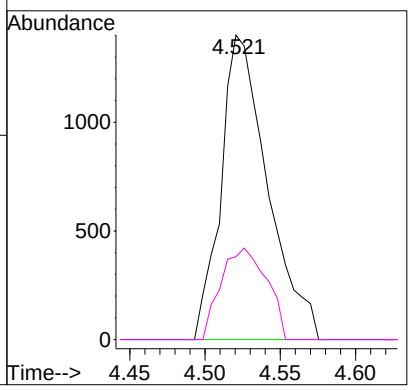


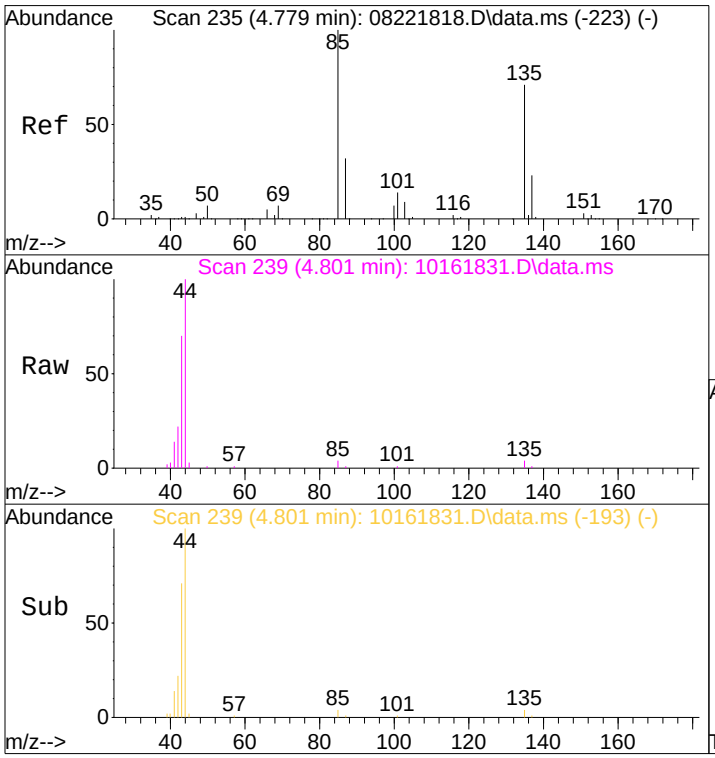


#4
Chloromethane
Concen: 0.11 ng
RT: 4.52 min Scan# 188
Delta R.T. -0.005 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 50 Resp: 3022

Ion	Ratio	Lower	Upper
50	100		
52	29.5	13.2	53.2

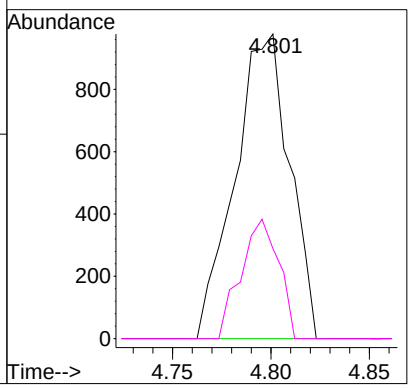


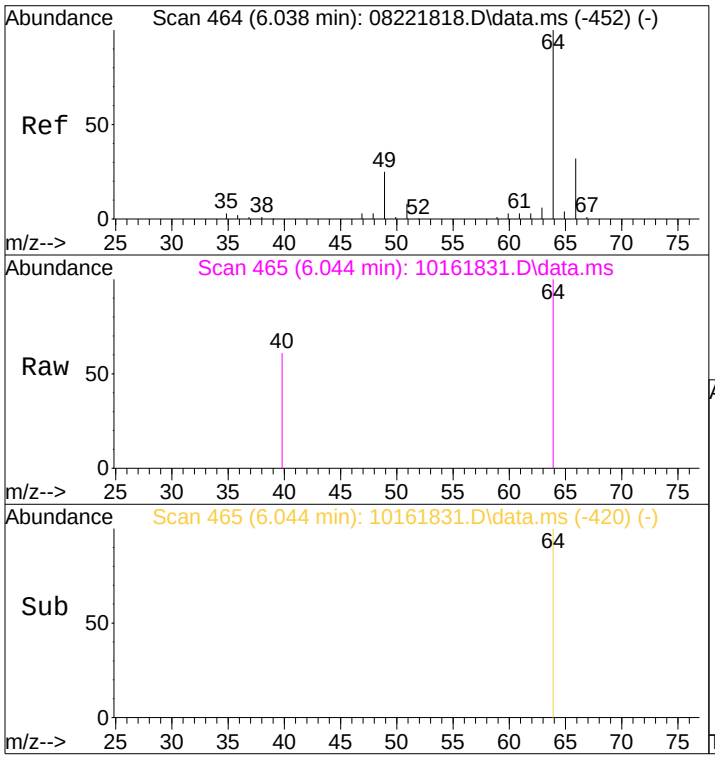


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.09 ng
RT: 4.80 min Scan# 239
Delta R.T. 0.005 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:135 Resp: 1882

Ion	Ratio	Lower	Upper
135	100		
137	27.2	12.3	52.3

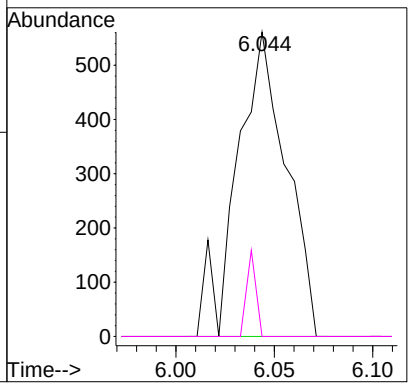


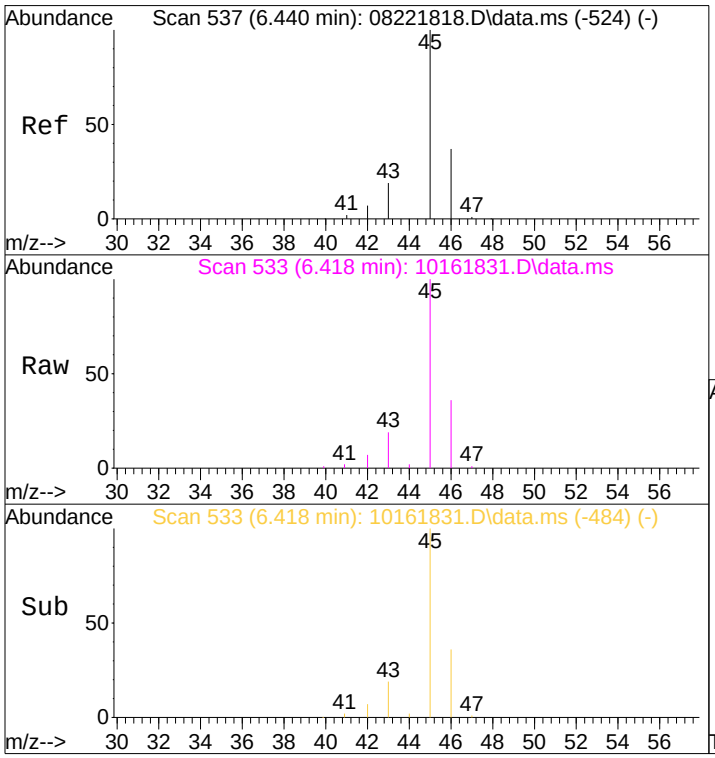


#9
Chloroethane
Concen: 0.06 ng
RT: 6.04 min Scan# 465
Delta R.T. 0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 64 Resp: 975

Ion	Ratio	Lower	Upper
64	100		
66	0.0	12.0	52.0#

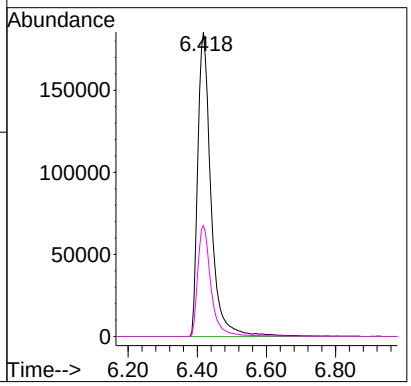


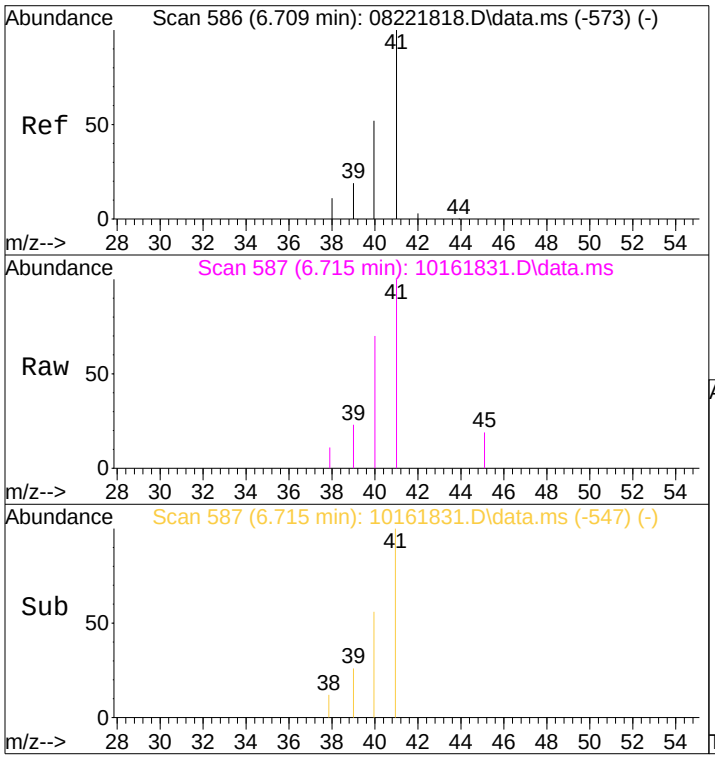


#10
Ethanol
Concen: 34.41 ng
RT: 6.42 min Scan# 533
Delta R.T. 0.022 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 45 Resp: 491580

Ion	Ratio	Lower	Upper
45	100		
46	36.6	16.7	56.7

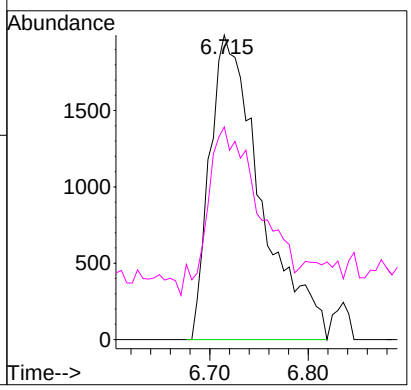


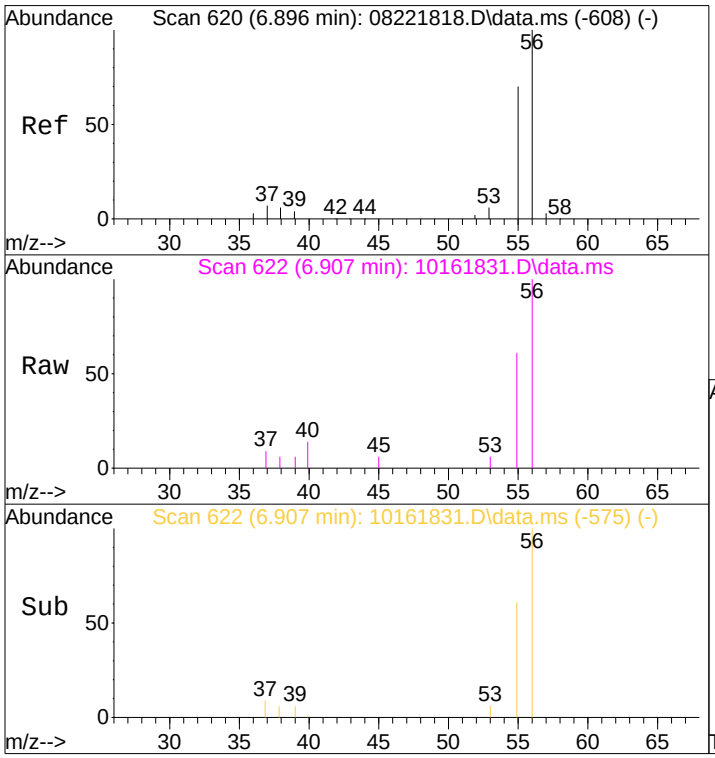


#11
Acetonitrile
Concen: 0.19 ng
RT: 6.71 min Scan# 587
Delta R.T. 0.022 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 41 Resp: 7178

Ion	Ratio	Lower	Upper
41	100		
40	85.4	32.2	72.2#

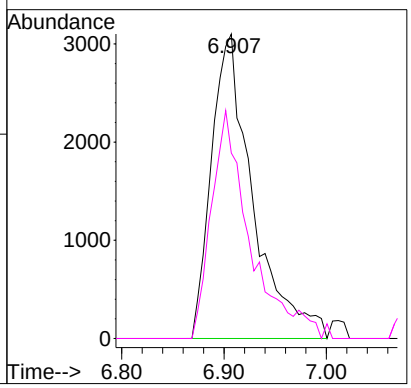


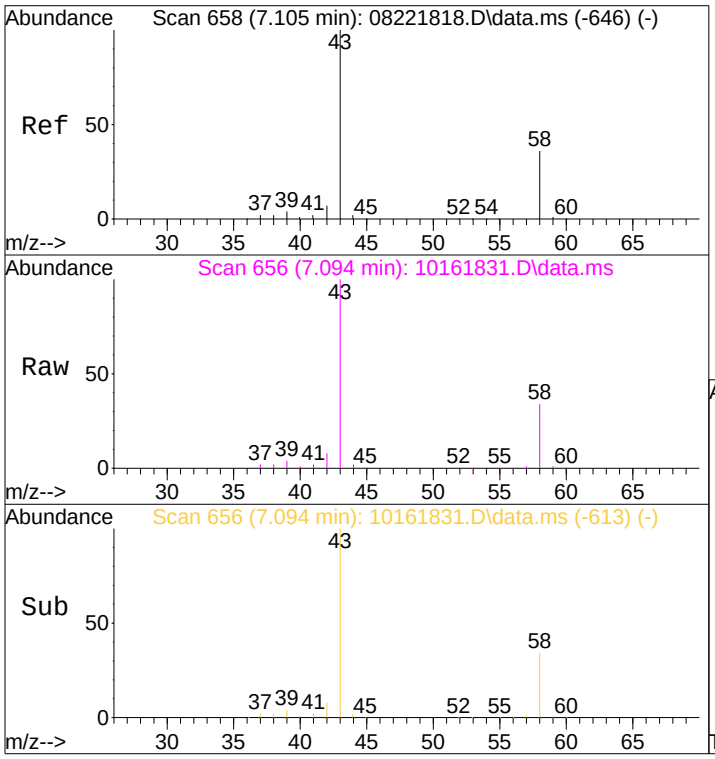


#12
Acrolein
Concen: 0.63 ng
RT: 6.91 min Scan# 622
Delta R.T. 0.011 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 56 Resp: 8710

Ion	Ratio	Lower	Upper
56	100		
55	70.1	49.9	89.9

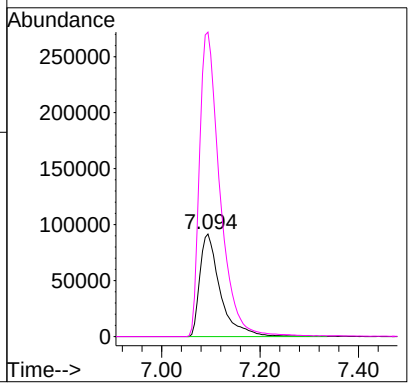


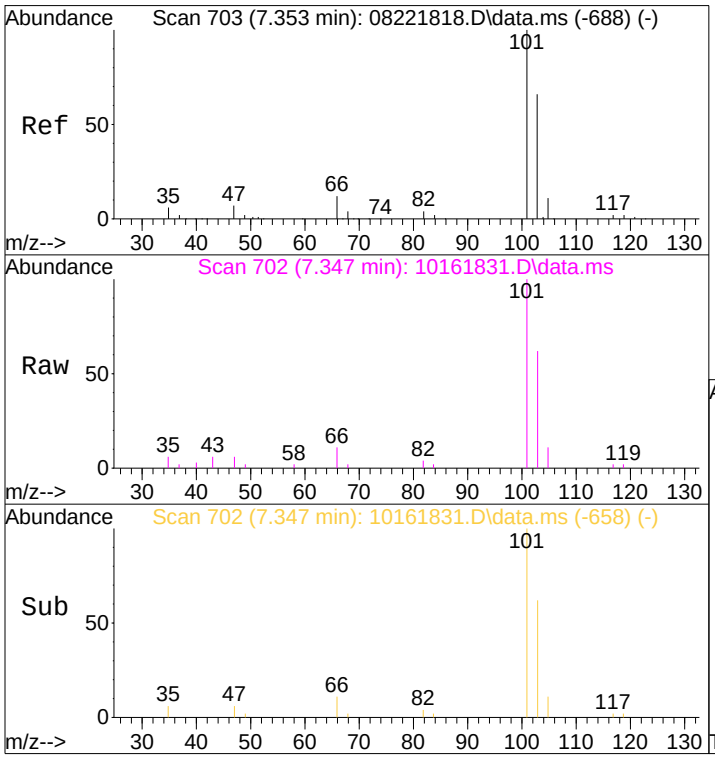


#13
Acetone
Concen: 16.52 ng
RT: 7.09 min Scan# 656
Delta R.T. -0.011 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 58 Resp: 265214

Ion	Ratio	Lower	Upper
58	100		
43	296.1	247.7	307.7

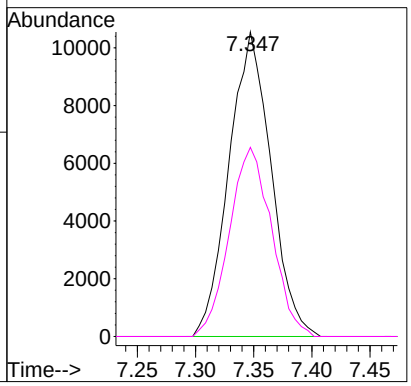


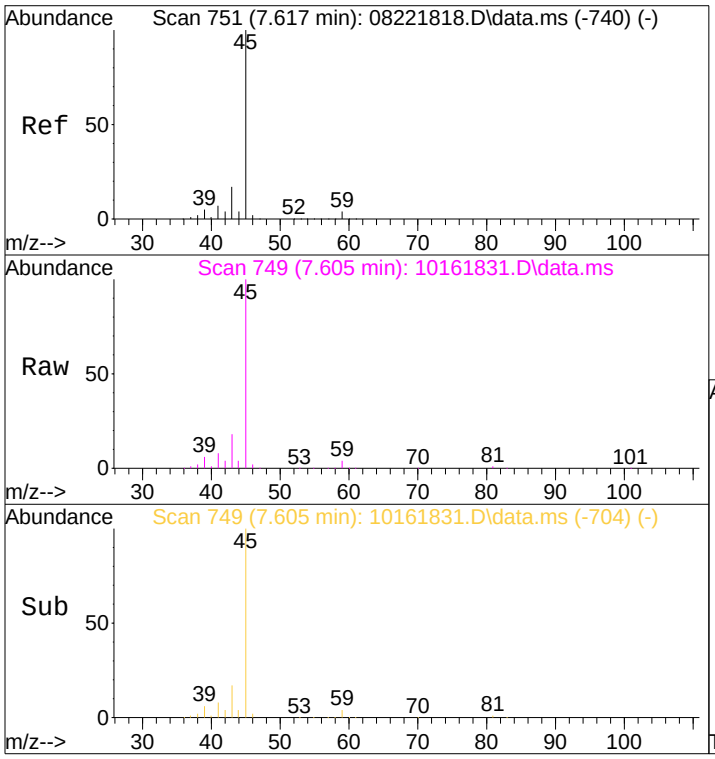


#14
Trichlorofluoromethane
Concen: 0.80 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.006 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:101 Resp: 26445

Ion	Ratio	Lower	Upper
101	100		
103	62.5	45.1	85.1

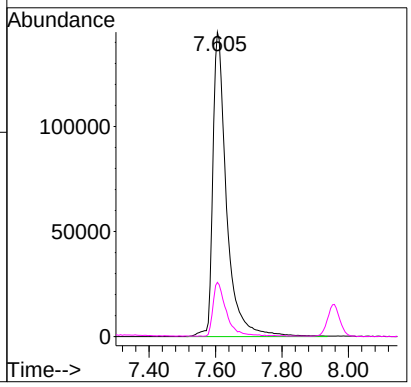


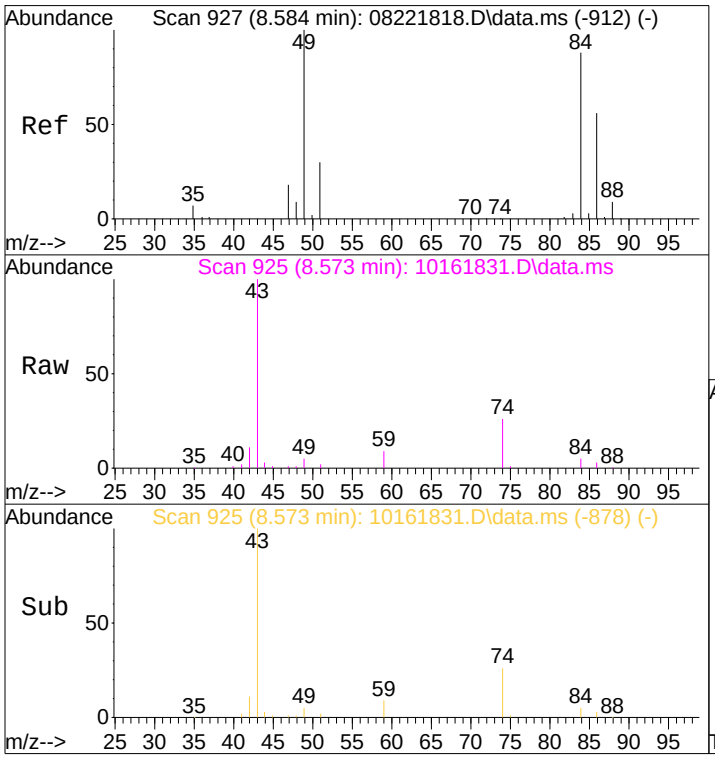


#15
2-Propanol (Isopropanol)
Concen: 8.47 ng
RT: 7.61 min Scan# 749
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 45 Resp: 418051

Ion	Ratio	Lower	Upper
45	100		
43	17.3	0.0	36.8

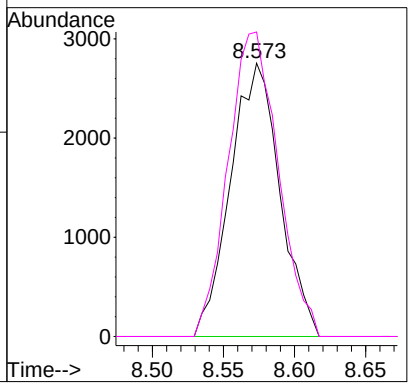


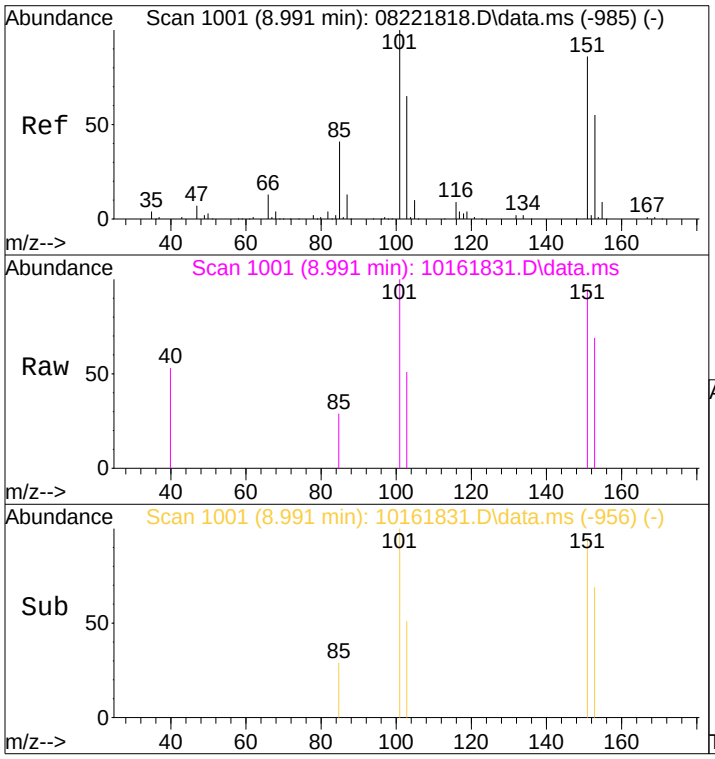


#19
Methylene Chloride
Concen: 0.29 ng
RT: 8.57 min Scan# 925
Delta R.T. 0.011 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 84 Resp: 6654

Ion	Ratio	Lower	Upper
84	100		
49	113.0	90.8	140.8

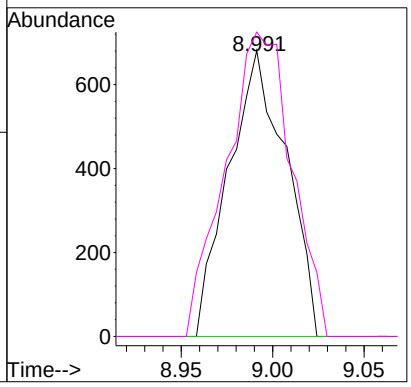


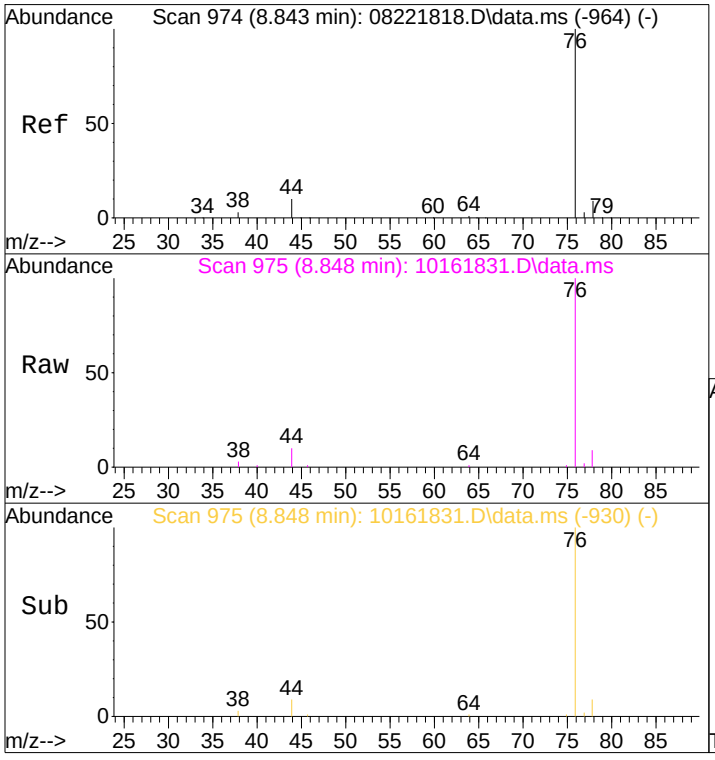


#21
Trichlorotrifluoroethane
Concen: 0.07 ng
RT: 8.99 min Scan# 1001
Delta R.T. 0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:151 Resp: 1484

Ion	Ratio	Lower	Upper
151	100		
101	122.8	97.4	137.4

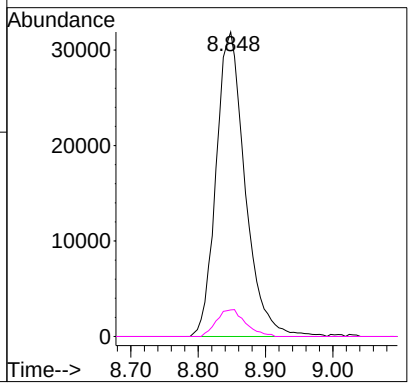


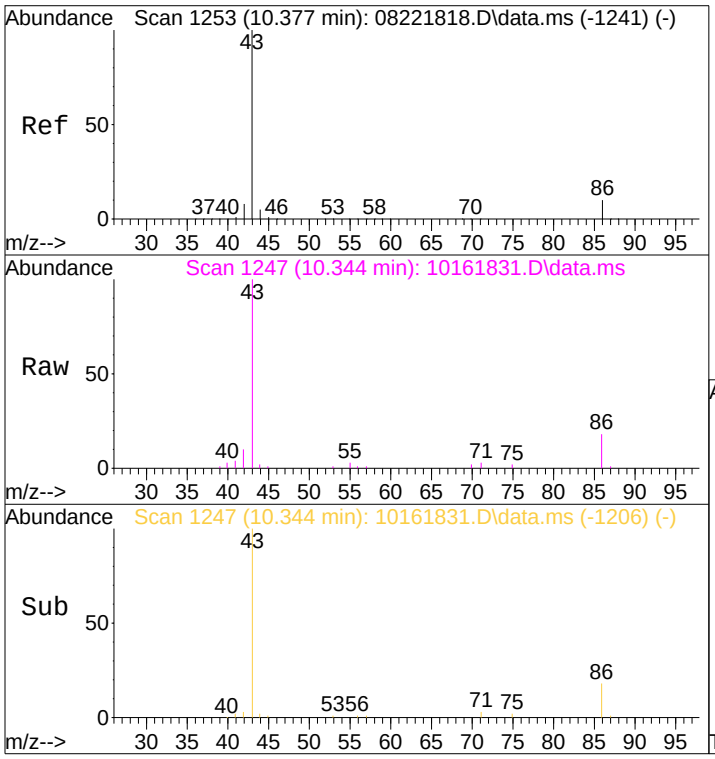


#22
Carbon Disulfide
Concen: 1.15 ng
RT: 8.85 min Scan# 975
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 76 Resp: 95416

Ion	Ratio	Lower	Upper
76	100		
78	8.8	0.0	29.1

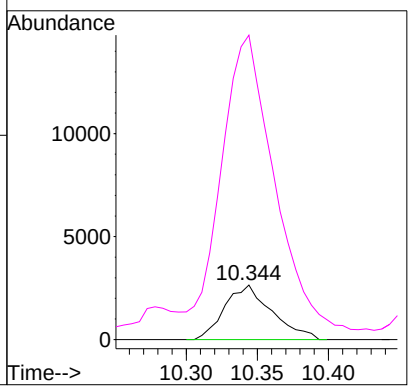


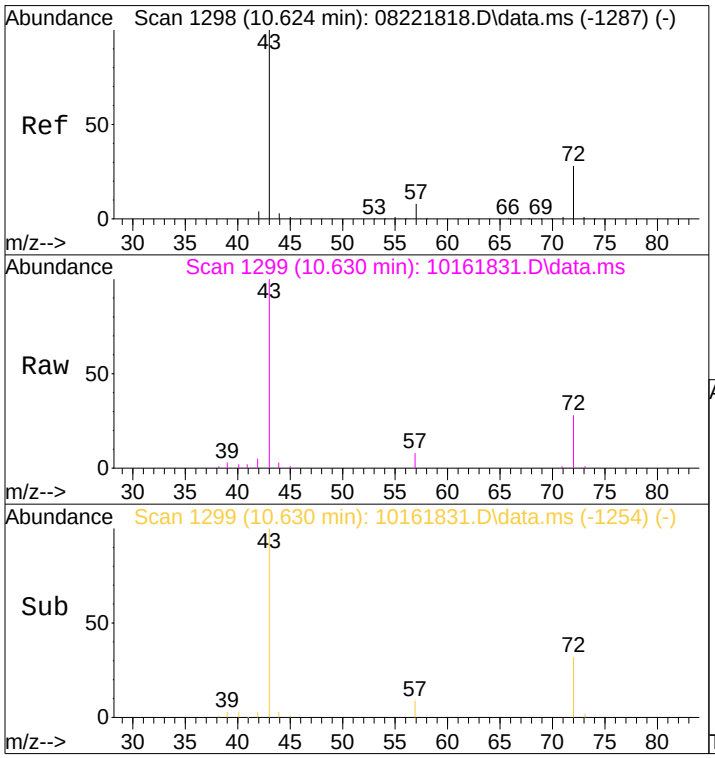


#26
Vinyl Acetate
Concen: 1.31 ng
RT: 10.34 min Scan# 1247
Delta R.T. -0.022 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 86 Resp: 6093

Ion	Ratio	Lower	Upper
86	100		
43	654.4	994.0	1034.0#

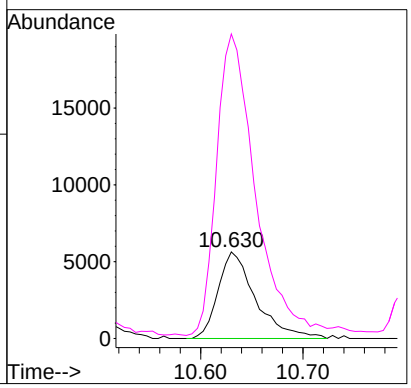


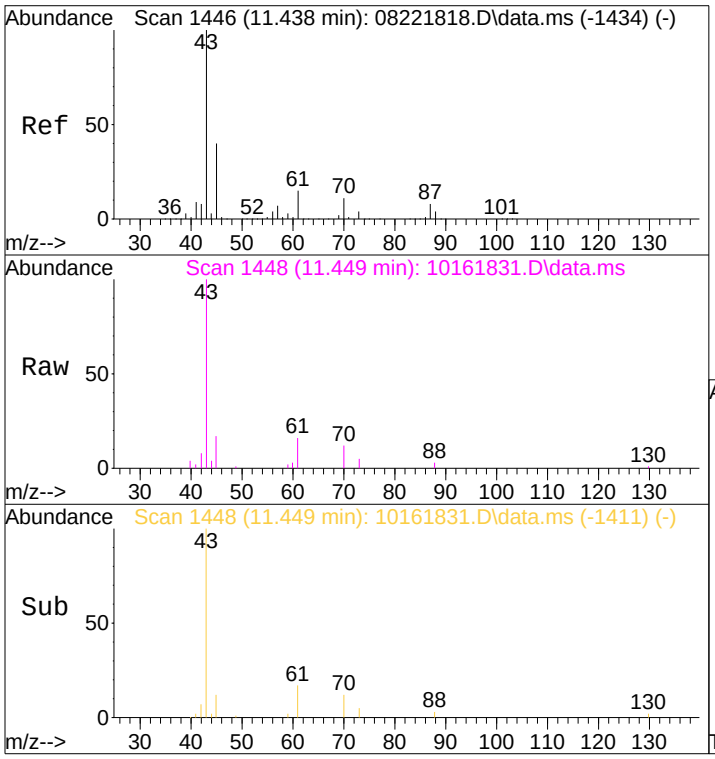


#27
2-Butanone (MEK)
Concen: 0.96 ng
RT: 10.63 min Scan# 1299
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 72 Resp: 14387

Ion	Ratio	Lower	Upper
72	100		
43	367.7	341.9	381.9

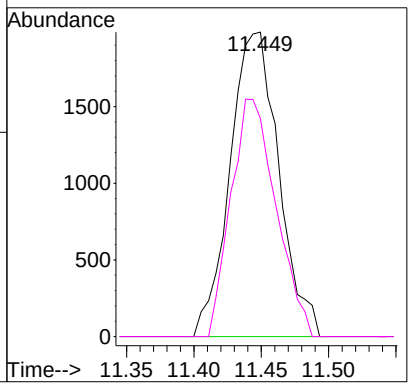


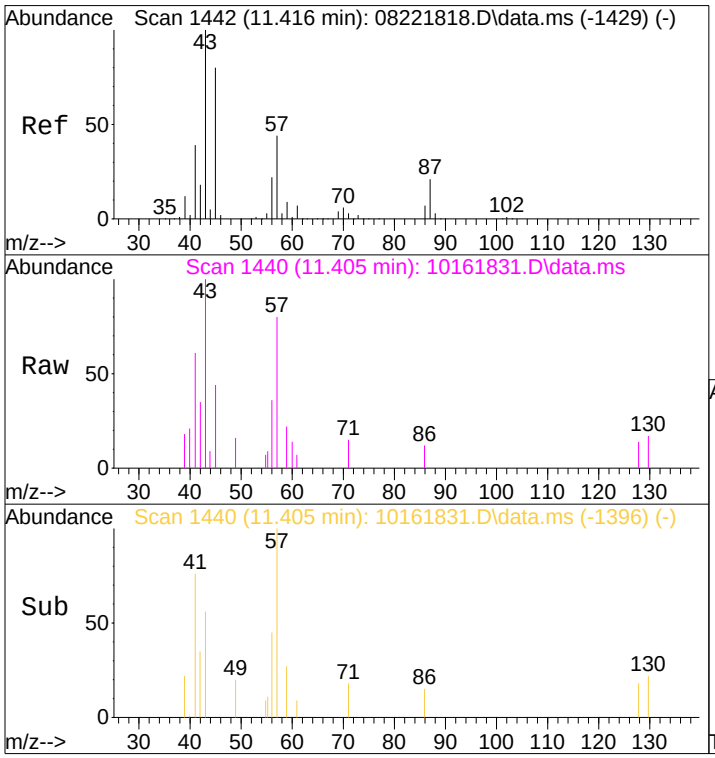


#30
Ethyl Acetate
Concen: 0.65 ng
RT: 11.45 min Scan# 1448
Delta R.T. 0.005 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 61 Resp: 5004

Ion	Ratio	Lower	Upper
61	100		
70	72.1	59.8	99.8

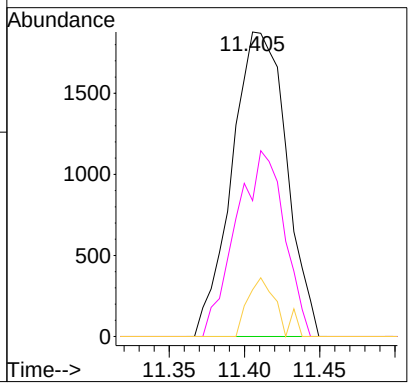


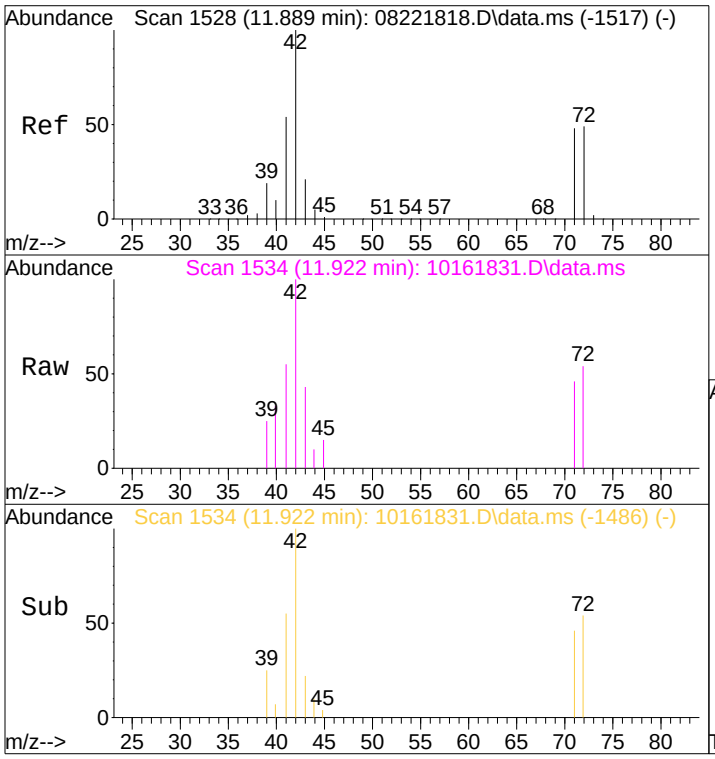


#31
n-Hexane
Concen: 0.14 ng
RT: 11.41 min Scan# 1440
Delta R.T. -0.006 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 57 Resp: 4715

Ion	Ratio	Lower	Upper
57	100		
56	54.2	41.2	61.8
86	10.5	12.4	18.6#

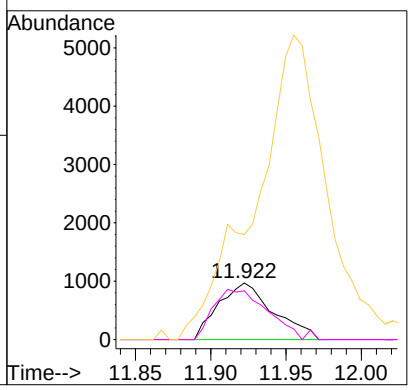


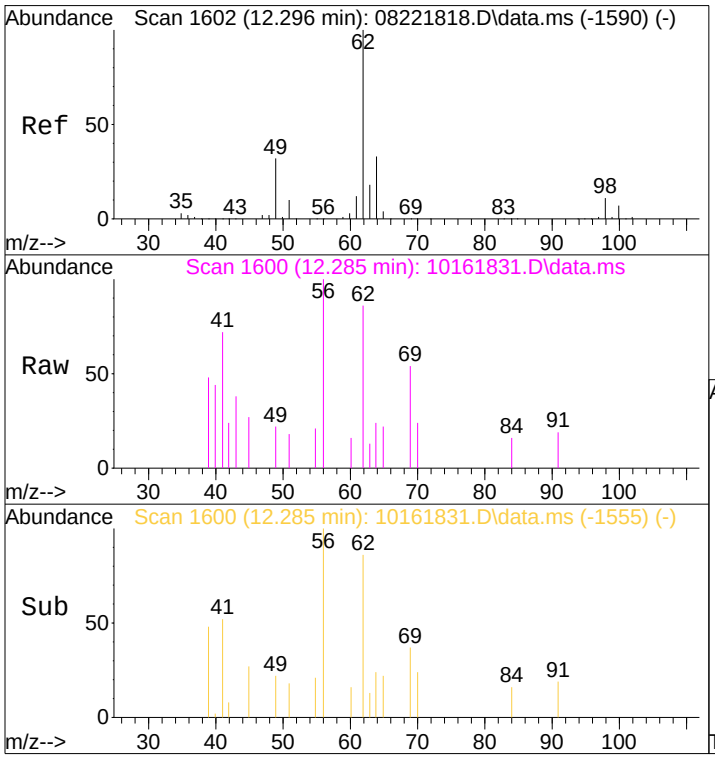


#34
Tetrahydrofuran (THF)
Concen: 0.17 ng
RT: 11.92 min Scan# 1534
Delta R.T. 0.016 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 72 Resp: 2456

Ion	Ratio	Lower	Upper
72	100		
71	89.0	77.8	117.8
42	714.2	185.7	225.7#

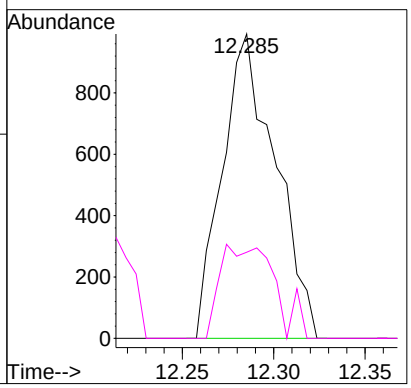


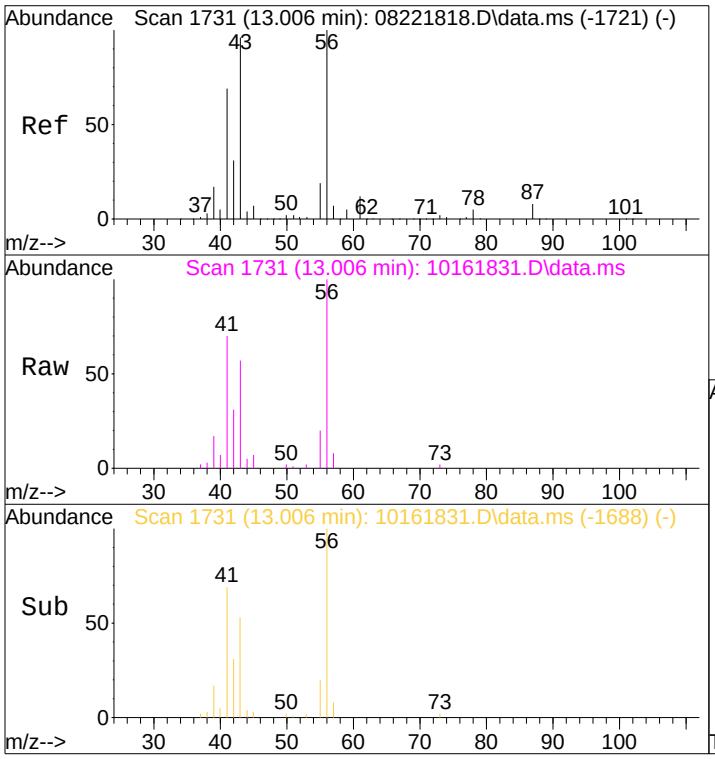


#36
1,2-Dichloroethane
Concen: 0.08 ng
RT: 12.29 min Scan# 1600
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 62 Resp: 2002

Ion	Ratio	Lower	Upper
62	100		
64	31.7	12.6	52.6

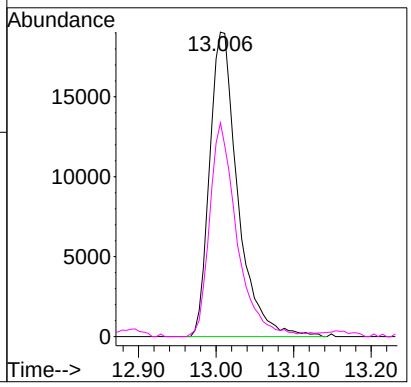


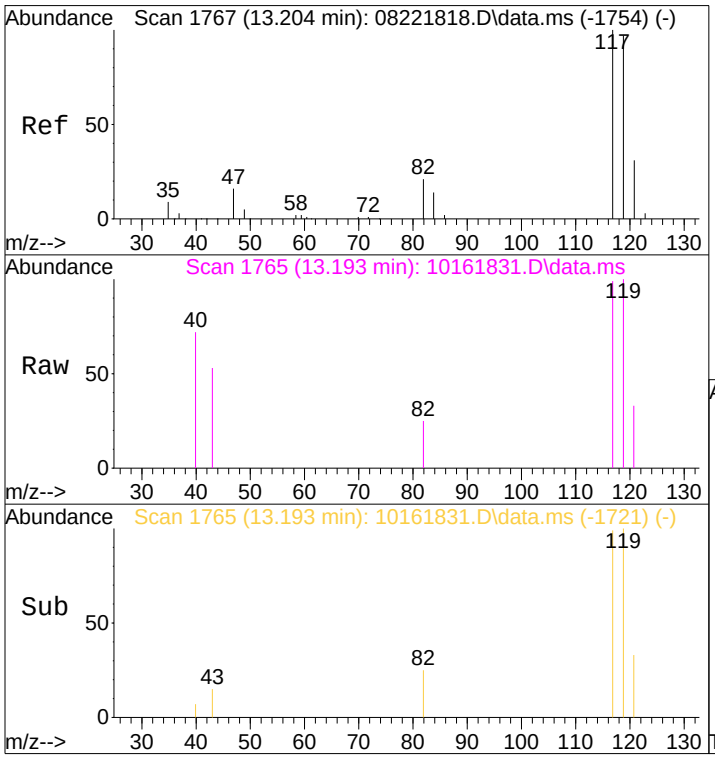


#40
1-Butanol
Concen: 2.38 ng
RT: 13.01 min Scan# 1731
Delta R.T. -0.011 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 56 Resp: 48081

Ion	Ratio	Lower	Upper
56	100		
41	68.6	77.1	117.1#

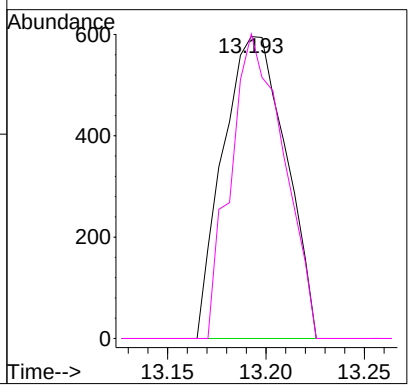


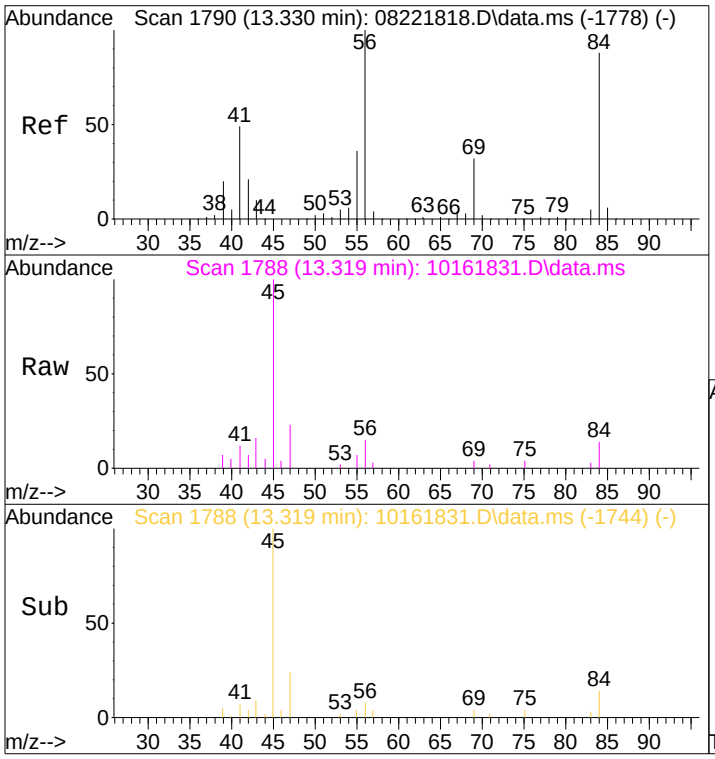


#42
Carbon Tetrachloride
Concen: 0.05 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.005 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:117 Resp: 1322

Ion	Ratio	Lower	Upper
117	100		
119	84.9	76.5	116.5

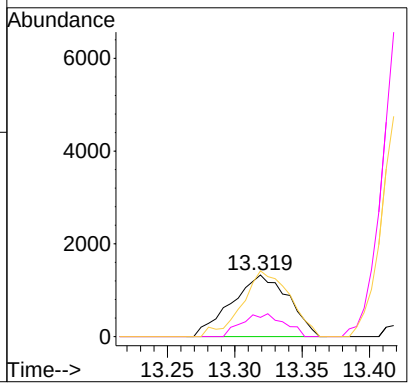


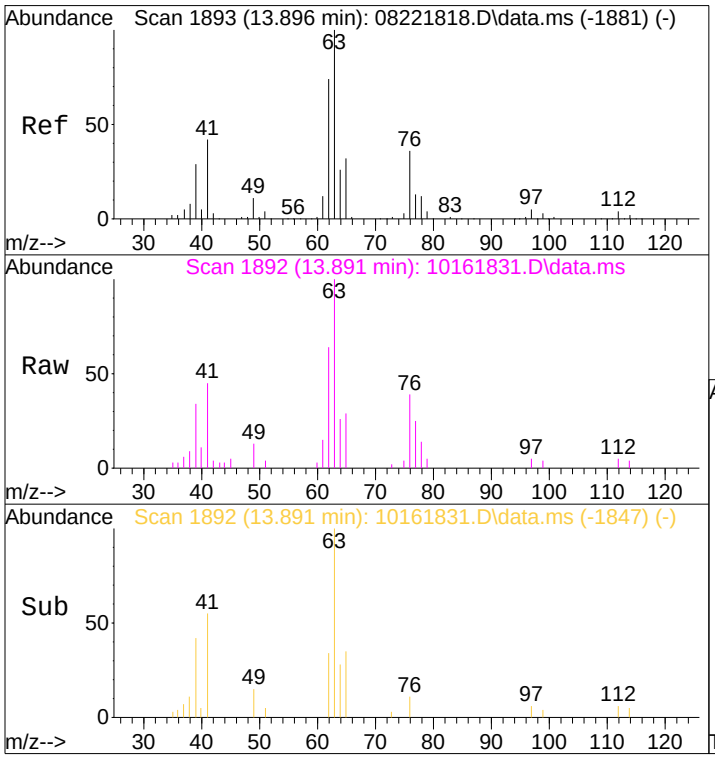


#43
Cyclohexane
Concen: 0.12 ng
RT: 13.32 min Scan# 1788
Delta R.T. -0.006 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 84 Resp: 3888

Ion	Ratio	Lower	Upper
84	100		
69	27.6	16.6	56.6
56	89.3	94.4	134.4#

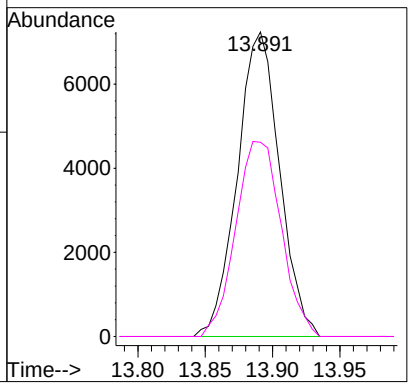


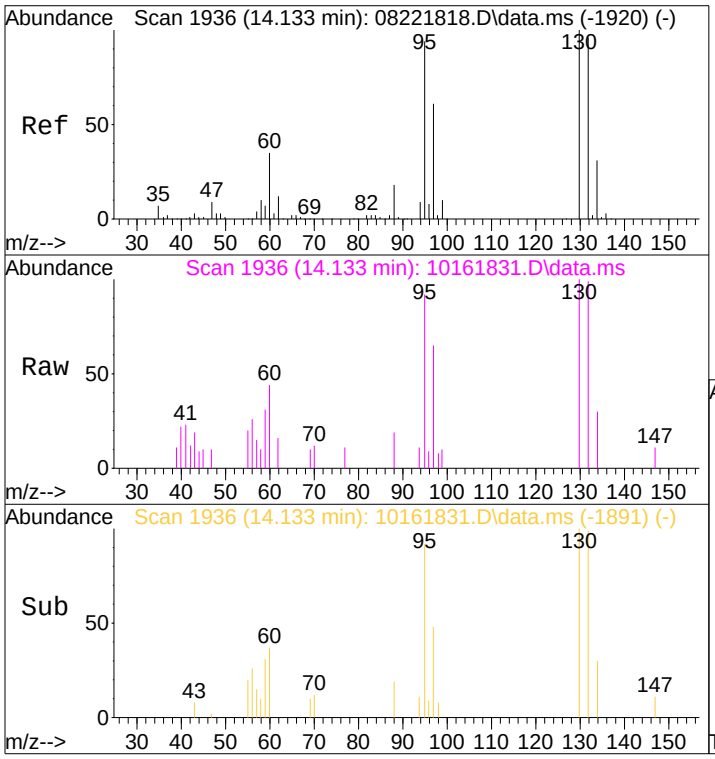


#45
1,2-Dichloropropane
Concen: 0.74 ng
RT: 13.89 min Scan# 1892
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 63 Resp: 15825

Ion	Ratio	Lower	Upper
63	100		
62	68.9	52.7	92.7

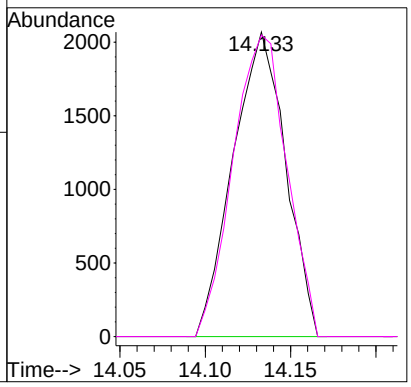


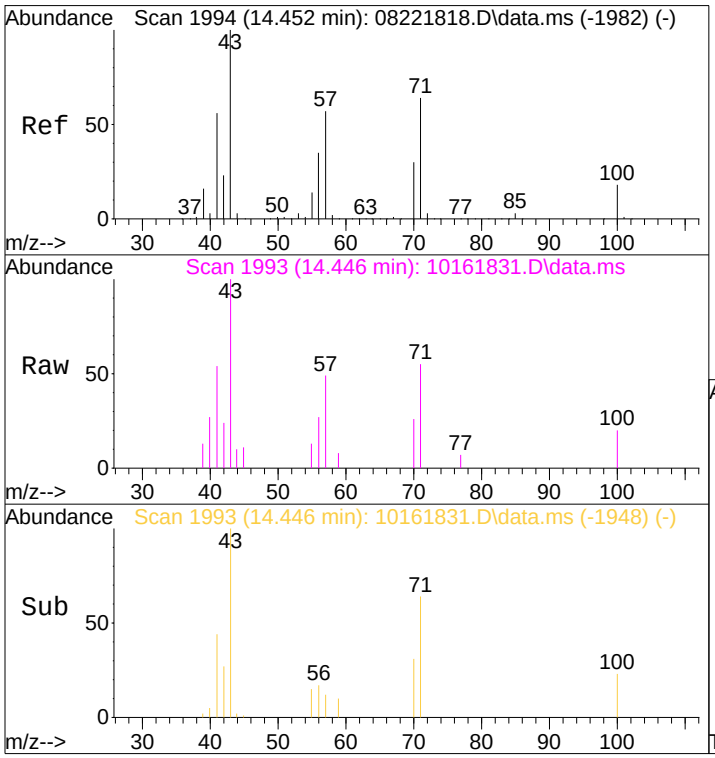


#47
Trichloroethene
Concen: 0.18 ng
RT: 14.13 min Scan# 1936
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:130 Resp: 4431

Ion	Ratio	Lower	Upper
130	100		
132	101.4	76.2	116.2

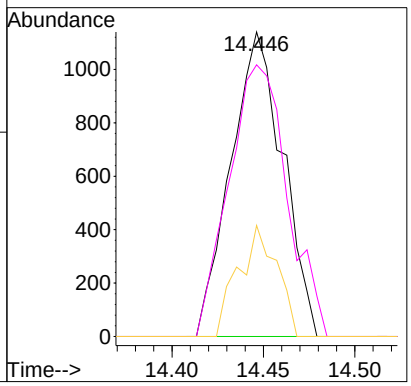


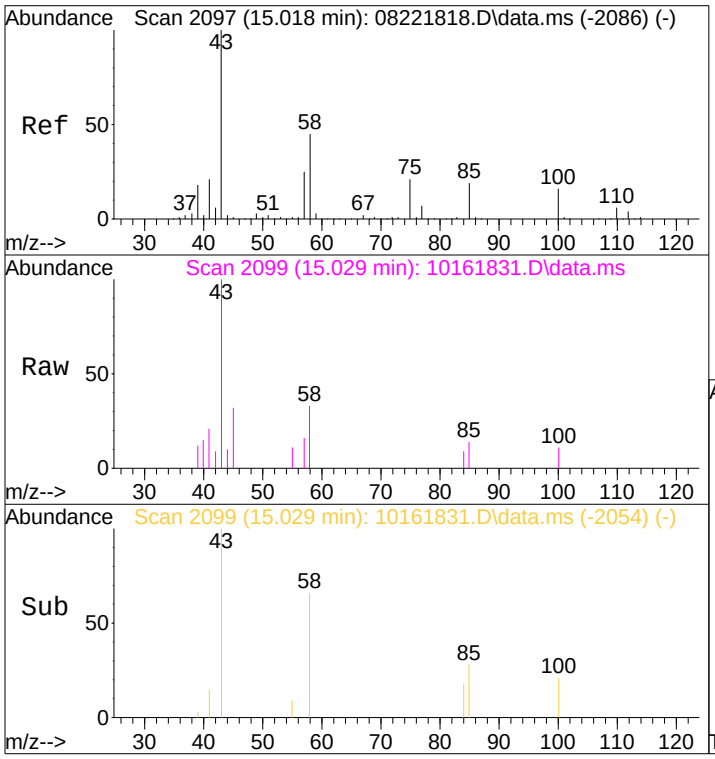


#51
n-Heptane
Concen: 0.11 ng
RT: 14.45 min Scan# 1993
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 71 Resp: 2255

Ion	Ratio	Lower	Upper
71	100		
57	100.3	69.4	109.4
100	27.1	7.6	47.6

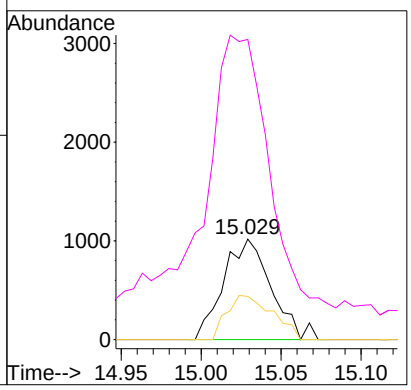


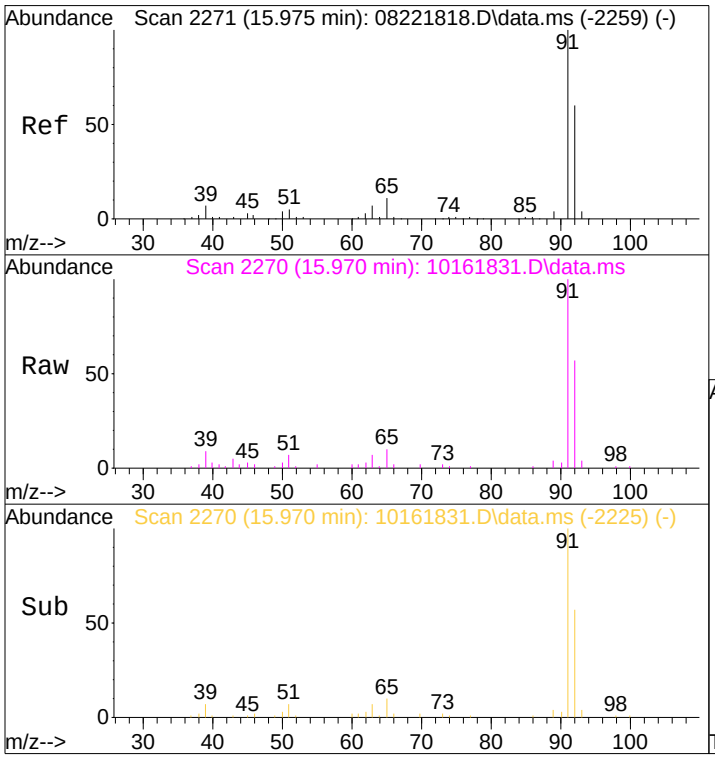


#53
4-Methyl-2-pentanone
Concen: 0.11 ng
RT: 15.03 min Scan# 2099
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 58 Resp: 2119

Ion	Ratio	Lower	Upper
58	100		
43	356.8	180.6	271.0#
85	41.8	36.2	54.2

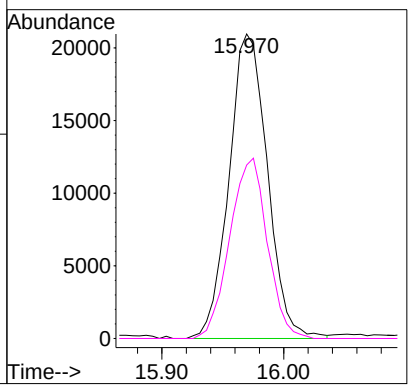


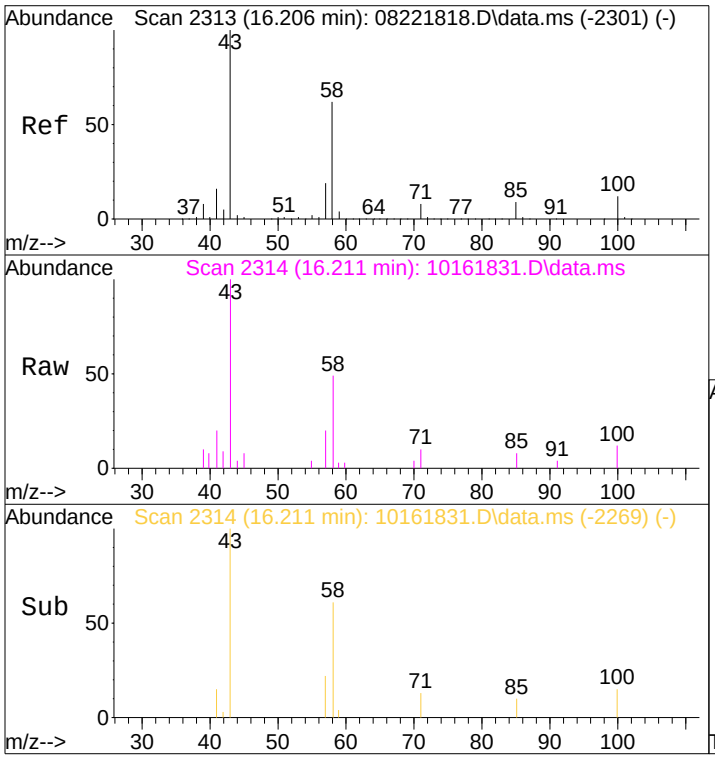


#58
Toluene
Concen: 0.49 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 91 Resp: 45961

Ion	Ratio	Lower	Upper
91	100		
92	57.7	39.6	79.6

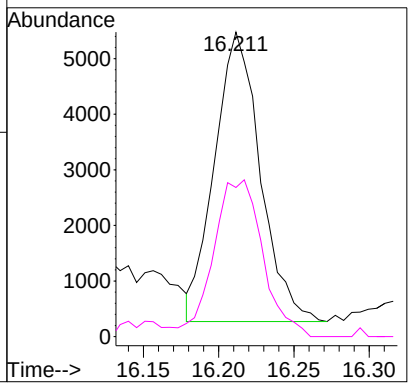


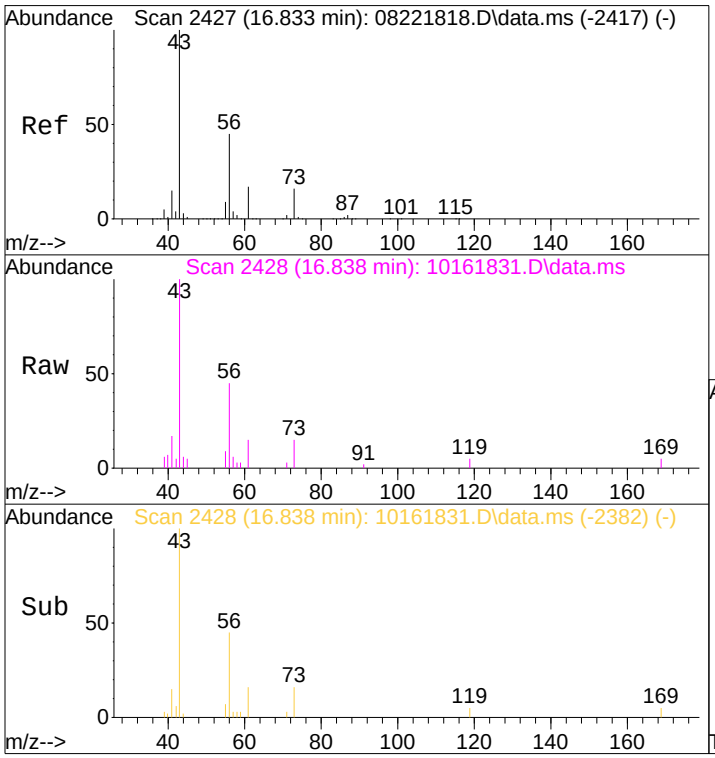


#59
2-Hexanone
Concen: 0.25 ng
RT: 16.21 min Scan# 2314
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 43 Resp: 11007

Ion	Ratio	Lower	Upper
43	100		
58	57.7	41.9	81.9

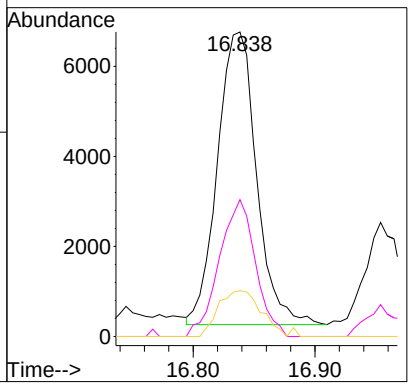


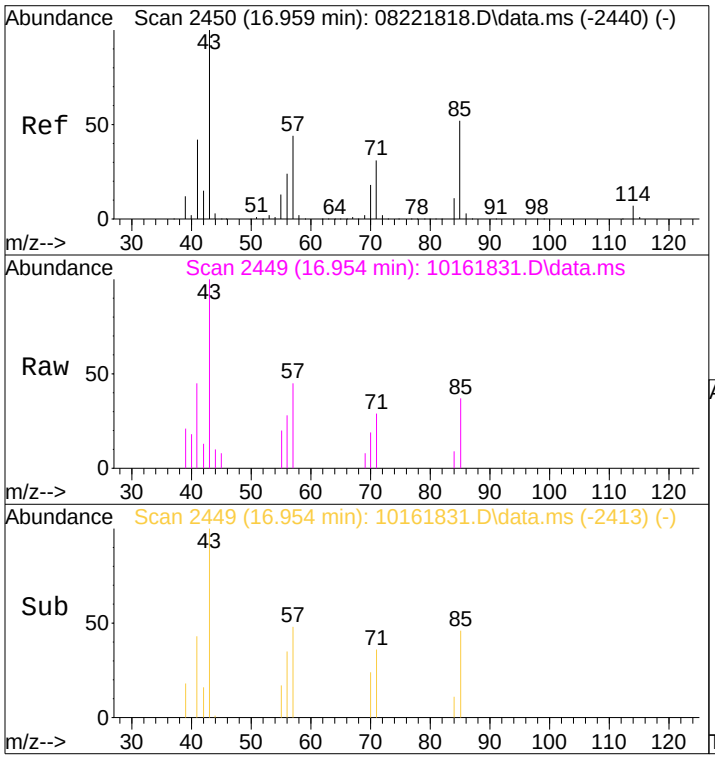


#62
n-Butyl Acetate
Concen: 0.29 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.005 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 43 Resp: 14489

Ion	Ratio	Lower	Upper
43	100		
56	43.3	24.7	64.7
73	17.0	0.0	35.9

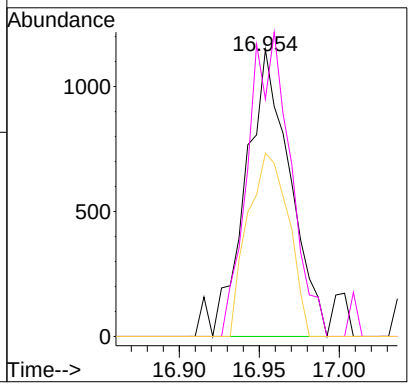


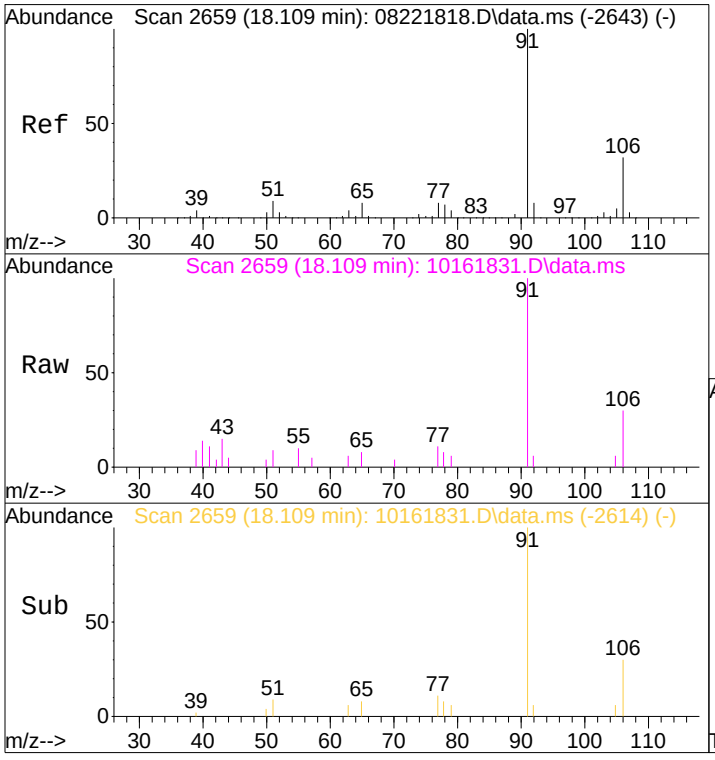


#63
n-Octane
Concen: 0.12 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 57 Resp: 2242

Ion	Ratio	Lower	Upper
57	100		
85	100.2	93.2	139.8
71	58.4	57.0	85.4

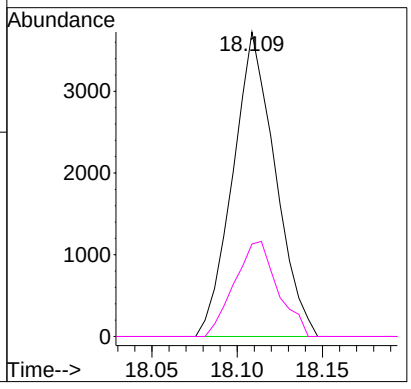


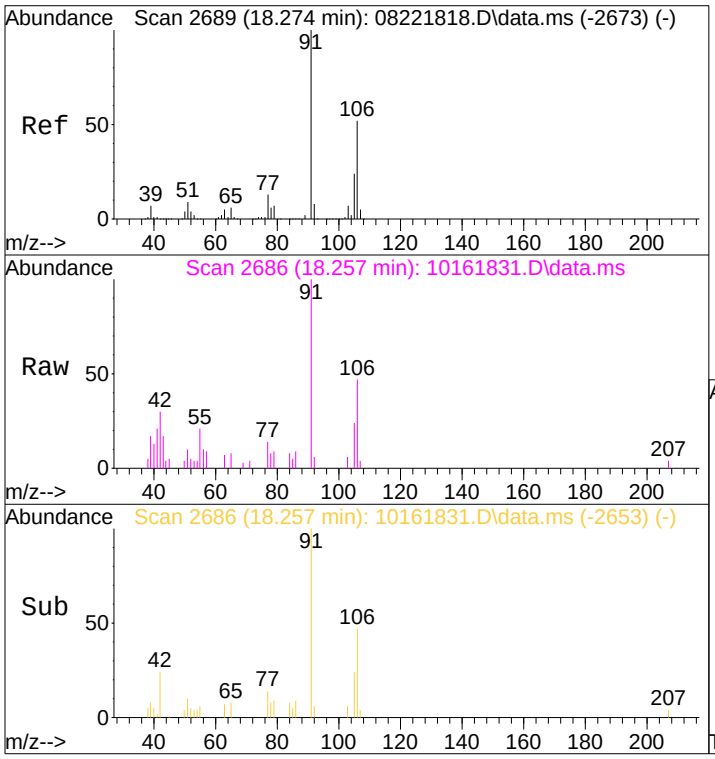


#66
Ethylbenzene
Concen: 0.06 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 91 Resp: 6430

Ion	Ratio	Lower	Upper
91	100		
106	31.9	12.4	52.4

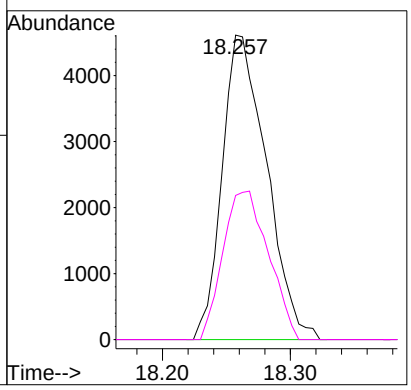


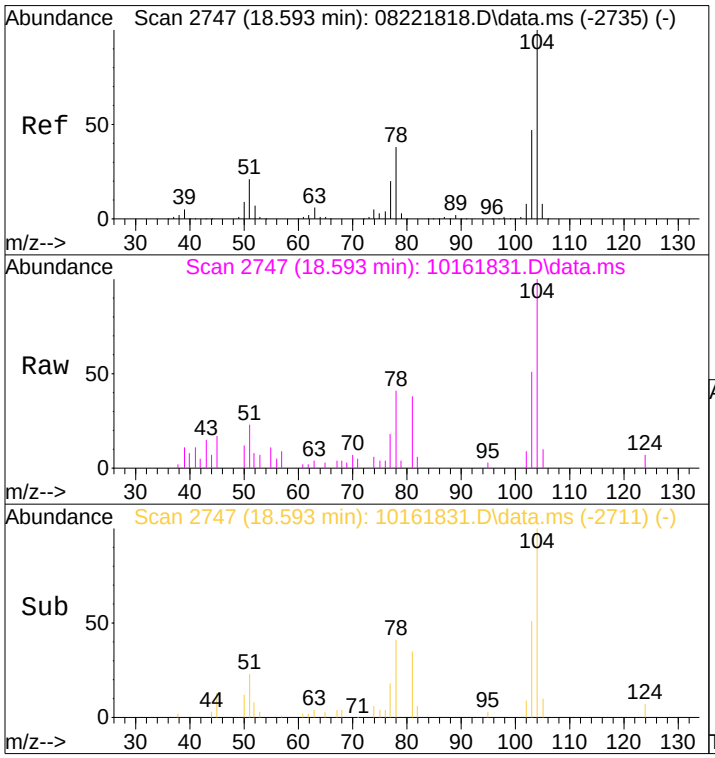


#67
m- & p-Xylenes
Concen: 0.15 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.017 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 91 Resp: 11143

Ion	Ratio	Lower	Upper
91	100		
106	50.0	32.2	72.2

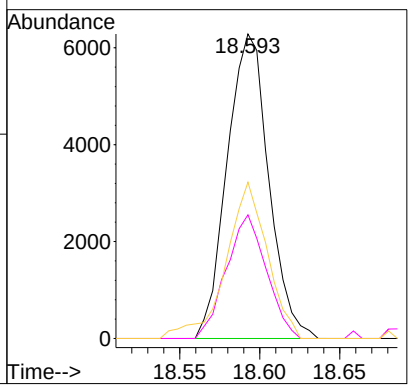


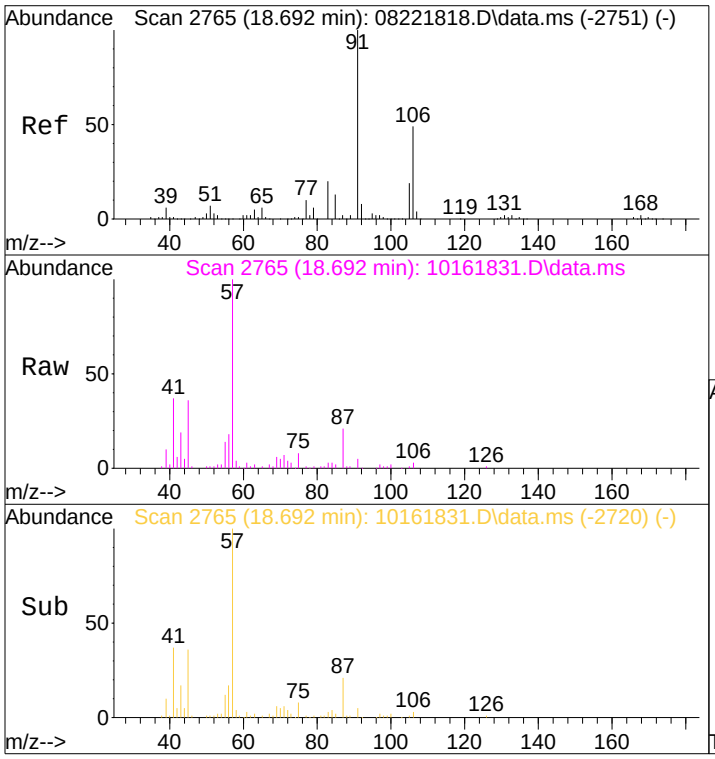


#69
Styrene
Concen: 0.18 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:104 Resp: 11386

Ion	Ratio	Lower	Upper
104	100		
78	39.0	18.4	58.4
103	50.9	27.0	67.0

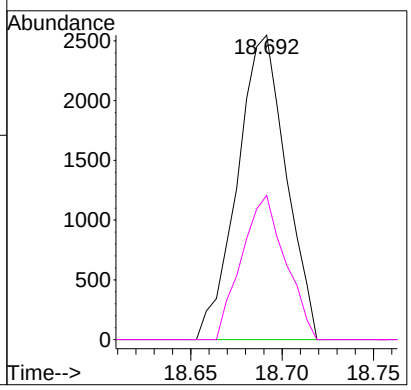


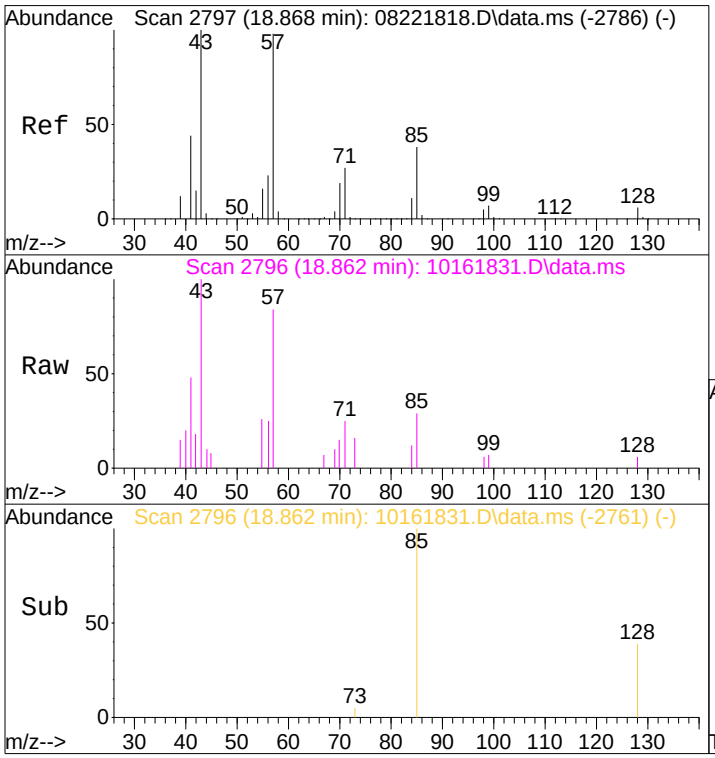


#70
o-Xylene
Concen: 0.06 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 91 Resp: 4720

Ion	Ratio	Lower	Upper
91	100		
106	42.8	29.6	69.6

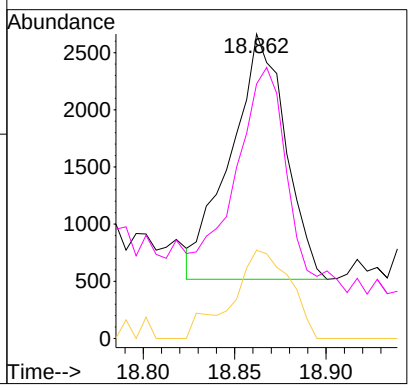


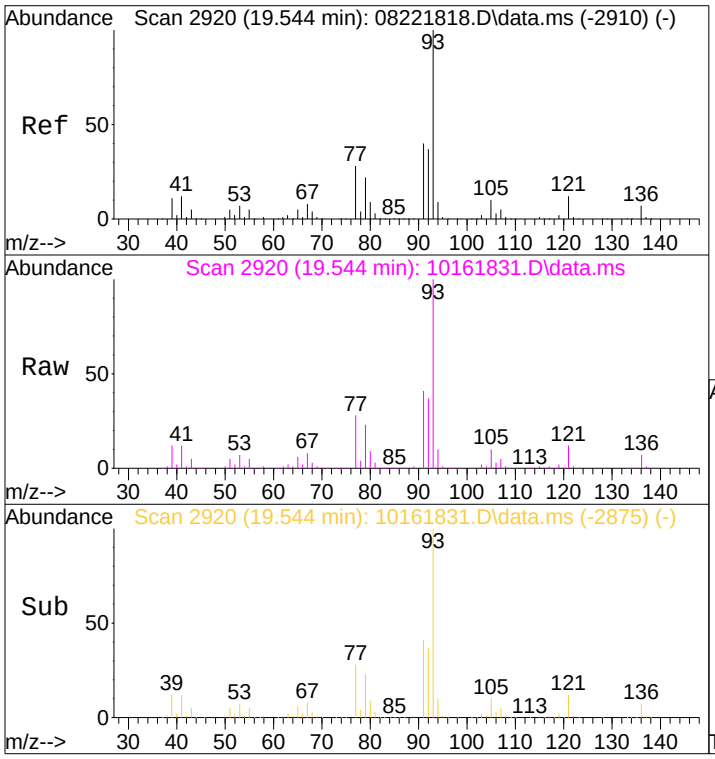


#71
n-Nonane
Concen: 0.11 ng
RT: 18.86 min Scan# 2796
Delta R.T. -0.006 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 43 Resp: 4481

Ion	Ratio	Lower	Upper
43	100		
57	87.7	77.3	117.3
85	37.7	17.7	57.7

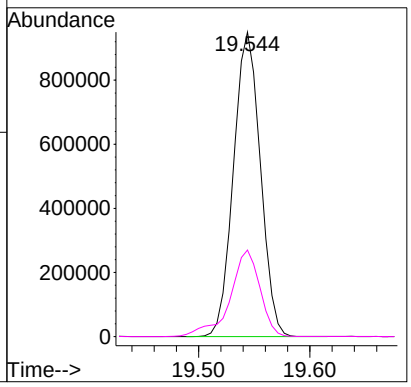


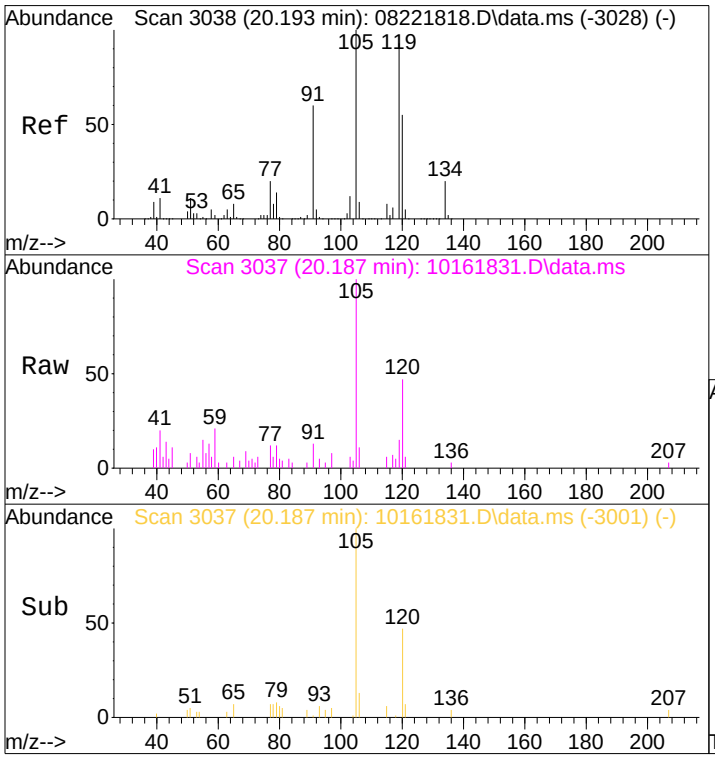


#75
alpha-Pinene
Concen: 30.58 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 93 Resp: 1590900

Ion	Ratio	Lower	Upper
93	100		
77	31.6	8.7	48.7

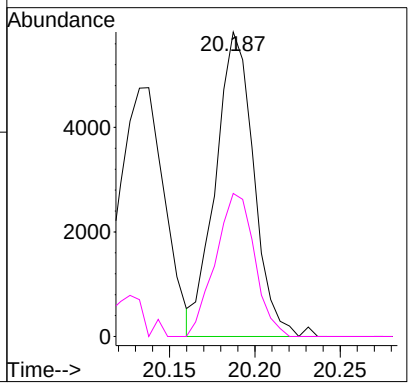


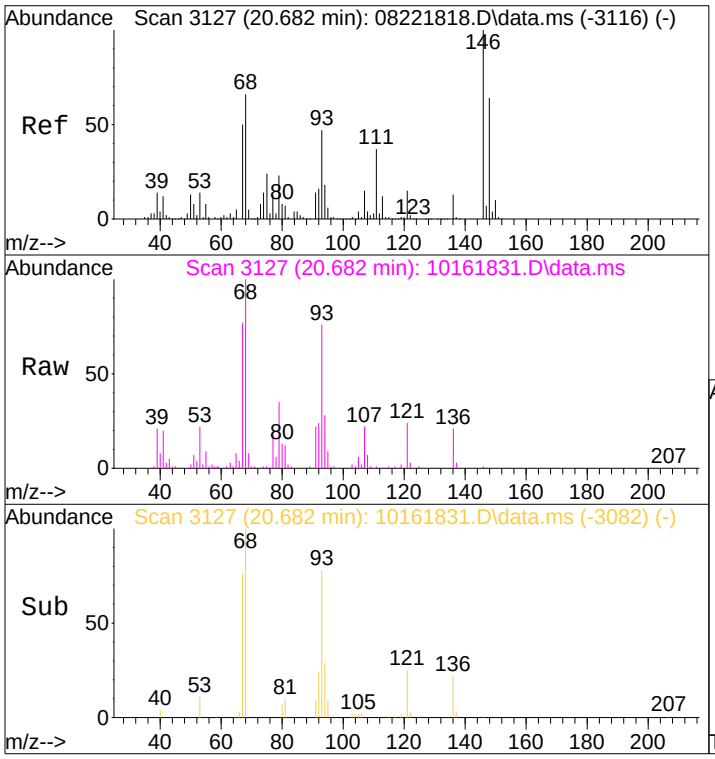


#82
1,2,4-Trimethylbenzene
Concen: 0.11 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:105 Resp: 9076

Ion	Ratio	Lower	Upper
105	100		
120	47.9	36.1	76.1

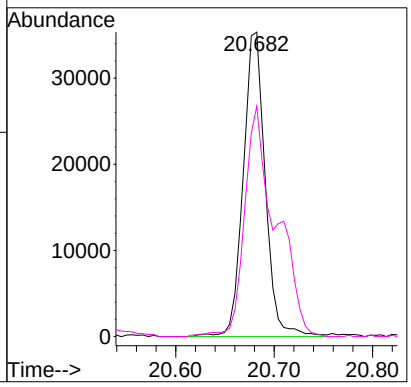


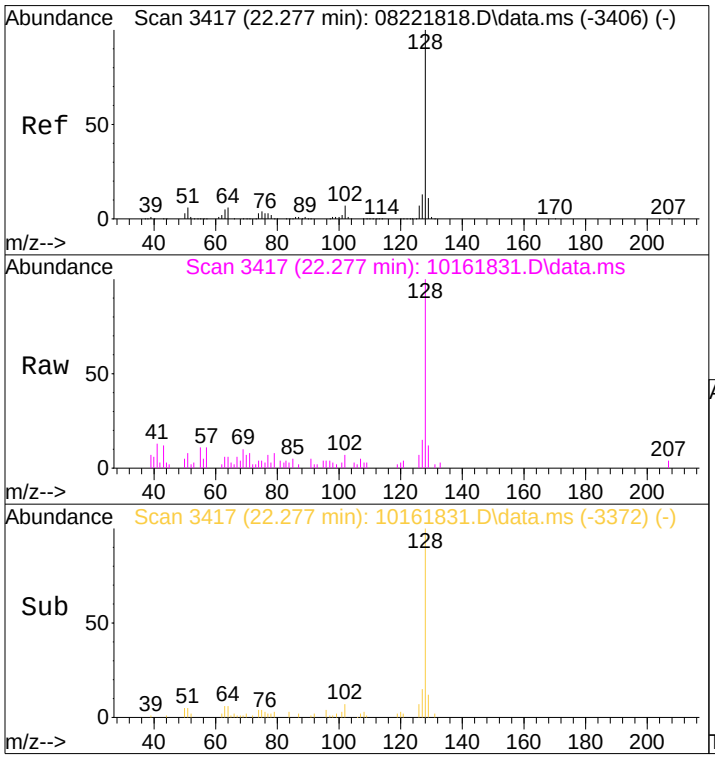


#91
d-Limonene
Concen: 1.83 ng
RT: 20.68 min Scan# 3127
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion: 68 Resp: 55071

Ion	Ratio	Lower	Upper
68	100		
93	107.6	50.5	90.5#

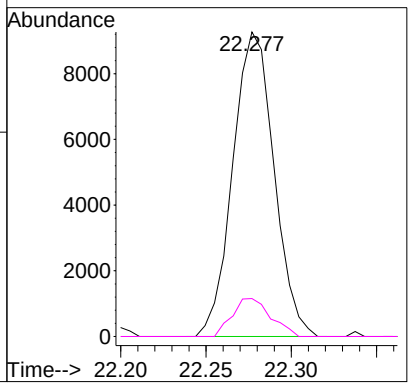




#95
Naphthalene
Concen: 0.17 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.000 min
Lab File: 10161831.D
Acq: 16 Oct 2018 18:32

Tgt Ion:128 Resp: 15570

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	30.9



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 12:13:22 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

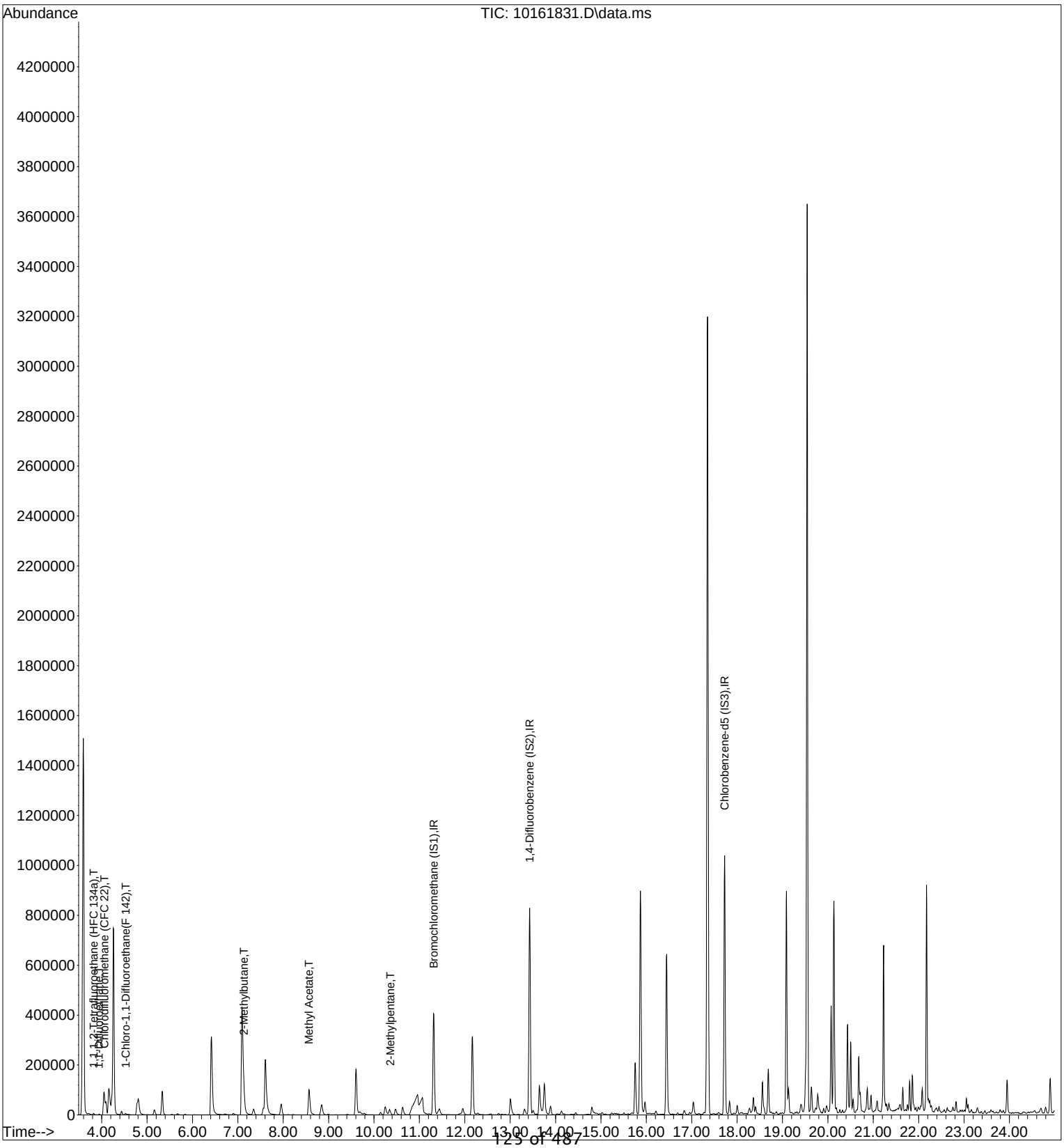
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	205232	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	859926	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	355894	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	1185	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	2940	0.173	ng	#	68
4) 1,1-Difluoroethane	3.94	65	1019	0.054	ng		86
5) Chlorodifluoromethane ...	4.06	67	1184	0.232	ng		82
6) 1-Chloro-1,1-Difluoroe...	4.53	65	2734	0.088	ng	#	82
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	30272	1.355	ng	#	42
11) Methyl Acetate	8.57	43	164488	3.354	ng	#	97
12) 2-Methylpentane	10.36	71	1410	0.066	ng	#	1
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.16	84	370	N.D.			
17) 2,3-Dimethylpentane	13.60	56	559	N.D.			
18) Dibromomethane	13.86	174	191	N.D.			
20) Methyl Cyclohexane	15.10	55	878	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.64	131	102	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.79	75	745	N.D.			
25) Bromobenzene	19.37	77	289	N.D.			
26) 2-Chlorotoluene	19.64	91	3003	N.D.			
27) 4-Chlorotoluene	19.64	91	3075	N.D.			
28) Indan	20.74	117	1279	N.D.			
29) Indene	20.82	115	667	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	1277	N.D.			
31) 1,2,3,4-Tetramethylben...	21.56	119	1277	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	3407	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

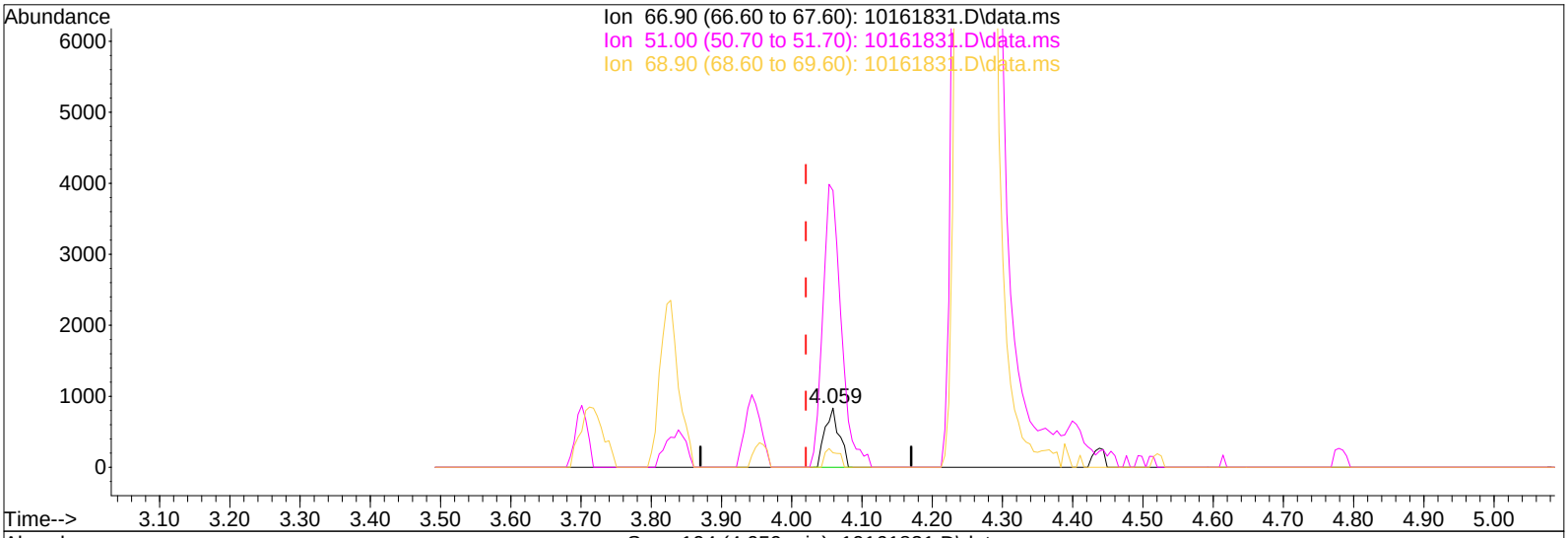
Quant Time: Oct 17 12:13:22 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

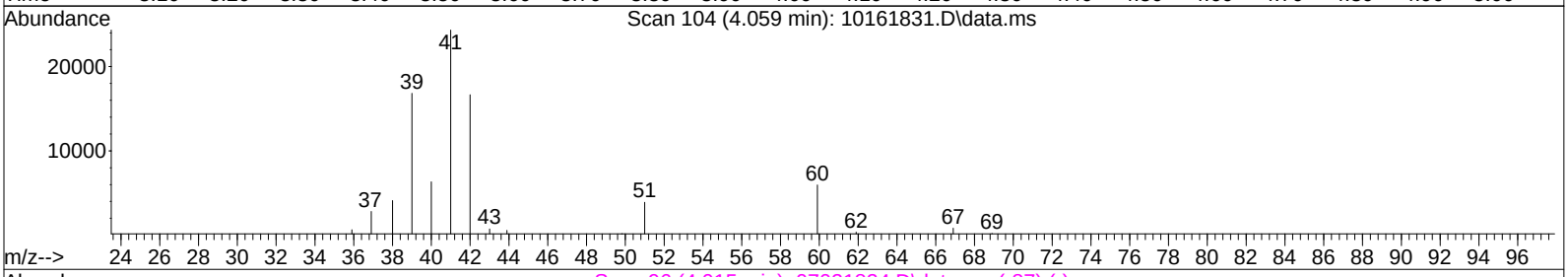


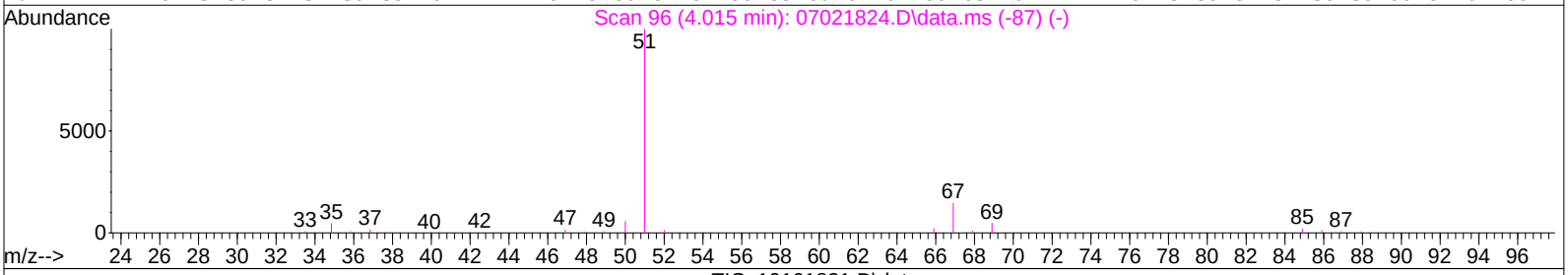
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161831.D
Acq On : 16 Oct 2018 18:32 Operator: LH/TD
Sample : P1805476-003 (1000mL)
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 17 11:53:35 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161831.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.038) 0.23ng

response 1184

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	614.86
68.90	32.10	29.81
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:28:01 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	209728	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	880480	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	362037	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	258359	12.452	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.60%				
57) Toluene-d8 (SS2)	15.87	98	771127	13.924	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.36%				
73) Bromofluorobenzene (SS3)	19.09	174	334028	14.840	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.72%				
Target Compounds							Qvalue
2) Propene	4.05	42	45794	1.918	ng	#	85
3) Dichlorodifluoromethan...	4.23	85	54059	1.386	ng		99
4) Chloromethane	4.53	50	2799	0.096	ng		91
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1839	0.081	ng		92
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	6.05	64	880	0.054	ng		65
10) Ethanol	6.42	45	492617	33.742	ng		100
11) Acetonitrile	6.71	41	6948	0.179	ng		94
12) Acrolein	6.91	56	7468	0.529	ng		99
13) Acetone	7.09	58	229906	14.013	ng		88
14) Trichlorofluoromethane	7.35	101	26107	0.773	ng		99
15) 2-Propanol (Isopropanol)	7.61	45	409903	8.129	ng		99
16) Acrylonitrile	7.95	53	1456	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.57	84	6370	0.275	ng		99
20) 3-Chloro-1-propene (Al...	8.64	41	820	N.D.			
21) Trichlorotrifluoroethane	8.99	151	1510	0.074	ng		95
22) Carbon Disulfide	8.85	76	96387	1.134	ng		99
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.36	86	1849	0.390	ng	#	61
27) 2-Butanone (MEK)	10.64	72	7084	0.464	ng	#	85
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.	d		
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.44	61	4520	0.577	ng		88
31) n-Hexane	11.41	57	2555	0.073	ng	#	92
32) Chloroform	11.49	83	1792	N.D.			
34) Tetrahydrofuran (THF)	11.92	72	2276	0.150	ng	#	1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	1927	0.077	ng		85
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.01	56	42724	2.065	ng	#	71
41) Benzene	13.04	78	3134	N.D.			
42) Carbon Tetrachloride	13.19	117	1236	N.D.			
43) Cyclohexane	13.32	84	3032	0.090	ng		92
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	13.89	63	15950	0.731	ng		99
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	4823	0.194	ng		99
48) 1,4-Dioxane	14.13	88	581	N.D.			
49) 2,2,4-Trimethylpentane...	14.19	57	1781	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:28:01 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

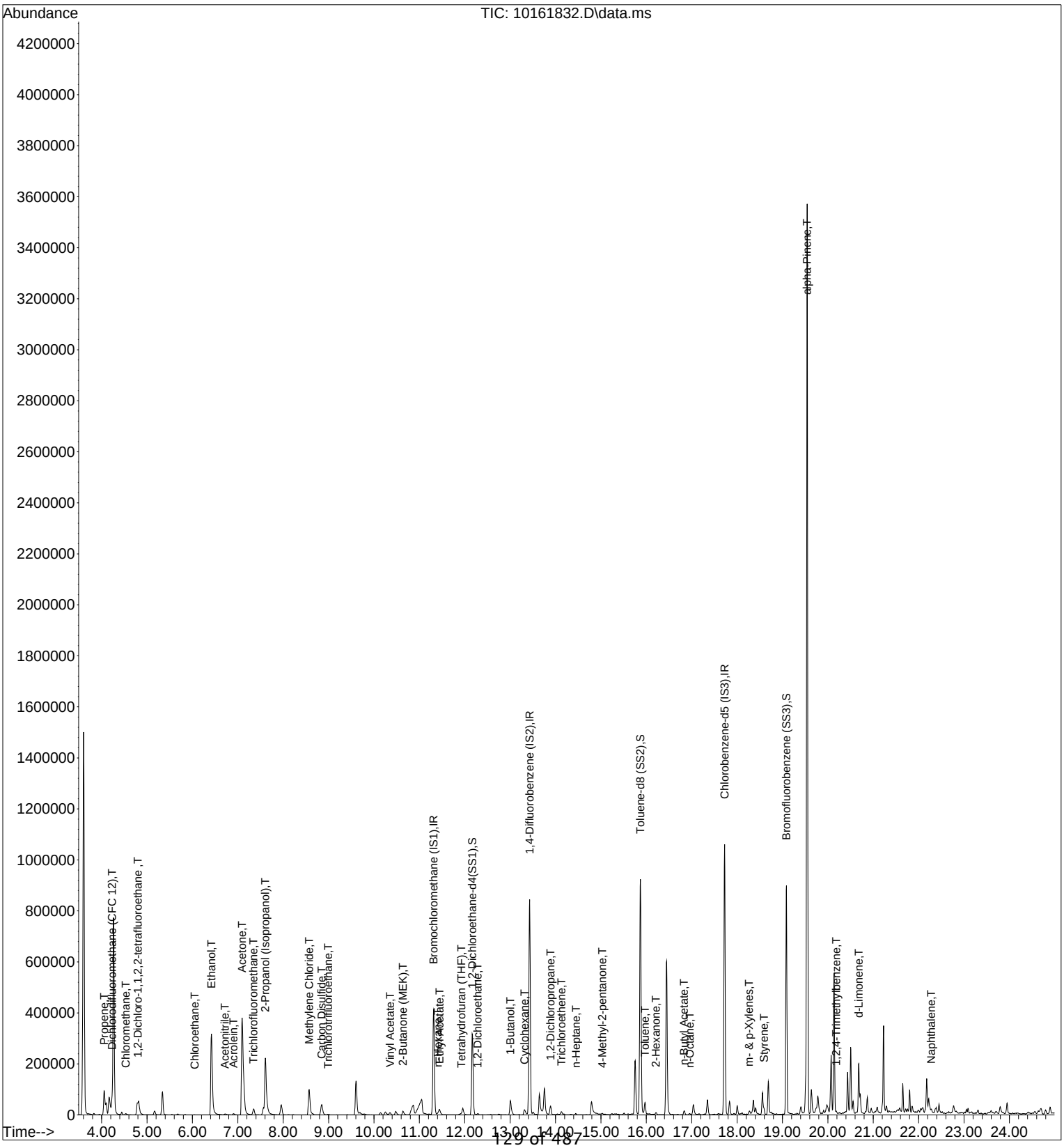
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	393	N.D.		
51) n-Heptane	14.45	71	1280	0.059 ng		87
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	1443	0.071 ng	#	60
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	42862	0.452 ng		98
59) 2-Hexanone	16.21	43	6944	0.154 ng		85
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.83	43	13952	0.278 ng		98
63) n-Octane	16.96	57	1266	0.068 ng	#	79
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.11	91	5233	N.D.		
67) m- & p-Xylenes	18.26	91	7689	0.099 ng		100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	11147	0.177 ng		99
70) o-Xylene	18.69	91	3795	N.D.		
71) n-Nonane	18.87	43	1147	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.70	83	871	N.D.		
74) Cumene	19.20	105	519	N.D.		
75) alpha-Pinene	19.54	93	1548001	29.246 ng		97
76) n-Propylbenzene	19.64	91	1755	N.D.		
77) 3-Ethyltoluene	19.73	105	2474	N.D.		
78) 4-Ethyltoluene	19.77	105	3211	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	901	N.D.		
80) alpha-Methylstyrene	19.96	118	755	N.D.		
81) 2-Ethyltoluene	20.01	105	1224	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	4415	0.054 ng		84
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	20.39	146	531	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	531	N.D.		
87) sec-Butylbenzene	20.42	105	782	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	2244	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	48875	1.595 ng	#	47
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	8860	0.095 ng		100
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.14	119	2088	N.D.		
100) n-Butylbenzene	20.89	91	504	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:28:01 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:28:01 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

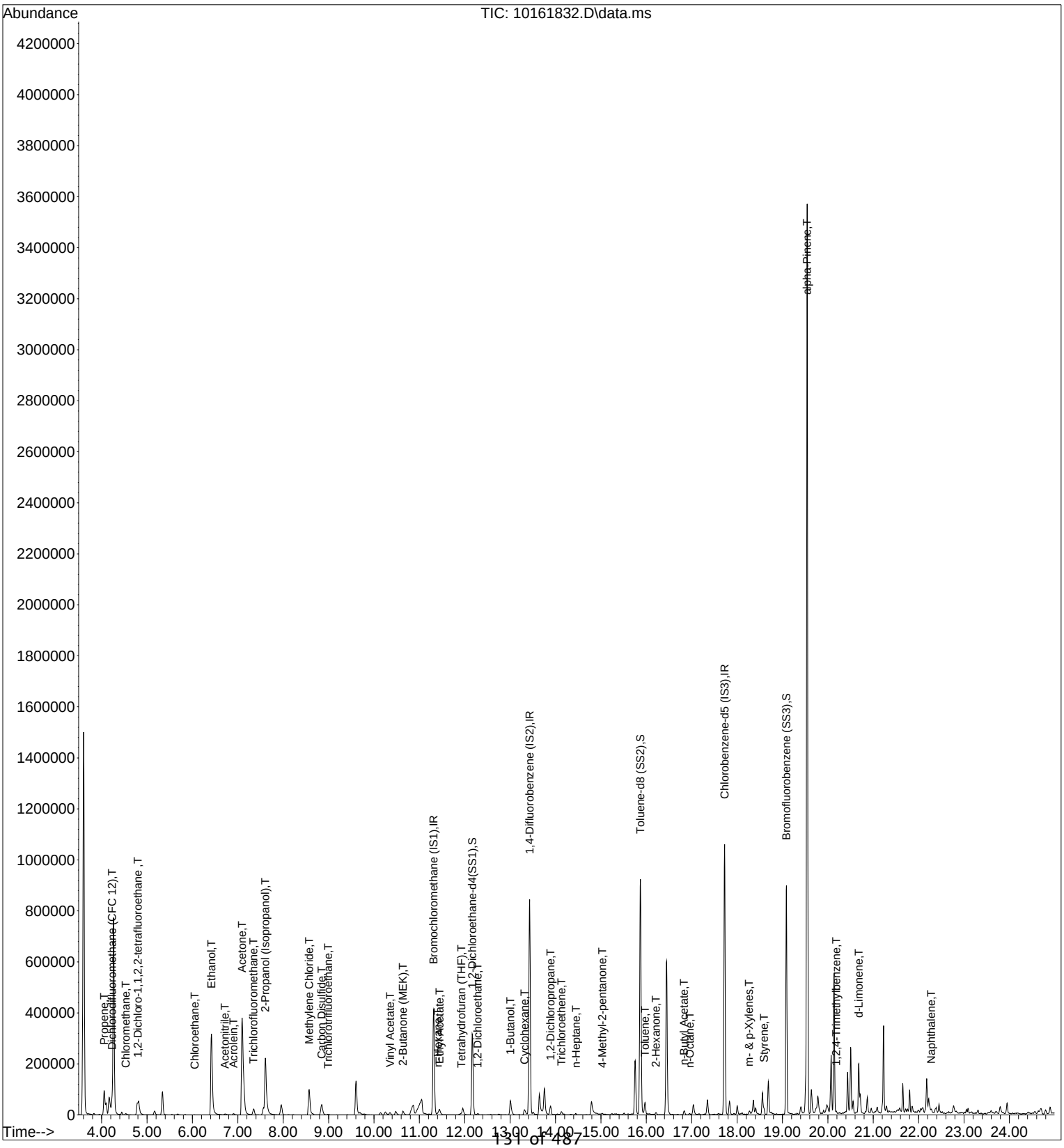
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	209728	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	880480	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	362037	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	258359	12.452	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.60%				
57) Toluene-d8 (SS2)	15.87	98	771127	13.924	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.36%				
73) Bromofluorobenzene (SS3)	19.09	174	334028	14.840	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.72%				
Target Compounds							Qvalue
2) Propene	4.05	42	45794	1.918	ng	#	85
3) Dichlorodifluoromethan...	4.23	85	54059	1.386	ng		99
4) Chloromethane	4.53	50	2799	0.096	ng		91
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1839	0.081	ng		92
9) Chloroethane	6.05	64	880	0.054	ng		65
10) Ethanol	6.42	45	492617	33.742	ng		100
11) Acetonitrile	6.71	41	6948	0.179	ng		94
12) Acrolein	6.91	56	7468	0.529	ng		99
13) Acetone	7.09	58	229906	14.013	ng		88
14) Trichlorofluoromethane	7.35	101	26107	0.773	ng		99
15) 2-Propanol (Isopropanol)	7.61	45	409903	8.129	ng		99
19) Methylene Chloride	8.57	84	6370	0.275	ng		99
21) Trichlorotrifluoroethane	8.99	151	1510	0.074	ng		95
22) Carbon Disulfide	8.85	76	96387	1.134	ng		99
26) Vinyl Acetate	10.36	86	1849	0.390	ng	#	61
27) 2-Butanone (MEK)	10.64	72	7084	0.464	ng	#	85
30) Ethyl Acetate	11.44	61	4520	0.577	ng		88
31) n-Hexane	11.41	57	2555	0.073	ng	#	92
34) Tetrahydrofuran (THF)	11.92	72	2276	0.150	ng	#	1
36) 1,2-Dichloroethane	12.29	62	1927	0.077	ng		85
40) 1-Butanol	13.01	56	42724	2.065	ng	#	71
43) Cyclohexane	13.32	84	3032	0.090	ng		92
45) 1,2-Dichloropropane	13.89	63	15950	0.731	ng		99
47) Trichloroethene	14.13	130	4823	0.194	ng		99
51) n-Heptane	14.45	71	1280	0.059	ng		87
53) 4-Methyl-2-pentanone	15.03	58	1443	0.071	ng	#	60
58) Toluene	15.97	91	42862	0.452	ng		98
59) 2-Hexanone	16.21	43	6944	0.154	ng		85
62) n-Butyl Acetate	16.83	43	13952	0.278	ng		98
63) n-Octane	16.96	57	1266	0.068	ng	#	79
67) m- & p-Xylenes	18.26	91	7689	0.099	ng		100
69) Styrene	18.59	104	11147	0.177	ng		99
75) alpha-Pinene	19.54	93	1548001	29.246	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	4415	0.054	ng		84
91) d-Limonene	20.68	68	48875	1.595	ng	#	47
95) Naphthalene	22.28	128	8860	0.095	ng		100

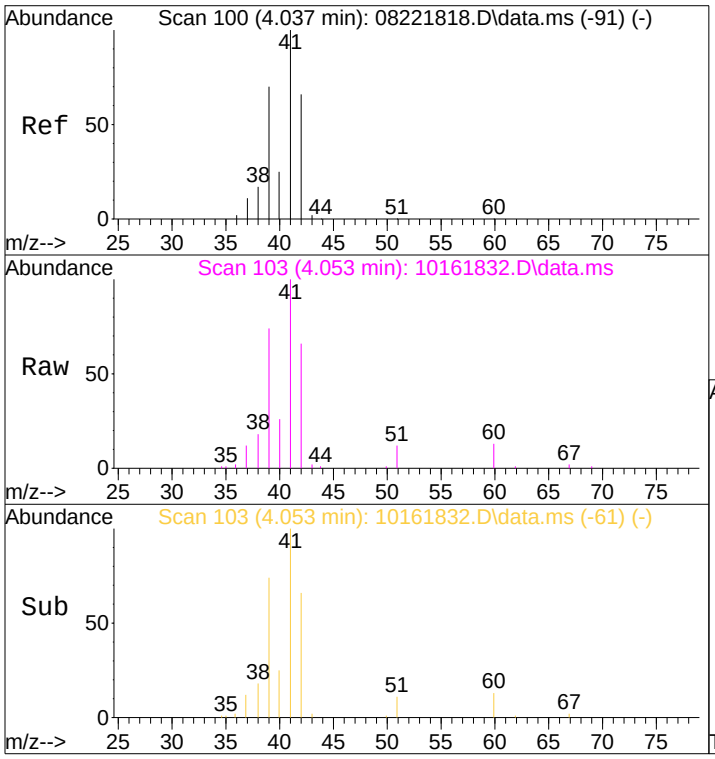
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:28:01 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

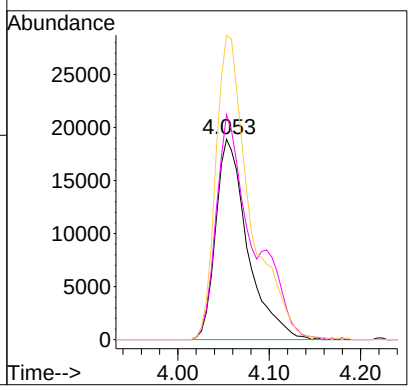


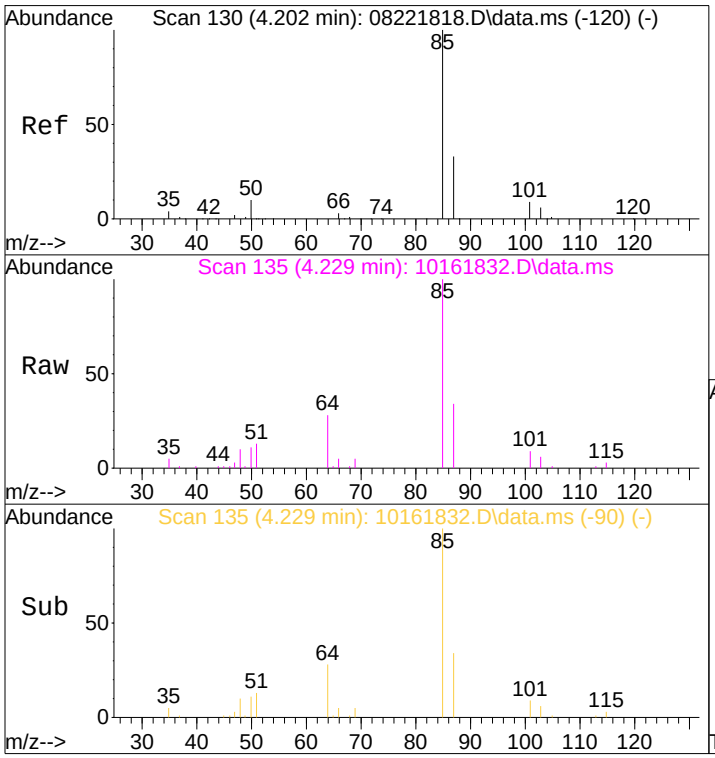


#2
Propene
Concen: 1.92 ng
RT: 4.05 min Scan# 103
Delta R.T. -0.016 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 42 Resp: 45794

Ion	Ratio	Lower	Upper
42	100		
39	130.3	85.6	125.6#
41	163.1	131.4	171.4

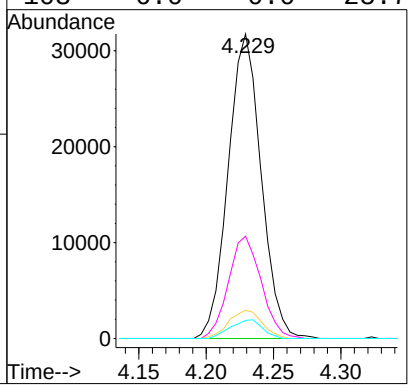


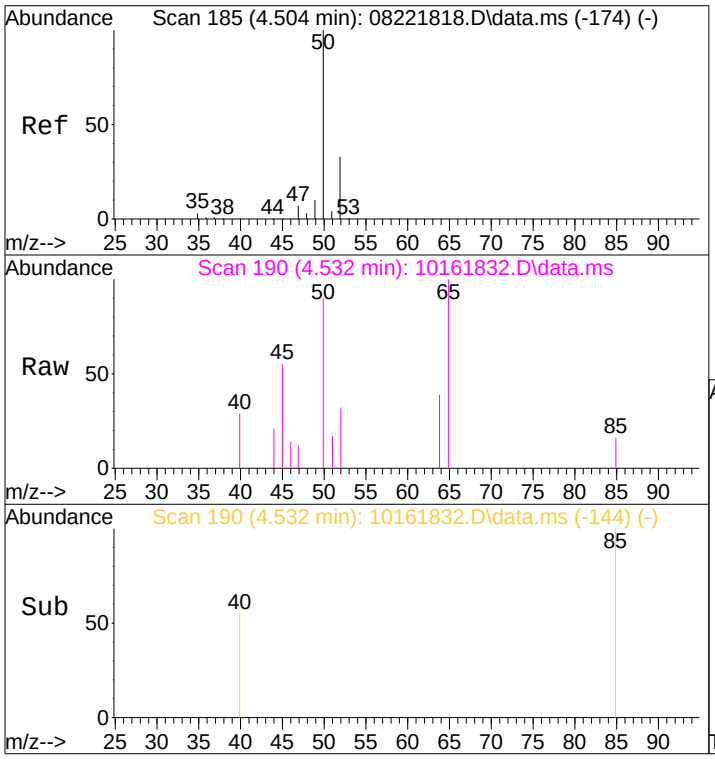


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.39 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 85 Resp: 54059

Ion	Ratio	Lower	Upper
85	100		
87	33.3	12.6	52.6
101	9.4	0.0	28.8
103	6.0	0.0	25.7

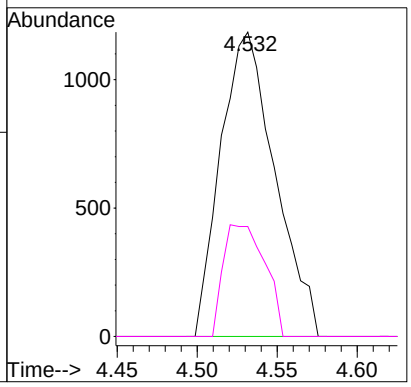


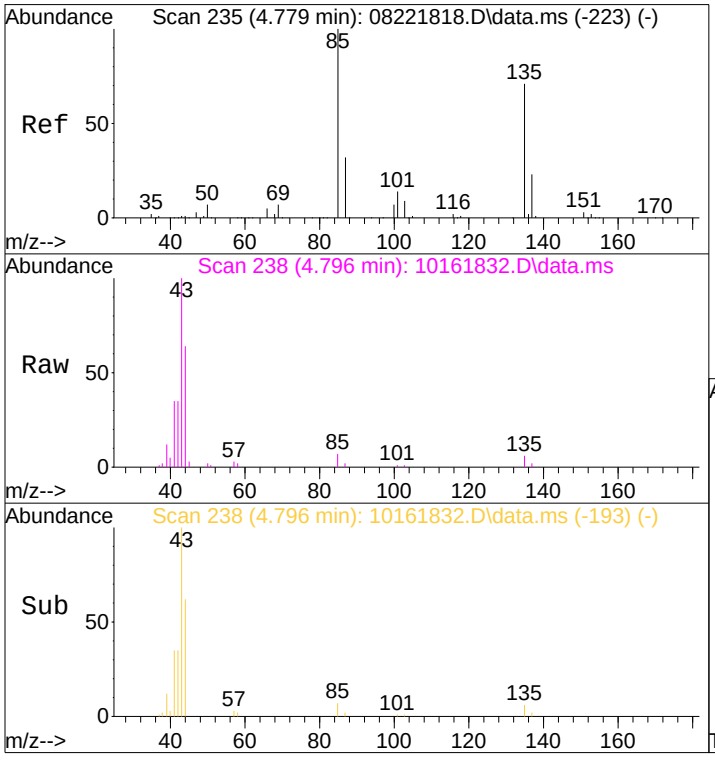


#4
Chloromethane
Concen: 0.10 ng
RT: 4.53 min Scan# 190
Delta R.T. 0.006 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 50 Resp: 2799

Ion	Ratio	Lower	Upper
50	100		
52	28.2	13.2	53.2

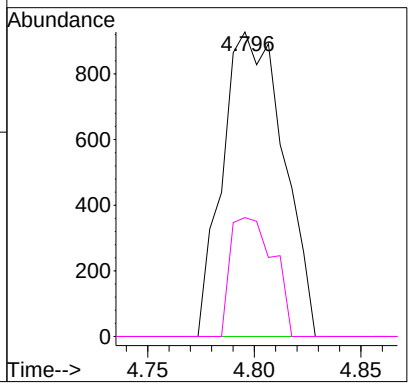


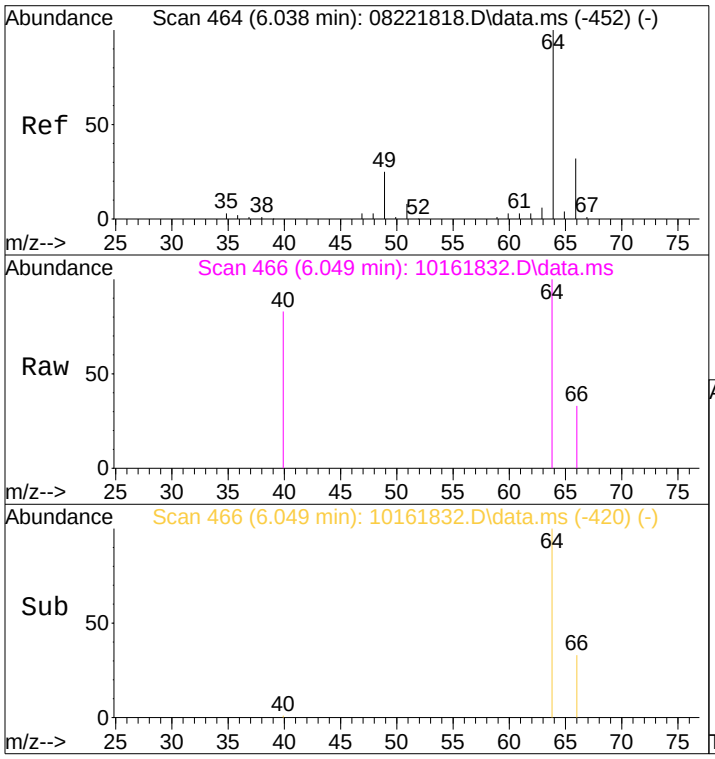


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.08 ng
RT: 4.80 min Scan# 238
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:135 Resp: 1839

Ion	Ratio	Lower	Upper
135	100		
137	27.7	12.3	52.3

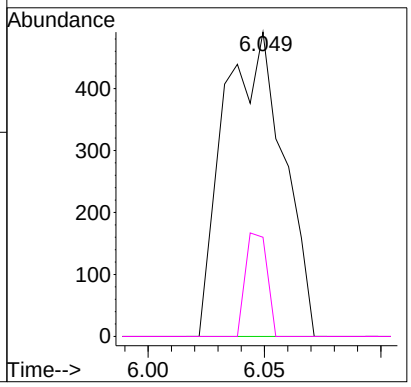


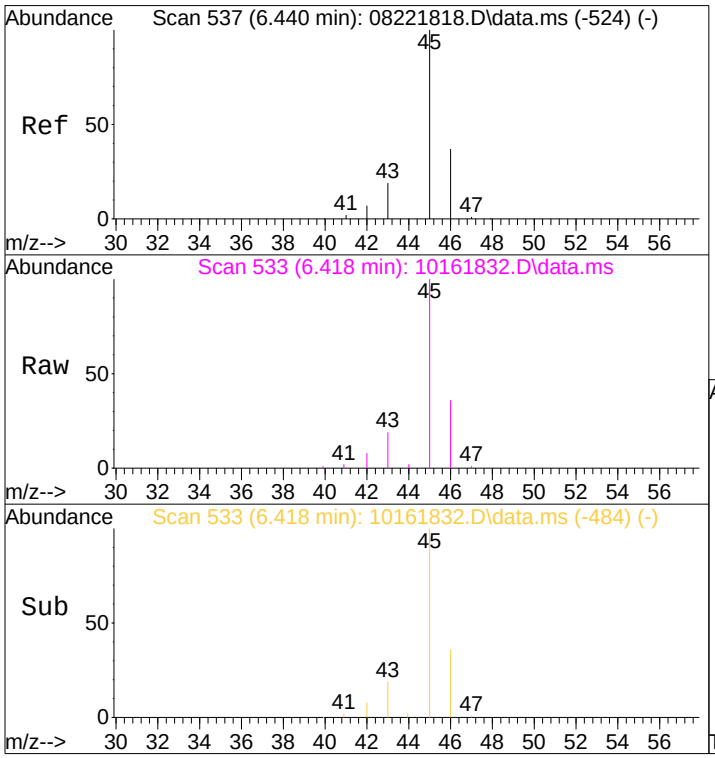


#9
Chloroethane
Concen: 0.05 ng
RT: 6.05 min Scan# 466
Delta R.T. 0.006 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 64 Resp: 880

Ion	Ratio	Lower	Upper
64	100		
66	12.3	12.0	52.0

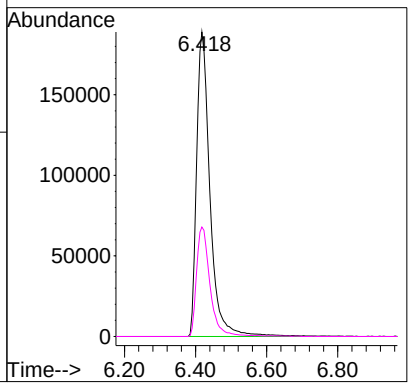


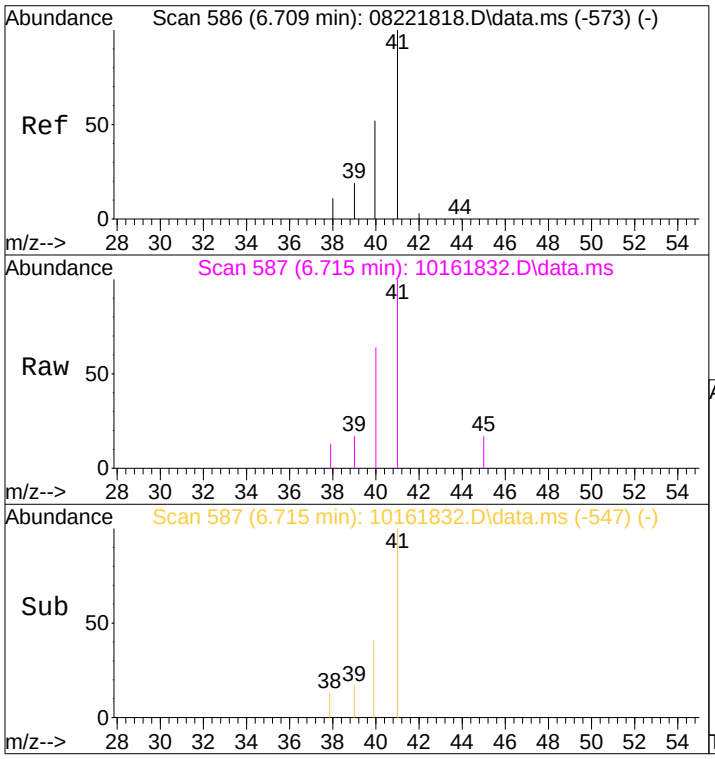


#10
Ethanol
Concen: 33.74 ng
RT: 6.42 min Scan# 533
Delta R.T. 0.022 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 45 Resp: 492617

Ion	Ratio	Lower	Upper
45	100		
46	36.5	16.7	56.7

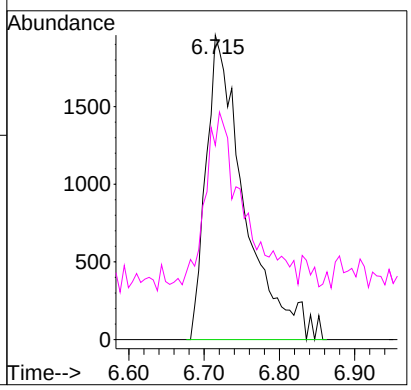


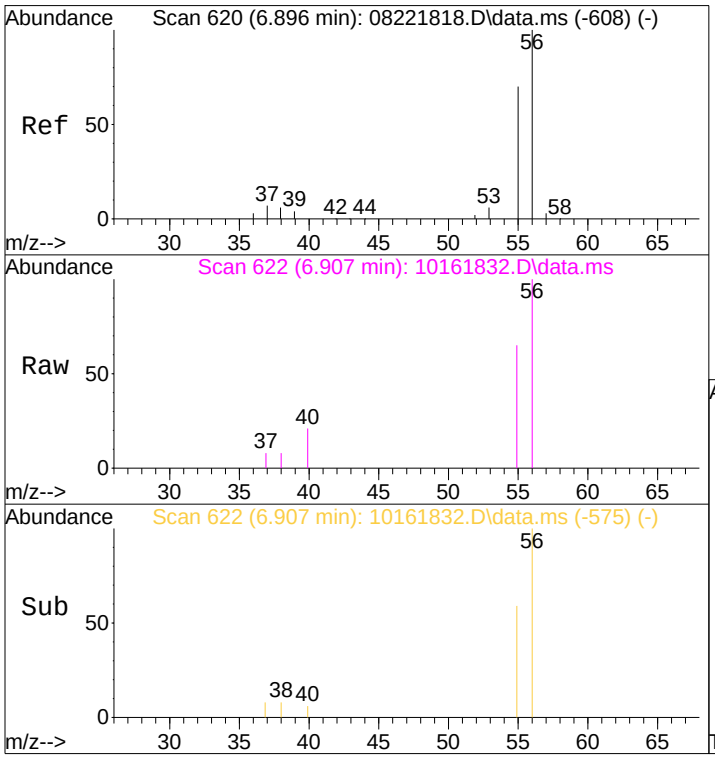


#11
Acetonitrile
Concen: 0.18 ng
RT: 6.71 min Scan# 587
Delta R.T. 0.022 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 41 Resp: 6948

Ion	Ratio	Lower	Upper
41	100		
40	56.6	32.2	72.2

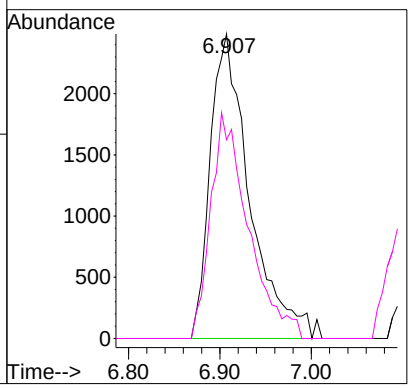


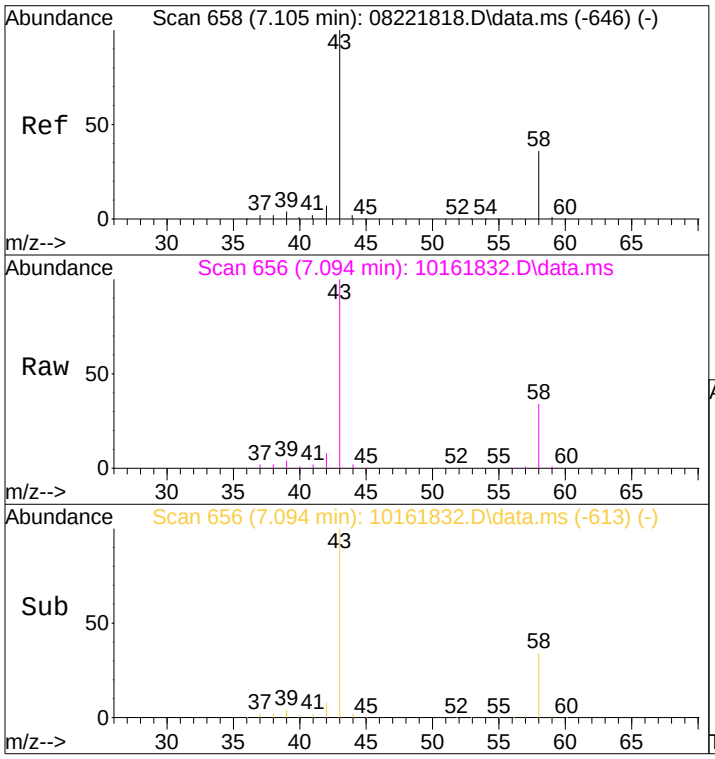


#12
Acrolein
Concen: 0.53 ng
RT: 6.91 min Scan# 622
Delta R.T. 0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 56 Resp: 7468

Ion	Ratio	Lower	Upper
56	100		
55	70.5	49.9	89.9

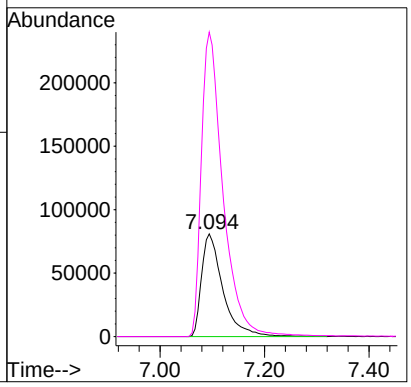


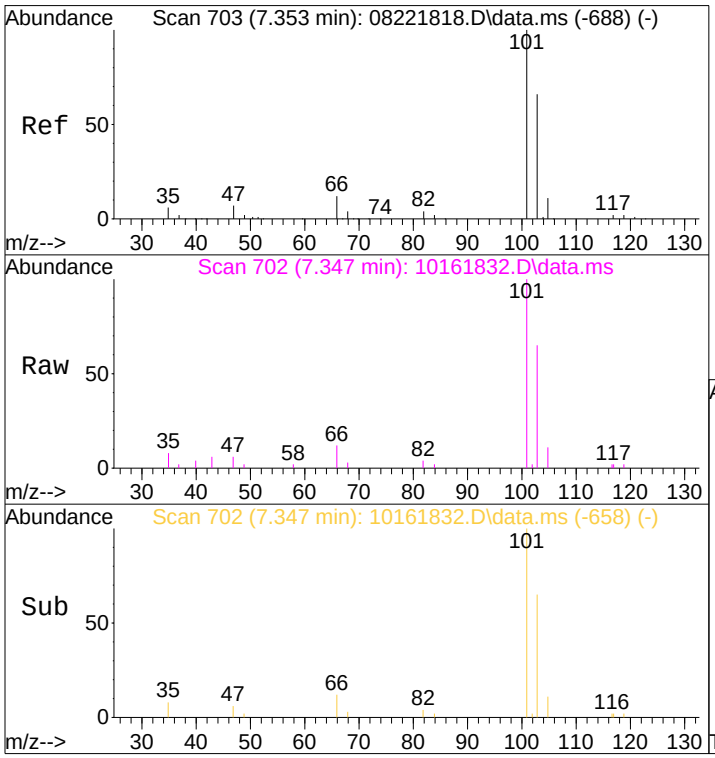


#13
Acetone
Concen: 14.01 ng
RT: 7.09 min Scan# 656
Delta R.T. -0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 58 Resp: 229906

Ion	Ratio	Lower	Upper
58	100		
43	300.6	247.7	307.7

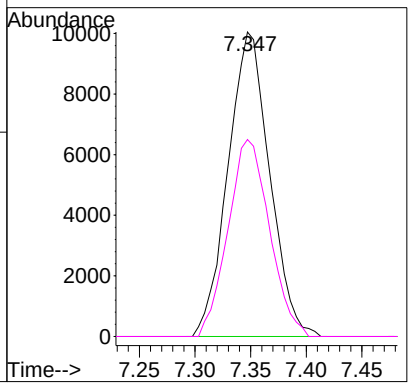


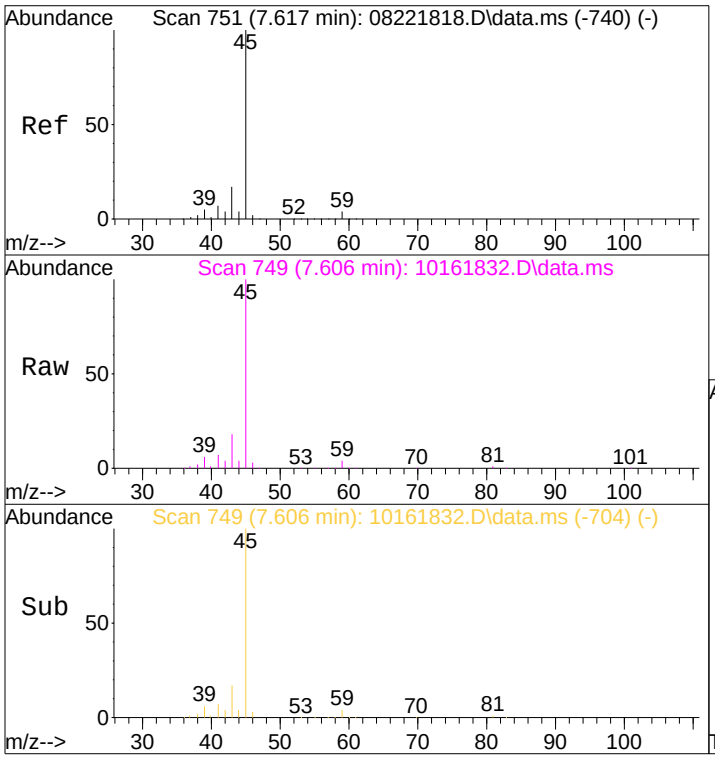


#14
Trichlorofluoromethane
Concen: 0.77 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.005 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:101 Resp: 26107

Ion	Ratio	Lower	Upper
101	100		
103	64.5	45.1	85.1

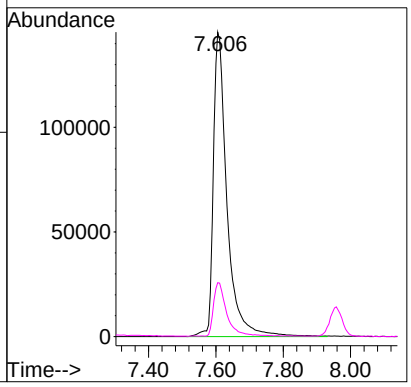


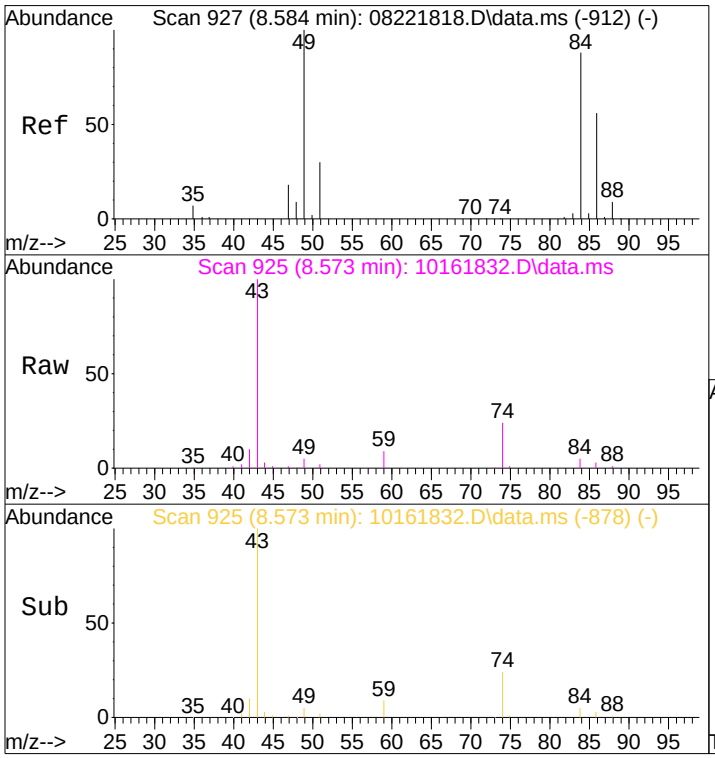


#15
2-Propanol (Isopropanol)
Concen: 8.13 ng
RT: 7.61 min Scan# 749
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 45 Resp: 409903

Ion	Ratio	Lower	Upper
45	100		
43	17.1	0.0	36.8

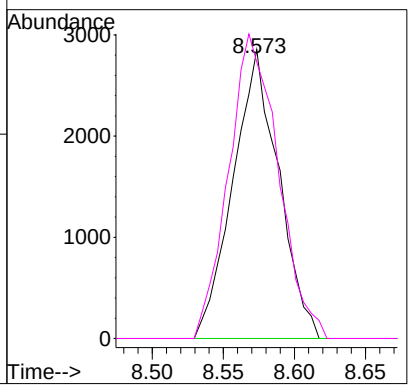


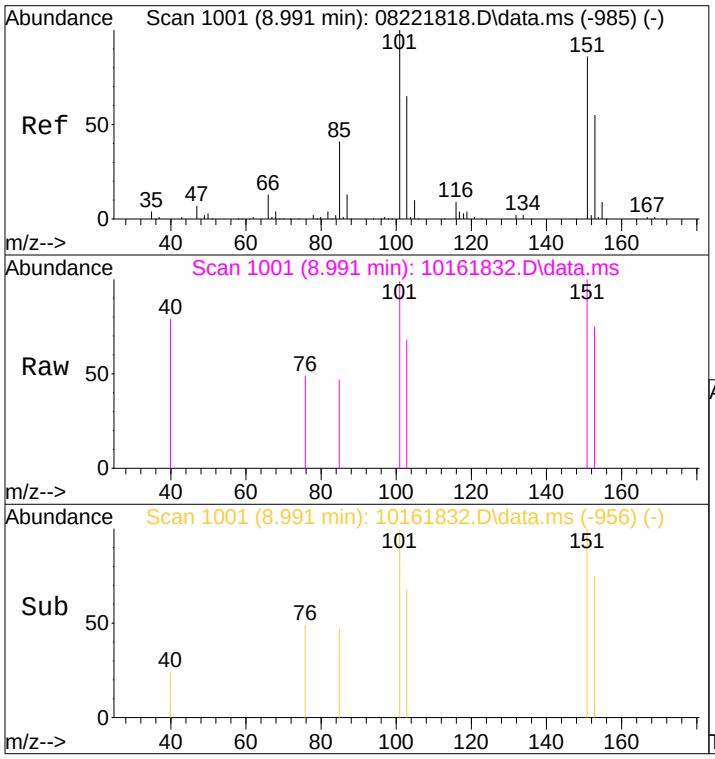


#19
Methylene Chloride
Concen: 0.27 ng
RT: 8.57 min Scan# 925
Delta R.T. 0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 84 Resp: 6370

Ion	Ratio	Lower	Upper
84	100		
49	114.7	90.8	140.8

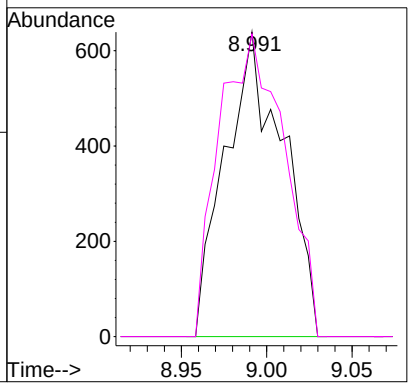


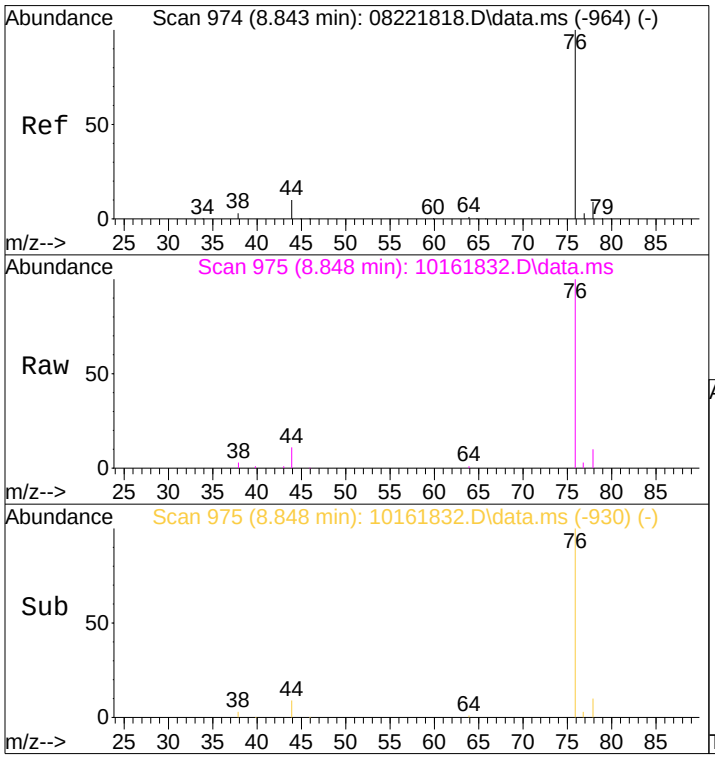


#21
Trichlorotrifluoroethane
Concen: 0.07 ng
RT: 8.99 min Scan# 1001
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:151 Resp: 1510

Ion	Ratio	Lower	Upper
151	100		
101	111.7	97.4	137.4

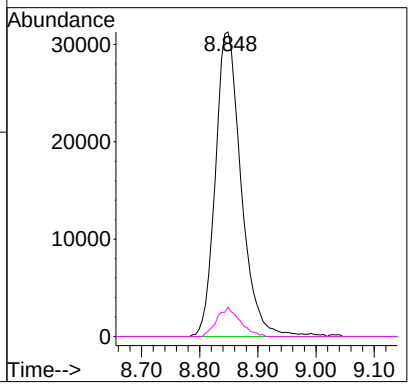


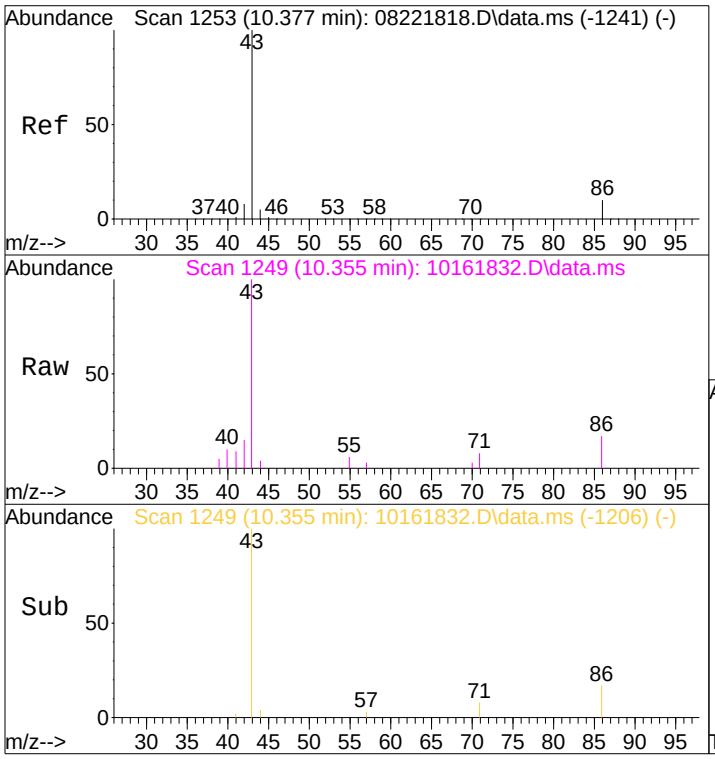


#22
Carbon Disulfide
Concen: 1.13 ng
RT: 8.85 min Scan# 975
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 76 Resp: 96387

Ion	Ratio	Lower	Upper
76	100		
78	8.6	0.0	29.1

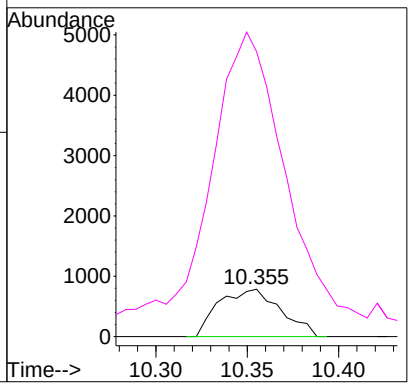


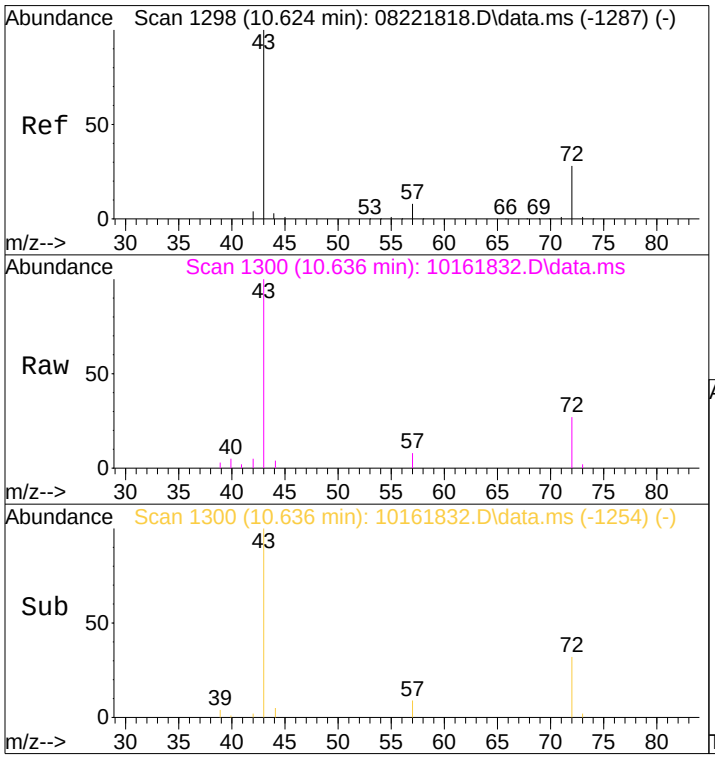


#26
Vinyl Acetate
Concen: 0.39 ng
RT: 10.36 min Scan# 1249
Delta R.T. -0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 86 Resp: 1849

Ion	Ratio	Lower	Upper
86	100		
43	838.1	994.0	1034.0#

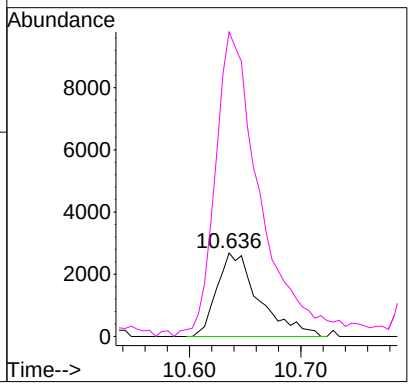


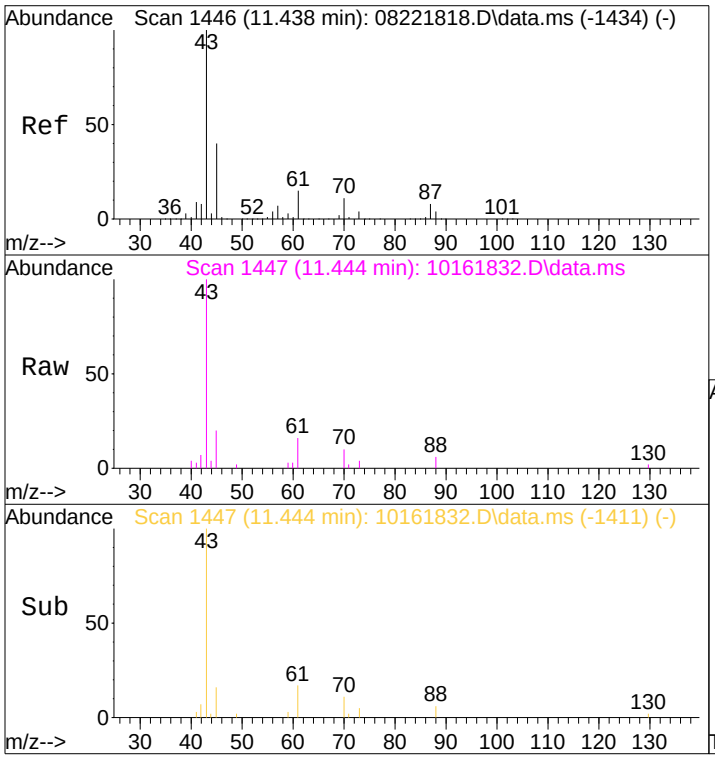


#27
2-Butanone (MEK)
Concen: 0.46 ng
RT: 10.64 min Scan# 1300
Delta R.T. 0.006 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 72 Resp: 7084

Ion	Ratio	Lower	Upper
72	100		
43	396.2	341.9	381.9#

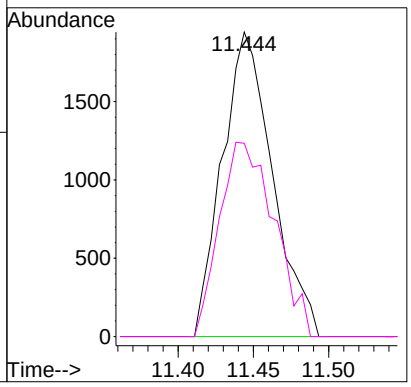


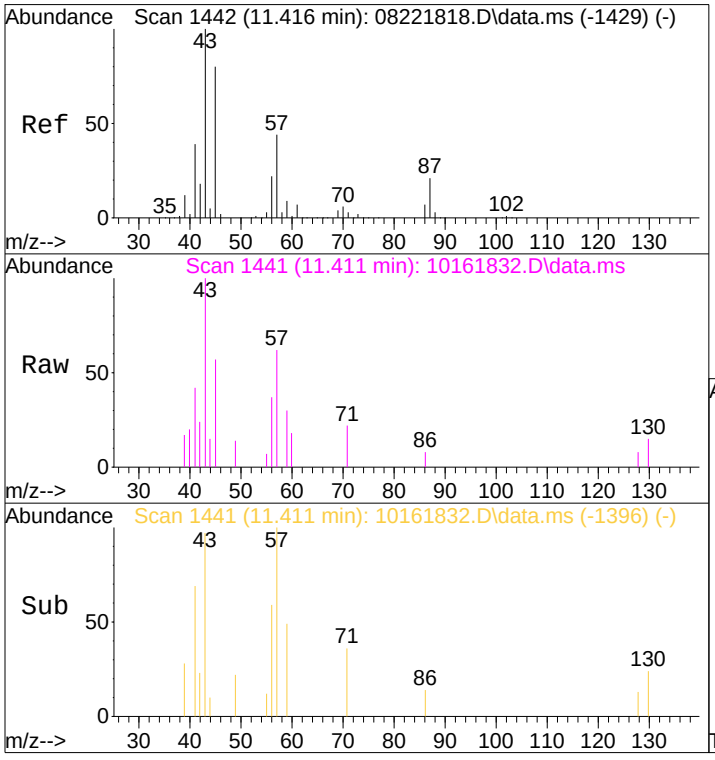


#30
Ethyl Acetate
Concen: 0.58 ng
RT: 11.44 min Scan# 1447
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 61 Resp: 4520

Ion	Ratio	Lower	Upper
61	100		
70	69.5	59.8	99.8

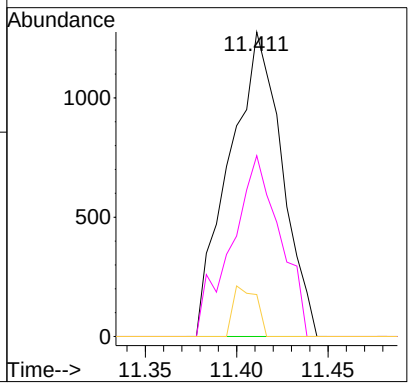


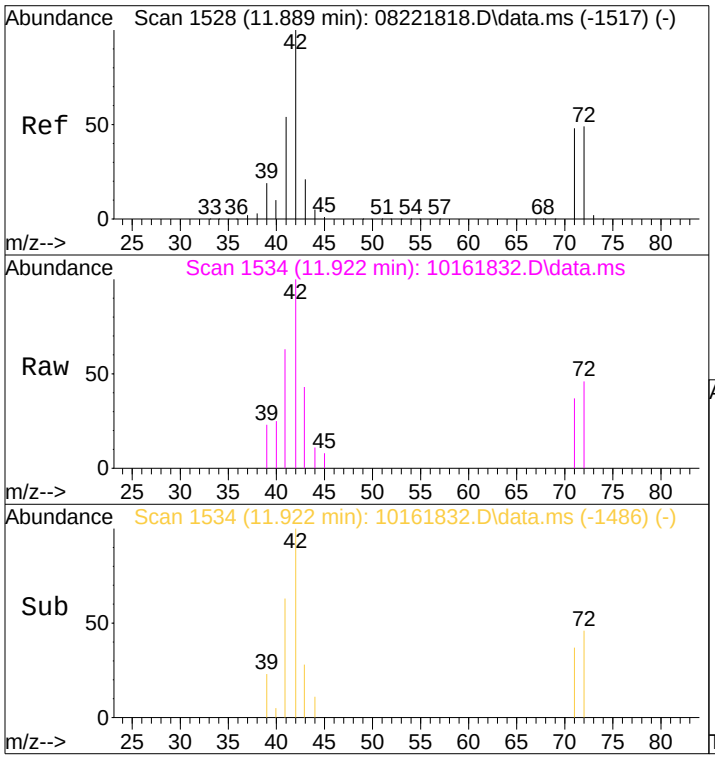


#31
n-Hexane
Concen: 0.07 ng
RT: 11.41 min Scan# 1441
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 57 Resp: 2555

Ion	Ratio	Lower	Upper
57	100		
56	55.1	41.2	61.8
86	7.4	12.4	18.6#

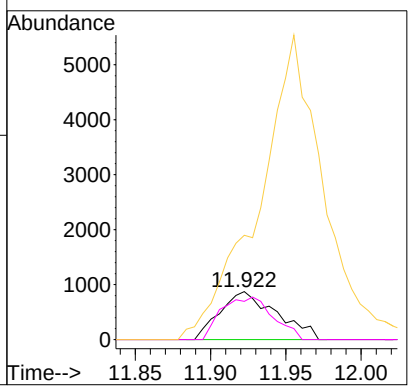


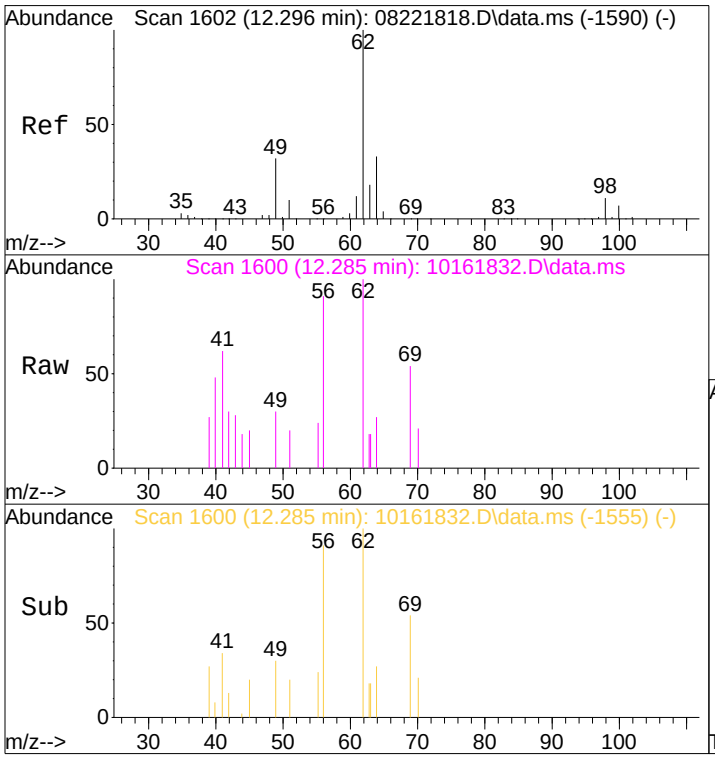


#34
Tetrahydrofuran (THF)
Concen: 0.15 ng
RT: 11.92 min Scan# 1534
Delta R.T. 0.017 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 72 Resp: 2276

Ion	Ratio	Lower	Upper
72	100		
71	80.8	77.8	117.8
42	734.8	185.7	225.7#

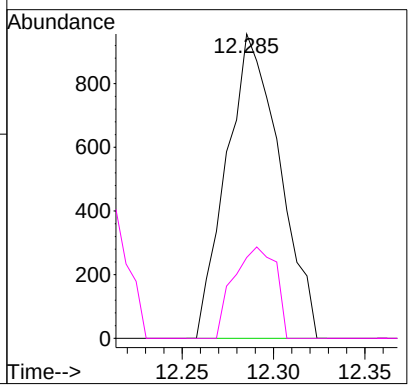


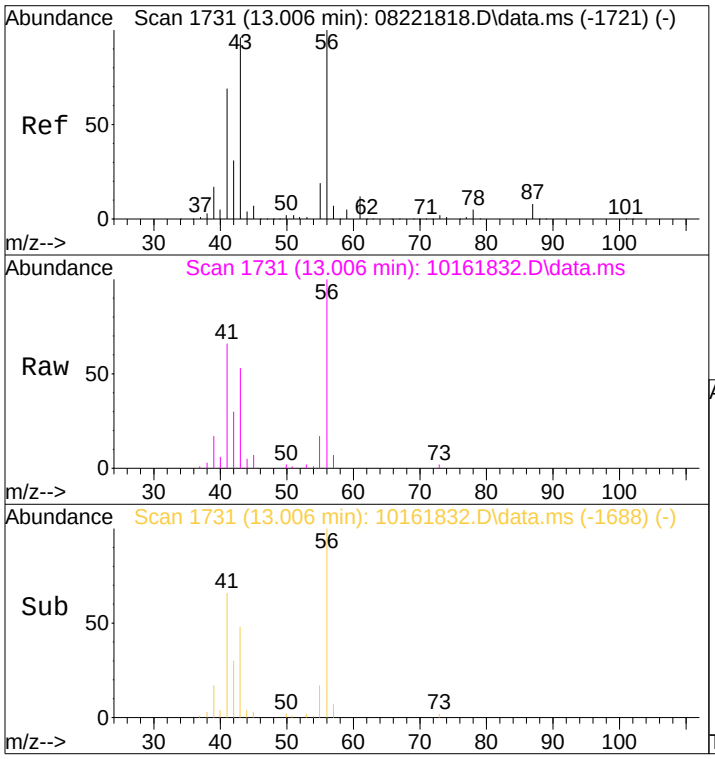


#36
1,2-Dichloroethane
Concen: 0.08 ng
RT: 12.29 min Scan# 1600
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 62 Resp: 1927

Ion	Ratio	Lower	Upper
62	100		
64	24.0	12.6	52.6

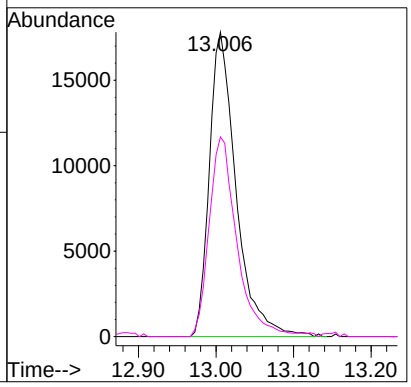


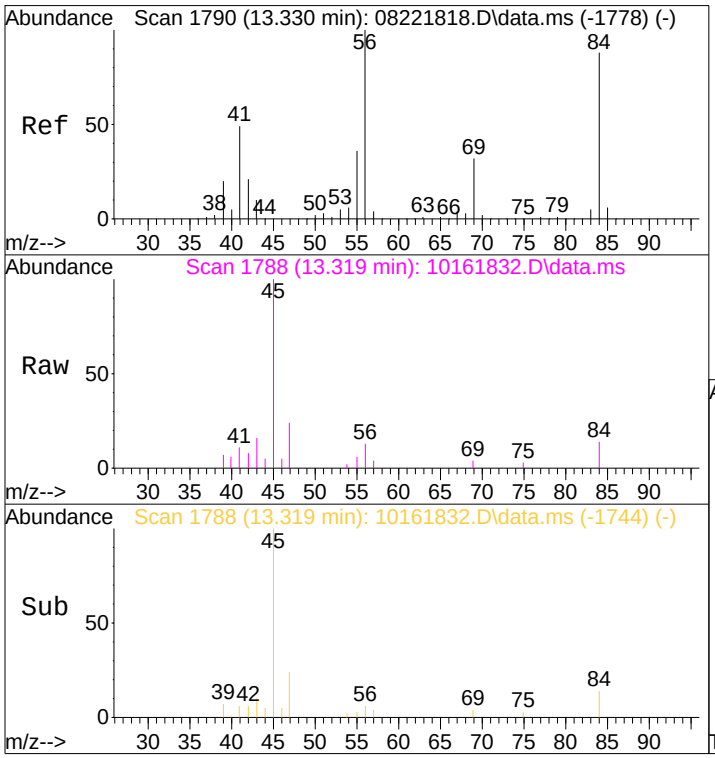


#40
1-Butanol
Concen: 2.07 ng
RT: 13.01 min Scan# 1731
Delta R.T. -0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 56 Resp: 42724

Ion	Ratio	Lower	Upper
56	100		
41	68.2	77.1	117.1#

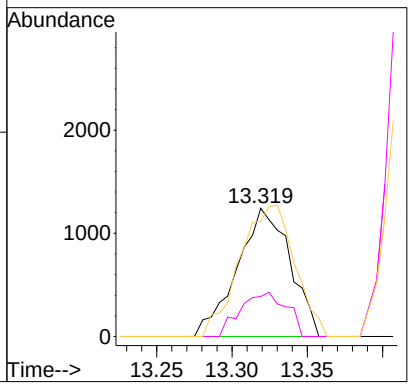


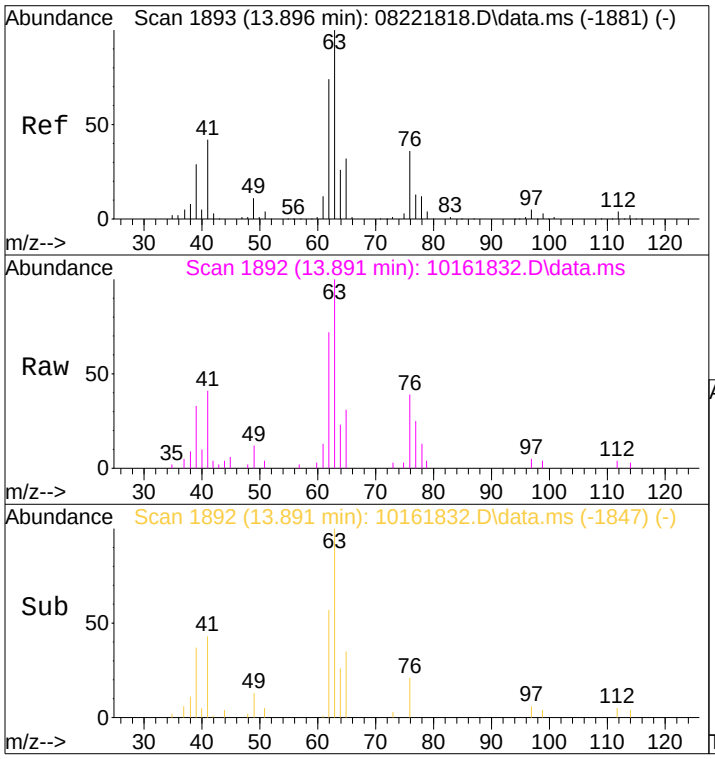


#43
Cyclohexane
Concen: 0.09 ng
RT: 13.32 min Scan# 1788
Delta R.T. -0.005 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 84 Resp: 3032

Ion	Ratio	Lower	Upper
84	100		
69	29.9	16.6	56.6
56	106.4	94.4	134.4

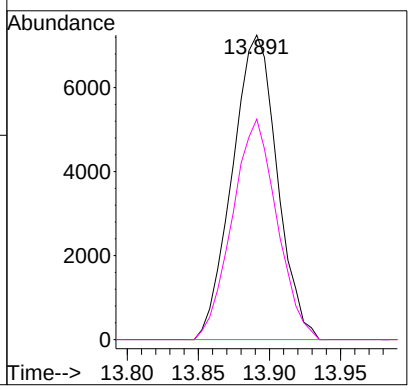


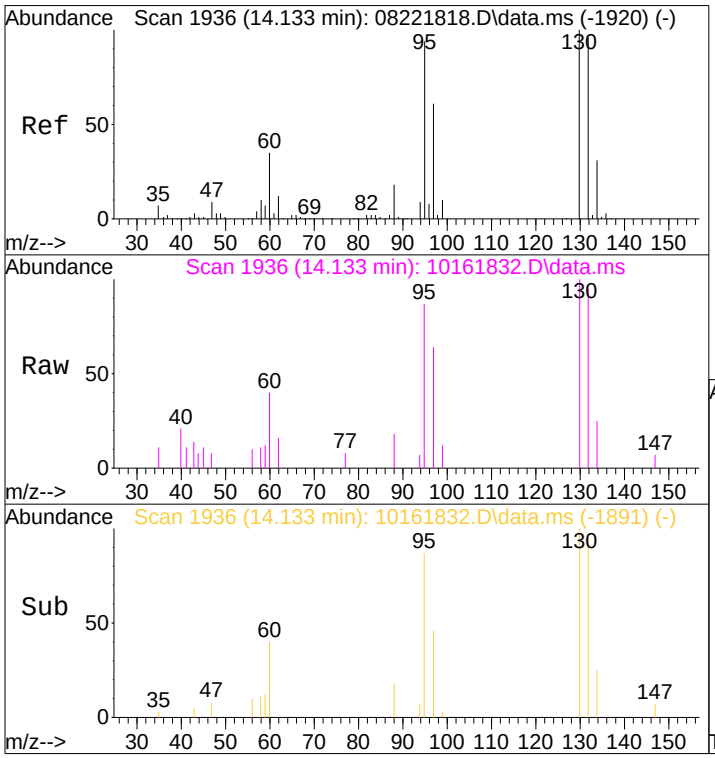


#45
1,2-Dichloropropane
Concen: 0.73 ng
RT: 13.89 min Scan# 1892
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 63 Resp: 15950

Ion	Ratio	Lower	Upper
63	100		
62	71.9	52.7	92.7

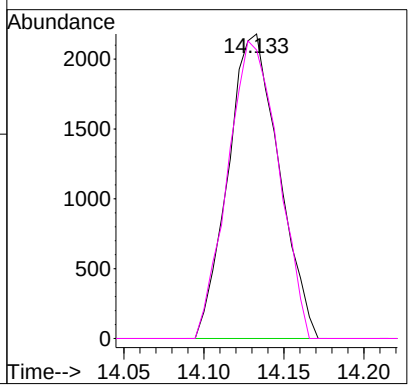


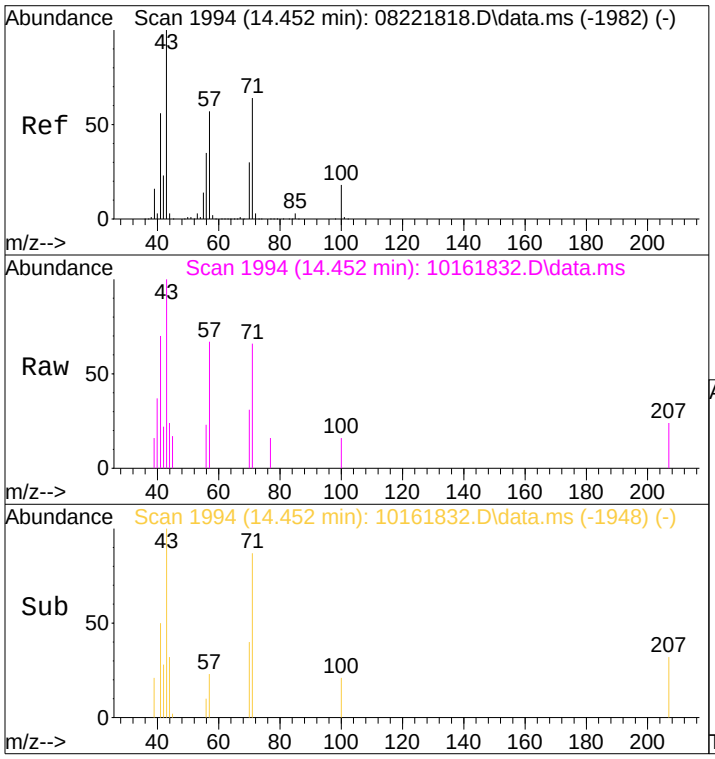


#47
Trichloroethene
Concen: 0.19 ng
RT: 14.13 min Scan# 1936
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:130 Resp: 4823

Ion	Ratio	Lower	Upper
130	100		
132	97.2	76.2	116.2

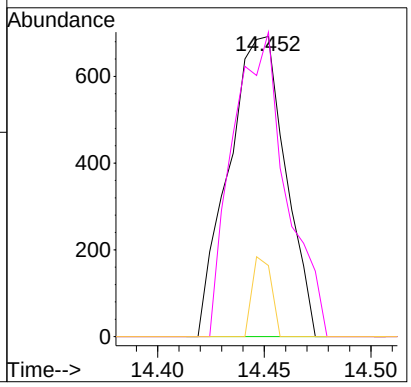


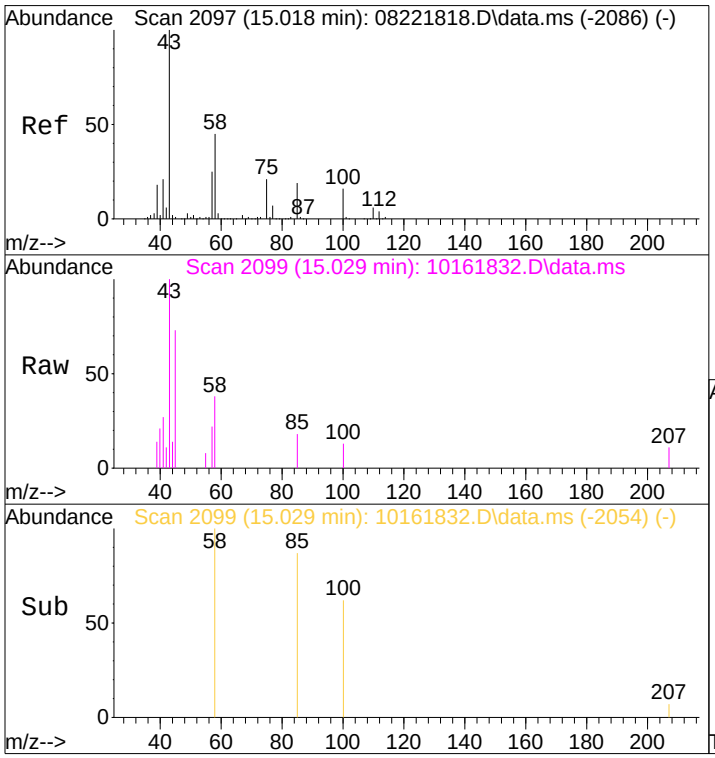


#51
n-Heptane
Concen: 0.06 ng
RT: 14.45 min Scan# 1994
Delta R.T. 0.006 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 71 Resp: 1280

Ion	Ratio	Lower	Upper
71	100		
57	95.2	69.4	109.4
100	9.0	7.6	47.6

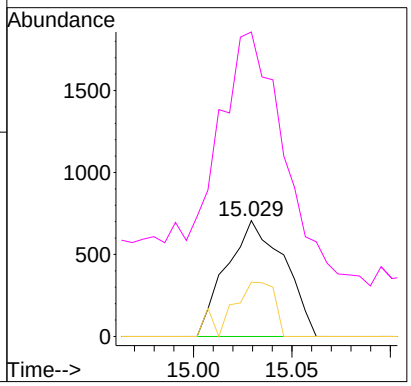


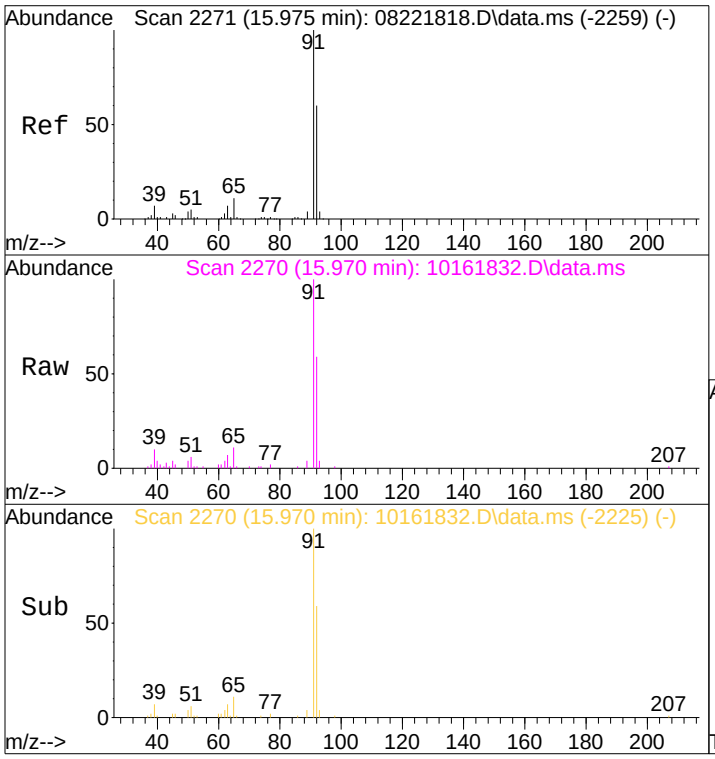


#53
4-Methyl-2-pentanone
Concen: 0.07 ng
RT: 15.03 min Scan# 2099
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 58 Resp: 1443

Ion	Ratio	Lower	Upper
58	100		
43	299.6	180.6	271.0#
85	35.0	36.2	54.2#

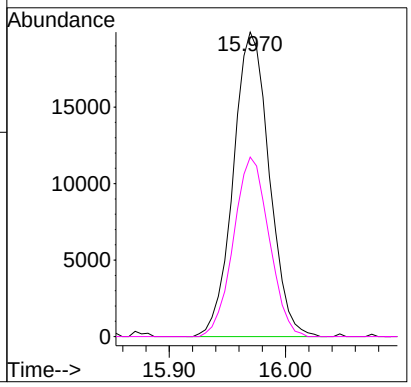


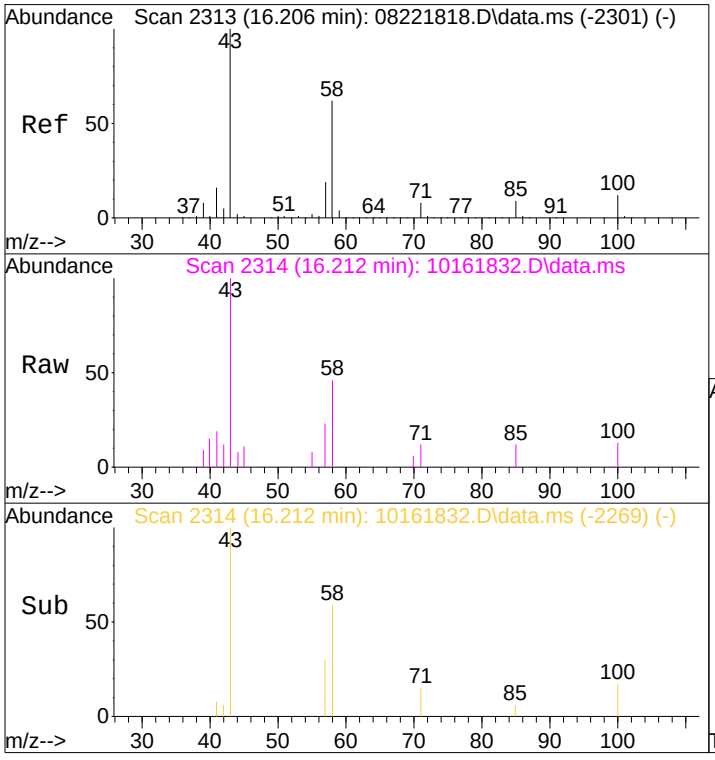


#58
Toluene
Concen: 0.45 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 91 Resp: 42862

Ion	Ratio	Lower	Upper
91	100		
92	58.2	39.6	79.6

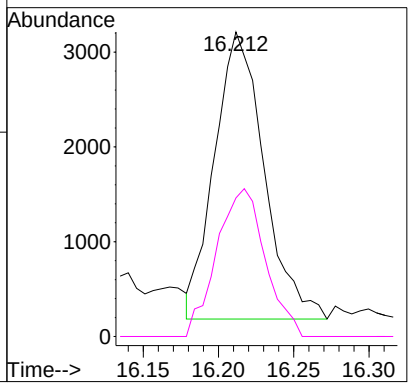


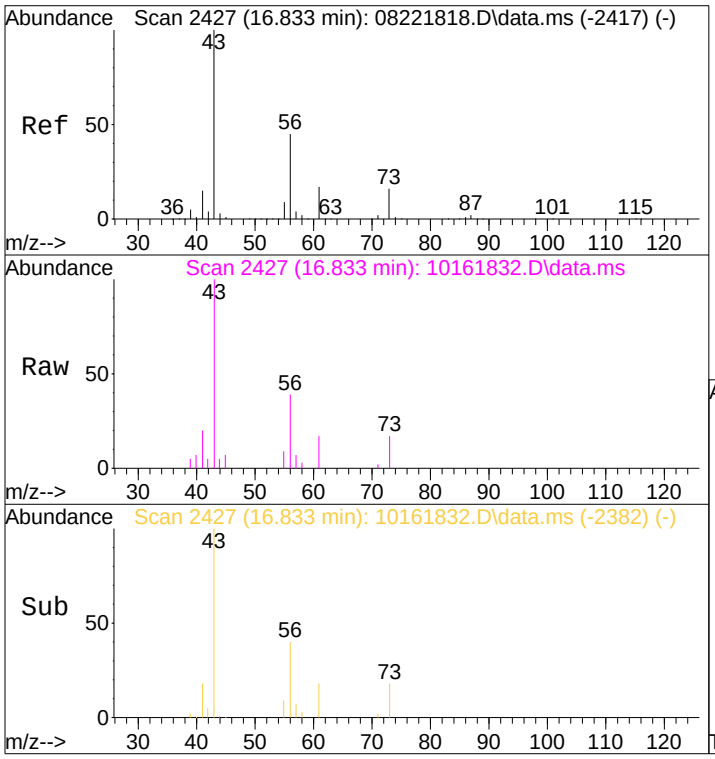


#59
2-Hexanone
Concen: 0.15 ng
RT: 16.21 min Scan# 2314
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 43 Resp: 6944

Ion	Ratio	Lower	Upper
43	100		
58	50.2	41.9	81.9

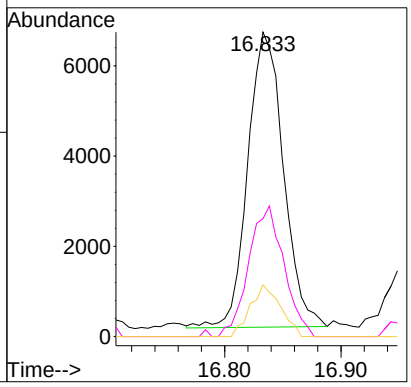


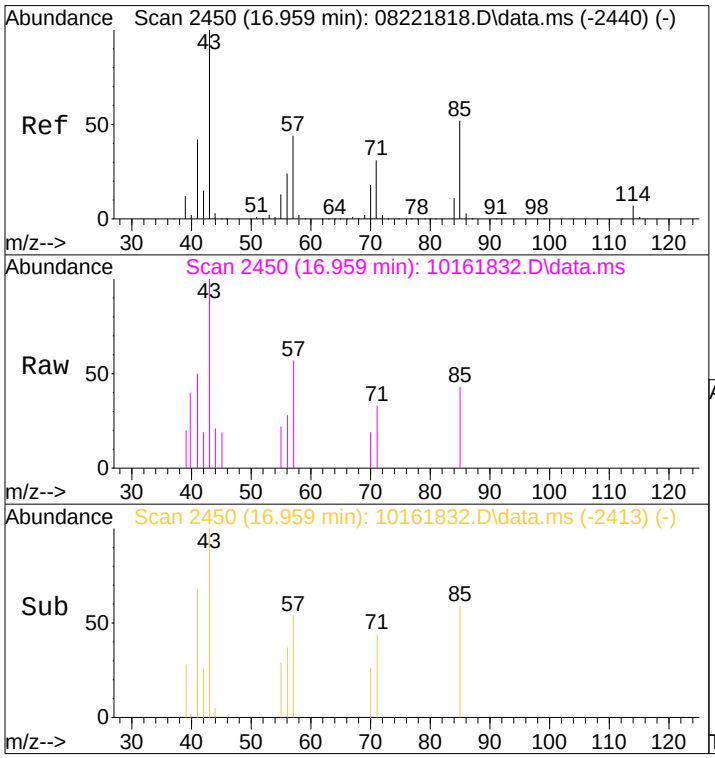


#62
n-Butyl Acetate
Concen: 0.28 ng
RT: 16.83 min Scan# 2427
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 43 Resp: 13952

Ion	Ratio	Lower	Upper
43	100		
56	43.7	24.7	64.7
73	14.8	0.0	35.9

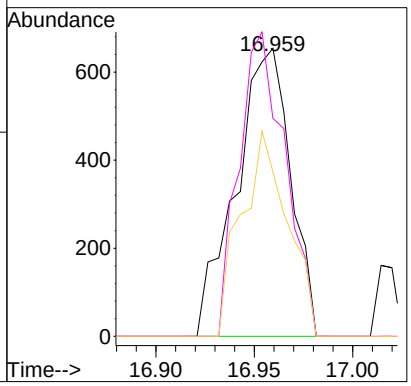


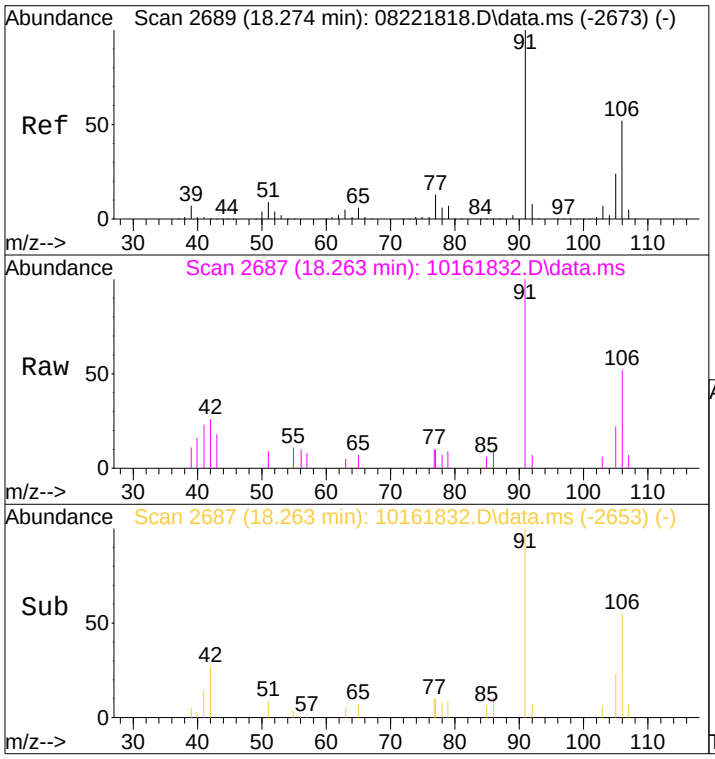


#63
n-Octane
Concen: 0.07 ng
RT: 16.96 min Scan# 2450
Delta R.T. 0.006 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 57 Resp: 1266

Ion	Ratio	Lower	Upper
57	100		
85	88.9	93.2	139.8#
71	60.3	57.0	85.4

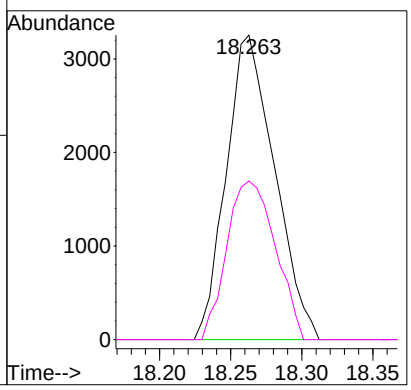


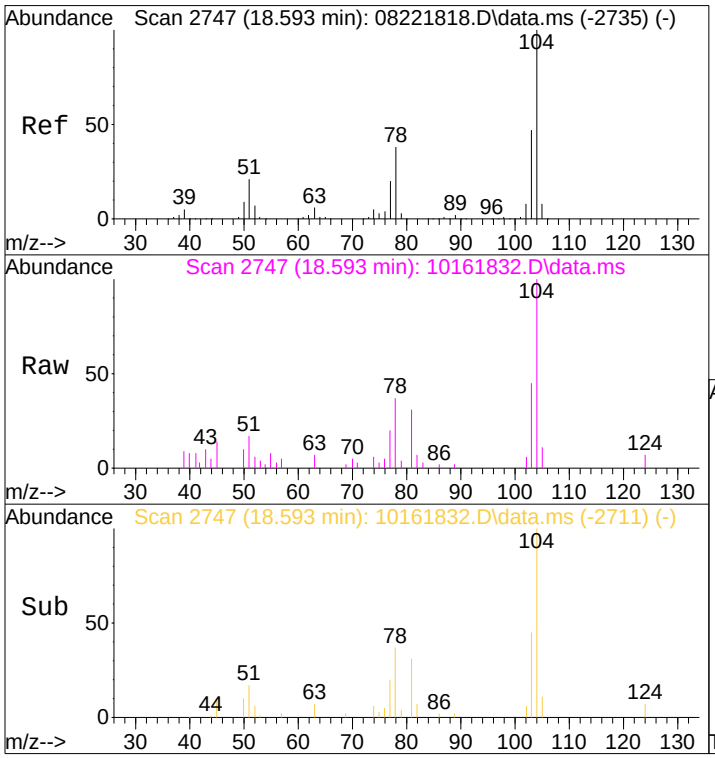


#67
m- & p-Xylenes
Concen: 0.10 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.011 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 91 Resp: 7689

Ion	Ratio	Lower	Upper
91	100		
106	52.3	32.2	72.2

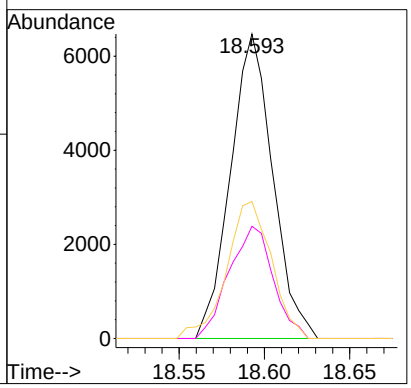


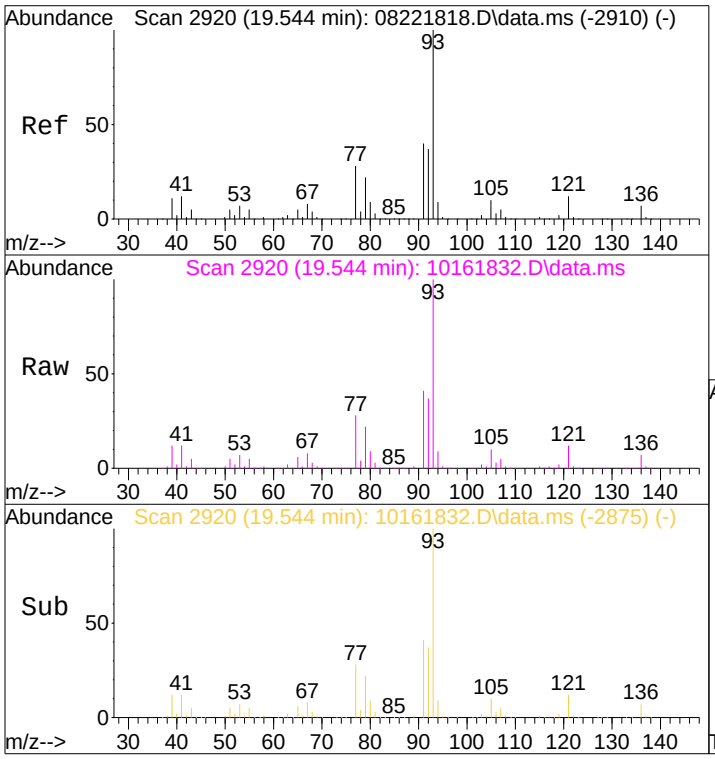


#69
Styrene
Concen: 0.18 ng
RT: 18.59 min Scan# 2747
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:104 Resp: 11147

Ion	Ratio	Lower	Upper
104	100		
78	38.5	18.4	58.4
103	47.8	27.0	67.0

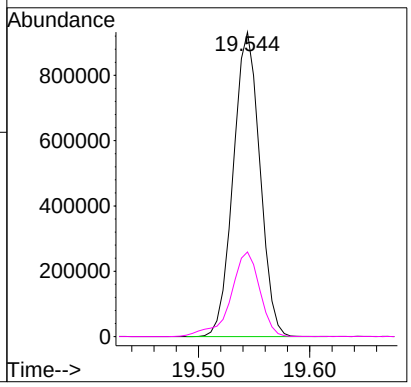


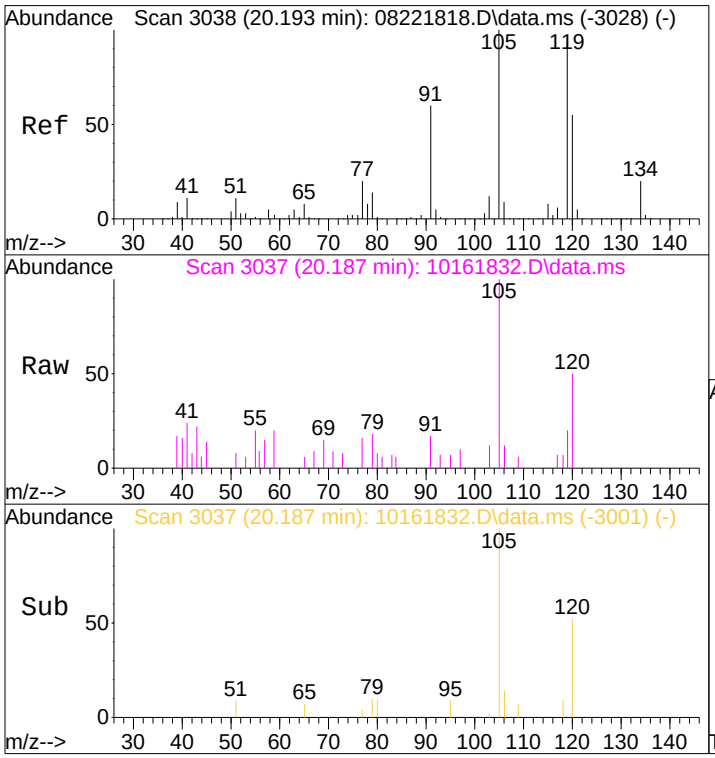


#75
alpha-Pinene
Concen: 29.25 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 93 Resp: 1548001

Ion	Ratio	Lower	Upper
93	100		
77	30.4	8.7	48.7

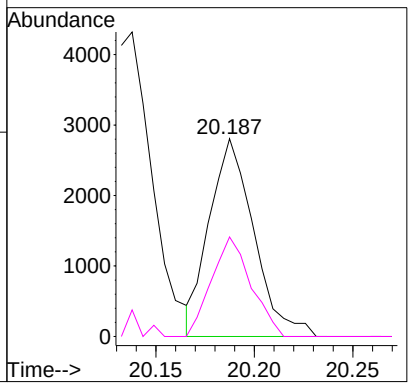


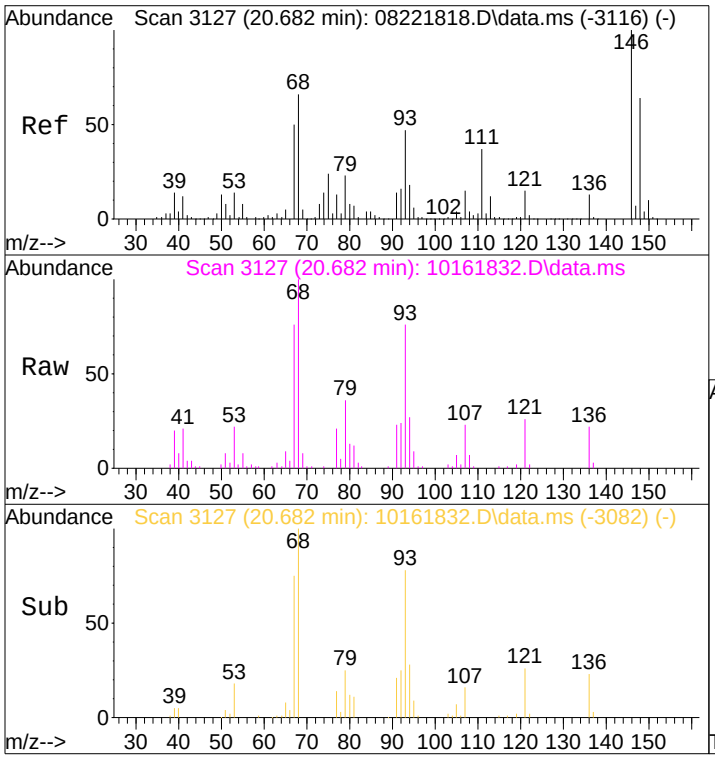


#82
1,2,4-Trimethylbenzene
Concen: 0.05 ng
RT: 20.19 min Scan# 3037
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:105 Resp: 4415

Ion	Ratio	Lower	Upper
105	100		
120	44.5	36.1	76.1

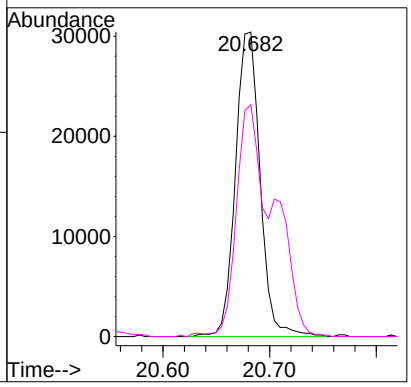


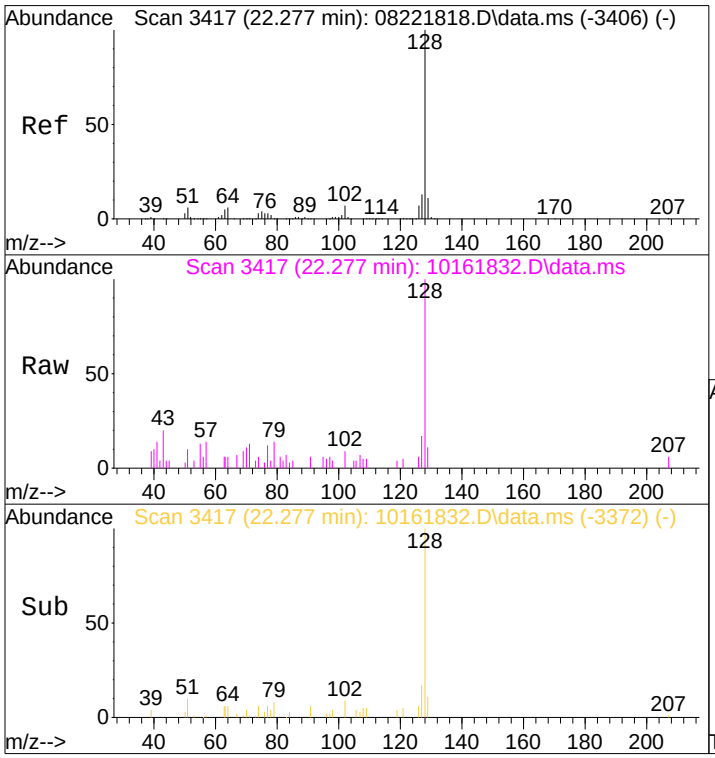


#91
d-Limonene
Concen: 1.60 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion: 68 Resp: 48875

Ion	Ratio	Lower	Upper
68	100		
93	114.1	50.5	90.5#

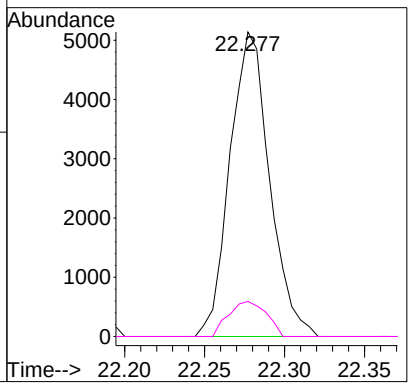




#95
Naphthalene
Concen: 0.09 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161832.D
Acq: 16 Oct 2018 19:13

Tgt Ion:128 Resp: 8860

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	30.9



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 12:15:32 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

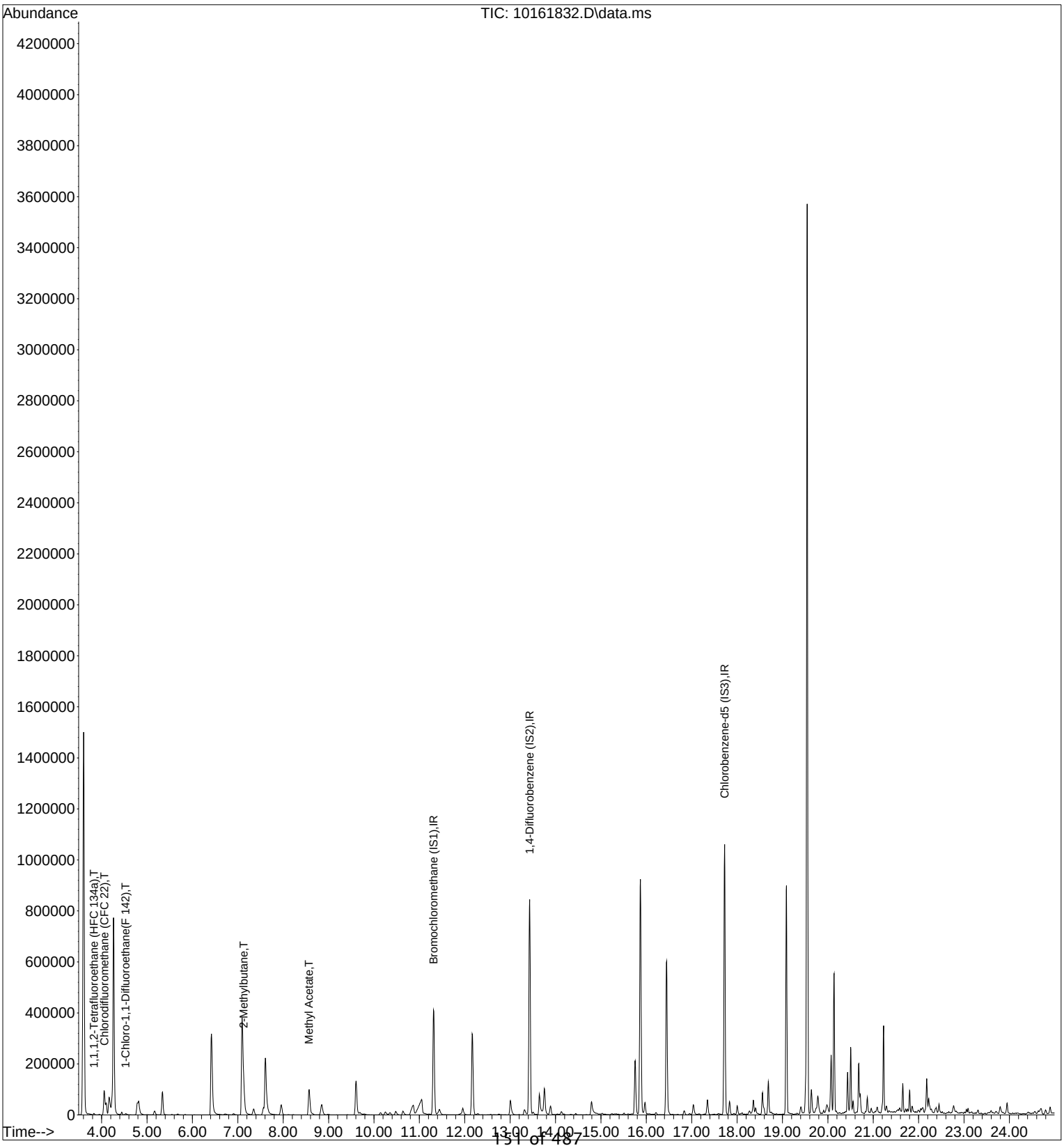
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	209728	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	880480	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	362304	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	972	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	2708	0.156	ng	#	66
4) 1,1-Difluoroethane	3.95	65	871	N.D.			
5) Chlorodifluoromethane ...	4.06	67	1044	0.200	ng		92
6) 1-Chloro-1,1-Difluoroe...	4.53	65	2786	0.087	ng	#	82
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	27148	1.189	ng	#	39
11) Methyl Acetate	8.57	43	164719	3.287	ng		97
12) 2-Methylpentane	10.36	71	982	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.05	84	105	N.D.			
17) 2,3-Dimethylpentane	13.59	56	161	N.D.			
18) Dibromomethane	13.85	174	131	N.D.			
20) Methyl Cyclohexane	15.11	55	528	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.79	75	670	N.D.			
25) Bromobenzene	19.21	77	111	N.D.			
26) 2-Chlorotoluene	19.64	91	1426	N.D.			
27) 4-Chlorotoluene	19.64	91	1755	N.D.			
28) Indan	20.73	117	896	N.D.			
29) Indene	20.82	115	174	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	742	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	1005	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	1242	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

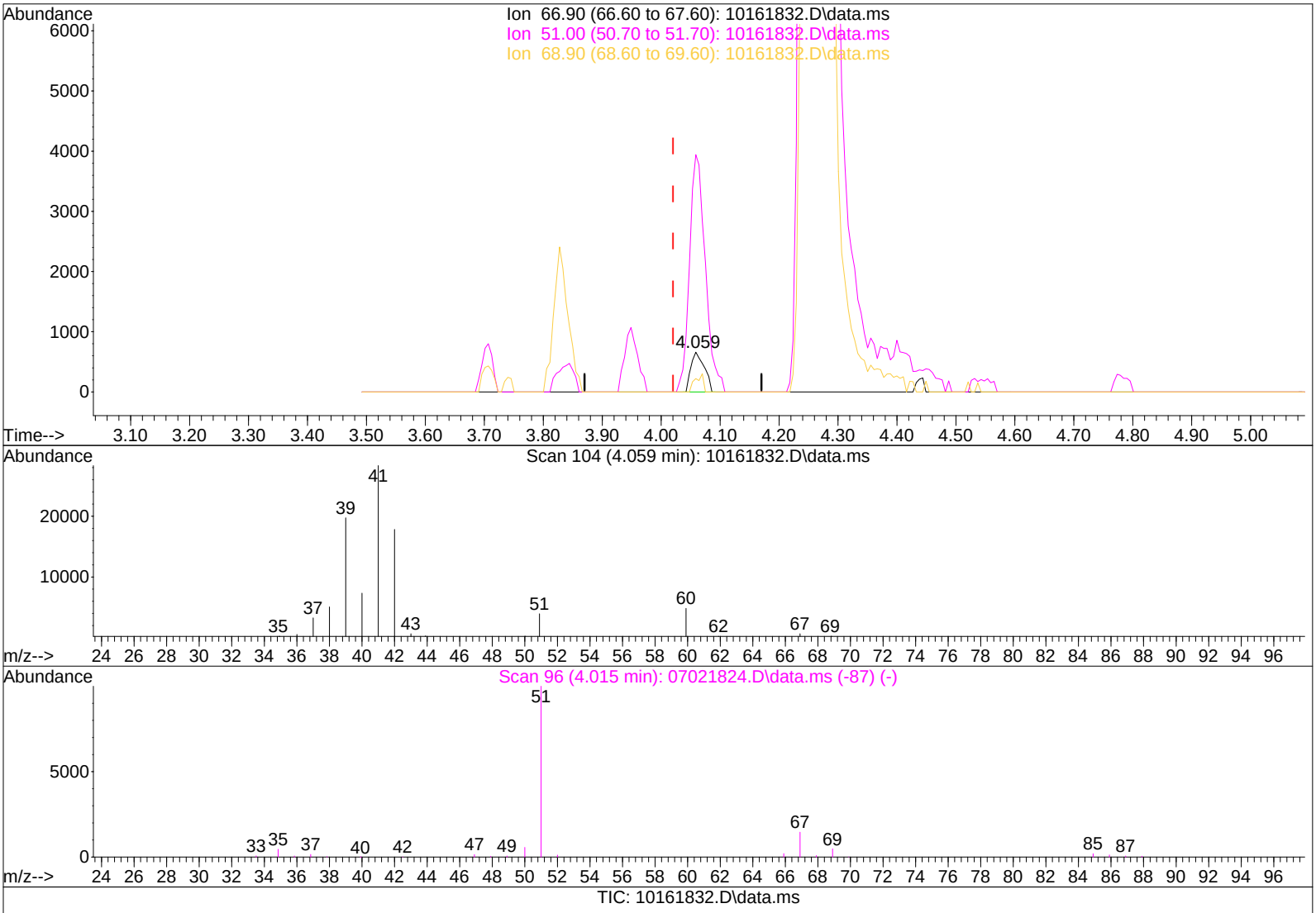
Quant Time: Oct 17 12:15:32 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161832.D
Acq On : 16 Oct 2018 19:13 Operator: LH/TD
Sample : P1805476-004 (1000mL)
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 17 11:53:36 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10161832.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.039) 0.20ng

response 1044

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	707.38
68.90	32.10	27.78
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 11:36:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	202083	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	846220	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	354057	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	250768	12.543	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%				
57) Toluene-d8 (SS2)	15.87	98	749300	13.835	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.72%				
73) Bromofluorobenzene (SS3)	19.09	174	333390	15.146	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.20%				
Target Compounds							Qvalue
2) Propene	4.08	42	4328m	0.188	ng		
3) Dichlorodifluoromethan...	4.23	85	49096	1.307	ng		99
4) Chloromethane	4.54	50	2249	0.080	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1195	0.055	ng		81
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.41	45	47846	3.401	ng		96
11) Acetonitrile	6.75	41	2592	0.069	ng	#	19
12) Acrolein	6.92	56	4991	0.367	ng		99
13) Acetone	7.11	58	64496m	4.080	ng		
14) Trichlorofluoromethane	7.35	101	22872	0.703	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	21167m	0.436	ng		
16) Acrylonitrile	7.96	53	624	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.58	59	2307	N.D.			
19) Methylene Chloride	8.57	84	2177	0.098	ng		97
20) 3-Chloro-1-propene (Al...	8.66	41	479	N.D.			
21) Trichlorotrifluoroethane	9.00	151	5662	0.287	ng		90
22) Carbon Disulfide	8.86	76	6257	0.076	ng		87
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.24	73	514	N.D.			
26) Vinyl Acetate	10.34	86	6544	1.432	ng	#	22
27) 2-Butanone (MEK)	10.63	72	16393	1.114	ng		97
28) cis-1,2-Dichloroethene	11.00	61	1027	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.44	61	13325	1.766	ng		95
31) n-Hexane	11.41	57	3387	0.100	ng	#	95
32) Chloroform	11.47	83	1428	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	776	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.02	56	9844	0.495	ng	#	71
41) Benzene	13.04	78	10154	0.114	ng		99
42) Carbon Tetrachloride	13.19	117	6555	0.253	ng		95
43) Cyclohexane	13.32	84	3458	0.107	ng	#	72
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	273	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 11:36:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

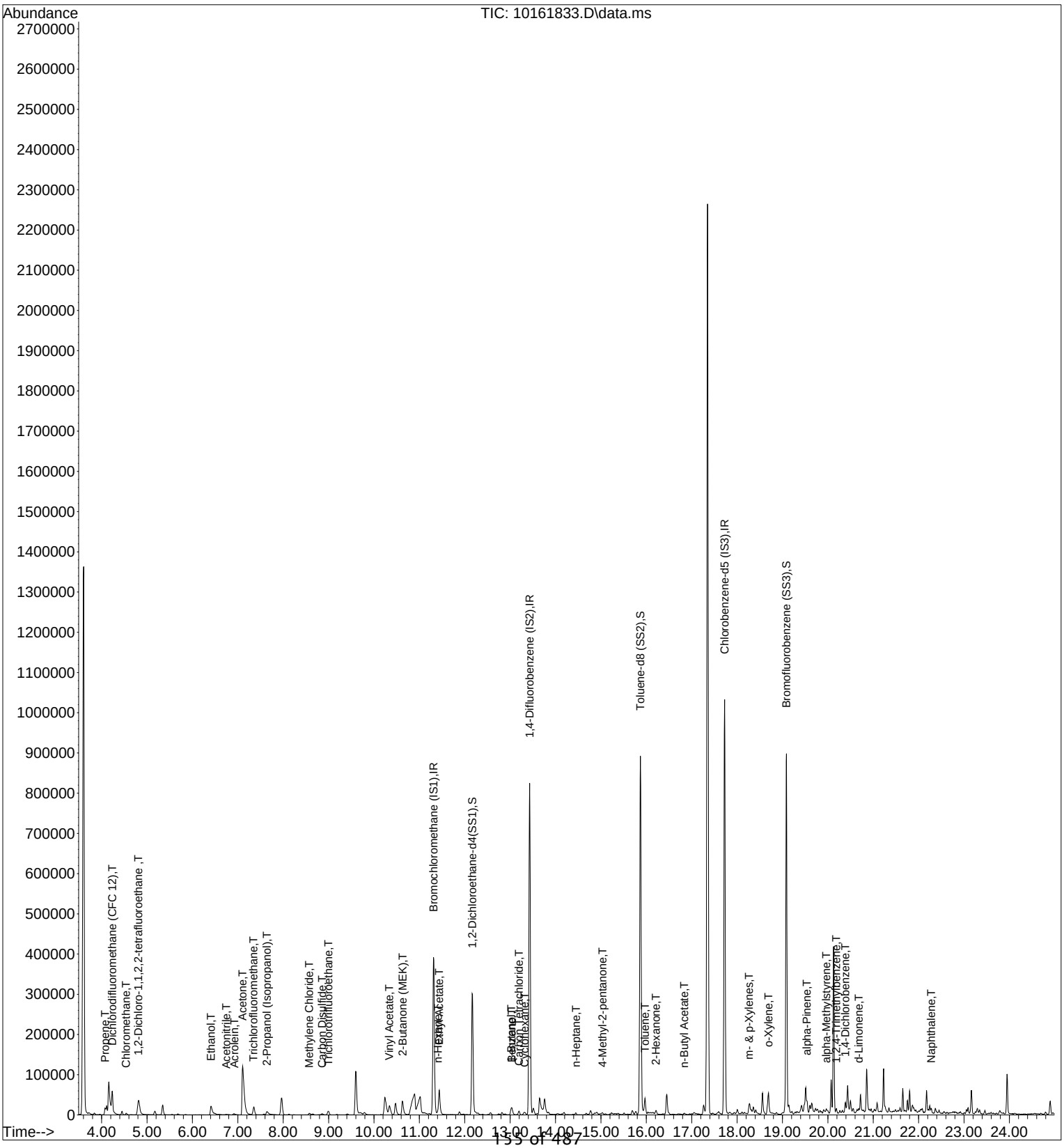
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.44	100	119	N.D.		
51) n-Heptane	14.45	71	1274	0.061 ng		90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	1190	0.061 ng	#	38
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	33556	0.362 ng		99
59) 2-Hexanone	16.21	43	6916	0.157 ng		99
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	3462	0.070 ng		82
63) n-Octane	16.95	57	447	N.D.		
64) Tetrachloroethene	17.11	166	407	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.11	91	4943	N.D.		
67) m- & p-Xylenes	18.26	91	12030	0.158 ng		98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	2659	N.D.		
70) o-Xylene	18.69	91	4895	0.064 ng		95
71) n-Nonane	18.87	43	1672	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.68	83	656	N.D.		
74) Cumene	19.20	105	703	N.D.		
75) alpha-Pinene	19.54	93	12917	0.250 ng	#	1
76) n-Propylbenzene	19.64	91	1903	N.D.		
77) 3-Ethyltoluene	19.73	105	4371	N.D.		
78) 4-Ethyltoluene	19.76	105	2097	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	1869	N.D.		
80) alpha-Methylstyrene	19.97	118	2527	0.061 ng		92
81) 2-Ethyltoluene	20.01	105	1874	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	5942	0.075 ng		89
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.31	91	428	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	118	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	10107	0.204 ng		97
87) sec-Butylbenzene	20.43	105	518	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	3470	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	2144	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	2360	0.079 ng		93
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	9986	0.109 ng		95
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1043	N.D.		
100) n-Butylbenzene	20.91	91	2812	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 11:36:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
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QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	202083	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	846220	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	354057	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	250768	12.543	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%				
57) Toluene-d8 (SS2)	15.87	98	749300	13.835	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.72%				
73) Bromofluorobenzene (SS3)	19.09	174	333390	15.146	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.20%				
Target Compounds							Qvalue
2) Propene	4.08	42	4328m	0.188	ng		
3) Dichlorodifluoromethan...	4.23	85	49096	1.307	ng		99
4) Chloromethane	4.54	50	2249	0.080	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1195	0.055	ng		81
10) Ethanol	6.41	45	47846	3.401	ng		96
11) Acetonitrile	6.75	41	2592	0.069	ng	#	19
12) Acrolein	6.92	56	4991	0.367	ng		99
13) Acetone	7.11	58	64496m	4.080	ng		
14) Trichlorofluoromethane	7.35	101	22872	0.703	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	21167m	0.436	ng		
19) Methylene Chloride	8.57	84	2177	0.098	ng		97
21) Trichlorotrifluoroethane	9.00	151	5662	0.287	ng		90
22) Carbon Disulfide	8.86	76	6257	0.076	ng		87
26) Vinyl Acetate	10.34	86	6544	1.432	ng	#	22
27) 2-Butanone (MEK)	10.63	72	16393	1.114	ng		97
30) Ethyl Acetate	11.44	61	13325	1.766	ng		95
31) n-Hexane	11.41	57	3387	0.100	ng	#	95
40) 1-Butanol	13.02	56	9844	0.495	ng	#	71
41) Benzene	13.04	78	10154	0.114	ng		99
42) Carbon Tetrachloride	13.19	117	6555	0.253	ng		95
43) Cyclohexane	13.32	84	3458	0.107	ng	#	72
51) n-Heptane	14.45	71	1274	0.061	ng		90
53) 4-Methyl-2-pentanone	15.03	58	1190	0.061	ng	#	38
58) Toluene	15.97	91	33556	0.362	ng		99
59) 2-Hexanone	16.21	43	6916	0.157	ng		99
62) n-Butyl Acetate	16.84	43	3462	0.070	ng		82
67) m- & p-Xylenes	18.26	91	12030	0.158	ng		98
70) o-Xylene	18.69	91	4895	0.064	ng		95
75) alpha-Pinene	19.54	93	12917	0.250	ng	#	1
80) alpha-Methylstyrene	19.97	118	2527	0.061	ng		92
82) 1,2,4-Trimethylbenzene	20.19	105	5942	0.075	ng		89
86) 1,4-Dichlorobenzene	20.39	146	10107	0.204	ng		97
91) d-Limonene	20.68	68	2360	0.079	ng		93
95) Naphthalene	22.28	128	9986	0.109	ng		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 11:36:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
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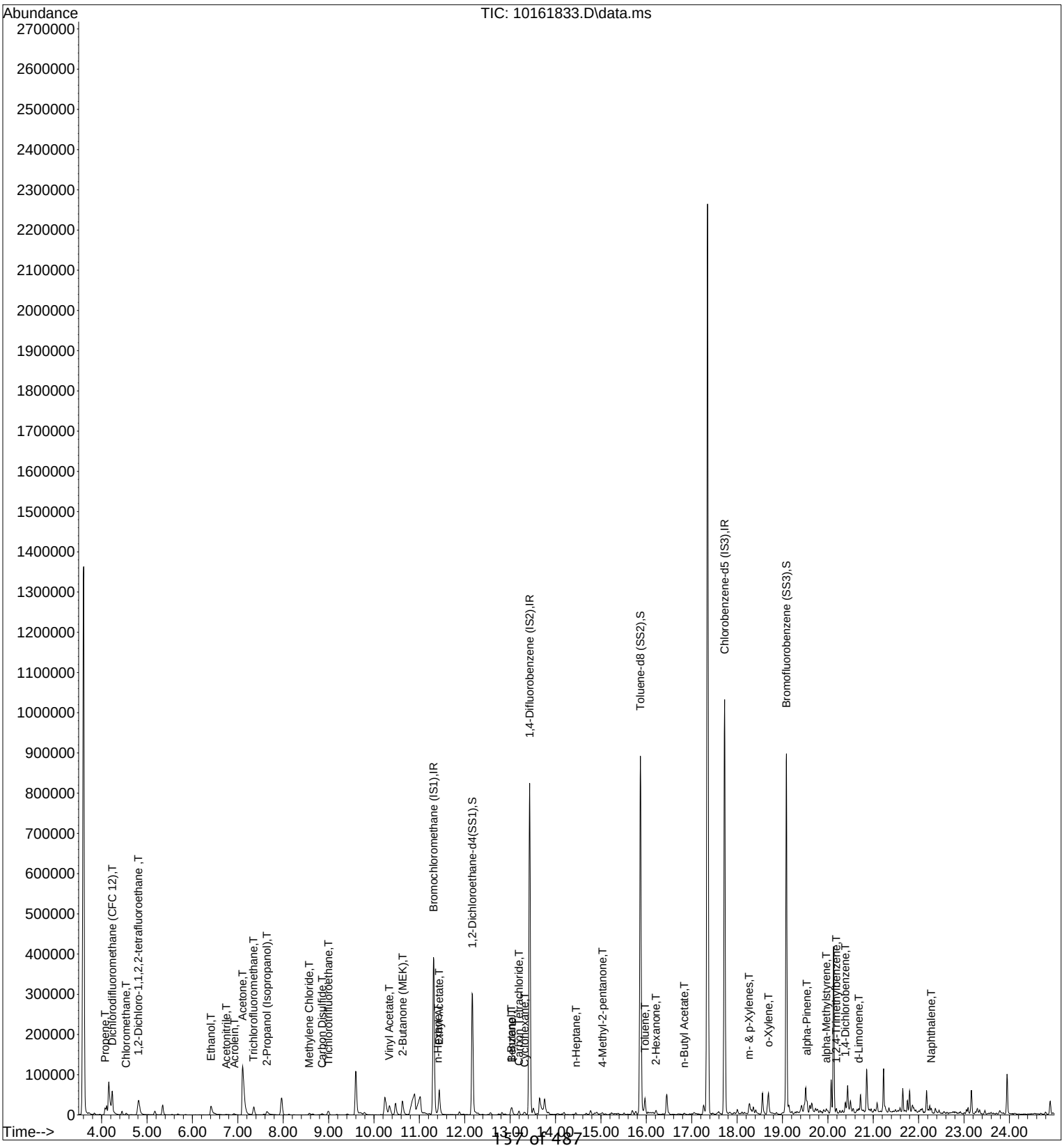
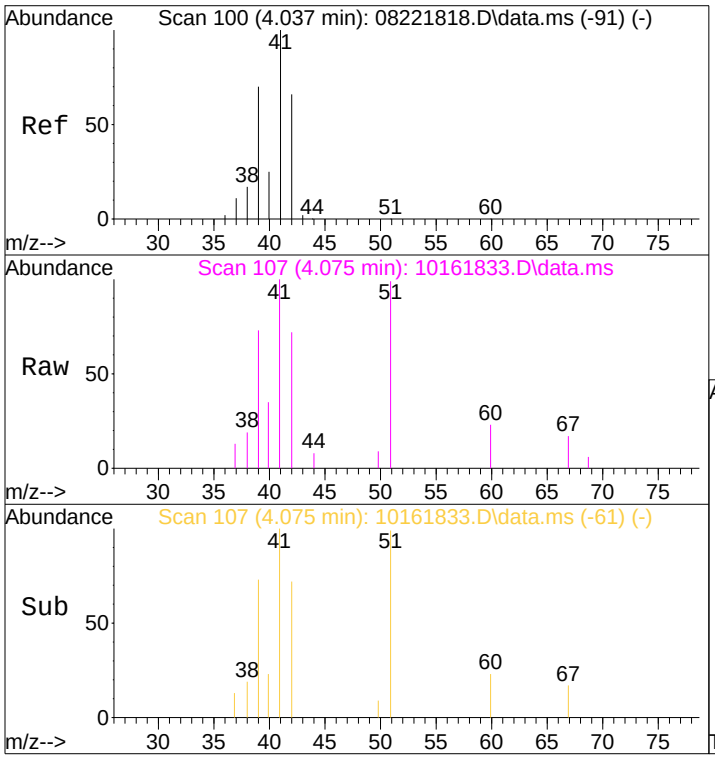
Response via : Initial Calibration
DataAcq Meth:TO15.M

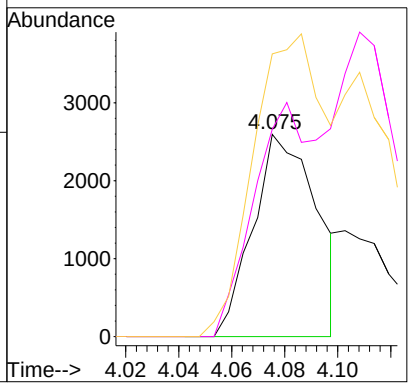


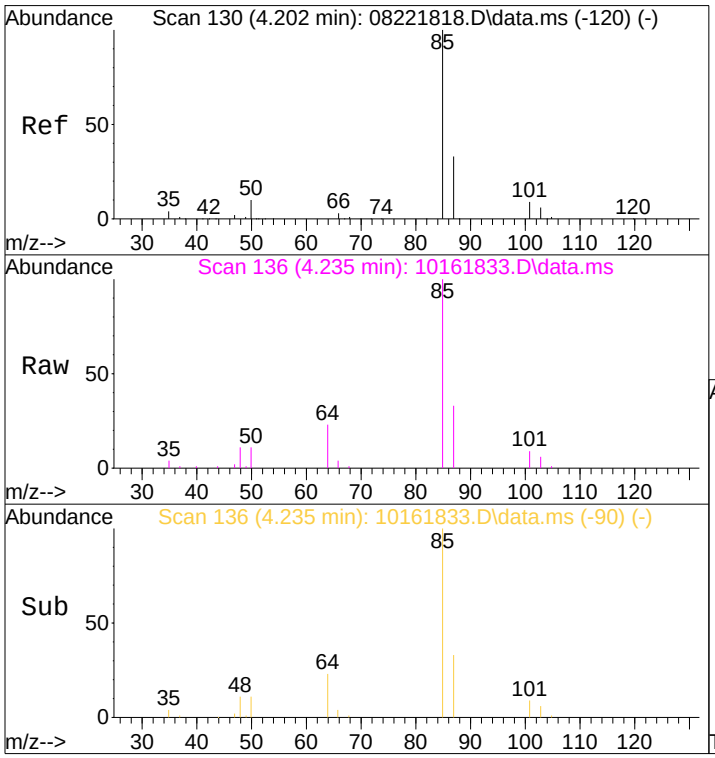


#2
Propene
Concen: 0.19 ng m
RT: 4.08 min Scan# 107
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 42 Resp: 4328

Ion	Ratio	Lower	Upper
42	100		
39	109.5	85.6	125.6
41	282.9	131.4	171.4#

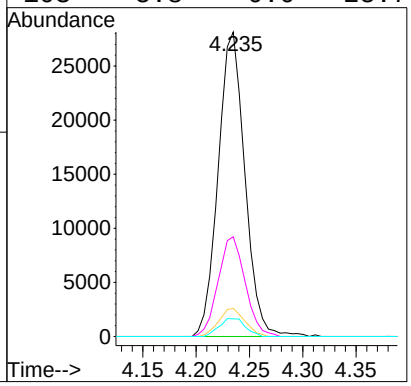


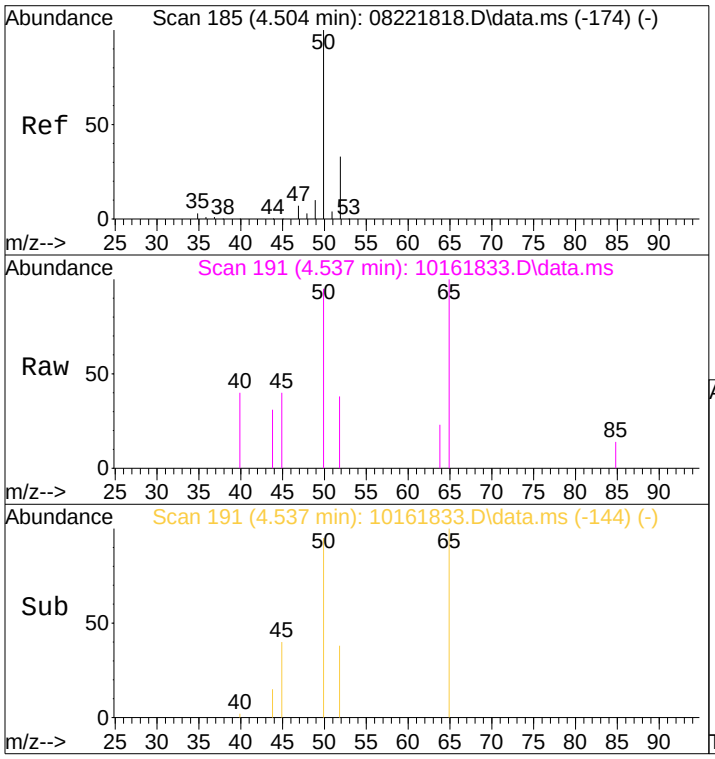


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.31 ng
RT: 4.23 min Scan# 136
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 85 Resp: 49096

Ion	Ratio	Lower	Upper
85	100		
87	33.1	12.6	52.6
101	9.0	0.0	28.8
103	5.8	0.0	25.7

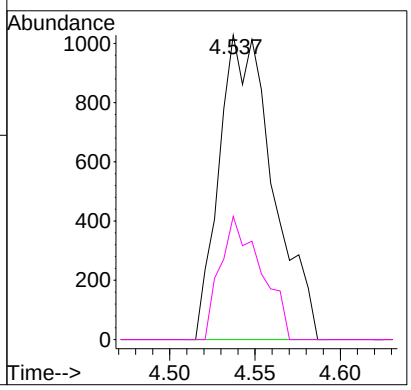


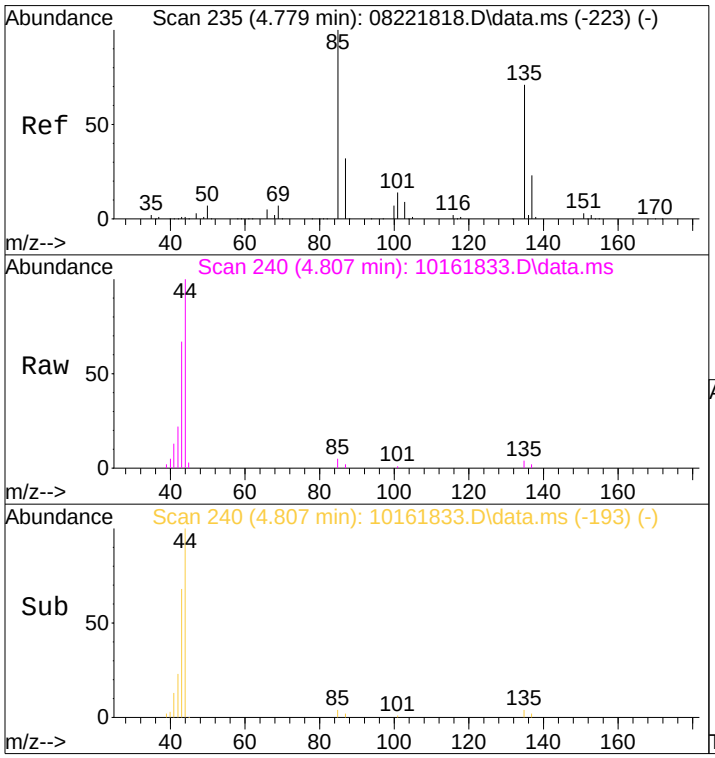


#4
Chloromethane
Concen: 0.08 ng
RT: 4.54 min Scan# 191
Delta R.T. 0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 50 Resp: 2249

Ion	Ratio	Lower	Upper
50	100		
52	30.8	13.2	53.2

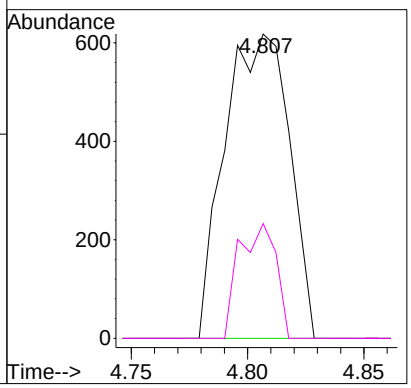


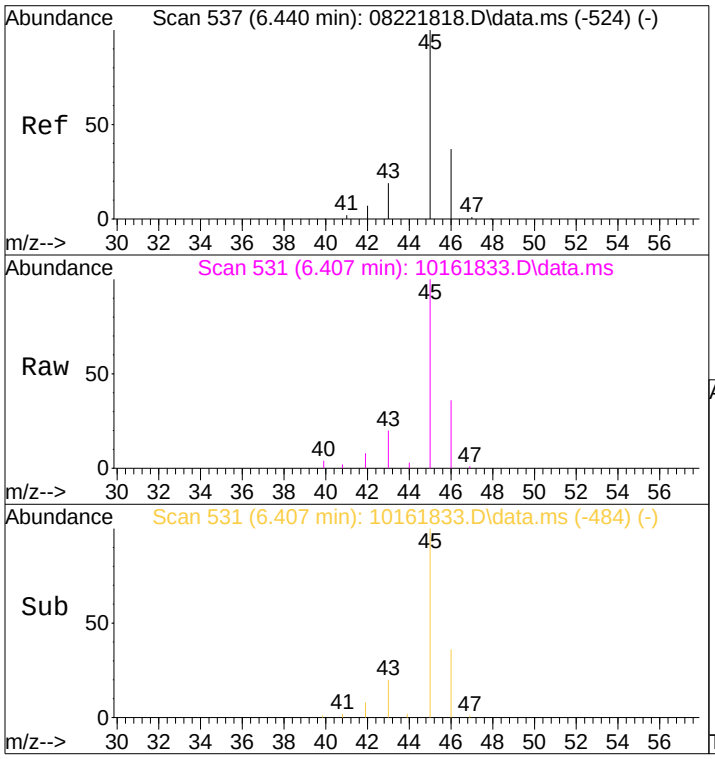


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.05 ng
RT: 4.81 min Scan# 240
Delta R.T. 0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:135 Resp: 1195

Ion	Ratio	Lower	Upper
135	100		
137	21.6	12.3	52.3

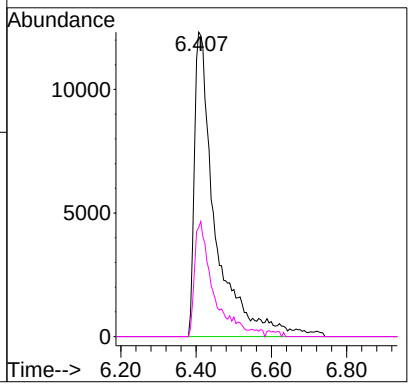


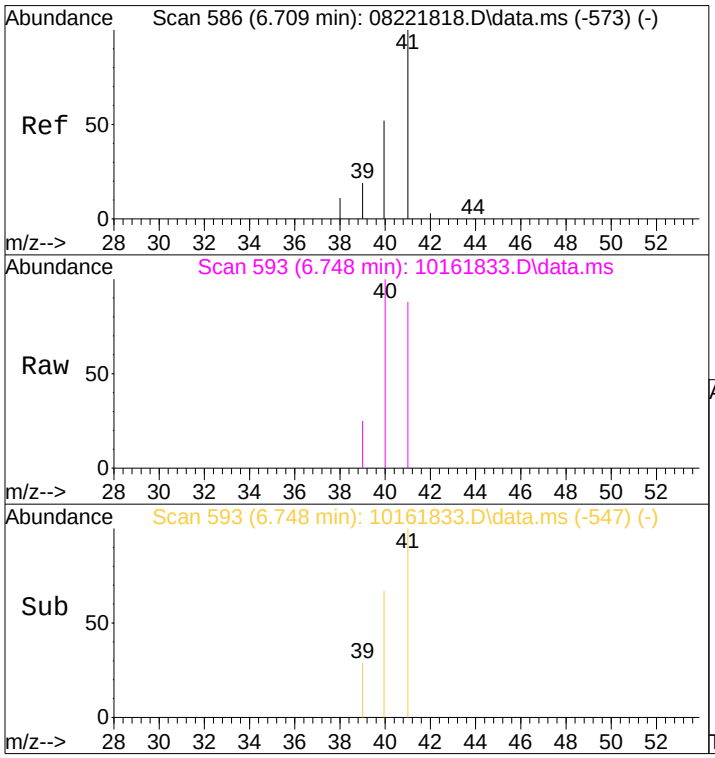


#10
Ethanol
Concen: 3.40 ng
RT: 6.41 min Scan# 531
Delta R.T. 0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 45 Resp: 47846

Ion	Ratio	Lower	Upper
45	100		
46	34.2	16.7	56.7

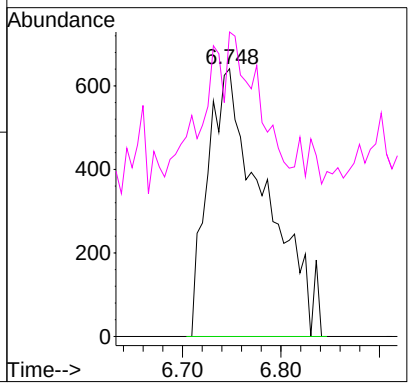


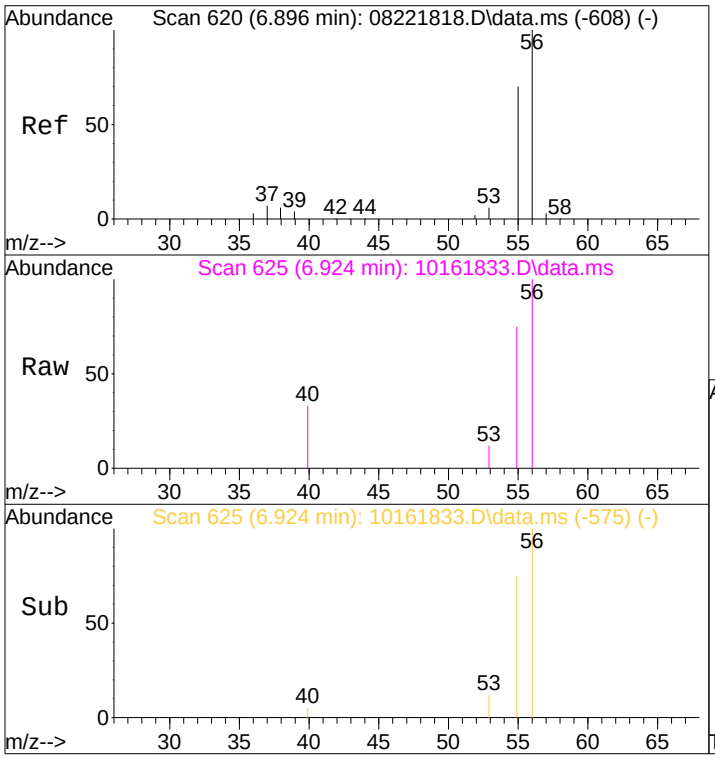


#11
Acetonitrile
Concen: 0.07 ng
RT: 6.75 min Scan# 593
Delta R.T. 0.055 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 41 Resp: 2592

Ion	Ratio	Lower	Upper
41	100		
40	109.0	32.2	72.2#

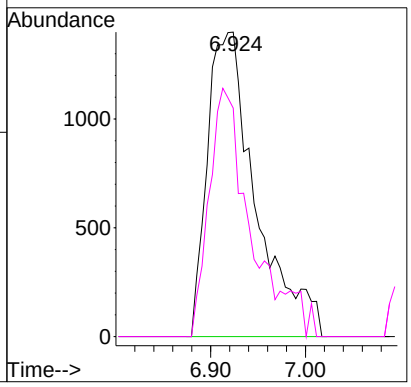


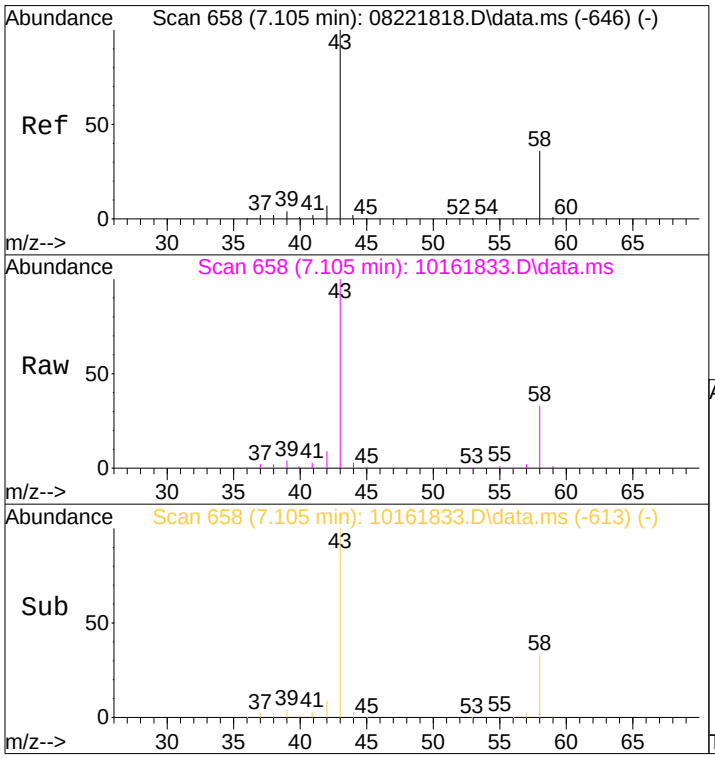


#12
Acrolein
Concen: 0.37 ng
RT: 6.92 min Scan# 625
Delta R.T. 0.028 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 56 Resp: 4991

Ion	Ratio	Lower	Upper
56	100		
55	70.7	49.9	89.9

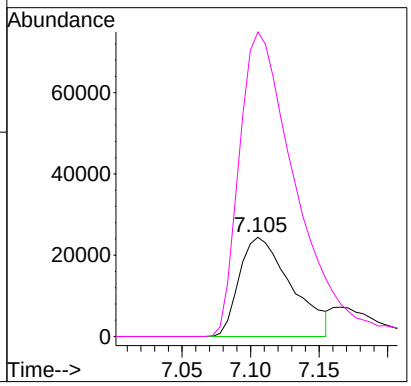


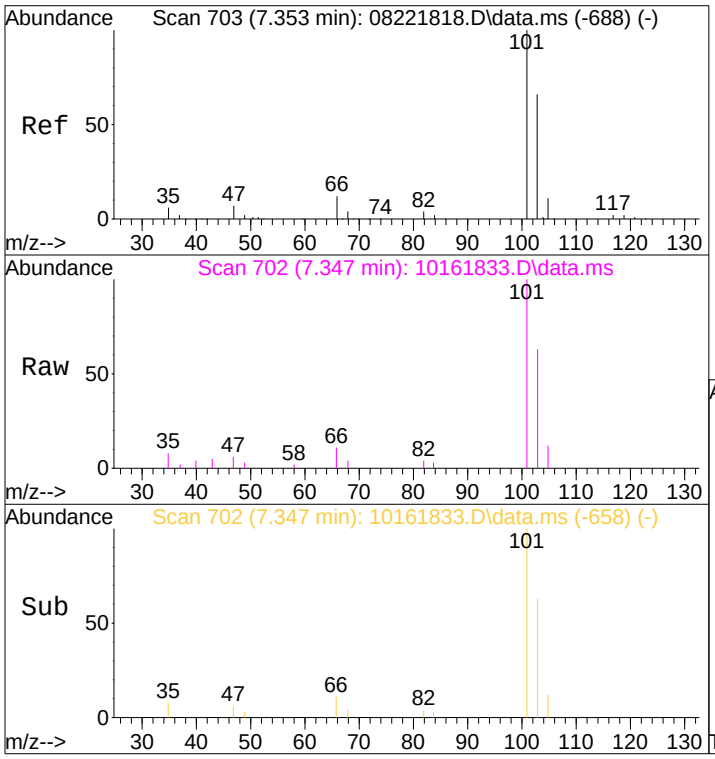


#13
Acetone
Concen: 4.08 ng m
RT: 7.11 min Scan# 658
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 58 Resp: 64496

Ion	Ratio	Lower	Upper
58	100		
43	345.1	247.7	307.7#

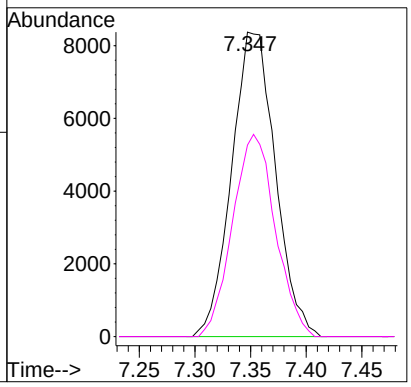


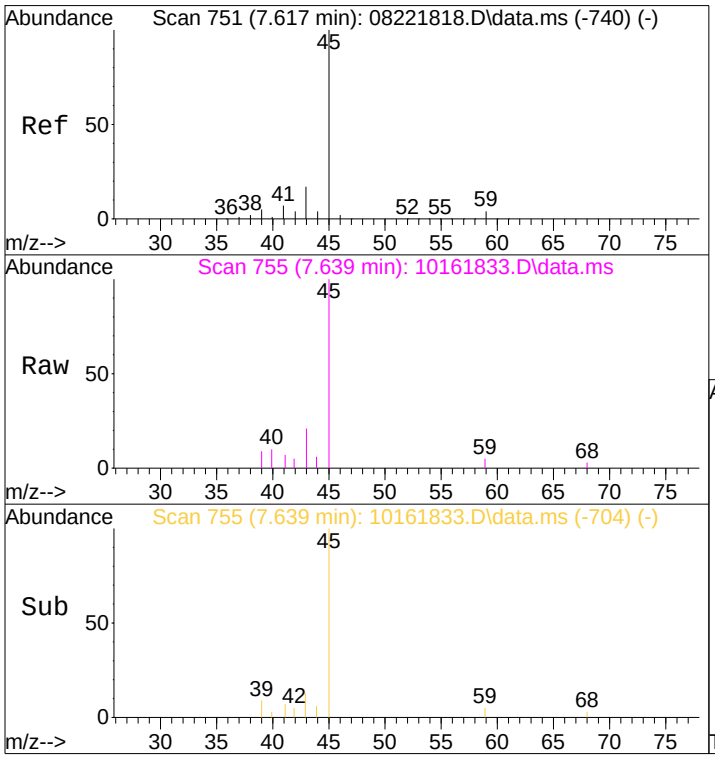


#14
Trichlorofluoromethane
Concen: 0.70 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.005 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:101 Resp: 22872

Ion	Ratio	Lower	Upper
101	100		
103	65.0	45.1	85.1

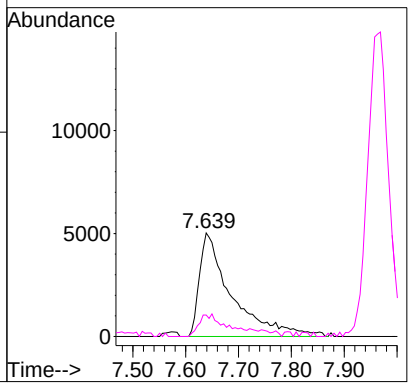


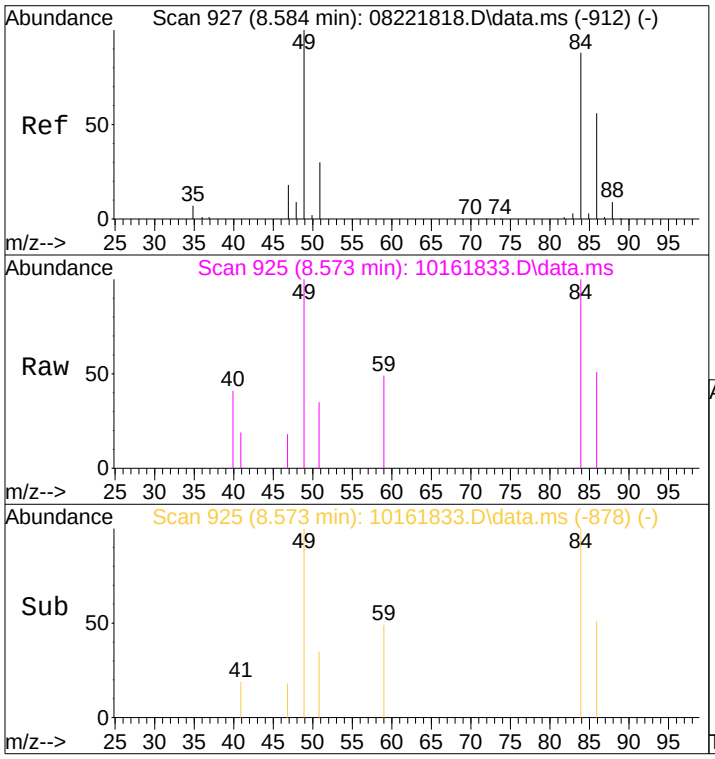


#15
2-Propanol (Isopropanol)
Concen: 0.44 ng m
RT: 7.64 min Scan# 755
Delta R.T. 0.033 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 45 Resp: 21167

Ion	Ratio	Lower	Upper
45	100		
43	0.5	0.0	36.8

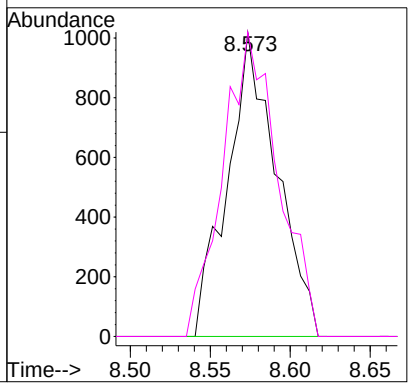


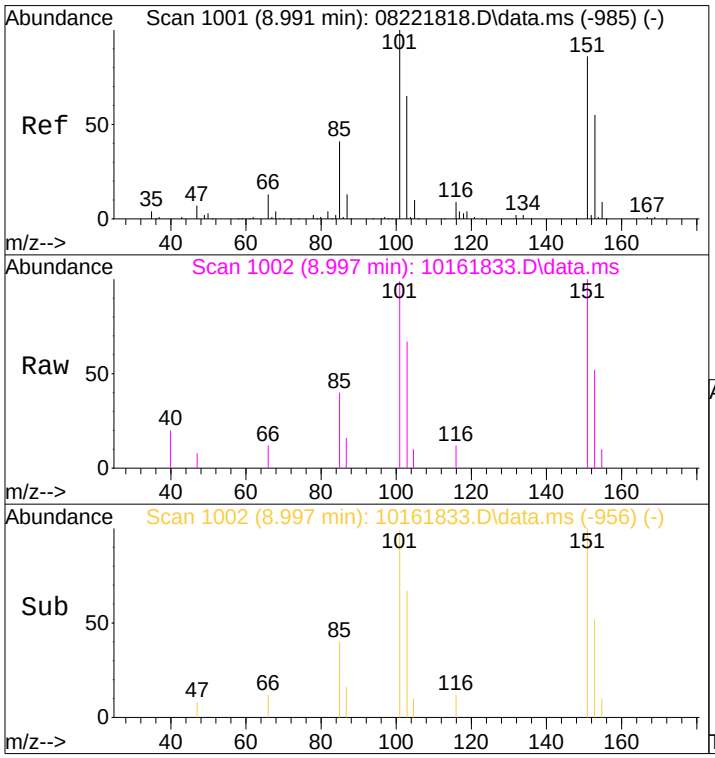


#19
Methylene Chloride
Concen: 0.10 ng
RT: 8.57 min Scan# 925
Delta R.T. 0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 84 Resp: 2177

Ion	Ratio	Lower	Upper
84	100		
49	113.0	90.8	140.8

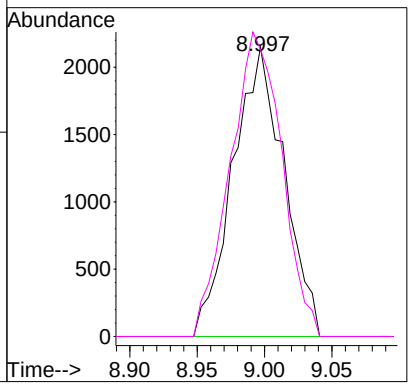


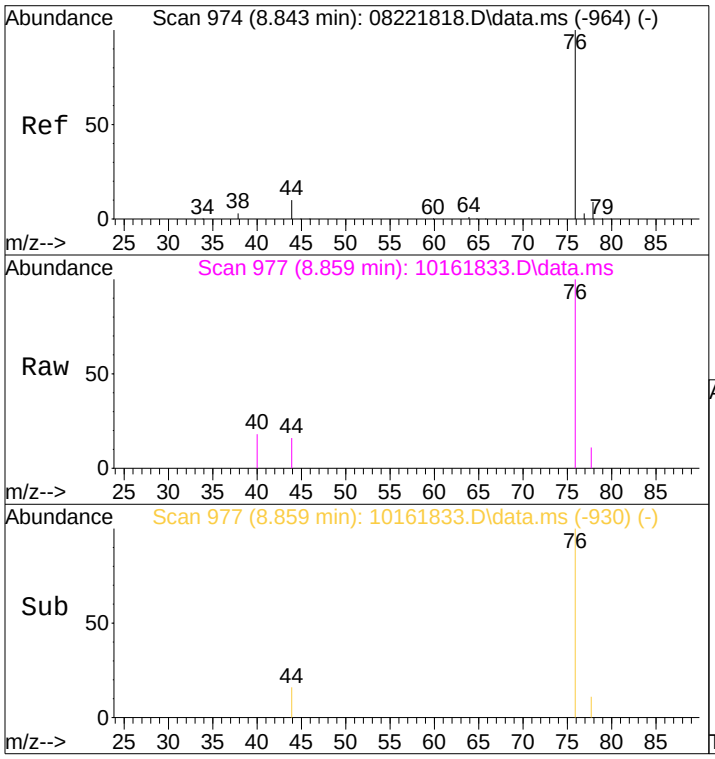


#21
Trichlorotrifluoroethane
Concen: 0.29 ng
RT: 9.00 min Scan# 1002
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:151 Resp: 5662

Ion	Ratio	Lower	Upper
151	100		
101	106.7	97.4	137.4

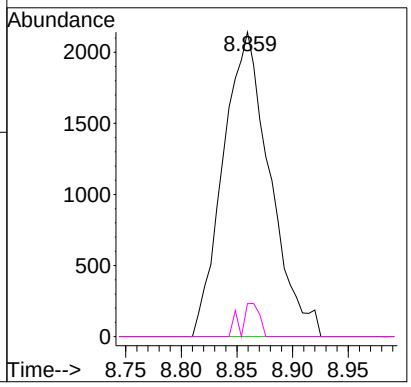


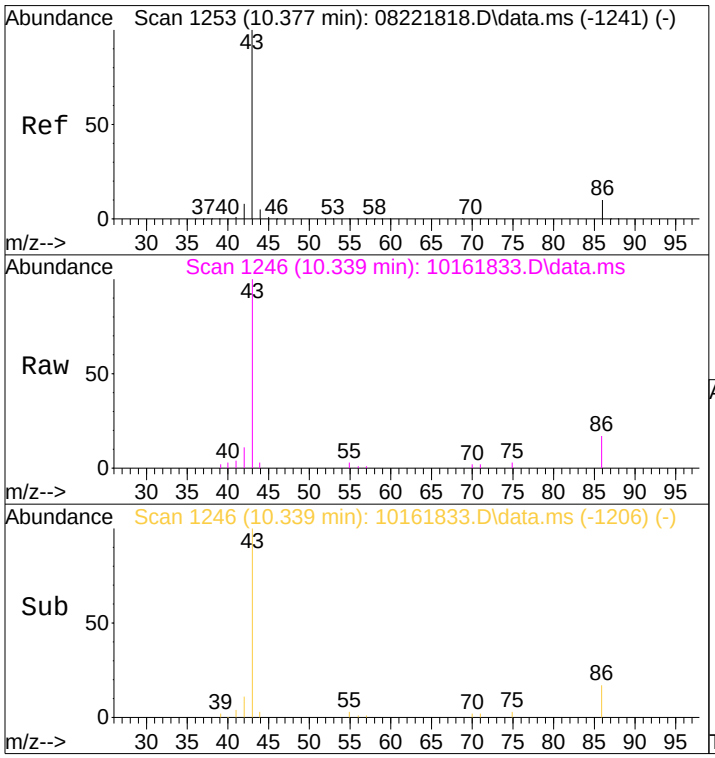


#22
Carbon Disulfide
Concen: 0.08 ng
RT: 8.86 min Scan# 977
Delta R.T. 0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 76 Resp: 6257

Ion	Ratio	Lower	Upper
76	100		
78	4.2	0.0	29.1

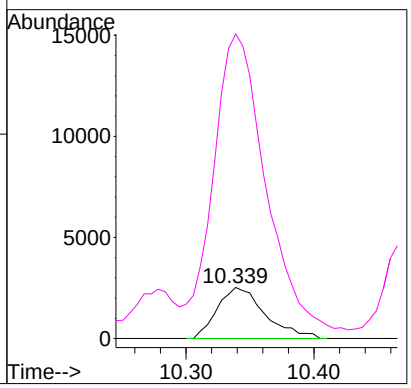


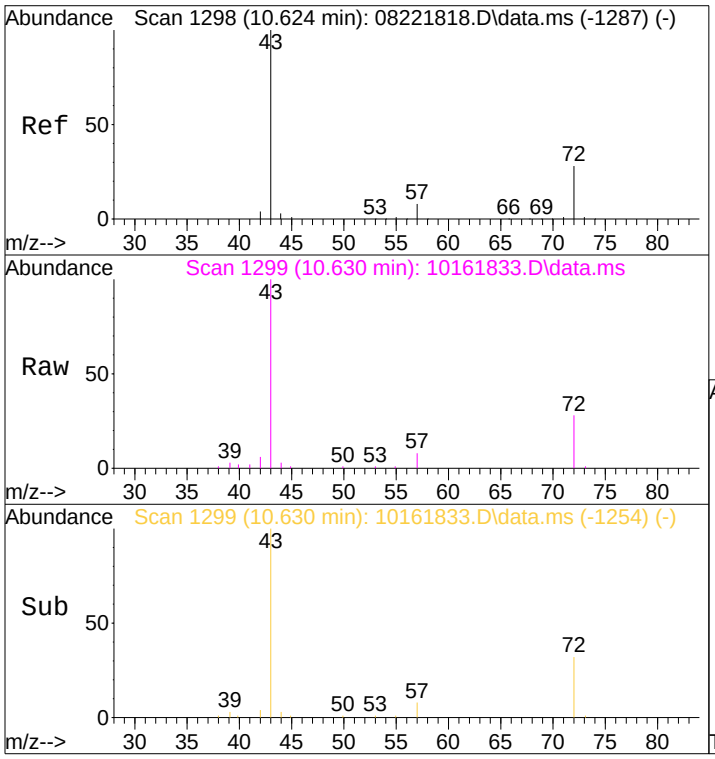


#26
Vinyl Acetate
Concen: 1.43 ng
RT: 10.34 min Scan# 1246
Delta R.T. -0.027 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 86 Resp: 6544

Ion	Ratio	Lower	Upper
86	100		
43	664.5	994.0	1034.0#

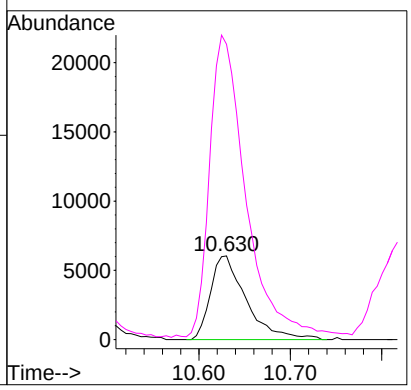


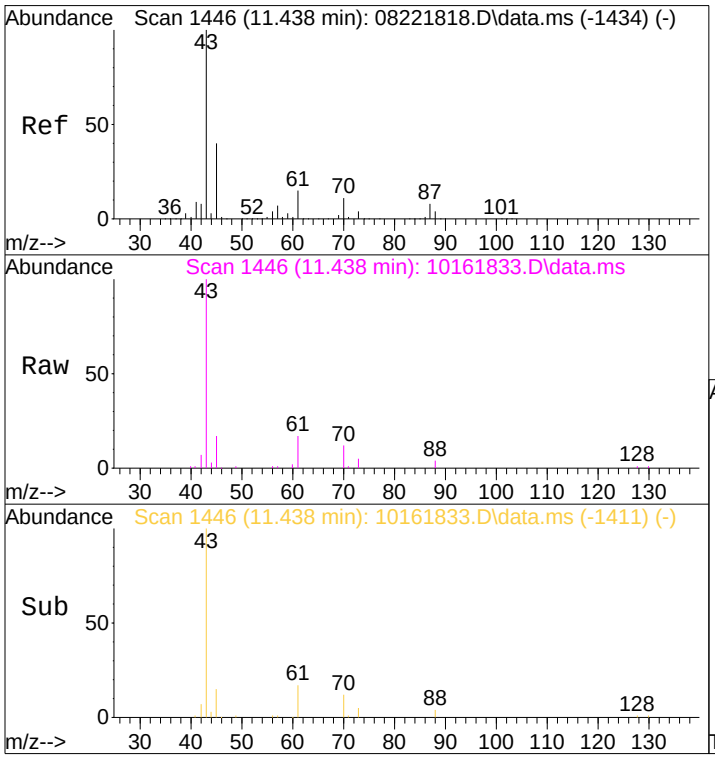


#27
2-Butanone (MEK)
Concen: 1.11 ng
RT: 10.63 min Scan# 1299
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 72 Resp: 16393

Ion	Ratio	Lower	Upper
72	100		
43	368.6	341.9	381.9

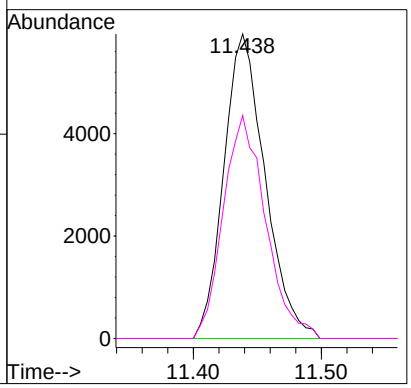


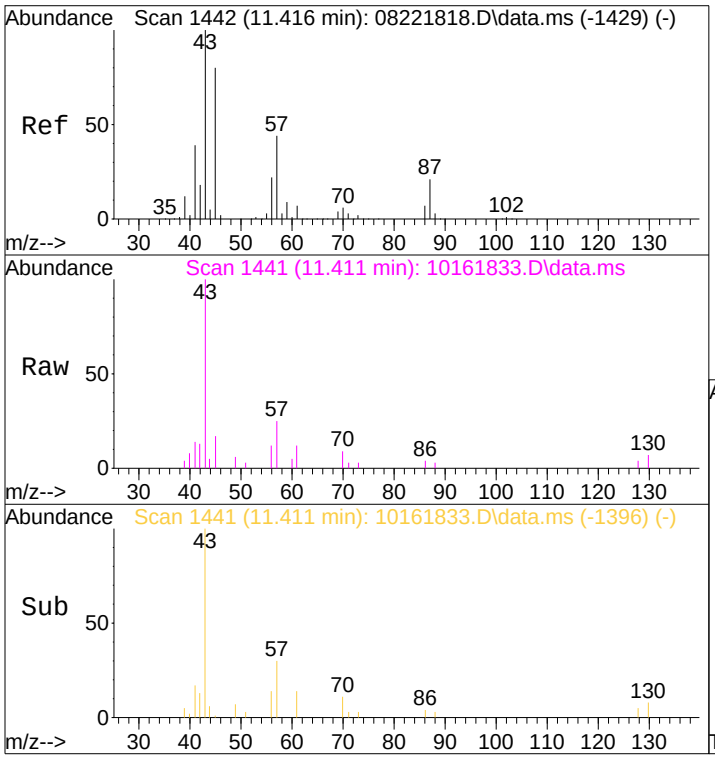


#30
Ethyl Acetate
Concen: 1.77 ng
RT: 11.44 min Scan# 1446
Delta R.T. -0.005 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 61 Resp: 13325

Ion	Ratio	Lower	Upper
61	100		
70	75.2	59.8	99.8

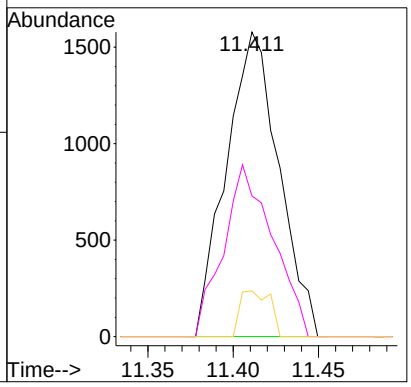


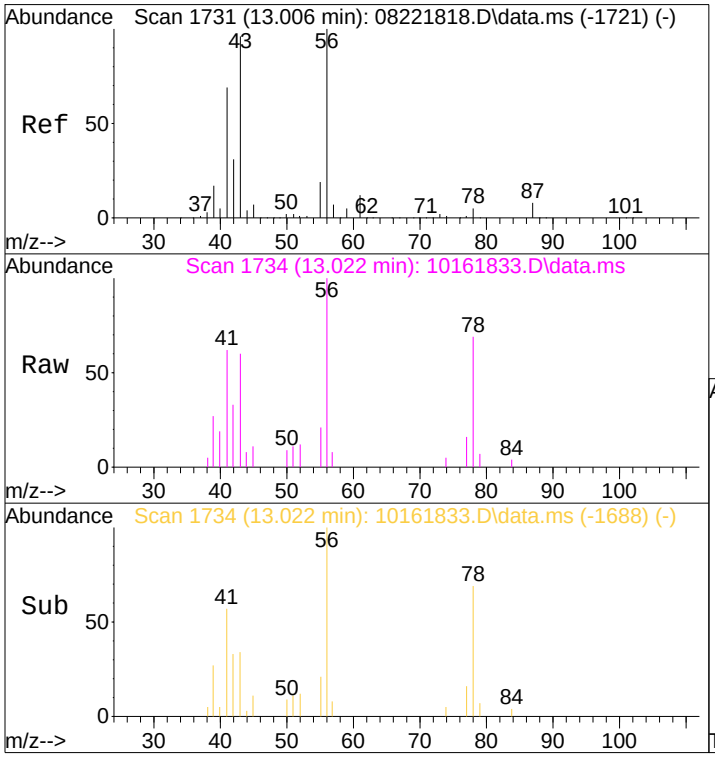


#31
n-Hexane
Concen: 0.10 ng
RT: 11.41 min Scan# 1441
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 57 Resp: 3387

Ion	Ratio	Lower	Upper
57	100		
56	52.9	41.2	61.8
86	8.6	12.4	18.6#

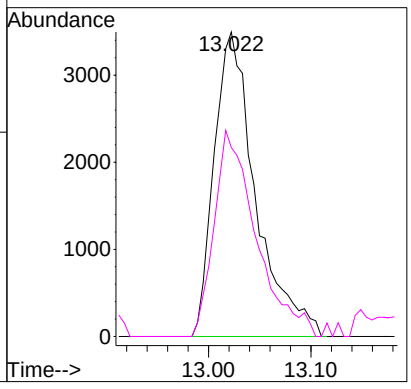


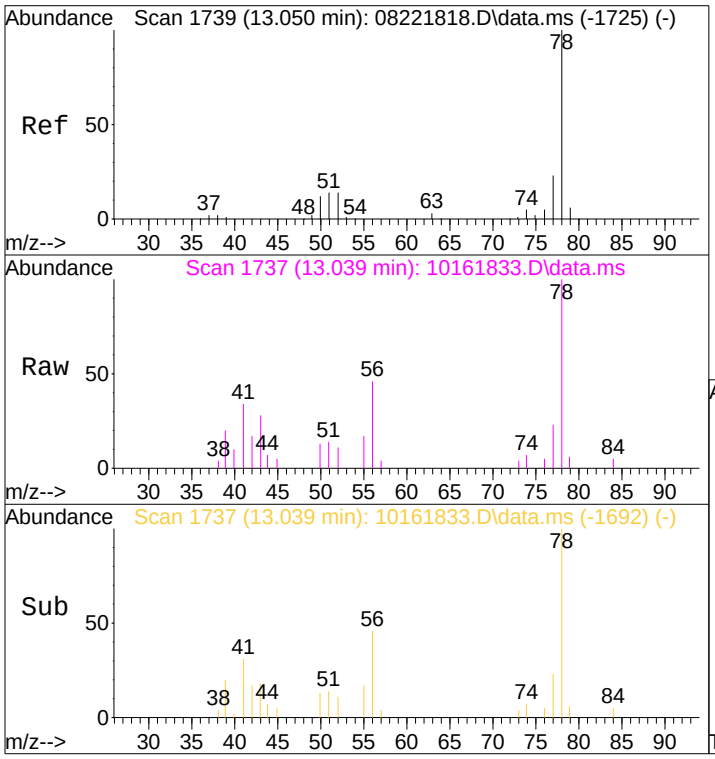


#40
1-Butanol
Concen: 0.50 ng
RT: 13.02 min Scan# 1734
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 56 Resp: 9844

Ion	Ratio	Lower	Upper
56	100		
41	68.3	77.1	117.1#

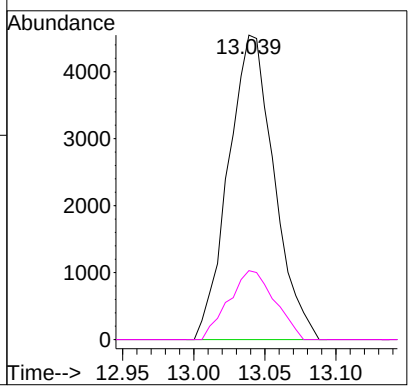


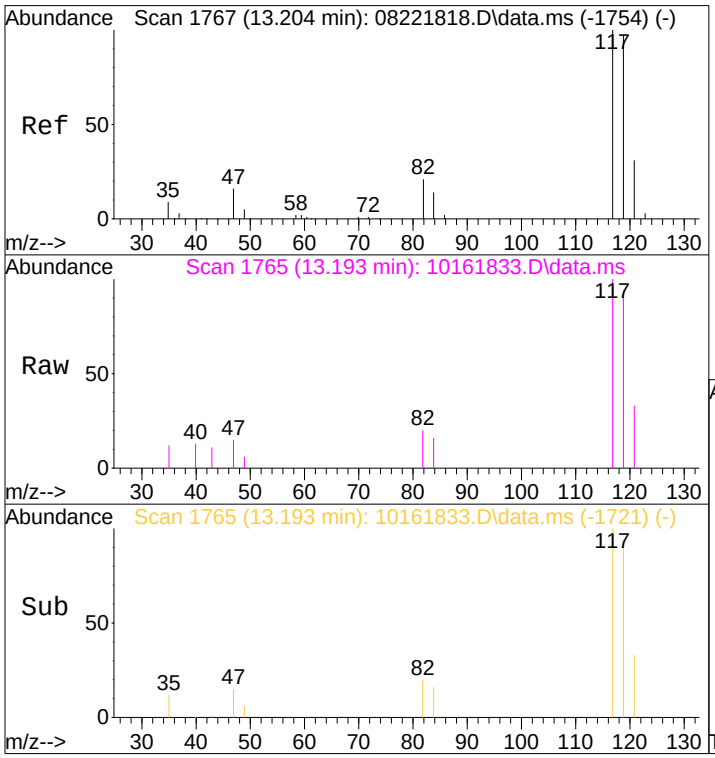


#41
Benzene
Concen: 0.11 ng
RT: 13.04 min Scan# 1737
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 78 Resp: 10154

Ion	Ratio	Lower	Upper
78	100		
77	22.8	3.2	43.2

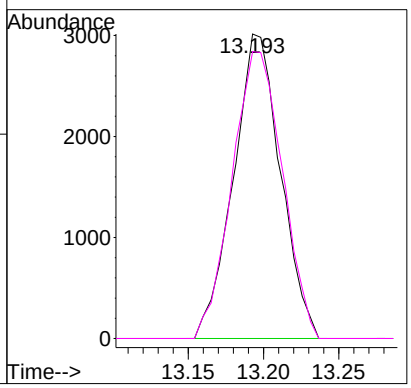


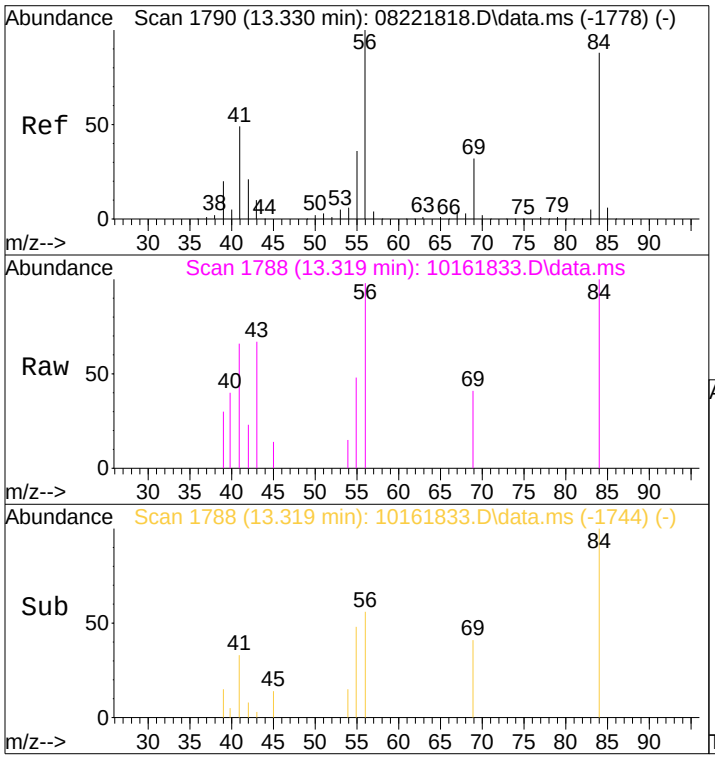


#42
Carbon Tetrachloride
Concen: 0.25 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.005 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:117 Resp: 6555

Ion	Ratio	Lower	Upper
117	100		
119	100.9	76.5	116.5

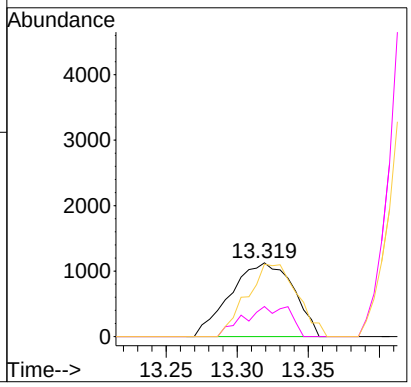


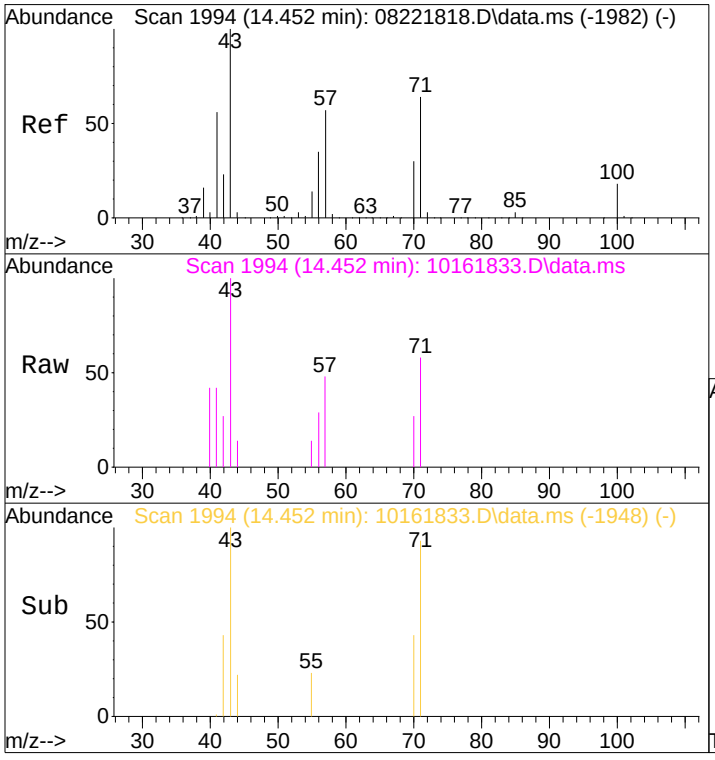


#43
Cyclohexane
Concen: 0.11 ng
RT: 13.32 min Scan# 1788
Delta R.T. -0.005 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 84 Resp: 3458

Ion	Ratio	Lower	Upper
84	100		
69	30.2	16.6	56.6
56	78.4	94.4	134.4#

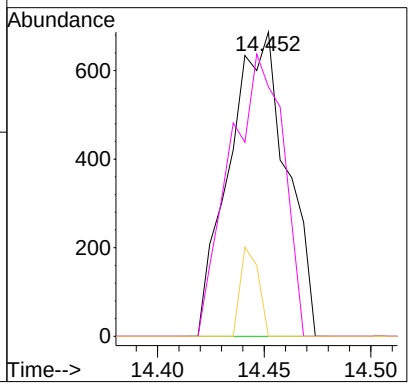


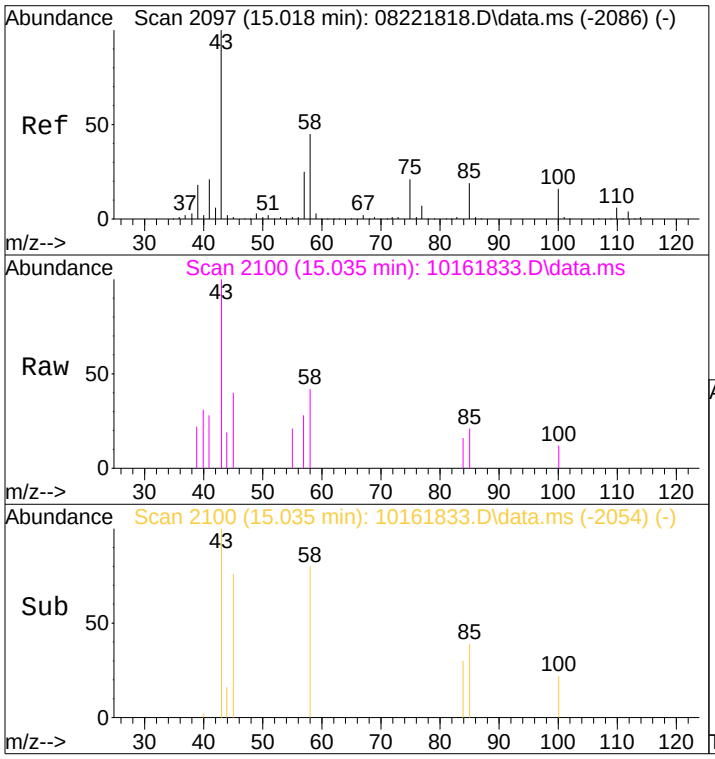


#51
n-Heptane
Concen: 0.06 ng
RT: 14.45 min Scan# 1994
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 71 Resp: 1274

Ion	Ratio	Lower	Upper
71	100		
57	87.0	69.4	109.4
100	9.3	7.6	47.6

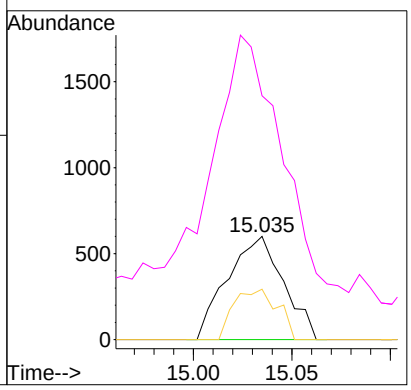


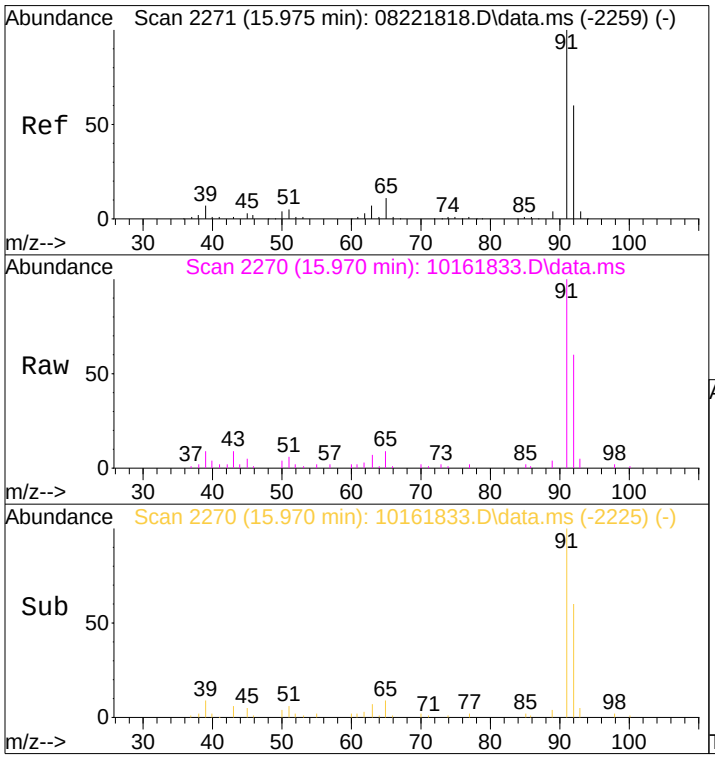


#53
4-Methyl-2-pentanone
Concen: 0.06 ng
RT: 15.03 min Scan# 2100
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 58 Resp: 1190

Ion	Ratio	Lower	Upper
58	100		
43	344.5	180.6	271.0#
85	38.2	36.2	54.2

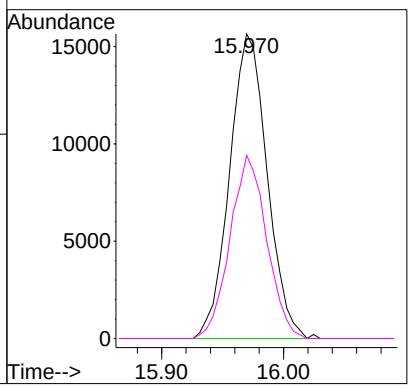


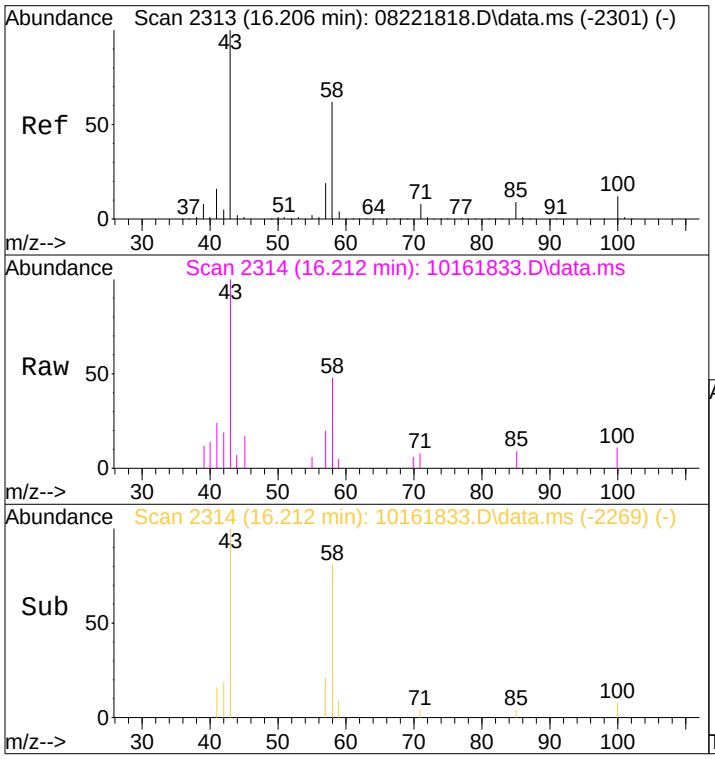


#58
Toluene
Concen: 0.36 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 91 Resp: 33556

Ion	Ratio	Lower	Upper
91	100		
92	58.6	39.6	79.6

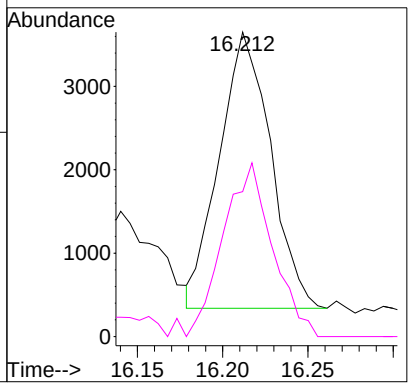


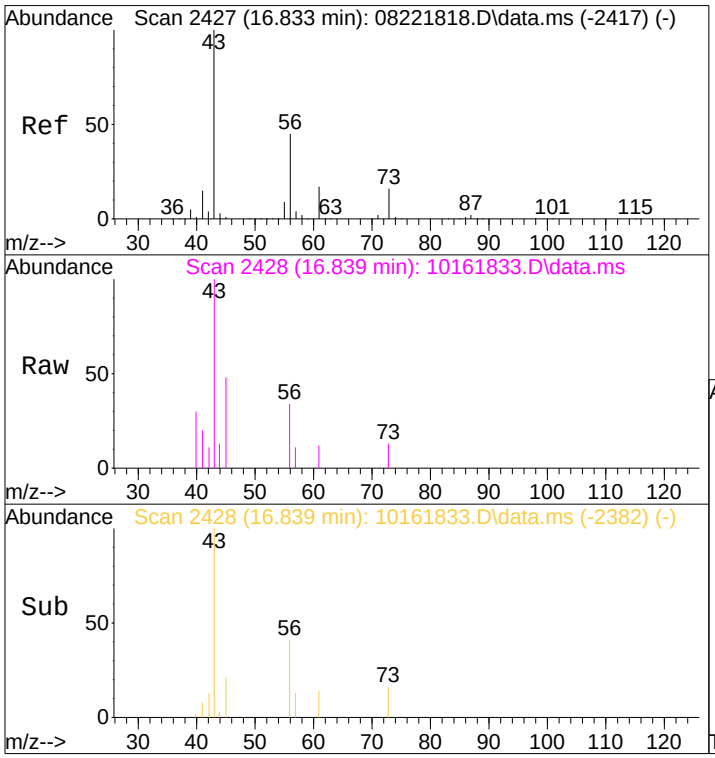


#59
2-Hexanone
Concen: 0.16 ng
RT: 16.21 min Scan# 2314
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 43 Resp: 6916

Ion	Ratio	Lower	Upper
43	100		
58	61.4	41.9	81.9

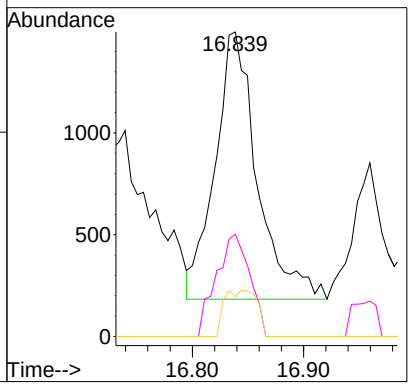


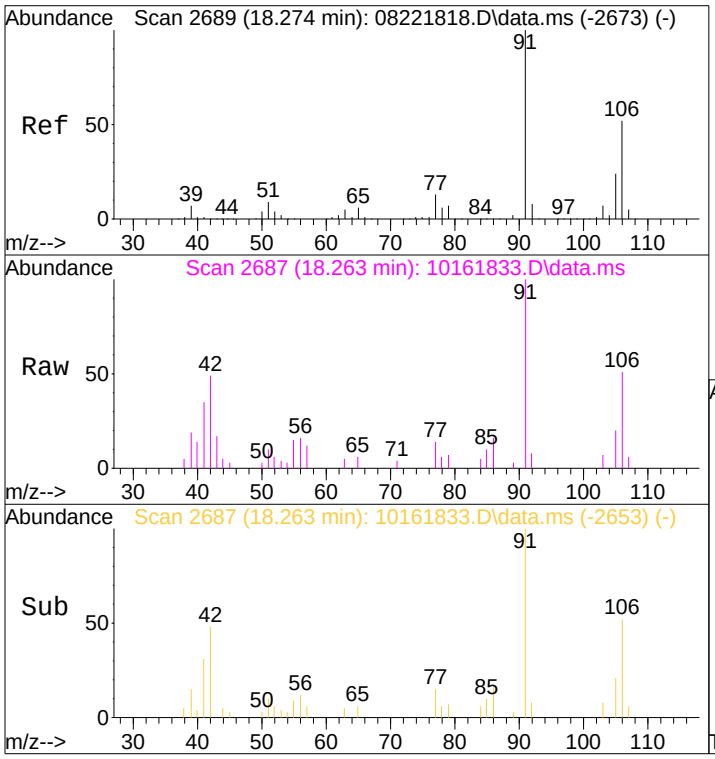


#62
n-Butyl Acetate
Concen: 0.07 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.006 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 43 Resp: 3462

Ion	Ratio	Lower	Upper
43	100		
56	30.4	24.7	64.7
73	13.4	0.0	35.9

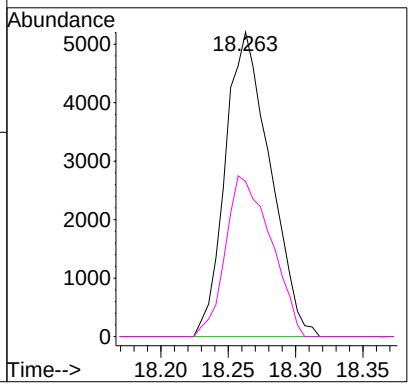


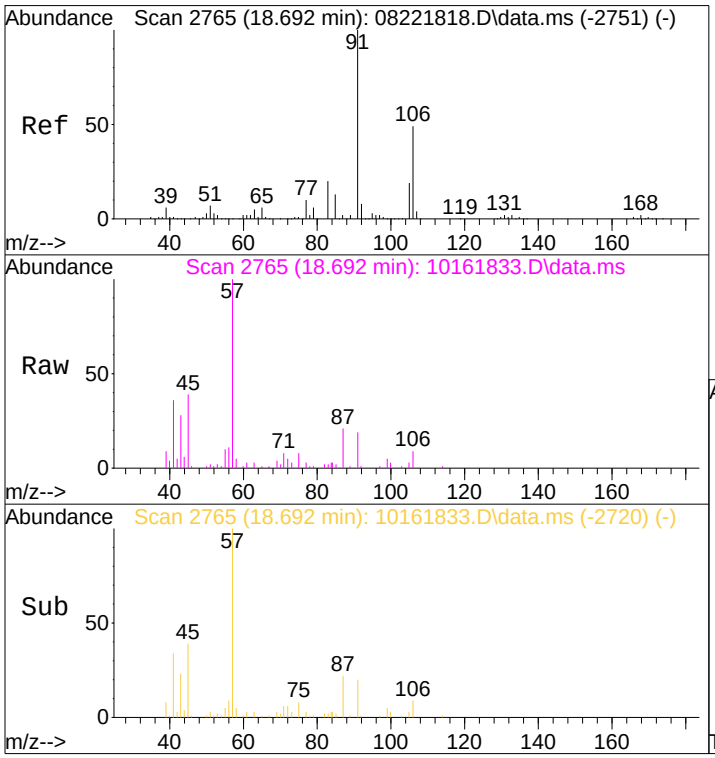


#67
m- & p-Xylenes
Concen: 0.16 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.011 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 91 Resp: 12030

Ion	Ratio	Lower	Upper
91	100		
106	53.6	32.2	72.2

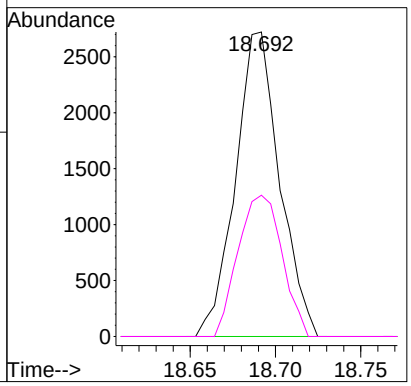


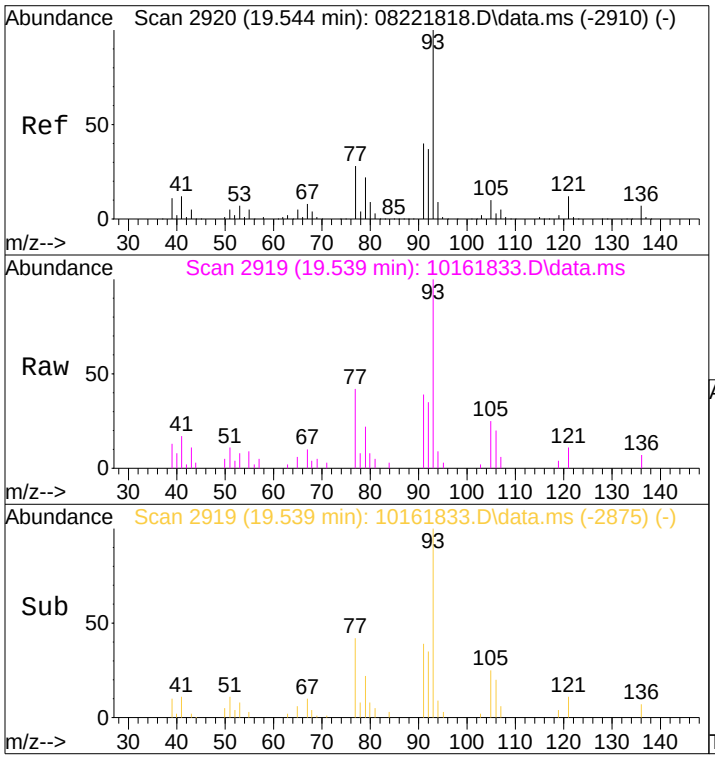


#70
o-Xylene
Concen: 0.06 ng
RT: 18.69 min Scan# 2765
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 91 Resp: 4895

Ion	Ratio	Lower	Upper
91	100		
106	46.2	29.6	69.6

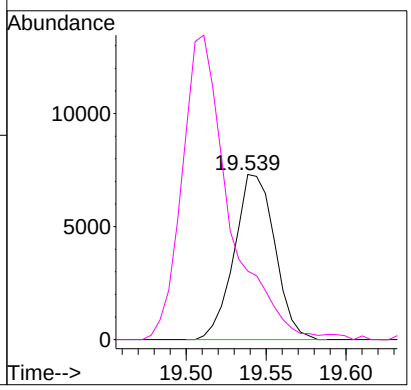


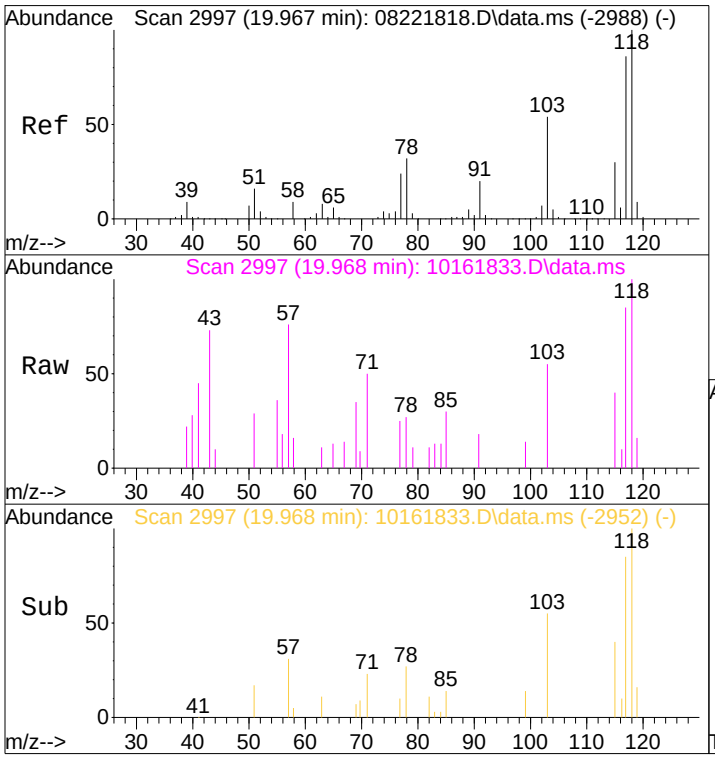


#75
alpha-Pinene
Concen: 0.25 ng
RT: 19.54 min Scan# 2919
Delta R.T. -0.005 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 93 Resp: 12917

Ion	Ratio	Lower	Upper
93	100		
77	215.6	8.7	48.7#

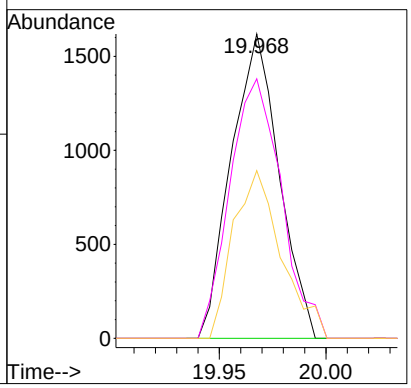


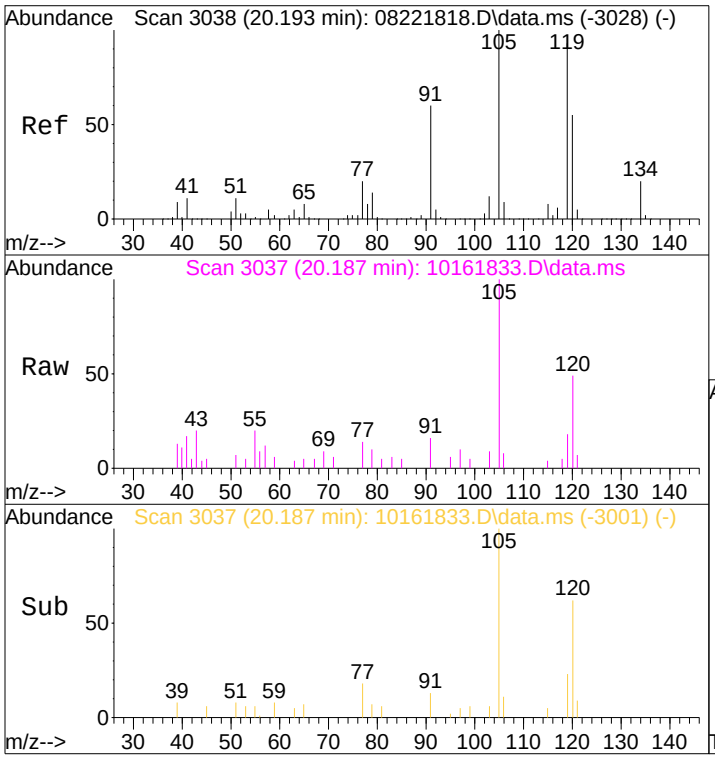


#80
alpha-Methylstyrene
Concen: 0.06 ng
RT: 19.97 min Scan# 2997
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:118 Resp: 2527

Ion	Ratio	Lower	Upper
118	100		
117	92.2	70.7	110.7
103	55.4	49.7	89.7

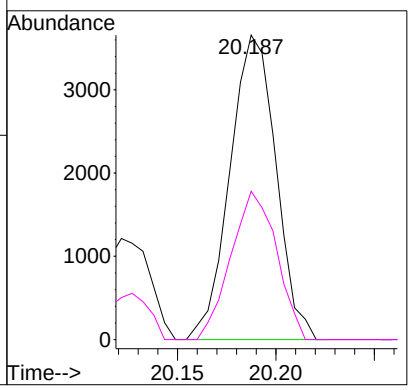


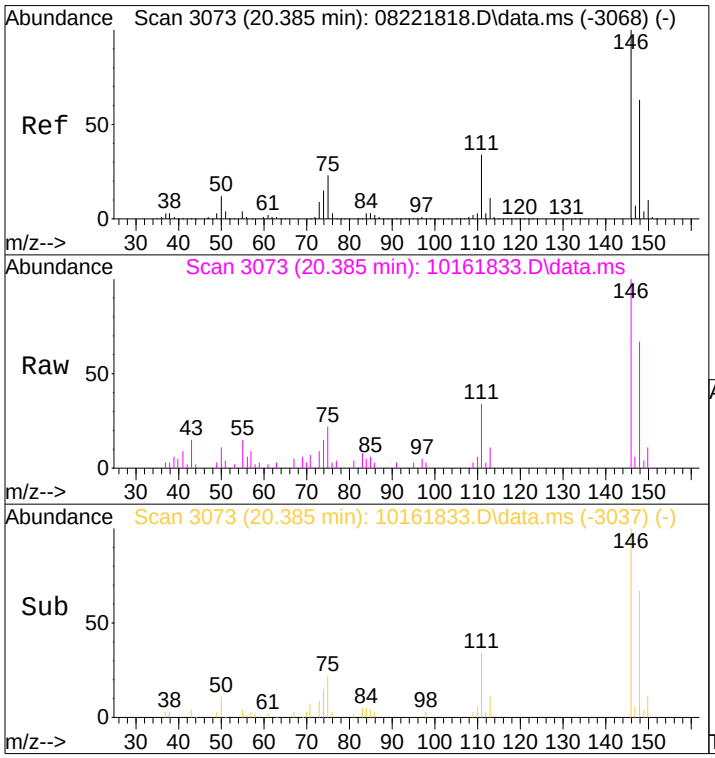


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 20.19 min Scan# 3037
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:105 Resp: 5942

Ion	Ratio	Lower	Upper
105	100		
120	48.2	36.1	76.1

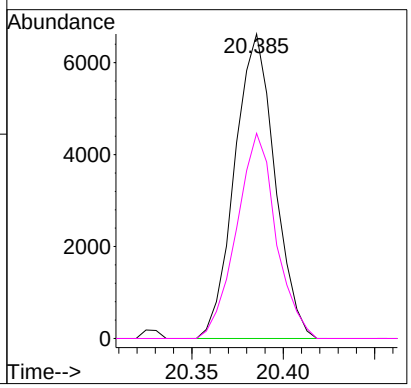


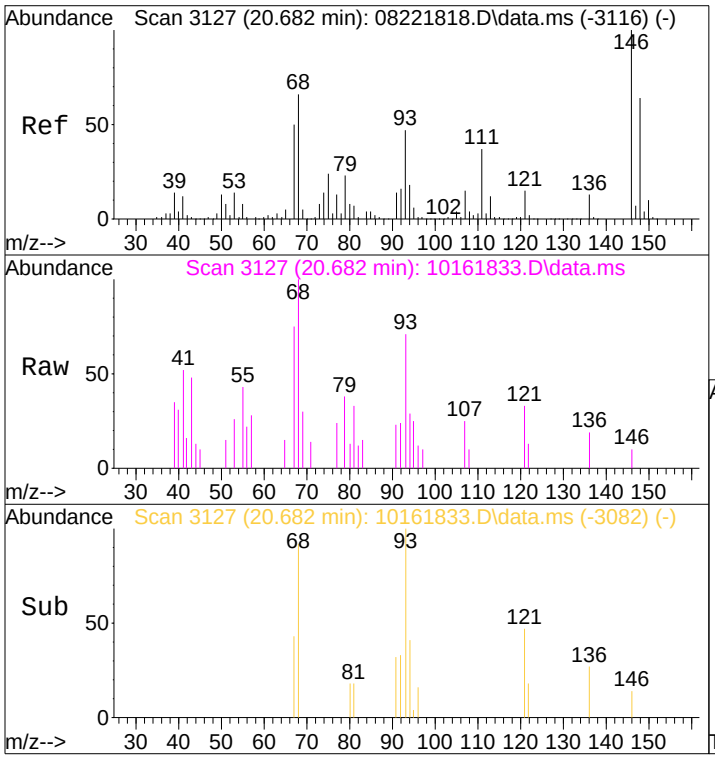


#86
1,4-Dichlorobenzene
Concen: 0.20 ng
RT: 20.39 min Scan# 3073
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:146 Resp: 10107

Ion	Ratio	Lower	Upper
146	100		
148	66.5	43.9	83.9

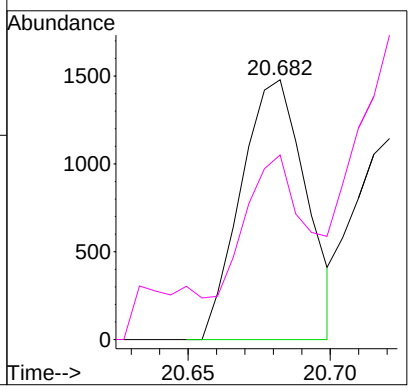


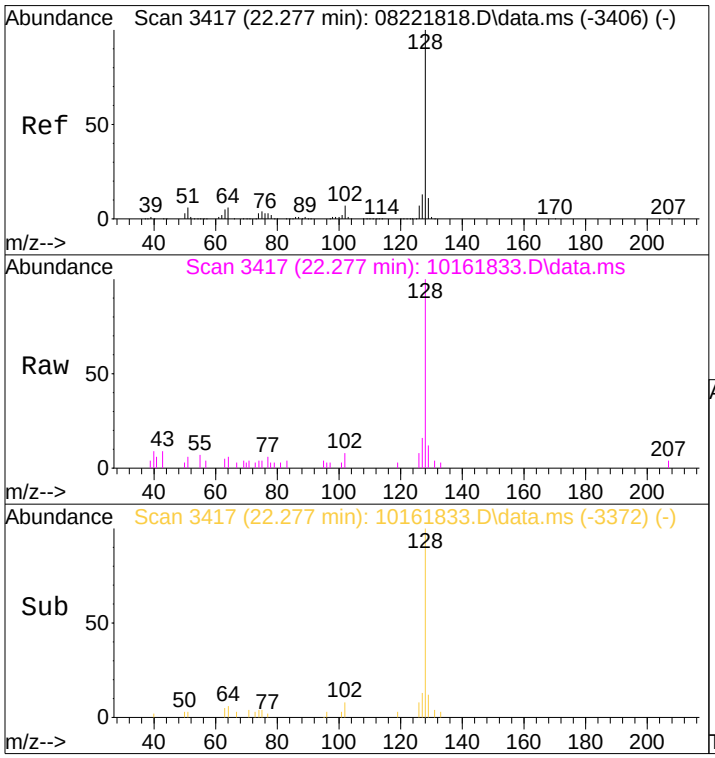


#91
d-Limonene
Concen: 0.08 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion: 68 Resp: 2360

Ion	Ratio	Lower	Upper
68	100		
93	75.9	50.5	90.5

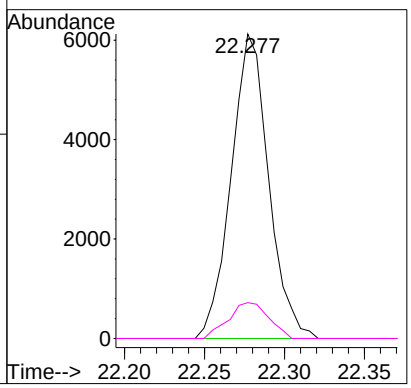




#95
Naphthalene
Concen: 0.11 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161833.D
Acq: 16 Oct 2018 19:47

Tgt Ion:128 Resp: 9986

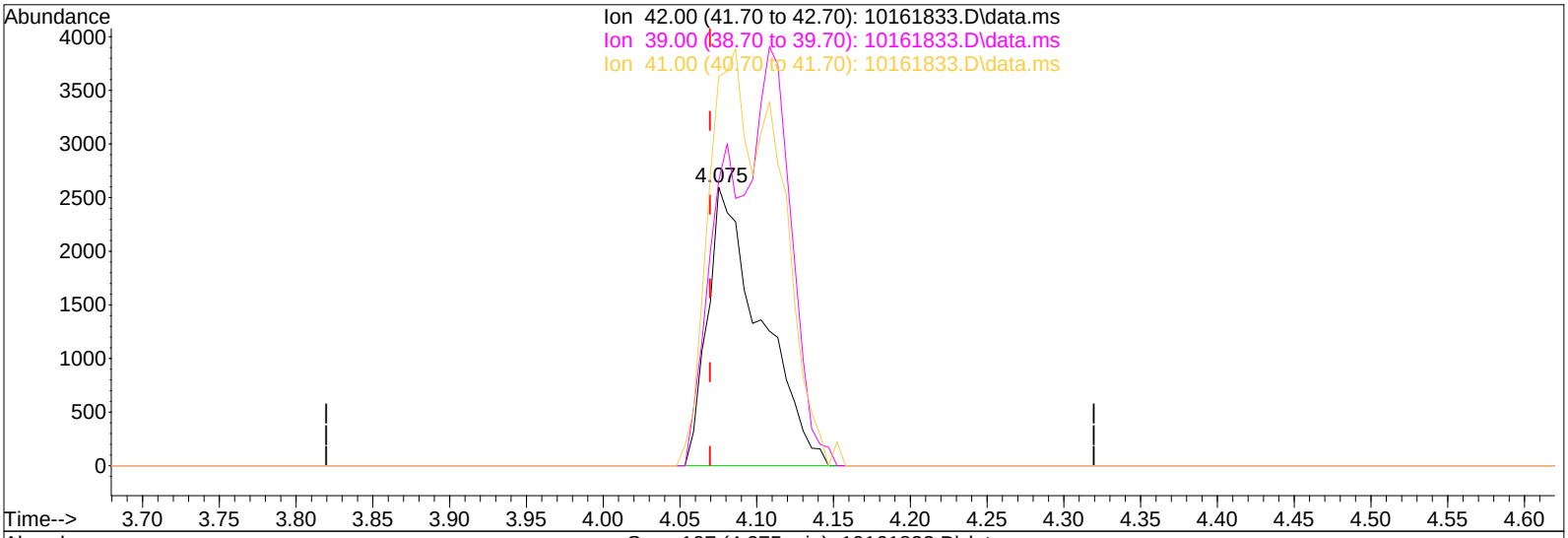
Ion	Ratio	Lower	Upper
128	100		
129	12.7	0.0	30.9

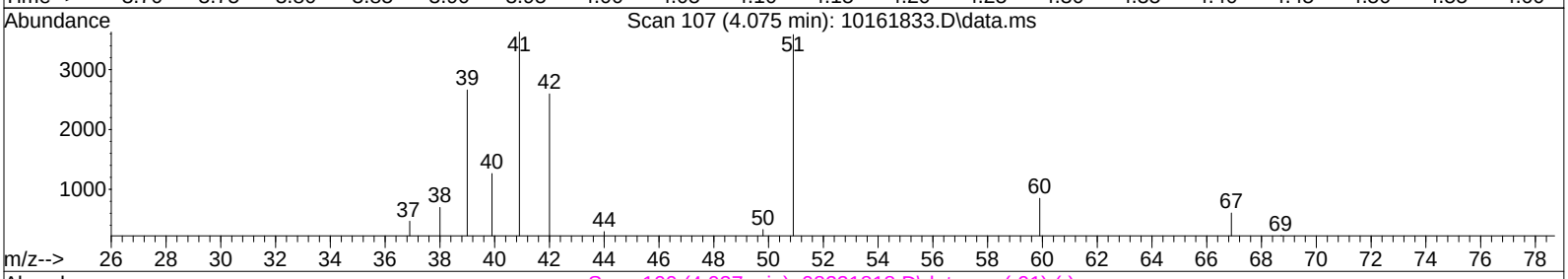


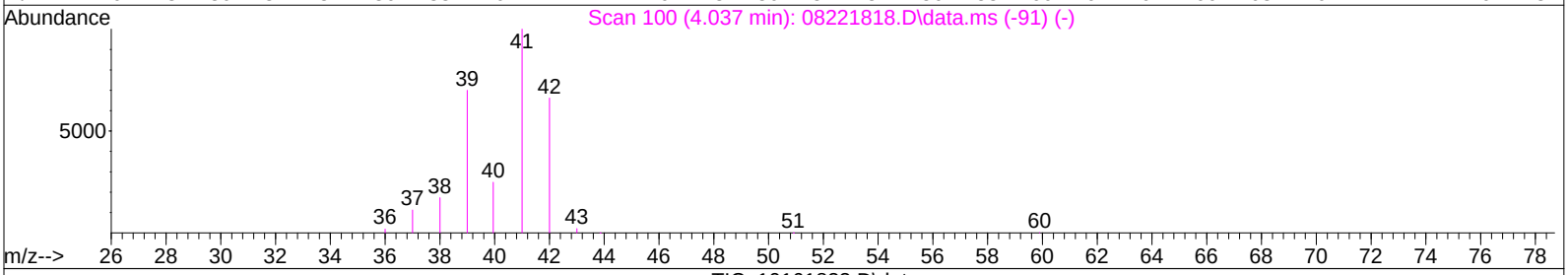
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161833.D\data.ms

(2) Propene (T)

4.075min (+0.006) 0.27ng

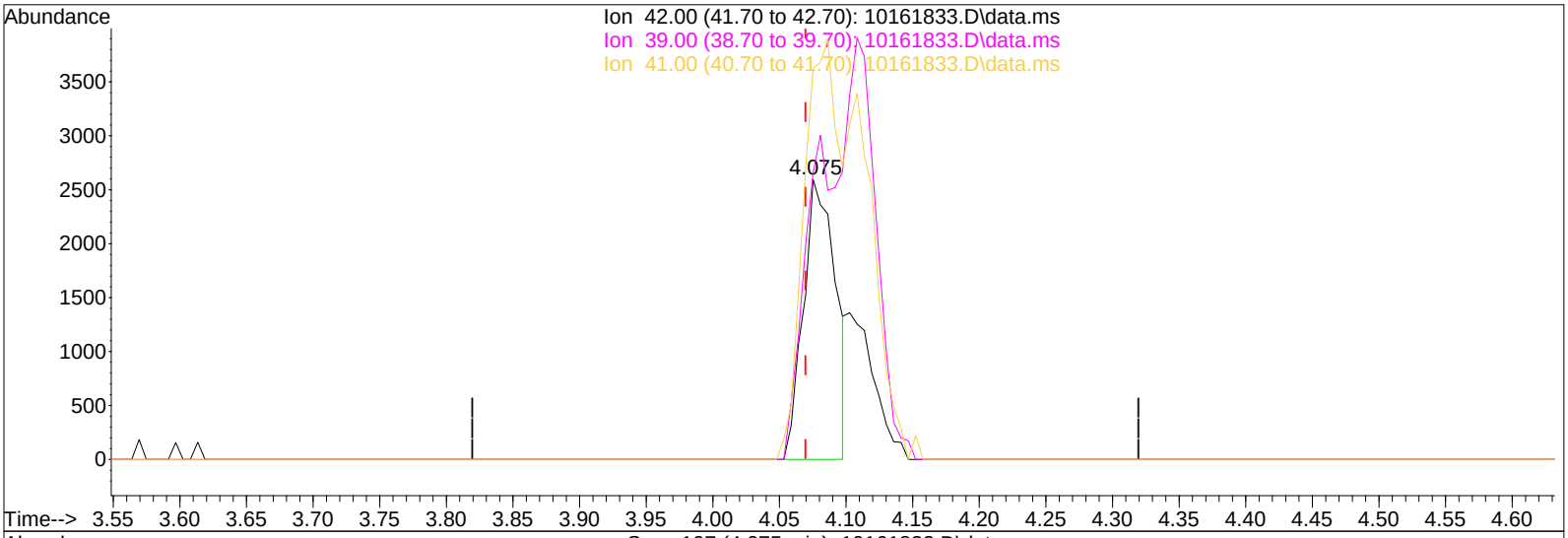
response 6257

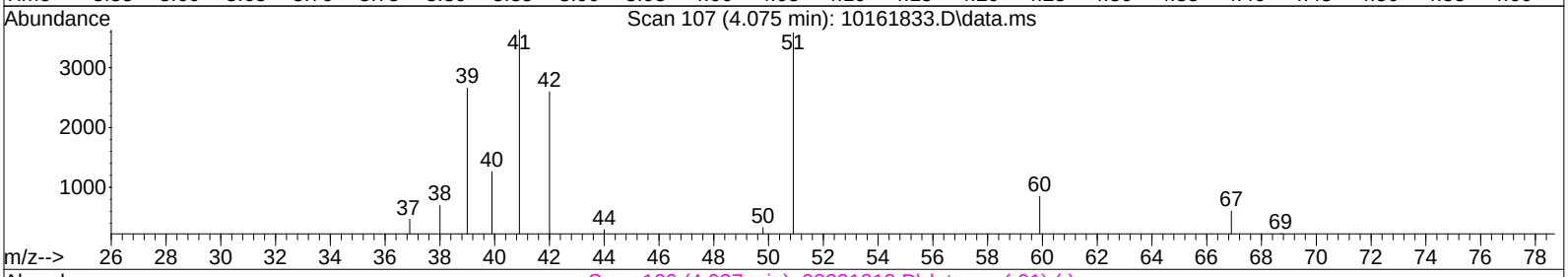
Ion	Exp%	Act%
42.00	100	100
39.00	105.60	75.72#
41.00	151.40	195.68#
0.00	0.00	0.00

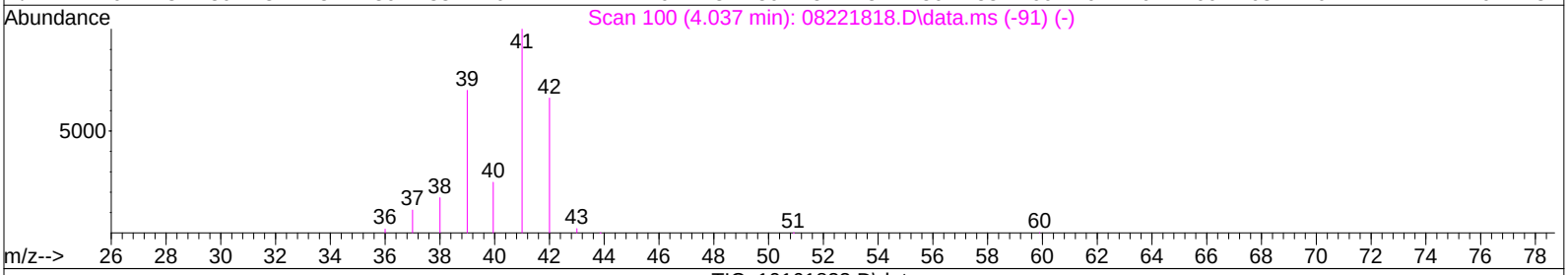
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161833.D\data.ms

(2) Propene (T)

4.075min (+0.006) 0.19ng m

response 4328

Ion	Exp%	Act%
42.00	100	100
39.00	105.60	109.47
41.00	151.40	282.90#
0.00	0.00	0.00

IPC

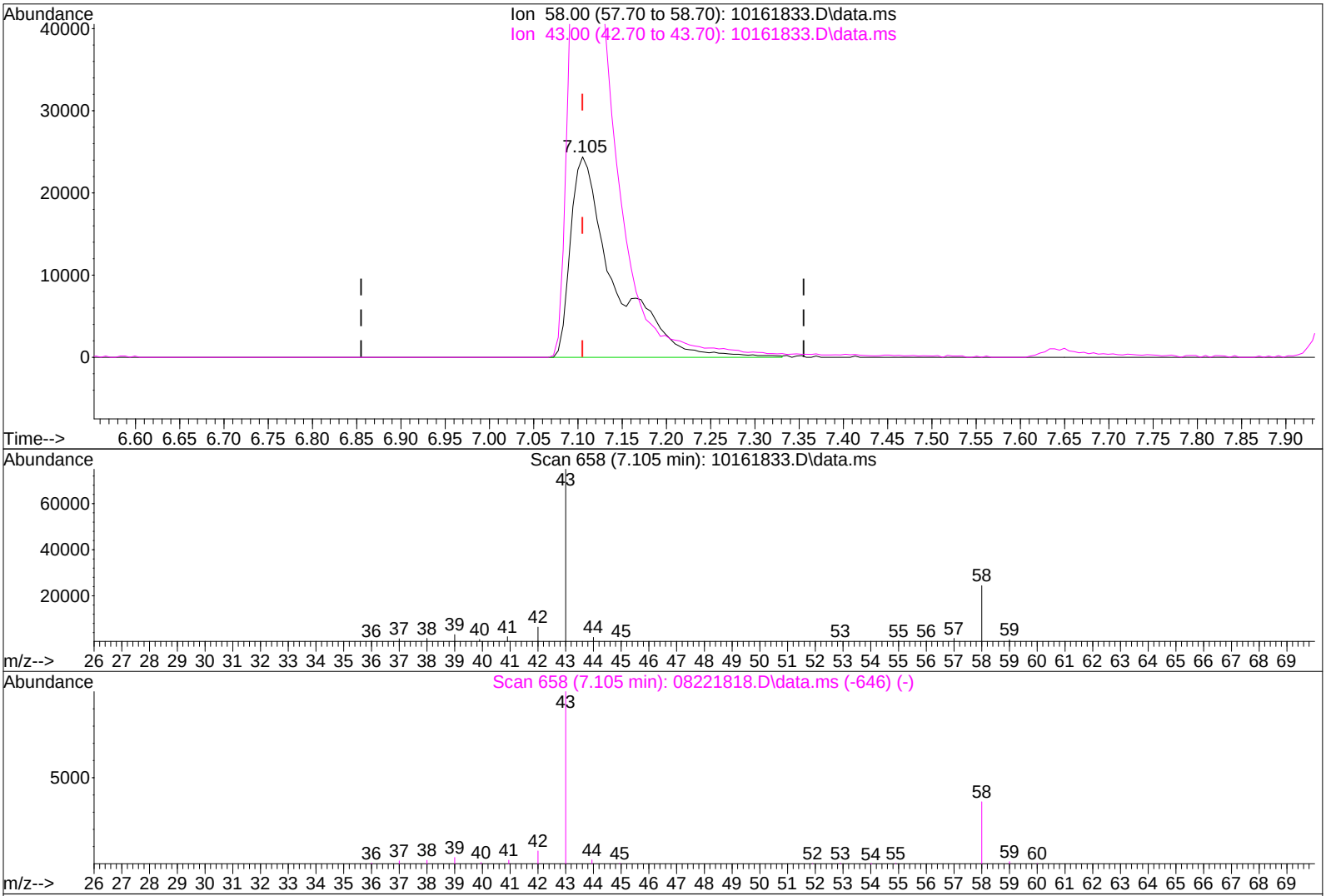
LH 10/17/18

10/17/18

Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10161833.D\data.ms

(13) Acetone (T)

7.105min (+0.000) 5.30ng

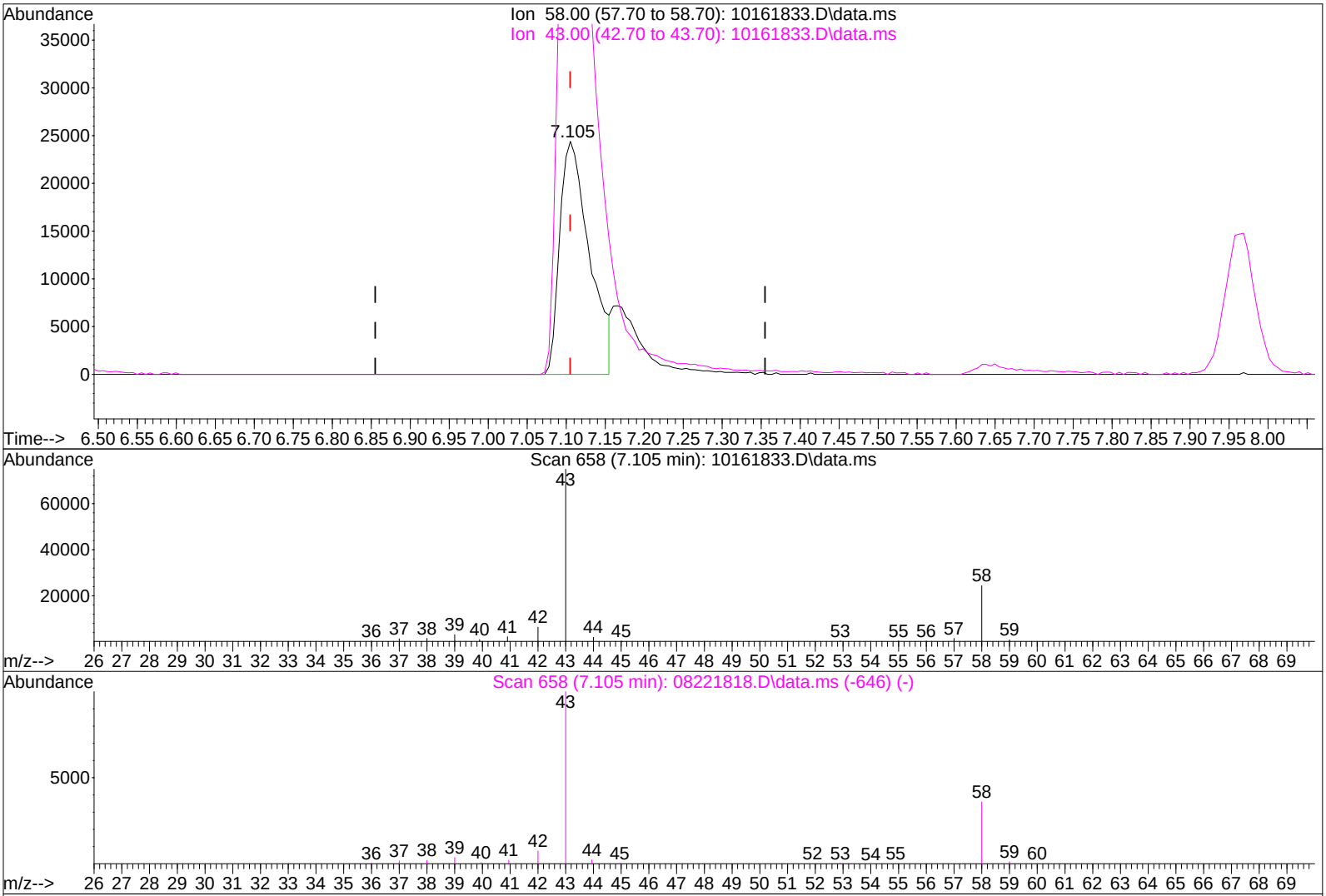
response 83817

Ion	Exp%	Act%
58.00	100	100
43.00	277.70	265.52
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10161833.D\data.ms

(13) Acetone (T)

7.105min (+0.000) 4.08ng m

response 64496

Ion	Exp%	Act%
58.00	100	100
43.00	277.70	345.06#
0.00	0.00	0.00
0.00	0.00	0.00

IPC

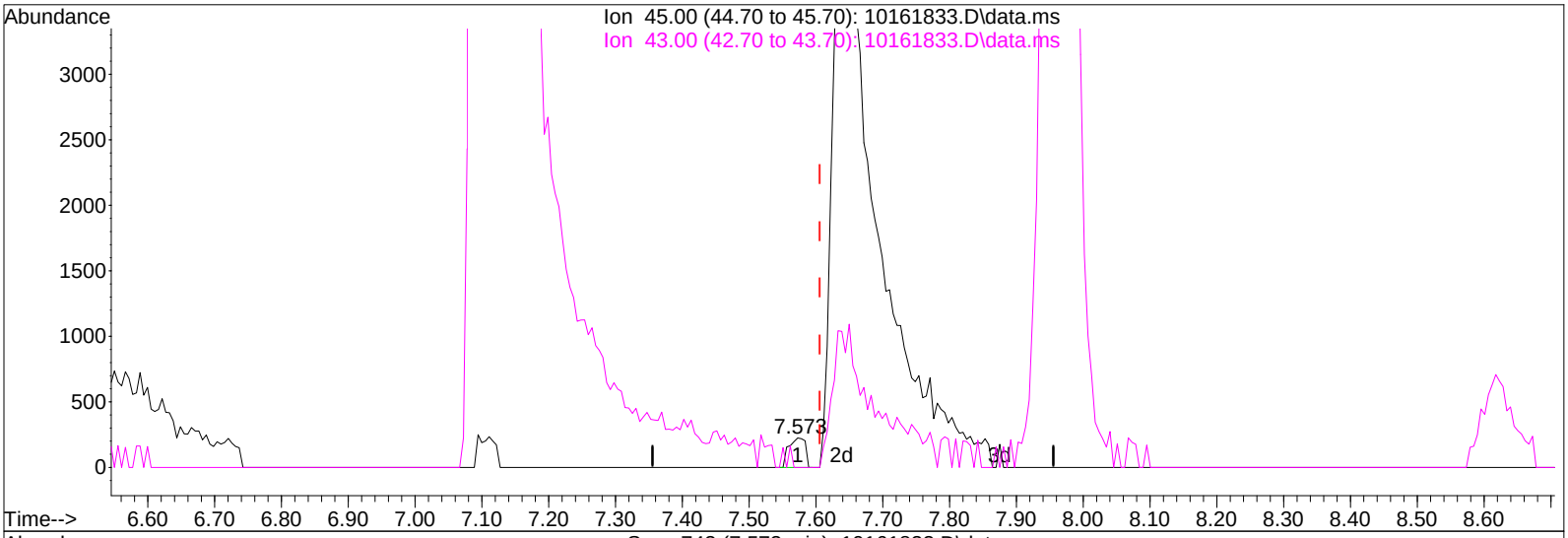
LH 10/17/18

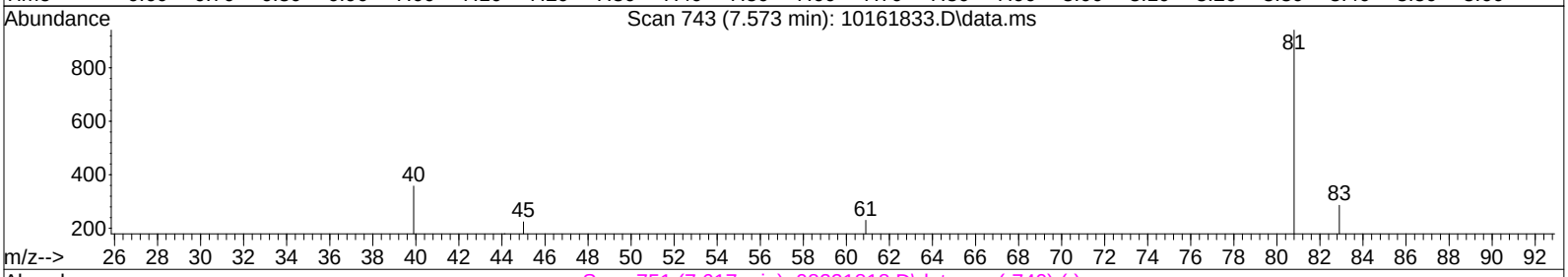
10/17/18

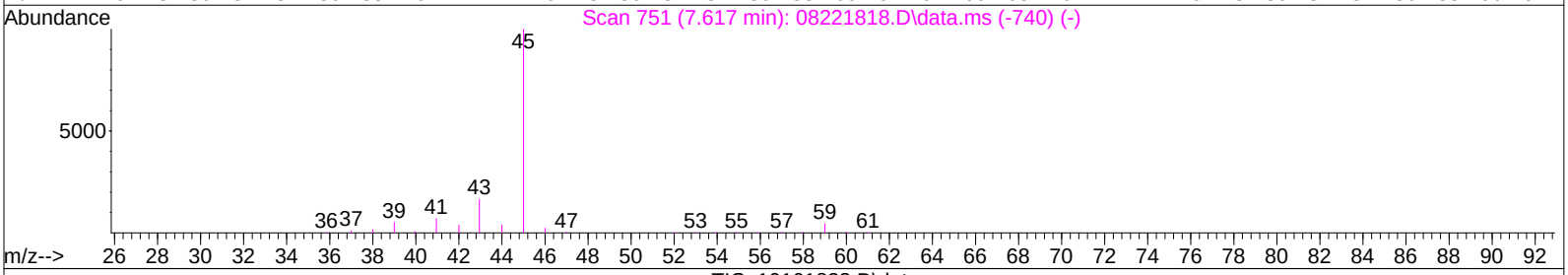
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161833.D\data.ms

(15) 2-Propanol (Isopropanol) (T)

7.573min (-0.033) 0.01ng

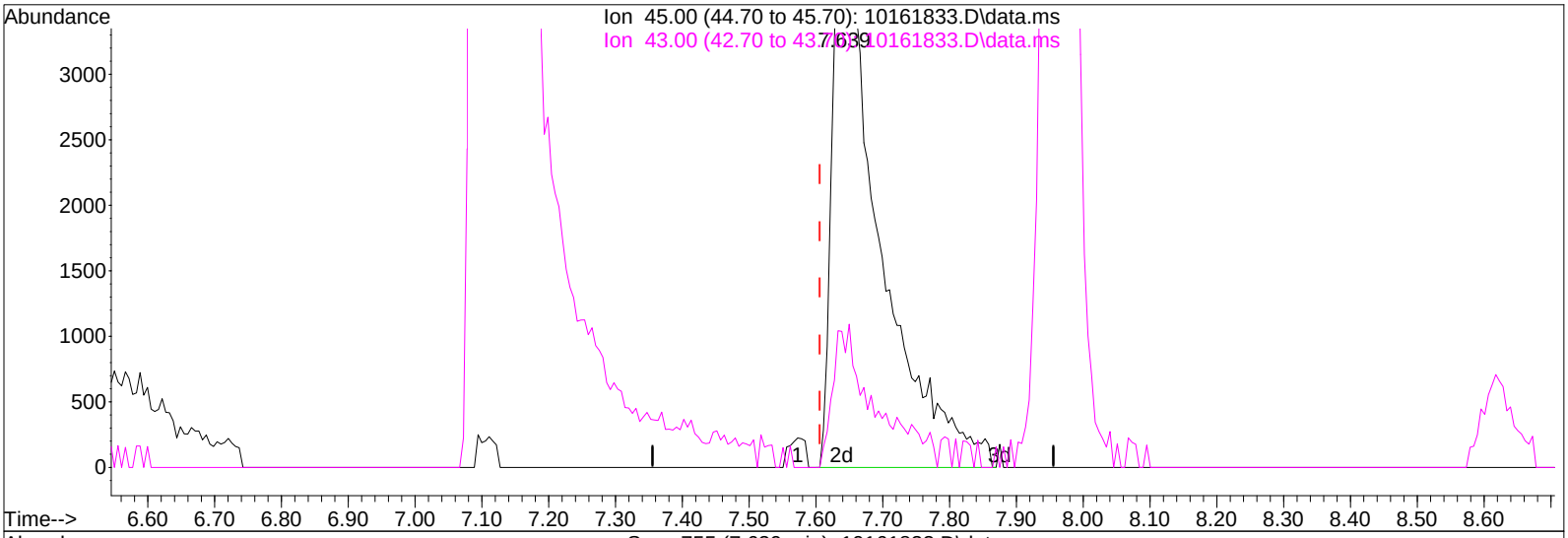
response 384

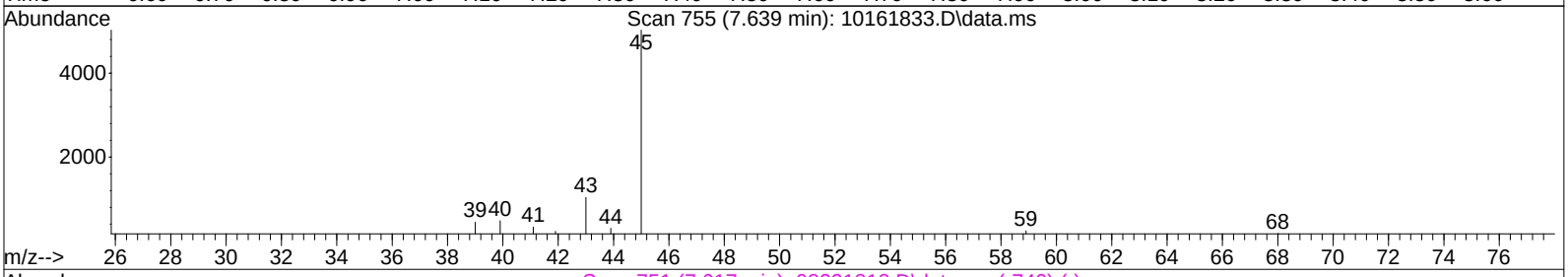
Ion	Exp%	Act%
45.00	100	100
43.00	16.80	27.08
0.00	0.00	0.00
0.00	0.00	0.00

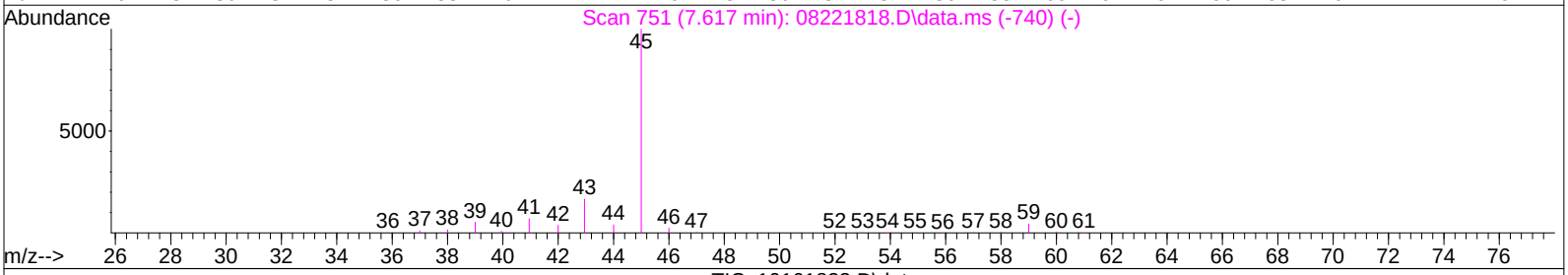
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 06:33:10 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161833.D\data.ms

(15) 2-Propanol (Isopropanol) (T)

7.639min (+0.033) 0.44ng m

response 21167

Ion	Exp%	Act%
45.00	100	100
43.00	16.80	0.49
0.00	0.00	0.00
0.00	0.00	0.00

MP

LH 10/17/18

10/17/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 12:17:45 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

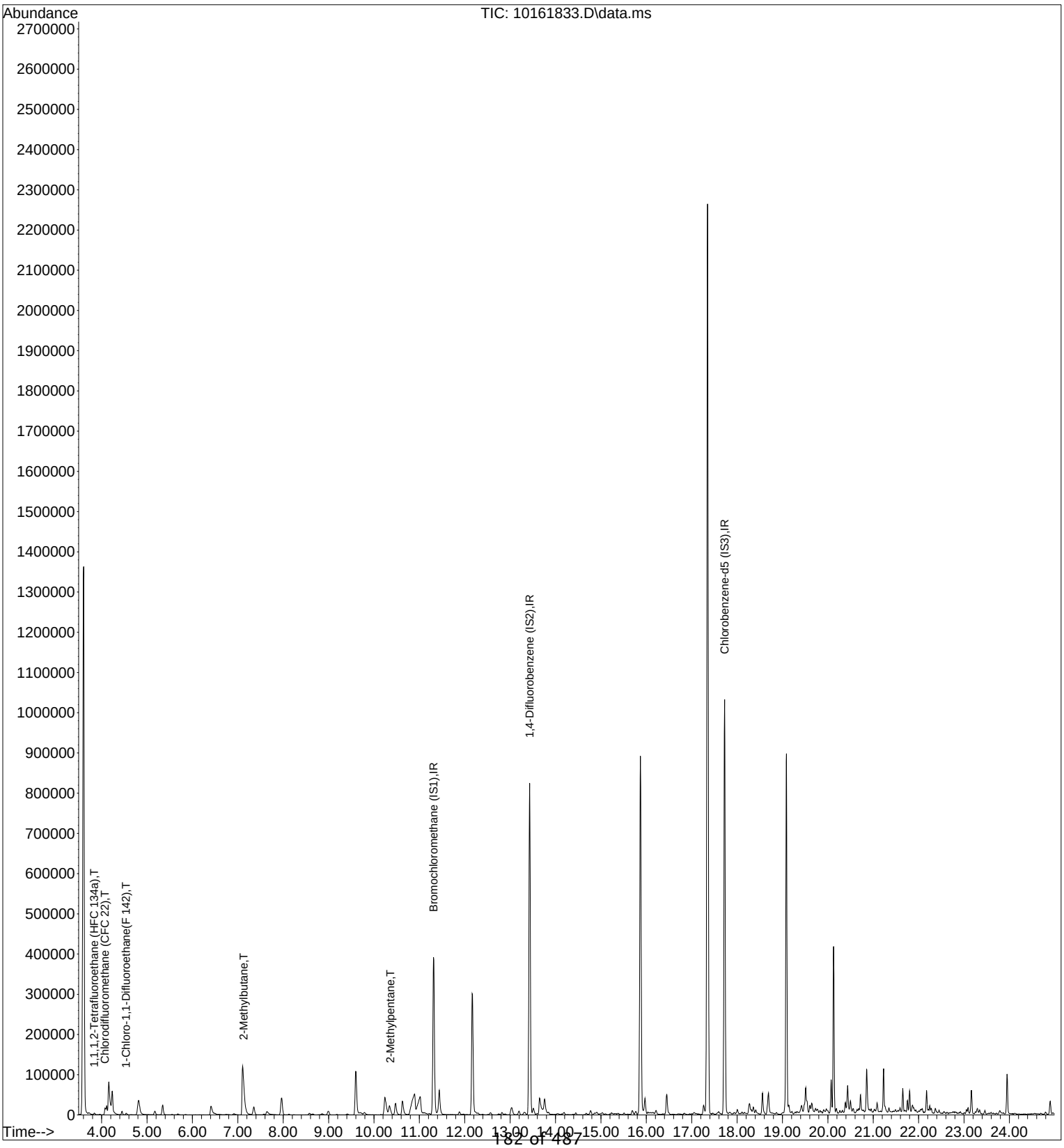
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	202083	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	846660	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	354057	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	972	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	2192	0.131	ng	#	56
4) 1,1-Difluoroethane	3.97	65	480	N.D.			
5) Chlorodifluoromethane ...	4.07	67	1032	0.205	ng		91
6) 1-Chloro-1,1-Difluoroe...	4.54	65	1890	0.062	ng	#	87
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	15827	0.720	ng	#	69
11) Methyl Acetate	8.62	43	2290	N.D.			
12) 2-Methylpentane	10.36	71	1925	0.091	ng	#	1
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.19	84	1105	N.D.			
17) 2,3-Dimethylpentane	13.59	56	1369	N.D.			
18) Dibromomethane	13.85	174	268	N.D.			
20) Methyl Cyclohexane	15.10	55	690	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.65	131	114	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.	d		
25) Bromobenzene	19.40	77	169	N.D.			
26) 2-Chlorotoluene	19.64	91	1903	N.D.			
27) 4-Chlorotoluene	19.64	91	1903	N.D.			
28) Indan	20.73	117	625	N.D.			
29) Indene	20.81	115	134	N.D.			
30) 1,2,4,5-Tetramethylben...	21.60	119	959	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	959	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	1487	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

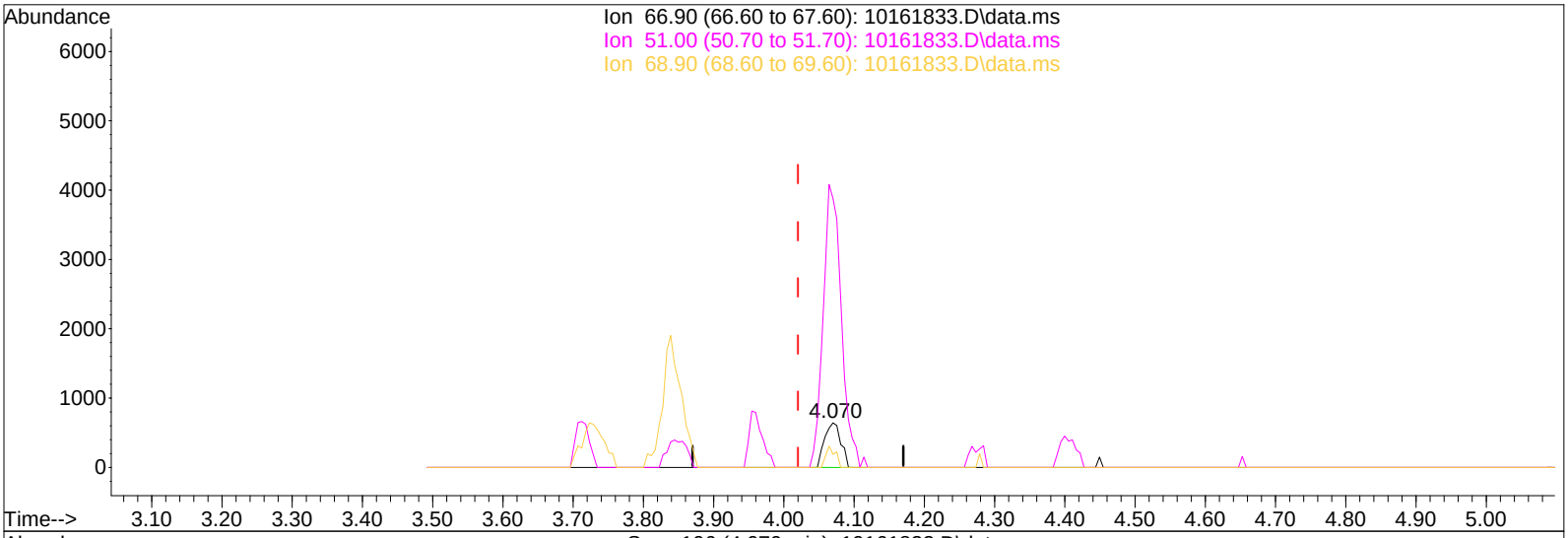
Quant Time: Oct 17 12:17:45 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

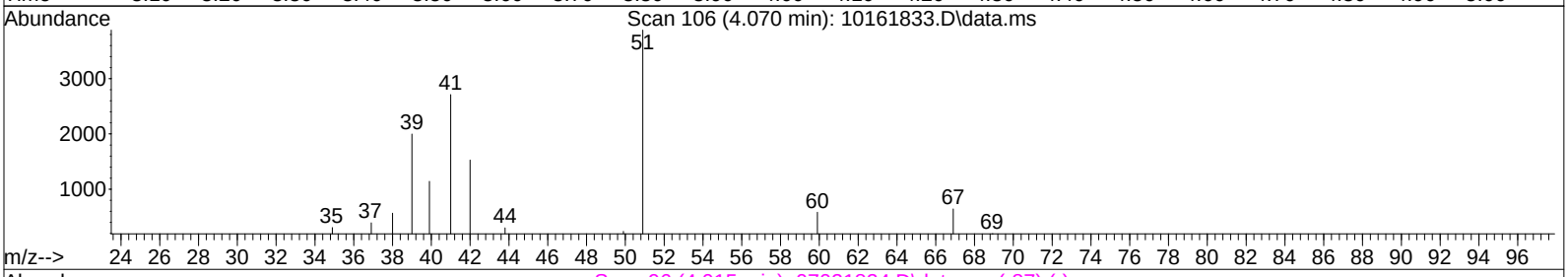


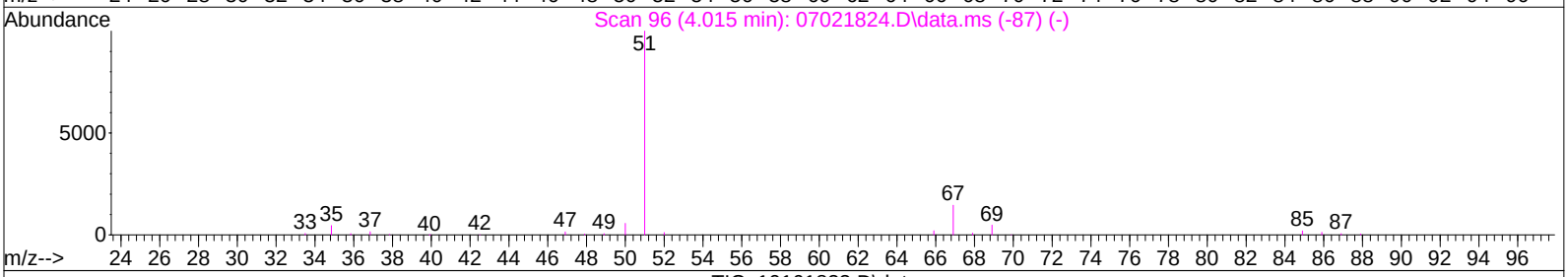
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161833.D
Acq On : 16 Oct 2018 19:47 Operator: LH/TD
Sample : P1805476-005 (1000mL)
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 17 11:53:37 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161833.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.070min (+0.050) 0.21ng

response 1032

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	712.02
68.90	32.10	28.10
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 17 11:39:55 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	198941	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	841784	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	355999	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	254513	12.931	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.44%				
57) Toluene-d8 (SS2)	15.87	98	741169	13.610	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
73) Bromofluorobenzene (SS3)	19.09	174	338686	15.303	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.40%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.23	85	21098	0.570	ng		98
4) Chloromethane	4.55	50	199	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	338	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.42	45	16138	1.165	ng		92
11) Acetonitrile	0.00	41	0	N.D. d			
12) Acrolein	6.93	56	394	N.D.			
13) Acetone	7.13	58	18744	1.204	ng		90
14) Trichlorofluoromethane	7.36	101	10340	0.323	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	11117	0.232	ng		98
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.58	59	1167	N.D.			
19) Methylene Chloride	8.57	84	9813	0.447	ng		96
20) 3-Chloro-1-propene (Al...	8.57	41	300	N.D.			
21) Trichlorotrifluoroethane	9.00	151	2212	0.114	ng		99
22) Carbon Disulfide	8.86	76	6116	0.076	ng		87
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.24	73	172	N.D.			
26) Vinyl Acetate	10.34	86	491	0.109	ng	#	28
27) 2-Butanone (MEK)	10.66	72	2107	0.145	ng	#	89
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.44	61	12554	1.690	ng		90
31) n-Hexane	11.41	57	853	N.D.			
32) Chloroform	11.48	83	737	N.D.			
34) Tetrahydrofuran (THF)	11.96	72	107	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	8430	0.426	ng	#	71
41) Benzene	13.04	78	3596	N.D.			
42) Carbon Tetrachloride	13.20	117	2669	0.104	ng		99
43) Cyclohexane	13.33	84	126	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	26079	1.097	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	14.19	57	1809	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 17 11:39:55 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	14.45	71	780	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.04	58	502	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	88456	0.949 ng		98
59) 2-Hexanone	16.22	43	1503	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	5345	0.108 ng		97
63) n-Octane	16.95	57	1667	0.091 ng		93
64) Tetrachloroethene	17.11	166	3471	0.129 ng		99
65) Chlorobenzene	17.78	112	182	N.D.		
66) Ethylbenzene	18.11	91	22161	0.215 ng		100
67) m- & p-Xylenes	18.26	91	75832	0.992 ng		100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	8054	0.130 ng		99
70) o-Xylene	18.69	91	31887	0.413 ng		100
71) n-Nonane	18.86	43	6804	0.174 ng		97
72) 1,1,2,2-Tetrachloroethane	18.74	83	506	N.D.		
74) Cumene	19.20	105	3594	N.D.		
75) alpha-Pinene	19.54	93	22841	0.439 ng	#	1
76) n-Propylbenzene	19.64	91	19013	0.161 ng		95
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	28297	0.304 ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	22902	0.279 ng		99
80) alpha-Methylstyrene	19.96	118	983	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.19	105	89005	1.113 ng		91
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.39	91	2158	N.D.		
85) 1,3-Dichlorobenzene	20.33	146	220	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	837	N.D.		
87) sec-Butylbenzene	20.42	105	2082	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	23617	0.298 ng		95
90) 1,2-Dichlorobenzene	20.69	146	271	N.D.		
91) d-Limonene	20.68	68	36027	1.196 ng		79
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	24006	0.261 ng		96
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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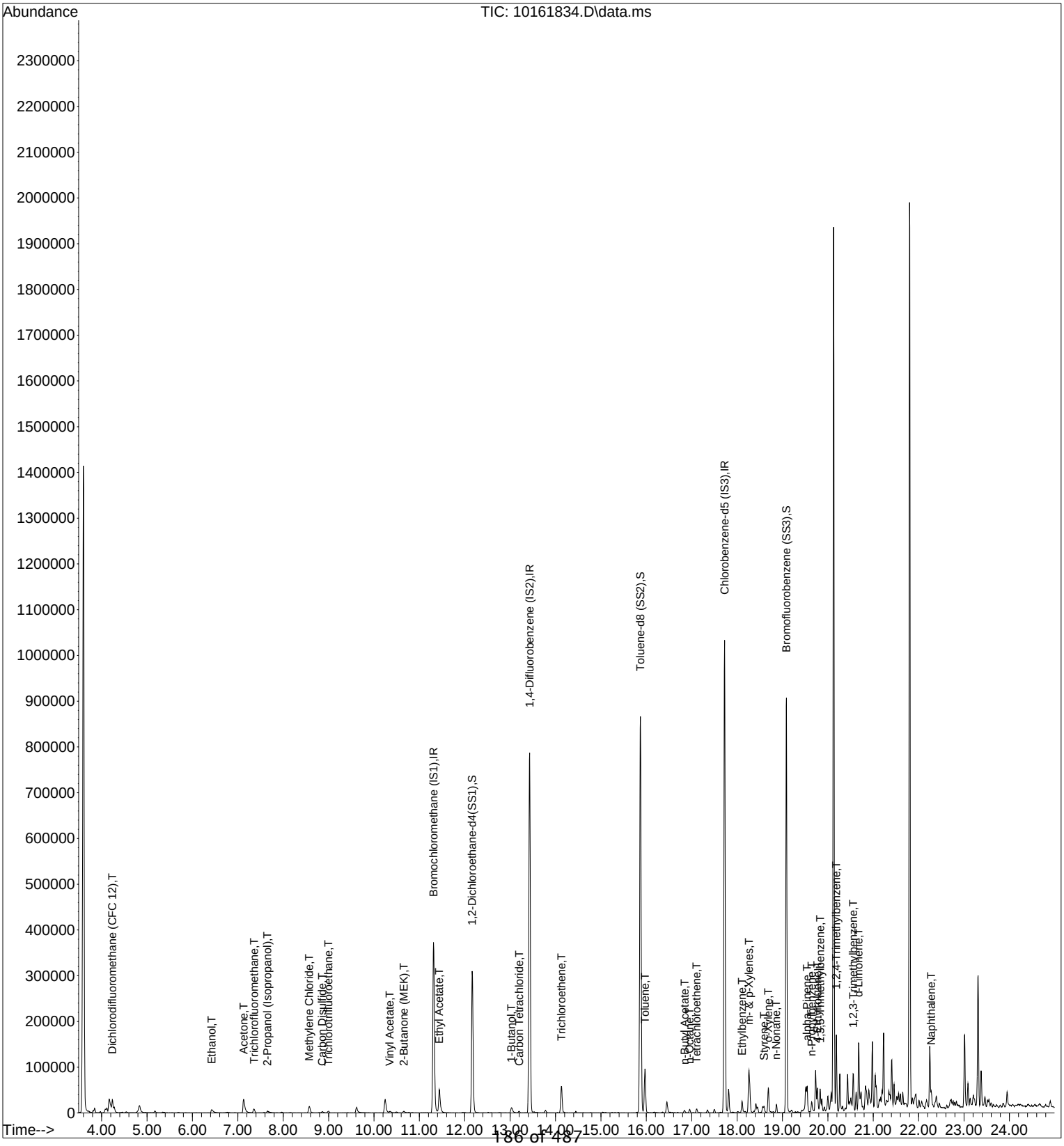
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 17 11:39:55 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
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Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018 LH 10/17/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	198941	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	841784	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	355999	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	254513	12.931	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.44%				
57) Toluene-d8 (SS2)	15.87	98	741169	13.610	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
73) Bromofluorobenzene (SS3)	19.09	174	338686	15.303	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.40%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.23	85	21098	0.570	ng		98
10) Ethanol	6.42	45	16138	1.165	ng		92
13) Acetone	7.13	58	18744	1.204	ng		90
14) Trichlorofluoromethane	7.36	101	10340	0.323	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	11117	0.232	ng		98
19) Methylene Chloride	8.57	84	9813	0.447	ng		96
21) Trichlorotrifluoroethane	9.00	151	2212	0.114	ng		99
22) Carbon Disulfide	8.86	76	6116	0.076	ng		87
26) Vinyl Acetate	10.34	86	491	0.109	ng	#	28
27) 2-Butanone (MEK)	10.66	72	2107	0.145	ng	#	89
30) Ethyl Acetate	11.44	61	12554	1.690	ng		90
40) 1-Butanol	13.03	56	8430	0.426	ng	#	71
42) Carbon Tetrachloride	13.20	117	2669	0.104	ng		99
47) Trichloroethene	14.13	130	26079	1.097	ng		99
58) Toluene	15.97	91	88456	0.949	ng		98
62) n-Butyl Acetate	16.84	43	5345	0.108	ng		97
63) n-Octane	16.95	57	1667	0.091	ng		93
64) Tetrachloroethene	17.11	166	3471	0.129	ng		99
66) Ethylbenzene	18.11	91	22161	0.215	ng		100
67) m- & p-Xylenes	18.26	91	75832	0.992	ng		100
69) Styrene	18.59	104	8054	0.130	ng		99
70) o-Xylene	18.69	91	31887	0.413	ng		100
71) n-Nonane	18.86	43	6804	0.174	ng		97
75) alpha-Pinene	19.54	93	22841	0.439	ng	#	1
76) n-Propylbenzene	19.64	91	19013	0.161	ng		95
78) 4-Ethyltoluene	19.77	105	28297	0.304	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	22902	0.279	ng		99
82) 1,2,4-Trimethylbenzene	20.19	105	89005	1.113	ng		91
89) 1,2,3-Trimethylbenzene	20.56	105	23617	0.298	ng		95
91) d-Limonene	20.68	68	36027	1.196	ng		79
95) Naphthalene	22.28	128	24006	0.261	ng		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Acq On : 16 Oct 2018 20:20 Operator: LH/TD
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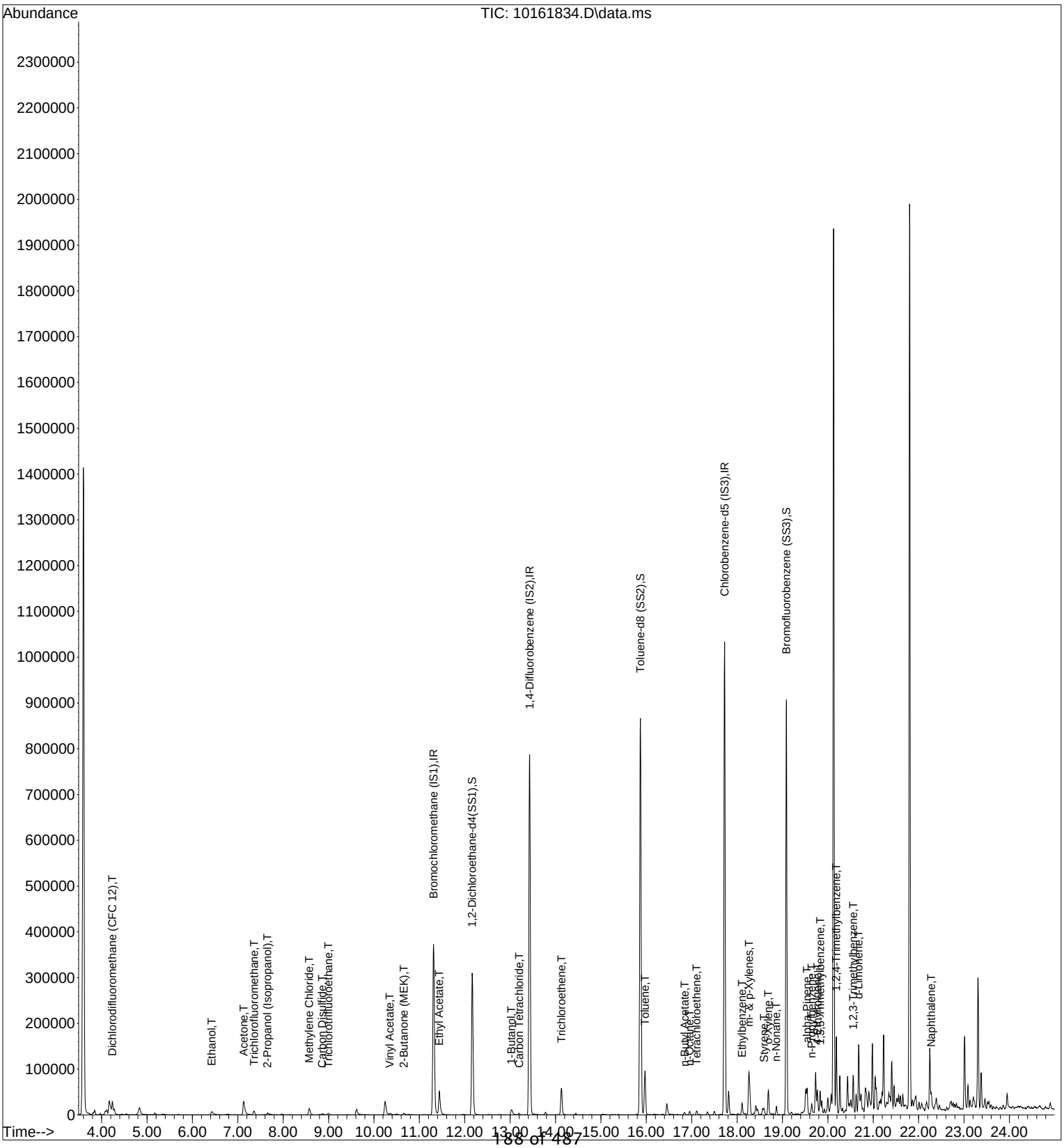
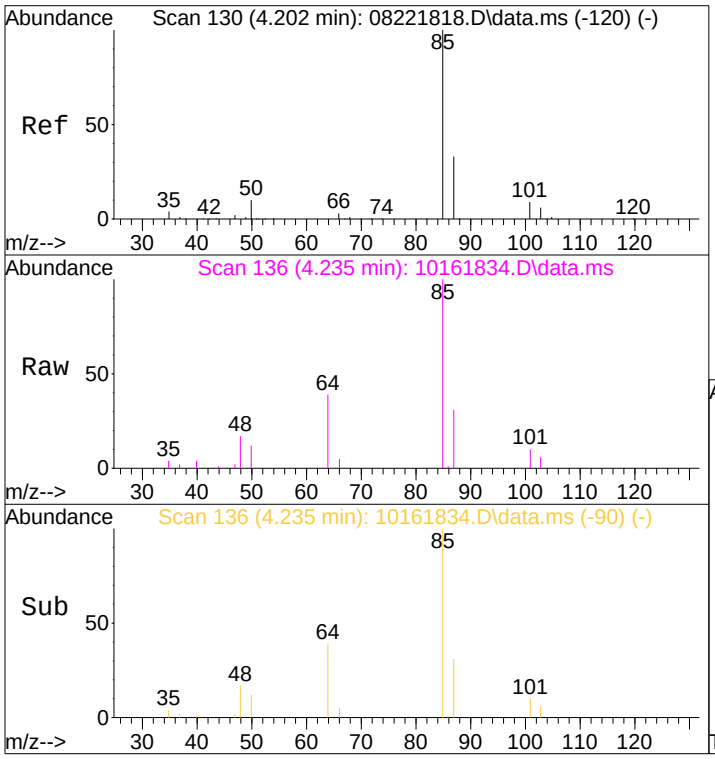
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

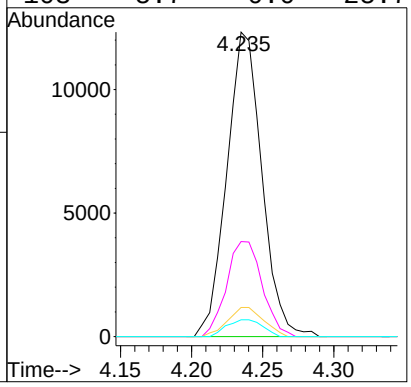


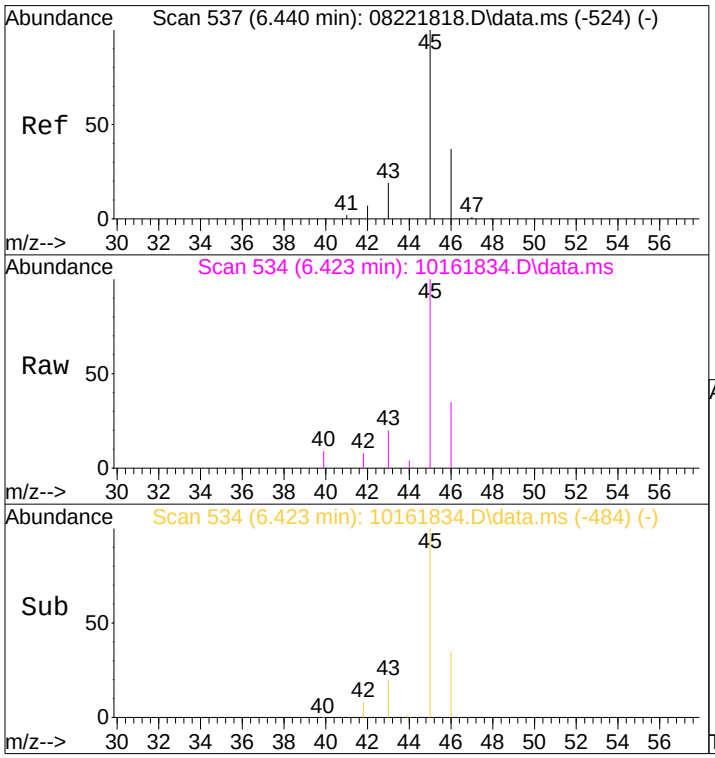


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.57 ng
RT: 4.23 min Scan# 136
Delta R.T. 0.006 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 85 Resp: 21098

Ion	Ratio	Lower	Upper
85	100		
87	31.8	12.6	52.6
101	9.8	0.0	28.8
103	5.7	0.0	25.7

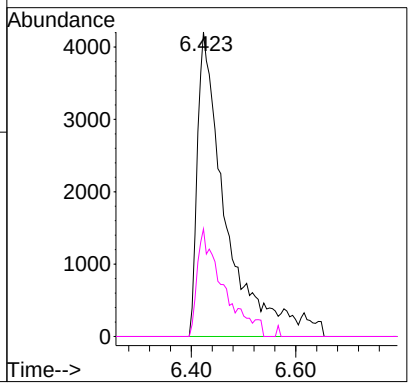


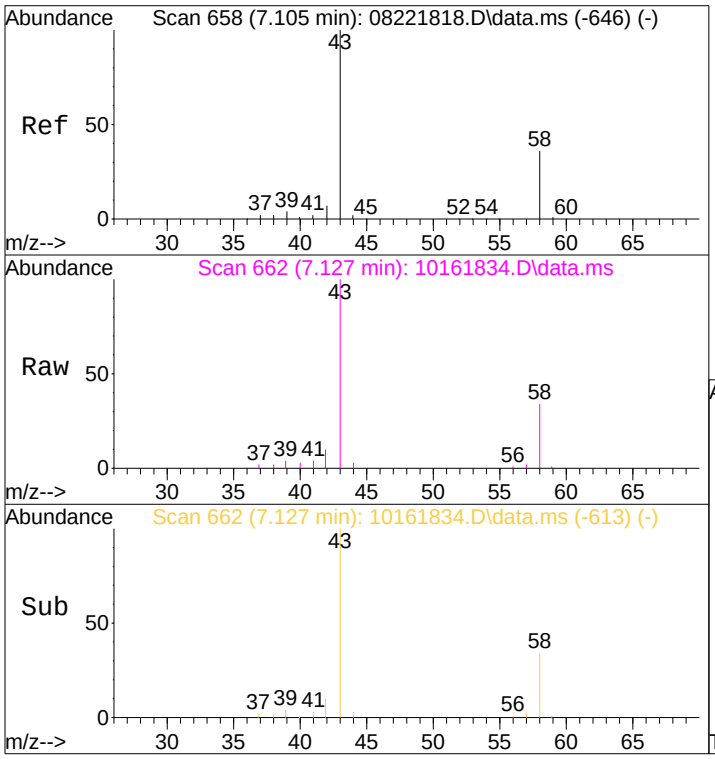


#10
Ethanol
Concen: 1.17 ng
RT: 6.42 min Scan# 534
Delta R.T. 0.028 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 45 Resp: 16138

Ion	Ratio	Lower	Upper
45	100		
46	31.7	16.7	56.7

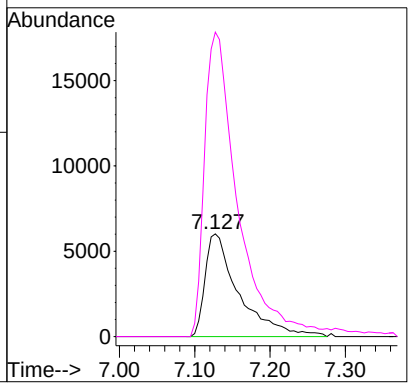


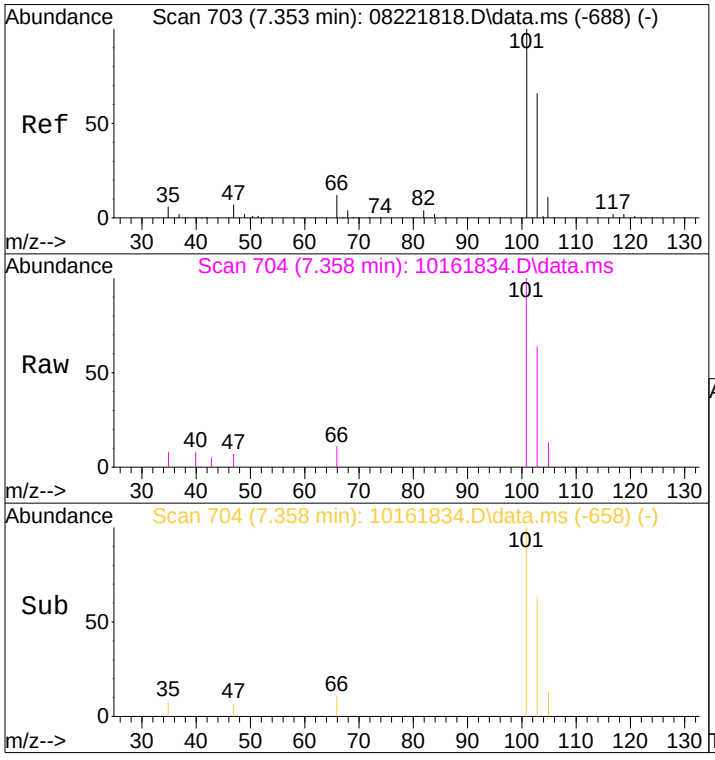


#13
Acetone
Concen: 1.20 ng
RT: 7.13 min Scan# 662
Delta R.T. 0.022 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 58 Resp: 18744

Ion	Ratio	Lower	Upper
58	100		
43	296.8	247.7	307.7

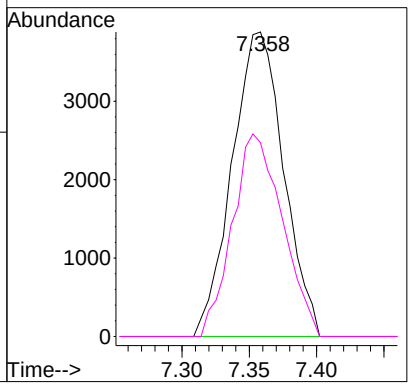


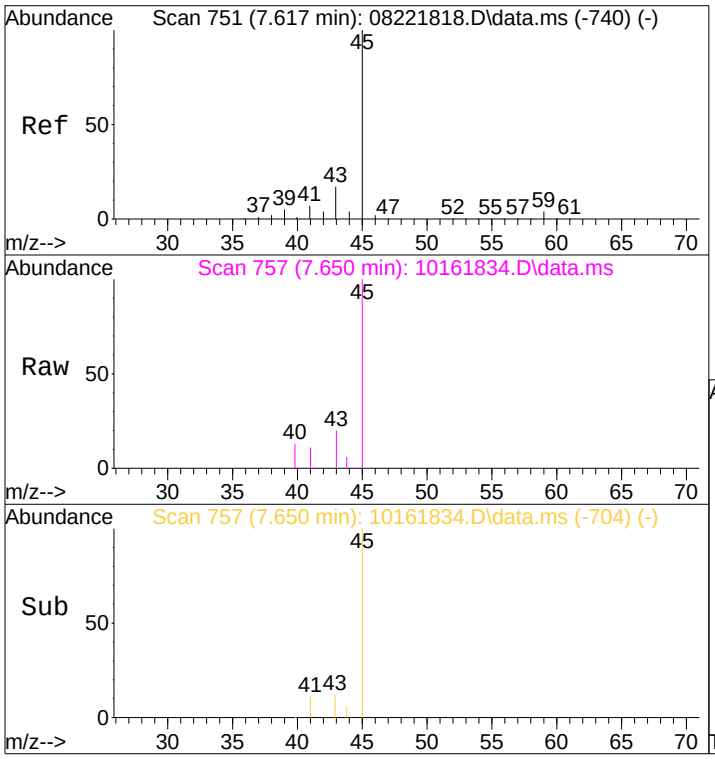


#14
Trichlorofluoromethane
Concen: 0.32 ng
RT: 7.36 min Scan# 704
Delta R.T. 0.006 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:101 Resp: 10340

Ion	Ratio	Lower	Upper
101	100		
103	64.3	45.1	85.1

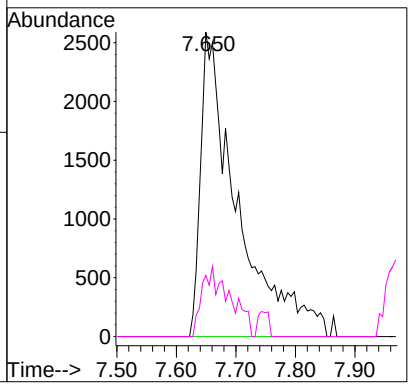


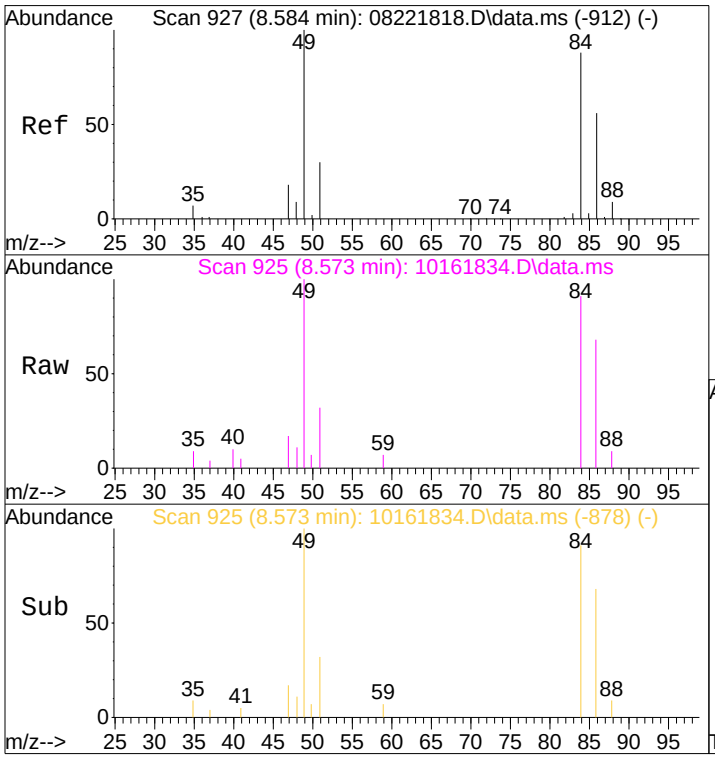


#15
2-Propanol (Isopropanol)
Concen: 0.23 ng
RT: 7.65 min Scan# 757
Delta R.T. 0.044 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 45 Resp: 11117

Ion	Ratio	Lower	Upper
45	100		
43	17.5	0.0	36.8

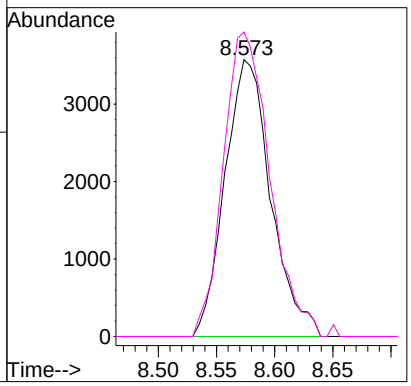


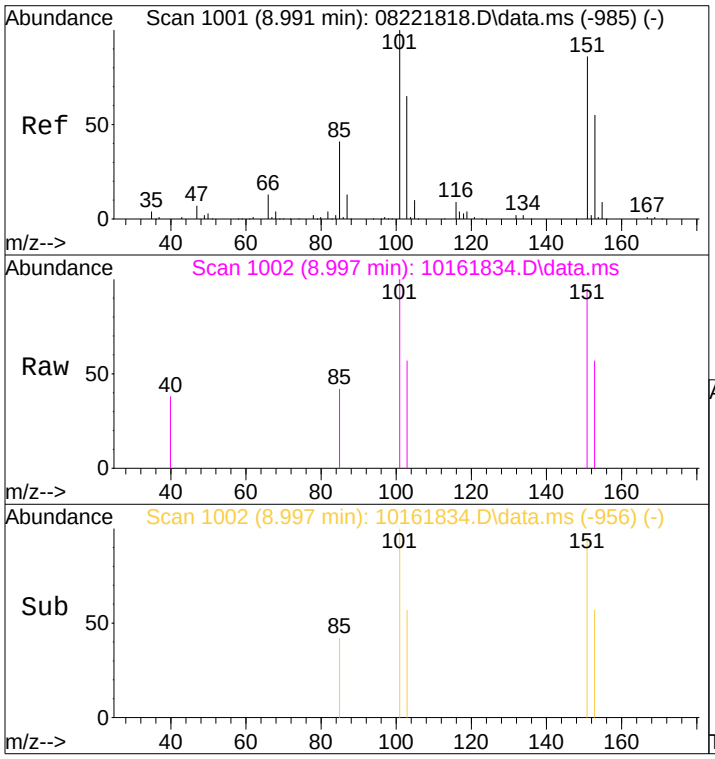


#19
Methylene Chloride
Concen: 0.45 ng
RT: 8.57 min Scan# 925
Delta R.T. 0.011 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 84 Resp: 9813

Ion	Ratio	Lower	Upper
84	100		
49	111.6	90.8	140.8

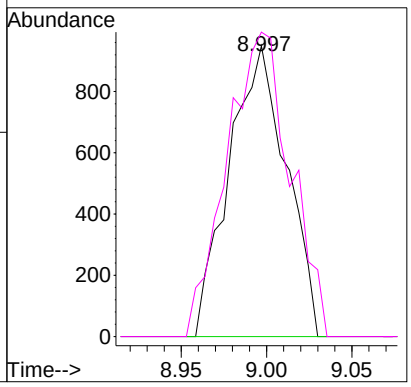


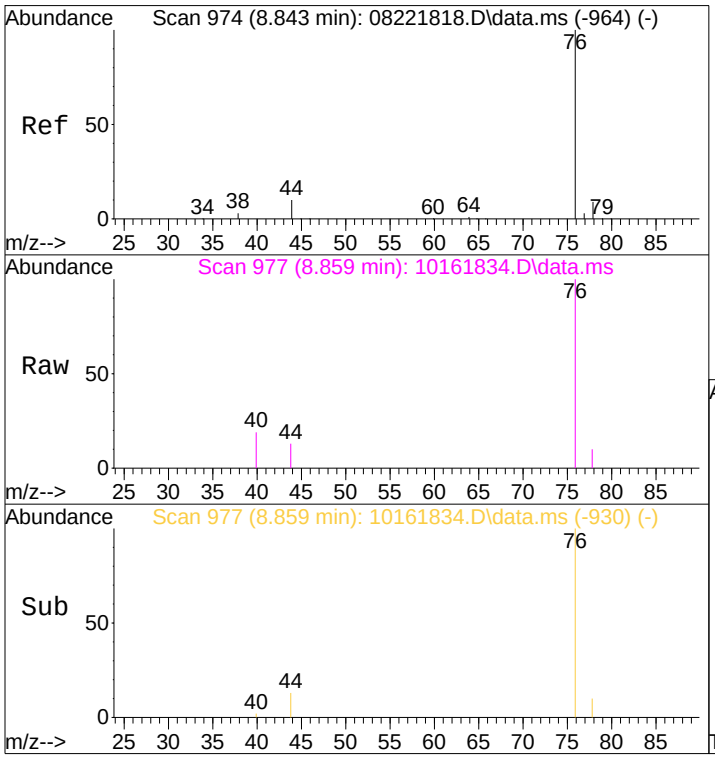


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 9.00 min Scan# 1002
Delta R.T. 0.006 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:151 Resp: 2212

Ion	Ratio	Lower	Upper
151	100		
101	116.3	97.4	137.4

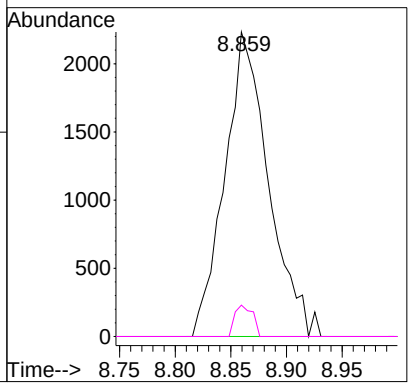


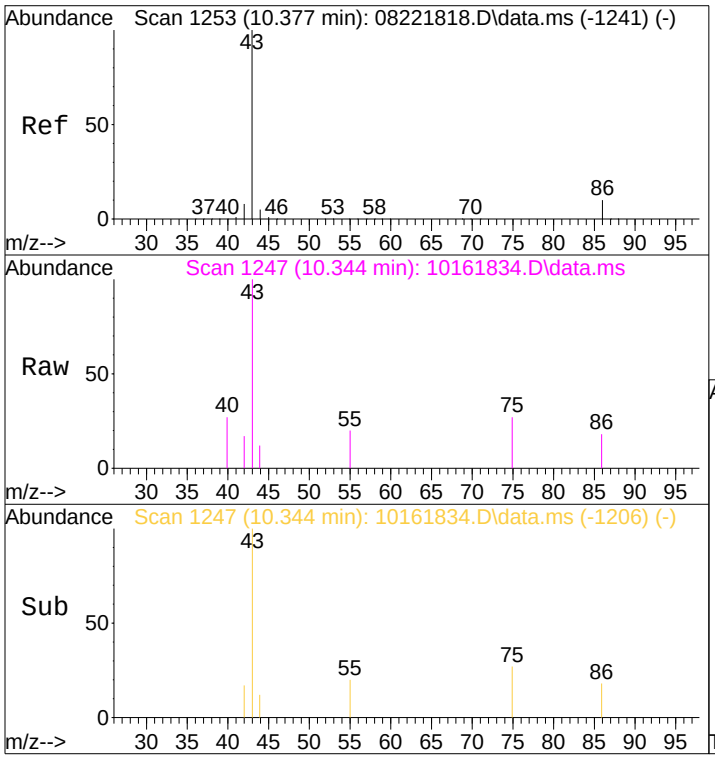


#22
Carbon Disulfide
Concen: 0.08 ng
RT: 8.86 min Scan# 977
Delta R.T. 0.011 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 76 Resp: 6116

Ion	Ratio	Lower	Upper
76	100		
78	4.2	0.0	29.1

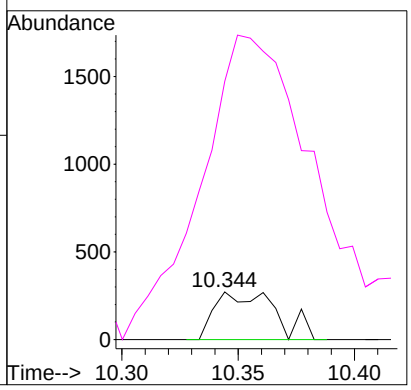


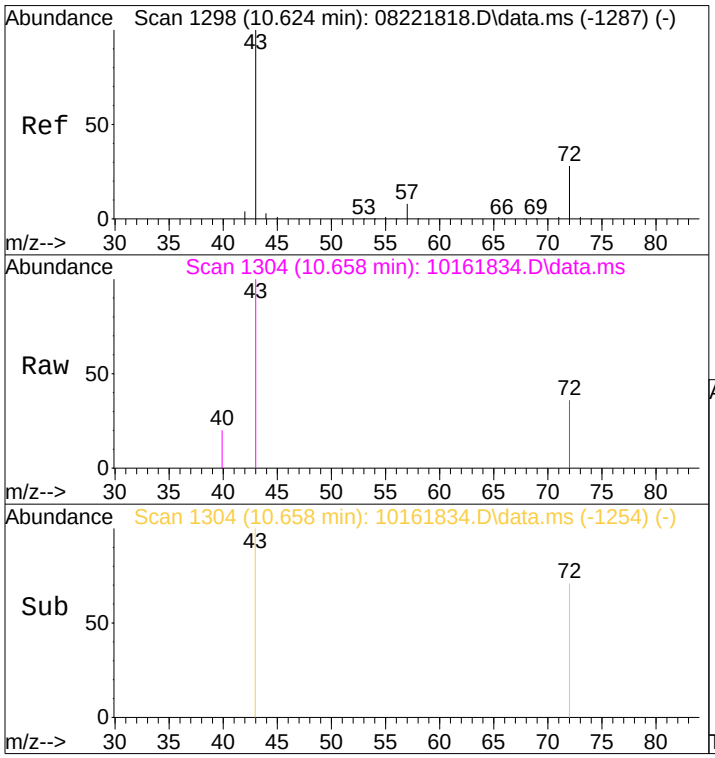


#26
Vinyl Acetate
Concen: 0.11 ng
RT: 10.34 min Scan# 1247
Delta R.T. -0.022 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 86 Resp: 491

Ion	Ratio	Lower	Upper
86	100		
43	1336.7	994.0	1034.0#

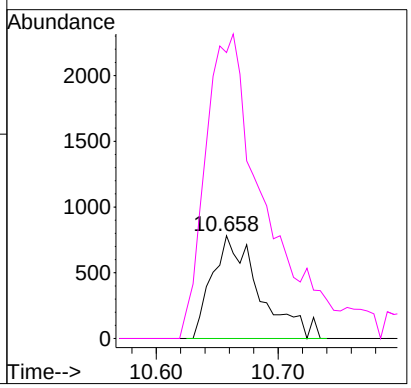


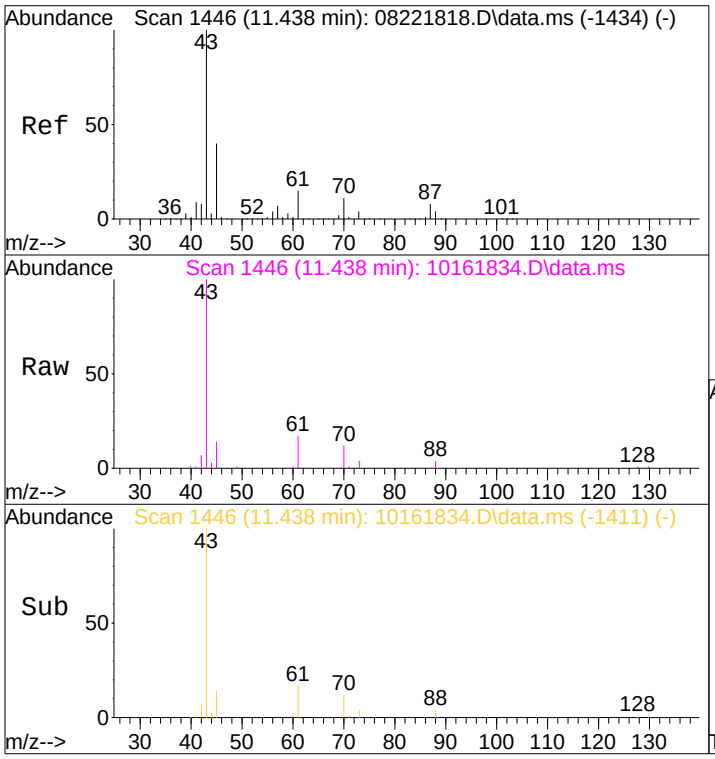


#27
2-Butanone (MEK)
Concen: 0.15 ng
RT: 10.66 min Scan# 1304
Delta R.T. 0.028 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 72 Resp: 2107

Ion	Ratio	Lower	Upper
72	100		
43	385.8	341.9	381.9#

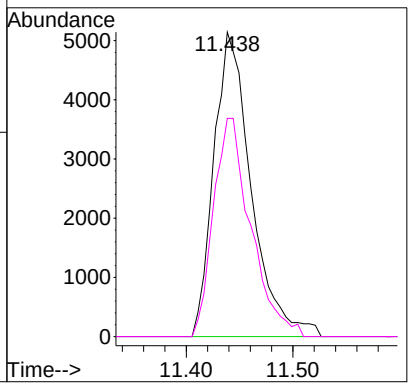


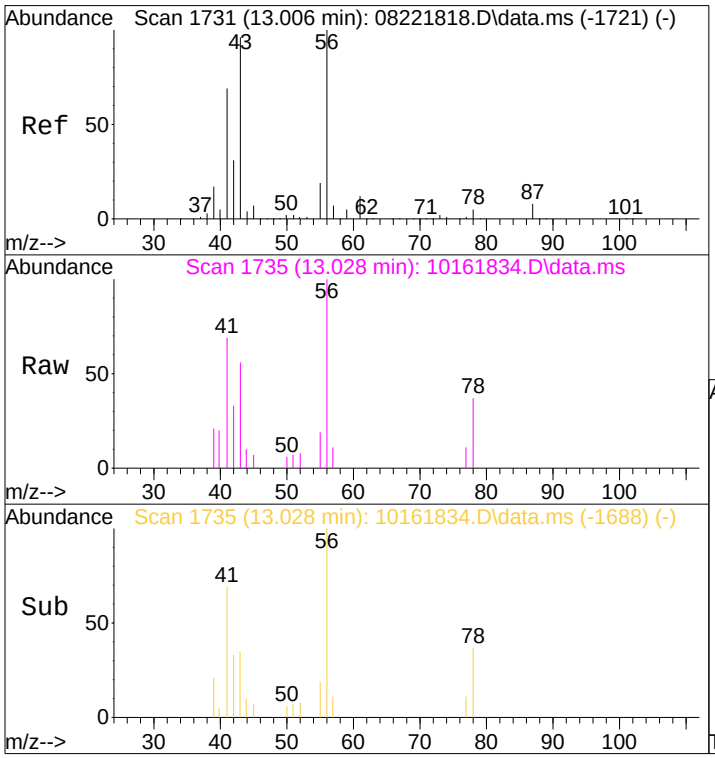


#30
Ethyl Acetate
Concen: 1.69 ng
RT: 11.44 min Scan# 1446
Delta R.T. -0.005 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 61 Resp: 12554

Ion	Ratio	Lower	Upper
61	100		
70	71.3	59.8	99.8

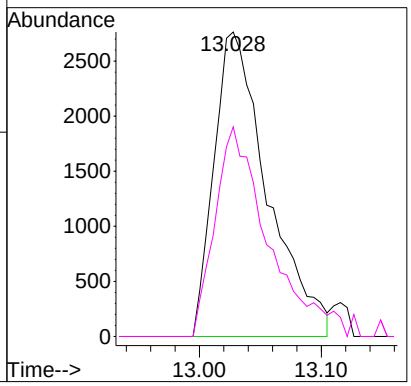


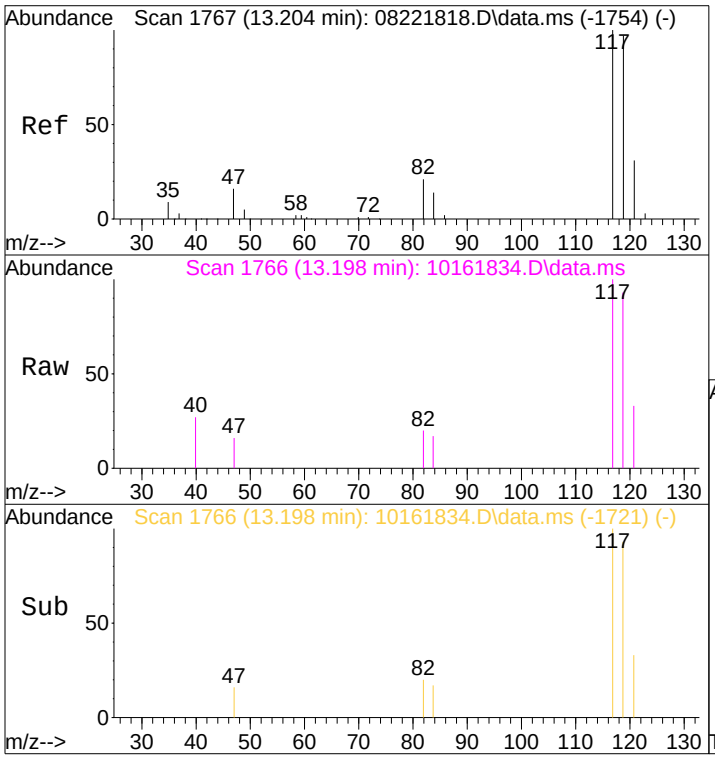


#40
1-Butanol
Concen: 0.43 ng
RT: 13.03 min Scan# 1735
Delta R.T. 0.011 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 56 Resp: 8430

Ion	Ratio	Lower	Upper
56	100		
41	68.4	77.1	117.1#

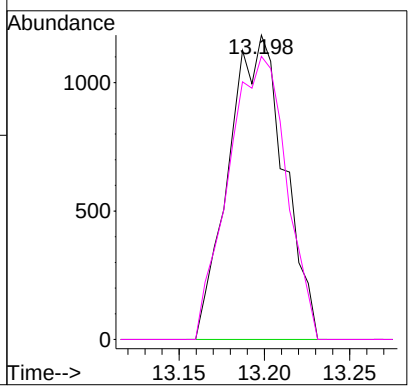


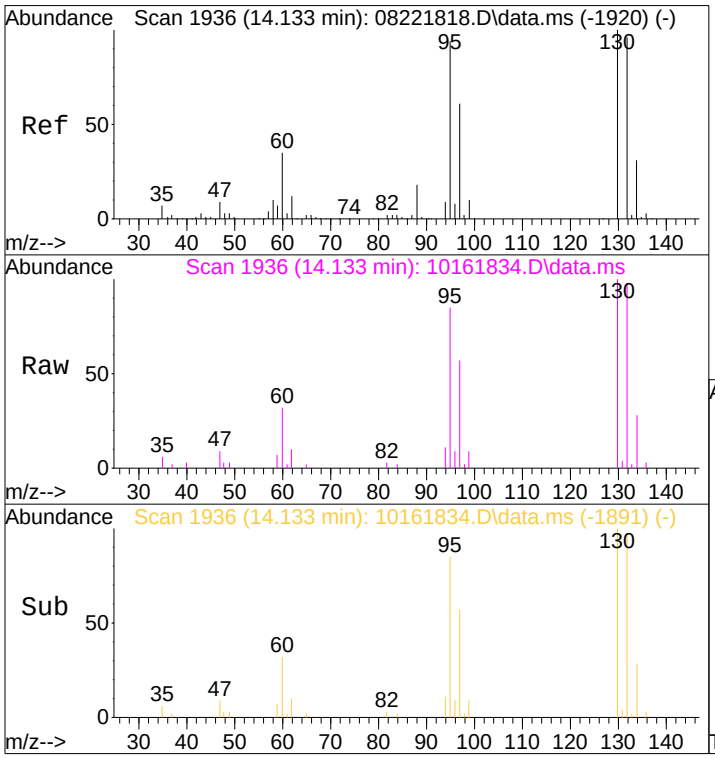


#42
Carbon Tetrachloride
Concen: 0.10 ng
RT: 13.20 min Scan# 1766
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:117 Resp: 2669

Ion	Ratio	Lower	Upper
117	100		
119	97.3	76.5	116.5

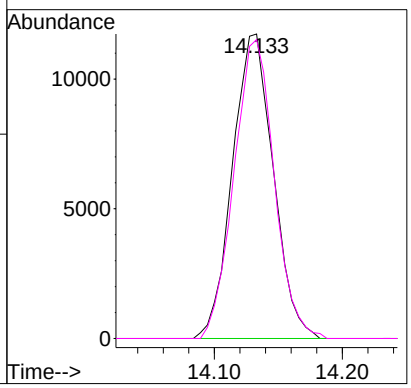


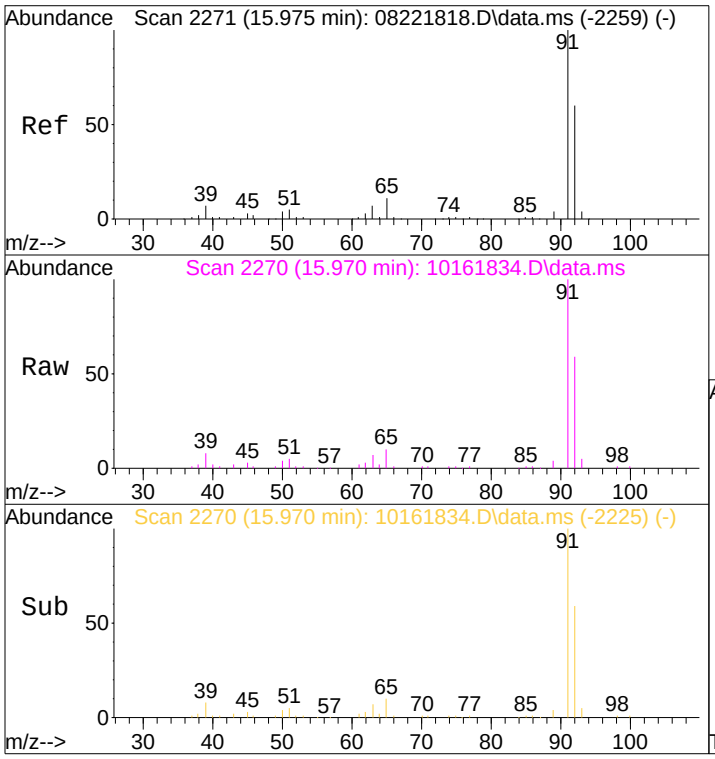


#47
Trichloroethene
Concen: 1.10 ng
RT: 14.13 min Scan# 1936
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:130 Resp: 26079

Ion	Ratio	Lower	Upper
130	100		
132	96.8	76.2	116.2

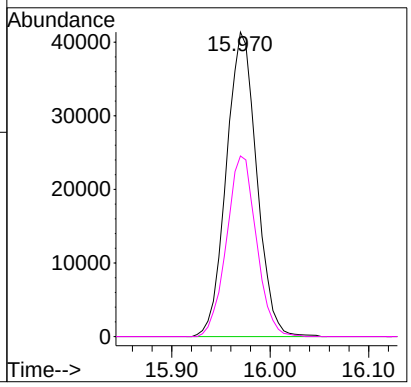


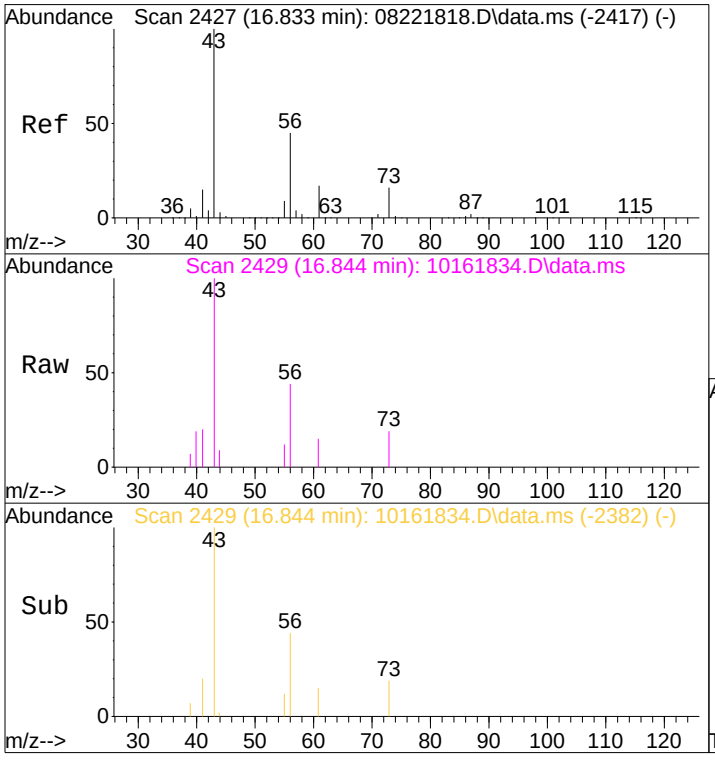


#58
Toluene
Concen: 0.95 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 91 Resp: 88456

Ion	Ratio	Lower	Upper
91	100		
92	58.4	39.6	79.6

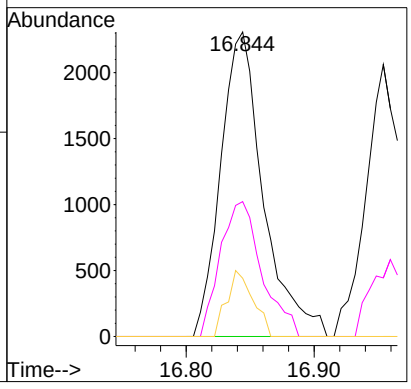


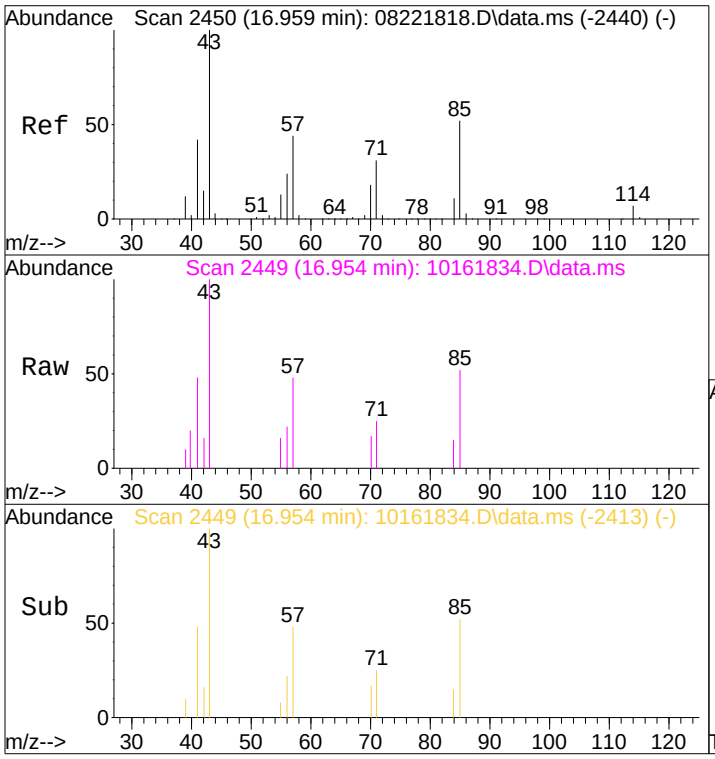


#62
n-Butyl Acetate
Concen: 0.11 ng
RT: 16.84 min Scan# 2429
Delta R.T. 0.011 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 43 Resp: 5345

Ion	Ratio	Lower	Upper
43	100		
56	43.1	24.7	64.7
73	13.3	0.0	35.9

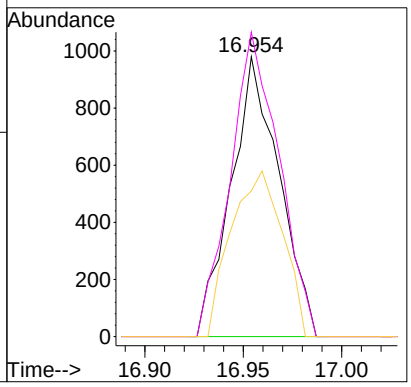


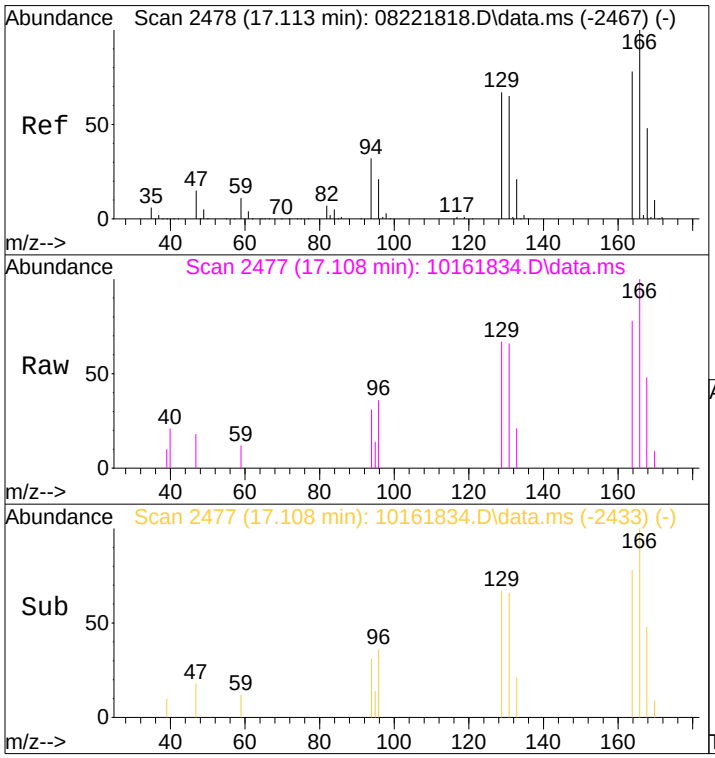


#63
n-Octane
Concen: 0.09 ng
RT: 16.95 min Scan# 2449
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 57 Resp: 1667

Ion	Ratio	Lower	Upper
57	100		
85	110.0	93.2	139.8
71	63.3	57.0	85.4

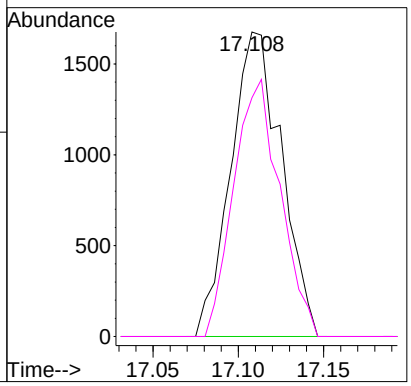


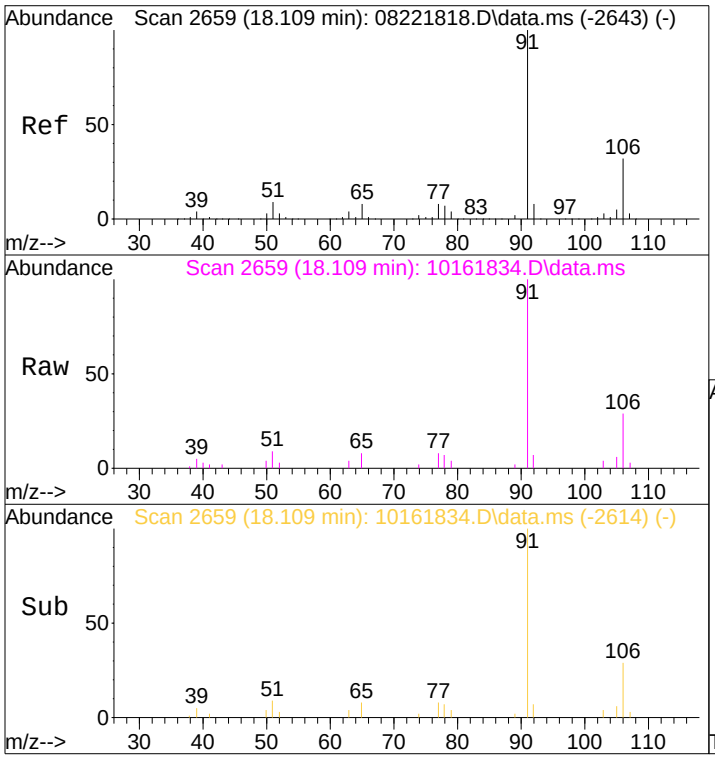


#64
Tetrachloroethene
Concen: 0.13 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.005 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:166 Resp: 3471

Ion	Ratio	Lower	Upper
166	100		
164	77.0	58.1	98.1

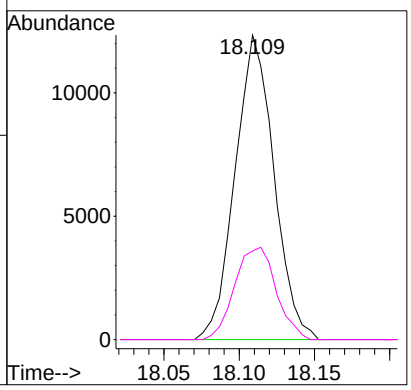


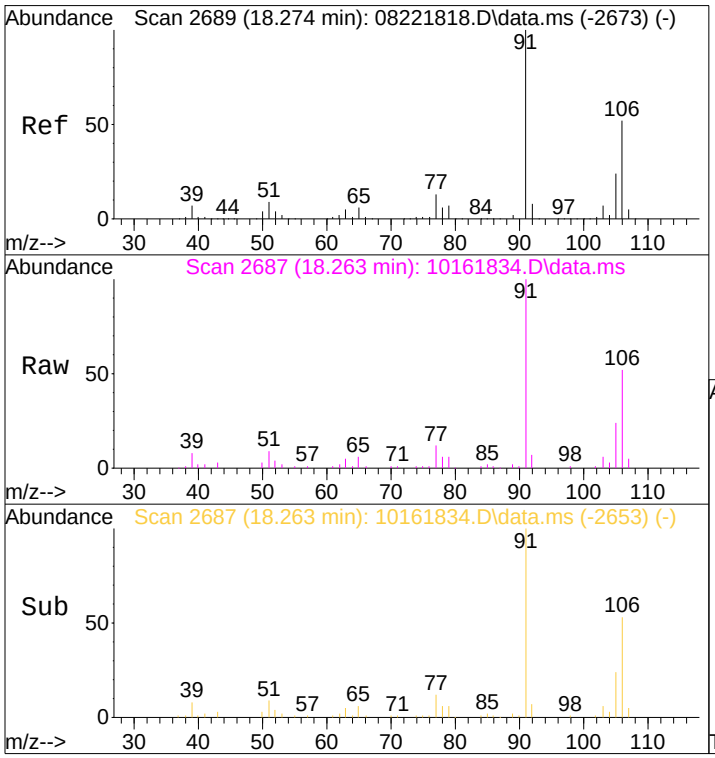


#66
Ethylbenzene
Concen: 0.22 ng
RT: 18.11 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 91 Resp: 22161

Ion	Ratio	Lower	Upper
91	100		
106	32.3	12.4	52.4

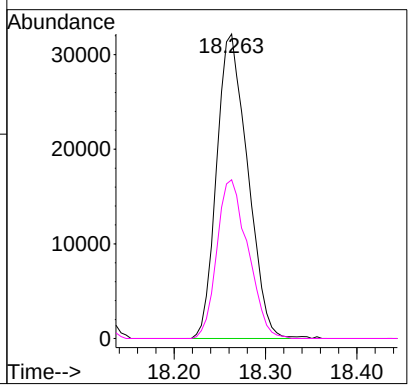


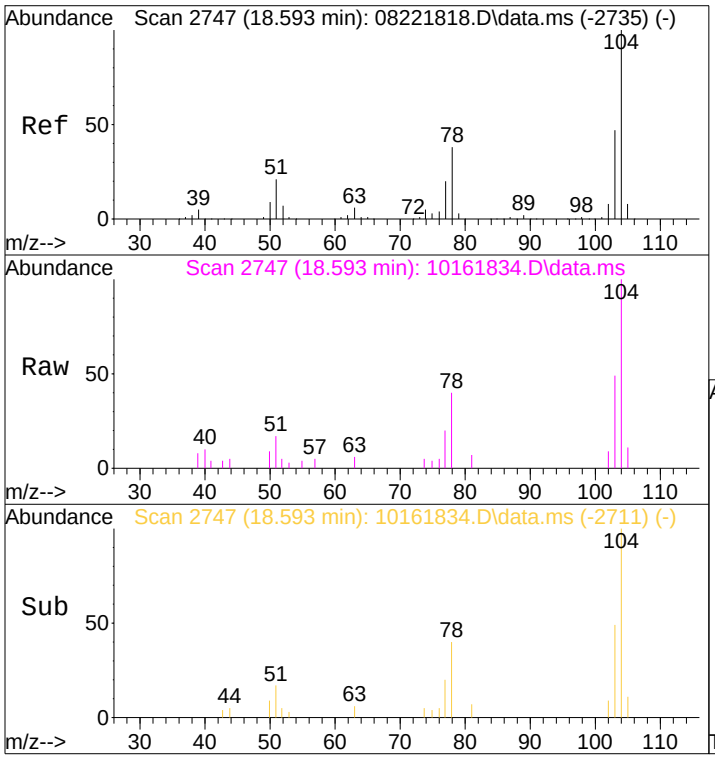


#67
m- & p-Xylenes
Concen: 0.99 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.011 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 91 Resp: 75832

Ion	Ratio	Lower	Upper
91	100		
106	52.1	32.2	72.2

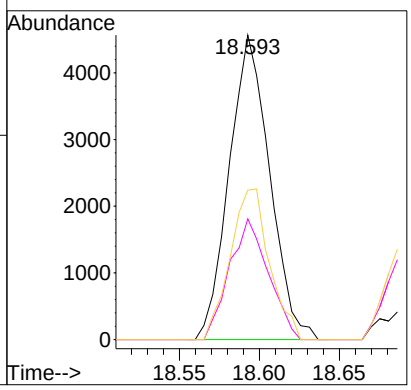


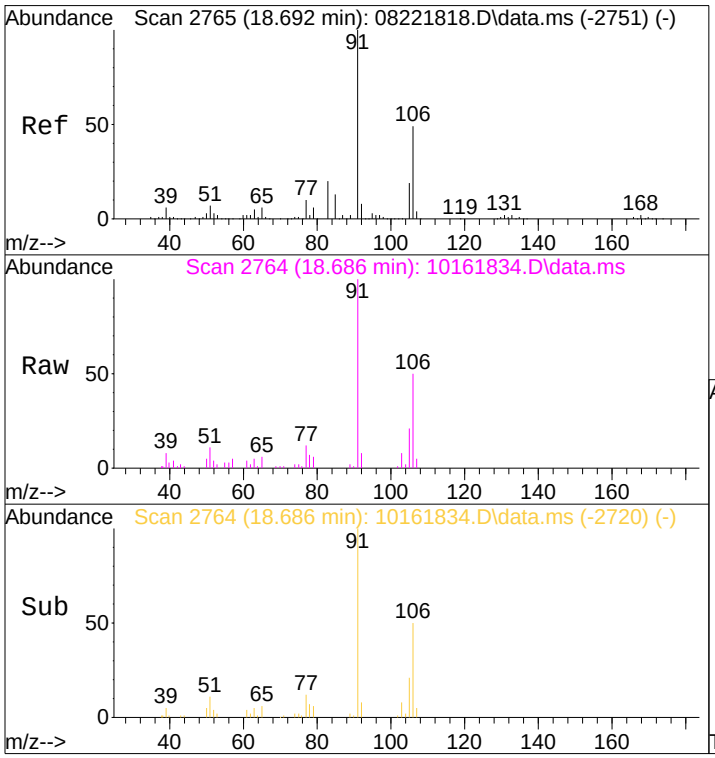


#69
Styrene
Concen: 0.13 ng
RT: 18.59 min Scan# 2747
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:104 Resp: 8054

Ion	Ratio	Lower	Upper
104	100		
78	38.2	18.4	58.4
103	47.9	27.0	67.0

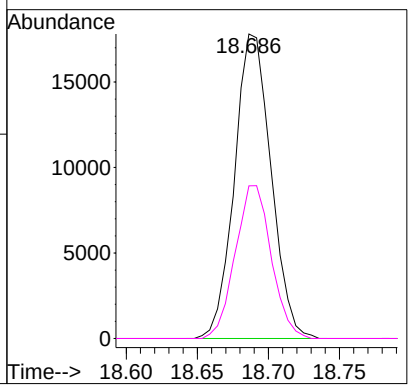


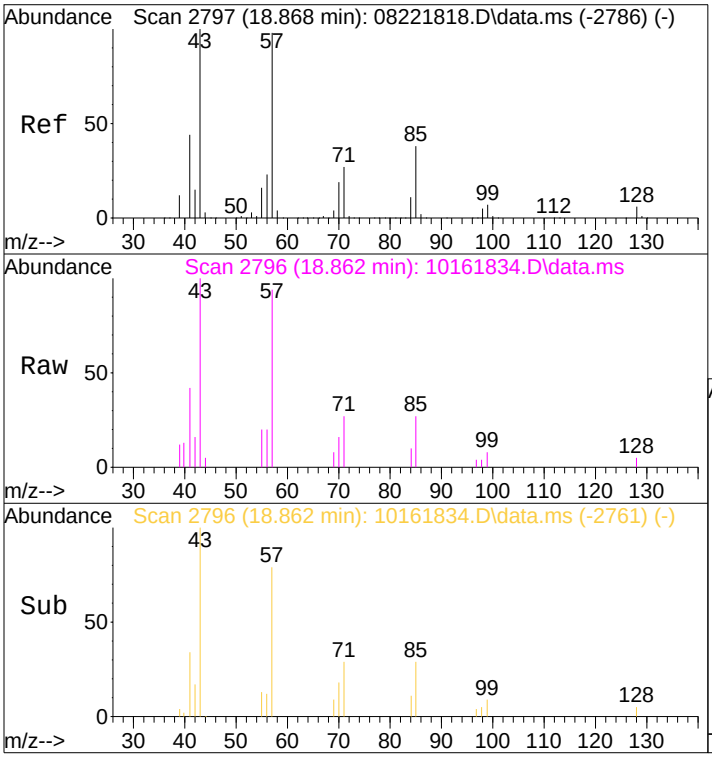


#70
o-Xylene
Concen: 0.41 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.005 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 91 Resp: 31887

Ion	Ratio	Lower	Upper
91	100		
106	49.4	29.6	69.6

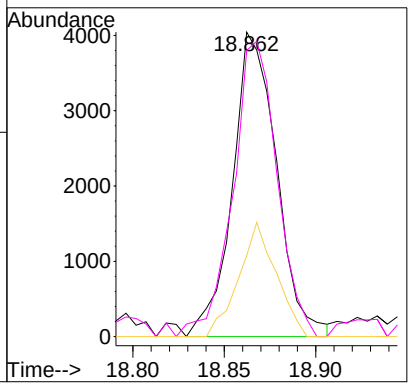


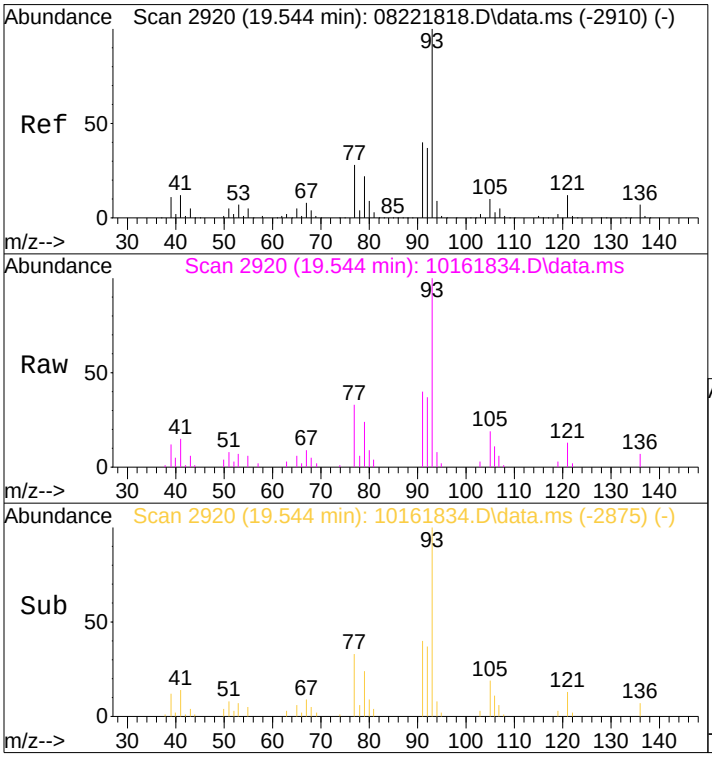


#71
n-Nonane
Concen: 0.17 ng
RT: 18.86 min Scan# 2796
Delta R.T. -0.005 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 43 Resp: 6804

Ion	Ratio	Lower	Upper
43	100		
57	97.9	77.3	117.3
85	31.8	17.7	57.7

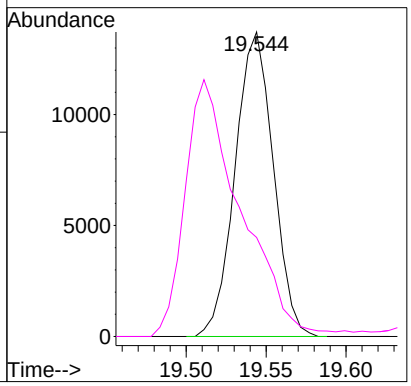


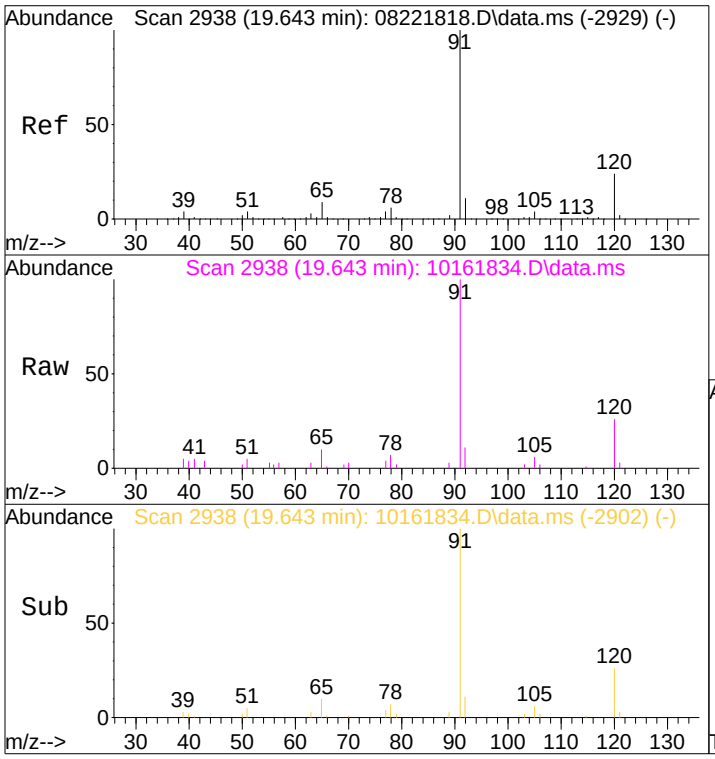


#75
alpha-Pinene
Concen: 0.44 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 93 Resp: 22841

Ion	Ratio	Lower	Upper
93	100		
77	123.4	8.7	48.7#

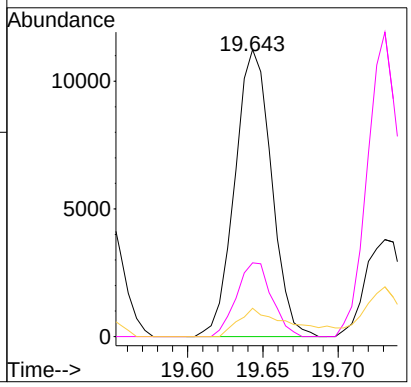


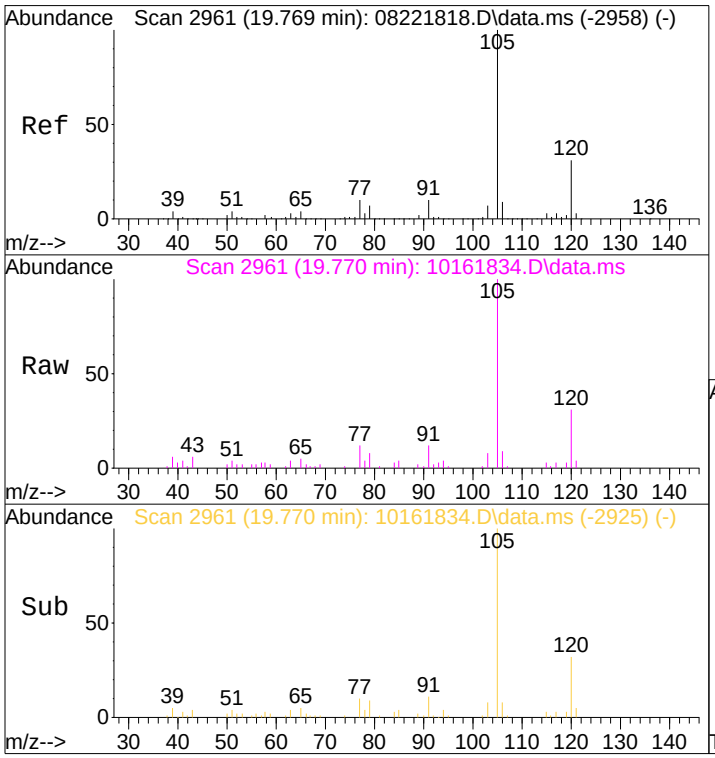


#76
n-Propylbenzene
Concen: 0.16 ng
RT: 19.64 min Scan# 2938
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 91 Resp: 19013

Ion	Ratio	Lower	Upper
91	100		
120	24.7	3.9	43.9
65	14.0	0.0	29.2

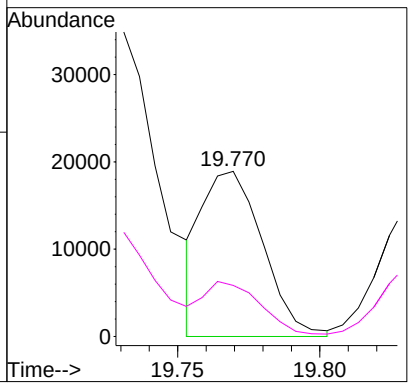


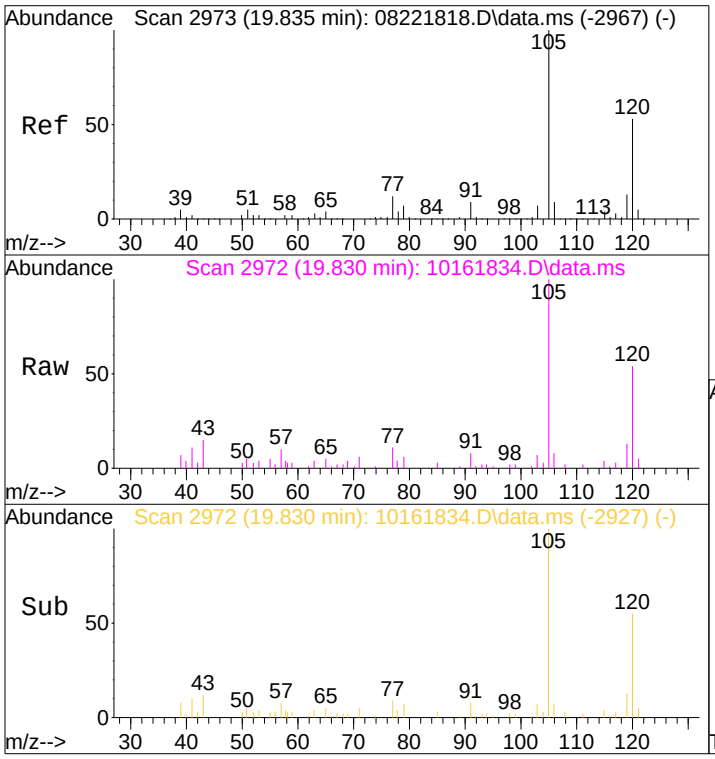


#78
4-Ethyltoluene
Concen: 0.30 ng
RT: 19.77 min Scan# 2961
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:105 Resp: 28297

Ion	Ratio	Lower	Upper
105	100		
120	32.3	11.0	51.0

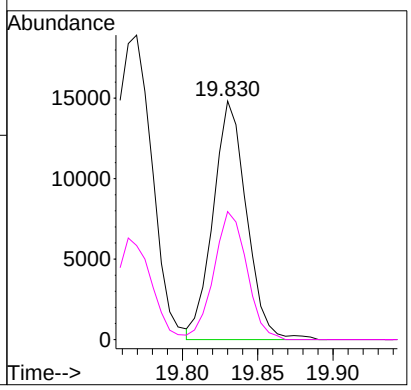


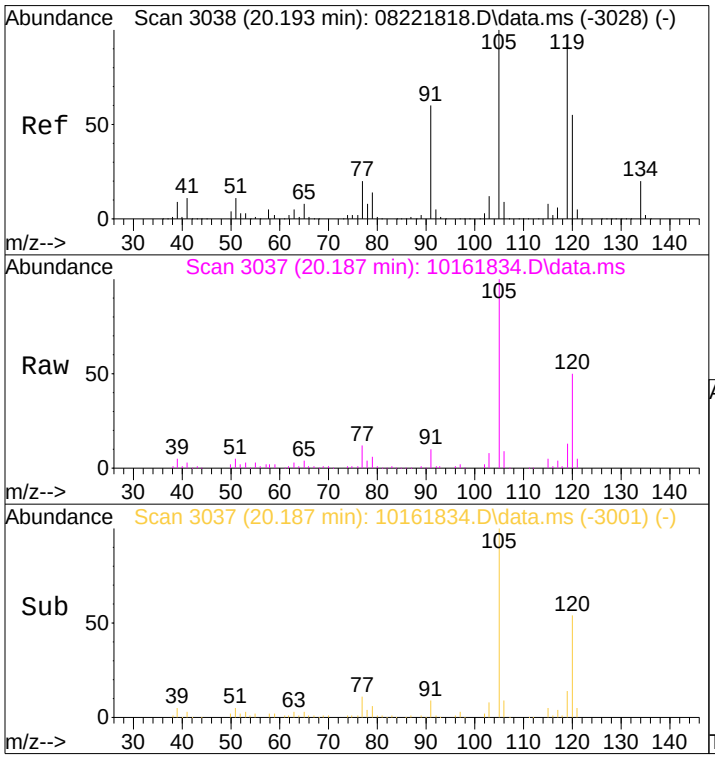


#79
1,3,5-Trimethylbenzene
Concen: 0.28 ng
RT: 19.83 min Scan# 2972
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:105 Resp: 22902

Ion	Ratio	Lower	Upper
105	100		
120	52.7	32.1	72.1

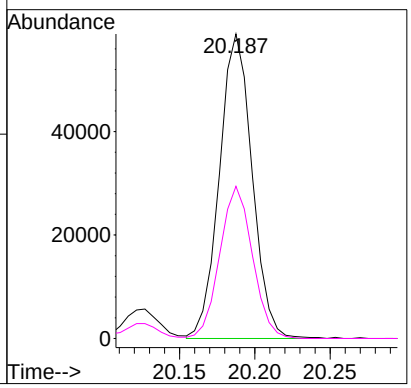


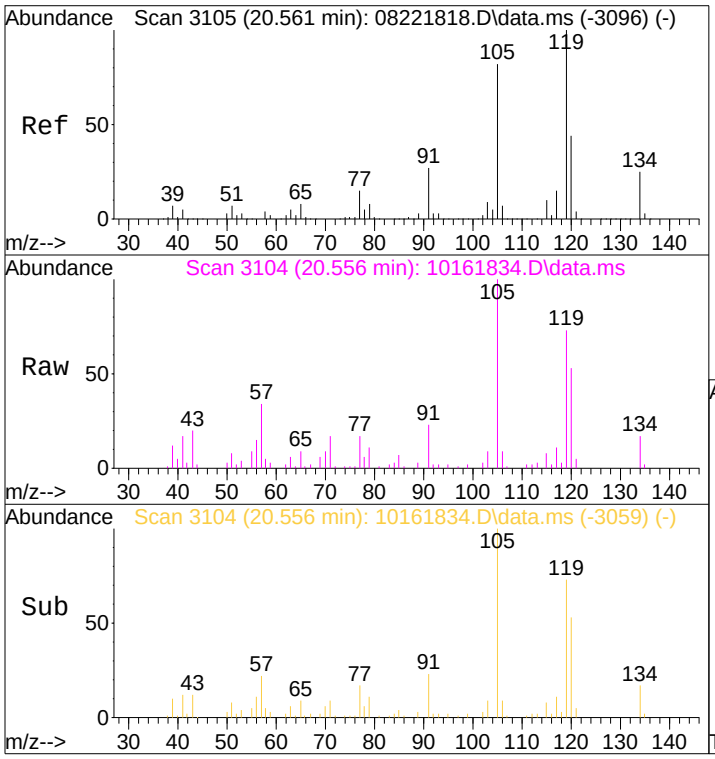


#82
1,2,4-Trimethylbenzene
Concen: 1.11 ng
RT: 20.19 min Scan# 3037
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:105 Resp: 89005

Ion	Ratio	Lower	Upper
105	100		
120	49.8	36.1	76.1

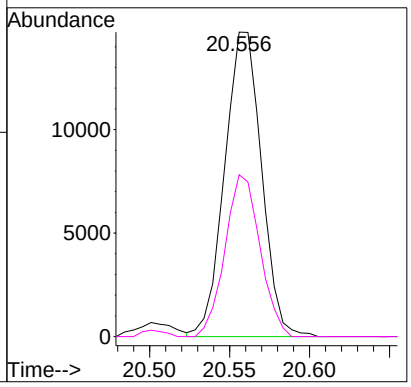


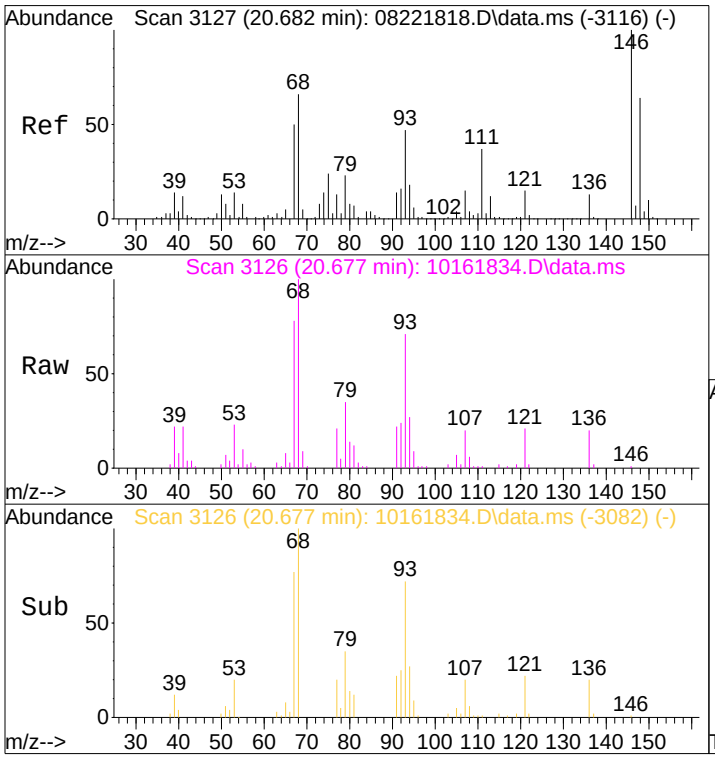


#89
1,2,3-Trimethylbenzene
Concen: 0.30 ng
RT: 20.56 min Scan# 3104
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:105 Resp: 23617

Ion	Ratio	Lower	Upper
105	100		
120	50.4	34.2	74.2

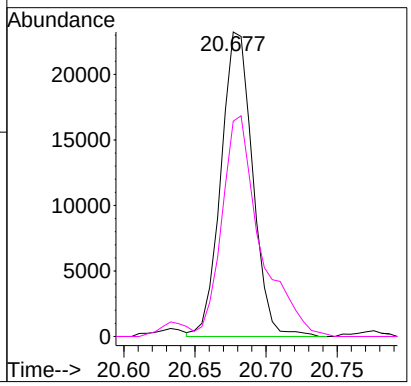


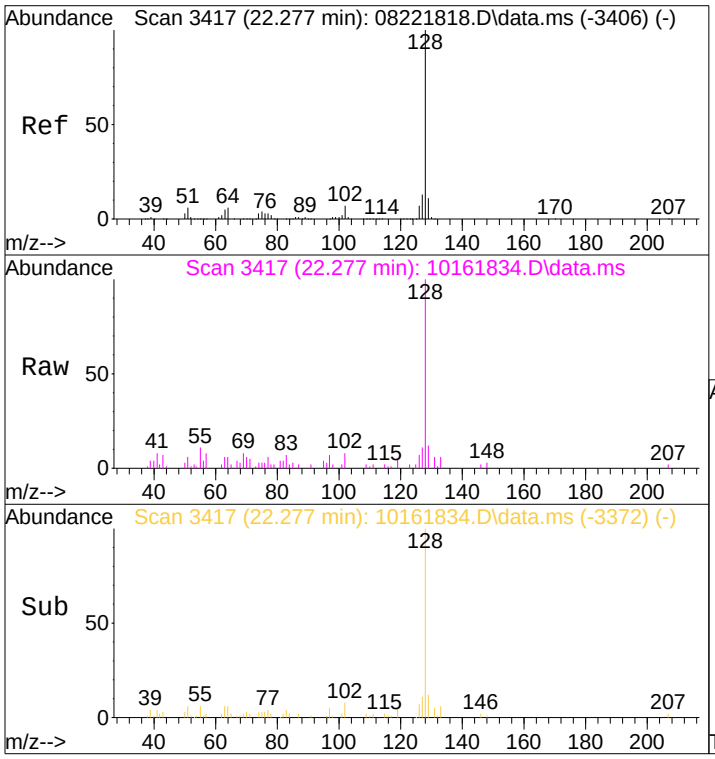


#91
d-Limonene
Concen: 1.20 ng
RT: 20.68 min Scan# 3126
Delta R.T. -0.005 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion: 68 Resp: 36027

Ion	Ratio	Lower	Upper
68	100		
93	87.4	50.5	90.5

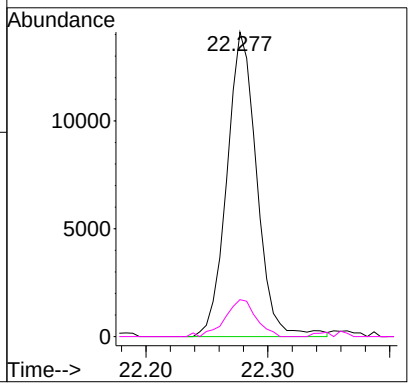




#95
Naphthalene
Concen: 0.26 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161834.D
Acq: 16 Oct 2018 20:20

Tgt Ion:128 Resp: 24006

Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	30.9



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 17 12:22:45 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

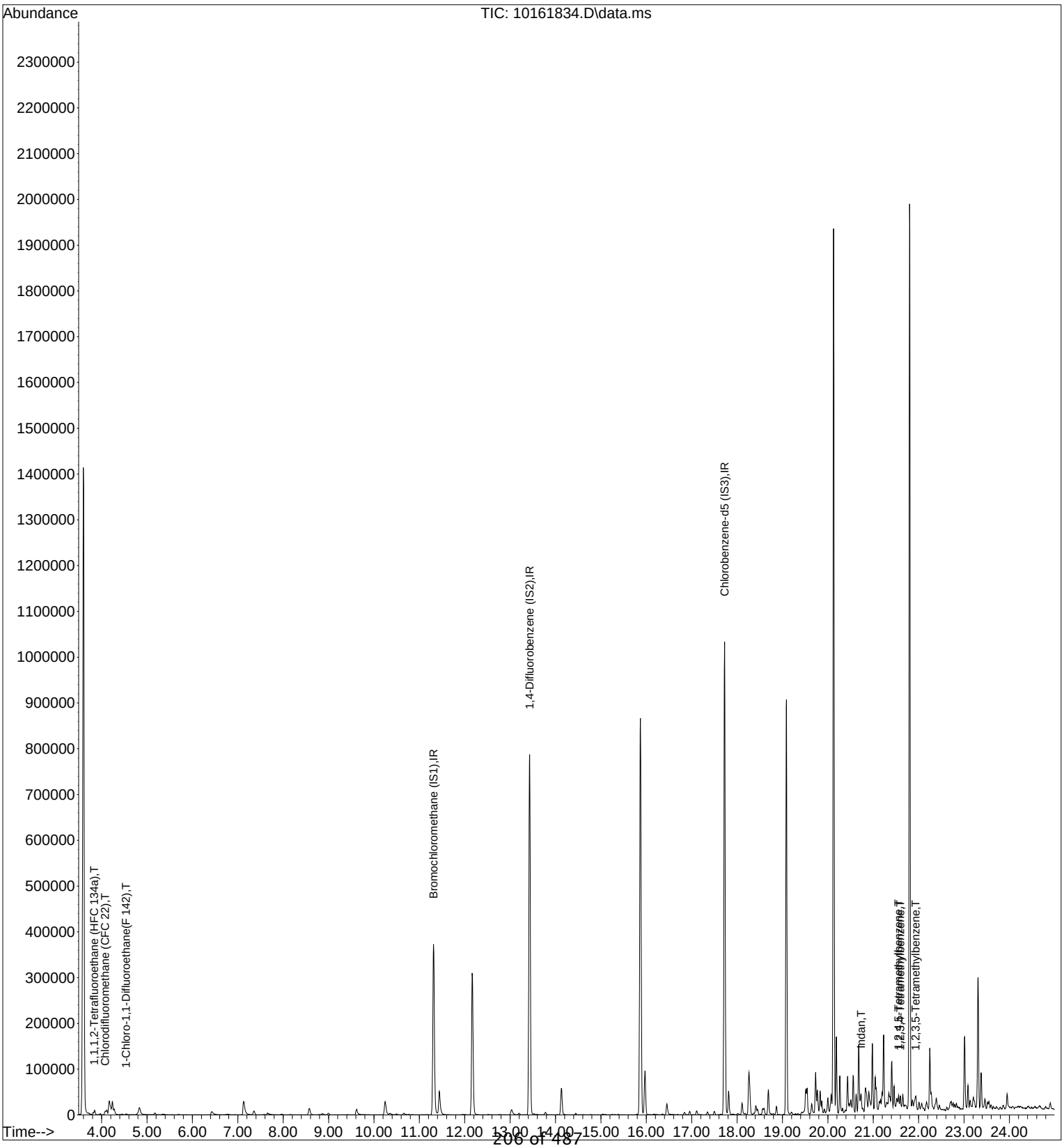
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	198941	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	842583	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	355999	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	133	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	2742	0.167	ng	#	1
4) 1,1-Difluoroethane	3.96	65	680	N.D.			
5) Chlorodifluoromethane ...	4.08	67	828	0.167	ng	#	85
6) 1-Chloro-1,1-Difluoroe...	4.54	65	2128	0.070	ng	#	74
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D. d			
11) Methyl Acetate	8.64	43	126	N.D.			
12) 2-Methylpentane	10.35	71	69	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.19	84	150	N.D.			
17) 2,3-Dimethylpentane	13.60	56	359	N.D.			
18) Dibromomethane	13.86	174	64	N.D.			
20) Methyl Cyclohexane	15.11	55	564	N.D.			
21) 1,3-Dichloropropane	15.96	76	127	N.D.			
22) 1,1,1,2-Tetrachloroethane	17.82	131	192	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.68	75	870	N.D.			
25) Bromobenzene	19.21	77	376	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D. d			
27) 4-Chlorotoluene	0.00	91	0	N.D. d			
28) Indan	20.73	117	11459	0.148	ng		99
29) Indene	20.81	115	1595	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	9853	0.117	ng		96
31) 1,2,3,4-Tetramethylben...	21.60	119	12796	0.161	ng		98
32) 1,2,3,5-Tetramethylben...	21.94	119	8915	0.114	ng	#	74
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

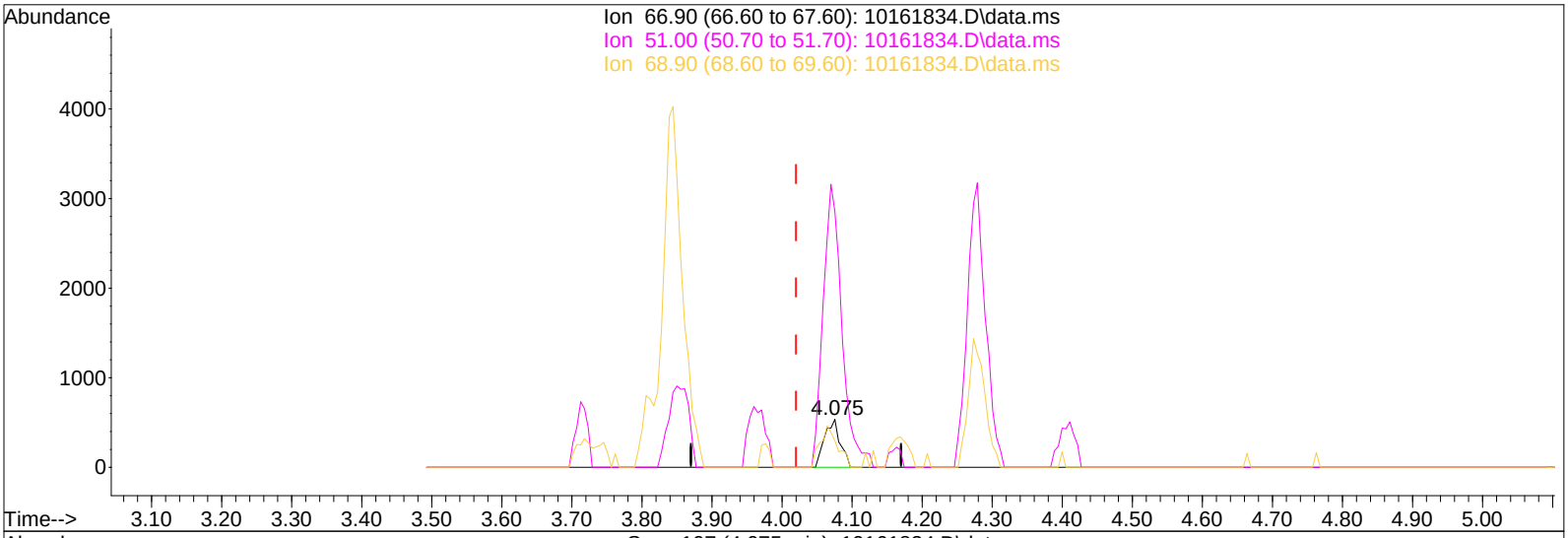
Quant Time: Oct 17 12:22:45 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

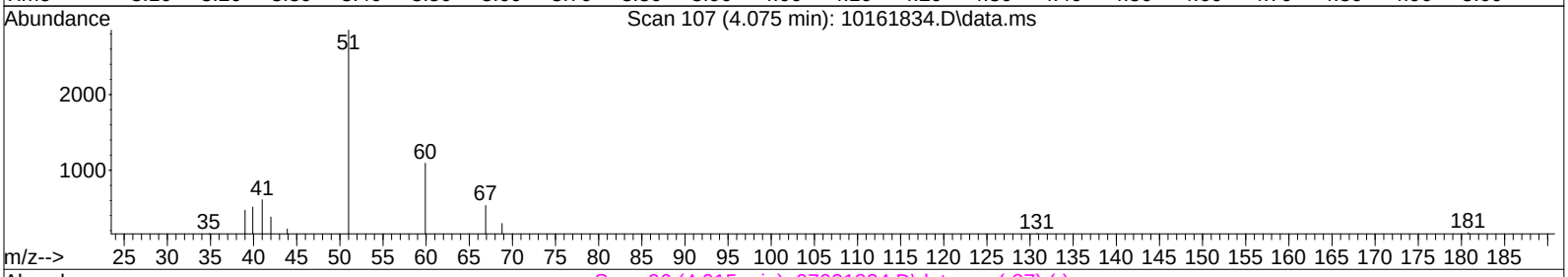


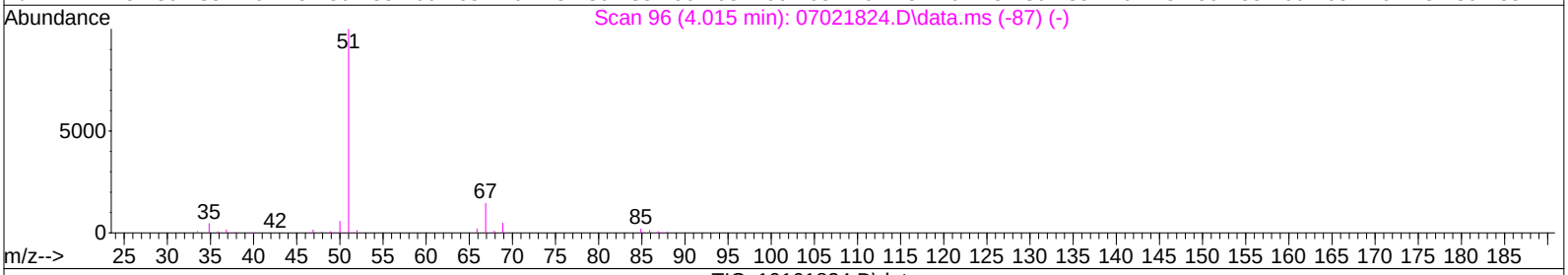
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161834.D
Acq On : 16 Oct 2018 20:20 Operator: LH/TD
Sample : P1805476-006 (400mL)
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 17 11:53:38 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161834.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.075min (+0.055) 0.17ng

response 828

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	712.44
68.90	32.10	97.22#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:42:06 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	200706	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	852446	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	359755	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	258818	13.034	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.24%				
57) Toluene-d8 (SS2)	15.87	98	749066	13.612	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
73) Bromofluorobenzene (SS3)	19.09	174	341403	15.264	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.08%				
Target Compounds							Qvalue
2) Propene	4.09	42	1028	N.D.			
3) Dichlorodifluoromethan...	4.22	85	24548	0.658	ng		98
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	501	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.42	45	17663	1.264	ng		91
11) Acetonitrile	0.00	41	0	N.D.	d		
12) Acrolein	6.93	56	543	N.D.			
13) Acetone	7.13	58	19503	1.242	ng		91
14) Trichlorofluoromethane	7.36	101	14667	0.454	ng		99
15) 2-Propanol (Isopropanol)	7.67	45	9624m	0.199	ng		
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.58	84	8916	0.402	ng		95
20) 3-Chloro-1-propene (Al...	8.57	41	414	N.D.			
21) Trichlorotrifluoroethane	9.00	151	2161	0.110	ng		95
22) Carbon Disulfide	8.86	76	5477	0.067	ng		80
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	10.36	86	603	0.133	ng	#	68
27) 2-Butanone (MEK)	10.67	72	2288	0.157	ng	#	69
28) cis-1,2-Dichloroethene	11.15	61	593	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.45	61	5351	0.714	ng		93
31) n-Hexane	11.42	57	682	N.D.			
32) Chloroform	11.48	83	2830	0.082	ng		93
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	12.56	97	4163	0.146	ng		96
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	6925	0.346	ng	#	75
41) Benzene	13.04	78	4950	0.055	ng		99
42) Carbon Tetrachloride	13.20	117	3369	0.129	ng		87
43) Cyclohexane	13.42	84	433	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	13.89	63	738	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	14.13	130	2657276	110.377	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	14.18	57	2076	N.D.			

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:42:06 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

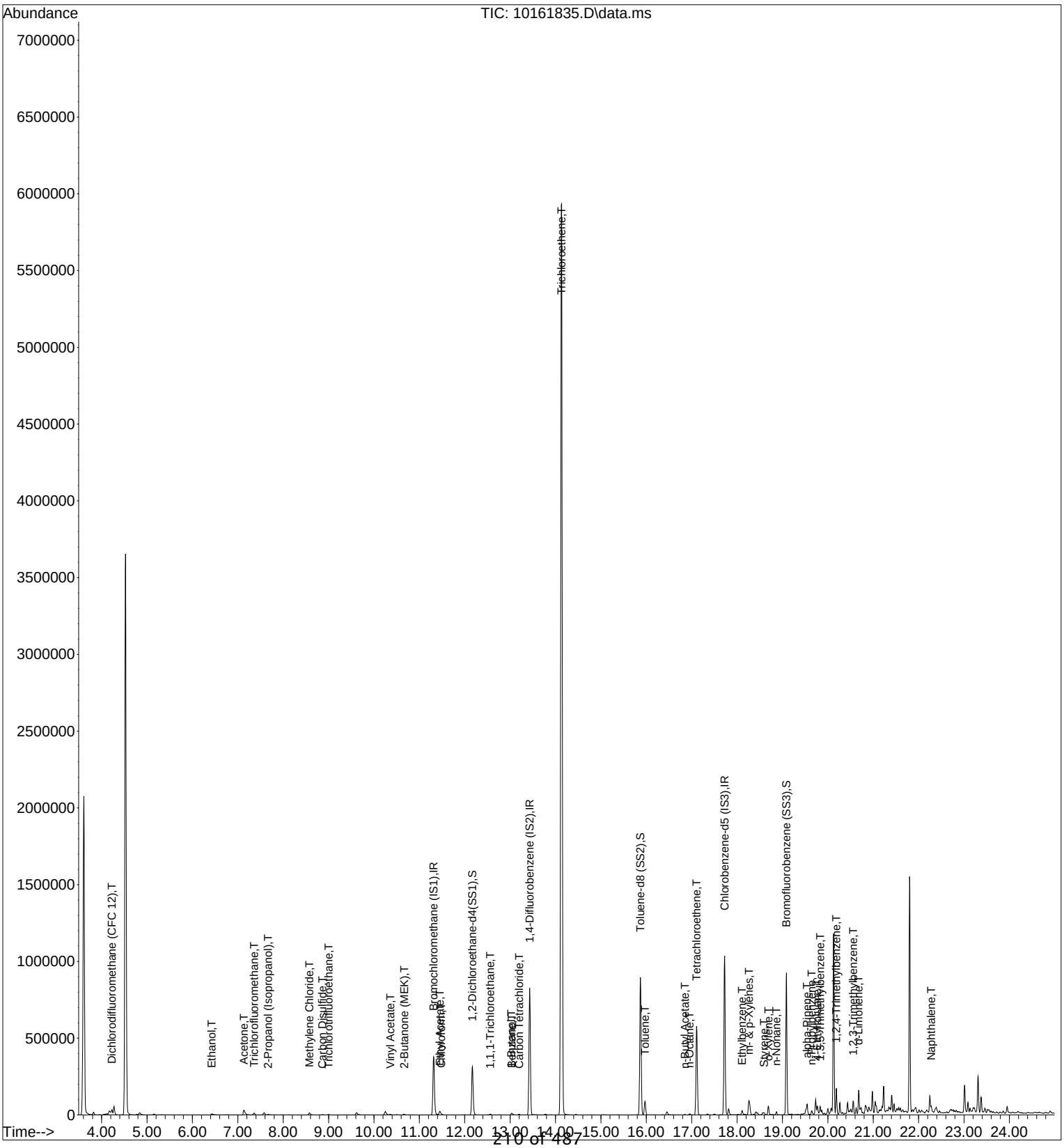
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D. d		
51) n-Heptane	14.46	71	899	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.05	58	468	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	83556	0.887 ng		98
59) 2-Hexanone	16.23	43	929	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.85	43	3485	0.070 ng		92
63) n-Octane	16.95	57	1837	0.100 ng	#	84
64) Tetrachloroethene	17.11	166	235420	8.682 ng		99
65) Chlorobenzene	17.77	112	280	N.D.		
66) Ethylbenzene	18.11	91	24852	0.239 ng		98
67) m- & p-Xylenes	18.26	91	80254	1.039 ng		99
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	8040	0.129 ng		98
70) o-Xylene	18.69	91	34269	0.439 ng		100
71) n-Nonane	18.87	43	7569	0.191 ng		86
72) 1,1,2,2-Tetrachloroethane	18.69	83	189	N.D.		
74) Cumene	19.20	105	3370	N.D.		
75) alpha-Pinene	19.54	93	28195	0.536 ng	#	13
76) n-Propylbenzene	19.64	91	20699	0.174 ng		94
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.76	105	29472	0.314 ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	24208	0.292 ng		100
80) alpha-Methylstyrene	19.97	118	842	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.19	105	92038	1.139 ng		90
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.32	91	116	N.D.		
85) 1,3-Dichlorobenzene	20.33	146	113	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	721	N.D.		
87) sec-Butylbenzene	20.42	105	2304	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	24168	0.302 ng		96
90) 1,2-Dichlorobenzene	20.69	146	206	N.D.		
91) d-Limonene	20.68	68	36831	1.210 ng	#	72
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	28444	0.306 ng		96
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:42:06 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
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Quant Time: Oct 17 11:42:06 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

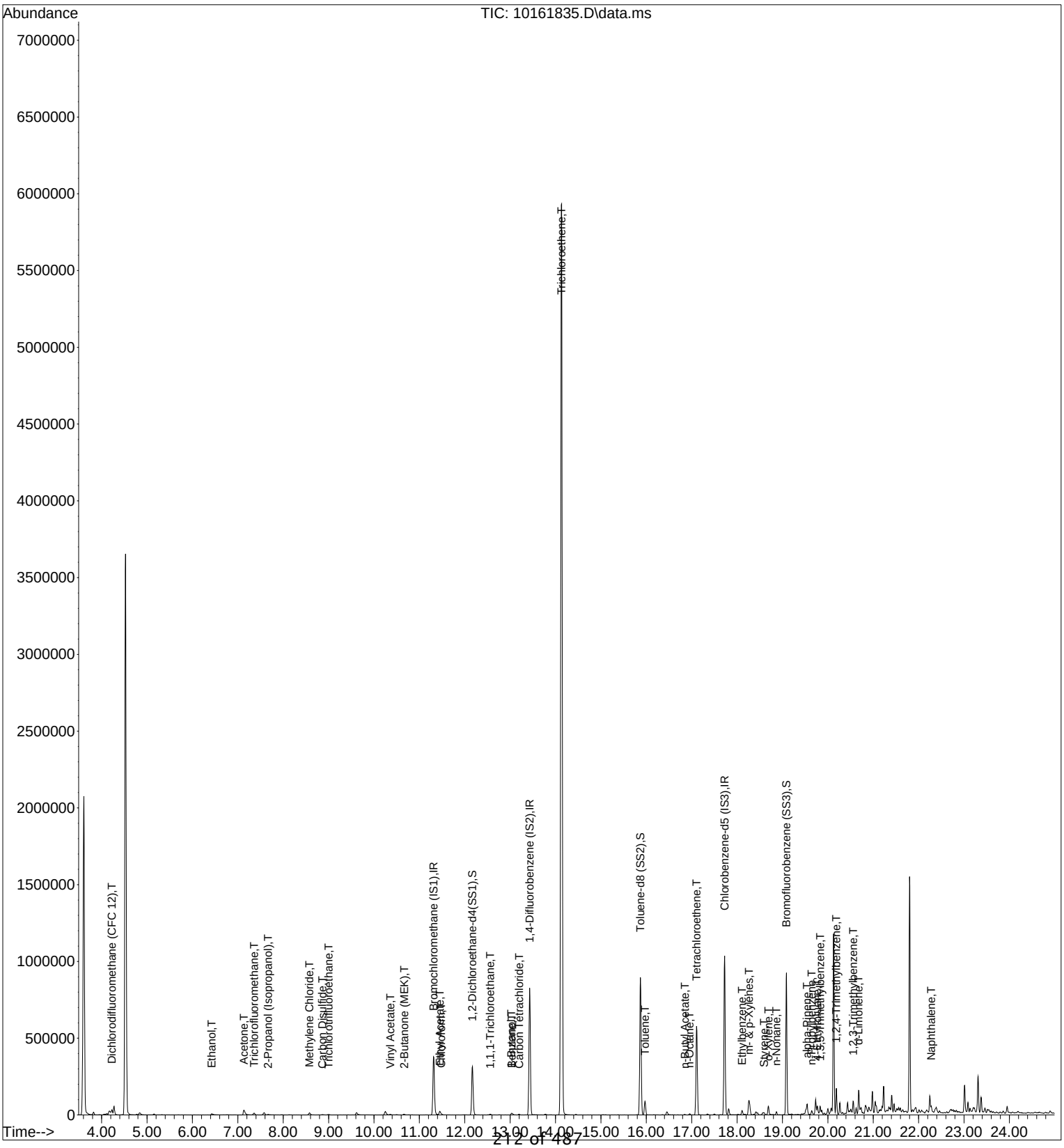
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	200706	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	852446	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	359755	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	258818	13.034	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.24%				
57) Toluene-d8 (SS2)	15.87	98	749066	13.612	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
73) Bromofluorobenzene (SS3)	19.09	174	341403	15.264	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.08%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.22	85	24548	0.658	ng		98
10) Ethanol	6.42	45	17663	1.264	ng		91
13) Acetone	7.13	58	19503	1.242	ng		91
14) Trichlorofluoromethane	7.36	101	14667	0.454	ng		99
15) 2-Propanol (Isopropanol)	7.67	45	9624m	0.199	ng		
19) Methylene Chloride	8.58	84	8916	0.402	ng		95
21) Trichlorotrifluoroethane	9.00	151	2161	0.110	ng		95
22) Carbon Disulfide	8.86	76	5477	0.067	ng		80
26) Vinyl Acetate	10.36	86	603	0.133	ng	#	68
27) 2-Butanone (MEK)	10.67	72	2288	0.157	ng	#	69
30) Ethyl Acetate	11.45	61	5351	0.714	ng		93
32) Chloroform	11.48	83	2830	0.082	ng		93
38) 1,1,1-Trichloroethane	12.56	97	4163	0.146	ng		96
40) 1-Butanol	13.03	56	6925	0.346	ng	#	75
41) Benzene	13.04	78	4950	0.055	ng		99
42) Carbon Tetrachloride	13.20	117	3369	0.129	ng		87
47) Trichloroethene	14.13	130	2657276	110.377	ng		99
58) Toluene	15.97	91	83556	0.887	ng		98
62) n-Butyl Acetate	16.85	43	3485	0.070	ng		92
63) n-Octane	16.95	57	1837	0.100	ng	#	84
64) Tetrachloroethene	17.11	166	235420	8.682	ng		99
66) Ethylbenzene	18.11	91	24852	0.239	ng		98
67) m- & p-Xylenes	18.26	91	80254	1.039	ng		99
69) Styrene	18.59	104	8040	0.129	ng		98
70) o-Xylene	18.69	91	34269	0.439	ng		100
71) n-Nonane	18.87	43	7569	0.191	ng		86
75) alpha-Pinene	19.54	93	28195	0.536	ng	#	13
76) n-Propylbenzene	19.64	91	20699	0.174	ng		94
78) 4-Ethyltoluene	19.76	105	29472	0.314	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	24208	0.292	ng		100
82) 1,2,4-Trimethylbenzene	20.19	105	92038	1.139	ng		90
89) 1,2,3-Trimethylbenzene	20.56	105	24168	0.302	ng		96
91) d-Limonene	20.68	68	36831	1.210	ng	#	72
95) Naphthalene	22.28	128	28444	0.306	ng		96

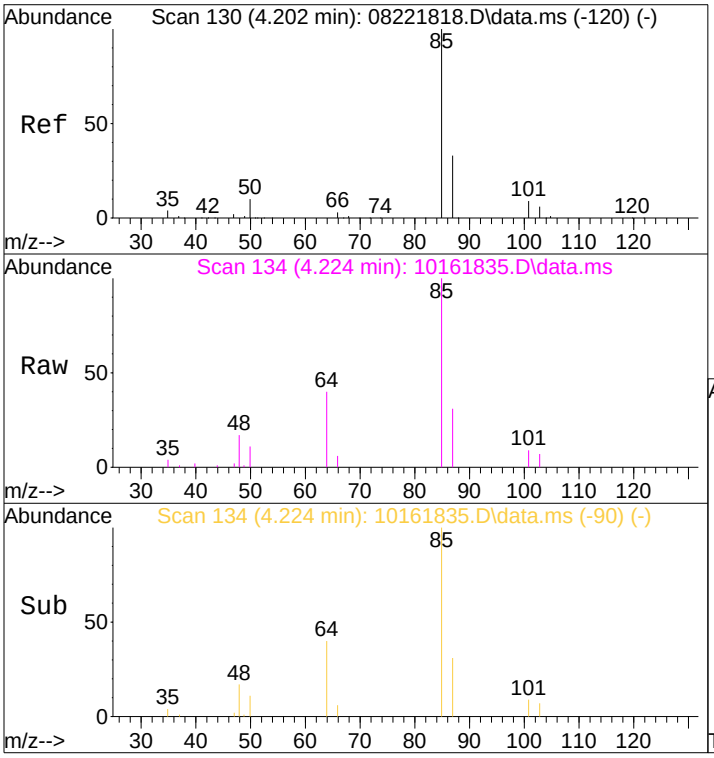
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:42:06 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

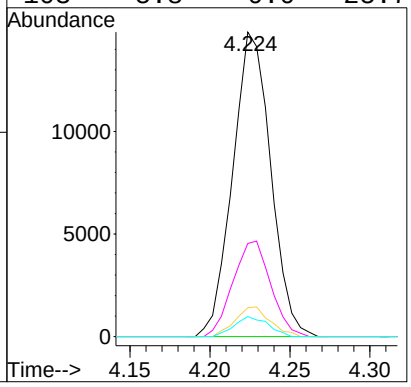


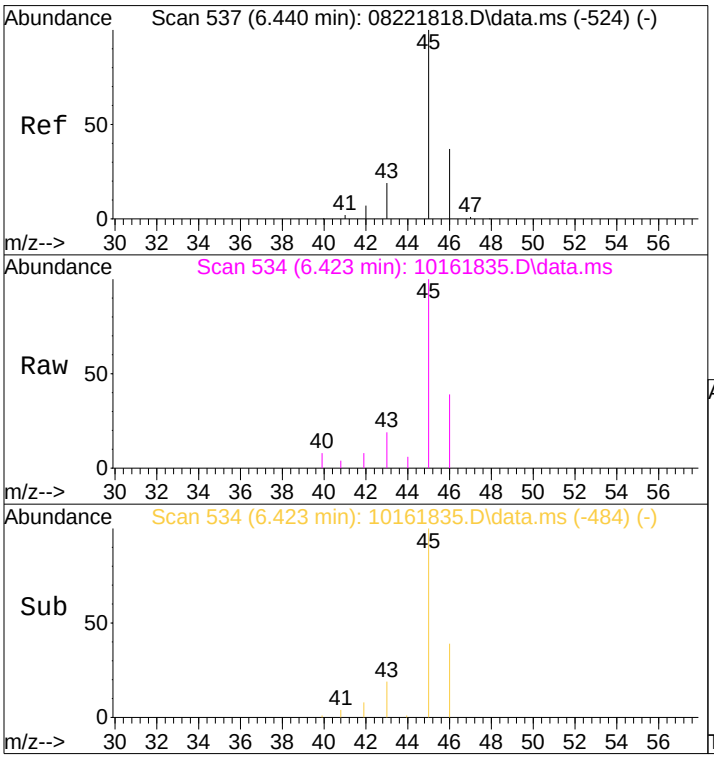


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.66 ng
RT: 4.22 min Scan# 134
Delta R.T. -0.005 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 85 Resp: 24548

Ion	Ratio	Lower	Upper
85	100		
87	31.1	12.6	52.6
101	8.9	0.0	28.8
103	5.8	0.0	25.7

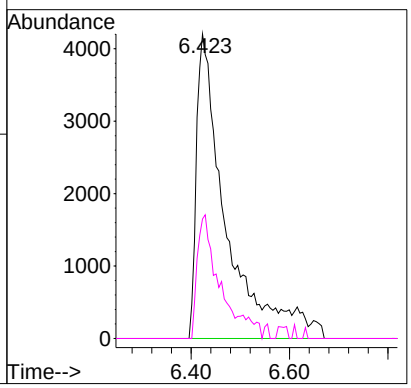


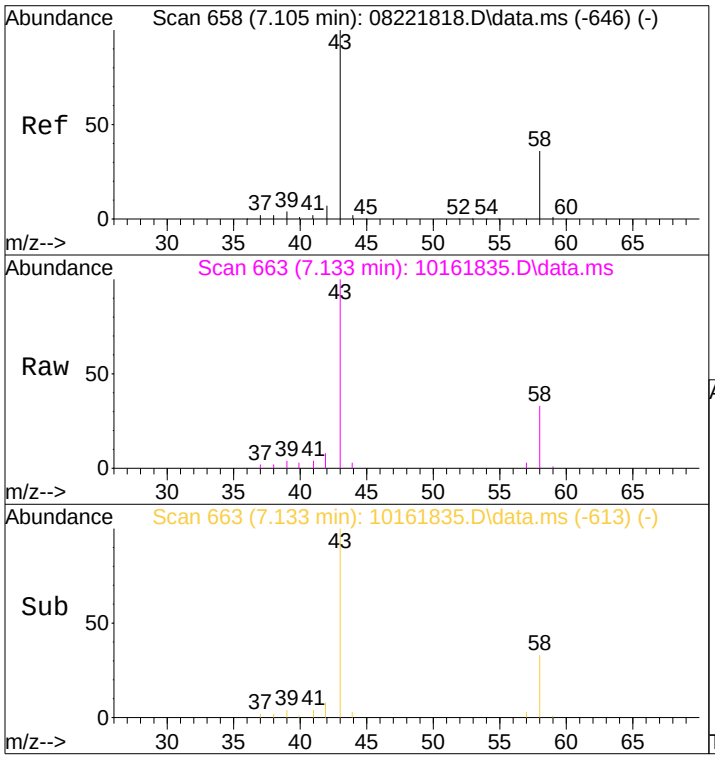


#10
Ethanol
Concen: 1.26 ng
RT: 6.42 min Scan# 534
Delta R.T. 0.028 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 45 Resp: 17663

Ion	Ratio	Lower	Upper
45	100		
46	31.3	16.7	56.7

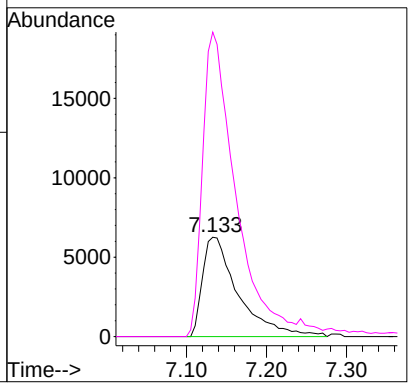


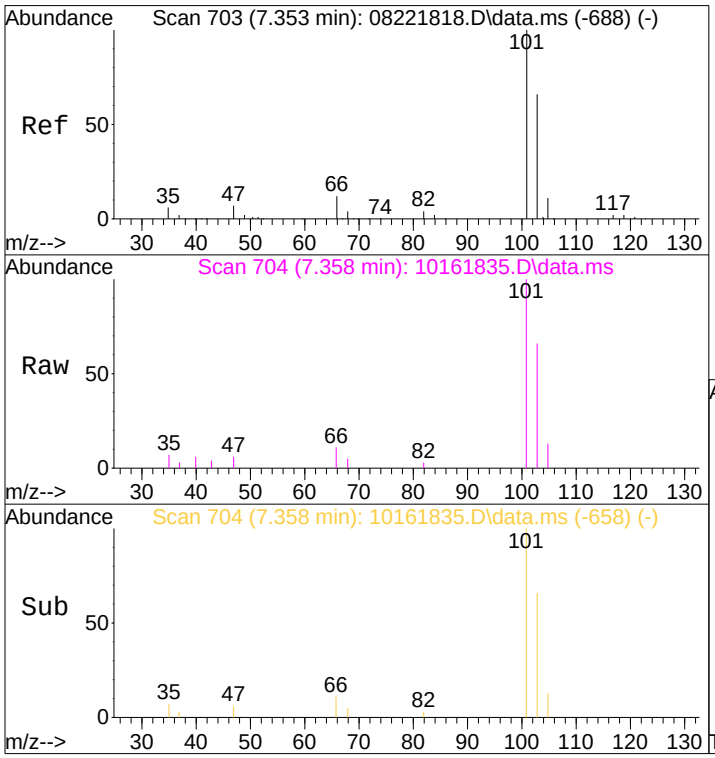


#13
Acetone
Concen: 1.24 ng
RT: 7.13 min Scan# 663
Delta R.T. 0.028 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 58 Resp: 19503

Ion	Ratio	Lower	Upper
58	100		
43	293.8	247.7	307.7

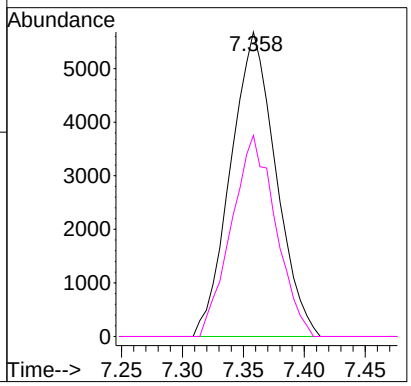


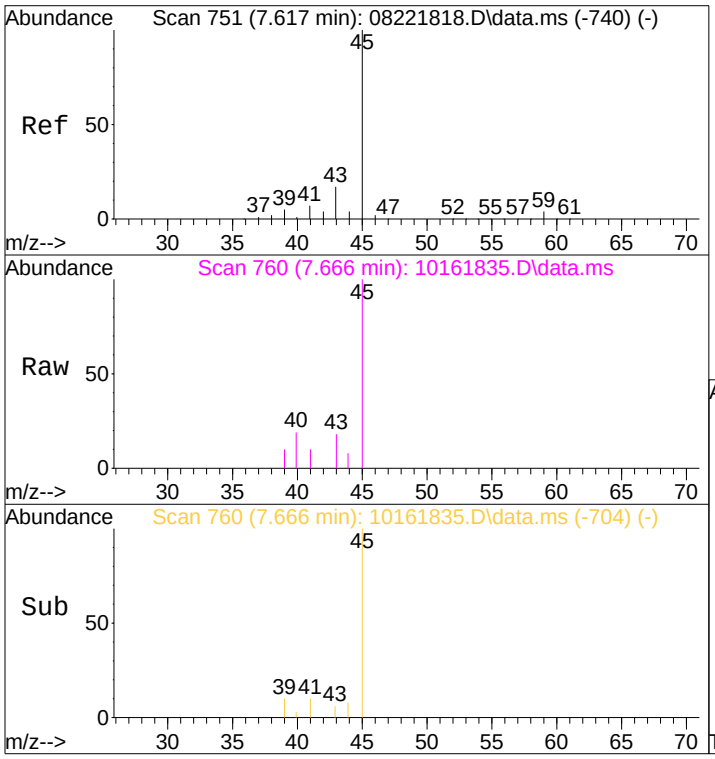


#14
Trichlorofluoromethane
Concen: 0.45 ng
RT: 7.36 min Scan# 704
Delta R.T. 0.006 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:101 Resp: 14667

Ion	Ratio	Lower	Upper
101	100		
103	64.6	45.1	85.1

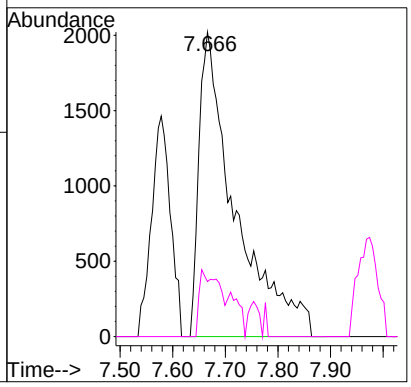


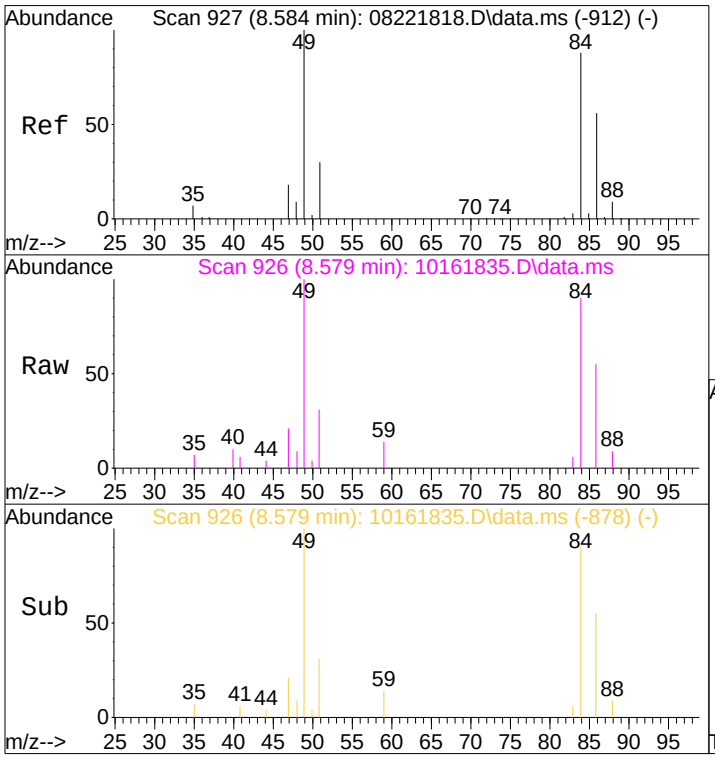


#15
2-Propanol (Isopropanol)
Concen: 0.20 ng m
RT: 7.67 min Scan# 760
Delta R.T. 0.061 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 45 Resp: 9624

Ion	Ratio	Lower	Upper
45	100		
43	0.0	0.0	36.8

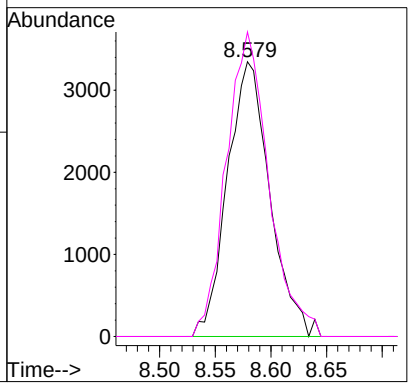


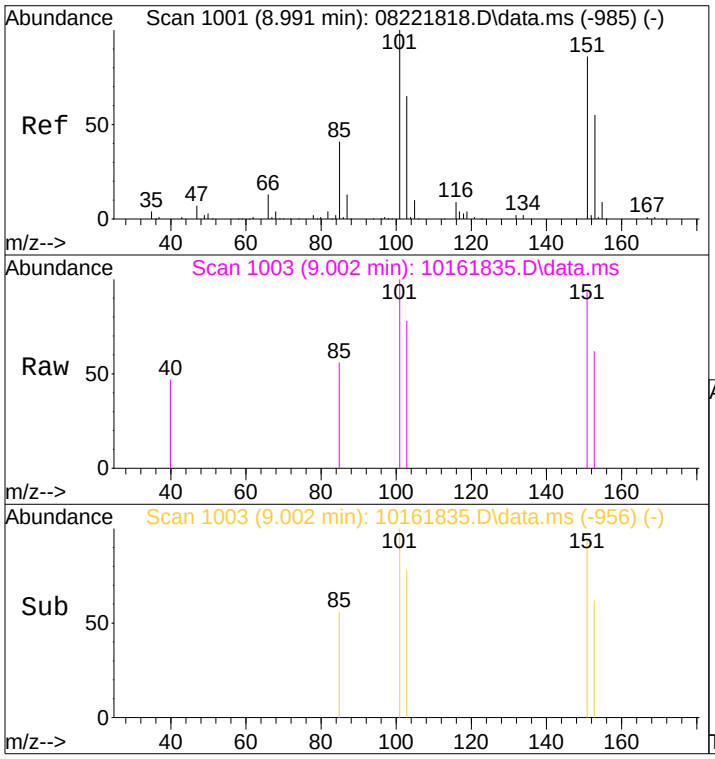


#19
Methylene Chloride
Concen: 0.40 ng
RT: 8.58 min Scan# 926
Delta R.T. 0.017 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 84 Resp: 8916

Ion	Ratio	Lower	Upper
84	100		
49	110.7	90.8	140.8

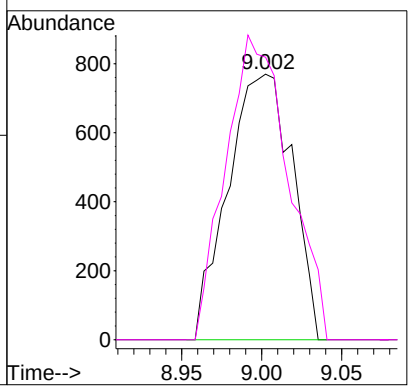


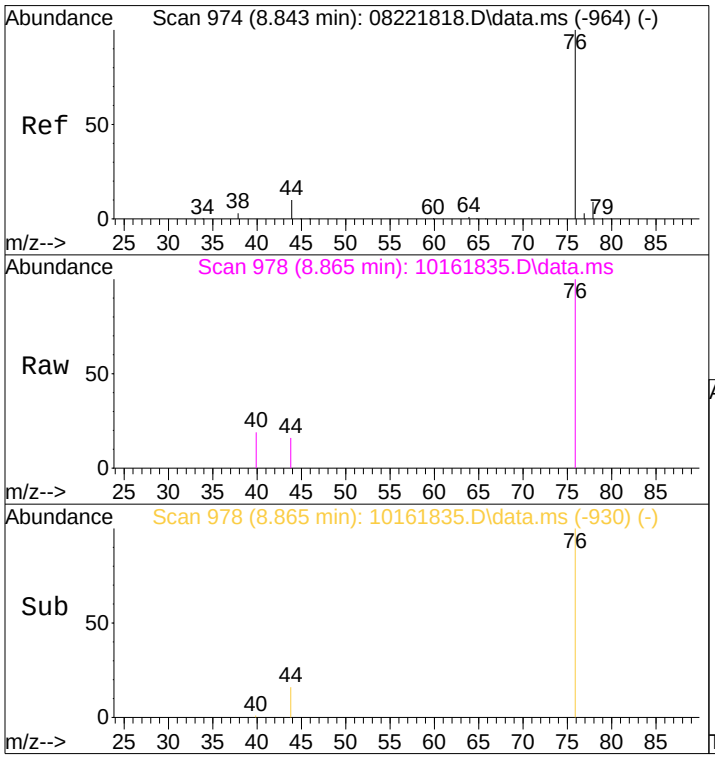


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 9.00 min Scan# 1003
Delta R.T. 0.011 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:151 Resp: 2161

Ion	Ratio	Lower	Upper
151	100		
101	111.5	97.4	137.4

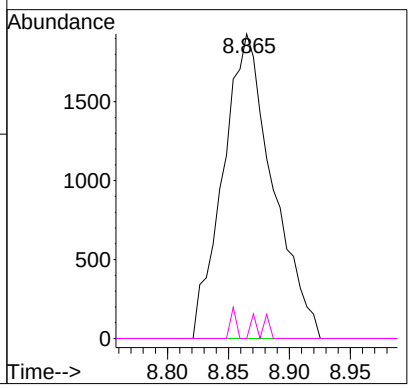


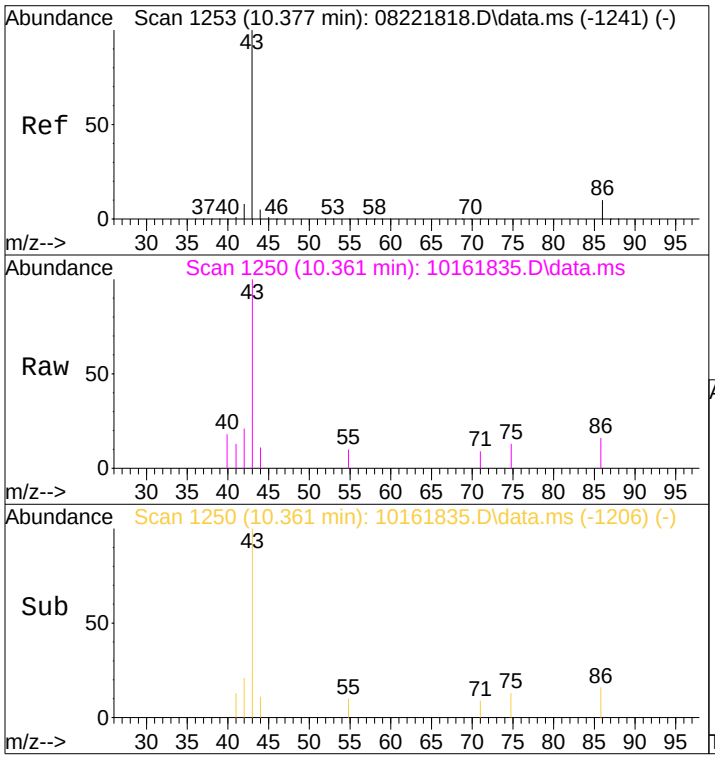


#22
Carbon Disulfide
Concen: 0.07 ng
RT: 8.86 min Scan# 978
Delta R.T. 0.017 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 76 Resp: 5477

Ion	Ratio	Lower	Upper
76	100		
78	1.9	0.0	29.1

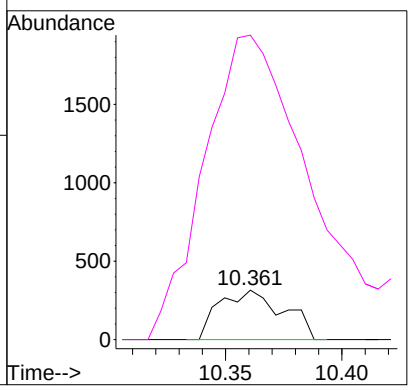


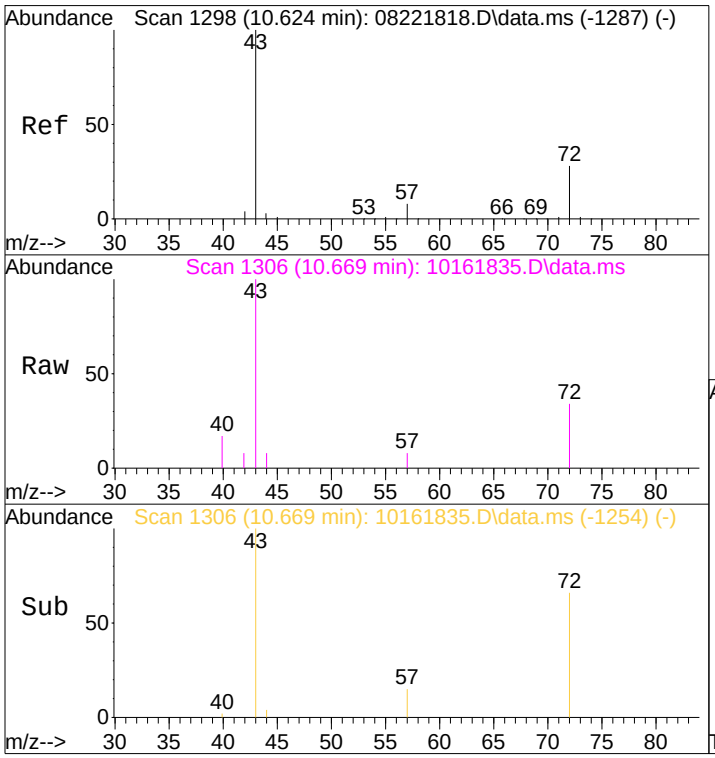


#26
Vinyl Acetate
Concen: 0.13 ng
RT: 10.36 min Scan# 1250
Delta R.T. -0.005 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 86 Resp: 603

Ion	Ratio	Lower	Upper
86	100		
43	1157.9	994.0	1034.0#

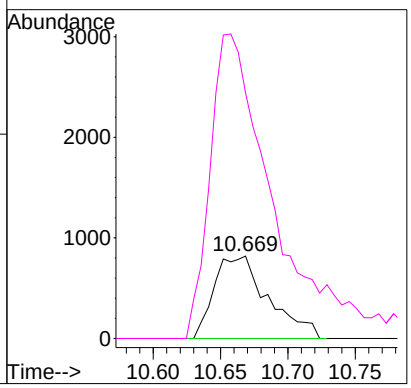


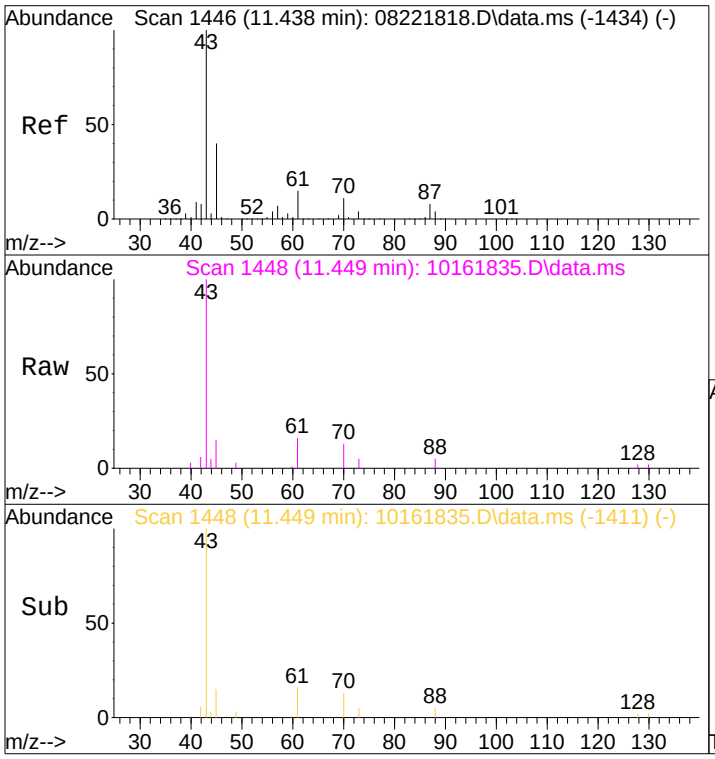


#27
2-Butanone (MEK)
Concen: 0.16 ng
RT: 10.67 min Scan# 1306
Delta R.T. 0.039 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 72 Resp: 2288

Ion	Ratio	Lower	Upper
72	100		
43	431.6	341.9	381.9#

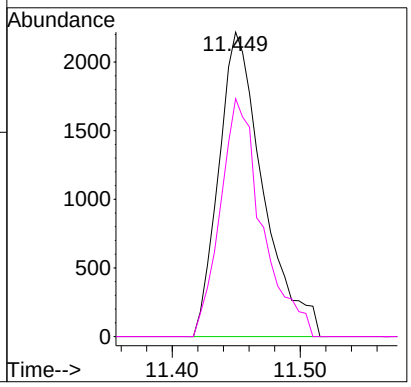


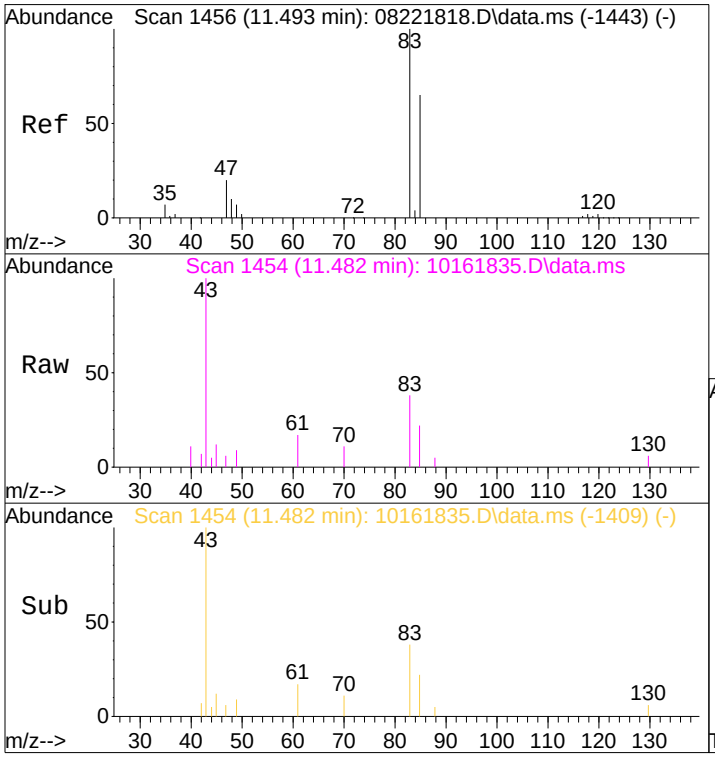


#30
Ethyl Acetate
Concen: 0.71 ng
RT: 11.45 min Scan# 1448
Delta R.T. 0.006 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 61 Resp: 5351

Ion	Ratio	Lower	Upper
61	100		
70	73.5	59.8	99.8

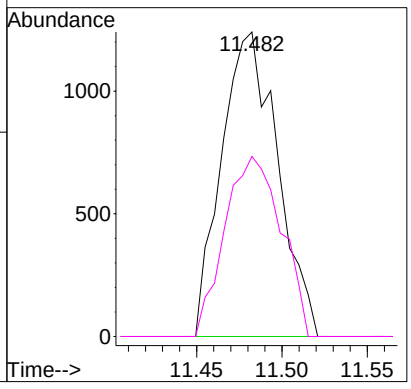


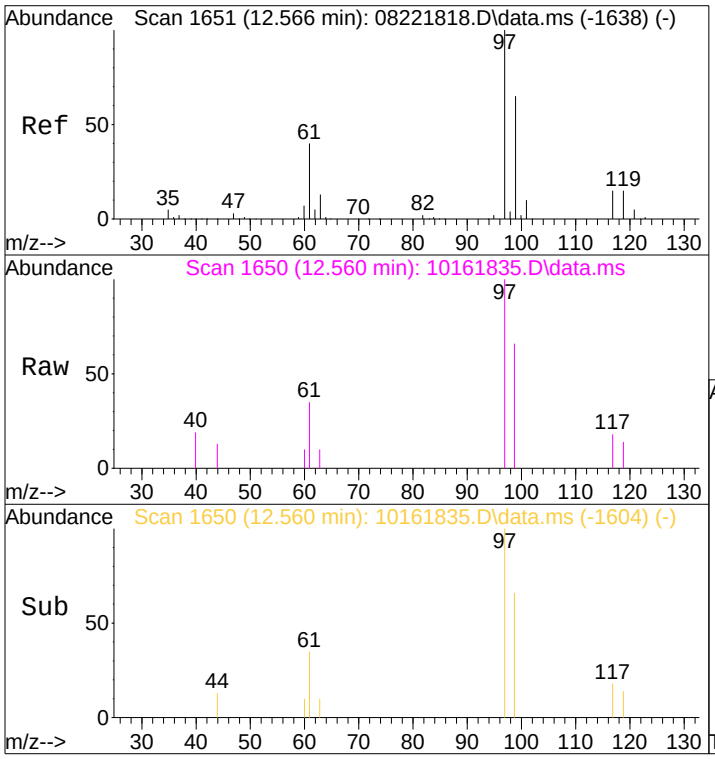


#32
Chloroform
Concen: 0.08 ng
RT: 11.48 min Scan# 1454
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 83 Resp: 2830

Ion	Ratio	Lower	Upper
83	100		
85	59.7	45.0	85.0

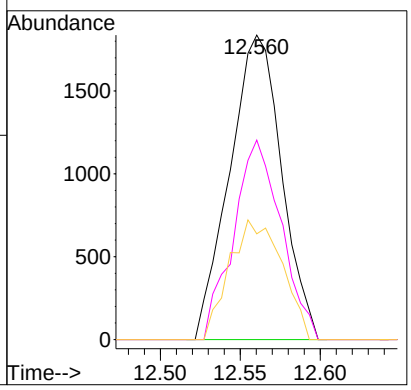


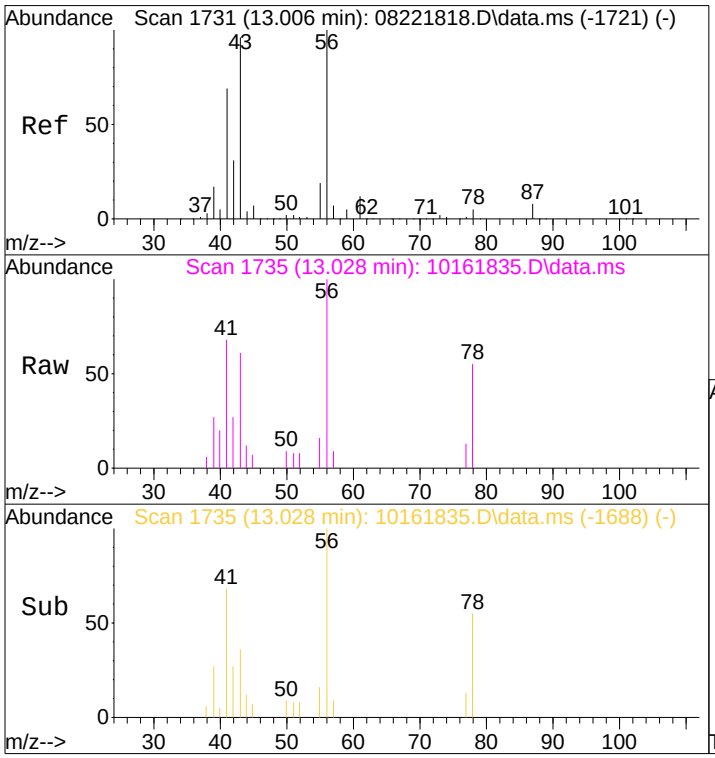


#38
1,1,1-Trichloroethane
Concen: 0.15 ng
RT: 12.56 min Scan# 1650
Delta R.T. 0.006 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 97 Resp: 4163

Ion	Ratio	Lower	Upper
97	100		
99	60.1	44.5	84.5
61	39.6	20.8	60.8

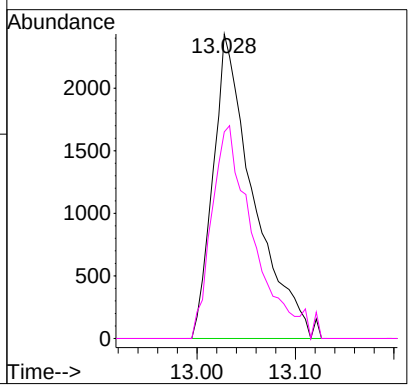


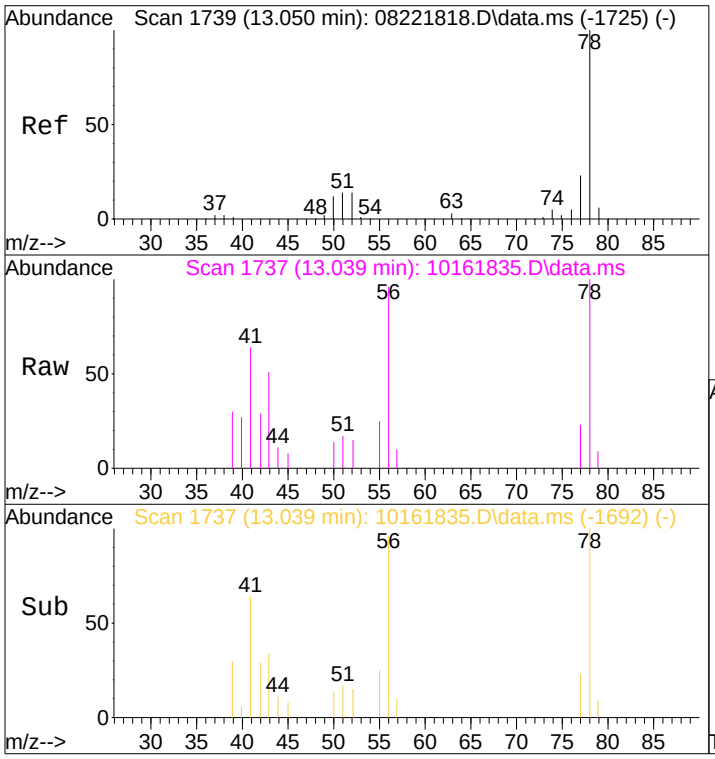


#40
1-Butanol
Concen: 0.35 ng
RT: 13.03 min Scan# 1735
Delta R.T. 0.011 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 56 Resp: 6925

Ion	Ratio	Lower	Upper
56	100		
41	72.9	77.1	117.1#

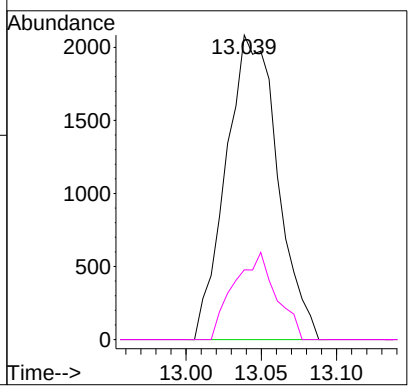


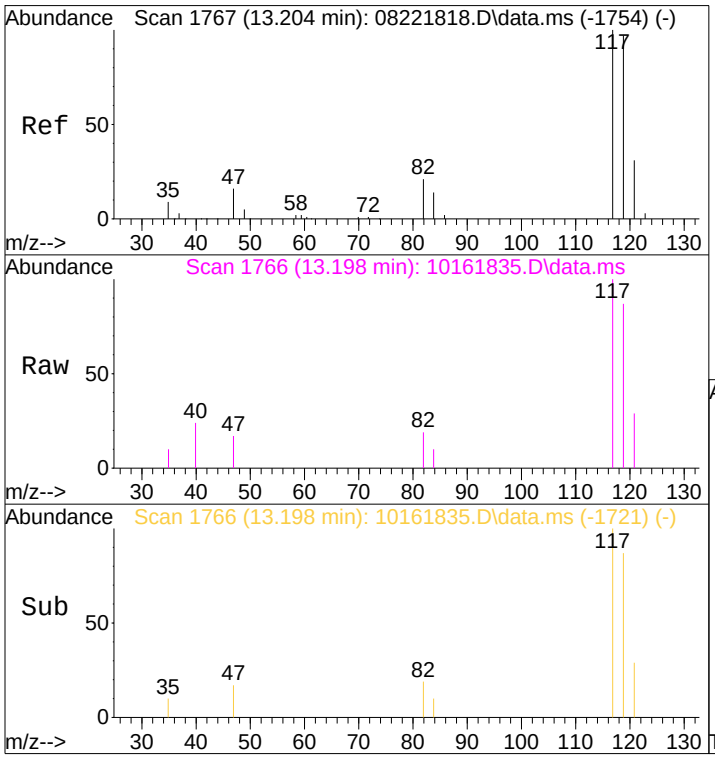


#41
Benzene
Concen: 0.06 ng
RT: 13.04 min Scan# 1737
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 78 Resp: 4950

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.2	43.2

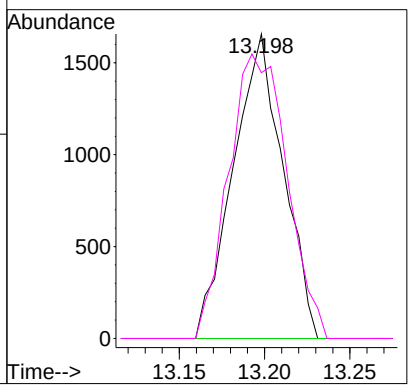


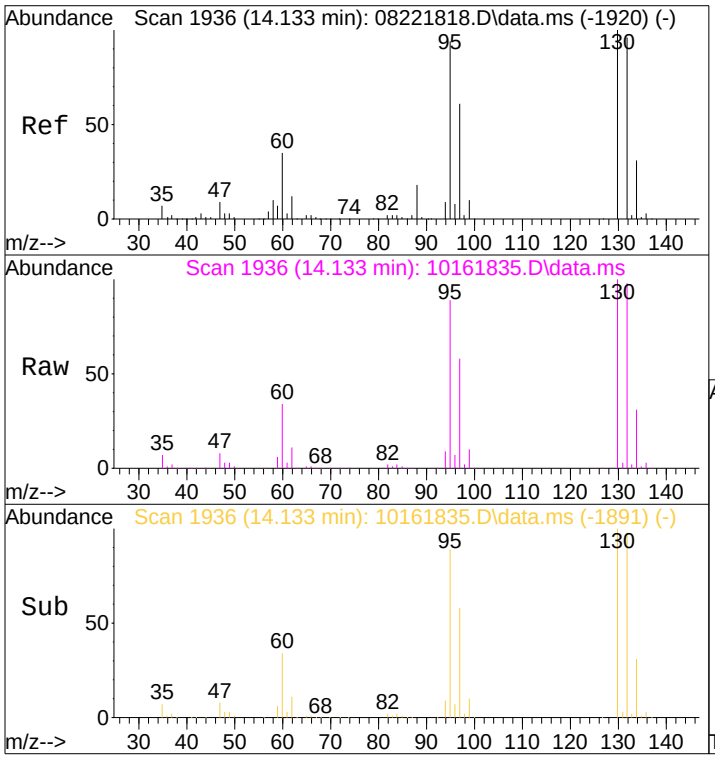


#42
Carbon Tetrachloride
Concen: 0.13 ng
RT: 13.20 min Scan# 1766
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:117 Resp: 3369

Ion	Ratio	Lower	Upper
117	100		
119	109.6	76.5	116.5

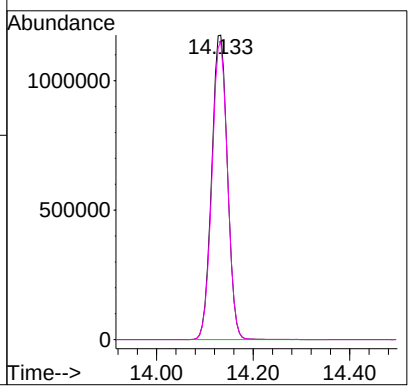


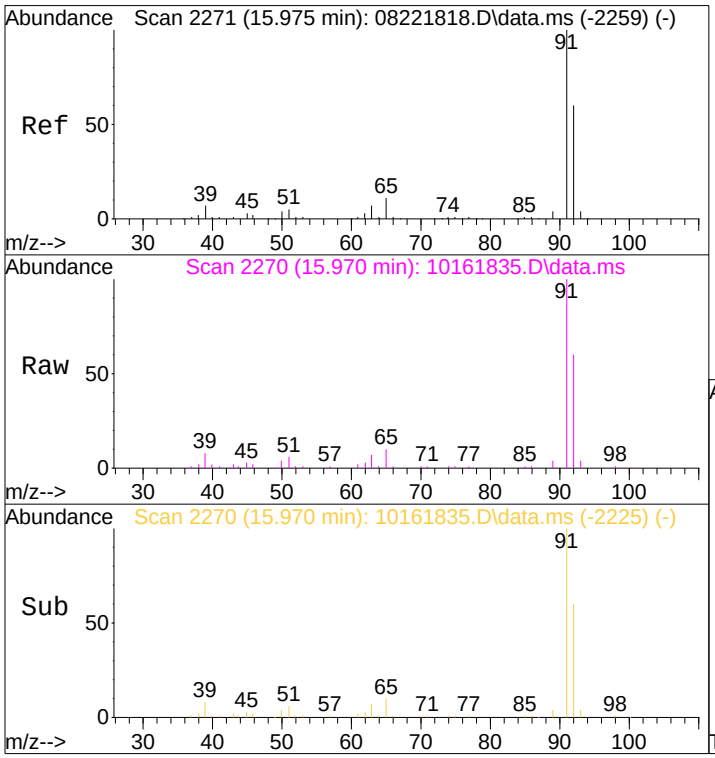


#47
Trichloroethene
Concen: 110.38 ng
RT: 14.13 min Scan# 1936
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:130 Resp: 2657276

Ion	Ratio	Lower	Upper
130	100		
132	97.0	76.2	116.2

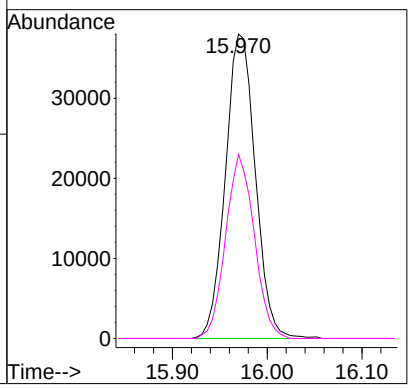


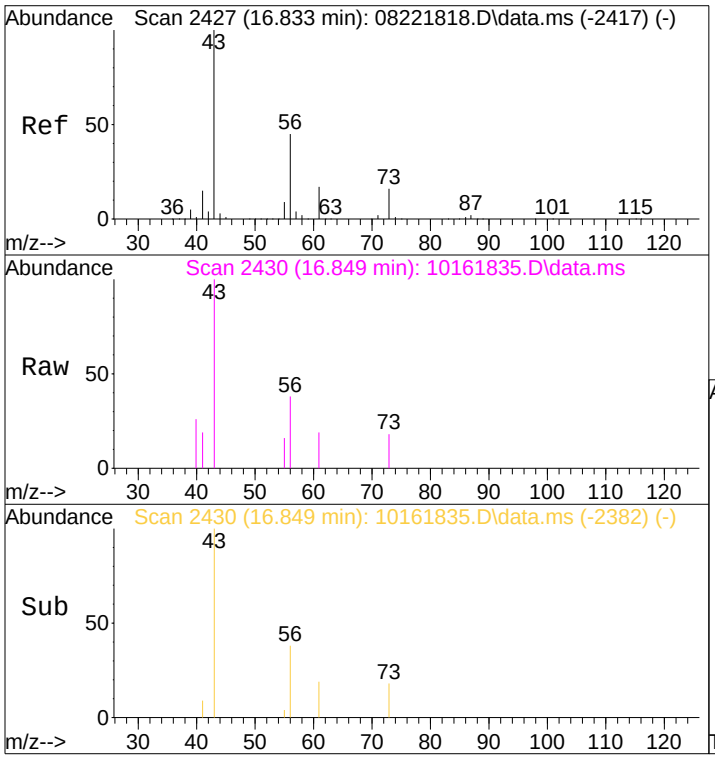


#58
Toluene
Concen: 0.89 ng
RT: 15.97 min Scan# 2270
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 91 Resp: 83556

Ion	Ratio	Lower	Upper
91	100		
92	57.8	39.6	79.6

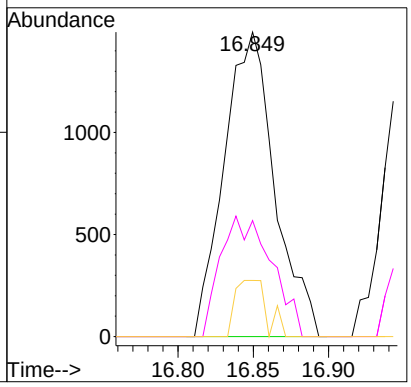


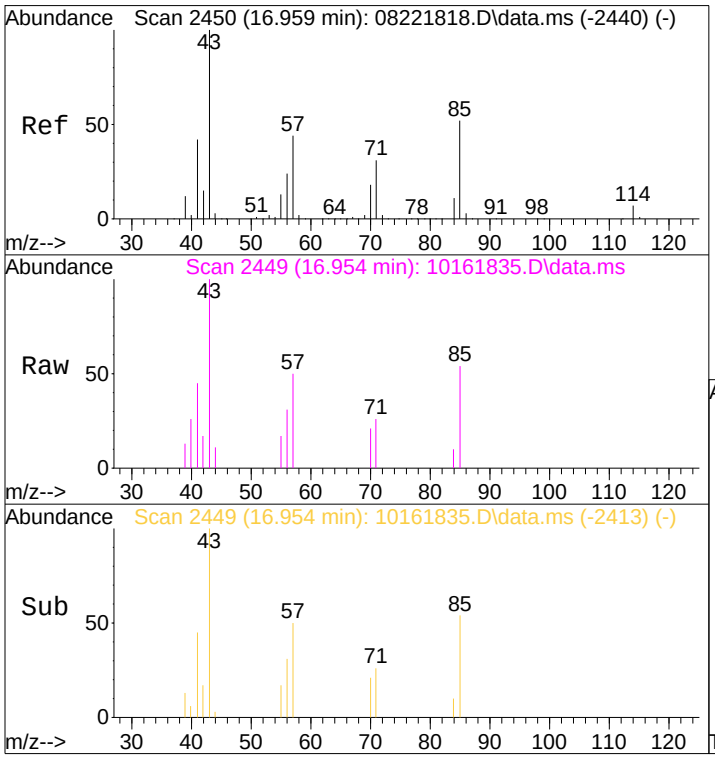


#62
n-Butyl Acetate
Concen: 0.07 ng
RT: 16.85 min Scan# 2430
Delta R.T. 0.017 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 43 Resp: 3485

Ion	Ratio	Lower	Upper
43	100		
56	39.9	24.7	64.7
73	11.4	0.0	35.9

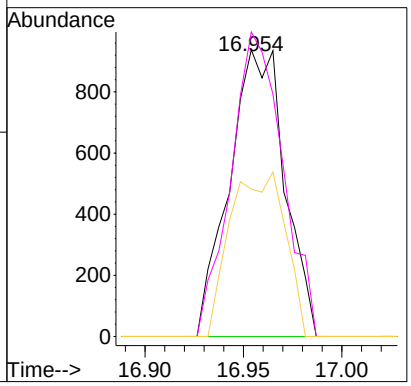


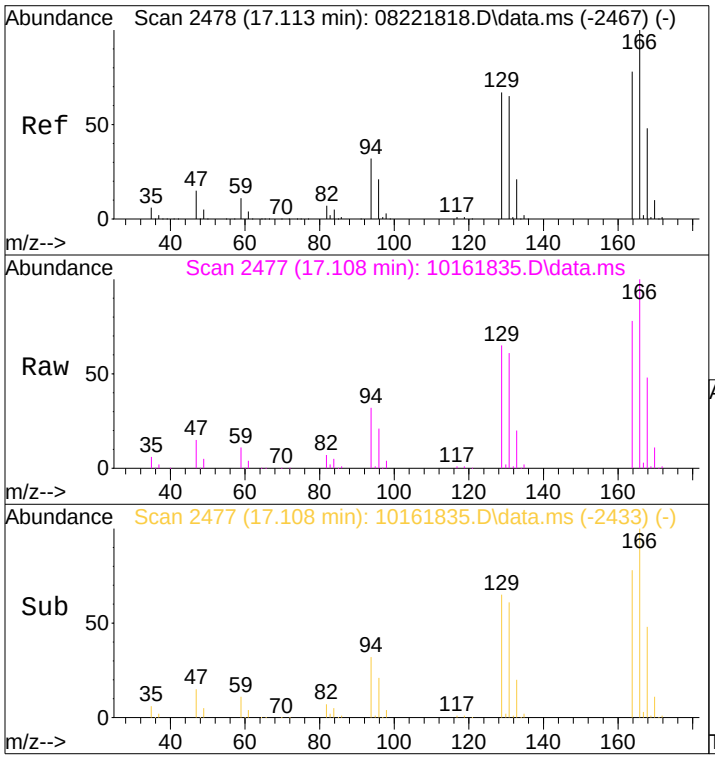


#63
n-Octane
Concen: 0.10 ng
RT: 16.95 min Scan# 2449
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 57 Resp: 1837

Ion	Ratio	Lower	Upper
57	100		
85	99.2	93.2	139.8
71	56.9	57.0	85.4#

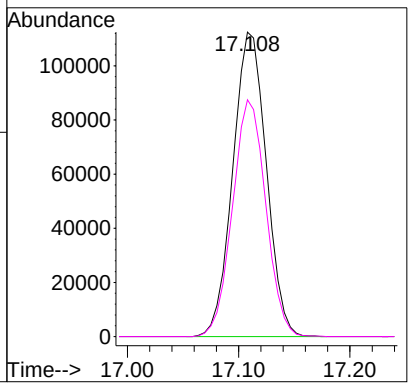


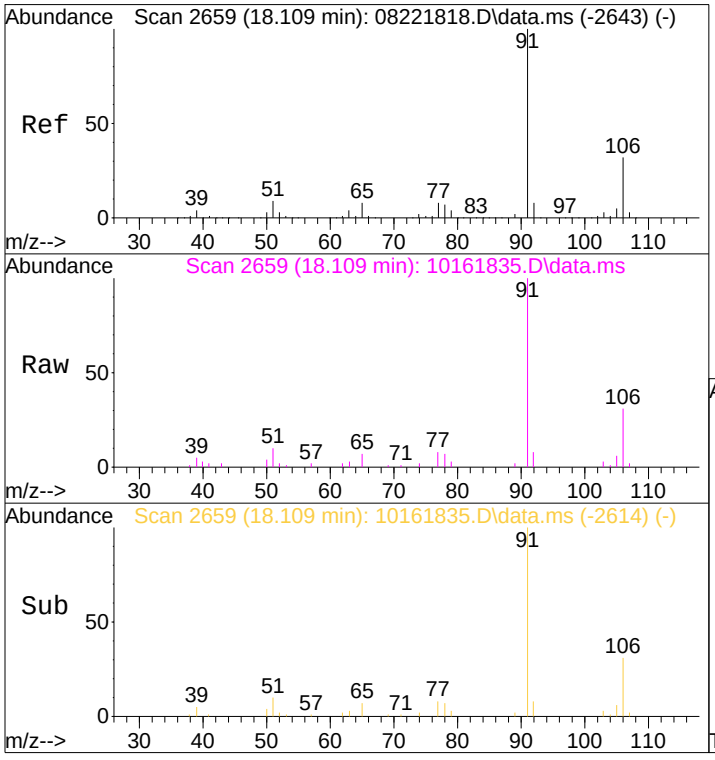


#64
Tetrachloroethene
Concen: 8.68 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.005 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:166 Resp: 235420

Ion	Ratio	Lower	Upper
166	100		
164	77.3	58.1	98.1

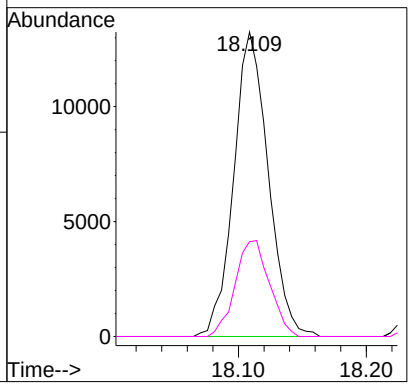


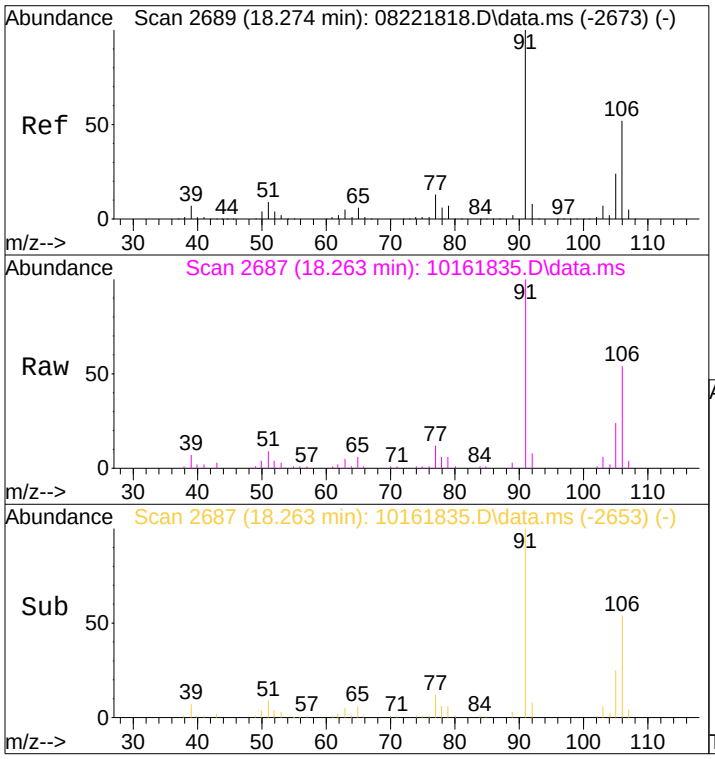


#66
Ethylbenzene
Concen: 0.24 ng
RT: 18.11 min Scan# 2659
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 91 Resp: 24852

Ion	Ratio	Lower	Upper
91	100		
106	31.3	12.4	52.4

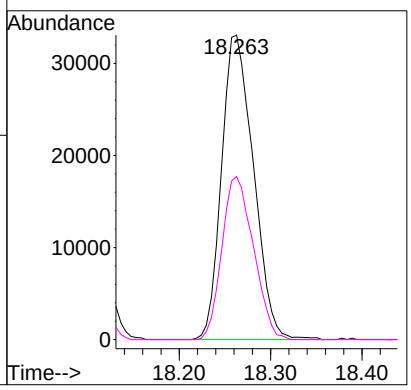


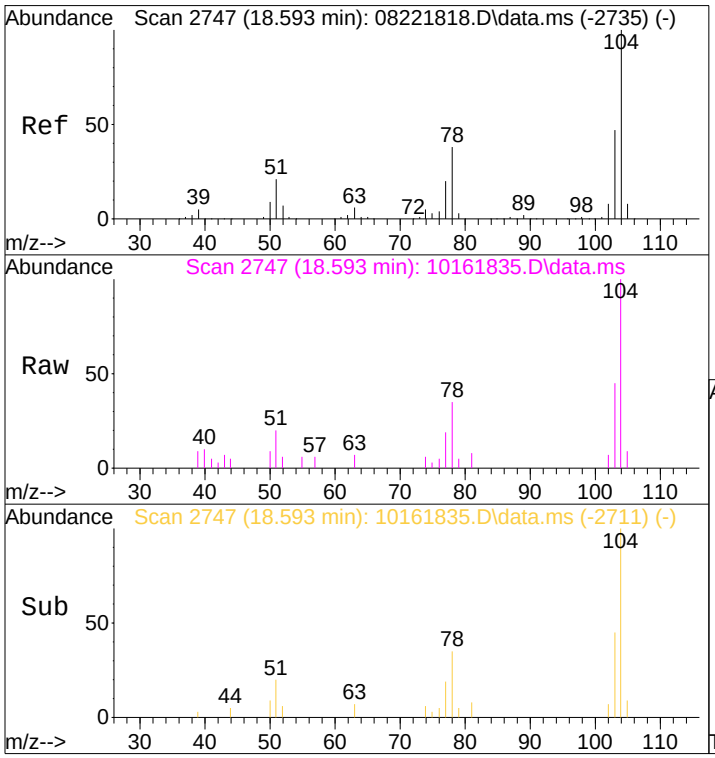


#67
m- & p-Xylenes
Concen: 1.04 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.011 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 91 Resp: 80254

Ion	Ratio	Lower	Upper
91	100		
106	52.8	32.2	72.2

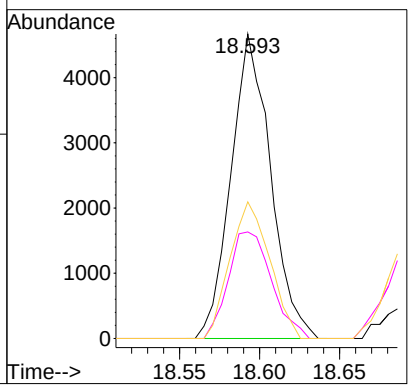


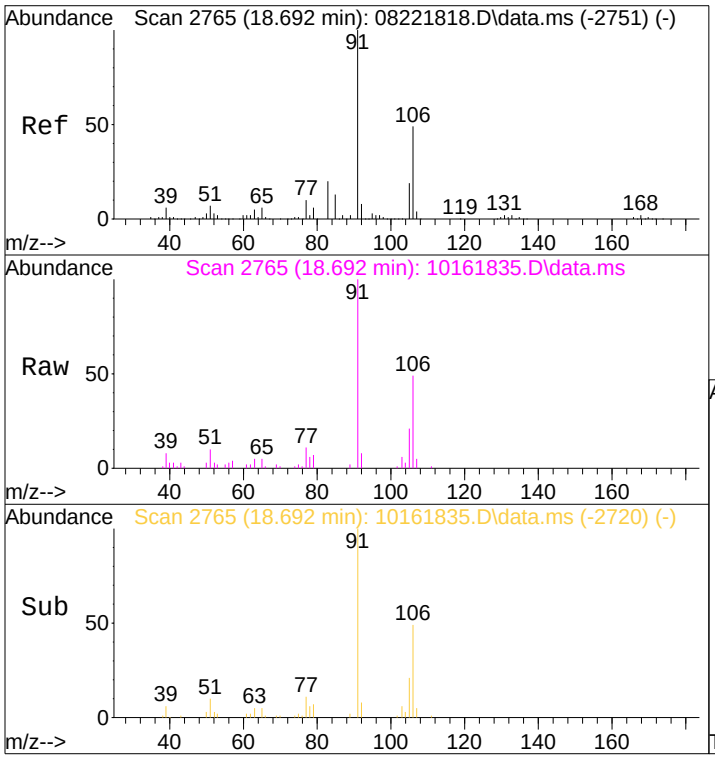


#69
Styrene
Concen: 0.13 ng
RT: 18.59 min Scan# 2747
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:104 Resp: 8040

Ion	Ratio	Lower	Upper
104	100		
78	38.2	18.4	58.4
103	45.1	27.0	67.0

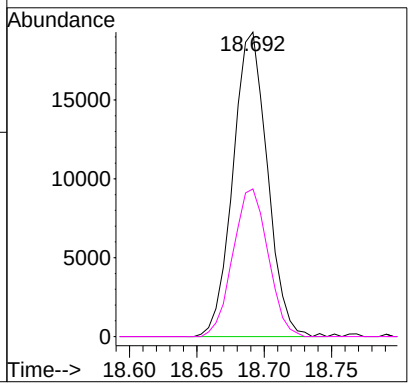


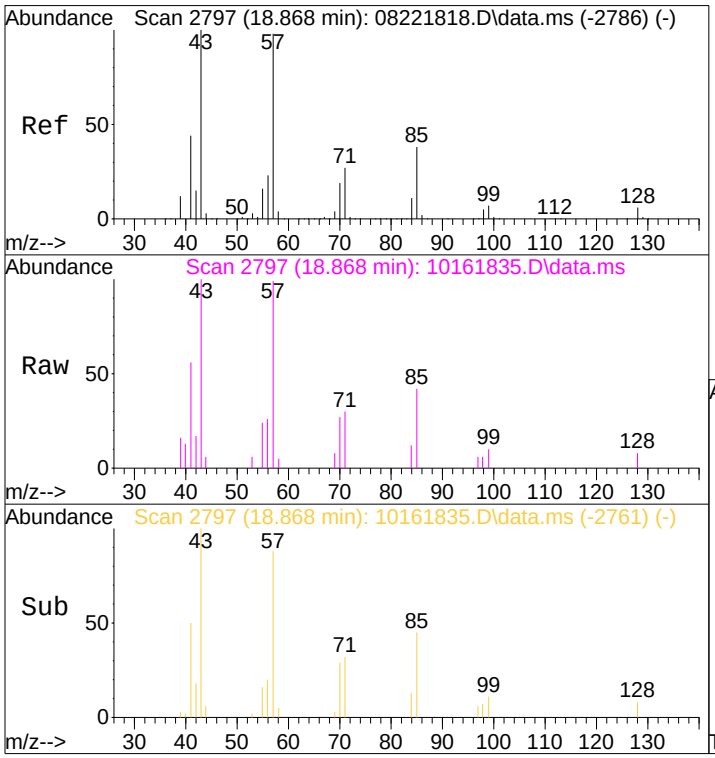


#70
o-Xylene
Concen: 0.44 ng
RT: 18.69 min Scan# 2765
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 91 Resp: 34269

Ion	Ratio	Lower	Upper
91	100		
106	49.5	29.6	69.6

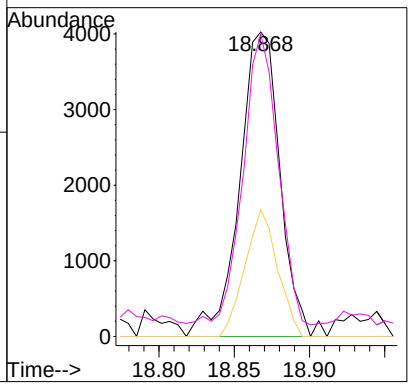


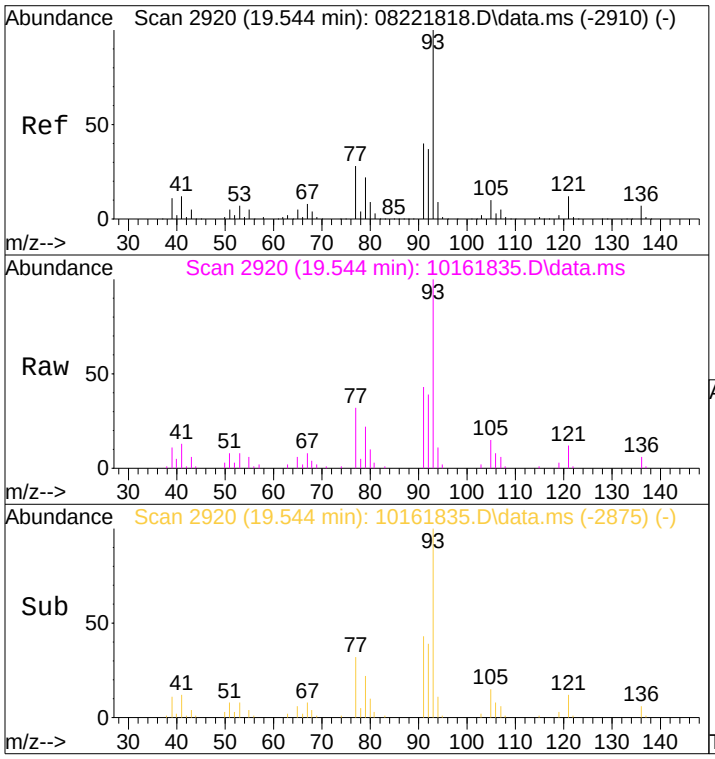


#71
n-Nonane
Concen: 0.19 ng
RT: 18.87 min Scan# 2797
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 43 Resp: 7569

Ion	Ratio	Lower	Upper
43	100		
57	81.1	77.3	117.3
85	33.3	17.7	57.7

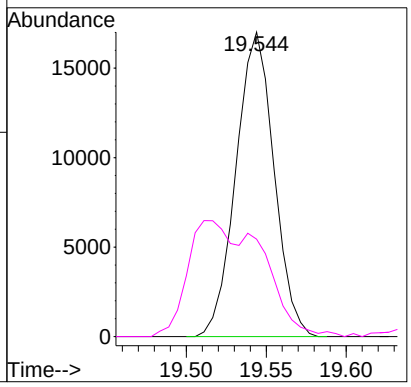


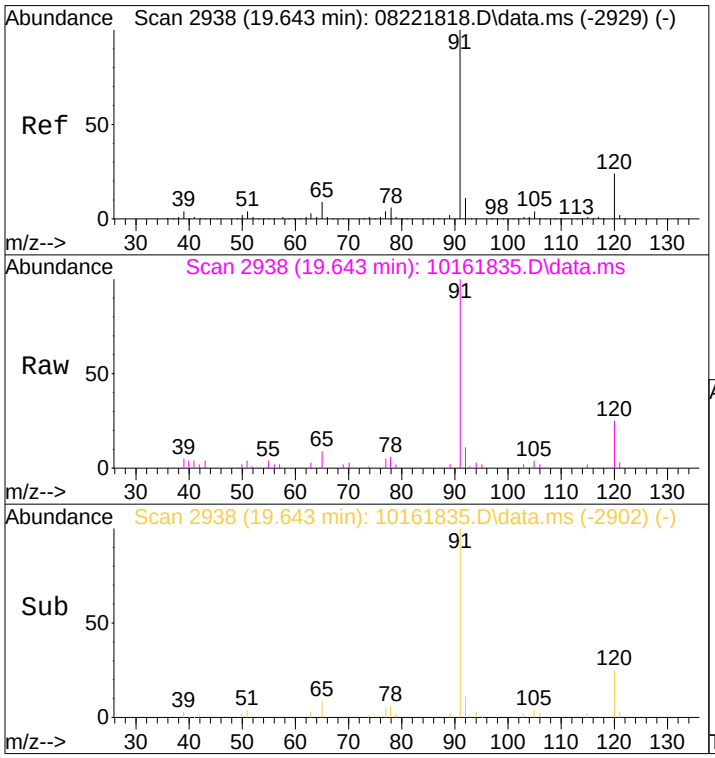


#75
alpha-Pinene
Concen: 0.54 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 93 Resp: 28195

Ion	Ratio	Lower	Upper
93	100		
77	74.9	8.7	48.7#

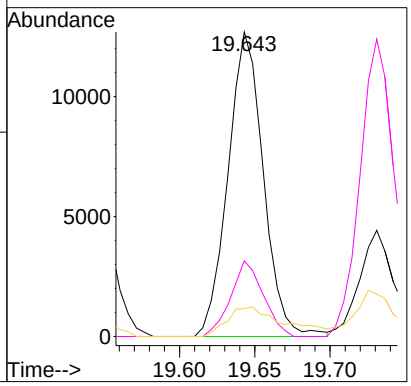


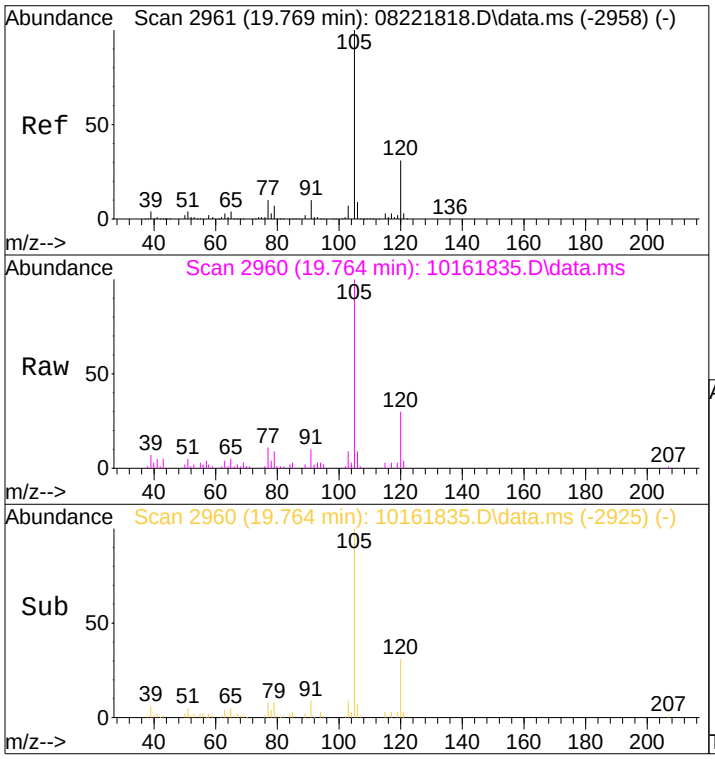


#76
n-Propylbenzene
Concen: 0.17 ng
RT: 19.64 min Scan# 2938
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 91 Resp: 20699

Ion	Ratio	Lower	Upper
91	100		
120	22.9	3.9	43.9
65	15.6	0.0	29.2

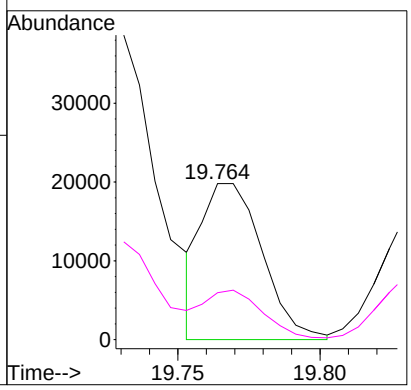


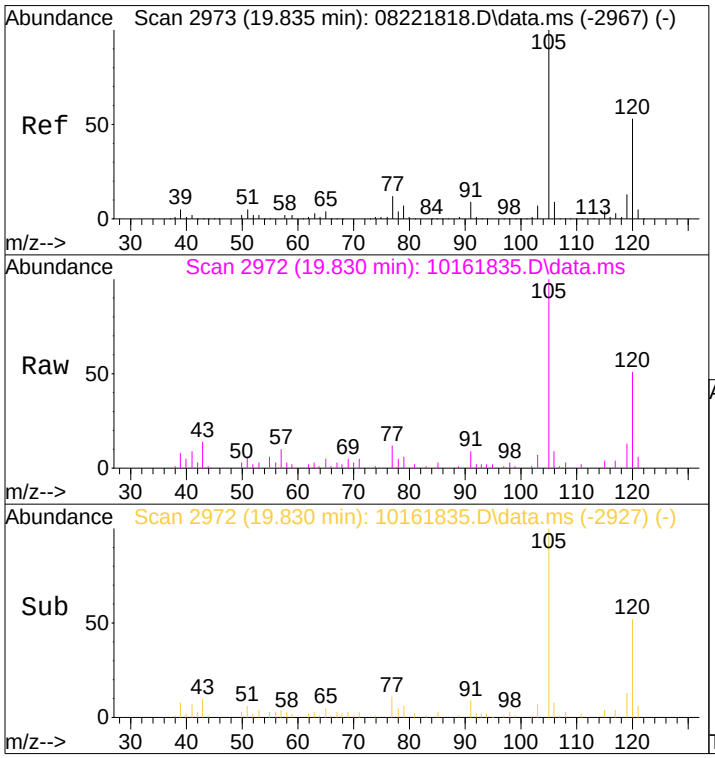


#78
4-Ethyltoluene
Concen: 0.31 ng
RT: 19.76 min Scan# 2960
Delta R.T. -0.005 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:105 Resp: 29472

Ion	Ratio	Lower	Upper
105	100		
120	31.4	11.0	51.0

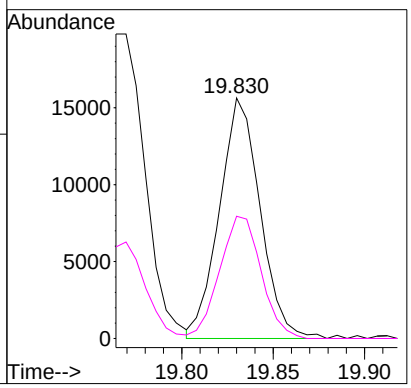


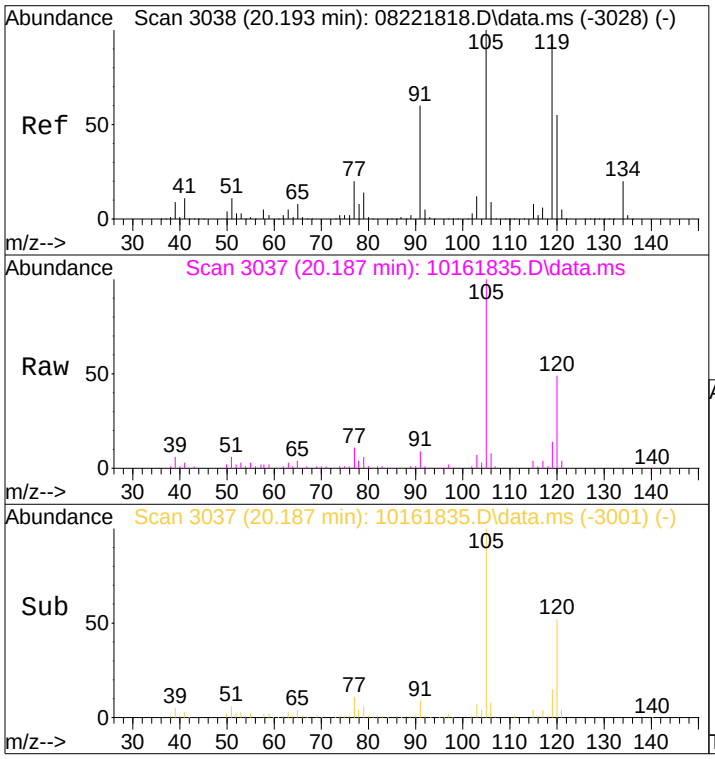


#79
1,3,5-Trimethylbenzene
Concen: 0.29 ng
RT: 19.83 min Scan# 2972
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:105 Resp: 24208

Ion	Ratio	Lower	Upper
105	100		
120	51.9	32.1	72.1

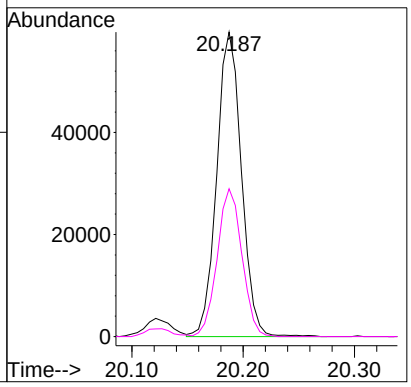


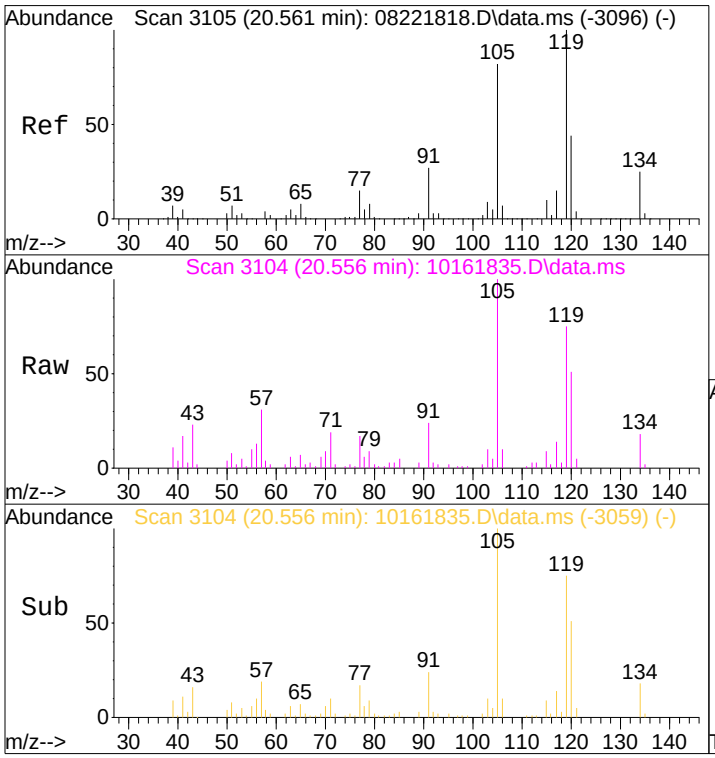


#82
1,2,4-Trimethylbenzene
Concen: 1.14 ng
RT: 20.19 min Scan# 3037
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:105 Resp: 92038

Ion	Ratio	Lower	Upper
105	100		
120	48.5	36.1	76.1

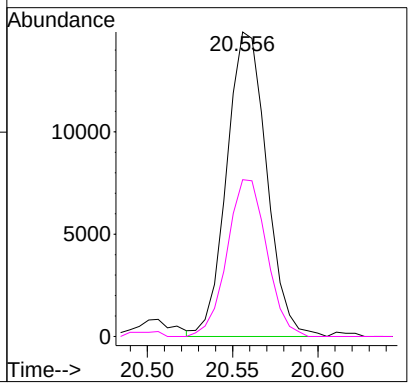


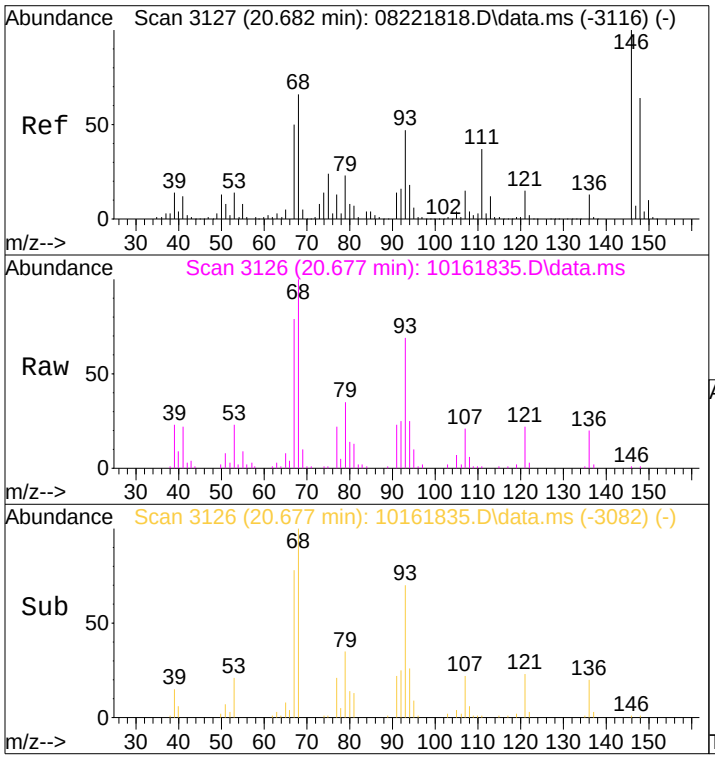


#89
1,2,3-Trimethylbenzene
Concen: 0.30 ng
RT: 20.56 min Scan# 3104
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:105 Resp: 24168

Ion	Ratio	Lower	Upper
105	100		
120	51.3	34.2	74.2

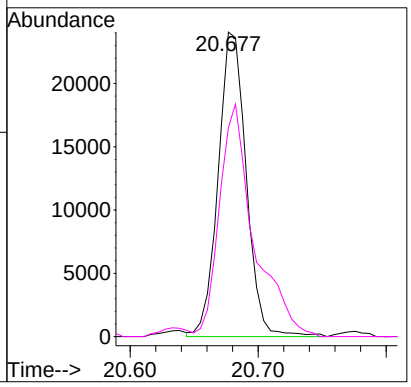


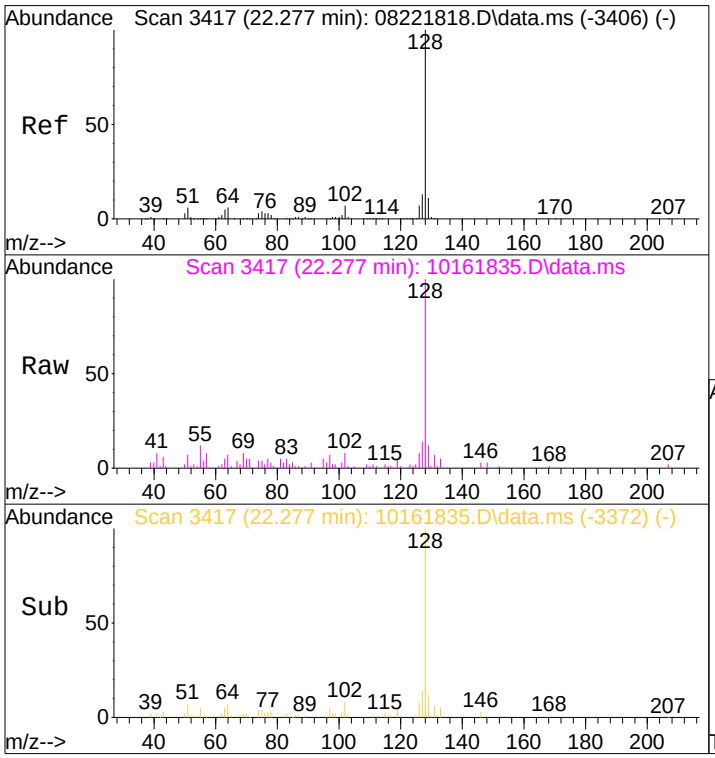


#91
d-Limonene
Concen: 1.21 ng
RT: 20.68 min Scan# 3126
Delta R.T. -0.005 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion: 68 Resp: 36831

Ion	Ratio	Lower	Upper
68	100		
93	93.6	50.5	90.5#

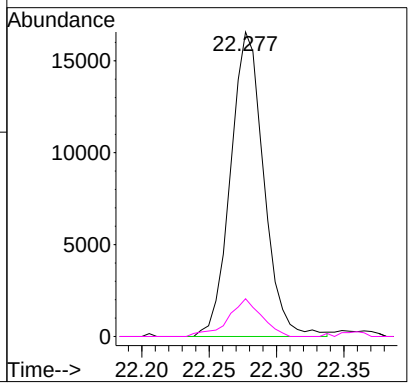




#95
Naphthalene
Concen: 0.31 ng
RT: 22.28 min Scan# 3417
Delta R.T. 0.000 min
Lab File: 10161835.D
Acq: 16 Oct 2018 20:54

Tgt Ion:128 Resp: 28444

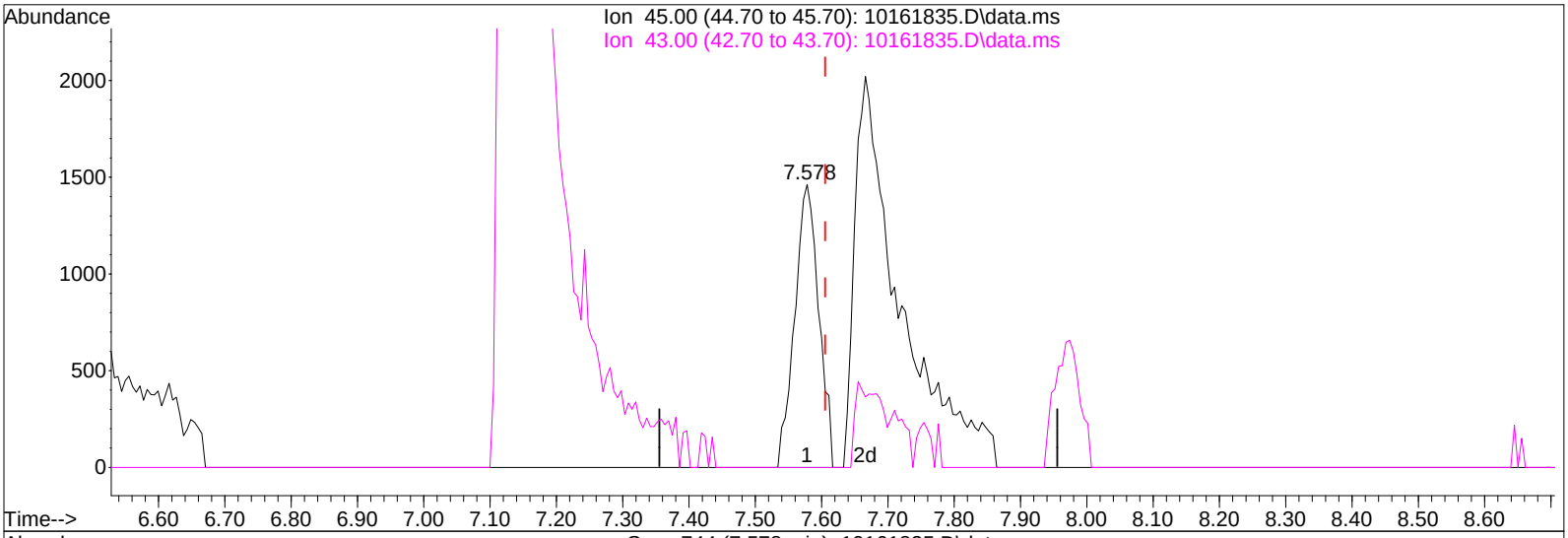
Ion	Ratio	Lower	Upper
128	100		
129	12.4	0.0	30.9

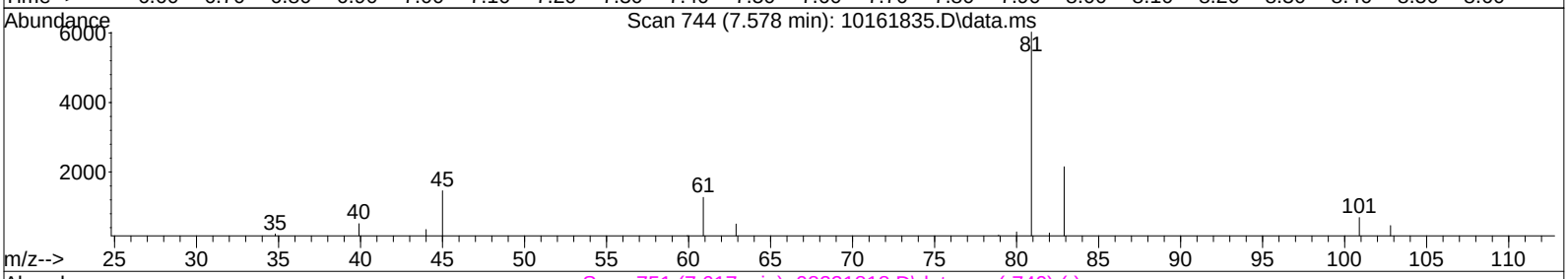


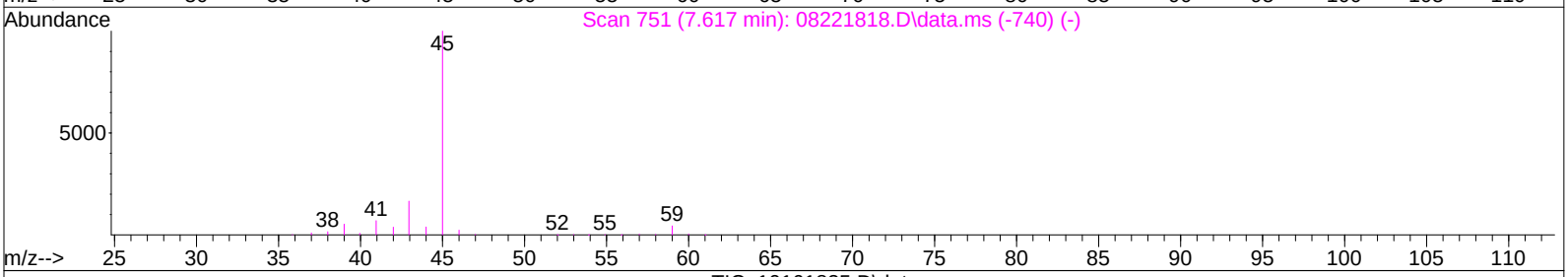
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 06:33:16 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161835.D\data.ms

(15) 2-Propanol (Isopropanol) (T)

7.578min (-0.027) 0.08ng

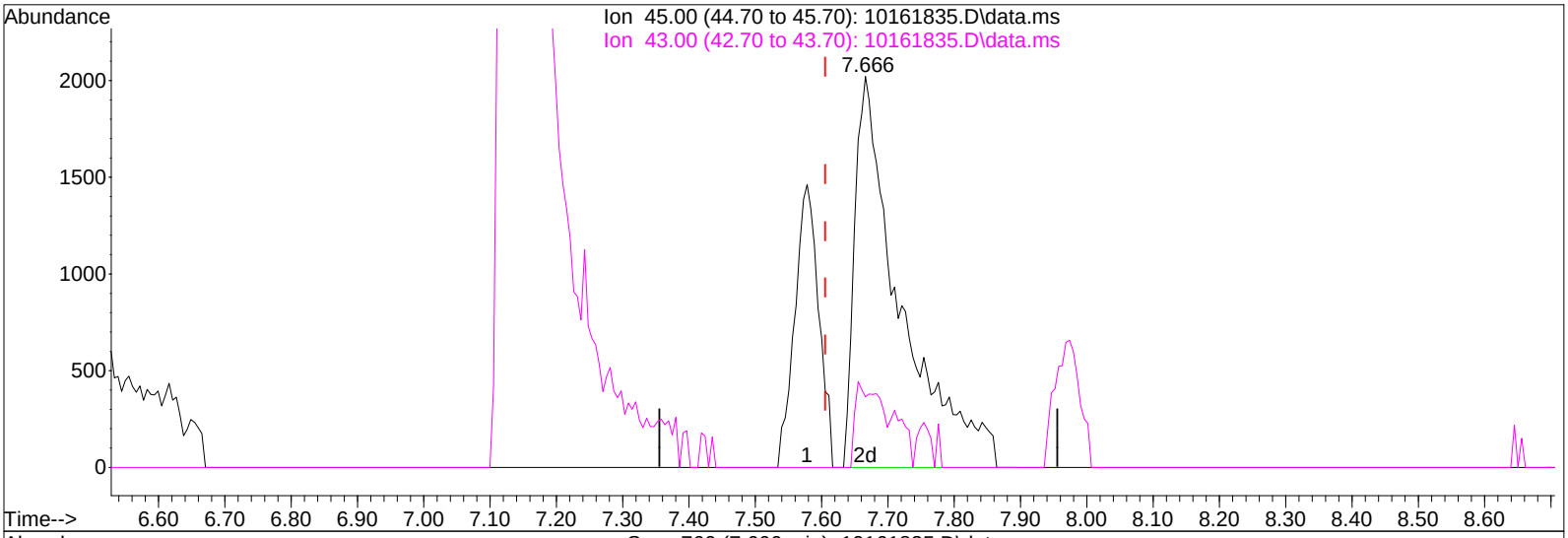
response 3666

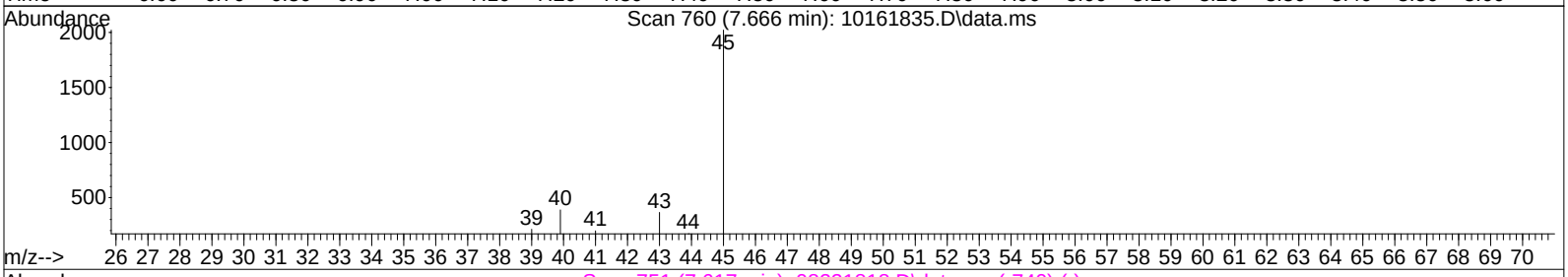
Ion	Exp%	Act%
45.00	100	100
43.00	16.80	0.00
0.00	0.00	0.00
0.00	0.00	0.00

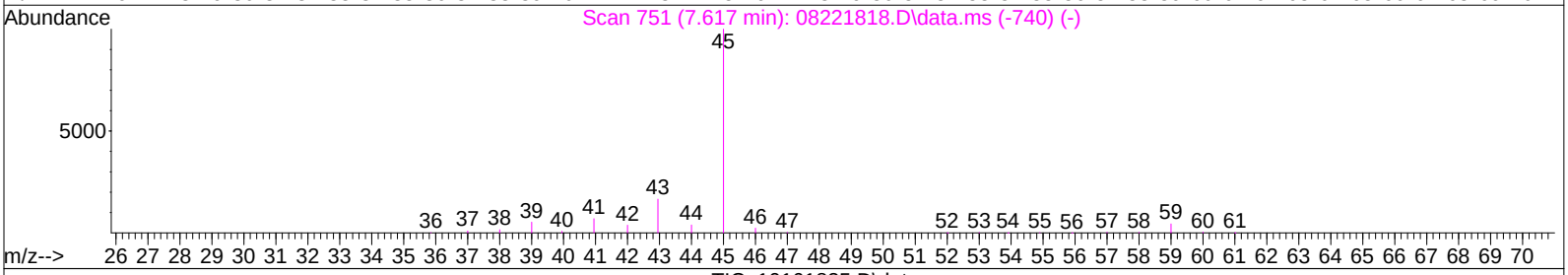
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 06:33:16 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161835.D\data.ms

(15) 2-Propanol (Isopropanol) (T)

7.666min (+0.061) 0.20ng m

response 9624

Ion	Exp%	Act%
45.00	100	100
43.00	16.80	0.00
0.00	0.00	0.00
0.00	0.00	0.00

WP

LH 10/17/18

10/17/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 12:24:19 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

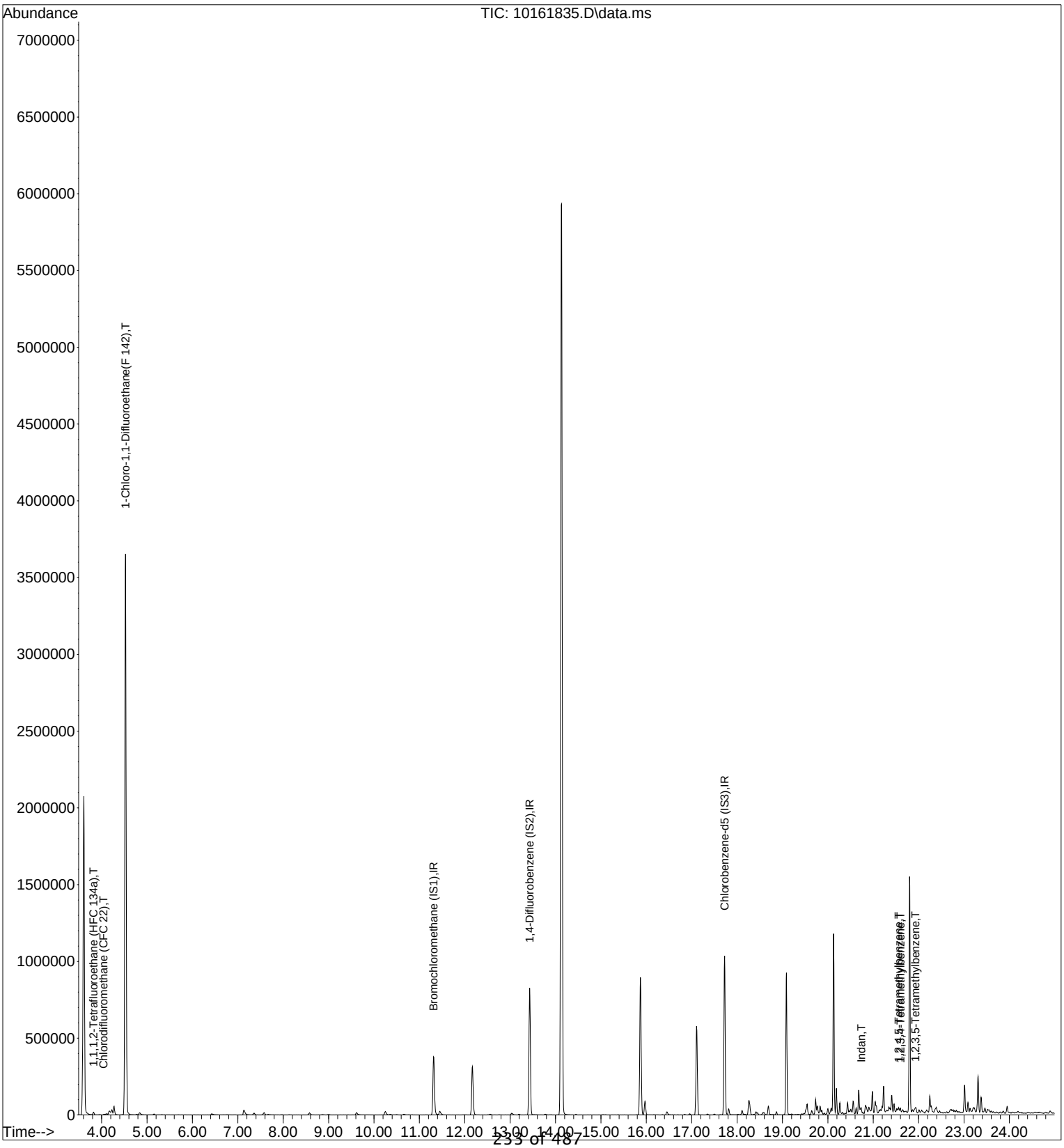
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	200706	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	853030	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	359755	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	241	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	7646	0.461	ng	#	52
4) 1,1-Difluoroethane	3.94	65	657	N.D.			
5) Chlorodifluoromethane ...	4.04	67	820	0.164	ng	#	89
6) 1-Chloro-1,1-Difluoroe...	4.53	65	3974971	130.234	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	8.64	43	122	N.D.			
12) 2-Methylpentane	10.37	71	302	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.19	84	473	N.D.			
17) 2,3-Dimethylpentane	13.60	56	449	N.D.			
18) Dibromomethane	13.86	174	293	N.D.			
20) Methyl Cyclohexane	15.11	55	680	N.D.			
21) 1,3-Dichloropropane	15.98	76	66	N.D.			
22) 1,1,1,2-Tetrachloroethane	17.82	131	241	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.68	75	753	N.D.			
25) Bromobenzene	19.20	77	437	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	20.74	117	12045	0.154	ng		99
29) Indene	20.81	115	1544	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	11189	0.131	ng		98
31) 1,2,3,4-Tetramethylben...	21.60	119	13980	0.174	ng		99
32) 1,2,3,5-Tetramethylben...	21.93	119	9797	0.124	ng	#	76
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

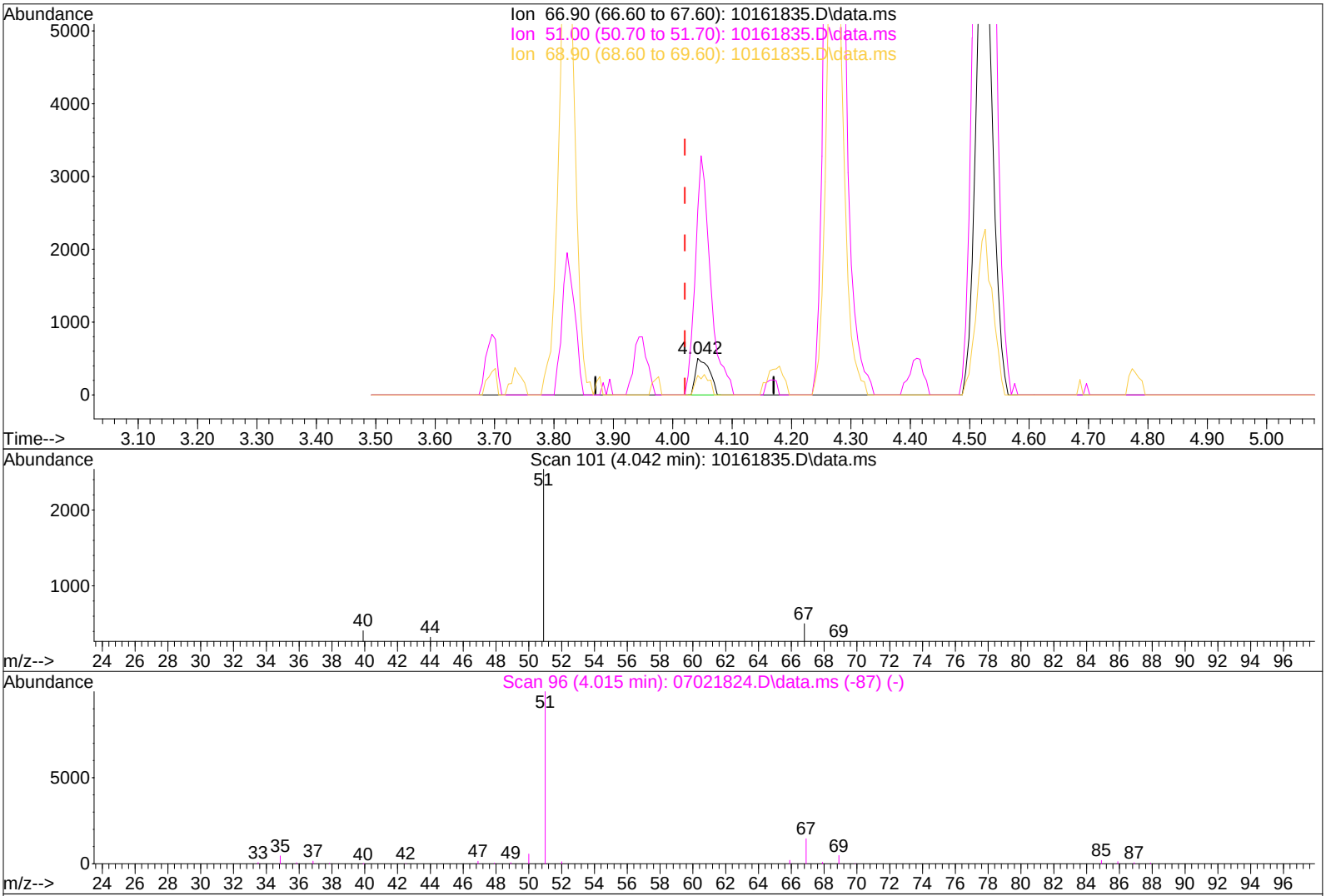
Quant Time: Oct 17 12:24:19 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161835.D
Acq On : 16 Oct 2018 20:54 Operator: LH/TD
Sample : P1805476-007 (400mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:53:39 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10161835.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.042min (+0.022) 0.16ng

response 820

Ion	Exp%	Act%
66.90	100	100
51.00	679.50	713.17
68.90	32.10	53.29#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161836.D
Acq On : 16 Oct 2018 21:27 Operator: LH/TD
Sample : P1805476-007dil (40mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:47:36 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	221807	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	913207	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	382036	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	277908	12.664	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.28%				
57) Toluene-d8 (SS2)	15.87	98	805248	13.779	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.24%				
73) Bromofluorobenzene (SS3)	19.09	174	363169	15.290	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.32%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.			
3) Dichlorodifluoromethan...	4.22	85	2272	0.055	ng	#	90
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.48	45	1531	0.099	ng	#	52
11) Acetonitrile	0.00	41	0	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	7.19	58	1883	0.109	ng	#	70
14) Trichlorofluoromethane	7.37	101	1198	N.D.			
15) 2-Propanol (Isopropanol)	7.58	45	56	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	8.59	84	773	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	8.88	76	1576	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	13.06	78	943	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	13.43	84	453	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	14.13	130	247917	9.613	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			

Data File: I:\MS16\DATA\2018_10\16\10161836.D
Acq On : 16 Oct 2018 21:27 Operator: LH/TD
Sample : P1805476-007dil (40mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 11:47:36 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

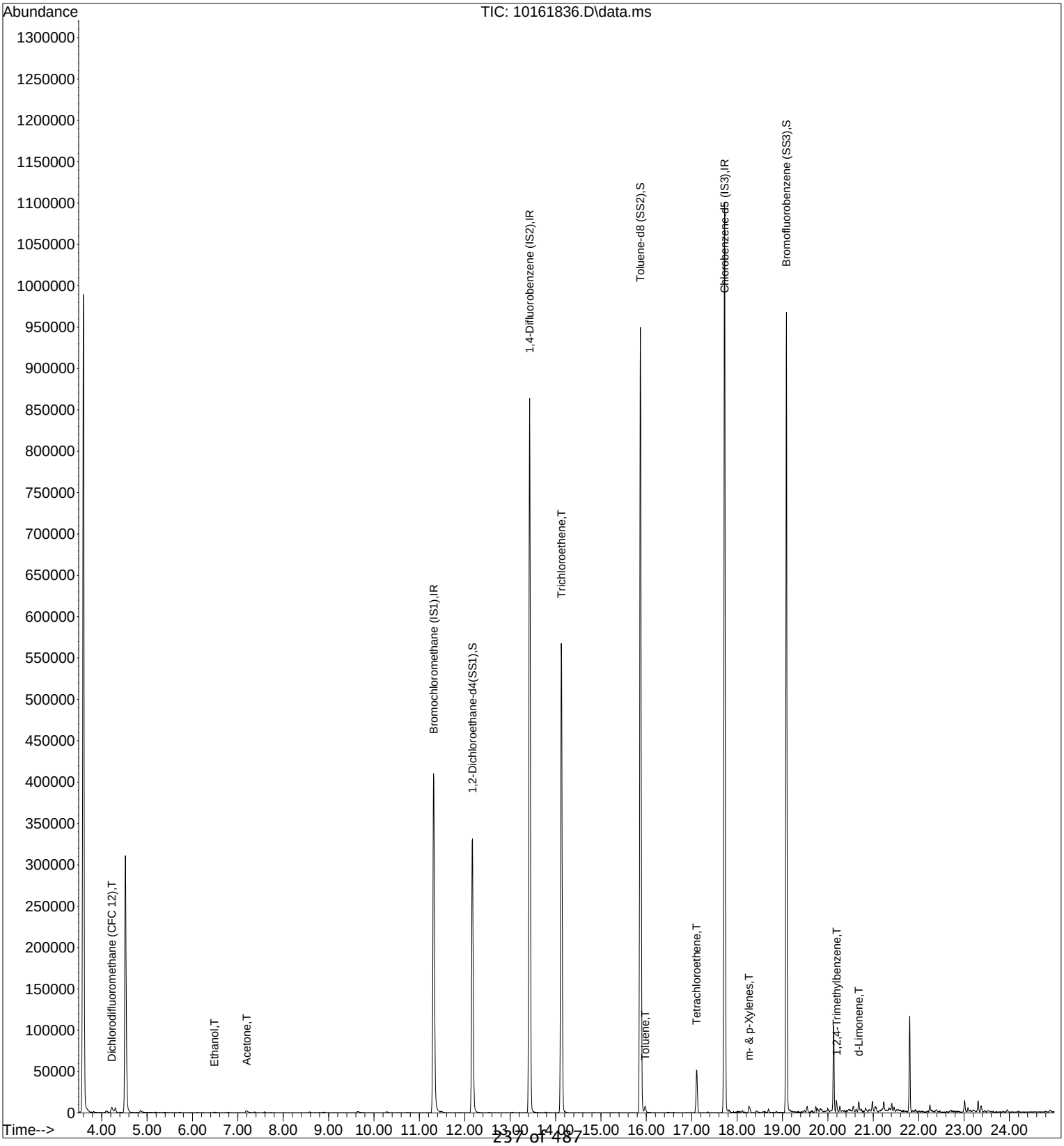
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	14.13	100	336	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.98	91	7522	0.075 ng		98
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.96	43	302	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.11	166	21404	0.743 ng		98
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.11	91	2111	N.D.		
67) m- & p-Xylenes	18.26	91	7515	0.092 ng		98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.61	104	635	N.D.		
70) o-Xylene	18.70	91	3131	N.D.		
71) n-Nonane	18.87	43	826	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.20	105	322	N.D.		
75) alpha-Pinene	19.54	93	2577	N.D.		
76) n-Propylbenzene	19.65	91	2121	N.D.		
77) 3-Ethyltoluene	19.74	105	5260	N.D.		
78) 4-Ethyltoluene	19.77	105	2706	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	2464	N.D.		
80) alpha-Methylstyrene	20.13	118	1155	N.D.		
81) 2-Ethyltoluene	20.00	105	2186	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	8158	0.095 ng		85
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	20.19	91	963	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	20.43	105	312	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	1701	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	2336	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	3091	0.096 ng	#	66
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.34	57	1584	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.29	128	2706	N.D.		
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1189	N.D.		
100) n-Butylbenzene	20.92	91	904	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161836.D
Acq On : 16 Oct 2018 21:27 Operator: LH/TD
Sample : P1805476-007dil (40mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

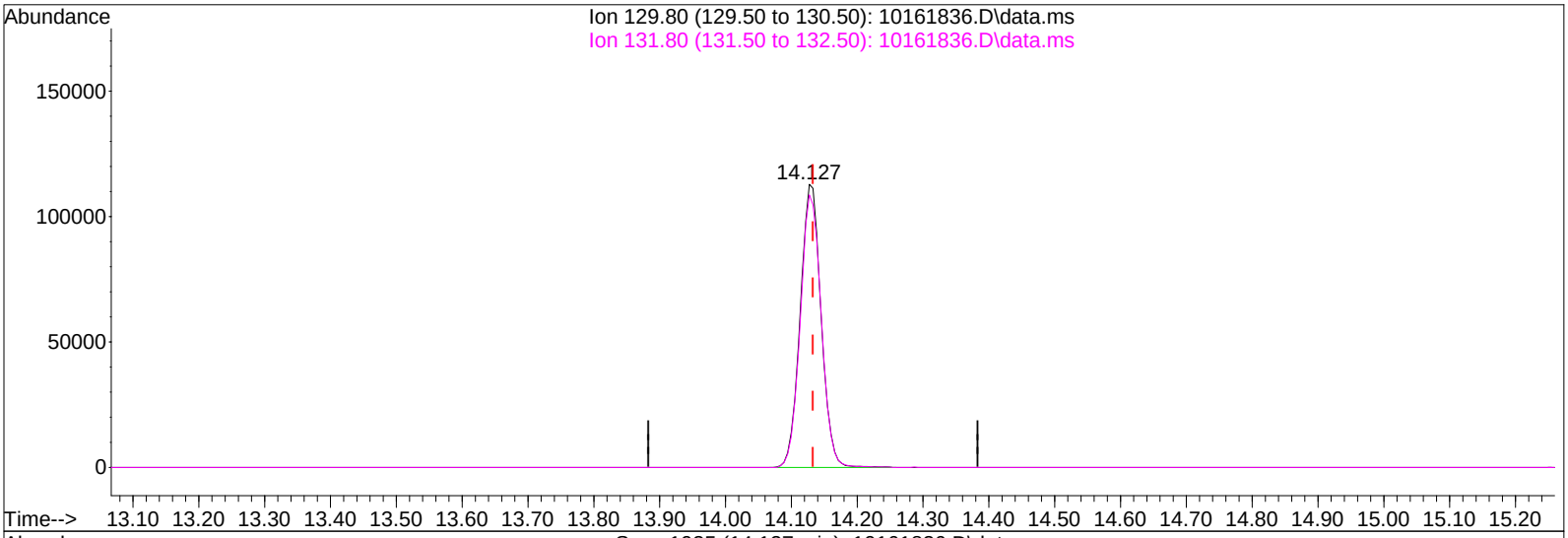
Quant Time: Oct 17 11:47:36 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

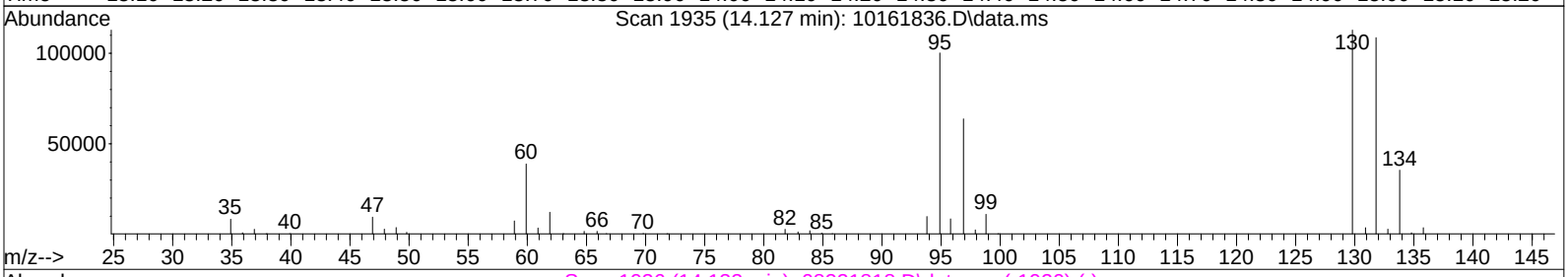


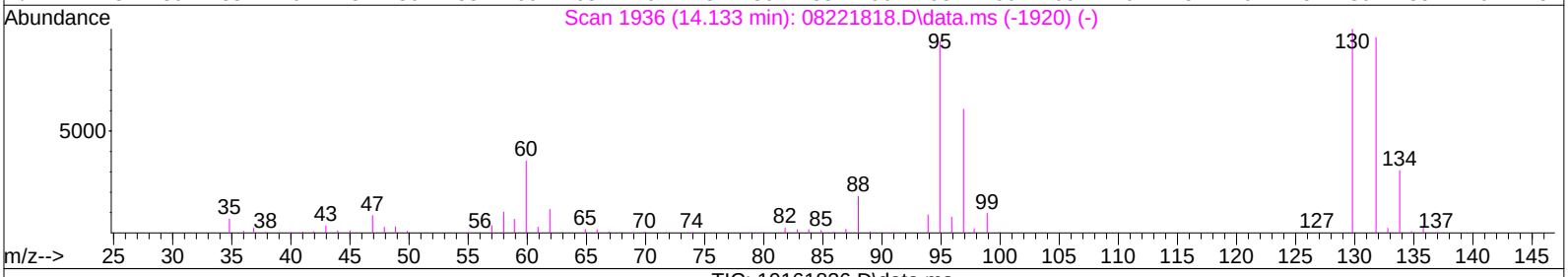
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\16\10161836.D
Acq On : 16 Oct 2018 21:27 Operator: LH/TD
Sample : P1805476-007dil (40mL)
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 17 06:33:19 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10161836.D\data.ms

(47) Trichloroethene (T)

14.127min (-0.005) 9.61ng

response 247917

Ion	Exp%	Act%
129.80	100	100
131.80	96.20	96.88
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161804.D
Acq On : 16 Oct 2018 1:45 Operator: LH/TD
Sample : MB R16101618_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 09:14:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

TD 10/16/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	196843	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.43	114	832742	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	337655	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	246553	12.660	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.28%				
57) Toluene-d8 (SS2)	15.87	98	720212	13.944	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.52%				
73) Bromofluorobenzene (SS3)	19.09	174	309600	14.748	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.00%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.			
3) Dichlorodifluoromethan...	0.00	85	0	N.D. d			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.46	45	2337	0.171	ng		84
11) Acetonitrile	0.00	41	0	N.D. d			
12) Acrolein	0.00	56	0	N.D. d			
13) Acetone	7.18	58	5912	0.384	ng	#	76
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D. d			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D. d			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D. d			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.07	56	957	0.049	ng	#	63
41) Benzene	13.05	78	1083	0.012	ng	#	52
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	0.00	84	0	N.D. d			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.13	130	186	0.008	ng		92
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161804.D
Acq On : 16 Oct 2018 1:45 Operator: LH/TD
Sample : MB R16101618_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 09:14:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

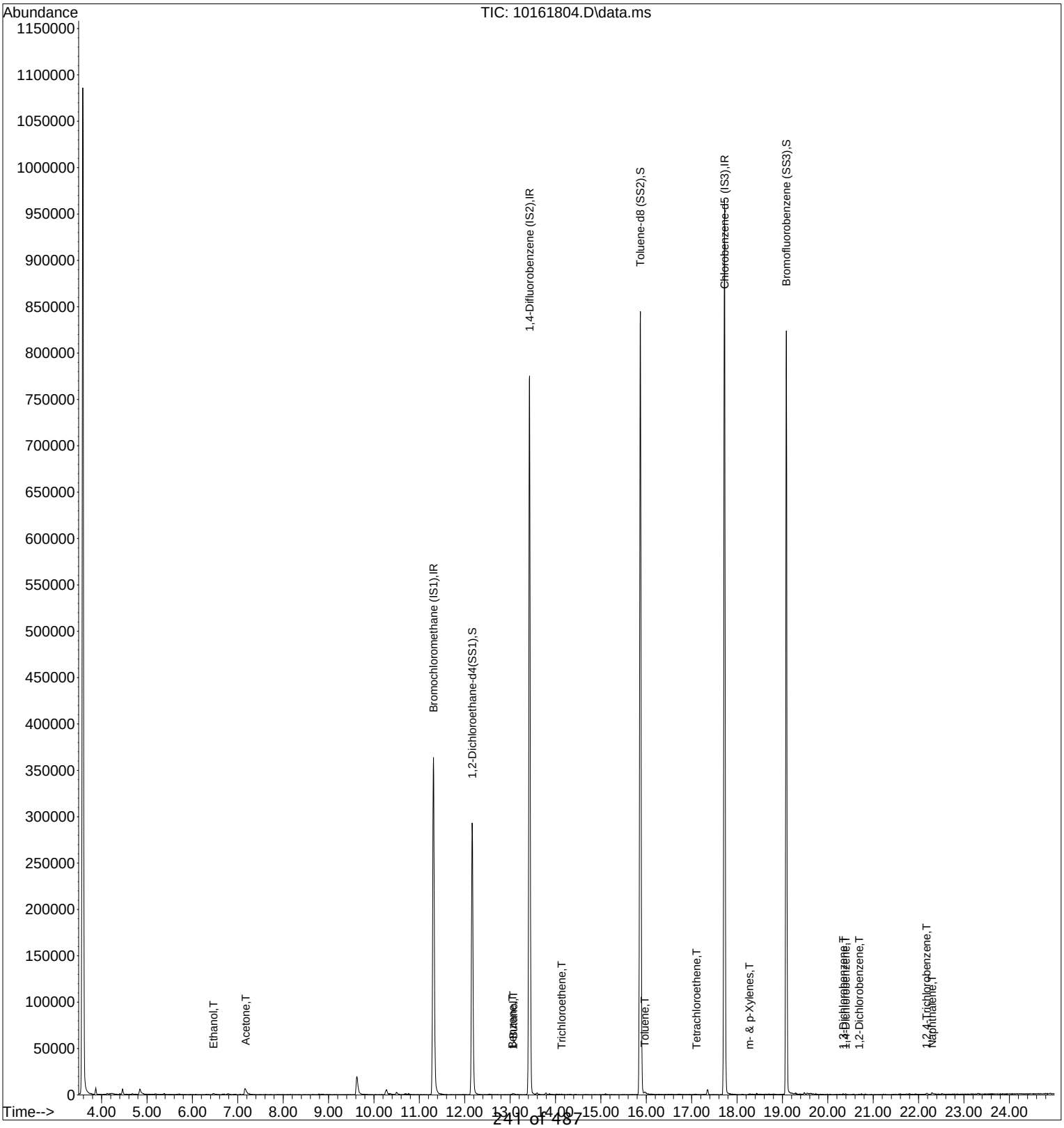
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.96	91	4759	0.054 ng	#	62
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.11	166	133	0.005 ng	#	10
65) Chlorobenzene	0.00	112	0	N.D. d		
66) Ethylbenzene	0.00	91	0	N.D. d		
67) m- & p-Xylenes	18.27	91	2227	0.031 ng	#	33
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D. d		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D. d		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D. d		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	0.00	105	0	N.D. d		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D. d		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D. d		
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	20.34	146	520	0.011 ng	#	53
86) 1,4-Dichlorobenzene	20.40	146	686	0.014 ng		98
87) sec-Butylbenzene	0.00	105	0	N.D. d		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	20.69	146	264	0.006 ng		96
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.18	180	829	0.027 ng	#	83
95) Naphthalene	22.30	128	3624	0.042 ng	#	71
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161804.D
Acq On : 16 Oct 2018 1:45 Operator: LH/TD
Sample : MB R16101618_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 09:14:50 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161804.D
Acq On : 16 Oct 2018 1:45 Operator: LH/TD
Sample : MB R16101618_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 11:56:30 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/16/18

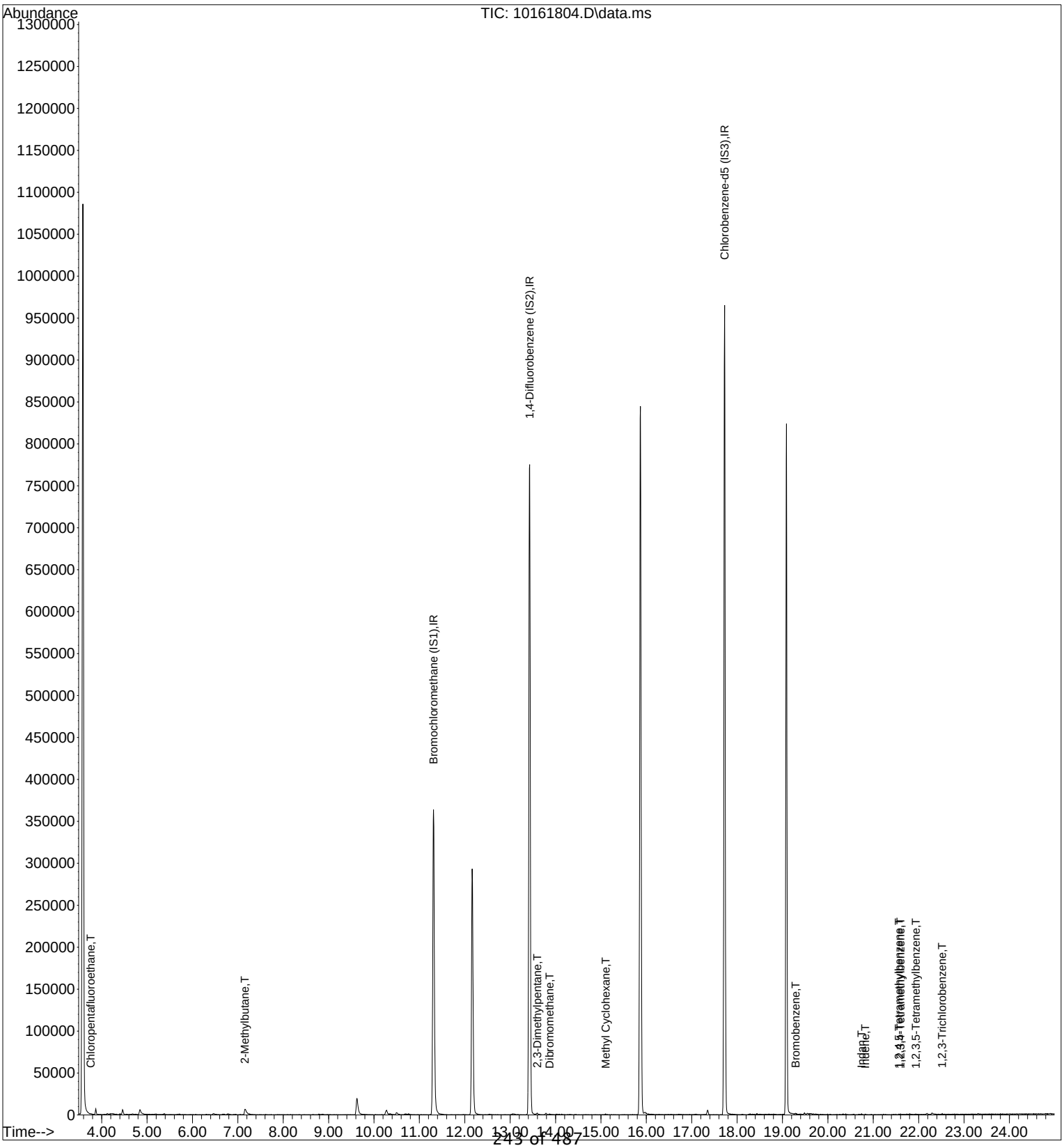
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	196843	12.500 ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	833526	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	337318	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.76	85	493	0.021 ng	#	32
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.		
4) 1,1-Difluoroethane	0.00	65	0	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	0.00	65	0	N.D. d		
7) Dichlorofluoromethane ...	0.00	67	0	N.D. d		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D. d		
10) 2-Methylbutane	7.15	57	55	0.003 ng	#	1
11) Methyl Acetate	0.00	43	0	N.D. d		
12) 2-Methylpentane	0.00	71	0	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D. d		
15) Thiophene	0.00	84	0	N.D. d		
17) 2,3-Dimethylpentane	13.60	56	704	0.019 ng	#	48
18) Dibromomethane	13.87	174	335	0.019 ng	#	47
20) Methyl Cyclohexane	15.11	55	444	0.016 ng	#	68
21) 1,3-Dichloropropane	0.00	76	0	N.D. d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D. d		
23) 1-Chlorohexane	0.00	91	0	N.D. d		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D. d		
25) Bromobenzene	19.29	77	532	0.016 ng	#	62
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	0.00	91	0	N.D. d		
28) Indan	20.74	117	712	0.010 ng	#	69
29) Indene	20.83	115	259	0.004 ng		96
30) 1,2,4,5-Tetramethylben...	21.57	119	341	0.004 ng	#	51
31) 1,2,3,4-Tetramethylben...	21.60	119	482	0.006 ng	#	47
32) 1,2,3,5-Tetramethylben...	21.94	119	476	0.006 ng	#	50
33) 1,2,3-Trichlorobenzene	22.52	180	448	0.013 ng	#	59

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161804.D
Acq On : 16 Oct 2018 1:45 Operator: LH/TD
Sample : MB R16101618_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 11:56:30 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161805.D
Acq On : 16 Oct 2018 2:18 Operator: LH/TD
Sample : LCS R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

TD 10/16/18

Quant Time: Oct 16 06:23:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	204416	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	827896	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	340364	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	255657	12.642	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
57) Toluene-d8 (SS2)	15.87	98	718183	13.794	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.32%				
73) Bromofluorobenzene (SS3)	19.09	174	315591	14.914	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.28%				
Target Compounds							Qvalue
2) Propene	4.04	42	472906	20.320	ng		98
3) Dichlorodifluoromethan...	4.20	85	989105	26.022	ng		100
4) Chloromethane	4.50	50	688680	24.146	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	583300	26.494	ng		100
6) Vinyl Chloride	4.95	62	701262	23.419	ng		99
7) 1,3-Butadiene	5.23	54	541092	24.392	ng		98
8) Bromomethane	5.69	94	491216	24.202	ng		100
9) Chloroethane	6.04	64	349255	21.921	ng		100
10) Ethanol	6.44	45	1709622	120.146	ng		100
11) Acetonitrile	6.71	41	854833	22.558	ng		99
12) Acrolein	6.90	56	309719	22.518	ng		100
13) Acetone	7.11	58	1806351	112.961	ng		88
14) Trichlorofluoromethane	7.35	101	873638	26.539	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2486448	50.590	ng		98
16) Acrylonitrile	7.90	53	661398	23.191	ng		99
17) 1,1-Dichloroethene	8.34	96	532168	24.872	ng		98
18) 2-Methyl-2-Propanol (t...	8.51	59	2592156	52.895	ng		99
19) Methylene Chloride	8.58	84	542124	24.009	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	703391	25.262	ng		100
21) Trichlorotrifluoroethane	8.99	151	544986	27.309	ng		94
22) Carbon Disulfide	8.84	76	1995675	24.093	ng		100
23) trans-1,2-Dichloroethene	9.87	61	731813	24.289	ng		97
24) 1,1-Dichloroethane	10.12	63	882989	23.892	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1514376	25.668	ng		98
26) Vinyl Acetate	10.38	86	636996	137.763	ng		98
27) 2-Butanone (MEK)	10.62	72	360188	24.203	ng		97
28) cis-1,2-Dichloroethene	11.15	61	691280	23.811	ng		95
29) Diisopropyl Ether	11.42	87	410486	23.347	ng		98
30) Ethyl Acetate	11.43	61	371946	48.736	ng		99
31) n-Hexane	11.41	57	732493	21.355	ng		100
32) Chloroform	11.49	83	908340	25.938	ng		100
34) Tetrahydrofuran (THF)	11.88	72	351566	23.799	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	621081	25.369	ng		97
36) 1,2-Dichloroethane	12.29	62	648023	26.705	ng		100
38) 1,1,1-Trichloroethane	12.57	97	795303	28.689	ng		99
39) Isopropyl Acetate	12.98	61	630950	46.690	ng	#	86
40) 1-Butanol	13.01	56	1029520	52.922	ng		99
41) Benzene	13.04	78	2087469	24.026	ng		100
42) Carbon Tetrachloride	13.20	117	740070	29.214	ng		100
43) Cyclohexane	13.33	84	1550560	49.145	ng		96
44) tert-Amyl Methyl Ether	13.67	73	1488613	25.746	ng		99
45) 1,2-Dichloropropane	13.89	63	495457	24.150	ng		100
46) Bromodichloromethane	14.09	83	727412	28.556	ng		99
47) Trichloroethene	14.13	130	640320	27.386	ng		100
48) 1,4-Dioxane	14.11	88	454084	26.449	ng		97

Data File: I:\MS16\DATA\2018_10\16\10161805.D
Acq On : 16 Oct 2018 2:18 Operator: LH/TD
Sample : LCS R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

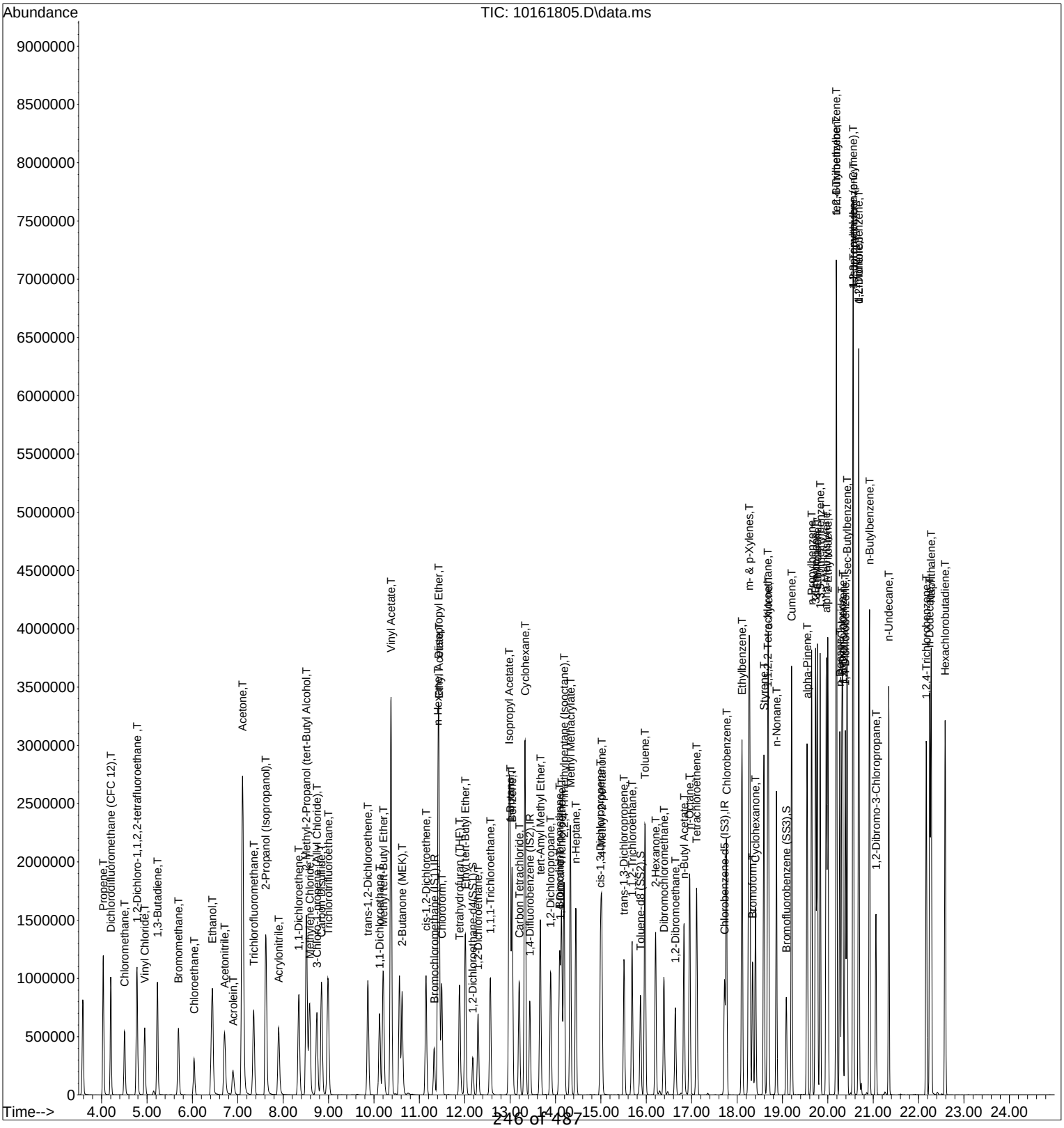
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	2019336	23.381	ng		99
50) Methyl Methacrylate	14.33	100	462078	53.420	ng		96
51) n-Heptane	14.45	71	469785	23.109	ng		99
52) cis-1,3-Dichloropropene	14.99	75	866329	26.880	ng		100
53) 4-Methyl-2-pentanone	15.02	58	476870	24.862	ng		95
54) trans-1,3-Dichloropropene	15.51	75	798006	28.258	ng		100
55) 1,1,2-Trichloroethane	15.69	97	544140	26.956	ng		98
58) Toluene	15.97	91	2179269	24.460	ng		99
59) 2-Hexanone	16.21	43	1097831	25.934	ng		97
60) Dibromochloromethane	16.39	129	713220	30.927	ng		99
61) 1,2-Dibromoethane	16.64	107	645360	28.320	ng		100
62) n-Butyl Acetate	16.83	43	1257482	26.636	ng		98
63) n-Octane	16.95	57	407995	23.413	ng		98
64) Tetrachloroethene	17.11	166	723954	28.218	ng		100
65) Chlorobenzene	17.77	112	1549044	26.589	ng		100
66) Ethylbenzene	18.11	91	2503669	25.435	ng		99
67) m- & p-Xylenes	18.27	91	3811457	52.176	ng		99
68) Bromoform	18.35	173	670580	33.096	ng		100
69) Styrene	18.59	104	1654945	28.019	ng		100
70) o-Xylene	18.69	91	1945385	26.366	ng		100
71) n-Nonane	18.87	43	926586	24.753	ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	969573	26.784	ng		99
74) Cumene	19.20	105	2610261	27.011	ng		100
75) alpha-Pinene	19.54	93	1326763	26.662	ng		99
76) n-Propylbenzene	19.64	91	3083418	27.342	ng		99
77) 3-Ethyltoluene	19.73	105	2505779	26.063	ng		99
78) 4-Ethyltoluene	19.77	105	2597101	29.230	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	2102362	26.763	ng		99
80) alpha-Methylstyrene	19.97	118	1256219	31.477	ng		99
81) 2-Ethyltoluene	20.00	105	2538319	27.395	ng	#	11
82) 1,2,4-Trimethylbenzene	20.19	105	2142466	28.025	ng		98
83) n-Decane	20.26	58	45988	26.273	ng	#	95
84) Benzyl Chloride	20.31	91	1944258	31.224	ng		98
85) 1,3-Dichlorobenzene	20.33	146	1411977	29.746	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	1417392	29.703	ng		100
87) sec-Butylbenzene	20.42	105	2890200	27.410	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	2733026	28.444	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	2192778	28.962	ng		99
90) 1,2-Dichlorobenzene	20.68	146	1352776	30.320	ng		100
91) d-Limonene	20.68	68	801441	27.826	ng		95
92) 1,2-Dibromo-3-Chloropr...	21.06	157	531748	32.516	ng		95
93) n-Undecane	21.34	57	1104562	28.118	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	1130210	36.548	ng		100
95) Naphthalene	22.28	128	3245625	36.961	ng		100
96) n-Dodecane	22.24	57	1094847	35.242	ng		99
97) Hexachlorobutadiene	22.58	225	722794	32.050	ng		100
98) Cyclohexanone	18.41	55	742564	24.363	ng		97
99) tert-Butylbenzene	20.19	119	2122111	28.123	ng		100
100) n-Butylbenzene	20.92	91	2301433	28.122	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161805.D
Acq On : 16 Oct 2018 2:18 Operator: LH/TD
Sample : LCS R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161806.D
Acq On : 16 Oct 2018 2:51 Operator: LH/TD
Sample : LCSD R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

TD 10/16/18

Quant Time: Oct 16 06:23:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	206475	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	844274	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	348001	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	259279	12.693	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
57) Toluene-d8 (SS2)	15.87	98	727596	13.668	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.36%				
73) Bromofluorobenzene (SS3)	19.09	174	320020	14.792	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.32%				
Target Compounds							Qvalue
2) Propene	4.04	42	479130	20.382	ng		99
3) Dichlorodifluoromethan...	4.20	85	989742	25.779	ng		100
4) Chloromethane	4.50	50	697289	24.204	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	582888	26.211	ng		100
6) Vinyl Chloride	4.95	62	709242	23.449	ng		99
7) 1,3-Butadiene	5.23	54	552597	24.662	ng		97
8) Bromomethane	5.69	94	509245	24.840	ng		100
9) Chloroethane	6.04	64	361626	22.471	ng		100
10) Ethanol	6.44	45	1774667	123.473	ng		100
11) Acetonitrile	6.71	41	888535	23.213	ng		99
12) Acrolein	6.90	56	315947	22.741	ng		100
13) Acetone	7.11	58	1856365	114.931	ng		89
14) Trichlorofluoromethane	7.35	101	888249	26.713	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	2554919	51.465	ng		99
16) Acrylonitrile	7.90	53	683895	23.741	ng		99
17) 1,1-Dichloroethene	8.35	96	542047	25.081	ng		98
18) 2-Methyl-2-Propanol (t...	8.51	59	2652563	53.588	ng		99
19) Methylene Chloride	8.58	84	553904	24.286	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	710567	25.265	ng		100
21) Trichlorotrifluoroethane	8.99	151	556744	27.620	ng		93
22) Carbon Disulfide	8.85	76	2035065	24.324	ng		100
23) trans-1,2-Dichloroethene	9.87	61	742453	24.396	ng		97
24) 1,1-Dichloroethane	10.12	63	896379	24.012	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1535755	25.771	ng		98
26) Vinyl Acetate	10.38	86	648414	138.834	ng		98
27) 2-Butanone (MEK)	10.62	72	366657	24.392	ng		98
28) cis-1,2-Dichloroethene	11.15	61	701535	23.923	ng		96
29) Diisopropyl Ether	11.42	87	420352	23.670	ng		98
30) Ethyl Acetate	11.44	61	378936	49.157	ng		99
31) n-Hexane	11.41	57	747615	21.579	ng		100
32) Chloroform	11.49	83	920059	26.011	ng		100
34) Tetrahydrofuran (THF)	11.89	72	354577	23.764	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	634261	25.649	ng		96
36) 1,2-Dichloroethane	12.29	62	656783	26.796	ng		100
38) 1,1,1-Trichloroethane	12.57	97	801964	28.368	ng		99
39) Isopropyl Acetate	12.98	61	640677	46.490	ng	#	86
40) 1-Butanol	13.01	56	1055088	53.184	ng		99
41) Benzene	13.04	78	2119710	23.924	ng		100
42) Carbon Tetrachloride	13.20	117	742212	28.730	ng		100
43) Cyclohexane	13.33	84	1565445	48.654	ng		97
44) tert-Amyl Methyl Ether	13.67	73	1519593	25.772	ng		99
45) 1,2-Dichloropropane	13.89	63	503718	24.076	ng		100
46) Bromodichloromethane	14.09	83	740108	28.490	ng		99
47) Trichloroethene	14.13	130	645347	27.066	ng		100
48) 1,4-Dioxane	14.11	88	463120	26.452	ng		96

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161806.D
Acq On : 16 Oct 2018 2:51 Operator: LH/TD
Sample : LCSD R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

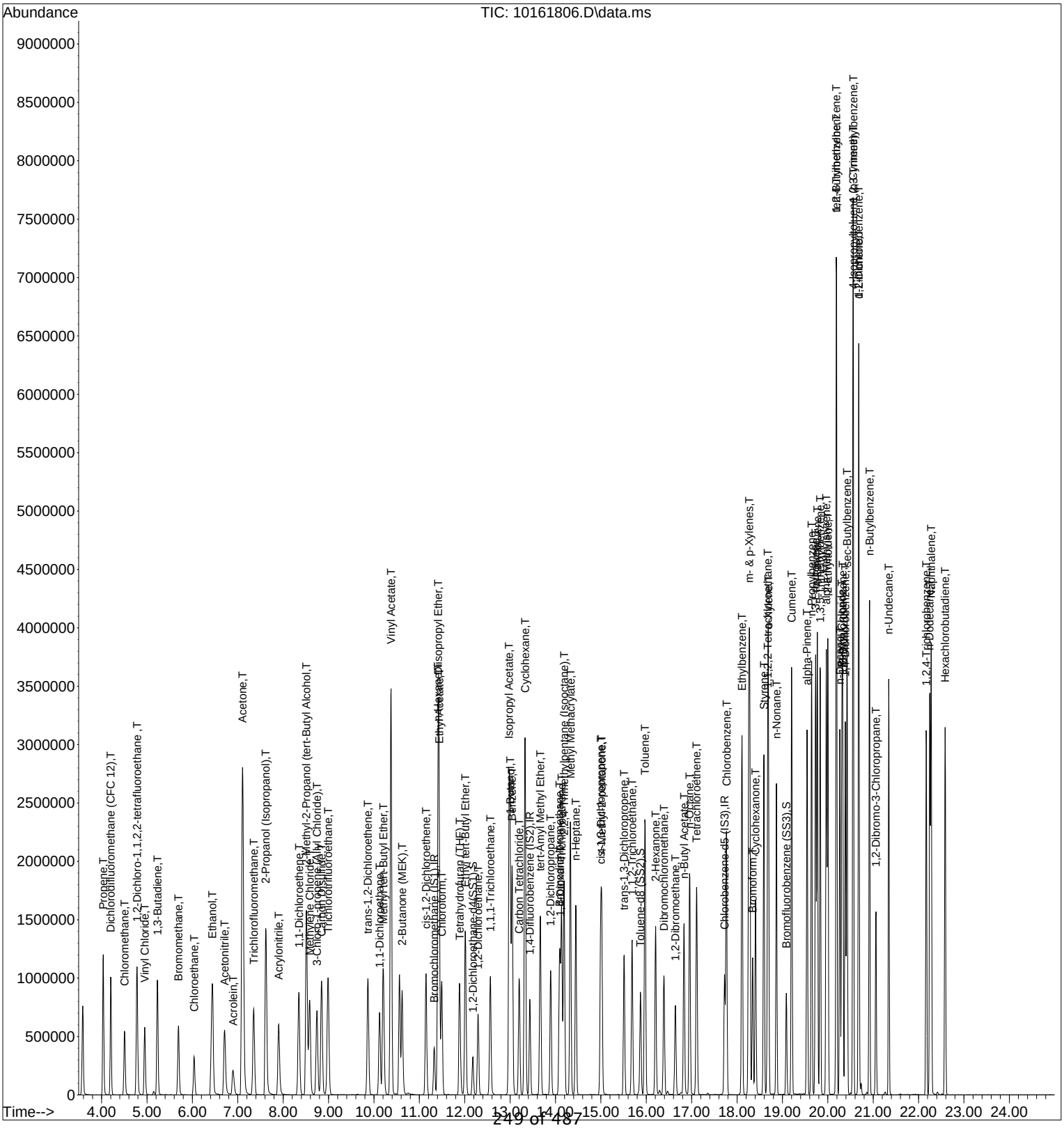
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	2044012	23.208	ng		99
50) Methyl Methacrylate	14.33	100	469417	53.216	ng		96
51) n-Heptane	14.45	71	474736	22.899	ng		99
52) cis-1,3-Dichloropropene	15.00	75	879610	26.763	ng		100
53) 4-Methyl-2-pentanone	15.02	58	483749	24.732	ng		95
54) trans-1,3-Dichloropropene	15.51	75	814559	28.285	ng		100
55) 1,1,2-Trichloroethane	15.69	97	550874	26.760	ng		98
58) Toluene	15.97	91	2209359	24.253	ng		99
59) 2-Hexanone	16.21	43	1123692	25.963	ng		97
60) Dibromochloromethane	16.39	129	720793	30.570	ng		99
61) 1,2-Dibromoethane	16.64	107	656108	28.160	ng		99
62) n-Butyl Acetate	16.83	43	1277062	26.457	ng		98
63) n-Octane	16.95	57	414046	23.239	ng		99
64) Tetrachloroethene	17.11	166	732772	27.935	ng		100
65) Chlorobenzene	17.77	112	1570654	26.369	ng		100
66) Ethylbenzene	18.11	91	2546559	25.303	ng		100
67) m- & p-Xylenes	18.27	91	3863533	51.729	ng		99
68) Bromoform	18.35	173	680807	32.864	ng		99
69) Styrene	18.59	104	1684732	27.897	ng		100
70) o-Xylene	18.69	91	1966694	26.070	ng		100
71) n-Nonane	18.87	43	936924	24.480	ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	982534	26.547	ng		99
74) Cumene	19.20	105	2623343	26.551	ng		99
75) alpha-Pinene	19.54	93	1348558	26.506	ng		99
76) n-Propylbenzene	19.64	91	3113732	27.005	ng		99
77) 3-Ethyltoluene	19.73	105	2520976	25.645	ng		94
78) 4-Ethyltoluene	19.77	105	2639927	29.060	ng		96
79) 1,3,5-Trimethylbenzene	19.83	105	2125151	26.459	ng		99
80) alpha-Methylstyrene	19.97	118	1268949	31.098	ng		99
81) 2-Ethyltoluene	20.00	105	2557435	26.996	ng	#	11
82) 1,2,4-Trimethylbenzene	20.19	105	2164494	27.692	ng		99
83) n-Decane	20.26	58	46338	25.892	ng	#	93
84) Benzyl Chloride	20.31	91	1981014	31.116	ng		98
85) 1,3-Dichlorobenzene	20.33	146	1428969	29.443	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	1437531	29.464	ng		100
87) sec-Butylbenzene	20.42	105	2888896	26.797	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	2743196	27.923	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	2198731	28.403	ng		99
90) 1,2-Dichlorobenzene	20.68	146	1361134	29.838	ng		100
91) d-Limonene	20.68	68	808557	27.457	ng		95
92) 1,2-Dibromo-3-Chloropr...	21.06	157	537140	32.125	ng		95
93) n-Undecane	21.34	57	1101773	27.432	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	1151205	36.410	ng		100
95) Naphthalene	22.28	128	3313066	36.901	ng		100
96) n-Dodecane	22.24	57	1097936	34.566	ng		99
97) Hexachlorobutadiene	22.58	225	726527	31.508	ng		100
98) Cyclohexanone	18.41	55	766740	24.604	ng		97
99) tert-Butylbenzene	20.19	119	2141140	27.753	ng		100
100) n-Butylbenzene	20.92	91	2316083	27.680	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161806.D
Acq On : 16 Oct 2018 2:51 Operator: LH/TD
Sample : LCSD R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10151801 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES



Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16082218.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Aug 23 07:14:09 2018
Response Via : Initial Calibration

8/23/18

Calibration Files
0.1 =08221813.D 0.2 =08221814.D 0.5 =08221822.D 1.0 =08221816.D 5.0 =08221817.D 25 =08221818.D 50 =08221819.D
100 =08221820.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	2.373	1.439	1.359	1.280	1.340	1.123	1.209	1.261	1.423	27.80
3)	T	Dichlorodifluo...	3.247	2.436	2.371	2.248	2.255	2.061	2.023	1.954	2.324	17.62
4)	T	Chloromethane	2.310	2.109	2.004	1.858	1.620	1.604	1.490	0.958	1.744	24.24
5)	T	1,2-Dichloro-1...	1.975	1.451	1.383	1.259	1.254	1.134	1.158	1.158	1.346	20.64
6)	T	Vinyl Chloride	2.697	2.012	1.918	1.689	1.665	1.518	1.568	1.582	1.831	21.32
7)	T	1,3-Butadiene	1.687	1.432	1.441	1.252	1.241	1.324	1.247	1.229	1.357	11.67
8)	T	Bromomethane	1.584	1.359	1.265	1.218	1.196	1.116	1.106	1.084	1.241	13.37
9)	T	Chloroethane	1.369	1.057	0.985	0.930	0.934	0.848	0.845	0.825	0.974	18.26
10)	T	Ethanol	1.165	0.995	0.914	0.822	0.787	0.791	0.764	0.723	0.870	16.99
11)	T	Acetonitrile	3.362	2.363	2.278	2.101	2.113	2.100	2.116	2.106	2.317	18.72
12)	T	Acrolein	1.105	0.864	0.850	0.810	0.826	0.750	0.764	0.759	0.841	13.66
13)	T	Acetone	1.488	1.099	1.018	0.950	0.947	0.828	0.783	0.710	0.978	24.76
14)	T	Trichlorofluor...	2.904	2.149	2.037	1.911	1.916	1.744	1.734	1.708	2.013	19.48
15)	T	2-Propanol (Is...	3.814	3.395	3.324	3.100	2.956	2.831	2.516	2.107	3.005	17.77
16)	T	Acrylonitrile	2.273	1.747	1.719	1.643	1.714	1.624	1.626	1.606	1.744	12.63
17)	T	1,1-Dichloroet...	1.942	1.345	1.284	1.232	1.240	1.152	1.147	1.126	1.308	20.38
18)	T	2-Methyl-2-Pro...	3.882	3.527	3.301	3.166	3.148	2.750	2.568	1.632	2.997	22.97
19)	T	Methylene Chlo...	2.069	1.457	1.361	1.309	1.300	1.202	1.188	1.161	1.381	21.35
20)	T	3-Chloro-1-pro...	2.270	1.724	1.755	1.608	1.631	1.560	1.552	1.521	1.703	14.30
21)	T	Trichlorotrifl...	1.657	1.314	1.227	1.192	1.182	1.087	1.070	1.033	1.220	16.32
22)	T	Carbon Disulfide	7.555	5.402	5.030	4.752	4.805	4.444	4.356	4.177	5.065	21.31
23)	T	trans-1,2-Dich...	2.588	1.948	1.841	1.746	1.778	1.645	1.616	1.577	1.842	17.66
24)	T	1,1-Dichloroet...	3.207	2.393	2.314	2.145	2.183	1.994	1.950	1.894	2.260	18.59
25)	T	Methyl tert-Bu...	4.213	3.988	3.795	3.617	3.626	3.295	3.217	3.112	3.608	10.70
26)	T	Vinyl Acetate	0.300	0.298	0.303	0.292	0.299	0.275	0.261	0.235	0.283	8.55
27)	T	2-Butanone (MEK)	1.079	0.926	0.952	0.901	0.927	0.849	0.836	0.811	0.910	9.30
28)	T	cis-1,2-Dichlo...	2.467	1.884	1.781	1.683	1.731	1.587	1.555	1.515	1.775	17.20
29)	T	Diisopropyl Ether	1.460	1.369	1.139	1.044	1.038	0.904	0.860	0.789	1.075	22.18
30)	T	Ethyl Acetate	0.633	0.487	0.497	0.473	0.480	0.417	0.394	0.353	0.467	18.06
31)	T	n-Hexane	3.184	2.394	2.214	2.071	2.070	1.726	1.634	1.487	2.097	25.53
32)	T	Chloroform	3.055	2.251	2.150	2.040	2.068	1.893	1.863	1.811	2.141	18.61
33)	S	1,2-Dichloroet...	1.247	1.237	1.238	1.229	1.246	1.235	1.233	1.228	1.237	0.55
34)	T	Tetrahydrofura...	1.243	0.939	0.941	0.863	0.873	0.800	0.792	0.774	0.903	16.75
35)	T	Ethyl tert-But...	1.737	1.593	1.582	1.491	1.520	1.382	1.355	1.317	1.497	9.44
36)	T	1,2-Dichloroet...	2.076	1.528	1.495	1.422	1.442	1.320	1.301	1.287	1.484	17.24
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.532	0.449	0.429	0.405	0.406	0.380	0.377	0.370	0.419	12.74
39)	T	Isopropyl Acetate	0.280	0.221	0.216	0.205	0.203	0.179	0.172	0.156	0.204	18.75
40)	T	1-Butanol	0.411	0.315	0.309	0.287	0.297	0.258	0.248	0.224	0.294	19.38
41)	T	Benzene	1.902	1.488	1.344	1.267	1.245	1.137	1.109	1.003	1.312	21.43
42)	T	Carbon Tetrach...	0.484	0.409	0.389	0.362	0.373	0.352	0.349	0.343	0.382	12.21

Lab # 87454

Method Path : I:\MS16\METHODS\
Method File : R16082218.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.662	0.521	0.500	0.474	0.468	0.421	0.401	0.363	0.476	19.25
44)	T	tert-Amyl Meth...	1.168	0.928	0.901	0.851	0.845	0.784	0.769	0.739	0.873	15.55
45)	T	1,2-Dichloropr...	0.425	0.331	0.323	0.298	0.298	0.275	0.268	0.259	0.310	17.08
46)	T	Bromodichlorom...	0.491	0.404	0.390	0.376	0.374	0.353	0.349	0.340	0.385	12.52
47)	T	Trichloroethene	0.488	0.376	0.372	0.345	0.341	0.310	0.303	0.289	0.353	17.85
48)	T	1,4-Dioxane	0.361	0.273	0.263	0.254	0.252	0.231	0.226	0.213	0.259	17.60
49)	T	2,2,4-Trimethy...	2.040	1.399	1.338	1.257	1.233	1.116	1.067	0.982	1.304	25.18
50)	T	Methyl Methacr...	0.177	0.132	0.134	0.127	0.129	0.118	0.117	0.110	0.131	15.71
51)	T	n-Heptane	0.454	0.329	0.319	0.297	0.294	0.263	0.256	0.244	0.307	21.69
52)	T	cis-1,3-Dichlo...	0.583	0.510	0.505	0.480	0.488	0.456	0.445	0.427	0.487	9.98
53)	T	4-Methyl-2-pen...	0.409	0.303	0.298	0.284	0.287	0.255	0.248	0.232	0.290	18.79
54)	T	trans-1,3-Dich...	0.467	0.434	0.441	0.417	0.434	0.410	0.407	0.400	0.426	5.16
55)	T	1,1,2-Trichlor...	0.405	0.323	0.310	0.297	0.296	0.274	0.271	0.263	0.305	14.86
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	1.905	1.930	1.896	1.917	1.922	1.915	1.907	1.905	1.912	0.56
58)	T	Toluene	4.928	3.610	3.424	3.100	3.081	2.799	2.707	2.527	3.272	23.22
59)	T	2-Hexanone	2.242	1.644	1.558	1.521	1.554	1.358	1.322	1.238	1.555	19.97
60)	T	Dibromochlorom...	1.053	0.845	0.821	0.804	0.854	0.814	0.802	0.782	0.847	10.23
61)	T	1,2-Dibromoethane	1.116	0.848	0.835	0.802	0.830	0.769	0.758	0.738	0.837	14.25
62)	T	n-Butyl Acetate	2.473	1.834	1.763	1.704	1.752	1.518	1.465	1.361	1.734	19.69
63)	T	n-Octane	0.994	0.673	0.652	0.616	0.616	0.552	0.528	0.490	0.640	24.39
64)	T	Tetrachloroethene	1.386	1.001	0.932	0.896	0.902	0.831	0.812	0.777	0.942	20.50
65)	T	Chlorobenzene	3.119	2.309	2.152	2.066	2.057	1.882	1.816	1.715	2.140	20.54
66)	T	Ethylbenzene	5.235	3.845	3.692	3.497	3.528	3.217	3.095	2.812	3.615	20.32
67)	T	m- & p-Xylenes	4.018	2.877	2.787	2.611	2.606	2.357	2.232	1.975	2.683	22.94
68)	T	Bromoform	0.875	0.731	0.702	0.702	0.764	0.741	0.729	0.709	0.744	7.67
69)	T	Styrene	3.009	2.217	2.128	2.081	2.168	2.022	1.943	1.787	2.169	16.86
70)	T	o-Xylene	4.083	2.923	2.756	2.656	2.650	2.377	2.240	1.991	2.710	23.28
71)	T	n-Nonane	2.100	1.499	1.401	1.353	1.365	1.209	1.110	0.960	1.375	24.78
72)	T	1,1,2,2-Tetrac...	1.853	1.390	1.340	1.321	1.345	1.222	1.151	1.013	1.329	18.45
73)	S	Bromofluoroben...	0.769	0.779	0.782	0.780	0.782	0.782	0.773	0.769	0.777	0.74
74)	T	Cumene	5.209	3.855	3.573	3.480	3.486	3.160	2.983	2.647	3.549	21.68
75)	T	alpha-Pinene	2.653	1.969	1.770	1.725	1.773	1.671	1.601	1.458	1.828	19.95
76)	T	n-Propylbenzene	6.062	4.405	4.208	4.086	4.129	3.730	3.505	3.007	4.142	21.65
77)	T	3-Ethyltoluene	5.395	3.641	3.473	3.400	3.437	3.310	3.028	2.565	3.531	23.33
78)	T	4-Ethyltoluene	4.467	3.656	3.401	3.244	3.332	2.803	2.727	2.475	3.263	19.20
79)	T	1,3,5-Trimethy...	4.300	3.065	2.900	2.832	2.802	2.571	2.435	2.176	2.885	22.11
80)	T	alpha-Methylst...	2.106	1.539	1.362	1.350	1.431	1.403	1.331	1.204	1.466	18.80
81)	T	2-Ethyltoluene	5.043	3.681	3.441	3.366	3.339	3.037	2.843	2.471	3.403	22.46
82)	T	1,2,4-Trimethy...	4.103	2.992	3.040	2.787	2.784	2.521	2.299	1.936	2.808	22.79
83)	T	n-Decane	0.087	0.064	0.067	0.065	0.065	0.061	0.056	0.048	0.064	17.19
84)	T	Benzyl Chloride	2.560	2.249	2.217	2.232	2.453	2.346	2.236	2.002	2.287	7.38
85)	T	1,3-Dichlorobe...	2.521	1.843	1.812	1.694	1.723	1.570	1.465	1.317	1.743	20.70
86)	T	1,4-Dichlorobe...	2.501	1.865	1.841	1.674	1.697	1.583	1.496	1.362	1.752	19.73
87)	T	sec-Butylbenzene	5.724	4.206	3.979	3.840	3.847	3.463	3.197	2.723	3.872	22.89
88)	T	4-Isopropyltol...	5.261	3.921	3.674	3.578	3.595	3.147	2.783	2.270	3.529	25.04
89)	T	1,2,3-Trimethy...	4.083	3.002	2.847	2.779	2.772	2.525	2.297	1.940	2.781	22.57
90)	T	1,2-Dichlorobe...	2.370	1.801	1.694	1.627	1.628	1.474	1.352	1.162	1.639	21.89
91)	T	d-Limonene	1.542	1.192	1.017	1.011	1.047	1.010	0.901	0.742	1.058	22.12
92)	T	1,2-Dibromo-3-...	0.752	0.585	0.575	0.573	0.617	0.584	0.573	0.546	0.601	10.67
93)	T	n-Undecane	2.056	1.604	1.325	1.326	1.363	1.438	1.313	1.117	1.443	19.57
94)	T	1,2,4-Trichlor...	1.482	1.096	1.107	0.987	1.030	1.170	1.137	1.077	1.136	13.33

Lab #: 42487

Method Path : I:\MS16\METHODS\
Method File : R16082218.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene	4.309	3.078	3.080	2.546	2.681	3.657	3.450	2.999	3.225	17.63
96)	T	n-Dodecane	1.714	1.331	0.795	0.793	0.876	1.327	1.228	1.063	1.141	28.19
97)	T	Hexachlorobuta...	1.154	0.883	0.788	0.786	0.796	0.771	0.746	0.700	0.828	17.07
98)	T	Cyclohexanone	1.533	1.280	1.144	1.113	1.132	0.959	0.926	0.867	1.119	19.24
99)	T	tert-Butylbenzene	4.173	3.087	2.897	2.751	2.771	2.444	2.199	1.847	2.771	25.04
100)	T	n-Butylbenzene	4.251	3.229	3.013	2.935	2.993	2.785	2.588	2.251	3.005	19.48

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

8/24/18

1ng/L Std. ID:
4ng/L Std. ID: S31-08201810
20ng/L Std. ID: S31-08201807
200ng/L Std. ID: S31-08201803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045		0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008		0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049		0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009		0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022		0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140		0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370		0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063		0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034		0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144		0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070		0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065		0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030		0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252		0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027		0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054		0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166		0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082		0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077		0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066		0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067		0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7
Benzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036		0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087		0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073		0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Isooctane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135		0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6

Date Updated: 08/22/18
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-08201810
20ng/L Std. ID: S31-08201807
200ng/L Std. ID: S31-08201803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.1120	0.2240	0.5600	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055		0.1055	0.2110	0.5275	1.055	5.275	26.375	52.75	105.5
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052		0.1052	0.2104	0.5260	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085		0.1085	0.2170	0.5425	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.1066	0.2132	0.5330	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.2123	0.4246	1.0615	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071		0.1071	0.2142	0.5355	1.071	5.355	26.775	53.55	107.1
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Pinene	1.035	207.0	20.70	4.140	1.035		0.1035	0.2070	0.5175	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072		0.1072	0.2144	0.5360	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080		0.1080	0.2160	0.5400	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010		0.1010	0.2020	0.5050	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025		0.1025	0.2050	0.5125	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053		0.1053	0.2106	0.5265	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041		0.1041	0.2082	0.5205	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982		0.0982	0.1964	0.4910	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\R16082218.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2018_08\22\08221813.D
2	0.2	0	13	I:\MS16\DATA\2018_08\22\08221814.D
3	0.5	1	13	I:\MS16\DATA\2018_08\22\08221822.D
4	1.0	1	13	I:\MS16\DATA\2018_08\22\08221816.D
5	5.0	5	13	I:\MS16\DATA\2018_08\22\08221817.D
6	25	26	13	I:\MS16\DATA\2018_08\22\08221818.D
7	50	52	13	I:\MS16\DATA\2018_08\22\08221819.D
8	100	103	13	I:\MS16\DATA\2018_08\22\08221820.D

8/23/18

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Aug 23 07:06 2018	Aug 23 06:39 2018	22 Aug 2018 13:51
2	0.2	Aug 23 07:07 2018	Aug 23 06:39 2018	22 Aug 2018 14:24
3	0.5	Aug 23 07:14 2018	Aug 23 06:39 2018	22 Aug 2018 19:05
4	1.0	Aug 23 07:07 2018	Aug 23 06:39 2018	22 Aug 2018 15:43
5	5.0	Aug 23 07:07 2018	Aug 23 06:39 2018	22 Aug 2018 16:17
6	25	Aug 23 07:07 2018	Aug 23 06:39 2018	22 Aug 2018 16:50
7	50	Aug 23 07:08 2018	Aug 23 06:39 2018	22 Aug 2018 17:24
8	100	Aug 23 07:08 2018	Aug 23 06:39 2018	22 Aug 2018 17:57

R16082218.M Thu Aug 23 07:23:35 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221813.D
Acq On : 22 Aug 2018 13:51 Operator: WA
Sample : 0.1ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration 8/23/18
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	322500	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.43	114	1380568	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	572338	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	402189	10.072	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.56%				
57) Toluene-d8 (SS2)	15.87	98	1090446	10.548	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.40%				
73) Bromofluorobenzene (SS3)	19.09	174	440268	11.417	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.36%				
Target Compounds							Qvalue
2) Propene	4.10	42	6312	0.152	ng		99
3) Dichlorodifluoromethan...	4.26	85	8753	0.145	ng		97
4) Chloromethane	4.55	50	6007	0.099	ng		93
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	5239	0.160	ng		98
6) Vinyl Chloride	4.99	62	7313	0.157	ng		98
7) 1,3-Butadiene	5.27	54	4566	0.115	ng		94
8) Bromomethane	5.72	94	4123	0.140	ng		100
9) Chloroethane	6.08	64	3611	0.133	ng		95
10) Ethanol	6.44	45	15453	0.460	ng		96
11) Acetonitrile	6.73	41	8961	0.112	ng		89
12) Acrolein	6.93	56	2931	0.135	ng		100
13) Acetone	7.14	58	20617	0.707	ng		98
14) Trichlorofluoromethane	7.37	101	7943	0.156	ng		98
15) 2-Propanol (Isopropanol)	7.67	45	20299	0.194	ng		97
16) Acrylonitrile	7.92	53	6065	0.135	ng		100
17) 1,1-Dichloroethene	8.36	96	5381	0.204	ng		98
18) 2-Methyl-2-Propanol (t...	8.58	59	21472	0.223	ng		96
19) Methylene Chloride	8.58	84	5711	0.163	ng		99
20) 3-Chloro-1-propene (Al...	8.75	41	6248	0.151	ng		93
21) Trichlorotrifluoroethane	9.01	151	4554	0.153	ng		98
22) Carbon Disulfide	8.87	76	20953	0.178	ng		98
23) trans-1,2-Dichloroethene	9.87	61	7091	0.181	ng		98
24) 1,1-Dichloroethane	10.12	63	8521	0.160	ng		98
25) Methyl tert-Butyl Ether	10.25	73	11837	0.117	ng		100
26) Vinyl Acetate	10.39	86	4063	0.476	ng	#	68
27) 2-Butanone (MEK)	10.66	72	2860	0.124	ng	#	67
28) cis-1,2-Dichloroethene	11.14	61	6709	0.157	ng		94
29) Diisopropyl Ether	11.43	87	4071	0.119	ng	#	87
30) Ethyl Acetate	11.45	61	3536	0.296	ng		95
31) n-Hexane	11.42	57	8888	0.220	ng		98
32) Chloroform	11.48	83	8490	0.154	ng		100
34) Tetrahydrofuran (THF)	11.93	72	3425	0.172	ng	#	91
35) Ethyl tert-Butyl Ether	12.03	87	4750	0.114	ng	#	90
36) 1,2-Dichloroethane	12.29	62	5684	0.128	ng		99
38) 1,1,1-Trichloroethane	12.56	97	6353	0.125	ng		99
39) Isopropyl Acetate	12.99	61	6398	0.284	ng	#	92
40) 1-Butanol	13.03	56	9383	0.216	ng	#	68
41) Benzene	13.04	78	21697	0.160	ng		99
42) Carbon Tetrachloride	13.20	117	5542	0.125	ng		96
43) Cyclohexane	13.33	84	15268	0.259	ng		98
44) tert-Amyl Methyl Ether	13.68	73	13855	0.141	ng		95
45) 1,2-Dichloropropane	13.90	63	5031	0.147	ng		99
46) Bromodichloromethane	14.08	83	5792	0.131	ng		96
47) Trichloroethene	14.13	130	5723	0.163	ng		99
48) 1,4-Dioxane	14.14	88	4237	0.142	ng		96
49) 2,2,4-Trimethylpentane...	14.19	57	23909	0.154	ng		96

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221813.D
Acq On : 22 Aug 2018 13:51 Operator: WA
Sample : 0.1ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

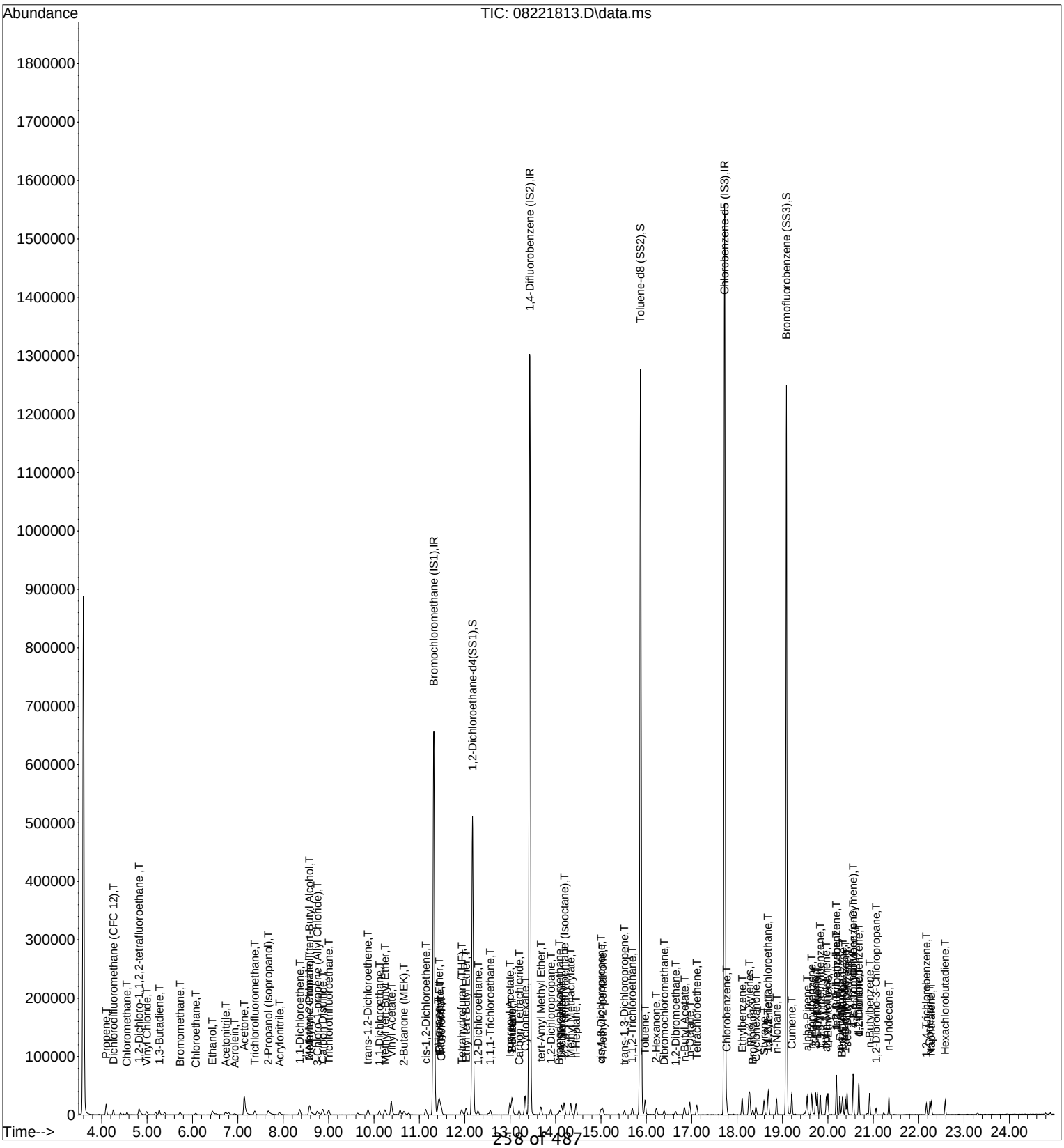
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	4175	0.293	ng		99
51) n-Heptane	14.45	71	5394	0.160	ng		97
52) cis-1,3-Dichloropropene	15.00	75	7211	0.138	ng		99
53) 4-Methyl-2-pentanone	15.03	58	4789	0.141	ng		92
54) trans-1,3-Dichloropropene	15.52	75	5441	0.120	ng		98
55) 1,1,2-Trichloroethane	15.69	97	4812	0.142	ng		96
58) Toluene	15.97	91	23735	0.198	ng		98
59) 2-Hexanone	16.22	43	11025	0.163	ng		93
60) Dibromochloromethane	16.39	129	5185	0.174	ng		97
61) 1,2-Dibromoethane	16.65	107	5496	0.190	ng		99
62) n-Butyl Acetate	16.84	43	12285	0.167	ng		97
63) n-Octane	16.96	57	4897	0.200	ng		89
64) Tetrachloroethene	17.11	166	6716	0.210	ng		97
65) Chlorobenzene	17.77	112	15223	0.187	ng		99
66) Ethylbenzene	18.11	91	24759	0.180	ng		98
67) m- & p-Xylenes	18.27	91	39053	0.362	ng		99
68) Bromoform	18.35	173	4260	0.167	ng		99
69) Styrene	18.59	104	14604	0.178	ng		99
70) o-Xylene	18.69	91	19852	0.182	ng		98
71) n-Nonane	18.87	43	10299	0.165	ng		96
72) 1,1,2,2-Tetrachloroethane	18.68	83	9025	0.171	ng		100
74) Cumene	19.20	105	25212	0.177	ng		98
75) alpha-Pinene	19.54	93	12573	0.202	ng	#	46
76) n-Propylbenzene	19.64	91	29867	0.180	ng		97
77) 3-Ethyltoluene	19.73	105	26232	0.186	ng		100
78) 4-Ethyltoluene	19.77	105	21702	0.164	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	20809	0.178	ng		99
80) alpha-Methylstyrene	19.97	118	10202	0.171	ng		99
81) 2-Ethyltoluene	20.00	105	24754	0.183	ng	#	16
82) 1,2,4-Trimethylbenzene	20.19	105	20062	0.168	ng		100
83) n-Decane	20.26	58	428	0.150	ng	#	86
84) Benzyl Chloride	20.31	91	12321	0.135	ng		95
85) 1,3-Dichlorobenzene	20.32	146	12467	0.179	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	12380	0.178	ng		100
87) sec-Butylbenzene	20.42	105	27861	0.177	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	25100	0.166	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	19481	0.161	ng		99
90) 1,2-Dichlorobenzene	20.68	146	11817	0.178	ng		97
91) d-Limonene	20.68	68	7130	0.152	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	3586	0.152	ng		90
93) n-Undecane	21.34	57	9948	0.168	ng		98
94) 1,2,4-Trichlorobenzene	22.17	180	7221	0.151	ng		97
95) Naphthalene	22.28	128	20224	0.113	ng		98
96) n-Dodecane	22.24	57	8093	0.123	ng		97
97) Hexachlorobutadiene	22.58	225	5565	0.175	ng		99
98) Cyclohexanone	18.42	55	6895	0.147	ng		98
99) tert-Butylbenzene	20.19	119	20389	0.172	ng		99
100) n-Butylbenzene	20.92	91	20710	0.165	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221813.D
Acq On : 22 Aug 2018 13:51 Operator: WA
Sample : 0.1ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221814.D
Acq On : 22 Aug 2018 14:24 Operator: WA
Sample : 0.2ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:14 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration 8/23/18
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	312486	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.43	114	1335595	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	546799	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	386445	9.988	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.92%				
57) Toluene-d8 (SS2)	15.87	98	1055078	10.682	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.44%				
73) Bromofluorobenzene (SS3)	19.09	174	426070	11.565	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.48%				
Target Compounds							Qvalue
2) Propene	4.08	42	7417	0.184	ng		99
3) Dichlorodifluoromethan...	4.24	85	12728	0.217	ng		100
4) Chloromethane	4.54	50	10628	0.181	ng		96
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	7456	0.234	ng		97
6) Vinyl Chloride	4.98	62	10571	0.234	ng		98
7) 1,3-Butadiene	5.25	54	7508	0.195	ng		95
8) Bromomethane	5.71	94	6856	0.240	ng		99
9) Chloroethane	6.05	64	5401	0.206	ng		92
10) Ethanol	6.42	45	25571	0.786	ng		96
11) Acetonitrile	6.71	41	12203	0.158	ng		95
12) Acrolein	6.91	56	4441	0.211	ng		98
13) Acetone	7.12	58	29498	1.045	ng		99
14) Trichlorofluoromethane	7.36	101	11391	0.230	ng		98
15) 2-Propanol (Isopropanol)	7.64	45	35023	0.345	ng		98
16) Acrylonitrile	7.90	53	9032	0.208	ng		99
17) 1,1-Dichloroethene	8.35	96	7222	0.283	ng		99
18) 2-Methyl-2-Propanol (t...	8.55	59	37807	0.406	ng		98
19) Methylene Chloride	8.57	84	7793	0.230	ng		95
20) 3-Chloro-1-propene (Al...	8.74	41	9199	0.230	ng		96
21) Trichlorotrifluoroethane	8.99	151	6997	0.242	ng		98
22) Carbon Disulfide	8.86	76	29036	0.255	ng		100
23) trans-1,2-Dichloroethene	9.86	61	10343	0.272	ng		99
24) 1,1-Dichloroethane	10.11	63	12321	0.238	ng		99
25) Methyl tert-Butyl Ether	10.23	73	21715	0.221	ng		100
26) Vinyl Acetate	10.37	86	7833	0.947	ng	#	76
27) 2-Butanone (MEK)	10.65	72	4754	0.214	ng	#	76
28) cis-1,2-Dichloroethene	11.14	61	9929	0.239	ng		99
29) Diisopropyl Ether	11.43	87	7397	0.223	ng	#	75
30) Ethyl Acetate	11.44	61	5273	0.455	ng		99
31) n-Hexane	11.42	57	12950	0.331	ng		98
32) Chloroform	11.48	83	12123	0.227	ng		97
34) Tetrahydrofuran (THF)	11.92	72	5016	0.260	ng	#	88
35) Ethyl tert-Butyl Ether	12.02	87	8440	0.209	ng		95
36) 1,2-Dichloroethane	12.29	62	8107	0.189	ng		99
38) 1,1,1-Trichloroethane	12.56	97	10381	0.212	ng		99
39) Isopropyl Acetate	12.99	61	9765	0.449	ng	#	91
40) 1-Butanol	13.03	56	13907	0.330	ng	#	73
41) Benzene	13.04	78	32843	0.250	ng		100
42) Carbon Tetrachloride	13.20	117	9048	0.212	ng		99
43) Cyclohexane	13.33	84	23244	0.407	ng		98
44) tert-Amyl Methyl Ether	13.67	73	21298	0.224	ng		98
45) 1,2-Dichloropropane	13.89	63	7596	0.230	ng		99
46) Bromodichloromethane	14.08	83	9228	0.216	ng		99
47) Trichloroethene	14.13	130	8542	0.252	ng		99
48) 1,4-Dioxane	14.13	88	6213	0.216	ng		94
49) 2,2,4-Trimethylpentane...	14.19	57	31725	0.212	ng		99

Data File: I:\MS16\DATA\2018_08\22\08221814.D
Acq On : 22 Aug 2018 14:24 Operator: WA
Sample : 0.2ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:14 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

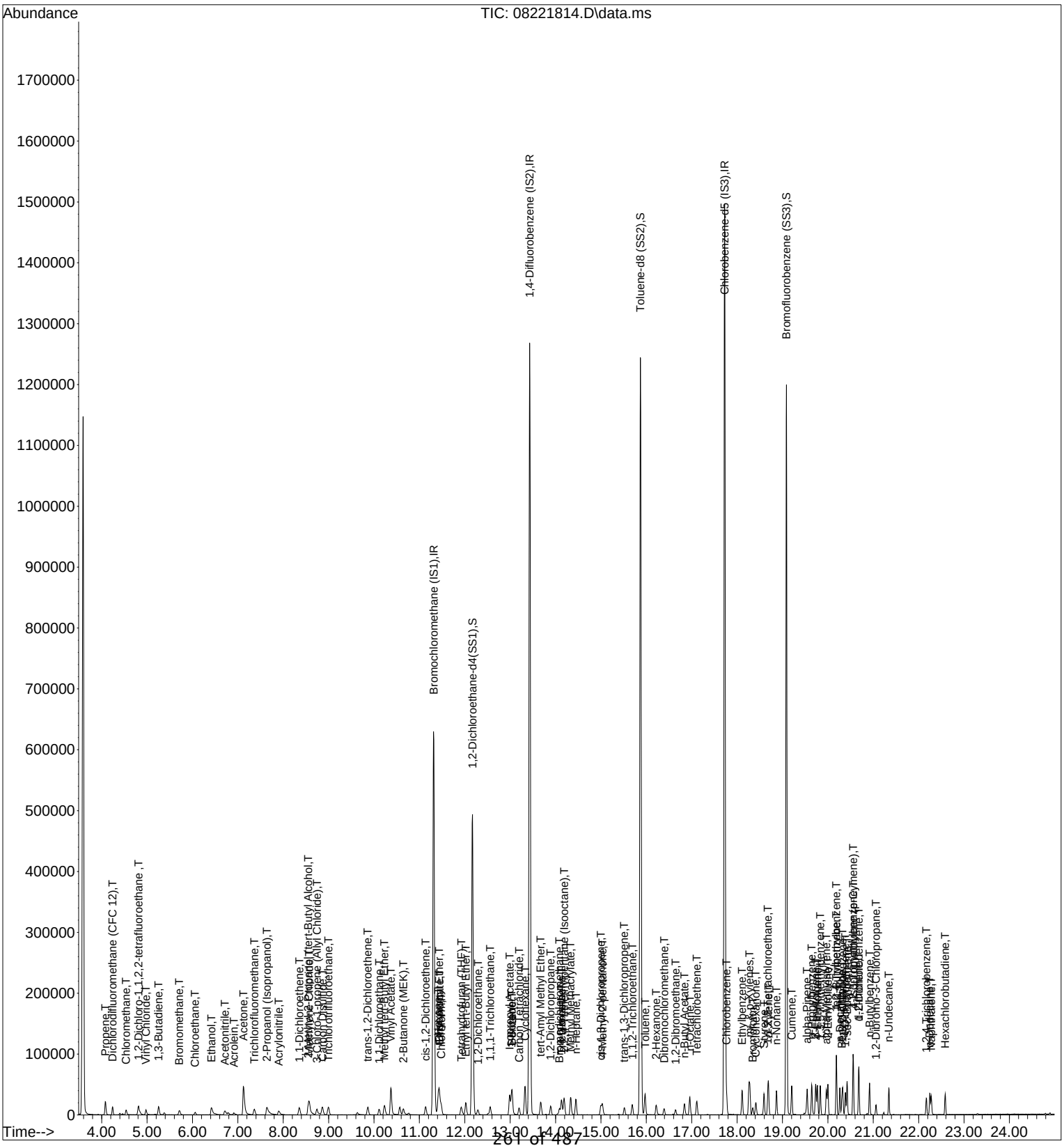
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	6019	0.437	ng		97
51) n-Heptane	14.45	71	7573	0.232	ng		99
52) cis-1,3-Dichloropropene	15.00	75	12197	0.241	ng		99
53) 4-Methyl-2-pentanone	15.03	58	6865	0.209	ng		93
54) trans-1,3-Dichloropropene	15.51	75	9791	0.224	ng		99
55) 1,1,2-Trichloroethane	15.69	97	7416	0.226	ng		99
58) Toluene	15.98	91	33230	0.290	ng		97
59) 2-Hexanone	16.22	43	15444	0.239	ng		96
60) Dibromochloromethane	16.39	129	7949	0.279	ng		97
61) 1,2-Dibromoethane	16.65	107	7979	0.288	ng		99
62) n-Butyl Acetate	16.84	43	17413	0.248	ng		98
63) n-Octane	16.96	57	6331	0.271	ng		98
64) Tetrachloroethene	17.11	166	9266	0.303	ng		96
65) Chlorobenzene	17.77	112	21536	0.277	ng		99
66) Ethylbenzene	18.11	91	34745	0.264	ng		99
67) m- & p-Xylenes	18.27	91	53435	0.519	ng		100
68) Bromoform	18.35	173	6798	0.279	ng		99
69) Styrene	18.59	104	20560	0.263	ng		98
70) o-Xylene	18.69	91	27162	0.261	ng		100
71) n-Nonane	18.87	43	14050	0.235	ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	12941	0.257	ng		100
74) Cumene	19.20	105	35646	0.261	ng		98
75) alpha-Pinene	19.54	93	17826	0.300	ng		72
76) n-Propylbenzene	19.64	91	41466	0.262	ng		98
77) 3-Ethyltoluene	19.73	105	33827	0.251	ng		93
78) 4-Ethyltoluene	19.77	105	33934	0.269	ng		93
79) 1,3,5-Trimethylbenzene	19.84	105	28347	0.254	ng		99
80) alpha-Methylstyrene	19.97	118	14249	0.250	ng		99
81) 2-Ethyltoluene	20.00	105	34522	0.267	ng	#	17
82) 1,2,4-Trimethylbenzene	20.19	105	27954	0.246	ng		98
83) n-Decane	20.26	58	605	0.222	ng	#	78
84) Benzyl Chloride	20.31	91	20684	0.237	ng		99
85) 1,3-Dichlorobenzene	20.32	146	17418	0.262	ng	#	65
86) 1,4-Dichlorobenzene	20.39	146	17639	0.266	ng		100
87) sec-Butylbenzene	20.42	105	39116	0.260	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	35747	0.248	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	27368	0.237	ng		98
90) 1,2-Dichlorobenzene	20.68	146	17161	0.270	ng		98
91) d-Limonene	20.68	68	10535	0.236	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	5334	0.237	ng		89
93) n-Undecane	21.34	57	14835	0.263	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	10201	0.223	ng		97
95) Naphthalene	22.28	128	27603	0.162	ng		99
96) n-Dodecane	22.24	57	12003	0.190	ng		97
97) Hexachlorobutadiene	22.58	225	8136	0.267	ng		98
98) Cyclohexanone	18.41	55	10995	0.245	ng		97
99) tert-Butylbenzene	20.19	119	28821	0.254	ng		100
100) n-Butylbenzene	20.92	91	30056	0.251	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221814.D
Acq On : 22 Aug 2018 14:24 Operator: WA
Sample : 0.2ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201810 (9/18)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Aug 23 06:39:14 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221822.D
Acq On : 22 Aug 2018 19:05 Operator: WA
Sample : 0.5ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018 8/23/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	312185	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1321379	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	555145	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	386468	9.998	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.00%				
57) Toluene-d8 (SS2)	15.87	98	1052556	10.496	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.00%				
73) Bromofluorobenzene (SS3)	19.09	174	433913	11.601	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.80%				
Target Compounds							Qvalue
2) Propene	4.07	42	17497	0.436	ng		98
3) Dichlorodifluoromethan...	4.23	85	30944	0.529	ng		99
4) Chloromethane	4.53	50	25229	0.430	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	17754	0.559	ng		99
6) Vinyl Chloride	4.97	62	25174	0.558	ng		98
7) 1,3-Butadiene	5.24	54	18870	0.491	ng		98
8) Bromomethane	5.70	94	15941	0.559	ng		98
9) Chloroethane	6.04	64	12567	0.479	ng		100
10) Ethanol	6.40	45	58645	1.804	ng		100
11) Acetonitrile	6.69	41	29383	0.380	ng		96
12) Acrolein	6.90	56	10911	0.518	ng		99
13) Acetone	7.11	58	68270	2.420	ng		98
14) Trichlorofluoromethane	7.35	101	26961	0.546	ng		98
15) 2-Propanol (Isopropanol)	7.61	45	85636	0.844	ng		96
16) Acrylonitrile	7.89	53	22196	0.511	ng		100
17) 1,1-Dichloroethene	8.34	96	17217	0.675	ng		98
18) 2-Methyl-2-Propanol (t...	8.52	59	88371	0.950	ng		98
19) Methylene Chloride	8.56	84	18179	0.537	ng		98
20) 3-Chloro-1-propene (Al...	8.73	41	23383	0.585	ng		96
21) Trichlorotrifluoroethane	8.99	151	16320	0.565	ng		96
22) Carbon Disulfide	8.85	76	67525	0.592	ng		100
23) trans-1,2-Dichloroethene	9.85	61	24410	0.643	ng		100
24) 1,1-Dichloroethane	10.11	63	29758	0.576	ng		99
25) Methyl tert-Butyl Ether	10.22	73	51602	0.526	ng		99
26) Vinyl Acetate	10.37	86	19854	2.403	ng	#	84
27) 2-Butanone (MEK)	10.63	72	12205	0.549	ng		96
28) cis-1,2-Dichloroethene	11.14	61	23443	0.566	ng		99
29) Diisopropyl Ether	11.42	87	15371	0.464	ng		98
30) Ethyl Acetate	11.44	61	13432	1.161	ng		97
31) n-Hexane	11.41	57	29909	0.766	ng		99
32) Chloroform	11.48	83	28914	0.543	ng		99
34) Tetrahydrofuran (THF)	11.91	72	12556	0.652	ng		98
35) Ethyl tert-Butyl Ether	12.02	87	20934	0.518	ng		99
36) 1,2-Dichloroethane	12.29	62	19808	0.462	ng		100
38) 1,1,1-Trichloroethane	12.55	97	24517	0.505	ng		99
39) Isopropyl Acetate	12.98	61	23614	1.096	ng	#	95
40) 1-Butanol	13.02	56	33788	0.811	ng		97
41) Benzene	13.04	78	73376	0.566	ng		100
42) Carbon Tetrachloride	13.20	117	21287	0.503	ng		98
43) Cyclohexane	13.32	84	55189	0.977	ng		98
44) tert-Amyl Methyl Ether	13.67	73	51141	0.543	ng		96
45) 1,2-Dichloropropane	13.89	63	18340	0.561	ng		98
46) Bromodichloromethane	14.08	83	22030	0.521	ng		99
47) Trichloroethene	14.13	130	20871	0.622	ng		99
48) 1,4-Dioxane	14.12	88	14792	0.520	ng		94
49) 2,2,4-Trimethylpentane...	14.19	57	75033	0.506	ng		100

Data File: I:\MS16\DATA\2018_08\22\08221822.D
Acq On : 22 Aug 2018 19:05 Operator: WA
Sample : 0.5ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

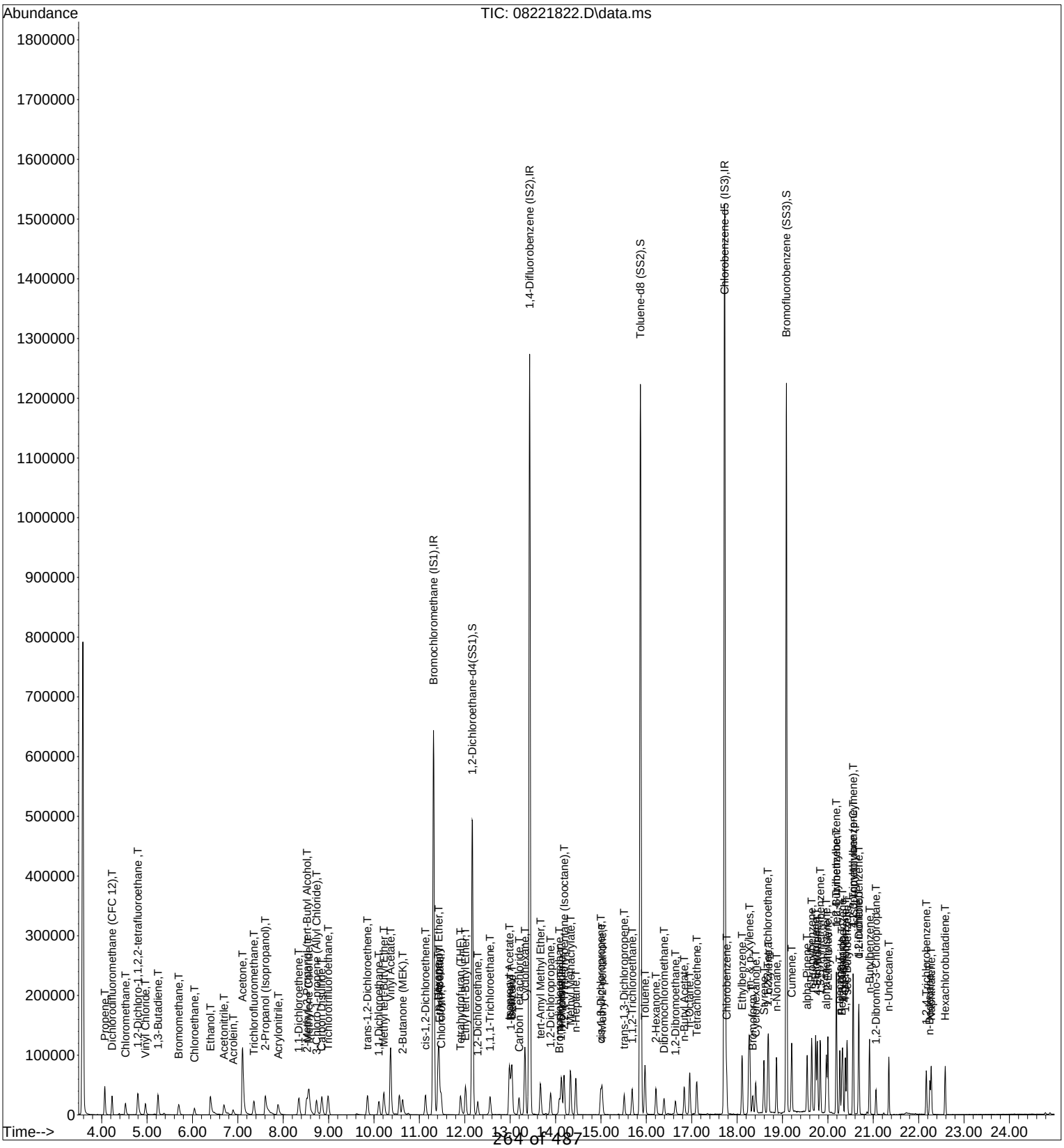
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	15163	1.112	ng		100
51) n-Heptane	14.45	71	18133	0.563	ng		99
52) cis-1,3-Dichloropropene	15.00	75	29884	0.596	ng		99
53) 4-Methyl-2-pentanone	15.03	58	16677	0.512	ng		98
54) trans-1,3-Dichloropropene	15.51	75	24594	0.568	ng		99
55) 1,1,2-Trichloroethane	15.69	97	17604	0.541	ng		100
58) Toluene	15.97	91	79982	0.687	ng		96
59) 2-Hexanone	16.21	43	37168	0.566	ng		97
60) Dibromochloromethane	16.39	129	19599	0.677	ng		99
61) 1,2-Dibromoethane	16.64	107	19952	0.709	ng		99
62) n-Butyl Acetate	16.83	43	42484	0.596	ng		98
63) n-Octane	16.95	57	15579	0.656	ng		98
64) Tetrachloroethene	17.11	166	21898	0.705	ng		99
65) Chlorobenzene	17.77	112	50948	0.644	ng		99
66) Ethylbenzene	18.11	91	84690	0.634	ng		99
67) m- & p-Xylenes	18.27	91	131368	1.257	ng		98
68) Bromoform	18.35	173	16560	0.670	ng		100
69) Styrene	18.59	104	50078	0.630	ng		98
70) o-Xylene	18.69	91	65004	0.614	ng		99
71) n-Nonane	18.87	43	33315	0.549	ng		99
72) 1,1,2,2-Tetrachloroethane	18.68	83	31666	0.619	ng		100
74) Cumene	19.20	105	83868	0.606	ng		98
75) alpha-Pinene	19.54	93	40673	0.674	ng		90
76) n-Propylbenzene	19.64	91	100551	0.626	ng		99
77) 3-Ethyltoluene	19.73	105	81905	0.598	ng		99
78) 4-Ethyltoluene	19.77	105	80134	0.626	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	68061	0.600	ng		99
80) alpha-Methylstyrene	19.97	118	31994	0.554	ng		91
81) 2-Ethyltoluene	20.00	105	81909	0.625	ng	#	9
82) 1,2,4-Trimethylbenzene	20.19	105	72101	0.624	ng		98
83) n-Decane	20.26	58	1611	0.582	ng	#	95
84) Benzyl Chloride	20.31	91	51732	0.584	ng		100
85) 1,3-Dichlorobenzene	20.32	146	43466	0.643	ng	#	65
86) 1,4-Dichlorobenzene	20.39	146	44195	0.657	ng		100
87) sec-Butylbenzene	20.42	105	93921	0.614	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	85007	0.581	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	65872	0.561	ng		99
90) 1,2-Dichlorobenzene	20.68	146	40967	0.635	ng		100
91) d-Limonene	20.68	68	22819	0.503	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	13307	0.581	ng		95
93) n-Undecane	21.34	57	31106	0.542	ng		97
94) 1,2,4-Trichlorobenzene	22.17	180	26145	0.562	ng		100
95) Naphthalene	22.28	128	70109	0.405	ng		99
96) n-Dodecane	22.24	57	18205	0.284	ng		100
97) Hexachlorobutadiene	22.58	225	18426	0.597	ng		99
98) Cyclohexanone	18.41	55	24957	0.548	ng		98
99) tert-Butylbenzene	20.19	119	68638	0.597	ng		97
100) n-Butylbenzene	20.92	91	71190	0.585	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221822.D
Acq On : 22 Aug 2018 19:05 Operator: WA
Sample : 0.5ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:28 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221816.D
Acq On : 22 Aug 2018 15:43 Operator: WA
Sample : 1.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018 8/23/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	313711	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1324407	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	545242	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	385645	9.928	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.44%				
57) Toluene-d8 (SS2)	15.87	98	1045298	10.613	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.88%				
73) Bromofluorobenzene (SS3)	19.09	174	425495	11.582	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.64%				
Target Compounds							Qvalue
2) Propene	4.06	42	33128	0.821	ng		99
3) Dichlorodifluoromethan...	4.22	85	58960	1.004	ng		100
4) Chloromethane	4.52	50	46995	0.797	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	32472	1.017	ng		99
6) Vinyl Chloride	4.96	62	44555	0.983	ng		100
7) 1,3-Butadiene	5.24	54	32964	0.853	ng		98
8) Bromomethane	5.69	94	30855	1.077	ng		99
9) Chloroethane	6.04	64	23861	0.906	ng		99
10) Ethanol	6.40	45	106070	3.247	ng		100
11) Acetonitrile	6.69	41	54464	0.701	ng		98
12) Acrolein	6.89	56	20891	0.987	ng		99
13) Acetone	7.10	58	128035	4.517	ng		98
14) Trichlorofluoromethane	7.35	101	50832	1.024	ng		99
15) 2-Propanol (Isopropanol)	7.60	45	160498	1.575	ng		97
16) Acrylonitrile	7.89	53	42624	0.976	ng		100
17) 1,1-Dichloroethene	8.35	96	33217	1.296	ng		97
18) 2-Methyl-2-Propanol (t...	8.50	59	170357	1.823	ng		99
19) Methylene Chloride	8.56	84	35148	1.033	ng		100
20) 3-Chloro-1-propene (Al...	8.73	41	43063	1.073	ng		98
21) Trichlorotrifluoroethane	8.99	151	31860	1.098	ng		99
22) Carbon Disulfide	8.85	76	128196	1.119	ng		100
23) trans-1,2-Dichloroethene	9.85	61	46539	1.219	ng		100
24) 1,1-Dichloroethane	10.11	63	55445	1.067	ng		100
25) Methyl tert-Butyl Ether	10.21	73	98852	1.003	ng		99
26) Vinyl Acetate	10.37	86	38434	4.629	ng	#	83
27) 2-Butanone (MEK)	10.63	72	23214	1.038	ng		99
28) cis-1,2-Dichloroethene	11.14	61	44513	1.069	ng		98
29) Diisopropyl Ether	11.42	87	28323	0.850	ng	#	94
30) Ethyl Acetate	11.43	61	25717	2.212	ng		98
31) n-Hexane	11.41	57	56226	1.432	ng		100
32) Chloroform	11.48	83	55140	1.031	ng		99
34) Tetrahydrofuran (THF)	11.90	72	23141	1.197	ng		98
35) Ethyl tert-Butyl Ether	12.02	87	39673	0.977	ng		99
36) 1,2-Dichloroethane	12.29	62	37865	0.879	ng		100
38) 1,1,1-Trichloroethane	12.56	97	46387	0.954	ng		100
39) Isopropyl Acetate	12.98	61	44842	2.077	ng	#	95
40) 1-Butanol	13.01	56	62959	1.507	ng		98
41) Benzene	13.04	78	138636	1.066	ng		100
42) Carbon Tetrachloride	13.19	117	39696	0.936	ng		98
43) Cyclohexane	13.32	84	104739	1.849	ng		98
44) tert-Amyl Methyl Ether	13.67	73	96831	1.027	ng		99
45) 1,2-Dichloropropane	13.89	63	33932	1.036	ng		100
46) Bromodichloromethane	14.08	83	42509	1.003	ng		99
47) Trichloroethene	14.13	130	38856	1.155	ng		100
48) 1,4-Dioxane	14.11	88	28690	1.006	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	141257	0.951	ng		100

Data File: I:\MS16\DATA\2018_08\22\08221816.D
Acq On : 22 Aug 2018 15:43 Operator: WA
Sample : 1.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

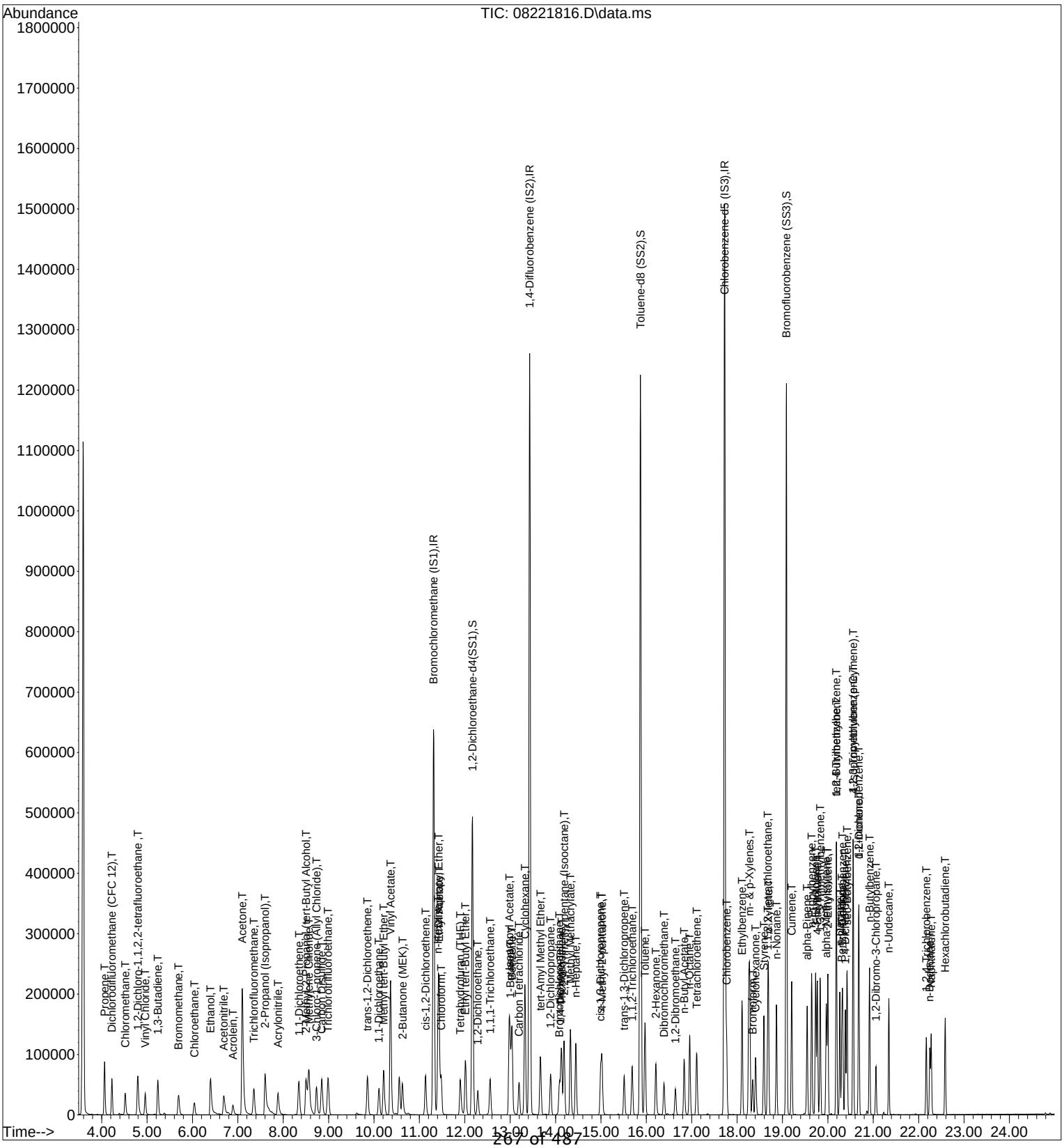
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	28831	2.109	ng		97
51) n-Heptane	14.45	71	33827	1.047	ng		99
52) cis-1,3-Dichloropropene	14.99	75	56999	1.134	ng		99
53) 4-Methyl-2-pentanone	15.02	58	31932	0.979	ng		97
54) trans-1,3-Dichloropropene	15.51	75	46659	1.075	ng		99
55) 1,1,2-Trichloroethane	15.69	97	33904	1.040	ng		100
58) Toluene	15.97	91	142239	1.244	ng		100
59) 2-Hexanone	16.21	43	71257	1.104	ng		98
60) Dibromochloromethane	16.39	129	37716	1.327	ng		100
61) 1,2-Dibromoethane	16.64	107	37642	1.363	ng		100
62) n-Butyl Acetate	16.83	43	80626	1.151	ng		99
63) n-Octane	16.95	57	28910	1.240	ng		99
64) Tetrachloroethene	17.11	166	41364	1.355	ng		99
65) Chlorobenzene	17.77	112	96057	1.237	ng		100
66) Ethylbenzene	18.11	91	157578	1.201	ng		100
67) m- & p-Xylenes	18.27	91	241761	2.355	ng		99
68) Bromoform	18.35	173	32558	1.342	ng		99
69) Styrene	18.59	104	96209	1.233	ng		99
70) o-Xylene	18.69	91	123043	1.184	ng		100
71) n-Nonane	18.87	43	63220	1.061	ng		99
72) 1,1,2,2-Tetrachloroethane	18.68	83	61320	1.221	ng		100
74) Cumene	19.20	105	160433	1.180	ng		100
75) alpha-Pinene	19.54	93	77873	1.313	ng		94
76) n-Propylbenzene	19.64	91	191777	1.216	ng		99
77) 3-Ethyltoluene	19.73	105	157502	1.170	ng		99
78) 4-Ethyltoluene	19.77	105	150135	1.194	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	130572	1.173	ng		99
80) alpha-Methylstyrene	19.97	118	62299	1.098	ng		99
81) 2-Ethyltoluene	20.00	105	157413	1.223	ng	#	14
82) 1,2,4-Trimethylbenzene	20.19	105	129815	1.143	ng		99
83) n-Decane	20.26	58	3057	1.124	ng		97
84) Benzyl Chloride	20.31	91	102314	1.176	ng		98
85) 1,3-Dichlorobenzene	20.32	146	79802	1.202	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	78947	1.195	ng		99
87) sec-Butylbenzene	20.42	105	178064	1.186	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	162633	1.132	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	126293	1.095	ng		99
90) 1,2-Dichlorobenzene	20.68	146	77291	1.220	ng		99
91) d-Limonene	20.68	68	44536	0.999	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	26045	1.158	ng		96
93) n-Undecane	21.34	57	61131	1.085	ng		98
94) 1,2,4-Trichlorobenzene	22.17	180	45806	1.003	ng		100
95) Naphthalene	22.28	128	113816	0.670	ng		100
96) n-Dodecane	22.24	57	35682	0.567	ng		100
97) Hexachlorobutadiene	22.58	225	36123	1.191	ng		100
98) Cyclohexanone	18.41	55	47662	1.066	ng		99
99) tert-Butylbenzene	20.19	119	128030	1.134	ng		100
100) n-Butylbenzene	20.92	91	136196	1.140	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221816.D
Acq On : 22 Aug 2018 15:43 Operator: WA
Sample : 1.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:18 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221817.D
Acq On : 22 Aug 2018 16:17 Operator: WA
Sample : 5.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration 8/23/18
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	285779	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.43	114	1228449	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	498099	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	355957	10.060	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.48%				
57) Toluene-d8 (SS2)	15.87	98	957197	10.639	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.12%				
73) Bromofluorobenzene (SS3)	19.09	174	389481	11.605	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.88%				
Target Compounds							Qvalue
2) Propene	4.05	42	157957	4.296	ng		99
3) Dichlorodifluoromethan...	4.21	85	269402	5.034	ng		100
4) Chloromethane	4.50	50	186664	3.473	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	147316	5.066	ng		100
6) Vinyl Chloride	4.95	62	200041	4.844	ng		100
7) 1,3-Butadiene	5.23	54	148862	4.229	ng		100
8) Bromomethane	5.69	94	137926	5.284	ng		100
9) Chloroethane	6.03	64	109145	4.549	ng		100
10) Ethanol	6.41	45	462338	15.539	ng		100
11) Acetonitrile	6.69	41	249463	3.525	ng		99
12) Acrolein	6.89	56	97110	5.034	ng		99
13) Acetone	7.09	58	581137	22.504	ng		100
14) Trichlorofluoromethane	7.35	101	232146	5.135	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	697114	7.509	ng		100
16) Acrylonitrile	7.89	53	202601	5.095	ng		100
17) 1,1-Dichloroethene	8.34	96	152185	6.517	ng		99
18) 2-Methyl-2-Propanol (t...	8.50	59	771573	9.063	ng		100
19) Methylene Chloride	8.57	84	159040	5.132	ng		100
20) 3-Chloro-1-propene (Al...	8.73	41	198992	5.443	ng		99
21) Trichlorotrifluoroethane	8.99	151	143935	5.446	ng		100
22) Carbon Disulfide	8.84	76	590499	5.660	ng		100
23) trans-1,2-Dichloroethene	9.86	61	215814	6.207	ng		99
24) 1,1-Dichloroethane	10.12	63	257039	5.431	ng		100
25) Methyl tert-Butyl Ether	10.21	73	451359	5.027	ng		99
26) Vinyl Acetate	10.37	86	179325	23.707	ng	#	90
27) 2-Butanone (MEK)	10.62	72	108819	5.344	ng		98
28) cis-1,2-Dichloroethene	11.14	61	208507	5.494	ng		100
29) Diisopropyl Ether	11.42	87	128227	4.225	ng	#	94
30) Ethyl Acetate	11.43	61	118744	11.214	ng		99
31) n-Hexane	11.41	57	256052	7.159	ng		99
32) Chloroform	11.49	83	254605	5.223	ng		100
34) Tetrahydrofuran (THF)	11.89	72	106551	6.048	ng		99
35) Ethyl tert-Butyl Ether	12.01	87	184122	4.975	ng		99
36) 1,2-Dichloroethane	12.29	62	174864	4.457	ng		100
38) 1,1,1-Trichloroethane	12.56	97	215815	4.784	ng		100
39) Isopropyl Acetate	12.98	61	205749	10.275	ng	#	97
40) 1-Butanol	12.99	56	301562	7.785	ng		100
41) Benzene	13.04	78	631739	5.238	ng		100
42) Carbon Tetrachloride	13.20	117	189887	4.827	ng		99
43) Cyclohexane	13.32	84	480256	9.142	ng		99
44) tert-Amyl Methyl Ether	13.67	73	445788	5.095	ng		99
45) 1,2-Dichloropropane	13.89	63	157343	5.180	ng		100
46) Bromodichloromethane	14.08	83	196151	4.988	ng		100
47) Trichloroethene	14.13	130	178088	5.706	ng		99
48) 1,4-Dioxane	14.11	88	131802	4.980	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	642632	4.664	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221817.D
Acq On : 22 Aug 2018 16:17 Operator: WA
Sample : 5.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

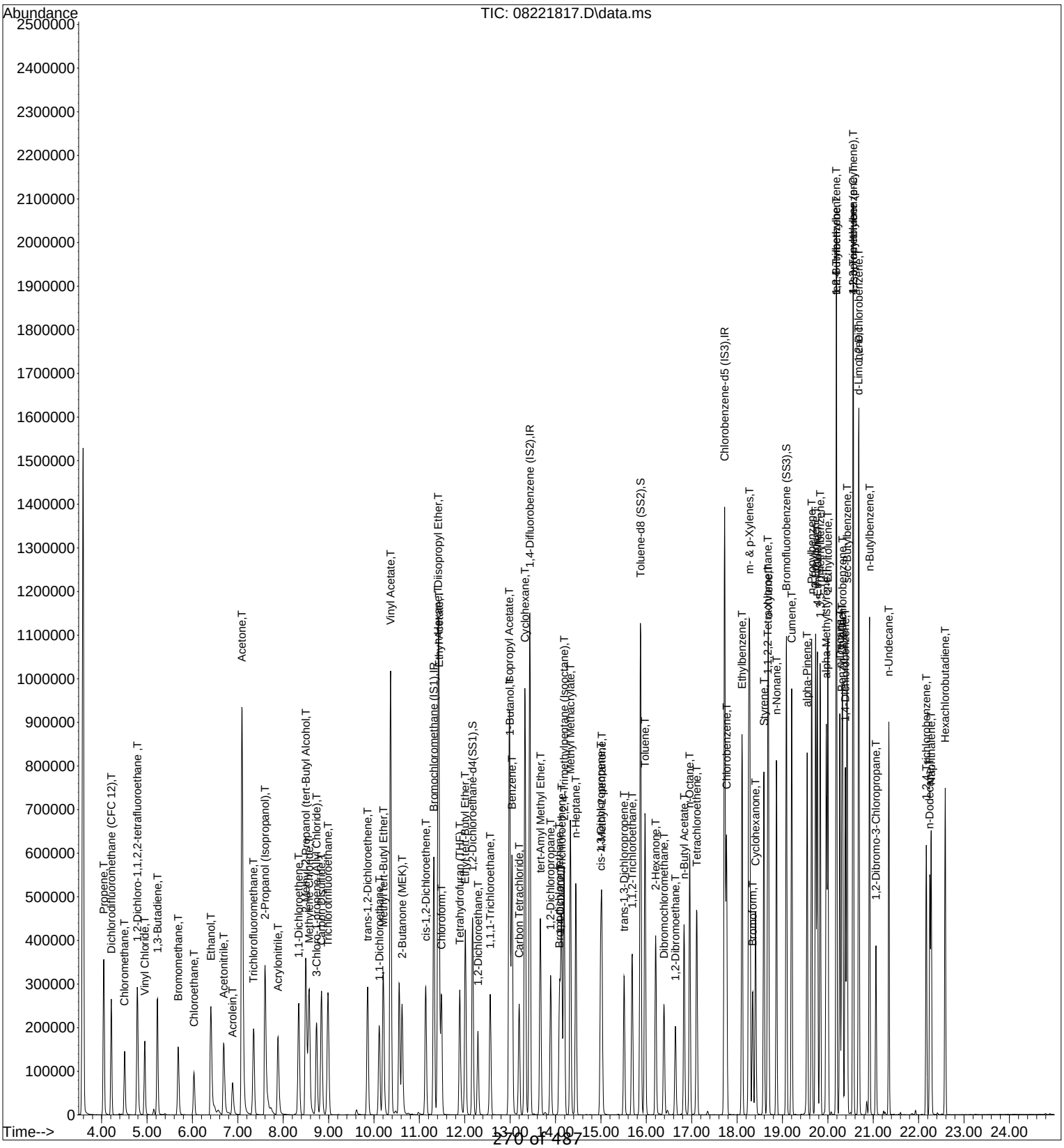
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	135104	10.655	ng		99
51) n-Heptane	14.45	71	155476	5.188	ng		100
52) cis-1,3-Dichloropropene	15.00	75	268756	5.766	ng		100
53) 4-Methyl-2-pentanone	15.02	58	149518	4.940	ng		99
54) trans-1,3-Dichloropropene	15.51	75	224982	5.587	ng		100
55) 1,1,2-Trichloroethane	15.69	97	156672	5.180	ng		100
58) Toluene	15.97	91	645866	6.182	ng		100
59) 2-Hexanone	16.21	43	332627	5.641	ng		99
60) Dibromochloromethane	16.39	129	182833	7.043	ng		100
61) 1,2-Dibromoethane	16.64	107	177848	7.047	ng		99
62) n-Butyl Acetate	16.83	43	378697	5.920	ng		99
63) n-Octane	16.95	57	131965	6.197	ng		99
64) Tetrachloroethene	17.11	166	190176	6.821	ng		100
65) Chlorobenzene	17.77	112	436936	6.159	ng		100
66) Ethylbenzene	18.11	91	726134	6.060	ng		100
67) m- & p-Xylenes	18.27	91	1102449	11.756	ng		100
68) Bromoform	18.35	173	161857	7.303	ng		100
69) Styrene	18.59	104	457823	6.420	ng		100
70) o-Xylene	18.69	91	560816	5.909	ng		100
71) n-Nonane	18.87	43	291235	5.352	ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	285088	6.216	ng		100
74) Cumene	19.20	105	734037	5.911	ng		99
75) alpha-Pinene	19.54	93	365676	6.751	ng		99
76) n-Propylbenzene	19.64	91	885097	6.142	ng		100
77) 3-Ethyltoluene	19.73	105	727140	5.913	ng		100
78) 4-Ethyltoluene	19.77	105	704287	6.132	ng		100
79) 1,3,5-Trimethylbenzene	19.83	105	589988	5.800	ng		99
80) alpha-Methylstyrene	19.97	118	301614	5.818	ng		93
81) 2-Ethyltoluene	20.00	105	713252	6.064	ng	#	12
82) 1,2,4-Trimethylbenzene	20.19	105	592306	5.711	ng		99
83) n-Decane	20.26	58	13995	5.632	ng		98
84) Benzyl Chloride	20.31	91	513606	6.463	ng		100
85) 1,3-Dichlorobenzene	20.32	146	370680	6.113	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	365456	6.053	ng		100
87) sec-Butylbenzene	20.42	105	814788	5.940	ng		100
88) 4-Isopropyltoluene (p-...	20.56	119	746363	5.686	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	575427	5.459	ng		98
90) 1,2-Dichlorobenzene	20.68	146	353125	6.103	ng		100
91) d-Limonene	20.68	68	210771	5.176	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	128055	6.233	ng		99
93) n-Undecane	21.34	57	286960	5.574	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	218305	5.232	ng		100
95) Naphthalene	22.28	128	547564	3.528	ng		100
96) n-Dodecane	22.24	57	179871	3.130	ng		99
97) Hexachlorobutadiene	22.58	225	167018	6.028	ng		100
98) Cyclohexanone	18.41	55	221396	5.422	ng		99
99) tert-Butylbenzene	20.19	119	589038	5.709	ng		100
100) n-Butylbenzene	20.92	91	634511	5.815	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221817.D
Acq On : 22 Aug 2018 16:17 Operator: WA
Sample : 5.0ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201807 (9/18)
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 23 06:39:20 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221818.D
Acq On : 22 Aug 2018 16:50 Operator: WA
Sample : 25ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:22 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018 8/23/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	291172	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	1227325	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	501061	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	359706	9.977	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.84%				
57) Toluene-d8 (SS2)	15.88	98	959450	10.601	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.80%				
73) Bromofluorobenzene (SS3)	19.09	174	392067	11.613	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.88%				
Target Compounds							Qvalue
2) Propene	4.04	42	674224	17.998	ng		100
3) Dichlorodifluoromethan...	4.20	85	1254023	22.997	ng		100
4) Chloromethane	4.50	50	941504	17.194	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	678635	22.905	ng		100
6) Vinyl Chloride	4.95	62	928823	22.073	ng		100
7) 1,3-Butadiene	5.23	54	808676	22.546	ng		100
8) Bromomethane	5.69	94	655860	24.659	ng		100
9) Chloroethane	6.04	64	504783	20.648	ng		100
10) Ethanol	6.44	45	2368987	78.144	ng		100
11) Acetonitrile	6.71	41	1263285	17.522	ng		100
12) Acrolein	6.90	56	449227	22.857	ng		100
13) Acetone	7.11	58	2588680	98.387	ng		100
14) Trichlorofluoromethane	7.35	101	1076653	23.374	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	3401212	35.959	ng		100
16) Acrylonitrile	7.90	53	977753	24.133	ng		100
17) 1,1-Dichloroethene	8.35	96	720361	30.277	ng		100
18) 2-Methyl-2-Propanol (t...	8.51	59	3433744	39.584	ng		100
19) Methylene Chloride	8.58	84	749099	23.723	ng		100
20) 3-Chloro-1-propene (Al...	8.74	41	969052	26.015	ng		100
21) Trichlorotrifluoroethane	8.99	151	673954	25.025	ng		100
22) Carbon Disulfide	8.84	76	2781795	26.168	ng		100
23) trans-1,2-Dichloroethene	9.87	61	1017503	28.722	ng		100
24) 1,1-Dichloroethane	10.12	63	1196276	24.809	ng		100
25) Methyl tert-Butyl Ether	10.21	73	2089508	22.840	ng		100
26) Vinyl Acetate	10.38	86	840619	109.072	ng		100
27) 2-Butanone (MEK)	10.62	72	507873	24.478	ng		100
28) cis-1,2-Dichloroethene	11.15	61	974122	25.194	ng		100
29) Diisopropyl Ether	11.42	87	569055	18.403	ng		100
30) Ethyl Acetate	11.44	61	526560	48.807	ng		100
31) n-Hexane	11.42	57	1087749	29.851	ng		100
32) Chloroform	11.49	83	1187274	23.907	ng		100
34) Tetrahydrofuran (THF)	11.89	72	497848	27.736	ng		100
35) Ethyl tert-Butyl Ether	12.02	87	853357	22.631	ng		100
36) 1,2-Dichloroethane	12.30	62	815753	20.406	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1007695	22.357	ng		100
39) Isopropyl Acetate	12.98	61	907767	45.375	ng	#	100
40) 1-Butanol	13.01	56	1309091	33.824	ng		100
41) Benzene	13.05	78	2884132	23.935	ng		100
42) Carbon Tetrachloride	13.20	117	895240	22.779	ng		100
43) Cyclohexane	13.33	84	2157027	41.097	ng		100
44) tert-Amyl Methyl Ether	13.67	73	2066617	23.644	ng		100
45) 1,2-Dichloropropane	13.90	63	723093	23.826	ng		100
46) Bromodichloromethane	14.09	83	925175	23.547	ng		100
47) Trichloroethene	14.13	130	806918	25.877	ng		100
48) 1,4-Dioxane	14.11	88	603649	22.830	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	2906248	21.114	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221818.D
Acq On : 22 Aug 2018 16:50 Operator: WA
Sample : 25ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:22 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

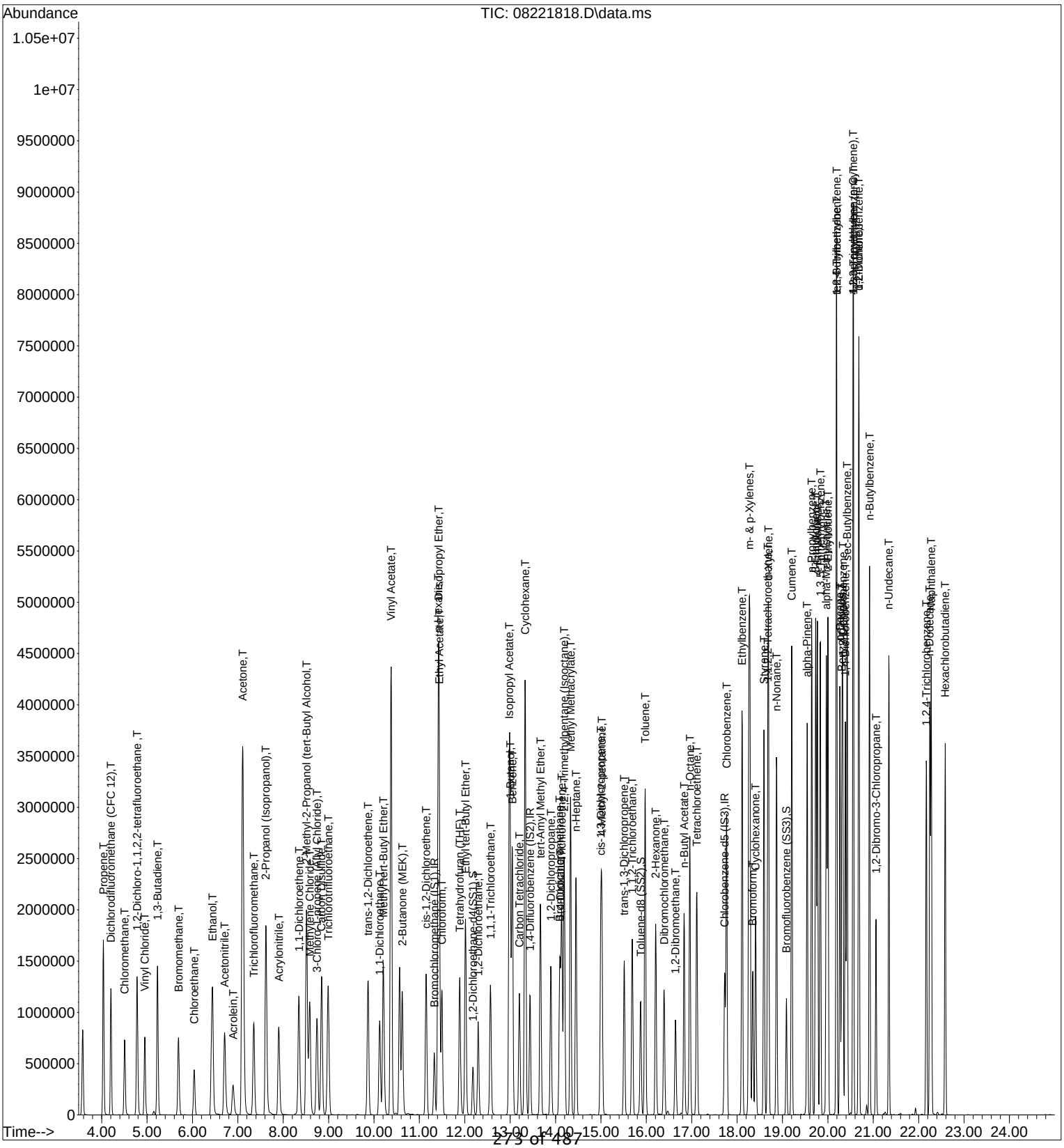
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	619957	48.937	ng		100
51) n-Heptane	14.45	71	693953	23.177	ng		100
52) cis-1,3-Dichloropropene	15.00	75	1252355	26.891	ng		100
53) 4-Methyl-2-pentanone	15.02	58	663573	21.945	ng		100
54) trans-1,3-Dichloropropene	15.51	75	1061317	26.382	ng		100
55) 1,1,2-Trichloroethane	15.69	97	723943	23.956	ng		100
58) Toluene	15.98	91	2951305	28.082	ng		100
59) 2-Hexanone	16.21	43	1461160	24.634	ng		100
60) Dibromochloromethane	16.39	129	876911	33.579	ng		100
61) 1,2-Dibromoethane	16.64	107	828815	32.647	ng		100
62) n-Butyl Acetate	16.83	43	1650396	25.647	ng		100
63) n-Octane	16.96	57	595105	27.778	ng		100
64) Tetrachloroethene	17.11	166	881026	31.413	ng		100
65) Chlorobenzene	17.77	112	2010538	28.173	ng		100
66) Ethylbenzene	18.11	91	3330298	27.627	ng		100
67) m- & p-Xylenes	18.27	91	5014420	53.157	ng		100
68) Bromoform	18.35	173	788897	35.383	ng		100
69) Styrene	18.59	104	2147347	29.936	ng		100
70) o-Xylene	18.69	91	2530068	26.498	ng		100
71) n-Nonane	18.87	43	1297981	23.713	ng		100
72) 1,1,2,2-Tetrachloroethane	18.68	83	1302855	28.238	ng		100
74) Cumene	19.20	105	3346882	26.792	ng		100
75) alpha-Pinene	19.54	93	1733383	31.814	ng		100
76) n-Propylbenzene	19.64	91	4022337	27.749	ng		100
77) 3-Ethyltoluene	19.73	105	3522611	28.477	ng		100
78) 4-Ethyltoluene	19.77	105	2980126	25.793	ng		100
79) 1,3,5-Trimethylbenzene	19.84	105	2722903	26.610	ng		100
80) alpha-Methylstyrene	19.97	118	1487252	28.520	ng		100
81) 2-Ethyltoluene	20.00	105	3262755	27.574	ng	#	13
82) 1,2,4-Trimethylbenzene	20.19	105	2698540	25.864	ng		100
83) n-Decane	20.26	58	65631	26.258	ng		100
84) Benzyl Chloride	20.31	91	2470731	30.908	ng		100
85) 1,3-Dichlorobenzene	20.33	146	1699532	27.861	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	1714674	28.232	ng		100
87) sec-Butylbenzene	20.42	105	3688925	26.733	ng		100
88) 4-Isopropyltoluene (p-...	20.56	119	3285851	24.885	ng		100
89) 1,2,3-Trimethylbenzene	20.56	105	2636607	24.866	ng		100
90) 1,2-Dichlorobenzene	20.68	146	1608229	27.631	ng		100
91) d-Limonene	20.68	68	1021974	24.950	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	610068	29.519	ng		100
93) n-Undecane	21.34	57	1522956	29.410	ng		100
94) 1,2,4-Trichlorobenzene	22.17	180	1247460	29.722	ng		100
95) Naphthalene	22.28	128	3755953	24.056	ng		100
96) n-Dodecane	22.24	57	1371191	23.718	ng		100
97) Hexachlorobutadiene	22.58	225	813866	29.200	ng		100
98) Cyclohexanone	18.41	55	944131	22.986	ng		100
99) tert-Butylbenzene	20.19	119	2613518	25.181	ng		100
100) n-Butylbenzene	20.92	91	2969472	27.053	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221818.D
Acq On : 22 Aug 2018 16:50 Operator: WA
Sample : 25ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:22 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221819.D
Acq On : 22 Aug 2018 17:24 Operator: WA
Sample : 50ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:24 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 8/23/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	288649	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	1210679	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	498426	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	355869	9.957	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.68%				
57) Toluene-d8 (SS2)	15.88	98	950565	10.558	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.48%				
73) Bromofluorobenzene (SS3)	19.09	174	385380	11.476	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.84%				
Target Compounds							Qvalue
2) Propene	4.04	42	1439510	38.762	ng		100
3) Dichlorodifluoromethan...	4.21	85	2440604	45.148	ng		100
4) Chloromethane	4.51	50	1734375	31.950	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	1373917	46.777	ng		100
6) Vinyl Chloride	4.95	62	1902448	45.605	ng		100
7) 1,3-Butadiene	5.24	54	1510269	42.474	ng		100
8) Bromomethane	5.70	94	1288977	48.886	ng		100
9) Chloroethane	6.04	64	996983	41.137	ng		100
10) Ethanol	6.47	45	4533438	150.848	ng		100
11) Acetonitrile	6.73	41	2523502	35.308	ng		100
12) Acrolein	6.90	56	906685	46.535	ng		100
13) Acetone	7.12	58	4854634	186.121	ng		100
14) Trichlorofluoromethane	7.35	101	2122640	46.485	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	5992883	63.913	ng		100
16) Acrylonitrile	7.91	53	1941216	48.332	ng		100
17) 1,1-Dichloroethene	8.35	96	1421766	60.279	ng		100
18) 2-Methyl-2-Propanol (t...	8.53	59	6356793	73.922	ng		100
19) Methylene Chloride	8.59	84	1467092	46.867	ng		99
20) 3-Chloro-1-propene (Al...	8.75	41	1912222	51.784	ng		100
21) Trichlorotrifluoroethane	9.00	151	1316332	49.306	ng		100
22) Carbon Disulfide	8.85	76	5407191	51.310	ng		100
23) trans-1,2-Dichloroethene	9.87	61	1981945	56.435	ng		99
24) 1,1-Dichloroethane	10.13	63	2319284	48.518	ng		100
25) Methyl tert-Butyl Ether	10.21	73	4044561	44.597	ng		100
26) Vinyl Acetate	10.39	86	1584117	207.338	ng	#	87
27) 2-Butanone (MEK)	10.63	72	990886	48.176	ng		100
28) cis-1,2-Dichloroethene	11.15	61	1892255	49.368	ng		99
29) Diisopropyl Ether	11.43	87	1073098	35.006	ng	#	94
30) Ethyl Acetate	11.44	61	986362	92.226	ng		98
31) n-Hexane	11.42	57	2041544	56.516	ng		100
32) Chloroform	11.50	83	2316788	47.059	ng		100
34) Tetrahydrofuran (THF)	11.89	72	976986	54.905	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	1658931	44.379	ng		100
36) 1,2-Dichloroethane	12.30	62	1593410	40.207	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1973484	44.386	ng		100
39) Isopropyl Acetate	12.98	61	1721024	87.209	ng	#	97
40) 1-Butanol	13.02	56	2482678	65.030	ng		99
41) Benzene	13.05	78	5549457	46.686	ng		100
42) Carbon Tetrachloride	13.21	117	1749518	45.128	ng		100
43) Cyclohexane	13.34	84	4055433	78.329	ng		99
44) tert-Amyl Methyl Ether	13.67	73	3999612	46.387	ng		100
45) 1,2-Dichloropropane	13.90	63	1394158	46.569	ng		100
46) Bromodichloromethane	14.09	83	1806855	46.619	ng		100
47) Trichloroethene	14.14	130	1556345	50.596	ng		100
48) 1,4-Dioxane	14.11	88	1163847	44.623	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	5483489	40.386	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221819.D
Acq On : 22 Aug 2018 17:24 Operator: WA
Sample : 50ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:24 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

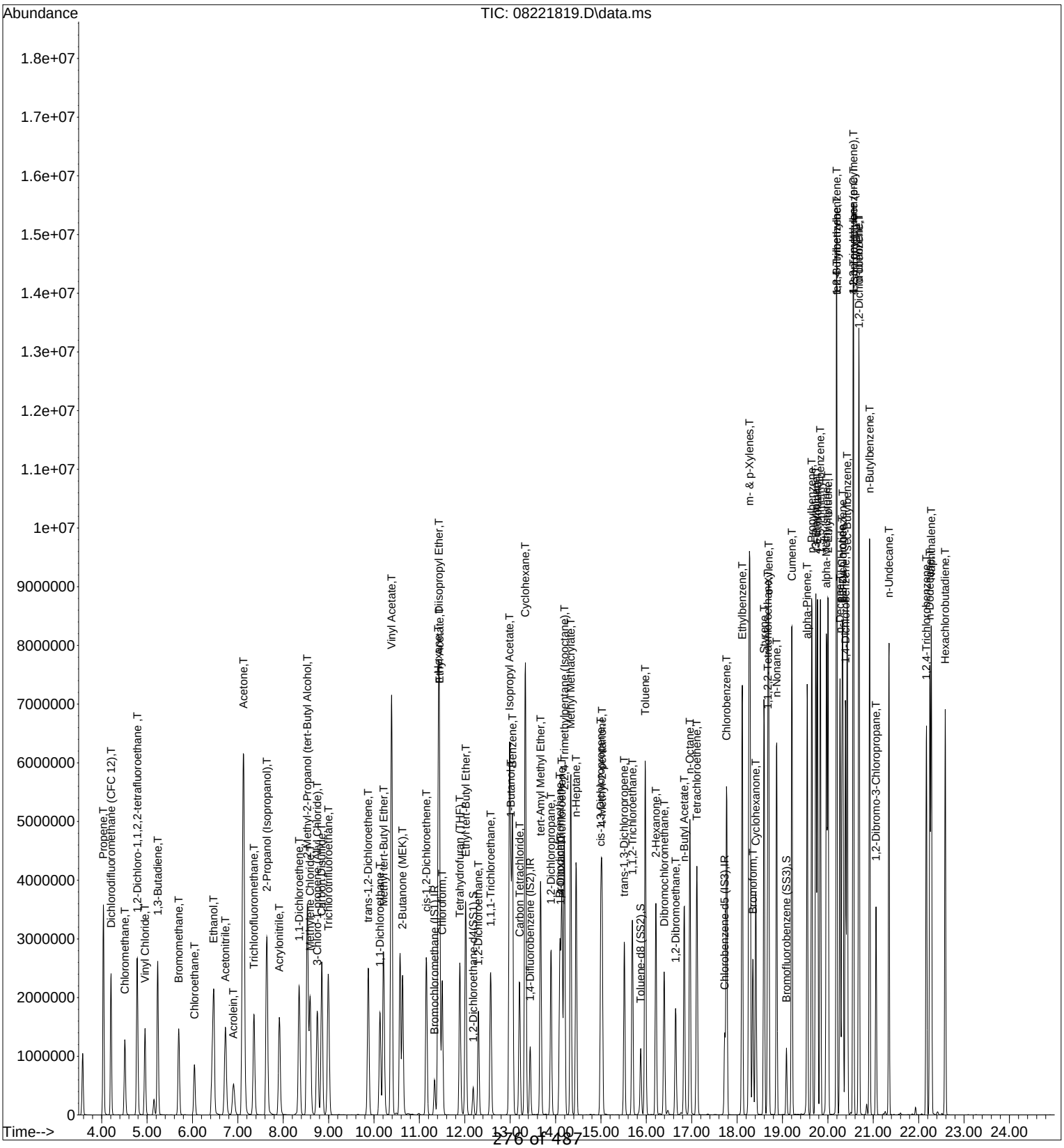
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	1207053	96.590	ng		99
51) n-Heptane	14.45	71	1334386	45.179	ng		100
52) cis-1,3-Dichloropropene	15.00	75	2411733	52.498	ng		100
53) 4-Methyl-2-pentanone	15.02	58	1273705	42.703	ng		99
54) trans-1,3-Dichloropropene	15.51	75	2080469	52.426	ng		100
55) 1,1,2-Trichloroethane	15.69	97	1411130	47.337	ng		99
58) Toluene	15.98	91	5677597	54.309	ng		100
59) 2-Hexanone	16.21	43	2830701	47.976	ng		100
60) Dibromochloromethane	16.39	129	1718590	66.157	ng		100
61) 1,2-Dibromoethane	16.65	107	1627121	64.431	ng		100
62) n-Butyl Acetate	16.83	43	3169473	49.514	ng		100
63) n-Octane	16.96	57	1133260	53.178	ng		99
64) Tetrachloroethene	17.11	166	1712149	61.370	ng		100
65) Chlorobenzene	17.77	112	3860126	54.376	ng		100
66) Ethylbenzene	18.11	91	6373858	53.155	ng		100
67) m- & p-Xylenes	18.27	91	9447068	100.677	ng		100
68) Bromoform	18.35	173	1545553	69.687	ng		100
69) Styrene	18.59	104	4105182	57.532	ng		99
70) o-Xylene	18.70	91	4742848	49.936	ng		100
71) n-Nonane	18.87	43	2370481	43.536	ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	2442593	53.220	ng		100
74) Cumene	19.21	105	6286231	50.588	ng		100
75) alpha-Pinene	19.54	93	3303430	60.951	ng		99
76) n-Propylbenzene	19.64	91	7518681	52.144	ng		99
77) 3-Ethyltoluene	19.74	105	6410263	52.095	ng		100
78) 4-Ethyltoluene	19.77	105	5769299	50.198	ng		100
79) 1,3,5-Trimethylbenzene	19.84	105	5130644	50.405	ng		100
80) alpha-Methylstyrene	19.97	118	2807392	54.120	ng		99
81) 2-Ethyltoluene	20.01	105	6077174	51.631	ng	#	12
82) 1,2,4-Trimethylbenzene	20.19	105	4894144	47.155	ng		99
83) n-Decane	20.27	58	120362	48.409	ng		97
84) Benzyl Chloride	20.31	91	4685218	58.921	ng		99
85) 1,3-Dichlorobenzene	20.33	146	3154349	51.983	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	3224425	53.370	ng		100
87) sec-Butylbenzene	20.42	105	6775075	49.357	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	5782526	44.025	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	4772521	45.248	ng		98
90) 1,2-Dichlorobenzene	20.69	146	2936471	50.718	ng		100
91) d-Limonene	20.68	68	1813981	44.520	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	1190995	57.932	ng		99
93) n-Undecane	21.35	57	2766969	53.716	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	2412785	57.791	ng		100
95) Naphthalene	22.28	128	7049872	45.391	ng		100
96) n-Dodecane	22.25	57	2524123	43.892	ng		99
97) Hexachlorobutadiene	22.58	225	1566988	56.519	ng		100
98) Cyclohexanone	18.41	55	1812801	44.368	ng		100
99) tert-Butylbenzene	20.19	119	4677003	45.300	ng		100
100) n-Butylbenzene	20.92	91	5489225	50.273	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221819.D
Acq On : 22 Aug 2018 17:24 Operator: WA
Sample : 50ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:24 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221820.D
Acq On : 22 Aug 2018 17:57 Operator: WA
Sample : 100ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:26 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

8/23/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.35	130	286024	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.45	114	1198262	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.73	82	496348	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	351368	9.921	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.36%				
57) Toluene-d8 (SS2)	15.88	98	945680	10.548	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.40%				
73) Bromofluorobenzene (SS3)	19.09	174	381681	11.413	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.28%				
Target Compounds							Qvalue
2) Propene	4.05	42	2975642	80.861	ng		99
3) Dichlorodifluoromethan...	4.21	85	4671301	87.207	ng		100
4) Chloromethane	4.52	50	2209934	41.084	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	2724164	93.600	ng		100
6) Vinyl Chloride	4.97	62	3805543	92.063	ng		100
7) 1,3-Butadiene	5.25	54	2949292	83.705	ng		100
8) Bromomethane	5.71	94	2503369	95.815	ng		100
9) Chloroethane	6.06	64	1930412	80.383	ng		100
10) Ethanol	6.51	45	8499018	285.396	ng		100
11) Acetonitrile	6.75	41	4978743	70.299	ng		100
12) Acrolein	6.92	56	1785676	92.490	ng		100
13) Acetone	7.15	58	8728413	337.708	ng		99
14) Trichlorofluoromethane	7.36	101	4143805	91.581	ng		100
15) 2-Propanol (Isopropanol)	7.67	45	9946683	107.052	ng		99
16) Acrylonitrile	7.94	53	3799188	95.460	ng		100
17) 1,1-Dichloroethene	8.36	96	2767563	118.414	ng		100
18) 2-Methyl-2-Propanol (t...	8.55	59	8004395	93.936	ng		99
19) Methylene Chloride	8.61	84	2843552	91.672	ng		99
20) 3-Chloro-1-propene (Al...	8.76	41	3713405	101.484	ng		98
21) Trichlorotrifluoroethane	9.00	151	2516425	95.123	ng		99
22) Carbon Disulfide	8.86	76	10273933	98.386	ng		100
23) trans-1,2-Dichloroethene	9.88	61	3833288	110.153	ng		99
24) 1,1-Dichloroethane	10.14	63	4464736	94.257	ng		100
25) Methyl tert-Butyl Ether	10.22	73	7754643	86.291	ng		100
26) Vinyl Acetate	10.40	86	2821067	372.626	ng	#	64
27) 2-Butanone (MEK)	10.65	72	1905538	93.495	ng		96
28) cis-1,2-Dichloroethene	11.16	61	3653121	96.182	ng		99
29) Diisopropyl Ether	11.43	87	1950661	64.218	ng	#	83
30) Ethyl Acetate	11.46	61	1748098	164.949	ng		96
31) n-Hexane	11.42	57	3682281	102.872	ng		99
32) Chloroform	11.52	83	4461780	91.459	ng		100
34) Tetrahydrofuran (THF)	11.90	72	1891080	107.251	ng		97
35) Ethyl tert-Butyl Ether	12.03	87	3194269	86.236	ng		98
36) 1,2-Dichloroethane	12.31	62	3123366	79.535	ng		100
38) 1,1,1-Trichloroethane	12.58	97	3831718	87.072	ng		100
39) Isopropyl Acetate	12.99	61	3087992	158.098	ng	#	94
40) 1-Butanol	13.03	56	4442928	117.581	ng		100
41) Benzene	13.06	78	9932047	84.422	ng		99
42) Carbon Tetrachloride	13.21	117	3403422	88.700	ng		100
43) Cyclohexane	13.34	84	7257296	141.624	ng		97
44) tert-Amyl Methyl Ether	13.68	73	7603438	89.098	ng		100
45) 1,2-Dichloropropane	13.90	63	2665582	89.960	ng		100
46) Bromodichloromethane	14.09	83	3476502	90.626	ng		100
47) Trichloroethene	14.14	130	2945270	96.741	ng		100
48) 1,4-Dioxane	14.12	88	2175429	84.272	ng		98
49) 2,2,4-Trimethylpentane...	14.20	57	9989637	74.335	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221820.D
Acq On : 22 Aug 2018 17:57 Operator: WA
Sample : 100ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:26 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

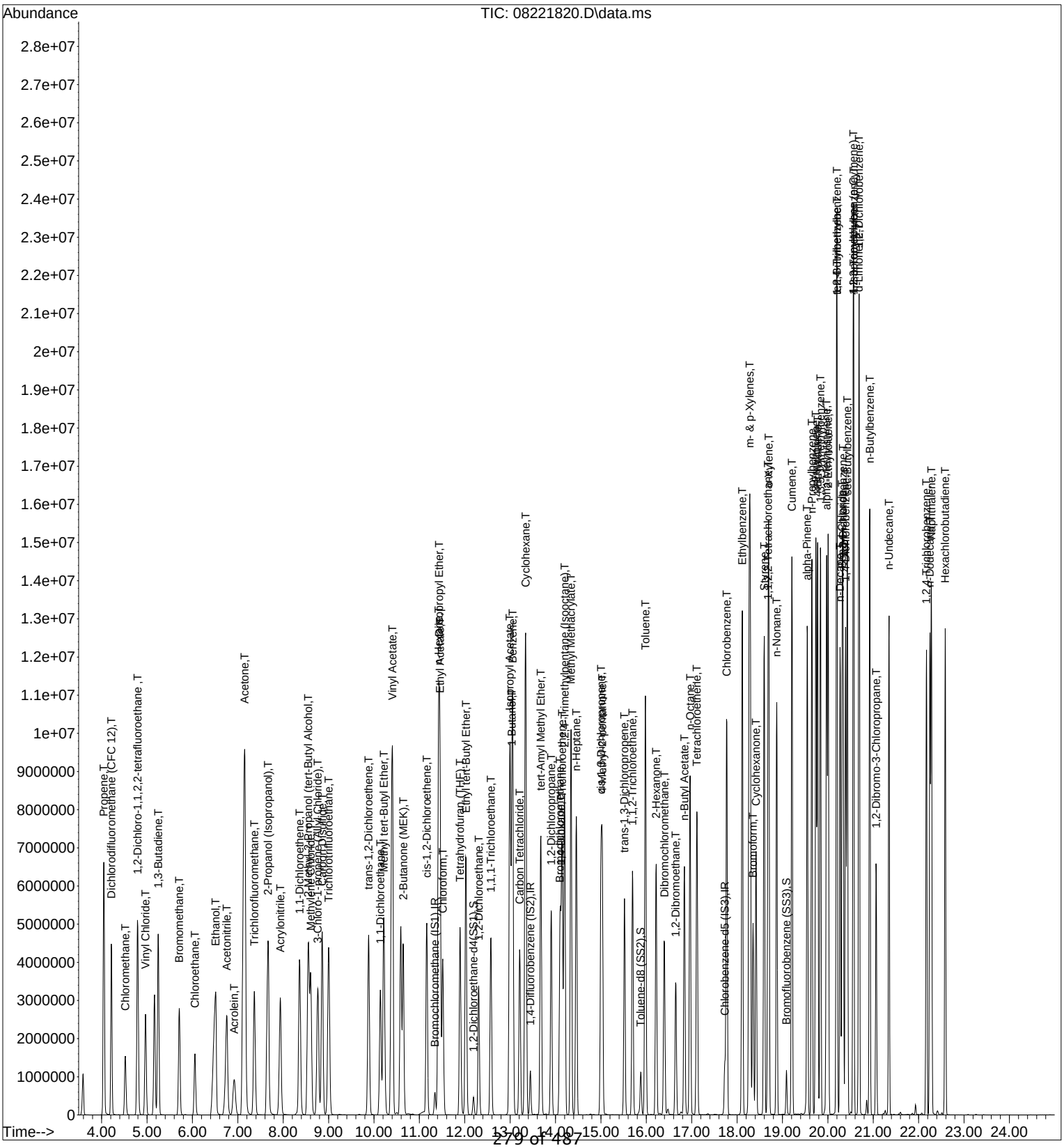
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	2254984	182.317	ng		97
51) n-Heptane	14.46	71	2515600	86.055	ng		99
52) cis-1,3-Dichloropropene	15.00	75	4581385	100.761	ng		99
53) 4-Methyl-2-pentanone	15.03	58	2361754	80.001	ng		96
54) trans-1,3-Dichloropropene	15.52	75	4048319	103.072	ng		100
55) 1,1,2-Trichloroethane	15.69	97	2708995	91.817	ng		100
58) Toluene	15.98	91	10556230	101.398	ng		99
59) 2-Hexanone	16.22	43	5279271	89.850	ng		99
60) Dibromochloromethane	16.40	129	3337840	129.028	ng		100
61) 1,2-Dibromoethane	16.65	107	3154642	125.441	ng		100
62) n-Butyl Acetate	16.84	43	5864932	92.007	ng		99
63) n-Octane	16.97	57	2091774	98.567	ng		98
64) Tetrachloroethene	17.11	166	3264470	117.502	ng		99
65) Chlorobenzene	17.77	112	7257943	102.668	ng		99
66) Ethylbenzene	18.11	91	11533777	96.588	ng		98
67) m- & p-Xylenes	18.28	91	16650349	178.184	ng		100
68) Bromoform	18.35	173	2991940	135.467	ng		100
69) Styrene	18.60	104	7523303	105.876	ng		98
70) o-Xylene	18.70	91	8397942	88.790	ng		100
71) n-Nonane	18.87	43	4082307	75.289	ng		95
72) 1,1,2,2-Tetrachloroethane	18.68	83	4279928	93.642	ng		100
74) Cumene	19.21	105	11110187	89.782	ng		98
75) alpha-Pinene	19.54	93	5993379	111.045	ng		97
76) n-Propylbenzene	19.65	91	12849086	89.484	ng		96
77) 3-Ethyltoluene	19.74	105	10816192	88.270	ng		93
78) 4-Ethyltoluene	19.78	105	10425425	91.090	ng		96
79) 1,3,5-Trimethylbenzene	19.84	105	9134225	90.113	ng		99
80) alpha-Methylstyrene	19.97	118	5057737	97.910	ng		98
81) 2-Ethyltoluene	20.01	105	10519498	89.746	ng	#	10
82) 1,2,4-Trimethylbenzene	20.20	105	8211137	79.445	ng		98
83) n-Decane	20.27	58	206457	83.383	ng	#	93
84) Benzyl Chloride	20.31	91	8353006	105.487	ng		98
85) 1,3-Dichlorobenzene	20.34	146	5649238	93.489	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	5847967	97.200	ng		100
87) sec-Butylbenzene	20.43	105	11492410	84.074	ng		97
88) 4-Isopropyltoluene (p-...	20.56	119	9394170	71.821	ng		96
89) 1,2,3-Trimethylbenzene	20.57	105	8025802	76.411	ng		97
90) 1,2-Dichlorobenzene	20.69	146	5026590	87.181	ng		100
91) d-Limonene	20.68	68	2974647	73.311	ng		94
92) 1,2-Dibromo-3-Chloropr...	21.07	157	2257102	110.249	ng		99
93) n-Undecane	21.35	57	4688985	91.409	ng		97
94) 1,2,4-Trichlorobenzene	22.17	180	4549722	109.431	ng		100
95) Naphthalene	22.28	128	12205188	78.914	ng		98
96) n-Dodecane	22.25	57	4351281	75.980	ng		97
97) Hexachlorobutadiene	22.59	225	2928169	106.056	ng		100
98) Cyclohexanone	18.42	55	3382387	83.131	ng		99
99) tert-Butylbenzene	20.20	119	7827167	76.129	ng		100
100) n-Butylbenzene	20.92	91	9508323	87.446	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221820.D
Acq On : 22 Aug 2018 17:57 Operator: WA
Sample : 100ng S16082218 ICAL Std
Misc : S31-04201801/S31-08201803 (9/18)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 23 06:39:26 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 06:29:02 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221823.D
Acq On : 22 Aug 2018 19:38 Operator: WA
Sample : 25ng S16082218 ICV Std
Misc : S31-04201801/S31-08211803 (9/19)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 23 07:15:04 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration 8/23/18
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	295453	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.44	114	1242016	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	530096	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	369431	12.639	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
57) Toluene-d8 (SS2)	15.88	98	985044	12.148	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.20%				
73) Bromofluorobenzene (SS3)	19.09	174	425794	12.920	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.36%				
Target Compounds							Qvalue
2) Propene	4.03	42	706419	21.001	ng		100
3) Dichlorodifluoromethan...	4.20	85	1296437	23.598	ng		100
4) Chloromethane	4.50	50	1058152	25.668	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	767957	24.133	ng		100
6) Vinyl Chloride	4.95	62	1087724	25.132	ng		100
7) 1,3-Butadiene	5.22	54	819461	25.558	ng		100
8) Bromomethane	5.69	94	730538	24.902	ng		100
9) Chloroethane	6.03	64	557277	24.200	ng		100
10) Ethanol	6.44	45	2669839	129.813	ng		100
11) Acetonitrile	6.71	41	1366410	24.947	ng		100
12) Acrolein	6.89	56	493876	24.843	ng		99
13) Acetone	7.11	58	2740732	118.583	ng		100
14) Trichlorofluoromethane	7.35	101	1140853	23.977	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	3735545	52.585	ng		100
16) Acrylonitrile	7.90	53	1040051	25.231	ng		100
17) 1,1-Dichloroethene	8.34	96	758303	24.520	ng		99
18) 2-Methyl-2-Propanol (t...	8.51	59	3782509	53.403	ng		100
19) Methylene Chloride	8.58	84	790799	24.230	ng		99
20) 3-Chloro-1-propene (Al...	8.74	41	1063311	26.421	ng		99
21) Trichlorotrifluoroethane	8.99	151	707795	24.539	ng		100
22) Carbon Disulfide	8.84	76	2918250	24.376	ng		100
23) trans-1,2-Dichloroethene	9.87	61	1076144	24.712	ng		99
24) 1,1-Dichloroethane	10.12	63	1308464	24.495	ng		100
25) Methyl tert-Butyl Ether	10.21	73	2181183	25.578	ng		100
26) Vinyl Acetate	10.38	86	897341	134.270	ng		100
27) 2-Butanone (MEK)	10.62	72	543357	25.261	ng		99
28) cis-1,2-Dichloroethene	11.15	61	1021299	24.339	ng		100
29) Diisopropyl Ether	11.42	87	592536	23.317	ng		98
30) Ethyl Acetate	11.44	61	558839	50.662	ng		100
31) n-Hexane	11.41	57	1122947	22.651	ng		100
32) Chloroform	11.49	83	1237751	24.454	ng		100
34) Tetrahydrofuran (THF)	11.89	72	526128	24.642	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	891740	25.201	ng		100
36) 1,2-Dichloroethane	12.30	62	866234	24.698	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1029273	24.749	ng		100
39) Isopropyl Acetate	12.98	61	956875	47.199	ng	#	95
40) 1-Butanol	13.01	56	1640983	56.228	ng		95
41) Benzene	13.04	78	3059589	23.473	ng		100
42) Carbon Tetrachloride	13.20	117	938941	24.706	ng		100
43) Cyclohexane	13.33	84	2241196	47.350	ng		100
44) tert-Amyl Methyl Ether	13.67	73	2169814	25.014	ng		100
45) 1,2-Dichloropropane	13.90	63	759822	24.687	ng		100
46) Bromodichloromethane	14.09	83	984476	25.761	ng		100
47) Trichloroethene	14.14	130	848467	24.189	ng		100
48) 1,4-Dioxane	14.11	88	646881	25.116	ng		99
49) 2,2,4-Trimethylpentane...	14.19	57	3058240	23.603	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221823.D
Acq On : 22 Aug 2018 19:38 Operator: WA
Sample : 25ng S16082218 ICV Std
Misc : S31-04201801/S31-08211803 (9/19)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 23 07:15:04 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

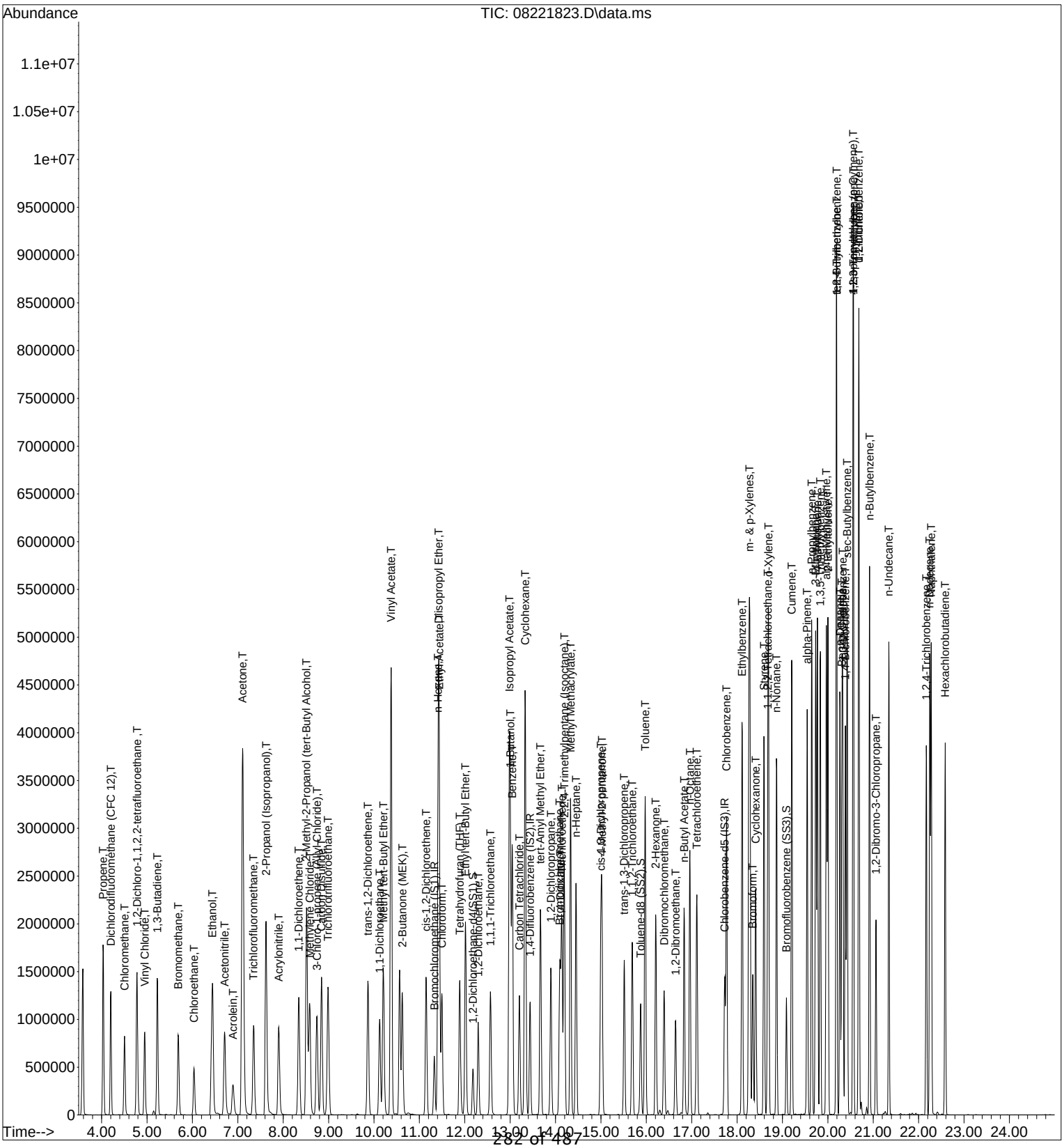
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	657340	50.655	ng		99
51) n-Heptane	14.45	71	720453	23.623	ng		99
52) cis-1,3-Dichloropropene	15.00	75	1258501	26.028	ng		100
53) 4-Methyl-2-pentanone	15.02	58	724237	25.169	ng		100
54) trans-1,3-Dichloropropene	15.51	75	1132717	26.737	ng		100
55) 1,1,2-Trichloroethane	15.69	97	763249	25.204	ng		100
58) Toluene	15.98	91	3092059	22.283	ng		100
59) 2-Hexanone	16.21	43	1644702	24.947	ng		100
60) Dibromochloromethane	16.39	129	925331	25.764	ng		100
61) 1,2-Dibromoethane	16.65	107	874109	24.629	ng		100
62) n-Butyl Acetate	16.83	43	1853860	25.214	ng		100
63) n-Octane	16.96	57	625438	23.045	ng		100
64) Tetrachloroethene	17.11	166	920789	23.044	ng		100
65) Chlorobenzene	17.77	112	2124561	23.415	ng		100
66) Ethylbenzene	18.11	91	3511216	22.903	ng		100
67) m- & p-Xylenes	18.27	91	5287260	46.473	ng		100
68) Bromoform	18.35	173	826765	26.200	ng		100
69) Styrene	18.59	104	2289108	24.884	ng		100
70) o-Xylene	18.69	91	2679843	23.321	ng		100
71) n-Nonane	18.87	43	1368327	23.470	ng		100
72) 1,1,2,2-Tetrachloroethane	18.68	83	1372636	24.347	ng		100
74) Cumene	19.20	105	3555824	23.626	ng		100
75) alpha-Pinene	19.54	93	1876972	24.219	ng		99
76) n-Propylbenzene	19.64	91	4281235	24.376	ng		100
77) 3-Ethyltoluene	19.73	105	3657561	24.426	ng		100
78) 4-Ethyltoluene	19.77	105	3302722	23.867	ng		100
79) 1,3,5-Trimethylbenzene	19.84	105	2889161	23.615	ng		100
80) alpha-Methylstyrene	19.97	118	1682455	27.068	ng		100
81) 2-Ethyltoluene	20.00	105	3468534	24.036	ng	#	13
82) 1,2,4-Trimethylbenzene	20.19	105	2860444	24.024	ng		100
83) n-Decane	20.26	58	70354	25.807	ng		99
84) Benzyl Chloride	20.31	91	2687120	27.709	ng		100
85) 1,3-Dichlorobenzene	20.33	146	1794086	24.268	ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	1804337	24.278	ng		100
87) sec-Butylbenzene	20.42	105	3935390	23.964	ng		100
88) 4-Isopropyltoluene (p-...	20.56	119	3553381	23.745	ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	2924309	24.800	ng		100
90) 1,2-Dichlorobenzene	20.68	146	1708157	24.582	ng		100
91) d-Limonene	20.68	68	1174862	26.191	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	673275	26.434	ng		99
93) n-Undecane	21.34	57	1654753	27.047	ng		100
94) 1,2,4-Trichlorobenzene	22.17	180	1365417	28.350	ng		100
95) Naphthalene	22.28	128	4108238	30.039	ng		100
96) n-Dodecane	22.24	57	1608558	33.246	ng		100
97) Hexachlorobutadiene	22.59	225	872202	24.832	ng		100
98) Cyclohexanone	18.41	55	1149909	24.224	ng		100
99) tert-Butylbenzene	20.19	119	2777178	23.632	ng		100
100) n-Butylbenzene	20.92	91	3189283	25.023	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_08\22\08221823.D
Acq On : 22 Aug 2018 19:38 Operator: WA
Sample : 25ng S16082218 ICV Std
Misc : S31-04201801/S31-08211803 (9/19)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 23 07:15:04 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

WA 8/23/18

Data File Name: **08221823.D** Acq. Method File: **TO15.M**

Data File Path: **I:\MS16\DATA\2018_08\22** Sample Name: **25ng S16082218 ICV Std**

Operator: **WA** Misc Info: **S31-04201801/S31-08211803 (**

Date Acquired: **8/22/2018 19:38** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**4.03**	**21.0**	26.43	79	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.20**	**23.6**	**26.30**	90	**64**	**115**	*	*
4)	**Chloromethane**	**4.50**	**25.7**	**26.38**	97	**47**	**140**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroetl**	**4.78**	**24.1**	**26.38**	91	**60**	**112**	*	*
6)	**Vinyl Chloride**	**4.95**	**25.1**	**26.73**	94	**63**	**127**	*	*
7)	**1,3-Butadiene**	**5.22**	**25.6**	**26.28**	97	**57**	**149**	*	*
8)	**Bromomethane**	**5.69**	**24.9**	**26.48**	94	**63**	**132**	*	*
9)	**Chloroethane**	**6.03**	**24.2**	**26.75**	90	**68**	**129**	*	*
10)	**Ethanol**	**6.44**	**130**	**128.10**	101	**62**	**131**	*	*
11)	**Acetonitrile**	**6.71**	**24.9**	**25.73**	97	**56**	**136**	*	*
12)	**Acrolein**	**6.89**	**24.8**	**25.63**	97	**60**	**132**	*	*
13)	**Acetone**	**7.11**	**119**	**132.33**	90	**63**	**124**	*	*
14)	**Trichlorofluoromethane**	**7.35**	**24.0**	**26.40**	91	**65**	**113**	*	*
15)	**2-Propanol (Isopropanol)**	**7.62**	**52.6**	**51.60**	102	**62**	**135**	*	*
16)	**Acrylonitrile**	**7.90**	**25.2**	**25.88**	97	**68**	**138**	*	*
17)	**1,1-Dichloroethene**	**8.34**	**24.5**	**27.23**	90	**72**	**118**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.51	53.4	54.25	98	61	128	*	*
19)	**Methylene Chloride**	**8.58**	**24.2**	**27.08**	89	**67**	**116**	*	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.74**	**26.4**	**27.00**	98	**61**	**143**	*	*
21)	**Trichlorotrifluoroethane**	**8.99**	**24.5**	**26.95**	91	**68**	**113**	*	*
22)	**Carbon Disulfide**	**8.84**	**24.4**	**27.20**	90	**68**	**120**	*	*
23)	**trans-1,2-Dichloroethene**	**9.87**	**24.7**	**26.73**	92	**71**	**125**	*	*
24)	**1,1-Dichloroethane**	**10.12**	**24.5**	**26.95**	91	**68**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**10.21**	**25.6**	**26.80**	96	**60**	**123**	*	*
26)	**Vinyl Acetate**	**10.38**	**134**	**133.03**	101	**73**	**135**	*	*
27)	**2-Butanone (MEK)**	**10.62**	**25.3**	**25.95**	97	**70**	**129**	*	*
28)	**cis-1,2-Dichloroethene**	**11.15**	**24.3**	**26.35**	92	**69**	**121**	*	*
29)	Diisopropyl Ether	11.42	23.3	27.18	86	65	117	*	*
30)	**Ethyl Acetate**	**11.44**	**50.7**	**54.45**	93	**66**	**140**	*	*
31)	**n-Hexane**	**11.41**	**22.7**	**26.95**	84	**61**	**124**	*	*
32)	**Chloroform**	**11.49**	**24.5**	**27.08**	90	**69**	**113**	*	*
34)	**Tetrahydrofuran (THF)**	**11.89**	**24.6**	**27.00**	91	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	12.02	25.2	26.80	94	69	120	*	*
36)	**1,2-Dichloroethane**	**12.30**	**24.7**	**26.85**	92	**62**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**12.57**	**24.7**	**26.90**	92	**65**	**116**	*	*
39)	Isopropyl Acetate	12.98	47.2	51.55	92	70	126	*	*
40)	1-Butanol	13.01	56.2	51.58	109	62	141	*	*
41)	**Benzene**	**13.04**	**23.5**	**26.38**	89	**66**	**111**	*	*
42)	**Carbon Tetrachloride**	**13.20**	**24.7**	**26.45**	93	**64**	**122**	*	*
43)	**Cyclohexane**	**13.33**	**47.4**	**52.05**	91	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	13.67	25.0	**27.08**	92	68	119	*	*
45)	**1,2-Dichloropropane**	**13.90**	**24.7**	**26.98**	92	**69**	**121**	*	*
46)	**Bromodichloromethane**	**14.09**	**25.8**	**26.83**	96	**69**	**123**	*	*
47)	**Trichloroethene**	**14.14**	**24.2**	**26.68**	91	**69**	**112**	*	*
48)	**1,4-Dioxane**	**14.11**	**25.1**	**26.73**	94	**74**	**123**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.19	23.6	26.65	89	67	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **08221823.D** **TO15.M**
Data File Path: **I:\MS16\DATA\2018_08\22** Sample Name: **25ng S16082218 ICV Std**
Operator: **WA** Misc Info: **S31-04201801/S31-08211803 (**
Date Acquired: **8/22/2018** **19:38** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**14.33**	**50.7**	**53.88**	94	**75**	**125**	*	*
51)	**n-Heptane**	**14.45**	**23.6**	**26.90**	88	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**15.00**	**26.0**	**26.78**	97	**74**	**129**	*****	*
53)	**4-Methyl-2-pentanone**	**15.02**	**25.2**	**26.15**	96	**66**	**138**	*****	*
54)	**trans-1,3-Dichloropropene**	**15.51**	**26.7**	**26.60**	100	**75**	**130**	*****	*
55)	**1,1,2-Trichloroethane**	**15.69**	**25.2**	**26.85**	94	**73**	**117**	*****	*
58)	**Toluene**	**15.98**	**22.3**	**26.50**	84	**66**	**114**	*****	*
59)	**2-Hexanone**	**16.21**	**24.9**	**26.78**	93	**58**	**146**	*****	*
60)	**Dibromochloromethane**	**16.39**	**25.8**	**26.60**	97	**67**	**130**	*****	*
61)	**1,2-Dibromoethane**	**16.65**	**24.6**	**27.03**	91	**70**	**127**	*****	*
62)	**n-Butyl Acetate**	**16.83**	**25.2**	**27.35**	92	**62**	**140**	*****	*
63)	**n-Octane**	**16.96**	**23.0**	**27.13**	85	**65**	**121**	*	*
64)	**Tetrachloroethene**	**17.11**	**23.0**	**26.60**	86	**62**	**119**	*****	*
65)	**Chlorobenzene**	**17.77**	**23.4**	**26.83**	87	**66**	**115**	*****	*
66)	**Ethylbenzene**	**18.11**	**22.9**	**26.53**	86	**69**	**117**	*****	*
67)	**m- & p-Xylenes**	**18.27**	**46.5**	**53.28**	87	**67**	**117**	*****	*
68)	**Bromoform**	**18.35**	**26.2**	**26.68**	98	**67**	**135**	*****	*
69)	**Styrene**	**18.59**	**24.9**	**26.50**	94	**70**	**128**	*****	*
70)	**o-Xylene**	**18.69**	**23.3**	**26.75**	87	**67**	**118**	*****	*
71)	**n-Nonane**	**18.87**	**23.5**	**26.83**	88	**61**	**127**	*****	*
72)	**1,1,2,2-Tetrachloroethane**	**18.68**	**24.3**	**26.80**	91	**70**	**125**	*****	*
74)	**Cumene**	**19.20**	**23.6**	**26.80**	88	**68**	**116**	*****	*
75)	**alpha-Pinene**	**19.54**	**24.2**	**26.40**	92	**69**	**122**	*****	*
76)	**n-Propylbenzene**	**19.64**	**24.4**	**27.23**	90	**70**	**118**	*	*
77)	3-Ethyltoluene	19.73	24.4	26.83	91	68	117	*	*
78)	**4-Ethyltoluene**	**19.77**	**23.9**	**26.80**	**89**	**69**	**124**	*****	*****
79)	**1,3,5-Trimethylbenzene**	**19.84**	**23.6**	**26.73**	**88**	**65**	**117**	*****	*****
80)	alpha-Methylstyrene	19.97	27.1	26.75	**101**	71	132	*	*****
81)	2-Ethyltoluene	20.00	24.0	27.08	**89**	67	119	*	*****
82)	**1,2,4-Trimethylbenzene**	**20.19**	**24.0**	**26.90**	**89**	**67**	**124**	*****	*****
83)	n-Decane	20.26	25.8	26.88	**96**	63	129	*	*****
84)	**Benzyl Chloride**	**20.31**	**27.7**	**27.08**	**102**	**75**	**142**	*****	*****
85)	**1,3-Dichlorobenzene**	**20.33**	**24.3**	**26.98**	**90**	**70**	**124**	*****	*****
86)	**1,4-Dichlorobenzene**	**20.39**	**24.3**	**27.00**	**90**	**63**	**124**	*****	*****
87)	sec-Butylbenzene	20.42	24.0	26.55	**90**	68	119	*	*****
88)	4-Isopropyltoluene (p-Cymene)	20.56	23.7	26.95	**88**	65	122	*	*****
89)	1,2,3-Trimethylbenzene	20.56	24.8	26.95	**92**	66	128	*	*****
90)	**1,2-Dichlorobenzene**	**20.68**	**24.6**	**26.95**	**91**	**66**	**125**	*****	*****
91)	**d-Limonene**	**20.68**	**26.2**	**26.38**	**99**	**64**	**135**	*****	*****
92)	**1,2-Dibromo-3-Chloropropane**	**21.06**	**26.4**	**26.15**	**101**	**73**	**136**	*****	*****
93)	n-Undecane	21.34	27.0	27.03	**100**	67	135	*	*****
94)	**1,2,4-Trichlorobenzene**	**22.17**	**28.4**	**26.78**	**106**	**70**	**141**	*****	*****
95)	**Naphthalene**	**22.28**	**30.0**	**25.38**	**118**	**71**	**146**	*****	*****
96)	n-Dodecane	22.24	33.2	25.63	**130**	69	152	*	*****
97)	**Hexachlorobutadiene**	**22.59**	**24.8**	**26.13**	**95**	63	126	*	*****
98)	Cyclohexanone	18.41	24.2	24.45	99	58	138	*	*****
99)	tert-Butylbenzene	20.19	23.6	26.88	88	65	121	*	*****
100)	n-Butylbenzene	20.92	25.0	27.00	93	71	125	*	*****

Bold = 75 Compound List
*** = Pass**

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : C16070218.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Jul 09 10:43:58 2018
Response Via : Initial Calibration

Calibration Files
0.40=07021820.D 1.0 =07021821.D 2.5 =07021822.D 5.0 =07021823.D 25 =07021824.D 50 =07021825.D 100 =07021826.D

		Compound	0.40	1.0	2.5	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	ISTD								
2)	T	Chloropentaflu...	1.911	1.599	1.535	1.481	1.391	1.263	1.224	1.486	15.61
3)	T	1,1,1,2-Tetraf...	1.336	1.111	1.100	1.038	0.978	0.882	0.789	1.033	17.14
4)	T	1,1-Difluoroet...	1.518	1.276	1.255	1.176	1.110	0.954	0.707	1.142	22.58
5)	T	Chlorodifluoro...	0.377	0.332	0.331	0.314	0.297	0.273	0.254	0.311	13.16
6)	T	1-Chloro-1,1-D...	2.356	1.992	1.994	1.890	1.780	1.639	1.656	1.901	13.01
7)	T	Dichlorofluoro...	3.396	2.861	2.885	2.738	2.584	2.328	2.314	2.729	13.72
8)	T	Vinylbromide	1.430	1.243	1.237	1.191	1.126	1.037	1.047	1.187	11.43
9)	T	2,2-Dichloro-1...	2.324	1.995	1.958	1.878	1.740	1.636	1.664	1.885	12.66
10)	T	2-Methylbutane	1.690	1.444	1.450	1.365	1.268	1.168	1.140	1.361	14.01
11)	T	Methyl Acetate	3.690	3.137	3.103	3.031	2.791	2.607	2.549	2.987	13.01
12)	T	2-Methylpentane	1.620	1.386	1.362	1.329	1.198	1.121	1.117	1.305	13.66
13)	T	2,2-Dichloropr...	2.274	1.936	1.849	1.799	1.691	1.580	1.600	1.818	13.15
14)	T	1,1-Dichloropr...	2.285	1.958	1.936	1.906	1.756	1.652	1.667	1.880	11.63
15)	T	Thiophene	3.771	3.175	3.158	3.085	2.844	2.639	2.629	3.043	12.98
16)	IR	1,4-Difluorobenzen...	ISTD								
17)	T	2,3-Dimethylpe...	0.707	0.602	0.593	0.574	0.517	0.490	0.469	0.565	14.37
18)	T	Dibromomethane	0.321	0.270	0.265	0.259	0.243	0.232	0.235	0.261	11.59
19)	IR	Chlorobenzene-d5 (...	ISTD								
20)	T	Methyl Cyclohe...	1.340	1.119	1.103	1.065	0.901	0.808	0.729	1.009	20.78
21)	T	1,3-Dichloropr...	1.369	1.200	1.169	1.129	0.964	0.876	0.814	1.074	18.38
22)	T	1,1,1,2-Tetrac...	0.829	0.717	0.701	0.687	0.602	0.556	0.523	0.659	16.03
23)	T	1-Chlorohexane	1.397	1.152	1.155	1.116	0.953	0.868	0.795	1.062	19.32
24)	T	1,2,3-Trichlor...	1.421	1.174	1.160	1.128	0.962	0.878	0.807	1.076	19.46
25)	T	Bromobenzene	1.661	1.395	1.384	1.338	1.140	1.035	0.942	1.271	19.42
26)	T	2-Chlorotoluene	2.903	2.451	2.389	2.308	1.965	1.765	1.557	2.191	20.93
27)	T	4-Chlorotoluene	2.994	2.532	2.466	2.381	2.008	1.808	1.604	2.256	21.16
28)	T	Indan	3.569	3.044	2.983	2.895	2.476	2.185	1.866	2.717	21.26
29)	T	Indene	3.119	2.725	2.702	2.646	2.286	2.032	1.748	2.465	19.01
30)	T	1,2,4,5-Tetram...	3.768	3.296	3.239	3.159	2.768	2.403	2.112	2.963	19.23
31)	T	1,2,3,4-Tetram...	3.631	3.113	3.059	2.951	2.598	2.319	1.882	2.793	20.63
32)	T	1,2,3,5-Tetram...	3.513	3.028	2.978	2.904	2.595	2.285	1.959	2.752	18.77
33)	T	1,2,3-Trichlor...	1.472	1.298	1.327	1.288	1.202	1.098	0.996	1.240	12.68

(#) = Out of Range

WDA 7/9/18

TO-15 CUSTOM COMPOUND LIST
ICAL CONCENTRATIONS

Std#: **Working Standards**

7/9/18

(1) **200 ng/L Working Std. ID:** S31-06281806

(2) **20 ng/L Working Std. ID:** S31-06281809

Injection Amts.(L):	0.020	0.050	0.125	0.250	0.125	0.250	0.500
Standards Used:	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Compounds/ Concentrations (ng):	0.4ng	1.0ng	2.5ng	5.0ng	25ng	50ng	100ng
Vinylbromide	0.396	0.990	2.475	4.95	24.75	49.5	99
2-Methylbutane (Isopentane)	0.404	1.010	2.525	5.05	25.25	50.5	101
2-Methylpentane	0.396	0.990	2.475	4.95	24.75	49.5	99
2,2-Dichloropropane	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1-Dichloropropene	0.408	1.020	2.550	5.10	25.50	51.0	102
Thiophene	0.396	0.990	2.475	4.95	24.75	49.5	99
2,3-Dimethylpentane	0.408	1.020	2.550	5.10	25.50	51.0	102
Dibromomethane	0.420	1.050	2.625	5.25	26.25	52.5	105
1,3-Dichloropropane	0.424	1.060	2.650	5.30	26.50	53.0	106
1,1,1,2-Tetrachloroethane	0.376	0.940	2.350	4.70	23.50	47.0	94
1-Chlorohexane	0.408	1.020	2.550	5.10	25.50	51.0	102
1,2,3-Trichloropropane	0.412	1.030	2.575	5.15	25.75	51.5	103
Bromobenzene	0.416	1.040	2.600	5.20	26.00	52.0	104
2-Chlorotoluene	0.428	1.070	2.675	5.35	26.75	53.5	107
4-Chlorotoluene	0.412	1.030	2.575	5.15	25.75	51.5	103
Indane	0.396	0.990	2.475	4.95	24.75	49.5	99
Indene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,4,5-Tetramethylbenzene	0.384	0.960	2.400	4.80	24.00	48.0	96
1,2,3,4-Tetramethylbenzene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,3,5-Tetramethylbenzene	0.380	0.950	2.375	4.75	23.75	47.5	95
1,2,3-Trichlorobenzene	0.368	0.920	2.300	4.60	23.00	46.0	92
Chloropentafluoroethane (R115)	0.440	1.100	2.750	5.50	27.50	55.0	110
2,2-Dichloro-1,1,1-trifluoroethane (R123)	0.420	1.050	2.625	5.25	26.25	52.5	105
1,1-Difluoroethane (R152a)	0.416	1.040	2.600	5.20	26.00	52.0	104
Chlorodifluoromethane (R22)	0.416	1.040	2.600	5.20	26.00	52.0	104
Dichlorofluoromethane (R21)	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1,1,2-Tetrafluoroethane (R134a)	0.400	1.000	2.500	5.00	25.00	50.0	100
1-Chloro-1,1-Difluoroethane	0.408	1.020	2.550	5.10	25.50	51.0	102
Methyl Acetate	0.408	1.020	2.550	5.10	25.50	51.0	102
Methylcyclohexane	0.424	1.060	2.650	5.30	26.50	53.0	106
Chlorotrifluoroethene	0.392	0.980	2.450	4.90	24.50	49.0	98

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\C16070218.M (RTE Integrator)
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.40	0	13	I:\MS16\DATA\2018_07\02\07021820.D
2	1.0	1	13	I:\MS16\DATA\2018_07\02\07021821.D
3	2.5	3	13	I:\MS16\DATA\2018_07\02\07021822.D
4	5.0	6	13	I:\MS16\DATA\2018_07\02\07021823.D
5	25	28	13	I:\MS16\DATA\2018_07\02\07021824.D
6	50	55	13	I:\MS16\DATA\2018_07\02\07021825.D
7	100	110	13	I:\MS16\DATA\2018_07\02\07021826.D

7/9/18

#	ID	Update Time	Quant Time	Acquisition Time
1	0.40	Jul 09 10:40 2018	Jul 09 10:21 2018	2 Jul 2018 17:41
2	1.0	Jul 09 10:40 2018	Jul 09 10:21 2018	2 Jul 2018 18:15
3	2.5	Jul 09 10:40 2018	Jul 09 10:21 2018	2 Jul 2018 18:48
4	5.0	Jul 09 10:43 2018	Jul 09 10:21 2018	2 Jul 2018 19:21
5	25	Jul 09 10:43 2018	Jul 09 10:21 2018	2 Jul 2018 19:55
6	50	Jul 09 10:43 2018	Jul 09 10:21 2018	2 Jul 2018 20:29
7	100	Jul 09 10:43 2018	Jul 09 10:21 2018	2 Jul 2018 21:02

C16070218.M Mon Jul 09 10:44:30 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021820.D
Acq On : 2 Jul 2018 17:41 Operator: WA
Sample : 0.4ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:12 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 7/9/18

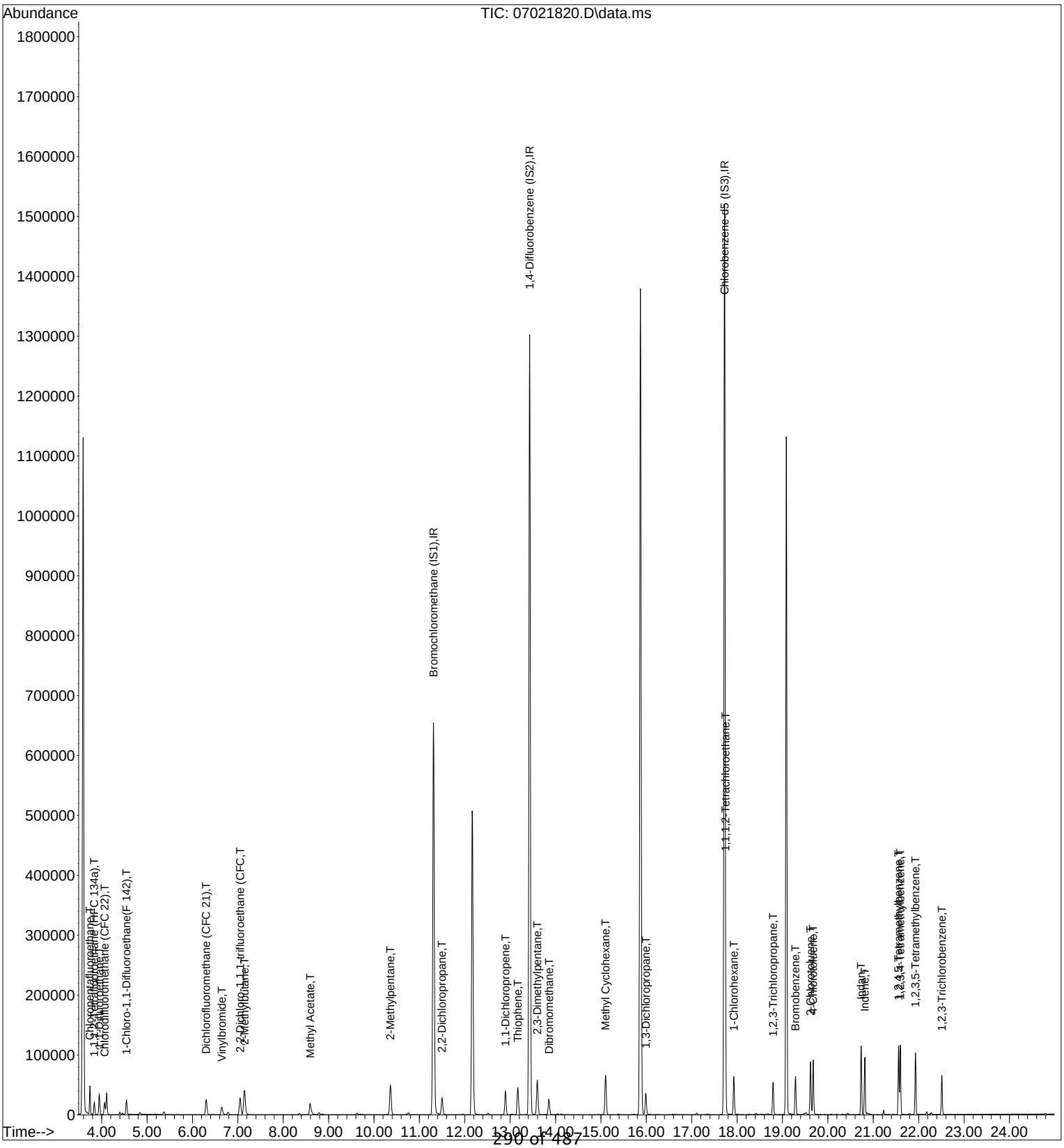
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	305434	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1313405	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	549252	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	20546	0.525	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	13061	0.477	ng	100
4) 1,1-Difluoroethane	3.95	65	15433	0.501	ng	94
5) Chlorodifluoromethane ...	4.06	67	3831	0.463	ng	91
6) 1-Chloro-1,1-Difluoroe...	4.55	65	24176	0.460	ng	100
7) Dichlorofluoromethane ...	6.30	67	33190	0.459	ng	100
8) Vinylbromide	6.65	108	13836	0.470	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.05	83	23848	0.510	ng	100
10) 2-Methylbutane	7.15	57	16686	0.462	ng	97
11) Methyl Acetate	8.60	43	36786	0.524	ng	97
12) 2-Methylpentane	10.36	71	15679	0.489	ng	95
13) 2,2-Dichloropropane	11.50	77	22221	0.553	ng	99
14) 1,1-Dichloropropene	12.90	75	22778	0.484	ng	99
15) Thiophene	13.17	84	36487	0.479	ng	100
17) 2,3-Dimethylpentane	13.60	56	30304	0.486	ng	97
18) Dibromomethane	13.86	174	14158	0.536	ng	99
20) Methyl Cyclohexane	15.10	55	24962	0.564	ng	99
21) 1,3-Dichloropropane	15.99	76	25511	0.540	ng	97
22) 1,1,1,2-Tetrachloroethane	17.75	131	13693	0.539	ng	100
23) 1-Chlorohexane	17.93	91	25042	0.553	ng	96
24) 1,2,3-Trichloropropane	18.79	75	25730	0.547	ng	99
25) Bromobenzene	19.29	77	30354	0.550	ng	98
26) 2-Chlorotoluene	19.62	91	54597	0.569	ng	99
27) 4-Chlorotoluene	19.68	91	54193	0.555	ng	99
28) Indan	20.73	117	62108	0.543	ng	99
29) Indene	20.81	115	51524	0.497	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	63570	0.513	ng	99
31) 1,2,3,4-Tetramethylben...	21.60	119	59985	0.508	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	58657	0.502	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	23808	0.447	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021820.D
Acq On : 2 Jul 2018 17:41 Operator: WA
Sample : 0.4ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:12 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021821.D
Acq On : 2 Jul 2018 18:15 Operator: WA
Sample : 1.0ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:13 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration 7/9/18
DataAcq Meth:TO15.M

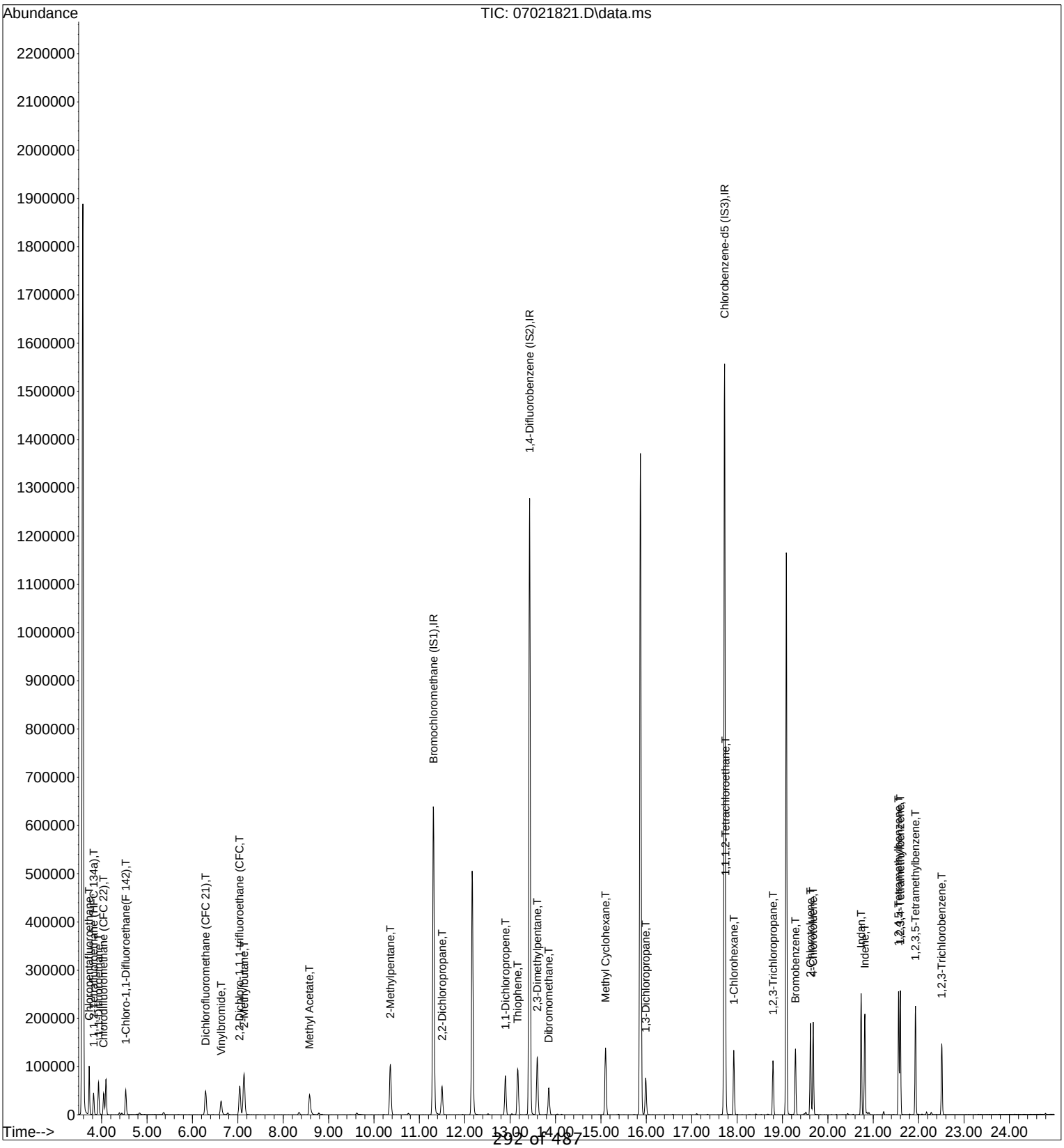
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	303549	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1302730	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	552767	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	42702	1.098	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	26990	0.992	ng	97
4) 1,1-Difluoroethane	3.93	65	32238	1.052	ng	95
5) Chlorodifluoromethane ...	4.04	67	8397	1.021	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.53	65	50799	0.972	ng	100
7) Dichlorofluoromethane ...	6.29	67	69487	0.967	ng	99
8) Vinylbromide	6.63	108	29875	1.022	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	50876	1.095	ng	98
10) 2-Methylbutane	7.14	57	35412	0.986	ng	98
11) Methyl Acetate	8.58	43	77695	1.114	ng	99
12) 2-Methylpentane	10.36	71	33328	1.045	ng	98
13) 2,2-Dichloropropane	11.50	77	47015	1.177	ng	100
14) 1,1-Dichloropropene	12.90	75	48500	1.037	ng	99
15) Thiophene	13.17	84	76339	1.009	ng	99
17) 2,3-Dimethylpentane	13.60	56	63976	1.034	ng	99
18) Dibromomethane	13.85	174	29546	1.127	ng	99
20) Methyl Cyclohexane	15.10	55	52432	1.177	ng	98
21) 1,3-Dichloropropane	15.99	76	56238	1.184	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	29786	1.165	ng	99
23) 1-Chlorohexane	17.93	91	51970	1.140	ng	96
24) 1,2,3-Trichloropropane	18.79	75	53473	1.129	ng	99
25) Bromobenzene	19.29	77	64167	1.154	ng	99
26) 2-Chlorotoluene	19.62	91	115977	1.200	ng	99
27) 4-Chlorotoluene	19.68	91	115308	1.174	ng	98
28) Indan	20.73	117	133271	1.157	ng	99
29) Indene	20.81	115	113278	1.086	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	139905	1.123	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	129402	1.088	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	127204	1.082	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	52811	0.986	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021821.D
Acq On : 2 Jul 2018 18:15 Operator: WA
Sample : 1.0ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:13 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021822.D
Acq On : 2 Jul 2018 18:48 Operator: WA
Sample : 2.5ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:14 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration 7/9/18
DataAcq Meth:TO15.M

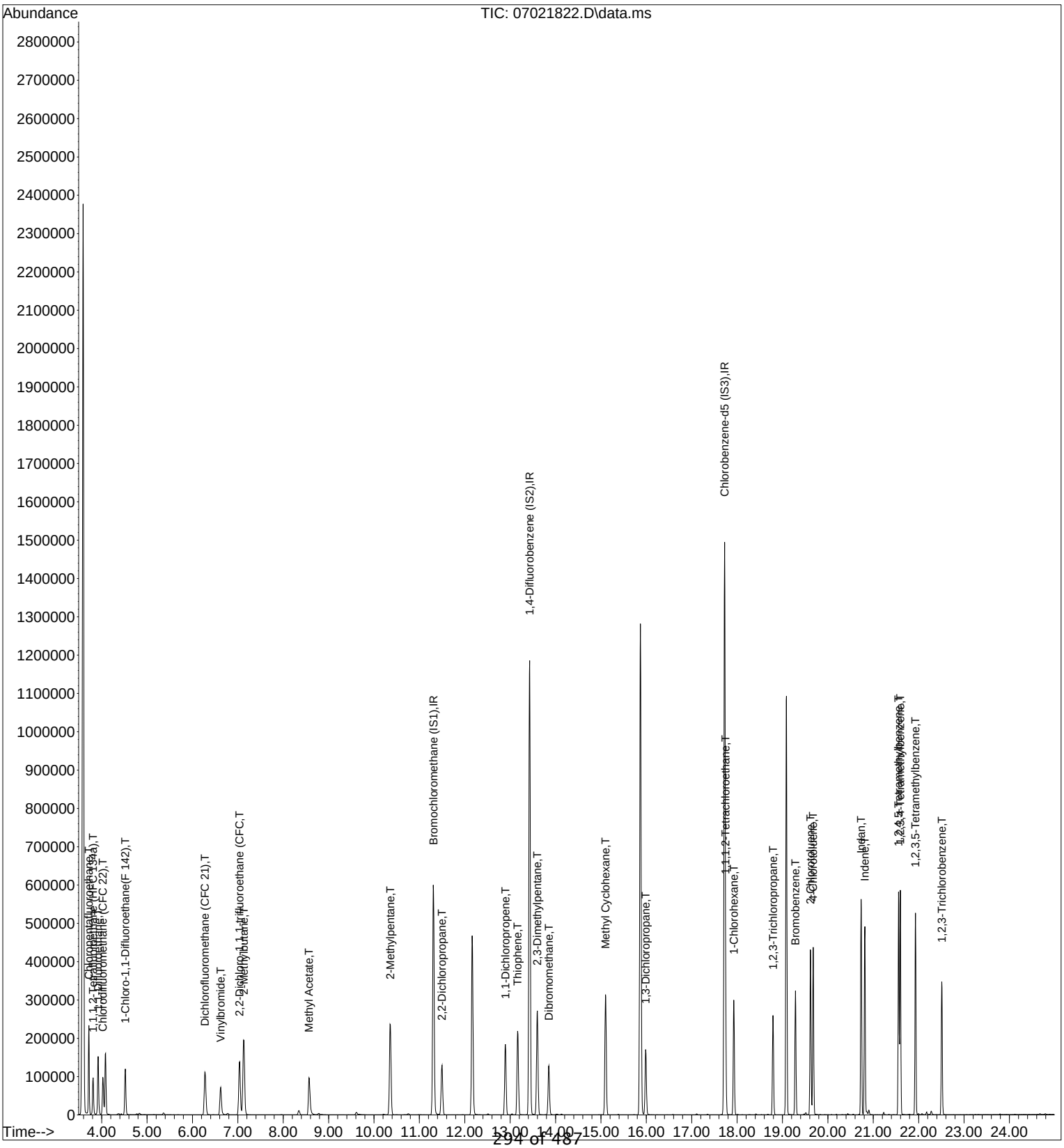
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	281339	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1206036	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	515404	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	95022	2.636	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	61869	2.452	ng	98
4) 1,1-Difluoroethane	3.92	65	73425	2.586	ng	99
5) Chlorodifluoromethane ...	4.03	67	19366	2.541	ng	97
6) 1-Chloro-1,1-Difluoroe...	4.52	65	117783	2.431	ng	100
7) Dichlorofluoromethane ...	6.27	67	162328	2.437	ng	100
8) Vinylbromide	6.62	108	68934	2.545	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	115686	2.686	ng	100
10) 2-Methylbutane	7.13	57	82380	2.476	ng	99
11) Methyl Acetate	8.57	43	178109	2.755	ng	99
12) 2-Methylpentane	10.36	71	75857	2.567	ng	97
13) 2,2-Dichloropropane	11.49	77	104040	2.810	ng	100
14) 1,1-Dichloropropene	12.90	75	111137	2.564	ng	99
15) Thiophene	13.17	84	175933	2.509	ng	100
17) 2,3-Dimethylpentane	13.60	56	145907	2.546	ng	99
18) Dibromomethane	13.85	174	67099	2.764	ng	100
20) Methyl Cyclohexane	15.10	55	120563	2.902	ng	99
21) 1,3-Dichloropropane	15.99	76	127749	2.884	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	67888	2.848	ng	100
23) 1-Chlorohexane	17.93	91	121445	2.858	ng	99
24) 1,2,3-Trichloropropane	18.79	75	123137	2.789	ng	100
25) Bromobenzene	19.29	77	148384	2.863	ng	99
26) 2-Chlorotoluene	19.62	91	263536	2.926	ng	100
27) 4-Chlorotoluene	19.68	91	261814	2.859	ng	100
28) Indan	20.73	117	304455	2.835	ng	99
29) Indene	20.81	115	261827	2.692	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	320497	2.758	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	296416	2.674	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	291616	2.659	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	125881	2.520	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021822.D
Acq On : 2 Jul 2018 18:48 Operator: WA
Sample : 2.5ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:14 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021823.D
Acq On : 2 Jul 2018 19:21 Operator: WA
Sample : 5.0ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:15 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 7/9/18

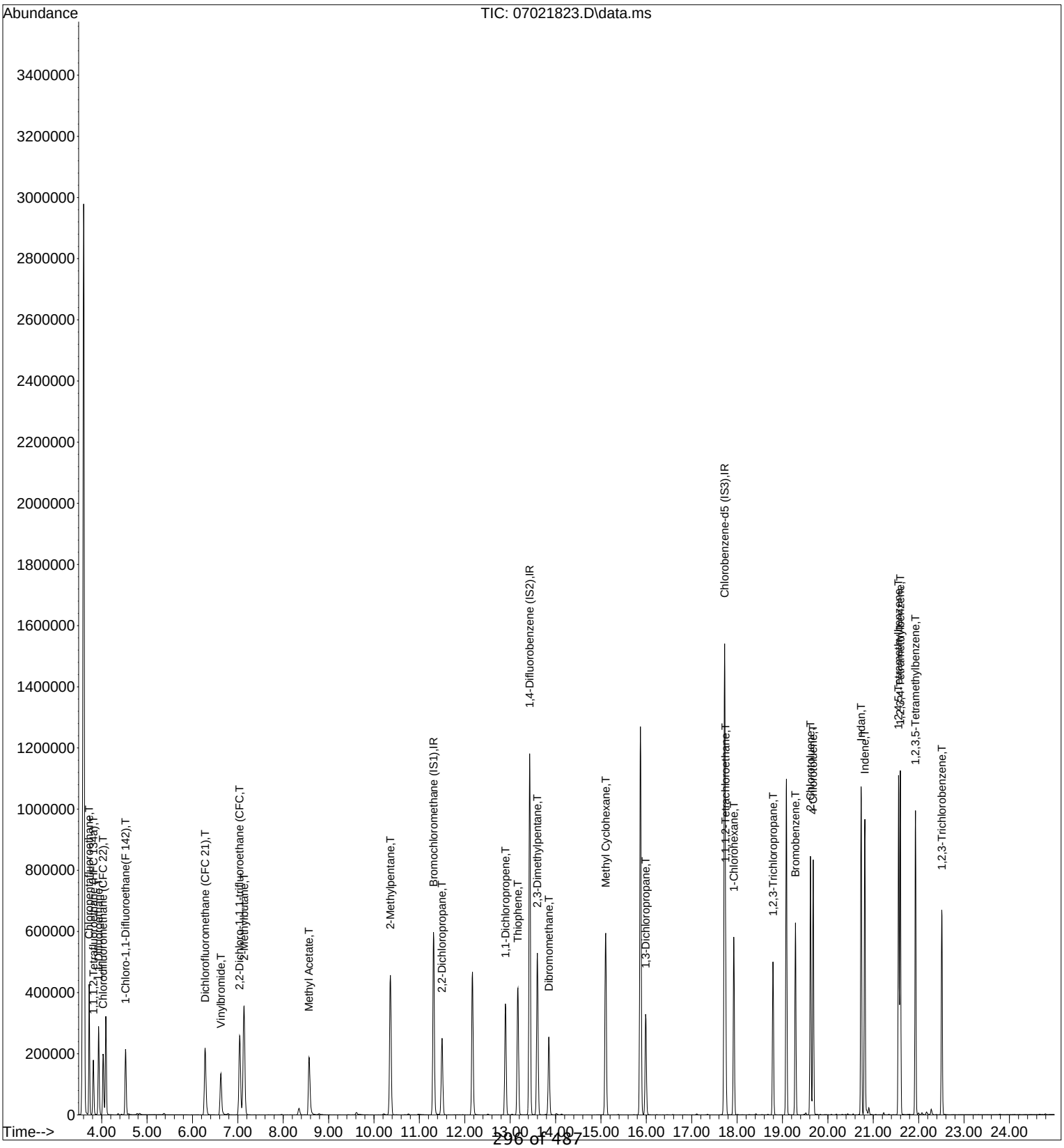
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	277371	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1191761	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	511278	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	180738	5.086	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	115117	4.628	ng	99
4) 1,1-Difluoroethane	3.93	65	135643	4.845	ng	99
5) Chlorodifluoromethane ...	4.03	67	36184	4.815	ng	97
6) 1-Chloro-1,1-Difluoroe...	4.53	65	220150	4.608	ng	100
7) Dichlorofluoromethane ...	6.28	67	303774	4.626	ng	100
8) Vinylbromide	6.63	108	130857	4.900	ng	99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	218721	5.151	ng	100
10) 2-Methylbutane	7.14	57	152971	4.663	ng	99
11) Methyl Acetate	8.57	43	343061	5.383	ng	99
12) 2-Methylpentane	10.36	71	145977	5.010	ng	98
13) 2,2-Dichloropropane	11.50	77	199643	5.469	ng	100
14) 1,1-Dichloropropene	12.90	75	215709	5.048	ng	100
15) Thiophene	13.17	84	338802	4.900	ng	99
17) 2,3-Dimethylpentane	13.60	56	279329	4.933	ng	99
18) Dibromomethane	13.85	174	129451	5.396	ng	99
20) Methyl Cyclohexane	15.11	55	230900	5.602	ng	100
21) 1,3-Dichloropropane	15.99	76	244660	5.568	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	131997	5.582	ng	100
23) 1-Chlorohexane	17.93	91	232764	5.521	ng	99
24) 1,2,3-Trichloropropane	18.79	75	237529	5.424	ng	99
25) Bromobenzene	19.29	77	284677	5.537	ng	99
26) 2-Chlorotoluene	19.62	91	505002	5.651	ng	100
27) 4-Chlorotoluene	19.68	91	501498	5.521	ng	99
28) Indan	20.73	117	586177	5.503	ng	100
29) Indene	20.81	115	508687	5.271	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	620141	5.379	ng	100
31) 1,2,3,4-Tetramethylben...	21.59	119	567320	5.158	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	564118	5.186	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	242350	4.891	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021823.D
Acq On : 2 Jul 2018 19:21 Operator: WA
Sample : 5.0ng Custom ICAL Std.
Misc : S31-04201801/S31-06281809 (7/27)
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 09 10:21:15 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021824.D
Acq On : 2 Jul 2018 19:55 Operator: WA
Sample : 25ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:16 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration WA 7/9/18
DataAcq Meth:TO15.M

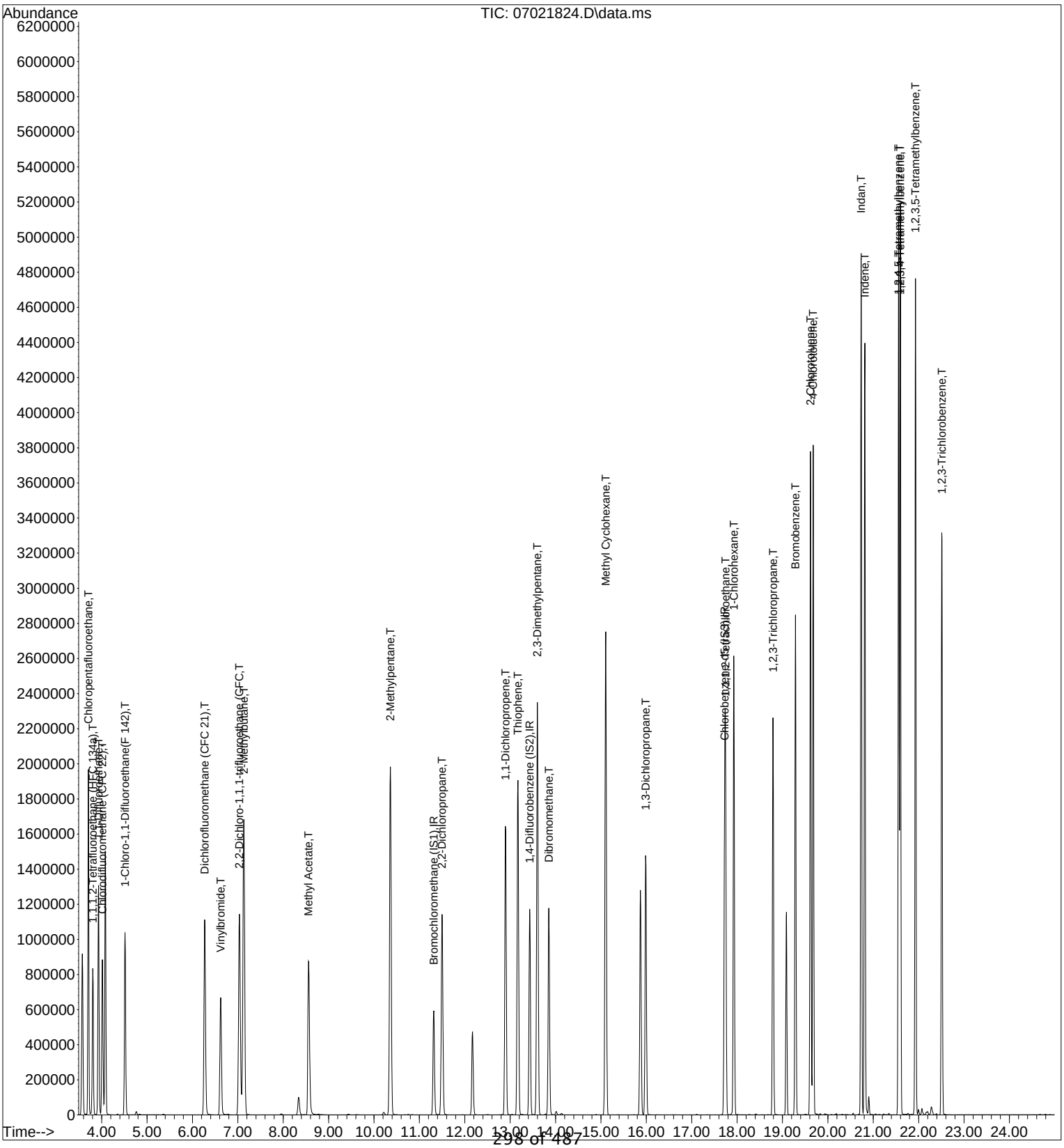
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	275996	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1191866	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	546056	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	844630	23.886	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	539760	21.809	ng	100
4) 1,1-Difluoroethane	3.93	65	637193	22.875	ng	100
5) Chlorodifluoromethane ...	4.01	67	170556	22.808	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.51	65	1031558	21.699	ng	100
7) Dichlorofluoromethane ...	6.27	67	1426450	21.829	ng	100
8) Vinylbromide	6.62	108	615333	23.155	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.03	83	1008722	23.875	ng	100
10) 2-Methylbutane	7.13	57	706731	21.649	ng	100
11) Methyl Acetate	8.56	43	1571364	24.780	ng	100
12) 2-Methylpentane	10.36	71	654865	22.586	ng	100
13) 2,2-Dichloropropane	11.50	77	933360	25.696	ng	100
14) 1,1-Dichloropropene	12.90	75	988421	23.246	ng	100
15) Thiophene	13.17	84	1554374	22.594	ng	100
17) 2,3-Dimethylpentane	13.60	56	1255944	22.176	ng	100
18) Dibromomethane	13.85	174	607924	25.341	ng	100
20) Methyl Cyclohexane	15.11	55	1042806	23.690	ng	100
21) 1,3-Dichloropropane	15.99	76	1115950	23.780	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	617733	24.459	ng	100
23) 1-Chlorohexane	17.93	91	1061171	23.567	ng	100
24) 1,2,3-Trichloropropane	18.79	75	1081648	23.126	ng	100
25) Bromobenzene	19.29	77	1294481	23.573	ng	100
26) 2-Chlorotoluene	19.62	91	2295913	24.057	ng	100
27) 4-Chlorotoluene	19.68	91	2258762	23.284	ng	100
28) Indan	20.73	117	2677195	23.532	ng	100
29) Indene	20.81	115	2347239	22.775	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2902228	23.572	ng	100
31) 1,2,3,4-Tetramethylben...	21.59	119	2667128	22.706	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	2692561	23.175	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	1207444	22.818	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021824.D
Acq On : 2 Jul 2018 19:55 Operator: WA
Sample : 25ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:16 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021825.D
Acq On : 2 Jul 2018 20:29 Operator: WA
Sample : 50ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:17 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018 7/9/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

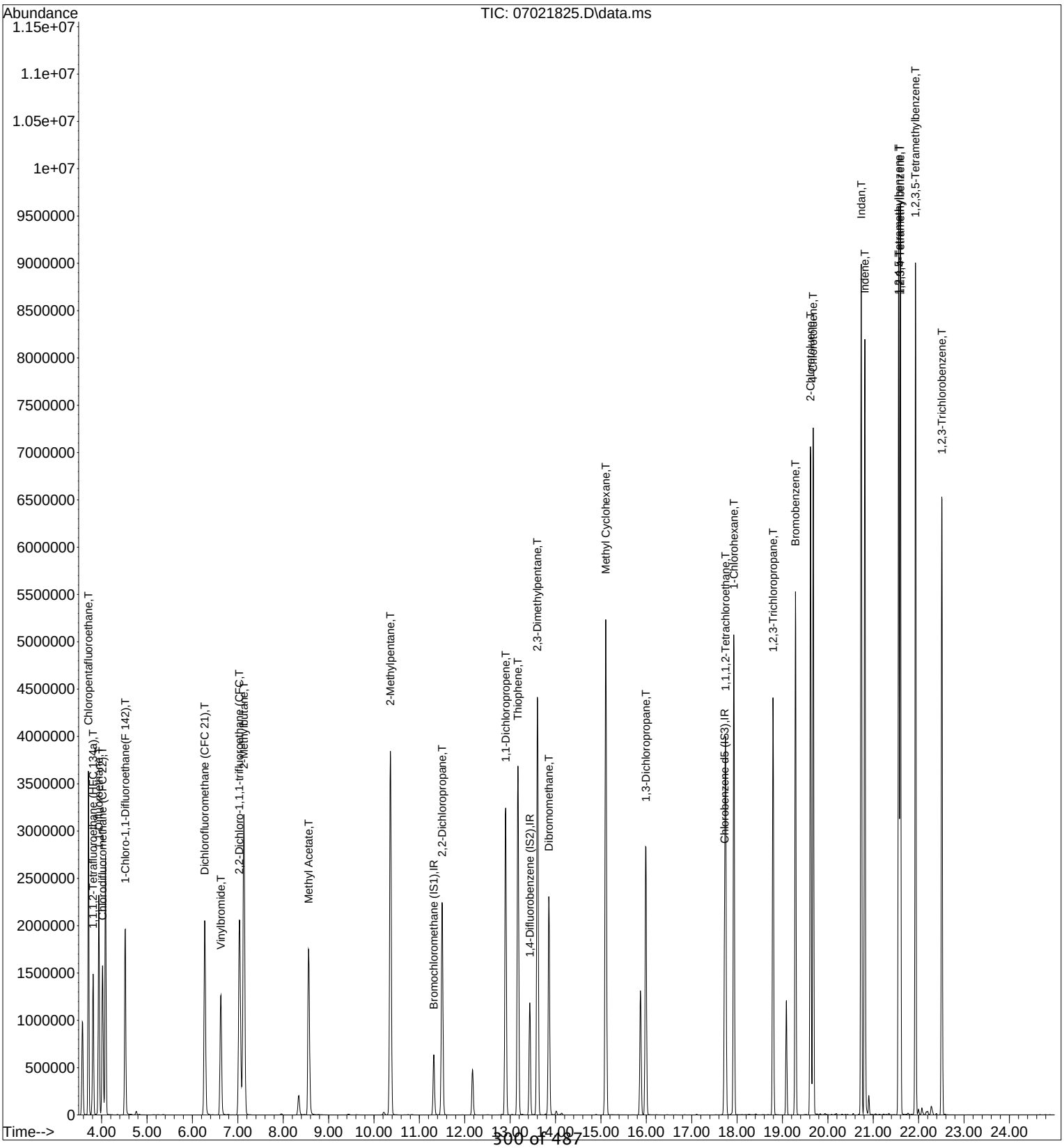
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	290296	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1217943	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	588631	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	1613595	43.385	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	1023874	39.333	ng	99
4) 1,1-Difluoroethane	3.94	65	1152603	39.340	ng	99
5) Chlorodifluoromethane ...	4.02	67	330071	41.966	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1998264	39.964	ng	100
7) Dichlorofluoromethane ...	6.27	67	2702902	39.325	ng	100
8) Vinylbromide	6.63	108	1191953	42.643	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.03	83	1994303	44.877	ng	100
10) 2-Methylbutane	7.13	57	1369372	39.881	ng	99
11) Methyl Acetate	8.56	43	3087903	46.297	ng	99
12) 2-Methylpentane	10.36	71	1288585	42.253	ng	98
13) 2,2-Dichloropropane	11.50	77	1834226	48.010	ng	100
14) 1,1-Dichloropropene	12.90	75	1956684	43.752	ng	100
15) Thiophene	13.17	84	3033377	41.921	ng	100
17) 2,3-Dimethylpentane	13.60	56	2434606	42.068	ng	100
18) Dibromomethane	13.85	174	1189257	48.511	ng	100
20) Methyl Cyclohexane	15.11	55	2017400	42.516	ng	100
21) 1,3-Dichloropropane	15.99	76	2185279	43.198	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	1231396	45.231	ng	100
23) 1-Chlorohexane	17.93	91	2084261	42.941	ng	99
24) 1,2,3-Trichloropropane	18.79	75	2129979	42.246	ng	100
25) Bromobenzene	19.29	77	2535466	42.833	ng	99
26) 2-Chlorotoluene	19.62	91	4446920	43.225	ng	99
27) 4-Chlorotoluene	19.68	91	4383737	41.921	ng	99
28) Indan	20.74	117	5092676	41.525	ng	100
29) Indene	20.81	115	4496624	40.475	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	5431674	40.925	ng	99
31) 1,2,3,4-Tetramethylben...	21.60	119	5131573	40.527	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	5111152	40.810	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	2379481	41.715	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021825.D
Acq On : 2 Jul 2018 20:29 Operator: WA
Sample : 50ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:17 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021826.D
Acq On : 2 Jul 2018 21:02 Operator: WA
Sample : 100ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:18 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018 7/9/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

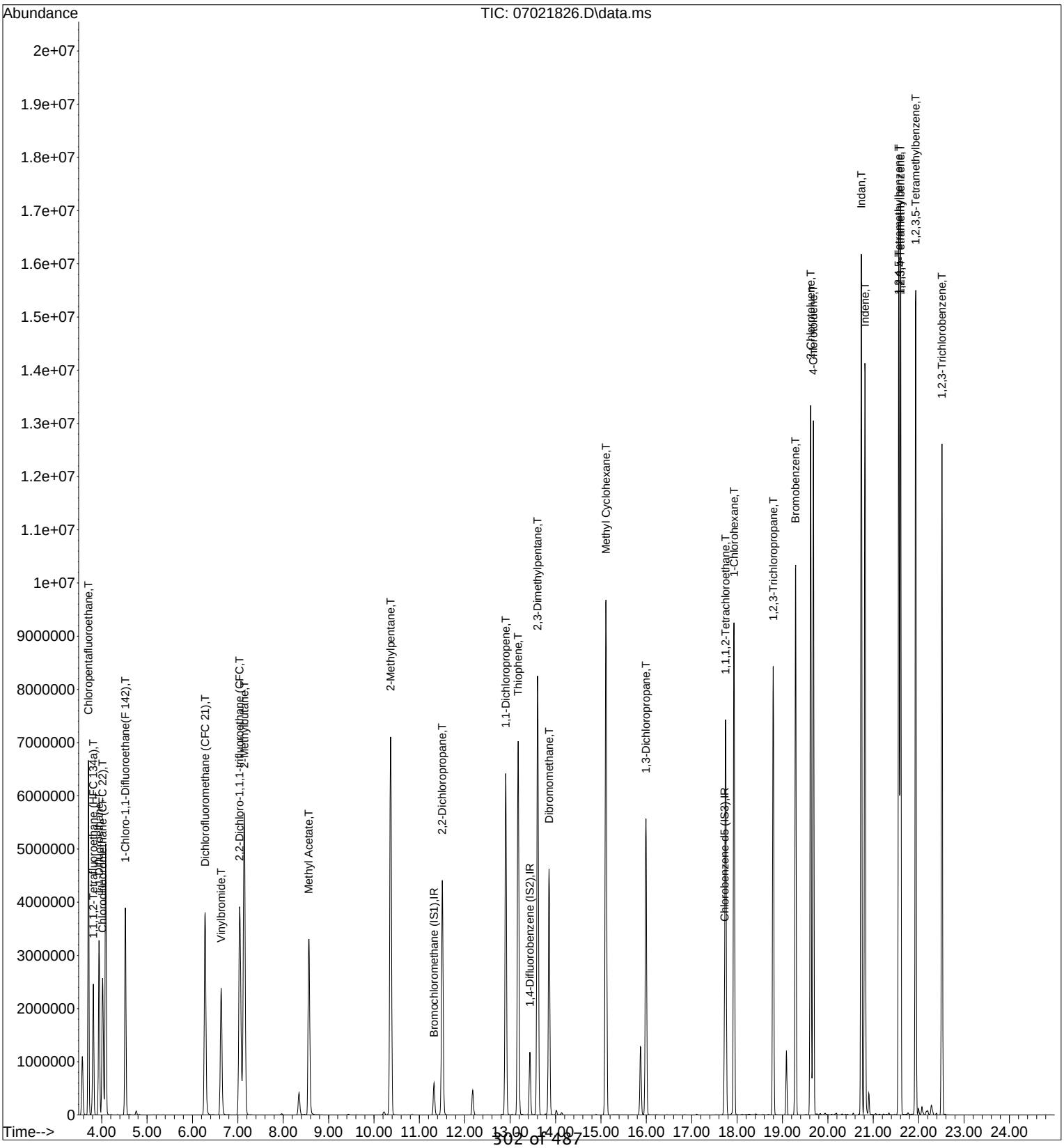
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	282853	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1197931	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	621090	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	3046919	84.078	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	1784509	70.357	ng	98
4) 1,1-Difluoroethane	3.94	65	1662838	58.249	ng	99
5) Chlorodifluoromethane ...	4.02	67	597808	78.007	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.52	65	3935030	80.769	ng	100
7) Dichlorofluoromethane ...	6.28	67	5235077	78.171	ng	100
8) Vinylbromide	6.63	108	2346070	86.141	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	3953976	91.315	ng	100
10) 2-Methylbutane	7.14	57	2606357	77.904	ng	98
11) Methyl Acetate	8.56	43	5883792	90.537	ng	99
12) 2-Methylpentane	10.37	71	2502088	84.203	ng	94
13) 2,2-Dichloropropane	11.50	77	3620342	97.255	ng	100
14) 1,1-Dichloropropene	12.90	75	3847331	88.291	ng	100
15) Thiophene	13.18	84	5890329	83.545	ng	100
17) 2,3-Dimethylpentane	13.61	56	4588900	80.617	ng	99
18) Dibromomethane	13.86	174	2368638	98.234	ng	100
20) Methyl Cyclohexane	15.11	55	3840063	76.699	ng	99
21) 1,3-Dichloropropane	15.99	76	4287873	80.331	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	2442653	85.032	ng	99
23) 1-Chlorohexane	17.93	91	4029548	78.680	ng	98
24) 1,2,3-Trichloropropane	18.80	75	4131229	77.657	ng	99
25) Bromobenzene	19.29	77	4867183	77.926	ng	98
26) 2-Chlorotoluene	19.62	91	8277308	76.252	ng	98
27) 4-Chlorotoluene	19.68	91	8208083	74.390	ng	98
28) Indan	20.74	117	9178372	70.929	ng	98
29) Indene	20.82	115	8162127	69.629	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	10075412	71.945	ng	99
31) 1,2,3,4-Tetramethylben...	21.60	119	8791518	65.803	ng	98
32) 1,2,3,5-Tetramethylben...	21.94	119	9248379	69.984	ng	98
33) 1,2,3-Trichlorobenzene	22.51	180	4552015	75.631	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021826.D
Acq On : 2 Jul 2018 21:02 Operator: WA
Sample : 100ng Custom ICAL Std.
Misc : S31-04201801/S31-06281806 (7/27)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 09 10:21:18 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:20:53 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021828.D
Acq On : 2 Jul 2018 22:09 Operator: WA
Sample : 25ng Custom ICAL ICV
Misc : S31-04201801/S31-06281810 (7/27)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 09 10:48:35 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration 7/9/18
DataAcq Meth:TO15.M

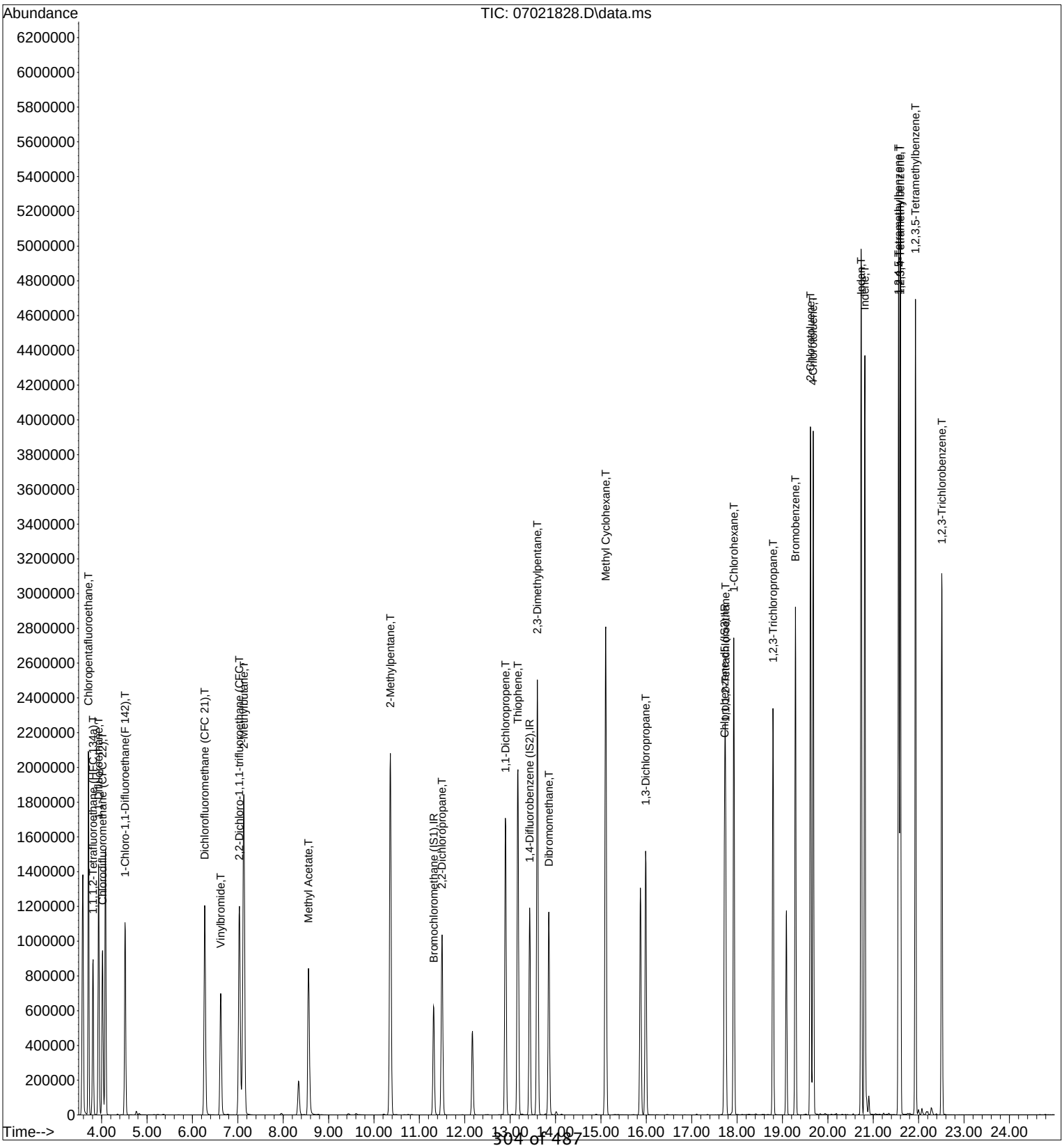
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	289190	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1203611	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	554717	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	917828	26.692	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	585390	24.488	ng	100
4) 1,1-Difluoroethane	3.93	65	696738	26.365	ng	99
5) Chlorodifluoromethane ...	4.02	67	184293	25.598	ng	99
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1098840	24.986	ng	100
7) Dichlorofluoromethane ...	6.27	67	1538589	24.366	ng	100
8) Vinylbromide	6.62	108	640721	23.324	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.03	83	1044999	23.963	ng	100
10) 2-Methylbutane	7.13	57	765502	24.318	ng	95
11) Methyl Acetate	8.56	43	1493429	21.611	ng	100
12) 2-Methylpentane	10.36	71	676546	22.412	ng	100
13) 2,2-Dichloropropane	11.50	77	841225	19.997	ng	100
14) 1,1-Dichloropropene	12.90	75	1029680	23.674	ng	100
15) Thiophene	13.17	84	1622652	23.048	ng	100
17) 2,3-Dimethylpentane	13.60	56	1332971	24.519	ng	100
18) Dibromomethane	13.85	174	599470	23.878	ng	100
20) Methyl Cyclohexane	15.11	55	1092000	24.380	ng	100
21) 1,3-Dichloropropane	15.99	76	1155339	24.233	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	576141	19.698	ng	100
23) 1-Chlorohexane	17.93	91	1102905	23.397	ng	100
24) 1,2,3-Trichloropropane	18.79	75	1121894	23.502	ng	100
25) Bromobenzene	19.29	77	1342658	23.809	ng	100
26) 2-Chlorotoluene	19.62	91	2439171	25.085	ng	100
27) 4-Chlorotoluene	19.68	91	2371970	23.694	ng	100
28) Indan	20.73	117	2756176	22.859	ng	100
29) Indene	20.81	115	2315432	21.163	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2907024	22.105	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	2695761	21.747	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	2659848	21.782	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	1128752	20.508	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_07\02\07021828.D
Acq On : 2 Jul 2018 22:09 Operator: WA
Sample : 25ng Custom ICAL ICV
Misc : S31-04201801/S31-06281810 (7/27)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 09 10:48:35 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LABORATORY CONTROL SAMPLE CHECK SHEET

WA 7/9/18

Data File Name: **07021828.D** Acq. Method File: **TO15.M**

Data File Path: **I:\MS16\DATA\2018_07\02** Sample Name: **25ng Custom ICAL IC**

Operator: **WA** Misc Info: **S31-04201801/S31-06**

Date Acquired: **7/2/2018** **22:09** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	AZ Check 70-130%
2)	**Chloropentafluoroethane**	3.71	26.7	27.00	99	70	130	*
3)	**1,1,1,2-Tetrafluoroethane (HFC 1**	3.81	24.5	27.00	91	70	130	*
4)	**1,1-Difluoroethane**	3.93	26.4	26.00	102	70	130	*
5)	**Chlorodifluoromethane (CFC 22)**	4.02	25.6	27.00	95	70	130	*
6)	**1-Chloro-1,1-Difluoroethane(F 14**	4.52	25.0	26.25	95	70	130	*
7)	**Dichlorofluoromethane (CFC 21)**	6.27	24.4	25.75	95	70	130	*
8)	**Vinylbromide**	6.62	23.3	24.75	94	70	130	*
9)	**2,2-Dichloro-1,1,1-trifluoroethane**	7.03	24.0	26.50	91	70	130	*
10)	**2-Methylbutane**	7.13	24.3	27.50	88	70	130	*
11)	**Methyl Acetate**	8.56	21.6	23.25	93	70	130	*
12)	**2-Methylpentane**	10.36	22.4	24.75	91	70	130	*
13)	**2,2-Dichloropropane**	11.50	20.0	22.50	89	70	130	*
14)	**1,1-Dichloropropene**	12.90	23.7	25.50	93	70	130	*
15)	**Thiophene**	13.17	23.0	25.25	91	70	130	*
17)	**2,3-Dimethylpentane**	13.60	24.5	26.00	94	70	130	*
18)	**Dibromomethane**	13.85	23.9	25.50	94	70	130	*
20)	**Methyl Cyclohexane**	15.11	24.4	27.25	90	70	130	*
21)	**1,3-Dichloropropane**	15.99	24.2	26.50	91	70	130	*
22)	**1,1,1,2-Tetrachloroethane**	17.75	19.7	22.50	88	70	130	*
23)	**1-Chlorohexane**	17.93	23.4	26.00	90	70	130	*
24)	**1,2,3-Trichloropropane**	18.79	23.5	26.50	89	70	130	*
25)	**Bromobenzene**	19.29	23.8	26.75	89	70	130	*
26)	**2-Chlorotoluene**	19.62	25.1	27.50	91	70	130	*
27)	**4-Chlorotoluene**	19.68	23.7	26.50	89	70	130	*
28)	**Indan**	20.73	22.9	25.25	91	70	130	*
29)	**Indene**	20.81	21.2	24.25	87	70	130	*
30)	**1,2,4,5-Tetramethylbenzene**	21.56	22.1	25.25	88	70	130	*
31)	**1,2,3,4-Tetramethylbenzene**	21.60	21.7	25.00	87	70	130	*
32)	**1,2,3,5-Tetramethylbenzene**	21.93	21.8	24.75	88	70	130	*
33)	**1,2,3-Trichlorobenzene**	22.51	20.5	24.50	84	70	130	*

* = Pass

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2018_10\16\10161802.D
Acq On : 16 Oct 2018 00:38 Operator: LH/TD
Sample : CCV R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-09181806 (10/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

TD 10/16/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	73	0.02
2	T	Propene	1.423	1.050	26.2	68	-0.03
3	T	Dichlorodifluoromethane (CF	2.324	2.154	7.3	76	-0.02
4	T	Chloromethane	1.744	1.512	13.3	68	-0.02
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.346	1.257	6.6	80	-0.01
6	T	Vinyl Chloride	1.831	1.507	17.7	72	-0.01
7	T	1,3-Butadiene	1.357	1.195	11.9	66	0.00
8	T	Bromomethane	1.241	1.051	15.3	68	0.00
9	T	Chloroethane	0.974	0.756	22.4	65	0.00
10	T	Ethanol	0.870	0.758	12.9	69	0.04
11	T	Acetonitrile	2.317	1.922	17.0	66	0.02
12	T	Acrolein	0.841	0.668	20.6	65	0.00
13	T	Acetone	0.978	0.780	20.2	68	0.00
14	T	Trichlorofluoromethane	2.013	1.873	7.0	78	0.00
15	T	2-Propanol (Isopropanol)	3.005	2.769	7.9	71	0.01
16	T	Acrylonitrile	1.744	1.469	15.8	66	0.01
17	T	1,1-Dichloroethene	1.308	1.129	13.7	71	0.00
18	T	2-Methyl-2-Propanol (tert-B	2.997	2.792	6.8	74	-0.01
19	T	Methylene Chloride	1.381	1.151	16.7	69	0.02
20	T	3-Chloro-1-propene (Allyl C	1.703	1.444	15.2	67	0.01
21	T	Trichlorotrifluoroethane	1.220	1.157	5.2	77	0.00
22	T	Carbon Disulfide	5.065	4.199	17.1	69	0.00
23	T	trans-1,2-Dichloroethene	1.842	1.569	14.8	69	0.01
24	T	1,1-Dichloroethane	2.260	1.898	16.0	69	0.02
25	T	Methyl tert-Butyl Ether	3.608	3.187	11.7	70	-0.01
26	T	Vinyl Acetate	0.283	0.268	5.3	71	0.01
27	T	2-Butanone (MEK)	0.910	0.796	12.5	68	-0.01
28	T	cis-1,2-Dichloroethene	1.775	1.508	15.0	69	0.01
29	T	Diisopropyl Ether	1.075	0.883	17.9	71	0.00
30	T	Ethyl Acetate	0.467	0.394	15.6	68	0.00
31	T	n-Hexane	2.097	1.589	24.2	67	0.00
32	T	Chloroform	2.141	1.917	10.5	73	0.01
33	S	1,2-Dichloroethane-d4(SS1)	1.237	1.257	-1.6	74	0.02
34	T	Tetrahydrofuran (THF)	0.903	0.751	16.8	68	-0.02
35	T	Ethyl tert-Butyl Ether	1.497	1.332	11.0	70	0.00
36	T	1,2-Dichloroethane	1.484	1.393	6.1	77	0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	70	0.00
38	T	1,1,1-Trichloroethane	0.419	0.419	0.0	77	0.01
39	T	Isopropyl Acetate	0.204	0.174	14.7	68	0.00
40	T	1-Butanol	0.294	0.282	4.1	77	-0.02
41	T	Benzene	1.312	1.117	14.9	69	0.00
42	T	Carbon Tetrachloride	0.382	0.384	-0.5	76	0.00
43	T	Cyclohexane	0.476	0.421	11.6	70	0.00
44	T	tert-Amyl Methyl Ether	0.873	0.774	11.3	69	0.00
45	T	1,2-Dichloropropane	0.310	0.260	16.1	66	0.00
46	T	Bromodichloromethane	0.385	0.379	1.6	75	0.00
47	T	Trichloroethene	0.353	0.337	4.5	76	0.00
48	T	1,4-Dioxane	0.259	0.240	7.3	73	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.304	1.072	17.8	67	0.00
50	T	Methyl Methacrylate	0.131	0.120	8.4	71	0.00
51	T	n-Heptane	0.307	0.247	19.5	66	0.00
52	T	cis-1,3-Dichloropropene	0.487	0.460	5.5	71	0.00
53	T	4-Methyl-2-pentanone	0.290	0.254	12.4	70	-0.01

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2018_10\16\10161802.D
Acq On : 16 Oct 2018 00:38 Operator: LH/TD
Sample : CCV R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-09181806 (10/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	trans-1,3-Dichloropropene	0.426	0.427	-0.2	73	0.00
55	T	1,1,2-Trichloroethane	0.305	0.284	6.9	72	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	71	0.00
57	S	Toluene-d8 (SS2)	1.912	2.098	-9.7	78	0.00
58	T	Toluene	3.272	2.806	14.2	71	0.00
59	T	2-Hexanone	1.555	1.401	9.9	73	0.00
60	T	Dibromochloromethane	0.847	0.893	-5.4	78	0.00
61	T	1,2-Dibromoethane	0.837	0.814	2.7	75	0.00
62	T	n-Butyl Acetate	1.734	1.577	9.1	74	0.00
63	T	n-Octane	0.640	0.518	19.1	67	0.00
64	T	Tetrachloroethene	0.942	0.926	1.7	79	0.00
65	T	Chlorobenzene	2.140	1.974	7.8	74	0.00
66	T	Ethylbenzene	3.615	3.287	9.1	72	0.00
67	T	m- & p-Xylenes	2.683	2.434	9.3	73	0.00
68	T	Bromoform	0.744	0.852	-14.5	81	0.00
69	T	Styrene	2.169	2.106	2.9	74	0.00
70	T	o-Xylene	2.710	2.458	9.3	73	0.00
71	T	n-Nonane	1.375	1.172	14.8	69	0.00
72	T	1,1,2,2-Tetrachloroethane	1.329	1.249	6.0	72	0.00
73	S	Bromofluorobenzene (SS3)	0.777	0.921	-18.5	83	0.00
74	T	Cumene	3.549	3.294	7.2	74	0.00
75	T	alpha-Pinene	1.828	1.682	8.0	71	0.00
76	T	n-Propylbenzene	4.142	3.841	7.3	73	0.00
77	T	3-Ethyltoluene	3.531	3.231	8.5	69	0.00
78	T	4-Ethyltoluene	3.263	3.188	2.3	81	0.00
79	T	1,3,5-Trimethylbenzene	2.885	2.683	7.0	74	0.00
80	T	alpha-Methylstyrene	1.466	1.508	-2.9	76	0.00
81	T	2-Ethyltoluene	3.403	3.180	6.6	74	0.00
82	T	1,2,4-Trimethylbenzene	2.808	2.702	3.8	76	0.00
83	T	n-Decane	0.064	0.057	10.9	67	0.00
84	T	Benzyl Chloride	2.287	2.484	-8.6	75	0.00
85	T	1,3-Dichlorobenzene	1.743	1.767	-1.4	80	0.00
86	T	1,4-Dichlorobenzene	1.752	1.773	-1.2	79	0.00
87	T	sec-Butylbenzene	3.872	3.631	6.2	74	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.529	3.462	1.9	78	0.00
89	T	1,2,3-Trimethylbenzene	2.781	2.706	2.7	76	0.00
90	T	1,2-Dichlorobenzene	1.639	1.664	-1.5	80	0.00
91	T	d-Limonene	1.058	0.991	6.3	70	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.601	0.673	-12.0	82	0.00
93	T	n-Undecane	1.443	1.402	2.8	69	0.00
94	T	1,2,4-Trichlorobenzene	1.136	1.423	-25.3	86	0.00
95	T	Naphthalene	3.225	4.370	-35.5#	85	0.00
96	T	n-Dodecane	1.141	1.442	-26.4	77	0.00
97	T	Hexachlorobutadiene	0.828	0.925	-11.7	85	0.00
98	T	Cyclohexanone	1.119	1.027	8.2	76	0.00
99	T	tert-Butylbenzene	2.771	2.662	3.9	77	0.00
100	T	n-Butylbenzene	3.005	2.882	4.1	73	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161802.D
Acq On : 16 Oct 2018 00:38 Operator: LH/TD
Sample : CCV R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-09181806 (10/17)
ALS Vial : 2 Sample Multiplier: 1

TD 10/16/18

Quant Time: Oct 16 06:23:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	211276	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	858896	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	355009	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	265656	12.709	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.68%				
57) Toluene-d8 (SS2)	15.87	98	744877	13.716	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.76%				
73) Bromofluorobenzene (SS3)	19.09	174	327068	14.819	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.56%				
Target Compounds							Qvalue
2) Propene	4.04	42	457242	19.009	ng		99
3) Dichlorodifluoromethan...	4.21	85	951251	24.214	ng		100
4) Chloromethane	4.51	50	644009	21.846	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	545820	23.986	ng		100
6) Vinyl Chloride	4.96	62	669166	21.621	ng		100
7) 1,3-Butadiene	5.24	54	529907	23.112	ng		98
8) Bromomethane	5.70	94	448098	21.360	ng		100
9) Chloroethane	6.04	64	326393	19.821	ng		100
10) Ethanol	6.44	45	1646442	111.949	ng		100
11) Acetonitrile	6.71	41	839068	21.423	ng		99
12) Acrolein	6.90	56	290356	20.425	ng		100
13) Acetone	7.11	58	1769192	107.045	ng		89
14) Trichlorofluoromethane	7.35	101	838763	24.652	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2413483	47.511	ng		98
16) Acrylonitrile	7.90	53	642026	21.781	ng		100
17) 1,1-Dichloroethene	8.35	96	512233	23.163	ng		99
18) 2-Methyl-2-Propanol (t...	8.51	59	2529809	49.947	ng		99
19) Methylene Chloride	8.58	84	520503	22.303	ng		98
20) 3-Chloro-1-propene (Al...	8.74	41	651122	22.625	ng		99
21) Trichlorotrifluoroethane	8.99	151	520476	25.234	ng		93
22) Carbon Disulfide	8.85	76	1907288	22.279	ng		100
23) trans-1,2-Dichloroethene	9.87	61	704023	22.608	ng		97
24) 1,1-Dichloroethane	10.12	63	825852	21.620	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1466445	24.048	ng		98
26) Vinyl Acetate	10.38	86	595346	124.574	ng		96
27) 2-Butanone (MEK)	10.62	72	345631	22.471	ng		98
28) cis-1,2-Dichloroethene	11.15	61	671578	22.381	ng		97
29) Diisopropyl Ether	11.42	87	403248	22.191	ng		98
30) Ethyl Acetate	11.44	61	360379	45.687	ng		99
31) n-Hexane	11.41	57	726704	20.498	ng		99
32) Chloroform	11.49	83	872620	24.109	ng		100
34) Tetrahydrofuran (THF)	11.88	72	339047	22.206	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	596817	23.586	ng		97
36) 1,2-Dichloroethane	12.30	62	624514	24.900	ng		100
38) 1,1,1-Trichloroethane	12.57	97	777931	27.050	ng		99
39) Isopropyl Acetate	12.98	61	618577	44.122	ng	#	87
40) 1-Butanol	13.00	56	1003046	49.700	ng		99
41) Benzene	13.04	78	1981289	21.981	ng		100
42) Carbon Tetrachloride	13.20	117	683228	25.997	ng		99
43) Cyclohexane	13.33	84	1509035	46.103	ng		96
44) tert-Amyl Methyl Ether	13.67	73	1427953	23.805	ng		99
45) 1,2-Dichloropropane	13.89	63	480052	22.555	ng		100
46) Bromodichloromethane	14.09	83	695031	26.300	ng		100
47) Trichloroethene	14.13	130	614807	25.346	ng		100
48) 1,4-Dioxane	14.11	88	439223	24.660	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161802.D
Acq On : 16 Oct 2018 00:38 Operator: LH/TD
Sample : CCV R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-09181806 (10/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES

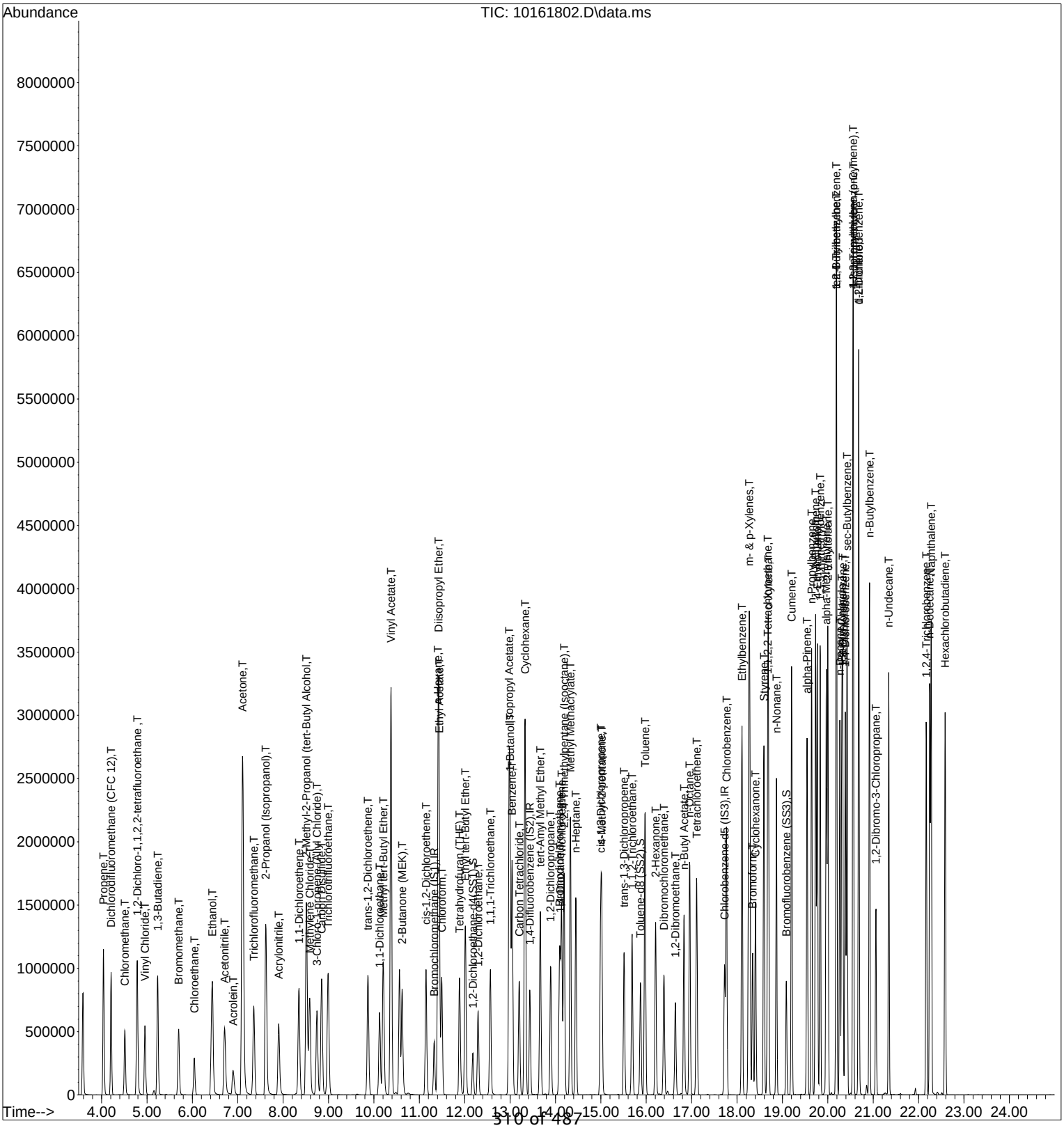
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	1953378	21.801 ng		99
50) Methyl Methacrylate	14.33	100	441776	49.229 ng		97
51) n-Heptane	14.45	71	456993	21.668 ng		99
52) cis-1,3-Dichloropropene	15.00	75	885710	26.489 ng		100
53) 4-Methyl-2-pentanone	15.02	58	463288	23.282 ng		96
54) trans-1,3-Dichloropropene	15.51	75	773736	26.410 ng		100
55) 1,1,2-Trichloroethane	15.69	97	524171	25.030 ng		98
58) Toluene	15.98	91	2095937	22.554 ng		100
59) 2-Hexanone	16.21	43	1068286	24.195 ng		97
60) Dibromochloromethane	16.39	129	681539	28.334 ng		99
61) 1,2-Dibromoethane	16.64	107	621825	26.161 ng		100
62) n-Butyl Acetate	16.83	43	1215022	24.675 ng		97
63) n-Octane	16.95	57	396010	21.788 ng		98
64) Tetrachloroethene	17.11	166	695628	25.995 ng		100
65) Chlorobenzene	17.77	112	1494365	24.593 ng		99
66) Ethylbenzene	18.11	91	2410936	23.482 ng		99
67) m- & p-Xylenes	18.27	91	3668467	48.147 ng		99
68) Bromoform	18.35	173	642711	30.412 ng		100
69) Styrene	18.59	104	1585033	25.728 ng		100
70) o-Xylene	18.69	91	1853146	24.080 ng		99
71) n-Nonane	18.87	43	891495	22.833 ng		98
72) 1,1,2,2-Tetrachloroethane	18.68	83	943751	24.996 ng		100
74) Cumene	19.20	105	2472379	24.529 ng		100
75) alpha-Pinene	19.54	93	1236371	23.821 ng		100
76) n-Propylbenzene	19.64	91	2934767	24.950 ng		99
77) 3-Ethyltoluene	19.73	105	2436268	24.294 ng		94
78) 4-Ethyltoluene	19.77	105	2401442	25.913 ng		95
79) 1,3,5-Trimethylbenzene	19.83	105	2013384	24.573 ng		99
80) alpha-Methylstyrene	19.97	118	1132517	27.206 ng		100
81) 2-Ethyltoluene	20.00	105	2420267	25.043 ng	#	11
82) 1,2,4-Trimethylbenzene	20.19	105	2049178	25.699 ng		99
83) n-Decane	20.26	58	43760	23.969 ng	#	93
84) Benzyl Chloride	20.31	91	1853295	28.536 ng		99
85) 1,3-Dichlorobenzene	20.33	146	1354593	27.360 ng	#	64
86) 1,4-Dichlorobenzene	20.39	146	1360625	27.337 ng		100
87) sec-Butylbenzene	20.42	105	2740563	24.919 ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	2561622	25.560 ng		99
89) 1,2,3-Trimethylbenzene	20.56	105	2001980	25.351 ng		98
90) 1,2-Dichlorobenzene	20.68	146	1286994	27.656 ng		100
91) d-Limonene	20.68	68	710881	23.664 ng		95
92) 1,2-Dibromo-3-Chloropr...	21.06	157	497852	29.187 ng		96
93) n-Undecane	21.34	57	1052261	25.682 ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	1075371	33.340 ng		100
95) Naphthalene	22.28	128	3180289	34.723 ng		100
96) n-Dodecane	22.24	57	1055553	32.576 ng		99
97) Hexachlorobutadiene	22.59	225	691705	29.406 ng		99
98) Cyclohexanone	18.41	55	715808	22.516 ng		97
99) tert-Butylbenzene	20.19	119	2016371	25.620 ng		99
100) n-Butylbenzene	20.92	91	2176894	25.503 ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161802.D
Acq On : 16 Oct 2018 00:38 Operator: LH/TD
Sample : CCV R16101618_25ng Inst : GCMS-16
Misc : S31-09141801/S31-09181806 (10/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 16 06:23:12 2018
Quant Method : I:\MS16\METHODS\R16082218.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Thu Aug 23 07:14:09 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16082218.RES



Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2018_10\16\10161801.D
Acq On : 16 Oct 2018 00:05 Operator: LH/TD
Sample : CCV C16101618_25ng
Misc : S31-09141801/S31-09241801 (10/23)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 16 11:05:51 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/16/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	73	0.00
2	T	Chloropentafluoroethane	1.486	1.329	10.6	70	0.01
3	T	1,1,1,2-Tetrafluoroethane (	1.033	1.003	2.9	75	0.00
4	T	1,1-Difluoroethane	1.142	0.954	16.5	63	0.00
5	T	Chlorodifluoromethane (CFC	0.311	0.299	3.9	73	0.00
6	T	1-Chloro-1,1-Difluoroethane	1.901	1.887	0.7	77	0.00
7	T	Dichlorofluoromethane (CFC	2.729	2.310	15.4	65	0.00
8	T	Vinylbromide	1.187	1.090	8.2	70	0.00
9	T	2,2-Dichloro-1,1,1-trifluor	1.885	1.585	15.9	66	0.00
10	T	2-Methylbutane	1.361	1.053	22.6	60	-0.01
11	T	Methyl Acetate	2.987	2.234	25.2	58	0.00
12	T	2-Methylpentane	1.305	1.046	19.8	64	0.00
13	T	2,2-Dichloropropane	1.818	1.485	18.3	64	0.00
14	T	1,1-Dichloropropene	1.880	1.636	13.0	68	0.00
15	T	Thiophene	3.043	2.674	12.1	68	0.00
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	71	0.00
17	T	2,3-Dimethylpentane	0.565	0.463	18.1	64	0.00
18	T	Dibromomethane	0.261	0.270	-3.4	79	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	66	0.00
20	T	Methyl Cyclohexane	1.009	0.876	13.2	64	-0.01
21	T	1,3-Dichloropropane	1.074	0.990	7.8	67	0.00
22	T	1,1,1,2-Tetrachloroethane	0.659	0.695	-5.5	76	0.00
23	T	1-Chlorohexane	1.062	1.019	4.0	70	0.00
24	T	1,2,3-Trichloropropane	1.076	0.992	7.8	68	0.00
25	T	Bromobenzene	1.271	1.178	7.3	68	0.00
26	T	2-Chlorotoluene	2.191	2.154	1.7	72	0.00
27	T	4-Chlorotoluene	2.256	2.207	2.2	72	0.00
28	T	Indan	2.717	2.856	-5.1	76	0.00
29	T	Indene	2.465	2.161	12.3	62	0.00
30	T	1,2,4,5-Tetramethylbenzene	2.963	3.163	-6.7	75	0.00
31	T	1,2,3,4-Tetramethylbenzene	2.793	3.024	-8.3	76	0.00
32	T	1,2,3,5-Tetramethylbenzene	2.752	2.973	-8.0	75	0.00
33	T	1,2,3-Trichlorobenzene	1.240	1.405	-13.3	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161801.D
Acq On : 16 Oct 2018 00:05 Operator: LH/TD
Sample : CCV C16101618_25ng
Misc : S31-09141801/S31-09241801 (10/23)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 16 11:05:51 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD LH 10/16/18
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

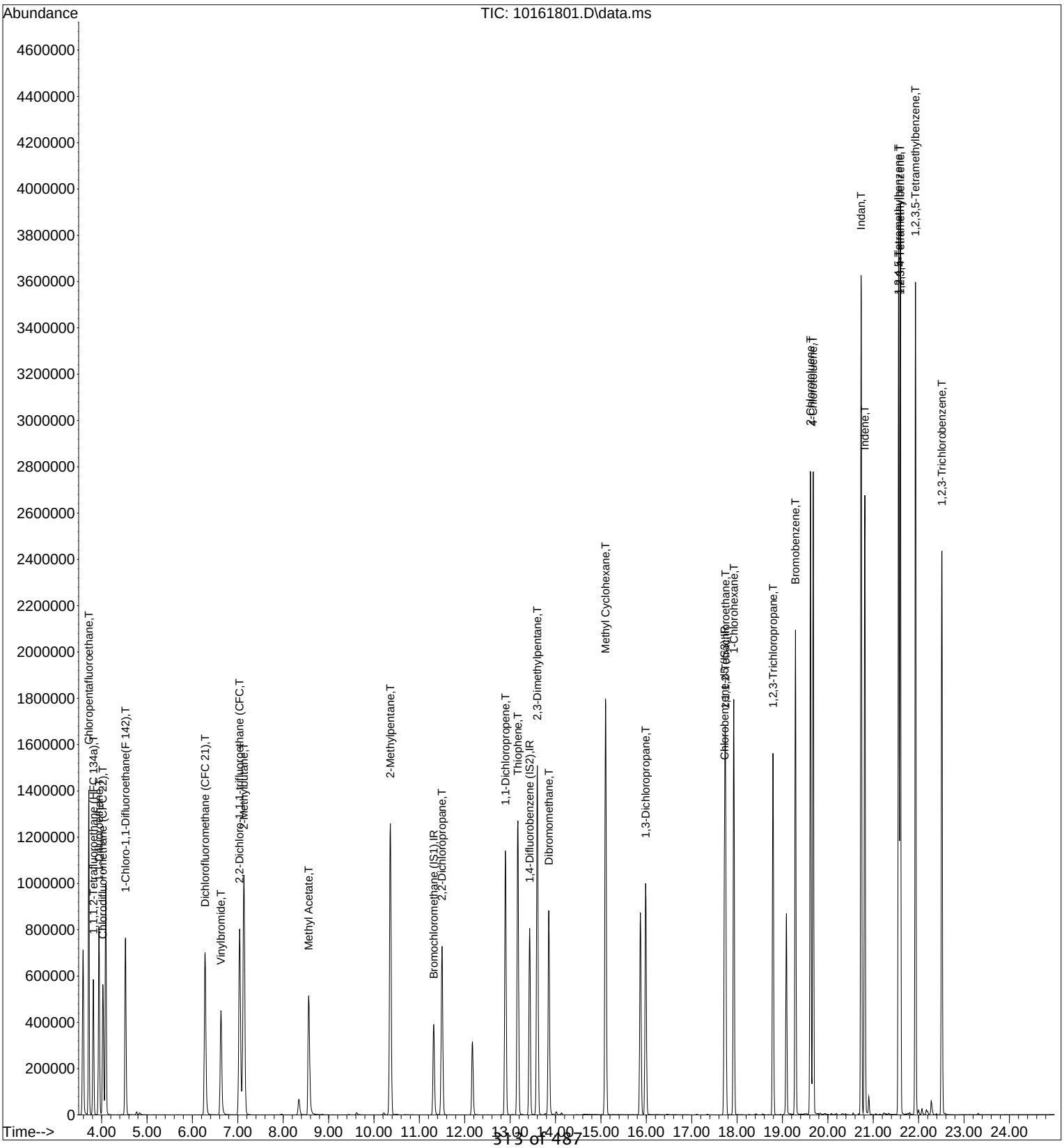
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	200847	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	849789	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	358600	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	587094	24.583	ng	96
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	403040	24.275	ng	87
4) 1,1-Difluoroethane	3.94	65	398576	21.716	ng	99
5) Chlorodifluoromethane ...	4.03	67	124755	24.950	ng	75
6) 1-Chloro-1,1-Difluoroe...	4.53	65	795996	26.061	ng	98
7) Dichlorofluoromethane ...	6.28	67	928093	21.163	ng	100
8) Vinylbromide	6.63	108	433614	22.728	ng	99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	668710	22.079	ng	99
10) 2-Methylbutane	7.13	57	427188	19.540	ng	92
11) Methyl Acetate	8.56	43	915315	19.072	ng	97
12) 2-Methylpentane	10.36	71	416056	19.845	ng	93
13) 2,2-Dichloropropane	11.50	77	596684	20.423	ng	100
14) 1,1-Dichloropropene	12.90	75	670196	22.187	ng	98
15) Thiophene	13.17	84	1063276	21.746	ng	96
17) 2,3-Dimethylpentane	13.60	56	802371	20.904	ng	98
18) Dibromomethane	13.85	174	482282	27.208	ng	89
20) Methyl Cyclohexane	15.10	55	665585	22.987	ng	93
21) 1,3-Dichloropropane	15.99	76	752477	24.414	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	468442	24.774	ng	100
23) 1-Chlorohexane	17.93	91	745310	24.458	ng	96
24) 1,2,3-Trichloropropane	18.79	75	732840	23.748	ng	95
25) Bromobenzene	19.29	77	878618	24.101	ng	86
26) 2-Chlorotoluene	19.62	91	1653120	26.299	ng	96
27) 4-Chlorotoluene	19.68	91	1630476	25.194	ng	97
28) Indan	20.73	117	2028040	26.019	ng	100
29) Indene	20.81	115	1457161	20.603	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	2177442	25.613	ng	98
31) 1,2,3,4-Tetramethylben...	21.60	119	2038670	25.441	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	2025318	25.656	ng	98
33) 1,2,3-Trichlorobenzene	22.51	180	927315	26.062	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\16\10161801.D
Acq On : 16 Oct 2018 00:05 Operator: LH/TD
Sample : CCV C16101618_25ng
Misc : S31-09141801/S31-09241801 (10/23)
ALS Vial : 3 Sample Multiplier: 1

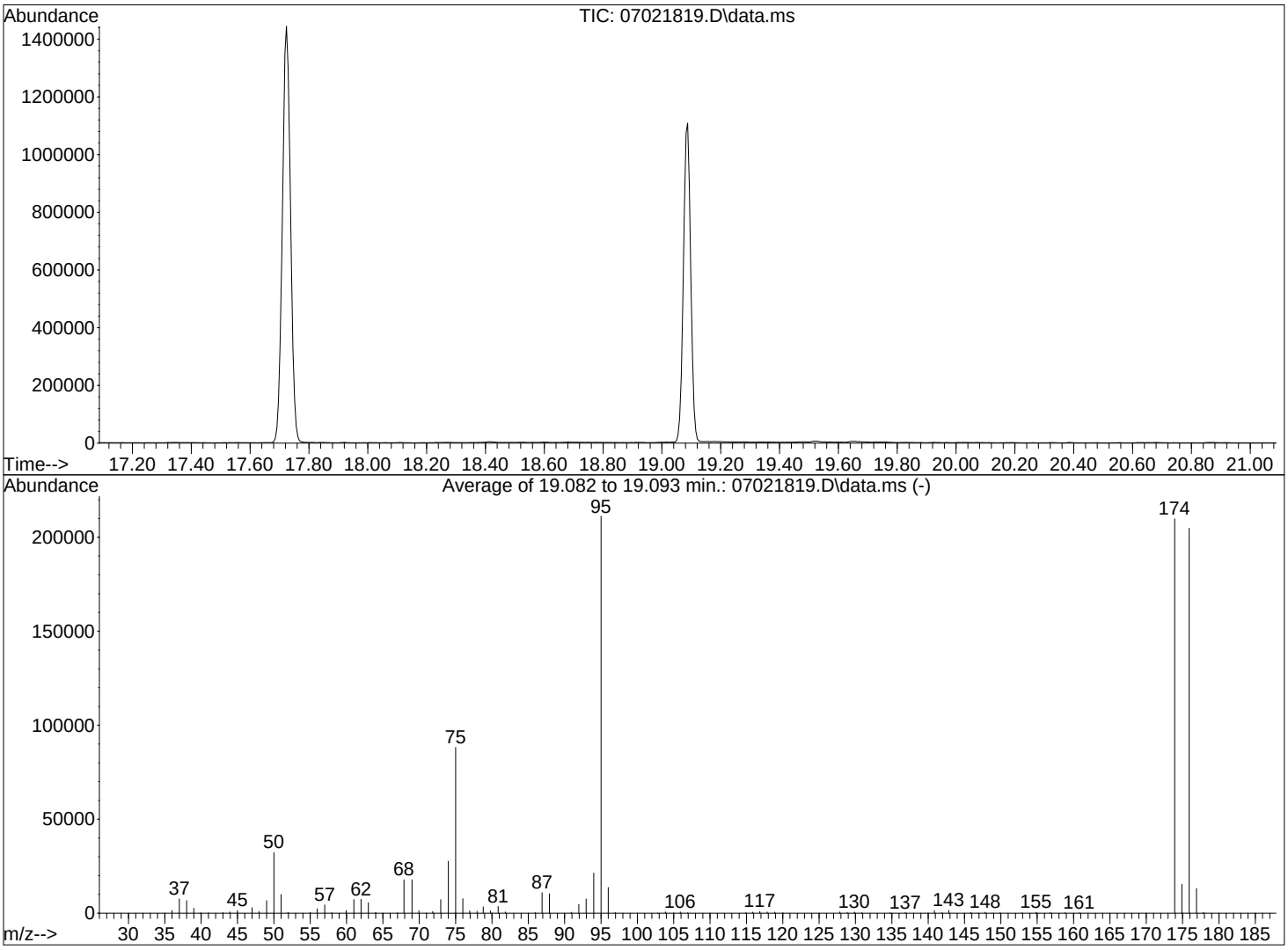
Quant Time: Oct 16 11:05:51 2018
Quant Method : I:\MS16\METHODS\C16070218.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 10:43:58 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS16\DATA\2018_07\02\
Data File : 07021819.D
Acq On : 2 Jul 2018 17:08
Operator : WA
Sample : BFB Tune
Misc : S31-04201801
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16070218.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Jul 09 10:43:58 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2826

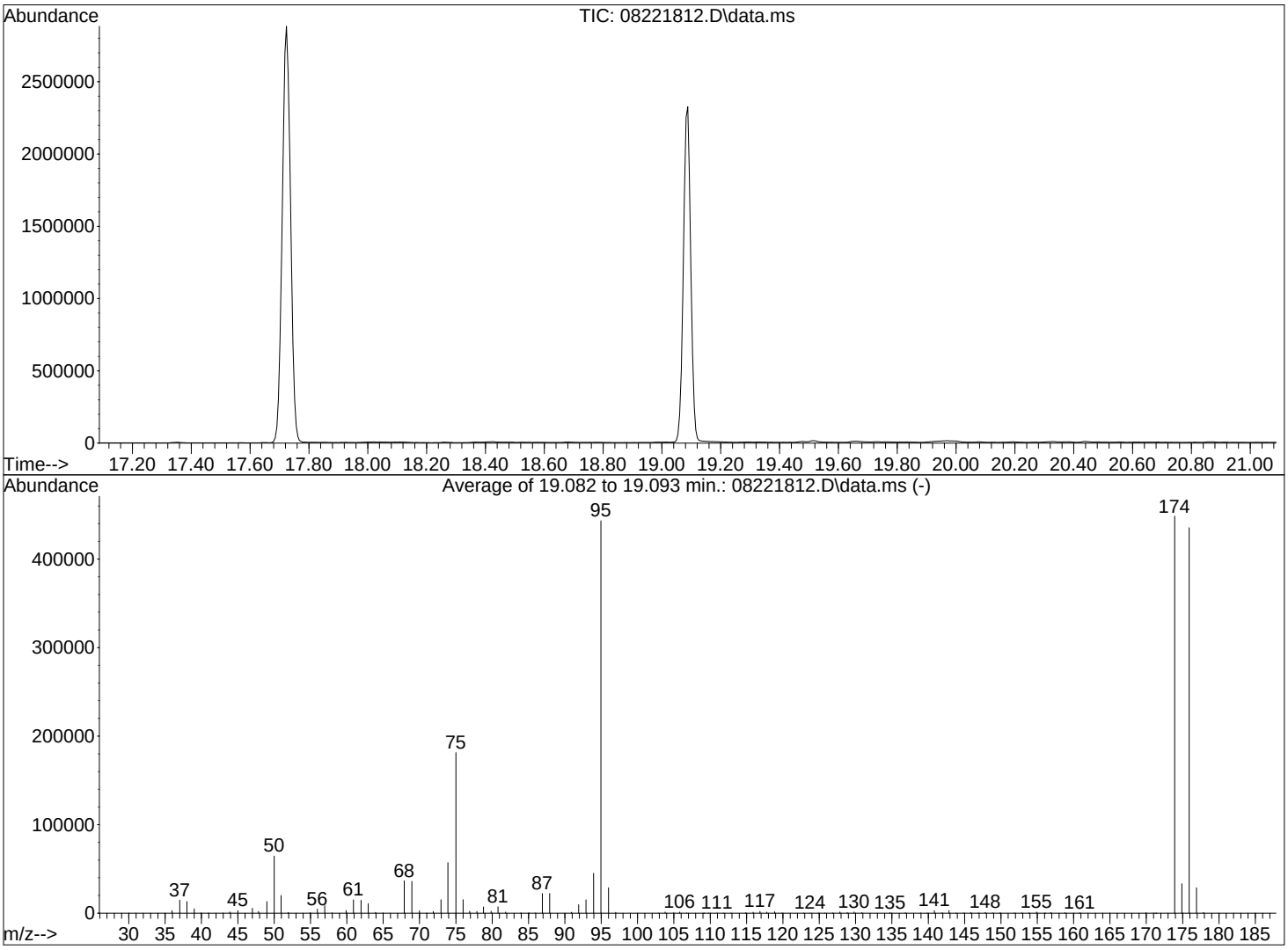
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	15.3	32251	PASS
75	95	30	66	41.8	88205	PASS
95	95	100	100	100.0	211221	PASS
96	95	5	9	6.5	13680	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	99.3	209792	PASS
175	174	4	9	7.3	15367	PASS
176	174	93	101	97.6	204779	PASS
177	176	5	9	6.4	13162	PASS

7/9/18

Data Path : I:\MS16\DATA\2018_08\22\
Data File : 08221812.D
Acq On : 22 Aug 2018 13:17
Operator : WA
Sample : BFB S16082218
Misc : S31-04201801
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16082218.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Aug 23 07:14:09 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2827

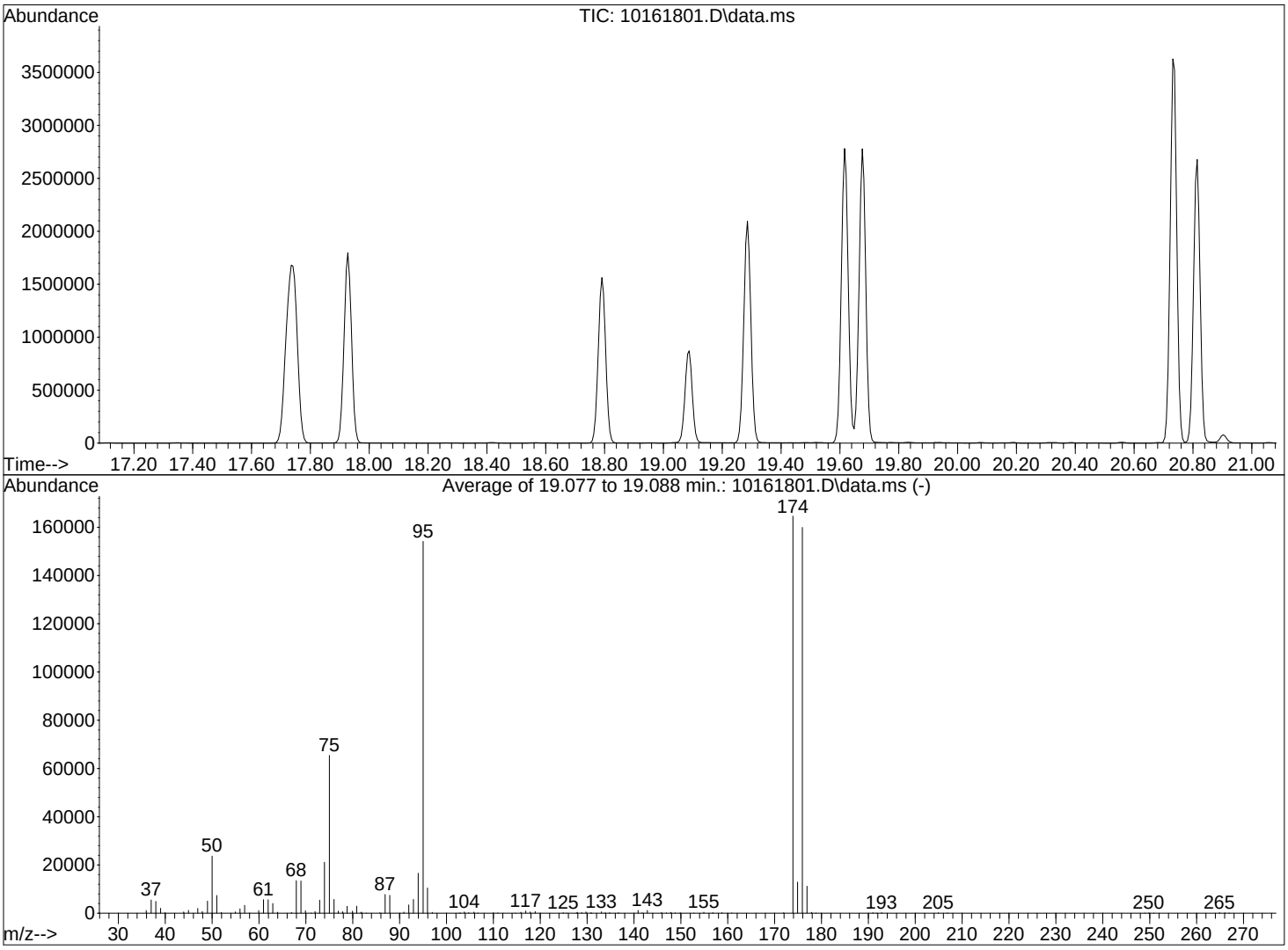
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	14.6	64616	PASS
75	95	30	66	40.9	181461	PASS
95	95	100	100	100.0	443238	PASS
96	95	5	9	6.5	28829	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	101.2	448491	PASS
175	174	4	9	7.4	33251	PASS
176	174	93	101	97.1	435541	PASS
177	176	5	9	6.6	28821	PASS

8/23/18

Data Path : I:\MS16\DATA\2018_10\16\
Data File : 10161801.D
Acq On : 16 Oct 2018 00:05
Operator : LH/TD
Sample : CCV C16101618_25ng
Misc : S31-09141801/S31-09241801 (10/23)
ALS Vial : 3 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16070218.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Jul 09 10:43:58 2018



AutoFind: Scans 2835, 2836, 2837; Background Corrected with Scan 2826

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	15.3	23637	PASS
75	95	30	66	42.4	65392	PASS
95	95	100	100	100.0	154144	PASS
96	95	5	9	6.8	10471	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	106.8	164603	PASS
175	174	4	9	7.8	12885	PASS
176	174	93	101	97.2	159957	PASS
177	176	5	9	7.0	11195	PASS

LH 10/16/18

Injection Log

Directory: J:\MS16\DATA\2018_07\02\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
19	7/2/18 17:08	07021819.D	BFB Tune	S31-04201801	WA	2	*Pass*
20	7/2/18 17:41	07021820.D	0.4ng Custom ICAL Std.	S31-04201801/S31-06281809 (7/27)	WA	12	
21	7/2/18 18:15	07021821.D	1.0ng Custom ICAL Std.	S31-04201801/S31-06281809 (7/27)	WA	12	
22	7/2/18 18:48	07021822.D	2.5ng Custom ICAL Std.	S31-04201801/S31-06281809 (7/27)	WA	12	
23	7/2/18 19:21	07021823.D	5.0ng Custom ICAL Std.	S31-04201801/S31-06281809 (7/27)	WA	12	*C16070218.M*
24	7/2/18 19:55	07021824.D	25ng Custom ICAL Std.	S31-04201801/S31-06281806 (7/27)	WA	16	
25	7/2/18 20:29	07021825.D	50ng Custom ICAL Std.	S31-04201801/S31-06281806 (7/27)	WA	16	
26	7/2/18 21:02	07021826.D	100ng Custom ICAL Std.	S31-04201801/S31-06281806 (7/27)	WA	16	
27	7/2/18 21:36	07021827.D	Blank	S31-04201801	WA	2	
28	7/2/18 22:09	07021828.D	25ng Custom ICAL ICV	S31-04201801/S31-06281810 (7/27)	WA	11	*Pass all cmpds*
29	7/2/18 22:43	07021829.D	25ng Custom ICAL ICV	S31-04201801/S31-06281810 (7/27)	WA	11	
30							
31							
32							
33							
34							
35							
36							
37							
38							

WA 7/9/18

Injection Log

Directory: J:\MS16\DATA\2018_08\22\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
12	8/22/18 13:17	08221812.D	BFB S16082218	S31-04201801	WA	2	*Pass*
13	8/22/18 13:51	08221813.D	0.1ng S16082218 ICAL Std	S31-04201801/S31-08201810 (9/18)	WA	15	
14	8/22/18 14:24	08221814.D	0.2ng S16082218 ICAL Std	S31-04201801/S31-08201810 (9/18)	WA	15	
15	8/22/18 15:09	08221815.D	0.5ng S16082218 ICAL Std	S31-04201801/S31-08201810 (9/18)	WA	15	*rerun*
16	8/22/18 15:43	08221816.D	1.0ng S16082218 ICAL Std	S31-04201801/S31-08201807 (9/18)	WA	13	
17	8/22/18 16:17	08221817.D	5.0ng S16082218 ICAL Std	S31-04201801/S31-08201807 (9/18)	WA	13	
18	8/22/18 16:50	08221818.D	25ng S16082218 ICAL Std	S31-04201801/S31-08201803 (9/18)	WA	14	*R16082218.M*
19	8/22/18 17:24	08221819.D	50ng S16082218 ICAL Std	S31-04201801/S31-08201803 (9/18)	WA	14	
20	8/22/18 17:57	08221820.D	100ng S16082218 ICAL Std	S31-04201801/S31-08201803 (9/18)	WA	14	
21	8/22/18 18:31	08221821.D	Blank	S31-04201801	WA	1	
22	8/22/18 19:05	08221822.D	0.5ng S16082218 ICAL Std	S31-04201801/S31-08201807 (9/18)	WA	13	
23	8/22/18 19:38	08221823.D	25ng S16082218 ICV Std	S31-04201801/S31-08211803 (9/19)	WA	2	*Pass*
	R16082218.M : good from 0.1ng ---> 100ng for all compounds						
##						WA 8/24/18	
##							

Injection Log

Directory: I:\MS16\DATA\2018_10\16\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/16/18 0:05	10161801.D	CCV C16101618_25ng	S31-09141801/S31-09241801 (10/23)	LH/TD	3	*Pass*
2	10/16/18 0:38	10161802.D	CCV R16101618_25ng	S31-09141801/S31-09181806 (10/17)	LH/TD	2	*Pass*
3	10/16/18 1:11	10161803.D	Blank (100mL)	S31-09141801	LH/TD	2	
4	10/16/18 1:45	10161804.D	MB R16101618_1000mL	S31-09141801/AC00442	LH/TD	2	*Pass*
5	10/16/18 2:18	10161805.D	LCS R16101618_25ng	S31-09141801/S31-10151801 (11/13)	LH/TD	2	*Pass*
6	10/16/18 2:51	10161806.D	LCSD R16101618_25ng	S31-09141801/S31-10151801 (11/13)	LH/TD	2	*Pass*
7	10/16/18 3:25	10161807.D	Blank (100mL)	S31-09141801	LH/TD	2	
8	10/16/18 3:58	10161808.D	P1805349-008 (400mL)	S31-09141801	LH/TD	14	
9	10/16/18 4:31	10161809.D	P1805349-008dil (40mL)	S31-09141801	LH/TD	14	
10	10/16/18 5:04	10161810.D	P1805349-009 (100mL)	S31-09141801	LH/TD	15	
11	10/16/18 5:37	10161811.D	P1805349-010 (65mL)	S31-09141801	LH/TD	16	
12	10/16/18 6:11	10161812.D	P1805349-010dup (65mL)	S31-09141801	LH/TD	16	*Pass*
13	10/16/18 6:44	10161813.D	P1805349-011 (400mL)	S31-09141801	LH/TD	1	
14	10/16/18 7:17	10161814.D	P1805349-012 (400mL)	S31-09141801	LH/TD	4	
15	10/16/18 7:50	10161815.D	P1805349-014 (400mL)	S31-09141801	LH/TD	5	
16	10/16/18 8:23	10161816.D	P1805237-003dil (25mL)	S31-09141801	LH/TD	6	
17	10/16/18 8:56	10161817.D	P1805349-005dil (40mL)	S31-09141801	LH/TD	11	
18	10/16/18 9:37	10161818.D	P1805349-010dil (30mL)	S31-09141801	LH/TD	16	
19	10/16/18 10:15	10161819.D	P1805349-015 (400mL)	S31-09141801	LH/TD	6	
20	10/16/18 10:48	10161820.D	P1805349-016 (400mL)	S31-09141801	LH/TD	5	
21	10/16/18 11:32	10161821.D	P1805345-001 (1.0mL)	S31-09141801	LH/TD	1	*screen*
22	10/16/18 12:06	10161822.D	P1805345-001 (4.5mL)	S31-09141801	LH/TD	1	
23	10/16/18 12:39	10161823.D	P1805349-015dil (40mL)	S31-09141801	LH/TD	6	
24	10/16/18 13:12	10161824.D	P1805349-010dup dil (30mL)	S31-09141801	LH/TD	16	
25	10/16/18 13:48	10161825.D	P1805220-001 (5.0mL)	S31-09141801	LH/TD	1	
26	10/16/18 14:39	10161826.D	P1805220-002 (2.5mL)	S31-09141801	LH/TD	1	
27	10/16/18 15:12	10161827.D	P1805220-003dil (3.0mL)	S31-09141801	LH/TD	1	
28	10/16/18 15:56	10161828.D	P1805220-003 (5.0mL)	S31-09141801	LH/TD	1	
29	10/16/18 16:52	10161829.D	P1805476-001 (1000mL)	S31-09141801	LH/TD	4	
30	10/16/18 17:59	10161830.D	P1805476-002 (1000mL)	S31-09141801	LH/TD	5	
31	10/16/18 18:32	10161831.D	P1805476-003 (1000mL)	S31-09141801	LH/TD	6	
32	10/16/18 19:13	10161832.D	P1805476-004 (1000mL)	S31-09141801	LH/TD	7	
33	10/16/18 19:47	10161833.D	P1805476-005 (1000mL)	S31-09141801	LH/TD	8	
34	10/16/18 20:20	10161834.D	P1805476-006 (400mL)	S31-09141801	LH/TD	9	
35	10/16/18 20:54	10161835.D	P1805476-007 (400mL)	S31-09141801	LH/TD	10	
36	10/16/18 21:27	10161836.D	P1805476-007dil (40mL)	S31-09141801	LH/TD	10	

10/17/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151809.D Vial: 1
Acq On : 15 Oct 2018 14:44 Operator: WA
Sample : P1805476-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 12:22:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *10/16/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18514	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	83862	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10913	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20441	922.334	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.23%				
33) Toluene-d8 (SS2)	14.01	98	90717	1048.964	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.90%				
45) Bromofluorobenzene (SS3)	17.43	174	33929	1100.279	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.03%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	52282	1325.313	pg		100
3) Chloromethane	4.51	52	1782	193.184	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2280	80.178	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.01	54	235	12.135	pg		92
7) Bromomethane	5.34	94	341	18.948	pg		100
8) Chloroethane	5.55	64	757	56.479	pg		98
9) Acrolein	6.12	56	4325	399.187	pg		100
10) Acetone	6.26	58	121510	8846.191	pg		93
11) Trichlorofluoromethane	6.47	101	21754	705.127	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.33	84	6259	273.673	pg		100
14) Trichlorotrifluoroethane	7.67	151	1548	71.592	pg		99
15) trans-1,2-Dichloroethene	8.37	96	56	N.D.			
16) 1,1-Dichloroethane	8.59	63	167	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.75	83	2026	52.972	pg		99
21) 1,2-Dichloroethane	10.51	62	1177	49.755	pg		99
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.23	78	2634	27.413	pg		100
24) Carbon Tetrachloride	11.39	117	1468	49.577	pg		95
26) 1,2-Dichloropropane	12.04	63	9893	473.629	pg		100
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	12.28	130	1689	64.457	pg		98
29) 1,4-Dioxane	12.26	88	369	20.583	pg		97
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	13.59	75	162	5.902	pg		93
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d			
34) Toluene	14.11	91	35378	369.468	pg		100
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.26	166	105	N.D.			
39) Chlorobenzene	15.97	112	180	N.D.			
40) Ethylbenzene	16.35	91	5404	53.712	pg		100
41) m,p-Xylene	16.52	91	9145	118.880	pg		100
42) Styrene	16.89	104	7349	120.274	pg		90
43) o-Xylene	17.00	106	3482	85.139	pg	#	68
44) 1,1,2,2-Tetrachloroethane	17.00	83	161	N.D.			
46) 1,3,5-Trimethylbenzene	18.26	105	1434	16.671	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	5659	65.948	pg		88
48) 1,3-Dichlorobenzene	18.80	146	71	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	557	9.894	pg		99
50) 1,2-Dichlorobenzene	19.20	146	86	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	100	N.D.			
53) Naphthalene	20.94	128	10715	106.756	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151809.D Vial: 1
Acq On : 15 Oct 2018 14:44 Operator: WA
Sample : P1805476-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 12:22:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151809.D Vial: 1
Acq On : 15 Oct 2018 14:44 Operator: WA
Sample : P1805476-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 12:22:10 2018
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Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
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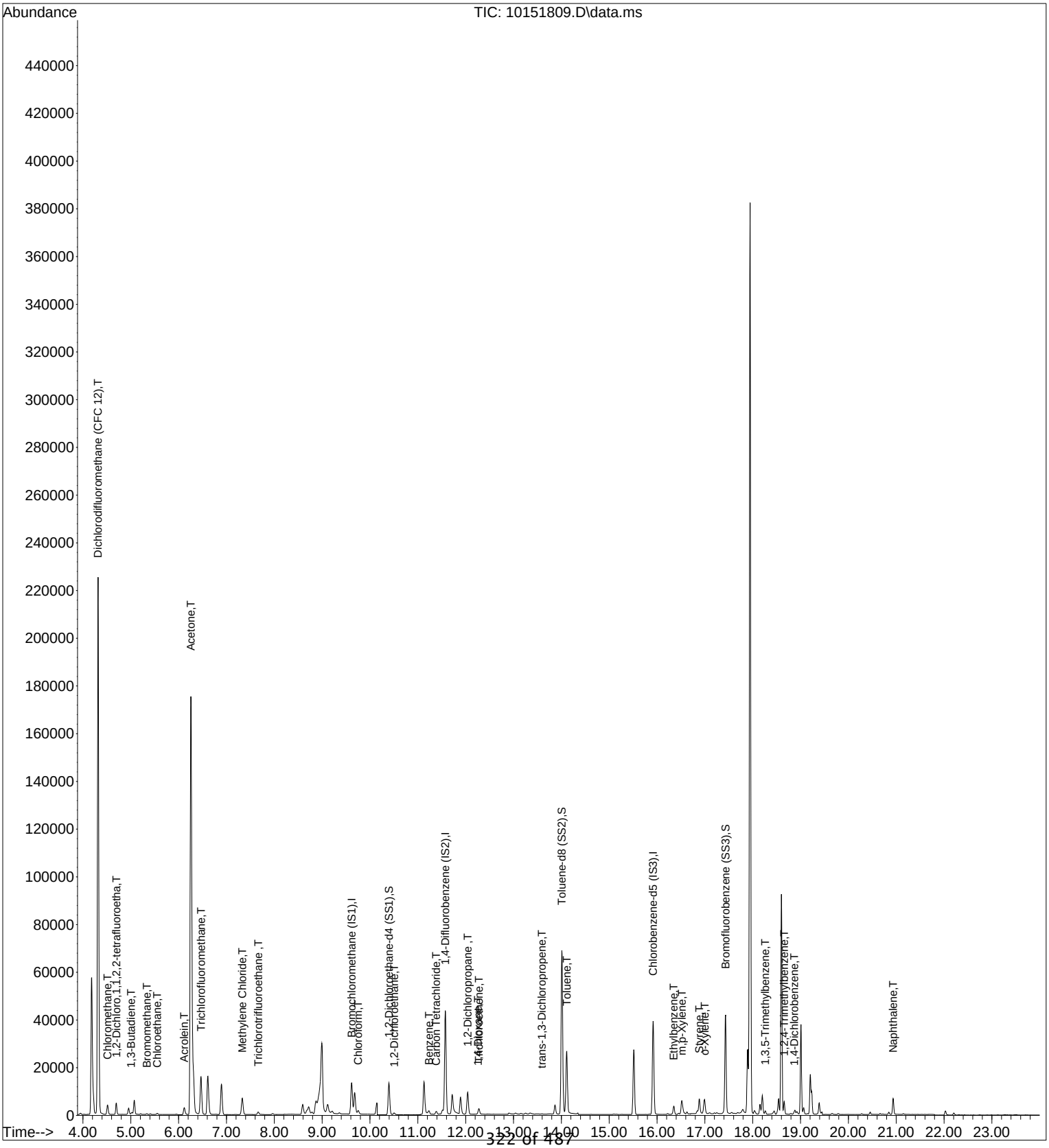
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151809.D Vial: 1
Acq On : 15 Oct 2018 14:44 Operator: WA
Sample : P1805476-001 (1000mL) Inst : MS19
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QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

VOA 10/16/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18514	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	83862	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10913	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20441	922.334	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.23%				
33) Toluene-d8 (SS2)	14.01	98	90717	1048.964	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.90%				
45) Bromofluorobenzene (SS3)	17.43	174	33929	1100.279	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.03%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	52282	1325.313	pg		100
3) Chloromethane	4.51	52	1782	193.184	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2280	80.178	pg		100
6) 1,3-Butadiene	5.01	54	235	12.135	pg		92
7) Bromomethane	5.34	94	341	18.948	pg		100
8) Chloroethane	5.55	64	757	56.479	pg		98
9) Acrolein	6.12	56	4325	399.187	pg		100
10) Acetone	6.26	58	121510	8846.191	pg		93
11) Trichlorofluoromethane	6.47	101	21754	705.127	pg		100
13) Methylene Chloride	7.33	84	6259	273.673	pg		100
14) Trichlorotrifluoroethane	7.67	151	1548	71.592	pg		99
19) Chloroform	9.75	83	2026	52.972	pg		99
21) 1,2-Dichloroethane	10.51	62	1177	49.755	pg		99
23) Benzene	11.23	78	2634	27.413	pg		100
24) Carbon Tetrachloride	11.39	117	1468	49.577	pg		95
26) 1,2-Dichloropropane	12.04	63	9893	473.629	pg		100
28) Trichloroethene	12.28	130	1689	64.457	pg		98
29) 1,4-Dioxane	12.26	88	369	20.583	pg		97
31) trans-1,3-Dichloropropene	13.59	75	162	5.902	pg		93
34) Toluene	14.11	91	35378	369.468	pg		100
40) Ethylbenzene	16.35	91	5404	53.712	pg		100
41) m,p-Xylene	16.52	91	9145	118.880	pg		100
42) Styrene	16.89	104	7349	120.274	pg		90
43) o-Xylene	17.00	106	3482	85.139	pg	#	68
46) 1,3,5-Trimethylbenzene	18.26	105	1434	16.671	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	5659	65.948	pg		88
49) 1,4-Dichlorobenzene	18.87	146	557	9.894	pg		99
53) Naphthalene	20.94	128	10715	106.756	pg		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151809.D Vial: 1
Acq On : 15 Oct 2018 14:44 Operator: WA
Sample : P1805476-001 (1000mL) Inst : MS19
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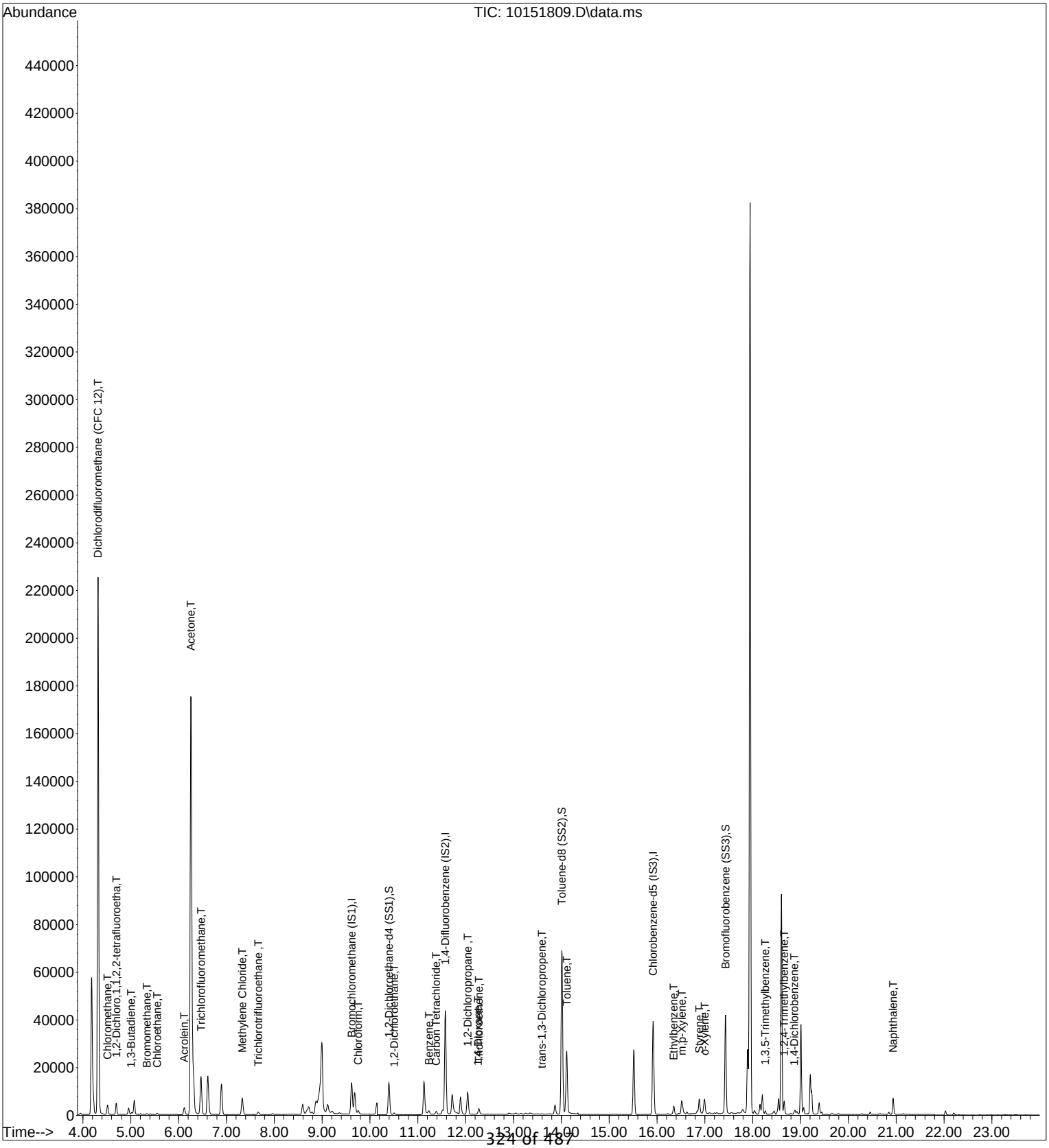
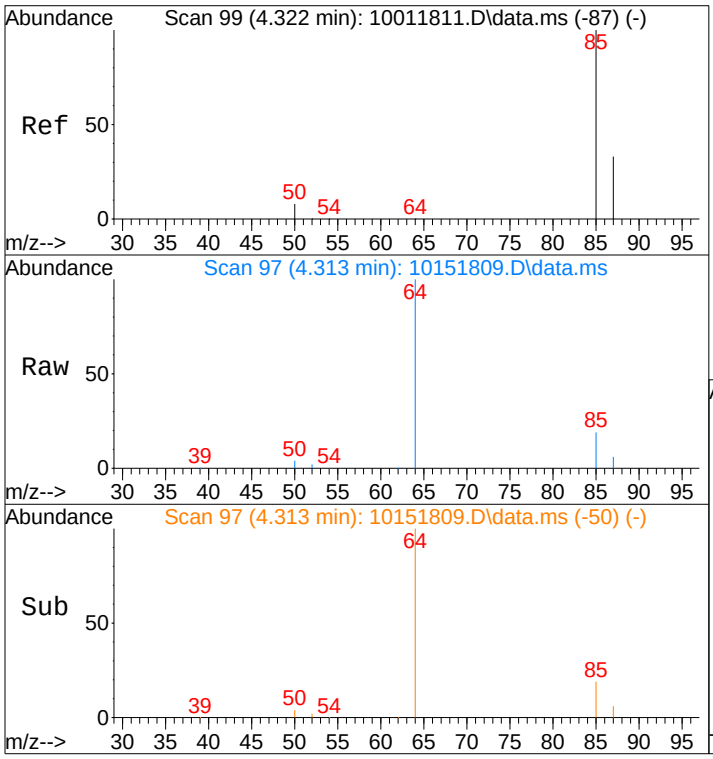
DataAcq Meth:TO15SIM.M

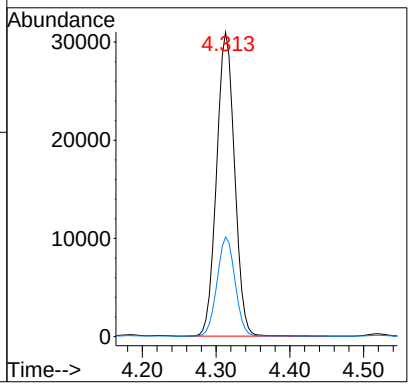


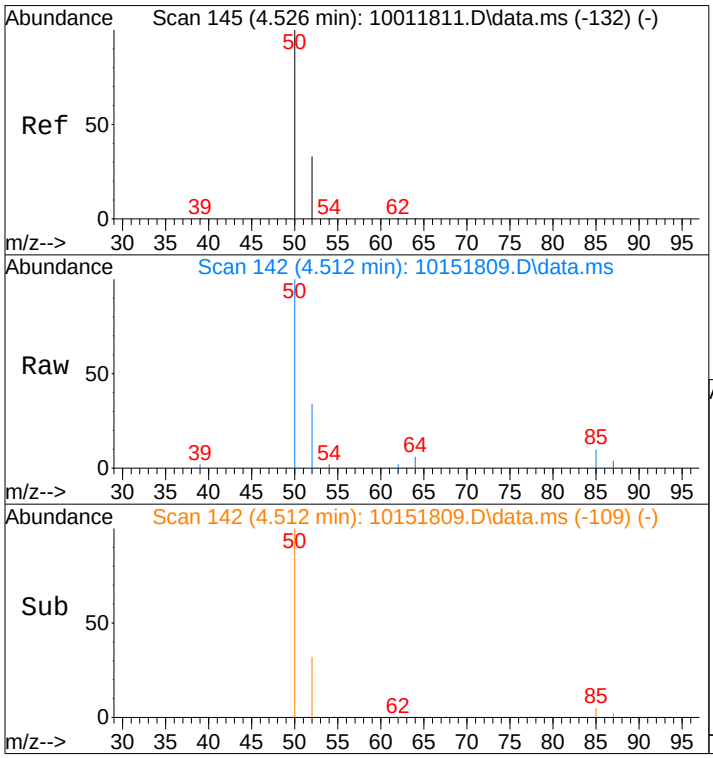


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1325.31 pg
RT: 4.31 min Scan# 97
Delta R.T. 0.009 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 85 Resp: 52282

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

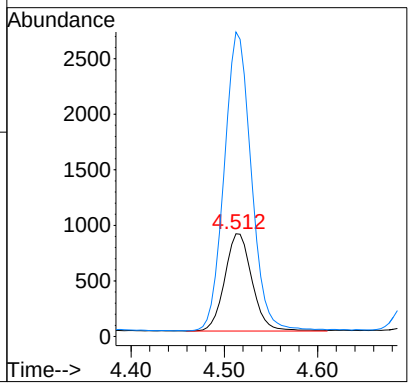


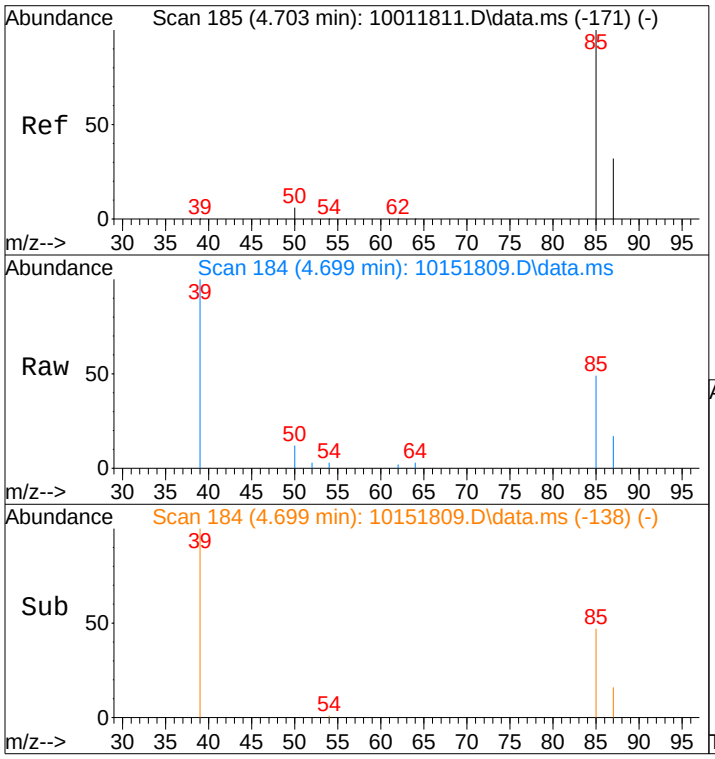


#3
Chloromethane
Concen: 193.18 pg
RT: 4.51 min Scan# 142
Delta R.T. -0.004 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 52 Resp: 1782

Ion	Ratio	Lower	Upper
52	100		
50	303.0	281.8	321.8

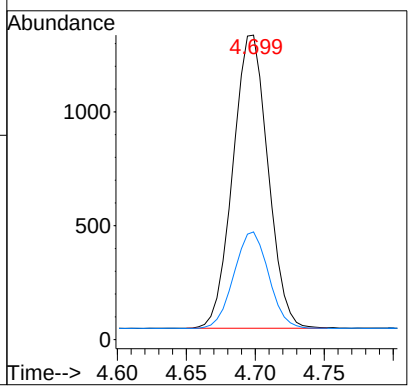


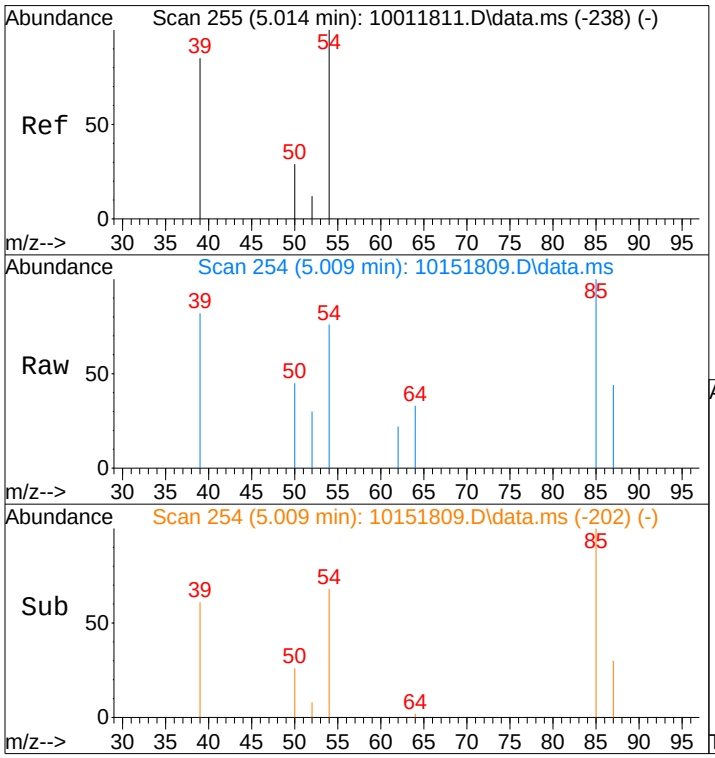


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 80.18 pg
RT: 4.70 min Scan# 184
Delta R.T. 0.005 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 85 Resp: 2280

Ion	Ratio	Lower	Upper
85	100		
87	32.6	26.0	39.0

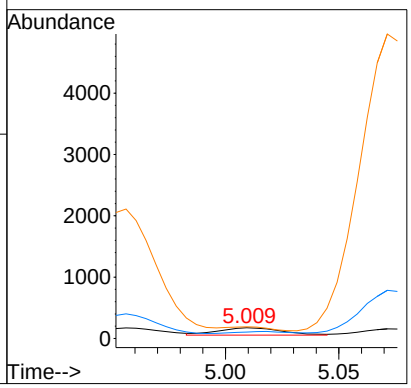


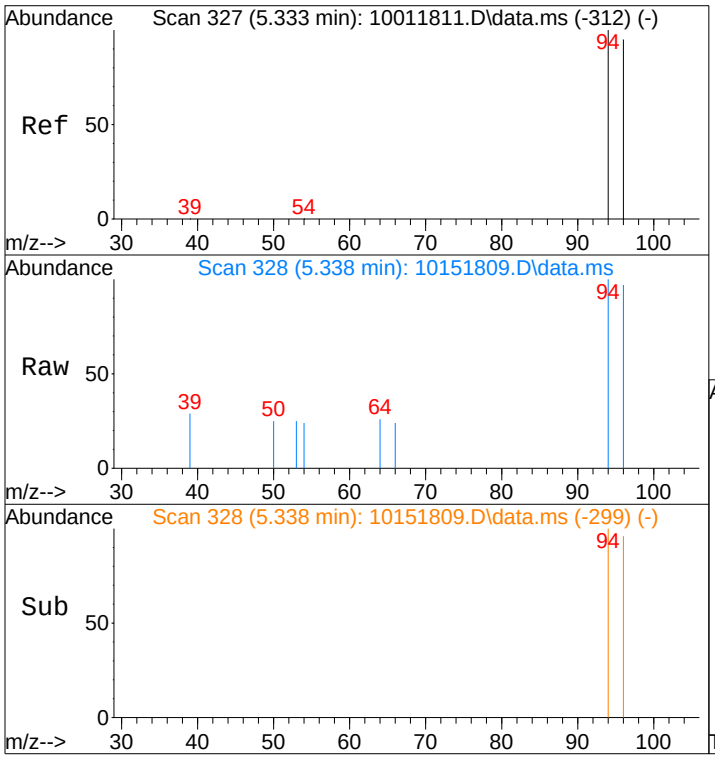


#6
1,3-Butadiene
Concen: 12.14 pg
RT: 5.01 min Scan# 254
Delta R.T. 0.000 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 54 Resp: 235

Ion	Ratio	Lower	Upper
54	100		
50	34.0	23.6	35.4
39	79.6	69.9	104.9

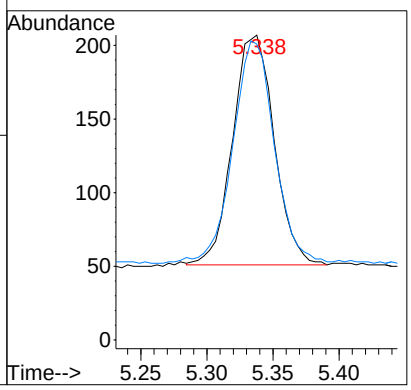


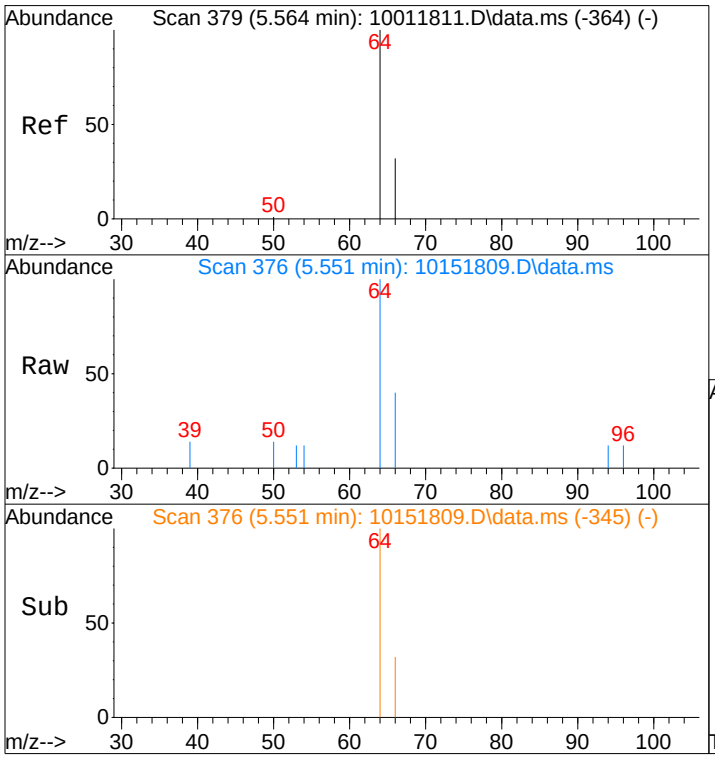


#7
Bromomethane
Concen: 18.95 pg
RT: 5.34 min Scan# 328
Delta R.T. 0.000 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 94 Resp: 341

Ion	Ratio	Lower	Upper
94	100		
96	94.4	75.7	113.5

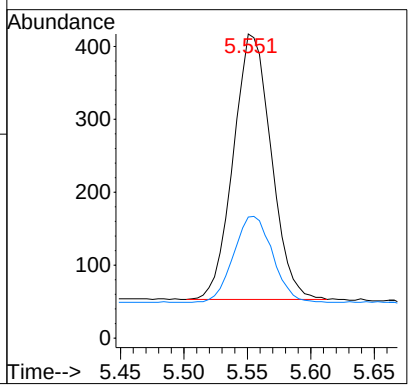


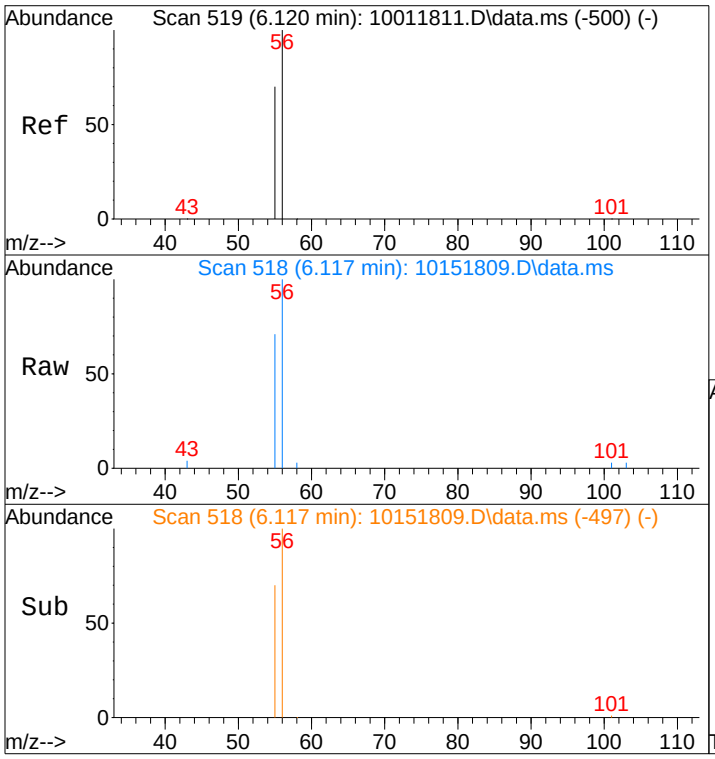


#8
Chloroethane
Concen: 56.48 pg
RT: 5.55 min Scan# 376
Delta R.T. -0.013 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 64 Resp: 757

Ion	Ratio	Lower	Upper
64	100		
66	33.3	12.3	52.3

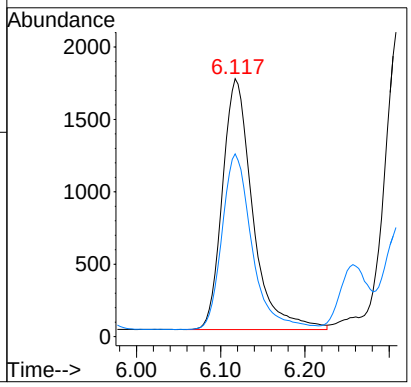


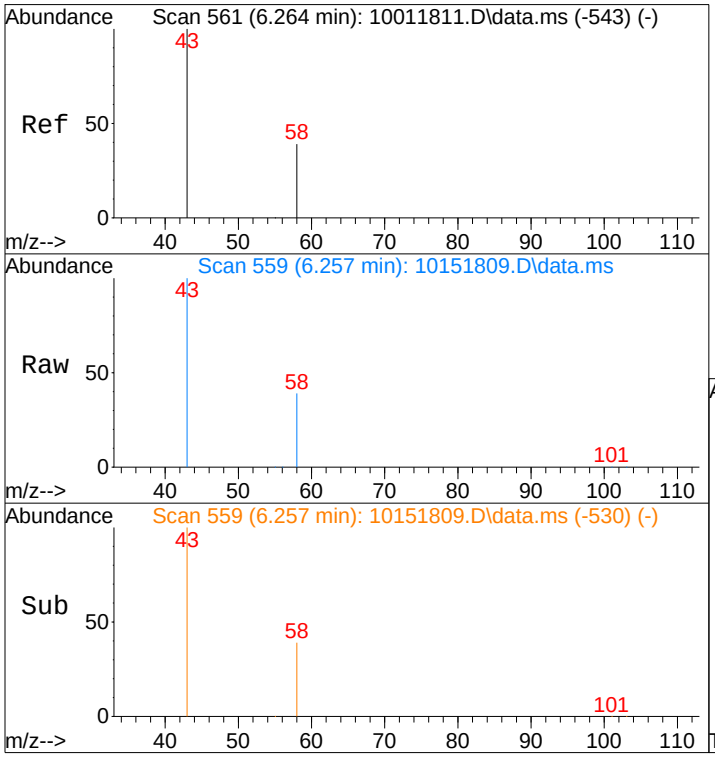


#9
Acrolein
Concen: 399.19 pg
RT: 6.12 min Scan# 518
Delta R.T. -0.037 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 56 Resp: 4325

Ion	Ratio	Lower	Upper
56	100		
55	69.5	55.3	82.9

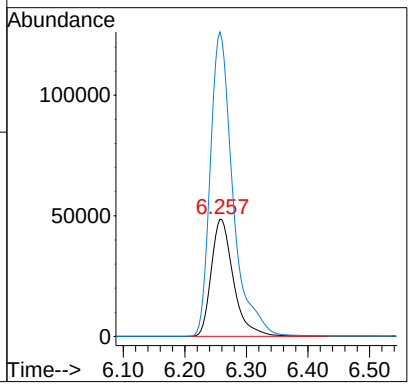


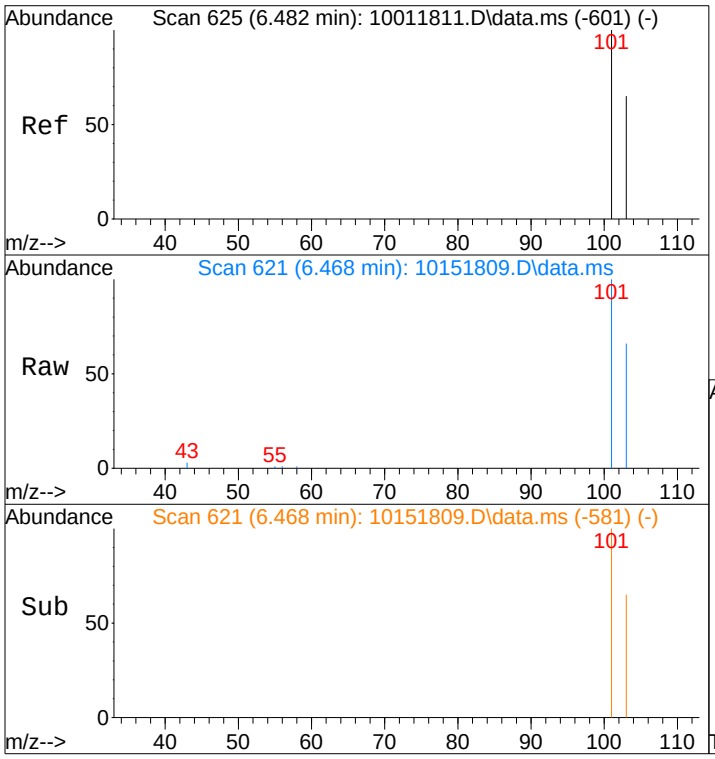


#10
Acetone
Concen: 8846.19 pg
RT: 6.26 min Scan# 559
Delta R.T. -0.051 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 58 Resp: 121510

Ion	Ratio	Lower	Upper
58	100		
43	266.3	234.7	274.7

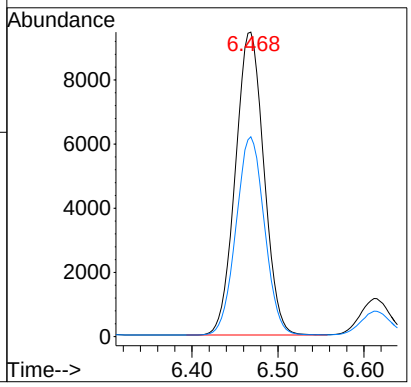


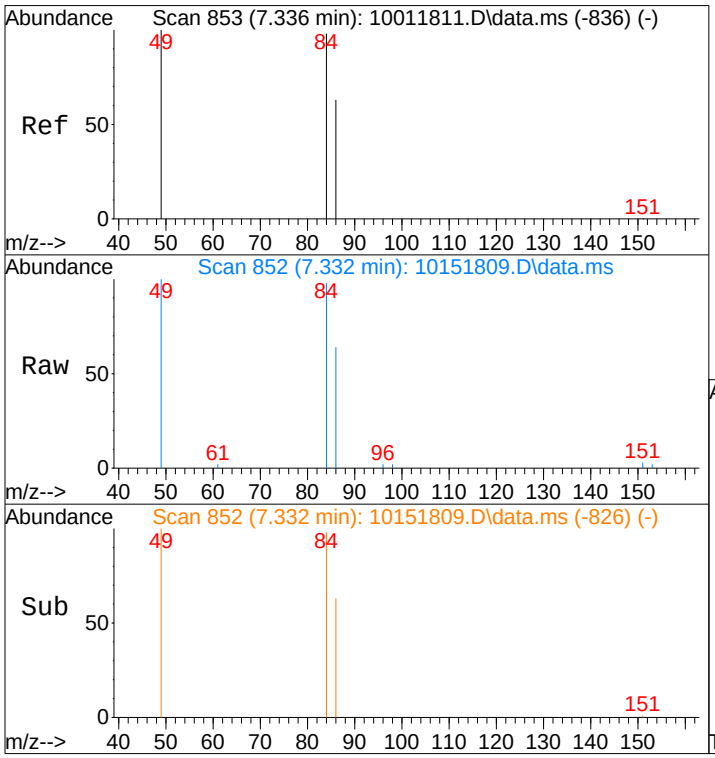


#11
Trichlorofluoromethane
Concen: 705.13 pg
RT: 6.47 min Scan# 621
Delta R.T. -0.014 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:101 Resp: 21754

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

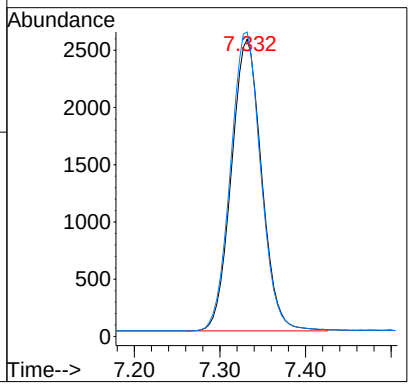


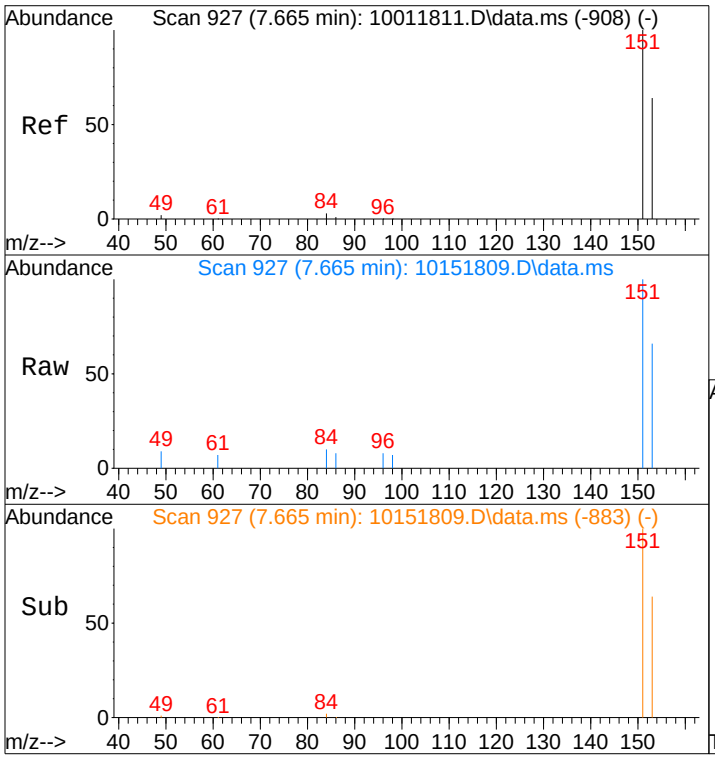


#13
Methylene Chloride
Concen: 273.67 pg
RT: 7.33 min Scan# 852
Delta R.T. -0.044 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 84 Resp: 6259

Ion	Ratio	Lower	Upper
84	100		
49	102.9	83.3	123.3

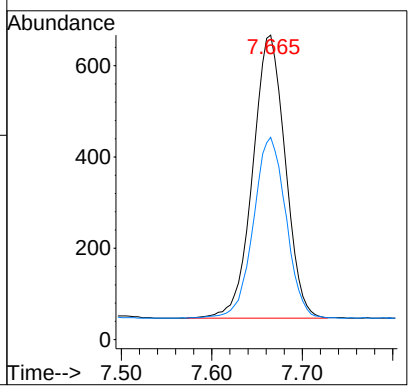


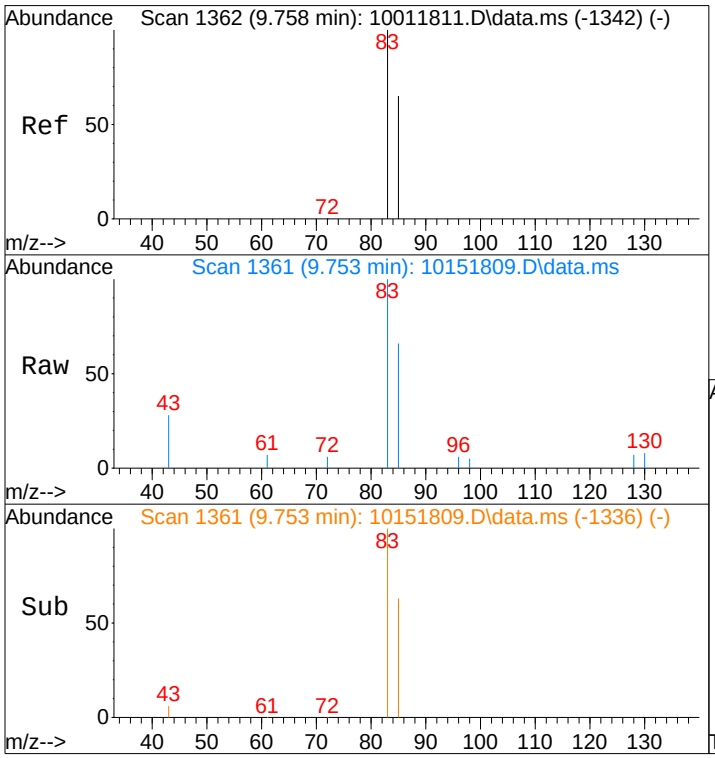


#14
Trichlorotrifluoroethane
Concen: 71.59 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:151 Resp: 1548

Ion	Ratio	Lower	Upper
151	100		
153	63.4	44.3	84.3

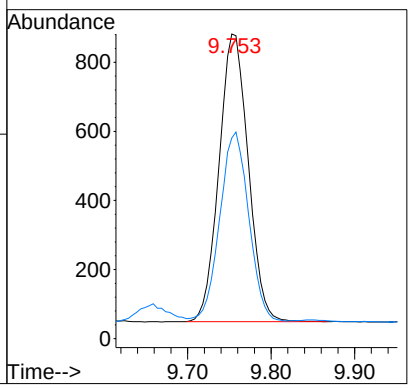


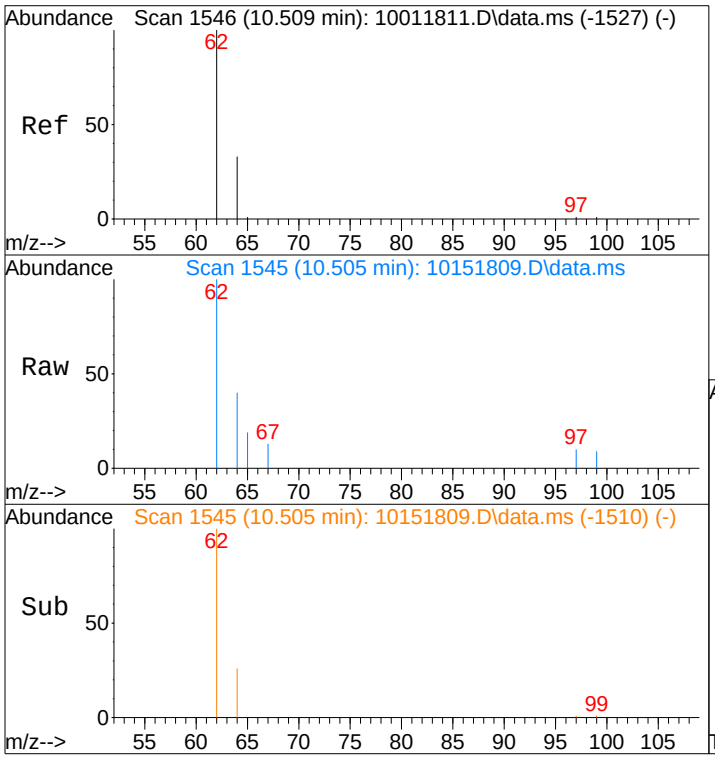


#19
Chloroform
Concen: 52.97 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 83 Resp: 2026

Ion	Ratio	Lower	Upper
83	100		
85	65.3	46.0	86.0

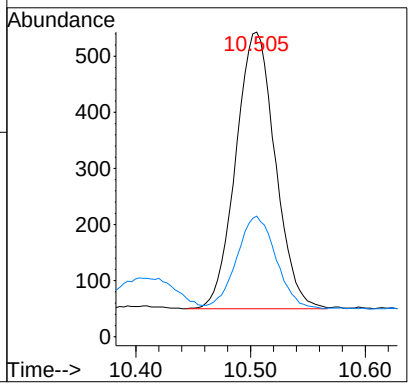


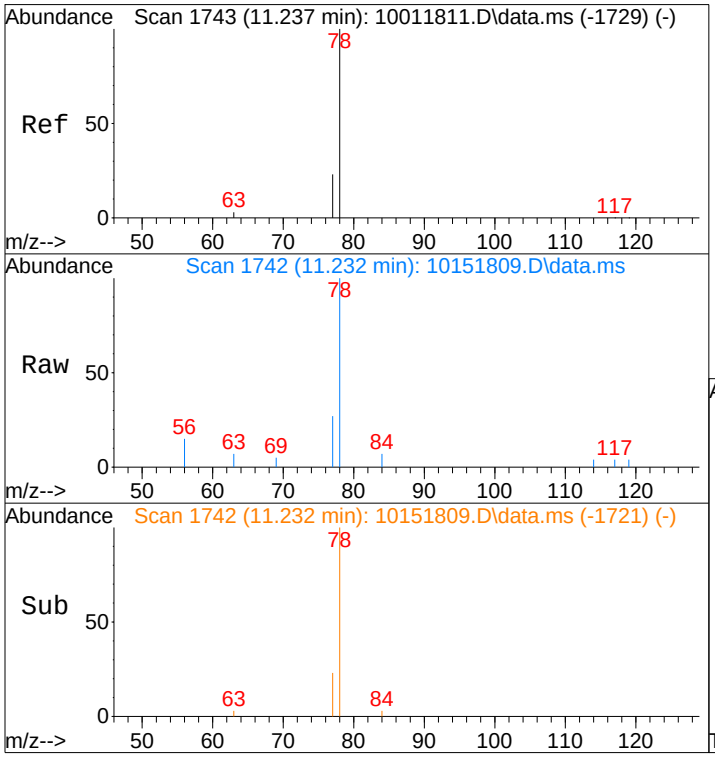


#21
1,2-Dichloroethane
Concen: 49.75 pg
RT: 10.51 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 62 Resp: 1177

Ion	Ratio	Lower	Upper
62	100		
64	33.3	12.9	52.9

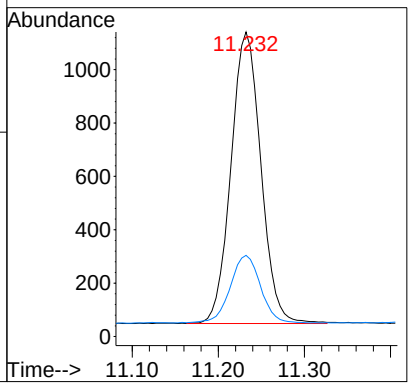


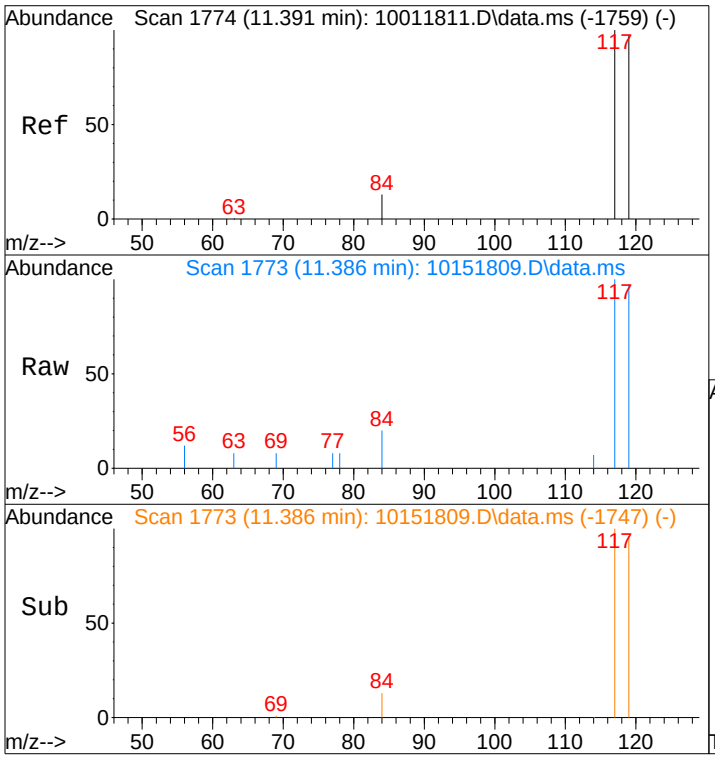


#23
Benzene
Concen: 27.41 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 78 Resp: 2634

Ion	Ratio	Lower	Upper
78	100		
77	23.4	3.3	43.3

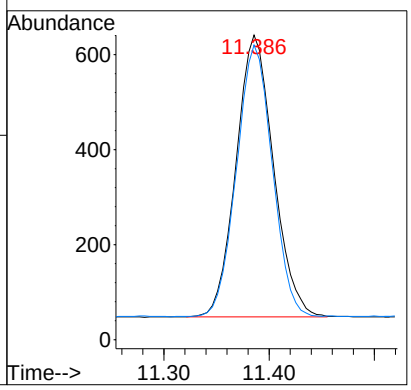


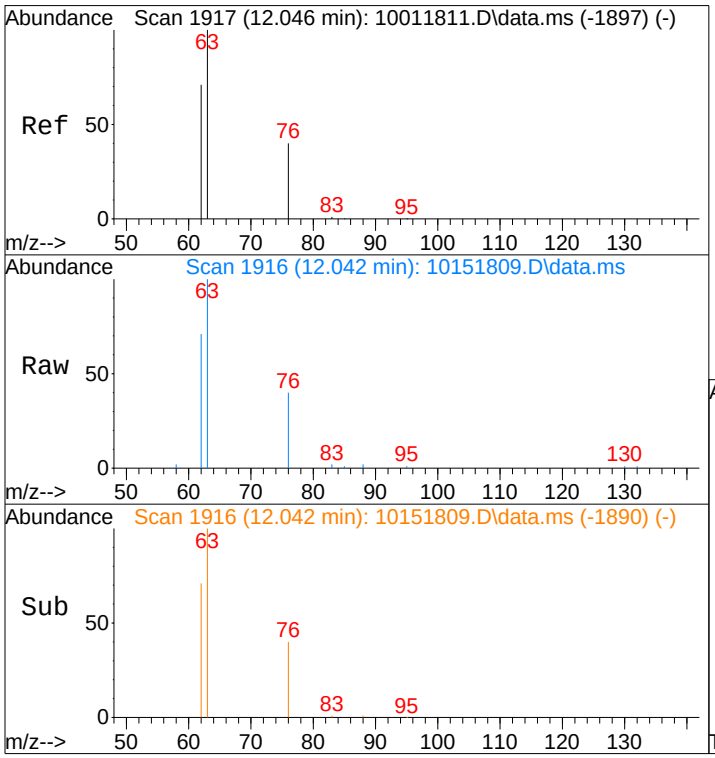


#24
Carbon Tetrachloride
Concen: 49.58 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:117 Resp: 1468

Ion	Ratio	Lower	Upper
117	100		
119	91.6	76.7	116.7

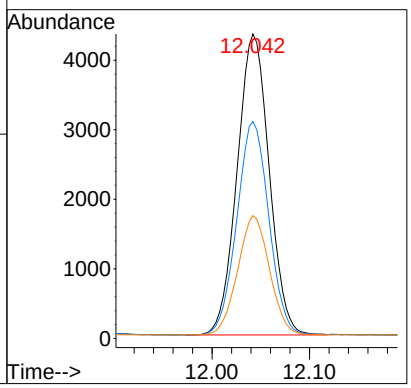


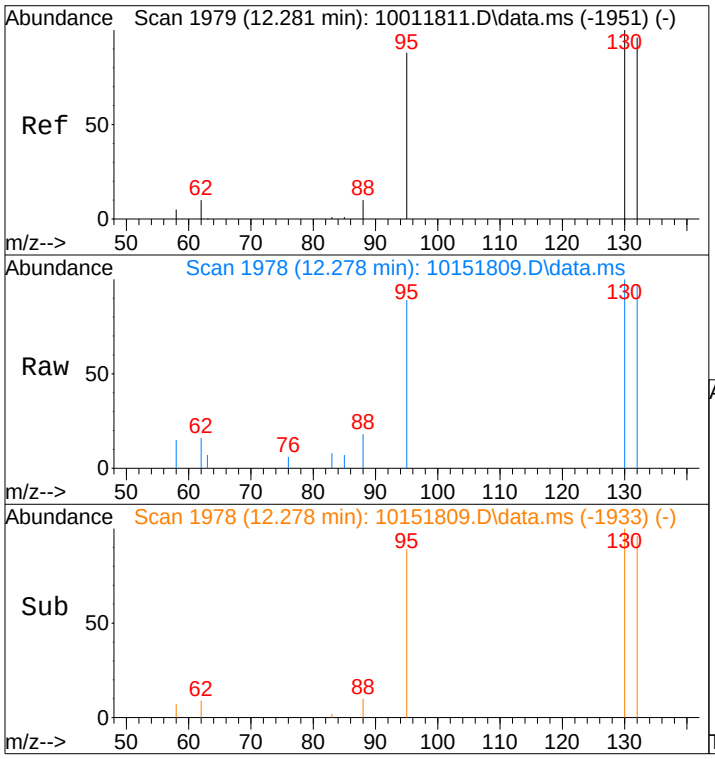


#26
1,2-Dichloropropane
Concen: 473.63 pg
RT: 12.04 min Scan# 1916
Delta R.T. -0.022 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 63 Resp: 9893

Ion	Ratio	Lower	Upper
63	100		
62	70.7	50.7	90.7
76	39.2	19.6	59.6

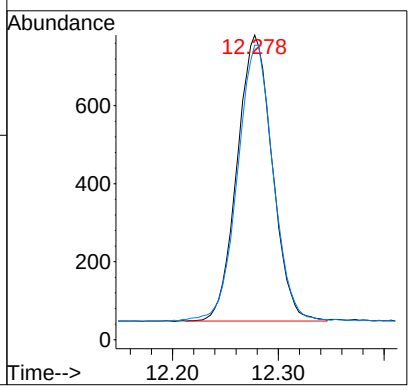


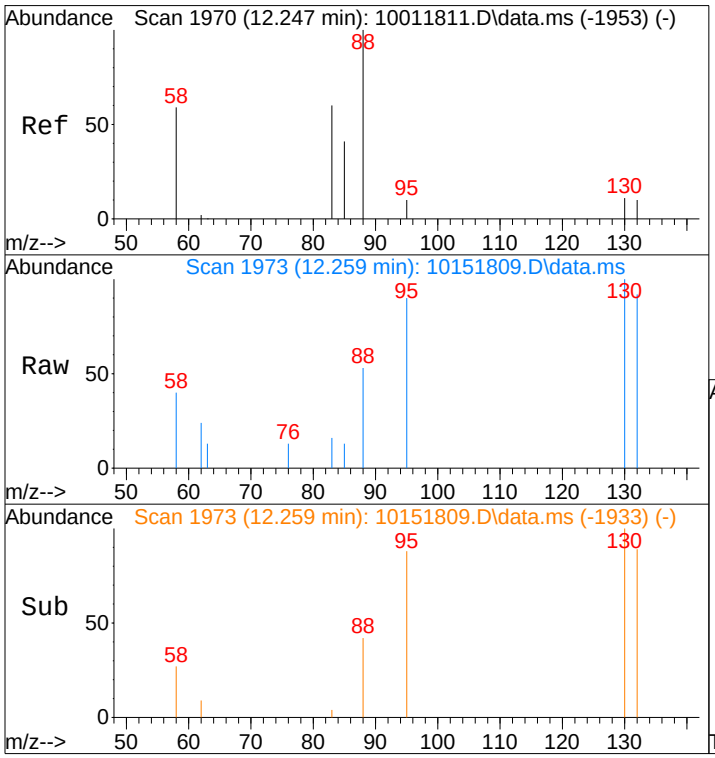


#28
Trichloroethene
Concen: 64.46 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:130 Resp: 1689

Ion	Ratio	Lower	Upper
130	100		
132	97.3	75.6	115.6

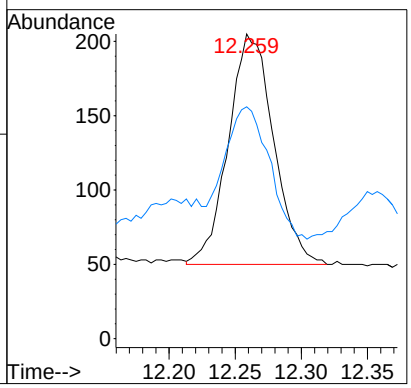


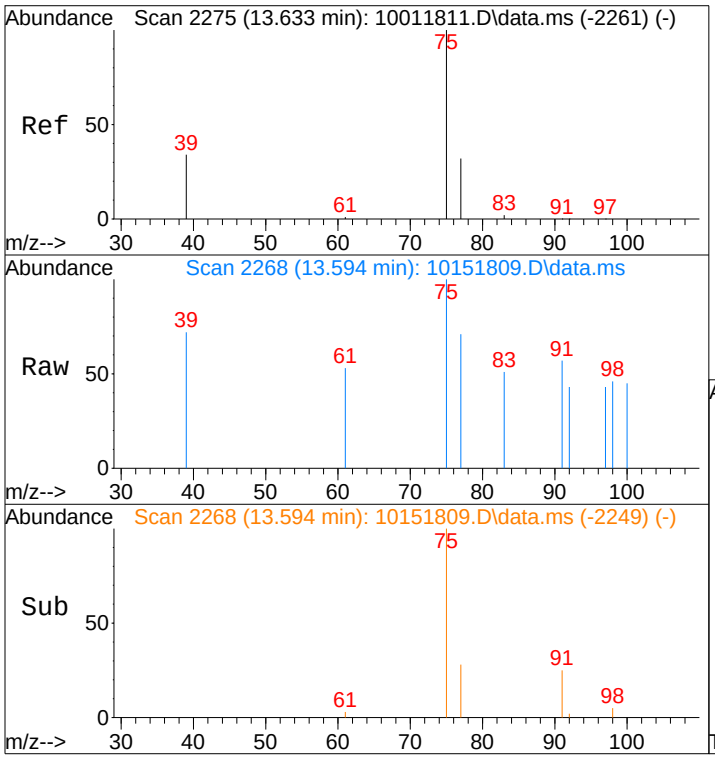


#29
1,4-Dioxane
Concen: 20.58 pg
RT: 12.26 min Scan# 1973
Delta R.T. 0.001 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 88 Resp: 369

Ion	Ratio	Lower	Upper
88	100		
58	56.6	39.2	79.2

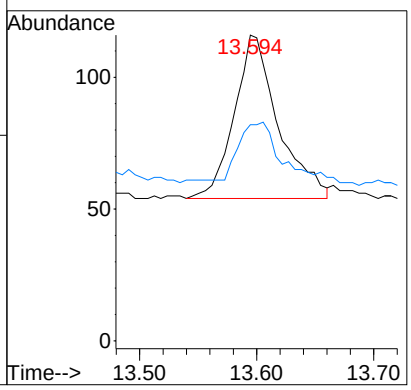


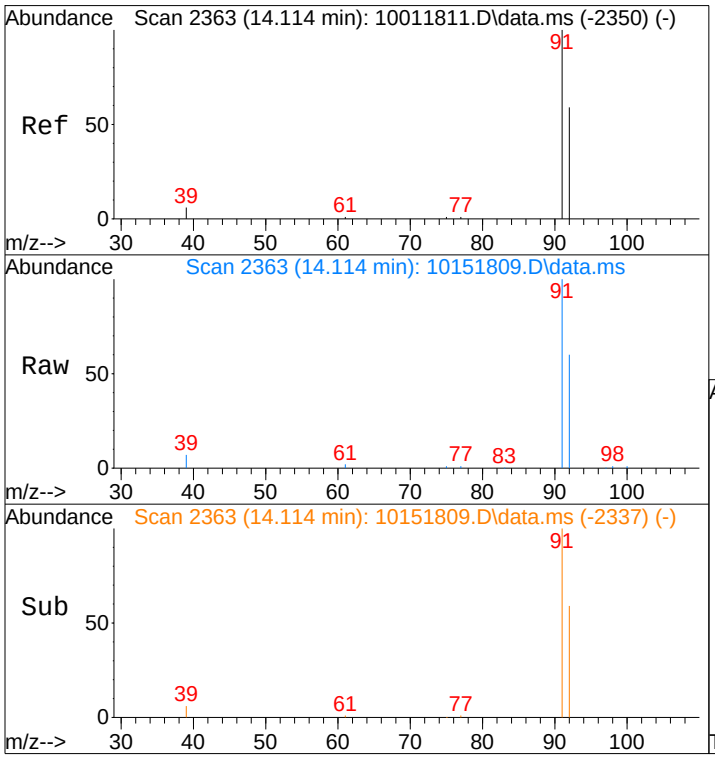


#31
trans-1,3-Dichloropropene
Concen: 5.90 pg
RT: 13.59 min Scan# 2268
Delta R.T. -0.049 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 75 Resp: 162

Ion	Ratio	Lower	Upper
75	100		
77	35.8	25.4	38.2

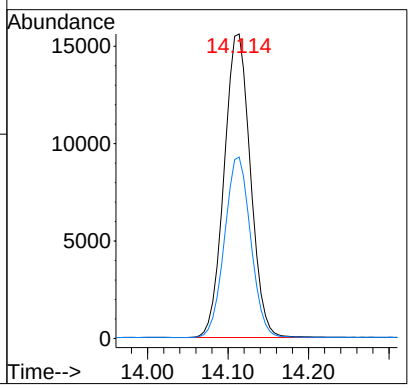


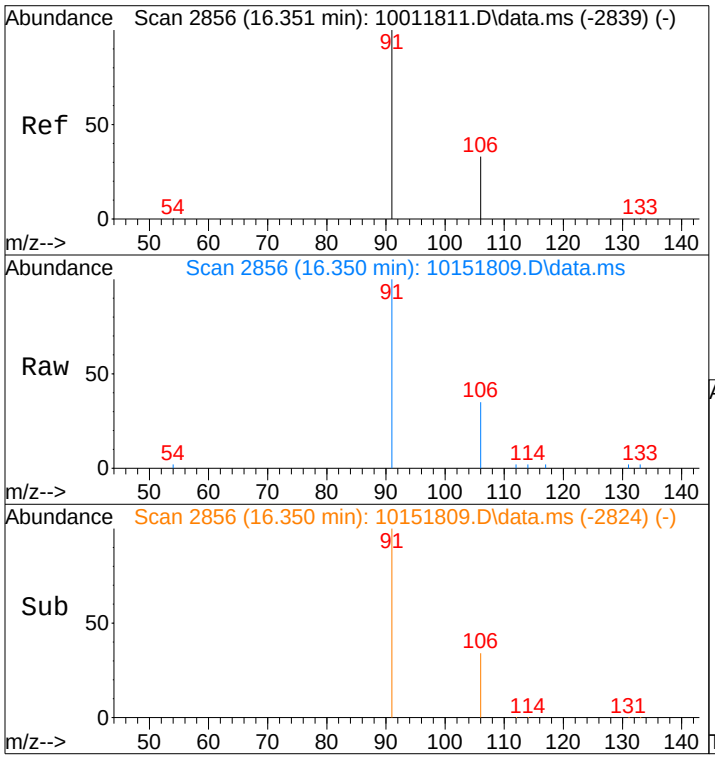


#34
Toluene
Concen: 369.47 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 91 Resp: 35378

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

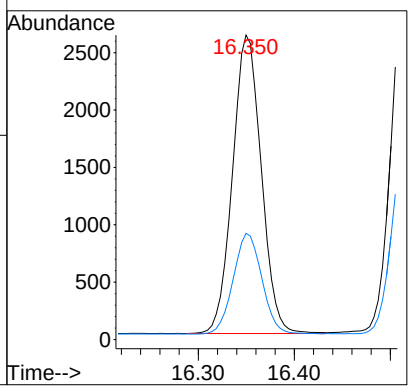


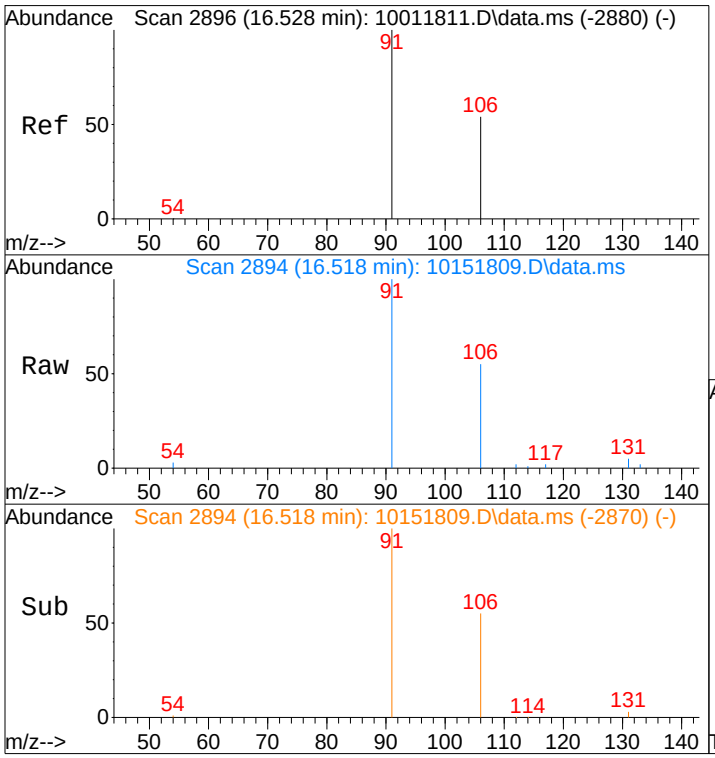


#40
Ethylbenzene
Concen: 53.71 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 91 Resp: 5404

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

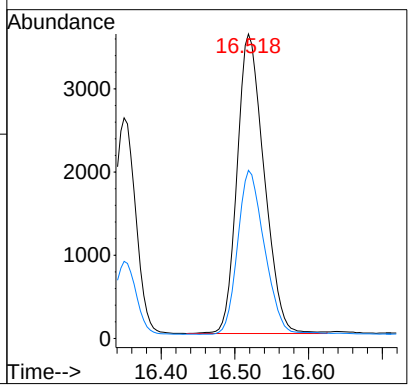


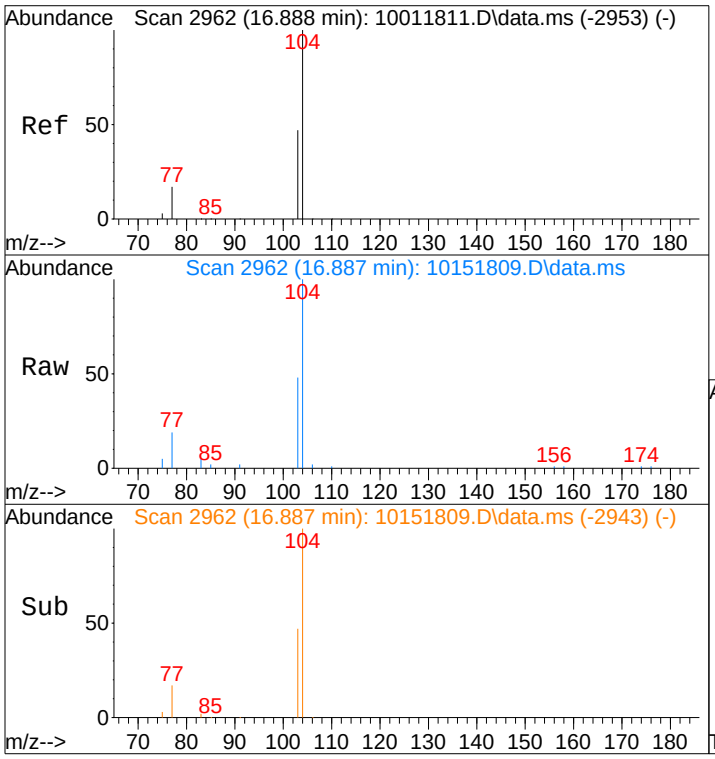


#41
m,p-Xylene
Concen: 118.88 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.022 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion: 91 Resp: 9145

Ion	Ratio	Lower	Upper
91	100		
106	54.4	34.3	74.3

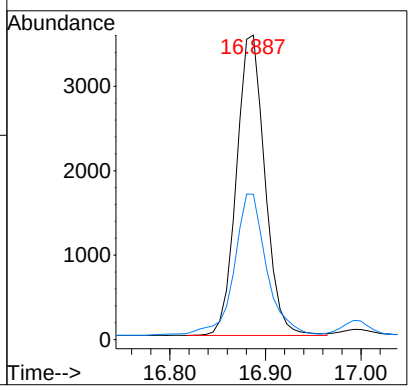


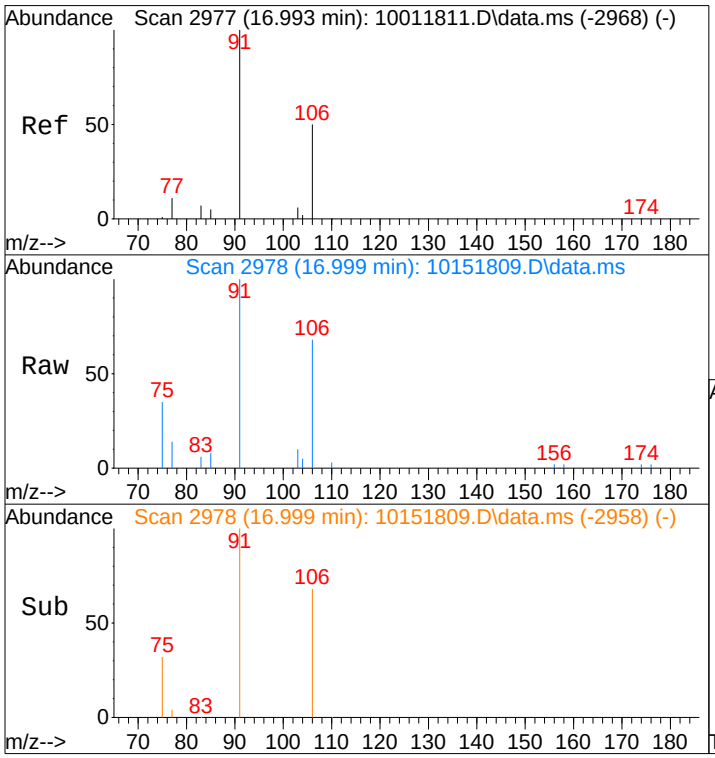


#42
Styrene
Concen: 120.27 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:104 Resp: 7349

Ion	Ratio	Lower	Upper
104	100		
103	53.8	37.7	56.5

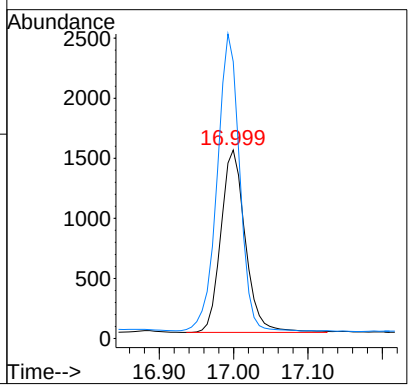


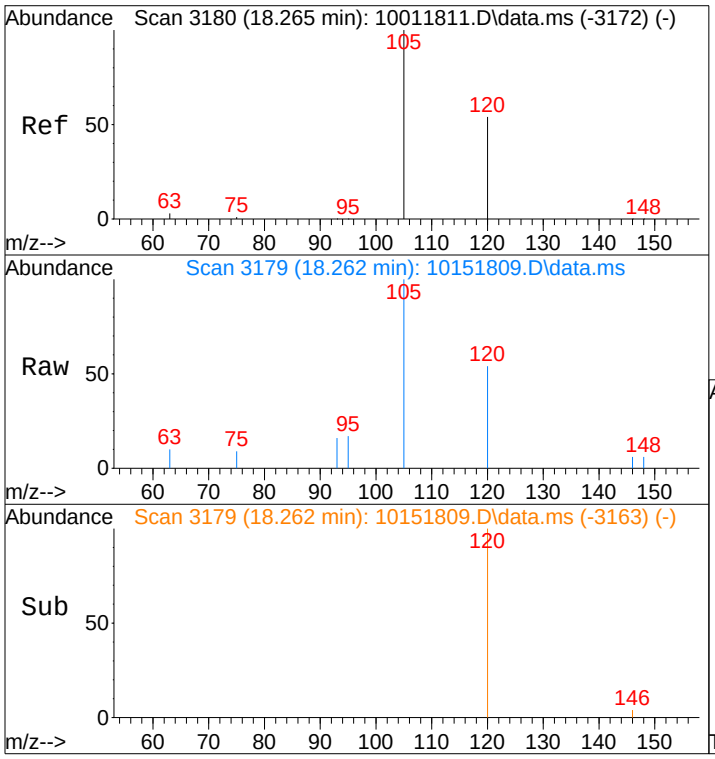


#43
o-Xylene
Concen: 85.14 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:106 Resp: 3482

Ion	Ratio	Lower	Upper
106	100		
91	148.3	175.6	215.6#

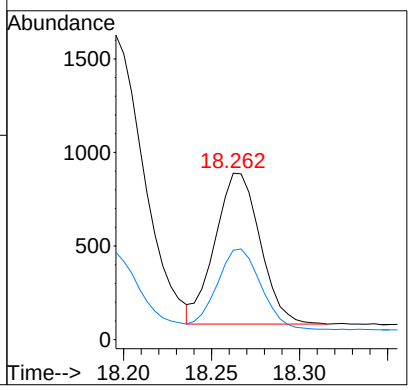


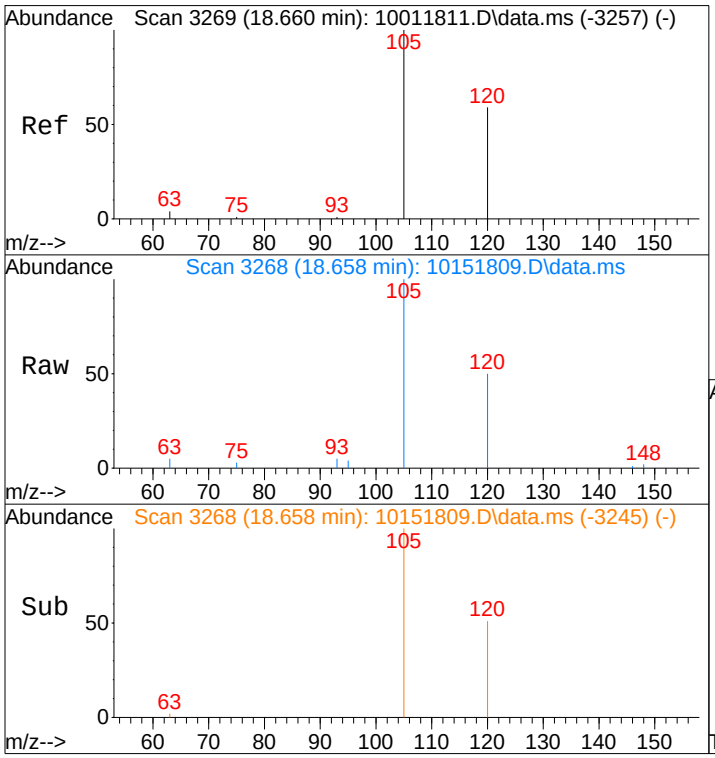


#46
1,3,5-Trimethylbenzene
Concen: 16.67 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:105 Resp: 1434

Ion	Ratio	Lower	Upper
105	100		
120	52.2	42.8	64.2

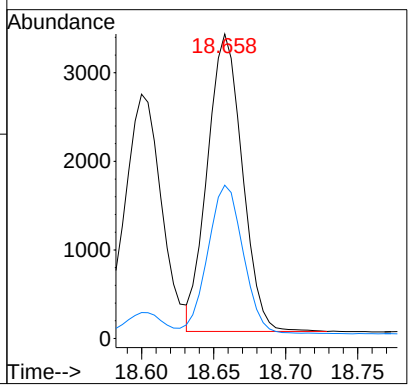


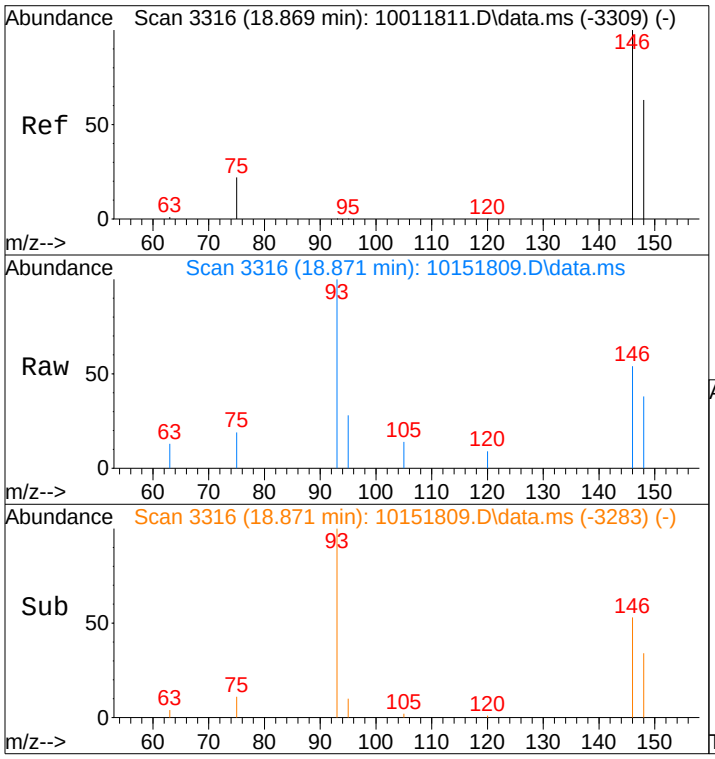


#47
1,2,4-Trimethylbenzene
Concen: 65.95 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:105 Resp: 5659

Ion	Ratio	Lower	Upper
105	100		
120	50.1	47.1	70.7

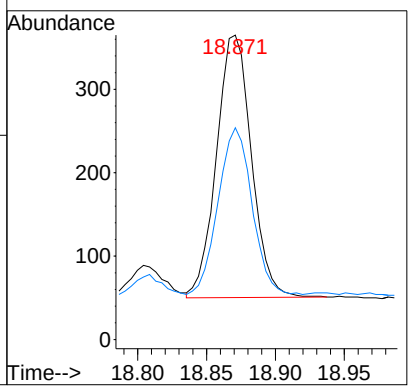


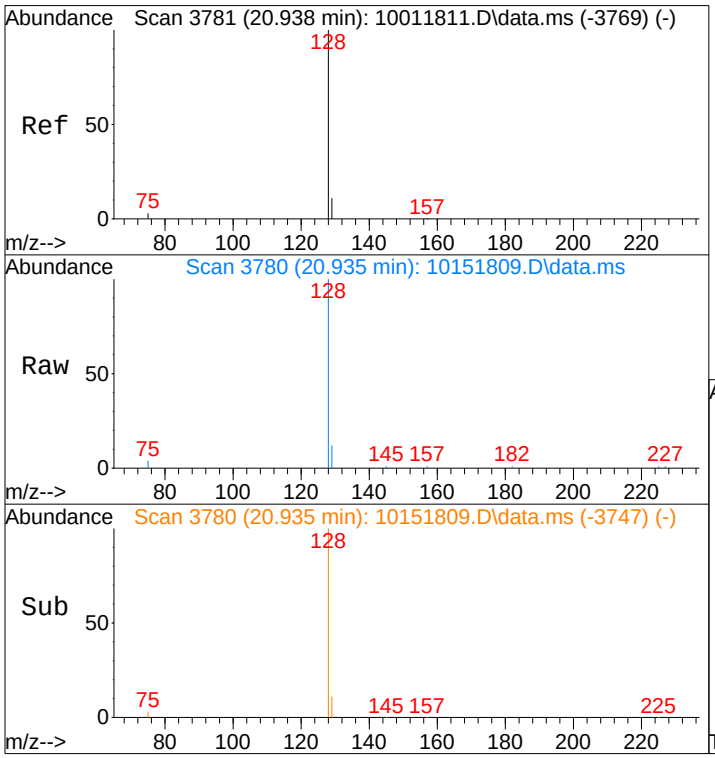


#49
1,4-Dichlorobenzene
Concen: 9.89 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:146 Resp: 557

Ion	Ratio	Lower	Upper
146	100		
148	62.7	43.8	83.8

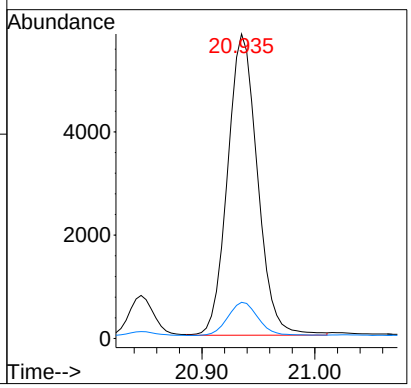




#53
Naphthalene
Concen: 106.76 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10151809.D
Acq: 15 Oct 2018 14:44

Tgt Ion:128 Resp: 10715

Ion	Ratio	Lower	Upper
128	100		
129	11.3	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151810.D Vial: 3
Acq On : 15 Oct 2018 15:15 Operator: WA
Sample : P1805476-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:38:20 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/16/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18829	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	85343	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11039	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	20560	912.184 pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.22%			
33) Toluene-d8 (SS2)	14.01	98	92260	1048.292 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.83%			
45) Bromofluorobenzene (SS3)	17.43	174	33910	1087.111 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.71%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	54756	1364.806 pg		100
3) Chloromethane	4.51	52	1911	203.703 pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	2402	83.055 pg		99
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.00	54	200	10.155 pg	#	86
7) Bromomethane	5.33	94	351	19.178 pg		99
8) Chloroethane	5.55	64	827	60.670 pg		99
9) Acrolein	6.12	56	4390	398.408 pg		100
10) Acetone	6.26	58	145785	10435.905 pg		95
11) Trichlorofluoromethane	6.47	101	22535	718.222 pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.33	84	6535	280.961 pg		100
14) Trichlorotrifluoroethane	7.67	151	1216	55.297 pg		100
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	8.58	63	51	N.D.		
17) Methyl tert-Butyl Ether	8.60	73	199	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.76	83	2078	53.423 pg		99
21) 1,2-Dichloroethane	10.50	62	1545	64.218 pg		99
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.23	78	2649	27.108 pg		100
24) Carbon Tetrachloride	11.39	117	1127	37.424 pg		99
26) 1,2-Dichloropropane	12.04	63	14734	693.152 pg		100
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	12.28	130	3567	133.764 pg		99
29) 1,4-Dioxane	12.26	88	508	27.845 pg		99
30) cis-1,3-Dichloropropene	13.10	75	60	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.11	91	28782	295.367 pg		100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	113	N.D.		
39) Chlorobenzene	15.96	112	152	N.D.		
40) Ethylbenzene	16.35	91	3663	35.992 pg		100
41) m,p-Xylene	16.52	91	5509	70.796 pg		98
42) Styrene	16.89	104	7646	123.706 pg		95
43) o-Xylene	17.00	106	1529	36.959 pg		94
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	601	6.907 pg		95
47) 1,2,4-Trimethylbenzene	18.66	105	2402	27.673 pg		88
48) 1,3-Dichlorobenzene	18.81	146	52	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	214	N.D.		
50) 1,2-Dichlorobenzene	19.20	146	72	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	176	5.463 pg	#	46
53) Naphthalene	20.94	128	6382	62.859 pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151810.D Vial: 3
Acq On : 15 Oct 2018 15:15 Operator: WA
Sample : P1805476-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:38:20 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

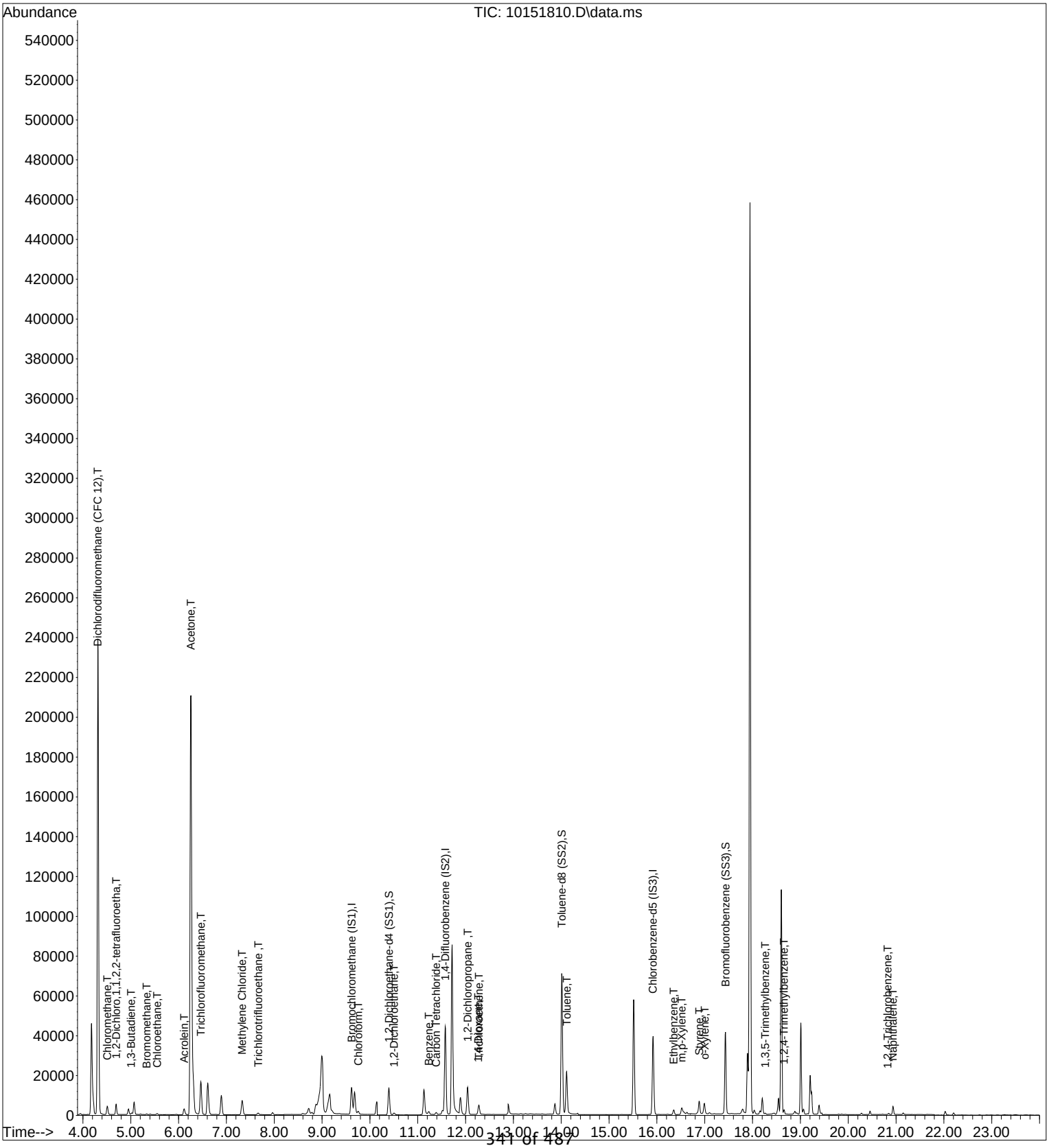
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151810.D Vial: 3
Acq On : 15 Oct 2018 15:15 Operator: WA
Sample : P1805476-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:38:20 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151810.D Vial: 3
Acq On : 15 Oct 2018 15:15 Operator: WA
Sample : P1805476-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:38:20 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/16/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18829	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	85343	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11039	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20560	912.184	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.22%				
33) Toluene-d8 (SS2)	14.01	98	92260	1048.292	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.83%				
45) Bromofluorobenzene (SS3)	17.43	174	33910	1087.111	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.71%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	54756	1364.806	pg		100
3) Chloromethane	4.51	52	1911	203.703	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	2402	83.055	pg		99
6) 1,3-Butadiene	5.00	54	200	10.155	pg	#	86
7) Bromomethane	5.33	94	351	19.178	pg		99
8) Chloroethane	5.55	64	827	60.670	pg		99
9) Acrolein	6.12	56	4390	398.408	pg		100
10) Acetone	6.26	58	145785	10435.905	pg		95
11) Trichlorofluoromethane	6.47	101	22535	718.222	pg		100
13) Methylene Chloride	7.33	84	6535	280.961	pg		100
14) Trichlorotrifluoroethane	7.67	151	1216	55.297	pg		100
19) Chloroform	9.76	83	2078	53.423	pg		99
21) 1,2-Dichloroethane	10.50	62	1545	64.218	pg		99
23) Benzene	11.23	78	2649	27.108	pg		100
24) Carbon Tetrachloride	11.39	117	1127	37.424	pg		99
26) 1,2-Dichloropropane	12.04	63	14734	693.152	pg		100
28) Trichloroethene	12.28	130	3567	133.764	pg		99
29) 1,4-Dioxane	12.26	88	508	27.845	pg		99
34) Toluene	14.11	91	28782	295.367	pg		100
40) Ethylbenzene	16.35	91	3663	35.992	pg		100
41) m,p-Xylene	16.52	91	5509	70.796	pg		98
42) Styrene	16.89	104	7646	123.706	pg		95
43) o-Xylene	17.00	106	1529	36.959	pg		94
46) 1,3,5-Trimethylbenzene	18.27	105	601	6.907	pg		95
47) 1,2,4-Trimethylbenzene	18.66	105	2402	27.673	pg		88
52) 1,2,4-Trichlorobenzene	20.82	182	176	5.463	pg	#	46
53) Naphthalene	20.94	128	6382	62.859	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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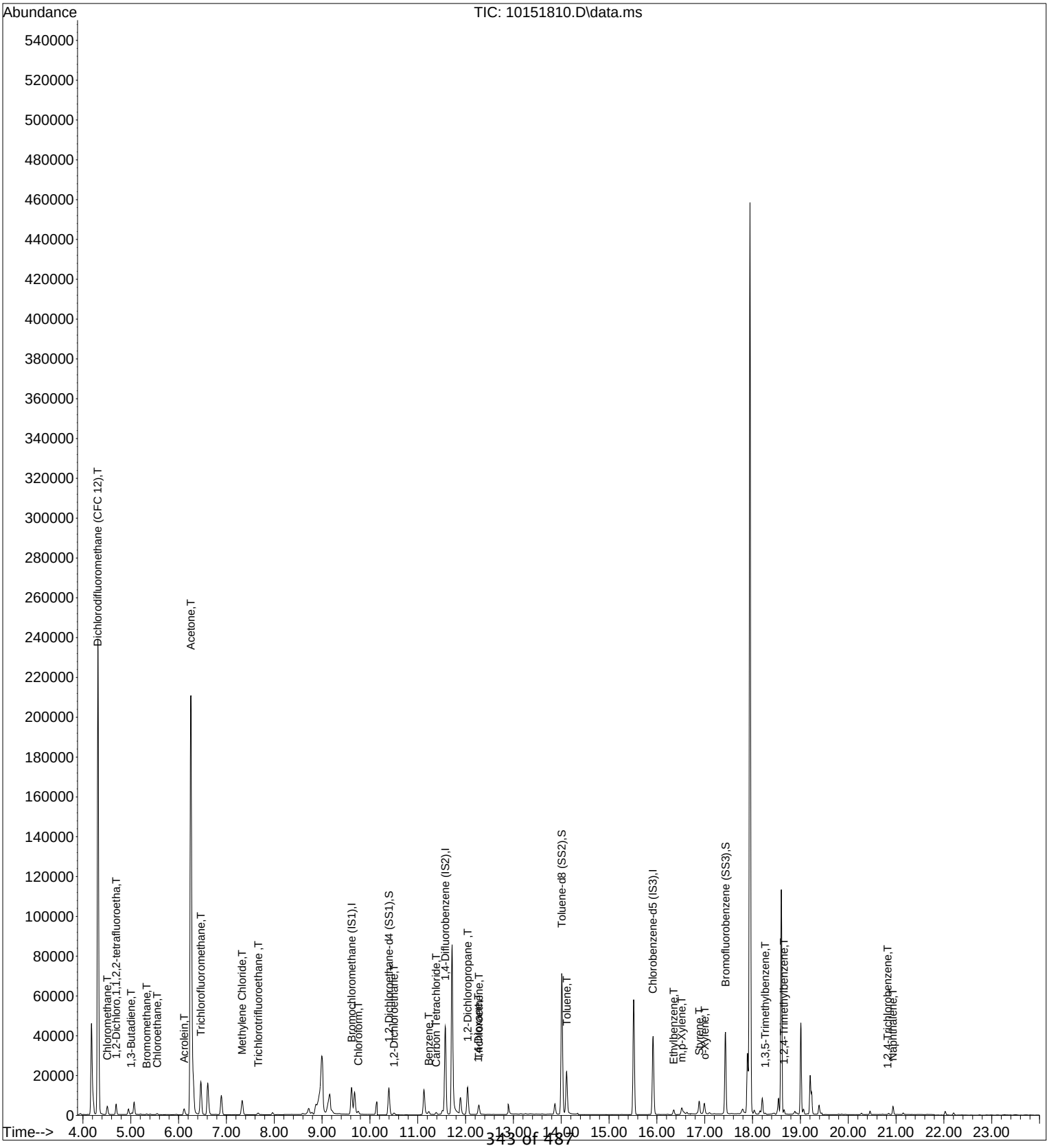
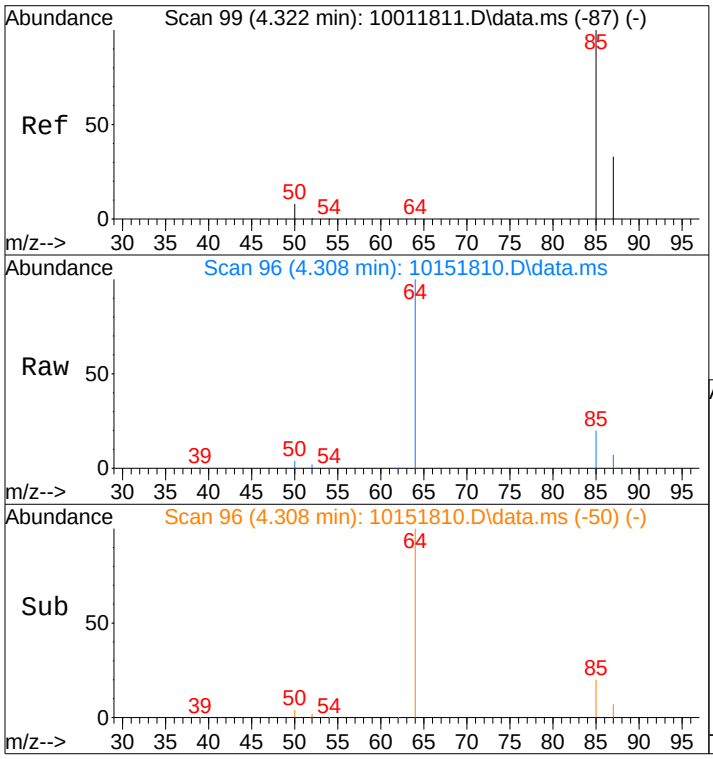
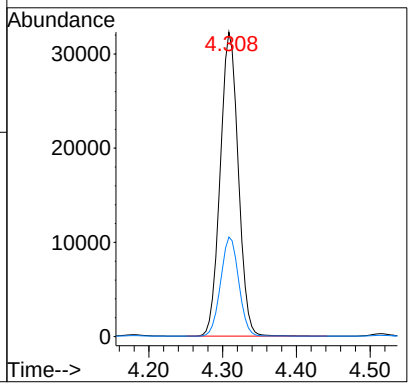


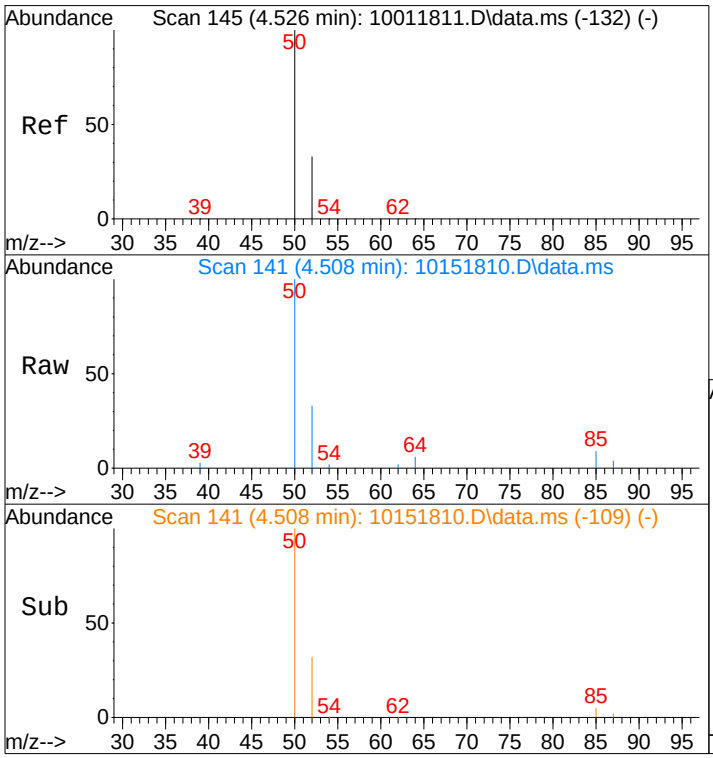


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1364.81 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.005 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 85 Resp: 54756

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

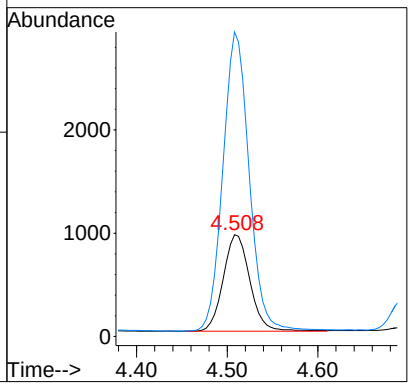


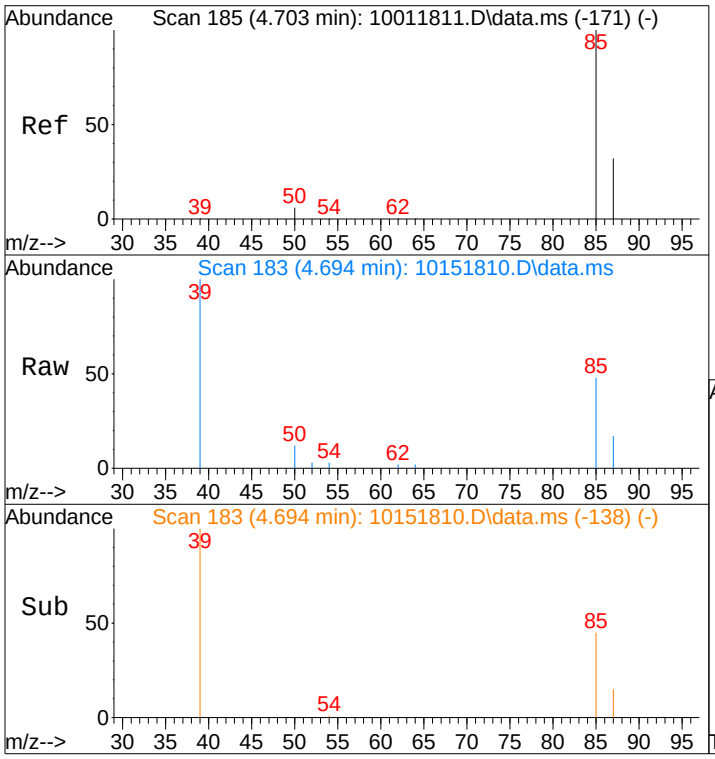


#3
Chloromethane
Concen: 203.70 pg
RT: 4.51 min Scan# 141
Delta R.T. -0.009 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 52 Resp: 1911

Ion	Ratio	Lower	Upper
52	100		
50	305.7	281.8	321.8

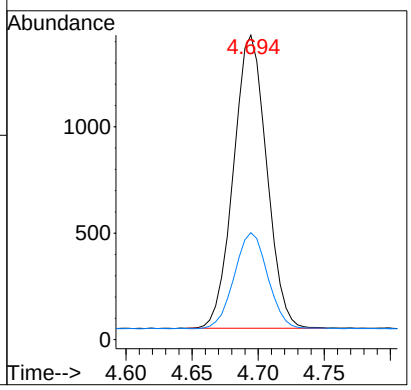


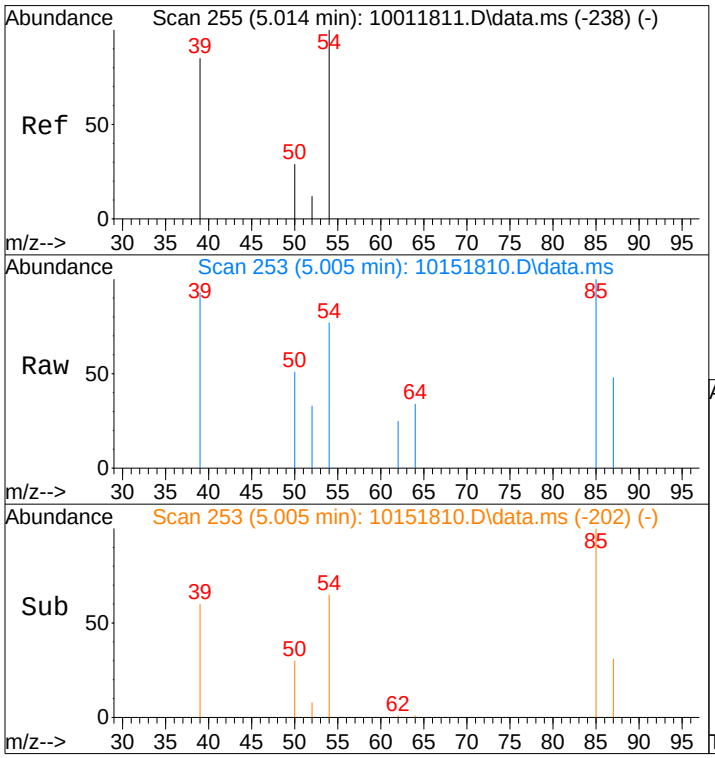


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 83.06 pg
RT: 4.69 min Scan# 183
Delta R.T. 0.000 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 85 Resp: 2402

Ion	Ratio	Lower	Upper
85	100		
87	33.1	26.0	39.0

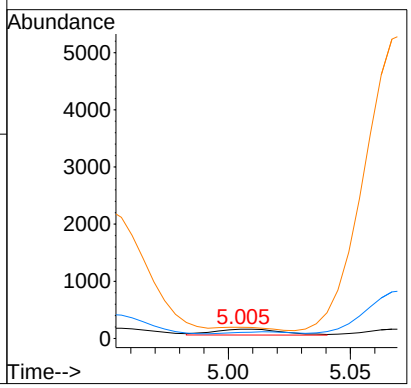


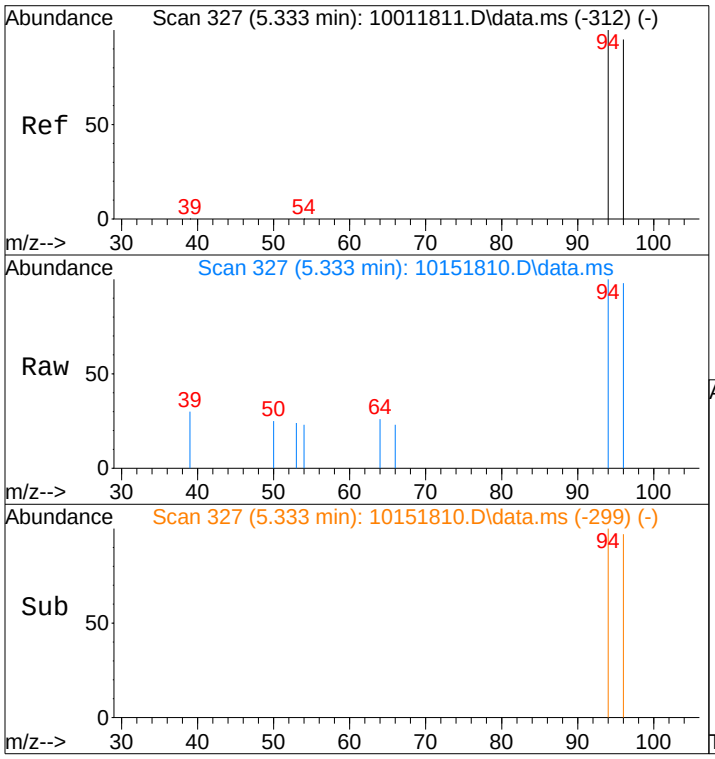


#6
1,3-Butadiene
Concen: 10.16 pg
RT: 5.00 min Scan# 253
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 54 Resp: 200

Ion	Ratio	Lower	Upper
54	100		
50	52.5	23.6	35.4#
39	91.5	69.9	104.9

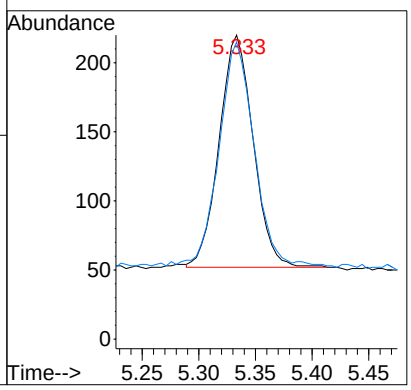


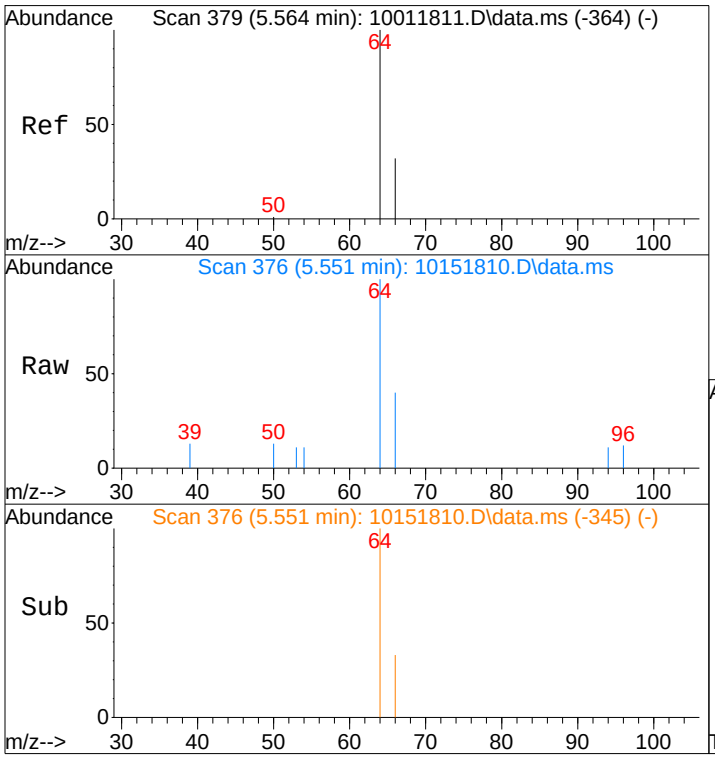


#7
Bromomethane
Concen: 19.18 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 94 Resp: 351

Ion	Ratio	Lower	Upper
94	100		
96	96.0	75.7	113.5

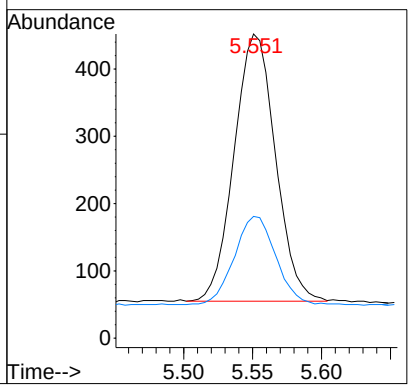


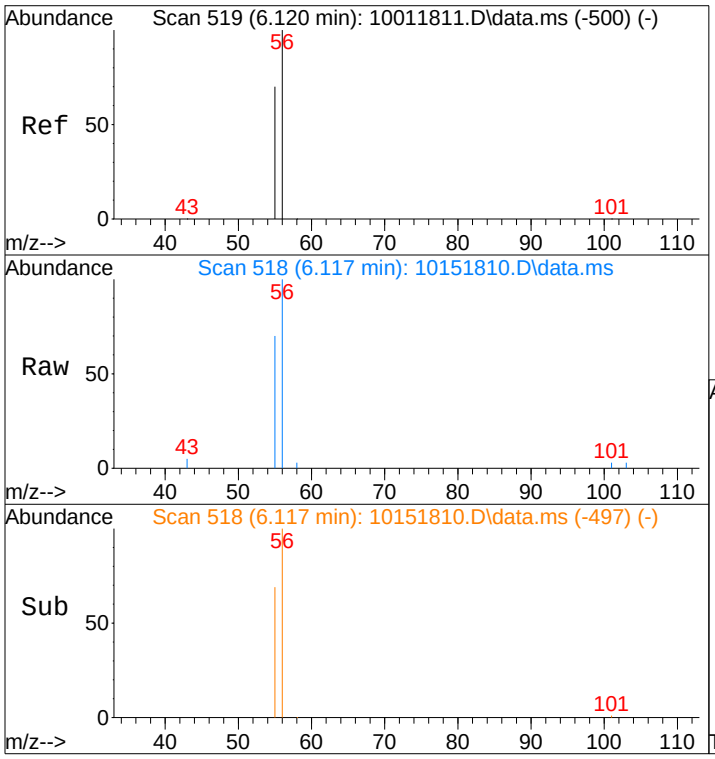


#8
Chloroethane
Concen: 60.67 pg
RT: 5.55 min Scan# 376
Delta R.T. -0.013 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 64 Resp: 827

Ion	Ratio	Lower	Upper
64	100		
66	32.9	12.3	52.3

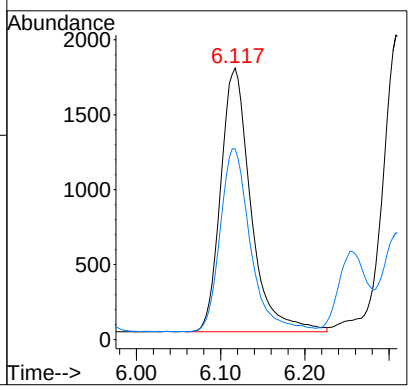


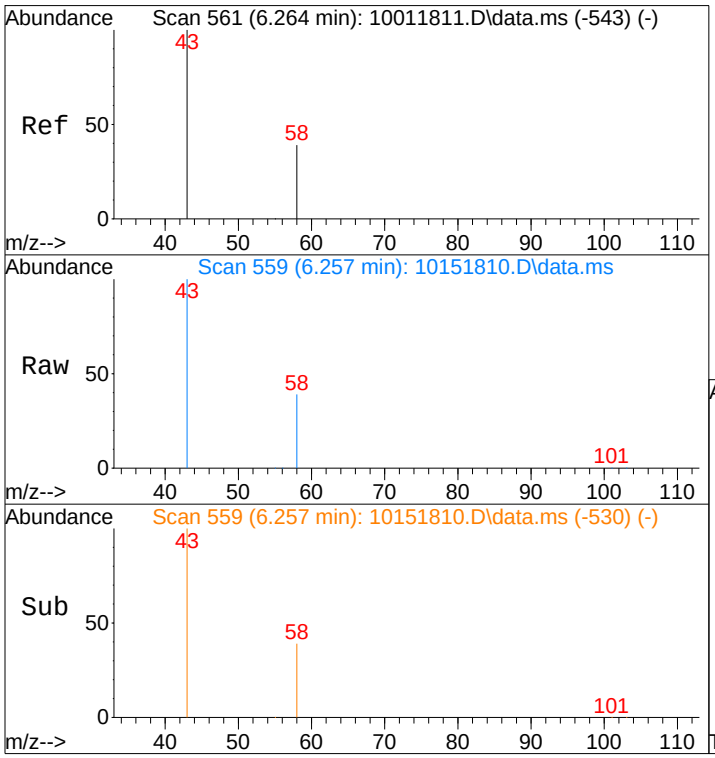


#9
Acrolein
Concen: 398.41 pg
RT: 6.12 min Scan# 518
Delta R.T. -0.037 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 56 Resp: 4390

Ion	Ratio	Lower	Upper
56	100		
55	69.4	55.3	82.9

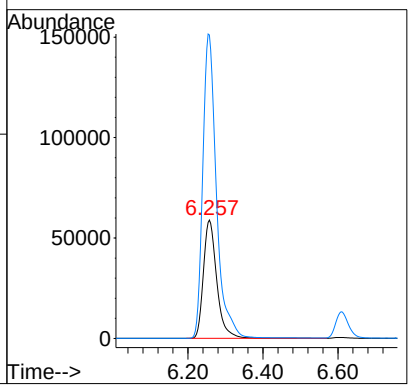


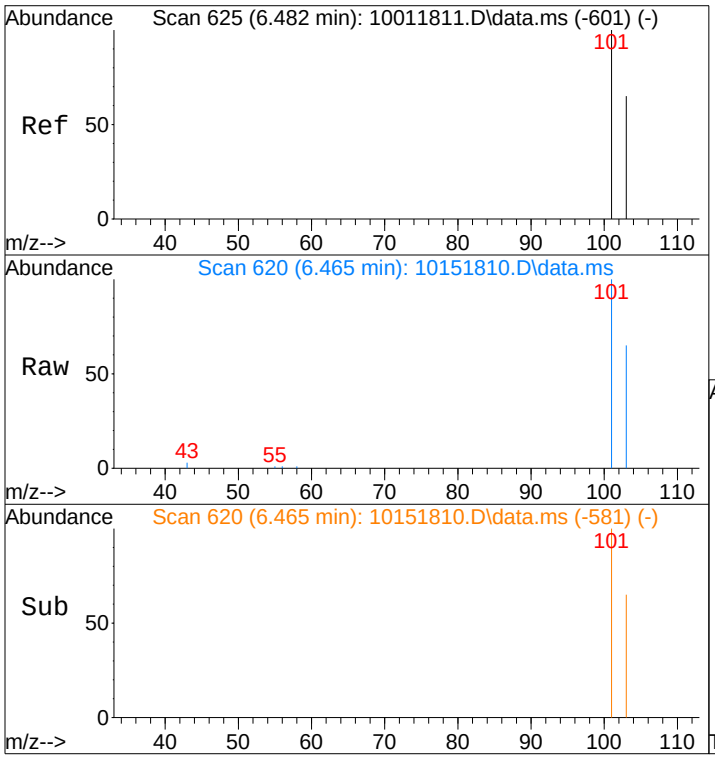


#10
Acetone
Concen: 10435.90 pg
RT: 6.26 min Scan# 559
Delta R.T. -0.051 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 58 Resp: 145785

Ion	Ratio	Lower	Upper
58	100		
43	263.5	234.7	274.7

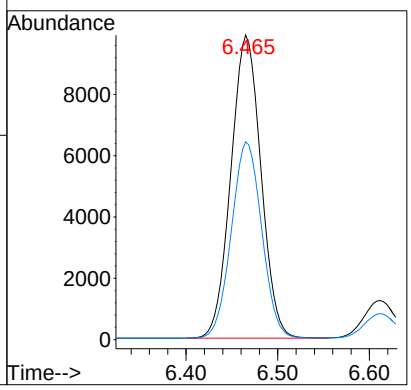


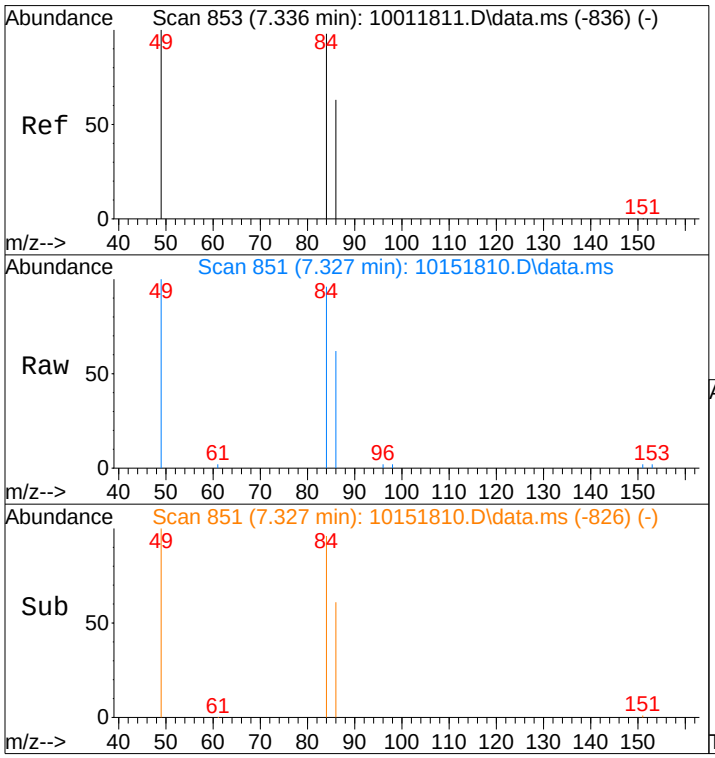


#11
Trichlorofluoromethane
Concen: 718.22 pg
RT: 6.47 min Scan# 620
Delta R.T. -0.017 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:101 Resp: 22535

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

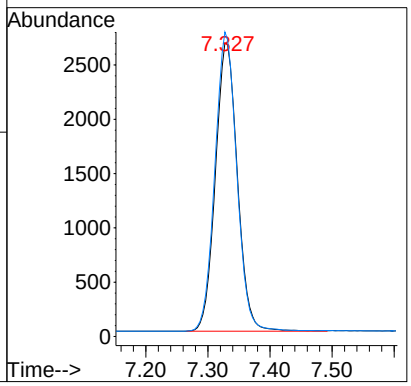


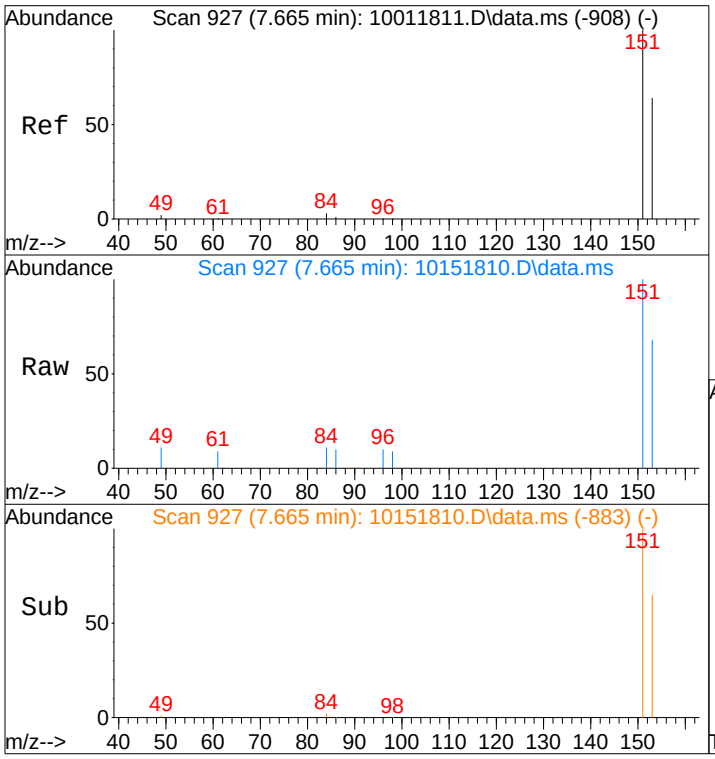


#13
Methylene Chloride
Concen: 280.96 pg
RT: 7.33 min Scan# 851
Delta R.T. -0.049 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 84 Resp: 6535

Ion	Ratio	Lower	Upper
84	100		
49	103.1	83.3	123.3

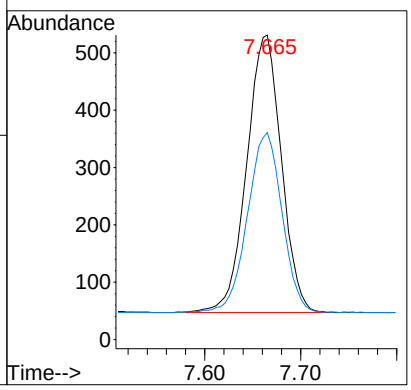


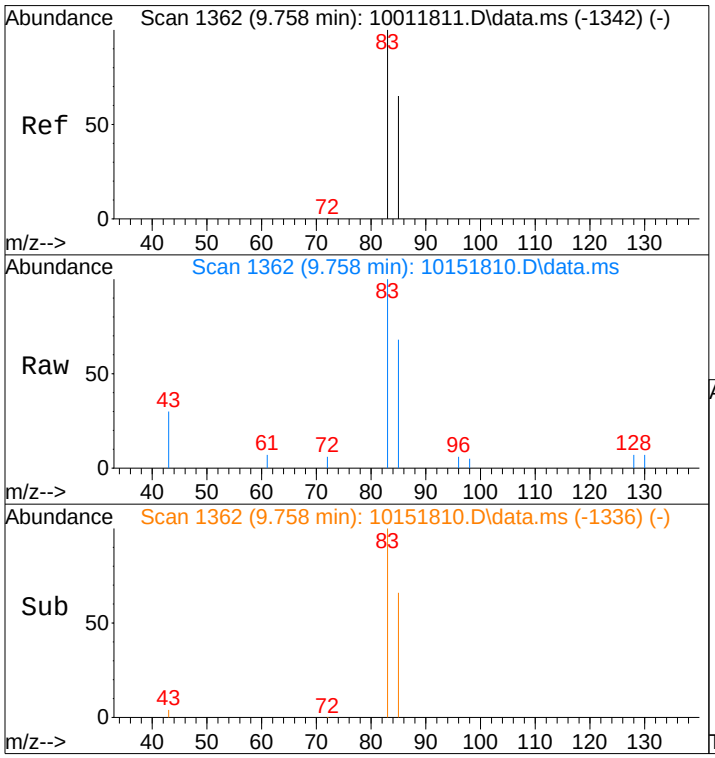


#14
Trichlorotrifluoroethane
Concen: 55.30 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:151 Resp: 1216

Ion	Ratio	Lower	Upper
151	100		
153	64.0	44.3	84.3

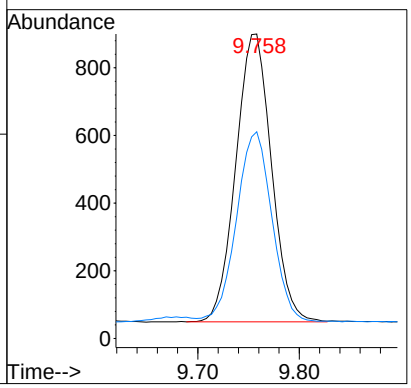


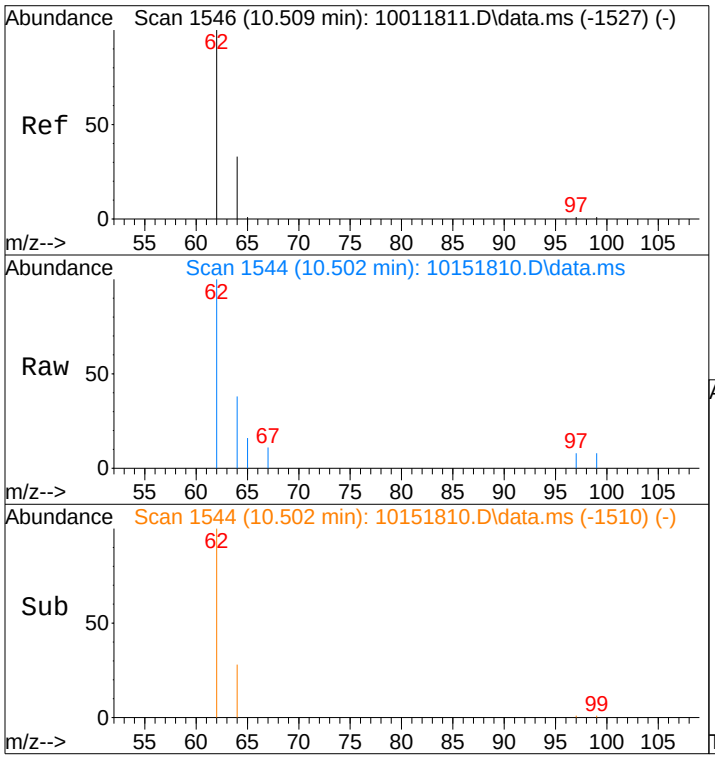


#19
Chloroform
Concen: 53.42 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.039 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 83 Resp: 2078

Ion	Ratio	Lower	Upper
83	100		
85	65.0	46.0	86.0

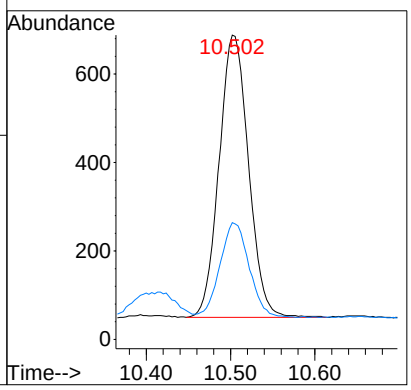


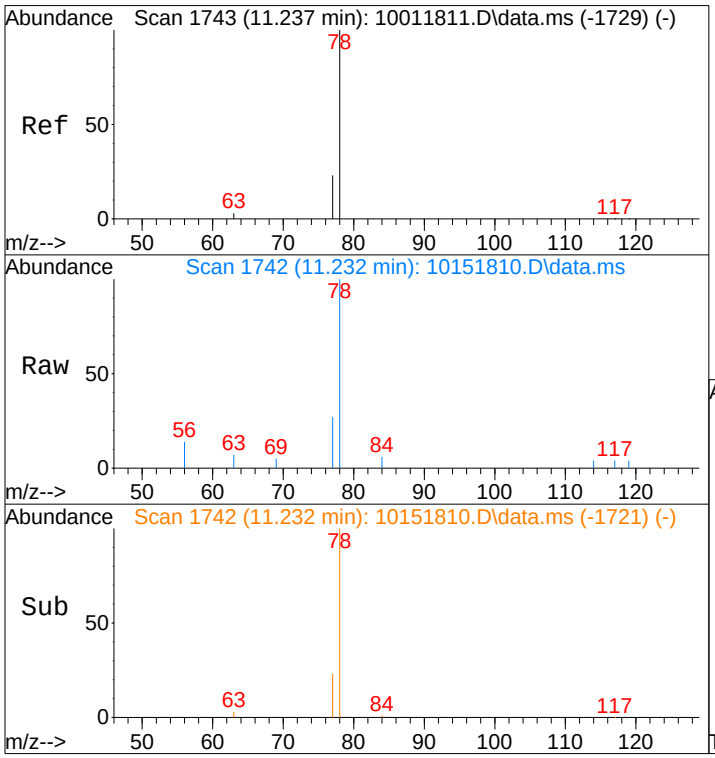


#21
1,2-Dichloroethane
Concen: 64.22 pg
RT: 10.50 min Scan# 1544
Delta R.T. -0.033 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 62 Resp: 1545

Ion	Ratio	Lower	Upper
62	100		
64	33.3	12.9	52.9

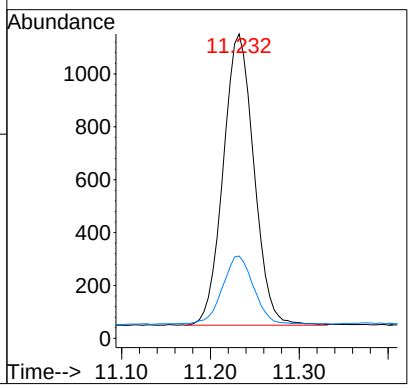


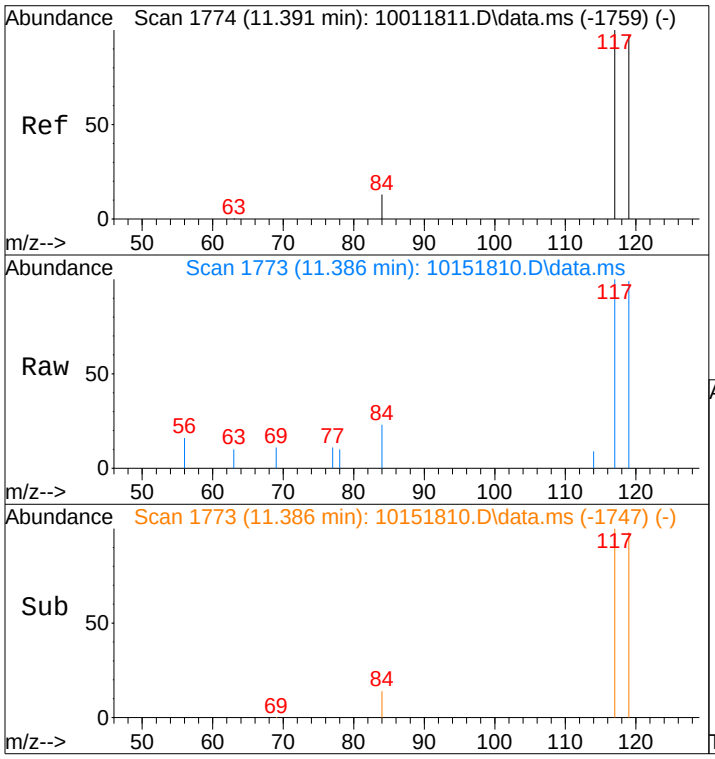


#23
Benzene
Concen: 27.11 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 78 Resp: 2649

Ion	Ratio	Lower	Upper
78	100		
77	23.3	3.3	43.3

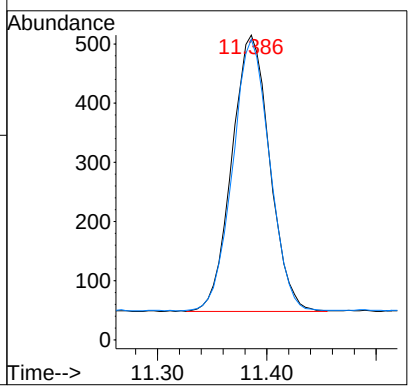


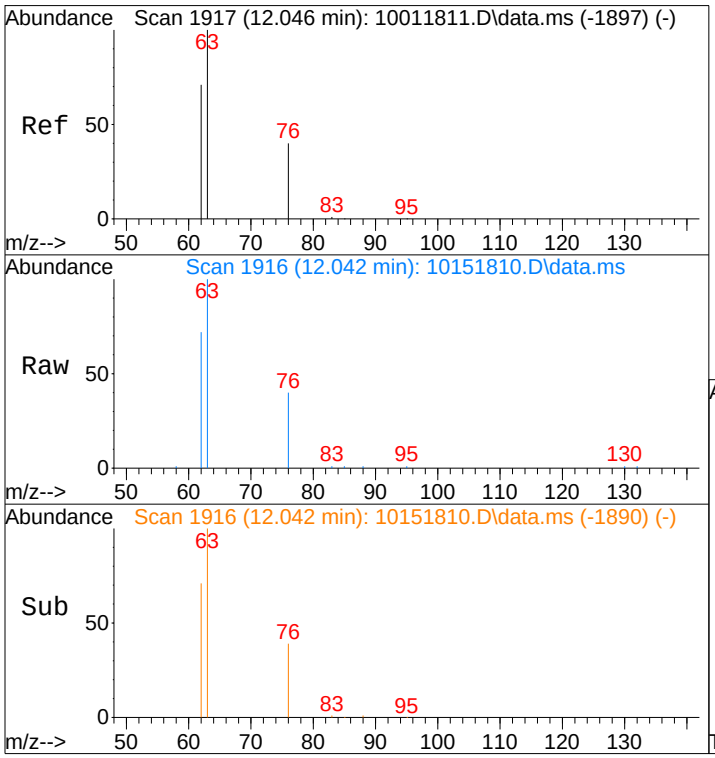


#24
Carbon Tetrachloride
Concen: 37.42 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:117 Resp: 1127

Ion	Ratio	Lower	Upper
117	100		
119	95.7	76.7	116.7

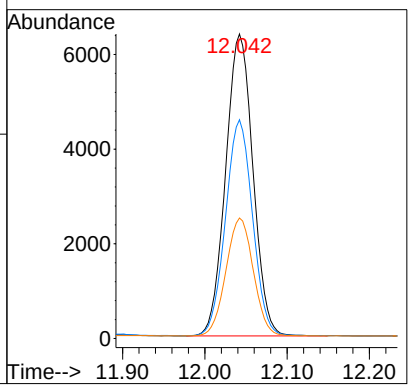


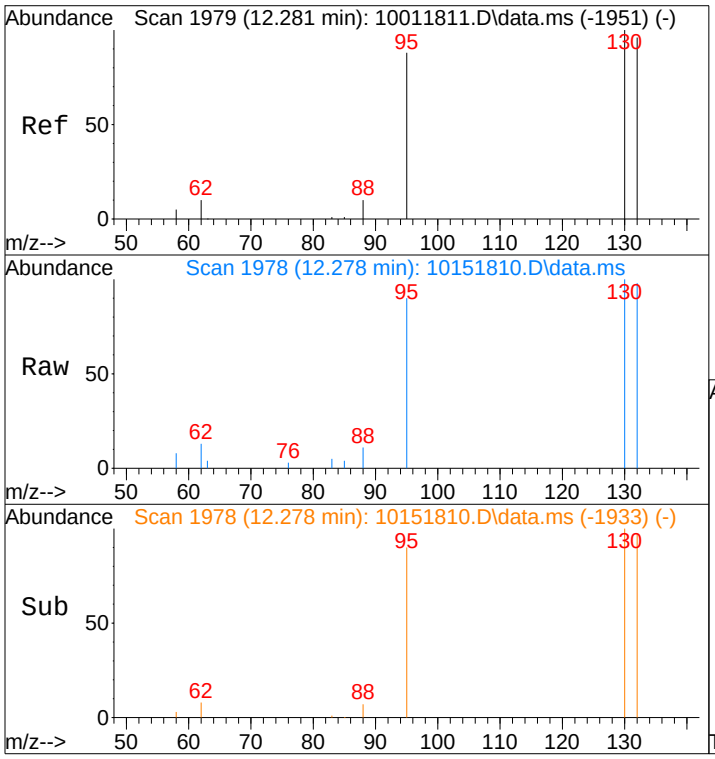


#26
1,2-Dichloropropane
Concen: 693.15 pg
RT: 12.04 min Scan# 1916
Delta R.T. -0.022 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 63 Resp: 14734

Ion	Ratio	Lower	Upper
63	100		
62	70.7	50.7	90.7
76	38.9	19.6	59.6

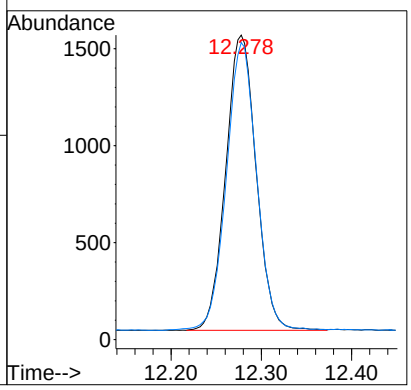


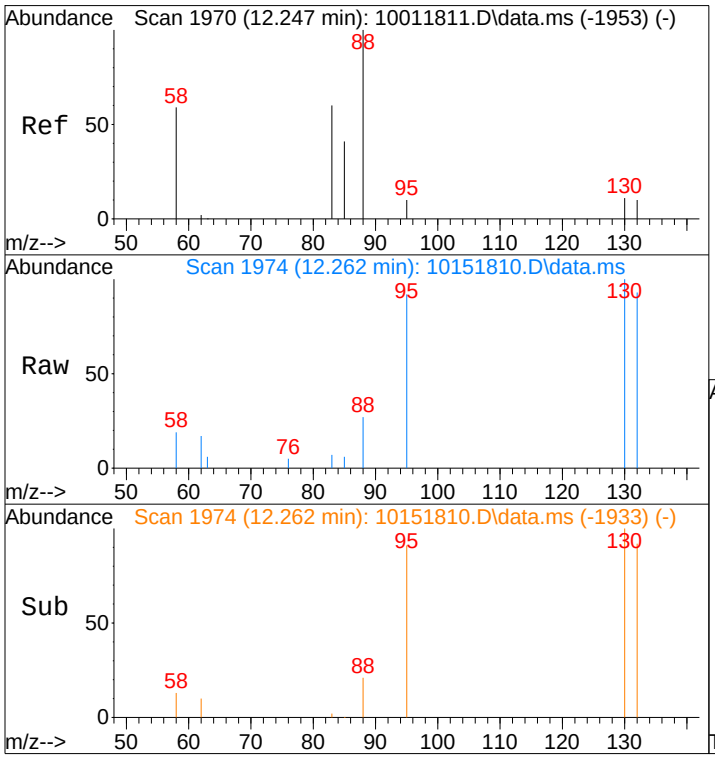


#28
Trichloroethene
Concen: 133.76 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:130 Resp: 3567

Ion	Ratio	Lower	Upper
130	100		
132	96.7	75.6	115.6

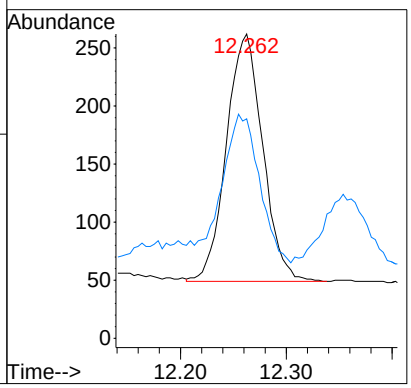


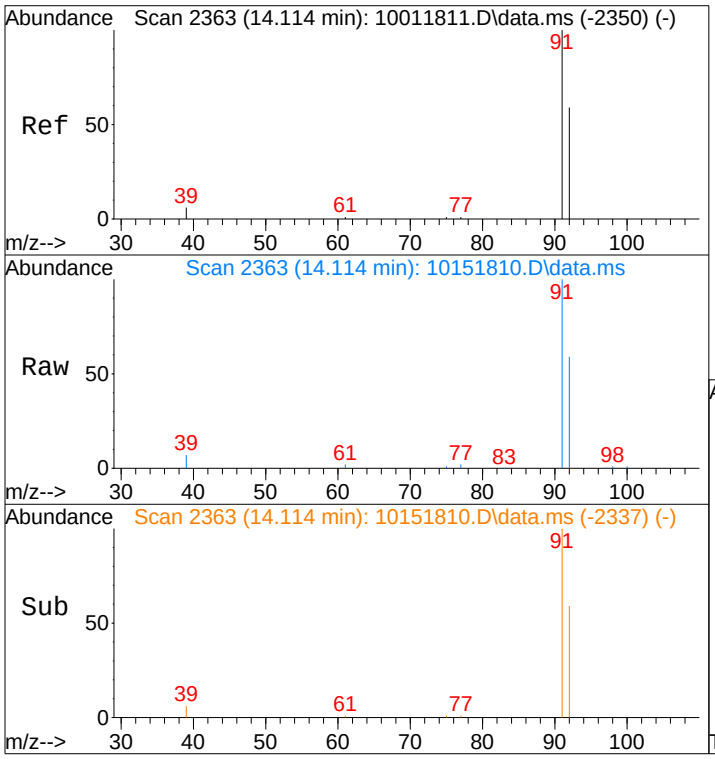


#29
1,4-Dioxane
Concen: 27.85 pg
RT: 12.26 min Scan# 1974
Delta R.T. 0.005 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 88 Resp: 508

Ion	Ratio	Lower	Upper
88	100		
58	60.2	39.2	79.2

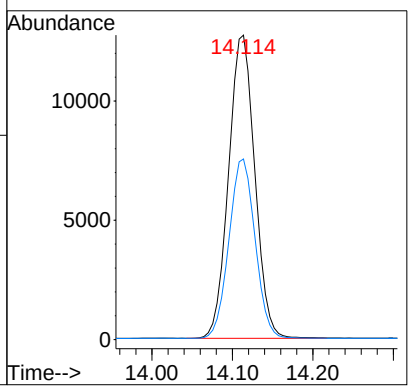


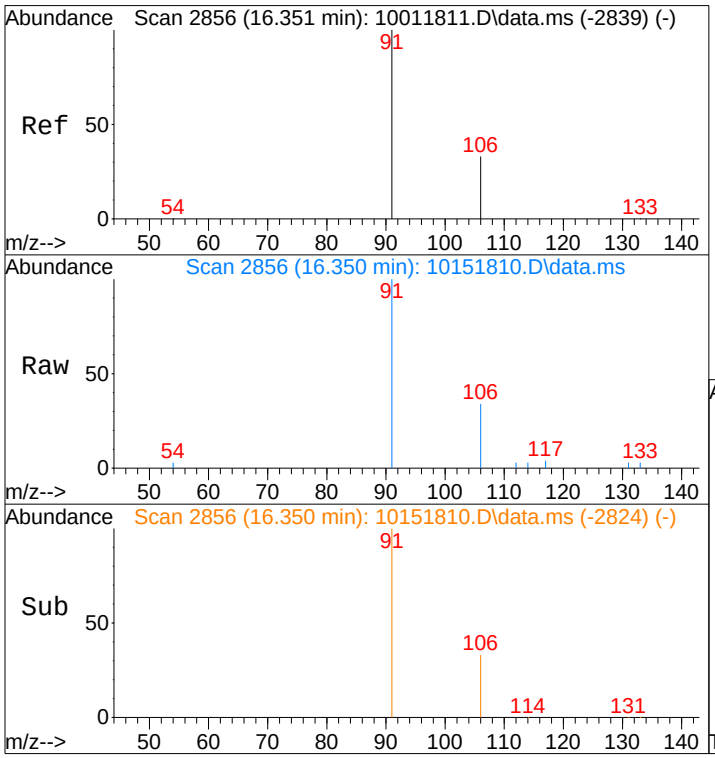


#34
Toluene
Concen: 295.37 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 91 Resp: 28782

Ion	Ratio	Lower	Upper
91	100		
92	59.1	39.2	79.2

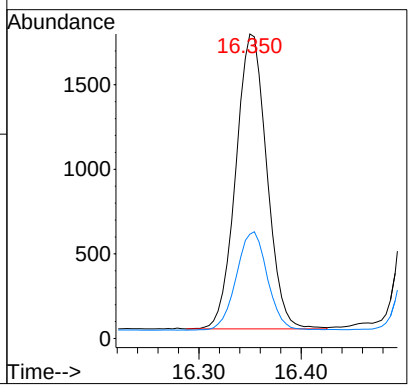


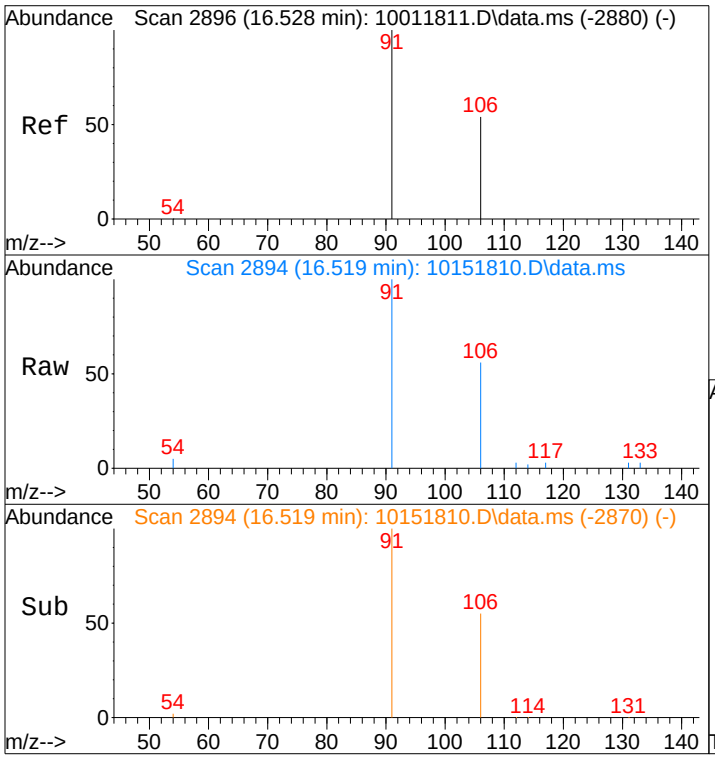


#40
Ethylbenzene
Concen: 35.99 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 91 Resp: 3663

Ion	Ratio	Lower	Upper
91	100		
106	33.4	13.7	53.7

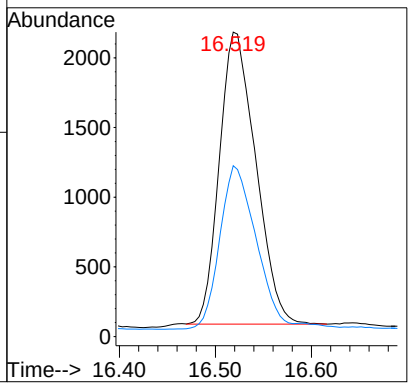


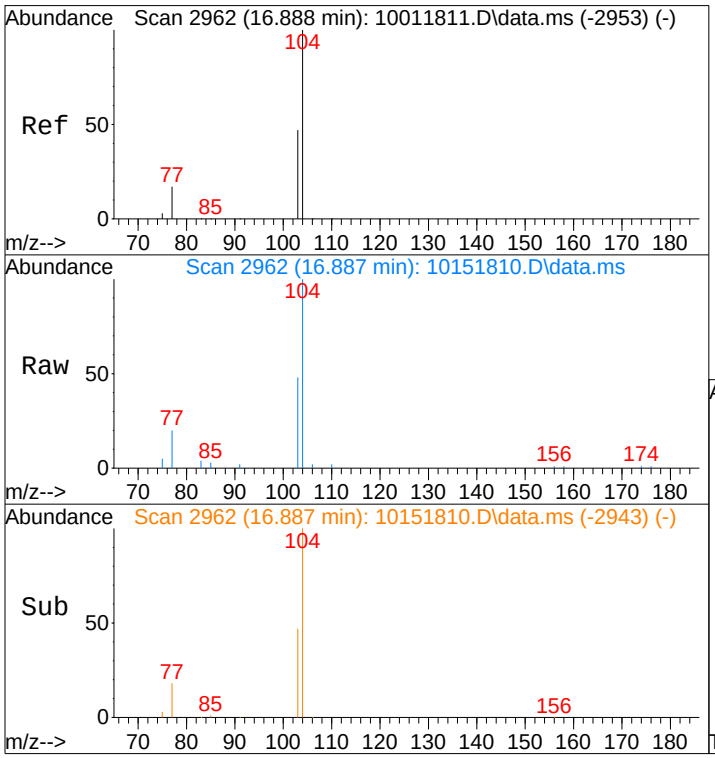


#41
m,p-Xylene
Concen: 70.80 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion: 91 Resp: 5509

Ion	Ratio	Lower	Upper
91	100		
106	55.5	34.3	74.3

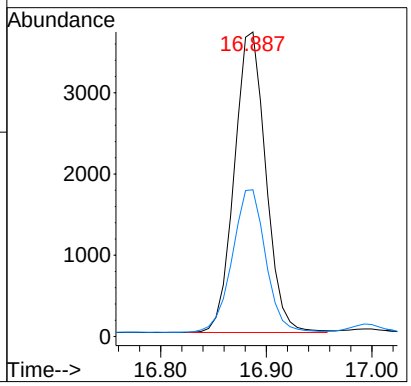


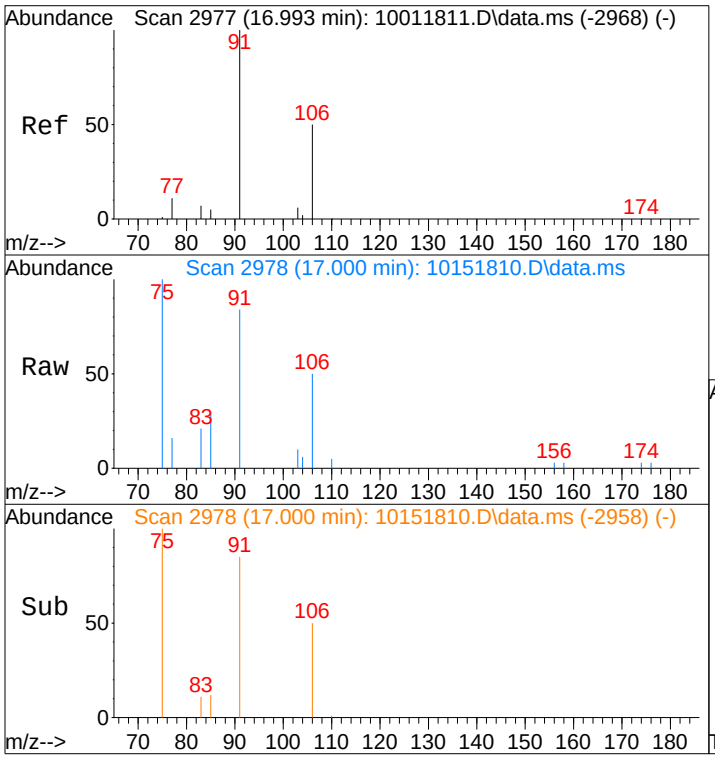


#42
Styrene
Concen: 123.71 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:104 Resp: 7646

Ion	Ratio	Lower	Upper
104	100		
103	50.3	37.7	56.5

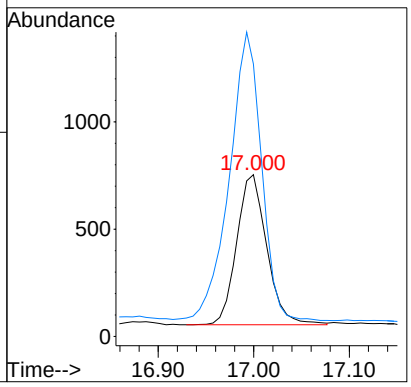


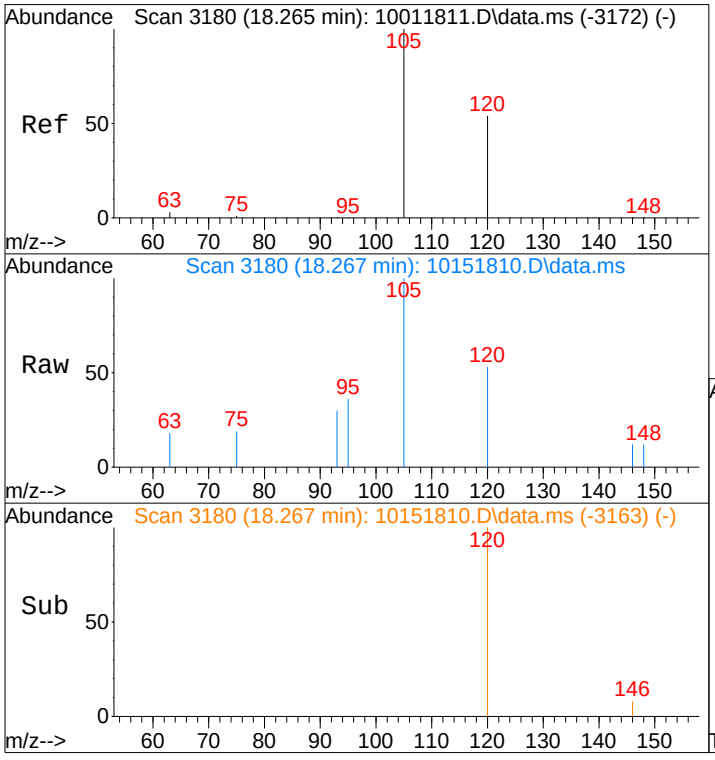


#43
o-Xylene
Concen: 36.96 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:106 Resp: 1529

Ion	Ratio	Lower	Upper
106	100		
91	204.8	175.6	215.6

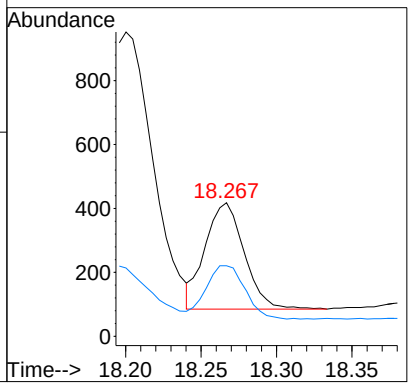


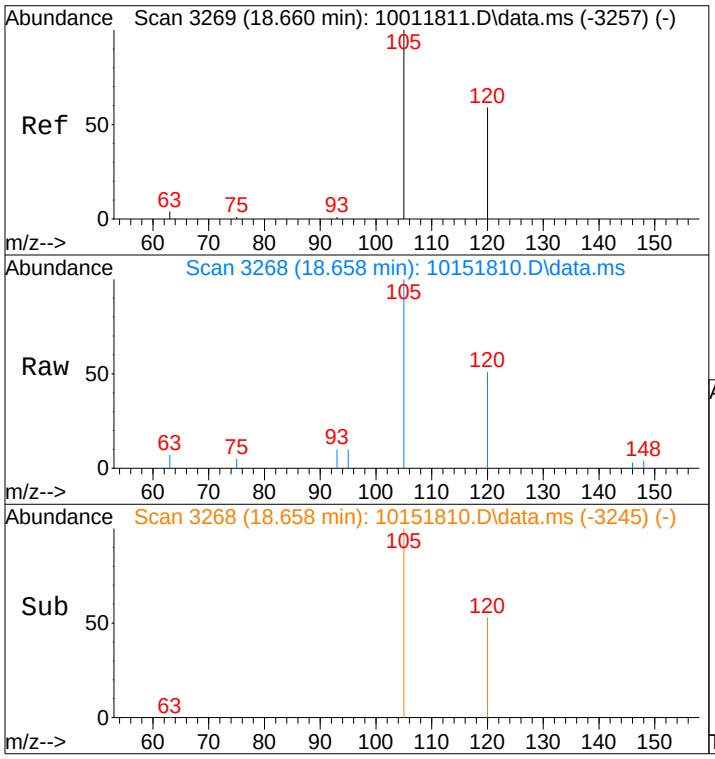


#46
1,3,5-Trimethylbenzene
Concen: 6.91 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:105 Resp: 601

Ion	Ratio	Lower	Upper
105	100		
120	49.9	42.8	64.2

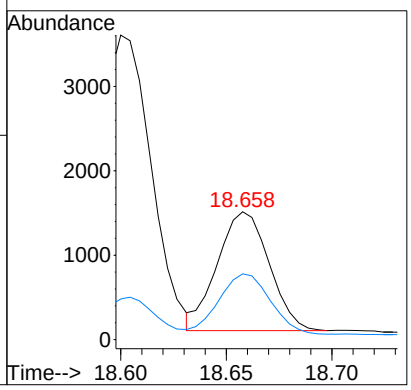


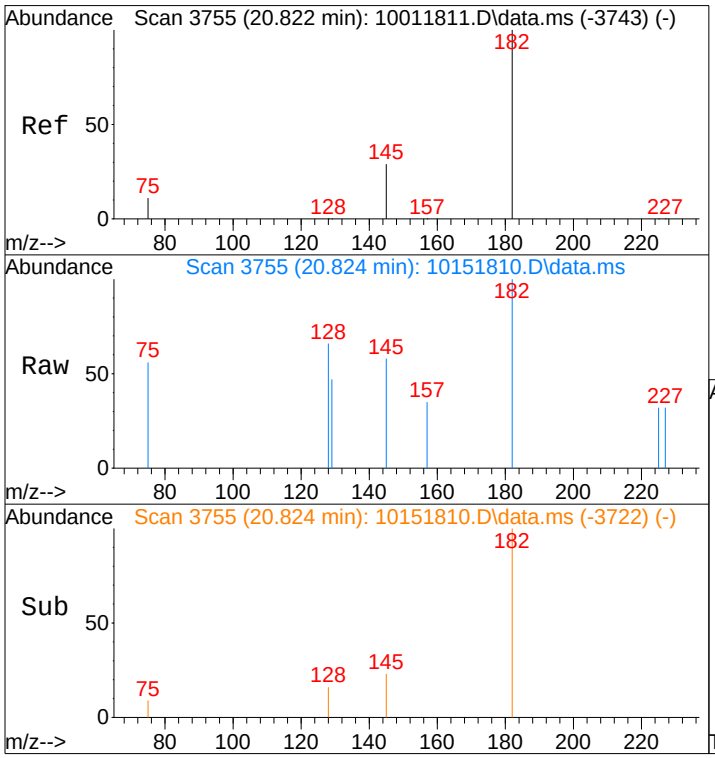


#47
1,2,4-Trimethylbenzene
Concen: 27.67 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:105 Resp: 2402

Ion	Ratio	Lower	Upper
105	100		
120	50.2	47.1	70.7

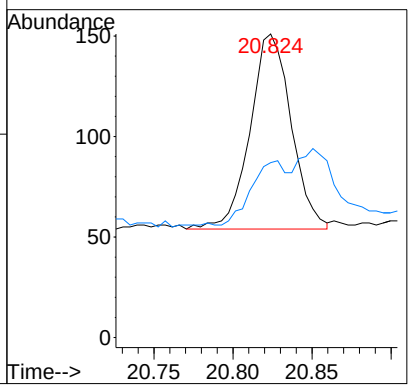


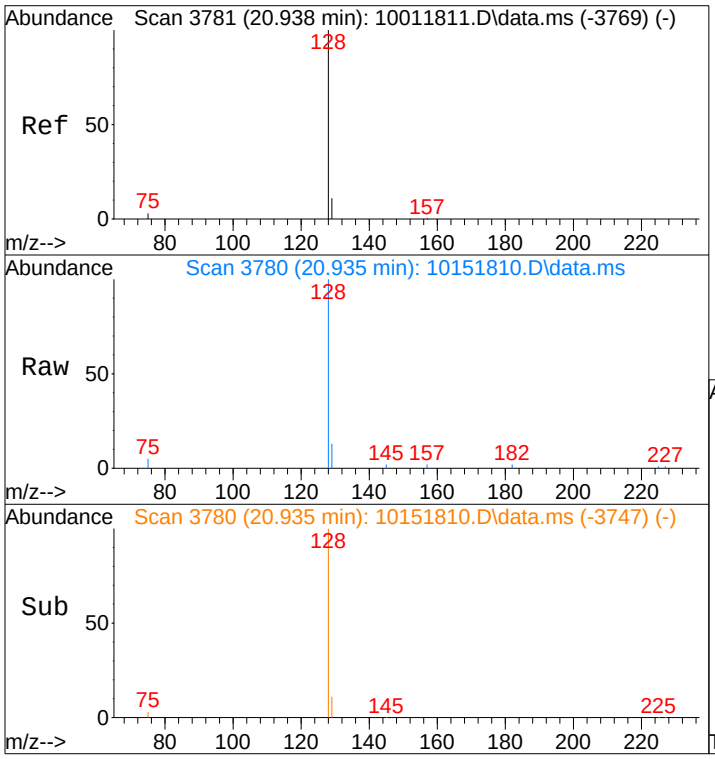


#52
1,2,4-Trichlorobenzene
Concen: 5.46 pg
RT: 20.82 min Scan# 3755
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:182 Resp: 176

Ion	Ratio	Lower	Upper
182	100		
145	0.0	8.7	48.7#

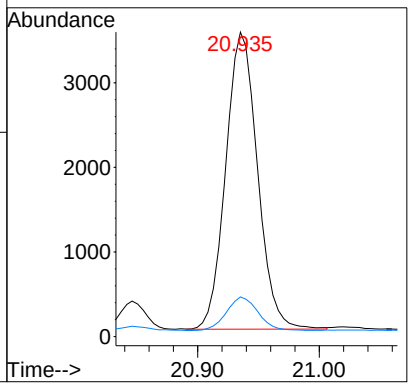




#53
Naphthalene
Concen: 62.86 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10151810.D
Acq: 15 Oct 2018 15:15

Tgt Ion:128 Resp: 6382

Ion	Ratio	Lower	Upper
128	100		
129	11.5	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151811.D Vial: 4
Acq On : 15 Oct 2018 15:47 Operator: WA
Sample : P1805476-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:40:52 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/16/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19049	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	87087	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11884	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20888	916.033	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.60%				
33) Toluene-d8 (SS2)	14.01	98	94337	1050.426	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.04%				
45) Bromofluorobenzene (SS3)	17.43	174	35797	1066.007	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	53581	1320.095	pg		100
3) Chloromethane	4.52	52	1984	209.042	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2341	80.011	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.01	54	267	13.400	pg	#	82
7) Bromomethane	5.34	94	356	19.226	pg		100
8) Chloroethane	5.55	64	897	65.045	pg		97
9) Acrolein	6.12	56	7455	668.754	pg		100
10) Acetone	6.26	58	210281	14878.953	pg		99
11) Trichlorofluoromethane	6.47	101	22187	698.964	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.33	84	6820	289.828	pg		99
14) Trichlorotrifluoroethane	7.67	151	1445	64.952	pg		100
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	8.59	63	75	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	2298	58.397	pg		98
21) 1,2-Dichloroethane	10.50	62	1697	69.722	pg		99
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.23	78	3594	36.354	pg		100
24) Carbon Tetrachloride	11.39	117	1391	45.657	pg		98
26) 1,2-Dichloropropane	12.04	63	16111	742.753	pg		100
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	4696	172.575	pg		99
29) 1,4-Dioxane	12.26	88	823	44.208	pg		95
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.11	91	47194	474.616	pg		100
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	235	8.031	pg		99
39) Chlorobenzene	15.96	112	282	N.D.			
40) Ethylbenzene	16.35	91	6387	58.296	pg		99
41) m,p-Xylene	16.52	91	11643	138.986	pg		85
42) Styrene	16.88	104	12769	191.902	pg		97
43) o-Xylene	17.00	106	4686	105.216	pg	#	47
44) 1,1,2,2-Tetrachloroethane	16.99	83	3221	75.371	pg		95
46) 1,3,5-Trimethylbenzene	18.26	105	1558	16.633	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	9150	97.919	pg		92
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
49) 1,4-Dichlorobenzene	18.87	146	430	7.014	pg		97
50) 1,2-Dichlorobenzene	19.19	146	60	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	67	N.D.			
53) Naphthalene	20.94	128	16197	148.188	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151811.D Vial: 4
Acq On : 15 Oct 2018 15:47 Operator: WA
Sample : P1805476-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:40:52 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

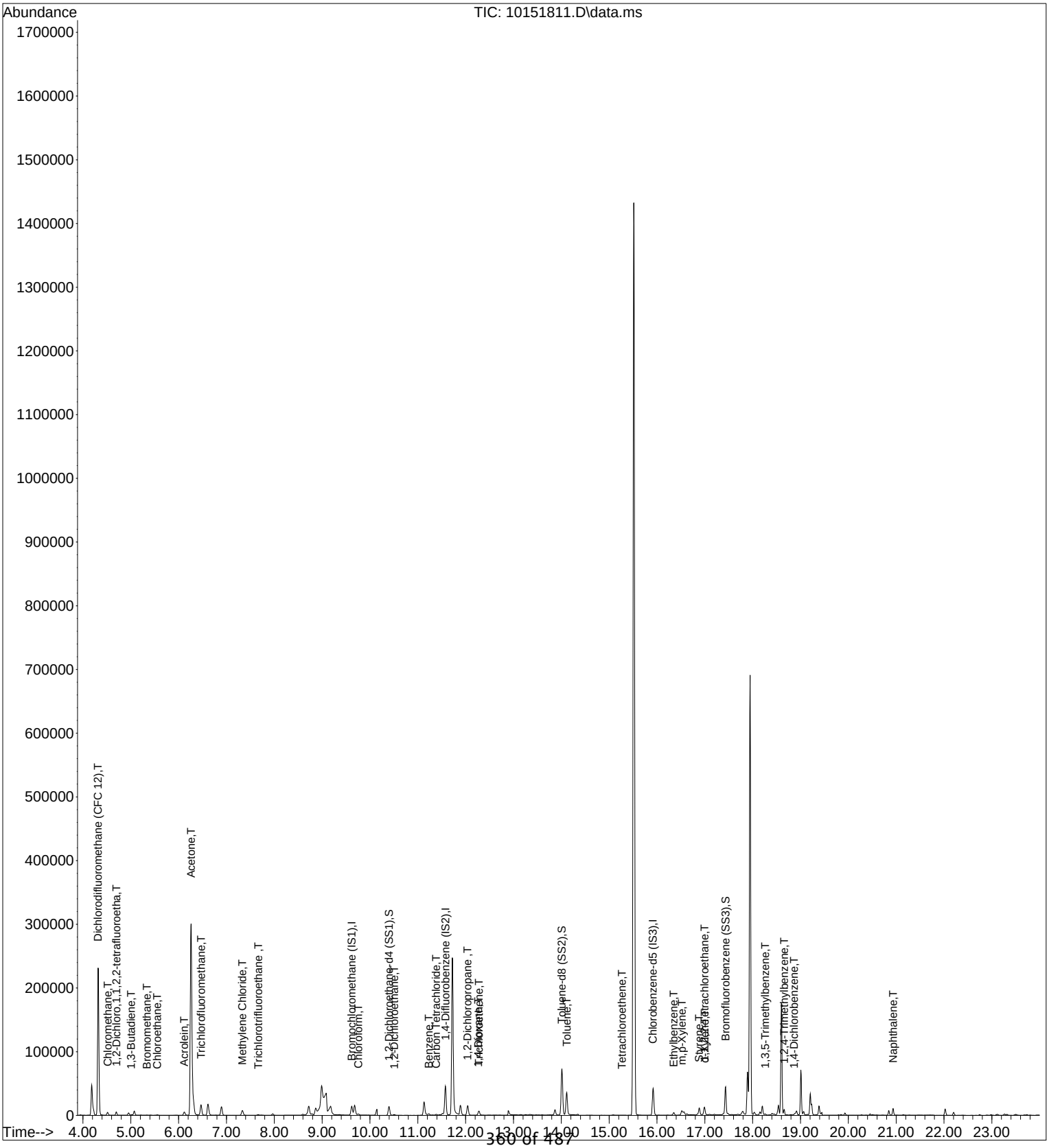
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	57	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151811.D Vial: 4
Acq On : 15 Oct 2018 15:47 Operator: WA
Sample : P1805476-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:40:52 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151811.D Vial: 4
Acq On : 15 Oct 2018 15:47 Operator: WA
Sample : P1805476-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:40:52 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WH 10/16/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

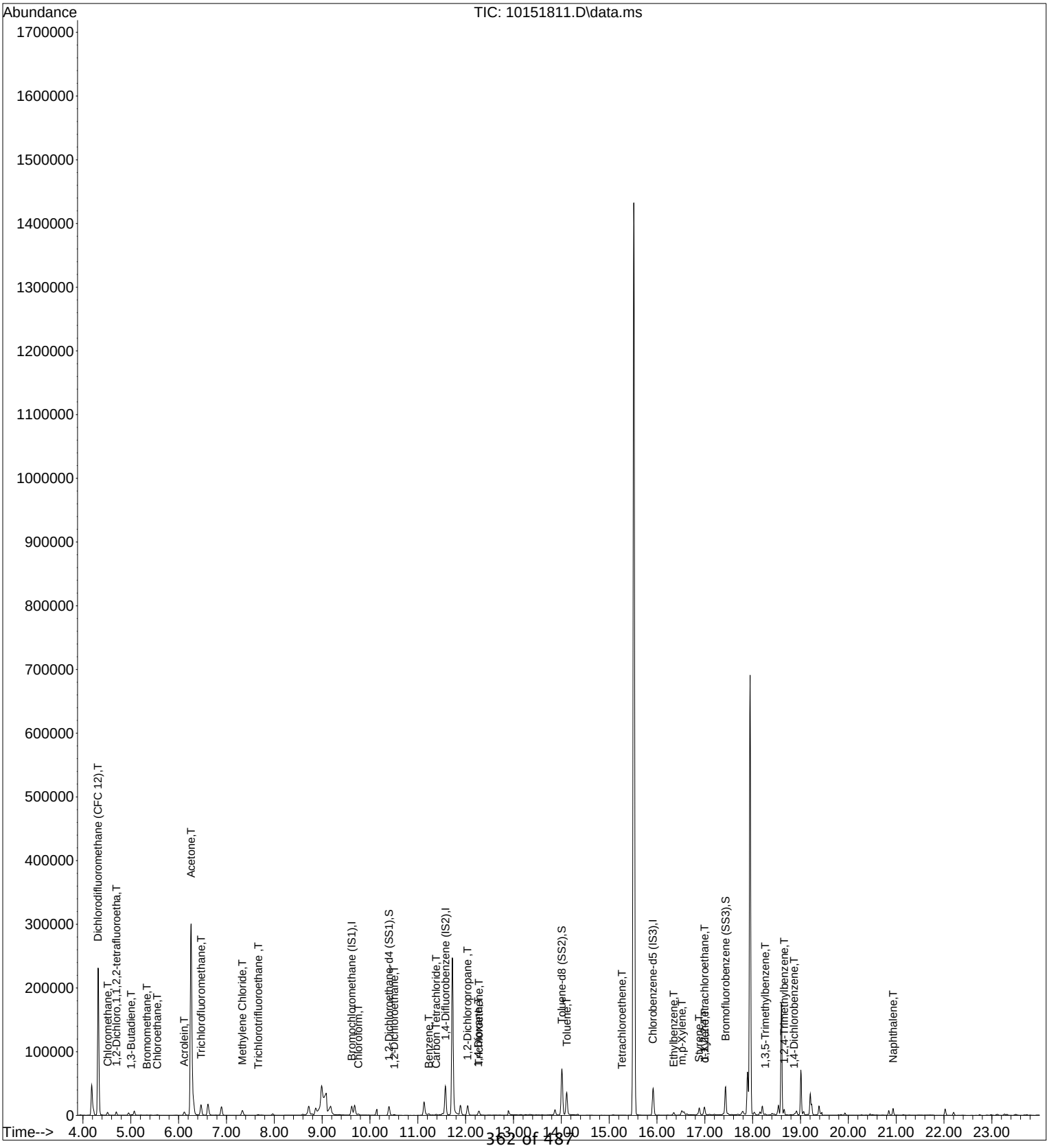
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19049	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	87087	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11884	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20888	916.033	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.60%				
33) Toluene-d8 (SS2)	14.01	98	94337	1050.426	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.04%				
45) Bromofluorobenzene (SS3)	17.43	174	35797	1066.007	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	53581	1320.095	pg		100
3) Chloromethane	4.52	52	1984	209.042	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2341	80.011	pg		100
6) 1,3-Butadiene	5.01	54	267	13.400	pg	#	82
7) Bromomethane	5.34	94	356	19.226	pg		100
8) Chloroethane	5.55	64	897	65.045	pg		97
9) Acrolein	6.12	56	7455	668.754	pg		100
10) Acetone	6.26	58	210281	14878.953	pg		99
11) Trichlorofluoromethane	6.47	101	22187	698.964	pg		100
13) Methylene Chloride	7.33	84	6820	289.828	pg		99
14) Trichlorotrifluoroethane	7.67	151	1445	64.952	pg		100
19) Chloroform	9.76	83	2298	58.397	pg		98
21) 1,2-Dichloroethane	10.50	62	1697	69.722	pg		99
23) Benzene	11.23	78	3594	36.354	pg		100
24) Carbon Tetrachloride	11.39	117	1391	45.657	pg		98
26) 1,2-Dichloropropane	12.04	63	16111	742.753	pg		100
28) Trichloroethene	12.28	130	4696	172.575	pg		99
29) 1,4-Dioxane	12.26	88	823	44.208	pg		95
34) Toluene	14.11	91	47194	474.616	pg		100
37) Tetrachloroethene	15.27	166	235	8.031	pg		99
40) Ethylbenzene	16.35	91	6387	58.296	pg		99
41) m,p-Xylene	16.52	91	11643	138.986	pg		85
42) Styrene	16.88	104	12769	191.902	pg		97
43) o-Xylene	17.00	106	4686	105.216	pg	#	47
44) 1,1,2,2-Tetrachloroethane	16.99	83	3221	75.371	pg		95
46) 1,3,5-Trimethylbenzene	18.26	105	1558	16.633	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	9150	97.919	pg		92
49) 1,4-Dichlorobenzene	18.87	146	430	7.014	pg		97
53) Naphthalene	20.94	128	16197	148.188	pg		98

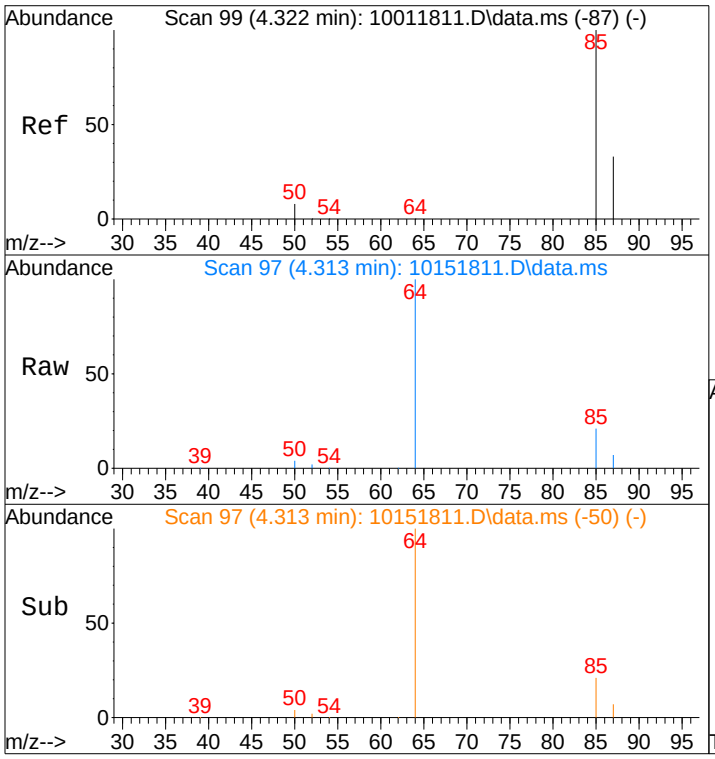
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151811.D Vial: 4
Acq On : 15 Oct 2018 15:47 Operator: WA
Sample : P1805476-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:40:52 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

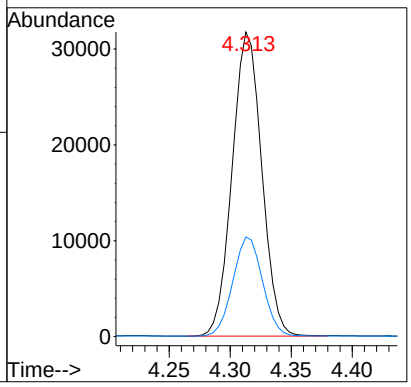


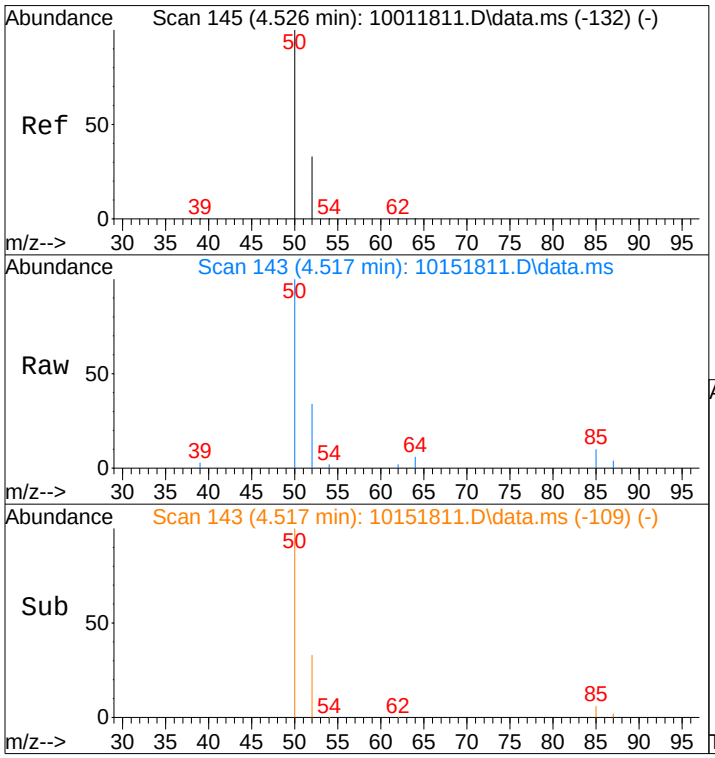


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1320.09 pg
RT: 4.31 min Scan# 97
Delta R.T. 0.009 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 85 Resp: 53581

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

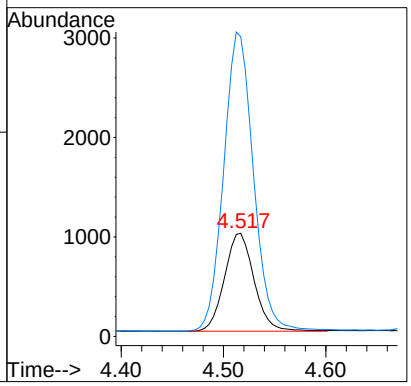


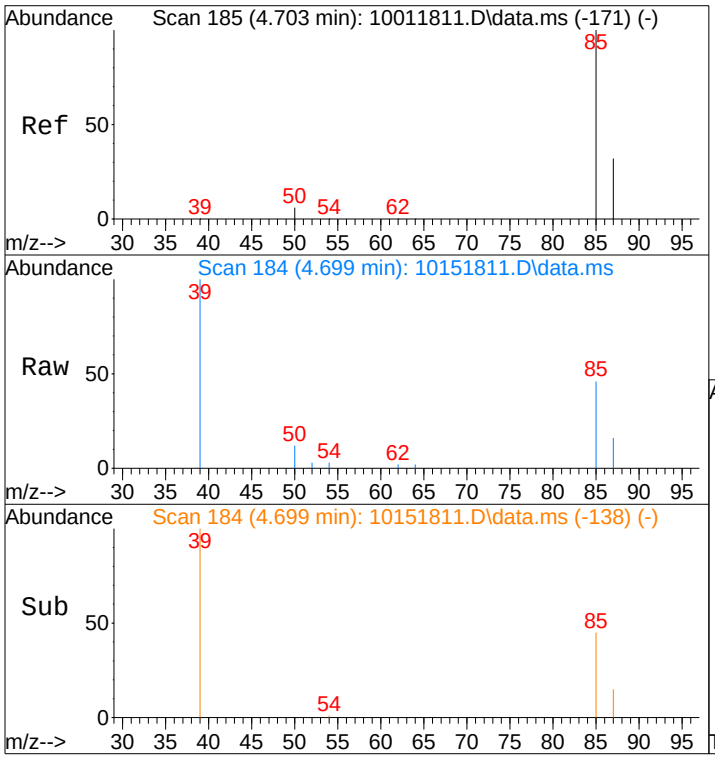


#3
Chloromethane
Concen: 209.04 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 52 Resp: 1984

Ion	Ratio	Lower	Upper
52	100		
50	305.0	281.8	321.8

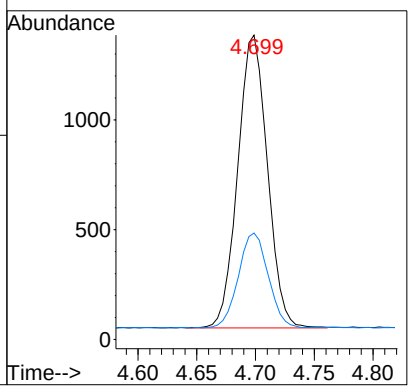


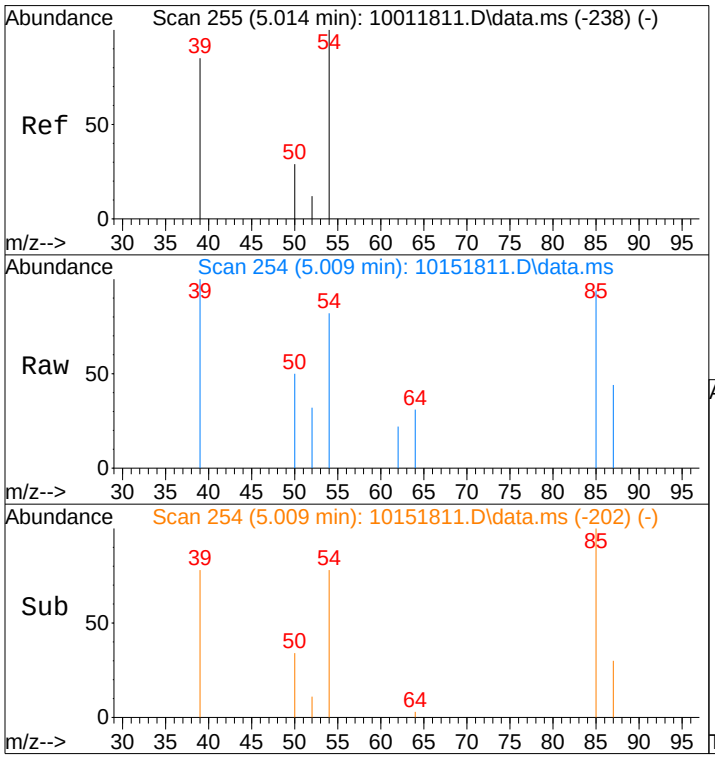


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 80.01 pg
RT: 4.70 min Scan# 184
Delta R.T. 0.005 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 85 Resp: 2341

Ion	Ratio	Lower	Upper
85	100		
87	32.6	26.0	39.0

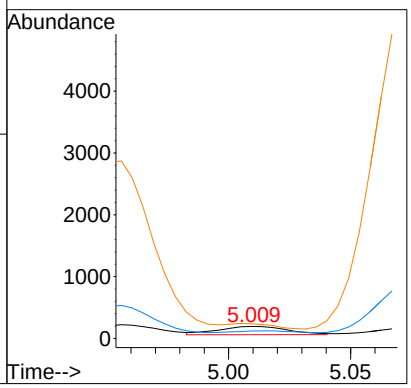


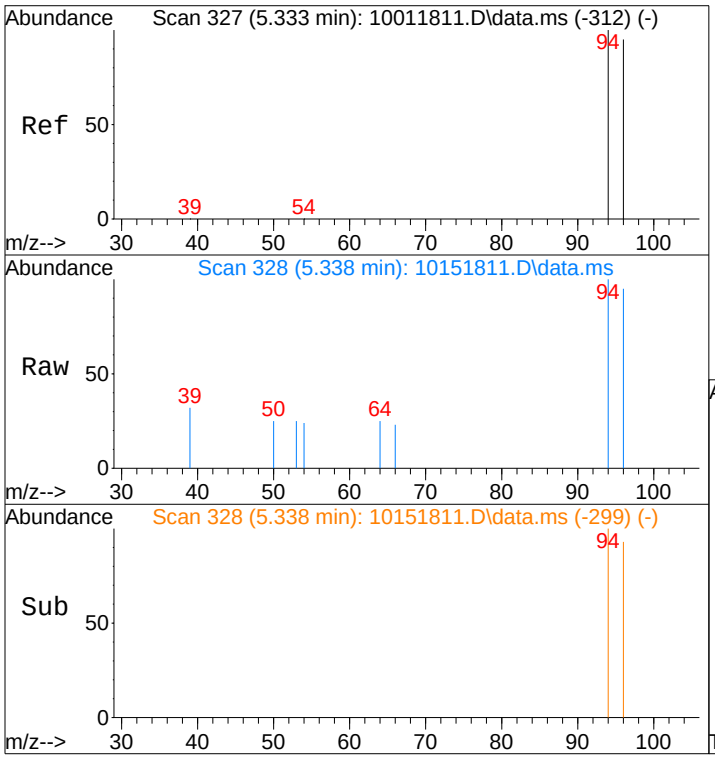


#6
1,3-Butadiene
Concen: 13.40 pg
RT: 5.01 min Scan# 254
Delta R.T. 0.000 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 54 Resp: 267

Ion	Ratio	Lower	Upper
54	100		
50	0.0	23.6	35.4#
39	82.8	69.9	104.9

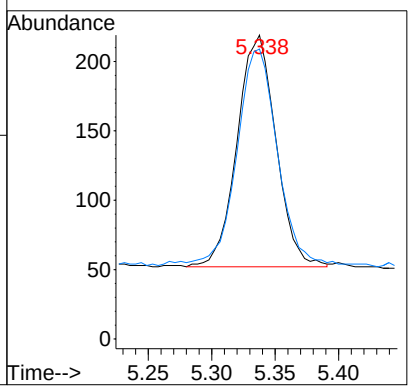


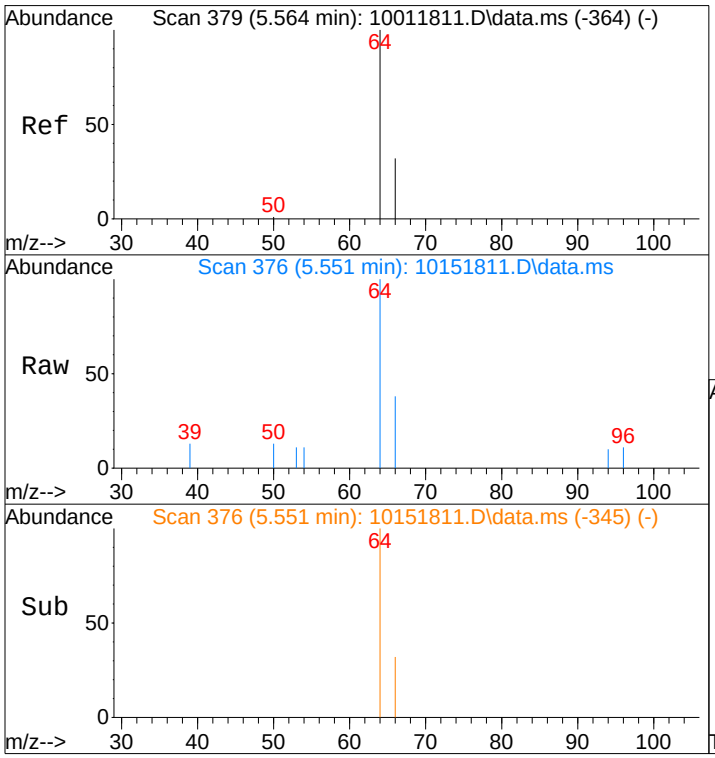


#7
Bromomethane
Concen: 19.23 pg
RT: 5.34 min Scan# 328
Delta R.T. 0.000 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 94 Resp: 356

Ion	Ratio	Lower	Upper
94	100		
96	94.7	75.7	113.5

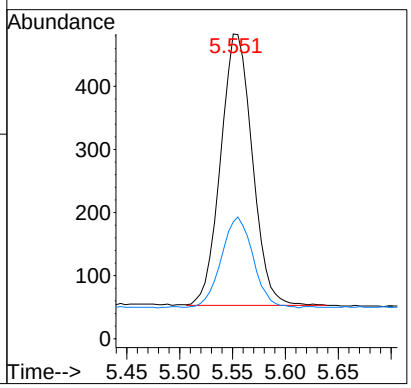


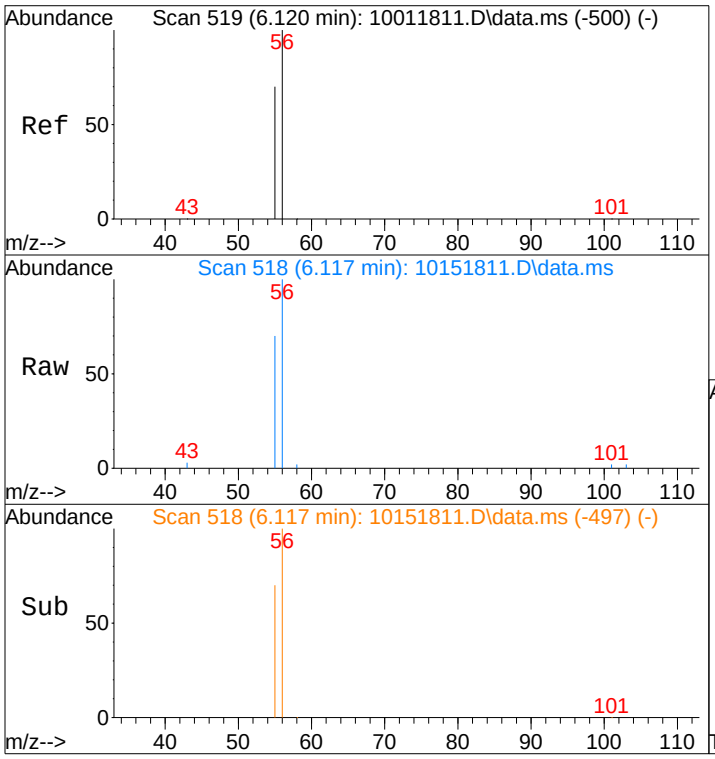


#8
Chloroethane
Concen: 65.05 pg
RT: 5.55 min Scan# 376
Delta R.T. -0.013 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 64 Resp: 897

Ion	Ratio	Lower	Upper
64	100		
66	33.8	12.3	52.3

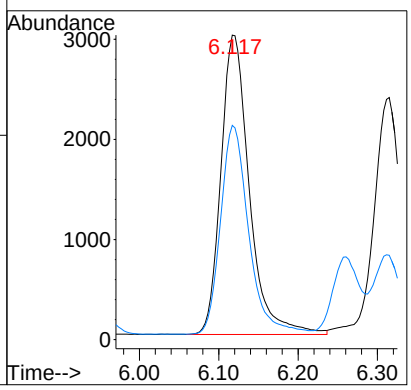


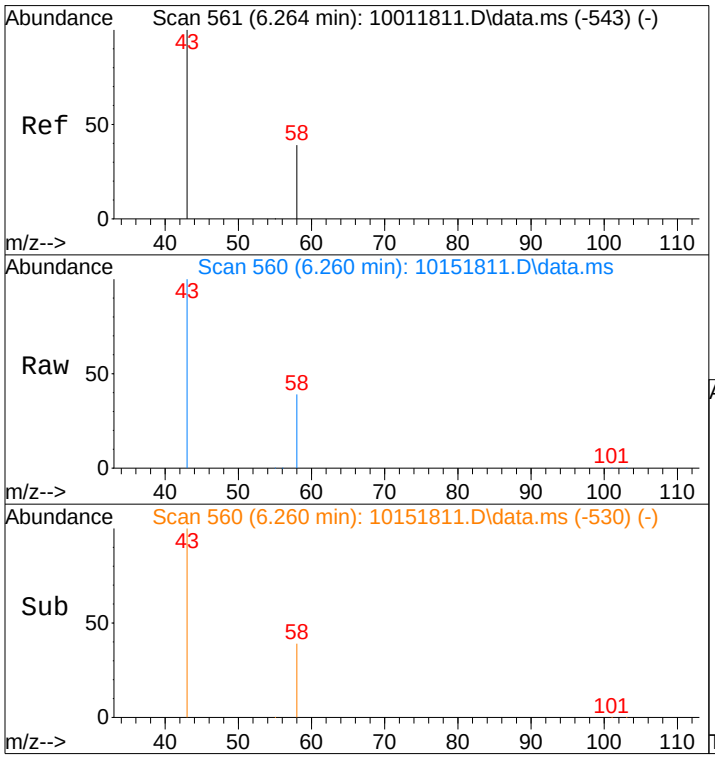


#9
Acrolein
Concen: 668.75 pg
RT: 6.12 min Scan# 518
Delta R.T. -0.037 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 56 Resp: 7455

Ion	Ratio	Lower	Upper
56	100		
55	69.1	55.3	82.9

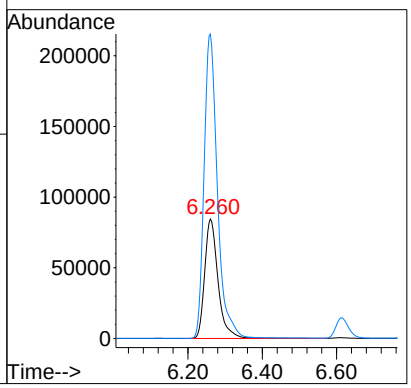


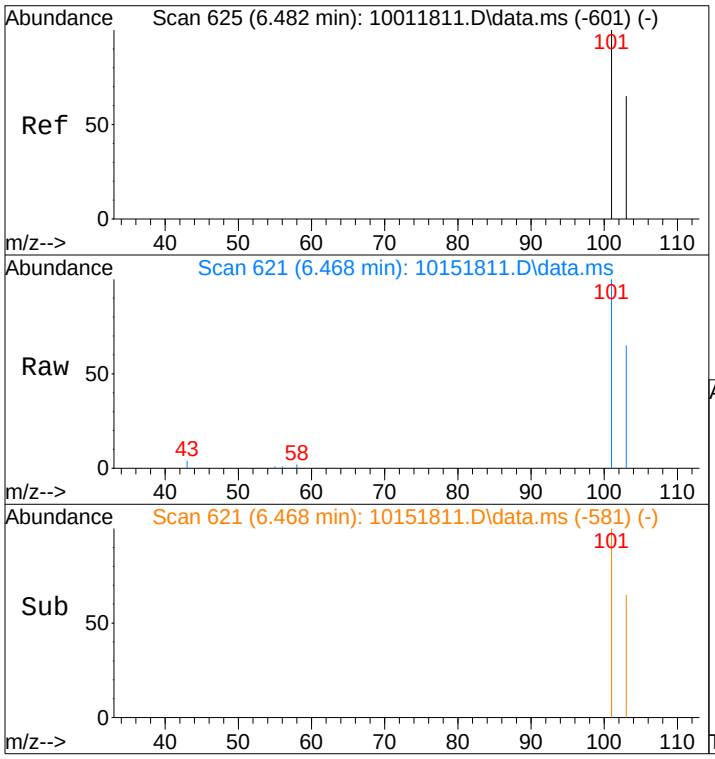


#10
Acetone
Concen: 14878.95 pg
RT: 6.26 min Scan# 560
Delta R.T. -0.048 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 58 Resp: 210281

Ion	Ratio	Lower	Upper
58	100		
43	256.3	234.7	274.7

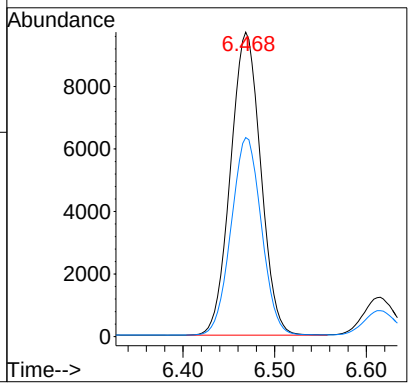


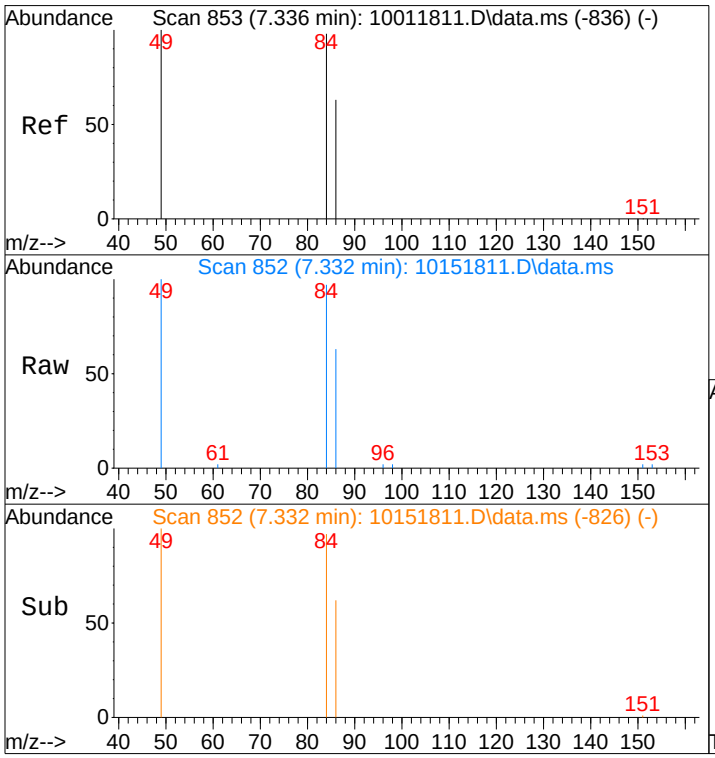


#11
Trichlorofluoromethane
Concen: 698.96 pg
RT: 6.47 min Scan# 621
Delta R.T. -0.014 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:101 Resp: 22187

Ion	Ratio	Lower	Upper
101	100		
103	65.4	52.2	78.2

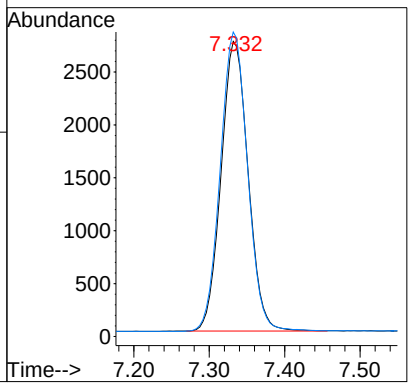


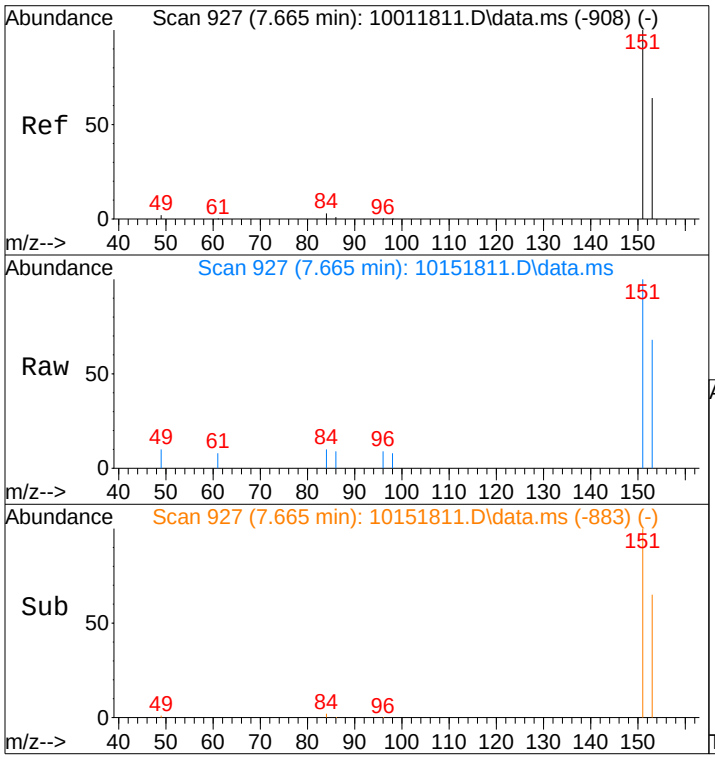


#13
Methylene Chloride
Concen: 289.83 pg
RT: 7.33 min Scan# 852
Delta R.T. -0.044 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 84 Resp: 6820

Ion	Ratio	Lower	Upper
84	100		
49	104.4	83.3	123.3

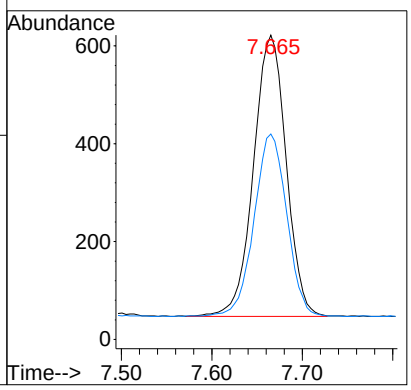


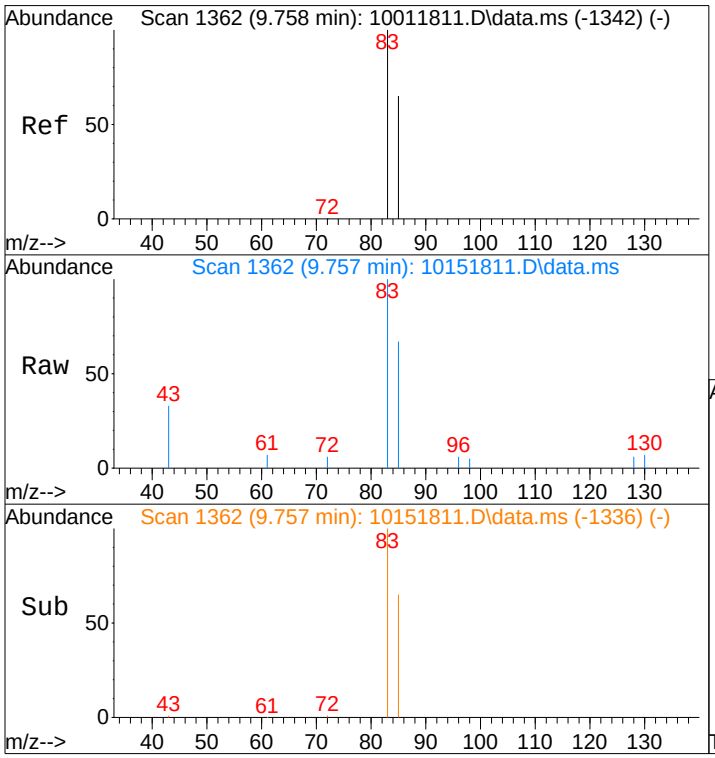


#14
Trichlorotrifluoroethane
Concen: 64.95 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:151 Resp: 1445

Ion	Ratio	Lower	Upper
151	100		
153	64.3	44.3	84.3

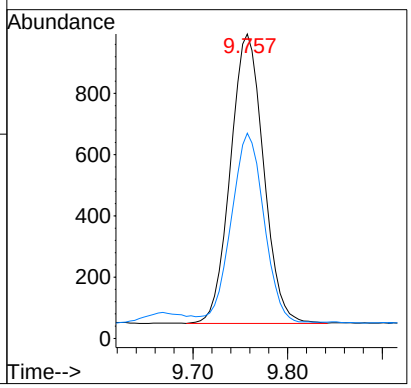


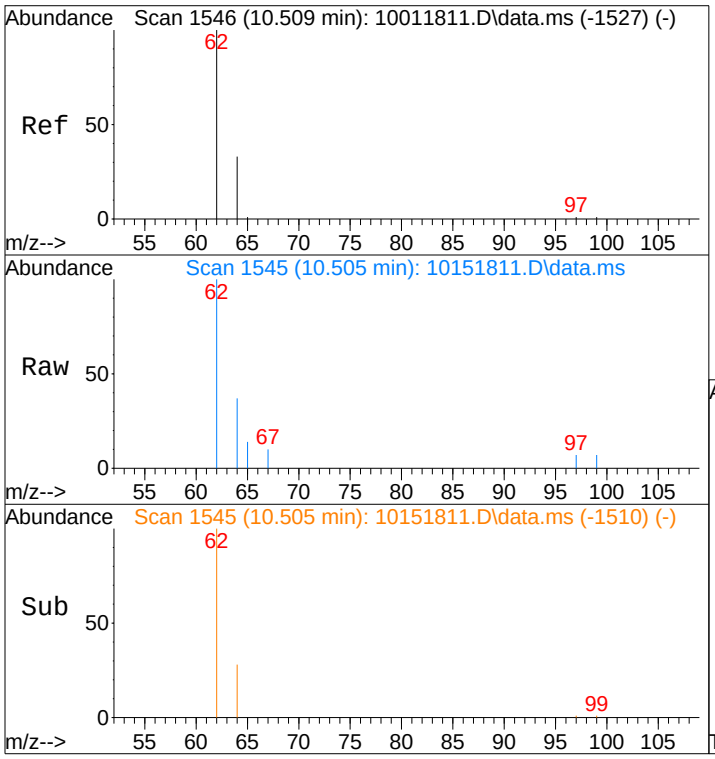


#19
Chloroform
Concen: 58.40 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.040 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 83 Resp: 2298

Ion	Ratio	Lower	Upper
83	100		
85	64.4	46.0	86.0

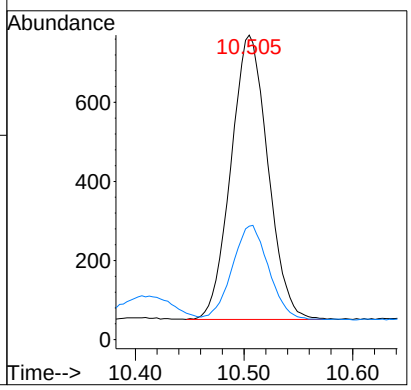


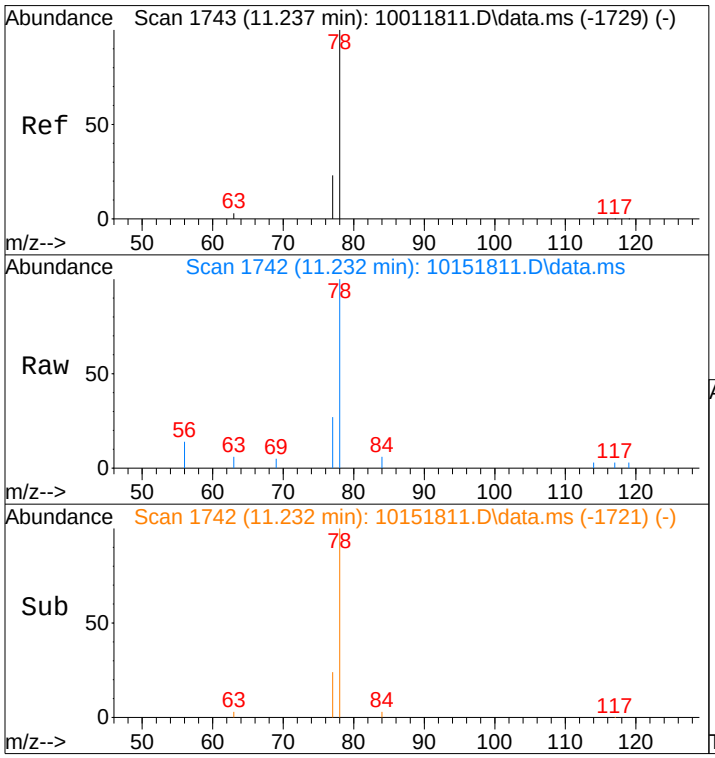


#21
1,2-Dichloroethane
Concen: 69.72 pg
RT: 10.50 min Scan# 1545
Delta R.T. -0.031 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 62 Resp: 1697

Ion	Ratio	Lower	Upper
62	100		
64	32.3	12.9	52.9

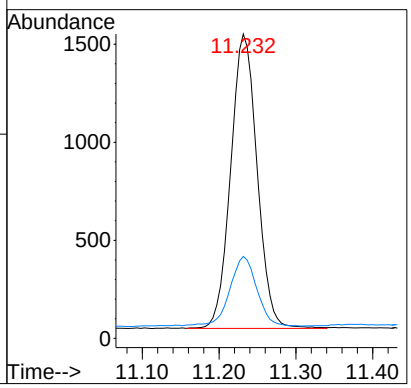


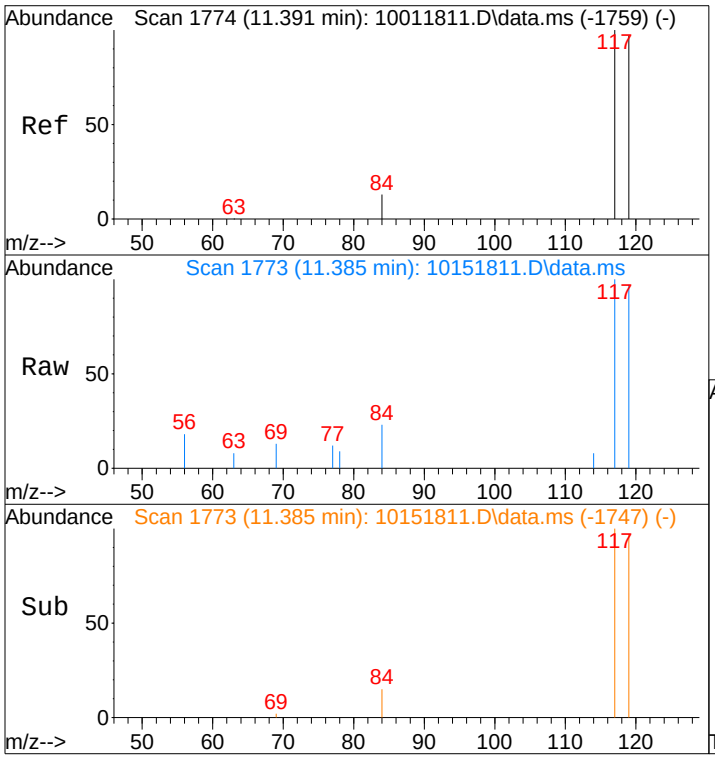


#23
Benzene
Concen: 36.35 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.025 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 78 Resp: 3594

Ion	Ratio	Lower	Upper
78	100		
77	23.3	3.3	43.3

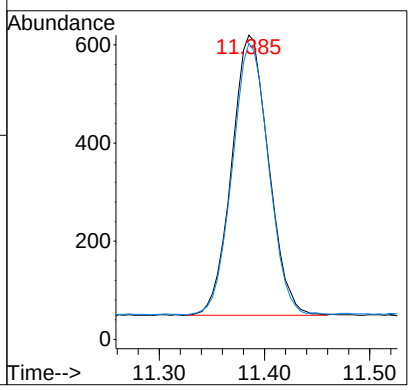


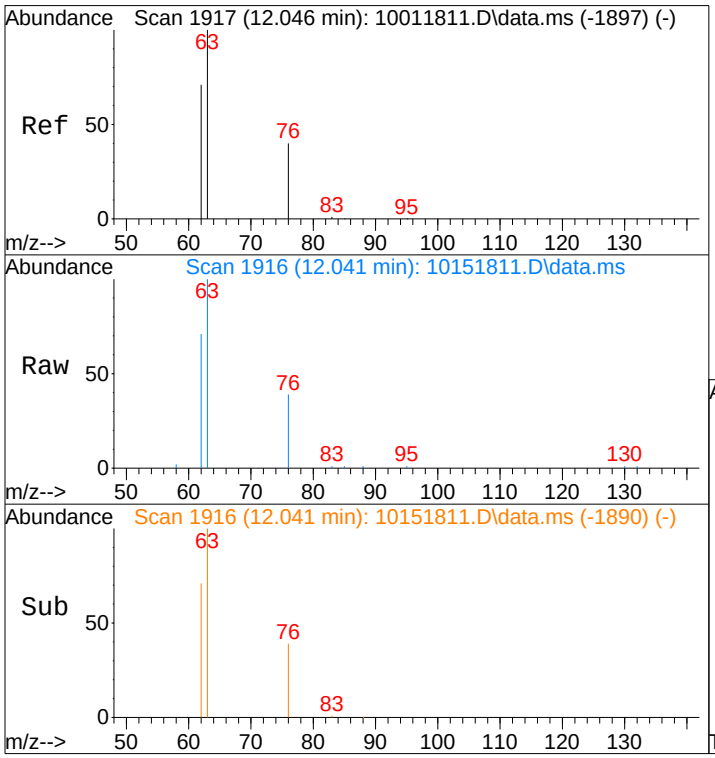


#24
Carbon Tetrachloride
Concen: 45.66 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.020 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:117 Resp: 1391

Ion	Ratio	Lower	Upper
117	100		
119	95.1	76.7	116.7

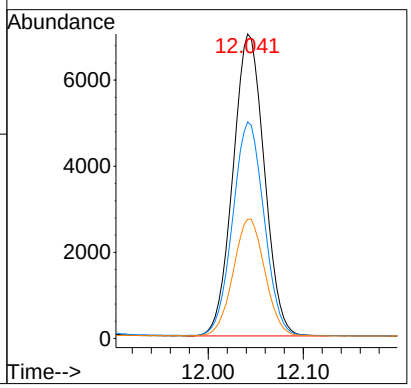


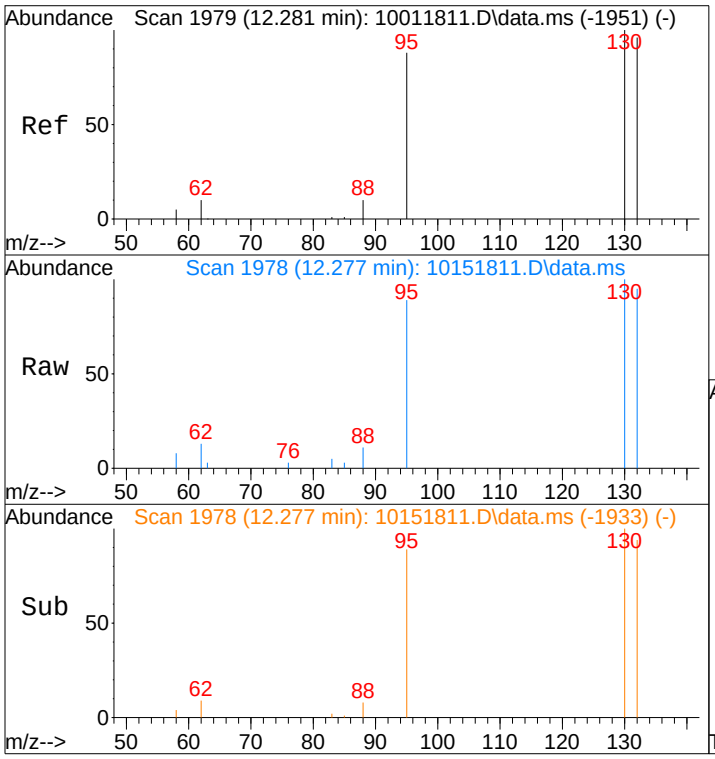


#26
1,2-Dichloropropane
Concen: 742.75 pg
RT: 12.04 min Scan# 1916
Delta R.T. -0.023 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 63 Resp: 16111

Ion	Ratio	Lower	Upper
63	100		
62	70.6	50.7	90.7
76	39.0	19.6	59.6

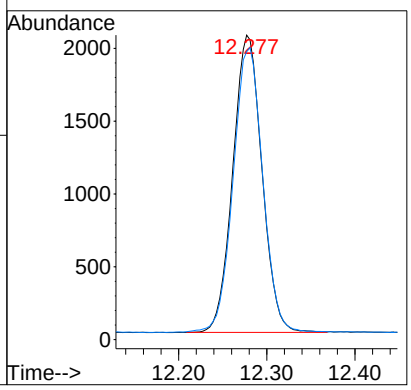


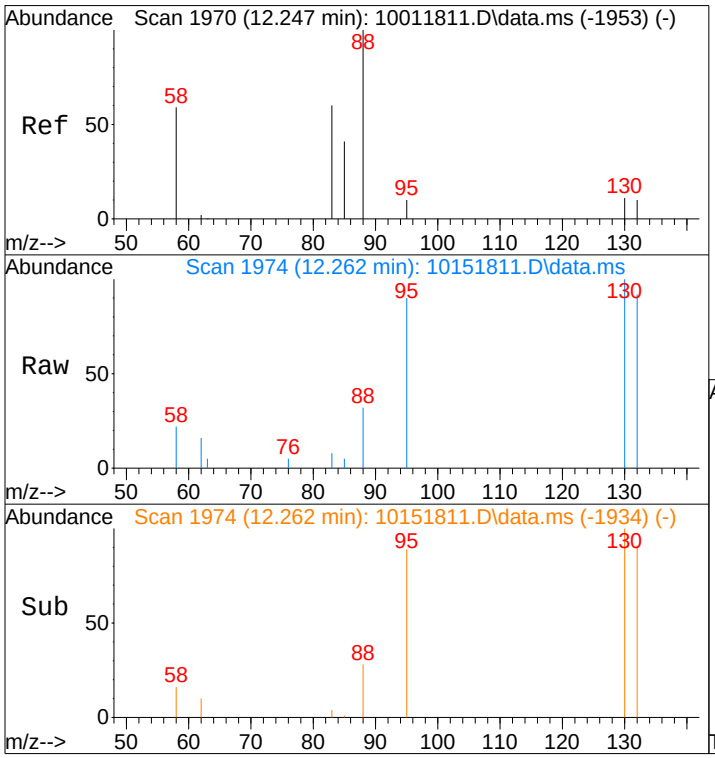


#28
Trichloroethene
Concen: 172.58 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:130 Resp: 4696

Ion	Ratio	Lower	Upper
130	100		
132	97.0	75.6	115.6

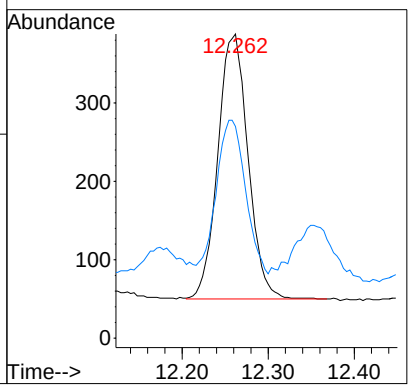


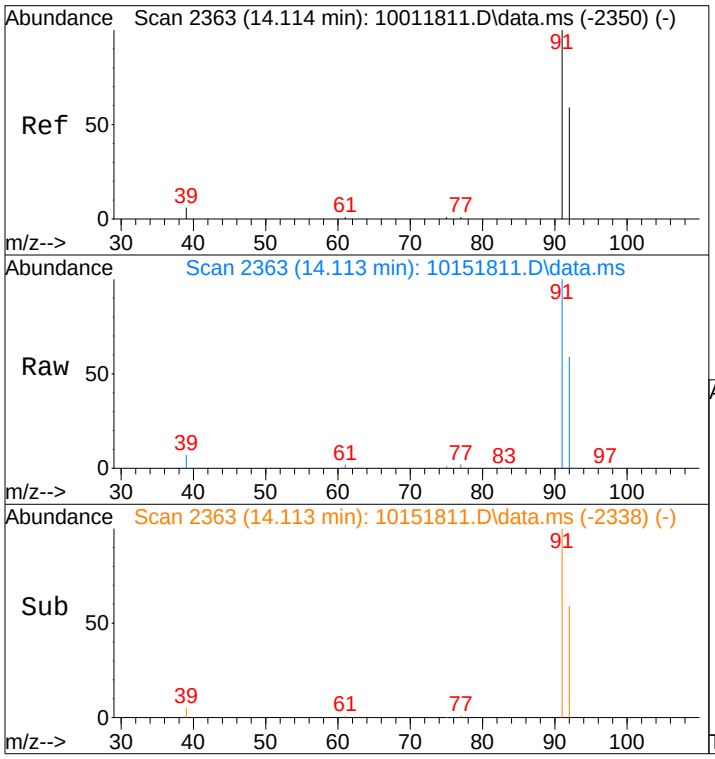


#29
1,4-Dioxane
Concen: 44.21 pg
RT: 12.26 min Scan# 1974
Delta R.T. 0.004 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 88 Resp: 823

Ion	Ratio	Lower	Upper
88	100		
58	55.7	39.2	79.2

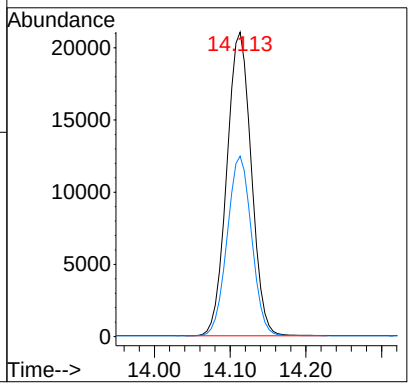


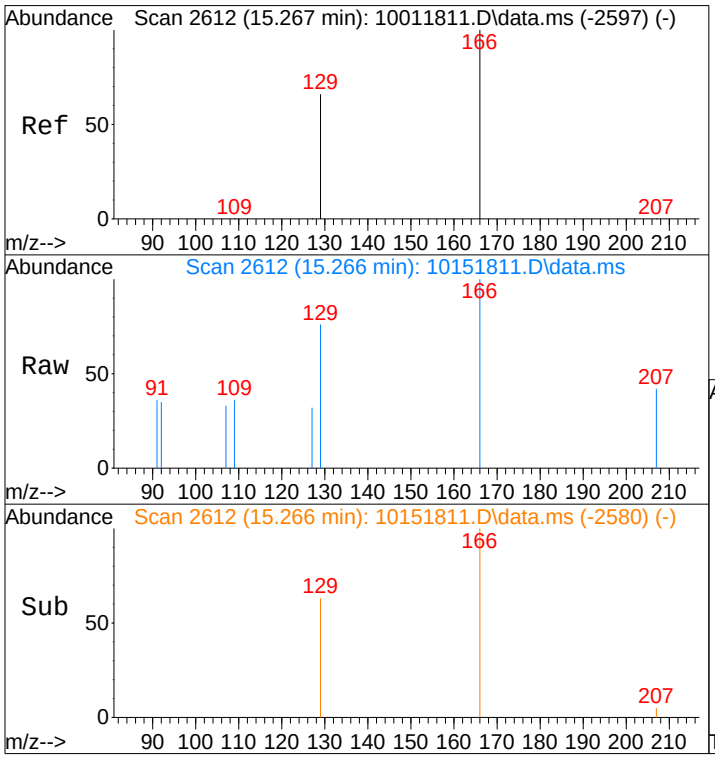


#34
Toluene
Concen: 474.62 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 91 Resp: 47194

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

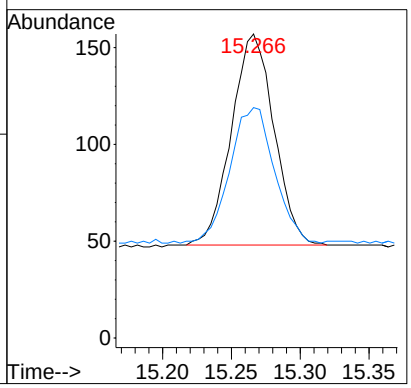


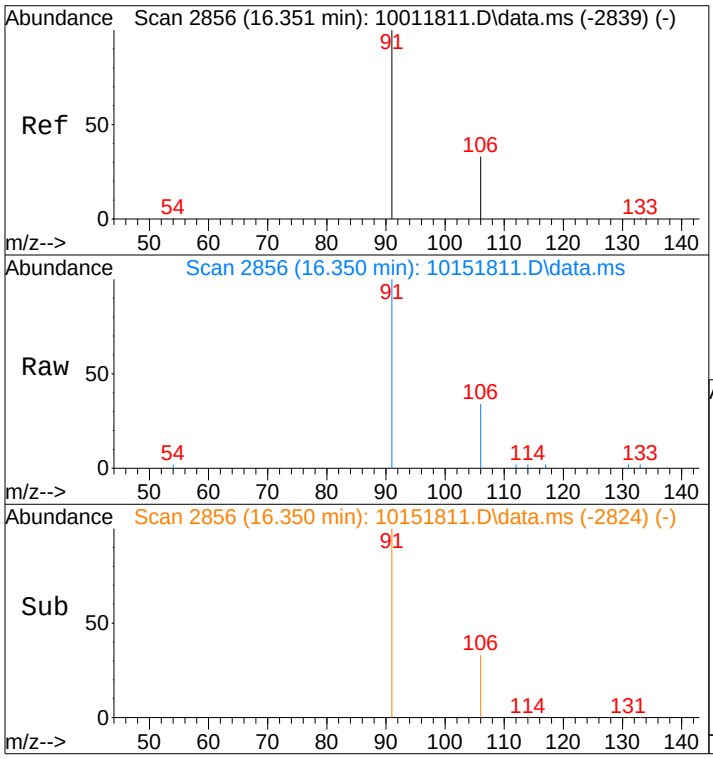


#37
Tetrachloroethene
Concen: 8.03 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:166 Resp: 235

Ion	Ratio	Lower	Upper
166	100		
129	67.2	46.7	86.7

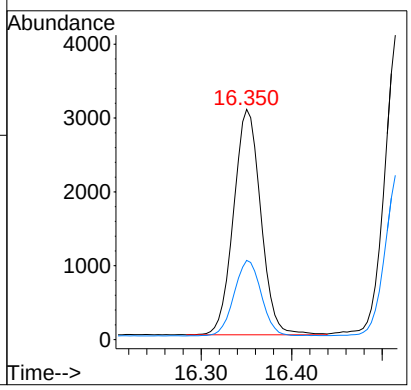


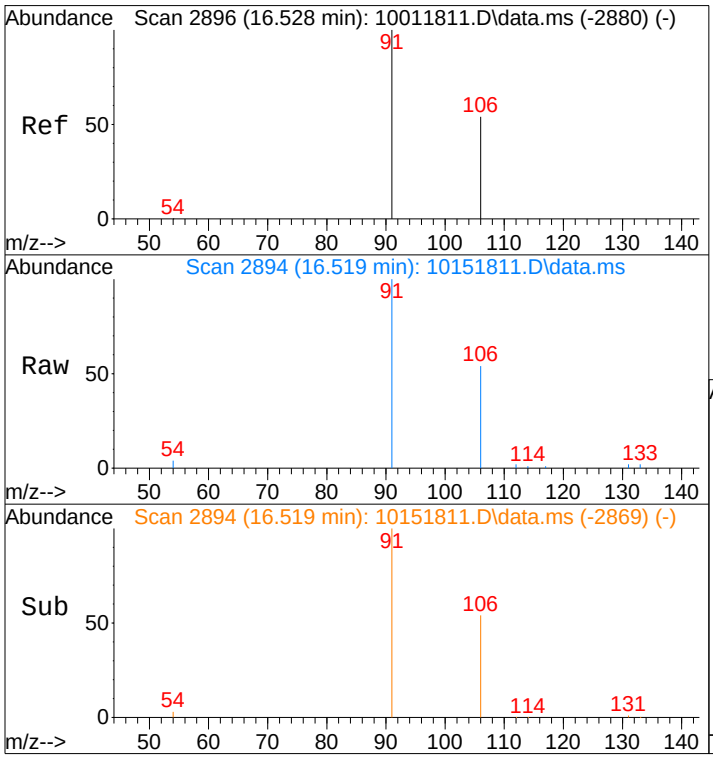


#40
Ethylbenzene
Concen: 58.30 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 91 Resp: 6387

Ion	Ratio	Lower	Upper
91	100		
106	33.3	13.7	53.7

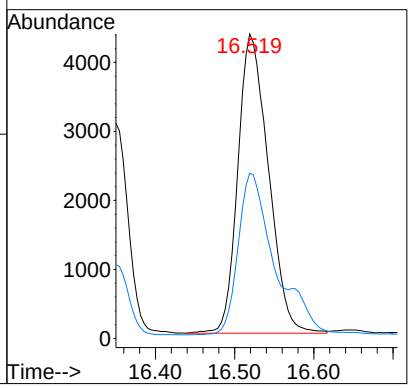


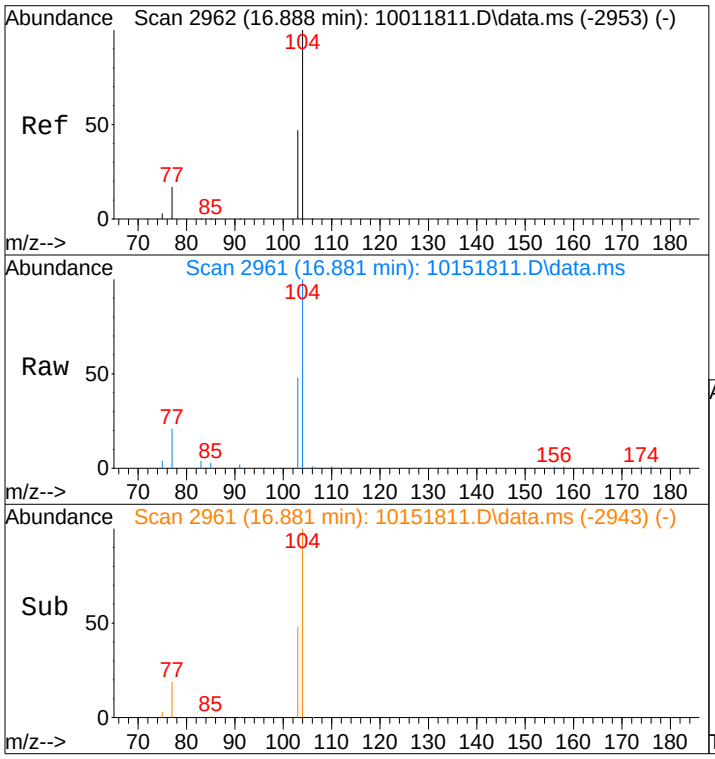


#41
m,p-Xylene
Concen: 138.99 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 91 Resp: 11643

Ion	Ratio	Lower	Upper
91	100		
106	65.2	34.3	74.3

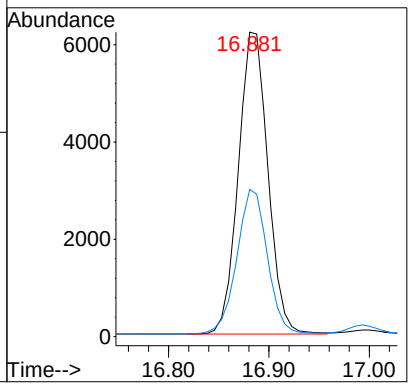


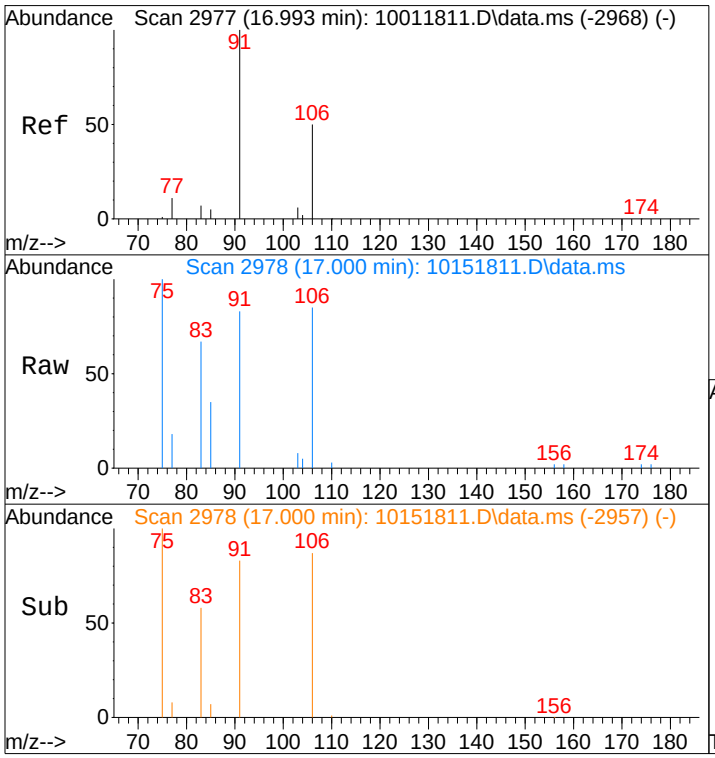


#42
Styrene
Concen: 191.90 pg
RT: 16.88 min Scan# 2961
Delta R.T. -0.013 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:104 Resp: 12769

Ion	Ratio	Lower	Upper
104	100		
103	49.3	37.7	56.5

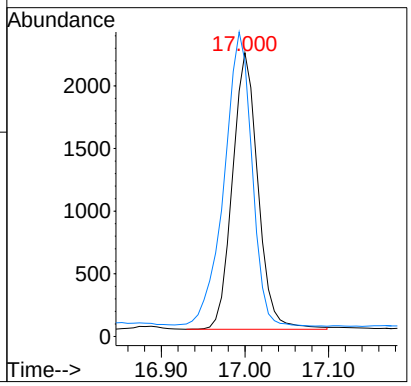


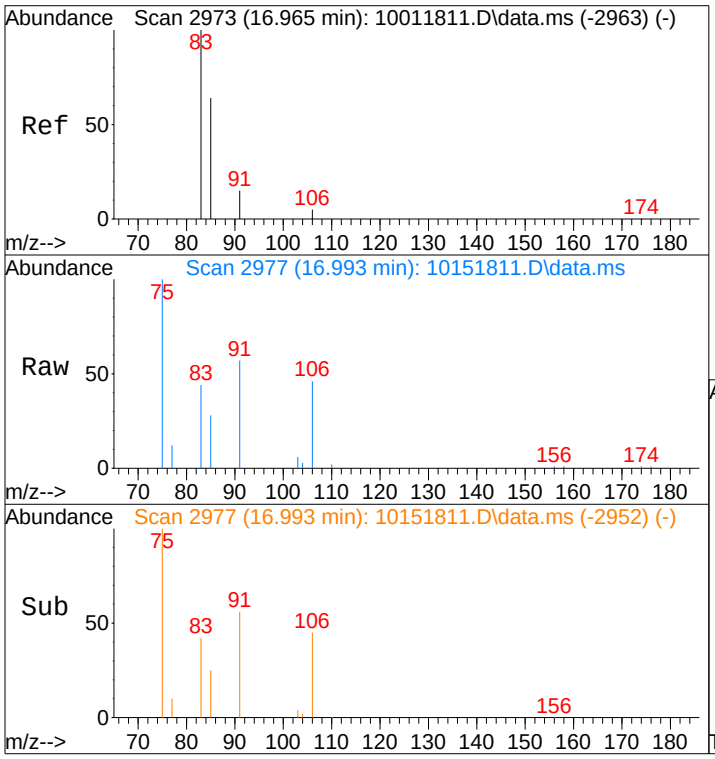


#43
o-Xylene
Concen: 105.22 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:106 Resp: 4686

Ion	Ratio	Lower	Upper
106	100		
91	115.7	175.6	215.6#

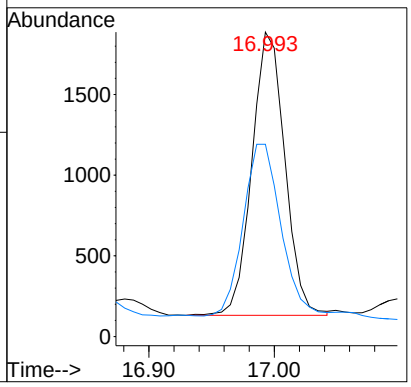


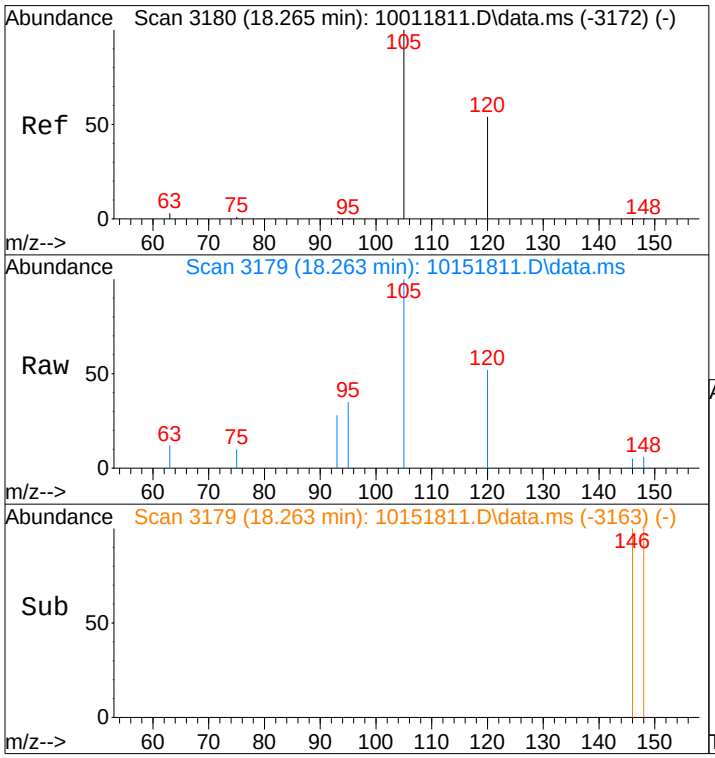


#44
1,1,2,2-Tetrachloroethane
Concen: 75.37 pg
RT: 16.99 min Scan# 2977
Delta R.T. 0.022 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion: 83 Resp: 3221

Ion	Ratio	Lower	Upper
83	100		
85	69.0	44.7	84.7

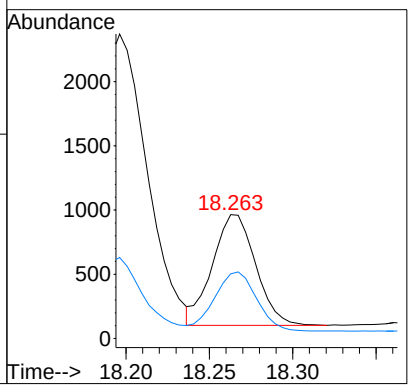


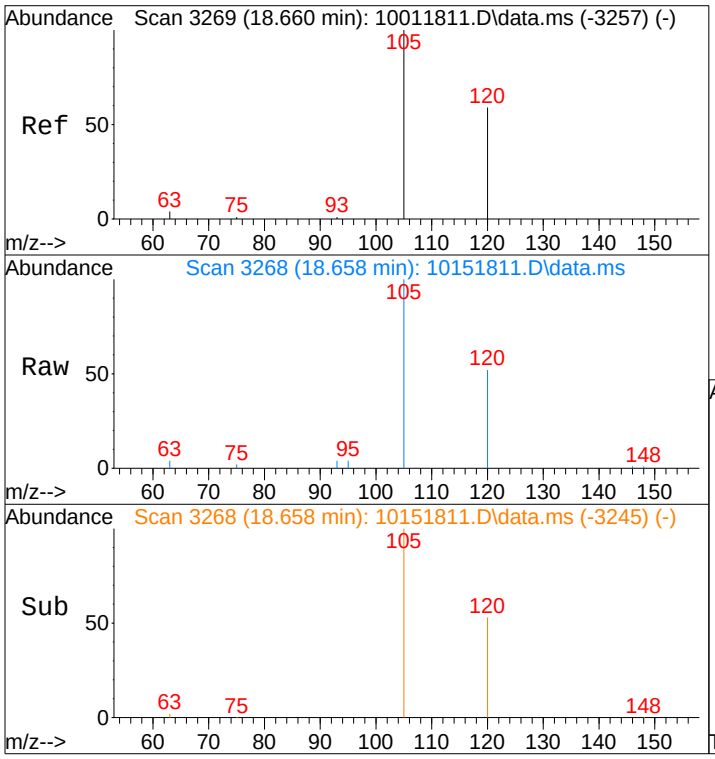


#46
1,3,5-Trimethylbenzene
Concen: 16.63 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:105 Resp: 1558

Ion	Ratio	Lower	Upper
105	100		
120	51.7	42.8	64.2

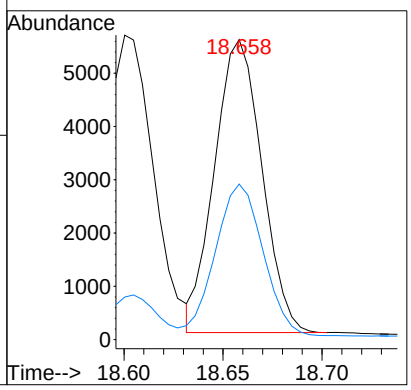


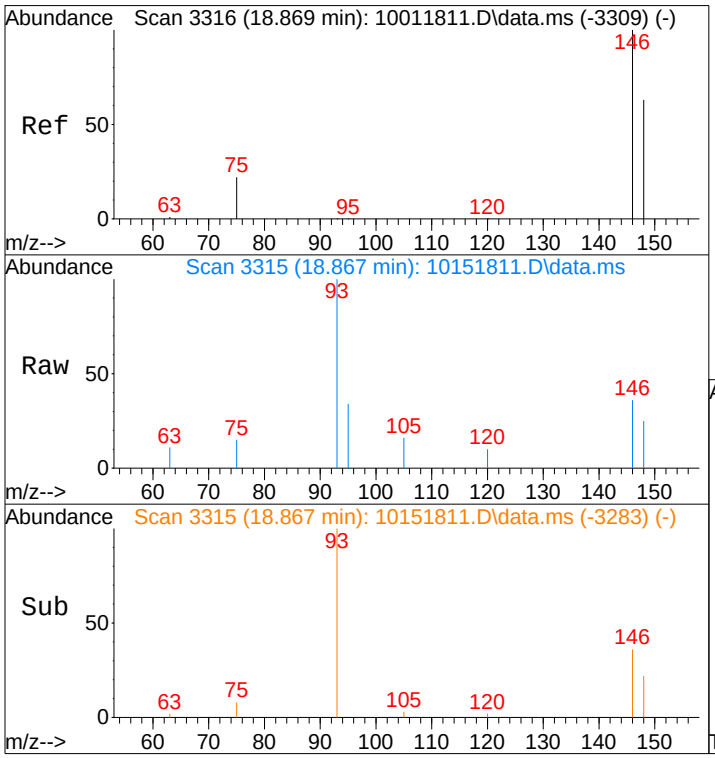


#47
1,2,4-Trimethylbenzene
Concen: 97.92 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:105 Resp: 9150

Ion	Ratio	Lower	Upper
105	100		
120	52.8	47.1	70.7

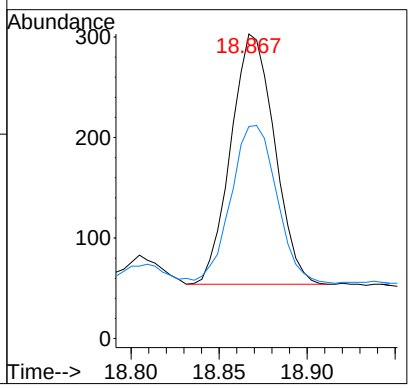


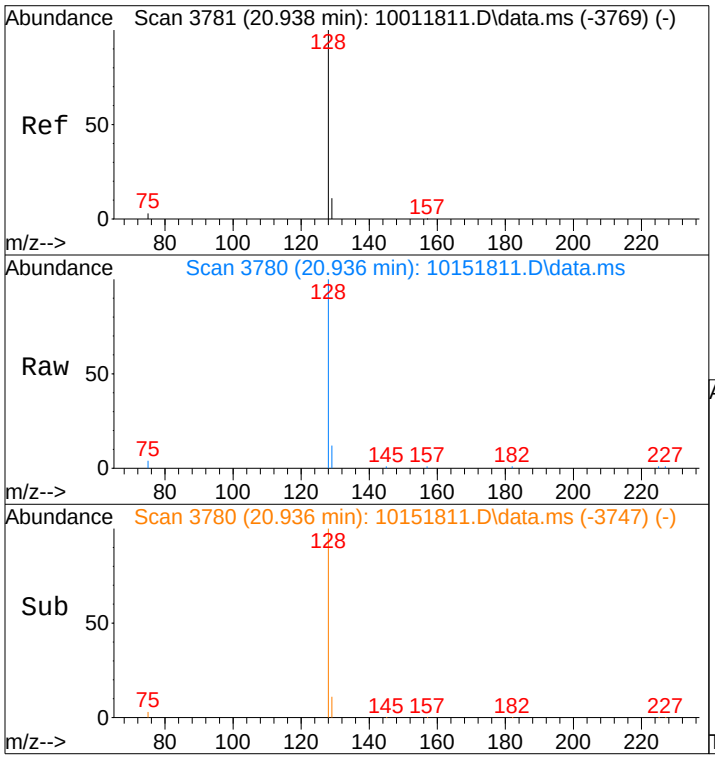


#49
1,4-Dichlorobenzene
Concen: 7.01 pg
RT: 18.87 min Scan# 3315
Delta R.T. -0.008 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:146 Resp: 430

Ion	Ratio	Lower	Upper
146	100		
148	65.8	43.8	83.8

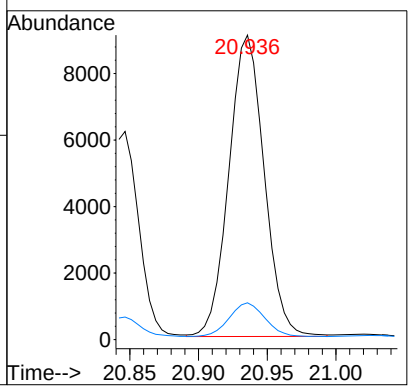




#53
Naphthalene
Concen: 148.19 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10151811.D
Acq: 15 Oct 2018 15:47

Tgt Ion:128 Resp: 16197

Ion	Ratio	Lower	Upper
128	100		
129	11.6	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151812.D Vial: 5
Acq On : 15 Oct 2018 16:26 Operator: WA
Sample : P1805476-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:42:00 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/16/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18894	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	86739	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11294	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20488	905.862	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.59%				
33) Toluene-d8 (SS2)	14.01	98	94264	1053.825	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.38%				
45) Bromofluorobenzene (SS3)	17.43	174	34603	1084.281	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.43%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	54556	1355.143	pg		100
3) Chloromethane	4.52	52	1881	199.816	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2375	81.839	pg		99
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.01	54	216	10.930	pg	#	16
7) Bromomethane	5.34	94	362	19.711	pg		98
8) Chloroethane	5.56	64	849	62.070	pg		98
9) Acrolein	6.12	56	6317	571.318	pg		100
10) Acetone	6.26	58	181670	12959.965	pg		95
11) Trichlorofluoromethane	6.47	101	22447	712.956	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.33	84	6427	275.367	pg		100
14) Trichlorotrifluoroethane	7.67	151	1405	63.672	pg		100
15) trans-1,2-Dichloroethene	8.36	96	53	N.D.			
16) 1,1-Dichloroethane	8.64	63	80	N.D.			
17) Methyl tert-Butyl Ether	8.60	73	221	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	2331	59.721	pg		99
21) 1,2-Dichloroethane	10.51	62	1700	70.418	pg		99
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.23	78	3161	32.236	pg		99
24) Carbon Tetrachloride	11.39	117	1440	47.653	pg		99
26) 1,2-Dichloropropane	12.04	63	16121	746.196	pg		99
27) Bromodichloromethane	12.27	83	58	N.D.			
28) Trichloroethene	12.28	130	4986	183.968	pg		99
29) 1,4-Dioxane	12.26	88	769	41.473	pg		99
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.11	91	45396	458.366	pg		100
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	163	5.593	pg		91
39) Chlorobenzene	15.96	112	195	N.D.			
40) Ethylbenzene	16.35	91	5051	48.510	pg		96
41) m,p-Xylene	16.52	91	7520	94.458	pg		97
42) Styrene	16.88	104	11789	186.430	pg		96
43) o-Xylene	17.00	106	1939	45.811	pg		88
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.26	105	821	9.223	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	4343	48.905	pg		89
48) 1,3-Dichlorobenzene	18.80	146	57	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	451	7.741	pg		99
50) 1,2-Dichlorobenzene	19.20	146	88	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	75	N.D.			
53) Naphthalene	20.94	128	9148	88.069	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151812.D Vial: 5
Acq On : 15 Oct 2018 16:26 Operator: WA
Sample : P1805476-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:42:00 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

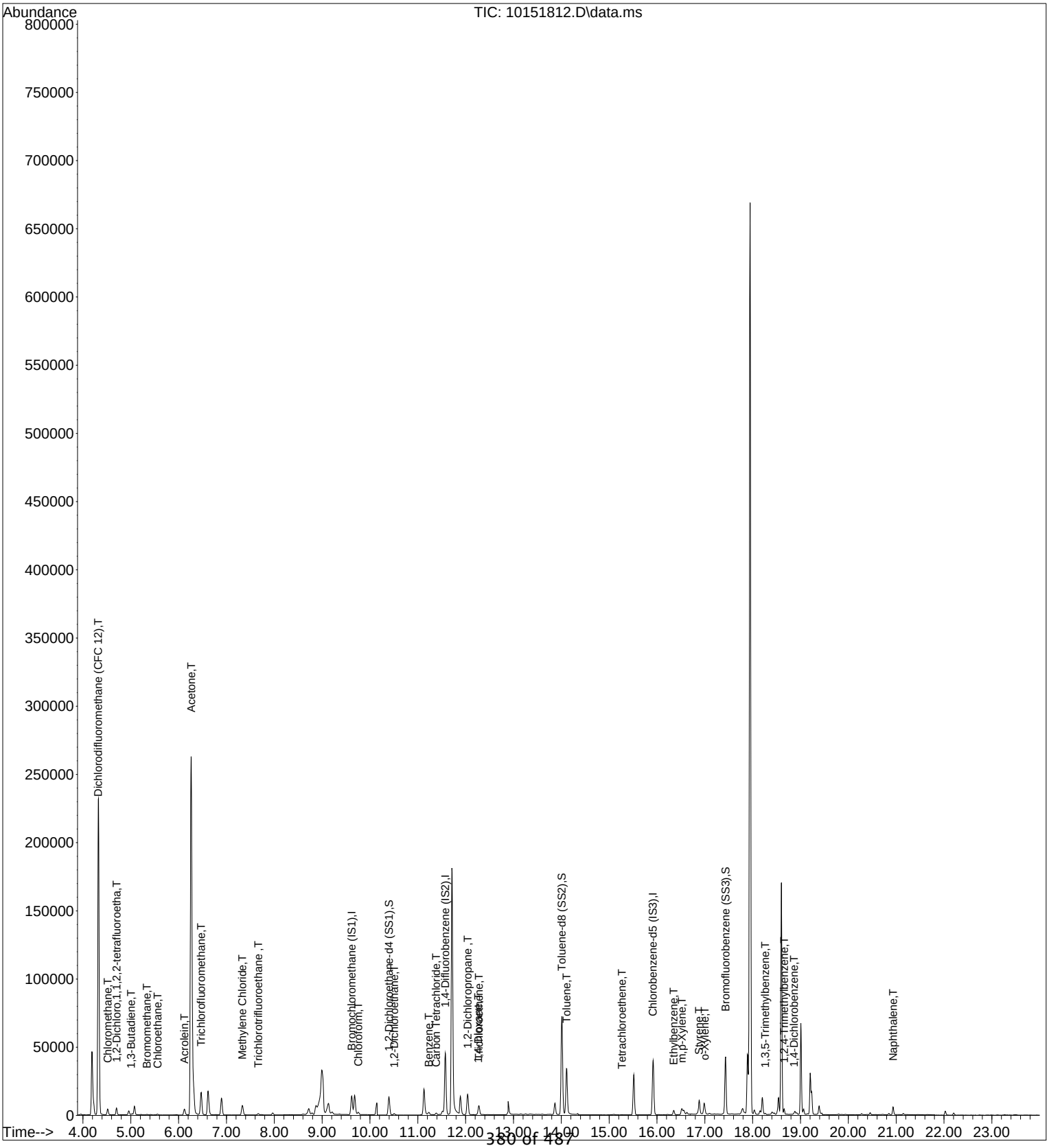
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151812.D Vial: 5
Acq On : 15 Oct 2018 16:26 Operator: WA
Sample : P1805476-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:42:00 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151812.D Vial: 5
Acq On : 15 Oct 2018 16:26 Operator: WA
Sample : P1805476-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:42:00 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/16/18

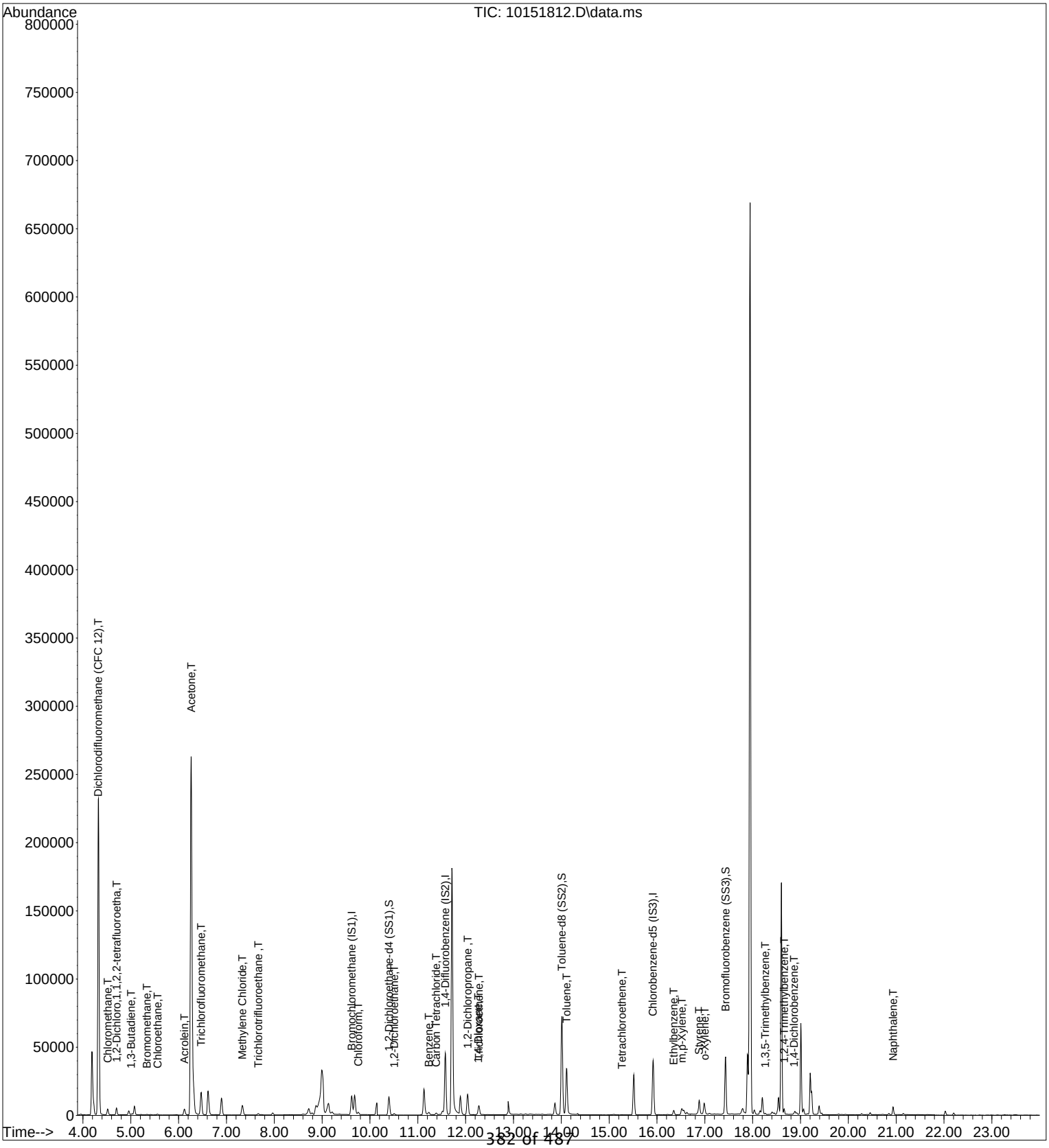
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18894	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	86739	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11294	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20488	905.862	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 90.59%				
33) Toluene-d8 (SS2)	14.01	98	94264	1053.825	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.38%				
45) Bromofluorobenzene (SS3)	17.43	174	34603	1084.281	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.43%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	54556	1355.143	pg		100
3) Chloromethane	4.52	52	1881	199.816	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	2375	81.839	pg		99
6) 1,3-Butadiene	5.01	54	216	10.930	pg	#	16
7) Bromomethane	5.34	94	362	19.711	pg		98
8) Chloroethane	5.56	64	849	62.070	pg		98
9) Acrolein	6.12	56	6317	571.318	pg		100
10) Acetone	6.26	58	181670	12959.965	pg		95
11) Trichlorofluoromethane	6.47	101	22447	712.956	pg		100
13) Methylene Chloride	7.33	84	6427	275.367	pg		100
14) Trichlorotrifluoroethane	7.67	151	1405	63.672	pg		100
19) Chloroform	9.76	83	2331	59.721	pg		99
21) 1,2-Dichloroethane	10.51	62	1700	70.418	pg		99
23) Benzene	11.23	78	3161	32.236	pg		99
24) Carbon Tetrachloride	11.39	117	1440	47.653	pg		99
26) 1,2-Dichloropropane	12.04	63	16121	746.196	pg		99
28) Trichloroethene	12.28	130	4986	183.968	pg		99
29) 1,4-Dioxane	12.26	88	769	41.473	pg		99
34) Toluene	14.11	91	45396	458.366	pg		100
37) Tetrachloroethene	15.27	166	163	5.593	pg		91
40) Ethylbenzene	16.35	91	5051	48.510	pg		96
41) m,p-Xylene	16.52	91	7520	94.458	pg		97
42) Styrene	16.88	104	11789	186.430	pg		96
43) o-Xylene	17.00	106	1939	45.811	pg		88
46) 1,3,5-Trimethylbenzene	18.26	105	821	9.223	pg		98
47) 1,2,4-Trimethylbenzene	18.66	105	4343	48.905	pg		89
49) 1,4-Dichlorobenzene	18.87	146	451	7.741	pg		99
53) Naphthalene	20.94	128	9148	88.069	pg		98

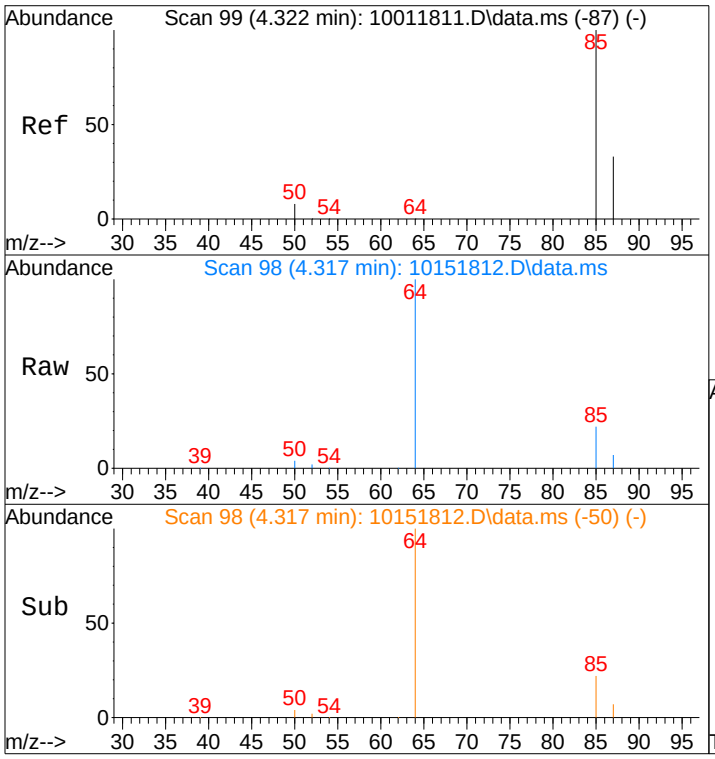
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151812.D Vial: 5
Acq On : 15 Oct 2018 16:26 Operator: WA
Sample : P1805476-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:42:00 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

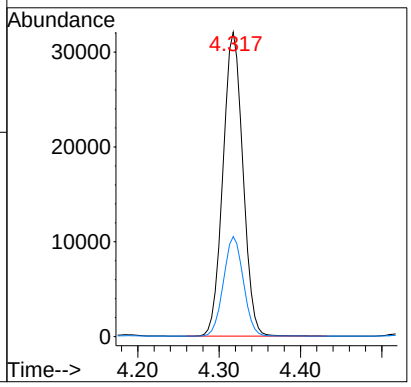


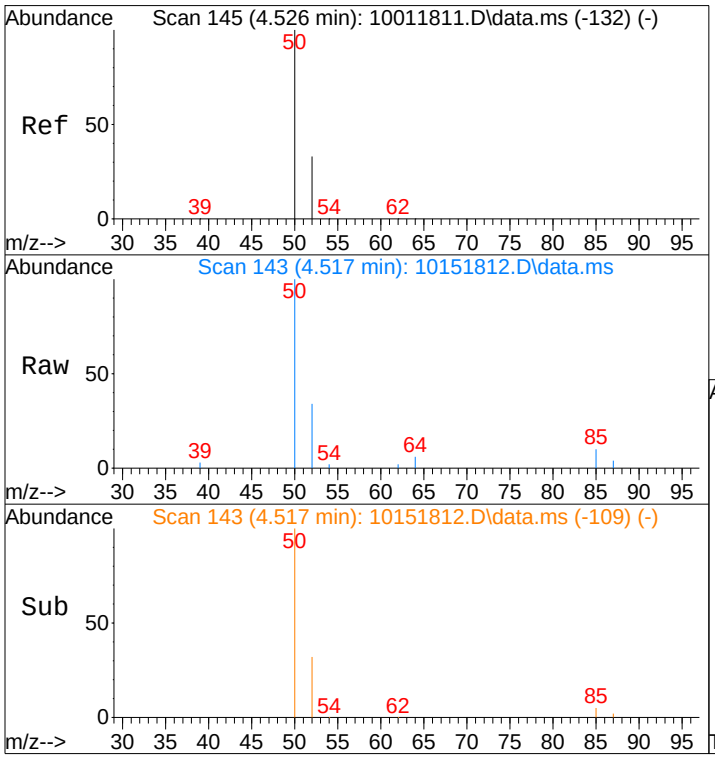


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1355.14 pg
RT: 4.32 min Scan# 98
Delta R.T. 0.013 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 85 Resp: 54556

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

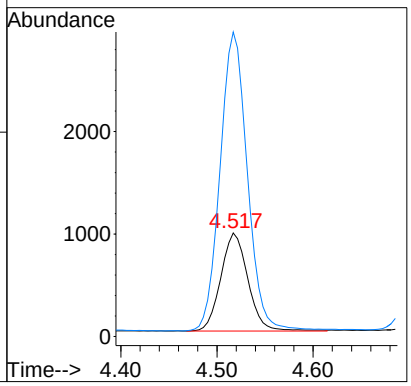


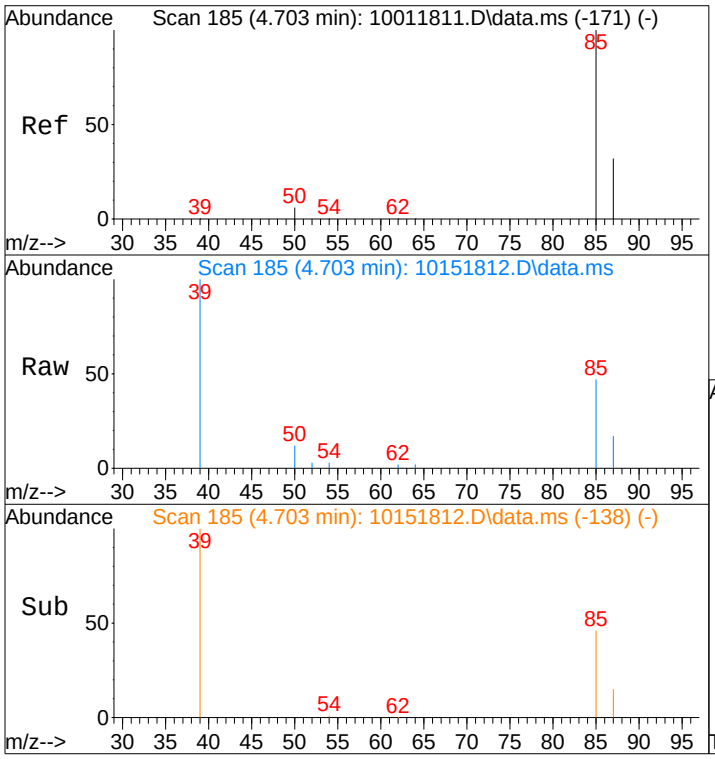


#3
Chloromethane
Concen: 199.82 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 52 Resp: 1881

Ion	Ratio	Lower	Upper
52	100		
50	306.7	281.8	321.8

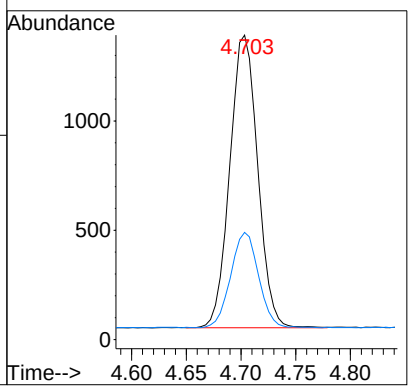


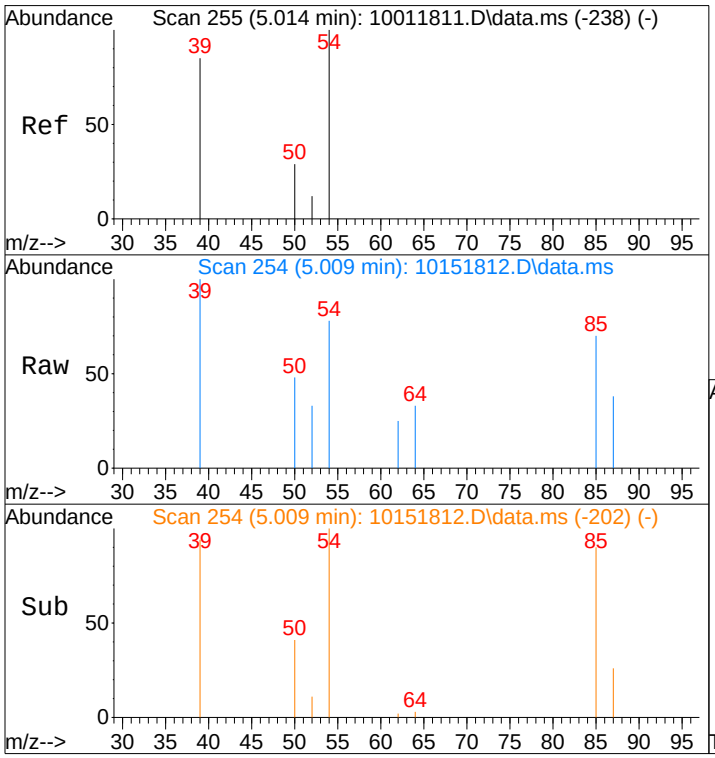


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 81.84 pg
RT: 4.70 min Scan# 185
Delta R.T. 0.009 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 85 Resp: 2375

Ion	Ratio	Lower	Upper
85	100		
87	32.2	26.0	39.0

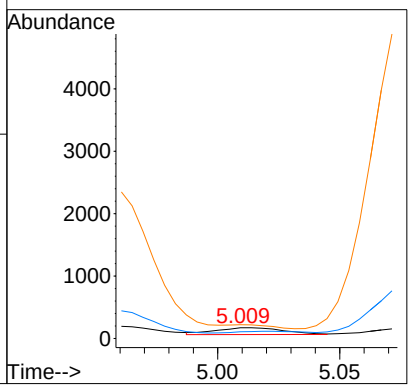


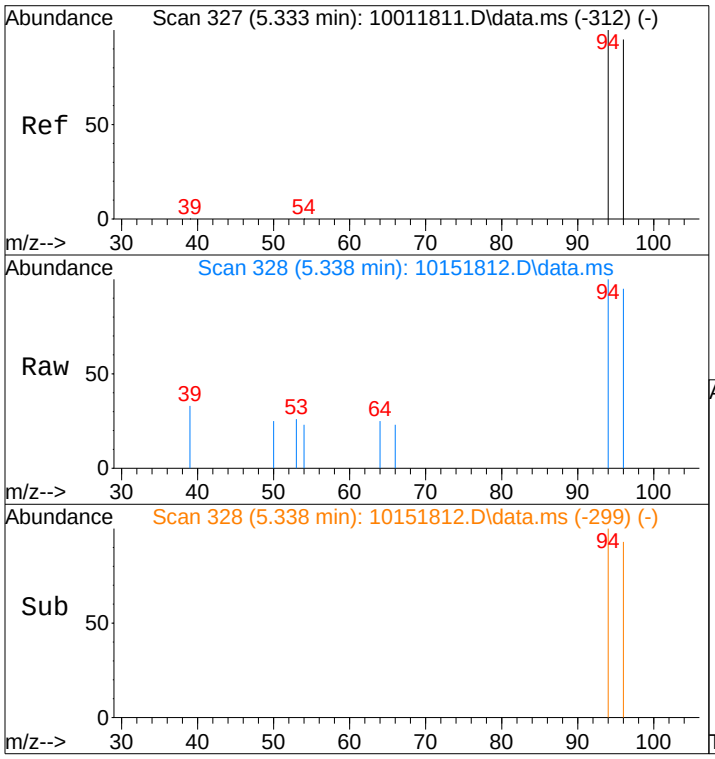


#6
1,3-Butadiene
Concen: 10.93 pg
RT: 5.01 min Scan# 254
Delta R.T. 0.000 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 54 Resp: 216

Ion	Ratio	Lower	Upper
54	100		
50	0.0	23.6	35.4#
39	0.0	69.9	104.9#

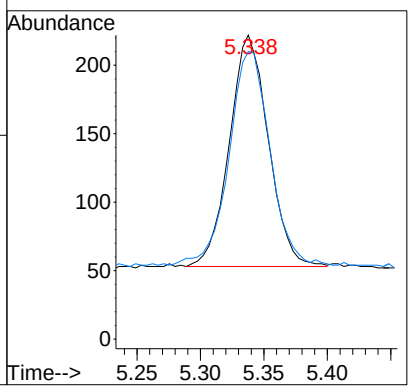


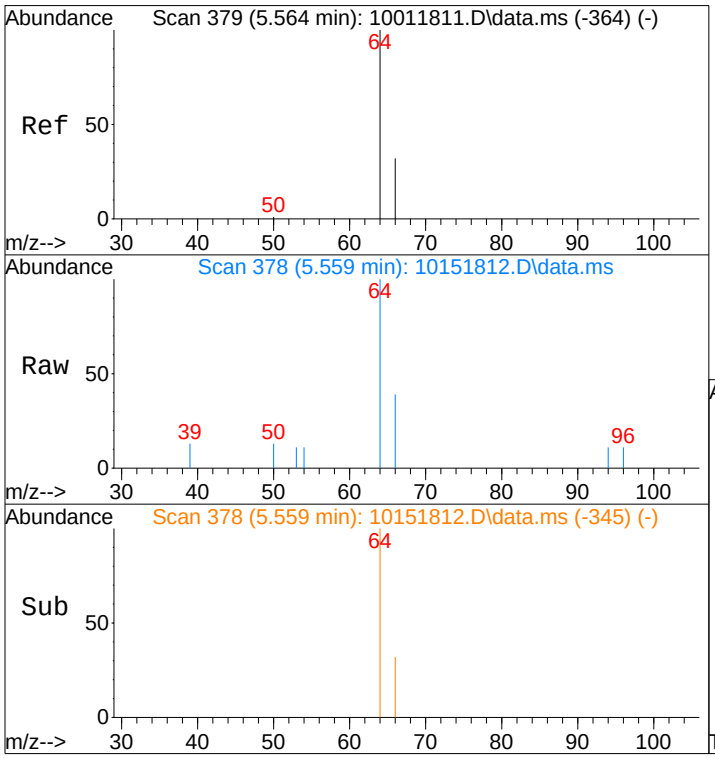


#7
Bromomethane
Concen: 19.71 pg
RT: 5.34 min Scan# 328
Delta R.T. 0.000 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 94 Resp: 362

Ion	Ratio	Lower	Upper
94	100		
96	96.1	75.7	113.5

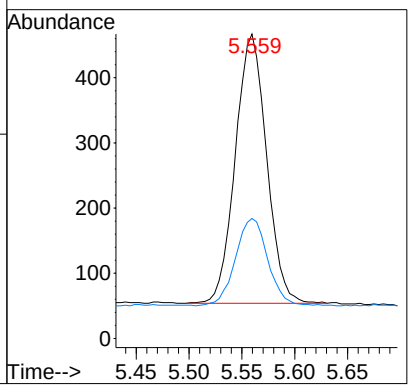


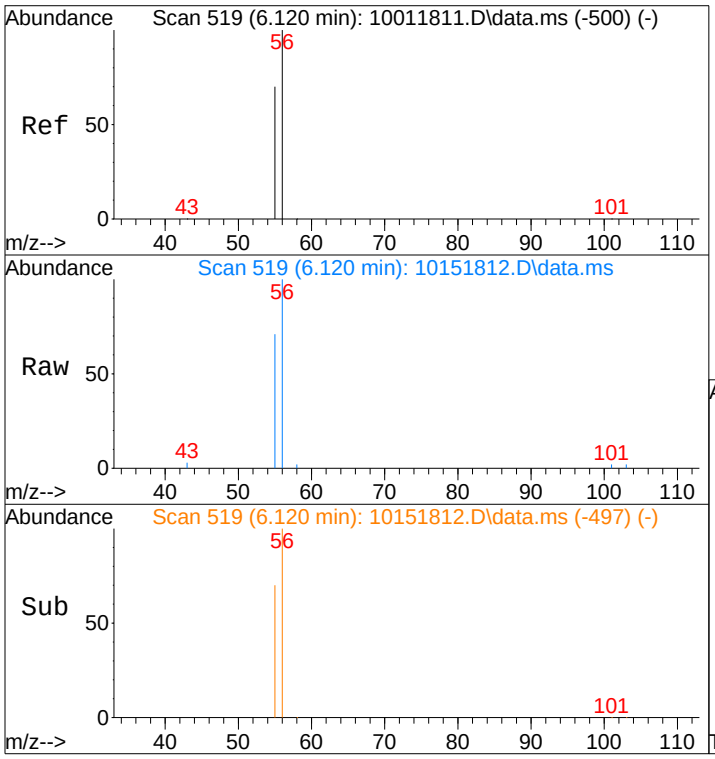


#8
Chloroethane
Concen: 62.07 pg
RT: 5.56 min Scan# 378
Delta R.T. -0.004 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 64 Resp: 849

Ion	Ratio	Lower	Upper
64	100		
66	33.7	12.3	52.3

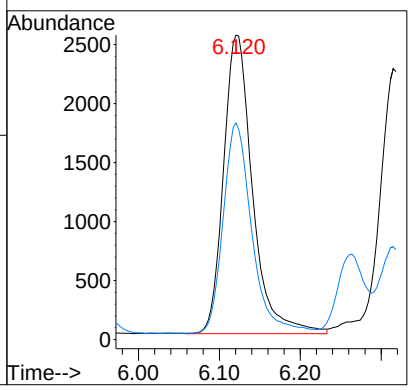


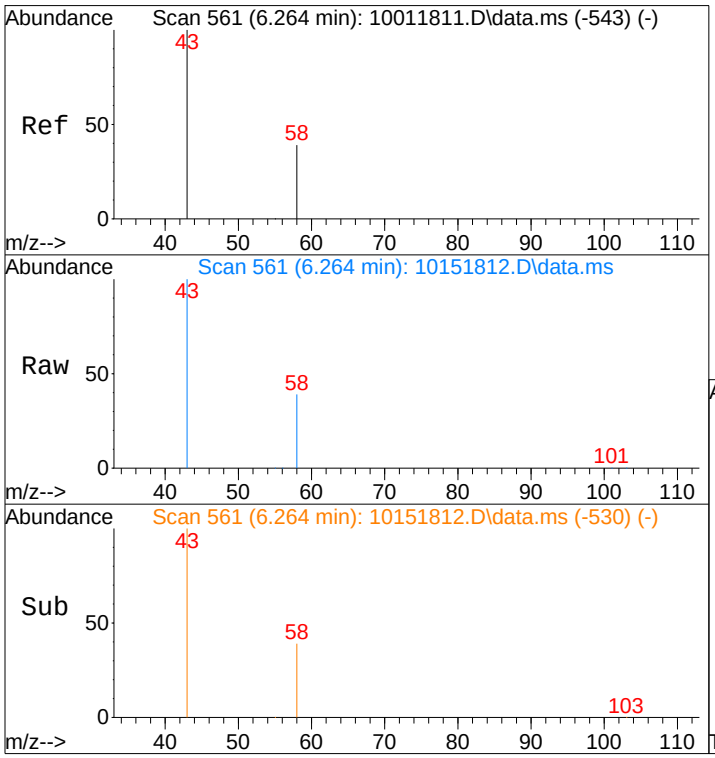


#9
Acrolein
Concen: 571.32 pg
RT: 6.12 min Scan# 519
Delta R.T. -0.034 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 56 Resp: 6317

Ion	Ratio	Lower	Upper
56	100		
55	69.2	55.3	82.9

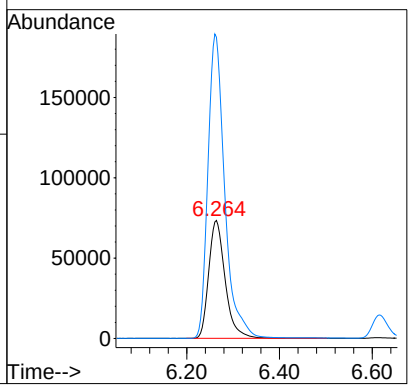


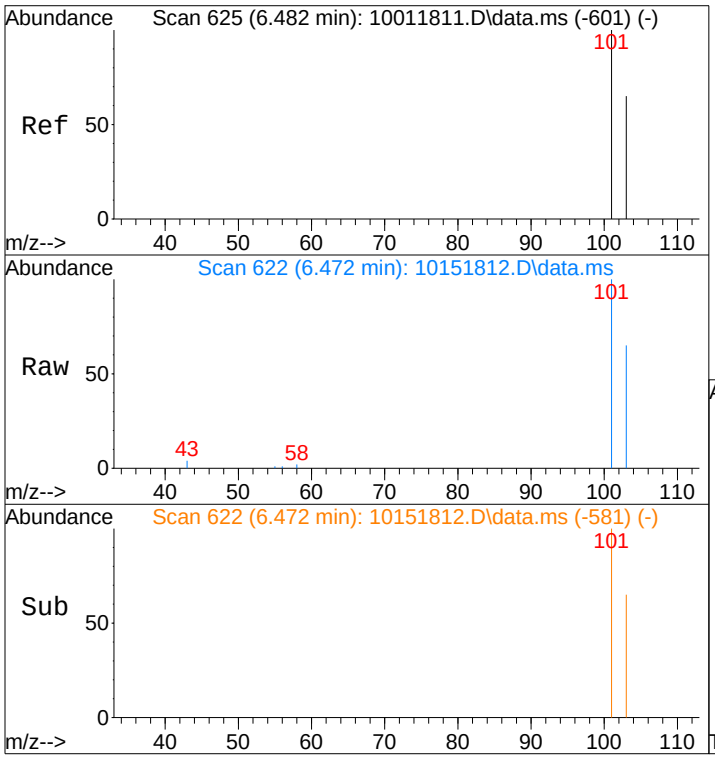


#10
Acetone
Concen: 12959.97 pg
RT: 6.26 min Scan# 561
Delta R.T. -0.044 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 58 Resp: 181670

Ion	Ratio	Lower	Upper
58	100		
43	263.1	234.7	274.7

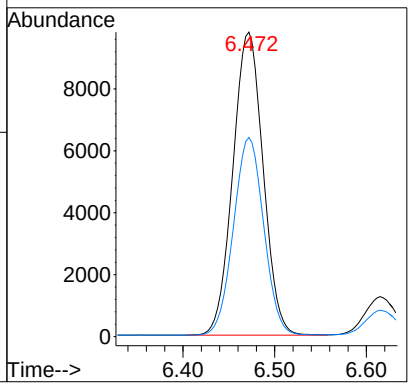


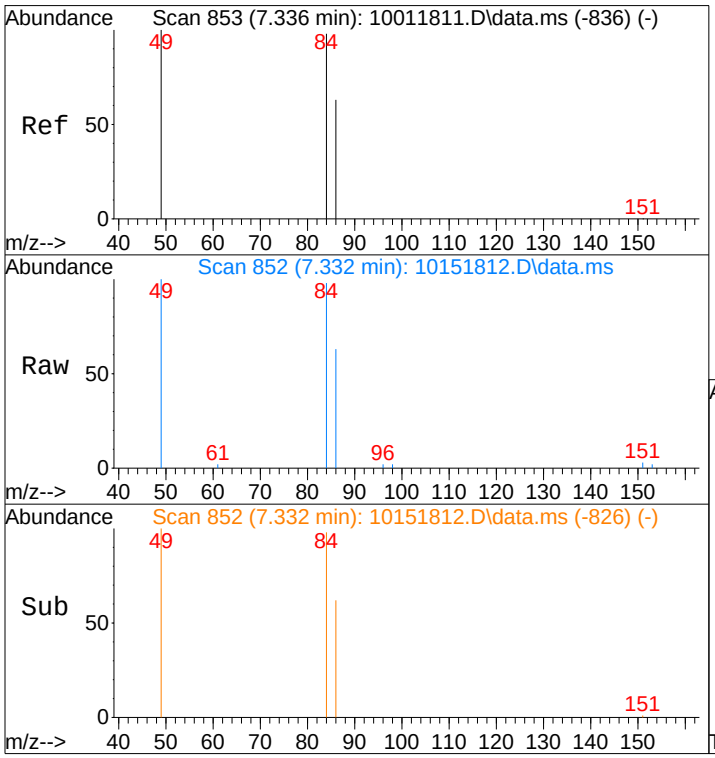


#11
Trichlorofluoromethane
Concen: 712.96 pg
RT: 6.47 min Scan# 622
Delta R.T. -0.010 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:101 Resp: 22447

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

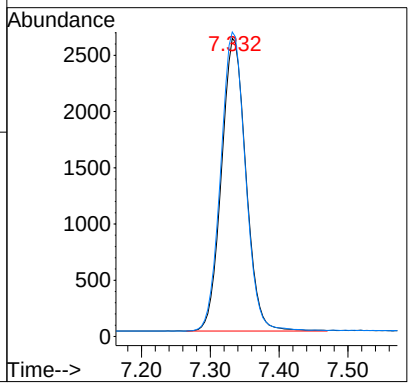


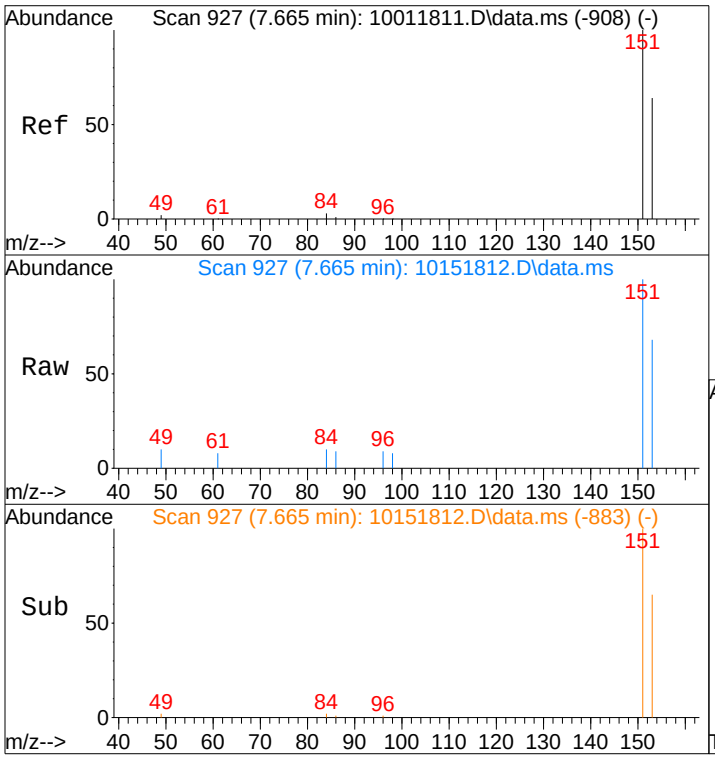


#13
Methylene Chloride
Concen: 275.37 pg
RT: 7.33 min Scan# 852
Delta R.T. -0.044 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 84 Resp: 6427

Ion	Ratio	Lower	Upper
84	100		
49	103.3	83.3	123.3

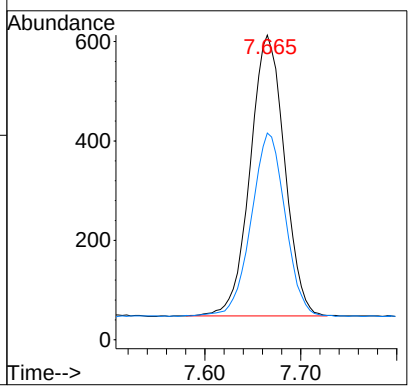


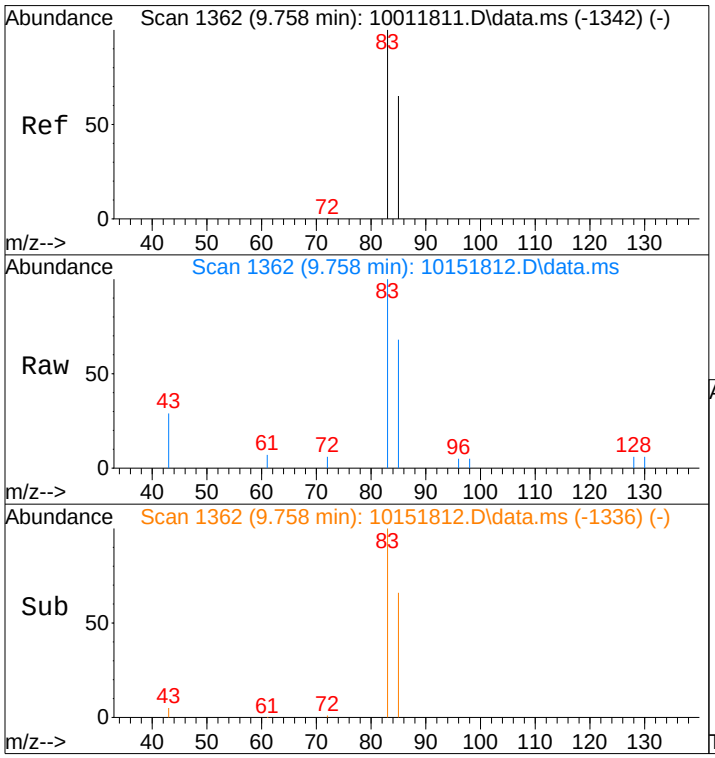


#14
Trichlorotrifluoroethane
Concen: 63.67 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:151 Resp: 1405

Ion	Ratio	Lower	Upper
151	100		
153	64.2	44.3	84.3

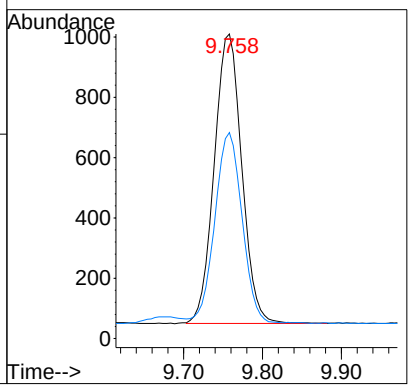


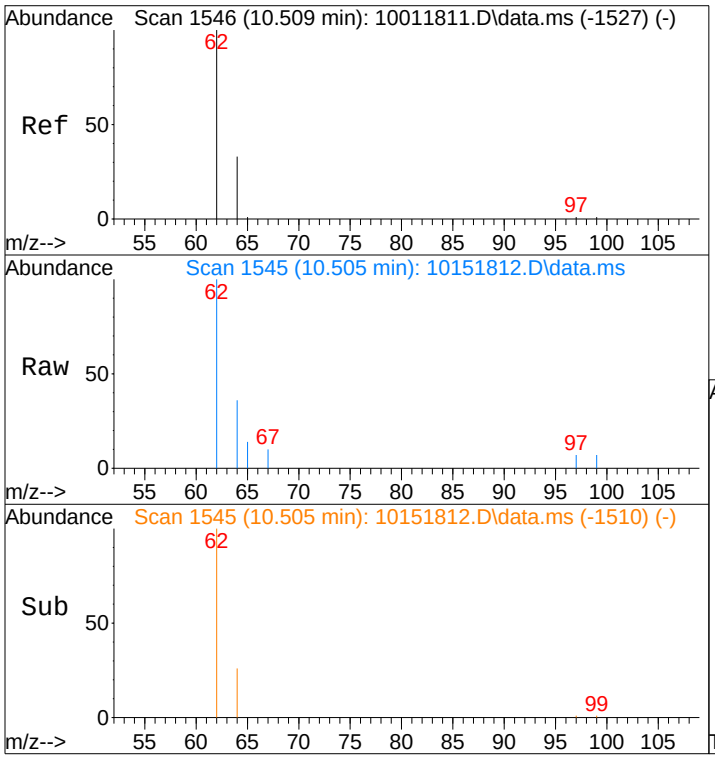


#19
Chloroform
Concen: 59.72 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.039 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 83 Resp: 2331

Ion	Ratio	Lower	Upper
83	100		
85	65.0	46.0	86.0

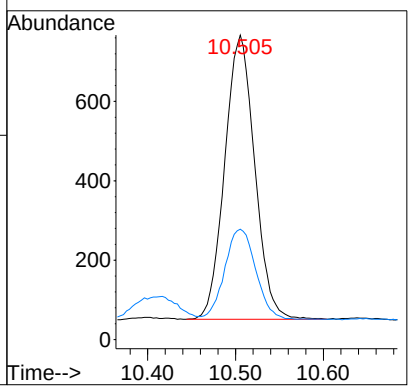


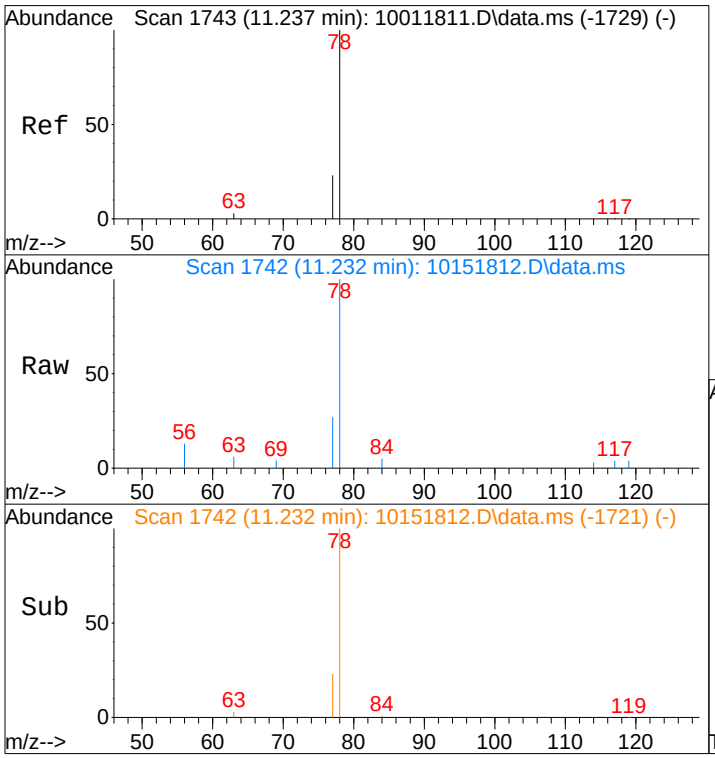


#21
1,2-Dichloroethane
Concen: 70.42 pg
RT: 10.51 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 62 Resp: 1700

Ion	Ratio	Lower	Upper
62	100		
64	32.1	12.9	52.9

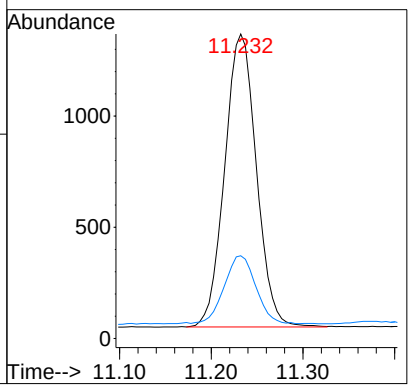


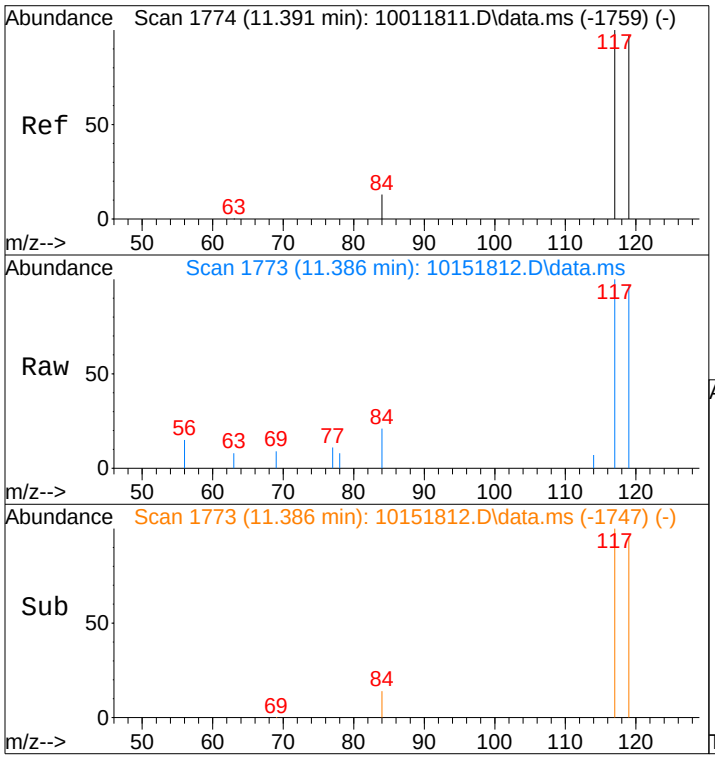


#23
Benzene
Concen: 32.24 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 78 Resp: 3161

Ion	Ratio	Lower	Upper
78	100		
77	22.7	3.3	43.3

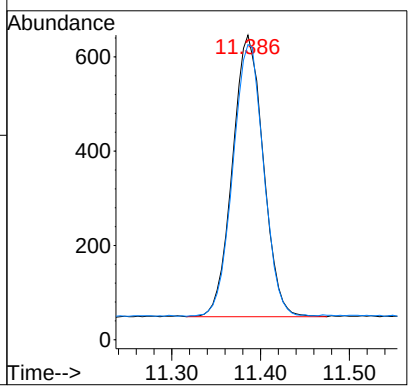


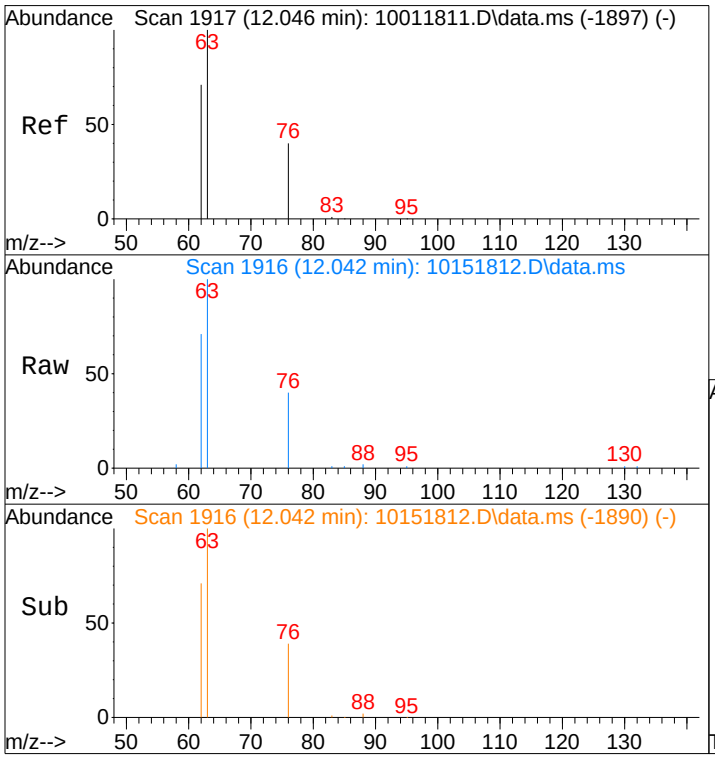


#24
Carbon Tetrachloride
Concen: 47.65 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:117 Resp: 1440

Ion	Ratio	Lower	Upper
117	100		
119	96.0	76.7	116.7

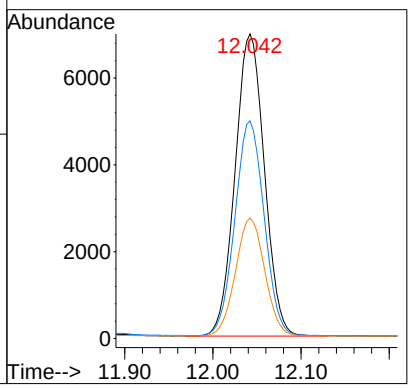


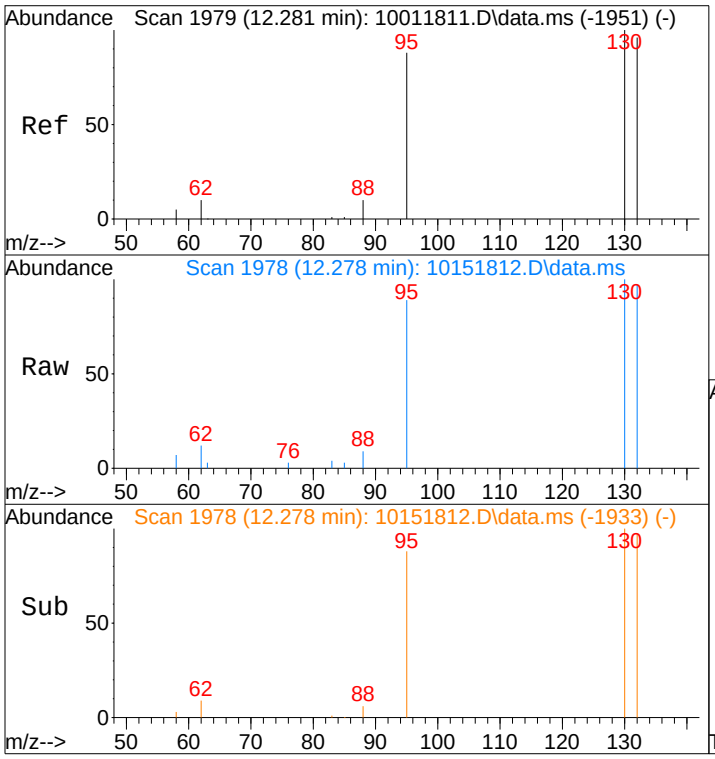


#26
1,2-Dichloropropane
Concen: 746.20 pg
RT: 12.04 min Scan# 1916
Delta R.T. -0.022 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 63 Resp: 16121

Ion	Ratio	Lower	Upper
63	100		
62	70.8	50.7	90.7
76	38.8	19.6	59.6

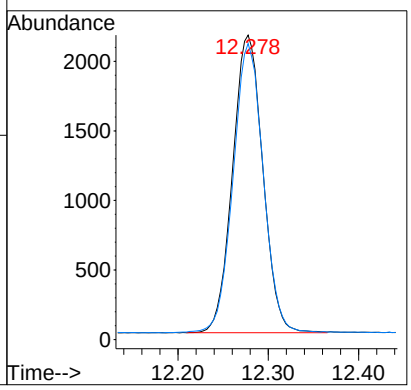


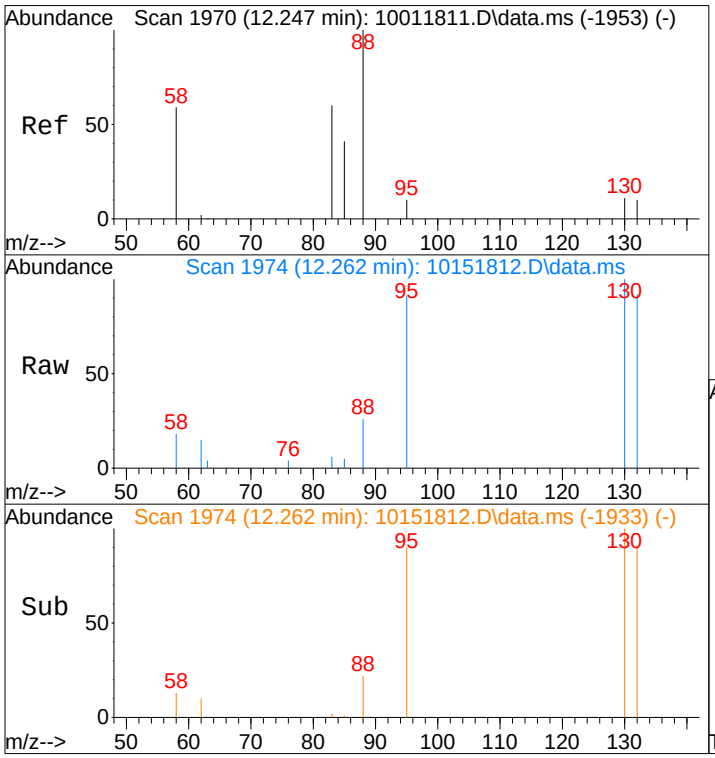


#28
Trichloroethene
Concen: 183.97 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:130 Resp: 4986

Ion	Ratio	Lower	Upper
130	100		
132	96.5	75.6	115.6

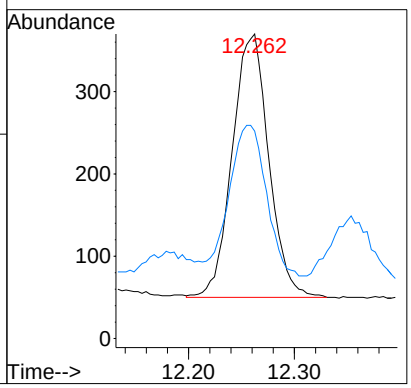


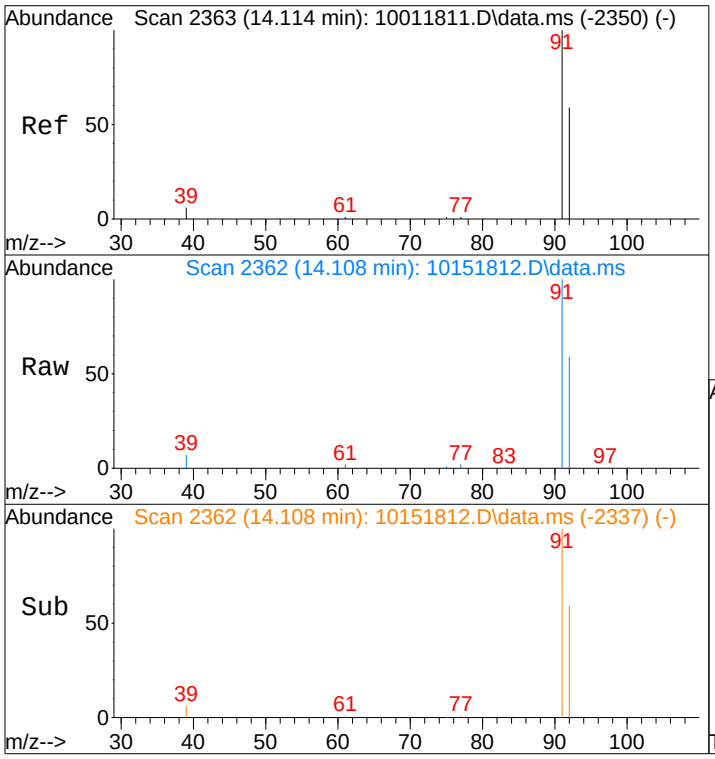


#29
1,4-Dioxane
Concen: 41.47 pg
RT: 12.26 min Scan# 1974
Delta R.T. 0.004 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 88 Resp: 769

Ion	Ratio	Lower	Upper
88	100		
58	58.1	39.2	79.2

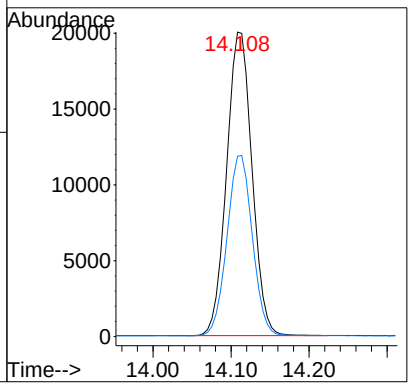


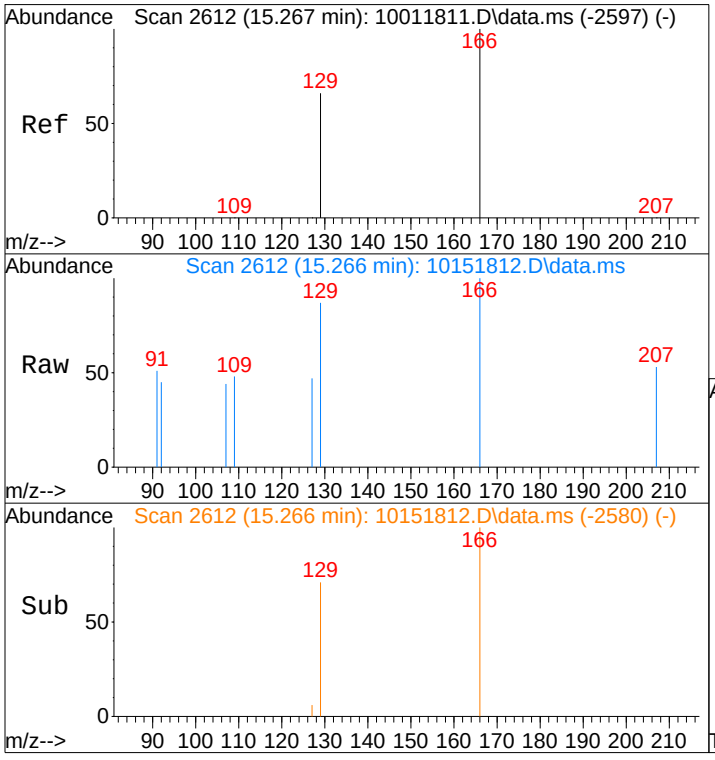


#34
Toluene
Concen: 458.37 pg
RT: 14.11 min Scan# 2362
Delta R.T. -0.016 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 91 Resp: 45396

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

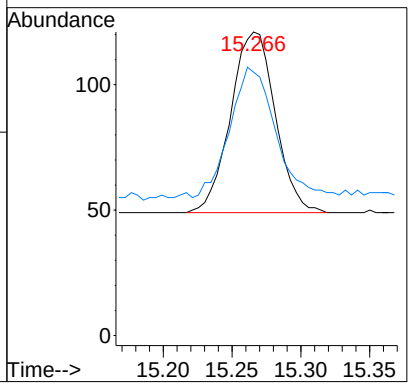


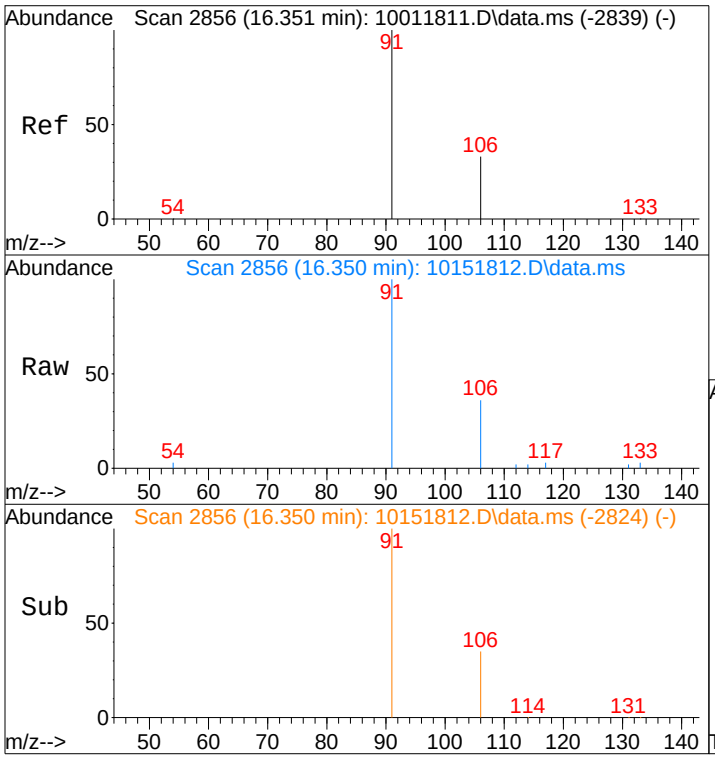


#37
Tetrachloroethene
Concen: 5.59 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:166 Resp: 163

Ion	Ratio	Lower	Upper
166	100		
129	73.6	46.7	86.7

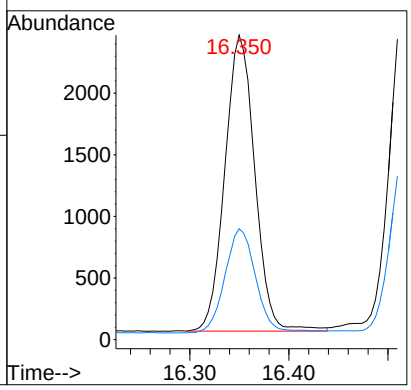


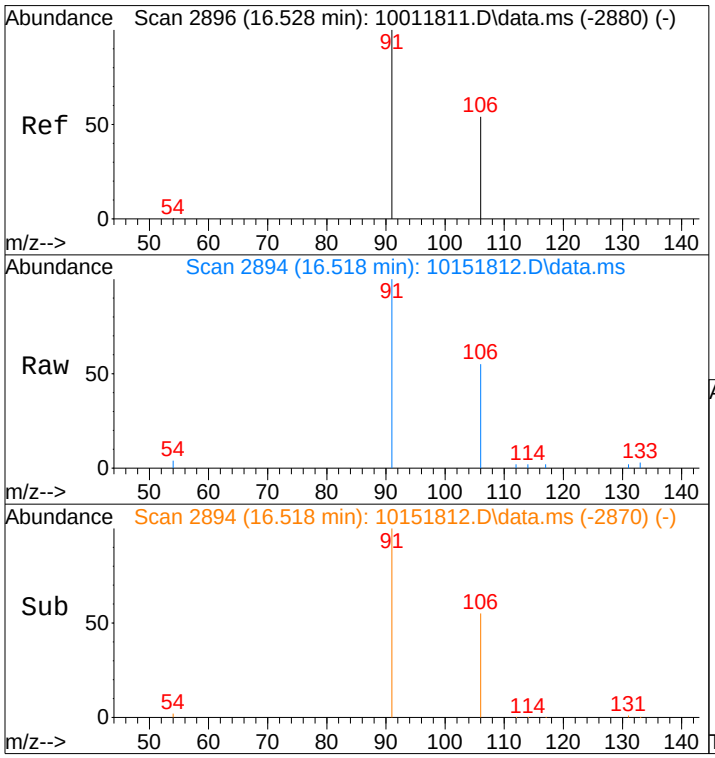


#40
Ethylbenzene
Concen: 48.51 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 91 Resp: 5051

Ion	Ratio	Lower	Upper
91	100		
106	36.2	13.7	53.7

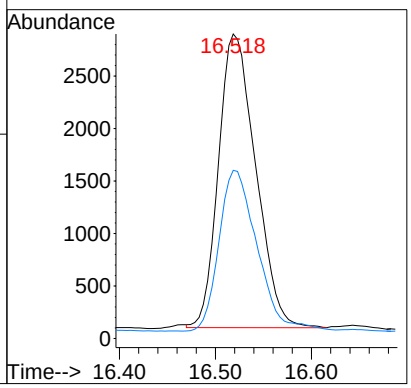


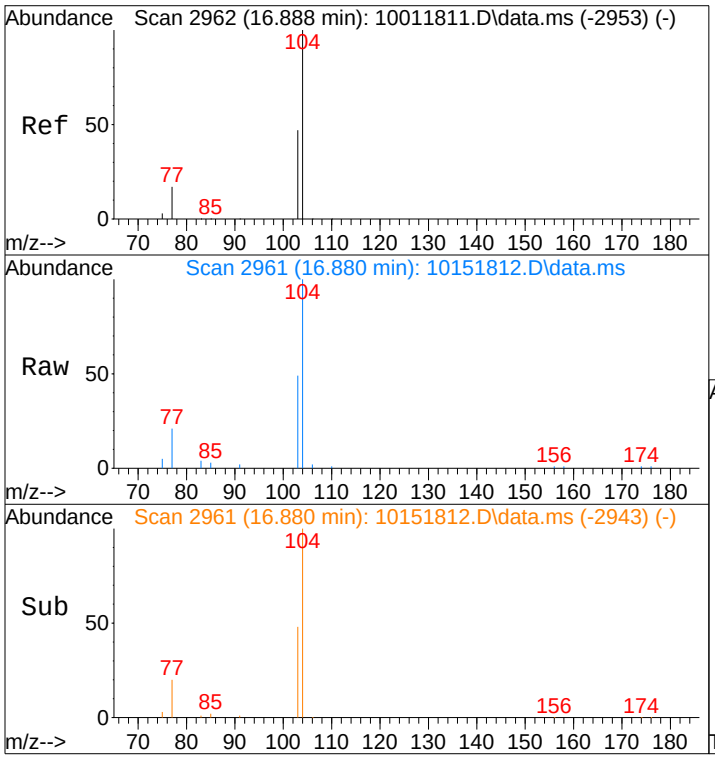


#41
m,p-Xylene
Concen: 94.46 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.022 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion: 91 Resp: 7520

Ion	Ratio	Lower	Upper
91	100		
106	56.3	34.3	74.3

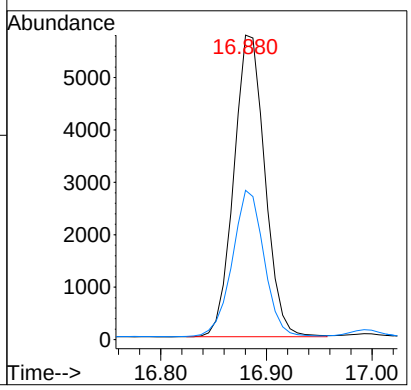


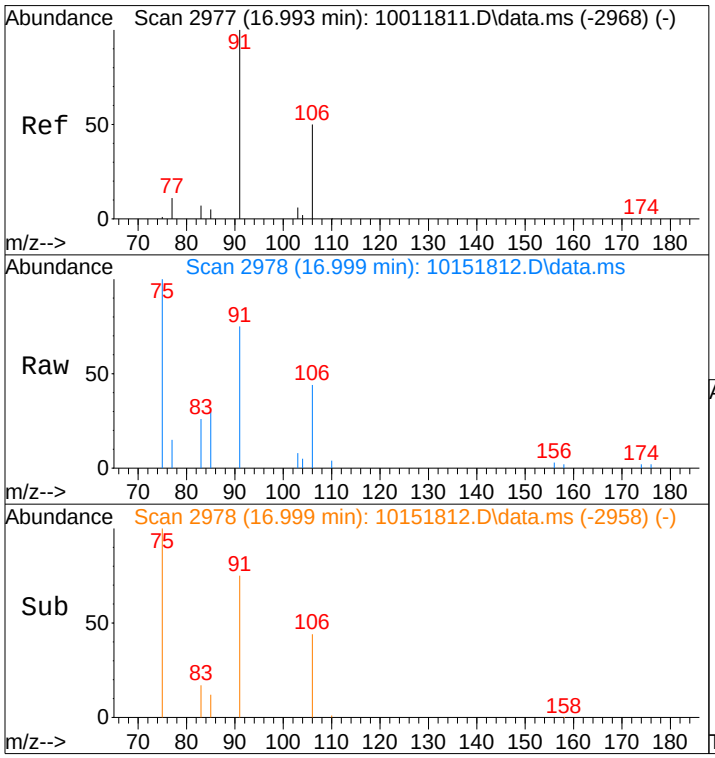


#42
Styrene
Concen: 186.43 pg
RT: 16.88 min Scan# 2961
Delta R.T. -0.013 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:104 Resp: 11789

Ion	Ratio	Lower	Upper
104	100		
103	49.6	37.7	56.5

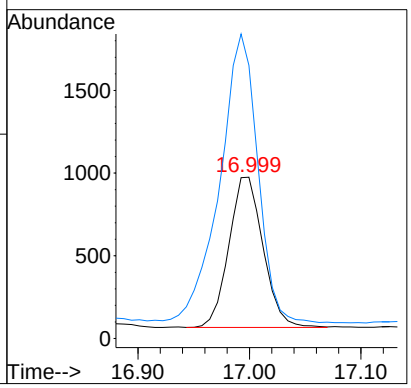


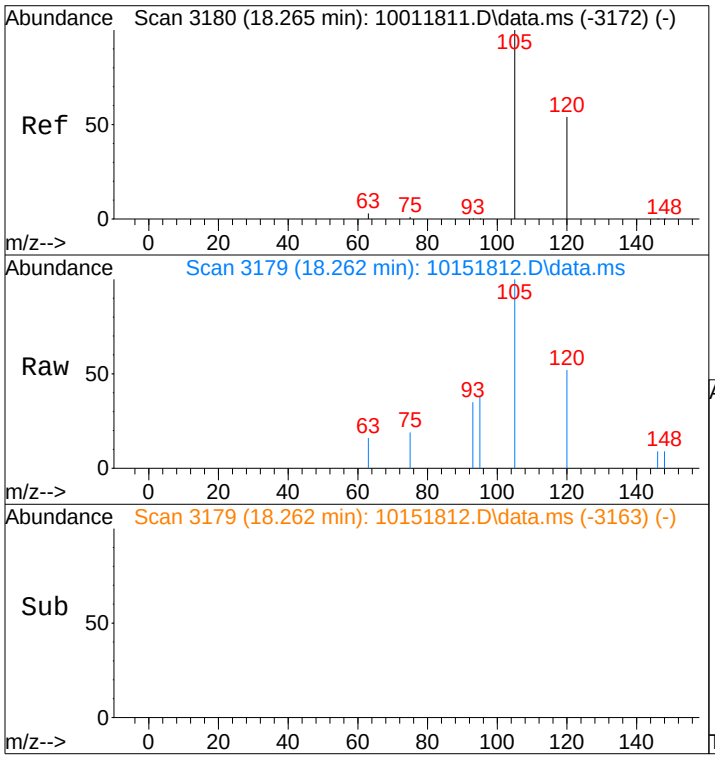


#43
o-Xylene
Concen: 45.81 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:106 Resp: 1939

Ion	Ratio	Lower	Upper
106	100		
91	213.9	175.6	215.6

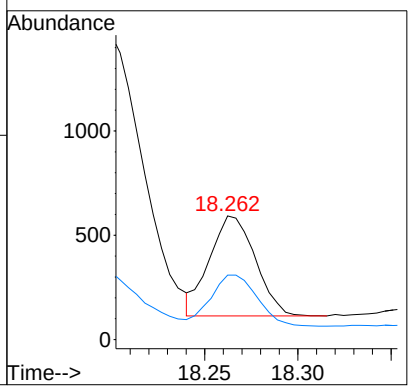


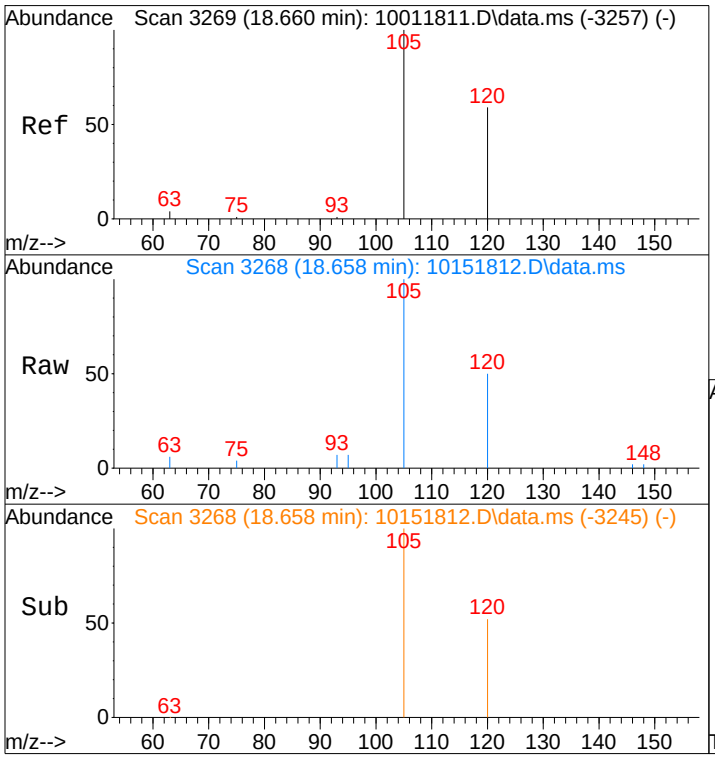


#46
1,3,5-Trimethylbenzene
Concen: 9.22 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:105 Resp: 821

Ion	Ratio	Lower	Upper
105	100		
120	51.8	42.8	64.2

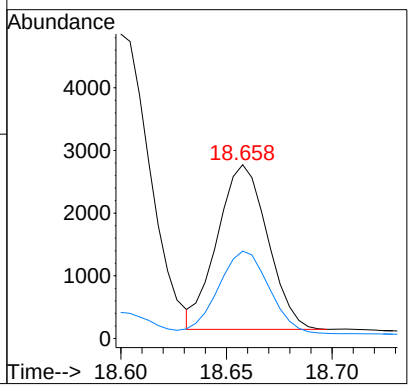


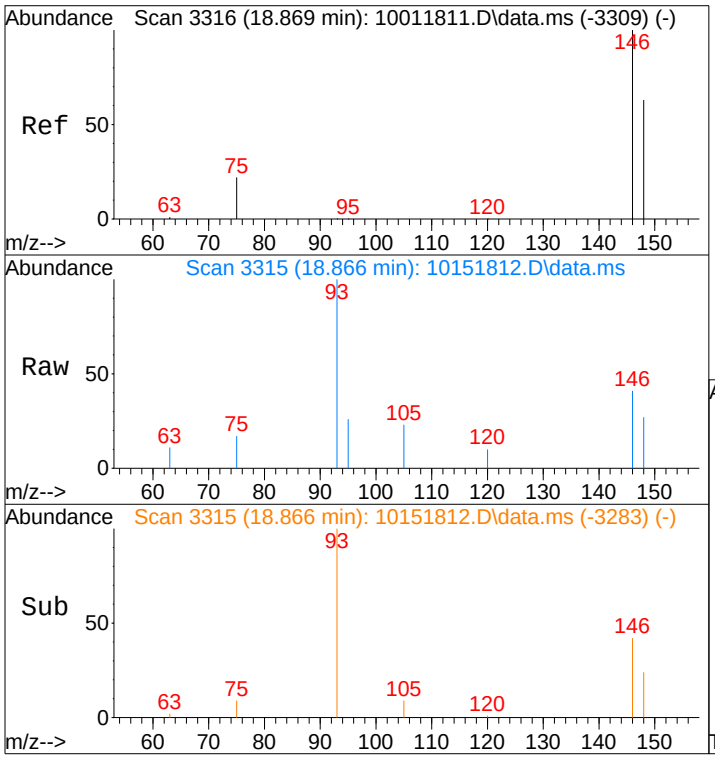


#47
1,2,4-Trimethylbenzene
Concen: 48.90 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:105 Resp: 4343

Ion	Ratio	Lower	Upper
105	100		
120	50.8	47.1	70.7

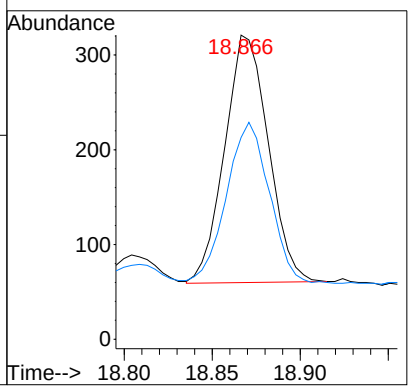


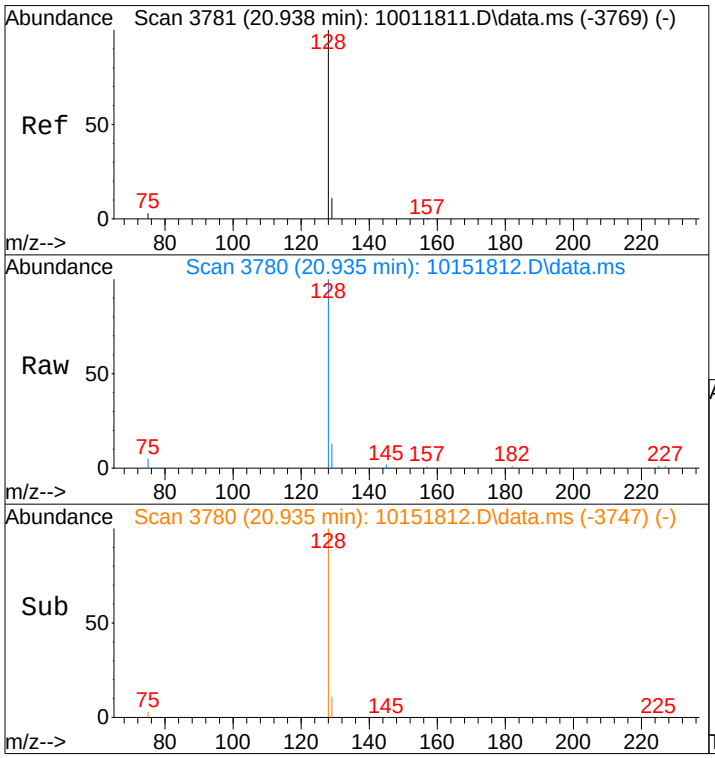


#49
1,4-Dichlorobenzene
Concen: 7.74 pg
RT: 18.87 min Scan# 3315
Delta R.T. -0.008 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:146 Resp: 451

Ion	Ratio	Lower	Upper
146	100		
148	63.0	43.8	83.8

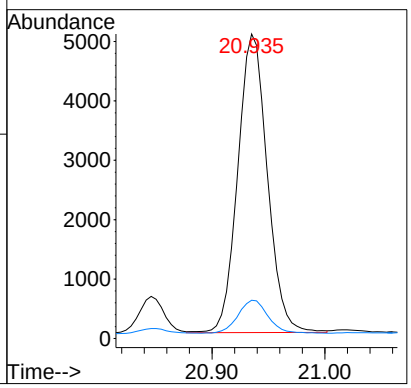




#53
Naphthalene
Concen: 88.07 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10151812.D
Acq: 15 Oct 2018 16:26

Tgt Ion:128 Resp: 9148

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151813.D Vial: 6
Acq On : 15 Oct 2018 16:58 Operator: WA
Sample : P1805476-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:43:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/16/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18568	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85594	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11786	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20427	919.022	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.90%				
33) Toluene-d8 (SS2)	14.01	98	92563	1048.651	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.87%				
45) Bromofluorobenzene (SS3)	17.43	174	35327	1060.758	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.08%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	49181	1243.079	pg		100
3) Chloromethane	4.53	52	1620	175.111	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1582	55.471	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.02	54	237	12.203	pg		93
7) Bromomethane	5.34	94	281	15.569	pg		99
8) Chloroethane	5.55	64	79	5.877	pg	#	42
9) Acrolein	6.12	56	3830	352.472	pg		100
10) Acetone	6.27	58	59463	4316.445	pg		96
11) Trichlorofluoromethane	6.48	101	19350	625.381	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	2215	96.569	pg		98
14) Trichlorotrifluoroethane	7.67	151	4839	223.144	pg		100
15) trans-1,2-Dichloroethene	8.37	96	54	N.D.			
16) 1,1-Dichloroethane	8.58	63	106	N.D.			
17) Methyl tert-Butyl Ether	8.67	73	55	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.75	83	1758	45.831	pg		98
21) 1,2-Dichloroethane	10.50	62	730	30.769	pg		100
22) 1,1,1-Trichloroethane	10.77	97	151	N.D.			
23) Benzene	11.23	78	10360	107.508	pg		99
24) Carbon Tetrachloride	11.39	117	6755	227.465	pg		100
26) 1,2-Dichloropropane	12.04	63	123	5.769	pg	#	75
27) Bromodichloromethane	12.26	83	89	N.D.			
28) Trichloroethene	12.28	130	199	7.441	pg		96
29) 1,4-Dioxane	12.26	88	100	5.465	pg	#	1
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d			
34) Toluene	14.11	91	34593	353.960	pg		100
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.26	166	456	15.856	pg		98
39) Chlorobenzene	15.96	112	211	N.D.			
40) Ethylbenzene	16.35	91	4742	43.641	pg		100
41) m,p-Xylene	16.52	91	12597	151.624	pg		99
42) Styrene	16.88	104	2986	45.249	pg		96
43) o-Xylene	17.00	106	6294	142.497	pg	#	23
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d			
46) 1,3,5-Trimethylbenzene	18.27	105	1775	19.107	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	6136	66.210	pg		89
48) 1,3-Dichlorobenzene	18.81	146	145	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	9426	155.031	pg		99
50) 1,2-Dichlorobenzene	19.19	146	50	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	58	N.D.			
53) Naphthalene	20.93	128	9718	89.651	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151813.D Vial: 6
Acq On : 15 Oct 2018 16:58 Operator: WA
Sample : P1805476-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:43:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

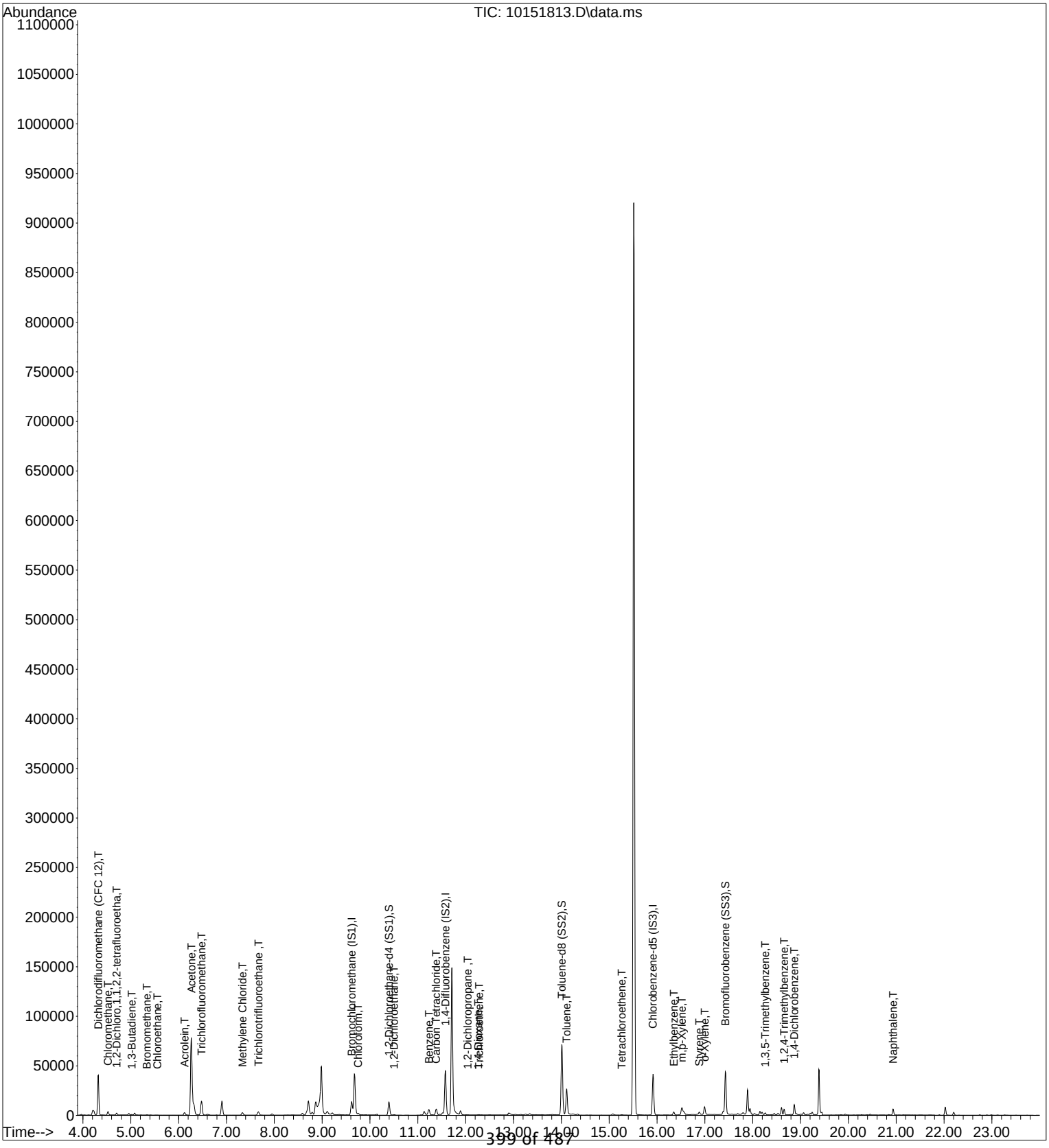
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	66	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151813.D Vial: 6
Acq On : 15 Oct 2018 16:58 Operator: WA
Sample : P1805476-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:43:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151813.D Vial: 6
Acq On : 15 Oct 2018 16:58 Operator: WA
Sample : P1805476-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:43:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/16/18

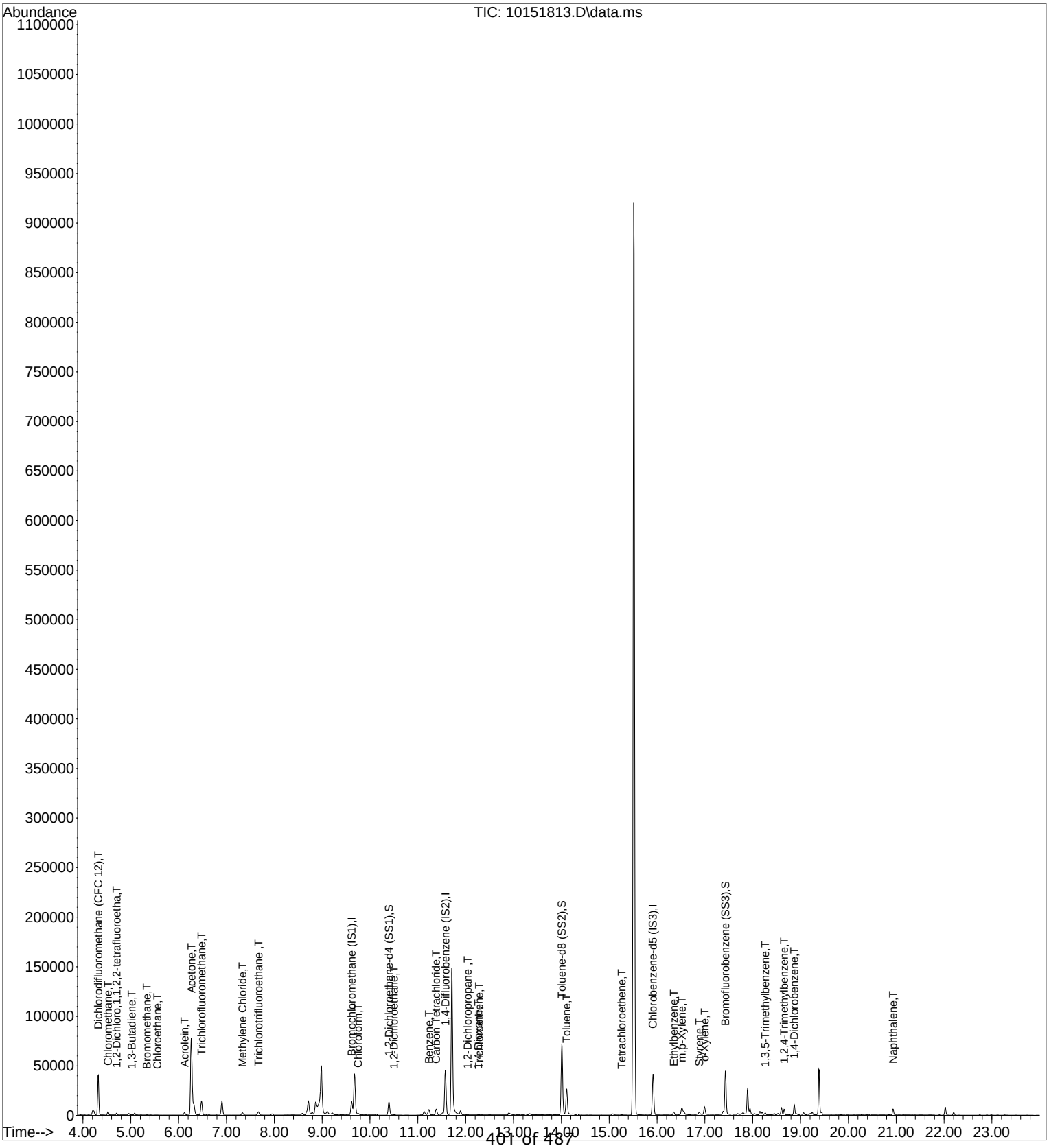
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18568	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85594	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11786	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20427	919.022	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.90%				
33) Toluene-d8 (SS2)	14.01	98	92563	1048.651	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.87%				
45) Bromofluorobenzene (SS3)	17.43	174	35327	1060.758	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.08%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	49181	1243.079	pg		100
3) Chloromethane	4.53	52	1620	175.111	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1582	55.471	pg		100
6) 1,3-Butadiene	5.02	54	237	12.203	pg		93
7) Bromomethane	5.34	94	281	15.569	pg		99
8) Chloroethane	5.55	64	79	5.877	pg	#	42
9) Acrolein	6.12	56	3830	352.472	pg		100
10) Acetone	6.27	58	59463	4316.445	pg		96
11) Trichlorofluoromethane	6.48	101	19350	625.381	pg		100
13) Methylene Chloride	7.34	84	2215	96.569	pg		98
14) Trichlorotrifluoroethane	7.67	151	4839	223.144	pg		100
19) Chloroform	9.75	83	1758	45.831	pg		98
21) 1,2-Dichloroethane	10.50	62	730	30.769	pg		100
23) Benzene	11.23	78	10360	107.508	pg		99
24) Carbon Tetrachloride	11.39	117	6755	227.465	pg		100
26) 1,2-Dichloropropane	12.04	63	123	5.769	pg	#	75
28) Trichloroethene	12.28	130	199	7.441	pg		96
29) 1,4-Dioxane	12.26	88	100	5.465	pg	#	1
34) Toluene	14.11	91	34593	353.960	pg		100
37) Tetrachloroethene	15.26	166	456	15.856	pg		98
40) Ethylbenzene	16.35	91	4742	43.641	pg		100
41) m,p-Xylene	16.52	91	12597	151.624	pg		99
42) Styrene	16.88	104	2986	45.249	pg		96
43) o-Xylene	17.00	106	6294	142.497	pg	#	23
46) 1,3,5-Trimethylbenzene	18.27	105	1775	19.107	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	6136	66.210	pg		89
49) 1,4-Dichlorobenzene	18.87	146	9426	155.031	pg		99
53) Naphthalene	20.93	128	9718	89.651	pg		98

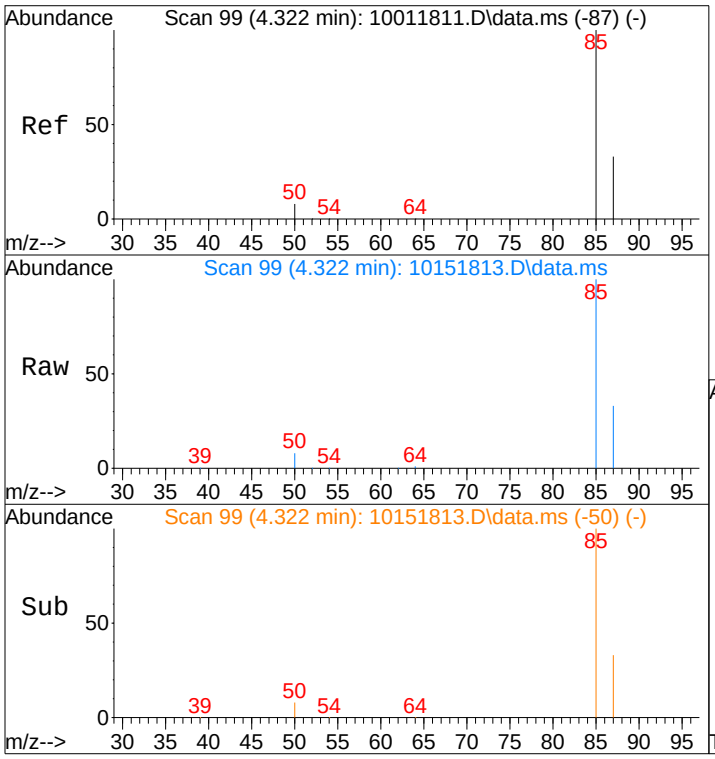
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151813.D Vial: 6
Acq On : 15 Oct 2018 16:58 Operator: WA
Sample : P1805476-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 16 13:43:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

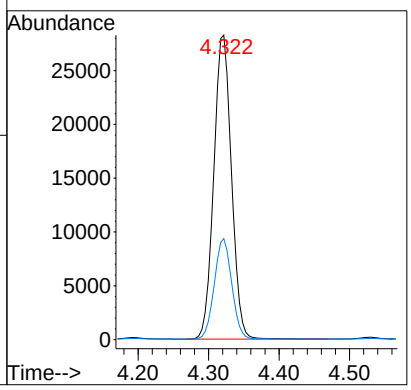


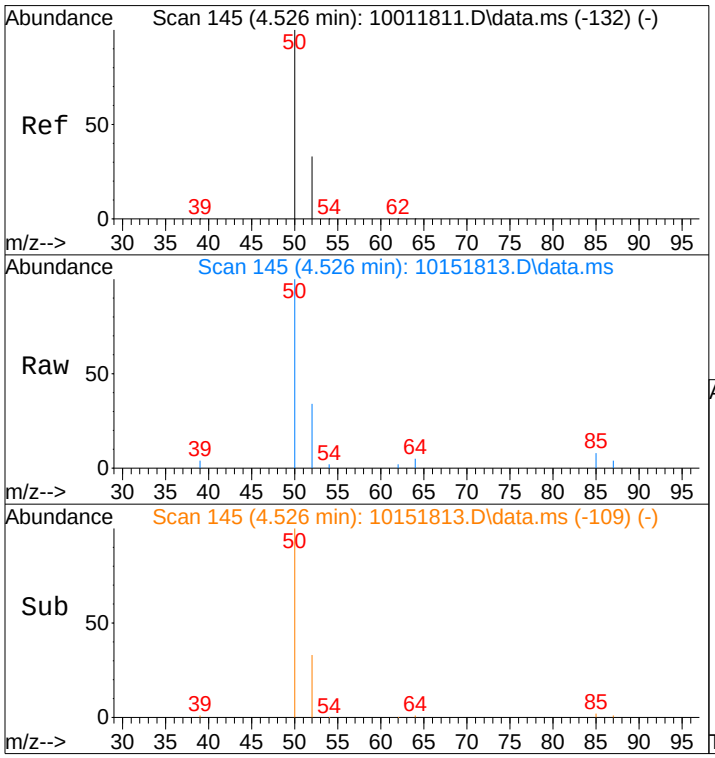


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1243.08 pg
RT: 4.32 min Scan# 99
Delta R.T. 0.018 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 85 Resp: 49181

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

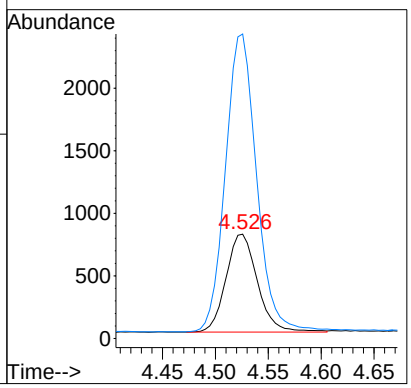


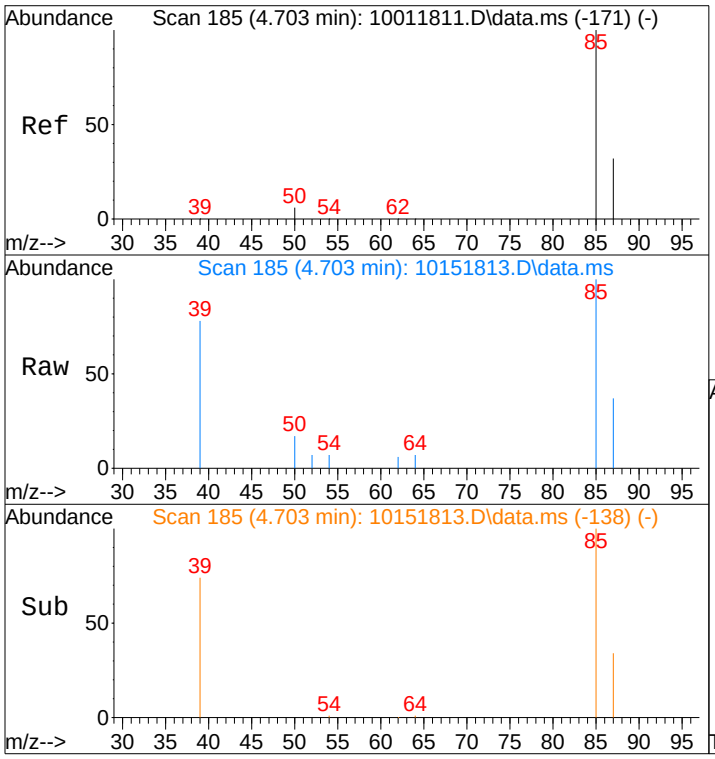


#3
Chloromethane
Concen: 175.11 pg
RT: 4.53 min Scan# 145
Delta R.T. 0.009 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 52 Resp: 1620

Ion	Ratio	Lower	Upper
52	100		
50	302.9	281.8	321.8

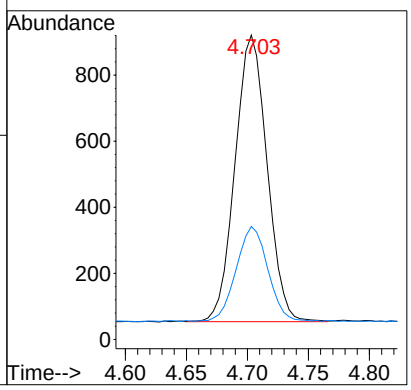


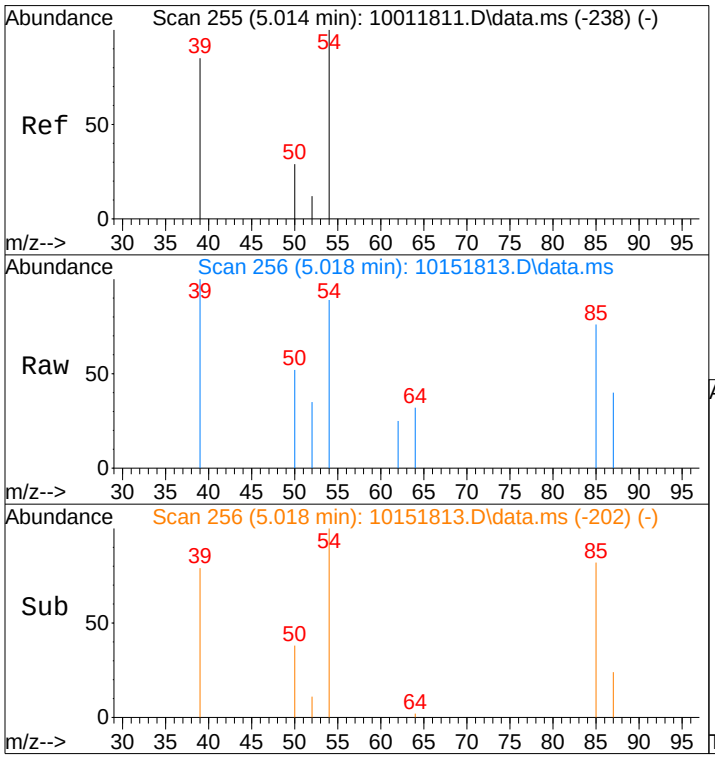


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 55.47 pg
RT: 4.70 min Scan# 185
Delta R.T. 0.009 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 85 Resp: 1582

Ion	Ratio	Lower	Upper
85	100		
87	32.6	26.0	39.0

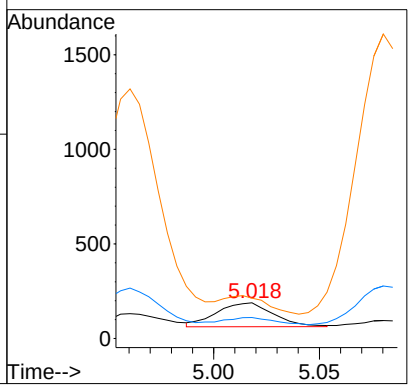


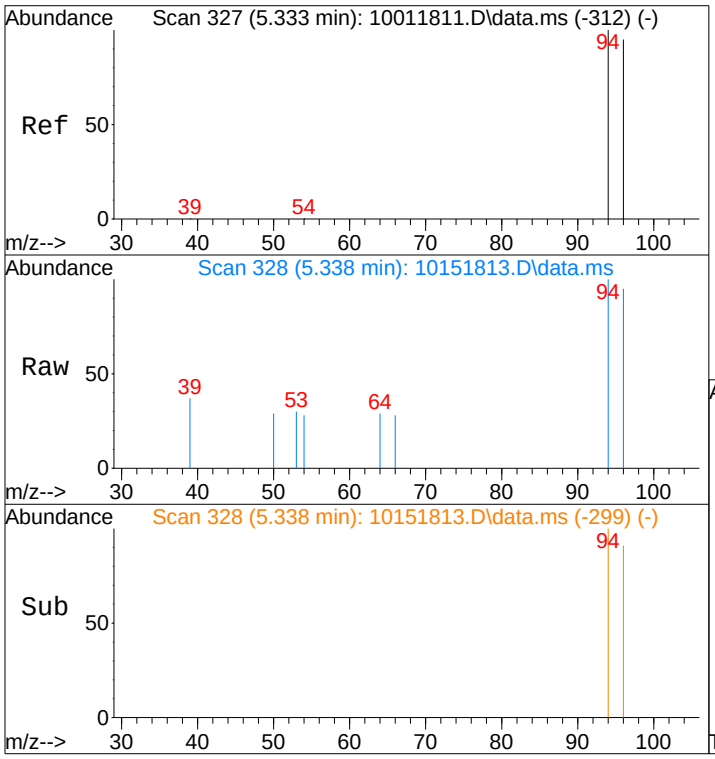


#6
1,3-Butadiene
Concen: 12.20 pg
RT: 5.02 min Scan# 256
Delta R.T. 0.009 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 54 Resp: 237

Ion	Ratio	Lower	Upper
54	100		
50	30.8	23.6	35.4
39	95.8	69.9	104.9

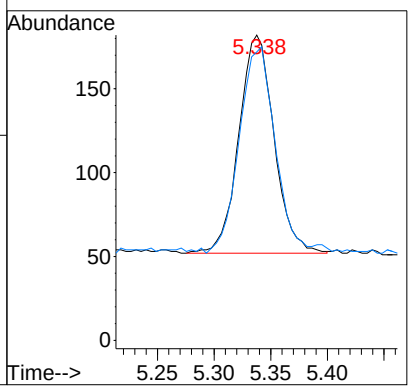


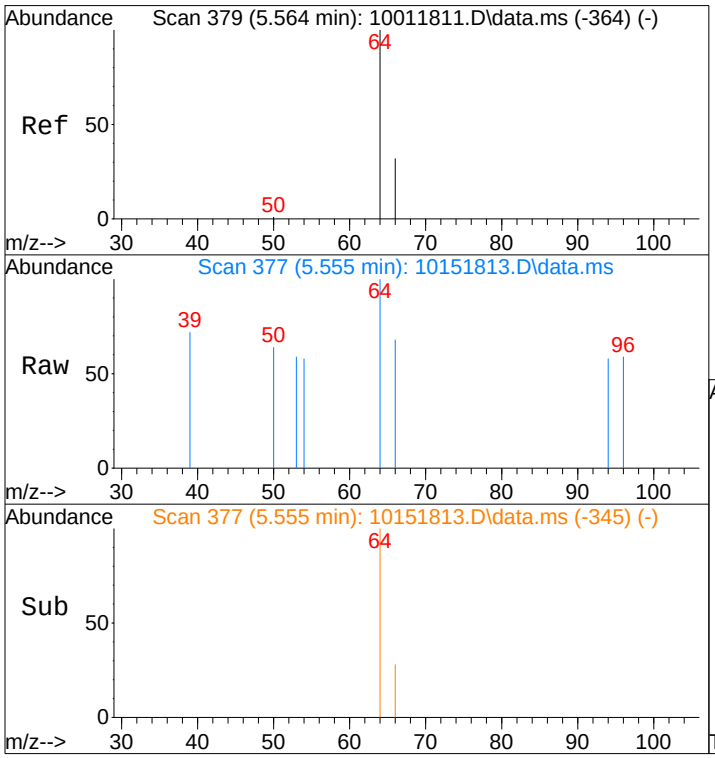


#7
Bromomethane
Concen: 15.57 pg
RT: 5.34 min Scan# 328
Delta R.T. 0.000 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 94 Resp: 281

Ion	Ratio	Lower	Upper
94	100		
96	95.7	75.7	113.5

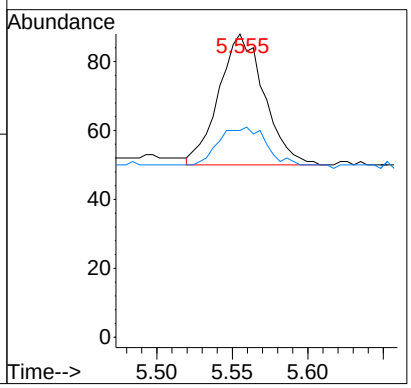


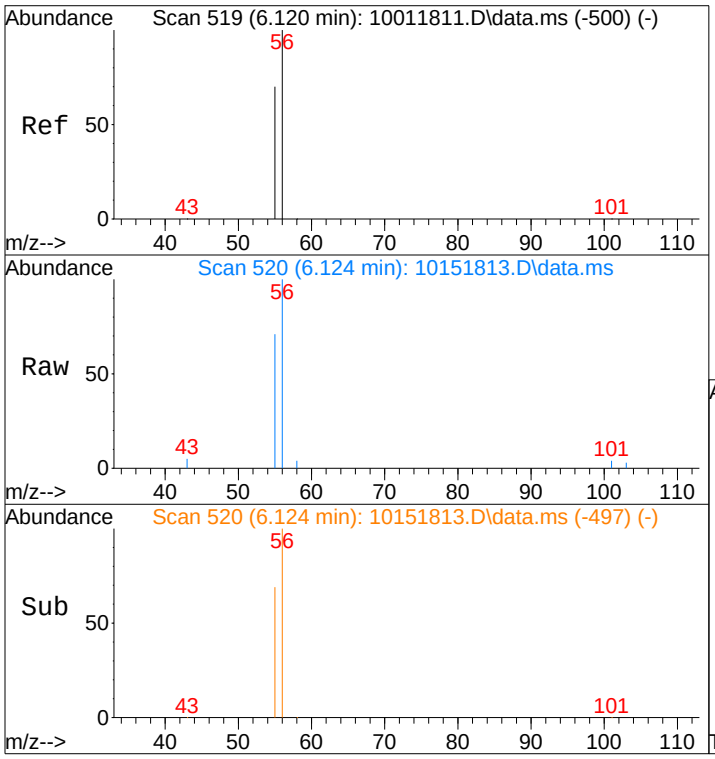


#8
Chloroethane
Concen: 5.88 pg
RT: 5.55 min Scan# 377
Delta R.T. -0.009 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 64 Resp: 79

Ion	Ratio	Lower	Upper
64	100		
66	0.0	12.3	52.3#

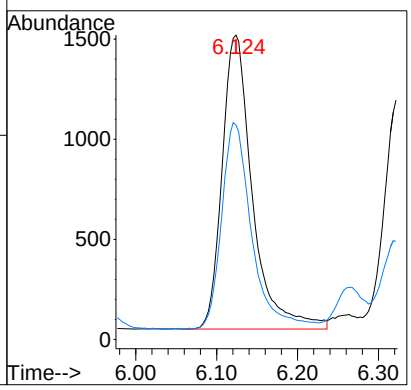


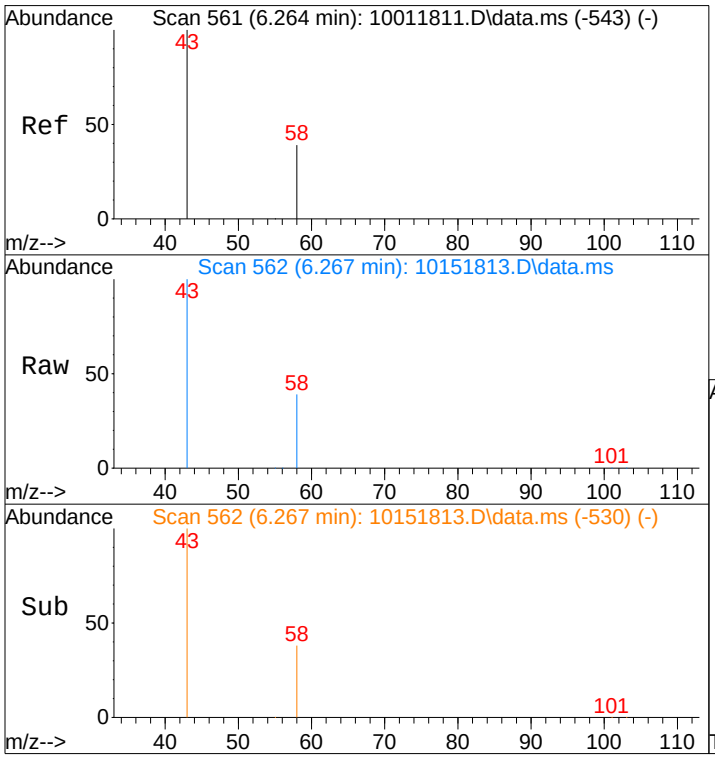


#9
Acrolein
Concen: 352.47 pg
RT: 6.12 min Scan# 520
Delta R.T. -0.031 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 56 Resp: 3830

Ion	Ratio	Lower	Upper
56	100		
55	69.1	55.3	82.9

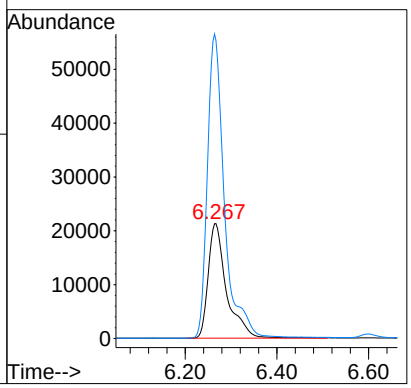


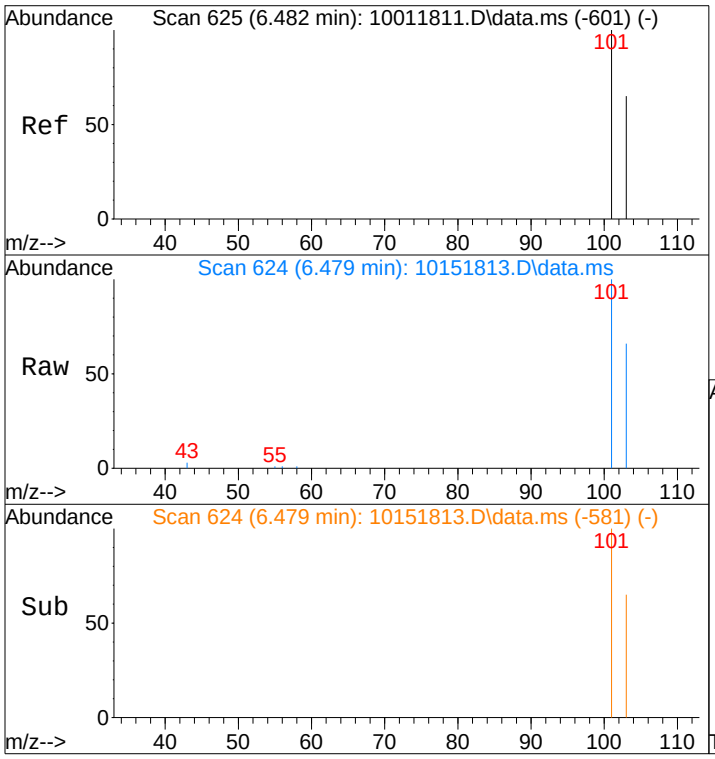


#10
Acetone
Concen: 4316.45 pg
RT: 6.27 min Scan# 562
Delta R.T. -0.041 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 58 Resp: 59463

Ion	Ratio	Lower	Upper
58	100		
43	247.0	234.7	274.7

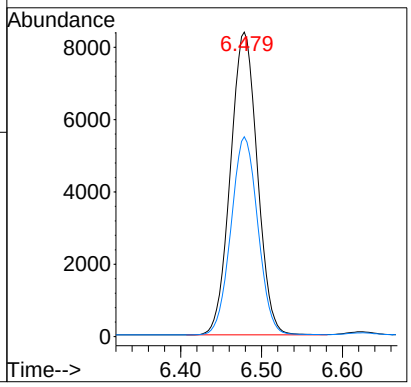


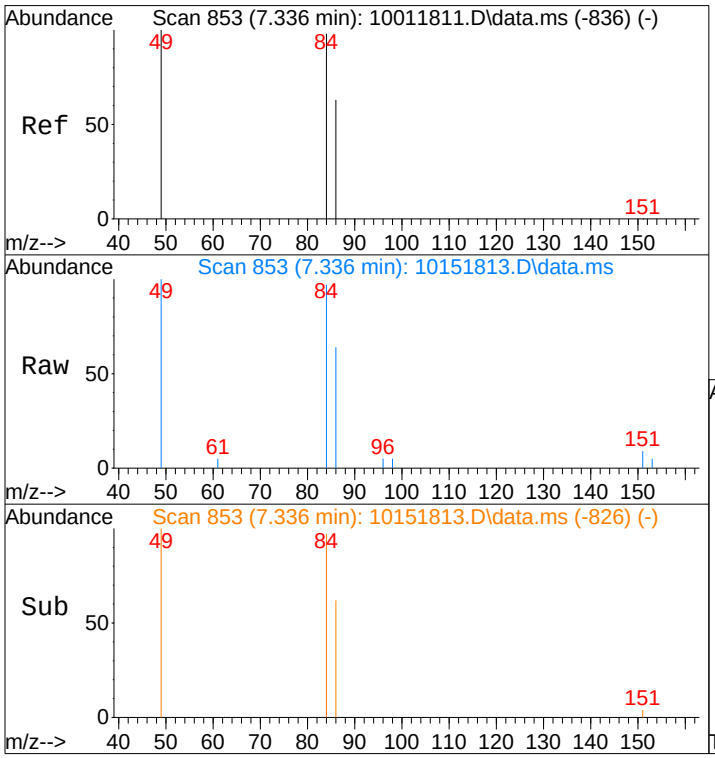


#11
Trichlorofluoromethane
Concen: 625.38 pg
RT: 6.48 min Scan# 624
Delta R.T. -0.003 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:101 Resp: 19350

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

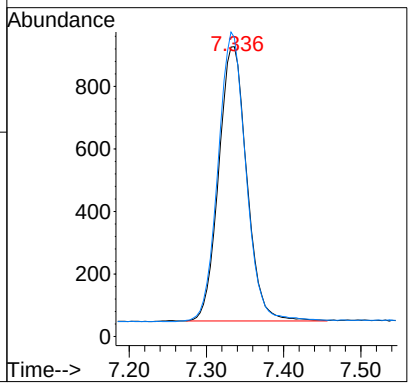


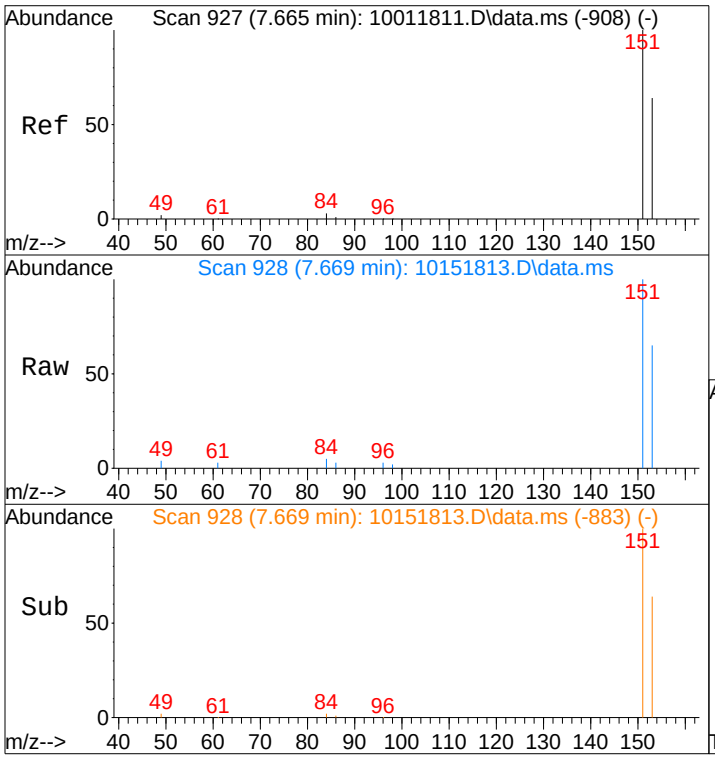


#13
Methylene Chloride
Concen: 96.57 pg
RT: 7.34 min Scan# 853
Delta R.T. -0.040 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 84 Resp: 2215

Ion	Ratio	Lower	Upper
84	100		
49	105.2	83.3	123.3

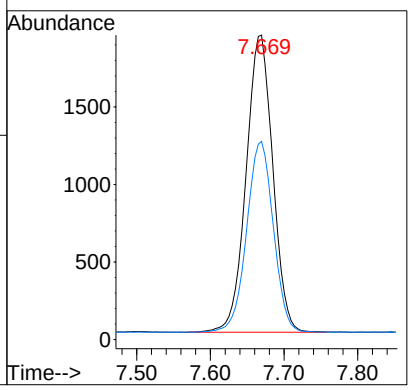


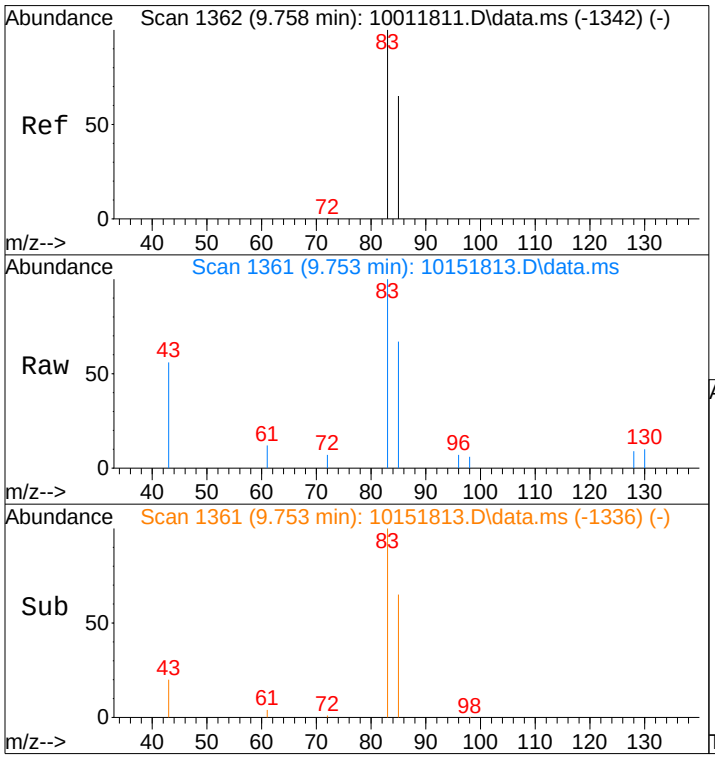


#14
Trichlorotrifluoroethane
Concen: 223.14 pg
RT: 7.67 min Scan# 928
Delta R.T. 0.000 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:151 Resp: 4839

Ion	Ratio	Lower	Upper
151	100		
153	64.2	44.3	84.3

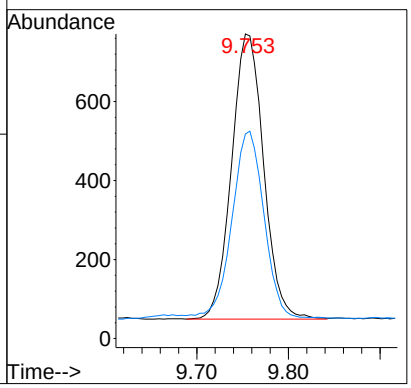


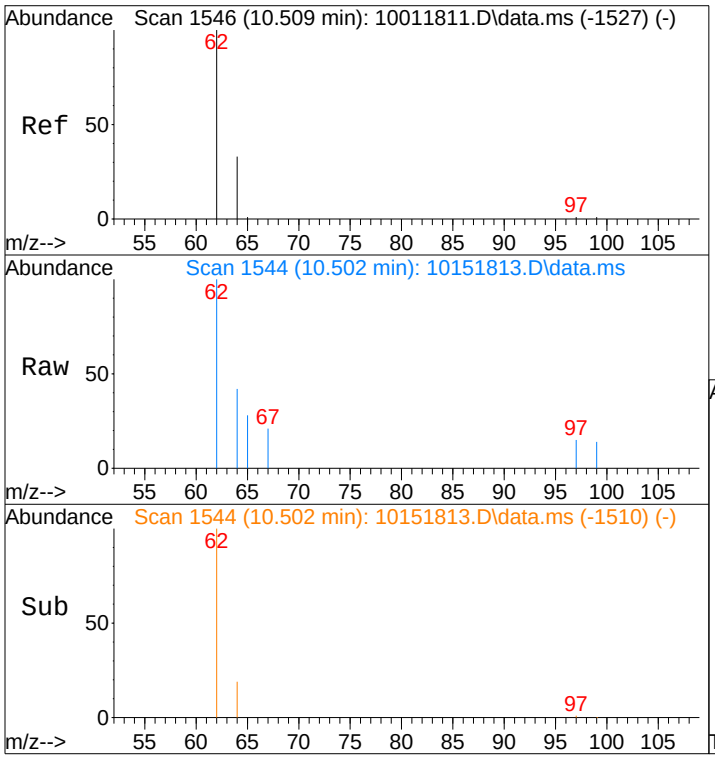


#19
Chloroform
Concen: 45.83 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 83 Resp: 1758

Ion	Ratio	Lower	Upper
83	100		
85	64.4	46.0	86.0

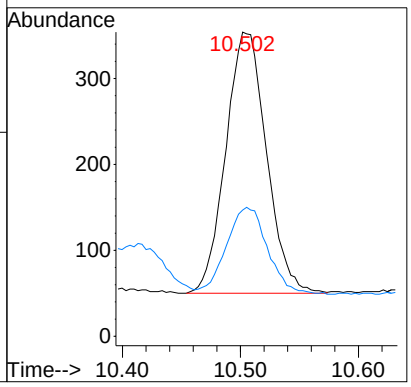


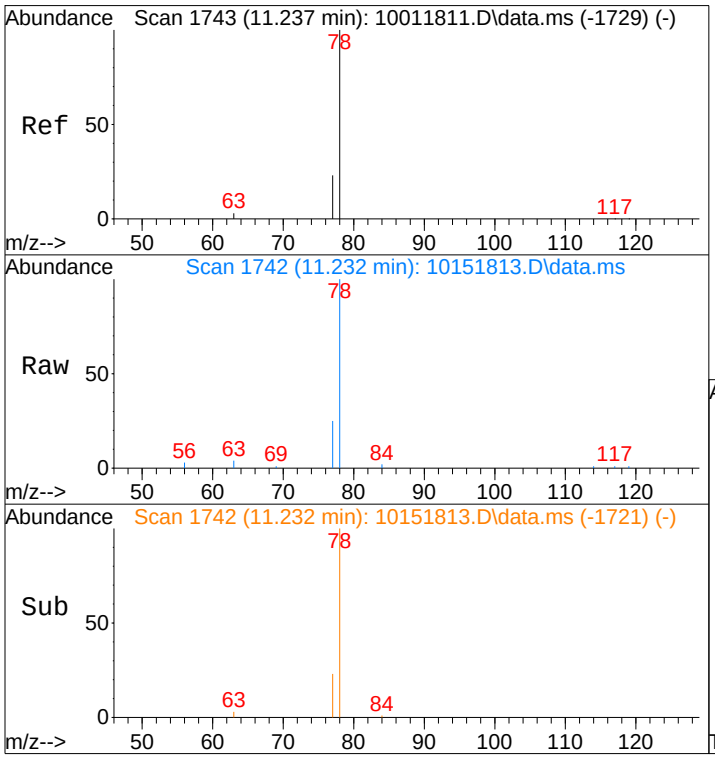


#21
1,2-Dichloroethane
Concen: 30.77 pg
RT: 10.50 min Scan# 1544
Delta R.T. -0.034 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 62 Resp: 730

Ion	Ratio	Lower	Upper
62	100		
64	32.9	12.9	52.9

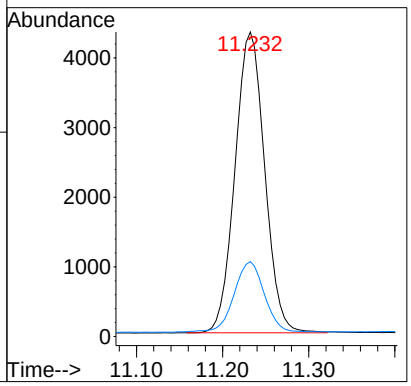


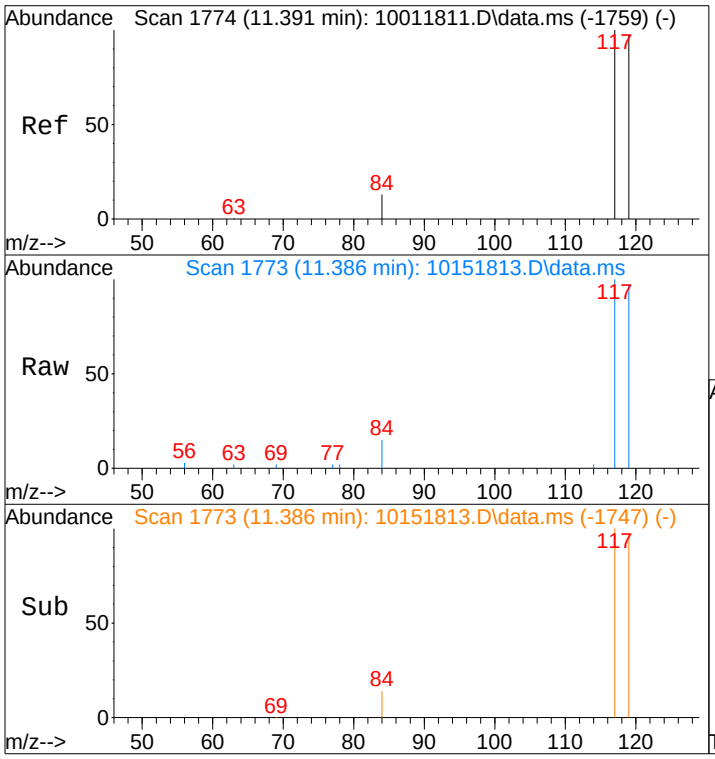


#23
Benzene
Concen: 107.51 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 78 Resp: 10360

Ion	Ratio	Lower	Upper
78	100		
77	23.9	3.3	43.3

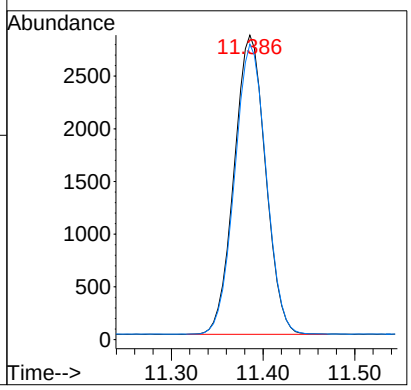


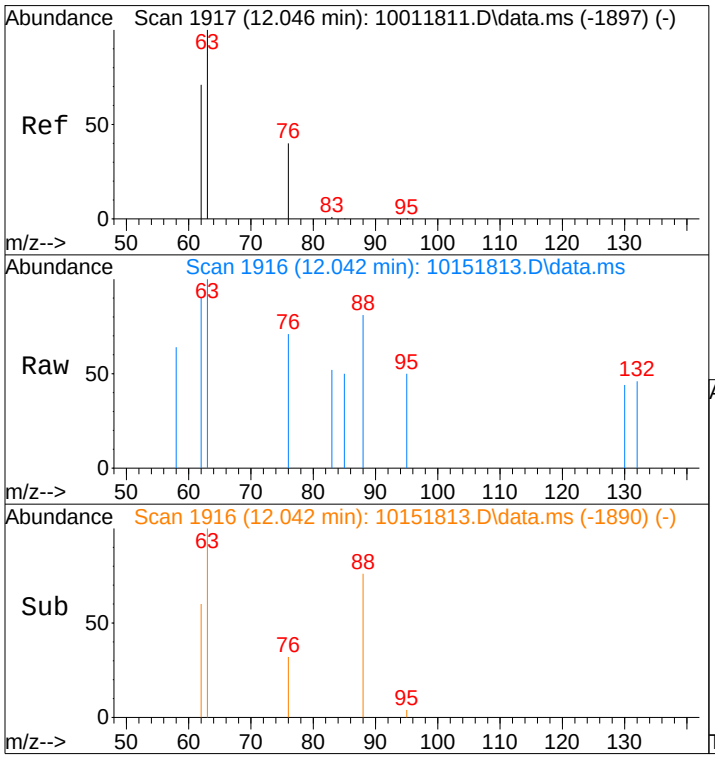


#24
Carbon Tetrachloride
Concen: 227.46 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:117 Resp: 6755

Ion	Ratio	Lower	Upper
117	100		
119	97.0	76.7	116.7

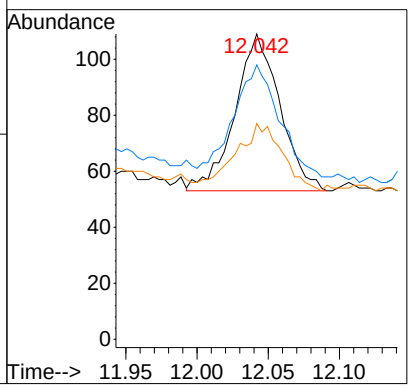


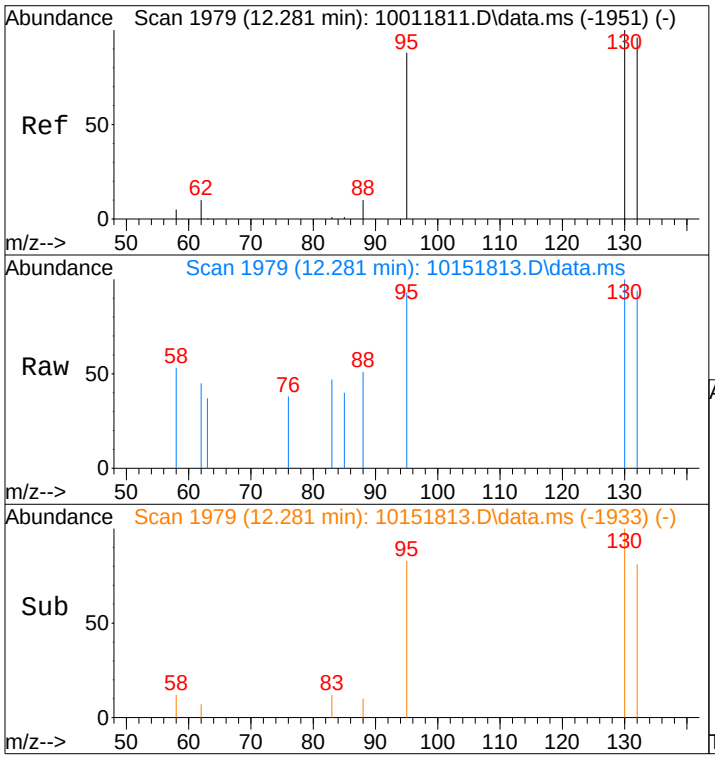


#26
1,2-Dichloropropane
Concen: 5.77 pg
RT: 12.04 min Scan# 1916
Delta R.T. -0.022 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 63 Resp: 123

Ion	Ratio	Lower	Upper
63	100		
62	73.2	50.7	90.7
76	0.0	19.6	59.6#

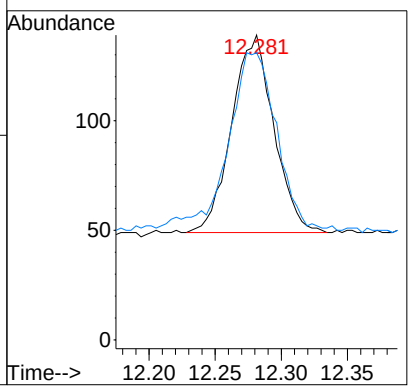


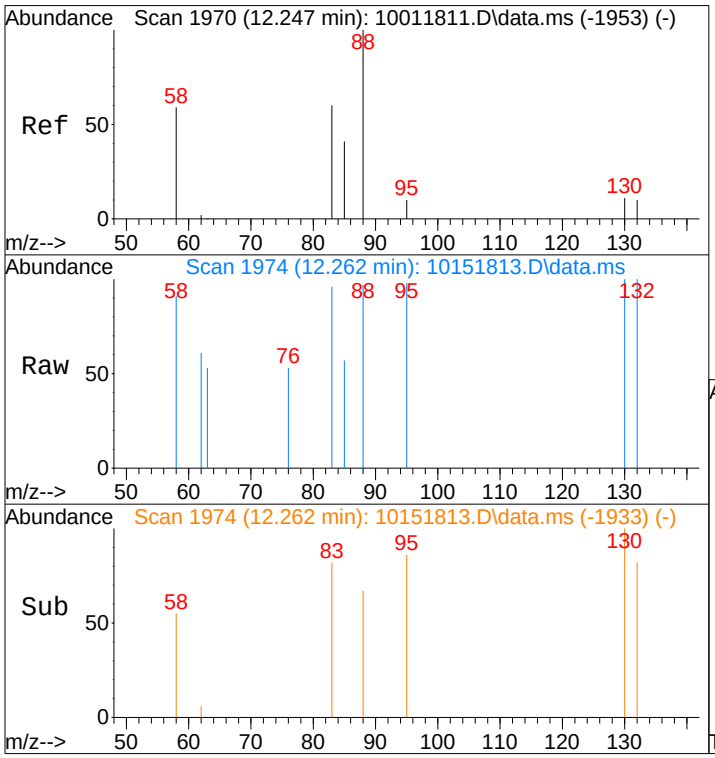


#28
Trichloroethene
Concen: 7.44 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.015 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:130 Resp: 199

Ion	Ratio	Lower	Upper
130	100		
132	92.0	75.6	115.6

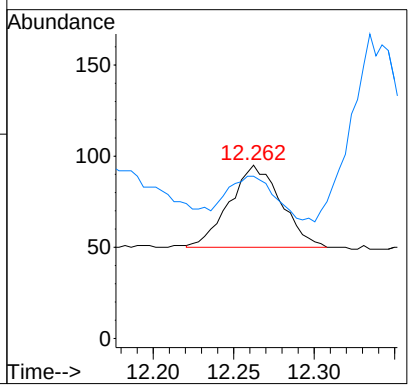


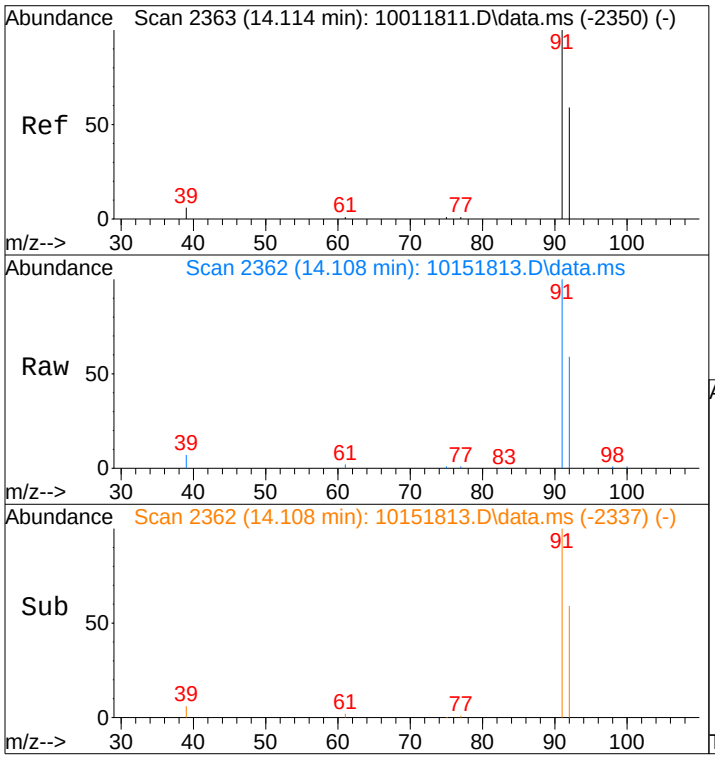


#29
1,4-Dioxane
Concen: 5.47 pg
RT: 12.26 min Scan# 1974
Delta R.T. 0.004 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 88 Resp: 100

Ion	Ratio	Lower	Upper
88	100		
58	246.0	39.2	79.2#

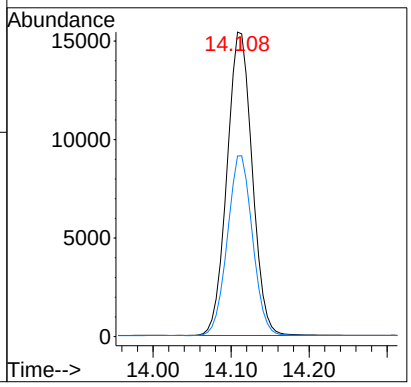


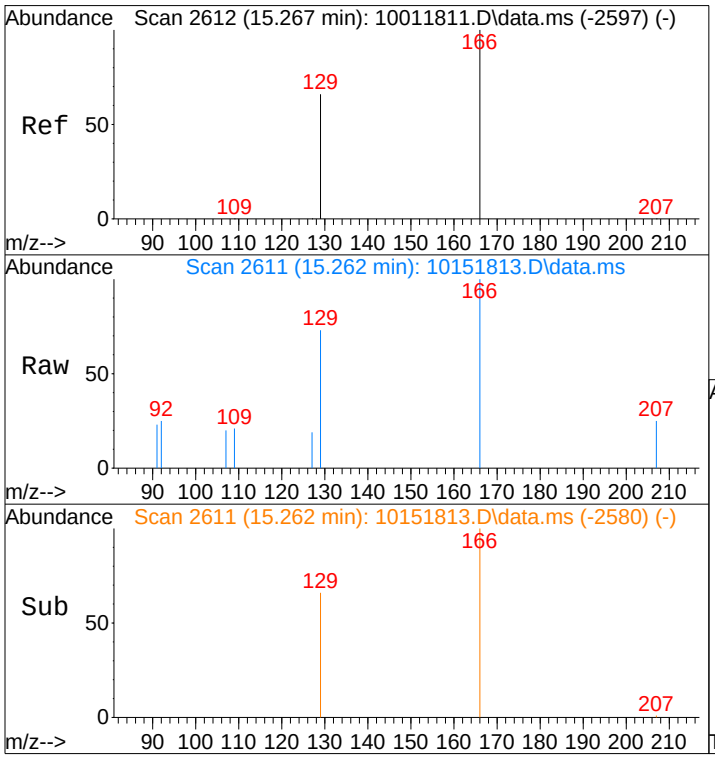


#34
Toluene
Concen: 353.96 pg
RT: 14.11 min Scan# 2362
Delta R.T. -0.016 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 91 Resp: 34593

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

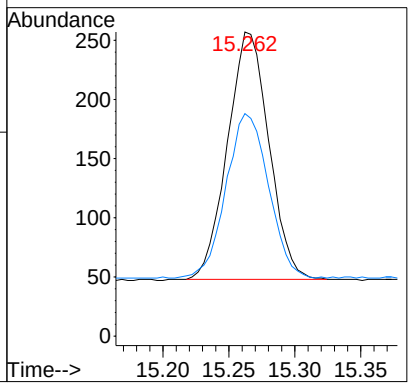


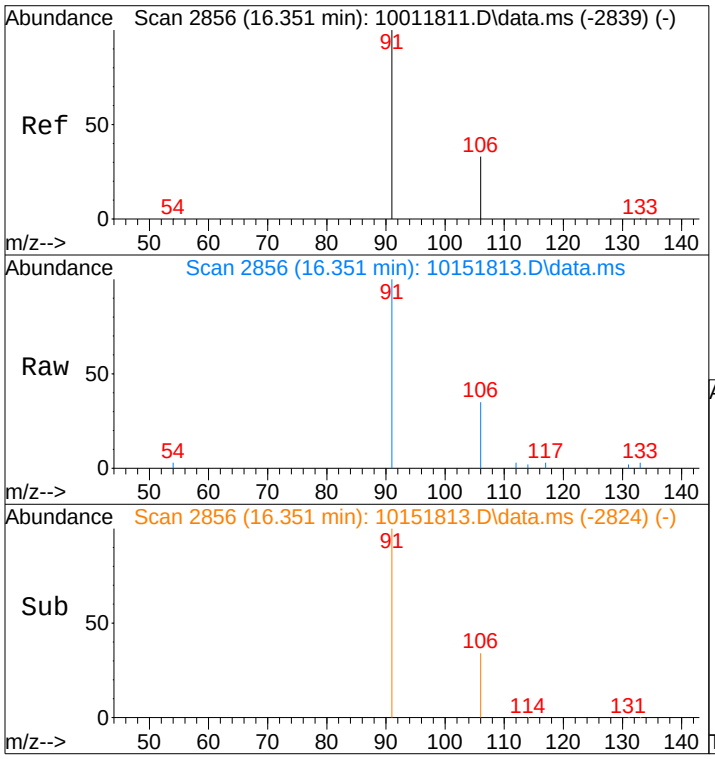


#37
Tetrachloroethene
Concen: 15.86 pg
RT: 15.26 min Scan# 2611
Delta R.T. -0.012 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:166 Resp: 456

Ion	Ratio	Lower	Upper
166	100		
129	68.2	46.7	86.7

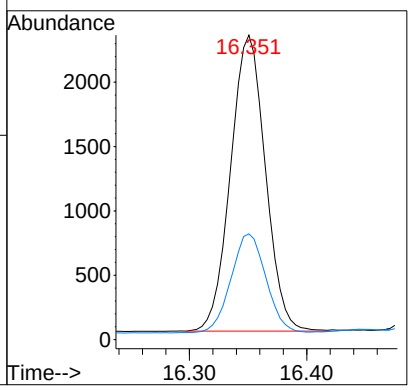


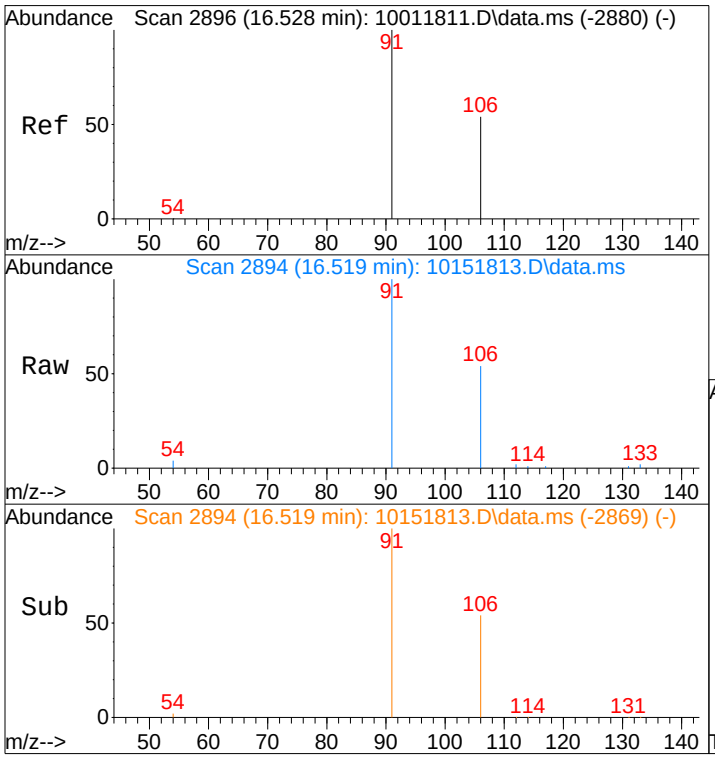


#40
Ethylbenzene
Concen: 43.64 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.007 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 91 Resp: 4742

Ion	Ratio	Lower	Upper
91	100		
106	33.4	13.7	53.7

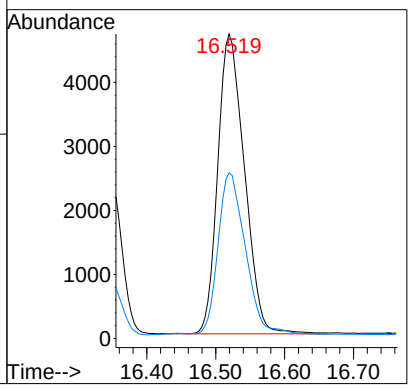


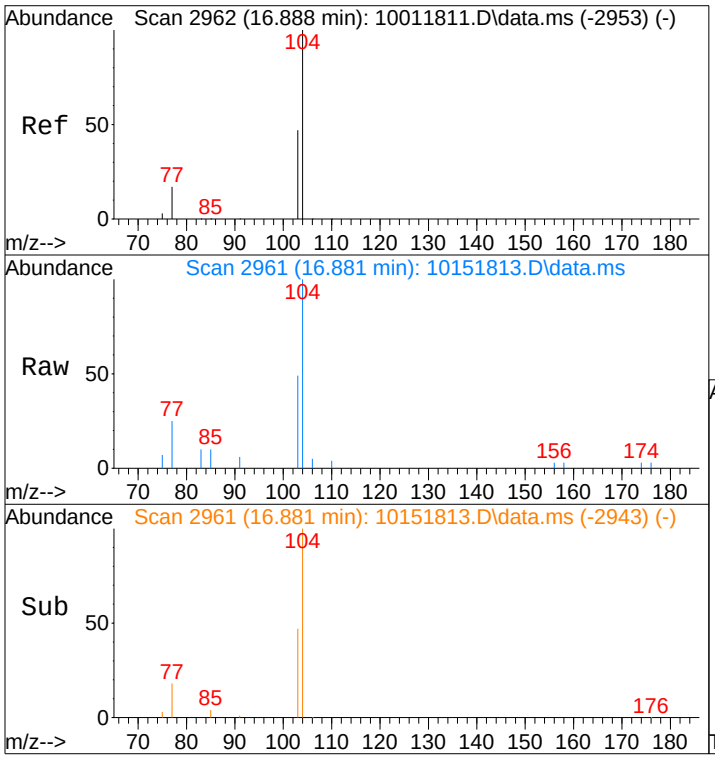


#41
m,p-Xylene
Concen: 151.62 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion: 91 Resp: 12597

Ion	Ratio	Lower	Upper
91	100		
106	54.8	34.3	74.3

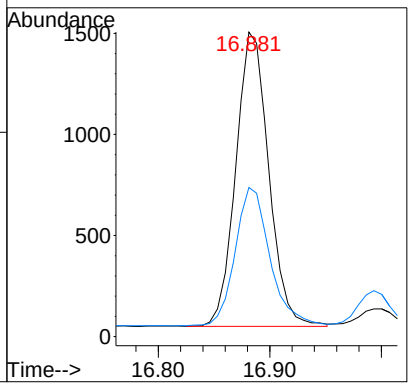


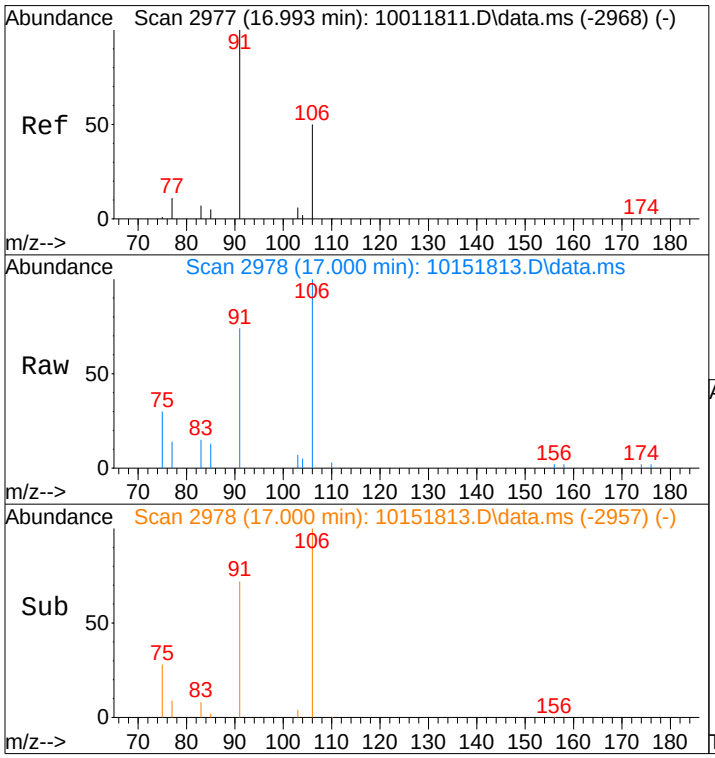


#42
Styrene
Concen: 45.25 pg
RT: 16.88 min Scan# 2961
Delta R.T. -0.012 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:104 Resp: 2986

Ion	Ratio	Lower	Upper
104	100		
103	49.9	37.7	56.5

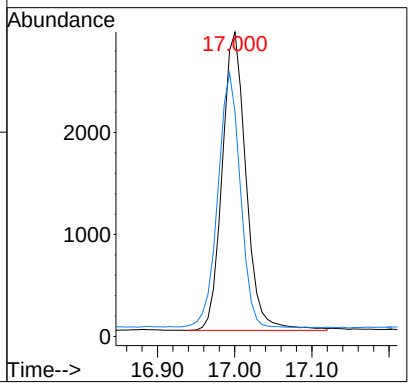


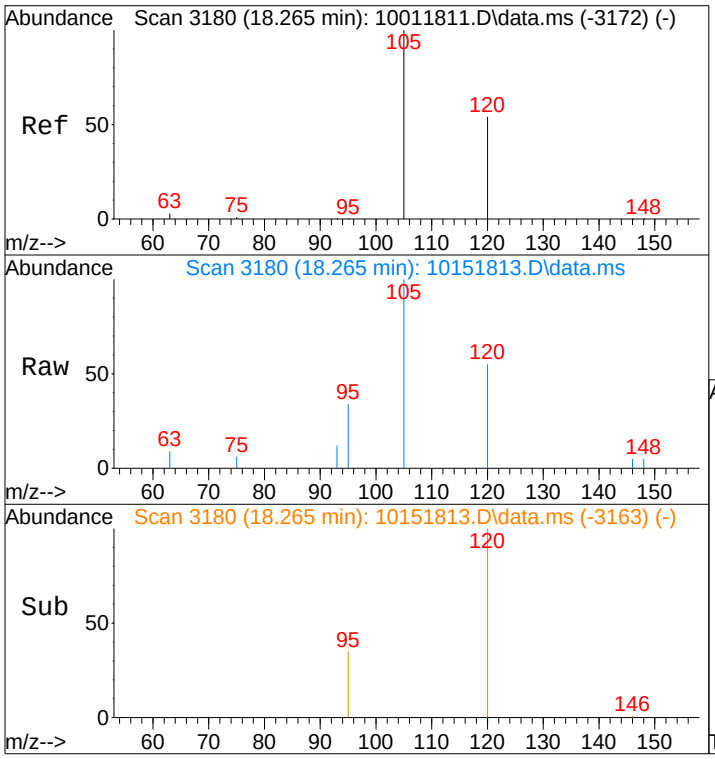


#43
o-Xylene
Concen: 142.50 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.005 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:106 Resp: 6294

Ion	Ratio	Lower	Upper
106	100		
91	80.6	175.6	215.6#

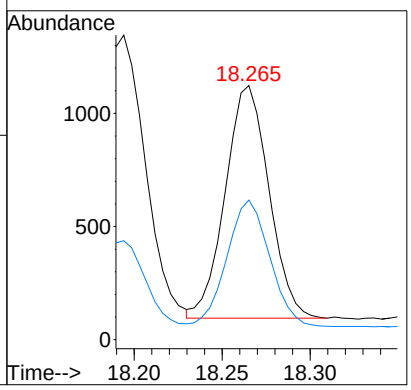


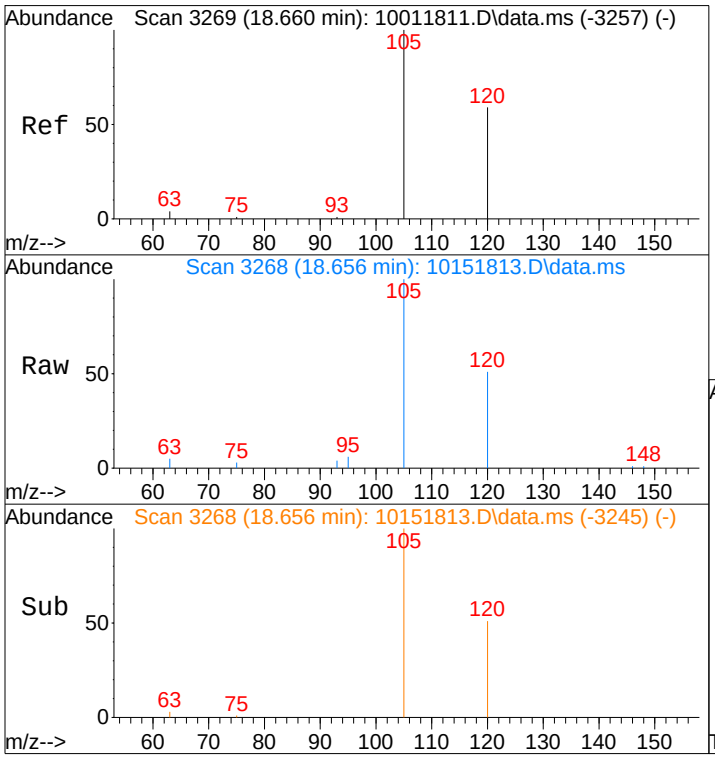


#46
1,3,5-Trimethylbenzene
Concen: 19.11 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.005 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:105 Resp: 1775

Ion	Ratio	Lower	Upper
105	100		
120	53.4	42.8	64.2

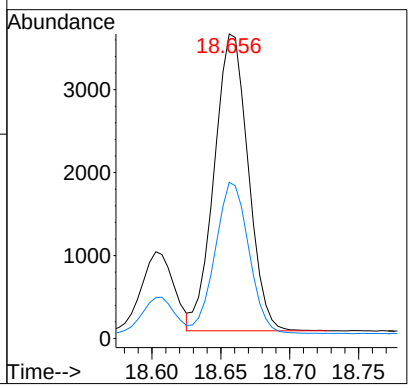


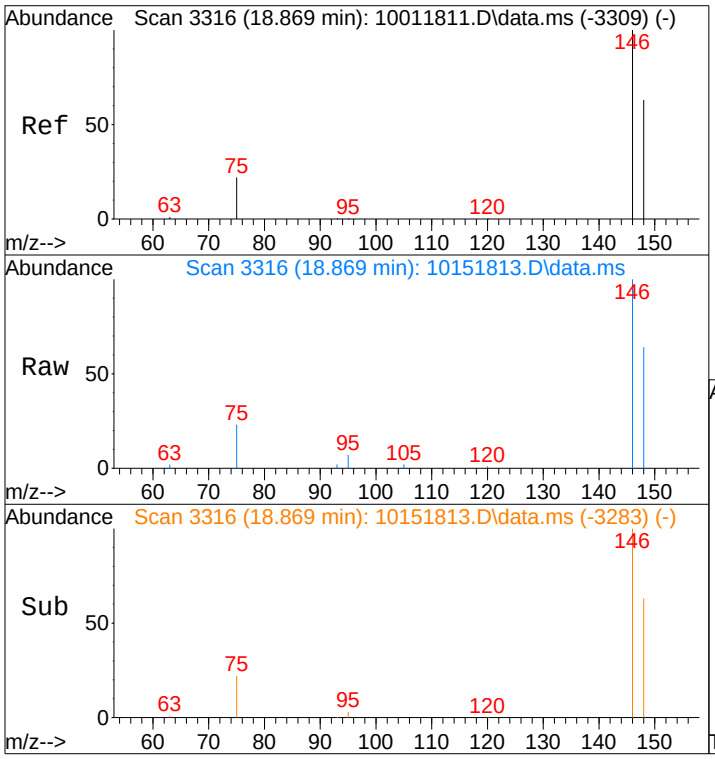


#47
1,2,4-Trimethylbenzene
Concen: 66.21 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.010 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:105 Resp: 6136

Ion	Ratio	Lower	Upper
105	100		
120	50.5	47.1	70.7

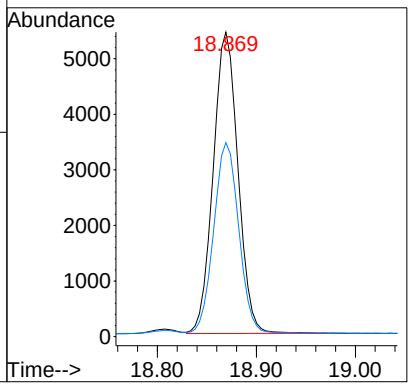


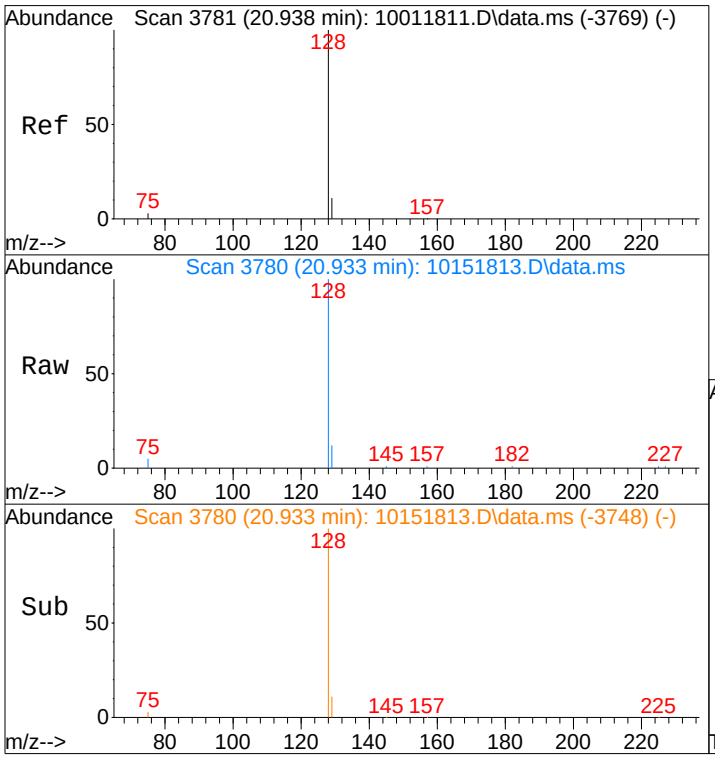


#49
1,4-Dichlorobenzene
Concen: 155.03 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.005 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:146 Resp: 9426

Ion	Ratio	Lower	Upper
146	100		
148	63.3	43.8	83.8

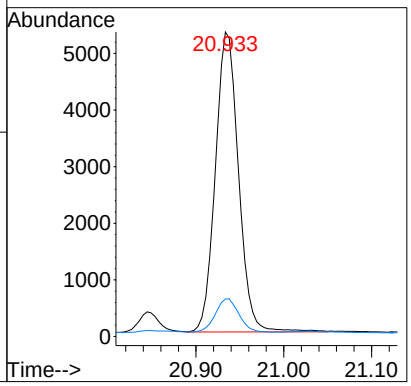




#53
Naphthalene
Concen: 89.65 pg
RT: 20.93 min Scan# 3780
Delta R.T. -0.005 min
Lab File: 10151813.D
Acq: 15 Oct 2018 16:58

Tgt Ion:128 Resp: 9718

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151805.D Vial: 2
Acq On : 15 Oct 2018 11:37 Operator: WA
Sample : MB S19101518_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 15 14:34:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/15/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18004	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	76738	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10142	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21240	985.535	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.55%				
33) Toluene-d8 (SS2)	14.01	98	82788	1046.150	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.62%				
45) Bromofluorobenzene (SS3)	17.43	174	29786	1039.356	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.94%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.			
3) Chloromethane	4.55	52	53	5.908	pg	#	75
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.36	94	121	6.914	pg		96
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	6.15	56	280	26.575	pg		87
10) Acetone	6.29	58	4538	339.735	pg		100
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	56	2.518	pg		96
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	520	13.981	pg		98
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.23	78	1022	10.938	pg		98
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	480	5.478	pg		97
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	125	1.337	pg		85
41) m,p-Xylene	16.54	91	278	3.889	pg		97
42) Styrene	16.90	104	90	1.585	pg	#	30
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.66	105	98	1.229	pg	#	21
48) 1,3-Dichlorobenzene	18.81	146	88	1.689	pg		97
49) 1,4-Dichlorobenzene	18.87	146	114	2.179	pg		95
50) 1,2-Dichlorobenzene	19.20	146	80	1.600	pg		98
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	160	5.406	pg	#	46
53) Naphthalene	20.94	128	528	5.660	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151805.D Vial: 2
Acq On : 15 Oct 2018 11:37 Operator: WA
Sample : MB S19101518_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 15 14:34:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

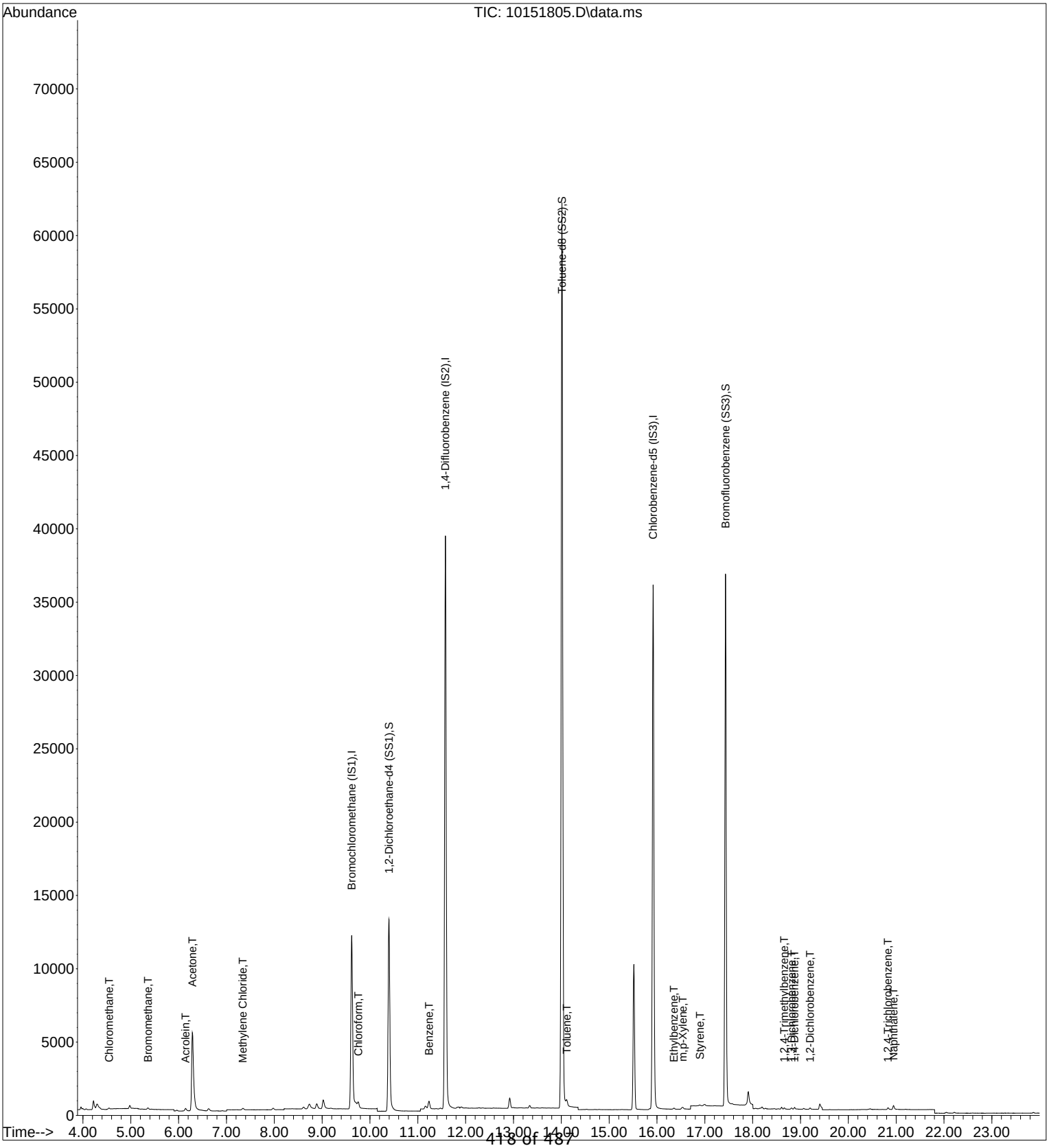
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151805.D Vial: 2
Acq On : 15 Oct 2018 11:37 Operator: WA
Sample : MB S19101518_1000mL Inst : MS19
Misc : S31-09241806_AS01329

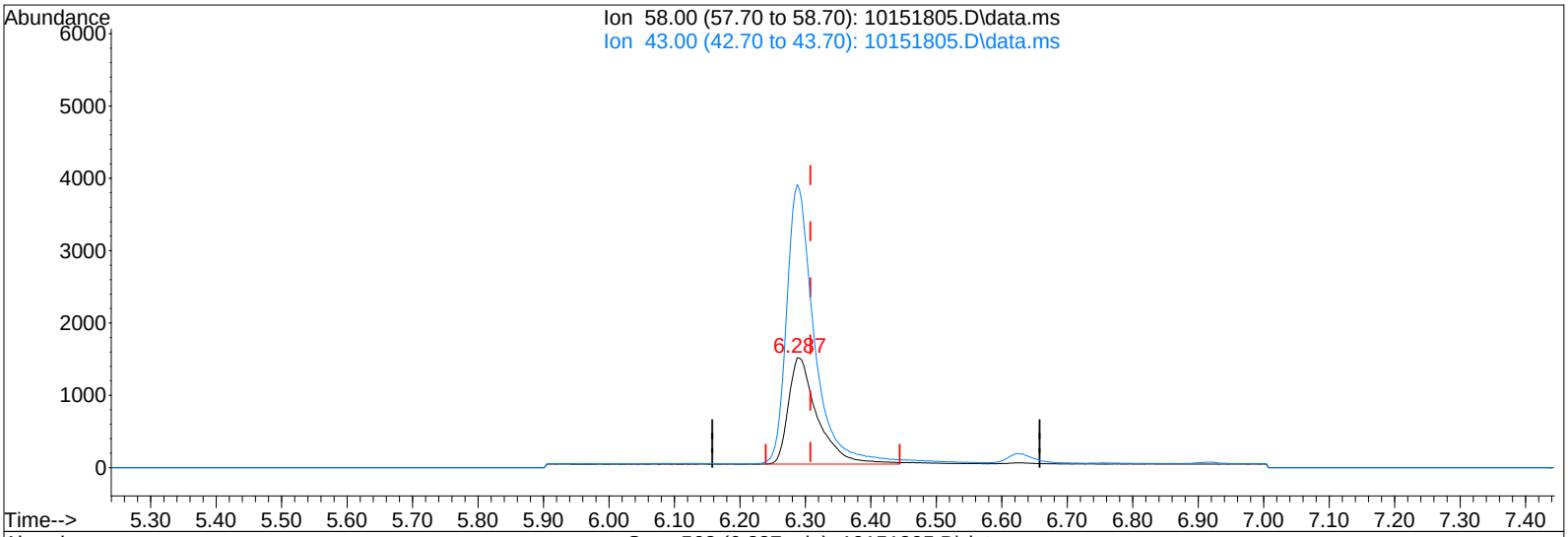
Quant Time: Oct 15 14:34:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

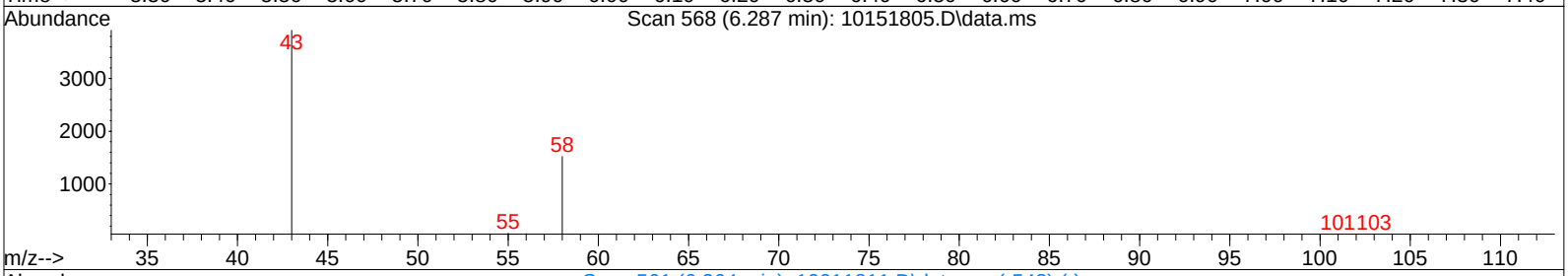


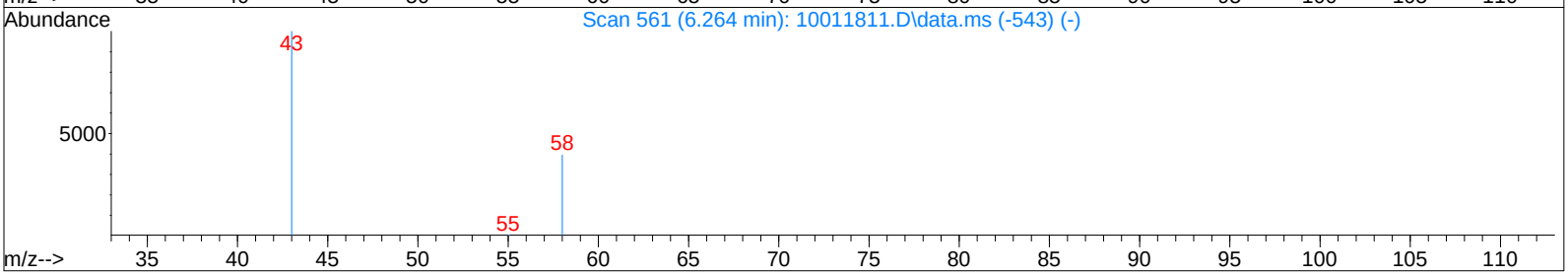
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\15\10151805.D Vial: 2
Acq On : 15 Oct 2018 11:37 Operator: WA
Sample : MB S19101518_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 15 14:33:41 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10151805.D\data.ms

(10) Acetone (T)

6.287min (-0.021) 339.73pg

response 4538

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	254.56
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151806.D Vial: 2
Acq On : 15 Oct 2018 12:19 Operator: WA
Sample : LCS S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:11:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/15/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19169	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	87279	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10975	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	22181	966.648	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.67%				
33) Toluene-d8 (SS2)	14.01	98	89993	999.852	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.98%				
45) Bromofluorobenzene (SS3)	17.43	174	33930	1094.096	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.41%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	40468	990.784	pg		100
3) Chloromethane	4.51	52	9169	960.035	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	26698	906.779	pg		100
5) Vinyl Chloride	4.82	62	26021	981.085	pg		99
6) 1,3-Butadiene	5.01	54	17432	869.419	pg		99
7) Bromomethane	5.33	94	17509	939.682	pg		100
8) Chloroethane	5.55	64	13296	958.112	pg		100
9) Acrolein	6.12	56	10472	933.515	pg		99
10) Acetone	6.26	58	70904	4985.581	pg	#	86
11) Trichlorofluoromethane	6.48	101	31207	976.970	pg		100
12) 1,1-Dichloroethene	7.20	96	25726	1138.072	pg		99
13) Methylene Chloride	7.33	84	23339	985.623	pg		99
14) Trichlorotrifluoroethane	7.66	151	21759	971.930	pg		100
15) trans-1,2-Dichloroethene	8.37	96	24004	1020.651	pg		100
16) 1,1-Dichloroethane	8.58	63	36256	987.739	pg		100
17) Methyl tert-Butyl Ether	8.65	73	62479	1005.200	pg		100
18) cis-1,2-Dichloroethene	9.45	96	25218	1007.443	pg		100
19) Chloroform	9.75	83	38443	970.794	pg		100
21) 1,2-Dichloroethane	10.50	62	24416	996.857	pg		100
22) 1,1,1-Trichloroethane	10.78	97	33455	996.040	pg		100
23) Benzene	11.23	78	99578	1000.946	pg		100
24) Carbon Tetrachloride	11.38	117	30962	1009.911	pg		100
26) 1,2-Dichloropropane	12.04	63	21990	1011.558	pg		100
27) Bromodichloromethane	12.22	83	29611	1026.158	pg		100
28) Trichloroethene	12.28	130	28750	1054.222	pg		100
29) 1,4-Dioxane	12.25	88	19799	1061.174	pg		99
30) cis-1,3-Dichloropropene	13.12	75	34458	1015.418	pg		100
31) trans-1,3-Dichloropropene	13.63	75	29396	1029.114	pg		100
32) 1,1,2-Trichloroethane	13.81	83	19421	1024.684	pg		100
34) Toluene	14.11	91	99936	1002.816	pg		100
35) Dibromochloromethane	14.52	129	27445	1028.022	pg		100
36) 1,2-Dibromoethane	14.78	107	26387	1031.787	pg		100
37) Tetrachloroethene	15.26	166	30093	1026.164	pg		100
39) Chlorobenzene	15.96	112	69876	1051.639	pg		100
40) Ethylbenzene	16.35	91	110491	1092.010	pg		100
41) m,p-Xylene	16.53	91	170175	2199.681	pg		100
42) Styrene	16.89	104	68419	1113.418	pg		100
43) o-Xylene	16.99	106	44946	1092.774	pg		100
44) 1,1,2,2-Tetrachloroethane	16.96	83	39829	1009.192	pg		100
46) 1,3,5-Trimethylbenzene	18.27	105	96882	1119.941	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	98062	1136.328	pg		100
48) 1,3-Dichlorobenzene	18.81	146	60700	1076.660	pg		100
49) 1,4-Dichlorobenzene	18.87	146	59668	1053.891	pg		100
50) 1,2-Dichlorobenzene	19.19	146	59351	1097.000	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	20686	1108.849	pg		99
52) 1,2,4-Trichlorobenzene	20.82	182	37511	1171.179	pg		100
53) Naphthalene	20.93	128	115054	1139.829	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151806.D Vial: 2
Acq On : 15 Oct 2018 12:19 Operator: WA
Sample : LCS S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:11:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

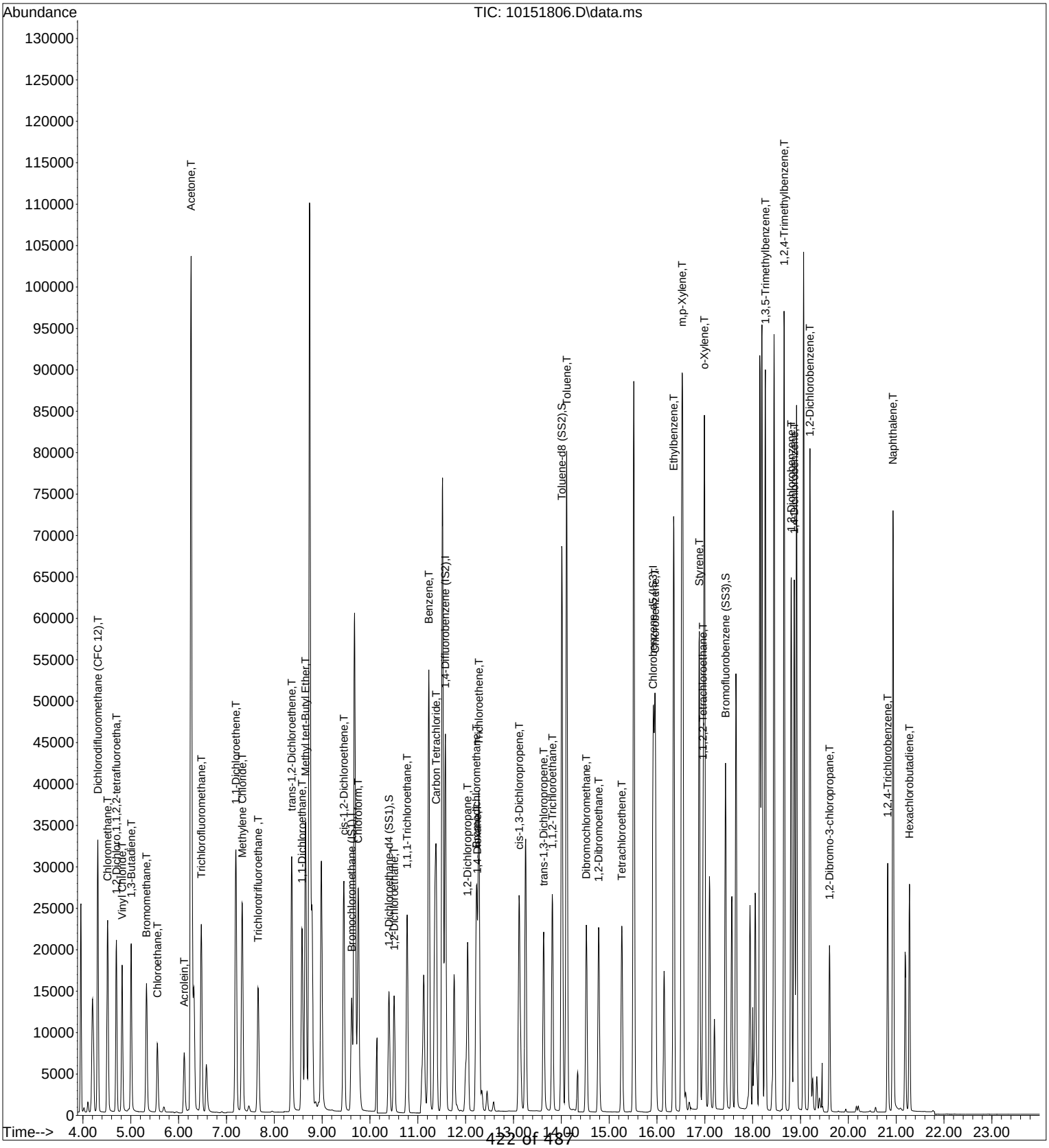
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	26049	1106.769	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151806.D Vial: 2
Acq On : 15 Oct 2018 12:19 Operator: WA
Sample : LCS S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:11:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151807.D Vial: 2
Acq On : 15 Oct 2018 12:51 Operator: WA
Sample : LCSD S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:38:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/15/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19384	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	88119	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11029	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	22452	967.605	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.76%				
33) Toluene-d8 (SS2)	14.01	98	90873	1000.005	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.00%				
45) Bromofluorobenzene (SS3)	17.43	174	34582	1109.660	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.97%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	40527	981.223	pg		100
3) Chloromethane	4.52	52	9134	945.763	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	26867	902.398	pg		100
5) Vinyl Chloride	4.82	62	26303	980.717	pg		100
6) 1,3-Butadiene	5.01	54	17182	847.446	pg		99
7) Bromomethane	5.33	94	17587	933.400	pg		100
8) Chloroethane	5.56	64	13376	953.185	pg		100
9) Acrolein	6.12	56	10425	919.017	pg		99
10) Acetone	6.26	58	70772	4921.105	pg	#	84
11) Trichlorofluoromethane	6.48	101	31422	972.790	pg		100
12) 1,1-Dichloroethene	7.20	96	25940	1134.811	pg		99
13) Methylene Chloride	7.33	84	23396	977.071	pg		99
14) Trichlorotrifluoroethane	7.67	151	22121	977.140	pg		100
15) trans-1,2-Dichloroethene	8.37	96	24089	1012.904	pg		100
16) 1,1-Dichloroethane	8.58	63	36382	980.178	pg		100
17) Methyl tert-Butyl Ether	8.65	73	62863	1000.161	pg		100
18) cis-1,2-Dichloroethene	9.46	96	25202	995.636	pg		100
19) Chloroform	9.76	83	37919	946.941	pg		100
21) 1,2-Dichloroethane	10.51	62	24285	980.511	pg		100
22) 1,1,1-Trichloroethane	10.78	97	33426	984.138	pg		100
23) Benzene	11.23	78	95513	949.437	pg		100
24) Carbon Tetrachloride	11.39	117	30817	994.032	pg		100
26) 1,2-Dichloropropane	12.04	63	21964	1000.731	pg		100
27) Bromodichloromethane	12.22	83	29392	1008.859	pg		100
28) Trichloroethene	12.28	130	28493	1034.838	pg		100
29) 1,4-Dioxane	12.24	88	19759	1048.935	pg		99
30) cis-1,3-Dichloropropene	13.12	75	34286	1000.718	pg		100
31) trans-1,3-Dichloropropene	13.63	75	29314	1016.461	pg		100
32) 1,1,2-Trichloroethane	13.81	83	19350	1011.205	pg		100
34) Toluene	14.11	91	99573	989.649	pg		100
35) Dibromochloromethane	14.52	129	27044	1003.345	pg		100
36) 1,2-Dibromoethane	14.78	107	26211	1015.135	pg		100
37) Tetrachloroethene	15.27	166	30050	1014.929	pg		99
39) Chlorobenzene	15.96	112	68875	1031.499	pg		100
40) Ethylbenzene	16.35	91	109523	1077.143	pg		100
41) m,p-Xylene	16.53	91	168562	2168.164	pg		100
42) Styrene	16.89	104	67484	1092.825	pg		100
43) o-Xylene	16.99	106	44728	1082.150	pg		100
44) 1,1,2,2-Tetrachloroethane	16.96	83	40003	1008.638	pg		100
46) 1,3,5-Trimethylbenzene	18.26	105	96184	1106.429	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	96999	1118.506	pg		100
48) 1,3-Dichlorobenzene	18.80	146	60334	1064.928	pg		100
49) 1,4-Dichlorobenzene	18.87	146	58940	1035.935	pg		100
50) 1,2-Dichlorobenzene	19.20	146	58862	1082.635	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	20559	1096.645	pg		98
52) 1,2,4-Trichlorobenzene	20.82	182	37082	1152.116	pg		100
53) Naphthalene	20.94	128	114257	1126.391	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151807.D Vial: 2
Acq On : 15 Oct 2018 12:51 Operator: WA
Sample : LCSD S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:38:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

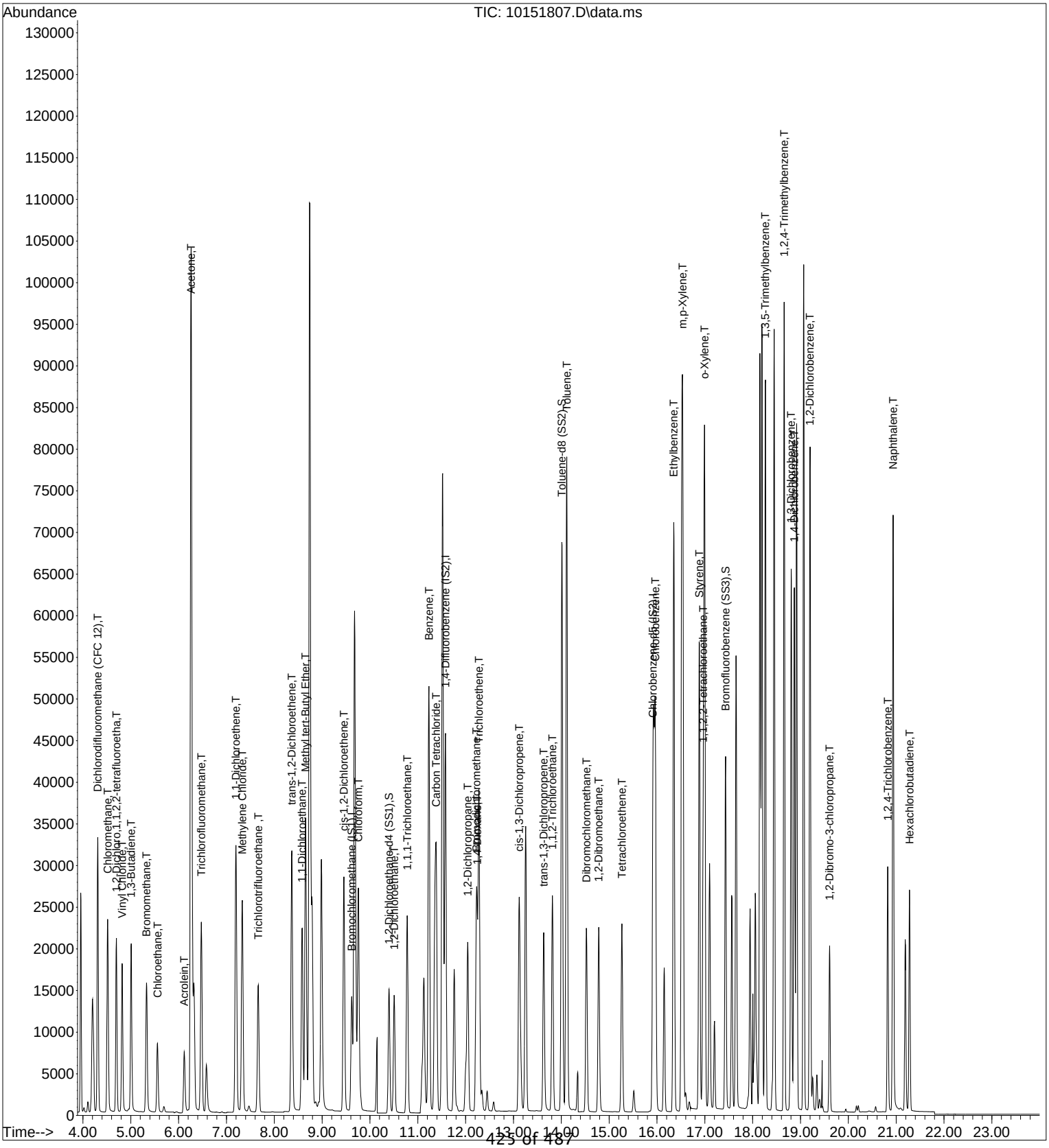
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	25596	1082.197	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151807.D Vial: 2
Acq On : 15 Oct 2018 12:51 Operator: WA
Sample : LCSD S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 15 13:38:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018
Response Via : Initial Calibration

Calibration Files
20 =10011807.D 50 =10011808.D 100 =10011809.D 500 =10011810.D 1000=10011811.D 2000=10011812.D 5000=10011813.D
10K =10011814.D 25K =10011815.D 50K =10011816.D

		Compound	20	50	100	500	1000	2000	5000	10K	25K	50K	Avg	%RSD	
1)	I	Bromochloromethane...	----------	ISTD	----------										
2)	T	Dichlorodifluo...	2.473	2.247	2.130	2.080	2.439	2.198	1.952	1.896	2.033	1.858	2.131	9.94	
3)	T	Chloromethane	0.600	0.542	0.492	0.397	0.562	0.507	0.452	0.440	0.514	0.477	0.498	12.16	
4)	T	1,2-Dichloro,1...	1.777	1.607	1.518	1.477	1.732	1.565	1.396	1.355	1.486	1.446	1.536	8.92	
5)	T	Vinyl Chloride	1.557	1.431	1.353	1.333	1.559	1.420	1.266	1.248	1.379	1.289	1.384	7.95	
6)	T	1,3-Butadiene	1.161	0.966	0.920	0.864	1.240	1.071	0.924	0.899	1.240	1.175	1.046	14.18	
7)	T	Bromomethane	1.243	1.026	0.948	0.882	1.073	0.971	0.874	0.852	0.949	0.903	0.972	12.11	
8)	T	Chloroethane	0.828	0.740	0.705	0.688	0.809	0.735	0.663	0.653	0.728	0.689	0.724	7.99	
9)	T	Acrolein	0.784	0.634	0.563	0.570	0.609	0.572	0.520	0.511	0.558	0.531	0.585	13.57	
10)	T	Acetone			0.943	0.764	0.807	0.732	0.659	0.637	0.650		0.742	14.74	
11)	T	Trichlorofluor...	1.912	1.712	1.618	1.580	1.869	1.697	1.559	1.525	1.659	1.532	1.666	8.10	
12)	T	1,1-Dichloroet...	1.295	1.147	1.099	1.105	1.323	1.233	1.125	1.110	1.222	1.132	1.179	7.04	
13)	T	Methylene Chlo...	1.438	1.256	1.188	1.166	1.372	1.259	1.150	1.133	1.240	1.151	1.235	8.23	
14)	T	Trichlorotrifl...	1.358	1.251	1.095	0.981	1.364	1.244	1.079	1.007	1.195	1.106	1.168	11.63	
15)	T	trans-1,2-Dich...	1.316	1.183	1.150	1.153	1.373	1.273	1.176	1.170	1.283	1.191	1.227	6.37	
16)	T	1,1-Dichloroet...	2.134	1.927	1.818	1.770	2.172	1.989	1.801	1.782	1.960	1.796	1.915	7.72	
17)	T	Methyl tert-Bu...	3.208	2.921	2.818	2.989	3.716	3.469	3.234	3.222	3.560	3.288	3.243	8.77	
18)	T	cis-1,2-Dichlo...	1.367	1.246	1.206	1.230	1.479	1.372	1.271	1.255	1.369	1.263	1.306	6.60	
19)	T	Chloroform		2.744	2.130	1.901	2.238	2.051	1.862	1.830	1.998	1.838	2.066	14.06	
20)	S	1,2-Dichloroet...	1.189	1.195	1.209	1.219	1.187	1.196	1.195	1.203	1.188	1.190	1.197	0.86	
21)	T	1,2-Dichloroet...	1.355	1.255	1.218	1.231	1.455	1.342	1.226	1.205	1.299	1.192	1.278	6.57	
22)	T	1,1,1-Trichlor...	1.924	1.750	1.667	1.669	1.987	1.814	1.659	1.635	1.780	1.638	1.752	7.10	
23)	T	Benzene	7.432	5.606	4.900	4.761	5.550	5.114	4.625	4.523	4.896	4.490	5.190	16.92	
24)	T	Carbon Tetrach...	1.750	1.595	1.497	1.498	1.808	1.663	1.521	1.499	1.645	1.518	1.599	7.10	
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------										
26)	T	1,2-Dichloropr...	0.287	0.253	0.240	0.231	0.281	0.257	0.236	0.230	0.248	0.227	0.249	8.45	
27)	T	Bromodichlorom...	0.370	0.337	0.316	0.305	0.371	0.342	0.315	0.307	0.335	0.307	0.331	7.54	
28)	T	Trichloroethene	0.355	0.314	0.297	0.290	0.353	0.324	0.296	0.287	0.316	0.293	0.312	7.99	
29)	T	1,4-Dioxane	0.224	0.199	0.191	0.196	0.247	0.229	0.213	0.207	0.223	0.210	0.214	7.97	
30)	T	cis-1,3-Dichlo...	0.399	0.355	0.344	0.357	0.440	0.414	0.391	0.385	0.418	0.384	0.389	7.82	
31)	T	trans-1,3-Dich...	0.295	0.282	0.271	0.301	0.370	0.354	0.340	0.339	0.373	0.347	0.327	11.31	
32)	T	1,1,2-Trichlor...	0.242	0.221	0.209	0.203	0.246	0.226	0.206	0.200	0.218	0.201	0.217	7.70	
33)	S	Toluene-d8 (SS2)	1.055	1.042	1.035	1.031	1.020	1.019	1.025	1.029	1.027	1.030	1.031	1.03	
34)	T	Toluene	1.377	1.171	1.091	1.064	1.272	1.170	1.077	1.044	1.129	1.024	1.142	9.69	
35)	T	Dibromochlorom...	0.338	0.299	0.284	0.281	0.343	0.320	0.296	0.289	0.317	0.293	0.306	7.26	
36)	T	1,2-Dibromoethane	0.317	0.285	0.273	0.275	0.329	0.307	0.283	0.278	0.302	0.280	0.293	6.65	
37)	T	Tetrachloroethene	0.389	0.352	0.329	0.316	0.377	0.345	0.313	0.303	0.330	0.304	0.336	8.87	
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------										
39)	T	Chlorobenzene	7.143	6.485	6.096	5.893	7.105	6.497	5.856	5.507	5.484	4.475	6.054	13.33	
40)	T	Ethylbenzene	0.961	0.874	0.833	0.892	1.114	1.045	0.963	0.909	0.902	0.726	0.922	E1	11.72
41)	T	m,p-Xylene	7.148	6.339	6.157	6.958	8.758	8.115	7.393	6.946	6.863	5.815	7.049		12.57

10/2/18

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Method Path : I:\MS19\METHODS\
Method File : S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	4.809	4.551	4.583	5.588	6.858	6.566	6.164	5.868	6.074	4.930	5.599	14.99
43)	T	o-Xylene	3.672	3.480	3.417	3.747	4.661	4.297	3.905	3.659	3.662	2.977	3.748	12.44
44)	T	1,1,2,2-Tetrac...	4.035	3.702	3.522	3.523	4.327	3.981	3.583	3.359	3.279	2.650	3.596	12.94
45)	S	Bromofluoroben...	2.852	2.867	2.904	3.004	3.011	2.992	2.971	2.843	2.557	2.255	2.826	8.51
46)	T	1,3,5-Trimethy...	0.712	0.699	0.706	0.792	1.008	0.922	0.839	0.788	0.787	0.629	0.788	E1 14.32
47)	T	1,2,4-Trimethy...	0.694	0.691	0.704	0.800	1.015	0.937	0.847	0.791	0.776	0.608	0.786	E1 15.58
48)	T	1,3-Dichlorobe...	5.469	5.156	4.996	5.127	6.210	5.722	5.138	4.806	4.807	3.938	5.137	11.75
49)	T	1,4-Dichlorobe...	5.534	5.296	5.083	5.118	6.178	5.636	5.106	4.803	4.823	4.010	5.159	11.18
50)	T	1,2-Dichlorobe...	5.355	4.983	4.834	4.861	5.998	5.503	4.940	4.614	4.511	3.698	4.930	12.58
51)	T	1,2-Dibromo-3-...	1.549	1.547	1.549	1.680	2.055	1.980	1.829	1.731	1.674	1.406	1.700	12.06
52)	T	1,2,4-Trichlor...	2.814	2.746	2.593	2.776	3.010	3.435	3.187	3.017	3.007	2.597	2.918	9.10
53)	T	Naphthalene	0.792	0.780	0.748	0.863	0.930	1.119	1.032	0.973	1.068	0.892	0.920	E1 13.87
54)	T	Hexachlorobuta...	2.386	2.325	2.218	2.163	1.879	2.460	2.217	2.084	1.999	1.714	2.145	10.79

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

10/4/18

0.2ng/L Std. ID:
1ng/L Std. ID: S31-09271803
4ng/L Std. ID:
20ng/L Std. ID: S31-09271802
200ng/L Std. ID: S31-08171802

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	20	20	200	200
		Primary Working Standards					Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.100	0.250	0.500	0.125	0.250
Compounds	Source Std. mg/m³	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	25ng	50ng
Propene	1.031	206.2	20.62	4.124	1.031	0.2062		NA	0.02062	0.05155	0.1031	0.5155	1.031	2.062	5.155	10.31	25.775	51.55
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045	0.2090		NA	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	26.125	52.25
Chloromethane	1.008	201.6	20.16	4.032	1.008	0.2016		NA	0.02016	0.05040	0.1008	0.5040	1.008	2.016	5.040	10.08	25.200	50.40
Freon-114	1.028	205.6	20.56	4.112	1.028	0.2056		NA	0.02056	0.05140	0.1028	0.5140	1.028	2.056	5.140	10.28	25.700	51.40
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051	0.2102		NA	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	26.275	52.55
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049	0.2098		NA	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	26.225	52.45
Bromomethane	1.009	201.8	20.18	4.036	1.009	0.2018		NA	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	25.225	50.45
Chloroethane	1.022	204.4	20.44	4.088	1.022	0.2044		NA	0.02044	0.05110	0.1022	0.5110	1.022	2.044	5.110	10.22	25.550	51.10
Ethanol	5.140	1028.0	102.80	20.560	5.140	1.0280		NA	0.10280	0.25700	0.5140	2.5700	5.140	10.280	25.700	51.40	128.500	257.00
Acetonitrile	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
Acrolein	1.028	205.6	20.56	4.112	1.028	0.2056		NA	0.02056	0.05140	0.1028	0.5140	1.028	2.056	5.140	10.28	25.700	51.40
Acetone	5.370	1074.0	107.40	21.480	5.370	1.0740		NA	0.10740	0.26850	0.5370	2.6850	5.370	10.740	26.850	53.70	134.250	268.50
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
Isopropanol	2.063	412.6	41.26	8.252	2.063	0.4126		NA	0.04126	0.10315	0.2063	1.0315	2.063	4.126	10.315	20.63	51.575	103.15
Acrylonitrile	1.034	206.8	20.68	4.136	1.034	0.2068		NA	0.02068	0.05170	0.1034	0.5170	1.034	2.068	5.170	10.34	25.850	51.70
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
tert-Butanol	2.144	428.8	42.88	8.576	2.144	0.4288		NA	0.04288	0.10720	0.2144	1.0720	2.144	4.288	10.720	21.44	53.600	107.20
Methylene Chloride	1.070	214.0	21.40	4.280	1.070	0.2140		NA	0.02140	0.05350	0.1070	0.5350	1.070	2.140	5.350	10.70	26.750	53.50
Allyl Chloride	1.067	213.4	21.34	4.268	1.067	0.2134		NA	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	26.675	53.35
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065	0.2130		NA	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	26.625	53.25
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075	0.2150		NA	0.02150	0.05375	0.1075	0.5375	1.075	2.150	5.375	10.75	26.875	53.75
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030	0.2060		NA	0.02060	0.05150	0.1030	0.5150	1.030	2.060	5.150	10.30	25.750	51.50
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089	0.2178		NA	0.02178	0.05445	0.1089	0.5445	1.089	2.178	5.445	10.89	27.225	54.45
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252	1.0504		NA	0.10504	0.26260	0.5252	2.6260	5.252	10.504	26.260	52.52	131.300	262.60
2-Butanone	1.027	205.4	20.54	4.108	1.027	0.2054		NA	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	25.675	51.35
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054	0.2108		NA	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	26.350	52.70
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166	0.4332		NA	0.04332	0.10830	0.2166	1.0830	2.166	4.332	10.830	21.66	54.150	108.30
n-Hexane	1.082	216.4	21.64	4.328	1.082	0.2164		NA	0.02164	0.05410	0.1082	0.5410	1.082	2.164	5.410	10.82	27.050	54.10
Chloroform	1.077	215.4	21.54	4.308	1.077	0.2154		NA	0.02154	0.05385	0.1077	0.5385	1.077	2.154	5.385	10.77	26.925	53.85
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066	0.4132		NA	0.04132	0.10330	0.2066	1.0330	2.066	4.132	10.330	20.66	51.650	103.30
1-Butanol	2.067	413.4	41.34	8.268	2.067	0.4134		NA	0.04134	0.10335	0.2067	1.0335	2.067	4.134	10.335	20.67	51.675	103.35
Benzene	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036	0.2072		NA	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	25.900	51.80
Cyclohexane	2.087	417.4	41.74	8.348	2.087	0.4174		NA	0.04174	0.10435	0.2087	1.0435	2.087	4.174	10.435	20.87	52.175	104.35
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073	0.2146		NA	0.02146	0.05365	0.1073	0.5365	1.073	2.146	5.365	10.73	26.825	53.65
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
Trichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Isooctane	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135	0.4270		NA	0.04270	0.10675	0.2135	1.0675	2.135	4.270	10.675	21.35	53.375	106.75
n-Heptane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120	0.2240		NA	0.02240	0.05600	0.1120	0.5600	1.120	2.240	5.600	11.20	28.000	56.00

Date Updated: 08/22/18
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:		20ng/L Std. ID:	S31-09271802			
1ng/L Std. ID:	S31-09271803	200ng/L Std. ID:	S31-08171802			
4ng/L Std. ID:						
Dilution Factors:	5	50	250	1000	5000	

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	20	20	200	200
							Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.100	0.250	0.500	0.125	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	25ng	50ng
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055	0.2110		NA	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	26.375	52.75
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Toluene	1.052	210.4	21.04	4.208	1.052	0.2104		NA	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	26.300	52.60
2-Hexanone	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075	0.2150		NA	0.02150	0.05375	0.1075	0.5375	1.075	2.150	5.375	10.75	26.875	53.75
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085	0.2170		NA	0.02170	0.05425	0.1085	0.5425	1.085	2.170	5.425	10.85	27.125	54.25
n-Octane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058	0.2116		NA	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	26.450	52.90
Chlorobenzene	1.066	213.2	21.32	4.264	1.066	0.2132		NA	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	26.650	53.30
Ethylbenzene	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		NA	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	53.075	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		NA	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	26.575	53.15
Styrene	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
o-Xylene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
n-Nonane	1.071	214.2	21.42	4.284	1.071	0.2142		NA	0.02142	0.05355	0.1071	0.5355	1.071	2.142	5.355	10.71	26.775	53.55
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Cumene	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
alpha-Pinene	1.035	207.0	20.70	4.140	1.035	0.2070		NA	0.02070	0.05175	0.1035	0.5175	1.035	2.070	5.175	10.35	25.875	51.75
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058	0.2116		NA	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	26.450	52.90
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072	0.2144		NA	0.02144	0.05360	0.1072	0.5360	1.072	2.144	5.360	10.72	26.800	53.60
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
n-Decane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051	0.2102		NA	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	26.275	52.55
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080	0.2160		NA	0.02160	0.05400	0.1080	0.5400	1.080	2.160	5.400	10.80	27.000	54.00
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		NA	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	26.575	53.15
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089	0.2178		NA	0.02178	0.05445	0.1089	0.5445	1.089	2.178	5.445	10.89	27.225	54.45
d-Limonene	1.010	202.0	20.20	4.040	1.010	0.2020		NA	0.02020	0.05050	0.1010	0.5050	1.010	2.020	5.050	10.10	25.250	50.50
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
n-Undecane	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Naphthalene	1.025	205.0	20.50	4.100	1.025	0.2050		NA	0.02050	0.05125	0.1025	0.5125	1.025	2.050	5.125	10.25	25.625	51.25
n-Dodecane	1.031	206.2	20.62	4.124	1.031	0.2062		NA	0.02062	0.05155	0.1031	0.5155	1.031	2.062	5.155	10.31	25.775	51.55
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053	0.2106		NA	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	26.325	52.65
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041	0.2082		NA	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	26.025	52.05
Cyclohexanone	0.982	196.4	19.64	3.928	0.982	0.1964		NA	0.01964	0.04910	0.0982	0.4910	0.982	1.964	4.910	9.82	24.550	49.10
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067	0.2134		NA	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	26.675	53.35
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20

Calibration Status Report MS19

Method : I:\MS19\METHODS\S19100118.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
2	20	1000	1000	I:\MS19\DATA\2018_10\01\10011807.D
3	50	1000	1000	I:\MS19\DATA\2018_10\01\10011808.D
4	100	1000	1000	I:\MS19\DATA\2018_10\01\10011809.D
5	500	1000	1000	I:\MS19\DATA\2018_10\01\10011810.D
6	1000	1000	1000	I:\MS19\DATA\2018_10\01\10011811.D
7	2000	1000	1000	I:\MS19\DATA\2018_10\01\10011812.D
8	5000	1000	1000	I:\MS19\DATA\2018_10\01\10011813.D
9	10K	1000	1000	I:\MS19\DATA\2018_10\01\10011814.D
10	25K	1000	1000	I:\MS19\DATA\2018_10\01\10011815.D
11	50K	1000	1000	I:\MS19\DATA\2018_10\01\10011816.D

10/2/18

#	ID	Update Time	Quant Time	Acquisition Time
2	20	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 12:11
3	50	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:09
4	100	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:44
5	500	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:21
6	1000	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:52
7	2000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 15:36
8	5000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:08
9	10K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:39
10	25K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:11
11	50K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:43

S19100118.M Tue Oct 02 09:00:05 2018

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20699	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	88774	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11242	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	24610	924.137	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.41%				
33) Toluene-d8 (SS2)	14.02	98	93636	989.835	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.98%				
45) Bromofluorobenzene (SS3)	17.43	174	32067	1038.075	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.81%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.34	85	1073	25.626	pg		100
3) Chloromethane	4.55	52	250	24.961	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	751	24.924	pg		99
5) Vinyl Chloride	4.85	62	665	23.916	pg		94
6) 1,3-Butadiene	5.04	54	509	25.518	pg	#	72
7) Bromomethane	5.36	94	511	27.857	pg		100
8) Chloroethane	5.59	64	347	24.289	pg		98
9) Acrolein	6.15	56	342	32.266	pg		98
10) Acetone	6.30	58	4028	262.547	pg		96
11) Trichlorofluoromethane	6.50	101	832	25.754	pg		98
12) 1,1-Dichloroethene	7.22	96	569	25.301	pg		98
13) Methylene Chloride	7.34	84	630	26.254	pg		98
14) Trichlorotrifluoroethane	7.67	151	592	27.300	pg		100
15) trans-1,2-Dichloroethene	8.38	96	589	25.118	pg		99
16) 1,1-Dichloroethane	8.58	63	903	23.963	pg		99
17) Methyl tert-Butyl Ether	8.69	73	1421	23.047	pg		99
18) cis-1,2-Dichloroethene	9.46	96	604	24.436	pg		98
19) Chloroform	9.76	83	1443	36.144	pg		99
21) 1,2-Dichloroethane	10.51	62	592	23.286	pg		98
22) 1,1,1-Trichloroethane	10.78	97	858	25.546	pg		100
23) Benzene	11.24	78	3252	33.579	pg		100
24) Carbon Tetrachloride	11.39	117	768	27.434	pg		100
26) 1,2-Dichloropropane	12.05	63	544	26.450	pg		98
27) Bromodichloromethane	12.23	83	701	26.064	pg		97
28) Trichloroethene	12.28	130	668	27.141	pg		99
29) 1,4-Dioxane	12.27	88	422	24.440	pg		98
30) cis-1,3-Dichloropropene	13.13	75	793	25.244	pg		99
31) trans-1,3-Dichloropropene	13.64	75	559	21.205	pg		95
32) 1,1,2-Trichloroethane	13.82	83	458	25.914	pg		97
34) Toluene	14.11	91	2576	28.067	pg		98
35) Dibromochloromethane	14.53	129	637	26.654	pg		98
36) 1,2-Dibromoethane	14.79	107	599	25.485	pg		99
37) Tetrachloroethene	15.27	166	735	27.998	pg		99
39) Chlorobenzene	15.97	112	1712	31.025	pg		99
40) Ethylbenzene	16.35	91	2274	27.046	pg		99
41) m,p-Xylene	16.53	91	3412	52.899	pg		98
42) Styrene	16.89	104	1144	24.398	pg		100
43) o-Xylene	17.00	106	871	25.815	pg		90
44) 1,1,2,2-Tetrachloroethane	16.97	83	959	29.198	pg		98
46) 1,3,5-Trimethylbenzene	18.27	105	1680	24.039	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	1639	23.610	pg		99
48) 1,3-Dichlorobenzene	18.81	146	1317	28.883	pg		100
49) 1,4-Dichlorobenzene	18.87	146	1324	28.951	pg		97
50) 1,2-Dichlorobenzene	19.20	146	1304	29.943	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	366	25.182	pg		88
52) 1,2,4-Trichlorobenzene	20.83	182	694	26.181	pg		95
53) Naphthalene	20.94	128	1881	20.946	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

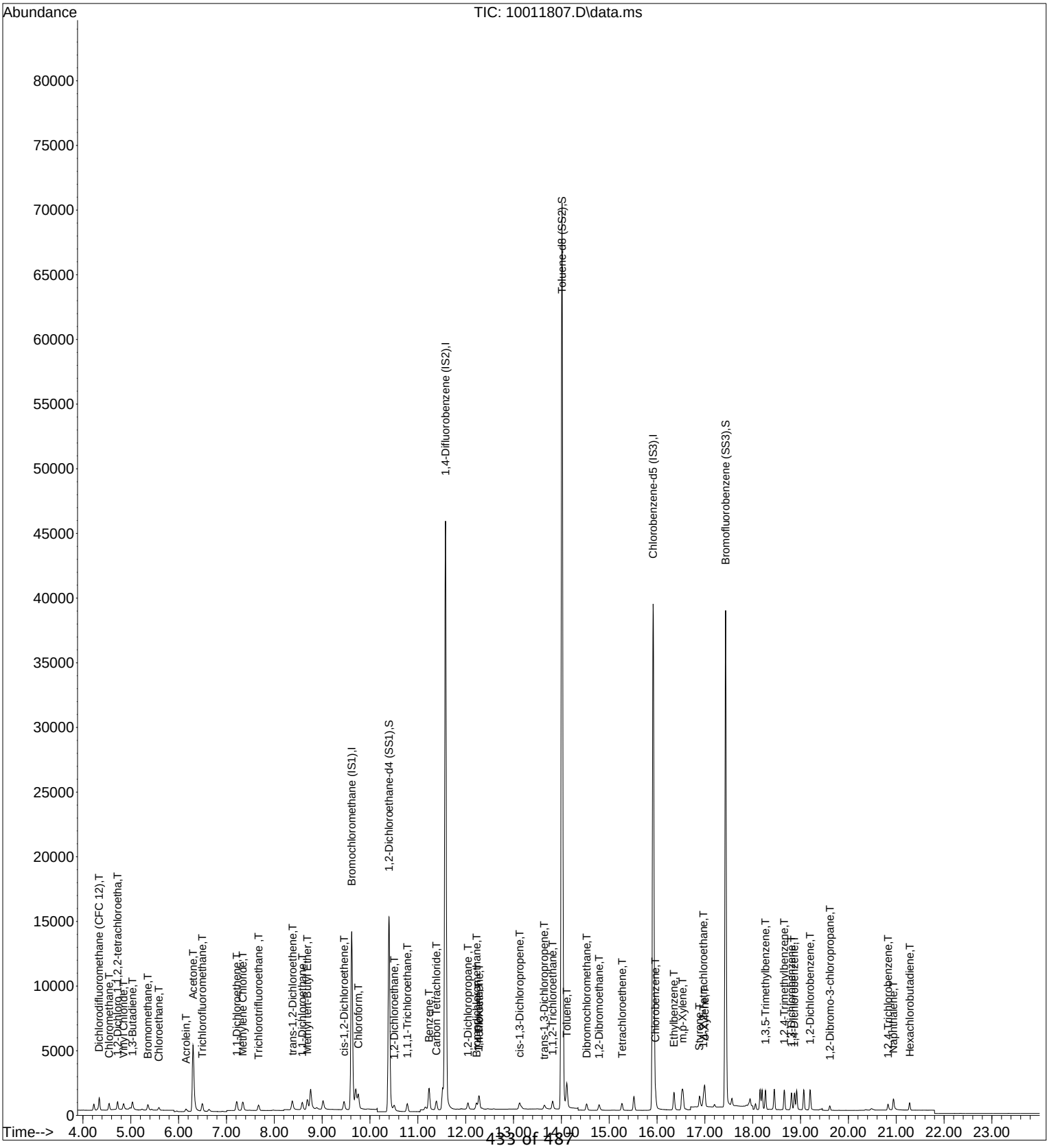
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	567	28.841	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

VOA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20108	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	87937	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	10970	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24026	928.724	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.87%			
33) Toluene-d8 (SS2)	14.02	98	91636	977.913	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.79%			
45) Bromofluorobenzene (SS3)	17.43	174	31447	1043.246	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.33%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.34	85	2368	58.216	pg	99
3) Chloromethane	4.55	52	548	56.322	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	1650	56.370	pg	100
5) Vinyl Chloride	4.85	62	1485	54.976	pg	99
6) 1,3-Butadiene	5.04	54	1028	53.051	pg	97
7) Bromomethane	5.36	94	1024	57.464	pg	99
8) Chloroethane	5.59	64	753	54.258	pg	98
9) Acrolein	6.15	56	672	65.263	pg	97
10) Acetone	6.30	58	6468	433.978	pg	96
11) Trichlorofluoromethane	6.50	101	1809	57.642	pg	100
12) 1,1-Dichloroethene	7.22	96	1224	56.027	pg	99
13) Methylene Chloride	7.35	84	1336	57.311	pg	98
14) Trichlorotrifluoroethane	7.67	151	1324	62.851	pg	100
15) trans-1,2-Dichloroethene	8.38	96	1286	56.453	pg	99
16) 1,1-Dichloroethane	8.58	63	1980	54.088	pg	100
17) Methyl tert-Butyl Ether	8.69	73	3142	52.457	pg	99
18) cis-1,2-Dichloroethene	9.46	96	1337	55.681	pg	100
19) Chloroform	9.76	83	2927	75.470	pg	99
21) 1,2-Dichloroethane	10.51	62	1331	53.892	pg	99
22) 1,1,1-Trichloroethane	10.78	97	1895	58.079	pg	99
23) Benzene	11.24	78	5958	63.329	pg	100
24) Carbon Tetrachloride	11.39	117	1700	62.511	pg	100
26) 1,2-Dichloropropane	12.05	63	1184	58.117	pg	98
27) Bromodichloromethane	12.23	83	1582	59.381	pg	98
28) Trichloroethene	12.28	130	1465	60.089	pg	99
29) 1,4-Dioxane	12.26	88	932	54.490	pg	98
30) cis-1,3-Dichloropropene	13.12	75	1750	56.240	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1321	50.589	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1036	59.175	pg	98
34) Toluene	14.11	91	5429	59.716	pg	100
35) Dibromochloromethane	14.53	129	1394	58.885	pg	99
36) 1,2-Dibromoethane	14.79	107	1335	57.340	pg	99
37) Tetrachloroethene	15.27	166	1647	63.337	pg	99
39) Chlorobenzene	15.97	112	3792	70.423	pg	100
40) Ethylbenzene	16.35	91	5045	61.491	pg	100
41) m,p-Xylene	16.53	91	7381	117.271	pg	100
42) Styrene	16.89	104	2641	57.720	pg	100
43) o-Xylene	17.00	106	2014	61.172	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2146	66.958	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	4024	59.007	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	3986	58.842	pg	99
48) 1,3-Dichlorobenzene	18.81	146	3029	68.076	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3091	69.263	pg	98
50) 1,2-Dichlorobenzene	19.20	146	2960	69.655	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	892	62.895	pg	96
52) 1,2,4-Trichlorobenzene	20.83	182	1652	63.866	pg	98
53) Naphthalene	20.94	128	4520	51.580	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

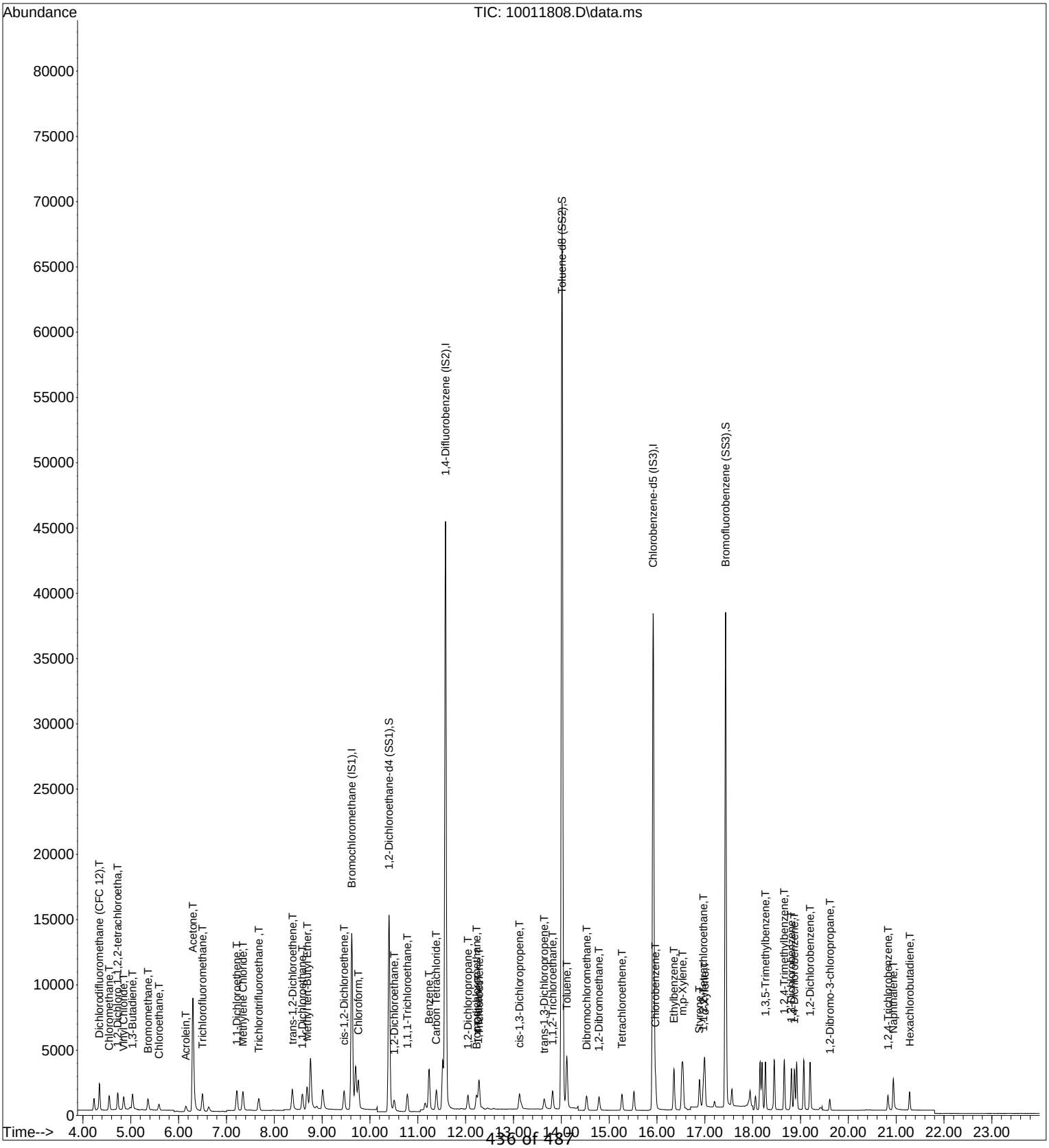
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1348	70.267	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20065	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	89360	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11139	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24256	939.624	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.96%			
33) Toluene-d8 (SS2)	14.02	98	92480	971.204	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.12%			
45) Bromofluorobenzene (SS3)	17.43	174	32346	1056.789	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.68%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.33	85	4479	110.349	pg	100
3) Chloromethane	4.54	52	994	102.379	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	3109	106.442	pg	100
5) Vinyl Chloride	4.84	62	2802	103.955	pg	100
6) 1,3-Butadiene	5.03	54	1955	101.107	pg	95
7) Bromomethane	5.35	94	1888	106.176	pg	100
8) Chloroethane	5.58	64	1432	103.405	pg	100
9) Acrolein	6.14	56	1190	115.818	pg	98
10) Acetone	6.29	58	10075	677.442	pg	97
11) Trichlorofluoromethane	6.49	101	3413	108.985	pg	100
12) 1,1-Dichloroethene	7.21	96	2339	107.293	pg	99
13) Methylene Chloride	7.34	84	2522	108.418	pg	99
14) Trichlorotrifluoroethane	7.67	151	2313	110.035	pg	100
15) trans-1,2-Dichloroethene	8.38	96	2495	109.760	pg	100
16) 1,1-Dichloroethane	8.58	63	3728	102.057	pg	100
17) Methyl tert-Butyl Ether	8.68	73	6051	101.240	pg	100
18) cis-1,2-Dichloroethene	9.46	96	2583	107.802	pg	100
19) Chloroform	9.76	83	4534	117.155	pg	100
21) 1,2-Dichloroethane	10.51	62	2578	104.607	pg	98
22) 1,1,1-Trichloroethane	10.78	97	3602	110.632	pg	100
23) Benzene	11.23	78	10392	110.696	pg	100
24) Carbon Tetrachloride	11.39	117	3183	117.293	pg	100
26) 1,2-Dichloropropane	12.05	63	2290	110.615	pg	99
27) Bromodichloromethane	12.22	83	3016	111.404	pg	100
28) Trichloroethene	12.28	130	2813	113.542	pg	99
29) 1,4-Dioxane	12.26	88	1815	104.425	pg	99
30) cis-1,3-Dichloropropene	13.12	75	3447	109.012	pg	99
31) trans-1,3-Dichloropropene	13.64	75	2587	97.493	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1984	111.519	pg	98
34) Toluene	14.11	91	10272	111.187	pg	100
35) Dibromochloromethane	14.53	129	2690	111.821	pg	100
36) 1,2-Dibromoethane	14.79	107	2600	109.896	pg	99
37) Tetrachloroethene	15.27	166	3128	118.374	pg	100
39) Chlorobenzene	15.97	112	7239	132.398	pg	100
40) Ethylbenzene	16.35	91	9765	117.215	pg	100
41) m,p-Xylene	16.53	91	14559	227.808	pg	100
42) Styrene	16.89	104	5401	116.250	pg	100
43) o-Xylene	17.00	106	4016	120.129	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	4147	127.428	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	8246	119.084	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	8236	119.737	pg	100
48) 1,3-Dichlorobenzene	18.81	146	5960	131.918	pg	100
49) 1,4-Dichlorobenzene	18.87	146	6024	132.938	pg	100
50) 1,2-Dichlorobenzene	19.20	146	5831	135.133	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1813	125.895	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	3169	120.654	pg	100
53) Naphthalene	20.94	128	8799	98.886	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

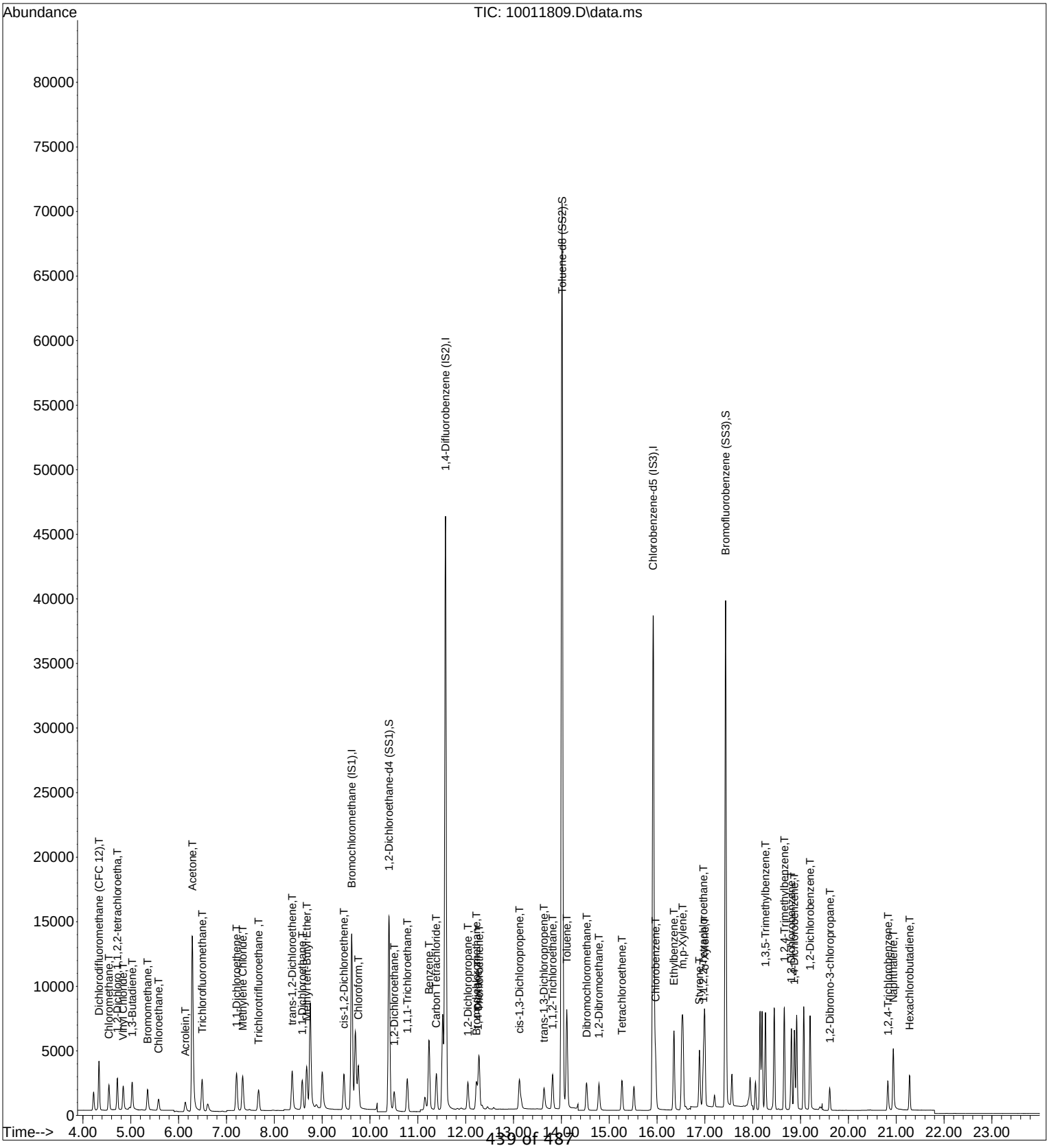
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	2611	134.039	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19931	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	93855	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11642	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24294	947.423	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.74%			
33) Toluene-d8 (SS2)	14.01	98	96719	967.075	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.71%			
45) Bromofluorobenzene (SS3)	17.43	174	34970	1093.156	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.32%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.33	85	21723	538.789	pg	100
3) Chloromethane	4.53	52	3976	412.271	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	15025	517.865	pg	100
5) Vinyl Chloride	4.83	62	13708	511.990	pg	99
6) 1,3-Butadiene	5.02	54	9118	474.726	pg	100
7) Bromomethane	5.34	94	8729	494.195	pg	99
8) Chloroethane	5.57	64	6937	504.288	pg	100
9) Acrolein	6.12	56	5986	586.513	pg	99
10) Acetone	6.27	58	40532	2743.691	pg	99
11) Trichlorofluoromethane	6.49	101	16551	532.066	pg	100
12) 1,1-Dichloroethene	7.20	96	11682	539.472	pg	100
13) Methylene Chloride	7.33	84	12292	531.975	pg	100
14) Trichlorotrifluoroethane	7.67	151	10290	492.813	pg	100
15) trans-1,2-Dichloroethene	8.37	96	12419	550.012	pg	100
16) 1,1-Dichloroethane	8.58	63	18032	496.958	pg	100
17) Methyl tert-Butyl Ether	8.66	73	31874	536.873	pg	100
18) cis-1,2-Dichloroethene	9.45	96	13074	549.314	pg	100
19) Chloroform	9.76	83	20096	522.758	pg	100
21) 1,2-Dichloroethane	10.50	62	12940	528.592	pg	99
22) 1,1,1-Trichloroethane	10.78	97	17911	553.819	pg	100
23) Benzene	11.23	78	50147	537.760	pg	100
24) Carbon Tetrachloride	11.39	117	15823	586.996	pg	100
26) 1,2-Dichloropropane	12.05	63	11546	531.000	pg	100
27) Bromodichloromethane	12.22	83	15278	537.307	pg	100
28) Trichloroethene	12.28	130	14464	555.855	pg	100
29) 1,4-Dioxane	12.25	88	9760	534.641	pg	99
30) cis-1,3-Dichloropropene	13.12	75	18781	565.506	pg	99
31) trans-1,3-Dichloropropene	13.63	75	15064	540.511	pg	100
32) 1,1,2-Trichloroethane	13.81	83	10121	541.649	pg	99
34) Toluene	14.11	91	52607	542.162	pg	100
35) Dibromochloromethane	14.53	129	13978	553.226	pg	100
36) 1,2-Dibromoethane	14.78	107	13734	552.700	pg	99
37) Tetrachloroethene	15.27	166	15788	568.855	pg	100
39) Chlorobenzene	15.97	112	36568	639.917	pg	100
40) Ethylbenzene	16.35	91	54645	627.594	pg	100
41) m,p-Xylene	16.53	91	85981	1287.237	pg	100
42) Styrene	16.89	104	34415	708.740	pg	100
43) o-Xylene	16.99	106	23010	658.554	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	21679	637.365	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	48377	668.446	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	48925	680.550	pg	100
48) 1,3-Dichlorobenzene	18.81	146	31963	676.897	pg	100
49) 1,4-Dichlorobenzene	18.87	146	31699	669.314	pg	100
50) 1,2-Dichlorobenzene	19.20	146	30647	679.555	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	10276	682.738	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	17728	645.799	pg	100
53) Naphthalene	20.94	128	53038	570.305	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

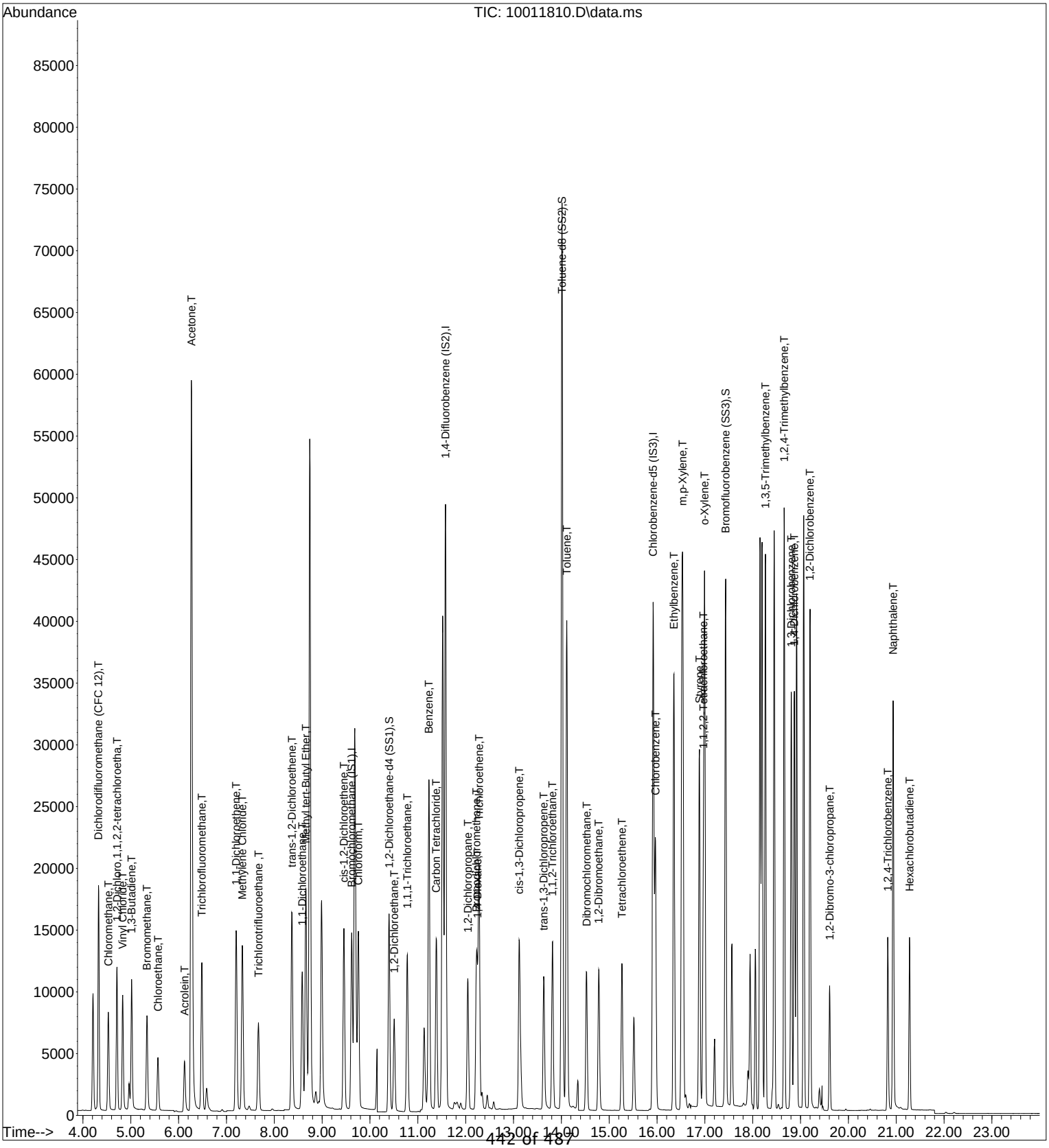
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	13306	653.567	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21343	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98418	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12041	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	25337	922.728	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.27%			
33) Toluene-d8 (SS2)	14.02	98	100388	957.223	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.72%			
45) Bromofluorobenzene (SS3)	17.44	174	36261	1095.951	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	54556	1263.616	pg	100
3) Chloromethane	4.53	52	12060	1167.770	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	37736	1214.595	pg	100
5) Vinyl Chloride	4.82	62	34347	1197.981	pg	100
6) 1,3-Butadiene	5.01	54	28024	1362.534	pg	100
7) Bromomethane	5.33	94	22751	1202.841	pg	100
8) Chloroethane	5.56	64	17484	1186.920	pg	100
9) Acrolein	6.12	56	13705	1253.988	pg	100
10) Acetone	6.26	58	91676	5795.174	pg	100
11) Trichlorofluoromethane	6.48	101	41922	1258.511	pg	100
12) 1,1-Dichloroethene	7.20	96	29967	1292.317	pg	100
13) Methylene Chloride	7.34	84	30981	1252.095	pg	100
14) Trichlorotrifluoroethane	7.67	151	30655	1371.014	pg	100
15) trans-1,2-Dichloroethene	8.37	96	31674	1309.971	pg	100
16) 1,1-Dichloroethane	8.58	63	47368	1219.087	pg	100
17) Methyl tert-Butyl Ether	8.65	73	84859	1334.771	pg	100
18) cis-1,2-Dichloroethene	9.46	96	33680	1321.473	pg	100
19) Chloroform	9.76	83	50690	1231.365	pg	100
21) 1,2-Dichloroethane	10.51	62	32755	1249.503	pg	100
22) 1,1,1-Trichloroethane	10.78	97	45673	1318.808	pg	100
23) Benzene	11.24	78	125214	1253.920	pg	100
24) Carbon Tetrachloride	11.39	117	40898	1416.844	pg	100
26) 1,2-Dichloropropane	12.05	63	29449	1291.565	pg	100
27) Bromodichloromethane	12.22	83	38980	1307.316	pg	100
28) Trichloroethene	12.28	130	36846	1350.350	pg	100
29) 1,4-Dioxane	12.25	88	25793	1347.402	pg	100
30) cis-1,3-Dichloropropene	13.12	75	48452	1391.275	pg	100
31) trans-1,3-Dichloropropene	13.63	75	38882	1330.442	pg	100
32) 1,1,2-Trichloroethane	13.82	83	25733	1313.312	pg	100
34) Toluene	14.11	91	131899	1296.313	pg	100
35) Dibromochloromethane	14.53	129	35806	1351.439	pg	100
36) 1,2-Dibromoethane	14.78	107	34480	1323.252	pg	100
37) Tetrachloroethene	15.27	166	39481	1356.581	pg	100
39) Chlorobenzene	15.96	112	91204	1543.127	pg	100
40) Ethylbenzene	16.35	91	141081	1566.614	pg	100
41) m,p-Xylene	16.53	91	223870	3240.536	pg	100
42) Styrene	16.89	104	87370	1739.669	pg	100
43) o-Xylene	16.99	106	59205	1638.317	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	55068	1565.356	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	127264	1700.191	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	128493	1728.119	pg	100
48) 1,3-Dichlorobenzene	18.81	146	80086	1639.823	pg	100
49) 1,4-Dichlorobenzene	18.87	146	79145	1615.745	pg	100
50) 1,2-Dichlorobenzene	19.20	146	78221	1676.970	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	26006	1670.586	pg	100
52) 1,2,4-Trichlorobenzene	20.82	182	39764	1400.531	pg	100
53) Naphthalene	20.94	128	118266	1229.547	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

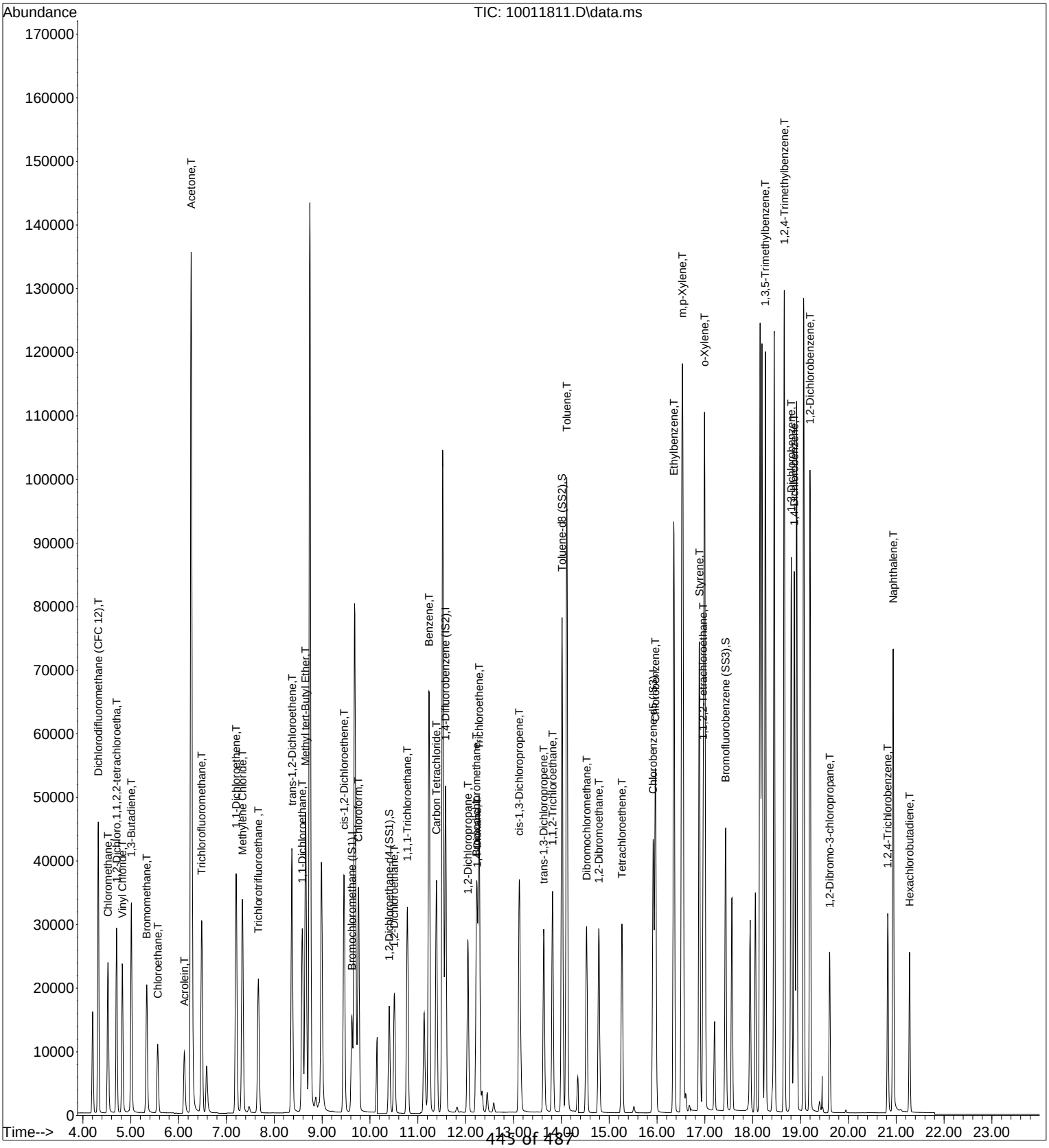
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	23913	1135.643	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21158	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98346	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12046	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	25304	929.584	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.96%			
33) Toluene-d8 (SS2)	14.01	98	100255	956.655	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.67%			
45) Bromofluorobenzene (SS3)	17.43	174	36038	1088.759	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	97482	2277.603	pg	100
3) Chloromethane	4.52	52	21596	2109.425	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	67634	2195.945	pg	100
5) Vinyl Chloride	4.82	62	62023	2182.201	pg	100
6) 1,3-Butadiene	5.00	54	48011	2354.718	pg	100
7) Bromomethane	5.33	94	40799	2175.895	pg	100
8) Chloroethane	5.55	64	31468	2154.917	pg	100
9) Acrolein	6.12	56	25502	2353.799	pg	100
10) Acetone	6.26	58	164950	10518.262	pg	99
11) Trichlorofluoromethane	6.48	101	75472	2285.502	pg	100
12) 1,1-Dichloroethene	7.20	96	55361	2408.300	pg	100
13) Methylene Chloride	7.34	84	56375	2298.314	pg	100
14) Trichlorotrifluoroethane	7.66	151	55413	2499.960	pg	100
15) trans-1,2-Dichloroethene	8.37	96	58249	2430.122	pg	100
16) 1,1-Dichloroethane	8.58	63	86003	2232.771	pg	100
17) Methyl tert-Butyl Ether	8.65	73	157062	2492.074	pg	100
18) cis-1,2-Dichloroethene	9.46	96	61935	2451.337	pg	100
19) Chloroform	9.76	83	92106	2257.008	pg	100
21) 1,2-Dichloroethane	10.51	62	59913	2305.481	pg	100
22) 1,1,1-Trichloroethane	10.78	97	82673	2408.056	pg	100
23) Benzene	11.24	78	228757	2310.852	pg	100
24) Carbon Tetrachloride	11.39	117	74610	2607.341	pg	100
26) 1,2-Dichloropropane	12.05	63	53939	2367.371	pg	100
27) Bromodichloromethane	12.23	83	71772	2408.860	pg	100
28) Trichloroethene	12.28	130	67683	2482.294	pg	100
29) 1,4-Dioxane	12.25	88	47932	2505.756	pg	100
30) cis-1,3-Dichloropropene	13.12	75	91226	2621.426	pg	100
31) trans-1,3-Dichloropropene	13.63	75	74271	2543.223	pg	100
32) 1,1,2-Trichloroethane	13.82	83	47300	2415.775	pg	100
34) Toluene	14.11	91	242532	2385.367	pg	100
35) Dibromochloromethane	14.53	129	66689	2518.909	pg	100
36) 1,2-Dibromoethane	14.78	107	64147	2463.596	pg	100
37) Tetrachloroethene	15.27	166	72061	2477.854	pg	100
39) Chlorobenzene	15.97	112	166856	2821.949	pg	100
40) Ethylbenzene	16.35	91	264742	2938.571	pg	100
41) m,p-Xylene	16.53	91	415079	6005.807	pg	100
42) Styrene	16.88	104	167353	3330.868	pg	100
43) o-Xylene	17.00	106	109222	3021.130	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	101378	2880.563	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	233124	3113.142	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	237136	3187.948	pg	100
48) 1,3-Dichlorobenzene	18.81	146	147647	3021.932	pg	100
49) 1,4-Dichlorobenzene	18.87	146	144480	2948.335	pg	100
50) 1,2-Dichlorobenzene	19.20	146	143580	3076.915	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	50123	3218.489	pg	100
52) 1,2,4-Trichlorobenzene	20.83	182	90778	3195.972	pg	100
53) Naphthalene	20.94	128	284738	2959.037	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

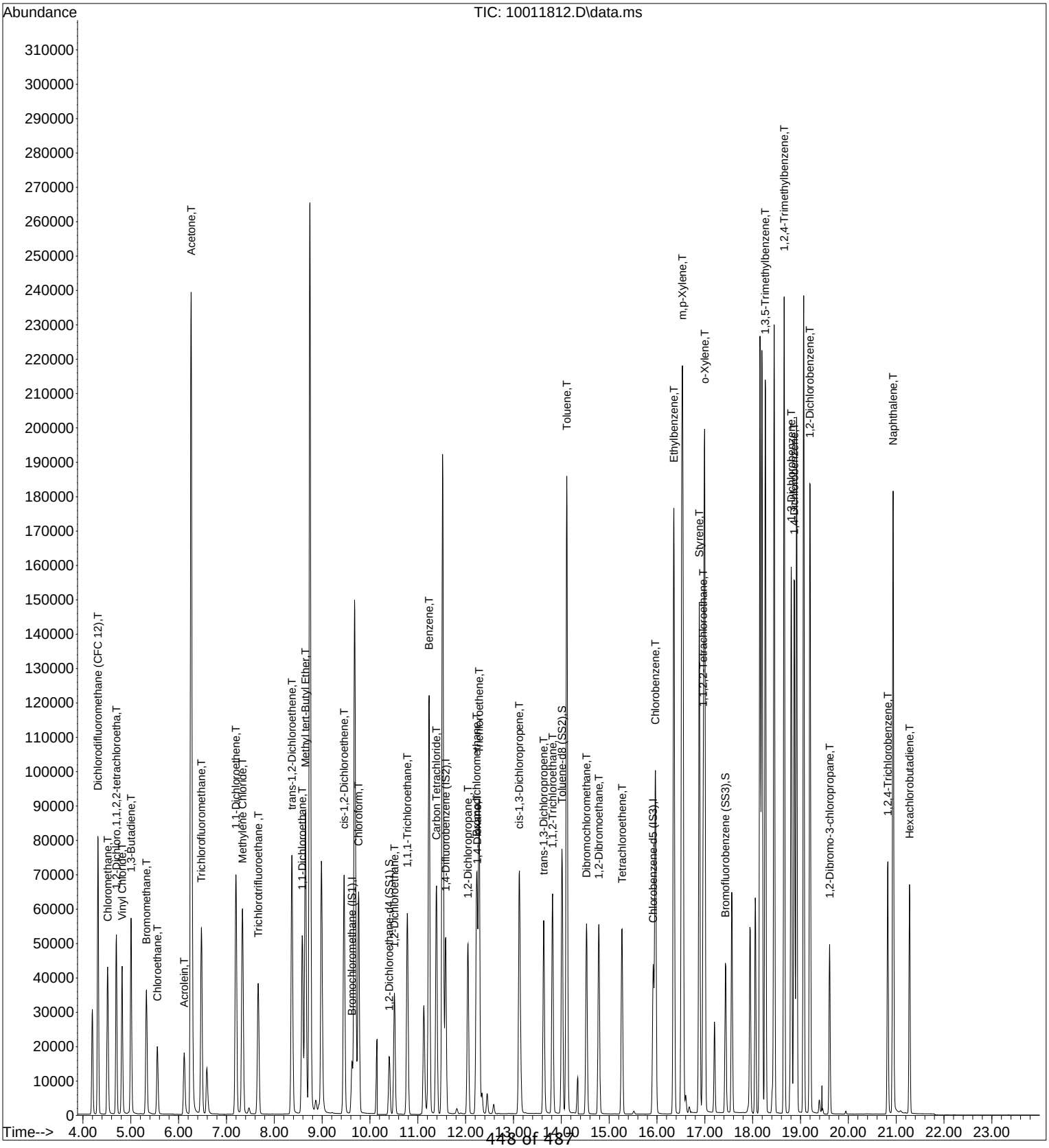
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	62652	2974.146	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	21979	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	101793	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12673	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	26270	929.023	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.90%			
33) Toluene-d8 (SS2)	14.02	98	104343	961.947	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.20%			
45) Bromofluorobenzene (SS3)	17.43	174	37651	1081.213	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	224861	5057.482	pg	100
3) Chloromethane	4.50	52	49965	4698.112	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	156657	4896.355	pg	100
5) Vinyl Chloride	4.81	62	143597	4863.558	pg	99
6) 1,3-Butadiene	5.00	54	107512	5076.002	pg	98
7) Bromomethane	5.32	94	95338	4894.644	pg	100
8) Chloroethane	5.55	64	73709	4859.018	pg	100
9) Acrolein	6.12	56	60234	5351.844	pg	100
10) Acetone	6.26	58	385336	23653.636	pg	99
11) Trichlorofluoromethane	6.47	101	180051	5248.775	pg	100
12) 1,1-Dichloroethene	7.19	96	131183	5493.521	pg	99
13) Methylene Chloride	7.34	84	133745	5248.884	pg	99
14) Trichlorotrifluoroethane	7.66	151	124815	5420.693	pg	100
15) trans-1,2-Dichloroethene	8.37	96	139761	5612.965	pg	100
16) 1,1-Dichloroethane	8.59	63	202292	5055.638	pg	100
17) Methyl tert-Butyl Ether	8.65	73	380286	5808.537	pg	100
18) cis-1,2-Dichloroethene	9.47	96	149090	5680.442	pg	100
19) Chloroform	9.77	83	217099	5121.176	pg	100
21) 1,2-Dichloroethane	10.52	62	142125	5264.749	pg	100
22) 1,1,1-Trichloroethane	10.78	97	196324	5504.817	pg	100
23) Benzene	11.24	78	537276	5224.707	pg	100
24) Carbon Tetrachloride	11.39	117	177152	5959.552	pg	100
26) 1,2-Dichloropropane	12.05	63	128300	5440.375	pg	100
27) Bromodichloromethane	12.23	83	171061	5546.848	pg	100
28) Trichloroethene	12.29	130	159704	5658.851	pg	100
29) 1,4-Dioxane	12.25	88	114979	5807.251	pg	99
30) cis-1,3-Dichloropropene	13.12	75	223011	6191.332	pg	100
31) trans-1,3-Dichloropropene	13.63	75	184690	6110.085	pg	100
32) 1,1,2-Trichloroethane	13.82	83	111483	5501.015	pg	100
34) Toluene	14.11	91	577593	5488.414	pg	100
35) Dibromochloromethane	14.53	129	159683	5827.145	pg	100
36) 1,2-Dibromoethane	14.79	107	153521	5696.390	pg	100
37) Tetrachloroethene	15.27	166	169392	5627.391	pg	100
39) Chlorobenzene	15.97	112	395561	6358.933	pg	100
40) Ethylbenzene	16.35	91	641860	6772.001	pg	100
41) m,p-Xylene	16.53	91	994468	13677.127	pg	100
42) Styrene	16.89	104	413208	7817.287	pg	100
43) o-Xylene	17.00	106	261034	6863.091	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	239946	6480.531	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	558005	7082.938	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	564297	7210.825	pg	100
48) 1,3-Dichlorobenzene	18.81	146	348686	6783.565	pg	100
49) 1,4-Dichlorobenzene	18.87	146	344250	6677.386	pg	100
50) 1,2-Dichlorobenzene	19.20	146	338979	6904.907	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	121782	7432.956	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	221549	7414.051	pg	100
53) Naphthalene	20.94	128	690675	6822.477	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

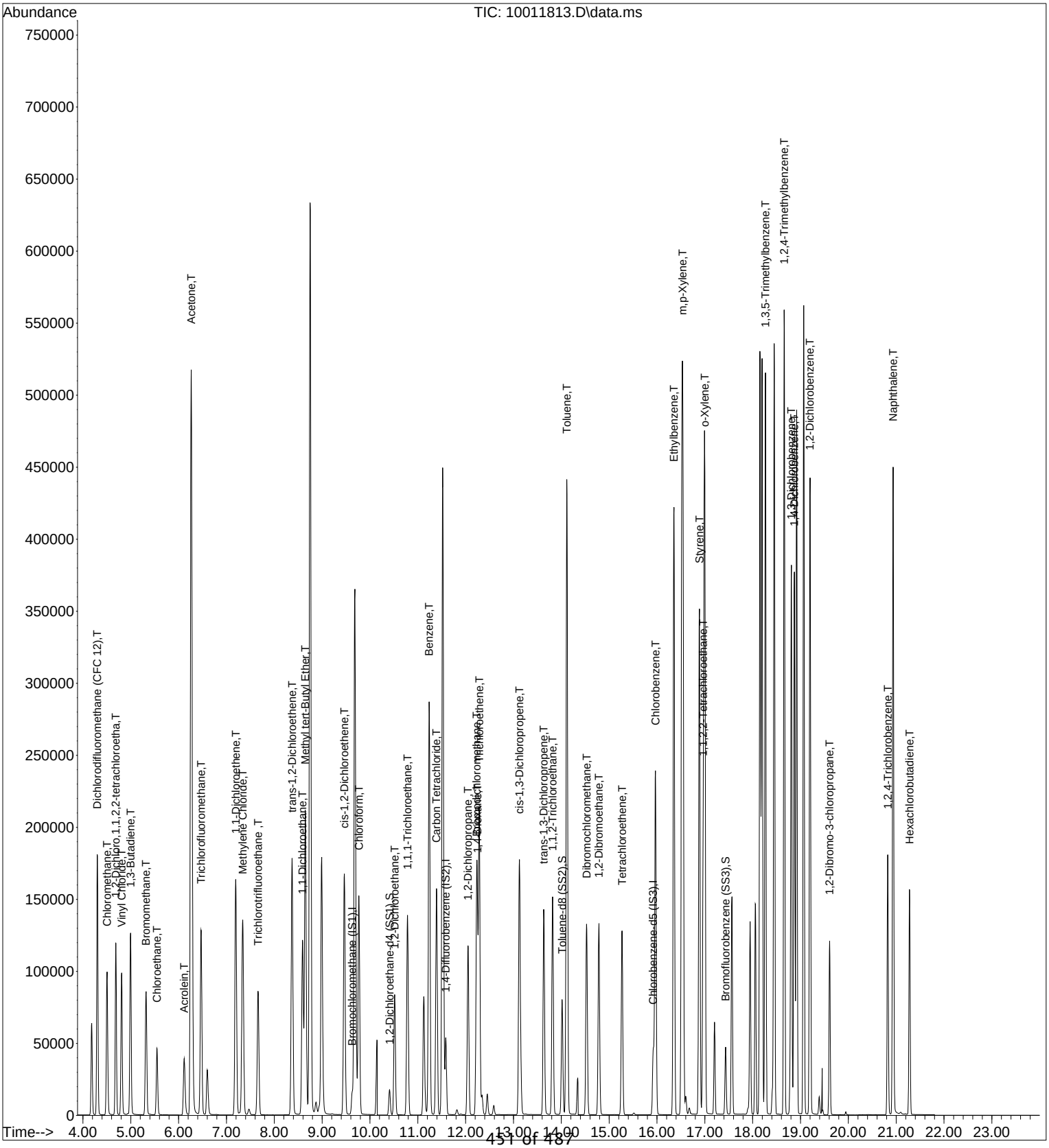
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	148497	6700.519	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	21839	1000.000	pg	0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	102402	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	13188	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.42	65	26267	934.871	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.49%			
33) Toluene-d8 (SS2)	14.02	98	105337	965.336	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.53%			
45) Bromofluorobenzene (SS3)	17.43	174	37497	1034.741	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.47%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	433912	9821.935	pg	100
3) Chloromethane	4.51	52	96612	9142.474	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	302197	9505.794	pg	100
5) Vinyl Chloride	4.81	62	281319	9589.213	pg	99
6) 1,3-Butadiene	5.00	54	207819	9874.732	pg	98
7) Bromomethane	5.32	94	184794	9548.126	pg	100
8) Chloroethane	5.56	64	144421	9581.501	pg	100
9) Acrolein	6.13	56	117735	10527.918	pg	100
10) Acetone	6.28	58	740502	45746.698	pg	99
11) Trichlorofluoromethane	6.48	101	350111	10271.725	pg	100
12) 1,1-Dichloroethene	7.20	96	257291	10843.589	pg	99
13) Methylene Chloride	7.35	84	261754	10338.510	pg	98
14) Trichlorotrifluoroethane	7.67	151	231594	10122.563	pg	100
15) trans-1,2-Dichloroethene	8.38	96	276102	11159.663	pg	100
16) 1,1-Dichloroethane	8.60	63	397667	10002.119	pg	100
17) Methyl tert-Butyl Ether	8.65	73	752976	11574.781	pg	100
18) cis-1,2-Dichloroethene	9.47	96	292496	11215.760	pg	100
19) Chloroform	9.78	83	424086	10067.949	pg	99
21) 1,2-Dichloroethane	10.52	62	277683	10352.177	pg	100
22) 1,1,1-Trichloroethane	10.79	97	384459	10849.125	pg	100
23) Benzene	11.24	78	1044137	10218.735	pg	100
24) Carbon Tetrachloride	11.40	117	347002	11748.291	pg	100
26) 1,2-Dichloropropane	12.05	63	250769	10570.256	pg	99
27) Bromodichloromethane	12.23	83	335620	10818.140	pg	100
28) Trichloroethene	12.29	130	311721	10979.638	pg	100
29) 1,4-Dioxane	12.25	88	225390	11316.085	pg	99
30) cis-1,3-Dichloropropene	13.12	75	441642	12188.146	pg	100
31) trans-1,3-Dichloropropene	13.64	75	370381	12180.414	pg	100
32) 1,1,2-Trichloroethane	13.82	83	218143	10700.028	pg	100
34) Toluene	14.12	91	1127023	10645.528	pg	99
35) Dibromochloromethane	14.53	129	314167	11396.386	pg	100
36) 1,2-Dibromoethane	14.79	107	302923	11173.099	pg	100
37) Tetrachloroethene	15.27	166	330033	10898.859	pg	100
39) Chlorobenzene	15.97	112	774148	11959.012	pg	100
40) Ethylbenzene	16.35	91	1261319	12787.985	pg	100
41) m,p-Xylene	16.53	91	1944860	25703.538	pg	100
42) Styrene	16.89	104	818745	14884.577	pg	100
43) o-Xylene	17.00	106	509044	12861.112	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	468194	12151.318	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	1089463	13288.879	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	1096552	13465.017	pg	100
48) 1,3-Dichlorobenzene	18.81	146	678792	12689.972	pg	100
49) 1,4-Dichlorobenzene	18.87	146	673906	12561.236	pg	100
50) 1,2-Dichlorobenzene	19.20	146	659009	12899.618	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	239958	14073.891	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	436487	14036.459	pg	100
53) Naphthalene	20.94	128	1354459	12856.854	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

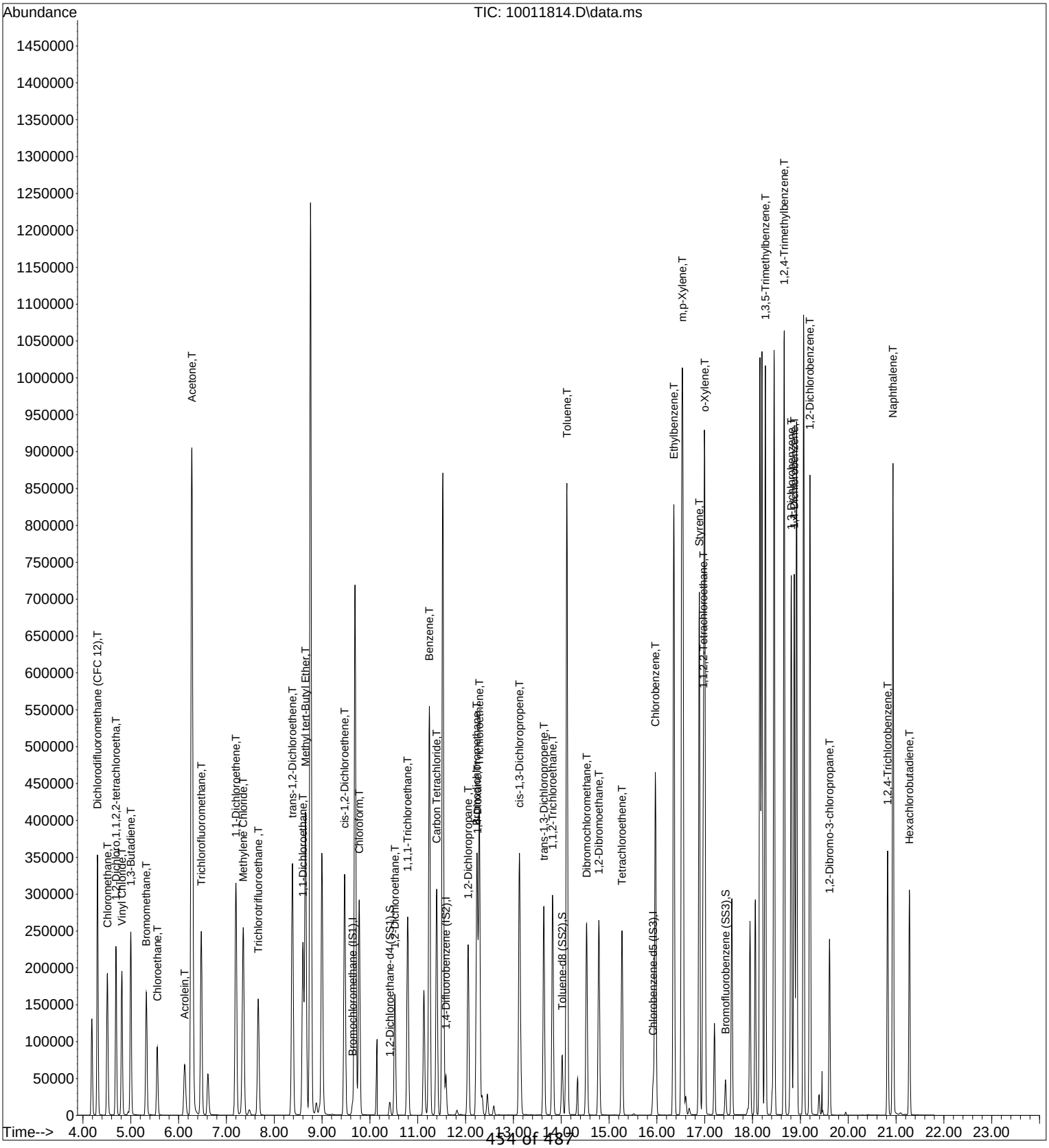
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	290485	12595.487	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018 *WA 10/2/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	22065	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	103137	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	14496	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.42	65	26208	923.218	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.32%			
33) Toluene-d8 (SS2)	14.02	98	105918	963.743	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.37%			
45) Bromofluorobenzene (SS3)	17.43	174	37072	930.705	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.07%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	1175449	26334.679	pg	100
3) Chloromethane	4.52	52	285120	26704.790	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	837060	26060.555	pg	100
5) Vinyl Chloride	4.82	62	785255	26492.529	pg	99
6) 1,3-Butadiene	5.00	54	724653	34079.952	pg	100
7) Bromomethane	5.33	94	519739	26579.353	pg	100
8) Chloroethane	5.56	64	406431	26688.172	pg	100
9) Acrolein	6.14	56	324675	28735.223	pg	100
10) Acetone	6.29	58	1908854	116717.249	pg	97
11) Trichlorofluoromethane	6.48	101	961848	27930.127	pg	100
12) 1,1-Dichloroethene	7.20	96	715370	29840.630	pg	99
13) Methylene Chloride	7.36	84	723597	28287.216	pg	99
14) Trichlorotrifluoroethane	7.66	151	694310	30036.229	pg	100
15) trans-1,2-Dichloroethene	8.39	96	765357	30617.830	pg	100
16) 1,1-Dichloroethane	8.61	63	1104862	27504.851	pg	100
17) Methyl tert-Butyl Ether	8.66	73	2101384	31971.710	pg	100
18) cis-1,2-Dichloroethene	9.48	96	805588	30573.883	pg	100
19) Chloroform	9.79	83	1169368	27476.859	pg	100
21) 1,2-Dichloroethane	10.53	62	755703	27884.467	pg	100
22) 1,1,1-Trichloroethane	10.79	97	1057295	29530.422	pg	100
23) Benzene	11.25	78	2854604	27651.222	pg	100
24) Carbon Tetrachloride	11.40	117	961856	32231.581	pg	100
26) 1,2-Dichloropropane	12.06	63	682689	28571.203	pg	99
27) Bromodichloromethane	12.24	83	921769	29499.918	pg	100
28) Trichloroethene	12.29	130	864600	30236.473	pg	100
29) 1,4-Dioxane	12.25	88	611449	30480.055	pg	99
30) cis-1,3-Dichloropropene	13.13	75	1208471	33112.919	pg	100
31) trans-1,3-Dichloropropene	13.64	75	1026925	33530.964	pg	100
32) 1,1,2-Trichloroethane	13.82	83	596957	29072.383	pg	99
34) Toluene	14.12	91	3069160	28783.785	pg	99
35) Dibromochloromethane	14.53	129	867155	31231.818	pg	100
36) 1,2-Dibromoethane	14.79	107	828968	30357.996	pg	99
37) Tetrachloroethene	15.27	166	904671	29662.536	pg	100
39) Chlorobenzene	15.97	112	2118495	29773.474	pg	99
40) Ethylbenzene	16.35	91	3438163	31712.787	pg	99
41) m,p-Xylene	16.54	91	5280531	63491.109	pg	98
42) Styrene	16.89	104	2328920	38518.836	pg	100
43) o-Xylene	17.00	106	1400023	32180.229	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	1255875	29653.416	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	2991368	33195.290	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	2955963	33022.309	pg	99
48) 1,3-Dichlorobenzene	18.81	146	1865896	31735.267	pg	99
49) 1,4-Dichlorobenzene	18.87	146	1859677	31535.616	pg	99
50) 1,2-Dichlorobenzene	19.20	146	1770377	31526.955	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	637450	34013.852	pg	97
52) 1,2,4-Trichlorobenzene	20.82	182	1195622	34979.283	pg	100
53) Naphthalene	20.93	128	4087226	35296.226	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

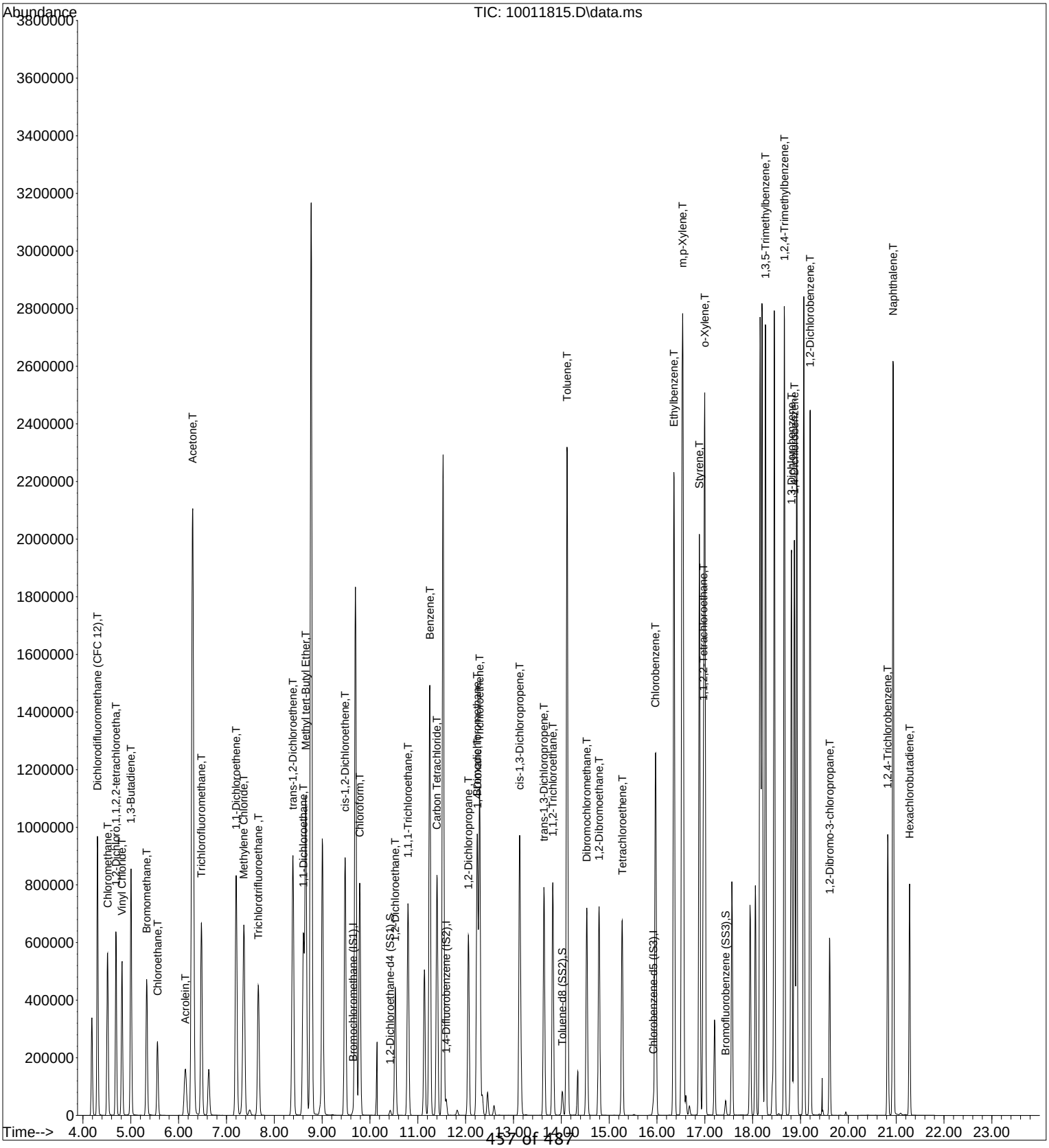
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	765922	30213.883	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	21786	1000.000	pg	0.03
25) 1,4-Difluorobenzene (IS2)	11.60	114	102151	1000.000	pg	0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	16136	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.43	65	25928	925.051	pg	0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.50%			
33) Toluene-d8 (SS2)	14.03	98	105227	966.697	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.67%			
45) Bromofluorobenzene (SS3)	17.43	174	36393	820.797	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.08%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	2121230	48132.501	pg	99
3) Chloromethane	4.52	52	522445	49559.680	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1608435	50717.405	pg	99
5) Vinyl Chloride	4.82	62	1449049	49513.339	pg	100
6) 1,3-Butadiene	5.01	54	1355430	64561.321	pg	100
7) Bromomethane	5.34	94	976601	50582.780	pg	100
8) Chloroethane	5.56	64	760043	50547.141	pg	100
9) Acrolein	6.15	56	609177	54605.407	pg	100
10) Acetone	6.31	58	3436847	212837.898	pg	95
11) Trichlorofluoromethane	6.48	101	1753519	51570.740	pg	100
12) 1,1-Dichloroethene	7.21	96	1308137	55265.859	pg	99
13) Methylene Chloride	7.38	84	1326001	52500.536	pg	99
14) Trichlorotrifluoroethane	7.67	151	1269075	55603.959	pg	100
15) trans-1,2-Dichloroethene	8.40	96	1402081	56808.051	pg	100
16) 1,1-Dichloroethane	8.62	63	1999424	50411.845	pg	100
17) Methyl tert-Butyl Ether	8.66	73	3831900	59047.436	pg	100
18) cis-1,2-Dichloroethene	9.49	96	1467538	56409.649	pg	100
19) Chloroform	9.80	83	2124196	50551.832	pg	100
21) 1,2-Dichloroethane	10.54	62	1370000	51198.613	pg	100
22) 1,1,1-Trichloroethane	10.80	97	1921689	54360.447	pg	99
23) Benzene	11.26	78	5170027	50720.988	pg	100
24) Carbon Tetrachloride	11.40	117	1752780	59487.455	pg	100
26) 1,2-Dichloropropane	12.06	63	1235662	52212.824	pg	100
27) Bromodichloromethane	12.24	83	1673814	54085.118	pg	100
28) Trichloroethene	12.30	130	1587270	56045.220	pg	100
29) 1,4-Dioxane	12.26	88	1137524	57251.641	pg	98
30) cis-1,3-Dichloropropene	13.13	75	2195223	60731.185	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1893529	62423.935	pg	99
32) 1,1,2-Trichloroethane	13.82	83	1091659	53678.017	pg	99
34) Toluene	14.12	91	5513325	52205.209	pg	98
35) Dibromochloromethane	14.54	129	1588204	57753.550	pg	100
36) 1,2-Dibromoethane	14.79	107	1520188	56208.824	pg	99
37) Tetrachloroethene	15.27	166	1650507	54639.518	pg	99
39) Chlorobenzene	15.97	112	3848880	48594.681	pg	99
40) Ethylbenzene	16.36	91	6159455	51039.044	pg	97
41) m,p-Xylene	16.54	91	9382796	101349.097	pg	96
42) Styrene	16.89	104	4208085	62525.242	pg	100
43) o-Xylene	17.01	106	2533620	52317.591	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2260027	47939.581	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	5320337	53039.334	pg	97
47) 1,2,4-Trimethylbenzene	18.67	105	5158974	51775.474	pg	98
48) 1,3-Dichlorobenzene	18.81	146	3402479	51987.923	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3442390	52441.629	pg	99
50) 1,2-Dichlorobenzene	19.20	146	3230938	51688.888	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1191870	57133.507	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	2298722	60416.526	pg	100
53) Naphthalene	20.94	128	7596985	58937.700	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

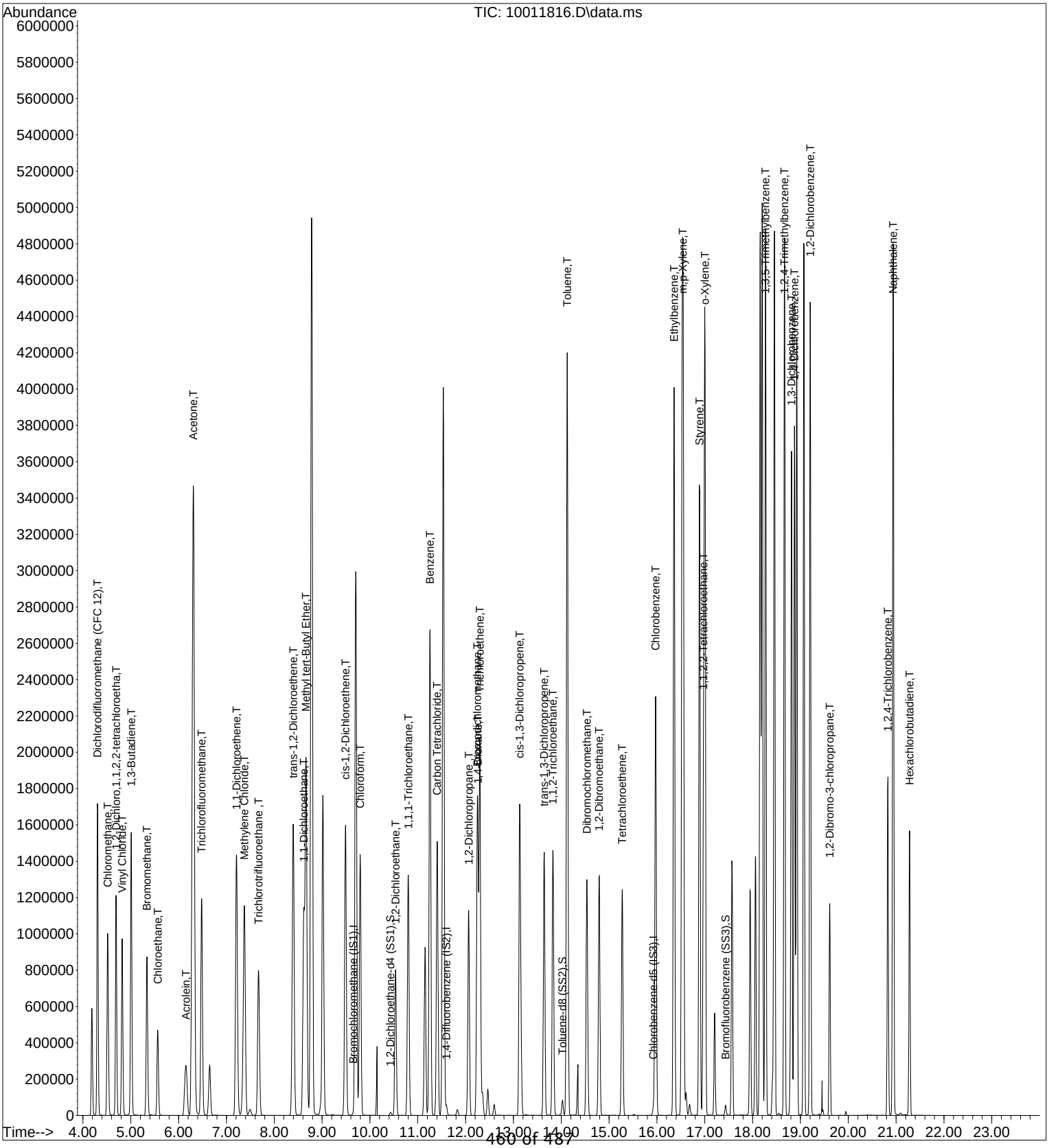
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1462036	51812.239	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19284	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	90340	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11755	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	23710	1027.119	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.71%			
33) Toluene-d8 (SS2)	14.01	98	94591	1015.329	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.53%			
45) Bromofluorobenzene (SS3)	17.43	174	33942	1021.858	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.19%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	46083	1121.528	pg	100
3) Chloromethane	4.51	52	10852	1129.477	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	30940	1044.589	pg	100
5) Vinyl Chloride	4.81	62	30208	1132.157	pg	99
6) 1,3-Butadiene	5.00	54	21243	1053.174	pg	99
7) Bromomethane	5.32	94	19977	1065.743	pg	100
8) Chloroethane	5.55	64	15635	1119.941	pg	100
9) Acrolein	6.11	56	12939	1146.554	pg	100
10) Acetone	6.26	58	88055	6154.623	pg	98
11) Trichlorofluoromethane	6.47	101	35243	1096.742	pg	100
12) 1,1-Dichloroethene	7.19	96	25399	1116.905	pg	98
13) Methylene Chloride	7.33	84	26395	1108.033	pg	97
14) Trichlorotrifluoroethane	7.66	151	23781	1055.913	pg	100
15) trans-1,2-Dichloroethene	8.37	96	27072	1144.238	pg	100
16) 1,1-Dichloroethane	8.58	63	41751	1130.659	pg	100
17) Methyl tert-Butyl Ether	8.65	73	74261	1187.632	pg	100
18) cis-1,2-Dichloroethene	9.45	96	28325	1124.817	pg	100
19) Chloroform	9.76	83	43586	1094.105	pg	100
21) 1,2-Dichloroethane	10.51	62	28072	1139.290	pg	100
22) 1,1,1-Trichloroethane	10.78	97	37540	1110.996	pg	100
23) Benzene	11.23	78	108739	1086.513	pg	100
24) Carbon Tetrachloride	11.39	117	33790	1095.581	pg	100
26) 1,2-Dichloropropane	12.05	63	25221	1120.876	pg	99
27) Bromodichloromethane	12.23	83	32895	1101.339	pg	100
28) Trichloroethene	12.28	130	30568	1082.906	pg	100
29) 1,4-Dioxane	12.24	88	21765	1127.020	pg	99
30) cis-1,3-Dichloropropene	13.12	75	39716	1130.707	pg	100
31) trans-1,3-Dichloropropene	13.63	75	34545	1168.397	pg	100
32) 1,1,2-Trichloroethane	13.82	83	21609	1101.495	pg	99
34) Toluene	14.11	91	112377	1089.448	pg	100
35) Dibromochloromethane	14.53	129	28858	1044.324	pg	100
36) 1,2-Dibromoethane	14.78	107	29006	1095.765	pg	100
37) Tetrachloroethene	15.27	166	32294	1063.904	pg	100
39) Chlorobenzene	15.97	112	76186	1070.522	pg	100
40) Ethylbenzene	16.35	91	121902	1124.844	pg	99
41) m,p-Xylene	16.53	91	189199	2283.309	pg	99
42) Styrene	16.89	104	74123	1126.202	pg	100
43) o-Xylene	17.00	106	49274	1118.508	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	44182	1045.205	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	104660	1129.574	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	105037	1136.389	pg	100
48) 1,3-Dichlorobenzene	18.81	146	62869	1041.138	pg	100
49) 1,4-Dichlorobenzene	18.87	146	62994	1038.808	pg	100
50) 1,2-Dichlorobenzene	19.20	146	60465	1043.433	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19998	1000.839	pg	98
52) 1,2,4-Trichlorobenzene	20.83	182	35513	1035.223	pg	100
53) Naphthalene	20.94	128	108646	1004.925	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

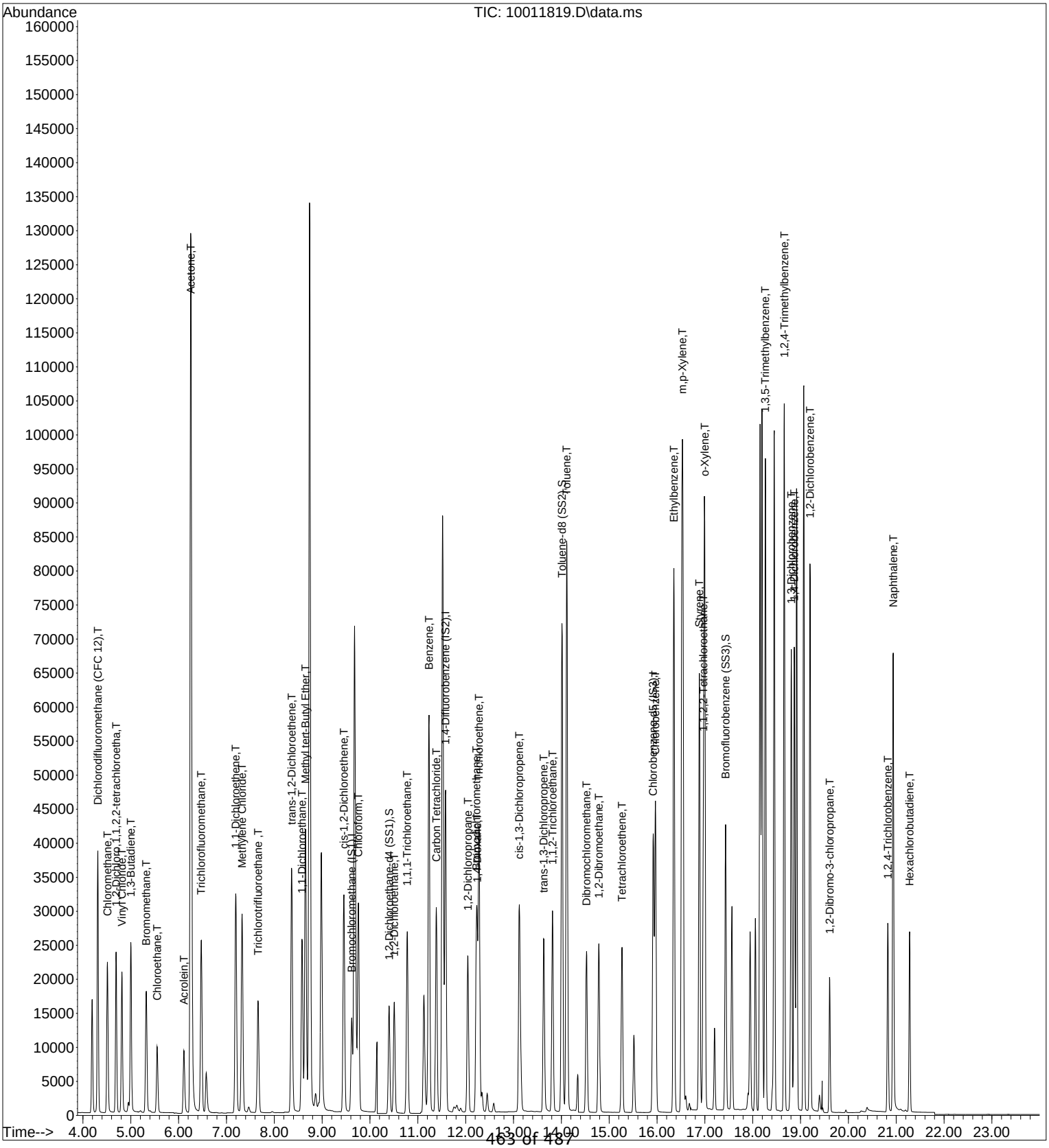
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	25301	1003.657	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 10011819.D
Data File Path: I:\MS19\DATA\2018_10\01\
Operator: WA
Instrument Name: MS19
Sample Name: 1000pg S19100118 ICV Std
Misc Info: S31-09241806/S31-09271801 (10/26)
Date Acquired: 10/1/18 19:18
Acq. Method File: TO15SIM.M

WA 10/2/18

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.31	1052.0	1121.5	107	80	130	*	*
3)	Chloromethane		4.51	1055.0	1129.5	107	54	144	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	*	4.69	1055.0	1044.6	99	65	125	*	*
5)	Vinyl Chloride		4.81	1069.0	1132.2	106	65	136	*	*
6)	*1,3-Butadiene*	*	5.00	1051.0	1053.2	100	27	154	*	*
7)	Bromomethane		5.32	1059.0	1065.7	101	71	126	*	*
8)	Chloroethane		5.55	1070.0	1119.9	105	71	129	*	*
9)	*Acrolein*	*	6.11	1025.0	1146.6	112	49	117	*	*
10)	Acetone		6.26	5293.0	6154.6	116	62	158	*	*
11)	Trichlorofluoromethane		6.47	1056.0	1096.7	104	82	122	*	*
12)	1,1-Dichloroethene		7.19	1089.0	1116.9	103	76	120	*	*
13)	Methylene Chloride		7.33	1083.0	1108.0	102	76	120	*	*
14)	Trichlorotrifluoroethane		7.66	1078.0	1055.9	98	77	118	*	*
15)	trans-1,2-Dichloroethene		8.37	1069.0	1144.2	107	73	124	*	*
16)	1,1-Dichloroethane		8.58	1078.0	1130.7	105	71	126	*	*
17)	Methyl tert-Butyl Ether		8.65	1072.0	1187.6	111	69	125	*	*
18)	cis-1,2-Dichloroethene		9.45	1054.0	1124.8	107	76	121	*	*
19)	Chloroform		9.76	1083.0	1094.1	101	80	121	*	*
21)	1,2-Dichloroethane		10.51	1074.0	1139.3	106	68	126	*	*
22)	1,1,1-Trichloroethane		10.78	1076.0	1111.0	103	75	121	*	*
25)	Benzene		11.23	1055.0	1086.5	103	76	126	*	*
24)	Carbon Tetrachloride		11.39	1058.0	1095.6	104	78	117	*	*
26)	1,2-Dichloropropane		12.05	1079.0	1120.9	104	65	126	*	*
27)	Bromodichloromethane		12.23	1073.0	1101.3	103	72	119	*	*
28)	Trichloroethene		12.28	1067.0	1082.9	101	73	121	*	*
29)	1,4-Dioxane		12.24	1069.0	1127.0	105	66	119	*	*
30)	cis-1,3-Dichloropropene		13.12	1071.0	1130.7	106	60	122	*	*
31)	trans-1,3-Dichloropropene		13.63	1064.0	1168.4	110	58	122	*	*
32)	1,1,2-Trichloroethane		13.82	1074.0	1101.5	103	68	124	*	*
34)	Toluene		14.01	1060.0	1089.4	103	69	122	*	*
35)	*Dibromochloromethane*	*	14.53	1064.0	1044.3	98	71	114	*	*
36)	1,2-Dibromoethane		14.78	1081.0	1095.8	101	71	119	*	*
37)	Tetrachloroethene		15.27	1064.0	1063.9	100	72	118	*	*
39)	Chlorobenzene		15.97	1073.0	1070.5	100	76	123	*	*
40)	Ethylbenzene		16.35	1061.0	1124.8	106	76	122	*	*
41)	m,p-Xylene		16.53	2131.0	2283.3	107	73	126	*	*
42)	*Styrene*	*	16.89	1060.0	1126.2	106	53	129	*	*
43)	o-Xylene		17.00	1070.0	1118.5	105	70	129	*	*
44)	1,1,2,2-Tetrachloroethane		16.97	1072.0	1045.2	98	73	123	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.27	1069.0	1129.6	106	63	132	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.66	1076.0	1136.4	106	57	134	*	*
48)	1,3-Dichlorobenzene		18.81	1079.0	1041.1	96	59	133	*	*
49)	1,4-Dichlorobenzene		18.87	1080.0	1038.8	96	59	125	*	*
50)	1,2-Dichlorobenzene		19.20	1078.0	1043.4	97	60	127	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.61	1046.0	1000.8	96	48	132	*	*
52)	1,2,4-Trichlorobenzene		20.83	1071.0	1035.2	97	36	136	*	*
53)	Naphthalene		19.20	1015.0	1004.9	99	26	143	*	*
54)	Hexachlorobutadiene		21.28	1045.0	1003.7	96	41	144	*	*

* ***Compounds with 70 - 130 as advisory limits***

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\15\10151803.D Vial: 16
Acq On : 15 Oct 2018 10:35 Operator: WA
Sample : CCV S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 15 11:32:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/15/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	95	-0.03
2	T	Dichlorodifluoromethane (CF	2.131	1.768	17.0	76	0.00
3	T	Chloromethane	0.498	0.407	18.3	76	0.00
4	T	1,2-Dichloro,1,1,2,2-tetraf	1.536	1.267	17.5	77	0.00
5	T	Vinyl Chloride	1.384	1.142	17.5	76	0.00
6	T	1,3-Butadiene	1.046	0.813	22.3	72	0.00
7	T	Bromomethane	0.972	0.784	19.3	76	-0.01
8	T	Chloroethane	0.724	0.590	18.5	76	-0.01
9	T	Acrolein	0.585	0.452	22.7	75	-0.04
10	T	Acetone	0.742	0.621	16.3	80	-0.05
11	T	Trichlorofluoromethane	1.666	1.382	17.0	77	-0.01
12	T	1,1-Dichloroethene	1.179	1.042	11.6	80	-0.02
13	T	Methylene Chloride	1.235	1.032	16.4	78	-0.04
14	T	Trichlorotrifluoroethane	1.168	1.024	12.3	78	0.00
15	T	trans-1,2-Dichloroethene	1.227	1.061	13.5	79	-0.03
16	T	1,1-Dichloroethane	1.915	1.618	15.5	77	-0.03
17	T	Methyl tert-Butyl Ether	3.243	2.851	12.1	78	-0.01
18	T	cis-1,2-Dichloroethene	1.306	1.141	12.6	79	-0.03
19	T	Chloroform	2.066	1.711	17.2	79	-0.04
20	S	1,2-Dichloroethane-d4 (SS1)	1.197	1.163	2.8	92	-0.03
21	T	1,2-Dichloroethane	1.278	1.096	14.2	77	-0.03
22	T	1,1,1-Trichloroethane	1.752	1.513	13.6	79	-0.02
23	T	Benzene	5.190	4.401	15.2	82	-0.02
24	T	Carbon Tetrachloride	1.599	1.390	13.1	79	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	93	-0.02
26	T	1,2-Dichloropropane	0.249	0.217	12.9	79	-0.02
27	T	Bromodichloromethane	0.331	0.289	12.7	79	-0.02
28	T	Trichloroethene	0.312	0.277	11.2	80	-0.02
29	T	1,4-Dioxane	0.214	0.189	11.7	77	-0.02
30	T	cis-1,3-Dichloropropene	0.389	0.351	9.8	79	-0.01
31	T	trans-1,3-Dichloropropene	0.327	0.299	8.6	79	-0.01
32	T	1,1,2-Trichloroethane	0.217	0.191	12.0	79	-0.01
33	S	Toluene-d8 (SS2)	1.031	1.038	-0.7	95	-0.02
34	T	Toluene	1.142	0.998	12.6	80	-0.01
35	T	Dibromochloromethane	0.306	0.273	10.8	80	-0.01
36	T	1,2-Dibromoethane	0.293	0.260	11.3	79	0.00
37	T	Tetrachloroethene	0.336	0.296	11.9	80	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	6.054	5.388	11.0	81	0.00
40	T	Ethylbenzene	9.219	8.751	5.1	81	0.00
41	T	m,p-Xylene	7.049	6.682	5.2	80	-0.01
42	T	Styrene	5.599	4.942	11.7	73	-0.01
43	T	o-Xylene	3.748	3.530	5.8	80	-0.01
44	T	1,1,2,2-Tetrachloroethane	3.596	3.269	9.1	80	0.00
45	S	Bromofluorobenzene (SS3)	2.826	3.108	-10.0	101	0.00
46	T	1,3,5-Trimethylbenzene	7.882	7.451	5.5	78	0.00
47	T	1,2,4-Trimethylbenzene	7.863	7.563	3.8	78	0.00
48	T	1,3-Dichlorobenzene	5.137	4.612	10.2	78	0.00
49	T	1,4-Dichlorobenzene	5.159	4.571	11.4	79	0.00
50	T	1,2-Dichlorobenzene	4.930	4.509	8.5	80	0.00
51	T	1,2-Dibromo-3-chloropropane	1.700	1.644	3.3	81	0.00
52	T	1,2,4-Trichlorobenzene	2.918	2.810	3.7	79	0.00
53	T	Naphthalene	9.197	7.991	13.1	69	0.00
54	T	Hexachlorobutadiene	2.145	2.071	3.4	82	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\15\10151803.D Vial: 16
Acq On : 15 Oct 2018 10:35 Operator: WA
Sample : CCV S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 15 11:32:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151803.D Vial: 16
Acq On : 15 Oct 2018 10:35 Operator: WA
Sample : CCV S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 15 11:32:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/15/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20044	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	91857	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11698	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	23311	971.545	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.15%			
33) Toluene-d8 (SS2)	14.01	98	95316	1006.214	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.62%			
45) Bromofluorobenzene (SS3)	17.43	174	36360	1099.989	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.00%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	74267	1738.914	pg	100
3) Chloromethane	4.51	52	16407	1642.894	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	51862	1684.563	pg	100
5) Vinyl Chloride	4.81	62	47260	1704.085	pg	99
6) 1,3-Butadiene	5.00	54	34516	1646.333	pg	98
7) Bromomethane	5.32	94	31207	1601.721	pg	100
8) Chloroethane	5.55	64	23919	1648.364	pg	100
9) Acrolein	6.11	56	19084	1626.957	pg	100
10) Acetone	6.26	58	132393	8902.770	pg	97
11) Trichlorofluoromethane	6.47	101	58222	1743.136	pg	100
12) 1,1-Dichloroethene	7.19	96	44299	1874.159	pg	99
13) Methylene Chloride	7.33	84	43774	1767.909	pg	99
14) Trichlorotrifluoroethane	7.66	151	43215	1846.058	pg	100
15) trans-1,2-Dichloroethene	8.37	96	45972	1869.399	pg	100
16) 1,1-Dichloroethane	8.58	63	66275	1726.741	pg	100
17) Methyl tert-Butyl Ether	8.65	73	122308	1881.865	pg	100
18) cis-1,2-Dichloroethene	9.46	96	48785	1863.850	pg	100
19) Chloroform	9.76	83	72757	1757.113	pg	100
21) 1,2-Dichloroethane	10.51	62	46352	1809.847	pg	100
22) 1,1,1-Trichloroethane	10.78	97	65334	1860.244	pg	100
23) Benzene	11.23	78	186499	1792.830	pg	100
24) Carbon Tetrachloride	11.39	117	59054	1842.122	pg	100
26) 1,2-Dichloropropane	12.05	63	42418	1854.016	pg	99
27) Bromodichloromethane	12.22	83	56688	1866.594	pg	100
28) Trichloroethene	12.28	130	54068	1883.787	pg	100
29) 1,4-Dioxane	12.24	88	36863	1877.291	pg	99
30) cis-1,3-Dichloropropene	13.12	75	72259	2023.226	pg	100
31) trans-1,3-Dichloropropene	13.63	75	58697	1952.490	pg	100
32) 1,1,2-Trichloroethane	13.81	83	37375	1873.686	pg	99
34) Toluene	14.11	91	193216	1842.213	pg	100
35) Dibromochloromethane	14.52	129	53132	1891.006	pg	100
36) 1,2-Dibromoethane	14.78	107	50920	1891.847	pg	100
37) Tetrachloroethene	15.27	166	57847	1874.258	pg	100
39) Chlorobenzene	15.96	112	134380	1897.432	pg	100
40) Ethylbenzene	16.35	91	215374	1997.035	pg	100
41) m,p-Xylene	16.53	91	331886	4024.815	pg	100
42) Styrene	16.88	104	122339	1867.839	pg	100
43) o-Xylene	16.99	106	87124	1987.331	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	80830	1921.498	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	182860	1983.188	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	185959	2021.682	pg	100
48) 1,3-Dichlorobenzene	18.80	146	115564	1923.115	pg	100
49) 1,4-Dichlorobenzene	18.87	146	113794	1885.673	pg	100
50) 1,2-Dichlorobenzene	19.20	146	114251	1981.215	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	40417	2032.604	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	72131	2112.903	pg	100
53) Naphthalene	20.94	128	197426	1834.997	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151803.D Vial: 16
Acq On : 15 Oct 2018 10:35 Operator: WA
Sample : CCV S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 15 11:32:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

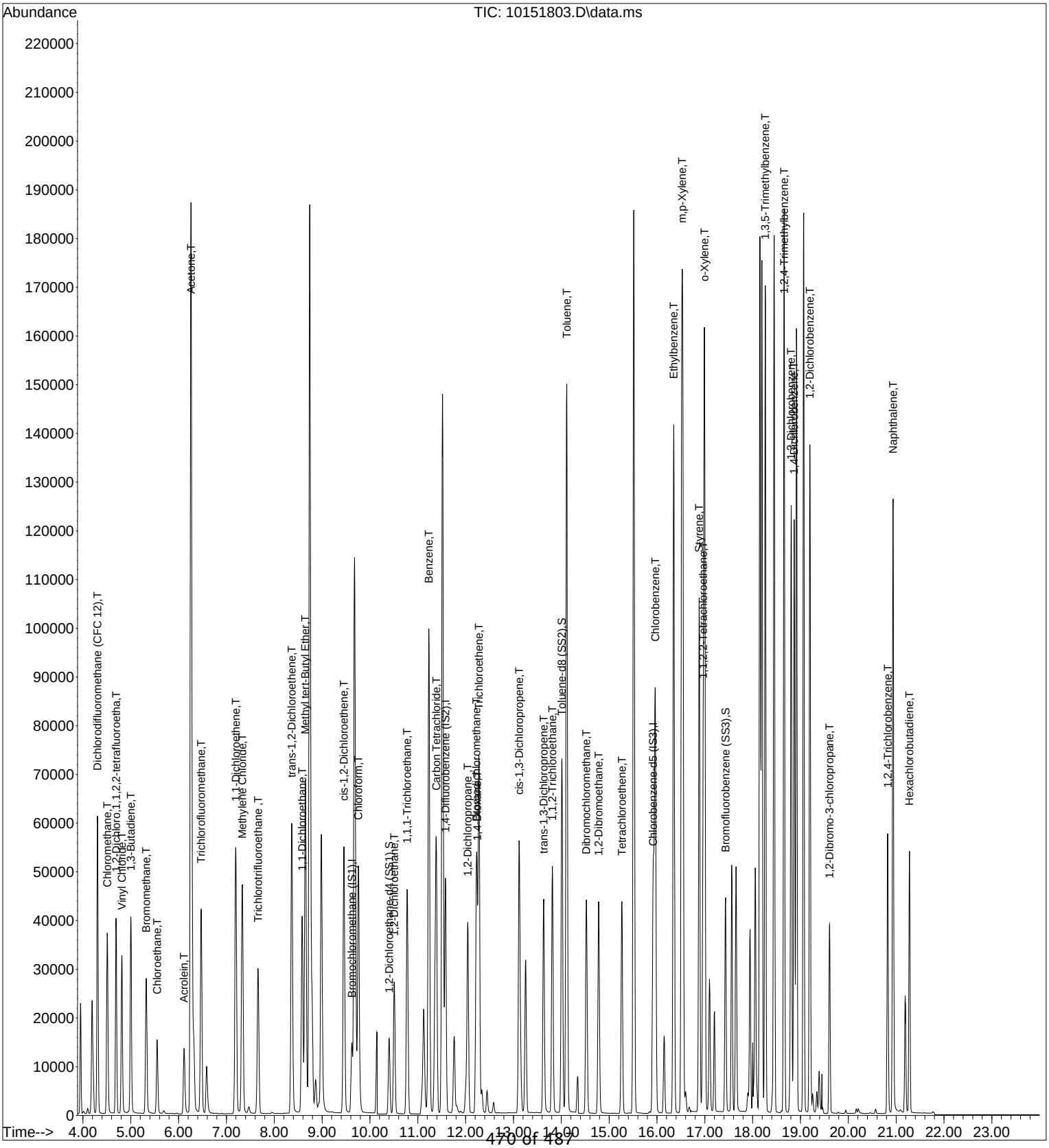
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	51224	2041.889	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\15\10151803.D Vial: 16
Acq On : 15 Oct 2018 10:35 Operator: WA
Sample : CCV S19101518_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

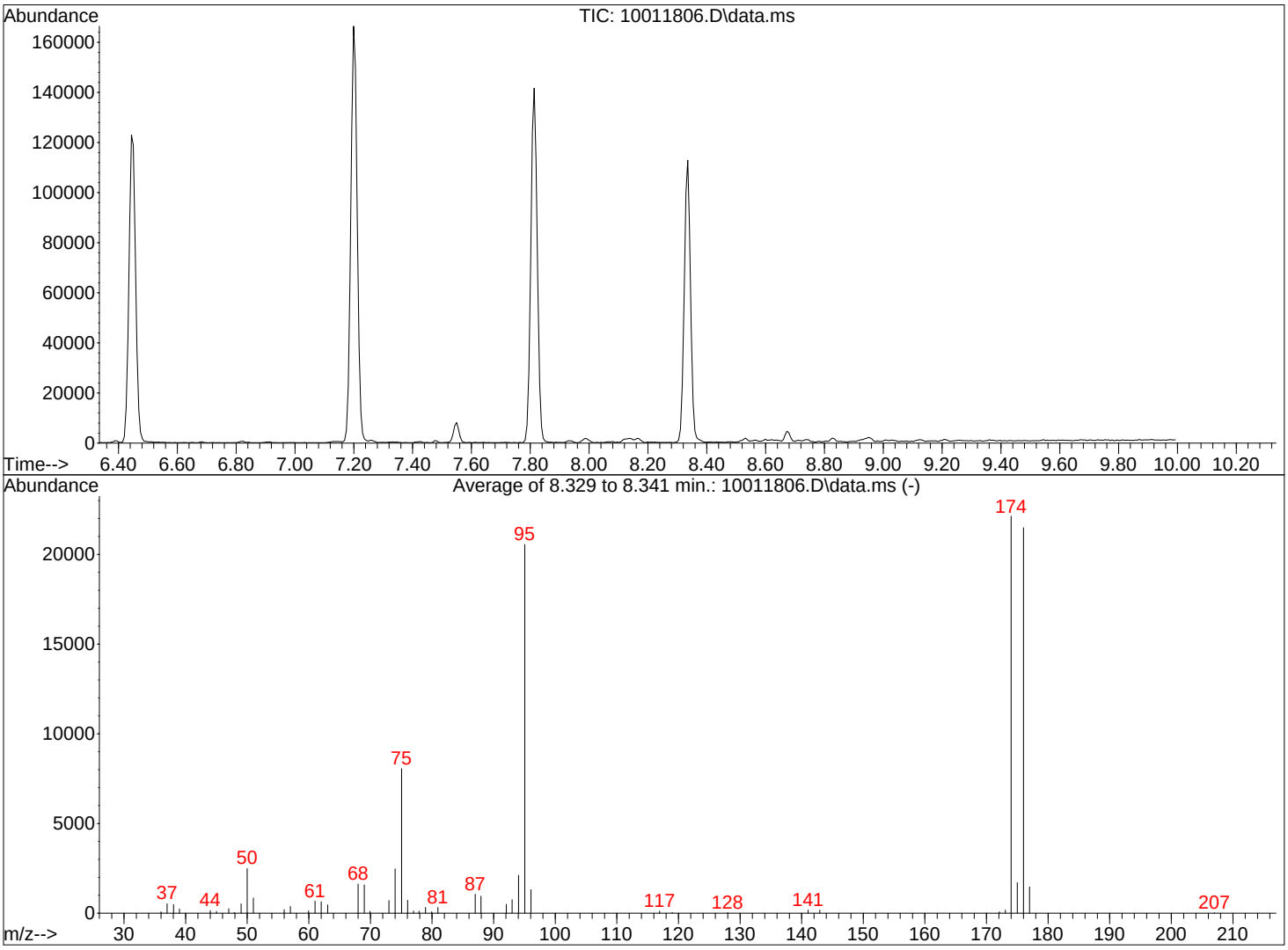
Quant Time: Oct 15 11:32:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data Path : I:\MS19\DATA\2018_10\01\
Data File : 10011806.D
Acq On : 1 Oct 2018 11:45
Operator : WA
Sample : BFB_S19100118
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19082418A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Sep 05 06:48:06 2018



AutoFind: Scans 691, 692, 693; Background Corrected with Scan 685

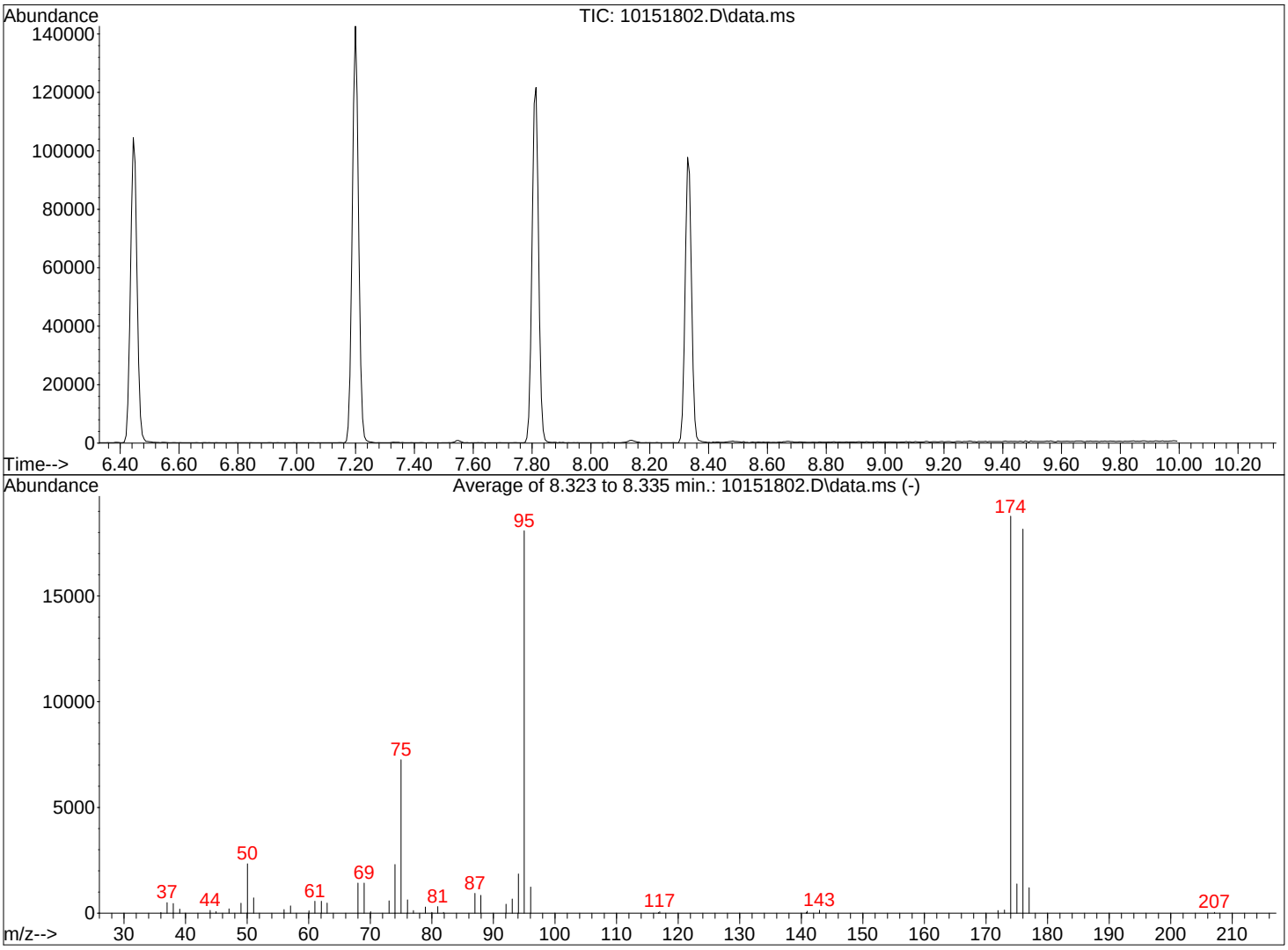
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.1	2491	PASS
75	95	30	66	39.2	8057	PASS
95	95	100	100	100.0	20557	PASS
96	95	5	9	6.4	1310	PASS
173	174	0.00	2	0.8	171	PASS
174	95	50	120	107.7	22131	PASS
175	174	4	9	7.7	1702	PASS
176	174	93	101	97.1	21488	PASS
177	176	5	9	6.8	1469	PASS

10/1/18

Data Path : I:\MS19\DATA\2018_10\15\
Data File : 10151802.D
Acq On : 15 Oct 2018 10:15
Operator : WA
Sample : BFB_S19101518
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 685

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.9	2334	PASS
75	95	30	66	40.1	7257	PASS
95	95	100	100	100.0	18080	PASS
96	95	5	9	6.8	1236	PASS
173	174	0.00	2	0.8	154	PASS
174	95	50	120	103.8	18772	PASS
175	174	4	9	7.4	1386	PASS
176	174	93	101	96.7	18159	PASS
177	176	5	9	6.6	1202	PASS

10/15/18

Injection Log

Directory: J:\MS19\DATA\2018_10\01\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/1/18 8:15	10011801.D	Blank	S31-09241806	WA	2	
2	10/1/18 8:46	10011802.D	Blank	S31-09241806	WA	2	
3	10/1/18 9:17	10011803.D	BFB_S19100118	S31-07311807	WA	2	
4	10/1/18 9:37	10011804.D	Std check_1000pg	S31-07311807/S31-09181802 (10/16)	WA	16	
5	10/1/18 10:14	10011805.D	Std check_1000pg	S31-07311807/S31-09181808 (10/16)	WA	14	
6	10/1/18 11:45	10011806.D	BFB_S19100118	S31-09241806	WA	2	*passed*
7	10/1/18 12:11	10011807.D	20pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
8	10/1/18 13:09	10011808.D	50pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
9	10/1/18 13:44	10011809.D	100pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
10	10/1/18 14:21	10011810.D	500pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
11	10/1/18 14:52	10011811.D	1000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	*S19100118.M*
12	10/1/18 15:36	10011812.D	2000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
13	10/1/18 16:39	10011814.D	10000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
14	10/1/18 17:11	10011815.D	25000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
15	10/1/18 17:43	10011816.D	50000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
16	10/1/18 18:14	10011817.D	Blank	S31-09241806/S31-08171802	WA	2	
17	10/1/18 18:46	10011818.D	1000pg S19100118 ICV Std	S31-09241806/S31-09171808 (10/16)	WA	2	*not used*
18	10/1/18 19:18	10011819.D	1000pg S19100118 ICV Std	S31-09241806/S31-09271801 (10/26)	WA	9	*passed*
	S19100118.M: ranges from 20pg ---> 50K pg, except: Acetone 500pg --> 125K pg and chloroform : 50pg ---> 50K pg						
							10/4/18

Injection Log

Directory: I:\MS19\DATA\2018_10\15\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
2	10/15/18 9:44	10151801.D	Blank	S31-09241806	WA	2	
3	10/15/18 10:15	10151802.D	BFB S19101518	S31-09241806	WA	2	*Passed*
4	10/15/18 10:35	10151803.D	CCV S19101518_1000pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Passed*
5	10/15/18 11:06	10151804.D	Blank	S31-09241806	WA	2	
6	10/15/18 11:37	10151805.D	MB S19101518_1000mL	S31-09241806_AS01329	WA	2	*Passed*
7	10/15/18 12:19	10151806.D	LCS S19101518_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Passed*
8	10/15/18 12:51	10151807.D	LCSD S19101518_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Passed*
9	10/15/18 14:13	10151808.D	Blank)	S31-09241806	WA	1	
10	10/15/18 14:44	10151809.D	P1805476-001 (1000mL)	S31-09241806	WA	1	
11	10/15/18 15:15	10151810.D	P1805476-002 (1000mL)	S31-09241806	WA	3	
12	10/15/18 15:47	10151811.D	P1805476-003 (1000mL)	S31-09241806	WA	4	
13	10/15/18 16:26	10151812.D	P1805476-004 (1000mL)	S31-09241806	WA	5	
14	10/15/18 16:58	10151813.D	P1805476-005 (1000mL)	S31-09241806	WA	6	
15	10/15/18 17:29	10151814.D	Blank	S31-09241806	WA	2	
16	10/15/18 18:01	10151815.D	P1805448-001 (1000mL)	S31-09241806	WA	7	
17	10/15/18 18:32	10151816.D	P1805448-001dup (1000mL)	S31-09241806	WA	7	*Passed*
18	10/15/18 19:04	10151817.D	P1805448-002 (1000mL)	S31-09241806	WA	8	
19	10/15/18 19:35	10151818.D	P1805448-003 (1000mL)	S31-09241806	WA	9	
20	10/15/18 20:07	10151819.D	P1805448-004 (1000mL)	S31-09241806	WA	10	
21	10/15/18 20:38	10151820.D	P1805448-005 (1000mL)	S31-09241806	WA	11	
22	10/15/18 21:09	10151821.D	P1805448-006 (1000mL)	S31-09241806	WA	12	
23	10/15/18 21:41	10151822.D	P1805448-007 (1000mL)	S31-09241806	WA	13	
24	10/15/18 22:12	10151823.D	P1805448-008 (1000mL)	S31-09241806	WA	14	
25	10/15/18 22:44	10151824.D	P1805469-001 (1000mL)	S31-09241806	WA	1	
26	10/15/18 23:16	10151825.D	P1805469-002 (1000mL)	S31-09241806	WA	3	
27	10/15/18 23:47	10151826.D	P1805469-003 (1000mL)	S31-09241806	WA	4	

WA 10/16/18

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-05
Cycles: 30
Batch: 22536

Batch Started By: HAYDEN.AKERS on 9/11/18 0823
Finished Cleaning By: HAYDEN.AKERS on 9/11/18 0919

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum Vacuum	Initial Vacuum Date/Time	Initial Vacuum User	Final Vacuum Vacuum	Final Vacuum Date/Time	Final Vacuum User	Comments
AC02192	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	MS21_09/11/18
AS01291	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	gc22_09/21/18
AC00343	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00949	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00260	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AC02191	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS01129	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AC02290	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00861	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS00997	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	9/28/18 1129	JHULETTE	
AS00532	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS00834	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS				
AS00503	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS				
AC02226	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS01127	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	9/28/18 1129	JHULETTE	
AS01161	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\11\
Data File : 09111837.D
Acq On : 12 Sep 2018 8:05 am
Operator : RVT
Sample : 091118_AC02192_22536
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

RVT 9/12/18

Quant Time: Sep 12 08:33:36 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

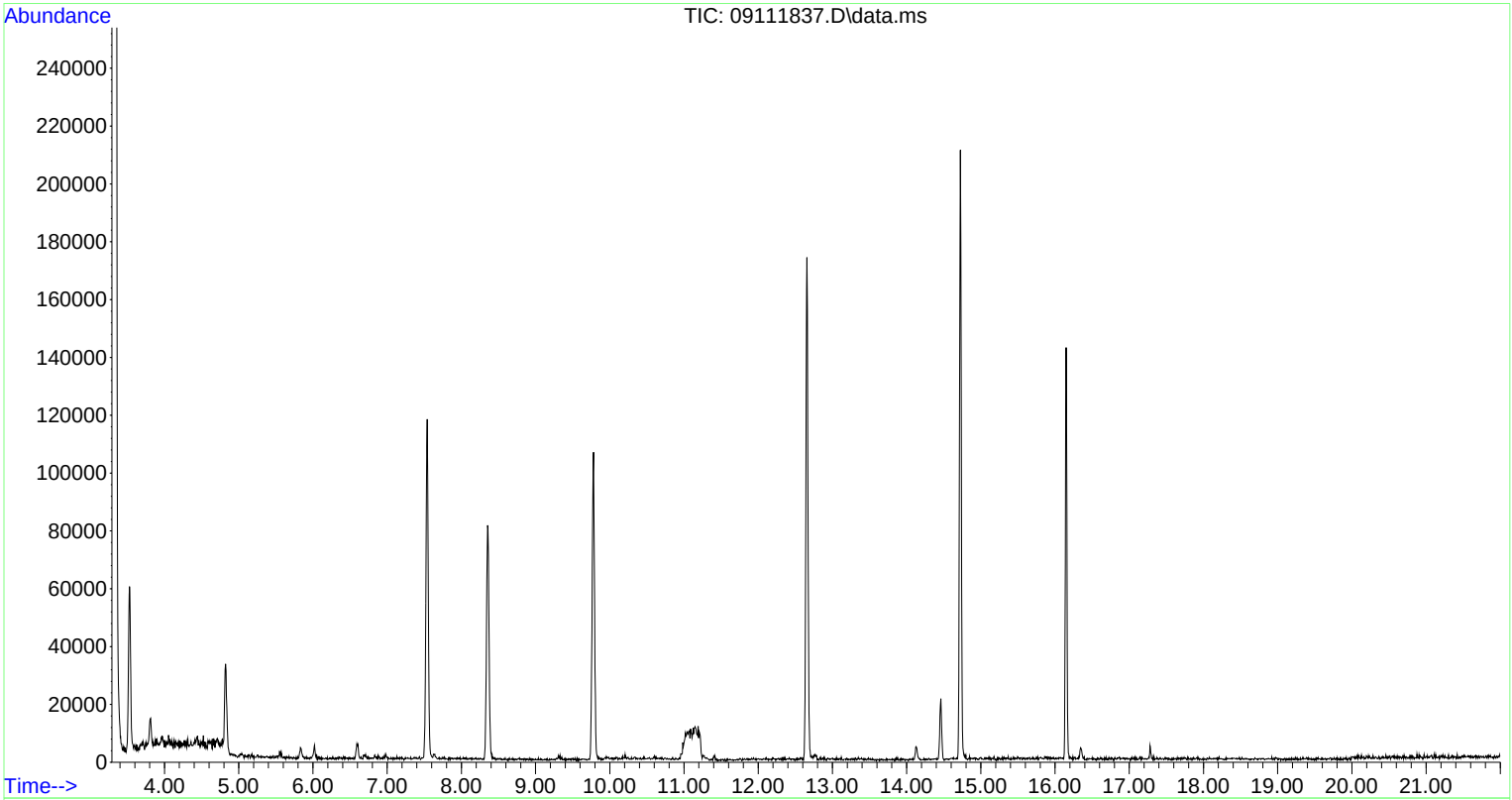
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	56906	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	126923	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.73	117	144908	1000.000	pg		0.02
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	76365	977.453	pg		0.00
Spiked Amount 1000.000			Recovery = 97.75%				
57) Toluene-d8 (SS2)	12.66	98	150228	935.111	pg		0.04
Spiked Amount 1000.000			Recovery = 93.51%				
74) Bromofluorobenzene (SS3)	16.15	174	46480	761.805	pg		0.01
Spiked Amount 1000.000			Recovery = 76.18%				
Target Compounds							Qvalue
2) * Propene	3.54	42	985	12.554	pg	#	29
3) * Dichlorodifluoromethane	3.59	85	913	2.392	pg		98
4) * Chloromethane	3.71	50	584	3.307	pg		98
5) * 1,2-Dichloro-1,1,2,2...	3.79	85	72	0.271	pg	#	42
7) * 1,3-Butadiene	4.00	54	67	0.487	pg	#	8
10) * Ethanol	4.44	45	2034	31.907	pg		93
11) * Acetonitrile	4.60	41	786	5.692	pg		93
12) * Acrolein	4.71	56	778	9.709	pg		92
13) * Acetone	4.82	58	15181	101.761	pg		74
14) * Trichlorofluoromethane	4.96	101	333	1.865	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	833	4.911	pg		90
16) * Acrylonitrile	5.18	53	487	4.757	pg		98
18) tert-Butanol	5.56	59	607	4.971	pg	#	82
19) * Methylene Chloride	5.57	84	687	6.692	pg		91
21) * Trichlorotrifluoroet...	5.81	151	54	0.637	pg	#	19
22) * Carbon Disulfide	5.83	76	5892	18.061	pg		98
26) * Vinyl Acetate	6.70	86	261	17.074	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	487	8.826	pg		100
29) DIPE	7.63	45	224	1.139	pg	#	43
30) * Ethyl Acetate	7.64	61	301	14.024	pg	#	80
31) * n-Hexane	7.63	57	116	1.197	pg	#	56
32) * Chloroform	7.68	83	59	0.353	pg	#	19
39) * Benzene	9.34	78	877	4.224	pg		97
41) 1-Butanol	9.30	56	459	18.910	pg	#	49
51) * n-Heptane	11.02	71	110	1.104	pg	#	23
53) * 4-Methyl-2-pentanone	11.75	58	76	2.449	pg	#	39
58) * Toluene	12.77	91	1446	5.965	pg		100
65) * Chlorobenzene	14.77	112	50	0.298	pg	#	42
66) * Ethylbenzene	15.16	91	196	1.059	pg		95
67) * m- & p-Xylenes	15.32	91	480	3.487	pg		95
71) * o-Xylene	15.75	91	153	1.077	pg		87
76) * alpha-Pinene	16.62	93	82	0.953	pg	#	19
77) * n-Propylbenzene	16.72	91	77	0.396	pg	#	55
78) 3-Ethyltoluene	16.85	105	70	0.479	pg	#	43
79) * 4-Ethyltoluene	16.85	105	70	0.516	pg	#	44
80) * 1,3,5-Trimethylbenzene	16.92	105	81	0.620	pg	#	28
83) tert-Butylbenzene	17.28	134	153	5.007	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	186	1.615	pg		97
98) * Naphthalene	19.29	128	65	2.225	pg	#	66

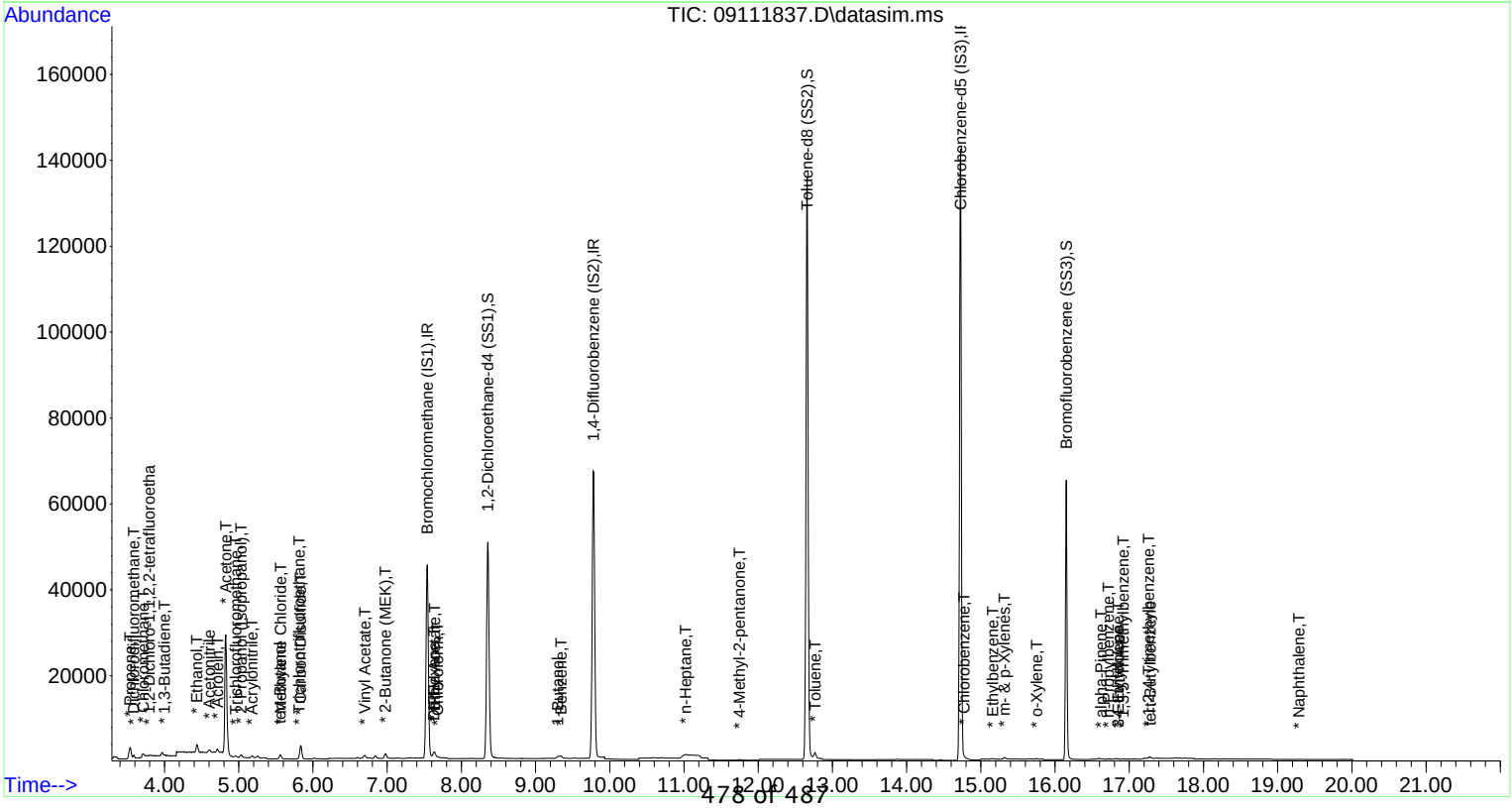
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\11\
Data File : 09111837.D
Acq On : 12 Sep 2018 8:05 am
Operator : RVT
Sample : 091118_AC02192_22536
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 12 08:33:36 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-05
Cycles: 30
Batch: 22584

Batch Started By: HAYDEN.AKERS on 9/19/18 0809
Finished Cleaning By: HAYDEN.AKERS on 9/19/18 0810

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AC02158	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS				MS21_09/19/18
AS01048	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/9/18 0853	JHULETTE	
AS01366	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00258	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS01030	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/9/18 0853	JHULETTE	
AS00913	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00165	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS				
AS01007	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS				
AS00864	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/16/18 0828	JHULETTE	
AS00824	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS				
AS01015	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS				
AS01326	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/16/18 0828	JHULETTE	
AS01039	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00934	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00586	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00769	9/19/18	9/19/18	Pass w/ Conditions	-14.3	9/19/18 0810	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\19\
Data File : 09191814.D
Acq On : 19 Sep 2018 5:56 pm
Operator : RVT
Sample : 091918_AC02158_22584
Misc : LL+TICS (Sig #1); S31-09181809 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

RVT 9/20/18

Quant Time: Sep 20 08:48:27 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

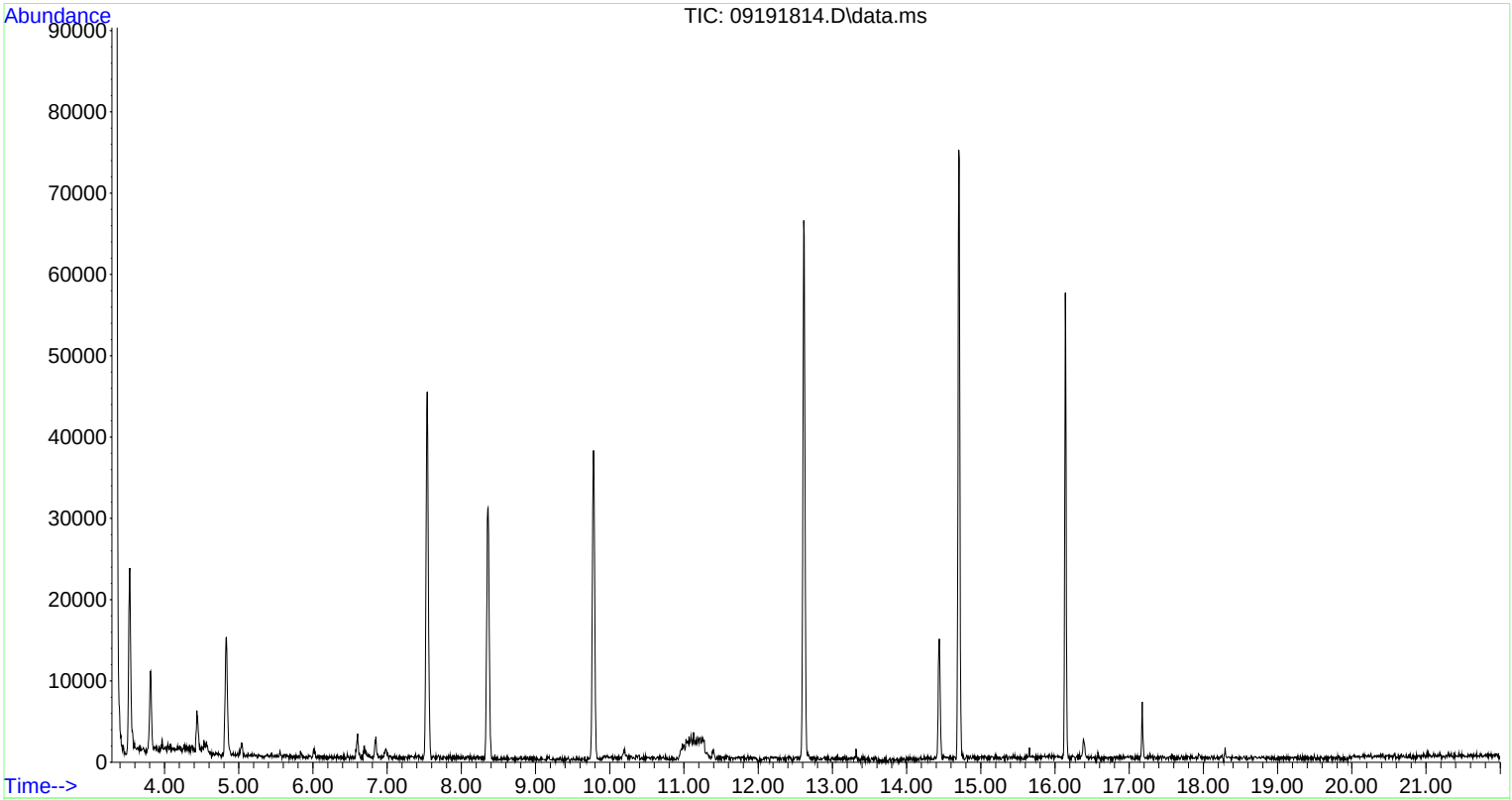
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	23654	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	46791	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	54531	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	29884	920.224	pg		0.00
Spiked Amount 1000.000			Recovery = 92.02%				
57) Toluene-d8 (SS2)	12.62	98	55767	922.441	pg		0.00
Spiked Amount 1000.000			Recovery = 92.24%				
74) Bromofluorobenzene (SS3)	16.14	174	18981	826.696	pg		0.00
Spiked Amount 1000.000			Recovery = 82.67%				
Target Compounds							Qvalue
2) * Propene	3.54	42	458	14.044	pg	#	22
3) * Dichlorodifluoromethane	3.59	85	55	0.347	pg	#	42
4) * Chloromethane	3.72	50	273	3.719	pg	#	87
7) * 1,3-Butadiene	4.00	54	11	0.192	pg	#	8
10) * Ethanol	4.44	45	3689	139.217	pg		96
11) * Acetonitrile	4.61	41	131	2.282	pg	#	1
12) * Acrolein	4.72	56	423	12.700	pg		99
13) * Acetone	4.84	58	9398	151.555	pg	#	61
15) * 2-Propanol (Isopropa...	5.04	45	1743	24.723	pg	#	81
16) * Acrylonitrile	5.18	53	84	1.974	pg		86
17) * 1,1-Dichloroethene	5.43	96	341	9.653	pg	#	81
18) tert-Butanol	5.56	59	442	8.708	pg		93
19) * Methylene Chloride	5.57	84	62	1.453	pg	#	17
22) * Carbon Disulfide	5.84	76	598	4.410	pg	#	73
26) * Vinyl Acetate	6.71	86	366	57.600	pg	#	22
27) * 2-Butanone (MEK)	6.99	72	583	25.420	pg		97
39) * Benzene	9.35	78	225	2.940	pg	#	53
41) 1-Butanol	9.32	56	368	41.126	pg	#	48
58) * Toluene	12.73	91	127	1.392	pg		96
59) * 2-Hexanone	13.08	58	54	5.771	pg	#	59
67) * m- & p-Xylenes	15.30	91	54	1.043	pg	#	29
69) Cyclohexanone	15.46	98	94	12.891	pg		88
81) alpha-Methylstyrene	17.05	118	85	3.993	pg	#	81
83) tert-Butylbenzene	17.28	134	63	5.479	pg	#	1
87) * 1,4-Dichlorobenzene	17.43	146	278	11.649	pg		97

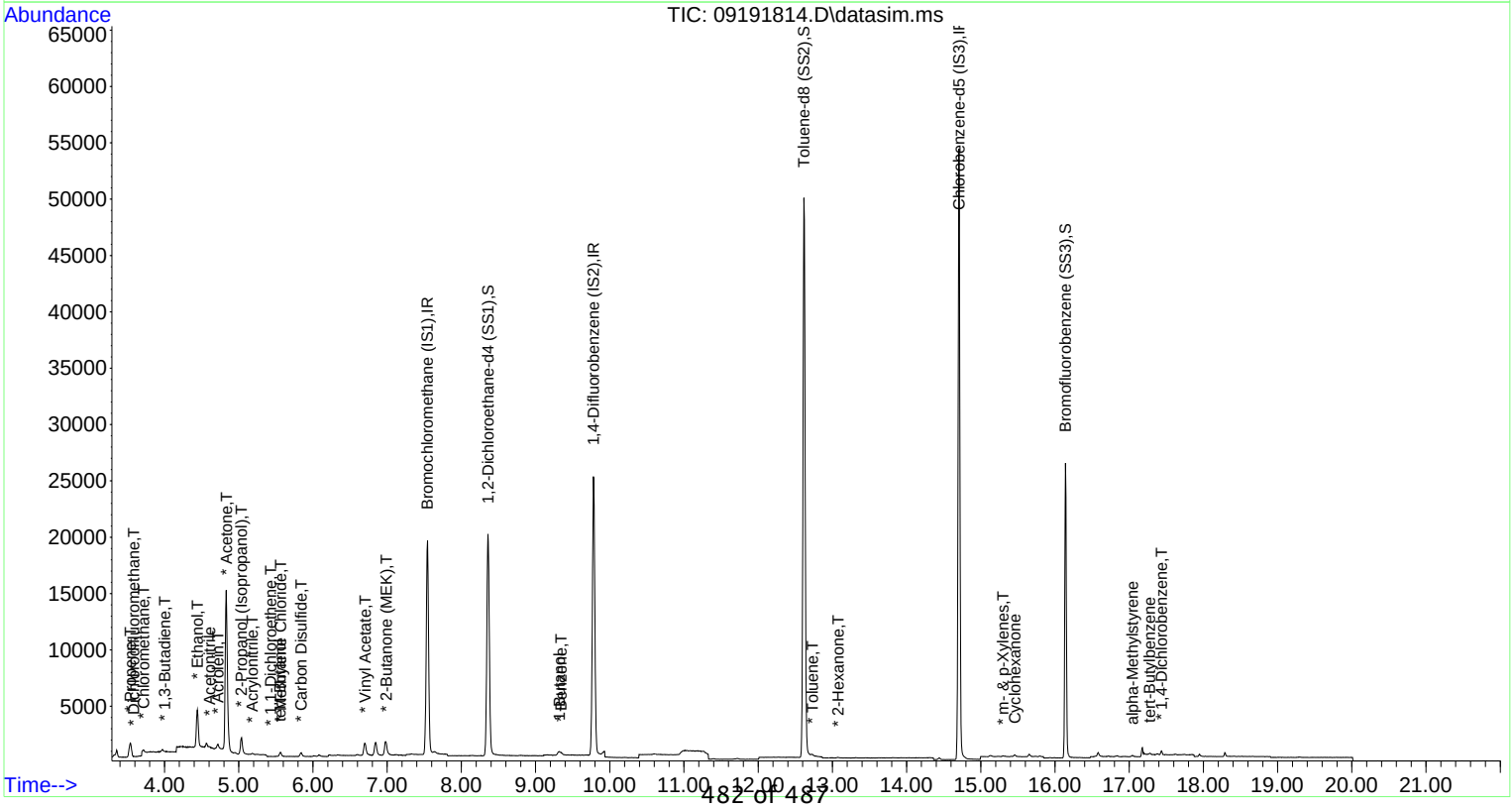
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\19\
Data File : 09191814.D
Acq On : 19 Sep 2018 5:56 pm
Operator : RVT
Sample : 091918_AC02158_22584
Misc : LL+TICS (Sig #1); S31-09181809 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Sep 20 08:48:27 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-06
Cycles: 30
Batch: 22640

Batch Started By: HAYDEN.AKERS on 10/3/18 0232
Finished Cleaning By: HAYDEN.AKERS on 10/3/18 0233

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
1BV12846	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/9/18 0303	JHULETTE	MS21_10/03/18
1BV12847	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12849	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12853	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12854	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12862	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12865	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12871	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12874	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12875	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12876	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12877	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12878	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12879	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12881	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12848	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12850	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12851	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12852	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12855	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12856	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12857	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12858	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12859	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12860	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	

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1BV12861	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12863	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12864	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12866	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12867	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12868	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12869	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12870	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12872	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12873	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12880	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

***QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

RVT 10/5/18

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	46126	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	112225	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	109963	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	62530	1010.809	pg		0.00
Spiked Amount 1000.000			Recovery = 101.08%				
57) Toluene-d8 (SS2)	12.62	98	127463	965.323	pg		0.00
Spiked Amount 1000.000			Recovery = 96.53%				
74) Bromofluorobenzene (SS3)	16.14	174	35479	1029.091	pg		0.00
Spiked Amount 1000.000			Recovery = 102.91%				
Target Compounds							Qvalue
2) * Propene	3.52	42	875	14.958	pg	#	70
3) * Dichlorodifluoromethane	3.58	85	903	5.089	pg		99
4) * Chloromethane	3.71	50	1115	10.804	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	515	3.872	pg		97
6) * Vinyl Chloride	3.89	62	644	6.902	pg		99
7) * 1,3-Butadiene	4.00	54	411	7.238	pg	#	2
8) * Bromomethane	4.21	94	407	5.805	pg		98
9) * Chloroethane	4.35	64	225	5.478	pg		98
10) * Ethanol	4.44	45	1749	59.901	pg		93
11) * Acetonitrile	4.60	41	848	7.441	pg	#	1
12) * Acrolein	4.71	56	765	16.404	pg		96
13) * Acetone	4.83	58	12841	203.001	pg		75
14) * Trichlorofluoromethane	4.96	101	604	4.657	pg		99
15) * 2-Propanol (Isopropa...	5.04	45	1226	12.967	pg	#	55
16) * Acrylonitrile	5.18	53	866	10.369	pg		99
17) * 1,1-Dichloroethene	5.48	96	275	4.733	pg		92
18) tert-Butanol	5.56	59	1121	19.136	pg		99
19) * Methylene Chloride	5.57	84	867	11.142	pg		98
20) * 3-Chloro-1-propene (...	5.67	41	240	4.603	pg	#	69
21) * Trichlorotrifluoroet...	5.82	151	173	2.806	pg	#	49
22) * Carbon Disulfide	5.84	76	7244	26.970	pg		99
23) * trans-1,2-Dichloroet...	6.39	96	298	4.806	pg		93
24) * 1,1-Dichloroethane	6.58	63	451	4.287	pg		97
25) * Methyl tert-Butyl Ether	6.69	73	317	4.801	pg	#	51
26) * Vinyl Acetate	6.71	86	385	40.856	pg		67
27) * 2-Butanone (MEK)	6.98	72	707	20.790	pg		83
28) * cis-1,2-Dichloroethene	7.38	96	266	4.309	pg		93
29) DIPE	7.65	45	545	4.538	pg		98
30) * Ethyl Acetate	7.64	61	185	12.919	pg		100
31) * n-Hexane	7.64	57	308	4.720	pg		96
32) * Chloroform	7.68	83	570	4.494	pg		96
35) ETBE	8.24	87	100	4.182	pg		93
36) * 1,2-Dichloroethane	8.49	62	326	4.367	pg		92
38) * 1,1,1-Trichloroethane	8.80	97	304	4.913	pg		97
39) * Benzene	9.34	78	1476	8.112	pg		94
41) 1-Butanol	9.32	56	488	18.087	pg	#	48
42) * Carbon Tetrachloride	9.53	117	291	4.585	pg		98
43) * Cyclohexane	9.69	84	382	8.119	pg		96
45) * 1,2-Dichloropropane	10.33	63	261	4.994	pg		99
46) * Bromodichloromethane	10.54	83	376	5.180	pg		98
47) * Trichloroethene	10.62	130	291	5.531	pg		99
48) * 1,4-Dioxane	10.66	88	192	6.605	pg		94
49) Isooctane	10.71	56	300	5.171	pg		99
50) * Methyl Methacrylate	10.89	69	335	10.404	pg		99
51) * n-Heptane	11.02	71	534	7.720	pg		97

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

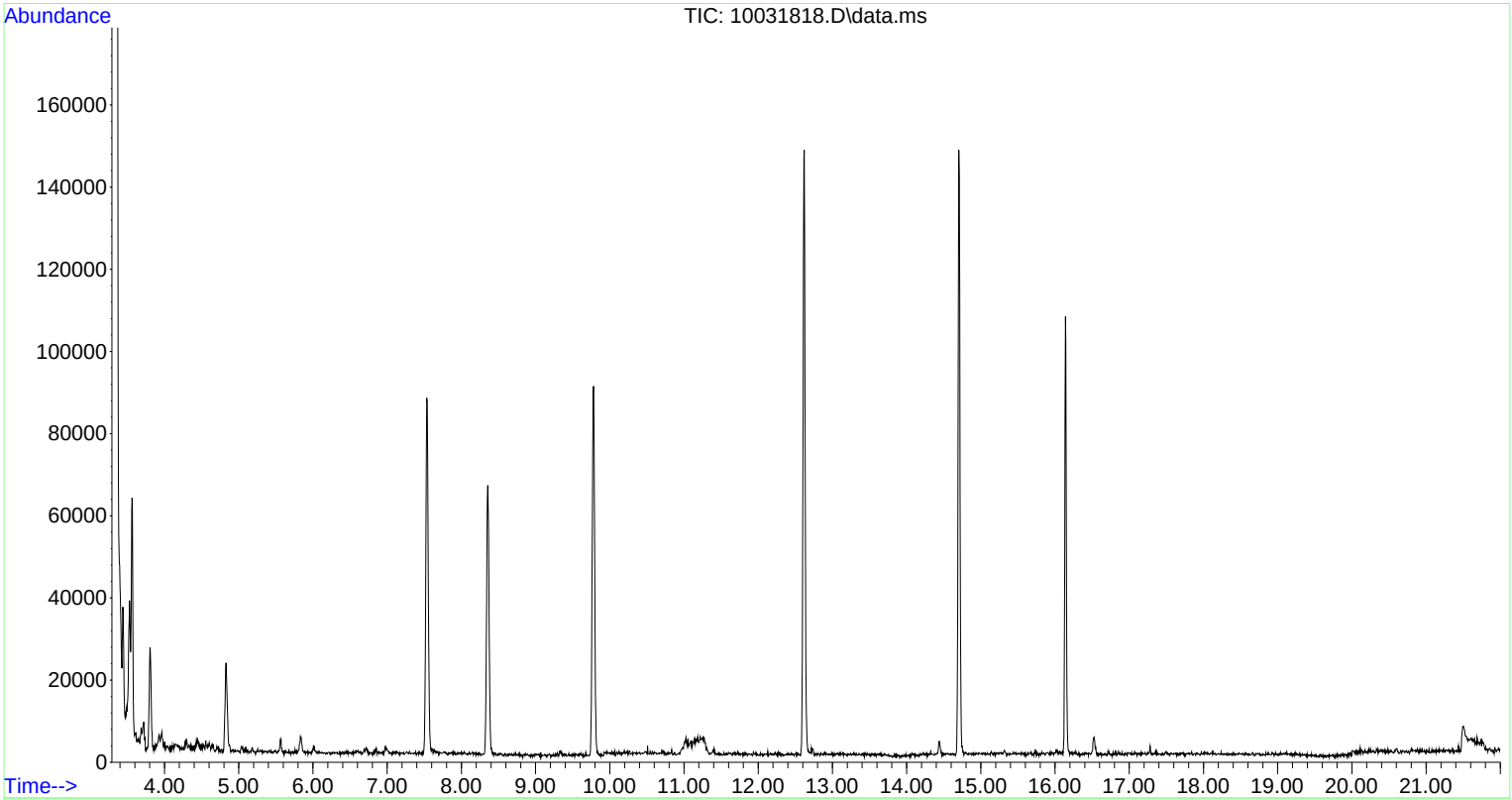
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
52) * cis-1,3-Dichloropropene	11.62	75	241	5.377	pg		98
53) * 4-Methyl-2-pentanone	11.73	58	260	9.820	pg		99
54) * trans-1,3-Dichloropr...	12.22	75	166	5.391	pg	#	43
55) * 1,1,2-Trichloroethane	12.40	97	275	5.199	pg		99
58) * Toluene	12.73	91	1446	7.546	pg		100
59) * 2-Hexanone	13.08	58	108	6.036	pg	#	59
60) * Dibromochloromethane	13.17	129	257	4.582	pg		99
61) * 1,2-Dibromoethane	13.45	107	280	5.394	pg		96
63) * n-Octane	13.92	85	104	5.046	pg		99
64) * Tetrachloroethene	14.02	166	290	4.995	pg		96
65) * Chlorobenzene	14.75	112	735	5.644	pg		100
66) * Ethylbenzene	15.14	91	697	5.183	pg		98
67) * m- & p-Xylenes	15.31	91	1126	11.545	pg		99
68) * Bromoform	15.34	173	192	5.483	pg		99
69) Cyclohexanone	15.47	98	80	6.236	pg	#	71
70) * Styrene	15.65	104	303	5.828	pg		94
71) * o-Xylene	15.74	91	499	4.987	pg		99
72) * n-Nonane	15.98	57	140	3.984	pg		96
73) * 1,1,2,2-Tetrachloroe...	15.72	83	503	4.894	pg		99
75) * Cumene	16.28	105	676	4.545	pg		98
76) * alpha-Pinene	16.61	93	257	5.093	pg		93
77) * n-Propylbenzene	16.72	91	686	5.113	pg		98
78) 3-Ethyltoluene	16.85	105	463	4.675	pg		89
79) * 4-Ethyltoluene	16.85	105	463	5.802	pg		91
80) * 1,3,5-Trimethylbenzene	16.92	105	346	3.950	pg		95
81) alpha-Methylstyrene	17.05	118	218	5.929	pg		98
82) 2-Ethyltoluene	17.07	105	468	4.184	pg		96
83) tert-Butylbenzene	17.28	134	64	3.112	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	377	5.365	pg		94
86) * 1,3-Dichlorobenzene	17.43	146	377	6.468	pg		100
87) * 1,4-Dichlorobenzene	17.43	146	375	8.095	pg		98
88) n-Decane	17.37	85	79	5.879	pg	#	42
89) sec-Butylbenzene	17.49	105	451	3.516	pg		99
90) 1,2,3-Trimethylbenzene	17.61	105	321	4.443	pg		96
91) p-Isopropyltoluene	17.62	134	87	4.061	pg		99
92) * 1,2-Dichlorobenzene	17.72	146	376	6.265	pg		98
93) * D-Limonene	17.74	68	85	3.925	pg	#	79
94) n-Butylbenzene	17.97	134	71	4.802	pg		92
95) * 1,2-Dibromo-3-chloro...	18.09	157	139	9.728	pg		99
97) * 1,2,4-Trichlorobenzene	19.19	180	155	17.064	pg		98
98) * Naphthalene	19.29	128	321	17.114	pg	#	68
100) * Hexachlorobutadiene	19.63	225	142	4.386	pg		92

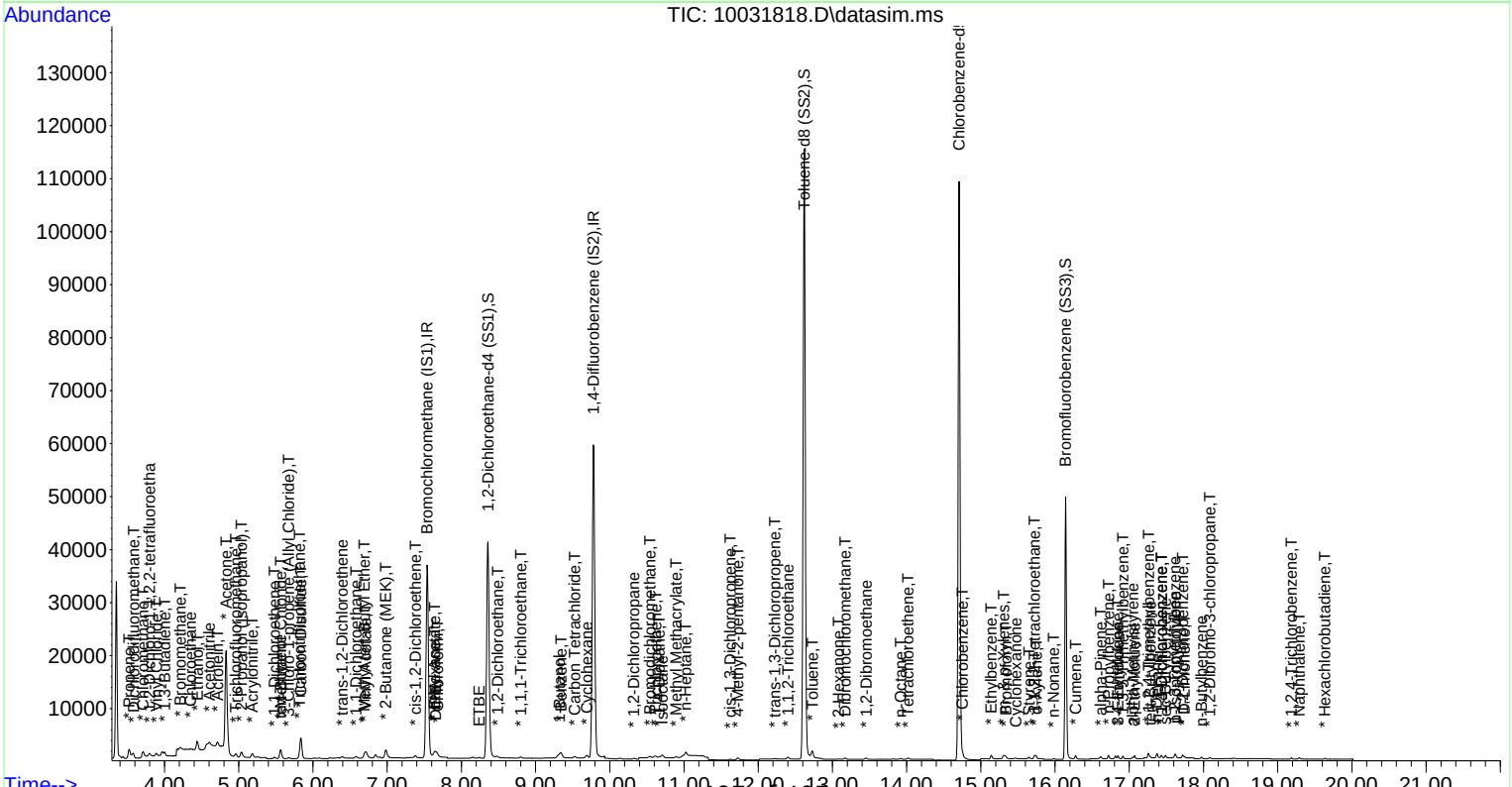
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration





2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

October 31, 2018

Rachel Grand
Jacobs
1034 South Brentwood Blvd Suite 2300
St. Louis, MO 63117

RE: PMC

Dear Rachel:

Enclosed are the results of the samples submitted to our laboratory on October 13, 2018. For your reference, these analyses have been assigned our service request number P1805493.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 5:37 pm, 10/31/18

Kate Kaneko
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Jacobs
Project: PMC

Service Request No: P1805493

CASE NARRATIVE

The samples were received intact under chain of custody on October 13, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. The use of Bottle Vac Glass is considered a method modification. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The minimum criterion for 1,3-butadiene was not met in the Continuing Calibration Verification (CCV) analyzed on October 27, 2018. A Method Reporting Limit (MRL) check standard was analyzed and confirmed that instrument sensitivity was adequate to detect this analyte at the MRL on the day in question. The data associated with this CCV has been flagged accordingly. No further corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Jacobs
Project ID: PMC

Service Request: P1805493

Date Received: 10/13/2018
Time Received: 10:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
19CP01-14	P1805493-001	Air	10/10/2018	10:25	1BV12852	-1.46	5.09	X
19CP01-15	P1805493-002	Air	10/10/2018	11:17	1BV12850	-1.41	5.23	X
19CP01-16	P1805493-003	Air	10/10/2018	12:13	1BV12877	-1.71	5.33	X
19CP01-17	P1805493-004	Air	10/10/2018	10:25	1BV12878	-1.54	5.18	X
19CP01-18	P1805493-005	Air	10/10/2018	18:09	1BV12870	-1.26	5.14	X
19CP01-19	P1805493-006	Air	10/10/2018	18:09	1BV12875	-1.28	5.40	X
19CP01-20	P1805493-007	Air	10/11/2018	09:10	1BV12873	-0.76	5.03	X
19CP01-21	P1805493-008	Air	10/11/2018	09:45	1BV12871	-0.75	5.23	X
19CP01-22	P1805493-009	Air	10/11/2018	10:30	1BV12855	-0.40	5.14	X
19CP01-23	P1805493-010	Air	10/10/2018	10:25	1BV12881	-0.35	5.17	X
19CP01-24	P1805493-011	Air	10/11/2018	11:39	1BV12880	-0.96	5.60	X
19CP01-25	P1805493-012	Air	10/11/2018	12:05	1BV12874	-1.17	5.55	X
19CP01-26	P1805493-013	Air	10/11/2018	12:58	1BV12854	-0.98	5.03	X
19CP01-27	P1805493-014	Air	10/11/2018	13:46	1BV12872	-1.38	5.21	X
19CP01-28	P1805493-015	Air	10/11/2018	14:32	1BV12897	-0.51	5.52	X
19CP01-29	P1805493-016	Air	10/11/2018	15:19	1BV12896	-1.10	5.39	X
19CP01-30	P1805493-017	Air	10/11/2018	16:03	1BV12902	-1.03	5.16	X
19CP01-31	P1805493-018	Air	10/11/2018	11:39	1BV12900	-1.47	5.39	X
19CP01-32	P1805493-019	Air	10/11/2018	16:58	1BV12899	-1.68	5.40	X

P1805495

USEPA CLP COC (LAB COPY)

DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

COC - Petoskey Michigan Site (PMC)

Case #:
Cooler #:

No: 5-101118-185549-0018

Lab: ALS Laboratory Group - Simi Valley
Lab Contact: Kate Kaneko
Lab Phone: 805-526-7161

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-SVB-05-10.5-101018	19CP01-14	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-05-10.5	10/10/2018 10:25	
2	PMC-SVB-05-4.5-101018	19CP01-15	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-05-4.5	10/10/2018 11:17	
3	PMC-SVB-02-11-101018	19CP01-16	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-02-11	10/10/2018 12:13	
4	PMC-SVB-02-6-101018	19CP01-17	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-02-6	10/10/2018 10:25	
5	PMC-SVB-06-6-101018	19CP01-18	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-06-6	10/10/2018 18:09	
6	PMC-SVB-06-6-101018-FD	19CP01-19	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-06-6	10/10/2018 18:09	
7	PMC-SVB-04-12.5-101118	19CP01-20	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-04-12.5	10/11/2018 09:10	
8	PMC-SVB-04-9-101118	19CP01-21	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-04-09	10/11/2018 09:45	
9	PMC-SVB-04-6-101118	19CP01-22	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-04-6	10/11/2018 10:30	
10	PMC-SVB-03-15-101118	19CP01-23	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-03-15	10/10/2018 10:25	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (bottle - 48hrTAT)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			ALS	10/13/18 1015	GOOD CUSTODY SEALS INTACT

P1805493

USEPA CLP COC (LAB COPY)
DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

COC - Petoskey Michigan Site (PMC)

Case #:
Cooler #:

No: 5-101118-185549-0018
Lab: ALS Laboratory Group - Simi Valley
Lab Contact: Kate Kaneko
Lab Phone: 805-526-7161

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
11	PMC-SVB-03-10.5-101118	19CP01-24	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-03-10.5	10/11/2018 11:39	
12	PMC-SVB-03-5.5-101118	19CP01-25	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-03-5.5	10/11/2018 12:05	
13	PMC-SVB-11-5-101118	19CP01-26	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-11-55	10/11/2018 12:58	
14	PMC-SVB-12-12-101118	19CP01-27	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-12-12	10/11/2018 13:46	
15	PMC-SVB-12-5-101118	19CP01-28	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-12-5	10/11/2018 14:32	
16	PMC-SVB-10-15.6-101118	19CP01-29	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-10-15.6	10/11/2018 15:19	
17	PMC-SVB-10-10-101118	19CP01-30	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-10-10	10/11/2018 16:03	
18	PMC-SVB-10-6-101118	19CP01-31	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-10-06	10/11/2018 11:39	
19	PMC-SVB-10-6-101118-FD	19CP01-32	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-10-06	10/11/2018 16:58	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (bottle - 48hrTAT)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
			ALS	10/13/18 1016	GOOD CUSTODY SEAL INTACT

7 Boxes

P1805493

USEPA

DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

CHAIN OF CUSTODY RECORD

Site #: PMC
Contact Name: Heather Hodach
Contact Phone: 414-847-0428

No: 5-101118-185549-0018

Cooler #:
Lab: ALS Laboratory Group - Simi Valley
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	PMC-SVB-05-10.5-101018	SVB-05-10.5	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	10:25	1	1 L bottle vac	None	N
	PMC-SVB-05-4.5-101018	SVB-05-4.5	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	11:17	1	1 L bottle vac	None	N
	PMC-SVB-02-11-101018	SVB-02-11	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	12:13	1	1 L bottle vac	None	N
	PMC-SVB-02-6-101018	SVB-02-6	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	10:25	1	1 L bottle vac	None	N
	PMC-SVB-06-6-101018	SVB-06-6	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	18:09	1	1 L bottle vac	None	N
	PMC-SVB-06-6-101018-FD	SVB-06-6	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	18:09	1	1 L bottle vac	None	N
	PMC-SVB-04-12.5-101118	SVB-04-12.5	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	09:10	1	1 L bottle vac	None	N
	PMC-SVB-04-9-101118	SVB-04-09	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	09:45	1	1 L bottle vac	None	N
	PMC-SVB-04-6-101118	SVB-04-6	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	10:30	1	1 L bottle vac	None	N
	PMC-SVB-03-15-101118	SVB-03-15	VOCs - TO-15 (bottle)	Soil Gas	10/10/2018	10:25	1	1 L bottle vac	None	N

Special Instructions:

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	/Jacobs	10/12/18 1100	AS	10/13/18 1015	Good

P1805493

USEPA
DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

CHAIN OF CUSTODY RECORD
Site #: PMC
Contact Name: Heather Hodach
Contact Phone: 414-847-0428

No: 5-101118-185549-0018
Cooler #:
Lab: ALS Laboratory Group - Simi Valley
Lab Phone: 805-526-7161

Lab #	Sample #	Location	Analyses	Matrix	Sample Date	Sample Time	Numb Cont	Container	Preservative	Lab QC
	PMC-SVB-03-10.5-101118	SVB-03-10.5	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	11:39	1	1 L bottle vac	None	N
	PMC-SVB-03-5.5-101118	SVB-03-5.5	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	12:05	1	1 L bottle vac	None	N
	PMC-SVB-11-5-101118	SVB-11-55	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	12:58	1	1 L bottle vac	None	N
	PMC-SVB-12-12-101118	SVB-12-12	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	13:46	1	1 L bottle vac	None	N
	PMC-SVB-12-5-101118	SVB-12-5	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	14:32	1	1 L bottle vac	None	N
	PMC-SVB-10-15.6-101118	SVB-10-15.6	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	15:19	1	1 L bottle vac	None	N
	PMC-SVB-10-10-101118	SVB-10-10	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	16:03	1	1 L bottle vac	None	N
	PMC-SVB-10-6-101118	SVB-10-06	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	11:39	1	1 L bottle vac	None	N
	PMC-SVB-10-6-101118-FD	SVB-10-06	VOCs - TO-15 (bottle)	Soil Gas	10/11/2018	16:58	1	1 L bottle vac	None	N

Special Instructions:

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	10/12/18 1200	ALS	10/13/18 1016	Good

ALS Environmental
Sample Acceptance Check Form

Client: Jacobs Work order: P1805493

Project: PMC

Sample(s) received on: 10/13/18 Date opened: 10/13/18 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805493-001.01	1.0 L Bottle-Vac™					
P1805493-002.01	1.0 L Bottle-Vac™					
P1805493-003.01	1.0 L Bottle-Vac™					
P1805493-004.01	1.0 L Bottle-Vac™					
P1805493-005.01	1.0 L Bottle-Vac™					
P1805493-006.01	1.0 L Bottle-Vac™					
P1805493-007.01	1.0 L Bottle-Vac™					
P1805493-008.01	1.0 L Bottle-Vac™					
P1805493-009.01	1.0 L Bottle-Vac™					
P1805493-010.01	1.0 L Bottle-Vac™					
P1805493-011.01	1.0 L Bottle-Vac™					
P1805493-012.01	1.0 L Bottle-Vac™					
P1805493-013.01	1.0 L Bottle-Vac™					
P1805493-014.01	1.0 L Bottle-Vac™					
P1805493-015.01	1.0 L Bottle-Vac™					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: Jacobs Work order: P1805493

Project: PMC

Sample(s) received on: 10/13/18 Date opened: 10/13/18 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805493-016.01	1.0 L Bottle-Vac™					
P1805493-017.01	1.0 L Bottle-Vac™					
P1805493-018.01	1.0 L Bottle-Vac™					
P1805493-019.01	1.0 L Bottle-Vac™					
P1805493-020.01	1.0 L Bottle-Vac™					
P1805493-021.01	1.0 L Bottle-Vac™					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-14** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-001

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12852

Initial Pressure (psig): -1.46 Final Pressure (psig): 5.09

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.75**	1.9	0.48	**0.44**	1.1	0.28	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	1.9	0.32	**0.47**	0.39	0.066	
74-87-3	Chloromethane	0.32	1.9	0.32	0.16	0.90	0.16	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.083	0.77	0.083	**U**
106-99-0	1,3-Butadiene	0.33	1.9	0.33	0.15	0.88	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.093	0.72	0.093	**U**
64-17-5	Ethanol	**6.1**	19	1.4	**3.3**	10	0.73	**J**
75-05-8	Acetonitrile	0.48	1.9	0.48	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.56	3.7	0.56	0.24	1.6	0.24	**U**
67-64-1	Acetone	**29**	20	4.5	**12**	8.5	1.9	
75-69-4	Trichlorofluoromethane	**1.2**	2.0	0.30	**0.21**	0.35	0.054	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**2.4**	7.8	0.82	**0.96**	3.2	0.33	**J**
107-13-1	Acrylonitrile	0.41	1.9	0.41	0.19	0.89	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.34**	2.0	0.28	**0.044**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	0.60	4.1	0.60	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.29	1.9	0.29	0.072	0.48	0.072	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-14** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-001

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12852

Initial Pressure (psig): -1.46 Final Pressure (psig): 5.09

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	2.0	0.23	0.065	0.56	0.065	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**1.5**	3.7	0.41	**0.52**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	**1.8**	2.0	0.28	**0.46**	0.50	0.070	**J**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	**0.92**	2.0	0.26	**0.19**	0.41	0.054	**J**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.054	0.49	0.054	**U**
71-55-6	1,1,1-Trichloroethane	**0.45**	2.0	0.25	**0.082**	0.37	0.045	**J**
71-36-3	1-Butanol	**1.7**	3.7	0.52	**0.57**	1.2	0.17	**J**
71-43-2	Benzene	0.29	1.9	0.29	0.090	0.61	0.090	**U**
110-82-7	Cyclohexane	0.56	3.7	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.053	0.44	0.053	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.29	0.043	**U**
79-01-6	Trichloroethene	**390**	2.0	0.27	**72**	0.37	0.050	
123-91-1	1,4-Dioxane	0.23	2.0	0.23	0.065	0.55	0.065	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.068	0.46	0.068	**U**
108-10-1	4-Methyl-2-pentanone	**0.75**	2.0	0.27	**0.18**	0.48	0.066	**J**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.090	0.44	0.090	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-14** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-001

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12852

Initial Pressure (psig): -1.46 Final Pressure (psig): 5.09

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.7**	2.0	0.24	**0.45**	0.52	0.064	**J**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**13**	2.0	0.26	**1.9**	0.29	0.038	
100-41-4	Ethylbenzene	0.28	1.9	0.28	0.064	0.45	0.064	**U**
179601-23-1	m,p-Xylenes	**0.85**	4.1	0.52	**0.19**	0.94	0.12	**J**
75-25-2	Bromoform	0.41	2.0	0.41	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.075	0.46	0.075	**U**
95-47-6	o-Xylene	**0.42**	2.0	0.29	**0.096**	0.45	0.066	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.058	0.40	0.058	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.086	0.79	0.086	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.33	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.051	0.33	0.051	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	1.9	0.27	0.055	0.39	0.055	**U**
95-50-1	1,2-Dichlorobenzene	0.29	2.0	0.29	0.049	0.33	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.48	2.0	0.48	0.065	0.27	0.065	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.93	1.9	0.93	0.26	0.53	0.26	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-15** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-002

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12850

Initial Pressure (psig): -1.41 Final Pressure (psig): 5.23

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.55**	2.0	0.49	**0.32**	1.1	0.28	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	2.0	0.33	**0.47**	0.39	0.066	
74-87-3	Chloromethane	0.32	1.9	0.32	0.16	0.91	0.16	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.084	0.78	0.084	**U**
106-99-0	1,3-Butadiene	0.33	2.0	0.33	0.15	0.88	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.094	0.73	0.094	**U**
64-17-5	Ethanol	**3.8**	19	1.4	**2.0**	10	0.74	**J**
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.56	3.8	0.56	0.25	1.6	0.25	**U**
67-64-1	Acetone	**5.7**	20	4.5	**2.4**	8.5	1.9	**J**
75-69-4	Trichlorofluoromethane	**1.2**	2.0	0.30	**0.22**	0.35	0.054	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**1.7**	7.9	0.83	**0.70**	3.2	0.34	**J**
107-13-1	Acrylonitrile	0.41	2.0	0.41	0.19	0.90	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.40**	2.0	0.29	**0.052**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	0.60	4.1	0.60	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.29	2.0	0.29	0.072	0.48	0.072	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-15** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-002

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12850

Initial Pressure (psig): -1.41 Final Pressure (psig): 5.23

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.0	0.24	0.066	0.56	0.066	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**1.0**	3.8	0.41	**0.35**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.071	0.50	0.071	**U**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	**0.53**	2.0	0.27	**0.11**	0.41	0.055	**J**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.055	0.49	0.055	**U**
71-55-6	1,1,1-Trichloroethane	0.25	2.0	0.25	0.045	0.37	0.045	**U**
71-36-3	1-Butanol	**2.7**	3.8	0.53	**0.91**	1.2	0.17	**J**
71-43-2	Benzene	0.29	2.0	0.29	0.090	0.61	0.090	**U**
110-82-7	Cyclohexane	0.56	3.8	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.054	0.44	0.054	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.30	0.043	**U**
79-01-6	Trichloroethene	**29**	2.0	0.27	**5.3**	0.37	0.050	
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.066	0.55	0.066	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.069	0.46	0.069	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.067	0.49	0.067	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.091	0.44	0.091	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-15** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-002

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12850

Initial Pressure (psig): -1.41 Final Pressure (psig): 5.23

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.2**	2.0	0.24	**0.32**	0.53	0.065	**J**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**3.4**	2.0	0.26	**0.50**	0.29	0.038	
100-41-4	Ethylbenzene	**0.30**	2.0	0.28	**0.068**	0.45	0.065	**J**
179601-23-1	m,p-Xylenes	**0.78**	4.1	0.53	**0.18**	0.95	0.12	**J**
75-25-2	Bromoform	0.41	2.0	0.41	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.076	0.47	0.076	**U**
95-47-6	o-Xylene	**0.42**	2.0	0.29	**0.096**	0.46	0.067	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.059	0.40	0.059	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.31**	2.0	0.28	**0.063**	0.40	0.056	**J**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.087	0.80	0.087	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.34	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.051	0.34	0.051	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.0	0.30	0.049	0.34	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.49	2.0	0.49	0.066	0.27	0.066	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**1.0**	1.9	0.94	**0.29**	0.53	0.27	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-16**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-003

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12877

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/25/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -1.71 Final Pressure (psig): 5.33

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.52**	2.0	0.50	**0.30**	1.2	0.29	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	2.0	0.33	**0.46**	0.41	0.068	
74-87-3	Chloromethane	**0.98**	1.9	0.33	**0.47**	0.93	0.16	**J**
75-01-4	Vinyl Chloride	0.22	2.0	0.22	0.086	0.80	0.086	**U**
106-99-0	1,3-Butadiene	0.34	2.0	0.34	0.15	0.91	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.073	0.50	0.073	**U**
75-00-3	Chloroethane	0.25	2.0	0.25	0.096	0.74	0.096	**U**
64-17-5	Ethanol	**6.0**	20	1.4	**3.2**	10	0.76	**J**
75-05-8	Acetonitrile	0.50	2.0	0.50	0.30	1.2	0.30	**U**
107-02-8	Acrolein	0.58	3.9	0.58	0.25	1.7	0.25	**U**
67-64-1	Acetone	4.6	21	4.6	1.9	8.8	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.2**	2.0	0.31	**0.21**	0.36	0.056	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**1.2**	8.1	0.85	**0.48**	3.3	0.34	**J**
107-13-1	Acrylonitrile	0.42	2.0	0.42	0.20	0.92	0.20	**U**
75-35-4	1,1-Dichloroethene	0.28	2.1	0.28	0.072	0.52	0.072	**U**
75-09-2	Methylene Chloride	0.58	2.1	0.58	0.17	0.60	0.17	**U**
76-13-1	Trichlorotrifluoroethane	**0.41**	2.0	0.29	**0.053**	0.27	0.038	**J**
75-15-0	Carbon Disulfide	0.62	4.2	0.62	0.20	1.4	0.20	**U**
75-34-3	1,1-Dichloroethane	0.30	2.0	0.30	0.074	0.49	0.074	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-16** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-003

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12877

Initial Pressure (psig): -1.71 Final Pressure (psig): 5.33

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.1	0.24	0.067	0.58	0.067	**U**
108-05-4	Vinyl Acetate	4.6	20	4.6	1.3	5.8	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.48**	3.9	0.42	**0.16**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.29	2.0	0.29	0.073	0.51	0.073	**U**
110-54-3	n-Hexane	0.42	2.1	0.42	0.12	0.59	0.12	**U**
67-66-3	Chloroform	**0.30**	2.1	0.27	**0.061**	0.43	0.056	**J**
107-06-2	1,2-Dichloroethane	0.23	2.0	0.23	0.056	0.50	0.056	**U**
71-55-6	1,1,1-Trichloroethane	**0.64**	2.1	0.25	**0.12**	0.38	0.047	**J**
71-36-3	1-Butanol	**1.8**	3.9	0.54	**0.58**	1.3	0.18	**J**
71-43-2	Benzene	0.30	2.0	0.30	0.093	0.63	0.093	**U**
110-82-7	Cyclohexane	0.58	3.9	0.58	0.17	1.1	0.17	**U**
78-87-5	1,2-Dichloropropane	0.25	2.1	0.25	0.055	0.45	0.055	**U**
75-27-4	Bromodichloromethane	0.30	2.0	0.30	0.044	0.30	0.044	**U**
79-01-6	Trichloroethene	**8.5**	2.0	0.28	**1.6**	0.38	0.052	
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.067	0.57	0.067	**U**
10061-01-5	cis-1,3-Dichloropropene	0.32	2.2	0.32	0.070	0.48	0.070	**U**
108-10-1	4-Methyl-2-pentanone	0.28	2.0	0.28	0.069	0.50	0.069	**U**
10061-02-6	trans-1,3-Dichloropropene	0.42	2.0	0.42	0.093	0.45	0.093	**U**
79-00-5	1,1,2-Trichloroethane	0.21	2.1	0.21	0.038	0.38	0.038	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-16** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-003

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12877

Initial Pressure (psig): -1.71 Final Pressure (psig): 5.33

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.0**	2.0	0.25	**0.27**	0.54	0.066	**J**
591-78-6	2-Hexanone	0.25	2.1	0.25	0.062	0.51	0.062	**U**
106-93-4	1,2-Dibromoethane	0.24	2.1	0.24	0.031	0.27	0.031	**U**
127-18-4	Tetrachloroethene	**12**	2.0	0.27	**1.7**	0.30	0.039	
100-41-4	Ethylbenzene	0.29	2.0	0.29	0.067	0.46	0.067	**U**
179601-23-1	m,p-Xylenes	**0.70**	4.2	0.54	**0.16**	0.98	0.12	**J**
75-25-2	Bromoform	0.42	2.0	0.42	0.041	0.20	0.041	**U**
100-42-5	Styrene	0.33	2.0	0.33	0.078	0.48	0.078	**U**
95-47-6	o-Xylene	**0.38**	2.0	0.30	**0.087**	0.47	0.068	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.042	0.30	0.042	**U**
108-67-8	1,3,5-Trimethylbenzene	0.30	2.0	0.30	0.060	0.42	0.060	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.35**	2.0	0.28	**0.072**	0.42	0.058	**J**
100-44-7	Benzyl Chloride	0.46	4.2	0.46	0.089	0.82	0.089	**U**
541-73-1	1,3-Dichlorobenzene	0.31	2.1	0.31	0.051	0.35	0.051	**U**
106-46-7	1,4-Dichlorobenzene	0.32	2.1	0.32	0.053	0.35	0.053	**U**
526-73-8	1,2,3-Trimethylbenzene	0.28	2.0	0.28	0.057	0.41	0.057	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.1	0.30	0.051	0.35	0.051	**U**
120-82-1	1,2,4-Trichlorobenzene	0.50	2.0	0.50	0.067	0.27	0.067	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.96	1.9	0.96	0.27	0.54	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-17**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-004

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12878

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/25/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -1.54 Final Pressure (psig): 5.18

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**3.3**	2.0	0.49	**1.9**	1.1	0.29	
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	2.0	0.33	**0.51**	0.40	0.066	
74-87-3	Chloromethane	**0.42**	1.9	0.32	**0.20**	0.91	0.16	**J**
75-01-4	Vinyl Chloride	0.22	2.0	0.22	0.084	0.78	0.084	**U**
106-99-0	1,3-Butadiene	0.33	2.0	0.33	0.15	0.89	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.072	0.49	0.072	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.094	0.73	0.094	**U**
64-17-5	Ethanol	**3.6**	19	1.4	**1.9**	10	0.74	**J**
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.57	3.8	0.57	0.25	1.6	0.25	**U**
67-64-1	Acetone	4.5	20	4.5	1.9	8.6	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.1**	2.0	0.31	**0.20**	0.36	0.054	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.83	7.9	0.83	0.34	3.2	0.34	**U**
107-13-1	Acrylonitrile	0.42	2.0	0.42	0.19	0.90	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.57	2.0	0.57	0.16	0.59	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.39**	2.0	0.29	**0.051**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	**5.0**	4.2	0.60	**1.6**	1.3	0.19	
75-34-3	1,1-Dichloroethane	0.29	2.0	0.29	0.073	0.49	0.073	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-17** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-004

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12878

Initial Pressure (psig): -1.54 Final Pressure (psig): 5.18

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.0	0.24	0.066	0.57	0.066	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.7	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.52**	3.8	0.42	**0.18**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.071	0.50	0.071	**U**
110-54-3	n-Hexane	0.42	2.0	0.42	0.12	0.58	0.12	**U**
67-66-3	Chloroform	0.27	2.0	0.27	0.055	0.42	0.055	**U**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.055	0.49	0.055	**U**
71-55-6	1,1,1-Trichloroethane	**4.7**	2.0	0.25	**0.86**	0.37	0.046	
71-36-3	1-Butanol	**1.1**	3.8	0.53	**0.37**	1.2	0.17	**J**
71-43-2	Benzene	0.29	2.0	0.29	0.091	0.61	0.091	**U**
110-82-7	Cyclohexane	0.57	3.8	0.57	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.054	0.44	0.054	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.30	0.043	**U**
79-01-6	Trichloroethene	**2.5**	2.0	0.27	**0.46**	0.37	0.051	
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.066	0.56	0.066	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.069	0.47	0.069	**U**
108-10-1	4-Methyl-2-pentanone	**0.41**	2.0	0.28	**0.10**	0.49	0.067	**J**
10061-02-6	trans-1,3-Dichloropropene	0.42	2.0	0.42	0.092	0.44	0.092	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-17** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-004

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12878

Initial Pressure (psig): -1.54 Final Pressure (psig): 5.18

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**0.92**	2.0	0.25	**0.24**	0.53	0.065	**J**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.061	0.50	0.061	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.27	0.030	**U**
127-18-4	Tetrachloroethene	**10**	2.0	0.26	**1.5**	0.30	0.038	
100-41-4	Ethylbenzene	0.28	2.0	0.28	0.065	0.45	0.065	**U**
179601-23-1	m,p-Xylenes	**0.57**	4.2	0.53	**0.13**	0.96	0.12	**J**
75-25-2	Bromoform	0.42	2.0	0.42	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.076	0.47	0.076	**U**
95-47-6	o-Xylene	**0.31**	2.0	0.29	**0.071**	0.46	0.067	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.041	0.29	0.041	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.059	0.41	0.059	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.28**	2.0	0.28	**0.058**	0.41	0.057	**J**
100-44-7	Benzyl Chloride	0.45	4.2	0.45	0.088	0.80	0.088	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.34	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.052	0.34	0.052	**U**
526-73-8	1,2,3-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.0	0.30	0.050	0.34	0.050	**U**
120-82-1	1,2,4-Trichlorobenzene	0.49	2.0	0.49	0.066	0.27	0.066	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.94	1.9	0.94	0.27	0.53	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-18** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-005

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12870

Initial Pressure (psig): -1.26 Final Pressure (psig): 5.14

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.48	1.9	0.48	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.9**	1.9	0.32	**0.59**	0.39	0.065	
74-87-3	Chloromethane	0.32	1.9	0.32	0.15	0.90	0.15	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.083	0.77	0.083	**U**
106-99-0	1,3-Butadiene	0.33	1.9	0.33	0.15	0.87	0.15	**U, V**
74-83-9	Bromomethane	0.27	1.9	0.27	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.24	1.9	0.24	0.093	0.72	0.093	**U**
64-17-5	Ethanol	1.4	19	1.4	0.73	10	0.73	**U**
75-05-8	Acetonitrile	0.48	1.9	0.48	0.29	1.1	0.29	**U**
107-02-8	Acrolein	0.56	3.7	0.56	0.24	1.6	0.24	**U**
67-64-1	Acetone	**5.1**	20	4.4	**2.1**	8.4	1.9	**J**
75-69-4	Trichlorofluoromethane	**1.4**	2.0	0.30	**0.24**	0.35	0.053	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.81	7.8	0.81	0.33	3.2	0.33	**U**
107-13-1	Acrylonitrile	0.41	1.9	0.41	0.19	0.89	0.19	**U**
75-35-4	1,1-Dichloroethene	0.27	2.0	0.27	0.069	0.50	0.069	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.38**	2.0	0.28	**0.050**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	0.59	4.1	0.59	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.29	1.9	0.29	0.071	0.48	0.071	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

Client: **Jacobs**
Client Sample ID: **19CP01-18** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-005

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12870

Initial Pressure (psig): -1.26 Final Pressure (psig): 5.14

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	2.0	0.23	0.065	0.55	0.065	**U**
108-05-4	Vinyl Acetate	4.4	20	4.4	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.74**	3.7	0.41	**0.25**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.070	0.49	0.070	**U**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	0.26	2.0	0.26	0.054	0.41	0.054	**U**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.054	0.48	0.054	**U**
71-55-6	1,1,1-Trichloroethane	0.24	2.0	0.24	0.045	0.37	0.045	**U**
71-36-3	1-Butanol	**1.5**	3.7	0.52	**0.50**	1.2	0.17	**J**
71-43-2	Benzene	0.28	1.9	0.28	0.089	0.60	0.089	**U**
110-82-7	Cyclohexane	0.56	3.7	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	2.0	0.24	0.053	0.43	0.053	**U**
75-27-4	Bromodichloromethane	0.28	2.0	0.28	0.043	0.29	0.043	**U**
79-01-6	Trichloroethene	**0.58**	2.0	0.27	**0.11**	0.37	0.050	**J**
123-91-1	1,4-Dioxane	0.23	2.0	0.23	0.065	0.54	0.065	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.068	0.46	0.068	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.066	0.48	0.066	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.090	0.43	0.090	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-18** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-005

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12870

Initial Pressure (psig): -1.26 Final Pressure (psig): 5.14

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**3.1**	2.0	0.24	**0.83**	0.52	0.064	
591-78-6	2-Hexanone	0.24	2.0	0.24	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**0.79**	2.0	0.26	**0.12**	0.29	0.038	**J**
100-41-4	Ethylbenzene	0.28	1.9	0.28	0.064	0.44	0.064	**U**
179601-23-1	m,p-Xylenes	**0.54**	4.1	0.52	**0.12**	0.94	0.12	**J**
75-25-2	Bromoform	0.41	2.0	0.41	0.039	0.19	0.039	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.075	0.46	0.075	**U**
95-47-6	o-Xylene	0.28	2.0	0.28	0.066	0.45	0.066	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.27	2.0	0.27	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.28	2.0	0.28	0.058	0.40	0.058	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.30**	2.0	0.27	**0.060**	0.40	0.056	**J**
100-44-7	Benzyl Chloride	0.44	4.1	0.44	0.086	0.79	0.086	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.049	0.33	0.049	**U**
106-46-7	1,4-Dichlorobenzene	0.30	2.0	0.30	0.050	0.33	0.050	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	1.9	0.27	0.055	0.39	0.055	**U**
95-50-1	1,2-Dichlorobenzene	0.29	2.0	0.29	0.049	0.33	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.48	2.0	0.48	0.065	0.26	0.065	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.93	1.9	0.93	0.26	0.52	0.26	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-19**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-006

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Wida Ang
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12875

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -1.28 Final Pressure (psig): 5.40

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.49	2.0	0.49	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**3.0**	2.0	0.33	**0.61**	0.39	0.066	
74-87-3	Chloromethane	0.32	1.9	0.32	0.16	0.91	0.16	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.084	0.78	0.084	**U**
106-99-0	1,3-Butadiene	0.33	2.0	0.33	0.15	0.88	0.15	**U, V**
74-83-9	Bromomethane	0.28	1.9	0.28	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.094	0.73	0.094	**U**
64-17-5	Ethanol	**8.5**	19	1.4	**4.5**	10	0.74	**J**
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.56	3.8	0.56	0.25	1.6	0.25	**U**
67-64-1	Acetone	**7.1**	20	4.5	**3.0**	8.5	1.9	**J**
75-69-4	Trichlorofluoromethane	**1.3**	2.0	0.30	**0.24**	0.35	0.054	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.87**	7.9	0.83	**0.36**	3.2	0.34	**J**
107-13-1	Acrylonitrile	0.41	2.0	0.41	0.19	0.90	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.40**	2.0	0.29	**0.052**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	0.60	4.1	0.60	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.29	2.0	0.29	0.072	0.48	0.072	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

Client: **Jacobs**
Client Sample ID: **19CP01-19** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-006

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12875

Initial Pressure (psig): -1.28 Final Pressure (psig): 5.40

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.0	0.24	0.066	0.56	0.066	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.72**	3.8	0.41	**0.25**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.071	0.50	0.071	**U**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	0.27	2.0	0.27	0.055	0.41	0.055	**U**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.055	0.49	0.055	**U**
71-55-6	1,1,1-Trichloroethane	0.25	2.0	0.25	0.045	0.37	0.045	**U**
71-36-3	1-Butanol	**1.4**	3.8	0.53	**0.46**	1.2	0.17	**J**
71-43-2	Benzene	0.29	2.0	0.29	0.090	0.61	0.090	**U**
110-82-7	Cyclohexane	0.56	3.8	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.054	0.44	0.054	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.30	0.043	**U**
79-01-6	Trichloroethene	**0.47**	2.0	0.27	**0.088**	0.37	0.050	**J**
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.066	0.55	0.066	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.069	0.46	0.069	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.067	0.49	0.067	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.091	0.44	0.091	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-19** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-006

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12875

Initial Pressure (psig): -1.28 Final Pressure (psig): 5.40

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.3**	2.0	0.24	**0.34**	0.53	0.065	**J**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**0.80**	2.0	0.26	**0.12**	0.29	0.038	**J**
100-41-4	Ethylbenzene	0.28	2.0	0.28	0.065	0.45	0.065	**U**
179601-23-1	m,p-Xylenes	0.53	4.1	0.53	0.12	0.95	0.12	**U**
75-25-2	Bromoform	0.41	2.0	0.41	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.076	0.47	0.076	**U**
95-47-6	o-Xylene	0.29	2.0	0.29	0.067	0.46	0.067	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.059	0.40	0.059	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.087	0.80	0.087	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.34	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.051	0.34	0.051	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.0	0.30	0.049	0.34	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.49	2.0	0.49	0.066	0.27	0.066	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.94	1.9	0.94	0.27	0.53	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-20** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-007

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12873

Initial Pressure (psig): -0.76 Final Pressure (psig): 5.03

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.46	1.8	0.46	0.27	1.1	0.27	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**5.0**	1.8	0.31	**1.0**	0.37	0.062	
74-87-3	Chloromethane	0.31	1.8	0.31	0.15	0.86	0.15	**U**
75-01-4	Vinyl Chloride	0.20	1.9	0.20	0.079	0.74	0.079	**U**
106-99-0	1,3-Butadiene	0.31	1.8	0.31	0.14	0.83	0.14	**U, V**
74-83-9	Bromomethane	0.26	1.8	0.26	0.068	0.46	0.068	**U**
75-00-3	Chloroethane	0.23	1.8	0.23	0.089	0.69	0.089	**U**
64-17-5	Ethanol	1.3	18	1.3	0.70	9.6	0.70	**U**
75-05-8	Acetonitrile	0.46	1.8	0.46	0.27	1.1	0.27	**U**
107-02-8	Acrolein	0.53	3.6	0.53	0.23	1.5	0.23	**U**
67-64-1	Acetone	4.3	19	4.3	1.8	8.1	1.8	**U**
75-69-4	Trichlorofluoromethane	**1.7**	1.9	0.29	**0.30**	0.33	0.051	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.78	7.5	0.78	0.32	3.0	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.8	0.39	0.18	0.85	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.066	0.48	0.066	**U**
75-09-2	Methylene Chloride	0.53	1.9	0.53	0.15	0.55	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.37**	1.9	0.27	**0.048**	0.25	0.035	**J**
75-15-0	Carbon Disulfide	**0.67**	3.9	0.57	**0.21**	1.3	0.18	**J**
75-34-3	1,1-Dichloroethane	0.28	1.8	0.28	0.068	0.46	0.068	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

Client: **Jacobs**
Client Sample ID: **19CP01-20** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-007

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12873

Initial Pressure (psig): -0.76 Final Pressure (psig): 5.03

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.22	1.9	0.22	0.062	0.53	0.062	**U**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.3	1.2	**U**
78-93-3	2-Butanone (MEK)	0.39	3.6	0.39	0.13	1.2	0.13	**U**
156-59-2	cis-1,2-Dichloroethene	**1.7**	1.9	0.27	**0.44**	0.47	0.067	**J**
110-54-3	n-Hexane	0.39	1.9	0.39	0.11	0.54	0.11	**U**
67-66-3	Chloroform	**0.95**	1.9	0.25	**0.20**	0.39	0.052	**J**
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.052	0.47	0.052	**U**
71-55-6	1,1,1-Trichloroethane	**0.49**	1.9	0.23	**0.090**	0.35	0.043	**J**
71-36-3	1-Butanol	**1.0**	3.6	0.50	**0.34**	1.2	0.16	**J**
71-43-2	Benzene	0.27	1.8	0.27	0.086	0.58	0.086	**U**
110-82-7	Cyclohexane	0.53	3.6	0.53	0.15	1.0	0.15	**U**
78-87-5	1,2-Dichloropropane	0.23	1.9	0.23	0.051	0.41	0.051	**U**
75-27-4	Bromodichloromethane	0.27	1.9	0.27	0.041	0.28	0.041	**U**
79-01-6	Trichloroethene	**220**	1.9	0.26	**41**	0.35	0.048	
123-91-1	1,4-Dioxane	0.22	1.9	0.22	0.062	0.52	0.062	**U**
10061-01-5	cis-1,3-Dichloropropene	0.29	2.0	0.29	0.065	0.44	0.065	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.063	0.46	0.063	**U**
10061-02-6	trans-1,3-Dichloropropene	0.39	1.9	0.39	0.086	0.41	0.086	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.035	0.35	0.035	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-20** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-007

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12873

Initial Pressure (psig): -0.76 Final Pressure (psig): 5.03

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**2.7**	1.9	0.23	**0.72**	0.50	0.061	
591-78-6	2-Hexanone	0.23	1.9	0.23	0.057	0.47	0.057	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.029	0.25	0.029	**U**
127-18-4	Tetrachloroethene	**170**	1.9	0.24	**24**	0.28	0.036	
100-41-4	Ethylbenzene	0.27	1.8	0.27	0.061	0.43	0.061	**U**
179601-23-1	m,p-Xylenes	0.50	3.9	0.50	0.11	0.90	0.11	**U**
75-25-2	Bromoform	0.39	1.9	0.39	0.038	0.18	0.038	**U**
100-42-5	Styrene	0.31	1.9	0.31	0.072	0.44	0.072	**U**
95-47-6	o-Xylene	0.27	1.9	0.27	0.063	0.43	0.063	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.9	0.26	0.038	0.27	0.038	**U**
108-67-8	1,3,5-Trimethylbenzene	0.27	1.9	0.27	0.056	0.38	0.056	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.082	0.75	0.082	**U**
541-73-1	1,3-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
106-46-7	1,4-Dichlorobenzene	0.29	1.9	0.29	0.048	0.32	0.048	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.8	0.26	0.053	0.38	0.053	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
120-82-1	1,2,4-Trichlorobenzene	0.46	1.9	0.46	0.062	0.25	0.062	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.89	1.8	0.89	0.25	0.50	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-21** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-008

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12871

Initial Pressure (psig): -0.75 Final Pressure (psig): 5.23

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.46	1.9	0.46	0.27	1.1	0.27	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.3**	1.9	0.31	**0.46**	0.38	0.063	
74-87-3	Chloromethane	0.31	1.8	0.31	0.15	0.87	0.15	**U**
75-01-4	Vinyl Chloride	0.20	1.9	0.20	0.080	0.74	0.080	**U**
106-99-0	1,3-Butadiene	0.31	1.9	0.31	0.14	0.84	0.14	**U**
74-83-9	Bromomethane	0.26	1.8	0.26	0.068	0.46	0.068	**U**
75-00-3	Chloroethane	0.24	1.8	0.24	0.089	0.69	0.089	**U**
64-17-5	Ethanol	**2.5**	18	1.3	**1.3**	9.7	0.70	**J**
75-05-8	Acetonitrile	0.46	1.9	0.46	0.28	1.1	0.28	**U**
107-02-8	Acrolein	0.54	3.6	0.54	0.23	1.6	0.23	**U**
67-64-1	Acetone	4.3	19	4.3	1.8	8.1	1.8	**U**
75-69-4	Trichlorofluoromethane	**1.2**	1.9	0.29	**0.21**	0.34	0.052	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.79	7.5	0.79	0.32	3.1	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.9	0.39	0.18	0.86	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.067	0.49	0.067	**U**
75-09-2	Methylene Chloride	0.54	1.9	0.54	0.15	0.56	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.39**	1.9	0.27	**0.051**	0.25	0.035	**J**
75-15-0	Carbon Disulfide	**15**	3.9	0.57	**4.7**	1.3	0.18	
75-34-3	1,1-Dichloroethane	0.28	1.9	0.28	0.069	0.46	0.069	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-21** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-008

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12871

Initial Pressure (psig): -0.75 Final Pressure (psig): 5.23

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	1.9	0.23	0.062	0.54	0.062	**U**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.4	1.2	**U**
78-93-3	2-Butanone (MEK)	0.39	3.6	0.39	0.13	1.2	0.13	**U**
156-59-2	cis-1,2-Dichloroethene	0.27	1.9	0.27	0.068	0.48	0.068	**U**
110-54-3	n-Hexane	0.39	1.9	0.39	0.11	0.55	0.11	**U**
67-66-3	Chloroform	**0.99**	1.9	0.25	**0.20**	0.40	0.052	**J**
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.052	0.47	0.052	**U**
71-55-6	1,1,1-Trichloroethane	0.24	1.9	0.24	0.043	0.35	0.043	**U**
71-36-3	1-Butanol	**0.98**	3.6	0.50	**0.32**	1.2	0.17	**J**
71-43-2	Benzene	**0.44**	1.9	0.28	**0.14**	0.58	0.086	**J**
110-82-7	Cyclohexane	0.54	3.6	0.54	0.16	1.0	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	1.9	0.24	0.051	0.42	0.051	**U**
75-27-4	Bromodichloromethane	0.28	1.9	0.28	0.041	0.28	0.041	**U**
79-01-6	Trichloroethene	**71**	1.9	0.26	**13**	0.35	0.048	
123-91-1	1,4-Dioxane	0.23	1.9	0.23	0.063	0.53	0.063	**U**
10061-01-5	cis-1,3-Dichloropropene	0.30	2.0	0.30	0.065	0.44	0.065	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.064	0.46	0.064	**U**
10061-02-6	trans-1,3-Dichloropropene	0.39	1.9	0.39	0.087	0.42	0.087	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.035	0.35	0.035	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-21** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-008

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12871

Initial Pressure (psig): -0.75 Final Pressure (psig): 5.23

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.9**	1.9	0.23	**0.50**	0.50	0.062	**J**
591-78-6	2-Hexanone	0.24	1.9	0.24	0.058	0.47	0.058	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.029	0.25	0.029	**U**
127-18-4	Tetrachloroethene	**52**	1.9	0.25	**7.6**	0.28	0.036	
100-41-4	Ethylbenzene	0.27	1.9	0.27	0.062	0.43	0.062	**U**
179601-23-1	m,p-Xylenes	0.50	3.9	0.50	0.12	0.91	0.12	**U**
75-25-2	Bromoform	0.39	1.9	0.39	0.038	0.18	0.038	**U**
100-42-5	Styrene	0.31	1.9	0.31	0.072	0.45	0.072	**U**
95-47-6	o-Xylene	0.28	1.9	0.28	0.063	0.44	0.063	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.9	0.26	0.039	0.28	0.039	**U**
108-67-8	1,3,5-Trimethylbenzene	0.28	1.9	0.28	0.056	0.39	0.056	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.9	0.26	0.054	0.39	0.054	**U**
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.083	0.76	0.083	**U**
541-73-1	1,3-Dichlorobenzene	0.29	1.9	0.29	0.048	0.32	0.048	**U**
106-46-7	1,4-Dichlorobenzene	0.29	1.9	0.29	0.049	0.32	0.049	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
120-82-1	1,2,4-Trichlorobenzene	0.46	1.9	0.46	0.063	0.26	0.063	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.89	1.8	0.89	0.25	0.51	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-22** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-009

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12855

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.14

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.45	1.8	0.45	0.26	1.1	0.26	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.8	0.30	**0.48**	0.37	0.061	
74-87-3	Chloromethane	0.30	1.7	0.30	0.14	0.84	0.14	**U**
75-01-4	Vinyl Chloride	0.20	1.8	0.20	0.078	0.72	0.078	**U**
106-99-0	1,3-Butadiene	0.31	1.8	0.31	0.14	0.82	0.14	**U**
74-83-9	Bromomethane	0.26	1.7	0.26	0.066	0.45	0.066	**U**
75-00-3	Chloroethane	0.23	1.8	0.23	0.087	0.67	0.087	**U**
64-17-5	Ethanol	**3.4**	18	1.3	**1.8**	9.4	0.68	**J**
75-05-8	Acetonitrile	0.45	1.8	0.45	0.27	1.1	0.27	**U**
107-02-8	Acrolein	**0.64**	3.5	0.52	**0.28**	1.5	0.23	**J**
67-64-1	Acetone	4.2	19	4.2	1.8	7.9	1.8	**U**
75-69-4	Trichlorofluoromethane	**1.3**	1.8	0.28	**0.24**	0.33	0.050	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.76	7.3	0.76	0.31	3.0	0.31	**U**
107-13-1	Acrylonitrile	0.38	1.8	0.38	0.18	0.83	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.065	0.47	0.065	**U**
75-09-2	Methylene Chloride	0.52	1.9	0.52	0.15	0.54	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.47**	1.8	0.26	**0.061**	0.24	0.034	**J**
75-15-0	Carbon Disulfide	**1.8**	3.8	0.56	**0.57**	1.2	0.18	**J**
75-34-3	1,1-Dichloroethane	0.27	1.8	0.27	0.067	0.45	0.067	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-22** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-009

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12855

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.14

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.22	1.9	0.22	0.061	0.52	0.061	**U**
108-05-4	Vinyl Acetate	4.2	18	4.2	1.2	5.2	1.2	**U**
78-93-3	2-Butanone (MEK)	0.38	3.5	0.38	0.13	1.2	0.13	**U**
156-59-2	cis-1,2-Dichloroethene	0.26	1.8	0.26	0.066	0.46	0.066	**U**
110-54-3	n-Hexane	0.38	1.9	0.38	0.11	0.53	0.11	**U**
67-66-3	Chloroform	**0.76**	1.9	0.25	**0.16**	0.38	0.051	**J**
107-06-2	1,2-Dichloroethane	0.21	1.8	0.21	0.051	0.46	0.051	**U**
71-55-6	1,1,1-Trichloroethane	0.23	1.9	0.23	0.042	0.34	0.042	**U**
71-36-3	1-Butanol	**0.78**	3.5	0.49	**0.26**	1.1	0.16	**J**
71-43-2	Benzene	**0.28**	1.8	0.27	**0.089**	0.57	0.084	**J**
110-82-7	Cyclohexane	0.52	3.5	0.52	0.15	1.0	0.15	**U**
78-87-5	1,2-Dichloropropane	0.23	1.9	0.23	0.050	0.41	0.050	**U**
75-27-4	Bromodichloromethane	0.27	1.8	0.27	0.040	0.28	0.040	**U**
79-01-6	Trichloroethene	**8.9**	1.8	0.25	**1.7**	0.34	0.047	
123-91-1	1,4-Dioxane	0.22	1.8	0.22	0.061	0.51	0.061	**U**
10061-01-5	cis-1,3-Dichloropropene	0.29	1.9	0.29	0.064	0.43	0.064	**U**
108-10-1	4-Methyl-2-pentanone	0.25	1.8	0.25	0.062	0.45	0.062	**U**
10061-02-6	trans-1,3-Dichloropropene	0.38	1.8	0.38	0.084	0.41	0.084	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.034	0.34	0.034	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-22** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-009

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12855

Initial Pressure (psig): -0.40 Final Pressure (psig): 5.14

Container Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.9**	1.8	0.23	**0.50**	0.49	0.060	
591-78-6	2-Hexanone	0.23	1.9	0.23	0.056	0.46	0.056	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.028	0.24	0.028	**U**
127-18-4	Tetrachloroethene	**16**	1.8	0.24	**2.4**	0.27	0.035	
100-41-4	Ethylbenzene	0.26	1.8	0.26	0.060	0.42	0.060	**U**
179601-23-1	m,p-Xylenes	0.49	3.8	0.49	0.11	0.88	0.11	**U**
75-25-2	Bromoform	0.38	1.8	0.38	0.037	0.18	0.037	**U**
100-42-5	Styrene	0.30	1.8	0.30	0.070	0.43	0.070	**U**
95-47-6	o-Xylene	0.27	1.8	0.27	0.062	0.42	0.062	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.8	0.26	0.037	0.27	0.037	**U**
108-67-8	1,3,5-Trimethylbenzene	0.27	1.8	0.27	0.054	0.37	0.054	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.8	0.26	0.052	0.37	0.052	**U**
100-44-7	Benzyl Chloride	0.42	3.8	0.42	0.081	0.74	0.081	**U**
541-73-1	1,3-Dichlorobenzene	0.28	1.9	0.28	0.046	0.31	0.046	**U**
106-46-7	1,4-Dichlorobenzene	0.28	1.9	0.28	0.047	0.31	0.047	**U**
526-73-8	1,2,3-Trimethylbenzene	0.25	1.8	0.25	0.052	0.37	0.052	**U**
95-50-1	1,2-Dichlorobenzene	0.27	1.9	0.27	0.046	0.31	0.046	**U**
120-82-1	1,2,4-Trichlorobenzene	0.45	1.8	0.45	0.061	0.25	0.061	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.87	1.7	0.87	0.25	0.49	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-23** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-010

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12881

Initial Pressure (psig): -0.35 Final Pressure (psig): 5.17

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.45	1.8	0.45	0.26	1.0	0.26	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.6**	1.8	0.30	**0.53**	0.36	0.061	
74-87-3	Chloromethane	0.30	1.7	0.30	0.14	0.84	0.14	**U**
75-01-4	Vinyl Chloride	0.20	1.8	0.20	0.077	0.72	0.077	**U**
106-99-0	1,3-Butadiene	0.30	1.8	0.30	0.14	0.81	0.14	**U**
74-83-9	Bromomethane	0.26	1.7	0.26	0.066	0.44	0.066	**U**
75-00-3	Chloroethane	0.23	1.8	0.23	0.086	0.67	0.086	**U**
64-17-5	Ethanol	**2.2**	18	1.3	**1.2**	9.3	0.68	**J**
75-05-8	Acetonitrile	0.45	1.8	0.45	0.27	1.1	0.27	**U**
107-02-8	Acrolein	0.52	3.5	0.52	0.23	1.5	0.23	**U**
67-64-1	Acetone	4.1	19	4.1	1.7	7.8	1.7	**U**
75-69-4	Trichlorofluoromethane	**1.3**	1.8	0.28	**0.22**	0.33	0.050	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.76	7.2	0.76	0.31	2.9	0.31	**U**
107-13-1	Acrylonitrile	0.38	1.8	0.38	0.17	0.83	0.17	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.064	0.47	0.064	**U**
75-09-2	Methylene Chloride	0.52	1.9	0.52	0.15	0.54	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.45**	1.8	0.26	**0.059**	0.24	0.034	**J**
75-15-0	Carbon Disulfide	**25**	3.8	0.55	**7.9**	1.2	0.18	
75-34-3	1,1-Dichloroethane	0.27	1.8	0.27	0.067	0.44	0.067	**U**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-23** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-010

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12881

Initial Pressure (psig): -0.35 Final Pressure (psig): 5.17

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.22	1.9	0.22	0.060	0.52	0.060	**U**
108-05-4	Vinyl Acetate	4.1	18	4.1	1.2	5.2	1.2	**U**
78-93-3	2-Butanone (MEK)	0.38	3.5	0.38	0.13	1.2	0.13	**U**
156-59-2	cis-1,2-Dichloroethene	0.26	1.8	0.26	0.065	0.46	0.065	**U**
110-54-3	n-Hexane	0.38	1.9	0.38	0.11	0.53	0.11	**U**
67-66-3	Chloroform	0.24	1.9	0.24	0.050	0.38	0.050	**U**
107-06-2	1,2-Dichloroethane	0.20	1.8	0.20	0.050	0.45	0.050	**U**
71-55-6	1,1,1-Trichloroethane	0.23	1.9	0.23	0.042	0.34	0.042	**U**
71-36-3	1-Butanol	**0.89**	3.5	0.48	**0.29**	1.1	0.16	**J**
71-43-2	Benzene	**0.30**	1.8	0.27	**0.095**	0.56	0.083	**J**
110-82-7	Cyclohexane	0.52	3.5	0.52	0.15	1.0	0.15	**U**
78-87-5	1,2-Dichloropropane	0.23	1.9	0.23	0.049	0.40	0.049	**U**
75-27-4	Bromodichloromethane	0.27	1.8	0.27	0.040	0.27	0.040	**U**
79-01-6	Trichloroethene	**4.1**	1.8	0.25	**0.76**	0.34	0.046	
123-91-1	1,4-Dioxane	0.22	1.8	0.22	0.060	0.51	0.060	**U**
10061-01-5	cis-1,3-Dichloropropene	0.29	1.9	0.29	0.063	0.43	0.063	**U**
108-10-1	4-Methyl-2-pentanone	0.25	1.8	0.25	0.061	0.45	0.061	**U**
10061-02-6	trans-1,3-Dichloropropene	0.38	1.8	0.38	0.084	0.40	0.084	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.034	0.34	0.034	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-23** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-010

Test Code: EPA TO-15 Modified Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12881

Initial Pressure (psig): -0.35 Final Pressure (psig): 5.17

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.2**	1.8	0.22	**0.31**	0.49	0.060	**J**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.056	0.45	0.056	**U**
106-93-4	1,2-Dibromoethane	0.21	1.9	0.21	0.028	0.24	0.028	**U**
127-18-4	Tetrachloroethene	**12**	1.8	0.24	**1.8**	0.27	0.035	
100-41-4	Ethylbenzene	0.26	1.8	0.26	0.060	0.41	0.060	**U**
179601-23-1	m,p-Xylenes	0.48	3.8	0.48	0.11	0.87	0.11	**U**
75-25-2	Bromoform	0.38	1.8	0.38	0.037	0.18	0.037	**U**
100-42-5	Styrene	0.30	1.8	0.30	0.070	0.43	0.070	**U**
95-47-6	o-Xylene	0.27	1.8	0.27	0.061	0.42	0.061	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.8	0.26	0.037	0.27	0.037	**U**
108-67-8	1,3,5-Trimethylbenzene	0.27	1.8	0.27	0.054	0.37	0.054	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.8	0.26	0.052	0.37	0.052	**U**
100-44-7	Benzyl Chloride	0.41	3.8	0.41	0.080	0.73	0.080	**U**
541-73-1	1,3-Dichlorobenzene	0.28	1.9	0.28	0.046	0.31	0.046	**U**
106-46-7	1,4-Dichlorobenzene	0.28	1.9	0.28	0.047	0.31	0.047	**U**
526-73-8	1,2,3-Trimethylbenzene	0.25	1.8	0.25	0.051	0.37	0.051	**U**
95-50-1	1,2-Dichlorobenzene	0.27	1.9	0.27	0.045	0.31	0.045	**U**
120-82-1	1,2,4-Trichlorobenzene	0.45	1.8	0.45	0.060	0.25	0.060	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.86	1.7	0.86	0.24	0.49	0.24	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-24** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-011

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12880

Initial Pressure (psig): -0.96 Final Pressure (psig): 5.60

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.48	1.9	0.48	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.6**	1.9	0.32	**0.52**	0.39	0.065	
74-87-3	Chloromethane	0.32	1.9	0.32	0.15	0.90	0.15	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.083	0.77	0.083	**U**
106-99-0	1,3-Butadiene	0.33	1.9	0.33	0.15	0.87	0.15	**U**
74-83-9	Bromomethane	0.27	1.9	0.27	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.24	1.9	0.24	0.093	0.72	0.093	**U**
64-17-5	Ethanol	1.4	19	1.4	0.73	10	0.73	**U**
75-05-8	Acetonitrile	0.48	1.9	0.48	0.29	1.1	0.29	**U**
107-02-8	Acrolein	0.56	3.7	0.56	0.24	1.6	0.24	**U**
67-64-1	Acetone	4.4	20	4.4	1.9	8.4	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.2**	2.0	0.30	**0.22**	0.35	0.053	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.81	7.8	0.81	0.33	3.2	0.33	**U**
107-13-1	Acrylonitrile	0.41	1.9	0.41	0.19	0.89	0.19	**U**
75-35-4	1,1-Dichloroethene	0.27	2.0	0.27	0.069	0.50	0.069	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.32**	2.0	0.28	**0.042**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	**5.1**	4.1	0.59	**1.6**	1.3	0.19	
75-34-3	1,1-Dichloroethane	0.29	1.9	0.29	0.071	0.48	0.071	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-24** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-011

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12880

Initial Pressure (psig): -0.96 Final Pressure (psig): 5.60

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	2.0	0.23	0.065	0.55	0.065	**U**
108-05-4	Vinyl Acetate	4.4	20	4.4	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	0.41	3.7	0.41	0.14	1.3	0.14	**U**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.070	0.49	0.070	**U**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	0.26	2.0	0.26	0.054	0.41	0.054	**U**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.054	0.48	0.054	**U**
71-55-6	1,1,1-Trichloroethane	0.24	2.0	0.24	0.045	0.37	0.045	**U**
71-36-3	1-Butanol	0.52	3.7	0.52	0.17	1.2	0.17	**U**
71-43-2	Benzene	0.28	1.9	0.28	0.089	0.60	0.089	**U**
110-82-7	Cyclohexane	0.56	3.7	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	2.0	0.24	0.053	0.43	0.053	**U**
75-27-4	Bromodichloromethane	0.28	2.0	0.28	0.043	0.29	0.043	**U**
79-01-6	Trichloroethene	**0.65**	2.0	0.27	**0.12**	0.37	0.050	**J**
123-91-1	1,4-Dioxane	0.23	2.0	0.23	0.065	0.54	0.065	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.068	0.46	0.068	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.066	0.48	0.066	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.090	0.43	0.090	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-24** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-011

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12880

Initial Pressure (psig): -0.96 Final Pressure (psig): 5.60

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**0.86**	2.0	0.24	**0.23**	0.52	0.064	**J**
591-78-6	2-Hexanone	0.24	2.0	0.24	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**2.2**	2.0	0.26	**0.33**	0.29	0.038	
100-41-4	Ethylbenzene	0.28	1.9	0.28	0.064	0.44	0.064	**U**
179601-23-1	m,p-Xylenes	0.52	4.1	0.52	0.12	0.94	0.12	**U**
75-25-2	Bromoform	0.41	2.0	0.41	0.039	0.19	0.039	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.075	0.46	0.075	**U**
95-47-6	o-Xylene	**0.31**	2.0	0.28	**0.072**	0.45	0.066	**J**
79-34-5	1,1,2,2-Tetrachloroethane	**1.5**	2.0	0.27	**0.21**	0.29	0.040	**J**
108-67-8	1,3,5-Trimethylbenzene	0.28	2.0	0.28	0.058	0.40	0.058	**U**
95-63-6	1,2,4-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.44	4.1	0.44	0.086	0.79	0.086	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.049	0.33	0.049	**U**
106-46-7	1,4-Dichlorobenzene	0.30	2.0	0.30	0.050	0.33	0.050	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	1.9	0.27	0.055	0.39	0.055	**U**
95-50-1	1,2-Dichlorobenzene	0.29	2.0	0.29	0.049	0.33	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.48	2.0	0.48	0.065	0.26	0.065	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.93	1.9	0.93	0.26	0.52	0.26	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-25**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-012

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12874

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -1.17 Final Pressure (psig): 5.55

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.49	2.0	0.49	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	2.0	0.33	**0.48**	0.39	0.066	
74-87-3	Chloromethane	0.32	1.9	0.32	0.16	0.91	0.16	**U**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.084	0.78	0.084	**U**
106-99-0	1,3-Butadiene	0.33	2.0	0.33	0.15	0.88	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.094	0.73	0.094	**U**
64-17-5	Ethanol	**3.4**	19	1.4	**1.8**	10	0.74	**J**
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.56	3.8	0.56	0.25	1.6	0.25	**U**
67-64-1	Acetone	4.5	20	4.5	1.9	8.5	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.3**	2.0	0.30	**0.22**	0.35	0.054	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.83	7.9	0.83	0.34	3.2	0.34	**U**
107-13-1	Acrylonitrile	0.41	2.0	0.41	0.19	0.90	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.40**	2.0	0.29	**0.052**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	**2.9**	4.1	0.60	**0.95**	1.3	0.19	**J**
75-34-3	1,1-Dichloroethane	0.29	2.0	0.29	0.072	0.48	0.072	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-25** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-012

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12874

Initial Pressure (psig): -1.17 Final Pressure (psig): 5.55

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.0	0.24	0.066	0.56	0.066	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	0.41	3.8	0.41	0.14	1.3	0.14	**U**
156-59-2	cis-1,2-Dichloroethene	0.28	2.0	0.28	0.071	0.50	0.071	**U**
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	0.27	2.0	0.27	0.055	0.41	0.055	**U**
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.055	0.49	0.055	**U**
71-55-6	1,1,1-Trichloroethane	0.25	2.0	0.25	0.045	0.37	0.045	**U**
71-36-3	1-Butanol	**1.3**	3.8	0.53	**0.42**	1.2	0.17	**J**
71-43-2	Benzene	0.29	2.0	0.29	0.090	0.61	0.090	**U**
110-82-7	Cyclohexane	0.56	3.8	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.054	0.44	0.054	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.30	0.043	**U**
79-01-6	Trichloroethene	**0.41**	2.0	0.27	**0.075**	0.37	0.050	**J**
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.066	0.55	0.066	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.069	0.46	0.069	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.067	0.49	0.067	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.091	0.44	0.091	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-25** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-012

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12874

Initial Pressure (psig): -1.17 Final Pressure (psig): 5.55

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.2**	2.0	0.24	**0.31**	0.53	0.065	**J**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**0.49**	2.0	0.26	**0.072**	0.29	0.038	**J**
100-41-4	Ethylbenzene	0.28	2.0	0.28	0.065	0.45	0.065	**U**
179601-23-1	m,p-Xylenes	0.53	4.1	0.53	0.12	0.95	0.12	**U**
75-25-2	Bromoform	0.41	2.0	0.41	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.076	0.47	0.076	**U**
95-47-6	o-Xylene	0.29	2.0	0.29	0.067	0.46	0.067	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.059	0.40	0.059	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.087	0.80	0.087	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.34	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.051	0.34	0.051	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.0	0.30	0.049	0.34	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.49	2.0	0.49	0.066	0.27	0.066	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.94	1.9	0.94	0.27	0.53	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-26**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-013

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12854

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -0.98 Final Pressure (psig): 5.03

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.47	1.9	0.47	0.27	1.1	0.27	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.7**	1.9	0.31	**0.54**	0.38	0.063	
74-87-3	Chloromethane	0.31	1.8	0.31	0.15	0.87	0.15	**U**
75-01-4	Vinyl Chloride	0.21	1.9	0.21	0.080	0.75	0.080	**U**
106-99-0	1,3-Butadiene	0.32	1.9	0.32	0.14	0.85	0.14	**U**
74-83-9	Bromomethane	0.27	1.8	0.27	0.069	0.46	0.069	**U**
75-00-3	Chloroethane	0.24	1.8	0.24	0.090	0.70	0.090	**U**
64-17-5	Ethanol	**3.4**	18	1.3	**1.8**	9.7	0.71	**J**
75-05-8	Acetonitrile	0.47	1.9	0.47	0.28	1.1	0.28	**U**
107-02-8	Acrolein	0.54	3.6	0.54	0.24	1.6	0.24	**U**
67-64-1	Acetone	4.3	19	4.3	1.8	8.2	1.8	**U**
75-69-4	Trichlorofluoromethane	**14**	1.9	0.29	**2.5**	0.34	0.052	
67-63-0	2-Propanol (Isopropyl Alcohol)	**1.2**	7.6	0.79	**0.48**	3.1	0.32	**J**
107-13-1	Acrylonitrile	0.40	1.9	0.40	0.18	0.86	0.18	**U**
75-35-4	1,1-Dichloroethene	0.27	1.9	0.27	0.067	0.49	0.067	**U**
75-09-2	Methylene Chloride	0.54	1.9	0.54	0.16	0.56	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.36**	1.9	0.27	**0.047**	0.25	0.036	**J**
75-15-0	Carbon Disulfide	0.58	4.0	0.58	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.28	1.9	0.28	0.069	0.46	0.069	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-26** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-013

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12854

Initial Pressure (psig): -0.98 Final Pressure (psig): 5.03

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	1.9	0.23	0.063	0.54	0.063	**U**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.4	1.2	**U**
78-93-3	2-Butanone (MEK)	**0.46**	3.6	0.40	**0.16**	1.2	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	0.27	1.9	0.27	0.068	0.48	0.068	**U**
110-54-3	n-Hexane	0.40	1.9	0.40	0.11	0.55	0.11	**U**
67-66-3	Chloroform	**0.49**	1.9	0.26	**0.10**	0.40	0.052	**J**
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.052	0.47	0.052	**U**
71-55-6	1,1,1-Trichloroethane	**3.7**	1.9	0.24	**0.68**	0.36	0.044	
71-36-3	1-Butanol	**1.3**	3.6	0.50	**0.42**	1.2	0.17	**J**
71-43-2	Benzene	0.28	1.9	0.28	0.087	0.59	0.087	**U**
110-82-7	Cyclohexane	0.54	3.6	0.54	0.16	1.0	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	1.9	0.24	0.051	0.42	0.051	**U**
75-27-4	Bromodichloromethane	0.28	1.9	0.28	0.041	0.28	0.041	**U**
79-01-6	Trichloroethene	**1,700**	19	2.6	**310**	3.6	0.48	**D**
123-91-1	1,4-Dioxane	0.23	1.9	0.23	0.063	0.53	0.063	**U**
10061-01-5	cis-1,3-Dichloropropene	0.30	2.0	0.30	0.066	0.44	0.066	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.064	0.47	0.064	**U**
10061-02-6	trans-1,3-Dichloropropene	0.40	1.9	0.40	0.087	0.42	0.087	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.036	0.36	0.036	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-26**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-013

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12854

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -0.98 Final Pressure (psig): 5.03

Container Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.6**	1.9	0.23	**0.43**	0.51	0.062	**J**
591-78-6	2-Hexanone	0.24	1.9	0.24	0.058	0.47	0.058	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.029	0.25	0.029	**U**
127-18-4	Tetrachloroethene	**170**	1.9	0.25	**25**	0.28	0.037	
100-41-4	Ethylbenzene	0.27	1.9	0.27	0.062	0.43	0.062	**U**
179601-23-1	m,p-Xylenes	0.50	4.0	0.50	0.12	0.91	0.12	**U**
75-25-2	Bromoform	0.40	1.9	0.40	0.038	0.18	0.038	**U**
100-42-5	Styrene	0.31	1.9	0.31	0.073	0.45	0.073	**U**
95-47-6	o-Xylene	0.28	1.9	0.28	0.064	0.44	0.064	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.27	1.9	0.27	0.039	0.28	0.039	**U**
108-67-8	1,3,5-Trimethylbenzene	0.28	1.9	0.28	0.056	0.39	0.056	**U**
95-63-6	1,2,4-Trimethylbenzene	0.27	1.9	0.27	0.054	0.39	0.054	**U**
100-44-7	Benzyl Chloride	0.43	4.0	0.43	0.083	0.77	0.083	**U**
541-73-1	1,3-Dichlorobenzene	0.29	1.9	0.29	0.048	0.32	0.048	**U**
106-46-7	1,4-Dichlorobenzene	0.30	1.9	0.30	0.049	0.32	0.049	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
120-82-1	1,2,4-Trichlorobenzene	0.47	1.9	0.47	0.063	0.26	0.063	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.94**	1.8	0.90	**0.26**	0.51	0.25	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-27**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-014

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12872

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -1.38 Final Pressure (psig): 5.21

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.48	1.9	0.48	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**9.5**	1.9	0.32	**1.9**	0.39	0.066	
74-87-3	Chloromethane	**1.7**	1.9	0.32	**0.81**	0.90	0.16	**J**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.083	0.77	0.083	**U**
106-99-0	1,3-Butadiene	0.33	1.9	0.33	0.15	0.88	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.093	0.72	0.093	**U**
64-17-5	Ethanol	**2.5**	19	1.4	**1.3**	10	0.73	**J**
75-05-8	Acetonitrile	0.48	1.9	0.48	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.56	3.7	0.56	0.24	1.6	0.24	**U**
67-64-1	Acetone	4.5	20	4.5	1.9	8.5	1.9	**U**
75-69-4	Trichlorofluoromethane	**2.3**	2.0	0.30	**0.41**	0.35	0.054	
67-63-0	2-Propanol (Isopropyl Alcohol)	**2.0**	7.8	0.82	**0.82**	3.2	0.33	**J**
107-13-1	Acrylonitrile	0.41	1.9	0.41	0.19	0.89	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.0	0.28	0.070	0.51	0.070	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.33**	2.0	0.28	**0.043**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	0.60	4.1	0.60	0.19	1.3	0.19	**U**
75-34-3	1,1-Dichloroethane	0.29	1.9	0.29	0.072	0.48	0.072	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-27** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-014

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12872

Initial Pressure (psig): -1.38 Final Pressure (psig): 5.21

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	2.0	0.23	0.065	0.56	0.065	**U**
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.83**	3.7	0.41	**0.28**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	**4.1**	2.0	0.28	**1.0**	0.50	0.070	
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	**3.5**	2.0	0.26	**0.71**	0.41	0.054	
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.054	0.49	0.054	**U**
71-55-6	1,1,1-Trichloroethane	**3.2**	2.0	0.25	**0.58**	0.37	0.045	
71-36-3	1-Butanol	**1.2**	3.7	0.52	**0.39**	1.2	0.17	**J**
71-43-2	Benzene	0.29	1.9	0.29	0.090	0.61	0.090	**U**
110-82-7	Cyclohexane	0.56	3.7	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.25	2.0	0.25	0.053	0.44	0.053	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.043	0.29	0.043	**U**
79-01-6	Trichloroethene	**1,400**	20	2.7	**260**	3.7	0.50	**D**
123-91-1	1,4-Dioxane	0.23	2.0	0.23	0.065	0.55	0.065	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.068	0.46	0.068	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.066	0.48	0.066	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.090	0.44	0.090	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-27**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-014

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12872

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -1.38 Final Pressure (psig): 5.21

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**2.0**	2.0	0.24	**0.54**	0.52	0.064	
591-78-6	2-Hexanone	0.25	2.0	0.25	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**490**	20	2.6	**72**	2.9	0.38	**D**
100-41-4	Ethylbenzene	0.28	1.9	0.28	0.064	0.45	0.064	**U**
179601-23-1	m,p-Xylenes	0.52	4.1	0.52	0.12	0.94	0.12	**U**
75-25-2	Bromoform	0.41	2.0	0.41	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.075	0.46	0.075	**U**
95-47-6	o-Xylene	0.29	2.0	0.29	0.066	0.45	0.066	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.058	0.40	0.058	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.086	0.79	0.086	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.050	0.33	0.050	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.0	0.31	0.051	0.33	0.051	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	1.9	0.27	0.055	0.39	0.055	**U**
95-50-1	1,2-Dichlorobenzene	0.29	2.0	0.29	0.049	0.33	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.48	2.0	0.48	0.065	0.27	0.065	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**1.2**	1.9	0.93	**0.33**	0.53	0.26	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-28** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-015

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1BV12897

Initial Pressure (psig): -0.51 Final Pressure (psig): 5.52

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**18**	74	18	**11**	43	11	**J**
75-71-8	Dichlorodifluoromethane (CFC 12)	12	74	12	2.5	15	2.5	**U**
74-87-3	Chloromethane	12	71	12	5.9	34	5.9	**U**
75-01-4	Vinyl Chloride	8.1	75	8.1	3.2	29	3.2	**U**
106-99-0	1,3-Butadiene	12	74	12	5.7	33	5.7	**U**
74-83-9	Bromomethane	11	71	11	2.7	18	2.7	**U**
75-00-3	Chloroethane	9.4	72	9.4	3.6	27	3.6	**U**
64-17-5	Ethanol	53	720	53	28	380	28	**U**
75-05-8	Acetonitrile	18	74	18	11	44	11	**U**
107-02-8	Acrolein	21	140	21	9.3	62	9.3	**U**
67-64-1	Acetone	170	770	170	72	320	72	**U**
75-69-4	Trichlorofluoromethane	12	75	12	2.0	13	2.0	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	31	300	31	13	120	13	**U**
107-13-1	Acrylonitrile	16	74	16	7.2	34	7.2	**U**
75-35-4	1,1-Dichloroethene	11	77	11	2.7	19	2.7	**U**
75-09-2	Methylene Chloride	21	77	21	6.1	22	6.1	**U**
76-13-1	Trichlorotrifluoroethane	11	75	11	1.4	9.8	1.4	**U**
75-15-0	Carbon Disulfide	23	160	23	7.3	50	7.3	**U**
75-34-3	1,1-Dichloroethane	11	74	11	2.7	18	2.7	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-28** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-015

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1BV12897

Initial Pressure (psig): -0.51 Final Pressure (psig): 5.52

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	8.9	77	8.9	2.5	21	2.5	**U**
108-05-4	Vinyl Acetate	170	750	170	48	210	48	**U**
78-93-3	2-Butanone (MEK)	16	140	16	5.3	48	5.3	**U**
156-59-2	cis-1,2-Dichloroethene	11	75	11	2.7	19	2.7	**U**
110-54-3	n-Hexane	16	77	16	4.4	22	4.4	**U**
67-66-3	Chloroform	10	77	10	2.1	16	2.1	**U**
107-06-2	1,2-Dichloroethane	8.4	75	8.4	2.1	19	2.1	**U**
71-55-6	1,1,1-Trichloroethane	**30**	77	9.4	**5.5**	14	1.7	**J**
71-36-3	1-Butanol	20	140	20	6.6	47	6.6	**U**
71-43-2	Benzene	**27**	74	11	**8.3**	23	3.4	**J**
110-82-7	Cyclohexane	21	140	21	6.2	41	6.2	**U**
78-87-5	1,2-Dichloropropane	9.4	77	9.4	2.0	17	2.0	**U**
75-27-4	Bromodichloromethane	11	75	11	1.6	11	1.6	**U**
79-01-6	Trichloroethene	**15,000**	75	10	**2,700**	14	1.9	
123-91-1	1,4-Dioxane	8.9	75	8.9	2.5	21	2.5	**U**
10061-01-5	cis-1,3-Dichloropropene	12	80	12	2.6	18	2.6	**U**
108-10-1	4-Methyl-2-pentanone	10	75	10	2.5	18	2.5	**U**
10061-02-6	trans-1,3-Dichloropropene	16	75	16	3.4	17	3.4	**U**
79-00-5	1,1,2-Trichloroethane	7.7	77	7.7	1.4	14	1.4	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-28** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-015

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.010 Liter(s)
Test Notes:
Container ID: 1BV12897

Initial Pressure (psig): -0.51 Final Pressure (psig): 5.52

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**9.9**	75	9.2	**2.6**	20	2.5	**J**
591-78-6	2-Hexanone	9.4	77	9.4	2.3	19	2.3	**U**
106-93-4	1,2-Dibromoethane	8.8	77	8.8	1.1	10	1.1	**U**
127-18-4	Tetrachloroethene	**270**	75	9.8	**40**	11	1.4	
100-41-4	Ethylbenzene	11	74	11	2.5	17	2.5	**U**
179601-23-1	m,p-Xylenes	20	160	20	4.6	36	4.6	**U**
75-25-2	Bromoform	16	75	16	1.5	7.3	1.5	**U**
100-42-5	Styrene	12	75	12	2.9	18	2.9	**U**
95-47-6	o-Xylene	11	75	11	2.5	17	2.5	**U**
79-34-5	1,1,2,2-Tetrachloroethane	11	75	11	1.5	11	1.5	**U**
108-67-8	1,3,5-Trimethylbenzene	11	75	11	2.2	15	2.2	**U**
95-63-6	1,2,4-Trimethylbenzene	11	75	11	2.1	15	2.1	**U**
100-44-7	Benzyl Chloride	17	160	17	3.3	30	3.3	**U**
541-73-1	1,3-Dichlorobenzene	11	77	11	1.9	13	1.9	**U**
106-46-7	1,4-Dichlorobenzene	**12**	77	12	**2.0**	13	1.9	**J**
526-73-8	1,2,3-Trimethylbenzene	10	74	10	2.1	15	2.1	**U**
95-50-1	1,2-Dichlorobenzene	11	77	11	1.9	13	1.9	**U**
120-82-1	1,2,4-Trichlorobenzene	18	75	18	2.5	10	2.5	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	36	71	36	10	20	10	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-29**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-016

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12896

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -1.10 Final Pressure (psig): 5.39

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.48	1.9	0.48	0.28	1.1	0.28	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**10**	1.9	0.32	**2.1**	0.39	0.065	
74-87-3	Chloromethane	**0.40**	1.9	0.32	**0.19**	0.90	0.15	**J**
75-01-4	Vinyl Chloride	0.21	2.0	0.21	0.083	0.77	0.083	**U**
106-99-0	1,3-Butadiene	0.33	1.9	0.33	0.15	0.87	0.15	**U**
74-83-9	Bromomethane	0.27	1.9	0.27	0.071	0.48	0.071	**U**
75-00-3	Chloroethane	0.24	1.9	0.24	0.093	0.72	0.093	**U**
64-17-5	Ethanol	**2.5**	19	1.4	**1.3**	10	0.73	**J**
75-05-8	Acetonitrile	0.48	1.9	0.48	0.29	1.1	0.29	**U**
107-02-8	Acrolein	0.56	3.7	0.56	0.24	1.6	0.24	**U**
67-64-1	Acetone	4.4	20	4.4	1.9	8.4	1.9	**U**
75-69-4	Trichlorofluoromethane	**2.6**	2.0	0.30	**0.46**	0.35	0.053	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.81	7.8	0.81	0.33	3.2	0.33	**U**
107-13-1	Acrylonitrile	0.41	1.9	0.41	0.19	0.89	0.19	**U**
75-35-4	1,1-Dichloroethene	0.27	2.0	0.27	0.069	0.50	0.069	**U**
75-09-2	Methylene Chloride	0.56	2.0	0.56	0.16	0.58	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.33**	2.0	0.28	**0.043**	0.26	0.037	**J**
75-15-0	Carbon Disulfide	**0.63**	4.1	0.59	**0.20**	1.3	0.19	**J**
75-34-3	1,1-Dichloroethane	0.29	1.9	0.29	0.071	0.48	0.071	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-29** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-016

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12896

Initial Pressure (psig): -1.10 Final Pressure (psig): 5.39

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	2.0	0.23	0.065	0.55	0.065	**U**
108-05-4	Vinyl Acetate	4.4	20	4.4	1.3	5.6	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.43**	3.7	0.41	**0.14**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	**7.9**	2.0	0.28	**2.0**	0.49	0.070	
110-54-3	n-Hexane	0.41	2.0	0.41	0.12	0.57	0.12	**U**
67-66-3	Chloroform	**4.6**	2.0	0.26	**0.94**	0.41	0.054	
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.054	0.48	0.054	**U**
71-55-6	1,1,1-Trichloroethane	**1.5**	2.0	0.24	**0.28**	0.37	0.045	**J**
71-36-3	1-Butanol	**1.4**	3.7	0.52	**0.45**	1.2	0.17	**J**
71-43-2	Benzene	0.28	1.9	0.28	0.089	0.60	0.089	**U**
110-82-7	Cyclohexane	0.56	3.7	0.56	0.16	1.1	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	2.0	0.24	0.053	0.43	0.053	**U**
75-27-4	Bromodichloromethane	0.28	2.0	0.28	0.043	0.29	0.043	**U**
79-01-6	Trichloroethene	**540**	20	2.7	**100**	3.7	0.50	**D**
123-91-1	1,4-Dioxane	0.23	2.0	0.23	0.065	0.54	0.065	**U**
10061-01-5	cis-1,3-Dichloropropene	0.31	2.1	0.31	0.068	0.46	0.068	**U**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.066	0.48	0.066	**U**
10061-02-6	trans-1,3-Dichloropropene	0.41	2.0	0.41	0.090	0.43	0.090	**U**
79-00-5	1,1,2-Trichloroethane	0.20	2.0	0.20	0.037	0.37	0.037	**U**

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MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-29** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-016

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12896

Initial Pressure (psig): -1.10 Final Pressure (psig): 5.39

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.4**	2.0	0.24	**0.36**	0.52	0.064	**J**
591-78-6	2-Hexanone	0.24	2.0	0.24	0.060	0.49	0.060	**U**
106-93-4	1,2-Dibromoethane	0.23	2.0	0.23	0.030	0.26	0.030	**U**
127-18-4	Tetrachloroethene	**750**	20	2.6	**110**	2.9	0.38	**D**
100-41-4	Ethylbenzene	0.28	1.9	0.28	0.064	0.44	0.064	**U**
179601-23-1	m,p-Xylenes	0.52	4.1	0.52	0.12	0.94	0.12	**U**
75-25-2	Bromoform	0.41	2.0	0.41	0.039	0.19	0.039	**U**
100-42-5	Styrene	0.32	2.0	0.32	0.075	0.46	0.075	**U**
95-47-6	o-Xylene	0.28	2.0	0.28	0.066	0.45	0.066	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.27	2.0	0.27	0.040	0.29	0.040	**U**
108-67-8	1,3,5-Trimethylbenzene	0.28	2.0	0.28	0.058	0.40	0.058	**U**
95-63-6	1,2,4-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
100-44-7	Benzyl Chloride	0.44	4.1	0.44	0.086	0.79	0.086	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.0	0.30	0.049	0.33	0.049	**U**
106-46-7	1,4-Dichlorobenzene	0.30	2.0	0.30	0.050	0.33	0.050	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	1.9	0.27	0.055	0.39	0.055	**U**
95-50-1	1,2-Dichlorobenzene	0.29	2.0	0.29	0.049	0.33	0.049	**U**
120-82-1	1,2,4-Trichlorobenzene	0.48	2.0	0.48	0.065	0.26	0.065	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.93	1.9	0.93	0.26	0.52	0.26	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-30** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-017

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1BV12902

Initial Pressure (psig): -1.03 Final Pressure (psig): 5.16

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	1.9	7.5	1.9	1.1	4.4	1.1	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**8.5**	7.5	1.3	**1.7**	1.5	0.26	
74-87-3	Chloromethane	1.2	7.3	1.2	0.60	3.5	0.60	**U**
75-01-4	Vinyl Chloride	0.83	7.7	0.83	0.32	3.0	0.32	**U**
106-99-0	1,3-Butadiene	1.3	7.5	1.3	0.58	3.4	0.58	**U**
74-83-9	Bromomethane	1.1	7.3	1.1	0.28	1.9	0.28	**U**
75-00-3	Chloroethane	0.96	7.4	0.96	0.36	2.8	0.36	**U**
64-17-5	Ethanol	5.4	74	5.4	2.8	39	2.8	**U**
75-05-8	Acetonitrile	1.9	7.5	1.9	1.1	4.5	1.1	**U**
107-02-8	Acrolein	2.2	15	2.2	0.95	6.3	0.95	**U**
67-64-1	Acetone	17	78	17	7.3	33	7.3	**U**
75-69-4	Trichlorofluoromethane	**2.2**	7.7	1.2	**0.38**	1.4	0.21	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	3.2	30	3.2	1.3	12	1.3	**U**
107-13-1	Acrylonitrile	1.6	7.5	1.6	0.74	3.5	0.74	**U**
75-35-4	1,1-Dichloroethene	1.1	7.8	1.1	0.27	2.0	0.27	**U**
75-09-2	Methylene Chloride	2.2	7.8	2.2	0.63	2.3	0.63	**U**
76-13-1	Trichlorotrifluoroethane	1.1	7.7	1.1	0.14	1.0	0.14	**U**
75-15-0	Carbon Disulfide	2.3	16	2.3	0.75	5.1	0.75	**U**
75-34-3	1,1-Dichloroethane	1.1	7.5	1.1	0.28	1.9	0.28	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-30** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-017

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1BV12902

Initial Pressure (psig): -1.03 Final Pressure (psig): 5.16

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.91	7.8	0.91	0.25	2.2	0.25	**U**
108-05-4	Vinyl Acetate	17	77	17	4.9	22	4.9	**U**
78-93-3	2-Butanone (MEK)	1.6	15	1.6	0.54	4.9	0.54	**U**
156-59-2	cis-1,2-Dichloroethene	**4.0**	7.7	1.1	**1.0**	1.9	0.27	**J**
110-54-3	n-Hexane	1.6	7.8	1.6	0.45	2.2	0.45	**U**
67-66-3	Chloroform	**3.8**	7.8	1.0	**0.77**	1.6	0.21	**J**
107-06-2	1,2-Dichloroethane	0.86	7.7	0.86	0.21	1.9	0.21	**U**
71-55-6	1,1,1-Trichloroethane	**2.5**	7.8	0.96	**0.45**	1.4	0.18	**J**
71-36-3	1-Butanol	**2.4**	15	2.0	**0.78**	4.8	0.67	**J**
71-43-2	Benzene	**1.8**	7.5	1.1	**0.57**	2.4	0.35	**J**
110-82-7	Cyclohexane	2.2	15	2.2	0.63	4.2	0.63	**U**
78-87-5	1,2-Dichloropropane	0.96	7.8	0.96	0.21	1.7	0.21	**U**
75-27-4	Bromodichloromethane	1.1	7.7	1.1	0.17	1.1	0.17	**U**
79-01-6	Trichloroethene	**1,100**	7.7	1.0	**200**	1.4	0.19	
123-91-1	1,4-Dioxane	0.91	7.7	0.91	0.25	2.1	0.25	**U**
10061-01-5	cis-1,3-Dichloropropene	1.2	8.1	1.2	0.27	1.8	0.27	**U**
108-10-1	4-Methyl-2-pentanone	1.1	7.7	1.1	0.26	1.9	0.26	**U**
10061-02-6	trans-1,3-Dichloropropene	1.6	7.7	1.6	0.35	1.7	0.35	**U**
79-00-5	1,1,2-Trichloroethane	0.78	7.8	0.78	0.14	1.4	0.14	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-30** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-017

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.10 Liter(s)
Test Notes:
Container ID: 1BV12902

Initial Pressure (psig): -1.03 Final Pressure (psig): 5.16

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.4**	7.7	0.94	**0.38**	2.0	0.25	**J, B**
591-78-6	2-Hexanone	0.96	7.8	0.96	0.23	1.9	0.23	**U**
106-93-4	1,2-Dibromoethane	0.90	7.8	0.90	0.12	1.0	0.12	**U**
127-18-4	Tetrachloroethene	**990**	7.7	1.0	**150**	1.1	0.15	
100-41-4	Ethylbenzene	1.1	7.5	1.1	0.25	1.7	0.25	**U**
179601-23-1	m,p-Xylenes	2.0	16	2.0	0.47	3.7	0.47	**U**
75-25-2	Bromoform	1.6	7.7	1.6	0.15	0.74	0.15	**U**
100-42-5	Styrene	1.2	7.7	1.2	0.29	1.8	0.29	**U**
95-47-6	o-Xylene	1.1	7.7	1.1	0.26	1.8	0.26	**U**
79-34-5	1,1,2,2-Tetrachloroethane	1.1	7.7	1.1	0.16	1.1	0.16	**U**
108-67-8	1,3,5-Trimethylbenzene	1.1	7.7	1.1	0.23	1.6	0.23	**U**
95-63-6	1,2,4-Trimethylbenzene	1.1	7.7	1.1	0.22	1.6	0.22	**U**
100-44-7	Benzyl Chloride	1.7	16	1.7	0.34	3.1	0.34	**U**
541-73-1	1,3-Dichlorobenzene	1.2	7.8	1.2	0.19	1.3	0.19	**U**
106-46-7	1,4-Dichlorobenzene	1.2	7.8	1.2	0.20	1.3	0.20	**U**
526-73-8	1,2,3-Trimethylbenzene	1.1	7.5	1.1	0.22	1.5	0.22	**U**
95-50-1	1,2-Dichlorobenzene	1.1	7.8	1.1	0.19	1.3	0.19	**U**
120-82-1	1,2,4-Trichlorobenzene	1.9	7.7	1.9	0.25	1.0	0.25	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	3.6	7.3	3.6	1.0	2.1	1.0	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and the associated method blank.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-31**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-018

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12900

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/26 - 10/27/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -1.47 Final Pressure (psig): 5.39

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.49	2.0	0.49	0.29	1.1	0.29	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	2.0	0.33	**0.50**	0.40	0.067	
74-87-3	Chloromethane	0.33	1.9	0.33	0.16	0.92	0.16	**U**
75-01-4	Vinyl Chloride	0.22	2.0	0.22	0.085	0.79	0.085	**U**
106-99-0	1,3-Butadiene	0.33	2.0	0.33	0.15	0.89	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.072	0.49	0.072	**U**
75-00-3	Chloroethane	0.25	1.9	0.25	0.095	0.73	0.095	**U**
64-17-5	Ethanol	**3.3**	19	1.4	**1.8**	10	0.75	**J**
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
107-02-8	Acrolein	0.57	3.8	0.57	0.25	1.7	0.25	**U**
67-64-1	Acetone	4.6	21	4.6	1.9	8.6	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.7**	2.0	0.31	**0.31**	0.36	0.055	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.84	8.0	0.84	0.34	3.2	0.34	**U**
107-13-1	Acrylonitrile	0.42	2.0	0.42	0.19	0.91	0.19	**U**
75-35-4	1,1-Dichloroethene	0.28	2.1	0.28	0.071	0.52	0.071	**U**
75-09-2	Methylene Chloride	0.57	2.1	0.57	0.16	0.59	0.16	**U**
76-13-1	Trichlorotrifluoroethane	**0.41**	2.0	0.29	**0.054**	0.26	0.038	**J**
75-15-0	Carbon Disulfide	**0.76**	4.2	0.61	**0.25**	1.3	0.20	**J**
75-34-3	1,1-Dichloroethane	0.30	2.0	0.30	0.073	0.49	0.073	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-31** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-018

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26 - 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12900

Initial Pressure (psig): -1.47 Final Pressure (psig): 5.39

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.1	0.24	0.066	0.57	0.066	**U**
108-05-4	Vinyl Acetate	4.6	20	4.6	1.3	5.7	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.45**	3.8	0.42	**0.15**	1.3	0.14	**J**
156-59-2	cis-1,2-Dichloroethene	0.29	2.0	0.29	0.072	0.51	0.072	**U**
110-54-3	n-Hexane	0.42	2.1	0.42	0.12	0.58	0.12	**U**
67-66-3	Chloroform	**6.0**	2.1	0.27	**1.2**	0.42	0.055	
107-06-2	1,2-Dichloroethane	0.22	2.0	0.22	0.055	0.50	0.055	**U**
71-55-6	1,1,1-Trichloroethane	**2.5**	2.1	0.25	**0.46**	0.38	0.046	
71-36-3	1-Butanol	**0.92**	3.8	0.53	**0.30**	1.3	0.18	**J**
71-43-2	Benzene	**0.43**	2.0	0.29	**0.13**	0.62	0.092	**J**
110-82-7	Cyclohexane	0.57	3.8	0.57	0.17	1.1	0.17	**U**
78-87-5	1,2-Dichloropropane	0.25	2.1	0.25	0.054	0.44	0.054	**U**
75-27-4	Bromodichloromethane	0.29	2.0	0.29	0.044	0.30	0.044	**U**
79-01-6	Trichloroethene	**470**	20	2.7	**87**	3.7	0.51	**D**
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.066	0.56	0.066	**U**
10061-01-5	cis-1,3-Dichloropropene	0.32	2.1	0.32	0.070	0.47	0.070	**U**
108-10-1	4-Methyl-2-pentanone	0.28	2.0	0.28	0.068	0.49	0.068	**U**
10061-02-6	trans-1,3-Dichloropropene	0.42	2.0	0.42	0.092	0.44	0.092	**U**
79-00-5	1,1,2-Trichloroethane	0.21	2.1	0.21	0.038	0.38	0.038	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-31** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-018

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/26 - 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12900

Initial Pressure (psig): -1.47 Final Pressure (psig): 5.39

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.4**	2.0	0.25	**0.38**	0.53	0.066	**J**
591-78-6	2-Hexanone	0.25	2.1	0.25	0.061	0.50	0.061	**U**
106-93-4	1,2-Dibromoethane	0.24	2.1	0.24	0.031	0.27	0.031	**U**
127-18-4	Tetrachloroethene	**52**	2.0	0.26	**7.7**	0.30	0.039	
100-41-4	Ethylbenzene	0.29	2.0	0.29	0.066	0.46	0.066	**U**
179601-23-1	m,p-Xylenes	0.53	4.2	0.53	0.12	0.96	0.12	**U**
75-25-2	Bromoform	0.42	2.0	0.42	0.040	0.19	0.040	**U**
100-42-5	Styrene	0.33	2.0	0.33	0.077	0.47	0.077	**U**
95-47-6	o-Xylene	0.29	2.0	0.29	0.067	0.46	0.067	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.041	0.29	0.041	**U**
108-67-8	1,3,5-Trimethylbenzene	0.29	2.0	0.29	0.060	0.41	0.060	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.057	0.41	0.057	**U**
100-44-7	Benzyl Chloride	0.46	4.2	0.46	0.088	0.81	0.088	**U**
541-73-1	1,3-Dichlorobenzene	0.30	2.1	0.30	0.051	0.34	0.051	**U**
106-46-7	1,4-Dichlorobenzene	0.31	2.1	0.31	0.052	0.34	0.052	**U**
526-73-8	1,2,3-Trimethylbenzene	0.28	2.0	0.28	0.056	0.40	0.056	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.1	0.30	0.050	0.34	0.050	**U**
120-82-1	1,2,4-Trichlorobenzene	0.49	2.0	0.49	0.067	0.27	0.067	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.95	1.9	0.95	0.27	0.54	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-32**
Client Project ID: **PMC**

ALS Project ID: P1805493
ALS Sample ID: P1805493-019

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12899

Date Collected: 10/11/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -1.68 Final Pressure (psig): 5.40

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.50	2.0	0.50	0.29	1.2	0.29	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.5**	2.0	0.33	**0.50**	0.41	0.068	
74-87-3	Chloromethane	0.33	1.9	0.33	0.16	0.93	0.16	**U**
75-01-4	Vinyl Chloride	0.22	2.0	0.22	0.086	0.80	0.086	**U**
106-99-0	1,3-Butadiene	0.34	2.0	0.34	0.15	0.91	0.15	**U**
74-83-9	Bromomethane	0.28	1.9	0.28	0.073	0.50	0.073	**U**
75-00-3	Chloroethane	0.25	2.0	0.25	0.096	0.74	0.096	**U**
64-17-5	Ethanol	1.4	20	1.4	0.76	10	0.76	**U**
75-05-8	Acetonitrile	0.50	2.0	0.50	0.30	1.2	0.30	**U**
107-02-8	Acrolein	0.58	3.9	0.58	0.25	1.7	0.25	**U**
67-64-1	Acetone	4.6	21	4.6	1.9	8.8	1.9	**U**
75-69-4	Trichlorofluoromethane	**1.8**	2.0	0.31	**0.32**	0.36	0.056	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.85	8.1	0.85	0.34	3.3	0.34	**U**
107-13-1	Acrylonitrile	0.42	2.0	0.42	0.20	0.92	0.20	**U**
75-35-4	1,1-Dichloroethene	0.28	2.1	0.28	0.072	0.52	0.072	**U**
75-09-2	Methylene Chloride	0.58	2.1	0.58	0.17	0.60	0.17	**U**
76-13-1	Trichlorotrifluoroethane	**0.39**	2.0	0.29	**0.051**	0.27	0.038	**J**
75-15-0	Carbon Disulfide	**0.92**	4.2	0.62	**0.30**	1.4	0.20	**J**
75-34-3	1,1-Dichloroethane	0.30	2.0	0.30	0.074	0.49	0.074	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-32** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-019

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12899

Initial Pressure (psig): -1.68 Final Pressure (psig): 5.40

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.24	2.1	0.24	0.067	0.58	0.067	**U**
108-05-4	Vinyl Acetate	4.6	20	4.6	1.3	5.8	1.3	**U**
78-93-3	2-Butanone (MEK)	0.42	3.9	0.42	0.14	1.3	0.14	**U**
156-59-2	cis-1,2-Dichloroethene	0.29	2.0	0.29	0.073	0.51	0.073	**U**
110-54-3	n-Hexane	0.42	2.1	0.42	0.12	0.59	0.12	**U**
67-66-3	Chloroform	**6.7**	2.1	0.27	**1.4**	0.43	0.056	
107-06-2	1,2-Dichloroethane	0.23	2.0	0.23	0.056	0.50	0.056	**U**
71-55-6	1,1,1-Trichloroethane	**2.8**	2.1	0.25	**0.52**	0.38	0.047	
71-36-3	1-Butanol	**1.0**	3.9	0.54	**0.33**	1.3	0.18	**J**
71-43-2	Benzene	**0.42**	2.0	0.30	**0.13**	0.63	0.093	**J**
110-82-7	Cyclohexane	0.58	3.9	0.58	0.17	1.1	0.17	**U**
78-87-5	1,2-Dichloropropane	0.25	2.1	0.25	0.055	0.45	0.055	**U**
75-27-4	Bromodichloromethane	0.30	2.0	0.30	0.044	0.30	0.044	**U**
79-01-6	Trichloroethene	**510**	20	2.8	**95**	3.8	0.52	**D**
123-91-1	1,4-Dioxane	0.24	2.0	0.24	0.067	0.57	0.067	**U**
10061-01-5	cis-1,3-Dichloropropene	0.32	2.2	0.32	0.070	0.48	0.070	**U**
108-10-1	4-Methyl-2-pentanone	0.28	2.0	0.28	0.069	0.50	0.069	**U**
10061-02-6	trans-1,3-Dichloropropene	0.42	2.0	0.42	0.093	0.45	0.093	**U**
79-00-5	1,1,2-Trichloroethane	0.21	2.1	0.21	0.038	0.38	0.038	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-32** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P1805493-019

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/13/18
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12899

Initial Pressure (psig): -1.68 Final Pressure (psig): 5.40

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**0.74**	2.0	0.25	**0.20**	0.54	0.066	**J**
591-78-6	2-Hexanone	0.25	2.1	0.25	0.062	0.51	0.062	**U**
106-93-4	1,2-Dibromoethane	0.24	2.1	0.24	0.031	0.27	0.031	**U**
127-18-4	Tetrachloroethene	**59**	2.0	0.27	**8.7**	0.30	0.039	
100-41-4	Ethylbenzene	0.29	2.0	0.29	0.067	0.46	0.067	**U**
179601-23-1	m,p-Xylenes	0.54	4.2	0.54	0.12	0.98	0.12	**U**
75-25-2	Bromoform	0.42	2.0	0.42	0.041	0.20	0.041	**U**
100-42-5	Styrene	0.33	2.0	0.33	0.078	0.48	0.078	**U**
95-47-6	o-Xylene	0.30	2.0	0.30	0.068	0.47	0.068	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.28	2.0	0.28	0.042	0.30	0.042	**U**
108-67-8	1,3,5-Trimethylbenzene	0.30	2.0	0.30	0.060	0.42	0.060	**U**
95-63-6	1,2,4-Trimethylbenzene	0.28	2.0	0.28	0.058	0.42	0.058	**U**
100-44-7	Benzyl Chloride	0.46	4.2	0.46	0.089	0.82	0.089	**U**
541-73-1	1,3-Dichlorobenzene	0.31	2.1	0.31	0.051	0.35	0.051	**U**
106-46-7	1,4-Dichlorobenzene	0.32	2.1	0.32	0.053	0.35	0.053	**U**
526-73-8	1,2,3-Trimethylbenzene	0.28	2.0	0.28	0.057	0.41	0.057	**U**
95-50-1	1,2-Dichlorobenzene	0.30	2.1	0.30	0.051	0.35	0.051	**U**
120-82-1	1,2,4-Trichlorobenzene	0.50	2.0	0.50	0.067	0.27	0.067	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.96	1.9	0.96	0.27	0.54	0.27	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	**U**
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	**U**
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	**U**
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	**U**
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	**U**
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	**U**
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	**U**
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	**U**
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	0.065	0.53	0.065	0.017	0.14	0.017	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	**U**
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	**U**
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	**U**
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	**U**
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	**U**
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	**U**
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	**U**
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	**U**
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	0.065	0.53	0.065	0.017	0.14	0.017	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U, V**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
V = The continuing calibration verification standard was outside (biased low) the specified limits for this compound.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	**U**
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	**U**
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	**U**
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	**U**
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	**U**
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	**U**
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	**U**
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	**U**
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	0.065	0.53	0.065	0.017	0.14	0.017	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	U
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	U
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	U
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	U
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	U
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	U
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	U
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	U
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	U
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	U
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	U
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	U
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	U
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	U
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	U
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	U
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	U
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	U
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**0.078**	0.53	0.065	**0.021**	0.14	0.017	**J**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805493

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 10/10 - 10/11/18
Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Received: 10/13/18
Analyst: Raneem Sahtah/Simon Cao/Lusine Hakobyan/Topacio De Leon Date(s) Analyzed: 10/25 - 10/31/18
Sample Type: 1.0 L Bottle-Vac™(s)
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181025-MB	**104**	**100**	**89**	70-130	
Method Blank	P181026-MB	**102**	**100**	**89**	70-130	
Method Blank	P181027-MB	**111**	**98**	**88**	70-130	
Method Blank	P181031-MB	**100**	**102**	**92**	70-130	
Lab Control Sample	P181025-LCS	**104**	**99**	**92**	70-130	
Lab Control Sample	P181026-LCS	**105**	**99**	**93**	70-130	
Lab Control Sample	P181027-LCS	**109**	**98**	**92**	70-130	
Lab Control Sample	P181031-LCS	**99**	**99**	**94**	70-130	
Duplicate Lab Control Sample	P181025-DLCS	**108**	**99**	**92**	70-130	
Duplicate Lab Control Sample	P181026-DLCS	**109**	**98**	**91**	70-130	
Duplicate Lab Control Sample	P181027-DLCS	**112**	**97**	**89**	70-130	
Duplicate Lab Control Sample	P181031-DLCS	**99**	**100**	**93**	70-130	
19CP01-14	P1805493-001	**115**	**98**	**89**	70-130	
19CP01-15	P1805493-002	**116**	**98**	**88**	70-130	
19CP01-16	P1805493-003	**114**	**98**	**89**	70-130	
19CP01-17	P1805493-004	**113**	**99**	**89**	70-130	
19CP01-18	P1805493-005	**118**	**97**	**87**	70-130	
19CP01-19	P1805493-006	**117**	**98**	**88**	70-130	
19CP01-20	P1805493-007	**118**	**98**	**87**	70-130	
19CP01-21	P1805493-008	**111**	**99**	**89**	70-130	
19CP01-22	P1805493-009	**112**	**99**	**89**	70-130	
19CP01-23	P1805493-010	**110**	**99**	**89**	70-130	
19CP01-24	P1805493-011	**111**	**97**	**88**	70-130	
19CP01-25	P1805493-012	**118**	**98**	**88**	70-130	
19CP01-26	P1805493-013	**120**	**97**	**84**	70-130	
19CP01-27	P1805493-014	**117**	**96**	**87**	70-130	
19CP01-28	P1805493-015	**109**	**98**	**87**	70-130	
19CP01-29	P1805493-016	**113**	**96**	**89**	70-130	
19CP01-30	P1805493-017	**100**	**103**	**91**	70-130	
19CP01-31	P1805493-018	**113**	**97**	**90**	70-130	
19CP01-32	P1805493-019	**110**	**98**	**90**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	167	178	**79**	**84**	54-133	6	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	179	183	**85**	**87**	64-115	2	25	
74-87-3	Chloromethane	211	174	178	**82**	**84**	47-140	2	25	
75-01-4	Vinyl Chloride	214	173	180	**81**	**84**	63-127	4	25	
106-99-0	1,3-Butadiene	210	168	177	**80**	**84**	57-149	5	25	
74-83-9	Bromomethane	212	177	188	**83**	**89**	63-132	7	25	
75-00-3	Chloroethane	214	203	212	**95**	**99**	68-129	4	25	
64-17-5	Ethanol	1,020	964	1020	**95**	**100**	62-131	5	25	
75-05-8	Acetonitrile	206	197	209	**96**	**101**	56-136	5	25	
107-02-8	Acrolein	205	179	185	**87**	**90**	60-132	3	25	
67-64-1	Acetone	1,060	833	851	**79**	**80**	63-124	1	25	
75-69-4	Trichlorofluoromethane	211	193	196	**91**	**93**	65-113	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	415	429	**100**	**104**	62-135	4	25	
107-13-1	Acrylonitrile	207	199	206	**96**	**100**	68-138	4	25	
75-35-4	1,1-Dichloroethene	218	197	199	**90**	**91**	72-118	1	25	
75-09-2	Methylene Chloride	217	198	200	**91**	**92**	67-116	1	25	
76-13-1	Trichlorotrifluoroethane	216	199	198	**92**	**92**	68-113	0	25	
75-15-0	Carbon Disulfide	218	201	204	**92**	**94**	68-120	2	25	
75-34-3	1,1-Dichloroethane	216	195	200	**90**	**93**	68-118	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	207	213	**97**	**100**	60-123	3	25	
108-05-4	Vinyl Acetate	1,060	1300	1320	**123**	**125**	73-135	2	25	
78-93-3	2-Butanone (MEK)	208	196	200	**94**	**96**	70-129	2	25	
156-59-2	cis-1,2-Dichloroethene	211	198	204	**94**	**97**	69-121	3	25	
110-54-3	n-Hexane	216	222	226	**103**	**105**	61-124	2	25	
67-66-3	Chloroform	217	198	201	**91**	**93**	69-113	2	25	
107-06-2	1,2-Dichloroethane	215	203	211	**94**	**98**	62-120	4	25	
71-55-6	1,1,1-Trichloroethane	215	198	199	**92**	**93**	65-116	1	25	
71-36-3	1-Butanol	413	431	434	**104**	**105**	62-141	1	25	
71-43-2	Benzene	211	195	194	**92**	**92**	66-111	0	25	
110-82-7	Cyclohexane	416	402	397	**97**	**95**	69-115	2	25	
78-87-5	1,2-Dichloropropane	216	199	198	**92**	**92**	69-121	0	25	
75-27-4	Bromodichloromethane	215	207	206	**96**	**96**	69-123	0	25	
79-01-6	Trichloroethene	213	191	187	**90**	**88**	69-112	2	25	
123-91-1	1,4-Dioxane	214	208	207	**97**	**97**	74-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	214	216	215	**101**	**100**	74-129	1	25	
108-10-1	4-Methyl-2-pentanone	209	224	224	**107**	**107**	66-138	0	25	
10061-02-6	trans-1,3-Dichloropropene	213	223	223	**105**	**105**	75-130	0	25	
79-00-5	1,1,2-Trichloroethane	215	204	200	**95**	**93**	73-117	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181025-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	191	191	**90**	**90**	66-114	0	25	
591-78-6	2-Hexanone	214	238	244	**111**	**114**	58-146	3	25	
106-93-4	1,2-Dibromoethane	216	201	202	**93**	**94**	70-127	1	25	
127-18-4	Tetrachloroethene	213	172	171	**81**	**80**	62-119	1	25	
100-41-4	Ethylbenzene	212	196	196	**92**	**92**	69-117	0	25	
179601-23-1	m,p-Xylenes	426	399	398	**94**	**93**	67-117	1	25	
75-25-2	Bromoform	213	204	203	**96**	**95**	67-135	1	25	
100-42-5	Styrene	212	206	204	**97**	**96**	70-128	1	25	
95-47-6	o-Xylene	214	210	208	**98**	**97**	67-118	1	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	216	214	**101**	**100**	70-125	1	25	
108-67-8	1,3,5-Trimethylbenzene	214	207	204	**97**	**95**	65-117	2	25	
95-63-6	1,2,4-Trimethylbenzene	215	218	214	**101**	**100**	67-124	1	25	
100-44-7	Benzyl Chloride	217	239	237	**110**	**109**	75-142	0.9	25	
541-73-1	1,3-Dichlorobenzene	216	196	193	**91**	**89**	70-124	2	25	
106-46-7	1,4-Dichlorobenzene	216	196	193	**91**	**89**	63-124	2	25	
526-73-8	1,2,3-Trimethylbenzene	216	221	216	**102**	**100**	66-128	2	25	
95-50-1	1,2-Dichlorobenzene	216	200	197	**93**	**91**	66-125	2	25	
120-82-1	1,2,4-Trichlorobenzene	214	195	194	**91**	**91**	70-141	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	175	177	**83**	**84**	54-133	1	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	179	180	**85**	**86**	64-115	1	25	
74-87-3	Chloromethane	211	174	179	**82**	**85**	47-140	4	25	
75-01-4	Vinyl Chloride	214	172	178	**80**	**83**	63-127	4	25	
106-99-0	1,3-Butadiene	210	159	172	**76**	**82**	57-149	8	25	
74-83-9	Bromomethane	212	195	191	**92**	**90**	63-132	2	25	
75-00-3	Chloroethane	214	201	208	**94**	**97**	68-129	3	25	
64-17-5	Ethanol	1,020	955	1010	**94**	**99**	62-131	5	25	
75-05-8	Acetonitrile	206	195	208	**95**	**101**	56-136	6	25	
107-02-8	Acrolein	205	171	180	**83**	**88**	60-132	6	25	
67-64-1	Acetone	1,060	804	831	**76**	**78**	63-124	3	25	
75-69-4	Trichlorofluoromethane	211	191	191	**91**	**91**	65-113	0	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	402	429	**97**	**104**	62-135	7	25	
107-13-1	Acrylonitrile	207	198	202	**96**	**98**	68-138	2	25	
75-35-4	1,1-Dichloroethene	218	194	194	**89**	**89**	72-118	0	25	
75-09-2	Methylene Chloride	217	196	198	**90**	**91**	67-116	1	25	
76-13-1	Trichlorotrifluoroethane	216	197	199	**91**	**92**	68-113	1	25	
75-15-0	Carbon Disulfide	218	201	201	**92**	**92**	68-120	0	25	
75-34-3	1,1-Dichloroethane	216	194	199	**90**	**92**	68-118	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	206	211	**96**	**99**	60-123	3	25	
108-05-4	Vinyl Acetate	1,060	1310	1320	**124**	**125**	73-135	0.8	25	
78-93-3	2-Butanone (MEK)	208	196	198	**94**	**95**	70-129	1	25	
156-59-2	cis-1,2-Dichloroethene	211	198	202	**94**	**96**	69-121	2	25	
110-54-3	n-Hexane	216	223	225	**103**	**104**	61-124	1	25	
67-66-3	Chloroform	217	198	198	**91**	**91**	69-113	0	25	
107-06-2	1,2-Dichloroethane	215	204	210	**95**	**98**	62-120	3	25	
71-55-6	1,1,1-Trichloroethane	215	196	198	**91**	**92**	65-116	1	25	
71-36-3	1-Butanol	413	425	434	**103**	**105**	62-141	2	25	
71-43-2	Benzene	211	192	192	**91**	**91**	66-111	0	25	
110-82-7	Cyclohexane	416	395	394	**95**	**95**	69-115	0	25	
78-87-5	1,2-Dichloropropane	216	195	197	**90**	**91**	69-121	1	25	
75-27-4	Bromodichloromethane	215	205	206	**95**	**96**	69-123	1	25	
79-01-6	Trichloroethene	213	186	185	**87**	**87**	69-112	0	25	
123-91-1	1,4-Dioxane	214	205	205	**96**	**96**	74-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	214	212	214	**99**	**100**	74-129	1	25	
108-10-1	4-Methyl-2-pentanone	209	221	224	**106**	**107**	66-138	0.9	25	
10061-02-6	trans-1,3-Dichloropropene	213	221	222	**104**	**104**	75-130	0	25	
79-00-5	1,1,2-Trichloroethane	215	201	199	**93**	**93**	73-117	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181026-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	188	185	**89**	**87**	66-114	2	25	
591-78-6	2-Hexanone	214	237	240	**111**	**112**	58-146	0.9	25	
106-93-4	1,2-Dibromoethane	216	199	196	**92**	**91**	70-127	1	25	
127-18-4	Tetrachloroethene	213	169	165	**79**	**77**	62-119	3	25	
100-41-4	Ethylbenzene	212	195	190	**92**	**90**	69-117	2	25	
179601-23-1	m,p-Xylenes	426	395	386	**93**	**91**	67-117	2	25	
75-25-2	Bromoform	213	201	195	**94**	**92**	67-135	2	25	
100-42-5	Styrene	212	203	198	**96**	**93**	70-128	3	25	
95-47-6	o-Xylene	214	207	202	**97**	**94**	67-118	3	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	215	208	**100**	**97**	70-125	3	25	
108-67-8	1,3,5-Trimethylbenzene	214	204	199	**95**	**93**	65-117	2	25	
95-63-6	1,2,4-Trimethylbenzene	215	216	208	**100**	**97**	67-124	3	25	
100-44-7	Benzyl Chloride	217	237	230	**109**	**106**	75-142	3	25	
541-73-1	1,3-Dichlorobenzene	216	194	187	**90**	**87**	70-124	3	25	
106-46-7	1,4-Dichlorobenzene	216	194	187	**90**	**87**	63-124	3	25	
526-73-8	1,2,3-Trimethylbenzene	216	218	210	**101**	**97**	66-128	4	25	
95-50-1	1,2-Dichlorobenzene	216	197	190	**91**	**88**	66-125	3	25	
120-82-1	1,2,4-Trichlorobenzene	214	192	187	**90**	**87**	70-141	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	177	190	**84**	**90**	54-133	7	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	179	183	**85**	**87**	64-115	2	25	
74-87-3	Chloromethane	211	177	183	**84**	**87**	47-140	4	25	
75-01-4	Vinyl Chloride	214	176	182	**82**	**85**	63-127	4	25	
106-99-0	1,3-Butadiene	210	162	175	**77**	**83**	57-149	8	25	
74-83-9	Bromomethane	212	187	195	**88**	**92**	63-132	4	25	
75-00-3	Chloroethane	214	206	213	**96**	**100**	68-129	4	25	
64-17-5	Ethanol	1,020	980	1050	**96**	**103**	62-131	7	25	
75-05-8	Acetonitrile	206	202	216	**98**	**105**	56-136	7	25	
107-02-8	Acrolein	205	173	183	**84**	**89**	60-132	6	25	
67-64-1	Acetone	1,060	822	841	**78**	**79**	63-124	1	25	
75-69-4	Trichlorofluoromethane	211	192	197	**91**	**93**	65-113	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	413	430	**100**	**104**	62-135	4	25	
107-13-1	Acrylonitrile	207	200	209	**97**	**101**	68-138	4	25	
75-35-4	1,1-Dichloroethene	218	193	196	**89**	**90**	72-118	1	25	
75-09-2	Methylene Chloride	217	197	197	**91**	**91**	67-116	0	25	
76-13-1	Trichlorotrifluoroethane	216	198	197	**92**	**91**	68-113	1	25	
75-15-0	Carbon Disulfide	218	200	203	**92**	**93**	68-120	1	25	
75-34-3	1,1-Dichloroethane	216	198	204	**92**	**94**	68-118	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	205	212	**96**	**99**	60-123	3	25	
108-05-4	Vinyl Acetate	1,060	1300	1320	**123**	**125**	73-135	2	25	
78-93-3	2-Butanone (MEK)	208	195	201	**94**	**97**	70-129	3	25	
156-59-2	cis-1,2-Dichloroethene	211	201	207	**95**	**98**	69-121	3	25	
110-54-3	n-Hexane	216	227	230	**105**	**106**	61-124	0.9	25	
67-66-3	Chloroform	217	198	200	**91**	**92**	69-113	1	25	
107-06-2	1,2-Dichloroethane	215	207	214	**96**	**100**	62-120	4	25	
71-55-6	1,1,1-Trichloroethane	215	197	200	**92**	**93**	65-116	1	25	
71-36-3	1-Butanol	413	436	442	**106**	**107**	62-141	0.9	25	
71-43-2	Benzene	211	193	194	**91**	**92**	66-111	1	25	
110-82-7	Cyclohexane	416	398	398	**96**	**96**	69-115	0	25	
78-87-5	1,2-Dichloropropane	216	200	202	**93**	**94**	69-121	1	25	
75-27-4	Bromodichloromethane	215	207	207	**96**	**96**	69-123	0	25	
79-01-6	Trichloroethene	213	185	184	**87**	**86**	69-112	1	25	
123-91-1	1,4-Dioxane	214	205	205	**96**	**96**	74-123	0	25	
10061-01-5	cis-1,3-Dichloropropene	214	214	216	**100**	**101**	74-129	1	25	
108-10-1	4-Methyl-2-pentanone	209	226	229	**108**	**110**	66-138	2	25	
10061-02-6	trans-1,3-Dichloropropene	213	224	225	**105**	**106**	75-130	0.9	25	
79-00-5	1,1,2-Trichloroethane	215	201	200	**93**	**93**	73-117	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181027-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	183	181	**86**	**85**	66-114	1	25	
591-78-6	2-Hexanone	214	238	243	**111**	**114**	58-146	3	25	
106-93-4	1,2-Dibromoethane	216	192	190	**89**	**88**	70-127	1	25	
127-18-4	Tetrachloroethene	213	162	159	**76**	**75**	62-119	1	25	
100-41-4	Ethylbenzene	212	189	187	**89**	**88**	69-117	1	25	
179601-23-1	m,p-Xylenes	426	387	383	**91**	**90**	67-117	1	25	
75-25-2	Bromoform	213	196	190	**92**	**89**	67-135	3	25	
100-42-5	Styrene	212	196	193	**92**	**91**	70-128	1	25	
95-47-6	o-Xylene	214	203	199	**95**	**93**	67-118	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	210	206	**98**	**96**	70-125	2	25	
108-67-8	1,3,5-Trimethylbenzene	214	199	194	**93**	**91**	65-117	2	25	
95-63-6	1,2,4-Trimethylbenzene	215	211	205	**98**	**95**	67-124	3	25	
100-44-7	Benzyl Chloride	217	232	228	**107**	**105**	75-142	2	25	
541-73-1	1,3-Dichlorobenzene	216	187	182	**87**	**84**	70-124	4	25	
106-46-7	1,4-Dichlorobenzene	216	186	182	**86**	**84**	63-124	2	25	
526-73-8	1,2,3-Trimethylbenzene	216	214	207	**99**	**96**	66-128	3	25	
95-50-1	1,2-Dichlorobenzene	216	191	185	**88**	**86**	66-125	2	25	
120-82-1	1,2,4-Trichlorobenzene	214	186	180	**87**	**84**	70-141	4	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	186	196	**88**	**93**	54-133	6	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	189	190	**90**	**90**	64-115	0	25	
74-87-3	Chloromethane	211	209	205	**99**	**97**	47-140	2	25	
75-01-4	Vinyl Chloride	214	224	218	**105**	**102**	63-127	3	25	
106-99-0	1,3-Butadiene	210	205	189	**98**	**90**	57-149	9	25	
74-83-9	Bromomethane	212	198	199	**93**	**94**	63-132	1	25	
75-00-3	Chloroethane	214	196	198	**92**	**93**	68-129	1	25	
64-17-5	Ethanol	1,020	1010	1020	**99**	**100**	62-131	1	25	
75-05-8	Acetonitrile	206	181	184	**88**	**89**	56-136	1	25	
107-02-8	Acrolein	205	197	195	**96**	**95**	60-132	1	25	
67-64-1	Acetone	1,060	992	1050	**94**	**99**	63-124	5	25	
75-69-4	Trichlorofluoromethane	211	190	210	**90**	**100**	65-113	11	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	367	424	**89**	**103**	62-135	15	25	
107-13-1	Acrylonitrile	207	212	252	**102**	**122**	68-138	18	25	
75-35-4	1,1-Dichloroethene	218	198	221	**91**	**101**	72-118	10	25	
75-09-2	Methylene Chloride	217	200	226	**92**	**104**	67-116	12	25	
76-13-1	Trichlorotrifluoroethane	216	190	191	**88**	**88**	68-113	0	25	
75-15-0	Carbon Disulfide	218	200	204	**92**	**94**	68-120	2	25	
75-34-3	1,1-Dichloroethane	216	198	197	**92**	**91**	68-118	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	197	197	**92**	**92**	60-123	0	25	
108-05-4	Vinyl Acetate	1,060	1090	1090	**103**	**103**	73-135	0	25	
78-93-3	2-Butanone (MEK)	208	210	210	**101**	**101**	70-129	0	25	
156-59-2	cis-1,2-Dichloroethene	211	199	199	**94**	**94**	69-121	0	25	
110-54-3	n-Hexane	216	198	197	**92**	**91**	61-124	1	25	
67-66-3	Chloroform	217	200	198	**92**	**91**	69-113	1	25	
107-06-2	1,2-Dichloroethane	215	195	194	**91**	**90**	62-120	1	25	
71-55-6	1,1,1-Trichloroethane	215	194	194	**90**	**90**	65-116	0	25	
71-36-3	1-Butanol	413	461	458	**112**	**111**	62-141	0.9	25	
71-43-2	Benzene	211	193	193	**91**	**91**	66-111	0	25	
110-82-7	Cyclohexane	416	406	401	**98**	**96**	69-115	2	25	
78-87-5	1,2-Dichloropropane	216	202	201	**94**	**93**	69-121	1	25	
75-27-4	Bromodichloromethane	215	209	207	**97**	**96**	69-123	1	25	
79-01-6	Trichloroethene	213	198	195	**93**	**92**	69-112	1	25	
123-91-1	1,4-Dioxane	214	222	220	**104**	**103**	74-123	1	25	
10061-01-5	cis-1,3-Dichloropropene	214	209	208	**98**	**97**	74-129	1	25	
108-10-1	4-Methyl-2-pentanone	209	218	216	**104**	**103**	66-138	1	25	
10061-02-6	trans-1,3-Dichloropropene	213	216	214	**101**	**100**	75-130	1	25	
79-00-5	1,1,2-Trichloroethane	215	204	201	**95**	**93**	73-117	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805493
Client Project ID: **PMC** ALS Sample ID: P181031-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	189	190	**89**	**90**	66-114	1	25	
591-78-6	2-Hexanone	214	212	211	**99**	**99**	58-146	0	25	
106-93-4	1,2-Dibromoethane	216	212	211	**98**	**98**	70-127	0	25	
127-18-4	Tetrachloroethene	213	193	192	**91**	**90**	62-119	1	25	
100-41-4	Ethylbenzene	212	201	199	**95**	**94**	69-117	1	25	
179601-23-1	m,p-Xylenes	426	451	434	**106**	**102**	67-117	4	25	
75-25-2	Bromoform	213	234	216	**110**	**101**	67-135	9	25	
100-42-5	Styrene	212	234	210	**110**	**99**	70-128	11	25	
95-47-6	o-Xylene	214	240	217	**112**	**101**	67-118	10	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	252	224	**118**	**105**	70-125	12	25	
108-67-8	1,3,5-Trimethylbenzene	214	216	214	**101**	**100**	65-117	1	25	
95-63-6	1,2,4-Trimethylbenzene	215	250	247	**116**	**115**	67-124	0.9	25	
100-44-7	Benzyl Chloride	217	224	224	**103**	**103**	75-142	0	25	
541-73-1	1,3-Dichlorobenzene	216	224	222	**104**	**103**	70-124	1	25	
106-46-7	1,4-Dichlorobenzene	216	212	209	**98**	**97**	63-124	1	25	
526-73-8	1,2,3-Trimethylbenzene	216	257	252	**119**	**117**	66-128	2	25	
95-50-1	1,2-Dichlorobenzene	216	245	242	**113**	**112**	66-125	0.9	25	
120-82-1	1,2,4-Trichlorobenzene	214	210	208	**98**	**97**	70-141	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs** ALS Project ID: P1805493
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10251803.D
Analyst: Simon Cao Date Analyzed: 10/25/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 05:49
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181025-LCS	10251804.D	06:23
Duplicate Lab Control Sample	P181025-DLCS	10251805.D	06:56
19CP01-14	P1805493-001	10251816.D	13:59
19CP01-15	P1805493-002	10251821.D	18:18
19CP01-16	P1805493-003	10251822.D	18:52
19CP01-17	P1805493-004	10251823.D	19:26

Client: **Jacobs** ALS Project ID: P1805493
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10261803.D
Analyst: Raneem Sahtah Date Analyzed: 10/26/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 05:46
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181026-LCS	10261804.D	06:20
Duplicate Lab Control Sample	P181026-DLCS	10261805.D	06:54
19CP01-28	P1805493-015	10261818.D	15:24
19CP01-21	P1805493-008	10261819.D	15:58
19CP01-22	P1805493-009	10261820.D	16:32
19CP01-23	P1805493-010	10261821.D	17:06
19CP01-24	P1805493-011	10261822.D	17:40
19CP01-25	P1805493-012	10261824.D	18:47
19CP01-26	P1805493-013	10261825.D	19:21
19CP01-26 (Dilution)	P1805493-013	10261826.D	19:55
19CP01-27	P1805493-014	10261827.D	20:29
19CP01-27 (Dilution)	P1805493-014	10261828.D	21:03
19CP01-29	P1805493-016	10261830.D	22:11
19CP01-29 (Dilution)	P1805493-016	10261831.D	22:45
19CP01-31	P1805493-018	10261833.D	23:52
19CP01-31 (Dilution)	P1805493-018	10261834.D	00:27
19CP01-32	P1805493-019	10261835.D	01:00
19CP01-32 (Dilution)	P1805493-019	10261836.D	01:34

Client: **Jacobs** ALS Project ID: P1805493
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10271803.D
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 03:16
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181027-LCS	10271804.D	03:49
Duplicate Lab Control Sample	P181027-DLCS	10271805.D	04:23
19CP01-18	P1805493-005	10271817.D	12:21
19CP01-19	P1805493-006	10271818.D	12:55
19CP01-20	P1805493-007	10271819.D	13:29

Client: **Jacobs** ALS Project ID: P1805493
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10311804.D
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 04:14
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181031-LCS	10311805.D	04:47
Duplicate Lab Control Sample	P181031-DLCS	10311806.D	05:21
19CP01-30	P1805493-017	10311811.D	08:11

Client: **Jacobs** ALS Project ID: P1805493

Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10251801.D

Analyst: Simon Cao Date Analyzed: 10/25/18

Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 04:40

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	AREA	#	RT
	24 Hour Standard	125544		9.28	666288		11.24	389100		15.57
	Upper Limit	175762		9.61	932803		11.57	544740		15.90
	Lower Limit	75326		8.95	399773		10.91	233460		15.24
	Client Sample ID									
01	Method Blank	116353		9.26	597092		11.23	352056		15.57
02	Lab Control Sample	129263		9.29	637579		11.24	378501		15.58
03	Duplicate Lab Control Sample	132618		9.29	668944		11.24	391209		15.58
04	19CP01-14	134869		9.27	691592		11.23	415954		15.57
05	19CP01-15	126881		9.26	657692		11.23	398219		15.57
06	19CP01-16	128170		9.26	652175		11.23	393497		15.57
07	19CP01-17	122011		9.26	634040		11.23	379822		15.57
08										
09										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

Client: **Jacobs** ALS Project ID: P1805493

Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10261801.D

Analyst: Raneem Sahtah Date Analyzed: 10/26/18

Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 04:39

Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	125872	9.27	648355	11.24	380860	15.57
	Upper Limit	176221	9.60	907697	11.57	533204	15.90
	Lower Limit	75523	8.94	389013	10.91	228516	15.24
	Client Sample ID						
01	Method Blank	113343	9.26	592890	11.23	350671	15.57
02	Lab Control Sample	127662	9.29	637646	11.24	377206	15.57
03	Duplicate Lab Control Sample	133304	9.29	667580	11.25	399713	15.58
04	19CP01-28	130013	9.26	635824	11.23	385366	15.57
05	19CP01-21	124638	9.26	629449	11.23	380974	15.57
06	19CP01-22	117208	9.26	600549	11.23	357554	15.57
07	19CP01-23	118342	9.26	595641	11.23	356176	15.57
08	19CP01-24	116881	9.26	590291	11.23	361084	15.57
09	19CP01-25	118729	9.26	612610	11.23	371680	15.57
10	19CP01-26	122872	9.27	626387	11.24	383276	15.57
11	19CP01-26 (Dilution)	121938	9.26	613645	11.23	385322	15.57
12	19CP01-27	123321	9.27	621162	11.24	392143	15.57
13	19CP01-27 (Dilution)	125266	9.26	614098	11.23	386173	15.57
14	19CP01-29	120180	9.26	598064	11.24	375328	15.57
15	19CP01-29 (Dilution)	122002	9.26	600020	11.23	370056	15.57
16	19CP01-31	113085	9.26	579642	11.23	355169	15.57
17	19CP01-31 (Dilution)	116964	9.26	577181	11.23	350274	15.57
18	19CP01-32	114010	9.26	573260	11.23	350643	15.57
19	19CP01-32 (Dilution)	113427	9.26	563867	11.23	345185	15.57
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs** ALS Project ID: P1805493
Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10271801.D
Analyst: Raneem Sahtah Date Analyzed: 10/27/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 02:08
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	120482	9.28	627729	11.24	379410	15.57
	Upper Limit	168675	9.61	878821	11.57	531174	15.90
	Lower Limit	72289	8.95	376637	10.91	227646	15.24
	Client Sample ID						
01	Method Blank	109269	9.26	563520	11.23	343086	15.57
02	Lab Control Sample	122911	9.29	608910	11.24	371975	15.58
03	Duplicate Lab Control Sample	129156	9.29	644226	11.25	393427	15.58
04	19CP01-18	117415	9.26	601463	11.23	370184	15.57
05	19CP01-19	116873	9.26	596006	11.23	363570	15.57
06	19CP01-20	116113	9.27	596084	11.23	365888	15.57
07							
08							
09							
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11							
12							
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14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

Client: **Jacobs** ALS Project ID: P1805493

Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15 Modified

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10311802.D

Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/31/18

Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 03:07

Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	198602	11.33	825736	13.43	353693	17.72
	Upper Limit	278043	11.66	1156030	13.76	495170	18.05
	Lower Limit	119161	11.00	495442	13.10	212216	17.39
	Client Sample ID						
01	Method Blank	185804	11.31	803645	13.43	341709	17.72
02	Lab Control Sample	203557	11.33	838462	13.43	363266	17.72
03	Duplicate Lab Control Sample	214353	11.33	882074	13.43	379977	17.72
04	19CP01-30	203809	11.32	867526	13.43	362841	17.72
05							
06							
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16							
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18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 26 11:48:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	134869	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	691592	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	415954	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	334919	14.319	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 114.56%				
57) Toluene-d8 (SS2)	13.66	98	893522	12.296	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
73) Bromofluorobenzene (SS3)	17.15	174	182464	11.161	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.28%				
Target Compounds							Qvalue
2) Propene	3.98	42	6871	0.202	ng	#	74
3) Dichlorodifluoromethan...	4.08	85	22798	0.621	ng		99
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	274	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	30382	1.649	ng		91
11) Acetonitrile	5.69	41	2891	0.058	ng	#	67
12) Acrolein	5.84	56	2040	0.143	ng		97
13) Acetone	5.98	58	146638	7.703	ng	#	64
14) Trichlorofluoromethane	6.15	101	8201	0.312	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	37641	0.635	ng		80
16) Acrylonitrile	6.50	53	1122	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	6.99	84	676	N.D.			
20) 3-Chloro-1-propene (Al...	7.07	41	119	N.D.			
21) Trichlorotrifluoroethane	7.32	151	957	0.091	ng	#	64
22) Carbon Disulfide	7.28	76	4573	0.064	ng		89
23) trans-1,2-Dichloroethene	8.01	61	1954	0.062	ng		89
24) 1,1-Dichloroethane	8.01	63	548	N.D.			
25) Methyl tert-Butyl Ether	8.27	73	553	N.D.			
26) Vinyl Acetate	8.40	86	2057	0.656	ng	#	13
27) 2-Butanone (MEK)	8.67	72	6084	0.410	ng	#	59
28) cis-1,2-Dichloroethene	9.10	61	14773	0.486	ng		94
29) Diisopropyl Ether	9.41	87	616	N.D.			
30) Ethyl Acetate	9.35	61	29832	3.795	ng		98
31) n-Hexane	9.35	57	1756	N.D.			
32) Chloroform	9.40	83	7882	0.248	ng		99
34) Tetrahydrofuran (THF)	9.84	72	540	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	3135	0.120	ng		93
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	10837m	0.461	ng		
41) Benzene	10.88	78	4839	0.057	ng		93
42) Carbon Tetrachloride	11.03	117	2045	0.100	ng		98
43) Cyclohexane	11.17	84	397	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	1732229	104.479	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	1157	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 11:48:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

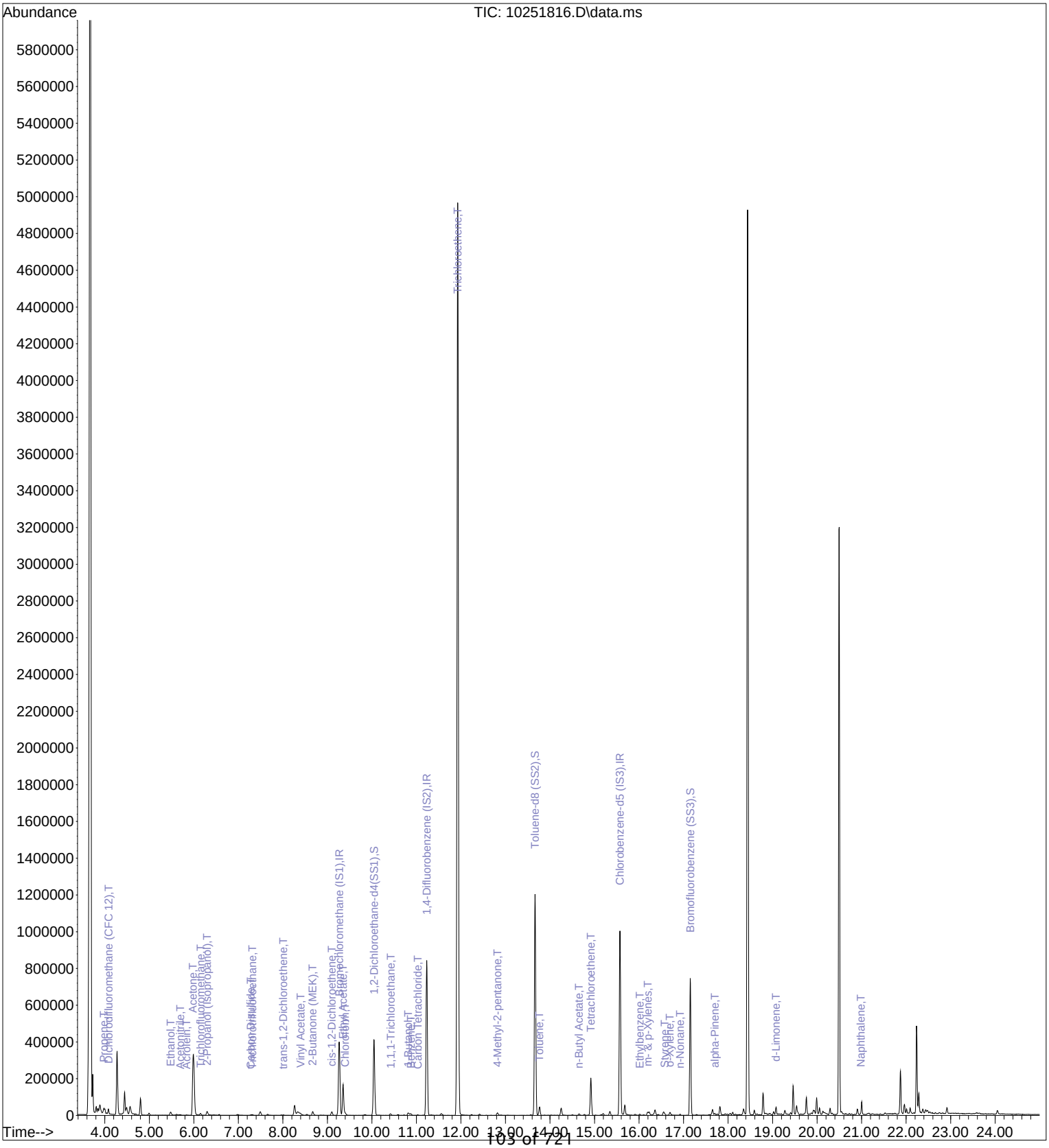
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	12.24	71	979	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	12.82	58	4249	0.202 ng	#	72
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.76	91	36893	0.454 ng		100
59) 2-Hexanone	14.03	43	2214	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	14.65	43	7859	0.137 ng		92
63) n-Octane	14.78	57	888	N.D.		
64) Tetrachloroethene	14.92	166	59412	3.541 ng		100
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	16.02	91	5238	0.059 ng		98
67) m- & p-Xylenes	16.20	91	15555	0.227 ng		96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	16.58	104	3508	0.072 ng		100
70) o-Xylene	16.69	91	7458	0.112 ng		97
71) n-Nonane	16.92	43	3161	0.067 ng		88
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	17.30	105	1486	N.D.		
75) alpha-Pinene	17.70	93	3839	0.088 ng	#	1
76) n-Propylbenzene	17.82	91	1994	N.D.		
77) 3-Ethyltoluene	17.93	105	3482	N.D.		
78) 4-Ethyltoluene	17.98	105	1394	N.D.		
79) 1,3,5-Trimethylbenzene	18.05	105	1654	N.D.		
80) alpha-Methylstyrene	18.21	118	357	N.D.		
81) 2-Ethyltoluene	18.25	105	1466	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D. d		
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	18.44	91	2290	N.D.		
85) 1,3-Dichlorobenzene	18.64	146	195	N.D.		
86) 1,4-Dichlorobenzene	18.70	146	113	N.D.		
87) sec-Butylbenzene	18.76	105	318	N.D.		
88) 4-Isopropyltoluene (p-...	18.92	119	1473	N.D.		
89) 1,2,3-Trimethylbenzene	18.92	105	1373	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	19.08	68	11767	0.360 ng		99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	20.98	128	3841	0.052 ng		90
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	19.34	91	1497	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 11:48:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/26/18

Quant Time: Oct 26 11:48:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

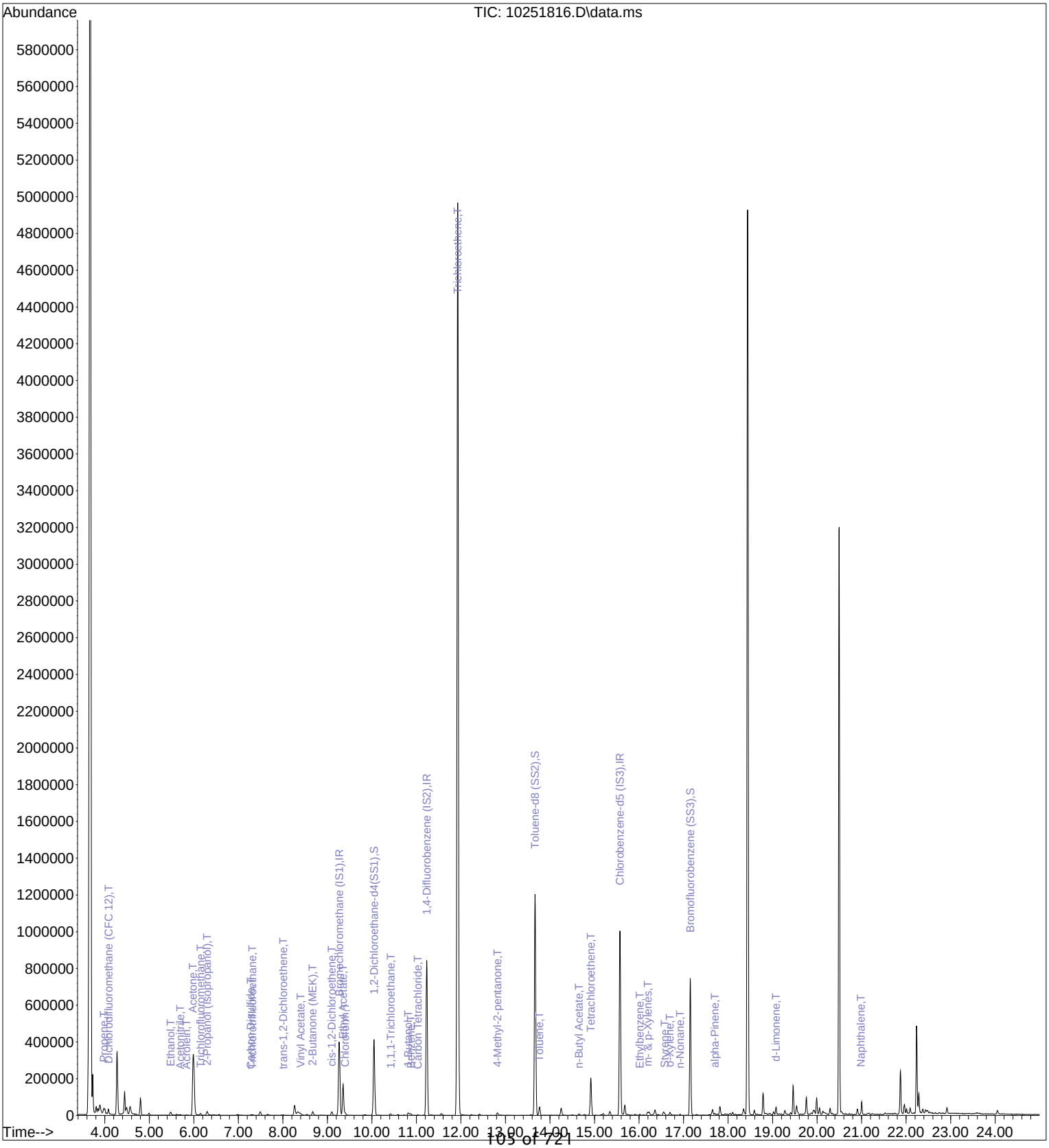
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	134869	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	691592	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	415954	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	334919	14.319	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 114.56%				
57) Toluene-d8 (SS2)	13.66	98	893522	12.296	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
73) Bromofluorobenzene (SS3)	17.15	174	182464	11.161	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.28%				
Target Compounds							Qvalue
2) Propene	3.98	42	6871	0.202	ng	#	74
3) Dichlorodifluoromethan...	4.08	85	22798	0.621	ng		99
10) Ethanol	5.48	45	30382	1.649	ng		91
11) Acetonitrile	5.69	41	2891	0.058	ng	#	67
12) Acrolein	5.84	56	2040	0.143	ng		97
13) Acetone	5.98	58	146638	7.703	ng	#	64
14) Trichlorofluoromethane	6.15	101	8201	0.312	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	37641	0.635	ng		80
21) Trichlorotrifluoroethane	7.32	151	957	0.091	ng	#	64
22) Carbon Disulfide	7.28	76	4573	0.064	ng		89
23) trans-1,2-Dichloroethene	8.01	61	1954	0.062	ng		89
26) Vinyl Acetate	8.40	86	2057	0.656	ng	#	13
27) 2-Butanone (MEK)	8.67	72	6084	0.410	ng	#	59
28) cis-1,2-Dichloroethene	9.10	61	14773	0.486	ng		94
30) Ethyl Acetate	9.35	61	29832	3.795	ng		98
32) Chloroform	9.40	83	7882	0.248	ng		99
38) 1,1,1-Trichloroethane	10.43	97	3135	0.120	ng		93
40) 1-Butanol	10.82	56	10837m	0.461	ng		
41) Benzene	10.88	78	4839	0.057	ng		93
42) Carbon Tetrachloride	11.03	117	2045	0.100	ng		98
47) Trichloroethene	11.93	130	1732229	104.479	ng		100
53) 4-Methyl-2-pentanone	12.82	58	4249	0.202	ng	#	72
58) Toluene	13.76	91	36893	0.454	ng		100
62) n-Butyl Acetate	14.65	43	7859	0.137	ng		92
64) Tetrachloroethene	14.92	166	59412	3.541	ng		100
66) Ethylbenzene	16.02	91	5238	0.059	ng		98
67) m- & p-Xylenes	16.20	91	15555	0.227	ng		96
69) Styrene	16.58	104	3508	0.072	ng		100
70) o-Xylene	16.69	91	7458	0.112	ng		97
71) n-Nonane	16.92	43	3161	0.067	ng		88
75) alpha-Pinene	17.70	93	3839	0.088	ng	#	1
91) d-Limonene	19.08	68	11767	0.360	ng		99
95) Naphthalene	20.98	128	3841	0.052	ng		90

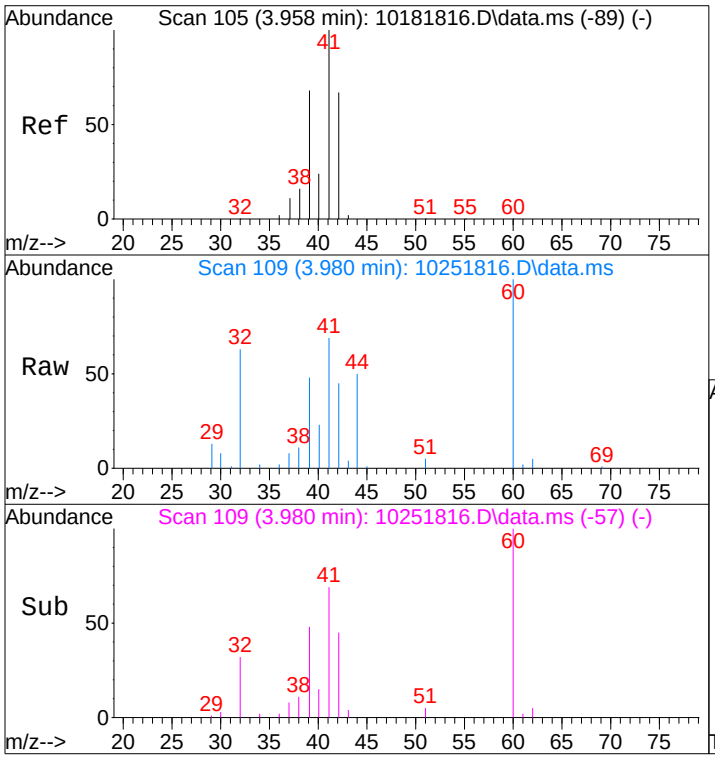
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 11:48:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

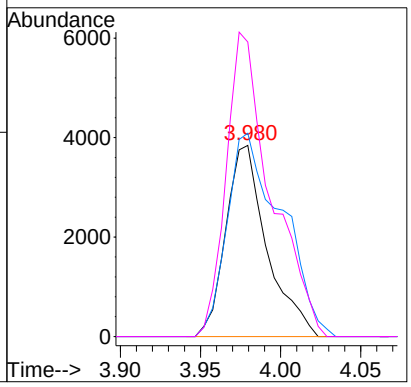


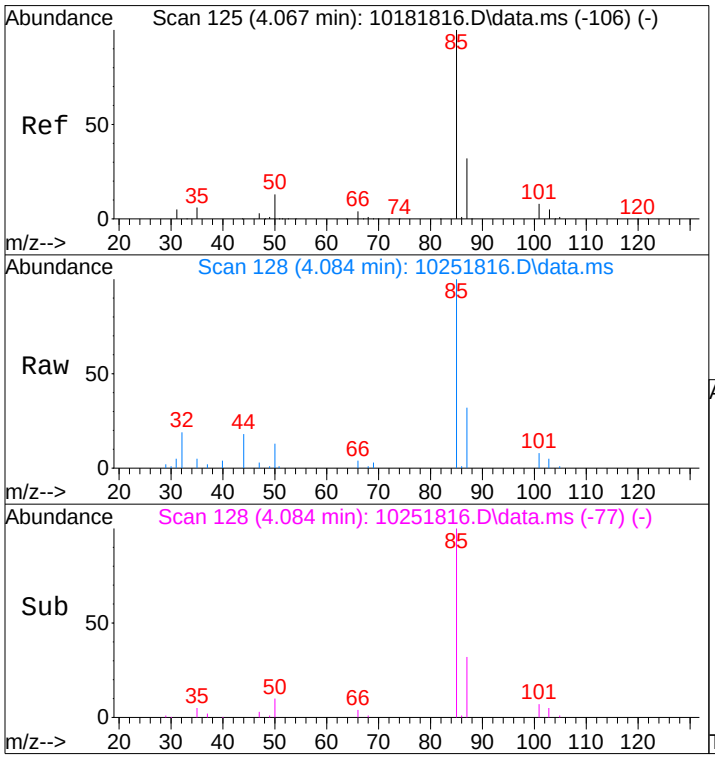


#2
Propene
Concen: 0.20 ng
RT: 3.98 min Scan# 109
Delta R.T. 0.033 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 42 Resp: 6871

Ion	Ratio	Lower	Upper
42	100		
39	140.8	81.9	121.9#
41	173.8	130.4	170.4#

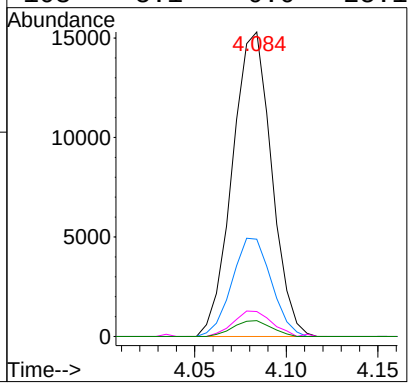


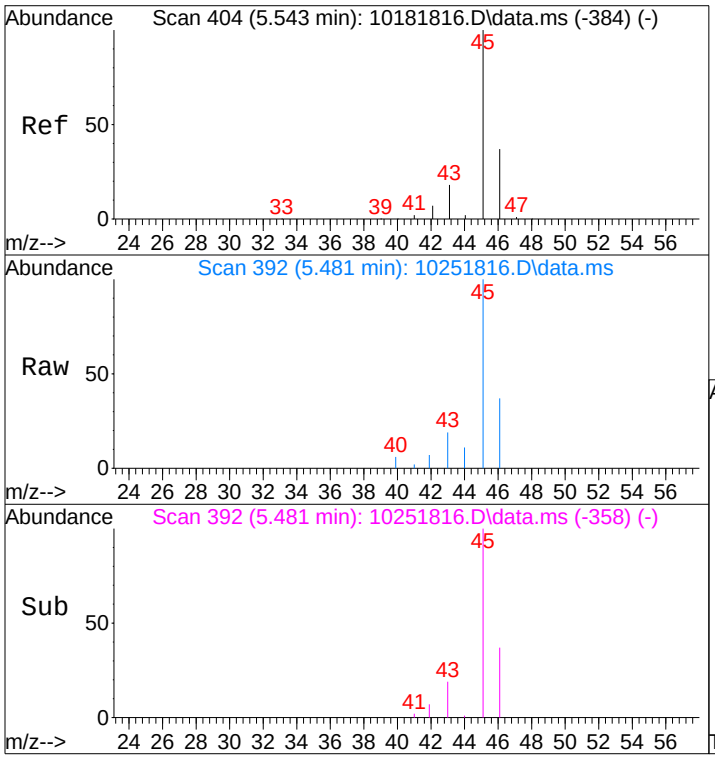


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.62 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 85 Resp: 22798

Ion	Ratio	Lower	Upper
85	100		
87	32.5	12.0	52.0
101	8.4	0.0	28.0
103	5.1	0.0	25.1

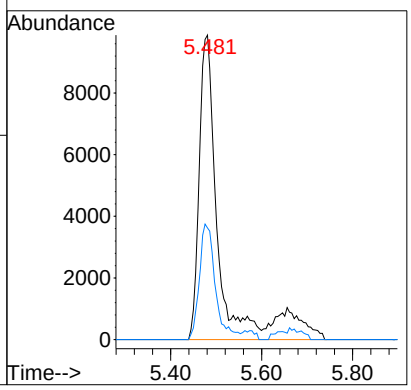


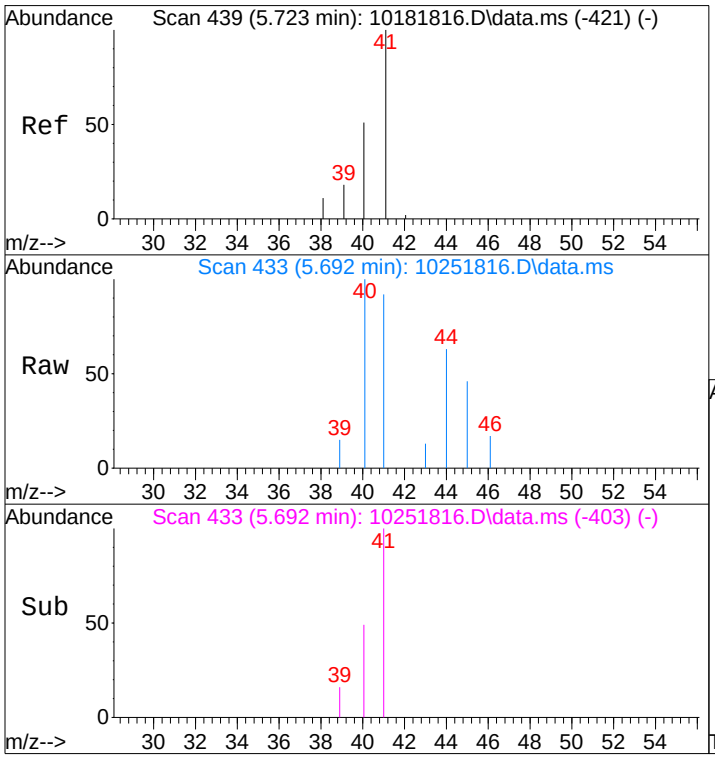


#10
Ethanol
Concen: 1.65 ng
RT: 5.48 min Scan# 392
Delta R.T. -0.077 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 45 Resp: 30382

Ion	Ratio	Lower	Upper
45	100		
46	31.8	17.0	57.0

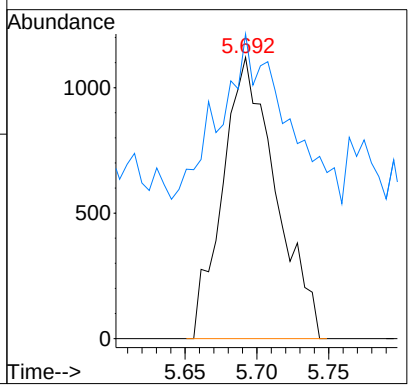


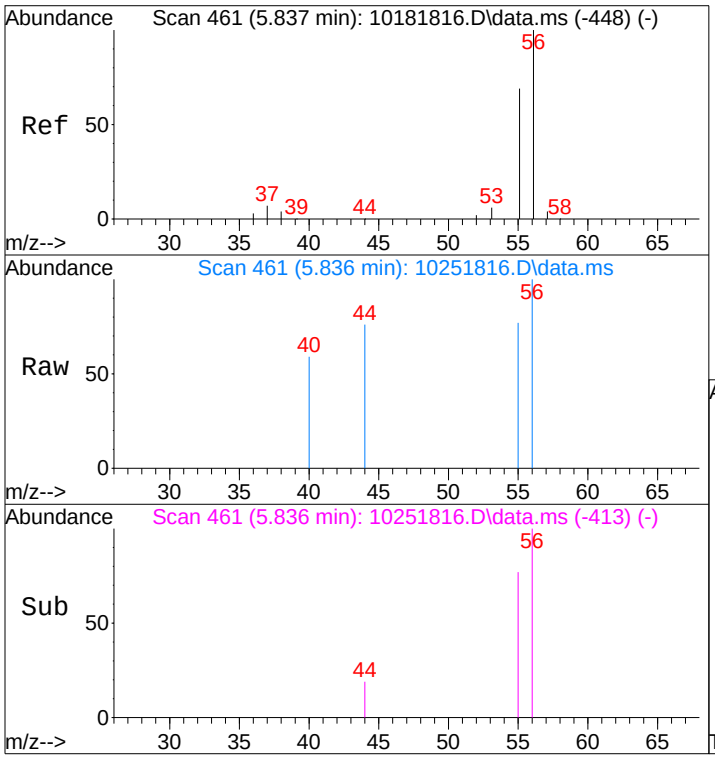


#11
Acetonitrile
Concen: 0.06 ng
RT: 5.69 min Scan# 433
Delta R.T. -0.045 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 41 Resp: 2891

Ion	Ratio	Lower	Upper
41	100		
40	74.3	31.4	71.4#

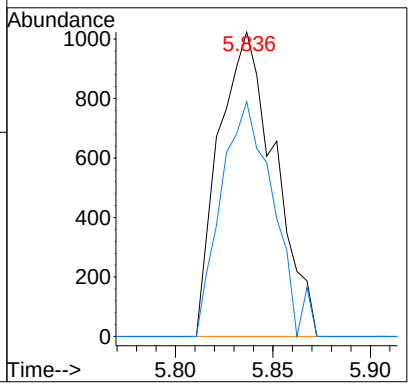


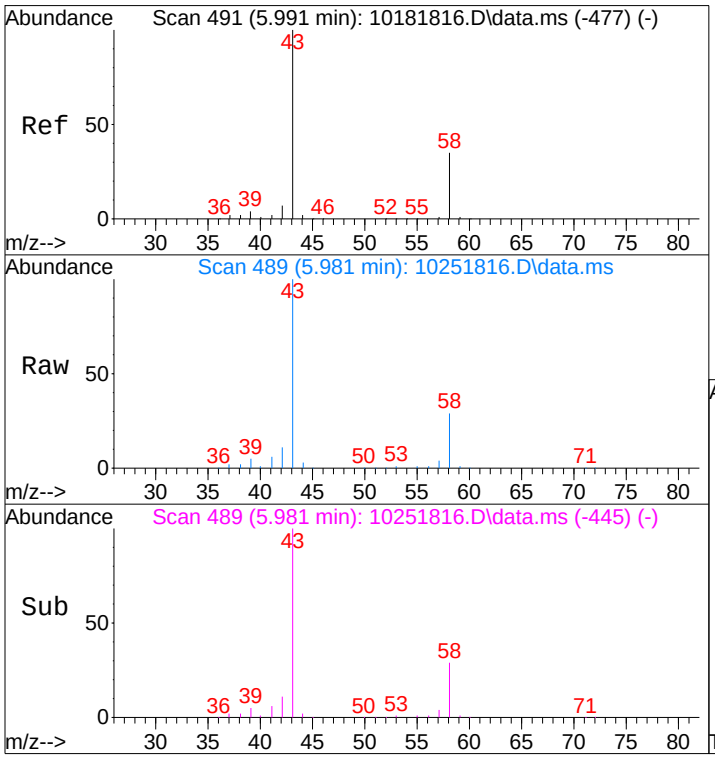


#12
Acrolein
Concen: 0.14 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 56 Resp: 2040

Ion	Ratio	Lower	Upper
56	100		
55	71.9	49.3	89.3

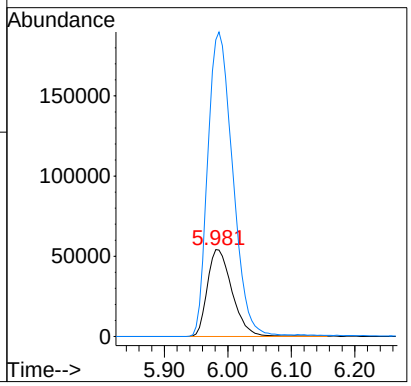


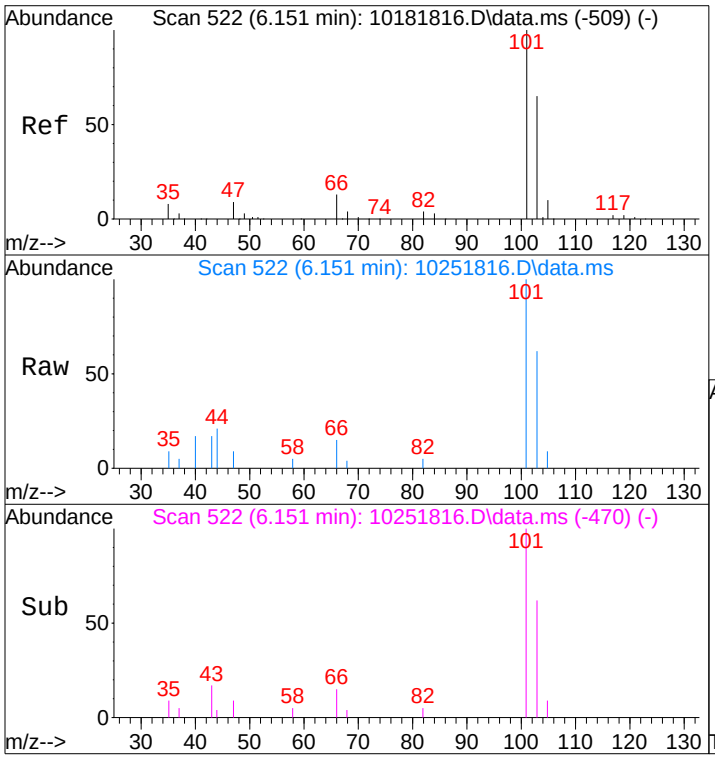


#13
Acetone
Concen: 7.70 ng
RT: 5.98 min Scan# 489
Delta R.T. -0.023 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 58 Resp: 146638

Ion	Ratio	Lower	Upper
58	100		
43	353.3	254.3	314.3#

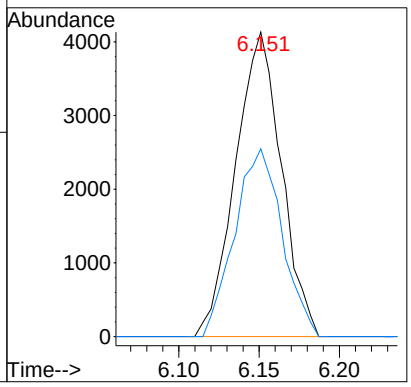


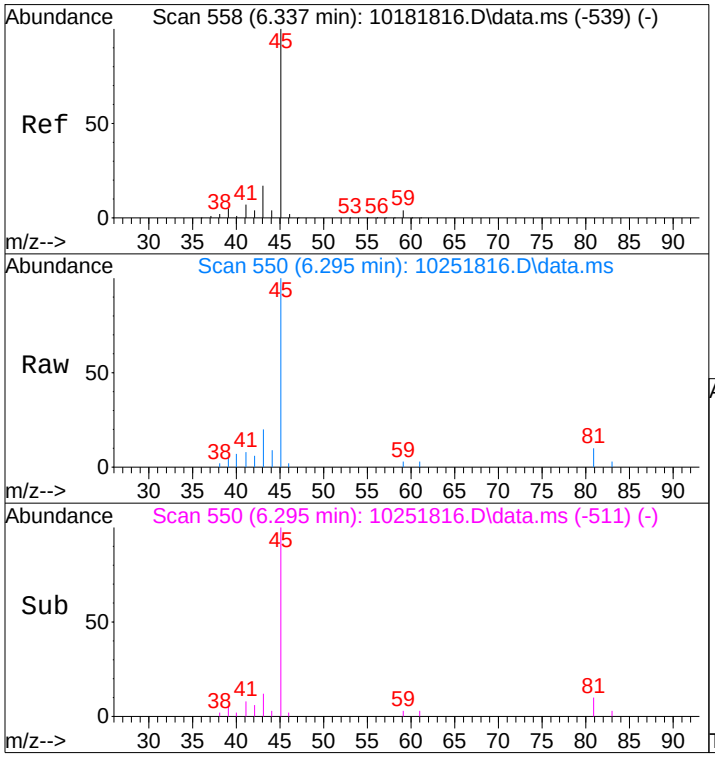


#14
Trichlorofluoromethane
Concen: 0.31 ng
RT: 6.15 min Scan# 522
Delta R.T. 0.019 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:101 Resp: 8201

Ion	Ratio	Lower	Upper
101	100		
103	63.8	44.5	84.5

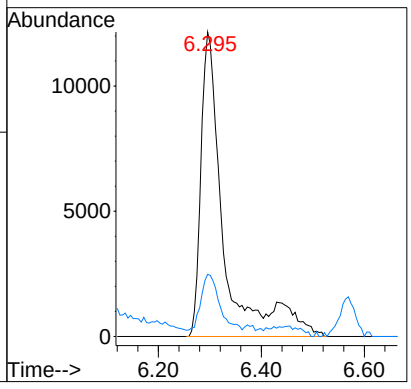


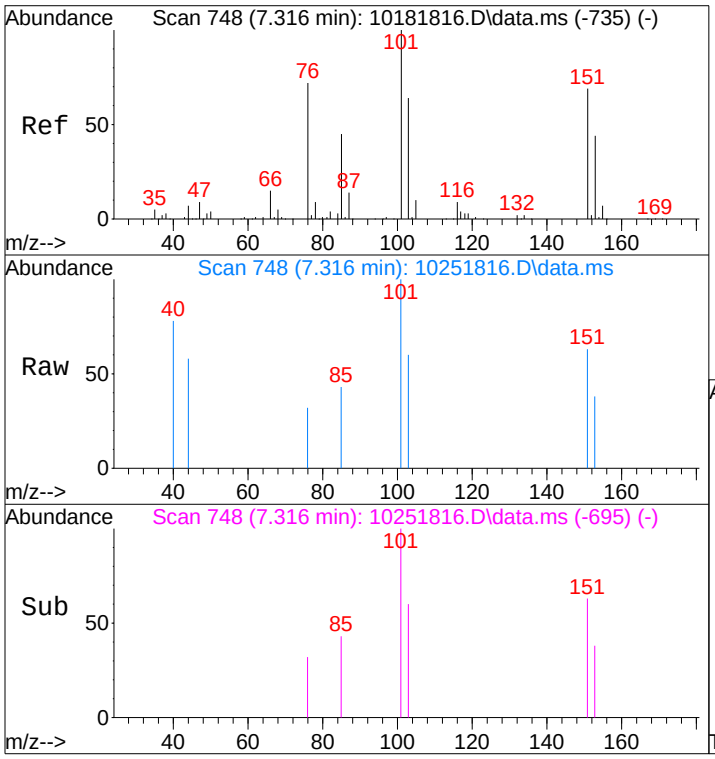


#15
2-Propanol (Isopropanol)
Concen: 0.64 ng
RT: 6.30 min Scan# 550
Delta R.T. -0.047 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 45 Resp: 37641

Ion	Ratio	Lower	Upper
45	100		
43	25.5	0.0	36.7

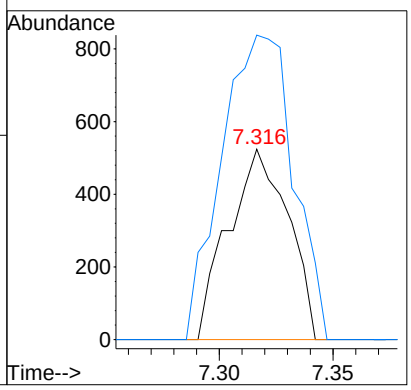


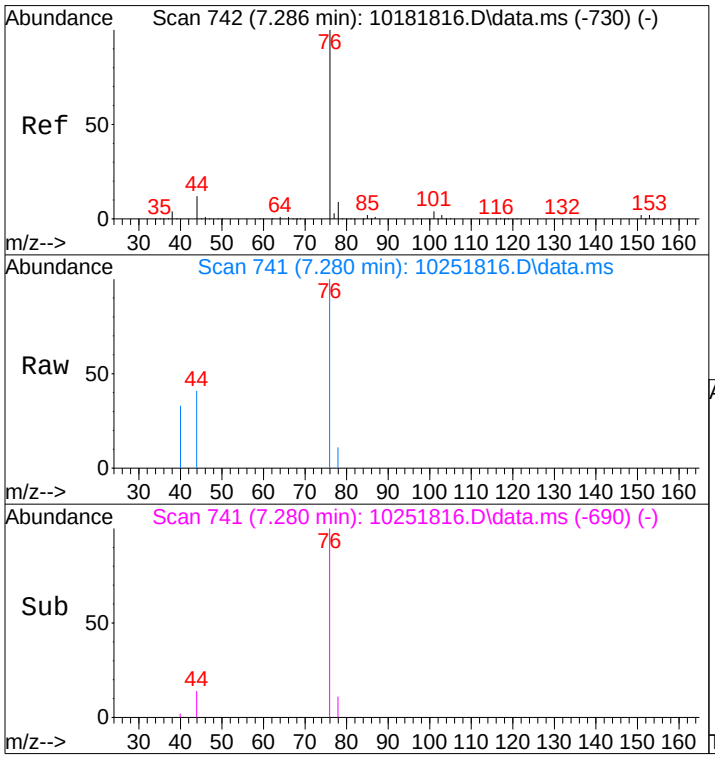


#21
Trichlorotrifluoroethane
Concen: 0.09 ng
RT: 7.32 min Scan# 748
Delta R.T. 0.025 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:151 Resp: 957

Ion	Ratio	Lower	Upper
151	100		
101	192.5	127.5	167.5#

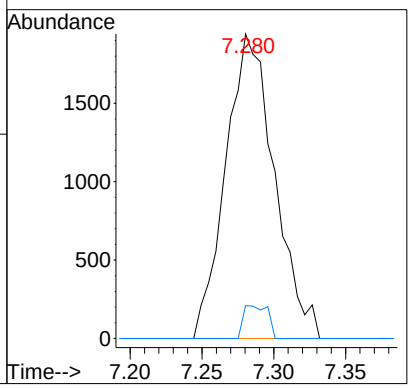


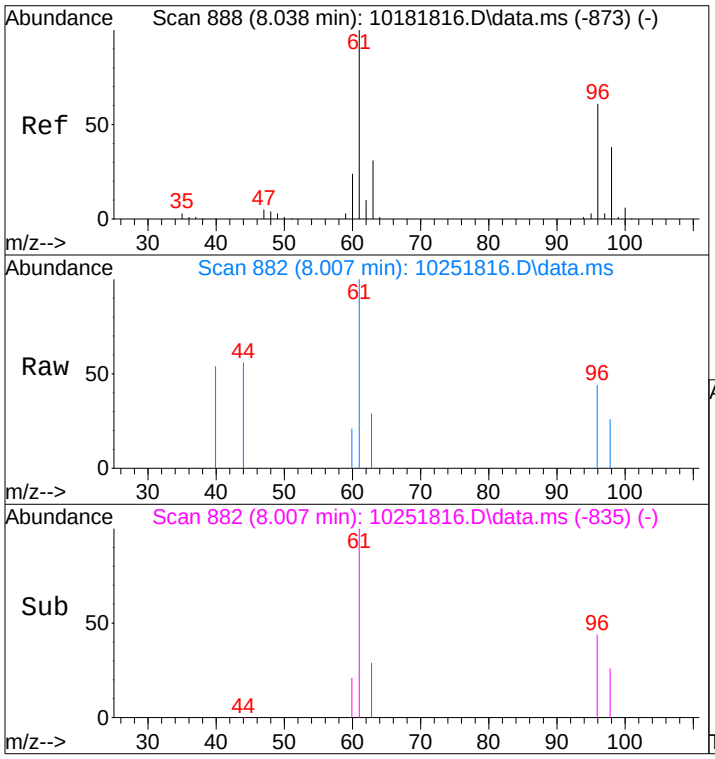


#22
Carbon Disulfide
Concen: 0.06 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 76 Resp: 4573

Ion	Ratio	Lower	Upper
76	100		
78	5.4	0.0	29.6

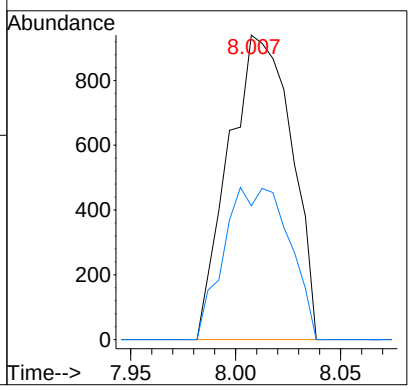


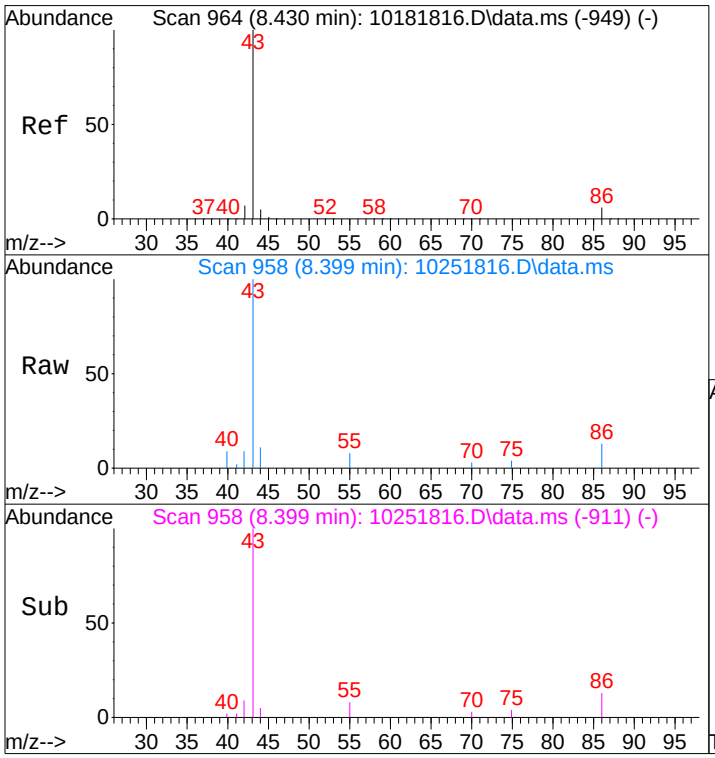


#23
trans-1,2-Dichloroethene
Concen: 0.06 ng
RT: 8.01 min Scan# 882
Delta R.T. -0.007 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 61 Resp: 1954

Ion	Ratio	Lower	Upper
61	100		
96	52.0	40.2	80.2

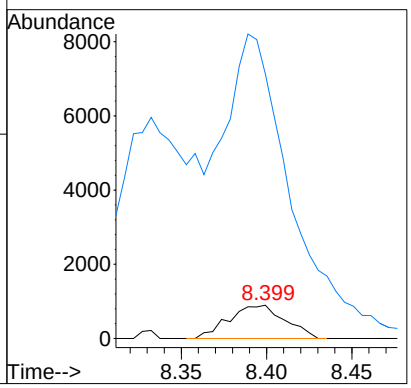


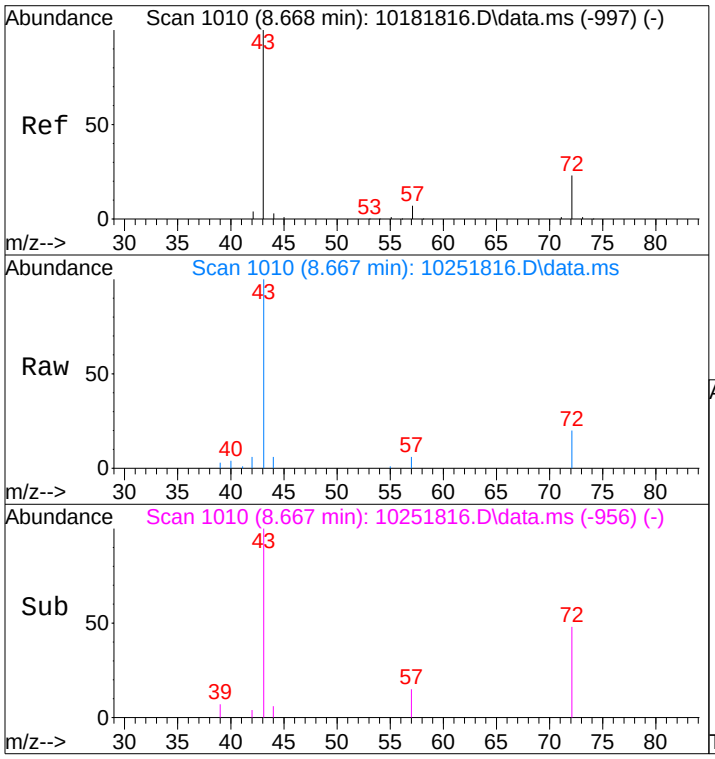


#26
Vinyl Acetate
Concen: 0.66 ng
RT: 8.40 min Scan# 958
Delta R.T. -0.010 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 86 Resp: 2057

Ion	Ratio	Lower	Upper
86	100		
43	1070.0	1596.2	1636.2#

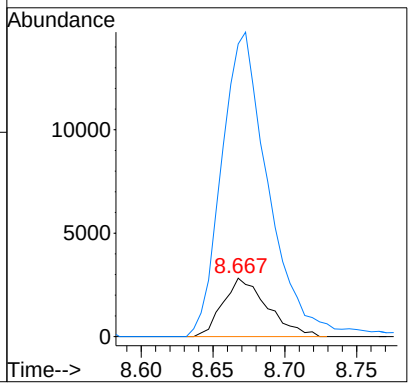


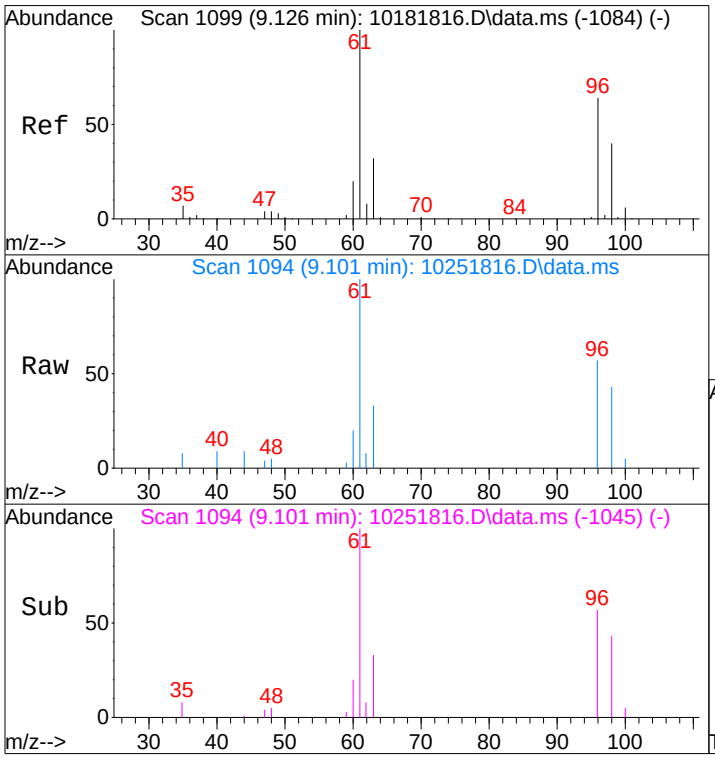


#27
2-Butanone (MEK)
Concen: 0.41 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 72 Resp: 6084

Ion	Ratio	Lower	Upper
72	100		
43	555.6	430.0	470.0#

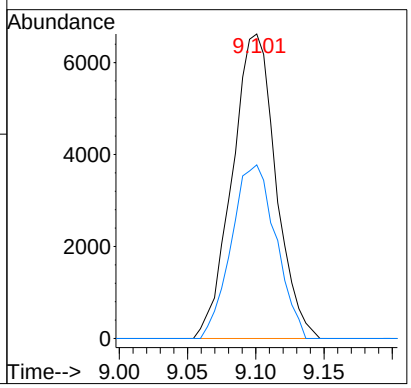


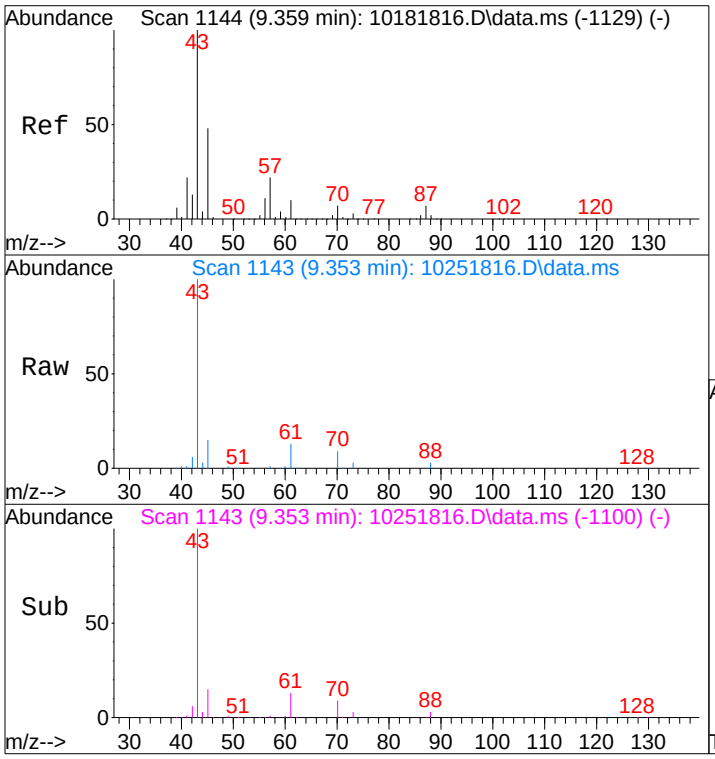


#28
cis-1,2-Dichloroethene
Concen: 0.49 ng
RT: 9.10 min Scan# 1094
Delta R.T. 0.005 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 61 Resp: 14773

Ion	Ratio	Lower	Upper
61	100		
96	58.1	42.8	82.8

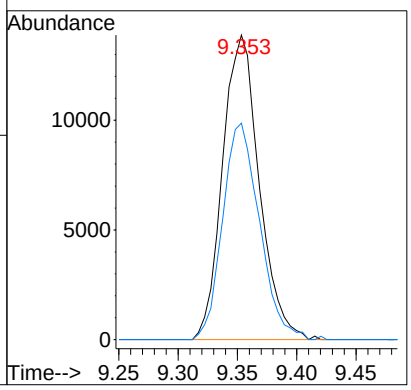


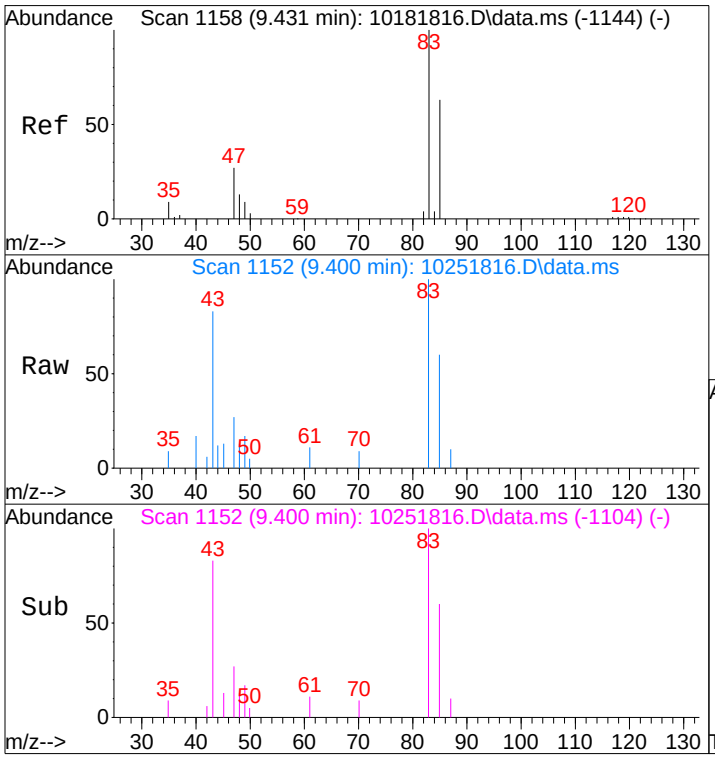


#30
Ethyl Acetate
Concen: 3.79 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 61 Resp: 29832

Ion	Ratio	Lower	Upper
61	100		
70	71.3	52.7	92.7

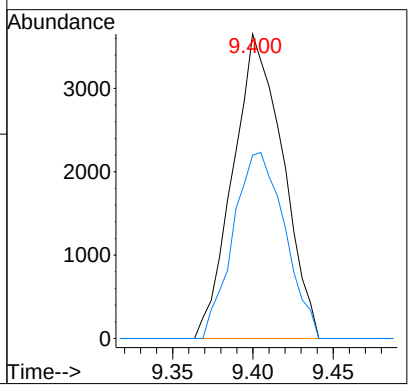


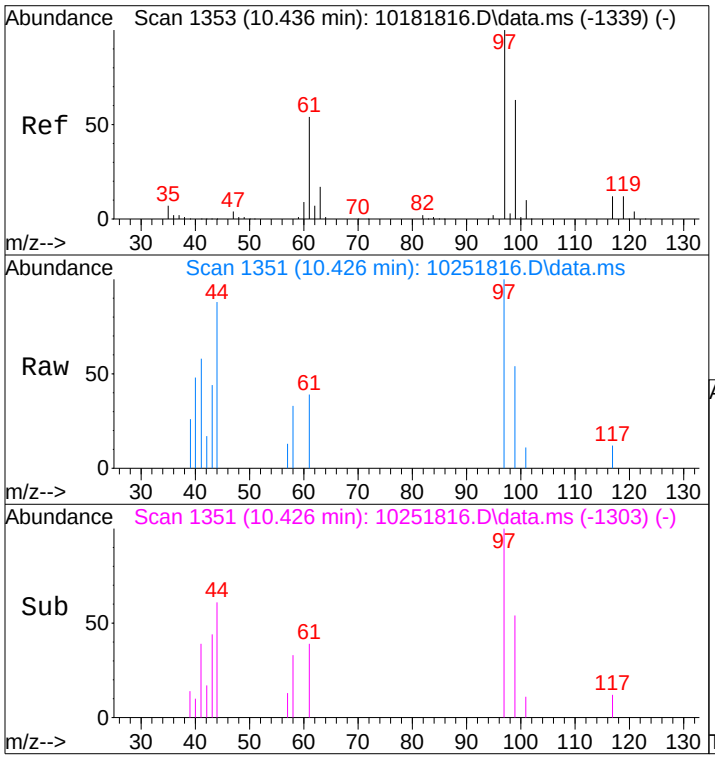


#32
Chloroform
Concen: 0.25 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 83 Resp: 7882

Ion	Ratio	Lower	Upper
83	100		
85	63.4	44.0	84.0

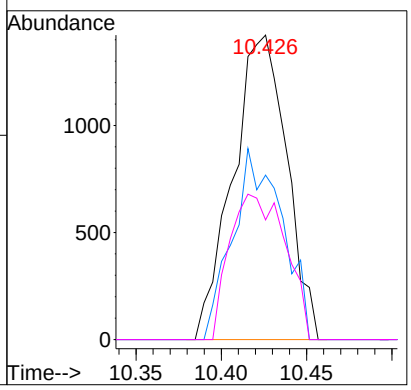


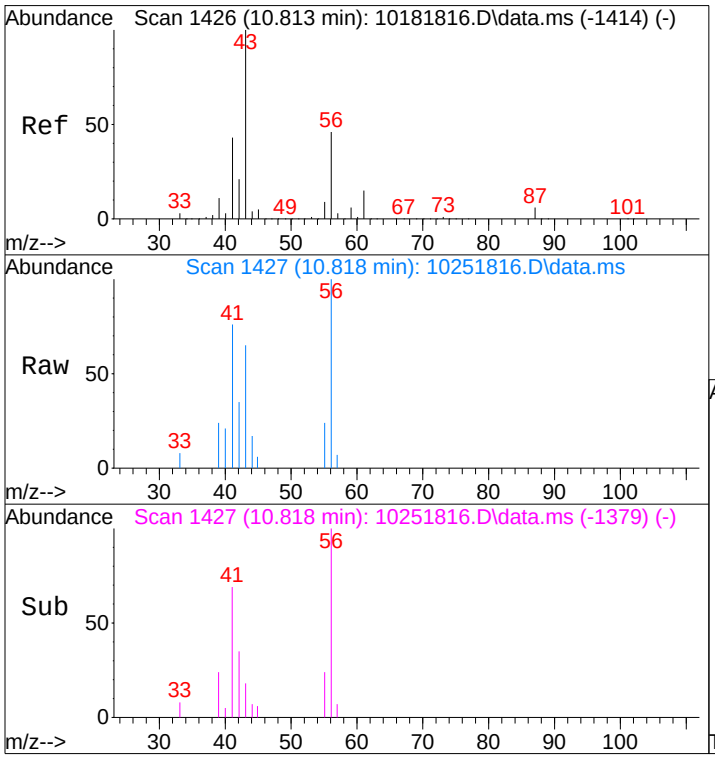


#38
1,1,1-Trichloroethane
Concen: 0.12 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 97 Resp: 3135

Ion	Ratio	Lower	Upper
97	100		
99	57.4	43.5	83.5
61	49.5	34.2	74.2

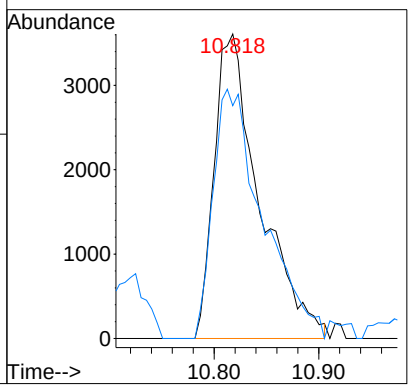


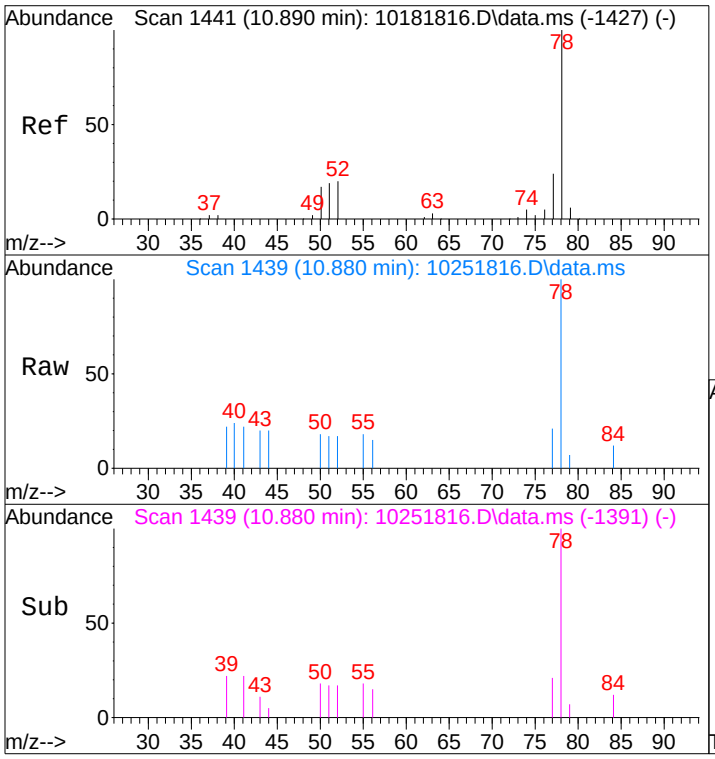


#40
1-Butanol
Concen: 0.46 ng m
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 56 Resp: 10837

Ion	Ratio	Lower	Upper
56	100		
41	90.8	90.2	130.2

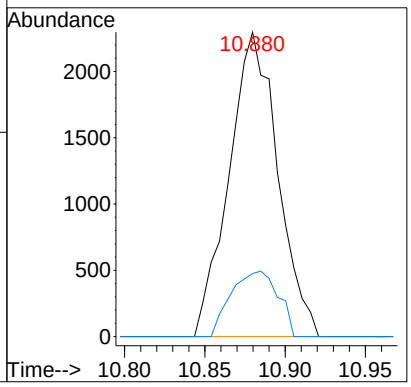


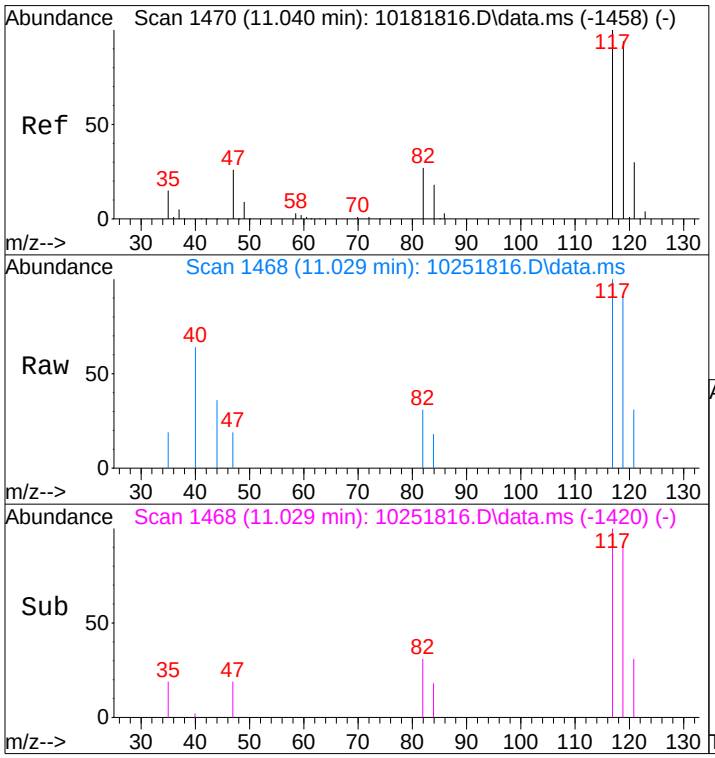


#41
Benzene
Concen: 0.06 ng
RT: 10.88 min Scan# 1439
Delta R.T. -0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 78 Resp: 4839

Ion	Ratio	Lower	Upper
78	100		
77	20.8	4.1	44.1

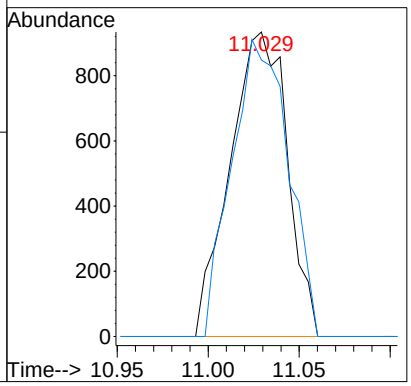


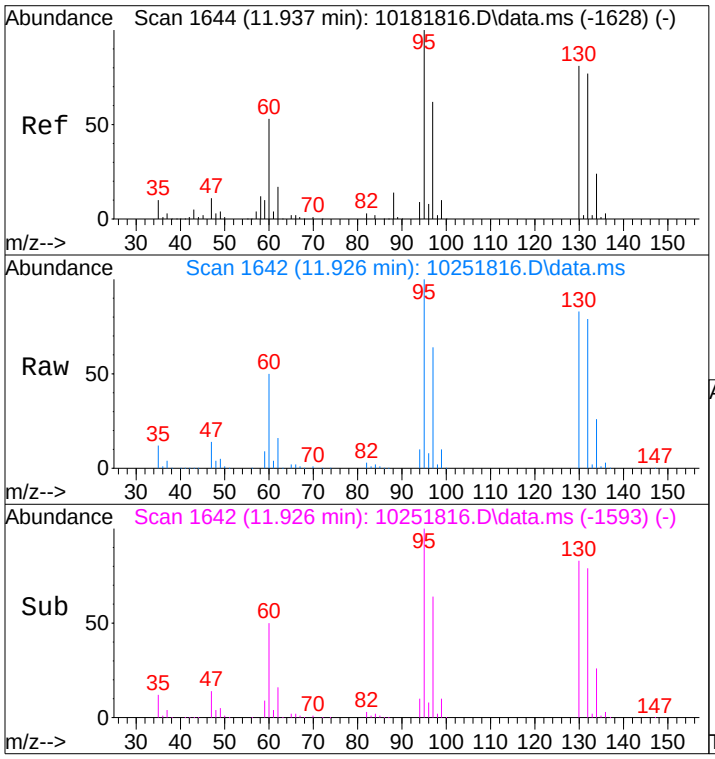


#42
Carbon Tetrachloride
Concen: 0.10 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:117 Resp: 2045

Ion	Ratio	Lower	Upper
117	100		
119	96.2	74.7	114.7

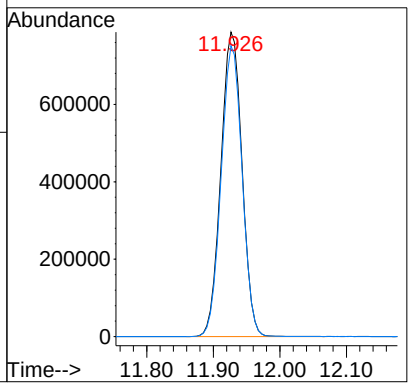


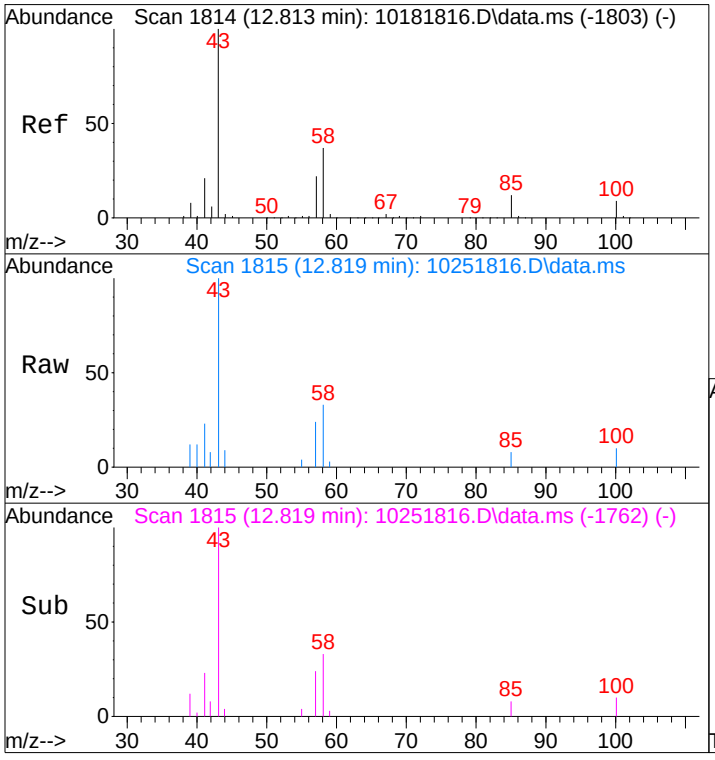


#47
Trichloroethene
Concen: 104.48 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:130 Resp: 1732229

Ion	Ratio	Lower	Upper
130	100		
132	94.7	74.6	114.6

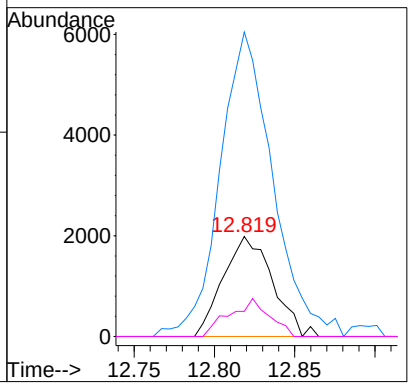


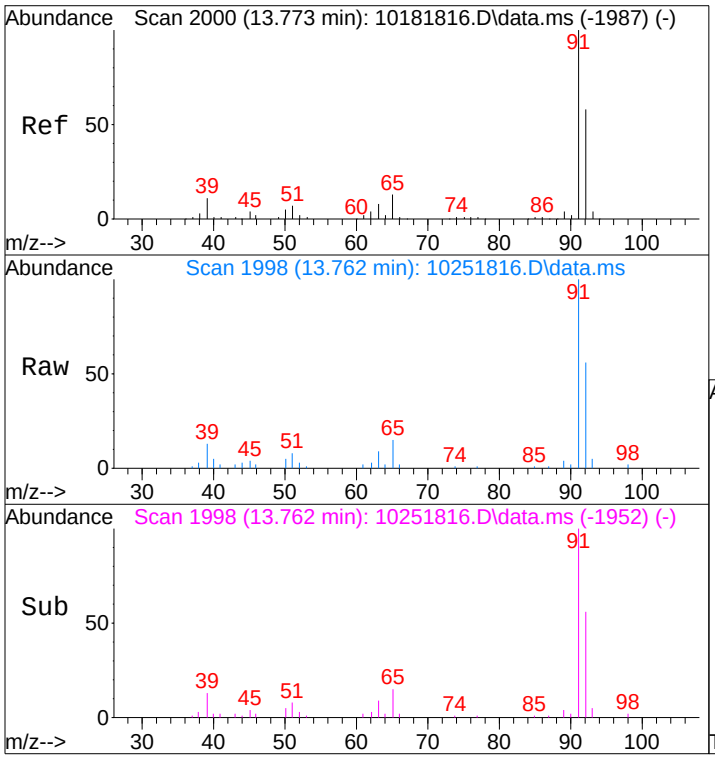


#53
4-Methyl-2-pentanone
Concen: 0.20 ng
RT: 12.82 min Scan# 1815
Delta R.T. 0.024 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 58 Resp: 4249

Ion	Ratio	Lower	Upper
58	100		
43	325.5	215.1	322.7#
85	30.6	28.0	42.0

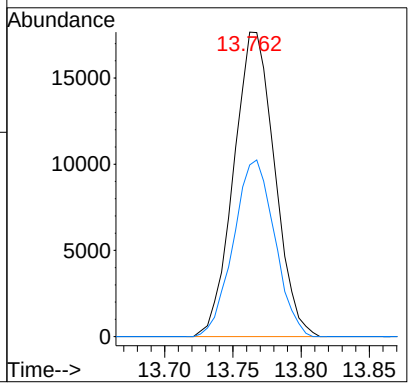


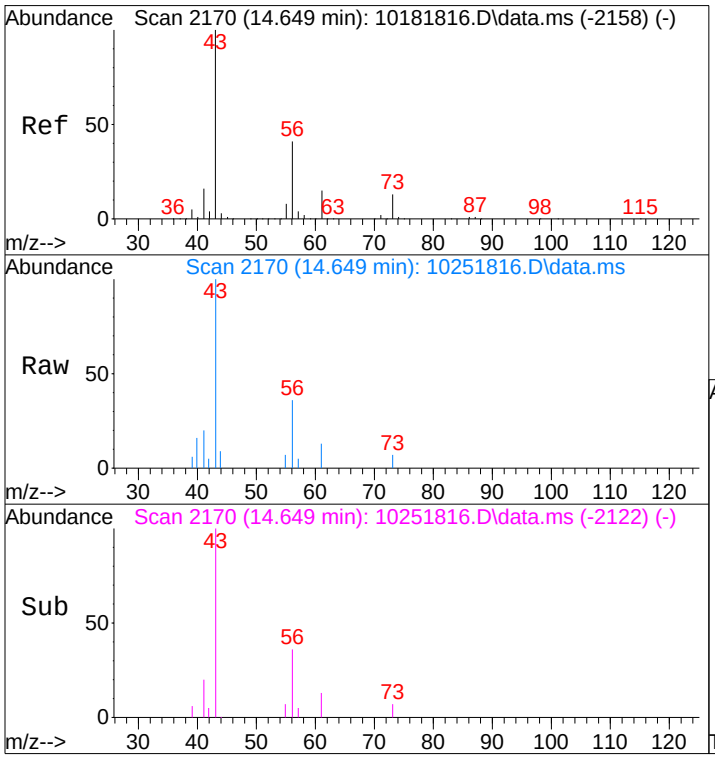


#58
Toluene
Concen: 0.45 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 91 Resp: 36893

Ion	Ratio	Lower	Upper
91	100		
92	58.3	38.1	78.1

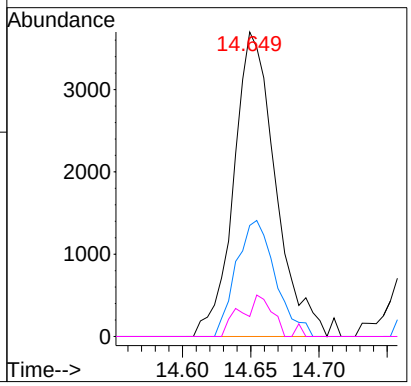


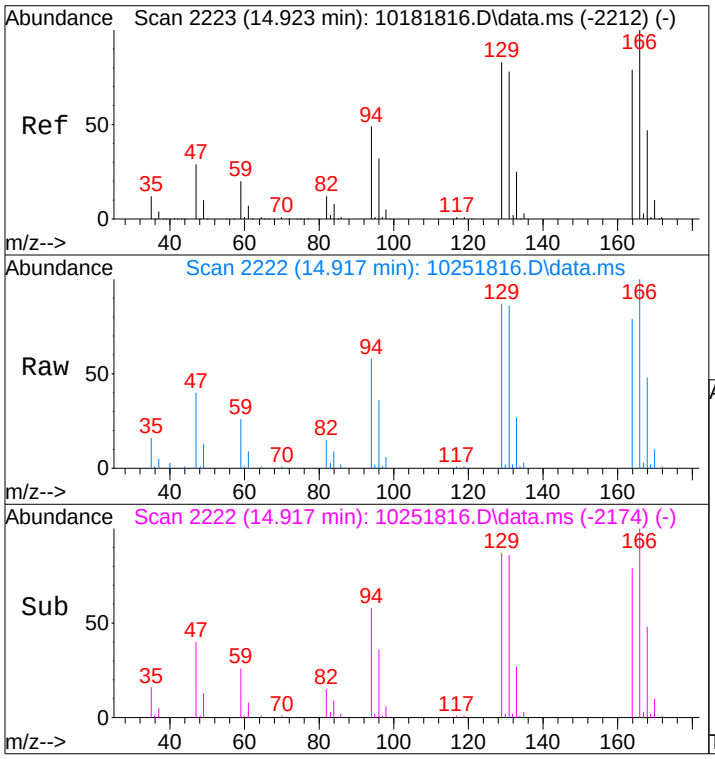


#62
n-Butyl Acetate
Concen: 0.14 ng
RT: 14.65 min Scan# 2170
Delta R.T. -0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 43 Resp: 7859

Ion	Ratio	Lower	Upper
43	100		
56	35.8	20.7	60.7
73	10.2	0.0	32.8

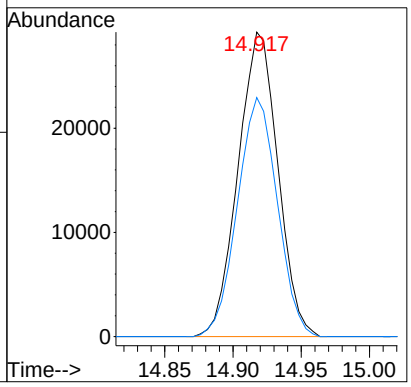


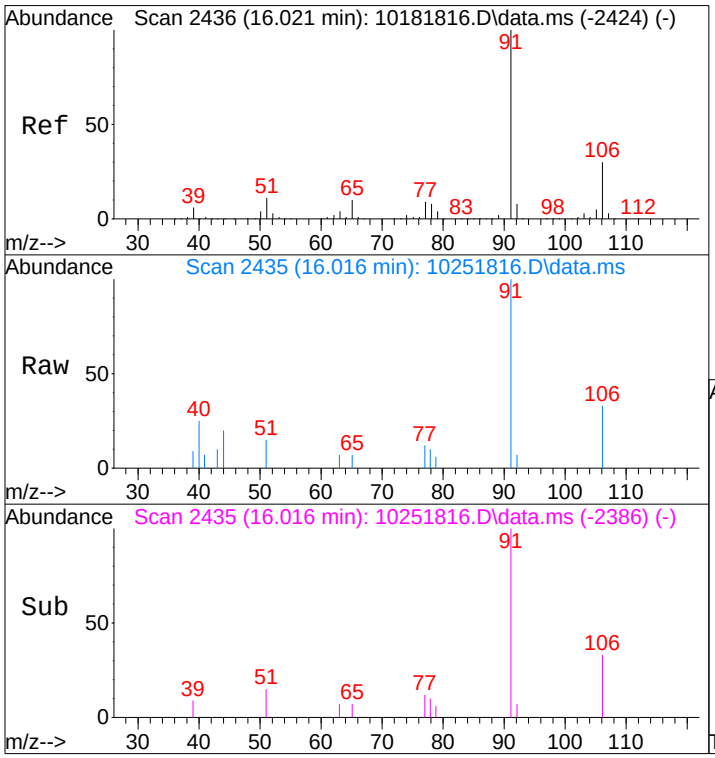


#64
Tetrachloroethene
Concen: 3.54 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:166 Resp: 59412

Ion	Ratio	Lower	Upper
166	100		
164	78.8	58.9	98.9

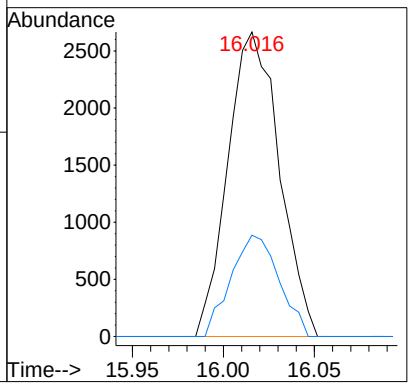


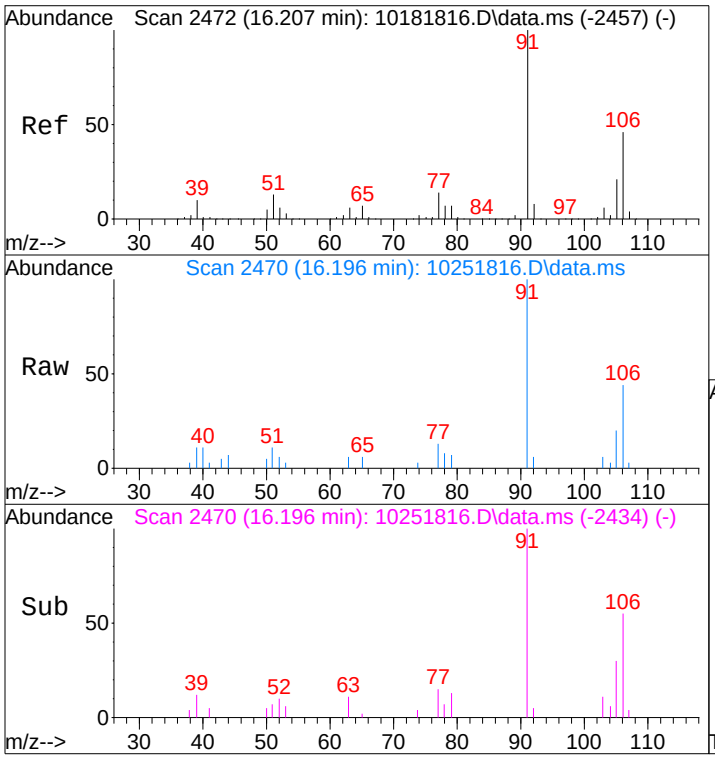


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2435
Delta R.T. 0.000 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 91 Resp: 5238

Ion	Ratio	Lower	Upper
91	100		
106	31.1	9.9	49.9

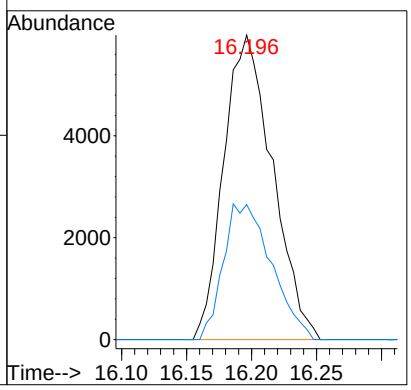


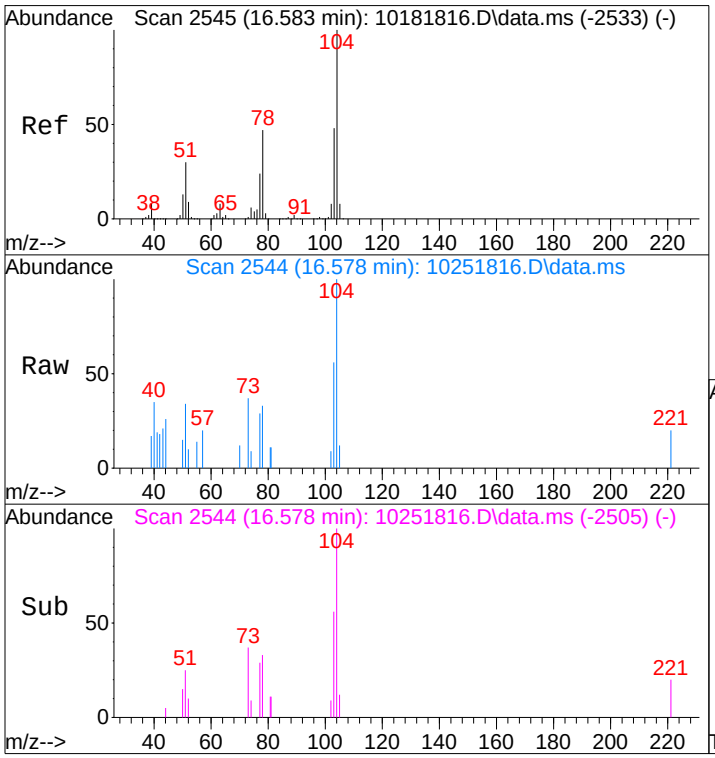


#67
m- & p-Xylenes
Concen: 0.23 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 91 Resp: 15555

Ion	Ratio	Lower	Upper
91	100		
106	44.0	26.7	66.7

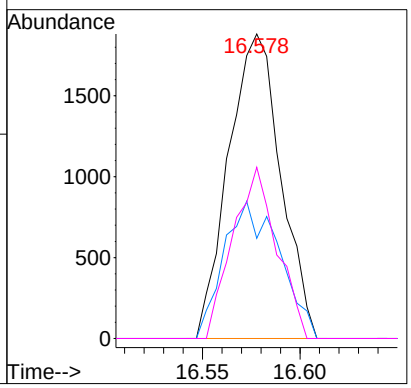


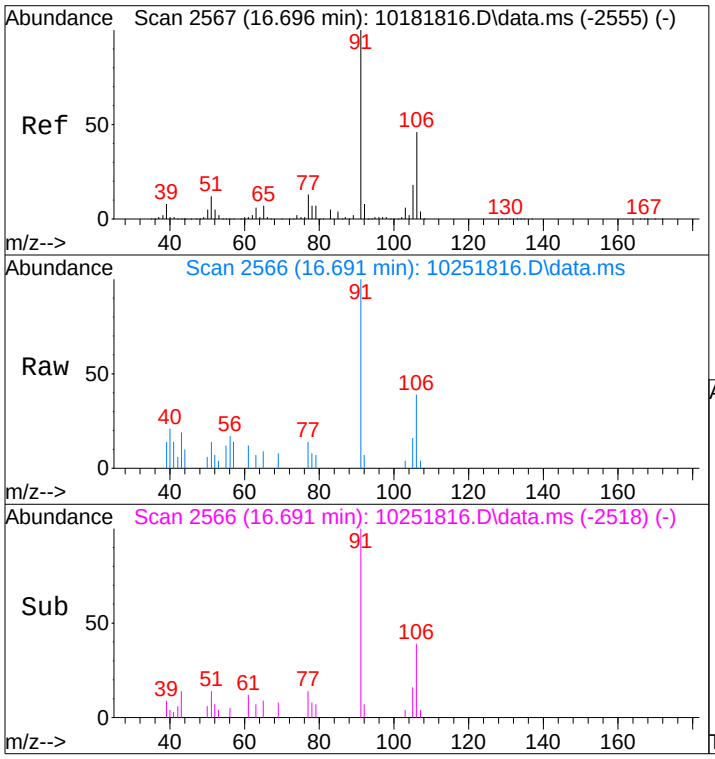


#69
Styrene
Concen: 0.07 ng
RT: 16.58 min Scan# 2544
Delta R.T. 0.000 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:104 Resp: 3508

Ion	Ratio	Lower	Upper
104	100		
78	47.9	27.8	67.8
103	47.4	27.9	67.9

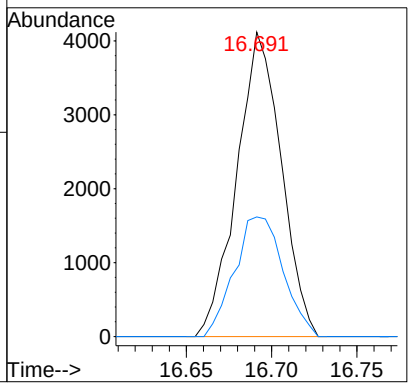


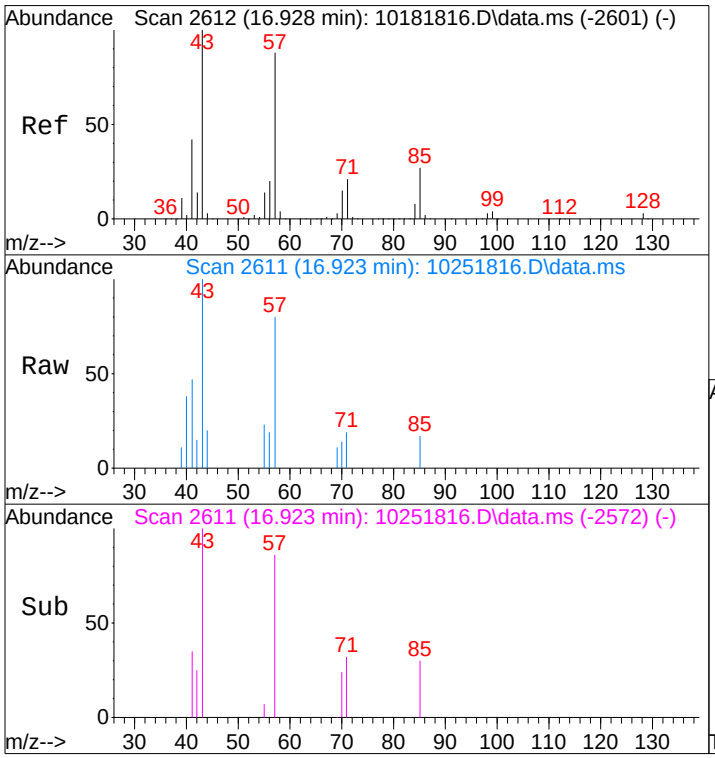


#70
o-Xylene
Concen: 0.11 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 91 Resp: 7458

Ion	Ratio	Lower	Upper
91	100		
106	43.0	25.2	65.2

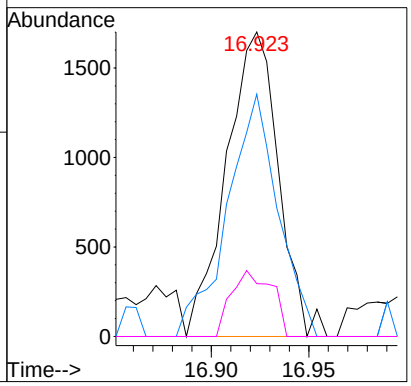


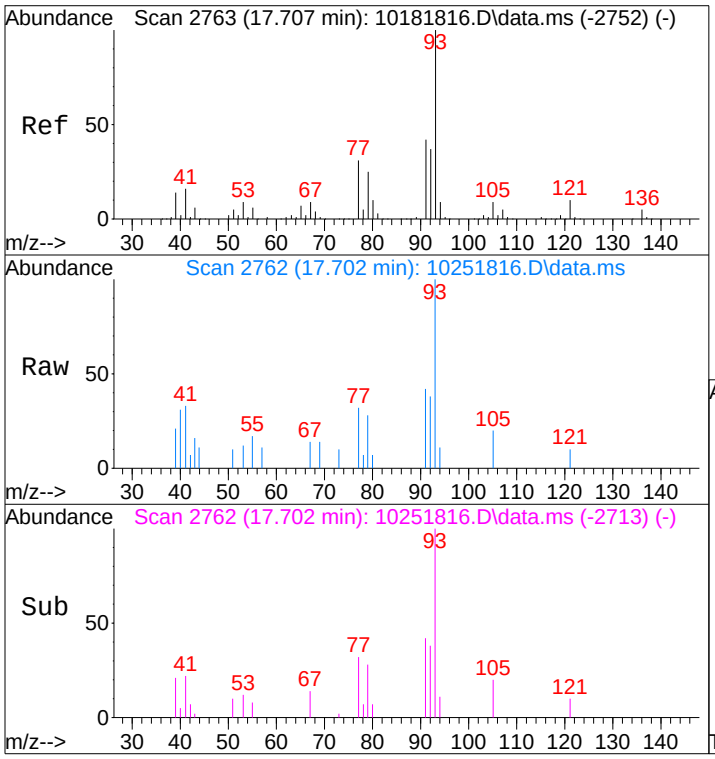


#71
n-Nonane
Concen: 0.07 ng
RT: 16.92 min Scan# 2611
Delta R.T. 0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 43 Resp: 3161

Ion	Ratio	Lower	Upper
43	100		
57	77.5	66.7	106.7
85	16.8	6.7	46.7

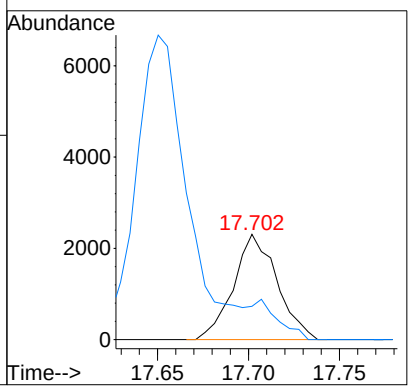


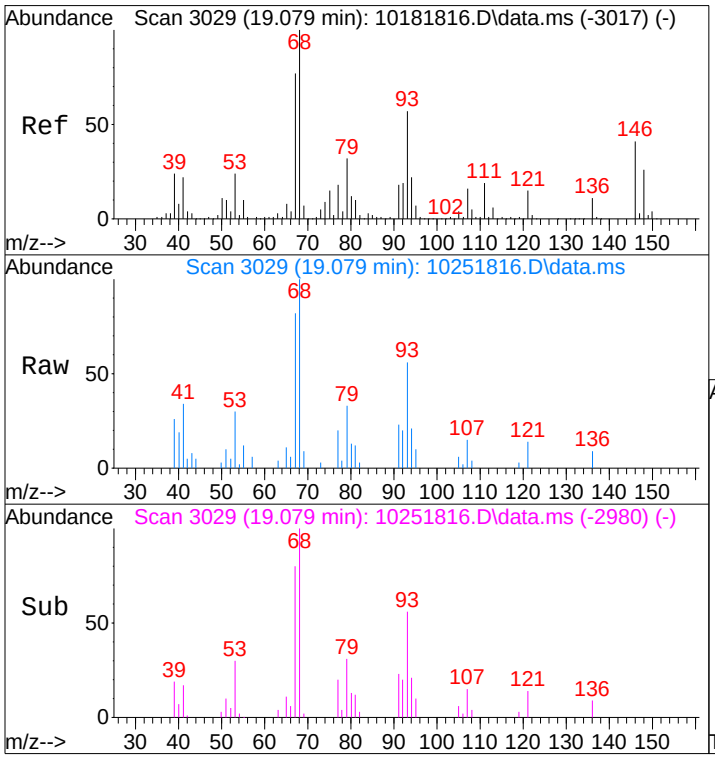


#75
alpha-Pinene
Concen: 0.09 ng
RT: 17.70 min Scan# 2762
Delta R.T. 0.001 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 93 Resp: 3839

Ion	Ratio	Lower	Upper
93	100		
77	365.7	11.2	51.2#

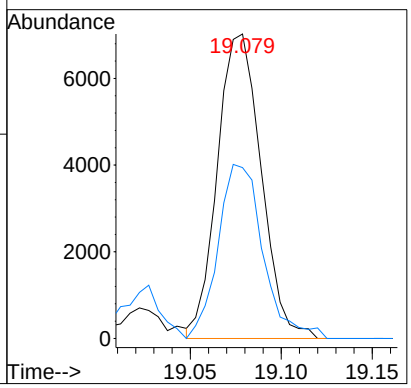


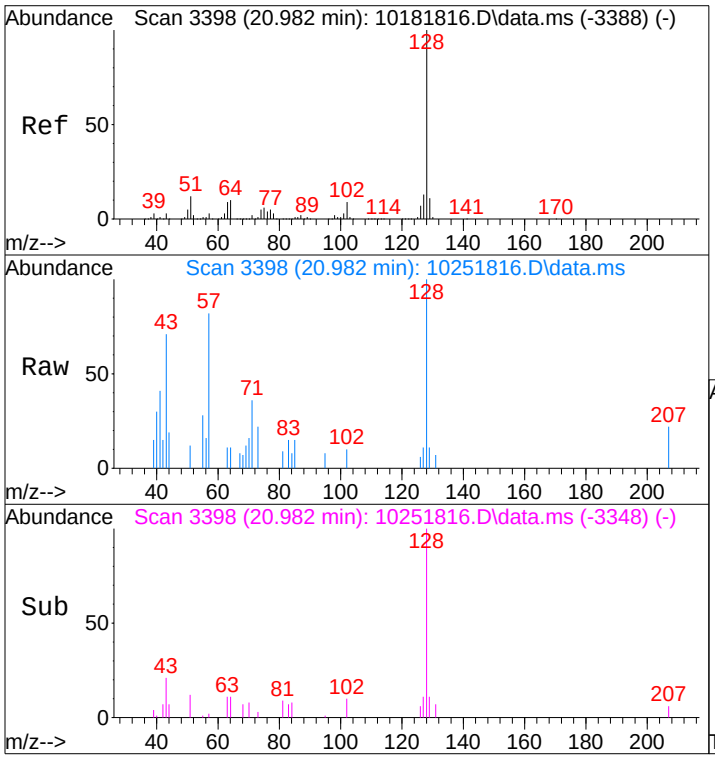


#91
d-Limonene
Concen: 0.36 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion: 68 Resp: 11767

Ion	Ratio	Lower	Upper
68	100		
93	58.4	37.7	77.7

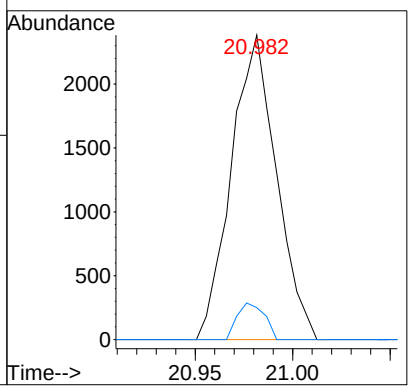




#95
Naphthalene
Concen: 0.05 ng
RT: 20.98 min Scan# 3398
Delta R.T. 0.008 min
Lab File: 10251816.D
Acq: 25 Oct 2018 13:59

Tgt Ion:128 Resp: 3841

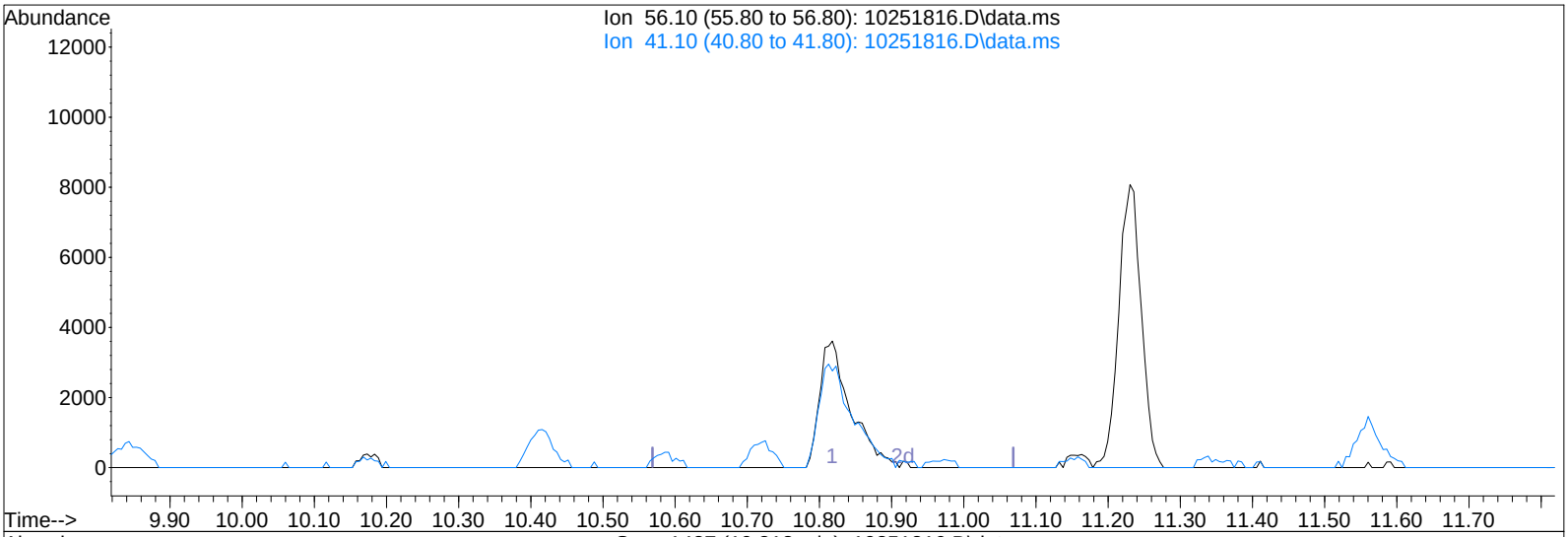
Ion	Ratio	Lower	Upper
128	100		
129	7.3	0.0	31.0

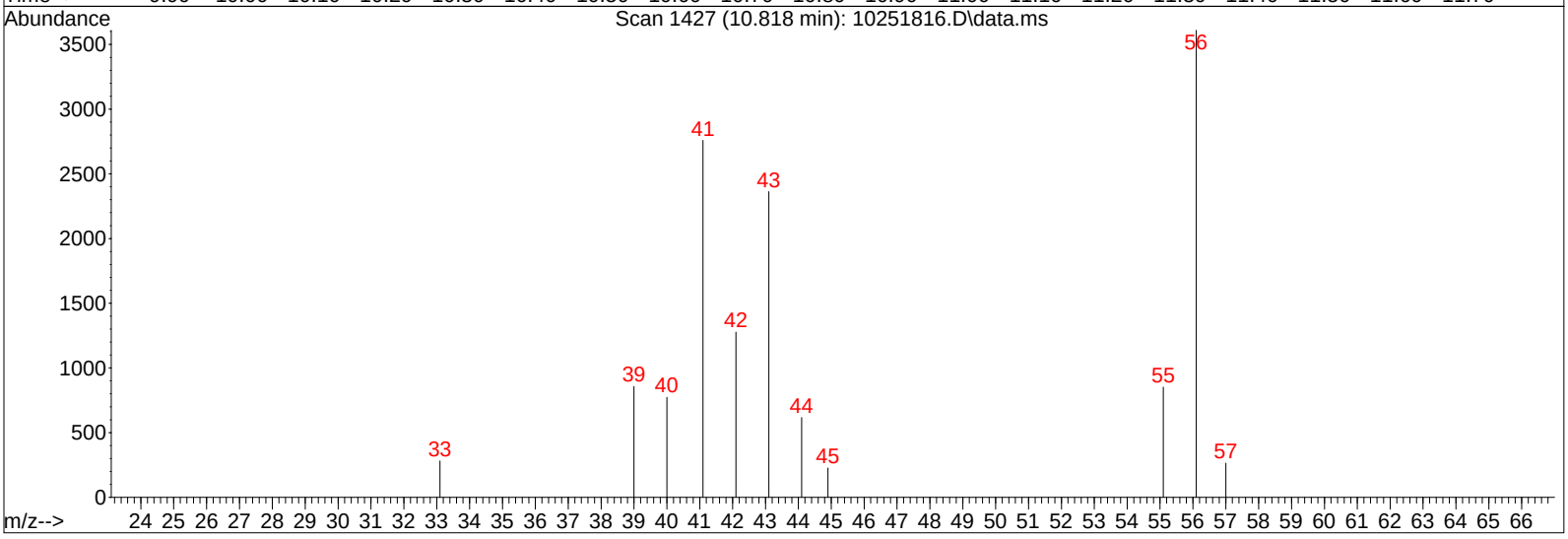


Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 11:45:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 10251816.D\data.ms

(40) 1-Butanol (T)

10.819min 0.00ng d

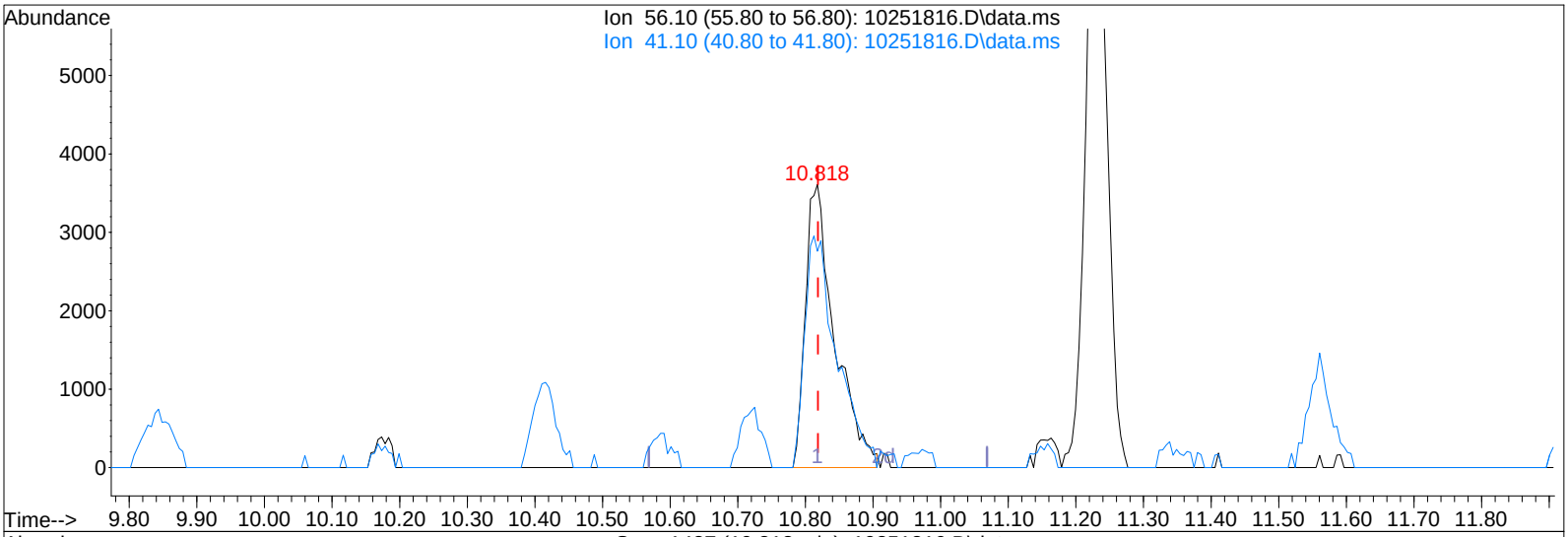
response 0

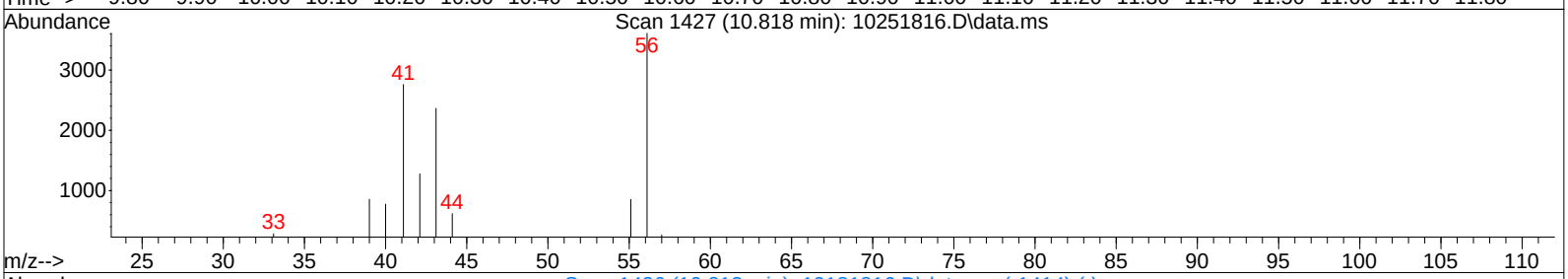
Ion	Exp%	Act%
56.10	100	0.00
41.10	110.20	0.00
0.00	0.00	0.00
0.00	0.00	0.00

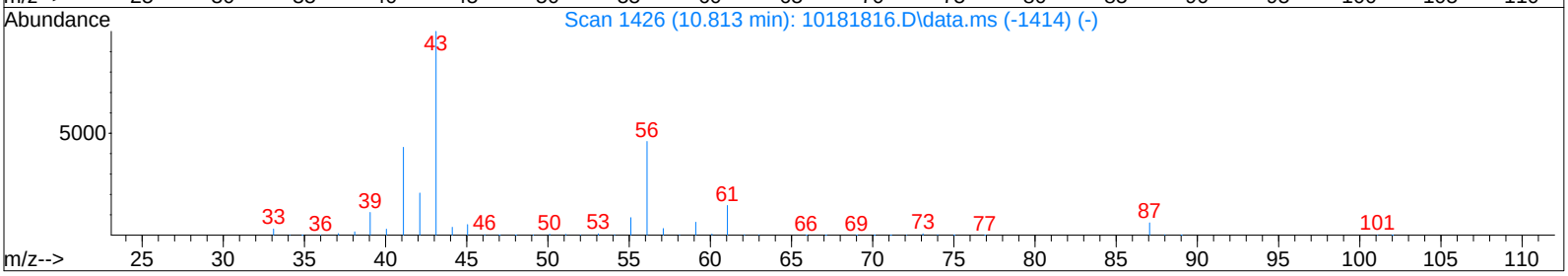
Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 11:45:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10251816.D\data.ms

(40) 1-Butanol (T)

10.818min (-0.001) 0.46ng m

response 10837

Ion	Exp%	Act%
56.10	100	100
41.10	110.20	90.82
0.00	0.00	0.00
0.00	0.00	0.00

MP
RS 10/26/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:42:12 2018 RS 10/29/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

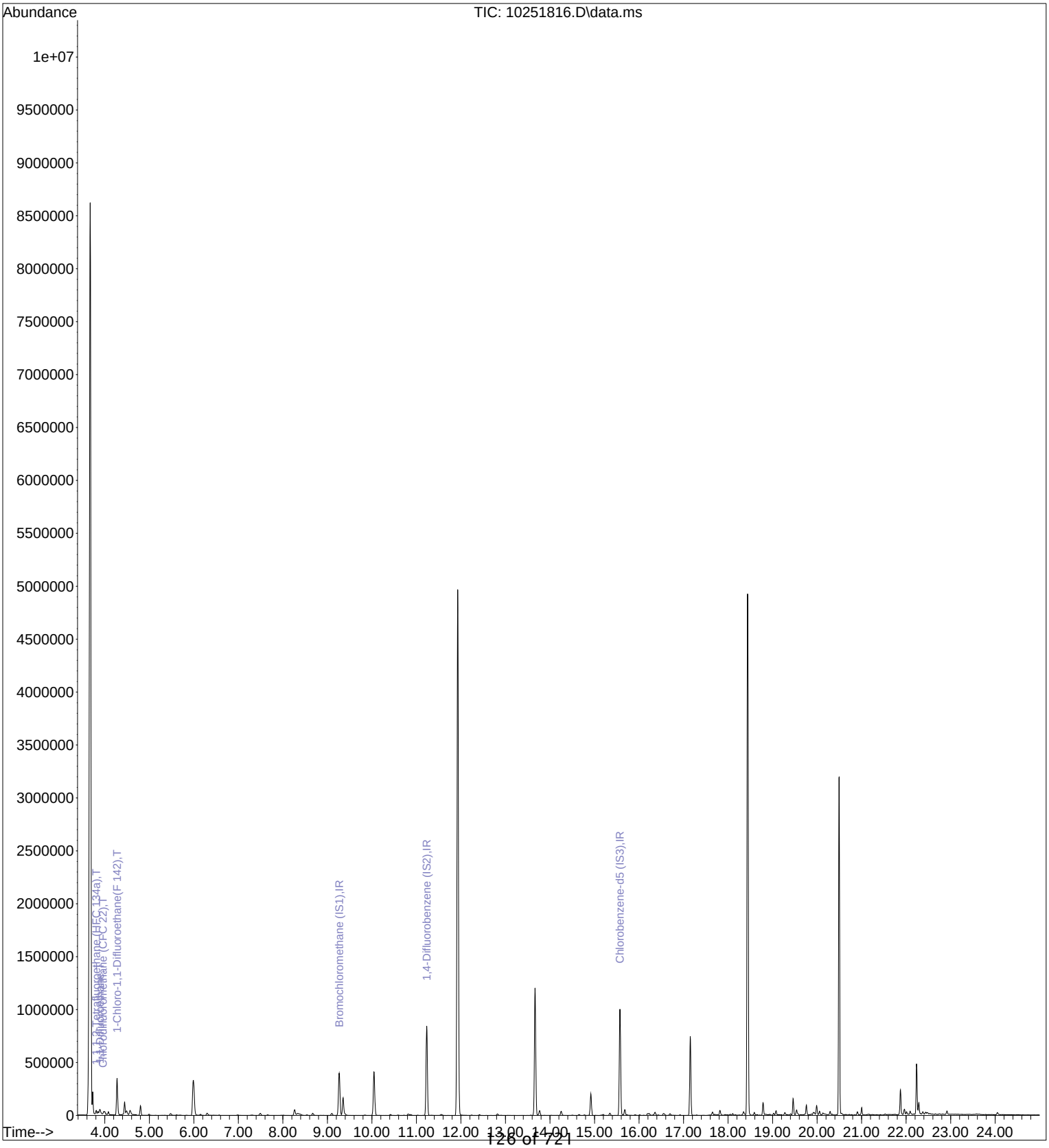
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	134869	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	691592	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	415954	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	207	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	11431	0.821	ng		93
4) 1,1-Difluoroethane	3.89	65	5379	0.323	ng		91
5) Chlorodifluoromethane ...	3.96	67	934	0.206	ng	#	77
6) 1-Chloro-1,1-Difluoroe...	4.28	65	332619	11.034	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	5.61	108	50	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.00	43	2159	N.D.			
12) 2-Methylpentane	8.44	71	254	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.03	84	219	N.D.			
17) 2,3-Dimethylpentane	11.41	56	58	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.91	55	982	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	15.68	131	288	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	16.70	75	57	N.D.			
25) Bromobenzene	17.29	77	161	N.D.			
26) 2-Chlorotoluene	17.82	91	1994	N.D.			
27) 4-Chlorotoluene	17.82	91	1994	N.D.			
28) Indane	19.13	117	480	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.15	119	928	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	740	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	1185	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251816.D Vial: 5
Acq On : 25 Oct 2018 13:59 Operator: RS
Sample : P1805493-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:42:12 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 12:14:20 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	126881	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	657692	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	398219	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	318877	14.492	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.92%				
57) Toluene-d8 (SS2)	13.66	98	850350	12.223	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.76%				
73) Bromofluorobenzene (SS3)	17.15	174	171926	10.984	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.84%				
Target Compounds							Qvalue
2) Propene	4.00	42	4720	0.147	ng	#	65
3) Dichlorodifluoromethan...	4.09	85	21280	0.616	ng		100
4) Chloromethane	4.29	50	1689	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	283	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	5.07	94	137	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	17708	1.022	ng		89
11) Acetonitrile	5.70	41	2607	0.056	ng	#	38
12) Acrolein	5.85	56	1635	0.122	ng		95
13) Acetone	5.99	58	27362	1.528	ng	#	77
14) Trichlorofluoromethane	6.16	101	8124	0.328	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	25501	0.457	ng		95
16) Acrylonitrile	6.52	53	840	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.98	59	2001	N.D.			
19) Methylene Chloride	7.00	84	234	N.D.			
20) 3-Chloro-1-propene (Al...	7.00	41	502	N.D.			
21) Trichlorotrifluoroethane	7.32	151	1063	0.107	ng	#	79
22) Carbon Disulfide	7.29	76	7911	0.118	ng		89
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.27	73	282	N.D.			
26) Vinyl Acetate	8.39	86	1406	0.477	ng	#	39
27) 2-Butanone (MEK)	8.67	72	3798	0.272	ng	#	68
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.39	87	209	N.D.			
30) Ethyl Acetate	9.35	61	11773	1.592	ng		97
31) n-Hexane	9.35	57	1988	0.058	ng	#	90
32) Chloroform	9.40	83	4222	0.141	ng		96
34) Tetrahydrofuran (THF)	9.84	72	672	0.050	ng	#	12
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	100	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.81	56	16381	0.733	ng	#	78
41) Benzene	10.87	78	2713	N.D.			
42) Carbon Tetrachloride	11.03	117	1351	0.070	ng		97
43) Cyclohexane	11.14	84	475	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	120281	7.629	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	12.00	57	665	N.D.			
50) Methyl Methacrylate	12.25	100	260	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 12:14:20 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

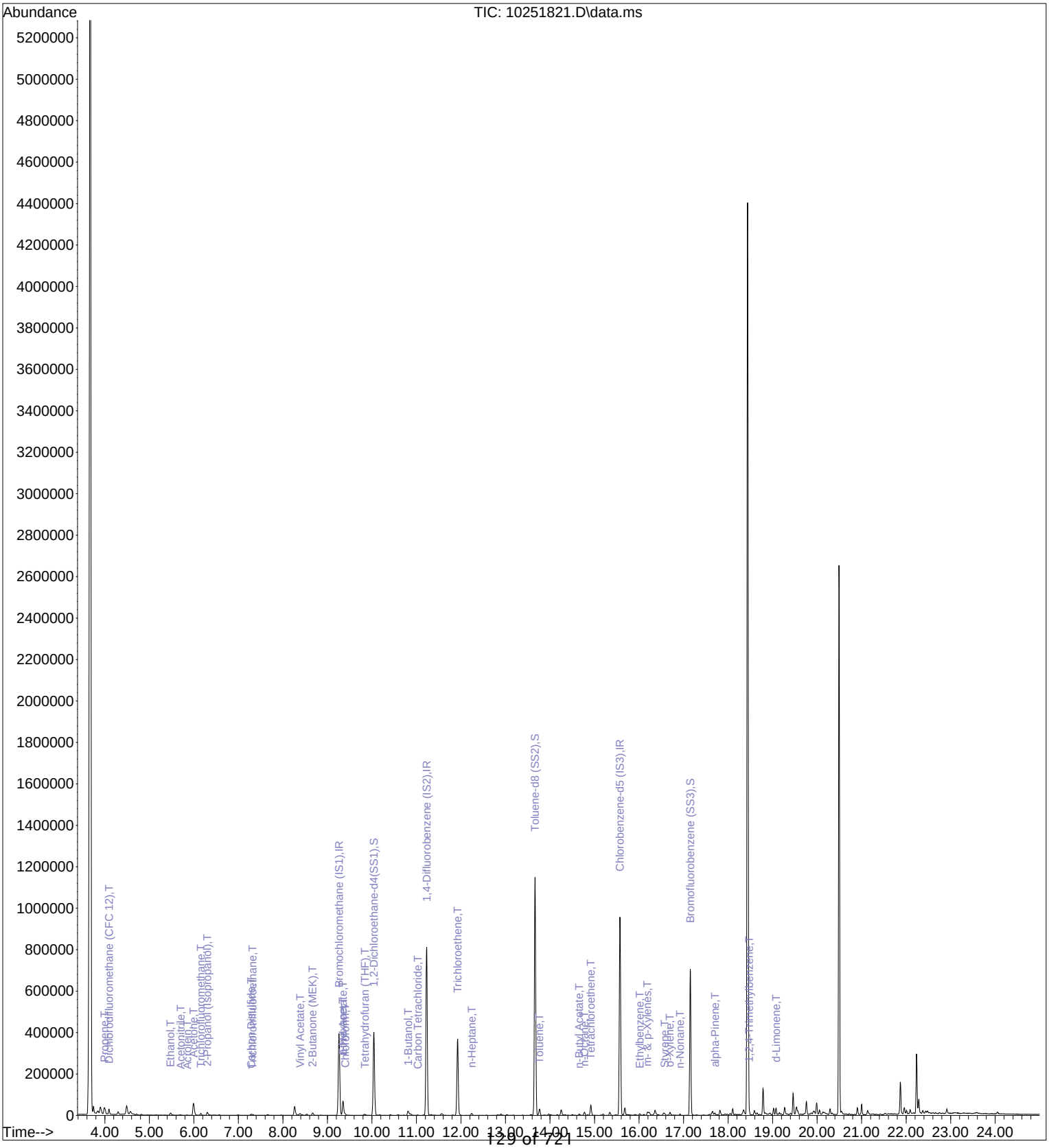
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.25	71	2017	0.095 ng	90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.83	58	655	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	24708	0.318 ng	100
59) 2-Hexanone	14.02	43	2359	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.65	43	5008	0.091 ng	97
63) n-Octane	14.77	57	3094	0.160 ng	91
64) Tetrachloroethene	14.92	166	14432	0.899 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	6729	0.079 ng	91
67) m- & p-Xylenes	16.19	91	13659	0.209 ng	96
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	3063	0.066 ng	96
70) o-Xylene	16.69	91	7120	0.111 ng	96
71) n-Nonane	16.92	43	2893	0.064 ng	88
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	1002	N.D.	
75) alpha-Pinene	17.71	93	4148	0.099 ng	85
76) n-Propylbenzene	17.82	91	1688	N.D.	
77) 3-Ethyltoluene	17.93	105	3267	N.D.	
78) 4-Ethyltoluene	17.98	105	1515	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	1554	N.D.	
80) alpha-Methylstyrene	18.21	118	1395	N.D.	
81) 2-Ethyltoluene	18.24	105	1383	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	5045	0.083 ng	100
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.47	91	730	N.D.	
85) 1,3-Dichlorobenzene	18.64	146	152	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	170	N.D.	
87) sec-Butylbenzene	18.92	105	1564	N.D.	
88) 4-Isopropyltoluene (p-...	18.93	119	1058	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	1564	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	8632	0.276 ng	95
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2518	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.35	91	1229	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 12:14:20 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/26/18

Quant Time: Oct 26 12:14:20 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

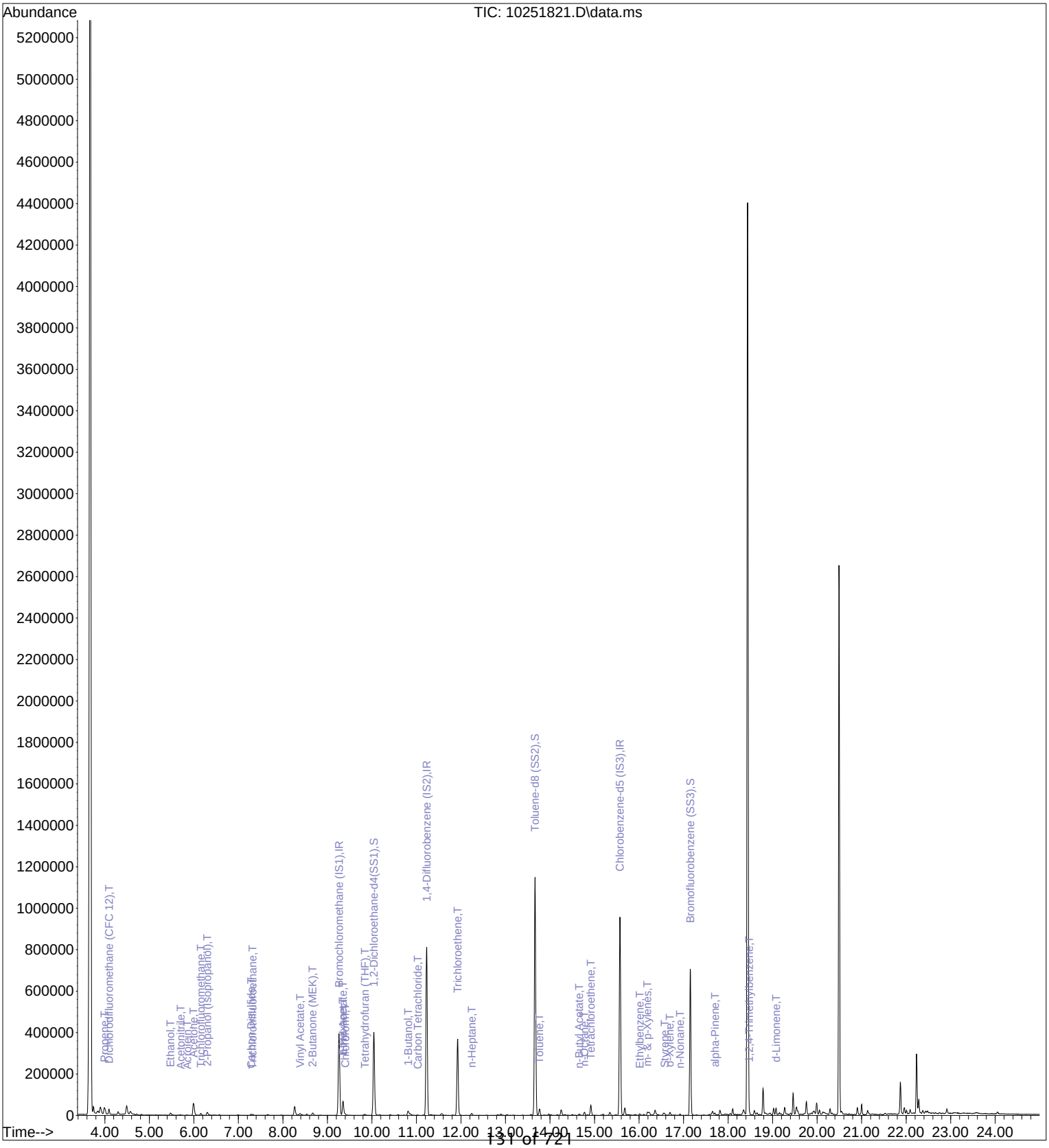
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	126881	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	657692	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	398219	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	318877	14.492	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.92%				
57) Toluene-d8 (SS2)	13.66	98	850350	12.223	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.76%				
73) Bromofluorobenzene (SS3)	17.15	174	171926	10.984	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.84%				
Target Compounds							Qvalue
2) Propene	4.00	42	4720	0.147	ng	#	65
3) Dichlorodifluoromethan...	4.09	85	21280	0.616	ng		100
10) Ethanol	5.48	45	17708	1.022	ng		89
11) Acetonitrile	5.70	41	2607	0.056	ng	#	38
12) Acrolein	5.85	56	1635	0.122	ng		95
13) Acetone	5.99	58	27362	1.528	ng	#	77
14) Trichlorofluoromethane	6.16	101	8124	0.328	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	25501	0.457	ng		95
21) Trichlorotrifluoroethane	7.32	151	1063	0.107	ng	#	79
22) Carbon Disulfide	7.29	76	7911	0.118	ng		89
26) Vinyl Acetate	8.39	86	1406	0.477	ng	#	39
27) 2-Butanone (MEK)	8.67	72	3798	0.272	ng	#	68
30) Ethyl Acetate	9.35	61	11773	1.592	ng		97
31) n-Hexane	9.35	57	1988	0.058	ng	#	90
32) Chloroform	9.40	83	4222	0.141	ng		96
34) Tetrahydrofuran (THF)	9.84	72	672	0.050	ng	#	12
40) 1-Butanol	10.81	56	16381	0.733	ng	#	78
42) Carbon Tetrachloride	11.03	117	1351	0.070	ng		97
47) Trichloroethene	11.93	130	120281	7.629	ng		99
51) n-Heptane	12.25	71	2017	0.095	ng		90
58) Toluene	13.76	91	24708	0.318	ng		100
62) n-Butyl Acetate	14.65	43	5008	0.091	ng		97
63) n-Octane	14.77	57	3094	0.160	ng		91
64) Tetrachloroethene	14.92	166	14432	0.899	ng		100
66) Ethylbenzene	16.02	91	6729	0.079	ng		91
67) m- & p-Xylenes	16.19	91	13659	0.209	ng		96
69) Styrene	16.58	104	3063	0.066	ng		96
70) o-Xylene	16.69	91	7120	0.111	ng		96
71) n-Nonane	16.92	43	2893	0.064	ng		88
75) alpha-Pinene	17.71	93	4148	0.099	ng		85
82) 1,2,4-Trimethylbenzene	18.48	105	5045	0.083	ng		100
91) d-Limonene	19.08	68	8632	0.276	ng		95

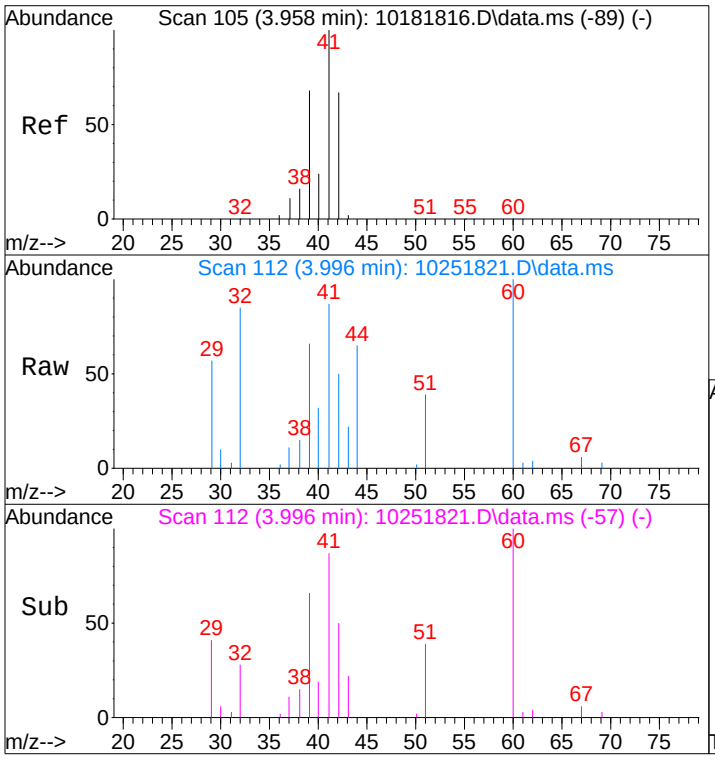
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 12:14:20 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

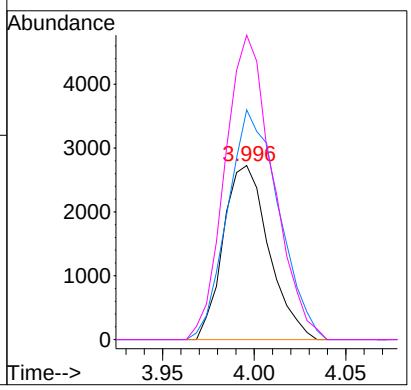


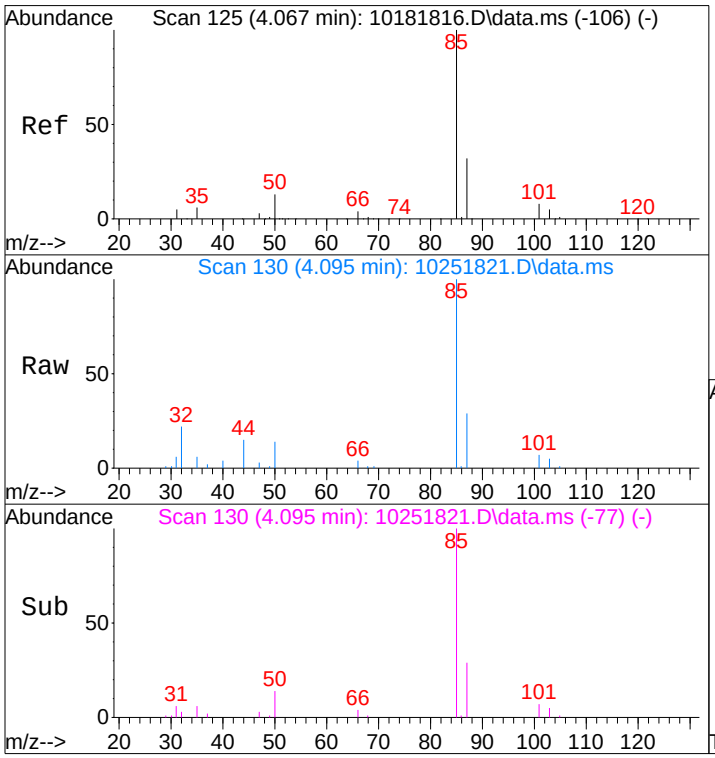


#2
Propene
Concen: 0.15 ng
RT: 4.00 min Scan# 112
Delta R.T. 0.049 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 42 Resp: 4720

Ion	Ratio	Lower	Upper
42	100		
39	148.8	81.9	121.9#
41	184.3	130.4	170.4#

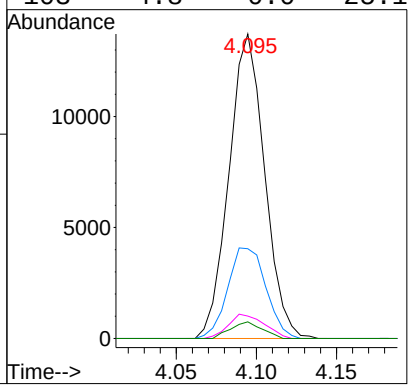


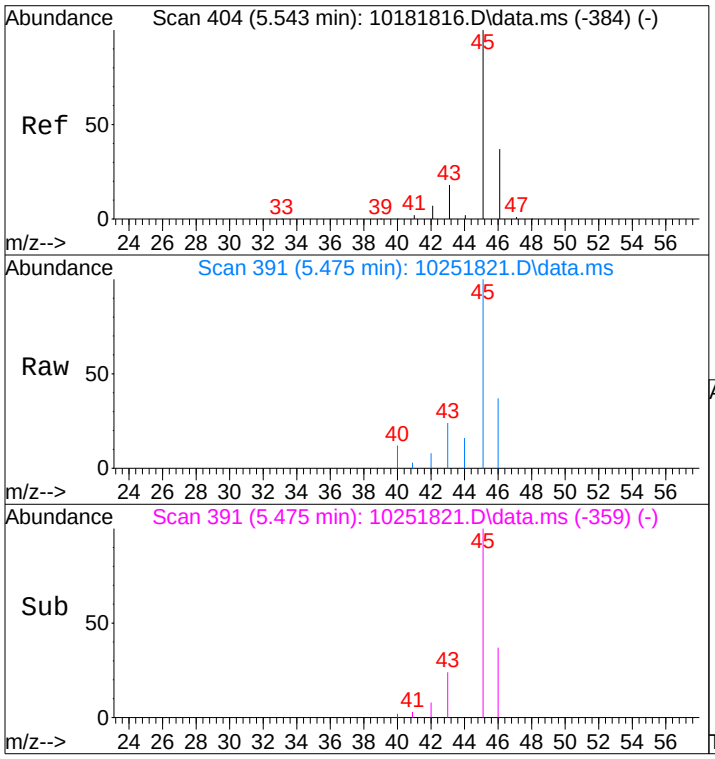


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.62 ng
RT: 4.09 min Scan# 130
Delta R.T. 0.039 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 85 Resp: 21280

Ion	Ratio	Lower	Upper
85	100		
87	31.9	12.0	52.0
101	8.0	0.0	28.0
103	4.8	0.0	25.1

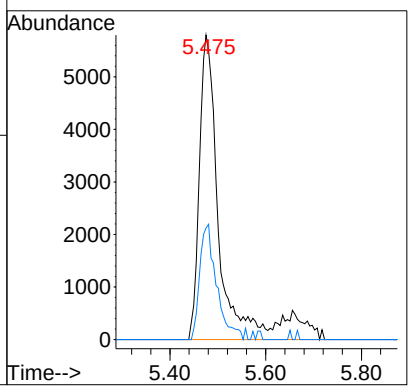


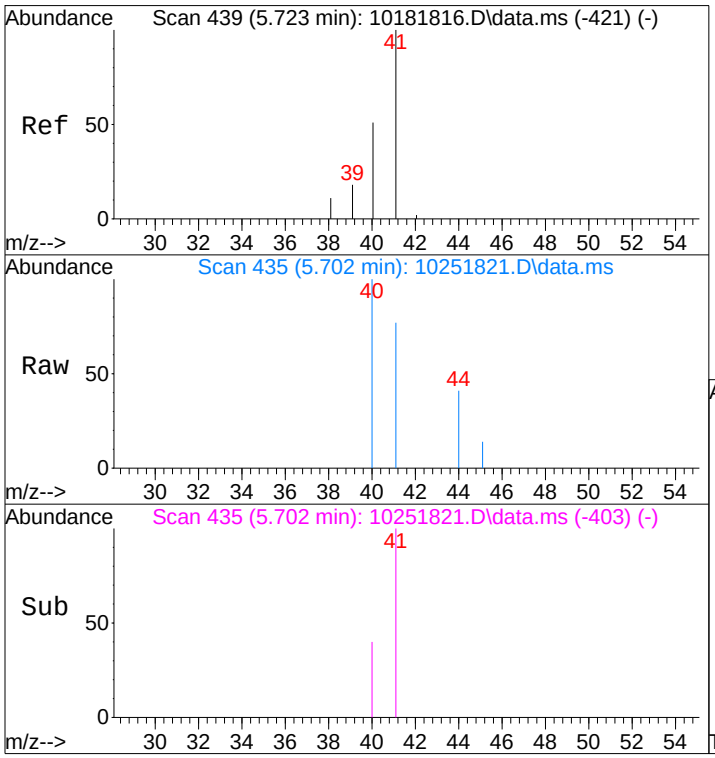


#10
Ethanol
Concen: 1.02 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 45 Resp: 17708

Ion	Ratio	Lower	Upper
45	100		
46	30.3	17.0	57.0

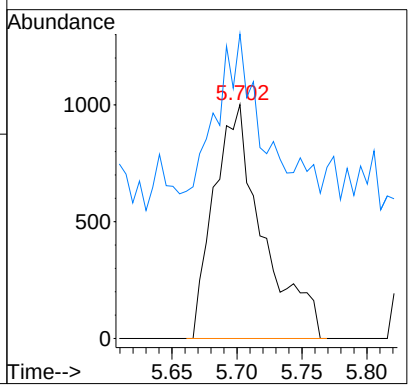


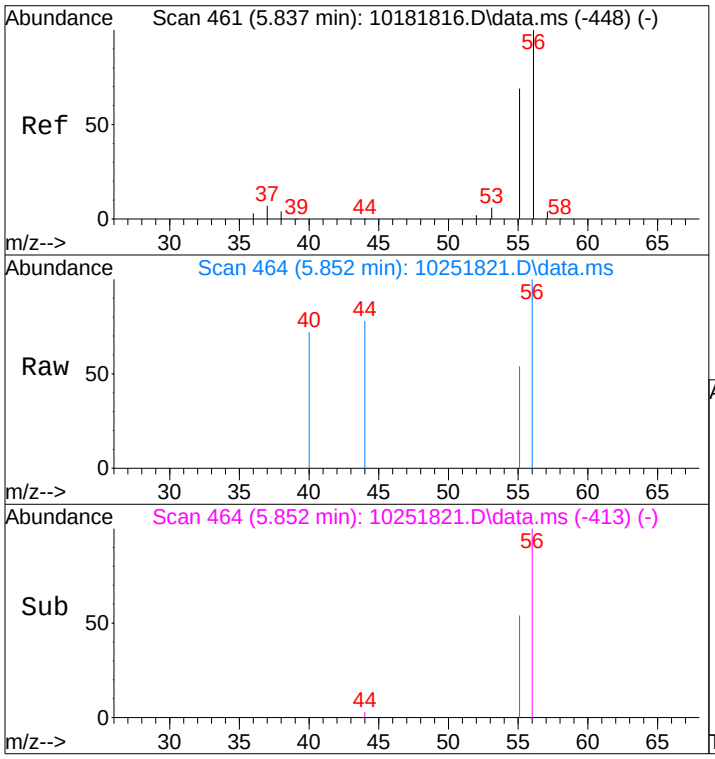


#11
Acetonitrile
Concen: 0.06 ng
RT: 5.70 min Scan# 435
Delta R.T. -0.035 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 41 Resp: 2607

Ion	Ratio	Lower	Upper
41	100		
40	95.0	31.4	71.4#

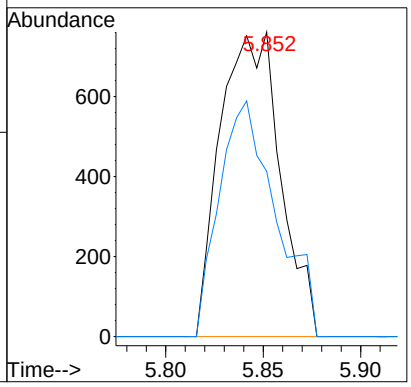


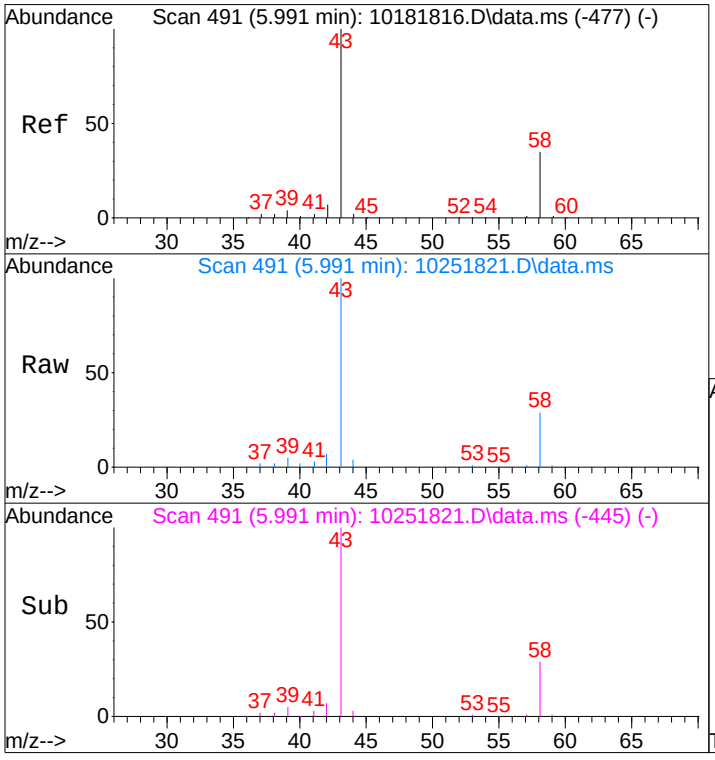


#12
Acrolein
Concen: 0.12 ng
RT: 5.85 min Scan# 464
Delta R.T. 0.012 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 56 Resp: 1635

Ion	Ratio	Lower	Upper
56	100		
55	73.0	49.3	89.3

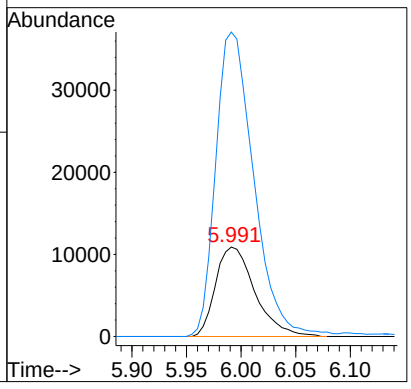


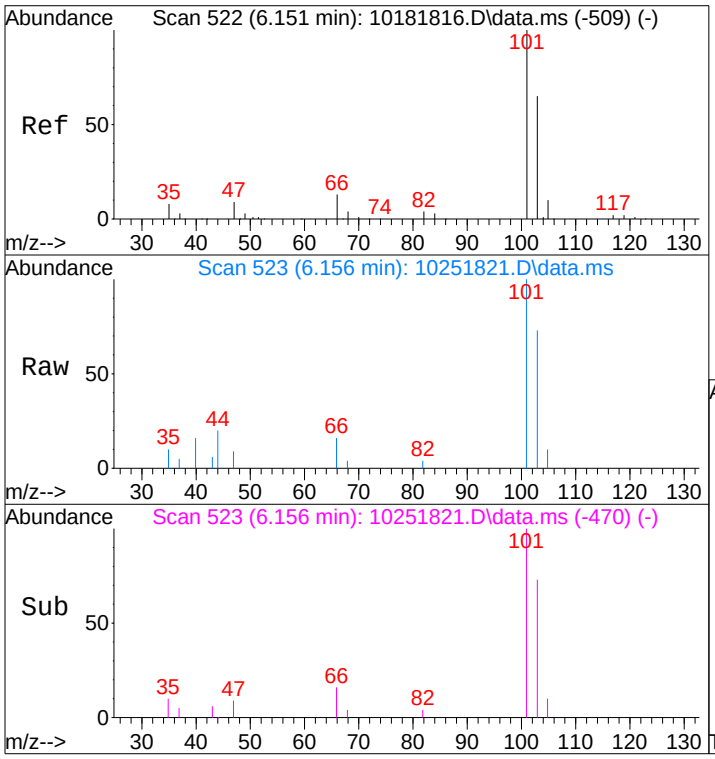


#13
Acetone
Concen: 1.53 ng
RT: 5.99 min Scan# 491
Delta R.T. -0.012 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 58 Resp: 27362

Ion	Ratio	Lower	Upper
58	100		
43	328.6	254.3	314.3#

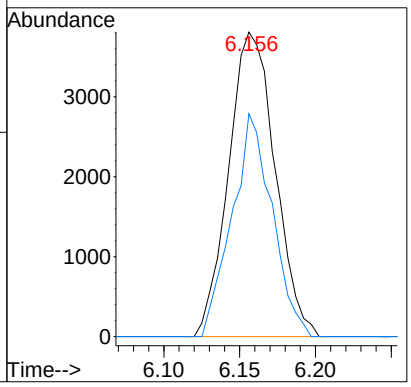


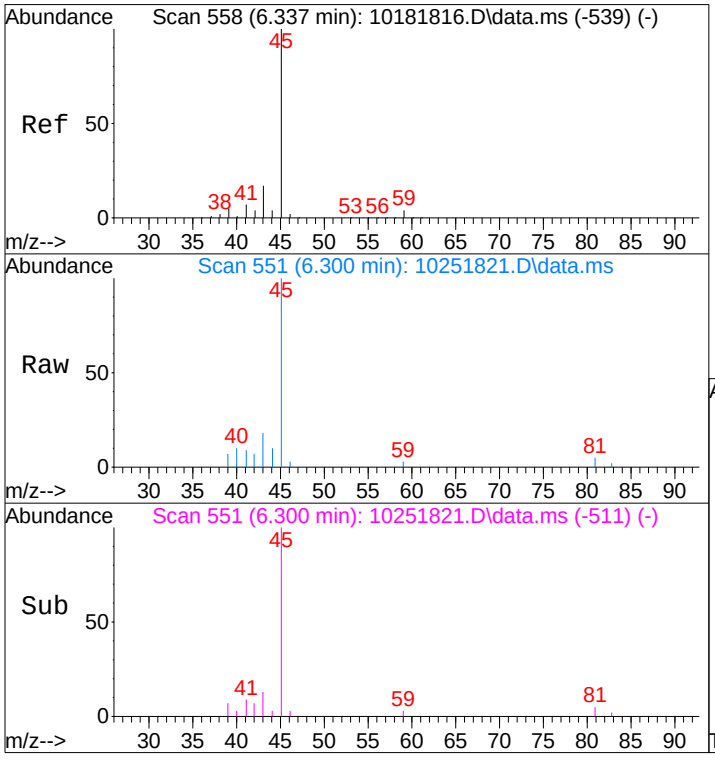


#14
Trichlorofluoromethane
Concen: 0.33 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:101 Resp: 8124

Ion	Ratio	Lower	Upper
101	100		
103	63.4	44.5	84.5

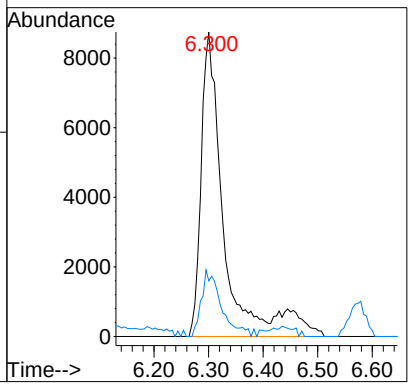


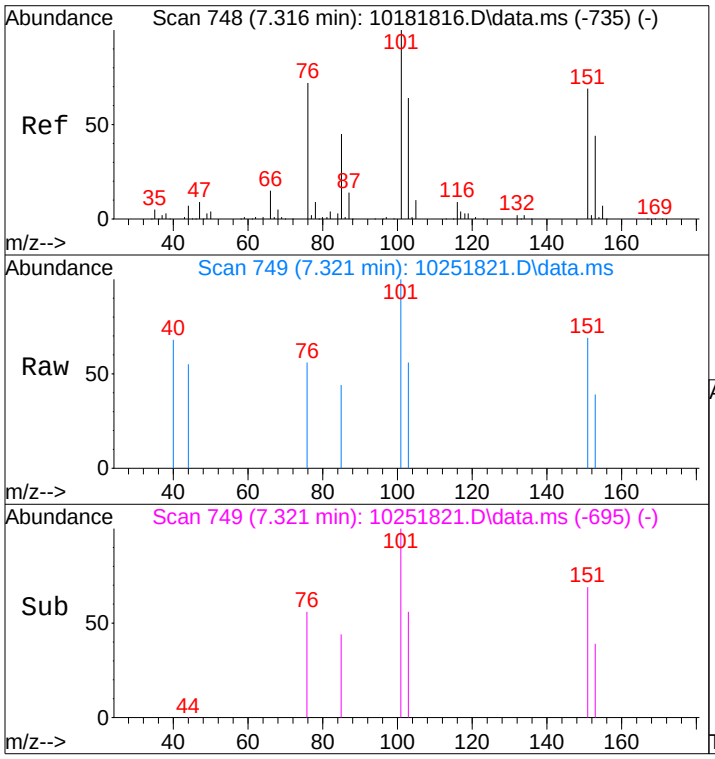


#15
2-Propanol (Isopropanol)
Concen: 0.46 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 45 Resp: 25501

Ion	Ratio	Lower	Upper
45	100		
43	18.7	0.0	36.7

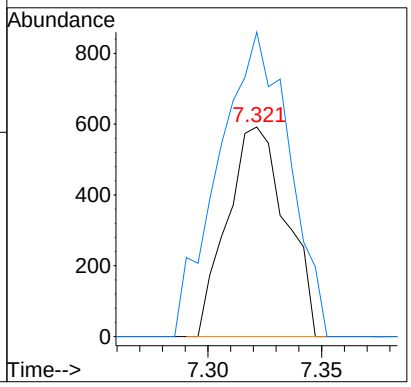


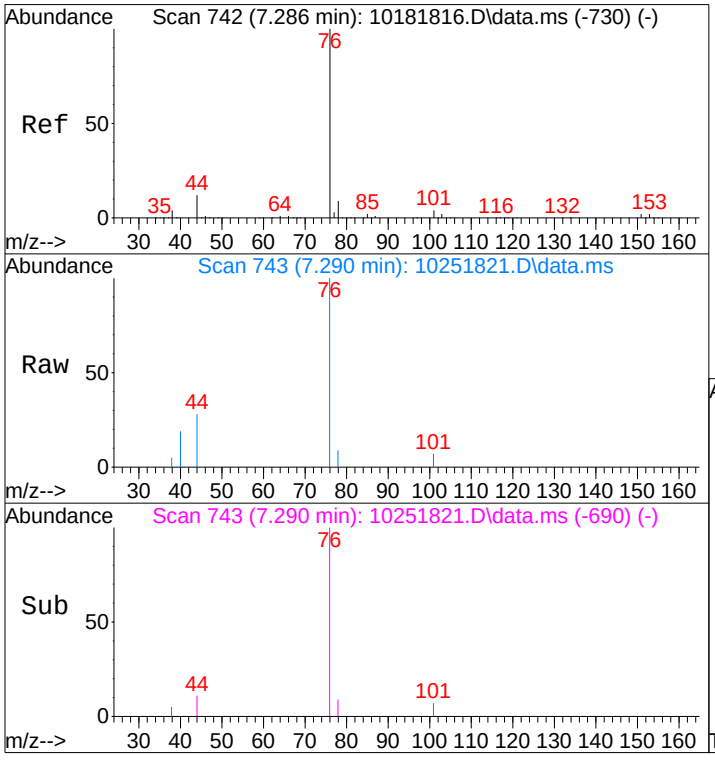


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.030 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:151 Resp: 1063

Ion	Ratio	Lower	Upper
151	100		
101	174.5	127.5	167.5#

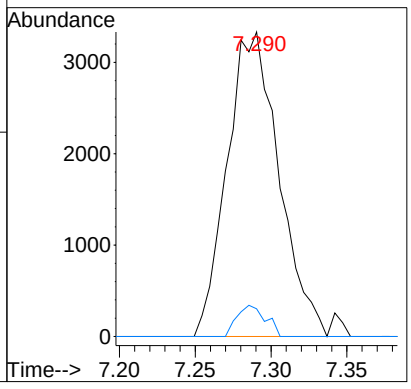


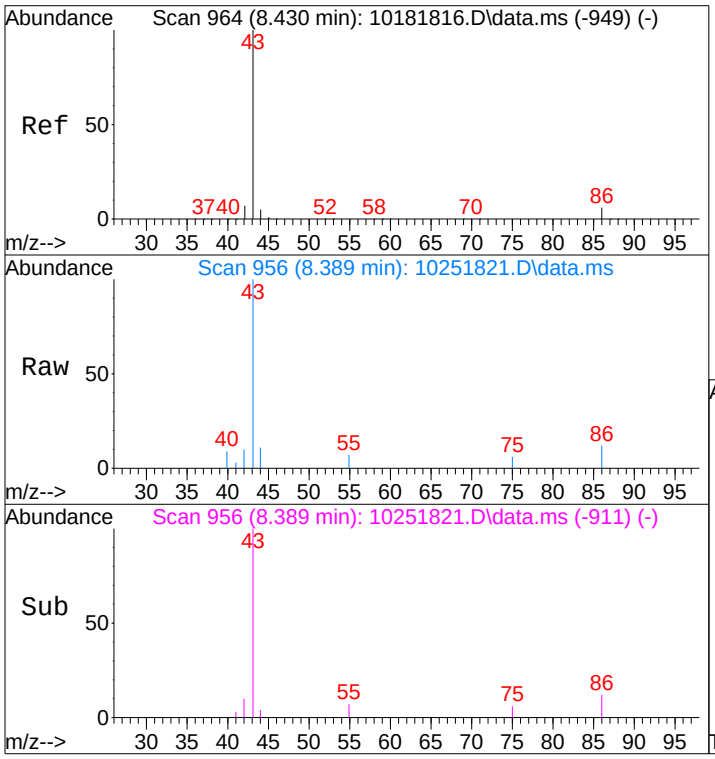


#22
Carbon Disulfide
Concen: 0.12 ng
RT: 7.29 min Scan# 743
Delta R.T. 0.025 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 76 Resp: 7911

Ion	Ratio	Lower	Upper
76	100		
78	5.7	0.0	29.6

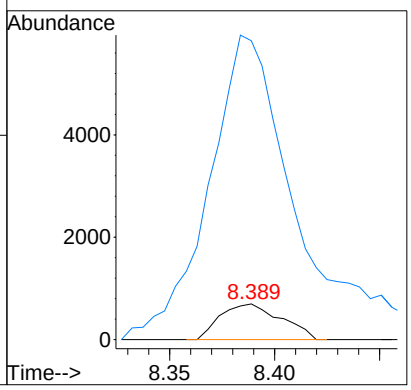


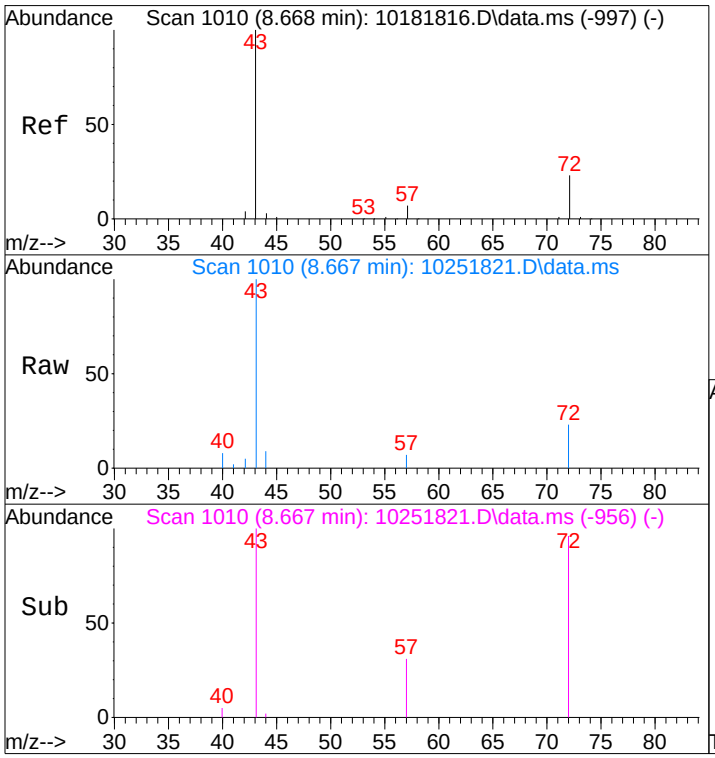


#26
Vinyl Acetate
Concen: 0.48 ng
RT: 8.39 min Scan# 956
Delta R.T. -0.020 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 86 Resp: 1406

Ion	Ratio	Lower	Upper
86	100		
43	1233.4	1596.2	1636.2#

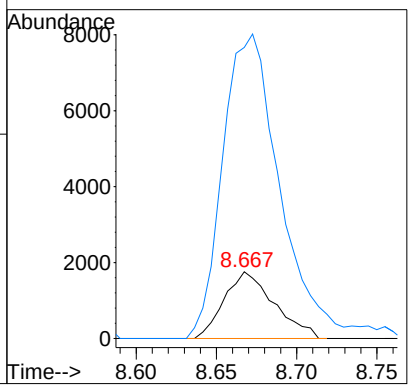


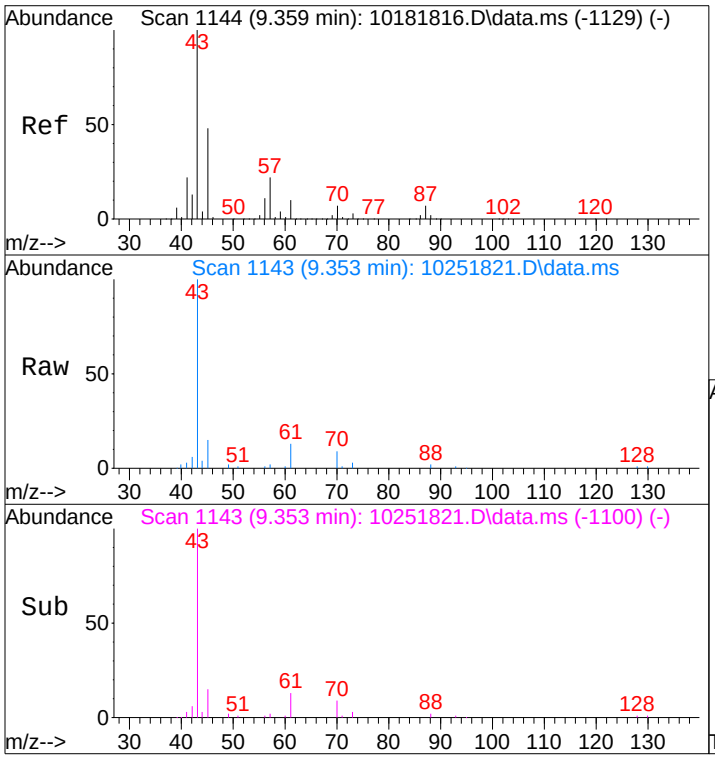


#27
2-Butanone (MEK)
Concen: 0.27 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 72 Resp: 3798

Ion	Ratio	Lower	Upper
72	100		
43	531.6	430.0	470.0#

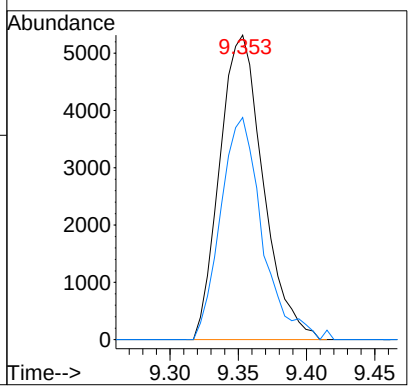


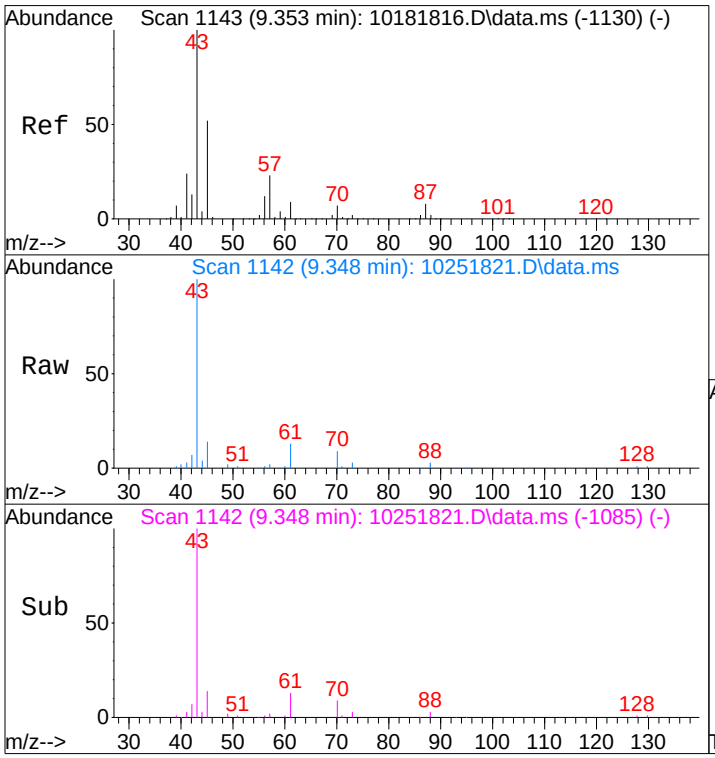


#30
Ethyl Acetate
Concen: 1.59 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 61 Resp: 11773

Ion	Ratio	Lower	Upper
61	100		
70	70.1	52.7	92.7

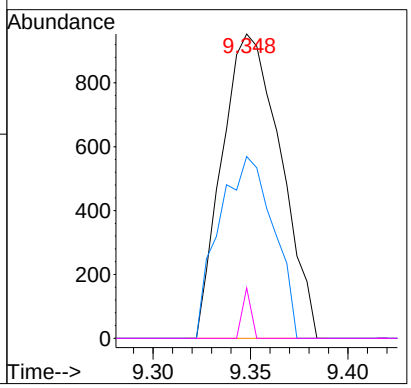


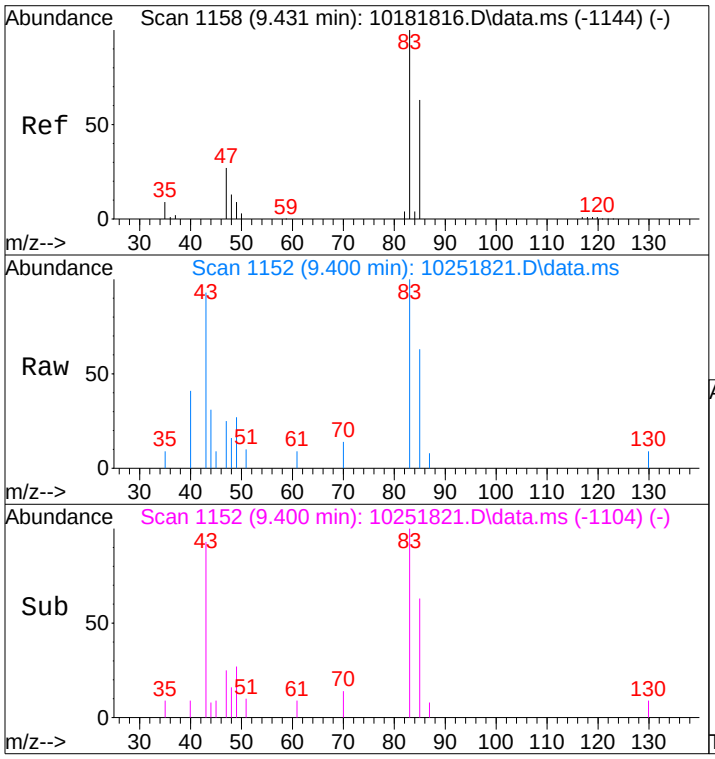


#31
n-Hexane
Concen: 0.06 ng
RT: 9.35 min Scan# 1142
Delta R.T. 0.042 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 57 Resp: 1988

Ion	Ratio	Lower	Upper
57	100		
56	55.7	41.3	61.9
86	0.0	8.6	13.0#

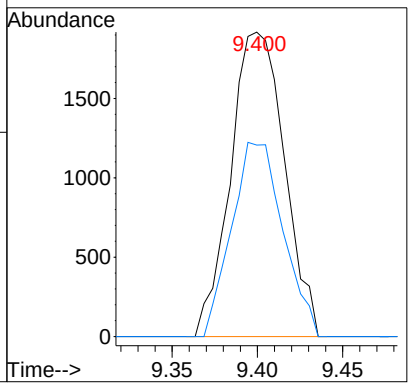


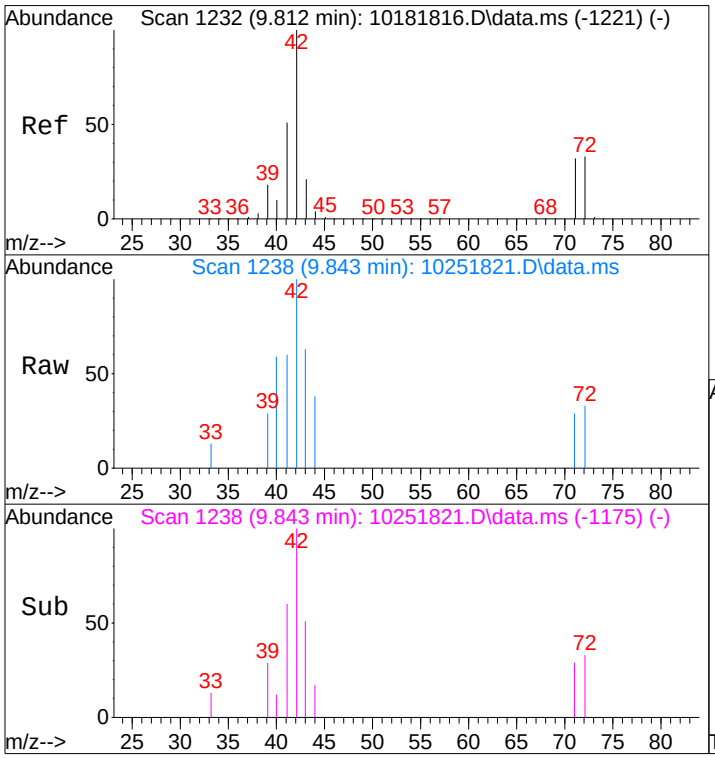


#32
Chloroform
Concen: 0.14 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 83 Resp: 4222

Ion	Ratio	Lower	Upper
83	100		
85	60.9	44.0	84.0

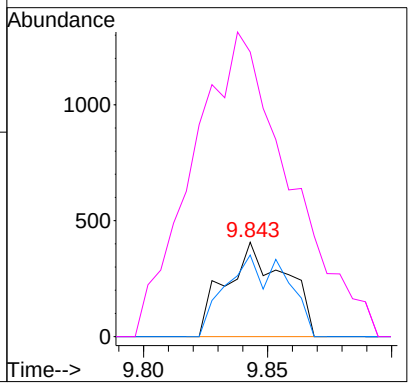


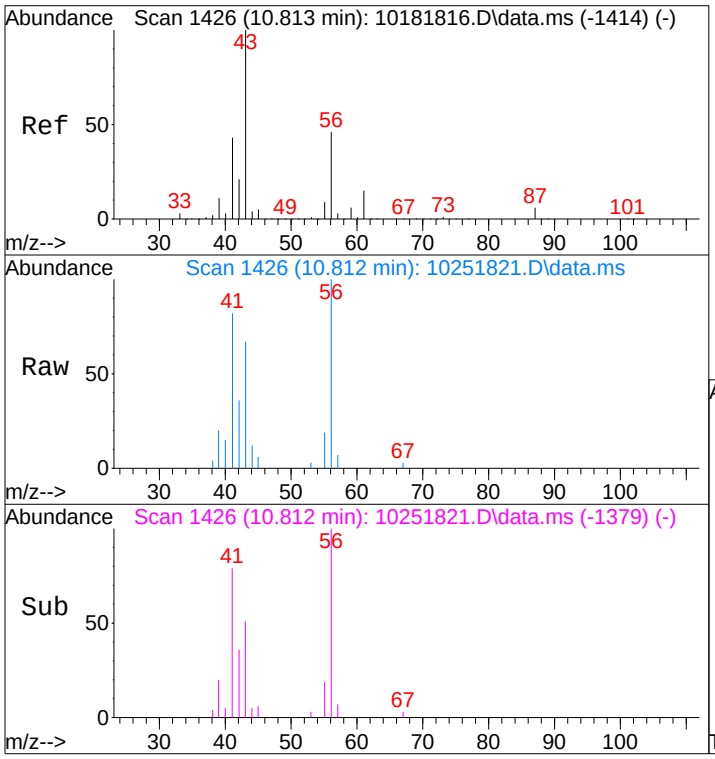


#34
Tetrahydrofuran (THF)
Concen: 0.05 ng
RT: 9.84 min Scan# 1238
Delta R.T. 0.075 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 72 Resp: 672

Ion	Ratio	Lower	Upper
72	100		
71	88.7	76.7	116.7
42	533.8	287.9	327.9#

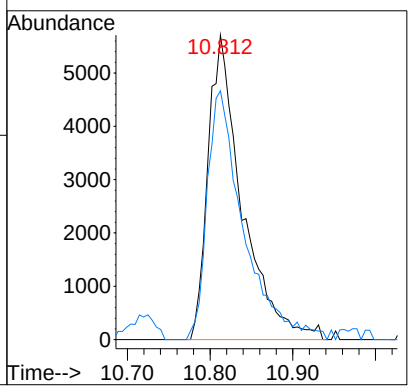


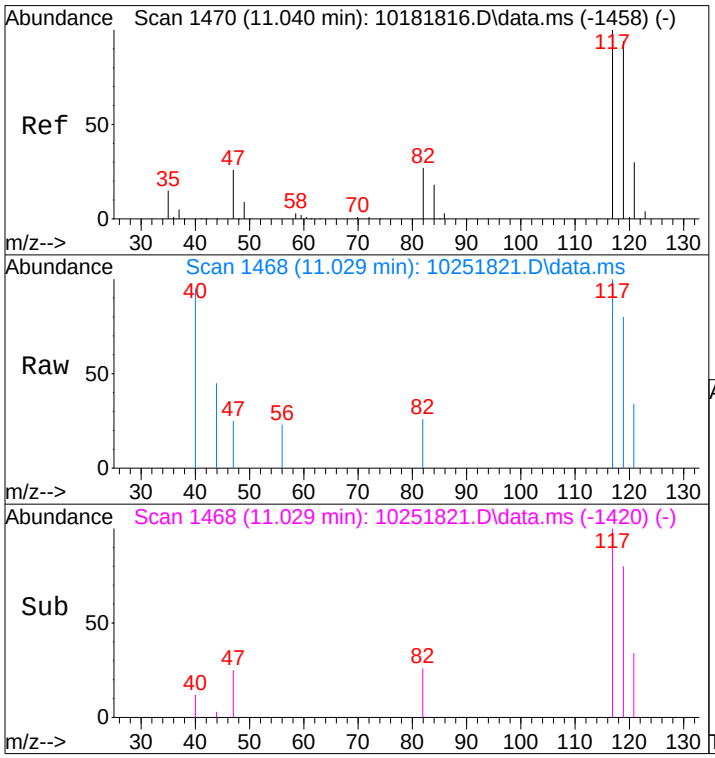


#40
1-Butanol
Concen: 0.73 ng
RT: 10.81 min Scan# 1426
Delta R.T. -0.006 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 56 Resp: 16381

Ion	Ratio	Lower	Upper
56	100		
41	87.0	90.2	130.2#

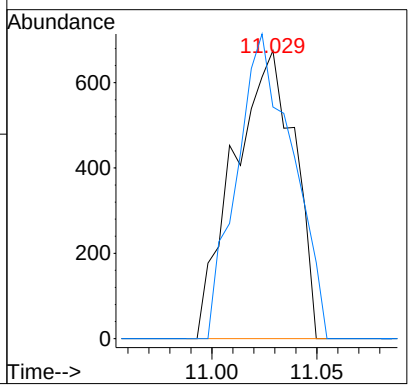


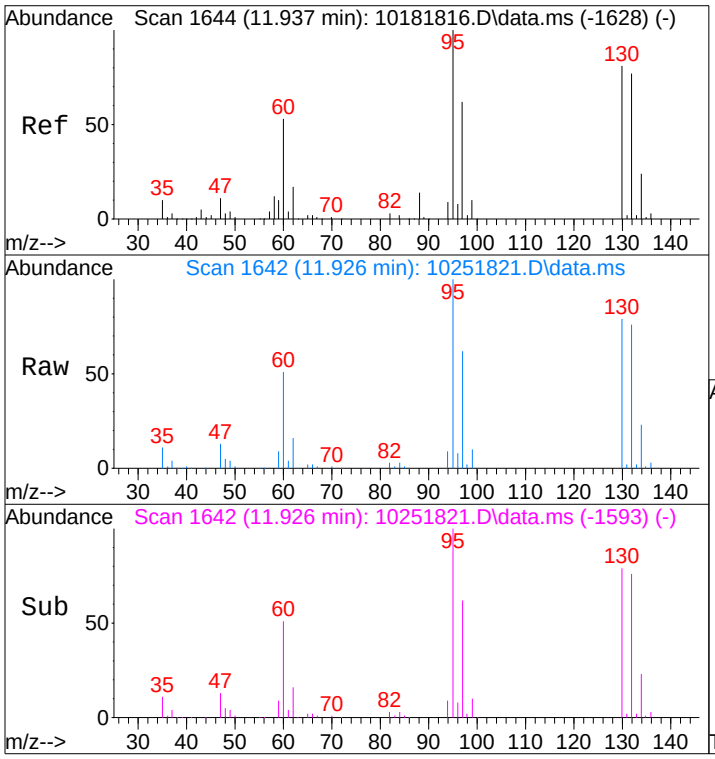


#42
Carbon Tetrachloride
Concen: 0.07 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:117 Resp: 1351

Ion	Ratio	Lower	Upper
117	100		
119	97.5	74.7	114.7

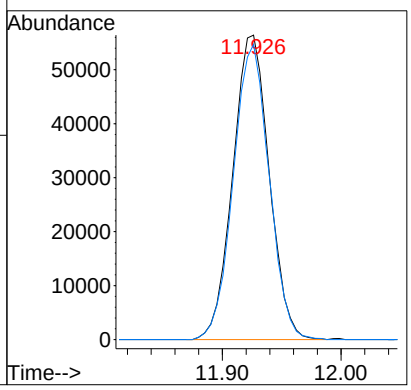


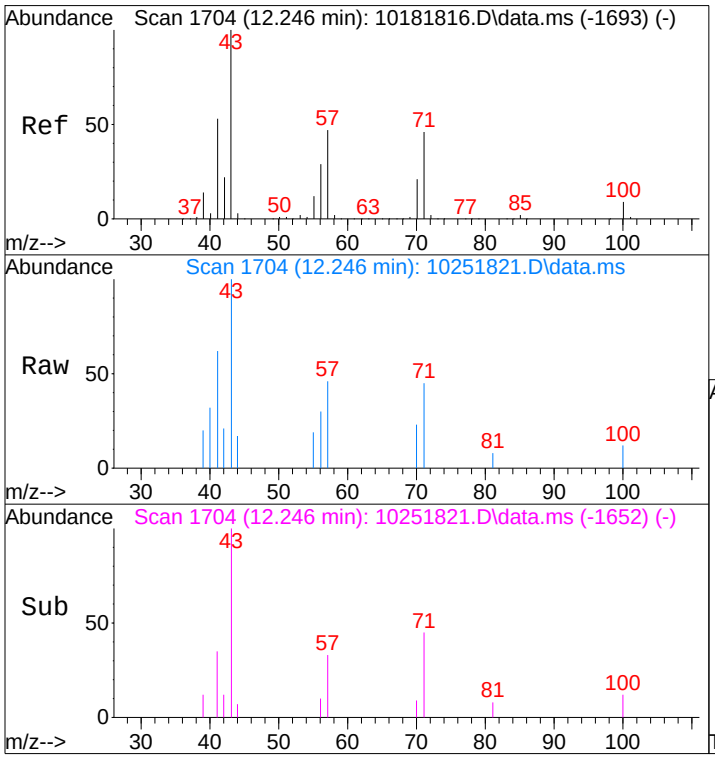


#47
Trichloroethene
Concen: 7.63 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:130 Resp: 120281

Ion	Ratio	Lower	Upper
130	100		
132	95.4	74.6	114.6

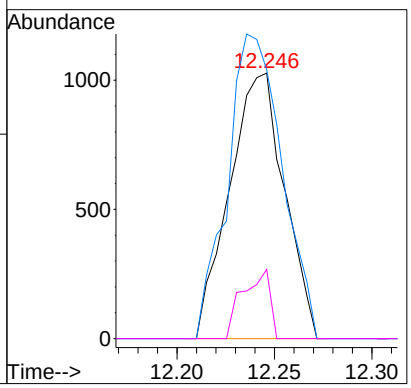


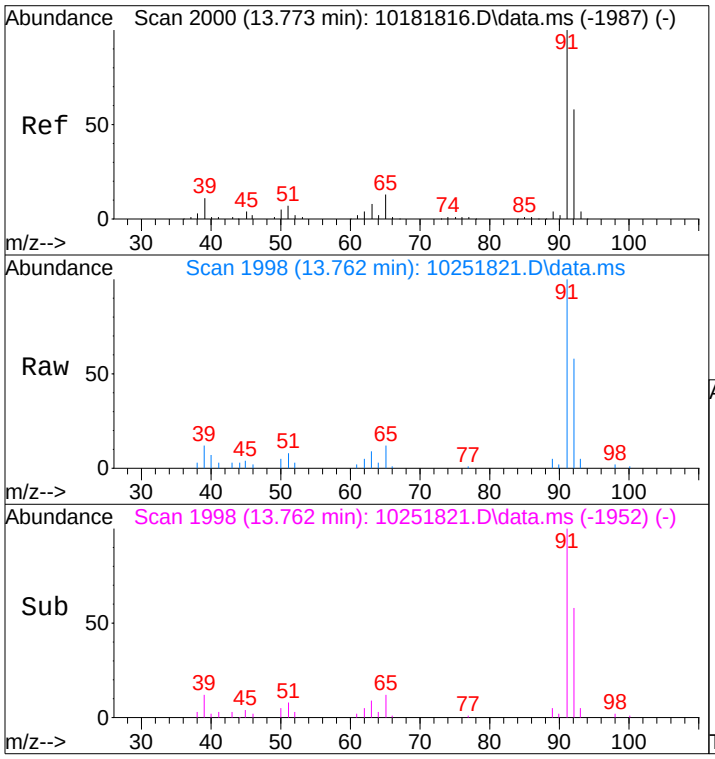


#51
n-Heptane
Concen: 0.10 ng
RT: 12.25 min Scan# 1704
Delta R.T. 0.018 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 71 Resp: 2017

Ion	Ratio	Lower	Upper
71	100		
57	113.7	84.2	124.2
100	12.9	0.2	40.2

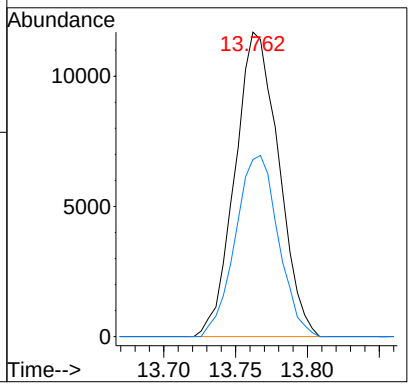


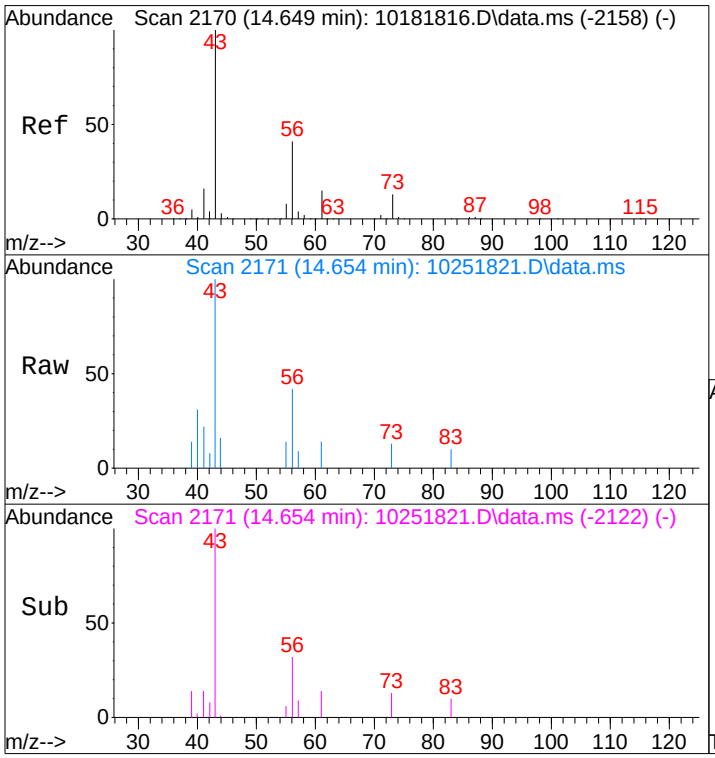


#58
Toluene
Concen: 0.32 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 91 Resp: 24708

Ion	Ratio	Lower	Upper
91	100		
92	58.5	38.1	78.1

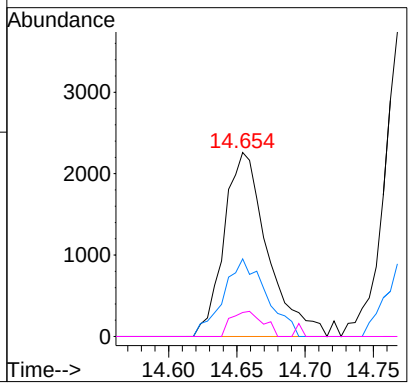


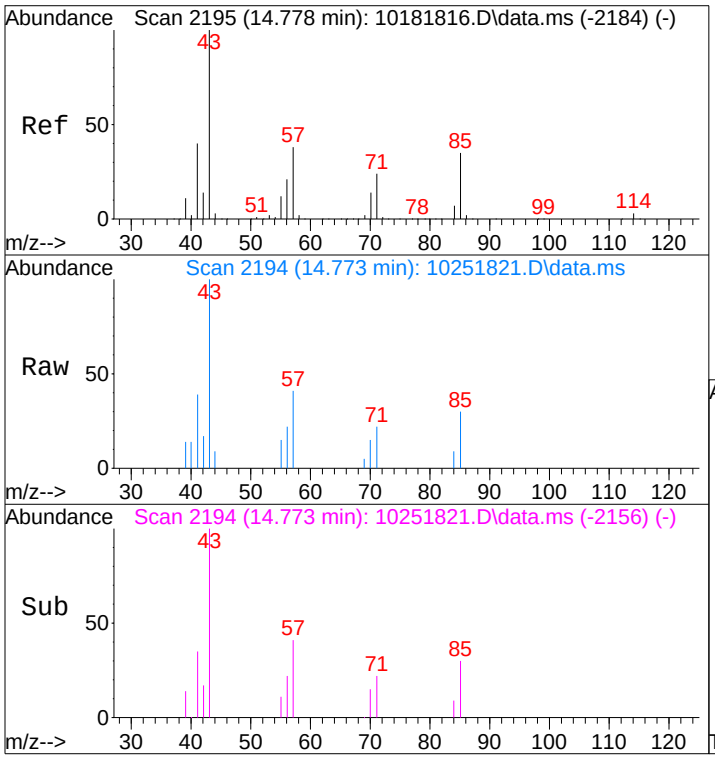


#62
n-Butyl Acetate
Concen: 0.09 ng
RT: 14.65 min Scan# 2171
Delta R.T. 0.004 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 43 Resp: 5008

Ion	Ratio	Lower	Upper
43	100		
56	41.7	20.7	60.7
73	10.1	0.0	32.8

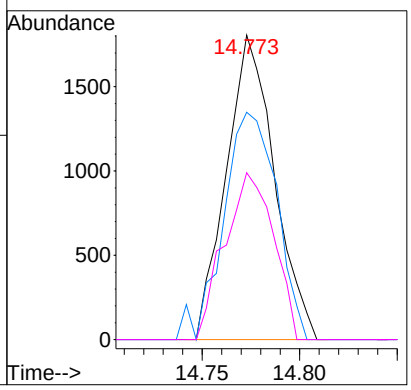


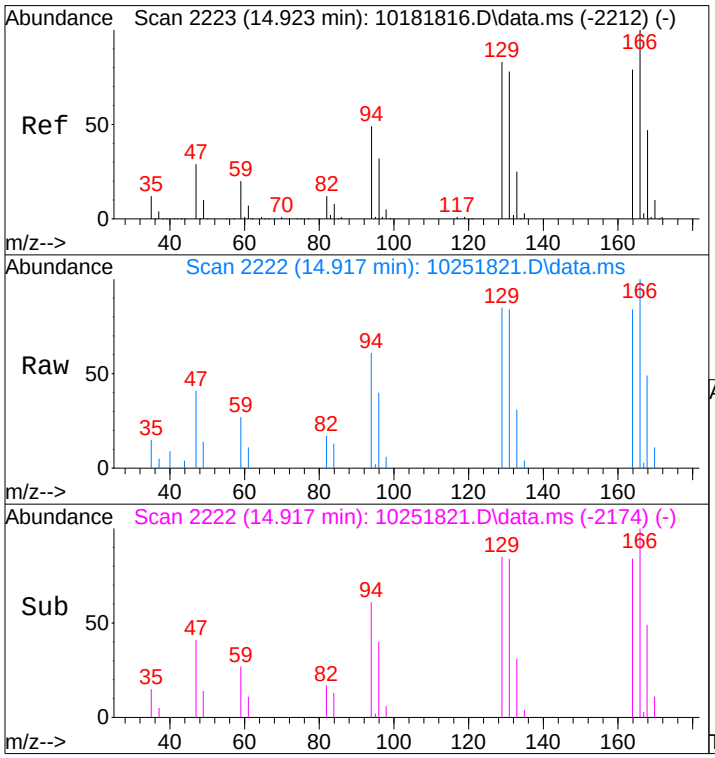


#63
n-Octane
Concen: 0.16 ng
RT: 14.77 min Scan# 2194
Delta R.T. -0.006 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 57 Resp: 3094

Ion	Ratio	Lower	Upper
57	100		
85	82.9	73.8	110.8
71	56.0	50.2	75.2

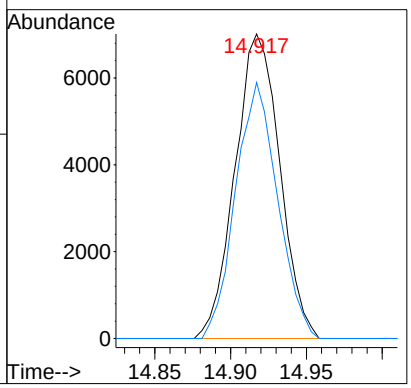


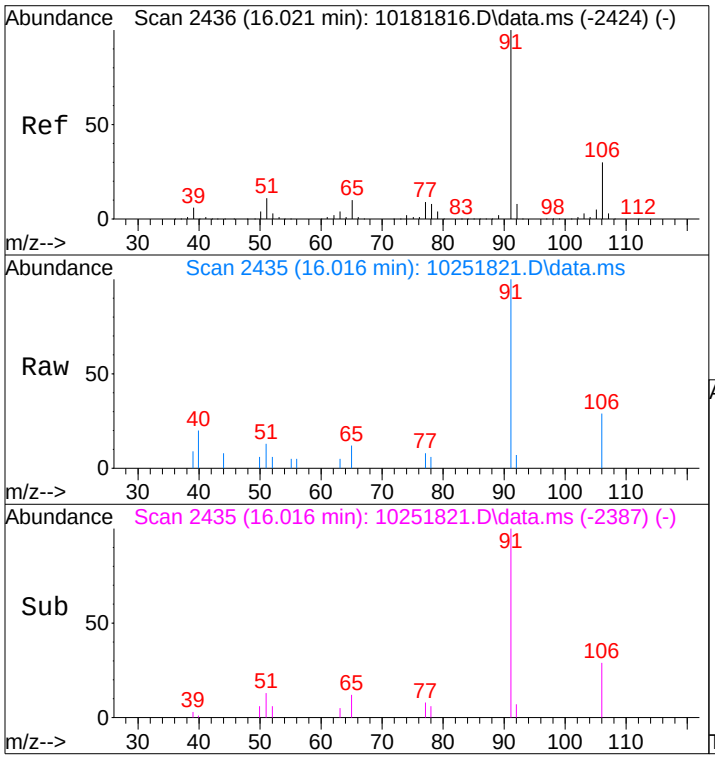


#64
Tetrachloroethene
Concen: 0.90 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:166 Resp: 14432

Ion	Ratio	Lower	Upper
166	100		
164	79.0	58.9	98.9

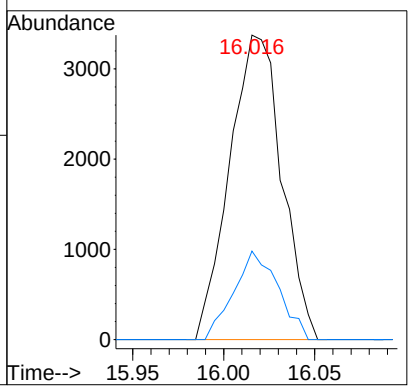


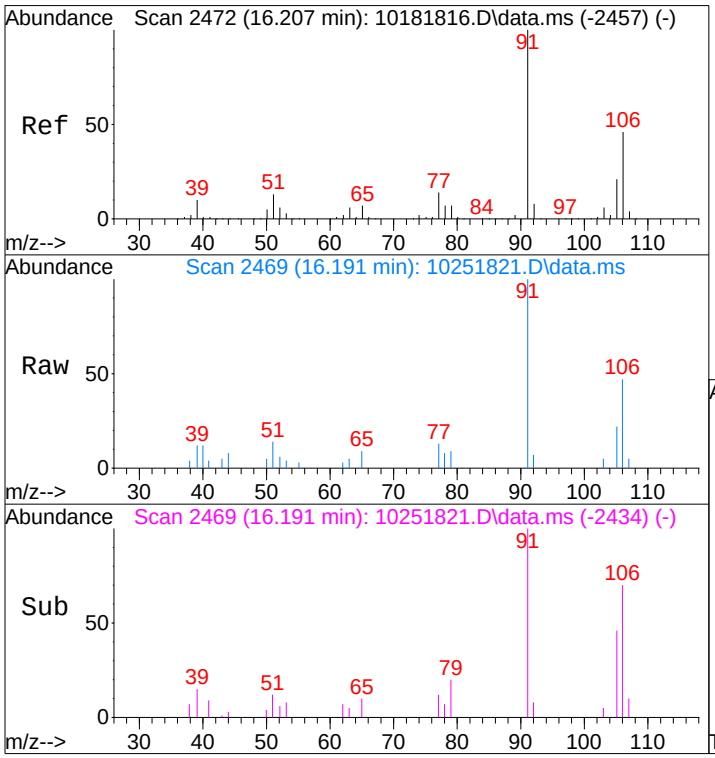


#66
Ethylbenzene
Concen: 0.08 ng
RT: 16.02 min Scan# 2435
Delta R.T. -0.000 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 91 Resp: 6729

Ion	Ratio	Lower	Upper
91	100		
106	24.8	9.9	49.9

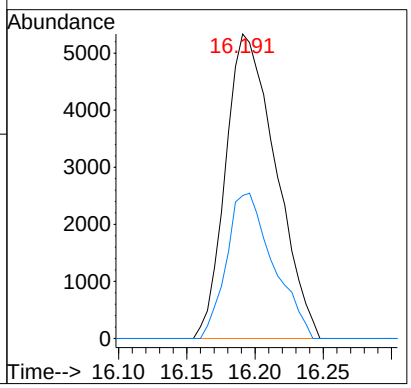


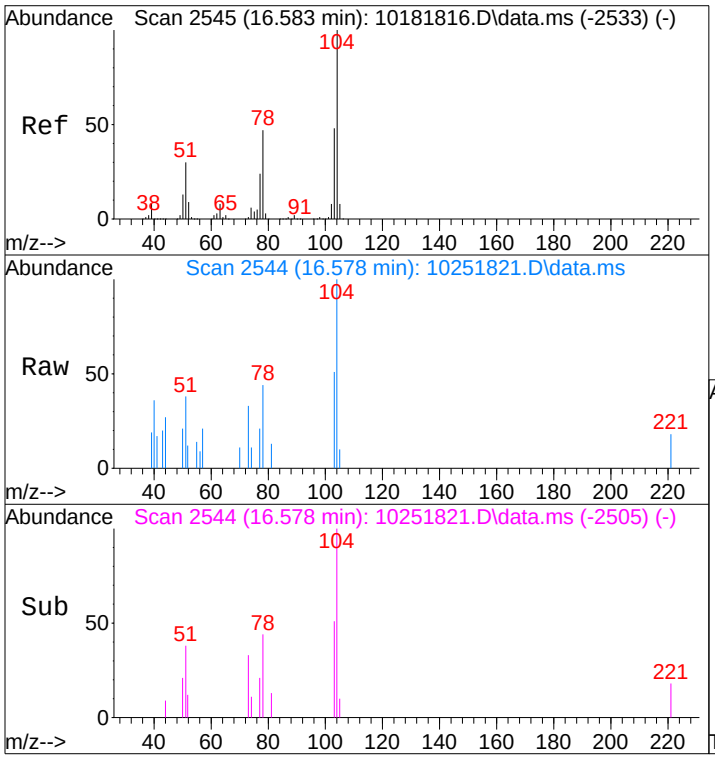


#67
m- & p-Xylenes
Concen: 0.21 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.021 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 91 Resp: 13659

Ion	Ratio	Lower	Upper
91	100		
106	44.3	26.7	66.7

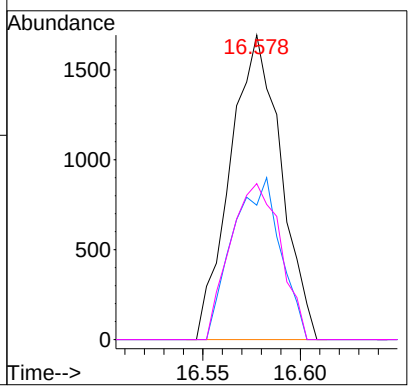


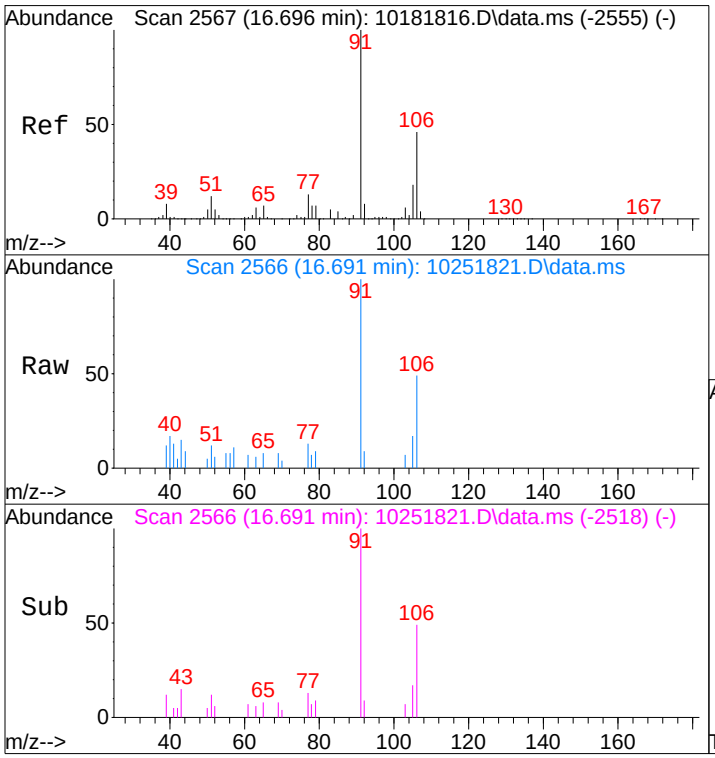


#69
Styrene
Concen: 0.07 ng
RT: 16.58 min Scan# 2544
Delta R.T. 0.000 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:104 Resp: 3063

Ion	Ratio	Lower	Upper
104	100		
78	49.9	27.8	67.8
103	51.0	27.9	67.9

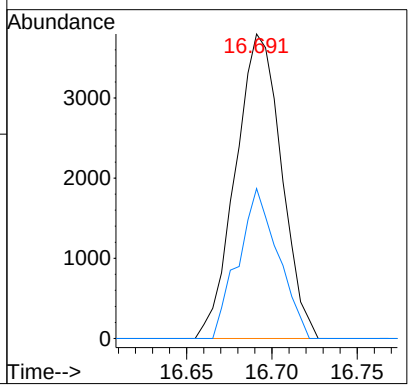


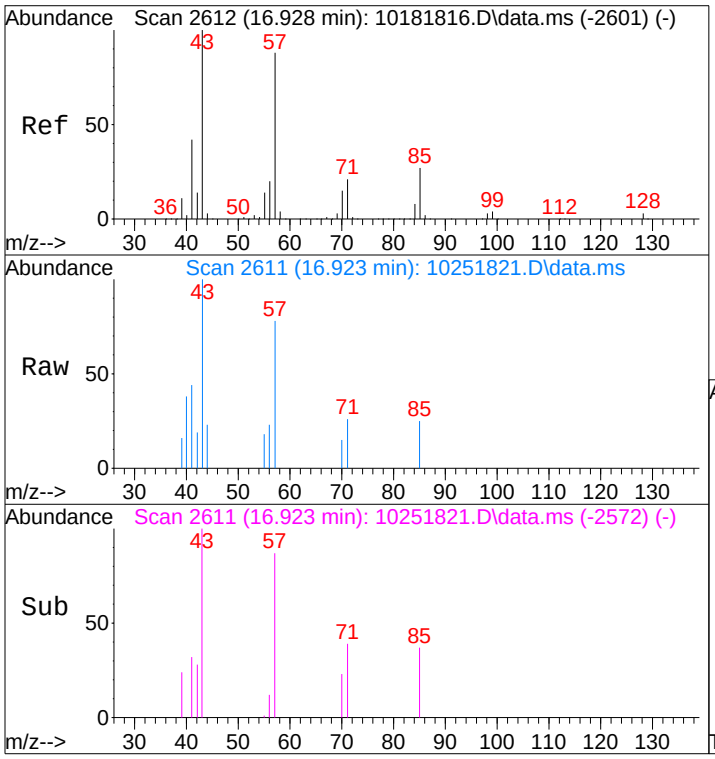


#70
o-Xylene
Concen: 0.11 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 91 Resp: 7120

Ion	Ratio	Lower	Upper
91	100		
106	42.8	25.2	65.2

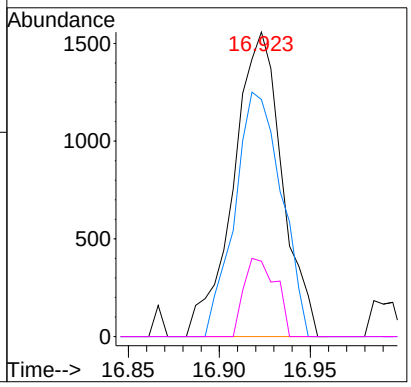


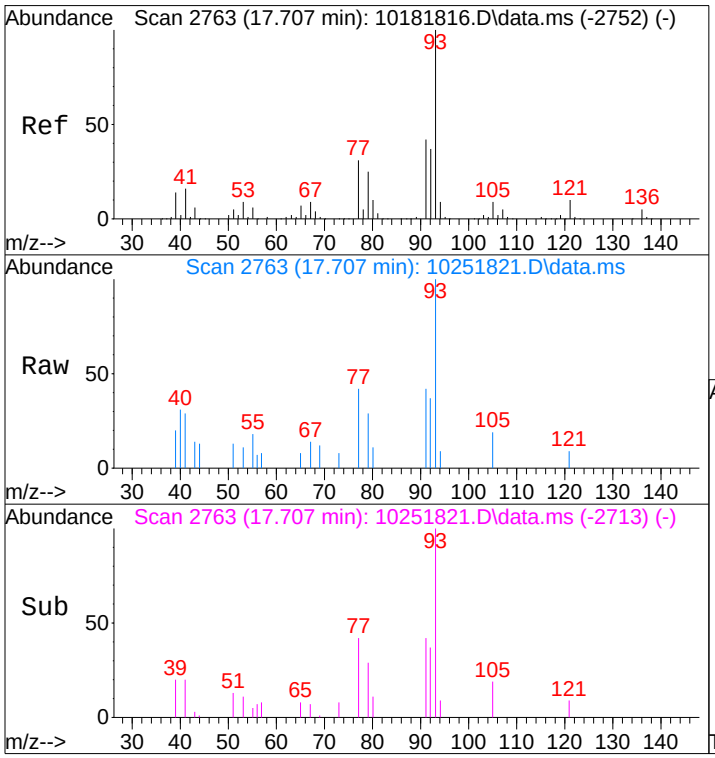


#71
n-Nonane
Concen: 0.06 ng
RT: 16.92 min Scan# 2611
Delta R.T. 0.001 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 43 Resp: 2893

Ion	Ratio	Lower	Upper
43	100		
57	77.2	66.7	106.7
85	16.9	6.7	46.7

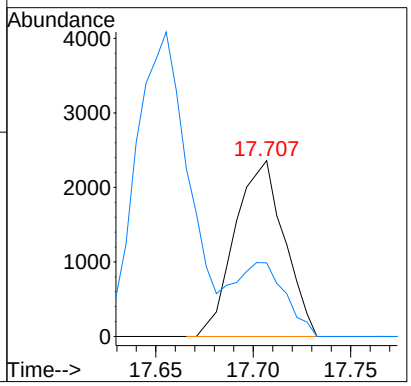


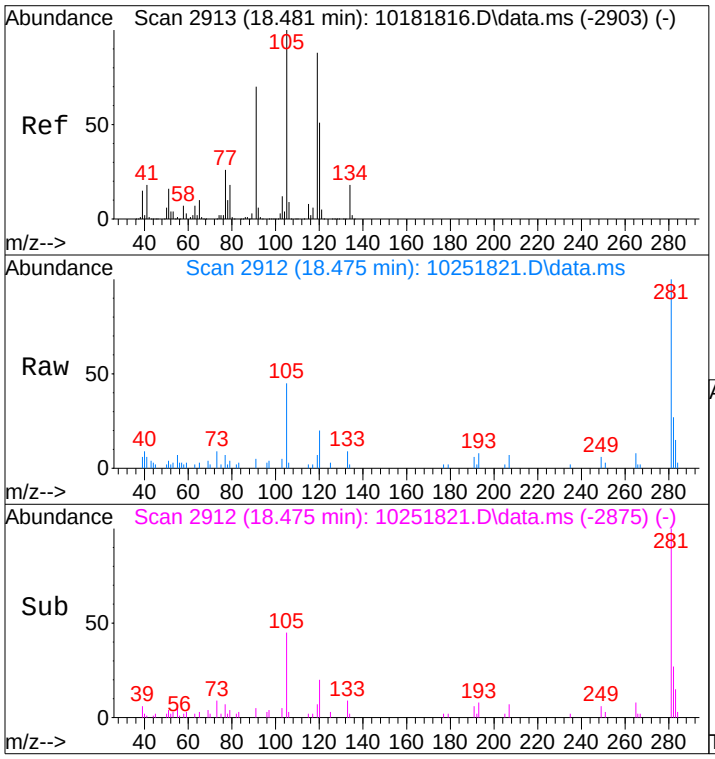


#75
alpha-Pinene
Concen: 0.10 ng
RT: 17.71 min Scan# 2763
Delta R.T. 0.006 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 93 Resp: 4148

Ion	Ratio	Lower	Upper
93	100		
77	39.6	11.2	51.2

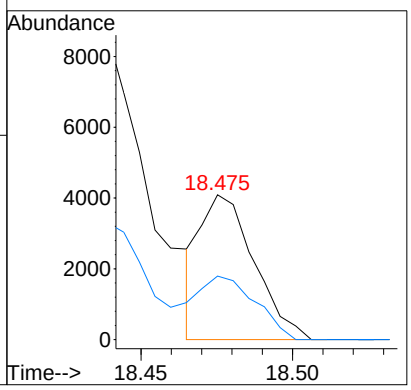


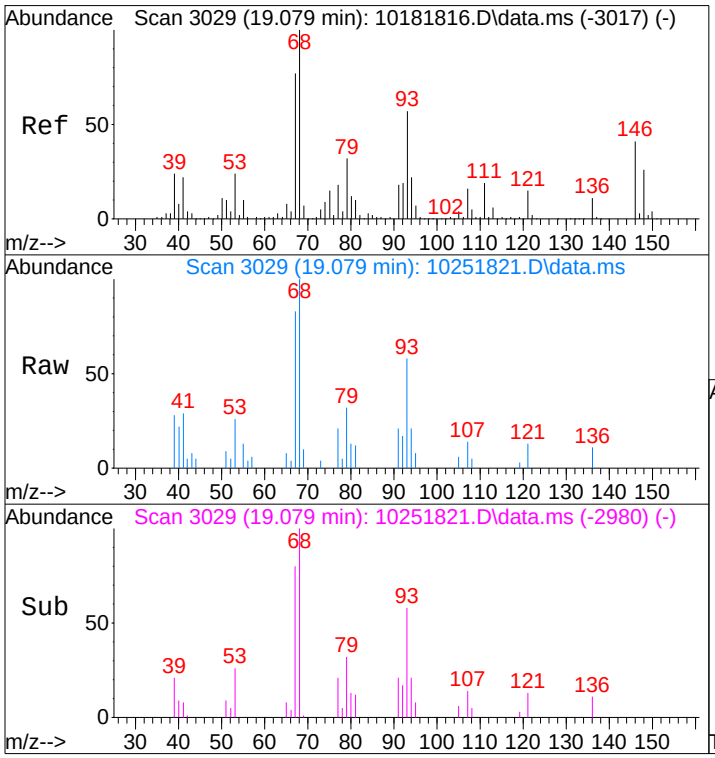


#82
1,2,4-Trimethylbenzene
Concen: 0.08 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion:105 Resp: 5045

Ion	Ratio	Lower	Upper
105	100		
120	51.3	31.3	71.3

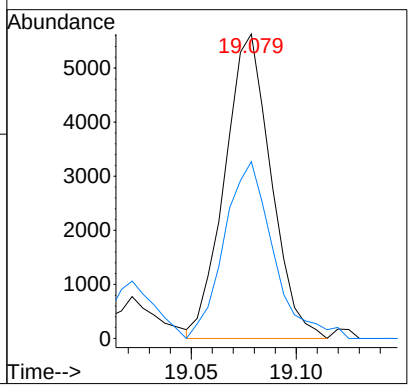




#91
d-Limonene
Concen: 0.28 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10251821.D
Acq: 25 Oct 2018 18:18

Tgt Ion: 68 Resp: 8632

Ion	Ratio	Lower	Upper
68	100		
93	61.5	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 13:43:08 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

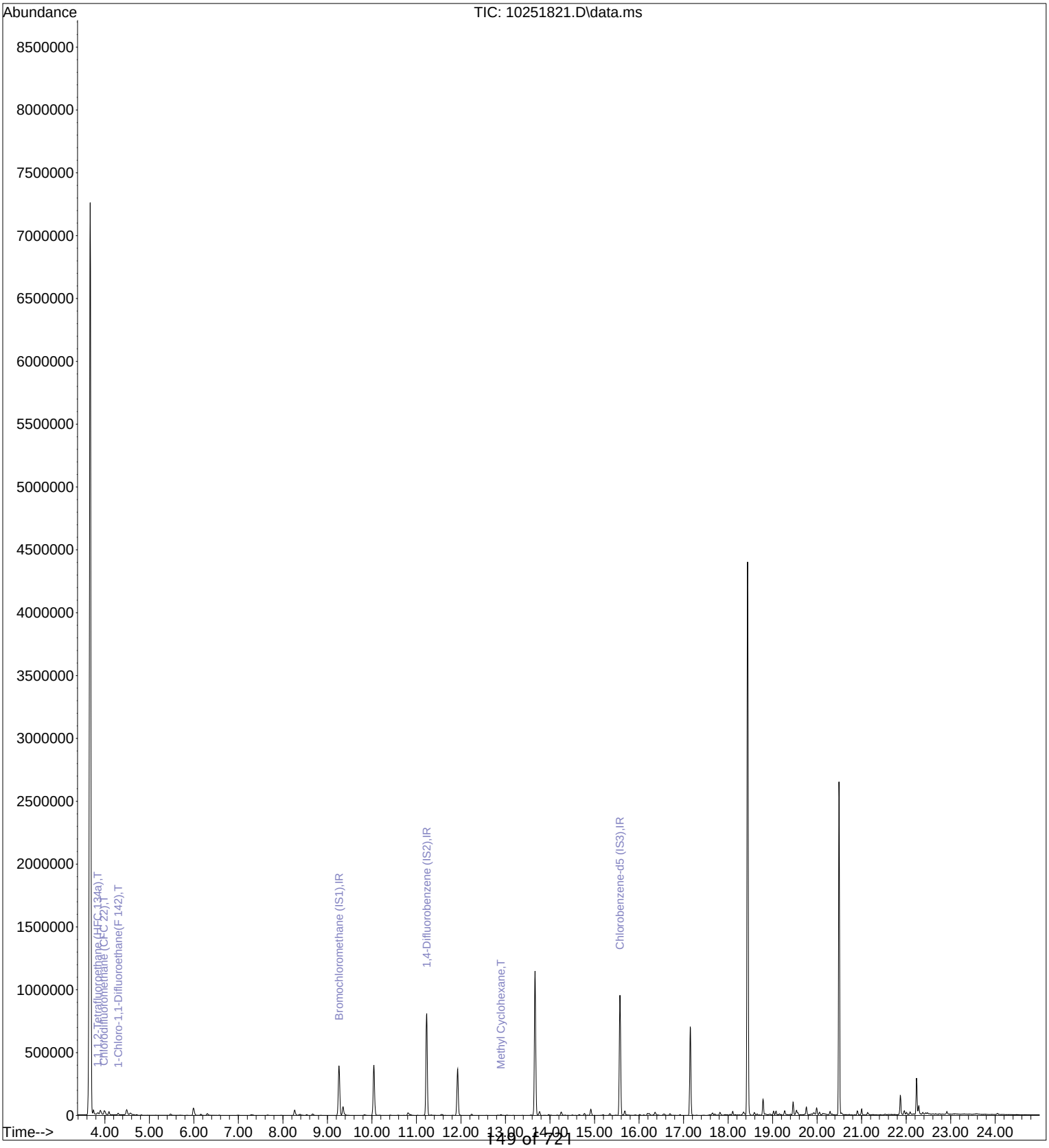
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	128032	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	657692	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	398942	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D.	d		
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	4082	0.309	ng	#	1
4) 1,1-Difluoroethane	3.91	65	473	N.D.			
5) Chlorodifluoromethane ...	3.98	67	1185	0.275	ng		75
6) 1-Chloro-1,1-Difluoroe...	4.30	65	10207	0.357	ng		95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.00	57	1557	N.D.			
11) Methyl Acetate	7.01	43	1104	N.D.			
12) 2-Methylpentane	8.45	71	181	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.02	84	46	N.D.			
17) 2,3-Dimethylpentane	11.41	56	404	N.D.			
18) Dibromomethane	11.64	174	229	N.D.			
20) Methyl Cyclohexane	12.90	55	3171	0.106	ng	#	72
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	17.30	77	46	N.D.			
26) 2-Chlorotoluene	17.82	91	1688	N.D.			
27) 4-Chlorotoluene	17.82	91	1688	N.D.			
28) Indane	19.14	117	486	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	491	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	594	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	640	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

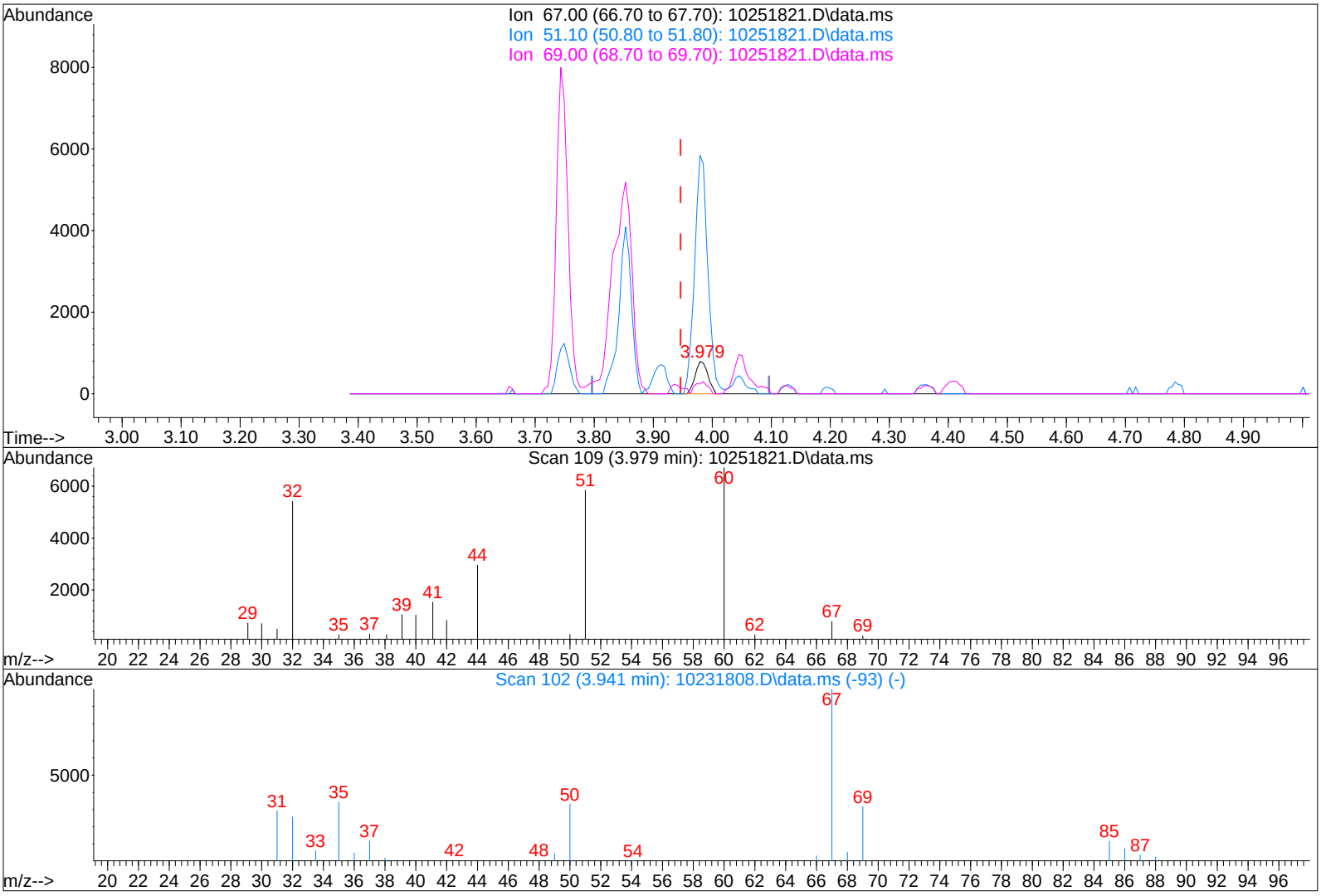
Quant Time: Oct 29 13:43:08 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\25\10251821.D Vial: 14
Acq On : 25 Oct 2018 18:18 Operator: RS
Sample : P1805493-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:42:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10251821.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

3.979min (+0.033) 0.28ng

response 1185

Ion	Exp%	Act%
67.00	100	100
51.10	683.70	771.31
69.00	32.10	37.05
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 26 06:38:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	128170	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	652175	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	393497	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	316363	14.233	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 113.84%				
57) Toluene-d8 (SS2)	13.66	98	845791	12.303	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
73) Bromofluorobenzene (SS3)	17.15	174	171727	11.103	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.80%				
Target Compounds							Qvalue
2) Propene	3.98	42	4346	0.134	ng	#	68
3) Dichlorodifluoromethan...	4.08	85	20670	0.592	ng		100
4) Chloromethane	4.28	50	10761	0.254	ng	#	48
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	262	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.47	45	27167	1.552	ng		90
11) Acetonitrile	5.70	41	1604	N.D.			
12) Acrolein	5.85	56	1283	0.095	ng		92
13) Acetone	5.99	58	20722	1.145	ng	#	77
14) Trichlorofluoromethane	6.16	101	7828	0.313	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	17404	0.309	ng		97
16) Acrylonitrile	6.50	53	790	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.98	59	2921	0.059	ng	#	67
19) Methylene Chloride	7.00	84	869	N.D.			
20) 3-Chloro-1-propene (Al...	6.99	41	740	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1055	0.106	ng	#	75
22) Carbon Disulfide	7.29	76	7370	0.108	ng		93
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	820	0.275	ng	#	66
27) 2-Butanone (MEK)	8.67	72	1749	0.124	ng	#	66
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.35	87	103	N.D.			
30) Ethyl Acetate	9.35	61	17882	2.393	ng		99
31) n-Hexane	9.35	57	995	N.D.			
32) Chloroform	9.39	83	2335	0.077	ng		99
34) Tetrahydrofuran (THF)	9.85	72	603	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	4127	0.167	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	10184	0.459	ng	#	78
41) Benzene	10.88	78	2618	N.D.			
42) Carbon Tetrachloride	11.02	117	2109	0.110	ng		90
43) Cyclohexane	11.22	84	630	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	11.91	83	511	N.D.			
47) Trichloroethene	11.93	130	34691	2.219	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	260	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

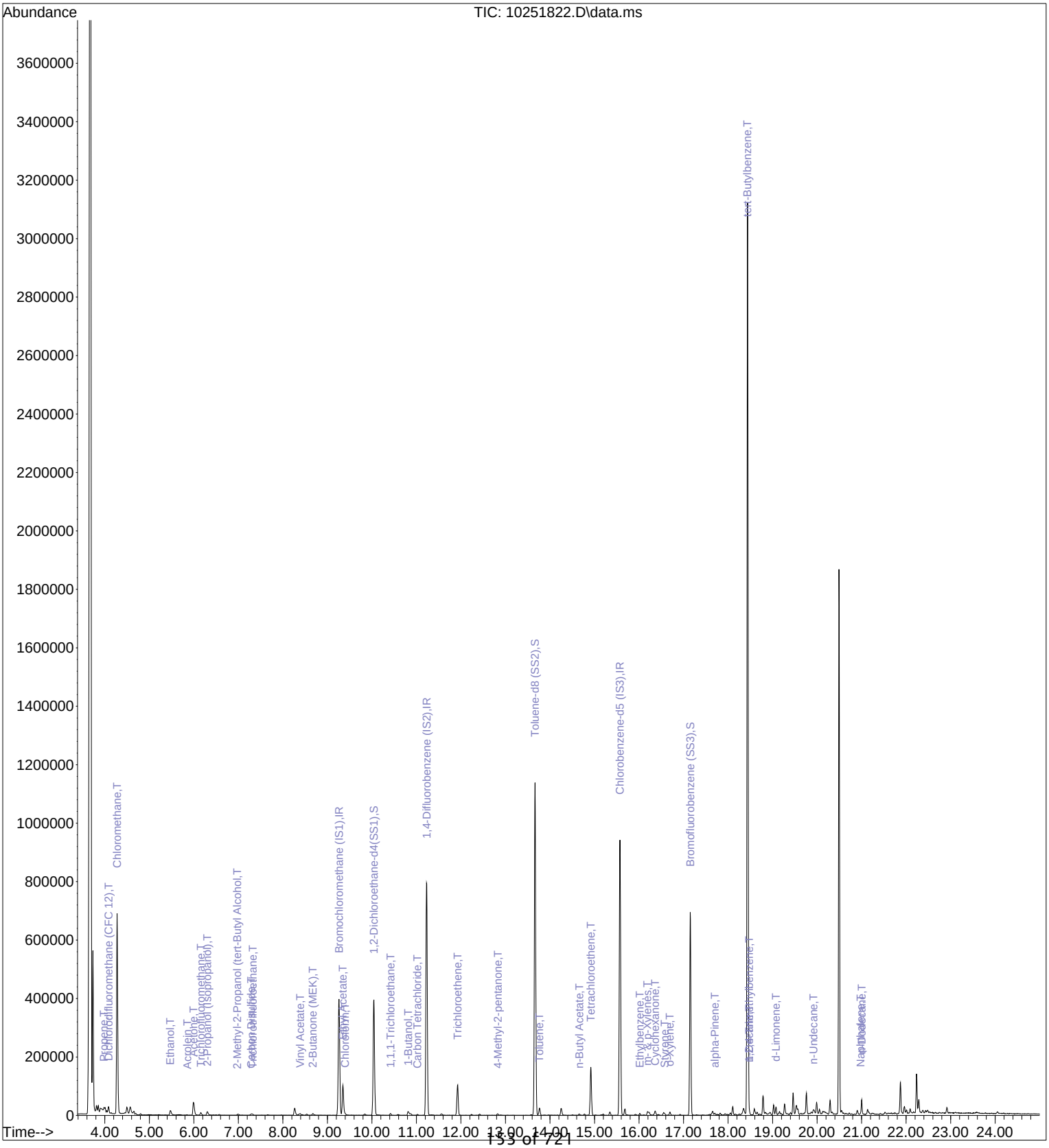
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	12.24	71	653	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	12.83	58	1425	0.072 ng	#	54
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.76	91	20662	0.269 ng		98
59) 2-Hexanone	14.03	43	1146	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	14.66	43	4152	0.076 ng		94
63) n-Octane	14.78	57	715	N.D.		
64) Tetrachloroethene	14.92	166	48255	3.040 ng		100
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	16.02	91	5618	0.067 ng		94
67) m- & p-Xylenes	16.19	91	11693	0.181 ng		94
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	16.58	104	2464	0.054 ng		95
70) o-Xylene	16.69	91	6215	0.098 ng		95
71) n-Nonane	16.92	43	1668	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	17.30	105	645	N.D.		
75) alpha-Pinene	17.70	93	2550	0.062 ng	#	1
76) n-Propylbenzene	17.83	91	1371	N.D.		
77) 3-Ethyltoluene	17.93	105	2677	N.D.		
78) 4-Ethyltoluene	17.97	105	1393	N.D.		
79) 1,3,5-Trimethylbenzene	18.05	105	1373	N.D.		
80) alpha-Methylstyrene	18.21	118	110	N.D.		
81) 2-Ethyltoluene	18.25	105	1146	N.D.		
82) 1,2,4-Trimethylbenzene	18.48	105	5483	0.092 ng		87
83) n-Decane	18.48	58	169	0.086 ng	#	1
84) Benzyl Chloride	18.48	91	624	N.D.		
85) 1,3-Dichlorobenzene	18.70	146	186	N.D.		
86) 1,4-Dichlorobenzene	18.70	146	186	N.D.		
87) sec-Butylbenzene	18.92	105	1460	N.D.		
88) 4-Isopropyltoluene (p-...	18.92	119	1035	N.D.		
89) 1,2,3-Trimethylbenzene	18.92	105	1460	N.D.		
90) 1,2-Dichlorobenzene	19.06	146	1032	N.D.		
91) d-Limonene	19.07	68	6900	0.223 ng		94
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	19.92	57	6043	0.127 ng		78
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	20.98	128	3507	0.050 ng		97
96) n-Dodecane	21.00	57	16019	0.367 ng		98
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	16.36	55	8421	0.257 ng		94
99) tert-Butylbenzene	18.43	119	35491	0.640 ng	#	1
100) n-Butylbenzene	19.36	91	982	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 26 06:38:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

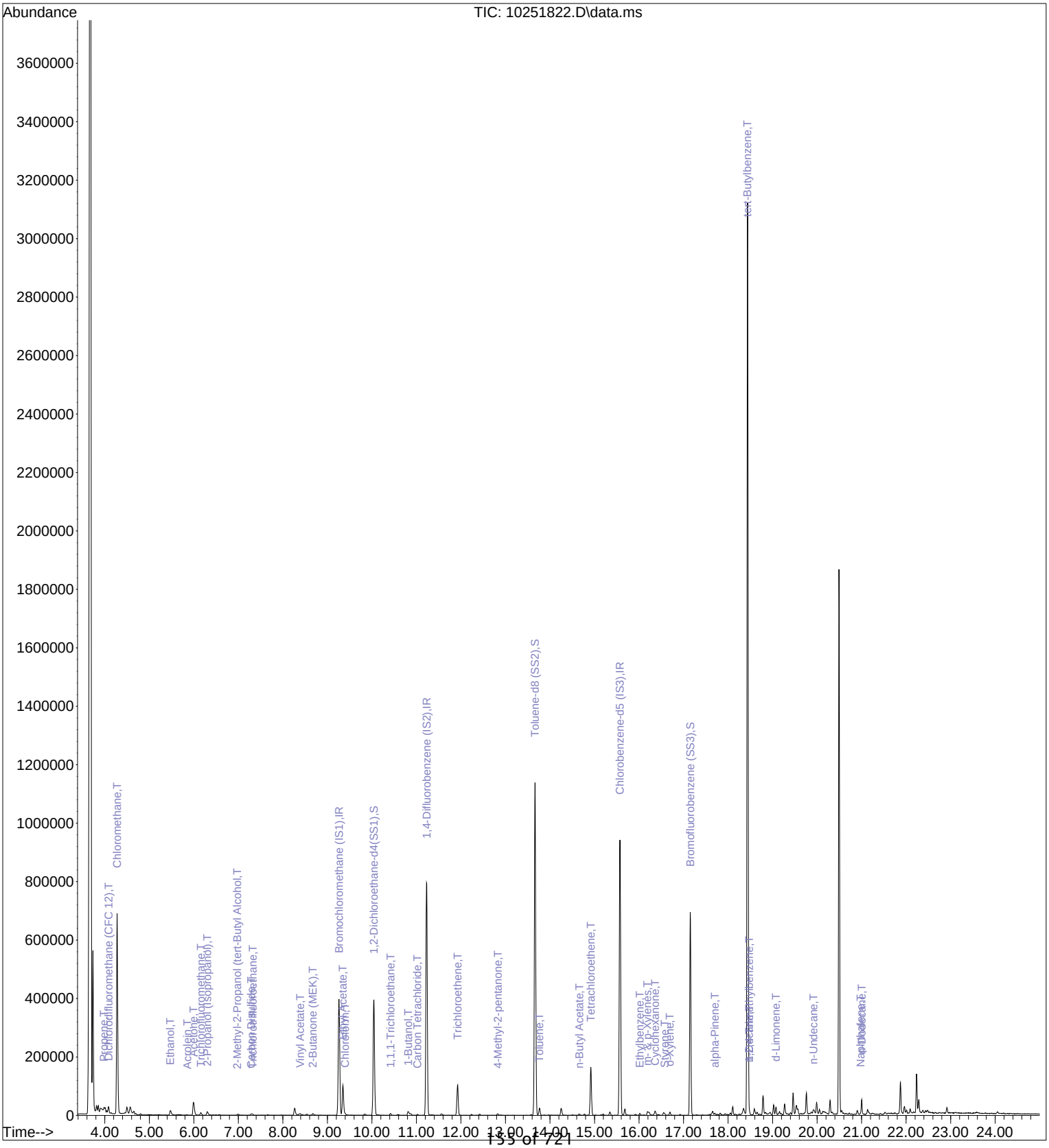
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	128170	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	652175	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	393497	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	316363	14.233	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 113.84%				
57) Toluene-d8 (SS2)	13.66	98	845791	12.303	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
73) Bromofluorobenzene (SS3)	17.15	174	171727	11.103	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.80%				
Target Compounds							Qvalue
2) Propene	3.98	42	4346	0.134	ng	#	68
3) Dichlorodifluoromethan...	4.08	85	20670	0.592	ng		100
4) Chloromethane	4.28	50	10761	0.254	ng	#	48
10) Ethanol	5.47	45	27167	1.552	ng		90
12) Acrolein	5.85	56	1283	0.095	ng		92
13) Acetone	5.99	58	20722	1.145	ng	#	77
14) Trichlorofluoromethane	6.16	101	7828	0.313	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	17404	0.309	ng		97
18) 2-Methyl-2-Propanol (t...	6.98	59	2921	0.059	ng	#	67
21) Trichlorotrifluoroethane	7.33	151	1055	0.106	ng	#	75
22) Carbon Disulfide	7.29	76	7370	0.108	ng		93
26) Vinyl Acetate	8.39	86	820	0.275	ng	#	66
27) 2-Butanone (MEK)	8.67	72	1749	0.124	ng	#	66
30) Ethyl Acetate	9.35	61	17882	2.393	ng		99
32) Chloroform	9.39	83	2335	0.077	ng		99
38) 1,1,1-Trichloroethane	10.42	97	4127	0.167	ng		97
40) 1-Butanol	10.82	56	10184	0.459	ng	#	78
42) Carbon Tetrachloride	11.02	117	2109	0.110	ng		90
47) Trichloroethene	11.93	130	34691	2.219	ng		100
53) 4-Methyl-2-pentanone	12.83	58	1425	0.072	ng	#	54
58) Toluene	13.76	91	20662	0.269	ng		98
62) n-Butyl Acetate	14.66	43	4152	0.076	ng		94
64) Tetrachloroethene	14.92	166	48255	3.040	ng		100
66) Ethylbenzene	16.02	91	5618	0.067	ng		94
67) m- & p-Xylenes	16.19	91	11693	0.181	ng		94
69) Styrene	16.58	104	2464	0.054	ng		95
70) o-Xylene	16.69	91	6215	0.098	ng		95
75) alpha-Pinene	17.70	93	2550	0.062	ng	#	1
82) 1,2,4-Trimethylbenzene	18.48	105	5483	0.092	ng		87
83) n-Decane	18.48	58	169	0.086	ng	#	1
91) d-Limonene	19.07	68	6900	0.223	ng		94
93) n-Undecane	19.92	57	6043	0.127	ng		78
95) Naphthalene	20.98	128	3507	0.050	ng		97
96) n-Dodecane	21.00	57	16019	0.367	ng		98
98) Cyclohexanone	16.36	55	8421	0.257	ng		94
99) tert-Butylbenzene	18.43	119	35491	0.640	ng	#	1

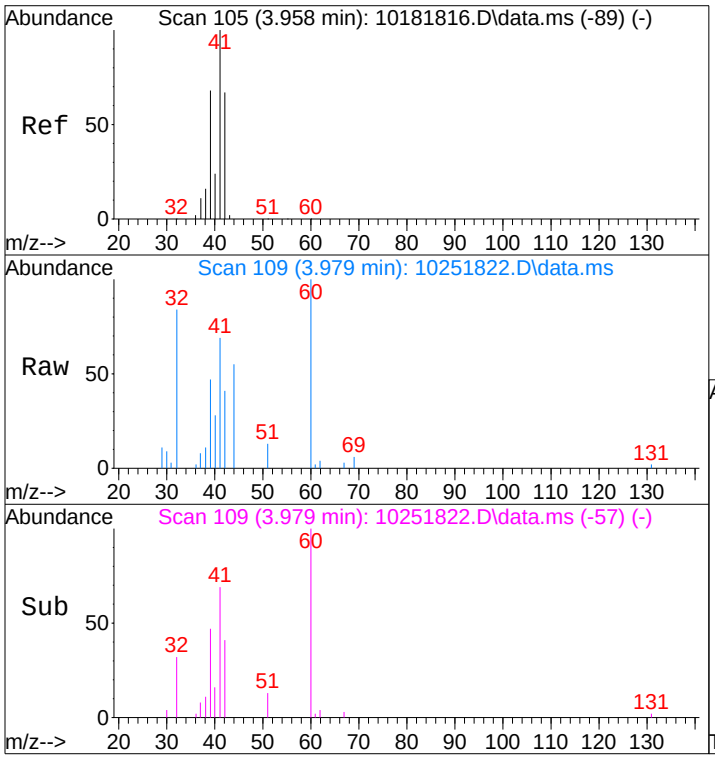
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

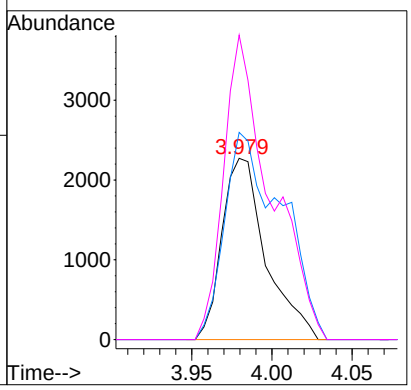


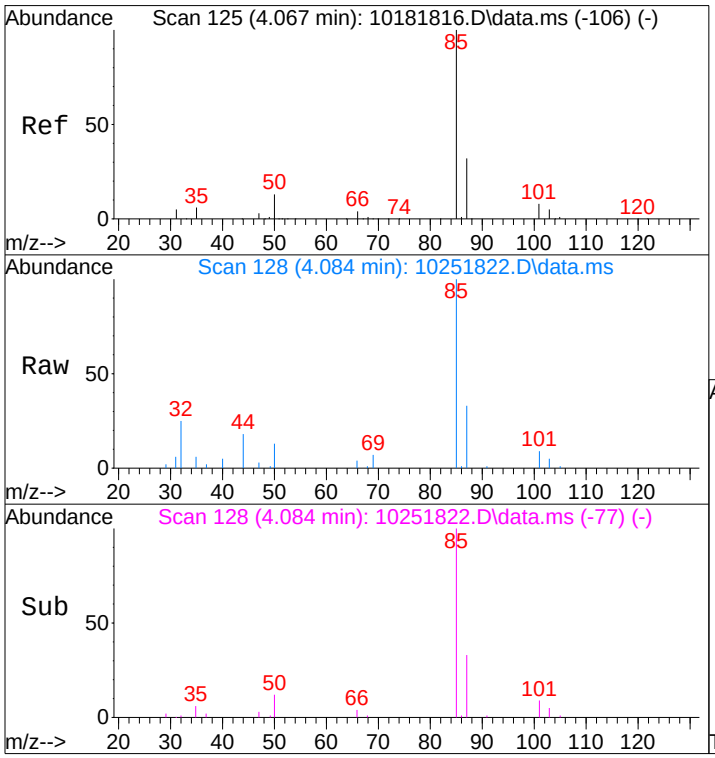


#2
Propene
Concen: 0.13 ng
RT: 3.98 min Scan# 109
Delta R.T. 0.033 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 42 Resp: 4346

Ion	Ratio	Lower	Upper
42	100		
39	148.3	81.9	121.9#
41	179.9	130.4	170.4#

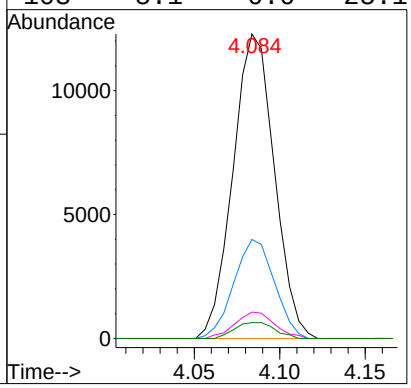


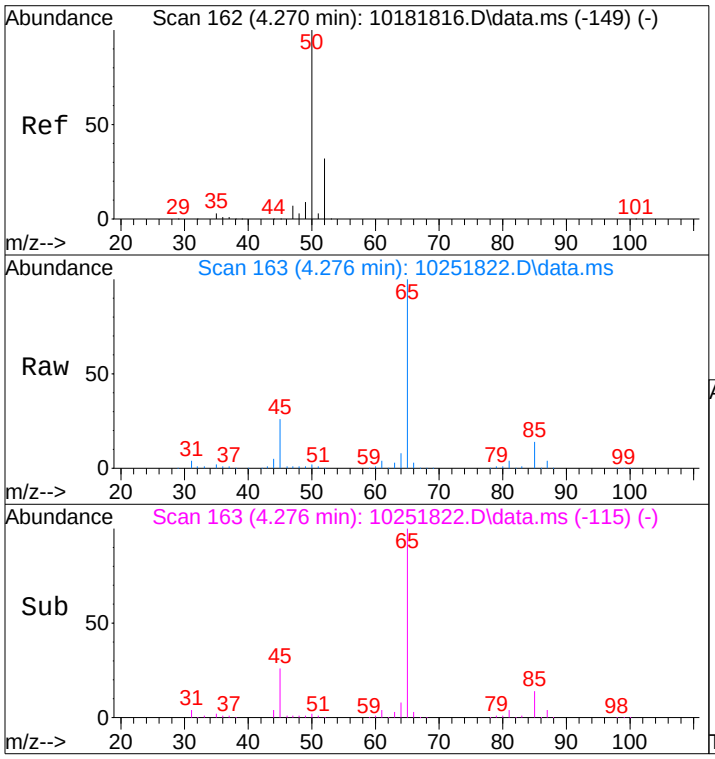


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.59 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 85 Resp: 20670

Ion	Ratio	Lower	Upper
85	100		
87	31.9	12.0	52.0
101	8.4	0.0	28.0
103	5.1	0.0	25.1

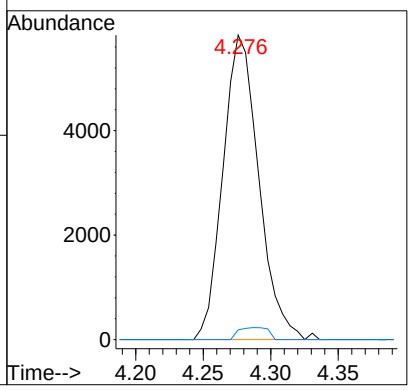


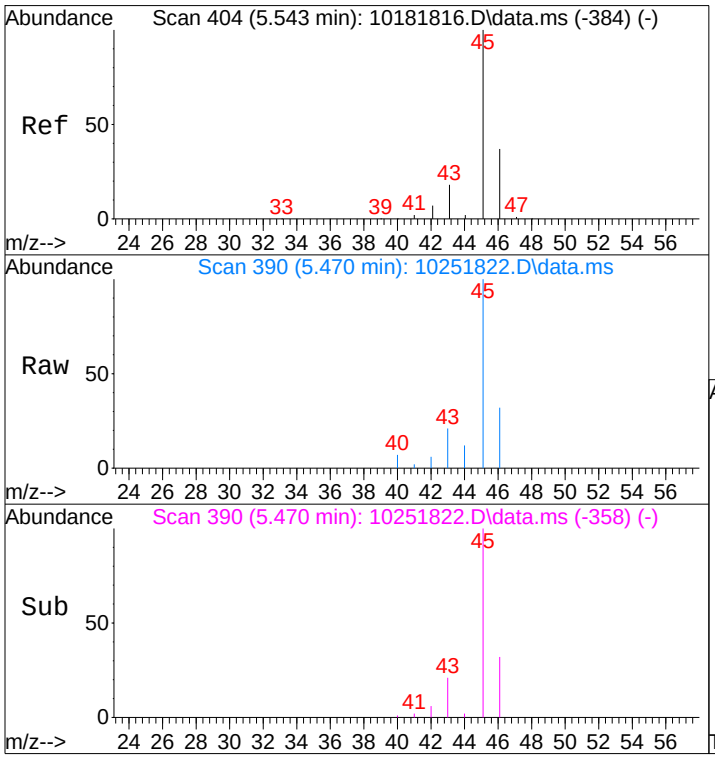


#4
Chloromethane
Concen: 0.25 ng
RT: 4.28 min Scan# 163
Delta R.T. 0.013 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 50 Resp: 10761

Ion	Ratio	Lower	Upper
50	100		
52	3.3	12.4	52.4#

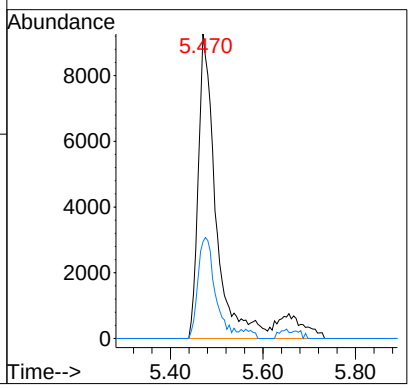


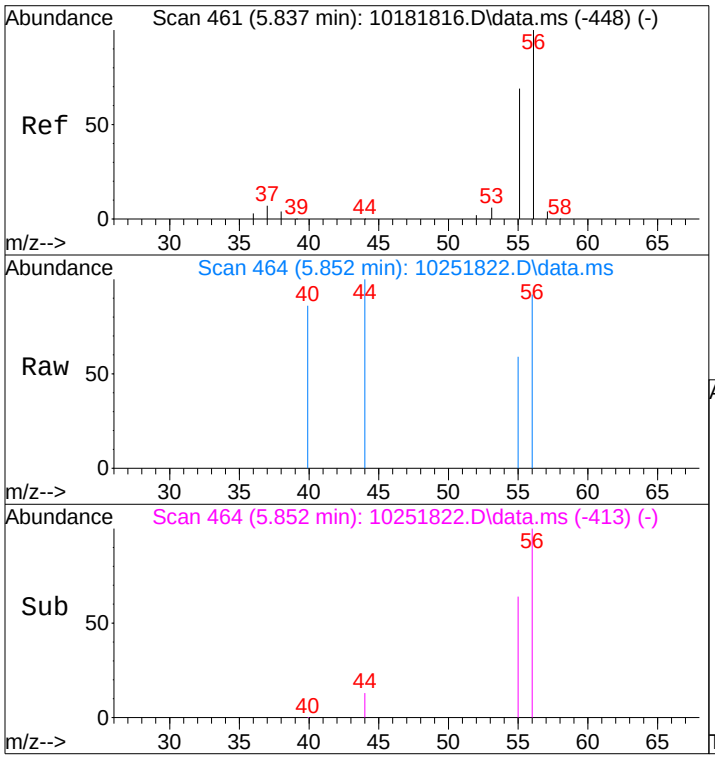


#10
Ethanol
Concen: 1.55 ng
RT: 5.47 min Scan# 390
Delta R.T. -0.087 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 45 Resp: 27167

Ion	Ratio	Lower	Upper
45	100		
46	31.3	17.0	57.0

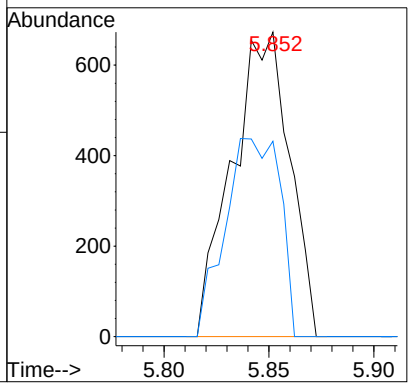


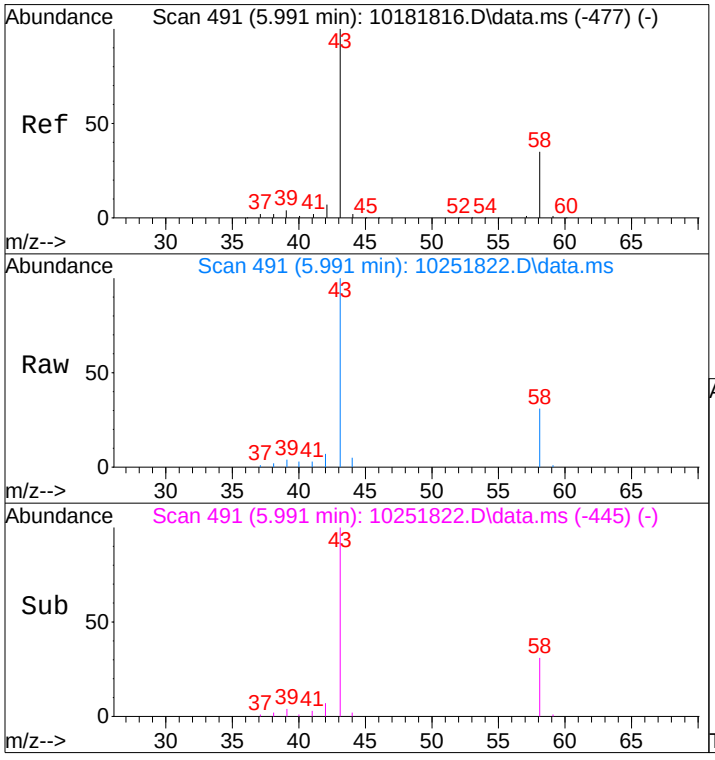


#12
Acrolein
Concen: 0.09 ng
RT: 5.85 min Scan# 464
Delta R.T. 0.012 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 56 Resp: 1283

Ion	Ratio	Lower	Upper
56	100		
55	62.5	49.3	89.3

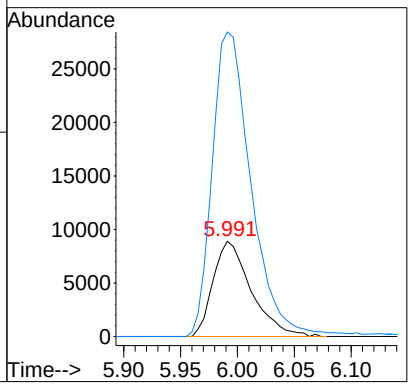


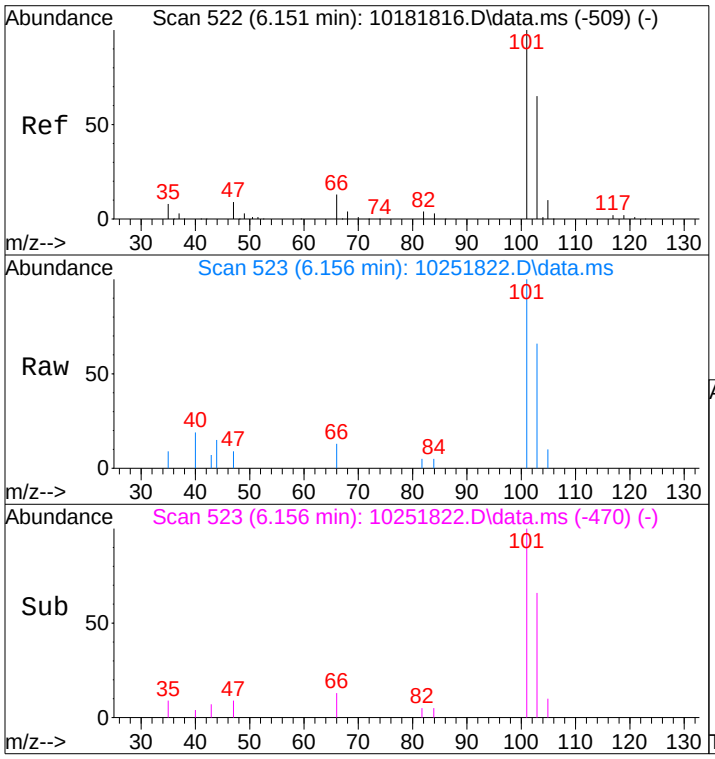


#13
Acetone
Concen: 1.15 ng
RT: 5.99 min Scan# 491
Delta R.T. -0.012 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 58 Resp: 20722

Ion	Ratio	Lower	Upper
58	100		
43	328.4	254.3	314.3#

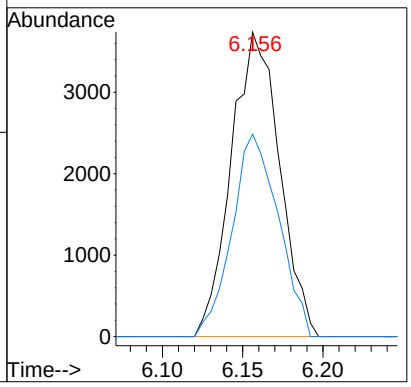


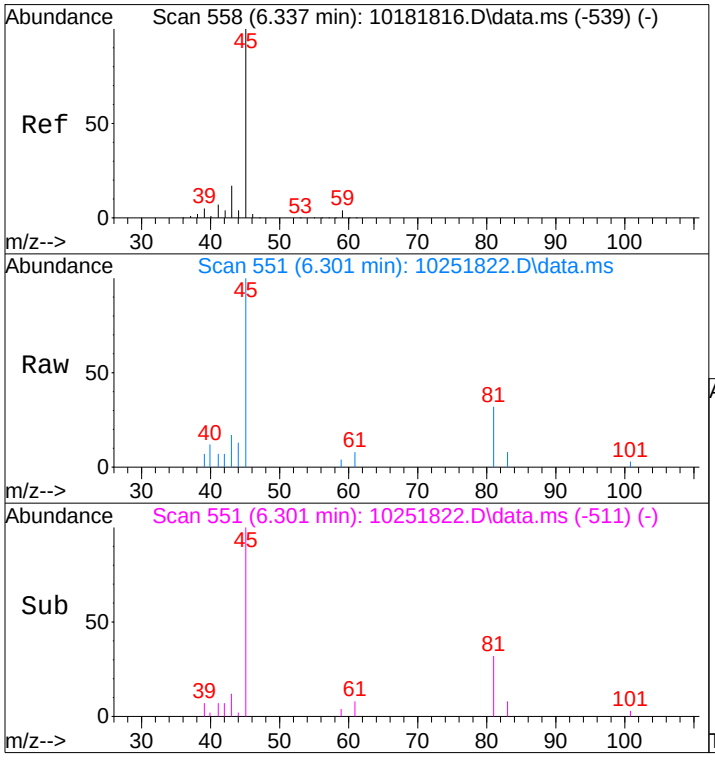


#14
Trichlorofluoromethane
Concen: 0.31 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:101 Resp: 7828

Ion	Ratio	Lower	Upper
101	100		
103	63.9	44.5	84.5

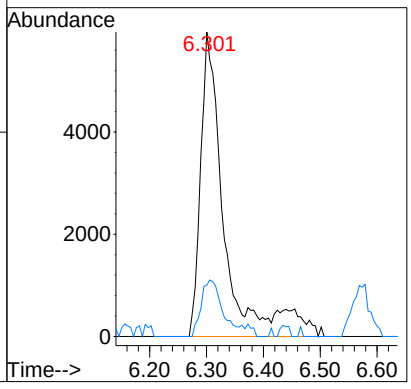


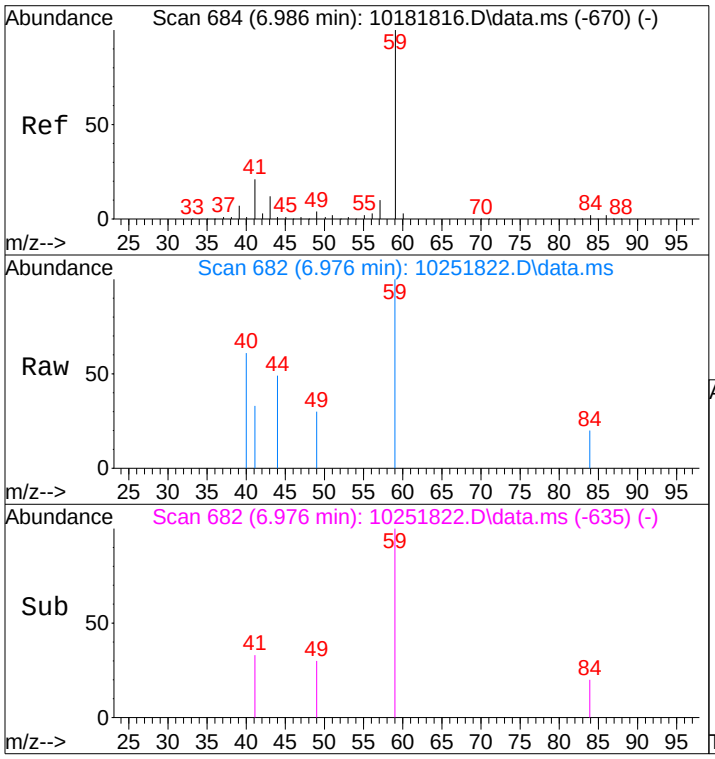


#15
2-Propanol (Isopropanol)
Concen: 0.31 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 45 Resp: 17404

Ion	Ratio	Lower	Upper
45	100		
43	18.0	0.0	36.7

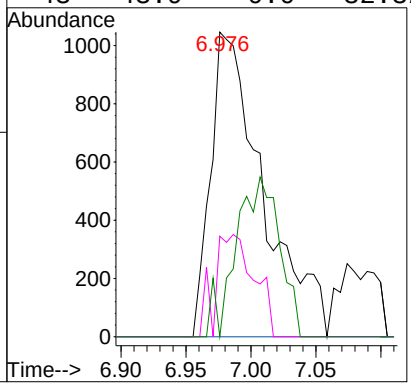


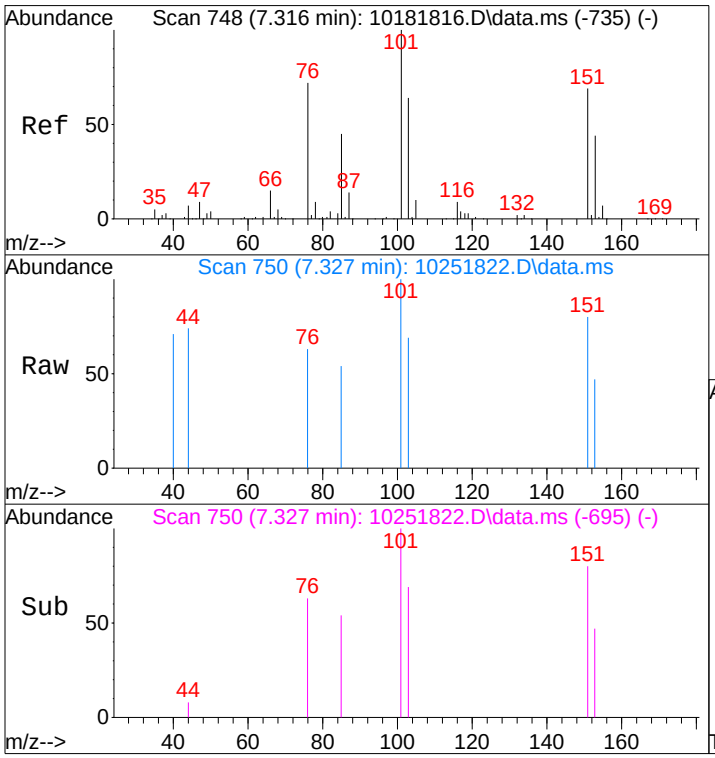


#18
2-Methyl-2-Propanol (tert-Butyl Alcohol
Concen: 0.06 ng
RT: 6.98 min Scan# 682
Delta R.T. -0.007 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 59 Resp: 2921

Ion	Ratio	Lower	Upper
59	100		
57	0.0	0.0	29.5
41	25.3	1.6	41.6
43	43.9	0.0	32.3#

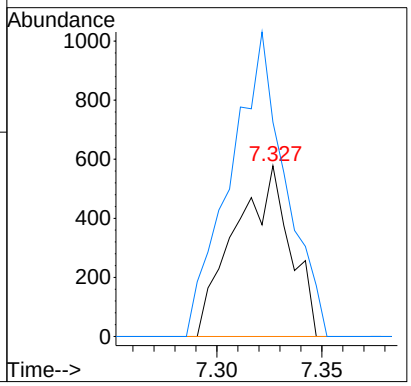


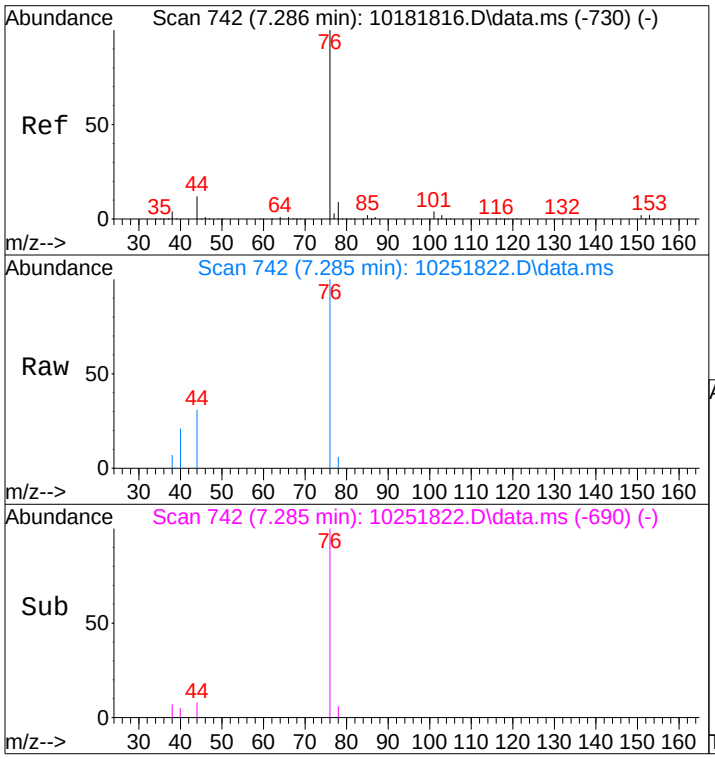


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.33 min Scan# 750
Delta R.T. 0.036 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:151 Resp: 1055

Ion	Ratio	Lower	Upper
151	100		
101	178.8	127.5	167.5#

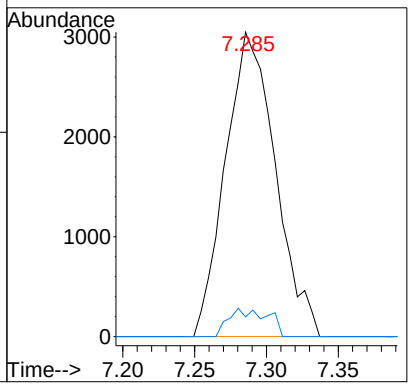


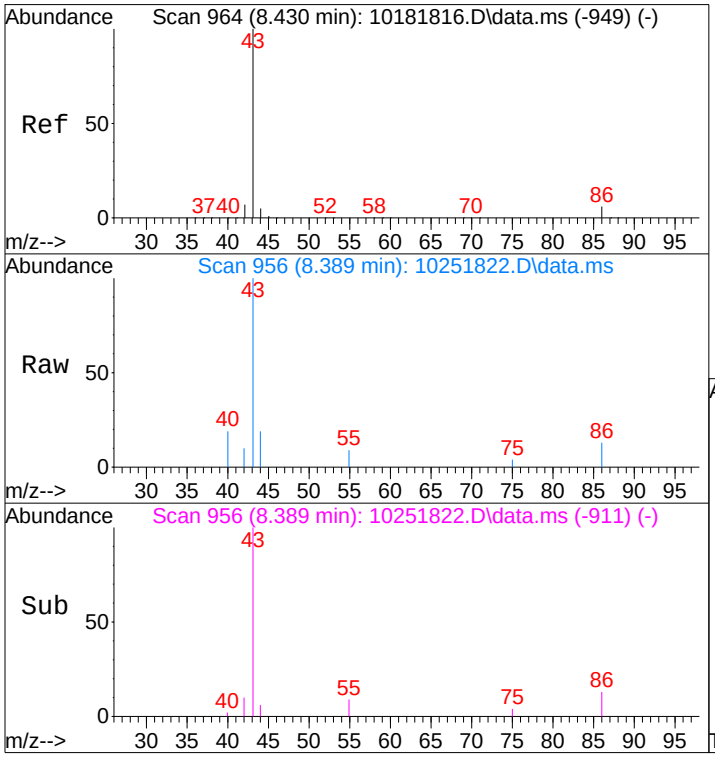


#22
Carbon Disulfide
Concen: 0.11 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 76 Resp: 7370

Ion	Ratio	Lower	Upper
76	100		
78	7.2	0.0	29.6

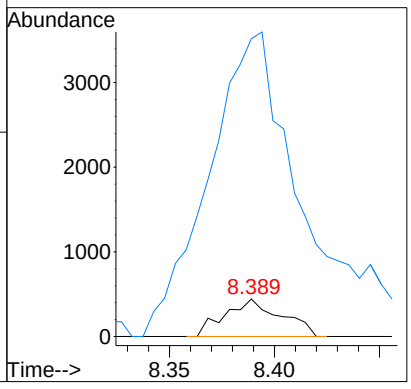


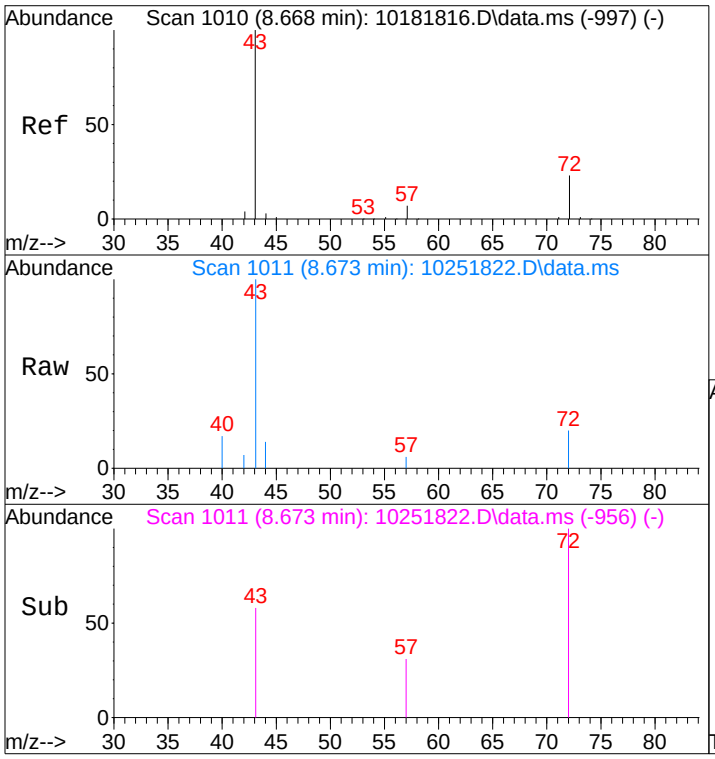


#26
Vinyl Acetate
Concen: 0.28 ng
RT: 8.39 min Scan# 956
Delta R.T. -0.020 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 86 Resp: 820

Ion	Ratio	Lower	Upper
86	100		
43	1398.8	1596.2	1636.2#

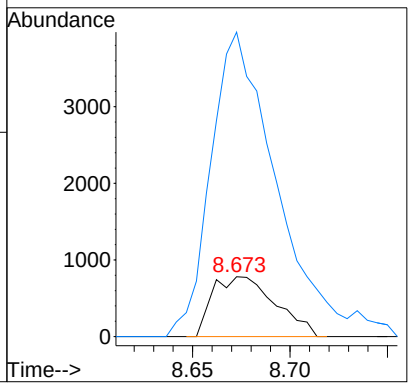


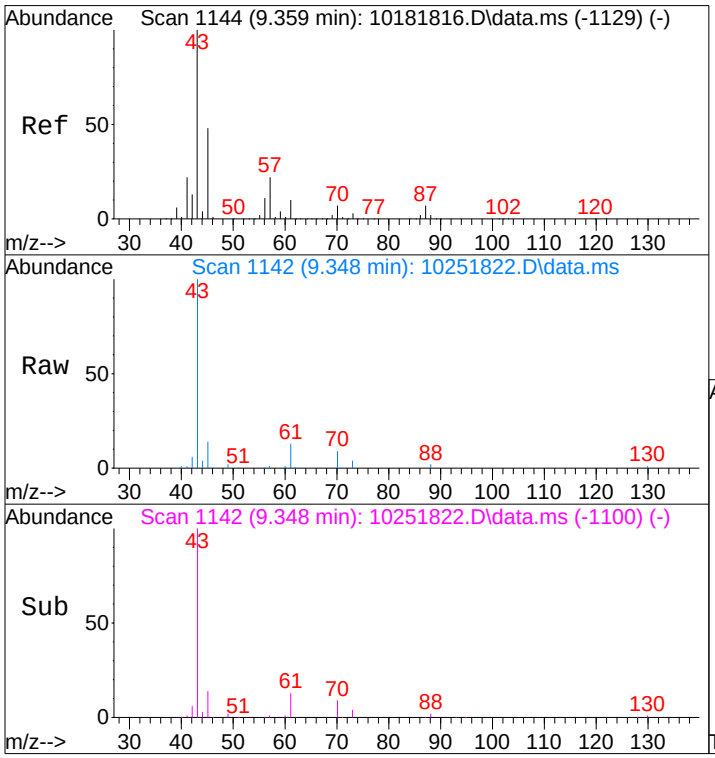


#27
2-Butanone (MEK)
Concen: 0.12 ng
RT: 8.67 min Scan# 1011
Delta R.T. 0.033 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 72 Resp: 1749

Ion	Ratio	Lower	Upper
72	100		
43	538.4	430.0	470.0#

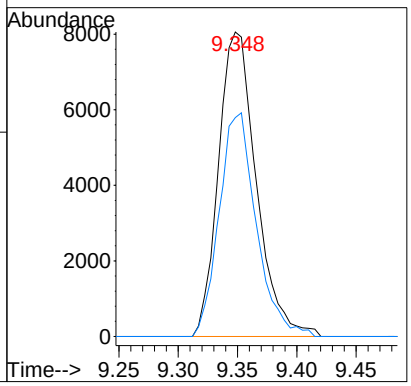


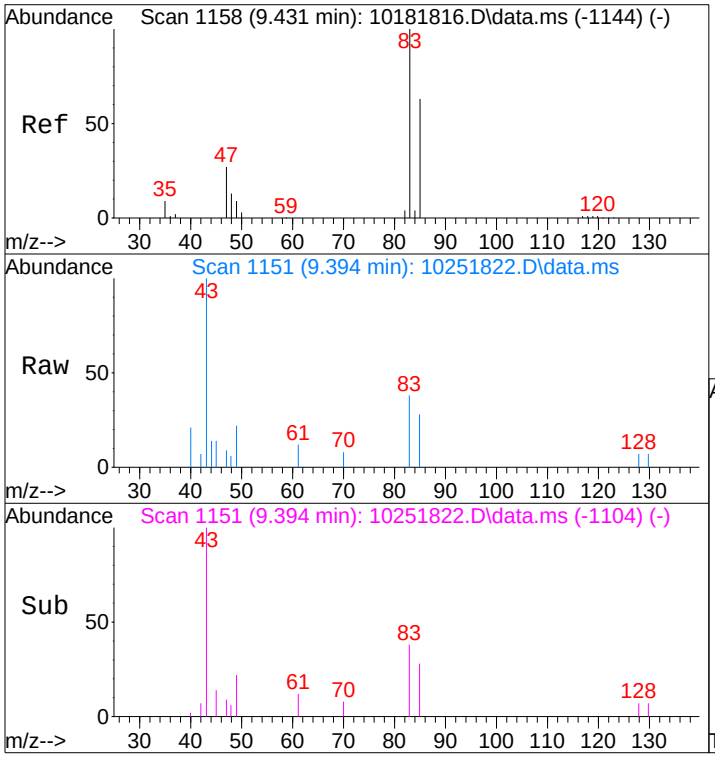


#30
Ethyl Acetate
Concen: 2.39 ng
RT: 9.35 min Scan# 1142
Delta R.T. 0.016 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 61 Resp: 17882

Ion	Ratio	Lower	Upper
61	100		
70	72.0	52.7	92.7

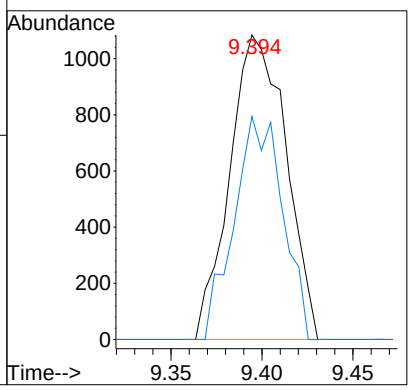


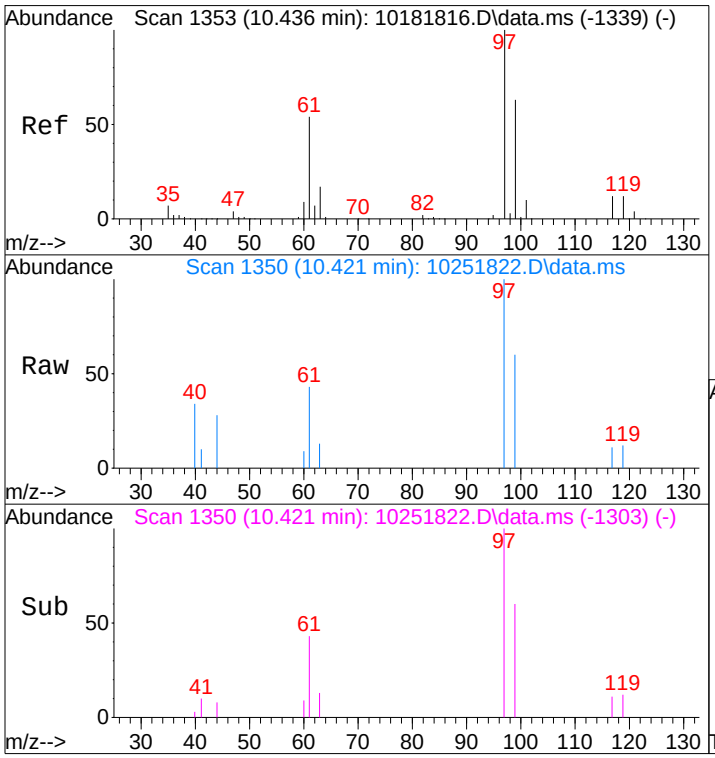


#32
Chloroform
Concen: 0.08 ng
RT: 9.39 min Scan# 1151
Delta R.T. -0.009 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 83 Resp: 2335

Ion	Ratio	Lower	Upper
83	100		
85	63.3	44.0	84.0

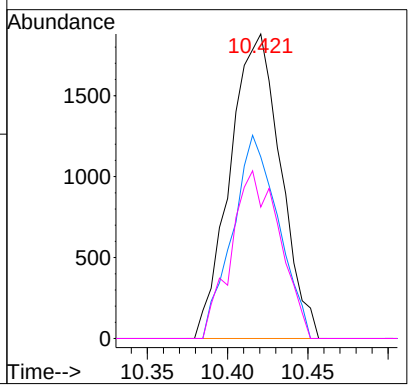


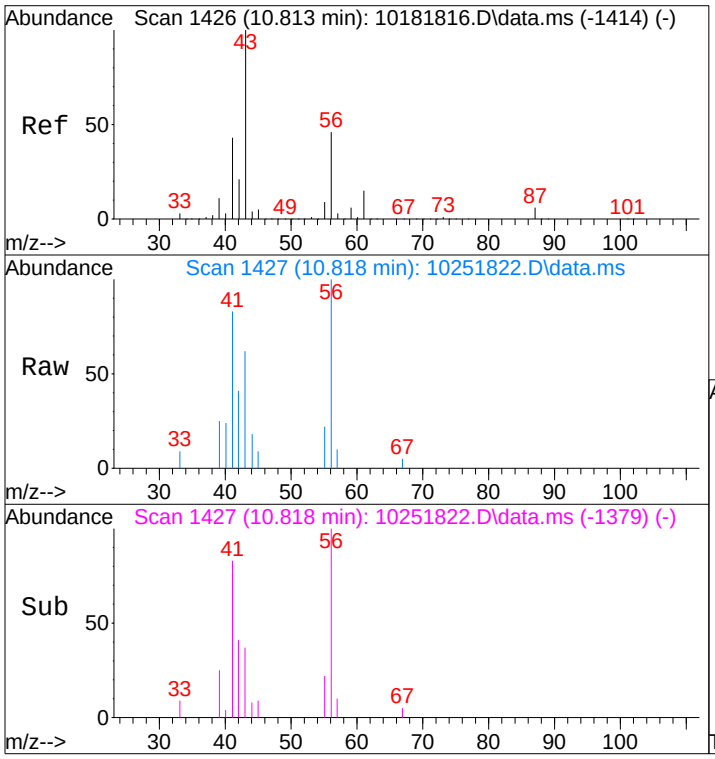


#38
1,1,1-Trichloroethane
Concen: 0.17 ng
RT: 10.42 min Scan# 1350
Delta R.T. -0.007 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 97 Resp: 4127

Ion	Ratio	Lower	Upper
97	100		
99	60.3	43.5	83.5
61	52.8	34.2	74.2

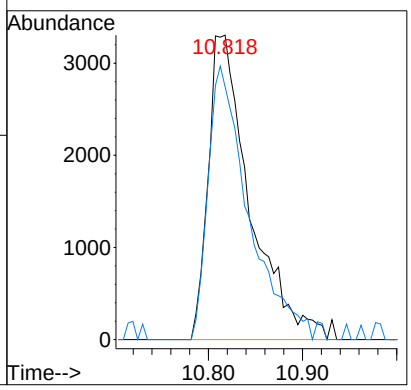


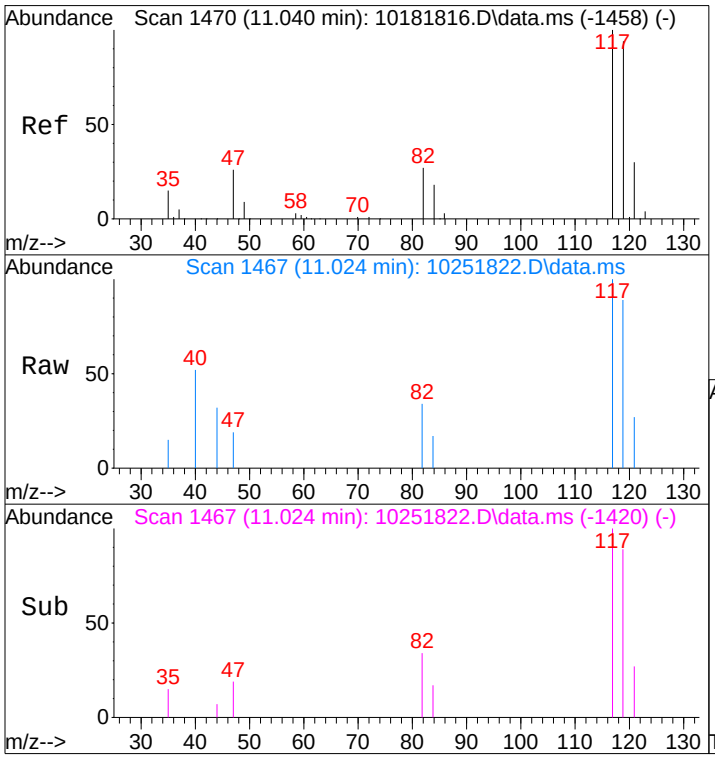


#40
1-Butanol
Concen: 0.46 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 56 Resp: 10184

Ion	Ratio	Lower	Upper
56	100		
41	86.8	90.2	130.2#

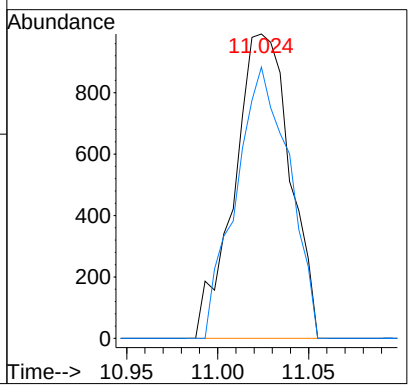


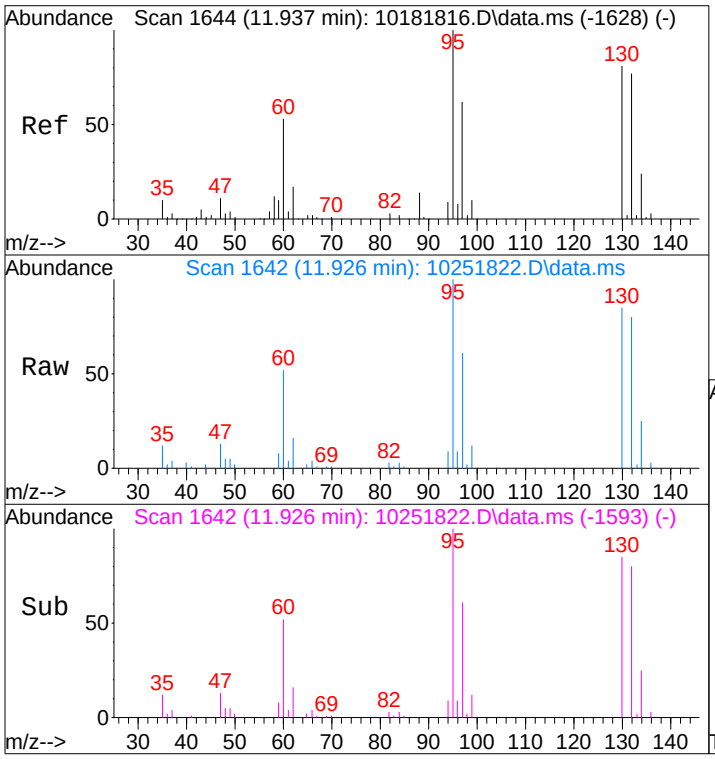


#42
Carbon Tetrachloride
Concen: 0.11 ng
RT: 11.02 min Scan# 1467
Delta R.T. -0.006 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:117 Resp: 2109

Ion	Ratio	Lower	Upper
117	100		
119	85.4	74.7	114.7

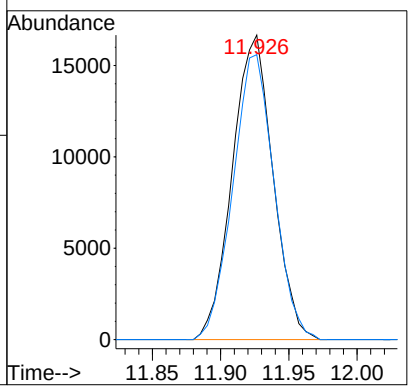


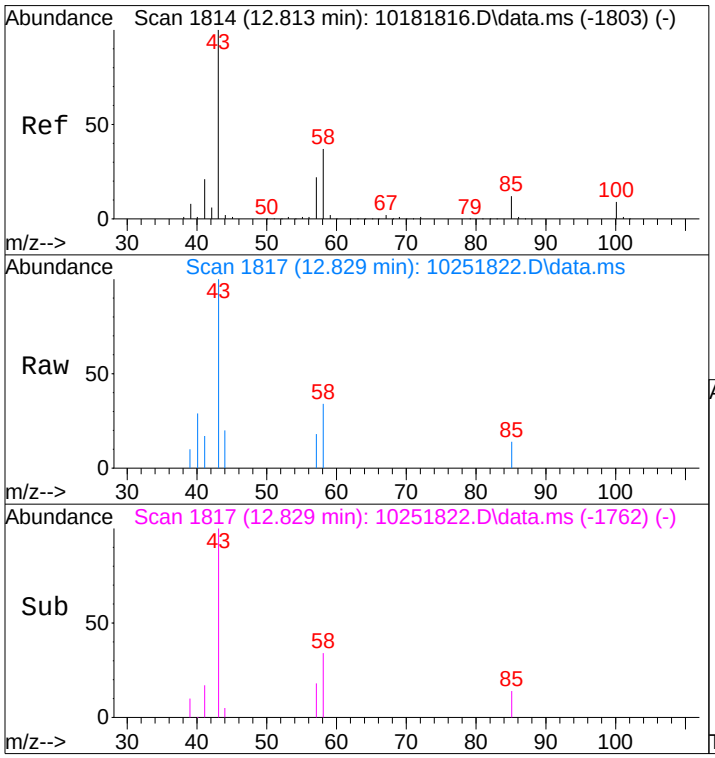


#47
Trichloroethene
Concen: 2.22 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:130 Resp: 34691

Ion	Ratio	Lower	Upper
130	100		
132	94.4	74.6	114.6

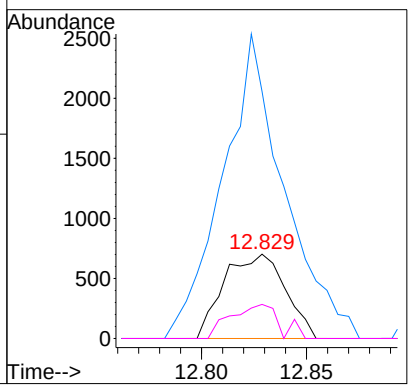


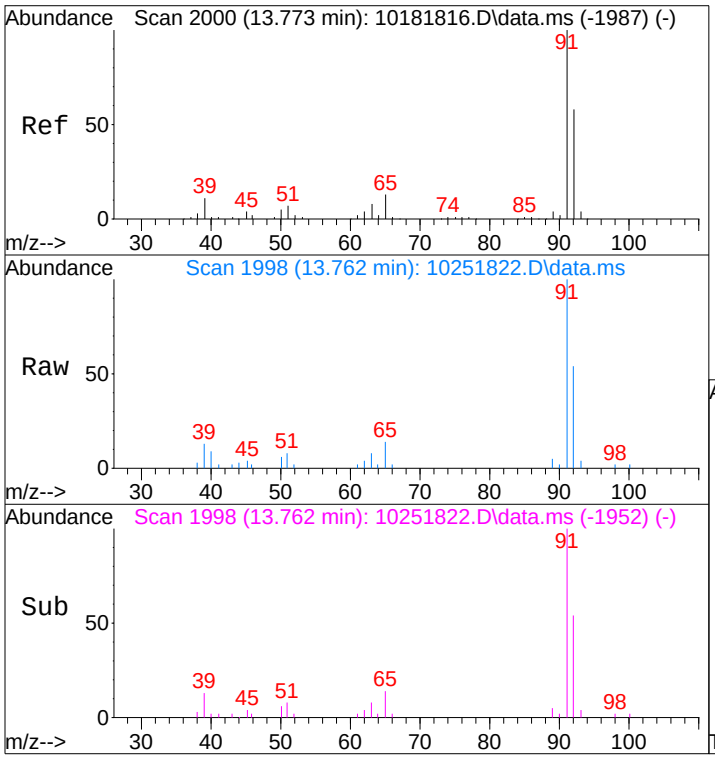


#53
4-Methyl-2-pentanone
Concen: 0.07 ng
RT: 12.83 min Scan# 1817
Delta R.T. 0.035 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 58 Resp: 1425

Ion	Ratio	Lower	Upper
58	100		
43	362.7	215.1	322.7#
85	32.3	28.0	42.0

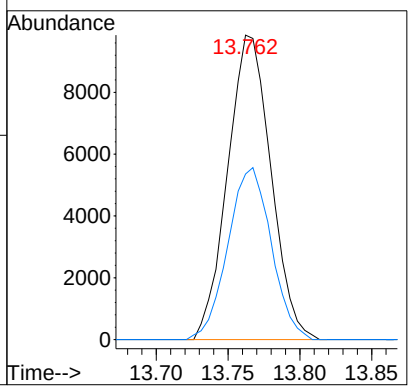


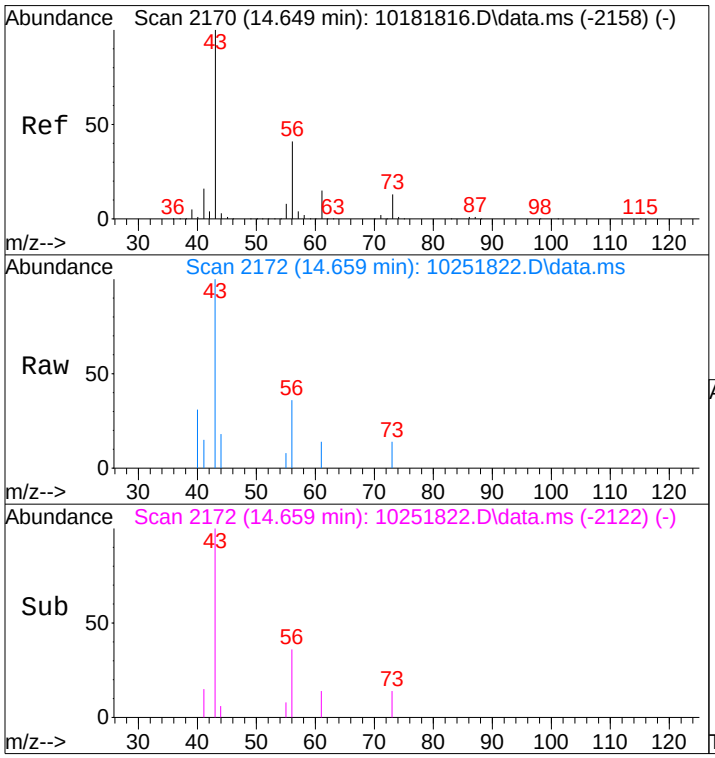


#58
Toluene
Concen: 0.27 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 91 Resp: 20662

Ion	Ratio	Lower	Upper
91	100		
92	56.5	38.1	78.1

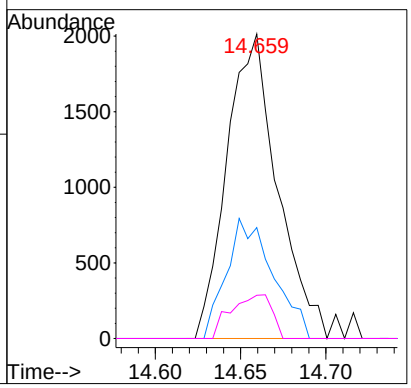


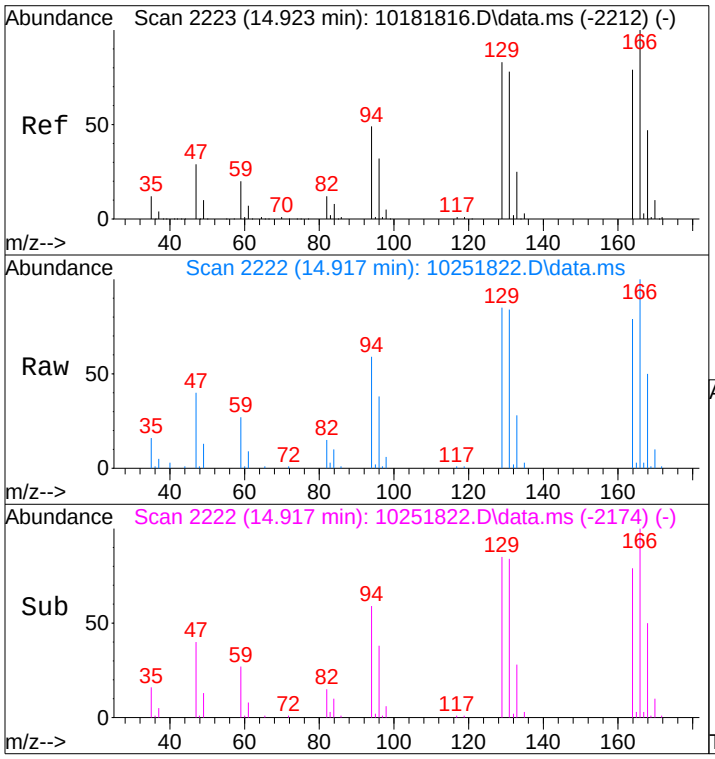


#62
n-Butyl Acetate
Concen: 0.08 ng
RT: 14.66 min Scan# 2172
Delta R.T. 0.010 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 43 Resp: 4152

Ion	Ratio	Lower	Upper
43	100		
56	36.3	20.7	60.7
73	11.6	0.0	32.8

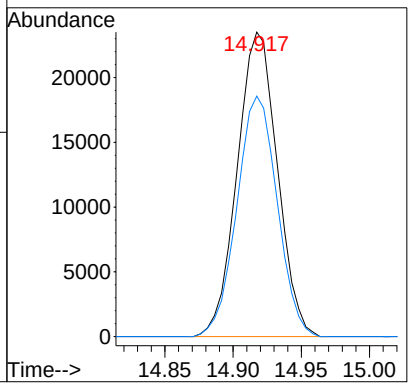


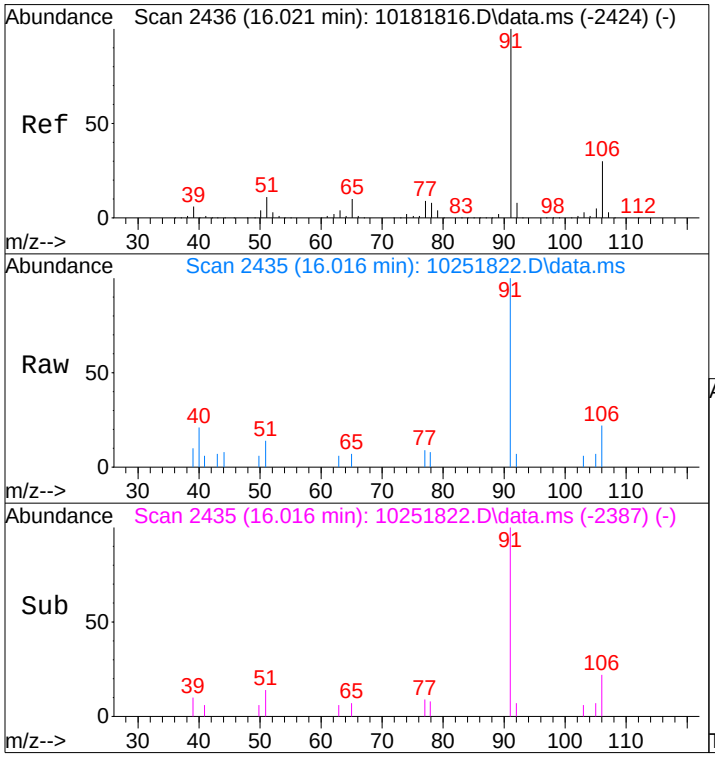


#64
Tetrachloroethene
Concen: 3.04 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:166 Resp: 48255

Ion	Ratio	Lower	Upper
166	100		
164	79.3	58.9	98.9

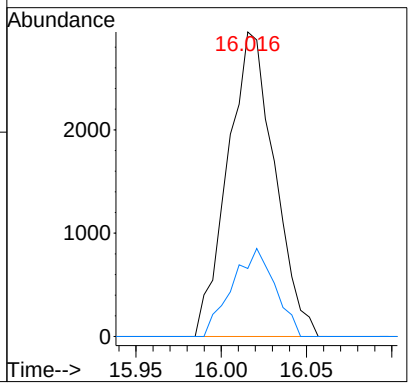


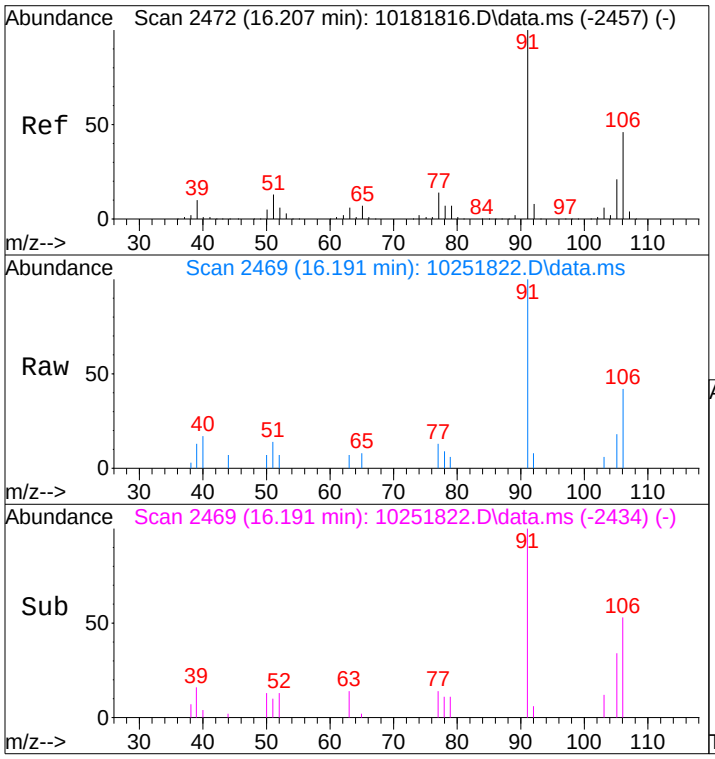


#66
Ethylbenzene
Concen: 0.07 ng
RT: 16.02 min Scan# 2435
Delta R.T. 0.000 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 91 Resp: 5618

Ion	Ratio	Lower	Upper
91	100		
106	26.7	9.9	49.9

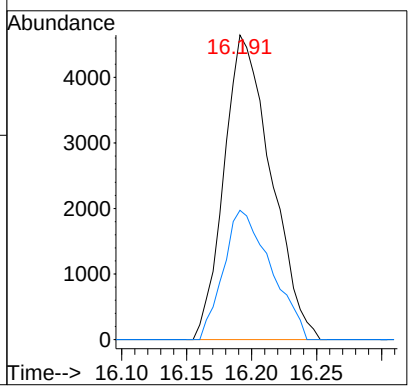


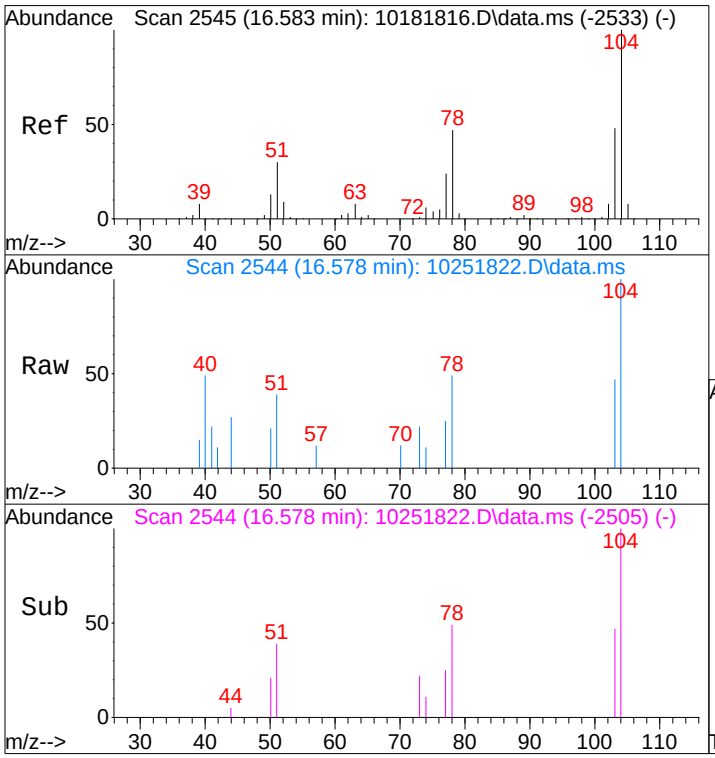


#67
m- & p-Xylenes
Concen: 0.18 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.020 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 91 Resp: 11693

Ion	Ratio	Lower	Upper
91	100		
106	42.8	26.7	66.7

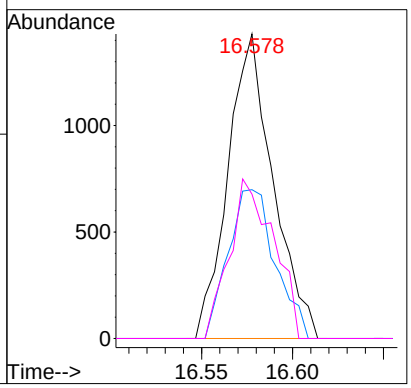


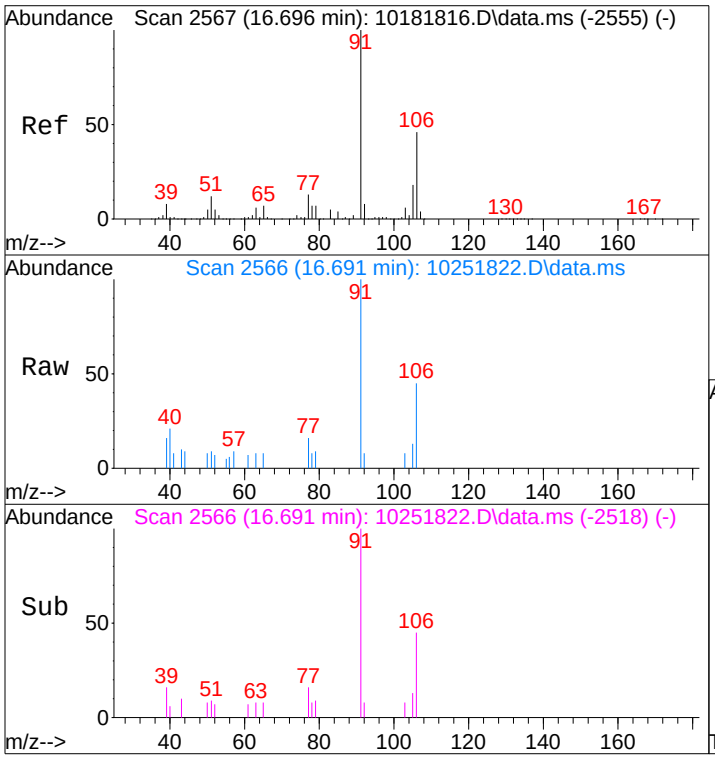


#69
Styrene
Concen: 0.05 ng
RT: 16.58 min Scan# 2544
Delta R.T. 0.000 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:104 Resp: 2464

Ion	Ratio	Lower	Upper
104	100		
78	51.0	27.8	67.8
103	51.4	27.9	67.9

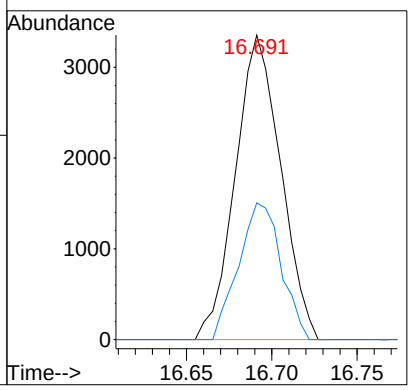


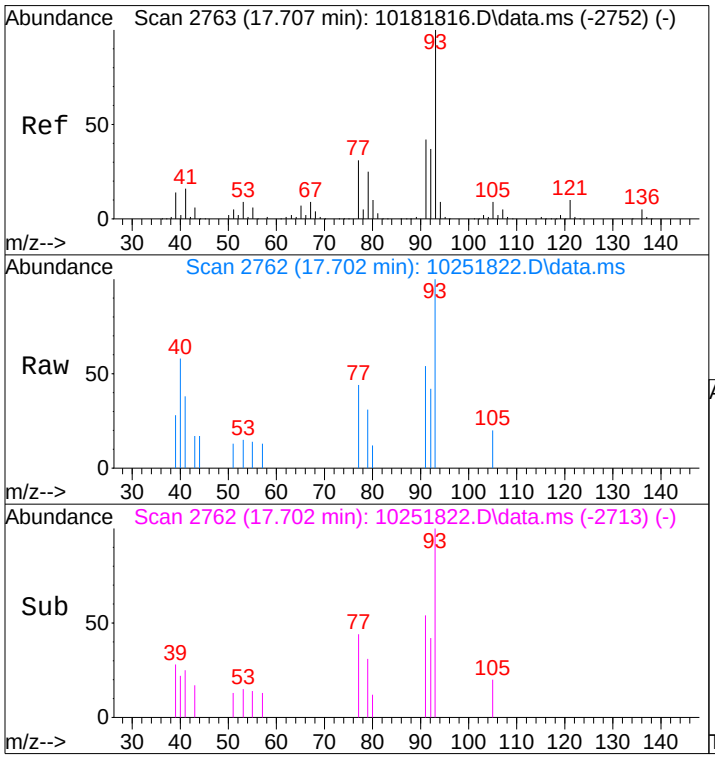


#70
o-Xylene
Concen: 0.10 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 91 Resp: 6215

Ion	Ratio	Lower	Upper
91	100		
106	42.0	25.2	65.2

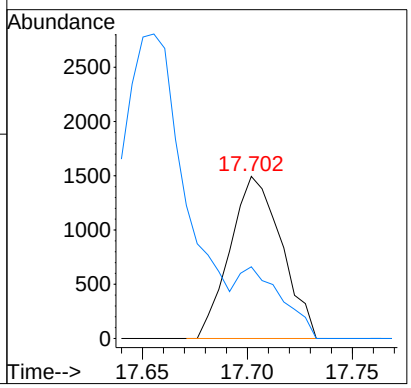


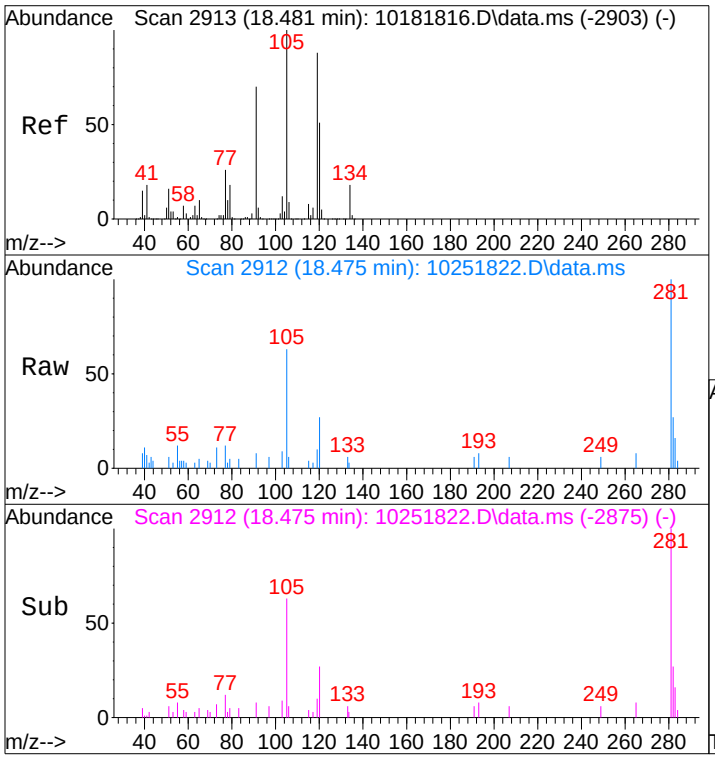


#75
alpha-Pinene
Concen: 0.06 ng
RT: 17.70 min Scan# 2762
Delta R.T. 0.001 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 93 Resp: 2550

Ion	Ratio	Lower	Upper
93	100		
77	238.7	11.2	51.2#

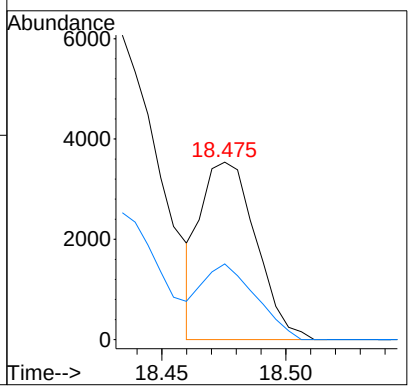


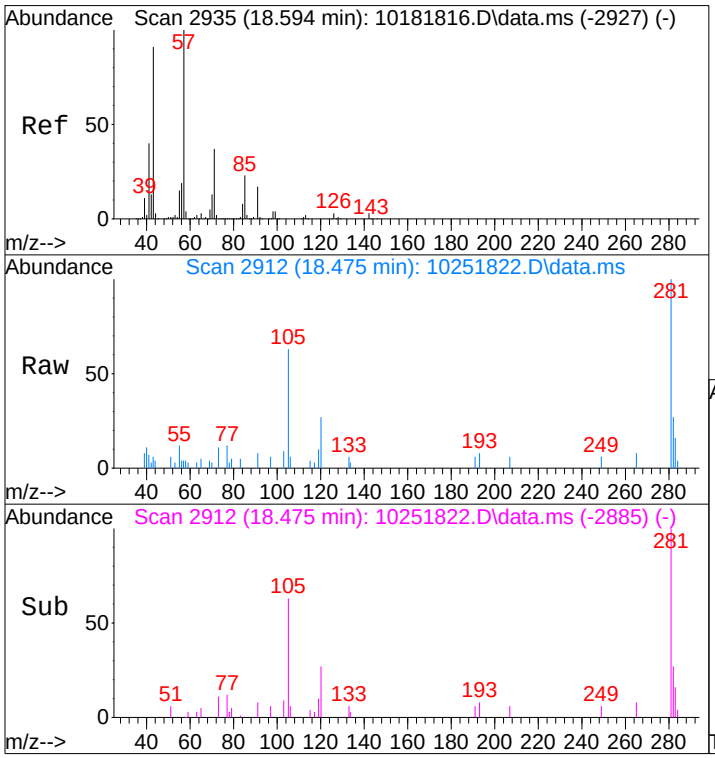


#82
1,2,4-Trimethylbenzene
Concen: 0.09 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:105 Resp: 5483

Ion	Ratio	Lower	Upper
105	100		
120	42.1	31.3	71.3

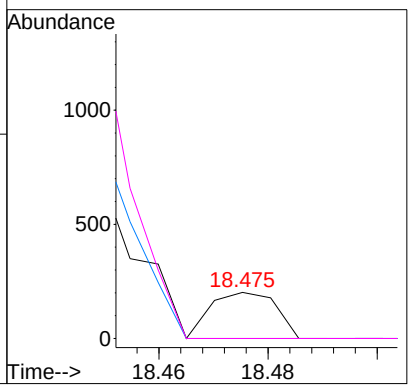


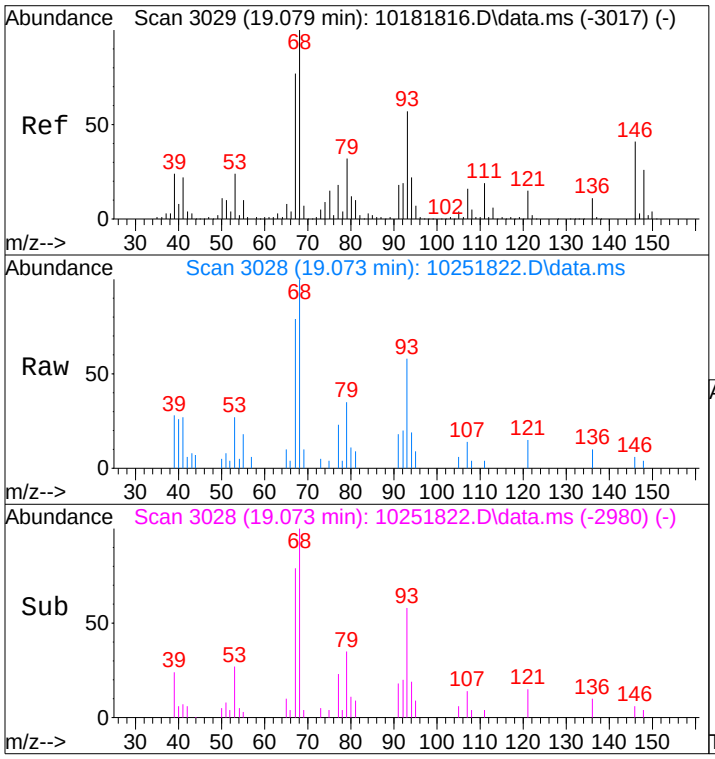


#83
n-Decane
Concen: 0.09 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.112 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 58 Resp: 169

Ion	Ratio	Lower	Upper
58	100		
71	0.0	811.0	851.0#
85	0.0	521.8	561.8#

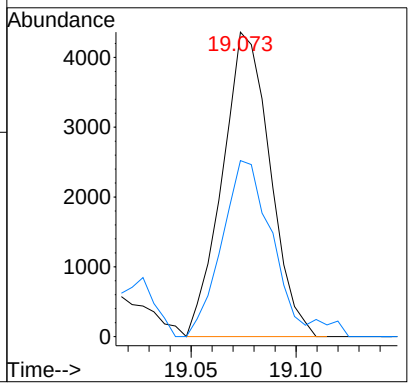


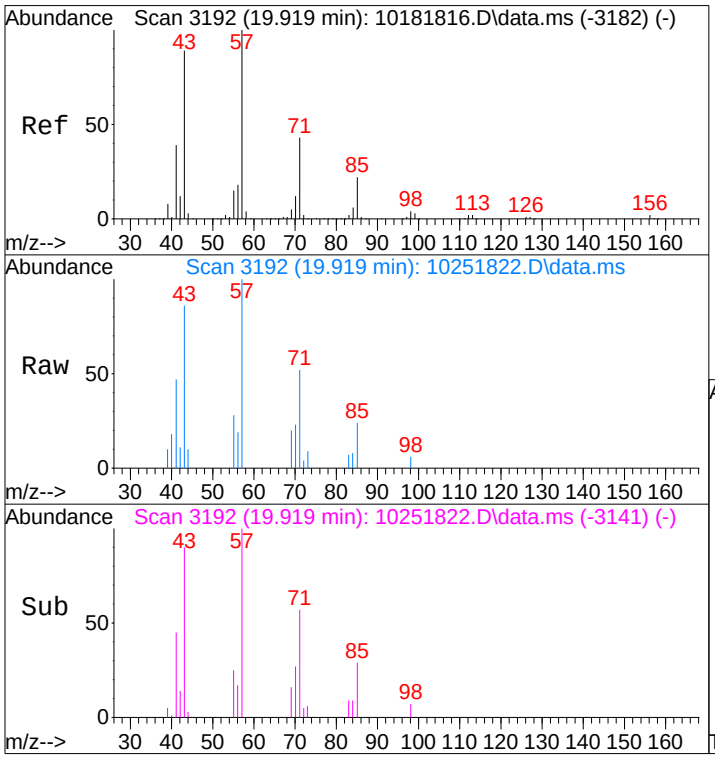


#91
d-Limonene
Concen: 0.22 ng
RT: 19.07 min Scan# 3028
Delta R.T. -0.003 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 68 Resp: 6900

Ion	Ratio	Lower	Upper
68	100		
93	62.5	37.7	77.7

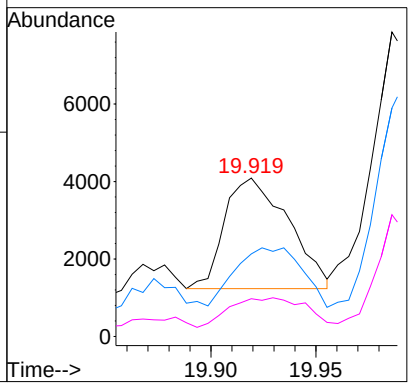


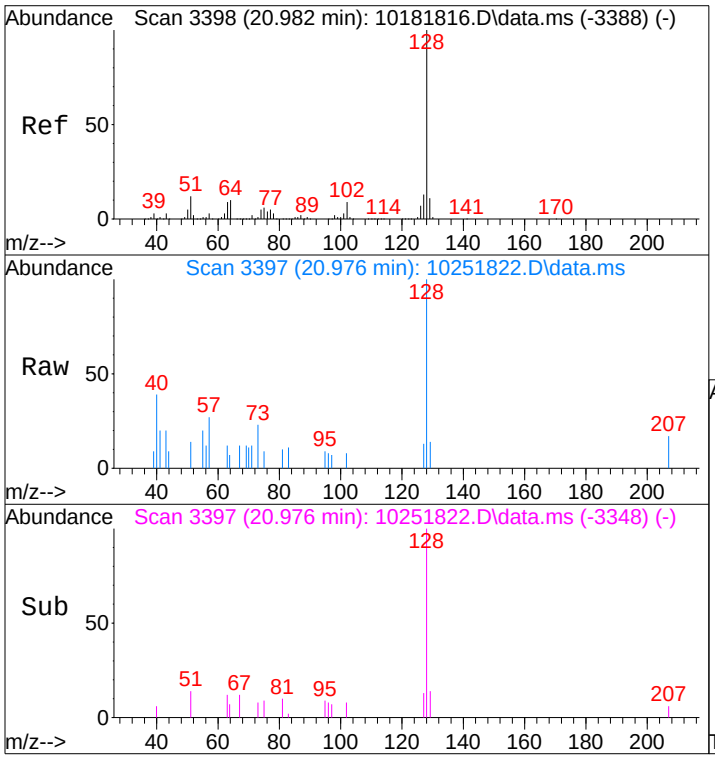


#93
n-Undecane
Concen: 0.13 ng
RT: 19.92 min Scan# 3192
Delta R.T. 0.013 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 57 Resp: 6043

Ion	Ratio	Lower	Upper
57	100		
71	55.7	22.3	62.3
85	32.2	1.3	41.3

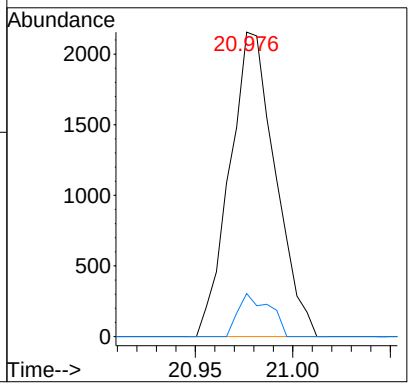


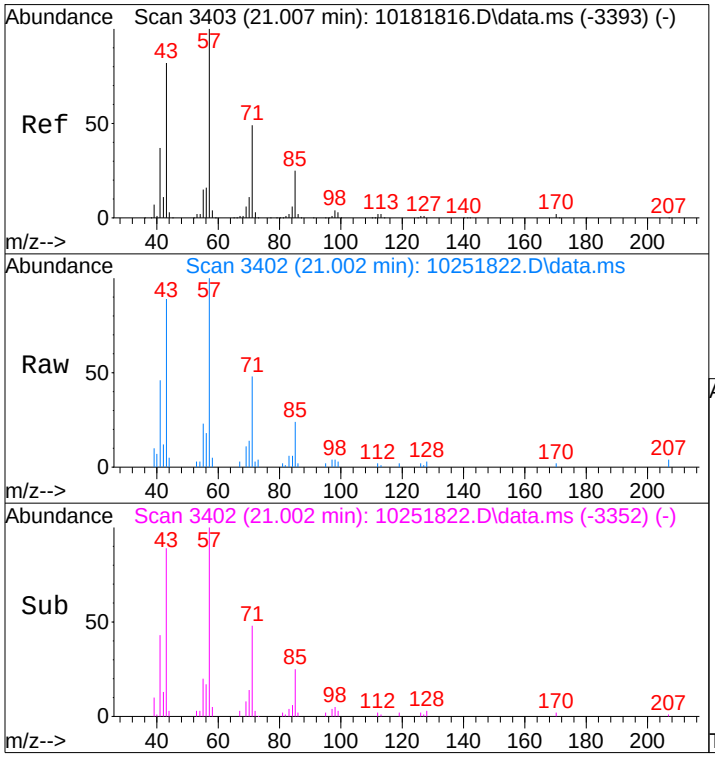


#95
Naphthalene
Concen: 0.05 ng
RT: 20.98 min Scan# 3397
Delta R.T. 0.003 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:128 Resp: 3507

Ion	Ratio	Lower	Upper
128	100		
129	9.7	0.0	31.0

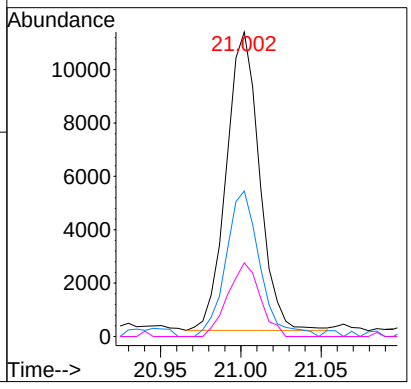


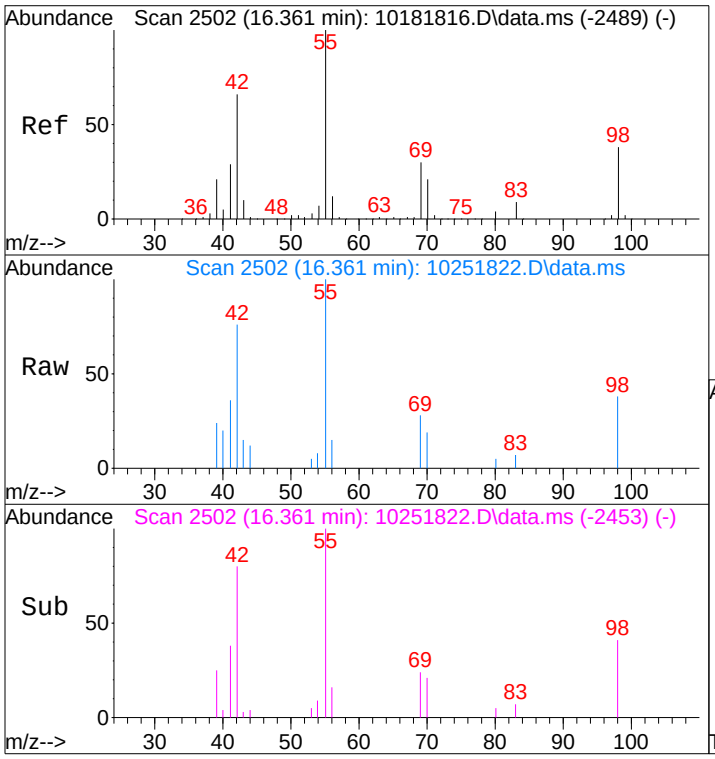


#96
n-Dodecane
Concen: 0.37 ng
RT: 21.00 min Scan# 3402
Delta R.T. 0.008 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 57 Resp: 16019

Ion	Ratio	Lower	Upper
57	100		
71	49.8	29.1	69.1
85	24.0	5.4	45.4

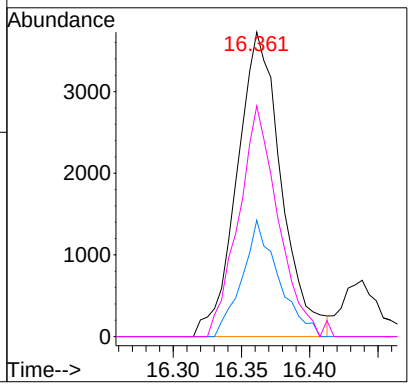


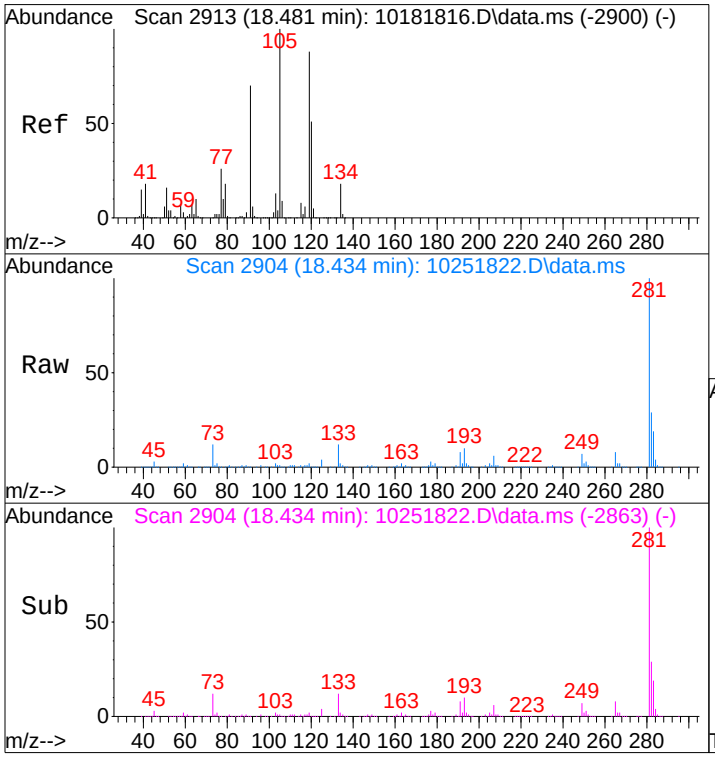


#98
Cyclohexanone
Concen: 0.26 ng
RT: 16.36 min Scan# 2502
Delta R.T. 0.000 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion: 55 Resp: 8421

Ion	Ratio	Lower	Upper
55	100		
98	31.5	29.7	44.5
42	68.0	52.1	78.1

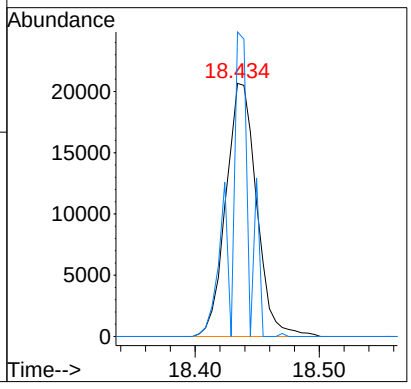




#99
tert-Butylbenzene
Concen: 0.64 ng
RT: 18.43 min Scan# 2904
Delta R.T. -0.040 min
Lab File: 10251822.D
Acq: 25 Oct 2018 18:52

Tgt Ion:119 Resp: 35491

Ion	Ratio	Lower	Upper
119	100		
134	73.1	15.8	23.6#



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:44:07 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

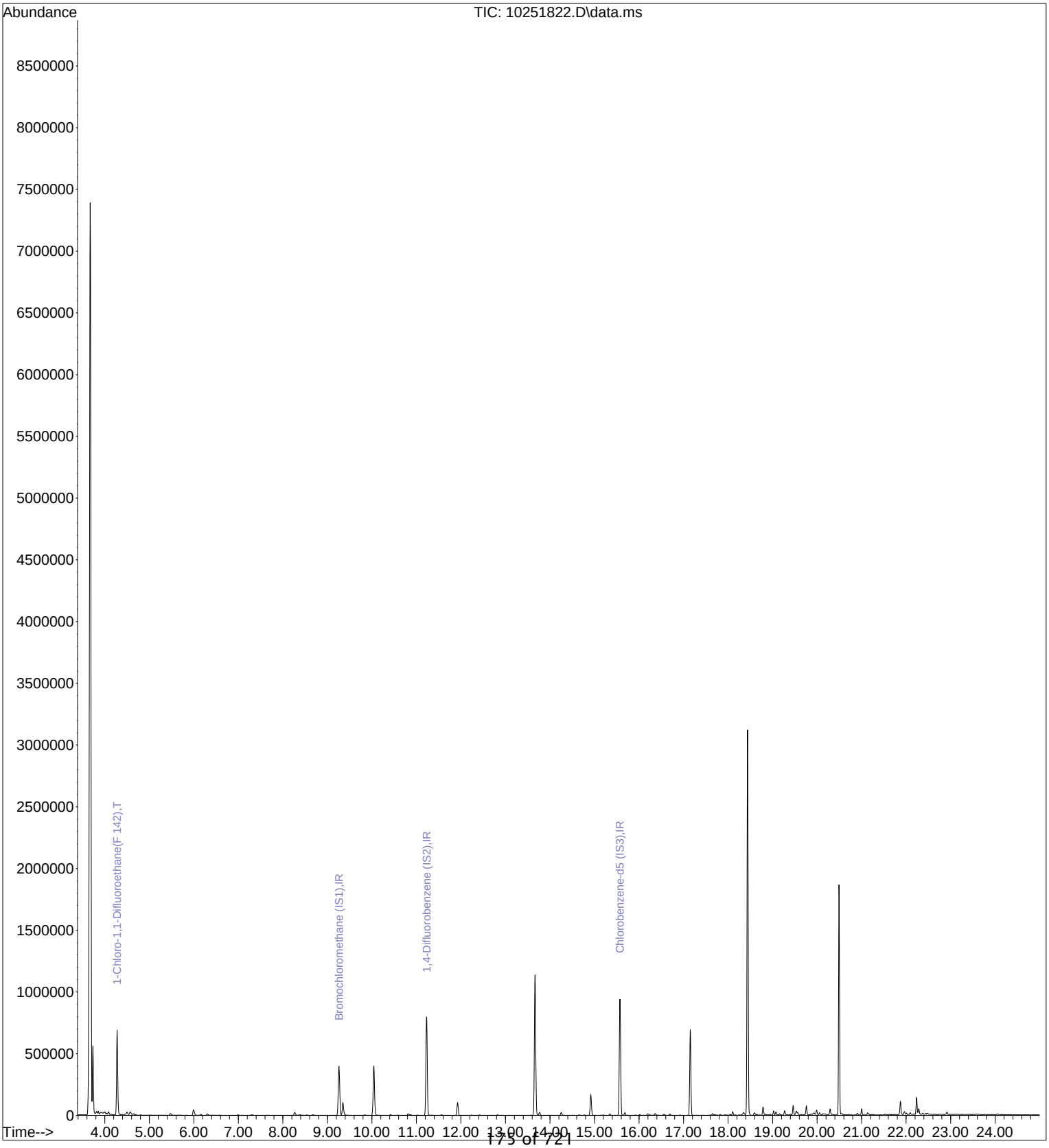
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	129213	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	652175	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	393497	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.75	85	254	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.	d	
4) 1,1-Difluoroethane	3.90	65	469	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d	
6) 1-Chloro-1,1-Difluoroe...	4.28	65	616182	21.335	ng	98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	6.00	57	1238	N.D.		
11) Methyl Acetate	7.01	43	1283	N.D.		
12) 2-Methylpentane	8.44	71	154	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	11.02	84	157	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.90	55	486	N.D.		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d	
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D.		
26) 2-Chlorotoluene	17.83	91	1371	N.D.		
27) 4-Chlorotoluene	17.83	91	1371	N.D.		
28) Indane	19.13	117	412	N.D.		
29) Indene	0.00	115	0	N.D.		
30) 1,2,4,5-Tetramethylben...	20.15	119	648	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	976	N.D.		
32) 1,2,3,5-Tetramethylben...	20.59	119	1385	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251822.D Vial: 15
Acq On : 25 Oct 2018 18:52 Operator: RS
Sample : P1805493-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:44:07 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 26 06:38:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	122011	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	634040	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	379822	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	298834	14.123	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.96%				
57) Toluene-d8 (SS2)	13.66	98	820166	12.360	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%				
73) Bromofluorobenzene (SS3)	17.15	174	166525	11.155	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	3.97	42	27224	0.883	ng	#	51
3) Dichlorodifluoromethan...	4.08	85	22227	0.669	ng		99
4) Chloromethane	4.29	50	4521	0.112	ng		89
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	249	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	4.76	54	261	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.47	45	15787	0.947	ng		91
11) Acetonitrile	5.68	41	1838	N.D.			
12) Acrolein	5.84	56	1178	0.091	ng		95
13) Acetone	5.99	58	17512	1.017	ng	#	42
14) Trichlorofluoromethane	6.16	101	7192	0.302	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	6725	0.125	ng		97
16) Acrylonitrile	6.50	53	327	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.98	59	5070	0.108	ng		81
19) Methylene Chloride	7.00	84	337	N.D.			
20) 3-Chloro-1-propene (Al...	7.06	41	1628	0.052	ng	#	42
21) Trichlorotrifluoroethane	7.32	151	979	0.103	ng		89
22) Carbon Disulfide	7.28	76	86258	1.334	ng		98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.26	73	164	N.D.			
26) Vinyl Acetate	8.38	86	339	0.120	ng	#	1
27) 2-Butanone (MEK)	8.67	72	1851	0.138	ng	#	51
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.35	61	11217	1.577	ng		100
31) n-Hexane	9.35	57	1085	N.D.			
32) Chloroform	9.40	83	416	N.D.			
34) Tetrahydrofuran (THF)	9.84	72	1285	0.100	ng	#	81
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	29799	1.243	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	6460	0.300	ng	#	78
41) Benzene	10.87	78	4980	0.064	ng		96
42) Carbon Tetrachloride	11.03	117	450	N.D.			
43) Cyclohexane	11.16	84	475	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.93	130	9976	0.656	ng		97
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	441	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

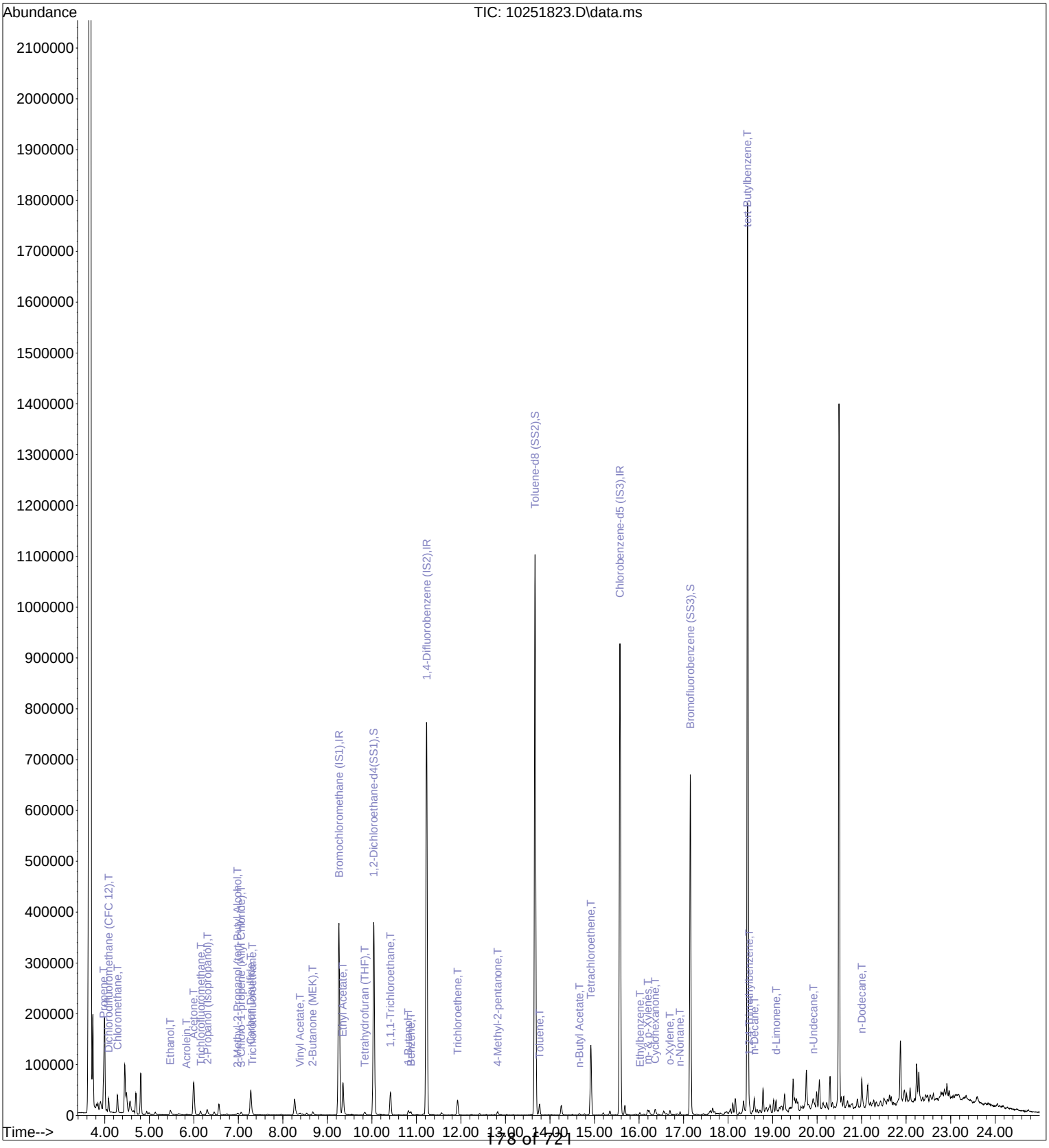
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	12.24	71	162	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	12.82	58	2103	0.109 ng	#	86
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.77	91	18044	0.243 ng		100
59) 2-Hexanone	14.04	43	921	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	14.66	43	2934	0.056 ng		92
63) n-Octane	14.77	57	359	N.D.		
64) Tetrachloroethene	14.92	166	41392	2.702 ng		98
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	16.02	91	4664	0.057 ng		96
67) m- & p-Xylenes	16.20	91	9521	0.152 ng		92
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	16.58	104	1638	N.D.		
70) o-Xylene	16.69	91	4985	0.082 ng		94
71) n-Nonane	16.92	43	2842	0.066 ng		85
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	17.30	105	595	N.D.		
75) alpha-Pinene	17.70	93	1978	N.D.		
76) n-Propylbenzene	17.82	91	1269	N.D.		
77) 3-Ethyltoluene	17.93	105	2301	N.D.		
78) 4-Ethyltoluene	17.97	105	1257	N.D.		
79) 1,3,5-Trimethylbenzene	18.05	105	1341	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	18.24	105	1080	N.D.		
82) 1,2,4-Trimethylbenzene	18.48	105	4312	0.075 ng		89
83) n-Decane	18.59	58	430	0.227 ng	#	44
84) Benzyl Chloride	18.48	91	394	N.D.		
85) 1,3-Dichlorobenzene	18.44	146	683	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	18.92	105	1075	N.D.		
88) 4-Isopropyltoluene (p-...	18.93	119	794	N.D.		
89) 1,2,3-Trimethylbenzene	18.92	105	1075	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	19.08	68	6139	0.206 ng		91
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	19.92	57	7143	0.156 ng		86
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	20.98	128	2261	N.D.		
96) n-Dodecane	21.00	57	14309	0.340 ng		96
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	16.36	55	6951	0.220 ng		97
99) tert-Butylbenzene	18.43	119	20679	0.387 ng	#	90
100) n-Butylbenzene	19.34	91	1050	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 26 06:38:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

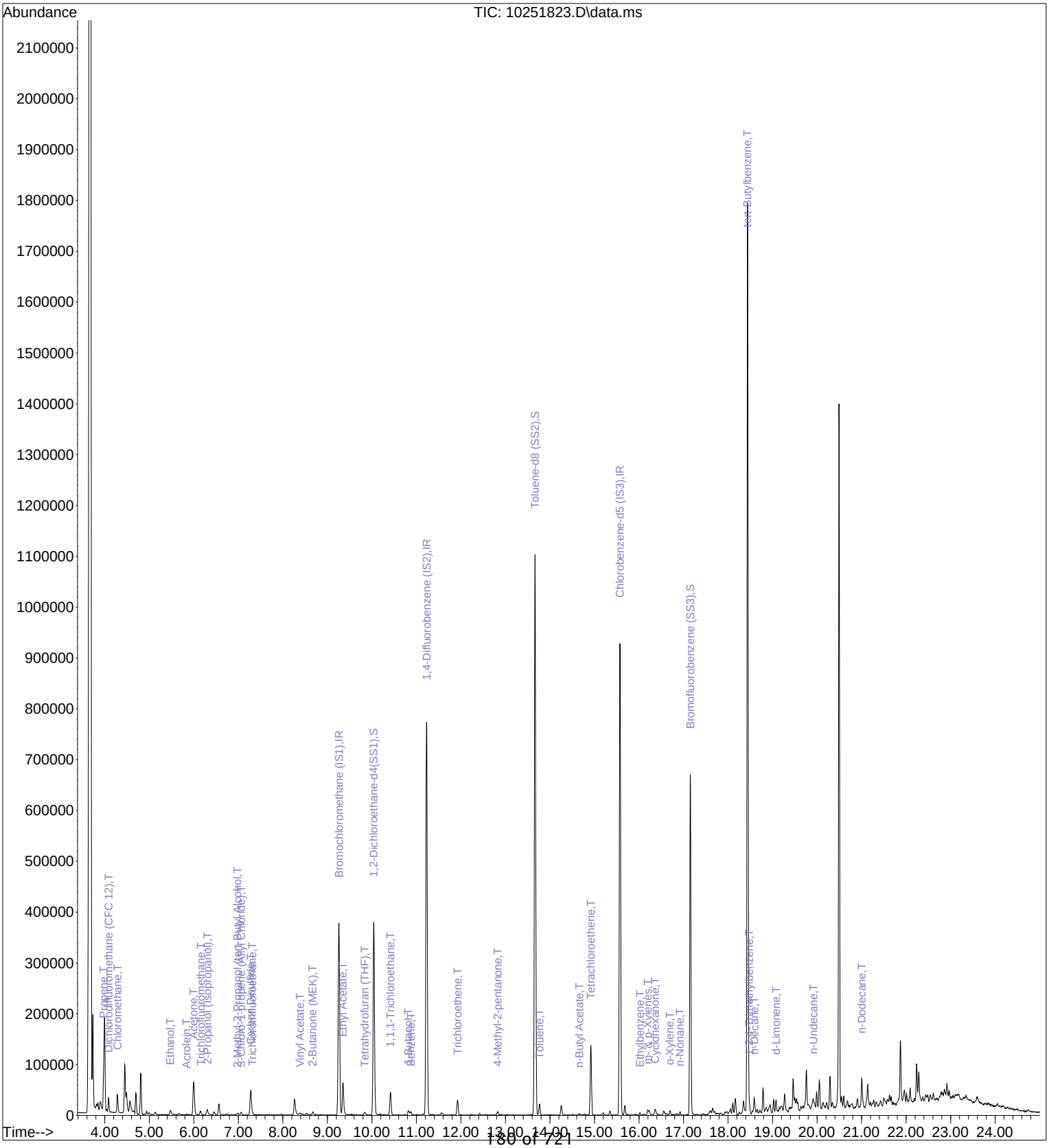
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	122011	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	634040	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	379822	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	298834	14.123	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.96%				
57) Toluene-d8 (SS2)	13.66	98	820166	12.360	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%				
73) Bromofluorobenzene (SS3)	17.15	174	166525	11.155	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	3.97	42	27224	0.883	ng	#	51
3) Dichlorodifluoromethan...	4.08	85	22227	0.669	ng		99
4) Chloromethane	4.29	50	4521	0.112	ng		89
10) Ethanol	5.47	45	15787	0.947	ng		91
12) Acrolein	5.84	56	1178	0.091	ng		95
13) Acetone	5.99	58	17512	1.017	ng	#	42
14) Trichlorofluoromethane	6.16	101	7192	0.302	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	6725	0.125	ng		97
18) 2-Methyl-2-Propanol (t...	6.98	59	5070	0.108	ng		81
20) 3-Chloro-1-propene (Al...	7.06	41	1628	0.052	ng	#	42
21) Trichlorotrifluoroethane	7.32	151	979	0.103	ng		89
22) Carbon Disulfide	7.28	76	86258	1.334	ng		98
26) Vinyl Acetate	8.38	86	339	0.120	ng	#	1
27) 2-Butanone (MEK)	8.67	72	1851	0.138	ng	#	51
30) Ethyl Acetate	9.35	61	11217	1.577	ng		100
34) Tetrahydrofuran (THF)	9.84	72	1285	0.100	ng	#	81
38) 1,1,1-Trichloroethane	10.42	97	29799	1.243	ng		98
40) 1-Butanol	10.82	56	6460	0.300	ng	#	78
41) Benzene	10.87	78	4980	0.064	ng		96
47) Trichloroethene	11.93	130	9976	0.656	ng		97
53) 4-Methyl-2-pentanone	12.82	58	2103	0.109	ng	#	86
58) Toluene	13.77	91	18044	0.243	ng		100
62) n-Butyl Acetate	14.66	43	2934	0.056	ng		92
64) Tetrachloroethene	14.92	166	41392	2.702	ng		98
66) Ethylbenzene	16.02	91	4664	0.057	ng		96
67) m- & p-Xylenes	16.20	91	9521	0.152	ng		92
70) o-Xylene	16.69	91	4985	0.082	ng		94
71) n-Nonane	16.92	43	2842	0.066	ng		85
82) 1,2,4-Trimethylbenzene	18.48	105	4312	0.075	ng		89
83) n-Decane	18.59	58	430	0.227	ng	#	44
91) d-Limonene	19.08	68	6139	0.206	ng		91
93) n-Undecane	19.92	57	7143	0.156	ng		86
96) n-Dodecane	21.00	57	14309	0.340	ng		96
98) Cyclohexanone	16.36	55	6951	0.220	ng		97
99) tert-Butylbenzene	18.43	119	20679	0.387	ng	#	90

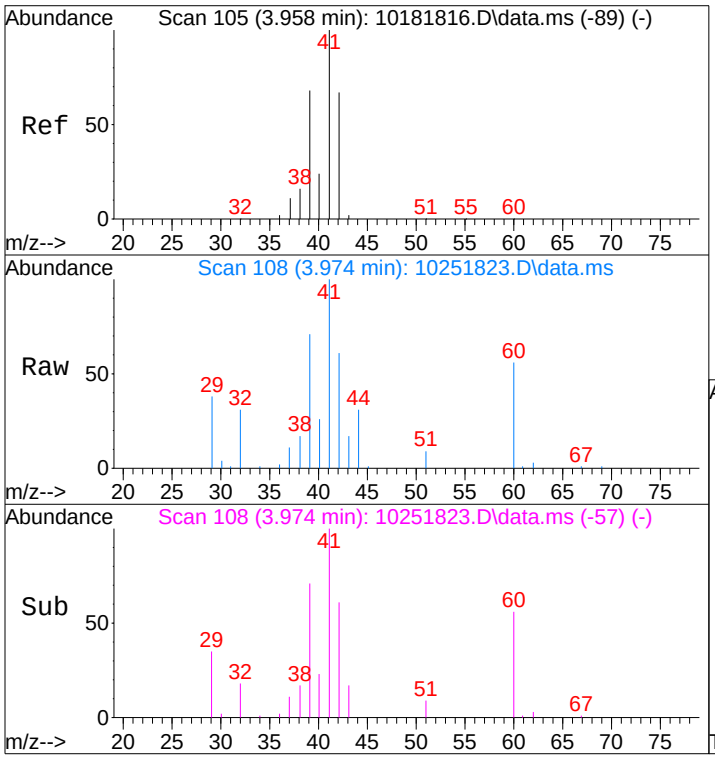
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 26 06:38:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

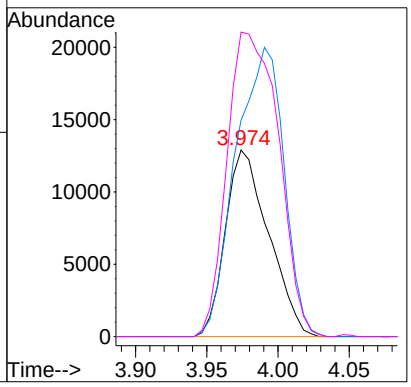


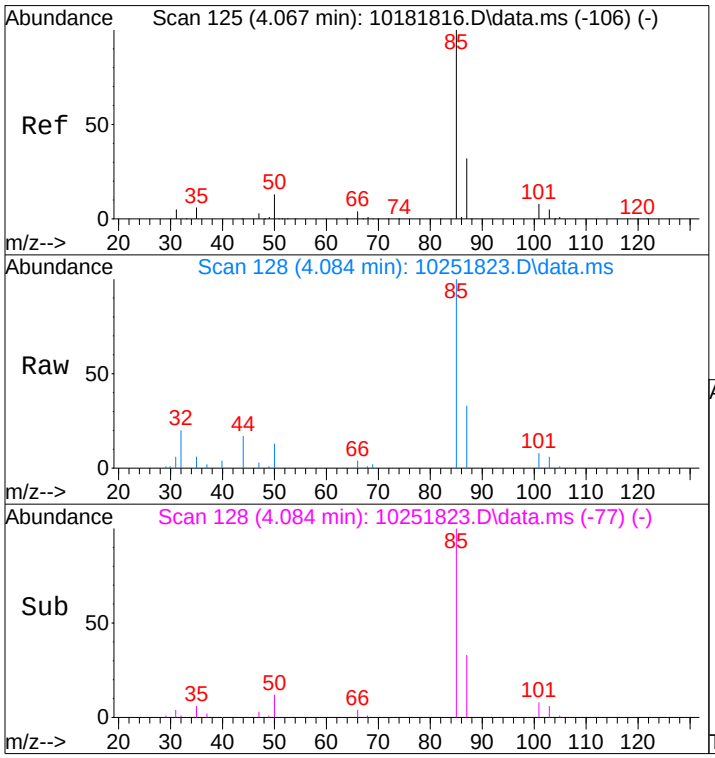


#2
Propene
Concen: 0.88 ng
RT: 3.97 min Scan# 108
Delta R.T. 0.028 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 42 Resp: 27224

Ion	Ratio	Lower	Upper
42	100		
39	172.7	81.9	121.9#
41	194.4	130.4	170.4#

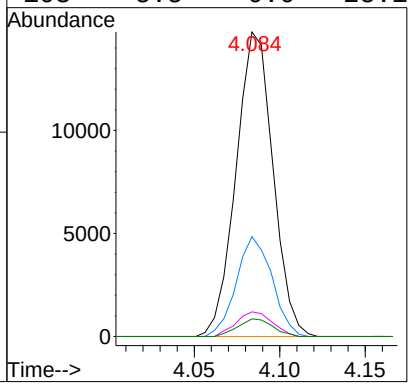


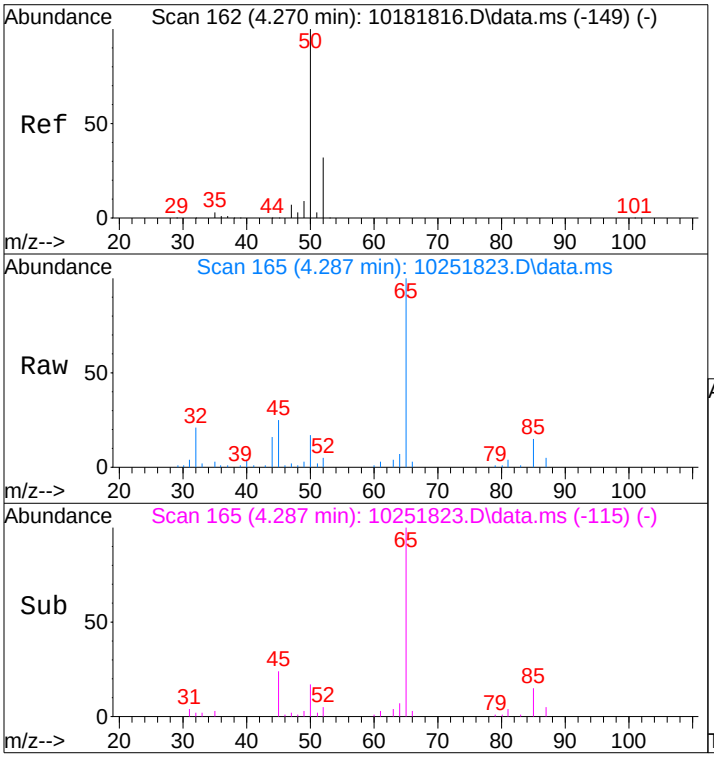


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.67 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 85 Resp: 22227

Ion	Ratio	Lower	Upper
85	100		
87	31.7	12.0	52.0
101	8.0	0.0	28.0
103	5.5	0.0	25.1

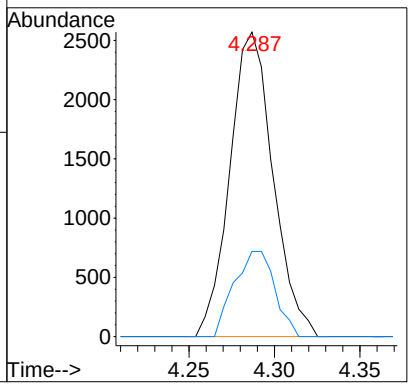


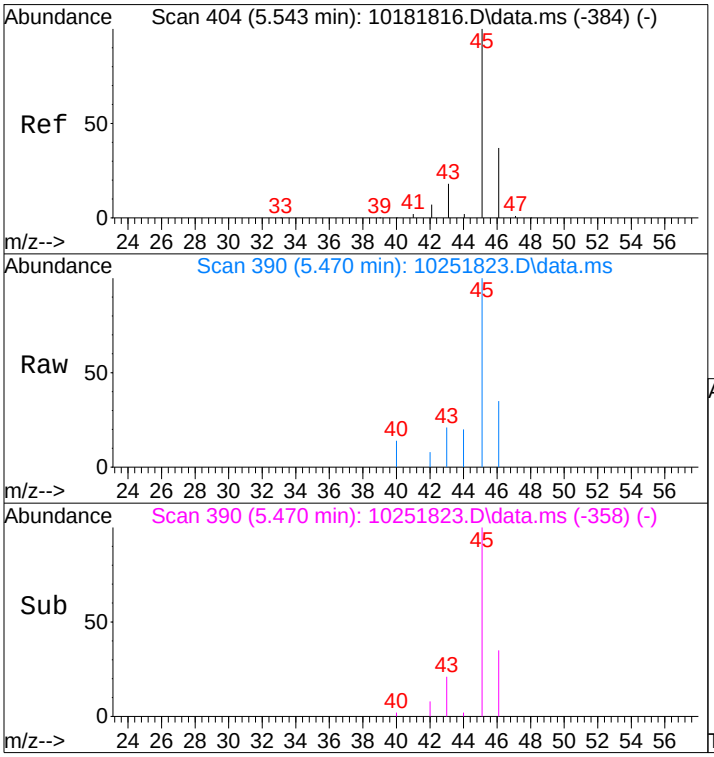


#4
Chloromethane
Concen: 0.11 ng
RT: 4.29 min Scan# 165
Delta R.T. 0.024 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 50 Resp: 4521

Ion	Ratio	Lower	Upper
50	100		
52	26.3	12.4	52.4

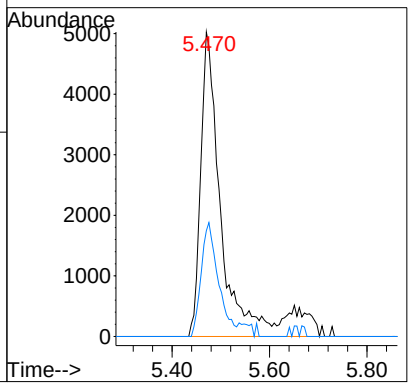


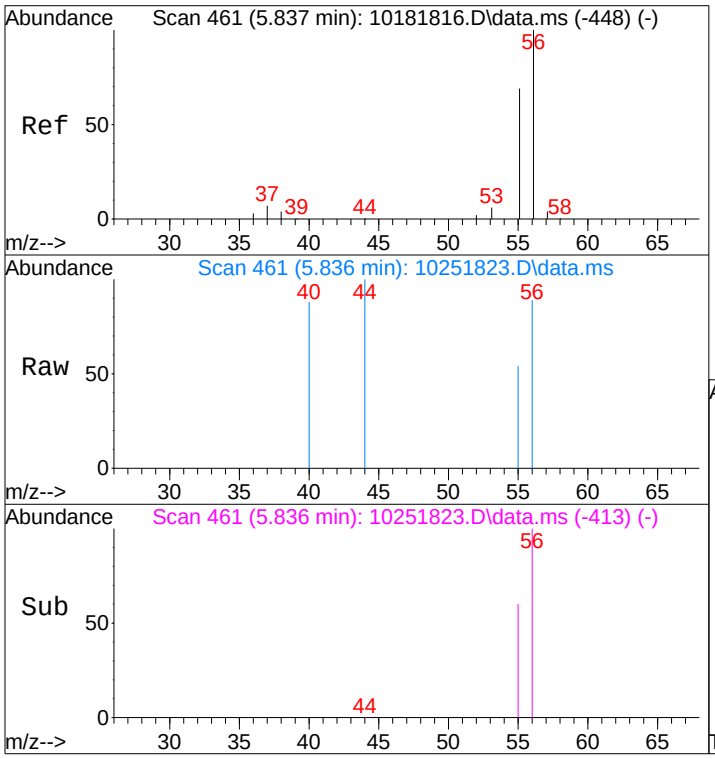


#10
Ethanol
Concen: 0.95 ng
RT: 5.47 min Scan# 390
Delta R.T. -0.087 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 45 Resp: 15787

Ion	Ratio	Lower	Upper
45	100		
46	31.9	17.0	57.0

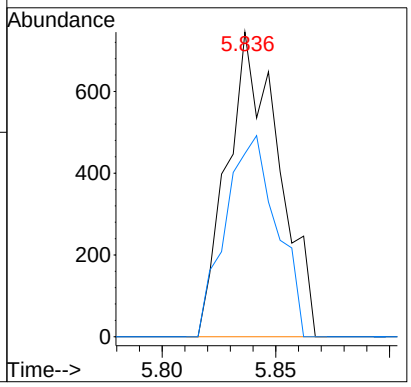


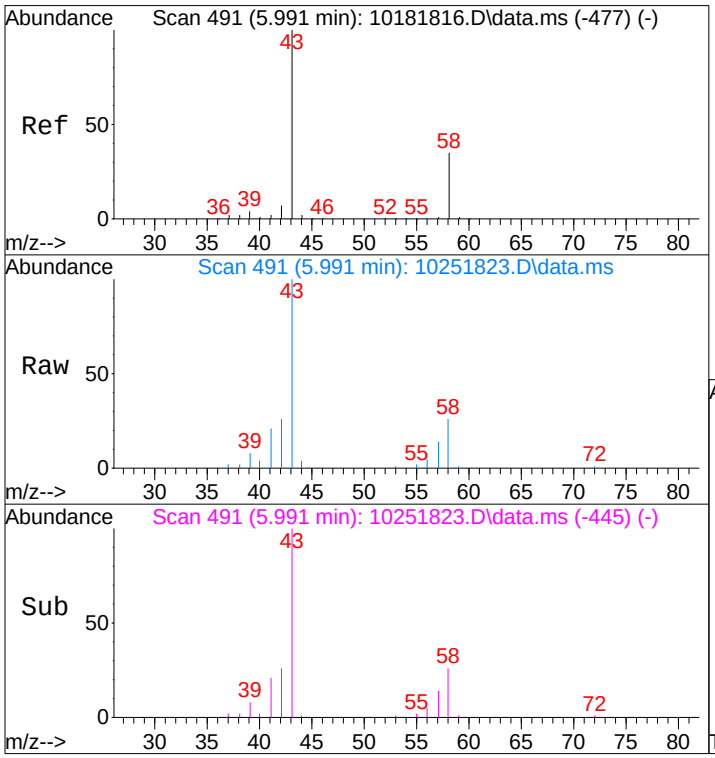


#12
Acrolein
Concen: 0.09 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 56 Resp: 1178

Ion	Ratio	Lower	Upper
56	100		
55	65.5	49.3	89.3

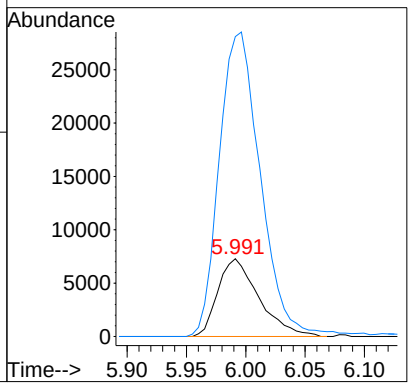


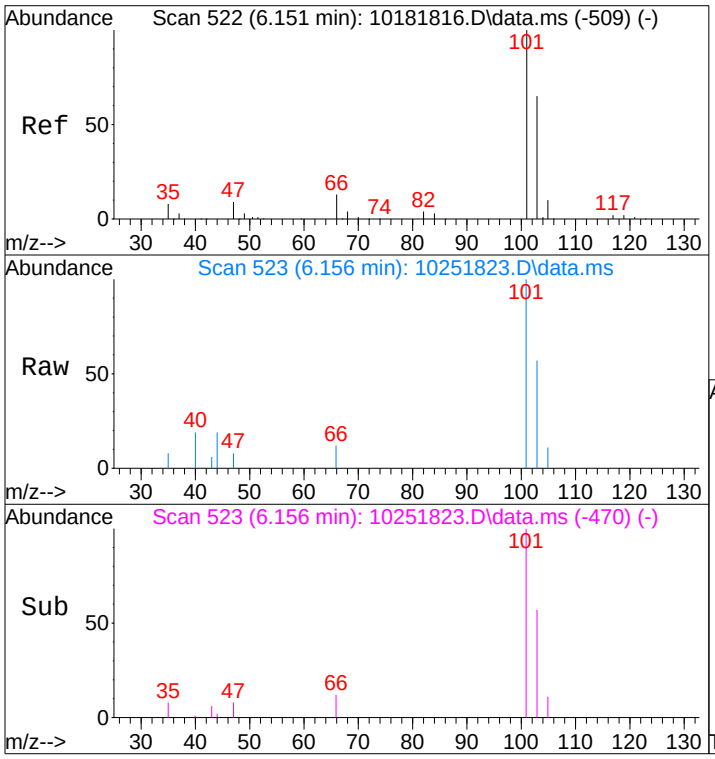


#13
Acetone
Concen: 1.02 ng
RT: 5.99 min Scan# 491
Delta R.T. -0.012 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 58 Resp: 17512

Ion	Ratio	Lower	Upper
58	100		
43	394.7	254.3	314.3#

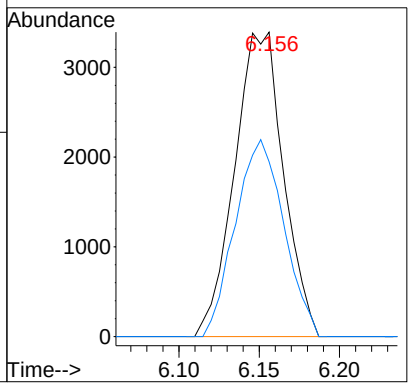


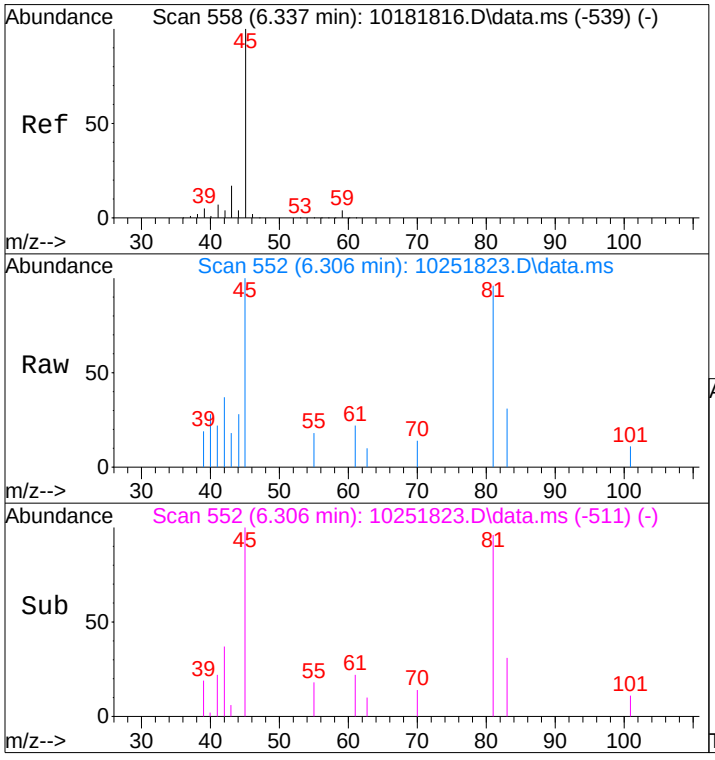


#14
Trichlorofluoromethane
Concen: 0.30 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:101 Resp: 7192

Ion	Ratio	Lower	Upper
101	100		
103	64.2	44.5	84.5

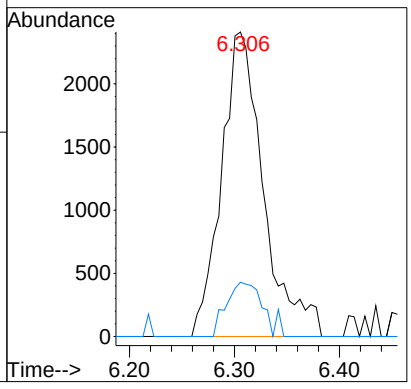


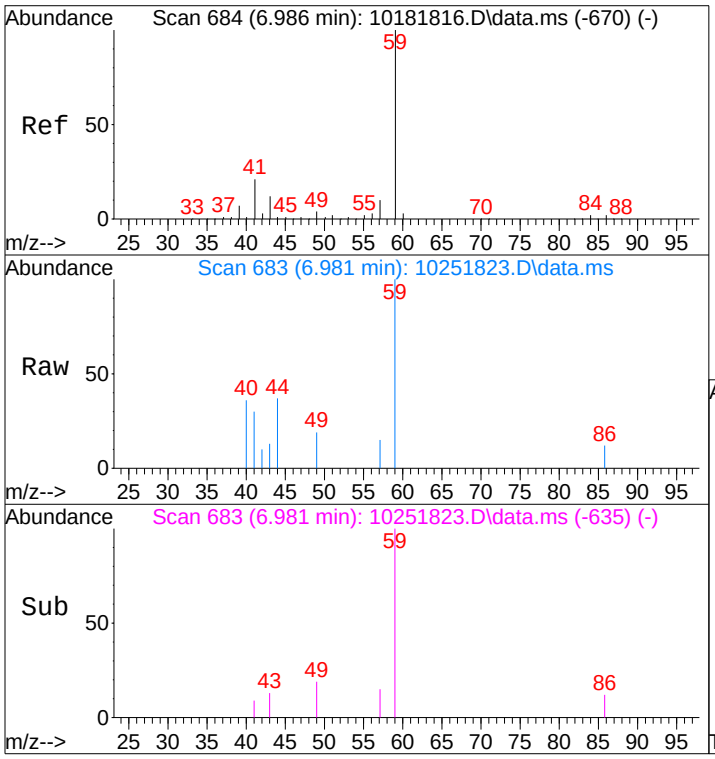


#15
2-Propanol (Isopropanol)
Concen: 0.13 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 45 Resp: 6725

Ion	Ratio	Lower	Upper
45	100		
43	15.5	0.0	36.7

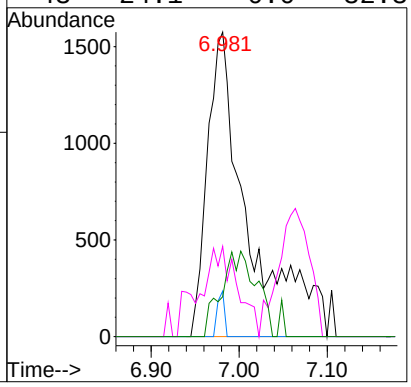


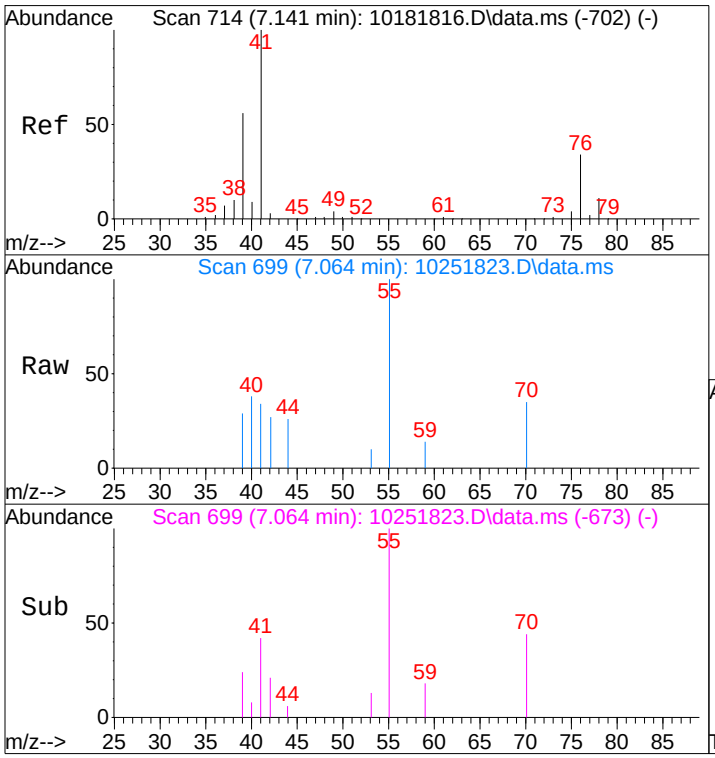


#18
2-Methyl-2-Propanol (tert-Butyl Alcohol
Concen: 0.11 ng
RT: 6.98 min Scan# 683
Delta R.T. -0.002 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 59 Resp: 5070

Ion	Ratio	Lower	Upper
59	100		
57	2.6	0.0	29.5
41	27.7	1.6	41.6
43	24.1	0.0	32.3

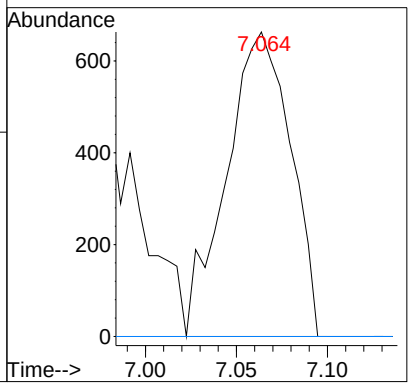


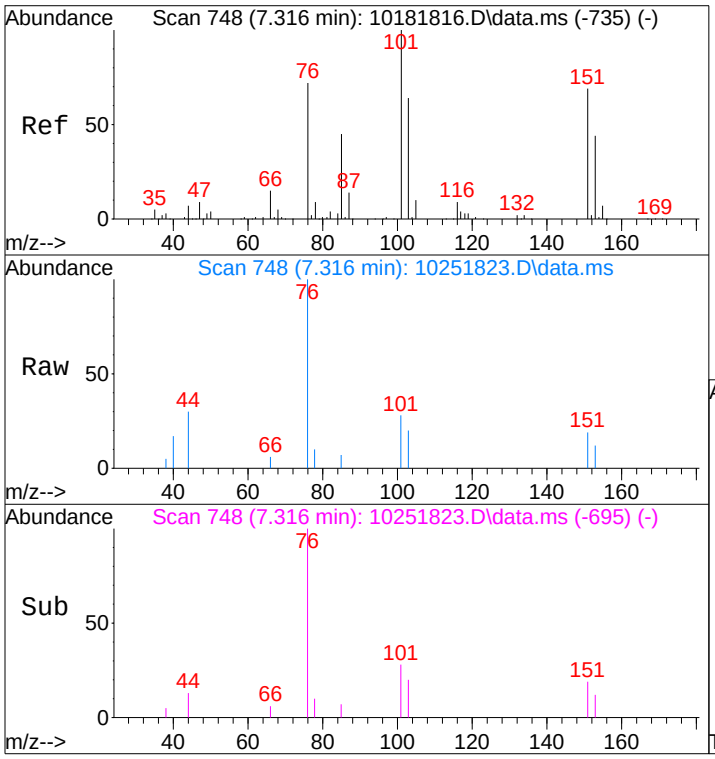


#20
3-Chloro-1-propene (Allyl Chloride)
Concen: 0.05 ng
RT: 7.06 min Scan# 699
Delta R.T. -0.068 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 41 Resp: 1628

Ion	Ratio	Lower	Upper
41	100		
76	0.0	12.7	52.7#

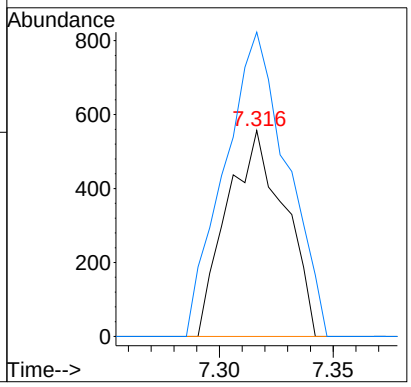


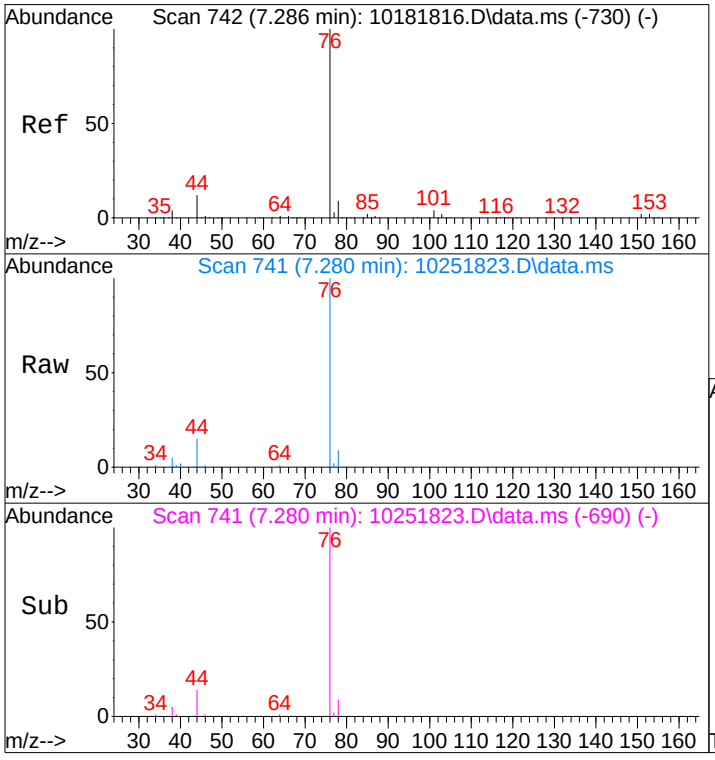


#21
Trichlorotrifluoroethane
Concen: 0.10 ng
RT: 7.32 min Scan# 748
Delta R.T. 0.025 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:151 Resp: 979

Ion	Ratio	Lower	Upper
151	100		
101	161.5	127.5	167.5

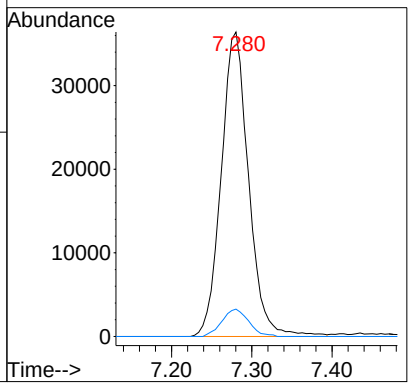


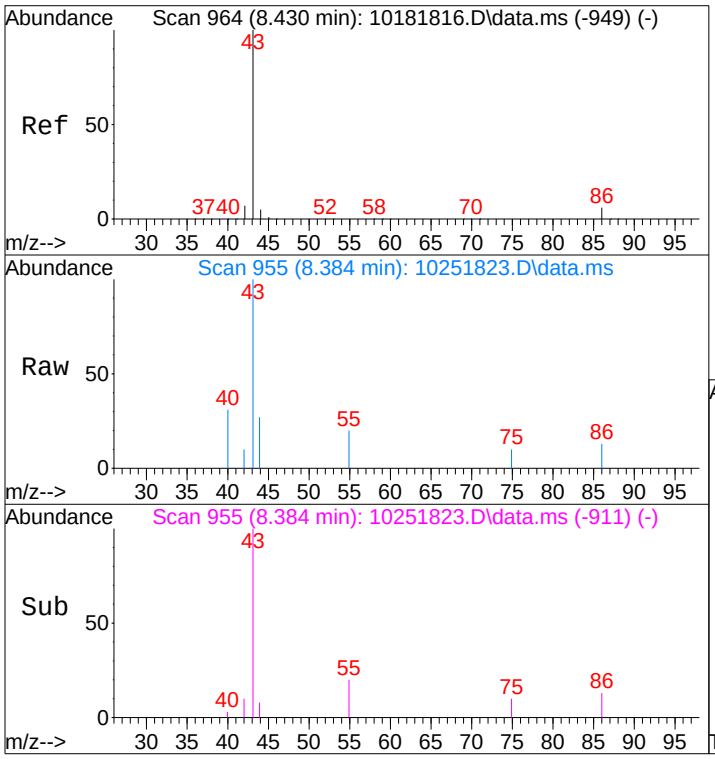


#22
Carbon Disulfide
Concen: 1.33 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 76 Resp: 86258

Ion	Ratio	Lower	Upper
76	100		
78	8.8	0.0	29.6

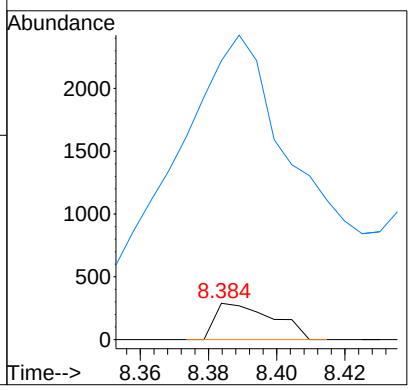


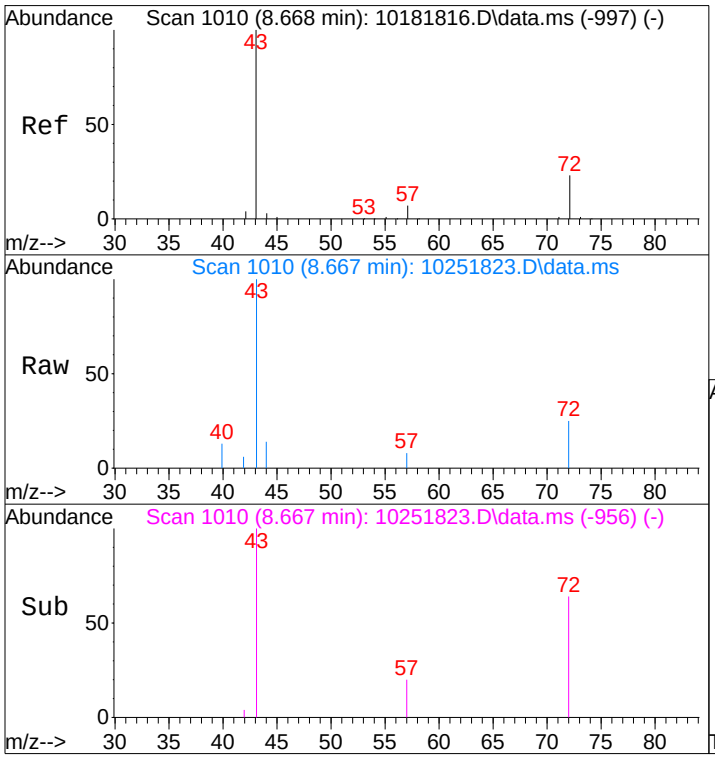


#26
Vinyl Acetate
Concen: 0.12 ng
RT: 8.38 min Scan# 955
Delta R.T. -0.025 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 86 Resp: 339

Ion	Ratio	Lower	Upper
86	100		
43	2496.8	1596.2	1636.2#

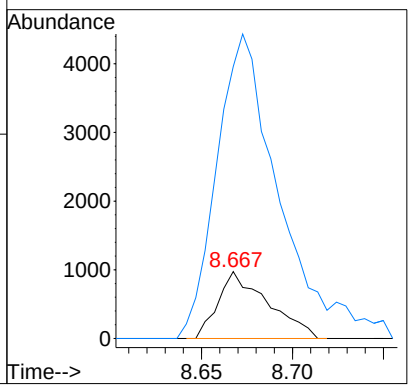


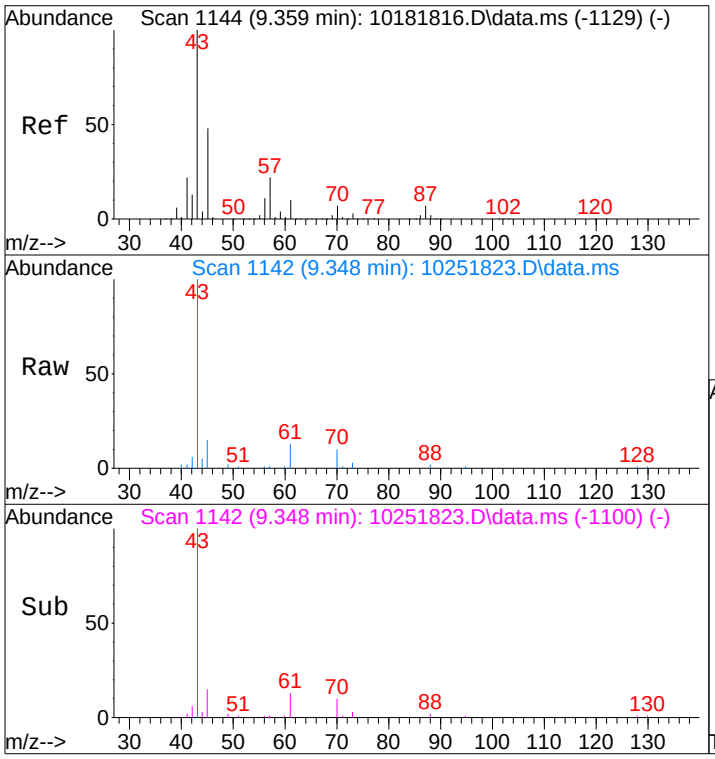


#27
2-Butanone (MEK)
Concen: 0.14 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 72 Resp: 1851

Ion	Ratio	Lower	Upper
72	100		
43	574.7	430.0	470.0#

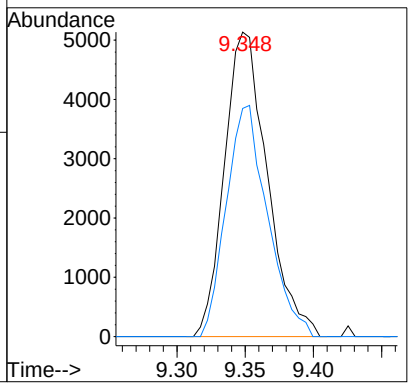


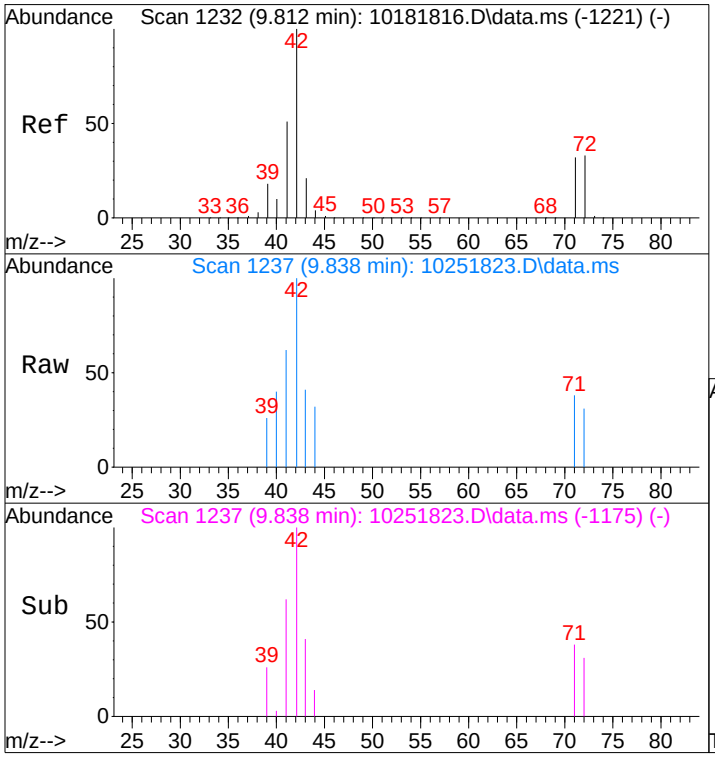


#30
Ethyl Acetate
Concen: 1.58 ng
RT: 9.35 min Scan# 1142
Delta R.T. 0.016 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 61 Resp: 11217

Ion	Ratio	Lower	Upper
61	100		
70	73.1	52.7	92.7

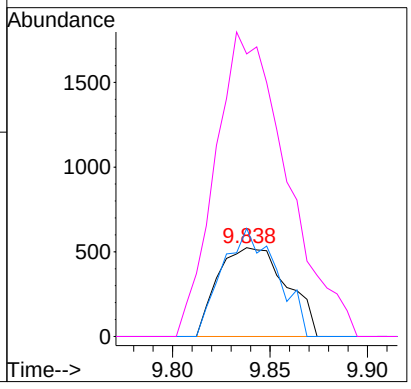


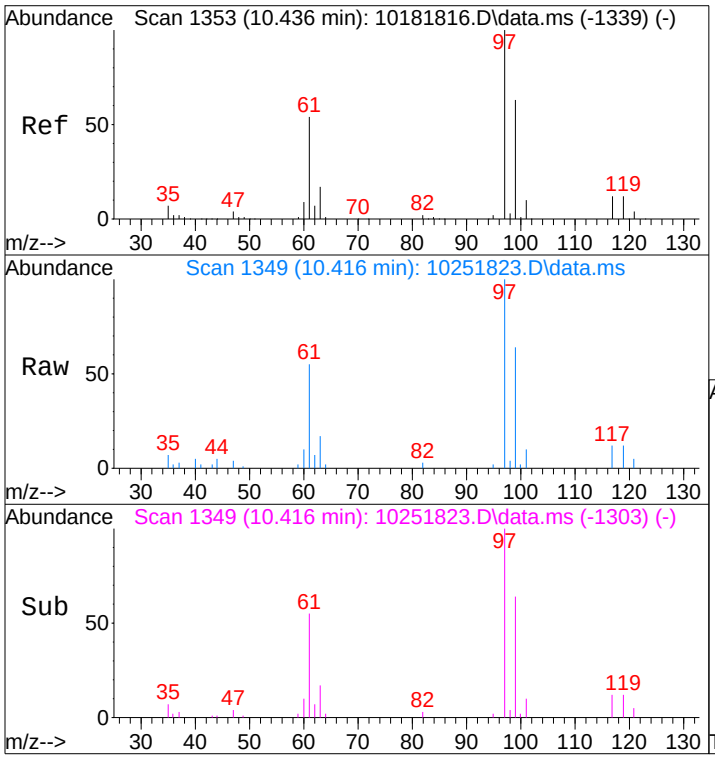


#34
Tetrahydrofuran (THF)
Concen: 0.10 ng
RT: 9.84 min Scan# 1237
Delta R.T. 0.070 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 72 Resp: 1285

Ion	Ratio	Lower	Upper
72	100		
71	96.7	76.7	116.7
42	357.9	287.9	327.9#

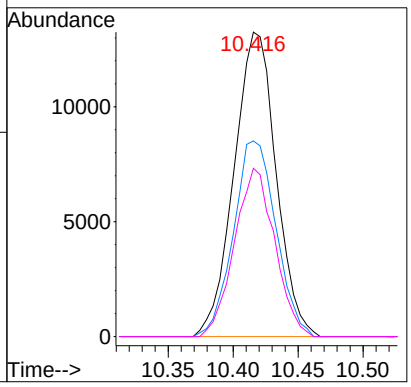


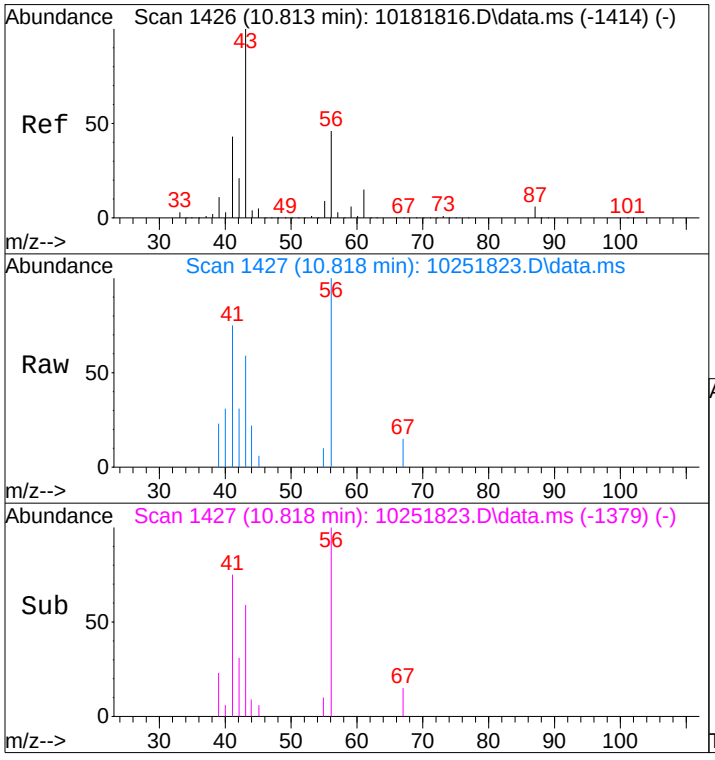


#38
1,1,1-Trichloroethane
Concen: 1.24 ng
RT: 10.42 min Scan# 1349
Delta R.T. -0.012 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 97 Resp: 29799

Ion	Ratio	Lower	Upper
97	100		
99	65.1	43.5	83.5
61	52.9	34.2	74.2

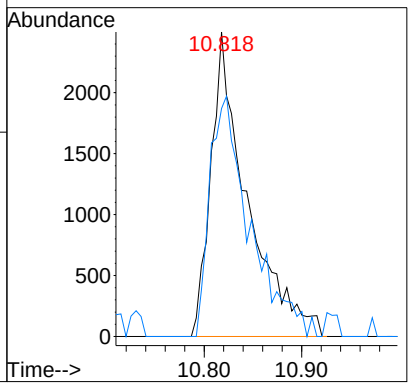


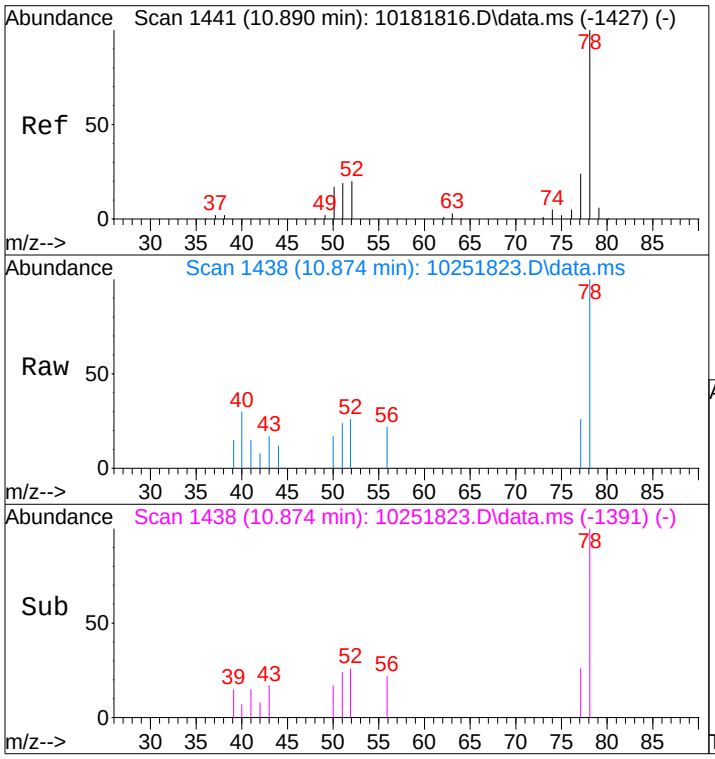


#40
1-Butanol
Concen: 0.30 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 56 Resp: 6460

Ion	Ratio	Lower	Upper
56	100		
41	87.1	90.2	130.2#

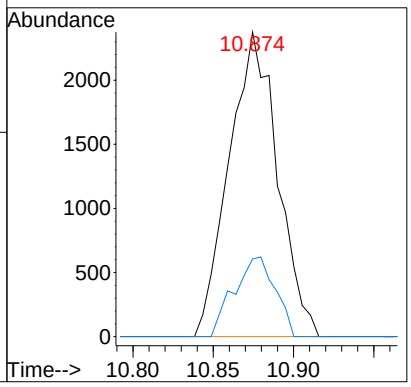


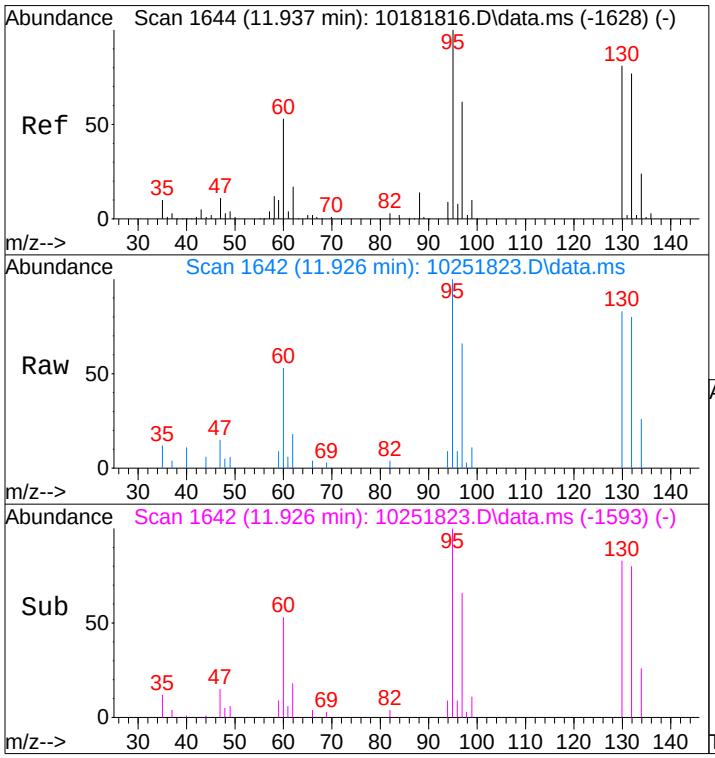


#41
Benzene
Concen: 0.06 ng
RT: 10.87 min Scan# 1438
Delta R.T. -0.006 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 78 Resp: 4980

Ion	Ratio	Lower	Upper
78	100		
77	22.3	4.1	44.1

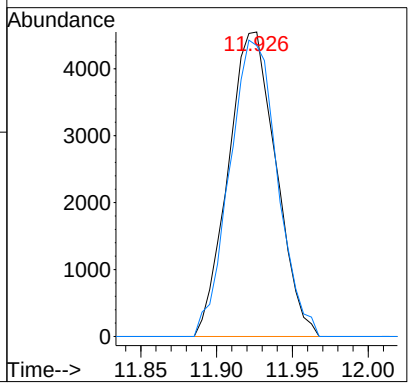


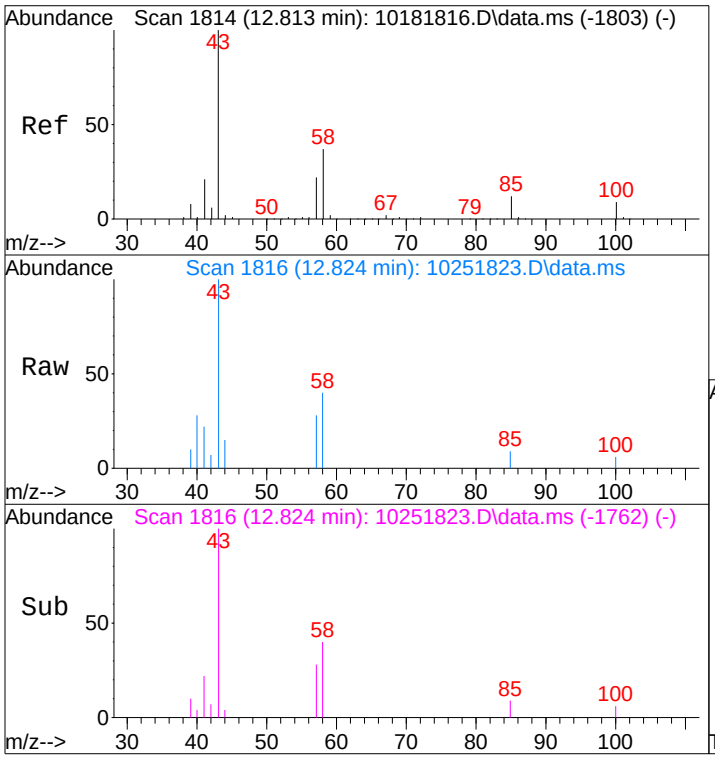


#47
Trichloroethene
Concen: 0.66 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:130 Resp: 9976

Ion	Ratio	Lower	Upper
130	100		
132	97.4	74.6	114.6

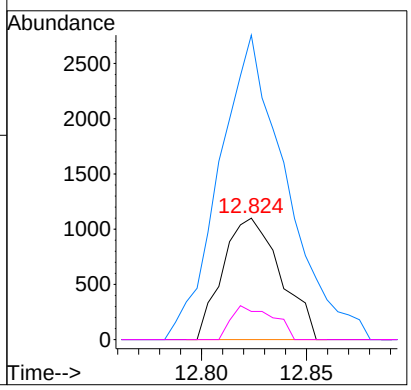


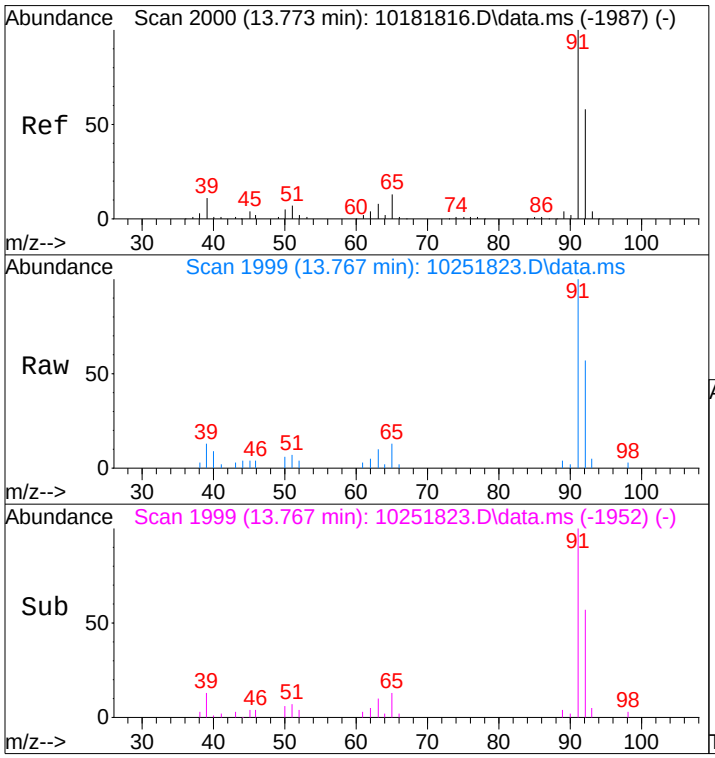


#53
4-Methyl-2-pentanone
Concen: 0.11 ng
RT: 12.82 min Scan# 1816
Delta R.T. 0.030 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 58 Resp: 2103

Ion	Ratio	Lower	Upper
58	100		
43	291.5	215.1	322.7
85	20.1	28.0	42.0#

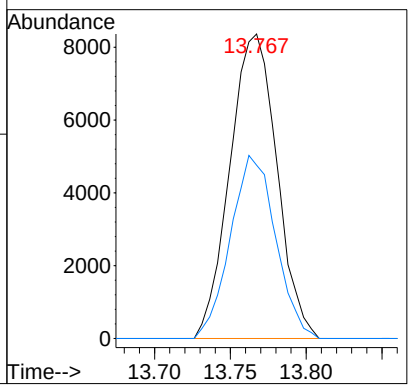


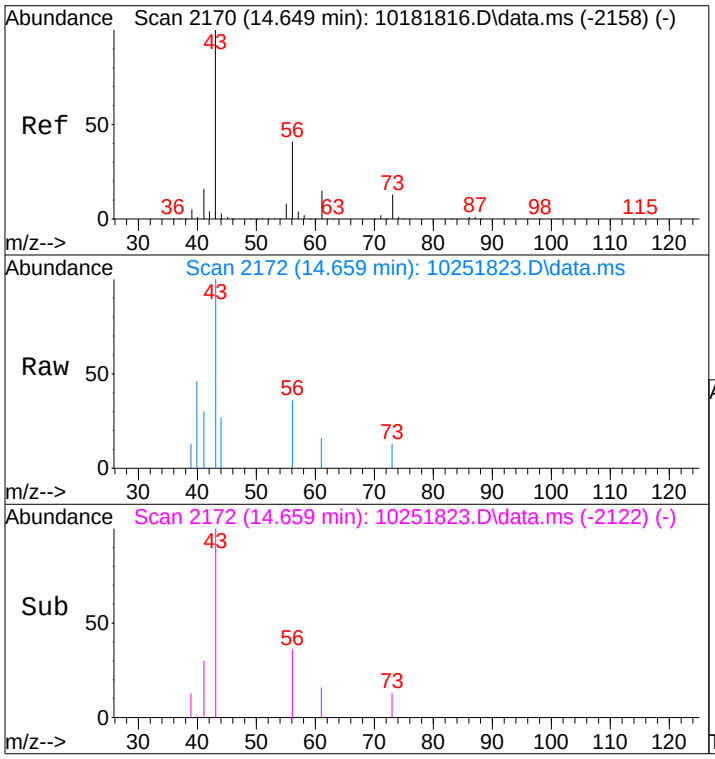


#58
Toluene
Concen: 0.24 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 91 Resp: 18044

Ion	Ratio	Lower	Upper
91	100		
92	57.7	38.1	78.1

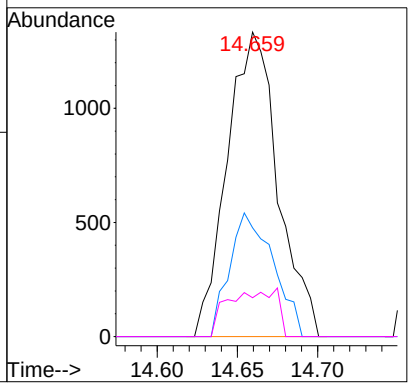


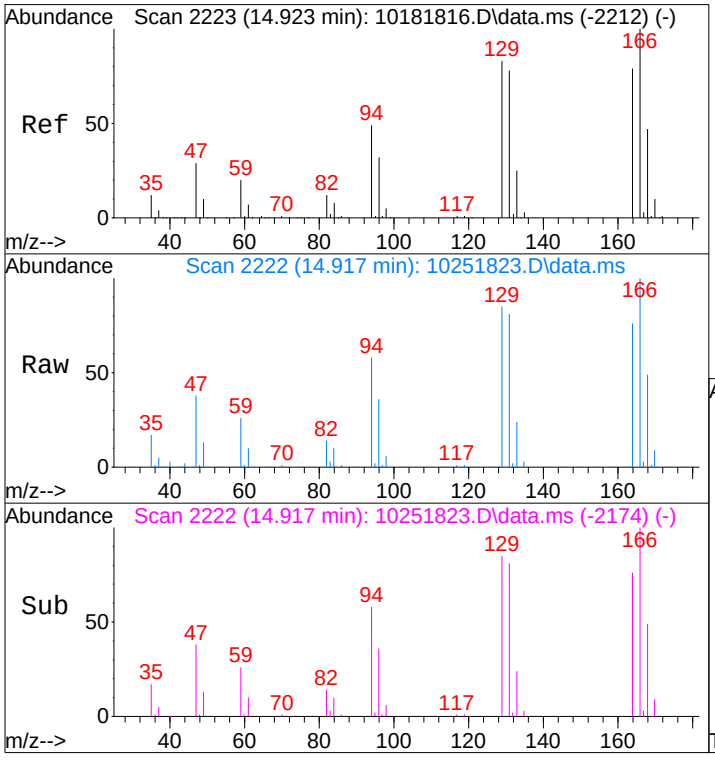


#62
n-Butyl Acetate
Concen: 0.06 ng
RT: 14.66 min Scan# 2172
Delta R.T. 0.010 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 43 Resp: 2934

Ion	Ratio	Lower	Upper
43	100		
56	35.0	20.7	60.7
73	14.8	0.0	32.8

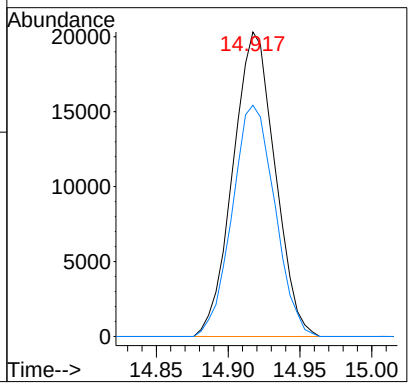


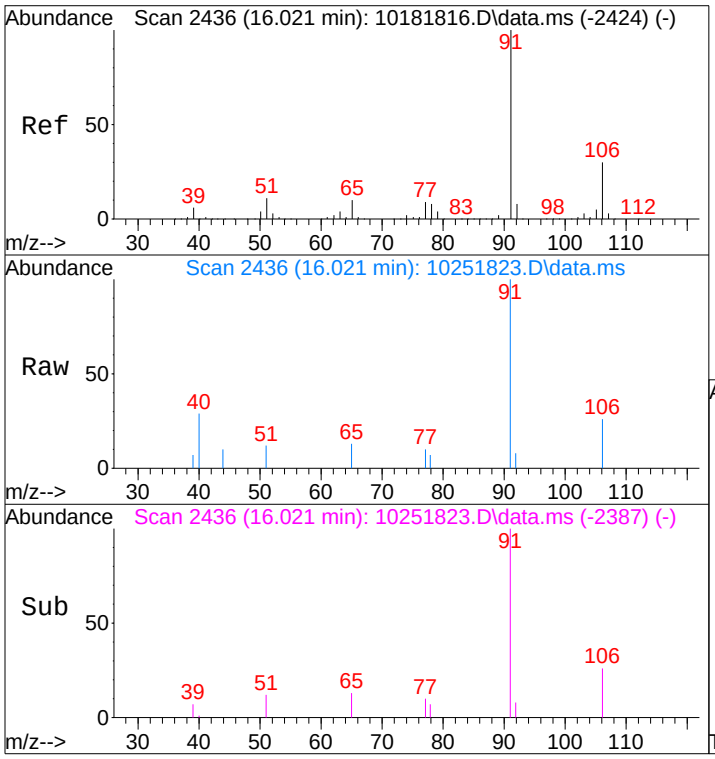


#64
Tetrachloroethene
Concen: 2.70 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:166 Resp: 41392

Ion	Ratio	Lower	Upper
166	100		
164	76.9	58.9	98.9

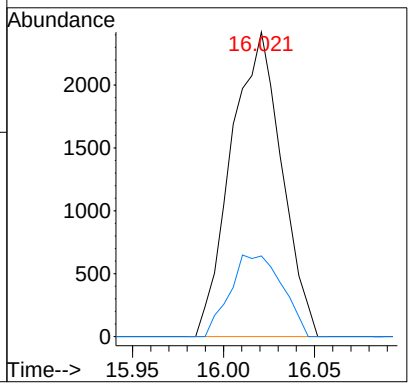


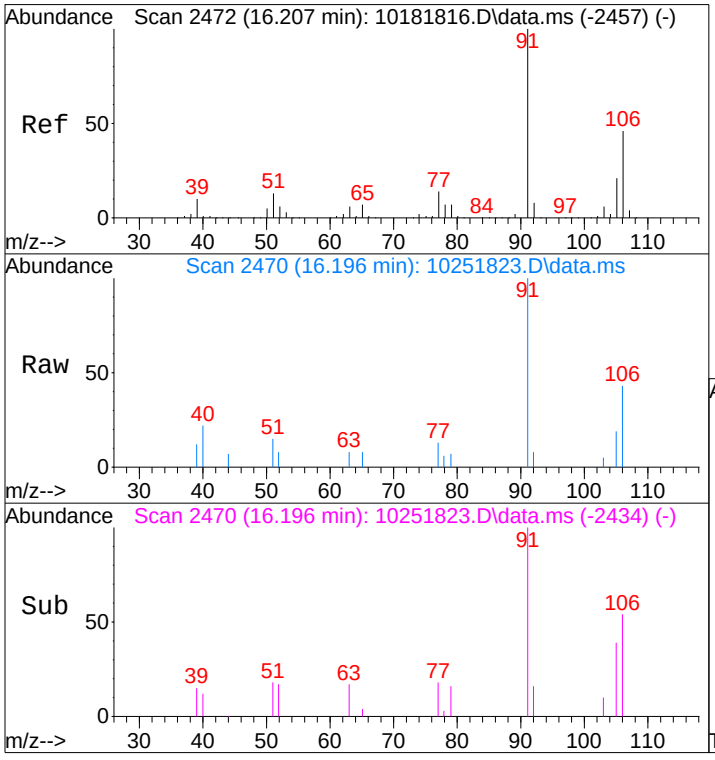


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2436
Delta R.T. 0.005 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 91 Resp: 4664

Ion	Ratio	Lower	Upper
91	100		
106	27.8	9.9	49.9

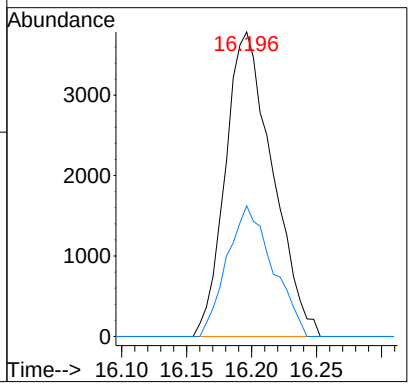


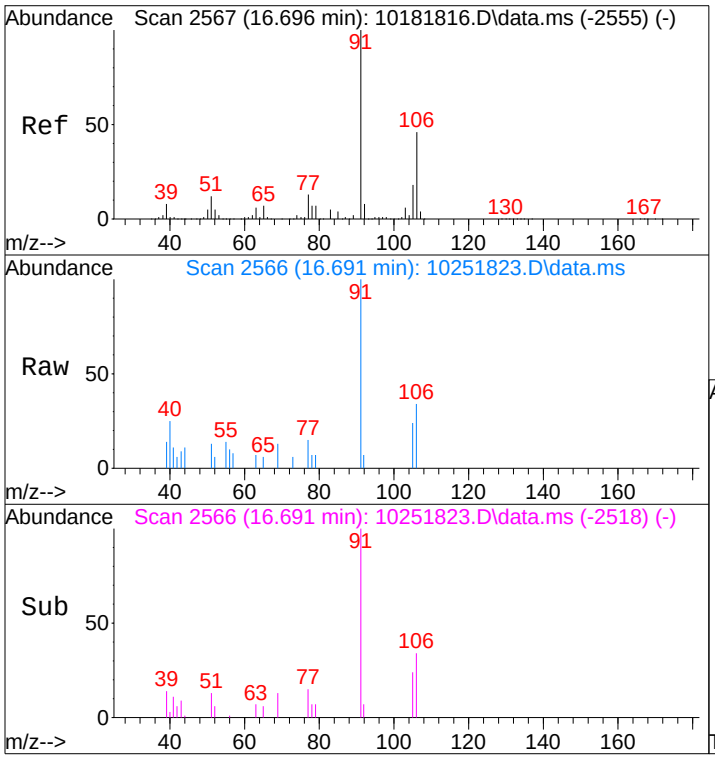


#67
m- & p-Xylenes
Concen: 0.15 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 91 Resp: 9521

Ion	Ratio	Lower	Upper
91	100		
106	41.6	26.7	66.7

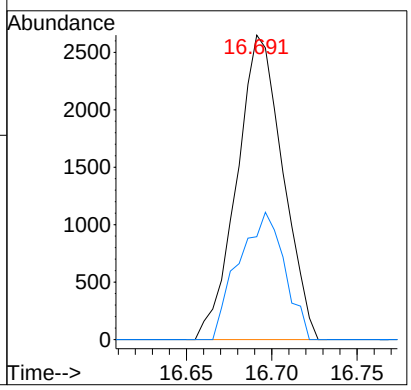


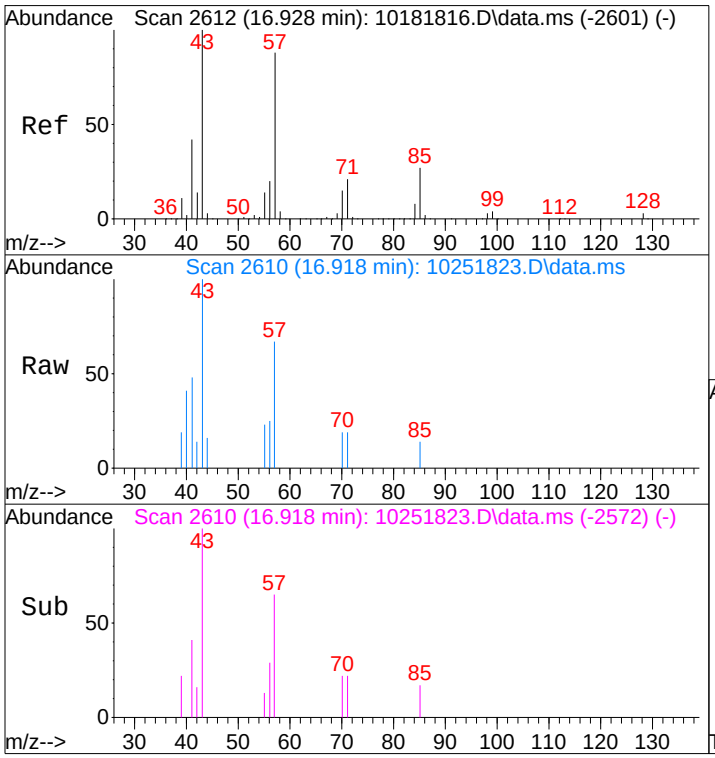


#70
o-Xylene
Concen: 0.08 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 91 Resp: 4985

Ion	Ratio	Lower	Upper
91	100		
106	41.6	25.2	65.2

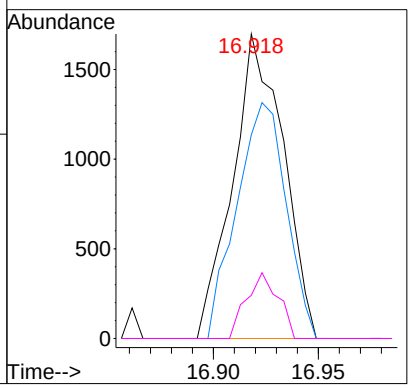


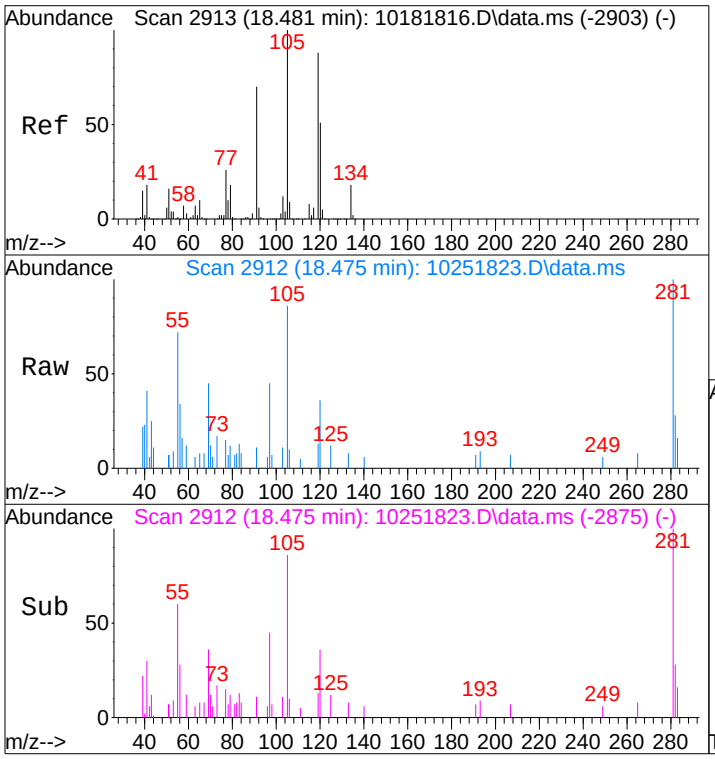


#71
n-Nonane
Concen: 0.07 ng
RT: 16.92 min Scan# 2610
Delta R.T. -0.005 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 43 Resp: 2842

Ion	Ratio	Lower	Upper
43	100		
57	75.7	66.7	106.7
85	13.6	6.7	46.7

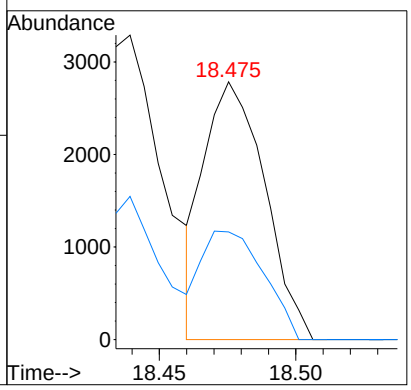


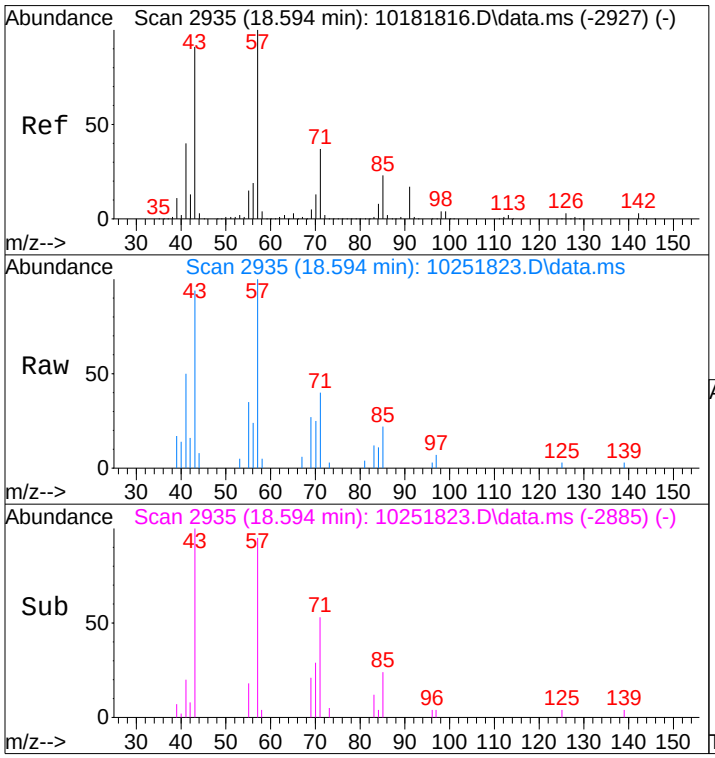


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:105 Resp: 4312

Ion	Ratio	Lower	Upper
105	100		
120	43.4	31.3	71.3

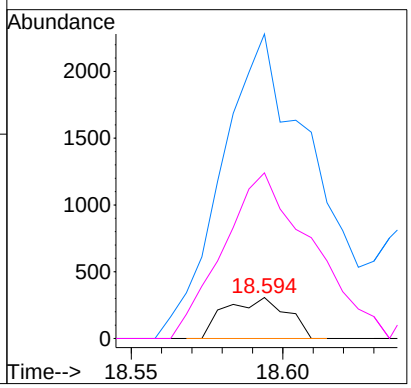


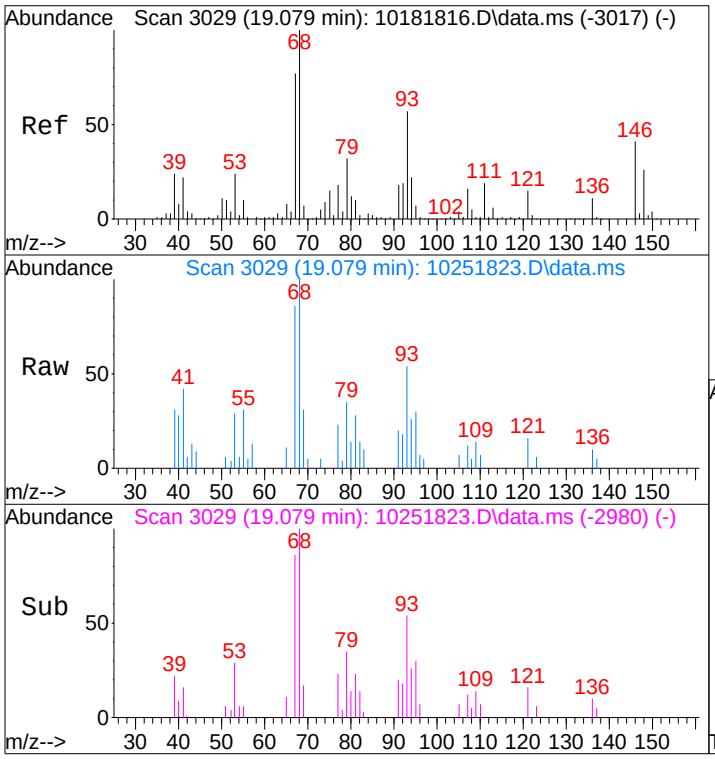


#83
n-Decane
Concen: 0.23 ng
RT: 18.59 min Scan# 2935
Delta R.T. 0.007 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 58 Resp: 430

Ion	Ratio	Lower	Upper
58	100		
71	1150.5	811.0	851.0#
85	590.2	521.8	561.8#

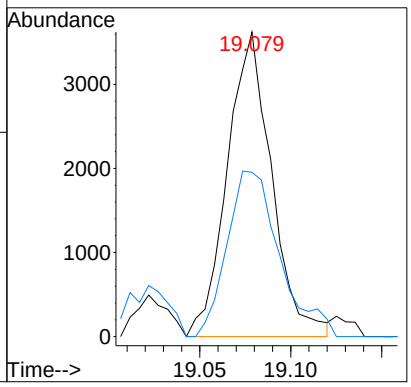


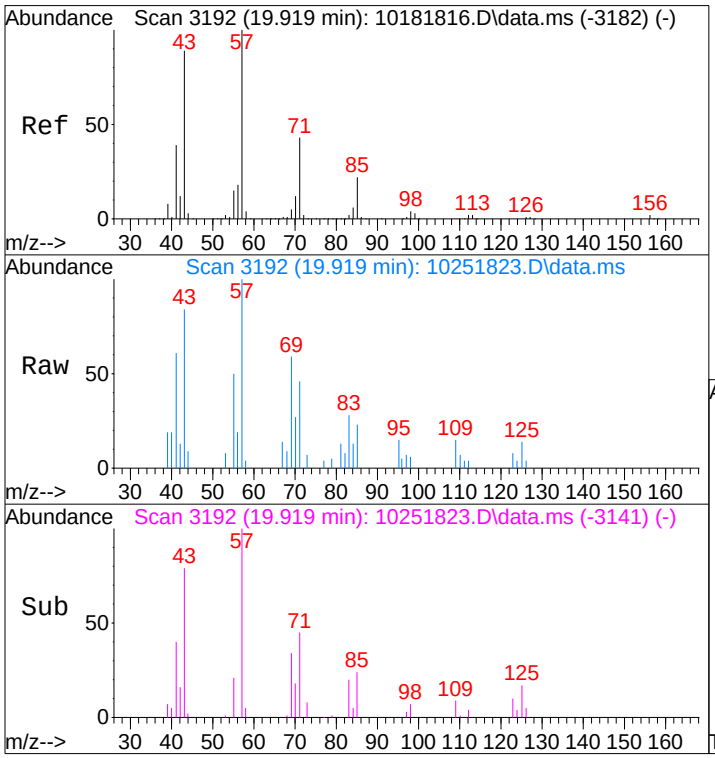


#91
d-Limonene
Concen: 0.21 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 68 Resp: 6139

Ion	Ratio	Lower	Upper
68	100		
93	64.2	37.7	77.7

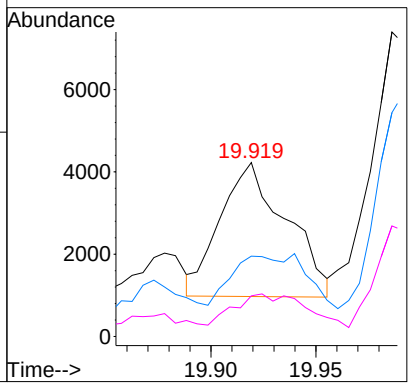


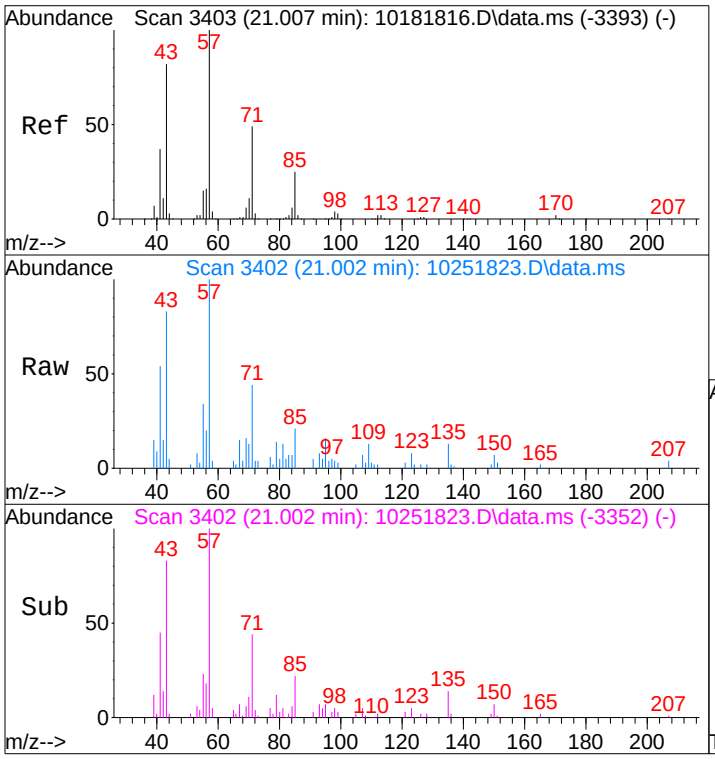


#93
n-Undecane
Concen: 0.16 ng
RT: 19.92 min Scan# 3192
Delta R.T. 0.013 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 57 Resp: 7143

Ion	Ratio	Lower	Upper
57	100		
71	43.8	22.3	62.3
85	39.2	1.3	41.3

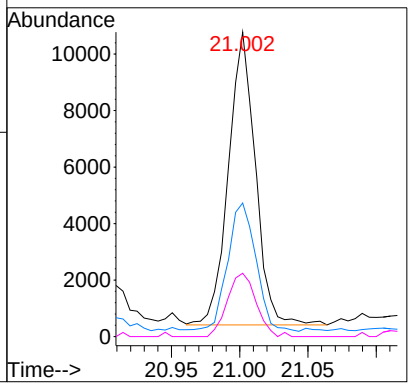


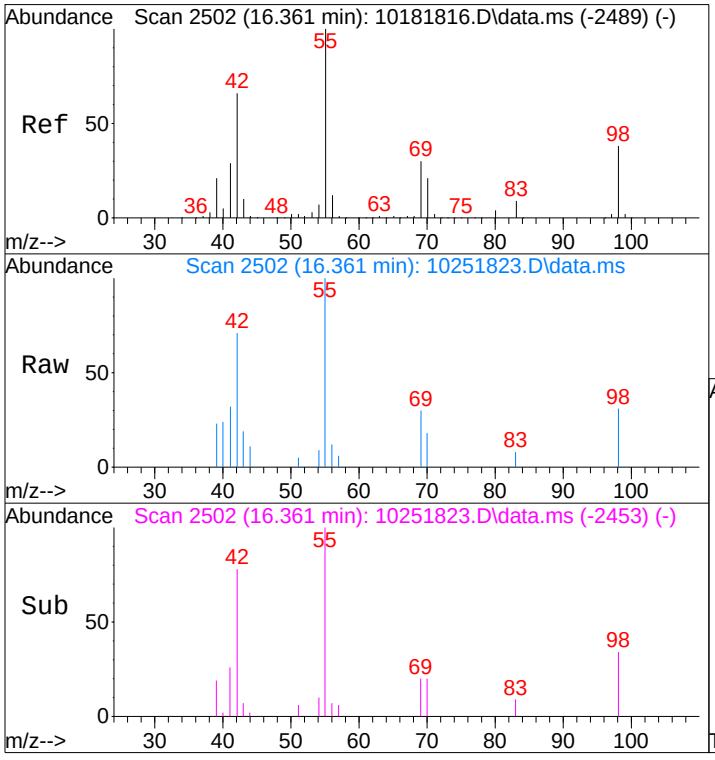


#96
n-Dodecane
Concen: 0.34 ng
RT: 21.00 min Scan# 3402
Delta R.T. 0.008 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 57 Resp: 14309

Ion	Ratio	Lower	Upper
57	100		
71	46.3	29.1	69.1
85	23.0	5.4	45.4

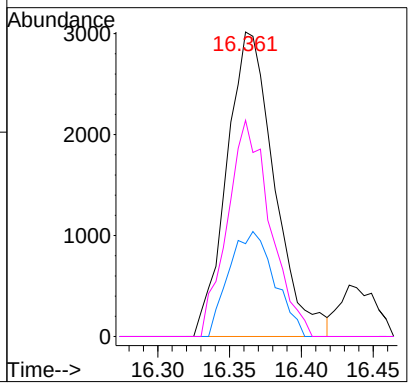


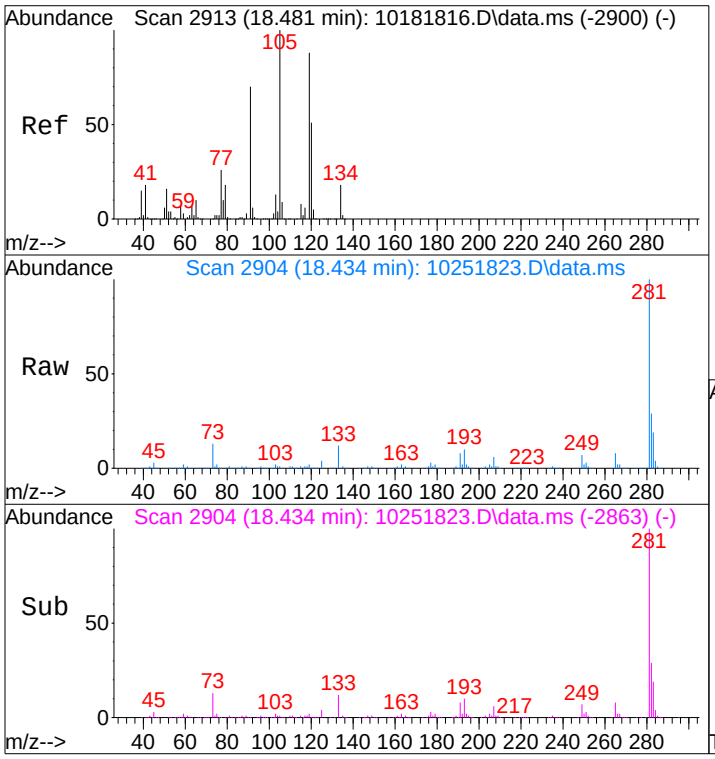


#98
Cyclohexanone
Concen: 0.22 ng
RT: 16.36 min Scan# 2502
Delta R.T. 0.000 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion: 55 Resp: 6951

Ion	Ratio	Lower	Upper
55	100		
98	33.1	29.7	44.5
42	64.1	52.1	78.1

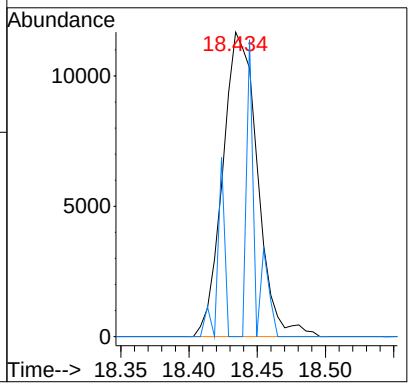




#99
tert-Butylbenzene
Concen: 0.39 ng
RT: 18.43 min Scan# 2904
Delta R.T. -0.040 min
Lab File: 10251823.D
Acq: 25 Oct 2018 19:26

Tgt Ion:119 Resp: 20679

Ion	Ratio	Lower	Upper
119	100		
134	24.1	15.8	23.6#



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 13:44:40 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

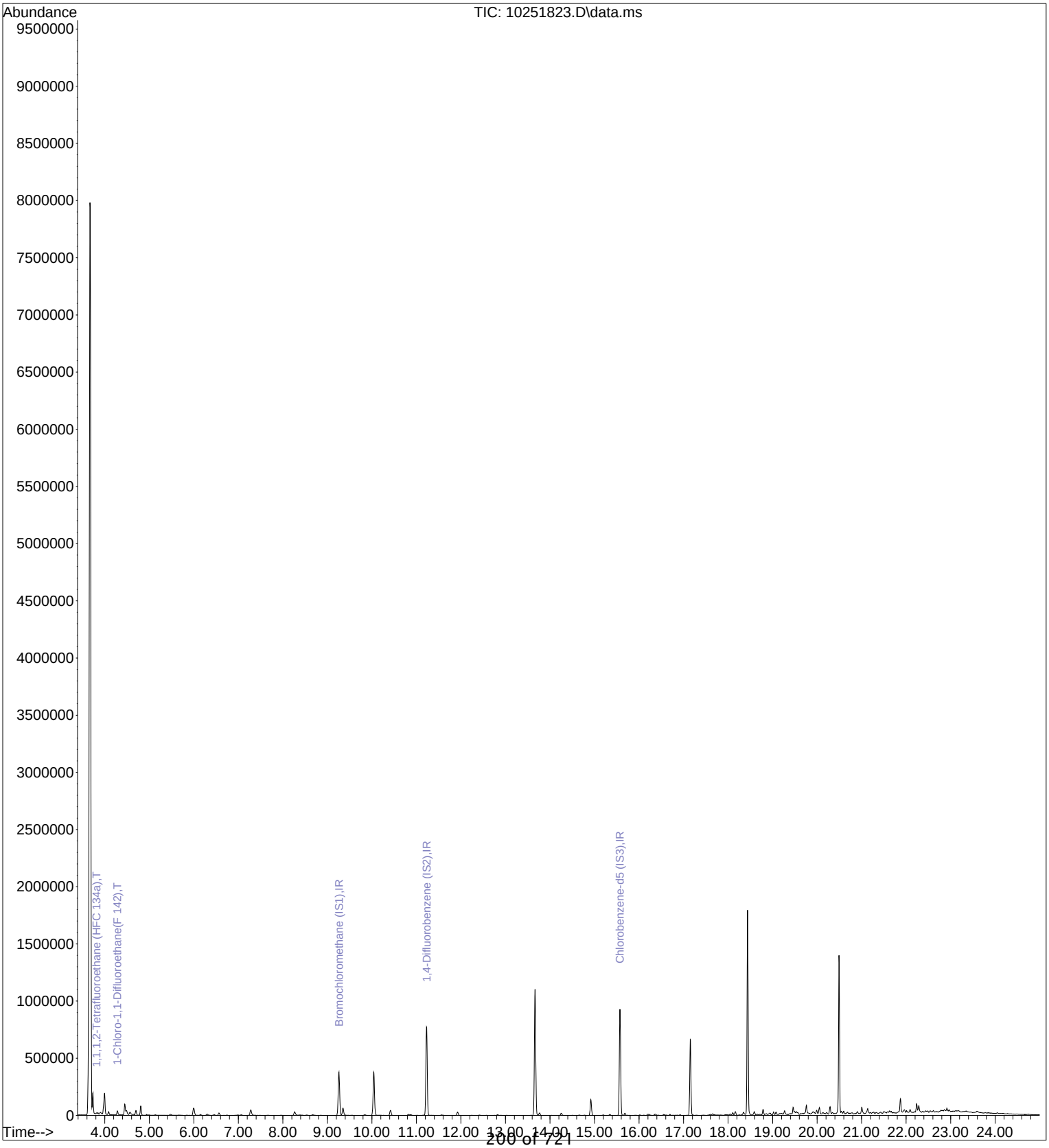
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	122700	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	634040	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	379822	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	235	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	2725	0.215	ng	79
4) 1,1-Difluoroethane	3.90	65	178	N.D.		
5) Chlorodifluoromethane ...	3.96	67	369	N.D.		
6) 1-Chloro-1,1-Difluoroe...	4.28	65	27789	1.013	ng	98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	0.00	57	0	N.D.	d	
11) Methyl Acetate	7.00	43	1222	N.D.		
12) 2-Methylpentane	8.44	71	318	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	11.00	84	621	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.90	55	516	N.D.		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d	
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D.		
26) 2-Chlorotoluene	17.82	91	1269	N.D.		
27) 4-Chlorotoluene	17.82	91	1269	N.D.		
28) Indane	19.14	117	276	N.D.		
29) Indene	0.00	115	0	N.D.		
30) 1,2,4,5-Tetramethylben...	20.16	119	317	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	408	N.D.		
32) 1,2,3,5-Tetramethylben...	20.60	119	402	N.D.		
33) 1,2,3-Trichlorobenzene	21.24	180	51	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251823.D Vial: 16
Acq On : 25 Oct 2018 19:26 Operator: RS
Sample : P1805493-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:44:40 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:16:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	117415	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	601463	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	370184	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	300801	14.772	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.16%				
57) Toluene-d8 (SS2)	13.66	98	786359	12.159	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	157554	10.829	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.64%				
Target Compounds							Qvalue
2) Propene	3.98	42	2111m	0.071	ng		
3) Dichlorodifluoromethan...	4.09	85	25372	0.794	ng		99
4) Chloromethane	4.30	50	934	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	169	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.62	45	106	N.D.			
11) Acetonitrile	5.74	41	51	N.D.			
12) Acrolein	5.84	56	1323	0.107	ng		98
13) Acetone	5.99	58	22806	1.376	ng		85
14) Trichlorofluoromethane	6.16	101	8441	0.369	ng		100
15) 2-Propanol (Isopropanol)	6.32	45	4809	0.093	ng		81
16) Acrylonitrile	6.50	53	280	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	7.00	84	234	N.D.			
20) 3-Chloro-1-propene (Al...	7.07	41	101	N.D.			
21) Trichlorotrifluoroethane	7.32	151	951	0.104	ng	#	75
22) Carbon Disulfide	7.29	76	6377	0.102	ng		86
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.27	73	445	N.D.			
26) Vinyl Acetate	8.39	86	939	0.344	ng	#	63
27) 2-Butanone (MEK)	8.66	72	2592	0.201	ng	#	39
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.36	61	9922	1.450	ng		97
31) n-Hexane	9.35	57	707	N.D.			
32) Chloroform	9.39	83	1510	0.054	ng		85
34) Tetrahydrofuran (THF)	9.84	72	194	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	267	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.81	56	8305	0.406	ng		82
41) Benzene	10.88	78	2697	N.D.			
42) Carbon Tetrachloride	11.02	117	9511	0.537	ng		95
43) Cyclohexane	11.23	84	628	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.93	130	2274	0.158	ng		95
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	281	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:16:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

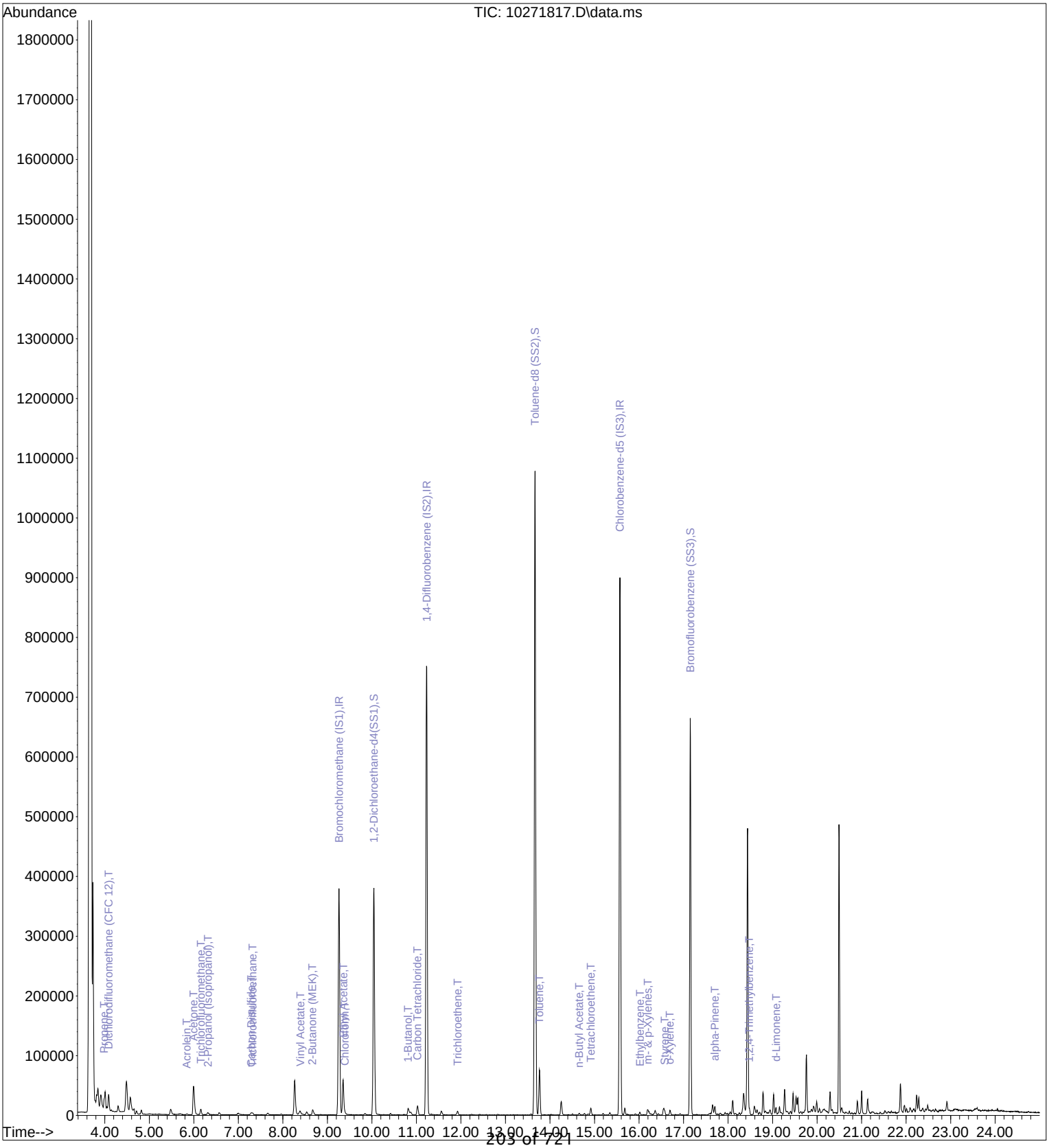
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.82	58	107	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	60881	0.842 ng	99
59) 2-Hexanone	14.02	43	1210	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.65	43	2998	0.059 ng	87
63) n-Octane	14.78	57	527	N.D.	
64) Tetrachloroethene	14.92	166	3201	0.214 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	4600	0.058 ng	94
67) m- & p-Xylenes	16.20	91	8854	0.145 ng	91
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	3168	0.073 ng	94
70) o-Xylene	16.69	91	4252	0.072 ng	97
71) n-Nonane	16.92	43	1399	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	295	N.D.	
75) alpha-Pinene	17.70	93	5723	0.148 ng	81
76) n-Propylbenzene	17.83	91	979	N.D.	
77) 3-Ethyltoluene	17.93	105	2017	N.D.	
78) 4-Ethyltoluene	17.97	105	1219	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	979	N.D.	
80) alpha-Methylstyrene	18.21	118	133	N.D.	
81) 2-Ethyltoluene	18.25	105	996	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	4524	0.080 ng	90
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	471	N.D.	
85) 1,3-Dichlorobenzene	18.71	146	821	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	821	N.D.	
87) sec-Butylbenzene	18.92	105	1031	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	809	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	1031	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	3296	0.113 ng	92
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2279	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.35	91	1023	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:16:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:16:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

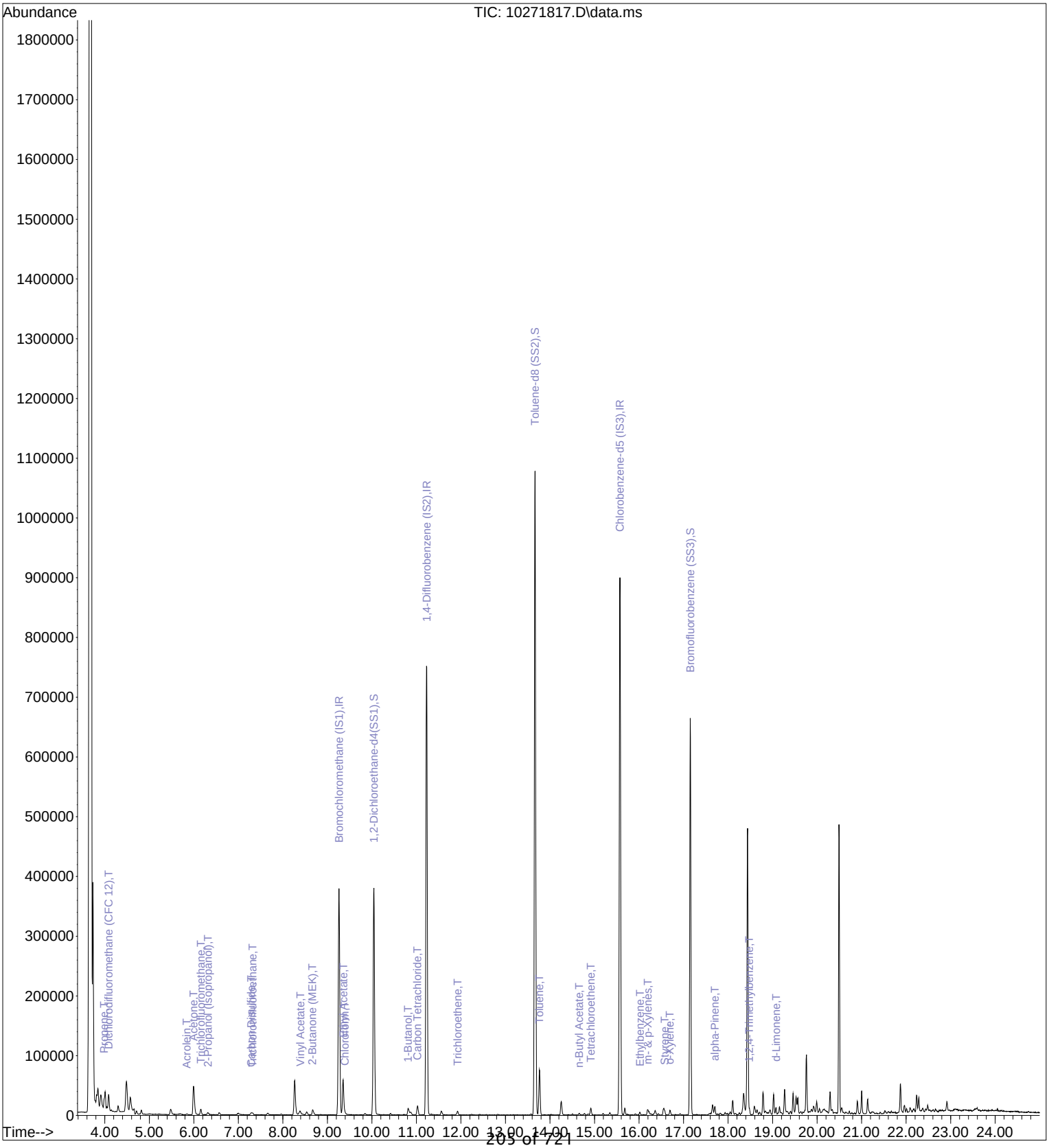
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	117415	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	601463	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	370184	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	300801	14.772	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.16%				
57) Toluene-d8 (SS2)	13.66	98	786359	12.159	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	157554	10.829	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.64%				
Target Compounds							Qvalue
2) Propene	3.98	42	2111m	0.071	ng		
3) Dichlorodifluoromethan...	4.09	85	25372	0.794	ng		99
12) Acrolein	5.84	56	1323	0.107	ng		98
13) Acetone	5.99	58	22806	1.376	ng		85
14) Trichlorofluoromethane	6.16	101	8441	0.369	ng		100
15) 2-Propanol (Isopropanol)	6.32	45	4809	0.093	ng		81
21) Trichlorotrifluoroethane	7.32	151	951	0.104	ng	#	75
22) Carbon Disulfide	7.29	76	6377	0.102	ng		86
26) Vinyl Acetate	8.39	86	939	0.344	ng	#	63
27) 2-Butanone (MEK)	8.66	72	2592	0.201	ng	#	39
30) Ethyl Acetate	9.36	61	9922	1.450	ng		97
32) Chloroform	9.39	83	1510	0.054	ng		85
40) 1-Butanol	10.81	56	8305	0.406	ng		82
42) Carbon Tetrachloride	11.02	117	9511	0.537	ng		95
47) Trichloroethene	11.93	130	2274	0.158	ng		95
58) Toluene	13.76	91	60881	0.842	ng		99
62) n-Butyl Acetate	14.65	43	2998	0.059	ng		87
64) Tetrachloroethene	14.92	166	3201	0.214	ng		100
66) Ethylbenzene	16.02	91	4600	0.058	ng		94
67) m- & p-Xylenes	16.20	91	8854	0.145	ng		91
69) Styrene	16.58	104	3168	0.073	ng		94
70) o-Xylene	16.69	91	4252	0.072	ng		97
75) alpha-Pinene	17.70	93	5723	0.148	ng		81
82) 1,2,4-Trimethylbenzene	18.48	105	4524	0.080	ng		90
91) d-Limonene	19.08	68	3296	0.113	ng		92

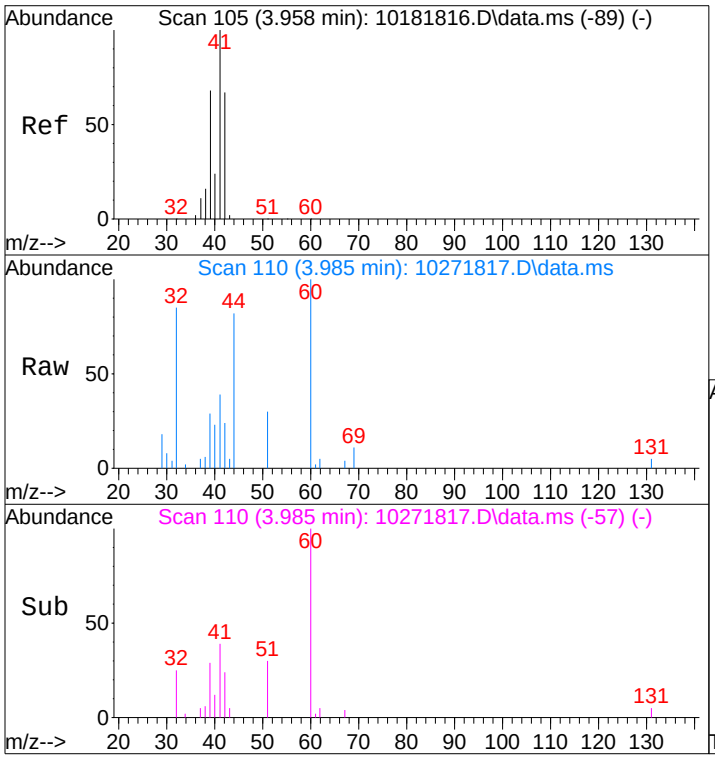
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:16:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

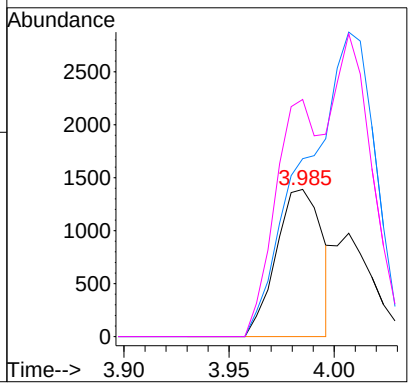


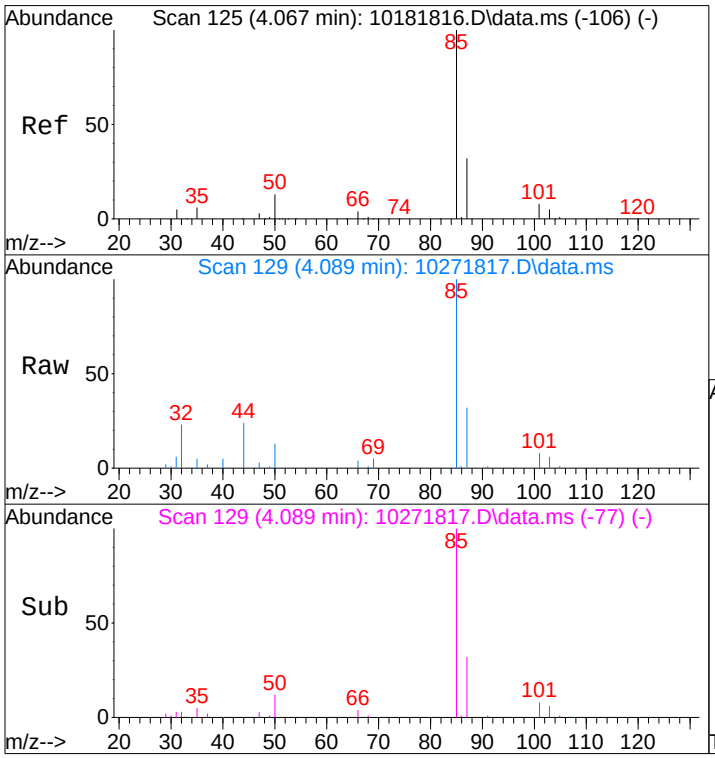


#2
Propene
Concen: 0.07 ng m
RT: 3.98 min Scan# 110
Delta R.T. 0.039 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 42 Resp: 2111

Ion	Ratio	Lower	Upper
42	100		
39	105.1	81.9	121.9
41	141.4	130.4	170.4

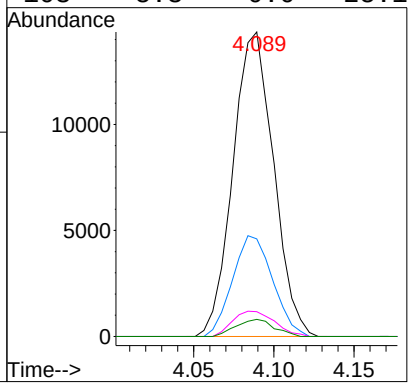


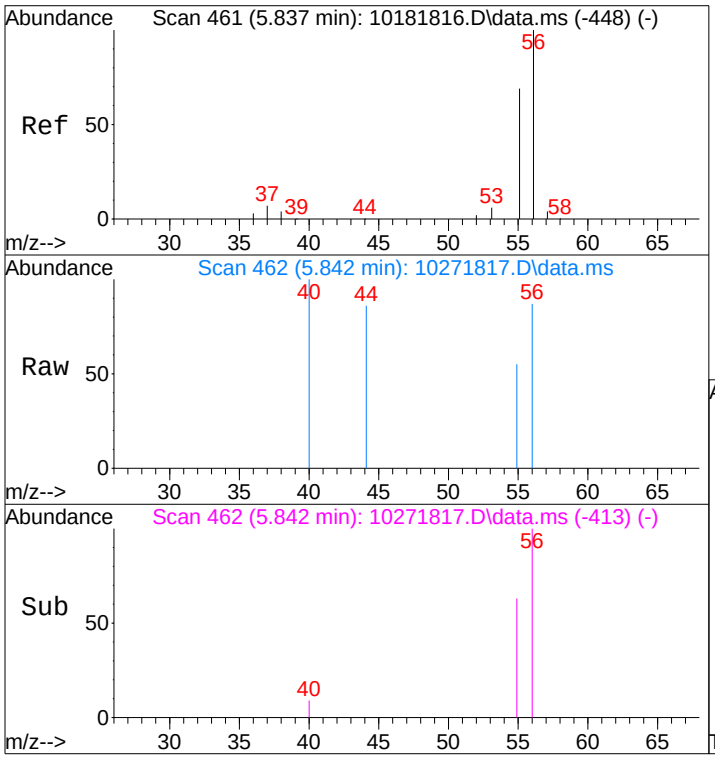


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.79 ng
RT: 4.09 min Scan# 129
Delta R.T. 0.034 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 85 Resp: 25372

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.0	52.0
101	8.6	0.0	28.0
103	5.3	0.0	25.1

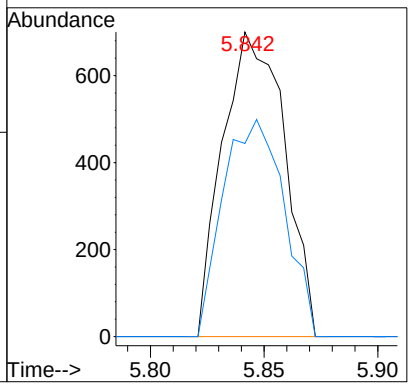


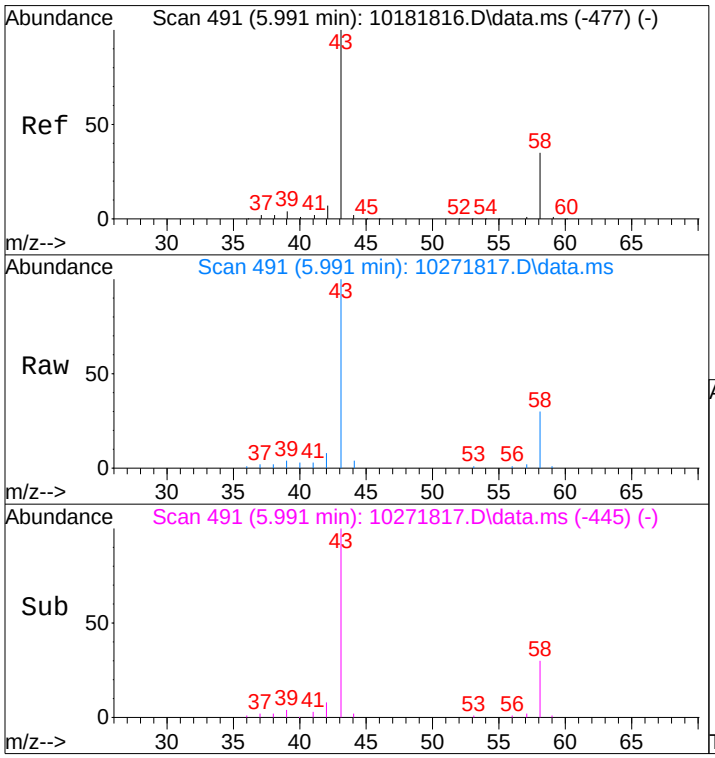


#12
Acrolein
Concen: 0.11 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 56 Resp: 1323

Ion	Ratio	Lower	Upper
56	100		
55	70.6	49.3	89.3

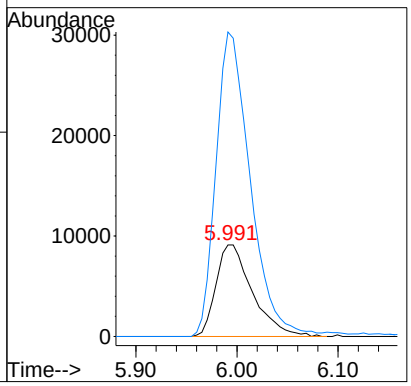


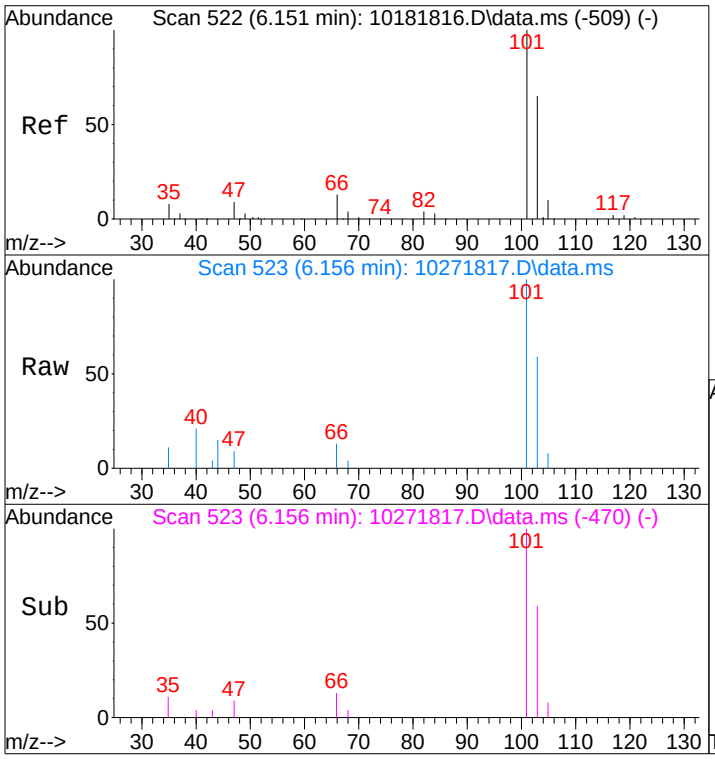


#13
Acetone
Concen: 1.38 ng
RT: 5.99 min Scan# 491
Delta R.T. -0.012 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 58 Resp: 22806

Ion	Ratio	Lower	Upper
58	100		
43	313.0	254.3	314.3

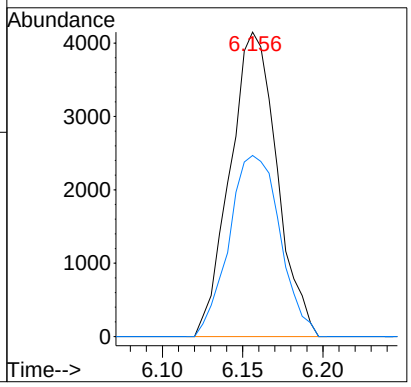


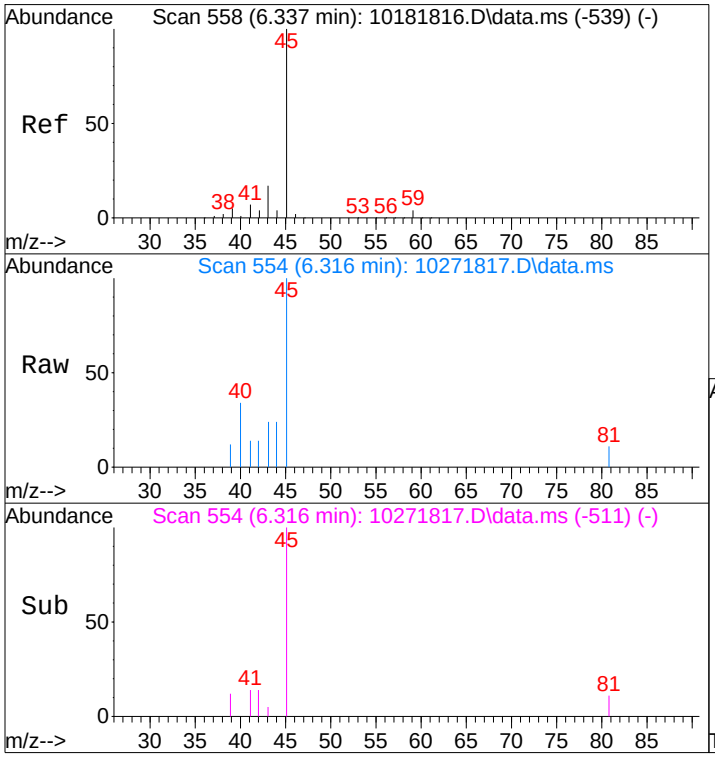


#14
Trichlorofluoromethane
Concen: 0.37 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:101 Resp: 8441

Ion	Ratio	Lower	Upper
101	100		
103	64.5	44.5	84.5

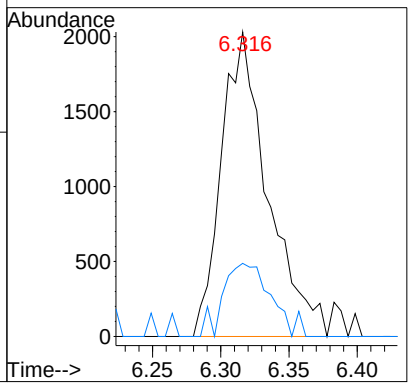


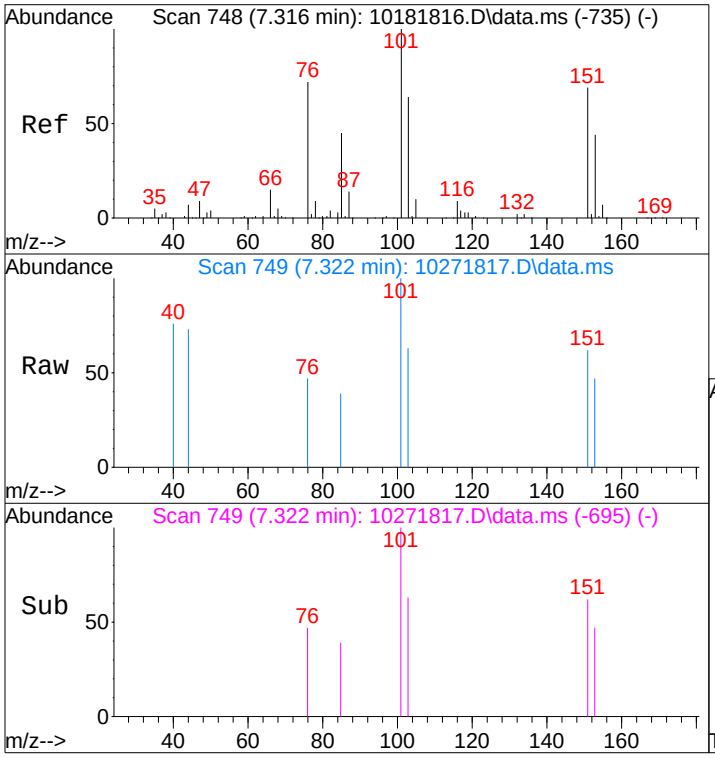


#15
2-Propanol (Isopropanol)
Concen: 0.09 ng
RT: 6.32 min Scan# 554
Delta R.T. -0.027 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 45 Resp: 4809

Ion	Ratio	Lower	Upper
45	100		
43	24.8	0.0	36.7

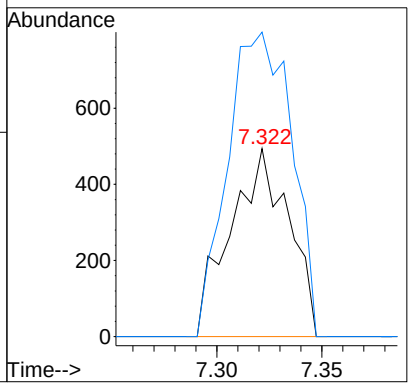


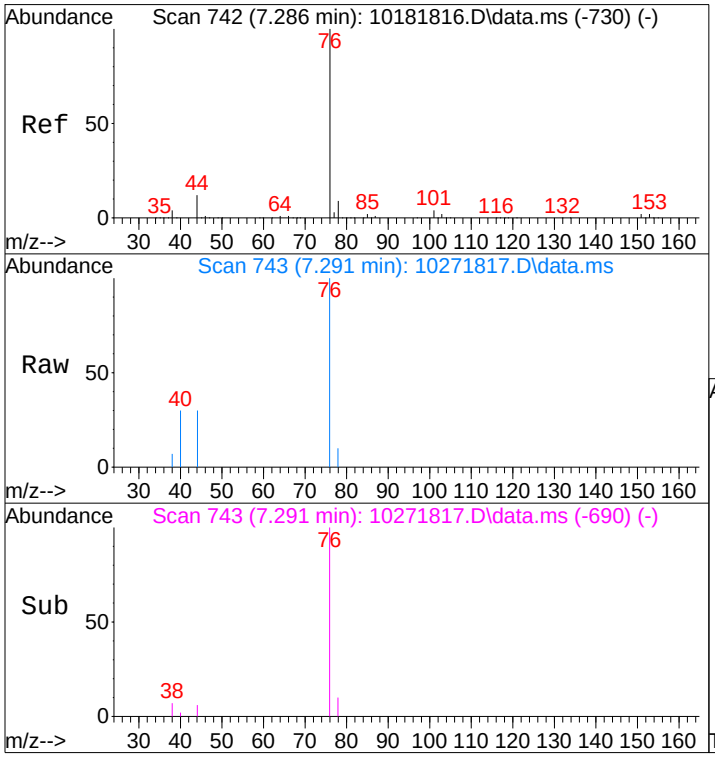


#21
Trichlorotrifluoroethane
Concen: 0.10 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.030 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:151 Resp: 951

Ion	Ratio	Lower	Upper
151	100		
101	179.3	127.5	167.5#

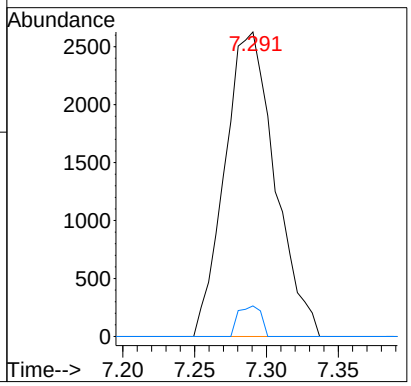


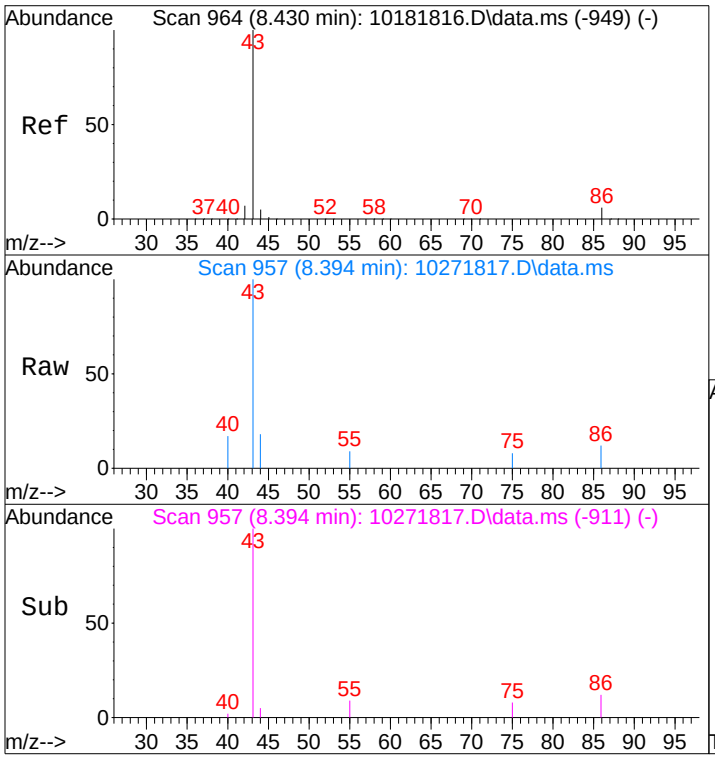


#22
Carbon Disulfide
Concen: 0.10 ng
RT: 7.29 min Scan# 743
Delta R.T. 0.025 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 76 Resp: 6377

Ion	Ratio	Lower	Upper
76	100		
78	4.6	0.0	29.6

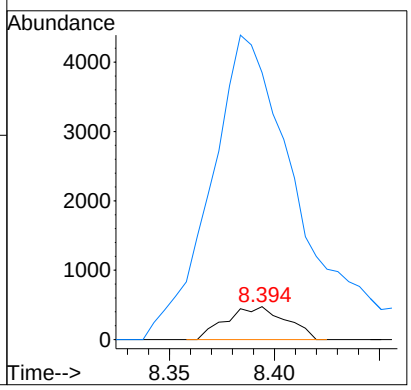


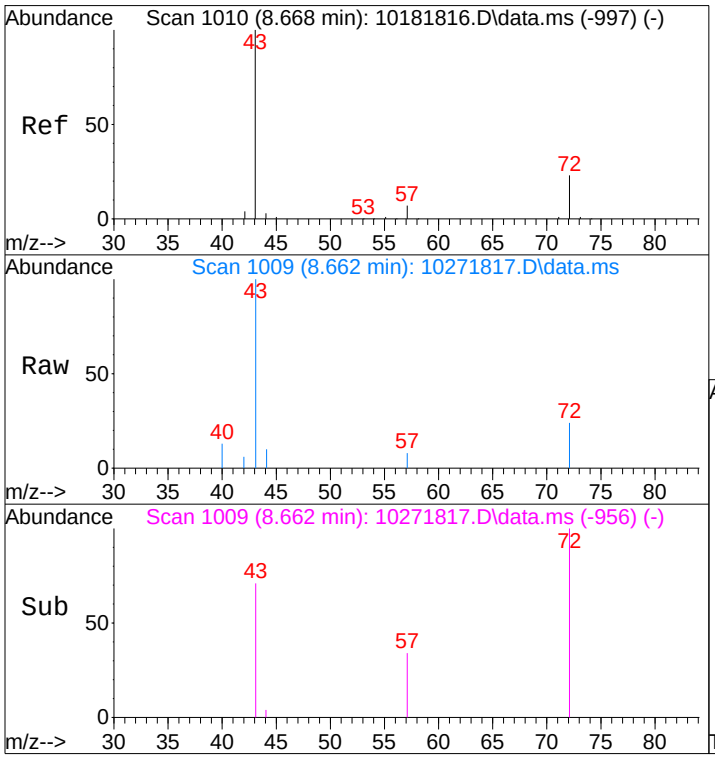


#26
Vinyl Acetate
Concen: 0.34 ng
RT: 8.39 min Scan# 957
Delta R.T. -0.015 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 86 Resp: 939

Ion	Ratio	Lower	Upper
86	100		
43	1382.9	1596.2	1636.2#

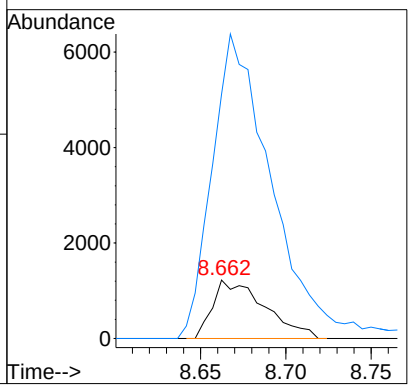


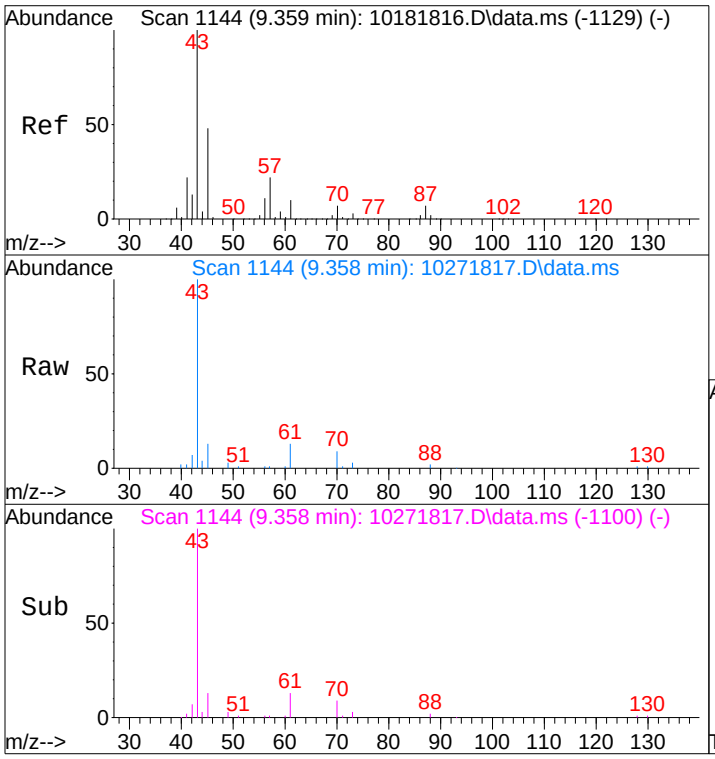


#27
2-Butanone (MEK)
Concen: 0.20 ng
RT: 8.66 min Scan# 1009
Delta R.T. 0.023 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 72 Resp: 2592

Ion	Ratio	Lower	Upper
72	100		
43	607.8	430.0	470.0#

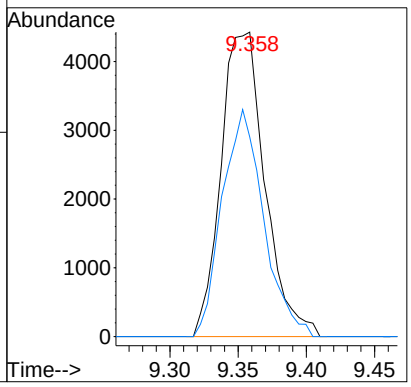


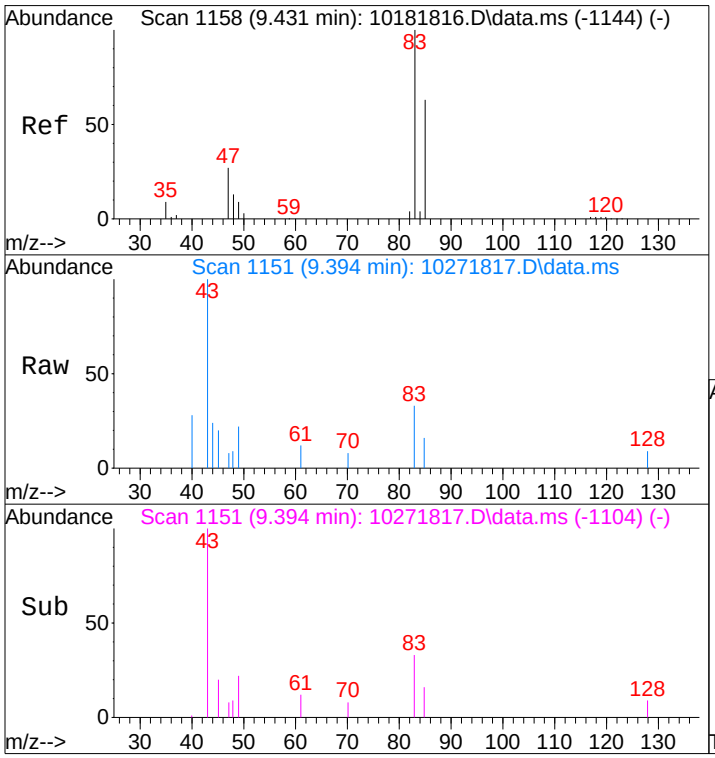


#30
Ethyl Acetate
Concen: 1.45 ng
RT: 9.36 min Scan# 1144
Delta R.T. 0.026 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 61 Resp: 9922

Ion	Ratio	Lower	Upper
61	100		
70	70.4	52.7	92.7

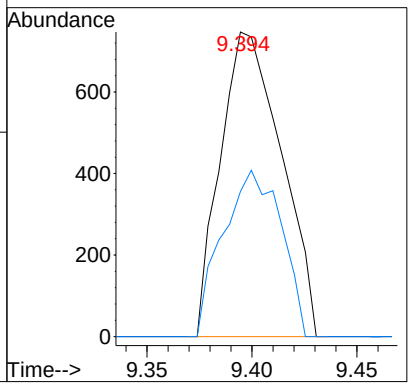


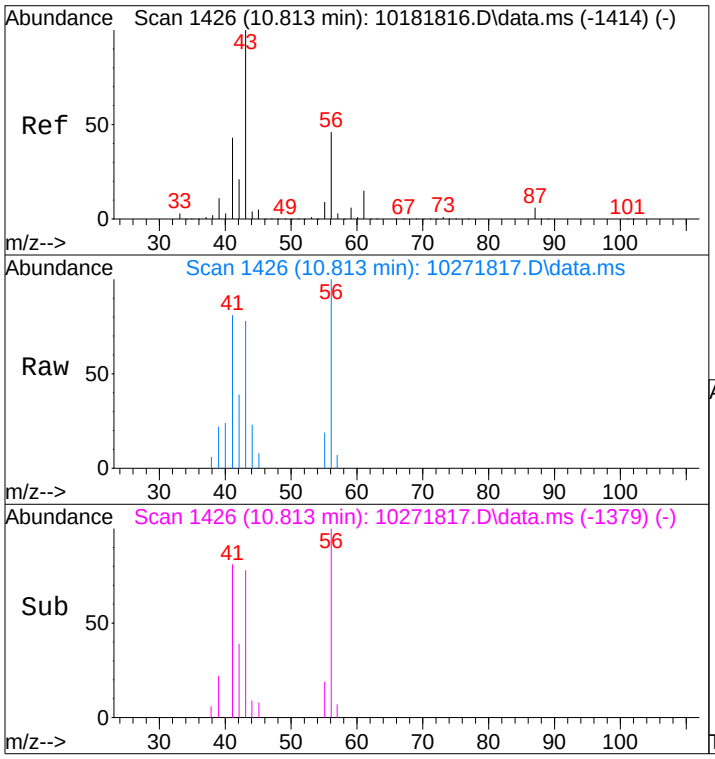


#32
Chloroform
Concen: 0.05 ng
RT: 9.39 min Scan# 1151
Delta R.T. -0.009 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 83 Resp: 1510

Ion	Ratio	Lower	Upper
83	100		
85	52.4	44.0	84.0

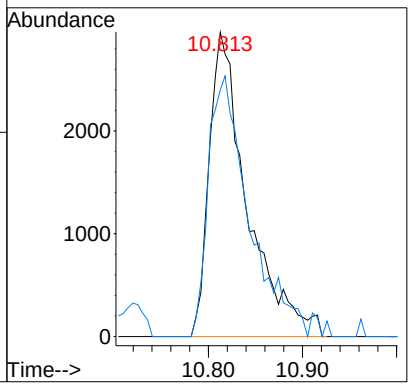


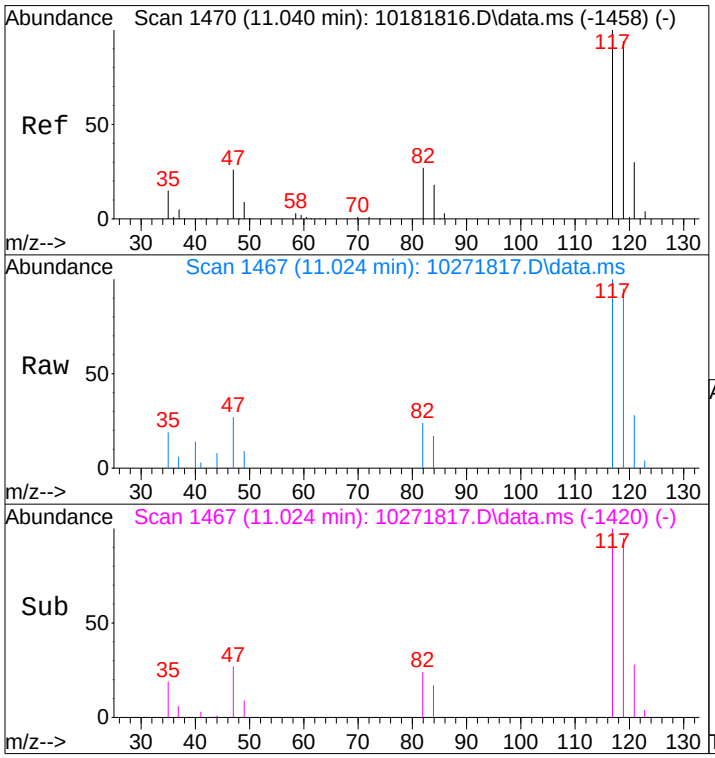


#40
1-Butanol
Concen: 0.41 ng
RT: 10.81 min Scan# 1426
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 56 Resp: 8305

Ion	Ratio	Lower	Upper
56	100		
41	91.2	90.2	130.2

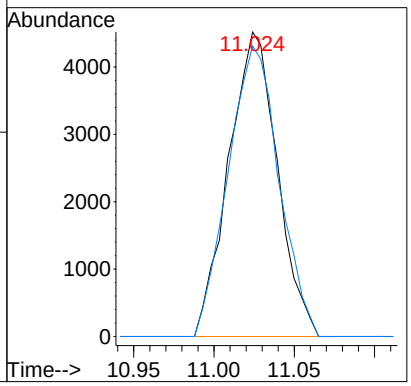


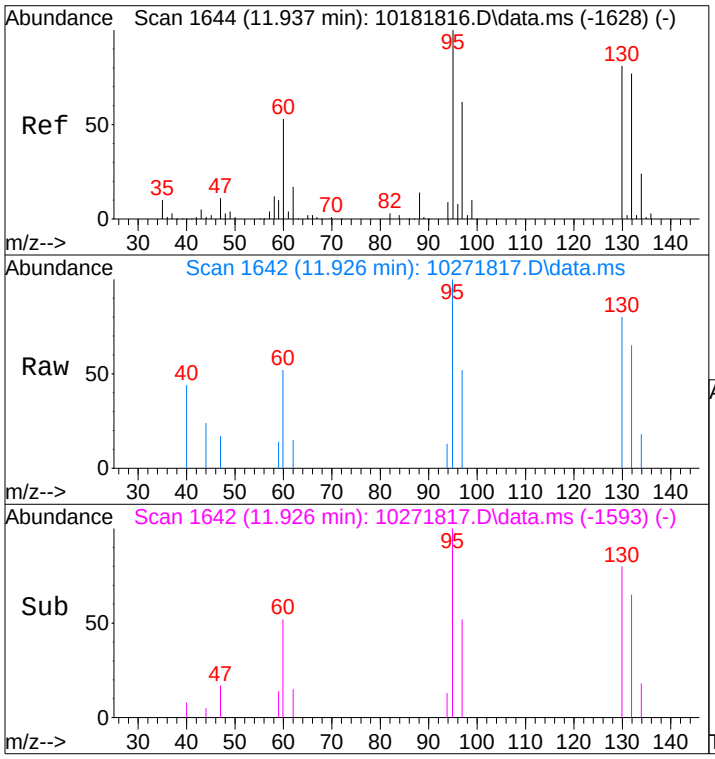


#42
Carbon Tetrachloride
Concen: 0.54 ng
RT: 11.02 min Scan# 1467
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:117 Resp: 9511

Ion	Ratio	Lower	Upper
117	100		
119	99.8	74.7	114.7

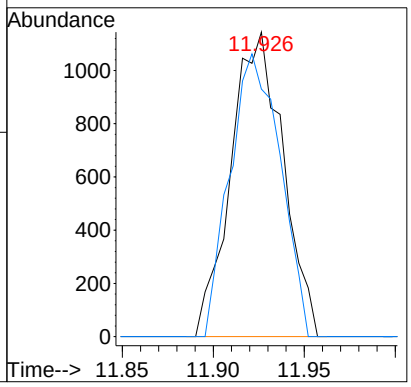


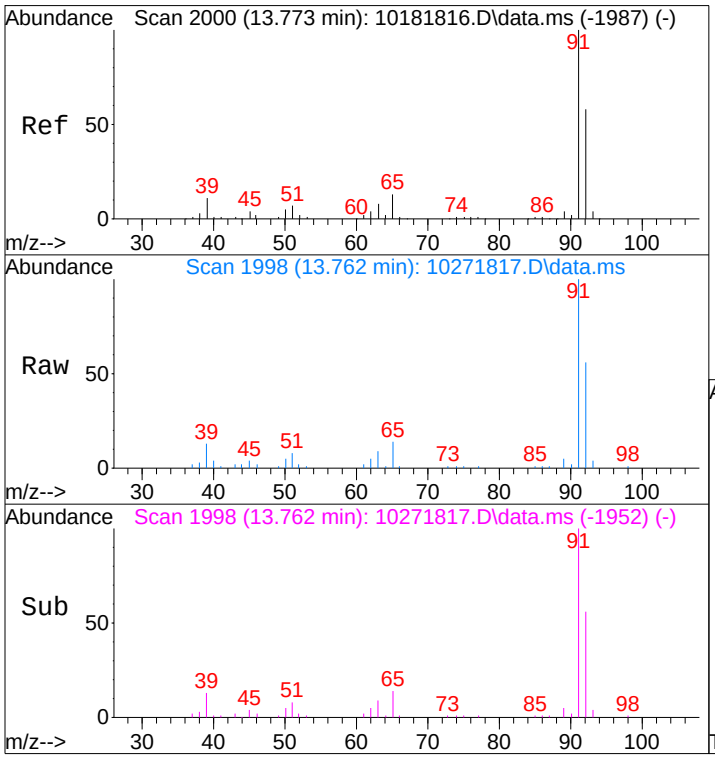


#47
Trichloroethene
Concen: 0.16 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:130 Resp: 2274

Ion	Ratio	Lower	Upper
130	100		
132	90.0	74.6	114.6

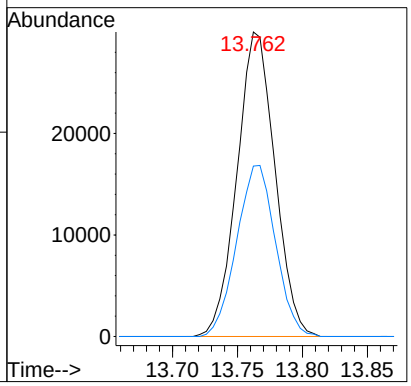


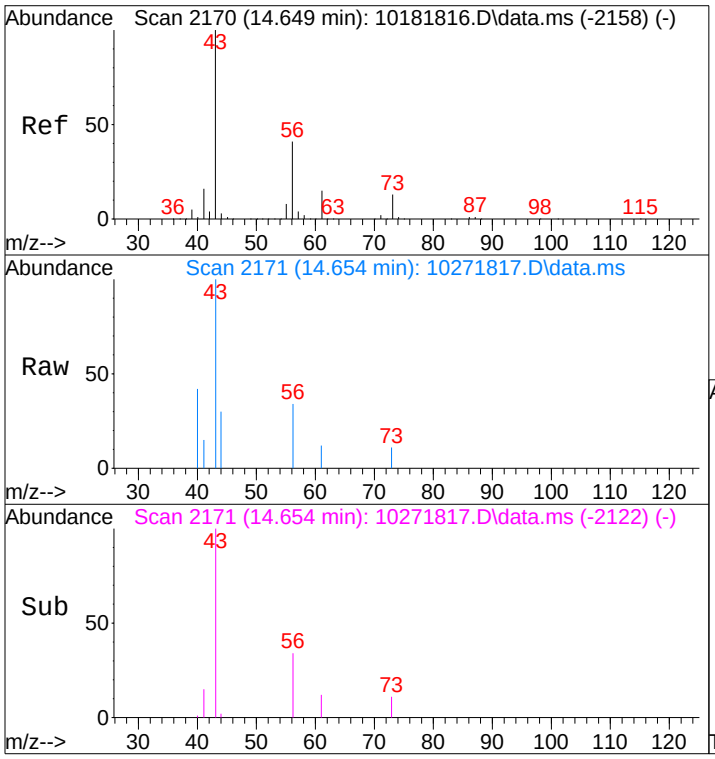


#58
Toluene
Concen: 0.84 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 91 Resp: 60881

Ion	Ratio	Lower	Upper
91	100		
92	57.5	38.1	78.1

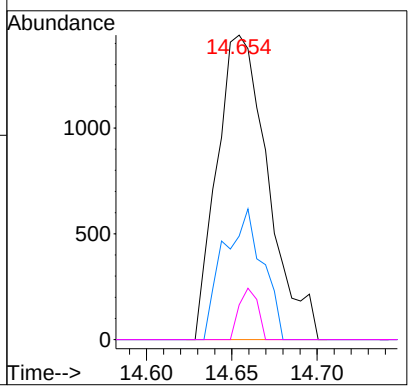


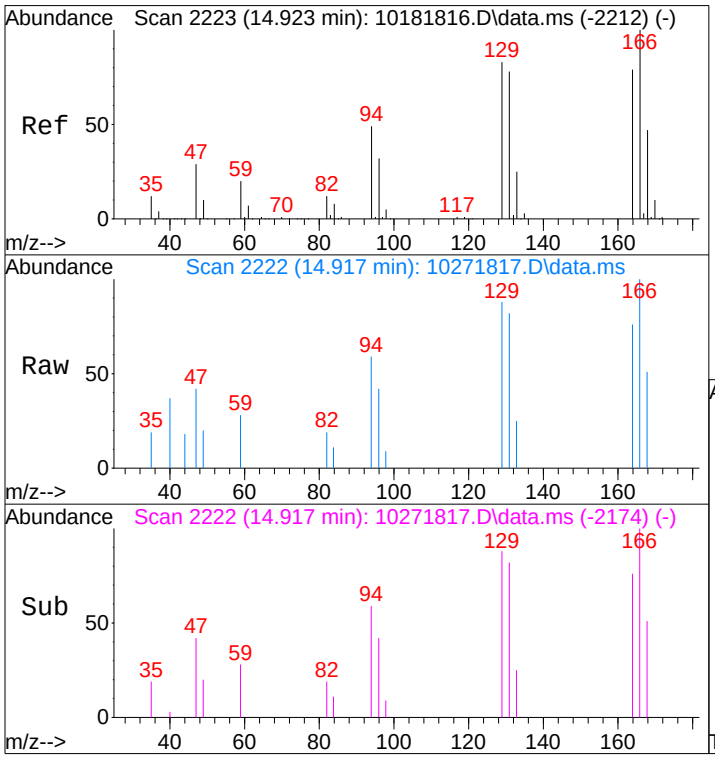


#62
n-Butyl Acetate
Concen: 0.06 ng
RT: 14.65 min Scan# 2171
Delta R.T. 0.004 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 43 Resp: 2998

Ion	Ratio	Lower	Upper
43	100		
56	33.1	20.7	60.7
73	6.2	0.0	32.8

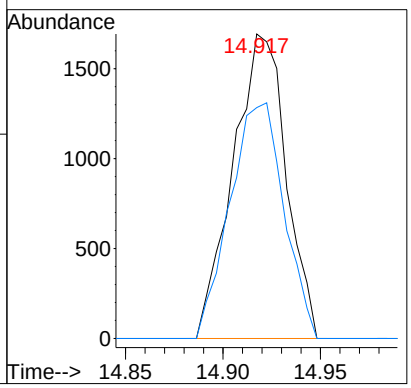


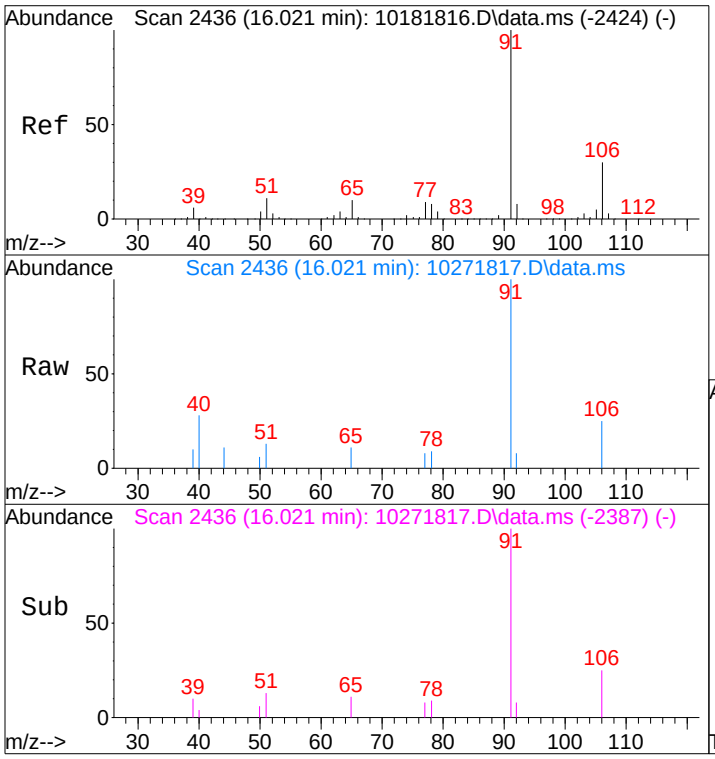


#64
Tetrachloroethene
Concen: 0.21 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:166 Resp: 3201

Ion	Ratio	Lower	Upper
166	100		
164	78.9	58.9	98.9

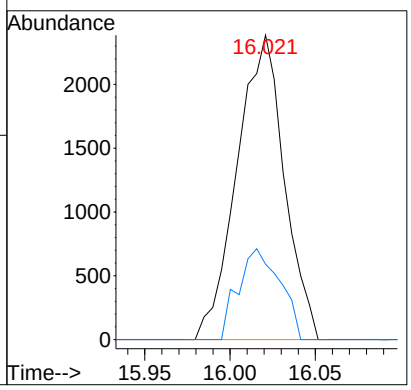


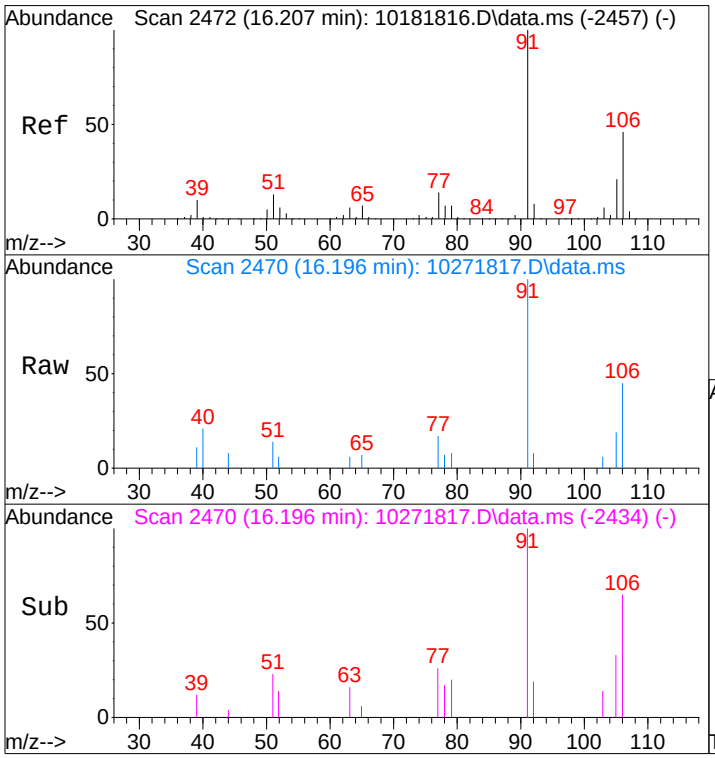


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2436
Delta R.T. 0.005 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 91 Resp: 4600

Ion	Ratio	Lower	Upper
91	100		
106	26.5	9.9	49.9

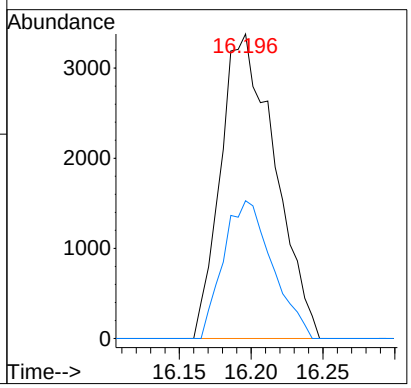


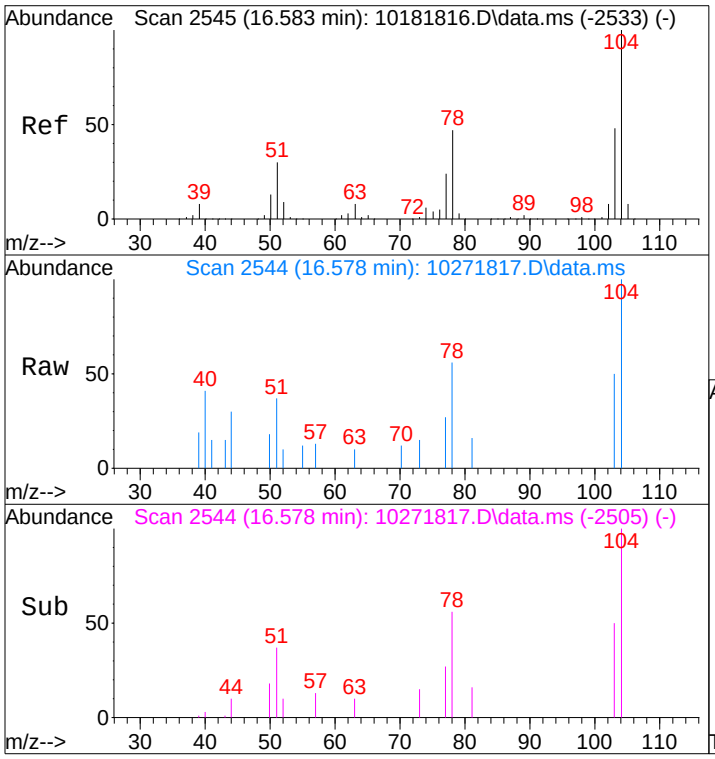


#67
m- & p-Xylenes
Concen: 0.15 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 91 Resp: 8854

Ion	Ratio	Lower	Upper
91	100		
106	40.9	26.7	66.7

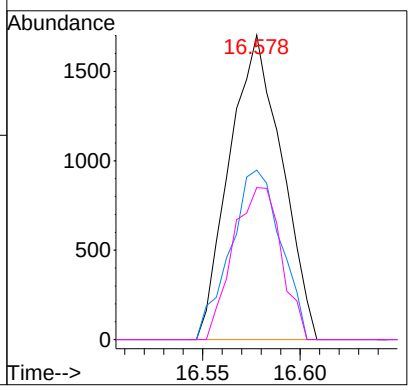


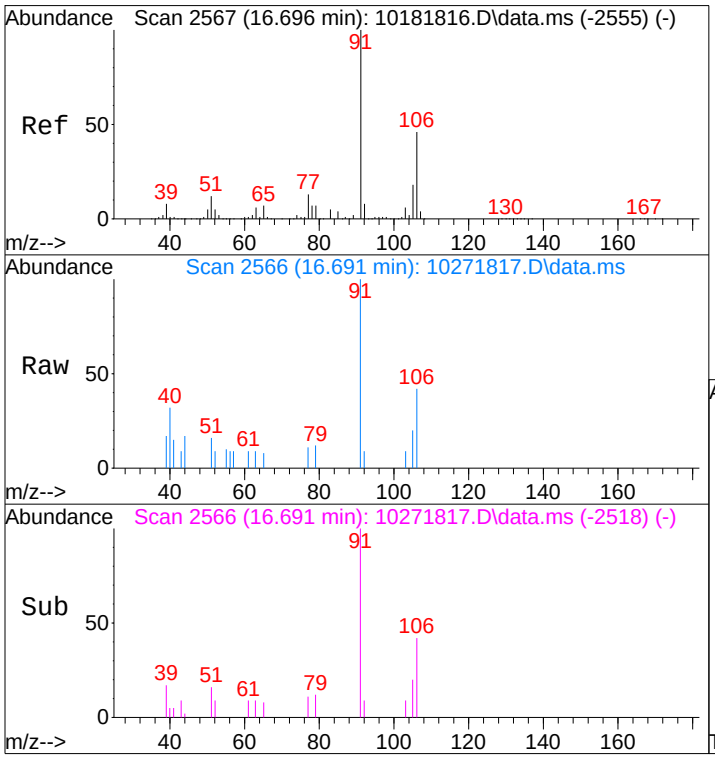


#69
Styrene
Concen: 0.07 ng
RT: 16.58 min Scan# 2544
Delta R.T. 0.000 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:104 Resp: 3168

Ion	Ratio	Lower	Upper
104	100		
78	53.9	27.8	67.8
103	46.2	27.9	67.9

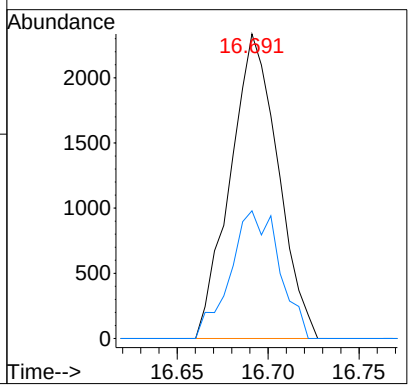


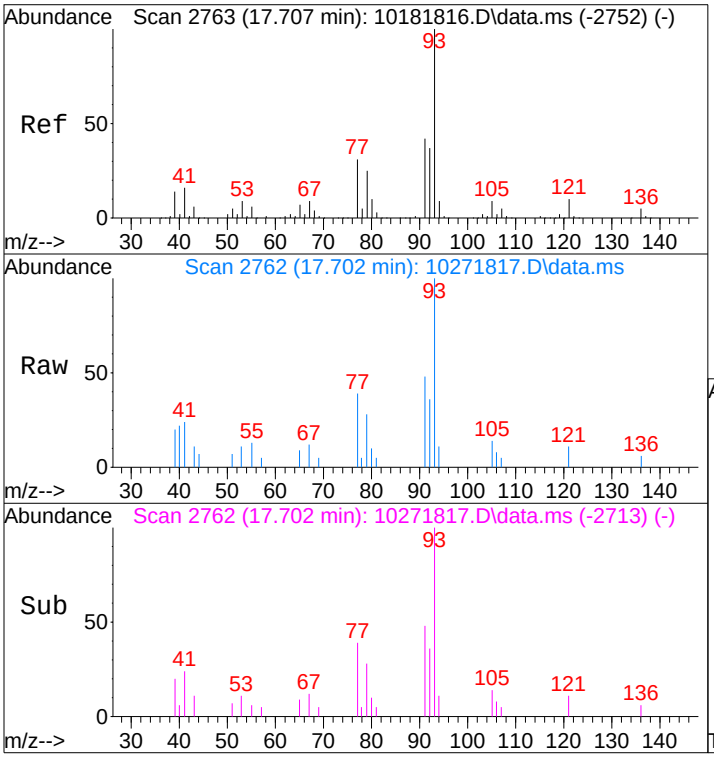


#70
o-Xylene
Concen: 0.07 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 91 Resp: 4252

Ion	Ratio	Lower	Upper
91	100		
106	43.2	25.2	65.2

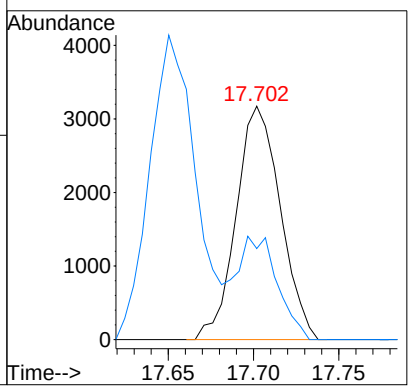


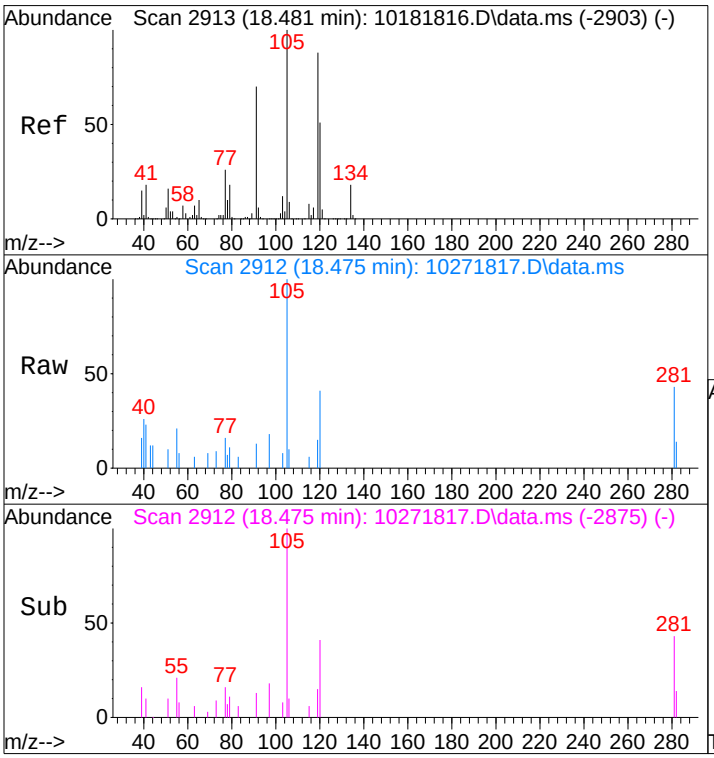


#75
alpha-Pinene
Concen: 0.15 ng
RT: 17.70 min Scan# 2762
Delta R.T. 0.001 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 93 Resp: 5723

Ion	Ratio	Lower	Upper
93	100		
77	41.6	11.2	51.2

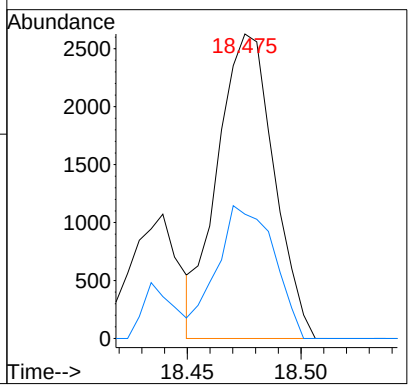


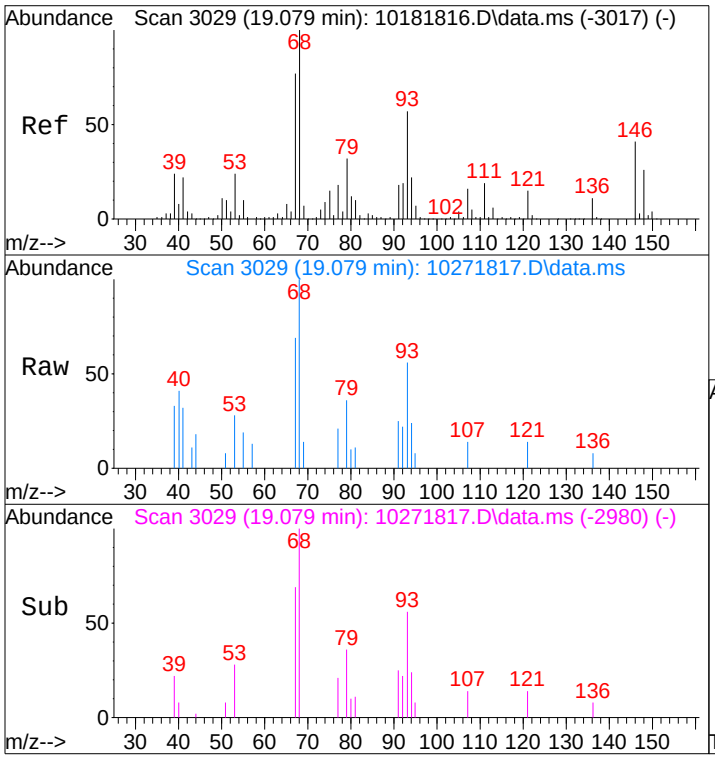


#82
1,2,4-Trimethylbenzene
Concen: 0.08 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion:105 Resp: 4524

Ion	Ratio	Lower	Upper
105	100		
120	44.1	31.3	71.3

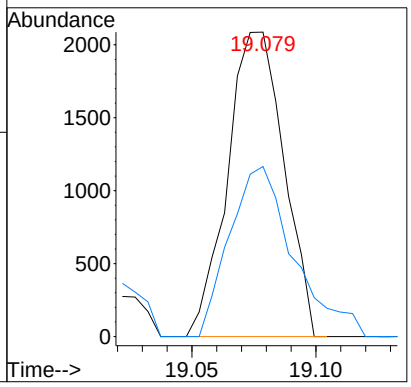




#91
d-Limonene
Concen: 0.11 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10271817.D
Acq: 27 Oct 2018 12:21

Tgt Ion: 68 Resp: 3296

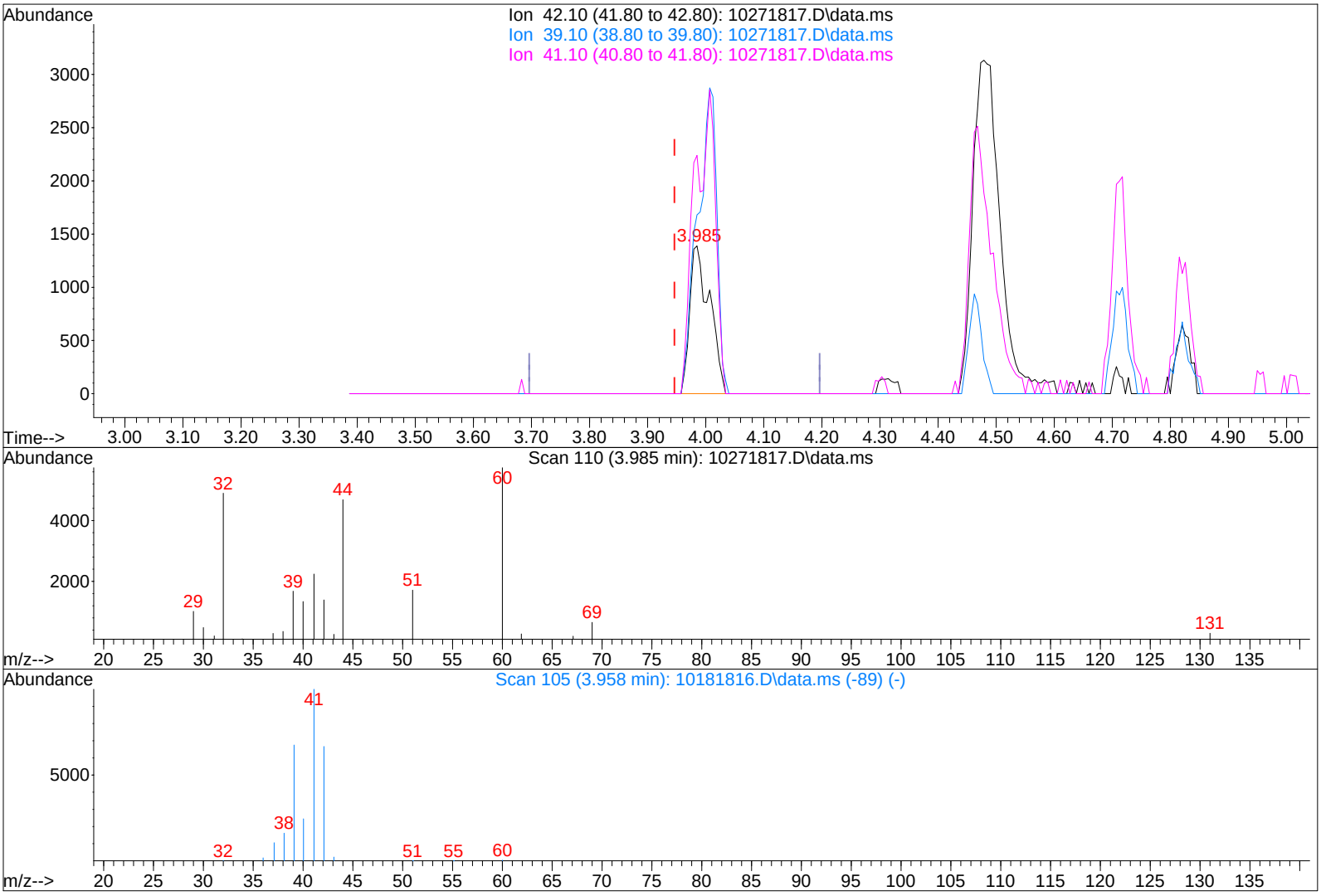
Ion	Ratio	Lower	Upper
68	100		
93	63.7	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 28 10:45:59 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271817.D\data.ms

(2) Propene (T)

3.985min (+0.039) 0.11ng

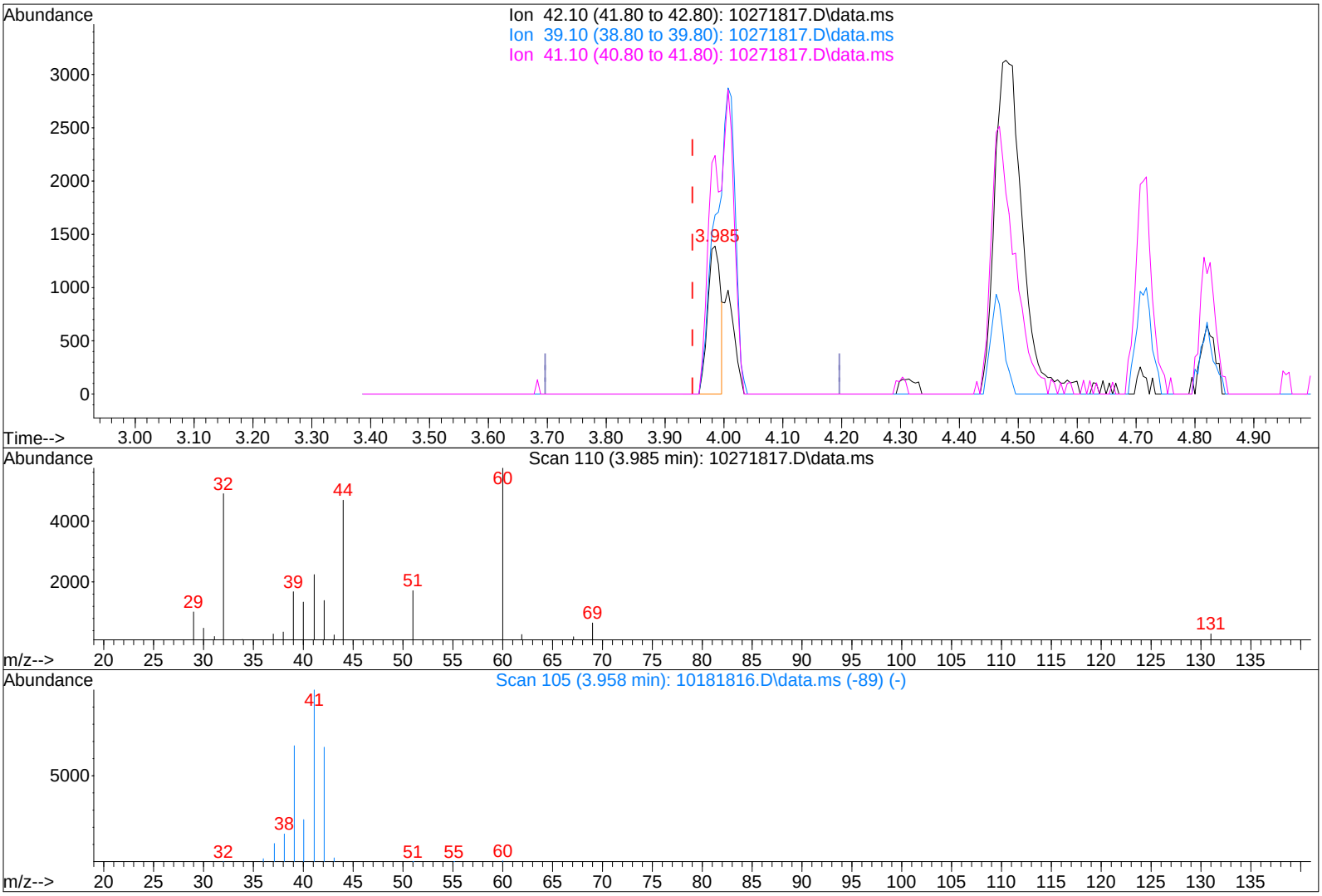
response 3305

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	0.00#
41.10	150.40	90.35#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 28 10:45:59 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271817.D\data.ms

(2) Propene (T)

3.985min (+0.039) 0.07ng m

response 2111

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	105.12
41.10	150.40	141.45
0.00	0.00	0.00

IPC

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:26:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

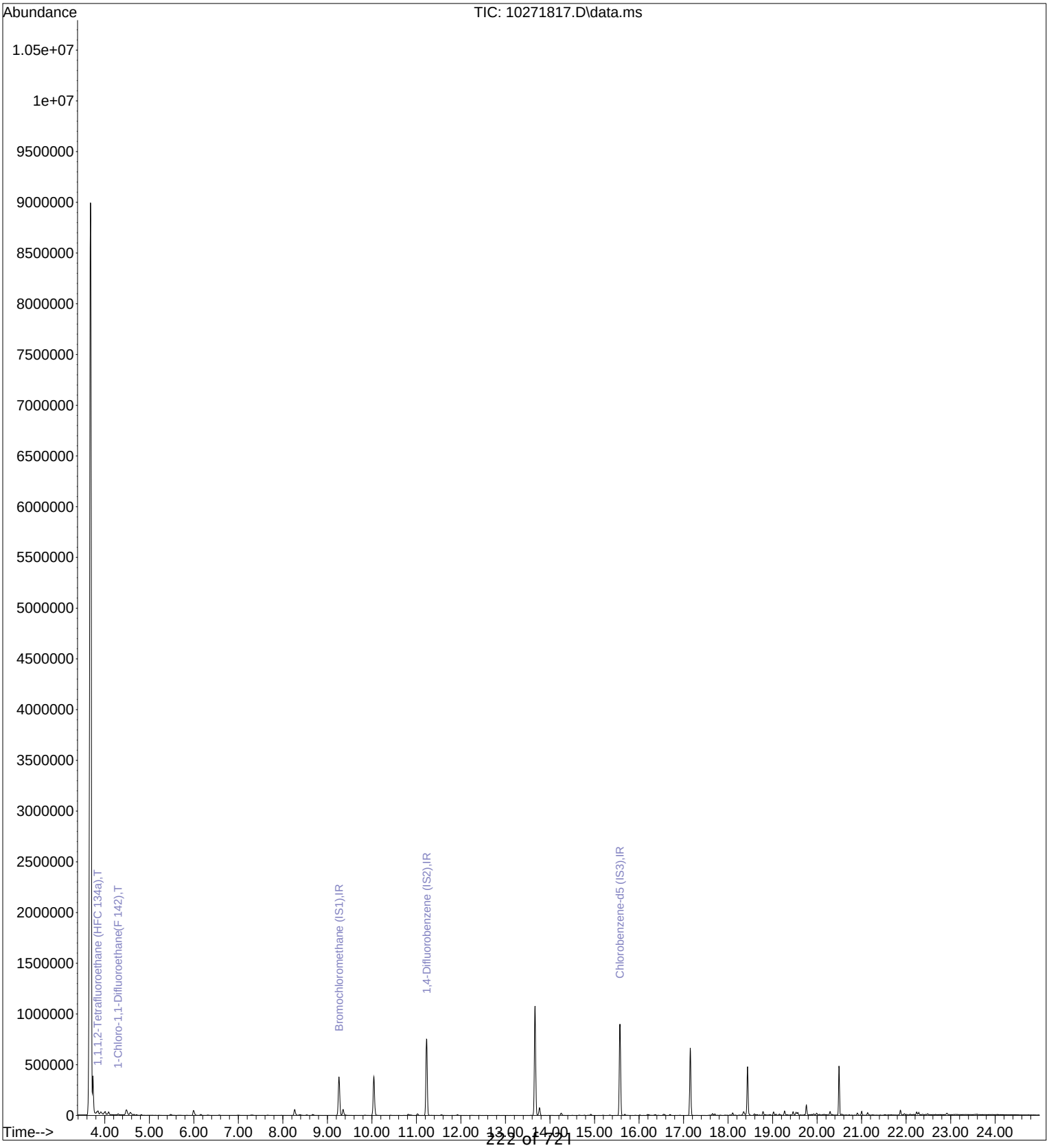
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	117415	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	601463	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	370184	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	184	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	3308	0.273	ng	#	1
4) 1,1-Difluoroethane	3.91	65	191	N.D.			
5) Chlorodifluoromethane ...	3.98	67	305	N.D.			
6) 1-Chloro-1,1-Difluoroe...	4.30	65	7014	0.267	ng	#	99
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	1219	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.02	84	1866	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	0.00	55	0	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.83	91	979	N.D.			
27) 4-Chlorotoluene	17.83	91	979	N.D.			
28) Indane	19.14	117	195	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.15	119	371	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	480	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	281	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271817.D Vial: 6
Acq On : 27 Oct 2018 12:21 Operator: WA
Sample : P1805493-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:26:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:25:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116873	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	596006	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	363570	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	297296	14.668	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.36%				
57) Toluene-d8 (SS2)	13.66	98	777451	12.240	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
73) Bromofluorobenzene (SS3)	17.15	174	156539	10.955	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.60%				
Target Compounds							Qvalue
2) Propene	3.99	42	2800m	0.095	ng		
3) Dichlorodifluoromethan...	4.09	85	25502	0.801	ng		99
4) Chloromethane	4.31	50	701	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.47	135	232	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	36232	2.270	ng		93
11) Acetonitrile	5.69	41	1162	N.D.			
12) Acrolein	5.84	56	996	0.081	ng		99
13) Acetone	5.99	58	31157	1.889	ng	#	76
14) Trichlorofluoromethane	6.16	101	8147	0.357	ng		96
15) 2-Propanol (Isopropanol)	6.31	45	11963	0.233	ng		90
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	7.01	84	154	N.D.			
20) 3-Chloro-1-propene (Al...	6.98	41	485	N.D.			
21) Trichlorotrifluoroethane	7.32	151	978	0.107	ng	#	74
22) Carbon Disulfide	7.29	76	5199	0.084	ng		87
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.27	73	115	N.D.			
26) Vinyl Acetate	8.38	86	2014	0.741	ng	#	12
27) 2-Butanone (MEK)	8.67	72	2482	0.193	ng	#	49
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.35	61	7331	1.076	ng		97
31) n-Hexane	9.35	57	307	N.D.			
32) Chloroform	9.40	83	1350	N.D.			
34) Tetrahydrofuran (THF)	9.85	72	109	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	184	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	7491	0.370	ng	#	79
41) Benzene	10.87	78	2246	N.D.			
42) Carbon Tetrachloride	11.02	117	9457	0.539	ng		98
43) Cyclohexane	11.22	84	620	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.93	130	1806	0.126	ng		97
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:25:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

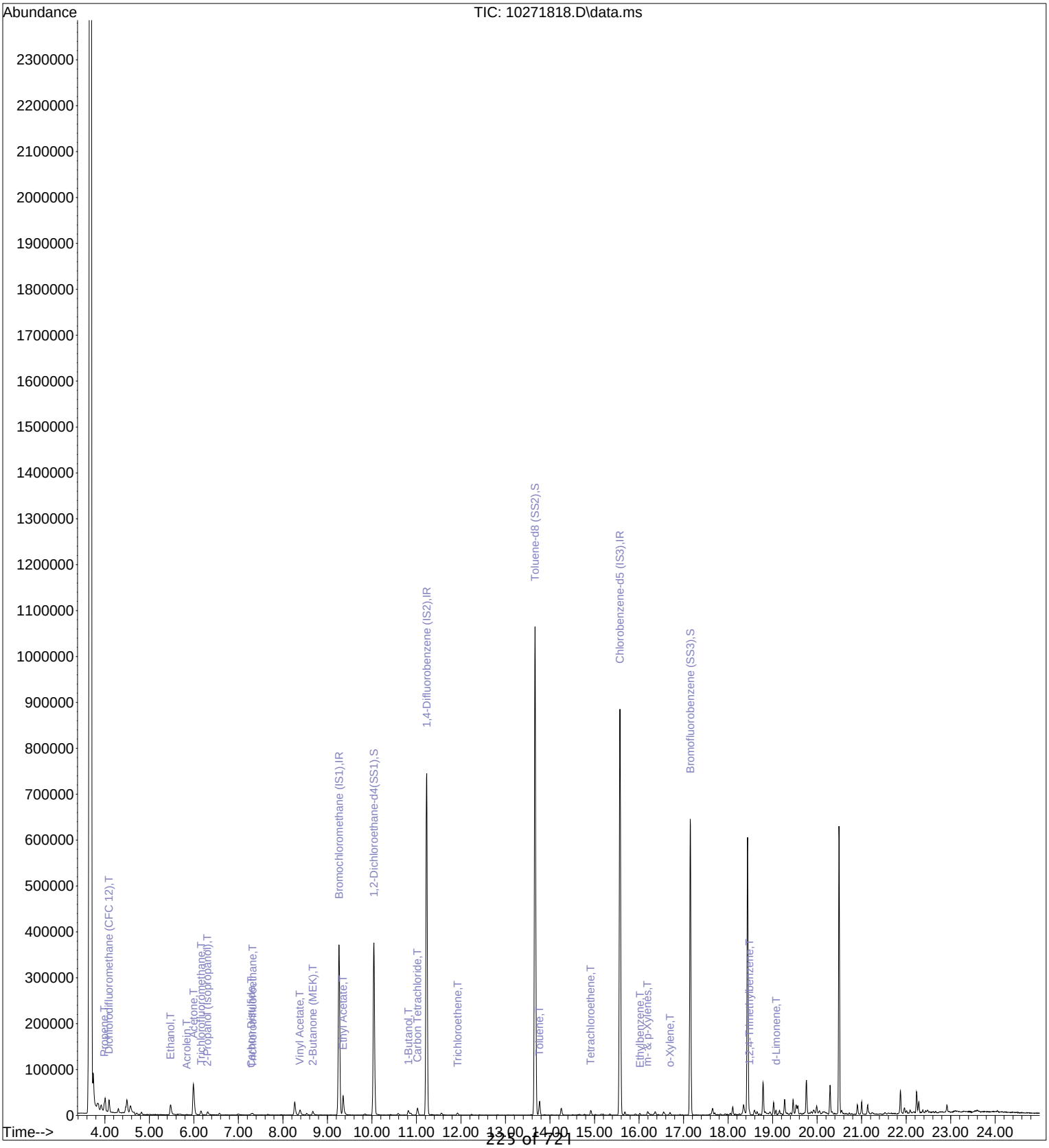
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.23	71	447	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	24389	0.343 ng	97
59) 2-Hexanone	14.04	43	779	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	1569	N.D.	
63) n-Octane	14.77	57	256	N.D.	
64) Tetrachloroethene	14.91	166	3142	0.214 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	3927	0.050 ng	88
67) m- & p-Xylenes	16.19	91	6800	0.114 ng	93
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1162	N.D.	
70) o-Xylene	16.70	91	3695	0.063 ng	94
71) n-Nonane	16.92	43	945	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.15	105	138	N.D.	
75) alpha-Pinene	17.71	93	1809	N.D.	
76) n-Propylbenzene	17.82	91	772	N.D.	
77) 3-Ethyltoluene	17.93	105	1817	N.D.	
78) 4-Ethyltoluene	17.98	105	949	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	882	N.D.	
80) alpha-Methylstyrene	18.21	118	405	N.D.	
81) 2-Ethyltoluene	18.25	105	768	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3841	0.070 ng	86
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	326	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	238	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	238	N.D.	
87) sec-Butylbenzene	18.92	105	756	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	710	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	756	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	2706	0.095 ng	98
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2173	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.35	91	653	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:25:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:25:49 2018 RS 10/29/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

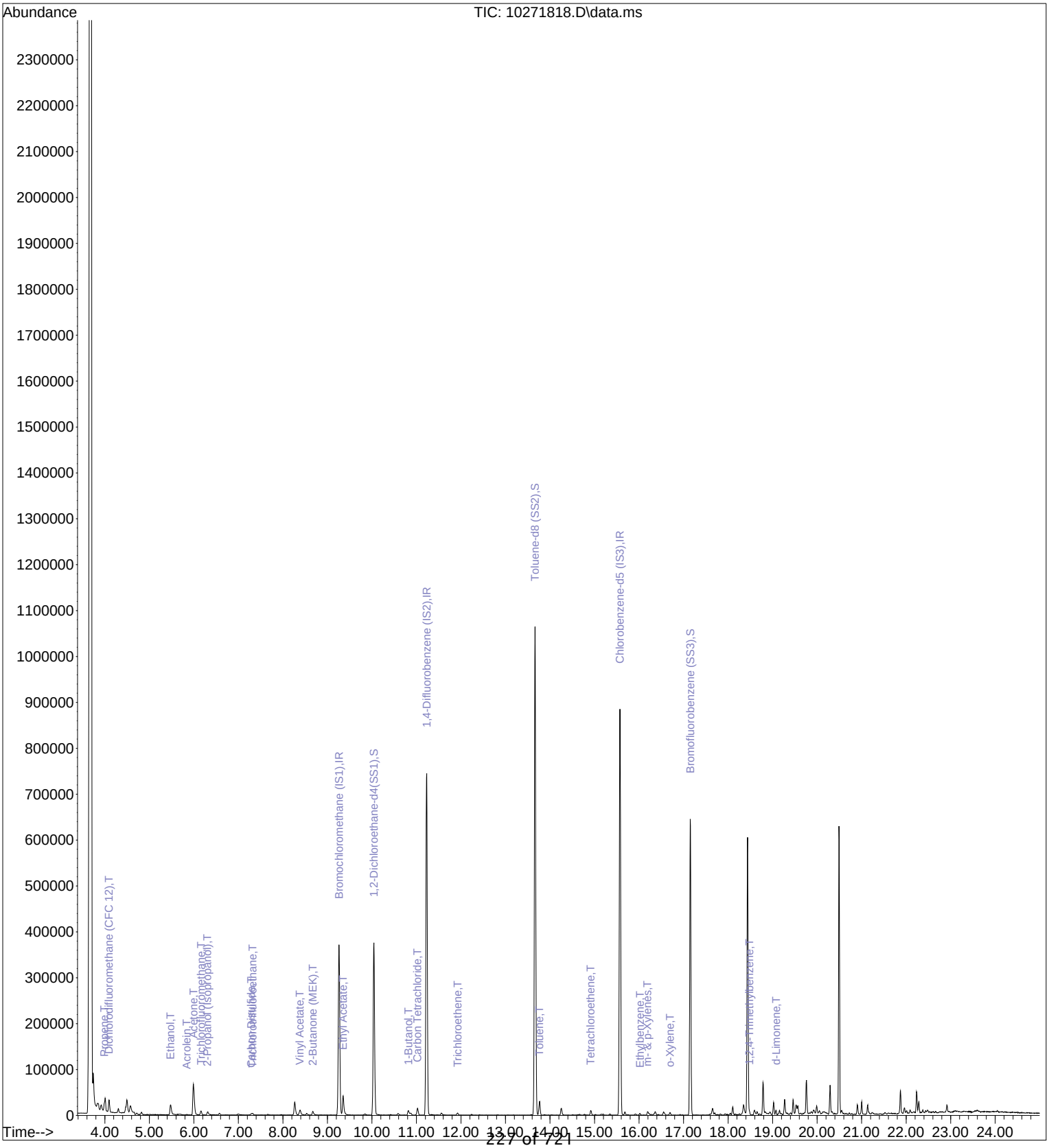
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116873	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	596006	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	363570	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	297296	14.668	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.36%				
57) Toluene-d8 (SS2)	13.66	98	777451	12.240	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
73) Bromofluorobenzene (SS3)	17.15	174	156539	10.955	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.60%				
Target Compounds							Qvalue
2) Propene	3.99	42	2800m	0.095	ng		
3) Dichlorodifluoromethan...	4.09	85	25502	0.801	ng		99
10) Ethanol	5.48	45	36232	2.270	ng		93
12) Acrolein	5.84	56	996	0.081	ng		99
13) Acetone	5.99	58	31157	1.889	ng	#	76
14) Trichlorofluoromethane	6.16	101	8147	0.357	ng		96
15) 2-Propanol (Isopropanol)	6.31	45	11963	0.233	ng		90
21) Trichlorotrifluoroethane	7.32	151	978	0.107	ng	#	74
22) Carbon Disulfide	7.29	76	5199	0.084	ng		87
26) Vinyl Acetate	8.38	86	2014	0.741	ng	#	12
27) 2-Butanone (MEK)	8.67	72	2482	0.193	ng	#	49
30) Ethyl Acetate	9.35	61	7331	1.076	ng		97
40) 1-Butanol	10.82	56	7491	0.370	ng	#	79
42) Carbon Tetrachloride	11.02	117	9457	0.539	ng		98
47) Trichloroethene	11.93	130	1806	0.126	ng		97
58) Toluene	13.76	91	24389	0.343	ng		97
64) Tetrachloroethene	14.91	166	3142	0.214	ng		99
66) Ethylbenzene	16.02	91	3927	0.050	ng		88
67) m- & p-Xylenes	16.19	91	6800	0.114	ng		93
70) o-Xylene	16.70	91	3695	0.063	ng		94
82) 1,2,4-Trimethylbenzene	18.48	105	3841	0.070	ng		86
91) d-Limonene	19.08	68	2706	0.095	ng		98

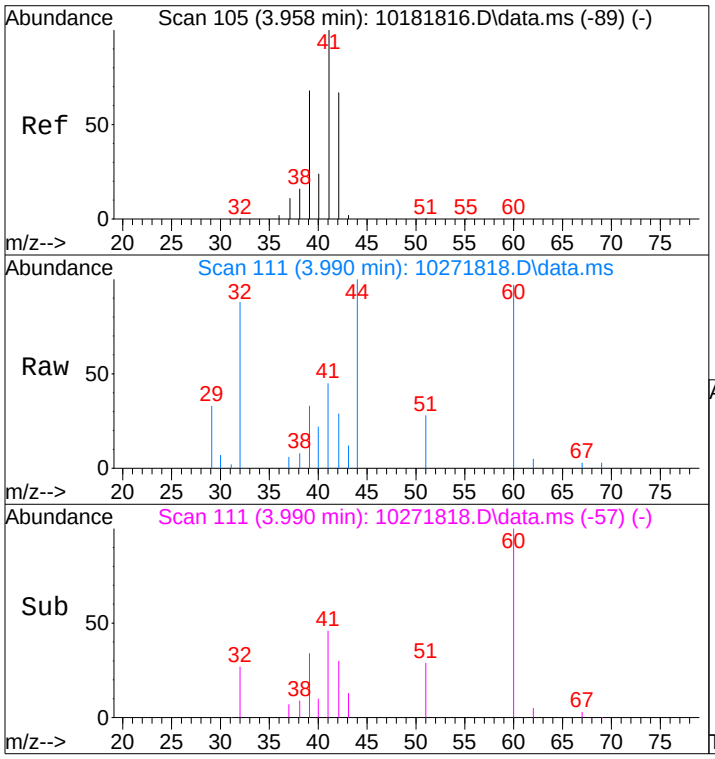
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:25:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

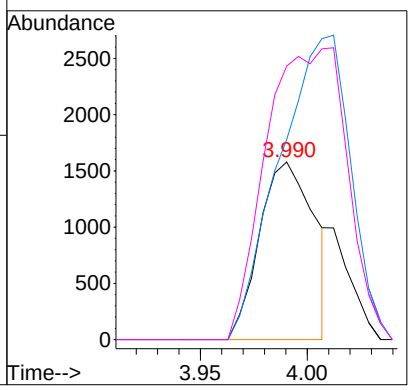


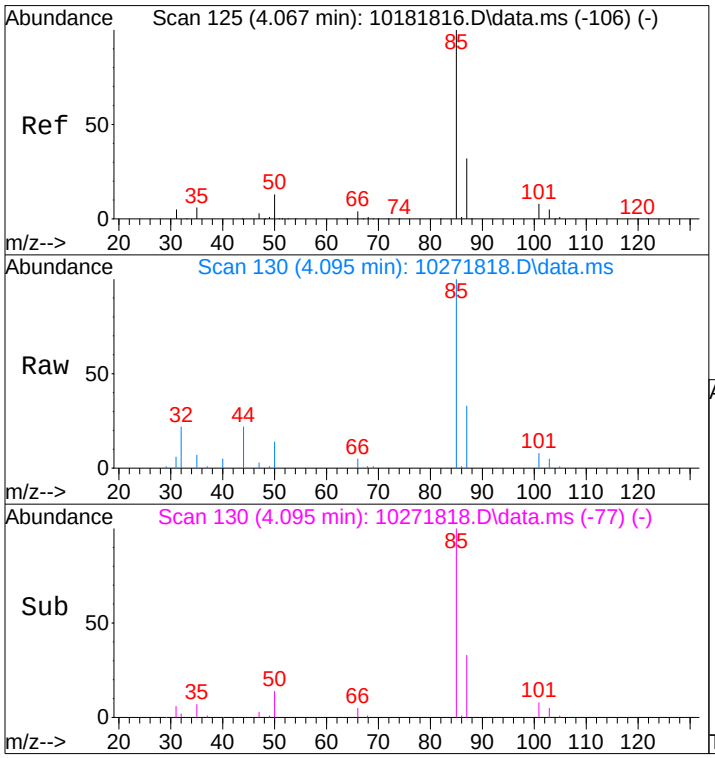


#2
Propene
Concen: 0.09 ng m
RT: 3.99 min Scan# 111
Delta R.T. 0.044 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 42 Resp: 2800

Ion	Ratio	Lower	Upper
42	100		
39	86.2	81.9	121.9
41	146.0	130.4	170.4

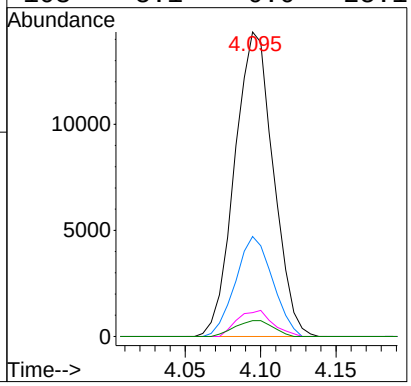


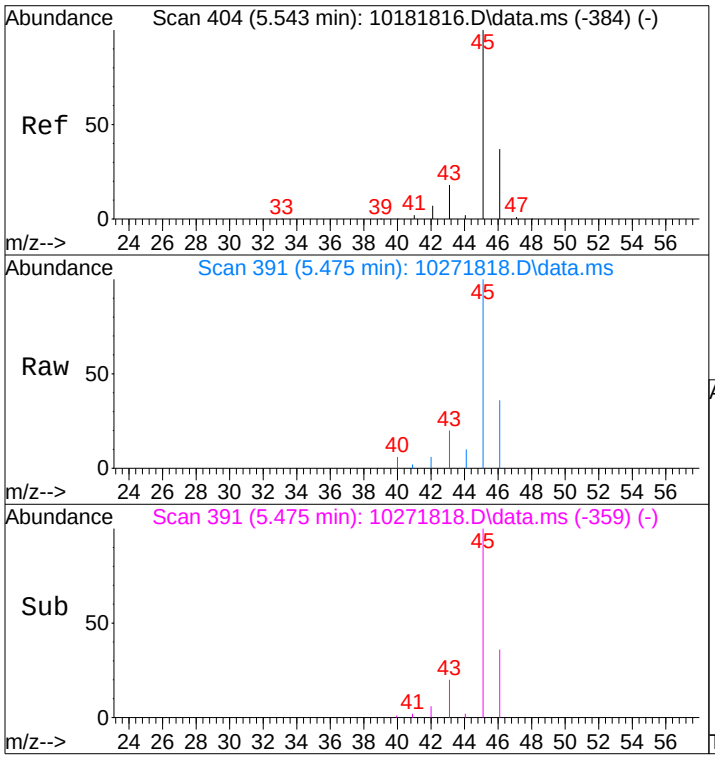


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.80 ng
RT: 4.09 min Scan# 130
Delta R.T. 0.039 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 85 Resp: 25502

Ion	Ratio	Lower	Upper
85	100		
87	31.5	12.0	52.0
101	7.9	0.0	28.0
103	5.1	0.0	25.1

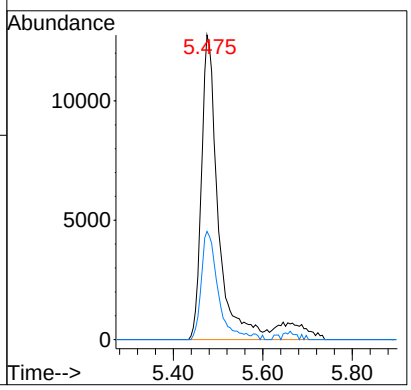


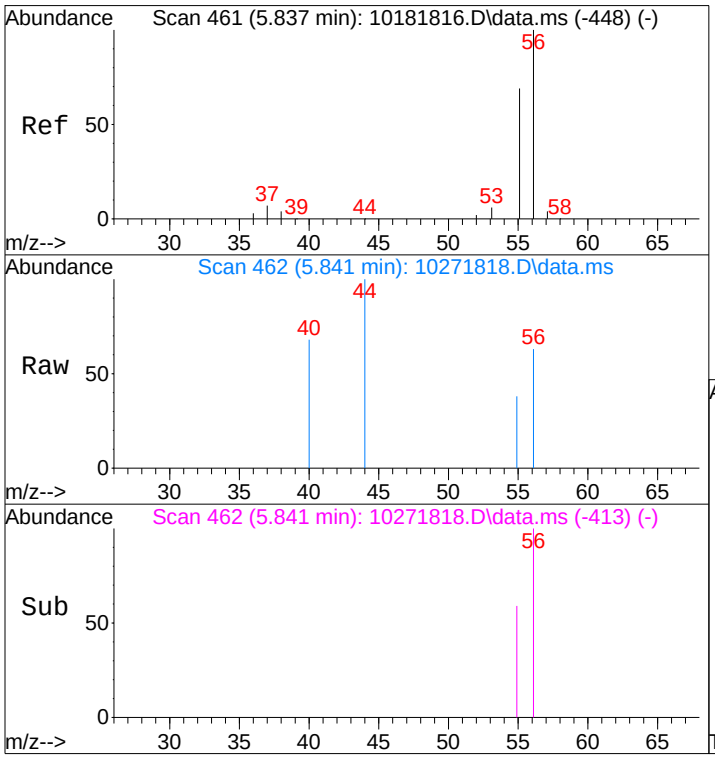


#10
Ethanol
Concen: 2.27 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 45 Resp: 36232

Ion	Ratio	Lower	Upper
45	100		
46	32.8	17.0	57.0

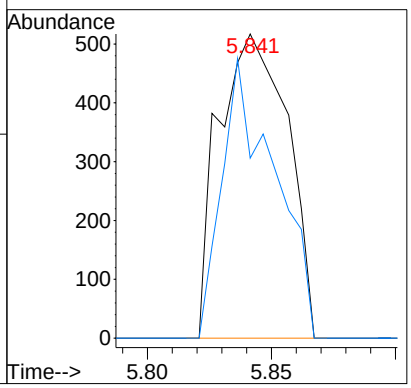


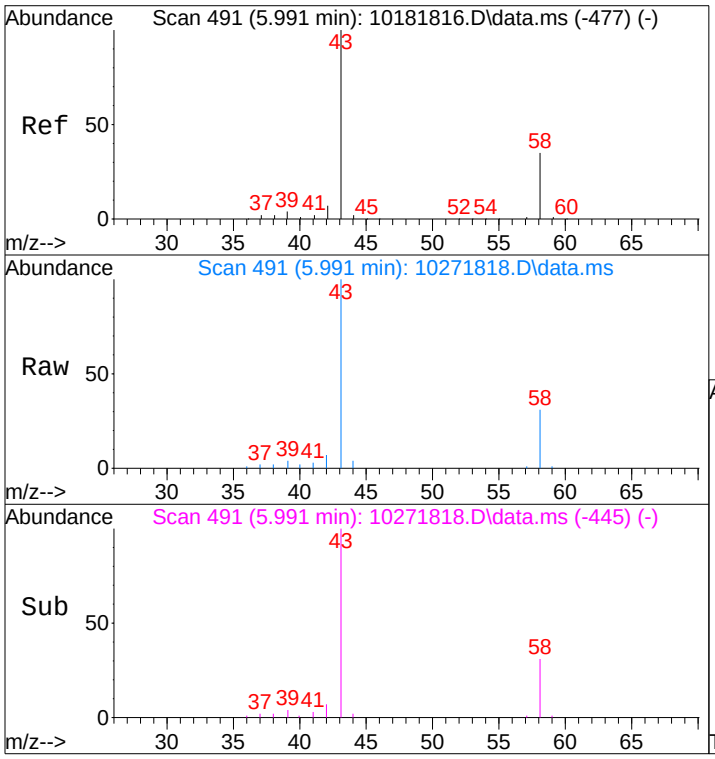


#12
Acrolein
Concen: 0.08 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 56 Resp: 996

Ion	Ratio	Lower	Upper
56	100		
55	70.4	49.3	89.3

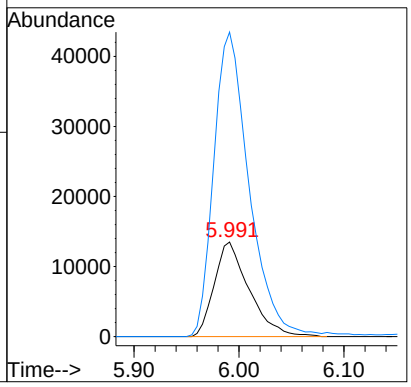


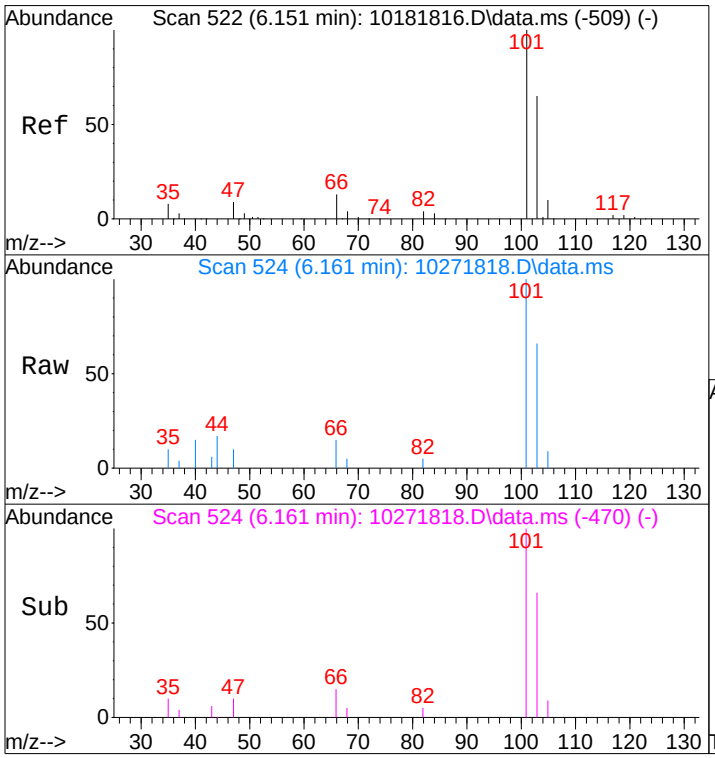


#13
Acetone
Concen: 1.89 ng
RT: 5.99 min Scan# 491
Delta R.T. -0.012 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 58 Resp: 31157

Ion	Ratio	Lower	Upper
58	100		
43	329.9	254.3	314.3#

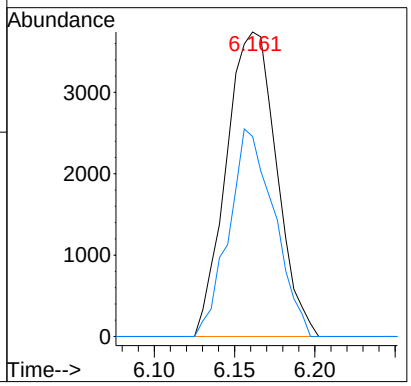


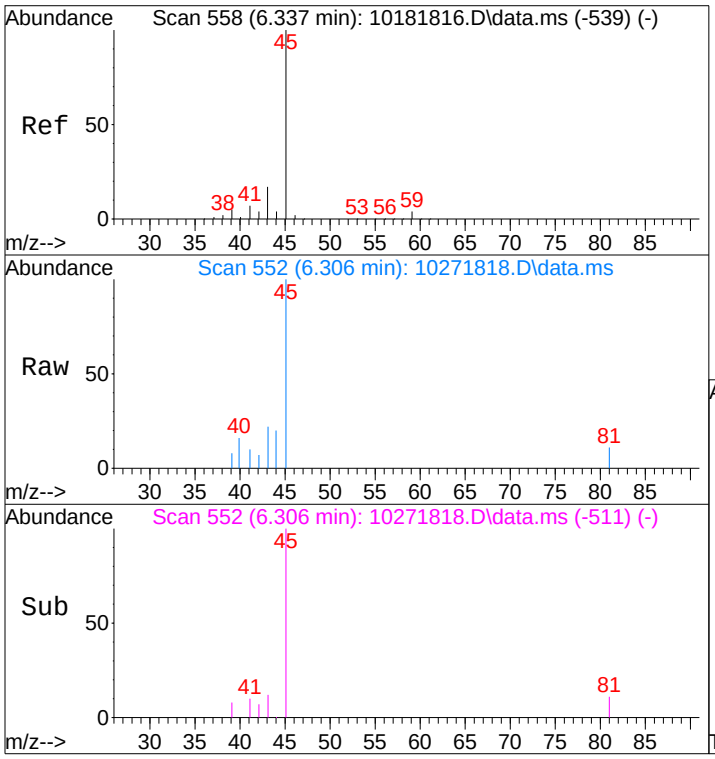


#14
Trichlorofluoromethane
Concen: 0.36 ng
RT: 6.16 min Scan# 524
Delta R.T. 0.029 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:101 Resp: 8147

Ion	Ratio	Lower	Upper
101	100		
103	61.5	44.5	84.5

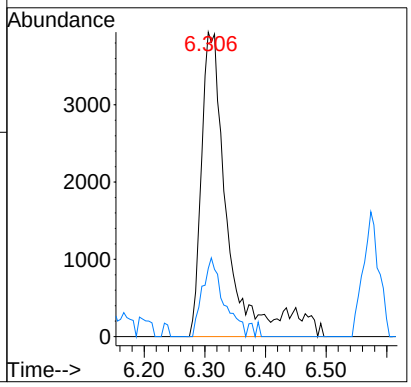


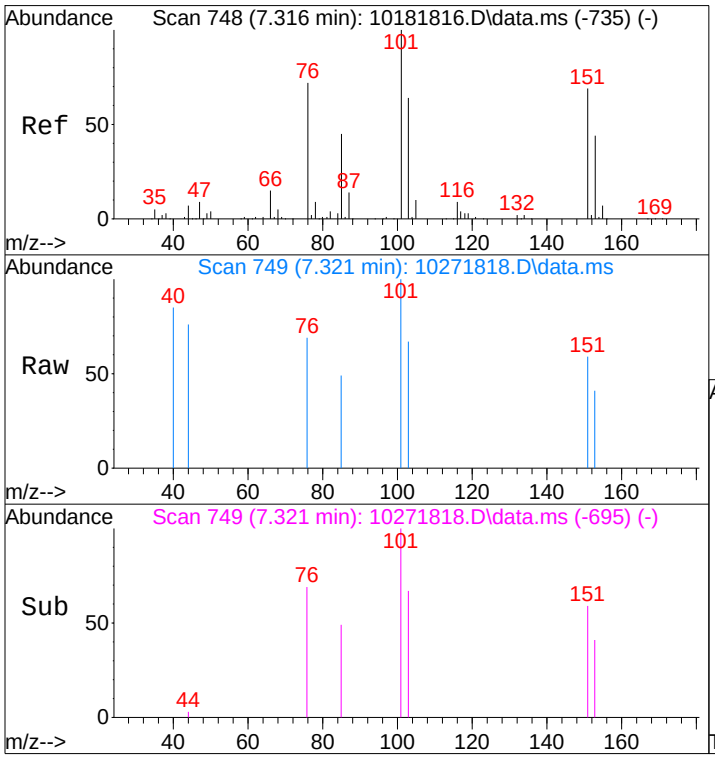


#15
2-Propanol (Isopropanol)
Concen: 0.23 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 45 Resp: 11963

Ion	Ratio	Lower	Upper
45	100		
43	20.8	0.0	36.7

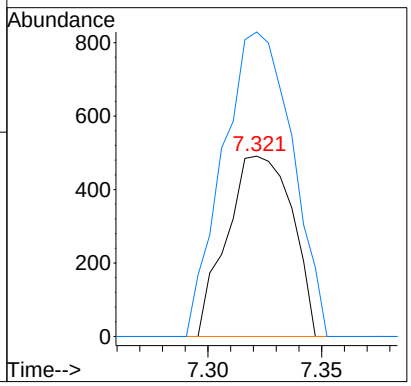


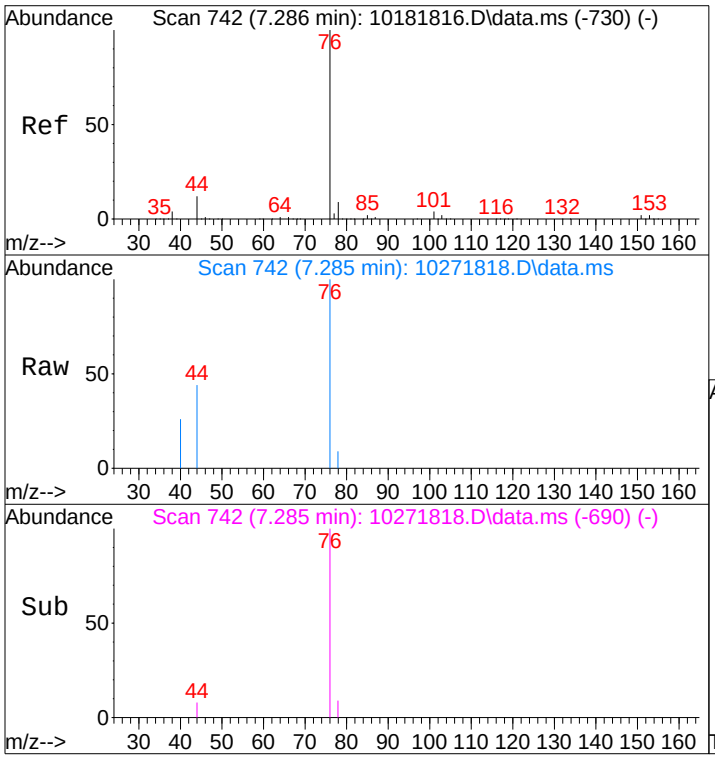


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.030 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:151 Resp: 978

Ion	Ratio	Lower	Upper
151	100		
101	180.1	127.5	167.5#

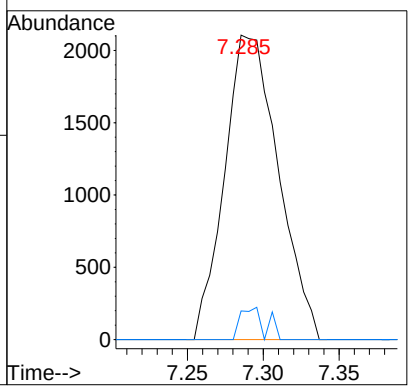


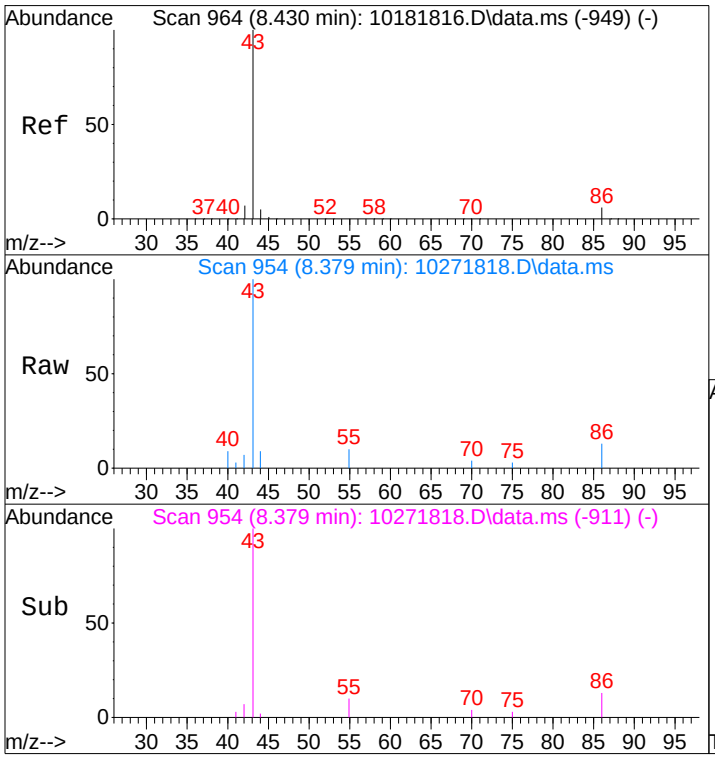


#22
Carbon Disulfide
Concen: 0.08 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 76 Resp: 5199

Ion	Ratio	Lower	Upper
76	100		
78	4.8	0.0	29.6

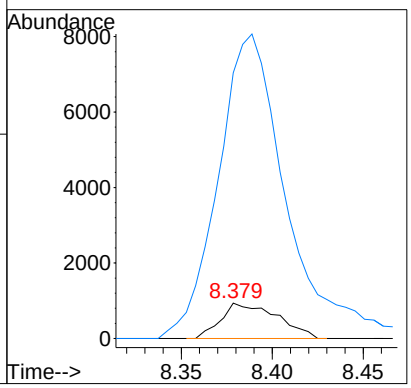


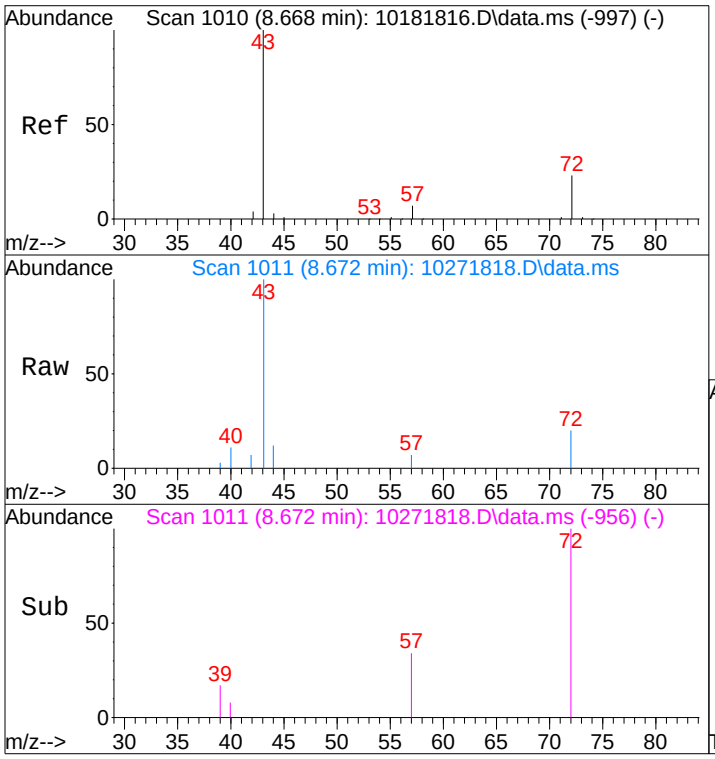


#26
Vinyl Acetate
Concen: 0.74 ng
RT: 8.38 min Scan# 954
Delta R.T. -0.030 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 86 Resp: 2014

Ion	Ratio	Lower	Upper
86	100		
43	1061.7	1596.2	1636.2#

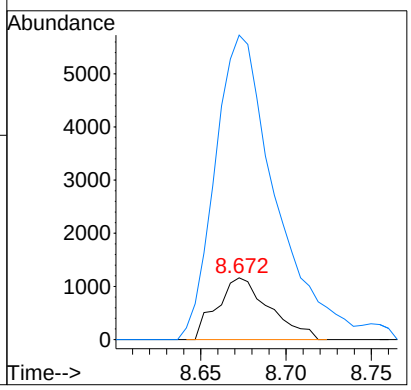


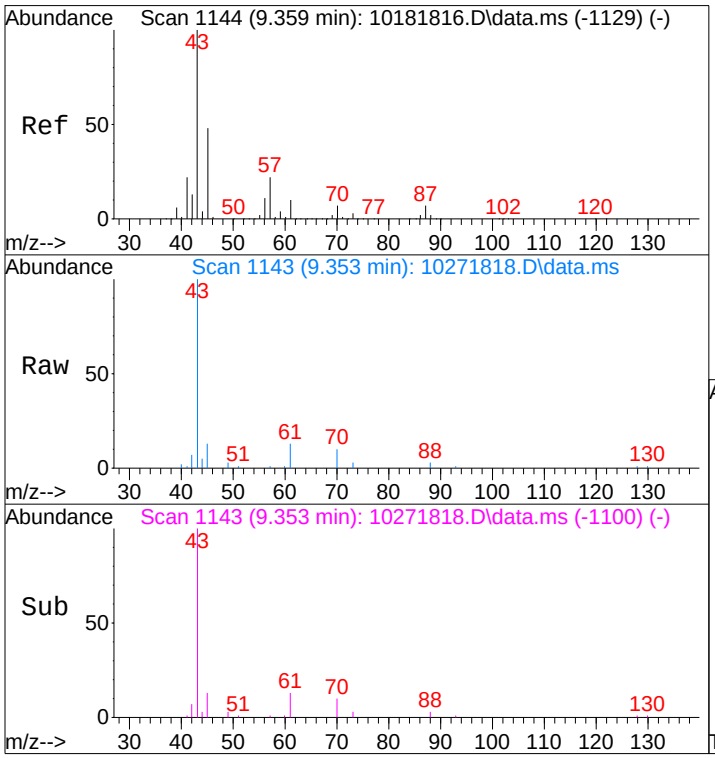


#27
2-Butanone (MEK)
Concen: 0.19 ng
RT: 8.67 min Scan# 1011
Delta R.T. 0.033 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 72 Resp: 2482

Ion	Ratio	Lower	Upper
72	100		
43	580.7	430.0	470.0#

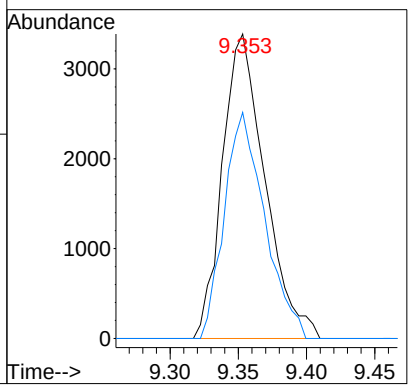


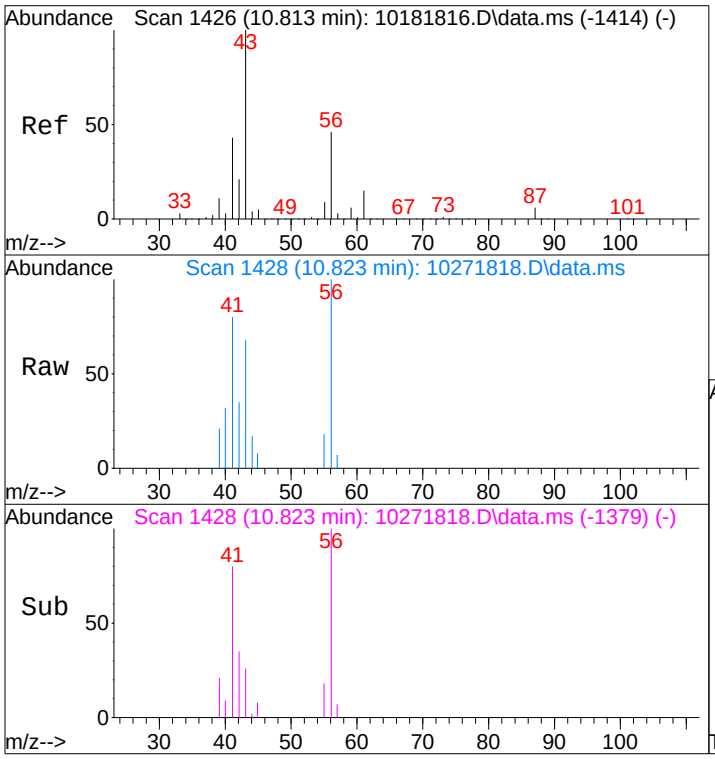


#30
Ethyl Acetate
Concen: 1.08 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 61 Resp: 7331

Ion	Ratio	Lower	Upper
61	100		
70	70.4	52.7	92.7

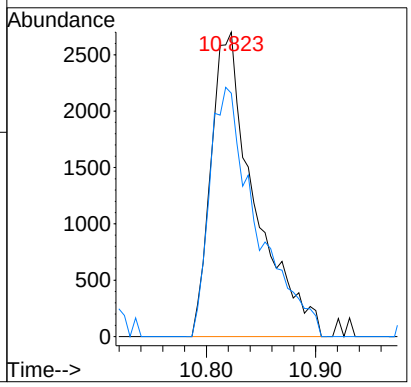


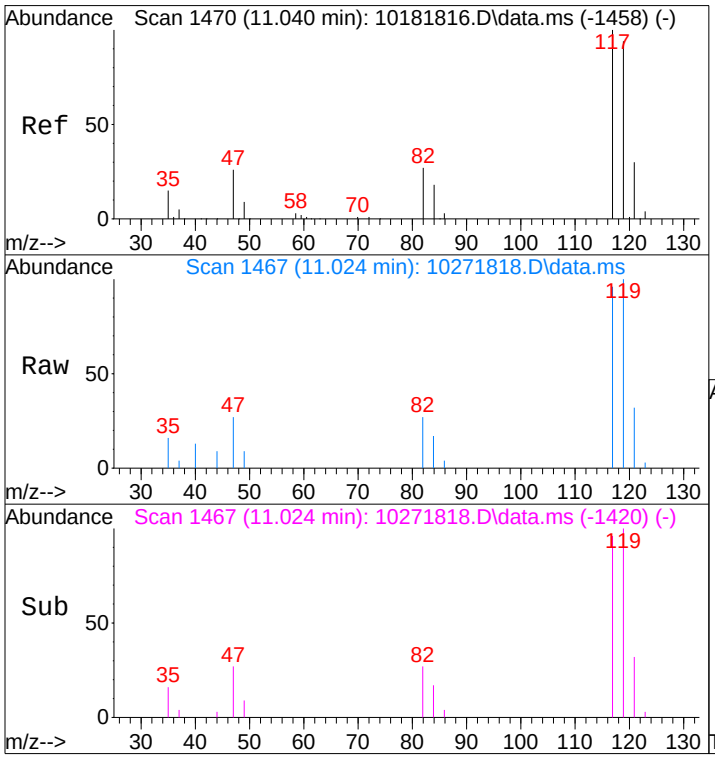


#40
1-Butanol
Concen: 0.37 ng
RT: 10.82 min Scan# 1428
Delta R.T. 0.004 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 56 Resp: 7491

Ion	Ratio	Lower	Upper
56	100		
41	88.3	90.2	130.2#

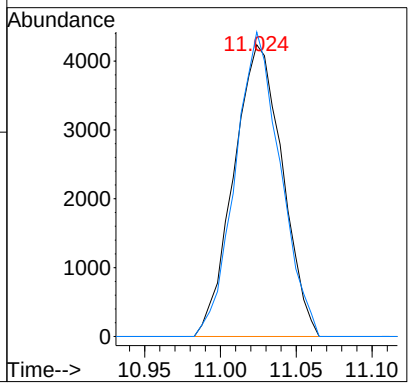


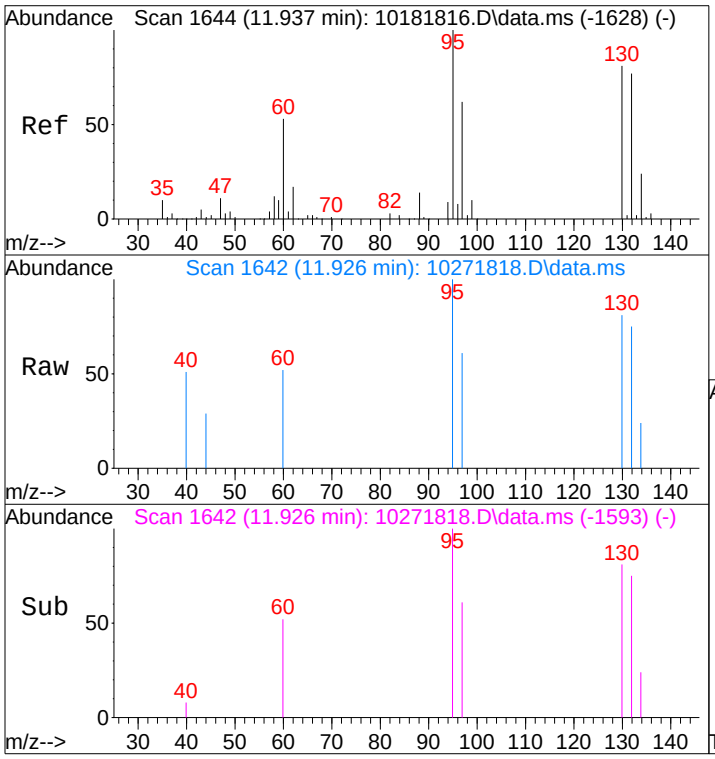


#42
Carbon Tetrachloride
Concen: 0.54 ng
RT: 11.02 min Scan# 1467
Delta R.T. -0.006 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:117 Resp: 9457

Ion	Ratio	Lower	Upper
117	100		
119	96.7	74.7	114.7

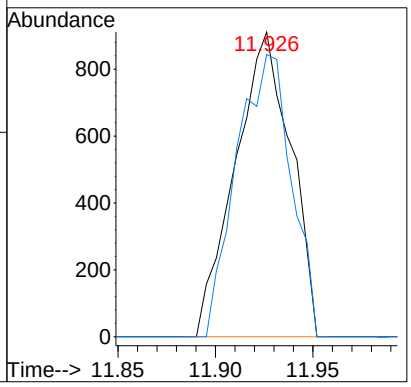


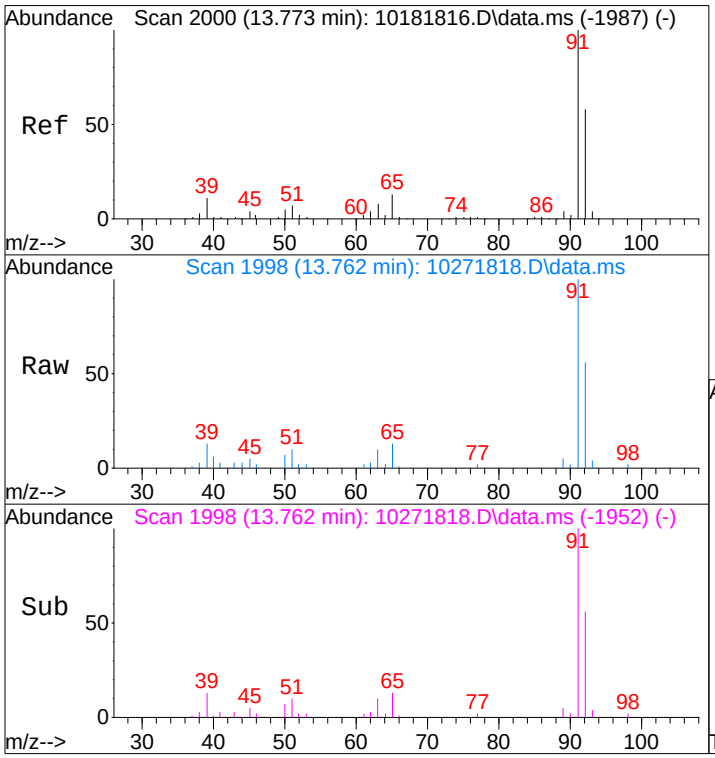


#47
Trichloroethene
Concen: 0.13 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:130 Resp: 1806

Ion	Ratio	Lower	Upper
130	100		
132	91.4	74.6	114.6

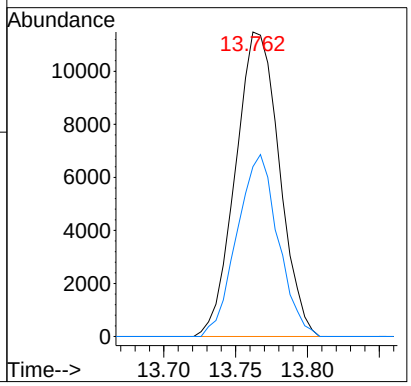


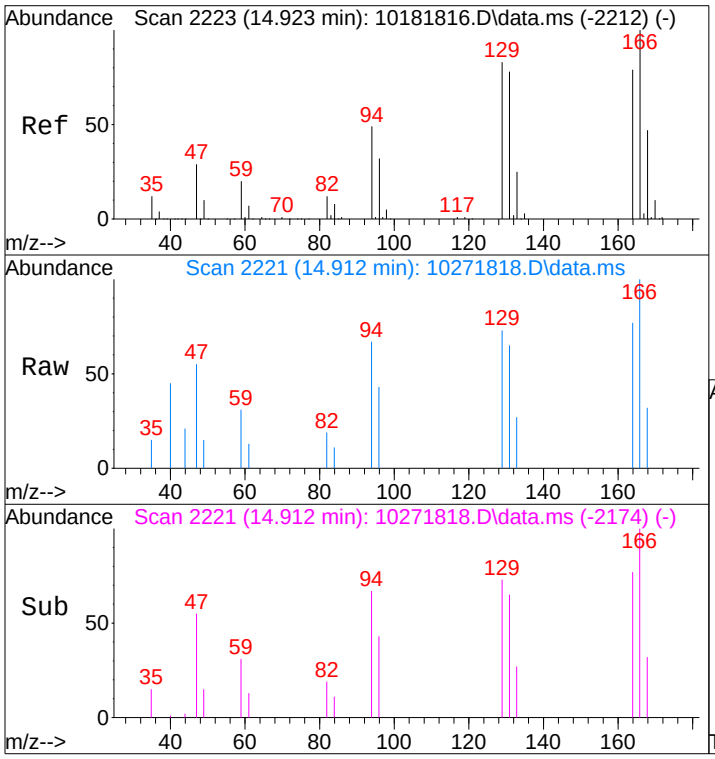


#58
Toluene
Concen: 0.34 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 91 Resp: 24389

Ion	Ratio	Lower	Upper
91	100		
92	56.2	38.1	78.1

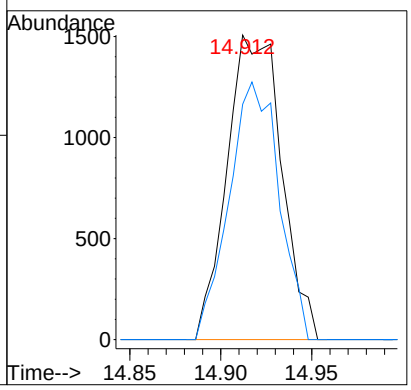


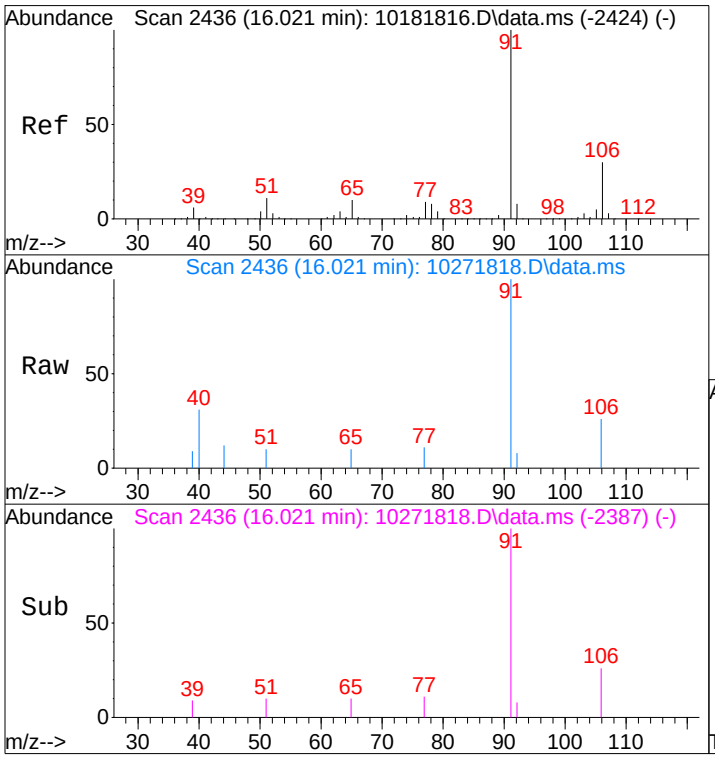


#64
Tetrachloroethene
Concen: 0.21 ng
RT: 14.91 min Scan# 2221
Delta R.T. -0.006 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:166 Resp: 3142

Ion	Ratio	Lower	Upper
166	100		
164	77.8	58.9	98.9

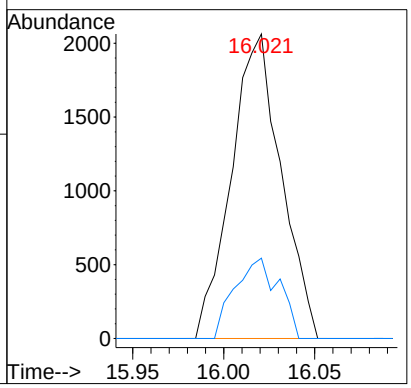


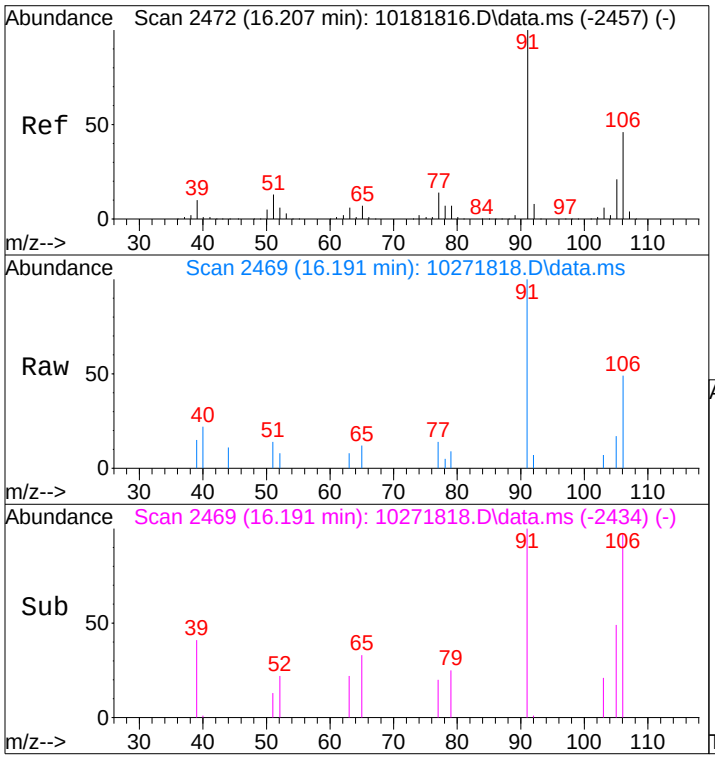


#66
Ethylbenzene
Concen: 0.05 ng
RT: 16.02 min Scan# 2436
Delta R.T. 0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 91 Resp: 3927

Ion	Ratio	Lower	Upper
91	100		
106	23.5	9.9	49.9

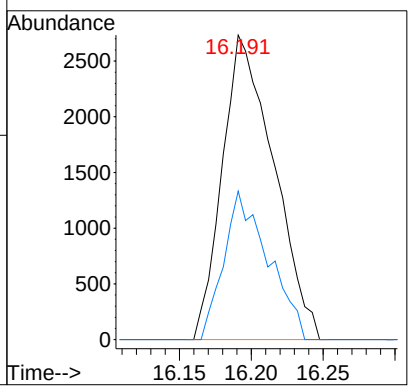


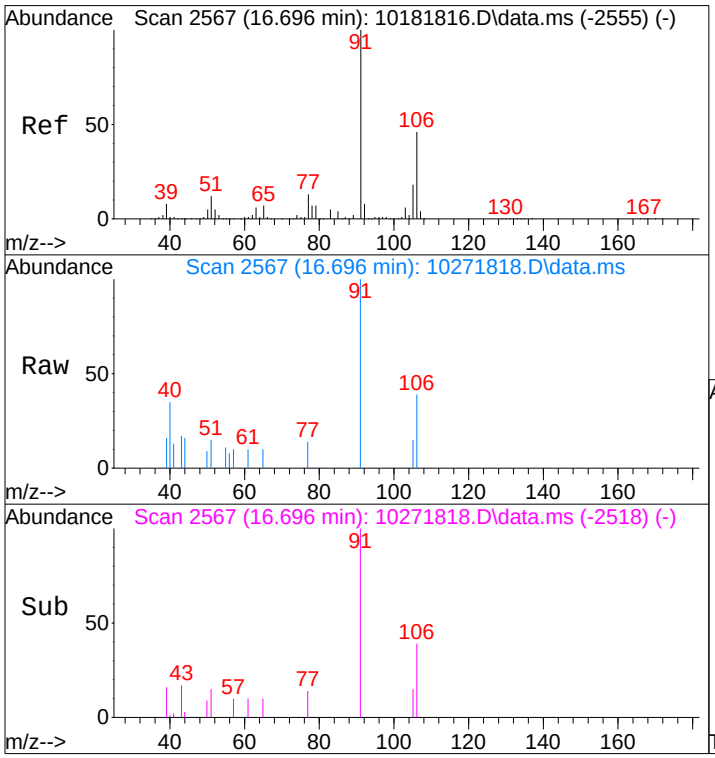


#67
m- & p-Xylenes
Concen: 0.11 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.021 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 91 Resp: 6800

Ion	Ratio	Lower	Upper
91	100		
106	42.0	26.7	66.7

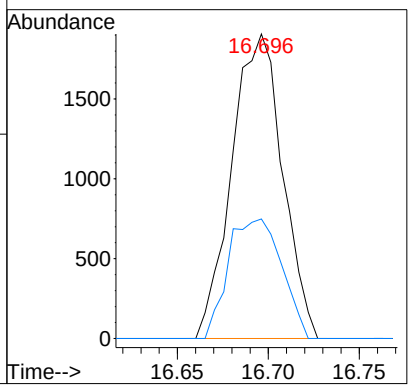


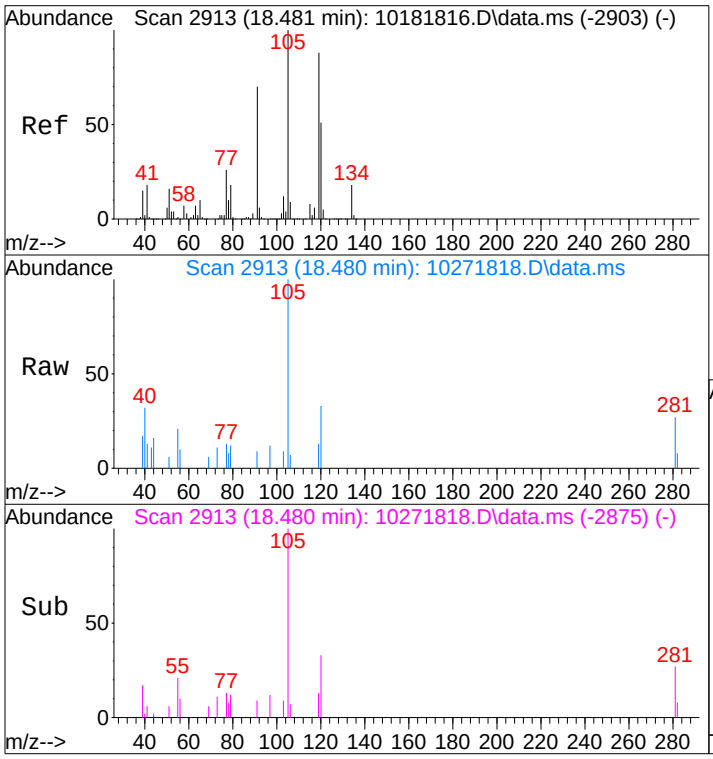


#70
o-Xylene
Concen: 0.06 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.000 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 91 Resp: 3695

Ion	Ratio	Lower	Upper
91	100		
106	41.3	25.2	65.2

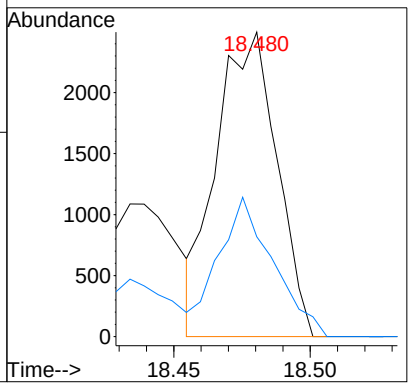


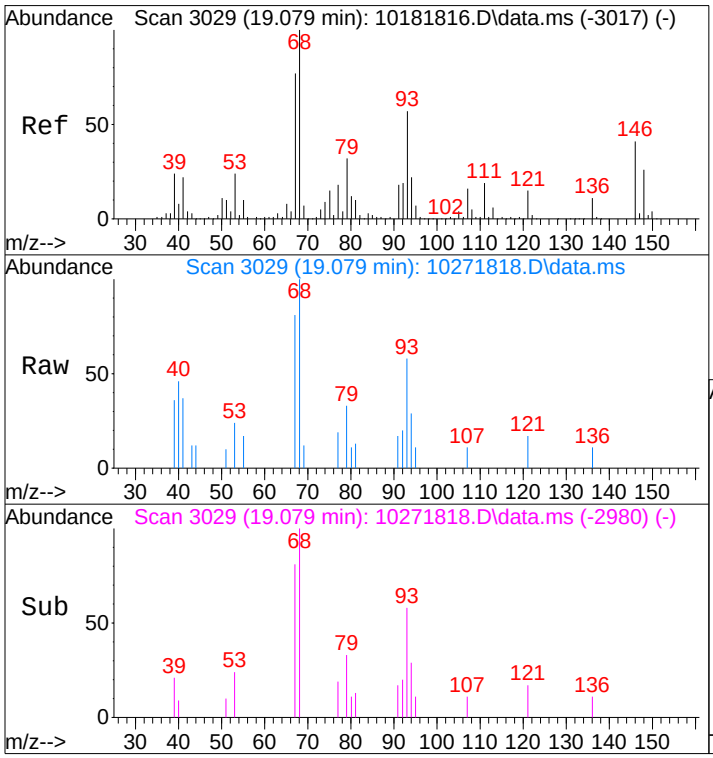


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2913
Delta R.T. -0.004 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion:105 Resp: 3841

Ion	Ratio	Lower	Upper
105	100		
120	41.5	31.3	71.3

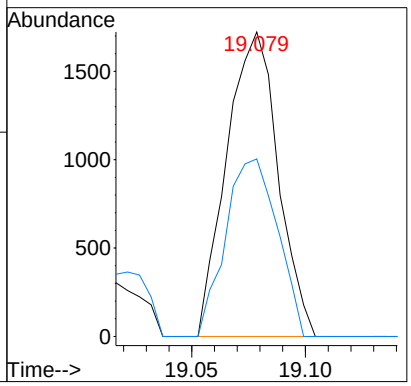




#91
d-Limonene
Concen: 0.09 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10271818.D
Acq: 27 Oct 2018 12:55

Tgt Ion: 68 Resp: 2706

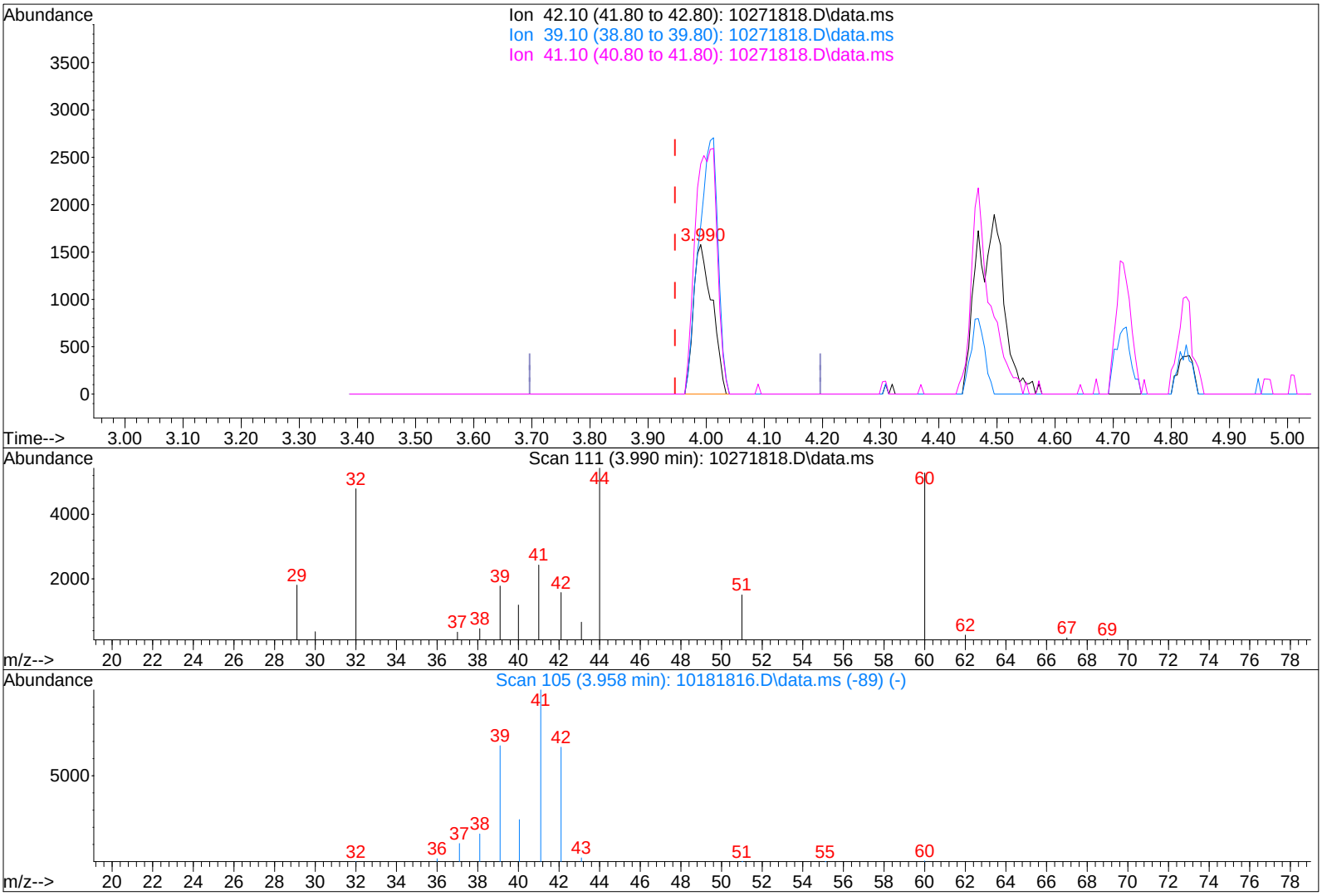
Ion	Ratio	Lower	Upper
68	100		
93	59.0	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 28 10:46:02 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271818.D\data.ms

(2) Propene (T)

3.990min (+0.044) 0.12ng

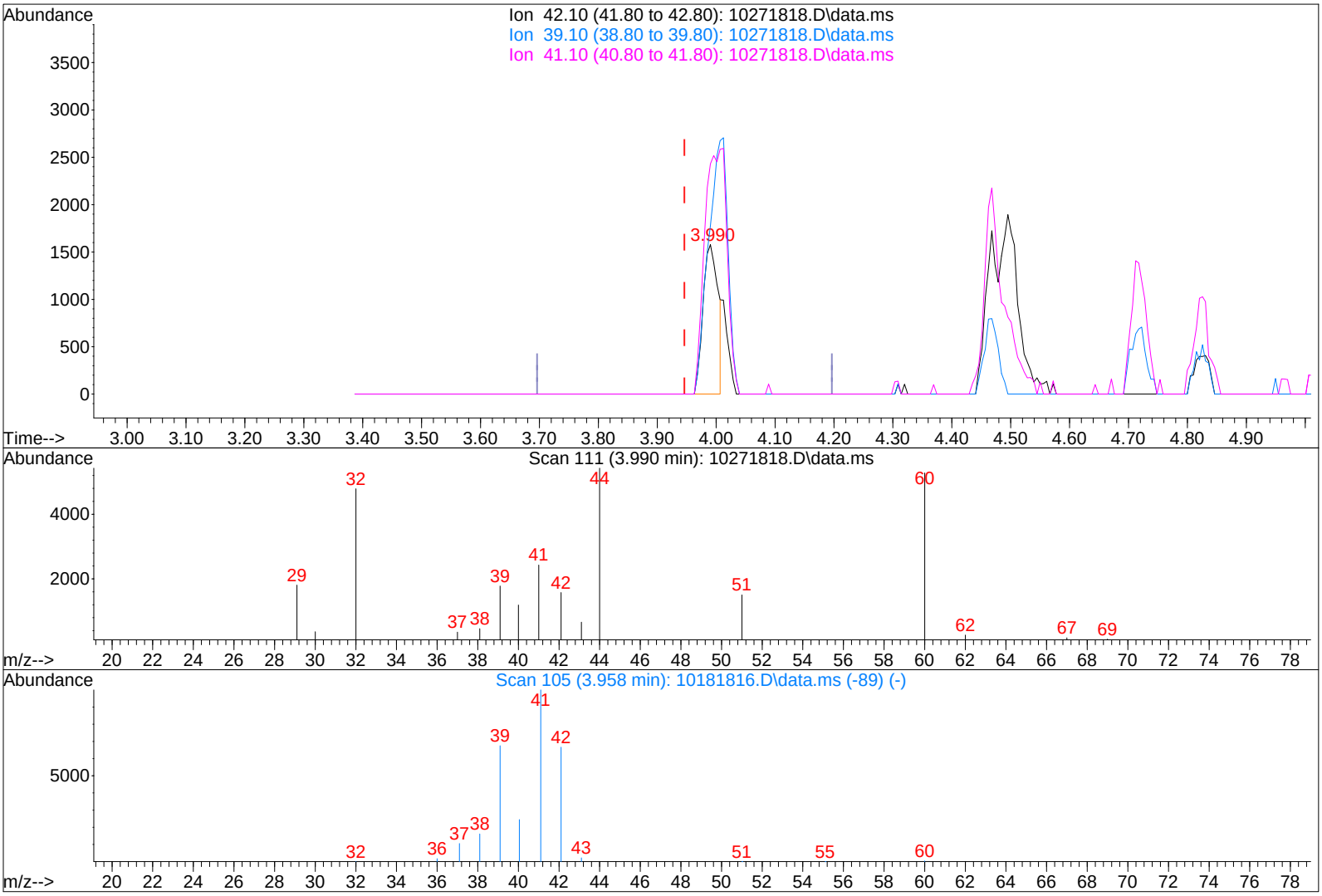
response 3522

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	176.80#
41.10	150.40	194.01#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:24:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271818.D\data.ms

(2) Propene (T)

3.990min (+0.044) 0.09ng m

response 2800

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	86.18
41.10	150.40	146.04
0.00	0.00	0.00

IPC

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:27:12 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

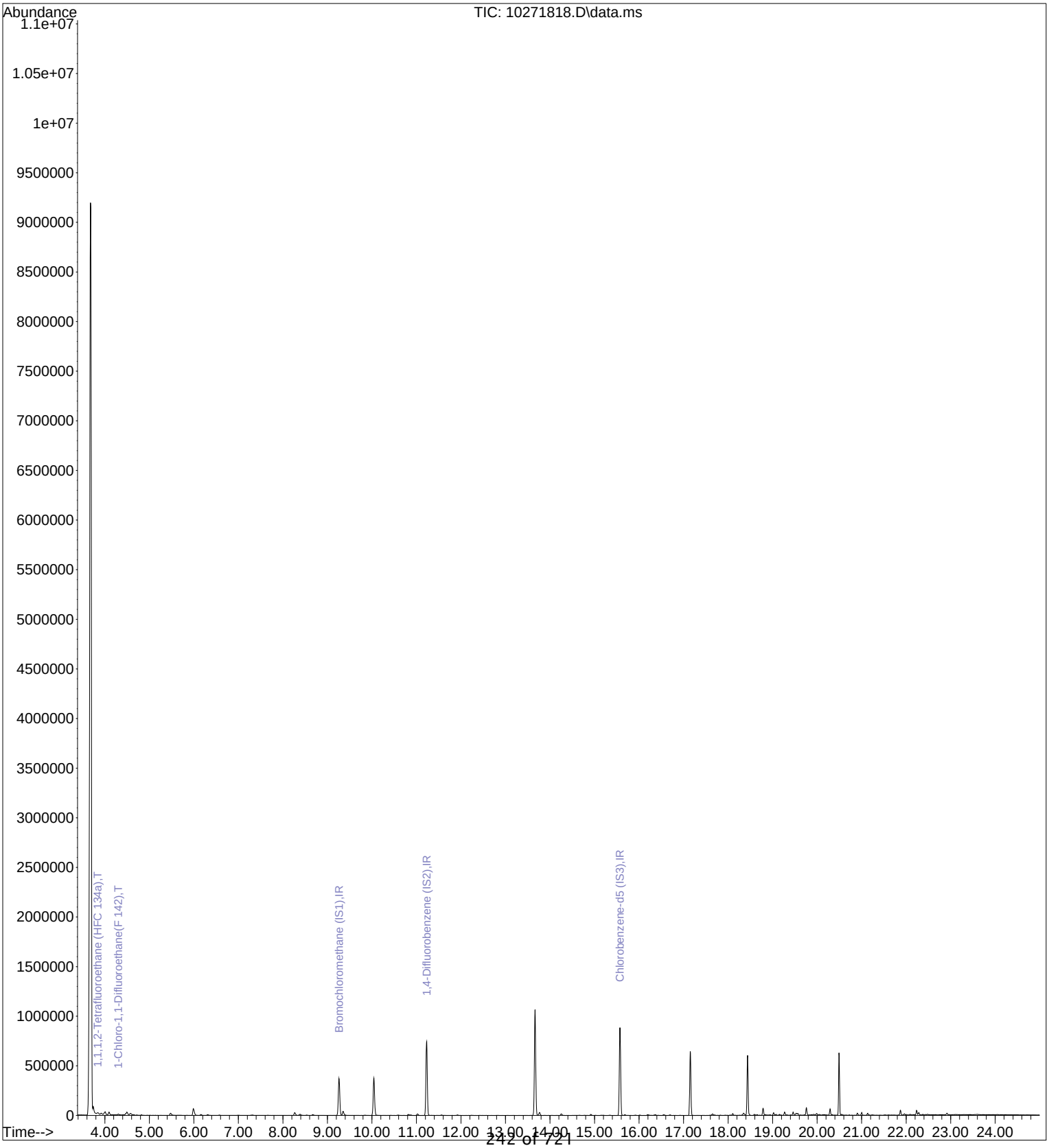
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116873	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	596006	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	363570	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	207	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	3493	0.289	ng	#	1
4) 1,1-Difluoroethane	3.92	65	246	N.D.			
5) Chlorodifluoromethane ...	3.98	67	256	N.D.			
6) 1-Chloro-1,1-Difluoroe...	4.30	65	6867	0.263	ng		96
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	1088	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.02	84	1746	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	0.00	55	0	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	772	N.D.			
27) 4-Chlorotoluene	17.82	91	772	N.D.			
28) Indane	19.13	117	109	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	178	N.D.			
31) 1,2,3,4-Tetramethylben...	20.19	119	414	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	192	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271818.D Vial: 7
Acq On : 27 Oct 2018 12:55 Operator: WA
Sample : P1805493-006 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:27:12 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:31:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	116113	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	596084	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	365888	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	297956	14.797	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.40%				
57) Toluene-d8 (SS2)	13.66	98	781509	12.226	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%				
73) Bromofluorobenzene (SS3)	17.16	174	156146	10.858	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.88%				
Target Compounds							Qvalue
2) Propene	3.99	42	1701m	0.058	ng		
3) Dichlorodifluoromethan...	4.08	85	44722	1.414	ng		100
4) Chloromethane	4.30	50	1751	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.47	135	244	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.60	45	127	N.D.			
11) Acetonitrile	5.70	41	1176	N.D.			
12) Acrolein	5.86	56	459	N.D.			
13) Acetone	6.01	58	14371	0.877	ng	#	80
14) Trichlorofluoromethane	6.16	101	10577	0.467	ng		98
15) 2-Propanol (Isopropanol)	6.38	45	64	N.D.			
16) Acrylonitrile	6.50	53	498	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.99	59	1816	N.D.			
19) Methylene Chloride	6.99	84	221	N.D.			
20) 3-Chloro-1-propene (Al...	6.99	41	167	N.D.			
21) Trichlorotrifluoroethane	7.32	151	941	0.104	ng	#	66
22) Carbon Disulfide	7.29	76	11587	0.188	ng		94
23) trans-1,2-Dichloroethene	8.02	61	925	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	8.68	72	1113	0.087	ng	#	11
28) cis-1,2-Dichloroethene	9.10	61	12757	0.488	ng		92
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.35	61	9658	1.427	ng		93
31) n-Hexane	9.35	57	459	N.D.			
32) Chloroform	9.40	83	7362	0.269	ng		96
34) Tetrahydrofuran (THF)	9.85	72	405	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	3109	0.138	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	5862	0.289	ng		86
41) Benzene	10.88	78	3837	0.053	ng		100
42) Carbon Tetrachloride	11.03	117	6988	0.398	ng		100
43) Cyclohexane	11.22	84	576	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	876019	61.303	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	341	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:31:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

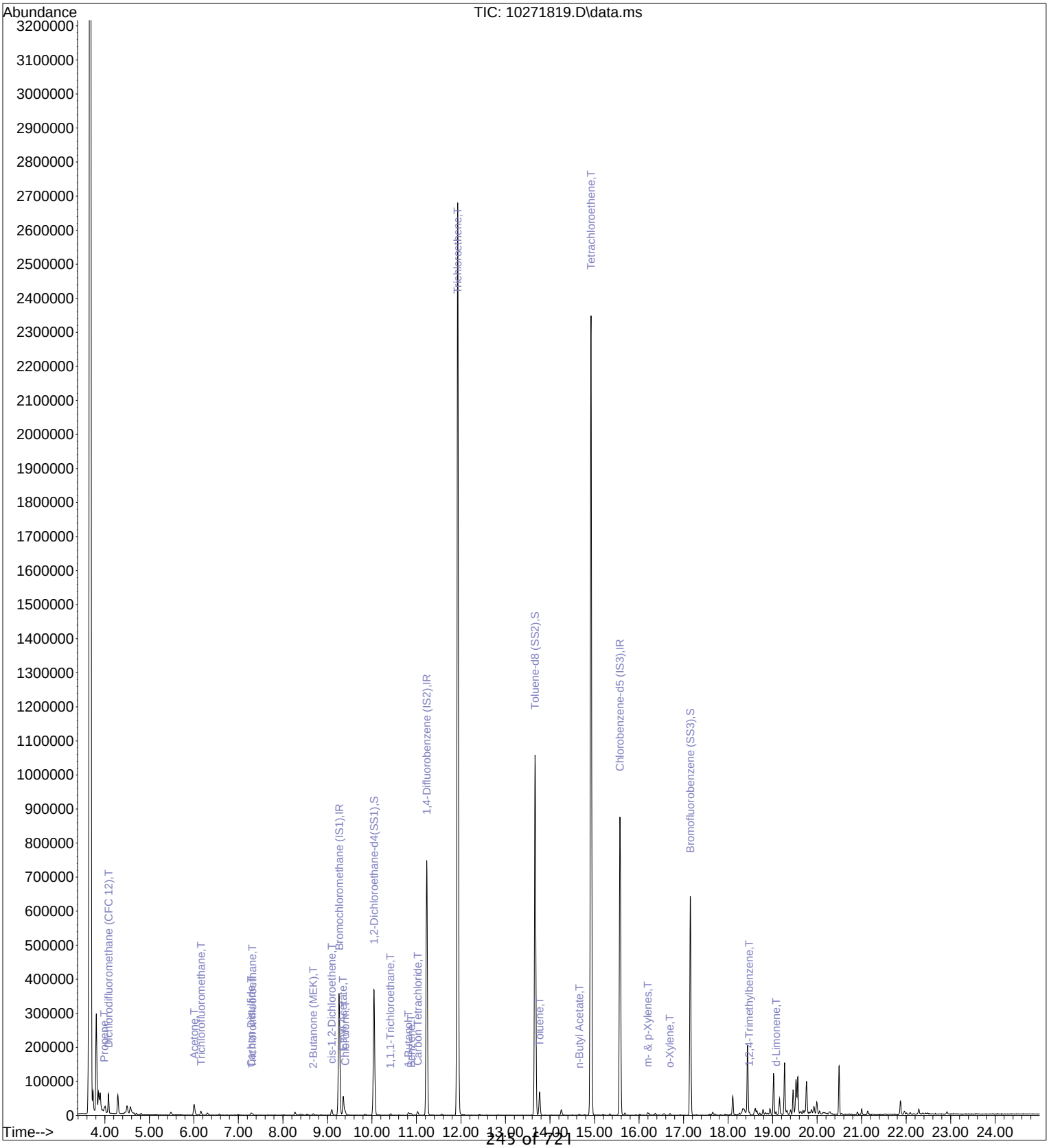
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	54734	0.766 ng	99
59) 2-Hexanone	14.03	43	301	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2788	0.055 ng	87
63) n-Octane	14.78	57	175	N.D.	
64) Tetrachloroethene	14.92	166	687846	46.610 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	3653	N.D.	
67) m- & p-Xylenes	16.20	91	7079	0.118 ng	93
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.57	104	1322	N.D.	
70) o-Xylene	16.69	91	3555	0.061 ng	90
71) n-Nonane	16.92	43	757	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.29	105	306	N.D.	
75) alpha-Pinene	17.70	93	1172	N.D.	
76) n-Propylbenzene	17.83	91	865	N.D.	
77) 3-Ethyltoluene	17.93	105	1898	N.D.	
78) 4-Ethyltoluene	17.97	105	875	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	892	N.D.	
80) alpha-Methylstyrene	18.21	118	477	N.D.	
81) 2-Ethyltoluene	18.25	105	797	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	4042	0.073 ng	88
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	432	N.D.	
85) 1,3-Dichlorobenzene	18.71	146	376	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	376	N.D.	
87) sec-Butylbenzene	18.92	105	769	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	616	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	769	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	2392	0.083 ng	100
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1881	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	351	N.D.	
100) n-Butylbenzene	19.36	91	270	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:31:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:31:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

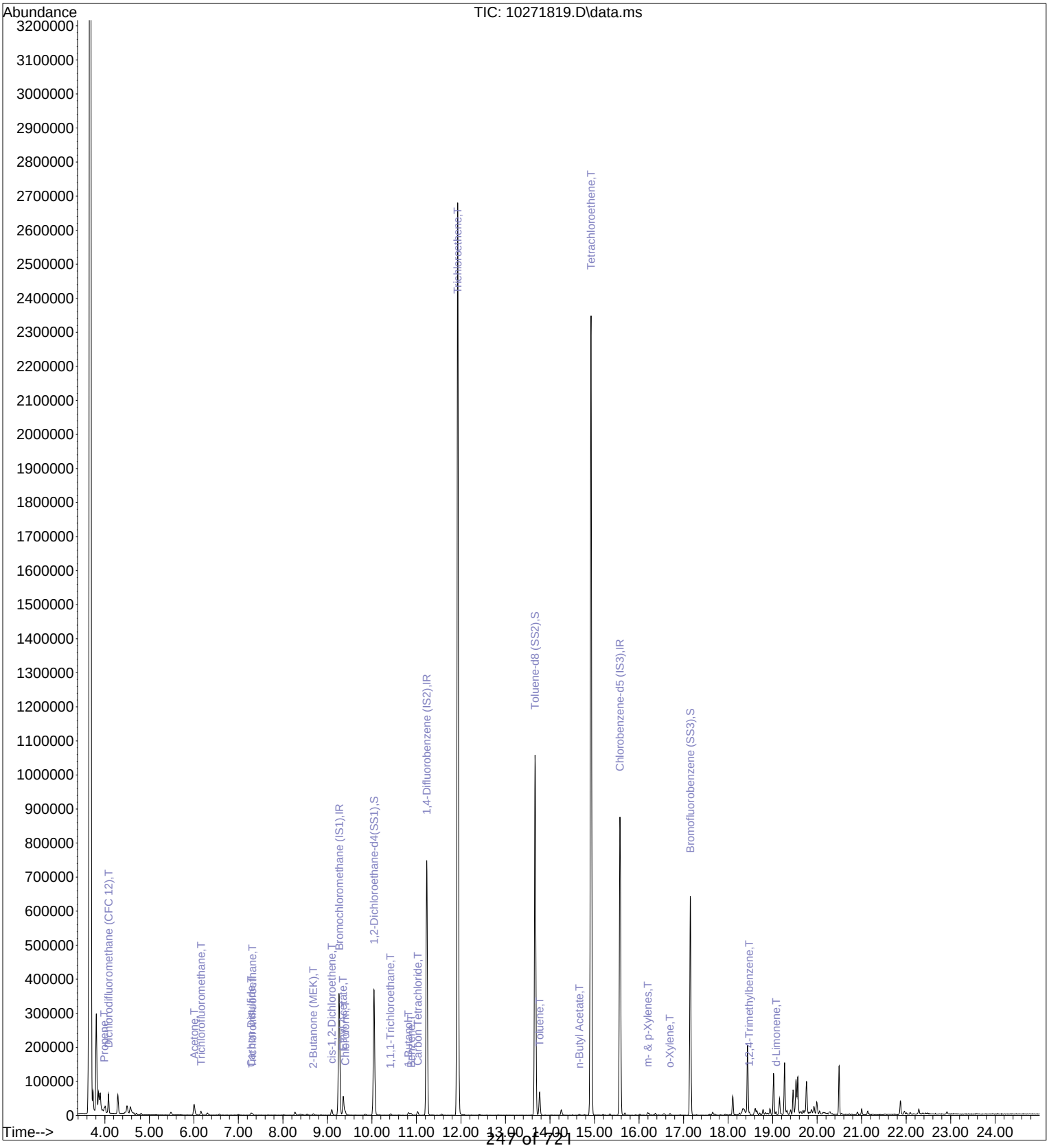
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	116113	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	596084	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	365888	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	297956	14.797	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.40%				
57) Toluene-d8 (SS2)	13.66	98	781509	12.226	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.84%				
73) Bromofluorobenzene (SS3)	17.16	174	156146	10.858	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.88%				
Target Compounds							Qvalue
2) Propene	3.99	42	1701m	0.058	ng		
3) Dichlorodifluoromethan...	4.08	85	44722	1.414	ng		100
13) Acetone	6.01	58	14371	0.877	ng	#	80
14) Trichlorofluoromethane	6.16	101	10577	0.467	ng		98
21) Trichlorotrifluoroethane	7.32	151	941	0.104	ng	#	66
22) Carbon Disulfide	7.29	76	11587	0.188	ng		94
27) 2-Butanone (MEK)	8.68	72	1113	0.087	ng	#	11
28) cis-1,2-Dichloroethene	9.10	61	12757	0.488	ng		92
30) Ethyl Acetate	9.35	61	9658	1.427	ng		93
32) Chloroform	9.40	83	7362	0.269	ng		96
38) 1,1,1-Trichloroethane	10.42	97	3109	0.138	ng		97
40) 1-Butanol	10.82	56	5862	0.289	ng		86
41) Benzene	10.88	78	3837	0.053	ng		100
42) Carbon Tetrachloride	11.03	117	6988	0.398	ng		100
47) Trichloroethene	11.93	130	876019	61.303	ng		100
58) Toluene	13.77	91	54734	0.766	ng		99
62) n-Butyl Acetate	14.66	43	2788	0.055	ng		87
64) Tetrachloroethene	14.92	166	687846	46.610	ng		100
67) m- & p-Xylenes	16.20	91	7079	0.118	ng		93
70) o-Xylene	16.69	91	3555	0.061	ng		90
82) 1,2,4-Trimethylbenzene	18.48	105	4042	0.073	ng		88
91) d-Limonene	19.08	68	2392	0.083	ng		100

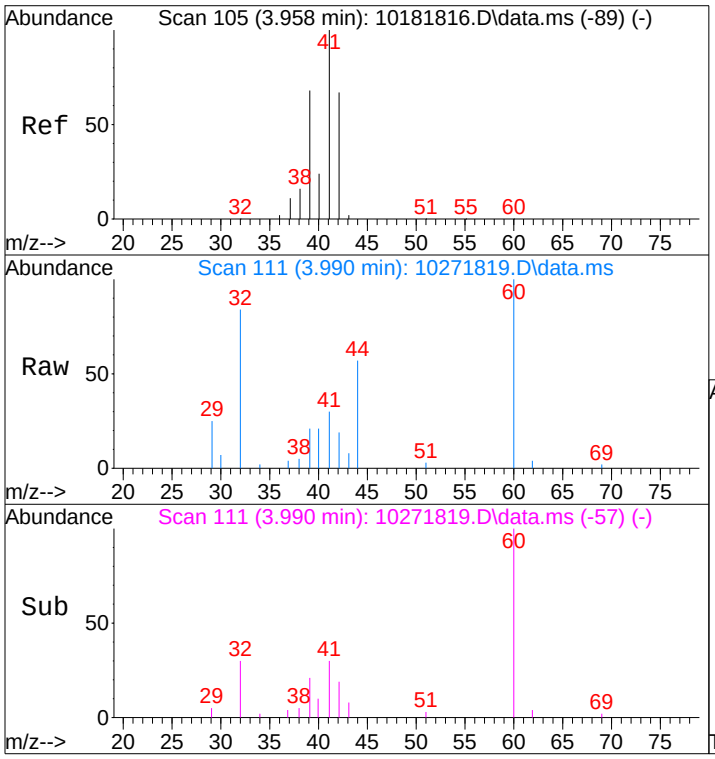
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:31:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

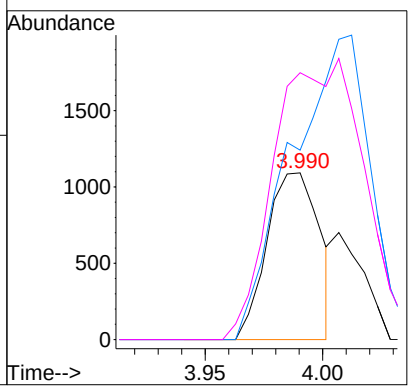


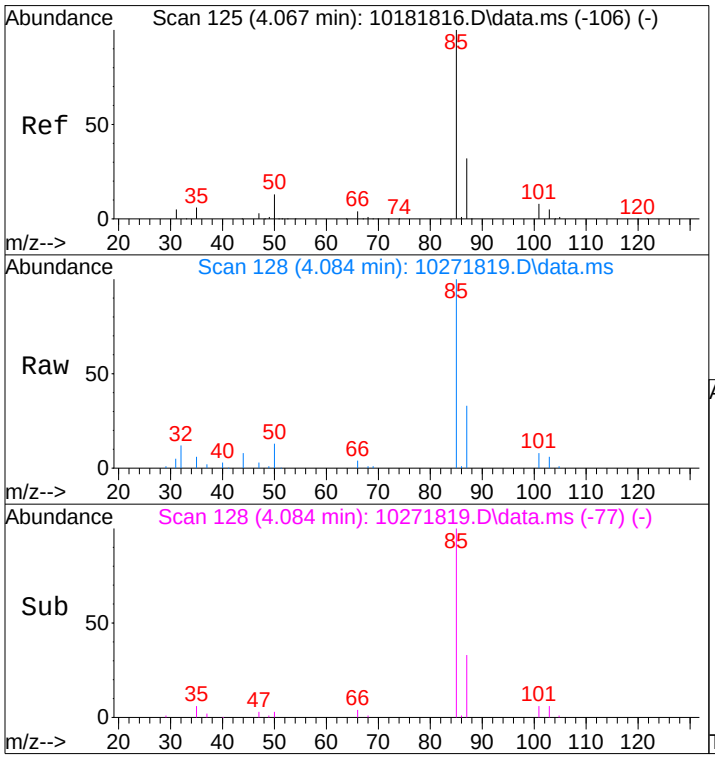


#2
Propene
Concen: 0.06 ng m
RT: 3.99 min Scan# 111
Delta R.T. 0.044 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 42 Resp: 1701

Ion	Ratio	Lower	Upper
42	100		
39	110.0	81.9	121.9
41	142.5	130.4	170.4

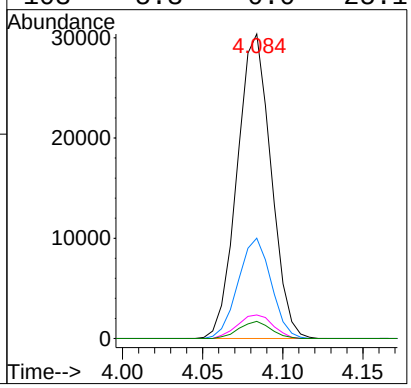


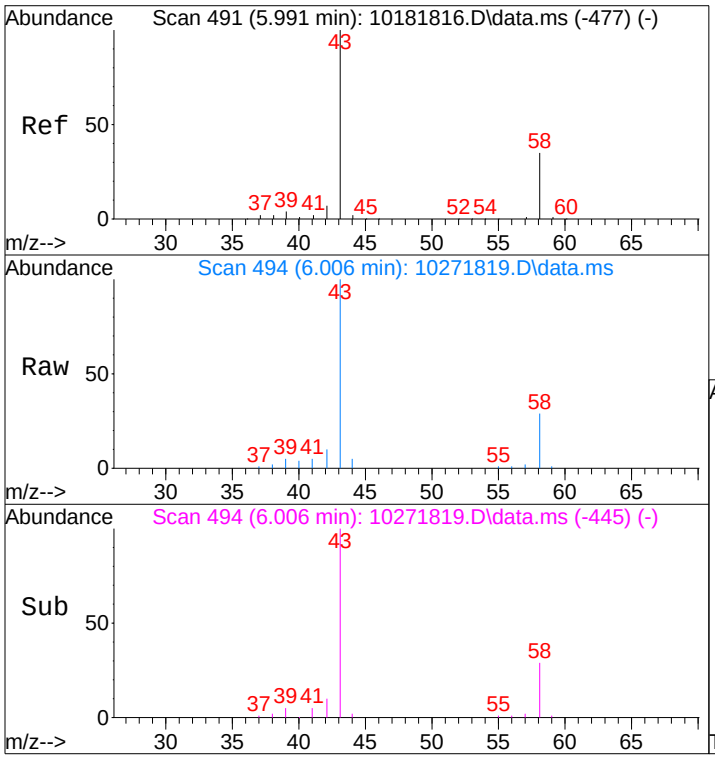


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.41 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 85 Resp: 44722

Ion	Ratio	Lower	Upper
85	100		
87	32.2	12.0	52.0
101	8.1	0.0	28.0
103	5.3	0.0	25.1

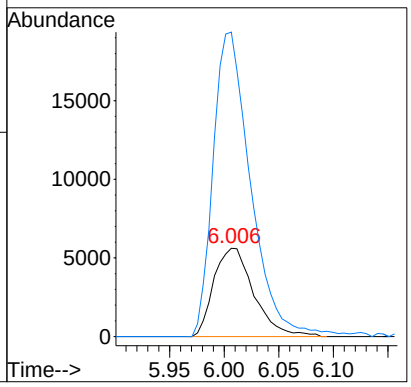


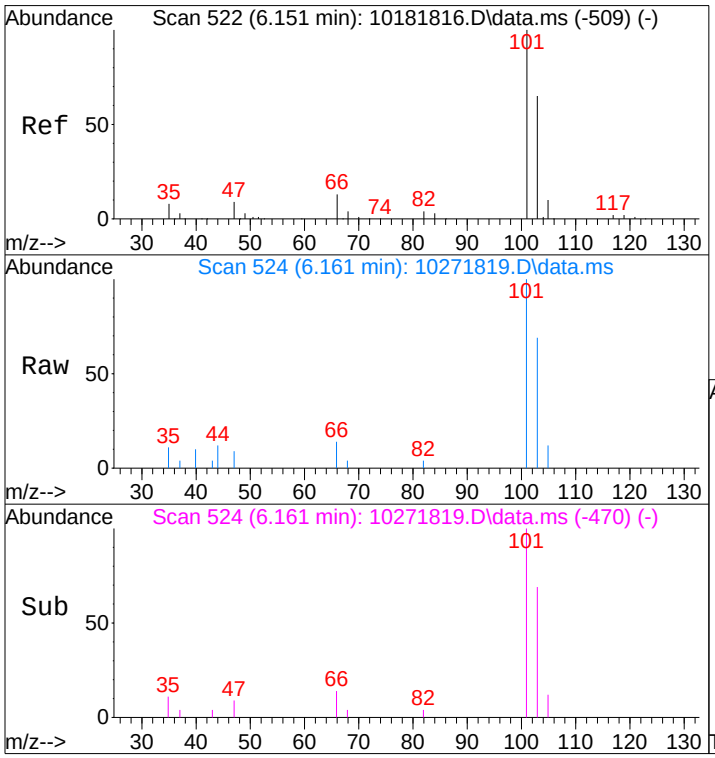


#13
Acetone
Concen: 0.88 ng
RT: 6.01 min Scan# 494
Delta R.T. 0.003 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 58 Resp: 14371

Ion	Ratio	Lower	Upper
58	100		
43	322.5	254.3	314.3#

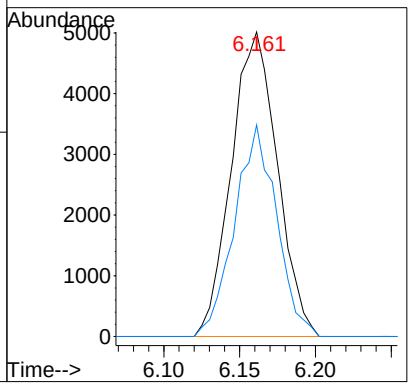


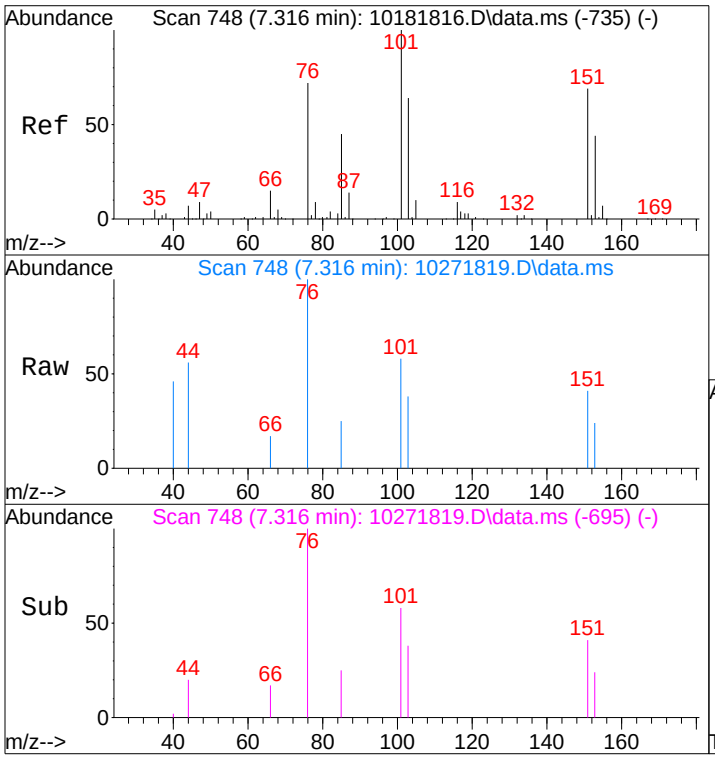


#14
Trichlorofluoromethane
Concen: 0.47 ng
RT: 6.16 min Scan# 524
Delta R.T. 0.029 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:101 Resp: 10577

Ion	Ratio	Lower	Upper
101	100		
103	63.3	44.5	84.5

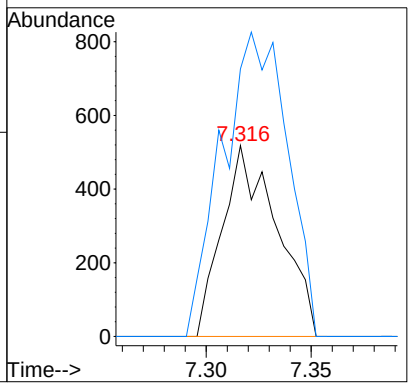


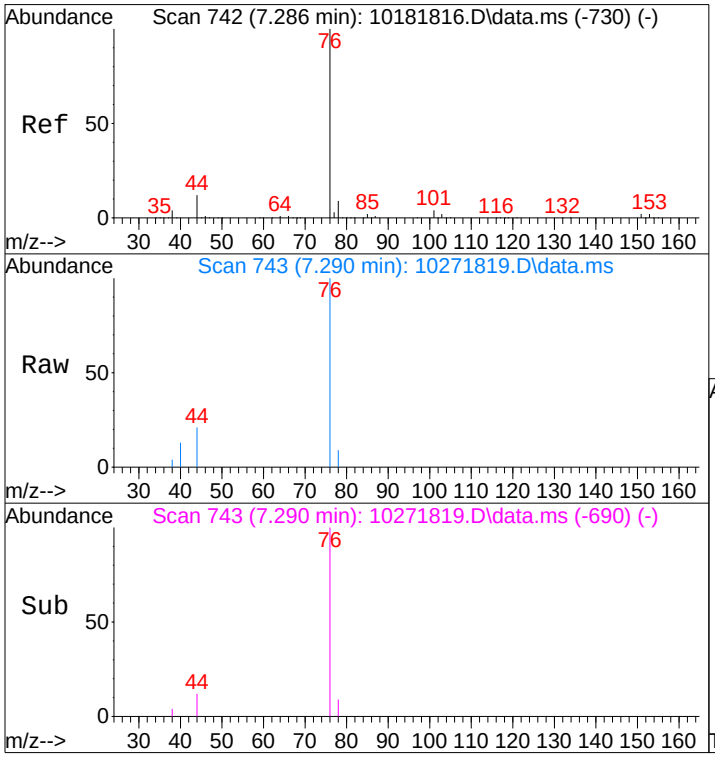


#21
Trichlorotrifluoroethane
Concen: 0.10 ng
RT: 7.32 min Scan# 748
Delta R.T. 0.025 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:151 Resp: 941

Ion	Ratio	Lower	Upper
151	100		
101	190.6	127.5	167.5#

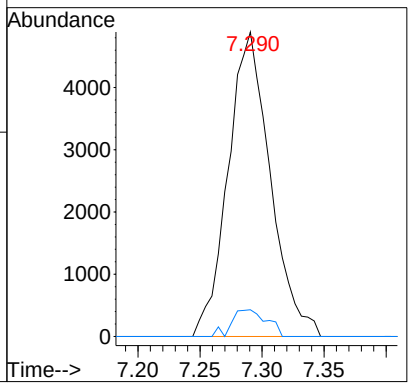


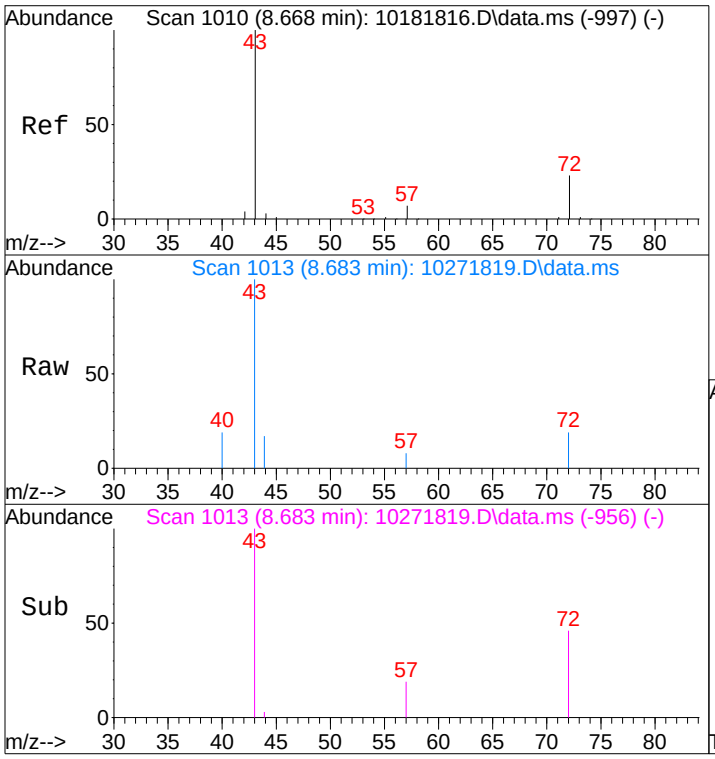


#22
Carbon Disulfide
Concen: 0.19 ng
RT: 7.29 min Scan# 743
Delta R.T. 0.025 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 76 Resp: 11587

Ion	Ratio	Lower	Upper
76	100		
78	7.3	0.0	29.6

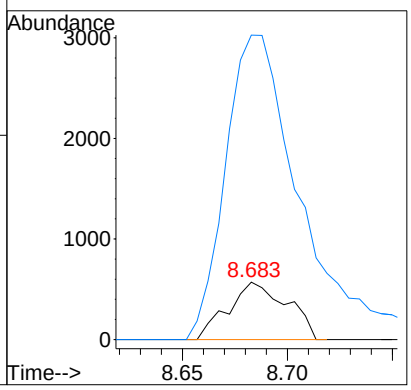


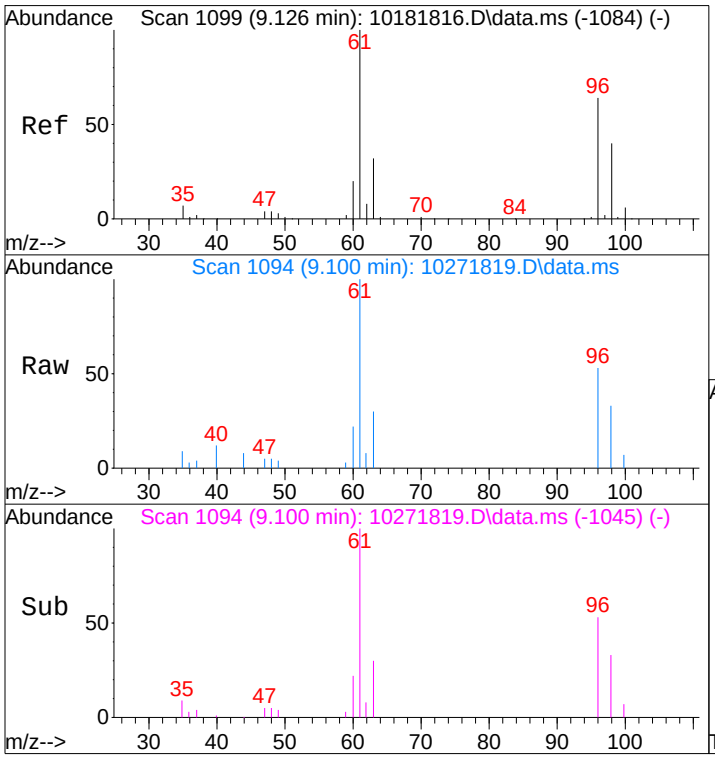


#27
2-Butanone (MEK)
Concen: 0.09 ng
RT: 8.68 min Scan# 1013
Delta R.T. 0.043 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 72 Resp: 1113

Ion	Ratio	Lower	Upper
72	100		
43	678.2	430.0	470.0#

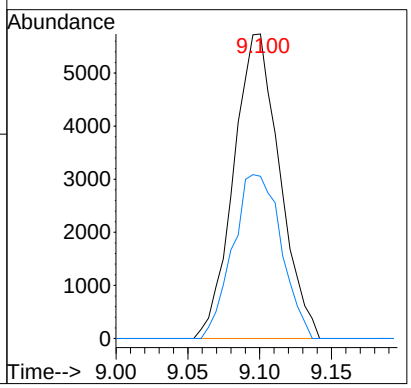


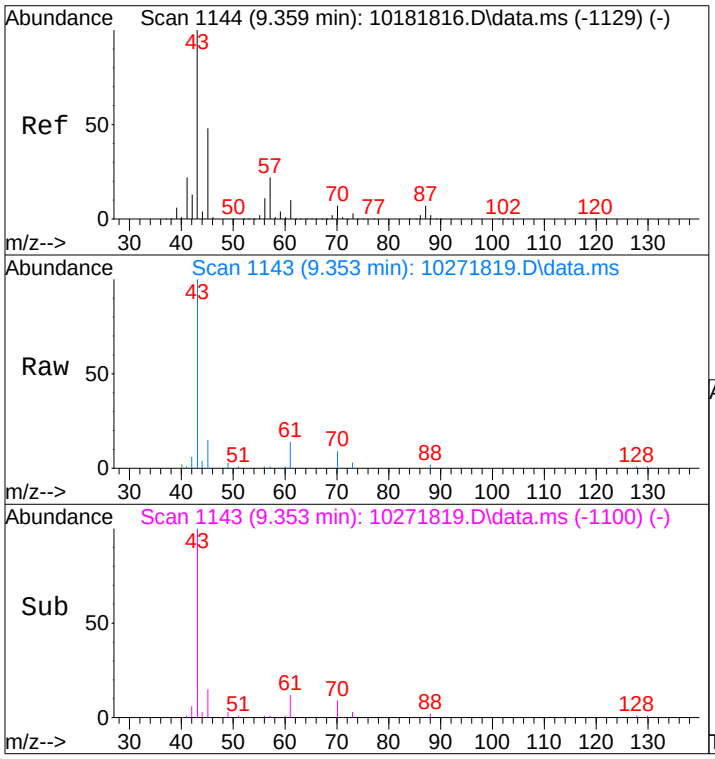


#28
cis-1,2-Dichloroethene
Concen: 0.49 ng
RT: 9.10 min Scan# 1094
Delta R.T. 0.004 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 61 Resp: 12757

Ion	Ratio	Lower	Upper
61	100		
96	56.5	42.8	82.8

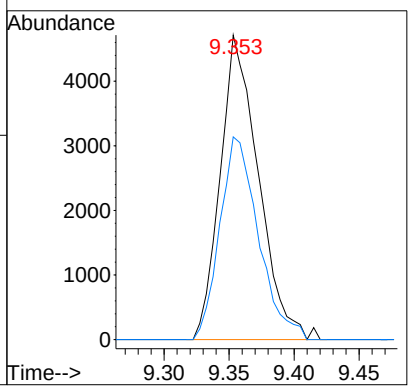


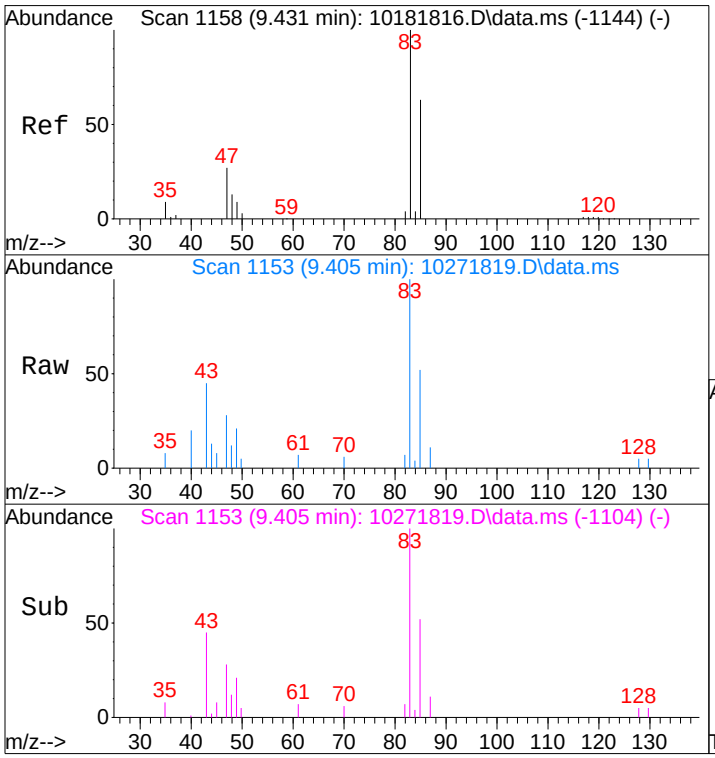


#30
Ethyl Acetate
Concen: 1.43 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 61 Resp: 9658

Ion	Ratio	Lower	Upper
61	100		
70	67.1	52.7	92.7

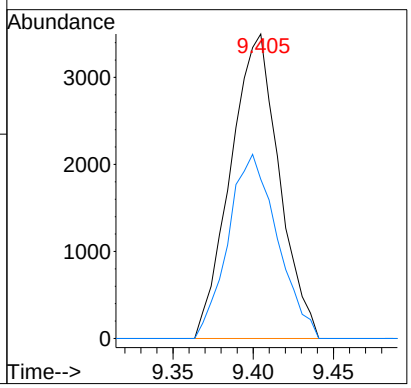


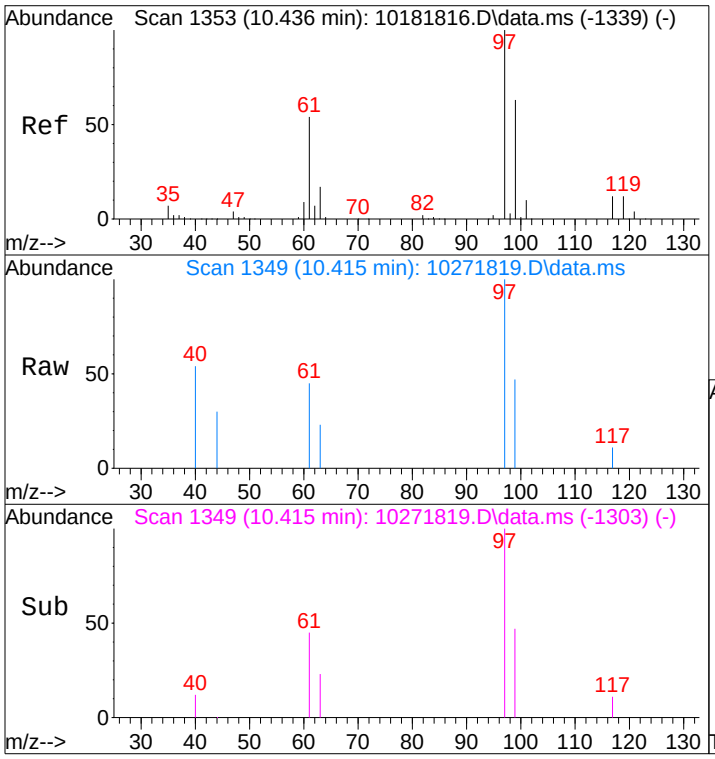


#32
Chloroform
Concen: 0.27 ng
RT: 9.40 min Scan# 1153
Delta R.T. 0.001 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 83 Resp: 7362

Ion	Ratio	Lower	Upper
83	100		
85	61.2	44.0	84.0

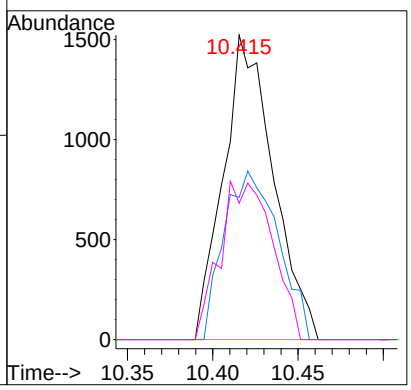


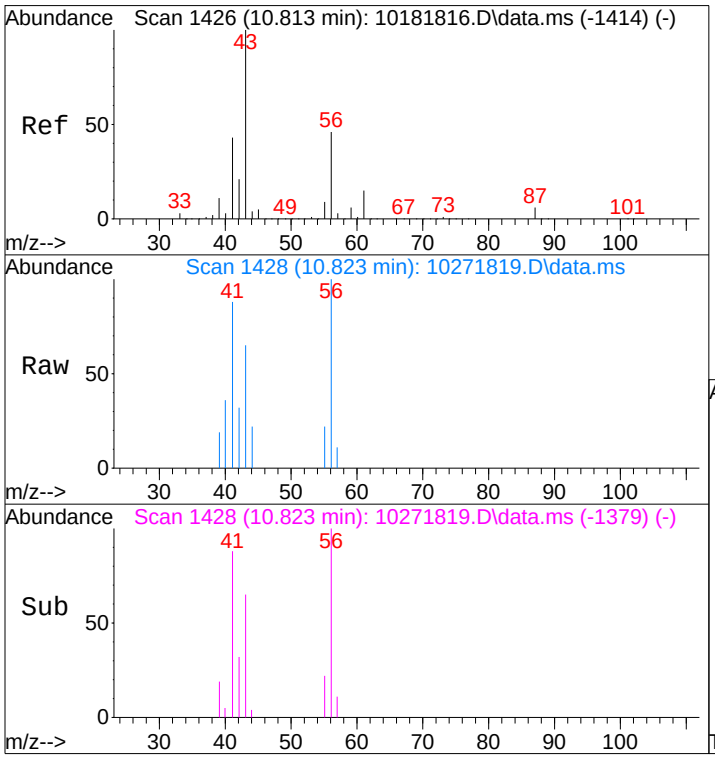


#38
1,1,1-Trichloroethane
Concen: 0.14 ng
RT: 10.42 min Scan# 1349
Delta R.T. -0.012 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 97 Resp: 3109

Ion	Ratio	Lower	Upper
97	100		
99	60.1	43.5	83.5
61	54.6	34.2	74.2

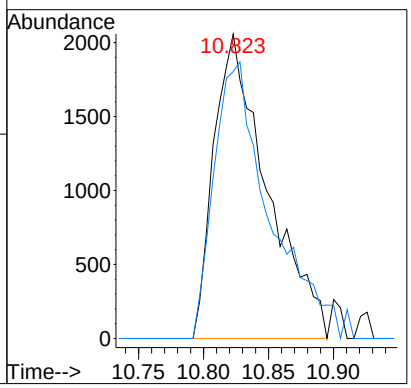


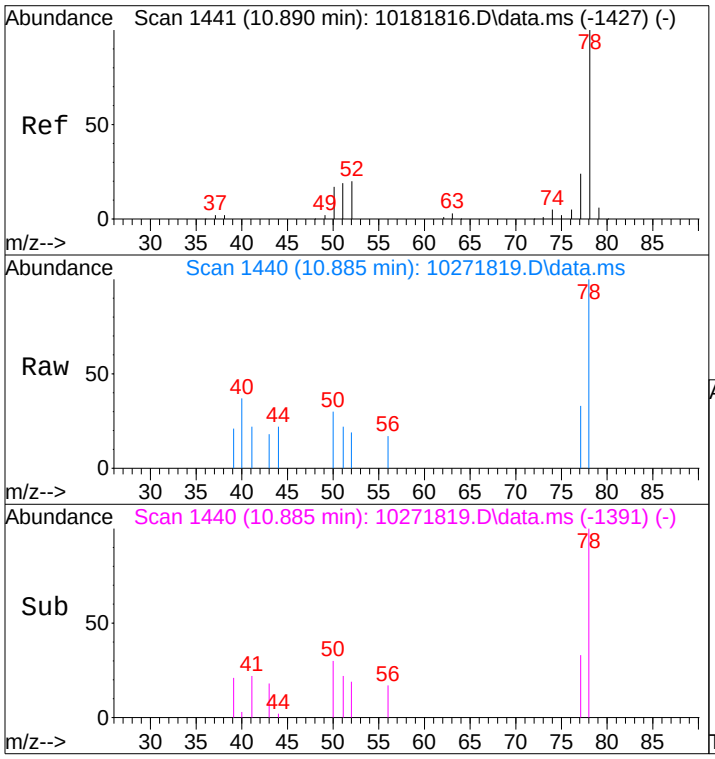


#40
1-Butanol
Concen: 0.29 ng
RT: 10.82 min Scan# 1428
Delta R.T. 0.004 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 56 Resp: 5862

Ion	Ratio	Lower	Upper
56	100		
41	95.5	90.2	130.2

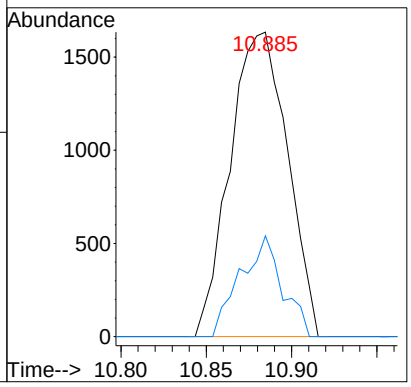


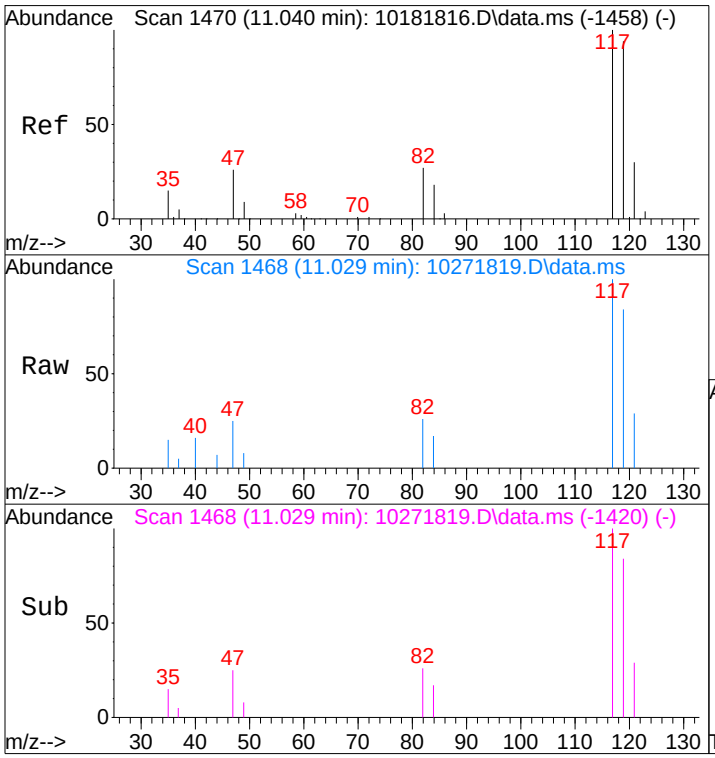


#41
Benzene
Concen: 0.05 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.004 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 78 Resp: 3837

Ion	Ratio	Lower	Upper
78	100		
77	24.1	4.1	44.1

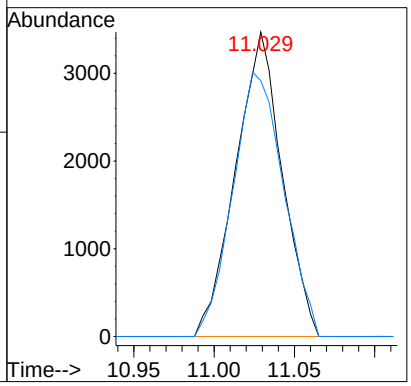


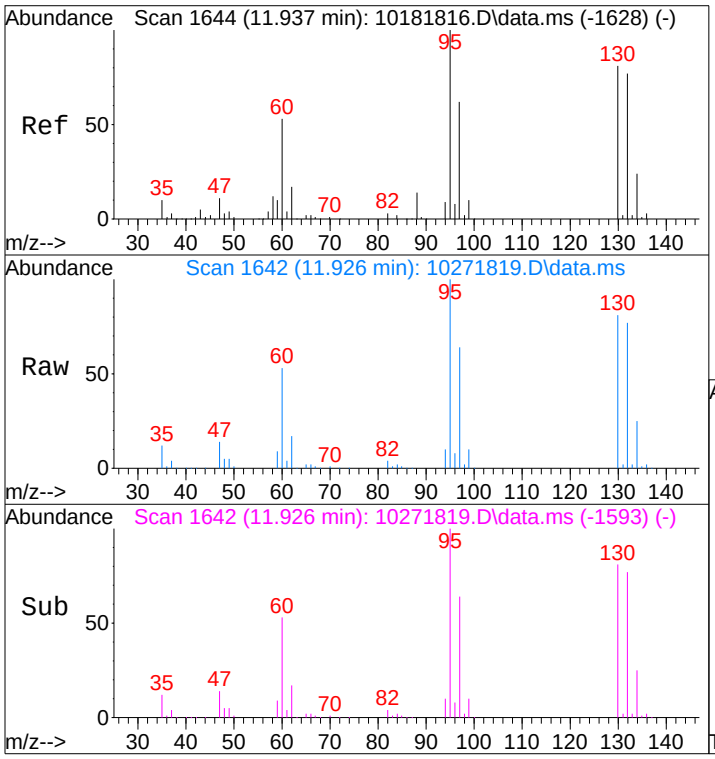


#42
Carbon Tetrachloride
Concen: 0.40 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:117 Resp: 6988

Ion	Ratio	Lower	Upper
117	100		
119	94.9	74.7	114.7

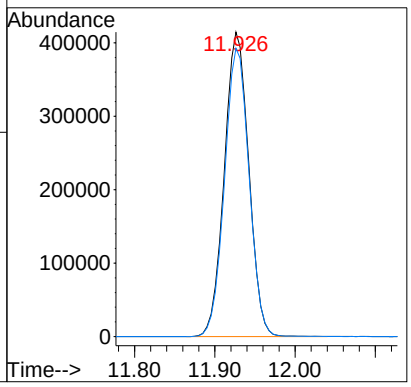


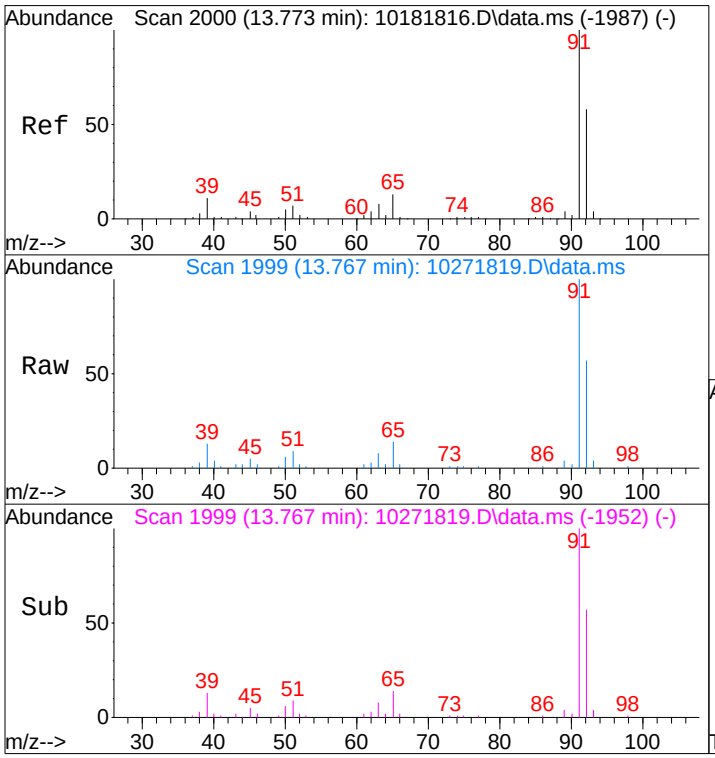


#47
Trichloroethene
Concen: 61.30 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:130 Resp: 876019

Ion	Ratio	Lower	Upper
130	100		
132	95.0	74.6	114.6

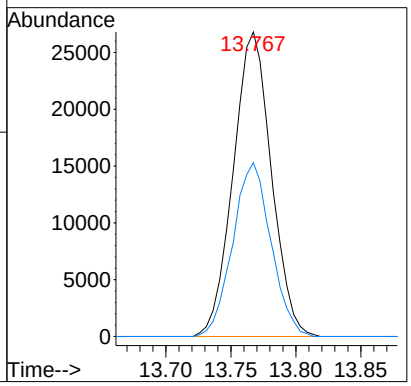


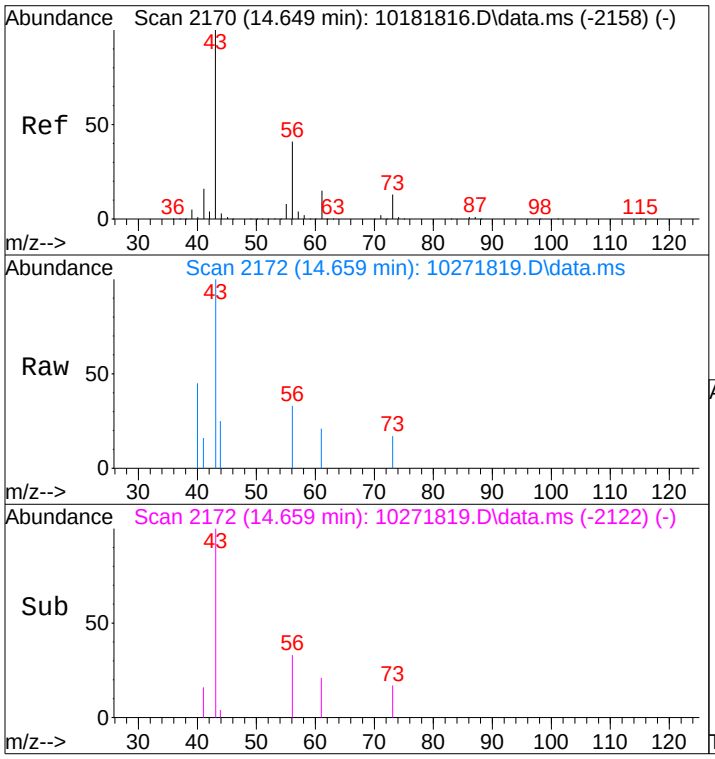


#58
Toluene
Concen: 0.77 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 91 Resp: 54734

Ion	Ratio	Lower	Upper
91	100		
92	57.1	38.1	78.1

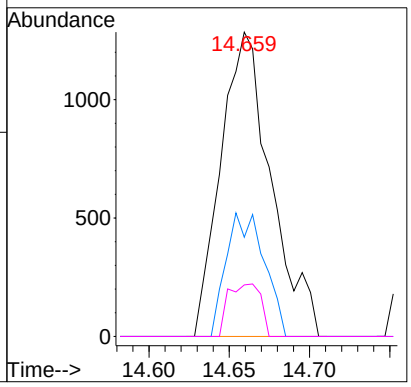


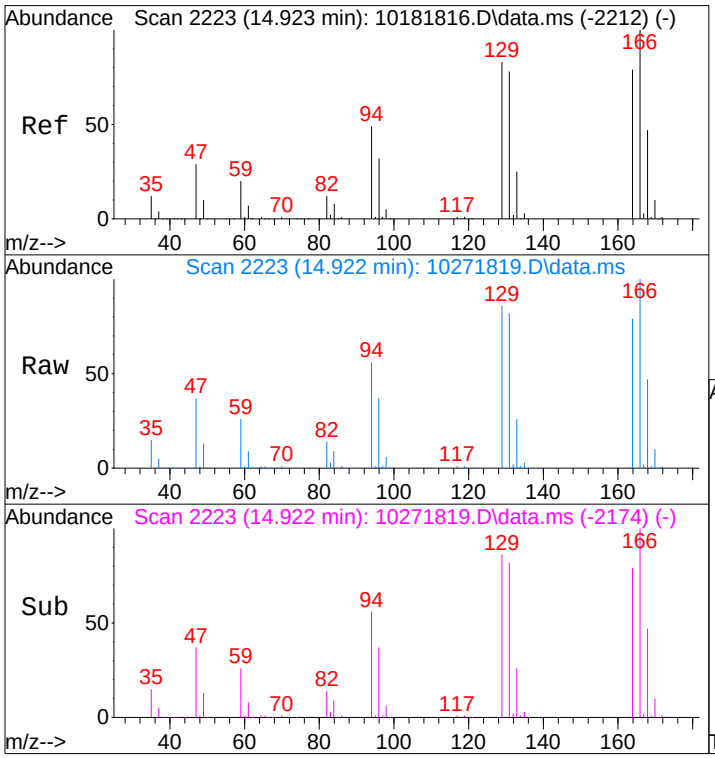


#62
n-Butyl Acetate
Concen: 0.06 ng
RT: 14.66 min Scan# 2172
Delta R.T. 0.009 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 43 Resp: 2788

Ion	Ratio	Lower	Upper
43	100		
56	30.8	20.7	60.7
73	11.2	0.0	32.8

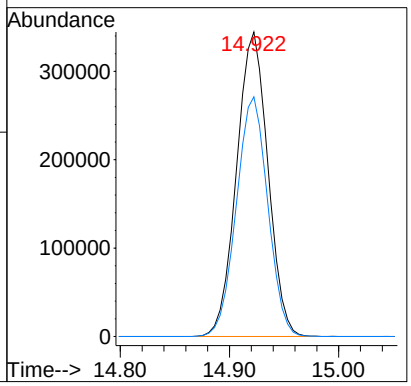


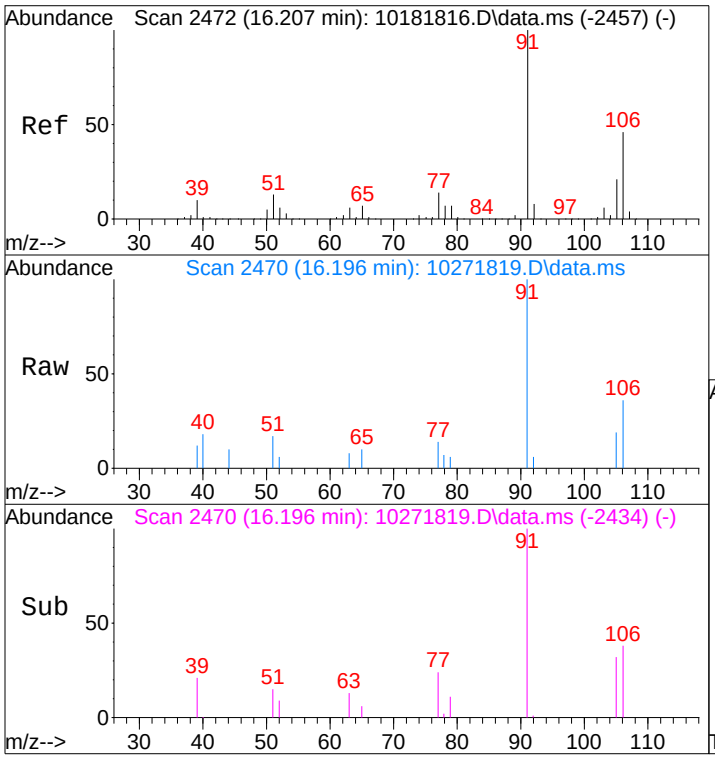


#64
Tetrachloroethene
Concen: 46.61 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.004 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:166 Resp: 687846

Ion	Ratio	Lower	Upper
166	100		
164	78.9	58.9	98.9

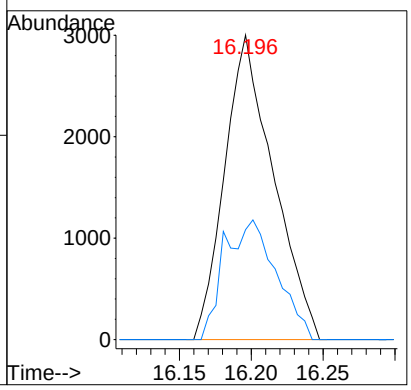


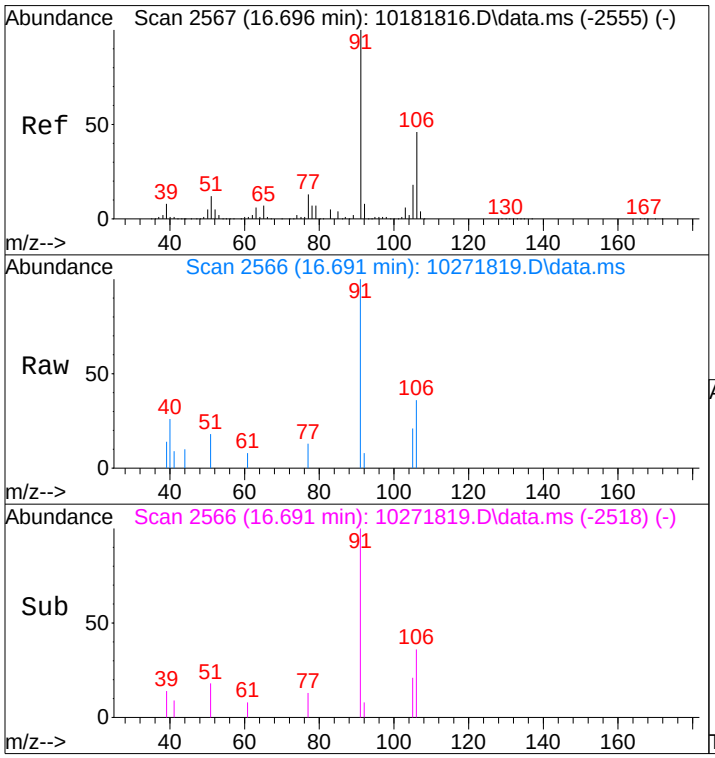


#67
m- & p-Xylenes
Concen: 0.12 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 91 Resp: 7079

Ion	Ratio	Lower	Upper
91	100		
106	42.0	26.7	66.7

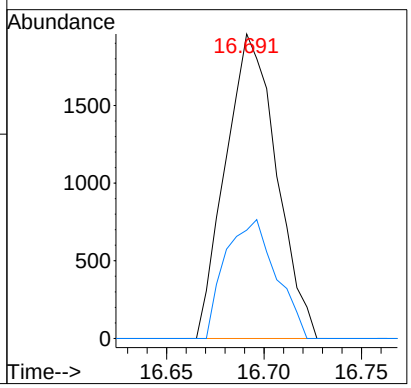


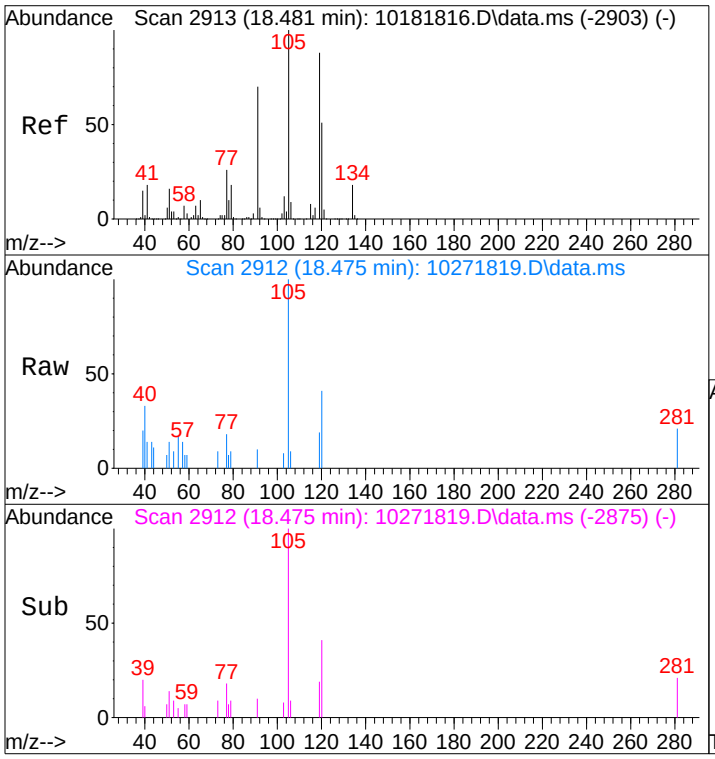


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 91 Resp: 3555

Ion	Ratio	Lower	Upper
91	100		
106	38.9	25.2	65.2

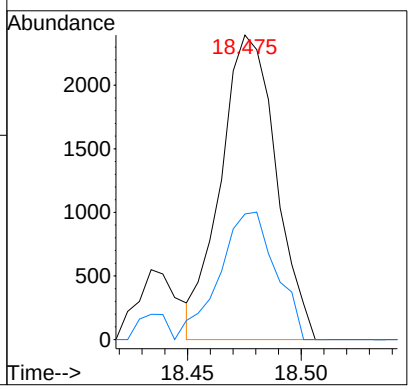


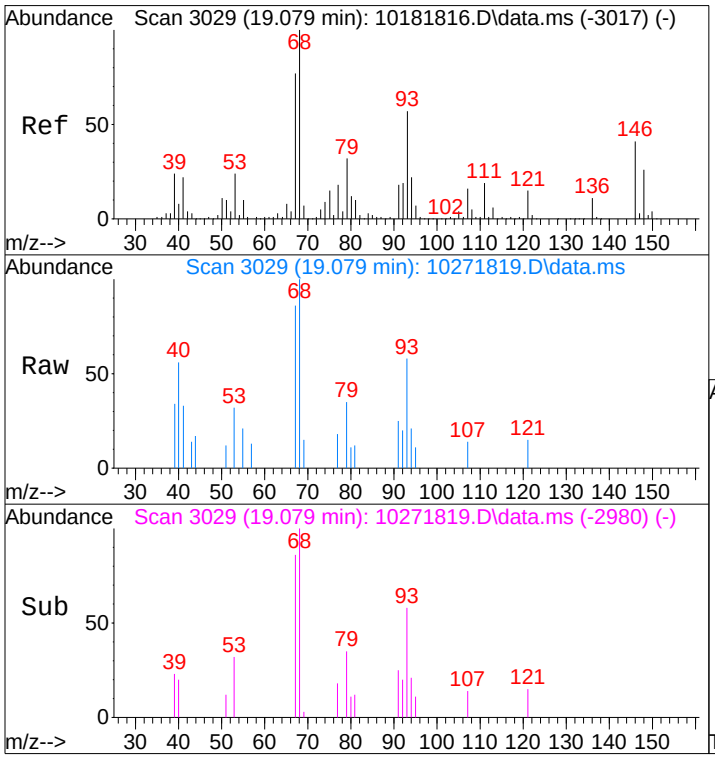


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion:105 Resp: 4042

Ion	Ratio	Lower	Upper
105	100		
120	42.7	31.3	71.3

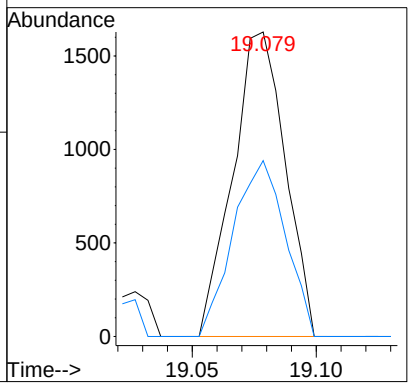




#91
d-Limonene
Concen: 0.08 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10271819.D
Acq: 27 Oct 2018 13:29

Tgt Ion: 68 Resp: 2392

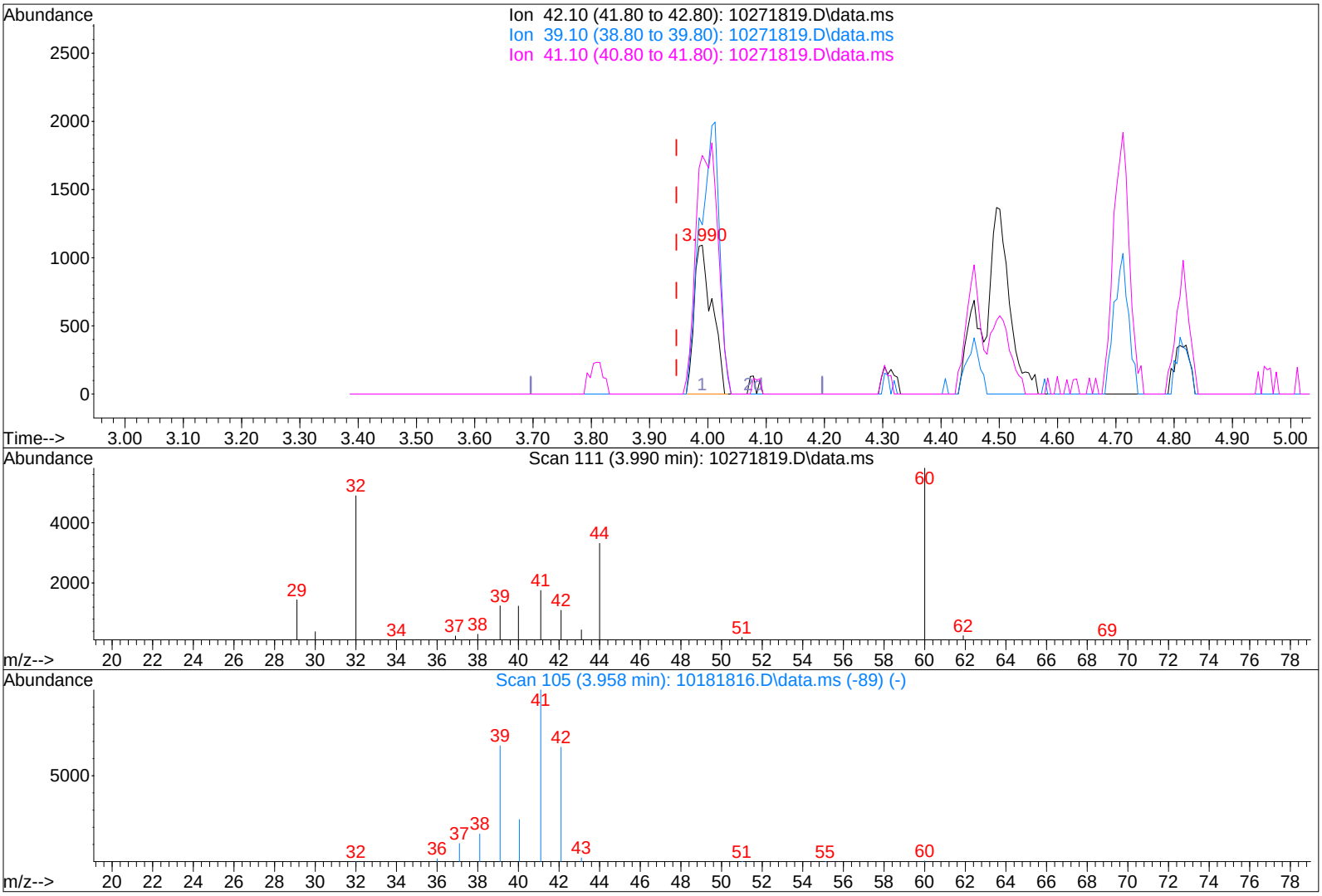
Ion	Ratio	Lower	Upper
68	100		
93	57.7	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 28 10:46:04 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271819.D\data.ms

(2) Propene (T)

3.990min (+0.044) 0.08ng

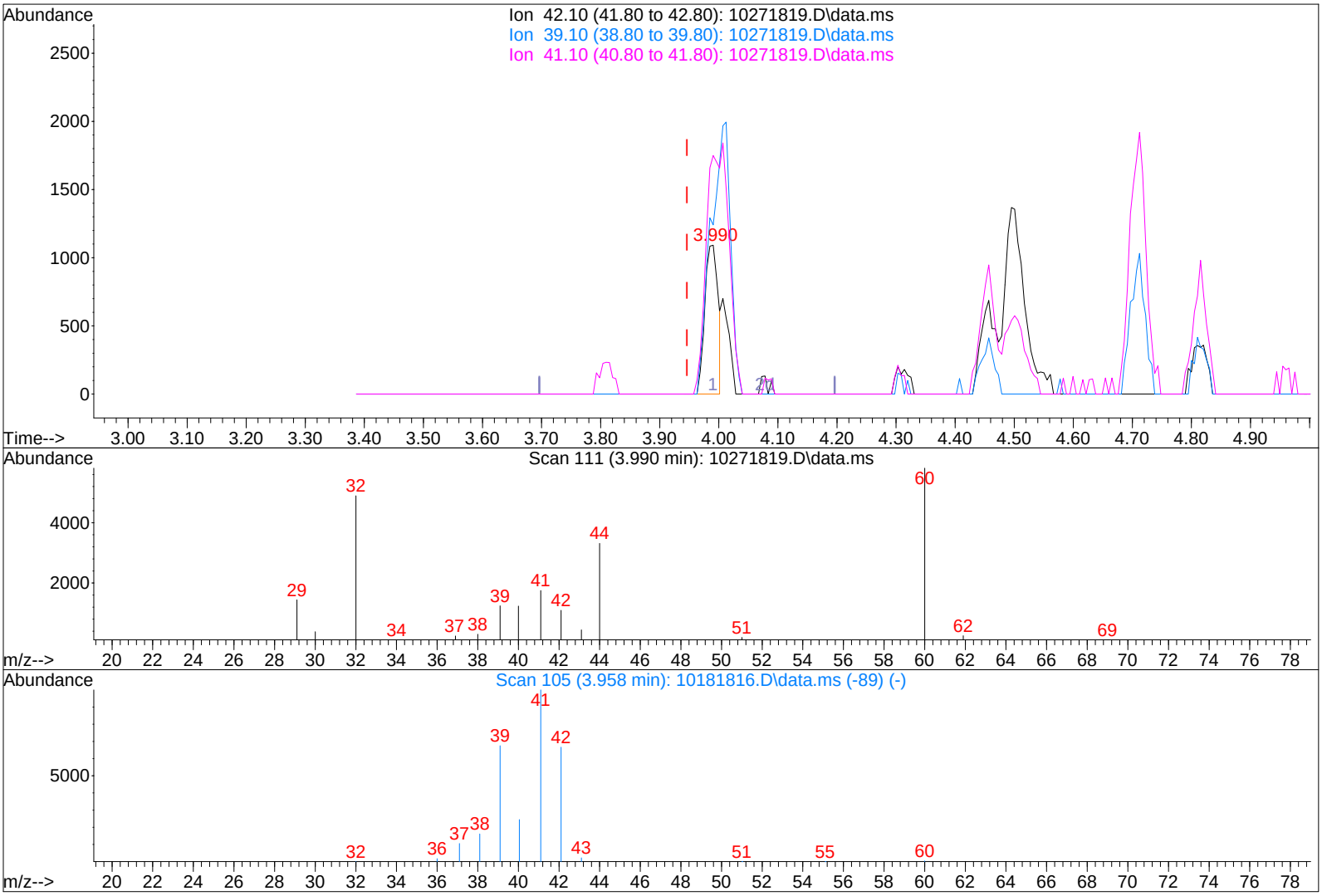
response 2333

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	197.90#
41.10	150.40	207.07#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 28 10:46:04 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271819.D\data.ms

(2) Propene (T)

3.990min (+0.044) 0.06ng m

response 1701

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	109.99
41.10	150.40	142.50
0.00	0.00	0.00

IPC

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 14:27:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

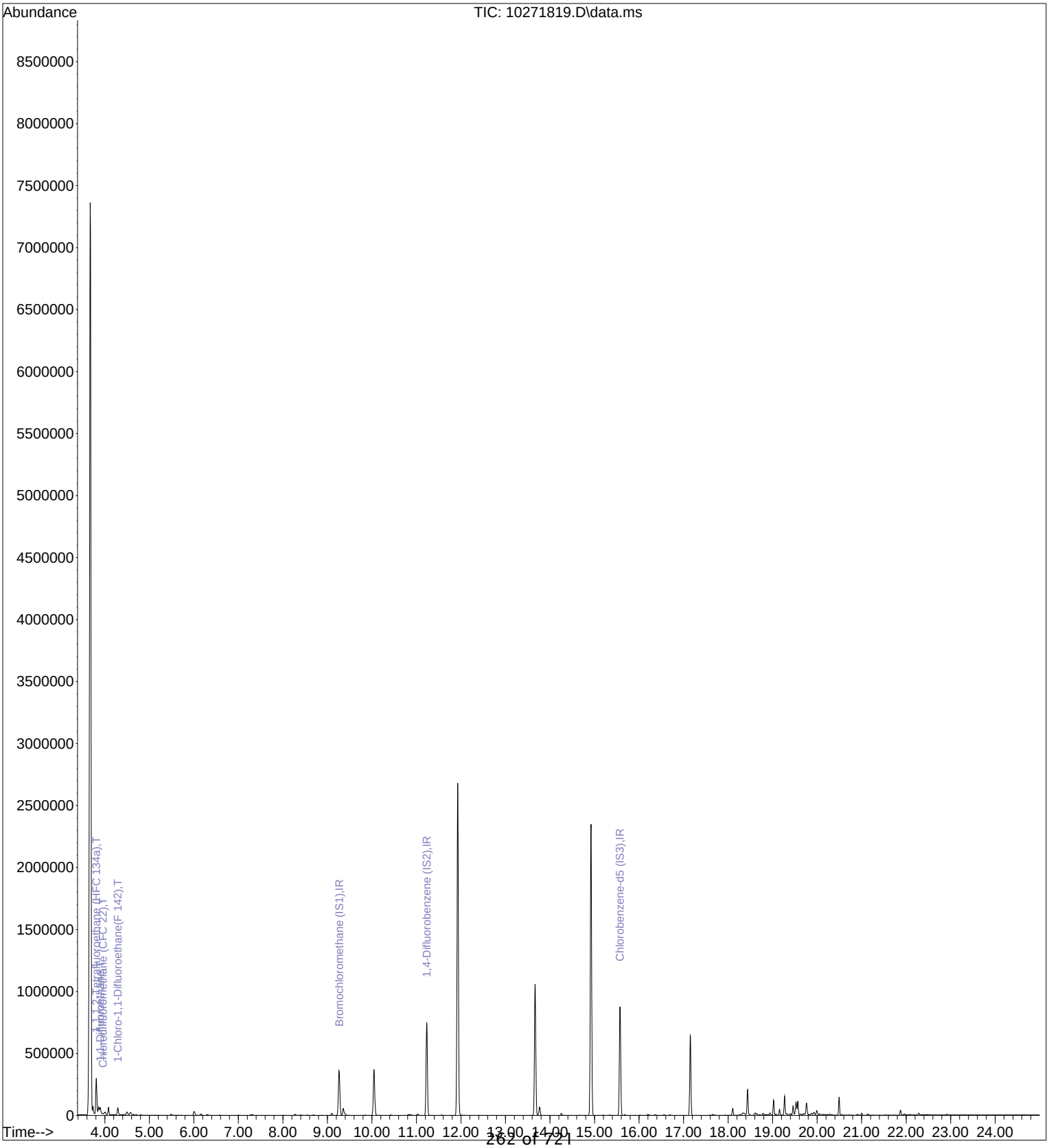
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	116113	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	596084	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	365888	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	210	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	114586	9.554	ng		94
4) 1,1-Difluoroethane	3.90	65	19733	1.374	ng		95
5) Chlorodifluoromethane ...	3.96	67	884	0.227	ng	#	36
6) 1-Chloro-1,1-Difluoroe...	4.29	65	48164	1.856	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.02	57	1419	N.D.			
11) Methyl Acetate	7.02	43	868	N.D.			
12) 2-Methylpentane	8.45	71	163	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.03	84	1109	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	100	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.83	91	865	N.D.			
27) 4-Chlorotoluene	17.83	91	865	N.D.			
28) Indane	19.12	117	55	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.17	119	203	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	306	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	132	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\27\10271819.D Vial: 8
Acq On : 27 Oct 2018 13:29 Operator: WA
Sample : P1805493-007 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:27:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:43:01 2018
Quant Method : I:\MS09\Methods\R9101818.M RS 10/29/18
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	124638	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	629449	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380974	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	300923	13.922	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.36%				
57) Toluene-d8 (SS2)	13.66	98	819531	12.313	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
73) Bromofluorobenzene (SS3)	17.15	174	166889	11.145	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	21619	0.637	ng		100
4) Chloromethane	4.29	50	527	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	256	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	11879	0.698	ng		94
11) Acetonitrile	5.70	41	936	N.D.			
12) Acrolein	5.84	56	774	0.059	ng		80
13) Acetone	6.00	58	13534	0.769	ng	#	39
14) Trichlorofluoromethane	6.15	101	8125	0.334	ng		98
15) 2-Propanol (Isopropanol)	6.32	45	3540	0.065	ng		91
16) Acrylonitrile	6.50	53	439	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.99	59	1952	N.D.			
19) Methylene Chloride	7.00	84	157	N.D.			
20) 3-Chloro-1-propene (Al...	7.07	41	115	N.D.			
21) Trichlorotrifluoroethane	7.31	151	1064	0.109	ng	#	72
22) Carbon Disulfide	7.28	76	268683	4.066	ng		97
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	114	N.D.			
27) 2-Butanone (MEK)	8.67	72	1393	0.102	ng	#	42
28) cis-1,2-Dichloroethene	9.09	61	1611	0.057	ng		87
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	9.35	61	10264	1.413	ng		100
31) n-Hexane	9.35	57	1485	N.D.			
32) Chloroform	9.39	83	8139	0.277	ng		96
34) Tetrahydrofuran (THF)	9.84	72	1018	0.077	ng	#	70
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	676	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.83	56	5877m	0.275	ng		
41) Benzene	10.87	78	9483	0.124	ng		96
42) Carbon Tetrachloride	11.03	117	1301	0.070	ng		94
43) Cyclohexane	11.16	84	125	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	298440	19.777	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	240	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:43:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

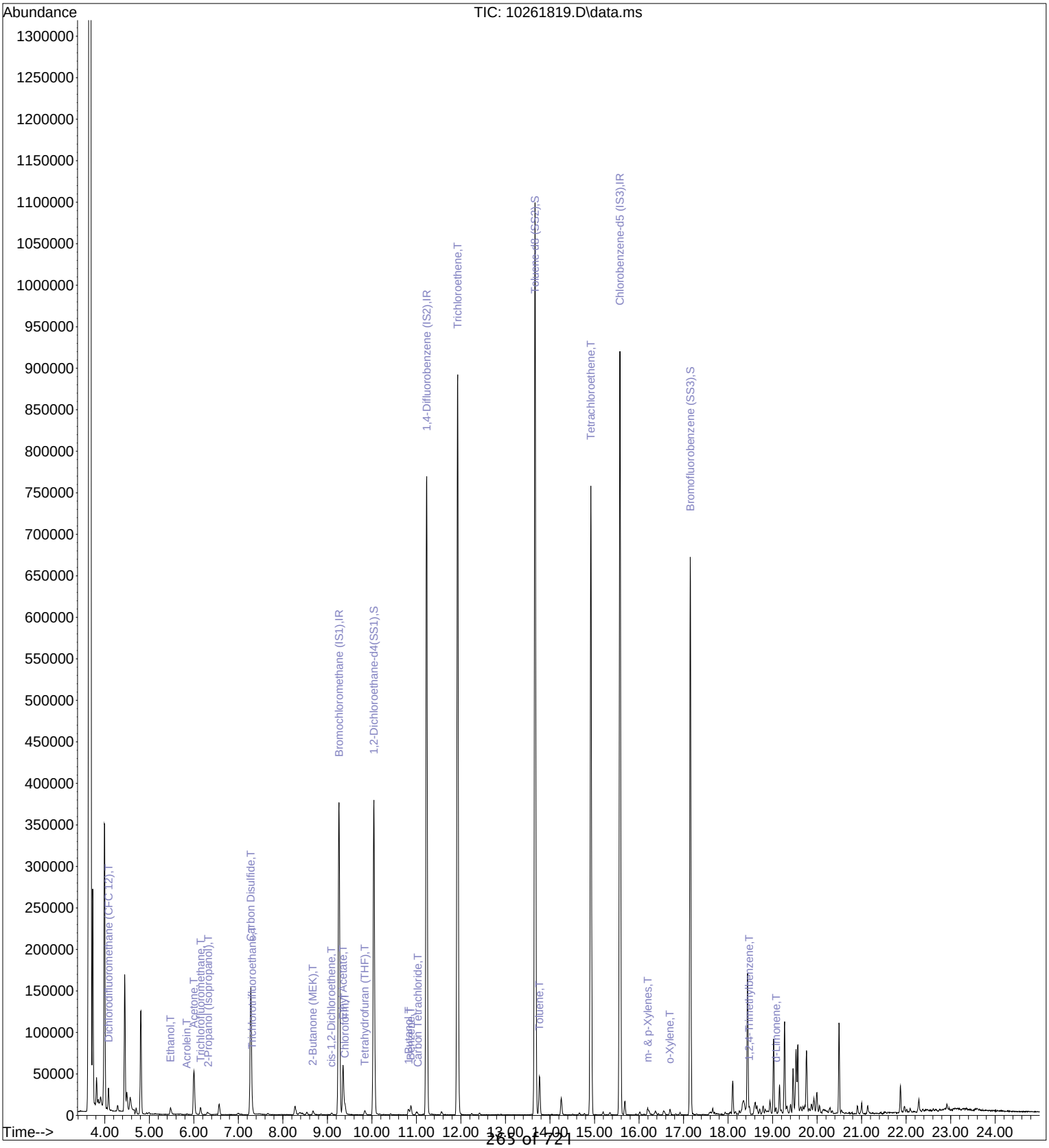
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.24	71	346	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	39008	0.524 ng	97
59) 2-Hexanone	14.05	43	645	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2033	N.D.	
63) n-Octane	14.77	57	230	N.D.	
64) Tetrachloroethene	14.92	166	221515	14.416 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	4027	N.D.	
67) m- & p-Xylenes	16.20	91	7518	0.120 ng	97
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1304	N.D.	
70) o-Xylene	16.69	91	3769	0.062 ng	95
71) n-Nonane	16.92	43	1465	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.29	105	353	N.D.	
75) alpha-Pinene	17.70	93	1090	N.D.	
76) n-Propylbenzene	17.83	91	970	N.D.	
77) 3-Ethyltoluene	17.93	105	1714	N.D.	
78) 4-Ethyltoluene	17.96	105	944	N.D.	
79) 1,3,5-Trimethylbenzene	18.04	105	872	N.D.	
80) alpha-Methylstyrene	18.21	118	464	N.D.	
81) 2-Ethyltoluene	18.25	105	778	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3884	0.067 ng	85
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	361	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	772	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	772	N.D.	
87) sec-Butylbenzene	18.92	105	791	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	710	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	791	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	2003	0.067 ng	99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2356	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	311	N.D.	
100) n-Butylbenzene	19.36	91	399	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:43:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:43:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

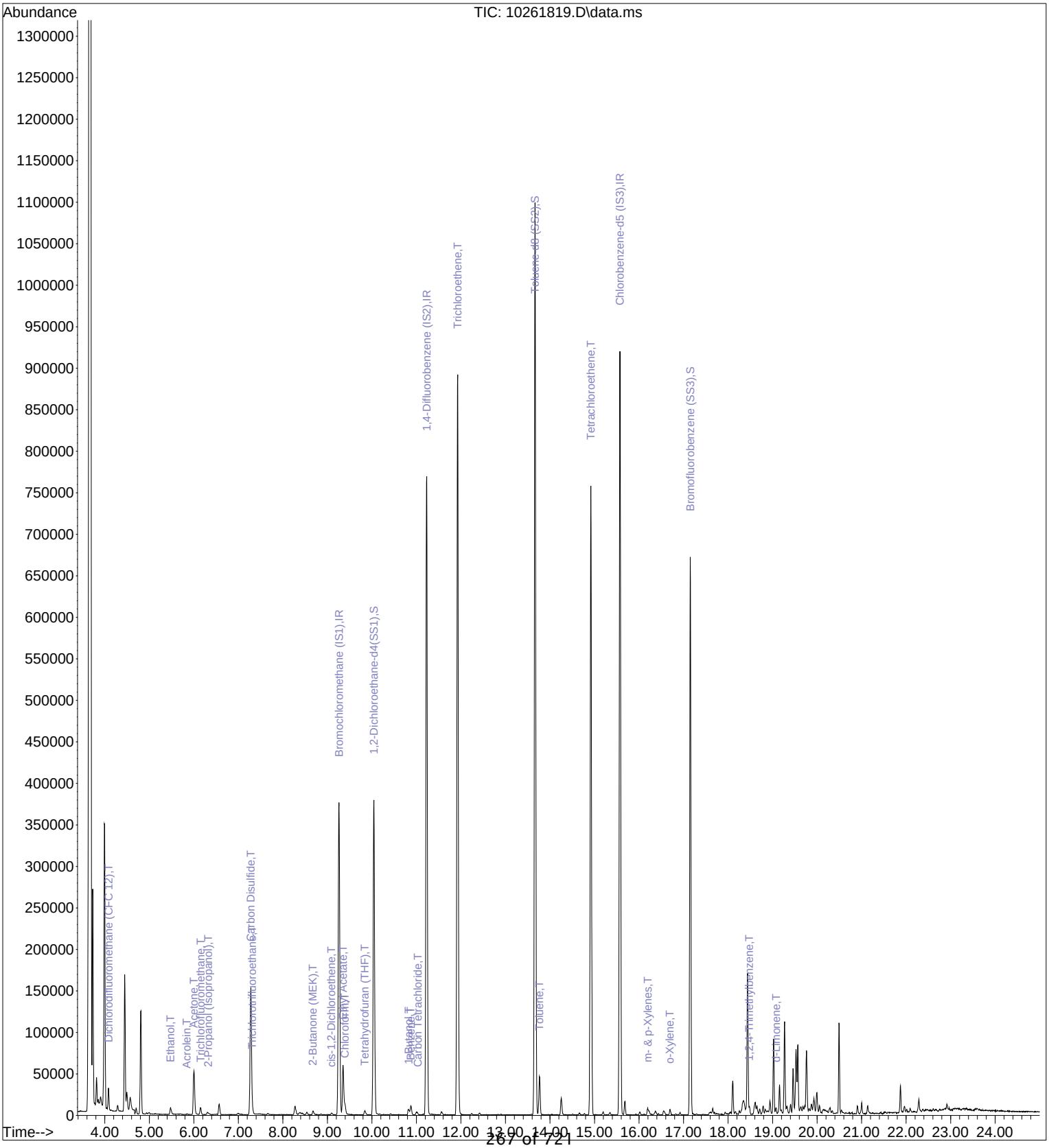
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	124638	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	629449	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380974	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	300923	13.922	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.36%				
57) Toluene-d8 (SS2)	13.66	98	819531	12.313	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
73) Bromofluorobenzene (SS3)	17.15	174	166889	11.145	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	21619	0.637	ng		100
10) Ethanol	5.48	45	11879	0.698	ng		94
12) Acrolein	5.84	56	774	0.059	ng		80
13) Acetone	6.00	58	13534	0.769	ng	#	39
14) Trichlorofluoromethane	6.15	101	8125	0.334	ng		98
15) 2-Propanol (Isopropanol)	6.32	45	3540	0.065	ng		91
21) Trichlorotrifluoroethane	7.31	151	1064	0.109	ng	#	72
22) Carbon Disulfide	7.28	76	268683	4.066	ng		97
27) 2-Butanone (MEK)	8.67	72	1393	0.102	ng	#	42
28) cis-1,2-Dichloroethene	9.09	61	1611	0.057	ng		87
30) Ethyl Acetate	9.35	61	10264	1.413	ng		100
32) Chloroform	9.39	83	8139	0.277	ng		96
34) Tetrahydrofuran (THF)	9.84	72	1018	0.077	ng	#	70
40) 1-Butanol	10.83	56	5877m	0.275	ng		
41) Benzene	10.87	78	9483	0.124	ng		96
42) Carbon Tetrachloride	11.03	117	1301	0.070	ng		94
47) Trichloroethene	11.93	130	298440	19.777	ng		100
58) Toluene	13.76	91	39008	0.524	ng		97
64) Tetrachloroethene	14.92	166	221515	14.416	ng		100
67) m- & p-Xylenes	16.20	91	7518	0.120	ng		97
70) o-Xylene	16.69	91	3769	0.062	ng		95
82) 1,2,4-Trimethylbenzene	18.48	105	3884	0.067	ng		85
91) d-Limonene	19.08	68	2003	0.067	ng		99

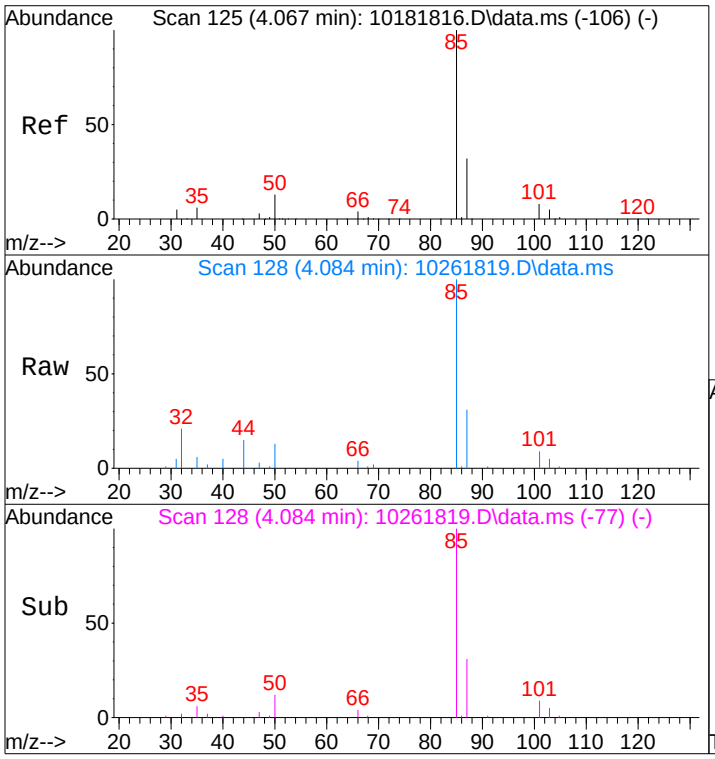
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:43:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

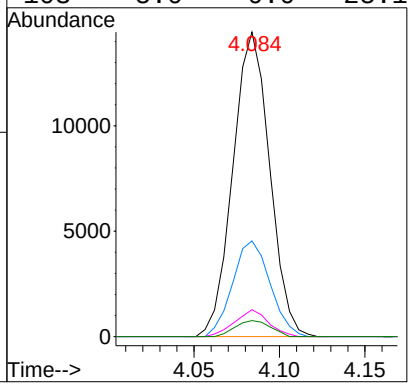


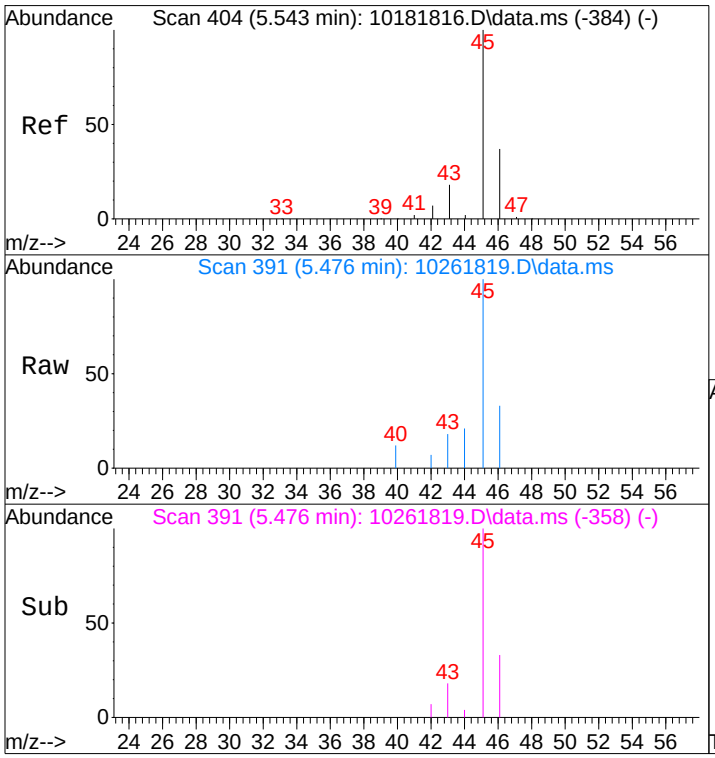


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.64 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 85 Resp: 21619

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.0	52.0
101	8.1	0.0	28.0
103	5.0	0.0	25.1

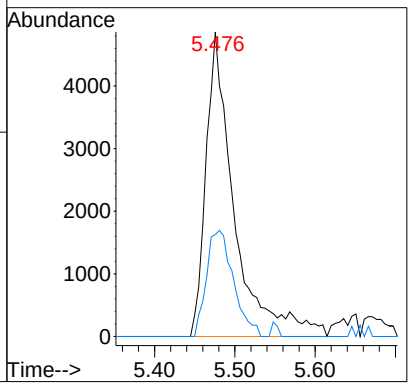


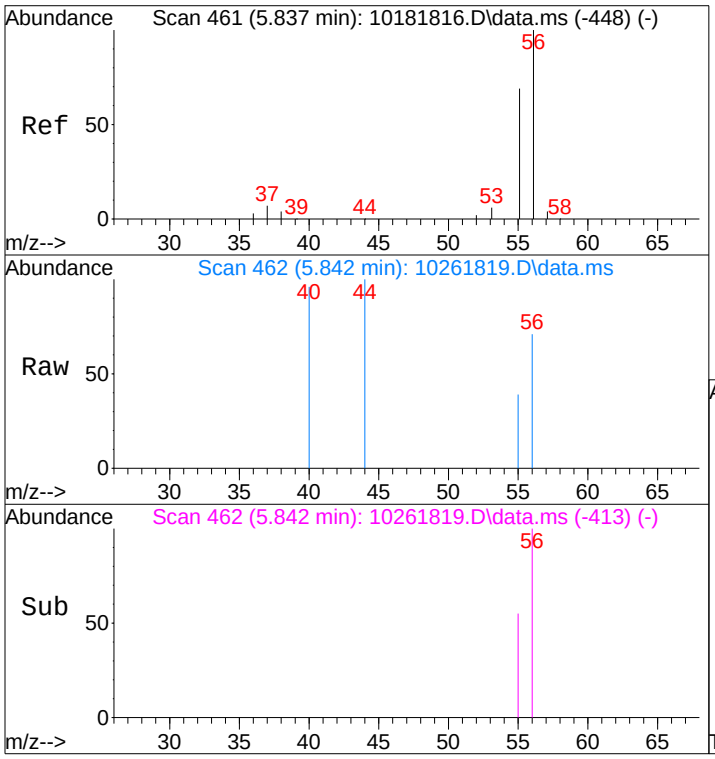


#10
Ethanol
Concen: 0.70 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 45 Resp: 11879

Ion	Ratio	Lower	Upper
45	100		
46	33.3	17.0	57.0

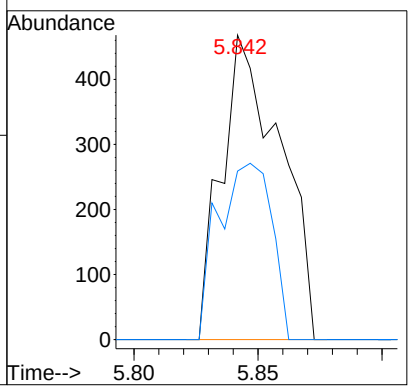


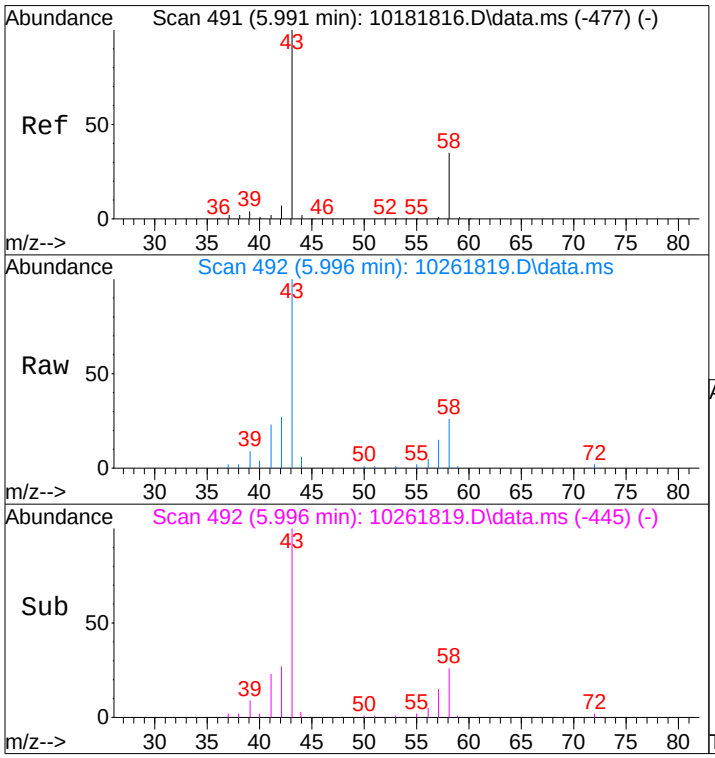


#12
Acrolein
Concen: 0.06 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 56 Resp: 774

Ion	Ratio	Lower	Upper
56	100		
55	52.7	49.3	89.3

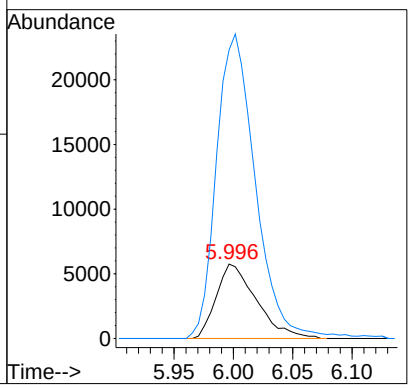


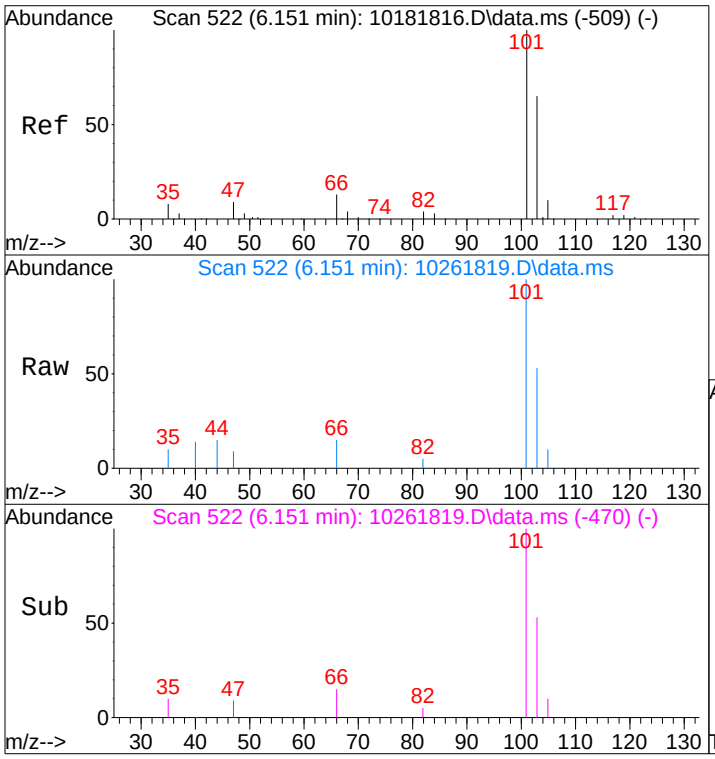


#13
Acetone
Concen: 0.77 ng
RT: 6.00 min Scan# 492
Delta R.T. -0.007 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 58 Resp: 13534

Ion	Ratio	Lower	Upper
58	100		
43	399.3	254.3	314.3#

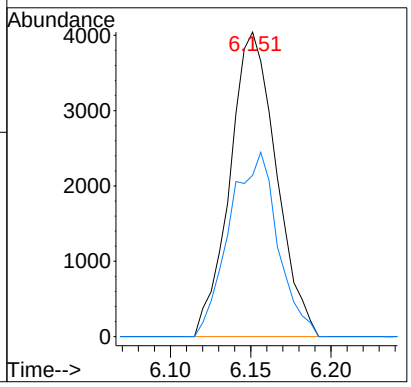


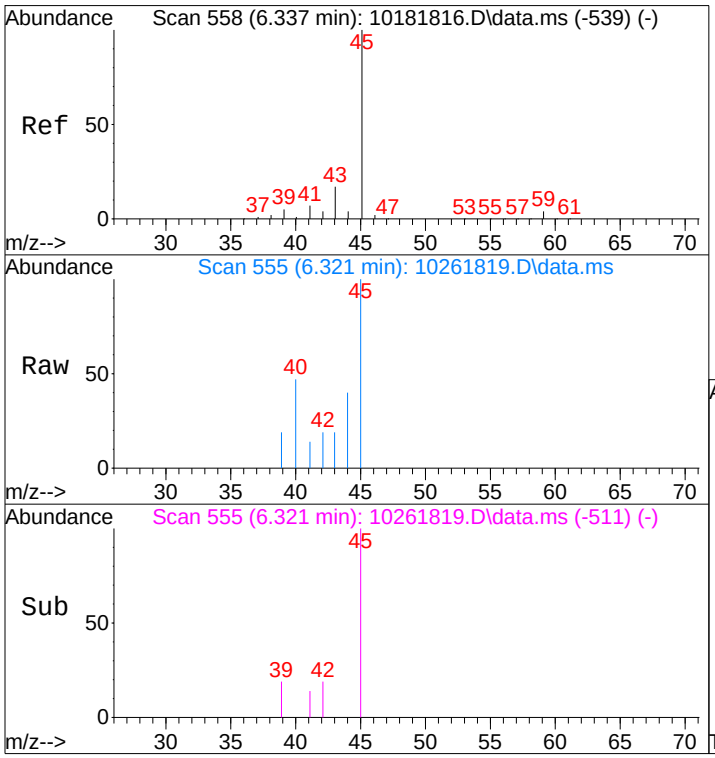


#14
Trichlorofluoromethane
Concen: 0.33 ng
RT: 6.15 min Scan# 522
Delta R.T. 0.019 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:101 Resp: 8125

Ion	Ratio	Lower	Upper
101	100		
103	63.1	44.5	84.5

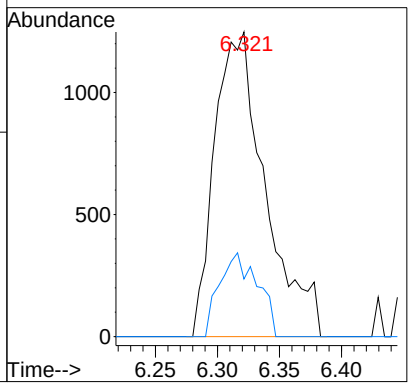


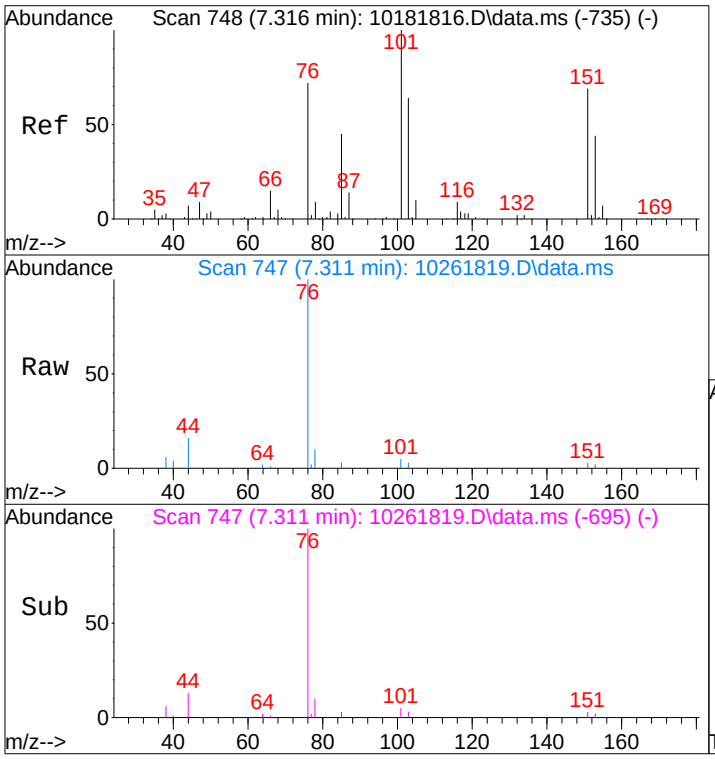


#15
2-Propanol (Isopropanol)
Concen: 0.06 ng
RT: 6.32 min Scan# 555
Delta R.T. -0.021 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 45 Resp: 3540

Ion	Ratio	Lower	Upper
45	100		
43	20.7	0.0	36.7

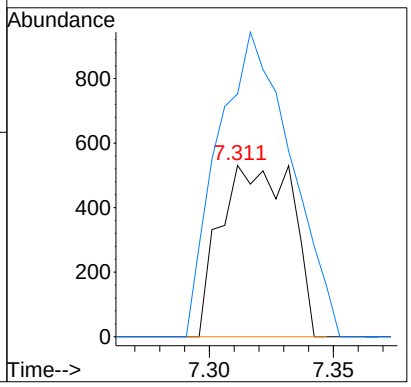


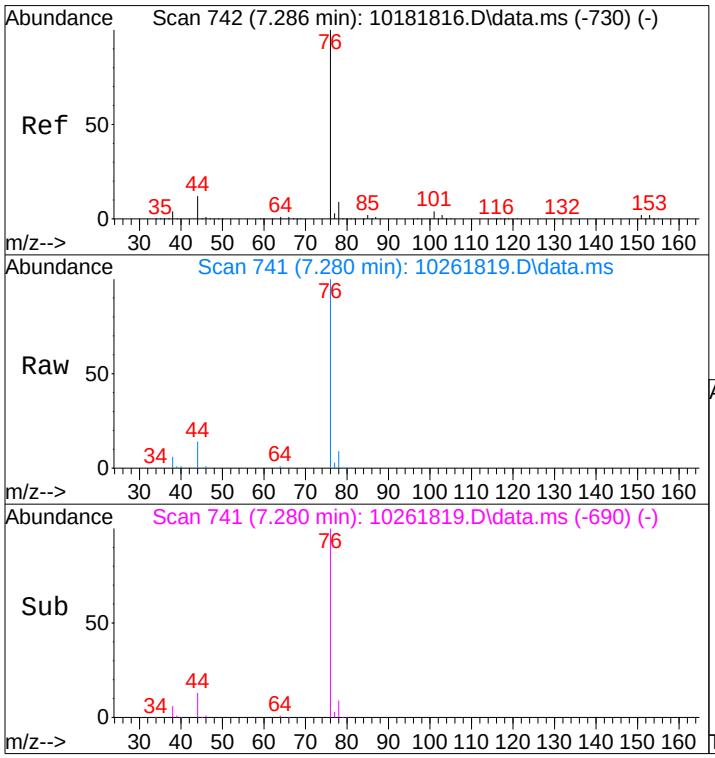


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.31 min Scan# 747
Delta R.T. 0.020 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:151 Resp: 1064

Ion	Ratio	Lower	Upper
151	100		
101	182.3	127.5	167.5#

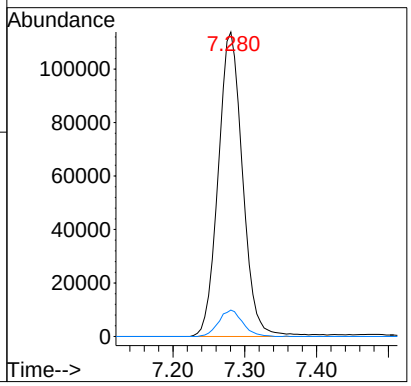


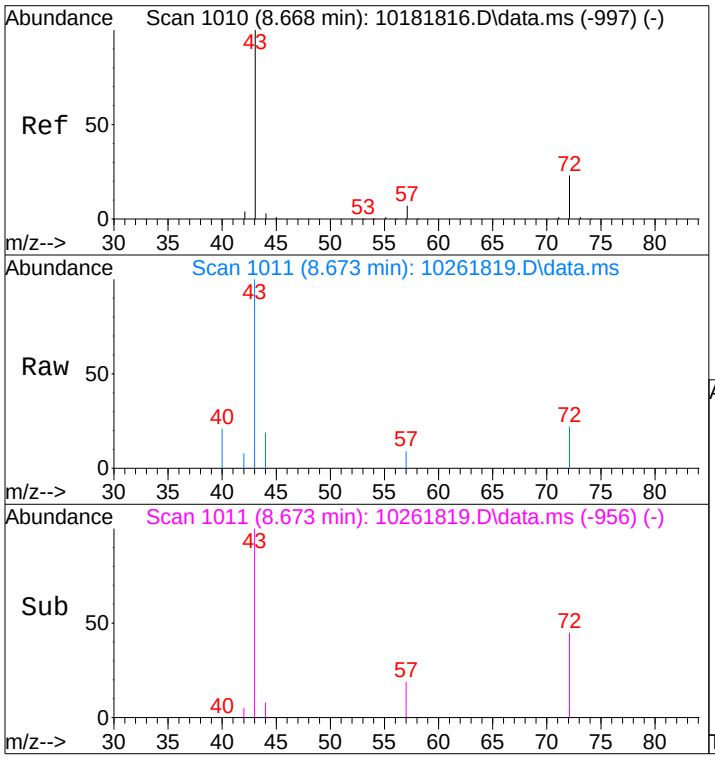


#22
Carbon Disulfide
Concen: 4.07 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 76 Resp: 268683

Ion	Ratio	Lower	Upper
76	100		
78	8.5	0.0	29.6

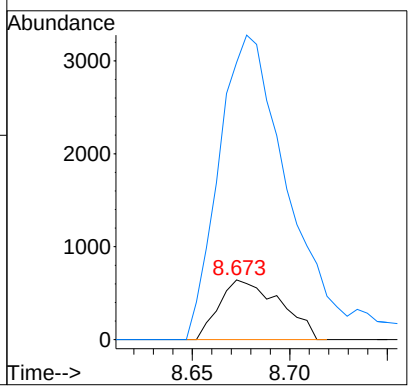


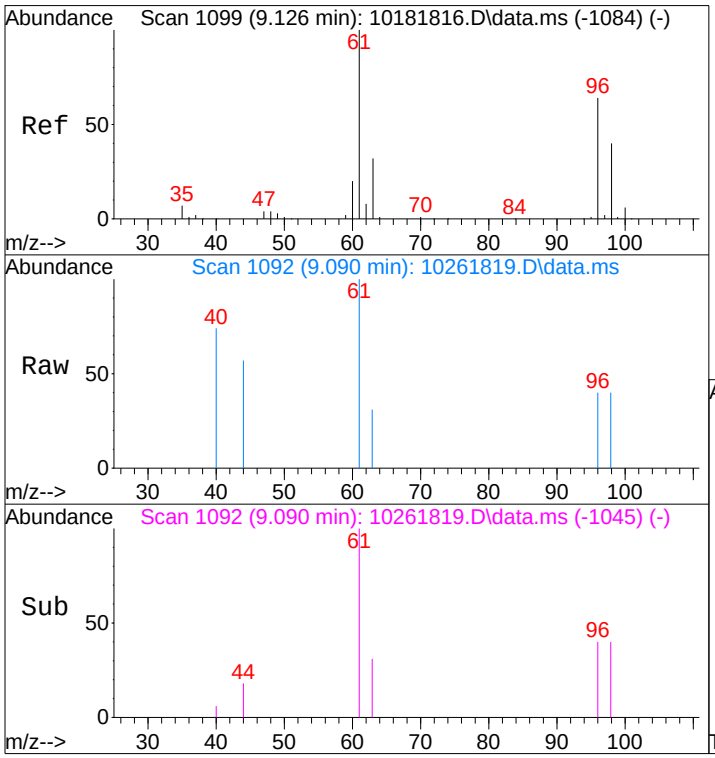


#27
2-Butanone (MEK)
Concen: 0.10 ng
RT: 8.67 min Scan# 1011
Delta R.T. 0.033 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 72 Resp: 1393

Ion	Ratio	Lower	Upper
72	100		
43	599.6	430.0	470.0#

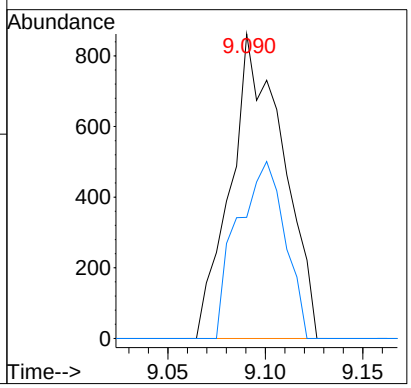


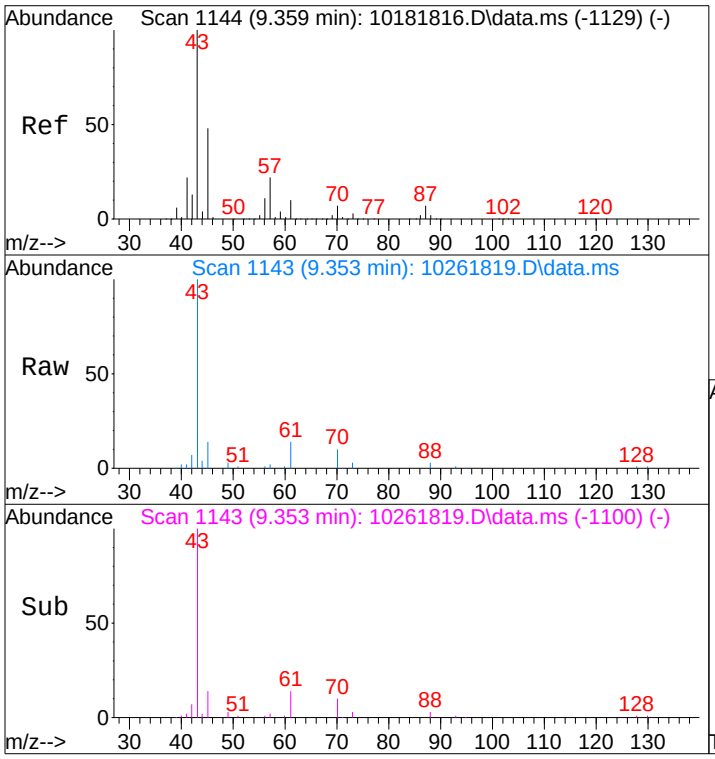


#28
cis-1,2-Dichloroethene
Concen: 0.06 ng
RT: 9.09 min Scan# 1092
Delta R.T. -0.006 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 61 Resp: 1611

Ion	Ratio	Lower	Upper
61	100		
96	52.7	42.8	82.8

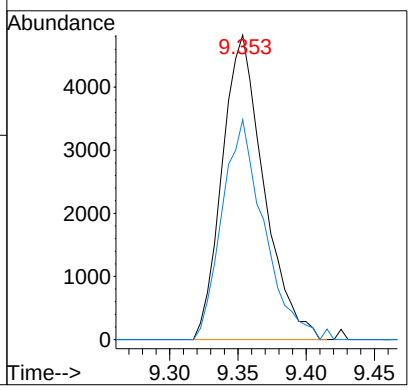


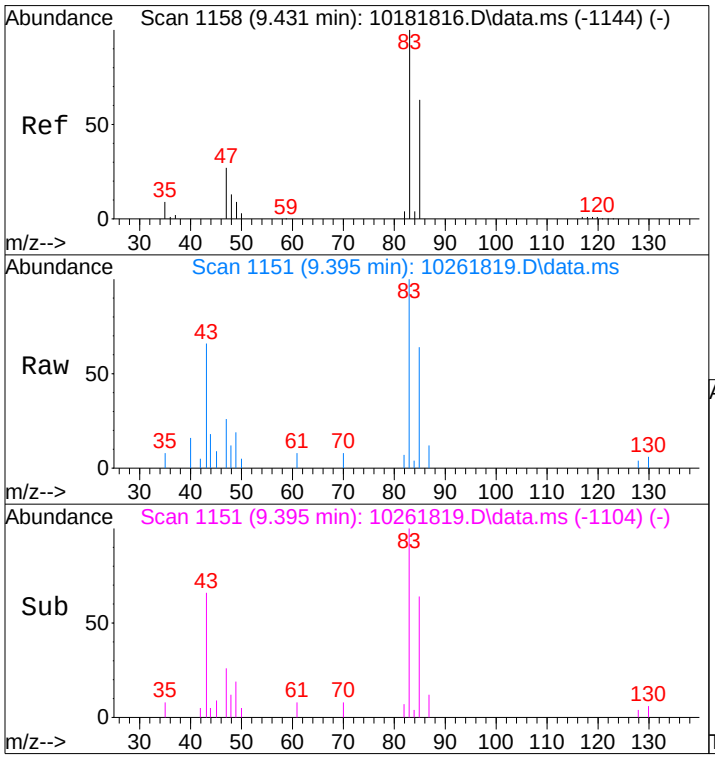


#30
Ethyl Acetate
Concen: 1.41 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 61 Resp: 10264

Ion	Ratio	Lower	Upper
61	100		
70	72.9	52.7	92.7

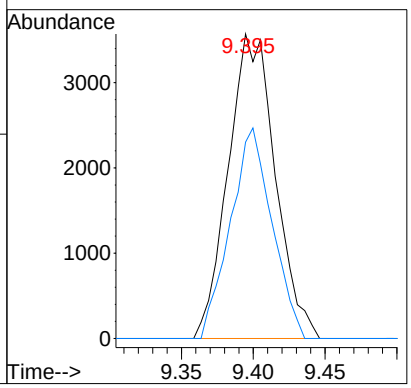


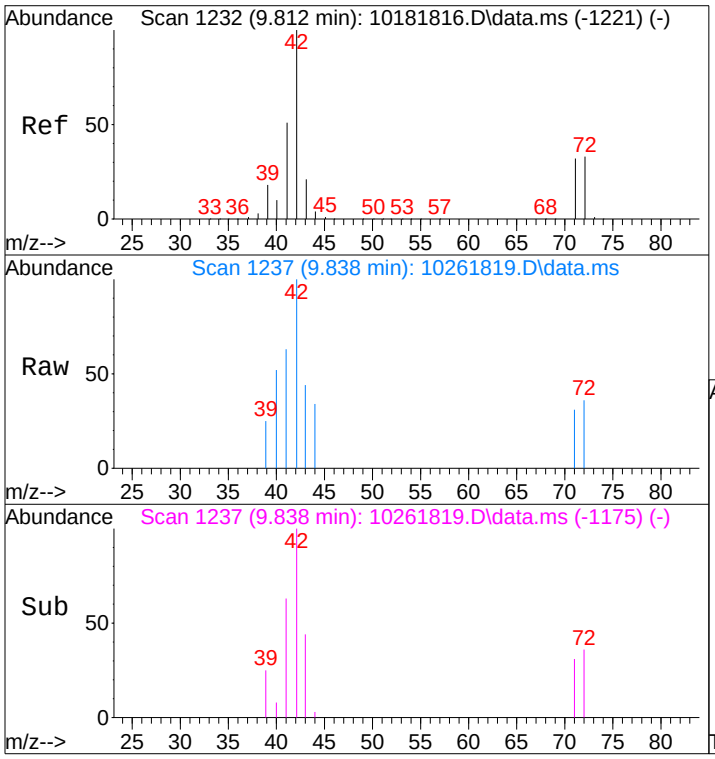


#32
Chloroform
Concen: 0.28 ng
RT: 9.39 min Scan# 1151
Delta R.T. -0.009 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 83 Resp: 8139

Ion	Ratio	Lower	Upper
83	100		
85	61.2	44.0	84.0

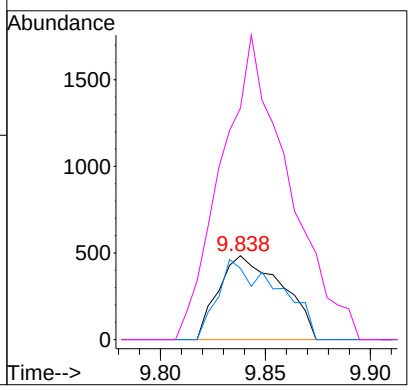


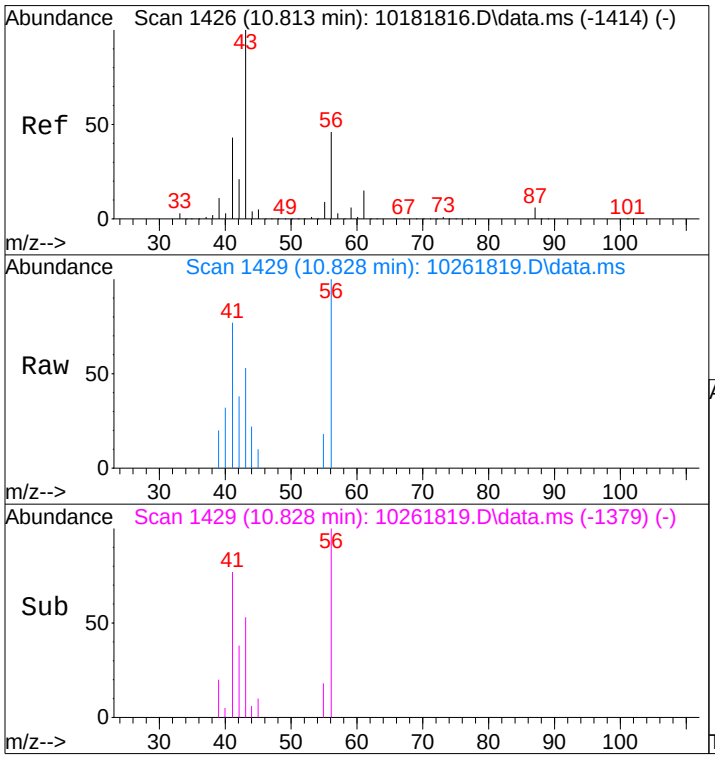


#34
Tetrahydrofuran (THF)
Concen: 0.08 ng
RT: 9.84 min Scan# 1237
Delta R.T. 0.070 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 72 Resp: 1018

Ion	Ratio	Lower	Upper
72	100		
71	90.8	76.7	116.7
42	383.5	287.9	327.9#

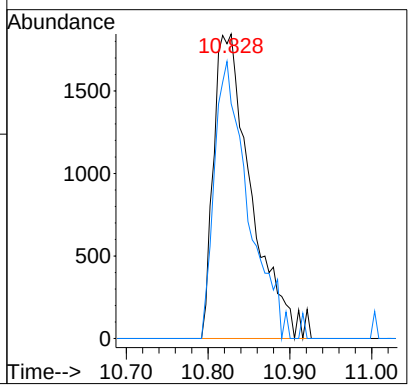


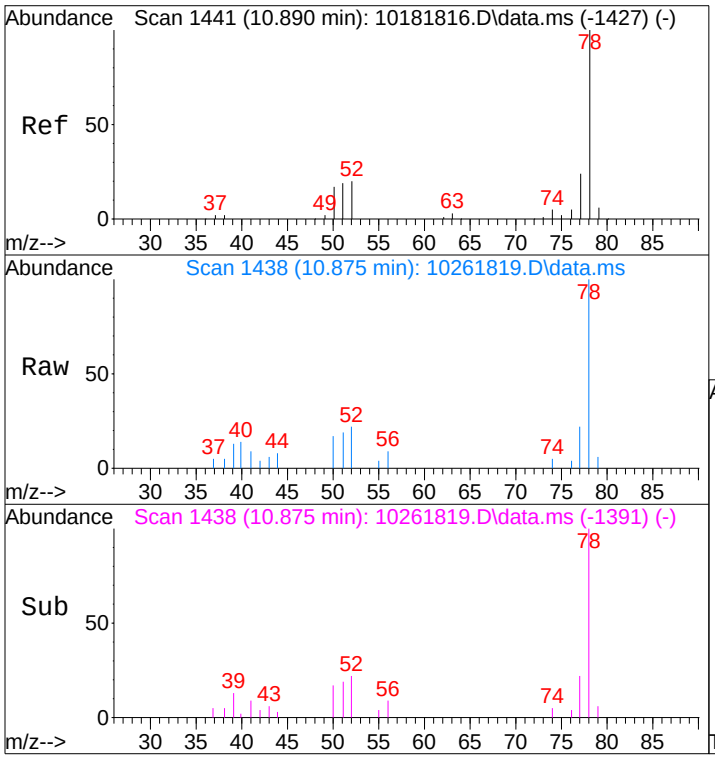


#40
1-Butanol
Concen: 0.27 ng m
RT: 10.83 min Scan# 1429
Delta R.T. 0.010 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 56 Resp: 5877

Ion	Ratio	Lower	Upper
56	100		
41	0.0	90.2	130.2#

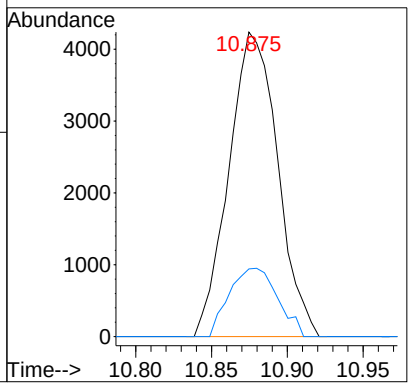


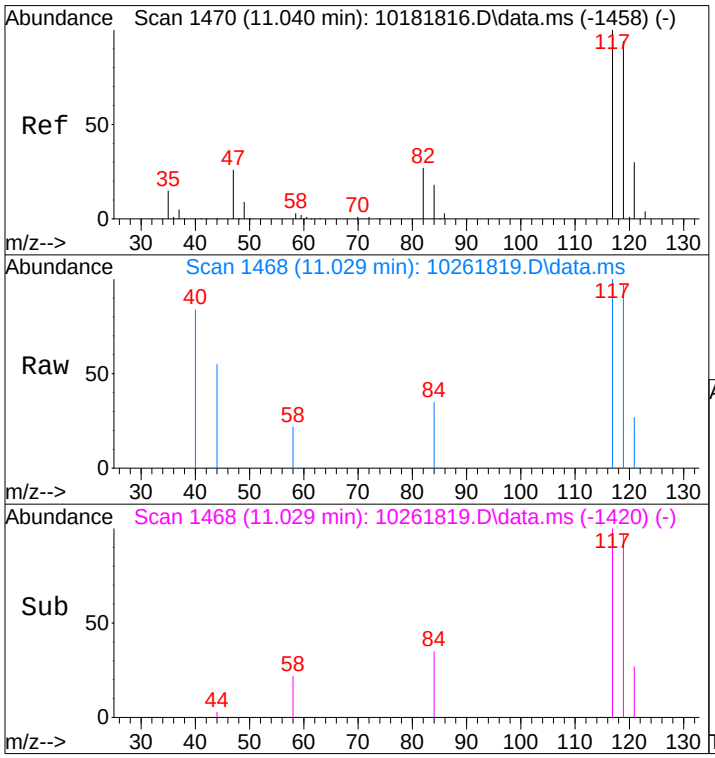


#41
Benzene
Concen: 0.12 ng
RT: 10.87 min Scan# 1438
Delta R.T. -0.006 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 78 Resp: 9483

Ion	Ratio	Lower	Upper
78	100		
77	22.3	4.1	44.1

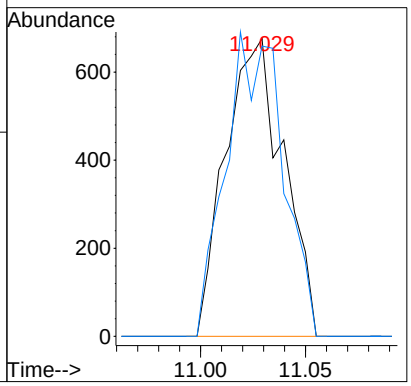


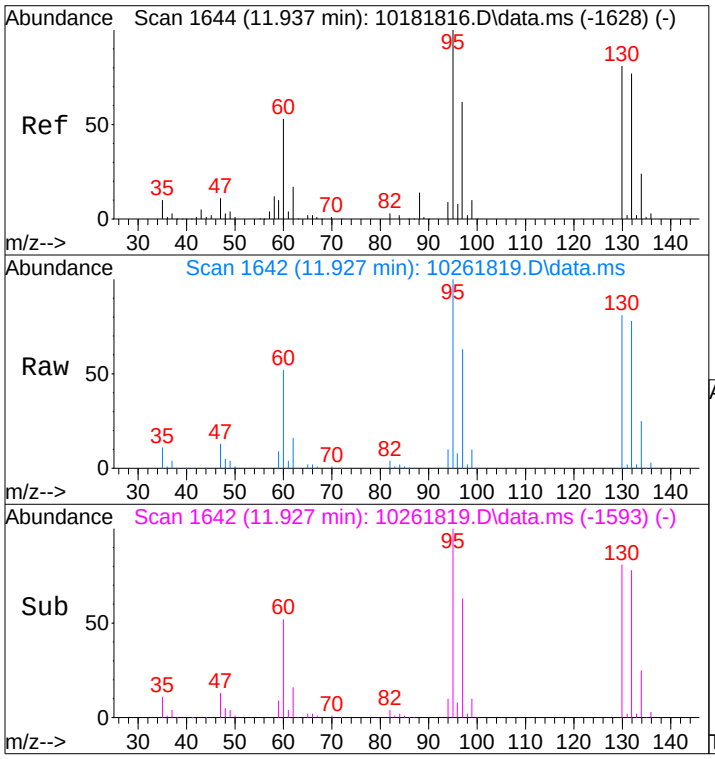


#42
Carbon Tetrachloride
Concen: 0.07 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:117 Resp: 1301

Ion	Ratio	Lower	Upper
117	100		
119	100.2	74.7	114.7

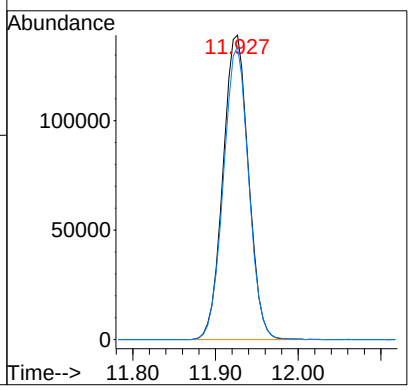


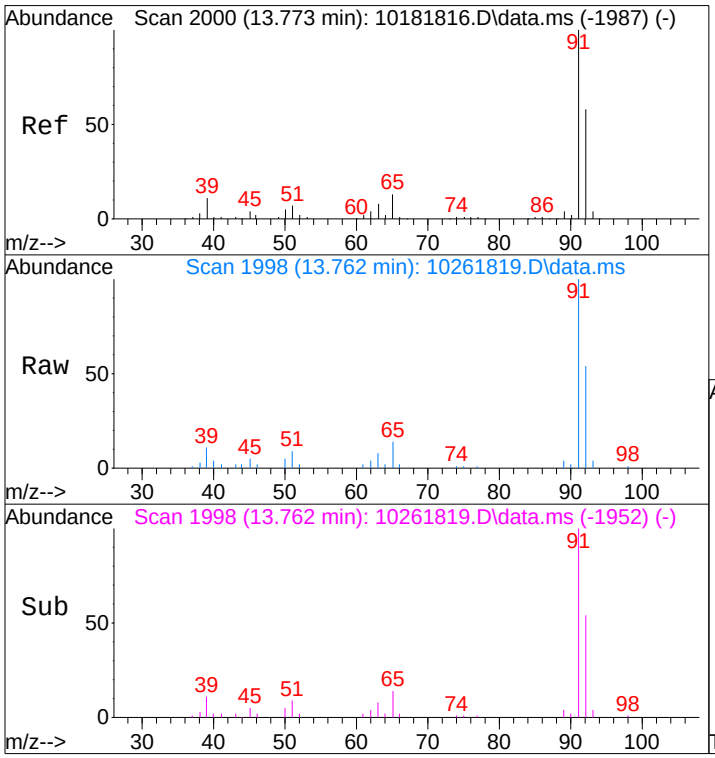


#47
Trichloroethene
Concen: 19.78 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:130 Resp: 298440

Ion	Ratio	Lower	Upper
130	100		
132	94.8	74.6	114.6

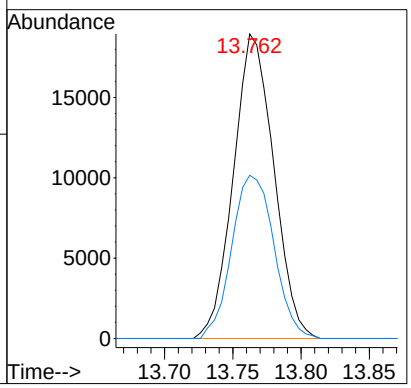


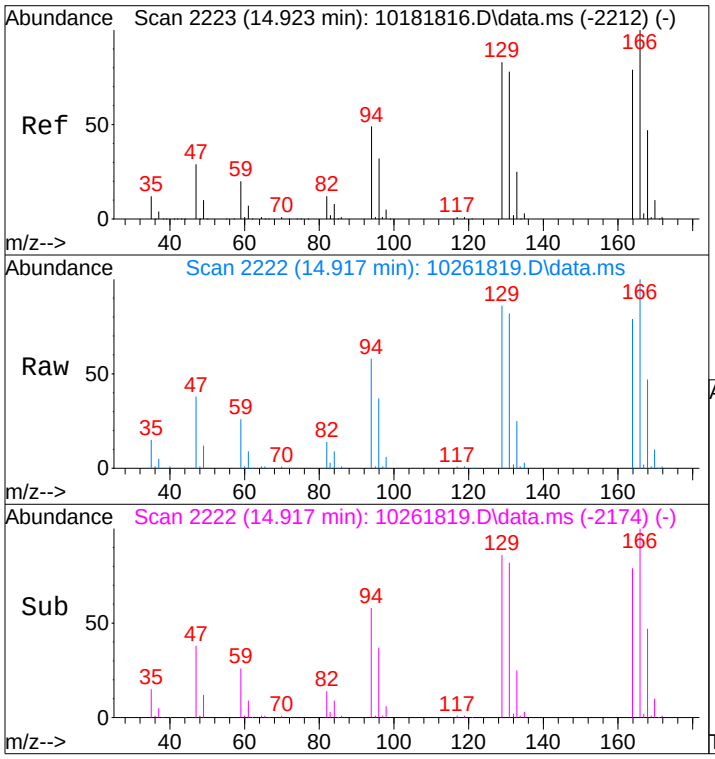


#58
Toluene
Concen: 0.52 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 91 Resp: 39008

Ion	Ratio	Lower	Upper
91	100		
92	56.0	38.1	78.1

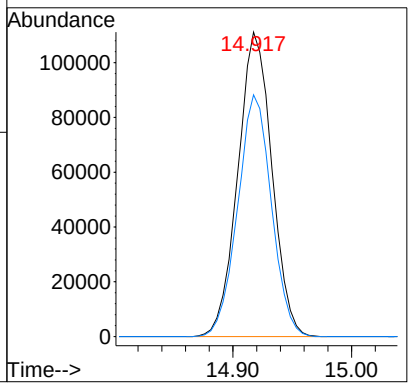


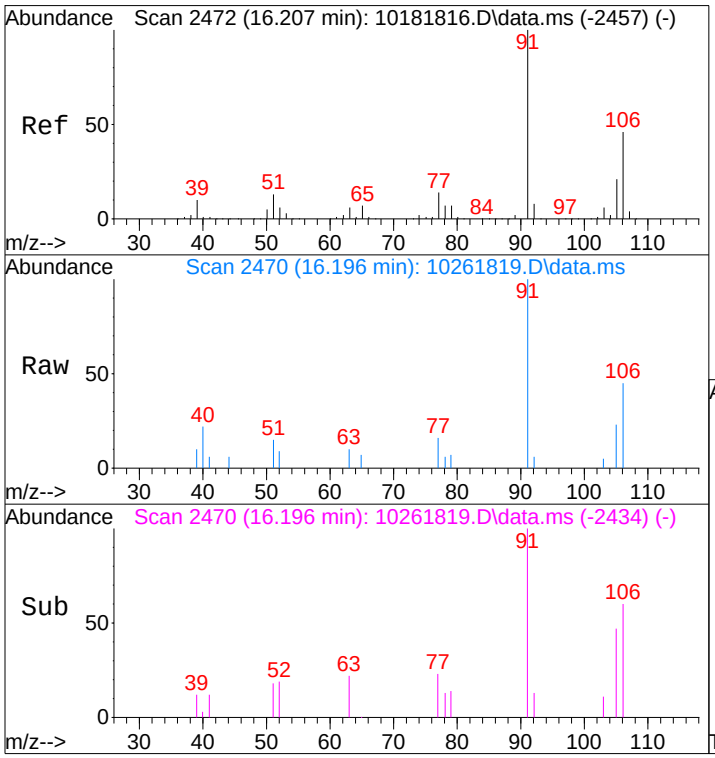


#64
Tetrachloroethene
Concen: 14.42 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:166 Resp: 221515

Ion	Ratio	Lower	Upper
166	100		
164	78.8	58.9	98.9

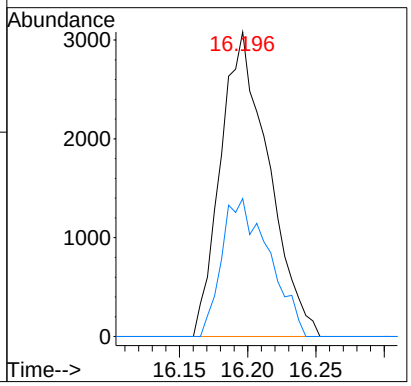


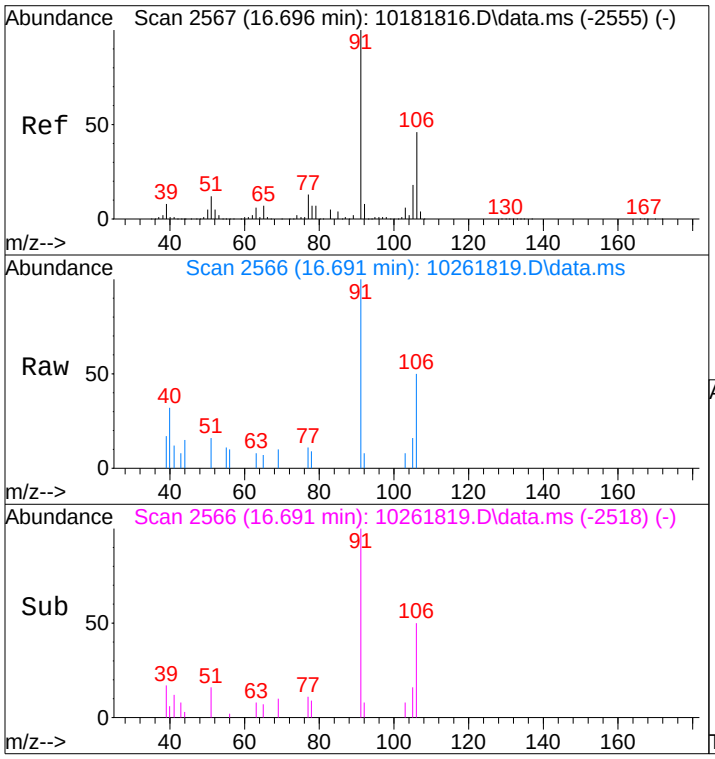


#67
m- & p-Xylenes
Concen: 0.12 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 91 Resp: 7518

Ion	Ratio	Lower	Upper
91	100		
106	44.9	26.7	66.7

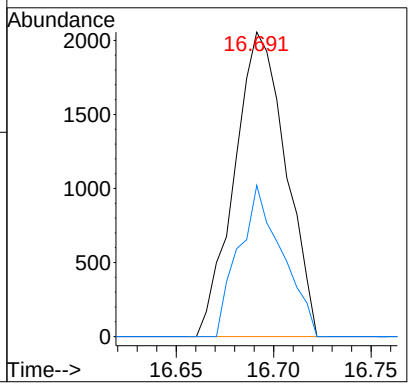


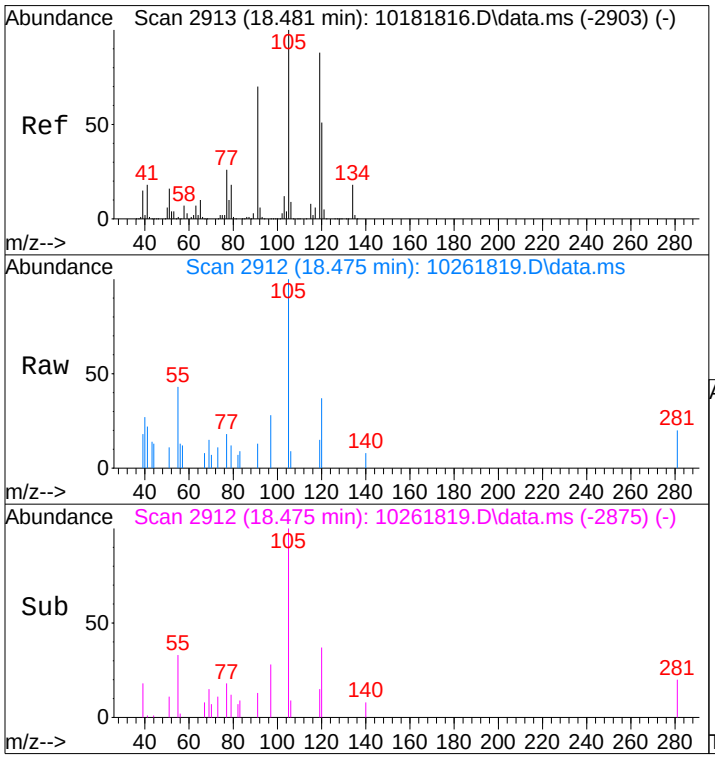


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 91 Resp: 3769

Ion	Ratio	Lower	Upper
91	100		
106	42.0	25.2	65.2

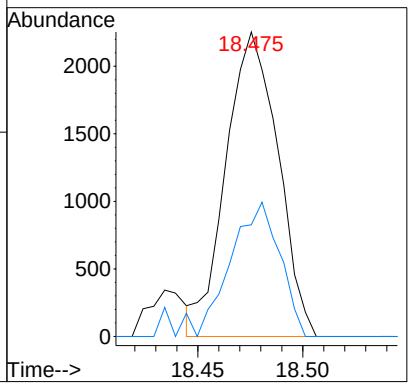


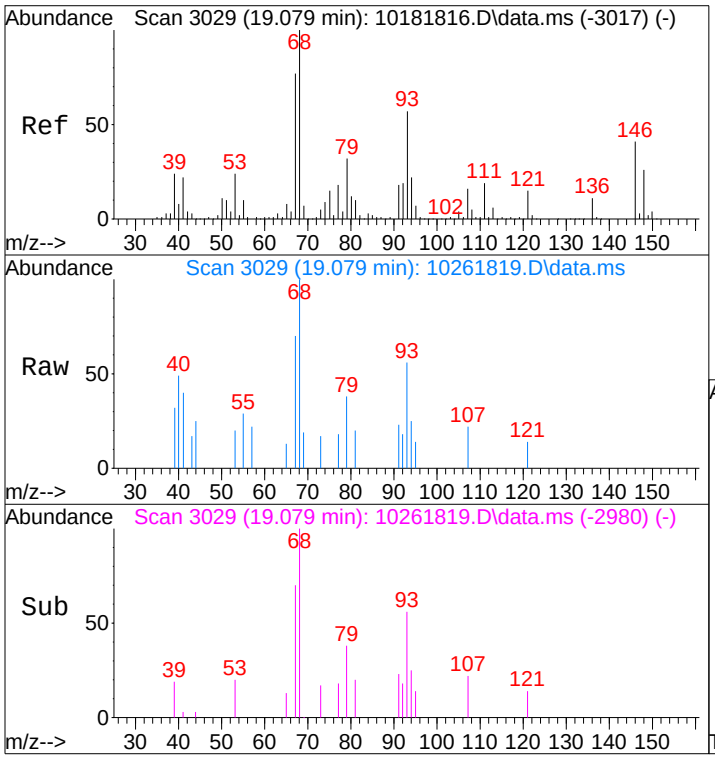


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion:105 Resp: 3884

Ion	Ratio	Lower	Upper
105	100		
120	41.1	31.3	71.3

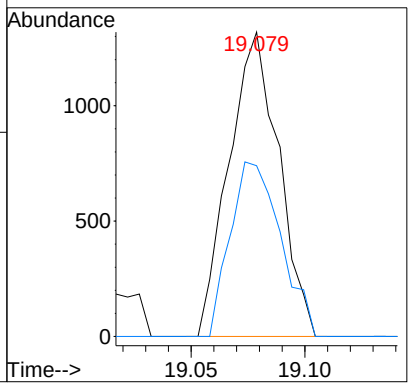




#91
d-Limonene
Concen: 0.07 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10261819.D
Acq: 26 Oct 2018 15:58

Tgt Ion: 68 Resp: 2003

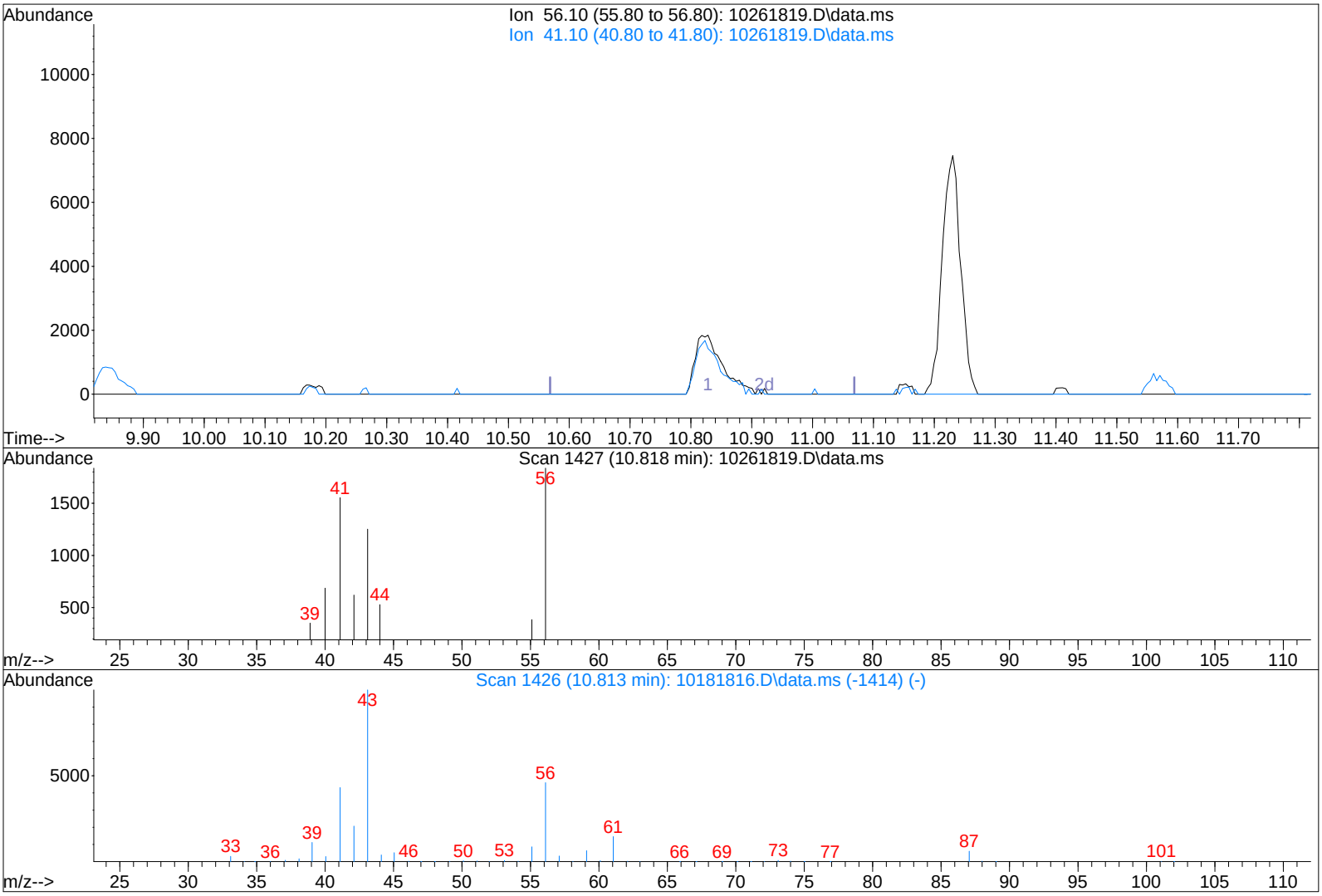
Ion	Ratio	Lower	Upper
68	100		
93	58.2	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:39:54 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261819.D\data.ms

(40) 1-Butanol (T)

10.819min 0.00ng d

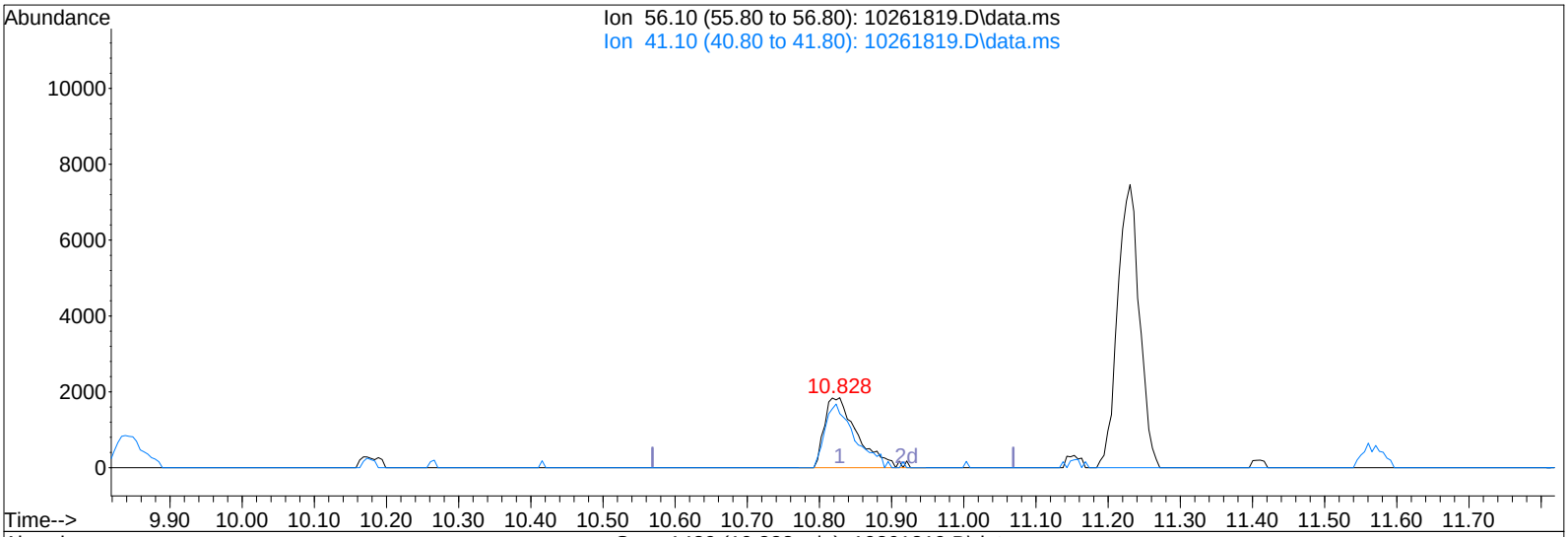
response 0

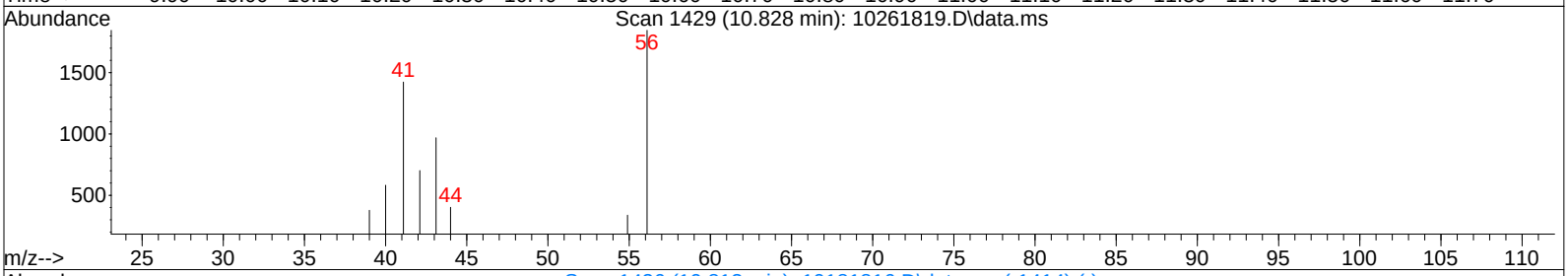
Ion	Exp%	Act%
56.10	100	0.00
41.10	110.20	0.00
0.00	0.00	0.00
0.00	0.00	0.00

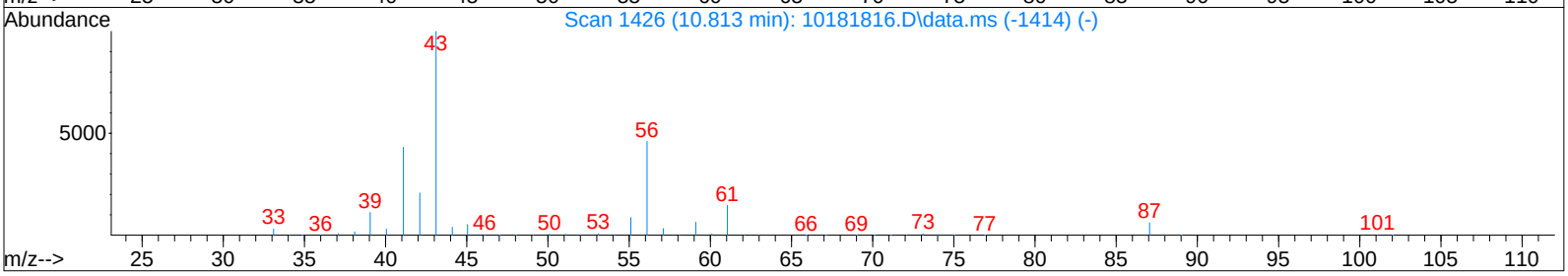
Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:39:54 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10261819.D\data.ms

(40) 1-Butanol (T)

10.828min (+0.010) 0.27ng m

response 5877

Ion	Exp%	Act%
56.10	100	100
41.10	110.20	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

MP

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:46:28 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

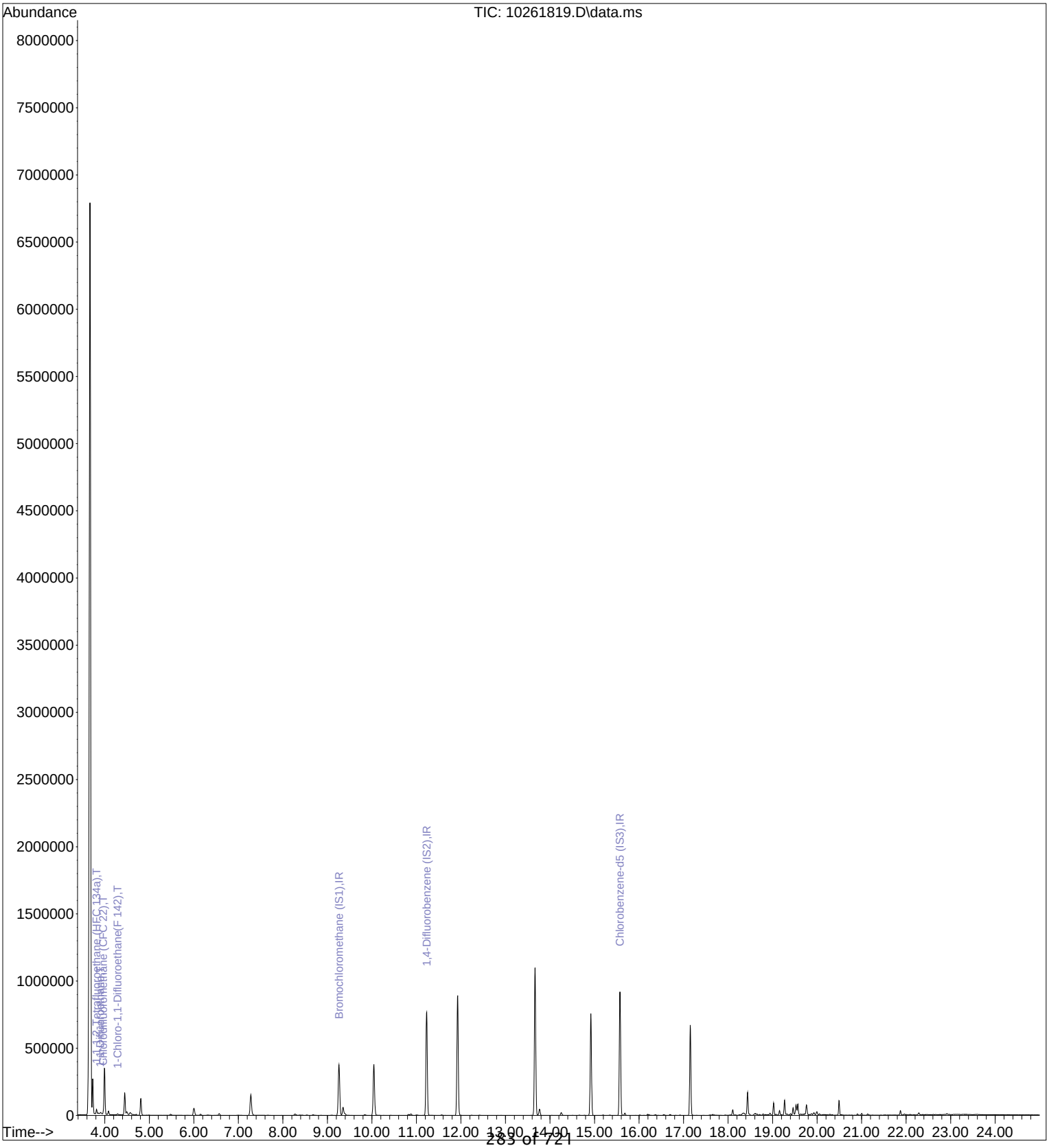
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	125605	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	629449	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	380974	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	314	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	11498	0.886	ng		90
4) 1,1-Difluoroethane	3.90	65	1723	0.111	ng	#	1
5) Chlorodifluoromethane ...	3.96	67	772	0.183	ng	#	45
6) 1-Chloro-1,1-Difluoroe...	4.29	65	5643	0.201	ng	#	97
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.02	43	1090	N.D.			
12) 2-Methylpentane	8.43	71	165	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.00	84	2573	N.D.			
17) 2,3-Dimethylpentane	11.41	56	230	N.D.			
18) Dibromomethane	11.65	174	48	N.D.			
20) Methyl Cyclohexane	12.90	55	388	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.83	91	970	N.D.			
27) 4-Chlorotoluene	17.86	91	166	N.D.			
28) Indane	19.14	117	446	N.D.			
29) Indene	19.22	115	101	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	591	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	656	N.D.			
32) 1,2,3,5-Tetramethylben...	20.59	119	599	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261819.D Vial: 6
Acq On : 26 Oct 2018 15:58 Operator: RS
Sample : P1805493-008 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:46:28 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:44:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	117208	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	600549	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	357554	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	283922	13.968	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.76%				
57) Toluene-d8 (SS2)	13.66	98	775842	12.420	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.36%				
73) Bromofluorobenzene (SS3)	17.16	174	155837	11.089	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.09	85	21739	0.681	ng		99
4) Chloromethane	4.31	50	1042	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	273	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	15740	0.983	ng		96
11) Acetonitrile	5.70	41	1165	N.D.			
12) Acrolein	5.84	56	2262	0.183	ng		100
13) Acetone	6.00	58	16137	0.975	ng	#	75
14) Trichlorofluoromethane	6.16	101	8815	0.386	ng		94
15) 2-Propanol (Isopropanol)	6.31	45	10988	0.213	ng		99
16) Acrylonitrile	6.51	53	54	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	7.00	84	424	N.D.			
20) 3-Chloro-1-propene (Al...	6.99	41	507	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1230	0.135	ng		92
22) Carbon Disulfide	7.29	76	31700	0.510	ng		97
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	399	0.146	ng	#	14
27) 2-Butanone (MEK)	8.68	72	1170	0.091	ng	#	45
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.40	87	555	N.D.			
30) Ethyl Acetate	9.35	61	12765	1.868	ng		97
31) n-Hexane	9.35	57	619	N.D.			
32) Chloroform	9.40	83	6073	0.220	ng		98
34) Tetrahydrofuran (THF)	9.84	72	124	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.83	56	4600	0.225	ng	#	79
41) Benzene	10.87	78	6030	0.082	ng		100
42) Carbon Tetrachloride	11.02	117	594	N.D.			
43) Cyclohexane	11.21	84	633	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	11.92	83	598	N.D.			
47) Trichloroethene	11.93	130	36772	2.554	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	163	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:44:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

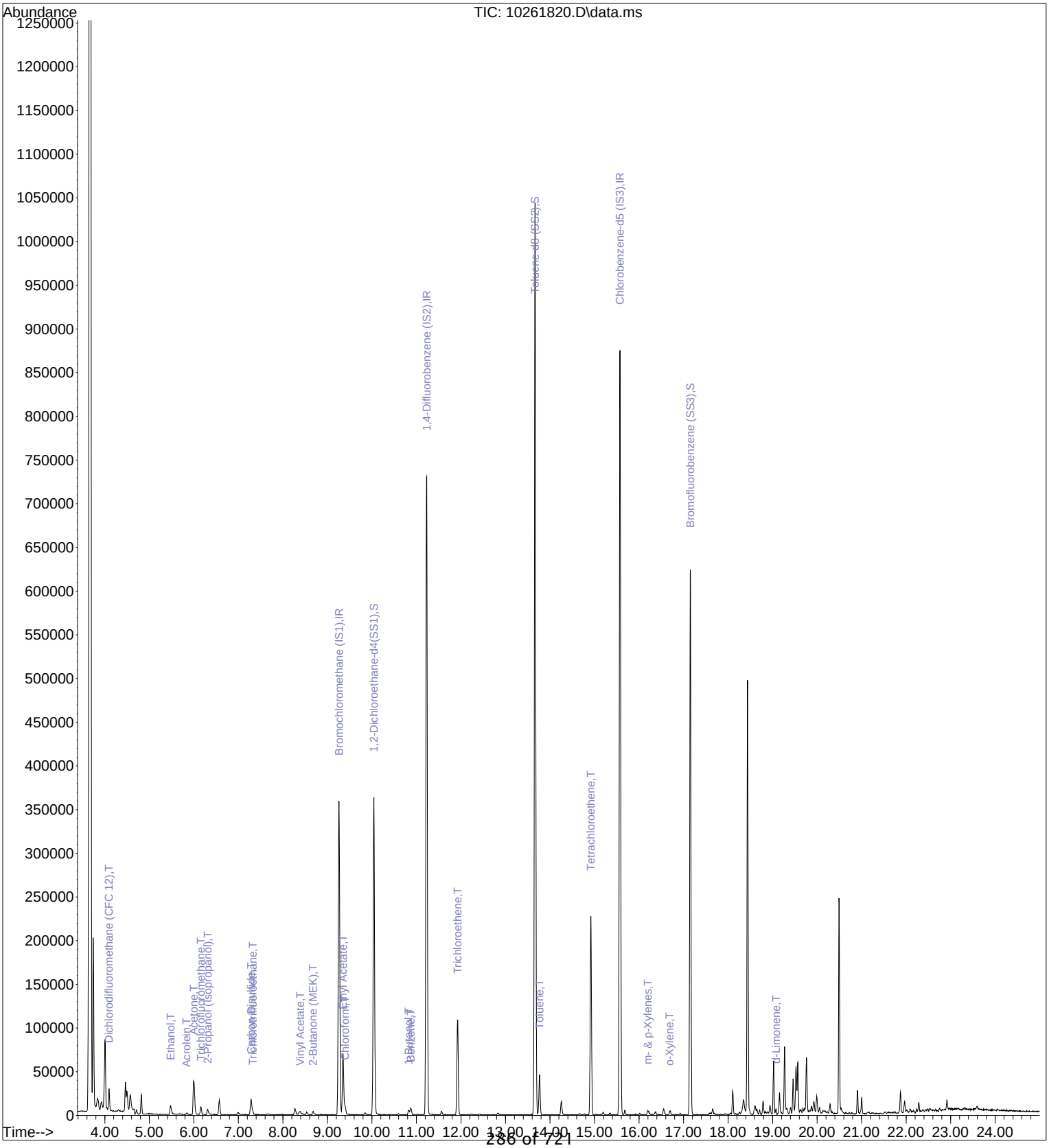
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.24	71	166	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.83	58	699	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	38016	0.544 ng	98
59) 2-Hexanone	14.04	43	769	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	1582	N.D.	
63) n-Octane	14.77	57	119	N.D.	
64) Tetrachloroethene	14.92	166	66798	4.632 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	2149	N.D.	
67) m- & p-Xylenes	16.20	91	5576	0.095 ng	93
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	852	N.D.	
70) o-Xylene	16.69	91	3187	0.056 ng	87
71) n-Nonane	16.92	43	1004	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.14	105	142	N.D.	
75) alpha-Pinene	17.71	93	581	N.D.	
76) n-Propylbenzene	17.82	91	443	N.D.	
77) 3-Ethyltoluene	17.93	105	796	N.D.	
78) 4-Ethyltoluene	17.96	105	458	N.D.	
79) 1,3,5-Trimethylbenzene	18.06	105	455	N.D.	
80) alpha-Methylstyrene	18.21	118	332	N.D.	
81) 2-Ethyltoluene	18.25	105	458	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	1978	N.D.	
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	165	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	992	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	992	N.D.	
87) sec-Butylbenzene	18.92	105	500	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	491	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	500	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	1799	0.064 ng	99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2538	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.36	91	330	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:44:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:44:18 2018 RS 10/29/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

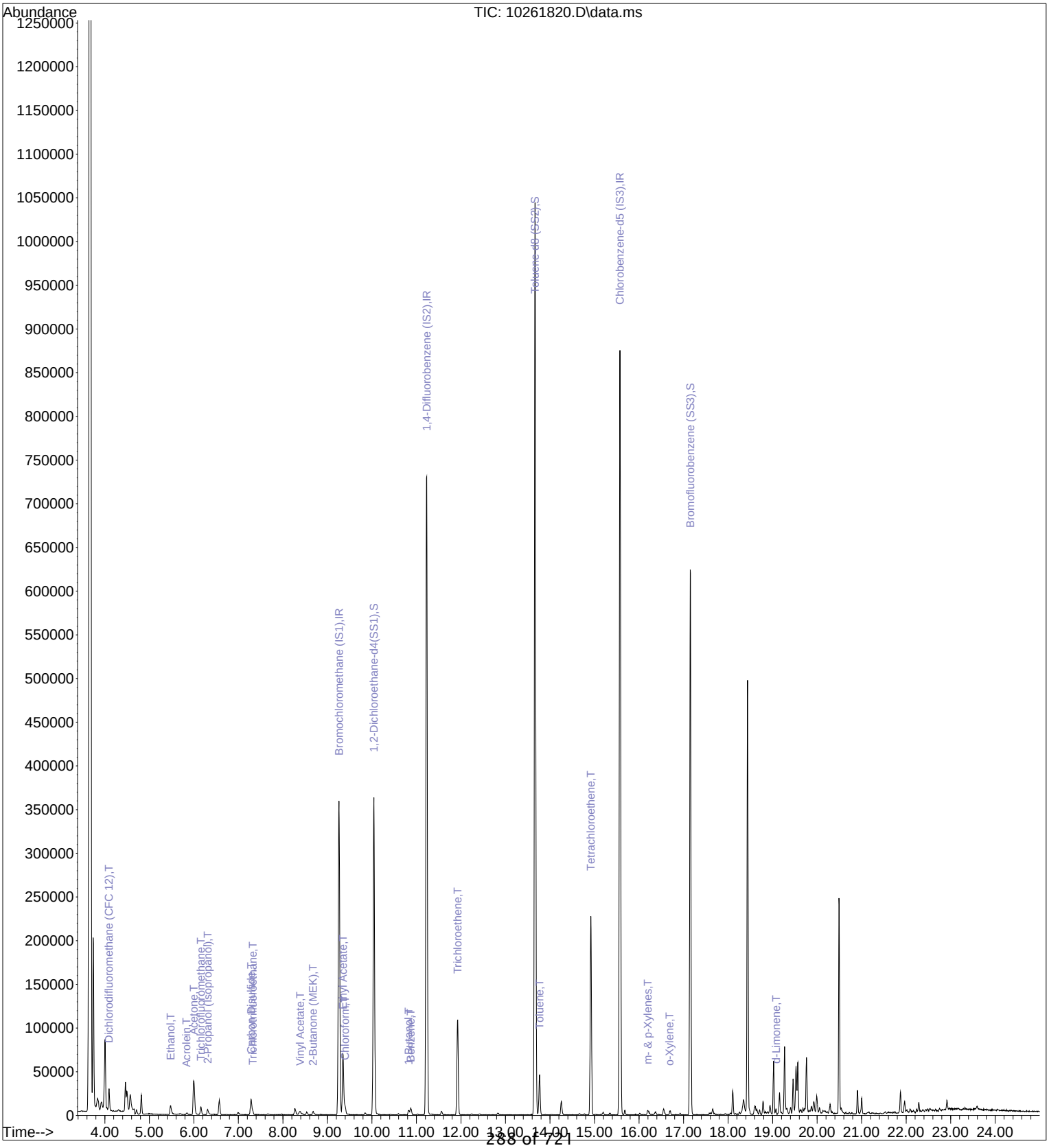
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	117208	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	600549	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	357554	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	283922	13.968	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.76%				
57) Toluene-d8 (SS2)	13.66	98	775842	12.420	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.36%				
73) Bromofluorobenzene (SS3)	17.16	174	155837	11.089	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.09	85	21739	0.681	ng		99
10) Ethanol	5.48	45	15740	0.983	ng		96
12) Acrolein	5.84	56	2262	0.183	ng		100
13) Acetone	6.00	58	16137	0.975	ng	#	75
14) Trichlorofluoromethane	6.16	101	8815	0.386	ng		94
15) 2-Propanol (Isopropanol)	6.31	45	10988	0.213	ng		99
21) Trichlorotrifluoroethane	7.33	151	1230	0.135	ng		92
22) Carbon Disulfide	7.29	76	31700	0.510	ng		97
26) Vinyl Acetate	8.39	86	399	0.146	ng	#	14
27) 2-Butanone (MEK)	8.68	72	1170	0.091	ng	#	45
30) Ethyl Acetate	9.35	61	12765	1.868	ng		97
32) Chloroform	9.40	83	6073	0.220	ng		98
40) 1-Butanol	10.83	56	4600	0.225	ng	#	79
41) Benzene	10.87	78	6030	0.082	ng		100
47) Trichloroethene	11.93	130	36772	2.554	ng		99
58) Toluene	13.77	91	38016	0.544	ng		98
64) Tetrachloroethene	14.92	166	66798	4.632	ng		100
67) m- & p-Xylenes	16.20	91	5576	0.095	ng		93
70) o-Xylene	16.69	91	3187	0.056	ng		87
91) d-Limonene	19.08	68	1799	0.064	ng		99

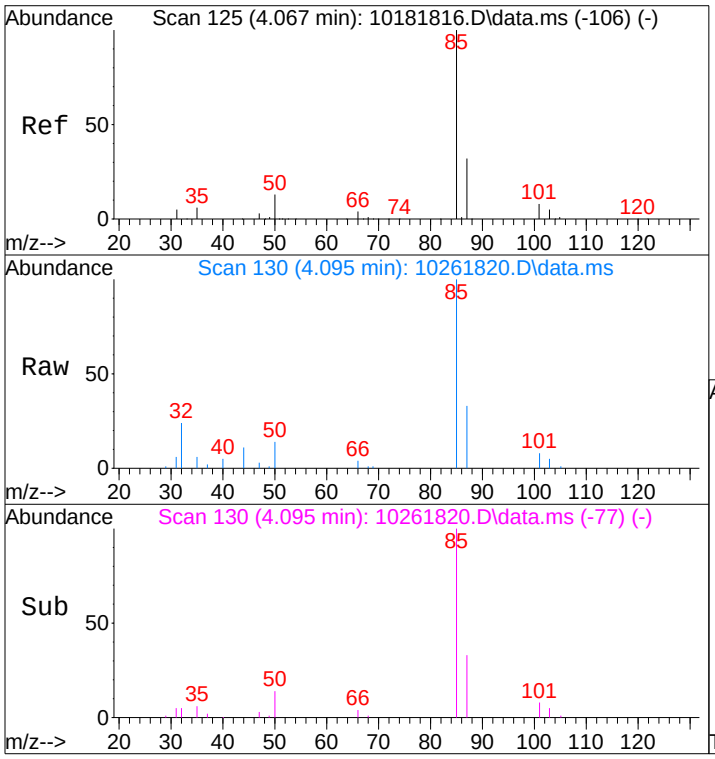
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:44:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

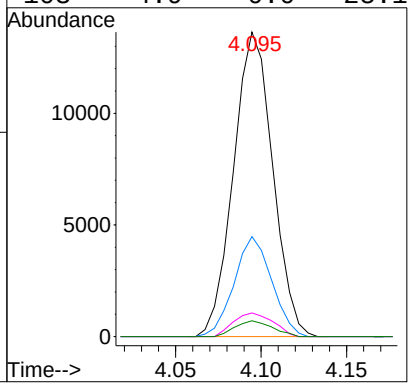


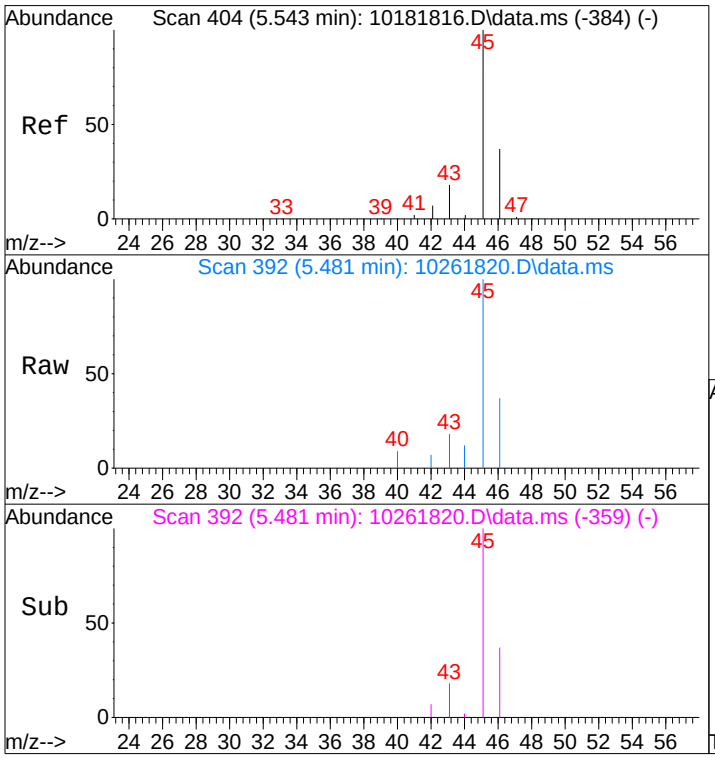


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.68 ng
RT: 4.09 min Scan# 130
Delta R.T. 0.039 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 85 Resp: 21739

Ion	Ratio	Lower	Upper
85	100		
87	31.5	12.0	52.0
101	7.8	0.0	28.0
103	4.9	0.0	25.1

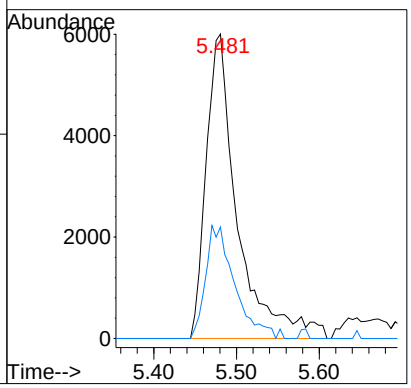


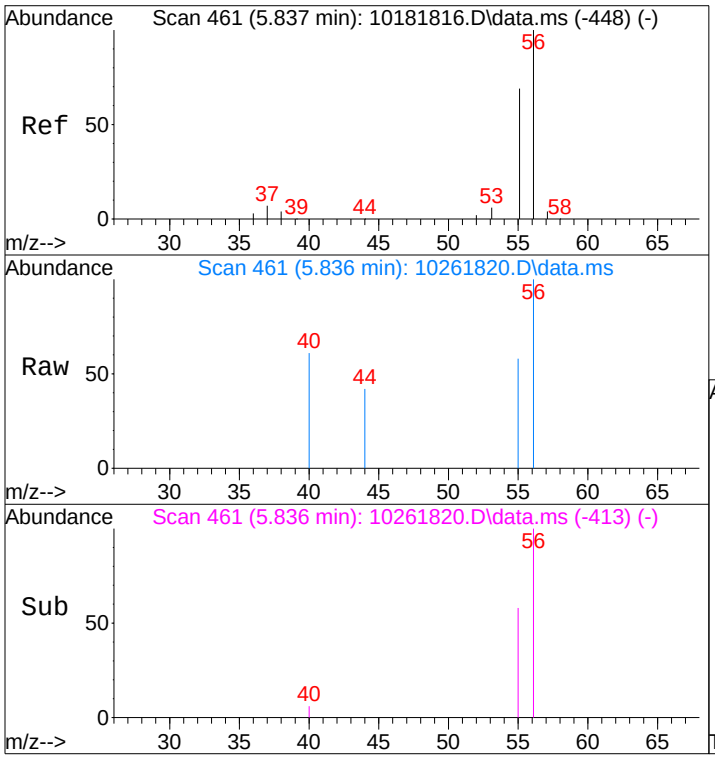


#10
Ethanol
Concen: 0.98 ng
RT: 5.48 min Scan# 392
Delta R.T. -0.077 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 45 Resp: 15740

Ion	Ratio	Lower	Upper
45	100		
46	34.5	17.0	57.0

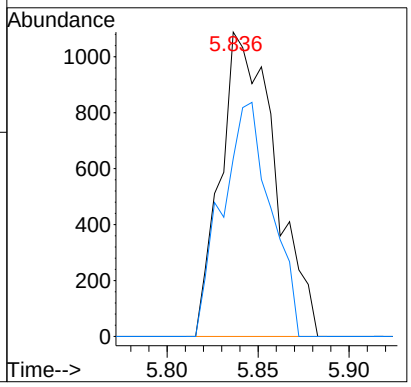


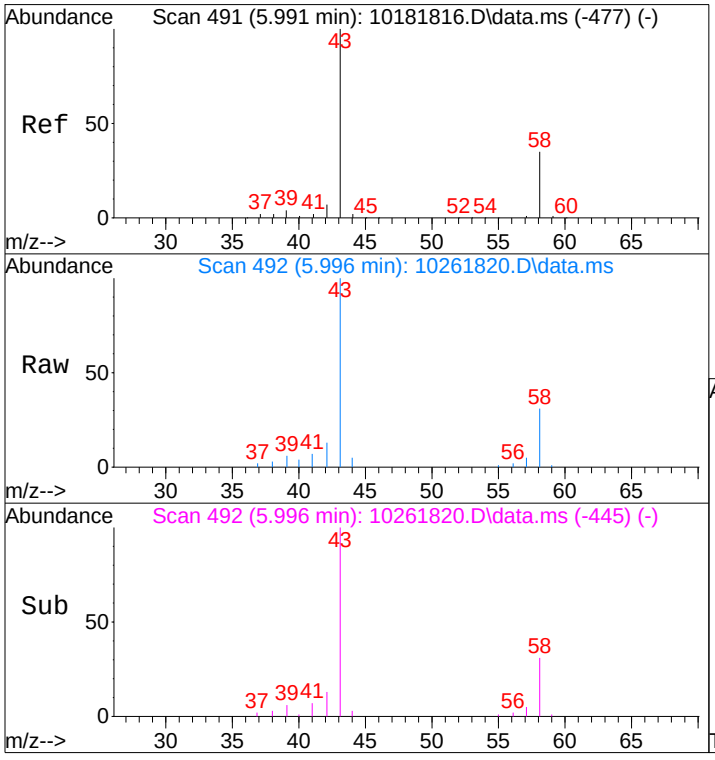


#12
Acrolein
Concen: 0.18 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 56 Resp: 2262

Ion	Ratio	Lower	Upper
56	100		
55	68.9	49.3	89.3

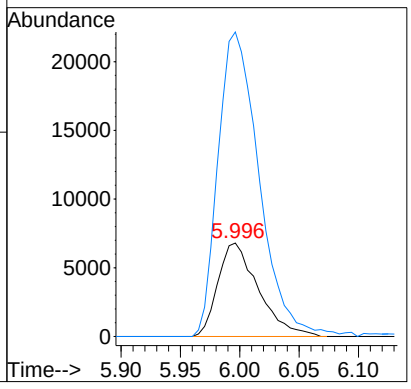


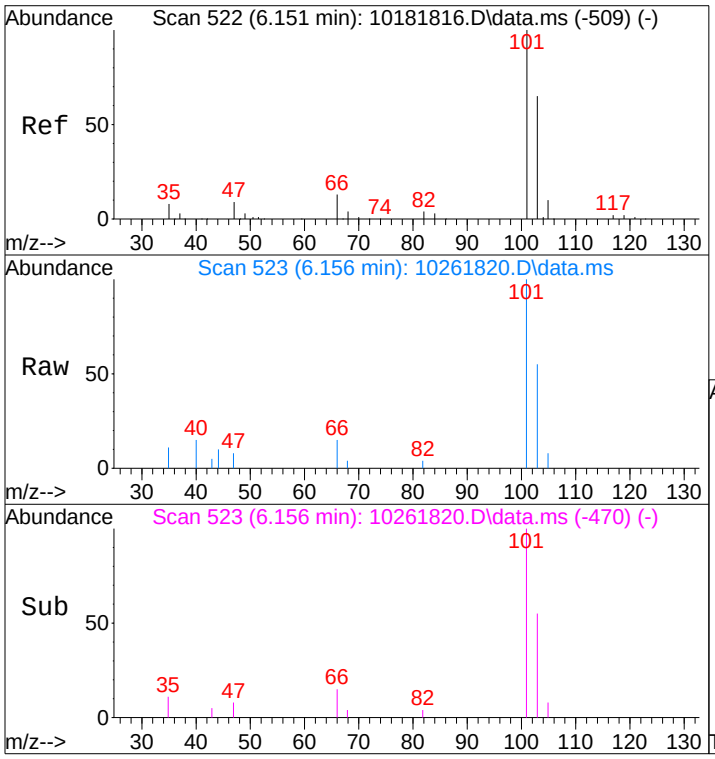


#13
Acetone
Concen: 0.98 ng
RT: 6.00 min Scan# 492
Delta R.T. -0.007 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 58 Resp: 16137

Ion	Ratio	Lower	Upper
58	100		
43	331.9	254.3	314.3#

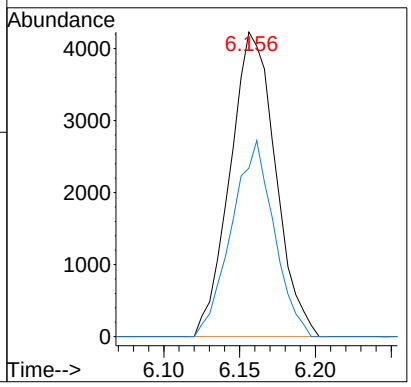


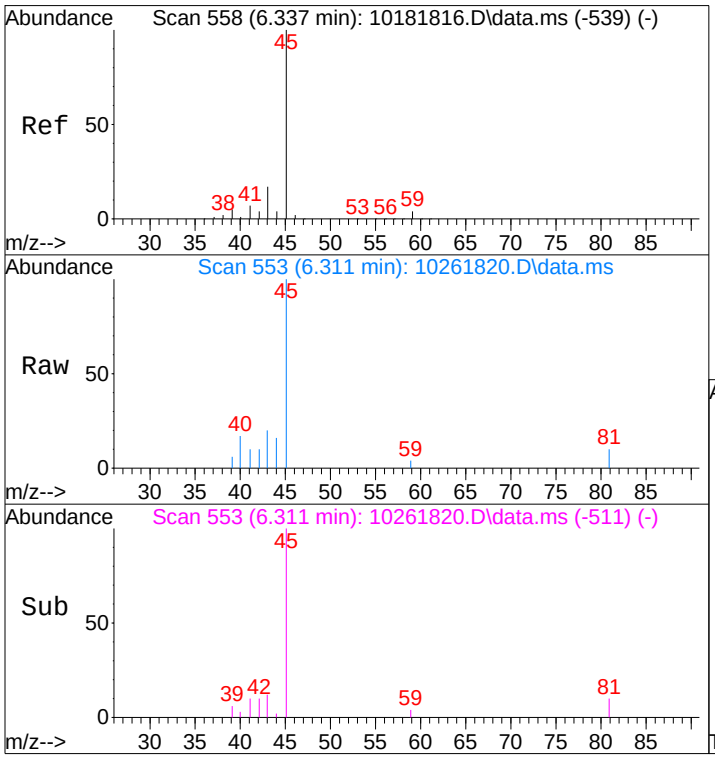


#14
Trichlorofluoromethane
Concen: 0.39 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion:101 Resp: 8815

Ion	Ratio	Lower	Upper
101	100		
103	60.2	44.5	84.5

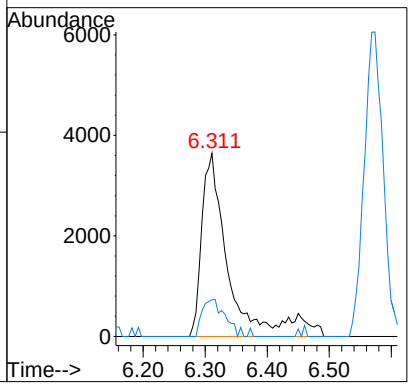


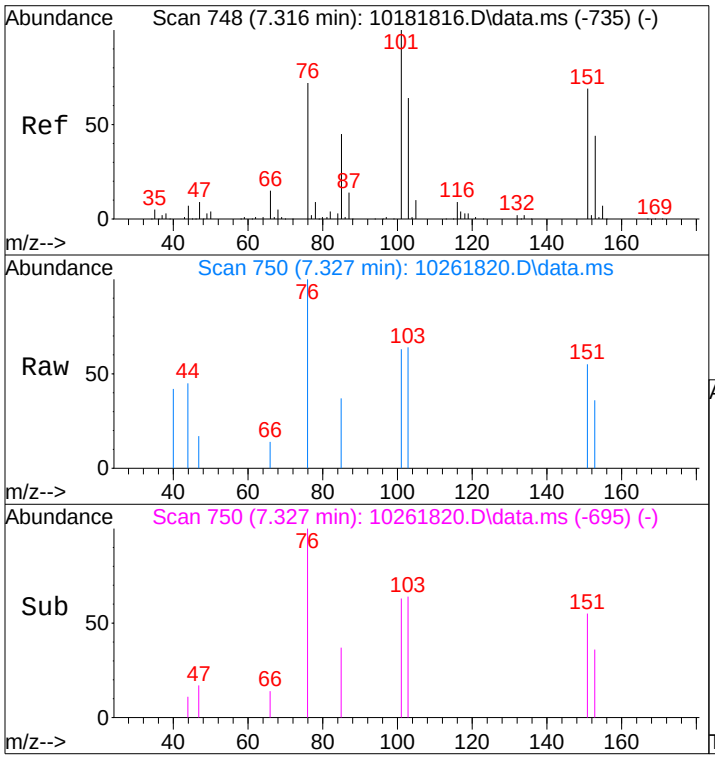


#15
2-Propanol (Isopropanol)
Concen: 0.21 ng
RT: 6.31 min Scan# 553
Delta R.T. -0.032 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 45 Resp: 10988

Ion	Ratio	Lower	Upper
45	100		
43	17.1	0.0	36.7

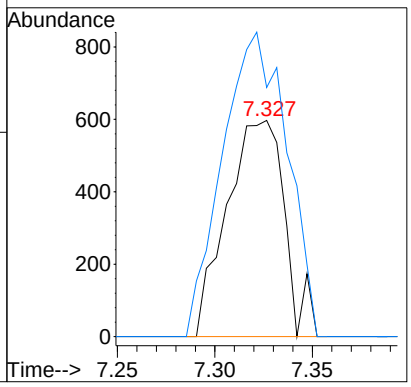


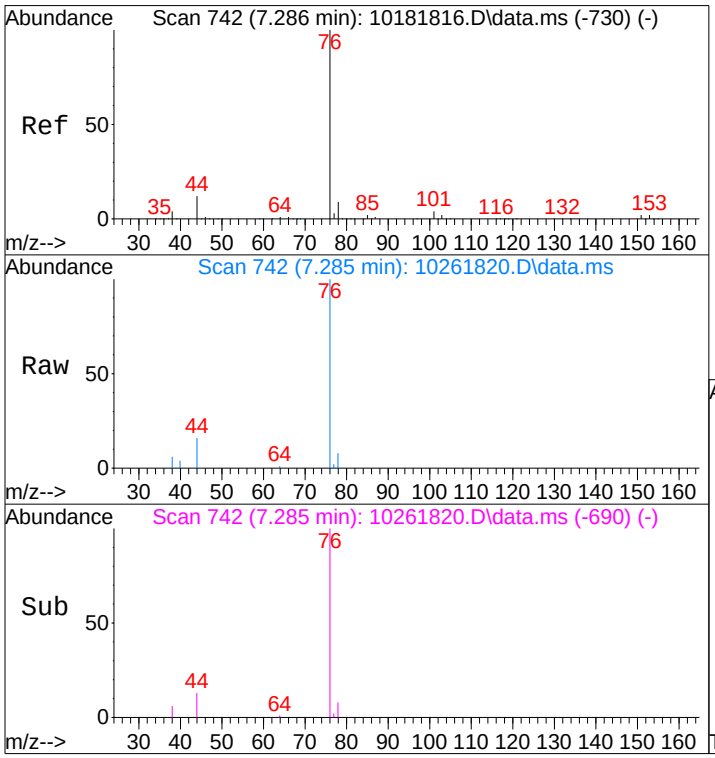


#21
Trichlorotrifluoroethane
Concen: 0.13 ng
RT: 7.33 min Scan# 750
Delta R.T. 0.036 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion:151 Resp: 1230

Ion	Ratio	Lower	Upper
151	100		
101	157.4	127.5	167.5

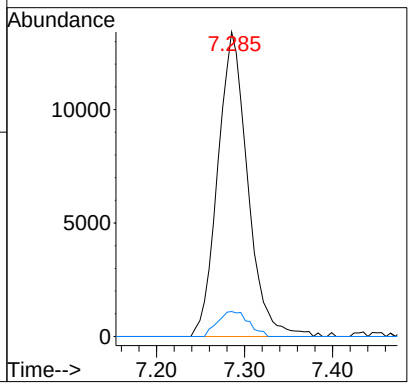


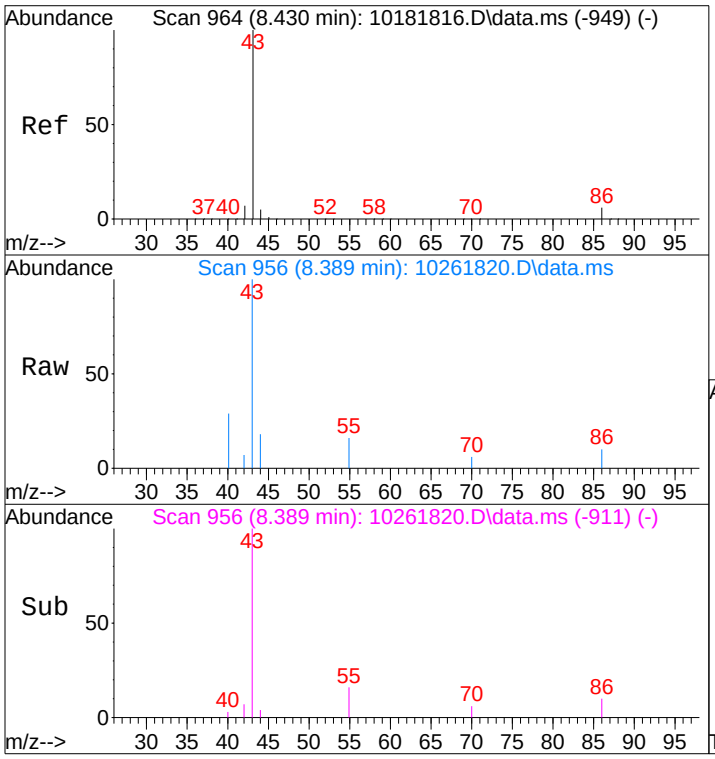


#22
Carbon Disulfide
Concen: 0.51 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 76 Resp: 31700

Ion	Ratio	Lower	Upper
76	100		
78	8.5	0.0	29.6

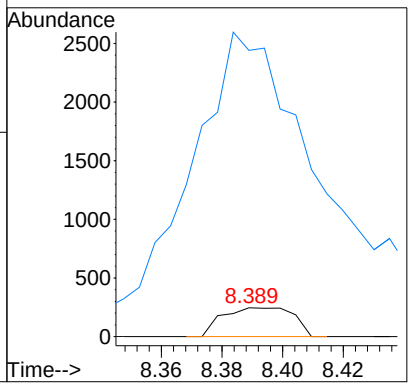


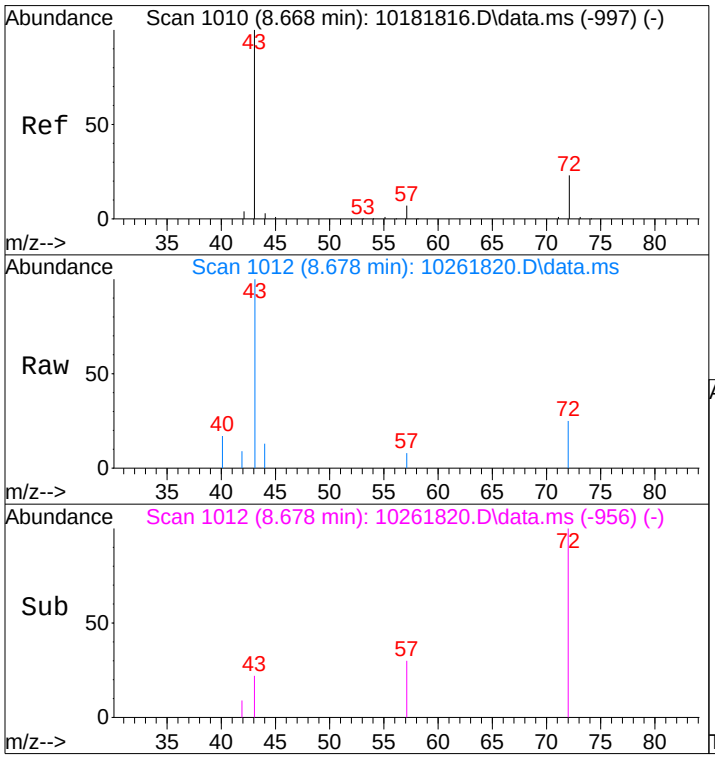


#26
Vinyl Acetate
Concen: 0.15 ng
RT: 8.39 min Scan# 956
Delta R.T. -0.020 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 86 Resp: 399

Ion	Ratio	Lower	Upper
86	100		
43	2155.4	1596.2	1636.2#

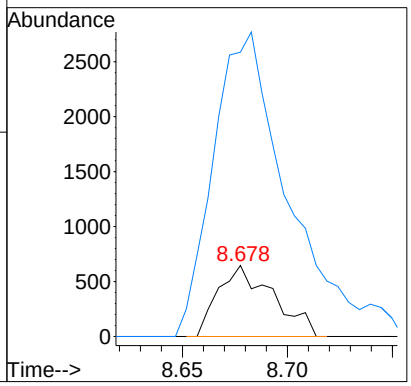


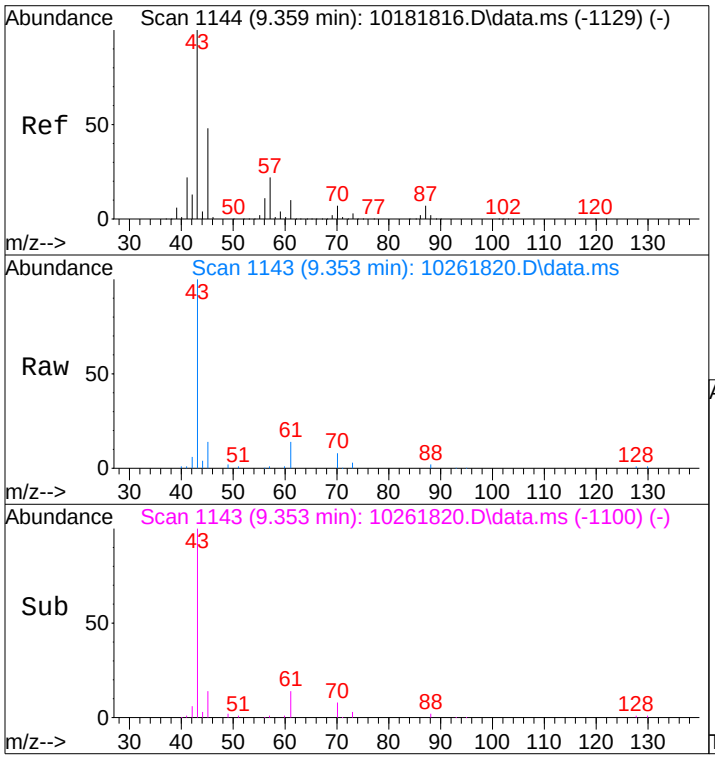


#27
2-Butanone (MEK)
Concen: 0.09 ng
RT: 8.68 min Scan# 1012
Delta R.T. 0.038 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 72 Resp: 1170

Ion	Ratio	Lower	Upper
72	100		
43	591.9	430.0	470.0#

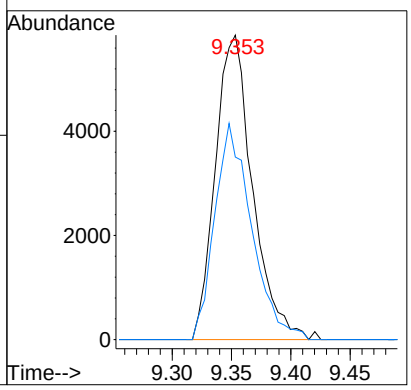


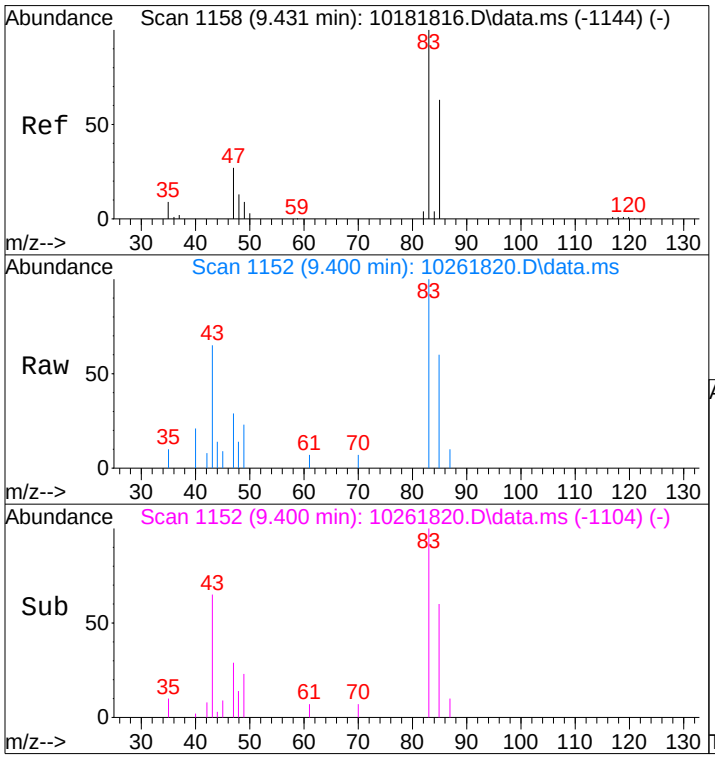


#30
Ethyl Acetate
Concen: 1.87 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 61 Resp: 12765

Ion	Ratio	Lower	Upper
61	100		
70	70.3	52.7	92.7

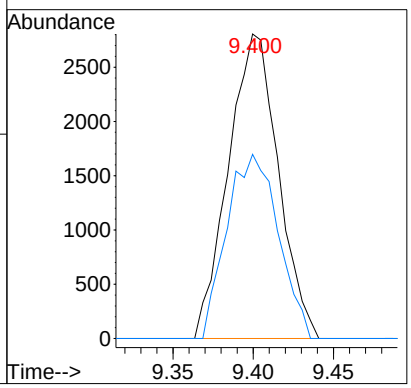


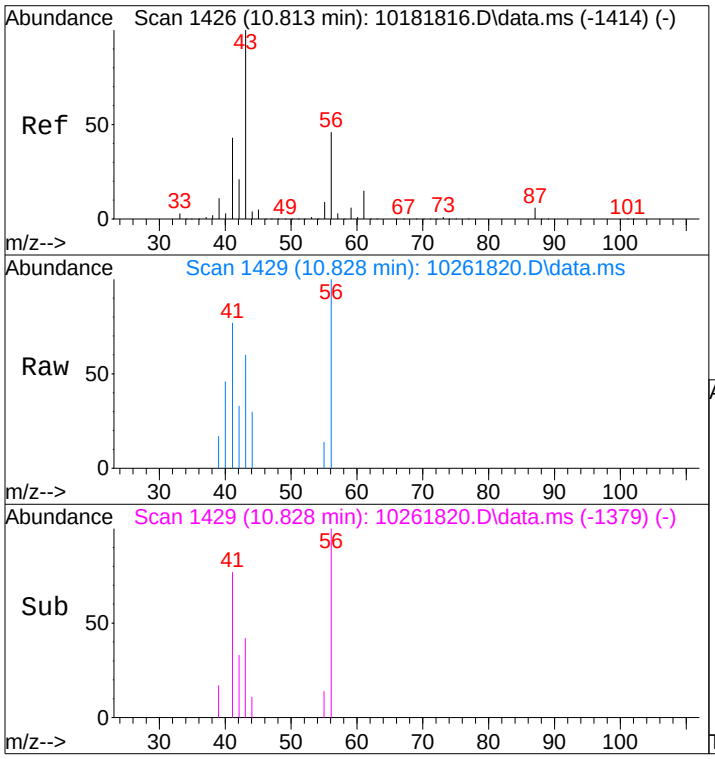


#32
Chloroform
Concen: 0.22 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 83 Resp: 6073

Ion	Ratio	Lower	Upper
83	100		
85	62.3	44.0	84.0

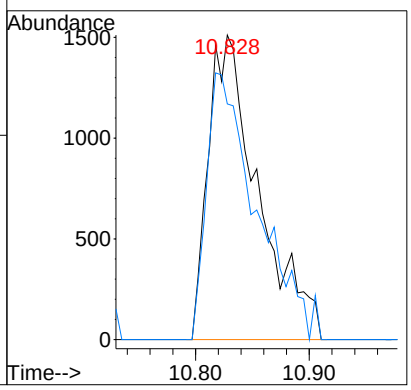


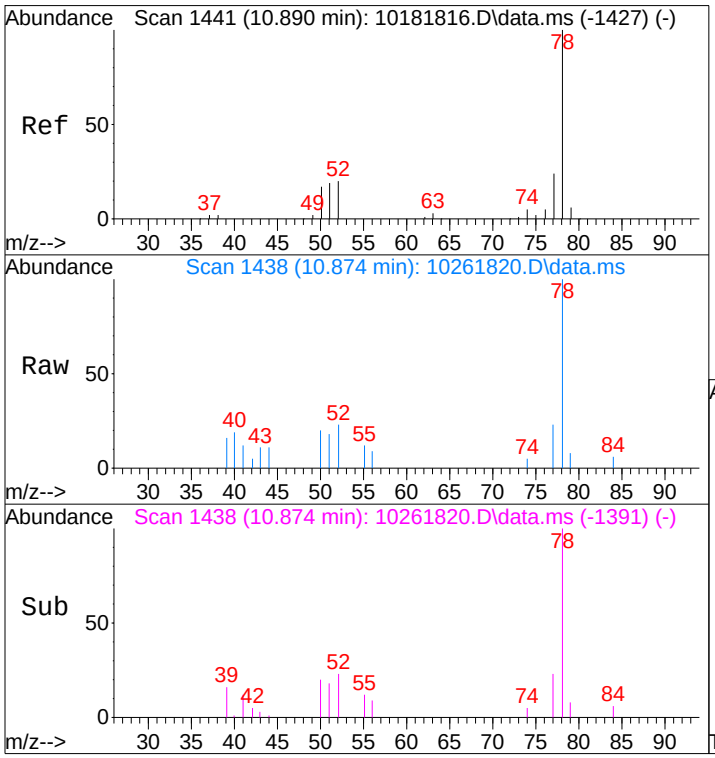


#40
1-Butanol
Concen: 0.23 ng
RT: 10.83 min Scan# 1429
Delta R.T. 0.009 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 56 Resp: 4600

Ion	Ratio	Lower	Upper
56	100		
41	88.2	90.2	130.2#

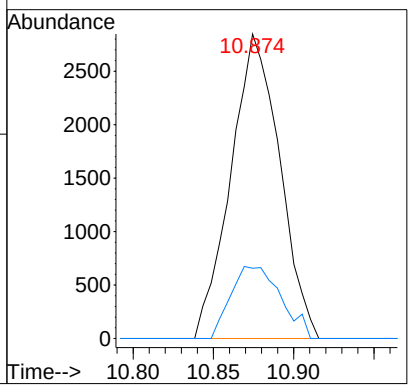


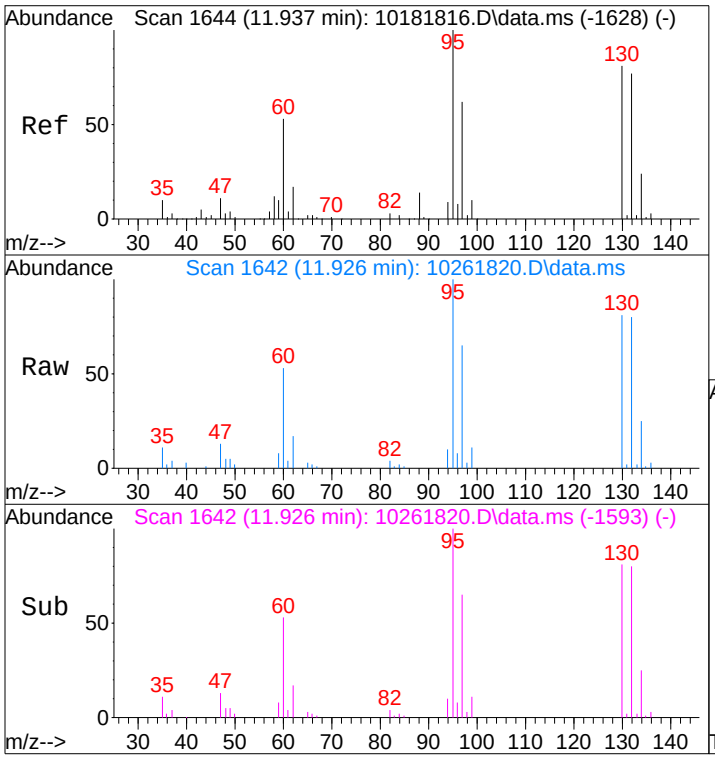


#41
Benzene
Concen: 0.08 ng
RT: 10.87 min Scan# 1438
Delta R.T. -0.006 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 78 Resp: 6030

Ion	Ratio	Lower	Upper
78	100		
77	24.2	4.1	44.1

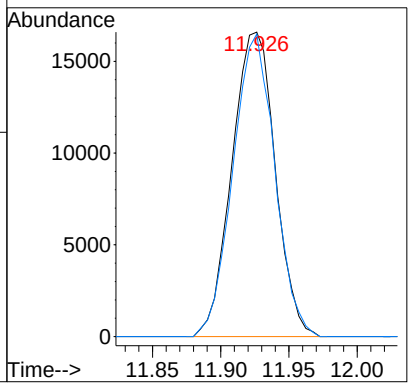


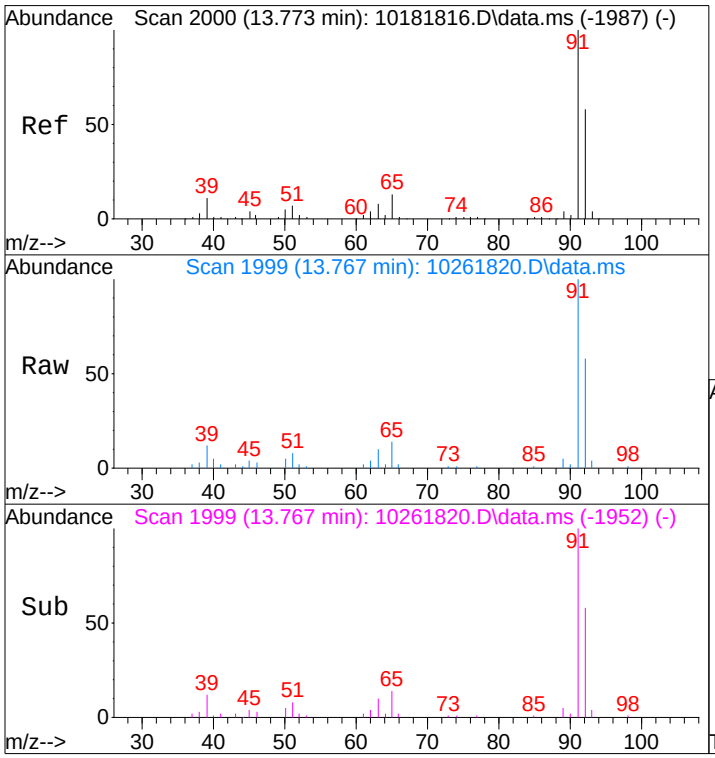


#47
Trichloroethene
Concen: 2.55 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion:130 Resp: 36772

Ion	Ratio	Lower	Upper
130	100		
132	95.7	74.6	114.6

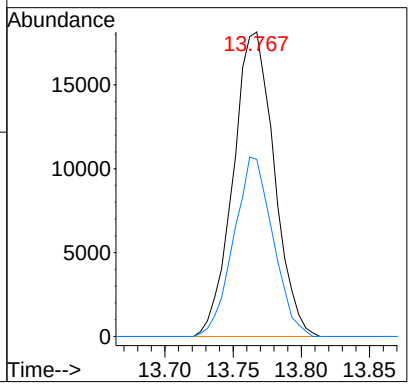


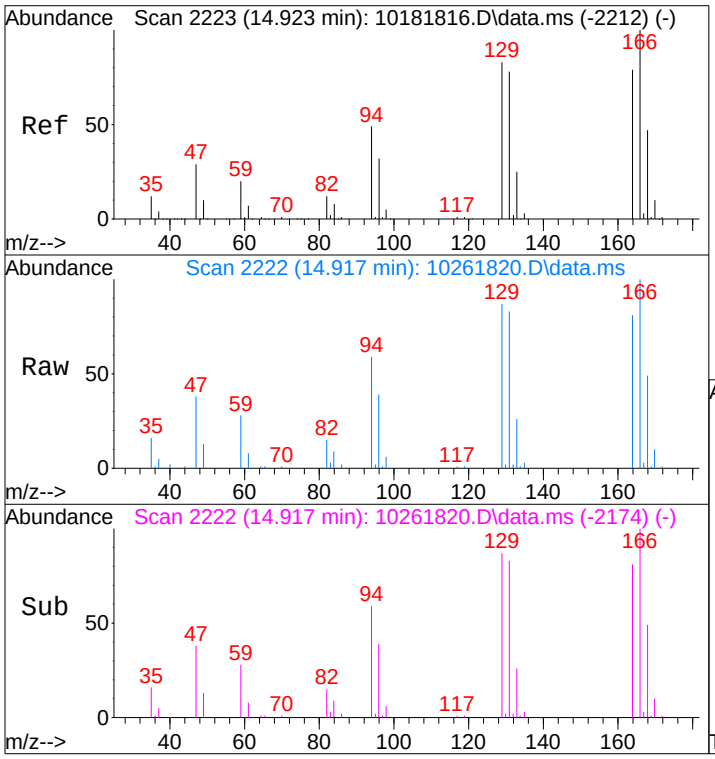


#58
Toluene
Concen: 0.54 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 91 Resp: 38016

Ion	Ratio	Lower	Upper
91	100		
92	56.5	38.1	78.1

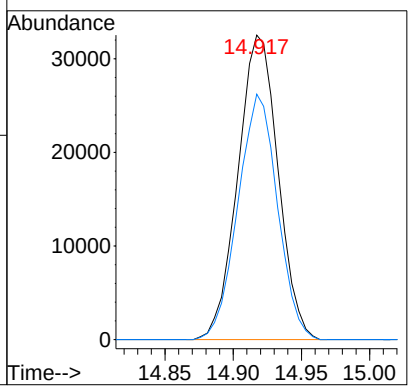


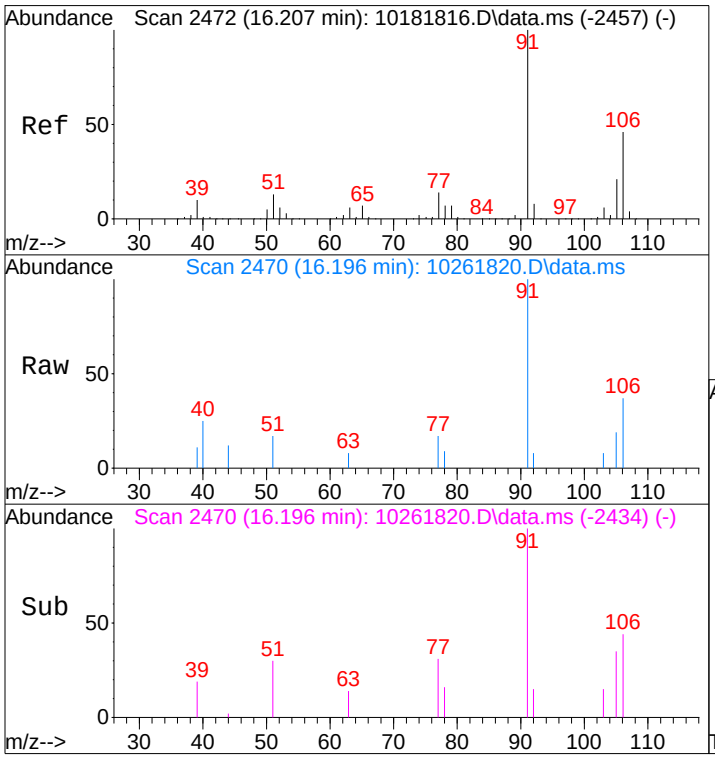


#64
Tetrachloroethene
Concen: 4.63 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion:166 Resp: 66798

Ion	Ratio	Lower	Upper
166	100		
164	79.2	58.9	98.9

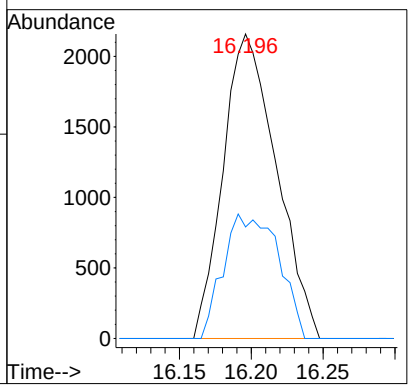


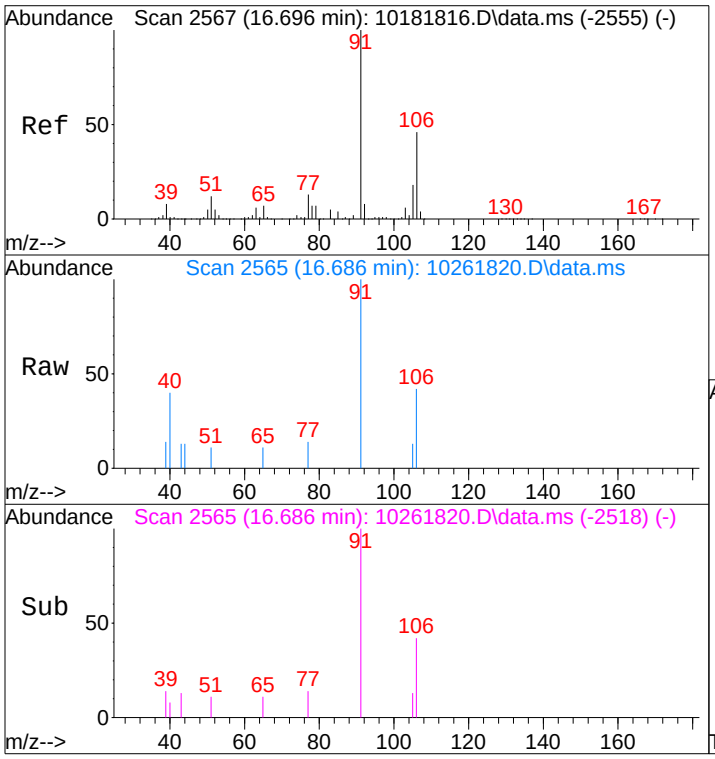


#67
m- & p-Xylenes
Concen: 0.09 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 91 Resp: 5576

Ion	Ratio	Lower	Upper
91	100		
106	42.1	26.7	66.7

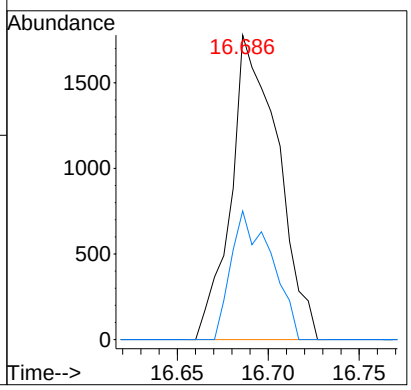


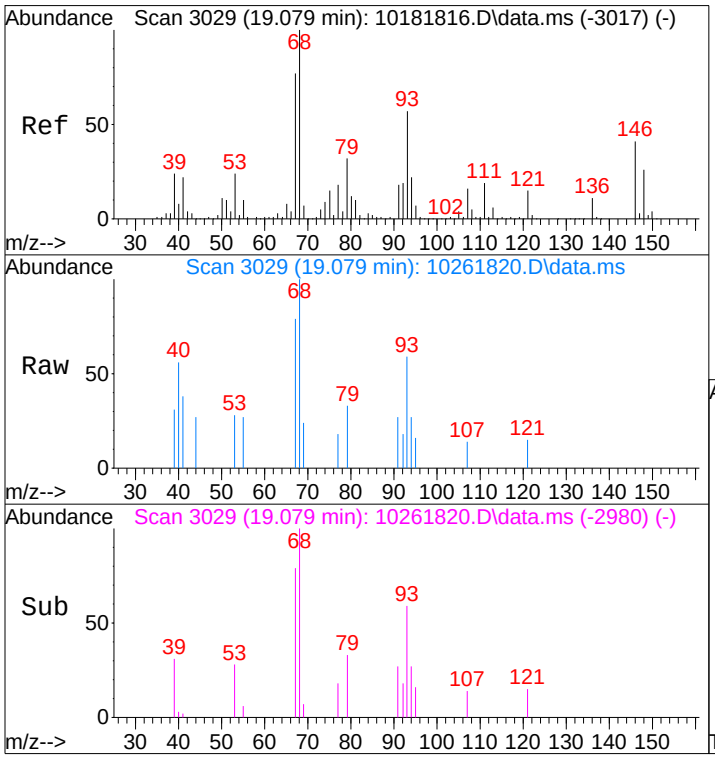


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2565
Delta R.T. -0.010 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 91 Resp: 3187

Ion	Ratio	Lower	Upper
91	100		
106	36.4	25.2	65.2

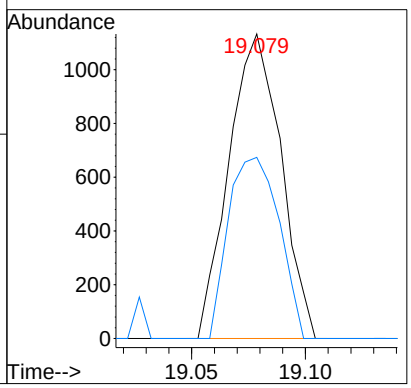




#91
d-Limonene
Concen: 0.06 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10261820.D
Acq: 26 Oct 2018 16:32

Tgt Ion: 68 Resp: 1799

Ion	Ratio	Lower	Upper
68	100		
93	58.3	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09 RS 10/29/18
Misc : S31-10151806

Quant Time: Oct 29 13:47:02 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

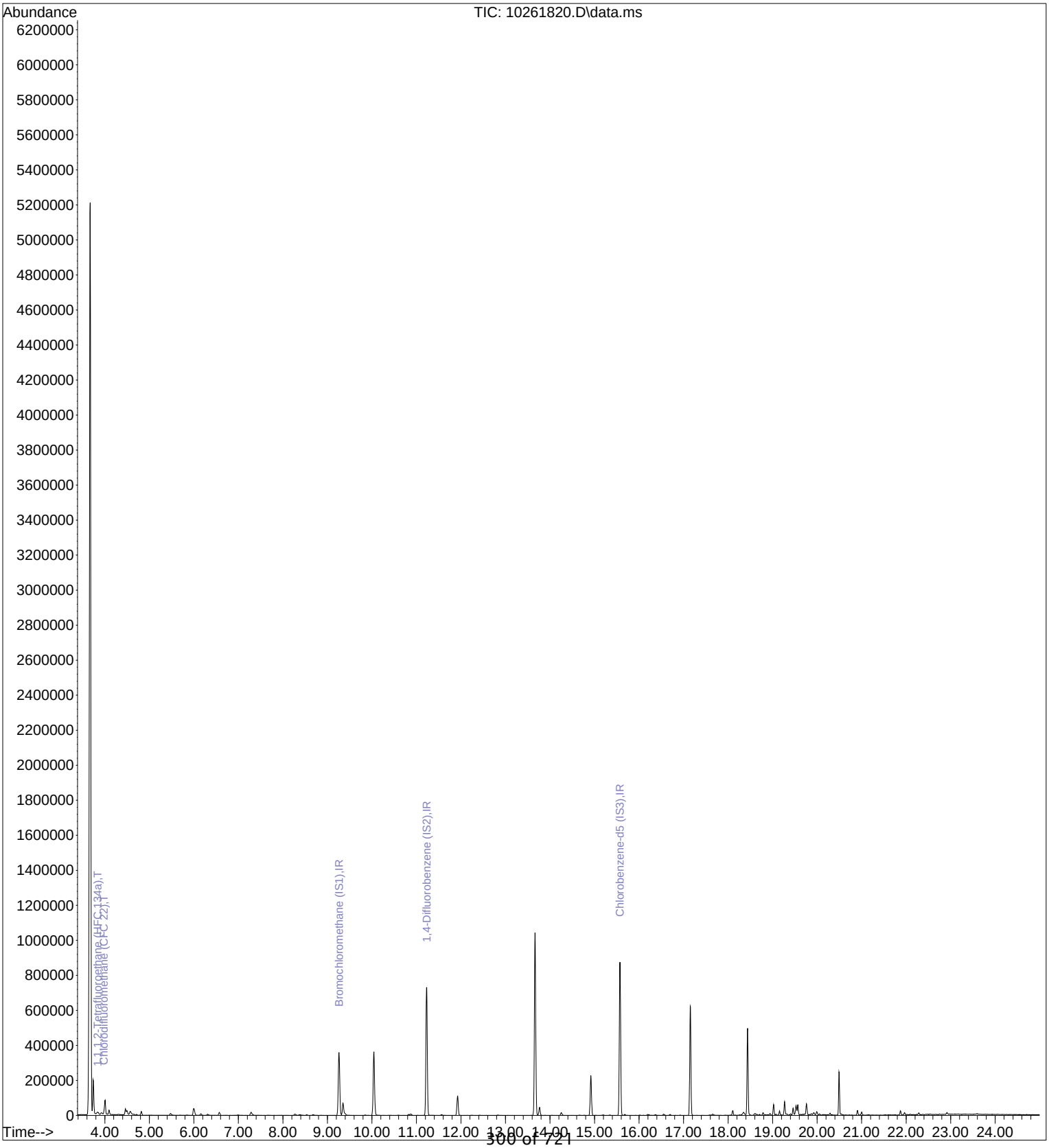
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118491	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	600549	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	357554	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	291	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	3507	0.287	ng	#	1
4) 1,1-Difluoroethane	3.91	65	462	N.D.			
5) Chlorodifluoromethane ...	3.98	67	820	0.206	ng	#	71
6) 1-Chloro-1,1-Difluoroe...	4.30	65	949	N.D.			
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	949	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	10.87	84	108	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	47	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	443	N.D.			
27) 4-Chlorotoluene	17.82	91	443	N.D.			
28) Indane	0.00	117	0	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	64	N.D.			
31) 1,2,3,4-Tetramethylben...	20.19	119	268	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	189	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261820.D Vial: 7
Acq On : 26 Oct 2018 16:32 Operator: RS
Sample : P1805493-009 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:47:02 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:46:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118342	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	595641	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	356176	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	282515	13.765	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.16%				
57) Toluene-d8 (SS2)	13.66	98	773877	12.437	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.52%				
73) Bromofluorobenzene (SS3)	17.15	174	155686	11.121	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.96%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.07	85	24578	0.763	ng		100
4) Chloromethane	4.29	50	2081	0.053	ng		75
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	283	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	4.82	54	249	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	10257	0.635	ng		94
11) Acetonitrile	5.70	41	1159	N.D.			
12) Acrolein	5.84	56	654	0.052	ng		83
13) Acetone	6.00	58	11908	0.713	ng	#	55
14) Trichlorofluoromethane	6.15	101	8453	0.366	ng		100
15) 2-Propanol (Isopropanol)	6.32	45	3065	0.059	ng		85
16) Acrylonitrile	6.52	53	62	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	7.07	41	310	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1203	0.130	ng		86
22) Carbon Disulfide	7.28	76	447687	7.136	ng		97
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	187	0.068	ng	#	60
27) 2-Butanone (MEK)	8.68	72	1112	0.085	ng	#	72
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.35	61	5897	0.855	ng		94
31) n-Hexane	9.35	57	1062	N.D.			
32) Chloroform	9.39	83	242	N.D.			
34) Tetrahydrofuran (THF)	9.83	72	2157	0.172	ng	#	88
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	612	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.83	56	5207	0.257	ng	#	76
41) Benzene	10.87	78	6371	0.088	ng		99
42) Carbon Tetrachloride	11.02	117	2714	0.155	ng		95
43) Cyclohexane	11.23	84	469	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.92	130	16886	1.183	ng		98
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	12.08	57	114	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:46:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

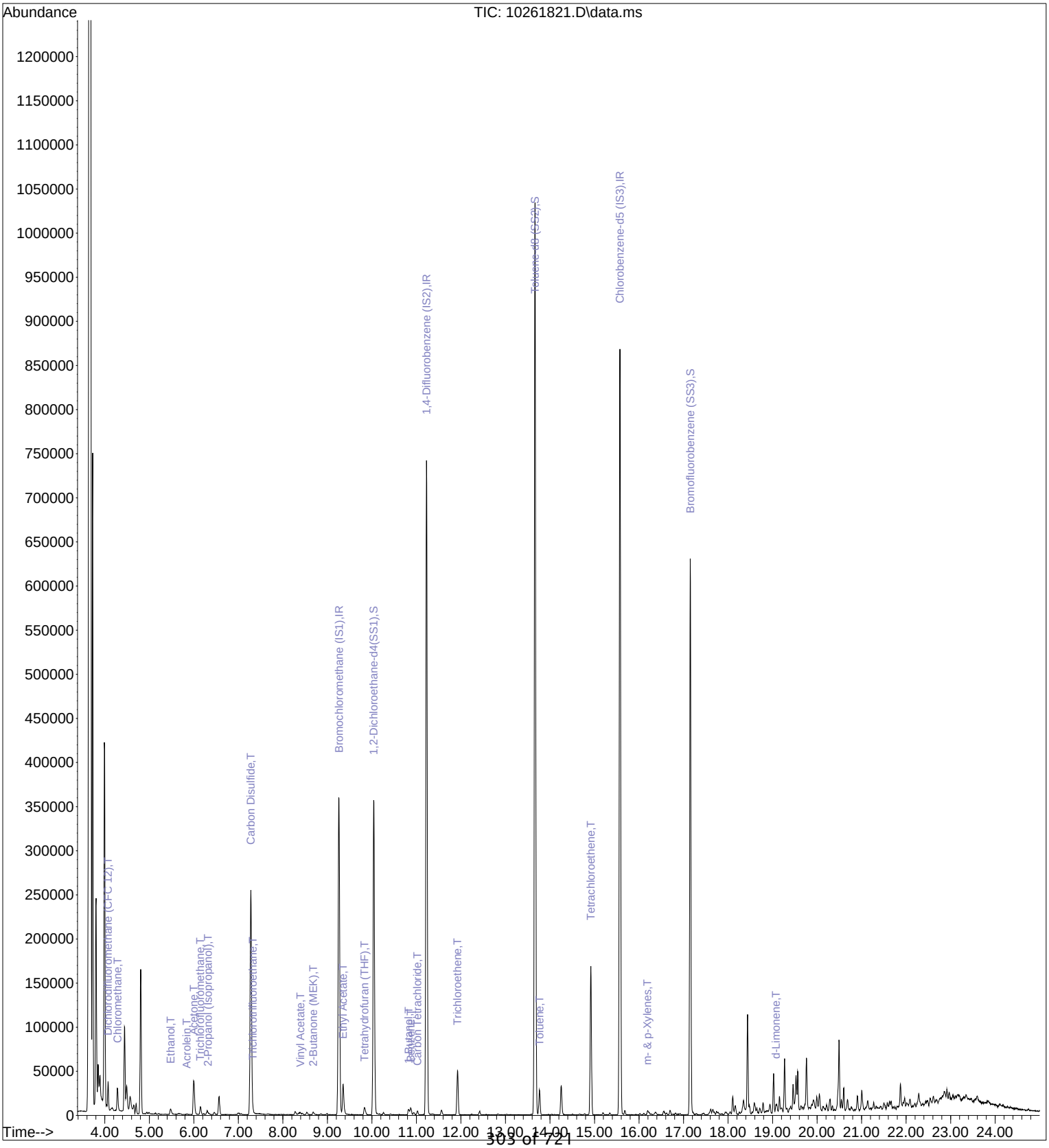
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	0.00	71	0	N.D.			
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	12.83	58	240	N.D.			
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	13.77	91	23283	0.335	ng		99
59) 2-Hexanone	14.04	43	465	N.D.			
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	14.66	43	1187	N.D.			
63) n-Octane	14.78	57	181	N.D.			
64) Tetrachloroethene	14.92	166	49969	3.478	ng		100
65) Chlorobenzene	0.00	112	0	N.D.			
66) Ethylbenzene	16.02	91	1652	N.D.			
67) m- & p-Xylenes	16.19	91	5055	0.086	ng		92
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	16.58	104	883	N.D.			
70) o-Xylene	16.69	91	2428	N.D.			
71) n-Nonane	16.92	43	819	N.D.			
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.			
74) Cumene	17.14	105	115	N.D.			
75) alpha-Pinene	17.71	93	400	N.D.			
76) n-Propylbenzene	17.82	91	509	N.D.			
77) 3-Ethyltoluene	17.93	105	844	N.D.			
78) 4-Ethyltoluene	17.98	105	334	N.D.			
79) 1,3,5-Trimethylbenzene	18.05	105	354	N.D.			
80) alpha-Methylstyrene	18.22	118	324	N.D.			
81) 2-Ethyltoluene	18.25	105	408	N.D.			
82) 1,2,4-Trimethylbenzene	18.48	105	1594	N.D.			
83) n-Decane	0.00	58	0	N.D.			
84) Benzyl Chloride	0.00	91	0	N.D.			
85) 1,3-Dichlorobenzene	18.70	146	786	N.D.			
86) 1,4-Dichlorobenzene	18.70	146	786	N.D.			
87) sec-Butylbenzene	18.93	105	427	N.D.			
88) 4-Isopropyltoluene (p-...	18.93	119	520	N.D.			
89) 1,2,3-Trimethylbenzene	18.93	105	427	N.D.			
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
91) d-Limonene	19.07	68	1776	0.063	ng	#	20
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	20.98	128	2211	N.D.			
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	18.43	119	1424	N.D.			
100) n-Butylbenzene	19.36	91	480	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:46:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:46:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

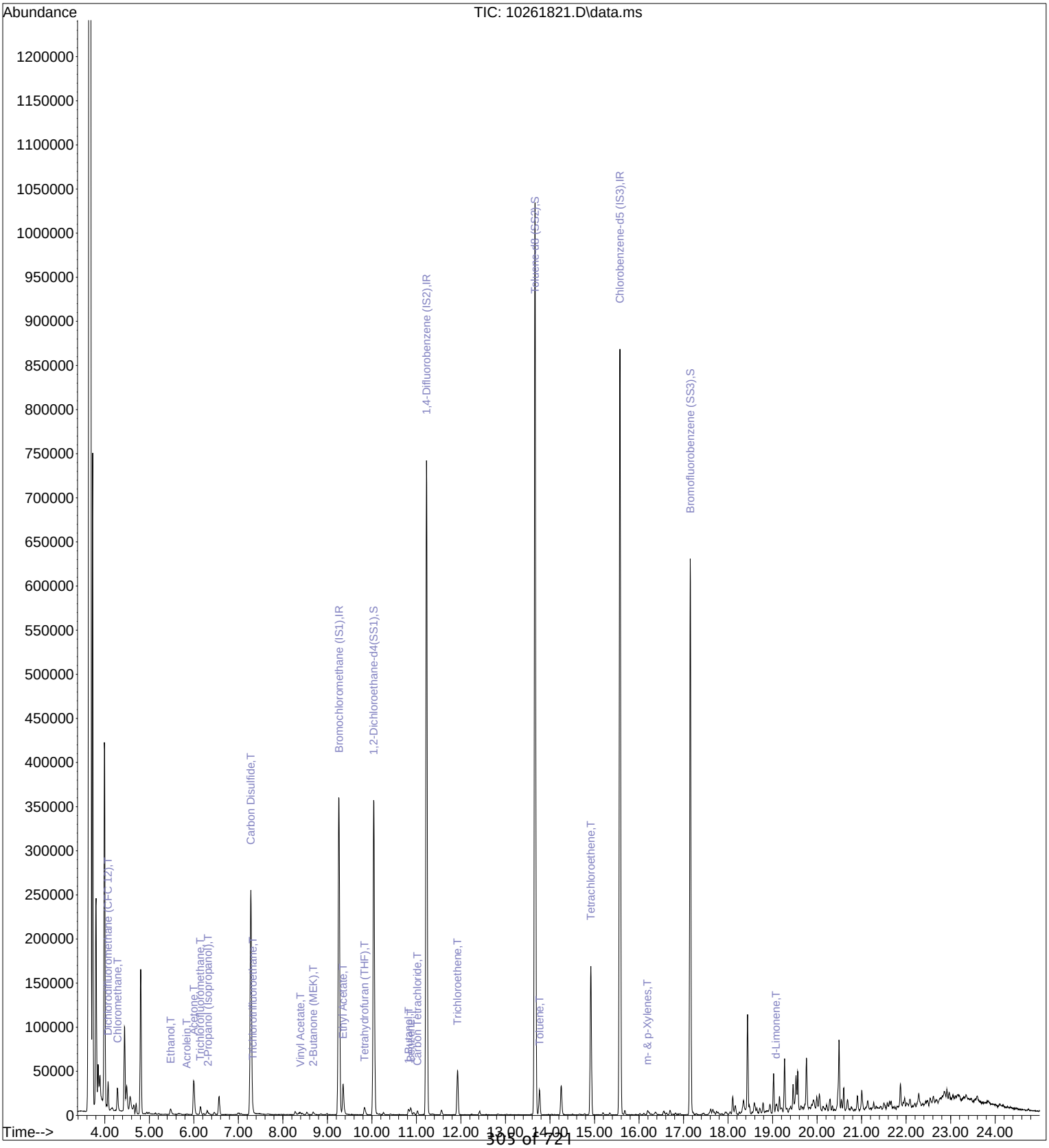
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118342	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	595641	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	356176	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	282515	13.765	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.16%				
57) Toluene-d8 (SS2)	13.66	98	773877	12.437	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.52%				
73) Bromofluorobenzene (SS3)	17.15	174	155686	11.121	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.96%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.07	85	24578	0.763	ng		100
4) Chloromethane	4.29	50	2081	0.053	ng		75
10) Ethanol	5.48	45	10257	0.635	ng		94
12) Acrolein	5.84	56	654	0.052	ng		83
13) Acetone	6.00	58	11908	0.713	ng	#	55
14) Trichlorofluoromethane	6.15	101	8453	0.366	ng		100
15) 2-Propanol (Isopropanol)	6.32	45	3065	0.059	ng		85
21) Trichlorotrifluoroethane	7.33	151	1203	0.130	ng		86
22) Carbon Disulfide	7.28	76	447687	7.136	ng		97
26) Vinyl Acetate	8.39	86	187	0.068	ng	#	60
27) 2-Butanone (MEK)	8.68	72	1112	0.085	ng	#	72
30) Ethyl Acetate	9.35	61	5897	0.855	ng		94
34) Tetrahydrofuran (THF)	9.83	72	2157	0.172	ng	#	88
40) 1-Butanol	10.83	56	5207	0.257	ng	#	76
41) Benzene	10.87	78	6371	0.088	ng		99
42) Carbon Tetrachloride	11.02	117	2714	0.155	ng		95
47) Trichloroethene	11.92	130	16886	1.183	ng		98
58) Toluene	13.77	91	23283	0.335	ng		99
64) Tetrachloroethene	14.92	166	49969	3.478	ng		100
67) m- & p-Xylenes	16.19	91	5055	0.086	ng		92
91) d-Limonene	19.07	68	1776	0.063	ng	#	20

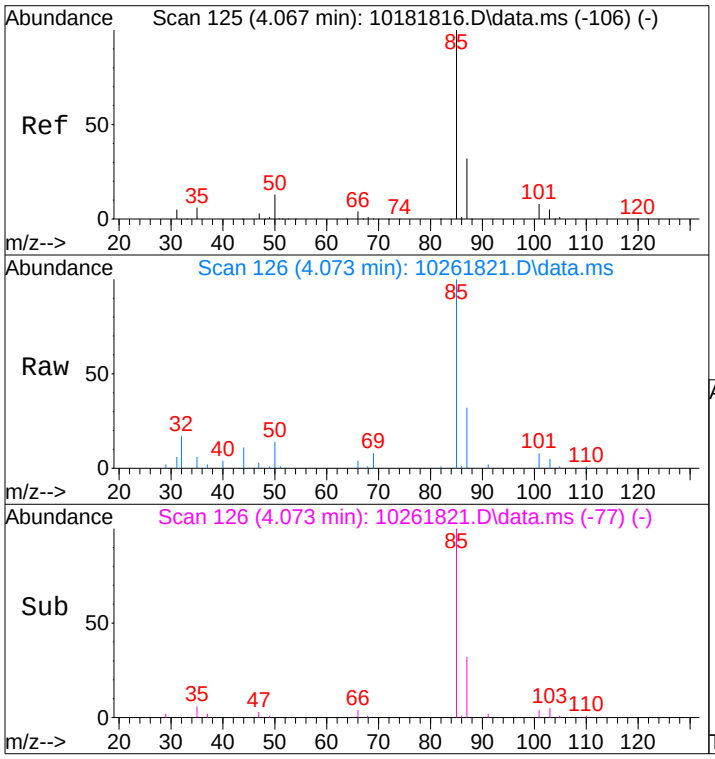
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:46:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

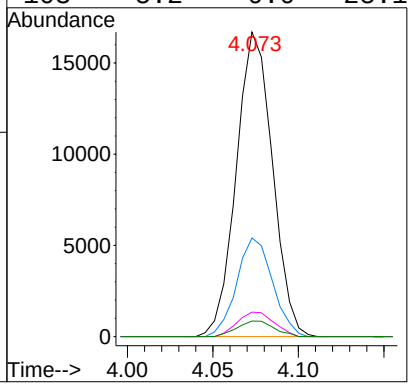


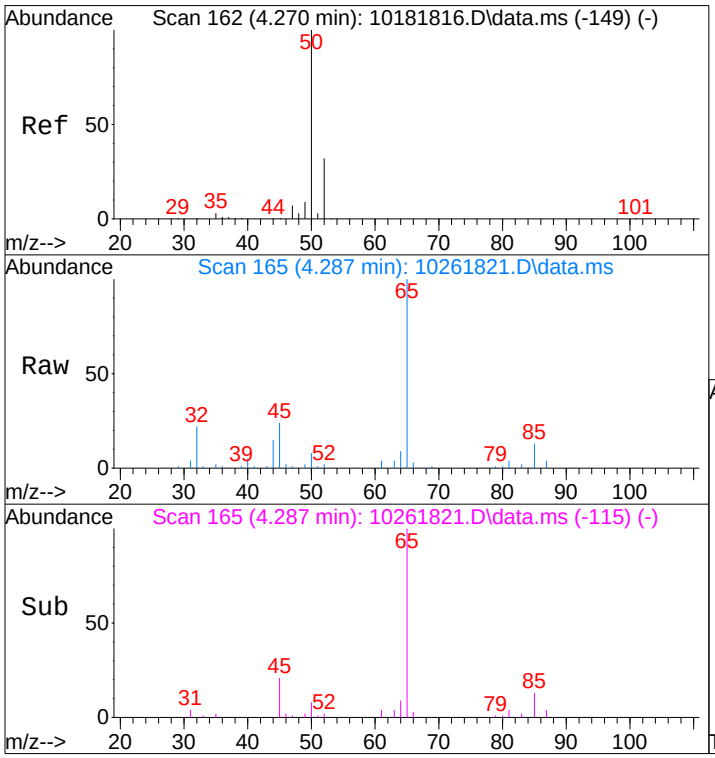


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.76 ng
RT: 4.07 min Scan# 126
Delta R.T. 0.017 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 85 Resp: 24578

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.0	52.0
101	8.2	0.0	28.0
103	5.2	0.0	25.1

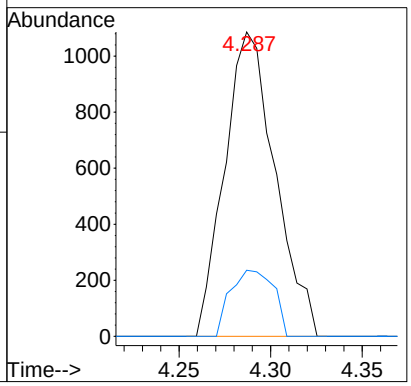


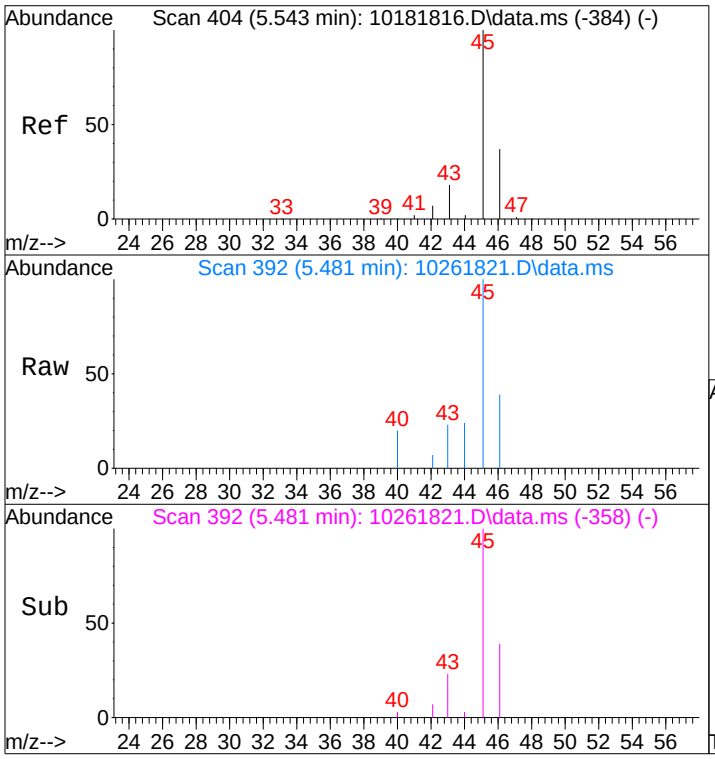


#4
Chloromethane
Concen: 0.05 ng
RT: 4.29 min Scan# 165
Delta R.T. 0.024 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 50 Resp: 2081

Ion	Ratio	Lower	Upper
50	100		
52	18.6	12.4	52.4

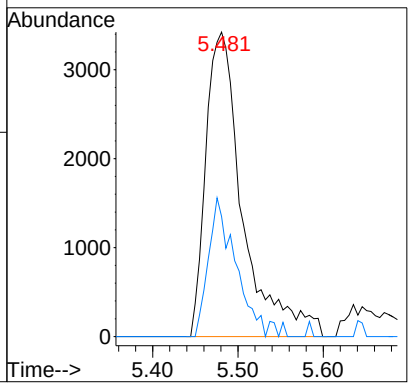


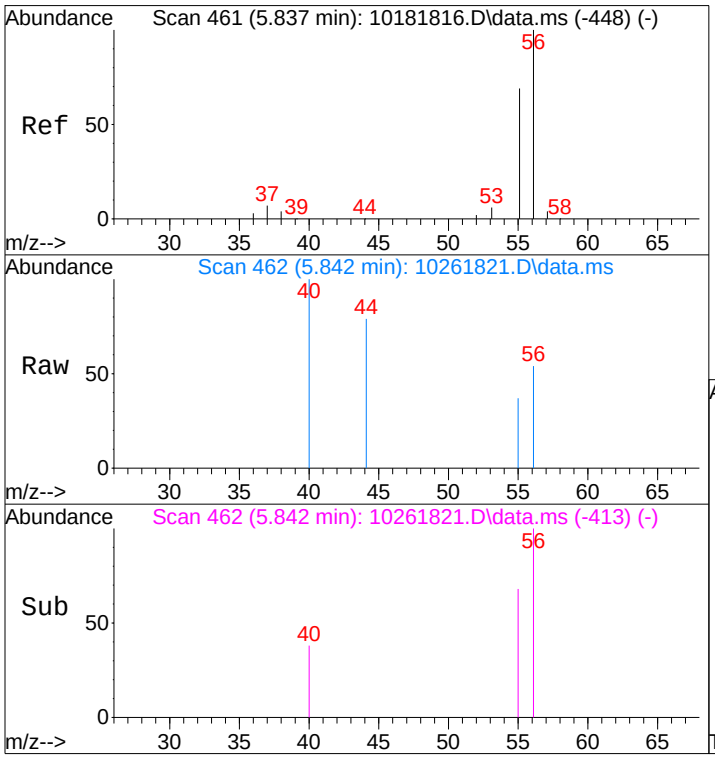


#10
Ethanol
Concen: 0.63 ng
RT: 5.48 min Scan# 392
Delta R.T. -0.077 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 45 Resp: 10257

Ion	Ratio	Lower	Upper
45	100		
46	33.3	17.0	57.0

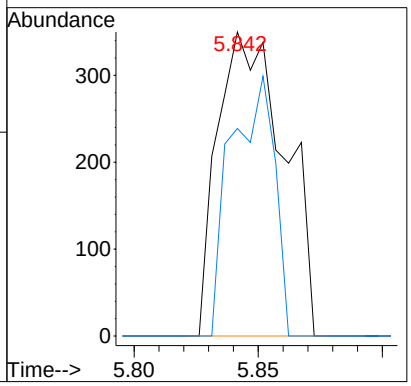


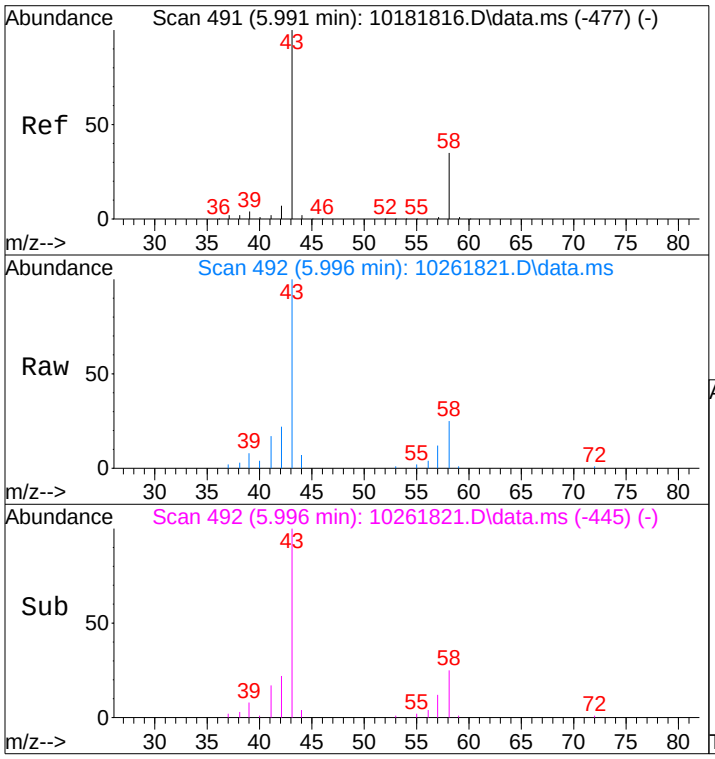


#12
Acrolein
Concen: 0.05 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 56 Resp: 654

Ion	Ratio	Lower	Upper
56	100		
55	55.8	49.3	89.3

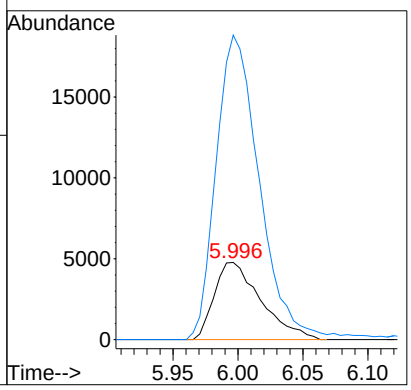


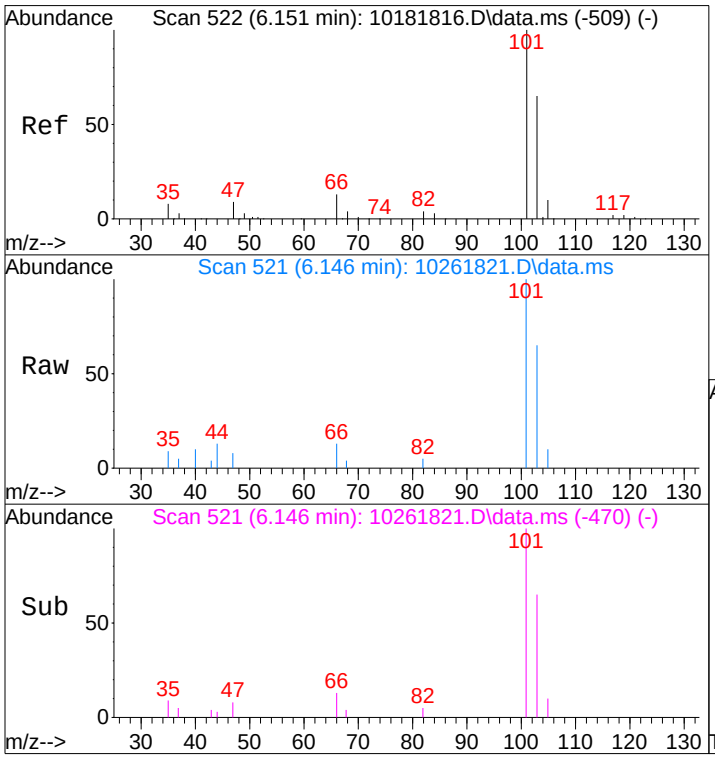


#13
Acetone
Concen: 0.71 ng
RT: 6.00 min Scan# 492
Delta R.T. -0.007 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 58 Resp: 11908

Ion	Ratio	Lower	Upper
58	100		
43	370.5	254.3	314.3#

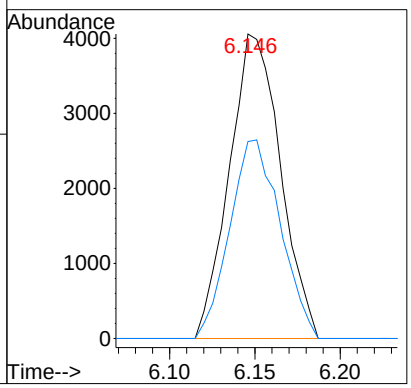


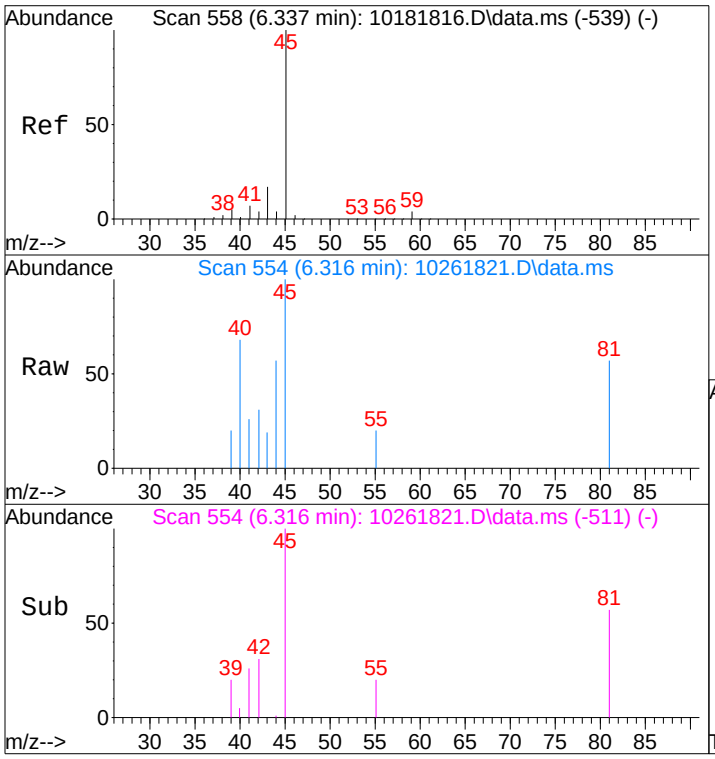


#14
Trichlorofluoromethane
Concen: 0.37 ng
RT: 6.15 min Scan# 521
Delta R.T. 0.014 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion:101 Resp: 8453

Ion	Ratio	Lower	Upper
101	100		
103	64.6	44.5	84.5

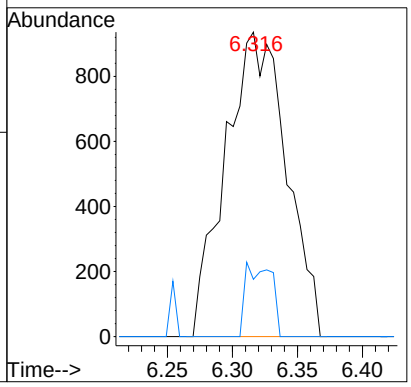


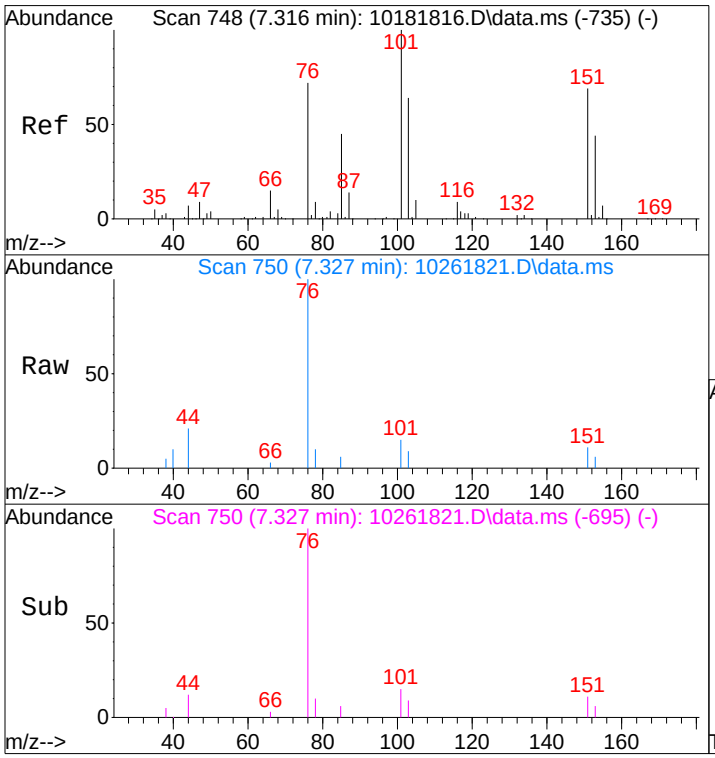


#15
2-Propanol (Isopropanol)
Concen: 0.06 ng
RT: 6.32 min Scan# 554
Delta R.T. -0.027 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 45 Resp: 3065

Ion	Ratio	Lower	Upper
45	100		
43	10.1	0.0	36.7

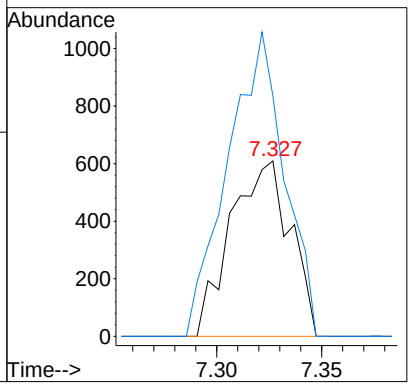


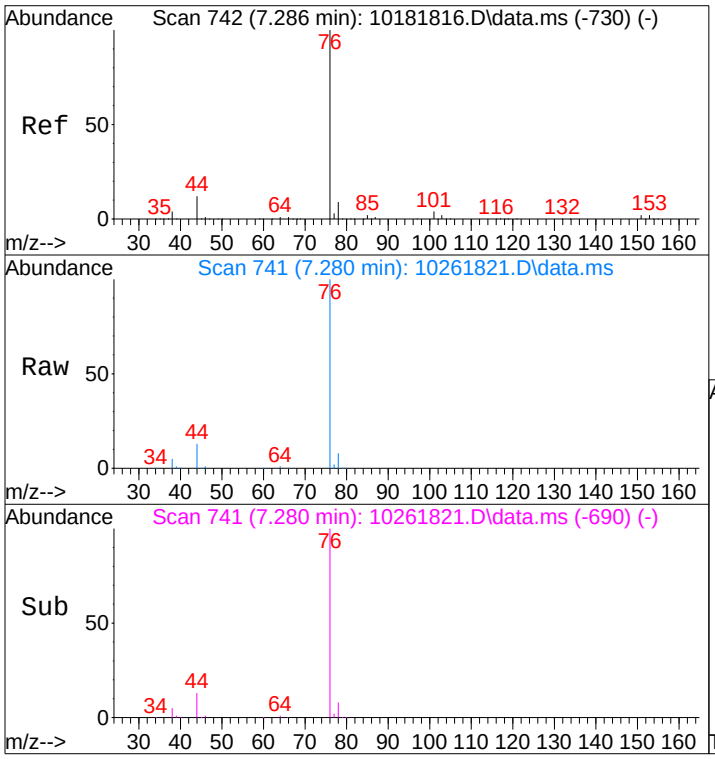


#21
Trichlorotrifluoroethane
Concen: 0.13 ng
RT: 7.33 min Scan# 750
Delta R.T. 0.036 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion:151 Resp: 1203

Ion	Ratio	Lower	Upper
151	100		
101	164.8	127.5	167.5

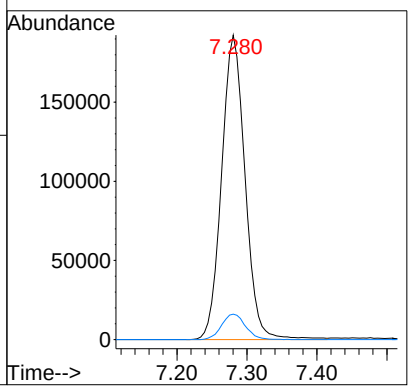


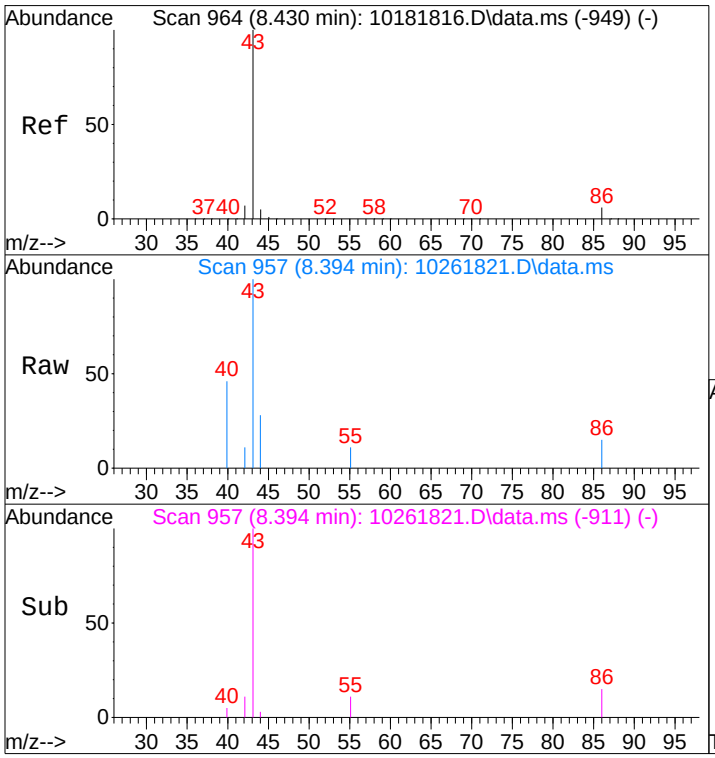


#22
Carbon Disulfide
Concen: 7.14 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 76 Resp: 447687

Ion	Ratio	Lower	Upper
76	100		
78	8.5	0.0	29.6

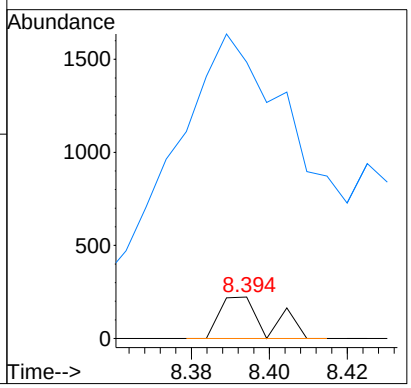


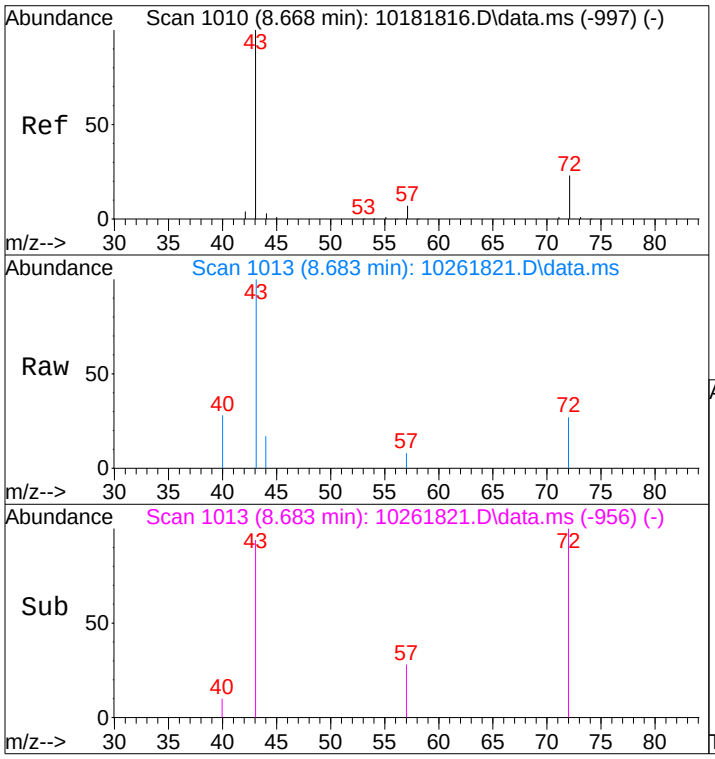


#26
Vinyl Acetate
Concen: 0.07 ng
RT: 8.39 min Scan# 957
Delta R.T. -0.015 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 86 Resp: 187

Ion	Ratio	Lower	Upper
86	100		
43	1865.8	1596.2	1636.2#

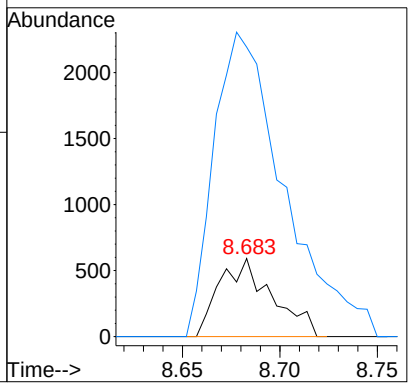


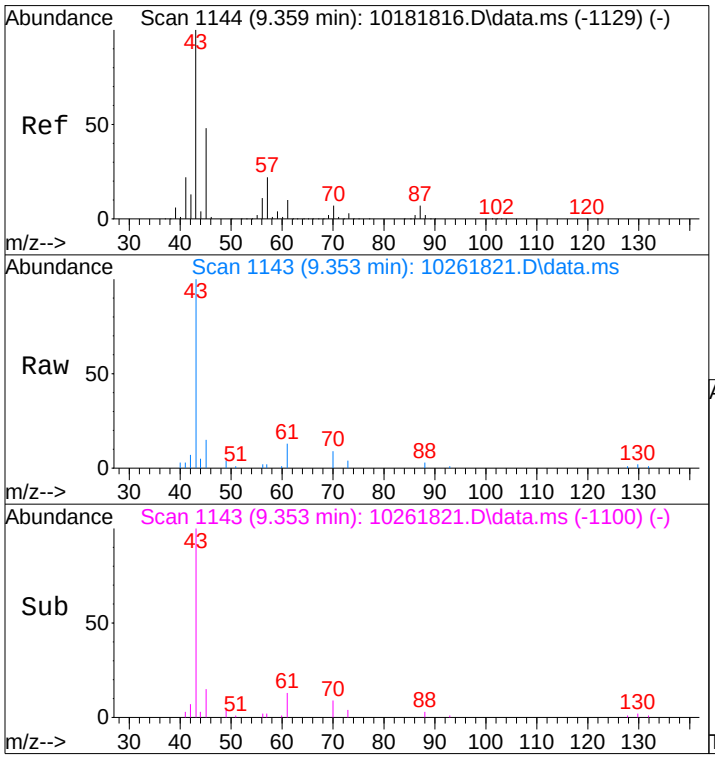


#27
2-Butanone (MEK)
Concen: 0.09 ng
RT: 8.68 min Scan# 1013
Delta R.T. 0.043 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 72 Resp: 1112

Ion	Ratio	Lower	Upper
72	100		
43	521.0	430.0	470.0#

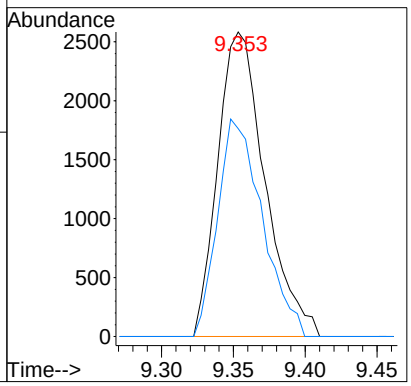


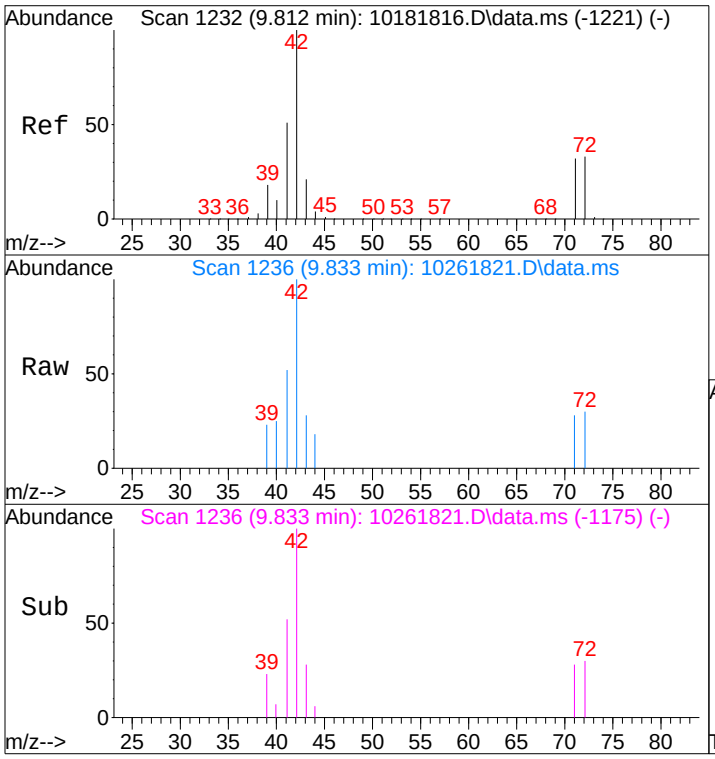


#30
Ethyl Acetate
Concen: 0.85 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 61 Resp: 5897

Ion	Ratio	Lower	Upper
61	100		
70	67.4	52.7	92.7

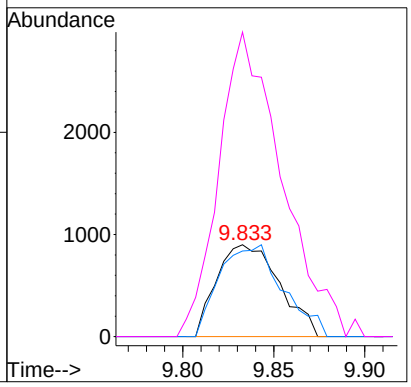


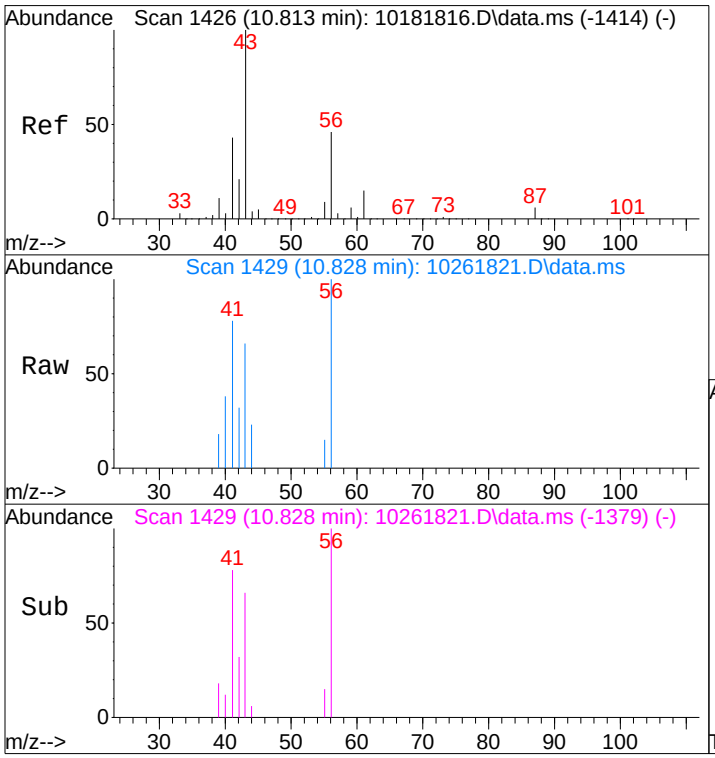


#34
Tetrahydrofuran (THF)
Concen: 0.17 ng
RT: 9.83 min Scan# 1236
Delta R.T. 0.065 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 72 Resp: 2157

Ion	Ratio	Lower	Upper
72	100		
71	100.6	76.7	116.7
42	335.8	287.9	327.9#

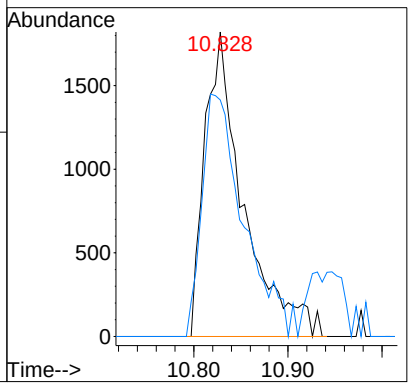


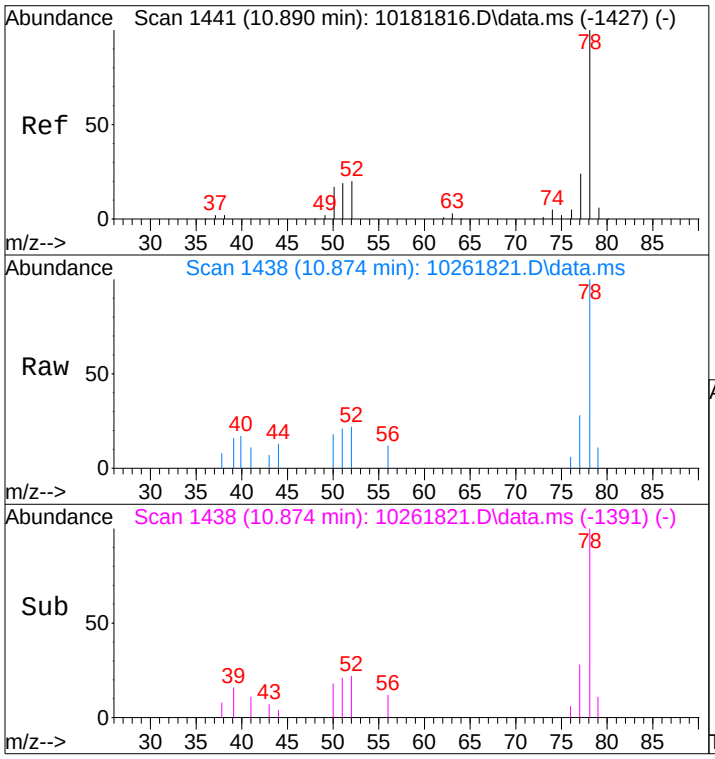


#40
1-Butanol
Concen: 0.26 ng
RT: 10.83 min Scan# 1429
Delta R.T. 0.010 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 56 Resp: 5207

Ion	Ratio	Lower	Upper
56	100		
41	84.4	90.2	130.2#

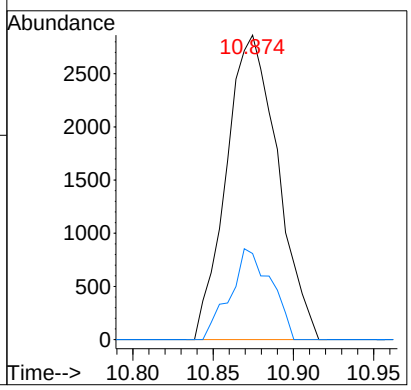


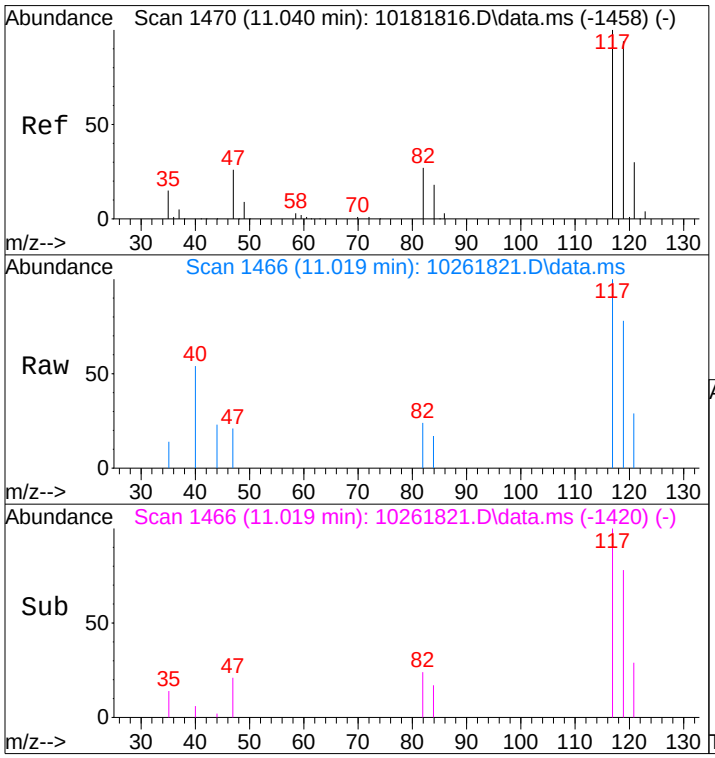


#41
Benzene
Concen: 0.09 ng
RT: 10.87 min Scan# 1438
Delta R.T. -0.006 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 78 Resp: 6371

Ion	Ratio	Lower	Upper
78	100		
77	23.8	4.1	44.1

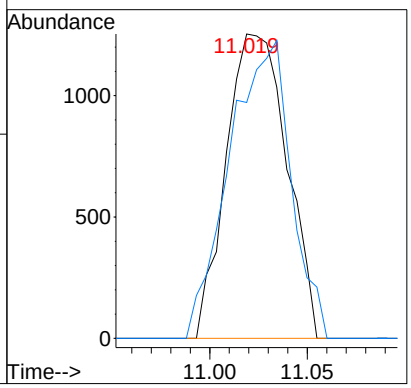


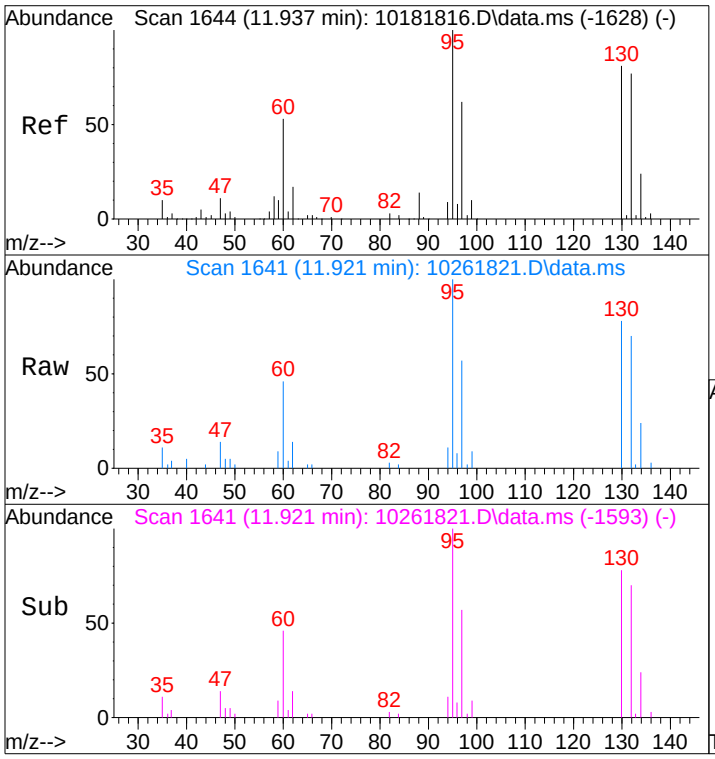


#42
Carbon Tetrachloride
Concen: 0.15 ng
RT: 11.02 min Scan# 1466
Delta R.T. -0.011 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion:117 Resp: 2714

Ion	Ratio	Lower	Upper
117	100		
119	99.3	74.7	114.7

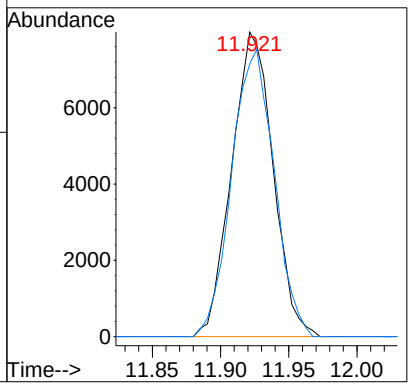


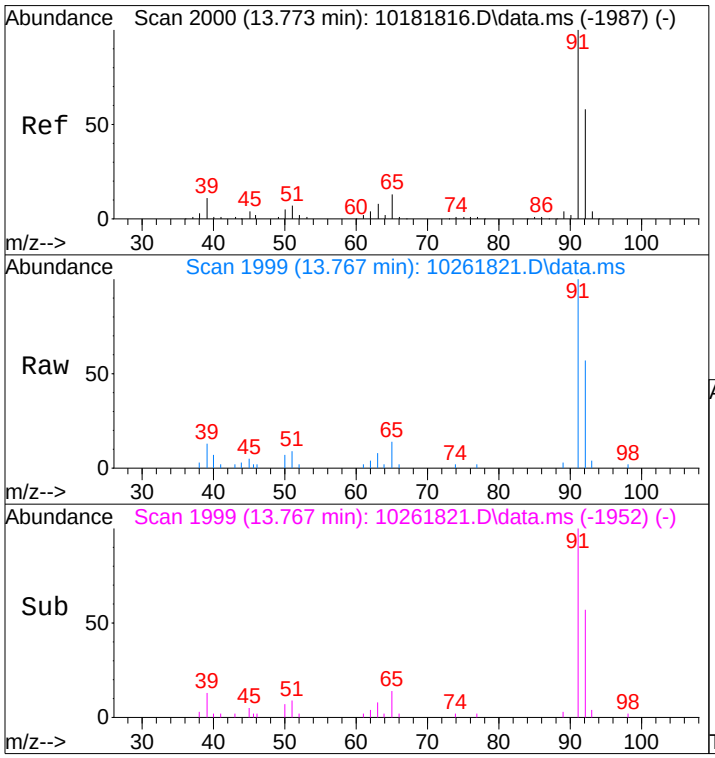


#47
Trichloroethene
Concen: 1.18 ng
RT: 11.92 min Scan# 1641
Delta R.T. -0.003 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion:130 Resp: 16886

Ion	Ratio	Lower	Upper
130	100		
132	96.7	74.6	114.6

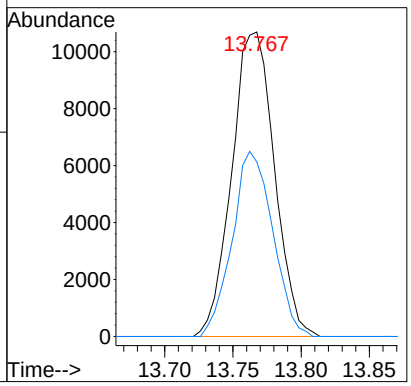


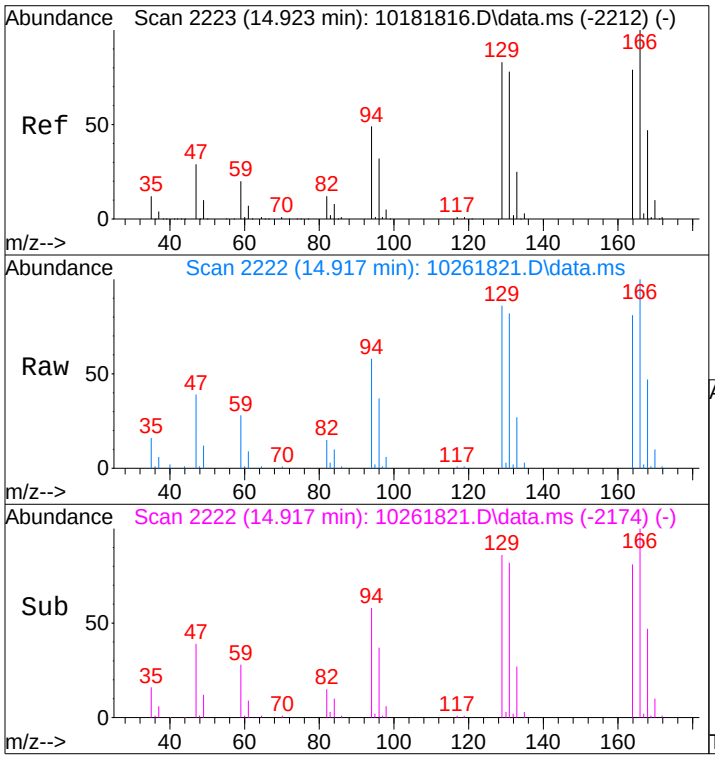


#58
Toluene
Concen: 0.33 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 91 Resp: 23283

Ion	Ratio	Lower	Upper
91	100		
92	57.7	38.1	78.1

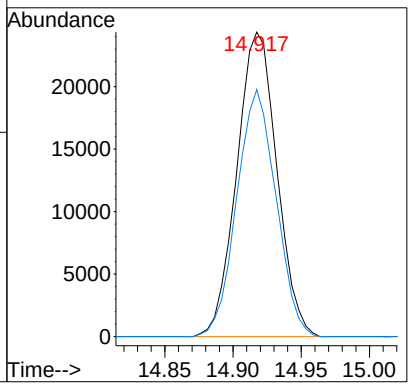


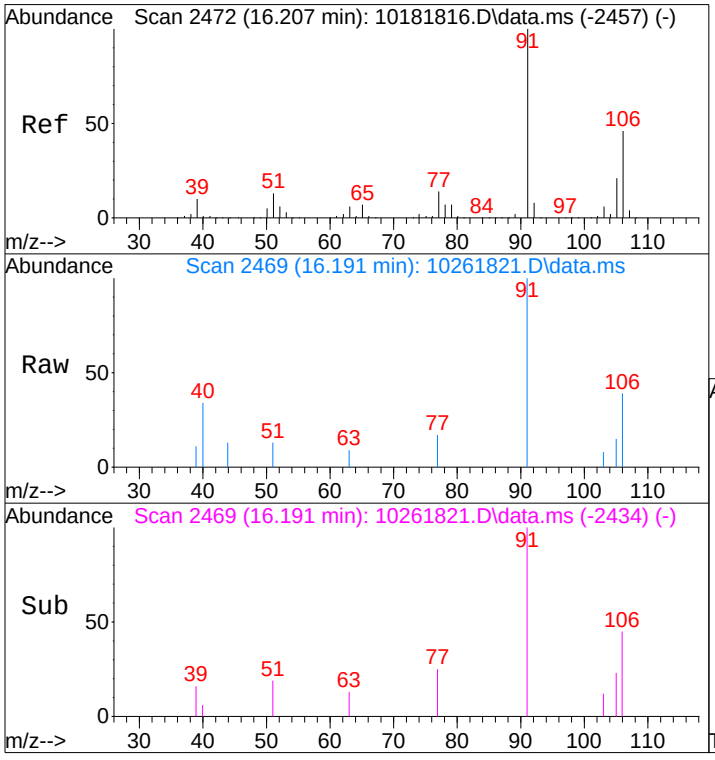


#64
Tetrachloroethene
Concen: 3.48 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion:166 Resp: 49969

Ion	Ratio	Lower	Upper
166	100		
164	79.3	58.9	98.9

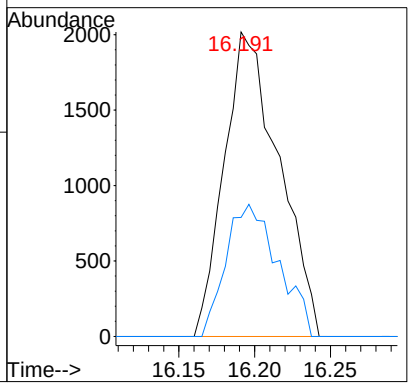


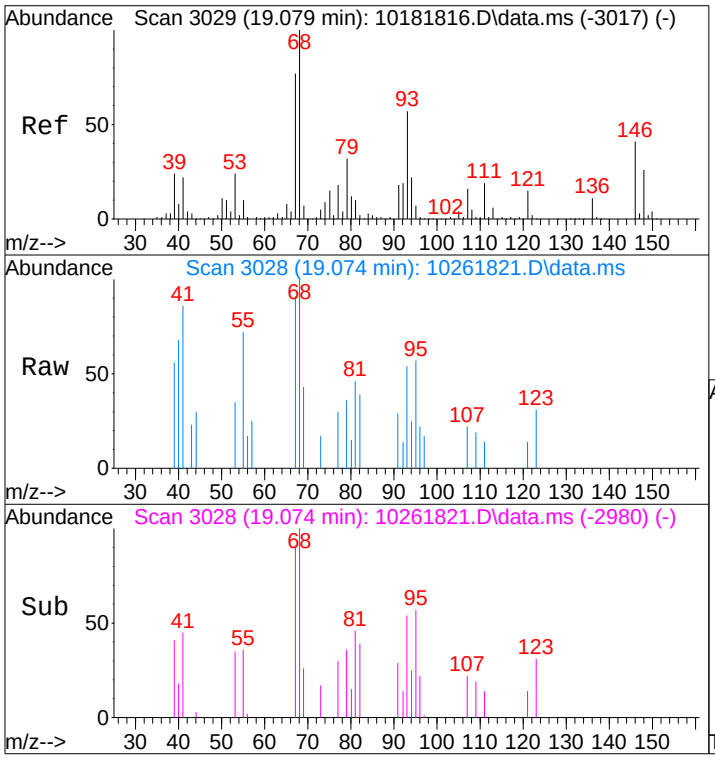


#67
m- & p-Xylenes
Concen: 0.09 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.020 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 91 Resp: 5055

Ion	Ratio	Lower	Upper
91	100		
106	41.4	26.7	66.7

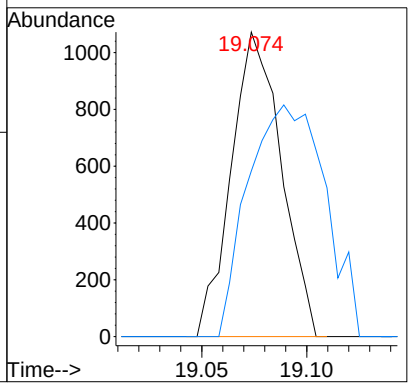




#91
d-Limonene
Concen: 0.06 ng
RT: 19.07 min Scan# 3028
Delta R.T. -0.003 min
Lab File: 10261821.D
Acq: 26 Oct 2018 17:06

Tgt Ion: 68 Resp: 1776

Ion	Ratio	Lower	Upper
68	100		
93	117.3	37.7	77.7#



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

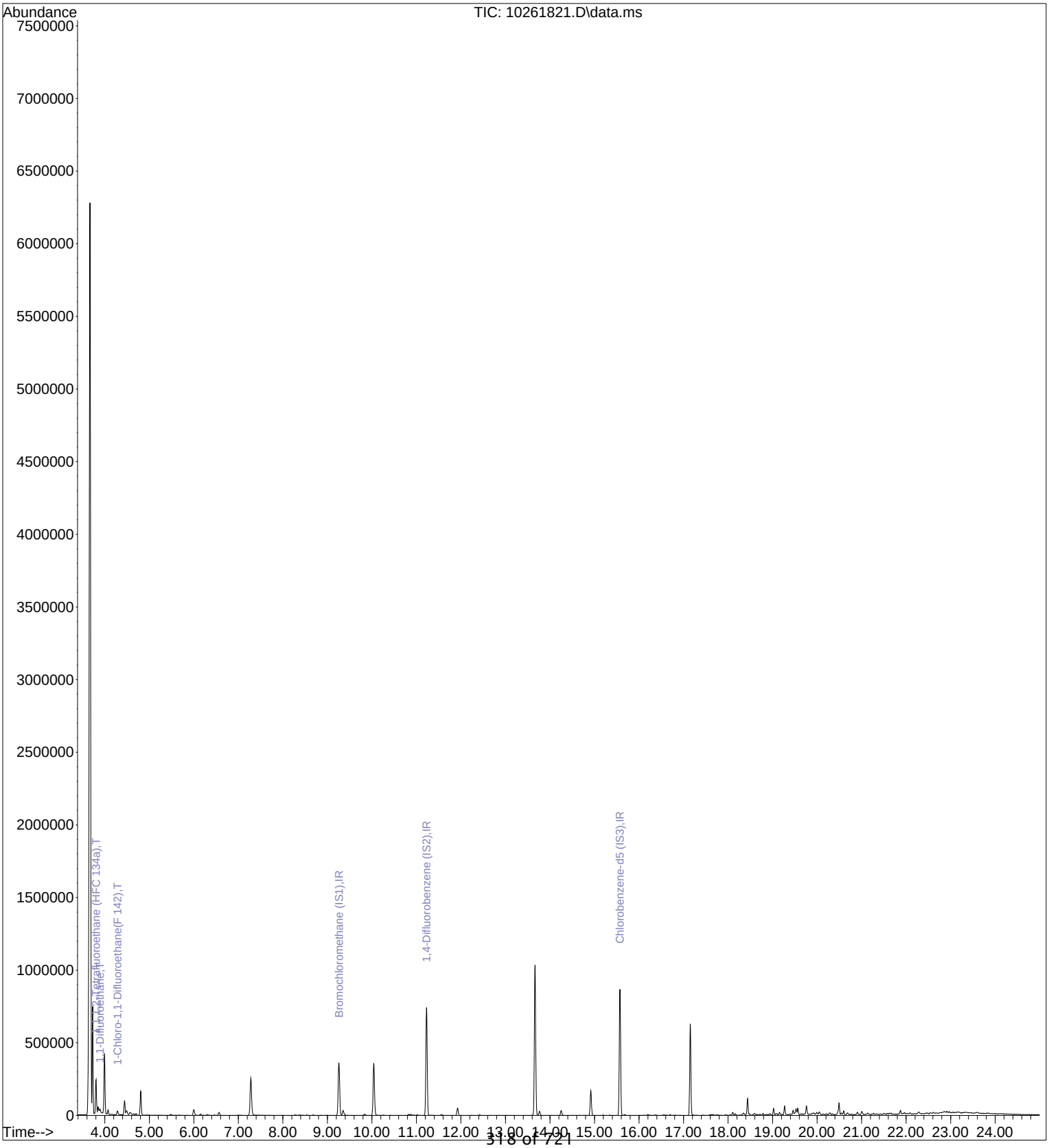
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	119305	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	595641	12.500	ng	-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	356176	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	217	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	89754	7.283	ng	84
4) 1,1-Difluoroethane	3.89	65	12147	0.823	ng	98
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d	
6) 1-Chloro-1,1-Difluoroe...	4.29	65	22612	0.848	ng	98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	0.00	57	0	N.D.	d	
11) Methyl Acetate	7.01	43	1174	N.D.		
12) 2-Methylpentane	8.44	71	51	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	11.03	84	673	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.91	55	57	N.D.		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d	
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D.		
26) 2-Chlorotoluene	17.82	91	509	N.D.		
27) 4-Chlorotoluene	17.82	91	509	N.D.		
28) Indane	0.00	117	0	N.D.		
29) Indene	0.00	115	0	N.D.		
30) 1,2,4,5-Tetramethylben...	20.16	119	54	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	109	N.D.		
32) 1,2,3,5-Tetramethylben...	20.59	119	222	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261821.D Vial: 8
Acq On : 26 Oct 2018 17:06 Operator: RS
Sample : P1805493-010 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:48:46 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116881	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	590291	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	361084	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	280670	13.847	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.80%				
57) Toluene-d8 (SS2)	13.66	98	767254	12.163	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.16	174	156242	11.009	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.08%				
Target Compounds							Qvalue
2) Propene	3.98	42	3421m	0.116	ng		
3) Dichlorodifluoromethan...	4.08	85	22121	0.695	ng		99
4) Chloromethane	4.30	50	1329	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	267	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.62	45	73	N.D.			
11) Acetonitrile	5.71	41	810	N.D.			
12) Acrolein	5.85	56	475	N.D.			
13) Acetone	6.00	58	14918	0.904	ng	#	74
14) Trichlorofluoromethane	6.16	101	7568	0.332	ng		99
15) 2-Propanol (Isopropanol)	6.33	45	2388	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.01	59	2040	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	7.05	41	193	N.D.			
21) Trichlorotrifluoroethane	7.32	151	789	0.087	ng	#	47
22) Carbon Disulfide	7.28	76	84998	1.372	ng		98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	8.68	72	772	0.060	ng	#	7
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.36	61	4973	0.730	ng		96
31) n-Hexane	9.35	57	394	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	9.85	72	227	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	10.88	78	3341	N.D.			
42) Carbon Tetrachloride	11.02	117	1279	0.074	ng		92
43) Cyclohexane	11.15	84	403	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.93	130	2486	0.176	ng		97
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	190	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:48:46 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

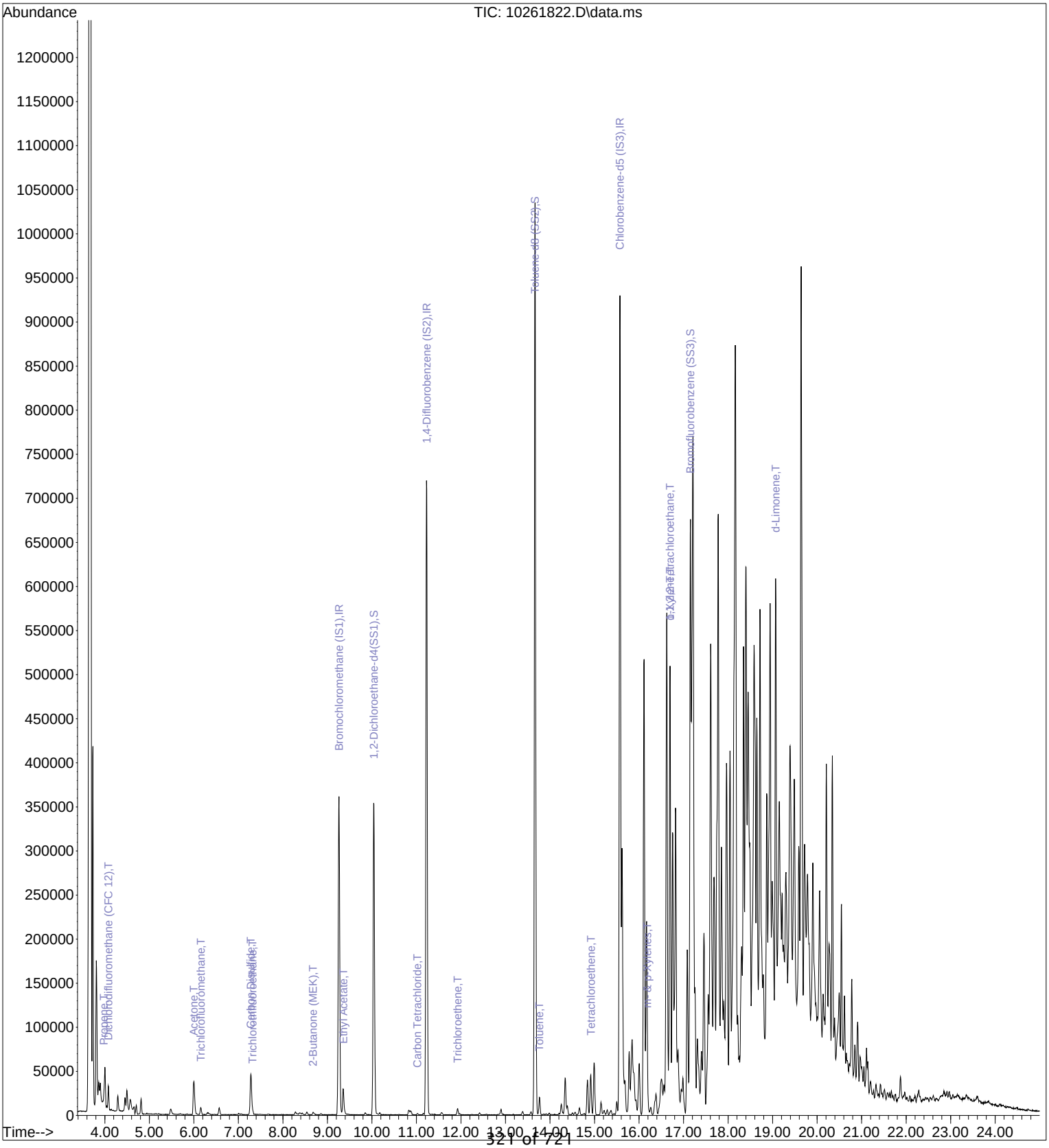
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.76	91	16422	0.233 ng		100
59) 2-Hexanone	14.04	43	584	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	14.67	43	1269	N.D.		
63) n-Octane	0.00	57	0	N.D. d		
64) Tetrachloroethene	14.92	166	8697	0.597 ng		100
65) Chlorobenzene	0.00	112	0	N.D. d		
66) Ethylbenzene	16.03	91	1935	N.D.		
67) m- & p-Xylenes	16.19	91	6301	0.106 ng		87
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	16.58	104	769	N.D.		
70) o-Xylene	16.70	91	4860	0.084 ng	#	68
71) n-Nonane	16.94	43	1102	N.D.		
72) 1,1,2,2-Tetrachloroethane	16.70	83	11264	0.395 ng	#	50
74) Cumene	17.16	105	242	N.D.		
75) alpha-Pinene	17.70	93	1878	N.D.		
76) n-Propylbenzene	17.86	91	2336	N.D.		
77) 3-Ethyltoluene	17.93	105	1022	N.D.		
78) 4-Ethyltoluene	17.97	105	1062	N.D.		
79) 1,3,5-Trimethylbenzene	18.05	105	887	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	18.25	105	535	N.D.		
82) 1,2,4-Trimethylbenzene	18.48	105	2178	N.D.		
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	18.70	146	706	N.D.		
86) 1,4-Dichlorobenzene	18.70	146	706	N.D.		
87) sec-Butylbenzene	18.76	105	824	N.D.		
88) 4-Isopropyltoluene (p-...	18.92	119	1144	N.D.		
89) 1,2,3-Trimethylbenzene	18.93	105	1210	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	19.07	68	22834	0.804 ng	#	51
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	20.98	128	2184	N.D.		
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	18.47	119	484	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:48:46 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:48:46 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

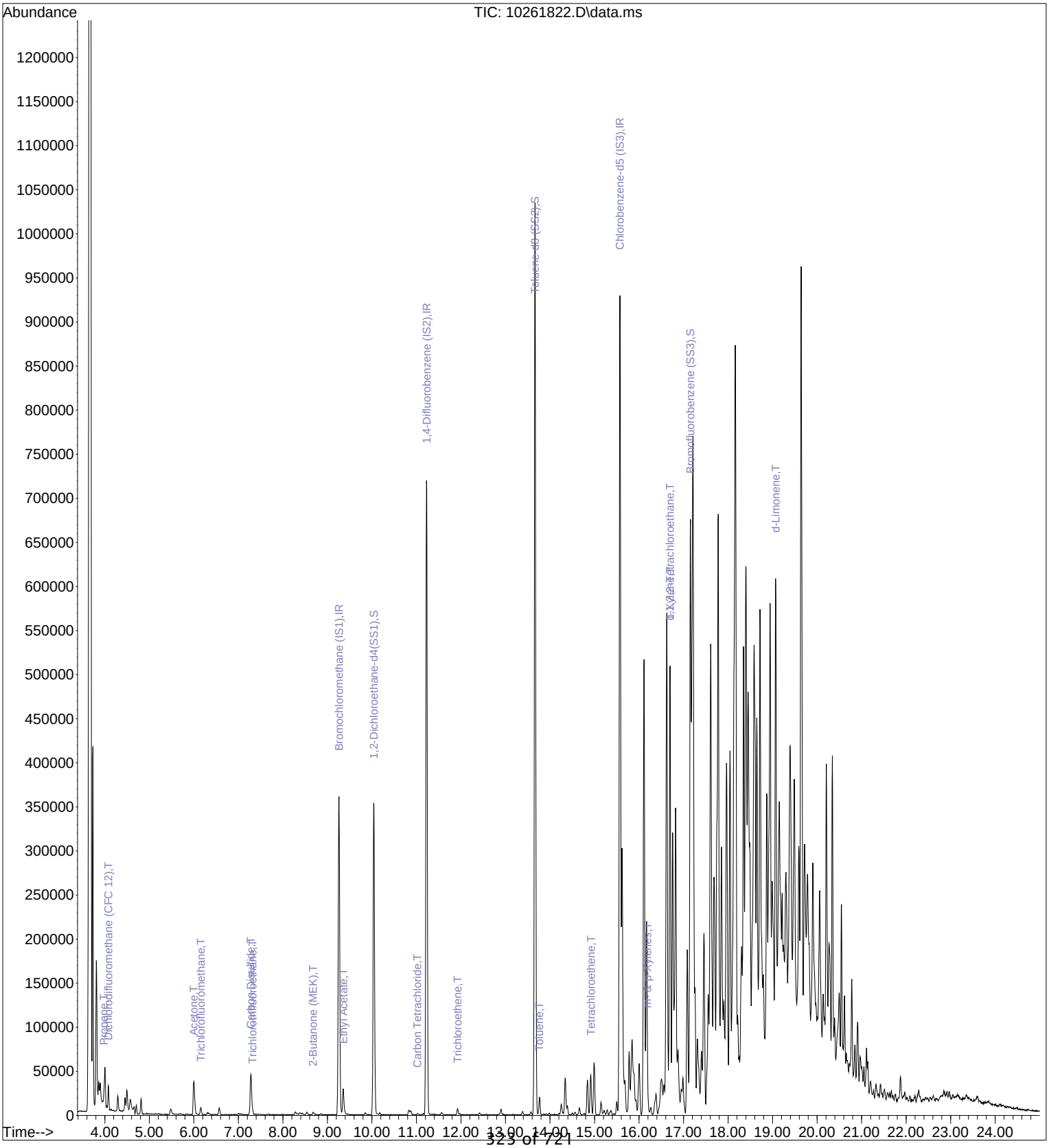
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116881	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	590291	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	361084	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	280670	13.847	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.80%				
57) Toluene-d8 (SS2)	13.66	98	767254	12.163	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.16	174	156242	11.009	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.08%				
Target Compounds							Qvalue
2) Propene	3.98	42	3421m	0.116	ng		
3) Dichlorodifluoromethan...	4.08	85	22121	0.695	ng		99
13) Acetone	6.00	58	14918	0.904	ng	#	74
14) Trichlorofluoromethane	6.16	101	7568	0.332	ng		99
21) Trichlorotrifluoroethane	7.32	151	789	0.087	ng	#	47
22) Carbon Disulfide	7.28	76	84998	1.372	ng		98
27) 2-Butanone (MEK)	8.68	72	772	0.060	ng	#	7
30) Ethyl Acetate	9.36	61	4973	0.730	ng		96
42) Carbon Tetrachloride	11.02	117	1279	0.074	ng		92
47) Trichloroethene	11.93	130	2486	0.176	ng		97
58) Toluene	13.76	91	16422	0.233	ng		100
64) Tetrachloroethene	14.92	166	8697	0.597	ng		100
67) m- & p-Xylenes	16.19	91	6301	0.106	ng		87
70) o-Xylene	16.70	91	4860	0.084	ng	#	68
72) 1,1,2,2-Tetrachloroethane	16.70	83	11264	0.395	ng	#	50
91) d-Limonene	19.07	68	22834	0.804	ng	#	51

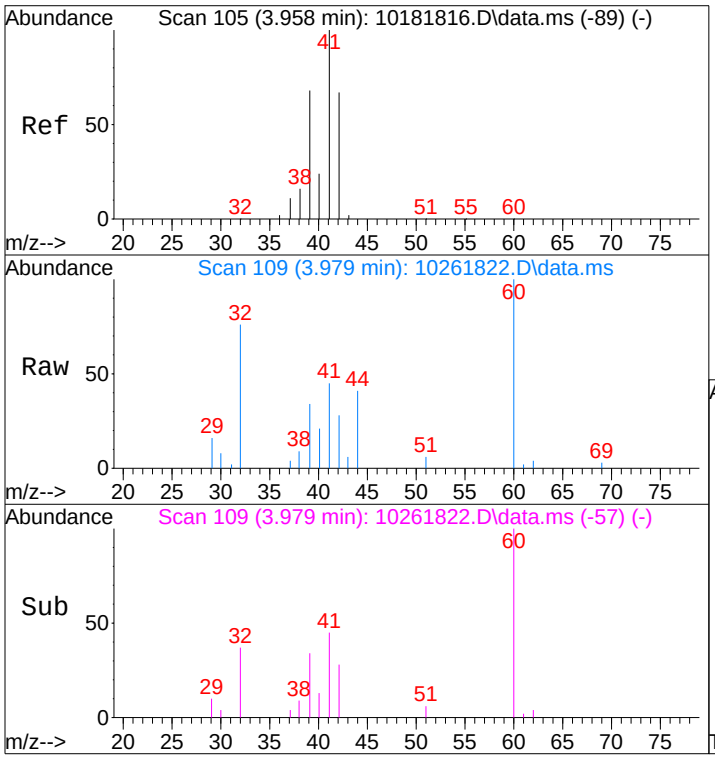
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:48:46 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

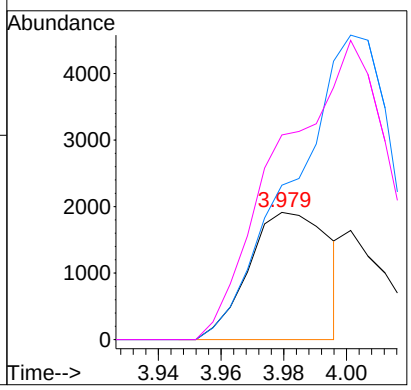


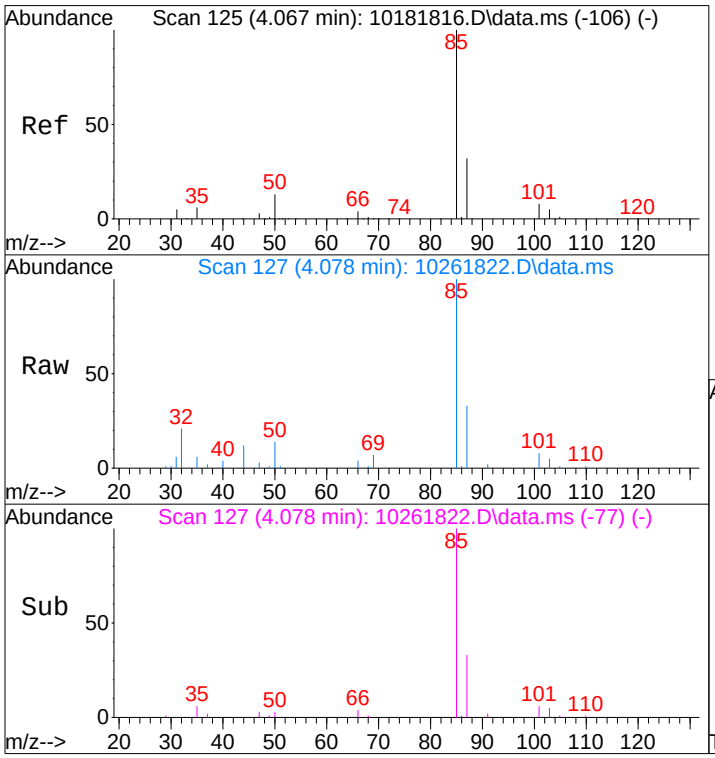


#2
Propene
Concen: 0.12 ng m
RT: 3.98 min Scan# 109
Delta R.T. 0.033 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 42 Resp: 3421

Ion	Ratio	Lower	Upper
42	100		
39	108.1	81.9	121.9
41	141.4	130.4	170.4

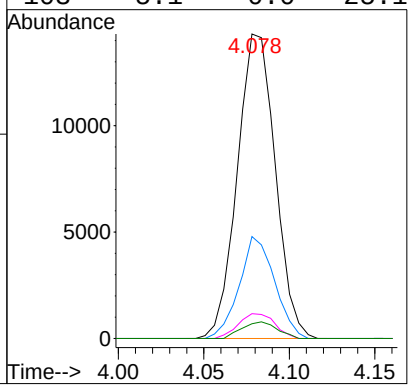


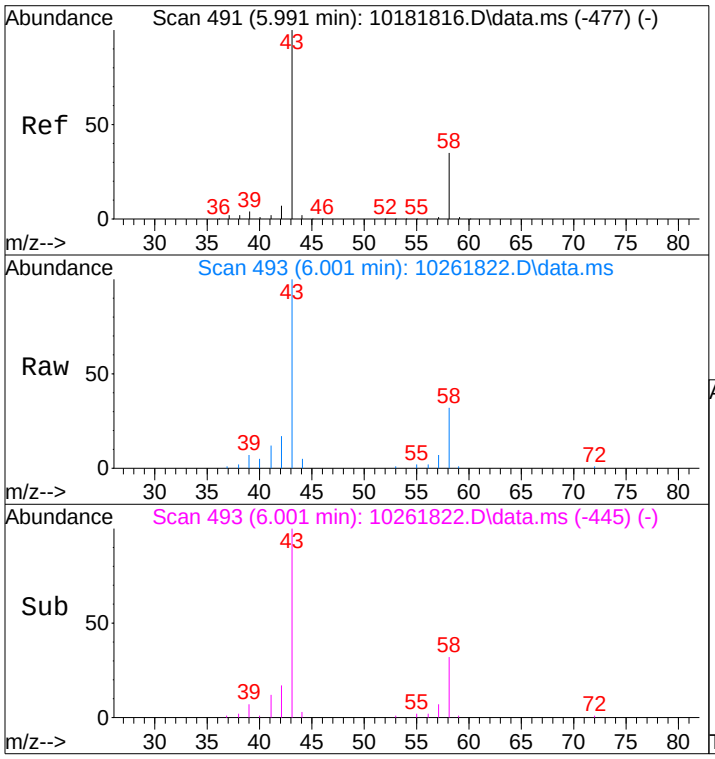


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.70 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 85 Resp: 22121

Ion	Ratio	Lower	Upper
85	100		
87	31.2	12.0	52.0
101	7.9	0.0	28.0
103	5.1	0.0	25.1

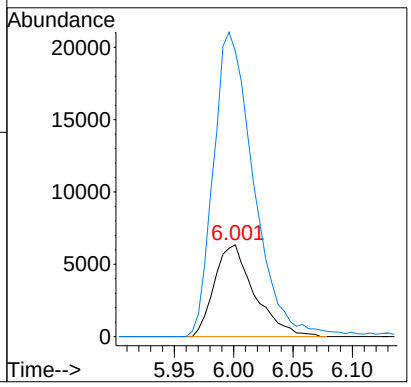


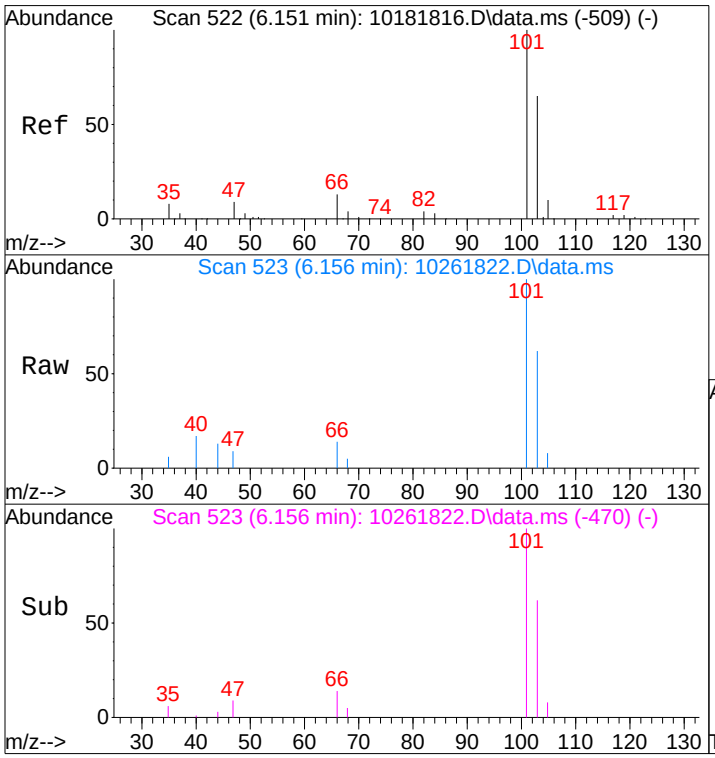


#13
Acetone
Concen: 0.90 ng
RT: 6.00 min Scan# 493
Delta R.T. -0.002 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 58 Resp: 14918

Ion	Ratio	Lower	Upper
58	100		
43	334.5	254.3	314.3#

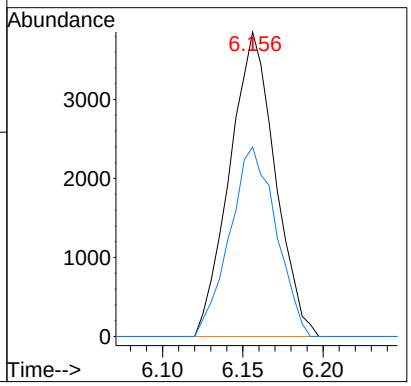


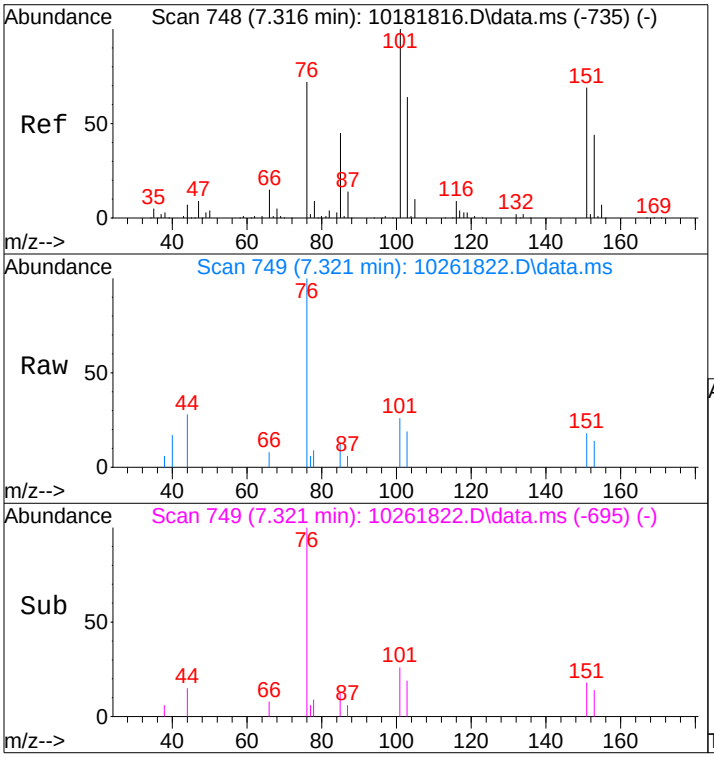


#14
Trichlorofluoromethane
Concen: 0.33 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion:101 Resp: 7568

Ion	Ratio	Lower	Upper
101	100		
103	63.6	44.5	84.5

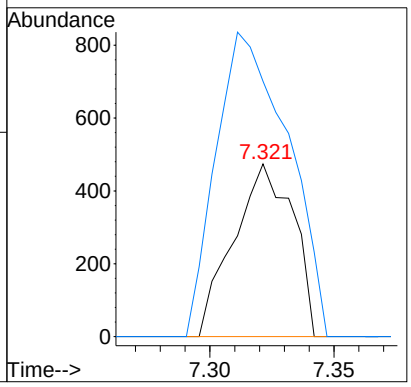


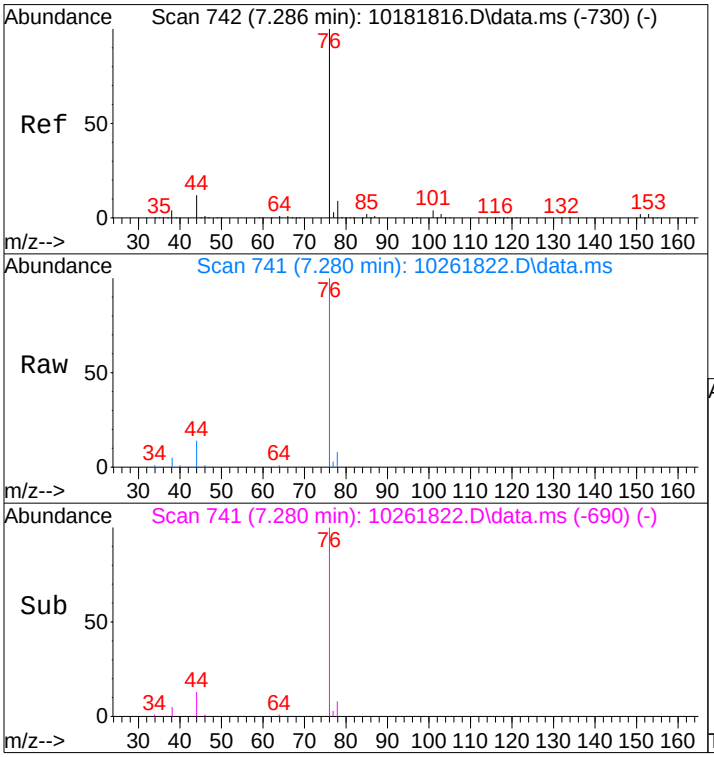


#21
Trichlorotrifluoroethane
Concen: 0.09 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.030 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion:151 Resp: 789

Ion	Ratio	Lower	Upper
151	100		
101	213.6	127.5	167.5#

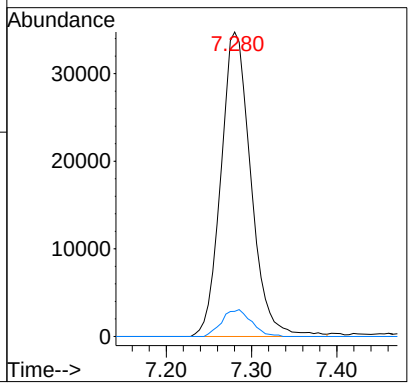


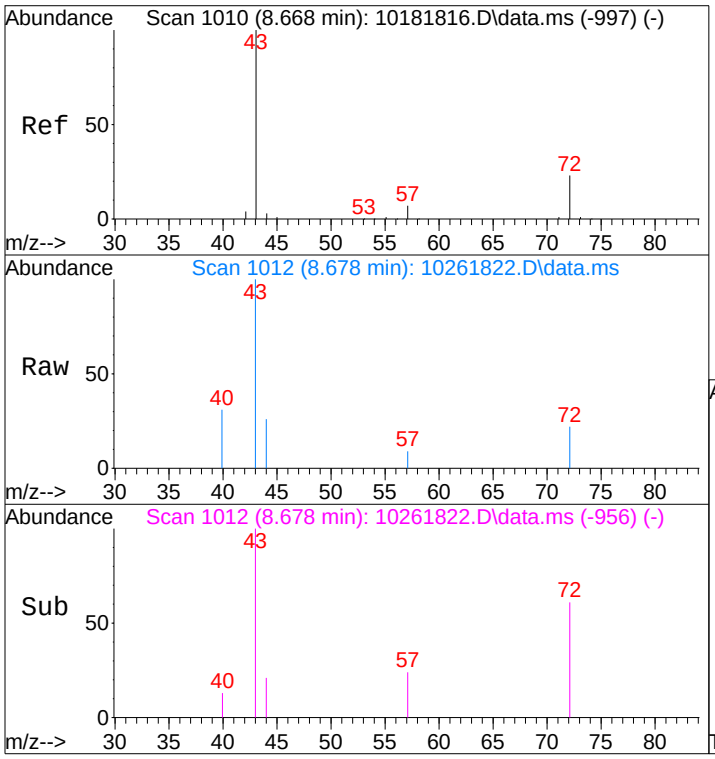


#22
Carbon Disulfide
Concen: 1.37 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 76 Resp: 84998

Ion	Ratio	Lower	Upper
76	100		
78	8.7	0.0	29.6

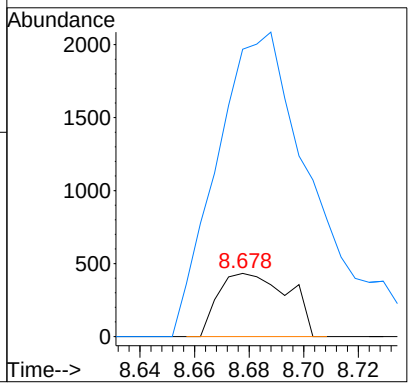


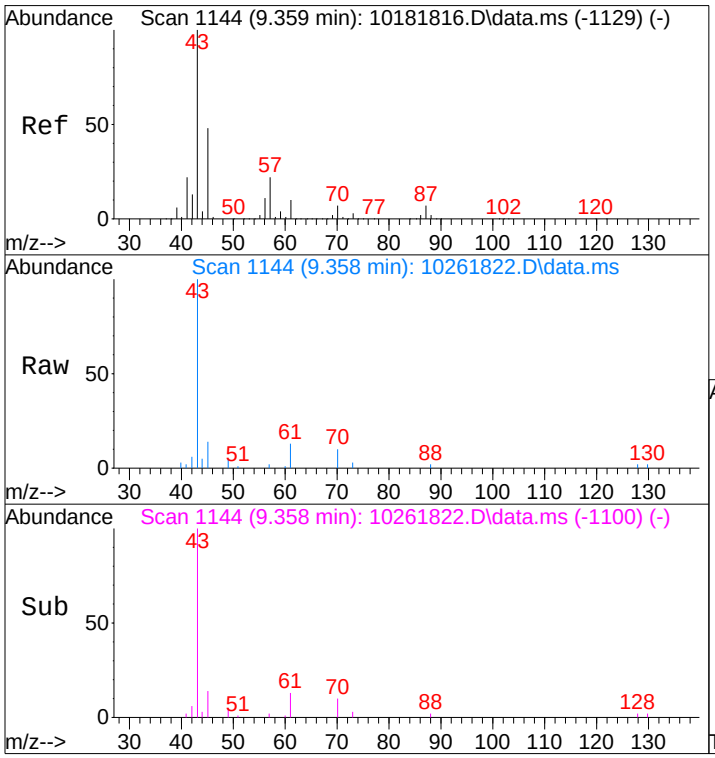


#27
2-Butanone (MEK)
Concen: 0.06 ng
RT: 8.68 min Scan# 1012
Delta R.T. 0.038 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 72 Resp: 772

Ion	Ratio	Lower	Upper
72	100		
43	688.5	430.0	470.0#

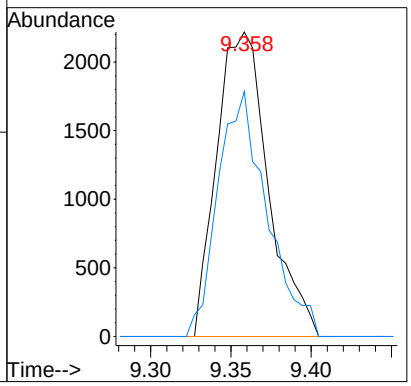


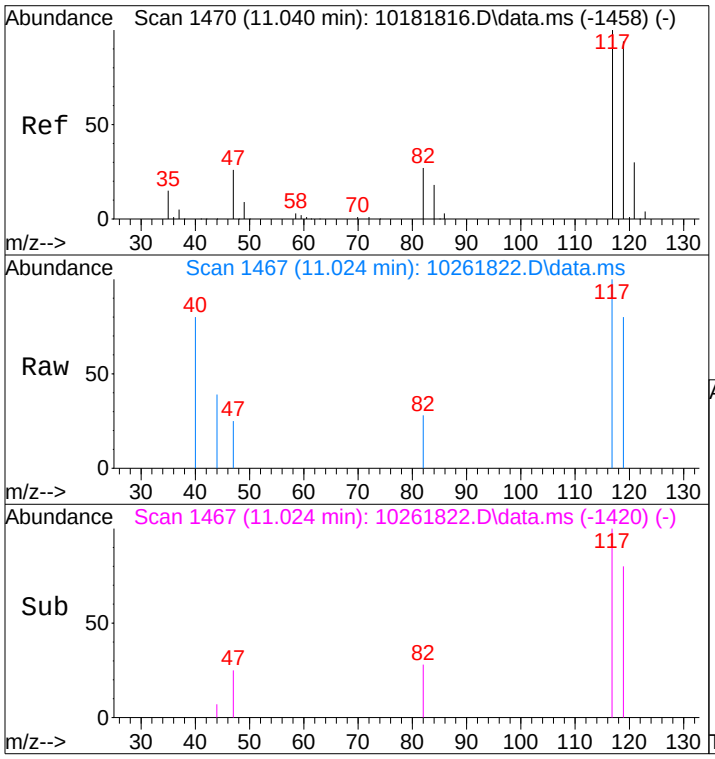


#30
Ethyl Acetate
Concen: 0.73 ng
RT: 9.36 min Scan# 1144
Delta R.T. 0.026 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 61 Resp: 4973

Ion	Ratio	Lower	Upper
61	100		
70	76.3	52.7	92.7

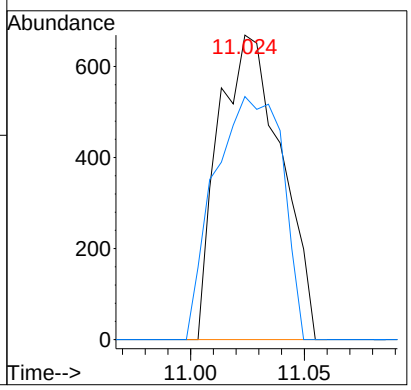


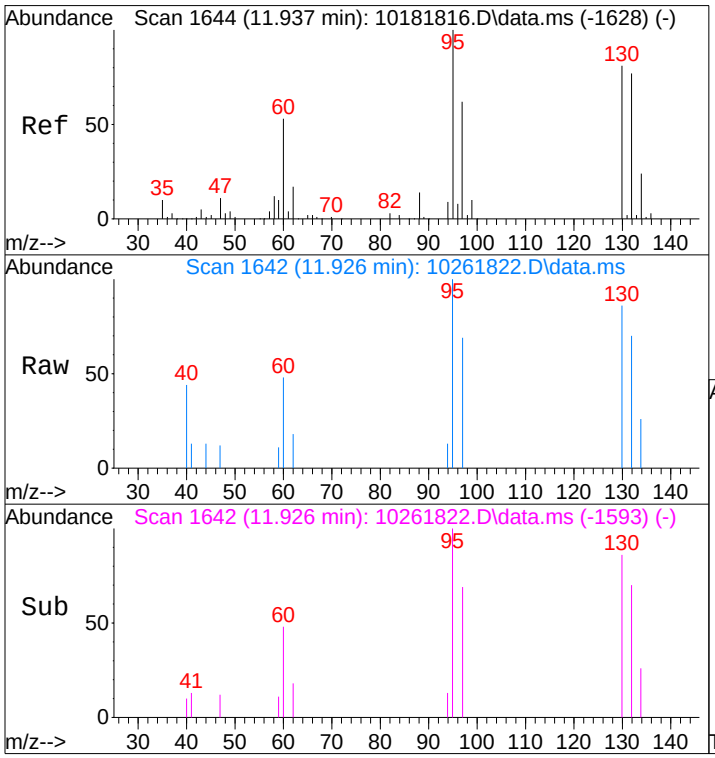


#42
Carbon Tetrachloride
Concen: 0.07 ng
RT: 11.02 min Scan# 1467
Delta R.T. -0.006 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion:117 Resp: 1279

Ion	Ratio	Lower	Upper
117	100		
119	86.8	74.7	114.7

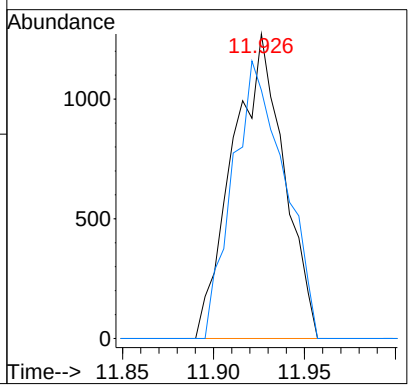


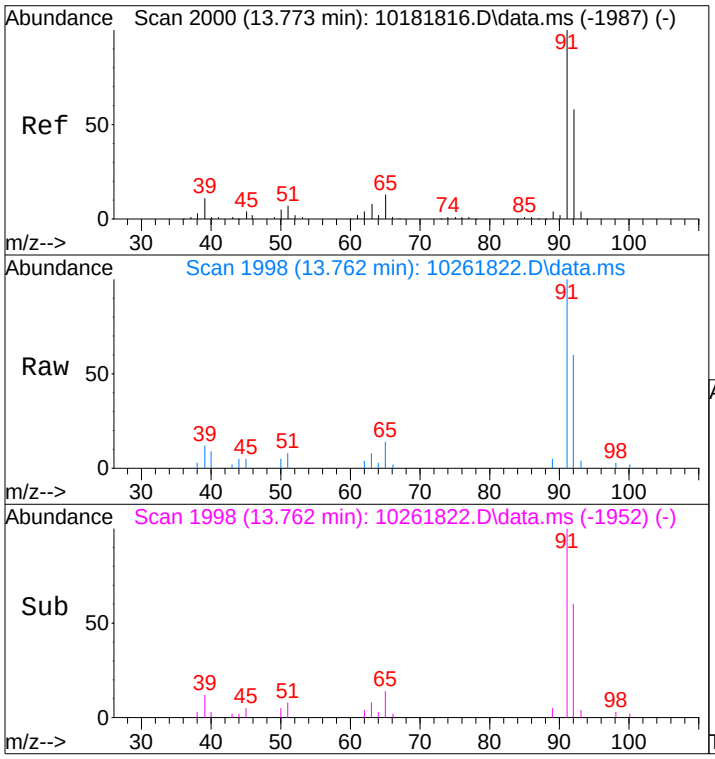


#47
Trichloroethene
Concen: 0.18 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion:130 Resp: 2486

Ion	Ratio	Lower	Upper
130	100		
132	92.0	74.6	114.6

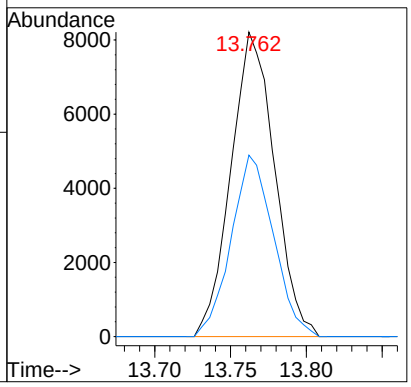


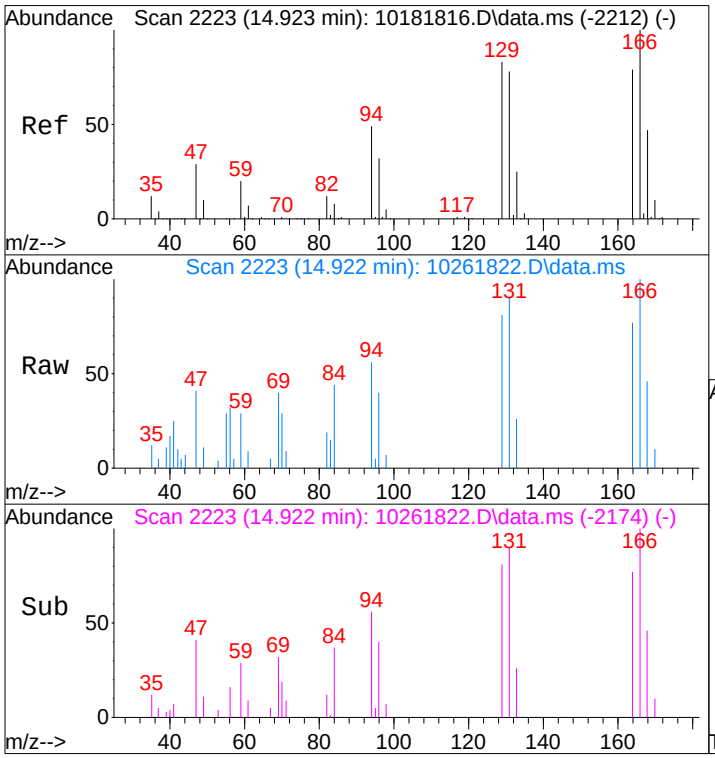


#58
Toluene
Concen: 0.23 ng
RT: 13.76 min Scan# 1998
Delta R.T. -0.012 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 91 Resp: 16422

Ion	Ratio	Lower	Upper
91	100		
92	58.0	38.1	78.1

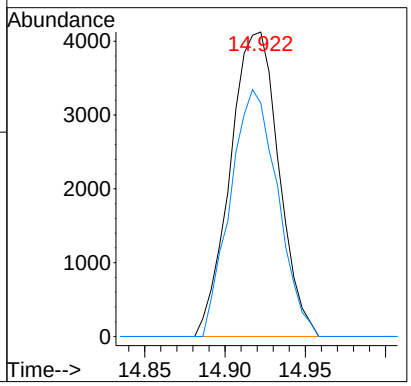


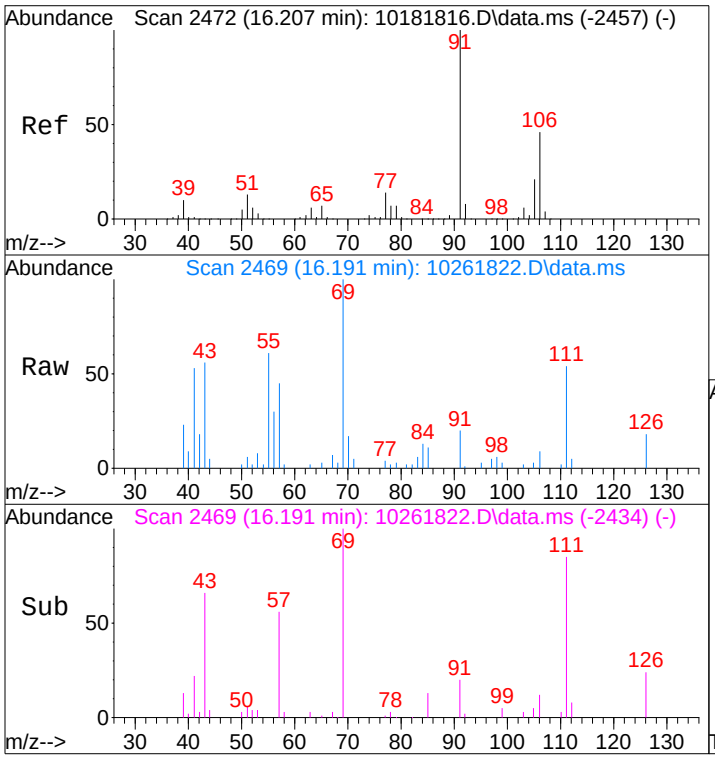


#64
Tetrachloroethene
Concen: 0.60 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.004 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion:166 Resp: 8697

Ion	Ratio	Lower	Upper
166	100		
164	79.2	58.9	98.9

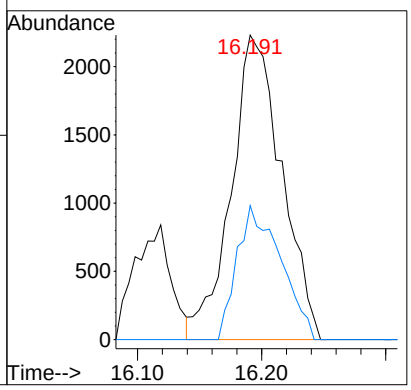


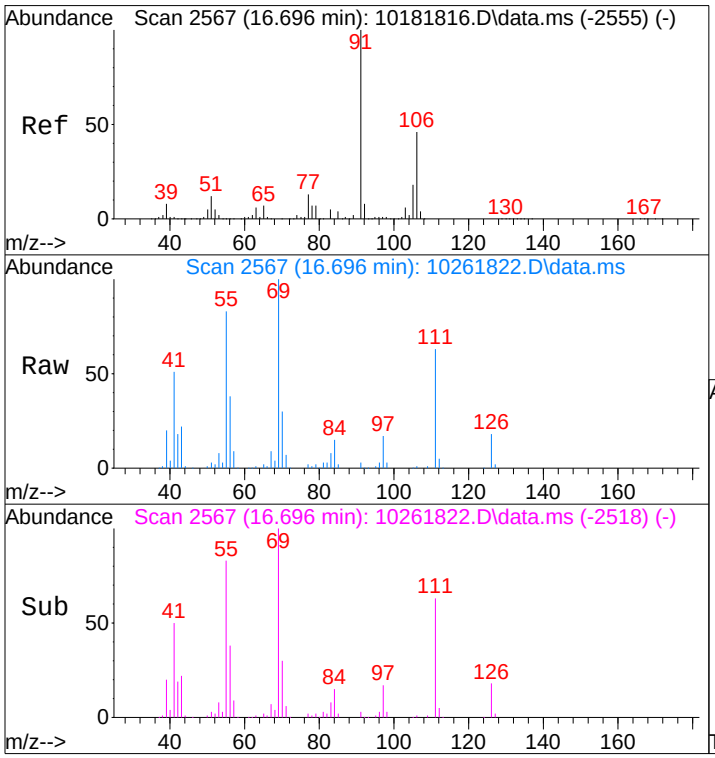


#67
m- & p-Xylenes
Concen: 0.11 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.021 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 91 Resp: 6301

Ion	Ratio	Lower	Upper
91	100		
106	38.2	26.7	66.7

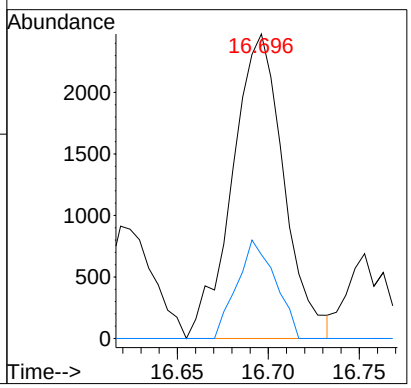


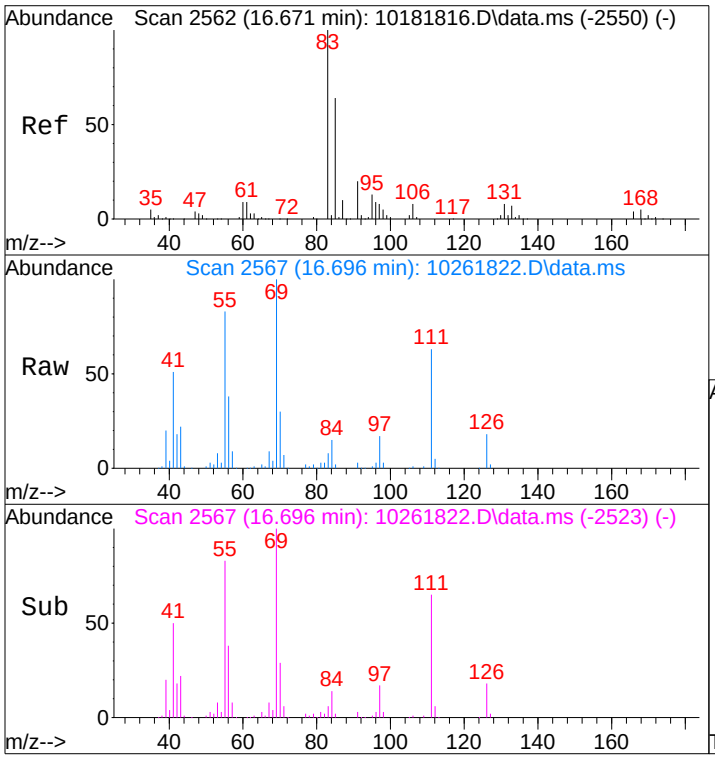


#70
o-Xylene
Concen: 0.08 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.000 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 91 Resp: 4860

Ion	Ratio	Lower	Upper
91	100		
106	24.2	25.2	65.2#

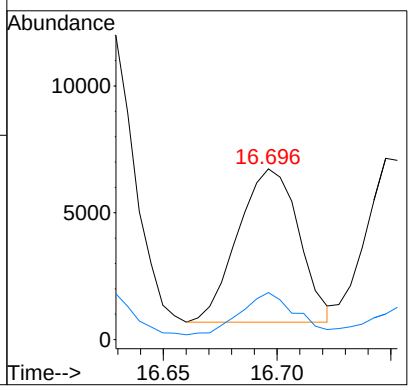


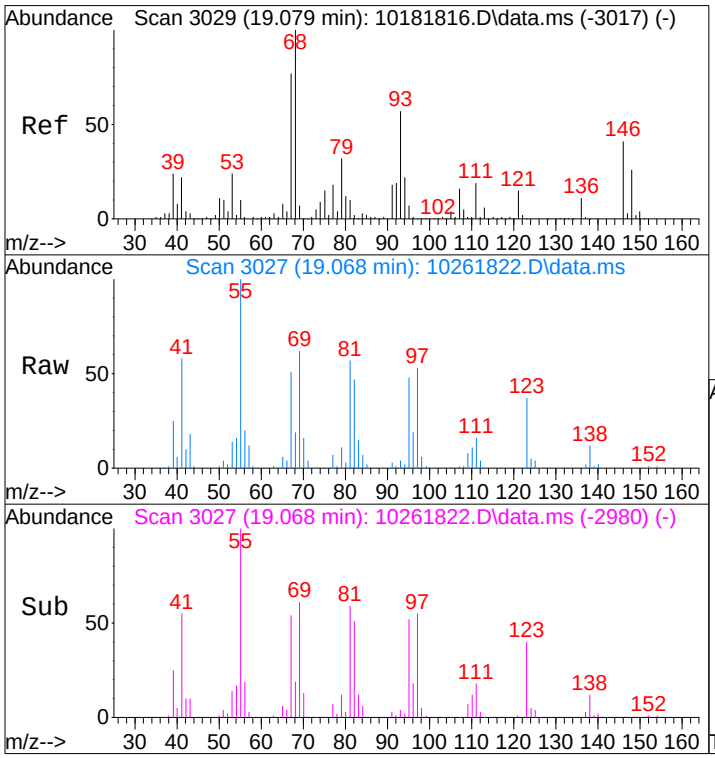


#72
1,1,2,2-Tetrachloroethane
Concen: 0.39 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.026 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 83 Resp: 11264

Ion	Ratio	Lower	Upper
83	100		
85	25.2	44.0	84.0#

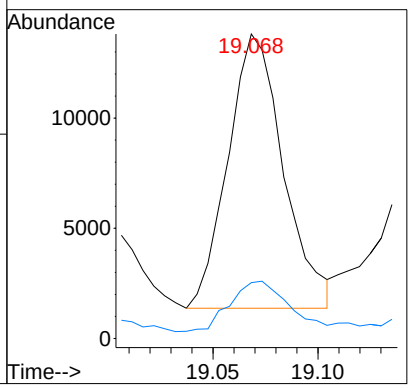




#91
d-Limonene
Concen: 0.80 ng
RT: 19.07 min Scan# 3027
Delta R.T. -0.009 min
Lab File: 10261822.D
Acq: 26 Oct 2018 17:40

Tgt Ion: 68 Resp: 22834

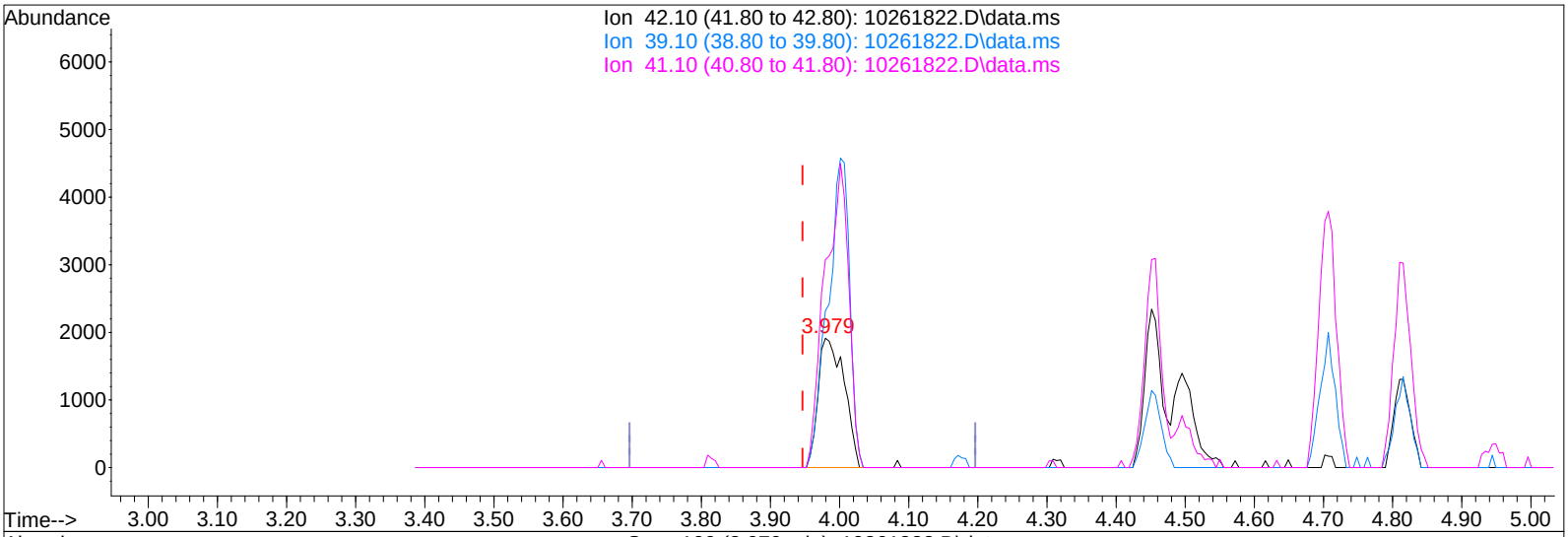
Ion	Ratio	Lower	Upper
68	100		
93	21.3	37.7	77.7#

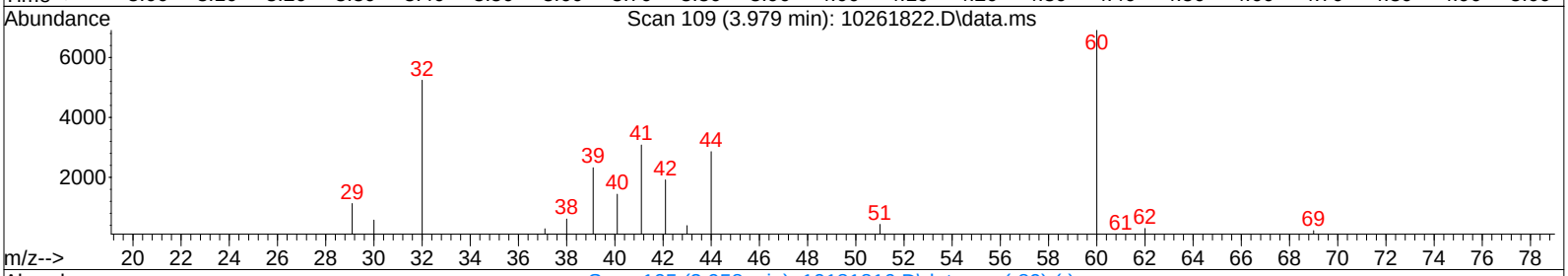


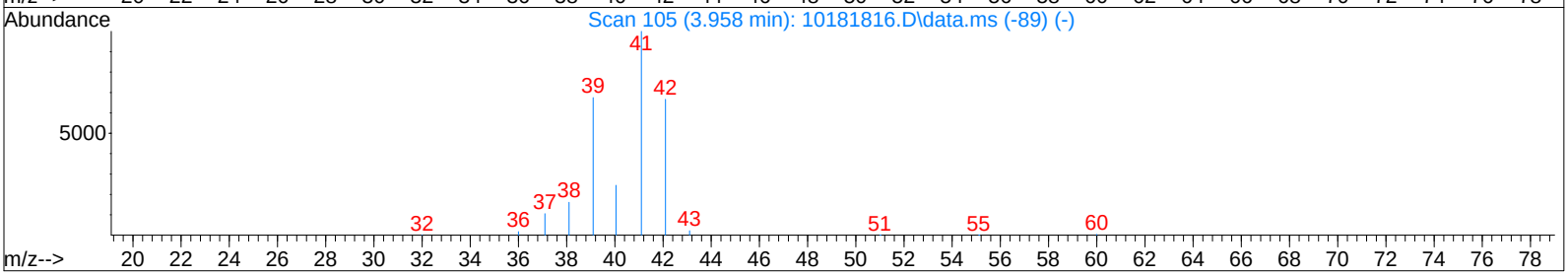
Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10261822.D\data.ms

(2) Propene (T)

3.979min (+0.033) 0.17ng

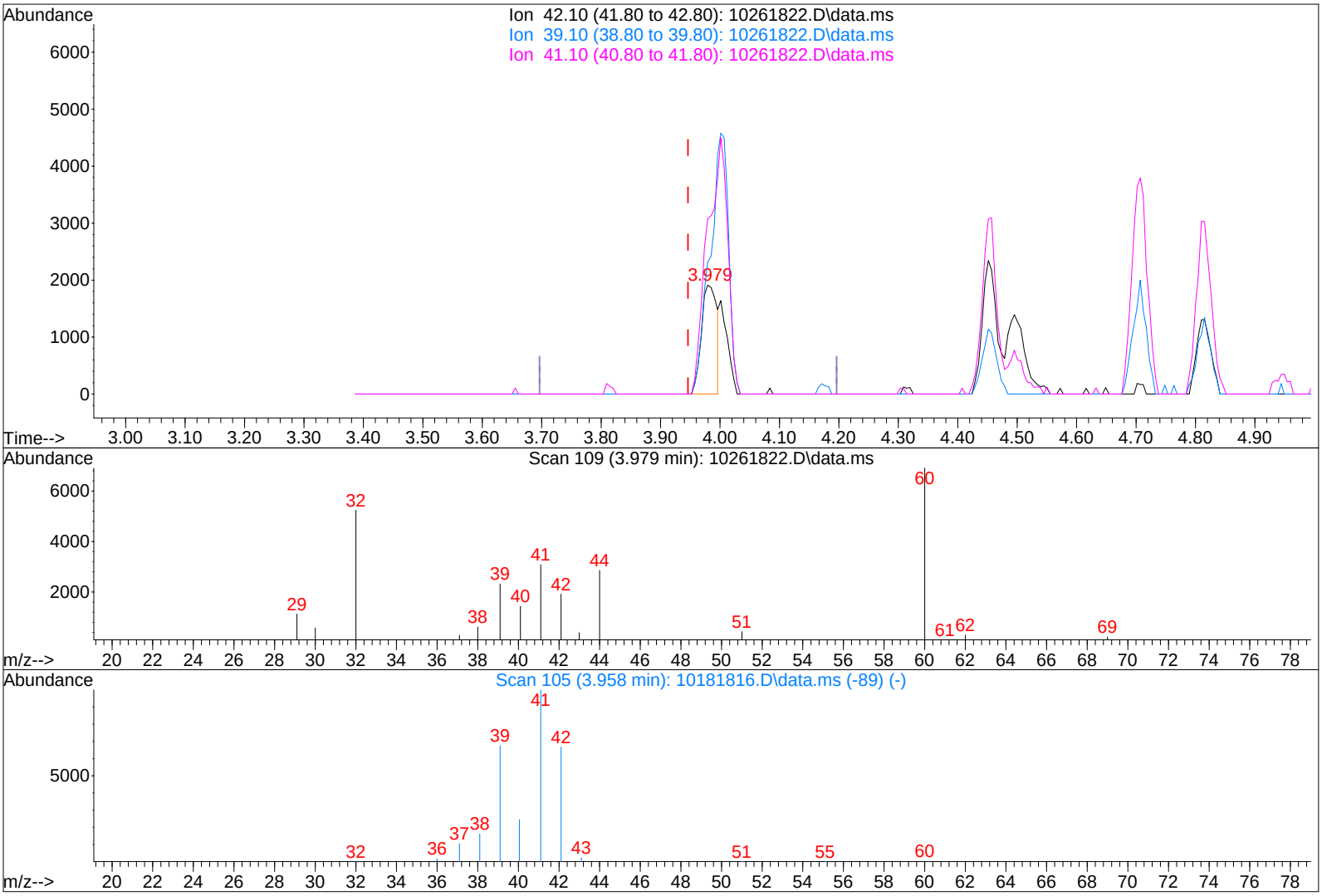
response 4986

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	201.93#
41.10	150.40	214.94#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261822.D\data.ms

(2) Propene (T)

3.979min (+0.033) 0.12ng m

response 3421

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	108.13
41.10	150.40	141.42
0.00	0.00	0.00

IPC

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:48:04 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

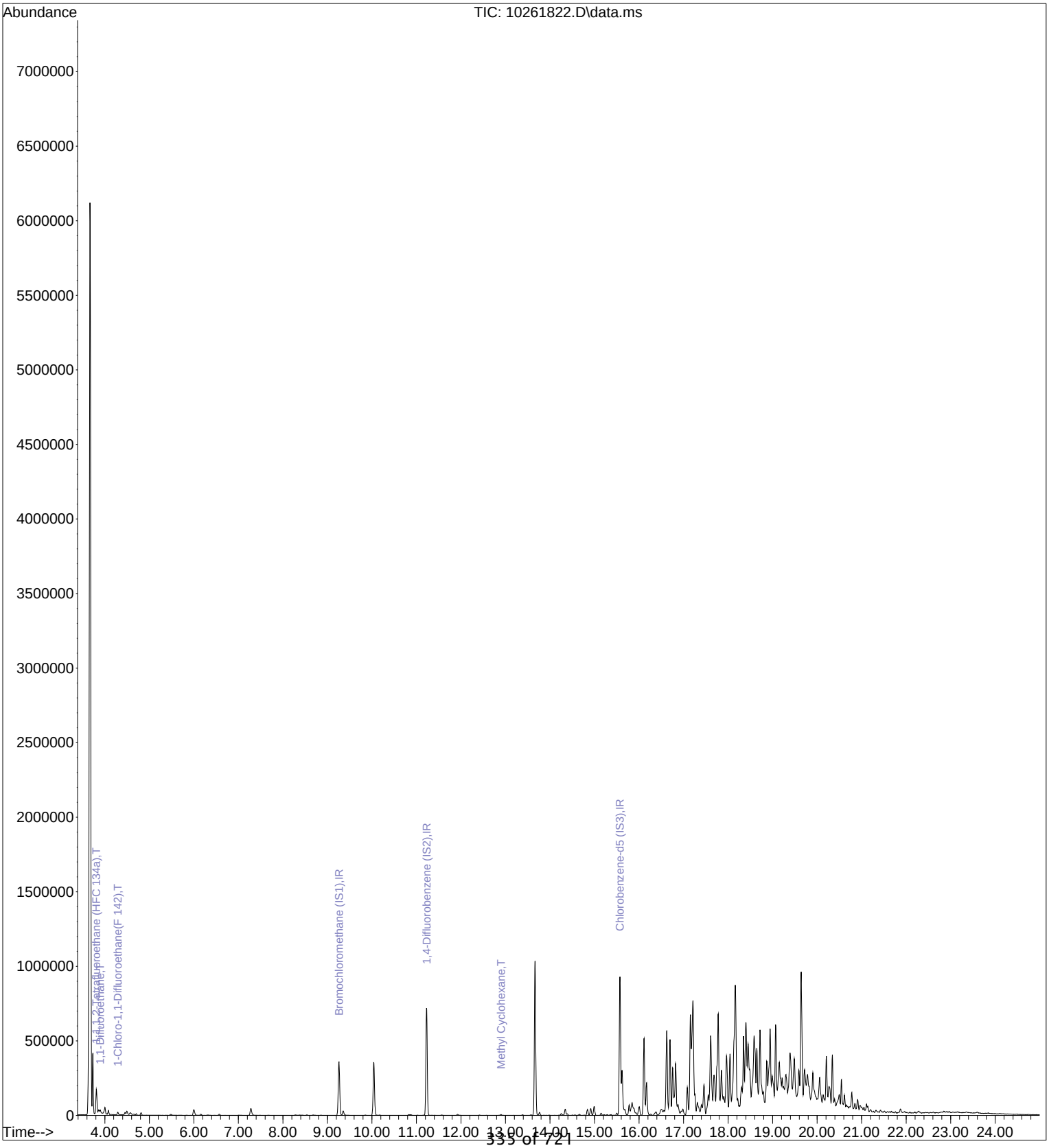
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116881	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	590291	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	361582	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	228	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	67615	5.600	ng		84
4) 1,1-Difluoroethane	3.90	65	9794	0.678	ng	#	1
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d		
6) 1-Chloro-1,1-Difluoroe...	4.29	65	13751	0.526	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	856	N.D.			
12) 2-Methylpentane	8.42	71	62	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.			
17) 2,3-Dimethylpentane	11.42	56	63	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	3200	0.118	ng	#	76
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	15.82	91	48	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	17.41	77	838	N.D.			
26) 2-Chlorotoluene	17.78	91	2465	N.D.			
27) 4-Chlorotoluene	17.86	91	2059	N.D.			
28) Indane	19.14	117	47	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.15	119	1089	N.D.			
31) 1,2,3,4-Tetramethylben...	20.15	119	1089	N.D.			
32) 1,2,3,5-Tetramethylben...	20.59	119	283	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261822.D Vial: 9
Acq On : 26 Oct 2018 17:40 Operator: RS
Sample : P1805493-011 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:48:04 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261824.D Vial: 10
Acq On : 26 Oct 2018 18:47 Operator: RS
Sample : P1805493-012 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:51:10 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118729	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	612610	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	371680	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	302993	14.715	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.76%				
57) Toluene-d8 (SS2)	13.66	98	797567	12.283	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.24%				
73) Bromofluorobenzene (SS3)	17.16	174	159800	10.939	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.52%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	20590	0.637	ng		99
4) Chloromethane	4.29	50	767	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	245	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	4.81	54	722	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	14526	0.896	ng		93
11) Acetonitrile	5.69	41	2606	0.059	ng	#	49
12) Acrolein	5.85	56	814	0.065	ng		84
13) Acetone	0.00	58	0	N.D. d			
14) Trichlorofluoromethane	6.15	101	7748	0.335	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	3705	0.071	ng		95
16) Acrylonitrile	6.56	53	334	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	7.06	41	771	N.D.			
21) Trichlorotrifluoroethane	7.32	151	989	0.107	ng	#	71
22) Carbon Disulfide	7.29	76	49403	0.785	ng		96
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	146	0.053	ng	#	32
27) 2-Butanone (MEK)	8.68	72	1381	0.106	ng	#	48
28) cis-1,2-Dichloroethene	9.10	61	121	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.36	61	6369	0.920	ng		95
31) n-Hexane	9.35	57	654	N.D.			
32) Chloroform	9.40	83	471	N.D.			
34) Tetrahydrofuran (THF)	9.84	72	546	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	7103	0.341	ng		82
41) Benzene	10.87	78	3281	N.D.			
42) Carbon Tetrachloride	11.02	117	845	N.D.			
43) Cyclohexane	11.16	84	1162	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.93	130	1590	0.108	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	12.07	57	156	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261824.D Vial: 10
Acq On : 26 Oct 2018 18:47 Operator: RS
Sample : P1805493-012 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:51:10 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

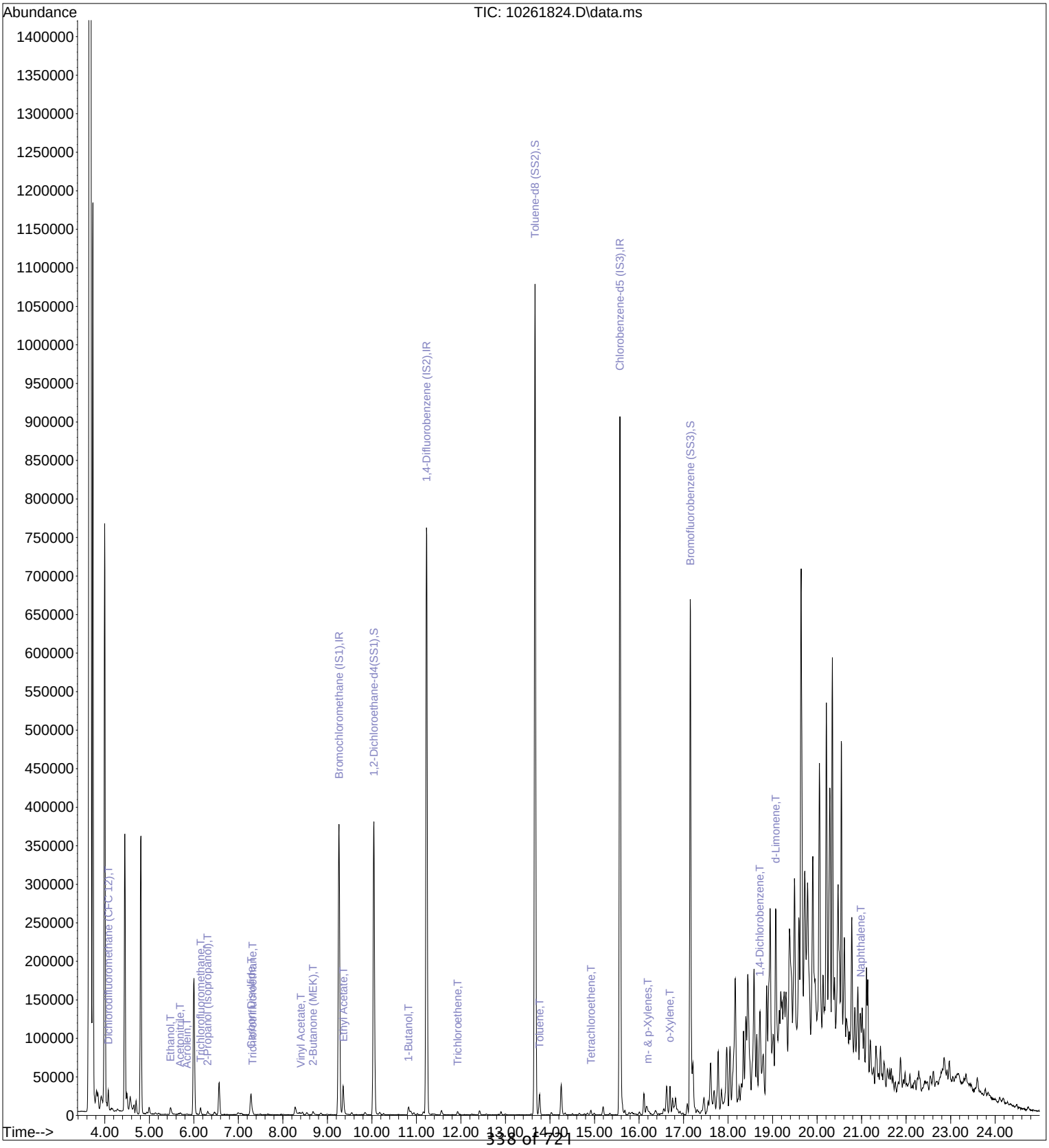
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	22306	0.307 ng	96
59) 2-Hexanone	14.04	43	1272	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	1888	N.D.	
63) n-Octane	14.78	57	300	N.D.	
64) Tetrachloroethene	14.92	166	1944	0.130 ng	92
65) Chlorobenzene	15.61	112	806	N.D.	
66) Ethylbenzene	16.02	91	2258	N.D.	
67) m- & p-Xylenes	16.20	91	6185	0.101 ng	90
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1421	N.D.	
70) o-Xylene	16.69	91	3456	0.058 ng	78
71) n-Nonane	16.92	43	1923	N.D.	
72) 1,1,2,2-Tetrachloroethane	16.70	83	1106	N.D.	
74) Cumene	17.30	105	724	N.D.	
75) alpha-Pinene	17.71	93	858	N.D.	
76) n-Propylbenzene	17.85	91	978	N.D.	
77) 3-Ethyltoluene	17.93	105	1297	N.D.	
78) 4-Ethyltoluene	17.98	105	1550	N.D.	
79) 1,3,5-Trimethylbenzene	18.06	105	938	N.D.	
80) alpha-Methylstyrene	18.21	118	241	N.D.	
81) 2-Ethyltoluene	18.25	105	796	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	2215	N.D.	
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.61	91	1468	N.D.	
85) 1,3-Dichlorobenzene	18.63	146	409	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	1669	0.057 ng	96
87) sec-Butylbenzene	18.76	105	706	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	1085	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	1346	N.D.	
90) 1,2-Dichlorobenzene	19.06	146	242	N.D.	
91) d-Limonene	19.07	68	12865	0.440 ng	74
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	20.86	180	829	N.D.	
95) Naphthalene	20.98	128	6058	0.092 ng	95
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.47	119	408	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261824.D Vial: 10
Acq On : 26 Oct 2018 18:47 Operator: RS
Sample : P1805493-012 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:51:10 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

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Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118729	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	612610	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	371680	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	302993	14.715	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.76%				
57) Toluene-d8 (SS2)	13.66	98	797567	12.283	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.24%				
73) Bromofluorobenzene (SS3)	17.16	174	159800	10.939	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.52%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	20590	0.637	ng		99
10) Ethanol	5.48	45	14526	0.896	ng		93
11) Acetonitrile	5.69	41	2606	0.059	ng	#	49
12) Acrolein	5.85	56	814	0.065	ng		84
14) Trichlorofluoromethane	6.15	101	7748	0.335	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	3705	0.071	ng		95
21) Trichlorotrifluoroethane	7.32	151	989	0.107	ng	#	71
22) Carbon Disulfide	7.29	76	49403	0.785	ng		96
26) Vinyl Acetate	8.40	86	146	0.053	ng	#	32
27) 2-Butanone (MEK)	8.68	72	1381	0.106	ng	#	48
30) Ethyl Acetate	9.36	61	6369	0.920	ng		95
40) 1-Butanol	10.82	56	7103	0.341	ng		82
47) Trichloroethene	11.93	130	1590	0.108	ng		99
58) Toluene	13.77	91	22306	0.307	ng		96
64) Tetrachloroethene	14.92	166	1944	0.130	ng		92
67) m- & p-Xylenes	16.20	91	6185	0.101	ng		90
70) o-Xylene	16.69	91	3456	0.058	ng		78
86) 1,4-Dichlorobenzene	18.71	146	1669	0.057	ng		96
91) d-Limonene	19.07	68	12865	0.440	ng		74
95) Naphthalene	20.98	128	6058	0.092	ng		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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Acq On : 26 Oct 2018 18:47 Operator: RS
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Misc : S31-10151806

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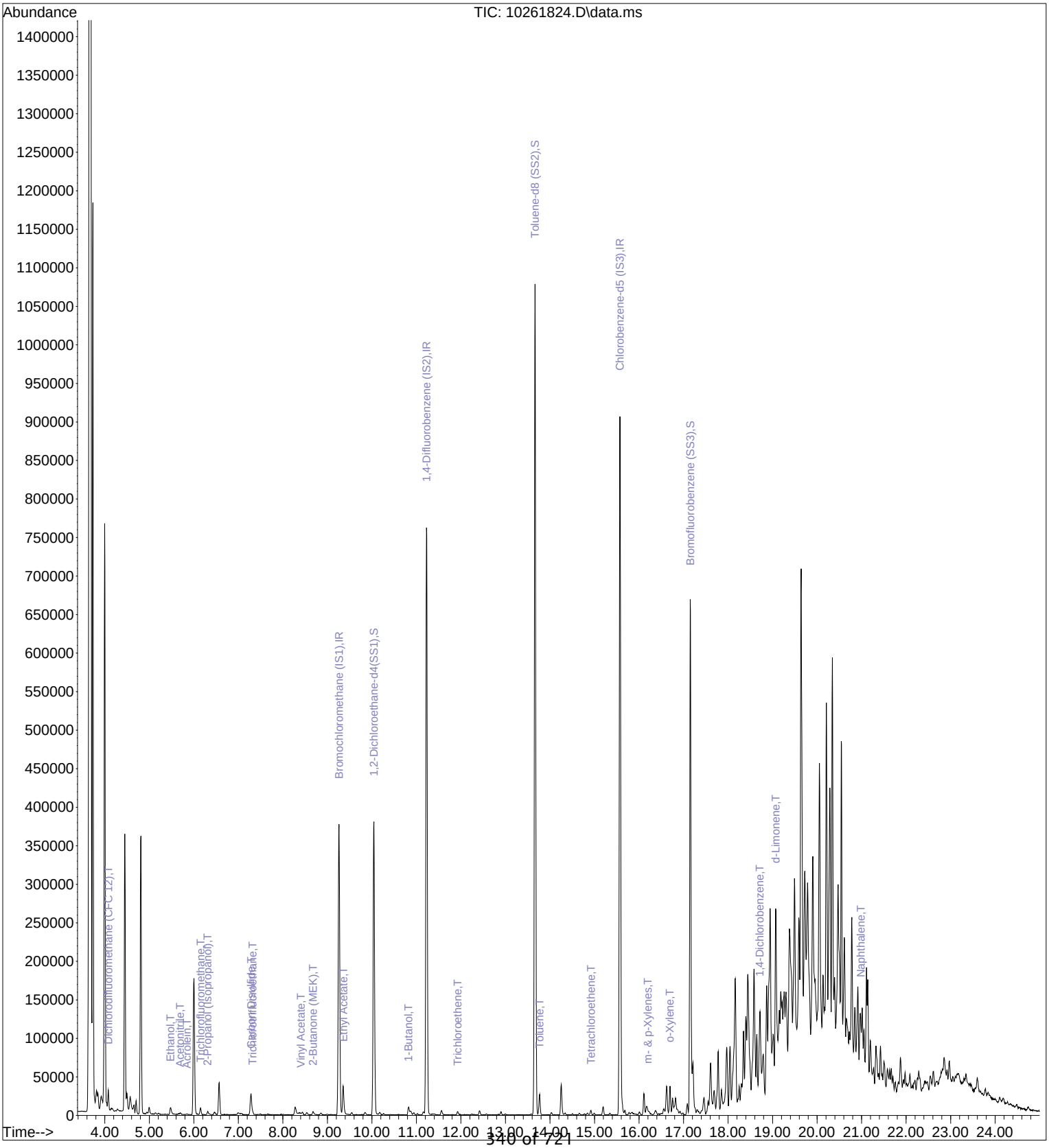
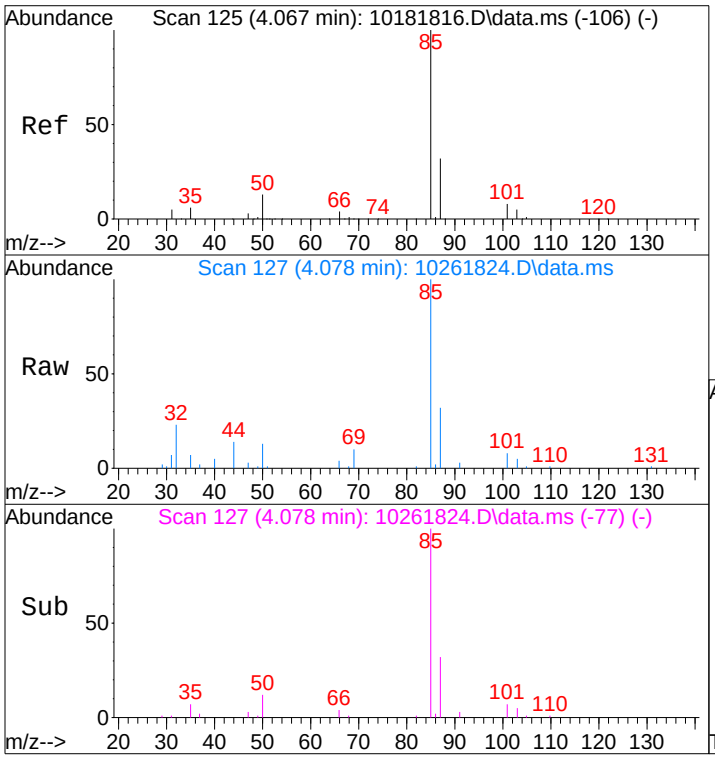
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

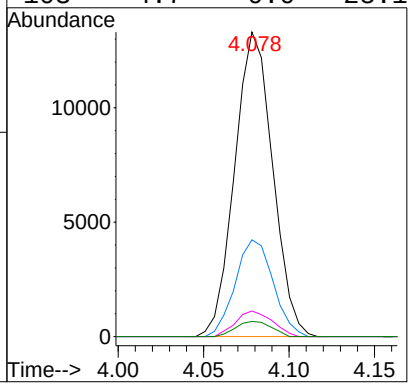


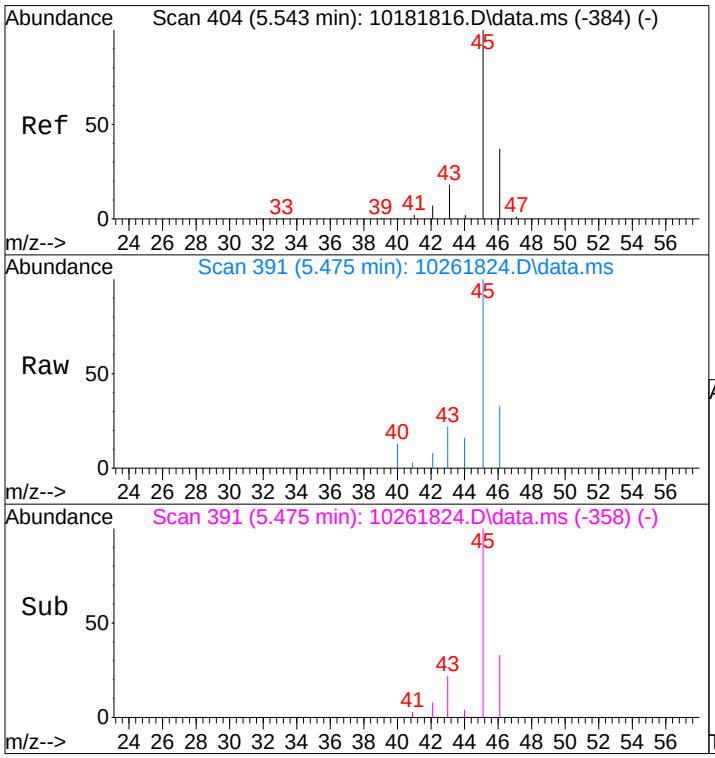


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.64 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 85 Resp: 20590

Ion	Ratio	Lower	Upper
85	100		
87	31.7	12.0	52.0
101	8.1	0.0	28.0
103	4.7	0.0	25.1

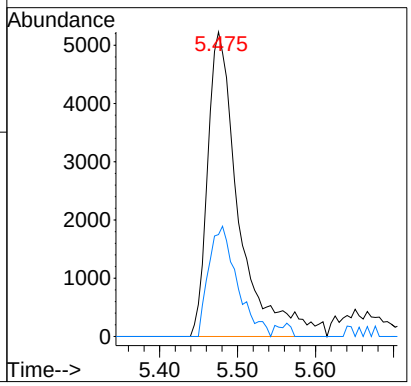


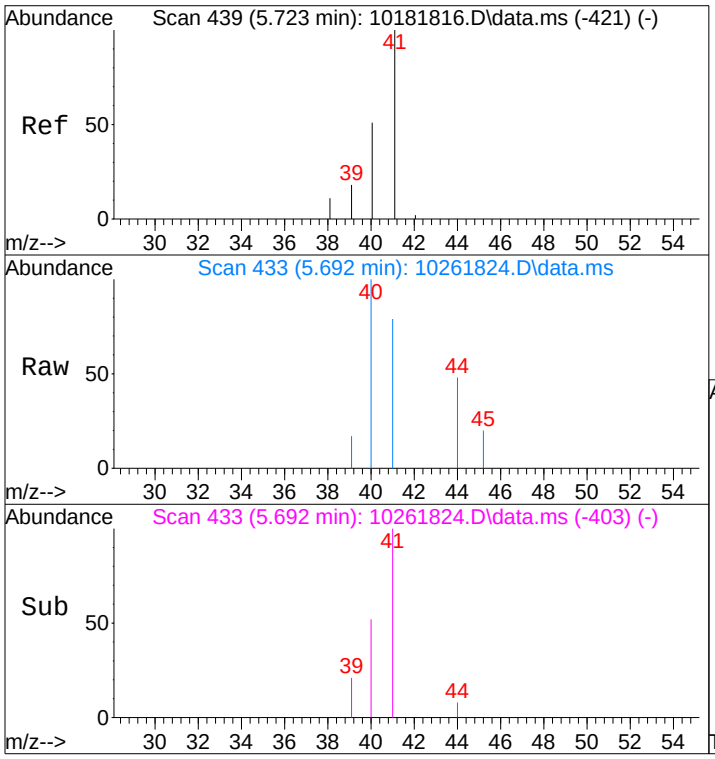


#10
Ethanol
Concen: 0.90 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 45 Resp: 14526

Ion	Ratio	Lower	Upper
45	100		
46	33.0	17.0	57.0

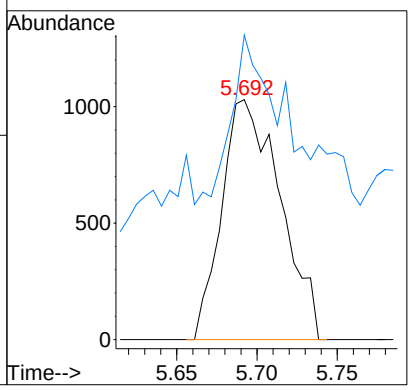


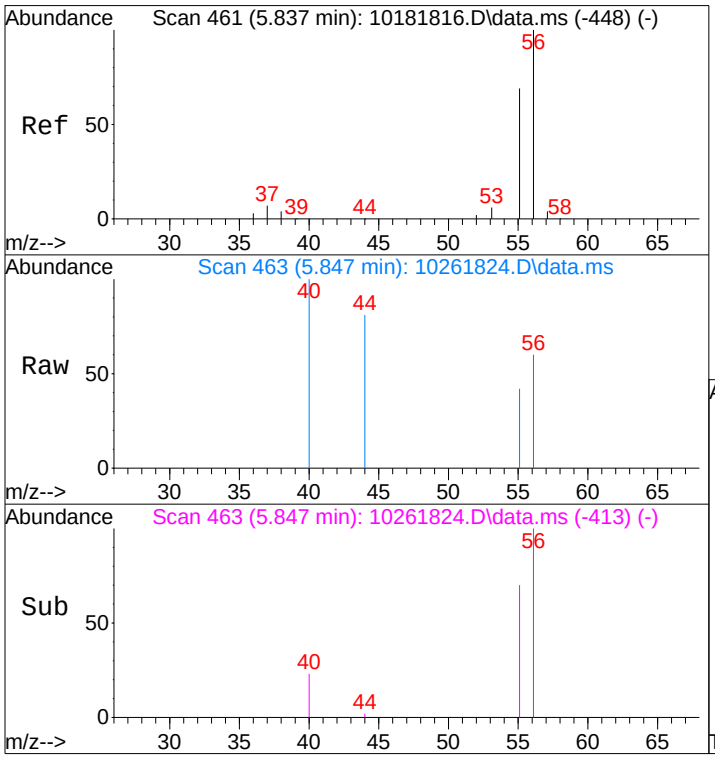


#11
Acetonitrile
Concen: 0.06 ng
RT: 5.69 min Scan# 433
Delta R.T. -0.045 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 41 Resp: 2606

Ion	Ratio	Lower	Upper
41	100		
40	87.1	31.4	71.4#

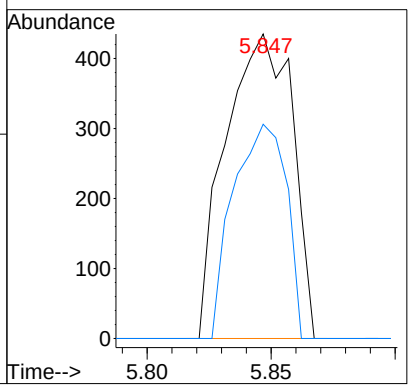


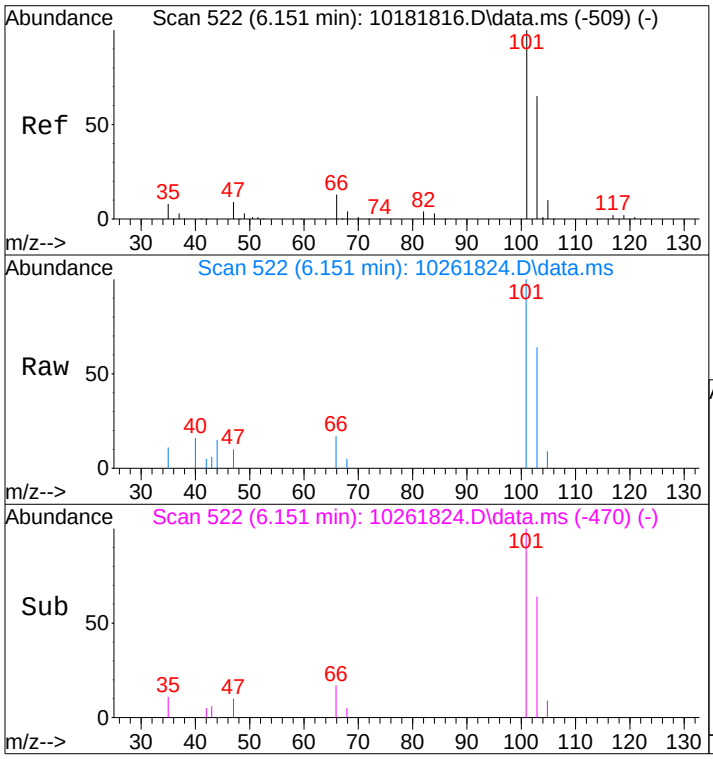


#12
Acrolein
Concen: 0.06 ng
RT: 5.85 min Scan# 463
Delta R.T. 0.007 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 56 Resp: 814

Ion	Ratio	Lower	Upper
56	100		
55	56.0	49.3	89.3

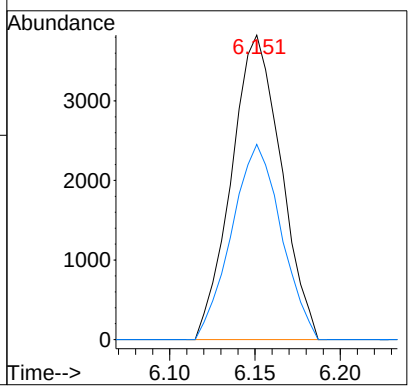


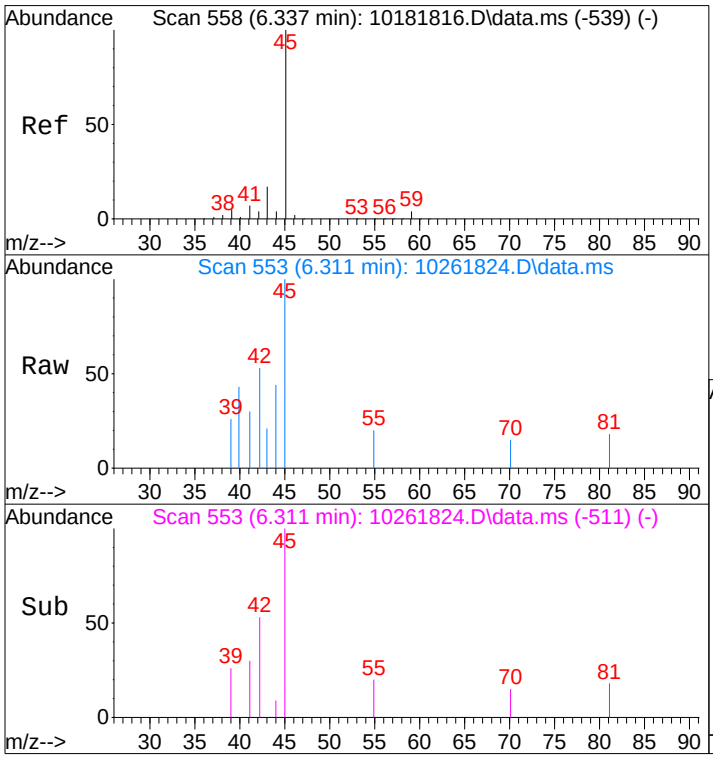


#14
Trichlorofluoromethane
Concen: 0.33 ng
RT: 6.15 min Scan# 522
Delta R.T. 0.019 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:101 Resp: 7748

Ion	Ratio	Lower	Upper
101	100		
103	64.1	44.5	84.5

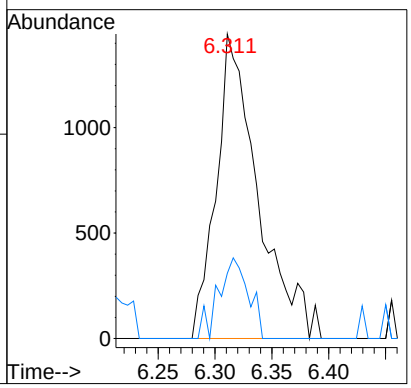


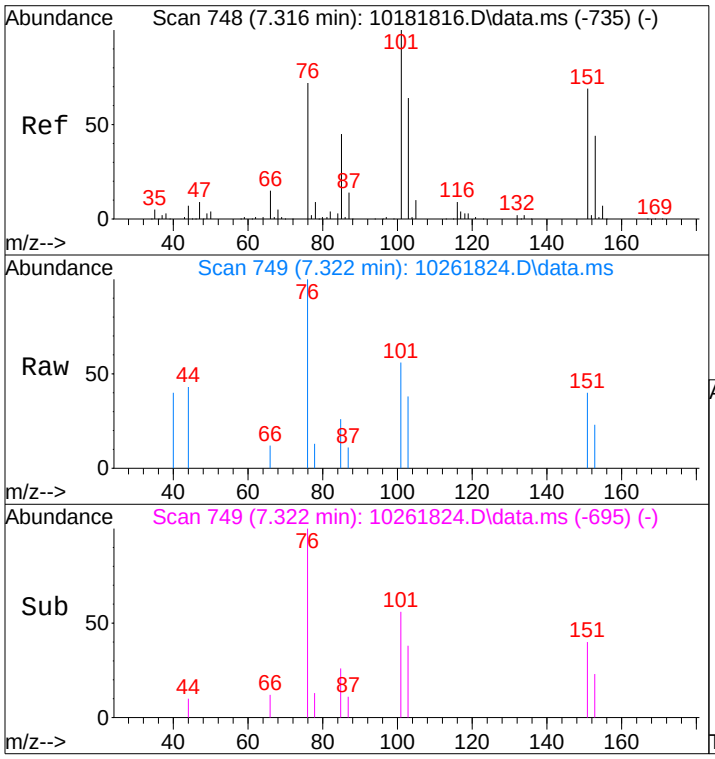


#15
2-Propanol (Isopropanol)
Concen: 0.07 ng
RT: 6.31 min Scan# 553
Delta R.T. -0.032 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 45 Resp: 3705

Ion	Ratio	Lower	Upper
45	100		
43	18.9	0.0	36.7

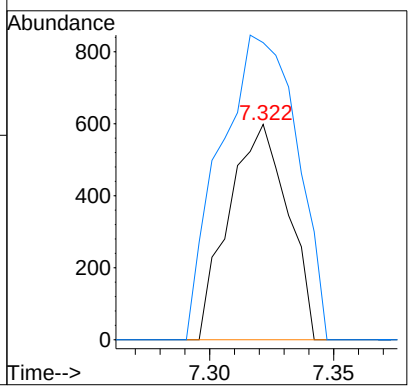


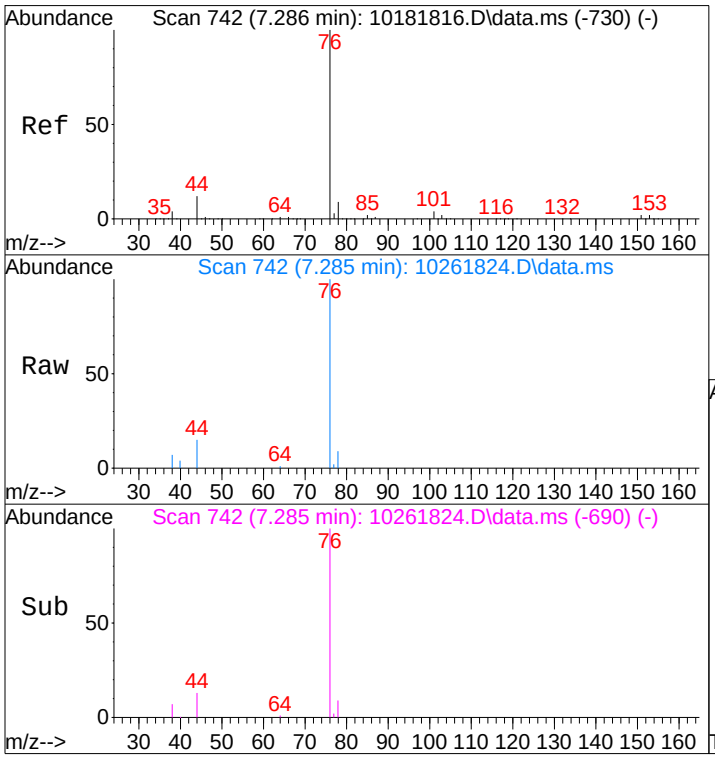


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.030 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:151 Resp: 989

Ion	Ratio	Lower	Upper
151	100		
101	184.0	127.5	167.5#

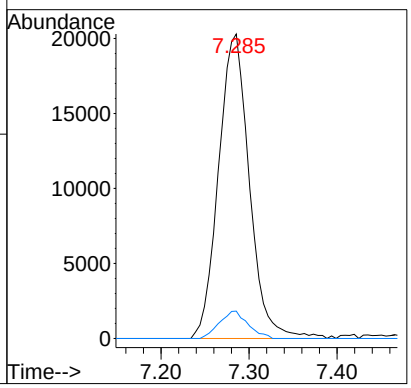


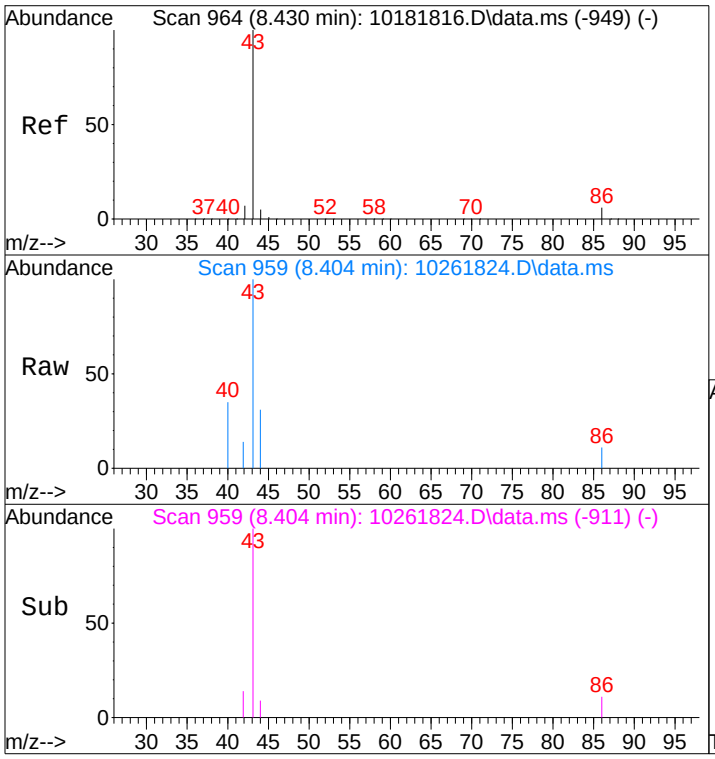


#22
Carbon Disulfide
Concen: 0.78 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 76 Resp: 49403

Ion	Ratio	Lower	Upper
76	100		
78	8.3	0.0	29.6

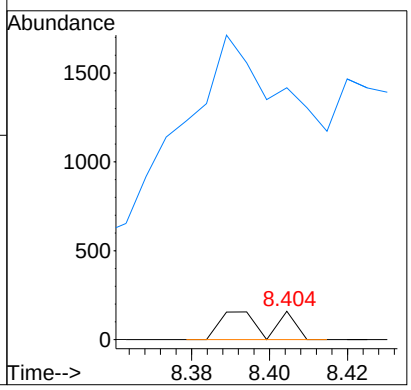


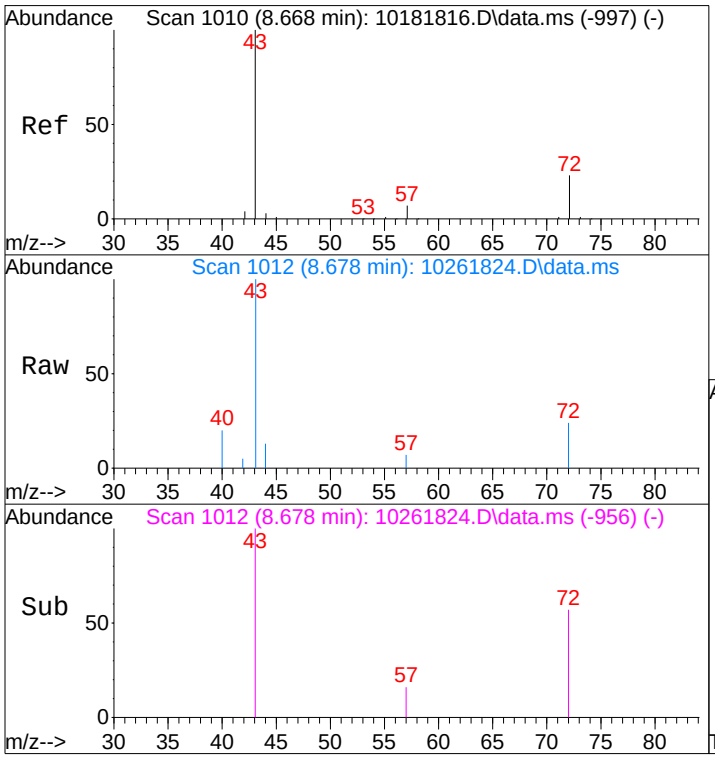


#26
Vinyl Acetate
Concen: 0.05 ng
RT: 8.40 min Scan# 959
Delta R.T. -0.005 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 86 Resp: 146

Ion	Ratio	Lower	Upper
86	100		
43	2043.8	1596.2	1636.2#

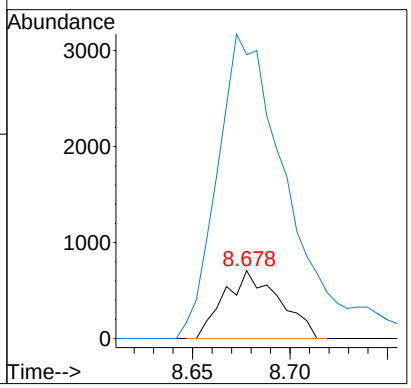


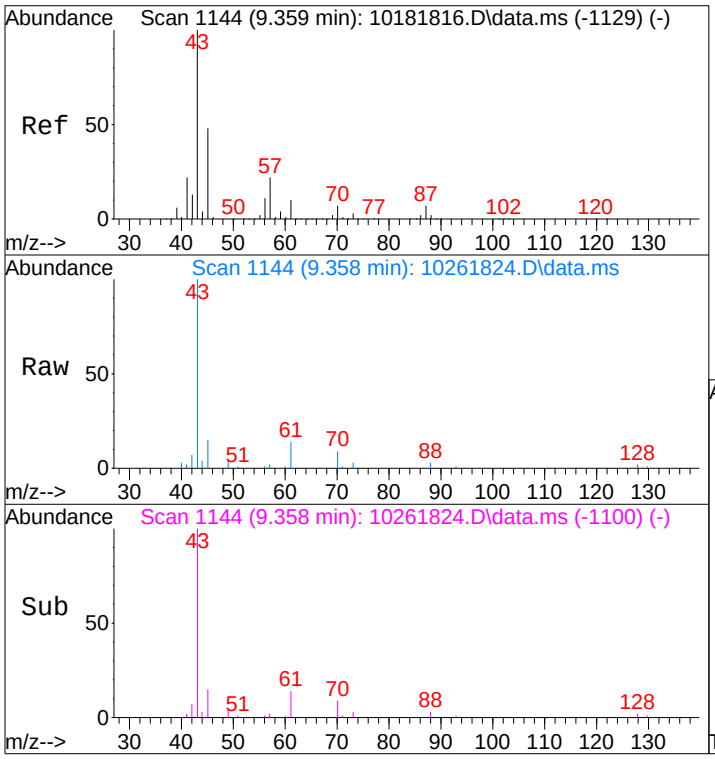


#27
2-Butanone (MEK)
Concen: 0.11 ng
RT: 8.68 min Scan# 1012
Delta R.T. 0.038 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 72 Resp: 1381

Ion	Ratio	Lower	Upper
72	100		
43	583.7	430.0	470.0#

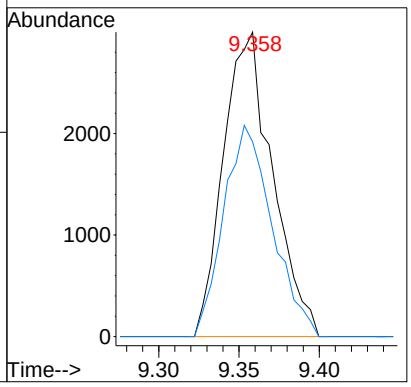


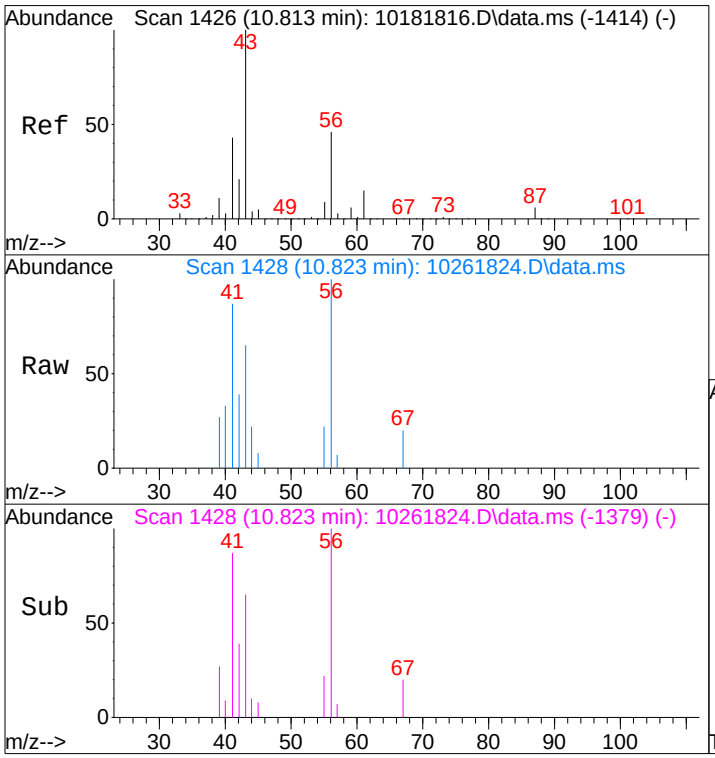


#30
Ethyl Acetate
Concen: 0.92 ng
RT: 9.36 min Scan# 1144
Delta R.T. 0.026 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 61 Resp: 6369

Ion	Ratio	Lower	Upper
61	100		
70	68.8	52.7	92.7

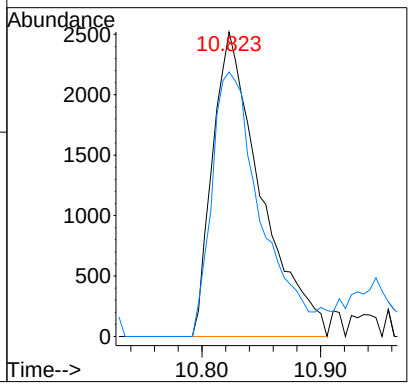


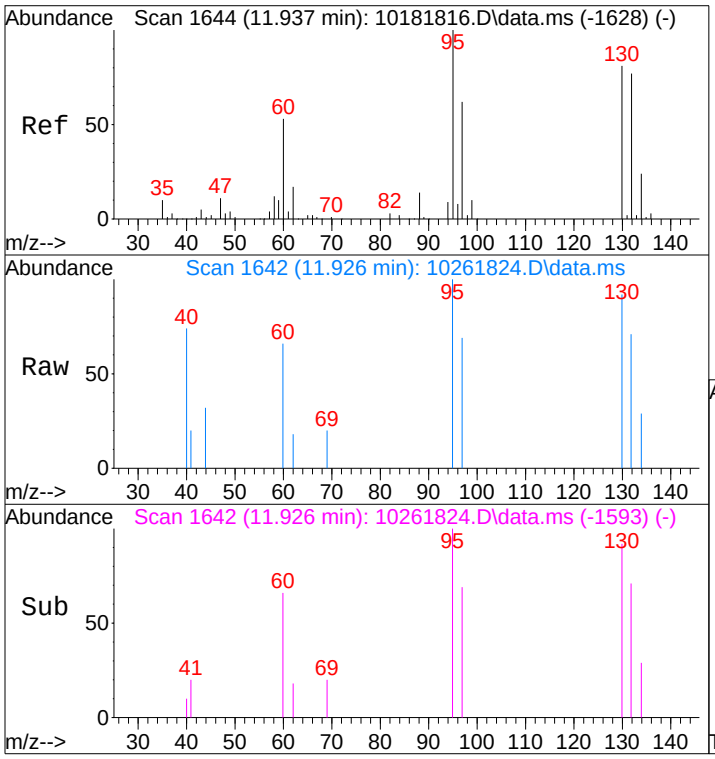


#40
1-Butanol
Concen: 0.34 ng
RT: 10.82 min Scan# 1428
Delta R.T. 0.004 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 56 Resp: 7103

Ion	Ratio	Lower	Upper
56	100		
41	90.8	90.2	130.2

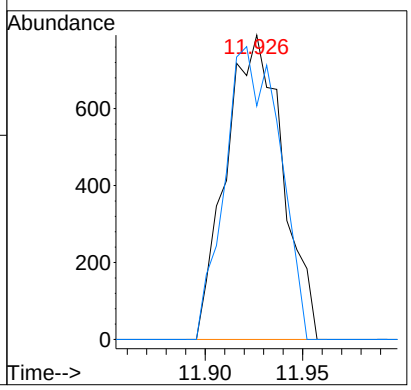


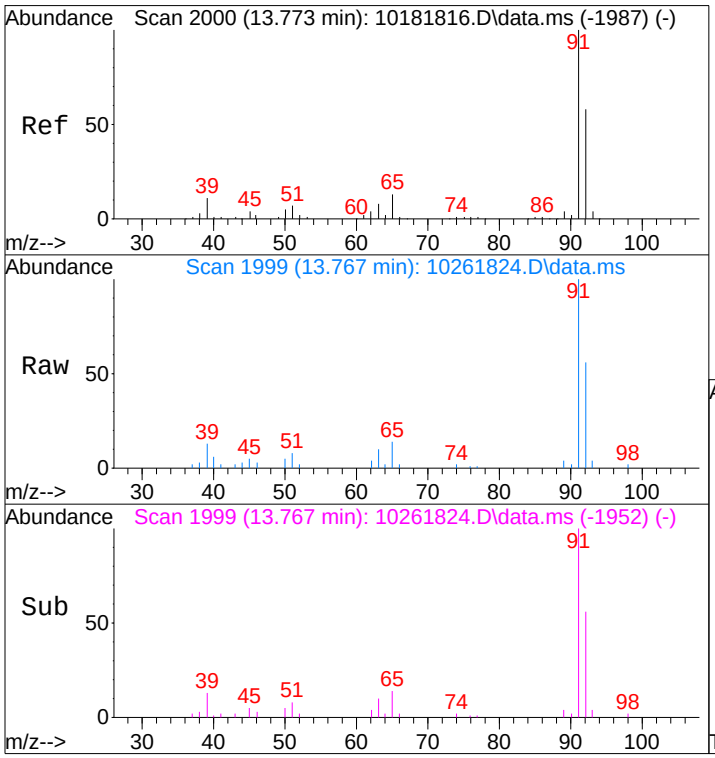


#47
Trichloroethene
Concen: 0.11 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:130 Resp: 1590

Ion	Ratio	Lower	Upper
130	100		
132	93.6	74.6	114.6

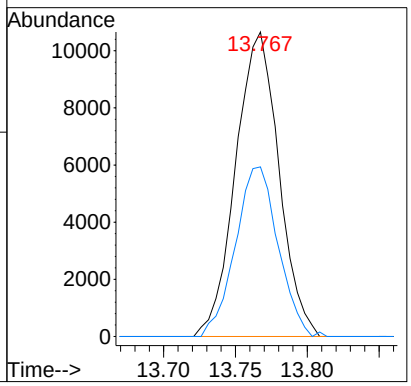


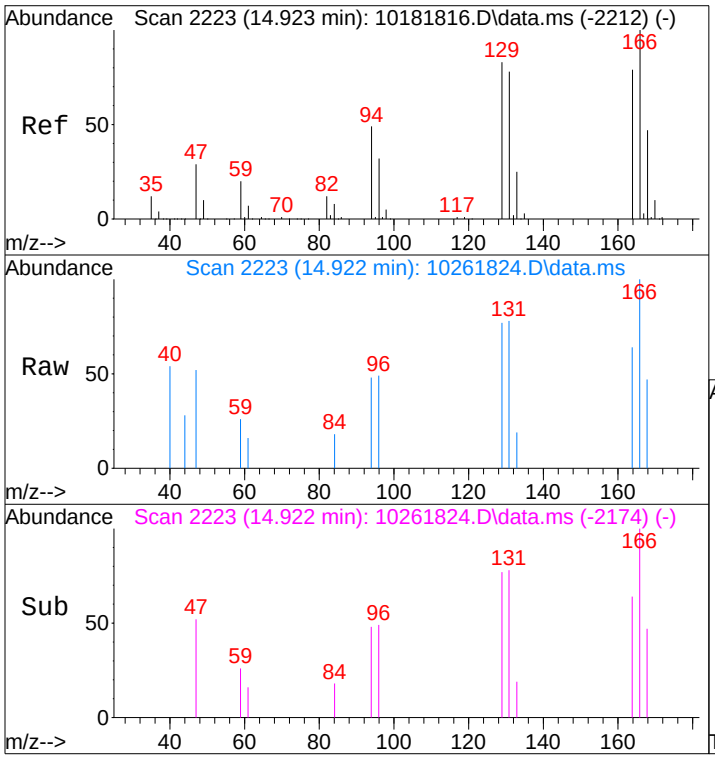


#58
Toluene
Concen: 0.31 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 91 Resp: 22306

Ion	Ratio	Lower	Upper
91	100		
92	55.1	38.1	78.1

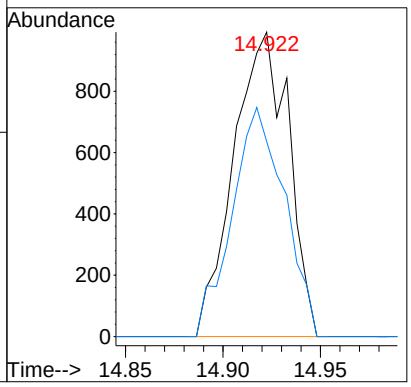


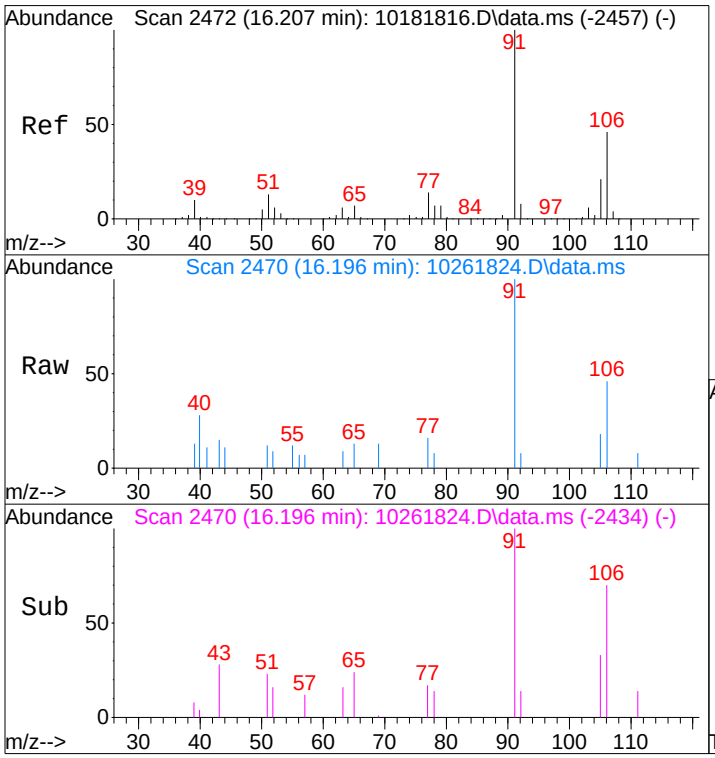


#64
Tetrachloroethene
Concen: 0.13 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.005 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:166 Resp: 1944

Ion	Ratio	Lower	Upper
166	100		
164	72.2	58.9	98.9

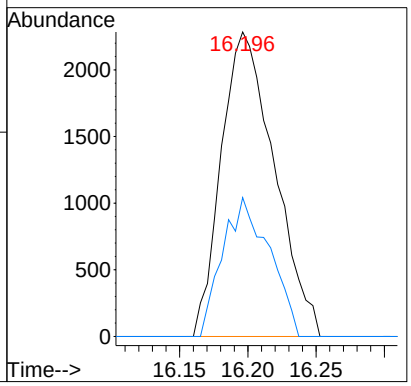


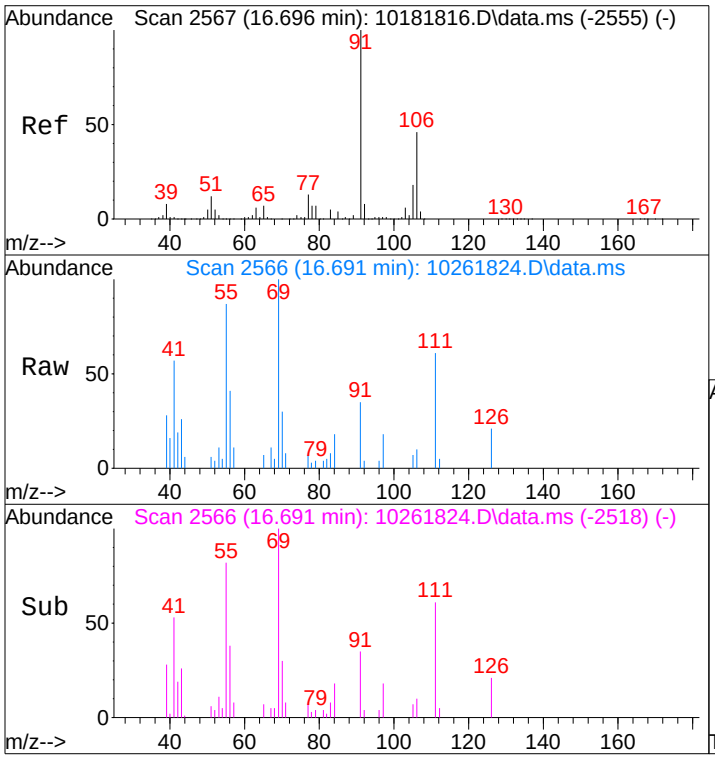


#67
m- & p-Xylenes
Concen: 0.10 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 91 Resp: 6185

Ion	Ratio	Lower	Upper
91	100		
106	40.2	26.7	66.7

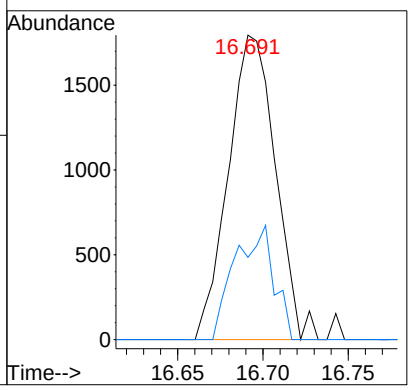


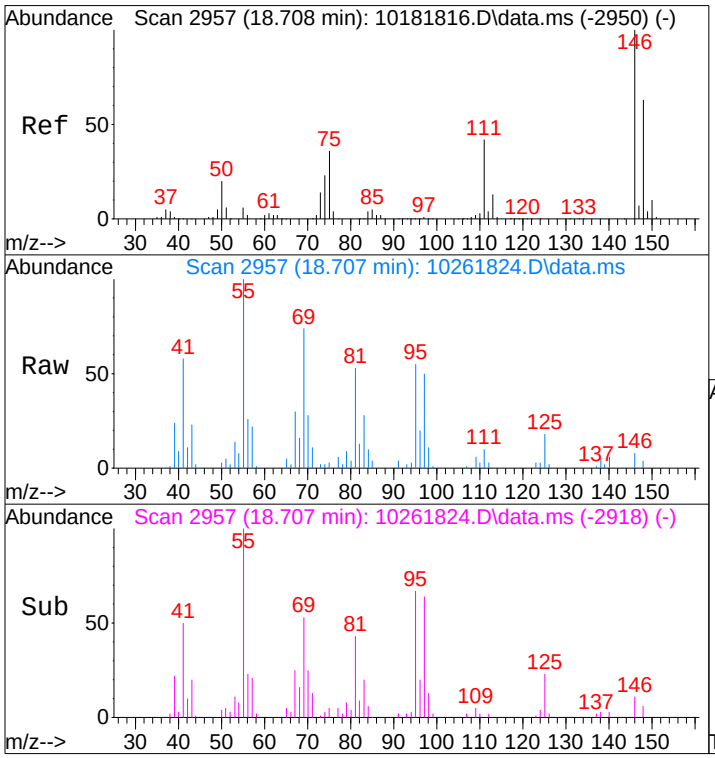


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 91 Resp: 3456

Ion	Ratio	Lower	Upper
91	100		
106	31.0	25.2	65.2

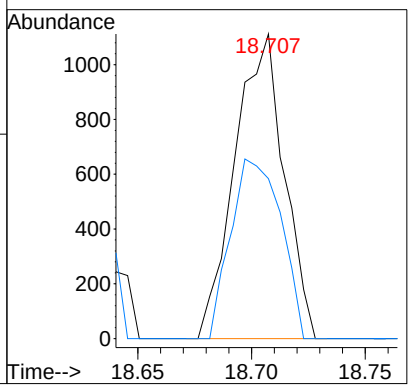


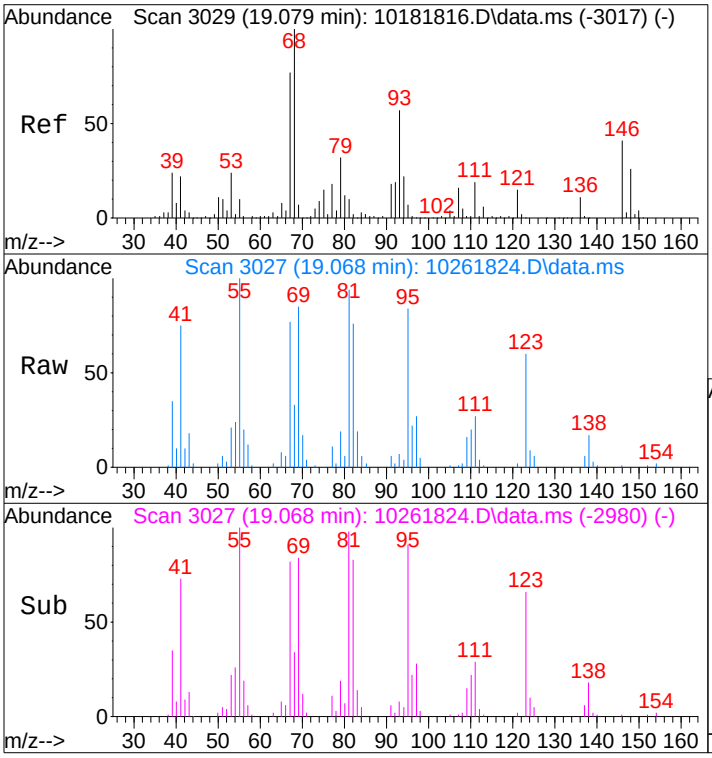


#86
1,4-Dichlorobenzene
Concen: 0.06 ng
RT: 18.71 min Scan# 2957
Delta R.T. 0.002 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:146 Resp: 1669

Ion	Ratio	Lower	Upper
146	100		
148	60.3	43.5	83.5

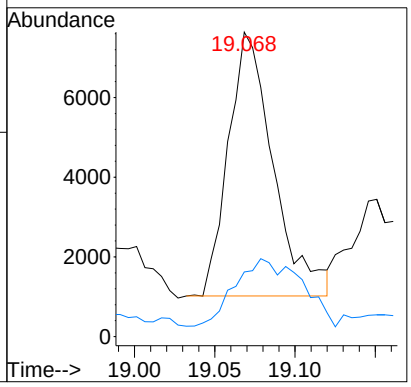


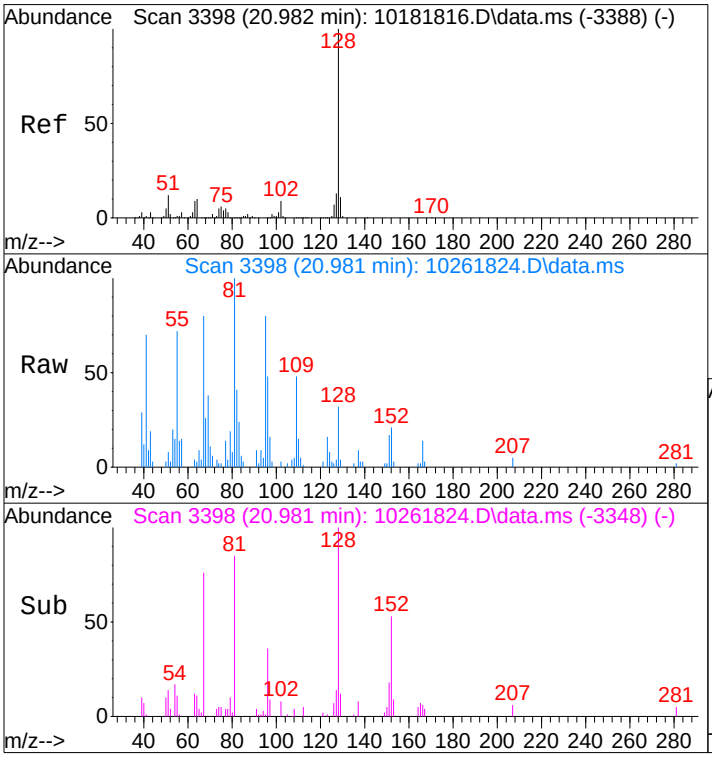


#91
d-Limonene
Concen: 0.44 ng
RT: 19.07 min Scan# 3027
Delta R.T. -0.008 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion: 68 Resp: 12865

Ion	Ratio	Lower	Upper
68	100		
93	38.5	37.7	77.7

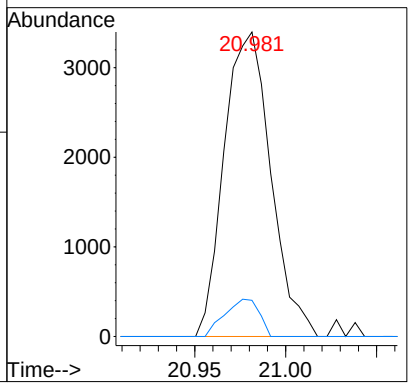




#95
Naphthalene
Concen: 0.09 ng
RT: 20.98 min Scan# 3398
Delta R.T. 0.008 min
Lab File: 10261824.D
Acq: 26 Oct 2018 18:47

Tgt Ion:128 Resp: 6058

Ion	Ratio	Lower	Upper
128	100		
129	9.0	0.0	31.0



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261824.D Vial: 10
Acq On : 26 Oct 2018 18:47 Operator: RS
Sample : P1805493-012 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 13:49:17 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

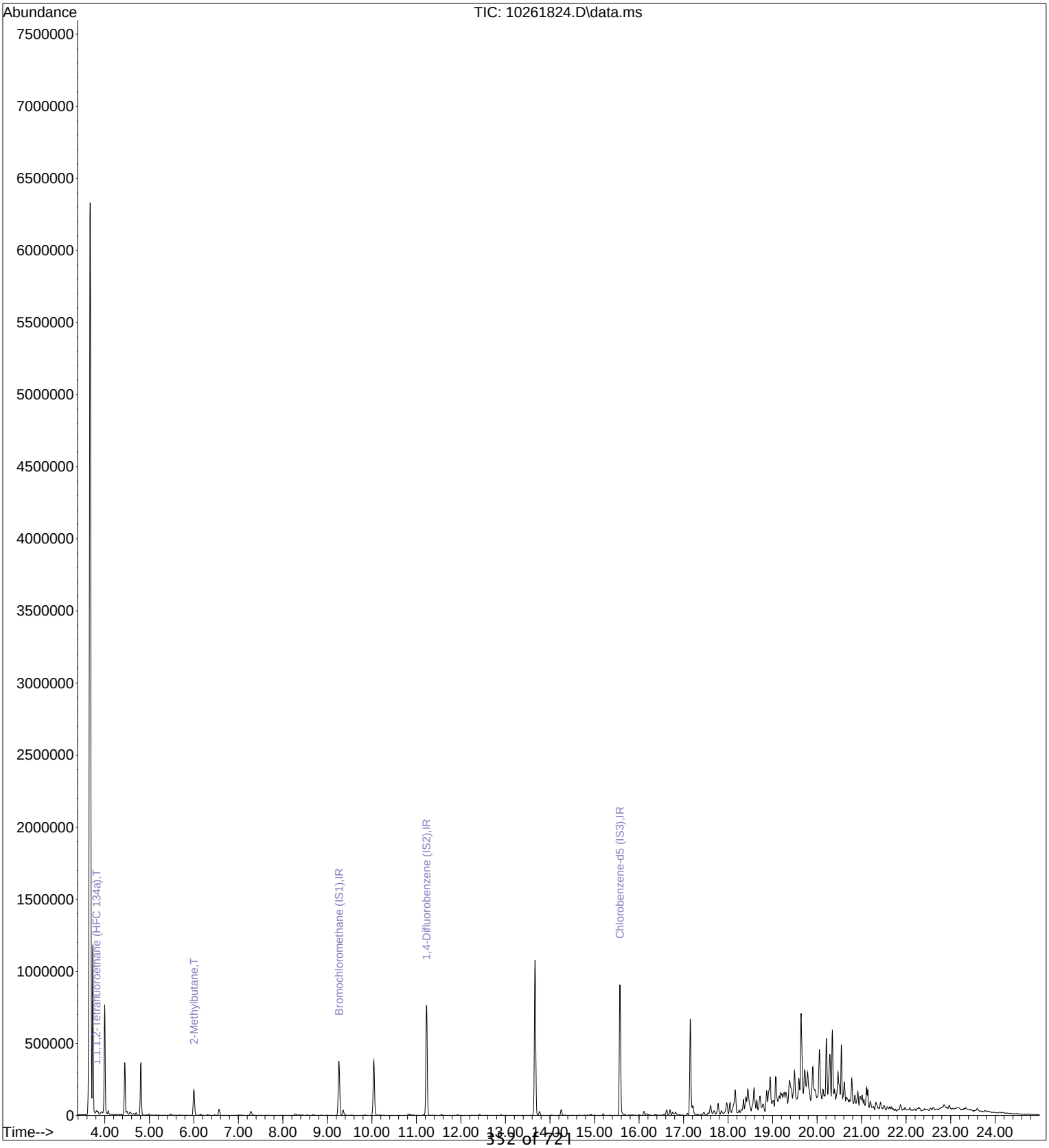
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	119813	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	613151	12.500	ng		-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	372406	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	476	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	4887	0.395	ng	#	45
4) 1,1-Difluoroethane	3.90	65	357	N.D.			
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d		
6) 1-Chloro-1,1-Difluoroe...	4.28	65	2141	N.D.			
7) Dichlorofluoromethane ...	5.41	67	371	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.00	57	44515	2.567	ng		90
11) Methyl Acetate	7.00	43	1661	N.D.			
12) 2-Methylpentane	8.44	71	657	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	10.99	84	456	N.D.			
17) 2,3-Dimethylpentane	11.42	56	469	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.91	55	1633	N.D.			
21) 1,3-Dichloropropane	13.79	76	217	N.D.			
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	16.79	75	189	N.D.			
25) Bromobenzene	17.39	77	402	N.D.			
26) 2-Chlorotoluene	17.78	91	1222	N.D.			
27) 4-Chlorotoluene	17.85	91	1868	N.D.			
28) Indane	19.13	117	647	N.D.			
29) Indene	19.23	115	101	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	697	N.D.			
31) 1,2,3,4-Tetramethylben...	20.16	119	697	N.D.			
32) 1,2,3,5-Tetramethylben...	20.59	119	1128	N.D.			
33) 1,2,3-Trichlorobenzene	21.24	180	398	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261824.D Vial: 10
Acq On : 26 Oct 2018 18:47 Operator: RS
Sample : P1805493-012 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:49:17 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:53:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	122872	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	626387	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	383276	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	318948	14.968	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.76%				
57) Toluene-d8 (SS2)	13.67	98	814284	12.161	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	159015	10.556	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.48%				
Target Compounds							Qvalue
2) Propene	3.98	42	3736	0.120	ng	#	75
3) Dichlorodifluoromethan...	4.08	85	24902	0.744	ng		99
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.43	135	177	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	15686m	0.935	ng		
11) Acetonitrile	5.69	41	1700	N.D.			
12) Acrolein	5.84	56	1351	0.104	ng		88
13) Acetone	6.00	58	15990	0.922	ng	#	80
14) Trichlorofluoromethane	6.18	101	94040	3.924	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	17897	0.331	ng		86
16) Acrylonitrile	6.51	53	935	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	7.00	84	216	N.D.			
20) 3-Chloro-1-propene (Al...	7.01	41	227	N.D.			
21) Trichlorotrifluoroethane	7.33	151	957	0.100	ng		85
22) Carbon Disulfide	7.30	76	6788	0.104	ng		89
23) trans-1,2-Dichloroethene	8.02	61	411	N.D.			
24) 1,1-Dichloroethane	8.02	63	106	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.43	86	222	0.078	ng	#	1
27) 2-Butanone (MEK)	8.69	72	1749	0.129	ng	#	73
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.39	87	343	N.D.			
30) Ethyl Acetate	9.36	61	6897	0.963	ng		94
31) n-Hexane	9.36	57	573	N.D.			
32) Chloroform	9.40	83	3970	0.137	ng		94
34) Tetrahydrofuran (THF)	9.87	72	375	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	24269	1.024	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	7469	0.351	ng	#	78
41) Benzene	10.88	78	5336	0.070	ng		97
42) Carbon Tetrachloride	11.03	117	1109	0.060	ng		85
43) Cyclohexane	11.23	84	597	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	5131998	341.757	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:53:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

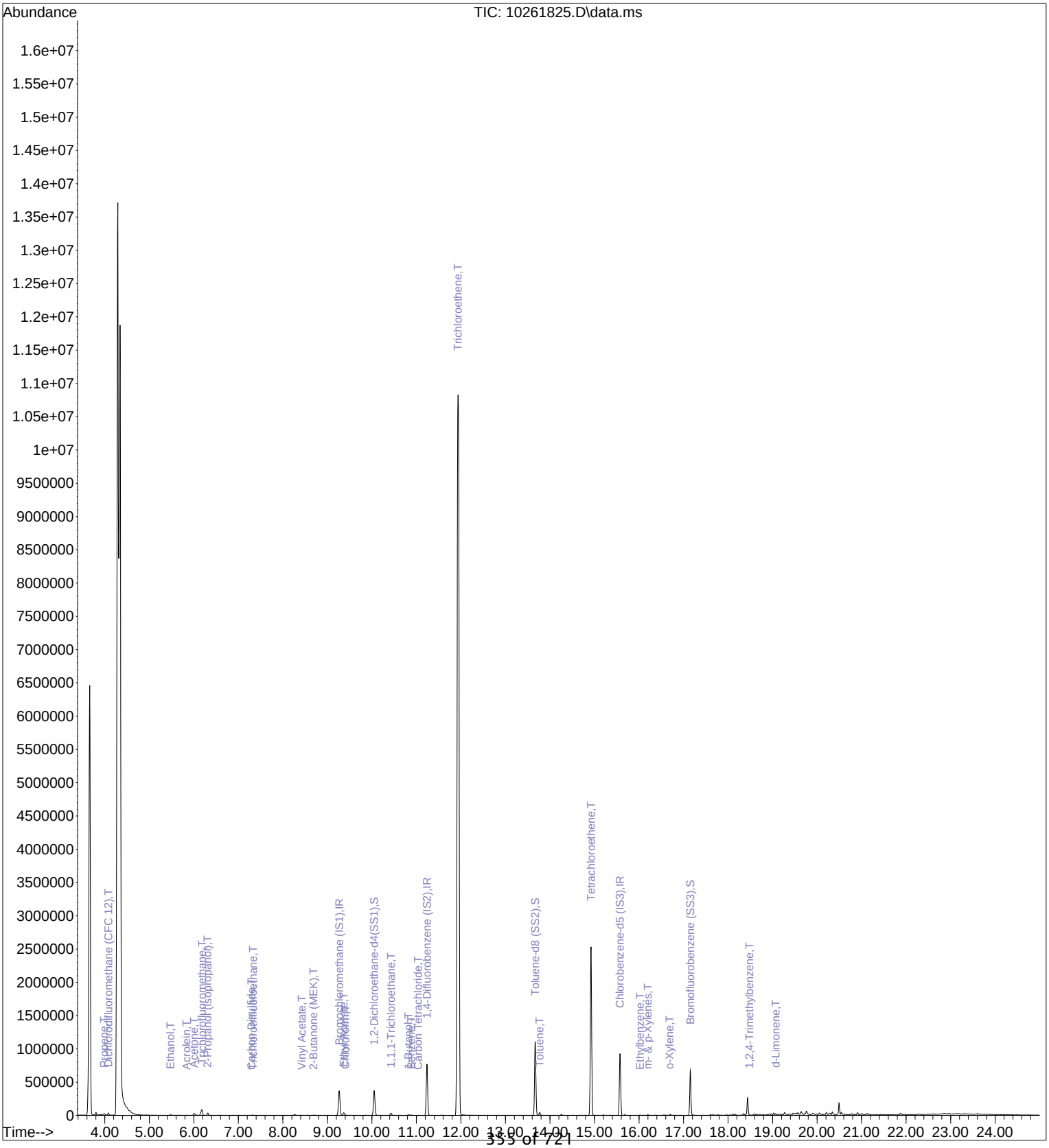
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.24	71	387	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.84	58	101	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	34024	0.454 ng	100
59) 2-Hexanone	14.04	43	594	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2369	N.D.	
63) n-Octane	14.78	57	562	N.D.	
64) Tetrachloroethene	14.92	166	735044	47.549 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	4790	0.058 ng	90
67) m- & p-Xylenes	16.20	91	8391	0.133 ng	96
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	2226	N.D.	
70) o-Xylene	16.69	91	4218	0.069 ng	95
71) n-Nonane	16.92	43	2131	N.D.	
72) 1,1,2,2-Tetrachloroethane	16.70	83	332	N.D.	
74) Cumene	17.30	105	143	N.D.	
75) alpha-Pinene	17.71	93	1051	N.D.	
76) n-Propylbenzene	17.82	91	1314	N.D.	
77) 3-Ethyltoluene	17.92	105	1508	N.D.	
78) 4-Ethyltoluene	17.97	105	1062	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	916	N.D.	
80) alpha-Methylstyrene	18.43	118	1302	N.D.	
81) 2-Ethyltoluene	18.24	105	722	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3505	0.060 ng	89
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	18.61	91	317	N.D.	
85) 1,3-Dichlorobenzene	18.71	146	841	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	841	N.D.	
87) sec-Butylbenzene	18.92	105	769	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	518	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	769	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.07	68	2555	0.085 ng	97
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2287	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.34	91	593	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:53:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:53:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

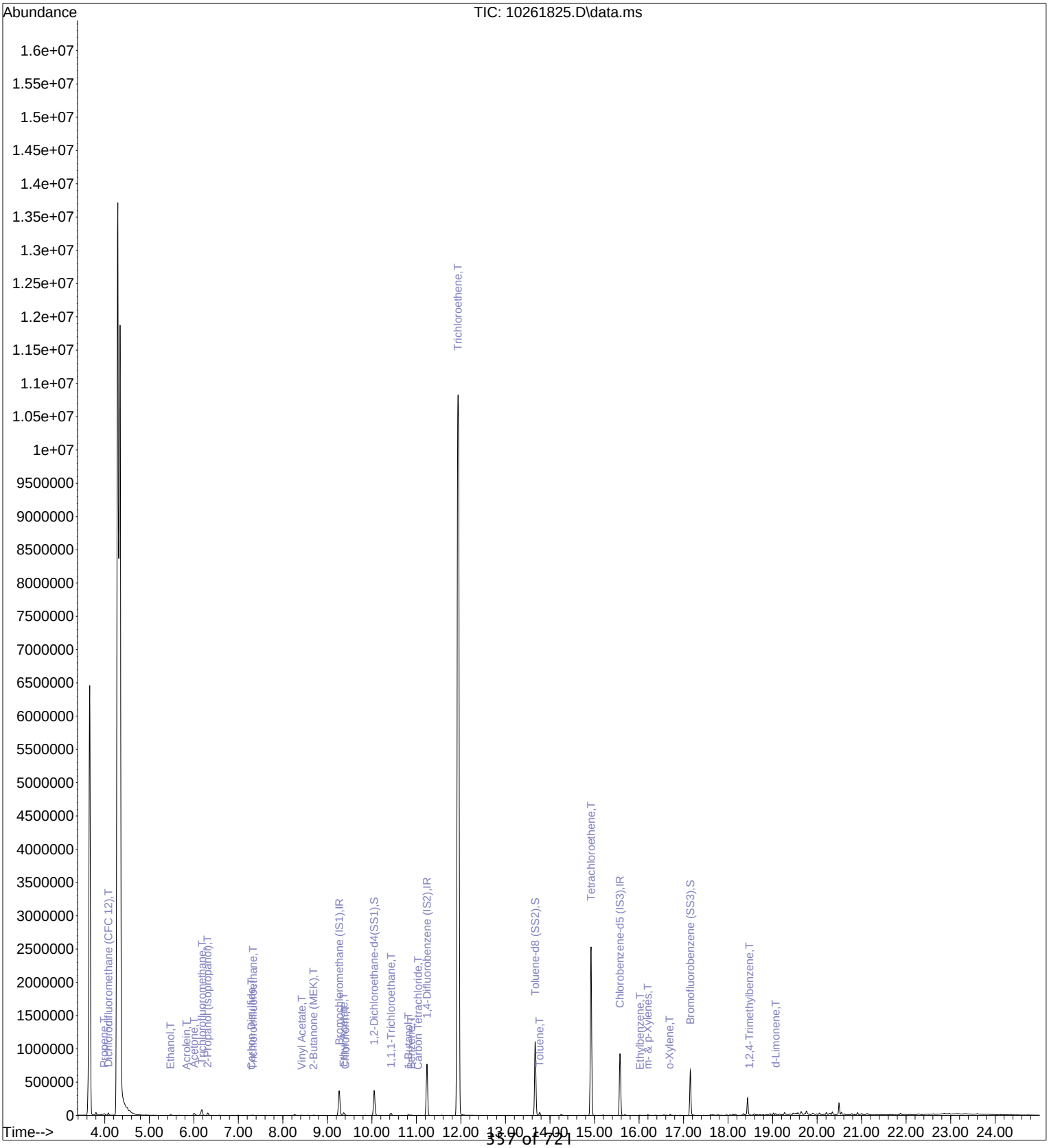
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	122872	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	626387	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	383276	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	318948	14.968	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.76%				
57) Toluene-d8 (SS2)	13.67	98	814284	12.161	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	159015	10.556	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.48%				
Target Compounds							Qvalue
2) Propene	3.98	42	3736	0.120	ng	#	75
3) Dichlorodifluoromethan...	4.08	85	24902	0.744	ng		99
10) Ethanol	5.48	45	15686m	0.935	ng		
12) Acrolein	5.84	56	1351	0.104	ng		88
13) Acetone	6.00	58	15990	0.922	ng	#	80
14) Trichlorofluoromethane	6.18	101	94040	3.924	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	17897	0.331	ng		86
21) Trichlorotrifluoroethane	7.33	151	957	0.100	ng		85
22) Carbon Disulfide	7.30	76	6788	0.104	ng		89
26) Vinyl Acetate	8.43	86	222	0.078	ng	#	1
27) 2-Butanone (MEK)	8.69	72	1749	0.129	ng	#	73
30) Ethyl Acetate	9.36	61	6897	0.963	ng		94
32) Chloroform	9.40	83	3970	0.137	ng		94
38) 1,1,1-Trichloroethane	10.43	97	24269	1.024	ng		98
40) 1-Butanol	10.82	56	7469	0.351	ng	#	78
41) Benzene	10.88	78	5336	0.070	ng		97
42) Carbon Tetrachloride	11.03	117	1109	0.060	ng		85
47) Trichloroethene	11.93	130	5131998	341.757	ng		100
58) Toluene	13.77	91	34024	0.454	ng		100
64) Tetrachloroethene	14.92	166	735044	47.549	ng		100
66) Ethylbenzene	16.02	91	4790	0.058	ng		90
67) m- & p-Xylenes	16.20	91	8391	0.133	ng		96
70) o-Xylene	16.69	91	4218	0.069	ng		95
82) 1,2,4-Trimethylbenzene	18.48	105	3505	0.060	ng		89
91) d-Limonene	19.07	68	2555	0.085	ng		97

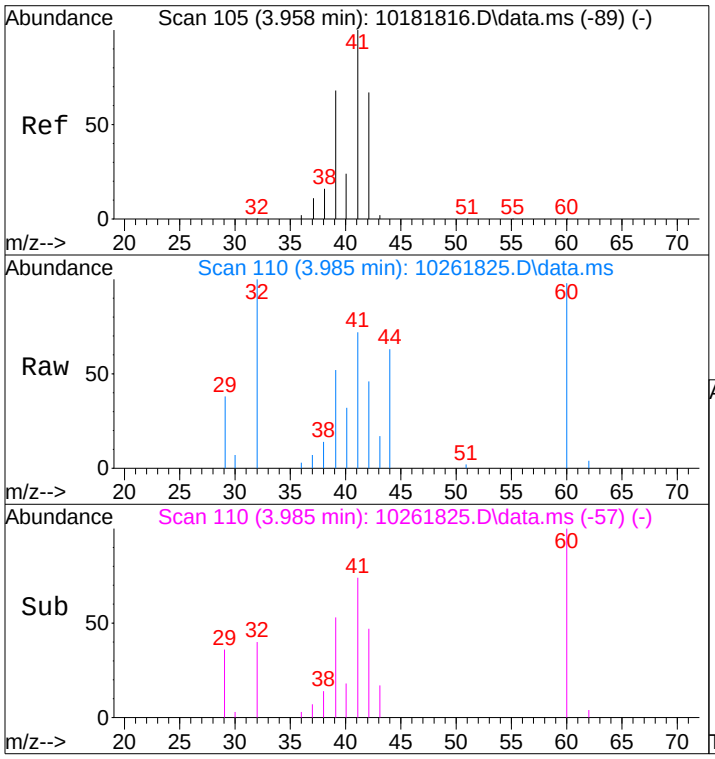
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:53:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

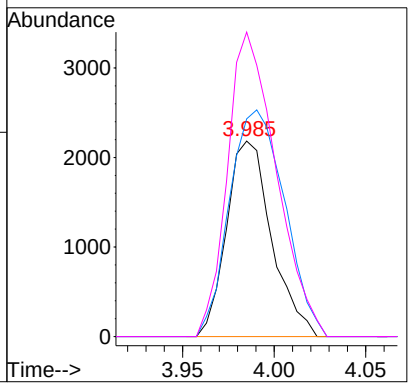


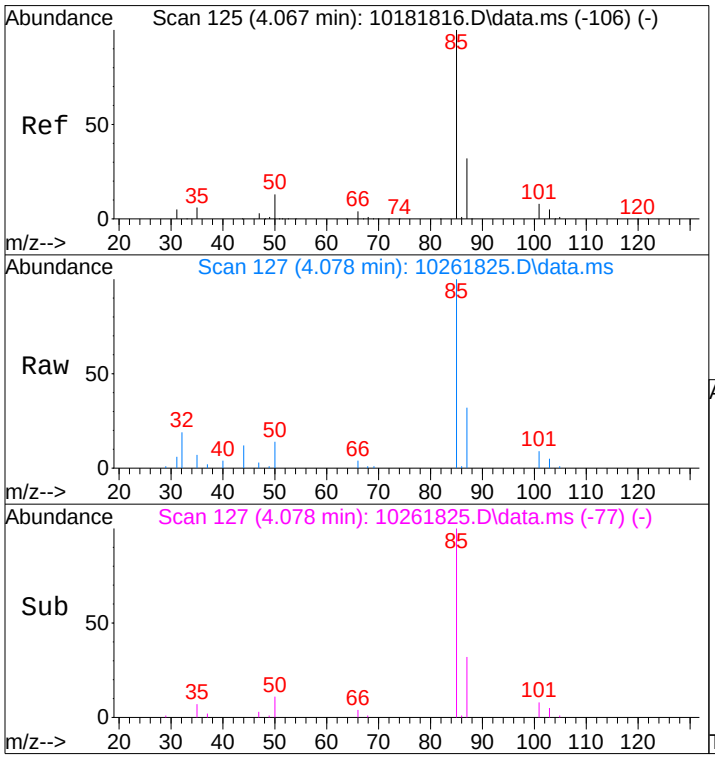


#2
Propene
Concen: 0.12 ng
RT: 3.98 min Scan# 110
Delta R.T. 0.039 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 42 Resp: 3736

Ion	Ratio	Lower	Upper
42	100		
39	141.8	81.9	121.9#
41	168.9	130.4	170.4

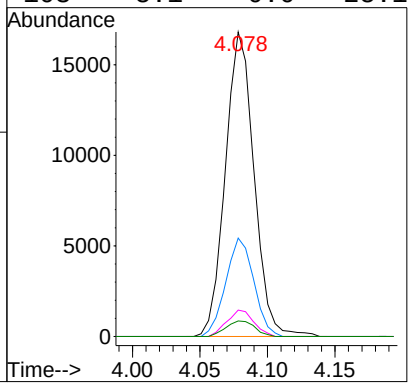


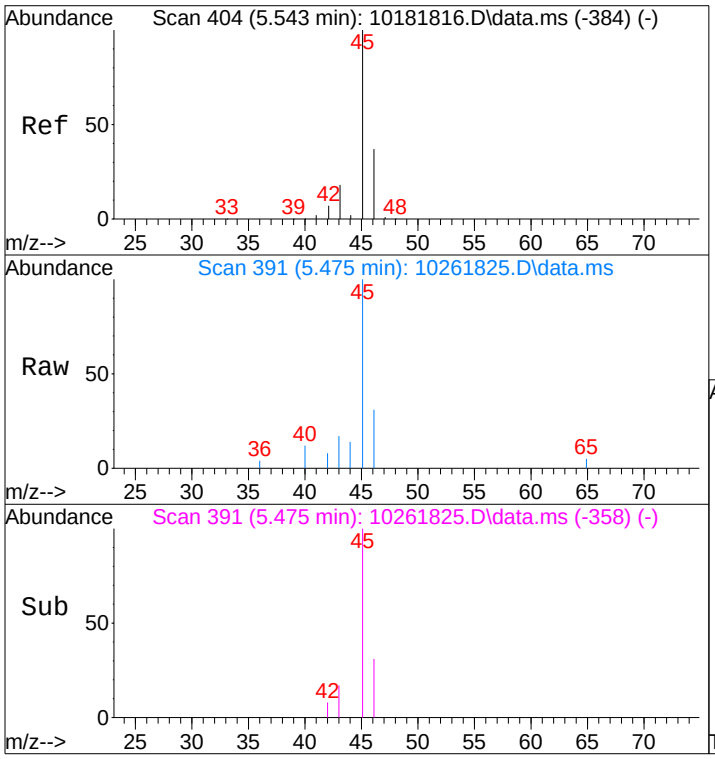


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.74 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 85 Resp: 24902

Ion	Ratio	Lower	Upper
85	100		
87	31.5	12.0	52.0
101	8.2	0.0	28.0
103	5.1	0.0	25.1

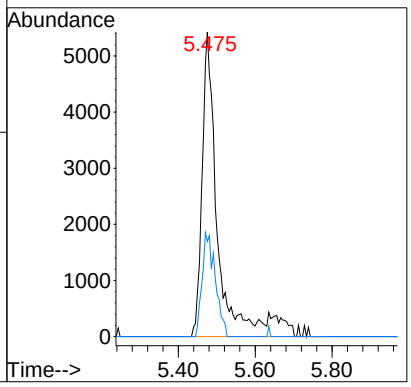


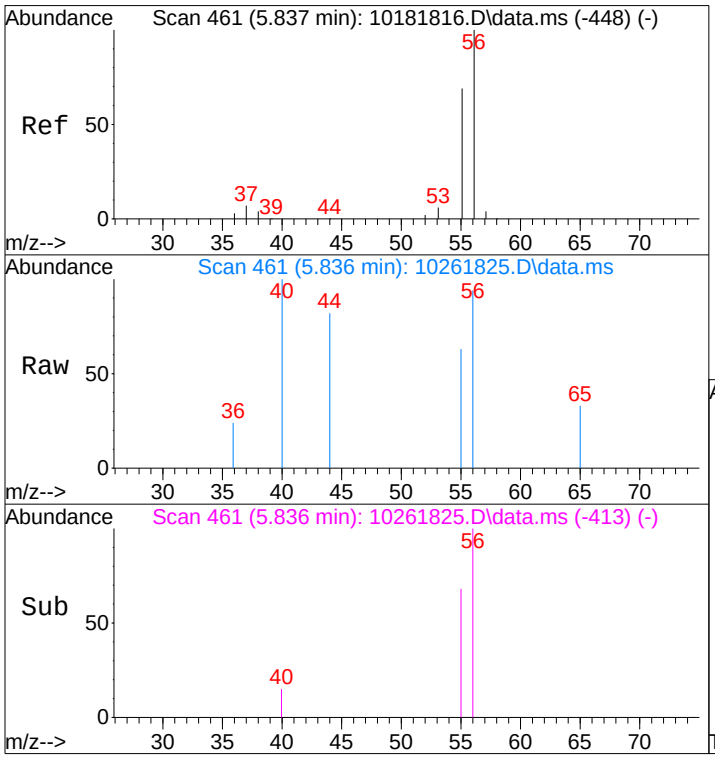


#10
Ethanol
Concen: 0.93 ng m
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 45 Resp: 15686

Ion	Ratio	Lower	Upper
45	100		
46	28.4	17.0	57.0

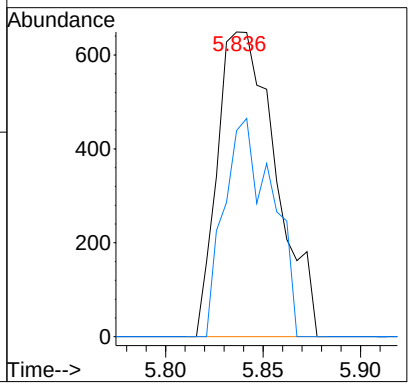


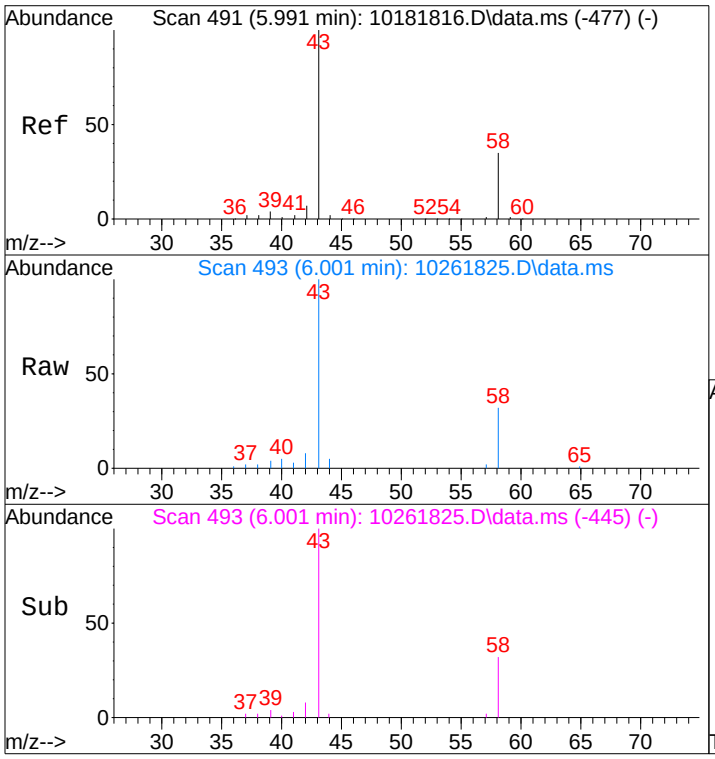


#12
Acrolein
Concen: 0.10 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 56 Resp: 1351

Ion	Ratio	Lower	Upper
56	100		
55	59.1	49.3	89.3

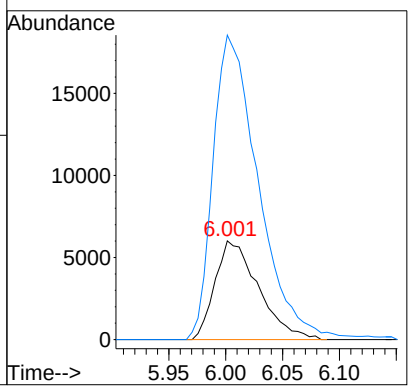


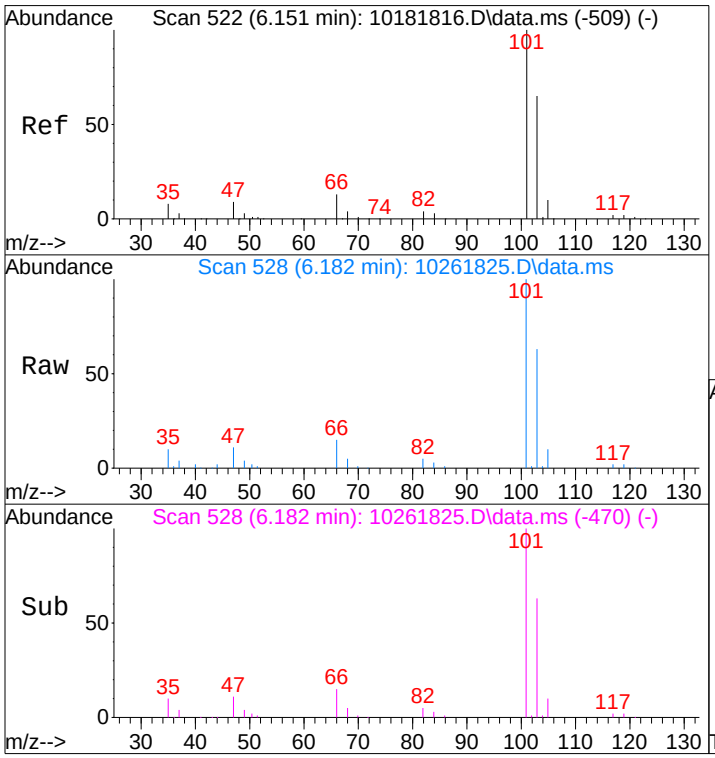


#13
Acetone
Concen: 0.92 ng
RT: 6.00 min Scan# 493
Delta R.T. -0.002 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 58 Resp: 15990

Ion	Ratio	Lower	Upper
58	100		
43	323.0	254.3	314.3#

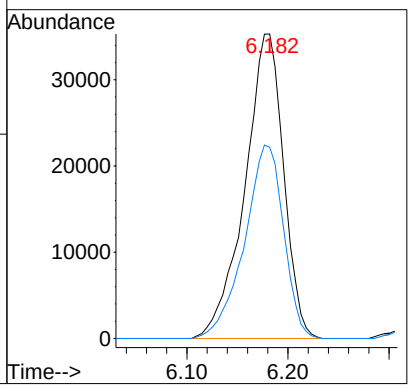


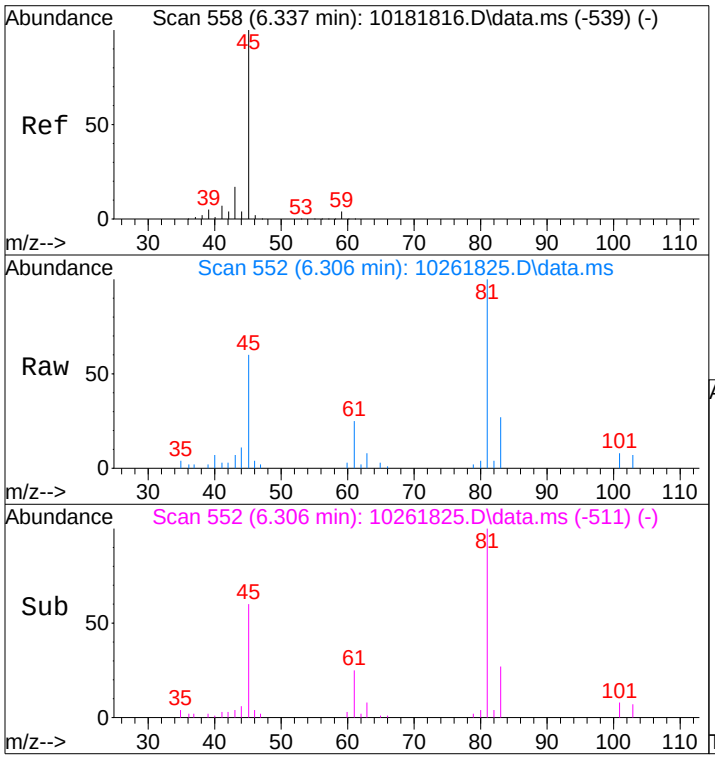


#14
Trichlorofluoromethane
Concen: 3.92 ng
RT: 6.18 min Scan# 528
Delta R.T. 0.050 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:101 Resp: 94040

Ion	Ratio	Lower	Upper
101	100		
103	64.1	44.5	84.5

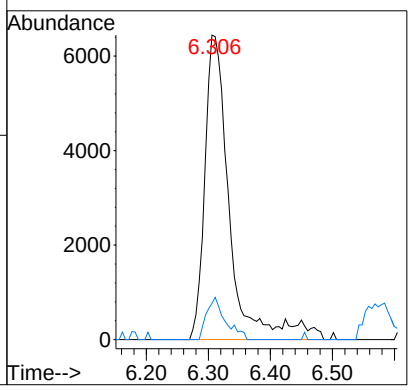


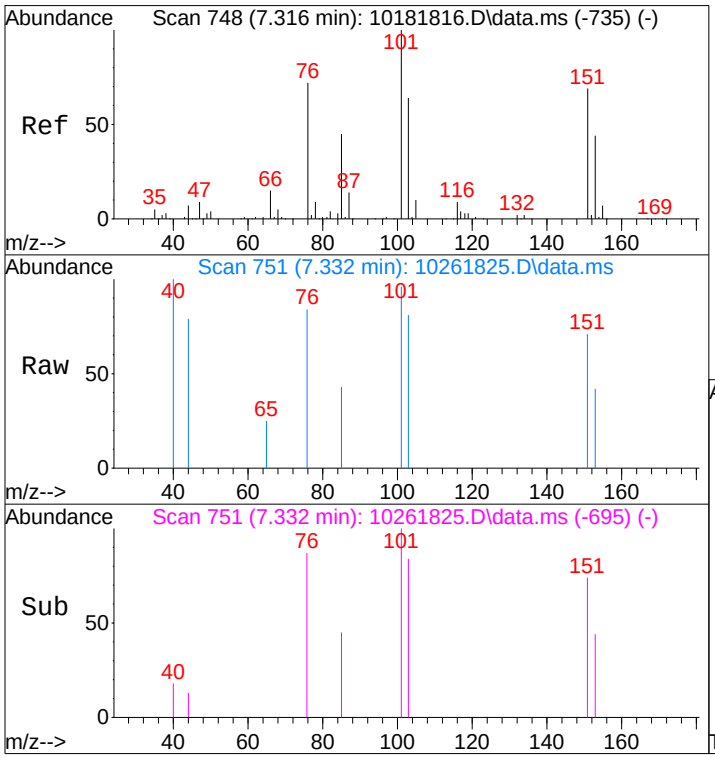


#15
2-Propanol (Isopropanol)
Concen: 0.33 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 45 Resp: 17897

Ion	Ratio	Lower	Upper
45	100		
43	10.5	0.0	36.7

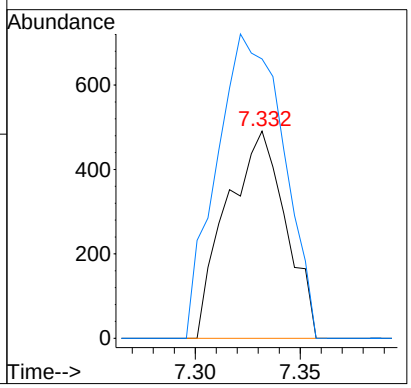


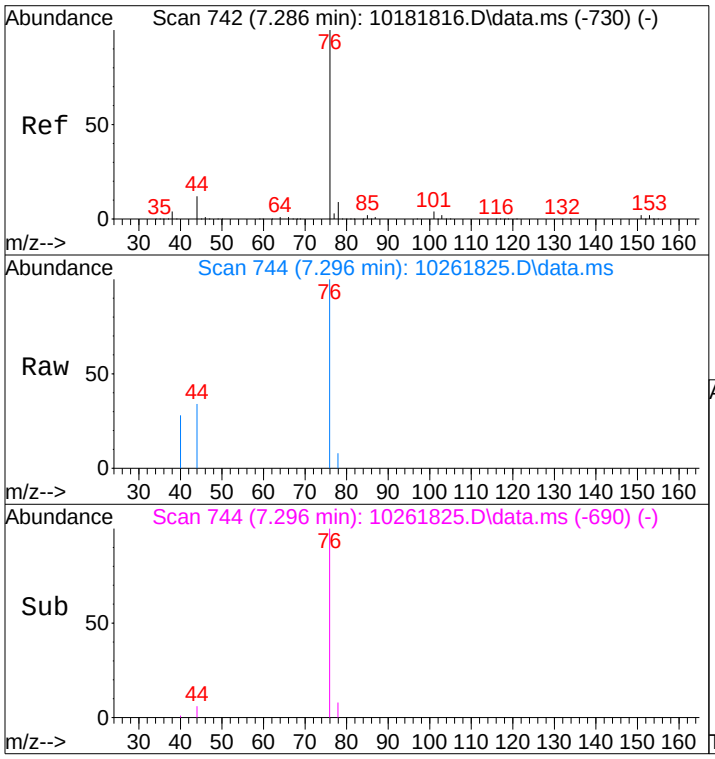


#21
Trichlorotrifluoroethane
Concen: 0.10 ng
RT: 7.33 min Scan# 751
Delta R.T. 0.041 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:151 Resp: 957

Ion	Ratio	Lower	Upper
151	100		
101	166.7	127.5	167.5

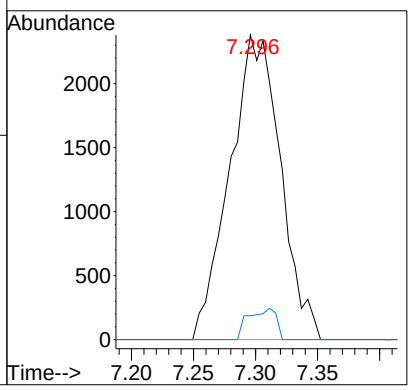


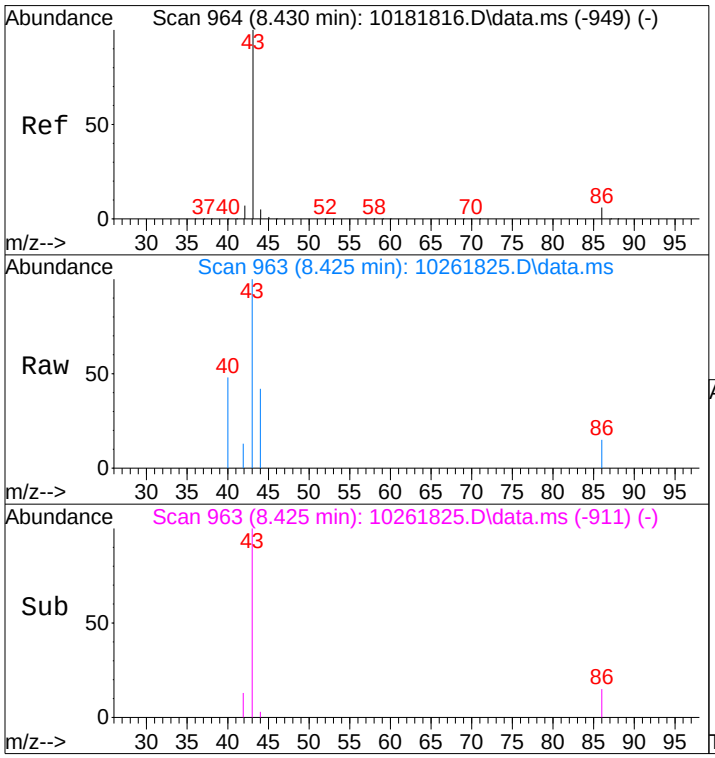


#22
Carbon Disulfide
Concen: 0.10 ng
RT: 7.30 min Scan# 744
Delta R.T. 0.030 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 76 Resp: 6788

Ion	Ratio	Lower	Upper
76	100		
78	5.6	0.0	29.6

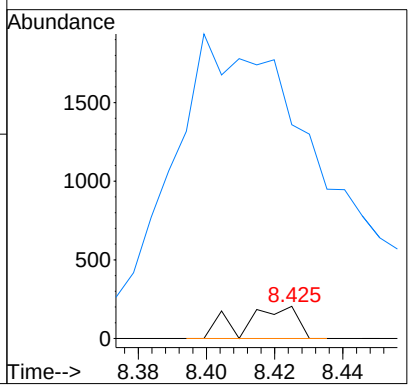


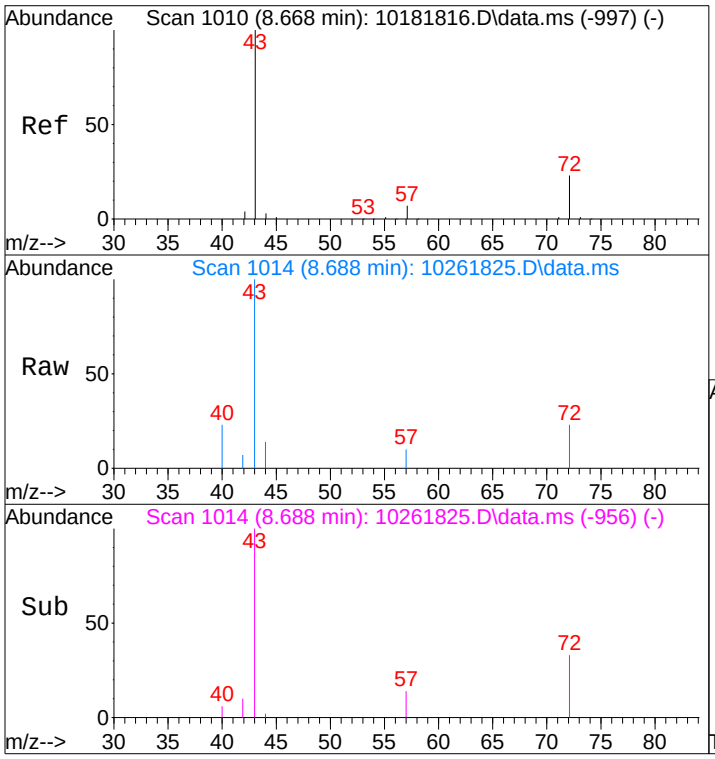


#26
Vinyl Acetate
Concen: 0.08 ng
RT: 8.43 min Scan# 963
Delta R.T. 0.016 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 86 Resp: 222

Ion	Ratio	Lower	Upper
86	100		
43	2825.7	1596.2	1636.2#

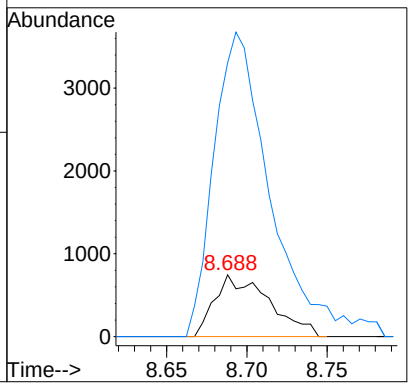


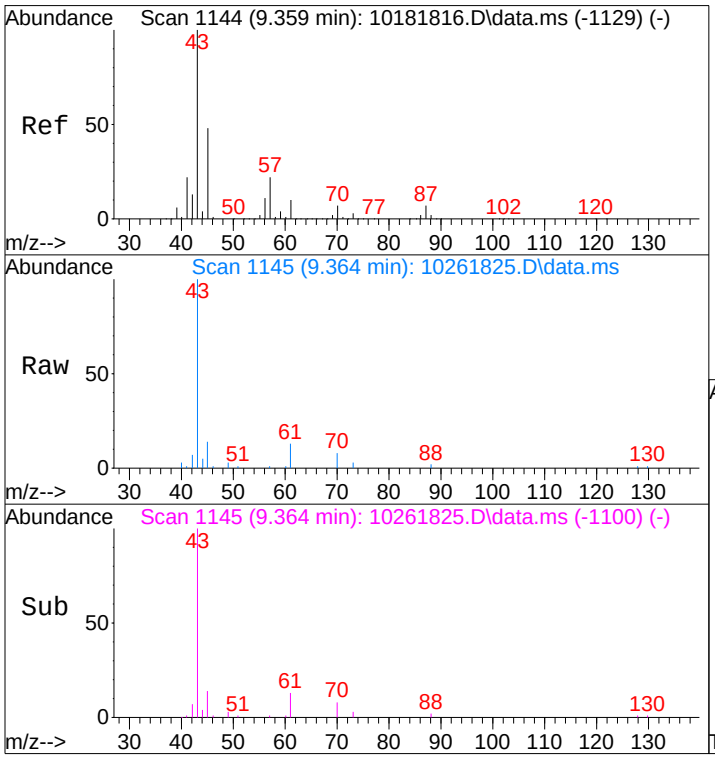


#27
2-Butanone (MEK)
Concen: 0.13 ng
RT: 8.69 min Scan# 1014
Delta R.T. 0.048 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 72 Resp: 1749

Ion	Ratio	Lower	Upper
72	100		
43	518.9	430.0	470.0#

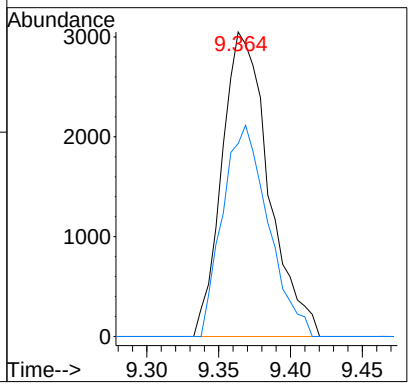


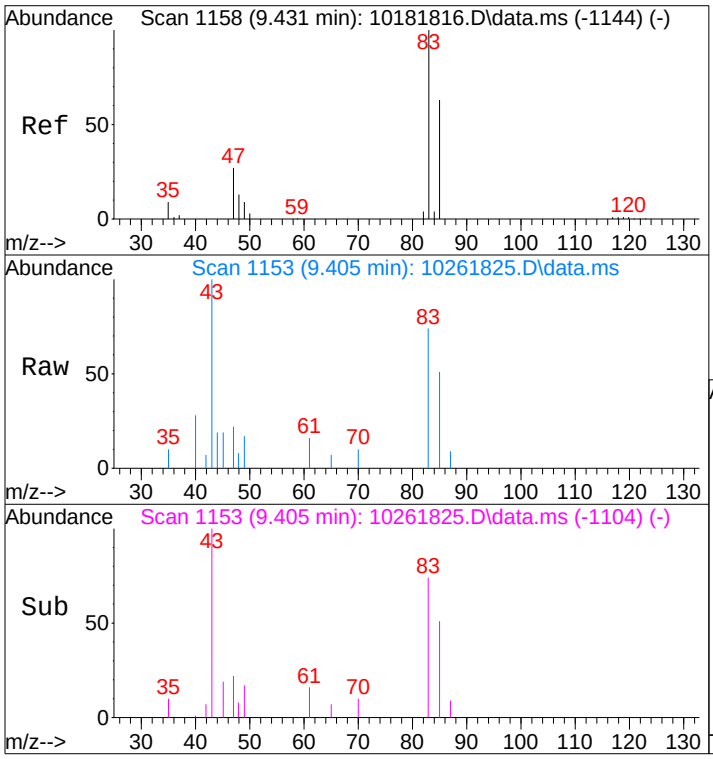


#30
Ethyl Acetate
Concen: 0.96 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.032 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 61 Resp: 6897

Ion	Ratio	Lower	Upper
61	100		
70	67.8	52.7	92.7

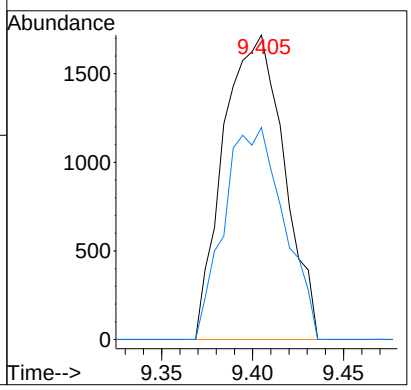


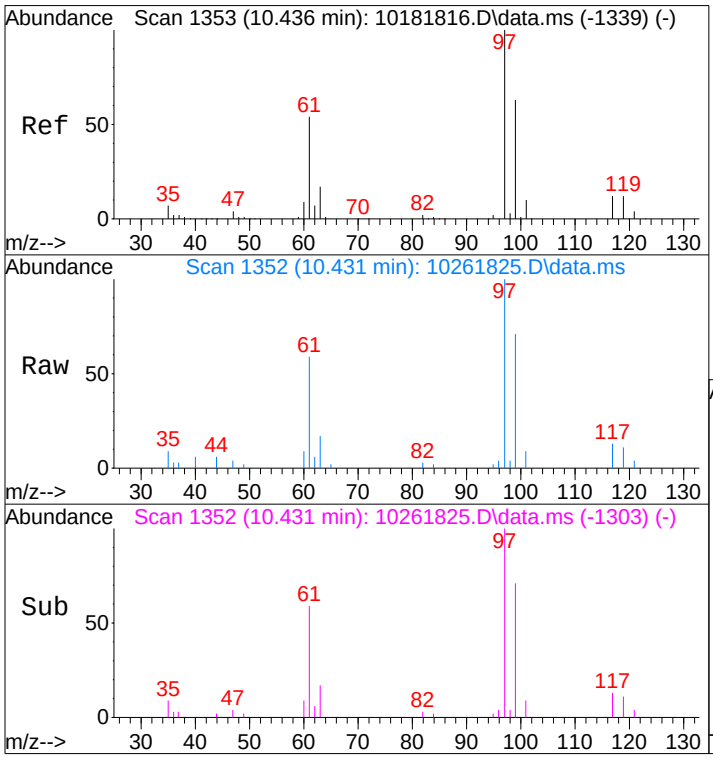


#32
Chloroform
Concen: 0.14 ng
RT: 9.40 min Scan# 1153
Delta R.T. 0.001 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 83 Resp: 3970

Ion	Ratio	Lower	Upper
83	100		
85	68.8	44.0	84.0

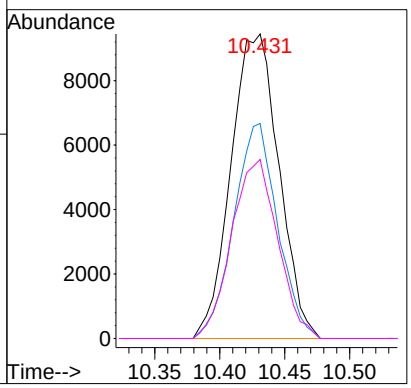


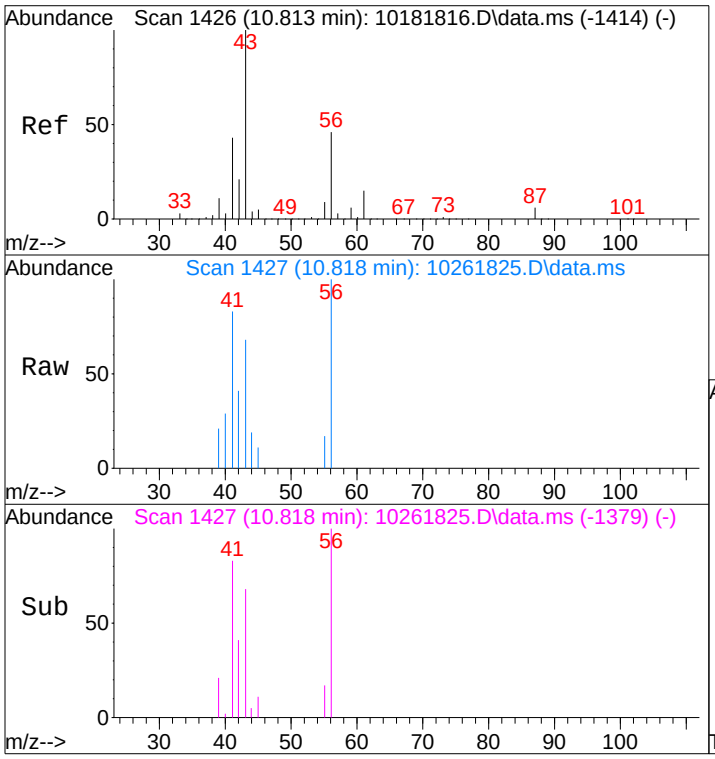


#38
1,1,1-Trichloroethane
Concen: 1.02 ng
RT: 10.43 min Scan# 1352
Delta R.T. 0.003 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 97 Resp: 24269

Ion	Ratio	Lower	Upper
97	100		
99	64.3	43.5	83.5
61	56.5	34.2	74.2

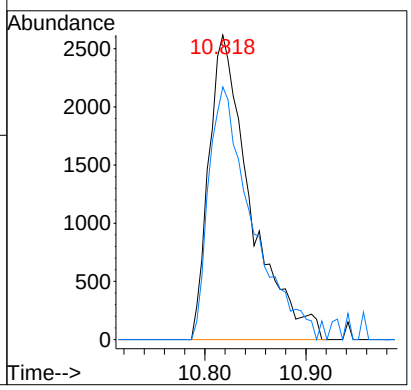


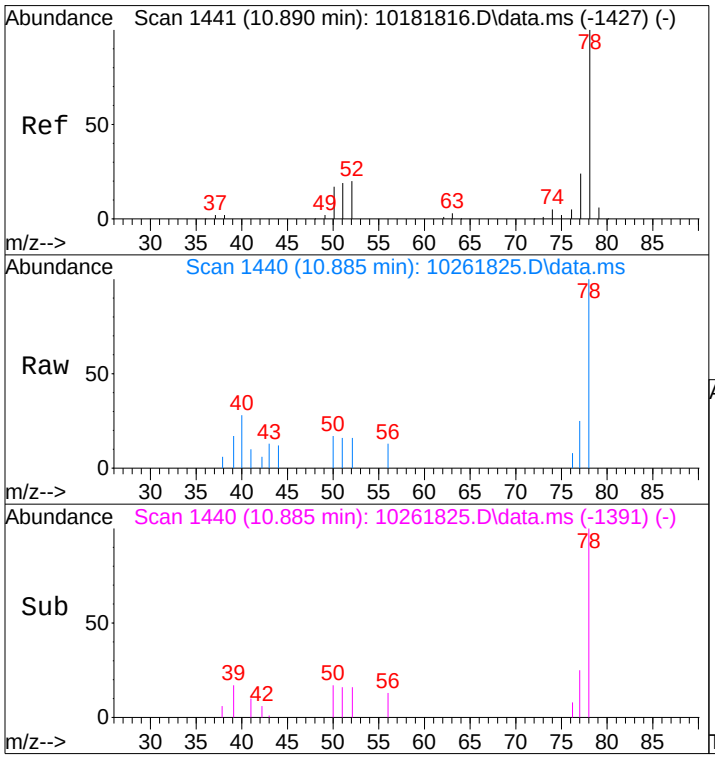


#40
1-Butanol
Concen: 0.35 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 56 Resp: 7469

Ion	Ratio	Lower	Upper
56	100		
41	86.6	90.2	130.2#

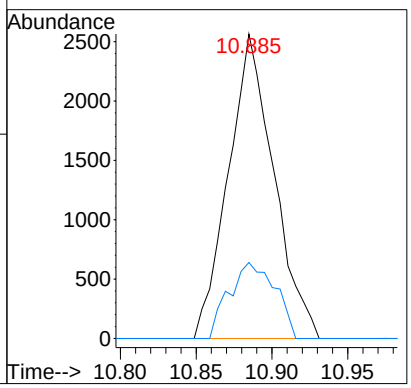


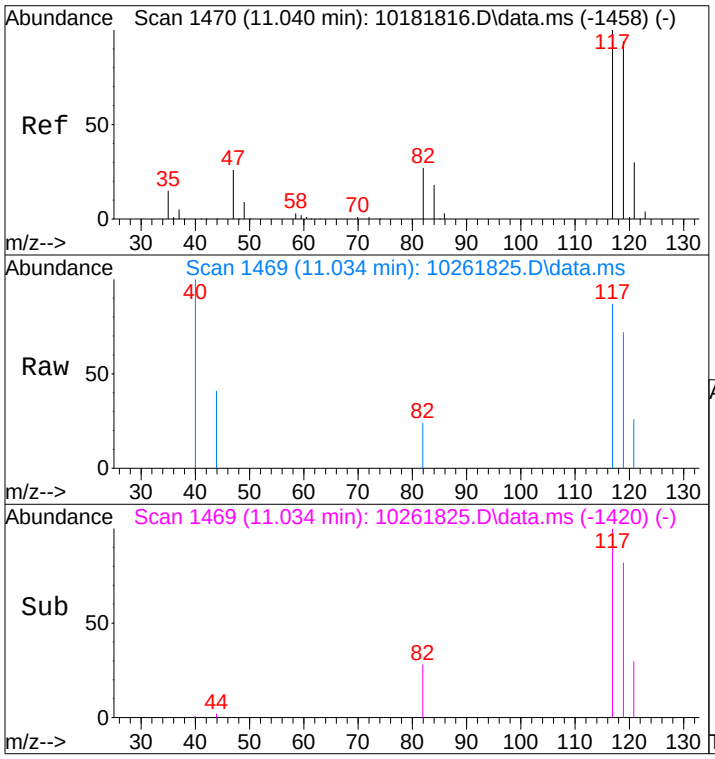


#41
Benzene
Concen: 0.07 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.004 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 78 Resp: 5336

Ion	Ratio	Lower	Upper
78	100		
77	25.4	4.1	44.1

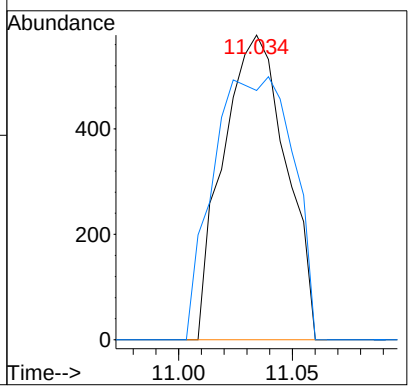


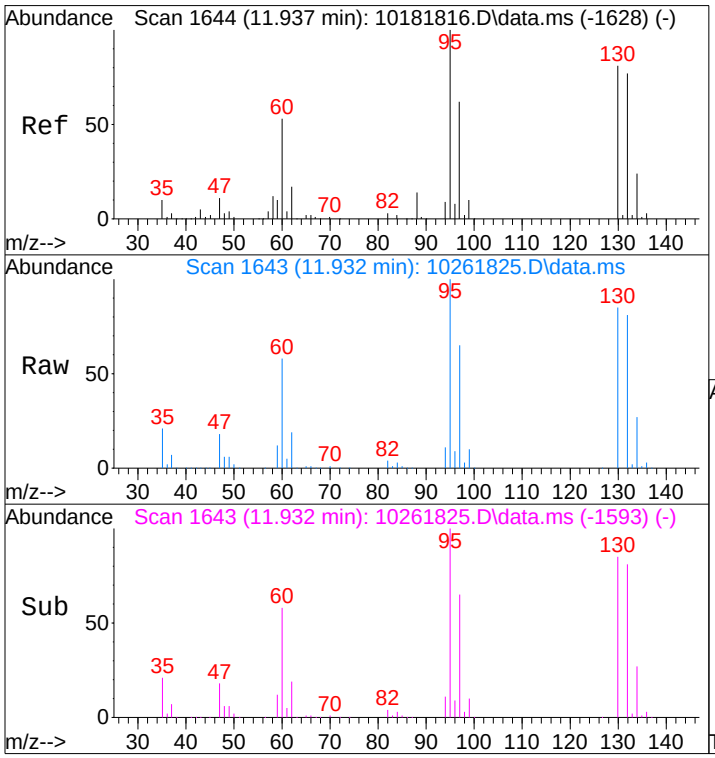


#42
Carbon Tetrachloride
Concen: 0.06 ng
RT: 11.03 min Scan# 1469
Delta R.T. 0.005 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:117 Resp: 1109

Ion	Ratio	Lower	Upper
117	100		
119	109.4	74.7	114.7

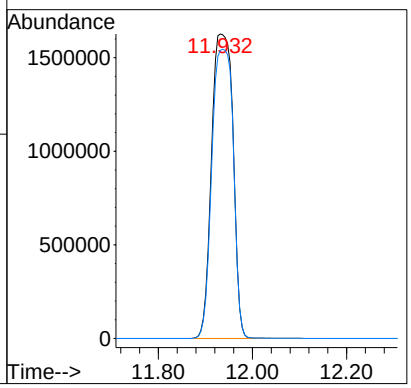


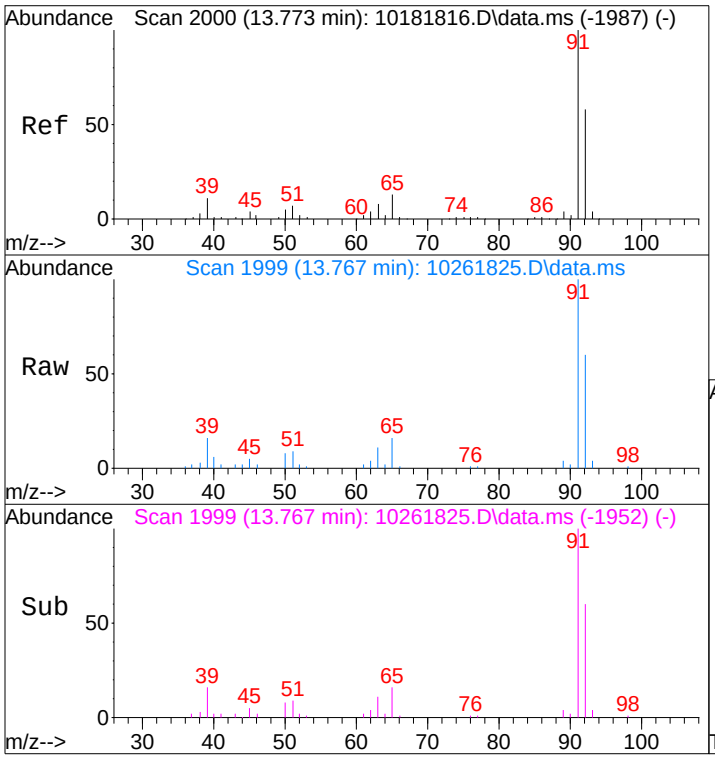


#47
Trichloroethene
Concen: 341.76 ng
RT: 11.93 min Scan# 1643
Delta R.T. 0.007 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:130 Resp: 5131998

Ion	Ratio	Lower	Upper
130	100		
132	94.9	74.6	114.6

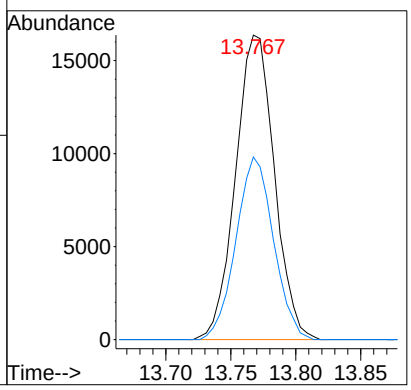


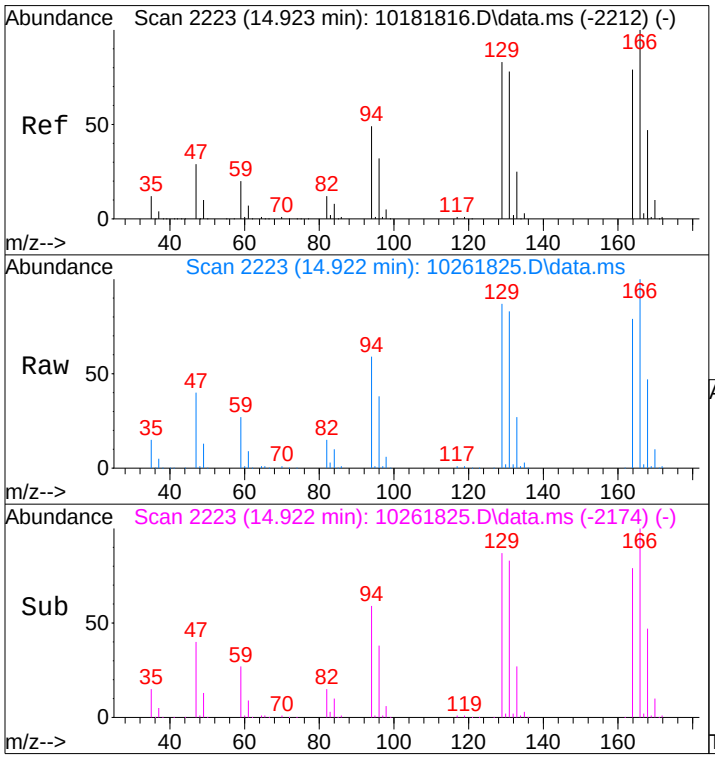


#58
Toluene
Concen: 0.45 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 91 Resp: 34024

Ion	Ratio	Lower	Upper
91	100		
92	58.0	38.1	78.1

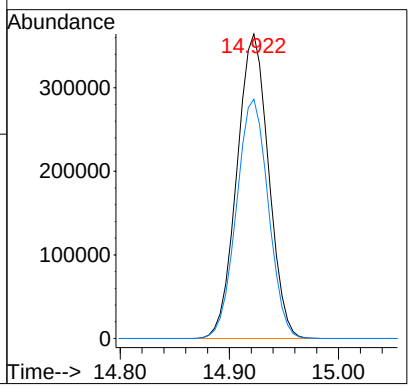


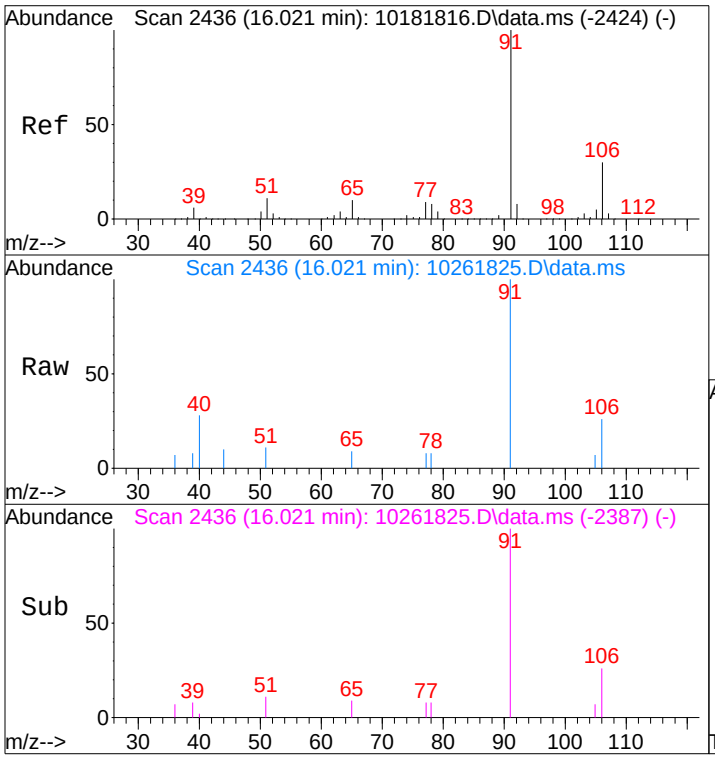


#64
Tetrachloroethene
Concen: 47.55 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.004 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:166 Resp: 735044

Ion	Ratio	Lower	Upper
166	100		
164	79.1	58.9	98.9

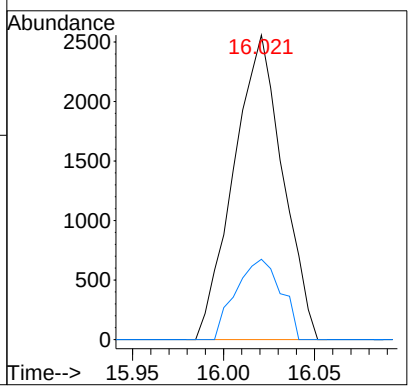


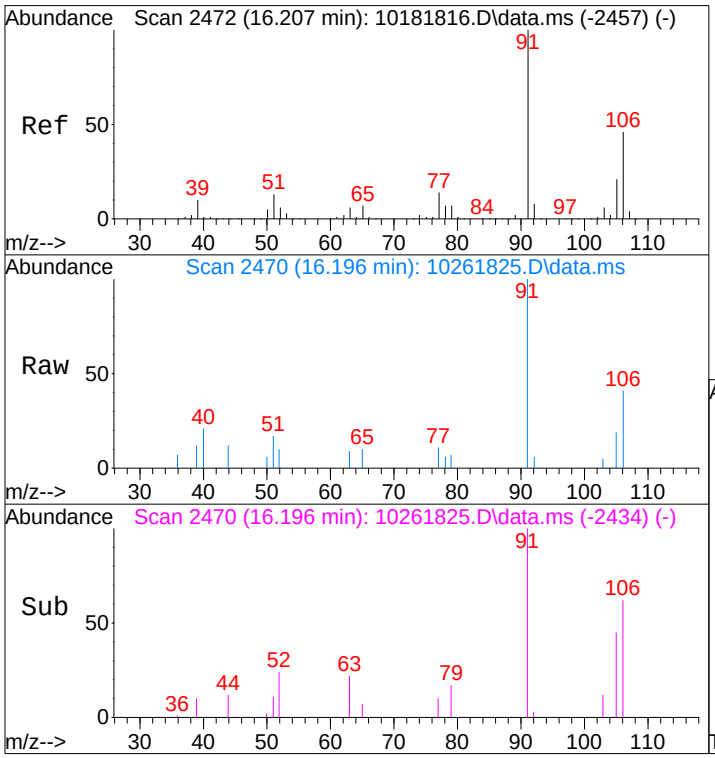


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2436
Delta R.T. 0.005 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 91 Resp: 4790

Ion	Ratio	Lower	Upper
91	100		
106	24.4	9.9	49.9

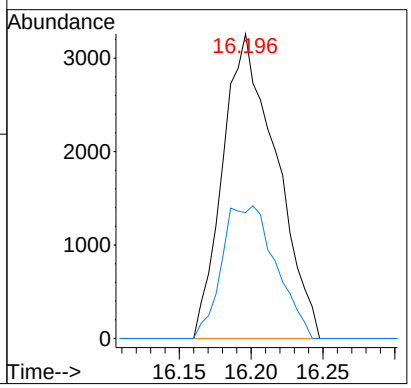


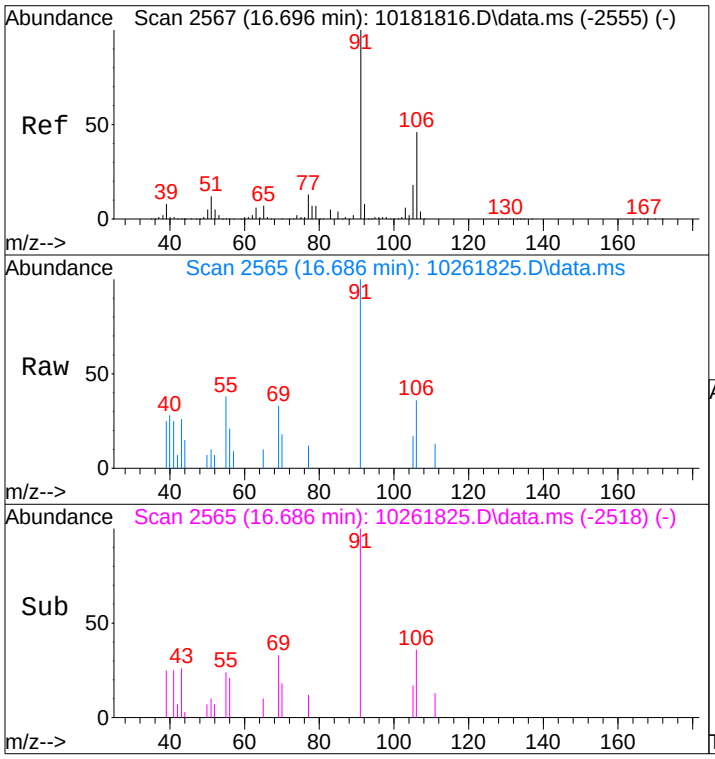


#67
m- & p-Xylenes
Concen: 0.13 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 91 Resp: 8391

Ion	Ratio	Lower	Upper
91	100		
106	44.1	26.7	66.7

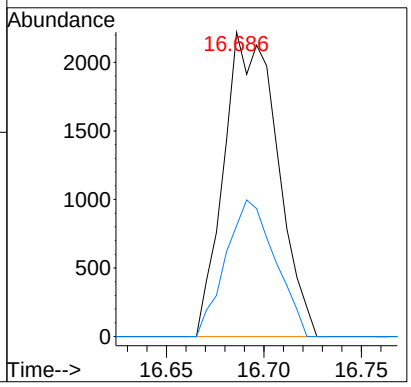


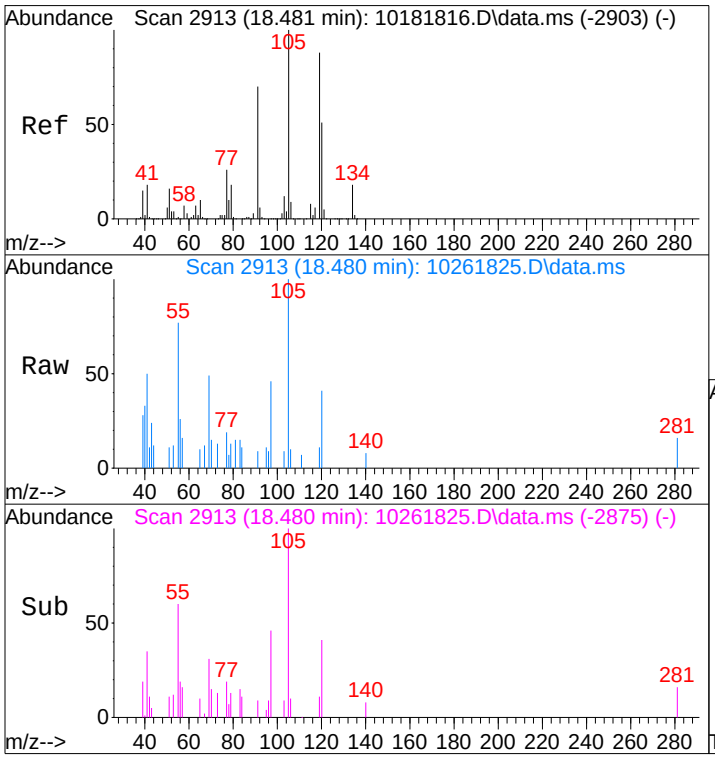


#70
o-Xylene
Concen: 0.07 ng
RT: 16.69 min Scan# 2565
Delta R.T. -0.010 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 91 Resp: 4218

Ion	Ratio	Lower	Upper
91	100		
106	41.6	25.2	65.2

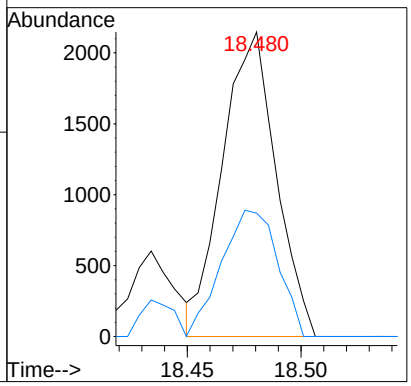


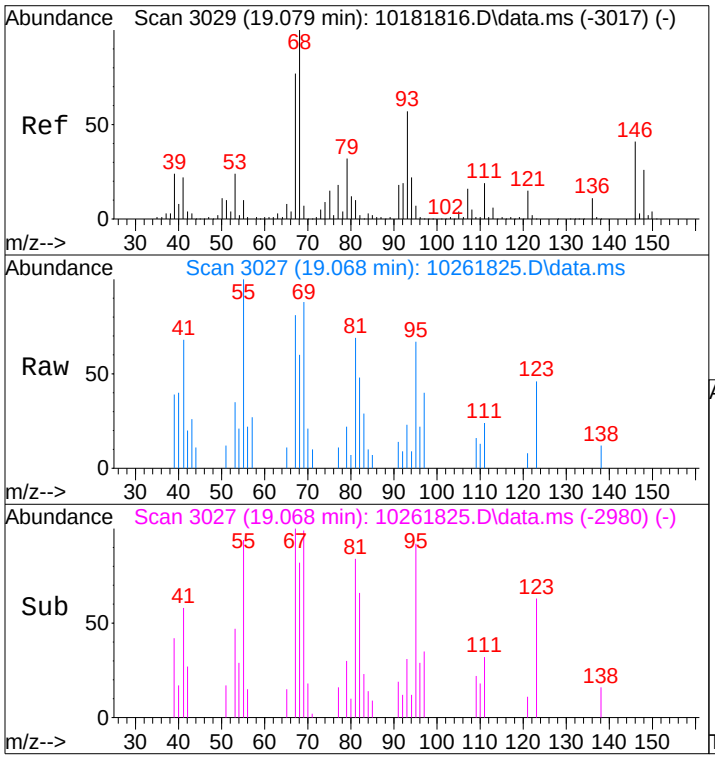


#82
1,2,4-Trimethylbenzene
Concen: 0.06 ng
RT: 18.48 min Scan# 2913
Delta R.T. -0.004 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion:105 Resp: 3505

Ion	Ratio	Lower	Upper
105	100		
120	43.7	31.3	71.3

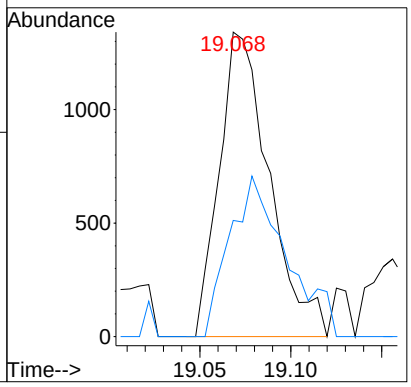




#91
d-Limonene
Concen: 0.08 ng
RT: 19.07 min Scan# 3027
Delta R.T. -0.008 min
Lab File: 10261825.D
Acq: 26 Oct 2018 19:21

Tgt Ion: 68 Resp: 2555

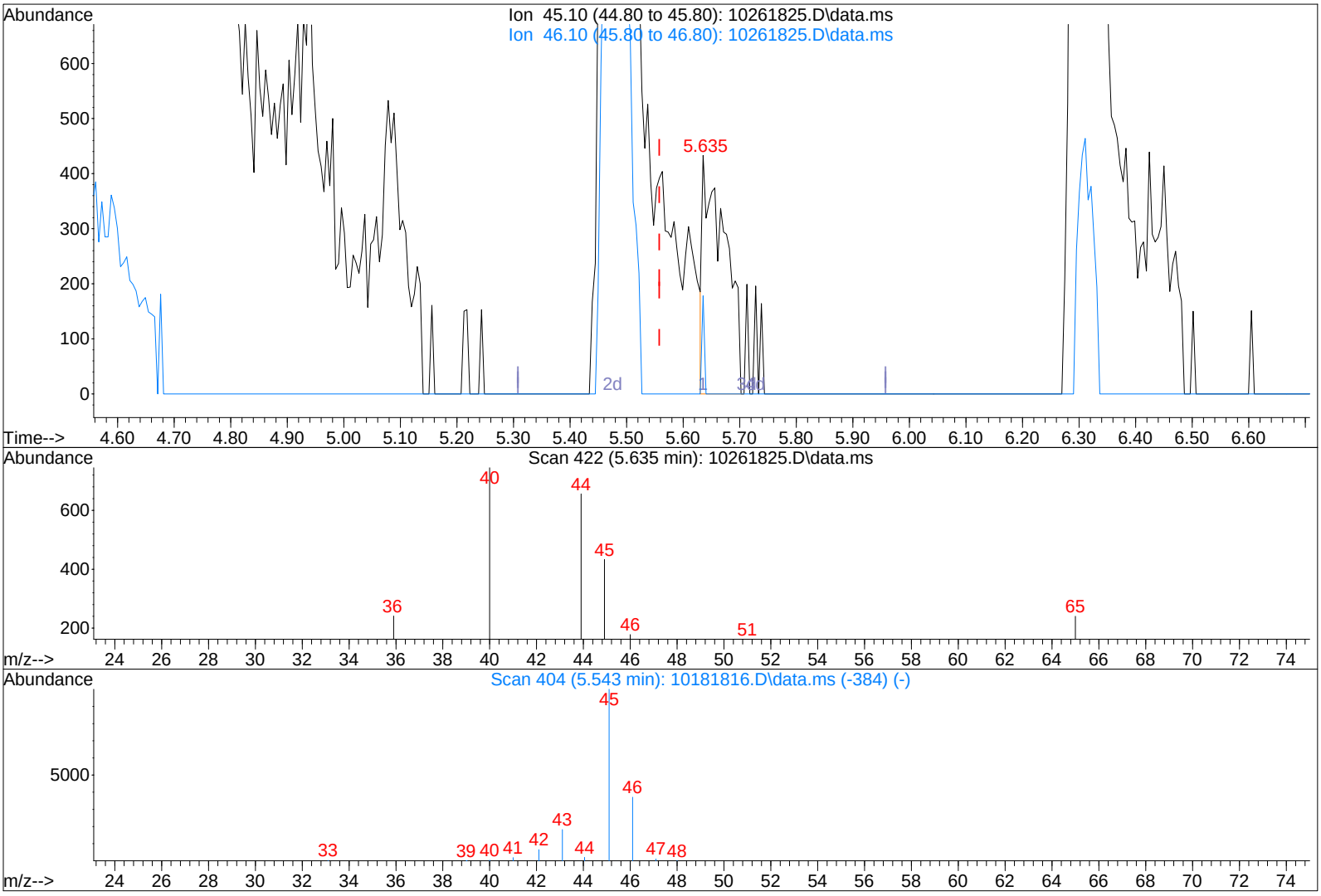
Ion	Ratio	Lower	Upper
68	100		
93	60.0	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:17 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261825.D\data.ms

(10) Ethanol (T)

5.635min (+0.078) 0.07ng

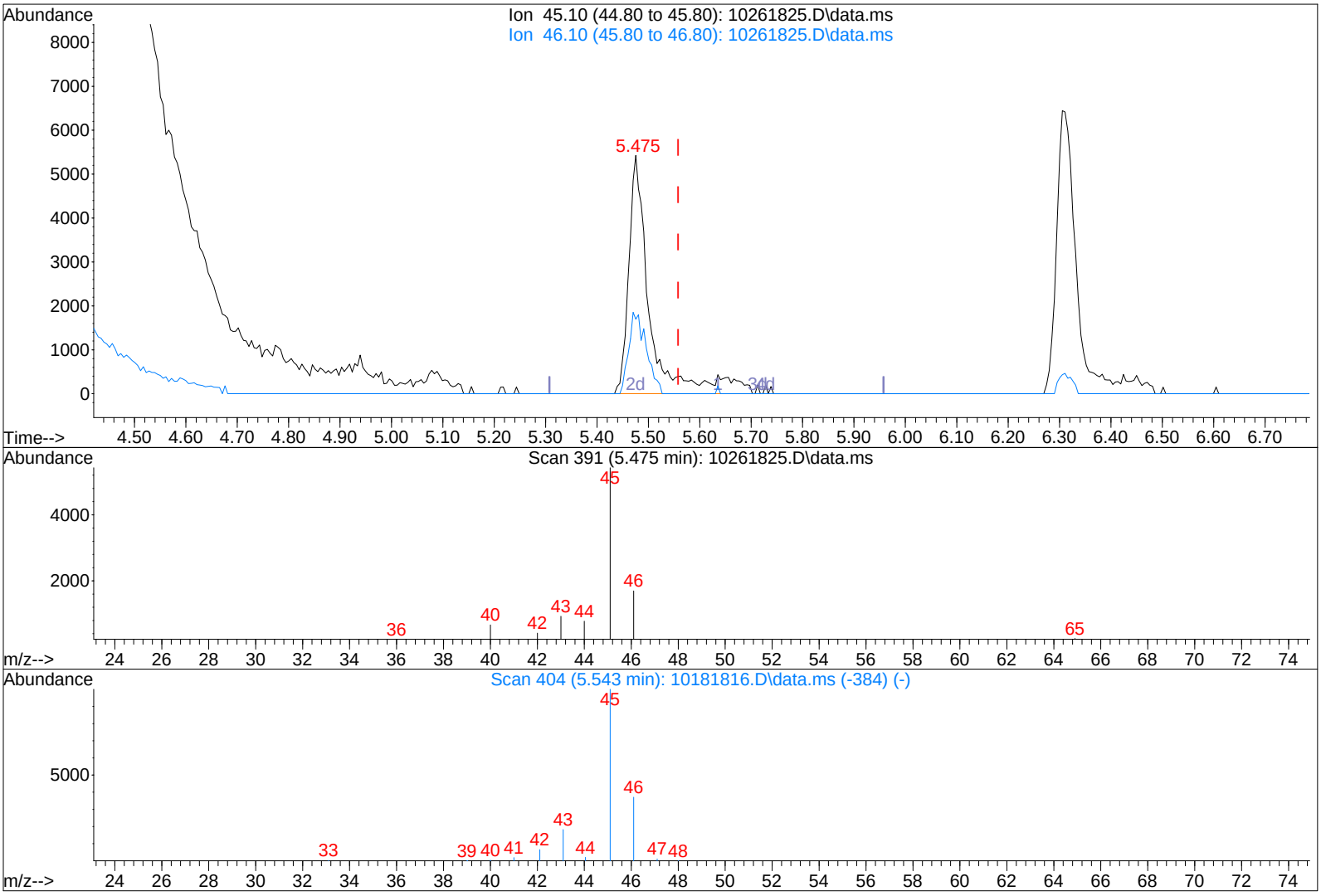
response 1193

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	4.61#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:17 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261825.D\data.ms

(10) Ethanol (T)

5.475min (-0.082) 0.93ng m

response 15686

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	28.41
0.00	0.00	0.00
0.00	0.00	0.00

BLC

RS 10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:49:30 2018 RS 10/29/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

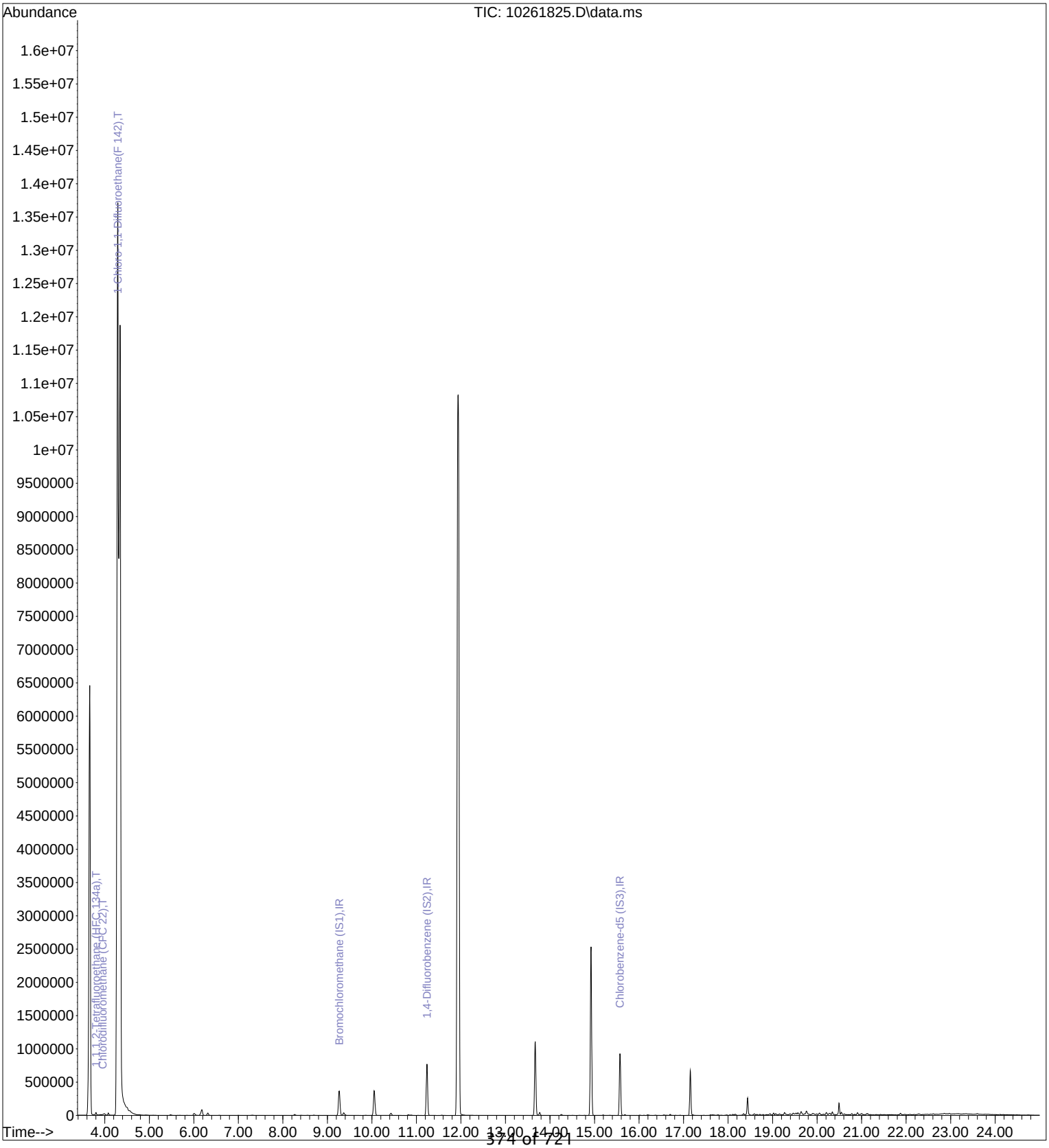
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	122872	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	626387	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	383276	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	317	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	11444	0.902	ng	#	68
4) 1,1-Difluoroethane	3.89	65	498	N.D.			
5) Chlorodifluoromethane ...	3.95	67	1075	0.260	ng	#	68
6) 1-Chloro-1,1-Difluoroe...	4.29	65	30158071	1098.111	ng		95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.02	57	1114	N.D.			
11) Methyl Acetate	6.99	43	123	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.01	84	174	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	96	N.D.			
21) 1,3-Dichloropropane	13.77	76	47	N.D.			
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.78	91	301	N.D.			
27) 4-Chlorotoluene	17.82	91	1314	N.D.			
28) Indane	19.13	117	454	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.17	119	446	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	481	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	381	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

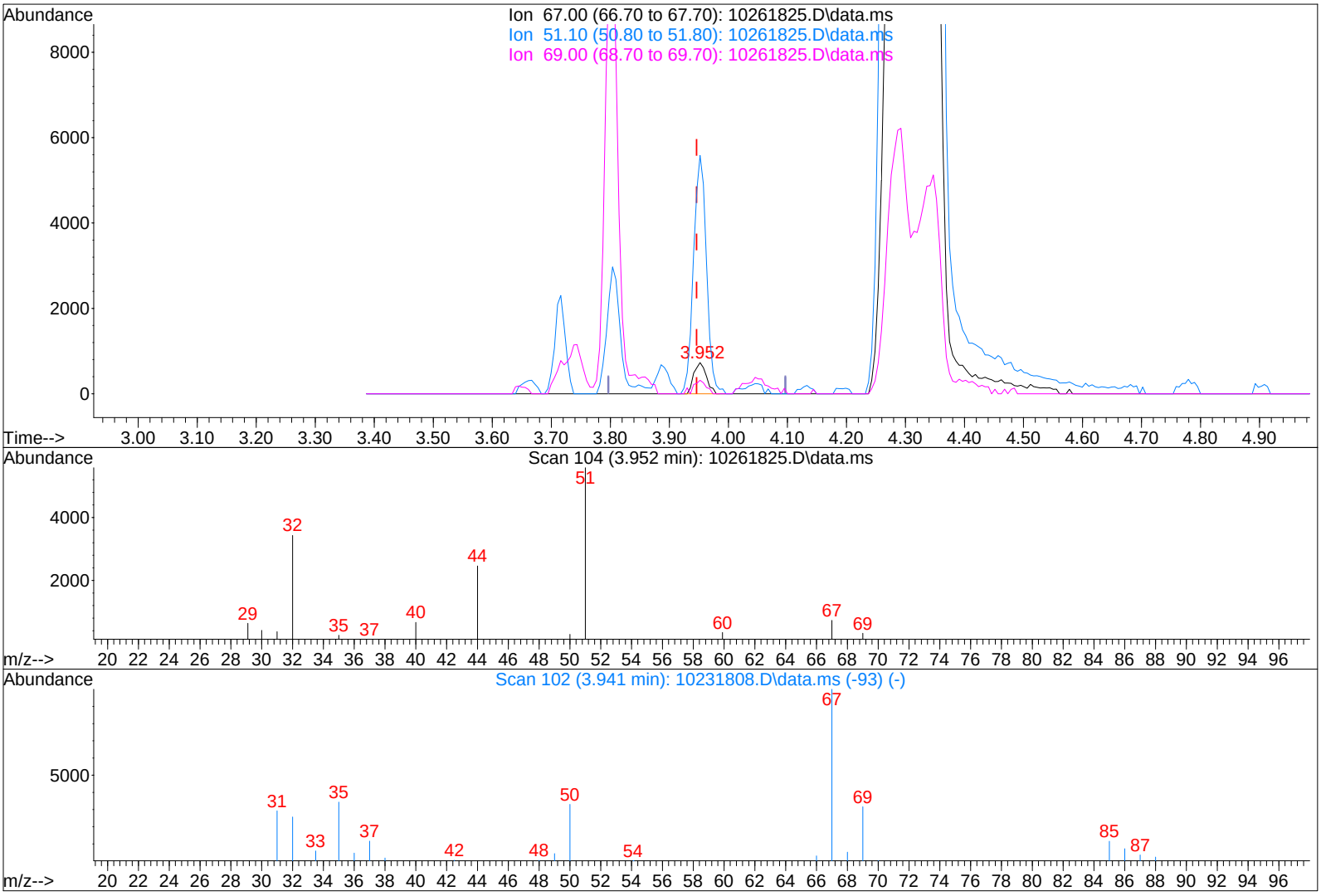
Quant Time: Oct 29 13:49:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261825.D Vial: 11
Acq On : 26 Oct 2018 19:21 Operator: RS
Sample : P1805493-013 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:49:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261825.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

3.952min (+0.005) 0.26ng

response 1075

Ion	Exp%	Act%
67.00	100	100
51.10	683.70	793.77
69.00	32.10	44.09#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261826.D Vial: 11
Acq On : 26 Oct 2018 19:55 Operator: RS
Sample : P1805493-013dil (40mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:54:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	121938	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	613645	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	385322	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	316236	14.954	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.60%				
57) Toluene-d8 (SS2)	13.66	98	813177	12.080	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.64%				
73) Bromofluorobenzene (SS3)	17.16	174	161360	10.654	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 85.20%				
Target Compounds							Qvalue
2) Propene	3.99	42	450	N.D.			
3) Dichlorodifluoromethan...	4.09	85	2209	0.067	ng	#	93
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.51	45	1338	0.080	ng		74
11) Acetonitrile	5.72	41	161	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	6.02	58	4792	0.278	ng	#	81
14) Trichlorofluoromethane	6.16	101	8201	0.345	ng		97
15) 2-Propanol (Isopropanol)	6.34	45	1588	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.04	59	52	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.29	76	627	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.37	61	193	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	216	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	2013	0.087	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.85	56	462	N.D.			
41) Benzene	10.88	78	619	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	11.23	84	787	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	681220	46.307	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261826.D Vial: 11
Acq On : 26 Oct 2018 19:55 Operator: RS
Sample : P1805493-013dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:54:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

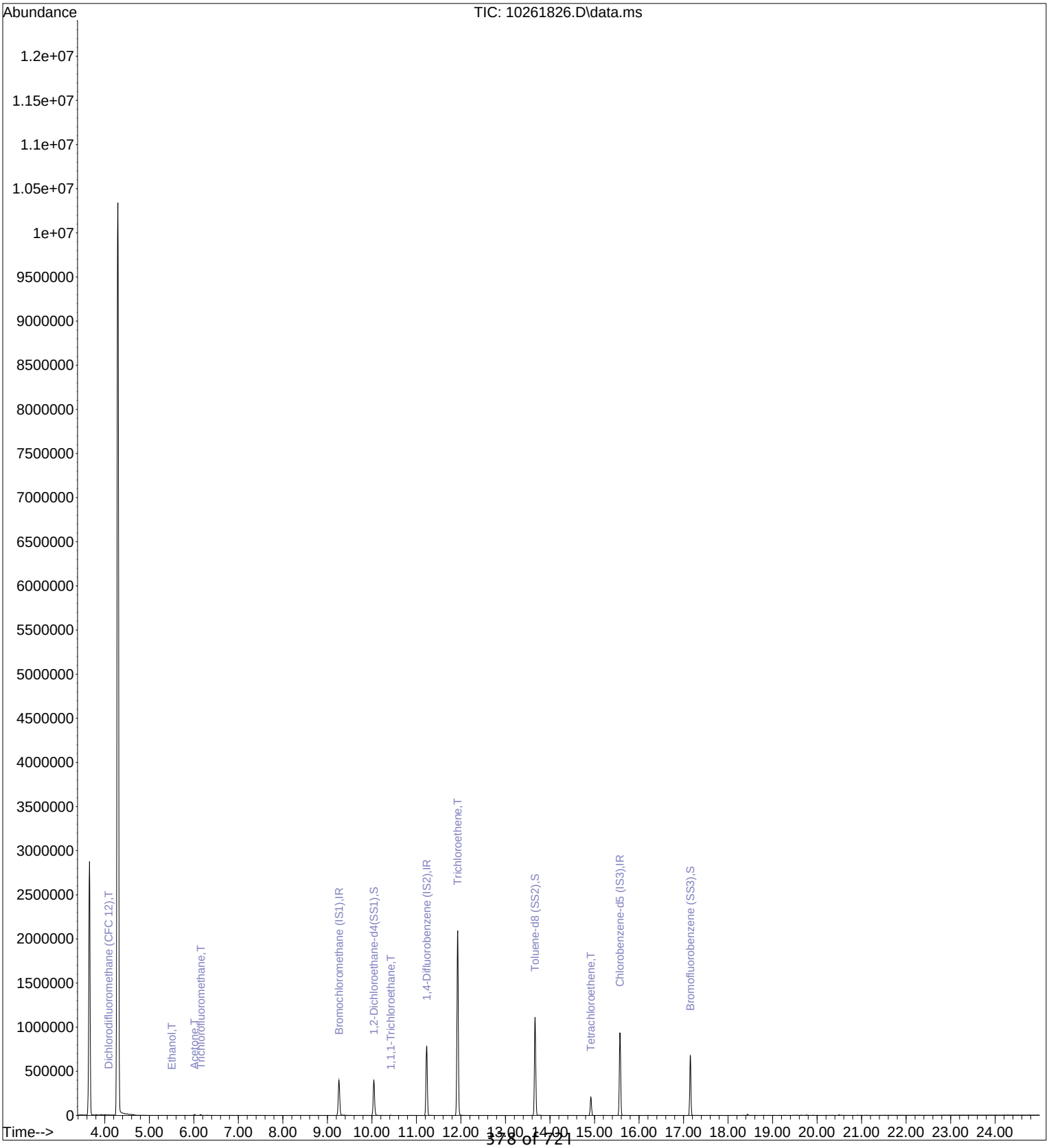
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	3076	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	60189	3.873 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	309	N.D.	
67) m- & p-Xylenes	16.20	91	736	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	0.00	91	0	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.15	105	177	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	265	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.93	57	477	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.99	128	745	N.D.	
96) n-Dodecane	21.00	57	483	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261826.D Vial: 11
Acq On : 26 Oct 2018 19:55 Operator: RS
Sample : P1805493-013dil (40mL) Inst : MS09
Misc : S31-10151806

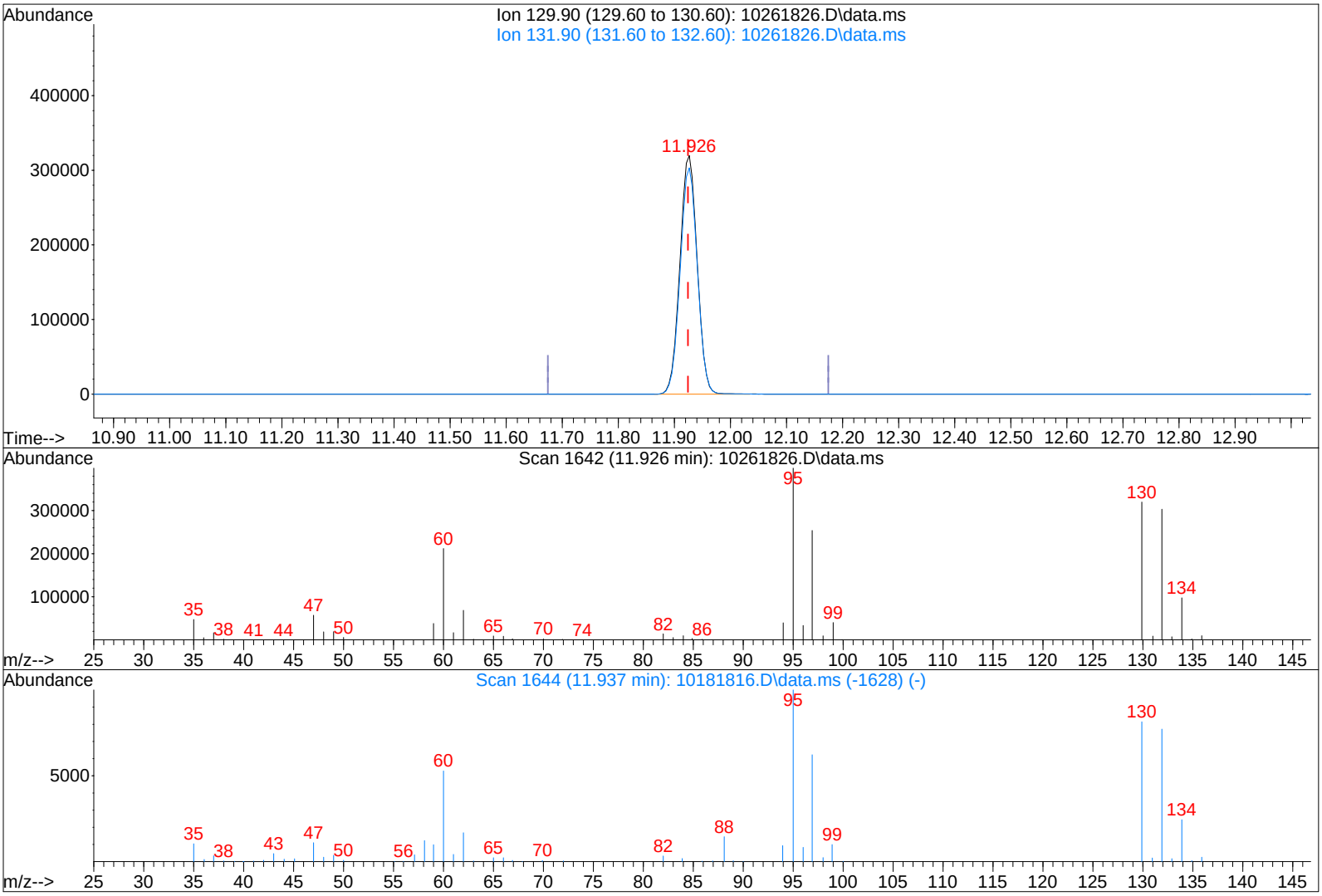
Quant Time: Oct 29 10:54:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261826.D Vial: 11
Acq On : 26 Oct 2018 19:55 Operator: RS
Sample : P1805493-013dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261826.D\data.ms

(47) Trichloroethene (T)

11.926min (+0.002) 46.31ng

response 681220

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	94.50
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:55:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	123321	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	621162	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	392143	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	312669	14.620	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.96%				
57) Toluene-d8 (SS2)	13.67	98	819648	11.964	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.68%				
73) Bromofluorobenzene (SS3)	17.16	174	168101	10.906	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.28%				
Target Compounds							Qvalue
2) Propene	3.98	42	3099	0.099	ng	#	60
3) Dichlorodifluoromethan...	4.08	85	85693	2.552	ng		100
4) Chloromethane	4.28	50	18245	0.448	ng	#	45
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	251	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	11168	0.663	ng		94
11) Acetonitrile	5.69	41	1447	N.D.			
12) Acrolein	5.85	56	718	0.055	ng		92
13) Acetone	6.01	58	17244	0.991	ng		88
14) Trichlorofluoromethane	6.16	101	14910	0.620	ng		98
15) 2-Propanol (Isopropanol)	6.29	45	29447	0.543	ng		70
16) Acrylonitrile	6.51	53	884	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	6.99	84	1044	0.060	ng	#	68
20) 3-Chloro-1-propene (Al...	6.98	41	1066	N.D.			
21) Trichlorotrifluoroethane	7.32	151	844	0.088	ng	#	53
22) Carbon Disulfide	7.29	76	7416	0.113	ng		93
23) trans-1,2-Dichloroethene	8.02	61	1869	0.065	ng		83
24) 1,1-Dichloroethane	8.01	63	429	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.41	86	309	0.108	ng	#	1
27) 2-Butanone (MEK)	8.68	72	3023	0.223	ng	#	54
28) cis-1,2-Dichloroethene	9.10	61	30287	1.090	ng		93
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.36	61	7611	1.059	ng		97
31) n-Hexane	9.35	57	339	N.D.			
32) Chloroform	9.40	83	26986	0.927	ng		99
34) Tetrahydrofuran (THF)	9.84	72	6314	0.484	ng		95
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	20069	0.854	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	6670	0.316	ng	#	79
41) Benzene	10.88	78	3950	0.052	ng		97
42) Carbon Tetrachloride	11.03	117	30088	1.644	ng		100
43) Cyclohexane	11.23	84	730	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.94	130	4622871	310.442	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	175	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:55:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

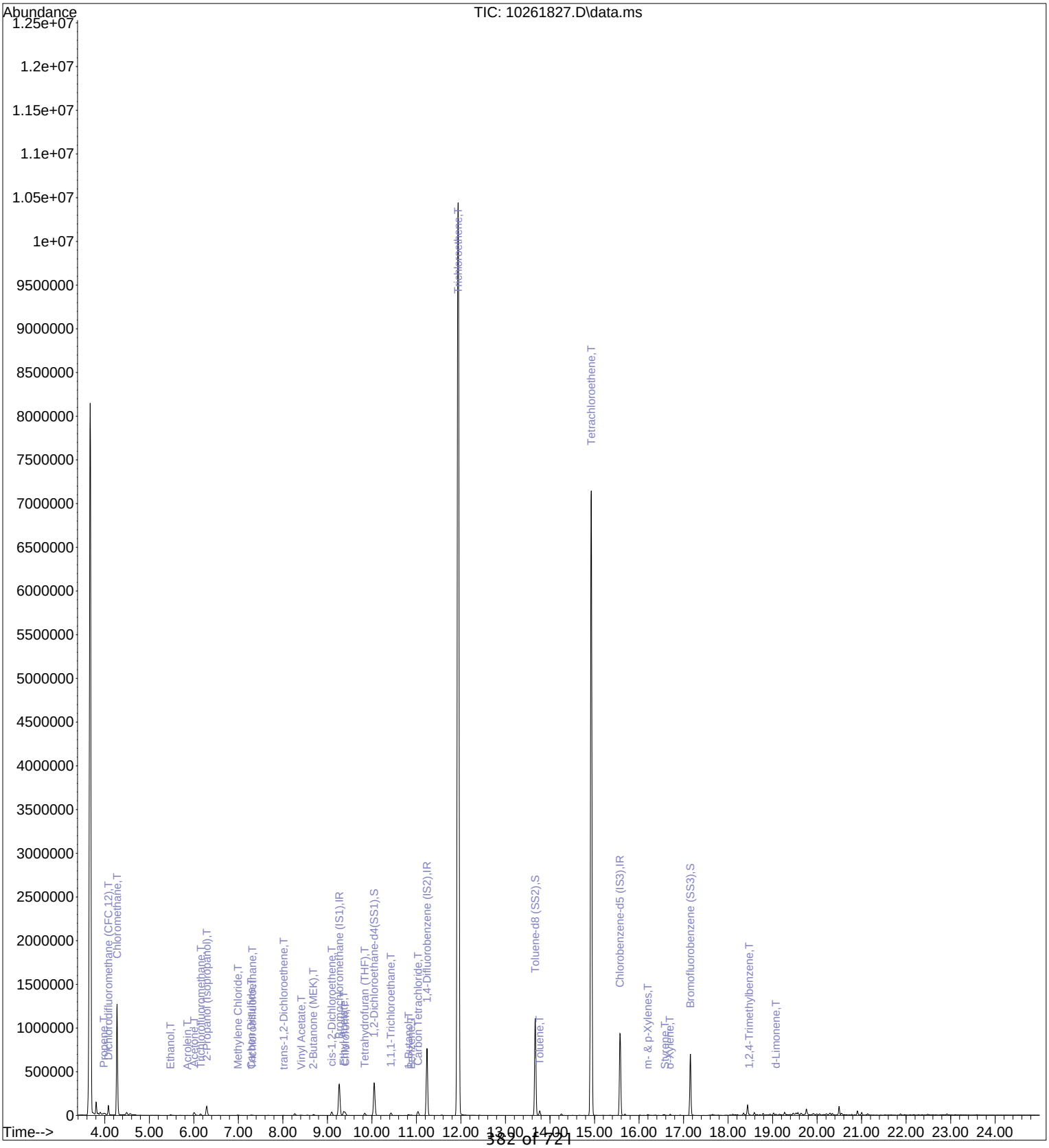
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.83	58	106	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	42089	0.549 ng	98
59) 2-Hexanone	14.04	43	911	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2670	N.D.	
63) n-Octane	14.77	57	223	N.D.	
64) Tetrachloroethene	14.93	166	2322011	146.811 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.03	91	4102	N.D.	
67) m- & p-Xylenes	16.20	91	8325	0.129 ng	98
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	2845	0.062 ng	96
70) o-Xylene	16.69	91	4066	0.065 ng	89
71) n-Nonane	16.93	43	2074	N.D.	
72) 1,1,2,2-Tetrachloroethane	16.71	83	190	N.D.	
74) Cumene	17.30	105	178	N.D.	
75) alpha-Pinene	17.70	93	1125	N.D.	
76) n-Propylbenzene	17.82	91	963	N.D.	
77) 3-Ethyltoluene	17.93	105	1917	N.D.	
78) 4-Ethyltoluene	17.98	105	905	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	995	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D. d	
81) 2-Ethyltoluene	18.25	105	832	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3875	0.065 ng	85
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	380	N.D.	
85) 1,3-Dichlorobenzene	18.71	146	641	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	641	N.D.	
87) sec-Butylbenzene	18.92	105	809	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	607	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	809	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.07	68	2106	0.068 ng	85
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1873	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	355	N.D.	
100) n-Butylbenzene	19.36	91	1189	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:55:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:55:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

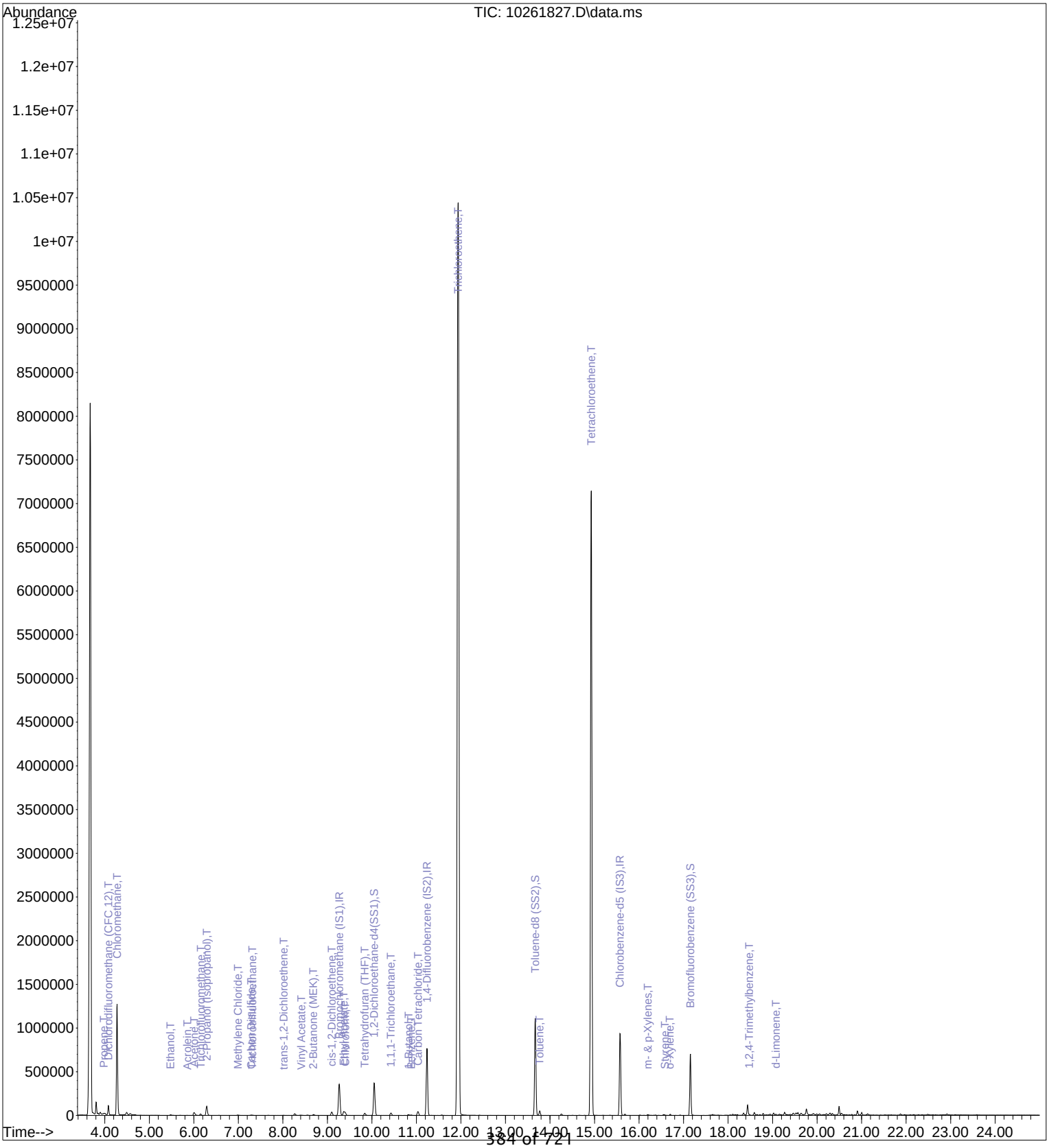
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	123321	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	621162	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	392143	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	312669	14.620	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.96%				
57) Toluene-d8 (SS2)	13.67	98	819648	11.964	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.68%				
73) Bromofluorobenzene (SS3)	17.16	174	168101	10.906	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.28%				
Target Compounds							Qvalue
2) Propene	3.98	42	3099	0.099	ng	#	60
3) Dichlorodifluoromethan...	4.08	85	85693	2.552	ng		100
4) Chloromethane	4.28	50	18245	0.448	ng	#	45
10) Ethanol	5.48	45	11168	0.663	ng		94
12) Acrolein	5.85	56	718	0.055	ng		92
13) Acetone	6.01	58	17244	0.991	ng		88
14) Trichlorofluoromethane	6.16	101	14910	0.620	ng		98
15) 2-Propanol (Isopropanol)	6.29	45	29447	0.543	ng		70
19) Methylene Chloride	6.99	84	1044	0.060	ng	#	68
21) Trichlorotrifluoroethane	7.32	151	844	0.088	ng	#	53
22) Carbon Disulfide	7.29	76	7416	0.113	ng		93
23) trans-1,2-Dichloroethene	8.02	61	1869	0.065	ng		83
26) Vinyl Acetate	8.41	86	309	0.108	ng	#	1
27) 2-Butanone (MEK)	8.68	72	3023	0.223	ng	#	54
28) cis-1,2-Dichloroethene	9.10	61	30287	1.090	ng		93
30) Ethyl Acetate	9.36	61	7611	1.059	ng		97
32) Chloroform	9.40	83	26986	0.927	ng		99
34) Tetrahydrofuran (THF)	9.84	72	6314	0.484	ng		95
38) 1,1,1-Trichloroethane	10.43	97	20069	0.854	ng		99
40) 1-Butanol	10.82	56	6670	0.316	ng	#	79
41) Benzene	10.88	78	3950	0.052	ng		97
42) Carbon Tetrachloride	11.03	117	30088	1.644	ng		100
47) Trichloroethene	11.94	130	4622871	310.442	ng		100
58) Toluene	13.77	91	42089	0.549	ng		98
64) Tetrachloroethene	14.93	166	2322011	146.811	ng		99
67) m- & p-Xylenes	16.20	91	8325	0.129	ng		98
69) Styrene	16.58	104	2845	0.062	ng		96
70) o-Xylene	16.69	91	4066	0.065	ng		89
82) 1,2,4-Trimethylbenzene	18.48	105	3875	0.065	ng		85
91) d-Limonene	19.07	68	2106	0.068	ng		85

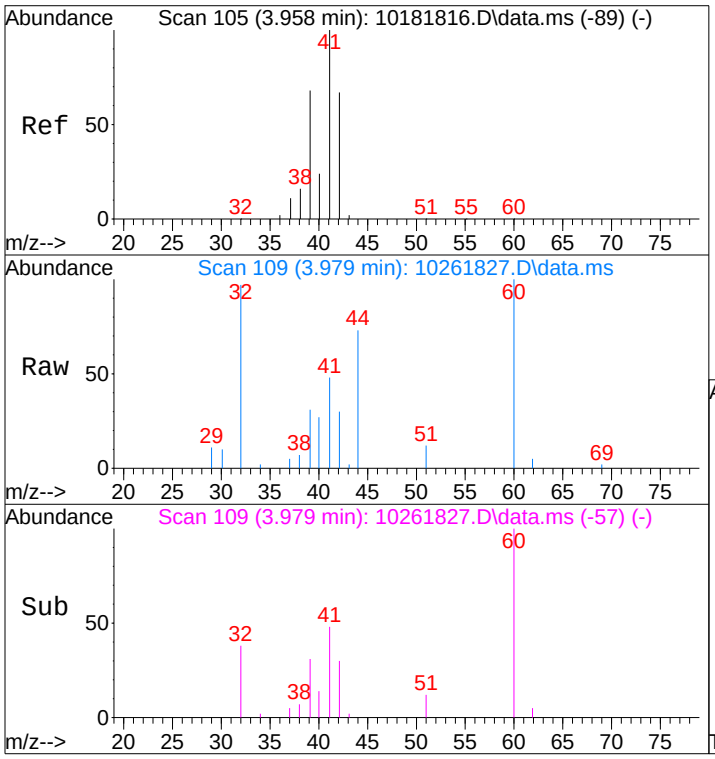
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:55:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

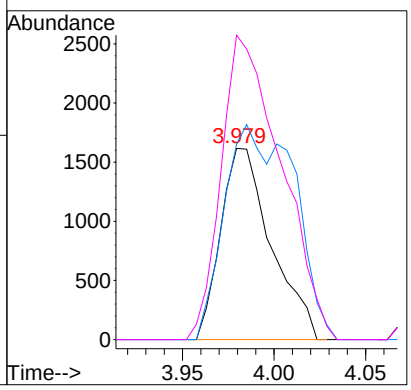


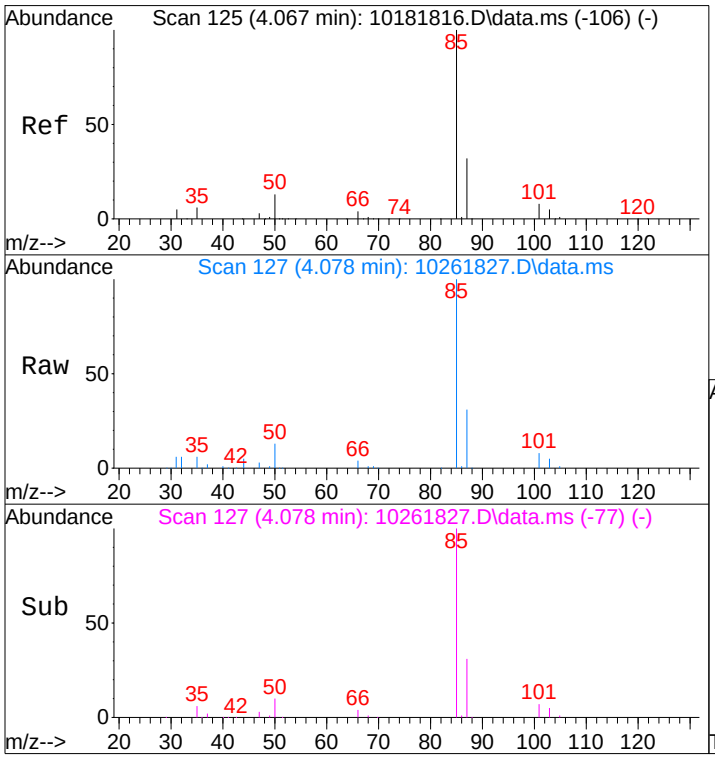


#2
Propene
Concen: 0.10 ng
RT: 3.98 min Scan# 109
Delta R.T. 0.033 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 42 Resp: 3099

Ion	Ratio	Lower	Upper
42	100		
39	155.6	81.9	121.9#
41	189.3	130.4	170.4#

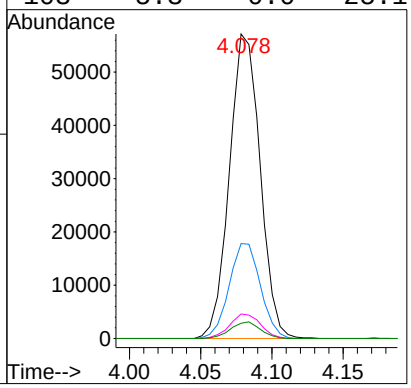


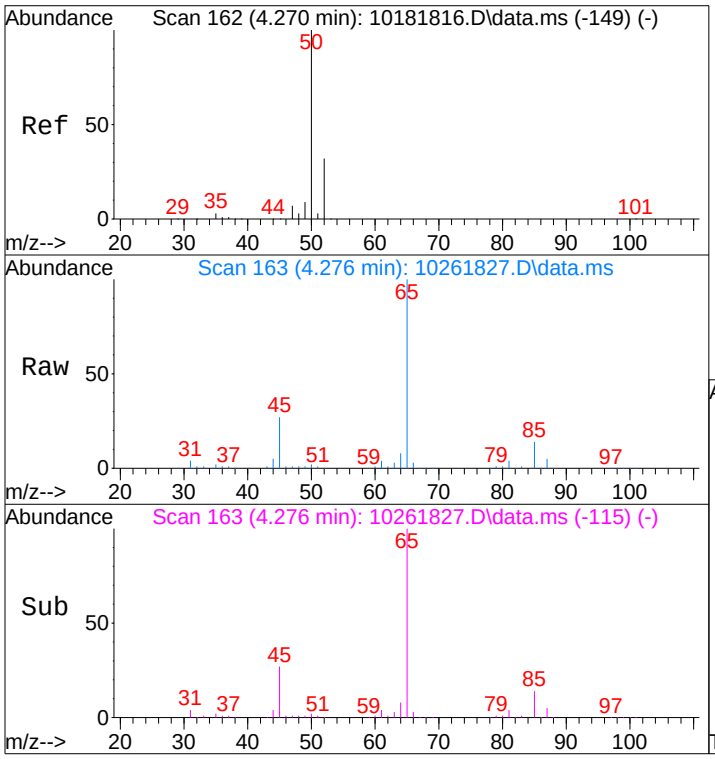


#3
Dichlorodifluoromethane (CFC 12)
Concen: 2.55 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 85 Resp: 85693

Ion	Ratio	Lower	Upper
85	100		
87	31.8	12.0	52.0
101	8.1	0.0	28.0
103	5.3	0.0	25.1

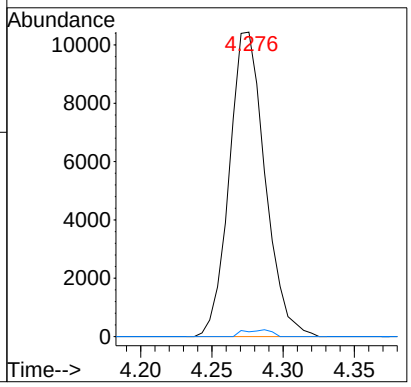


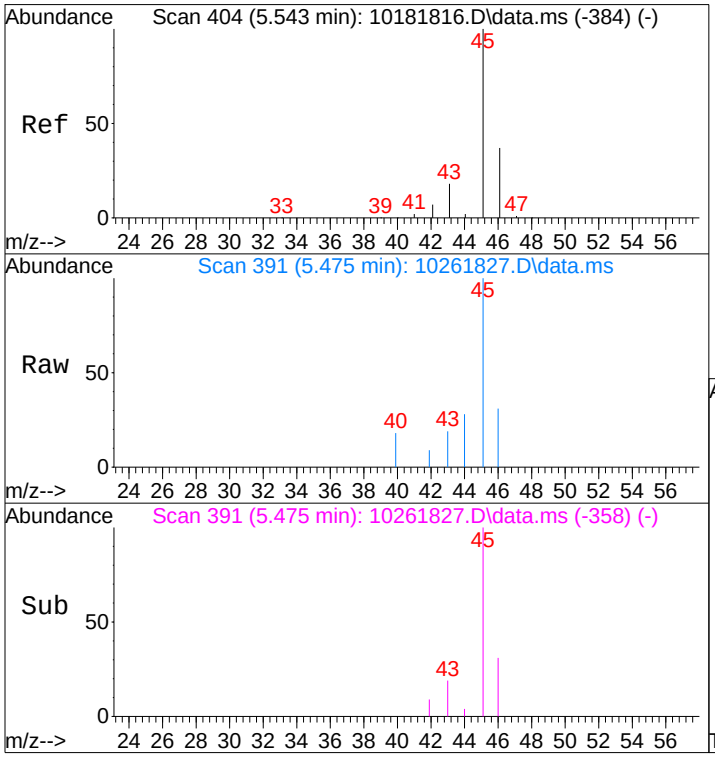


#4
Chloromethane
Concen: 0.45 ng
RT: 4.28 min Scan# 163
Delta R.T. 0.013 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 50 Resp: 18245

Ion	Ratio	Lower	Upper
50	100		
52	1.7	12.4	52.4#

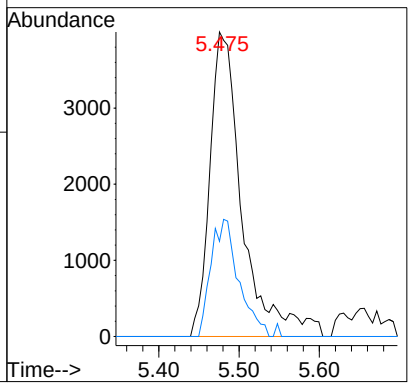


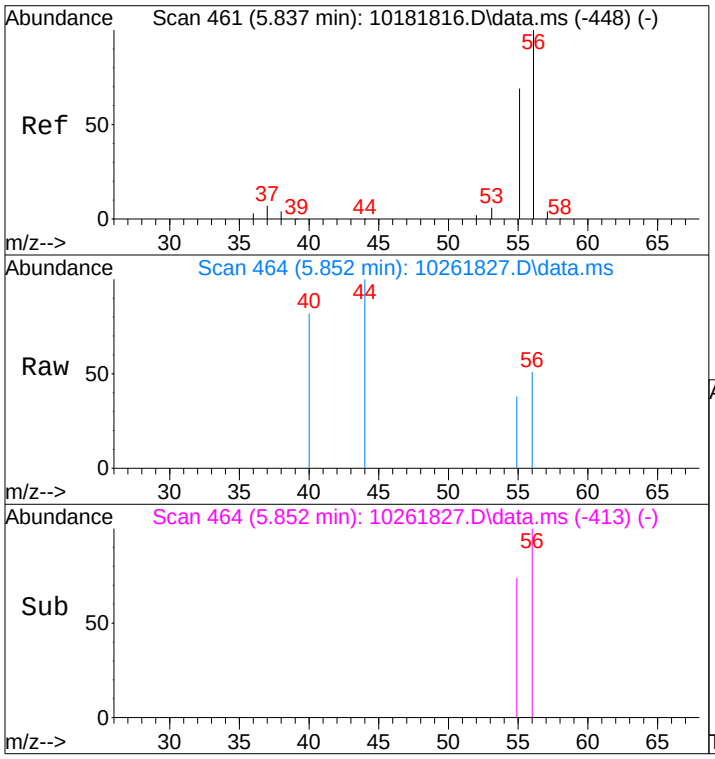


#10
Ethanol
Concen: 0.66 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 45 Resp: 11168

Ion	Ratio	Lower	Upper
45	100		
46	33.2	17.0	57.0

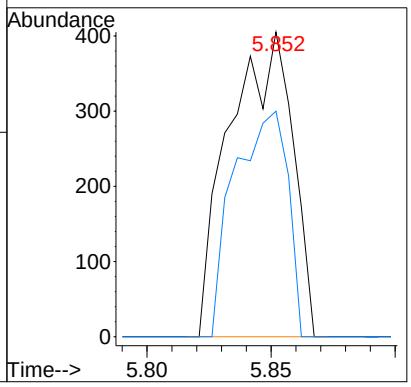


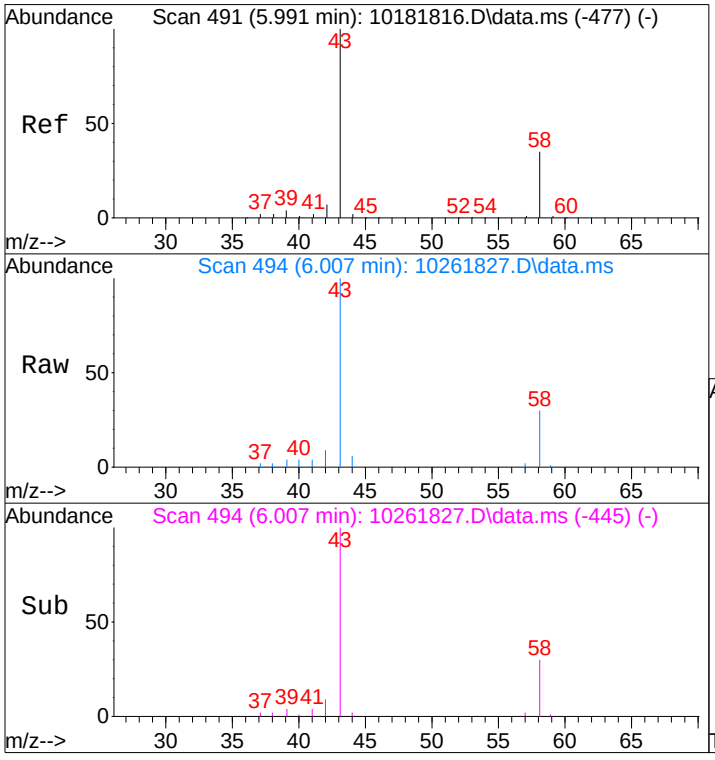


#12
Acrolein
Concen: 0.06 ng
RT: 5.85 min Scan# 464
Delta R.T. 0.013 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 56 Resp: 718

Ion	Ratio	Lower	Upper
56	100		
55	62.7	49.3	89.3

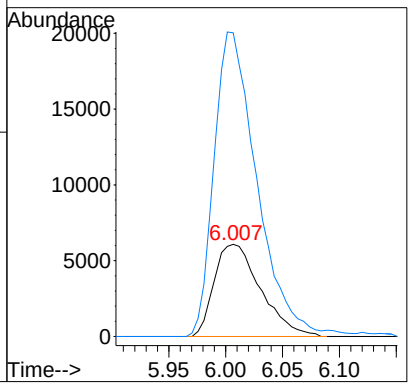


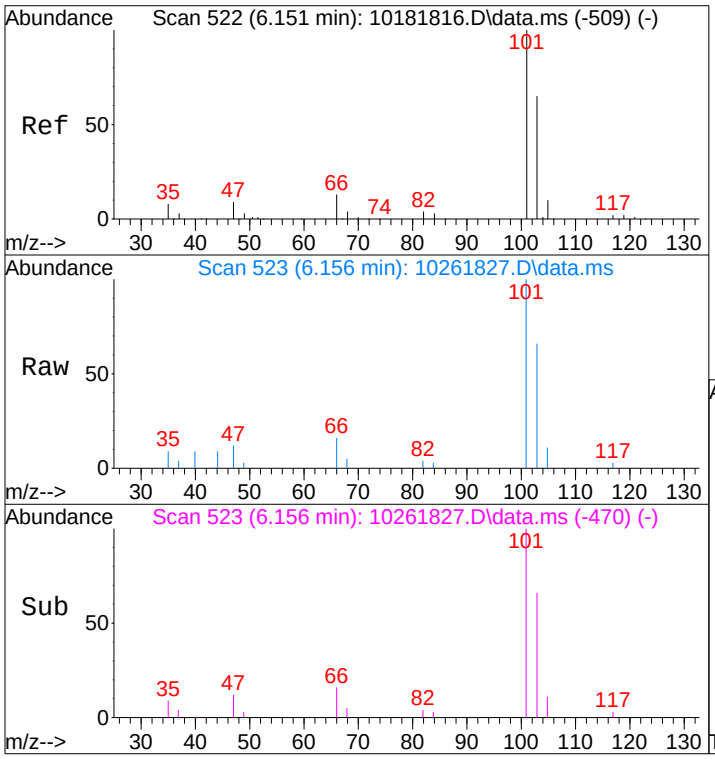


#13
Acetone
Concen: 0.99 ng
RT: 6.01 min Scan# 494
Delta R.T. 0.003 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 58 Resp: 17244

Ion	Ratio	Lower	Upper
58	100		
43	306.6	254.3	314.3

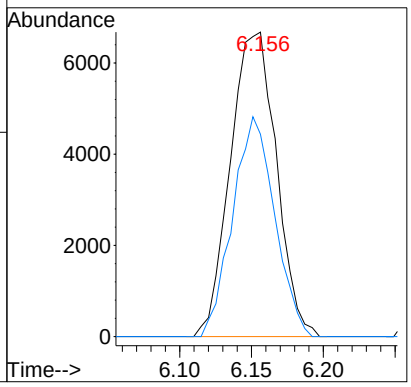


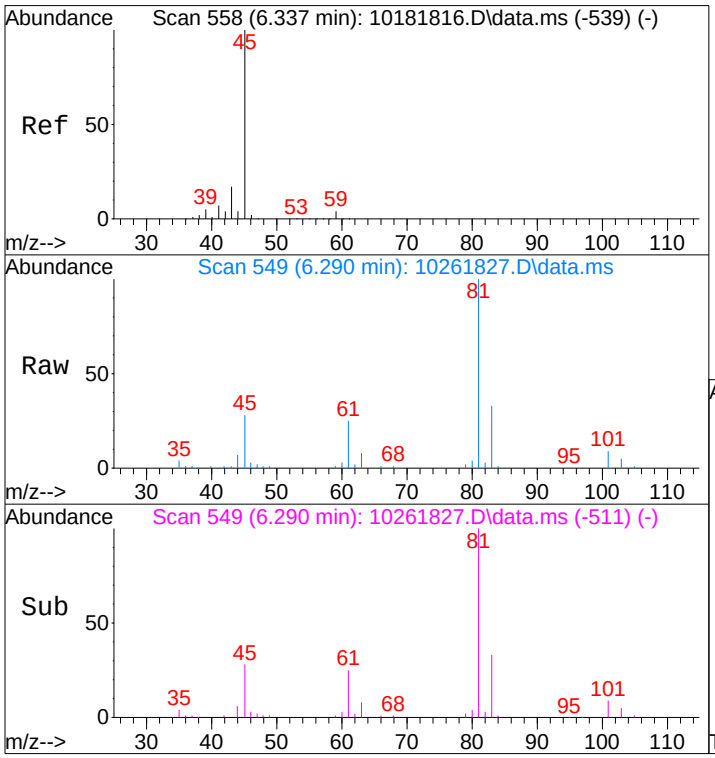


#14
Trichlorofluoromethane
Concen: 0.62 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:101 Resp: 14910

Ion	Ratio	Lower	Upper
101	100		
103	65.9	44.5	84.5

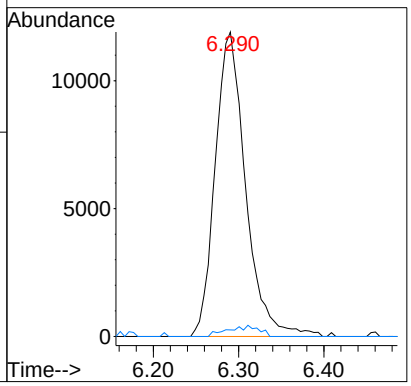


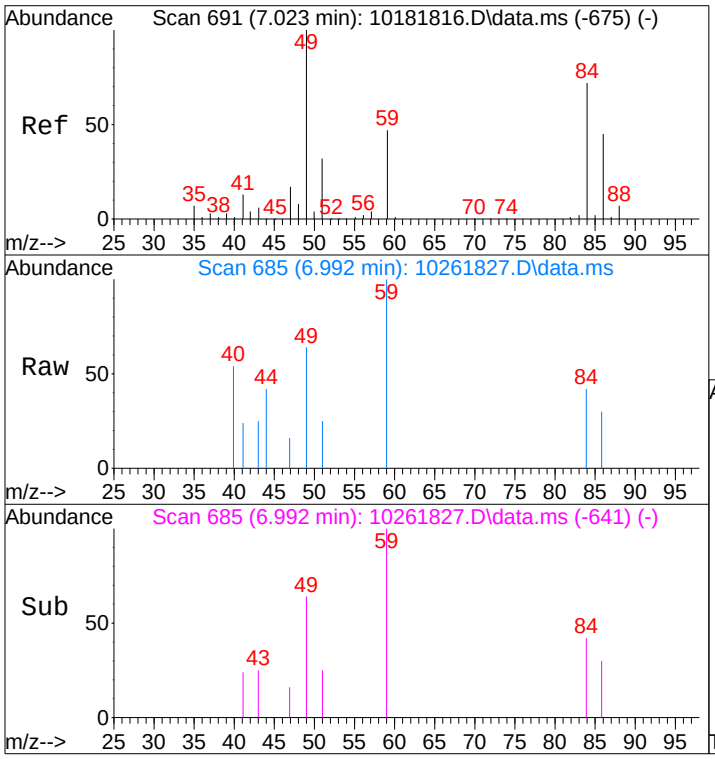


#15
2-Propanol (Isopropanol)
Concen: 0.54 ng
RT: 6.29 min Scan# 549
Delta R.T. -0.052 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 45 Resp: 29447

Ion	Ratio	Lower	Upper
45	100		
43	3.6	0.0	36.7

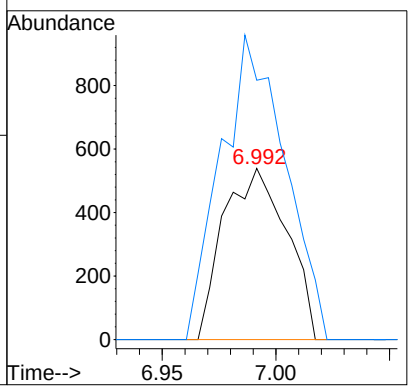


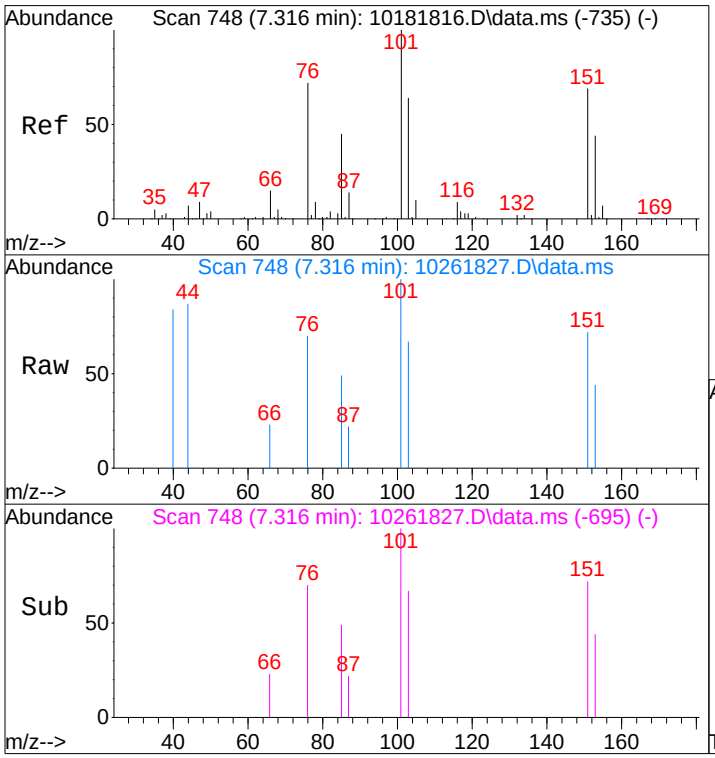


#19
Methylene Chloride
Concen: 0.06 ng
RT: 6.99 min Scan# 685
Delta R.T. -0.023 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 84 Resp: 1044

Ion	Ratio	Lower	Upper
84	100		
49	180.2	116.3	166.3#

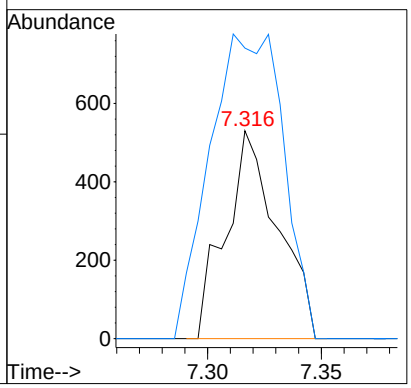


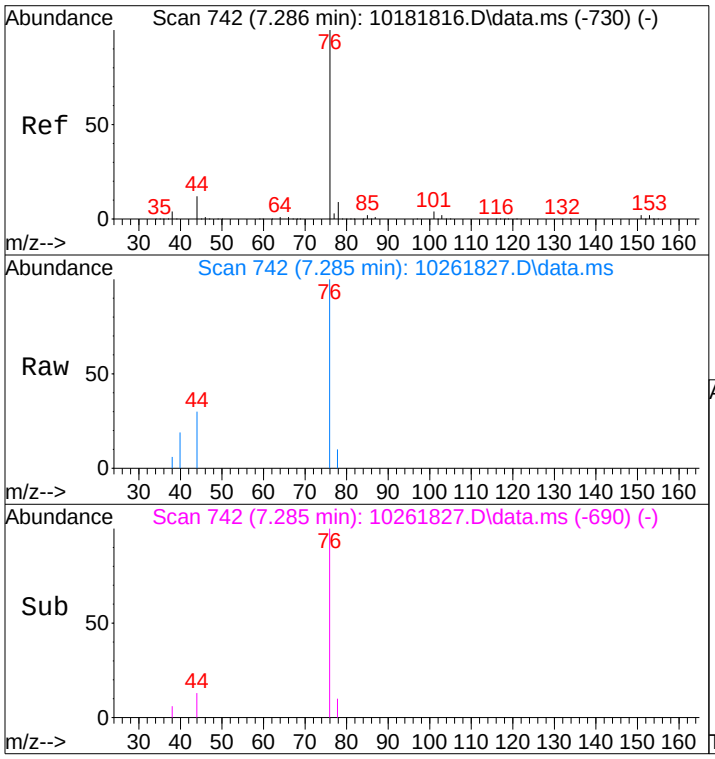


#21
Trichlorotrifluoroethane
Concen: 0.09 ng
RT: 7.32 min Scan# 748
Delta R.T. 0.025 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:151 Resp: 844

Ion	Ratio	Lower	Upper
151	100		
101	207.1	127.5	167.5#

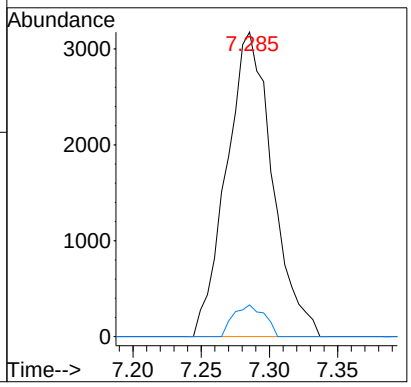


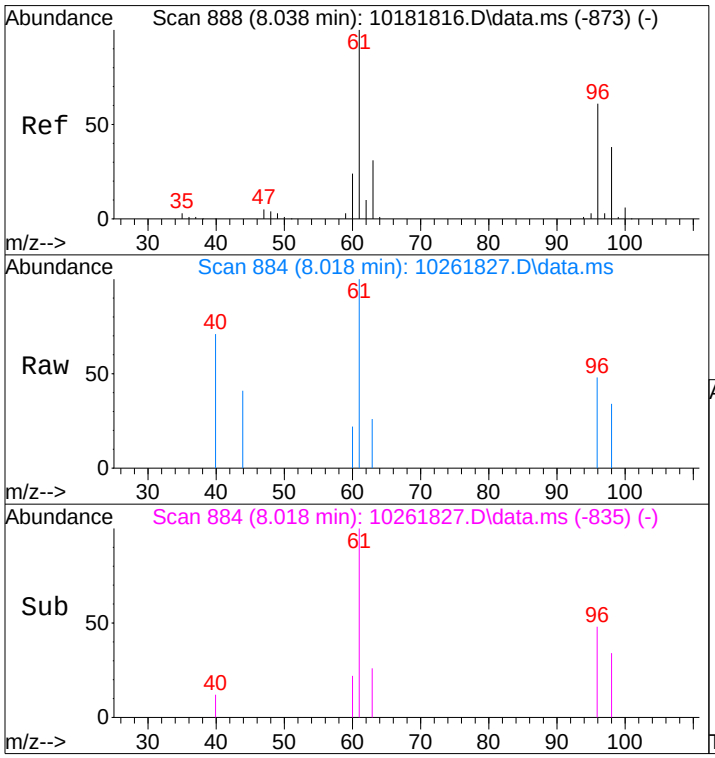


#22
Carbon Disulfide
Concen: 0.11 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 76 Resp: 7416

Ion	Ratio	Lower	Upper
76	100		
78	7.1	0.0	29.6

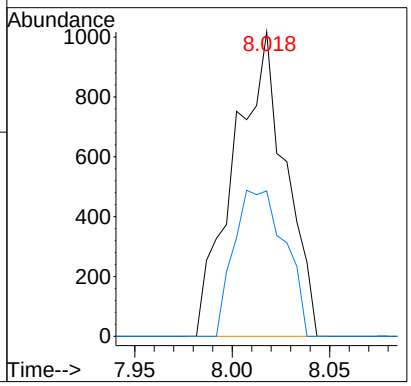


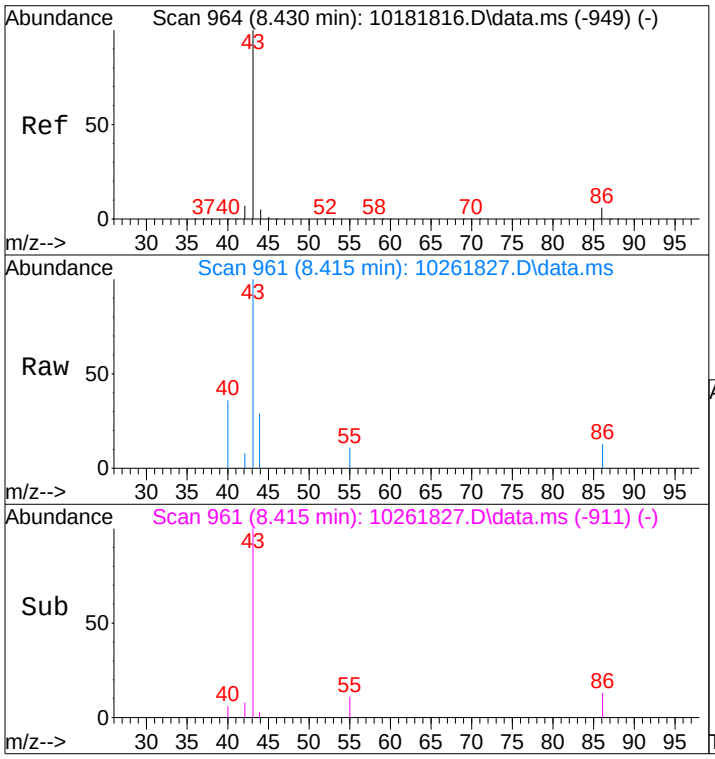


#23
trans-1,2-Dichloroethene
Concen: 0.06 ng
RT: 8.02 min Scan# 884
Delta R.T. 0.004 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 61 Resp: 1869

Ion	Ratio	Lower	Upper
61	100		
96	47.6	40.2	80.2

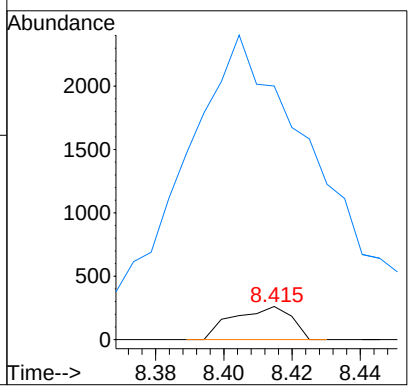


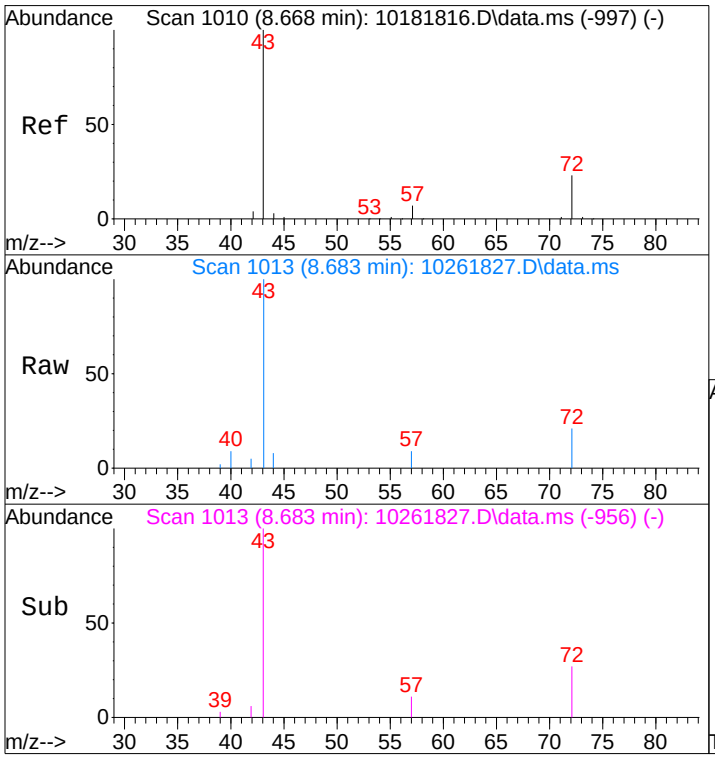


#26
Vinyl Acetate
Concen: 0.11 ng
RT: 8.41 min Scan# 961
Delta R.T. 0.006 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 86 Resp: 309

Ion	Ratio	Lower	Upper
86	100		
43	2330.4	1596.2	1636.2#

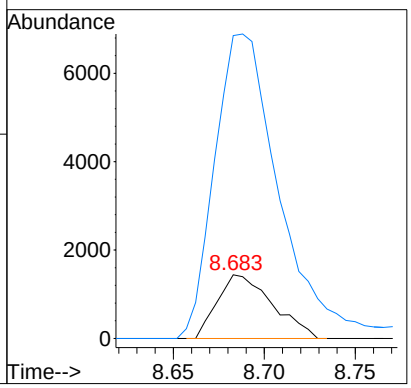


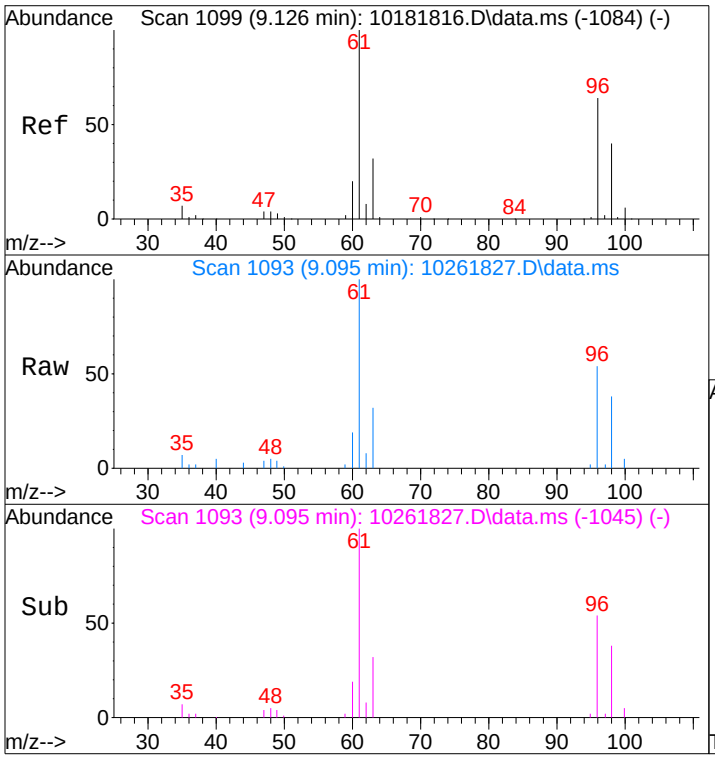


#27
2-Butanone (MEK)
Concen: 0.22 ng
RT: 8.68 min Scan# 1013
Delta R.T. 0.043 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 72 Resp: 3023

Ion	Ratio	Lower	Upper
72	100		
43	568.1	430.0	470.0#

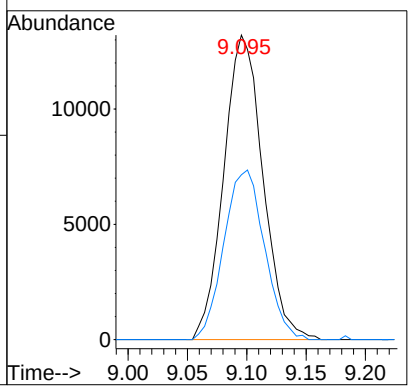


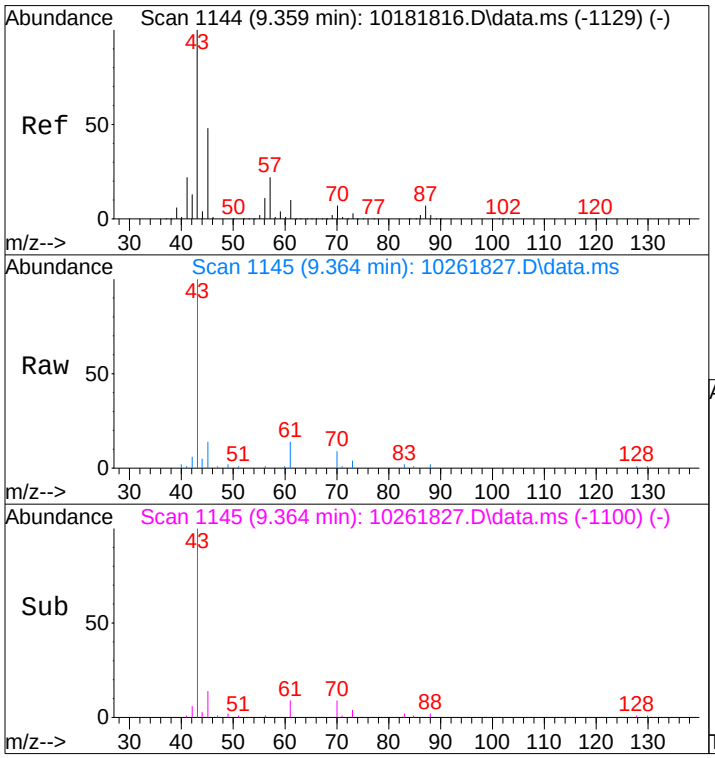


#28
cis-1,2-Dichloroethene
Concen: 1.09 ng
RT: 9.10 min Scan# 1093
Delta R.T. -0.001 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 61 Resp: 30287

Ion	Ratio	Lower	Upper
61	100		
96	57.6	42.8	82.8

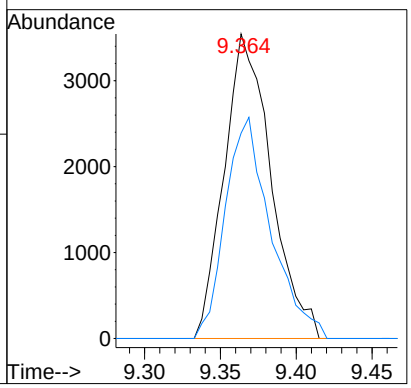


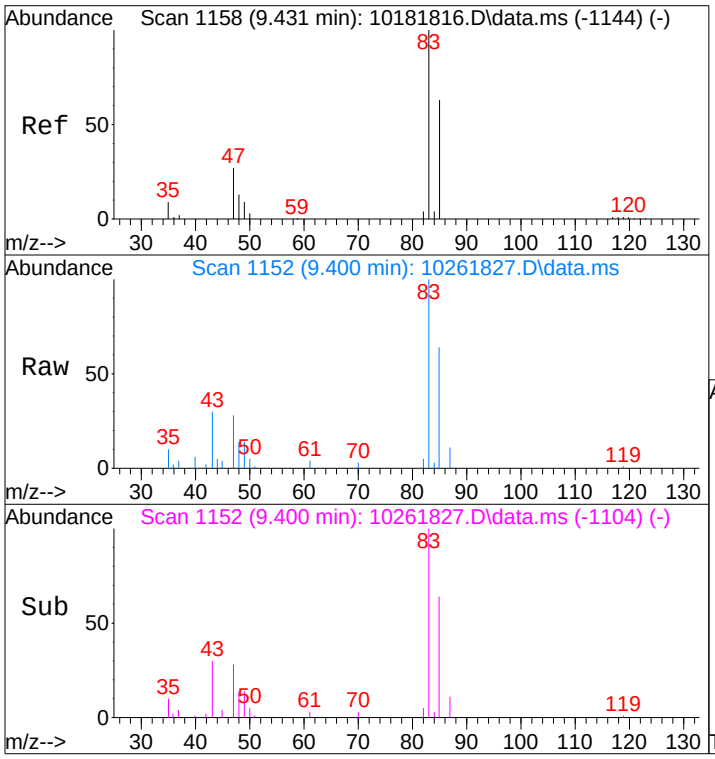


#30
Ethyl Acetate
Concen: 1.06 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.032 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 61 Resp: 7611

Ion	Ratio	Lower	Upper
61	100		
70	70.3	52.7	92.7

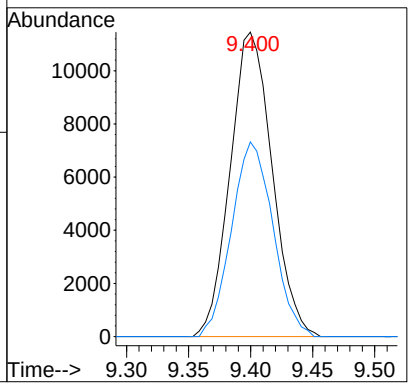


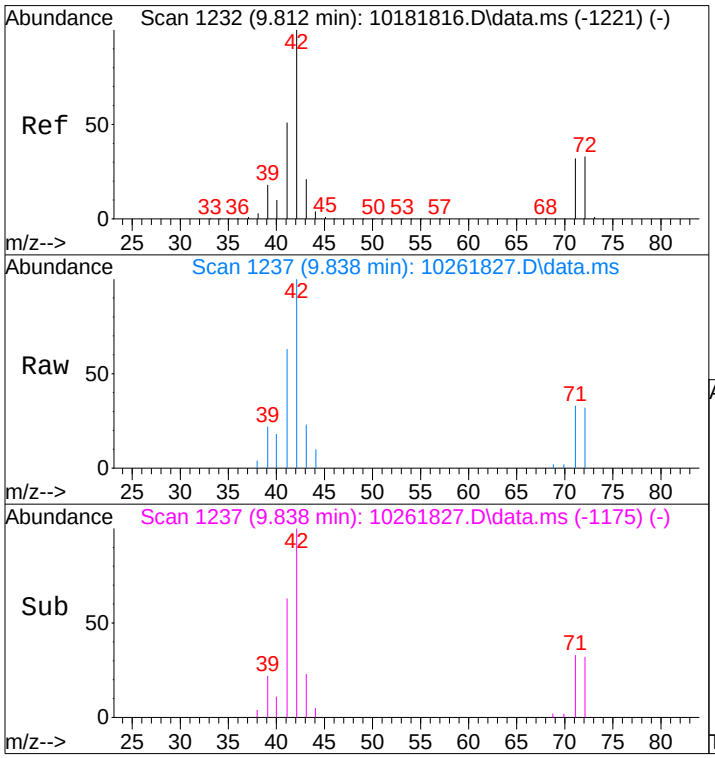


#32
Chloroform
Concen: 0.93 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 83 Resp: 26986

Ion	Ratio	Lower	Upper
83	100		
85	63.0	44.0	84.0

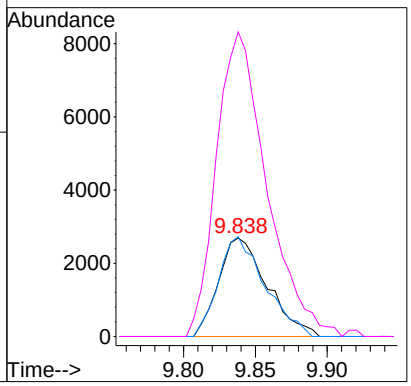


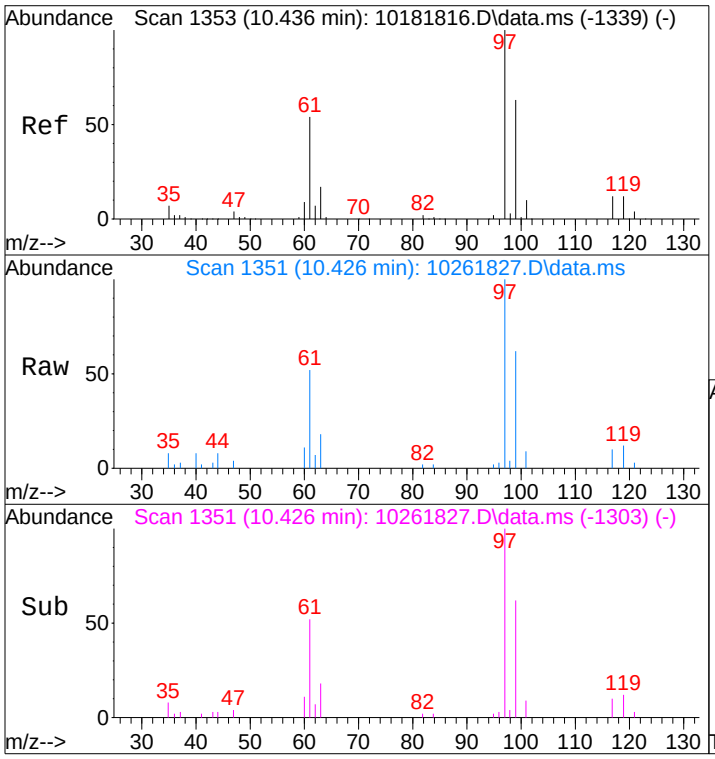


#34
Tetrahydrofuran (THF)
Concen: 0.48 ng
RT: 9.84 min Scan# 1237
Delta R.T. 0.070 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 72 Resp: 6314

Ion	Ratio	Lower	Upper
72	100		
71	97.0	76.7	116.7
42	320.8	287.9	327.9

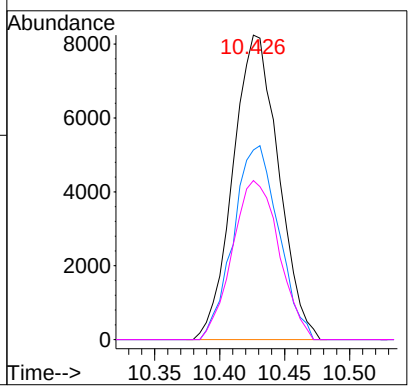


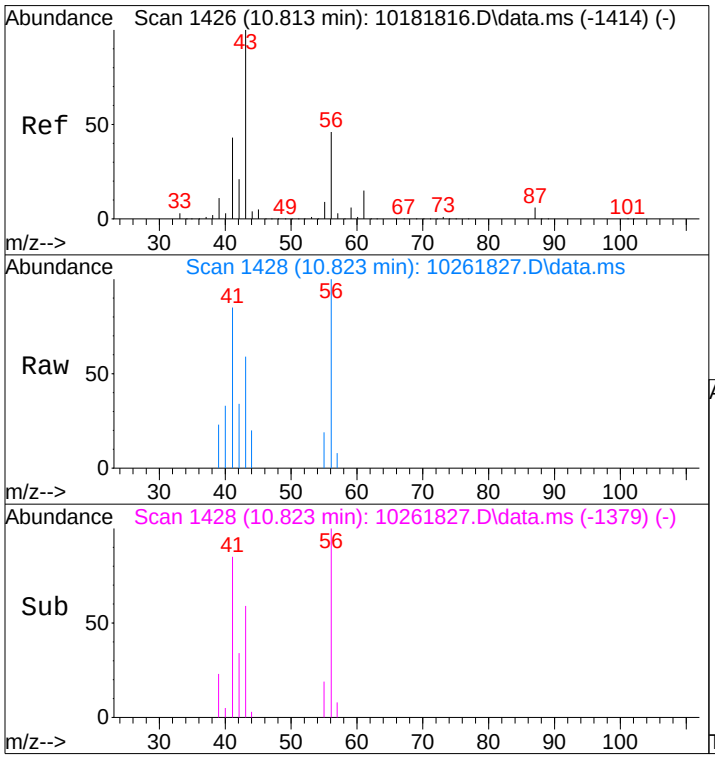


#38
1,1,1-Trichloroethane
Concen: 0.85 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 97 Resp: 20069

Ion	Ratio	Lower	Upper
97	100		
99	63.2	43.5	83.5
61	53.5	34.2	74.2

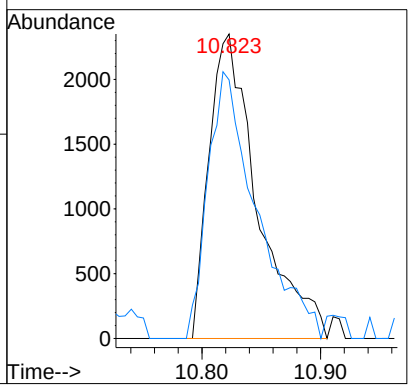


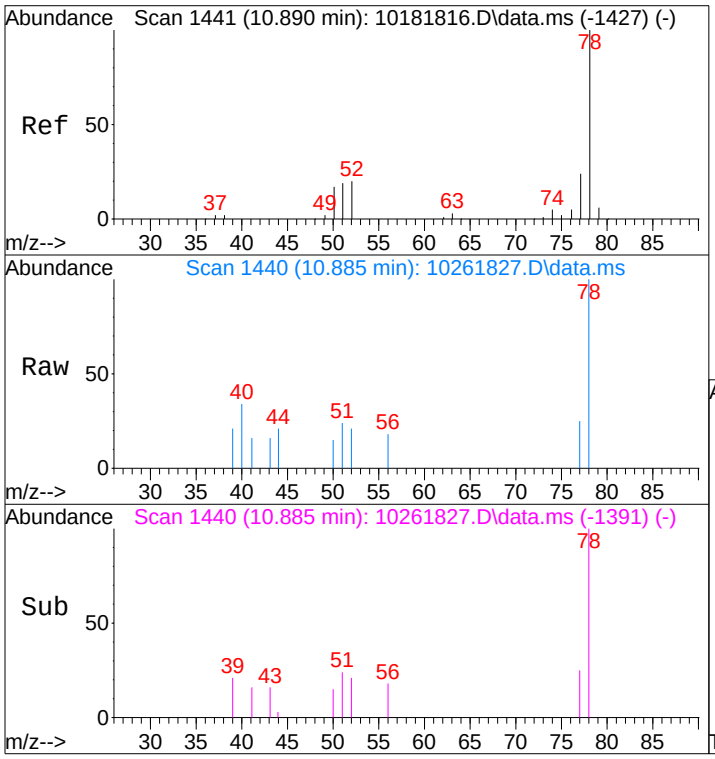


#40
1-Butanol
Concen: 0.32 ng
RT: 10.82 min Scan# 1428
Delta R.T. 0.004 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 56 Resp: 6670

Ion	Ratio	Lower	Upper
56	100		
41	87.5	90.2	130.2#

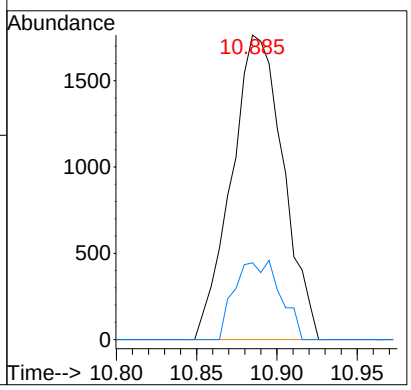


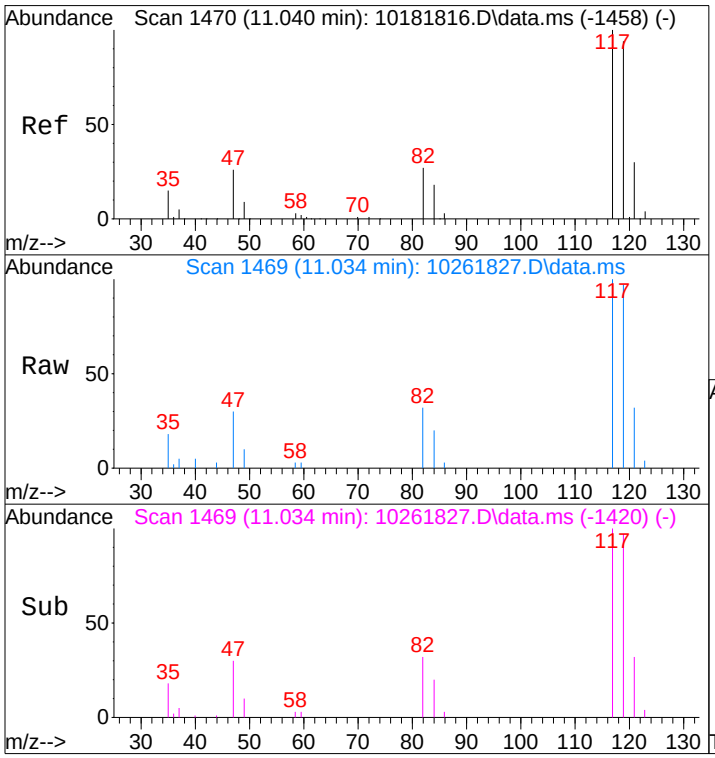


#41
Benzene
Concen: 0.05 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.005 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 78 Resp: 3950

Ion	Ratio	Lower	Upper
78	100		
77	22.8	4.1	44.1

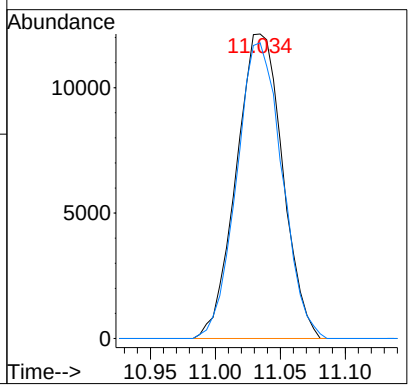


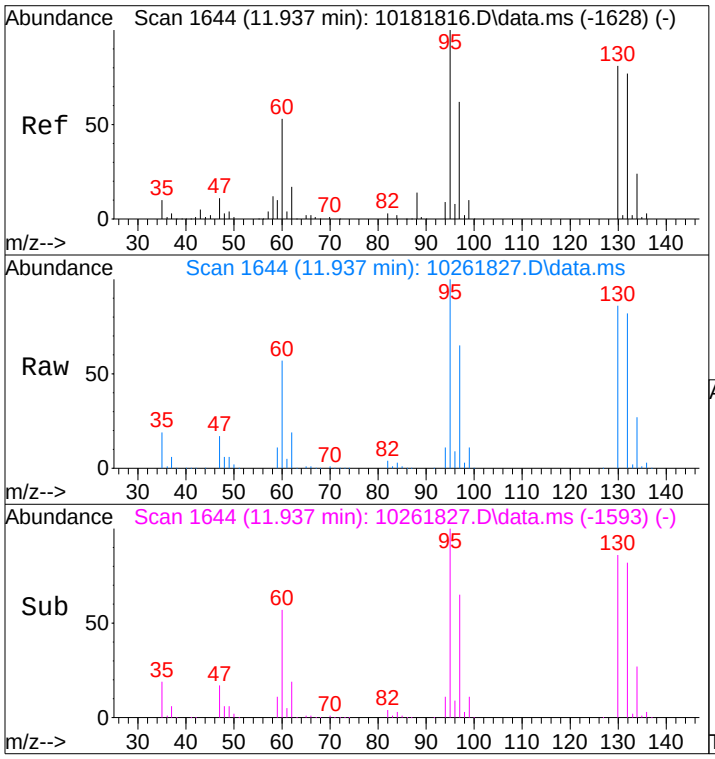


#42
Carbon Tetrachloride
Concen: 1.64 ng
RT: 11.03 min Scan# 1469
Delta R.T. 0.005 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:117 Resp: 30088

Ion	Ratio	Lower	Upper
117	100		
119	95.2	74.7	114.7

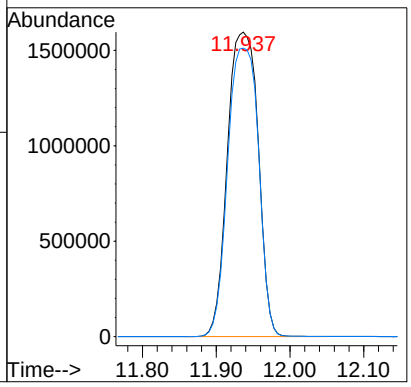


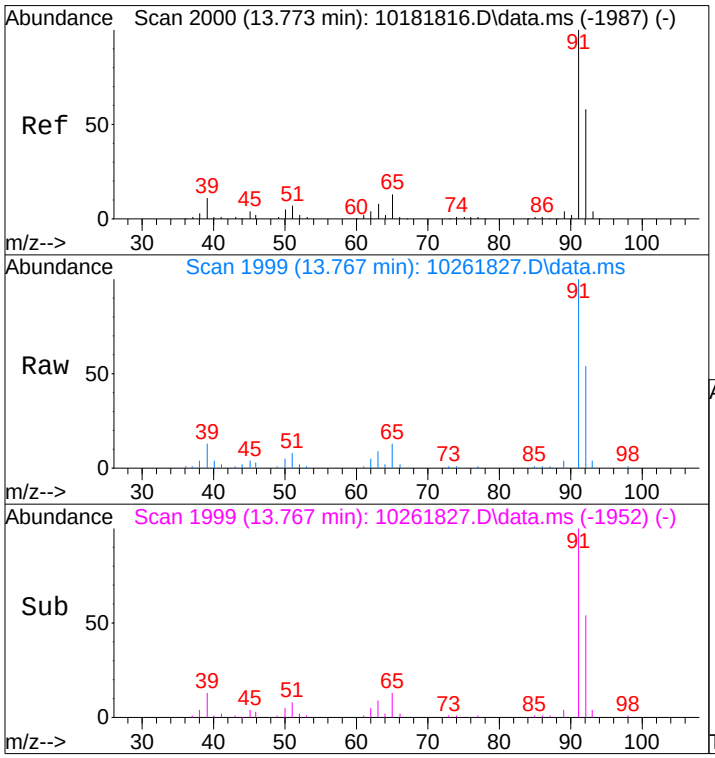


#47
Trichloroethene
Concen: 310.44 ng
RT: 11.94 min Scan# 1644
Delta R.T. 0.012 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:130 Resp: 4622871

Ion	Ratio	Lower	Upper
130	100		
132	95.1	74.6	114.6

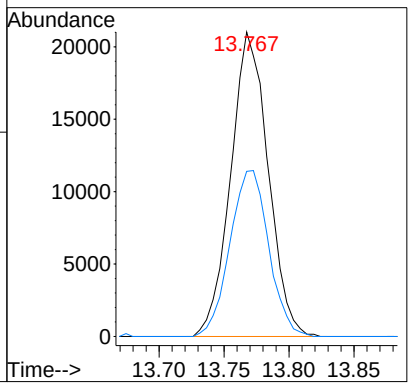


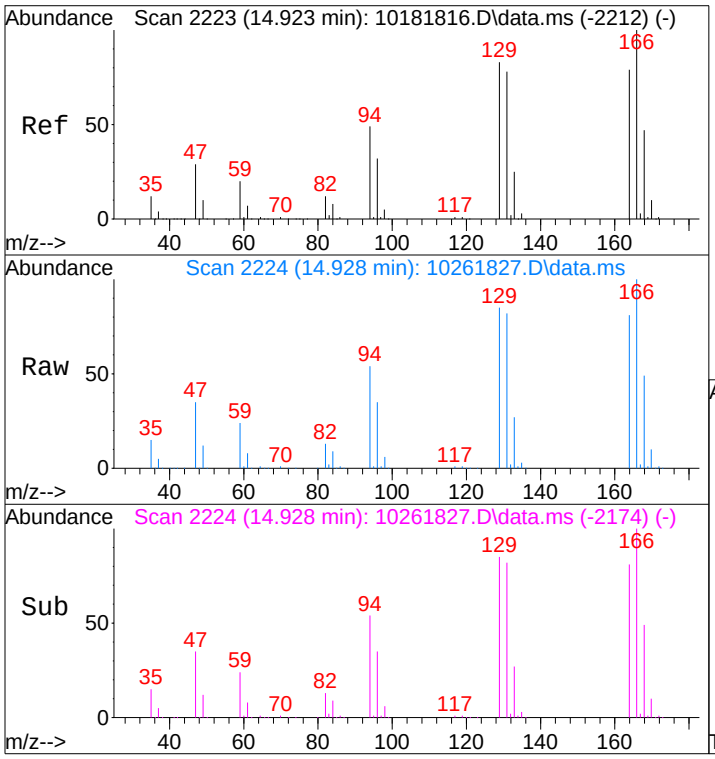


#58
Toluene
Concen: 0.55 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 91 Resp: 42089

Ion	Ratio	Lower	Upper
91	100		
92	56.5	38.1	78.1

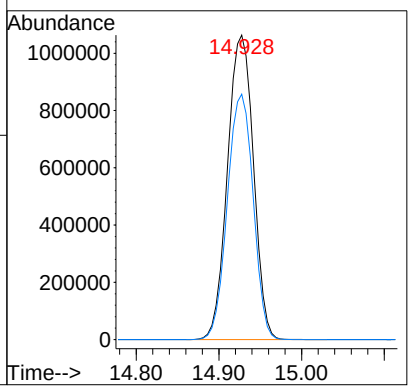


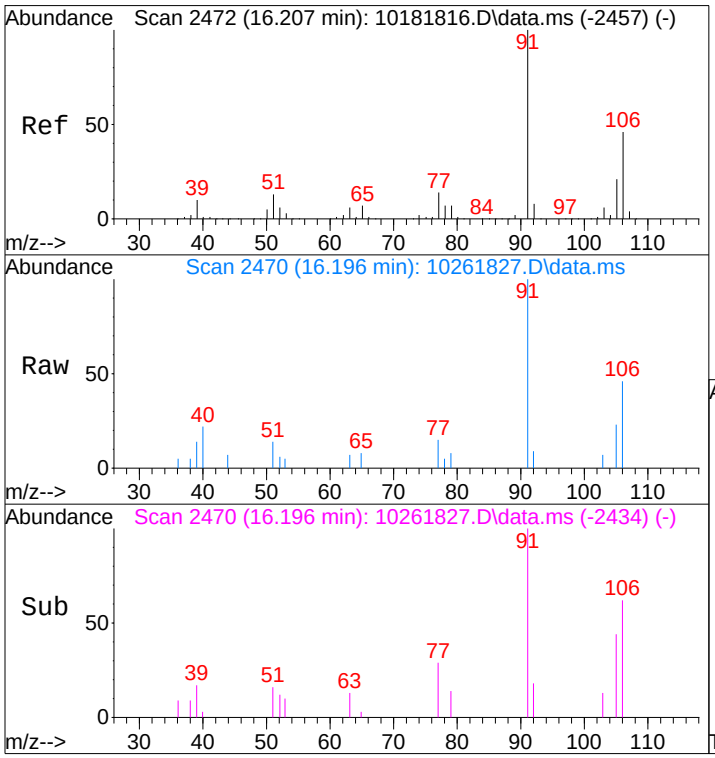


#64
Tetrachloroethene
Concen: 146.81 ng
RT: 14.93 min Scan# 2224
Delta R.T. 0.010 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:166 Resp: 2322011

Ion	Ratio	Lower	Upper
166	100		
164	80.1	58.9	98.9

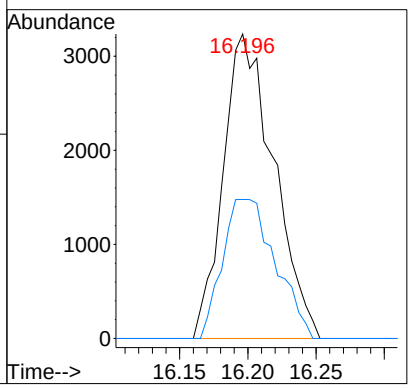


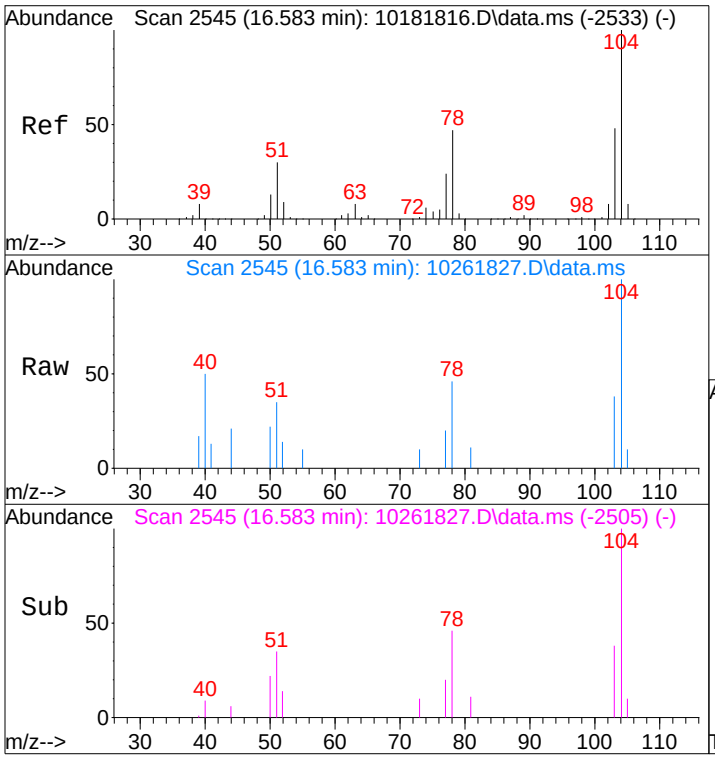


#67
m- & p-Xylenes
Concen: 0.13 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 91 Resp: 8325

Ion	Ratio	Lower	Upper
91	100		
106	47.7	26.7	66.7

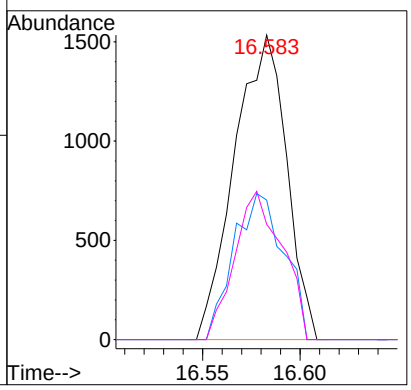


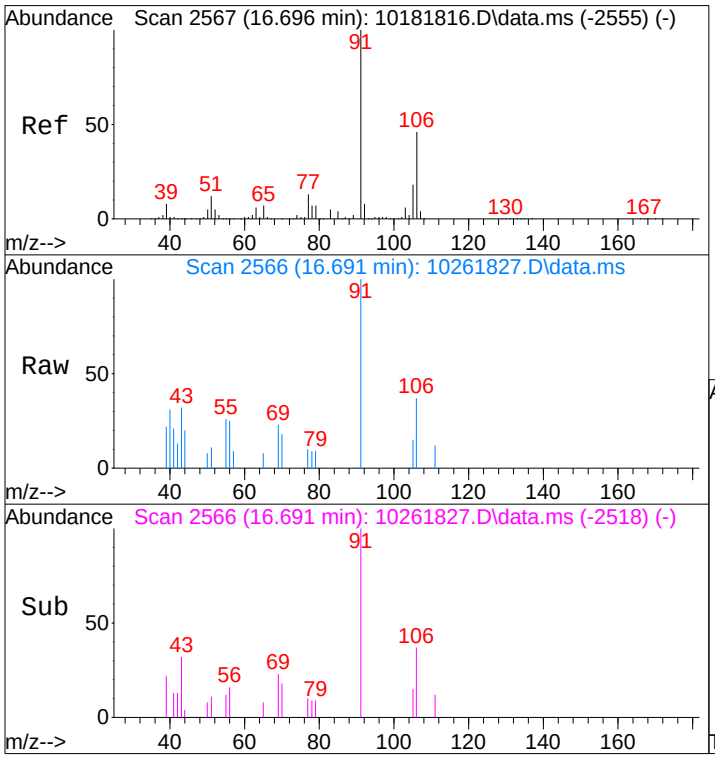


#69
Styrene
Concen: 0.06 ng
RT: 16.58 min Scan# 2545
Delta R.T. 0.006 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:104 Resp: 2845

Ion	Ratio	Lower	Upper
104	100		
78	46.4	27.8	67.8
103	44.5	27.9	67.9

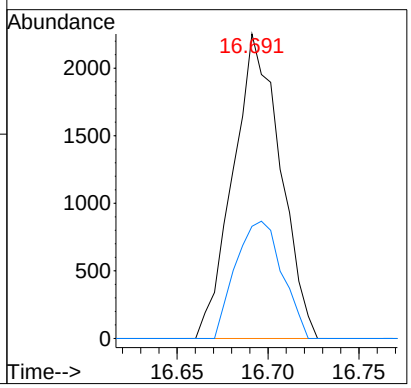


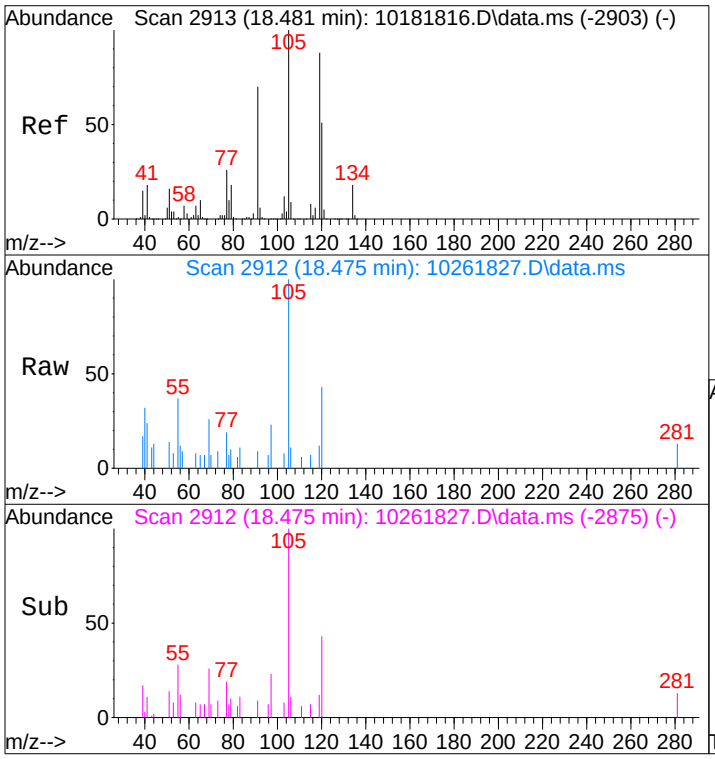


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 91 Resp: 4066

Ion	Ratio	Lower	Upper
91	100		
106	37.9	25.2	65.2

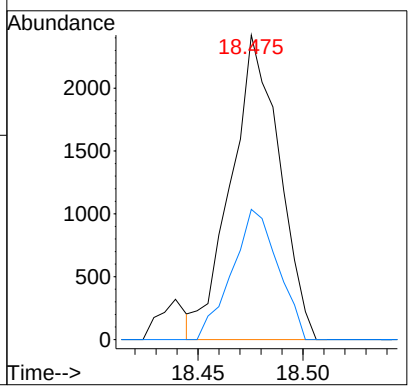


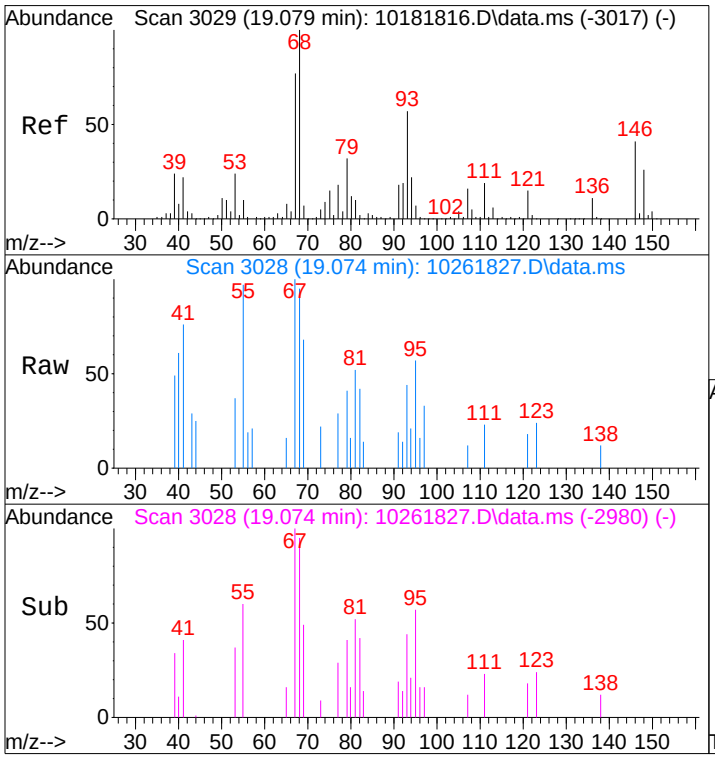


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion:105 Resp: 3875

Ion	Ratio	Lower	Upper
105	100		
120	40.7	31.3	71.3

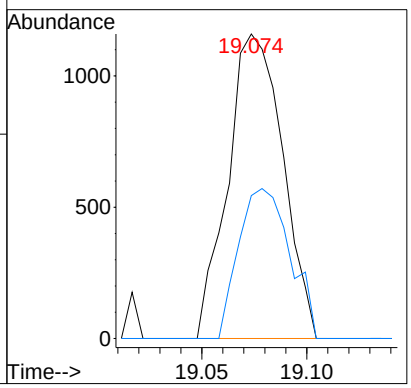




#91
d-Limonene
Concen: 0.07 ng
RT: 19.07 min Scan# 3028
Delta R.T. -0.003 min
Lab File: 10261827.D
Acq: 26 Oct 2018 20:29

Tgt Ion: 68 Resp: 2106

Ion	Ratio	Lower	Upper
68	100		
93	46.2	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 13:51:01 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

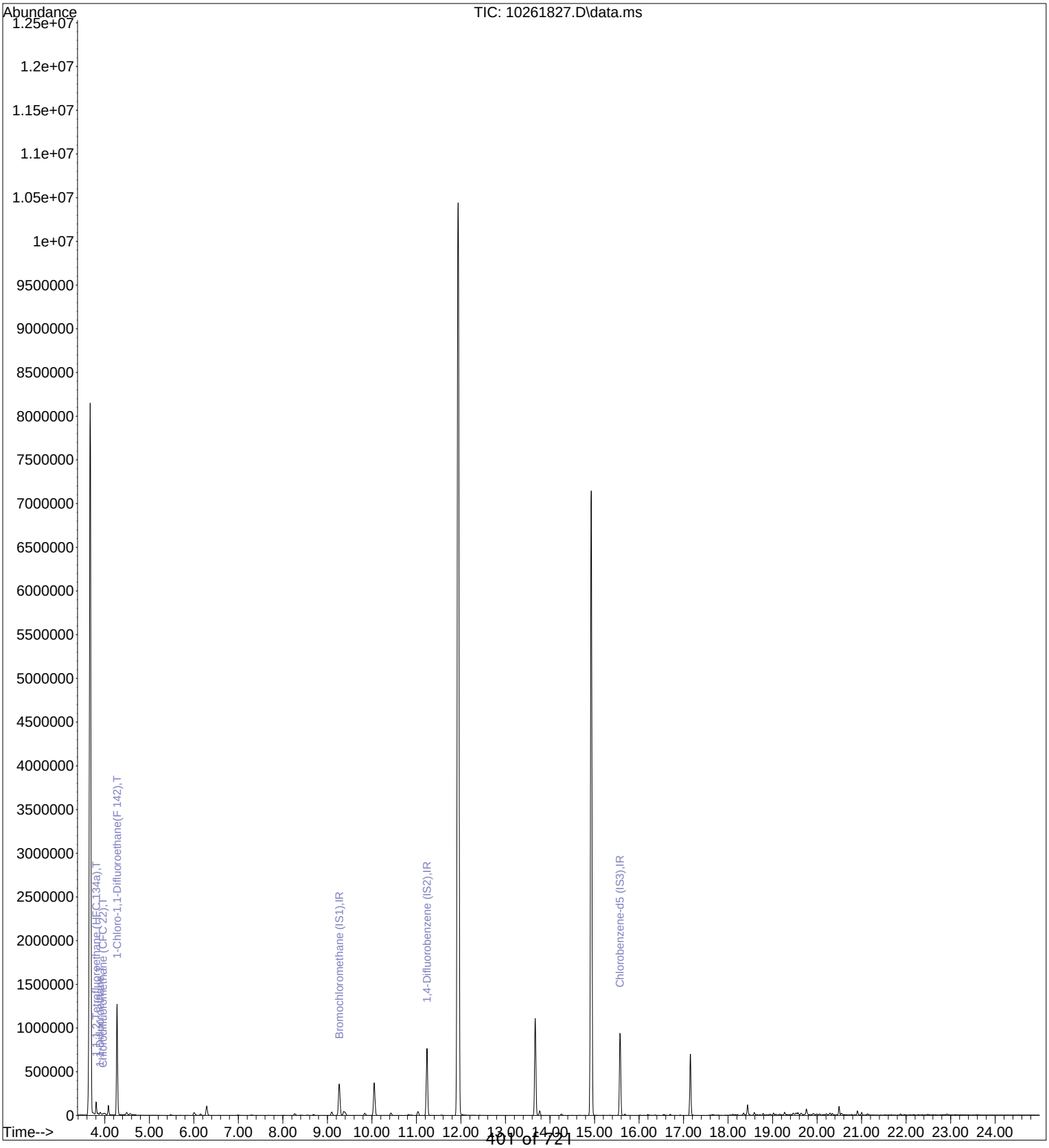
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	123321	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	621162	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	392143	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	208	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	46654	3.662	ng		83
4) 1,1-Difluoroethane	3.89	65	7095	0.465	ng		93
5) Chlorodifluoromethane ...	3.96	67	1294	0.312	ng	#	56
6) 1-Chloro-1,1-Difluoroe...	4.28	65	1121825	40.699	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.00	57	1124	N.D.			
11) Methyl Acetate	7.04	43	1187	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.	d		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	0.00	55	0	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	963	N.D.			
27) 4-Chlorotoluene	17.82	91	963	N.D.			
28) Indane	19.13	117	194	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	101	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	369	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	170	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

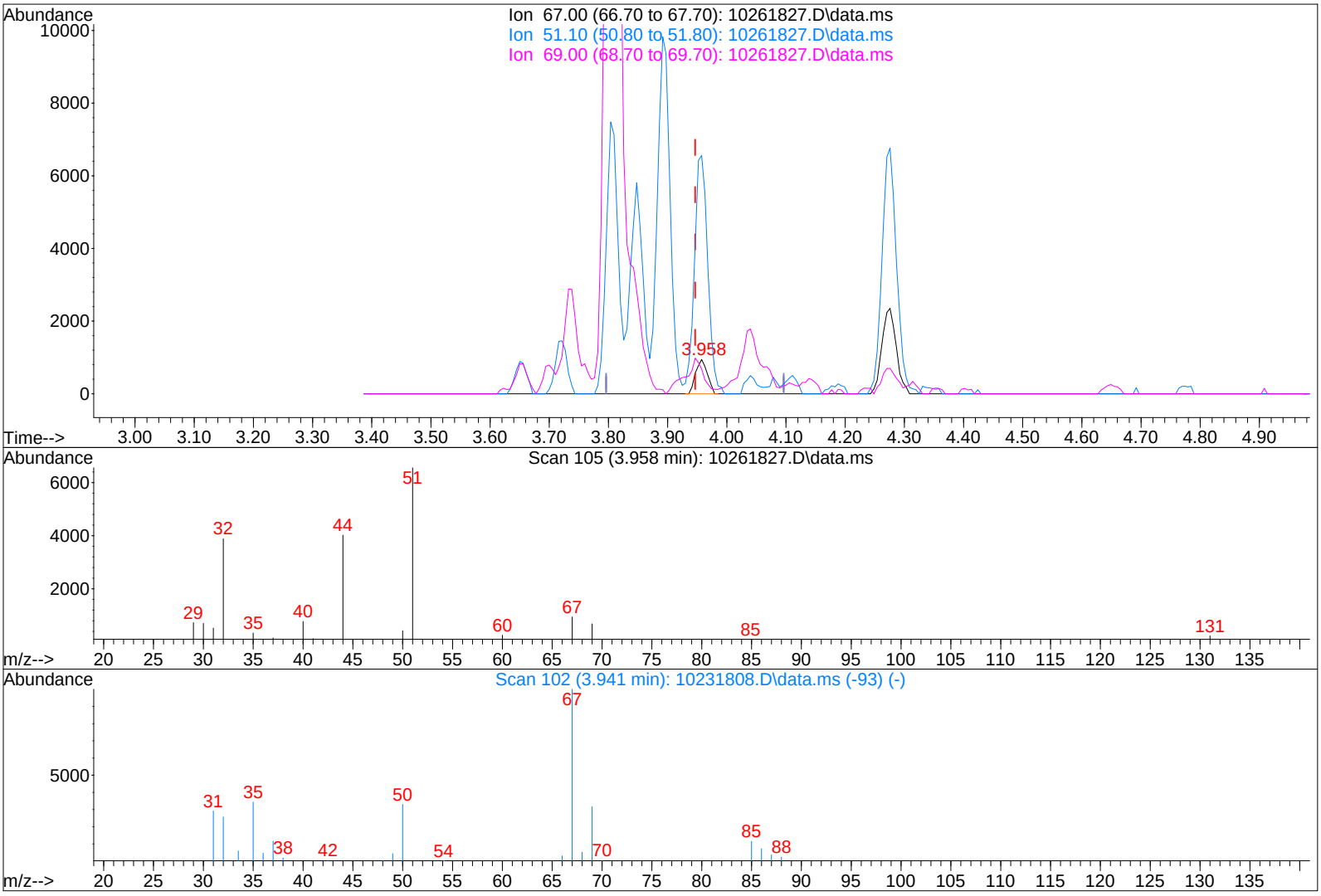
Quant Time: Oct 29 13:51:01 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261827.D Vial: 12
Acq On : 26 Oct 2018 20:29 Operator: RS
Sample : P1805493-014 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:50:39 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261827.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

3.958min (+0.011) 0.31ng

response 1294

Ion	Exp%	Act%
67.00	100	100
51.10	683.70	803.40
69.00	32.10	169.32#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261828.D Vial: 12
Acq On : 26 Oct 2018 21:03 Operator: RS
Sample : P1805493-014dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:56:53 2018 RS 10/29/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	125266	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	614098	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	386173	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	307218	14.142	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 113.12%				
57) Toluene-d8 (SS2)	13.66	98	814237	12.069	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.56%				
73) Bromofluorobenzene (SS3)	17.16	174	167044	11.005	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.08%				
Target Compounds							Qvalue
2) Propene	4.00	42	382	N.D.			
3) Dichlorodifluoromethan...	4.10	85	7711	0.226	ng		99
4) Chloromethane	4.29	50	1729	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.51	45	1130	0.066	ng		81
11) Acetonitrile	0.00	41	0	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	6.02	58	5092	0.288	ng		85
14) Trichlorofluoromethane	6.17	101	1228	0.050	ng		99
15) 2-Propanol (Isopropanol)	6.35	45	154	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.03	59	49	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	797	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	9.10	61	2769	0.098	ng		90
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.37	61	312	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	2632	0.089	ng		93
34) Tetrahydrofuran (THF)	9.84	72	695	0.052	ng	#	76
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	1716	0.074	ng		96
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.85	56	406	N.D.			
41) Benzene	10.89	78	472	N.D.			
42) Carbon Tetrachloride	11.03	117	2492	0.138	ng		97
43) Cyclohexane	11.22	84	652	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	560780	38.092	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261828.D Vial: 12
Acq On : 26 Oct 2018 21:03 Operator: RS
Sample : P1805493-014dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:56:53 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

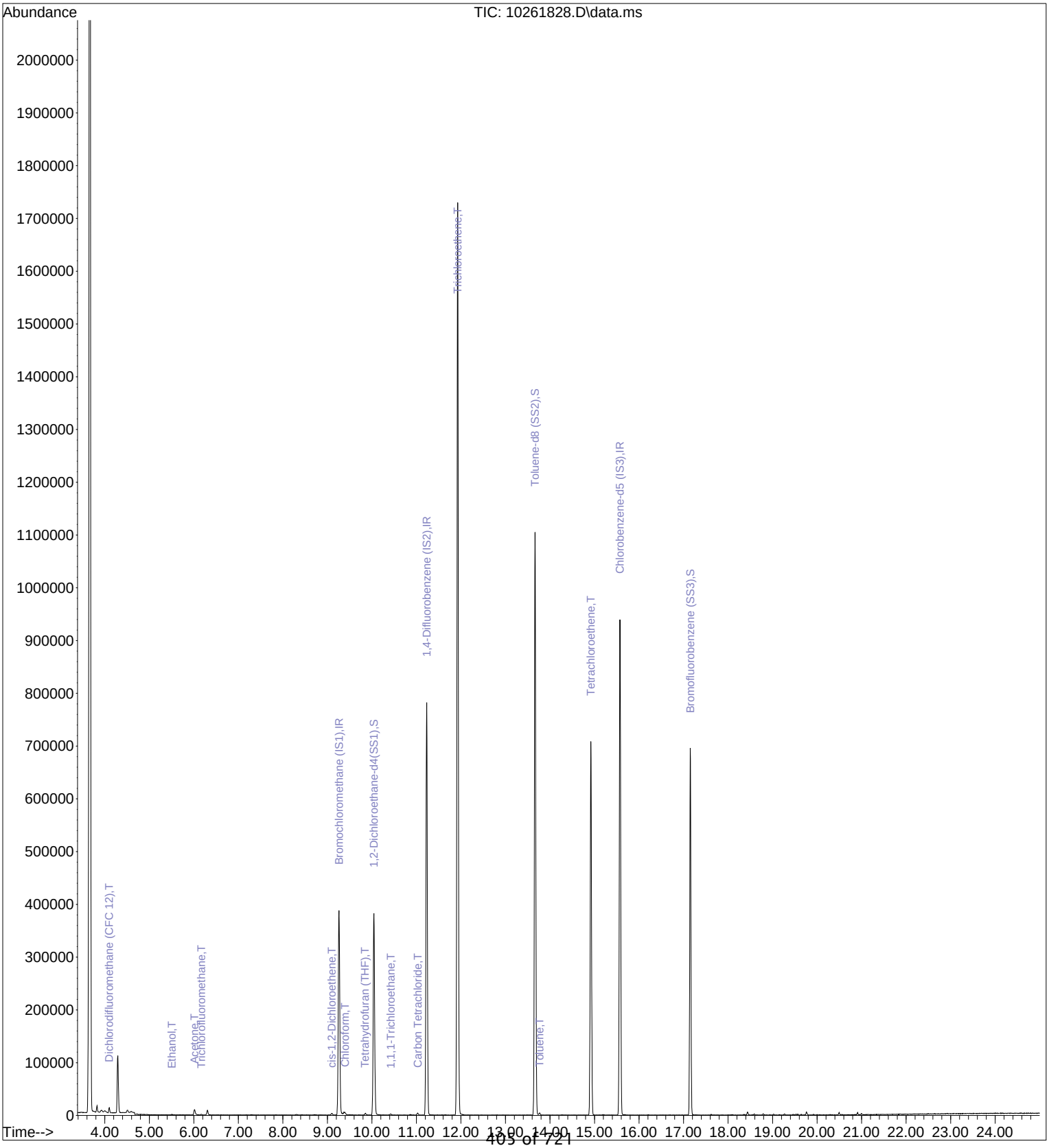
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	3904	0.052 ng	100
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	205389	13.187 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	0.00	91	0	N.D.	
67) m- & p-Xylenes	16.21	91	669	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.69	91	242	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	225	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	18.48	105	117	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	117	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.92	57	352	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.99	128	567	N.D.	
96) n-Dodecane	21.00	57	653	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261828.D Vial: 12
Acq On : 26 Oct 2018 21:03 Operator: RS
Sample : P1805493-014dil (40mL) Inst : MS09
Misc : S31-10151806

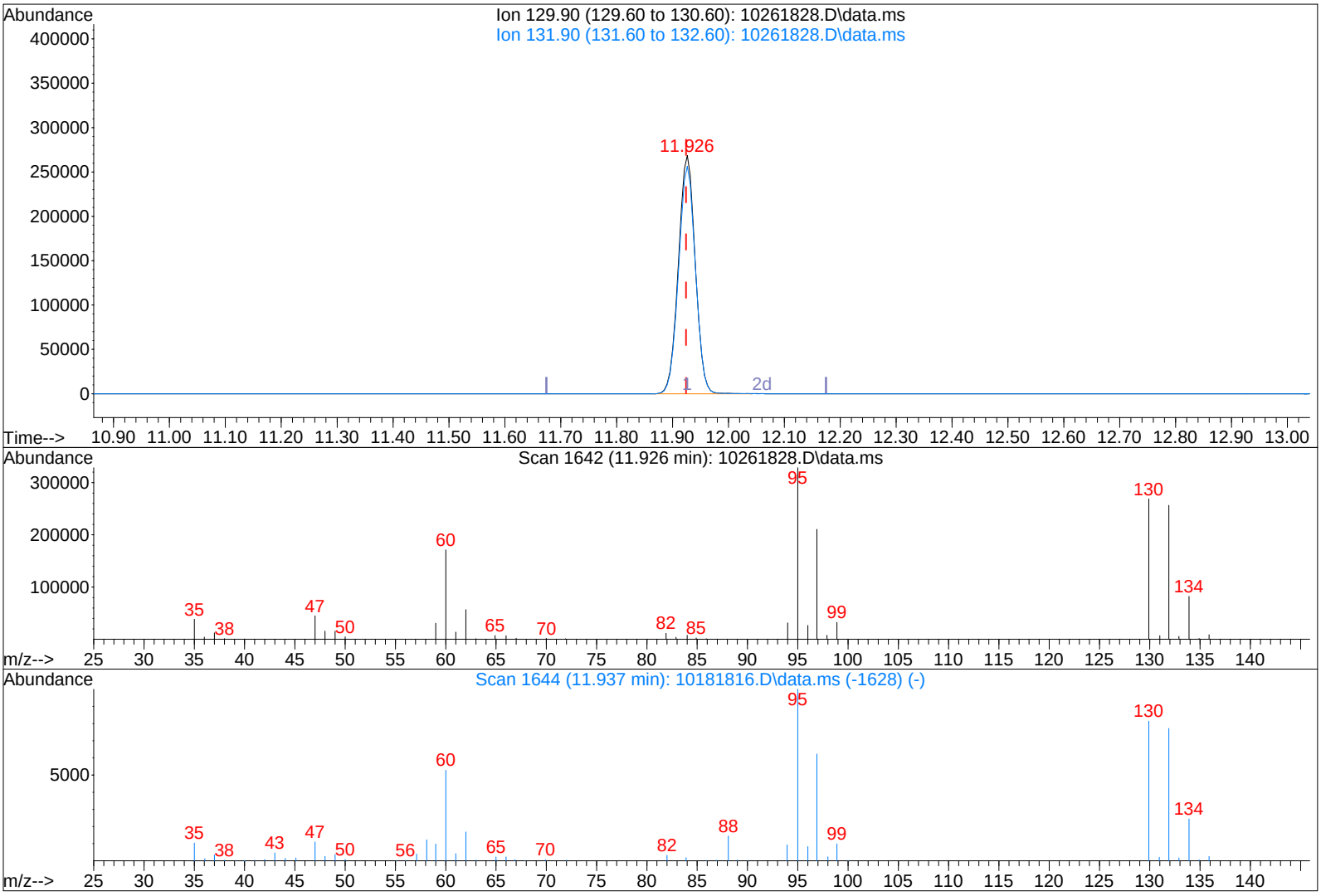
Quant Time: Oct 29 10:56:53 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261828.D Vial: 12
Acq On : 26 Oct 2018 21:03 Operator: RS
Sample : P1805493-014dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261828.D\data.ms

(47) Trichloroethene (T)

11.926min (+0.002) 38.09ng

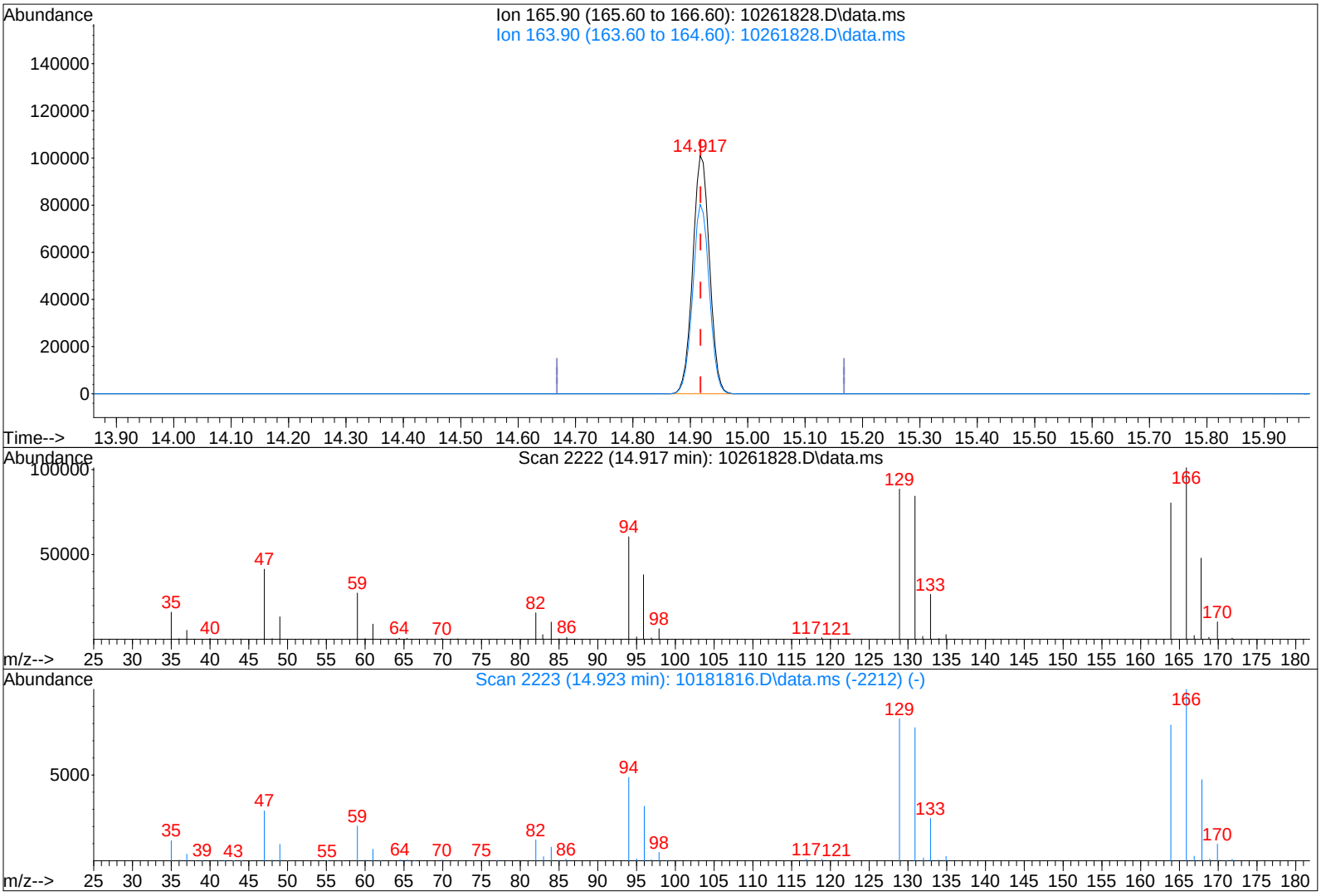
response 560780

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	95.54
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261828.D Vial: 12
Acq On : 26 Oct 2018 21:03 Operator: RS
Sample : P1805493-014dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:56:53 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261828.D\data.ms

(64) Tetrachloroethene (T)

14.917min (-0.001) 13.19ng

response 205389

Ion	Exp%	Act%
165.90	100	100
163.90	78.90	79.08
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:35:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	130013	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	635824	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	385366	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	307444	13.635	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.12%				
57) Toluene-d8 (SS2)	13.66	98	823975	12.239	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
73) Bromofluorobenzene (SS3)	17.15	174	165527	10.928	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.44%				
Target Compounds							Qvalue
2) Propene	4.01	42	4285	0.130	ng	#	32
3) Dichlorodifluoromethan...	4.10	85	1050	N.D.			
4) Chloromethane	4.30	50	1303	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.50	45	1510	0.085	ng		85
11) Acetonitrile	5.71	41	483	N.D.			
12) Acrolein	5.86	56	140	N.D.			
13) Acetone	6.02	58	7292	0.397	ng	#	84
14) Trichlorofluoromethane	6.17	101	1006	N.D.			
15) 2-Propanol (Isopropanol)	6.32	45	4780	0.084	ng		98
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	7.00	84	117	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	1359	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	8.27	73	103	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	8.70	72	322	N.D.			
28) cis-1,2-Dichloroethene	9.11	61	764	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	9.35	57	650	N.D.			
32) Chloroform	9.40	83	1968	0.064	ng		97
34) Tetrahydrofuran (THF)	9.86	72	281	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	5097	0.212	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.84	56	733	N.D.			
41) Benzene	10.88	78	14481	0.187	ng		99
42) Carbon Tetrachloride	11.03	117	239	N.D.			
43) Cyclohexane	11.22	84	612	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	11.69	63	312	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	1556827	102.136	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	2354	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:35:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

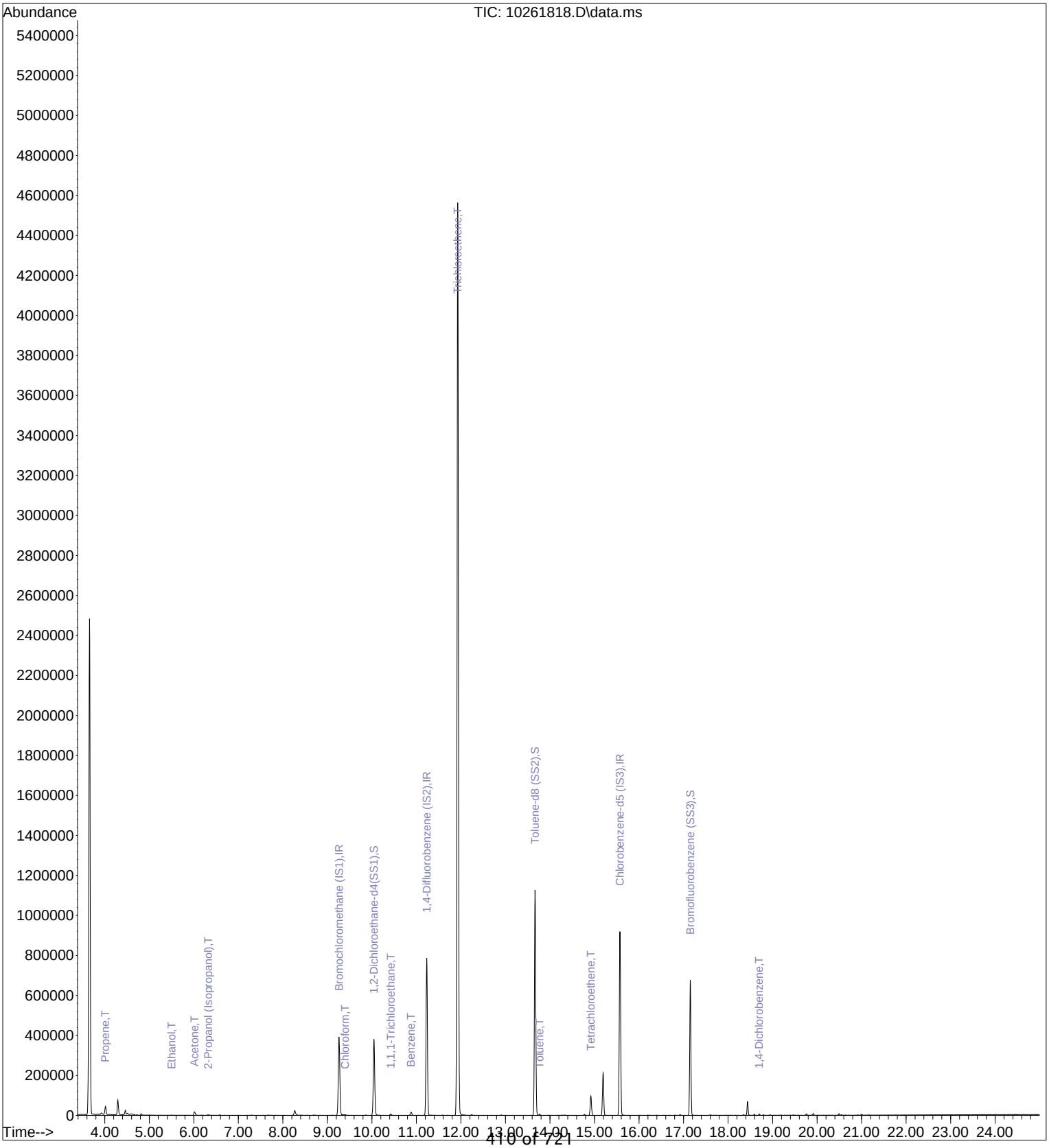
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.25	71	570	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	5239	0.070 ng	99
59) 2-Hexanone	14.01	43	205	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.77	43	2391	N.D.	
63) n-Octane	14.77	57	762	N.D.	
64) Tetrachloroethene	14.92	166	29407	1.892 ng	97
65) Chlorobenzene	15.62	112	731	N.D.	
66) Ethylbenzene	16.02	91	811	N.D.	
67) m- & p-Xylenes	16.20	91	1416	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.69	91	520	N.D.	
71) n-Nonane	16.92	43	1711	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	186	N.D.	
75) alpha-Pinene	17.71	93	382	N.D.	
76) n-Propylbenzene	17.82	91	276	N.D.	
77) 3-Ethyltoluene	17.93	105	428	N.D.	
78) 4-Ethyltoluene	17.98	105	181	N.D.	
79) 1,3,5-Trimethylbenzene	17.98	105	181	N.D.	
80) alpha-Methylstyrene	18.43	118	371	N.D.	
81) 2-Ethyltoluene	18.24	105	115	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	716	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D. d	
86) 1,4-Dichlorobenzene	18.70	146	2592	0.085 ng	98
87) sec-Butylbenzene	18.92	105	404	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	563	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	404	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	227	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1136	N.D.	
96) n-Dodecane	21.00	57	1609	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	16.38	55	232	N.D.	
99) tert-Butylbenzene	18.43	119	823	N.D.	
100) n-Butylbenzene	19.36	91	171	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:35:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:35:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

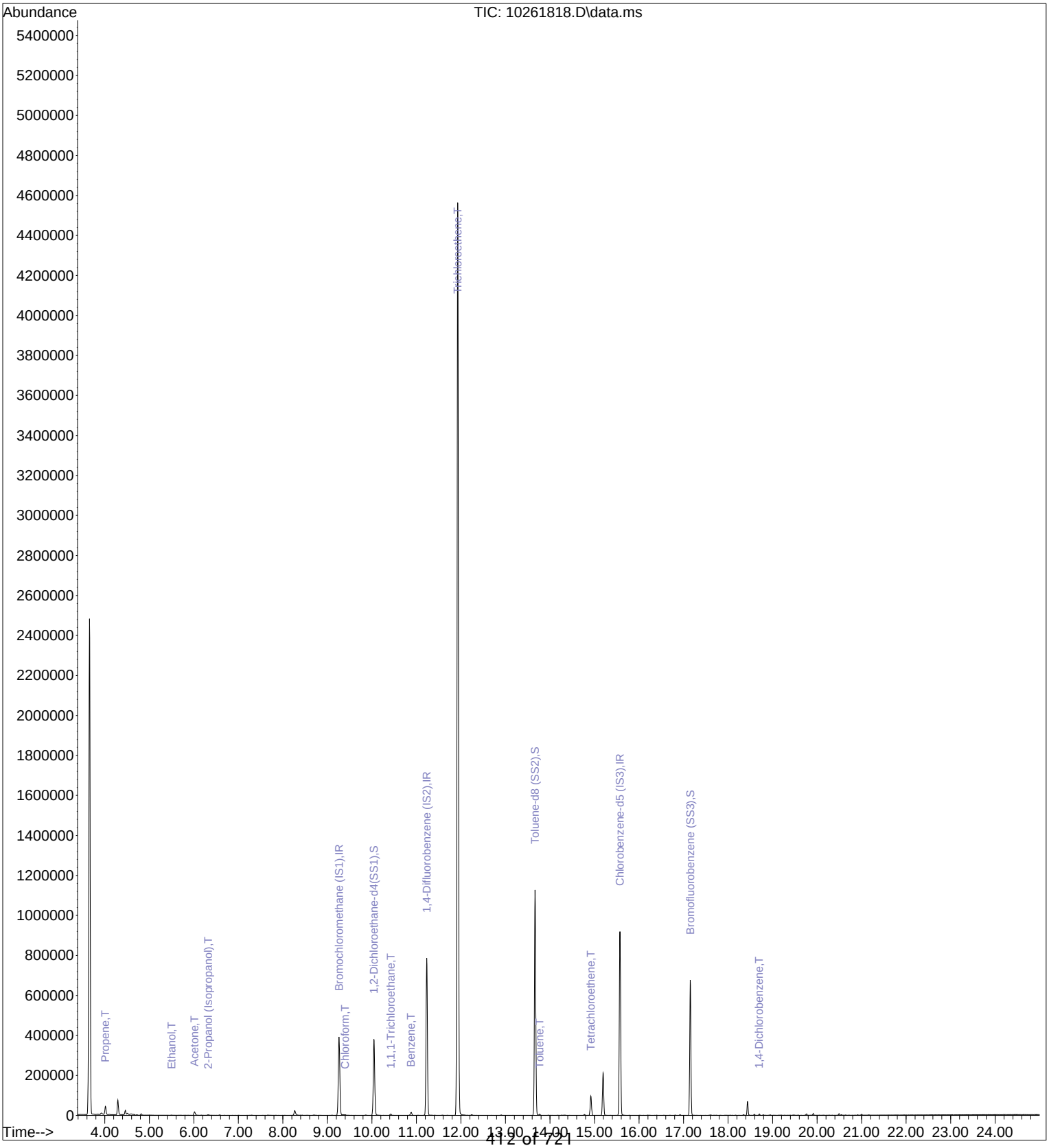
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	130013	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	635824	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	385366	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	307444	13.635	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.12%				
57) Toluene-d8 (SS2)	13.66	98	823975	12.239	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.92%				
73) Bromofluorobenzene (SS3)	17.15	174	165527	10.928	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 87.44%				
Target Compounds							Qvalue
2) Propene	4.01	42	4285	0.130	ng	#	32
10) Ethanol	5.50	45	1510	0.085	ng		85
13) Acetone	6.02	58	7292	0.397	ng	#	84
15) 2-Propanol (Isopropanol)	6.32	45	4780	0.084	ng		98
32) Chloroform	9.40	83	1968	0.064	ng		97
38) 1,1,1-Trichloroethane	10.43	97	5097	0.212	ng		99
41) Benzene	10.88	78	14481	0.187	ng		99
47) Trichloroethene	11.93	130	1556827	102.136	ng		99
58) Toluene	13.77	91	5239	0.070	ng		99
64) Tetrachloroethene	14.92	166	29407	1.892	ng		97
86) 1,4-Dichlorobenzene	18.70	146	2592	0.085	ng		98

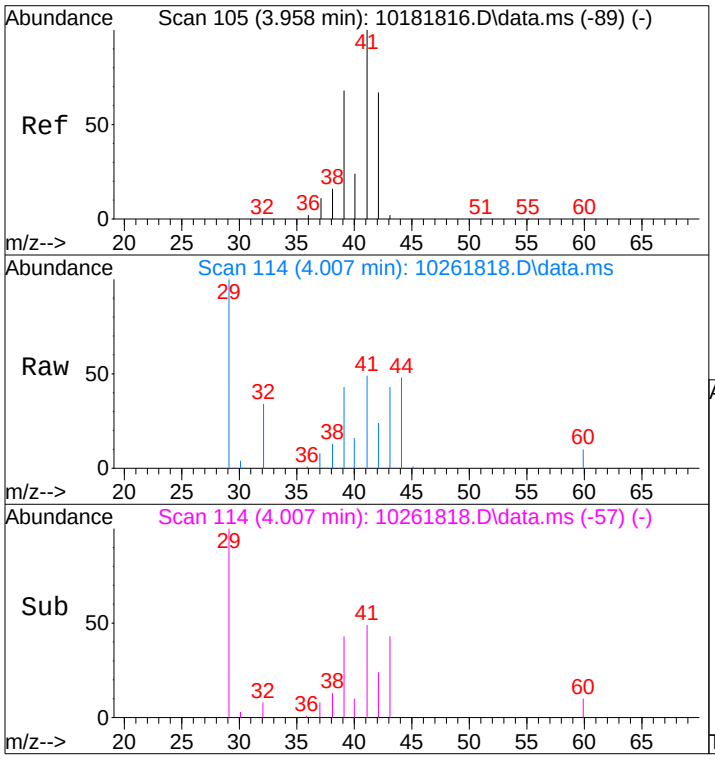
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:35:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

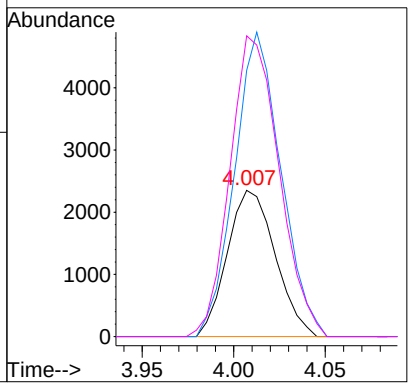


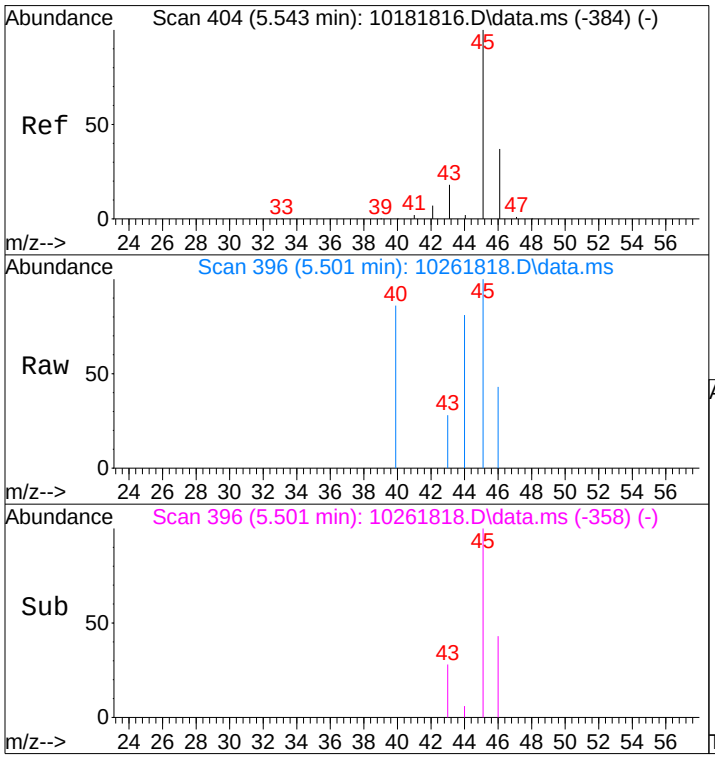


#2
Propene
Concen: 0.13 ng
RT: 4.01 min Scan# 114
Delta R.T. 0.061 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 42 Resp: 4285

Ion	Ratio	Lower	Upper
42	100		
39	201.4	81.9	121.9#
41	211.0	130.4	170.4#

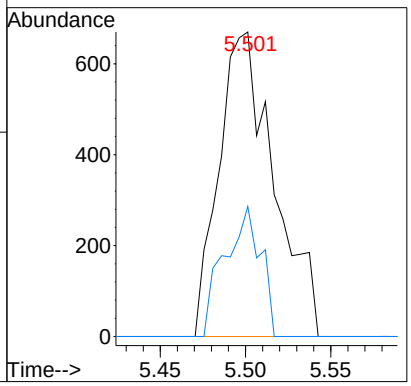


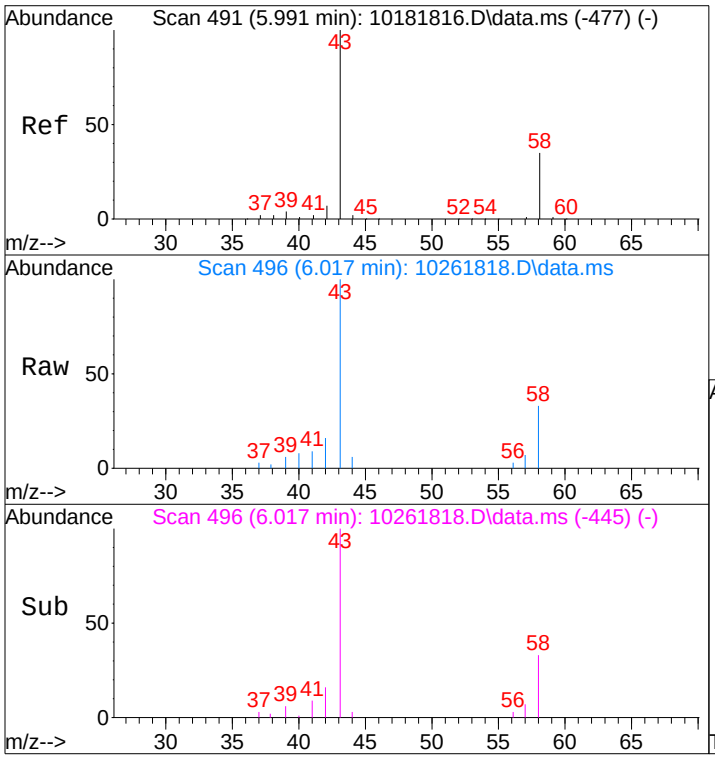


#10
Ethanol
Concen: 0.09 ng
RT: 5.50 min Scan# 396
Delta R.T. -0.056 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 45 Resp: 1510

Ion	Ratio	Lower	Upper
45	100		
46	28.1	17.0	57.0

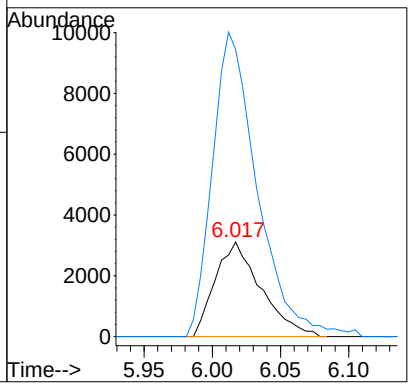


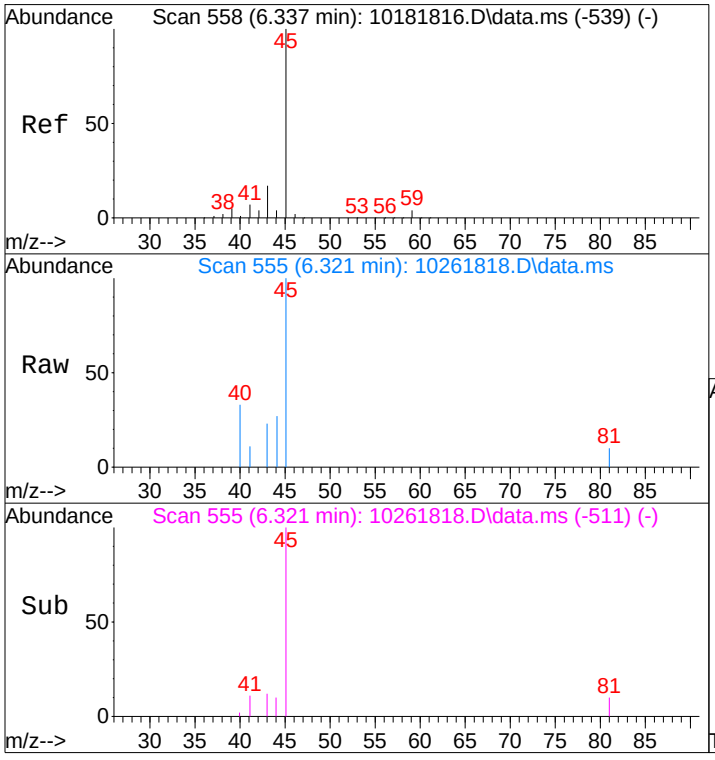


#13
Acetone
Concen: 0.40 ng
RT: 6.02 min Scan# 496
Delta R.T. 0.014 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 58 Resp: 7292

Ion	Ratio	Lower	Upper
58	100		
43	314.3	254.3	314.3#

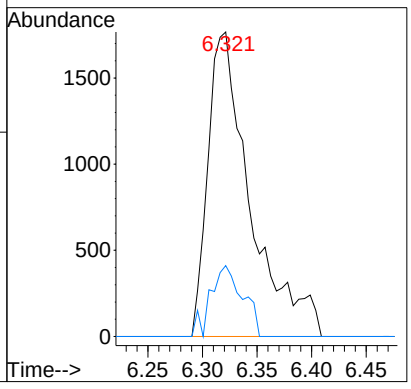


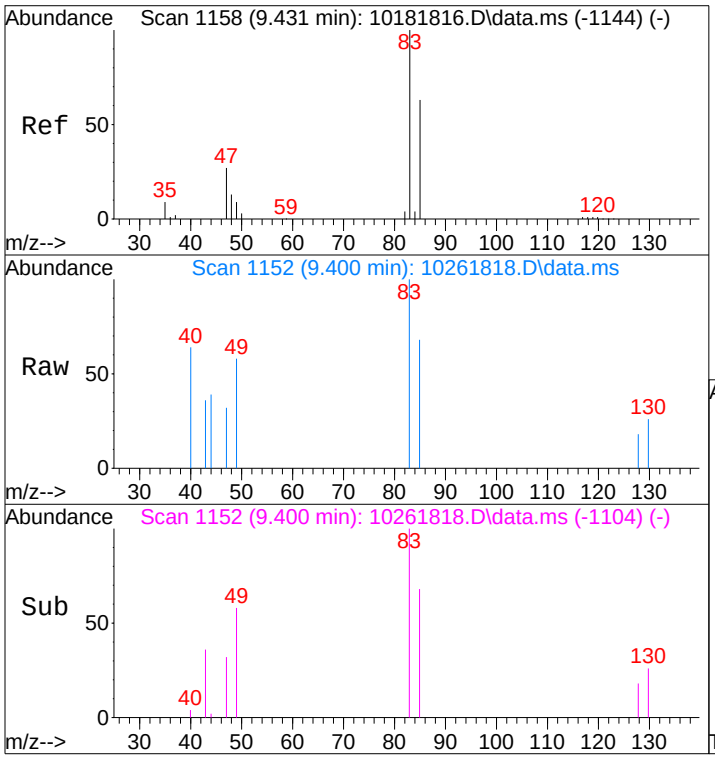


#15
2-Propanol (Isopropanol)
Concen: 0.08 ng
RT: 6.32 min Scan# 555
Delta R.T. -0.021 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 45 Resp: 4780

Ion	Ratio	Lower	Upper
45	100		
43	17.5	0.0	36.7

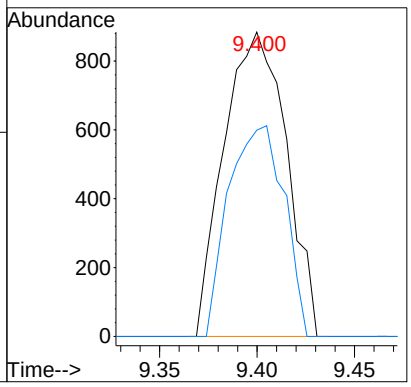


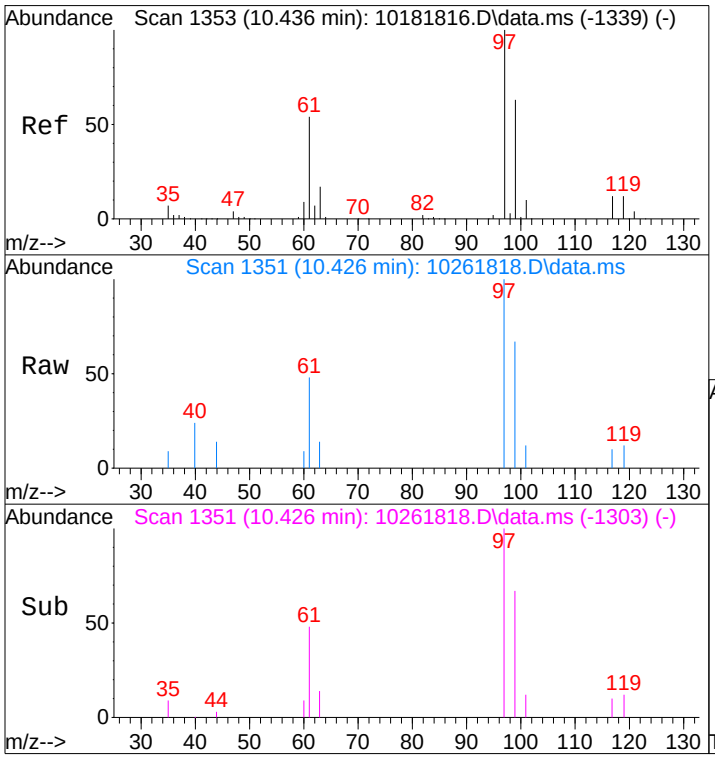


#32
Chloroform
Concen: 0.06 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 83 Resp: 1968

Ion	Ratio	Lower	Upper
83	100		
85	61.7	44.0	84.0

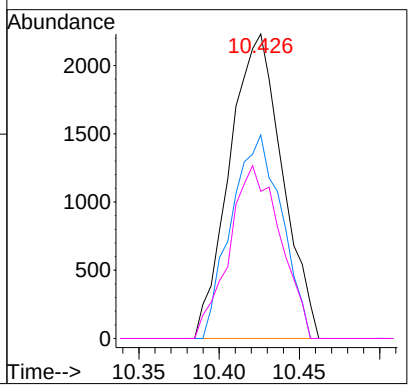


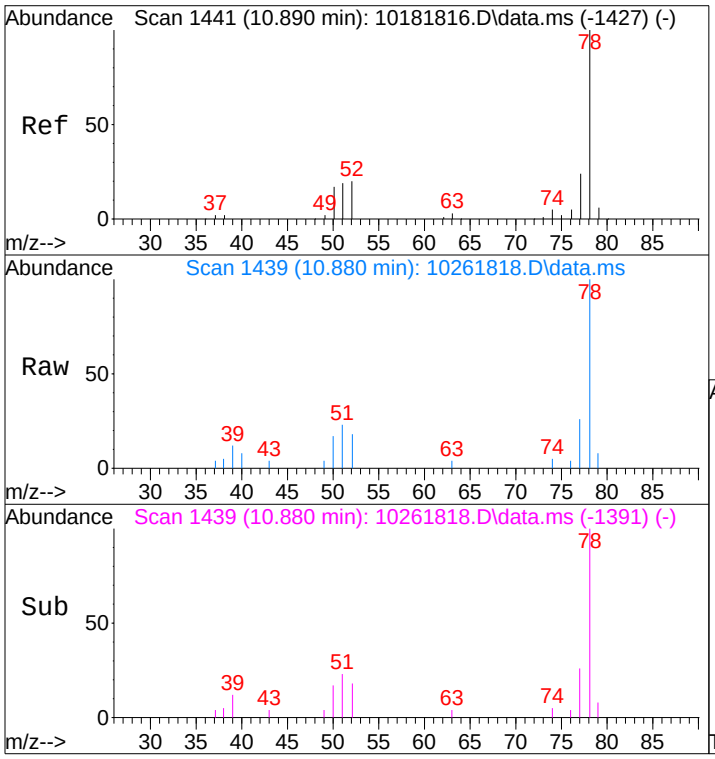


#38
1,1,1-Trichloroethane
Concen: 0.21 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 97 Resp: 5097

Ion	Ratio	Lower	Upper
97	100		
99	63.8	43.5	83.5
61	55.1	34.2	74.2

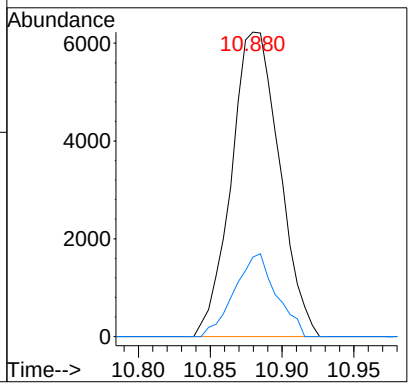


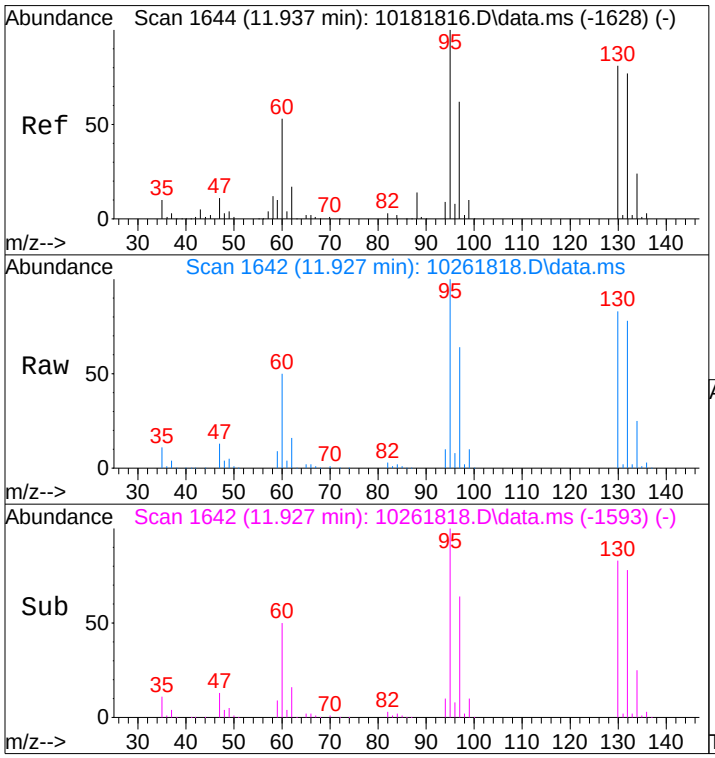


#41
Benzene
Concen: 0.19 ng
RT: 10.88 min Scan# 1439
Delta R.T. -0.001 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 78 Resp: 14481

Ion	Ratio	Lower	Upper
78	100		
77	23.7	4.1	44.1

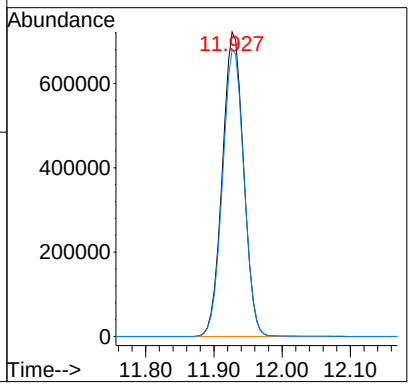


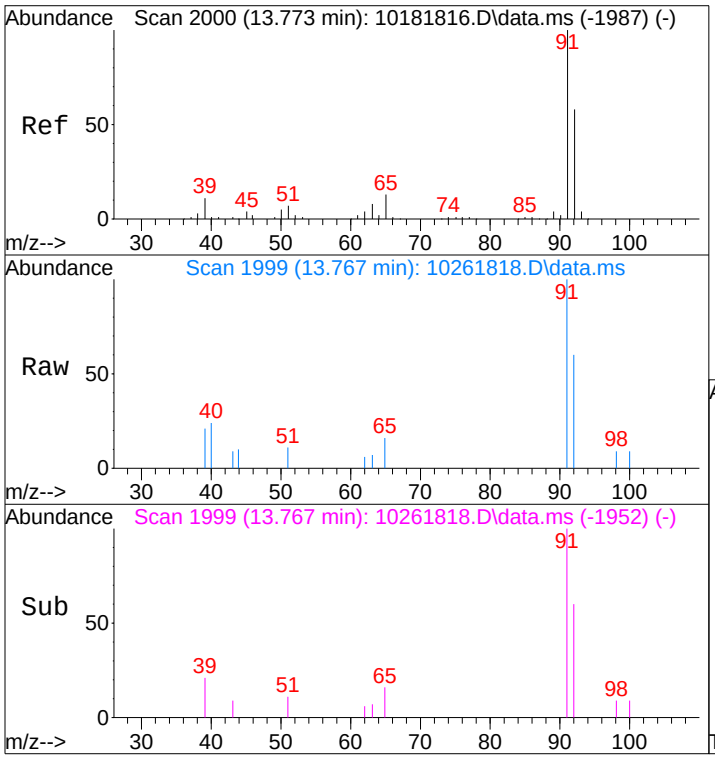


#47
Trichloroethene
Concen: 102.14 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion:130 Resp: 1556827

Ion	Ratio	Lower	Upper
130	100		
132	95.2	74.6	114.6

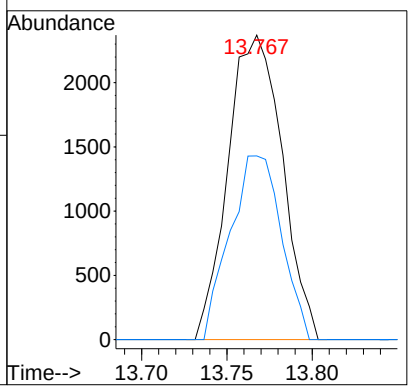


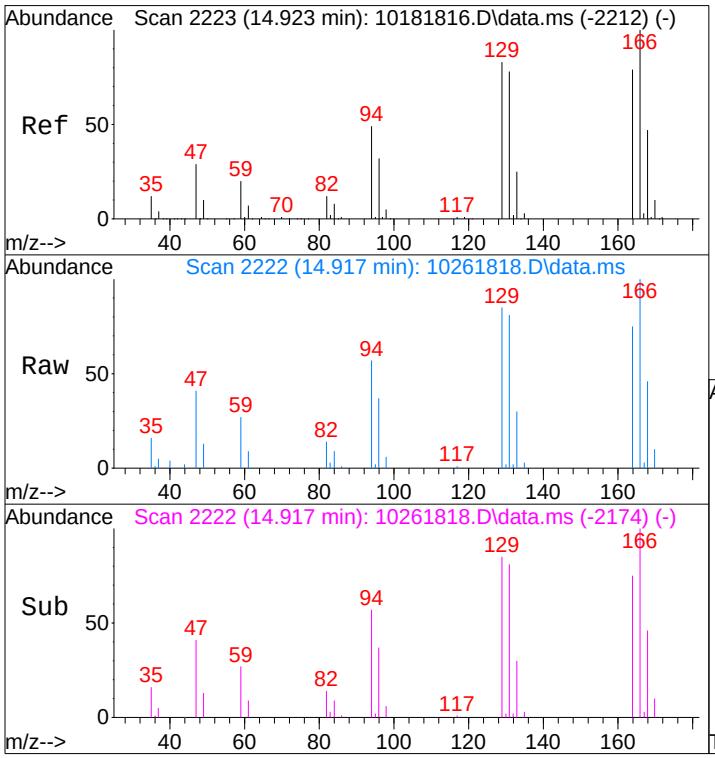


#58
Toluene
Concen: 0.07 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.006 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion: 91 Resp: 5239

Ion	Ratio	Lower	Upper
91	100		
92	57.3	38.1	78.1

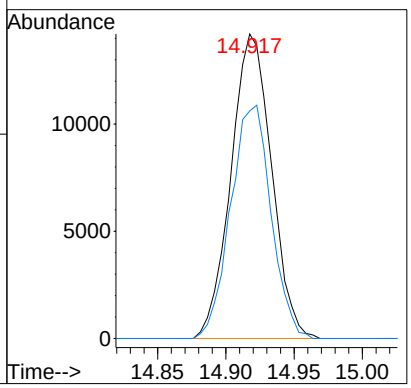


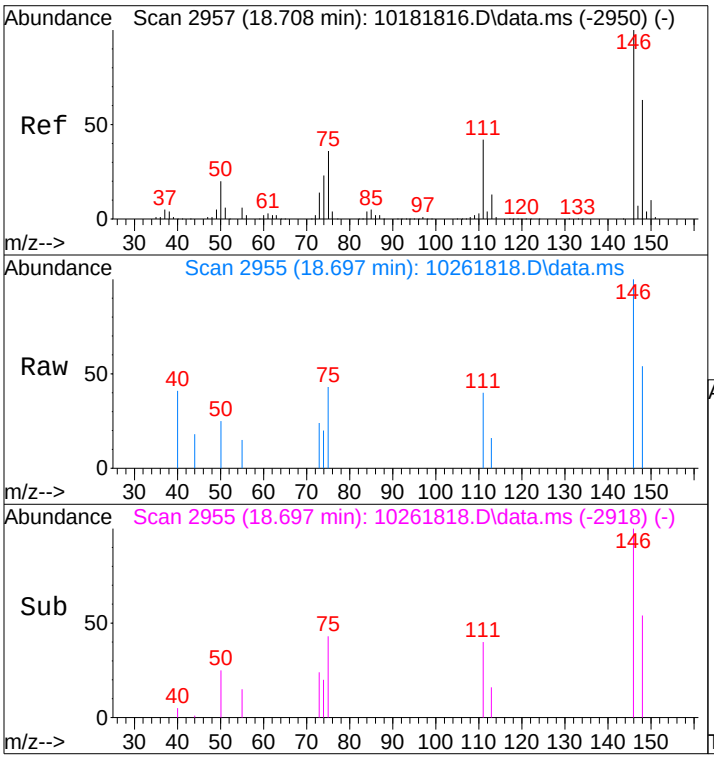


#64
Tetrachloroethene
Concen: 1.89 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion:166 Resp: 29407

Ion	Ratio	Lower	Upper
166	100		
164	76.3	58.9	98.9

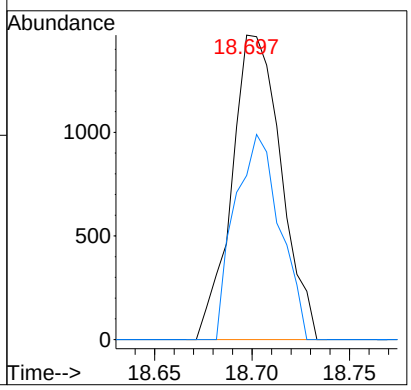




#86
1,4-Dichlorobenzene
Concen: 0.09 ng
RT: 18.70 min Scan# 2955
Delta R.T. -0.008 min
Lab File: 10261818.D
Acq: 26 Oct 2018 15:24

Tgt Ion:146 Resp: 2592

Ion	Ratio	Lower	Upper
146	100		
148	61.6	43.5	83.5



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 13:51:58 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

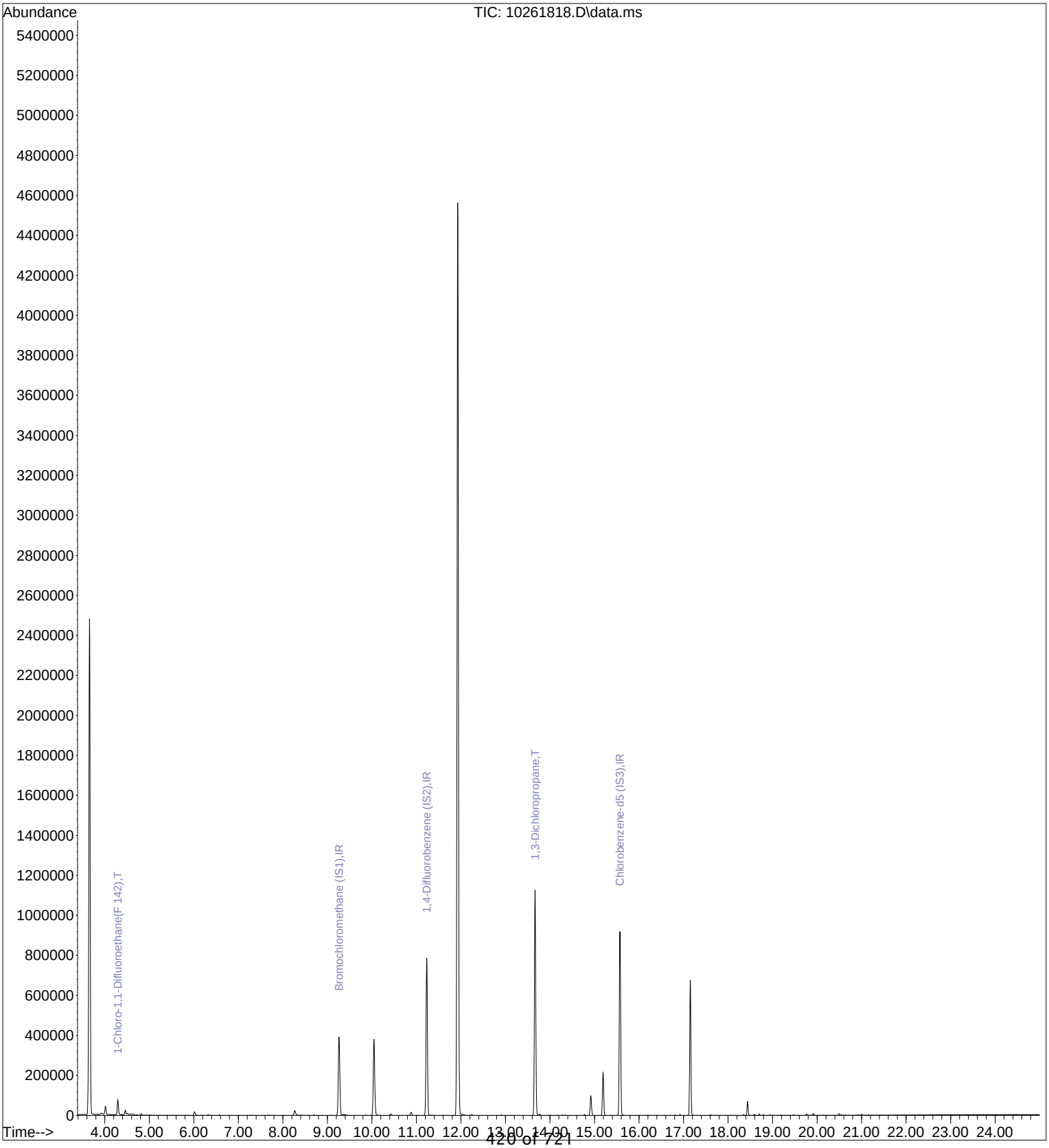
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	130864	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	635824	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	385713	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	515	N.D.			
4) 1,1-Difluoroethane	0.00	65	0	N.D.			
5) Chlorodifluoromethane ...	0.00	67	0	N.D.			
6) 1-Chloro-1,1-Difluoroe...	4.29	65	66977	2.290	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.02	57	1329	N.D.			
11) Methyl Acetate	0.00	43	0	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.			
17) 2,3-Dimethylpentane	11.41	56	319	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.91	55	958	N.D.			
21) 1,3-Dichloropropane	13.67	76	8622	0.325	ng	#	63
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	16.82	75	635	N.D.			
25) Bromobenzene	17.39	77	98	N.D.			
26) 2-Chlorotoluene	17.82	91	276	N.D.			
27) 4-Chlorotoluene	17.82	91	276	N.D.			
28) Indane	0.00	117	0	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.20	119	63	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	63	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	54	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261818.D Vial: 1
Acq On : 26 Oct 2018 15:24 Operator: RS
Sample : P1805493-015 (10mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 13:51:58 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:58:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	120180	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	598064	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	375328	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	293239	14.069	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.56%				
57) Toluene-d8 (SS2)	13.66	98	784333	11.962	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.68%				
73) Bromofluorobenzene (SS3)	17.16	174	163600	11.090	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	91126	2.785	ng		99
4) Chloromethane	4.28	50	4291	0.108	ng	#	52
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	271	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	5.06	94	105	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	11098	0.676	ng		91
11) Acetonitrile	5.69	41	2365	0.053	ng	#	21
12) Acrolein	5.85	56	1211	0.095	ng		85
13) Acetone	6.00	58	14389	0.848	ng		89
14) Trichlorofluoromethane	6.15	101	16322	0.696	ng		100
15) 2-Propanol (Isopropanol)	6.30	45	7400	0.140	ng		93
16) Acrylonitrile	6.53	53	112	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.99	59	1425	N.D.			
19) Methylene Chloride	6.99	84	301	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	7.31	151	825	0.088	ng	#	58
22) Carbon Disulfide	7.28	76	10747	0.169	ng		96
23) trans-1,2-Dichloroethene	8.01	61	2395	0.085	ng		90
24) 1,1-Dichloroethane	8.01	63	490	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	164	0.059	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1518	0.115	ng	#	59
28) cis-1,2-Dichloroethene	9.10	61	57578	2.127	ng		93
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	9.36	61	6298	0.899	ng		94
31) n-Hexane	9.34	57	484	N.D.			
32) Chloroform	9.40	83	35071	1.236	ng		99
34) Tetrahydrofuran (THF)	9.85	72	1276	0.100	ng	#	65
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	9373	0.414	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	7502	0.369	ng	#	72
41) Benzene	10.88	78	4221	0.058	ng		89
42) Carbon Tetrachloride	11.03	117	36793	2.089	ng		98
43) Cyclohexane	11.23	84	639	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	2384193	166.291	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:58:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

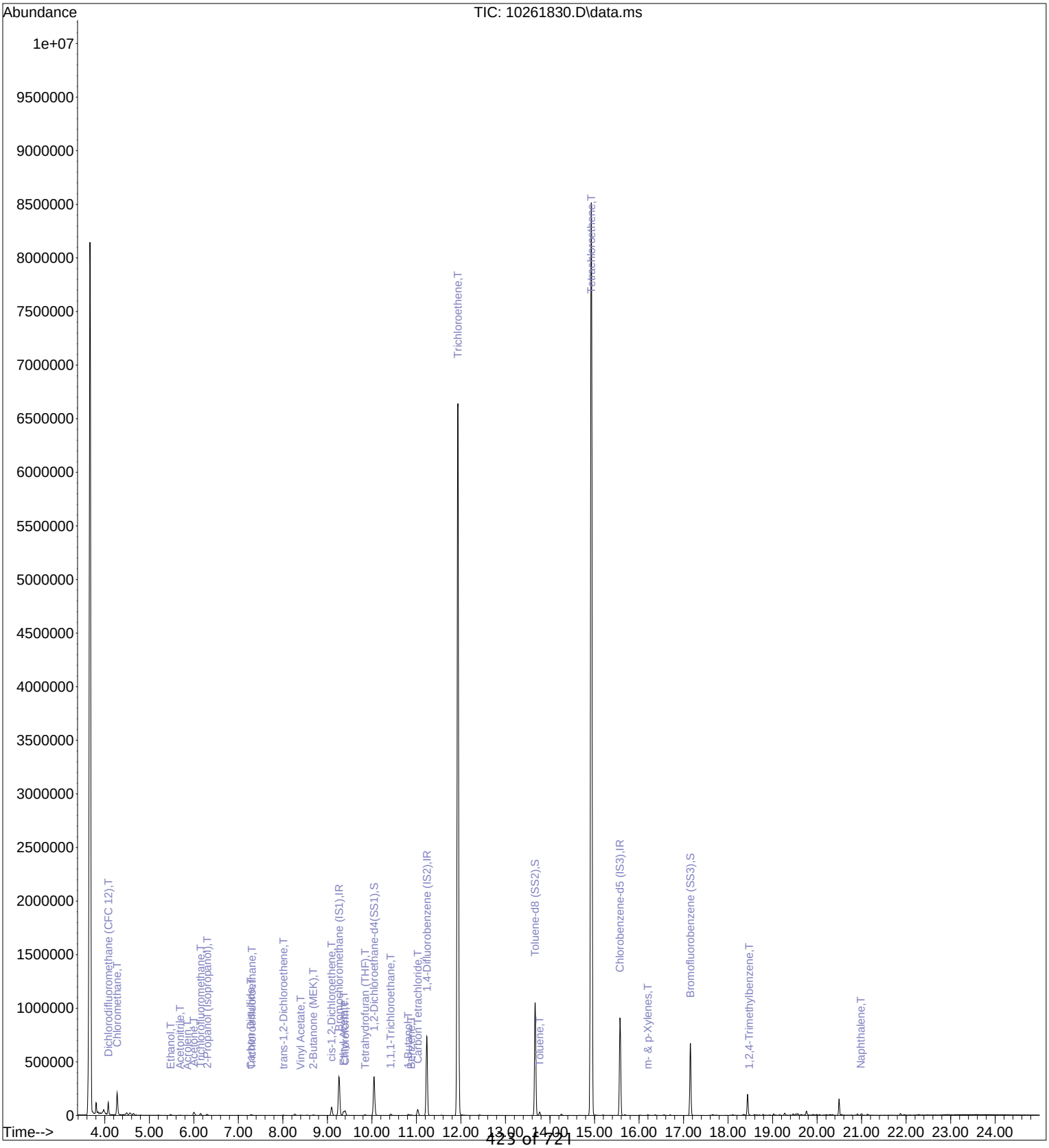
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	26856	0.366 ng	99
59) 2-Hexanone	14.04	43	1196	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2115	N.D.	
63) n-Octane	14.77	57	103	N.D.	
64) Tetrachloroethene	14.93	166	3048500	201.379 ng	99
65) Chlorobenzene	15.61	112	193	N.D.	
66) Ethylbenzene	16.02	91	3968	N.D.	
67) m- & p-Xylenes	16.20	91	5860	0.095 ng	91
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1523	N.D.	
70) o-Xylene	16.70	91	2774	N.D.	
71) n-Nonane	16.93	43	848	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	360	N.D.	
75) alpha-Pinene	17.71	93	747	N.D.	
76) n-Propylbenzene	17.82	91	1252	N.D.	
77) 3-Ethyltoluene	17.93	105	1820	N.D.	
78) 4-Ethyltoluene	17.98	105	1049	N.D.	
79) 1,3,5-Trimethylbenzene	18.06	105	1155	N.D.	
80) alpha-Methylstyrene	18.22	118	649	N.D.	
81) 2-Ethyltoluene	18.24	105	938	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3749	0.066 ng	84
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	18.61	91	858	N.D.	
85) 1,3-Dichlorobenzene	18.64	146	368	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	1317	N.D.	
87) sec-Butylbenzene	18.92	105	756	N.D.	
88) 4-Isopropyltoluene (p-...	18.93	119	573	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	756	N.D.	
90) 1,2-Dichlorobenzene	19.07	146	233	N.D.	
91) d-Limonene	19.08	68	1006	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	20.86	180	613	N.D.	
95) Naphthalene	20.98	128	5365	0.081 ng	97
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.44	119	2291	N.D.	
100) n-Butylbenzene	19.37	91	913	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:58:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 10:58:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

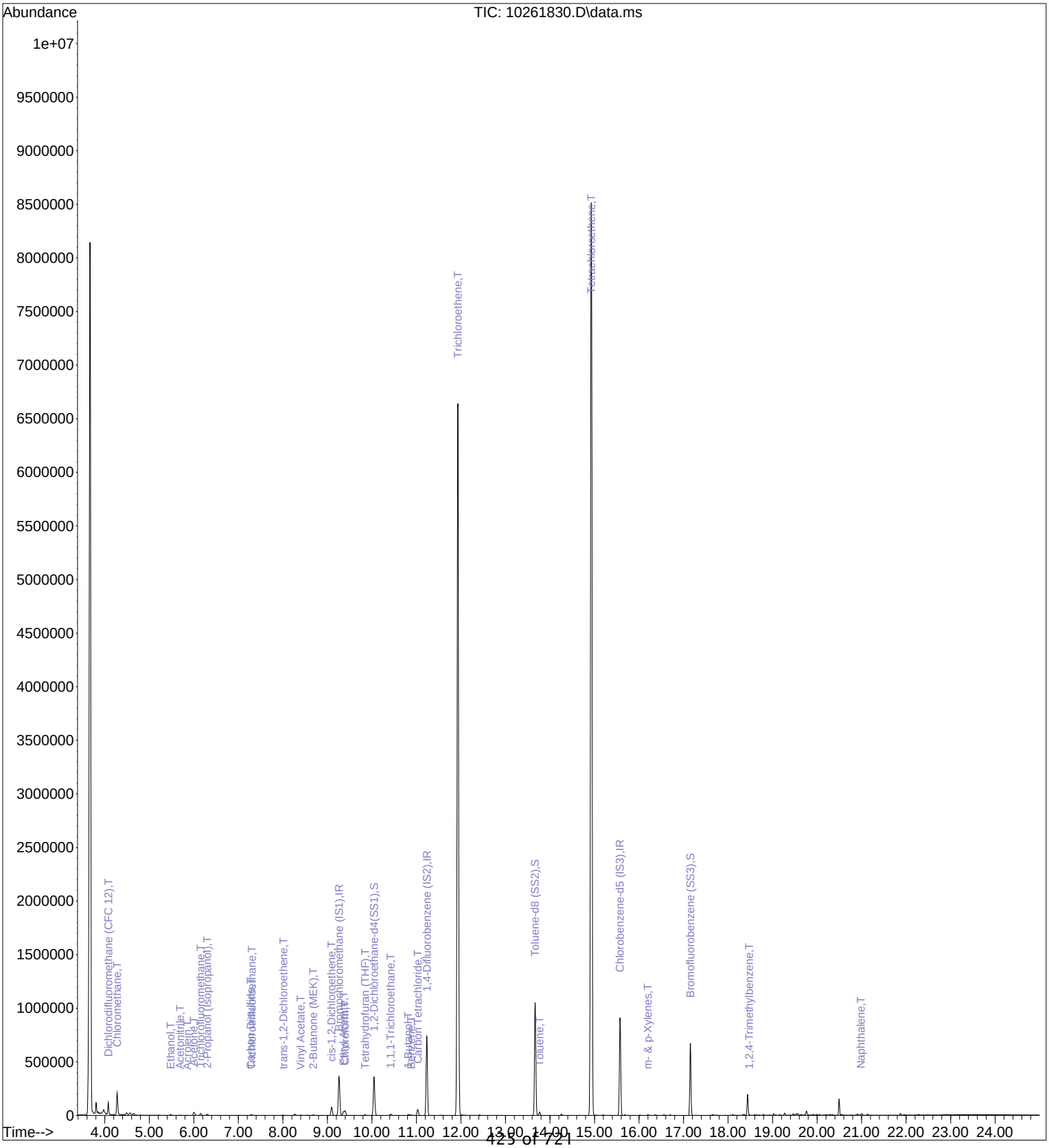
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	120180	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	598064	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	375328	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	293239	14.069	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.56%				
57) Toluene-d8 (SS2)	13.66	98	784333	11.962	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.68%				
73) Bromofluorobenzene (SS3)	17.16	174	163600	11.090	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	91126	2.785	ng		99
4) Chloromethane	4.28	50	4291	0.108	ng	#	52
10) Ethanol	5.48	45	11098	0.676	ng		91
11) Acetonitrile	5.69	41	2365	0.053	ng	#	21
12) Acrolein	5.85	56	1211	0.095	ng		85
13) Acetone	6.00	58	14389	0.848	ng		89
14) Trichlorofluoromethane	6.15	101	16322	0.696	ng		100
15) 2-Propanol (Isopropanol)	6.30	45	7400	0.140	ng		93
21) Trichlorotrifluoroethane	7.31	151	825	0.088	ng	#	58
22) Carbon Disulfide	7.28	76	10747	0.169	ng		96
23) trans-1,2-Dichloroethene	8.01	61	2395	0.085	ng		90
26) Vinyl Acetate	8.40	86	164	0.059	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1518	0.115	ng	#	59
28) cis-1,2-Dichloroethene	9.10	61	57578	2.127	ng		93
30) Ethyl Acetate	9.36	61	6298	0.899	ng		94
32) Chloroform	9.40	83	35071	1.236	ng		99
34) Tetrahydrofuran (THF)	9.85	72	1276	0.100	ng	#	65
38) 1,1,1-Trichloroethane	10.42	97	9373	0.414	ng		99
40) 1-Butanol	10.82	56	7502	0.369	ng	#	72
41) Benzene	10.88	78	4221	0.058	ng		89
42) Carbon Tetrachloride	11.03	117	36793	2.089	ng		98
47) Trichloroethene	11.93	130	2384193	166.291	ng		99
58) Toluene	13.77	91	26856	0.366	ng		99
64) Tetrachloroethene	14.93	166	3048500	201.379	ng		99
67) m- & p-Xylenes	16.20	91	5860	0.095	ng		91
82) 1,2,4-Trimethylbenzene	18.48	105	3749	0.066	ng		84
95) Naphthalene	20.98	128	5365	0.081	ng		97

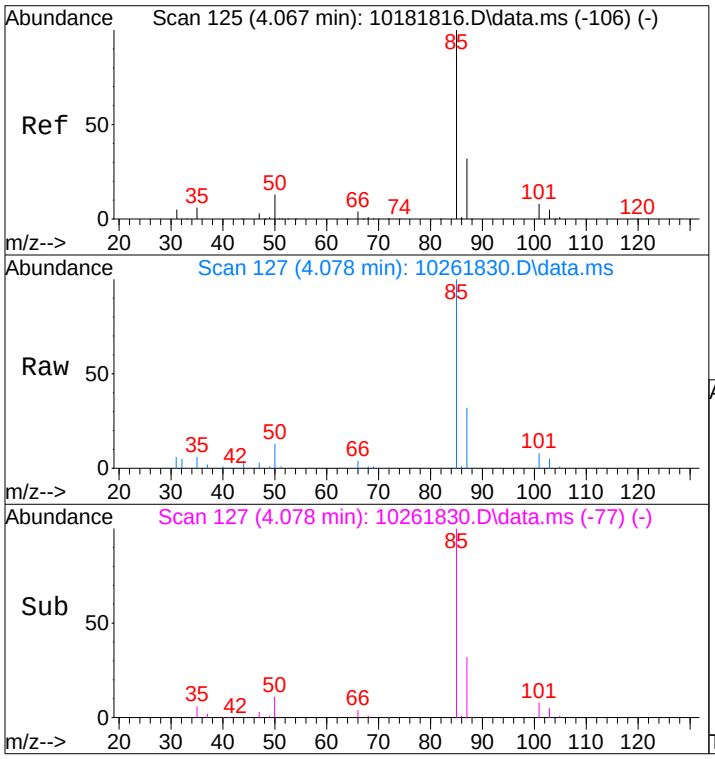
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:58:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

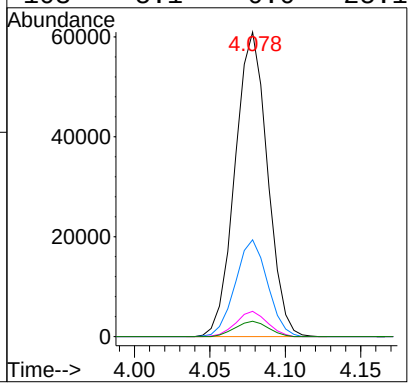


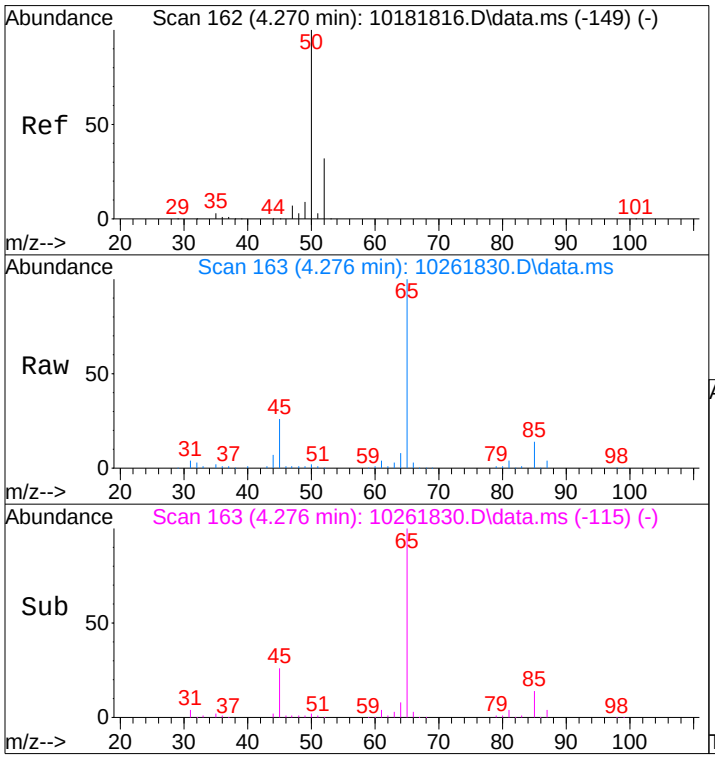


#3
Dichlorodifluoromethane (CFC 12)
Concen: 2.78 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 85 Resp: 91126

Ion	Ratio	Lower	Upper
85	100		
87	31.6	12.0	52.0
101	8.1	0.0	28.0
103	5.1	0.0	25.1

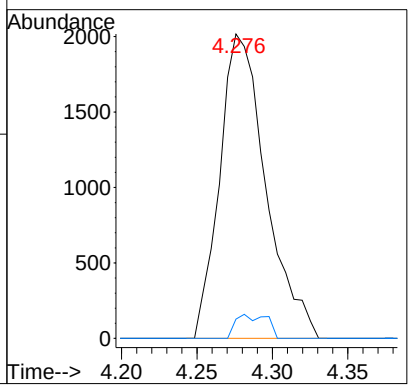


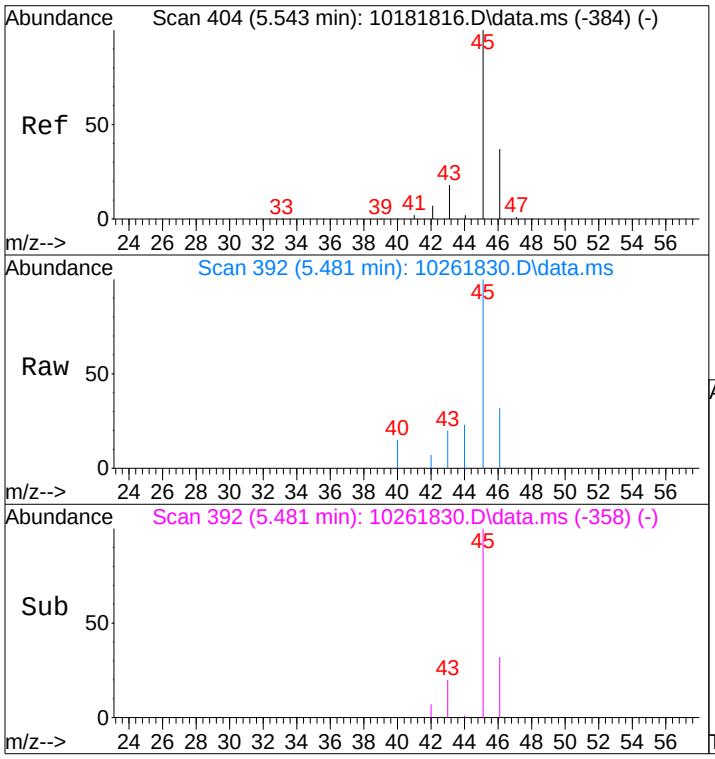


#4
Chloromethane
Concen: 0.11 ng
RT: 4.28 min Scan# 163
Delta R.T. 0.013 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 50 Resp: 4291

Ion	Ratio	Lower	Upper
50	100		
52	5.3	12.4	52.4#

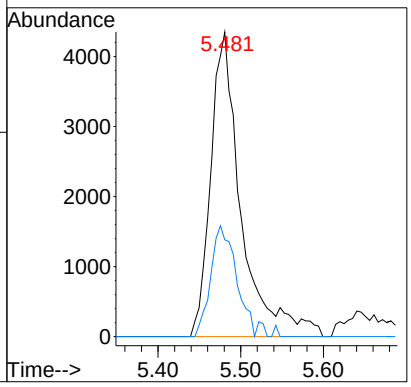


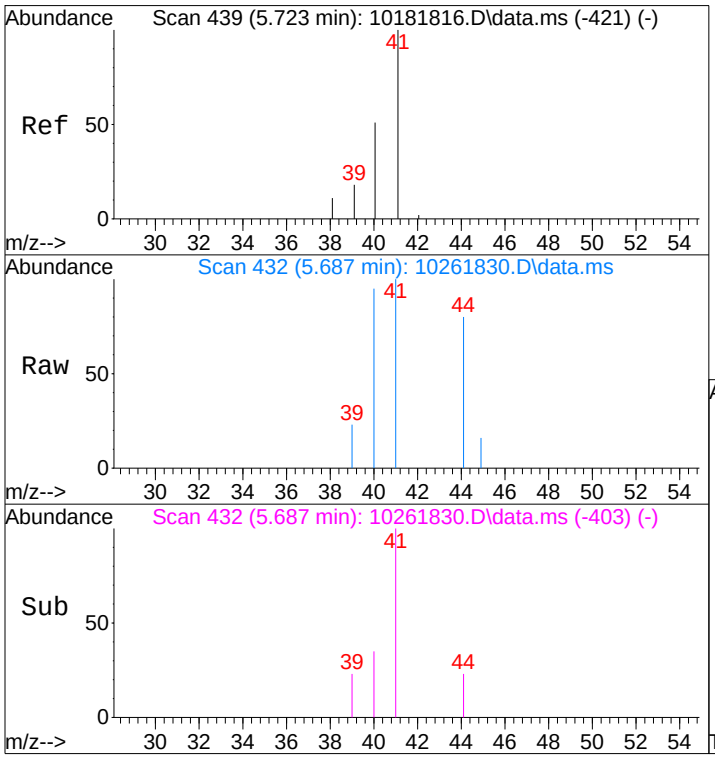


#10
Ethanol
Concen: 0.68 ng
RT: 5.48 min Scan# 392
Delta R.T. -0.077 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 45 Resp: 11098

Ion	Ratio	Lower	Upper
45	100		
46	31.6	17.0	57.0

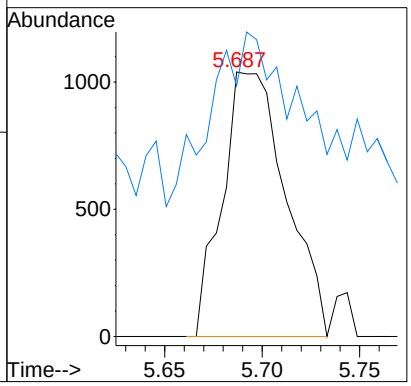


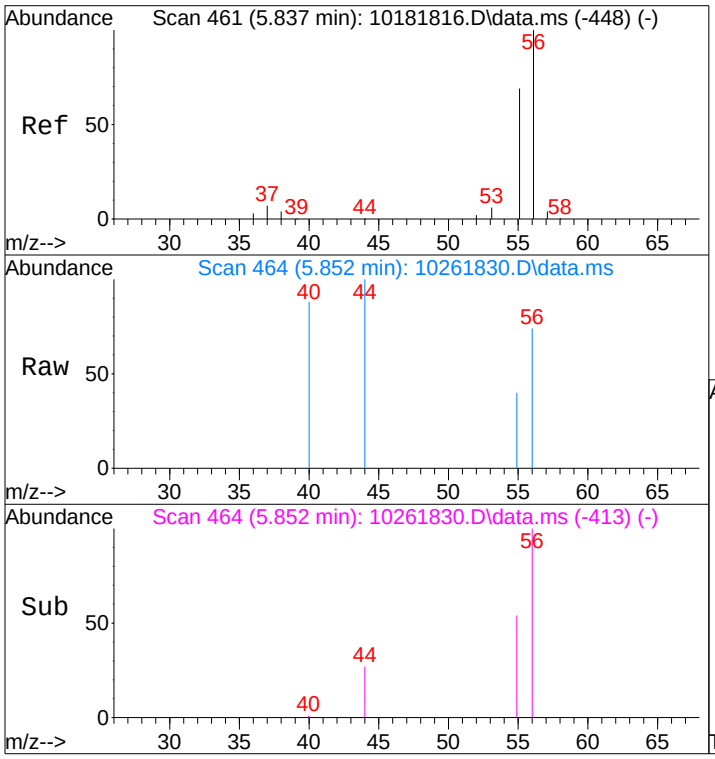


#11
Acetonitrile
Concen: 0.05 ng
RT: 5.69 min Scan# 432
Delta R.T. -0.050 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 41 Resp: 2365

Ion	Ratio	Lower	Upper
41	100		
40	106.4	31.4	71.4#

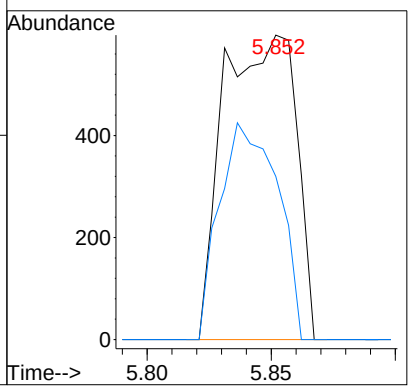


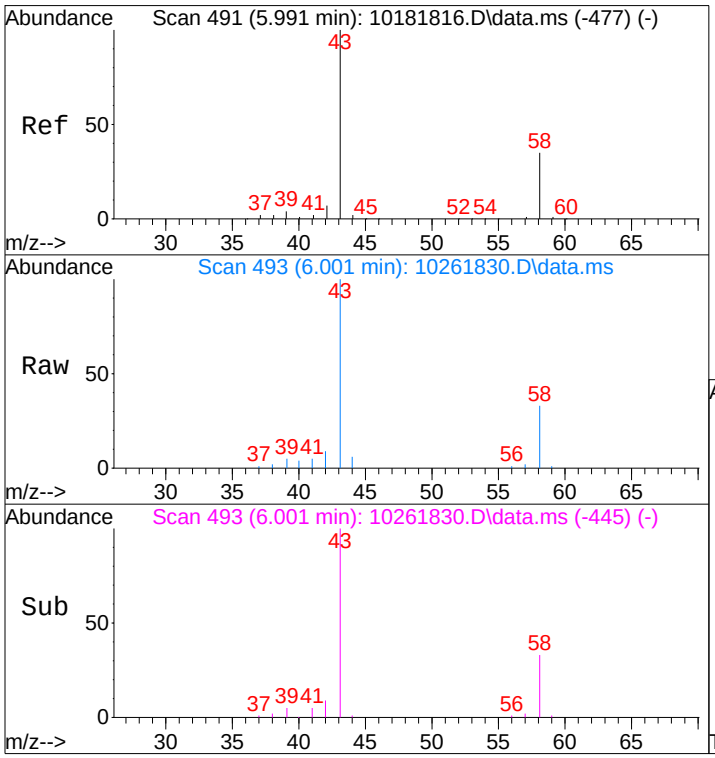


#12
Acrolein
Concen: 0.10 ng
RT: 5.85 min Scan# 464
Delta R.T. 0.012 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 56 Resp: 1211

Ion	Ratio	Lower	Upper
56	100		
55	57.3	49.3	89.3

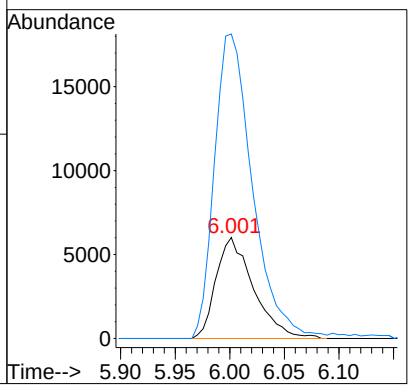


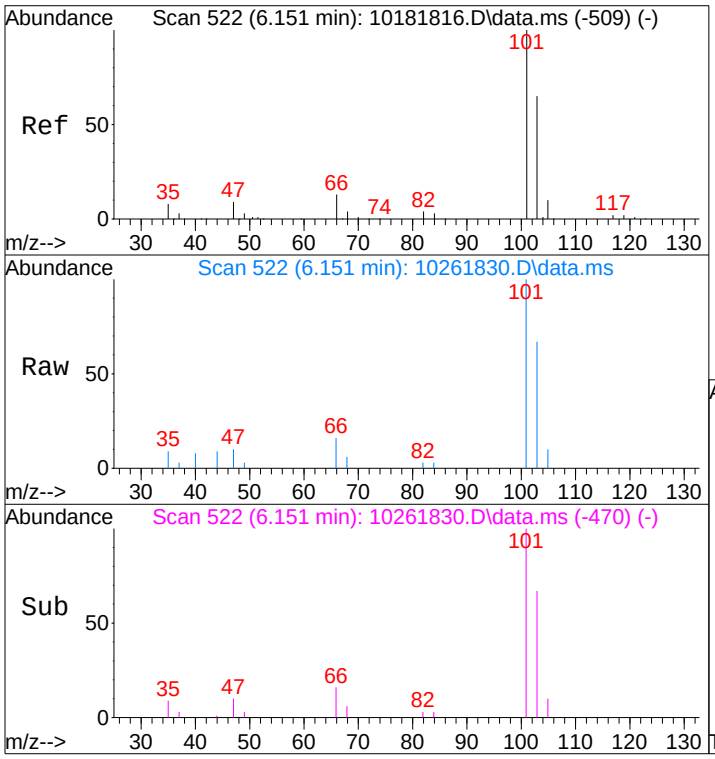


#13
Acetone
Concen: 0.85 ng
RT: 6.00 min Scan# 493
Delta R.T. -0.002 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 58 Resp: 14389

Ion	Ratio	Lower	Upper
58	100		
43	305.4	254.3	314.3

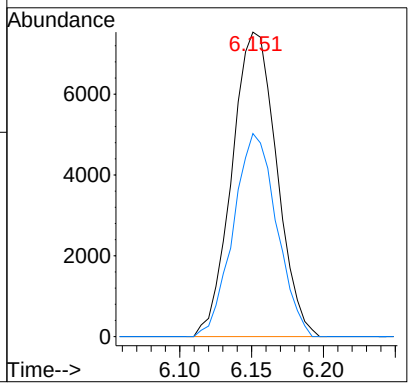


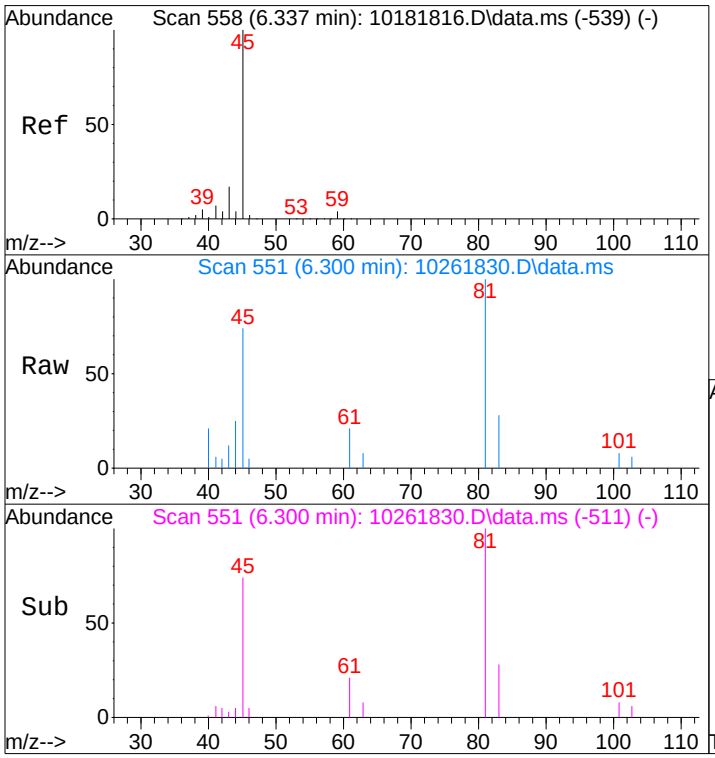


#14
Trichlorofluoromethane
Concen: 0.70 ng
RT: 6.15 min Scan# 522
Delta R.T. 0.019 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:101 Resp: 16322

Ion	Ratio	Lower	Upper
101	100		
103	64.6	44.5	84.5

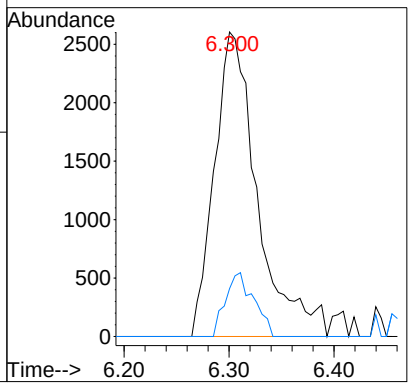


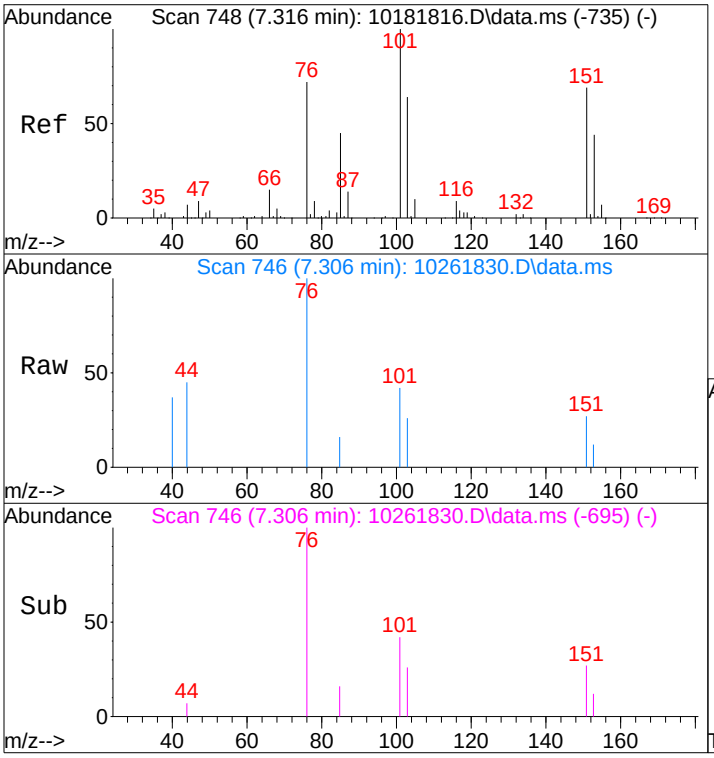


#15
2-Propanol (Isopropanol)
Concen: 0.14 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 45 Resp: 7400

Ion	Ratio	Lower	Upper
45	100		
43	13.8	0.0	36.7

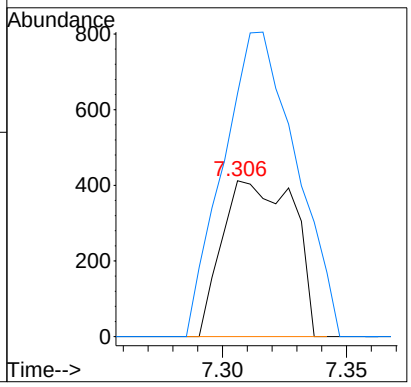


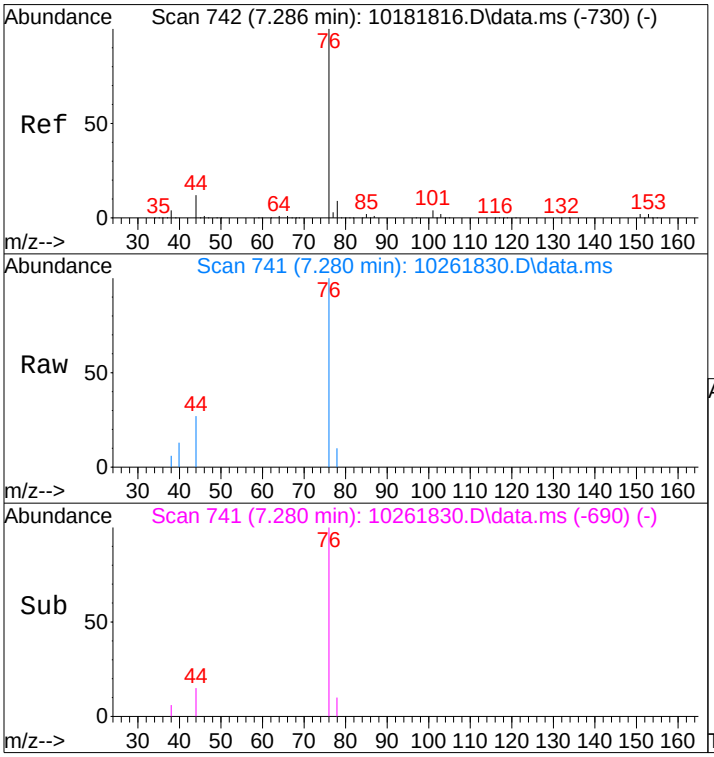


#21
Trichlorotrifluoroethane
Concen: 0.09 ng
RT: 7.31 min Scan# 746
Delta R.T. 0.015 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:151 Resp: 825

Ion	Ratio	Lower	Upper
151	100		
101	199.9	127.5	167.5#

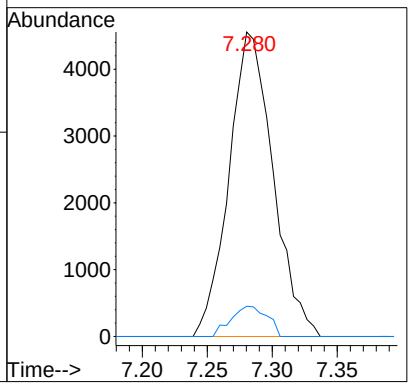


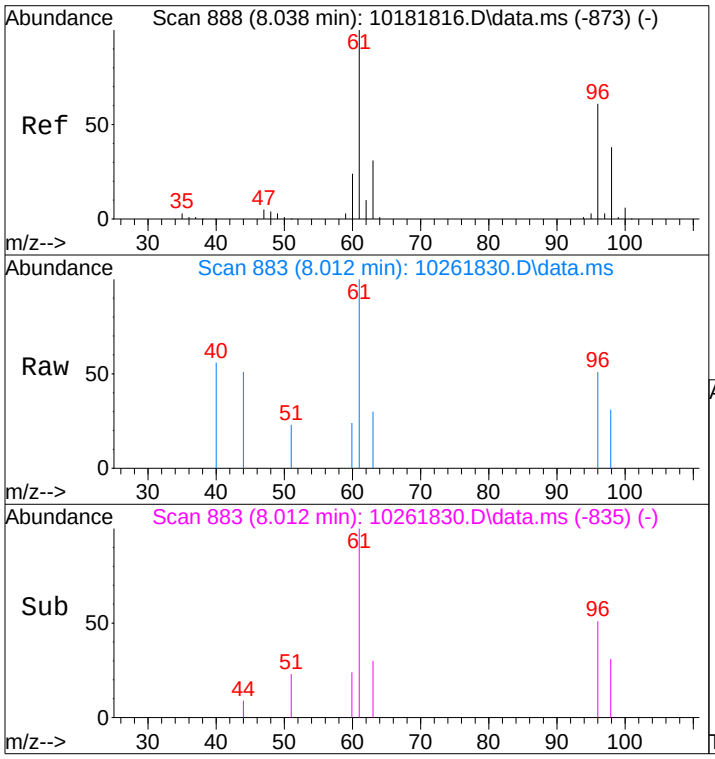


#22
Carbon Disulfide
Concen: 0.17 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 76 Resp: 10747

Ion	Ratio	Lower	Upper
76	100		
78	8.1	0.0	29.6

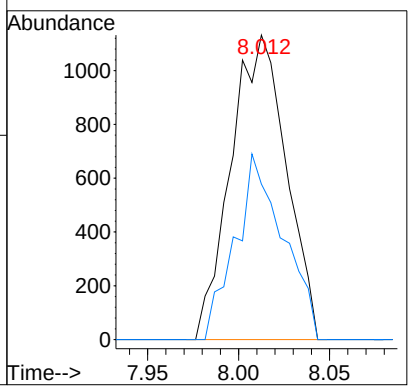


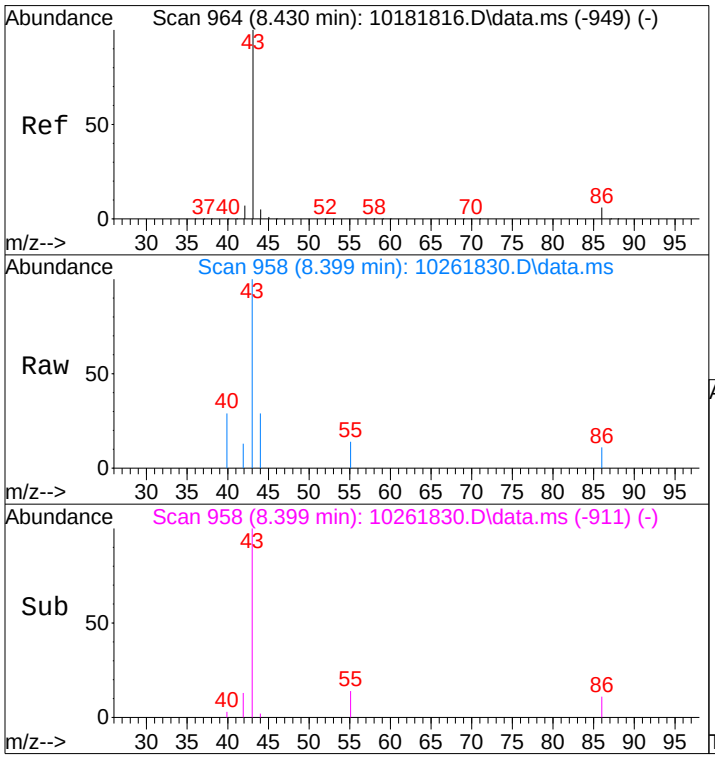


#23
trans-1,2-Dichloroethene
Concen: 0.09 ng
RT: 8.01 min Scan# 883
Delta R.T. -0.002 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 61 Resp: 2395

Ion	Ratio	Lower	Upper
61	100		
96	52.7	40.2	80.2

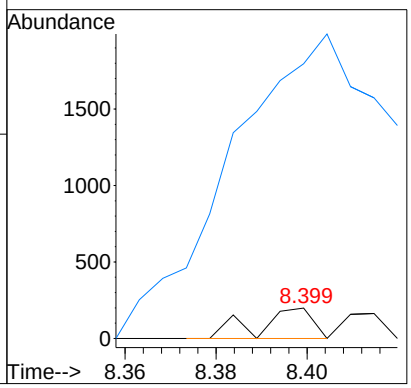


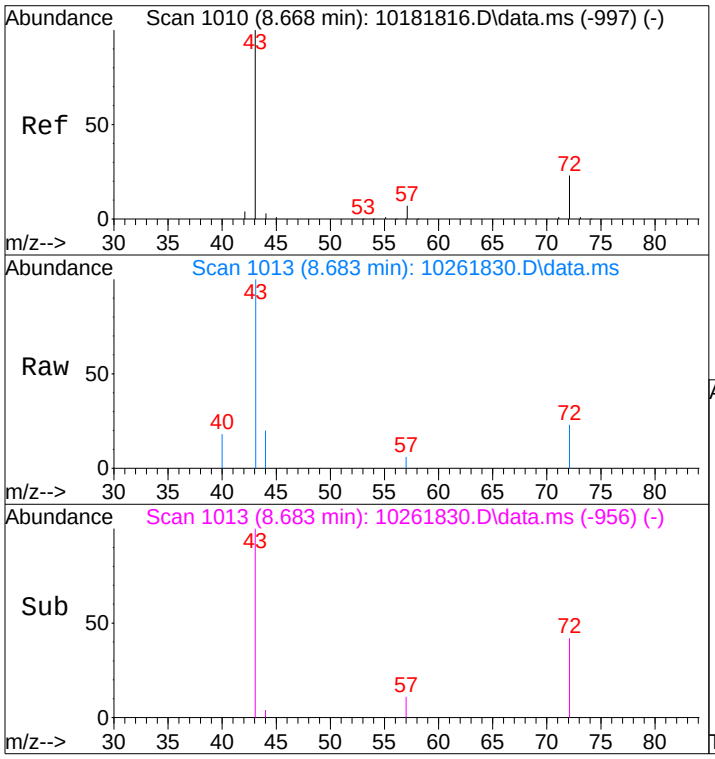


#26
Vinyl Acetate
Concen: 0.06 ng
RT: 8.40 min Scan# 958
Delta R.T. -0.010 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 86 Resp: 164

Ion	Ratio	Lower	Upper
86	100		
43	3876.8	1596.2	1636.2#

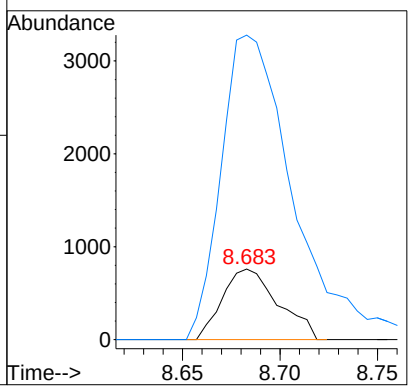


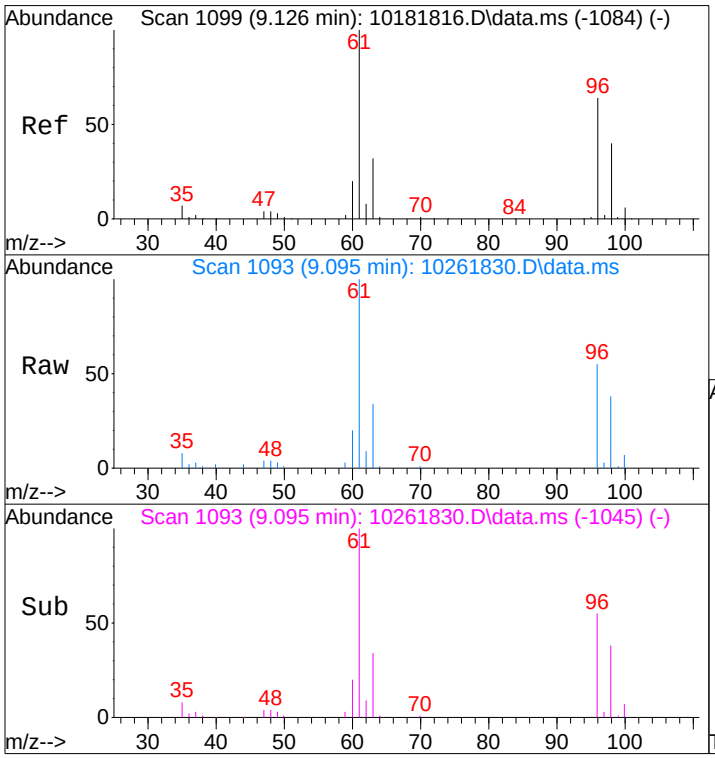


#27
2-Butanone (MEK)
Concen: 0.11 ng
RT: 8.68 min Scan# 1013
Delta R.T. 0.043 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 72 Resp: 1518

Ion	Ratio	Lower	Upper
72	100		
43	554.9	430.0	470.0#

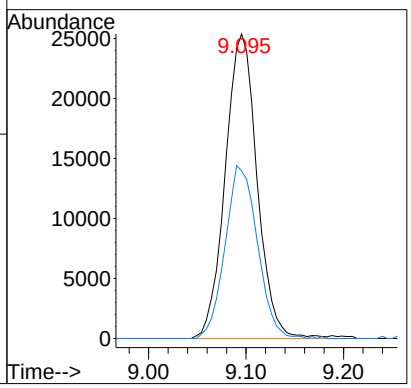


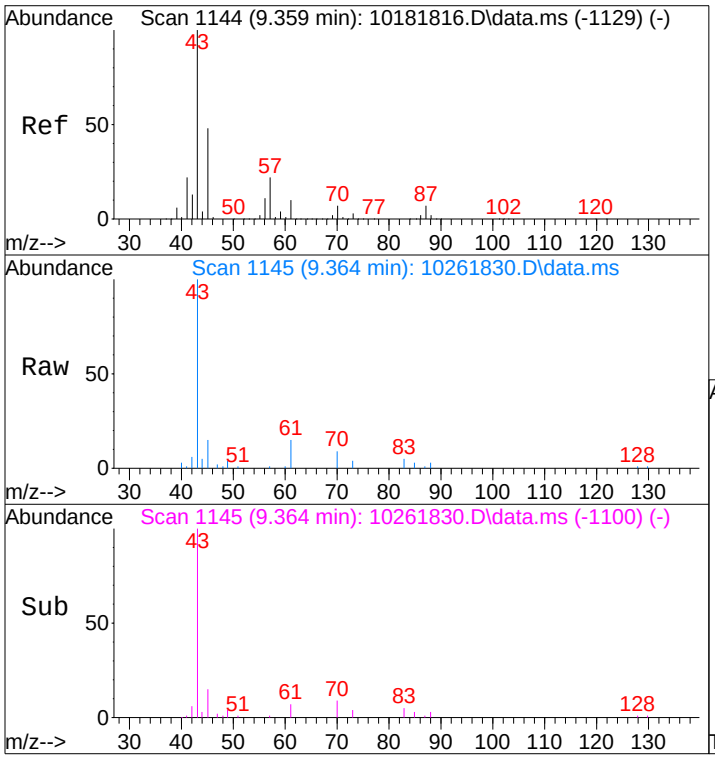


#28
cis-1,2-Dichloroethene
Concen: 2.13 ng
RT: 9.10 min Scan# 1093
Delta R.T. -0.001 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 61 Resp: 57578

Ion	Ratio	Lower	Upper
61	100		
96	57.4	42.8	82.8

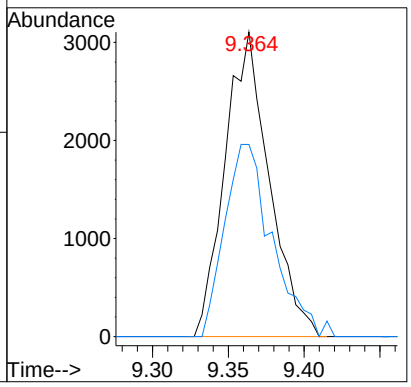


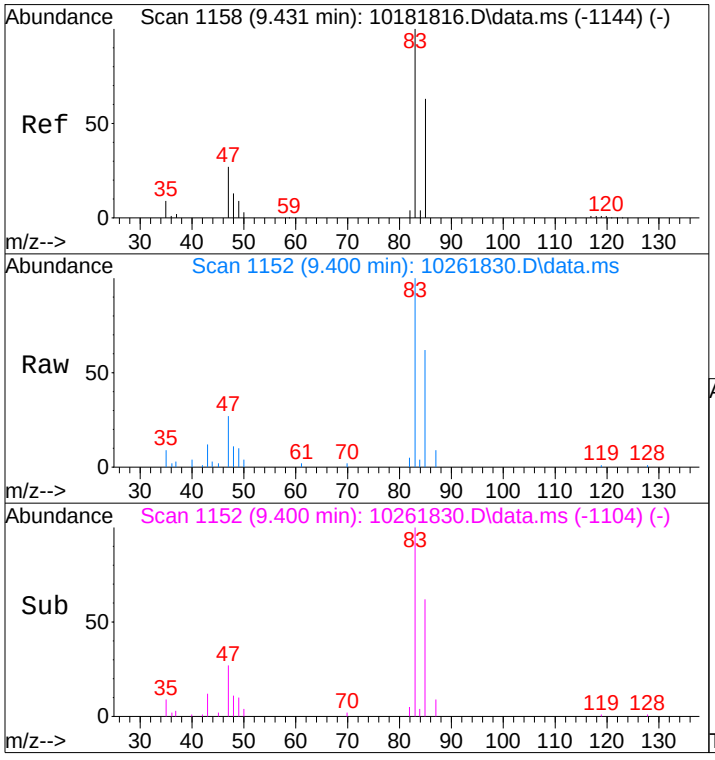


#30
Ethyl Acetate
Concen: 0.90 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.032 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 61 Resp: 6298

Ion	Ratio	Lower	Upper
61	100		
70	67.8	52.7	92.7

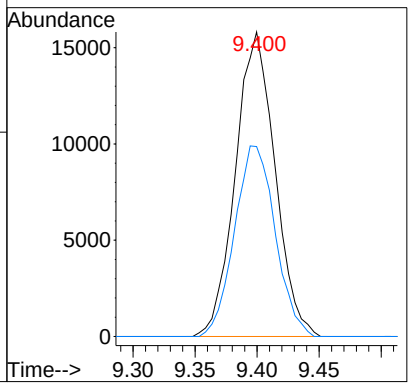


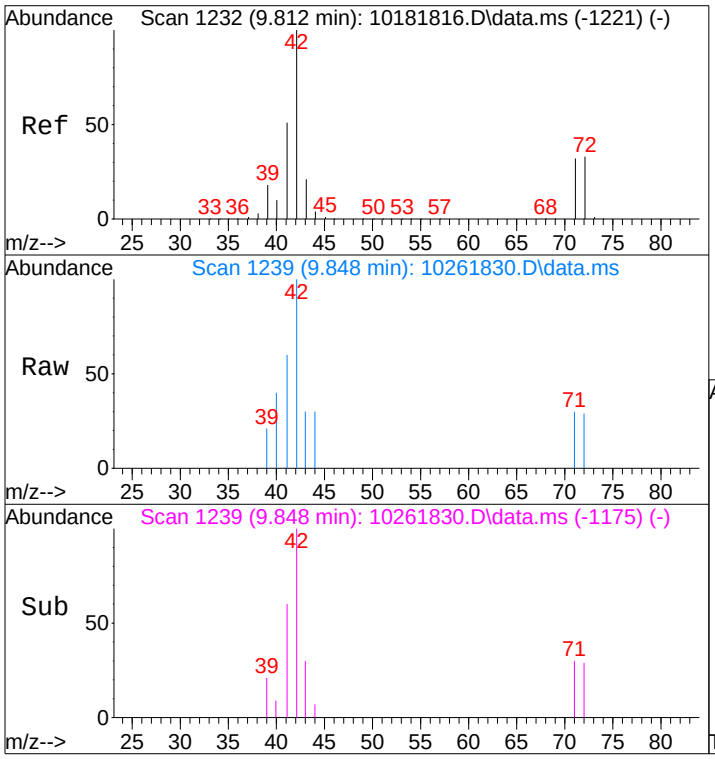


#32
Chloroform
Concen: 1.24 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 83 Resp: 35071

Ion	Ratio	Lower	Upper
83	100		
85	64.4	44.0	84.0

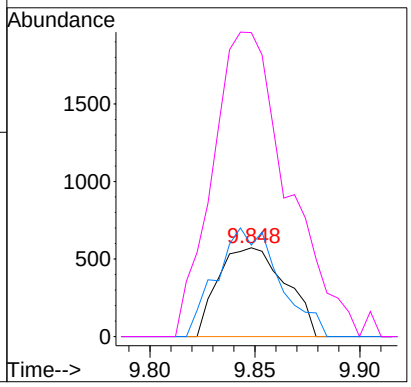


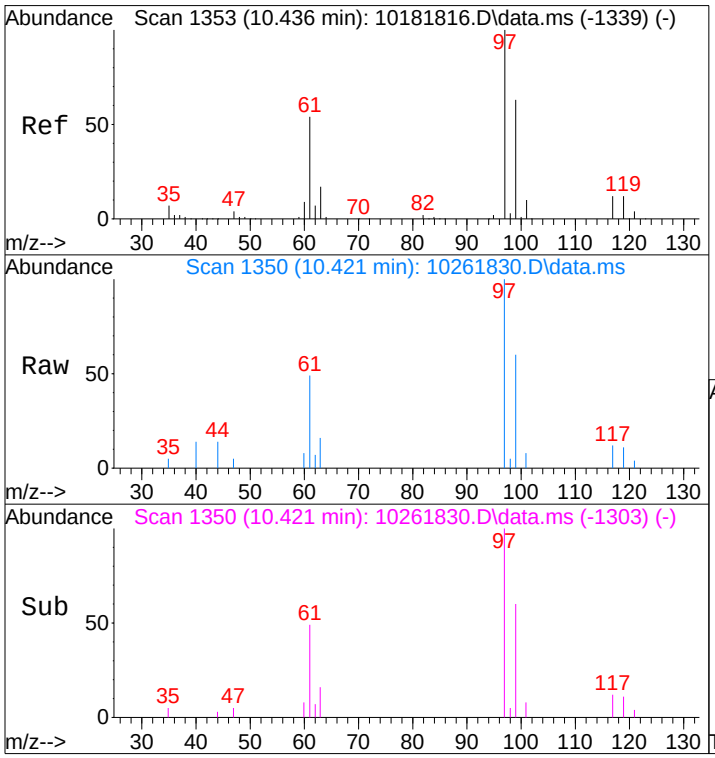


#34
Tetrahydrofuran (THF)
Concen: 0.10 ng
RT: 9.85 min Scan# 1239
Delta R.T. 0.080 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 72 Resp: 1276

Ion	Ratio	Lower	Upper
72	100		
71	114.1	76.7	116.7
42	387.9	287.9	327.9#

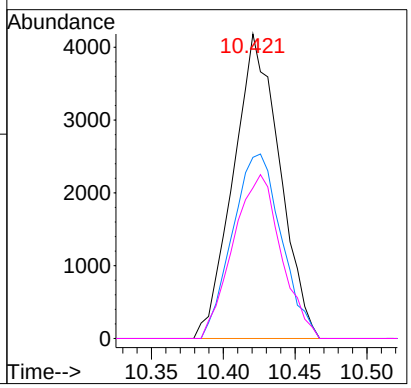


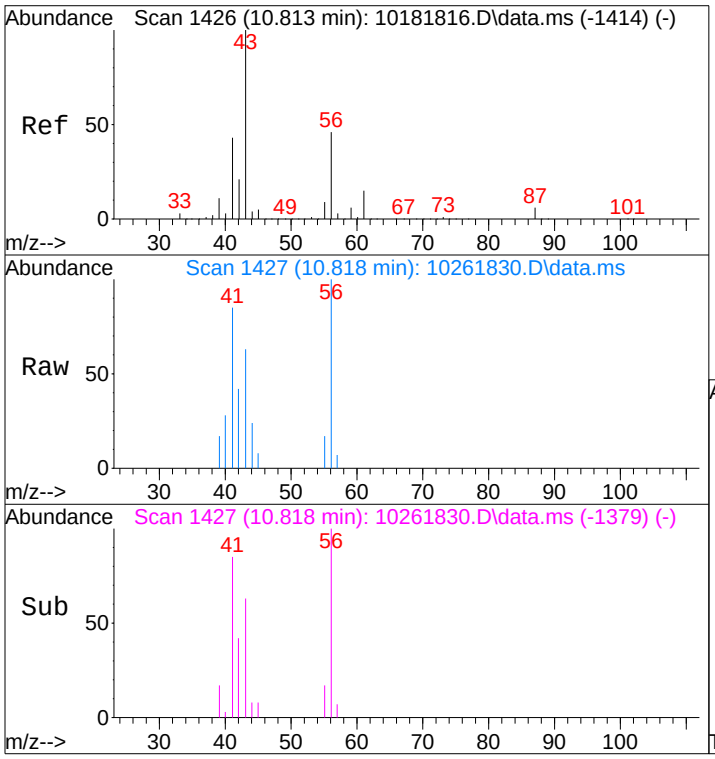


#38
1,1,1-Trichloroethane
Concen: 0.41 ng
RT: 10.42 min Scan# 1350
Delta R.T. -0.007 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 97 Resp: 9373

Ion	Ratio	Lower	Upper
97	100		
99	64.0	43.5	83.5
61	55.7	34.2	74.2

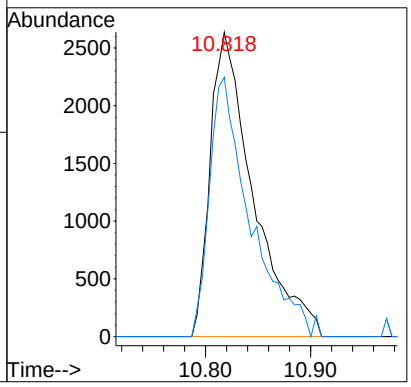


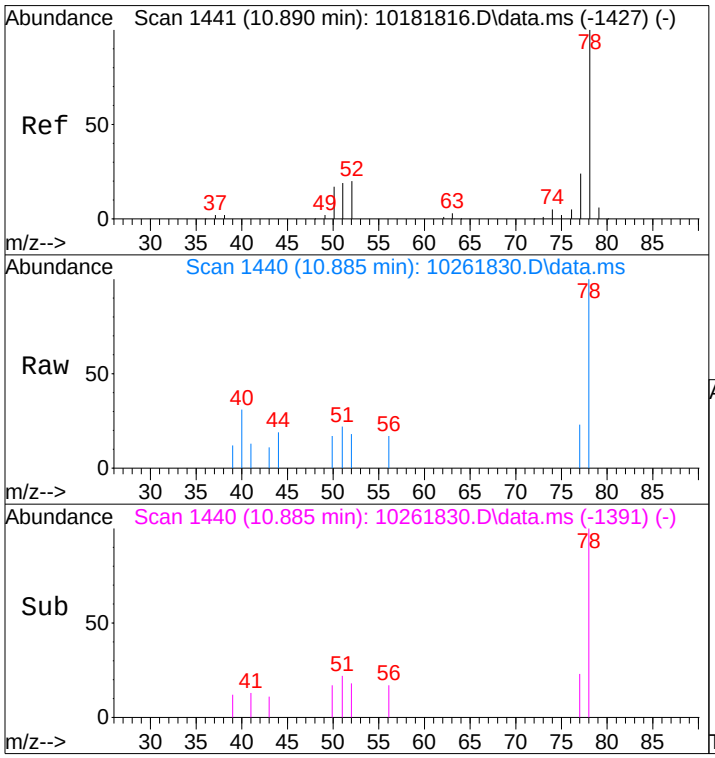


#40
1-Butanol
Concen: 0.37 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 56 Resp: 7502

Ion	Ratio	Lower	Upper
56	100		
41	81.0	90.2	130.2#

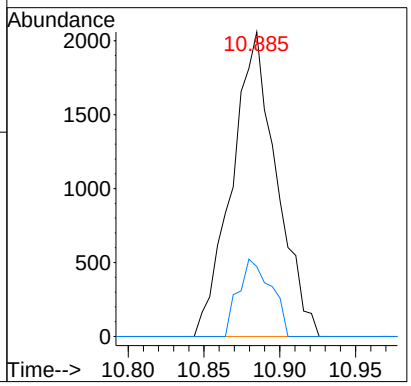


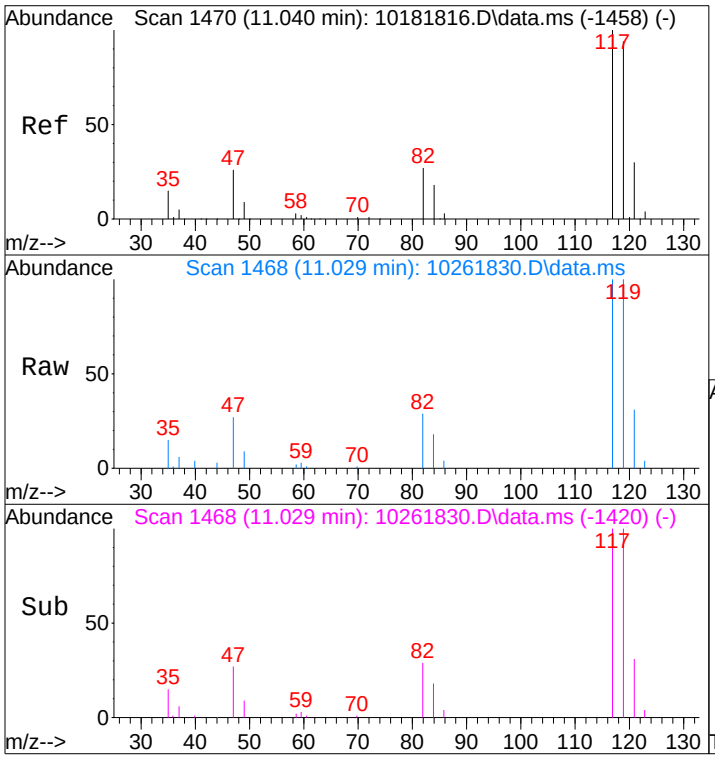


#41
Benzene
Concen: 0.06 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.004 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 78 Resp: 4221

Ion	Ratio	Lower	Upper
78	100		
77	18.6	4.1	44.1

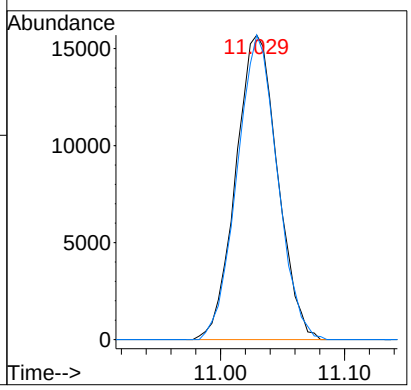


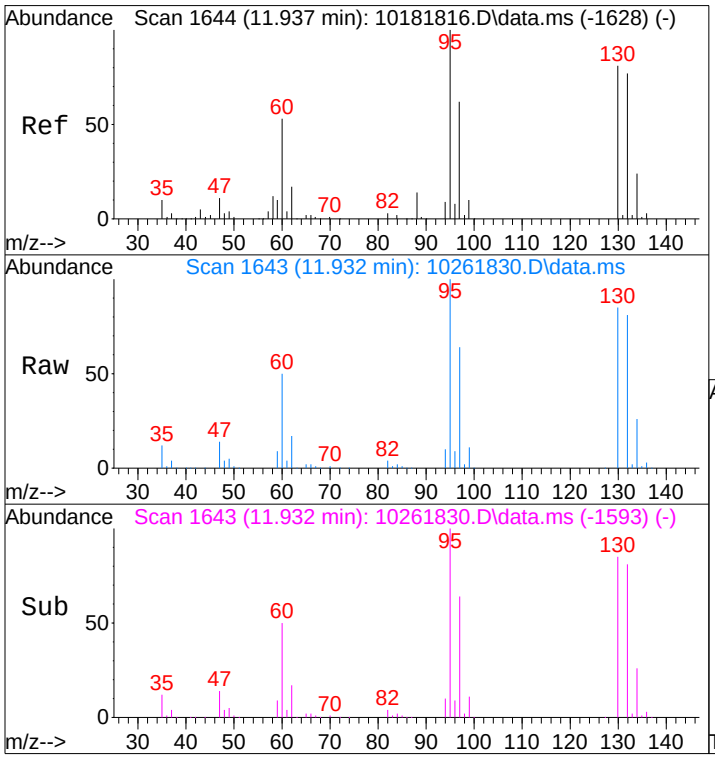


#42
Carbon Tetrachloride
Concen: 2.09 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:117 Resp: 36793

Ion	Ratio	Lower	Upper
117	100		
119	96.4	74.7	114.7

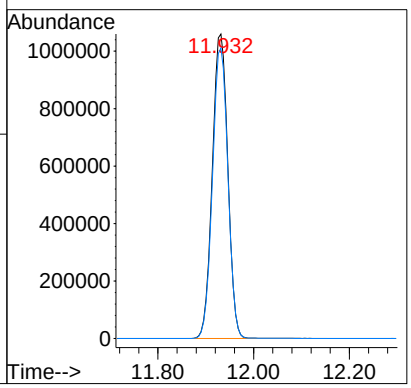


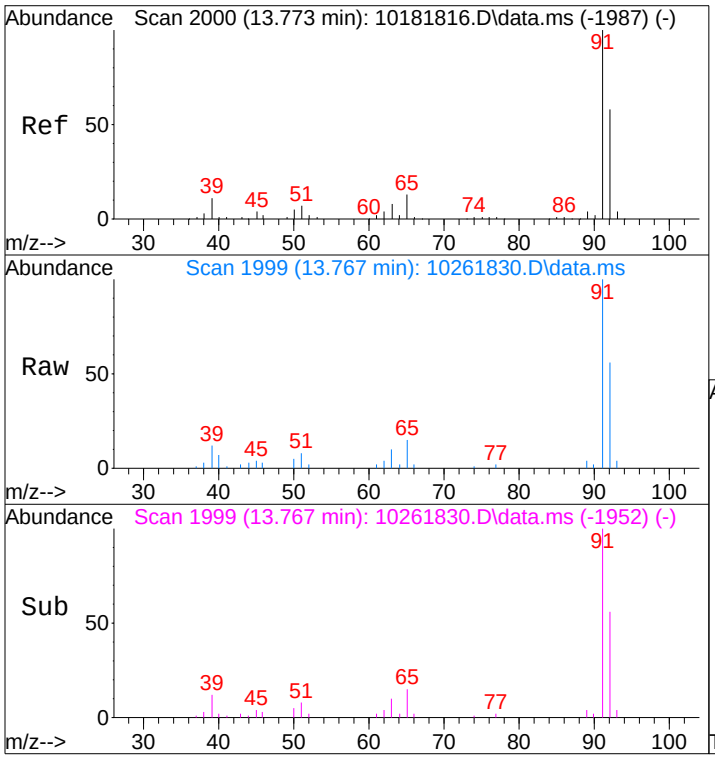


#47
Trichloroethene
Concen: 166.29 ng
RT: 11.93 min Scan# 1643
Delta R.T. 0.007 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:130 Resp: 2384193

Ion	Ratio	Lower	Upper
130	100		
132	95.1	74.6	114.6

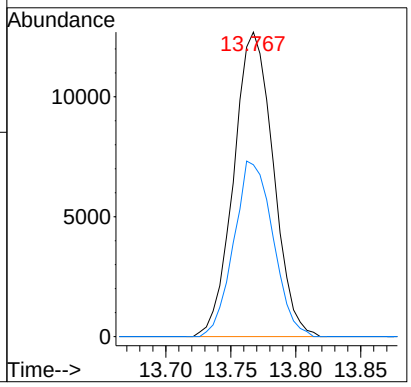


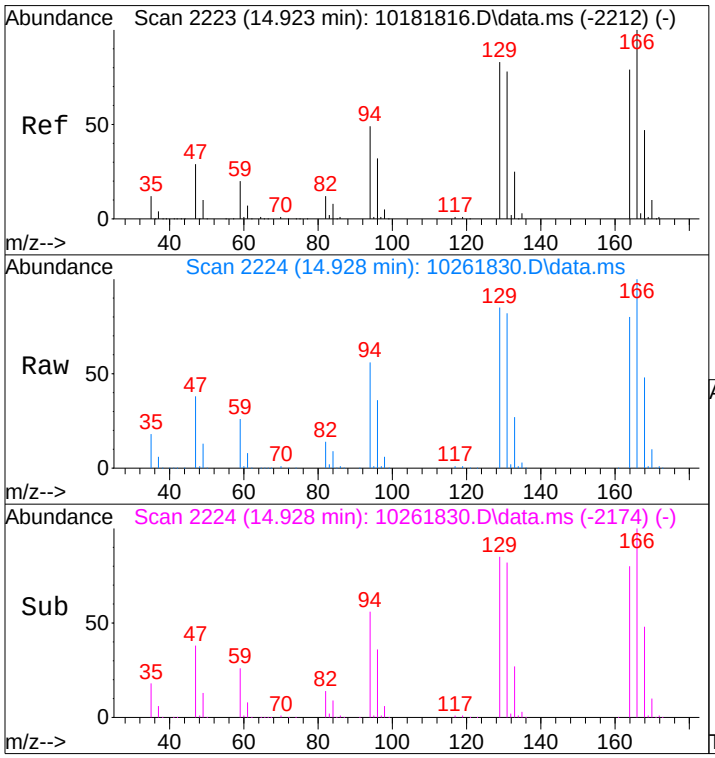


#58
Toluene
Concen: 0.37 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 91 Resp: 26856

Ion	Ratio	Lower	Upper
91	100		
92	57.1	38.1	78.1

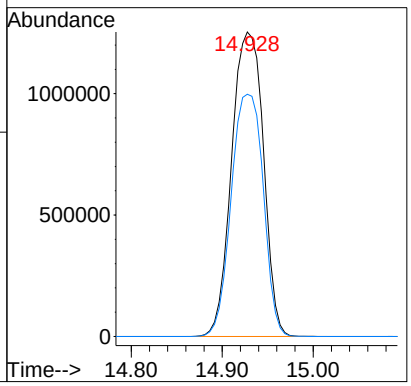


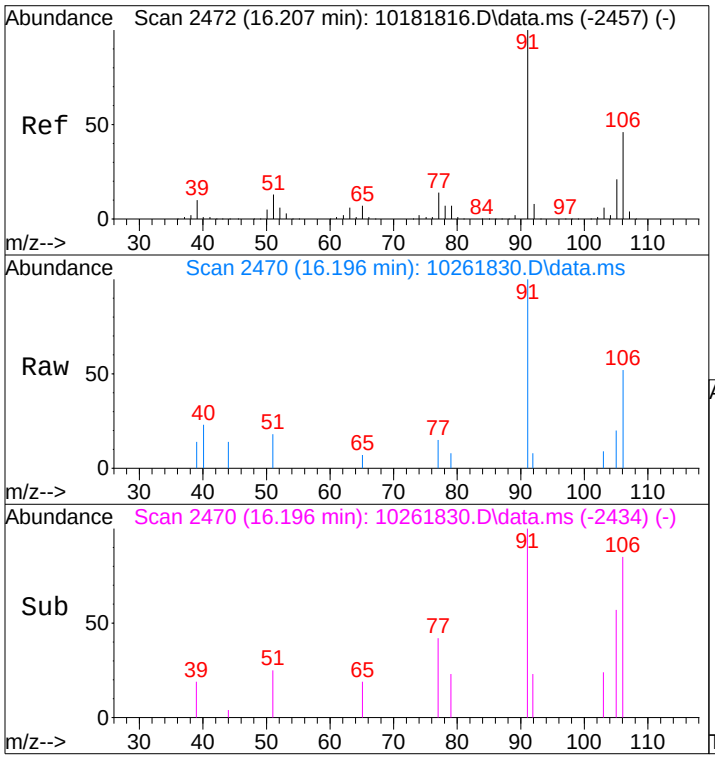


#64
Tetrachloroethene
Concen: 201.38 ng
RT: 14.93 min Scan# 2224
Delta R.T. 0.010 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:166 Resp: 3048500

Ion	Ratio	Lower	Upper
166	100		
164	80.2	58.9	98.9

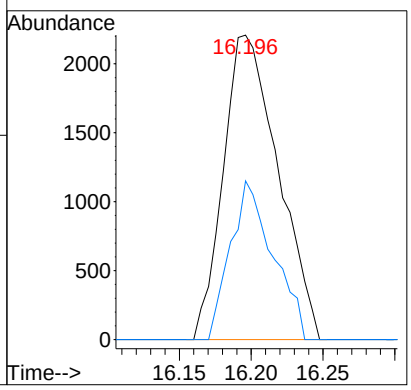


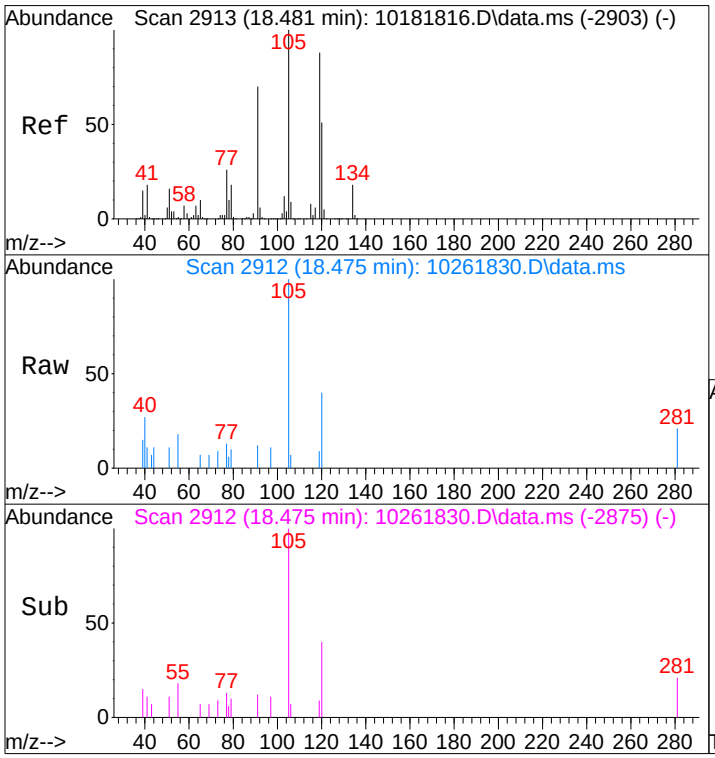


#67
m- & p-Xylenes
Concen: 0.09 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion: 91 Resp: 5860

Ion	Ratio	Lower	Upper
91	100		
106	40.5	26.7	66.7

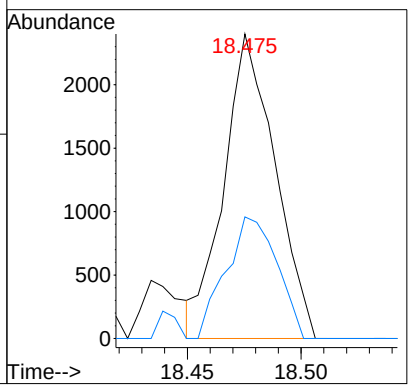


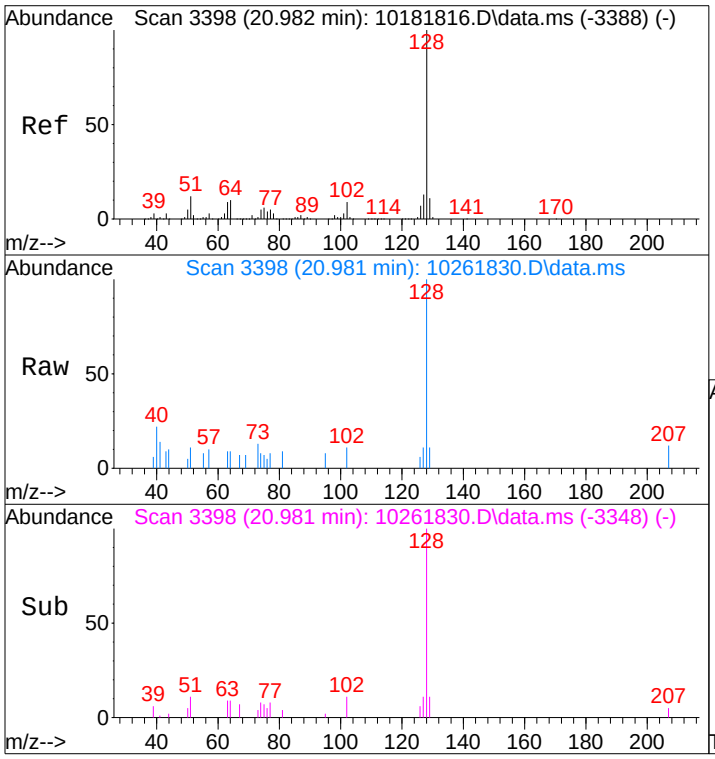


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:105 Resp: 3749

Ion	Ratio	Lower	Upper
105	100		
120	40.0	31.3	71.3

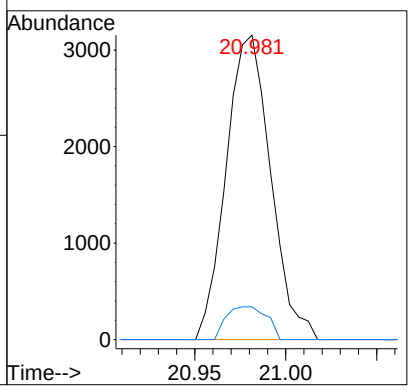




#95
Naphthalene
Concen: 0.08 ng
RT: 20.98 min Scan# 3398
Delta R.T. 0.008 min
Lab File: 10261830.D
Acq: 26 Oct 2018 22:11

Tgt Ion:128 Resp: 5365

Ion	Ratio	Lower	Upper
128	100		
129	9.8	0.0	31.0



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 14:24:20 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

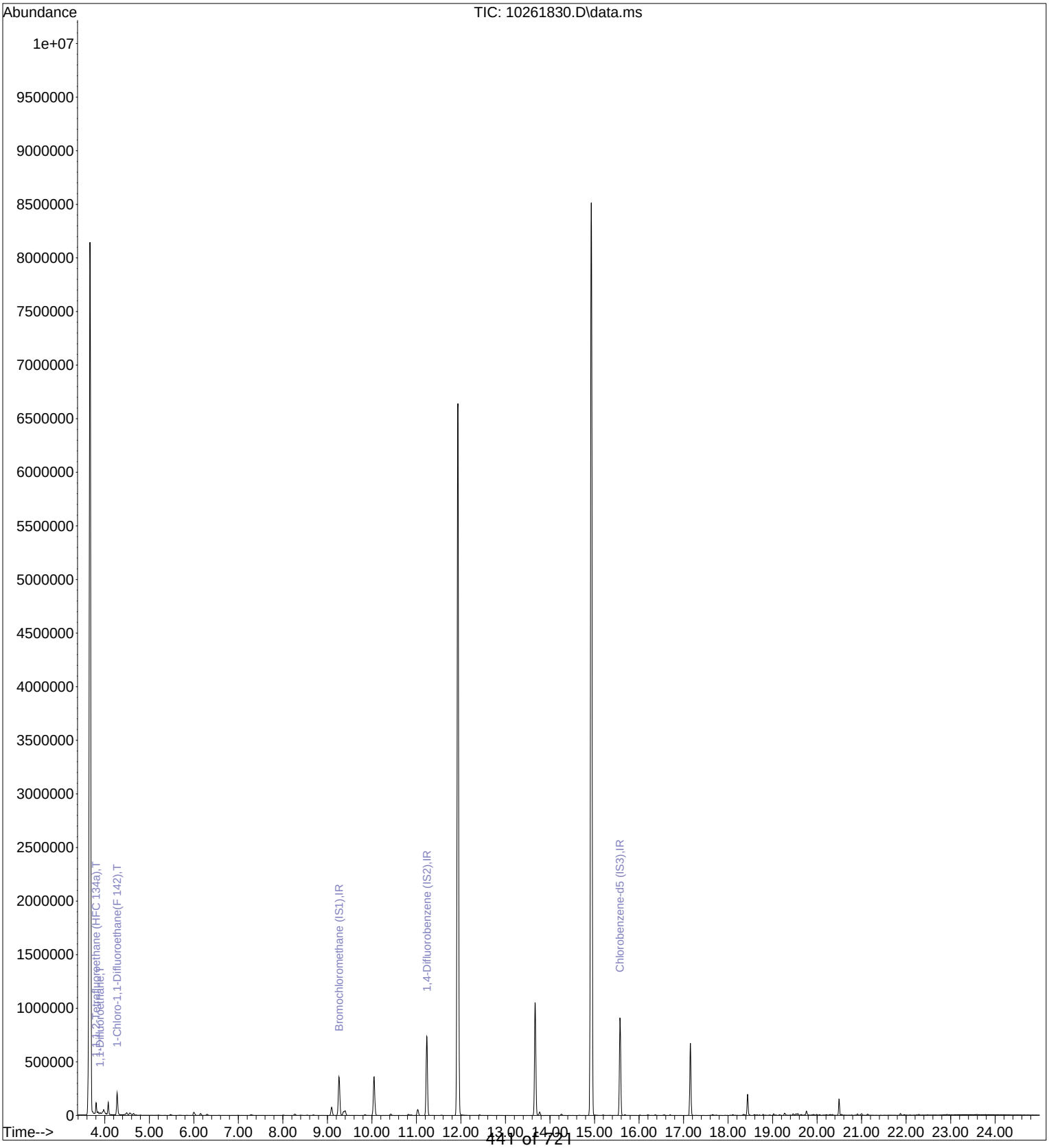
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	120180	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	598064	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	375328	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	270	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	33210	2.675	ng	#	56
4) 1,1-Difluoroethane	3.89	65	5803	0.390	ng		84
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d		
6) 1-Chloro-1,1-Difluoroe...	4.28	65	191850	7.142	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.02	57	988	N.D.			
11) Methyl Acetate	7.03	43	867	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.	d		
17) 2,3-Dimethylpentane	11.42	56	53	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	54	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	1252	N.D.			
27) 4-Chlorotoluene	17.82	91	1252	N.D.			
28) Indane	19.13	117	380	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	49	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	237	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	110	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261830.D Vial: 13
Acq On : 26 Oct 2018 22:11 Operator: RS
Sample : P1805493-016 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:24:20 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261831.D Vial: 13
Acq On : 26 Oct 2018 22:45 Operator: RS
Sample : P1805493-016dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:58:59 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	122002	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	600020	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	370056	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	292160	13.808	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.48%				
57) Toluene-d8 (SS2)	13.66	98	783427	12.118	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.96%				
73) Bromofluorobenzene (SS3)	17.16	174	161142	11.079	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.64%				
Target Compounds							Qvalue
2) Propene	4.02	42	448	N.D.			
3) Dichlorodifluoromethan...	4.11	85	8286	0.249	ng		98
4) Chloromethane	4.31	50	367	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	0.00	45	0	N.D. d			
11) Acetonitrile	5.71	41	254	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	6.02	58	4535	0.263	ng	#	81
14) Trichlorofluoromethane	6.17	101	1452	0.061	ng		88
15) 2-Propanol (Isopropanol)	6.36	45	393	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	1118	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	9.10	61	5137	0.187	ng		86
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	9.38	61	214	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	3054	0.106	ng		96
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	565	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.87	56	424	N.D.			
41) Benzene	10.88	78	500	N.D.			
42) Carbon Tetrachloride	11.02	117	2957	0.167	ng		97
43) Cyclohexane	11.21	84	644	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	211226	14.684	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261831.D Vial: 13
Acq On : 26 Oct 2018 22:45 Operator: RS
Sample : P1805493-016dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 10:58:59 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

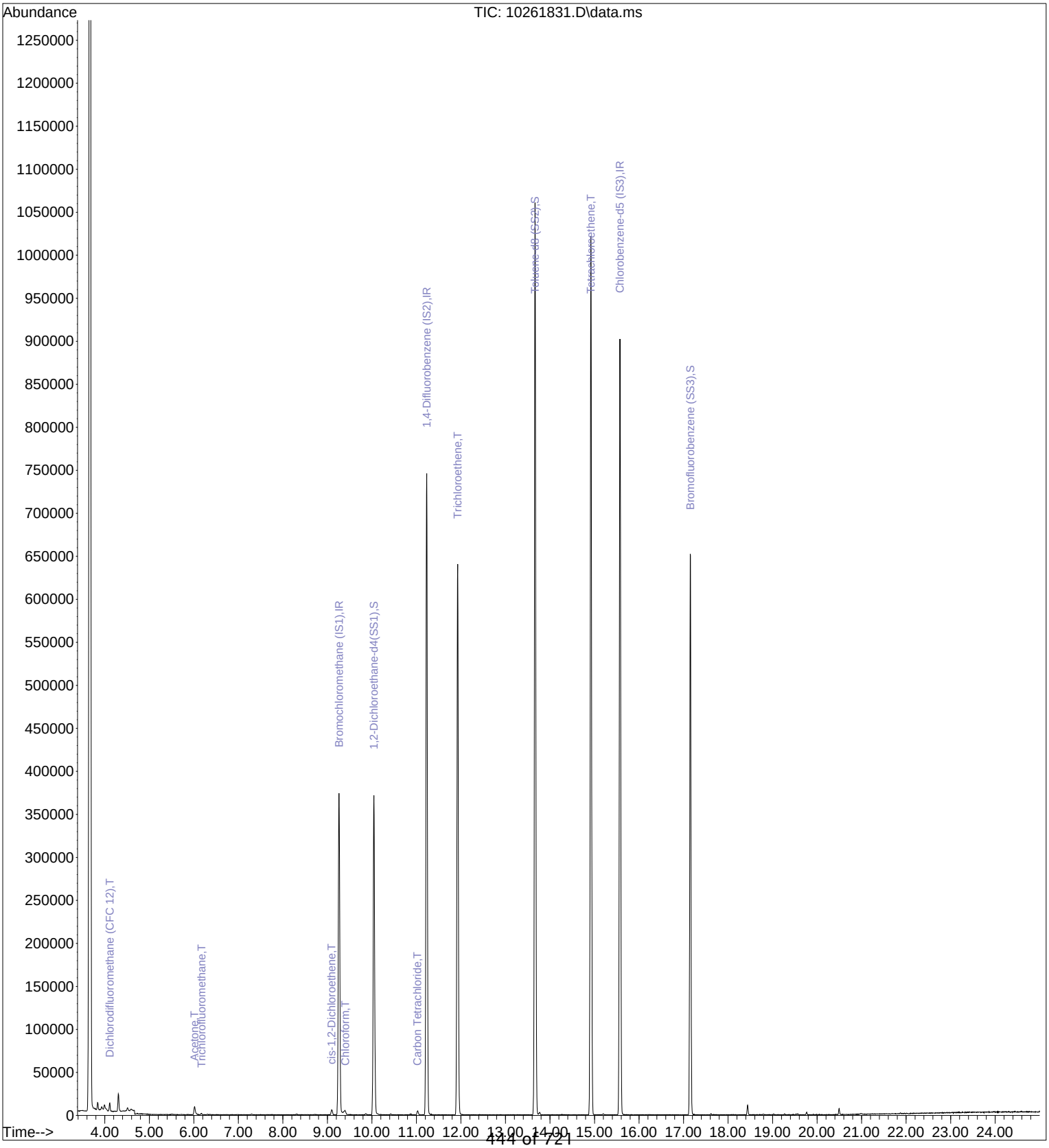
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	2677	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	302174	20.245 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.03	91	176	N.D.	
67) m- & p-Xylenes	16.20	91	556	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.70	91	108	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.14	105	181	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	191	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	18.71	146	222	N.D.	
86) 1,4-Dichlorobenzene	18.71	146	222	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.76	57	798	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1077	N.D.	
96) n-Dodecane	21.00	57	347	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	18.44	119	104	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261831.D Vial: 13
Acq On : 26 Oct 2018 22:45 Operator: RS
Sample : P1805493-016dil (40mL) Inst : MS09
Misc : S31-10151806

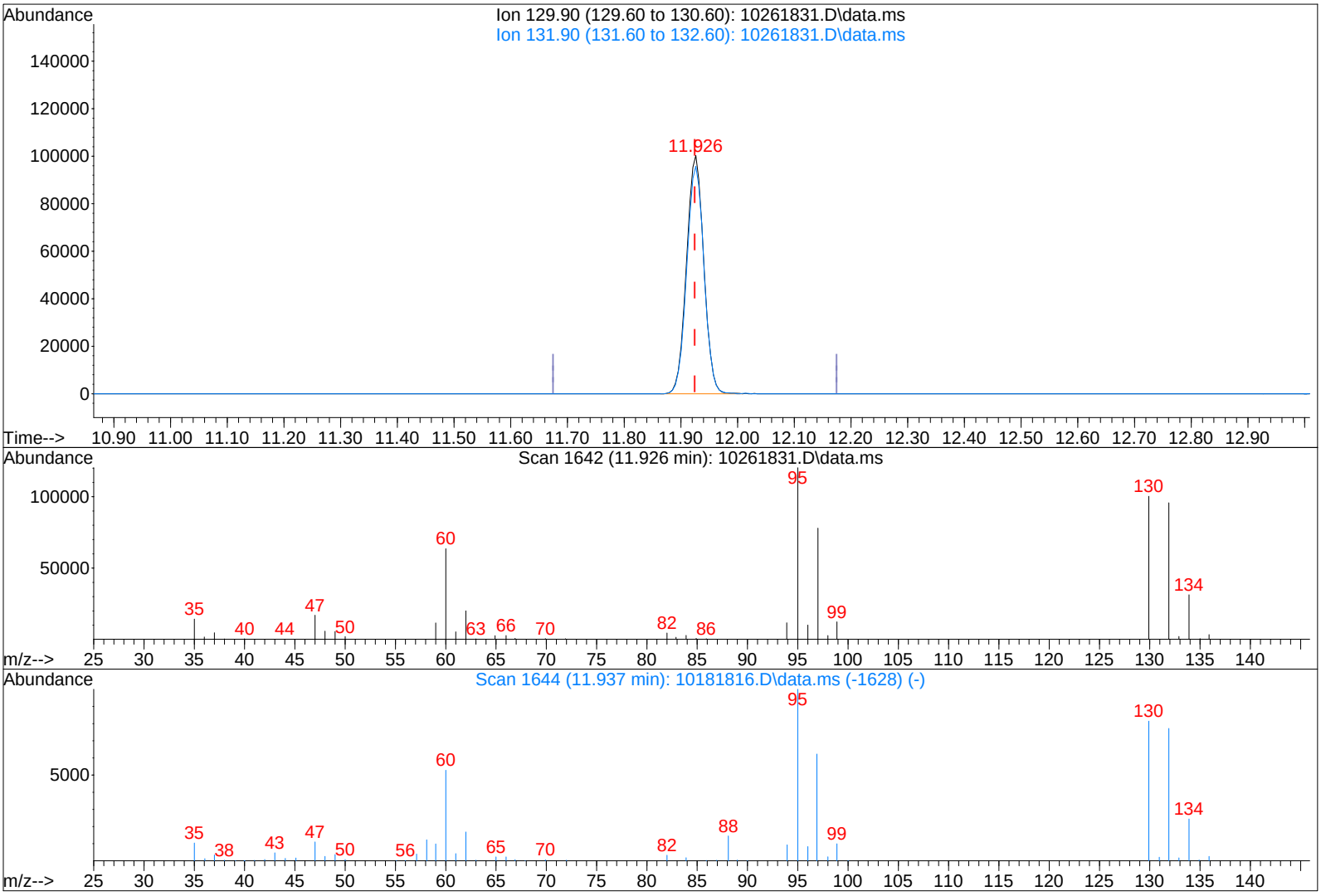
Quant Time: Oct 29 10:58:59 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261831.D Vial: 13
Acq On : 26 Oct 2018 22:45 Operator: RS
Sample : P1805493-016dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261831.D\data.ms

(47) Trichloroethene (T)

11.926min (+0.002) 14.68ng

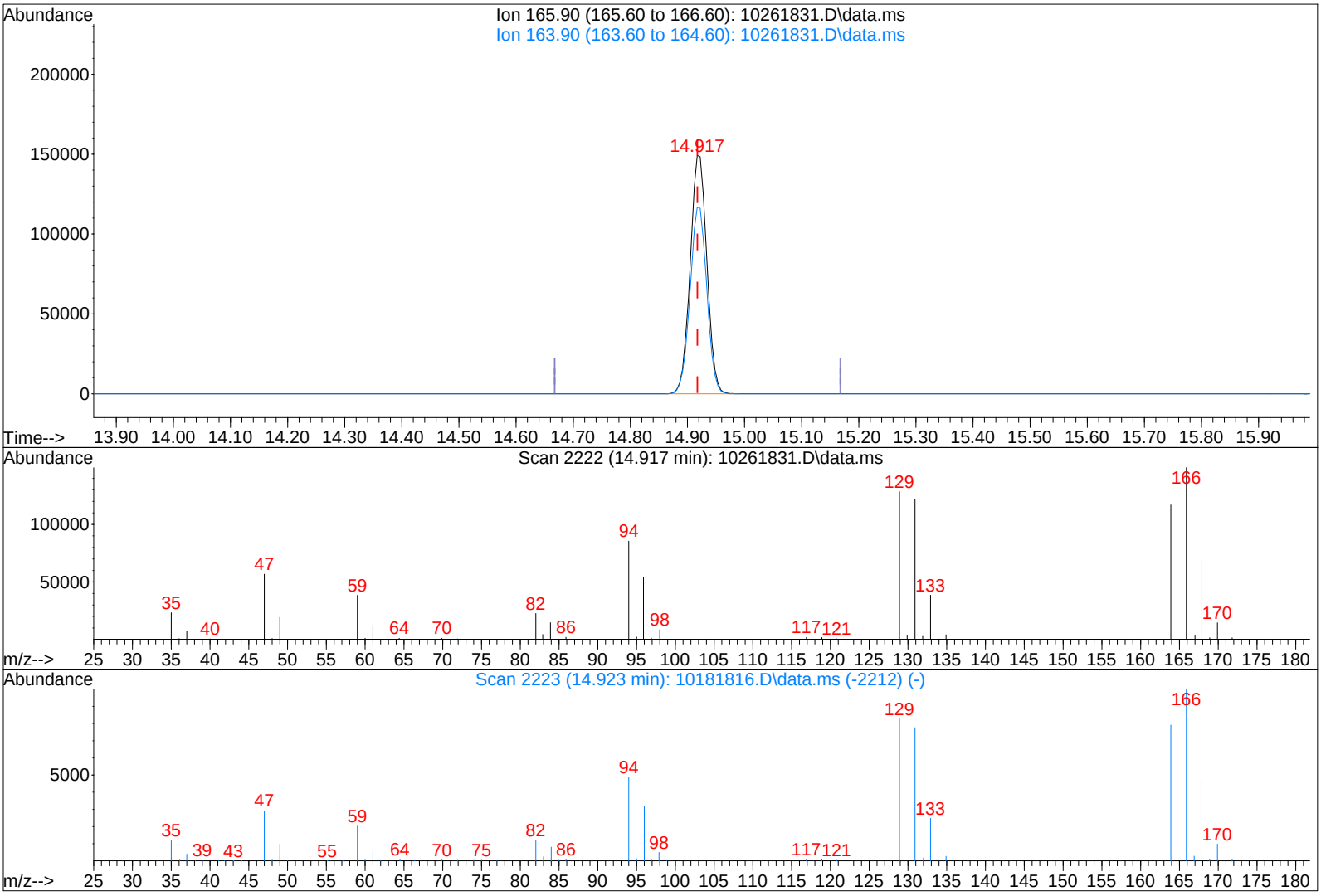
response 211226

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	95.62
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261831.D Vial: 13
Acq On : 26 Oct 2018 22:45 Operator: RS
Sample : P1805493-016dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:29 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261831.D\data.ms

(64) Tetrachloroethene (T)

14.917min (-0.001) 20.25ng

response 302174

Ion	Exp%	Act%
165.90	100	100
163.90	78.90	78.94
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

RS 10/31/18

Quant Time: Oct 31 08:44:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	203809	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	867526	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	362841	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	307138	12.528	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%				
57) Toluene-d8 (SS2)	15.87	98	742297	12.847	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.80%				
73) Bromofluorobenzene (SS3)	19.09	174	299666	11.409	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.28%				
Target Compounds							Qvalue
2) Propene	4.09	42	527	N.D.			
3) Dichlorodifluoromethan...	4.23	85	24883	0.584	ng		100
4) Chloromethane	4.54	50	1146	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.46	45	3738	0.326	ng		88
11) Acetonitrile	6.75	41	1167	N.D.			
12) Acrolein	6.94	56	226	N.D.			
13) Acetone	7.14	58	14679	1.073	ng		98
14) Trichlorofluoromethane	7.36	101	5481	0.149	ng		99
15) 2-Propanol (Isopropanol)	7.59	45	268	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	9.00	151	440	N.D.			
22) Carbon Disulfide	8.88	76	1202	N.D.			
23) trans-1,2-Dichloroethene	9.88	61	104	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	10.67	72	597	N.D.			
28) cis-1,2-Dichloroethene	11.14	61	7036	0.278	ng		100
29) Diisopropyl Ether	11.48	87	831	N.D.			
30) Ethyl Acetate	11.46	61	581	0.090	ng		97
31) n-Hexane	11.41	57	252	N.D.			
32) Chloroform	11.48	83	8893	0.259	ng		99
34) Tetrahydrofuran (THF)	11.96	72	303	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	12.56	97	5557	0.170	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.04	56	2866	0.163	ng	#	78
41) Benzene	13.04	78	10011	0.126	ng		98
42) Carbon Tetrachloride	13.20	117	10243	0.339	ng		100
43) Cyclohexane	13.43	84	506	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	14.13	130	1763853	75.239	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	14.13	57	111	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 31 08:44:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

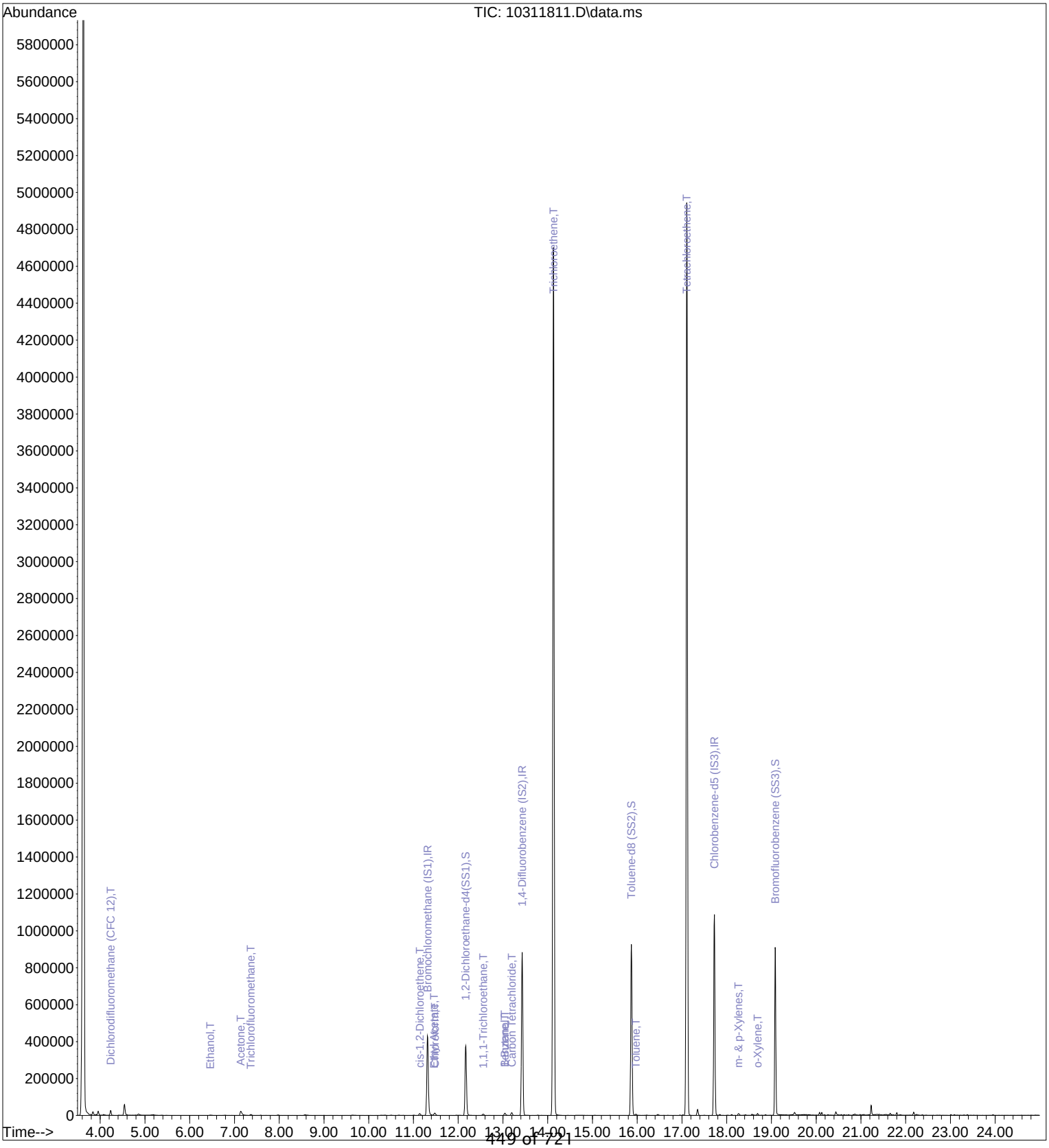
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	15.97	91	7966	0.099 ng	80
59) 2-Hexanone	16.22	43	1496	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	16.86	43	471	N.D.	
63) n-Octane	16.95	57	459	N.D.	
64) Tetrachloroethene	17.11	166	1678648	67.986 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	18.11	91	4256	N.D.	
67) m- & p-Xylenes	18.26	91	8041	0.118 ng	92
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	18.60	104	875	N.D.	
70) o-Xylene	18.69	91	5267	0.076 ng	94
71) n-Nonane	18.87	43	955	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	19.21	105	896	N.D.	
75) alpha-Pinene	19.54	93	241	N.D.	
76) n-Propylbenzene	19.64	91	770	N.D.	
77) 3-Ethyltoluene	19.74	105	1220	N.D.	
78) 4-Ethyltoluene	19.78	105	847	N.D.	
79) 1,3,5-Trimethylbenzene	19.83	105	1025	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	20.01	105	534	N.D.	
82) 1,2,4-Trimethylbenzene	20.19	105	1253	N.D.	
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	20.19	91	121	N.D.	
85) 1,3-Dichlorobenzene	20.32	146	104	N.D.	
86) 1,4-Dichlorobenzene	20.39	146	250	N.D.	
87) sec-Butylbenzene	20.56	105	209	N.D.	
88) 4-Isopropyltoluene (p-...	20.56	119	492	N.D.	
89) 1,2,3-Trimethylbenzene	20.56	105	209	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	20.68	68	325	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	21.32	57	952	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	22.28	128	2320	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	20.19	119	174	N.D.	
100) n-Butylbenzene	20.92	91	325	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 31 08:44:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 31 08:44:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018 RS 10/31/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

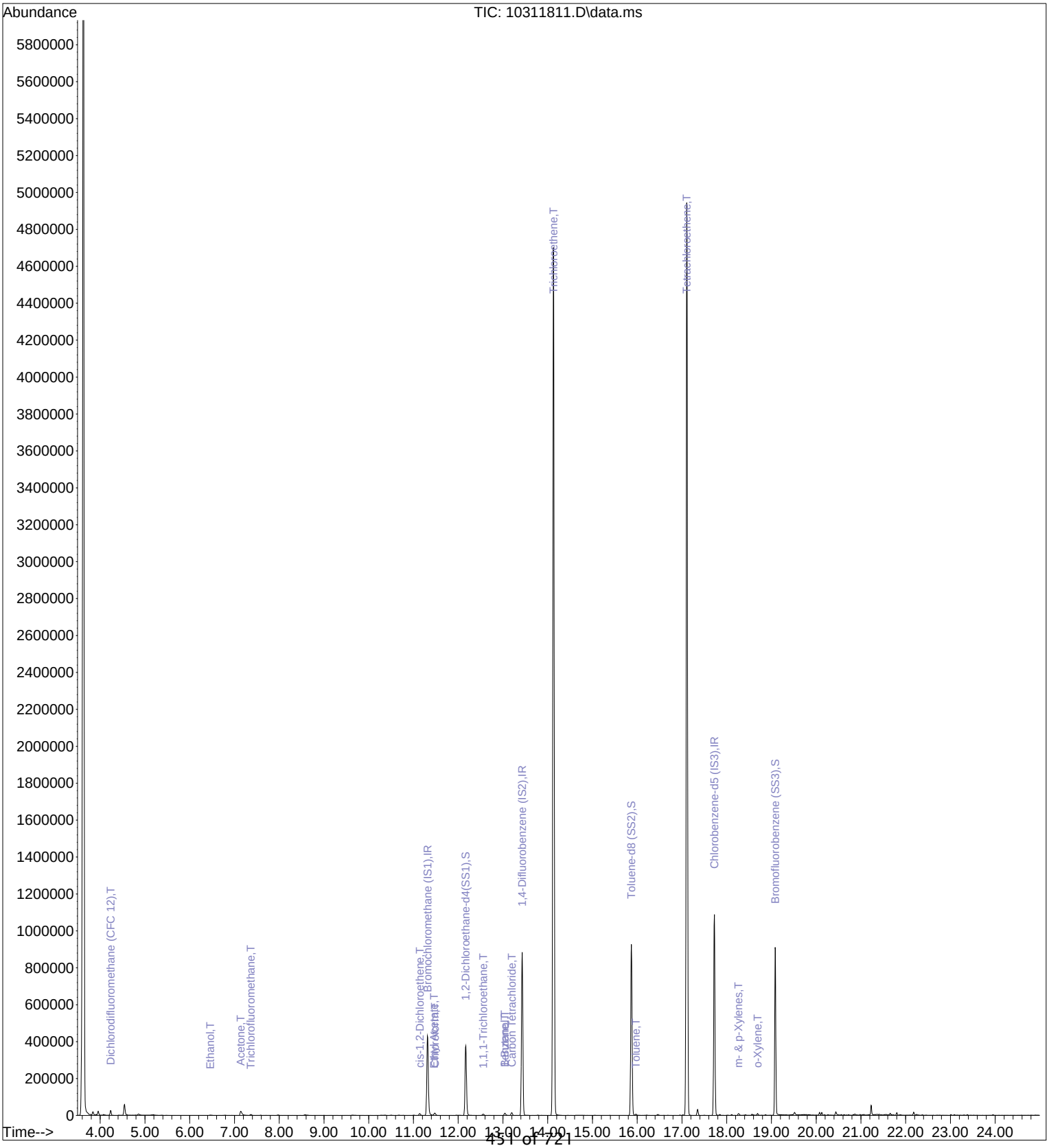
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	203809	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	867526	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	362841	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	307138	12.528	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%				
57) Toluene-d8 (SS2)	15.87	98	742297	12.847	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.80%				
73) Bromofluorobenzene (SS3)	19.09	174	299666	11.409	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.28%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.23	85	24883	0.584	ng		100
10) Ethanol	6.46	45	3738	0.326	ng		88
13) Acetone	7.14	58	14679	1.073	ng		98
14) Trichlorofluoromethane	7.36	101	5481	0.149	ng		99
28) cis-1,2-Dichloroethene	11.14	61	7036	0.278	ng		100
30) Ethyl Acetate	11.46	61	581	0.090	ng		97
32) Chloroform	11.48	83	8893	0.259	ng		99
38) 1,1,1-Trichloroethane	12.56	97	5557	0.170	ng		97
40) 1-Butanol	13.04	56	2866	0.163	ng	#	78
41) Benzene	13.04	78	10011	0.126	ng		98
42) Carbon Tetrachloride	13.20	117	10243	0.339	ng		100
47) Trichloroethene	14.13	130	1763853	75.239	ng		100
58) Toluene	15.97	91	7966	0.099	ng		80
64) Tetrachloroethene	17.11	166	1678648	67.986	ng		99
67) m- & p-Xylenes	18.26	91	8041	0.118	ng		92
70) o-Xylene	18.69	91	5267	0.076	ng		94

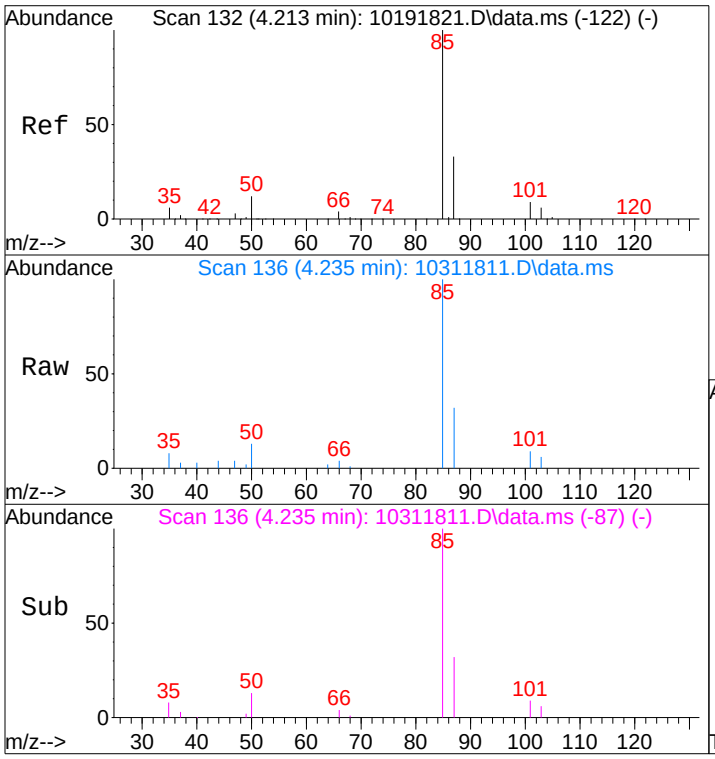
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 31 08:44:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

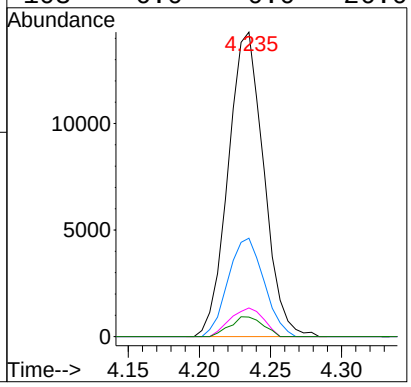


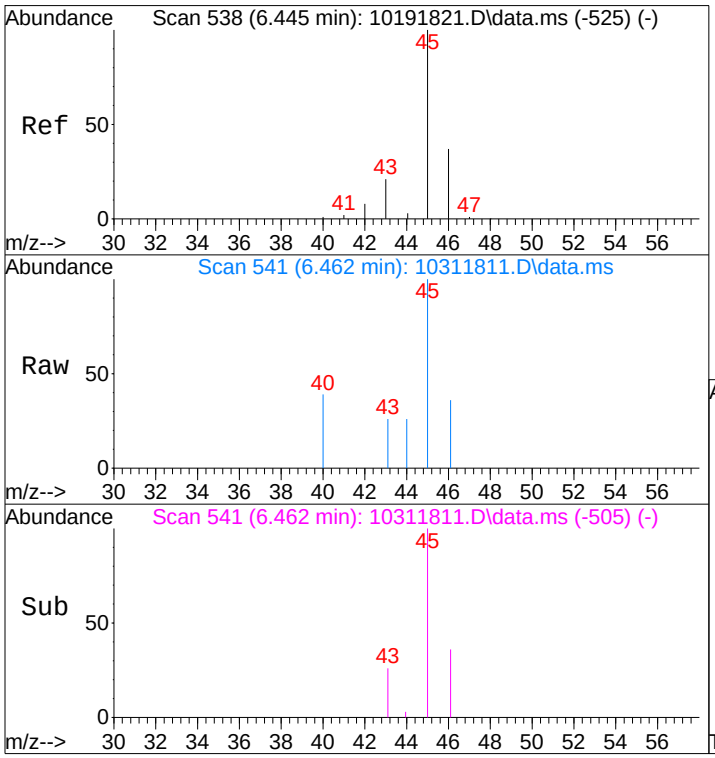


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.58 ng
RT: 4.23 min Scan# 136
Delta R.T. 0.022 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 85 Resp: 24883

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.6	52.6
101	8.8	0.0	29.4
103	6.0	0.0	26.0

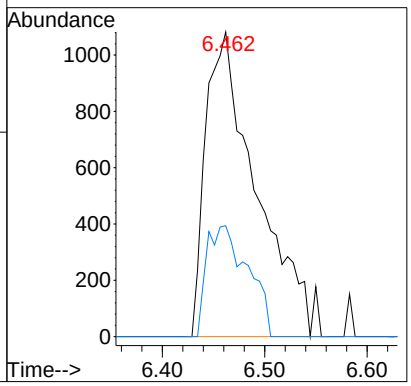


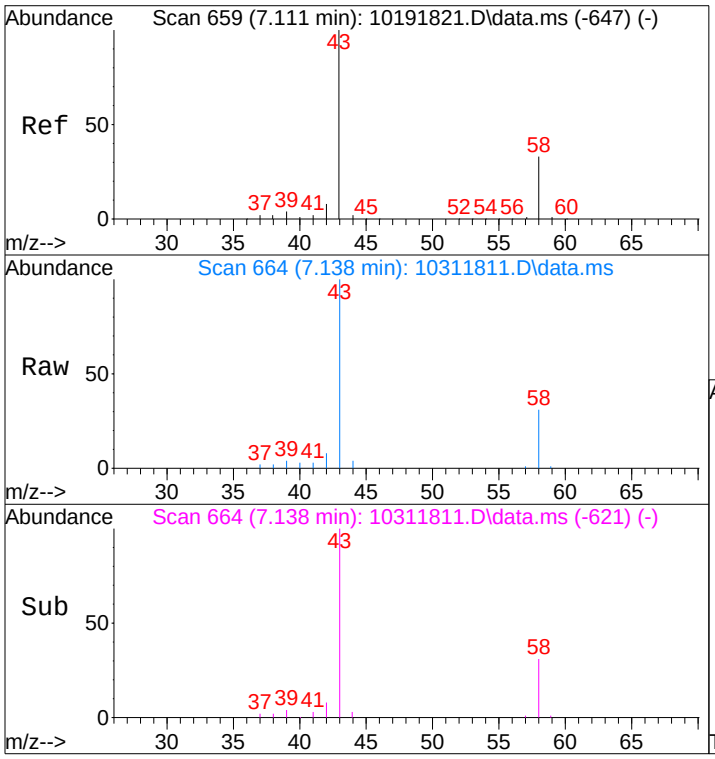


#10
Ethanol
Concen: 0.33 ng
RT: 6.46 min Scan# 541
Delta R.T. -0.049 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 45 Resp: 3738

Ion	Ratio	Lower	Upper
45	100		
46	29.4	16.6	56.6

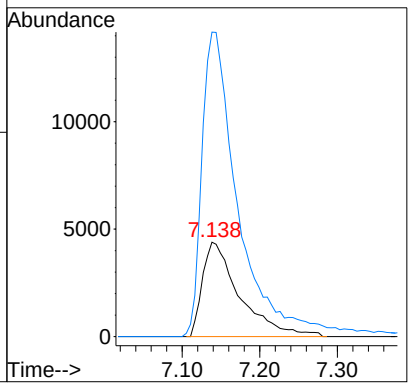


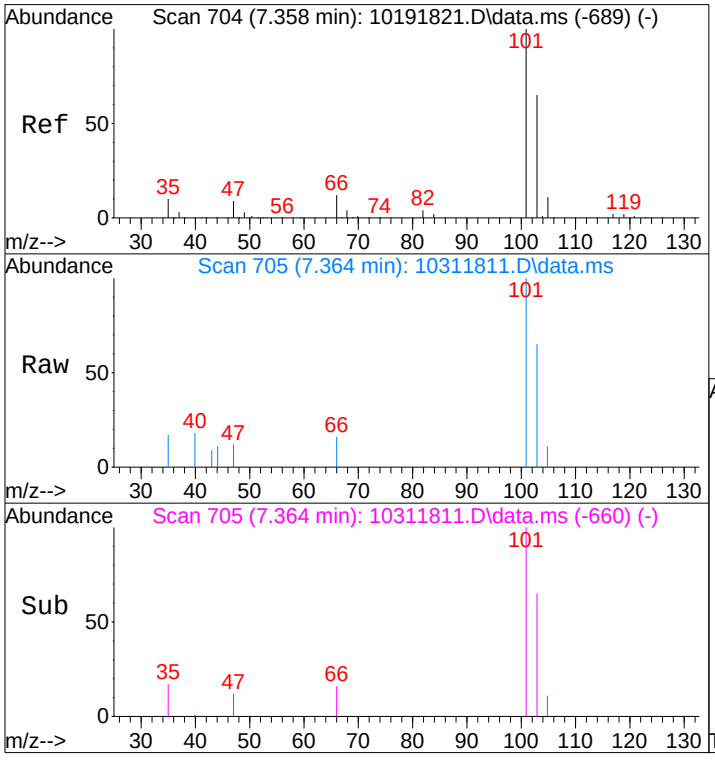


#13
Acetone
Concen: 1.07 ng
RT: 7.14 min Scan# 664
Delta R.T. -0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 58 Resp: 14679

Ion	Ratio	Lower	Upper
58	100		
43	318.0	283.4	343.4

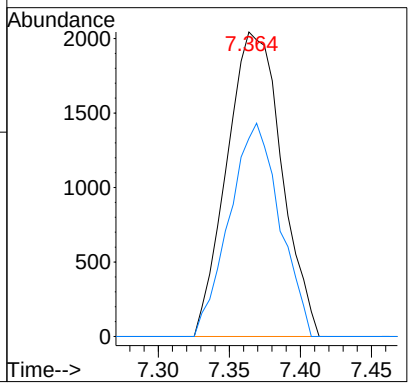


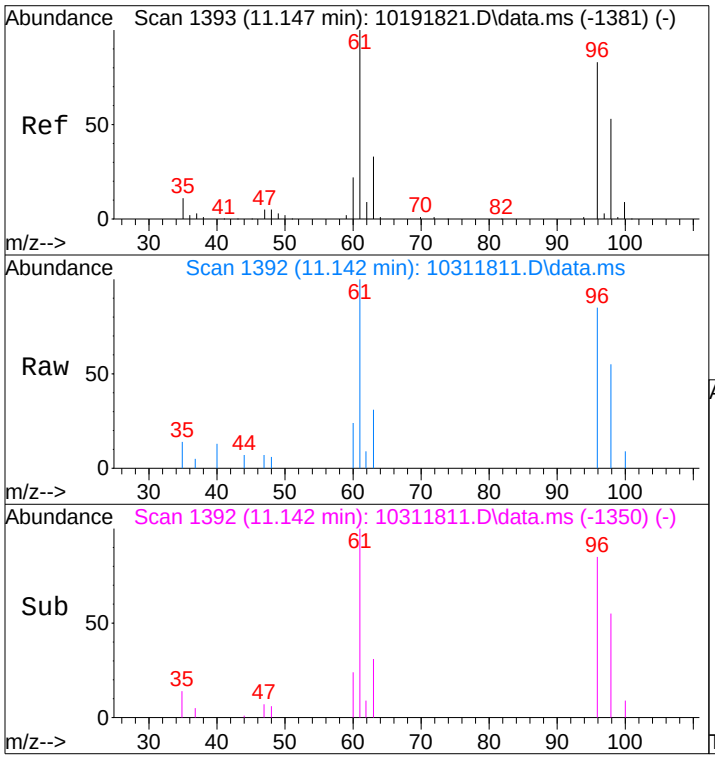


#14
Trichlorofluoromethane
Concen: 0.15 ng
RT: 7.36 min Scan# 705
Delta R.T. 0.000 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion:101 Resp: 5481

Ion	Ratio	Lower	Upper
101	100		
103	64.4	44.8	84.8

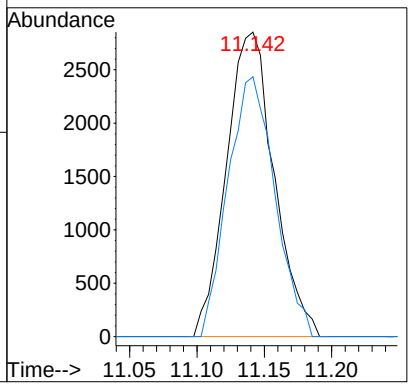


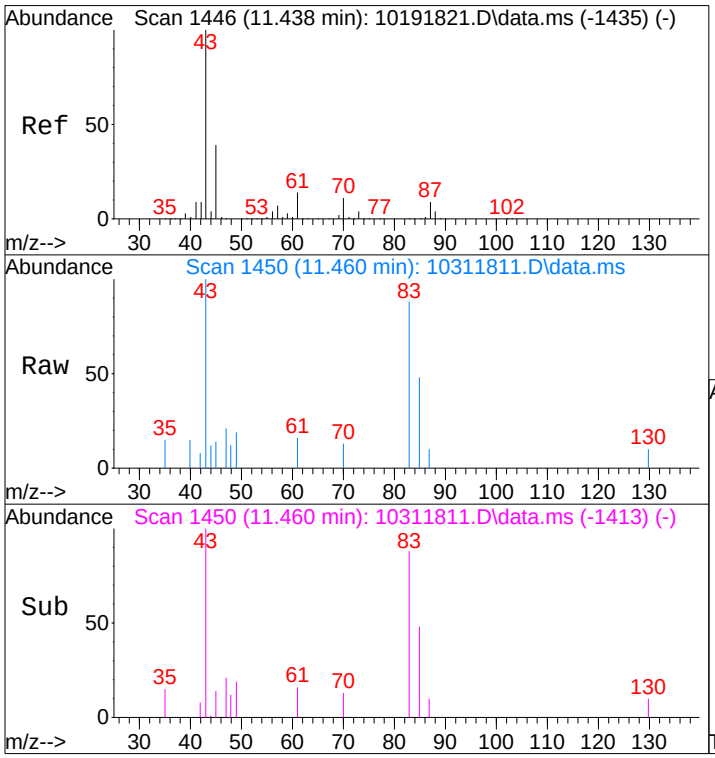


#28
cis-1,2-Dichloroethene
Concen: 0.28 ng
RT: 11.14 min Scan# 1392
Delta R.T. -0.016 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 61 Resp: 7036

Ion	Ratio	Lower	Upper
61	100		
96	83.8	64.1	104.1

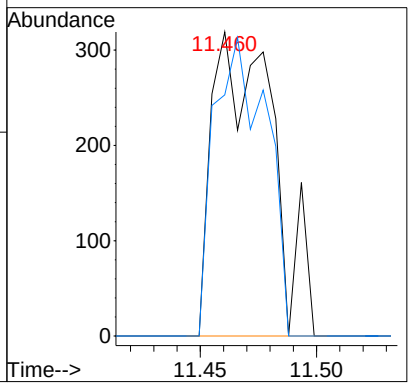


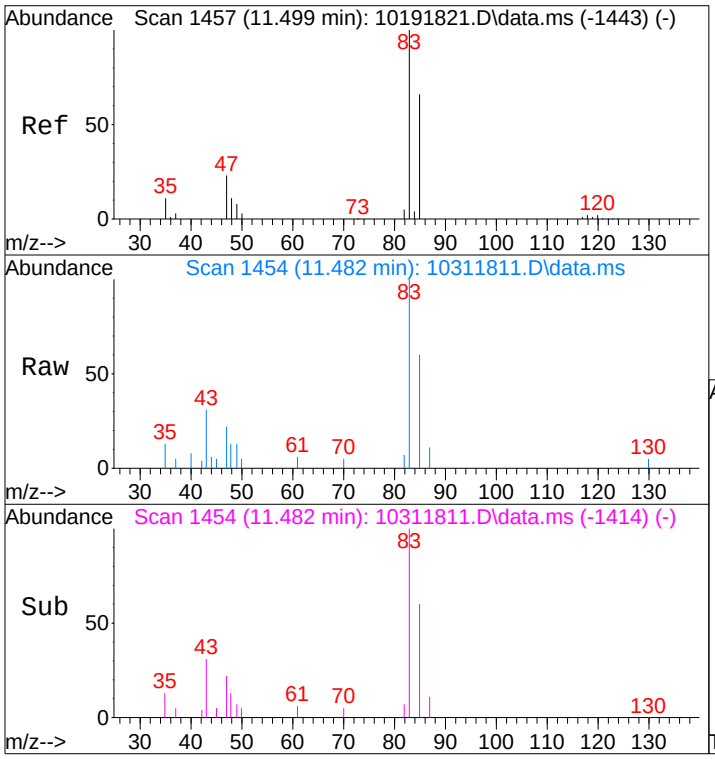


#30
Ethyl Acetate
Concen: 0.09 ng
RT: 11.46 min Scan# 1450
Delta R.T. 0.006 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 61 Resp: 581

Ion	Ratio	Lower	Upper
61	100		
70	84.2	61.7	101.7

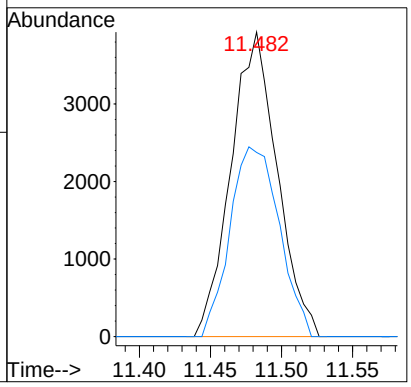


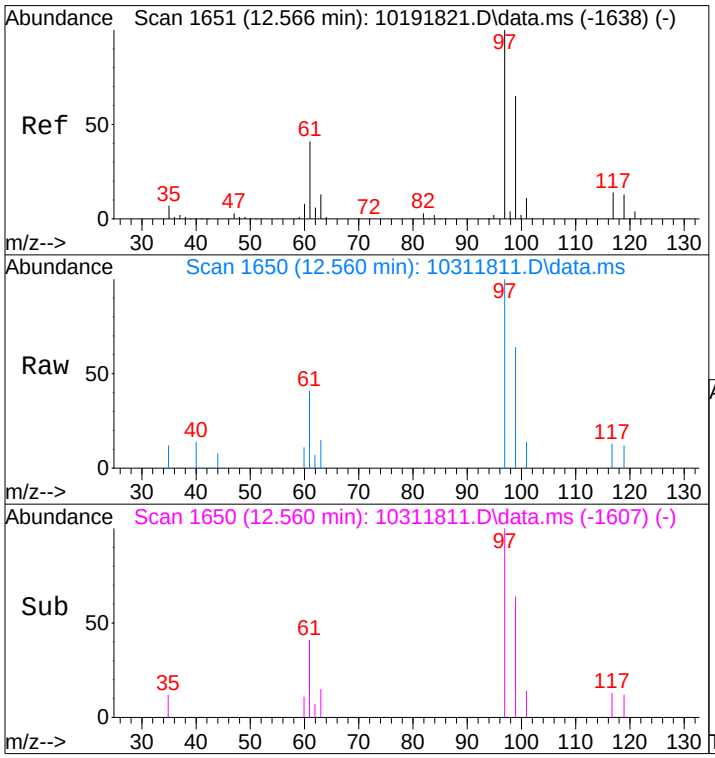


#32
Chloroform
Concen: 0.26 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 83 Resp: 8893

Ion	Ratio	Lower	Upper
83	100		
85	66.2	45.5	85.5

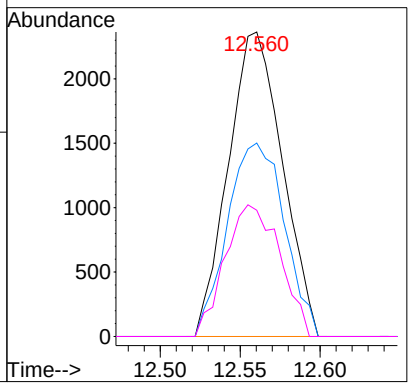


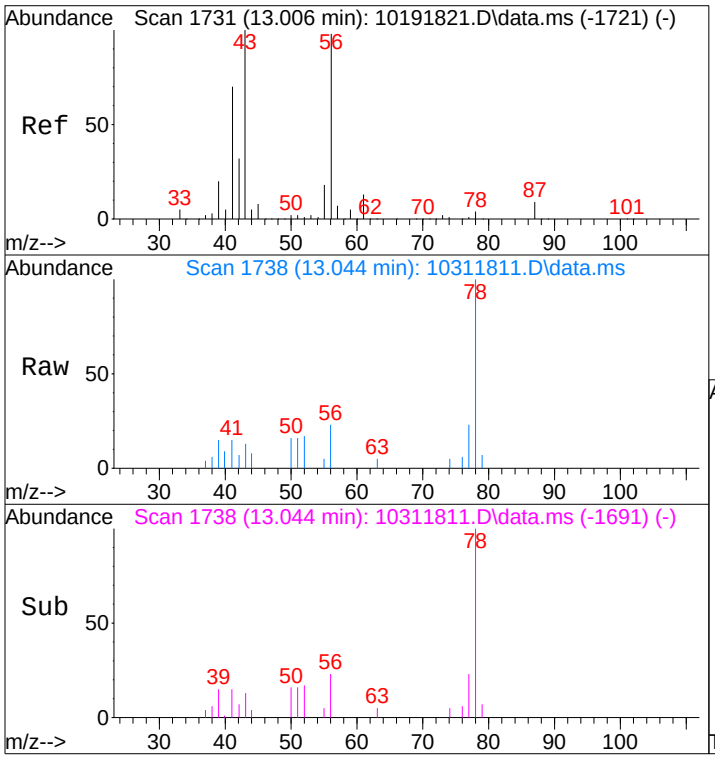


#38
1,1,1-Trichloroethane
Concen: 0.17 ng
RT: 12.56 min Scan# 1650
Delta R.T. -0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 97 Resp: 5557

Ion	Ratio	Lower	Upper
97	100		
99	67.0	44.9	84.9
61	43.9	21.3	61.3

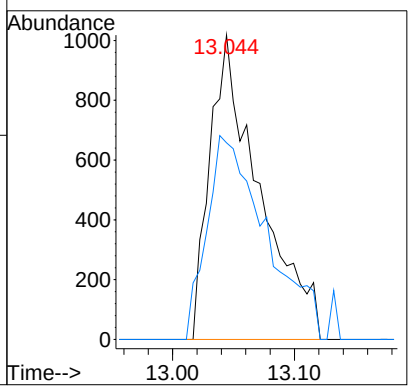


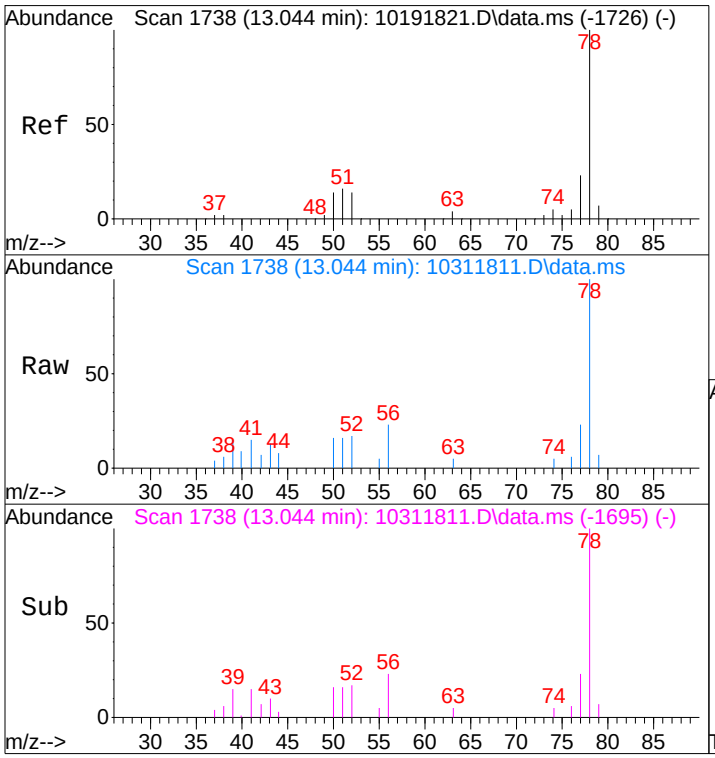


#40
1-Butanol
Concen: 0.16 ng
RT: 13.04 min Scan# 1738
Delta R.T. 0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 56 Resp: 2866

Ion	Ratio	Lower	Upper
56	100		
41	80.2	82.4	122.4#

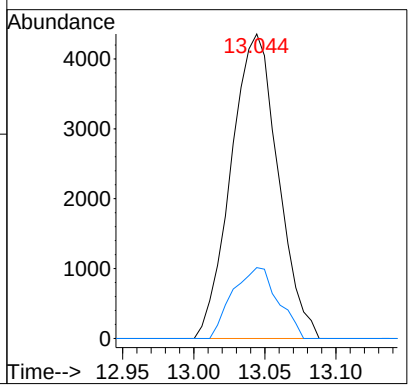


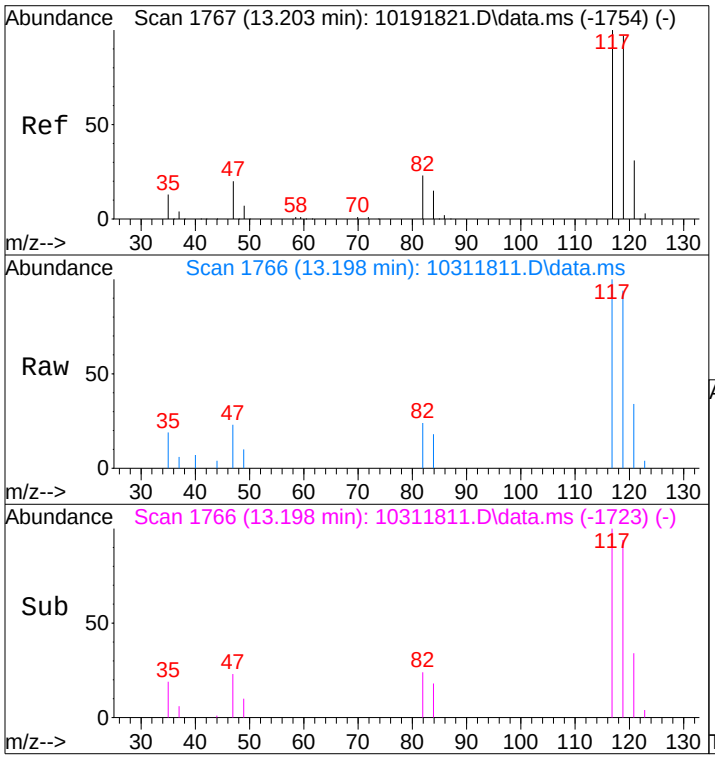


#41
Benzene
Concen: 0.13 ng
RT: 13.04 min Scan# 1738
Delta R.T. -0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 78 Resp: 10011

Ion	Ratio	Lower	Upper
78	100		
77	22.5	3.5	43.5

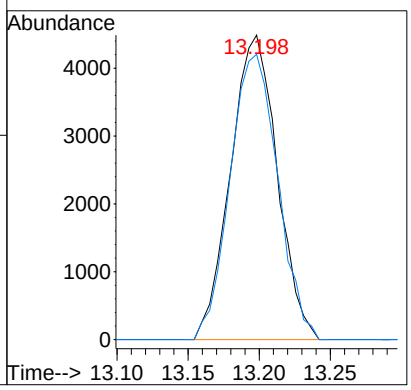


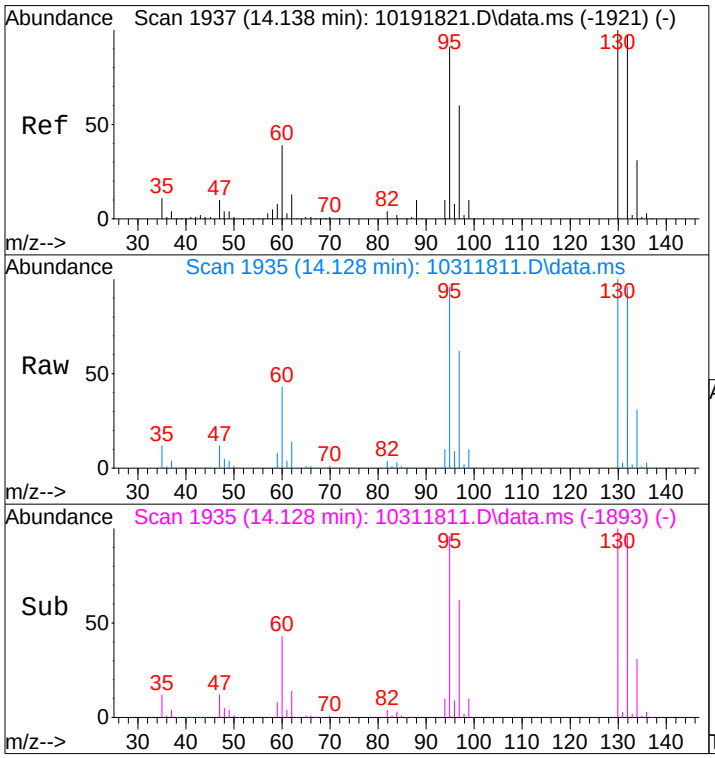


#42
Carbon Tetrachloride
Concen: 0.34 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion:117 Resp: 10243

Ion	Ratio	Lower	Upper
117	100		
119	95.9	76.0	116.0

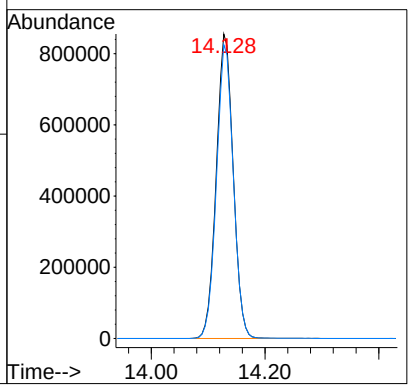


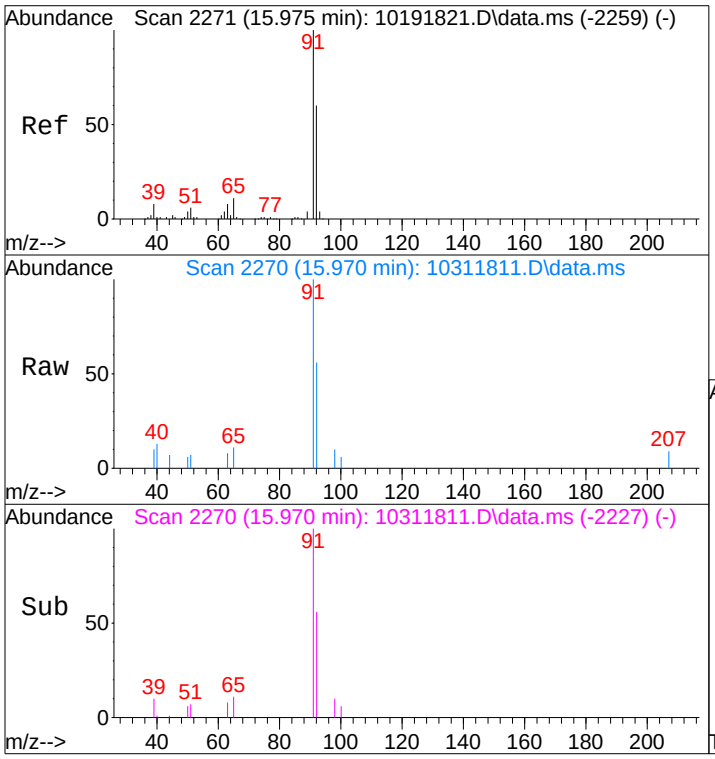


#47
Trichloroethene
Concen: 75.24 ng
RT: 14.13 min Scan# 1935
Delta R.T. -0.016 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion:130 Resp: 1763853

Ion	Ratio	Lower	Upper
130	100		
132	96.2	75.7	115.7

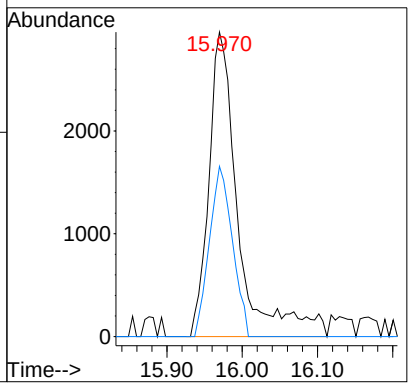


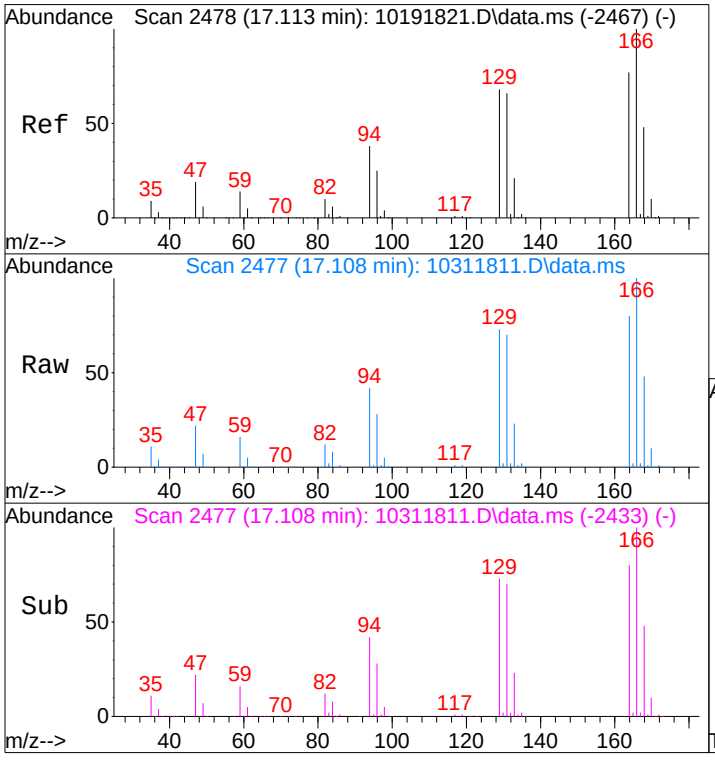


#58
Toluene
Concen: 0.10 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 91 Resp: 7966

Ion	Ratio	Lower	Upper
91	100		
92	44.0	39.4	79.4

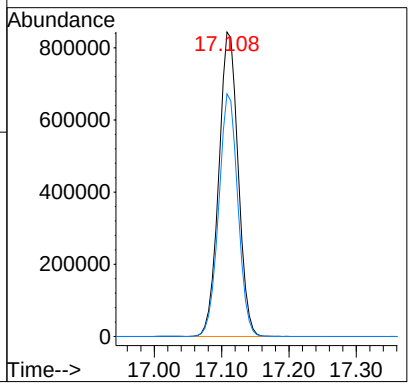


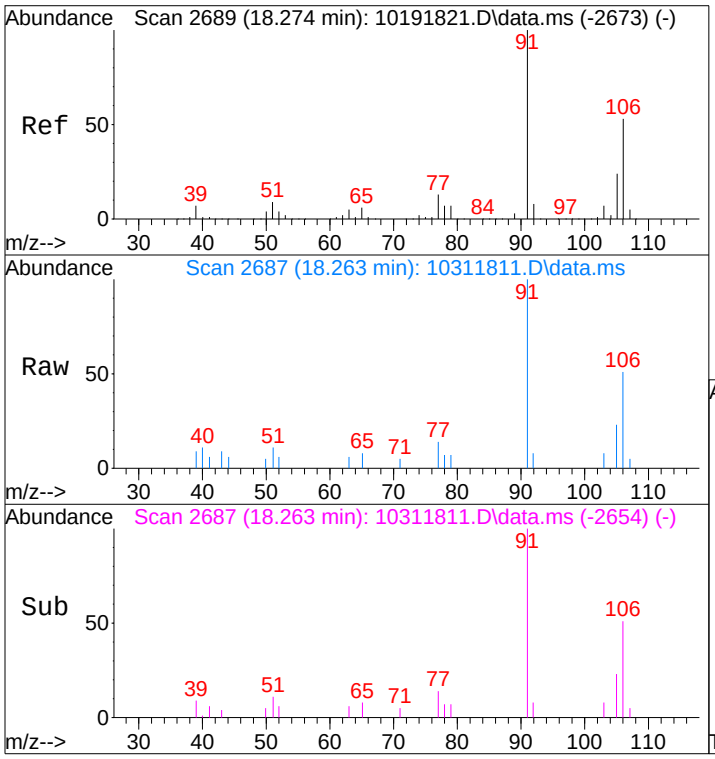


#64
Tetrachloroethene
Concen: 67.99 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.005 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion:166 Resp: 1678648

Ion	Ratio	Lower	Upper
166	100		
164	78.8	57.8	97.8

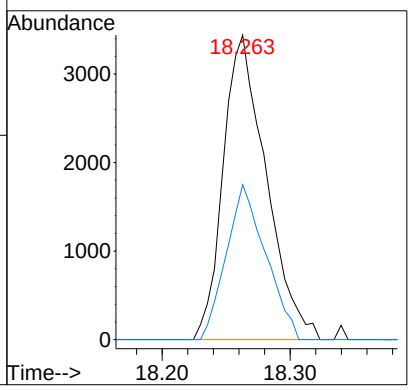


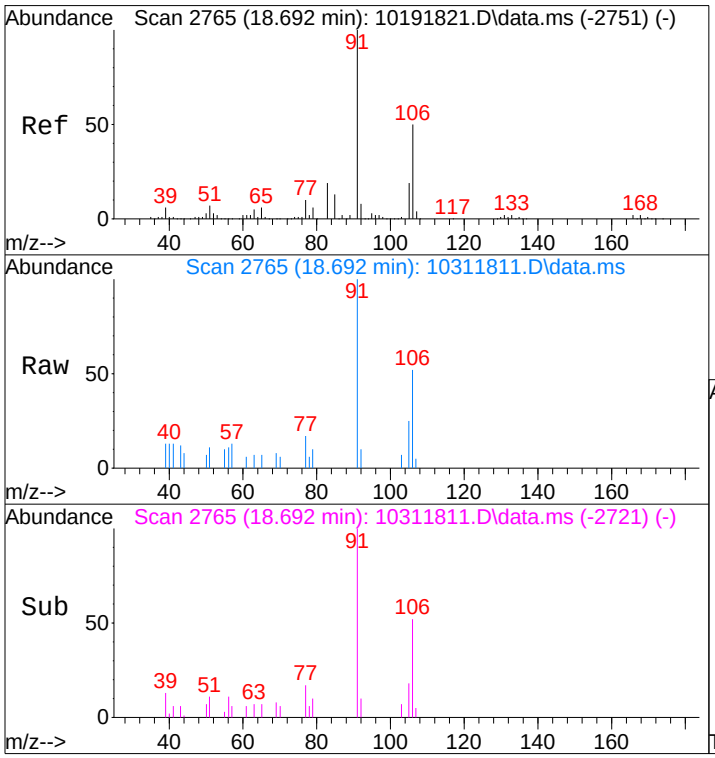


#67
m- & p-Xylenes
Concen: 0.12 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 91 Resp: 8041

Ion	Ratio	Lower	Upper
91	100		
106	46.6	32.2	72.2

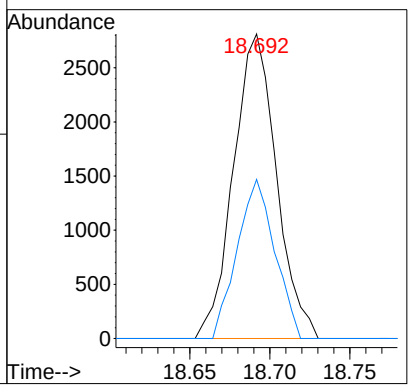




#70
o-Xylene
Concen: 0.08 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.005 min
Lab File: 10311811.D
Acq: 31 Oct 2018 8:11

Tgt Ion: 91 Resp: 5267

Ion	Ratio	Lower	Upper
91	100		
106	45.6	29.4	69.4



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

RS 10/31/18

Quant Time: Oct 31 08:45:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

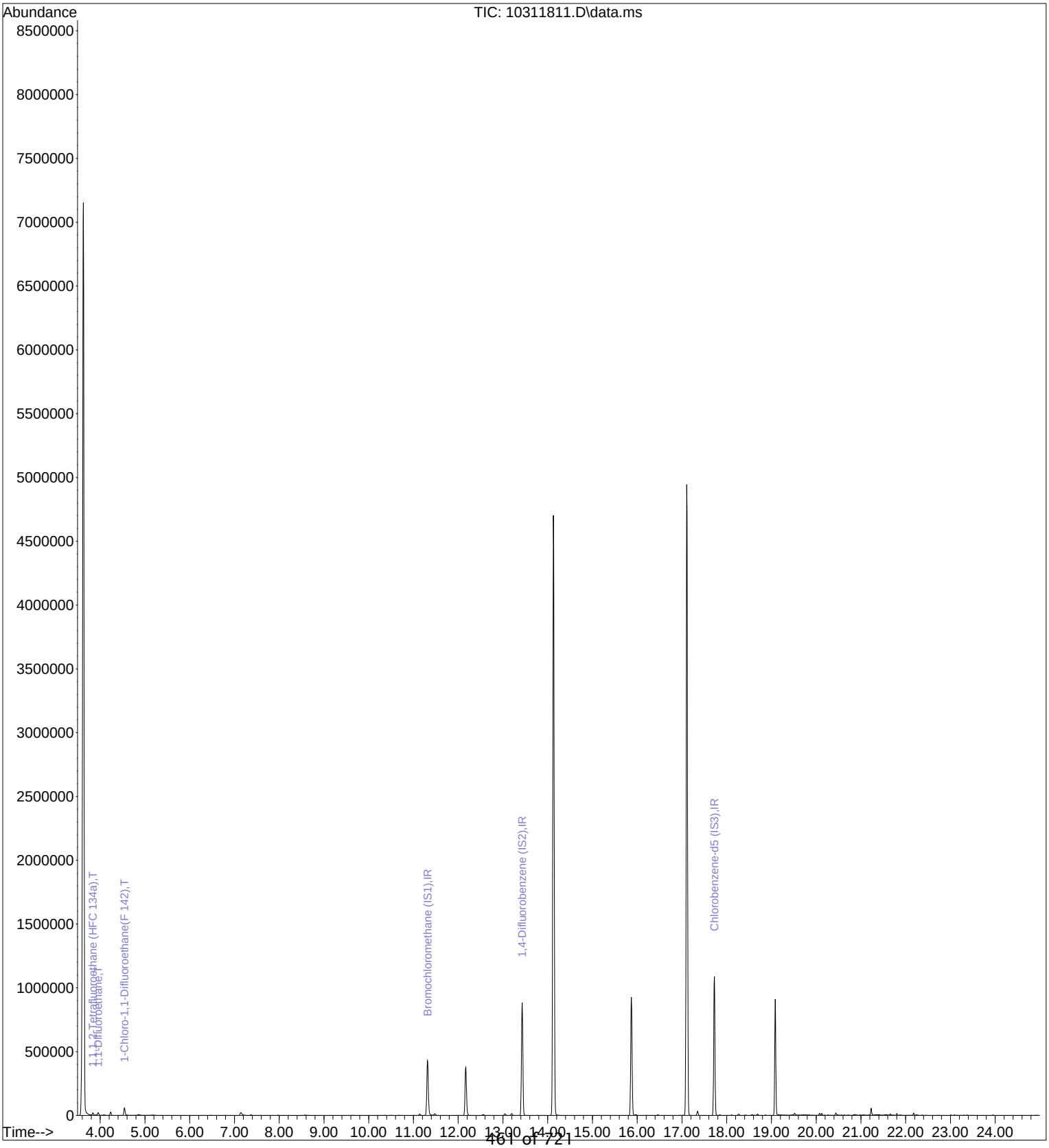
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	203809	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	867824	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	362841	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	10745	0.526	ng	#	66
4) 1,1-Difluoroethane	3.95	65	9489	0.608	ng		99
5) Chlorodifluoromethane ...	4.07	67	357	N.D.			
6) 1-Chloro-1,1-Difluoroe...	4.54	65	65078	1.470	ng		100
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.14	57	182	N.D.			
11) Methyl Acetate	8.57	43	1771	N.D.			
12) 2-Methylpentane	10.36	71	166	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	1612	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	13.86	174	184	N.D.			
20) Methyl Cyclohexane	0.00	55	0	N.D.			
21) 1,3-Dichloropropane	15.87	76	6678	N.D.			
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	19.64	91	770	N.D.			
27) 4-Chlorotoluene	19.64	91	770	N.D.			
28) Indan	0.00	117	0	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	0.00	119	0	N.D.			
31) 1,2,3,4-Tetramethylben...	0.00	119	0	N.D.			
32) 1,2,3,5-Tetramethylben...	0.00	119	0	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\30\10311811.D Vial: 6
Acq On : 31 Oct 2018 8:11 Operator: LH/TD
Sample : P1805493-017 (100mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 31 08:45:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:04:07 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113085	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	579642	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	355169	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	276643	14.106	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.88%				
57) Toluene-d8 (SS2)	13.66	98	754551	12.160	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	156279	11.195	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.52%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	19895	0.646	ng		99
4) Chloromethane	4.29	50	2198	0.059	ng		89
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	256	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	13600	0.880	ng		93
11) Acetonitrile	5.70	41	1722	N.D.			
12) Acrolein	5.85	56	558	N.D.			
13) Acetone	6.00	58	16711	1.047	ng	#	11
14) Trichlorofluoromethane	6.15	101	9994	0.453	ng		97
15) 2-Propanol (Isopropanol)	6.31	45	2978	0.060	ng		99
16) Acrylonitrile	6.56	53	203	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	7.00	84	691	N.D.			
20) 3-Chloro-1-propene (Al...	7.06	41	252	N.D.			
21) Trichlorotrifluoroethane	7.31	151	951	0.108	ng	#	77
22) Carbon Disulfide	7.29	76	12023	0.201	ng		93
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	338	0.129	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1466	0.118	ng	#	66
28) cis-1,2-Dichloroethene	9.10	61	1167	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	9.36	61	8514	1.292	ng		99
31) n-Hexane	9.34	57	952	N.D.			
32) Chloroform	9.40	83	42378	1.588	ng		99
34) Tetrahydrofuran (THF)	9.83	72	7776	0.650	ng		96
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	14393	0.656	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	4764	0.242	ng		83
41) Benzene	10.88	78	7987	0.113	ng		98
42) Carbon Tetrachloride	11.03	117	793	N.D.			
43) Cyclohexane	11.15	84	695	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	1986676	142.969	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.98	57	432	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:04:07 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

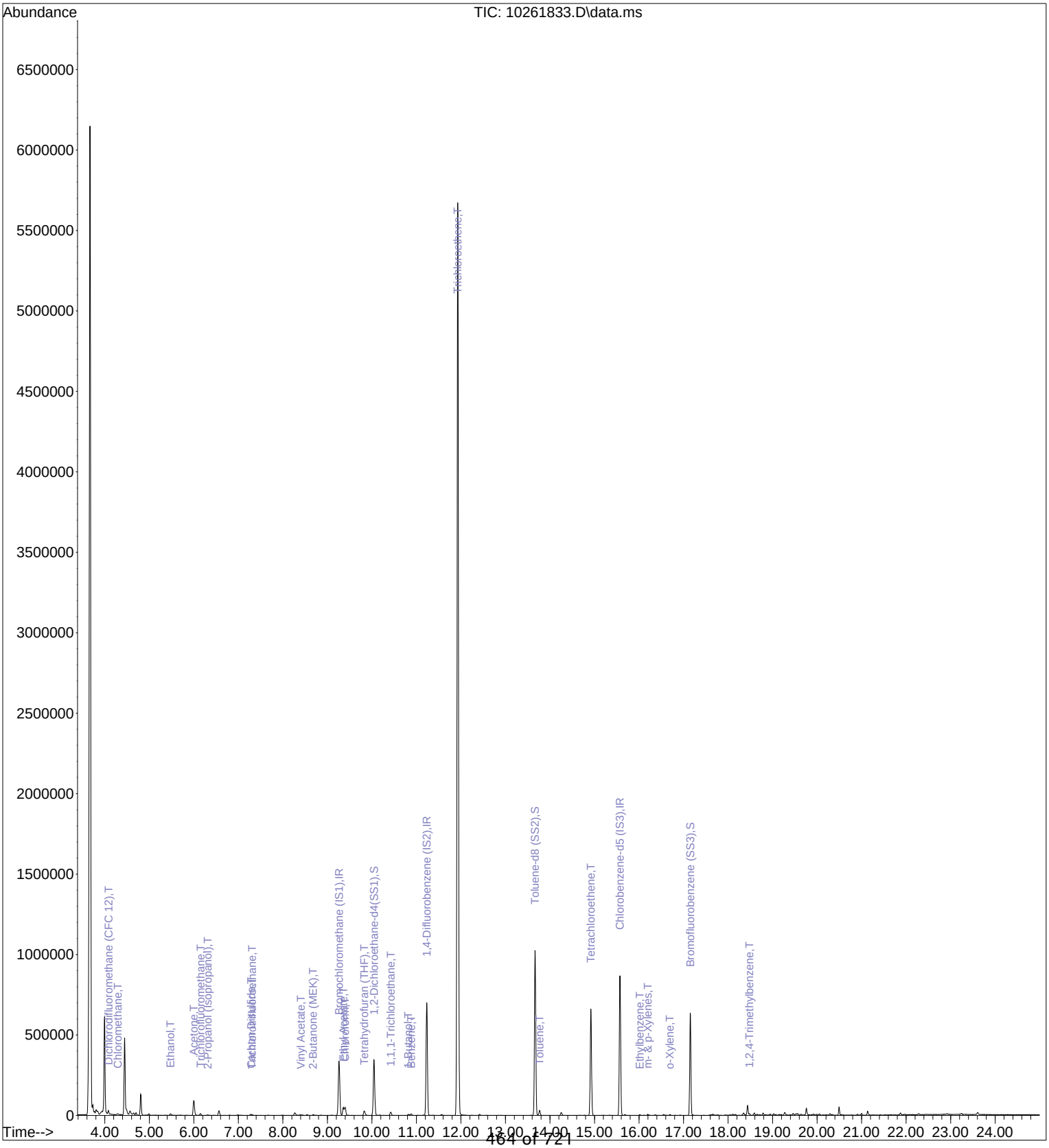
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.25	71	119	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	26161	0.377 ng	95
59) 2-Hexanone	14.03	43	471	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	1428	N.D.	
63) n-Octane	14.77	57	140	N.D.	
64) Tetrachloroethene	14.92	166	196745	13.734 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	4459	0.059 ng	92
67) m- & p-Xylenes	16.20	91	6072	0.104 ng	97
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	820	N.D.	
70) o-Xylene	16.69	91	3389	0.059 ng	86
71) n-Nonane	16.93	43	1201	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	158	N.D.	
75) alpha-Pinene	17.71	93	835	N.D.	
76) n-Propylbenzene	17.82	91	715	N.D.	
77) 3-Ethyltoluene	17.93	105	1540	N.D.	
78) 4-Ethyltoluene	17.98	105	908	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	680	N.D.	
80) alpha-Methylstyrene	18.43	118	273	N.D.	
81) 2-Ethyltoluene	18.24	105	743	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3505	0.065 ng	86
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	305	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	493	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	493	N.D.	
87) sec-Butylbenzene	18.92	105	558	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	457	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	558	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	970	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.91	57	1782	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2278	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	357	N.D.	
100) n-Butylbenzene	19.35	91	302	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:04:07 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:04:07 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

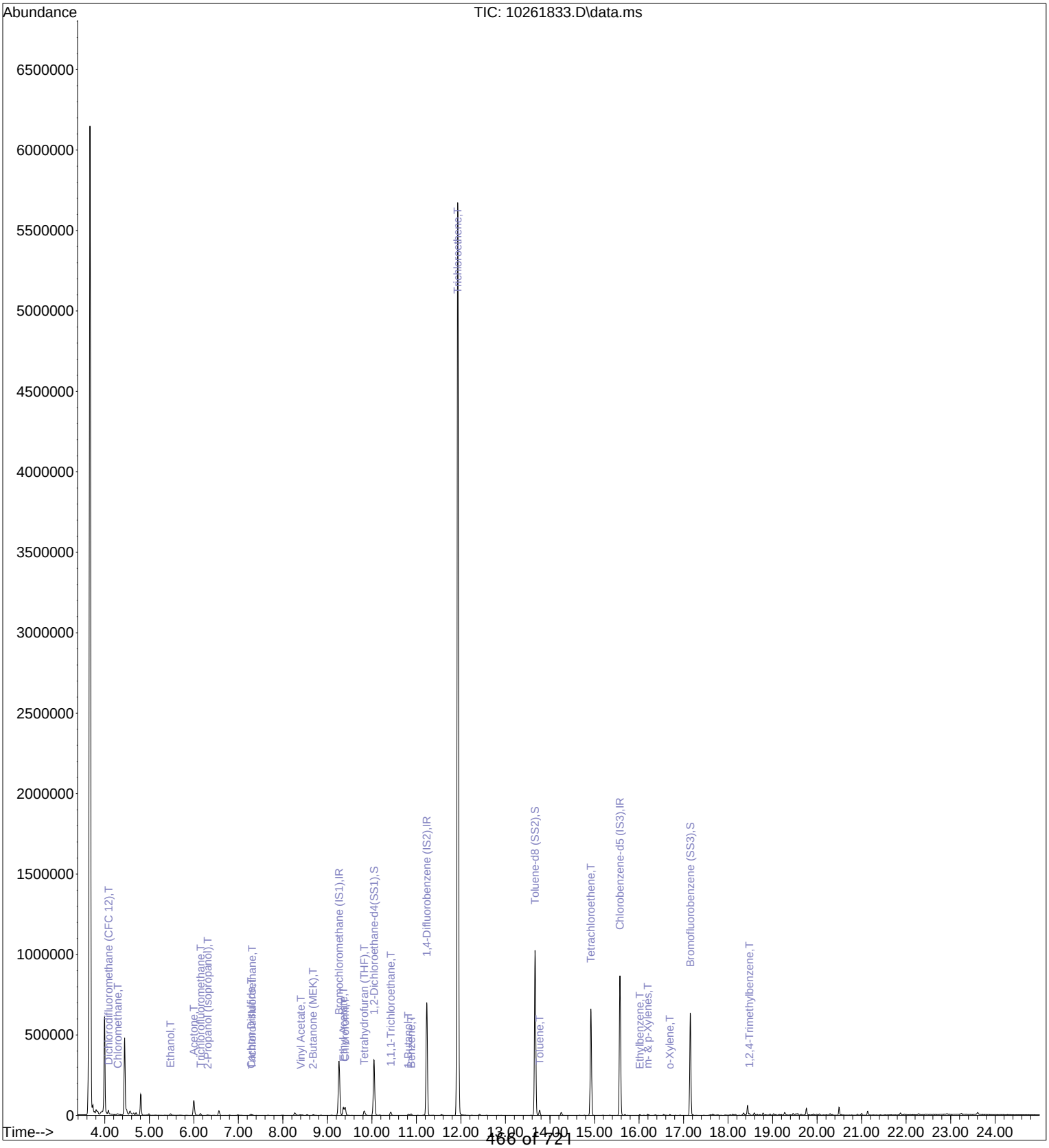
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113085	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	579642	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	355169	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	276643	14.106	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.88%				
57) Toluene-d8 (SS2)	13.66	98	754551	12.160	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
73) Bromofluorobenzene (SS3)	17.15	174	156279	11.195	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.52%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	19895	0.646	ng		99
4) Chloromethane	4.29	50	2198	0.059	ng		89
10) Ethanol	5.48	45	13600	0.880	ng		93
13) Acetone	6.00	58	16711	1.047	ng	#	11
14) Trichlorofluoromethane	6.15	101	9994	0.453	ng		97
15) 2-Propanol (Isopropanol)	6.31	45	2978	0.060	ng		99
21) Trichlorotrifluoroethane	7.31	151	951	0.108	ng	#	77
22) Carbon Disulfide	7.29	76	12023	0.201	ng		93
26) Vinyl Acetate	8.40	86	338	0.129	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1466	0.118	ng	#	66
30) Ethyl Acetate	9.36	61	8514	1.292	ng		99
32) Chloroform	9.40	83	42378	1.588	ng		99
34) Tetrahydrofuran (THF)	9.83	72	7776	0.650	ng		96
38) 1,1,1-Trichloroethane	10.43	97	14393	0.656	ng		99
40) 1-Butanol	10.82	56	4764	0.242	ng		83
41) Benzene	10.88	78	7987	0.113	ng		98
47) Trichloroethene	11.93	130	1986676	142.969	ng		100
58) Toluene	13.77	91	26161	0.377	ng		95
64) Tetrachloroethene	14.92	166	196745	13.734	ng		100
66) Ethylbenzene	16.02	91	4459	0.059	ng		92
67) m- & p-Xylenes	16.20	91	6072	0.104	ng		97
70) o-Xylene	16.69	91	3389	0.059	ng		86
82) 1,2,4-Trimethylbenzene	18.48	105	3505	0.065	ng		86

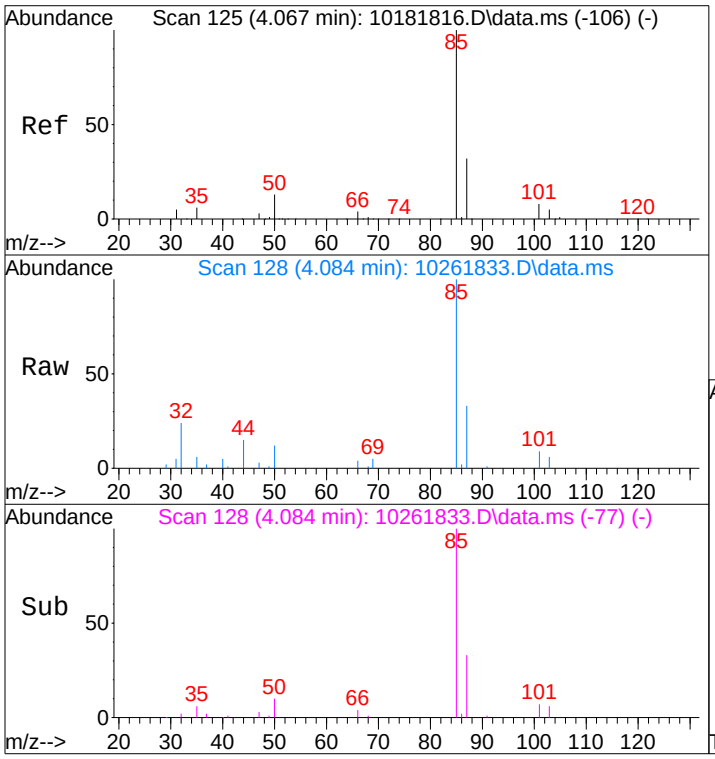
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:04:07 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

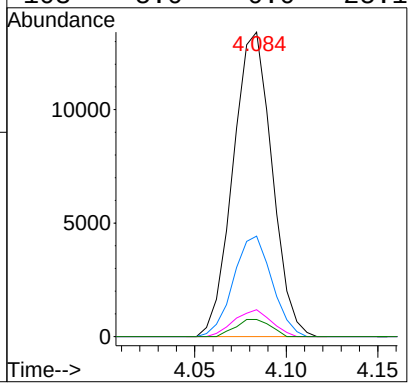


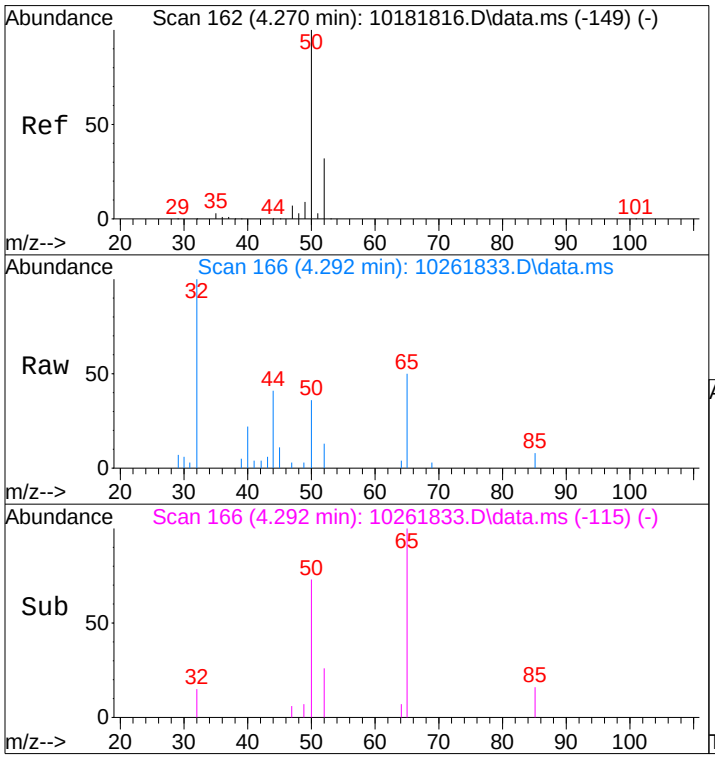


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.65 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 85 Resp: 19895

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.0	52.0
101	8.4	0.0	28.0
103	5.0	0.0	25.1

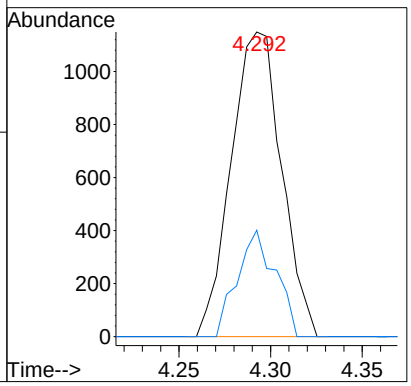


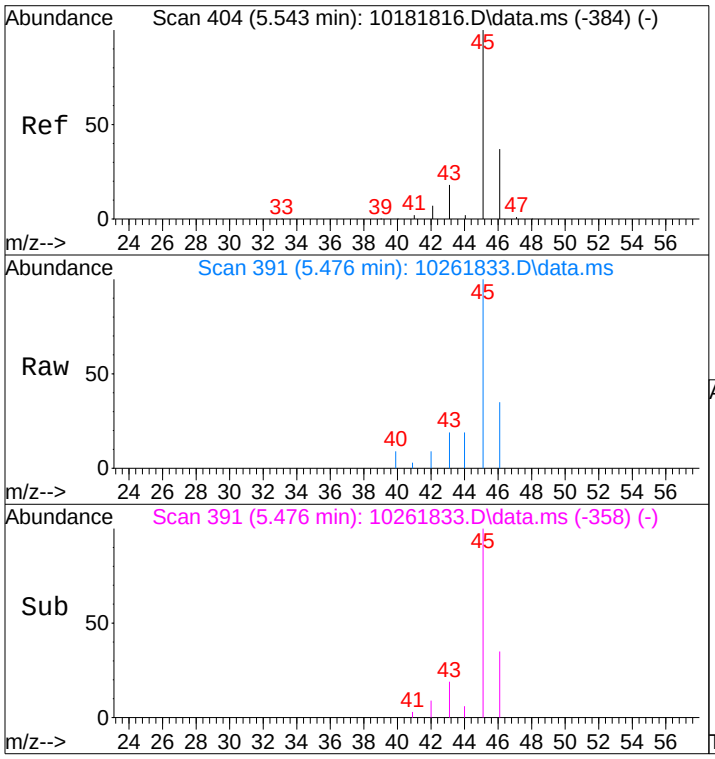


#4
Chloromethane
Concen: 0.06 ng
RT: 4.29 min Scan# 166
Delta R.T. 0.029 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 50 Resp: 2198

Ion	Ratio	Lower	Upper
50	100		
52	26.3	12.4	52.4

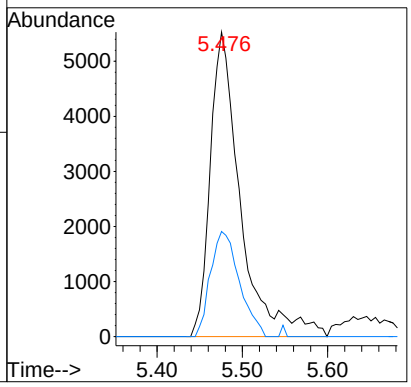


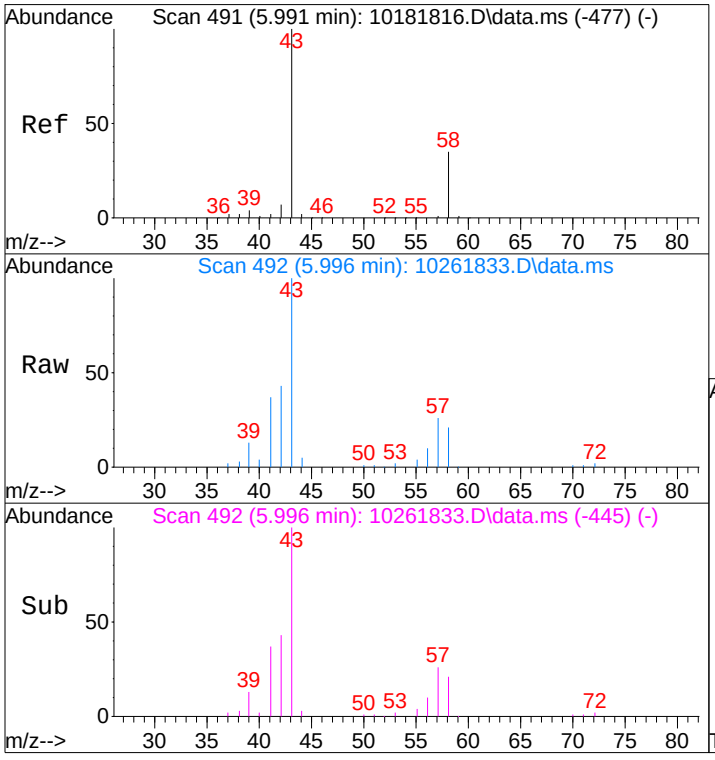


#10
Ethanol
Concen: 0.88 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 45 Resp: 13600

Ion	Ratio	Lower	Upper
45	100		
46	32.9	17.0	57.0

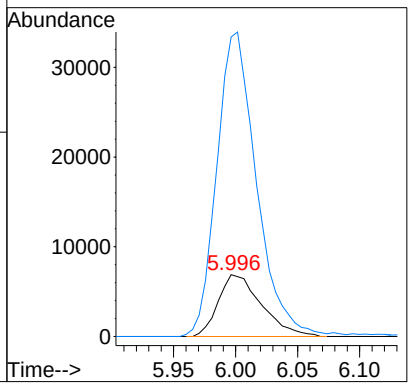


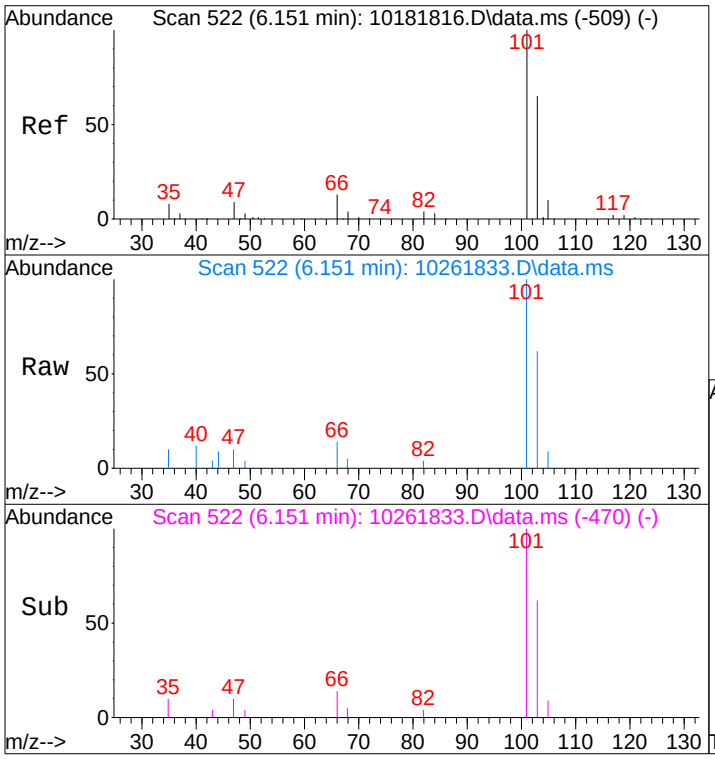


#13
Acetone
Concen: 1.05 ng
RT: 6.00 min Scan# 492
Delta R.T. -0.007 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 58 Resp: 16711

Ion	Ratio	Lower	Upper
58	100		
43	453.3	254.3	314.3#

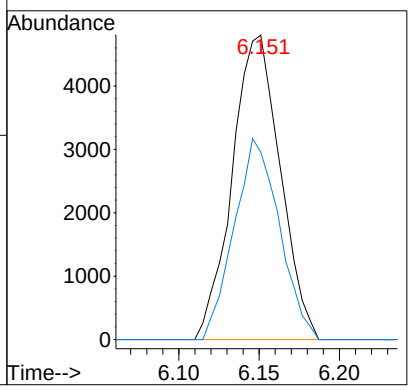


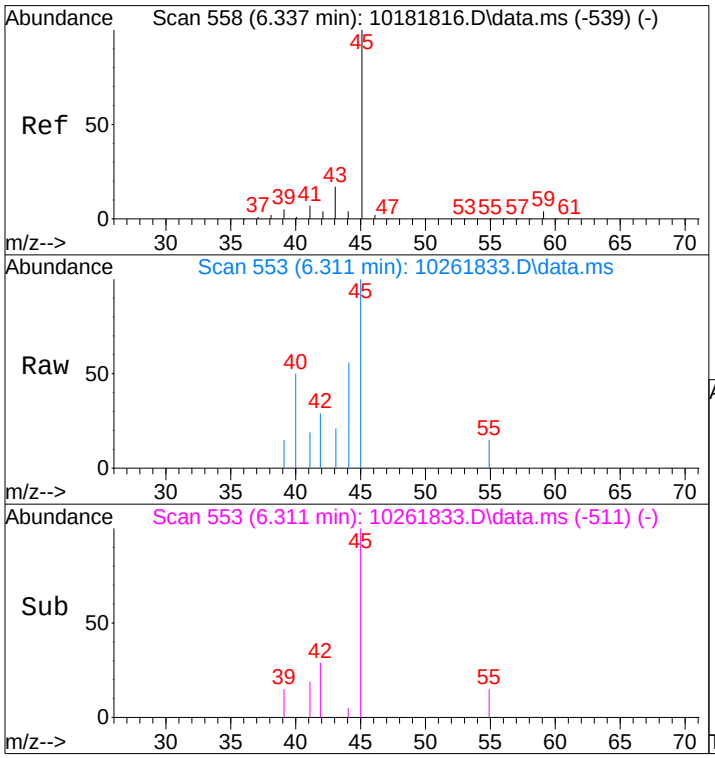


#14
Trichlorofluoromethane
Concen: 0.45 ng
RT: 6.15 min Scan# 522
Delta R.T. 0.019 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion:101 Resp: 9994

Ion	Ratio	Lower	Upper
101	100		
103	62.1	44.5	84.5

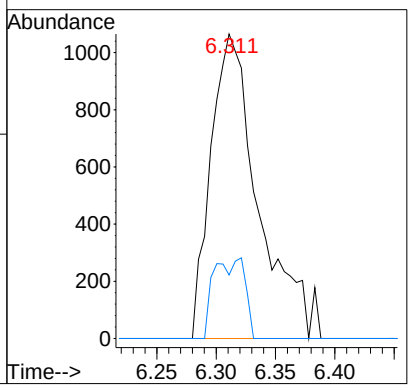


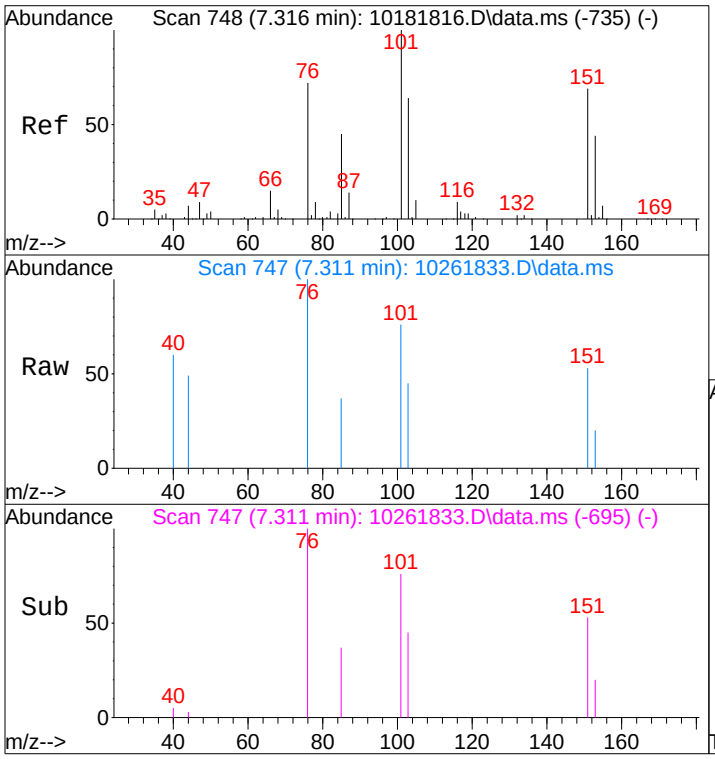


#15
2-Propanol (Isopropanol)
Concen: 0.06 ng
RT: 6.31 min Scan# 553
Delta R.T. -0.032 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 45 Resp: 2978

Ion	Ratio	Lower	Upper
45	100		
43	17.3	0.0	36.7

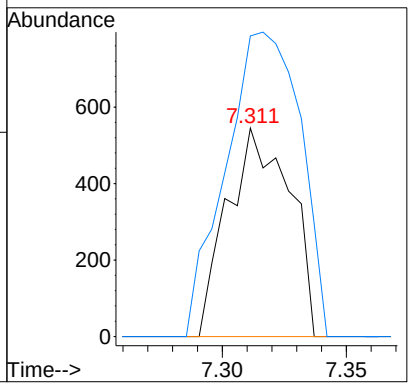


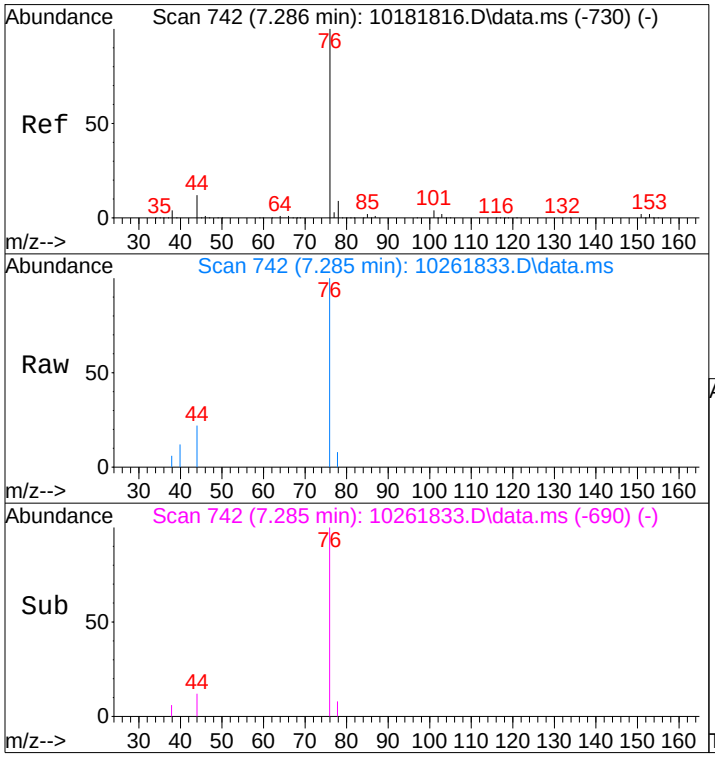


#21
Trichlorotrifluoroethane
Concen: 0.11 ng
RT: 7.31 min Scan# 747
Delta R.T. 0.020 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion:151 Resp: 951

Ion	Ratio	Lower	Upper
151	100		
101	175.9	127.5	167.5#

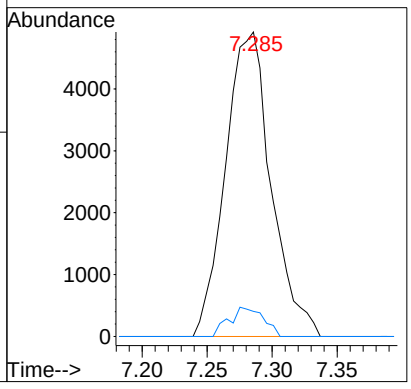


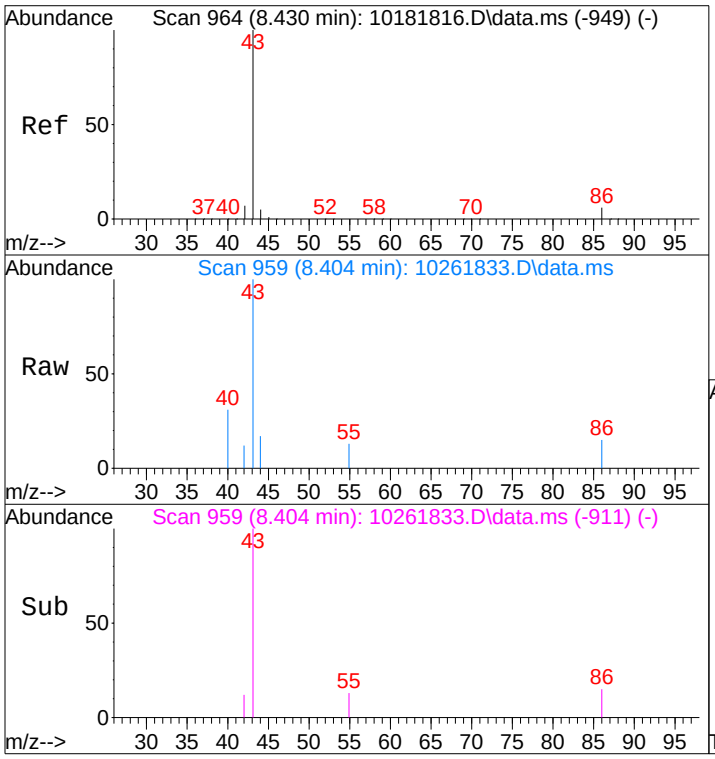


#22
Carbon Disulfide
Concen: 0.20 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 76 Resp: 12023

Ion	Ratio	Lower	Upper
76	100		
78	7.2	0.0	29.6

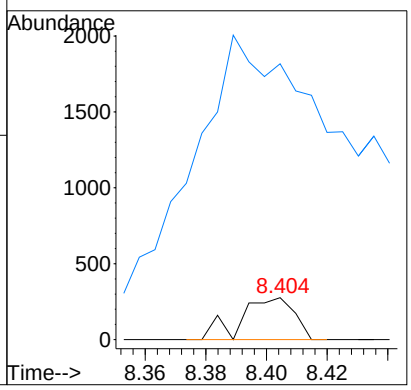


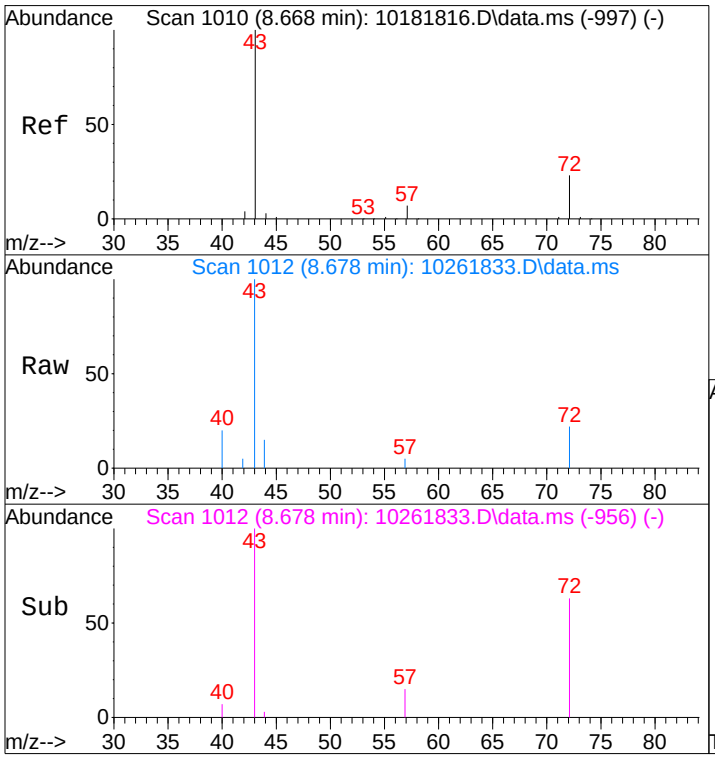


#26
Vinyl Acetate
Concen: 0.13 ng
RT: 8.40 min Scan# 959
Delta R.T. -0.004 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 86 Resp: 338

Ion	Ratio	Lower	Upper
86	100		
43	2453.6	1596.2	1636.2#

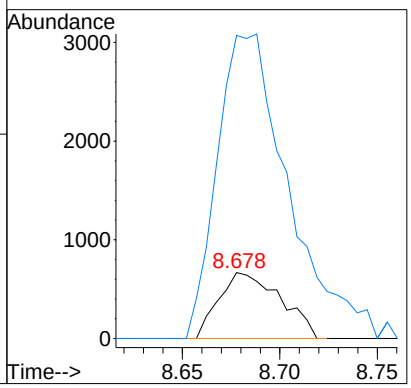


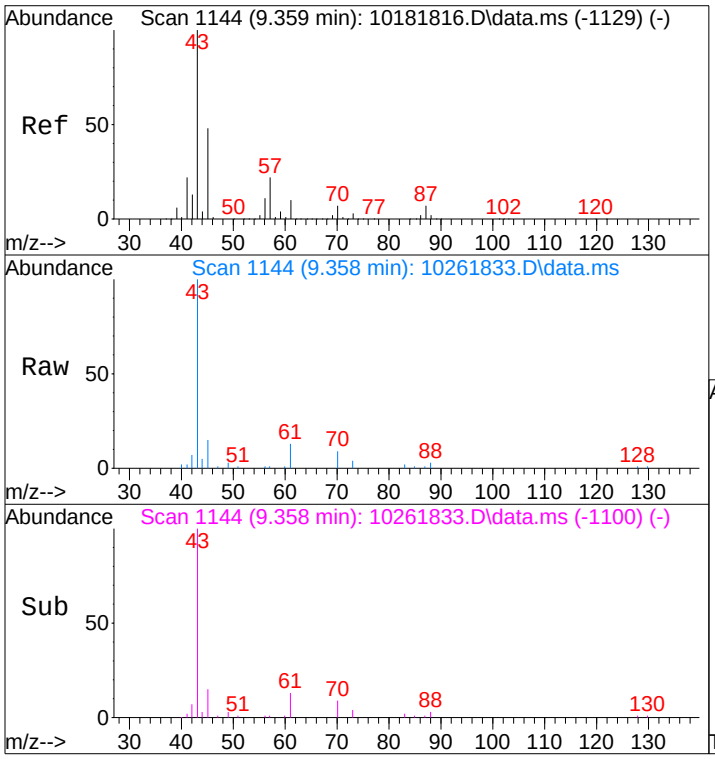


#27
2-Butanone (MEK)
Concen: 0.12 ng
RT: 8.68 min Scan# 1012
Delta R.T. 0.038 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 72 Resp: 1466

Ion	Ratio	Lower	Upper
72	100		
43	537.1	430.0	470.0#

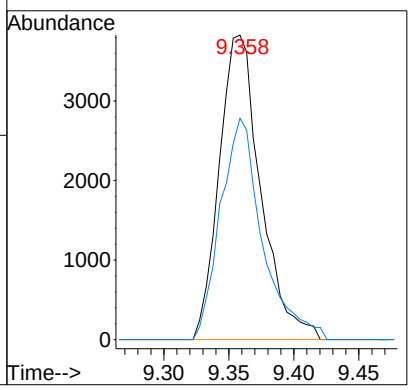


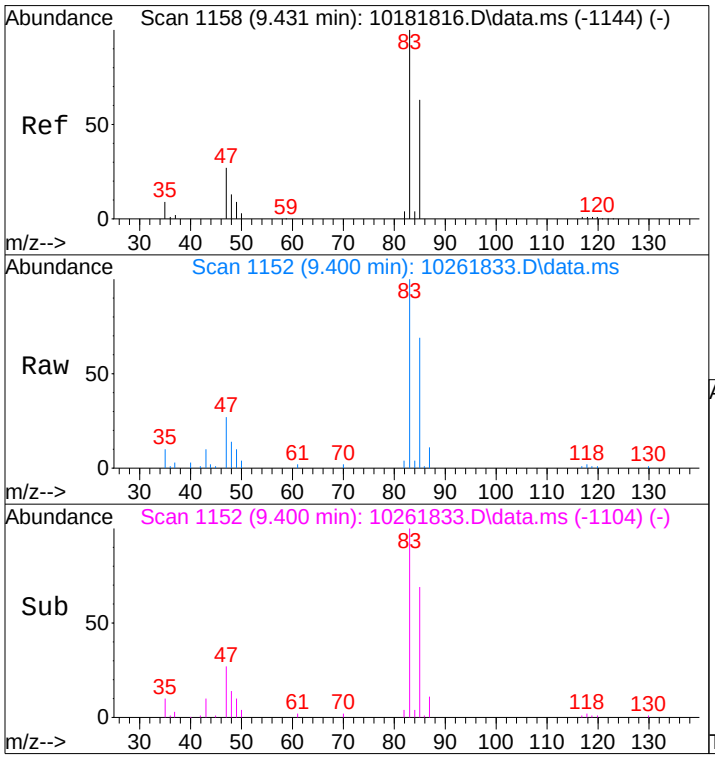


#30
Ethyl Acetate
Concen: 1.29 ng
RT: 9.36 min Scan# 1144
Delta R.T. 0.026 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 61 Resp: 8514

Ion	Ratio	Lower	Upper
61	100		
70	73.3	52.7	92.7

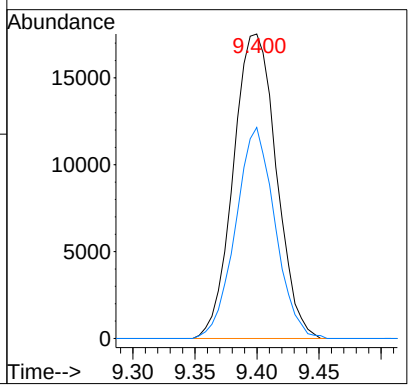


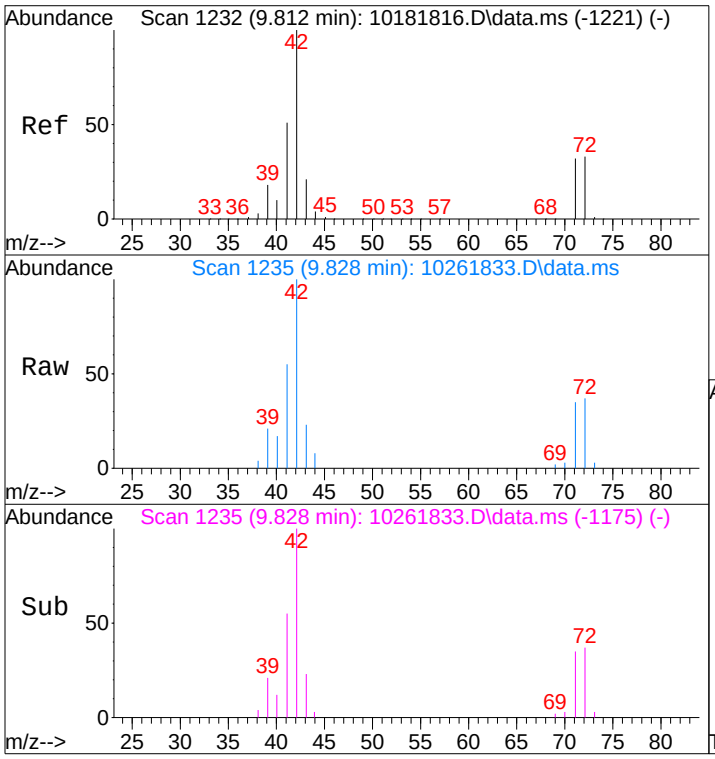


#32
Chloroform
Concen: 1.59 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 83 Resp: 42378

Ion	Ratio	Lower	Upper
83	100		
85	63.5	44.0	84.0

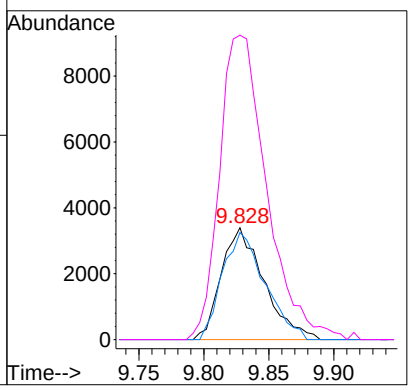


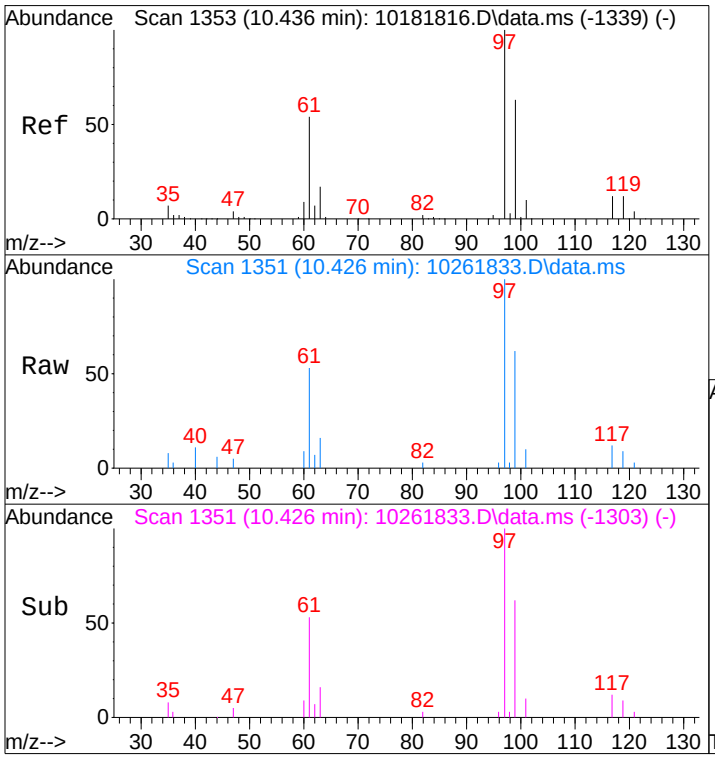


#34
Tetrahydrofuran (THF)
Concen: 0.65 ng
RT: 9.83 min Scan# 1235
Delta R.T. 0.060 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 72 Resp: 7776

Ion	Ratio	Lower	Upper
72	100		
71	95.4	76.7	116.7
42	299.2	287.9	327.9

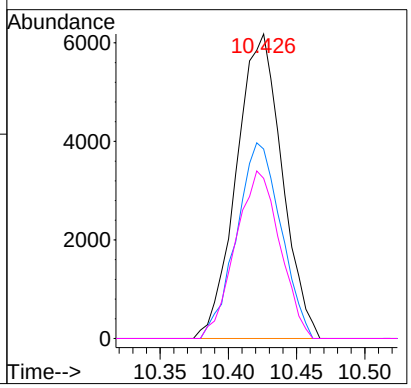


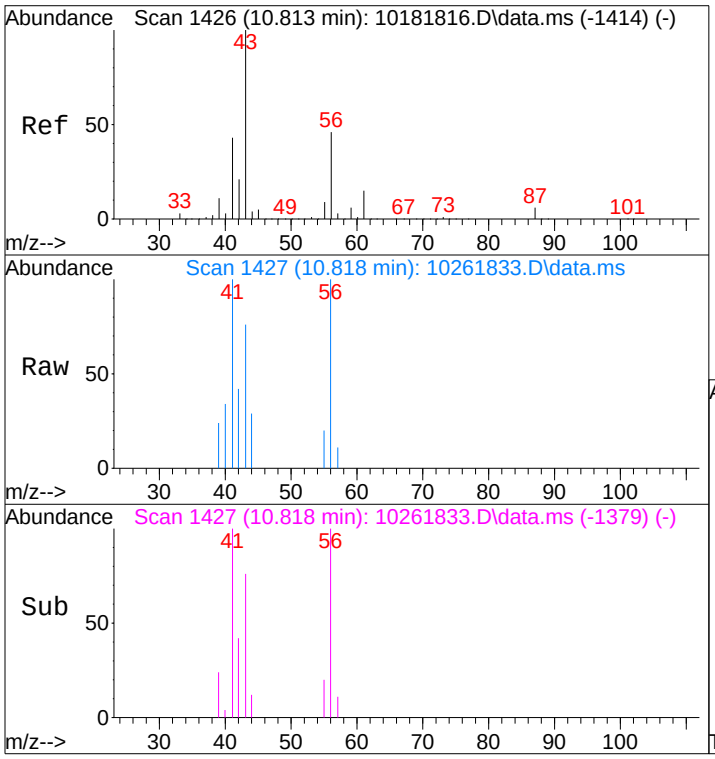


#38
1,1,1-Trichloroethane
Concen: 0.66 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 97 Resp: 14393

Ion	Ratio	Lower	Upper
97	100		
99	62.5	43.5	83.5
61	53.5	34.2	74.2

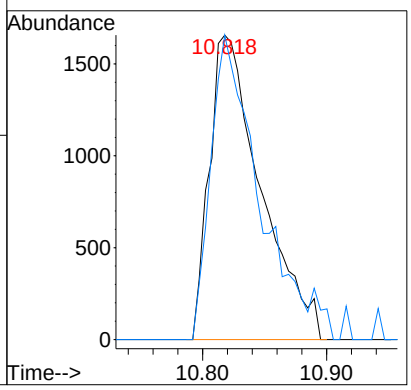


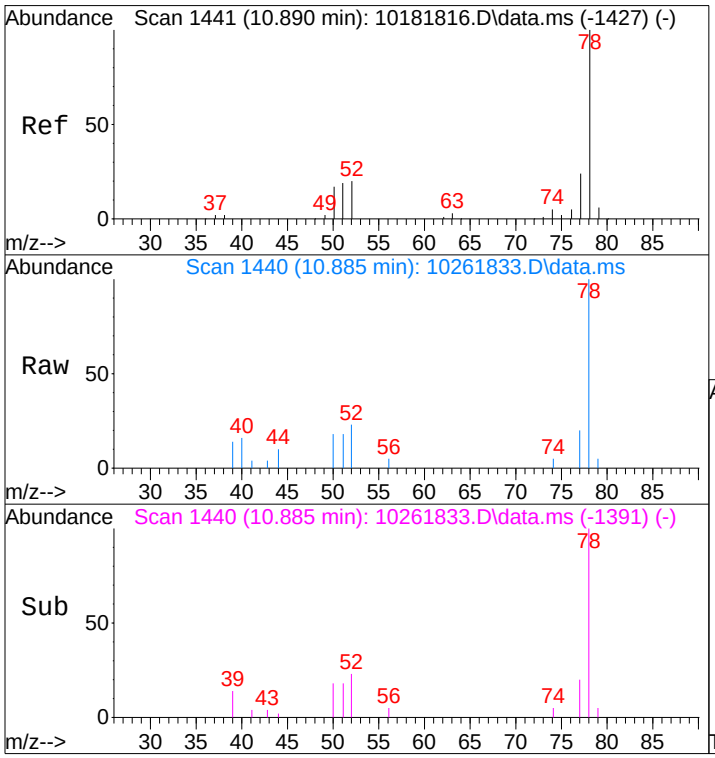


#40
1-Butanol
Concen: 0.24 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 56 Resp: 4764

Ion	Ratio	Lower	Upper
56	100		
41	92.0	90.2	130.2

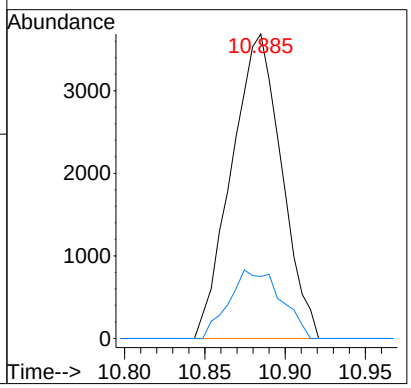


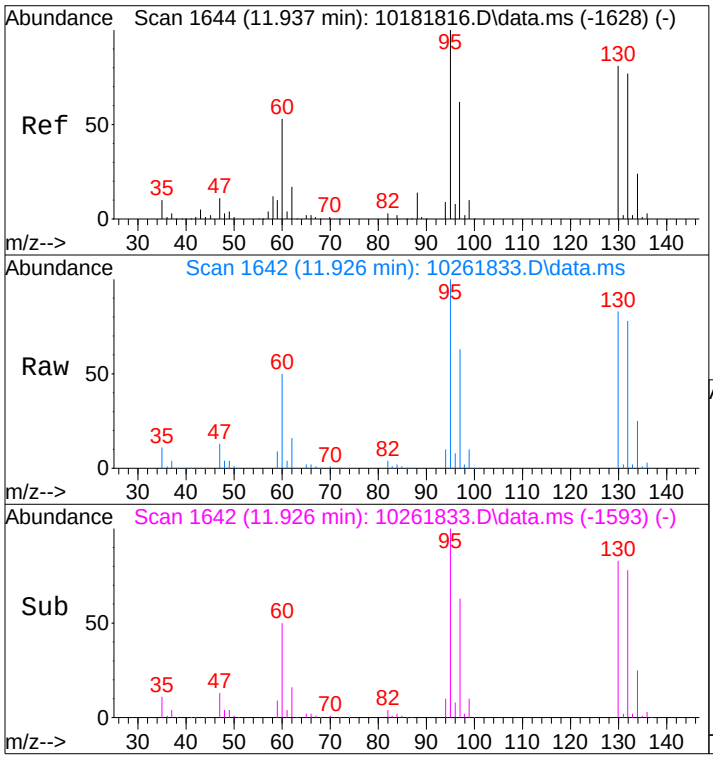


#41
Benzene
Concen: 0.11 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.005 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 78 Resp: 7987

Ion	Ratio	Lower	Upper
78	100		
77	23.3	4.1	44.1

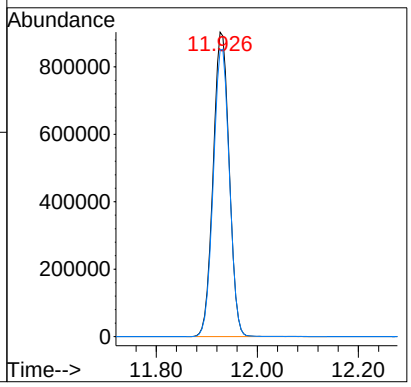


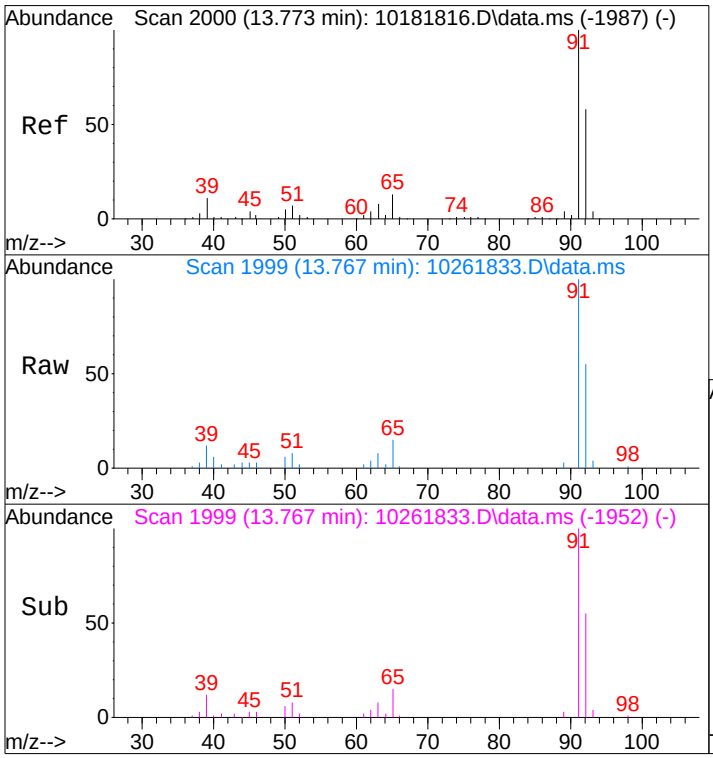


#47
Trichloroethene
Concen: 142.97 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion:130 Resp: 1986676

Ion	Ratio	Lower	Upper
130	100		
132	95.0	74.6	114.6

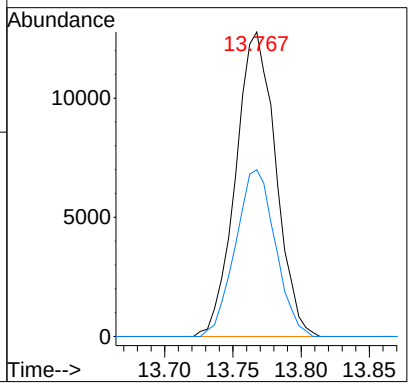


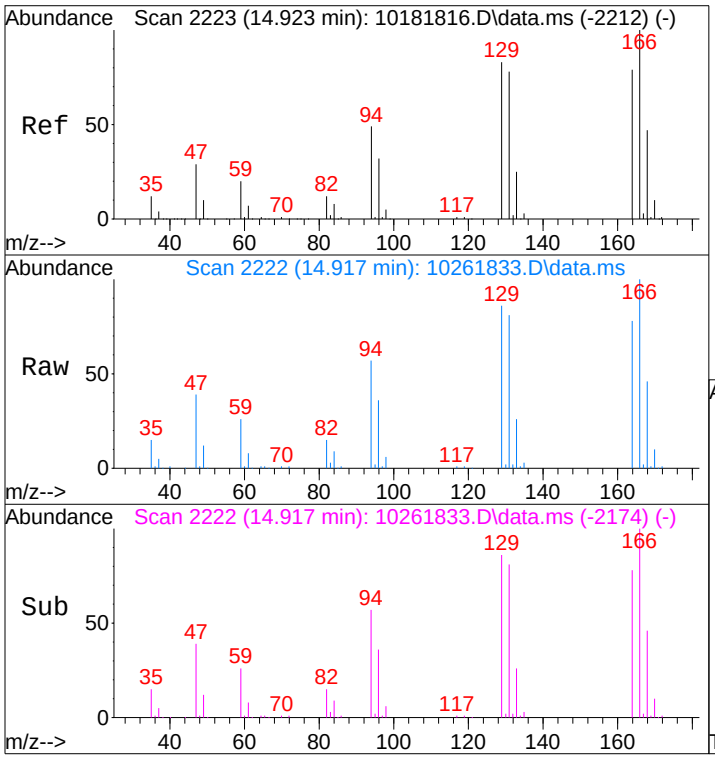


#58
Toluene
Concen: 0.38 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.006 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 91 Resp: 26161

Ion	Ratio	Lower	Upper
91	100		
92	54.6	38.1	78.1

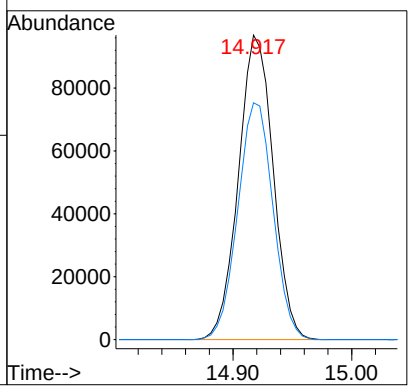


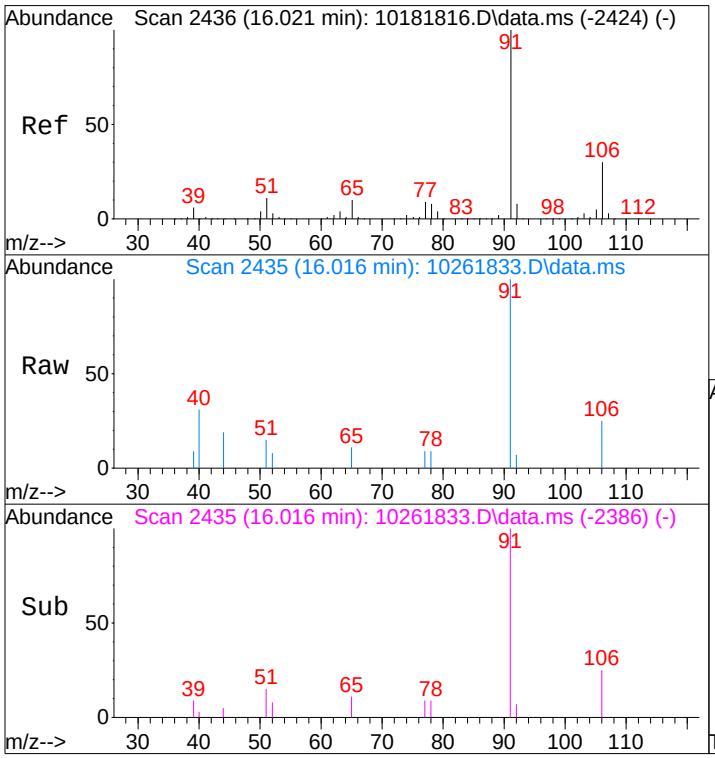


#64
Tetrachloroethene
Concen: 13.73 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion:166 Resp: 196745

Ion	Ratio	Lower	Upper
166	100		
164	79.0	58.9	98.9

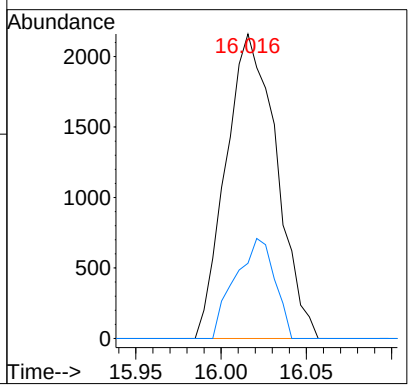


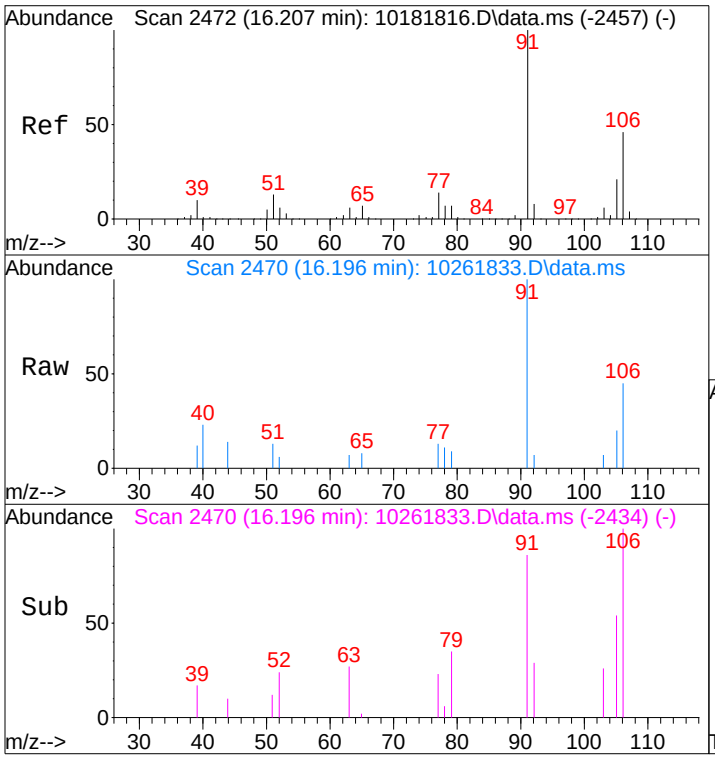


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2435
Delta R.T. 0.000 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 91 Resp: 4459

Ion	Ratio	Lower	Upper
91	100		
106	25.7	9.9	49.9

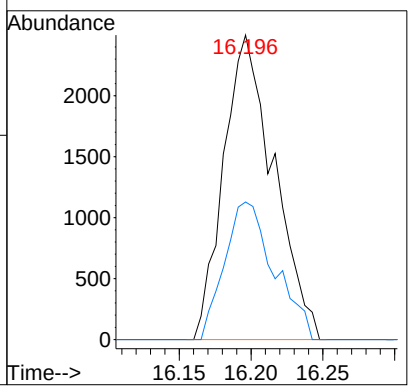


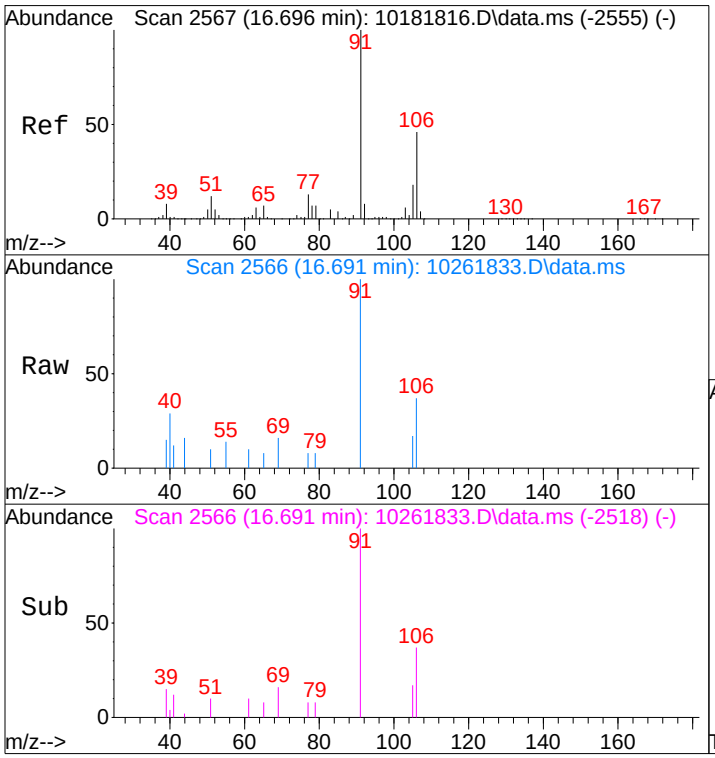


#67
m- & p-Xylenes
Concen: 0.10 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 91 Resp: 6072

Ion	Ratio	Lower	Upper
91	100		
106	44.7	26.7	66.7

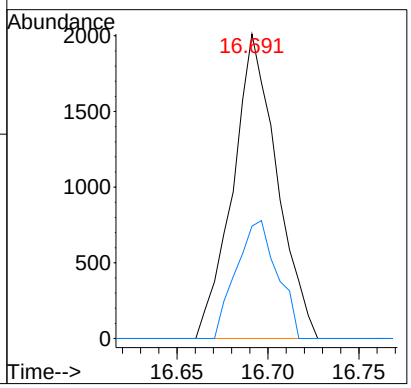


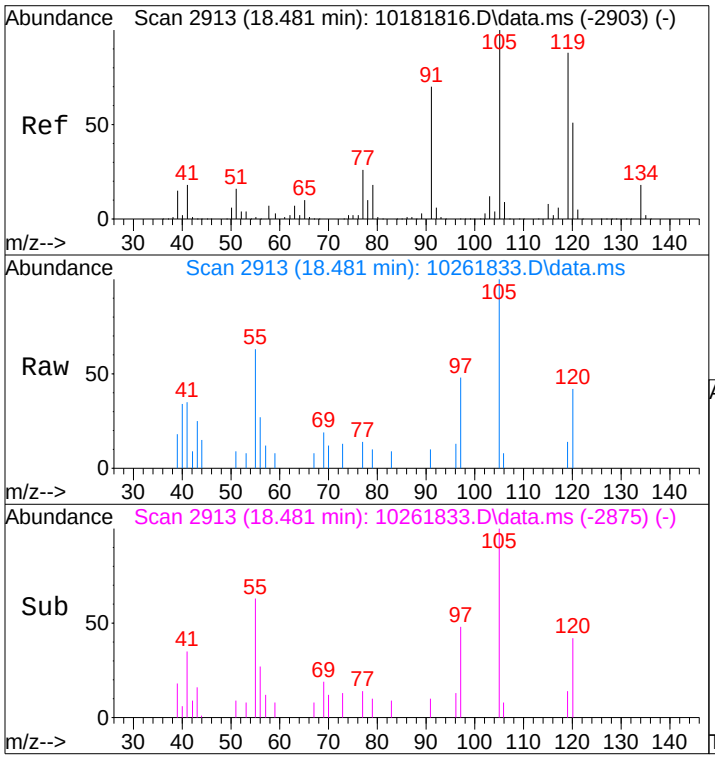


#70
o-Xylene
Concen: 0.06 ng
RT: 16.69 min Scan# 2566
Delta R.T. -0.005 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion: 91 Resp: 3389

Ion	Ratio	Lower	Upper
91	100		
106	36.1	25.2	65.2

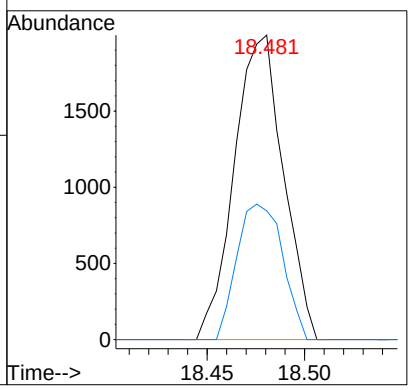




#82
1,2,4-Trimethylbenzene
Concen: 0.06 ng
RT: 18.48 min Scan# 2913
Delta R.T. -0.003 min
Lab File: 10261833.D
Acq: 26 Oct 2018 23:52

Tgt Ion:105 Resp: 3505

Ion	Ratio	Lower	Upper
105	100		
120	41.4	31.3	71.3



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 14:25:13 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

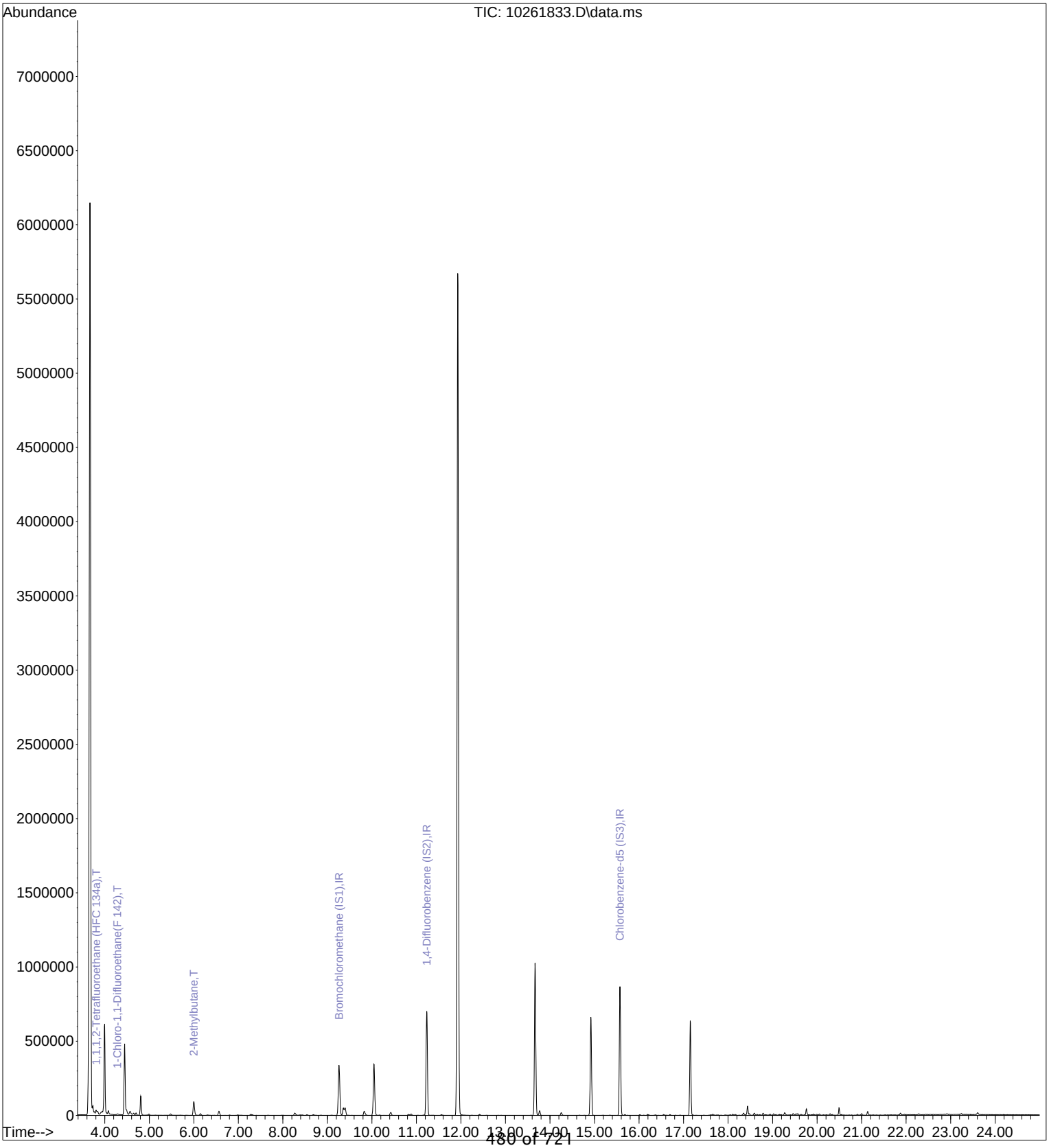
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113085	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	579642	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	355169	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.73	85	206	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	4385	0.375	ng	#	1
4) 1,1-Difluoroethane	3.90	65	356	N.D.			
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d		
6) 1-Chloro-1,1-Difluoroe...	4.28	65	4018	0.159	ng	#	91
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	6.00	57	19163	1.171	ng		87
11) Methyl Acetate	6.99	43	342	N.D.			
12) 2-Methylpentane	8.44	71	503	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.00	84	51	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.91	55	582	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	715	N.D.			
27) 4-Chlorotoluene	17.82	91	715	N.D.			
28) Indane	19.13	117	50	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	50	N.D.			
31) 1,2,3,4-Tetramethylben...	20.16	119	50	N.D.			
32) 1,2,3,5-Tetramethylben...	0.00	119	0	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261833.D Vial: 15
Acq On : 26 Oct 2018 23:52 Operator: RS
Sample : P1805493-018 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:25:13 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261834.D Vial: 15
Acq On : 27 Oct 2018 00:27 Operator: RS
Sample : P1805493-018dil (40mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:05:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116964	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	577181	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	350274	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	277893	13.700	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.60%				
57) Toluene-d8 (SS2)	13.66	98	749940	12.255	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.08%				
73) Bromofluorobenzene (SS3)	17.16	174	152373	11.068	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.56%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.11	85	1823	0.057	ng	#	88
4) Chloromethane	4.31	50	235	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.50	45	1354	0.085	ng		74
11) Acetonitrile	5.71	41	126	N.D.			
12) Acrolein	6.02	56	469	N.D.			
13) Acetone	6.01	58	4720	0.286	ng	#	63
14) Trichlorofluoromethane	6.16	101	816	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	1002	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.39	87	272	N.D.			
30) Ethyl Acetate	9.38	61	578	0.085	ng		86
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	3988	0.144	ng		96
34) Tetrahydrofuran (THF)	9.84	72	703	0.057	ng		90
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.41	97	1144	0.052	ng		95
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.86	56	229	N.D.			
41) Benzene	10.88	78	747	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	11.23	84	590	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	170567	12.327	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	11.93	100	258	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261834.D Vial: 15
Acq On : 27 Oct 2018 00:27 Operator: RS
Sample : P1805493-018dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:05:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

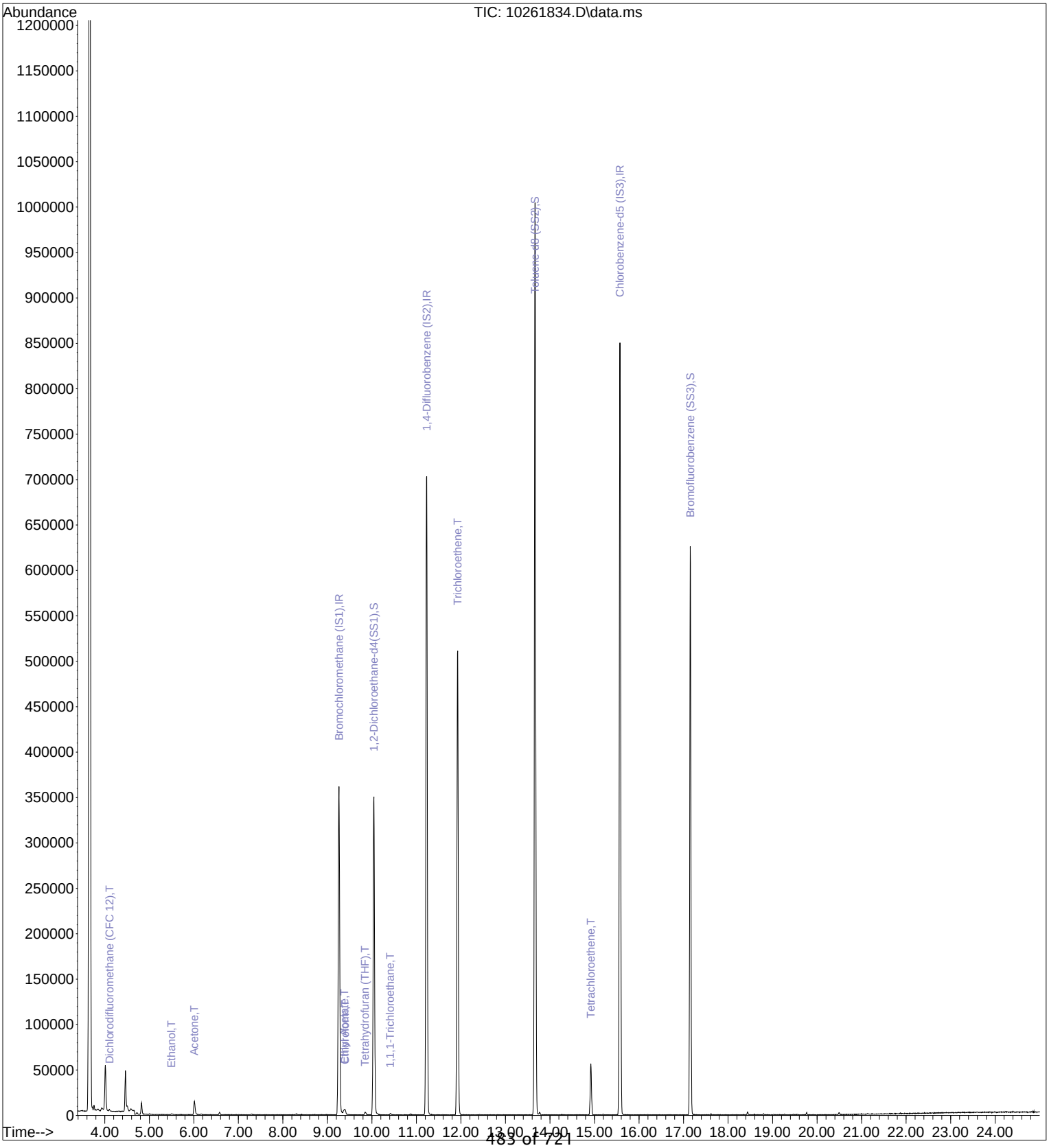
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	2670	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	17301	1.225 ng	97
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.03	91	126	N.D.	
67) m- & p-Xylenes	16.20	91	248	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.70	91	101	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	105	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.76	57	539	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	420	N.D.	
96) n-Dodecane	21.00	57	109	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261834.D Vial: 15
Acq On : 27 Oct 2018 00:27 Operator: RS
Sample : P1805493-018dil (40mL) Inst : MS09
Misc : S31-10151806

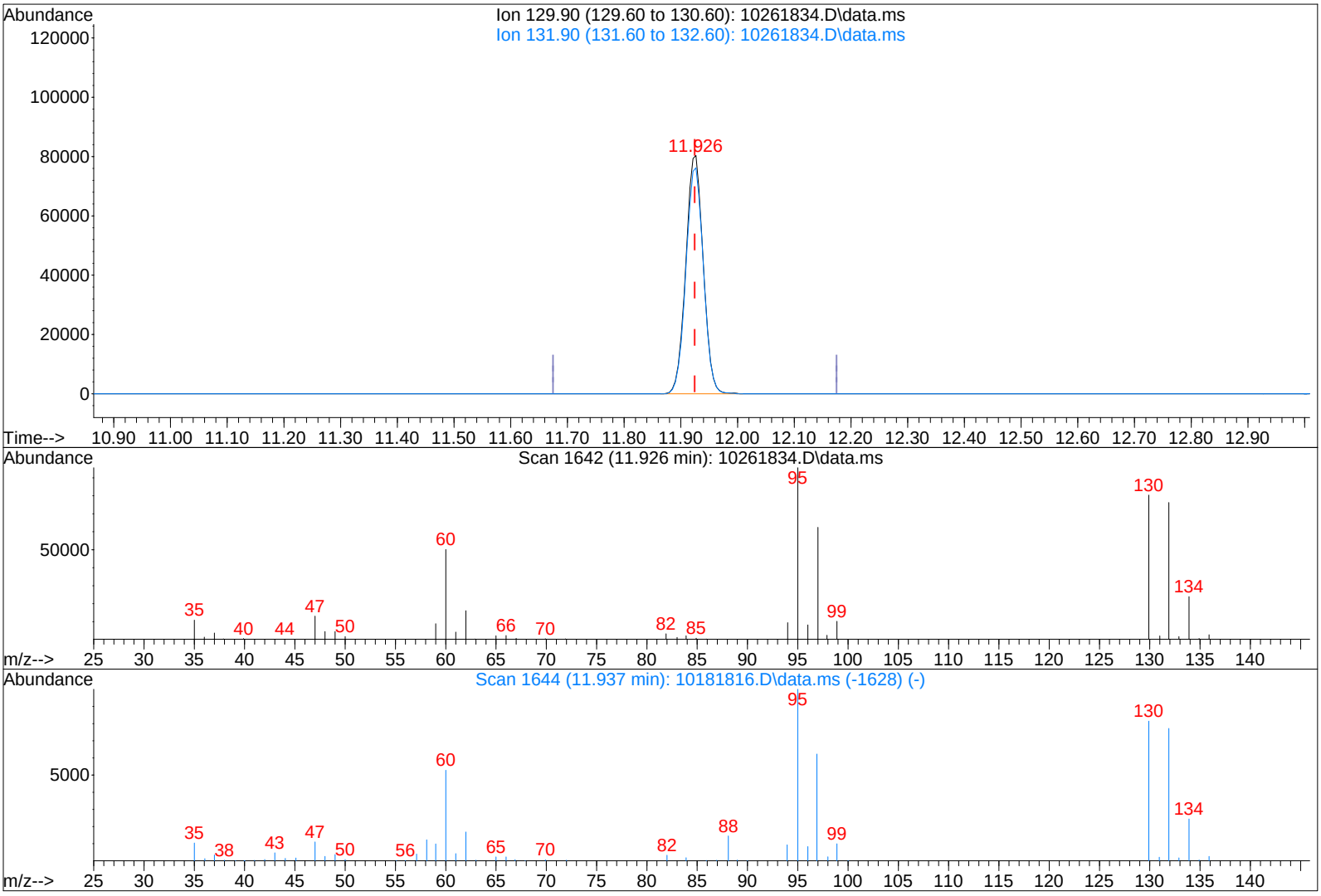
Quant Time: Oct 29 11:05:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261834.D Vial: 15
Acq On : 27 Oct 2018 00:27 Operator: RS
Sample : P1805493-018dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:35 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261834.D\data.ms

(47) Trichloroethene (T)

11.926min (+0.002) 12.33ng

response 170567

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	95.07
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:09:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	114010	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	573260	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	350643	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	271957	13.755	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.00%				
57) Toluene-d8 (SS2)	13.66	98	747892	12.209	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.68%				
73) Bromofluorobenzene (SS3)	17.15	174	154786	11.231	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.84%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.07	85	19859	0.640	ng		99
4) Chloromethane	4.29	50	620	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	275	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.63	45	235	N.D.			
11) Acetonitrile	5.69	41	1463	N.D.			
12) Acrolein	5.84	56	1258	0.104	ng		92
13) Acetone	0.00	58	0	N.D.	d		
14) Trichlorofluoromethane	6.15	101	10232	0.460	ng		97
15) 2-Propanol (Isopropanol)	6.30	45	4163	0.083	ng		99
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	6.98	59	1773	N.D.			
19) Methylene Chloride	6.99	84	451	N.D.			
20) 3-Chloro-1-propene (Al...	7.05	41	161	N.D.			
21) Trichlorotrifluoroethane	7.32	151	897	0.101	ng	#	77
22) Carbon Disulfide	7.28	76	14516	0.240	ng		95
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	477	0.180	ng	#	45
27) 2-Butanone (MEK)	8.69	72	1061	0.085	ng	#	39
28) cis-1,2-Dichloroethene	9.09	61	1154	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.36	61	2403	0.362	ng		89
31) n-Hexane	9.35	57	600	N.D.			
32) Chloroform	9.39	83	47124	1.751	ng		99
34) Tetrahydrofuran (THF)	9.83	72	8694	0.721	ng		95
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	15936	0.735	ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	5120	0.263	ng	#	75
41) Benzene	10.88	78	7615	0.109	ng		98
42) Carbon Tetrachloride	11.02	117	481	N.D.			
43) Cyclohexane	11.15	84	574	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	2209178	160.751	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:09:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

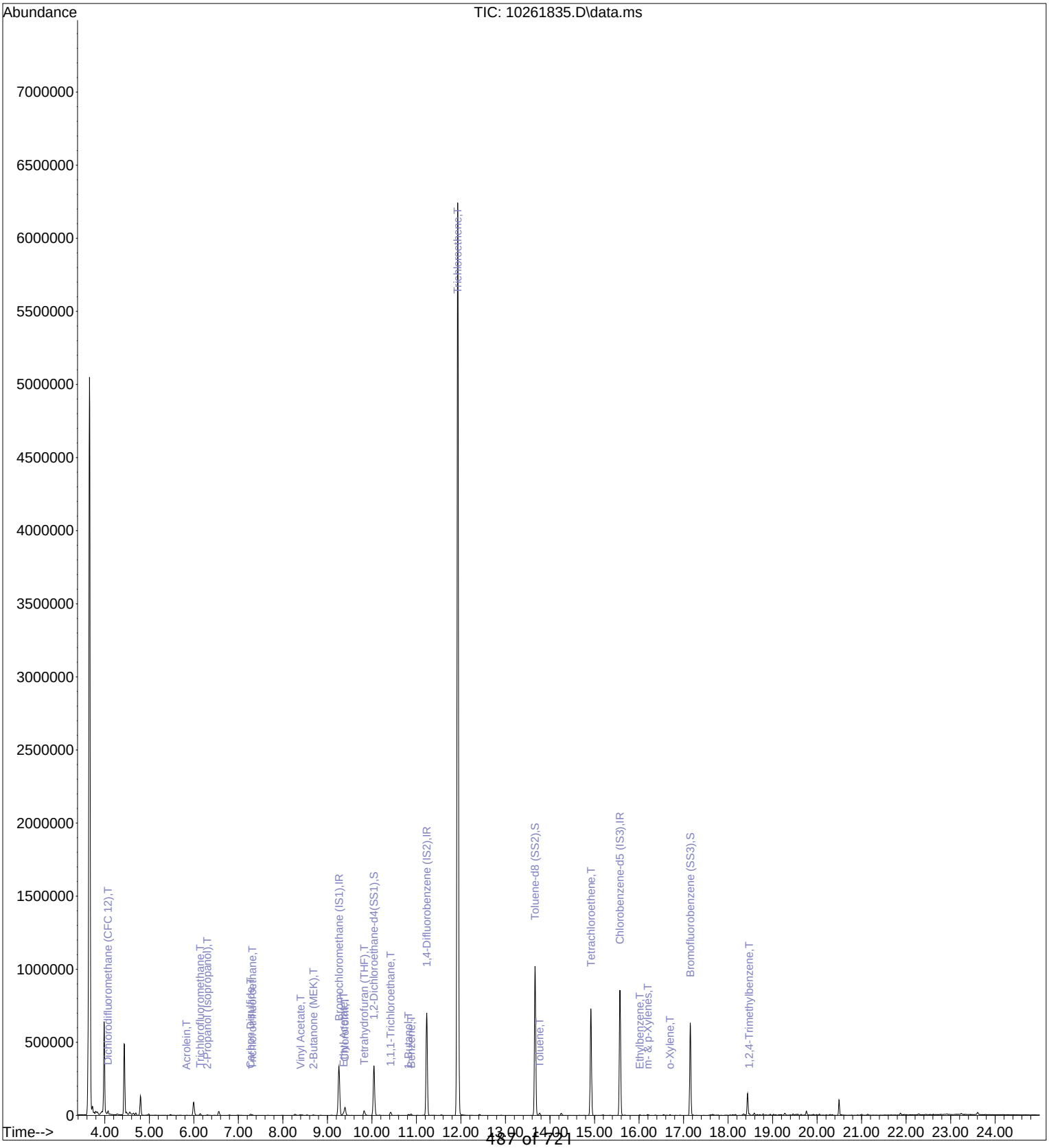
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.25	71	180	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	13232	0.193 ng	99
59) 2-Hexanone	14.04	43	494	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.65	43	1173	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	215511	15.239 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	4247	0.057 ng	94
67) m- & p-Xylenes	16.20	91	5117	0.089 ng	97
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	538	N.D.	
70) o-Xylene	16.70	91	2914	0.052 ng	89
71) n-Nonane	16.92	43	1135	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	115	N.D.	
75) alpha-Pinene	17.70	93	741	N.D.	
76) n-Propylbenzene	17.83	91	747	N.D.	
77) 3-Ethyltoluene	17.93	105	1252	N.D.	
78) 4-Ethyltoluene	17.98	105	763	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	718	N.D.	
80) alpha-Methylstyrene	18.43	118	843	N.D.	
81) 2-Ethyltoluene	18.25	105	627	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3081	0.058 ng	81
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	18.48	91	239	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	823	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	823	N.D.	
87) sec-Butylbenzene	18.92	105	592	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	364	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	592	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.07	68	685	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.92	57	2052	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2137	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	16.36	55	1354	N.D.	
99) tert-Butylbenzene	18.44	119	1999	N.D.	
100) n-Butylbenzene	19.36	91	328	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:09:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:09:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

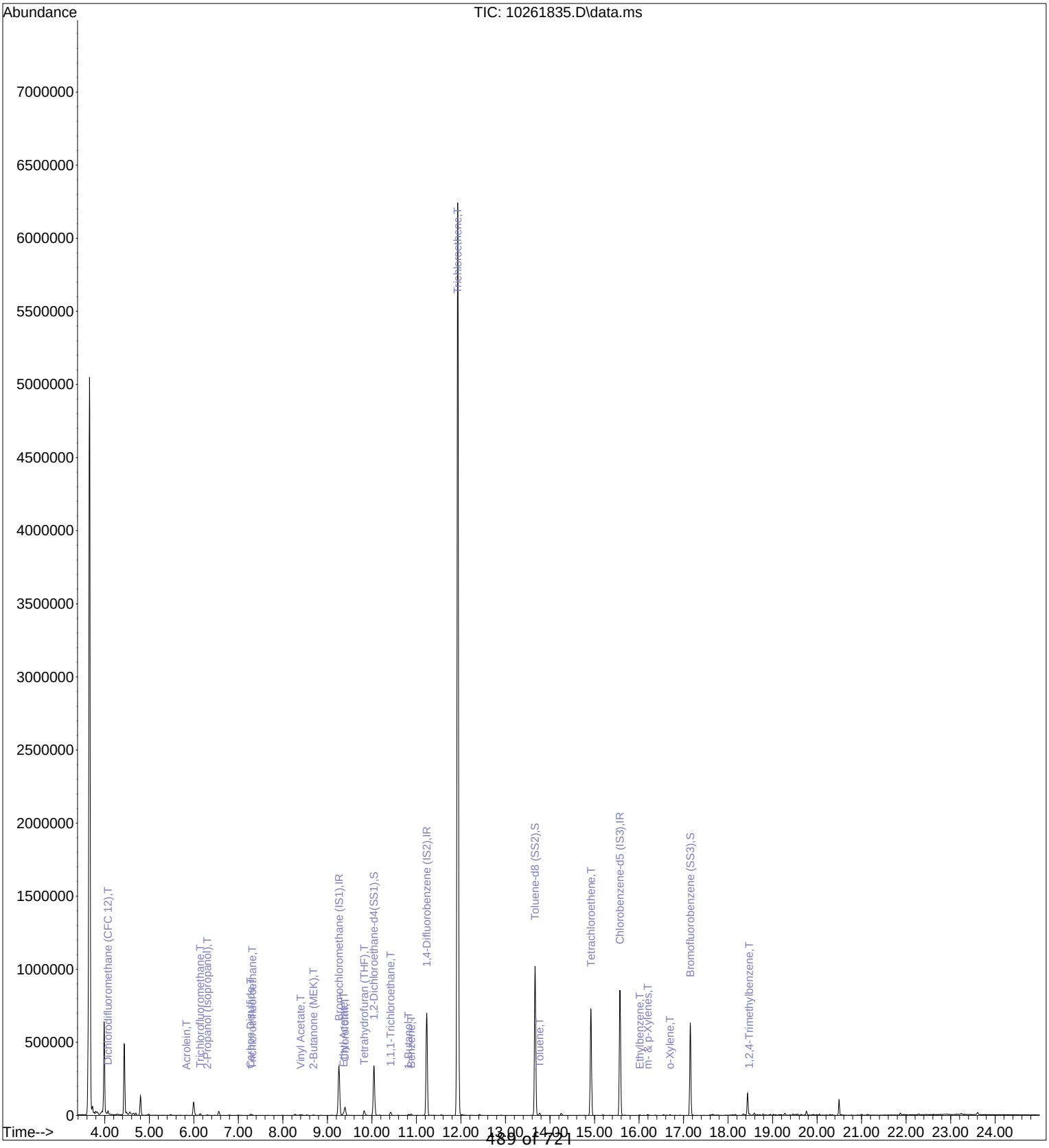
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	114010	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	573260	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	350643	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	271957	13.755	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 110.00%				
57) Toluene-d8 (SS2)	13.66	98	747892	12.209	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.68%				
73) Bromofluorobenzene (SS3)	17.15	174	154786	11.231	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.84%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.07	85	19859	0.640	ng		99
12) Acrolein	5.84	56	1258	0.104	ng		92
14) Trichlorofluoromethane	6.15	101	10232	0.460	ng		97
15) 2-Propanol (Isopropanol)	6.30	45	4163	0.083	ng		99
21) Trichlorotrifluoroethane	7.32	151	897	0.101	ng	#	77
22) Carbon Disulfide	7.28	76	14516	0.240	ng		95
26) Vinyl Acetate	8.40	86	477	0.180	ng	#	45
27) 2-Butanone (MEK)	8.69	72	1061	0.085	ng	#	39
30) Ethyl Acetate	9.36	61	2403	0.362	ng		89
32) Chloroform	9.39	83	47124	1.751	ng		99
34) Tetrahydrofuran (THF)	9.83	72	8694	0.721	ng		95
38) 1,1,1-Trichloroethane	10.42	97	15936	0.735	ng		99
40) 1-Butanol	10.82	56	5120	0.263	ng	#	75
41) Benzene	10.88	78	7615	0.109	ng		98
47) Trichloroethene	11.93	130	2209178	160.751	ng		100
58) Toluene	13.77	91	13232	0.193	ng		99
64) Tetrachloroethene	14.92	166	215511	15.239	ng		99
66) Ethylbenzene	16.02	91	4247	0.057	ng		94
67) m- & p-Xylenes	16.20	91	5117	0.089	ng		97
70) o-Xylene	16.70	91	2914	0.052	ng		89
82) 1,2,4-Trimethylbenzene	18.48	105	3081	0.058	ng		81

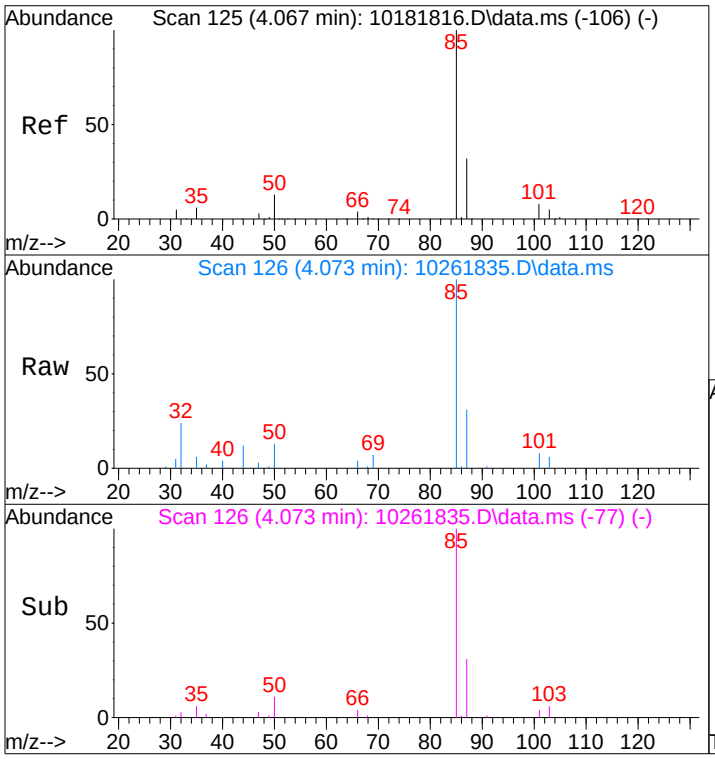
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:09:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

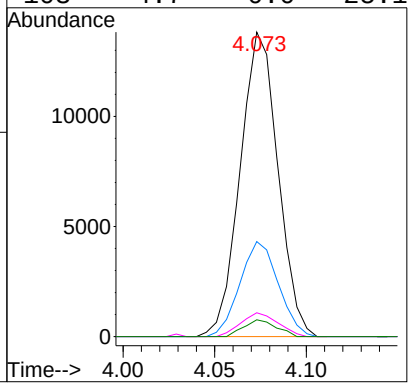


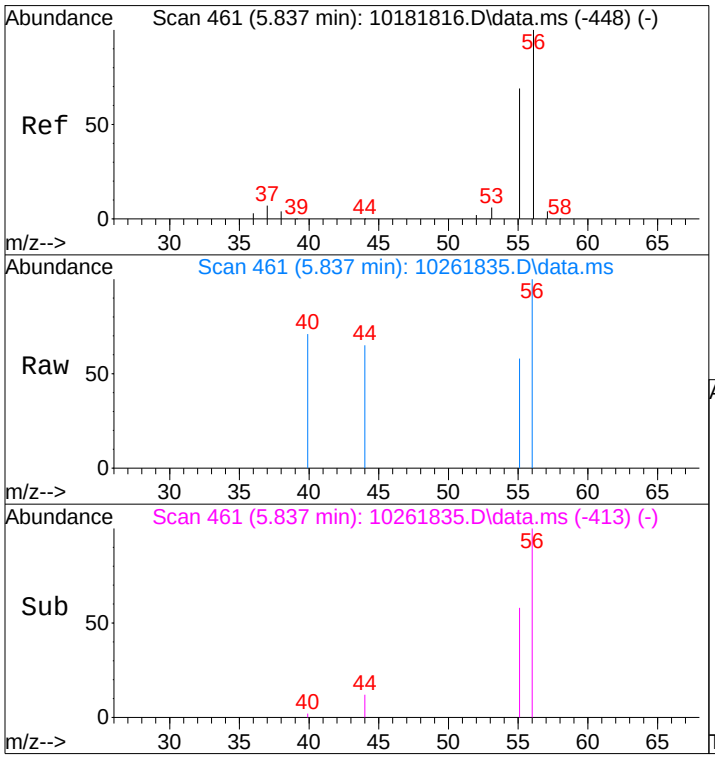


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.64 ng
RT: 4.07 min Scan# 126
Delta R.T. 0.017 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 85 Resp: 19859

Ion	Ratio	Lower	Upper
85	100		
87	31.8	12.0	52.0
101	7.7	0.0	28.0
103	4.7	0.0	25.1

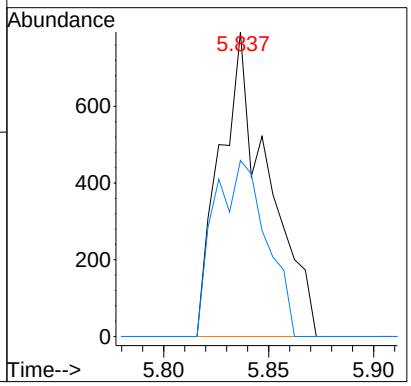


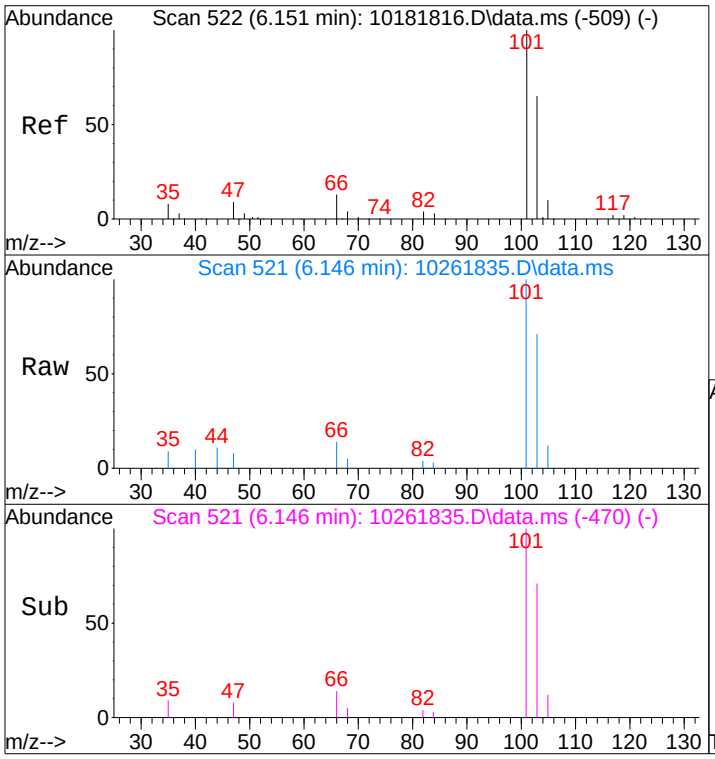


#12
Acrolein
Concen: 0.10 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 56 Resp: 1258

Ion	Ratio	Lower	Upper
56	100		
55	62.9	49.3	89.3

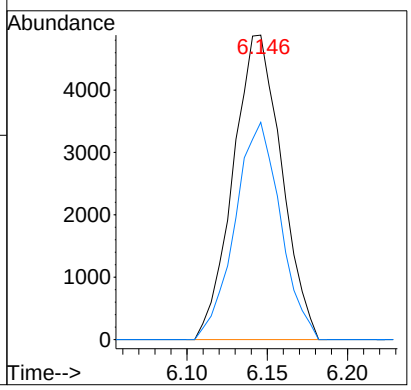


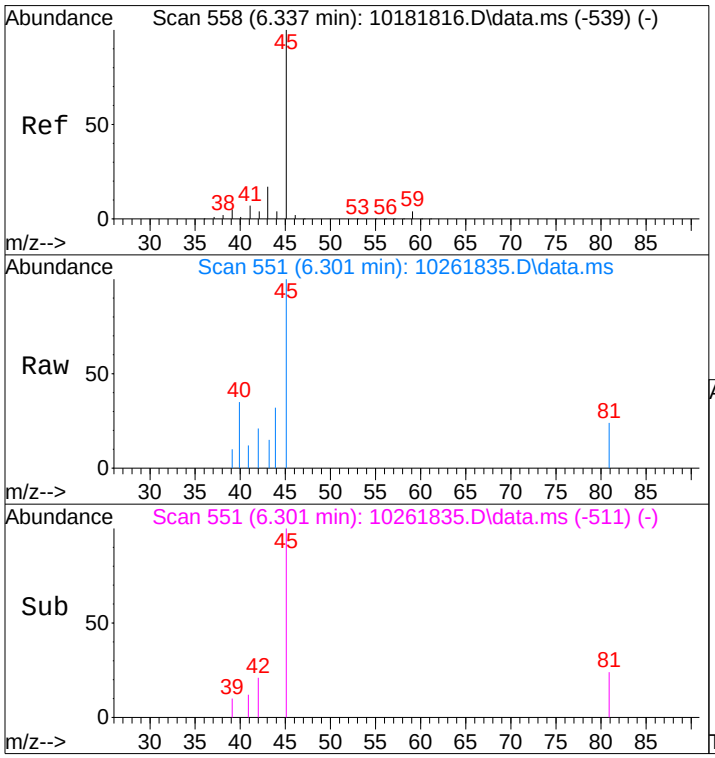


#14
Trichlorofluoromethane
Concen: 0.46 ng
RT: 6.15 min Scan# 521
Delta R.T. 0.014 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion:101 Resp: 10232

Ion	Ratio	Lower	Upper
101	100		
103	67.1	44.5	84.5

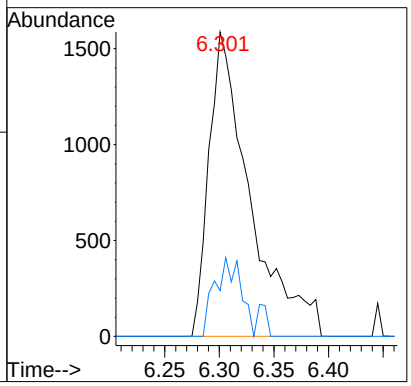


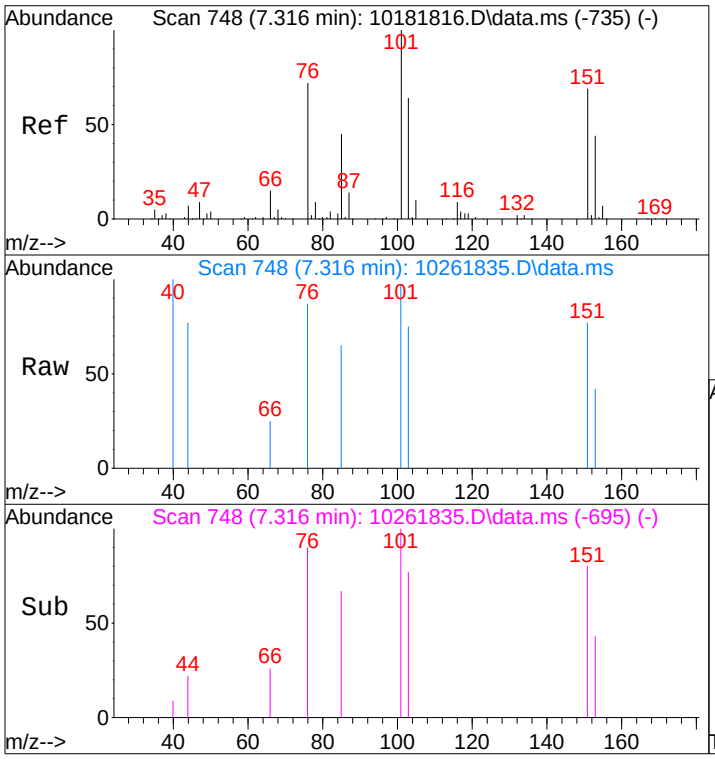


#15
2-Propanol (Isopropanol)
Concen: 0.08 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 45 Resp: 4163

Ion	Ratio	Lower	Upper
45	100		
43	16.3	0.0	36.7

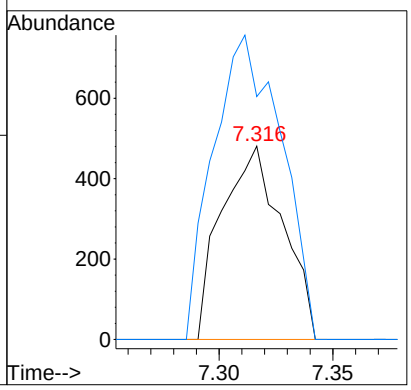


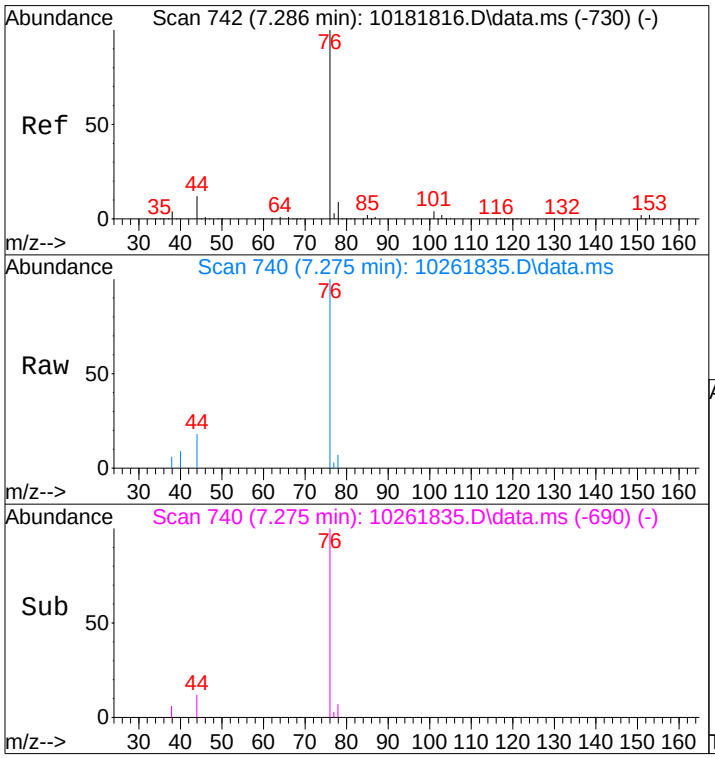


#21
Trichlorotrifluoroethane
Concen: 0.10 ng
RT: 7.32 min Scan# 748
Delta R.T. 0.025 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion:151 Resp: 897

Ion	Ratio	Lower	Upper
151	100		
101	175.9	127.5	167.5#

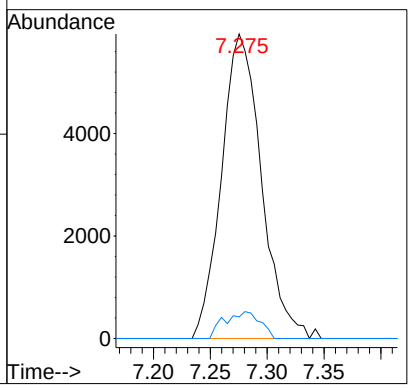


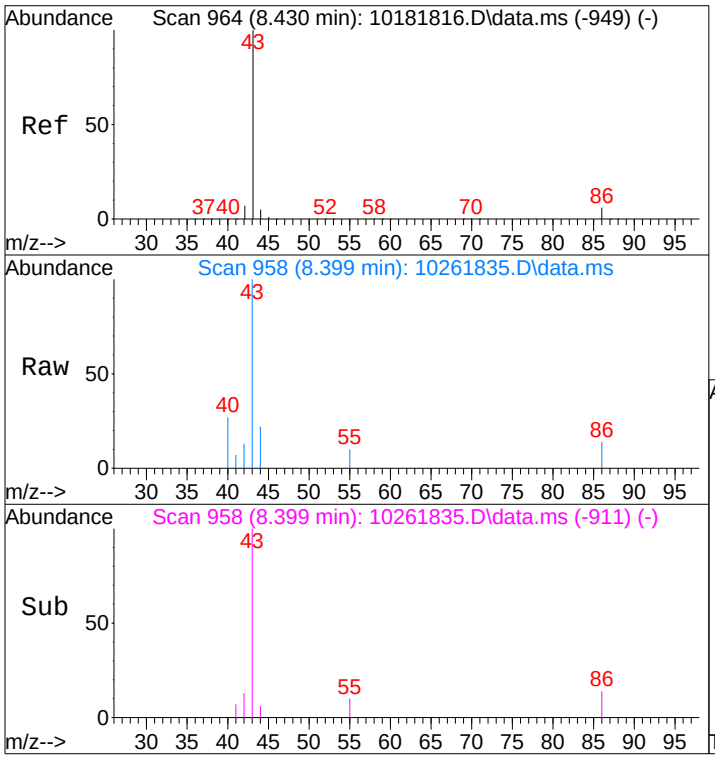


#22
Carbon Disulfide
Concen: 0.24 ng
RT: 7.28 min Scan# 740
Delta R.T. 0.010 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 76 Resp: 14516

Ion	Ratio	Lower	Upper
76	100		
78	7.8	0.0	29.6

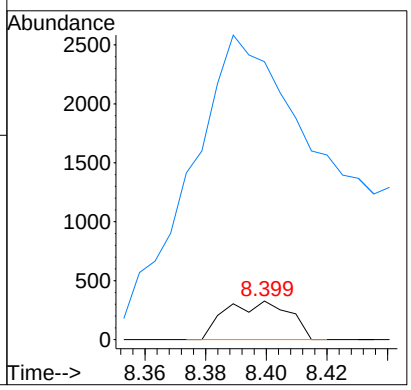


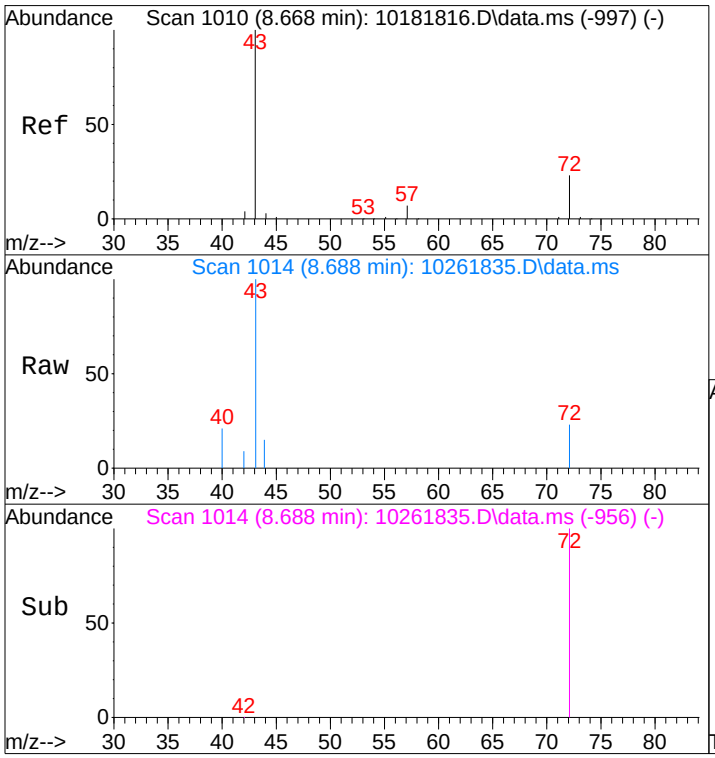


#26
Vinyl Acetate
Concen: 0.18 ng
RT: 8.40 min Scan# 958
Delta R.T. -0.010 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 86 Resp: 477

Ion	Ratio	Lower	Upper
86	100		
43	1965.8	1596.2	1636.2#

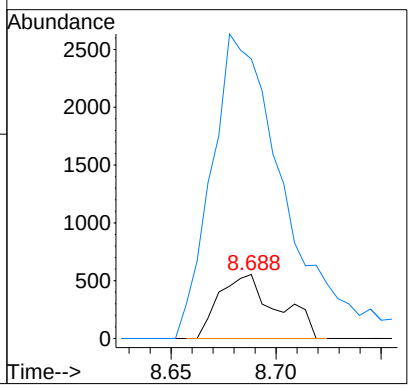


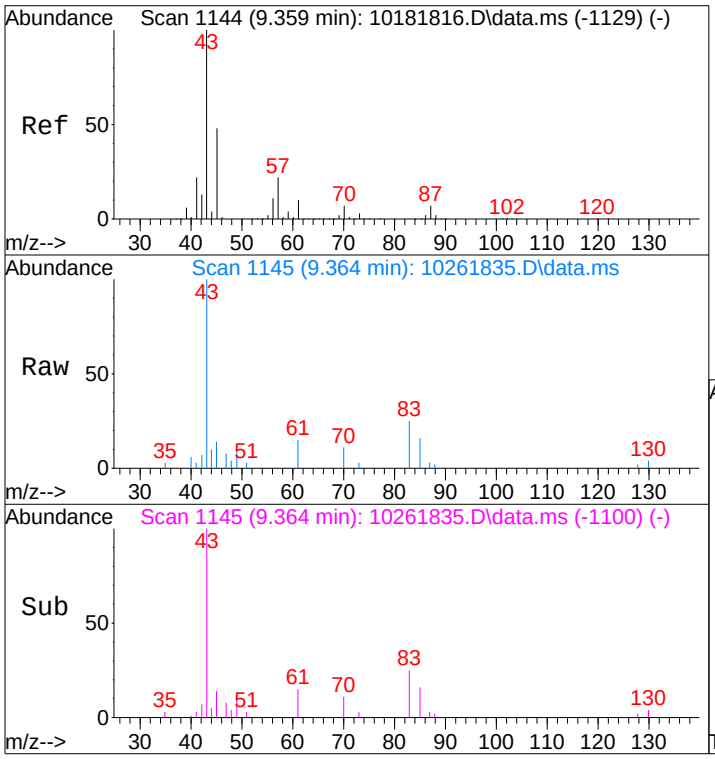


#27
2-Butanone (MEK)
Concen: 0.08 ng
RT: 8.69 min Scan# 1014
Delta R.T. 0.048 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 72 Resp: 1061

Ion	Ratio	Lower	Upper
72	100		
43	607.4	430.0	470.0#

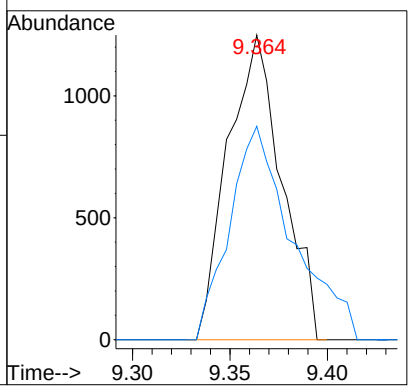


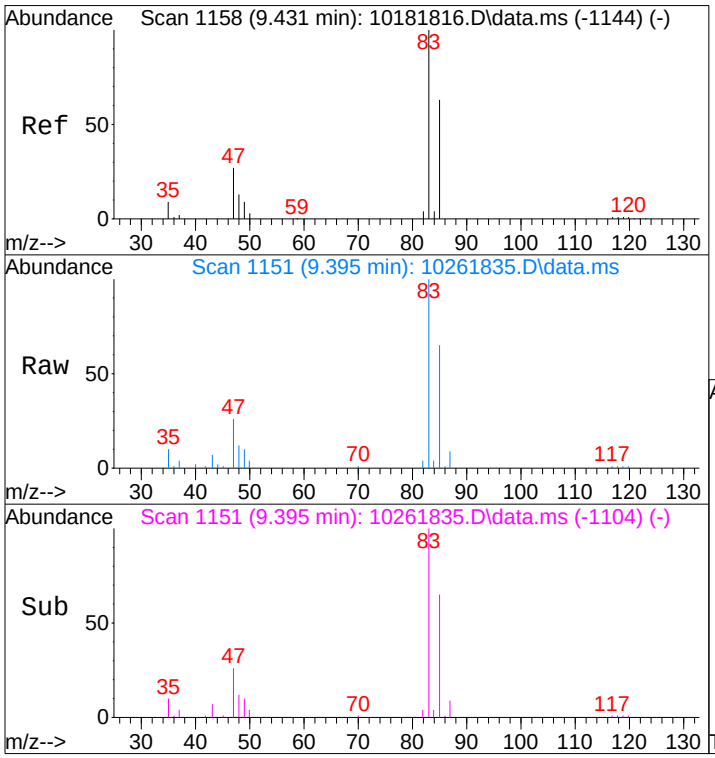


#30
Ethyl Acetate
Concen: 0.36 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.032 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 61 Resp: 2403

Ion	Ratio	Lower	Upper
61	100		
70	82.1	52.7	92.7

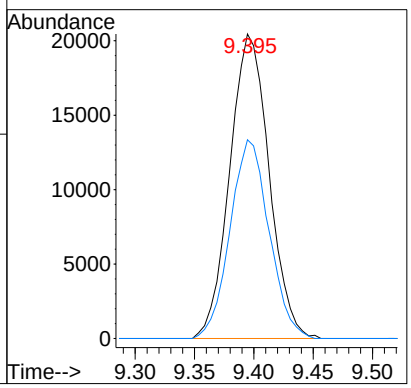


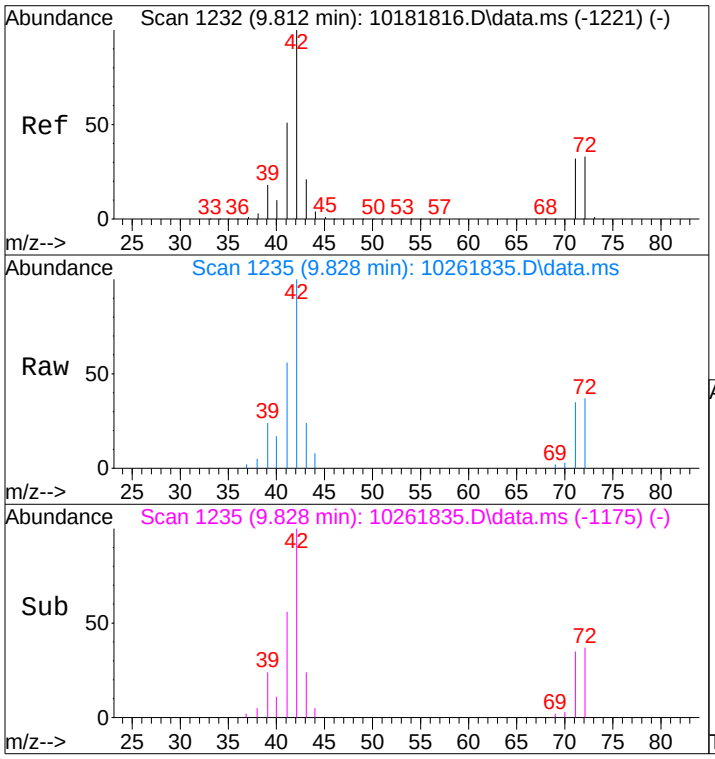


#32
Chloroform
Concen: 1.75 ng
RT: 9.39 min Scan# 1151
Delta R.T. -0.009 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 83 Resp: 47124

Ion	Ratio	Lower	Upper
83	100		
85	64.7	44.0	84.0

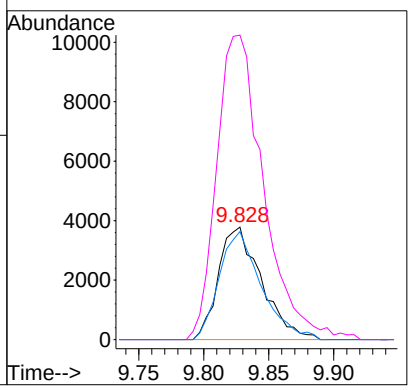


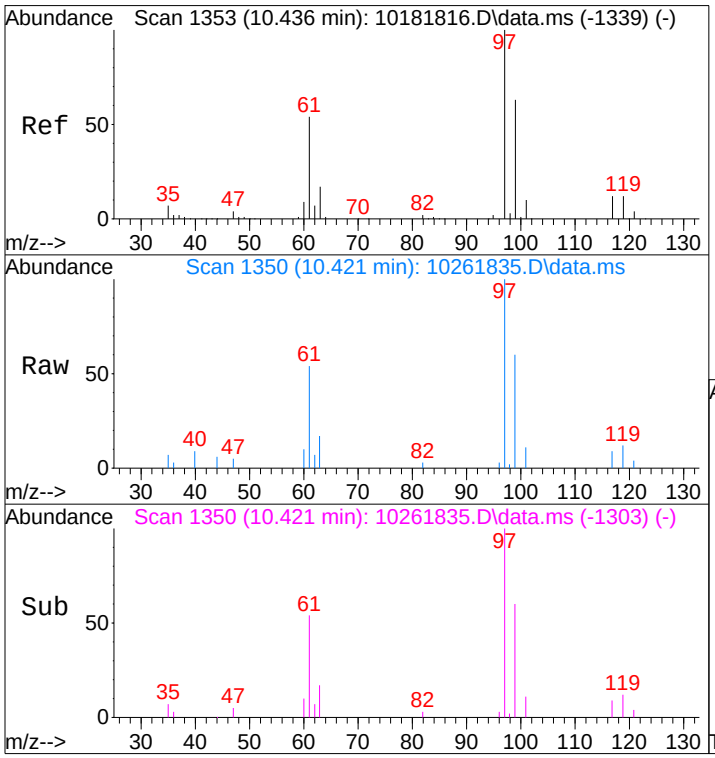


#34
Tetrahydrofuran (THF)
Concen: 0.72 ng
RT: 9.83 min Scan# 1235
Delta R.T. 0.060 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 72 Resp: 8694

Ion	Ratio	Lower	Upper
72	100		
71	94.5	76.7	116.7
42	295.9	287.9	327.9

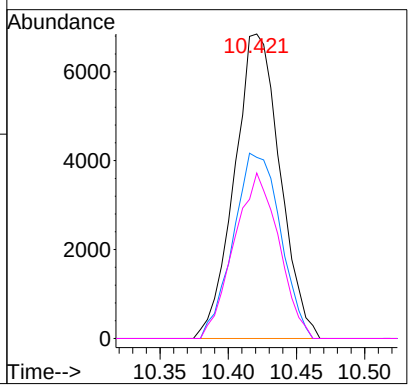


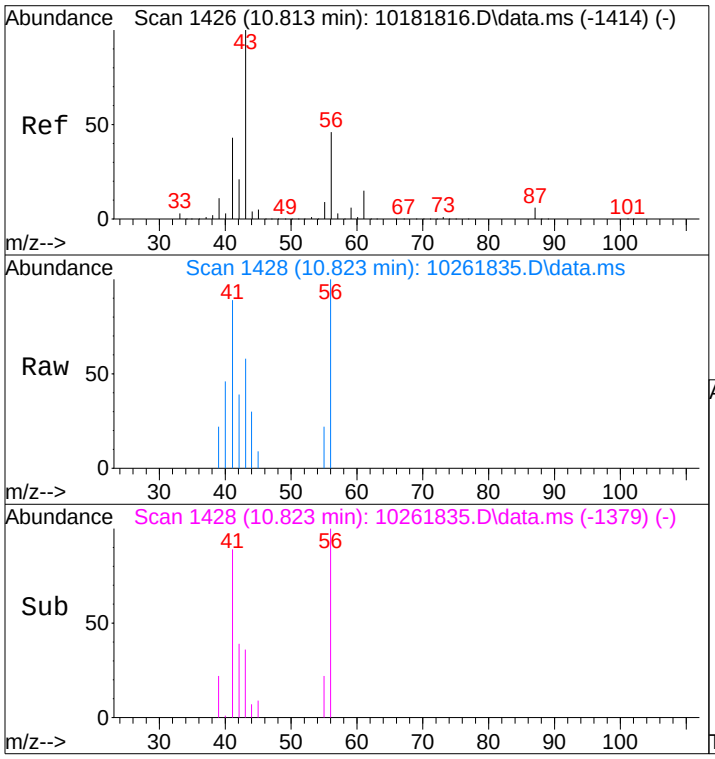


#38
1,1,1-Trichloroethane
Concen: 0.73 ng
RT: 10.42 min Scan# 1350
Delta R.T. -0.007 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 97 Resp: 15936

Ion	Ratio	Lower	Upper
97	100		
99	62.8	43.5	83.5
61	53.3	34.2	74.2

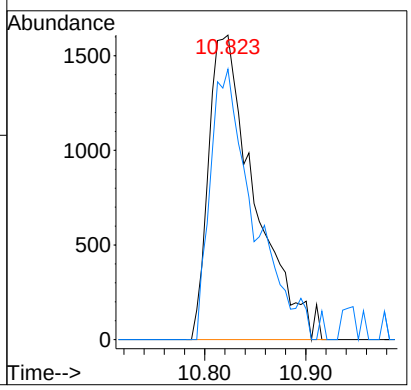


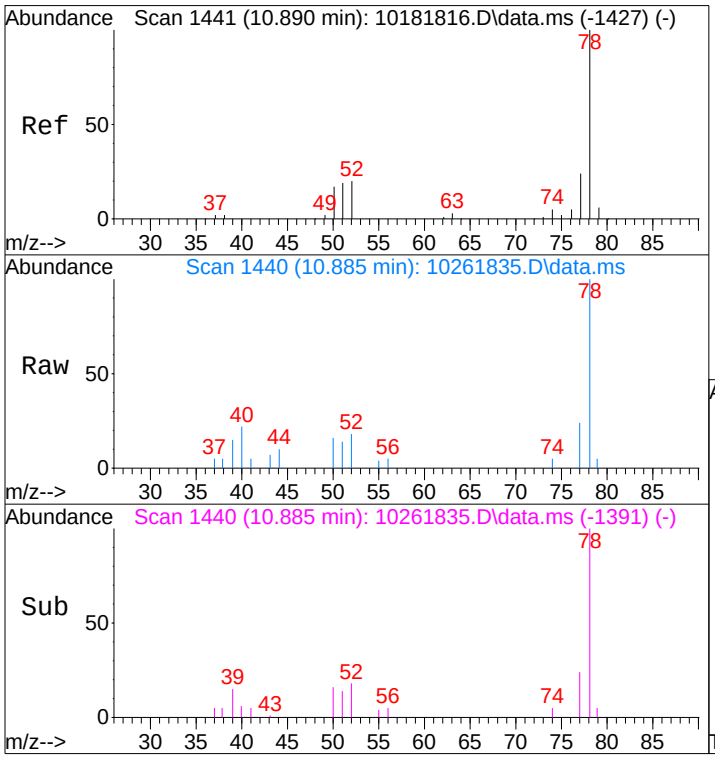


#40
1-Butanol
Concen: 0.26 ng
RT: 10.82 min Scan# 1428
Delta R.T. 0.004 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 56 Resp: 5120

Ion	Ratio	Lower	Upper
56	100		
41	83.6	90.2	130.2#

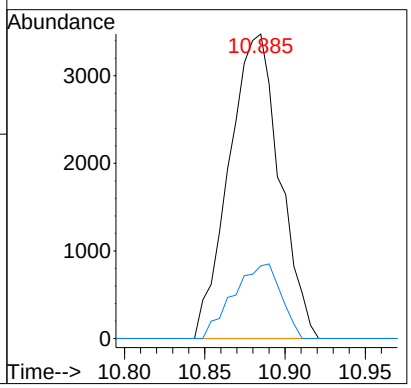


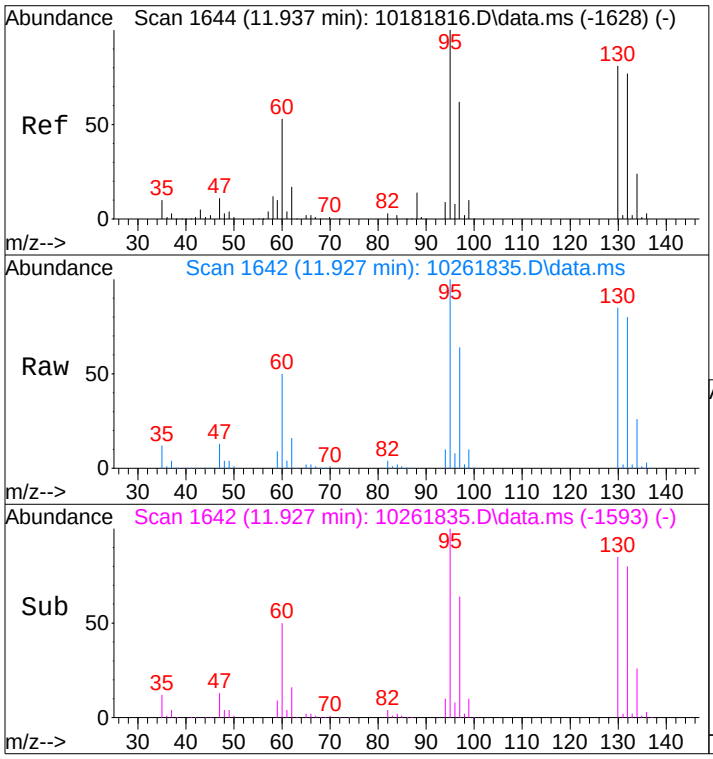


#41
Benzene
Concen: 0.11 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.005 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 78 Resp: 7615

Ion	Ratio	Lower	Upper
78	100		
77	23.0	4.1	44.1

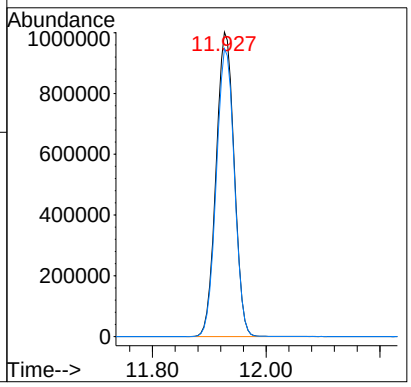


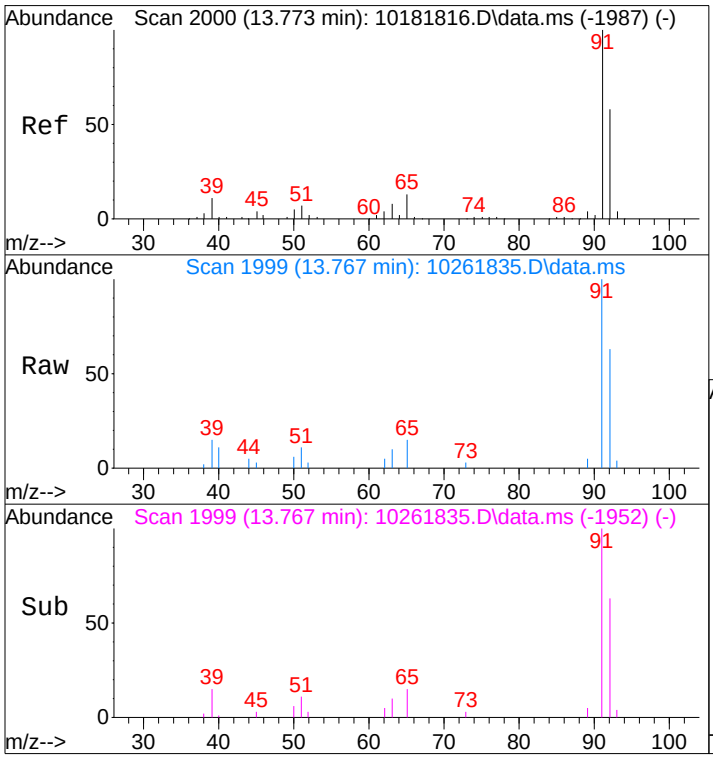


#47
Trichloroethene
Concen: 160.75 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion:130 Resp: 2209178

Ion	Ratio	Lower	Upper
130	100		
132	94.5	74.6	114.6

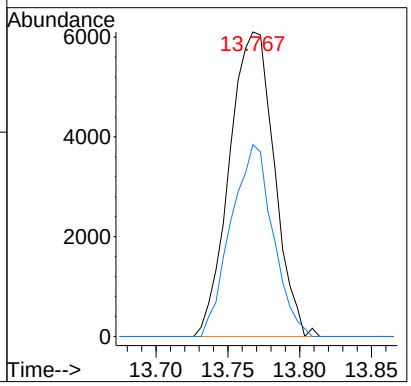


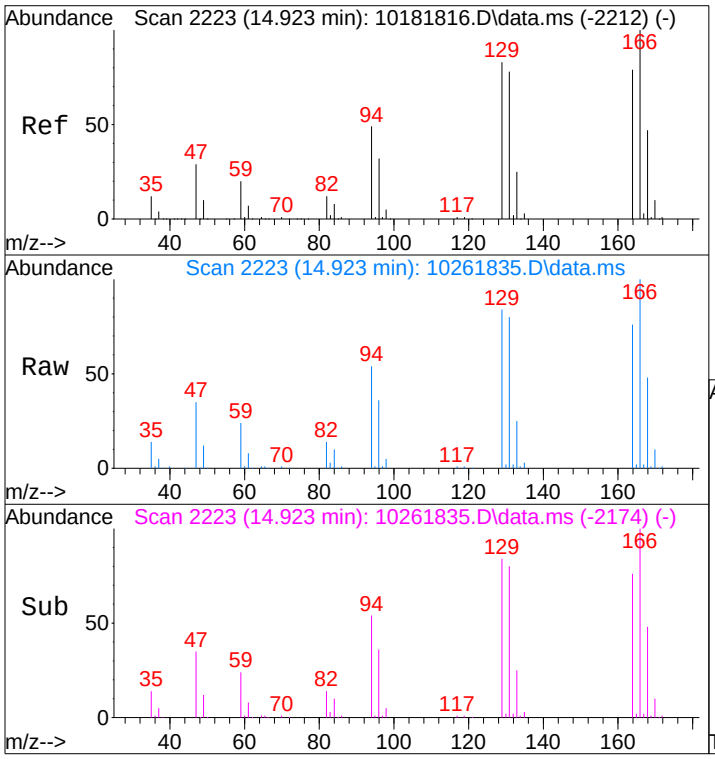


#58
Toluene
Concen: 0.19 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.006 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 91 Resp: 13232

Ion	Ratio	Lower	Upper
91	100		
92	59.1	38.1	78.1

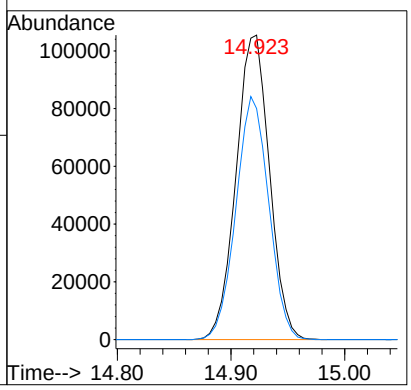


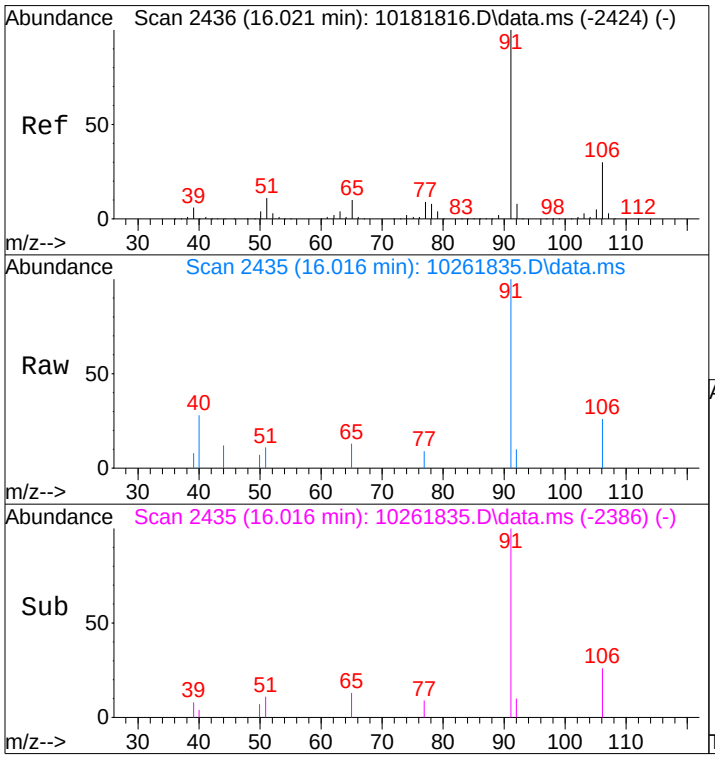


#64
Tetrachloroethene
Concen: 15.24 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.005 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion:166 Resp: 215511

Ion	Ratio	Lower	Upper
166	100		
164	78.4	58.9	98.9

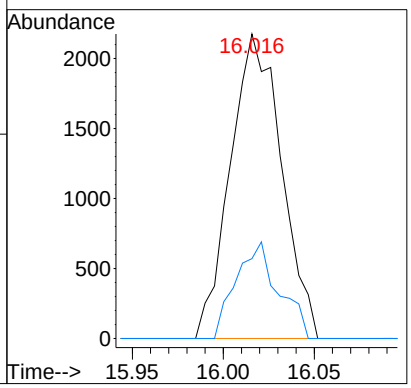


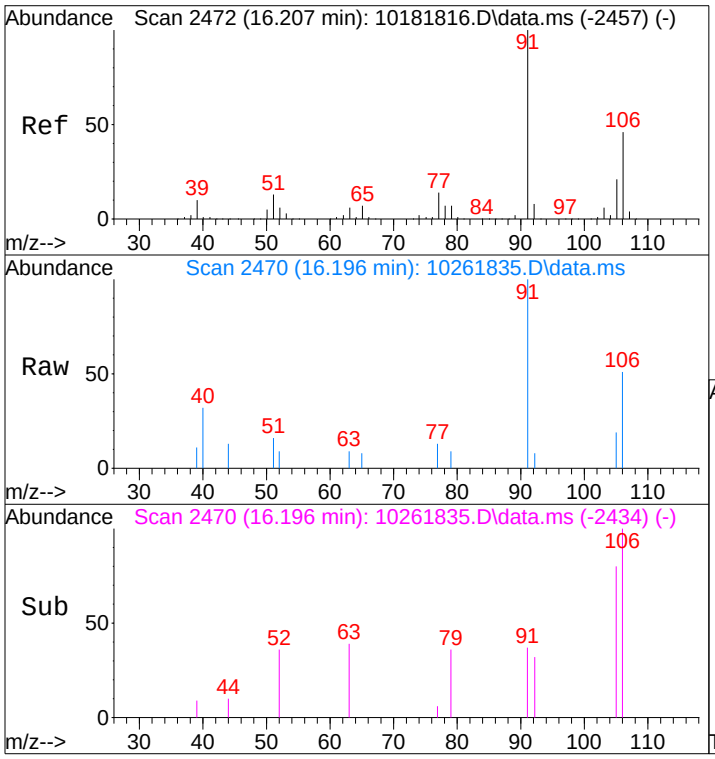


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2435
Delta R.T. 0.000 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 91 Resp: 4247

Ion	Ratio	Lower	Upper
91	100		
106	26.5	9.9	49.9

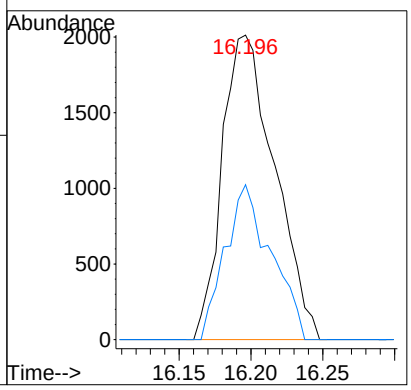


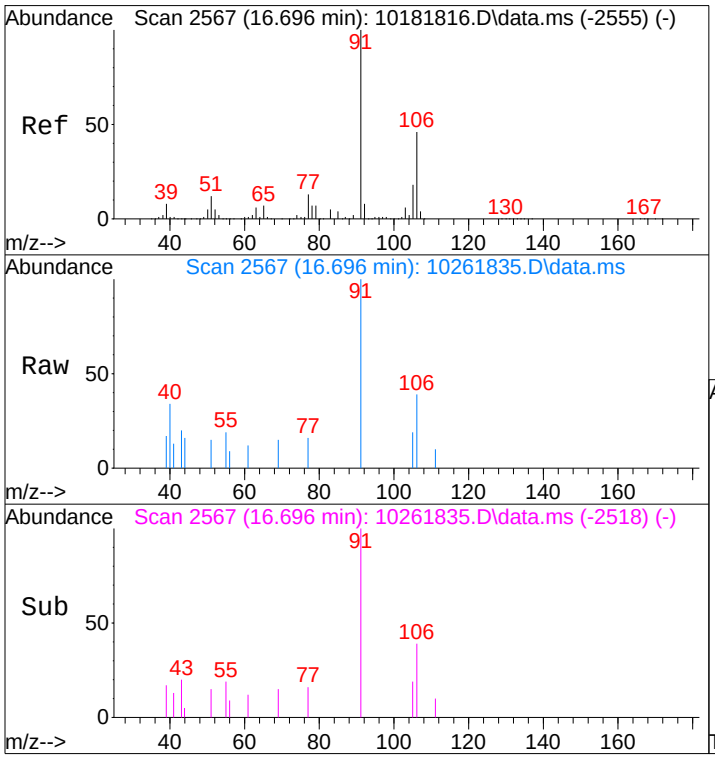


#67
m- & p-Xylenes
Concen: 0.09 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 91 Resp: 5117

Ion	Ratio	Lower	Upper
91	100		
106	44.4	26.7	66.7

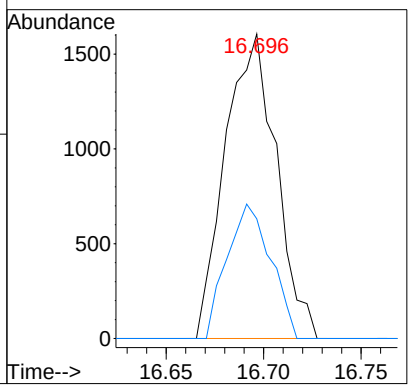


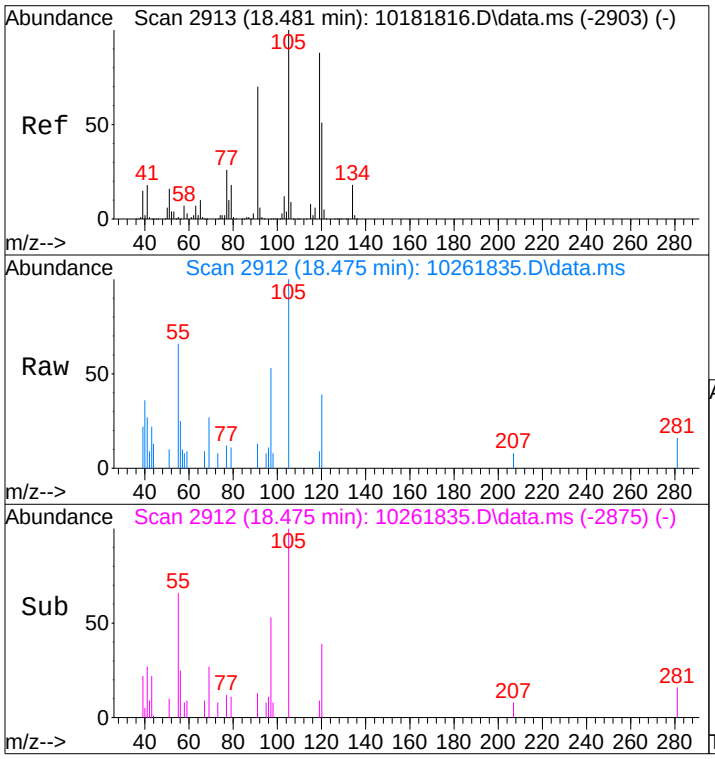


#70
o-Xylene
Concen: 0.05 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.001 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion: 91 Resp: 2914

Ion	Ratio	Lower	Upper
91	100		
106	38.1	25.2	65.2

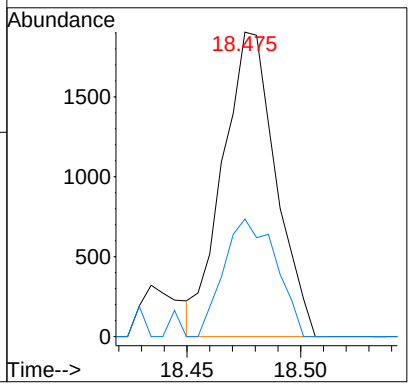




#82
1,2,4-Trimethylbenzene
Concen: 0.06 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10261835.D
Acq: 27 Oct 2018 1:00

Tgt Ion:105 Resp: 3081

Ion	Ratio	Lower	Upper
105	100		
120	38.2	31.3	71.3



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 14:25:27 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

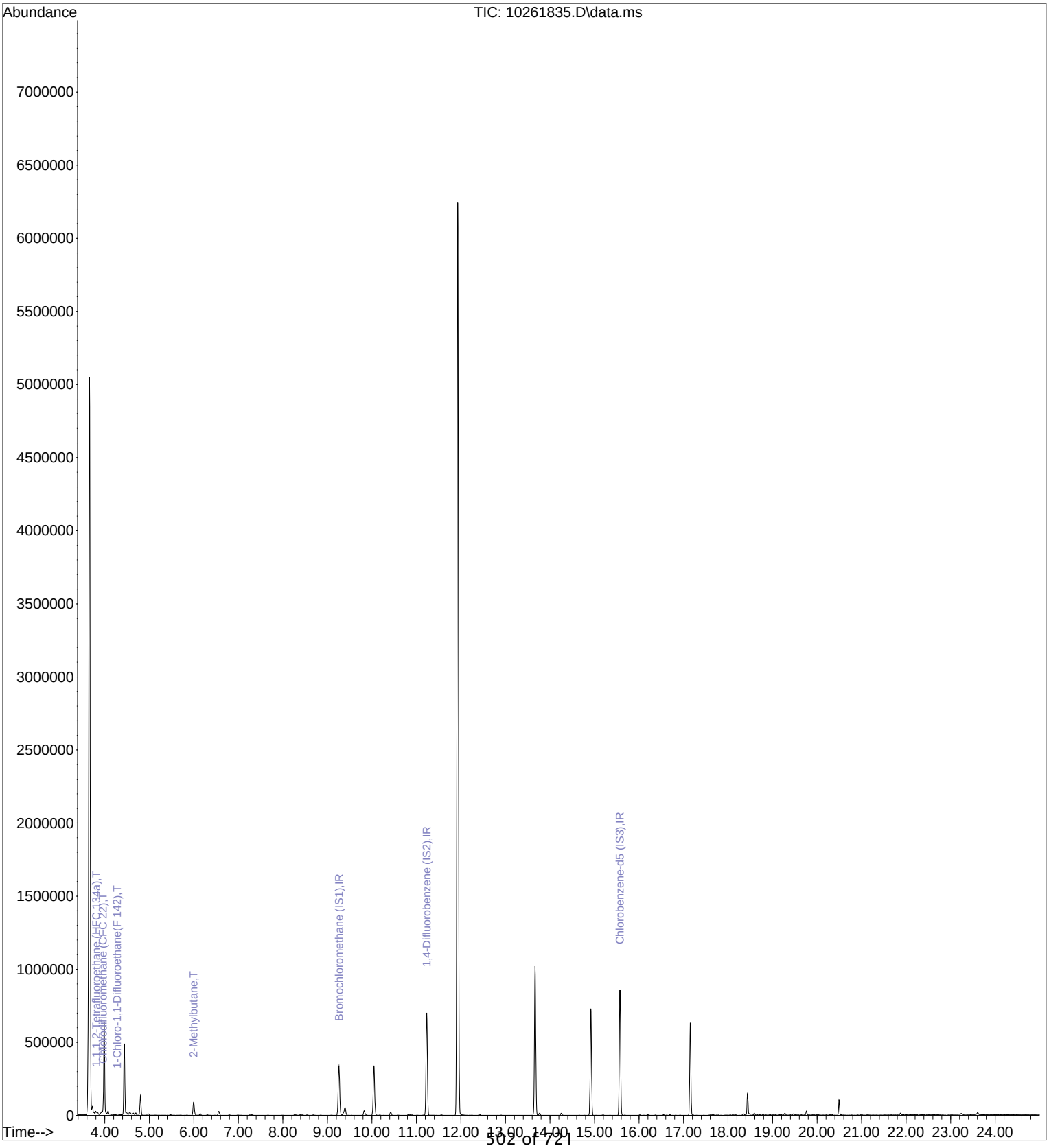
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	114010	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	573260	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	350643	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.72	85	447	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	2394	0.203	ng	#	1
4) 1,1-Difluoroethane	3.89	65	582	N.D.			
5) Chlorodifluoromethane ...	3.96	67	874	0.228	ng	#	51
6) 1-Chloro-1,1-Difluoroe...	4.28	65	4762	0.187	ng	#	94
7) Dichlorofluoromethane ...	5.40	67	242	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	103	N.D.			
10) 2-Methylbutane	5.99	57	19149	1.161	ng		89
11) Methyl Acetate	7.01	43	1002	N.D.			
12) 2-Methylpentane	8.43	71	495	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	10.74	75	48	N.D.			
15) Thiophene	11.00	84	599	N.D.			
17) 2,3-Dimethylpentane	11.42	56	369	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.91	55	915	N.D.			
21) 1,3-Dichloropropane	13.78	76	50	N.D.			
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.78	91	331	N.D.			
27) 4-Chlorotoluene	17.86	91	164	N.D.			
28) Indane	19.14	117	436	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	132	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	424	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	128	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261835.D Vial: 16
Acq On : 27 Oct 2018 1:00 Operator: RS
Sample : P1805493-019 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 14:25:27 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261836.D Vial: 16
Acq On : 27 Oct 2018 1:34 Operator: RS
Sample : P1805493-019dil (40mL) Inst : MS09
Misc : S31-10151806

RS 10/29/18

Quant Time: Oct 29 11:10:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113427	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	563867	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	345185	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	270011	13.726	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.84%				
57) Toluene-d8 (SS2)	13.66	98	742380	12.310	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
73) Bromofluorobenzene (SS3)	17.16	174	149754	11.038	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.32%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.10	85	1610	0.052	ng	#	93
4) Chloromethane	4.11	50	137	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.52	45	608	N.D.			
11) Acetonitrile	5.72	41	54	N.D.			
12) Acrolein	6.02	56	458	N.D.			
13) Acetone	6.01	58	4041	0.252	ng	#	43
14) Trichlorofluoromethane	6.16	101	855	N.D.			
15) 2-Propanol (Isopropanol)	6.37	45	163	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.29	76	1402	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	9.40	87	181	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	4085	0.153	ng		98
34) Tetrahydrofuran (THF)	9.84	72	814	0.068	ng		96
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	1285	0.060	ng		80
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.86	56	113	N.D.			
41) Benzene	10.88	78	657	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	11.21	84	669	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.92	130	179536	13.282	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261836.D Vial: 16
Acq On : 27 Oct 2018 1:34 Operator: RS
Sample : P1805493-019dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 29 11:10:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

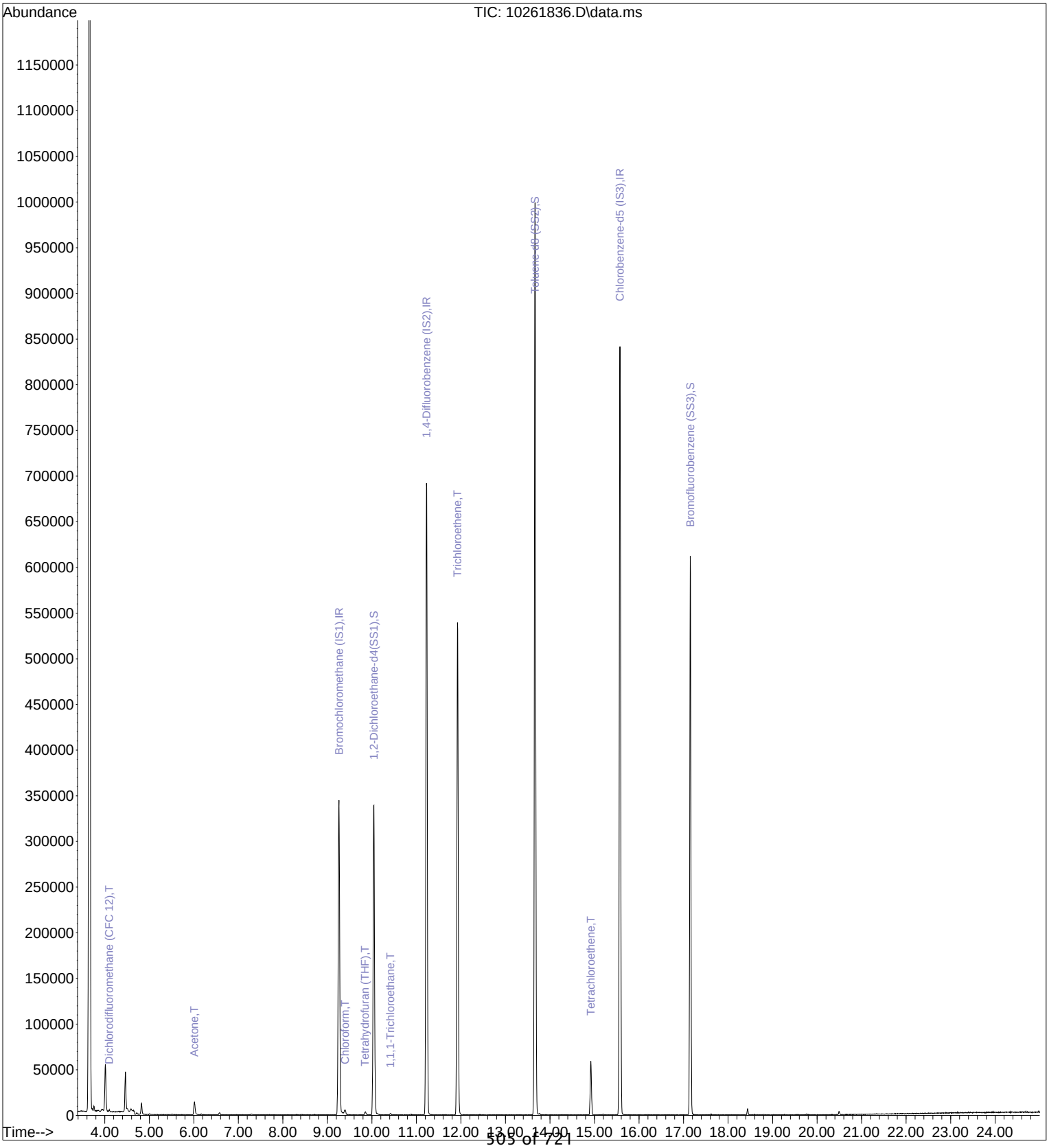
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	1230	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	17366	1.247 ng	96
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.03	91	194	N.D.	
67) m- & p-Xylenes	16.21	91	317	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	0.00	91	0	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.15	105	125	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.76	57	396	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	265	N.D.	
96) n-Dodecane	0.00	57	0	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261836.D Vial: 16
Acq On : 27 Oct 2018 1:34 Operator: RS
Sample : P1805493-019dil (40mL) Inst : MS09
Misc : S31-10151806

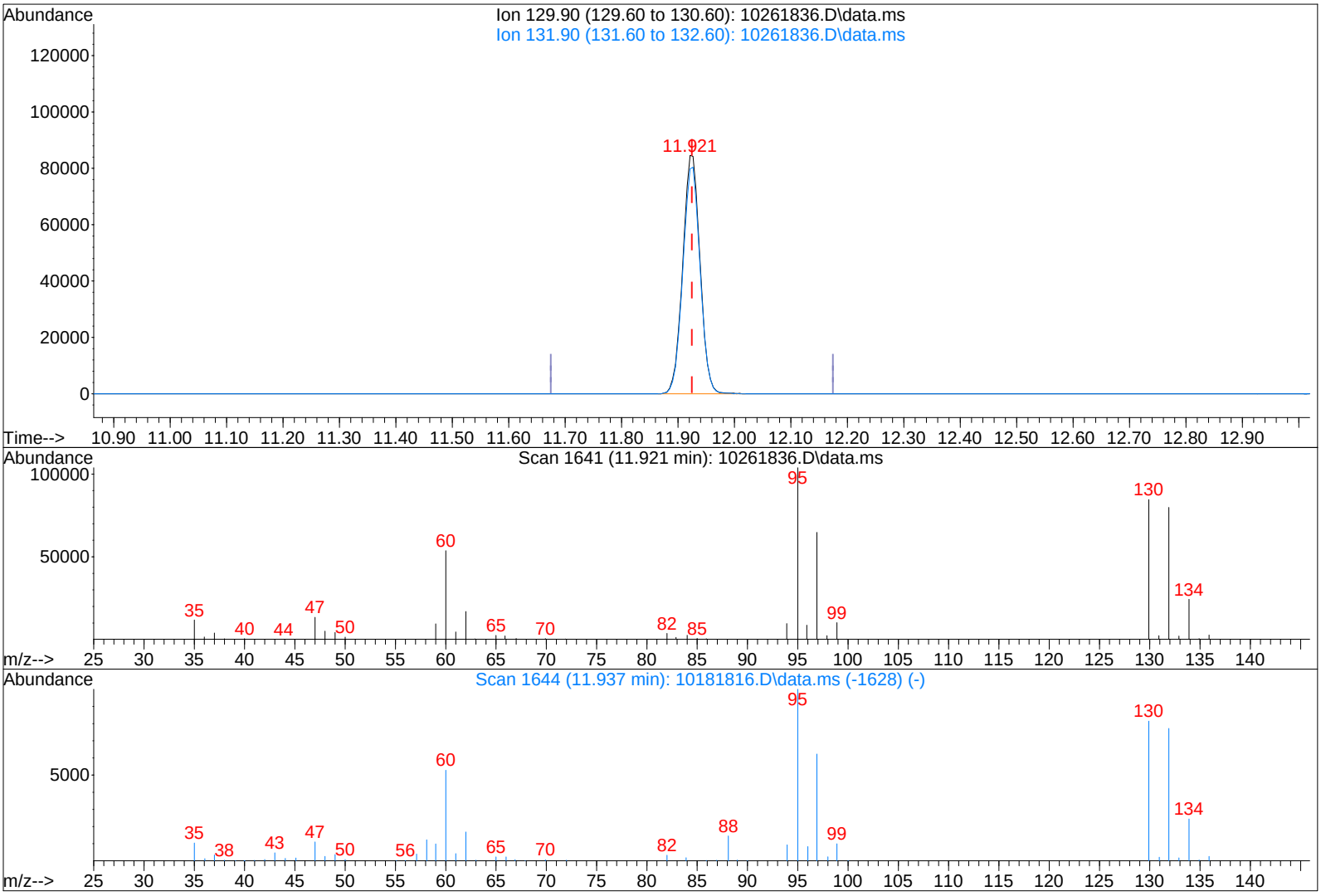
Quant Time: Oct 29 11:10:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\26\10261836.D Vial: 16
Acq On : 27 Oct 2018 1:34 Operator: RS
Sample : P1805493-019dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 27 07:22:39 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10261836.D\data.ms

(47) Trichloroethene (T)

11.921min (-0.003) 13.28ng

response 179536

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	94.92
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251803.D
Acq On : 25 Oct 2018 5:49 am Operator: SC
Sample : MB R9102518_1000mL RS 10/25/18
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:50:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116353	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	597092	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	352056	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	10.04	65	262239	12.996	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.00%			
57) Toluene-d8 (SS2)	13.66	98	770151	12.522	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%			
73) Bromofluorobenzene (SS3)	17.15	174	153969	11.127	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.04%			
Target Compounds						Qvalue
2) Propene	4.01	42	706	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	5.49	45	1258	N.D.		
11) Acetonitrile	5.70	41	1047	N.D.		
12) Acrolein	5.85	56	551	N.D.		
13) Acetone	6.00	58	8039	0.490	ng	85
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	6.34	45	460	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	7.30	76	418	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	8.39	86	405	N.D.		
27) 2-Butanone (MEK)	8.69	72	404	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	9.86	72	359	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	10.85	56	1249	N.D.		
41) Benzene	10.87	78	673	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	11.23	84	656	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251803.D
Acq On : 25 Oct 2018 5:49 am Operator: SC
Sample : MB R9102518_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:50:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

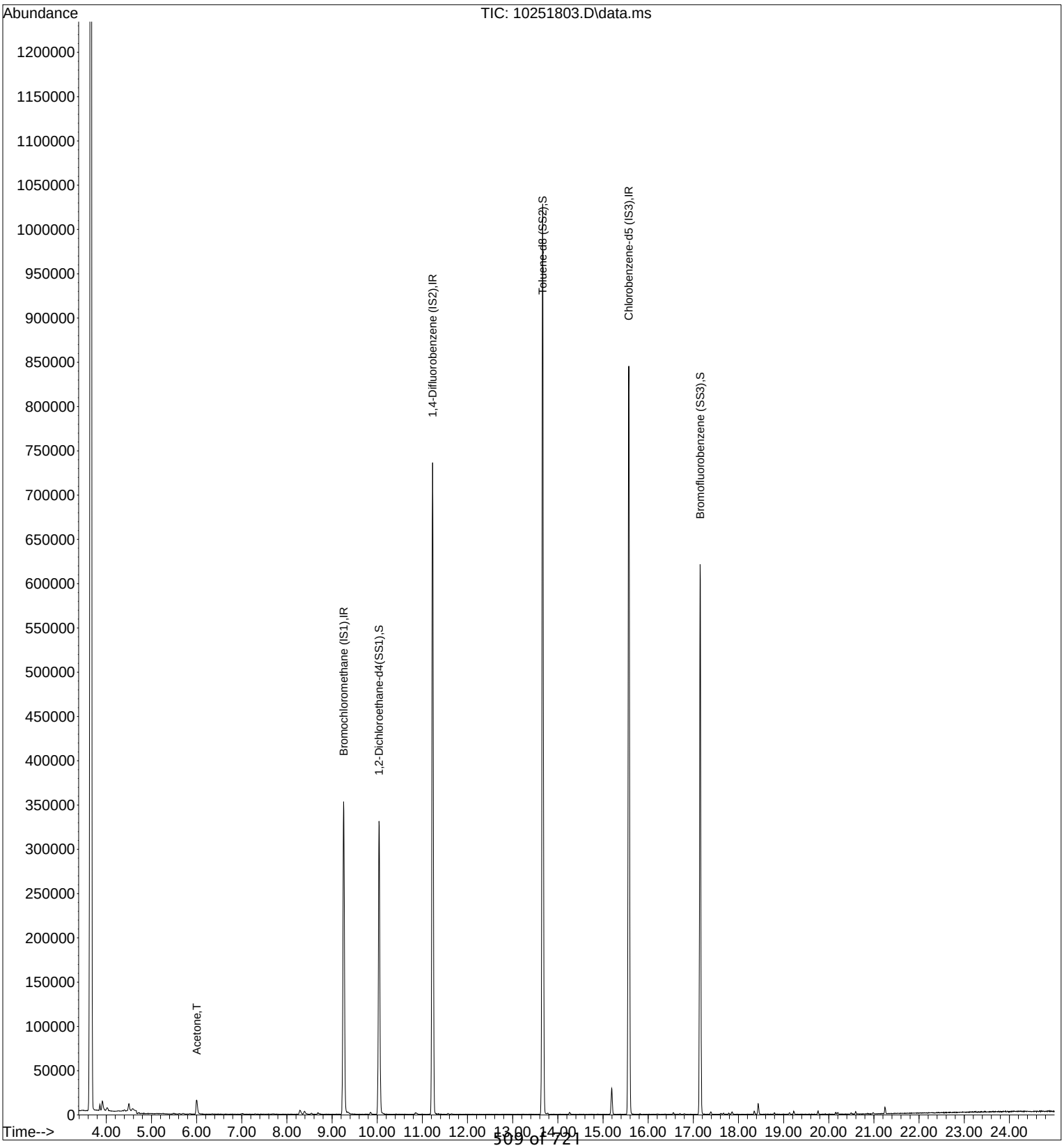
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	610	N.D.	
59) 2-Hexanone	14.05	43	240	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	0.00	166	0	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	184	N.D.	
67) m- & p-Xylenes	16.21	91	338	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.69	91	178	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	218	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	17.85	91	2598	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	18.61	91	159	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.76	57	871	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1440	N.D.	
96) n-Dodecane	21.00	57	162	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	16.37	55	325	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	19.36	91	242	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251803.D
Acq On : 25 Oct 2018 5:49 am Operator: SC
Sample : MB R9102518_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:50:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251803.D
Acq On : 25 Oct 2018 5:49 am Operator: SC RS 10/25/18
Sample : MB R9102518_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:50:54 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

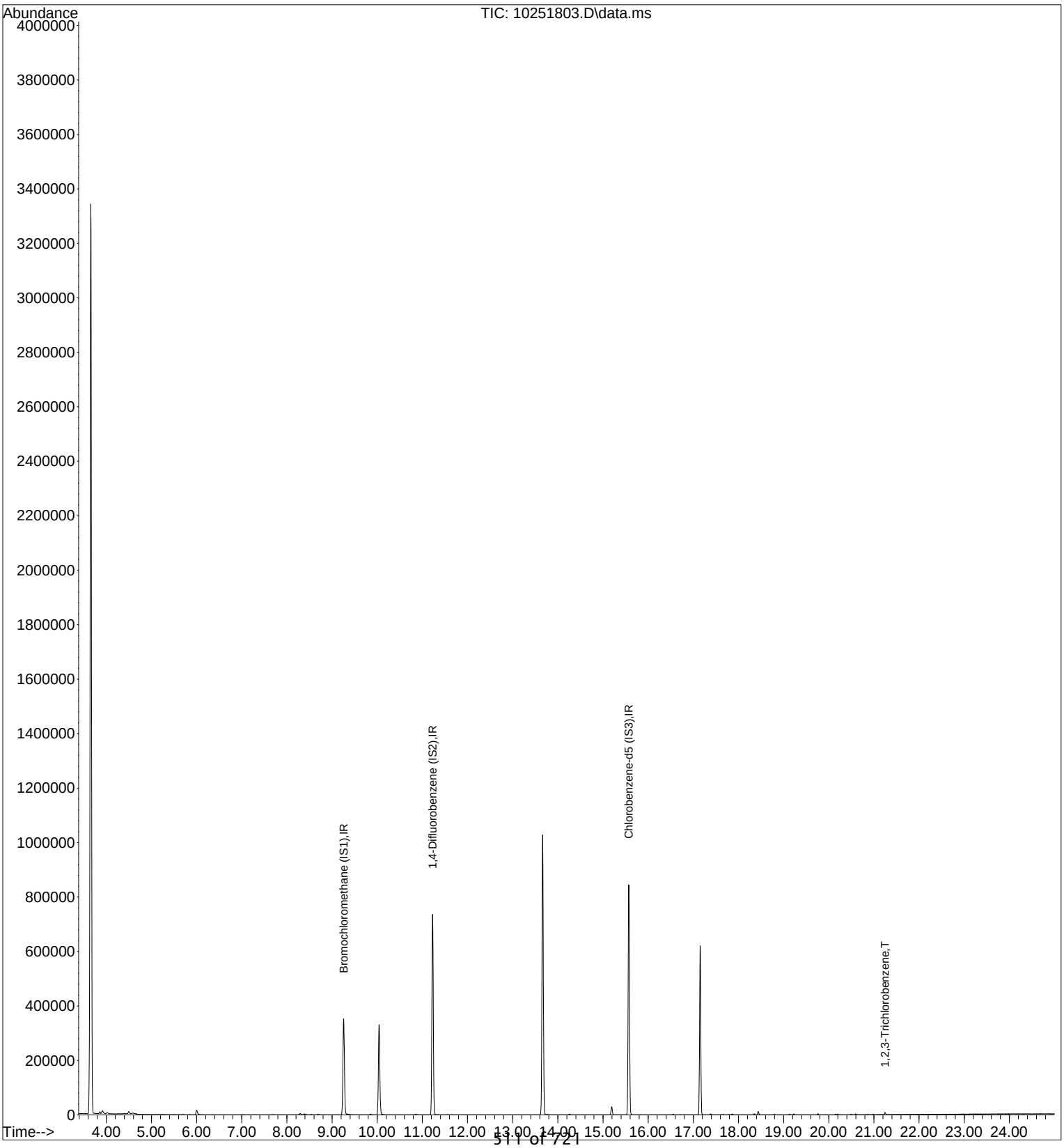
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	116353	12.500	ng	-0.03
16) 1,4-Difluorobenzene (IS2)	11.23	114	597092	12.500	ng	-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	352056	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.		
4) 1,1-Difluoroethane	0.00	65	0	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	0.00	65	0	N.D.		
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	5.99	57	48	N.D.		
11) Methyl Acetate	7.02	43	1231	N.D.		
12) 2-Methylpentane	0.00	71	0	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	11.00	84	169	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	11.65	174	218	N.D.		
20) Methyl Cyclohexane	0.00	55	0	N.D.		
21) 1,3-Dichloropropane	13.78	76	488	N.D.		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	15.82	91	102	N.D.		
24) 1,2,3-Trichloropropane	16.80	75	780	N.D.		
25) Bromobenzene	17.39	77	2019	N.D.		
26) 2-Chlorotoluene	17.78	91	1523	N.D.		
27) 4-Chlorotoluene	17.85	91	2598	N.D.		
28) Indane	19.13	117	1290	N.D.		
29) Indene	19.22	115	2137	N.D.		
30) 1,2,4,5-Tetramethylben...	20.20	119	1679	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	1679	N.D.		
32) 1,2,3,5-Tetramethylben...	20.60	119	2127	N.D.		
33) 1,2,3-Trichlorobenzene	21.24	180	2397	0.172	ng	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251803.D
Acq On : 25 Oct 2018 5:49 am Operator: SC
Sample : MB R9102518_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:50:54 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

RS 10/26/18

Data File : I:\MS09\Data\2018_10\26\10261803.D Vial: 2
Acq On : 26 Oct 2018 5:46 Operator: RS
Sample : MB R9102518_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 26 07:49:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113343	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	592890	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	350671	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	250120	12.725	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
57) Toluene-d8 (SS2)	13.66	98	766756	12.516	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
73) Bromofluorobenzene (SS3)	17.15	174	153657	11.148	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	0.00	45	0	N.D. d			
11) Acetonitrile	5.70	41	682	0.016	ng	#	1
12) Acrolein	5.85	56	301	0.025	ng	#	43
13) Acetone	6.00	58	7833	0.490	ng		87
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D. d			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D. d			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	493	0.187	ng	#	84
27) 2-Butanone (MEK)	8.69	72	377	0.030	ng	#	1
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	9.85	72	488	0.041	ng	#	76
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.85	56	1131	0.056	ng		82
41) Benzene	0.00	78	0	N.D. d			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	0.00	84	0	N.D. d			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	0.00	130	0	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261803.D Vial: 2
Acq On : 26 Oct 2018 5:46 Operator: RS
Sample : MB R9102518_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 26 07:49:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

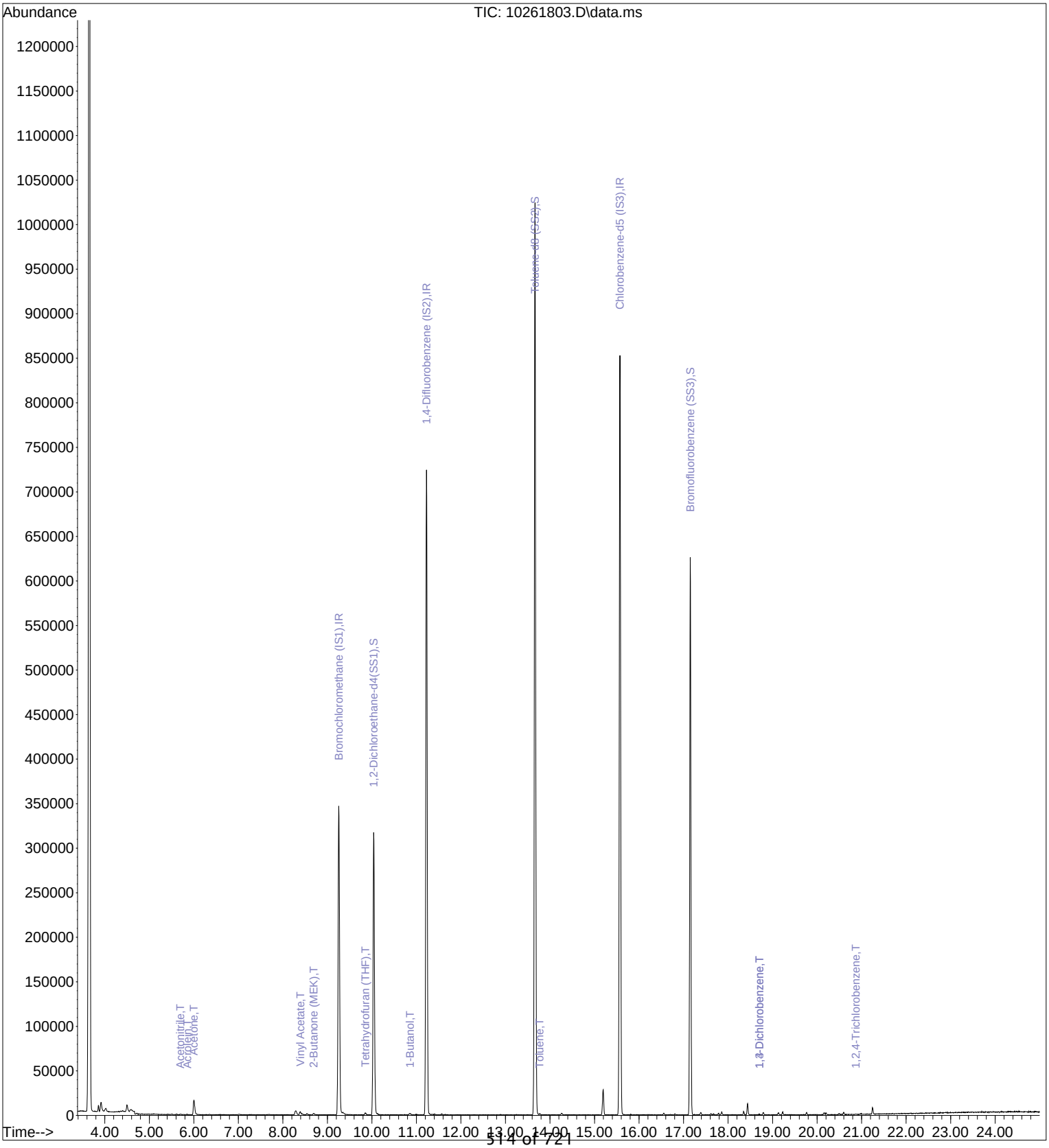
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	342	0.005 ng #	22
59) 2-Hexanone	0.00	43	0	N.D. d	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	0.00	166	0	N.D.	
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	0.00	91	0	N.D. d	
67) m- & p-Xylenes	0.00	91	0	N.D. d	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	0.00	91	0	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	0.00	105	0	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D. d	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D. d	
85) 1,3-Dichlorobenzene	18.70	146	291	0.010 ng #	18
86) 1,4-Dichlorobenzene	18.70	146	291	0.010 ng #	18
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	20.87	180	197	0.012 ng #	13
95) Naphthalene	0.00	128	0	N.D. d	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261803.D Vial: 2
Acq On : 26 Oct 2018 5:46 Operator: RS
Sample : MB R9102518_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 26 07:49:30 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261803.D Vial: 2
Acq On : 26 Oct 2018 5:46 Operator: RS
Sample : MB R9102518_1000mL Inst : MS09
Misc : S31-10151806_AC00463

RS 10/26/18

Quant Time: Oct 26 07:50:03 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

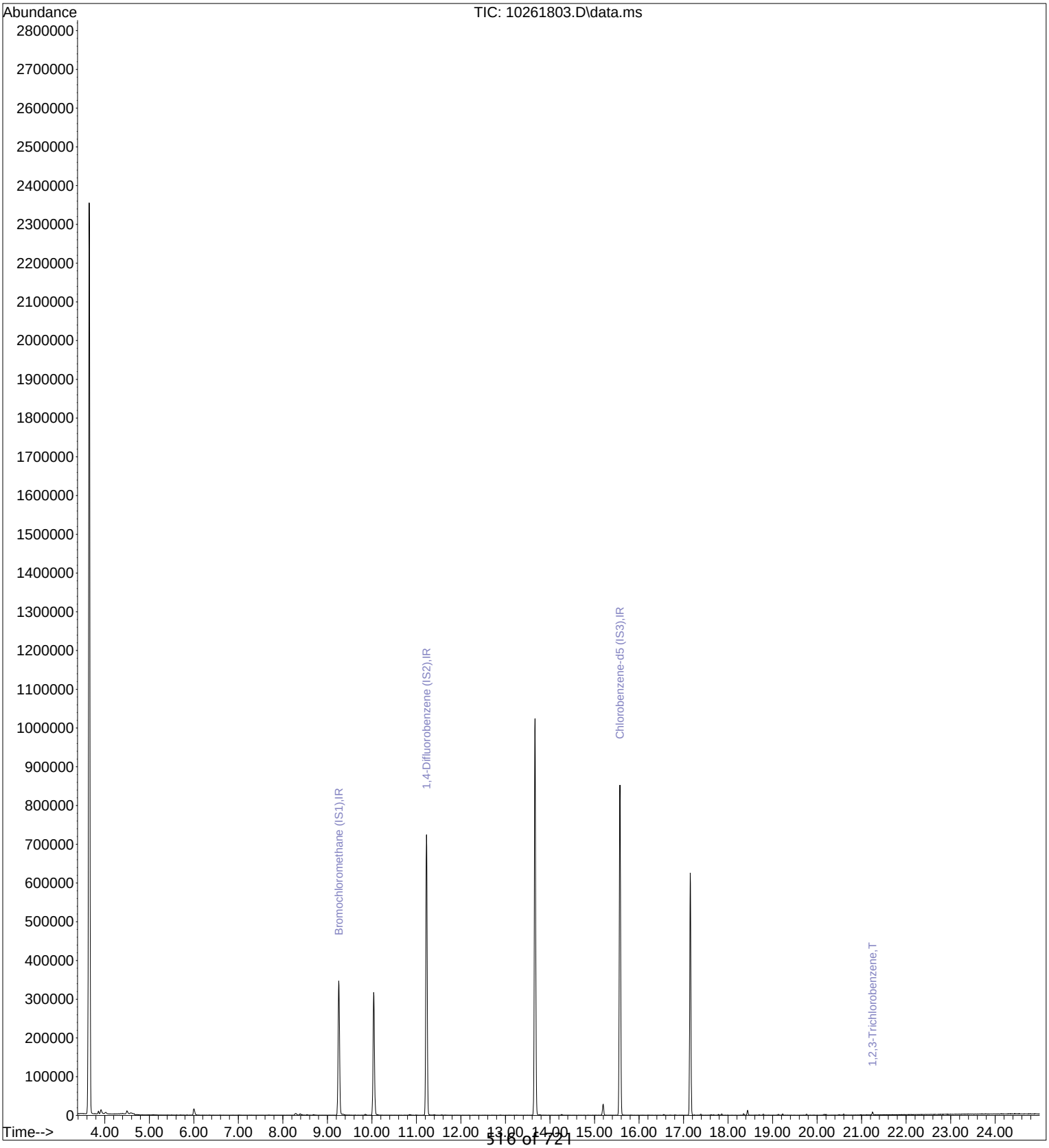
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	114226	12.500	ng	-0.03
16) 1,4-Difluorobenzene (IS2)	11.23	114	592890	12.500	ng	-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	350671	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.78	85	231	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	112	N.D.		
4) 1,1-Difluoroethane	3.92	65	38	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	4.31	65	406	N.D.		
7) Dichlorofluoromethane ...	5.42	67	451	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	50	N.D.		
10) 2-Methylbutane	6.02	57	457	N.D.		
11) Methyl Acetate	7.01	43	1157	N.D.		
12) 2-Methylpentane	0.00	71	0	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	10.72	75	174	N.D.		
15) Thiophene	11.00	84	592	N.D.		
17) 2,3-Dimethylpentane	11.42	56	504	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.89	55	217	N.D.		
21) 1,3-Dichloropropane	13.78	76	703	N.D.		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	15.81	91	104	N.D.		
24) 1,2,3-Trichloropropane	16.80	75	934	N.D.		
25) Bromobenzene	17.39	77	1868	N.D.		
26) 2-Chlorotoluene	17.79	91	1720	N.D.		
27) 4-Chlorotoluene	17.86	91	2763	N.D.		
28) Indane	19.13	117	1526	N.D.		
29) Indene	19.22	115	2151	N.D.		
30) 1,2,4,5-Tetramethylben...	20.15	119	1852	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	1917	N.D.		
32) 1,2,3,5-Tetramethylben...	20.60	119	2268	N.D.		
33) 1,2,3-Trichlorobenzene	21.24	180	2683	0.194	ng	# 87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261803.D Vial: 2
Acq On : 26 Oct 2018 5:46 Operator: RS
Sample : MB R9102518_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 26 07:50:03 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271803.D
Acq On : 27 Oct 2018 3:16 Operator: RS
Sample : MB R9102718_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 10:32:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018 10/27/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109269	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	563520	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	343086	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	263597	13.910	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.28%				
57) Toluene-d8 (SS2)	13.66	98	732265	12.217	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.76%				
73) Bromofluorobenzene (SS3)	17.15	174	148911	11.043	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.32%				
Target Compounds							Qvalue
2) Propene	4.00	42	664	0.024	ng	#	64
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.50	45	942	0.063	ng	#	47
11) Acetonitrile	0.00	41	0	N.D. d			
12) Acrolein	5.85	56	189	0.016	ng	#	45
13) Acetone	6.00	58	5777	0.375	ng	#	76
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D. d			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	0.00	72	0	N.D. d			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.84	56	808	0.042	ng		97
41) Benzene	0.00	78	0	N.D. d			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	0.00	84	0	N.D. d			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.92	130	312	0.023	ng	#	78
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271803.D
Acq On : 27 Oct 2018 3:16 Operator: RS
Sample : MB R9102718_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 10:32:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

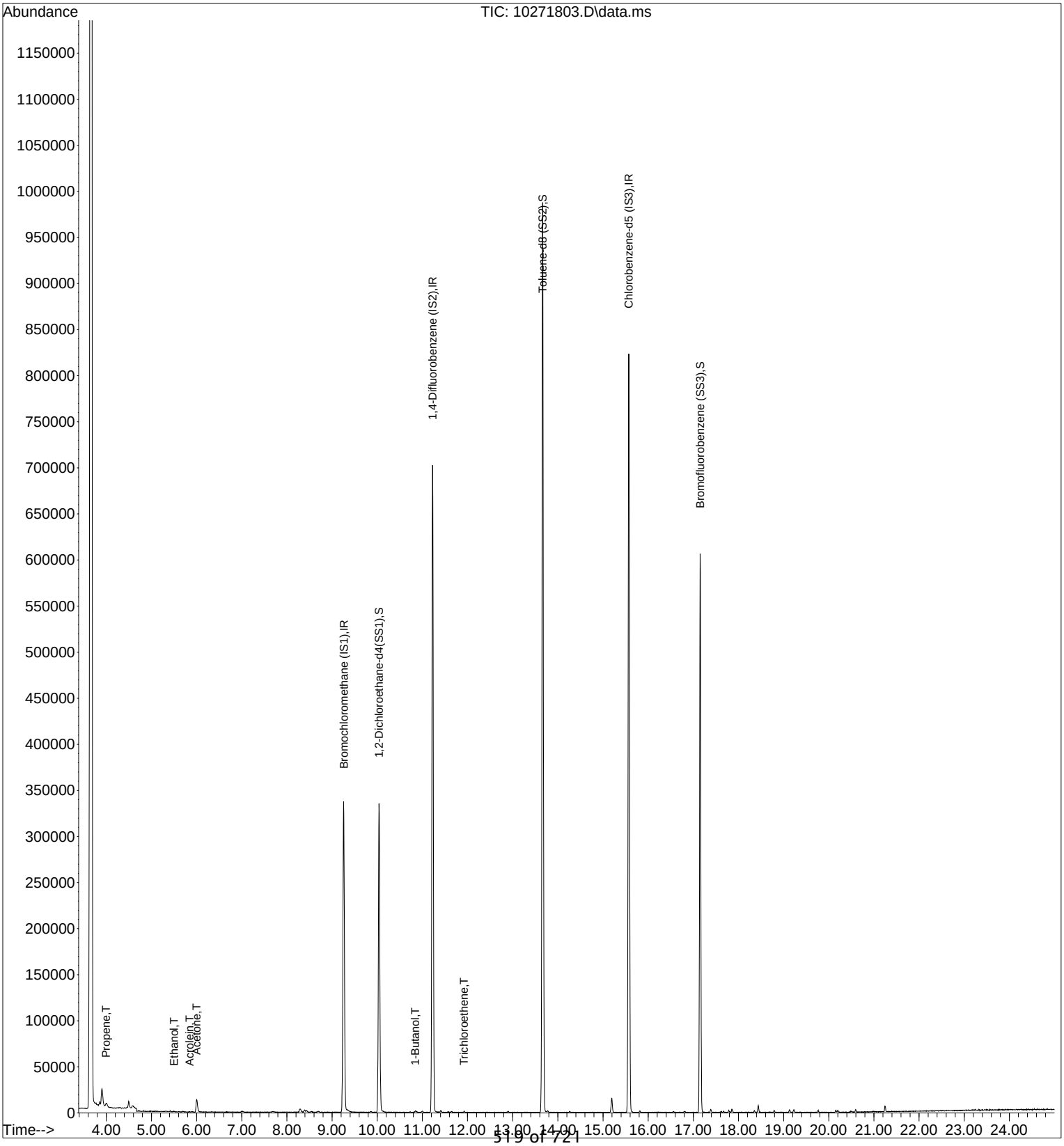
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.	d	
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.	d	
67) m- & p-Xylenes	0.00	91	0	N.D.	d	
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.	d	
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	d	
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	0.00	128	0	N.D.	d	
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271803.D
Acq On : 27 Oct 2018 3:16 Operator: RS
Sample : MB R9102718_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 10:32:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data Path : I:\MS09\Data\2018_10\27\
Data File : 10271803.D
Acq On : 27 Oct 2018 3:16
Operator : RS
Sample : MB R9102718_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 16:28:57 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration

WH 10/31/18

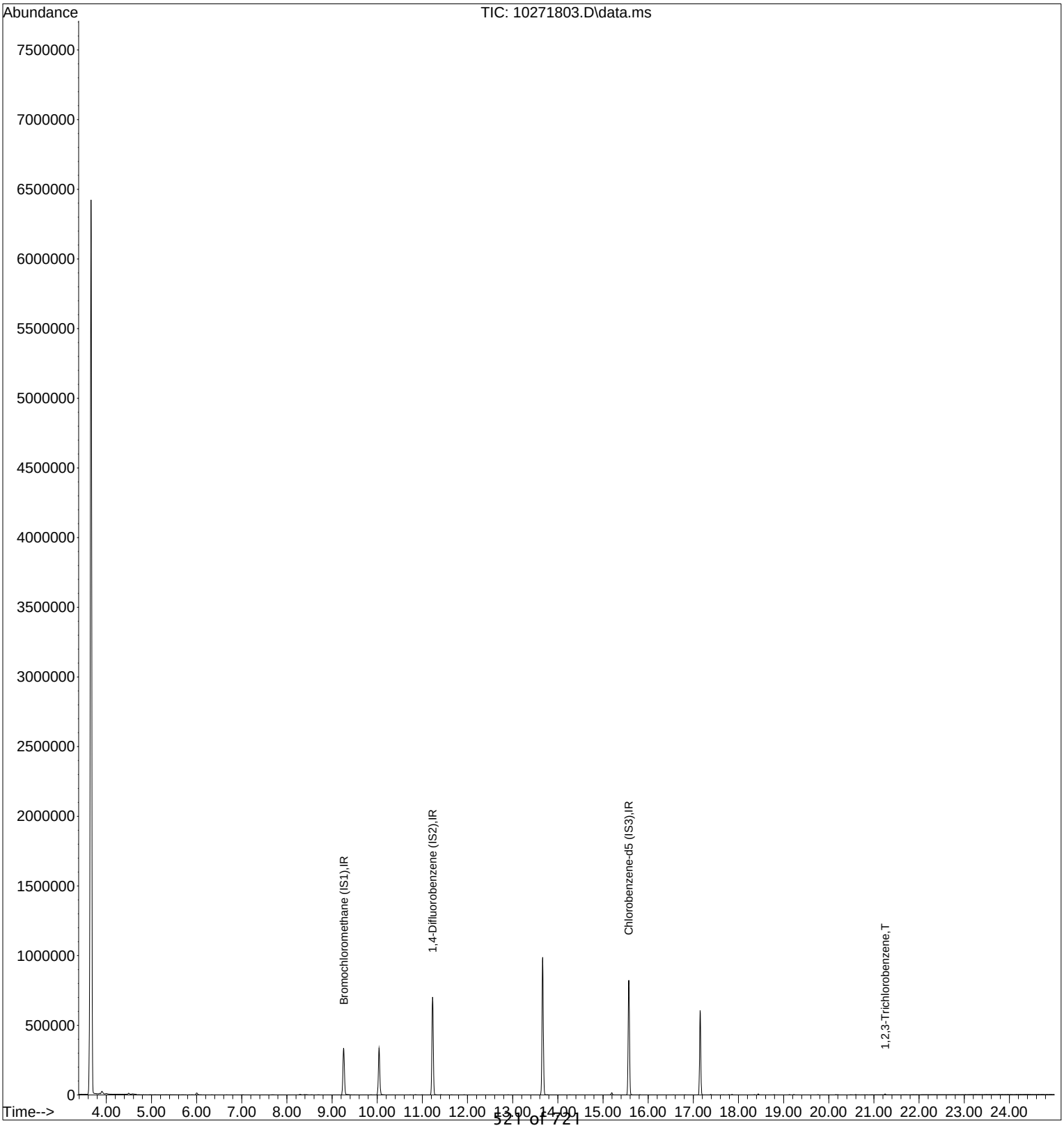
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109269	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	563520	12.500	ng	-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	343086	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.77	85	485	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	326	N.D.		
4) 1,1-Difluoroethane	3.92	65	307	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	4.31	65	814	N.D.		
7) Dichlorofluoromethane ...	5.41	67	958	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	308	N.D.		
10) 2-Methylbutane	6.02	57	625	N.D.		
11) Methyl Acetate	7.02	43	1888	N.D.		
12) 2-Methylpentane	8.44	71	253	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	10.72	75	488	N.D.		
15) Thiophene	11.00	84	923	N.D.		
17) 2,3-Dimethylpentane	11.42	56	855	N.D.		
18) Dibromomethane	11.65	174	196	N.D.		
20) Methyl Cyclohexane	12.90	55	481	N.D.		
21) 1,3-Dichloropropane	13.78	76	1051	N.D.		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	15.81	91	396	N.D.		
24) 1,2,3-Trichloropropane	16.80	75	1175	N.D.		
25) Bromobenzene	17.39	77	2207	N.D.		
26) 2-Chlorotoluene	17.78	91	1915	N.D.		
27) 4-Chlorotoluene	17.86	91	3064	N.D.		
28) Indane	19.14	117	1702	N.D.		
29) Indene	19.23	115	2060	N.D.		
30) 1,2,4,5-Tetramethylben...	20.20	119	1924	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	1924	N.D.		
32) 1,2,3,5-Tetramethylben...	20.60	119	2078	N.D.		
33) 1,2,3-Trichlorobenzene	21.25	180	2129	0.157	ng	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS09\Data\2018_10\27\
Data File : 10271803.D
Acq On : 27 Oct 2018 3:16
Operator : RS
Sample : MB R9102718_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 16:28:57 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311804.D
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

TD 10/31/18

Quant Time: Oct 31 09:11:29 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	185804	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	803645	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	341709	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	279597	12.509	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.08%				
57) Toluene-d8 (SS2)	15.87	98	693649	12.747	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.00%				
73) Bromofluorobenzene (SS3)	19.09	174	283256	11.451	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.60%				
Target Compounds							Qvalue
2) Propene	4.10	42	424	0.025	ng	#	71
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.46	45	1826	0.175	ng		69
11) Acetonitrile	6.77	41	1352	0.049	ng	#	8
12) Acrolein	6.93	56	769	0.083	ng		93
13) Acetone	7.16	58	5934	0.476	ng		85
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D.	d		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	10.69	72	363	0.033	ng	#	1
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.	d		
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.07	56	994	0.061	ng	#	80
41) Benzene	13.04	78	3521	0.048	ng		95
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	0.00	84	0	N.D.	d		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	0.00	130	0	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311804.D
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 09:11:29 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

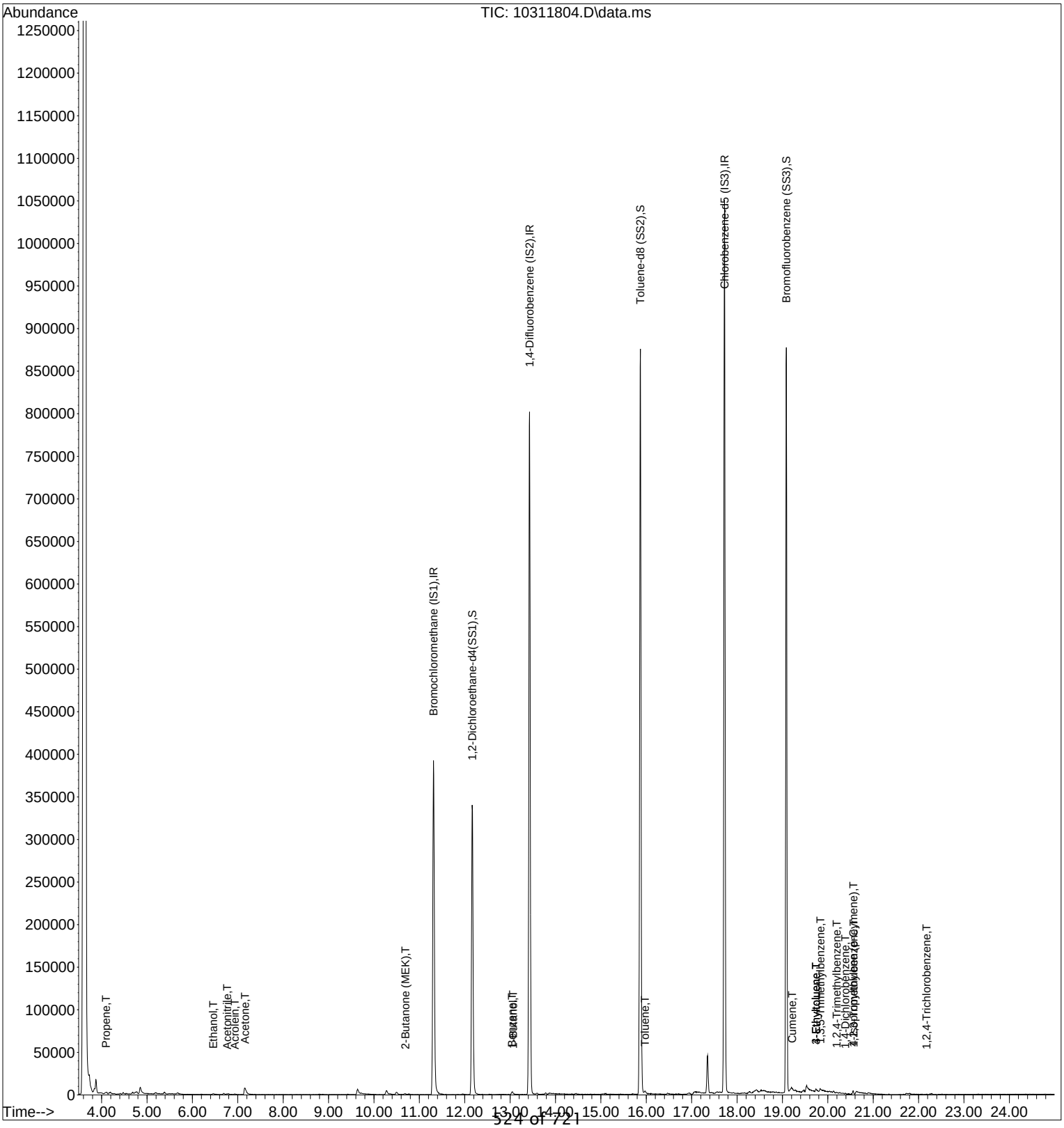
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D. d		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	5884	0.078 ng	#	53
59) 2-Hexanone	0.00	43	0	N.D. d		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D. d		
63) n-Octane	0.00	57	0	N.D. d		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D. d		
67) m- & p-Xylenes	0.00	91	0	N.D. d		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D. d		
70) o-Xylene	0.00	91	0	N.D. d		
71) n-Nonane	0.00	43	0	N.D. d		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.21	105	1458	0.017 ng		68
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D. d		
77) 3-Ethyltoluene	19.74	105	2315	0.027 ng		82
78) 4-Ethyltoluene	19.74	105	1888	0.024 ng		94
79) 1,3,5-Trimethylbenzene	19.84	105	1278	0.018 ng		89
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.19	105	724	0.010 ng		90
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
86) 1,4-Dichlorobenzene	20.39	146	448	0.010 ng		88
87) sec-Butylbenzene	0.00	105	0	N.D. d		
88) 4-Isopropyltoluene (p-...	20.56	119	1175	0.013 ng	#	52
89) 1,2,3-Trimethylbenzene	20.57	105	1169	0.017 ng		79
90) 1,2-Dichlorobenzene	0.00	146	0	N.D. d		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.18	180	300	0.009 ng	#	68
95) Naphthalene	0.00	128	0	N.D. d		
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311804.D
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

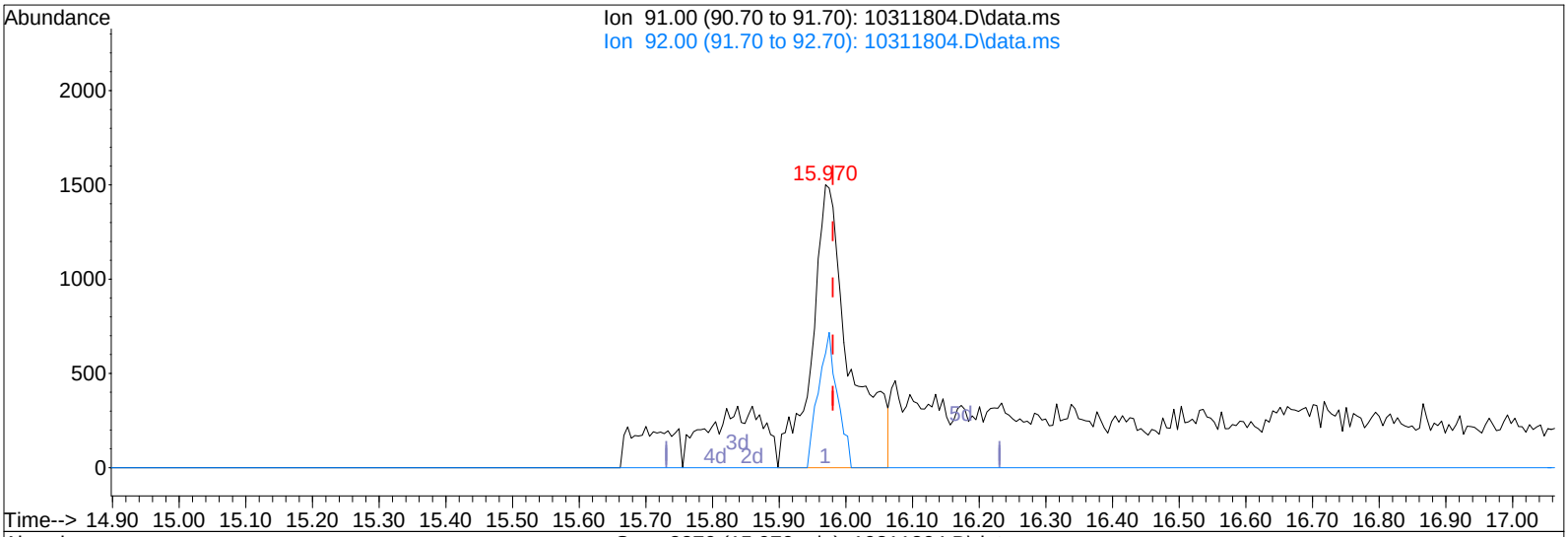
Quant Time: Oct 31 09:11:29 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

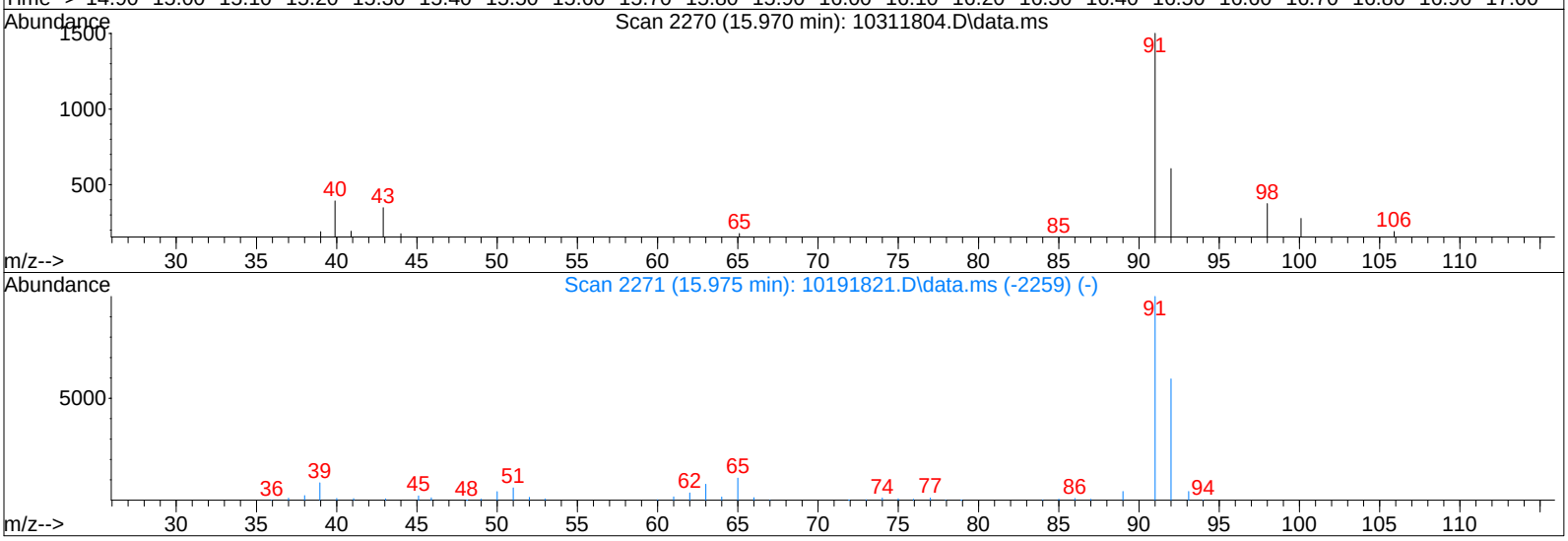


Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2018_10\31\10311804.D Vial: 2
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442

Quant Time: Oct 31 09:11:29 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 10311804.D\data.ms

(58) Toluene (T)

15.970min (-0.011) 0.08ng

response 5884

Ion	Exp%	Act%
91.00	100	100
92.00	59.40	24.17#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\31\10311804.D Vial: 2
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442

Quant Time: Oct 31 11:28:18 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/31/18

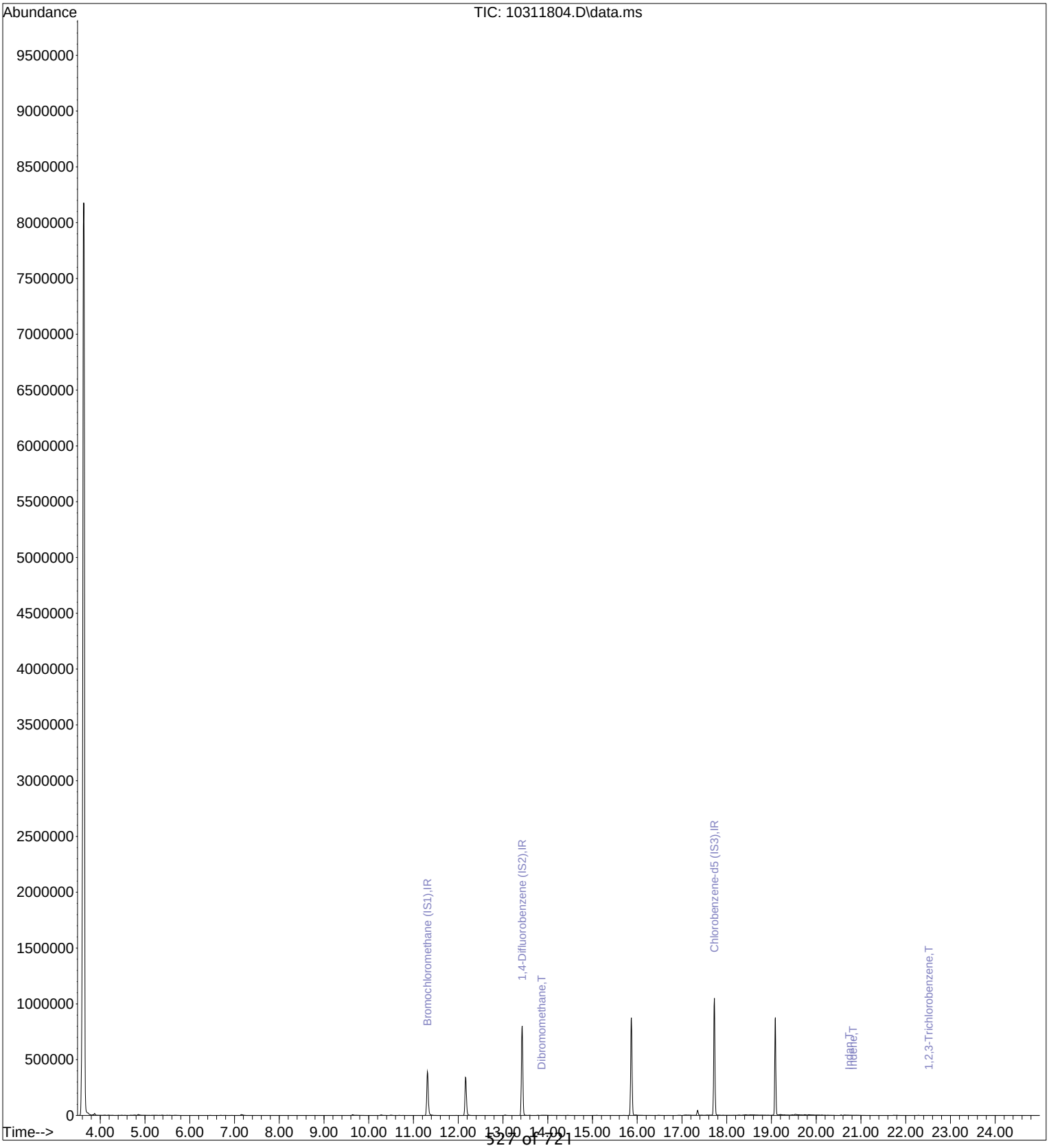
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	185804	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	803824	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	341928	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.			
4) 1,1-Difluoroethane	0.00	65	0	N.D.			
5) Chlorodifluoromethane ...	0.00	67	0	N.D.			
6) 1-Chloro-1,1-Difluoroe...	0.00	65	0	N.D.			
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	0.00	43	0	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.	d		
18) Dibromomethane	13.86	174	168	0.009	ng	#	34
20) Methyl Cyclohexane	0.00	55	0	N.D.	d		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.	d		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.	d		
25) Bromobenzene	0.00	77	0	N.D.	d		
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	20.74	117	520	0.007	ng	#	58
29) Indene	20.83	115	188	0.003	ng		93
30) 1,2,4,5-Tetramethylben...	0.00	119	0	N.D.	d		
31) 1,2,3,4-Tetramethylben...	0.00	119	0	N.D.	d		
32) 1,2,3,5-Tetramethylben...	0.00	119	0	N.D.	d		
33) 1,2,3-Trichlorobenzene	22.52	180	184	0.005	ng	#	75

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\31\10311804.D Vial: 2
Acq On : 31 Oct 2018 4:14 Operator: LH/TD
Sample : MB R16103118_1000mL Inst : GCMS-16
Misc : S31-09141801/AC00442

Quant Time: Oct 31 11:28:18 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251804.D
Acq On : 25 Oct 2018 6:23 am Operator: SC
Sample : LCS R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13) RS 10/25/18
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:51:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	129263	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.24	114	637579	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	378501	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	291716	13.013	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.08%				
57) Toluene-d8 (SS2)	13.67	98	817528	12.363	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.88%				
73) Bromofluorobenzene (SS3)	17.16	174	171849	11.551	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.40%				
Target Compounds							Qvalue
2) Propene	3.96	42	682263	20.881	ng		100
3) Dichlorodifluoromethan...	4.07	85	787495	22.373	ng		100
4) Chloromethane	4.28	50	930718	21.790	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	296991	23.984	ng		100
6) Vinyl Chloride	4.56	62	722209	21.660	ng		98
7) 1,3-Butadiene	4.74	54	463253	20.967	ng		98
8) Bromomethane	5.05	94	298175	22.149	ng		100
9) Chloroethane	5.27	64	379375	25.385	ng		100
10) Ethanol	5.54	45	2127536	120.499	ng		100
11) Acetonitrile	5.72	41	1174592	24.575	ng		100
12) Acrolein	5.84	56	305898	22.379	ng		99
13) Acetone	5.99	58	1899048	104.089	ng		89
14) Trichlorofluoromethane	6.15	101	607159	24.079	ng		99
15) 2-Propanol (Isopropanol)	6.33	45	2948307	51.908	ng		100
16) Acrylonitrile	6.53	53	771041	24.883	ng		100
17) 1,1-Dichloroethene	6.86	96	375647	24.597	ng	#	83
18) 2-Methyl-2-Propanol (t...	6.99	59	2679909	53.930	ng		97
19) Methylene Chloride	7.02	84	452187	24.760	ng		82
20) 3-Chloro-1-propene (Al...	7.14	41	881618	26.389	ng		92
21) Trichlorotrifluoroethane	7.32	151	251235	24.924	ng		89
22) Carbon Disulfide	7.29	76	1722163	25.130	ng		100
23) trans-1,2-Dichloroethene	8.03	61	761785	25.154	ng		91
24) 1,1-Dichloroethane	8.25	63	891797	24.411	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1430651	25.815	ng		99
26) Vinyl Acetate	8.43	86	488176	162.471	ng	#	91
27) 2-Butanone (MEK)	8.66	72	348269	24.472	ng	#	88
28) cis-1,2-Dichloroethene	9.13	61	719539	24.709	ng		95
29) Diisopropyl Ether	9.35	87	359329	26.192	ng	#	80
30) Ethyl Acetate	9.35	61	411399	54.598	ng		98
31) n-Hexane	9.35	57	960594	27.726	ng		100
32) Chloroform	9.43	83	755049	24.747	ng		100
34) Tetrahydrofuran (THF)	9.81	72	336098	24.573	ng		92
35) Ethyl tert-Butyl Ether	9.89	87	514388	25.529	ng		95
36) 1,2-Dichloroethane	10.17	62	614587	25.357	ng		100
38) 1,1,1-Trichloroethane	10.44	97	595511	24.693	ng		98
39) Isopropyl Acetate	10.79	61	697995	53.154	ng	#	93
40) 1-Butanol	10.81	56	1167752	53.867	ng		100
41) Benzene	10.89	78	1890034	24.343	ng		100
42) Carbon Tetrachloride	11.04	117	475750	25.332	ng		99
43) Cyclohexane	11.17	84	1385344	50.219	ng		96
44) tert-Amyl Methyl Ether	11.48	73	1371165	26.010	ng		99
45) 1,2-Dichloropropane	11.70	63	543014	24.828	ng		100
46) Bromodichloromethane	11.89	83	602208	25.883	ng		100
47) Trichloroethene	11.94	130	364337	23.837	ng		100
48) 1,4-Dioxane	11.91	88	361801	25.970	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	2413866	25.273	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251804.D
Acq On : 25 Oct 2018 6:23 am Operator: SC
Sample : LCS R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:51:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

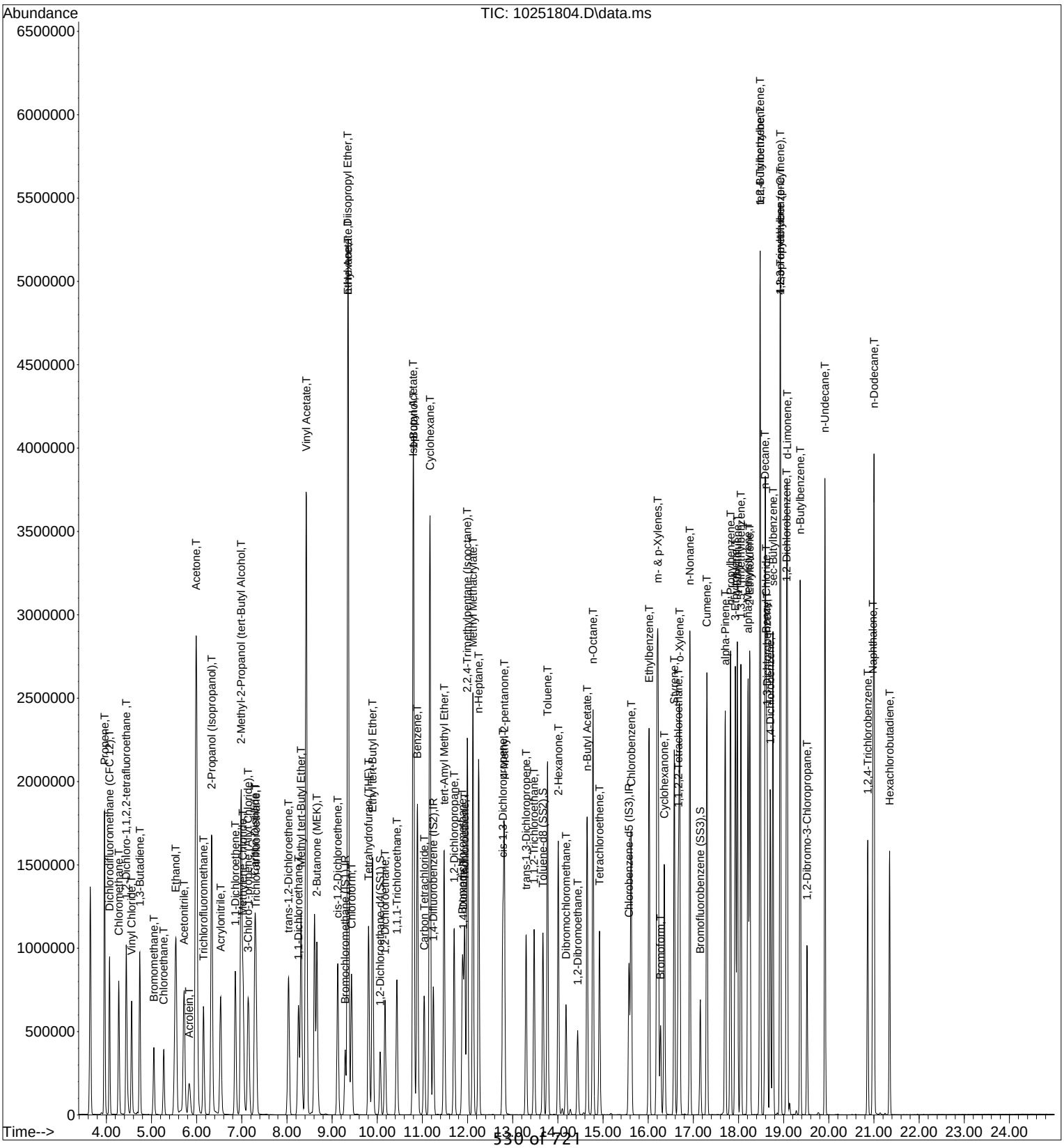
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	321771	53.746	ng		96
51) n-Heptane	12.25	71	529977	25.827	ng		98
52) cis-1,3-Dichloropropene	12.78	75	794768	26.979	ng		100
53) 4-Methyl-2-pentanone	12.81	58	542424	28.003	ng		99
54) trans-1,3-Dichloropropene	13.30	75	721423	27.925	ng		100
55) 1,1,2-Trichloroethane	13.47	97	401172	25.511	ng		99
58) Toluene	13.77	91	1764585	23.865	ng		99
59) 2-Hexanone	14.01	43	1382707	29.780	ng		98
60) Dibromochloromethane	14.18	129	404750	25.644	ng		100
61) 1,2-Dibromoethane	14.44	107	424533	25.134	ng		100
62) n-Butyl Acetate	14.65	43	1605381	30.678	ng		98
63) n-Octane	14.78	57	513561	27.967	ng		97
64) Tetrachloroethene	14.92	166	327369	21.444	ng		100
65) Chlorobenzene	15.62	112	1010943	23.586	ng		100
66) Ethylbenzene	16.02	91	1988588	24.554	ng		98
67) m- & p-Xylenes	16.21	91	3107524	49.930	ng		98
68) Bromoform	16.27	173	279510	25.442	ng		100
69) Styrene	16.58	104	1136301	25.780	ng		98
70) o-Xylene	16.70	91	1591460	26.203	ng		97
71) n-Nonane	16.92	43	1314406	30.771	ng		96
72) 1,1,2,2-Tetrachloroethane	16.67	83	809027	27.033	ng		100
74) Cumene	17.30	105	1832215	24.948	ng		99
75) alpha-Pinene	17.71	93	1034743	26.083	ng		96
76) n-Propylbenzene	17.83	91	2458375	26.943	ng		97
77) 3-Ethyltoluene	17.93	105	1855209	25.819	ng		97
78) 4-Ethyltoluene	17.98	105	1780171	26.656	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1531889	25.905	ng		97
80) alpha-Methylstyrene	18.21	118	769588	26.258	ng		99
81) 2-Ethyltoluene	18.25	105	1830229	25.981	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	1567727	27.274	ng		98
83) n-Decane	18.59	58	56333	29.794	ng	#	92
84) Benzyl Chloride	18.61	91	1524820	29.872	ng		97
85) 1,3-Dichlorobenzene	18.64	146	733740	24.478	ng		100
86) 1,4-Dichlorobenzene	18.70	146	732974	24.490	ng		100
87) sec-Butylbenzene	18.76	105	2084562	25.926	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1780828	26.350	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1615754	27.616	ng		99
90) 1,2-Dichlorobenzene	19.06	146	701110	25.027	ng		100
91) d-Limonene	19.08	68	835714	28.082	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	237494	26.409	ng		99
93) n-Undecane	19.91	57	1360655	29.787	ng		100
94) 1,2,4-Trichlorobenzene	20.86	180	434320	24.387	ng		100
95) Naphthalene	20.98	128	1599262	23.814	ng		100
96) n-Dodecane	21.00	57	1298544	30.949	ng		99
97) Hexachlorobutadiene	21.35	225	259170	23.274	ng		99
98) Cyclohexanone	16.36	55	809389	25.729	ng		94
99) tert-Butylbenzene	18.48	119	1387489	26.024	ng		99
100) n-Butylbenzene	19.37	91	1863048	26.853	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251804.D
Acq On : 25 Oct 2018 6:23 am Operator: SC
Sample : LCS R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:51:09 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251805.D RS 10/25/18
Acq On : 25 Oct 2018 6:56 am Operator: SC
Sample : LCSD R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:52:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	132618	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.24	114	668944	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	391209	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	311476	13.543	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.32%				
57) Toluene-d8 (SS2)	13.67	98	849854	12.435	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.44%				
73) Bromofluorobenzene (SS3)	17.16	174	176258	11.463	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.68%				
Target Compounds							Qvalue
2) Propene	3.96	42	747816	22.308	ng		99
3) Dichlorodifluoromethan...	4.07	85	826374	22.883	ng		100
4) Chloromethane	4.28	50	976250	22.278	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	306611	24.134	ng		100
6) Vinyl Chloride	4.56	62	767847	22.446	ng		98
7) 1,3-Butadiene	4.74	54	500821	22.094	ng		99
8) Bromomethane	5.05	94	324016	23.460	ng		100
9) Chloroethane	5.27	64	405439	26.443	ng		100
10) Ethanol	5.54	45	2302433	127.105	ng		100
11) Acetonitrile	5.72	41	1278360	26.069	ng		99
12) Acrolein	5.83	56	325166	23.186	ng		100
13) Acetone	5.99	58	1990988	106.368	ng		85
14) Trichlorofluoromethane	6.16	101	634164	24.514	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	3126618	53.655	ng		99
16) Acrylonitrile	6.53	53	817221	25.707	ng		99
17) 1,1-Dichloroethene	6.86	96	389109	24.834	ng	#	79
18) 2-Methyl-2-Propanol (t...	6.99	59	2872195	56.338	ng		97
19) Methylene Chloride	7.03	84	469233	25.043	ng	#	79
20) 3-Chloro-1-propene (Al...	7.15	41	953614	27.822	ng		90
21) Trichlorotrifluoroethane	7.32	151	255579	24.713	ng		87
22) Carbon Disulfide	7.29	76	1796808	25.556	ng		100
23) trans-1,2-Dichloroethene	8.04	61	808387	26.018	ng		90
24) 1,1-Dichloroethane	8.25	63	939165	25.058	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1512693	26.605	ng		98
26) Vinyl Acetate	8.43	86	507283	164.559	ng		97
27) 2-Butanone (MEK)	8.67	72	365704	25.047	ng	#	83
28) cis-1,2-Dichloroethene	9.13	61	760574	25.457	ng		94
29) Diisopropyl Ether	9.35	87	372047	26.433	ng	#	85
30) Ethyl Acetate	9.36	61	430518	55.690	ng		98
31) n-Hexane	9.35	57	1006357	28.312	ng		100
32) Chloroform	9.43	83	785450	25.093	ng		100
34) Tetrahydrofuran (THF)	9.81	72	356757	25.424	ng		93
35) Ethyl tert-Butyl Ether	9.89	87	542478	26.242	ng		95
36) 1,2-Dichloroethane	10.17	62	655944	26.378	ng		99
38) 1,1,1-Trichloroethane	10.44	97	629183	24.866	ng		99
39) Isopropyl Acetate	10.80	61	732696	53.180	ng	#	96
40) 1-Butanol	10.81	56	1233106	54.215	ng		99
41) Benzene	10.89	78	1970523	24.190	ng		100
42) Carbon Tetrachloride	11.04	117	497819	25.264	ng		100
43) Cyclohexane	11.17	84	1436939	49.647	ng		97
44) tert-Amyl Methyl Ether	11.48	73	1447241	26.166	ng		99
45) 1,2-Dichloropropane	11.70	63	567362	24.725	ng		100
46) Bromodichloromethane	11.89	83	627345	25.700	ng		100
47) Trichloroethene	11.94	130	374425	23.348	ng		100
48) 1,4-Dioxane	11.91	88	379042	25.932	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	2537405	25.321	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251805.D
Acq On : 25 Oct 2018 6:56 am Operator: SC
Sample : LCSD R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:52:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

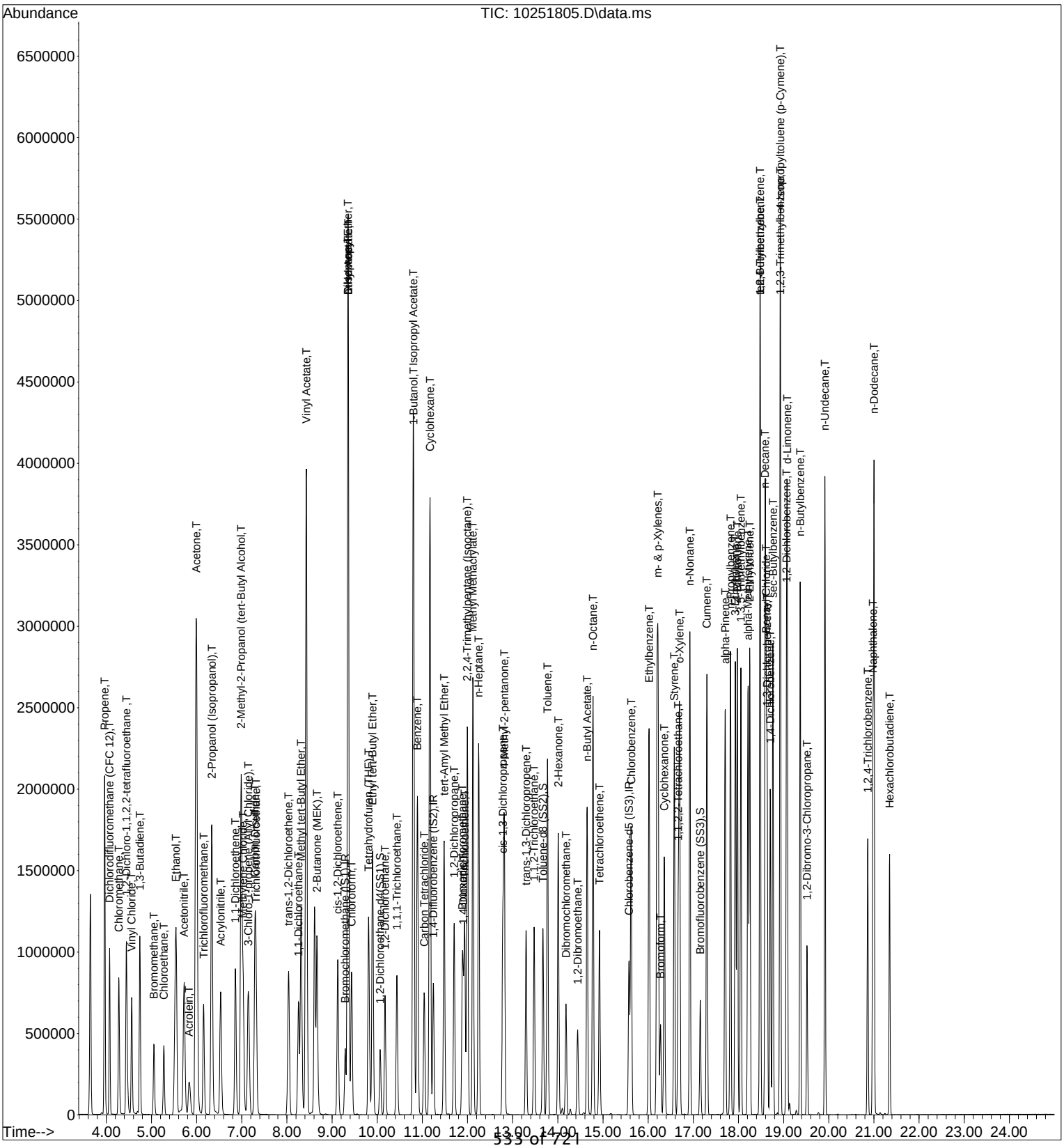
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	334467	53.248	ng		97
51) n-Heptane	12.25	71	548091	25.458	ng		99
52) cis-1,3-Dichloropropene	12.78	75	829030	26.822	ng		100
53) 4-Methyl-2-pentanone	12.81	58	569198	28.008	ng		100
54) trans-1,3-Dichloropropene	13.30	75	756598	27.914	ng		100
55) 1,1,2-Trichloroethane	13.47	97	412734	25.015	ng		99
58) Toluene	13.77	91	1823522	23.861	ng		99
59) 2-Hexanone	14.01	43	1466630	30.561	ng		96
60) Dibromochloromethane	14.18	129	416439	25.527	ng		100
61) 1,2-Dibromoethane	14.44	107	441093	25.266	ng		100
62) n-Butyl Acetate	14.65	43	1694690	31.333	ng		97
63) n-Octane	14.78	57	533806	28.125	ng		96
64) Tetrachloroethene	14.92	166	337326	21.379	ng		100
65) Chlorobenzene	15.62	112	1042200	23.525	ng		99
66) Ethylbenzene	16.02	91	2055243	24.553	ng		98
67) m- & p-Xylenes	16.21	91	3198931	49.729	ng		97
68) Bromoform	16.27	173	288609	25.417	ng		100
69) Styrene	16.58	104	1163560	25.541	ng		98
70) o-Xylene	16.70	91	1630198	25.969	ng		97
71) n-Nonane	16.92	43	1366479	30.951	ng		95
72) 1,1,2,2-Tetrachloroethane	16.67	83	827335	26.747	ng		99
74) Cumene	17.30	105	1873446	24.681	ng		99
75) alpha-Pinene	17.71	93	1062684	25.917	ng		96
76) n-Propylbenzene	17.83	91	2504082	26.553	ng		97
77) 3-Ethyltoluene	17.93	105	1903448	25.630	ng		97
78) 4-Ethyltoluene	17.98	105	1800138	26.079	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1561717	25.552	ng		97
80) alpha-Methylstyrene	18.21	118	781261	25.790	ng		98
81) 2-Ethyltoluene	18.25	105	1857122	25.507	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	1590503	26.771	ng		98
83) n-Decane	18.59	58	57174	29.257	ng	#	93
84) Benzyl Chloride	18.61	91	1565285	29.668	ng		97
85) 1,3-Dichlorobenzene	18.64	146	749076	24.177	ng		100
86) 1,4-Dichlorobenzene	18.70	146	747783	24.173	ng		100
87) sec-Butylbenzene	18.76	105	2116680	25.470	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1801406	25.789	ng		100
89) 1,2,3-Trimethylbenzene	18.92	105	1633587	27.013	ng		99
90) 1,2-Dichlorobenzene	19.06	146	713076	24.627	ng		100
91) d-Limonene	19.08	68	849821	27.629	ng		100
92) 1,2-Dibromo-3-Chloropr...	19.52	157	243556	26.203	ng		99
93) n-Undecane	19.91	57	1384398	29.322	ng		100
94) 1,2,4-Trichlorobenzene	20.86	180	446712	24.268	ng		100
95) Naphthalene	20.98	128	1644052	23.686	ng		100
96) n-Dodecane	21.00	57	1318665	30.407	ng		99
97) Hexachlorobutadiene	21.35	225	267643	23.254	ng		100
98) Cyclohexanone	16.36	55	844536	25.974	ng		94
99) tert-Butylbenzene	18.48	119	1400947	25.423	ng		99
100) n-Butylbenzene	19.37	91	1889434	26.349	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251805.D
Acq On : 25 Oct 2018 6:56 am Operator: SC
Sample : LCSD R9102518_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 08:52:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261804.D Vial: 2
Acq On : 26 Oct 2018 6:20 Operator: RS
Sample : LCS R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 26 07:50:19 2018 RS 10/26/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	127662	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.24	114	637646	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.57	82	377206	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	291961	13.187	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.52%				
57) Toluene-d8 (SS2)	13.67	98	815282	12.372	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
73) Bromofluorobenzene (SS3)	17.16	174	172315	11.623	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.96%				
Target Compounds							Qvalue
2) Propene	3.96	42	707568	21.927	ng		100
3) Dichlorodifluoromethan...	4.08	85	776625	22.341	ng		100
4) Chloromethane	4.28	50	918583	21.776	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	289268	23.653	ng		99
6) Vinyl Chloride	4.57	62	709056	21.532	ng		99
7) 1,3-Butadiene	4.74	54	433821	19.881	ng		98
8) Bromomethane	5.06	94	324312	24.393	ng		99
9) Chloroethane	5.27	64	371620	25.178	ng		100
10) Ethanol	5.54	45	2081306	119.359	ng		100
11) Acetonitrile	5.72	41	1152248	24.410	ng		100
12) Acrolein	5.84	56	289253	21.426	ng		99
13) Acetone	5.99	58	1811703	100.547	ng		88
14) Trichlorofluoromethane	6.16	101	593640	23.838	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	2816539	50.210	ng		100
16) Acrylonitrile	6.53	53	755894	24.701	ng		100
17) 1,1-Dichloroethene	6.86	96	366068	24.271	ng	#	82
18) 2-Methyl-2-Propanol (t...	6.99	59	2630995	53.610	ng		97
19) Methylene Chloride	7.03	84	443001	24.561	ng		81
20) 3-Chloro-1-propene (Al...	7.15	41	868816	26.332	ng		92
21) Trichlorotrifluoroethane	7.32	151	245596	24.670	ng		88
22) Carbon Disulfide	7.29	76	1699964	25.117	ng		100
23) trans-1,2-Dichloroethene	8.04	61	751948	25.141	ng		91
24) 1,1-Dichloroethane	8.26	63	876343	24.289	ng		100
25) Methyl tert-Butyl Ether	8.32	73	1412177	25.801	ng		99
26) Vinyl Acetate	8.43	86	487773	164.373	ng	#	91
27) 2-Butanone (MEK)	8.67	72	344650	24.521	ng	#	88
28) cis-1,2-Dichloroethene	9.13	61	710633	24.709	ng		96
29) Diisopropyl Ether	9.35	87	351572	25.948	ng	#	83
30) Ethyl Acetate	9.36	61	407478	54.756	ng		98
31) n-Hexane	9.35	57	953097	27.854	ng		100
32) Chloroform	9.43	83	744384	24.704	ng		100
34) Tetrahydrofuran (THF)	9.81	72	333505	24.689	ng	#	92
35) Ethyl tert-Butyl Ether	9.90	87	506837	25.470	ng		95
36) 1,2-Dichloroethane	10.17	62	608923	25.438	ng		100
38) 1,1,1-Trichloroethane	10.44	97	590451	24.481	ng		99
39) Isopropyl Acetate	10.80	61	689928	52.534	ng	#	93
40) 1-Butanol	10.81	56	1152236	53.146	ng		99
41) Benzene	10.89	78	1865762	24.028	ng		100
42) Carbon Tetrachloride	11.04	117	469867	25.016	ng		99
43) Cyclohexane	11.17	84	1362913	49.401	ng		97
44) tert-Amyl Methyl Ether	11.48	73	1351791	25.640	ng		99
45) 1,2-Dichloropropane	11.70	63	534488	24.436	ng		100
46) Bromodichloromethane	11.89	83	595397	25.588	ng		100
47) Trichloroethene	11.94	130	356218	23.303	ng		100
48) 1,4-Dioxane	11.91	88	357116	25.631	ng		98
49) 2,2,4-Trimethylpentane...	12.00	57	2387576	24.995	ng		99
50) Methyl Methacrylate	12.12	100	317386	53.008	ng		97

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261804.D Vial: 2
Acq On : 26 Oct 2018 6:20 Operator: RS
Sample : LCS R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 26 07:50:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

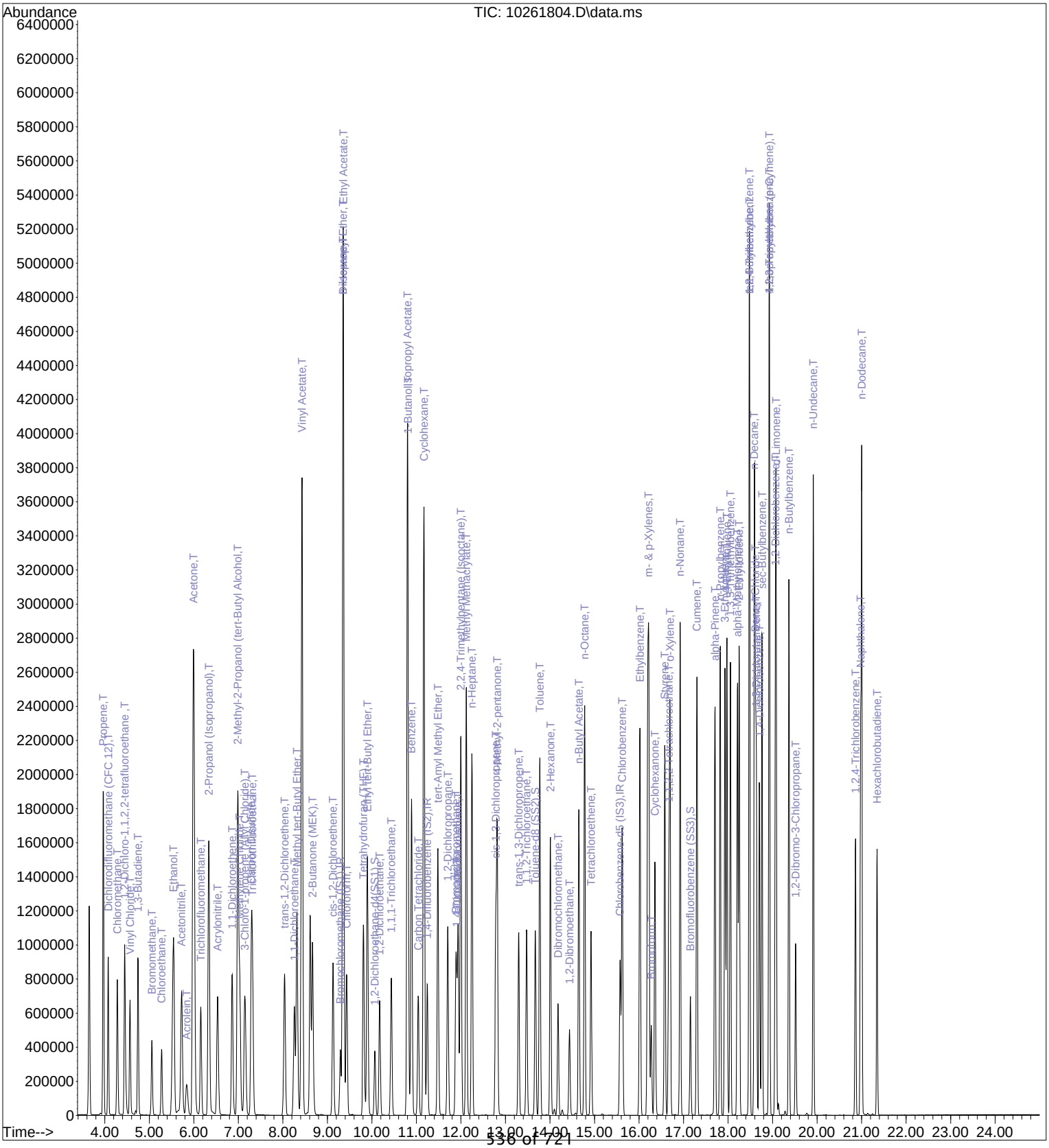
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	12.25	71	518302	25.256	ng		99
52) cis-1,3-Dichloropropene	12.78	75	782431	26.557	ng		100
53) 4-Methyl-2-pentanone	12.81	58	536275	27.683	ng		100
54) trans-1,3-Dichloropropene	13.30	75	713662	27.622	ng		100
55) 1,1,2-Trichloroethane	13.47	97	395371	25.139	ng		99
58) Toluene	13.77	91	1731428	23.497	ng		100
59) 2-Hexanone	14.01	43	1372842	29.669	ng		97
60) Dibromochloromethane	14.18	129	397044	25.242	ng		99
61) 1,2-Dibromoethane	14.44	107	418681	24.873	ng		100
62) n-Butyl Acetate	14.65	43	1587703	30.445	ng		98
63) n-Octane	14.78	57	507817	27.749	ng		96
64) Tetrachloroethene	14.92	166	321849	21.155	ng		100
65) Chlorobenzene	15.62	112	999080	23.389	ng		100
66) Ethylbenzene	16.02	91	1969555	24.403	ng		98
67) m- & p-Xylenes	16.21	91	3062196	49.371	ng		98
68) Bromoform	16.27	173	275259	25.141	ng		100
69) Styrene	16.58	104	1116767	25.423	ng		98
70) o-Xylene	16.70	91	1562965	25.822	ng		96
71) n-Nonane	16.92	43	1306740	30.696	ng		95
72) 1,1,2,2-Tetrachloroethane	16.67	83	800911	26.854	ng		99
74) Cumene	17.30	105	1806214	24.678	ng		99
75) alpha-Pinene	17.71	93	1018701	25.767	ng		96
76) n-Propylbenzene	17.83	91	2414456	26.553	ng		97
77) 3-Ethyltoluene	17.93	105	1830392	25.561	ng		97
78) 4-Ethyltoluene	17.98	105	1749270	26.283	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1506355	25.561	ng		97
80) alpha-Methylstyrene	18.21	118	753191	25.787	ng		99
81) 2-Ethyltoluene	18.25	105	1796041	25.583	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	1544274	26.958	ng		98
83) n-Decane	18.59	58	56473	29.971	ng	#	88
84) Benzyl Chloride	18.61	91	1507299	29.630	ng		97
85) 1,3-Dichlorobenzene	18.64	146	724368	24.248	ng		100
86) 1,4-Dichlorobenzene	18.70	146	722465	24.222	ng		100
87) sec-Butylbenzene	18.76	105	2044805	25.519	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1750272	25.987	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1589056	27.253	ng		100
90) 1,2-Dichlorobenzene	19.06	146	688508	24.661	ng		100
91) d-Limonene	19.08	68	822837	27.744	ng		100
92) 1,2-Dibromo-3-Chloropr...	19.52	157	234097	26.120	ng		99
93) n-Undecane	19.91	57	1351455	29.687	ng		100
94) 1,2,4-Trichlorobenzene	20.86	180	426255	24.017	ng		100
95) Naphthalene	20.98	128	1571909	23.487	ng		100
96) n-Dodecane	21.00	57	1286942	30.778	ng		99
97) Hexachlorobutadiene	21.35	225	254512	22.934	ng		99
98) Cyclohexanone	16.36	55	796538	25.408	ng		94
99) tert-Butylbenzene	18.48	119	1361174	25.618	ng		99
100) n-Butylbenzene	19.37	91	1834442	26.532	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261804.D Vial: 2
Acq On : 26 Oct 2018 6:20 Operator: RS
Sample : LCS R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 26 07:50:19 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261805.D Vial: 2
Acq On : 26 Oct 2018 6:54 Operator: RS
Sample : LCSD R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

RS 10/26/18

Quant Time: Oct 26 07:51:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	133304	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.25	114	667580	12.500	ng		0.02
56) Chlorobenzene-d5 (IS3)	15.58	82	399713	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	315956	13.667	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 109.36%				
57) Toluene-d8 (SS2)	13.67	98	859759	12.312	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
73) Bromofluorobenzene (SS3)	17.16	174	178077	11.335	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.64%				
Target Compounds							Qvalue
2) Propene	3.96	42	746732	22.161	ng		99
3) Dichlorodifluoromethan...	4.07	85	818074	22.537	ng		100
4) Chloromethane	4.28	50	983958	22.338	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	299641	23.464	ng		100
6) Vinyl Chloride	4.56	62	764424	22.231	ng		99
7) 1,3-Butadiene	4.74	54	488954	21.460	ng		100
8) Bromomethane	5.06	94	331854	23.904	ng		100
9) Chloroethane	5.27	64	401137	26.028	ng		100
10) Ethanol	5.54	45	2288603	125.692	ng		100
11) Acetonitrile	5.73	41	1281293	25.994	ng		99
12) Acrolein	5.84	56	316466	22.450	ng		100
13) Acetone	6.00	58	1953999	103.854	ng	#	84
14) Trichlorofluoromethane	6.16	101	622092	23.924	ng		99
15) 2-Propanol (Isopropanol)	6.34	45	3137549	53.566	ng		99
16) Acrylonitrile	6.53	53	808786	25.310	ng		99
17) 1,1-Dichloroethene	6.86	96	381554	24.227	ng	#	78
18) 2-Methyl-2-Propanol (t...	6.99	59	2860678	55.823	ng		96
19) Methylene Chloride	7.03	84	465689	24.726	ng	#	78
20) 3-Chloro-1-propene (Al...	7.15	41	965657	28.029	ng		89
21) Trichlorotrifluoroethane	7.32	151	258426	24.860	ng		88
22) Carbon Disulfide	7.29	76	1779828	25.184	ng		100
23) trans-1,2-Dichloroethene	8.04	61	806781	25.833	ng		89
24) 1,1-Dichloroethane	8.25	63	936646	24.862	ng		100
25) Methyl tert-Butyl Ether	8.32	73	1506333	26.356	ng		98
26) Vinyl Acetate	8.43	86	510116	164.627	ng		99
27) 2-Butanone (MEK)	8.67	72	364079	24.807	ng	#	82
28) cis-1,2-Dichloroethene	9.13	61	759323	25.285	ng		94
29) Diisopropyl Ether	9.35	87	368120	26.019	ng	#	88
30) Ethyl Acetate	9.36	61	427662	55.036	ng		98
31) n-Hexane	9.35	57	1003456	28.085	ng		100
32) Chloroform	9.43	83	780621	24.810	ng		100
34) Tetrahydrofuran (THF)	9.81	72	351243	24.902	ng		96
35) Ethyl tert-Butyl Ether	9.90	87	536898	25.838	ng		96
36) 1,2-Dichloroethane	10.17	62	654665	26.192	ng		100
38) 1,1,1-Trichloroethane	10.44	97	624296	24.724	ng		99
39) Isopropyl Acetate	10.80	61	727852	52.937	ng	#	98
40) 1-Butanol	10.81	56	1230888	54.228	ng		99
41) Benzene	10.89	78	1947808	23.960	ng		100
42) Carbon Tetrachloride	11.04	117	494082	25.126	ng		99
43) Cyclohexane	11.17	84	1424184	49.307	ng		99
44) tert-Amyl Methyl Ether	11.48	73	1434735	25.993	ng		99
45) 1,2-Dichloropropane	11.70	63	564178	24.637	ng		100
46) Bromodichloromethane	11.89	83	626111	25.701	ng		100
47) Trichloroethene	11.94	130	369388	23.081	ng		100
48) 1,4-Dioxane	11.91	88	373497	25.604	ng		99
49) 2,2,4-Trimethylpentane...	12.00	57	2528180	25.280	ng		100
50) Methyl Methacrylate	12.12	100	328866	52.463	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261805.D Vial: 2
Acq On : 26 Oct 2018 6:54 Operator: RS
Sample : LCSD R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 26 07:51:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

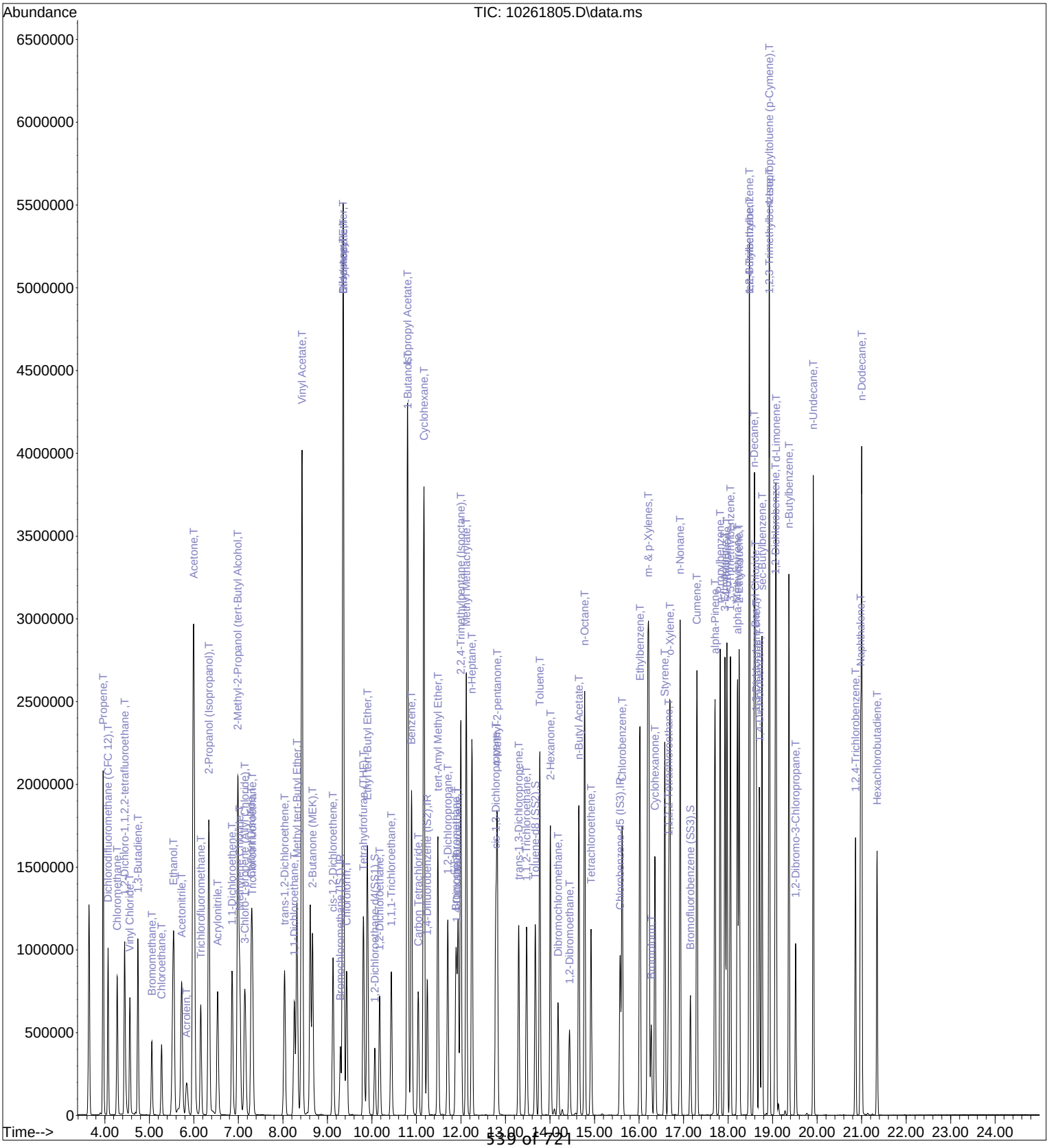
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	12.25	71	544166	25.327	ng		100
52) cis-1,3-Dichloropropene	12.78	75	824397	26.727	ng		100
53) 4-Methyl-2-pentanone	12.81	58	567191	27.966	ng		98
54) trans-1,3-Dichloropropene	13.30	75	751607	27.786	ng		100
55) 1,1,2-Trichloroethane	13.47	97	410305	24.919	ng		99
58) Toluene	13.77	91	1802493	23.084	ng		99
59) 2-Hexanone	14.01	43	1473458	30.050	ng		96
60) Dibromochloromethane	14.18	129	410497	24.628	ng		100
61) 1,2-Dibromoethane	14.44	107	436999	24.499	ng		99
62) n-Butyl Acetate	14.65	43	1704748	30.849	ng		97
63) n-Octane	14.78	57	533119	27.491	ng		96
64) Tetrachloroethene	14.92	166	332583	20.630	ng		100
65) Chlorobenzene	15.62	112	1029727	22.749	ng		99
66) Ethylbenzene	16.02	91	2032509	23.765	ng		98
67) m- & p-Xylenes	16.21	91	3171716	48.257	ng		97
68) Bromoform	16.27	173	282259	24.329	ng		100
69) Styrene	16.58	104	1151646	24.741	ng		98
70) o-Xylene	16.70	91	1617800	25.223	ng		96
71) n-Nonane	16.92	43	1371528	30.404	ng		95
72) 1,1,2,2-Tetrachloroethane	16.67	83	822856	26.036	ng		99
74) Cumene	17.30	105	1854101	23.906	ng		99
75) alpha-Pinene	17.71	93	1052760	25.129	ng		95
76) n-Propylbenzene	17.82	91	2483161	25.771	ng		97
77) 3-Ethyltoluene	17.93	105	1876122	24.724	ng		97
78) 4-Ethyltoluene	17.98	105	1787269	25.342	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1556093	24.918	ng		97
80) alpha-Methylstyrene	18.21	118	769352	24.857	ng		98
81) 2-Ethyltoluene	18.25	105	1834662	24.662	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	1574721	25.942	ng		98
83) n-Decane	18.59	58	57937	29.017	ng	#	86
84) Benzyl Chloride	18.61	91	1551850	28.788	ng		97
85) 1,3-Dichlorobenzene	18.64	146	739371	23.356	ng		100
86) 1,4-Dichlorobenzene	18.70	146	736972	23.317	ng		100
87) sec-Butylbenzene	18.76	105	2093244	24.652	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1776842	24.896	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1622585	26.261	ng		99
90) 1,2-Dichlorobenzene	19.06	146	704191	23.803	ng		99
91) d-Limonene	19.08	68	843862	26.851	ng		100
92) 1,2-Dibromo-3-Chloropr...	19.52	157	239612	25.230	ng		98
93) n-Undecane	19.91	57	1387427	28.761	ng		100
94) 1,2,4-Trichlorobenzene	20.86	180	439475	23.367	ng		100
95) Naphthalene	20.98	128	1624102	22.901	ng		100
96) n-Dodecane	21.00	57	1316584	29.714	ng		99
97) Hexachlorobutadiene	21.35	225	263417	22.400	ng		99
98) Cyclohexanone	16.36	55	846004	25.466	ng		93
99) tert-Butylbenzene	18.48	119	1390458	24.696	ng		99
100) n-Butylbenzene	19.37	91	1879552	25.653	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261805.D Vial: 2
Acq On : 26 Oct 2018 6:54 Operator: RS
Sample : LCSD R9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 26 07:51:40 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271804.D
Acq On : 27 Oct 2018 3:49 Operator: RS
Sample : LCS R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:47 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/27/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	122911	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.24	114	608910	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	371975	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	290004	13.605	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
57) Toluene-d8 (SS2)	13.67	98	798116	12.281	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.24%				
73) Bromofluorobenzene (SS3)	17.16	174	168552	11.529	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.24%				
Target Compounds							Qvalue
2) Propene	3.96	42	688024	22.145	ng		100
3) Dichlorodifluoromethan...	4.07	85	748115	22.352	ng		100
4) Chloromethane	4.28	50	900997	22.184	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	277545	23.572	ng		100
6) Vinyl Chloride	4.56	62	696445	21.967	ng		99
7) 1,3-Butadiene	4.74	54	425330	20.246	ng		99
8) Bromomethane	5.05	94	299118	23.367	ng		99
9) Chloroethane	5.27	64	365910	25.750	ng		99
10) Ethanol	5.54	45	2055610	122.442	ng		100
11) Acetonitrile	5.72	41	1146242	25.221	ng		99
12) Acrolein	5.84	56	281850	21.685	ng		100
13) Acetone	5.99	58	1783294	102.796	ng		87
14) Trichlorofluoromethane	6.16	101	574597	23.966	ng		100
15) 2-Propanol (Isopropanol)	6.33	45	2787412	51.612	ng		100
16) Acrylonitrile	6.53	53	737249	25.022	ng		100
17) 1,1-Dichloroethene	6.86	96	350086	24.108	ng	#	78
18) 2-Methyl-2-Propanol (t...	6.99	59	2561241	54.206	ng		96
19) Methylene Chloride	7.03	84	426766	24.575	ng	#	78
20) 3-Chloro-1-propene (Al...	7.14	41	856149	26.951	ng		91
21) Trichlorotrifluoroethane	7.32	151	237471	24.776	ng		88
22) Carbon Disulfide	7.29	76	1627176	24.971	ng		100
23) trans-1,2-Dichloroethene	8.04	61	729772	25.343	ng		89
24) 1,1-Dichloroethane	8.25	63	858471	24.714	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1352545	25.667	ng		98
26) Vinyl Acetate	8.43	86	463648	162.283	ng		99
27) 2-Butanone (MEK)	8.66	72	330361	24.413	ng	#	82
28) cis-1,2-Dichloroethene	9.13	61	695522	25.119	ng		93
29) Diisopropyl Ether	9.35	87	336665	25.808	ng	#	91
30) Ethyl Acetate	9.36	61	394638	55.080	ng		100
31) n-Hexane	9.35	57	933994	28.351	ng		100
32) Chloroform	9.43	83	717376	24.728	ng		100
34) Tetrahydrofuran (THF)	9.81	72	319747	24.586	ng		95
35) Ethyl tert-Butyl Ether	9.89	87	484482	25.287	ng		97
36) 1,2-Dichloroethane	10.17	62	595451	25.837	ng		100
38) 1,1,1-Trichloroethane	10.44	97	567149	24.624	ng		99
39) Isopropyl Acetate	10.80	61	668209	53.282	ng	#	97
40) 1-Butanol	10.81	56	1127517	54.460	ng		99
41) Benzene	10.89	78	1790281	24.144	ng		100
42) Carbon Tetrachloride	11.04	117	451209	25.156	ng		100
43) Cyclohexane	11.17	84	1310052	49.726	ng		98
44) tert-Amyl Methyl Ether	11.48	73	1304240	25.905	ng		99
45) 1,2-Dichloropropane	11.70	63	521189	24.952	ng		100
46) Bromodichloromethane	11.89	83	574151	25.839	ng		100
47) Trichloroethene	11.94	130	337927	23.150	ng		99
48) 1,4-Dioxane	11.91	88	340643	25.602	ng		100
49) 2,2,4-Trimethylpentane...	12.00	57	2332391	25.570	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271804.D
Acq On : 27 Oct 2018 3:49 Operator: RS
Sample : LCS R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:47 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

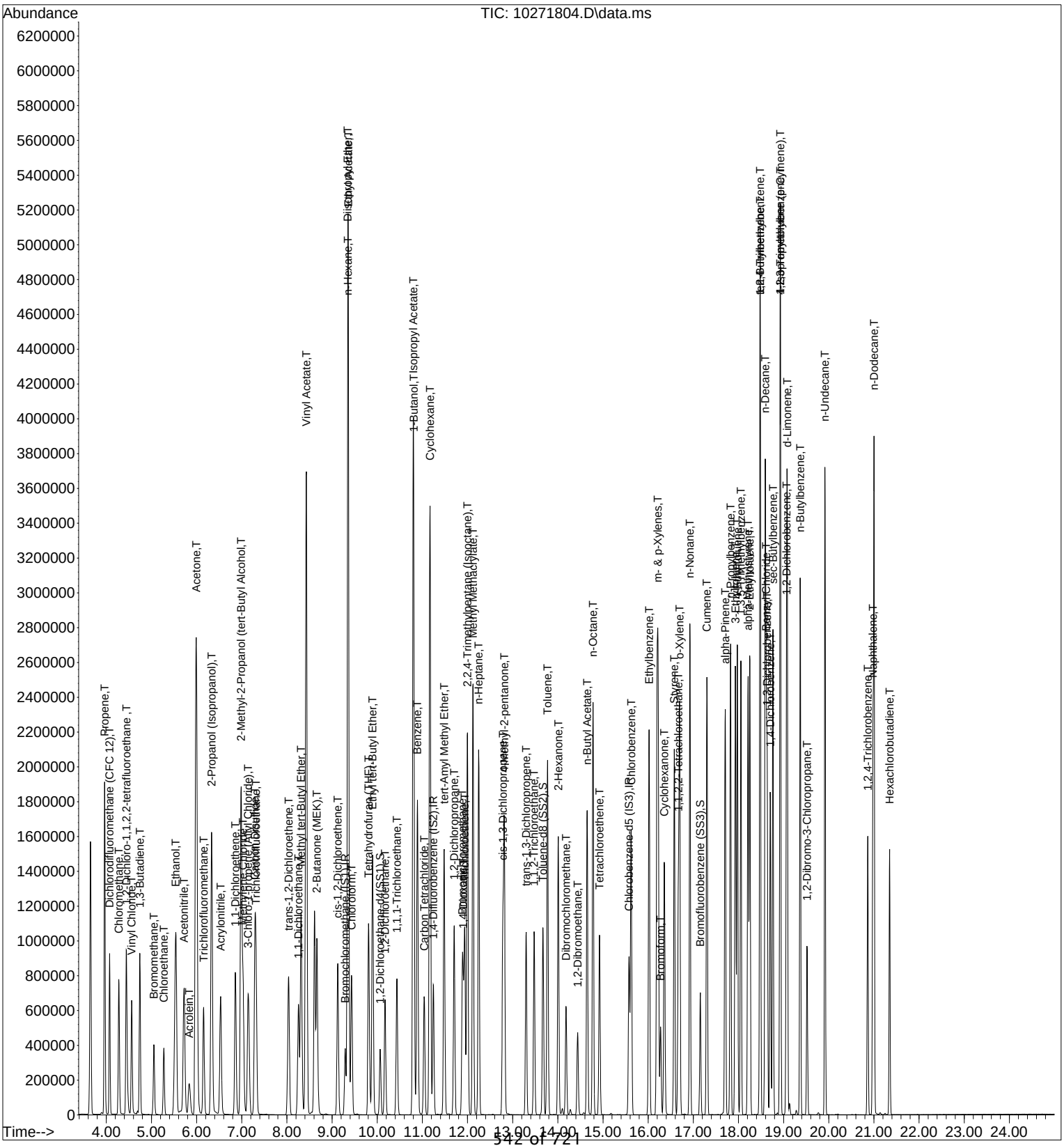
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	299719	52.420	ng		99
51) n-Heptane	12.25	71	501892	25.610	ng		99
52) cis-1,3-Dichloropropene	12.78	75	754297	26.811	ng		100
53) 4-Methyl-2-pentanone	12.81	58	521846	28.209	ng		98
54) trans-1,3-Dichloropropene	13.30	75	691522	28.028	ng		100
55) 1,1,2-Trichloroethane	13.47	97	377603	25.143	ng		99
58) Toluene	13.77	91	1662012	22.872	ng		99
59) 2-Hexanone	14.01	43	1356086	29.719	ng		96
60) Dibromochloromethane	14.18	129	380223	24.513	ng		100
61) 1,2-Dibromoethane	14.44	107	397722	23.960	ng		100
62) n-Butyl Acetate	14.65	43	1572817	30.583	ng		97
63) n-Octane	14.78	57	497395	27.562	ng		95
64) Tetrachloroethene	14.92	166	303974	20.261	ng		100
65) Chlorobenzene	15.62	112	949322	22.536	ng		100
66) Ethylbenzene	16.02	91	1884718	23.680	ng		97
67) m- & p-Xylenes	16.21	91	2962129	48.429	ng		97
68) Bromoform	16.27	173	264004	24.452	ng		99
69) Styrene	16.58	104	1063940	24.561	ng		97
70) o-Xylene	16.70	91	1511792	25.328	ng		96
71) n-Nonane	16.92	43	1300182	30.972	ng		94
72) 1,1,2,2-Tetrachloroethane	16.67	83	771989	26.248	ng		99
74) Cumene	17.30	105	1726957	23.927	ng		99
75) alpha-Pinene	17.71	93	981672	25.180	ng		95
76) n-Propylbenzene	17.83	91	2334464	26.034	ng		96
77) 3-Ethyltoluene	17.93	105	1746604	24.734	ng		97
78) 4-Ethyltoluene	17.98	105	1687635	25.713	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1447214	24.903	ng		97
80) alpha-Methylstyrene	18.21	118	717916	24.925	ng		98
81) 2-Ethyltoluene	18.25	105	1723280	24.892	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	1490375	26.383	ng		98
83) n-Decane	18.59	58	54972	29.585	ng	#	89
84) Benzyl Chloride	18.61	91	1457303	29.050	ng		97
85) 1,3-Dichlorobenzene	18.64	146	687042	23.322	ng		100
86) 1,4-Dichlorobenzene	18.70	146	684605	23.275	ng		100
87) sec-Butylbenzene	18.76	105	1966851	24.891	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1691103	25.462	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1537849	26.745	ng		99
90) 1,2-Dichlorobenzene	19.06	146	657790	23.892	ng		100
91) d-Limonene	19.08	68	807910	27.624	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	223211	25.256	ng		96
93) n-Undecane	19.91	57	1335097	29.740	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	407534	23.285	ng		100
95) Naphthalene	20.98	128	1514694	22.951	ng		100
96) n-Dodecane	21.00	57	1279175	31.022	ng		98
97) Hexachlorobutadiene	21.35	225	245024	22.389	ng		99
98) Cyclohexanone	16.36	55	782899	25.324	ng		93
99) tert-Butylbenzene	18.48	119	1311390	25.028	ng		99
100) n-Butylbenzene	19.37	91	1778060	26.078	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271804.D
Acq On : 27 Oct 2018 3:49 Operator: RS
Sample : LCS R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:47 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271805.D
Acq On : 27 Oct 2018 4:23 Operator: RS
Sample : LCSD R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/27/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	129156	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.25	114	644226	12.500	ng		0.02
56) Chlorobenzene-d5 (IS3)	15.58	82	393427	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	314934	14.060	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.48%				
57) Toluene-d8 (SS2)	13.67	98	834324	12.139	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.12%				
73) Bromofluorobenzene (SS3)	17.16	174	172350	11.146	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 89.20%				
Target Compounds							Qvalue
2) Propene	3.96	42	776098	23.772	ng		99
3) Dichlorodifluoromethan...	4.07	85	804856	22.885	ng		100
4) Chloromethane	4.28	50	977905	22.914	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	293698	23.737	ng		100
6) Vinyl Chloride	4.56	62	757198	22.728	ng		98
7) 1,3-Butadiene	4.74	54	483346	21.895	ng		98
8) Bromomethane	5.05	94	328078	24.391	ng		99
9) Chloroethane	5.27	64	397436	26.616	ng		100
10) Ethanol	5.54	45	2309642	130.921	ng		100
11) Acetonitrile	5.72	41	1290681	27.026	ng		99
12) Acrolein	5.84	56	311709	22.823	ng		100
13) Acetone	5.99	58	1917008	105.161	ng	#	81
14) Trichlorofluoromethane	6.16	101	621603	24.673	ng		99
15) 2-Propanol (Isopropanol)	6.33	45	3051308	53.766	ng		99
16) Acrylonitrile	6.53	53	810367	26.174	ng		99
17) 1,1-Dichloroethene	6.86	96	373705	24.491	ng	#	74
18) 2-Methyl-2-Propanol (t...	6.99	59	2817316	56.743	ng		96
19) Methylene Chloride	7.03	84	450376	24.681	ng	#	73
20) 3-Chloro-1-propene (Al...	7.14	41	962308	28.828	ng		89
21) Trichlorotrifluoroethane	7.32	151	248240	24.647	ng		86
22) Carbon Disulfide	7.29	76	1737045	25.368	ng		100
23) trans-1,2-Dichloroethene	8.04	61	796752	26.331	ng		87
24) 1,1-Dichloroethane	8.26	63	931395	25.516	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1470758	26.560	ng		97
26) Vinyl Acetate	8.43	86	493986	164.541	ng	#	92
27) 2-Butanone (MEK)	8.66	72	356489	25.070	ng	#	78
28) cis-1,2-Dichloroethene	9.13	61	751871	25.841	ng		92
29) Diisopropyl Ether	9.35	87	356280	25.991	ng		97
30) Ethyl Acetate	9.35	61	423960	56.312	ng		99
31) n-Hexane	9.35	57	997177	28.805	ng		100
32) Chloroform	9.43	83	762633	25.017	ng		100
34) Tetrahydrofuran (THF)	9.81	72	340955	24.949	ng		99
35) Ethyl tert-Butyl Ether	9.89	87	521562	25.907	ng		99
36) 1,2-Dichloroethane	10.17	62	648058	26.760	ng		99
38) 1,1,1-Trichloroethane	10.44	97	609498	25.013	ng		100
39) Isopropyl Acetate	10.80	61	719610	54.235	ng	#	100
40) 1-Butanol	10.81	56	1211061	55.288	ng		97
41) Benzene	10.89	78	1899059	24.207	ng		100
42) Carbon Tetrachloride	11.04	117	479513	25.269	ng		100
43) Cyclohexane	11.17	84	1386445	49.741	ng		100
44) tert-Amyl Methyl Ether	11.48	73	1402783	26.335	ng		99
45) 1,2-Dichloropropane	11.70	63	556896	25.200	ng		100
46) Bromodichloromethane	11.89	83	609735	25.937	ng		100
47) Trichloroethene	11.94	130	355418	23.013	ng		100
48) 1,4-Dioxane	11.91	88	361288	25.665	ng		99
49) 2,2,4-Trimethylpentane...	12.00	57	2497038	25.874	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271805.D
Acq On : 27 Oct 2018 4:23 Operator: RS
Sample : LCSD R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

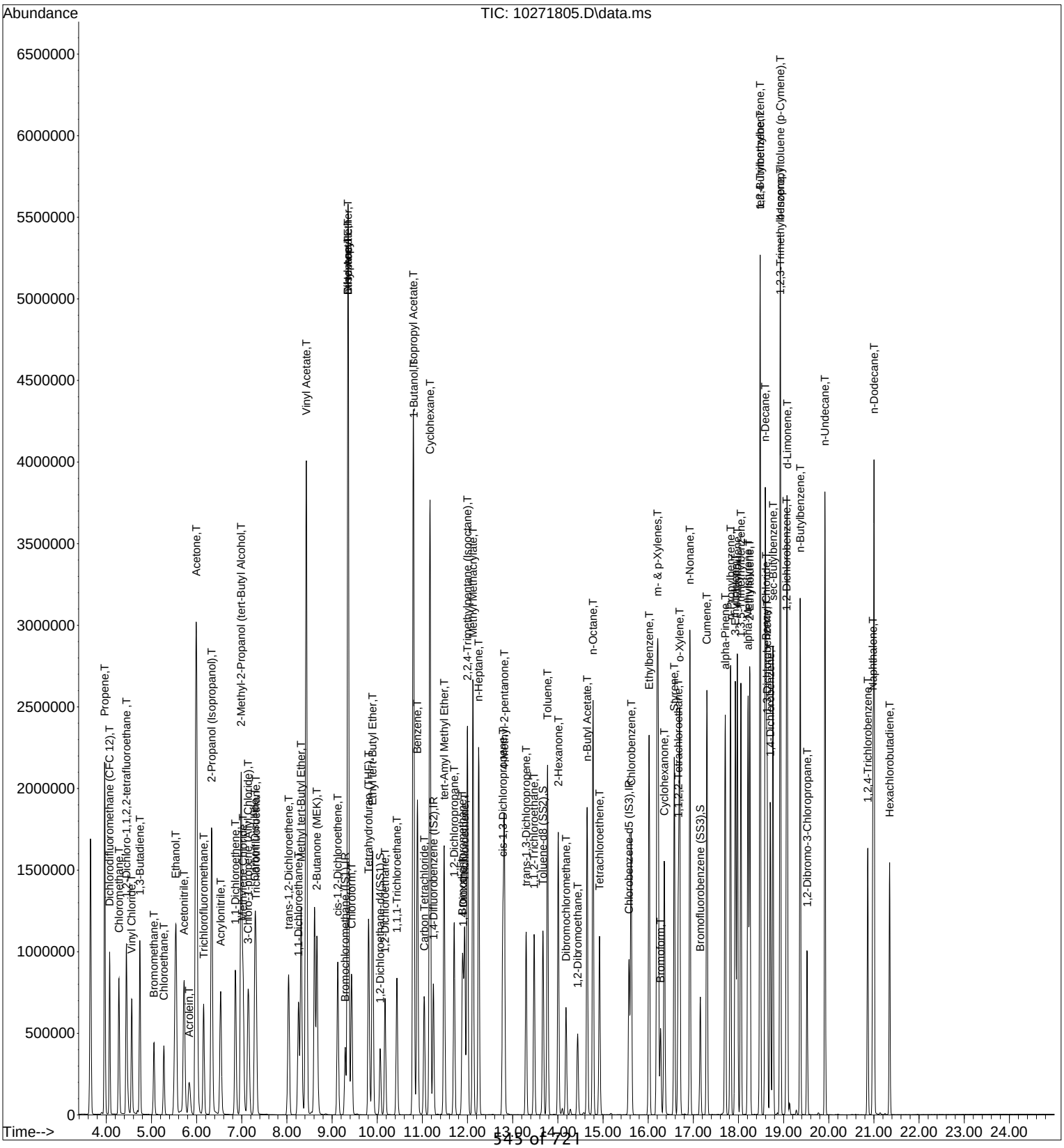
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	318530	52.656	ng		99
51) n-Heptane	12.25	71	530712	25.596	ng		99
52) cis-1,3-Dichloropropene	12.78	75	805480	27.060	ng		100
53) 4-Methyl-2-pentanone	12.81	58	560981	28.662	ng		96
54) trans-1,3-Dichloropropene	13.30	75	734813	28.150	ng		100
55) 1,1,2-Trichloroethane	13.47	97	396309	24.942	ng		99
58) Toluene	13.77	91	1743552	22.686	ng		99
59) 2-Hexanone	14.01	43	1465572	30.367	ng		95
60) Dibromochloromethane	14.18	129	397519	24.230	ng		100
61) 1,2-Dibromoethane	14.44	107	416645	23.731	ng		100
62) n-Butyl Acetate	14.65	43	1698992	31.236	ng		96
63) n-Octane	14.78	57	528686	27.698	ng		94
64) Tetrachloroethene	14.92	166	315475	19.881	ng		100
65) Chlorobenzene	15.62	112	989693	22.214	ng		100
66) Ethylbenzene	16.02	91	1964760	23.340	ng		97
67) m- & p-Xylenes	16.21	91	3097196	47.876	ng		96
68) Bromoform	16.27	173	271151	23.745	ng		100
69) Styrene	16.58	104	1107157	24.165	ng		97
70) o-Xylene	16.70	91	1572773	24.913	ng		96
71) n-Nonane	16.92	43	1380195	31.085	ng		93
72) 1,1,2,2-Tetrachloroethane	16.67	83	799396	25.698	ng		99
74) Cumene	17.30	105	1791614	23.470	ng		99
75) alpha-Pinene	17.71	93	1017997	24.688	ng		94
76) n-Propylbenzene	17.83	91	2414626	25.460	ng		96
77) 3-Ethyltoluene	17.93	105	1807128	24.196	ng		97
78) 4-Ethyltoluene	17.98	105	1748754	25.192	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	1489474	24.233	ng		97
80) alpha-Methylstyrene	18.21	118	741703	24.347	ng		99
81) 2-Ethyltoluene	18.25	105	1774048	24.228	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	1532000	25.641	ng		98
83) n-Decane	18.59	58	56987	28.997	ng	#	87
84) Benzyl Chloride	18.61	91	1509627	28.452	ng		96
85) 1,3-Dichlorobenzene	18.64	146	707576	22.709	ng		100
86) 1,4-Dichlorobenzene	18.70	146	707691	22.748	ng		100
87) sec-Butylbenzene	18.76	105	2022218	24.196	ng		98
88) 4-Isopropyltoluene (p-...	18.93	119	1731689	24.651	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1573991	25.881	ng		99
90) 1,2-Dichlorobenzene	19.06	146	672852	23.107	ng		100
91) d-Limonene	19.08	68	830790	26.858	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	230873	24.698	ng		96
93) n-Undecane	19.91	57	1368160	28.815	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	416003	22.473	ng		100
95) Naphthalene	20.98	128	1548233	22.180	ng		100
96) n-Dodecane	21.00	57	1311080	30.062	ng		98
97) Hexachlorobutadiene	21.35	225	250013	21.599	ng		100
98) Cyclohexanone	16.36	55	830512	25.399	ng		92
99) tert-Butylbenzene	18.48	119	1346449	24.296	ng		99
100) n-Butylbenzene	19.37	91	1822135	25.267	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271805.D
Acq On : 27 Oct 2018 4:23 Operator: RS
Sample : LCSD R9102718_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311805.D
Acq On : 31 Oct 2018 4:47 Operator: LH/TD
Sample : LCS R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 06:35:35 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/31/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	203557	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	838462	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	363266	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	302365	12.348	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.80%				
57) Toluene-d8 (SS2)	15.87	98	719318	12.435	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.44%				
73) Bromofluorobenzene (SS3)	19.09	174	308288	11.724	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.76%				
Target Compounds							Qvalue
2) Propene	4.05	42	440200	23.238	ng		99
3) Dichlorodifluoromethan...	4.21	85	1003169	23.575	ng		100
4) Chloromethane	4.52	50	706156	26.071	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	624874	24.702	ng		100
6) Vinyl Chloride	4.96	62	828002	28.029	ng		100
7) 1,3-Butadiene	5.24	54	488952	25.586	ng		97
8) Bromomethane	5.70	94	440008	24.715	ng		100
9) Chloroethane	6.04	64	311308	24.541	ng		100
10) Ethanol	6.44	45	1444077	126.127	ng		99
11) Acetonitrile	6.71	41	679289	22.670	ng		99
12) Acrolein	6.90	56	248560	24.585	ng		98
13) Acetone	7.11	58	1694231	124.024	ng		97
14) Trichlorofluoromethane	7.36	101	873674	23.707	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2011130	45.907	ng		99
16) Acrylonitrile	7.90	53	548441	26.447	ng		100
17) 1,1-Dichloroethene	8.35	96	464056	24.735	ng		100
18) 2-Methyl-2-Propanol (t...	8.51	59	2436799	52.827	ng		99
19) Methylene Chloride	8.58	84	477929	25.047	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	582956	24.568	ng		98
21) Trichlorotrifluoroethane	8.99	151	466000	23.758	ng		96
22) Carbon Disulfide	8.85	76	1699672	24.952	ng		100
23) trans-1,2-Dichloroethene	9.87	61	650555	25.332	ng		99
24) 1,1-Dichloroethane	10.12	63	789554	24.721	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1387962	24.573	ng		99
26) Vinyl Acetate	10.38	86	652137	136.190	ng	#	84
27) 2-Butanone (MEK)	10.62	72	317046	26.237	ng		100
28) cis-1,2-Dichloroethene	11.15	61	629017	24.913	ng		98
29) Diisopropyl Ether	11.42	87	422675	25.033	ng	#	91
30) Ethyl Acetate	11.43	61	367757	56.779	ng		96
31) n-Hexane	11.42	57	729800	24.729	ng		99
32) Chloroform	11.49	83	858634	25.015	ng		100
34) Tetrahydrofuran (THF)	11.89	72	302559	24.851	ng		100
35) Ethyl tert-Butyl Ether	12.02	87	571969	24.206	ng		97
36) 1,2-Dichloroethane	12.30	62	648228	24.405	ng		100
38) 1,1,1-Trichloroethane	12.57	97	765378	24.277	ng		99
39) Isopropyl Acetate	12.98	61	609112	51.478	ng	#	93
40) 1-Butanol	13.00	56	977400	57.653	ng		100
41) Benzene	13.04	78	1862703	24.164	ng		100
42) Carbon Tetrachloride	13.20	117	701853	24.032	ng		100
43) Cyclohexane	13.33	84	1514714	50.700	ng		97
44) tert-Amyl Methyl Ether	13.67	73	1356784	25.553	ng		99
45) 1,2-Dichloropropane	13.90	63	431457	25.203	ng		99
46) Bromodichloromethane	14.09	83	705305	26.155	ng		99
47) Trichloroethene	14.13	130	560191	24.724	ng		100
48) 1,4-Dioxane	14.11	88	405499	27.798	ng		97

Data File: I:\MS16\DATA\2018_10\31\10311805.D
Acq On : 31 Oct 2018 4:47 Operator: LH/TD
Sample : LCS R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 06:35:35 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

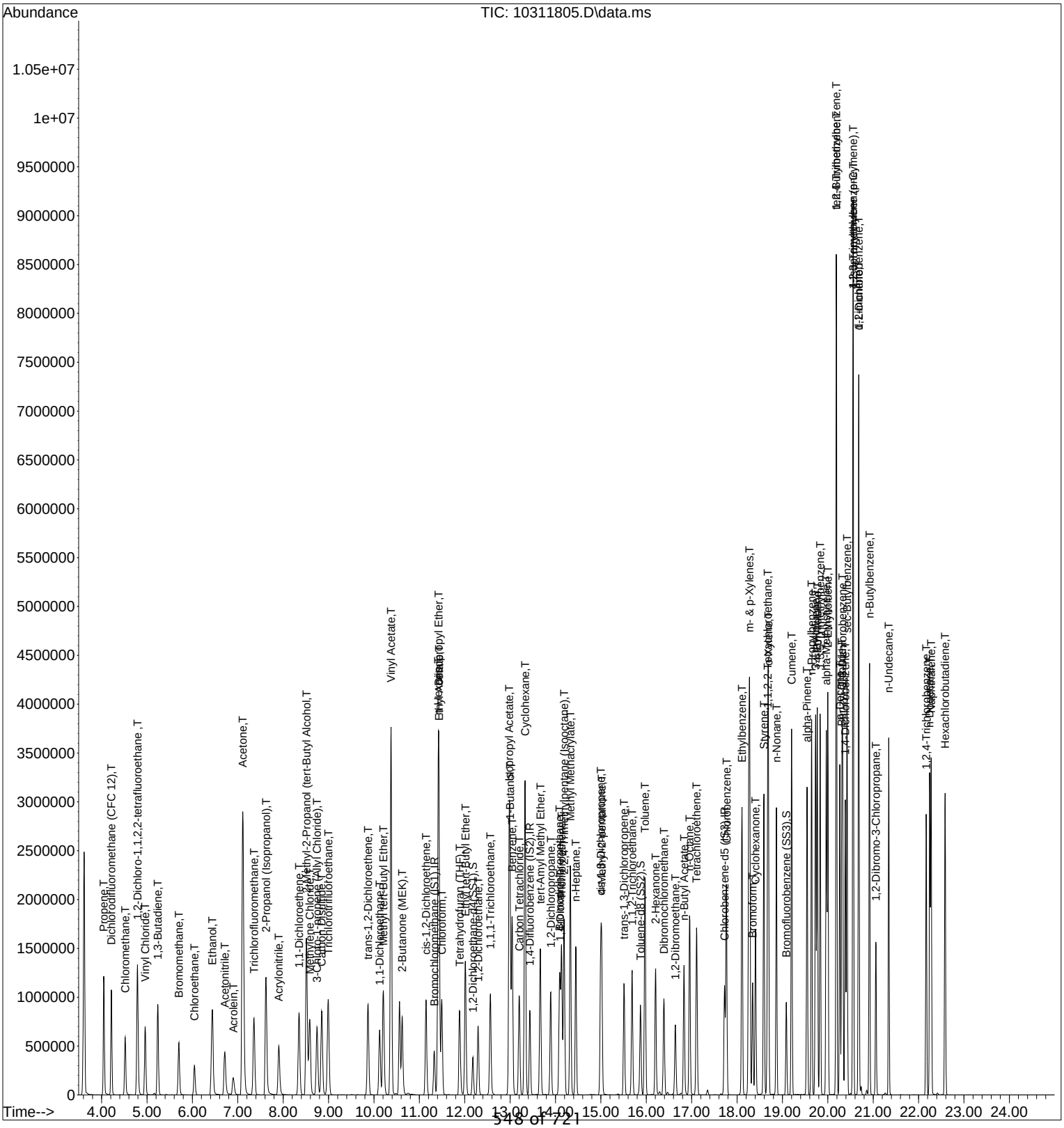
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	1824257	25.499 ng	100
50) Methyl Methacrylate	14.33	100	411421	51.520 ng	93
51) n-Heptane	14.45	71	416567	23.490 ng	98
52) cis-1,3-Dichloropropene	15.00	75	790752	26.146 ng	100
53) 4-Methyl-2-pentanone	15.02	58	423583	27.207 ng	99
54) trans-1,3-Dichloropropene	15.51	75	721330	26.971 ng	100
55) 1,1,2-Trichloroethane	15.69	97	473209	25.474 ng	98
58) Toluene	15.97	91	1902447	23.684 ng	100
59) 2-Hexanone	16.21	43	975671	26.509 ng	99
60) Dibromochloromethane	16.39	129	624759	26.623 ng	100
61) 1,2-Dibromoethane	16.64	107	569495	26.464 ng	100
62) n-Butyl Acetate	16.83	43	1084337	27.183 ng	99
63) n-Octane	16.95	57	365678	23.909 ng	96
64) Tetrachloroethene	17.11	166	596728	24.139 ng	100
65) Chlorobenzene	17.77	112	1372400	25.229 ng	100
66) Ethylbenzene	18.11	91	2294639	25.085 ng	99
67) m- & p-Xylenes	18.27	91	3854362	56.428 ng	99
68) Bromoform	18.35	173	610995	29.265 ng	100
69) Styrene	18.59	104	1627322	29.289 ng	99
70) o-Xylene	18.69	91	2077570	29.964 ng	99
71) n-Nonane	18.87	43	972392	30.520 ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1046951	31.537 ng	100
74) Cumene	19.20	105	2433570	26.743 ng	99
75) alpha-Pinene	19.54	93	1248584	26.453 ng	98
76) n-Propylbenzene	19.64	91	2924579	28.091 ng	98
77) 3-Ethyltoluene	19.73	105	2395612	26.118 ng	99
78) 4-Ethyltoluene	19.77	105	2480520	29.977 ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	2051675	26.945 ng	99
80) alpha-Methylstyrene	19.97	118	1123468	27.292 ng	93
81) 2-Ethyltoluene	20.00	105	2492752	27.878 ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	2331200	31.207 ng	98
83) n-Decane	20.26	58	44384	27.543 ng	97
84) Benzyl Chloride	20.31	91	1842611	27.981 ng	98
85) 1,3-Dichlorobenzene	20.32	146	1295668	27.985 ng	100
86) 1,4-Dichlorobenzene	20.39	146	1242449	26.466 ng	99
87) sec-Butylbenzene	20.42	105	2757421	28.305 ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	2870886	30.935 ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	2410353	32.184 ng	97
90) 1,2-Dichlorobenzene	20.68	146	1338592	30.666 ng	99
91) d-Limonene	20.68	68	854635	31.491 ng	97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	454504	27.920 ng	95
93) n-Undecane	21.34	57	1023820	28.536 ng	98
94) 1,2,4-Trichlorobenzene	22.17	180	917991	26.239 ng	100
95) Naphthalene	22.28	128	2685341	25.006 ng	100
96) n-Dodecane	22.24	57	936759	27.724 ng	98
97) Hexachlorobutadiene	22.58	225	606990	25.774 ng	99
98) Cyclohexanone	18.41	55	730742	31.114 ng	98
99) tert-Butylbenzene	20.19	119	2248378	30.794 ng	99
100) n-Butylbenzene	20.92	91	2235658	28.930 ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311805.D
Acq On : 31 Oct 2018 4:47 Operator: LH/TD
Sample : LCS R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 06:35:35 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311806.D
Acq On : 31 Oct 2018 5:21 Operator: LH/TD
Sample : LCSD R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

TD 10/31/18

Quant Time: Oct 31 06:35:37 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	214353	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	882074	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	379977	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	319130	12.376	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
57) Toluene-d8 (SS2)	15.87	98	753717	12.456	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%				
73) Bromofluorobenzene (SS3)	19.09	174	321287	11.681	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.44%				
Target Compounds							Qvalue
2) Propene	4.05	42	488758	24.502	ng		98
3) Dichlorodifluoromethan...	4.21	85	1062817	23.718	ng		100
4) Chloromethane	4.52	50	731740	25.655	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	650991	24.438	ng		100
6) Vinyl Chloride	4.96	62	848851	27.287	ng		100
7) 1,3-Butadiene	5.24	54	476363	23.672	ng		98
8) Bromomethane	5.70	94	467016	24.911	ng		100
9) Chloroethane	6.04	64	330320	24.729	ng		100
10) Ethanol	6.44	45	1538127	127.575	ng		99
11) Acetonitrile	6.71	41	726919	23.038	ng		99
12) Acrolein	6.90	56	259995	24.421	ng		99
13) Acetone	7.11	58	1884280	130.989	ng		99
14) Trichlorofluoromethane	7.36	101	1018756	26.251	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2447621	53.057	ng		98
16) Acrylonitrile	7.90	53	687016	31.461	ng		100
17) 1,1-Dichloroethene	8.35	96	545444	27.609	ng		97
18) 2-Methyl-2-Propanol (t...	8.51	59	2925773	60.233	ng		99
19) Methylene Chloride	8.58	84	568582	28.297	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	720697	28.843	ng		100
21) Trichlorotrifluoroethane	8.99	151	492455	23.842	ng		96
22) Carbon Disulfide	8.85	76	1830341	25.517	ng		100
23) trans-1,2-Dichloroethene	9.87	61	684841	25.324	ng		99
24) 1,1-Dichloroethane	10.12	63	829631	24.668	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1466776	24.661	ng		99
26) Vinyl Acetate	10.38	86	686903	136.226	ng	#	86
27) 2-Butanone (MEK)	10.62	72	333393	26.200	ng		98
28) cis-1,2-Dichloroethene	11.15	61	661492	24.880	ng		98
29) Diisopropyl Ether	11.42	87	440021	24.748	ng	#	90
30) Ethyl Acetate	11.43	61	385628	56.540	ng		96
31) n-Hexane	11.42	57	766471	24.663	ng		99
32) Chloroform	11.49	83	894365	24.744	ng		100
34) Tetrahydrofuran (THF)	11.89	72	316527	24.688	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	603207	24.243	ng		98
36) 1,2-Dichloroethane	12.30	62	678303	24.251	ng		100
38) 1,1,1-Trichloroethane	12.57	97	802698	24.202	ng		99
39) Isopropyl Acetate	12.98	61	634243	50.952	ng	#	93
40) 1-Butanol	13.00	56	1020918	57.242	ng		100
41) Benzene	13.04	78	1951876	24.069	ng		100
42) Carbon Tetrachloride	13.20	117	736136	23.960	ng		100
43) Cyclohexane	13.33	84	1574488	50.095	ng		97
44) tert-Amyl Methyl Ether	13.67	73	1431246	25.622	ng		99
45) 1,2-Dichloropropane	13.90	63	452169	25.107	ng		100
46) Bromodichloromethane	14.09	83	733580	25.859	ng		100
47) Trichloroethene	14.13	130	581615	24.400	ng		100
48) 1,4-Dioxane	14.11	88	421678	27.478	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311806.D
Acq On : 31 Oct 2018 5:21 Operator: LH/TD
Sample : LCSD R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 06:35:37 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

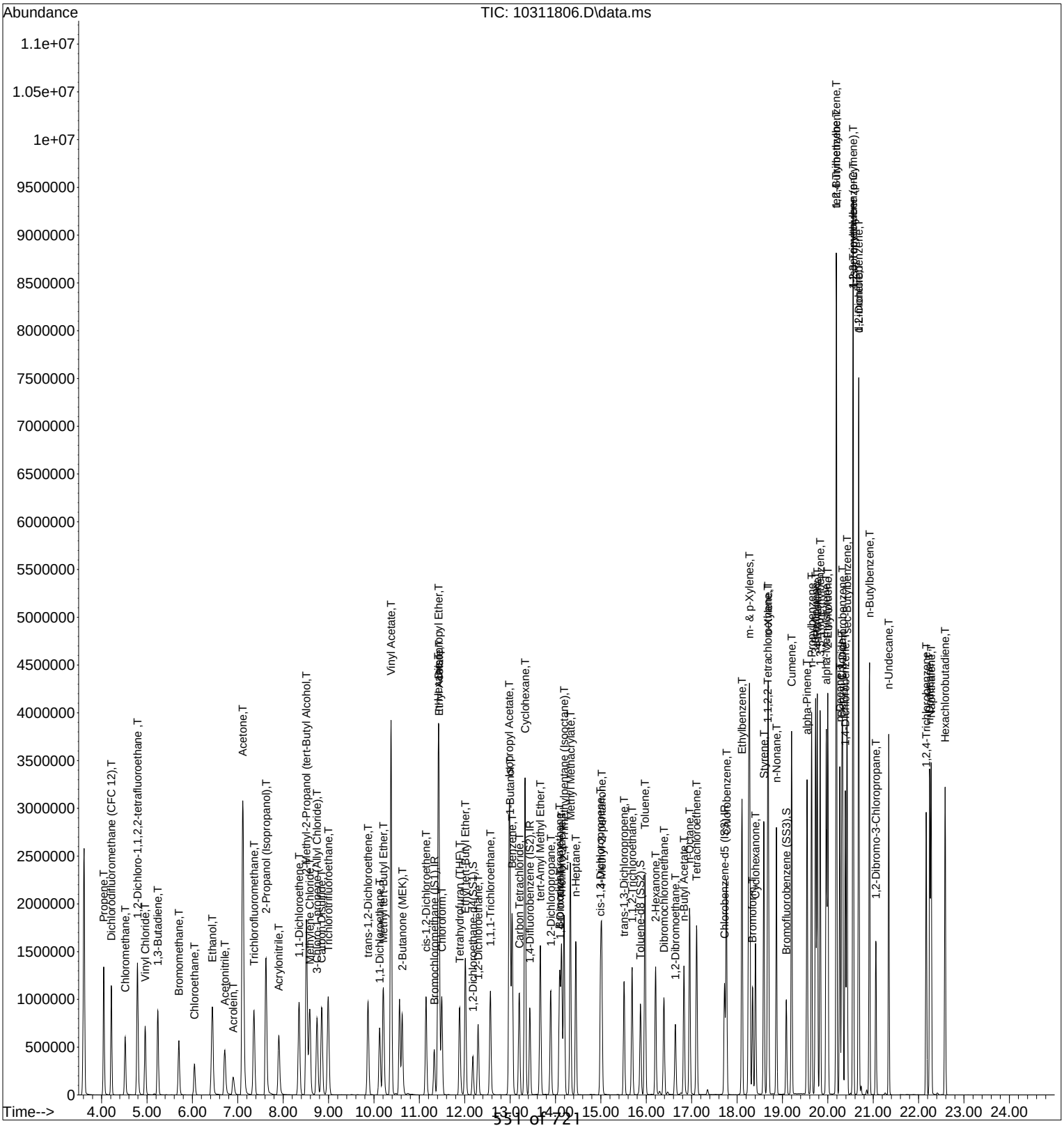
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	1904498	25.305 ng	99
50) Methyl Methacrylate	14.33	100	429167	51.086 ng	93
51) n-Heptane	14.45	71	435833	23.361 ng	98
52) cis-1,3-Dichloropropene	14.99	75	826196	25.967 ng	100
53) 4-Methyl-2-pentanone	15.02	58	442526	27.018 ng	99
54) trans-1,3-Dichloropropene	15.51	75	753650	26.786 ng	100
55) 1,1,2-Trichloroethane	15.69	97	491889	25.171 ng	99
58) Toluene	15.97	91	1997232	23.771 ng	99
59) 2-Hexanone	16.21	43	1013823	26.334 ng	100
60) Dibromochloromethane	16.39	129	652797	26.595 ng	100
61) 1,2-Dibromoethane	16.64	107	592969	26.343 ng	99
62) n-Butyl Acetate	16.83	43	1129780	27.077 ng	99
63) n-Octane	16.95	57	380979	23.814 ng	96
64) Tetrachloroethene	17.11	166	619964	23.976 ng	100
65) Chlorobenzene	17.77	112	1422851	25.006 ng	100
66) Ethylbenzene	18.11	91	2376807	24.841 ng	99
67) m- & p-Xylenes	18.27	91	3879906	54.304 ng	98
68) Bromoform	18.34	173	588493	26.947 ng	99
69) Styrene	18.59	104	1523385	26.213 ng	99
70) o-Xylene	18.69	91	1965346	27.099 ng	99
71) n-Nonane	18.87	43	887349	26.626 ng	98
72) 1,1,2,2-Tetrachloroethane	18.68	83	973936	28.047 ng	100
74) Cumene	19.20	105	2513331	26.405 ng	99
75) alpha-Pinene	19.54	93	1299102	26.313 ng	99
76) n-Propylbenzene	19.64	91	3042213	27.936 ng	98
77) 3-Ethyltoluene	19.73	105	2487422	25.926 ng	99
78) 4-Ethyltoluene	19.77	105	2573876	29.737 ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	2129844	26.741 ng	99
80) alpha-Methylstyrene	19.97	118	1172006	27.219 ng	93
81) 2-Ethyltoluene	20.00	105	2586074	27.649 ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	2416593	30.927 ng	98
83) n-Decane	20.26	58	45975	27.276 ng	98
84) Benzyl Chloride	20.31	91	1930089	28.020 ng	98
85) 1,3-Dichlorobenzene	20.32	146	1346058	27.795 ng	100
86) 1,4-Dichlorobenzene	20.39	146	1285081	26.170 ng	100
87) sec-Butylbenzene	20.42	105	2856658	28.034 ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	2944306	30.331 ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	2466647	31.487 ng	97
90) 1,2-Dichlorobenzene	20.68	146	1379589	30.215 ng	99
91) d-Limonene	20.68	68	891252	31.396 ng	96
92) 1,2-Dibromo-3-Chloropr...	21.06	157	471807	27.708 ng	95
93) n-Undecane	21.34	57	1058441	28.203 ng	98
94) 1,2,4-Trichlorobenzene	22.17	180	949458	25.945 ng	100
95) Naphthalene	22.28	128	2787383	24.815 ng	100
96) n-Dodecane	22.24	57	976899	27.640 ng	98
97) Hexachlorobutadiene	22.58	225	625258	25.382 ng	99
98) Cyclohexanone	18.41	55	674129	27.441 ng	98
99) tert-Butylbenzene	20.19	119	2313094	30.287 ng	99
100) n-Butylbenzene	20.92	91	2316037	28.652 ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311806.D
Acq On : 31 Oct 2018 5:21 Operator: LH/TD
Sample : LCSD R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 06:35:37 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Response Factor Report MS09

Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 09:11:27 2018
Response Via : Initial Calibration

10/19/18

Calibration Files
0.1 =10181811.D 0.2 =10181812.D 0.5 =10181813.D 1.0 =10181814.D 5.0 =10181815.D 25 =10181816.D 50 =10181817.D
100 =10181818.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	4.032	3.440	3.033	3.191	2.880	2.870	2.950	2.882	3.160	12.77
3)	T	Dichlorodifluo...	4.538	3.749	3.648	3.529	3.153	3.137	2.870	2.607	3.404	17.68
4)	T	Chloromethane	5.191	4.767	4.815	4.292	3.804	3.759	3.509	2.906	4.130	18.65
5)	T	1,2-Dichloro-1...	1.565	1.286	1.277	1.214	1.103	1.115	1.013	1.006	1.197	15.34
6)	T	Vinyl Chloride	4.033	3.573	3.603	3.497	3.140	2.991	2.665	2.293	3.224	17.53
7)	T	1,3-Butadiene	2.578	2.190	2.298	2.209	2.123	2.153	1.967	1.575	2.137	13.40
8)	T	Bromomethane	1.907	1.477	1.368	1.298	1.123	1.164	1.063	1.015	1.302	22.34
9)	T	Chloroethane	1.570	1.431	1.743	1.762	1.379	1.389	1.201	1.086	1.445	16.56
10)	T	Ethanol	1.808	1.524	2.207	2.174	1.936	1.303	1.642	1.065	1.707	23.67
11)	T	Acetonitrile	4.546	3.918	5.797	5.880	5.369	3.576	4.720	3.172	4.622	21.99
12)	T	Acrolein	1.681	1.317	1.512	1.595	1.332	1.035	1.196	0.907	1.322	20.43
13)	T	Acetone		2.009	2.249	2.076	1.783	1.187	1.282		1.764	24.82
14)	T	Trichlorofluor...	3.168	2.595	2.712	2.592	2.353	2.097	2.147	1.843	2.438	17.10
15)	T	2-Propanol (Is...		5.198	6.951	7.171	6.282	4.644	5.198	3.005	5.493	26.43
16)	T	Acrylonitrile	3.275	2.650	3.351	3.424	3.217	2.477	2.920	2.659	2.996	12.25
17)	T	1,1-Dichloroet...	1.962	1.526	1.559	1.473	1.362	1.356	1.319	1.258	1.477	15.03
18)	T	2-Methyl-2-Pro...	5.783	4.554	5.327	5.797	5.341	4.301	4.620	2.720	4.805	21.10
19)	T	Methylene Chlo...	2.386	1.747	1.918	1.859	1.691	1.553	1.566	1.409	1.766	17.05
20)	T	3-Chloro-1-pro...	3.361	3.058	3.202	3.768	3.520	2.589	3.219	3.128	3.231	10.74
21)	T	Trichlorotrifl...	1.211	1.064	1.045	0.976	0.855	0.973	0.852	0.822	0.975	13.51
22)	T	Carbon Disulfide	8.524	7.060	6.786	6.983	6.445	5.788	5.951	5.479	6.627	14.49
23)	T	trans-1,2-Dich...	3.390	2.887	2.998	3.214	2.998	2.465	2.762	2.713	2.929	9.96
24)	T	1,1-Dichloroet...	4.256	3.734	3.686	3.900	3.566	2.920	3.174	3.027	3.533	13.03
25)	T	Methyl tert-Bu...	5.961	5.420	5.385	5.824	5.406	5.045	5.008	4.824	5.359	7.38
26)	T	Vinyl Acetate	0.213	0.219	0.269	0.297	0.320	0.373	0.335	0.299	0.291	19.08
27)	T	2-Butanone (MEK)	1.562	1.430	1.396	1.502	1.319	1.293	1.273	1.234	1.376	8.45
28)	T	cis-1,2-Dichlo...	3.710	2.603	2.879	3.116	2.585	2.589	2.599	2.447	2.816	14.88
29)	T	Diisopropyl Ether			1.719	1.494	1.300	1.335	1.159	0.952	1.327	19.98
30)	T	Ethyl Acetate	0.878	0.703	0.719	0.852	0.731	0.805	0.644	0.497	0.729	16.80
31)	T	n-Hexane			3.570	4.090	3.478	3.772	2.965	2.227	3.350	19.81
32)	T	Chloroform	4.076	2.887	2.994	3.122	2.627	2.881	2.602	2.415	2.950	17.28
33)	S	1,2-Dichloroet...	2.431	2.143	2.021	2.122	1.825	2.446	2.288	2.067	2.168	9.76
34)	T	Tetrahydrofura...	1.774	1.353	1.412	1.344	1.104	1.317	1.193	1.084	1.323	16.52
35)	T	Ethyl tert-But...	2.219	2.038	2.006	2.041	1.768	2.000	1.832	1.683	1.948	8.93
36)	T	1,2-Dichloroet...	3.113	2.460	2.429	2.362	1.904	2.458	2.185	1.840	2.344	16.90
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.613	0.539	0.481	0.468	0.448	0.439	0.414	0.380	0.473	15.60
39)	T	Isopropyl Acetate	0.312	0.281	0.254	0.271	0.247	0.273	0.235	0.186	0.257	14.49
40)	T	1-Butanol	0.502	0.442	0.396	0.432	0.399	0.480	0.415	0.334	0.425	12.36
41)	T	Benzene	2.032	1.815	1.552	1.522	1.387	1.403	1.304	1.164	1.522	18.49
42)	T	Carbon Tetrach...	0.428	0.404	0.375	0.378	0.348	0.355	0.340	0.317	0.368	9.66

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Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.712	0.629	0.555	0.546	0.517	0.515	0.469	0.384	0.541	18.27
44)	T	tert-Amyl Meth...	1.261	1.233	1.051	0.987	0.948	1.011	0.939	0.839	1.034	14.10
45)	T	1,2-Dichloropr...	0.568	0.529	0.460	0.411	0.358	0.404	0.370	0.331	0.429	19.60
46)	T	Bromodichlorom...	0.570	0.536	0.476	0.425	0.437	0.435	0.406	0.363	0.456	14.98
47)	T	Trichloroethene	0.376	0.330	0.343	0.307	0.292	0.257	0.251	0.241	0.300	16.16
48)	T	1,4-Dioxane	0.291	0.293	0.306	0.279	0.276	0.265	0.252	0.223	0.273	9.63
49)	T	2,2,4-Trimethy...	2.504	2.276	1.898	1.822	1.791	1.807	1.618	1.264	1.873	20.29
50)	T	Methyl Methacr...	0.124	0.116	0.126	0.123	0.121	0.115	0.110	0.104	0.117	6.37
51)	T	n-Heptane	0.504	0.473	0.433	0.384	0.365	0.382	0.351	0.326	0.402	15.39
52)	T	cis-1,3-Dichlo...	0.694	0.624	0.615	0.545	0.540	0.582	0.546	0.475	0.578	11.55
53)	T	4-Methyl-2-pen...	0.453	0.389	0.401	0.356	0.354	0.405	0.373	0.306	0.380	11.46
54)	T	trans-1,3-Dich...	0.534	0.480	0.523	0.504	0.531	0.517	0.507	0.456	0.506	5.27
55)	T	1,1,2-Trichlor...	0.373	0.322	0.330	0.321	0.302	0.283	0.272	0.263	0.308	11.69
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.178	2.303	2.072	2.293	2.169	2.199	2.128	2.128	2.184	3.69
58)	T	Toluene	3.172	2.888	2.502	2.605	2.318	2.171	2.009	1.869	2.442	18.09
59)	T	2-Hexanone	1.912	1.449	1.418	1.590	1.456	1.559	1.578	1.304	1.533	11.77
60)	T	Dibromochlorom...	0.543	0.605	0.538	0.555	0.523	0.495	0.464	0.447	0.521	9.84
61)	T	1,2-Dibromoethane	0.618	0.628	0.591	0.612	0.547	0.517	0.488	0.462	0.558	11.42
62)	T	n-Butyl Acetate	2.138	1.643	1.514	1.936	1.602	1.761	1.816	1.415	1.728	13.60
63)	T	n-Octane	0.783	0.648	0.603	0.650	0.571	0.591	0.567	0.438	0.606	16.04
64)	T	Tetrachloroethene	0.587	0.687	0.540	0.554	0.472	0.422	0.384	0.386	0.504	21.21
65)	T	Chlorobenzene	1.742	1.698	1.493	1.521	1.379	1.234	1.153	1.104	1.416	16.96
66)	T	Ethylbenzene	3.257	3.002	2.848	2.874	2.615	2.381	2.298	2.123	2.675	14.49
67)	T	m- & p-Xylenes	2.439	2.385	2.175	2.348	1.972	1.844	1.726	1.555	2.055	16.10
68)	T	Bromoform	0.343	0.387	0.362	0.384	0.379	0.363	0.340	0.345	0.363	5.27
69)	T	Styrene	1.577	1.559	1.508	1.574	1.498	1.408	1.312	1.210	1.456	9.25
70)	T	o-Xylene	2.340	2.279	2.094	2.235	1.996	1.828	1.751	1.524	2.006	14.29
71)	T	n-Nonane	1.733	1.507	1.396	1.473	1.377	1.424	1.368	1.007	1.411	14.25
72)	T	1,1,2,2-Tetrac...	1.092	1.102	1.006	1.092	0.992	0.924	0.910	0.789	0.988	11.12
73)	S	Bromofluoroben...	0.452	0.516	0.474	0.528	0.493	0.497	0.475	0.495	0.491	4.91
74)	T	Cumene	2.860	2.901	2.549	2.602	2.472	2.236	2.023	1.759	2.425	16.39
75)	T	alpha-Pinene	1.475	1.426	1.341	1.432	1.417	1.218	1.172	1.001	1.310	12.59
76)	T	n-Propylbenzene	3.378	3.480	3.151	3.355	3.230	2.697	2.628	2.189	3.013	15.16
77)	T	3-Ethyltoluene	2.707	2.577	2.516	2.588	2.564	2.135	2.086	1.812	2.373	13.42
78)	T	4-Ethyltoluene	2.382	2.599	2.302	2.536	2.296	2.065	1.898	1.566	2.206	15.67
79)	T	1,3,5-Trimethy...	2.117	2.241	2.055	2.139	2.043	1.801	1.714	1.513	1.953	12.78
80)	T	alpha-Methylst...	1.010	1.041	0.968	1.061	1.031	0.962	0.883	0.787	0.968	9.55
81)	T	2-Ethyltoluene	2.625	2.653	2.414	2.612	2.433	2.192	1.987	1.694	2.326	14.81
82)	T	1,2,4-Trimethy...	2.135	2.122	2.017	2.181	2.004	1.868	1.625	1.234	1.898	16.98
83)	T	n-Decane			0.062	0.090	0.062	0.059	0.057	0.044	0.062	23.85
84)	T	Benzyl Chloride				1.758	1.738	1.797	1.716	1.420	1.686	8.98
85)	T	1,3-Dichlorobe...	1.202	1.177	1.039	0.987	0.992	0.911	0.842	0.769	0.990	15.24
86)	T	1,4-Dichlorobe...	1.121	1.182	1.018	1.019	0.997	0.922	0.845	0.804	0.988	13.01
87)	T	sec-Butylbenzene	2.946	3.104	2.798	3.017	2.699	2.468	2.273	1.938	2.655	15.17
88)	T	4-Isopropyltol...	2.421	2.657	2.412	2.560	2.379	2.187	1.845	1.394	2.232	18.79
89)	T	1,2,3-Trimethy...	2.141	2.203	2.041	2.239	2.025	1.945	1.630	1.233	1.932	17.62
90)	T	1,2-Dichlorobe...	1.103	1.089	0.959	1.031	0.940	0.844	0.774	0.661	0.925	16.86
91)	T	d-Limonene	0.896	0.989	1.018	1.035	0.991	1.074	0.877		0.983	7.33
92)	T	1,2-Dibromo-3-...	0.257	0.326	0.274	0.320	0.320	0.302	0.292	0.286	0.297	8.25
93)	T	n-Undecane	1.519	1.600	1.579	1.580	1.518	1.719	1.385	1.168	1.509	11.04
94)	T	1,2,4-Trichlor...	0.667	0.657	0.543	0.616	0.593	0.560	0.545	0.524	0.588	9.21

Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene	2.461	2.345	2.074	2.378	2.353	2.251	2.052	1.829	2.218	9.63
96)	T	n-Dodecane	1.417	1.513	1.225	1.505	1.432	1.671	1.251	1.071	1.386	13.86
97)	T	Hexachlorobuta...	0.420	0.425	0.360	0.401	0.369	0.339	0.322	0.305	0.368	12.22
98)	T	Cyclohexanone	1.138	1.054	1.102	1.143	0.967	0.944	1.034	0.930	1.039	8.21
99)	T	tert-Butylbenzene	2.059	2.077	1.888	1.988	1.851	1.661	1.439	1.124	1.761	19.00
100)	T	n-Butylbenzene	2.446	2.585	2.506	2.520	2.331	2.299	1.996	1.647	2.291	13.92

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

10/19/18

1ng/L Std. ID:
4ng/L Std. ID: S31-10151812
20ng/L Std. ID: S31-10151810
200ng/L Std. ID: S31-10151808

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045		0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008		0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049		0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009		0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022		0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140		0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370		0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063		0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034		0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144		0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070		0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065		0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030		0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252		0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027		0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054		0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166		0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082		0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077		0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066		0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067		0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7
Benzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036		0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087		0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073		0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Isooctane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135		0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6

Q:\TO15 Std. Concentrations\MS09 Std. Conc\2018\R9101818\ICAL Conc. (Primary Source)

Date Updated: 08/22/18
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-10151812
20ng/L Std. ID: S31-10151810
200ng/L Std. ID: S31-10151808

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.1120	0.2240	0.5600	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055		0.1055	0.2110	0.5275	1.055	5.275	26.375	52.75	105.5
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052		0.1052	0.2104	0.5260	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085		0.1085	0.2170	0.5425	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.1066	0.2132	0.5330	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.2123	0.4246	1.0615	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071		0.1071	0.2142	0.5355	1.071	5.355	26.775	53.55	107.1
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Pinene	1.035	207.0	20.70	4.140	1.035		0.1035	0.2070	0.5175	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072		0.1072	0.2144	0.5360	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080		0.1080	0.2160	0.5400	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010		0.1010	0.2020	0.5050	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025		0.1025	0.2050	0.5125	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053		0.1053	0.2106	0.5265	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041		0.1041	0.2082	0.5205	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982		0.0982	0.1964	0.4910	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4

Calibration Status Report MS09

Method : I:\MS09\Methods\R9101818.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration

10/19/18

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS09\Data\2018_10\18\10181811.D
2	0.2	0	13	I:\MS09\Data\2018_10\18\10181812.D
3	0.5	1	13	I:\MS09\Data\2018_10\18\10181813.D
4	1.0	1	13	I:\MS09\Data\2018_10\18\10181814.D
5	5.0	5	13	I:\MS09\Data\2018_10\18\10181815.D
6	25	26	13	I:\MS09\Data\2018_10\18\10181816.D
7	50	52	13	I:\MS09\Data\2018_10\18\10181817.D
8	100	103	13	I:\MS09\Data\2018_10\18\10181818.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Oct 19 09:09 2018	Oct 19 09:01 2018	18 Oct 2018 16:43
2	0.2	Oct 19 09:09 2018	Oct 19 08:59 2018	18 Oct 2018 17:17
3	0.5	Oct 19 09:10 2018	Oct 19 08:58 2018	18 Oct 2018 17:50
4	1.0	Oct 19 09:10 2018	Oct 19 08:56 2018	18 Oct 2018 18:24
5	5.0	Oct 19 09:10 2018	Oct 19 08:55 2018	18 Oct 2018 18:58
6	25	Oct 19 09:10 2018	Oct 19 08:52 2018	18 Oct 2018 19:31
7	50	Oct 19 09:11 2018	Oct 19 09:06 2018	18 Oct 2018 20:05
8	100	Oct 19 09:11 2018	Oct 19 09:07 2018	18 Oct 2018 20:39

R9101818.M Fri Oct 19 10:22:41 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	124525	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	614539	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	368714	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	302677	11.782	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.24%				
57) Toluene-d8 (SS2)	13.66	98	803202	12.610	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.88%				
73) Bromofluorobenzene (SS3)	17.16	174	166832	12.798	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.40%				
Target Compounds							Qvalue
2) Propene	4.00	42	4141	0.129	ng		97
3) Dichlorodifluoromethan...	4.11	85	4724	0.139	ng		96
4) Chloromethane	4.30	50	5213	0.127	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.47	135	1603	0.144	ng		87
6) Vinyl Chloride	4.58	62	4223	0.137	ng		97
7) 1,3-Butadiene	4.76	54	2694	0.178	ng		93
8) Bromomethane	5.06	94	1917	0.172	ng		92
9) Chloroethane	5.28	64	1598	0.104	ng		87
10) Ethanol	5.48	45	9260m	0.419	ng		
11) Acetonitrile	5.69	41	4678	0.079	ng		85
12) Acrolein	5.84	56	1721	0.108	ng		99
13) Acetone	5.99	58	16191	0.896	ng		87
14) Trichlorofluoromethane	6.16	101	3345	0.146	ng		97
15) 2-Propanol (Isopropanol)	6.30	45	15621	0.212	ng		95
16) Acrylonitrile	6.50	53	3373	0.093	ng		98
17) 1,1-Dichloroethene	6.86	96	2099	0.146	ng		92
18) 2-Methyl-2-Propanol (t...	6.99	59	12351	0.199	ng		92
19) Methylene Chloride	6.99	84	2543	0.136	ng		88
20) 3-Chloro-1-propene (Al...	7.13	41	3573	0.105	ng		85
21) Trichlorotrifluoroethane	7.32	151	1285	0.130	ng		86
22) Carbon Disulfide	7.29	76	9129	0.137	ng		92
23) trans-1,2-Dichloroethene	8.01	61	3587	0.100	ng		98
24) 1,1-Dichloroethane	8.23	63	4367	0.107	ng		97
25) Methyl tert-Butyl Ether	8.35	73	6467	0.100	ng		97
26) Vinyl Acetate	8.42	86	1112	0.340	ng	#	21
27) 2-Butanone (MEK)	8.68	72	1598	0.098	ng	#	43
28) cis-1,2-Dichloroethene	9.10	61	3896	0.111	ng		94
29) Diisopropyl Ether	9.36	87	2310	0.135	ng	#	62
30) Ethyl Acetate	9.36	61	1894	0.213	ng		93
31) n-Hexane	9.35	57	5503	0.125	ng	#	97
32) Chloroform	9.39	83	4373	0.125	ng		99
34) Tetrahydrofuran (THF)	9.84	72	1887	0.117	ng	#	85
35) Ethyl tert-Butyl Ether	9.90	87	2343	0.101	ng	#	88
36) 1,2-Dichloroethane	10.16	62	3290	0.112	ng		98
38) 1,1,1-Trichloroethane	10.42	97	3259	0.139	ng		96
39) Isopropyl Acetate	10.80	61	3173	0.213	ng	#	77
40) 1-Butanol	10.82	56	5106	0.202	ng	#	80
41) Benzene	10.88	78	10318	0.126	ng		97
42) Carbon Tetrachloride	11.02	117	2178	0.125	ng		95
43) Cyclohexane	11.16	84	7309	0.254	ng		99
44) tert-Amyl Methyl Ether	11.49	73	6659	0.117	ng		96
45) 1,2-Dichloropropane	11.69	63	2997	0.128	ng		96
46) Bromodichloromethane	11.87	83	2993	0.124	ng		98
47) Trichloroethene	11.93	130	1965	0.123	ng		92
48) 1,4-Dioxane	11.93	88	1522	0.102	ng		89
49) 2,2,4-Trimethylpentane...	11.99	57	13063	0.126	ng		96

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

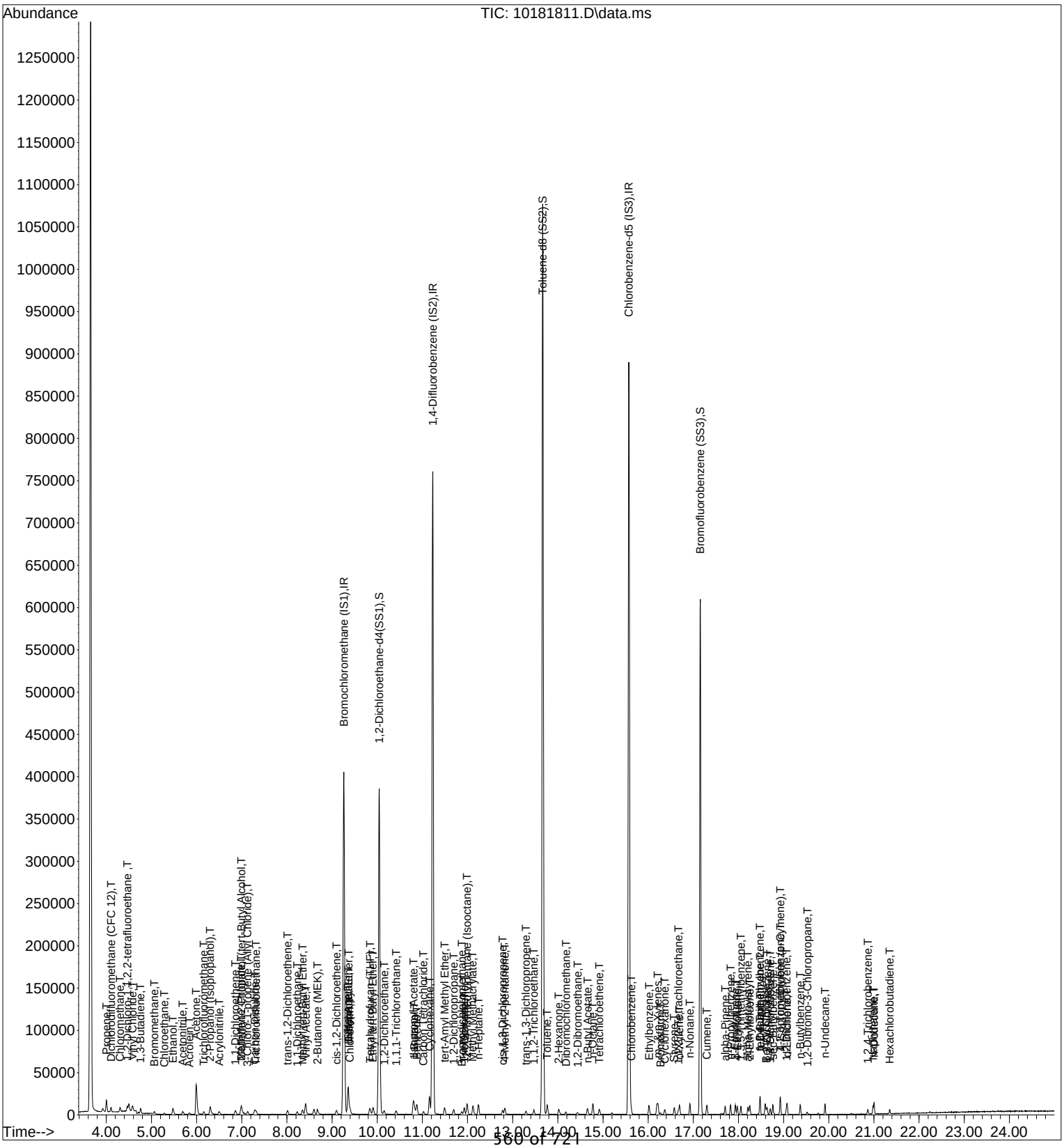
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	1299	0.198	ng	#	83
51) n-Heptane	12.25	71	2666	0.123	ng		94
52) cis-1,3-Dichloropropene	12.78	75	3824	0.120	ng		97
53) 4-Methyl-2-pentanone	12.82	58	2362	0.104	ng	#	79
54) trans-1,3-Dichloropropene	13.29	75	2770	0.100	ng		98
55) 1,1,2-Trichloroethane	13.47	97	1975	0.117	ng		99
58) Toluene	13.76	91	9843	0.139	ng		98
59) 2-Hexanone	14.02	43	6057	0.102	ng		91
60) Dibromochloromethane	14.18	129	1722	0.112	ng		97
61) 1,2-Dibromoethane	14.44	107	1961	0.114	ng		100
62) n-Butyl Acetate	14.66	43	6841	0.103	ng		97
63) n-Octane	14.77	57	2486	0.111	ng		93
64) Tetrachloroethene	14.92	166	1832	0.138	ng		93
65) Chlorobenzene	15.62	112	5476	0.125	ng		96
66) Ethylbenzene	16.02	91	9923	0.113	ng		95
67) m- & p-Xylenes	16.21	91	15275	0.228	ng		98
68) Bromoform	16.27	173	1074	0.103	ng		89
69) Styrene	16.57	104	4931	0.107	ng		97
70) o-Xylene	16.69	91	7331	0.108	ng		97
71) n-Nonane	16.92	43	5474	0.095	ng		98
72) 1,1,2,2-Tetrachloroethane	16.67	83	3427	0.108	ng		98
74) Cumene	17.30	105	8918	0.114	ng		98
75) alpha-Pinene	17.71	93	4503	0.104	ng		90
76) n-Propylbenzene	17.83	91	10720	0.104	ng		98
77) 3-Ethyltoluene	17.93	105	8481	0.111	ng		98
78) 4-Ethyltoluene	17.98	105	7456	0.102	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	6599	0.102	ng		96
80) alpha-Methylstyrene	18.21	118	3153	0.104	ng		97
81) 2-Ethyltoluene	18.25	105	8302	0.109	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	6727	0.104	ng		98
83) n-Decane	18.48	58	143	0.060	ng	#	1
84) Benzyl Chloride	18.61	91	4343	0.093	ng		97
85) 1,3-Dichlorobenzene	18.64	146	3830	0.129	ng		95
86) 1,4-Dichlorobenzene	18.70	146	3573	0.119	ng		92
87) sec-Butylbenzene	18.76	105	9238	0.107	ng		97
88) 4-Isopropyltoluene (p-...	18.93	119	7440	0.104	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	6582	0.103	ng		97
90) 1,2-Dichlorobenzene	19.06	146	3544	0.130	ng		97
91) d-Limonene	19.07	68	2670	0.080	ng		90
92) 1,2-Dibromo-3-Chloropr...	19.53	157	789	0.103	ng		95
93) n-Undecane	19.92	57	4737	0.083	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	2094	0.145	ng		96
95) Naphthalene	20.98	128	7440	0.144	ng		93
96) n-Dodecane	21.00	57	4310	0.084	ng		97
97) Hexachlorobutadiene	21.35	225	1306	0.130	ng		82
98) Cyclohexanone	16.37	55	3297	0.088	ng		96
99) tert-Butylbenzene	18.48	119	6481	0.126	ng		100
100) n-Butylbenzene	19.37	91	7676	0.101	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

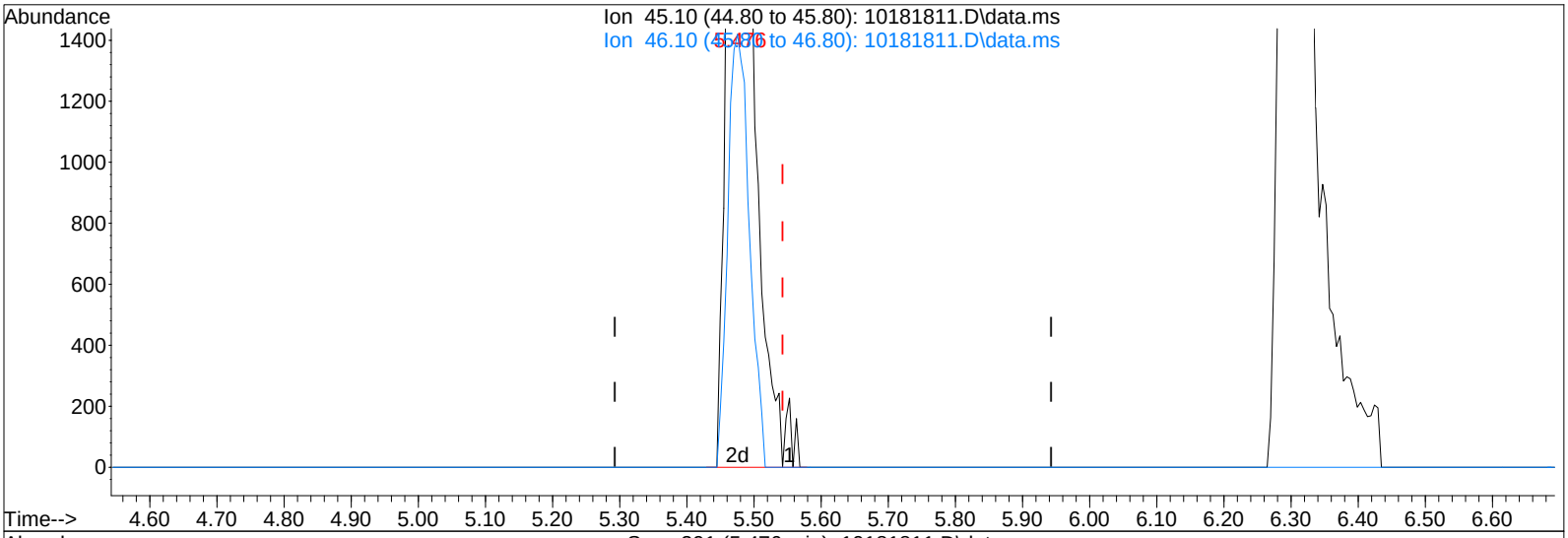
Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

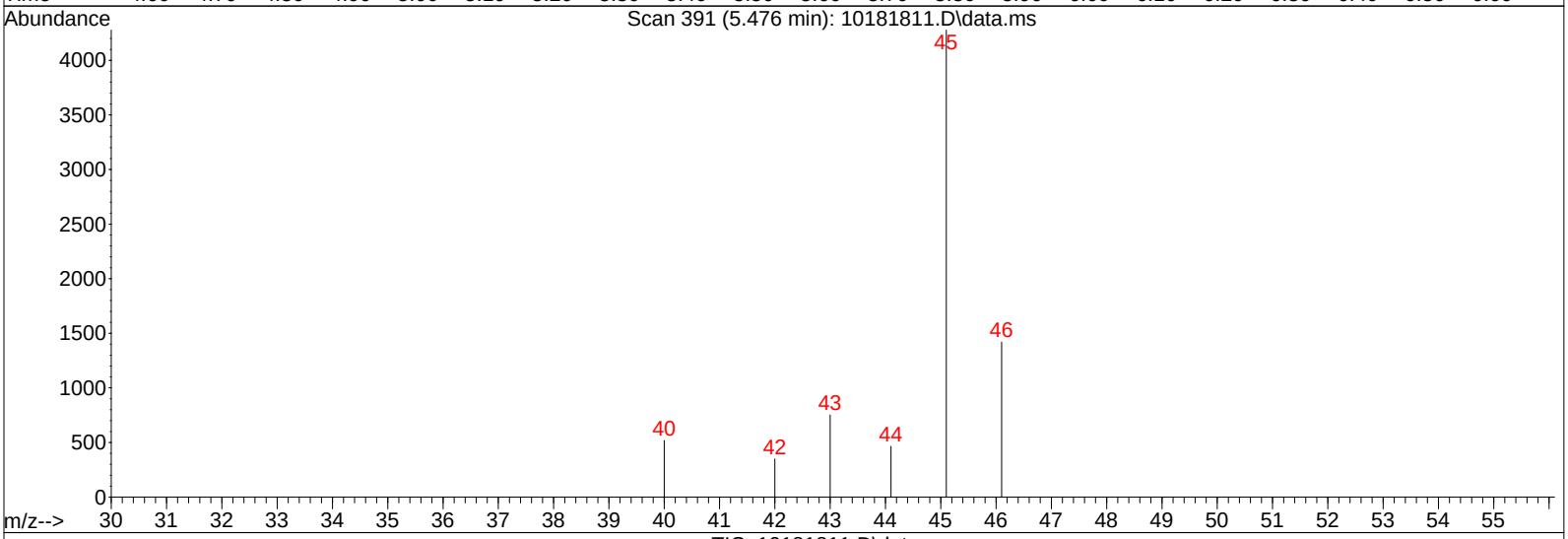


Quantitation Report (Qedit)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 09:01:00 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 10181811.D\data.ms

(10) Ethanol (T)

5.476min (-0.067) 0.42ng m

response 9260

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

MP

10/19/18

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	128339	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	602725	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	327999	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	275034	10.388	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.12%				
57) Toluene-d8 (SS2)	13.66	98	755400	13.331	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.64%				
73) Bromofluorobenzene (SS3)	17.16	174	169179	14.589	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.72%				
Target Compounds							Qvalue
2) Propene	3.99	42	7283	0.219	ng		98
3) Dichlorodifluoromethan...	4.09	85	8045	0.229	ng		98
4) Chloromethane	4.30	50	9867	0.233	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	2715	0.237	ng		99
6) Vinyl Chloride	4.58	62	7711	0.243	ng		96
7) 1,3-Butadiene	4.75	54	4718	0.302	ng		97
8) Bromomethane	5.06	94	3060	0.267	ng		96
9) Chloroethane	5.28	64	3003	0.190	ng		98
10) Ethanol	5.47	45	16086	0.707	ng		96
11) Acetonitrile	5.69	41	8310	0.135	ng		92
12) Acrolein	5.83	56	2780	0.170	ng		91
13) Acetone	5.99	58	22153	1.189	ng		99
14) Trichlorofluoromethane	6.15	101	5648	0.239	ng		97
15) 2-Propanol (Isopropanol)	6.29	45	22020	0.290	ng		94
16) Acrylonitrile	6.49	53	5626	0.151	ng		94
17) 1,1-Dichloroethene	6.86	96	3365	0.227	ng		93
18) 2-Methyl-2-Propanol (t...	6.96	59	20050	0.314	ng		96
19) Methylene Chloride	6.99	84	3839	0.199	ng		95
20) 3-Chloro-1-propene (Al...	7.13	41	6701	0.191	ng		89
21) Trichlorotrifluoroethane	7.31	151	2326	0.229	ng	#	83
22) Carbon Disulfide	7.29	76	15584	0.227	ng		97
23) trans-1,2-Dichloroethene	8.01	61	6296	0.171	ng		96
24) 1,1-Dichloroethane	8.23	63	7897	0.188	ng		99
25) Methyl tert-Butyl Ether	8.34	73	12119	0.181	ng		99
26) Vinyl Acetate	8.41	86	2359	0.699	ng	#	88
27) 2-Butanone (MEK)	8.67	72	3016	0.179	ng	#	64
28) cis-1,2-Dichloroethene	9.10	61	5634	0.156	ng		93
29) Diisopropyl Ether	9.36	87	3785	0.214	ng	#	17
30) Ethyl Acetate	9.35	61	3125	0.341	ng		91
31) n-Hexane	9.35	57	7734	0.171	ng		98
32) Chloroform	9.40	83	6385	0.178	ng		97
34) Tetrahydrofuran (THF)	9.84	72	2968	0.179	ng		95
35) Ethyl tert-Butyl Ether	9.91	87	4436	0.185	ng	#	86
36) 1,2-Dichloroethane	10.15	62	5360	0.177	ng		99
38) 1,1,1-Trichloroethane	10.42	97	5621	0.245	ng		96
39) Isopropyl Acetate	10.80	61	5597	0.383	ng	#	97
40) 1-Butanol	10.82	56	8810	0.356	ng		92
41) Benzene	10.87	78	18081	0.225	ng		98
42) Carbon Tetrachloride	11.03	117	4035	0.237	ng		99
43) Cyclohexane	11.16	84	12662	0.449	ng		94
44) tert-Amyl Methyl Ether	11.49	73	12767	0.228	ng		97
45) 1,2-Dichloropropane	11.69	63	5470	0.239	ng		99
46) Bromodichloromethane	11.87	83	5522	0.234	ng		100
47) Trichloroethene	11.93	130	3379	0.215	ng		96
48) 1,4-Dioxane	11.93	88	3007	0.206	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	23287	0.228	ng		98

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

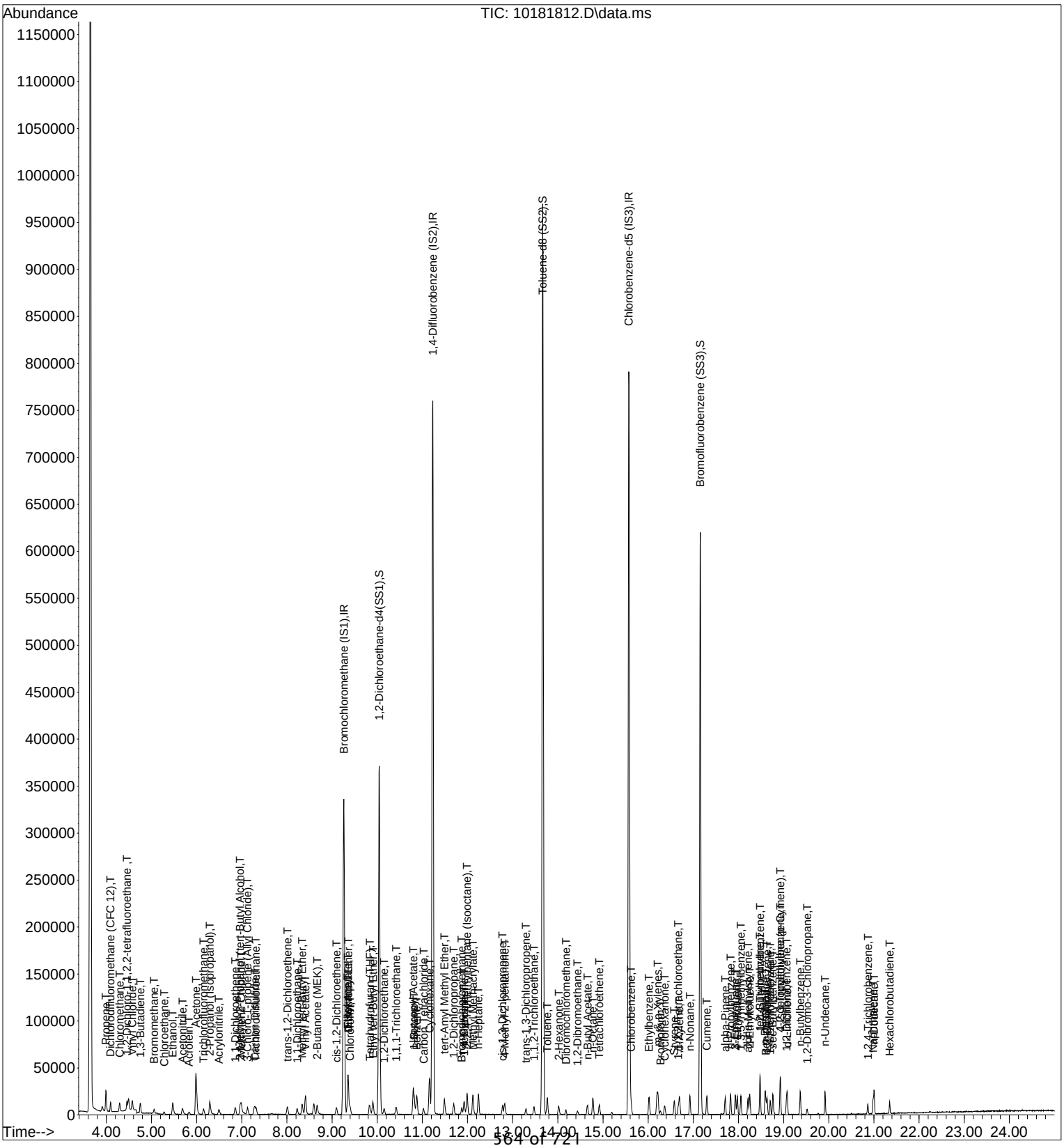
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	2384	0.371	ng	#	86
51) n-Heptane	12.24	71	4912	0.232	ng		98
52) cis-1,3-Dichloropropene	12.77	75	6737	0.216	ng		96
53) 4-Methyl-2-pentanone	12.82	58	3980	0.179	ng		98
54) trans-1,3-Dichloropropene	13.29	75	4885	0.180	ng		96
55) 1,1,2-Trichloroethane	13.47	97	3342	0.202	ng		94
58) Toluene	13.77	91	15945	0.253	ng		99
59) 2-Hexanone	14.02	43	8169	0.154	ng		99
60) Dibromochloromethane	14.18	129	3413	0.249	ng		97
61) 1,2-Dibromoethane	14.43	107	3545	0.231	ng		100
62) n-Butyl Acetate	14.66	43	9357	0.159	ng		98
63) n-Octane	14.77	57	3658	0.184	ng		97
64) Tetrachloroethene	14.92	166	3815	0.322	ng		92
65) Chlorobenzene	15.62	112	9500	0.244	ng		98
66) Ethylbenzene	16.02	91	16272	0.209	ng		99
67) m- & p-Xylenes	16.21	91	26567	0.445	ng		98
68) Bromoform	16.27	173	2158	0.233	ng		100
69) Styrene	16.58	104	8671	0.211	ng		99
70) o-Xylene	16.69	91	12702	0.211	ng		98
71) n-Nonane	16.93	43	8469	0.166	ng		98
72) 1,1,2,2-Tetrachloroethane	16.67	83	6154	0.219	ng		96
74) Cumene	17.30	105	16094	0.231	ng		99
75) alpha-Pinene	17.71	93	7743	0.202	ng		96
76) n-Propylbenzene	17.83	91	19649	0.214	ng		98
77) 3-Ethyltoluene	17.93	105	14360	0.212	ng		96
78) 4-Ethyltoluene	17.98	105	14473	0.223	ng		95
79) 1,3,5-Trimethylbenzene	18.05	105	12430	0.216	ng		100
80) alpha-Methylstyrene	18.21	118	5781	0.214	ng		100
81) 2-Ethyltoluene	18.25	105	14928	0.220	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	11891	0.207	ng		97
83) n-Decane	18.59	58	376	0.177	ng		98
84) Benzyl Chloride	18.61	91	7811	0.187	ng		98
85) 1,3-Dichlorobenzene	18.64	146	6671	0.253	ng		97
86) 1,4-Dichlorobenzene	18.70	146	6705	0.251	ng		99
87) sec-Butylbenzene	18.76	105	17318	0.225	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	14531	0.229	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	12046	0.213	ng		95
90) 1,2-Dichlorobenzene	19.06	146	6224	0.257	ng		98
91) d-Limonene	19.08	68	5240	0.176	ng		91
92) 1,2-Dibromo-3-Chloropr...	19.52	157	1781	0.261	ng	#	80
93) n-Undecane	19.92	57	8878	0.175	ng		99
94) 1,2,4-Trichlorobenzene	20.87	180	3666	0.285	ng		99
95) Naphthalene	20.98	128	12613	0.274	ng		97
96) n-Dodecane	21.00	57	8187	0.179	ng		98
97) Hexachlorobutadiene	21.35	225	2349	0.262	ng		95
98) Cyclohexanone	16.37	55	5432	0.164	ng		99
99) tert-Butylbenzene	18.48	119	11628	0.254	ng		96
100) n-Butylbenzene	19.37	91	14433	0.214	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	129192	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	615723	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	366024	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	261156	9.799	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.40%				
57) Toluene-d8 (SS2)	13.66	98	758245	11.991	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.92%				
73) Bromofluorobenzene (SS3)	17.16	174	173572	13.412	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.28%				
Target Compounds							Qvalue
2) Propene	3.99	42	16159	0.484	ng		99
3) Dichlorodifluoromethan...	4.09	85	19702	0.557	ng		100
4) Chloromethane	4.29	50	25081	0.588	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	6785	0.588	ng		98
6) Vinyl Chloride	4.57	62	19567	0.611	ng		100
7) 1,3-Butadiene	4.75	54	12456	0.791	ng		96
8) Bromomethane	5.05	94	7132	0.618	ng		100
9) Chloroethane	5.27	64	9205	0.579	ng		99
10) Ethanol	5.47	45	58628	2.560	ng		99
11) Acetonitrile	5.69	41	30946	0.501	ng		88
12) Acrolein	5.83	56	8034	0.487	ng		97
13) Acetone	5.98	58	62414	3.327	ng	#	82
14) Trichlorofluoromethane	6.16	101	14854	0.624	ng		100
15) 2-Propanol (Isopropanol)	6.29	45	74101	0.971	ng		93
16) Acrylonitrile	6.50	53	17904	0.476	ng		97
17) 1,1-Dichloroethene	6.85	96	8651	0.578	ng	#	81
18) 2-Methyl-2-Propanol (t...	6.95	59	59019	0.917	ng		94
19) Methylene Chloride	6.99	84	10607	0.546	ng		83
20) 3-Chloro-1-propene (Al...	7.13	41	17653	0.499	ng		92
21) Trichlorotrifluoroethane	7.31	151	5750	0.563	ng		87
22) Carbon Disulfide	7.28	76	37700	0.546	ng		98
23) trans-1,2-Dichloroethene	8.01	61	16454	0.444	ng		93
24) 1,1-Dichloroethane	8.23	63	19620	0.464	ng		99
25) Methyl tert-Butyl Ether	8.33	73	30306	0.450	ng		99
26) Vinyl Acetate	8.41	86	7306	2.151	ng	#	78
27) 2-Butanone (MEK)	8.66	72	7409	0.438	ng	#	92
28) cis-1,2-Dichloroethene	9.10	61	15681	0.431	ng		99
29) Diisopropyl Ether	9.35	87	9605	0.540	ng	#	28
30) Ethyl Acetate	9.35	61	8053	0.873	ng		91
31) n-Hexane	9.35	57	19962	0.438	ng		98
32) Chloroform	9.40	83	16661	0.460	ng		97
34) Tetrahydrofuran (THF)	9.82	72	7792	0.466	ng	#	85
35) Ethyl tert-Butyl Ether	9.90	87	10987	0.454	ng	#	88
36) 1,2-Dichloroethane	10.15	62	13319	0.438	ng		99
38) 1,1,1-Trichloroethane	10.42	97	12798	0.546	ng		97
39) Isopropyl Acetate	10.79	61	12927	0.866	ng	#	79
40) 1-Butanol	10.81	56	20138	0.797	ng		98
41) Benzene	10.87	78	39478	0.480	ng		99
42) Carbon Tetrachloride	11.03	117	9572	0.550	ng		98
43) Cyclohexane	11.15	84	28516	0.990	ng		89
44) tert-Amyl Methyl Ether	11.48	73	27796	0.485	ng		95
45) 1,2-Dichloropropane	11.69	63	12156	0.519	ng		99
46) Bromodichloromethane	11.87	83	12522	0.519	ng		99
47) Trichloroethene	11.92	130	8972	0.560	ng		97
48) 1,4-Dioxane	11.92	88	8013	0.536	ng		93
49) 2,2,4-Trimethylpentane...	11.99	57	49586	0.476	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

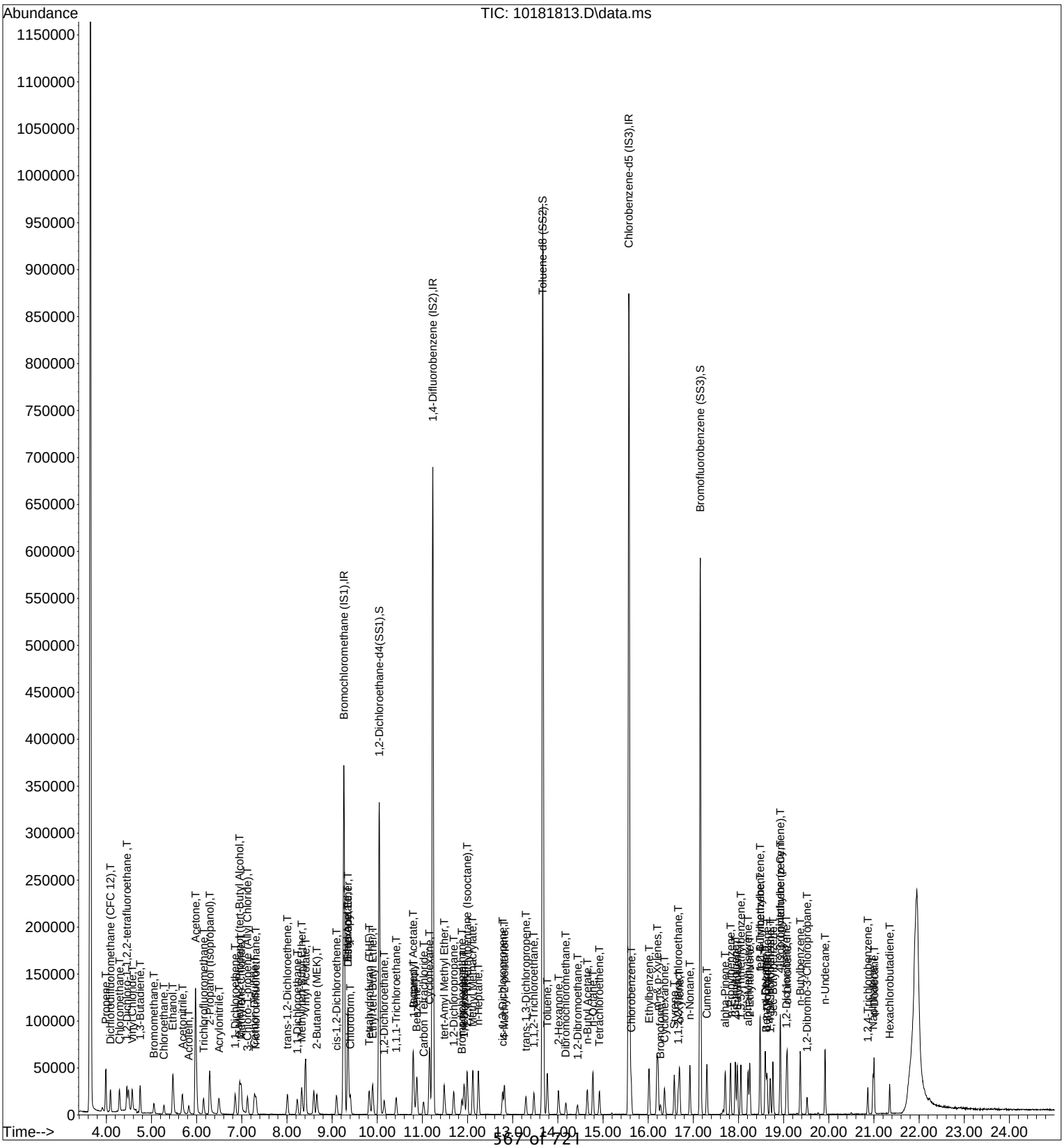
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	6638	1.012	ng		94
51) n-Heptane	12.24	71	11469	0.530	ng		96
52) cis-1,3-Dichloropropene	12.78	75	16953	0.532	ng		99
53) 4-Methyl-2-pentanone	12.81	58	10472	0.462	ng		96
54) trans-1,3-Dichloropropene	13.29	75	13589	0.489	ng		100
55) 1,1,2-Trichloroethane	13.47	97	8757	0.519	ng		95
58) Toluene	13.77	91	38538	0.548	ng		99
59) 2-Hexanone	14.01	43	22300	0.377	ng		98
60) Dibromochloromethane	14.17	129	8473	0.555	ng		98
61) 1,2-Dibromoethane	14.44	107	9314	0.544	ng		99
62) n-Butyl Acetate	14.65	43	24048	0.365	ng		97
63) n-Octane	14.78	57	9506	0.429	ng		97
64) Tetrachloroethene	14.92	166	8362	0.633	ng		98
65) Chlorobenzene	15.62	112	23309	0.537	ng		99
66) Ethylbenzene	16.02	91	43067	0.496	ng		98
67) m- & p-Xylenes	16.20	91	67612	1.015	ng		98
68) Bromoform	16.27	173	5635	0.546	ng		99
69) Styrene	16.58	104	23406	0.510	ng		97
70) o-Xylene	16.70	91	32555	0.485	ng		100
71) n-Nonane	16.92	43	21895	0.384	ng		96
72) 1,1,2,2-Tetrachloroethane	16.67	83	15666	0.499	ng		98
74) Cumene	17.30	105	39449	0.507	ng		99
75) alpha-Pinene	17.70	93	20316	0.475	ng		95
76) n-Propylbenzene	17.83	91	49640	0.486	ng		99
77) 3-Ethyltoluene	17.93	105	39119	0.517	ng		100
78) 4-Ethyltoluene	17.97	105	35758	0.494	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	31804	0.495	ng		99
80) alpha-Methylstyrene	18.21	118	14991	0.497	ng		98
81) 2-Ethyltoluene	18.25	105	37885	0.501	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	31537	0.492	ng		98
83) n-Decane	18.59	58	978	0.413	ng	#	92
84) Benzyl Chloride	18.61	91	21419	0.460	ng		98
85) 1,3-Dichlorobenzene	18.63	146	16428	0.558	ng		98
86) 1,4-Dichlorobenzene	18.70	146	16116	0.541	ng		96
87) sec-Butylbenzene	18.76	105	43548	0.507	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	36799	0.520	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	31133	0.493	ng		98
90) 1,2-Dichlorobenzene	19.06	146	15288	0.565	ng		99
91) d-Limonene	19.08	68	15059	0.453	ng		96
92) 1,2-Dibromo-3-Chloropr...	19.52	157	4183	0.549	ng		89
93) n-Undecane	19.92	57	24432	0.432	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	8461	0.589	ng		98
95) Naphthalene	20.98	128	31124	0.605	ng		100
96) n-Dodecane	21.01	57	18488	0.363	ng		96
97) Hexachlorobutadiene	21.35	225	5556	0.555	ng		95
98) Cyclohexanone	16.36	55	15843	0.428	ng		96
99) tert-Butylbenzene	18.48	119	29487	0.577	ng		100
100) n-Butylbenzene	19.37	91	39037	0.518	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	126222	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	622602	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	337236	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	267795	10.284	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 82.24%				
57) Toluene-d8 (SS2)	13.66	98	773426	13.276	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.24%				
73) Bromofluorobenzene (SS3)	17.16	174	178124	14.939	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.52%				
Target Compounds							Qvalue
2) Propene	3.98	42	33220	1.018	ng		99
3) Dichlorodifluoromethan...	4.09	85	37236	1.078	ng		100
4) Chloromethane	4.29	50	43686	1.048	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	12601	1.118	ng		100
6) Vinyl Chloride	4.57	62	37115	1.187	ng		99
7) 1,3-Butadiene	4.75	54	23394	1.521	ng		94
8) Bromomethane	5.05	94	13227	1.172	ng		98
9) Chloroethane	5.27	64	18188	1.170	ng		98
10) Ethanol	5.48	45	112819	5.042	ng		99
11) Acetonitrile	5.68	41	61333	1.015	ng		99
12) Acrolein	5.83	56	16561	1.028	ng		99
13) Acetone	5.97	58	112552	6.141	ng	#	77
14) Trichlorofluoromethane	6.15	101	27746	1.192	ng		99
15) 2-Propanol (Isopropanol)	6.29	45	149382	2.003	ng		95
16) Acrylonitrile	6.49	53	35748	0.974	ng		97
17) 1,1-Dichloroethene	6.86	96	15980	1.094	ng	#	70
18) 2-Methyl-2-Propanol (t...	6.95	59	125504	1.996	ng		94
19) Methylene Chloride	6.99	84	20084	1.058	ng	#	72
20) 3-Chloro-1-propene (Al...	7.13	41	40595	1.175	ng		87
21) Trichlorotrifluoroethane	7.31	151	10499	1.051	ng	#	83
22) Carbon Disulfide	7.28	76	75797	1.125	ng		100
23) trans-1,2-Dichloroethene	8.01	61	34469	0.952	ng		87
24) 1,1-Dichloroethane	8.23	63	40562	0.983	ng		99
25) Methyl tert-Butyl Ether	8.32	73	64047	0.972	ng		97
26) Vinyl Acetate	8.41	86	15743	4.745	ng	#	77
27) 2-Butanone (MEK)	8.66	72	15580	0.943	ng	#	79
28) cis-1,2-Dichloroethene	9.10	61	33169	0.933	ng		91
29) Diisopropyl Ether	9.35	87	16304	0.939	ng	#	95
30) Ethyl Acetate	9.35	61	18629	2.066	ng		99
31) n-Hexane	9.35	57	44690	1.003	ng		99
32) Chloroform	9.40	83	33953	0.960	ng		99
34) Tetrahydrofuran (THF)	9.82	72	14496	0.888	ng	#	89
35) Ethyl tert-Butyl Ether	9.89	87	21849	0.925	ng	#	91
36) 1,2-Dichloroethane	10.15	62	25306	0.851	ng		99
38) 1,1,1-Trichloroethane	10.42	97	25213	1.063	ng		98
39) Isopropyl Acetate	10.79	61	27892	1.848	ng	#	88
40) 1-Butanol	10.80	56	44505	1.741	ng		99
41) Benzene	10.88	78	78288	0.942	ng		98
42) Carbon Tetrachloride	11.03	117	19489	1.107	ng		99
43) Cyclohexane	11.16	84	56728	1.949	ng	#	86
44) tert-Amyl Methyl Ether	11.48	73	52805	0.912	ng		96
45) 1,2-Dichloropropane	11.69	63	21992	0.929	ng		99
46) Bromodichloromethane	11.87	83	22630	0.928	ng		99
47) Trichloroethene	11.93	130	16258	1.004	ng		96
48) 1,4-Dioxane	11.91	88	14782	0.978	ng		94
49) 2,2,4-Trimethylpentane...	11.99	57	96306	0.915	ng		98

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

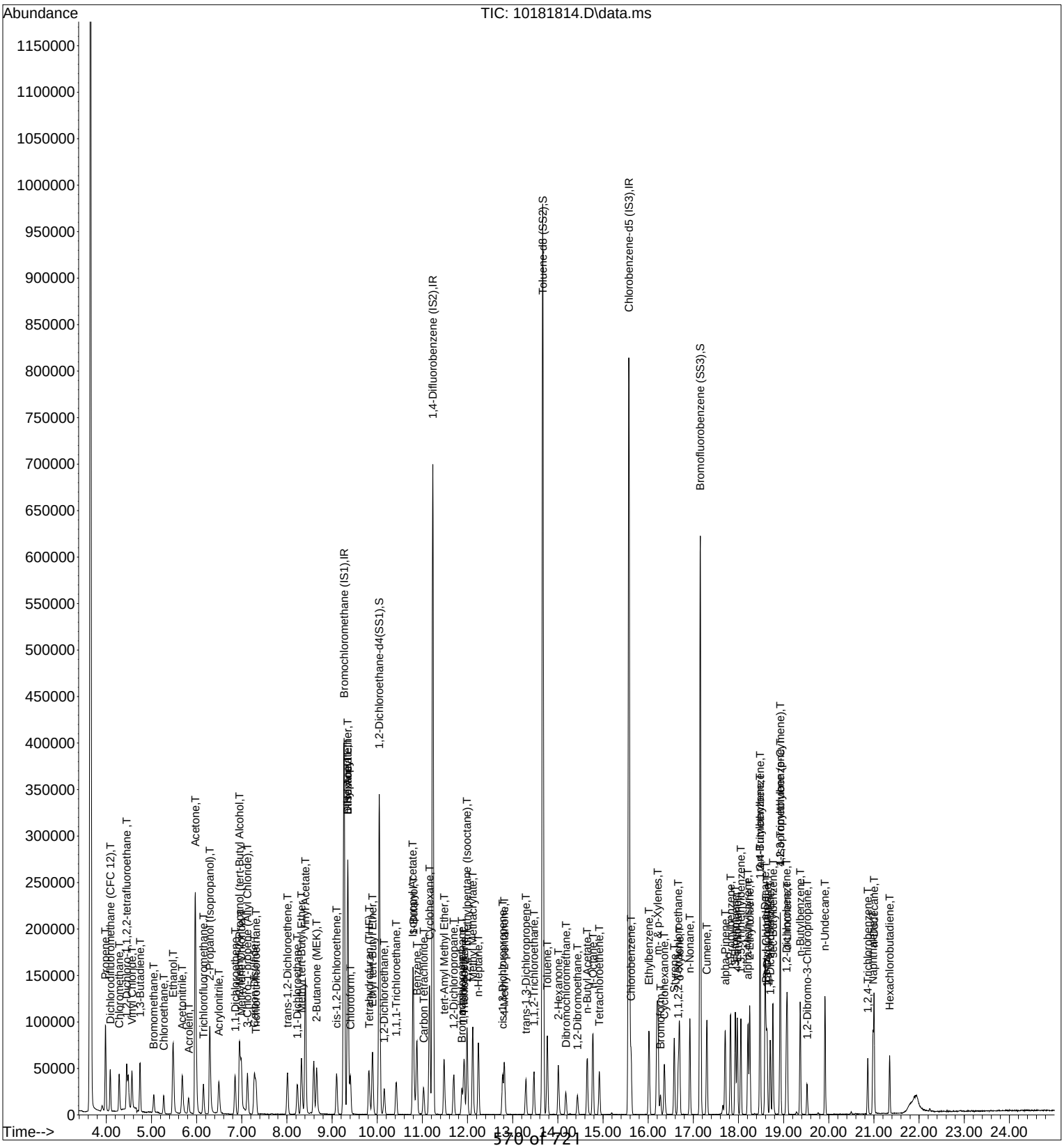
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	13027	1.965	ng	#	90
51) n-Heptane	12.24	71	20559	0.939	ng		91
52) cis-1,3-Dichloropropene	12.78	75	30378	0.943	ng		99
53) 4-Methyl-2-pentanone	12.81	58	18802	0.821	ng		91
54) trans-1,3-Dichloropropene	13.29	75	26501	0.943	ng		98
55) 1,1,2-Trichloroethane	13.47	97	17187	1.007	ng		97
58) Toluene	13.77	91	73944	1.141	ng		99
59) 2-Hexanone	14.01	43	46071	0.845	ng		100
60) Dibromochloromethane	14.18	129	16088	1.143	ng		100
61) 1,2-Dibromoethane	14.43	107	17765	1.127	ng		100
62) n-Butyl Acetate	14.65	43	56669	0.935	ng		99
63) n-Octane	14.78	57	18857	0.924	ng		96
64) Tetrachloroethene	14.92	166	15810	1.299	ng		99
65) Chlorobenzene	15.62	112	43753	1.093	ng		99
66) Ethylbenzene	16.02	91	80109	1.001	ng		99
67) m- & p-Xylenes	16.21	91	134471	2.191	ng		97
68) Bromoform	16.27	173	11016	1.159	ng		99
69) Styrene	16.58	104	44999	1.064	ng		98
70) o-Xylene	16.70	91	64028	1.035	ng		99
71) n-Nonane	16.92	43	42557	0.809	ng		97
72) 1,1,2,2-Tetrachloroethane	16.67	83	31347	1.083	ng		99
74) Cumene	17.30	105	74208	1.036	ng		99
75) alpha-Pinene	17.71	93	39982	1.014	ng		100
76) n-Propylbenzene	17.83	91	97379	1.034	ng		98
77) 3-Ethyltoluene	17.93	105	74150	1.064	ng		99
78) 4-Ethyltoluene	17.98	105	72581	1.088	ng		96
79) 1,3,5-Trimethylbenzene	18.05	105	60999	1.030	ng		98
80) alpha-Methylstyrene	18.21	118	30293	1.090	ng		98
81) 2-Ethyltoluene	18.25	105	75555	1.085	ng		100
82) 1,2,4-Trimethylbenzene	18.48	105	62833	1.064	ng		99
83) n-Decane	18.59	58	2604	1.195	ng	#	72
84) Benzyl Chloride	18.61	91	49850	1.162	ng		95
85) 1,3-Dichlorobenzene	18.64	146	28768	1.061	ng		99
86) 1,4-Dichlorobenzene	18.70	146	29718	1.083	ng		99
87) sec-Butylbenzene	18.76	105	86515	1.094	ng		98
88) 4-Isopropyltoluene (p-...	18.92	119	71977	1.104	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	62937	1.081	ng		100
90) 1,2-Dichlorobenzene	19.06	146	30283	1.215	ng		100
91) d-Limonene	19.08	68	28199	0.921	ng		95
92) 1,2-Dibromo-3-Chloropr...	19.52	157	9002	1.283	ng		82
93) n-Undecane	19.91	57	45061	0.865	ng		97
94) 1,2,4-Trichlorobenzene	20.86	180	17687	1.335	ng		98
95) Naphthalene	20.98	128	65772	1.388	ng		99
96) n-Dodecane	21.00	57	41856	0.892	ng		100
97) Hexachlorobutadiene	21.35	225	11397	1.236	ng		100
98) Cyclohexanone	16.36	55	30272	0.887	ng		97
99) tert-Butylbenzene	18.48	119	57221	1.215	ng		100
100) n-Butylbenzene	19.37	91	72339	1.041	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	132010	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	11.24	114	628985	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	360008	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	240894	8.845	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 70.80%				
57) Toluene-d8 (SS2)	13.67	98	780996	12.558	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%				
73) Bromofluorobenzene (SS3)	17.16	174	177540	13.948	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.60%				
Target Compounds							Qvalue
2) Propene	3.96	42	156803	4.592	ng		99
3) Dichlorodifluoromethan...	4.08	85	173978	4.817	ng		99
4) Chloromethane	4.28	50	202475	4.642	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	59878	5.079	ng		99
6) Vinyl Chloride	4.56	62	174235	5.327	ng		99
7) 1,3-Butadiene	4.74	54	117601	7.313	ng		98
8) Bromomethane	5.05	94	59856	5.072	ng		99
9) Chloroethane	5.26	64	74444	4.580	ng		100
10) Ethanol	5.50	45	525323	22.448	ng		100
11) Acetonitrile	5.69	41	292870	4.636	ng		100
12) Acrolein	5.82	56	72319	4.292	ng		100
13) Acetone	5.97	58	505648	26.381	ng	#	81
14) Trichlorofluoromethane	6.15	101	131676	5.411	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	684294	8.774	ng		99
16) Acrylonitrile	6.51	53	175649	4.574	ng		100
17) 1,1-Dichloroethene	6.85	96	77230	5.054	ng	#	68
18) 2-Methyl-2-Propanol (t...	6.96	59	604631	9.196	ng		96
19) Methylene Chloride	7.01	84	95517	4.809	ng	#	70
20) 3-Chloro-1-propene (Al...	7.13	41	198345	5.491	ng		88
21) Trichlorotrifluoroethane	7.31	151	48105	4.606	ng	#	81
22) Carbon Disulfide	7.28	76	365829	5.190	ng		99
23) trans-1,2-Dichloroethene	8.02	61	168114	4.441	ng		87
24) 1,1-Dichloroethane	8.24	63	193924	4.492	ng		99
25) Methyl tert-Butyl Ether	8.31	73	310889	4.514	ng		99
26) Vinyl Acetate	8.41	86	88872	25.610	ng	#	90
27) 2-Butanone (MEK)	8.65	72	71524	4.138	ng		93
28) cis-1,2-Dichloroethene	9.11	61	143855	3.871	ng		99
29) Diisopropyl Ether	9.35	87	74234	4.087	ng	#	79
30) Ethyl Acetate	9.35	61	83640	8.871	ng		97
31) n-Hexane	9.35	57	198732	4.266	ng		99
32) Chloroform	9.42	83	149383	4.038	ng		99
34) Tetrahydrofuran (THF)	9.81	72	62249	3.646	ng	#	78
35) Ethyl tert-Butyl Ether	9.89	87	98977	4.007	ng	#	82
36) 1,2-Dichloroethane	10.16	62	106687	3.432	ng		99
38) 1,1,1-Trichloroethane	10.43	97	121921	5.087	ng		96
39) Isopropyl Acetate	10.79	61	128505	8.426	ng	#	81
40) 1-Butanol	10.80	56	207548	8.037	ng		95
41) Benzene	10.88	78	360371	4.294	ng		99
42) Carbon Tetrachloride	11.03	117	90820	5.104	ng		100
43) Cyclohexane	11.16	84	271256	9.223	ng	#	87
44) tert-Amyl Methyl Ether	11.48	73	256157	4.379	ng		95
45) 1,2-Dichloropropane	11.70	63	96580	4.039	ng		99
46) Bromodichloromethane	11.88	83	117509	4.771	ng		100
47) Trichloroethene	11.93	130	77927	4.762	ng		100
48) 1,4-Dioxane	11.91	88	73905	4.843	ng		90
49) 2,2,4-Trimethylpentane...	11.99	57	478012	4.494	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

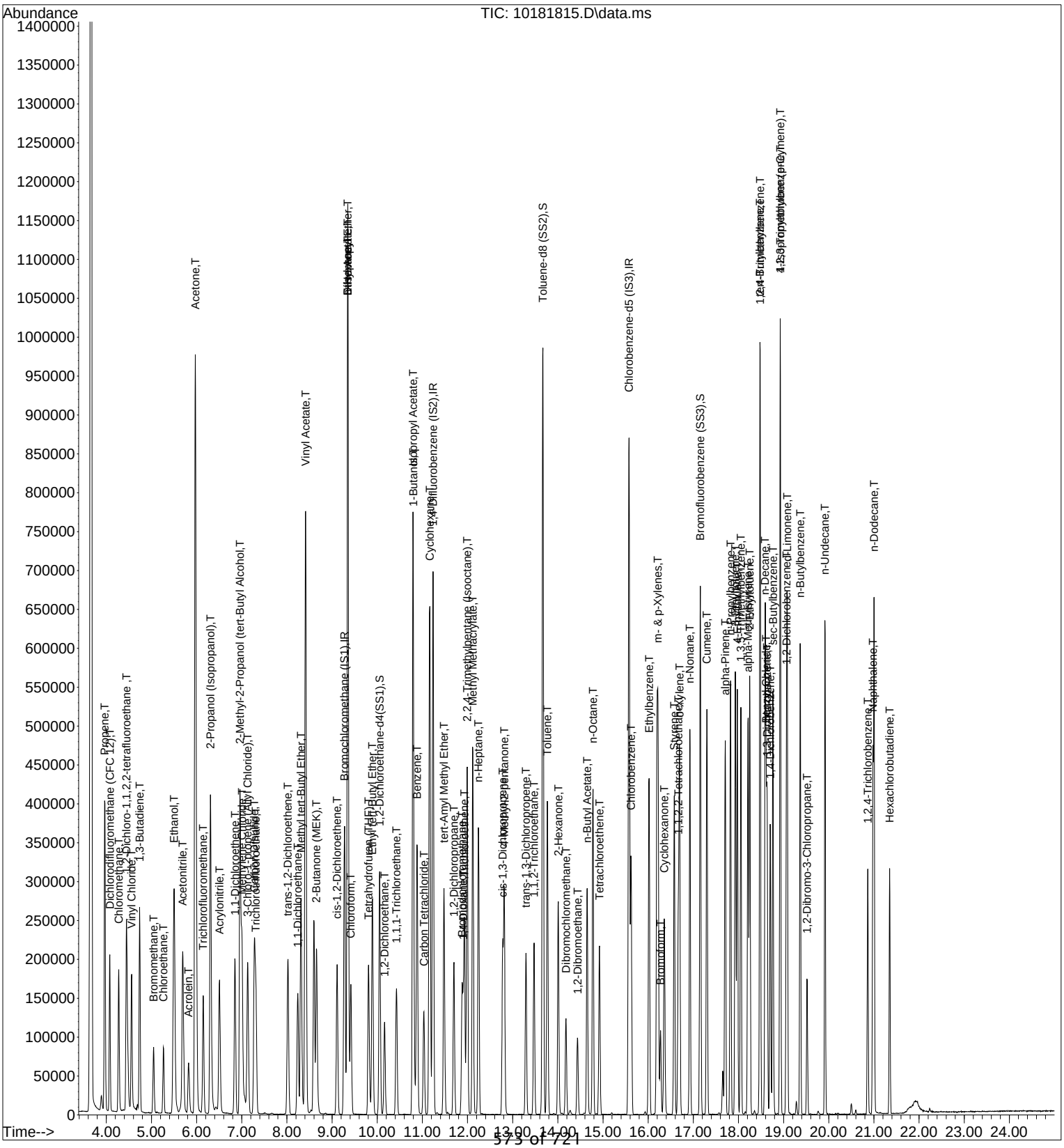
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	65001	9.704	ng	#	89
51) n-Heptane	12.24	71	98817	4.466	ng		94
52) cis-1,3-Dichloropropene	12.78	75	152228	4.677	ng		99
53) 4-Methyl-2-pentanone	12.81	58	94481	4.082	ng		90
54) trans-1,3-Dichloropropene	13.29	75	140821	4.960	ng		99
55) 1,1,2-Trichloroethane	13.47	97	81643	4.735	ng		100
58) Toluene	13.77	91	351146	5.078	ng		100
59) 2-Hexanone	14.01	43	225228	3.871	ng		97
60) Dibromochloromethane	14.18	129	81017	5.391	ng		99
61) 1,2-Dibromoethane	14.44	107	84700	5.033	ng		99
62) n-Butyl Acetate	14.65	43	250371	3.868	ng		98
63) n-Octane	14.78	57	88526	4.063	ng		95
64) Tetrachloroethene	14.92	166	71983	5.542	ng		99
65) Chlorobenzene	15.62	112	211616	4.953	ng		100
66) Ethylbenzene	16.02	91	388930	4.553	ng		100
67) m- & p-Xylenes	16.21	91	602774	9.198	ng		99
68) Bromoform	16.27	173	58086	5.724	ng		100
69) Styrene	16.58	104	228612	5.064	ng		98
70) o-Xylene	16.70	91	305252	4.622	ng		99
71) n-Nonane	16.92	43	212371	3.783	ng		97
72) 1,1,2,2-Tetrachloroethane	16.67	83	151980	4.917	ng		100
74) Cumene	17.30	105	376284	4.920	ng		99
75) alpha-Pinene	17.71	93	211145	5.014	ng		99
76) n-Propylbenzene	17.83	91	500433	4.977	ng		98
77) 3-Ethyltoluene	17.93	105	392055	5.270	ng		98
78) 4-Ethyltoluene	17.98	105	350741	4.926	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	310936	4.919	ng		99
80) alpha-Methylstyrene	18.21	118	157107	5.298	ng		100
81) 2-Ethyltoluene	18.25	105	375647	5.054	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	308203	4.890	ng		99
83) n-Decane	18.59	58	9665	4.153	ng		97
84) Benzyl Chloride	18.61	91	263070	5.743	ng		99
85) 1,3-Dichlorobenzene	18.64	146	154258	5.331	ng		99
86) 1,4-Dichlorobenzene	18.70	146	155169	5.295	ng		99
87) sec-Butylbenzene	18.76	105	413220	4.896	ng		99
88) 4-Isopropyltoluene (p-...	18.92	119	356898	5.128	ng		97
89) 1,2,3-Trimethylbenzene	18.92	105	303915	4.891	ng		97
90) 1,2-Dichlorobenzene	19.06	146	147455	5.543	ng		99
91) d-Limonene	19.08	68	144164	4.409	ng		94
92) 1,2-Dibromo-3-Chloropr...	19.52	157	48001	6.408	ng	#	79
93) n-Undecane	19.91	57	231016	4.155	ng		96
94) 1,2,4-Trichlorobenzene	20.86	180	90832	6.424	ng		100
95) Naphthalene	20.98	128	347268	6.865	ng		99
96) n-Dodecane	21.00	57	212644	4.246	ng		97
97) Hexachlorobutadiene	21.35	225	56010	5.692	ng		100
98) Cyclohexanone	16.36	55	136696	3.752	ng		99
99) tert-Butylbenzene	18.48	119	284390	5.656	ng		99
100) n-Butylbenzene	19.37	91	357230	4.817	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	135641	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.25	114	710528	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.58	82	414087	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	331790	11.857	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
57) Toluene-d8 (SS2)	13.67	98	910404	12.727	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
73) Bromofluorobenzene (SS3)	17.16	174	205824	14.059	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.48%				
Target Compounds							Qvalue
2) Propene	3.96	42	802660	22.879	ng		100
3) Dichlorodifluoromethan...	4.07	85	889232	23.959	ng		100
4) Chloromethane	4.27	50	1027947	22.938	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	311045	25.677	ng		99
6) Vinyl Chloride	4.56	62	852848	25.378	ng		100
7) 1,3-Butadiene	4.74	54	612581	37.071	ng		99
8) Bromomethane	5.05	94	318515	26.268	ng		100
9) Chloroethane	5.27	64	385068	23.055	ng		99
10) Ethanol	5.54	45	1816729	75.554	ng		100
11) Acetonitrile	5.72	41	1002002	15.438	ng		100
12) Acrolein	5.84	56	288573	16.666	ng		99
13) Acetone	5.99	58	1729275	87.807	ng		99
14) Trichlorofluoromethane	6.15	101	603082	24.120	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	2599000	32.432	ng		100
16) Acrylonitrile	6.53	53	694929	17.613	ng		100
17) 1,1-Dichloroethene	6.86	96	394960	25.154	ng		100
18) 2-Methyl-2-Propanol (t...	6.99	59	2501803	37.032	ng		99
19) Methylene Chloride	7.02	84	450719	22.086	ng		99
20) 3-Chloro-1-propene (Al...	7.14	41	749274	20.187	ng		99
21) Trichlorotrifluoroethane	7.32	151	281130	26.197	ng		98
22) Carbon Disulfide	7.29	76	1687860	23.304	ng		99
23) trans-1,2-Dichloroethene	8.04	61	710239	18.262	ng		99
24) 1,1-Dichloroethane	8.26	63	815800	18.392	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1490417	21.059	ng		100
26) Vinyl Acetate	8.43	86	532142	149.238	ng		97
27) 2-Butanone (MEK)	8.67	72	360305	20.285	ng		98
28) cis-1,2-Dichloroethene	9.13	61	740179	19.385	ng		99
29) Diisopropyl Ether	9.35	87	391585	20.981	ng	#	93
30) Ethyl Acetate	9.36	61	473232	48.849	ng		99
31) n-Hexane	9.35	57	1107222	23.133	ng		99
32) Chloroform	9.43	83	841743	22.146	ng		99
34) Tetrahydrofuran (THF)	9.81	72	381614	21.752	ng		98
35) Ethyl tert-Butyl Ether	9.90	87	575173	22.662	ng		97
36) 1,2-Dichloroethane	10.17	62	707413	22.150	ng		99
38) 1,1,1-Trichloroethane	10.44	97	674160	24.901	ng		100
39) Isopropyl Acetate	10.80	61	801032	46.493	ng	#	83
40) 1-Butanol	10.81	56	1409857	48.328	ng		83
41) Benzene	10.89	78	2059663	21.724	ng		100
42) Carbon Tetrachloride	11.04	117	523079	26.024	ng		99
43) Cyclohexane	11.17	84	1526191	45.937	ng		99
44) tert-Amyl Methyl Ether	11.48	73	1542668	23.346	ng		100
45) 1,2-Dichloropropane	11.70	63	615882	22.801	ng		99
46) Bromodichloromethane	11.89	83	660377	23.737	ng		100
47) Trichloroethene	11.94	130	387353	20.954	ng		100
48) 1,4-Dioxane	11.91	88	401122	23.267	ng		99
49) 2,2,4-Trimethylpentane...	12.00	57	2724217	22.674	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

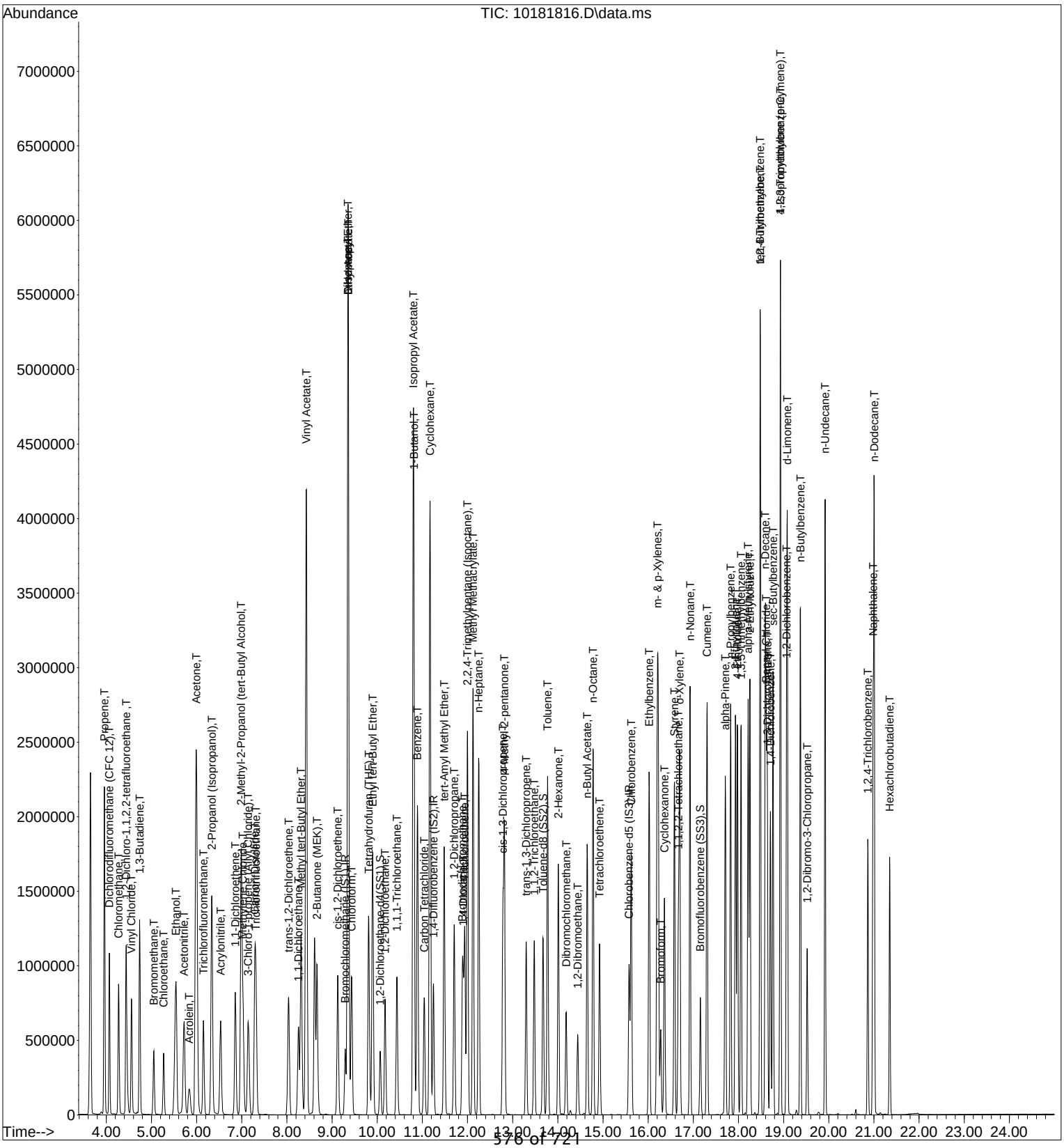
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	350028	46.256	ng		100
51) n-Heptane	12.25	71	584057	23.369	ng		99
52) cis-1,3-Dichloropropene	12.78	75	926171	25.188	ng		100
53) 4-Methyl-2-pentanone	12.81	58	609356	23.304	ng		99
54) trans-1,3-Dichloropropene	13.30	75	775057	24.164	ng		100
55) 1,1,2-Trichloroethane	13.48	97	433060	22.234	ng		99
58) Toluene	13.77	91	1891822	23.785	ng		100
59) 2-Hexanone	14.01	43	1386278	20.715	ng		100
60) Dibromochloromethane	14.19	129	440384	25.475	ng		99
61) 1,2-Dibromoethane	14.44	107	460649	23.799	ng		100
62) n-Butyl Acetate	14.65	43	1582600	21.256	ng		99
63) n-Octane	14.78	57	526915	21.027	ng		100
64) Tetrachloroethene	14.92	166	370058	24.769	ng		100
65) Chlorobenzene	15.62	112	1089532	22.172	ng		100
66) Ethylbenzene	16.02	91	2036897	20.730	ng		99
67) m- & p-Xylenes	16.21	91	3242052	43.011	ng		98
68) Bromoform	16.28	173	319139	27.344	ng		99
69) Styrene	16.58	104	1236017	23.804	ng		99
70) o-Xylene	16.70	91	1607434	21.161	ng		99
71) n-Nonane	16.93	43	1263422	19.567	ng		99
72) 1,1,2,2-Tetrachloroethane	16.67	83	814279	22.905	ng		100
74) Cumene	17.30	105	1957001	22.248	ng		100
75) alpha-Pinene	17.71	93	1043661	21.548	ng		100
76) n-Propylbenzene	17.83	91	2403150	20.777	ng		100
77) 3-Ethyltoluene	17.93	105	1877398	21.940	ng		100
78) 4-Ethyltoluene	17.98	105	1814916	22.160	ng		100
79) 1,3,5-Trimethylbenzene	18.06	105	1576642	21.684	ng		100
80) alpha-Methylstyrene	18.21	118	842663	24.703	ng		95
81) 2-Ethyltoluene	18.25	105	1945812	22.759	ng		100
82) 1,2,4-Trimethylbenzene	18.48	105	1652593	22.798	ng		100
83) n-Decane	18.59	58	52297	19.539	ng	#	97
84) Benzyl Chloride	18.61	91	1563923	29.684	ng		100
85) 1,3-Dichlorobenzene	18.64	146	815232	24.493	ng		100
86) 1,4-Dichlorobenzene	18.71	146	825501	24.492	ng		100
87) sec-Butylbenzene	18.76	105	2172559	22.379	ng		100
88) 4-Isopropyltoluene (p-...	18.93	119	1887305	23.578	ng		98
89) 1,2,3-Trimethylbenzene	18.93	105	1678734	23.486	ng		99
90) 1,2-Dichlorobenzene	19.06	146	761279	24.879	ng		100
91) d-Limonene	19.08	68	898200	23.882	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	260267	30.205	ng		99
93) n-Undecane	19.92	57	1504982	23.531	ng		98
94) 1,2,4-Trichlorobenzene	20.86	180	493849	30.366	ng		99
95) Naphthalene	20.98	128	1910677	32.840	ng		100
96) n-Dodecane	21.01	57	1426865	24.772	ng		100
97) Hexachlorobutadiene	21.35	225	295793	26.135	ng		99
98) Cyclohexanone	16.36	55	768074	18.327	ng		99
99) tert-Butylbenzene	18.48	119	1468139	25.387	ng		99
100) n-Butylbenzene	19.37	91	2025640	23.749	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.30	130	145075	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	11.25	114	737505	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.58	82	439335	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.08	65	331974	11.092	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
57) Toluene-d8 (SS2)	13.67	98	934920	12.318	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.56%				
73) Bromofluorobenzene (SS3)	17.16	174	208640	13.432	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.44%				
Target Compounds							Qvalue
2) Propene	3.96	42	1764720	47.031	ng		99
3) Dichlorodifluoromethan...	4.07	85	1740235	43.839	ng		100
4) Chloromethane	4.28	50	2052397	42.819	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	604259	46.638	ng		100
6) Vinyl Chloride	4.57	62	1625221	45.217	ng		99
7) 1,3-Butadiene	4.75	54	1197573	67.760	ng		98
8) Bromomethane	5.06	94	622298	47.984	ng		99
9) Chloroethane	5.28	64	712208	39.869	ng		99
10) Ethanol	5.56	45	4897903	190.448	ng		100
11) Acetonitrile	5.74	41	2829267	40.756	ng		99
12) Acrolein	5.85	56	713289	38.516	ng		100
13) Acetone	6.01	58	3993778	189.604	ng		86
14) Trichlorofluoromethane	6.16	101	1320734	49.387	ng		100
15) 2-Propanol (Isopropanol)	6.36	45	6222284	72.598	ng		99
16) Acrylonitrile	6.55	53	1751897	41.515	ng		100
17) 1,1-Dichloroethene	6.86	96	822194	48.959	ng	#	79
18) 2-Methyl-2-Propanol (t...	7.01	59	5747633	79.545	ng		97
19) Methylene Chloride	7.04	84	972588	44.559	ng		81
20) 3-Chloro-1-propene (Al...	7.16	41	1993372	50.213	ng		90
21) Trichlorotrifluoroethane	7.32	151	526408	45.864	ng		89
22) Carbon Disulfide	7.30	76	3712462	47.924	ng		100
23) trans-1,2-Dichloroethene	8.04	61	1702453	40.927	ng		90
24) 1,1-Dichloroethane	8.27	63	1897208	39.991	ng		100
25) Methyl tert-Butyl Ether	8.32	73	3164689	41.807	ng		98
26) Vinyl Acetate	8.44	86	1019805	267.404	ng	#	81
27) 2-Butanone (MEK)	8.68	72	758577	39.931	ng	#	88
28) cis-1,2-Dichloroethene	9.14	61	1589461	38.920	ng		95
29) Diisopropyl Ether	9.36	87	727150	36.427	ng	#	70
30) Ethyl Acetate	9.37	61	809465	78.123	ng		94
31) n-Hexane	9.36	57	1861615	36.364	ng		99
32) Chloroform	9.45	83	1626282	40.004	ng		100
34) Tetrahydrofuran (THF)	9.82	72	739603	39.416	ng		93
35) Ethyl tert-Butyl Ether	9.90	87	1126805	41.509	ng		93
36) 1,2-Dichloroethane	10.18	62	1345046	39.376	ng		99
38) 1,1,1-Trichloroethane	10.44	97	1321076	47.011	ng		99
39) Isopropyl Acetate	10.80	61	1435249	80.257	ng	#	91
40) 1-Butanol	10.83	56	2530407	83.565	ng		97
41) Benzene	10.90	78	3974121	40.383	ng		100
42) Carbon Tetrachloride	11.04	117	1039677	49.833	ng		100
43) Cyclohexane	11.17	84	2888135	83.750	ng		95
44) tert-Amyl Methyl Ether	11.49	73	2974262	43.365	ng		99
45) 1,2-Dichloropropane	11.71	63	1170445	41.746	ng		100
46) Bromodichloromethane	11.89	83	1278196	44.263	ng		99
47) Trichloroethene	11.94	130	786949	41.014	ng		100
48) 1,4-Dioxane	11.91	88	790673	44.184	ng		97
49) 2,2,4-Trimethylpentane...	12.00	57	5065341	40.617	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

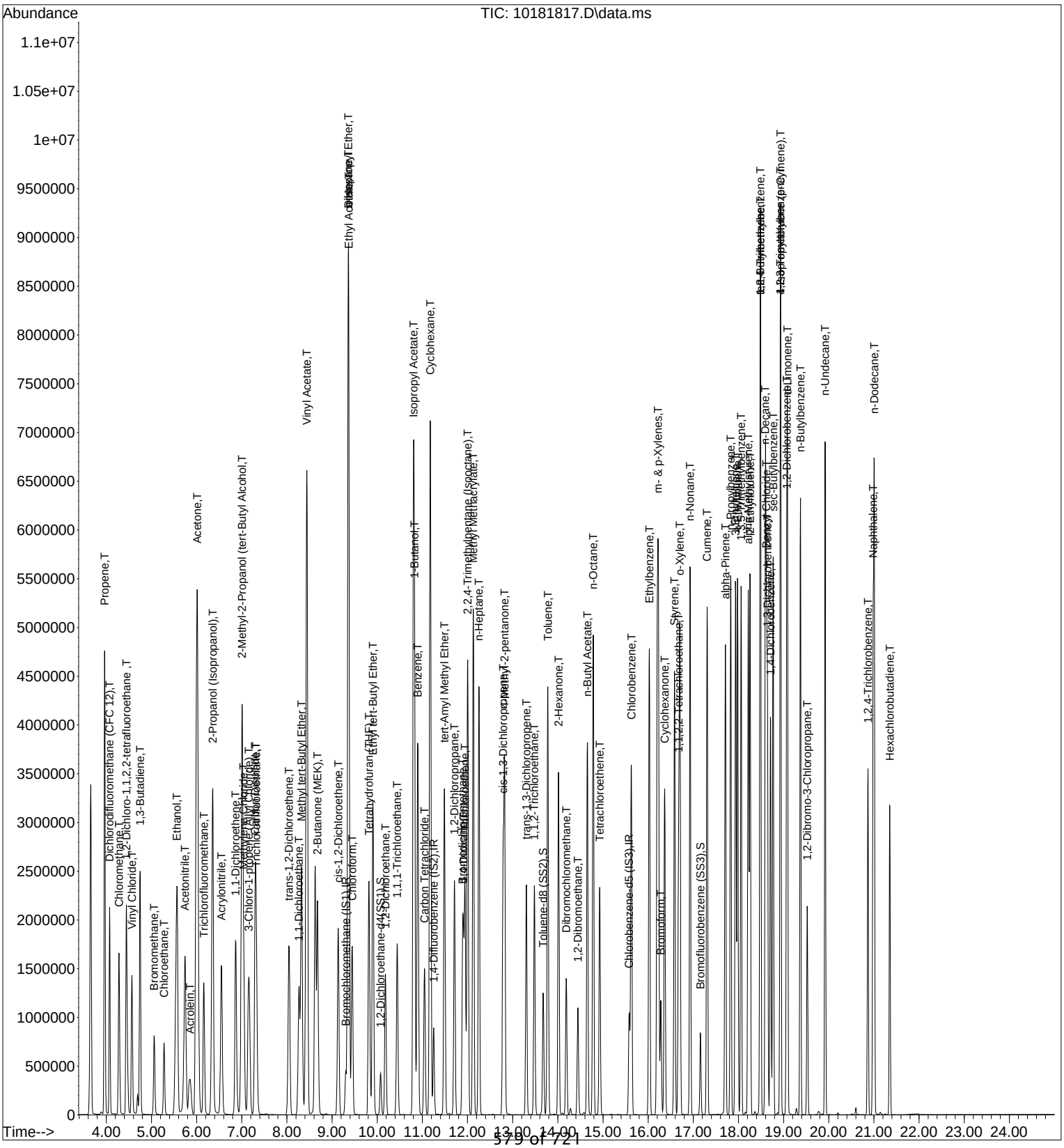
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	12.13	100	693467	88.290	ng	92
51) n-Heptane	12.25	71	1115237	42.991	ng	98
52) cis-1,3-Dichloropropene	12.79	75	1802420	47.226	ng	100
53) 4-Methyl-2-pentanone	12.82	58	1167649	43.023	ng	98
54) trans-1,3-Dichloropropene	13.30	75	1577845	47.394	ng	100
55) 1,1,2-Trichloroethane	13.48	97	863342	42.704	ng	99
58) Toluene	13.78	91	3713386	44.003	ng	100
59) 2-Hexanone	14.01	43	2979085	41.957	ng	98
60) Dibromochloromethane	14.18	129	877175	47.827	ng	100
61) 1,2-Dibromoethane	14.44	107	923386	44.964	ng	100
62) n-Butyl Acetate	14.65	43	3462823	43.836	ng	98
63) n-Octane	14.78	57	1071755	40.312	ng	98
64) Tetrachloroethene	14.93	166	714826	45.096	ng	100
65) Chlorobenzene	15.63	112	2160121	41.432	ng	100
66) Ethylbenzene	16.03	91	4170993	40.009	ng	99
67) m- & p-Xylenes	16.22	91	6438741	80.512	ng	99
68) Bromoform	16.28	173	634712	51.258	ng	100
69) Styrene	16.58	104	2444107	44.366	ng	98
70) o-Xylene	16.70	91	3267799	40.546	ng	98
71) n-Nonane	16.93	43	2574697	37.583	ng	98
72) 1,1,2,2-Tetrachloroethane	16.68	83	1701095	45.100	ng	100
74) Cumene	17.30	105	3758635	40.274	ng	99
75) alpha-Pinene	17.71	93	2132128	41.492	ng	96
76) n-Propylbenzene	17.83	91	4969224	40.494	ng	98
77) 3-Ethyltoluene	17.93	105	3893468	42.885	ng	99
78) 4-Ethyltoluene	17.98	105	3539426	40.733	ng	99
79) 1,3,5-Trimethylbenzene	18.06	105	3184580	41.282	ng	99
80) alpha-Methylstyrene	18.22	118	1641290	45.350	ng	99
81) 2-Ethyltoluene	18.26	105	3743947	41.274	ng	100
82) 1,2,4-Trimethylbenzene	18.49	105	3050775	39.668	ng	100
83) n-Decane	18.59	58	108607	38.246	ng	95
84) Benzyl Chloride	18.62	91	3168628	56.687	ng	100
85) 1,3-Dichlorobenzene	18.64	146	1598278	45.259	ng	100
86) 1,4-Dichlorobenzene	18.71	146	1605026	44.883	ng	100
87) sec-Butylbenzene	18.77	105	4245866	41.222	ng	99
88) 4-Isopropyltoluene (p-...	18.93	119	3378590	39.782	ng	99
89) 1,2,3-Trimethylbenzene	18.93	105	2985477	39.368	ng	99
90) 1,2-Dichlorobenzene	19.07	146	1481356	45.630	ng	100
91) d-Limonene	19.08	68	1555894	38.991	ng	95
92) 1,2-Dibromo-3-Chloropr...	19.52	157	534497	58.466	ng	90
93) n-Undecane	19.92	57	2571903	37.902	ng	96
94) 1,2,4-Trichlorobenzene	20.87	180	1019740	59.098	ng	100
95) Naphthalene	20.98	128	3695837	59.872	ng	100
96) n-Dodecane	21.01	57	2266615	37.089	ng	95
97) Hexachlorobutadiene	21.35	225	594947	49.546	ng	99
98) Cyclohexanone	16.37	55	1783999	40.121	ng	95
99) tert-Butylbenzene	18.49	119	2697408	43.963	ng	100
100) n-Butylbenzene	19.37	91	3732575	41.246	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018 10/19/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.31	130	147167	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	11.26	114	742611	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	442417	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.09	65	304128	10.017	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.16%				
57) Toluene-d8 (SS2)	13.68	98	941459	12.318	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.56%				
73) Bromofluorobenzene (SS3)	17.16	174	218853	13.991	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.92%				
Target Compounds							Qvalue
2) Propene	3.97	42	3498527	91.912	ng		99
3) Dichlorodifluoromethan...	4.08	85	3207591	79.656	ng		99
4) Chloromethane	4.29	50	3449201	70.938	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	1217343	92.622	ng		99
6) Vinyl Chloride	4.58	62	2837536	77.824	ng		99
7) 1,3-Butadiene	4.76	54	1944923	108.482	ng		97
8) Bromomethane	5.07	94	1205267	91.614	ng		99
9) Chloroethane	5.29	64	1307156	72.134	ng		99
10) Ethanol	5.59	45	6445843	247.075	ng		100
11) Acetonitrile	5.77	41	3857172	54.774	ng		99
12) Acrolein	5.87	56	1097557	58.424	ng		94
13) Acetone	6.04	58	5649959	264.418	ng		96
14) Trichlorofluoromethane	6.17	101	2300427	84.799	ng		100
15) 2-Propanol (Isopropanol)	6.38	45	7298184	83.940	ng		99
16) Acrylonitrile	6.57	53	3236379	75.602	ng		99
17) 1,1-Dichloroethene	6.87	96	1590767	93.379	ng		96
18) 2-Methyl-2-Propanol (t...	7.02	59	6865856	93.670	ng		98
19) Methylene Chloride	7.05	84	1774873	80.160	ng		96
20) 3-Chloro-1-propene (Al...	7.17	41	3929143	97.569	ng		91
21) Trichlorotrifluoroethane	7.33	151	1030736	88.527	ng		96
22) Carbon Disulfide	7.31	76	6933969	88.237	ng		100
23) trans-1,2-Dichloroethene	8.06	61	3392017	80.385	ng		90
24) 1,1-Dichloroethane	8.28	63	3670284	76.266	ng		100
25) Methyl tert-Butyl Ether	8.33	73	6185248	80.549	ng		97
26) Vinyl Acetate	8.46	86	1846352	477.252	ng	#	64
27) 2-Butanone (MEK)	8.69	72	1492415	77.442	ng	#	92
28) cis-1,2-Dichloroethene	9.15	61	3036467	73.294	ng		97
29) Diisopropyl Ether	9.36	87	1211553	59.831	ng	#	51
30) Ethyl Acetate	9.38	61	1267473	120.587	ng		89
31) n-Hexane	9.36	57	2836361	54.617	ng		98
32) Chloroform	9.46	83	3061896	74.247	ng		100
34) Tetrahydrofuran (THF)	9.82	72	1362818	71.597	ng	#	83
35) Ethyl tert-Butyl Ether	9.91	87	2100965	76.295	ng	#	83
36) 1,2-Dichloroethane	10.19	62	2298328	66.327	ng		99
38) 1,1,1-Trichloroethane	10.45	97	2438357	86.174	ng		96
39) Isopropyl Acetate	10.81	61	2278397	126.529	ng	#	80
40) 1-Butanol	10.84	56	4098650	134.425	ng		94
41) Benzene	10.91	78	7142207	72.076	ng		100
42) Carbon Tetrachloride	11.05	117	1953492	92.989	ng		99
43) Cyclohexane	11.18	84	4765655	137.244	ng	#	86
44) tert-Amyl Methyl Ether	11.50	73	5353517	77.518	ng		97
45) 1,2-Dichloropropane	11.72	63	2107429	74.649	ng		100
46) Bromodichloromethane	11.90	83	2305405	79.285	ng		99
47) Trichloroethene	11.95	130	1521479	78.750	ng		100
48) 1,4-Dioxane	11.92	88	1410216	78.264	ng		89
49) 2,2,4-Trimethylpentane...	12.01	57	7969261	63.462	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

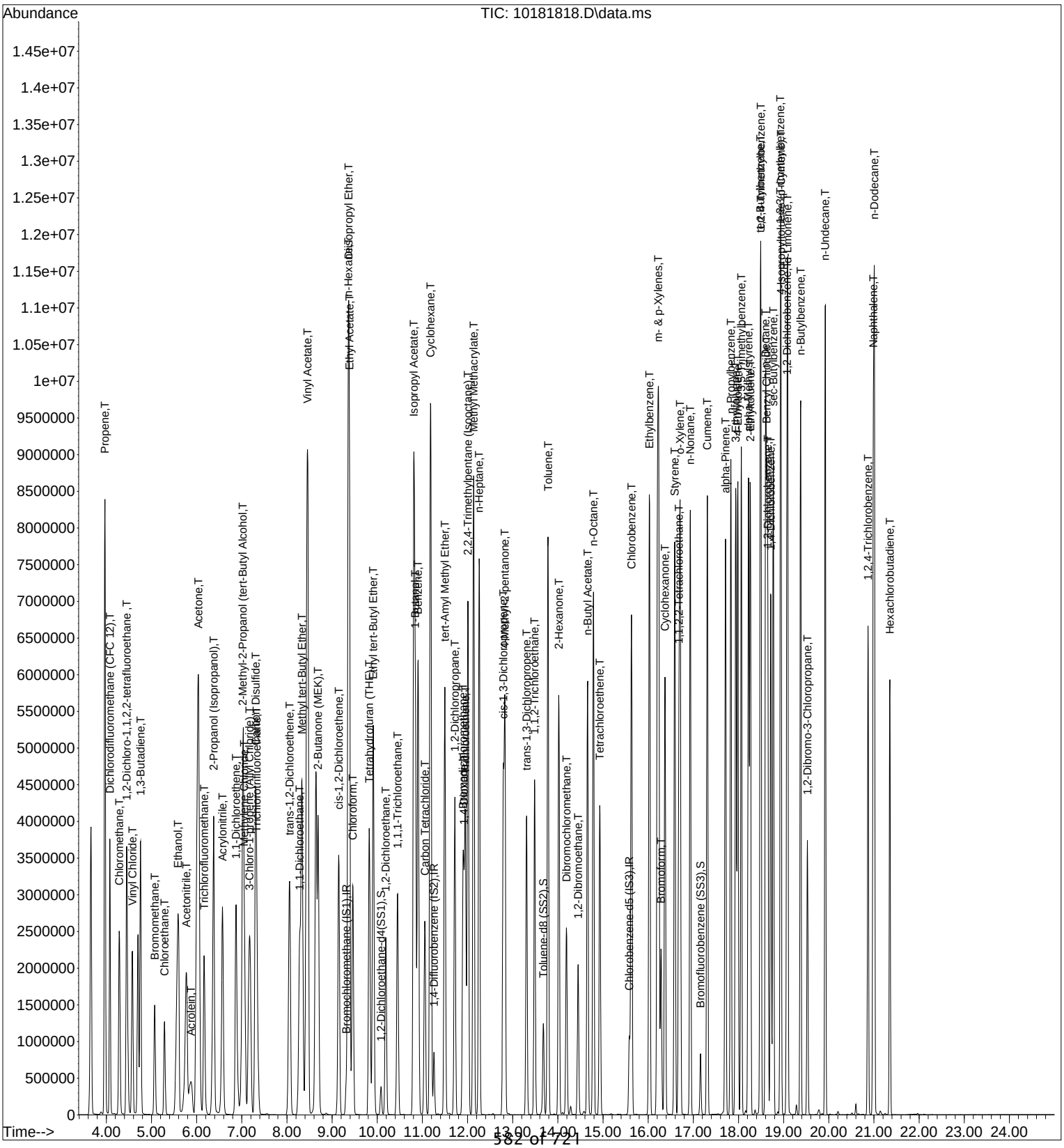
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.14	100	1321928	167.146	ng	#	85
51) n-Heptane	12.26	71	2086173	79.866	ng		96
52) cis-1,3-Dichloropropene	12.79	75	3163117	82.308	ng		99
53) 4-Methyl-2-pentanone	12.82	58	1927146	70.518	ng		89
54) trans-1,3-Dichloropropene	13.31	75	2857374	85.238	ng		99
55) 1,1,2-Trichloroethane	13.48	97	1681887	82.620	ng		100
58) Toluene	13.78	91	6960663	81.908	ng		99
59) 2-Hexanone	14.02	43	4958204	69.345	ng		99
60) Dibromochloromethane	14.19	129	1699143	91.998	ng		99
61) 1,2-Dibromoethane	14.45	107	1758548	85.035	ng		100
62) n-Butyl Acetate	14.66	43	5433825	68.307	ng		98
63) n-Octane	14.79	57	1668313	62.313	ng		93
64) Tetrachloroethene	14.93	166	1446146	90.597	ng		99
65) Chlorobenzene	15.63	112	4165845	79.347	ng		99
66) Ethylbenzene	16.03	91	7763458	73.951	ng		99
67) m- & p-Xylenes	16.22	91	11684605	145.090	ng		99
68) Bromoform	16.28	173	1298883	104.163	ng		100
69) Styrene	16.59	104	4539680	81.831	ng		99
70) o-Xylene	16.71	91	5729128	70.590	ng		99
71) n-Nonane	16.93	43	3818796	55.355	ng		95
72) 1,1,2,2-Tetrachloroethane	16.68	83	2972683	78.264	ng		100
74) Cumene	17.31	105	6580367	70.018	ng		97
75) alpha-Pinene	17.71	93	3668559	70.894	ng		98
76) n-Propylbenzene	17.83	91	8336147	67.458	ng		98
77) 3-Ethyltoluene	17.94	105	6810476	74.492	ng		98
78) 4-Ethyltoluene	17.99	105	5880082	67.198	ng		97
79) 1,3,5-Trimethylbenzene	18.06	105	5661674	72.882	ng		99
80) alpha-Methylstyrene	18.22	118	2947462	80.873	ng		100
81) 2-Ethyltoluene	18.26	105	6426074	70.348	ng		97
82) 1,2,4-Trimethylbenzene	18.50	105	4665306	60.239	ng		99
83) n-Decane	18.60	58	168954	59.083	ng	#	95
84) Benzyl Chloride	18.62	91	5283486	93.863	ng		97
85) 1,3-Dichlorobenzene	18.65	146	2938424	82.628	ng		99
86) 1,4-Dichlorobenzene	18.72	146	3075772	85.413	ng		100
87) sec-Butylbenzene	18.77	105	7289536	70.280	ng		98
88) 4-Isopropyltoluene (p-...	18.94	119	5142360	60.129	ng		99
89) 1,2,3-Trimethylbenzene	18.93	105	4547451	59.547	ng		98
90) 1,2-Dichlorobenzene	19.07	146	2547807	77.933	ng		100
91) d-Limonene	19.09	68	2364673	58.847	ng		88
92) 1,2-Dibromo-3-Chloropr...	19.53	157	1053973	114.485	ng	#	78
93) n-Undecane	19.92	57	4370374	63.956	ng		94
94) 1,2,4-Trichlorobenzene	20.87	180	1971630	113.468	ng		100
95) Naphthalene	20.99	128	6635910	106.752	ng		99
96) n-Dodecane	21.01	57	3908028	63.503	ng		93
97) Hexachlorobutadiene	21.35	225	1136400	93.978	ng		100
98) Cyclohexanone	16.37	55	3230658	72.149	ng		97
99) tert-Butylbenzene	18.49	119	4244449	68.695	ng		99
100) n-Butylbenzene	19.38	91	6202301	68.060	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	143734	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	11.25	114	700961	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	413514	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.07	65	328004	13.159	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.28%				
57) Toluene-d8 (SS2)	13.67	98	902920	12.498	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.00%				
73) Bromofluorobenzene (SS3)	17.16	174	206826	12.725	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
Target Compounds							Qvalue
2) Propene	3.96	42	795271	21.889	ng		99
3) Dichlorodifluoromethan...	4.07	85	900181	22.999	ng		100
4) Chloromethane	4.28	50	1011226	21.291	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	348077	25.279	ng		100
6) Vinyl Chloride	4.56	62	767154	20.691	ng		98
7) 1,3-Butadiene	4.74	54	520473	21.185	ng		97
8) Bromomethane	5.05	94	361793	24.169	ng		99
9) Chloroethane	5.27	64	461152	27.751	ng		99
10) Ethanol	5.54	45	2670830	136.040	ng		100
11) Acetonitrile	5.72	41	1466832	27.599	ng		99
12) Acrolein	5.84	56	388008	25.528	ng		100
13) Acetone	6.00	58	2278397	112.309	ng		85
14) Trichlorofluoromethane	6.15	101	726612	25.916	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	3629243	57.464	ng		100
16) Acrylonitrile	6.53	53	935794	27.160	ng		100
17) 1,1-Dichloroethene	6.86	96	449537	26.472	ng	#	81
18) 2-Methyl-2-Propanol (t...	6.99	59	3254951	58.908	ng		97
19) Methylene Chloride	7.03	84	531347	26.165	ng		81
20) 3-Chloro-1-propene (Al...	7.15	41	1122583	30.219	ng		91
21) Trichlorotrifluoroethane	7.32	151	296399	26.444	ng		90
22) Carbon Disulfide	7.29	76	2030433	26.646	ng		100
23) trans-1,2-Dichloroethene	8.04	61	917534	27.247	ng		90
24) 1,1-Dichloroethane	8.26	63	1076984	26.513	ng		100
25) Methyl tert-Butyl Ether	8.32	73	1727510	28.033	ng		98
26) Vinyl Acetate	8.43	86	563634	168.699	ng	#	92
27) 2-Butanone (MEK)	8.67	72	409964	25.907	ng	#	85
28) cis-1,2-Dichloroethene	9.13	61	854265	26.382	ng		95
29) Diisopropyl Ether	9.35	87	413267	27.091	ng	#	81
30) Ethyl Acetate	9.36	61	469607	56.048	ng		95
31) n-Hexane	9.35	57	1091964	28.344	ng		100
32) Chloroform	9.44	83	878687	25.900	ng		100
34) Tetrahydrofuran (THF)	9.81	72	400003	26.301	ng		94
35) Ethyl tert-Butyl Ether	9.90	87	614277	27.417	ng		94
36) 1,2-Dichloroethane	10.17	62	731560	27.144	ng		100
38) 1,1,1-Trichloroethane	10.44	97	704476	26.570	ng		98
39) Isopropyl Acetate	10.80	61	805789	55.814	ng	#	94
40) 1-Butanol	10.81	56	1370585	57.507	ng		100
41) Benzene	10.89	78	2188908	25.643	ng		100
42) Carbon Tetrachloride	11.04	117	559787	27.111	ng		100
43) Cyclohexane	11.17	84	1594749	52.583	ng		96
44) tert-Amyl Methyl Ether	11.48	73	1627258	28.077	ng		99
45) 1,2-Dichloropropane	11.70	63	630119	26.206	ng		100
46) Bromodichloromethane	11.89	83	698787	27.319	ng		100
47) Trichloroethene	11.94	130	425719	25.334	ng		100
48) 1,4-Dioxane	11.91	88	425761	27.797	ng		97
49) 2,2,4-Trimethylpentane...	12.00	57	2788155	26.552	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

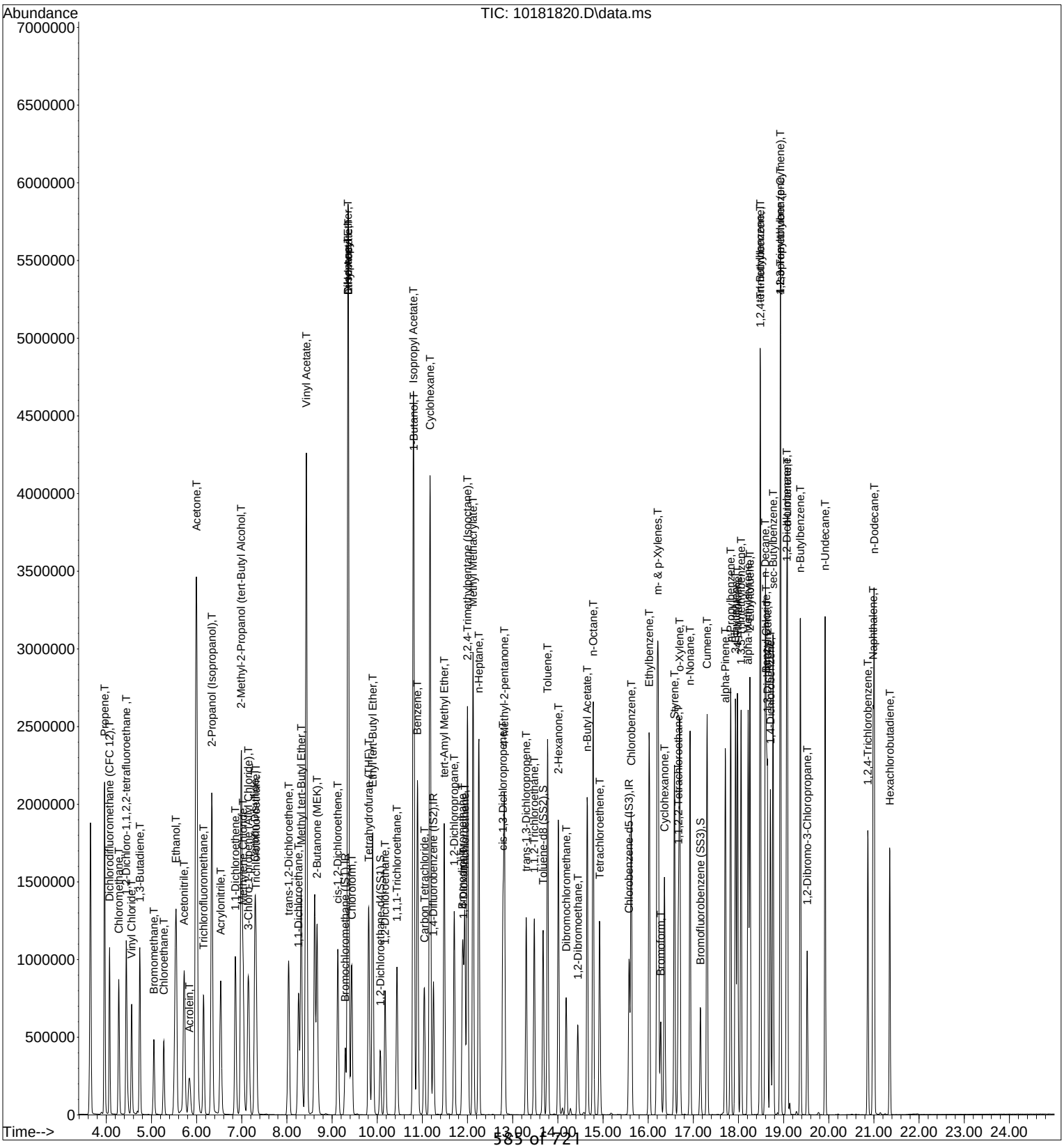
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	379897	57.718	ng		93
51) n-Heptane	12.25	71	603105	26.733	ng		99
52) cis-1,3-Dichloropropene	12.78	75	918691	28.366	ng		100
53) 4-Methyl-2-pentanone	12.81	58	627176	29.451	ng		100
54) trans-1,3-Dichloropropene	13.30	75	839537	29.559	ng		100
55) 1,1,2-Trichloroethane	13.48	97	465208	26.908	ng		100
58) Toluene	13.77	91	2024181	25.058	ng		100
59) 2-Hexanone	14.01	43	1591291	31.370	ng		97
60) Dibromochloromethane	14.19	129	470059	27.260	ng		100
61) 1,2-Dibromoethane	14.44	107	495860	26.871	ng		100
62) n-Butyl Acetate	14.65	43	1825441	31.930	ng		98
63) n-Octane	14.78	57	573131	28.568	ng		99
64) Tetrachloroethene	14.93	166	393939	23.620	ng		99
65) Chlorobenzene	15.62	112	1166378	24.908	ng		100
66) Ethylbenzene	16.02	91	2188220	24.732	ng		99
67) m- & p-Xylenes	16.21	91	3333385	49.024	ng		100
68) Bromoform	16.28	173	333098	27.753	ng		100
69) Styrene	16.58	104	1258527	26.135	ng		99
70) o-Xylene	16.70	91	1660658	25.027	ng		100
71) n-Nonane	16.93	43	1039258	22.270	ng		94
72) 1,1,2,2-Tetrachloroethane	16.67	83	822220	25.148	ng		100
74) Cumene	17.30	105	1925294	23.996	ng		98
75) alpha-Pinene	17.71	93	1063990	24.550	ng		100
76) n-Propylbenzene	17.83	91	2489985	24.979	ng		100
77) 3-Ethyltoluene	17.93	105	1876344	23.902	ng		100
78) 4-Ethyltoluene	17.98	105	1942032	26.617	ng		100
79) 1,3,5-Trimethylbenzene	18.06	105	1599779	24.763	ng		99
80) alpha-Methylstyrene	18.21	118	863232	26.959	ng		100
81) 2-Ethyltoluene	18.25	105	1914044	24.870	ng		99
82) 1,2,4-Trimethylbenzene	18.49	105	1597034	25.431	ng		99
83) n-Decane	18.59	58	50306	24.354	ng	#	94
84) Benzyl Chloride	18.61	91	1501323	26.921	ng		98
85) 1,3-Dichlorobenzene	18.64	146	845703	25.824	ng		100
86) 1,4-Dichlorobenzene	18.71	146	860422	26.314	ng		100
87) sec-Butylbenzene	18.76	105	2215607	25.222	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	1941546	26.296	ng		98
89) 1,2,3-Trimethylbenzene	18.93	105	1715499	26.838	ng		98
90) 1,2-Dichlorobenzene	19.07	146	809806	26.459	ng		99
91) d-Limonene	19.08	68	820201	25.227	ng		93
92) 1,2-Dibromo-3-Chloropr...	19.52	157	287644	29.277	ng	#	78
93) n-Undecane	19.92	57	1161824	23.281	ng		93
94) 1,2,4-Trichlorobenzene	20.86	180	550514	28.294	ng		99
95) Naphthalene	20.98	128	1937300	26.405	ng		100
96) n-Dodecane	21.01	57	1099842	23.994	ng		94
97) Hexachlorobutadiene	21.35	225	326618	26.847	ng		99
98) Cyclohexanone	16.36	55	812817	23.650	ng		99
99) tert-Butylbenzene	18.48	119	1456772	25.010	ng		99
100) n-Butylbenzene	19.37	91	1941313	25.612	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

10/19/18

Data File Name: **10181820.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS09\Data\2018_10\18** Sample Name: **25ng TO-15 ICV STD**
Operator: **SC** Misc Info: **S31-10151806/S31-10151802 (**
Date Acquired: **10/18/18 21:47** Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**3.96**	**21.9**	26.43	83	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.07**	**23.0**	**26.30**	87	**64**	**115**	*	*
4)	**Chloromethane**	**4.28**	**21.3**	**26.38**	81	**47**	**140**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.44**	**25.3**	**26.38**	96	**60**	**112**	*	*
6)	**Vinyl Chloride**	**4.56**	**20.7**	**26.73**	77	**63**	**127**	*	*
7)	**1,3-Butadiene**	**4.74**	**21.2**	**26.28**	81	**57**	**149**	*	*
8)	**Bromomethane**	**5.05**	**24.2**	**26.48**	91	**63**	**132**	*	*
9)	**Chloroethane**	**5.27**	**27.8**	**26.75**	104	**68**	**129**	*	*
10)	**Ethanol**	**5.54**	**136**	**128.10**	106	**62**	**131**	*	*
11)	**Acetonitrile**	**5.72**	**27.6**	**25.73**	107	**56**	**136**	*	*
12)	**Acrolein**	**5.84**	**25.5**	**25.63**	100	**60**	**132**	*	*
13)	**Acetone**	**6.00**	**112**	**132.33**	85	**63**	**124**	*	*
14)	**Trichlorofluoromethane**	**6.15**	**25.9**	**26.40**	98	**65**	**113**	*	*
15)	**2-Propanol (Isopropanol)**	**6.34**	**57.5**	**51.60**	111	**62**	**135**	*	*
16)	**Acrylonitrile**	**6.53**	**27.2**	**25.88**	105	**68**	**138**	*	*
17)	**1,1-Dichloroethene**	**6.86**	**26.5**	**27.23**	97	**72**	**118**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	6.99	58.9	54.25	109	61	128	*	*
19)	**Methylene Chloride**	**7.03**	**26.2**	**27.08**	97	**67**	**116**	*	*
20)	**3-Chloro-1-propene (Allyl Chlorid**	**7.15**	**30.2**	**27.00**	112	**61**	**143**	*	*
21)	**Trichlorotrifluoroethane**	**7.32**	**26.4**	**26.95**	98	**68**	**113**	*	*
22)	**Carbon Disulfide**	**7.29**	**26.6**	**27.20**	98	**68**	**120**	*	*
23)	**trans-1,2-Dichloroethene**	**8.04**	**27.2**	**26.73**	102	**71**	**125**	*	*
24)	**1,1-Dichloroethane**	**8.26**	**26.5**	**26.95**	98	**68**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**8.32**	**28.0**	**26.80**	104	**60**	**123**	*	*
26)	**Vinyl Acetate**	**8.43**	**169**	**133.03**	127	**73**	**135**	*	*
27)	**2-Butanone (MEK)**	**8.67**	**25.9**	**25.95**	100	**70**	**129**	*	*
28)	**cis-1,2-Dichloroethene**	**9.13**	**26.4**	**26.35**	100	**69**	**121**	*	*
29)	Diisopropyl Ether	9.35	27.1	27.18	100	65	117	*	*
30)	**Ethyl Acetate**	**9.36**	**56.0**	**54.45**	103	**66**	**140**	*	*
31)	**n-Hexane**	**9.35**	**28.3**	**26.95**	105	**61**	**124**	*	*
32)	**Chloroform**	**9.44**	**25.9**	**27.08**	96	**69**	**113**	*	*
34)	**Tetrahydrofuran (THF)**	**9.81**	**26.3**	**27.00**	97	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	9.90	27.4	26.80	102	69	120	*	*
36)	**1,2-Dichloroethane**	**10.17**	**27.1**	**26.85**	101	**62**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**10.44**	**26.6**	**26.90**	99	**65**	**116**	*	*
39)	Isopropyl Acetate	10.80	55.8	51.55	108	70	126	*	*
40)	1-Butanol	10.81	57.5	51.58	111	62	141	*	*
41)	**Benzene**	**10.89**	**25.6**	**26.38**	97	**66**	**111**	*	*
42)	**Carbon Tetrachloride**	**11.04**	**27.1**	**26.45**	102	**64**	**122**	*	*
43)	**Cyclohexane**	**11.17**	**52.6**	**52.05**	101	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	11.48	28.1	**27.08**	104	68	119	*	*
45)	**1,2-Dichloropropane**	**11.70**	**26.2**	**26.98**	97	**69**	**121**	*	*
46)	**Bromodichloromethane**	**11.89**	**27.3**	**26.83**	102	**69**	**123**	*	*
47)	**Trichloroethene**	**11.94**	**25.3**	**26.68**	95	**69**	**112**	*	*
48)	**1,4-Dioxane**	**11.91**	**27.8**	**26.73**	104	**74**	**123**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	12.00	26.6	26.65	100	67	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10181820.D** **TO15.M**
Data File Path: **I:\MS09\Data\2018_10\18** Sample Name: **25ng TO-15 ICV STD**
Operator: **SC** Misc Info: **S31-10151806/S31-10151802 (**
Date Acquired: **10/18/18** **21:47** Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**12.12**	**57.7**	**53.88**	107	**75**	**125**	*	*
51)	**n-Heptane**	**12.25**	**26.7**	**26.90**	99	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**12.78**	**28.4**	**26.78**	106	**74**	**129**	*	*
53)	**4-Methyl-2-pentanone**	**12.81**	**29.5**	**26.15**	113	**66**	**138**	*	*
54)	**trans-1,3-Dichloropropene**	**13.30**	**29.6**	**26.60**	111	**75**	**130**	*	*
55)	**1,1,2-Trichloroethane**	**13.48**	**26.9**	**26.85**	100	**73**	**117**	*	*
58)	**Toluene**	**13.77**	**25.1**	**26.50**	95	**66**	**114**	*	*
59)	**2-Hexanone**	**14.01**	**31.4**	**26.78**	117	**58**	**146**	*	*
60)	**Dibromochloromethane**	**14.19**	**27.3**	**26.60**	103	**67**	**130**	*	*
61)	**1,2-Dibromoethane**	**14.44**	**26.9**	**27.03**	100	**70**	**127**	*	*
62)	**n-Butyl Acetate**	**14.65**	**31.9**	**27.35**	117	**62**	**140**	*	*
63)	**n-Octane**	**14.78**	**28.6**	**27.13**	105	**65**	**121**	*	*
64)	**Tetrachloroethene**	**14.93**	**23.6**	**26.60**	89	**62**	**119**	*	*
65)	**Chlorobenzene**	**15.62**	**24.9**	**26.83**	93	**66**	**115**	*	*
66)	**Ethylbenzene**	**16.02**	**24.7**	**26.53**	93	**69**	**117**	*	*
67)	**m- & p-Xylenes**	**16.21**	**49.0**	**53.28**	92	**67**	**117**	*	*
68)	**Bromoform**	**16.28**	**27.8**	**26.68**	104	**67**	**135**	*	*
69)	**Styrene**	**16.58**	**26.1**	**26.50**	98	**70**	**128**	*	*
70)	**o-Xylene**	**16.70**	**25.0**	**26.75**	93	**67**	**118**	*	*
71)	**n-Nonane**	**16.93**	**22.3**	**26.83**	83	**61**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**16.67**	**25.1**	**26.80**	94	**70**	**125**	*	*
74)	**Cumene**	**17.30**	**24.0**	**26.80**	90	**68**	**116**	*	*
75)	**alpha-Pinene**	**17.71**	**24.5**	**26.40**	93	**69**	**122**	*	*
76)	**n-Propylbenzene**	**17.83**	**25.0**	**27.23**	92	**70**	**118**	*	*
77)	3-Ethyltoluene	17.93	23.9	26.83	89	68	117	*	*
78)	**4-Ethyltoluene**	**17.98**	**26.6**	**26.80**	**99**	**69**	**124**	*	*
79)	**1,3,5-Trimethylbenzene**	**18.06**	**24.8**	**26.73**	**93**	**65**	**117**	*	*
80)	alpha-Methylstyrene	18.21	27.0	26.75	**101**	71	132	*	*
81)	2-Ethyltoluene	18.25	24.9	27.08	**92**	67	119	*	*
82)	**1,2,4-Trimethylbenzene**	**18.49**	**25.4**	**26.90**	**94**	**67**	**124**	*	*
83)	n-Decane	18.59	24.4	26.88	**91**	63	129	*	*
84)	**Benzyl Chloride**	**18.61**	**26.9**	**27.08**	**99**	**75**	**142**	*	*
85)	**1,3-Dichlorobenzene**	**18.64**	**25.8**	**26.98**	**96**	**70**	**124**	*	*
86)	**1,4-Dichlorobenzene**	**18.71**	**26.3**	**27.00**	**97**	**63**	**124**	*	*
87)	sec-Butylbenzene	18.76	25.2	26.55	**95**	68	119	*	*
88)	4-Isopropyltoluene (p-Cymene)	18.93	26.3	26.95	**98**	65	122	*	*
89)	1,2,3-Trimethylbenzene	18.93	26.8	26.95	**99**	66	128	*	*
90)	**1,2-Dichlorobenzene**	**19.07**	**26.5**	**26.95**	**98**	**66**	**125**	*	*
91)	**d-Limonene**	**19.08**	**25.2**	**26.38**	**96**	**64**	**135**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**19.52**	**29.3**	**26.15**	**112**	**73**	**136**	*	*
93)	n-Undecane	19.92	23.3	27.03	**86**	67	135	*	*
94)	**1,2,4-Trichlorobenzene**	**20.86**	**28.3**	**26.78**	**106**	**70**	**141**	*	*
95)	**Naphthalene**	**20.98**	**26.4**	**25.38**	**104**	**71**	**146**	*	*
96)	n-Dodecane	21.01	24.0	25.63	**94**	69	152	*	*
97)	**Hexachlorobutadiene**	**21.35**	**26.8**	**26.13**	**103**	63	126	*	*
98)	Cyclohexanone	16.36	23.7	24.45	97	58	138	*	*
99)	tert-Butylbenzene	18.48	25.0	26.88	93	65	121	*	*
100)	n-Butylbenzene	19.37	25.6	27.00	95	71	125	*	*

Bold = 75 Compound List
*** = Pass**

Response Factor Report MS09

Method Path : I:\MS09\Methods\
Method File : C9102318.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:44:38 2018
Response Via : Initial Calibration

10/31/18

Calibration Files
0.40=10231804.D 1.0 =10231805.D 2.5 =10231806.D 5.0 =10231807.D 25 =10231808.D 50 =10231809.D 100 =10231810.D

		Compound	0.40	1.0	2.5	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	----------	----------	----------	ISTD	----------	----------	----------	----------
2)	T	Chloropentaflu...	1.872	1.745	1.623	1.623	1.680	1.635	1.540	1.674	6.40
3)	T	1,1,1,2-Tetraf...	1.436	1.333	1.258	1.247	1.294	1.269	1.200	1.291	5.88
4)	T	1,1-Difluoroet...	1.717	1.582	1.486	1.496	1.571	1.535	1.434	1.546	5.90
5)	T	Chlorodifluoro...	0.467	0.431	0.413	0.402	0.419	0.411	0.396	0.420	5.63
6)	T	1-Chloro-1,1-D...	3.158	2.850	2.731	2.718	2.783	2.706	2.612	2.794	6.30
7)	T	Dichlorofluoro...	3.935	3.666	3.398	3.468	3.539	3.434	3.212	3.522	6.49
8)	T	Vinylbromide	1.196	1.101	1.090	1.099	1.186	1.164	1.103	1.134	4.06
9)	T	2,2-Dichloro-1...	2.370	2.126	2.032	2.048	2.140	2.109	2.014	2.120	5.68
10)	T	2-Methylbutane	2.035	1.863	1.693	1.777	1.864	1.796	1.635	1.809	7.19
11)	T	Methyl Acetate	4.698	4.412	4.211	4.321	4.399	4.281	4.010	4.333	4.86
12)	T	2-Methylpentane	1.795	1.664	1.604	1.634	1.731	1.688	1.561	1.668	4.72
13)	T	2,2-Dichloropr...	1.959	1.753	1.707	1.797	2.075	1.961	1.713	1.852	7.83
14)	T	1,1-Dichloropr...	2.466	2.259	2.189	2.235	2.376	2.322	2.185	2.290	4.53
15)	T	Thiophene	3.777	3.506	3.394	3.412	3.559	3.475	3.258	3.483	4.63
16)	IR	1,4-Difluorobenzen...	----------	----------	----------	----------	ISTD	----------	----------	----------	----------
17)	T	2,3-Dimethylpe...	0.774	0.698	0.676	0.683	0.728	0.685	0.629	0.696	6.53
18)	T	Dibromomethane	0.178	0.160	0.153	0.153	0.163	0.159	0.156	0.160	5.37
19)	IR	Chlorobenzene-d5 (...	----------	----------	----------	----------	ISTD	----------	----------	----------	----------
20)	T	Methyl Cyclohe...	1.049	0.994	0.943	0.950	0.974	0.884	0.760	0.936	9.89
21)	T	1,3-Dichloropr...	0.975	0.921	0.862	0.858	0.882	0.804	0.710	0.859	9.87
22)	T	1,1,1,2-Tetrac...	0.414	0.389	0.377	0.373	0.400	0.372	0.337	0.380	6.45
23)	T	1-Chlorohexane	0.797	0.758	0.729	0.749	0.781	0.719	0.632	0.738	7.34
24)	T	1,2,3-Trichlor...	0.983	0.877	0.842	0.850	0.876	0.808	0.710	0.850	9.67
25)	T	Bromobenzene	1.152	1.043	0.987	0.998	1.047	0.969	0.853	1.007	9.03
26)	T	2-Chlorotoluene	1.711	1.593	1.575	1.592	1.655	1.519	1.305	1.564	8.28
27)	T	4-Chlorotoluene	1.785	1.683	1.627	1.661	1.745	1.592	1.374	1.638	8.17
28)	T	Indane	1.702	1.628	1.662	1.709	1.806	1.647	1.397	1.650	7.63
29)	T	Indene	1.299	1.297	1.350	1.387	1.614	1.496	1.301	1.392	8.70
30)	T	1,2,4,5-Tetram...	1.497	1.547	1.613	1.685	1.959	1.767	1.523	1.656	9.91
31)	T	1,2,3,4-Tetram...	1.804	1.770	1.806	1.832	1.958	1.799	1.474	1.778	8.28
32)	T	1,2,3,5-Tetram...	1.573	1.539	1.569	1.638	1.867	1.715	1.449	1.621	8.39
33)	T	1,2,3-Trichlor...	0.497	0.452	0.458	0.459	0.558	0.538	0.494	0.494	8.41

(#) = Out of Range

589 of 711

TO-15 CUSTOM COMPOUND LIST
ICAL CONCENTRATIONS

10/31/18

Std#: **Working Standards**

(1) 200 ng/L Working Std. ID: S31-10221804

(2) 20 ng/L Working Std. ID: S31-10191801

Injection Amts.(L):	0.020	0.050	0.125	0.250	0.125	0.250	0.500
Standards Used:	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Compounds/ Concentrations (ng):	0.4ng	1.0ng	2.5ng	5.0ng	25ng	50ng	100ng
Vinylbromide	0.400	1.000	2.500	5.00	25.00	50.0	100
2-Methylbutane (Isopentane)	0.436	1.090	2.725	5.45	27.25	54.5	109
2-Methylpentane	0.392	0.980	2.450	4.90	24.50	49.0	98
2,2-Dichloropropane	0.360	0.900	2.250	4.50	22.50	45.0	90
1,1-Dichloropropene	0.416	1.040	2.600	5.20	26.00	52.0	104
Thiophene	0.408	1.020	2.550	5.10	25.50	51.0	102
2,3-Dimethylpentane	0.416	1.040	2.600	5.20	26.00	52.0	104
Dibromomethane	0.420	1.050	2.625	5.25	26.25	52.5	105
1,3-Dichloropropane	0.424	1.060	2.650	5.30	26.50	53.0	106
1,1,1,2-Tetrachloroethane	0.360	0.900	2.250	4.50	22.50	45.0	90
1-Chlorohexane	0.412	1.030	2.575	5.15	25.75	51.5	103
1,2,3-Trichloropropane	0.420	1.050	2.625	5.25	26.25	52.5	105
Bromobenzene	0.424	1.060	2.650	5.30	26.50	53.0	106
2-Chlorotoluene	0.440	1.100	2.750	5.50	27.50	55.0	110
4-Chlorotoluene	0.424	1.060	2.650	5.30	26.50	53.0	106
Indane	0.404	1.010	2.525	5.05	25.25	50.5	101
Indene	0.392	0.980	2.450	4.90	24.50	49.0	98
1,2,4,5-Tetramethylbenzene	0.396	0.990	2.475	4.95	24.75	49.5	99
1,2,3,4-Tetramethylbenzene	0.392	0.980	2.450	4.90	24.50	49.0	98
1,2,3,5-Tetramethylbenzene	0.388	0.970	2.425	4.85	24.25	48.5	97
1,2,3-Trichlorobenzene	0.396	0.990	2.475	4.95	24.75	49.5	99
Chloropentafluoroethane (R115)	0.436	1.090	2.725	5.45	27.25	54.5	109
2,2-Dichloro-1,1,1-trifluoroethane (R123)	0.420	1.050	2.625	5.25	26.25	52.5	105
1,1-Difluoroethane (R152a)	0.420	1.050	2.625	5.25	26.25	52.5	105
Chlorodifluoromethane (R22)	0.432	1.080	2.700	5.40	27.00	54.0	108
Dichlorofluoromethane (R21)	0.416	1.040	2.600	5.20	26.00	52.0	104
1,1,1,2-Tetrafluoroethane (R134a)	0.436	1.090	2.725	5.45	27.25	54.5	109
1-Chloro-1,1-Difluoroethane	0.420	1.050	2.625	5.25	26.25	52.5	105
Methyl Acetate	0.364	0.910	2.275	4.55	22.75	45.5	91
Methylcyclohexane	0.428	1.070	2.675	5.35	26.75	53.5	107
Chlorotrifluoroethene	0.420	1.050	2.625	5.25	26.25	52.5	105

Calibration Status Report MS09

Method : I:\MS09\Methods\C9102318.M (RTE Integrator)
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration

10/31/18

#	ID	Conc	ISTD Conc	Path\File
1	0.40	0	13	I:\MS09\Data\2018_10\23\10231804.D
2	1.0	1	13	I:\MS09\Data\2018_10\23\10231805.D
3	2.5	3	13	I:\MS09\Data\2018_10\23\10231806.D
4	5.0	6	13	I:\MS09\Data\2018_10\23\10231807.D
5	25	28	13	I:\MS09\Data\2018_10\23\10231808.D
6	50	55	13	I:\MS09\Data\2018_10\23\10231809.D
7	100	110	13	I:\MS09\Data\2018_10\23\10231810.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.40	Oct 24 09:42 2018	Oct 24 09:29 2018	23 Oct 2018 18:44
2	1.0	Oct 24 09:43 2018	Oct 24 09:28 2018	23 Oct 2018 19:18
3	2.5	Oct 24 09:43 2018	Oct 24 09:27 2018	23 Oct 2018 19:52
4	5.0	Oct 24 09:43 2018	Oct 24 09:26 2018	23 Oct 2018 20:26
5	25	Oct 24 09:44 2018	Oct 24 09:25 2018	23 Oct 2018 21:00
6	50	Oct 24 09:44 2018	Oct 24 09:30 2018	23 Oct 2018 21:34
7	100	Oct 24 09:44 2018	Oct 24 09:31 2018	23 Oct 2018 22:08

C9102318.M Wed Oct 31 11:18:10 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231804.D
Acq On : 23 Oct 2018 18:44 Operator: SC
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:29:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

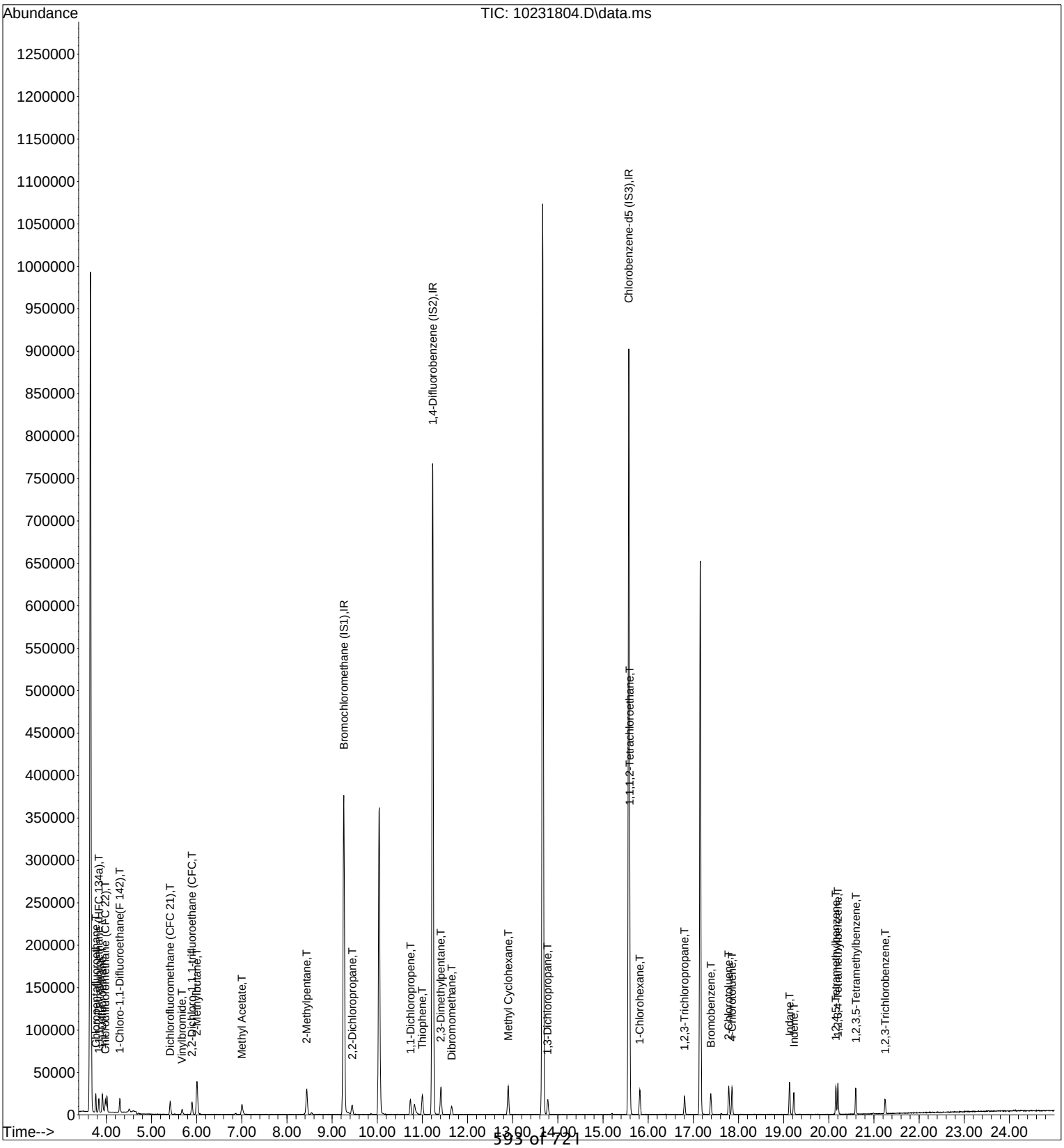
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	132679	12.500	ng	-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	650208	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	369977	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.77	85	8742	0.482	ng	98
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	6098	0.477	ng	100
4) 1,1-Difluoroethane	3.91	65	7580	0.504	ng	100
5) Chlorodifluoromethane ...	3.98	67	2062	0.524	ng	88
6) 1-Chloro-1,1-Difluoroe...	4.30	65	13675	0.541	ng	98
7) Dichlorofluoromethane ...	5.41	67	16708	0.565	ng	99
8) Vinylbromide	5.68	108	5027	0.387	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	10564	0.488	ng	100
10) 2-Methylbutane	6.01	57	8725	0.526	ng	90
11) Methyl Acetate	7.00	43	20347	0.596	ng	98
12) 2-Methylpentane	8.44	71	7545	0.494	ng	92
13) 2,2-Dichloropropane	9.45	77	8318	0.383	ng	97
14) 1,1-Dichloropropene	10.74	75	10679	0.504	ng	100
15) Thiophene	11.00	84	15875	0.453	ng	98
17) 2,3-Dimethylpentane	11.41	56	16433	0.529	ng	98
18) Dibromomethane	11.65	174	3880	0.349	ng	98
20) Methyl Cyclohexane	12.90	55	13162	0.461	ng	96
21) 1,3-Dichloropropane	13.77	76	12236	0.419	ng	97
22) 1,1,1,2-Tetrachloroethane	15.59	131	4611	0.282	ng	99
23) 1-Chlorohexane	15.81	91	9626	0.346	ng	94
24) 1,2,3-Trichloropropane	16.80	75	11987	0.429	ng	98
25) Bromobenzene	17.39	77	14188	0.420	ng	99
26) 2-Chlorotoluene	17.78	91	21676	0.383	ng	99
27) 4-Chlorotoluene	17.86	91	21773	0.365	ng	98
28) Indane	19.13	117	19945	0.295	ng	96
29) Indene	19.23	115	14457	0.241	ng	99
30) 1,2,4,5-Tetramethylben...	20.16	119	17018	0.252	ng	97
31) 1,2,3,4-Tetramethylben...	20.20	119	20082	0.284	ng	97
32) 1,2,3,5-Tetramethylben...	20.60	119	17693	0.275	ng	97
33) 1,2,3-Trichlorobenzene	21.25	180	5415	0.226	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231804.D
Acq On : 23 Oct 2018 18:44 Operator: SC
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:29:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231805.D
Acq On : 23 Oct 2018 19:18 Operator: SC
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:28:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

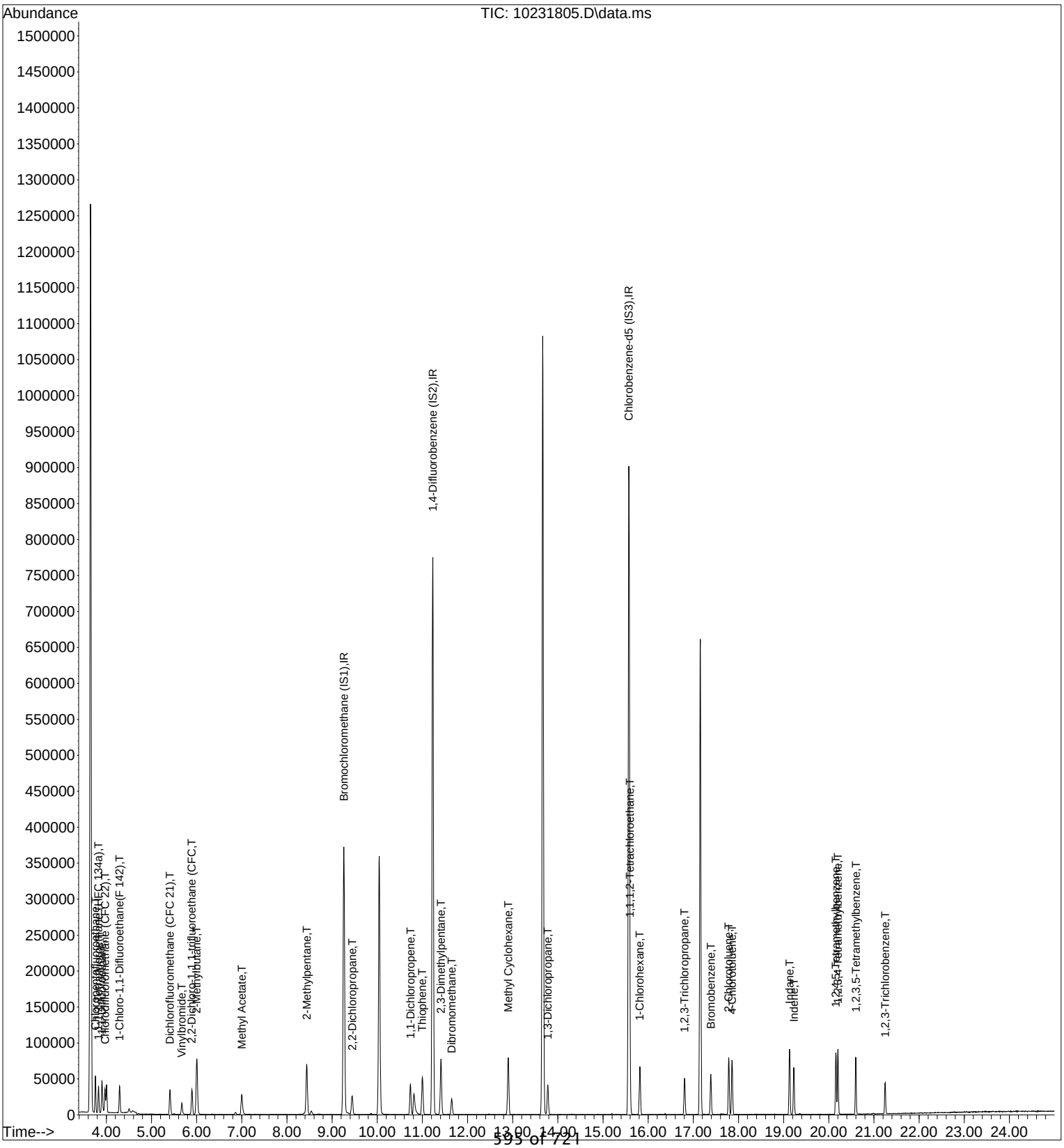
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	132281	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	655547	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	371698	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.76	85	20311	1.124	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	14107	1.108	ng		98
4) 1,1-Difluoroethane	3.90	65	17412	1.161	ng		96
5) Chlorodifluoromethane ...	3.97	67	4745	1.209	ng		91
6) 1-Chloro-1,1-Difluoroe...	4.29	65	30759	1.221	ng		99
7) Dichlorofluoromethane ...	5.41	67	38791	1.315	ng		99
8) Vinylbromide	5.67	108	11536	0.890	ng		97
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	23621	1.094	ng		99
10) 2-Methylbutane	6.00	57	19911	1.204	ng		94
11) Methyl Acetate	7.00	43	47623	1.400	ng	#	97
12) 2-Methylpentane	8.44	71	17433	1.145	ng		91
13) 2,2-Dichloropropane	9.45	77	18551	0.858	ng		99
14) 1,1-Dichloropropene	10.74	75	24389	1.154	ng		100
15) Thiophene	11.00	84	36727	1.052	ng		99
17) 2,3-Dimethylpentane	11.41	56	37348	1.192	ng		97
18) Dibromomethane	11.65	174	8795	0.785	ng		99
20) Methyl Cyclohexane	12.90	55	31343	1.093	ng		97
21) 1,3-Dichloropropane	13.78	76	29025	0.990	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	10871	0.662	ng		97
23) 1-Chlorohexane	15.81	91	22982	0.822	ng		98
24) 1,2,3-Trichloropropane	16.80	75	26861	0.957	ng		99
25) Bromobenzene	17.39	77	32263	0.950	ng		100
26) 2-Chlorotoluene	17.78	91	50670	0.891	ng		100
27) 4-Chlorotoluene	17.86	91	51534	0.859	ng		99
28) Indane	19.13	117	47921	0.706	ng		97
29) Indene	19.23	115	36258	0.601	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	44152	0.652	ng		98
31) 1,2,3,4-Tetramethylben...	20.20	119	49478	0.697	ng		99
32) 1,2,3,5-Tetramethylben...	20.60	119	43478	0.674	ng		97
33) 1,2,3-Trichlorobenzene	21.25	180	12353	0.512	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231805.D
Acq On : 23 Oct 2018 19:18 Operator: SC
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:28:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231806.D
Acq On : 23 Oct 2018 19:52 Operator: SC
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:27:18 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

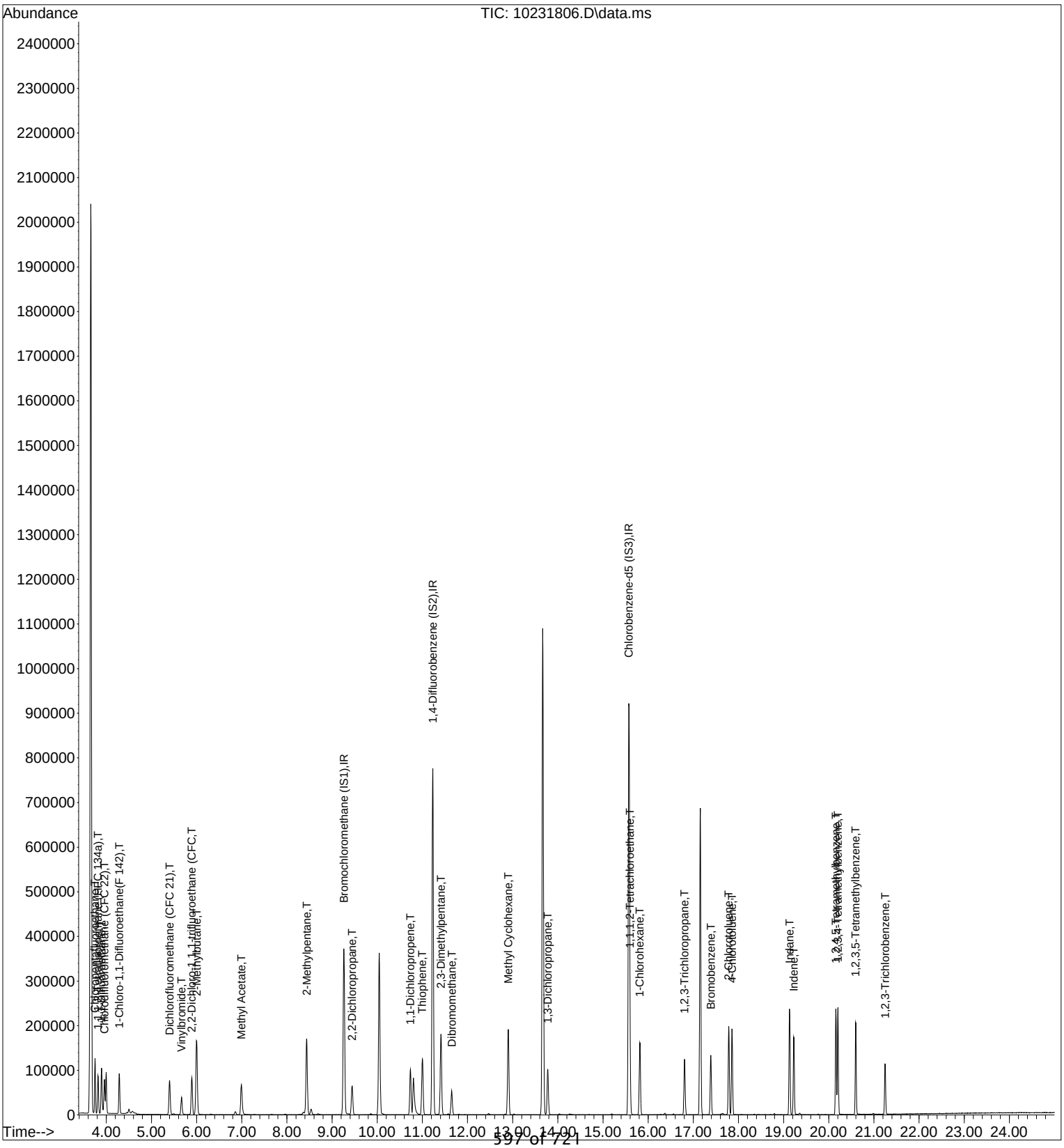
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	133331	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	658789	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	379446	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	47609	2.613	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	33557	2.615	ng		99
4) 1,1-Difluoroethane	3.89	65	41207	2.727	ng		97
5) Chlorodifluoromethane ...	3.96	67	11467	2.899	ng		96
6) 1-Chloro-1,1-Difluoroe...	4.29	65	74290	2.925	ng		99
7) Dichlorofluoromethane ...	5.40	67	90623	3.049	ng		100
8) Vinylbromide	5.67	108	28783	2.204	ng		99
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	56899	2.616	ng		100
10) 2-Methylbutane	6.00	57	45610	2.737	ng		93
11) Methyl Acetate	6.99	43	114529	3.340	ng	#	97
12) 2-Methylpentane	8.44	71	42348	2.758	ng		92
13) 2,2-Dichloropropane	9.44	77	45522	2.088	ng		99
14) 1,1-Dichloropropene	10.73	75	59552	2.797	ng		100
15) Thiophene	11.00	84	89602	2.546	ng		99
17) 2,3-Dimethylpentane	11.41	56	90802	2.884	ng		99
18) Dibromomethane	11.65	174	21116	1.876	ng		98
20) Methyl Cyclohexane	12.90	55	75895	2.591	ng		99
21) 1,3-Dichloropropane	13.78	76	69318	2.317	ng		99
22) 1,1,1,2-Tetrachloroethane	15.60	131	26860	1.603	ng		100
23) 1-Chlorohexane	15.81	91	56413	1.977	ng		99
24) 1,2,3-Trichloropropane	16.80	75	65848	2.299	ng		99
25) Bromobenzene	17.39	77	77881	2.247	ng		99
26) 2-Chlorotoluene	17.78	91	127929	2.205	ng		98
27) 4-Chlorotoluene	17.86	91	127182	2.077	ng		100
28) Indane	19.13	117	124893	1.803	ng		98
29) Indene	19.22	115	96299	1.564	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	117537	1.700	ng		100
31) 1,2,3,4-Tetramethylben...	20.20	119	128854	1.777	ng		98
32) 1,2,3,5-Tetramethylben...	20.59	119	113141	1.718	ng		98
33) 1,2,3-Trichlorobenzene	21.25	180	31953	1.298	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231806.D
Acq On : 23 Oct 2018 19:52 Operator: SC
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:27:18 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231807.D
Acq On : 23 Oct 2018 20:26 Operator: SC
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:26:37 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

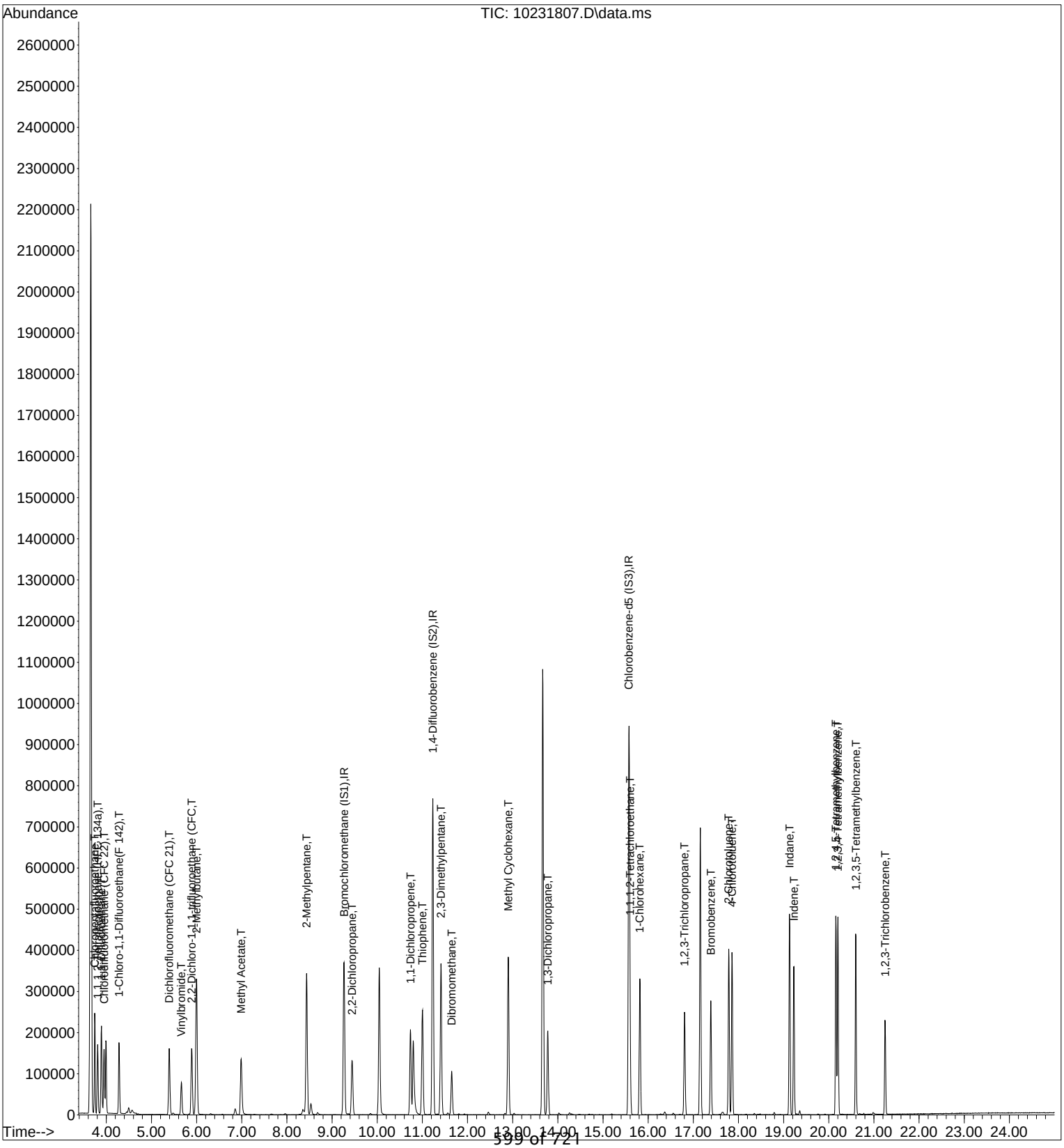
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	133127	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	11.23	114	652699	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	380766	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	95074	5.226	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	66399	5.181	ng		100
4) 1,1-Difluoroethane	3.89	65	82845	5.491	ng		97
5) Chlorodifluoromethane ...	3.95	67	22272	5.639	ng		89
6) 1-Chloro-1,1-Difluoroe...	4.28	65	147643	5.821	ng		100
7) Dichlorofluoromethane ...	5.39	67	184668	6.222	ng		99
8) Vinylbromide	5.66	108	57915	4.441	ng		99
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	114514	5.272	ng		99
10) 2-Methylbutane	6.00	57	95570	5.744	ng		96
11) Methyl Acetate	6.99	43	234688	6.855	ng	#	98
12) 2-Methylpentane	8.44	71	86145	5.620	ng		97
13) 2,2-Dichloropropane	9.44	77	95695	4.396	ng		100
14) 1,1-Dichloropropene	10.74	75	121381	5.709	ng		99
15) Thiophene	11.00	84	179877	5.119	ng		99
17) 2,3-Dimethylpentane	11.41	56	181837	5.829	ng		100
18) Dibromomethane	11.65	174	41901	3.757	ng		99
20) Methyl Cyclohexane	12.90	55	153335	5.217	ng		99
21) 1,3-Dichloropropane	13.78	76	138480	4.613	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	53357	3.172	ng		100
23) 1-Chlorohexane	15.81	91	116289	4.061	ng		100
24) 1,2,3-Trichloropropane	16.80	75	133417	4.642	ng		99
25) Bromobenzene	17.39	77	158120	4.547	ng		99
26) 2-Chlorotoluene	17.78	91	259417	4.455	ng		99
27) 4-Chlorotoluene	17.86	91	260570	4.242	ng		99
28) Indane	19.13	117	257643	3.707	ng		99
29) Indene	19.23	115	198584	3.213	ng		100
30) 1,2,4,5-Tetramethylben...	20.16	119	246323	3.551	ng		99
31) 1,2,3,4-Tetramethylben...	20.20	119	262276	3.604	ng		98
32) 1,2,3,5-Tetramethylben...	20.60	119	236971	3.585	ng		97
33) 1,2,3-Trichlorobenzene	21.25	180	64369	2.606	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231807.D
Acq On : 23 Oct 2018 20:26 Operator: SC
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:26:37 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231808.D
Acq On : 23 Oct 2018 21:00 Operator: SC
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:25:30 2018 10/24/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 11:21:43 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

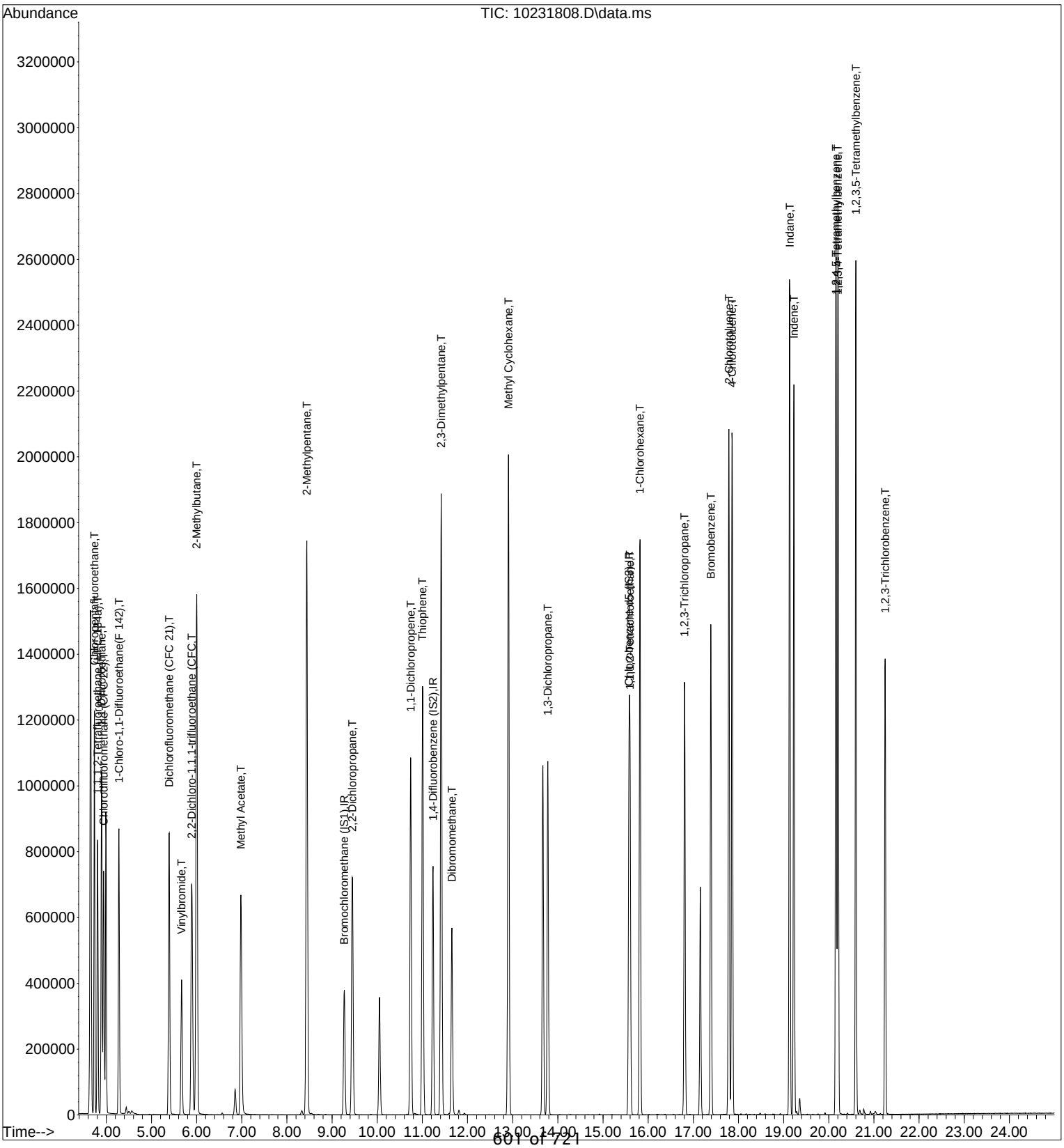
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	133401	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	642214	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.58	82	390117	12.500	ng		-0.01
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	493116	27.050	ng		93
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	345367	26.894	ng		99
4) 1,1-Difluoroethane	3.90	65	435865	28.830	ng		83
5) Chlorodifluoromethane ...	3.94	67	116330	29.391	ng		97
6) 1-Chloro-1,1-Difluoroe...	4.28	65	757249	29.796	ng		97
7) Dichlorofluoromethane ...	5.39	67	944143	31.746	ng		100
8) Vinylbromide	5.67	108	313374	23.982	ng		98
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	599574	27.547	ng		100
10) 2-Methylbutane	6.00	57	502169	30.118	ng	#	82
11) Methyl Acetate	6.98	43	1197048	34.893	ng		93
12) 2-Methylpentane	8.44	71	457133	29.760	ng	#	67
13) 2,2-Dichloropropane	9.45	77	553568	25.379	ng		97
14) 1,1-Dichloropropene	10.74	75	646609	30.349	ng		90
15) Thiophene	11.00	84	940085	26.697	ng	#	86
17) 2,3-Dimethylpentane	11.42	56	953899	31.079	ng		92
18) Dibromomethane	11.65	174	220265	20.071	ng	#	65
20) Methyl Cyclohexane	12.91	55	805871	26.764	ng	#	83
21) 1,3-Dichloropropane	13.78	76	729148	23.707	ng		90
22) 1,1,1,2-Tetrachloroethane	15.60	131	293566	17.036	ng		99
23) 1-Chlorohexane	15.82	91	621920	21.199	ng	#	81
24) 1,2,3-Trichloropropane	16.80	75	704251	23.918	ng		92
25) Bromobenzene	17.39	77	849971	23.856	ng	#	76
26) 2-Chlorotoluene	17.79	91	1381607	23.159	ng		92
27) 4-Chlorotoluene	17.86	91	1402747	22.287	ng		91
28) Indane	19.14	117	1395187	19.594	ng		99
29) Indene	19.23	115	1184060	18.700	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	1467251	20.644	ng		95
31) 1,2,3,4-Tetramethylben...	20.20	119	1436188	19.264	ng		94
32) 1,2,3,5-Tetramethylben...	20.60	119	1384222	20.440	ng		95
33) 1,2,3-Trichlorobenzene	21.25	180	400415	15.822	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231808.D
Acq On : 23 Oct 2018 21:00 Operator: SC
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:25:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 11:21:43 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231809.D
Acq On : 23 Oct 2018 21:34 Operator: SC
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:30:36 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

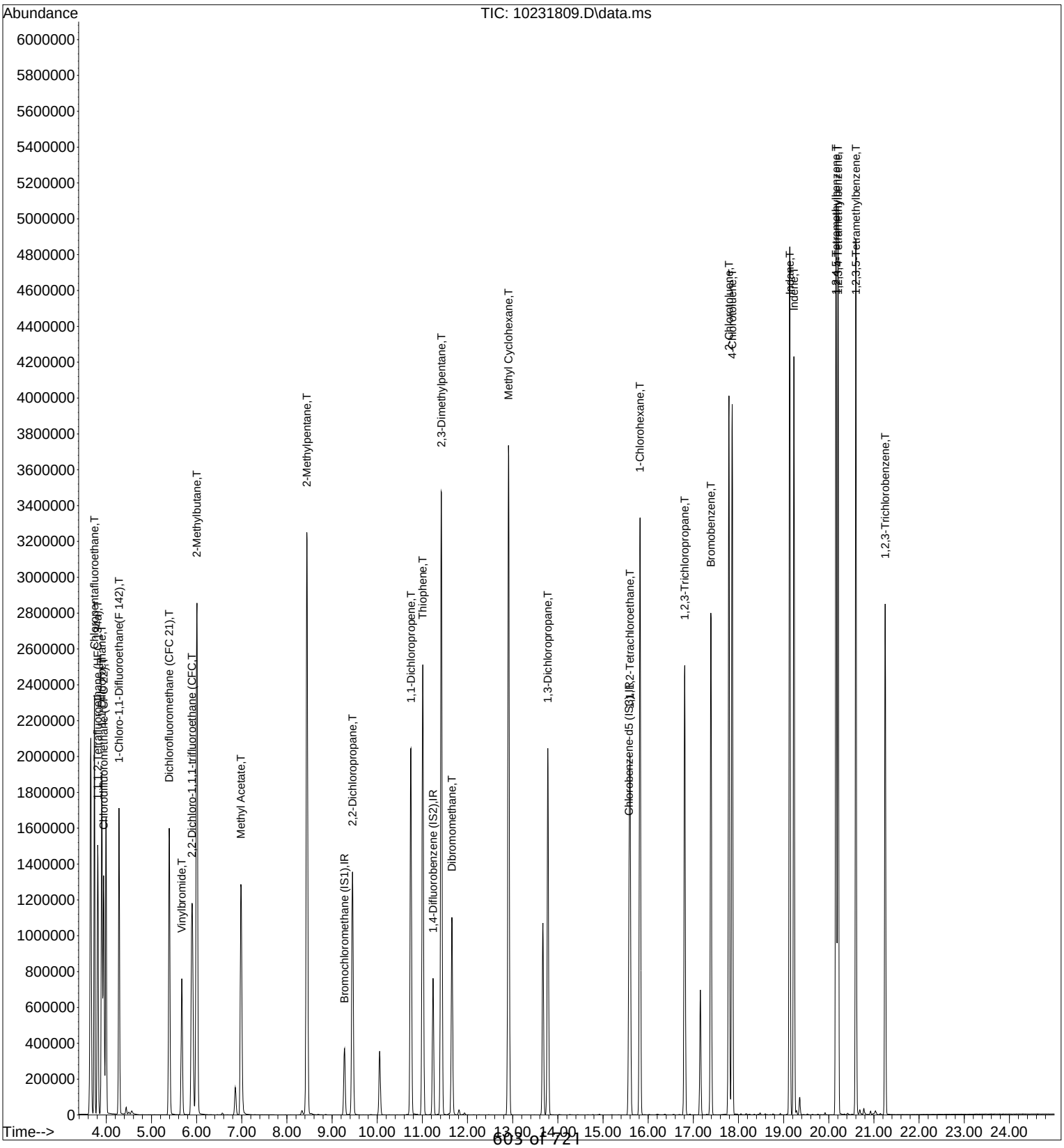
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	131508	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	11.24	114	644300	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.58	82	407608	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	946115	52.646	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	667428	52.722	ng	100
4) 1,1-Difluoroethane	3.90	65	839679	56.340	ng	98
5) Chlorodifluoromethane ...	3.94	67	225016	57.670	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.28	65	1451786	57.947	ng	100
7) Dichlorofluoromethane ...	5.39	67	1806173	61.605	ng	100
8) Vinylbromide	5.67	108	606204	47.060	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	1164697	54.281	ng	99
10) 2-Methylbutane	6.01	57	954454	58.067	ng	99
11) Methyl Acetate	6.98	43	2297173	67.925	ng	100
12) 2-Methylpentane	8.44	71	878848	58.038	ng	98
13) 2,2-Dichloropropane	9.45	77	1031452	47.970	ng	100
14) 1,1-Dichloropropene	10.75	75	1246052	59.327	ng	100
15) Thiophene	11.01	84	1809471	52.127	ng	100
17) 2,3-Dimethylpentane	11.42	56	1801749	58.513	ng	99
18) Dibromomethane	11.65	174	430390	39.091	ng	100
20) Methyl Cyclohexane	12.91	55	1527627	48.557	ng	99
21) 1,3-Dichloropropane	13.78	76	1388978	43.222	ng	100
22) 1,1,1,2-Tetrachloroethane	15.60	131	570832	31.704	ng	100
23) 1-Chlorohexane	15.82	91	1195538	39.002	ng	99
24) 1,2,3-Trichloropropane	16.81	75	1356560	44.094	ng	100
25) Bromobenzene	17.39	77	1642329	44.117	ng	100
26) 2-Chlorotoluene	17.79	91	2650086	42.516	ng	100
27) 4-Chlorotoluene	17.86	91	2673557	40.654	ng	99
28) Indane	19.14	117	2658536	35.733	ng	99
29) Indene	19.23	115	2292574	34.654	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	2766119	37.249	ng	99
31) 1,2,3,4-Tetramethylben...	20.21	119	2757337	35.398	ng	99
32) 1,2,3,5-Tetramethylben...	20.60	119	2655709	37.533	ng	100
33) 1,2,3-Trichlorobenzene	21.25	180	806974	30.518	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231809.D
Acq On : 23 Oct 2018 21:34 Operator: SC
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:30:36 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231810.D
Acq On : 23 Oct 2018 22:08 Operator: SC
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:31:15 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

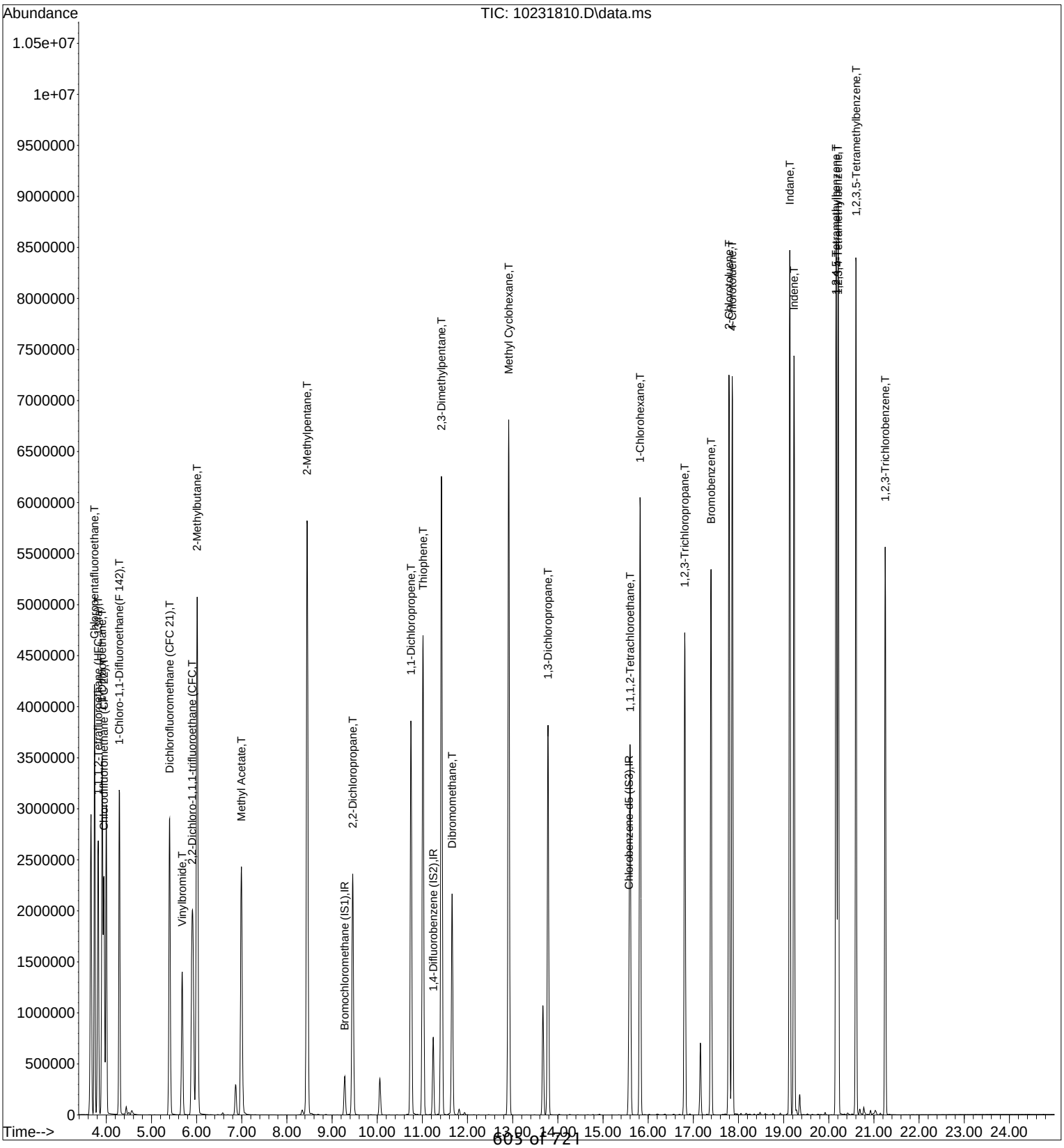
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	134325	12.500	ng		0.01
16) 1,4-Difluorobenzene (IS2)	11.24	114	650989	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.58	82	439894	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	1820419	99.173	ng		99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	1289913	99.757	ng		100
4) 1,1-Difluoroethane	3.91	65	1602441	105.265	ng	#	1
5) Chlorodifluoromethane ...	3.95	67	442327	110.987	ng	#	1
6) 1-Chloro-1,1-Difluoroe...	4.29	65	2863250	111.888	ng		100
7) Dichlorofluoromethane ...	5.40	67	3451832	115.267	ng		99
8) Vinylbromide	5.68	108	1173417	89.183	ng		100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	2272428	103.686	ng		100
10) 2-Methylbutane	6.01	57	1774623	105.701	ng		94
11) Methyl Acetate	6.99	43	4395184	127.235	ng		99
12) 2-Methylpentane	8.45	71	1660308	107.346	ng		96
13) 2,2-Dichloropropane	9.46	77	1840311	83.793	ng		100
14) 1,1-Dichloropropene	10.75	75	2395086	111.642	ng		99
15) Thiophene	11.01	84	3465892	97.751	ng		100
17) 2,3-Dimethylpentane	11.42	56	3339394	107.335	ng		99
18) Dibromomethane	11.66	174	852257	76.612	ng		99
20) Methyl Cyclohexane	12.91	55	2835620	83.517	ng		98
21) 1,3-Dichloropropane	13.78	76	2647640	76.342	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	1115922	57.430	ng		99
23) 1-Chlorohexane	15.82	91	2268371	68.570	ng		98
24) 1,2,3-Trichloropropane	16.81	75	2574631	77.545	ng		99
25) Bromobenzene	17.39	77	3123413	77.745	ng		98
26) 2-Chlorotoluene	17.79	91	4914746	73.062	ng		98
27) 4-Chlorotoluene	17.86	91	4981814	70.194	ng		98
28) Indane	19.14	117	4868257	60.632	ng		99
29) Indene	19.23	115	4302542	60.263	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	5145828	64.209	ng		98
31) 1,2,3,4-Tetramethylben...	20.21	119	4874872	57.988	ng		97
32) 1,2,3,5-Tetramethylben...	20.61	119	4843797	63.433	ng		98
33) 1,2,3-Trichlorobenzene	21.25	180	1600569	56.087	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231810.D
Acq On : 23 Oct 2018 22:08 Operator: SC
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:31:15 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231812.D
Acq On : 23 Oct 2018 23:16 Operator: SC
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-10151806/S31-10201801 (11/18
ALS Vial : 5 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

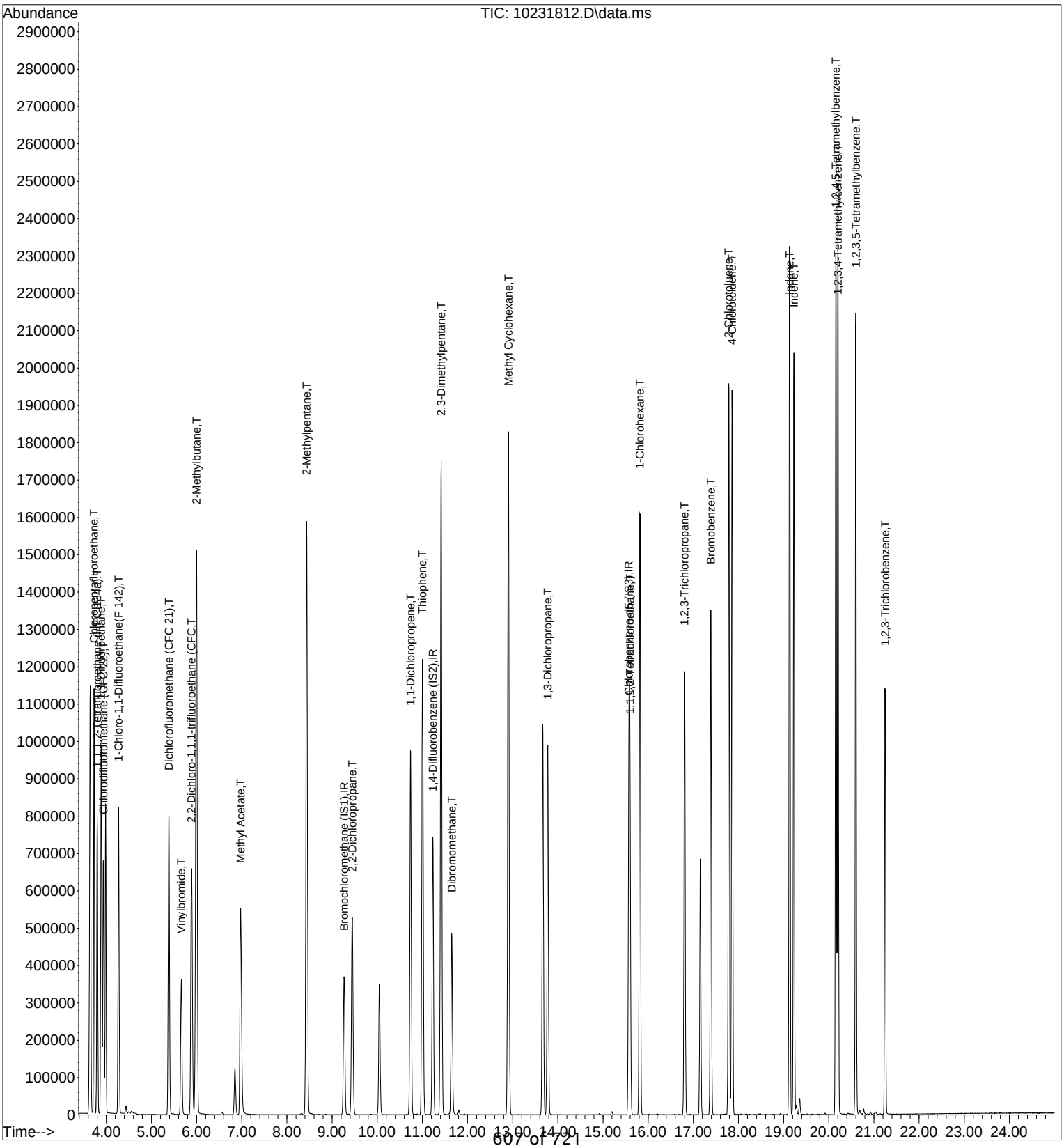
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	130005	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	632405	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	380945	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	460404	26.444	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	320439	23.862	ng	99
4) 1,1-Difluoroethane	3.89	65	403743	25.114	ng	96
5) Chlorodifluoromethane ...	3.94	67	107461	24.600	ng	92
6) 1-Chloro-1,1-Difluoroe...	4.27	65	707000	24.331	ng	100
7) Dichlorofluoromethane ...	5.39	67	882216	24.087	ng	100
8) Vinylbromide	5.66	108	280830	23.807	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	544042	24.677	ng	100
10) 2-Methylbutane	6.00	57	472776	25.128	ng	94
11) Methyl Acetate	6.98	43	988578	21.936	ng	100
12) 2-Methylpentane	8.44	71	414514	23.894	ng	99
13) 2,2-Dichloropropane	9.45	77	399628	20.747	ng	100
14) 1,1-Dichloropropene	10.74	75	589648	24.753	ng	100
15) Thiophene	11.00	84	866617	23.924	ng	100
17) 2,3-Dimethylpentane	11.42	56	882816	25.065	ng	100
18) Dibromomethane	11.65	174	190048	23.456	ng	99
20) Methyl Cyclohexane	12.91	55	737907	25.857	ng	100
21) 1,3-Dichloropropane	13.78	76	670649	25.629	ng	99
22) 1,1,1,2-Tetrachloroethane	15.60	131	239403	20.653	ng	100
23) 1-Chlorohexane	15.82	91	574616	25.556	ng	100
24) 1,2,3-Trichloropropane	16.80	75	643386	24.848	ng	99
25) Bromobenzene	17.39	77	774782	25.243	ng	100
26) 2-Chlorotoluene	17.78	91	1296166	27.189	ng	100
27) 4-Chlorotoluene	17.86	91	1294609	25.930	ng	100
28) Indane	19.13	117	1272507	25.304	ng	100
29) Indene	19.23	115	1092697	25.757	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	1263507	25.038	ng	100
31) 1,2,3,4-Tetramethylben...	20.20	119	1248202	23.040	ng	100
32) 1,2,3,5-Tetramethylben...	20.60	119	1168932	23.655	ng	99
33) 1,2,3-Trichlorobenzene	21.25	180	320863	21.326	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231812.D
Acq On : 23 Oct 2018 23:16 Operator: SC
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-10151806/S31-10201801 (11/18
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 24 09:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LABORATORY CONTROL SAMPLE CHECK SHEET

10/24/18

Data File Name: **10231812.D**
Data File Path: **I:\MS09\Data\2018_10\23**
Operator: **SC**
Date Acquired: **10/23/18** **23:16**

Acq. Method File: **TO15.M**
Sample Name: **25ng TO-15 Custom I**
Misc Info: **S31-10151806/S31-10**
Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	AZ Check 70-130%
2)	**Chloropentafluoroethane**	3.73	26.4	27.00	98	70	130	*
3)	**1,1,1,2-Tetrafluoroethane (HFC 1**	3.80	23.9	27.00	89	70	130	*
4)	**1,1-Difluoroethane**	3.89	25.1	26.00	97	70	130	*
5)	**Chlorodifluoromethane (CFC 22)**	3.94	24.6	27.00	91	70	130	*
6)	**1-Chloro-1,1-Difluoroethane(F 14**	4.27	24.3	26.25	93	70	130	*
7)	**Dichlorofluoromethane (CFC 21)**	5.39	24.1	25.75	94	70	130	*
8)	**Vinylbromide**	5.66	23.8	24.75	96	70	130	*
9)	**2,2-Dichloro-1,1,1-trifluoroethane**	5.89	24.7	26.50	93	70	130	*
10)	**2-Methylbutane**	6.00	25.1	27.50	91	70	130	*
11)	**Methyl Acetate**	6.98	21.9	23.25	94	70	130	*
12)	**2-Methylpentane**	8.44	23.9	24.75	97	70	130	*
13)	**2,2-Dichloropropane**	9.45	20.7	22.50	92	70	130	*
14)	**1,1-Dichloropropene**	10.74	24.8	25.50	97	70	130	*
15)	**Thiophene**	11.00	23.9	25.25	95	70	130	*
17)	**2,3-Dimethylpentane**	11.42	25.1	26.00	97	70	130	*
18)	**Dibromomethane**	11.65	23.5	25.50	92	70	130	*
20)	**Methyl Cyclohexane**	12.91	25.9	27.25	95	70	130	*
21)	**1,3-Dichloropropane**	13.78	25.6	26.50	97	70	130	*
22)	**1,1,1,2-Tetrachloroethane**	15.60	20.7	22.50	92	70	130	*
23)	**1-Chlorohexane**	15.82	25.6	26.00	98	70	130	*
24)	**1,2,3-Trichloropropane**	16.80	24.8	26.50	94	70	130	*
25)	**Bromobenzene**	17.39	25.2	26.75	94	70	130	*
26)	**2-Chlorotoluene**	17.78	27.2	27.50	99	70	130	*
27)	**4-Chlorotoluene**	17.86	25.9	26.50	98	70	130	*
28)	**Indane**	19.13	25.3	25.25	100	70	130	*
29)	**Indene**	19.23	25.8	24.25	106	70	130	*
30)	**1,2,4,5-Tetramethylbenzene**	20.16	25.0	25.25	99	70	130	*
31)	**1,2,3,4-Tetramethylbenzene**	20.20	23.0	25.00	92	70	130	*
32)	**1,2,3,5-Tetramethylbenzene**	20.60	23.7	24.75	96	70	130	*
33)	**1,2,3-Trichlorobenzene**	21.25	21.3	24.50	87	70	130	*

* = Pass

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16101918.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:34:51 2018
Response Via : Initial Calibration

LH 10/20/18

Calibration Files
0.1 =10191816.D 0.2 =10191817.D 0.5 =10191818.D 1.0 =10191819.D 5.0 =10191820.D 25 =10191
100 =10191823.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------									
2)	T	Propene	1.201	1.058	1.133	1.147	1.082	1.083	1.203	1.399	1.163	9.42
3)	T	Dichlorodifluo...	2.763	2.575	2.705	2.579	2.615	2.607	2.582	2.479	2.613	3.31
4)	T	Chloromethane	1.925	1.817	1.839	1.624	1.741	1.720	1.582	1.058	1.663	16.17
5)	T	1,2-Dichloro-1...	1.623	1.511	1.596	1.567	1.552	1.552	1.536	1.491	1.553	2.75
6)	T	Vinyl Chloride	1.779	1.722	1.869	1.822	1.836	1.842	1.831	1.811	1.814	2.50
7)	T	1,3-Butadiene	1.118	1.078	1.084	1.099	1.157	1.230	1.275	1.346	1.174	8.48
8)	T	Bromomethane	1.057	1.018	1.115	1.083	1.100	1.130	1.132	1.110	1.093	3.59
9)	T	Chloroethane	0.780	0.747	0.757	0.779	0.782	0.792	0.796	0.799	0.779	2.36
10)	T	Ethanol	0.747	0.658	0.639	0.614	0.609	0.765	0.794	0.799	0.703	11.56
11)	T	Acetonitrile	2.203	1.879	1.834	1.694	1.626	1.817	1.845	1.822	1.840	9.22
12)	T	Acrolein	0.555	0.531	0.624	0.602	0.621	0.666	0.683	0.686	0.621	9.20
13)	T	Acetone	0.893	0.812	0.840	0.804	0.761	0.850	0.888	0.863	0.839	5.33
14)	T	Trichlorofluor...	2.274	2.190	2.363	2.272	2.268	2.278	2.265	2.195	2.263	2.39
15)	T	2-Propanol (Is...	2.896	2.688	2.855	2.613	2.625	2.868	2.699	2.278	2.690	7.45
16)	T	Acrylonitrile	0.970	1.086	1.248	1.235	1.300	1.436	1.457	1.456	1.273	14.05
17)	T	1,1-Dichloroet...	1.145	1.127	1.140	1.114	1.142	1.183	1.186	1.180	1.152	2.37
18)	T	2-Methyl-2-Pro...	2.985	2.838	2.989	2.861	2.968	3.054	2.981	1.985	2.833	12.35
19)	T	Methylene Chlo...	1.224	1.127	1.176	1.125	1.153	1.186	1.191	1.192	1.172	2.94
20)	T	3-Chloro-1-pro...	1.876	1.353	1.377	1.332	1.359	1.454	1.459	1.447	1.457	12.11
21)	T	Trichlorotrifl...	1.232	1.132	1.234	1.205	1.205	1.227	1.217	1.184	1.204	2.81
22)	T	Carbon Disulfide	4.561	4.046	4.216	4.055	4.054	4.235	4.199	4.098	4.183	4.10
23)	T	trans-1,2-Dich...	1.509	1.410	1.583	1.564	1.604	1.666	1.657	1.623	1.577	5.36
24)	T	1,1-Dichloroet...	2.043	1.857	1.994	1.933	1.964	1.999	1.978	1.922	1.961	2.90
25)	T	Methyl tert-Bu...	3.456	3.390	3.563	3.456	3.454	3.488	3.484	3.456	3.468	1.39
26)	T	Vinyl Acetate			0.245	0.240	0.276	0.335	0.351	0.317	0.294	16.13
27)	T	2-Butanone (MEK)	0.581	0.596	0.711	0.729	0.759	0.835	0.853	0.873	0.742	15.04
28)	T	cis-1,2-Dichlo...	1.463	1.442	1.571	1.546	1.576	1.622	1.611	1.573	1.550	4.21
29)	T	Diisopropyl Ether	1.138	1.073	0.994	0.952	0.952	1.036	1.104	1.045	1.037	6.55
30)	T	Ethyl Acetate	0.326	0.326	0.370	0.381	0.398	0.446	0.478	0.456	0.398	14.60
31)	T	n-Hexane	1.896	1.743	1.811	1.761	1.724	1.798	1.917	1.849	1.812	3.89
32)	T	Chloroform	2.115	2.022	2.187	2.084	2.124	2.161	2.127	2.042	2.108	2.66
33)	S	1,2-Dichloroet...	1.518	1.508	1.540	1.526	1.508	1.495	1.483	1.451	1.504	1.83
34)	T	Tetrahydrofura...	0.780	0.695	0.740	0.713	0.725	0.768	0.773	0.786	0.748	4.56
35)	T	Ethyl tert-But...	1.466	1.340	1.428	1.390	1.429	1.483	1.521	1.551	1.451	4.74
36)	T	1,2-Dichloroet...	1.666	1.558	1.655	1.621	1.645	1.683	1.653	1.567	1.631	2.82
37)	IR	1,4-Difluorobenzen...	----------ISTD----------									
38)	T	1,1,1-Trichlor...	0.487	0.449	0.467	0.457	0.468	0.484	0.479	0.468	0.470	2.81
39)	T	Isopropyl Acetate	0.156	0.159	0.170	0.163	0.172	0.188	0.202	0.201	0.176	10.35
40)	T	1-Butanol				0.185	0.194	0.284	0.302	0.298	0.253	23.00
41)	T	Benzene	1.245	1.103	1.113	1.065	1.096	1.166	1.204	1.202	1.149	5.57
42)	T	Carbon Tetrach...	0.430	0.409	0.420	0.415	0.435	0.462	0.460	0.453	0.435	4.73
43)	T	Cyclohexane	0.454	0.417	0.432	0.419	0.431	0.463	0.480	0.467	0.445	5.33
44)	T	tert-Amyl Meth...	0.809	0.732	0.773	0.751	0.777	0.822	0.832	0.837	0.792	4.95
45)	T	1,2-Dichloropr...	0.251	0.246	0.253	0.251	0.251	0.261	0.262	0.266	0.255	2.77
46)	T	Bromodichlorom...	0.407	0.366	0.393	0.376	0.402	0.426	0.429	0.418	0.402	5.65
47)	T	Trichloroethene	0.336	0.314	0.327	0.321	0.331	0.353	0.359	0.361	0.338	5.28
48)	T	1,4-Dioxane	0.188	0.183	0.194	0.197	0.203	0.251	0.257	0.268	0.217	16.03
49)	T	2,2,4-Trimethy...	1.143	1.054	1.063	1.017	1.039	1.072	1.075	1.070	1.067	3.43
50)	T	Methyl Methacr...	0.099	0.099	0.112	0.111	0.120	0.133	0.139	0.140	0.119	14.06
51)	T	n-Heptane	0.277	0.258	0.259	0.253	0.255	0.261	0.271	0.282	0.264	4.07
52)	T	cis-1,3-Dichlo...	0.430	0.386	0.418	0.415	0.448	0.494	0.505	0.511	0.451	10.44
53)	T	4-Methyl-2-pen...	0.196	0.203	0.216	0.219	0.236	0.257	0.262	0.268	0.232	12.01
54)	T	trans-1,3-Dich...	0.343	0.329	0.357	0.361	0.408	0.459	0.467	0.466	0.399	14.69

55)	T	1,1,2-Trichlor...	0.261	0.256	0.273	0.268	0.278	0.292	0.293	0.295	0.277	5.51
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.003	2.015	2.000	1.997	1.991	1.982	1.967	1.969	1.991	0.84
58)	T	Toluene	3.054	2.809	2.769	2.669	2.643	2.745	2.763	2.660	2.764	4.76
59)	T	2-Hexanone	1.530	1.004	1.229	1.186	1.235	1.344	1.328	1.276	1.266	11.82
60)	T	Dibromochlorom...	0.745	0.726	0.751	0.753	0.820	0.885	0.896	0.884	0.807	8.96
61)	T	1,2-Dibromoethane	0.709	0.666	0.713	0.705	0.754	0.802	0.793	0.782	0.740	6.66
62)	T	n-Butyl Acetate	1.443	1.250	1.266	1.299	1.397	1.480	1.449	1.397	1.373	6.48
63)	T	n-Octane	0.750	0.497	0.488	0.471	0.473	0.499	0.512	0.520	0.526	17.49
64)	T	Tetrachloroethene	0.879	0.804	0.837	0.808	0.837	0.885	0.883	0.871	0.851	3.91
65)	T	Chlorobenzene	1.926	1.803	1.804	1.763	1.825	1.952	1.975	1.927	1.872	4.35
66)	T	Ethylbenzene	3.404	2.982	3.024	2.966	3.093	3.313	3.323	3.077	3.148	5.47
67)	T	m- & p-Xylenes	2.344	2.202	2.288	2.239	2.345	2.580	2.576	2.230	2.350	6.36
68)	T	Bromoform	0.614	0.594	0.643	0.657	0.742	0.841	0.840	0.816	0.718	14.46
69)	T	Styrene	1.821	1.684	1.754	1.768	1.921	2.147	2.162	2.038	1.912	9.69
70)	T	o-Xylene	2.485	2.233	2.292	2.243	2.386	2.587	2.577	2.283	2.386	6.14
71)	T	n-Nonane	1.163	1.089	1.095	1.059	1.084	1.135	1.123	1.023	1.096	4.02
72)	T	1,1,2,2-Tetrac...	1.108	1.020	1.083	1.075	1.149	1.270	1.273	1.160	1.142	7.96
73)	S	Bromofluoroben...	0.894	0.902	0.901	0.903	0.921	0.923	0.896	0.898	0.905	1.23
74)	T	Cumene	3.219	3.066	3.045	2.937	3.114	3.359	3.348	2.963	3.131	5.19
75)	T	alpha-Pinene	1.621	1.458	1.541	1.507	1.613	1.757	1.808	1.688	1.624	7.50
76)	T	n-Propylbenzene	3.782	3.328	3.459	3.402	3.616	3.939	3.856	3.278	3.582	7.05
77)	T	3-Ethyltoluene	3.284	3.064	2.895	2.863	3.069	3.619	3.521	2.936	3.156	9.14
78)	T	4-Ethyltoluene	2.771	2.471	2.829	2.785	2.969	3.070	3.090	2.794	2.847	6.99
79)	T	1,3,5-Trimethy...	2.818	2.513	2.513	2.416	2.571	2.835	2.808	2.487	2.620	6.53
80)	T	alpha-Methylst...	1.311	1.204	1.312	1.309	1.438	1.624	1.639	1.495	1.416	11.27
81)	T	2-Ethyltoluene	3.465	2.840	2.922	2.865	3.058	3.339	3.285	2.841	3.077	8.19
82)	T	1,2,4-Trimethy...	2.752	2.339	2.452	2.411	2.646	3.018	2.820	2.126	2.571	11.31
83)	T	n-Decane	0.076	0.044	0.047	0.052	0.052	0.059	0.059	0.055	0.055	17.41
84)	T	Benzyl Chloride				1.696	2.040	2.617	2.652	2.326	2.266	17.81
85)	T	1,3-Dichlorobe...	1.605	1.404	1.508	1.480	1.603	1.796	1.780	1.568	1.593	8.65
86)	T	1,4-Dichlorobe...	1.746	1.463	1.504	1.495	1.589	1.760	1.762	1.604	1.615	7.77
87)	T	sec-Butylbenzene	3.333	3.125	3.266	3.234	3.459	3.723	3.629	3.047	3.352	7.06
88)	T	4-Isopropyltol...	3.338	2.998	3.112	3.079	3.355	3.770	3.411	2.485	3.193	11.76
89)	T	1,2,3-Trimethy...	2.734	2.417	2.448	2.434	2.665	3.013	2.808	2.097	2.577	11.07
90)	T	1,2-Dichlorobe...	1.512	1.358	1.413	1.414	1.541	1.763	1.688	1.327	1.502	10.42
91)	T	d-Limonene	0.871	0.798	0.882	0.880	0.978	1.128	1.093	0.841	0.934	12.89
92)	T	1,2-Dibromo-3-...	0.495	0.450	0.486	0.514	0.571	0.659	0.660	0.646	0.560	15.26
93)	T	n-Undecane	1.283	1.125	1.180	1.116	1.242	1.335	1.359	1.237	1.235	7.32
94)	T	1,2,4-Trichlor...	1.257	1.067	1.074	1.103	1.154	1.326	1.361	1.289	1.204	9.81
95)	T	Naphthalene	4.049	3.354	3.439	3.406	3.548	4.119	4.118	3.528	3.695	9.15
96)	T	n-Dodecane	1.245	1.082	1.139	1.124	1.222	1.139	1.196	1.155	1.163	4.68
97)	T	Hexachlorobuta...	0.788	0.717	0.769	0.754	0.802	0.888	0.902	0.863	0.810	8.25
98)	T	Cyclohexanone	0.839	0.724	0.705	0.686	0.712	0.945	0.935	0.920	0.808	14.04
99)	T	tert-Butylbenzene	2.599	2.357	2.441	2.407	2.604	2.926	2.704	2.060	2.512	10.31
100)	T	n-Butylbenzene	2.656	2.408	2.548	2.519	2.758	2.984	2.910	2.489	2.659	7.81

(#) = Out of Range

R16101918.M Sat Oct 20 11:02:54 2018

LH 10/20/18

Primary Source Standards Concentrations (Working & Initial Calibration)

40
0.125

1ng/L Std. ID:
4ng/L Std. ID: S31-10181802
20ng/L Std. ID: S31-10181801
200ng/L Std. ID: S31-10181803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	~~20~~	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.250	~~0.25~~	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045		0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008		0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049		0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009		0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022		0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140		0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370		0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063		0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034		0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144		0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070		0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065		0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030		0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252		0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027		0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054		0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166		0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082		0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077		0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066		0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067		0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7
Benzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036		0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087		0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073		0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Isooctane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135		0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6

Q:\TO15 Std. Concentrations\MS16 Std. Conc\2018\R16101918\ICAL Conc. (Primary Source)

Date Updated: 08/22/18
Version: 0

LH 10/20/18

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-10181802
20ng/L Std. ID: S31-10181801
200ng/L Std. ID: S31-10181803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	20	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.250	0.25	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.1120	0.2240	0.5600	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055		0.1055	0.2110	0.5275	1.055	5.275	26.375	52.75	105.5
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052		0.1052	0.2104	0.5260	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085		0.1085	0.2170	0.5425	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.1066	0.2132	0.5330	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.2123	0.4246	1.0615	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071		0.1071	0.2142	0.5355	1.071	5.355	26.775	53.55	107.1
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Pinene	1.035	207.0	20.70	4.140	1.035		0.1035	0.2070	0.5175	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072		0.1072	0.2144	0.5360	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080		0.1080	0.2160	0.5400	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010		0.1010	0.2020	0.5050	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025		0.1025	0.2050	0.5125	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053		0.1053	0.2106	0.5265	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041		0.1041	0.2082	0.5205	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982		0.0982	0.1964	0.4910	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\R16101918.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2018_10\19\10191816.D
2	0.2	0	13	I:\MS16\DATA\2018_10\19\10191817.D
3	0.5	1	13	I:\MS16\DATA\2018_10\19\10191818.D
4	1.0	1	13	I:\MS16\DATA\2018_10\19\10191819.D
5	5.0	5	13	I:\MS16\DATA\2018_10\19\10191820.D
6	25	26	13	I:\MS16\DATA\2018_10\19\10191821.D
7	50	52	13	I:\MS16\DATA\2018_10\19\10191822.D
8	100	103	13	I:\MS16\DATA\2018_10\19\10191823.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 20:11
2	0.2	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 20:45
3	0.5	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 21:18
4	1.0	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 21:52
5	5.0	Oct 20 10:23 2018	Oct 20 10:15 2018	19 Oct 2018 22:26
6	25	Oct 20 10:23 2018	Oct 20 10:14 2018	19 Oct 2018 22:59
7	50	Oct 20 10:23 2018	Oct 20 10:15 2018	19 Oct 2018 23:33
8	100	Oct 20 10:23 2018	Oct 20 10:15 2018	20 Oct 2018 00:06

R16101918.M Sat Oct 20 11:02:20 2018

LH 10/20/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	259926	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1100773	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	483658	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	394652	15.347	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.80%				
57) Toluene-d8 (SS2)	15.87	98	968660	13.093	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.72%				
73) Bromofluorobenzene (SS3)	19.09	174	432353	14.379	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.04%				
Target Compounds							Qvalue
2) Propene	4.09	42	2575	0.087	ng		93
3) Dichlorodifluoromethan...	4.25	85	6003	0.124	ng		95
4) Chloromethane	4.55	50	4035	0.111	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	3469	0.124	ng		95
6) Vinyl Chloride	4.99	62	3888	0.102	ng		97
7) 1,3-Butadiene	5.27	54	2439	0.086	ng	#	86
8) Bromomethane	5.73	94	2218	0.086	ng		99
9) Chloroethane	6.07	64	1657	0.082	ng		80
10) Ethanol	6.45	45	7982	0.441	ng		90
11) Acetonitrile	6.76	41	4733	0.098	ng		96
12) Acrolein	6.93	56	1187	0.068	ng		92
13) Acetone	7.14	58	9971	0.490	ng	#	80
14) Trichlorofluoromethane	7.37	101	5012	0.120	ng		97
15) 2-Propanol (Isopropanol)	7.69	45	12423	0.199	ng		71
16) Acrylonitrile	7.95	53	2085	0.057	ng		97
17) 1,1-Dichloroethene	8.36	96	2557	0.094	ng		99
18) 2-Methyl-2-Propanol (t...	8.58	59	13308	0.214	ng		79
19) Methylene Chloride	8.57	84	2723	0.095	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	4162	0.118	ng		70
21) Trichlorotrifluoroethane	9.00	151	2728	0.108	ng		97
22) Carbon Disulfide	8.87	76	10195	0.097	ng		98
23) trans-1,2-Dichloroethene	9.87	61	3332	0.087	ng		99
24) 1,1-Dichloroethane	10.12	63	4376	0.093	ng		96
25) Methyl tert-Butyl Ether	10.24	73	7826	0.104	ng		97
26) Vinyl Acetate	10.38	86	2297	0.391	ng	#	34
27) 2-Butanone (MEK)	10.67	72	1240	0.066	ng	#	53
28) cis-1,2-Dichloroethene	11.14	61	3206	0.087	ng		100
29) Diisopropyl Ether	11.43	87	2558	0.114	ng	#	93
30) Ethyl Acetate	11.45	61	1470	0.151	ng		93
31) n-Hexane	11.42	57	4265	0.098	ng		98
32) Chloroform	11.48	83	4736	0.106	ng		96
34) Tetrahydrofuran (THF)	11.93	72	1733	0.092	ng	#	80
35) Ethyl tert-Butyl Ether	12.02	87	3232	0.104	ng		98
36) 1,2-Dichloroethane	12.29	62	3676	0.119	ng		97
38) 1,1,1-Trichloroethane	12.56	97	4640	0.126	ng		97
39) Isopropyl Acetate	12.99	61	2833	0.158	ng	#	52
40) 1-Butanol	13.06	56	2971	0.115	ng		92
41) Benzene	13.04	78	11323	0.098	ng		100
42) Carbon Tetrachloride	13.20	117	3923	0.116	ng		96
43) Cyclohexane	13.32	84	8341	0.199	ng		96
44) tert-Amyl Methyl Ether	13.68	73	7649	0.099	ng	#	73
45) 1,2-Dichloropropane	13.90	63	2369	0.087	ng		99
46) Bromodichloromethane	14.09	83	3824	0.113	ng		99
47) Trichloroethene	14.13	130	3141	0.101	ng		97
48) 1,4-Dioxane	14.14	88	1757	0.077	ng		99
49) 2,2,4-Trimethylpentane...	14.19	57	10681	0.093	ng		91

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

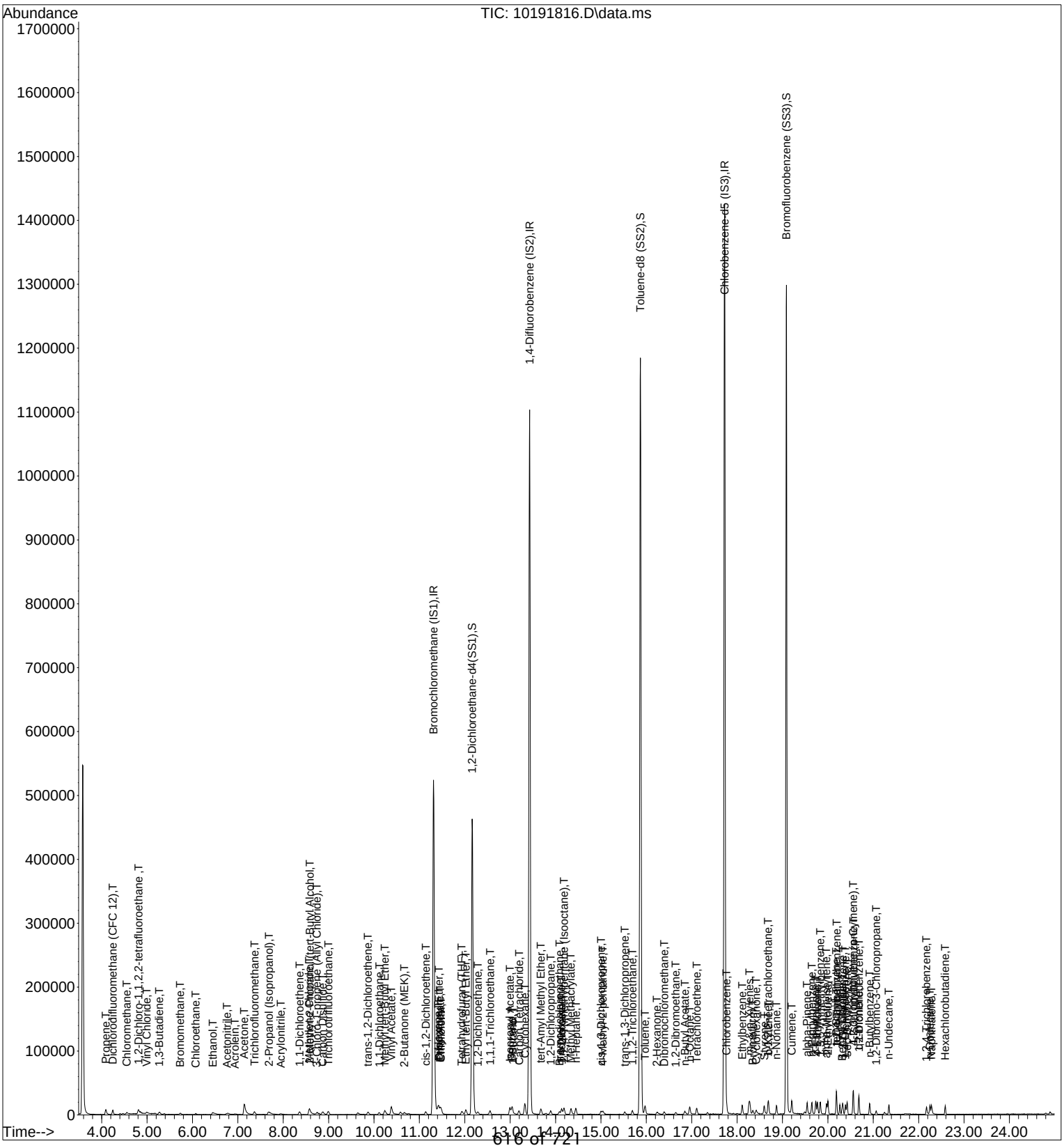
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	1862	0.162	ng	#	85
51) n-Heptane	14.45	71	2621	0.097	ng		94
52) cis-1,3-Dichloropropene	15.01	75	4237	0.099	ng		98
53) 4-Methyl-2-pentanone	15.04	58	1828	0.072	ng	#	58
54) trans-1,3-Dichloropropene	15.52	75	3183	0.085	ng		98
55) 1,1,2-Trichloroethane	15.69	97	2470	0.092	ng		94
58) Toluene	15.97	91	12432	0.098	ng		96
59) 2-Hexanone	16.23	43	6356	0.106	ng	#	65
60) Dibromochloromethane	16.39	129	3098	0.095	ng		99
61) 1,2-Dibromoethane	16.65	107	2953	0.091	ng		98
62) n-Butyl Acetate	16.85	43	6057	0.090	ng		86
63) n-Octane	16.96	57	3123	0.126	ng	#	74
64) Tetrachloroethene	17.11	166	3597	0.099	ng		97
65) Chlorobenzene	17.77	112	7946	0.096	ng		96
66) Ethylbenzene	18.11	91	13604	0.097	ng		95
67) m- & p-Xylenes	18.27	91	19254	0.185	ng		99
68) Bromoform	18.35	173	2526	0.088	ng		100
69) Styrene	18.60	104	7469	0.089	ng		96
70) o-Xylene	18.69	91	10213	0.097	ng		100
71) n-Nonane	18.87	43	4821	0.091	ng		90
72) 1,1,2,2-Tetrachloroethane	18.68	83	4563	0.089	ng		97
74) Cumene	19.20	105	13164	0.096	ng		90
75) alpha-Pinene	19.54	93	6492	0.092	ng	#	63
76) n-Propylbenzene	19.65	91	15744	0.098	ng		98
77) 3-Ethyltoluene	19.73	105	13494	0.099	ng		98
78) 4-Ethyltoluene	19.77	105	11376	0.090	ng		96
79) 1,3,5-Trimethylbenzene	19.84	105	11524	0.103	ng		100
80) alpha-Methylstyrene	19.97	118	5365	0.095	ng		93
81) 2-Ethyltoluene	20.00	105	14373	0.109	ng		92
82) 1,2,4-Trimethylbenzene	20.19	105	11372	0.105	ng		93
83) n-Decane	20.19	58	315	0.127	ng	#	24
84) Benzyl Chloride	20.31	91	7204	0.081	ng		89
85) 1,3-Dichlorobenzene	20.33	146	6709	0.099	ng		99
86) 1,4-Dichlorobenzene	20.39	146	7302	0.108	ng		94
87) sec-Butylbenzene	20.42	105	13710	0.092	ng		96
88) 4-Isopropyltoluene (p-...	20.56	119	13457	0.099	ng		96
89) 1,2,3-Trimethylbenzene	20.56	105	11024	0.102	ng		96
90) 1,2-Dichlorobenzene	20.69	146	6370	0.100	ng		99
91) d-Limonene	20.68	68	3402	0.083	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.07	157	1996	0.086	ng	#	81
93) n-Undecane	21.34	57	5247	0.094	ng		91
94) 1,2,4-Trichlorobenzene	22.17	180	5176	0.118	ng		97
95) Naphthalene	22.28	128	16060	0.129	ng		94
96) n-Dodecane	22.25	57	4967	0.113	ng		90
97) Hexachlorobutadiene	22.58	225	3212	0.100	ng		99
98) Cyclohexanone	18.42	55	3189	0.074	ng		92
99) tert-Butylbenzene	20.19	119	10732	0.100	ng		98
100) n-Butylbenzene	20.92	91	10935	0.094	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	257161	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1084550	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	477241	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	387674	15.238	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.92%				
57) Toluene-d8 (SS2)	15.87	98	961586	13.172	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.36%				
73) Bromofluorobenzene (SS3)	19.09	174	430660	14.515	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.08%				
Target Compounds							Qvalue
2) Propene	4.08	42	4487	0.153	ng		93
3) Dichlorodifluoromethan...	4.23	85	11073	0.232	ng		99
4) Chloromethane	4.54	50	7536	0.210	ng		95
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	6390	0.231	ng		97
6) Vinyl Chloride	4.98	62	7446	0.198	ng		98
7) 1,3-Butadiene	5.26	54	4654	0.167	ng	#	88
8) Bromomethane	5.71	94	4227	0.166	ng		98
9) Chloroethane	6.06	64	3142	0.157	ng		93
10) Ethanol	6.42	45	13922	0.778	ng		93
11) Acetonitrile	6.74	41	7985	0.167	ng		98
12) Acrolein	6.93	56	2246	0.130	ng		95
13) Acetone	7.12	58	17943	0.892	ng	#	84
14) Trichlorofluoromethane	7.36	101	9551	0.231	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	22819	0.369	ng		82
16) Acrylonitrile	7.92	53	4620	0.129	ng		93
17) 1,1-Dichloroethene	8.35	96	4982	0.185	ng		95
18) 2-Methyl-2-Propanol (t...	8.56	59	25037	0.406	ng		92
19) Methylene Chloride	8.57	84	4960	0.175	ng		100
20) 3-Chloro-1-propene (Al...	8.74	41	5940	0.170	ng		90
21) Trichlorotrifluoroethane	8.99	151	4959	0.198	ng		95
22) Carbon Disulfide	8.86	76	17898	0.172	ng		98
23) trans-1,2-Dichloroethene	9.87	61	6160	0.163	ng		100
24) 1,1-Dichloroethane	10.11	63	7869	0.169	ng		99
25) Methyl tert-Butyl Ether	10.23	73	15191	0.205	ng		100
26) Vinyl Acetate	10.37	86	4664	0.802	ng	#	48
27) 2-Butanone (MEK)	10.65	72	2517	0.134	ng	#	84
28) cis-1,2-Dichloroethene	11.14	61	6253	0.171	ng		98
29) Diisopropyl Ether	11.42	87	4772	0.216	ng	#	84
30) Ethyl Acetate	11.45	61	2903	0.302	ng		99
31) n-Hexane	11.41	57	7761	0.180	ng		97
32) Chloroform	11.48	83	8960	0.203	ng		99
34) Tetrahydrofuran (THF)	11.93	72	3056	0.164	ng	#	91
35) Ethyl tert-Butyl Ether	12.02	87	5844	0.190	ng		95
36) 1,2-Dichloroethane	12.29	62	6800	0.223	ng		99
38) 1,1,1-Trichloroethane	12.55	97	8414	0.232	ng		99
39) Isopropyl Acetate	12.99	61	5697	0.322	ng	#	87
40) 1-Butanol	13.04	56	5712	0.224	ng		84
41) Benzene	13.04	78	19779	0.174	ng		100
42) Carbon Tetrachloride	13.19	117	7359	0.222	ng		98
43) Cyclohexane	13.32	84	15105	0.365	ng		97
44) tert-Amyl Methyl Ether	13.67	73	13643	0.180	ng		87
45) 1,2-Dichloropropane	13.89	63	4577	0.170	ng		93
46) Bromodichloromethane	14.08	83	6782	0.203	ng		98
47) Trichloroethene	14.13	130	5792	0.189	ng		99
48) 1,4-Dioxane	14.13	88	3376	0.150	ng		95
49) 2,2,4-Trimethylpentane...	14.19	57	19399	0.171	ng		90

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

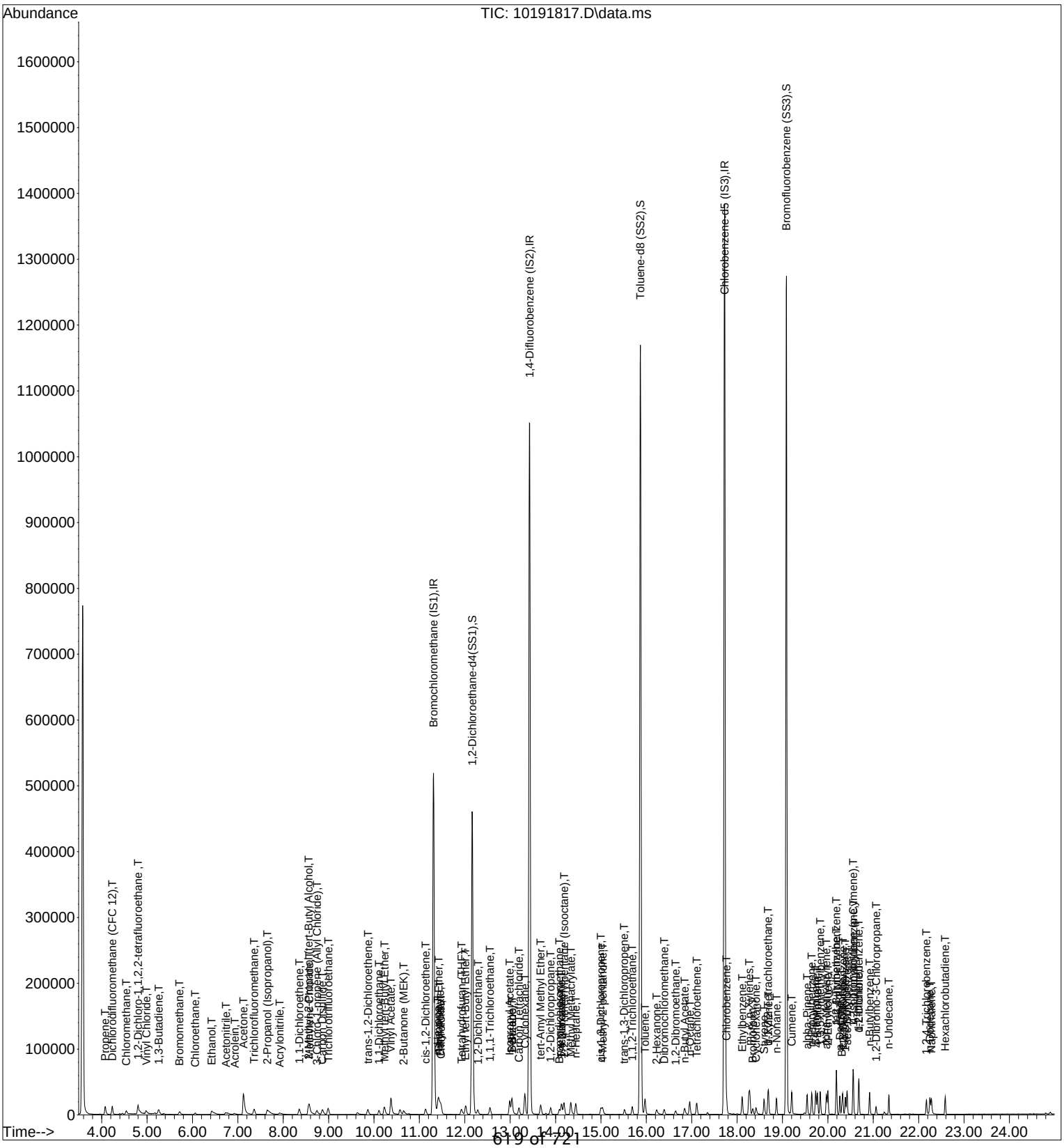
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	3658	0.323	ng	#	87
51) n-Heptane	14.45	71	4815	0.181	ng		98
52) cis-1,3-Dichloropropene	15.00	75	7493	0.177	ng		99
53) 4-Methyl-2-pentanone	15.04	58	3729	0.148	ng	#	73
54) trans-1,3-Dichloropropene	15.51	75	6026	0.163	ng		99
55) 1,1,2-Trichloroethane	15.69	97	4775	0.181	ng		100
58) Toluene	15.97	91	22567	0.181	ng		95
59) 2-Hexanone	16.23	43	8234	0.139	ng		100
60) Dibromochloromethane	16.39	129	5960	0.184	ng		96
61) 1,2-Dibromoethane	16.65	107	5470	0.171	ng		99
62) n-Butyl Acetate	16.84	43	10357	0.156	ng		95
63) n-Octane	16.96	57	4085	0.167	ng		93
64) Tetrachloroethene	17.11	166	6498	0.181	ng		99
65) Chlorobenzene	17.76	112	14677	0.180	ng		99
66) Ethylbenzene	18.11	91	23522	0.170	ng		98
67) m- & p-Xylenes	18.27	91	35704	0.349	ng		97
68) Bromoform	18.35	173	4824	0.170	ng		99
69) Styrene	18.59	104	13627	0.165	ng		99
70) o-Xylene	18.69	91	18107	0.175	ng		97
71) n-Nonane	18.87	43	8903	0.170	ng		91
72) 1,1,2,2-Tetrachloroethane	18.68	83	8288	0.163	ng		100
74) Cumene	19.20	105	24744	0.183	ng		98
75) alpha-Pinene	19.54	93	11525	0.165	ng		81
76) n-Propylbenzene	19.64	91	27347	0.173	ng		99
77) 3-Ethyltoluene	19.73	105	24845	0.184	ng		99
78) 4-Ethyltoluene	19.77	105	20021	0.161	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	20283	0.184	ng		93
80) alpha-Methylstyrene	19.97	118	9729	0.174	ng		96
81) 2-Ethyltoluene	20.00	105	23246	0.179	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	19075	0.178	ng		99
83) n-Decane	20.26	58	362	0.147	ng	#	89
84) Benzyl Chloride	20.31	91	12102	0.139	ng		94
85) 1,3-Dichlorobenzene	20.33	146	11577	0.174	ng		97
86) 1,4-Dichlorobenzene	20.39	146	12078	0.181	ng		100
87) sec-Butylbenzene	20.42	105	25369	0.172	ng		97
88) 4-Isopropyltoluene (p-...	20.56	119	23853	0.177	ng		97
89) 1,2,3-Trimethylbenzene	20.56	105	19232	0.181	ng		97
90) 1,2-Dichlorobenzene	20.68	146	11296	0.181	ng		99
91) d-Limonene	20.68	68	6157	0.152	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	3578	0.156	ng	#	82
93) n-Undecane	21.34	57	9077	0.165	ng		96
94) 1,2,4-Trichlorobenzene	22.17	180	8672	0.200	ng		99
95) Naphthalene	22.28	128	26249	0.213	ng		95
96) n-Dodecane	22.25	57	8516	0.196	ng		94
97) Hexachlorobutadiene	22.58	225	5767	0.182	ng		96
98) Cyclohexanone	18.42	55	5431	0.127	ng		95
99) tert-Butylbenzene	20.19	119	19200	0.181	ng		99
100) n-Butylbenzene	20.92	91	19566	0.171	ng		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	225635	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	973886	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	429711	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	347374	15.561	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.48%				
57) Toluene-d8 (SS2)	15.87	98	859289	13.073	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.56%				
73) Bromofluorobenzene (SS3)	19.09	174	387238	14.495	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.00%				
Target Compounds							Qvalue
2) Propene	4.08	42	10541	0.410	ng		99
3) Dichlorodifluoromethan...	4.24	85	25510	0.608	ng		100
4) Chloromethane	4.54	50	16734	0.532	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	14808	0.609	ng		99
6) Vinyl Chloride	4.98	62	17732	0.536	ng		99
7) 1,3-Butadiene	5.26	54	10262	0.419	ng		95
8) Bromomethane	5.71	94	10153	0.453	ng		98
9) Chloroethane	6.06	64	6983	0.397	ng		97
10) Ethanol	6.42	45	29635	1.887	ng		96
11) Acetonitrile	6.73	41	17102	0.409	ng		94
12) Acrolein	6.92	56	5787	0.381	ng		99
13) Acetone	7.12	58	40735	2.308	ng		86
14) Trichlorofluoromethane	7.36	101	22609	0.622	ng		99
15) 2-Propanol (Isopropanol)	7.63	45	53151	0.980	ng		89
16) Acrylonitrile	7.91	53	11644	0.370	ng		97
17) 1,1-Dichloroethene	8.36	96	11055	0.468	ng		97
18) 2-Methyl-2-Propanol (t...	8.54	59	57832	1.069	ng		95
19) Methylene Chloride	8.57	84	11356	0.456	ng		99
20) 3-Chloro-1-propene (Al...	8.74	41	13258	0.431	ng		94
21) Trichlorotrifluoroethane	9.00	151	11866	0.539	ng		98
22) Carbon Disulfide	8.86	76	40904	0.447	ng		98
23) trans-1,2-Dichloroethene	9.87	61	15175	0.456	ng		99
24) 1,1-Dichloroethane	10.11	63	18533	0.454	ng		100
25) Methyl tert-Butyl Ether	10.22	73	35015	0.538	ng		100
26) Vinyl Acetate	10.37	86	11599	2.273	ng	#	64
27) 2-Butanone (MEK)	10.65	72	6589	0.401	ng	#	90
28) cis-1,2-Dichloroethene	11.14	61	14946	0.466	ng		98
29) Diisopropyl Ether	11.43	87	9698	0.500	ng	#	93
30) Ethyl Acetate	11.44	61	7230	0.858	ng		98
31) n-Hexane	11.41	57	17684	0.467	ng		98
32) Chloroform	11.48	83	21257	0.550	ng		100
34) Tetrahydrofuran (THF)	11.91	72	7135	0.438	ng		96
35) Ethyl tert-Butyl Ether	12.02	87	13660	0.505	ng		96
36) 1,2-Dichloroethane	12.29	62	15847	0.592	ng		99
38) 1,1,1-Trichloroethane	12.56	97	19675	0.603	ng		99
39) Isopropyl Acetate	12.98	61	13719	0.863	ng	#	96
40) 1-Butanol	13.03	56	14427	0.630	ng	#	76
41) Benzene	13.04	78	44790	0.438	ng		99
42) Carbon Tetrachloride	13.20	117	16951	0.569	ng		98
43) Cyclohexane	13.32	84	35112	0.946	ng		97
44) tert-Amyl Methyl Ether	13.67	73	32334	0.475	ng		94
45) 1,2-Dichloropropane	13.89	63	10588	0.439	ng		99
46) Bromodichloromethane	14.09	83	16335	0.545	ng		99
47) Trichloroethene	14.13	130	13518	0.491	ng		98
48) 1,4-Dioxane	14.12	88	8034	0.398	ng		93
49) 2,2,4-Trimethylpentane...	14.19	57	43919	0.432	ng		95

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

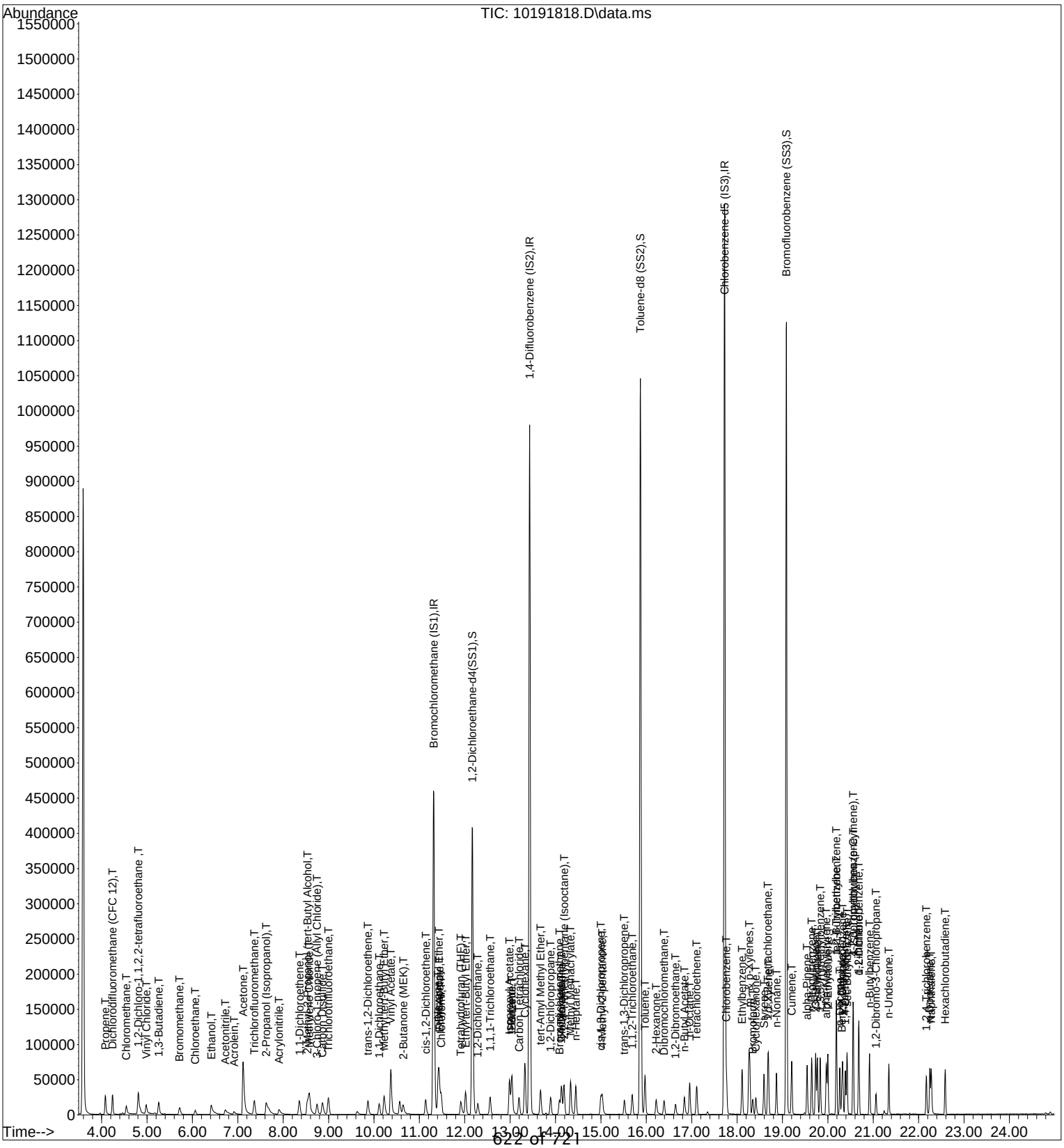
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	9281	0.912	ng		98
51) n-Heptane	14.45	71	10836	0.453	ng		97
52) cis-1,3-Dichloropropene	15.00	75	18237	0.481	ng		98
53) 4-Methyl-2-pentanone	15.03	58	8918	0.395	ng		81
54) trans-1,3-Dichloropropene	15.51	75	14670	0.442	ng		98
55) 1,1,2-Trichloroethane	15.69	97	11444	0.482	ng		99
58) Toluene	15.97	91	50062	0.445	ng		99
59) 2-Hexanone	16.22	43	22684	0.424	ng		90
60) Dibromochloromethane	16.39	129	13871	0.476	ng		97
61) 1,2-Dibromoethane	16.64	107	13196	0.459	ng		99
62) n-Butyl Acetate	16.84	43	23614	0.396	ng		99
63) n-Octane	16.95	57	9031	0.410	ng		97
64) Tetrachloroethene	17.11	166	15226	0.470	ng		98
65) Chlorobenzene	17.76	112	33049	0.449	ng		100
66) Ethylbenzene	18.11	91	53687	0.432	ng		99
67) m- & p-Xylenes	18.27	91	83480	0.905	ng		98
68) Bromoform	18.35	173	11745	0.459	ng		99
69) Styrene	18.59	104	31949	0.428	ng		99
70) o-Xylene	18.69	91	41839	0.449	ng		98
71) n-Nonane	18.87	43	20160	0.427	ng		93
72) 1,1,2,2-Tetrachloroethane	18.68	83	19807	0.433	ng		98
74) Cumene	19.20	105	55328	0.453	ng		98
75) alpha-Pinene	19.54	93	27411	0.436	ng		91
76) n-Propylbenzene	19.64	91	63970	0.449	ng		98
77) 3-Ethyltoluene	19.73	105	52839	0.435	ng		99
78) 4-Ethyltoluene	19.77	105	51597	0.460	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	45663	0.460	ng		98
80) alpha-Methylstyrene	19.97	118	23857	0.473	ng		98
81) 2-Ethyltoluene	20.00	105	53837	0.460	ng		98
82) 1,2,4-Trimethylbenzene	20.19	105	45011	0.466	ng		99
83) n-Decane	20.26	58	875	0.396	ng	#	94
84) Benzyl Chloride	20.31	91	29371	0.374	ng		95
85) 1,3-Dichlorobenzene	20.32	146	27996	0.467	ng		98
86) 1,4-Dichlorobenzene	20.39	146	27951	0.464	ng		99
87) sec-Butylbenzene	20.42	105	59665	0.448	ng		98
88) 4-Isopropyltoluene (p-...	20.56	119	55732	0.459	ng		97
89) 1,2,3-Trimethylbenzene	20.56	105	43842	0.459	ng		99
90) 1,2-Dichlorobenzene	20.68	146	26449	0.470	ng		100
91) d-Limonene	20.68	68	15317	0.421	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	8712	0.422	ng		86
93) n-Undecane	21.34	57	21430	0.432	ng		96
94) 1,2,4-Trichlorobenzene	22.17	180	19639	0.503	ng		98
95) Naphthalene	22.28	128	60589	0.547	ng		98
96) n-Dodecane	22.24	57	20181	0.515	ng		95
97) Hexachlorobutadiene	22.59	225	13910	0.489	ng		99
98) Cyclohexanone	18.41	55	11901	0.309	ng		96
99) tert-Butylbenzene	20.19	119	44776	0.470	ng		98
100) n-Butylbenzene	20.92	91	46601	0.451	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	224987	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	965252	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	426875	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	343361	15.426	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 123.44%				
57) Toluene-d8 (SS2)	15.87	98	852640	13.058	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.48%				
73) Bromofluorobenzene (SS3)	19.09	174	385450	14.524	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.16%				
Target Compounds							Qvalue
2) Propene	4.06	42	21283	0.831	ng		99
3) Dichlorodifluoromethan...	4.22	85	48499	1.159	ng		99
4) Chloromethane	4.53	50	29457	0.938	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	28994	1.197	ng		100
6) Vinyl Chloride	4.96	62	34476	1.046	ng		100
7) 1,3-Butadiene	5.24	54	20758	0.850	ng		96
8) Bromomethane	5.70	94	19671	0.881	ng		100
9) Chloroethane	6.04	64	14325	0.817	ng		96
10) Ethanol	6.40	45	56772	3.625	ng		99
11) Acetonitrile	6.70	41	31490	0.755	ng		100
12) Acrolein	6.90	56	11132	0.735	ng		100
13) Acetone	7.10	58	77729	4.416	ng		86
14) Trichlorofluoromethane	7.35	101	43352	1.196	ng		100
15) 2-Propanol (Isopropanol)	7.61	45	97012	1.793	ng		91
16) Acrylonitrile	7.89	53	22976	0.732	ng		98
17) 1,1-Dichloroethene	8.35	96	21529	0.914	ng		97
18) 2-Methyl-2-Propanol (t...	8.51	59	110398	2.047	ng		96
19) Methylene Chloride	8.57	84	21669	0.872	ng		97
20) 3-Chloro-1-propene (Al...	8.73	41	25573	0.834	ng		95
21) Trichlorotrifluoroethane	8.99	151	23091	1.051	ng		99
22) Carbon Disulfide	8.85	76	78459	0.861	ng		99
23) trans-1,2-Dichloroethene	9.86	61	29899	0.902	ng		98
24) 1,1-Dichloroethane	10.11	63	35845	0.881	ng		100
25) Methyl tert-Butyl Ether	10.21	73	67748	1.043	ng		99
26) Vinyl Acetate	10.37	86	22653	4.451	ng	#	69
27) 2-Butanone (MEK)	10.63	72	13467	0.822	ng		95
28) cis-1,2-Dichloroethene	11.14	61	29329	0.918	ng		98
29) Diisopropyl Ether	11.42	87	18522	0.957	ng	#	90
30) Ethyl Acetate	11.44	61	14844	1.767	ng		99
31) n-Hexane	11.41	57	34290	0.908	ng		100
32) Chloroform	11.48	83	40401	1.048	ng		100
34) Tetrahydrofuran (THF)	11.90	72	13703	0.843	ng		97
35) Ethyl tert-Butyl Ether	12.01	87	26527	0.984	ng		95
36) 1,2-Dichloroethane	12.29	62	30947	1.159	ng		99
38) 1,1,1-Trichloroethane	12.56	97	38172	1.181	ng		99
39) Isopropyl Acetate	12.98	61	26073	1.655	ng	#	92
40) 1-Butanol	13.02	56	29513	1.301	ng	#	75
41) Benzene	13.04	78	84925	0.838	ng		100
42) Carbon Tetrachloride	13.19	117	33183	1.123	ng		99
43) Cyclohexane	13.32	84	67512	1.835	ng		98
44) tert-Amyl Methyl Ether	13.67	73	62277	0.924	ng		97
45) 1,2-Dichloropropane	13.89	63	20805	0.870	ng		98
46) Bromodichloromethane	14.08	83	31050	1.045	ng		99
47) Trichloroethene	14.13	130	26317	0.965	ng		99
48) 1,4-Dioxane	14.12	88	16159	0.807	ng		97
49) 2,2,4-Trimethylpentane...	14.19	57	83311	0.827	ng		97

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

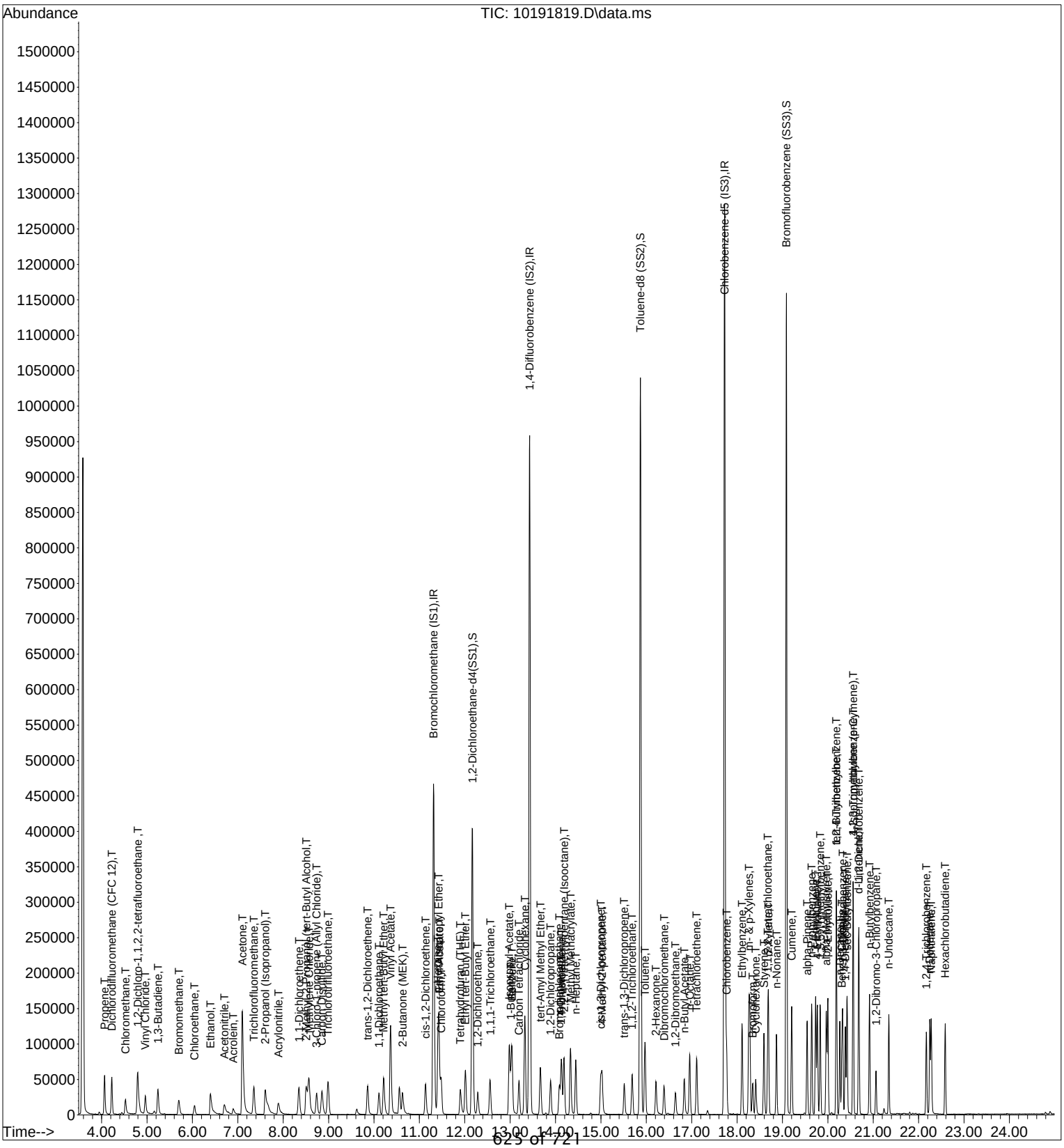
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	18333	1.818	ng		97
51) n-Heptane	14.45	71	21058	0.888	ng		99
52) cis-1,3-Dichloropropene	15.00	75	35947	0.957	ng		98
53) 4-Methyl-2-pentanone	15.02	58	17931	0.802	ng		89
54) trans-1,3-Dichloropropene	15.51	75	29427	0.894	ng		99
55) 1,1,2-Trichloroethane	15.68	97	22263	0.946	ng		100
58) Toluene	15.97	91	95872	0.858	ng		99
59) 2-Hexanone	16.21	43	43507	0.819	ng		93
60) Dibromochloromethane	16.39	129	27643	0.956	ng		99
61) 1,2-Dibromoethane	16.64	107	25890	0.906	ng		99
62) n-Butyl Acetate	16.84	43	48116	0.813	ng		97
63) n-Octane	16.96	57	17310	0.792	ng		98
64) Tetrachloroethene	17.11	166	29202	0.908	ng		100
65) Chlorobenzene	17.77	112	64179	0.878	ng		100
66) Ethylbenzene	18.11	91	104622	0.847	ng		98
67) m- & p-Xylenes	18.26	91	162352	1.772	ng		98
68) Bromoform	18.35	173	23860	0.939	ng		99
69) Styrene	18.59	104	63992	0.864	ng		99
70) o-Xylene	18.69	91	81354	0.879	ng		99
71) n-Nonane	18.87	43	38738	0.825	ng		95
72) 1,1,2,2-Tetrachloroethane	18.68	83	39068	0.861	ng		99
74) Cumene	19.20	105	105998	0.875	ng		98
75) alpha-Pinene	19.54	93	53269	0.854	ng		94
76) n-Propylbenzene	19.64	91	125025	0.884	ng		98
77) 3-Ethyltoluene	19.73	105	103817	0.861	ng		99
78) 4-Ethyltoluene	19.77	105	100902	0.905	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	87207	0.885	ng		98
80) alpha-Methylstyrene	19.97	118	47279	0.945	ng		99
81) 2-Ethyltoluene	20.00	105	104889	0.903	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	87919	0.917	ng		99
83) n-Decane	20.26	58	1906	0.868	ng	#	85
84) Benzyl Chloride	20.31	91	60859	0.779	ng		97
85) 1,3-Dichlorobenzene	20.32	146	54578	0.917	ng		100
86) 1,4-Dichlorobenzene	20.39	146	55188	0.922	ng		100
87) sec-Butylbenzene	20.42	105	117383	0.888	ng		98
88) 4-Isopropyltoluene (p-...	20.56	119	109563	0.909	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	86602	0.912	ng		100
90) 1,2-Dichlorobenzene	20.68	146	52570	0.939	ng		100
91) d-Limonene	20.68	68	30347	0.840	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	18306	0.893	ng		93
93) n-Undecane	21.34	57	40281	0.818	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	40089	1.034	ng		99
95) Naphthalene	22.28	128	119229	1.083	ng		99
96) n-Dodecane	22.24	57	39563	1.015	ng		98
97) Hexachlorobutadiene	22.59	225	27131	0.959	ng		100
98) Cyclohexanone	18.41	55	22989	0.601	ng		97
99) tert-Butylbenzene	20.19	119	87695	0.927	ng		98
100) n-Butylbenzene	20.92	91	91546	0.892	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	226819	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.43	114	957857	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	421774	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	342140	15.247	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.00%				
57) Toluene-d8 (SS2)	15.87	98	839917	13.018	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.16%				
73) Bromofluorobenzene (SS3)	19.09	174	388522	14.817	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.56%				
Target Compounds							Qvalue
2) Propene	4.05	42	101200	3.919	ng		100
3) Dichlorodifluoromethan...	4.22	85	247896	5.878	ng		100
4) Chloromethane	4.52	50	159178	5.030	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	144746	5.925	ng		99
6) Vinyl Chloride	4.96	62	175036	5.268	ng		100
7) 1,3-Butadiene	5.24	54	110093	4.473	ng		98
8) Bromomethane	5.70	94	100678	4.470	ng		100
9) Chloroethane	6.04	64	72520	4.102	ng		99
10) Ethanol	6.41	45	283980	17.986	ng		100
11) Acetonitrile	6.69	41	152420	3.625	ng		100
12) Acrolein	6.89	56	57894	3.793	ng		99
13) Acetone	7.09	58	370672	20.891	ng		87
14) Trichlorofluoromethane	7.35	101	218077	5.970	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	491389	9.010	ng		98
16) Acrylonitrile	7.89	53	121955	3.854	ng		99
17) 1,1-Dichloroethene	8.35	96	111254	4.686	ng		99
18) 2-Methyl-2-Propanol (t...	8.50	59	577334	10.617	ng		98
19) Methylene Chloride	8.57	84	111943	4.468	ng		100
20) 3-Chloro-1-propene (Al...	8.74	41	131587	4.259	ng		99
21) Trichlorotrifluoroethane	8.99	151	116399	5.257	ng		99
22) Carbon Disulfide	8.85	76	395407	4.302	ng		100
23) trans-1,2-Dichloroethene	9.86	61	154571	4.623	ng		100
24) 1,1-Dichloroethane	10.12	63	183544	4.476	ng		100
25) Methyl tert-Butyl Ether	10.21	73	341288	5.213	ng		100
26) Vinyl Acetate	10.37	86	131530	25.636	ng	#	78
27) 2-Butanone (MEK)	10.62	72	70732	4.283	ng		96
28) cis-1,2-Dichloroethene	11.14	61	150735	4.679	ng		99
29) Diisopropyl Ether	11.42	87	93397	4.787	ng	#	89
30) Ethyl Acetate	11.43	61	78309	9.247	ng		99
31) n-Hexane	11.41	57	169215	4.446	ng		100
32) Chloroform	11.48	83	207535	5.341	ng		100
34) Tetrahydrofuran (THF)	11.89	72	70225	4.284	ng		99
35) Ethyl tert-Butyl Ether	12.01	87	137443	5.060	ng		98
36) 1,2-Dichloroethane	12.29	62	158384	5.882	ng		100
38) 1,1,1-Trichloroethane	12.56	97	193828	6.043	ng		100
39) Isopropyl Acetate	12.98	61	136171	8.709	ng	#	97
40) 1-Butanol	13.00	56	153865	6.836	ng	#	78
41) Benzene	13.04	78	433586	4.313	ng		100
42) Carbon Tetrachloride	13.20	117	172504	5.886	ng		100
43) Cyclohexane	13.32	84	344832	9.447	ng		99
44) tert-Amyl Methyl Ether	13.67	73	319579	4.777	ng		98
45) 1,2-Dichloropropane	13.89	63	103285	4.351	ng		100
46) Bromodichloromethane	14.08	83	164399	5.578	ng		99
47) Trichloroethene	14.13	130	134864	4.985	ng		99
48) 1,4-Dioxane	14.11	88	82830	4.170	ng		99
49) 2,2,4-Trimethylpentane...	14.19	57	422546	4.229	ng		99

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

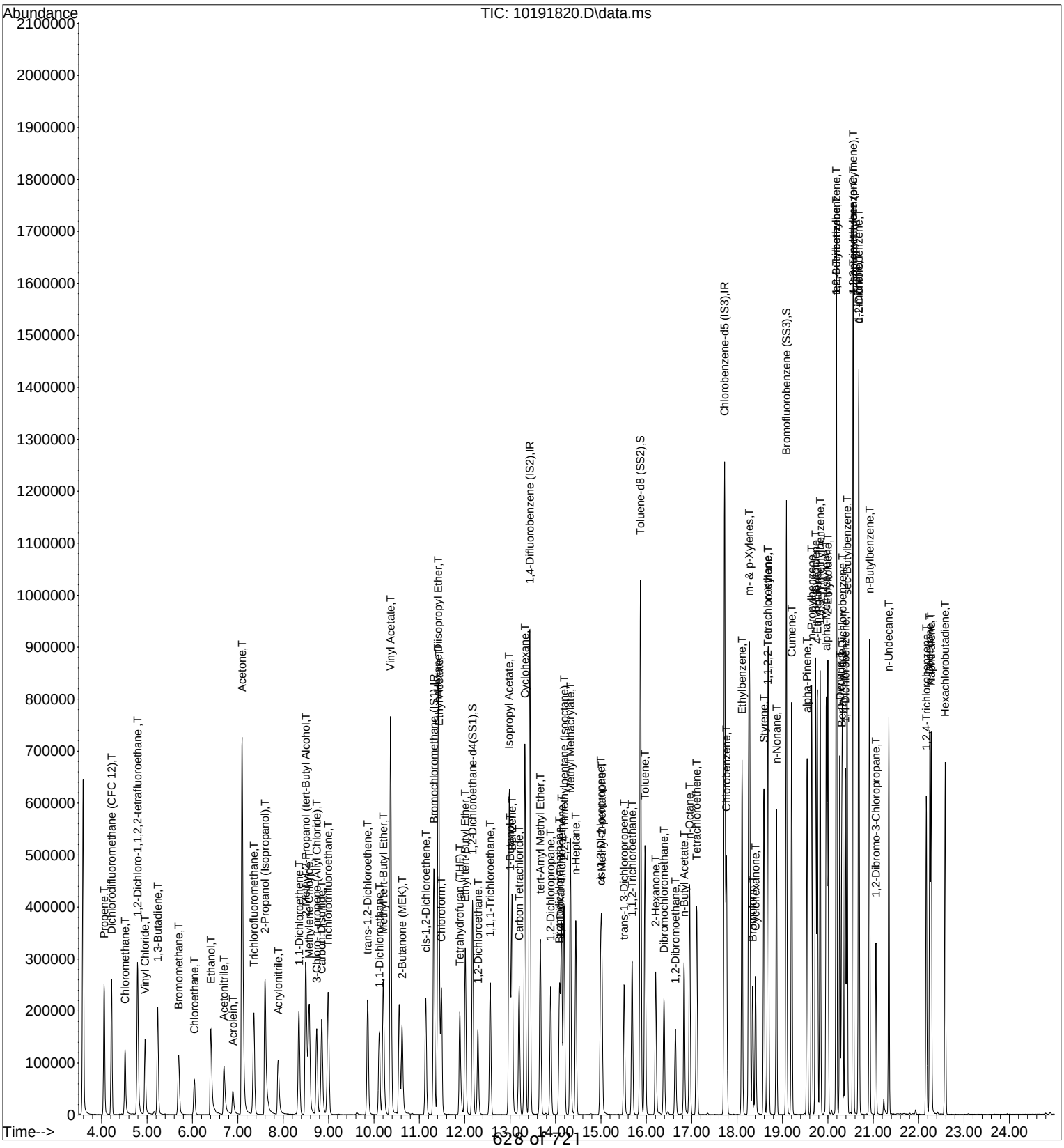
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	98071	9.799	ng	99
51) n-Heptane	14.45	71	105087	4.468	ng	99
52) cis-1,3-Dichloropropene	15.00	75	192165	5.153	ng	99
53) 4-Methyl-2-pentanone	15.02	58	95813	4.318	ng	94
54) trans-1,3-Dichloropropene	15.51	75	164963	5.049	ng	100
55) 1,1,2-Trichloroethane	15.69	97	114546	4.905	ng	99
58) Toluene	15.97	91	469105	4.249	ng	99
59) 2-Hexanone	16.21	43	223802	4.266	ng	97
60) Dibromochloromethane	16.39	129	148692	5.203	ng	99
61) 1,2-Dibromoethane	16.64	107	136852	4.846	ng	100
62) n-Butyl Acetate	16.83	43	255653	4.370	ng	98
63) n-Octane	16.95	57	85876	3.977	ng	99
64) Tetrachloroethene	17.11	166	149468	4.701	ng	100
65) Chlorobenzene	17.77	112	328197	4.546	ng	99
66) Ethylbenzene	18.11	91	538985	4.419	ng	99
67) m- & p-Xylenes	18.27	91	839857	9.278	ng	99
68) Bromoform	18.35	173	133090	5.301	ng	100
69) Styrene	18.59	104	343621	4.695	ng	100
70) o-Xylene	18.69	91	427551	4.676	ng	98
71) n-Nonane	18.87	43	195891	4.223	ng	97
72) 1,1,2,2-Tetrachloroethane	18.68	83	206226	4.597	ng	100
74) Cumene	19.20	105	555278	4.637	ng	98
75) alpha-Pinene	19.54	93	281568	4.566	ng	99
76) n-Propylbenzene	19.64	91	656340	4.697	ng	98
77) 3-Ethyltoluene	19.73	105	549817	4.615	ng	99
78) 4-Ethyltoluene	19.77	105	531428	4.827	ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	458454	4.710	ng	99
80) alpha-Methylstyrene	19.97	118	256718	5.191	ng	92
81) 2-Ethyltoluene	20.00	105	553107	4.817	ng	98
82) 1,2,4-Trimethylbenzene	20.19	105	476729	5.032	ng	100
83) n-Decane	20.26	58	9501	4.380	ng	98
84) Benzyl Chloride	20.31	91	361699	4.688	ng	98
85) 1,3-Dichlorobenzene	20.32	146	292124	4.966	ng	100
86) 1,4-Dichlorobenzene	20.39	146	289746	4.900	ng	100
87) sec-Butylbenzene	20.42	105	620406	4.748	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	589834	4.954	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	468540	4.994	ng	99
90) 1,2-Dichlorobenzene	20.68	146	283167	5.122	ng	100
91) d-Limonene	20.68	68	166646	4.669	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	100340	4.951	ng	94
93) n-Undecane	21.34	57	221545	4.551	ng	98
94) 1,2,4-Trichlorobenzene	22.17	180	207115	5.405	ng	100
95) Naphthalene	22.28	128	613466	5.638	ng	100
96) n-Dodecane	22.24	57	212577	5.522	ng	98
97) Hexachlorobutadiene	22.58	225	142390	5.095	ng	100
98) Cyclohexanone	18.41	55	117911	3.122	ng	98
99) tert-Butylbenzene	20.19	119	468803	5.014	ng	99
100) n-Butylbenzene	20.92	91	494995	4.881	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) LH 10/20/18
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	236491	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	984745	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	436280	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	353620	15.114	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 120.88%				
57) Toluene-d8 (SS2)	15.88	98	864756	12.958	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.68%				
73) Bromofluorobenzene (SS3)	19.09	174	402742	14.848	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.80%				
Target Compounds							Qvalue
2) Propene	4.04	42	528292	19.621	ng		100
3) Dichlorodifluoromethan...	4.21	85	1288786	29.308	ng		100
4) Chloromethane	4.51	50	820237	24.858	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	754602	29.626	ng		100
6) Vinyl Chloride	4.95	62	915784	26.435	ng		100
7) 1,3-Butadiene	5.24	54	610474	23.787	ng		100
8) Bromomethane	5.70	94	539427	22.972	ng		100
9) Chloroethane	6.04	64	382854	20.770	ng		100
10) Ethanol	6.45	45	1859869	112.977	ng		100
11) Acetonitrile	6.71	41	887674	20.247	ng		100
12) Acrolein	6.90	56	323640	20.338	ng		100
13) Acetone	7.11	58	2159165	116.712	ng		100
14) Trichlorofluoromethane	7.36	101	1142096	29.988	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2798694	49.220	ng		100
16) Acrylonitrile	7.91	53	702475	21.291	ng		100
17) 1,1-Dichloroethene	8.35	96	600788	24.271	ng		100
18) 2-Methyl-2-Propanol (t...	8.52	59	3097346	54.632	ng		100
19) Methylene Chloride	8.59	84	600009	22.968	ng		100
20) 3-Chloro-1-propene (Al...	8.75	41	734021	22.786	ng		100
21) Trichlorotrifluoroethane	8.99	151	618215	26.777	ng		100
22) Carbon Disulfide	8.85	76	2153481	22.472	ng		100
23) trans-1,2-Dichloroethene	9.87	61	836865	24.008	ng		100
24) 1,1-Dichloroethane	10.13	63	973880	22.777	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1796784	26.324	ng		100
26) Vinyl Acetate	10.38	86	833062	155.730	ng		100
27) 2-Butanone (MEK)	10.62	72	405773	23.568	ng		100
28) cis-1,2-Dichloroethene	11.15	61	808819	24.081	ng		100
29) Diisopropyl Ether	11.42	87	529934	26.053	ng		100
30) Ethyl Acetate	11.44	61	457145	51.775	ng		100
31) n-Hexane	11.42	57	920145	23.187	ng		100
32) Chloroform	11.50	83	1101034	27.176	ng		100
34) Tetrahydrofuran (THF)	11.89	72	388004	22.703	ng		100
35) Ethyl tert-Butyl Ether	12.02	87	743580	26.253	ng		100
36) 1,2-Dichloroethane	12.30	62	844764	30.091	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1030406	31.250	ng		100
39) Isopropyl Acetate	12.98	61	765017	47.594	ng	#	100
40) 1-Butanol	13.01	56	1156629	49.986	ng		100
41) Benzene	13.04	78	2372887	22.961	ng		100
42) Carbon Tetrachloride	13.20	117	941774	31.255	ng		100
43) Cyclohexane	13.33	84	1904101	50.738	ng		100
44) tert-Amyl Methyl Ether	13.67	73	1738536	25.279	ng		100
45) 1,2-Dichloropropane	13.90	63	551771	22.611	ng		100
46) Bromodichloromethane	14.09	83	896844	29.599	ng		100
47) Trichloroethene	14.14	130	737904	26.533	ng		100
48) 1,4-Dioxane	14.11	88	525147	25.716	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	2240836	21.813	ng		100

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

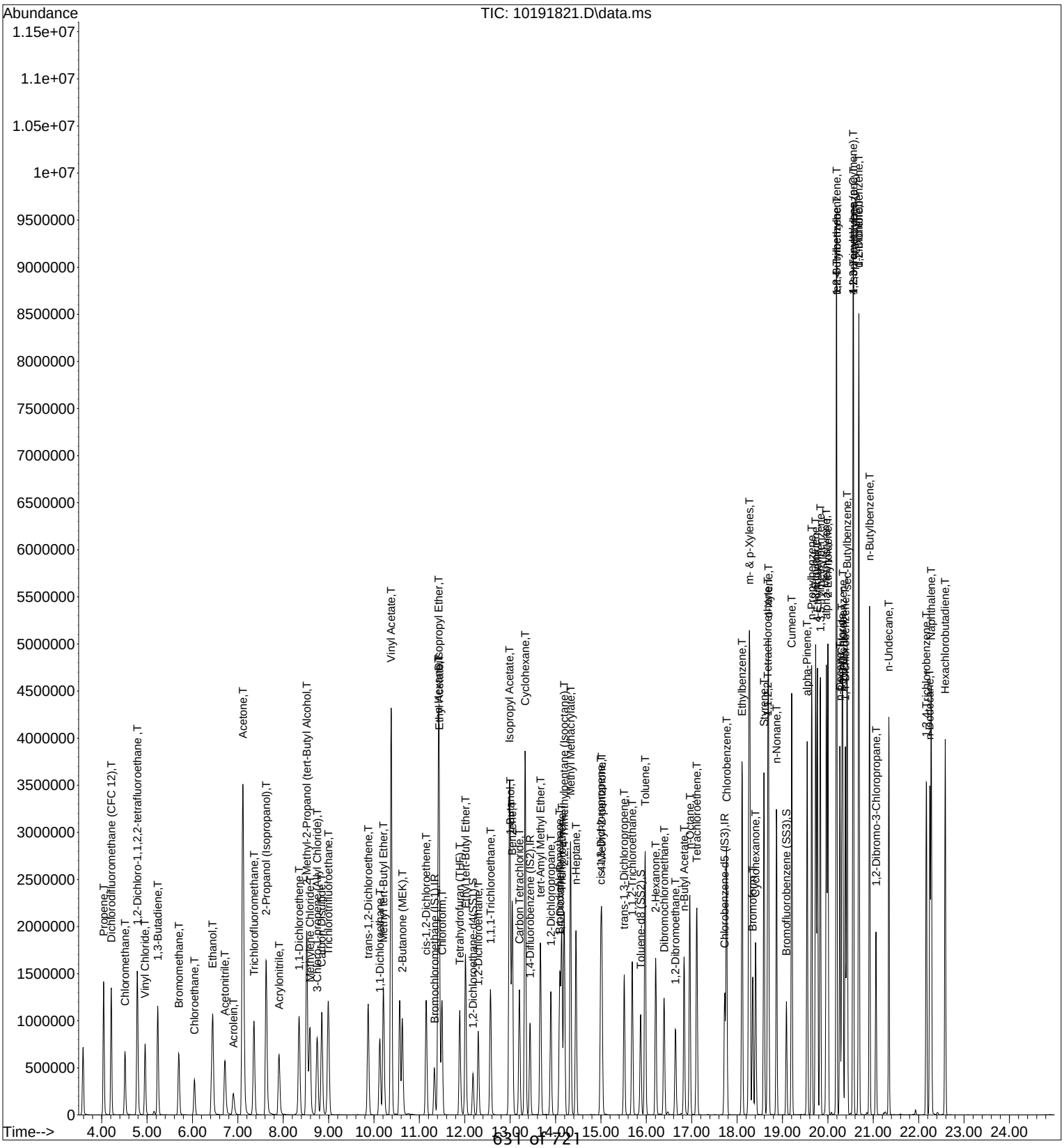
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	559191	54.350	ng	100
51) n-Heptane	14.45	71	552088	22.831	ng	100
52) cis-1,3-Dichloropropene	15.00	75	1089189	28.412	ng	100
53) 4-Methyl-2-pentanone	15.02	58	536960	23.536	ng	100
54) trans-1,3-Dichloropropene	15.51	75	952693	28.362	ng	100
55) 1,1,2-Trichloroethane	15.69	97	618290	25.751	ng	100
58) Toluene	15.97	91	2519980	22.066	ng	100
59) 2-Hexanone	16.21	43	1259865	23.219	ng	100
60) Dibromochloromethane	16.39	129	830592	28.099	ng	100
61) 1,2-Dibromoethane	16.64	107	752663	25.767	ng	100
62) n-Butyl Acetate	16.83	43	1401583	23.161	ng	100
63) n-Octane	16.96	57	468102	20.957	ng	100
64) Tetrachloroethene	17.11	166	816673	24.834	ng	100
65) Chlorobenzene	17.77	112	1815558	24.313	ng	100
66) Ethylbenzene	18.11	91	2986106	23.667	ng	100
67) m- & p-Xylenes	18.27	91	4779224	51.041	ng	100
68) Bromoform	18.35	173	779955	30.032	ng	100
69) Styrene	18.59	104	1986077	26.233	ng	100
70) o-Xylene	18.69	91	2397334	25.348	ng	100
71) n-Nonane	18.87	43	1060273	22.097	ng	100
72) 1,1,2,2-Tetrachloroethane	18.68	83	1178785	25.405	ng	100
74) Cumene	19.20	105	3098104	25.011	ng	100
75) alpha-Pinene	19.54	93	1586985	24.880	ng	100
76) n-Propylbenzene	19.64	91	3698063	25.583	ng	100
77) 3-Ethyltoluene	19.73	105	3354023	27.216	ng	100
78) 4-Ethyltoluene	19.77	105	2842235	24.956	ng	100
79) 1,3,5-Trimethylbenzene	19.84	105	2614484	25.965	ng	100
80) alpha-Methylstyrene	19.97	118	1499551	29.313	ng	100
81) 2-Ethyltoluene	20.00	105	3122893	26.294	ng	100
82) 1,2,4-Trimethylbenzene	20.19	105	2812912	28.706	ng	100
83) n-Decane	20.26	58	54927	24.481	ng	100
84) Benzyl Chloride	20.31	91	2399563	30.064	ng	100
85) 1,3-Dichlorobenzene	20.33	146	1692519	27.817	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1660530	27.148	ng	100
87) sec-Butylbenzene	20.42	105	3453453	25.552	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	3427419	27.829	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	2739799	28.231	ng	100
90) 1,2-Dichlorobenzene	20.68	146	1675558	29.298	ng	100
91) d-Limonene	20.68	68	993867	26.921	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	599025	28.577	ng	100
93) n-Undecane	21.34	57	1231359	24.454	ng	100
94) 1,2,4-Trichlorobenzene	22.17	180	1230879	31.052	ng	100
95) Naphthalene	22.28	128	3684023	32.730	ng	100
96) n-Dodecane	22.24	57	1024742	25.734	ng	100
97) Hexachlorobutadiene	22.58	225	815847	28.223	ng	100
98) Cyclohexanone	18.41	55	809597	20.723	ng	100
99) tert-Butylbenzene	20.19	119	2724476	28.168	ng	100
100) n-Butylbenzene	20.92	91	2770522	26.412	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	240049	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	1001501	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	447467	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	355974	14.989	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.92%				
57) Toluene-d8 (SS2)	15.88	98	880215	12.860	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.88%				
73) Bromofluorobenzene (SS3)	19.09	174	401063	14.417	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.36%				
Target Compounds							Qvalue
2) Propene	4.04	42	1191112	43.583	ng		98
3) Dichlorodifluoromethan...	4.21	85	2590877	58.045	ng		100
4) Chloromethane	4.52	50	1531165	45.715	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	1515692	58.624	ng		100
6) Vinyl Chloride	4.95	62	1848024	52.554	ng		100
7) 1,3-Butadiene	5.24	54	1284454	49.306	ng		98
8) Bromomethane	5.70	94	1097170	46.032	ng		100
9) Chloroethane	6.04	64	780919	41.738	ng		100
10) Ethanol	6.47	45	3917825	234.460	ng		100
11) Acetonitrile	6.73	41	1829720	41.116	ng		100
12) Acrolein	6.91	56	674020	41.730	ng		100
13) Acetone	7.13	58	4576836	243.730	ng		86
14) Trichlorofluoromethane	7.36	101	2305432	59.637	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	5345877	92.623	ng		99
16) Acrylonitrile	7.92	53	1446547	43.192	ng		100
17) 1,1-Dichloroethene	8.35	96	1223157	48.681	ng		98
18) 2-Methyl-2-Propanol (t...	8.53	59	6137194	106.645	ng		99
19) Methylene Chloride	8.60	84	1223896	46.156	ng		98
20) 3-Chloro-1-propene (Al...	8.75	41	1494802	45.716	ng		99
21) Trichlorotrifluoroethane	9.00	151	1244462	53.102	ng		100
22) Carbon Disulfide	8.85	76	4334007	44.556	ng		100
23) trans-1,2-Dichloroethene	9.88	61	1689769	47.758	ng		99
24) 1,1-Dichloroethane	10.14	63	1955840	45.065	ng		100
25) Methyl tert-Butyl Ether	10.21	73	3643238	52.585	ng		100
26) Vinyl Acetate	10.39	86	1772269	326.392	ng	#	76
27) 2-Butanone (MEK)	10.63	72	841599	48.157	ng		96
28) cis-1,2-Dichloroethene	11.15	61	1630004	47.811	ng		99
29) Diisopropyl Ether	11.43	87	1146198	55.515	ng	#	86
30) Ethyl Acetate	11.44	61	994233	110.936	ng		100
31) n-Hexane	11.42	57	1991768	49.448	ng		100
32) Chloroform	11.50	83	2199586	53.487	ng		100
34) Tetrahydrofuran (THF)	11.89	72	793155	45.722	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	1547723	53.834	ng		98
36) 1,2-Dichloroethane	12.30	62	1684165	59.101	ng		100
38) 1,1,1-Trichloroethane	12.57	97	2075687	61.897	ng		99
39) Isopropyl Acetate	12.98	61	1668417	102.061	ng	#	84
40) 1-Butanol	13.02	56	2502875	106.356	ng		92
41) Benzene	13.05	78	4982920	47.410	ng		100
42) Carbon Tetrachloride	13.20	117	1909836	62.322	ng		100
43) Cyclohexane	13.34	84	4013488	105.157	ng		99
44) tert-Amyl Methyl Ether	13.67	73	3580625	51.192	ng		99
45) 1,2-Dichloropropane	13.90	63	1127756	45.441	ng		100
46) Bromodichloromethane	14.09	83	1834387	59.529	ng		100
47) Trichloroethene	14.14	130	1526858	53.983	ng		100
48) 1,4-Dioxane	14.11	88	1097257	52.834	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	4567940	43.722	ng		99

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

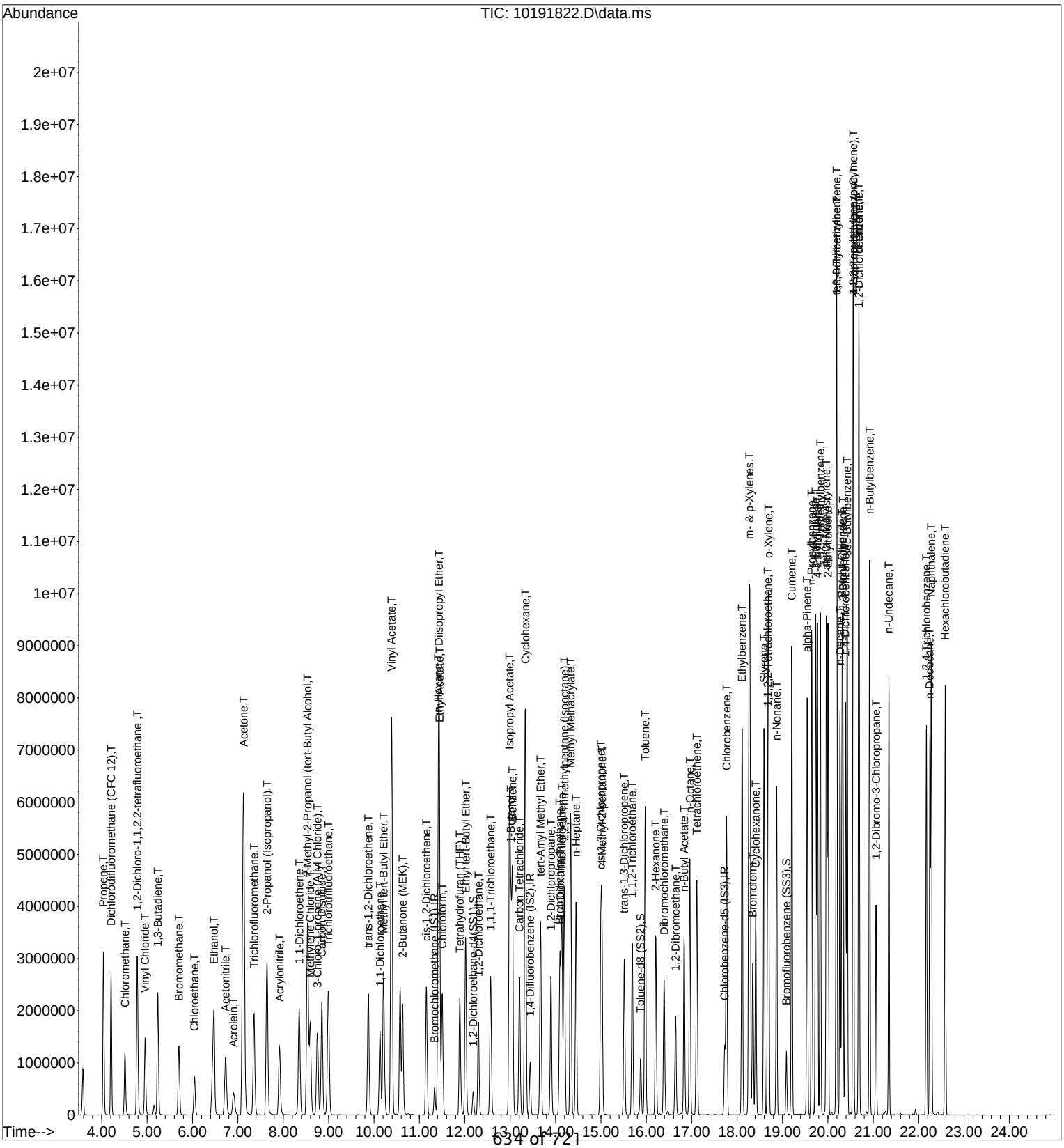
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	1191885	113.906	ng	99
51) n-Heptane	14.45	71	1168666	47.521	ng	100
52) cis-1,3-Dichloropropene	15.00	75	2267485	58.159	ng	100
53) 4-Methyl-2-pentanone	15.02	58	1114134	48.018	ng	96
54) trans-1,3-Dichloropropene	15.51	75	1974033	57.785	ng	99
55) 1,1,2-Trichloroethane	15.69	97	1262893	51.718	ng	100
58) Toluene	15.98	91	5201961	44.411	ng	99
59) 2-Hexanone	16.21	43	2553328	45.880	ng	97
60) Dibromochloromethane	16.39	129	1724151	56.869	ng	100
61) 1,2-Dibromoethane	16.65	107	1528059	51.005	ng	100
62) n-Butyl Acetate	16.83	43	2813756	45.335	ng	97
63) n-Octane	16.96	57	986237	43.049	ng	99
64) Tetrachloroethene	17.11	166	1672972	49.601	ng	100
65) Chlorobenzene	17.77	112	3767816	49.194	ng	100
66) Ethylbenzene	18.11	91	6144899	47.484	ng	98
67) m- & p-Xylenes	18.27	91	9787049	101.910	ng	99
68) Bromoform	18.35	173	1597899	59.988	ng	100
69) Styrene	18.59	104	4101831	52.824	ng	100
70) o-Xylene	18.69	91	4898413	50.498	ng	98
71) n-Nonane	18.87	43	2152007	43.729	ng	96
72) 1,1,2,2-Tetrachloroethane	18.68	83	2424655	50.949	ng	100
74) Cumene	19.20	105	6333539	49.852	ng	99
75) alpha-Pinene	19.54	93	3349302	51.197	ng	98
76) n-Propylbenzene	19.64	91	7425623	50.086	ng	99
77) 3-Ethyltoluene	19.73	105	6691946	52.943	ng	99
78) 4-Ethyltoluene	19.77	105	5867912	50.235	ng	99
79) 1,3,5-Trimethylbenzene	19.84	105	5311879	51.434	ng	99
80) alpha-Methylstyrene	19.97	118	3104005	59.160	ng	99
81) 2-Ethyltoluene	20.00	105	6303781	51.750	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	5390369	53.633	ng	100
83) n-Decane	20.27	58	114276	49.659	ng	97
84) Benzyl Chloride	20.31	91	4988481	60.938	ng	99
85) 1,3-Dichlorobenzene	20.33	146	3441743	55.152	ng	100
86) 1,4-Dichlorobenzene	20.39	146	3408689	54.335	ng	100
87) sec-Butylbenzene	20.42	105	6905092	49.813	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	6362366	50.367	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	5237795	52.622	ng	99
90) 1,2-Dichlorobenzene	20.69	146	3289758	56.085	ng	100
91) d-Limonene	20.68	68	1975759	52.179	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	1231729	57.291	ng	96
93) n-Undecane	21.34	57	2570415	49.772	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	2591008	63.731	ng	100
95) Naphthalene	22.28	128	7555463	65.446	ng	99
96) n-Dodecane	22.24	57	2206985	54.037	ng	99
97) Hexachlorobutadiene	22.58	225	1699618	57.325	ng	100
98) Cyclohexanone	18.41	55	1642693	40.996	ng	98
99) tert-Butylbenzene	20.19	119	5164894	52.065	ng	99
100) n-Butylbenzene	20.92	91	5542287	51.514	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.34	130	251166	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.45	114	1041205	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.73	82	466865	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	364512	14.669	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.36%				
57) Toluene-d8 (SS2)	15.88	98	919290	12.872	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.96%				
73) Bromofluorobenzene (SS3)	19.09	174	419191	14.442	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.52%				
Target Compounds							Qvalue
2) Propene	4.05	42	2898597	101.366	ng		94
3) Dichlorodifluoromethan...	4.21	85	5206237	111.476	ng		99
4) Chloromethane	4.52	50	2143539	61.165	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	3080656	113.880	ng		100
6) Vinyl Chloride	4.97	62	3824000	103.934	ng		99
7) 1,3-Butadiene	5.25	54	2837121	104.088	ng		93
8) Bromomethane	5.71	94	2250793	90.253	ng		100
9) Chloroethane	6.05	64	1640924	83.821	ng		100
10) Ethanol	6.51	45	8255289	472.165	ng		99
11) Acetonitrile	6.75	41	3782092	81.227	ng		99
12) Acrolein	6.92	56	1416737	83.830	ng		100
13) Acetone	7.15	58	9308158	473.746	ng	#	71
14) Trichlorofluoromethane	7.36	101	4674275	115.562	ng		99
15) 2-Propanol (Isopropanol)	7.67	45	9441759	156.348	ng		97
16) Acrylonitrile	7.94	53	3025442	86.338	ng		99
17) 1,1-Dichloroethene	8.36	96	2545633	96.830	ng		96
18) 2-Methyl-2-Propanol (t...	8.56	59	8550129	141.998	ng		98
19) Methylene Chloride	8.60	84	2563731	92.405	ng		95
20) 3-Chloro-1-propene (Al...	8.76	41	3102250	90.677	ng		97
21) Trichlorotrifluoroethane	9.00	151	2534749	103.372	ng		98
22) Carbon Disulfide	8.86	76	8851477	86.971	ng		100
23) trans-1,2-Dichloroethene	9.88	61	3463302	93.551	ng		98
24) 1,1-Dichloroethane	10.14	63	3978792	87.619	ng		99
25) Methyl tert-Butyl Ether	10.21	73	7562143	104.317	ng		99
26) Vinyl Acetate	10.40	86	3346588	589.048	ng	#	50
27) 2-Butanone (MEK)	10.64	72	1801308	98.511	ng	#	87
28) cis-1,2-Dichloroethene	11.16	61	3330552	93.366	ng		98
29) Diisopropyl Ether	11.43	87	2269601	105.061	ng	#	74
30) Ethyl Acetate	11.45	61	1986517	211.843	ng		98
31) n-Hexane	11.42	57	4019878	95.381	ng		99
32) Chloroform	11.51	83	4419396	102.709	ng		99
34) Tetrahydrofuran (THF)	11.89	72	1686845	92.936	ng		97
35) Ethyl tert-Butyl Ether	12.02	87	3302599	109.789	ng		94
36) 1,2-Dichloroethane	12.31	62	3341400	112.068	ng		99
38) 1,1,1-Trichloroethane	12.57	97	4217033	120.958	ng		99
39) Isopropyl Acetate	12.99	61	3460338	203.604	ng	#	69
40) 1-Butanol	13.03	56	5133211	209.811	ng		84
41) Benzene	13.06	78	10340964	94.638	ng		100
42) Carbon Tetrachloride	13.21	117	3905959	122.599	ng		100
43) Cyclohexane	13.34	84	8117219	204.569	ng		98
44) tert-Amyl Methyl Ether	13.67	73	7491506	103.022	ng		97
45) 1,2-Dichloropropane	13.90	63	2378814	92.196	ng		100
46) Bromodichloromethane	14.09	83	3714901	115.958	ng		100
47) Trichloroethene	14.14	130	3196840	108.716	ng		100
48) 1,4-Dioxane	14.12	88	2372238	109.869	ng		100
49) 2,2,4-Trimethylpentane...	14.20	57	9454201	87.040	ng		98

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

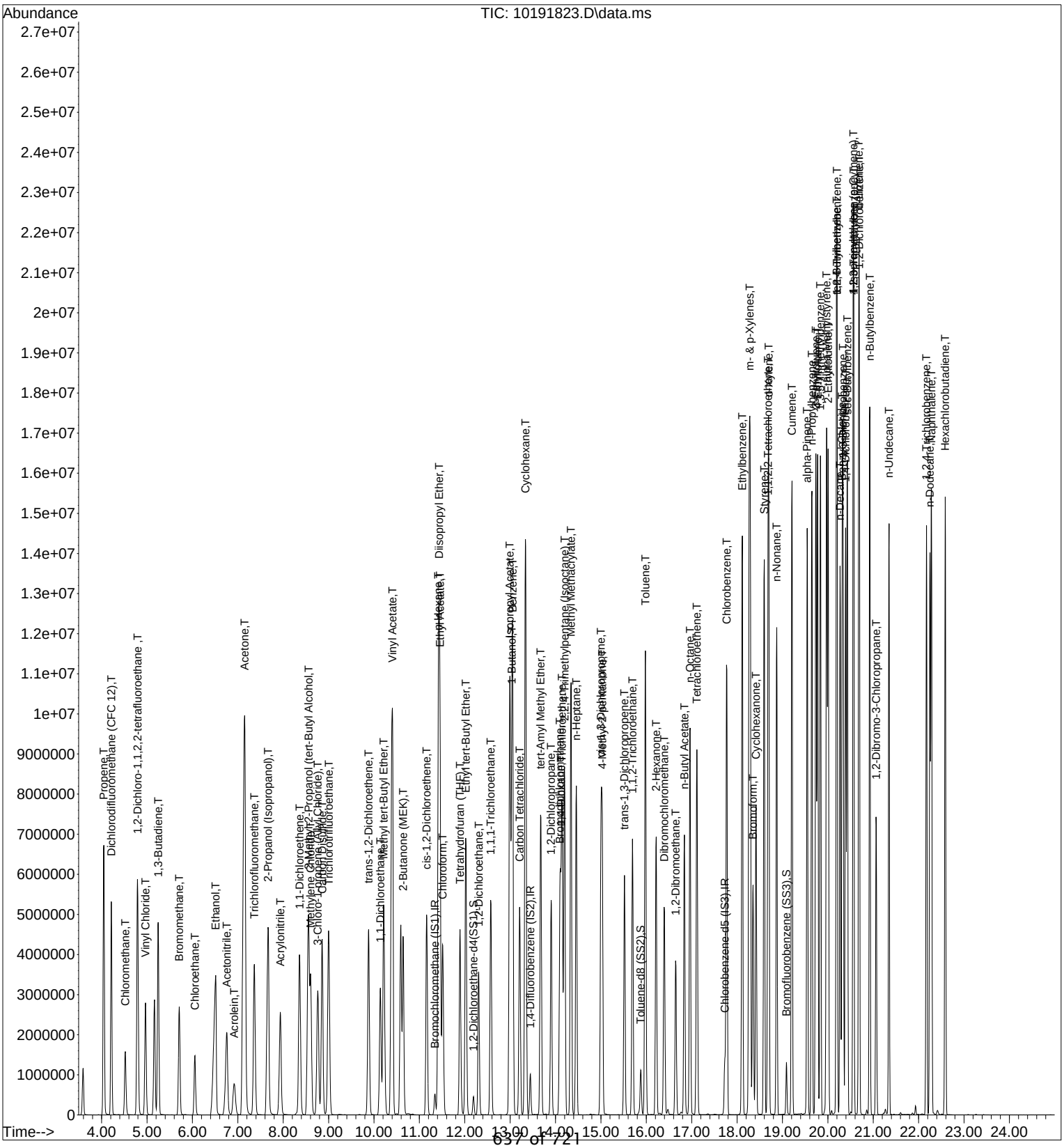
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	2482847	228.232	ng		97
51) n-Heptane	14.46	71	2528090	98.879	ng		99
52) cis-1,3-Dichloropropene	15.00	75	4770191	117.685	ng		99
53) 4-Methyl-2-pentanone	15.03	58	2364221	98.010	ng		88
54) trans-1,3-Dichloropropene	15.52	75	4096287	115.337	ng		99
55) 1,1,2-Trichloroethane	15.69	97	2648441	104.323	ng		100
58) Toluene	15.98	91	10451841	85.524	ng		98
59) 2-Hexanone	16.22	43	5116590	88.119	ng		93
60) Dibromochloromethane	16.39	129	3548945	112.194	ng		99
61) 1,2-Dibromoethane	16.65	107	3141734	100.510	ng		100
62) n-Butyl Acetate	16.84	43	5661983	87.436	ng		94
63) n-Octane	16.96	57	2089130	87.402	ng		98
64) Tetrachloroethene	17.11	166	3441696	97.800	ng		99
65) Chlorobenzene	17.77	112	7672586	96.014	ng		99
66) Ethylbenzene	18.11	91	11870795	87.920	ng		95
67) m- & p-Xylenes	18.28	91	17678456	176.433	ng		97
68) Bromoform	18.35	173	3239416	116.560	ng		99
69) Styrene	18.60	104	8068201	99.585	ng		99
70) o-Xylene	18.70	91	9054658	89.467	ng		97
71) n-Nonane	18.87	43	4092735	79.709	ng		90
72) 1,1,2,2-Tetrachloroethane	18.68	83	4610831	92.861	ng		100
74) Cumene	19.21	105	11696787	88.242	ng		95
75) alpha-Pinene	19.54	93	6525869	95.609	ng		99
76) n-Propylbenzene	19.65	91	13174860	85.172	ng		94
77) 3-Ethyltoluene	19.74	105	11645718	88.307	ng		95
78) 4-Ethyltoluene	19.77	105	11070996	90.840	ng		95
79) 1,3,5-Trimethylbenzene	19.84	105	9819555	91.131	ng		97
80) alpha-Methylstyrene	19.97	118	5906834	107.902	ng		100
81) 2-Ethyltoluene	20.01	105	11373408	89.488	ng		96
82) 1,2,4-Trimethylbenzene	20.20	105	8482164	80.889	ng		100
83) n-Decane	20.27	58	219108	91.258	ng	#	93
84) Benzyl Chloride	20.31	91	9131137	106.909	ng		96
85) 1,3-Dichlorobenzene	20.34	146	6325539	97.152	ng		100
86) 1,4-Dichlorobenzene	20.39	146	6476529	98.948	ng		100
87) sec-Butylbenzene	20.43	105	12098623	83.652	ng		95
88) 4-Isopropyltoluene (p-...	20.56	119	9669556	73.368	ng		97
89) 1,2,3-Trimethylbenzene	20.57	105	8159576	78.569	ng		99
90) 1,2-Dichlorobenzene	20.69	146	5397590	88.197	ng		100
91) d-Limonene	20.68	68	3172845	80.312	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.07	157	2512298	111.998	ng		91
93) n-Undecane	21.35	57	4885228	90.663	ng		97
94) 1,2,4-Trichlorobenzene	22.17	180	5122924	120.773	ng		99
95) Naphthalene	22.28	128	13505825	112.128	ng		97
96) n-Dodecane	22.25	57	4447191	104.364	ng		97
97) Hexachlorobutadiene	22.58	225	3394311	109.727	ng		100
98) Cyclohexanone	18.42	55	3373661	80.696	ng		94
99) tert-Butylbenzene	20.19	119	8209986	79.322	ng		98
100) n-Butylbenzene	20.92	91	9891411	88.118	ng		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) LH 10/20/18
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	256606	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1063772	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	460848	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	372680	12.073	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.56%				
57) Toluene-d8 (SS2)	15.88	98	925101	12.606	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.88%				
73) Bromofluorobenzene (SS3)	19.09	174	421922	12.647	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.20%				
Target Compounds							Qvalue
2) Propene	4.05	42	595069	24.919	ng		98
3) Dichlorodifluoromethan...	4.21	85	1385360	25.826	ng		100
4) Chloromethane	4.52	50	933315	27.334	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	839793	26.335	ng		100
6) Vinyl Chloride	4.96	62	1021454	27.429	ng		99
7) 1,3-Butadiene	5.24	54	681705	28.298	ng		98
8) Bromomethane	5.70	94	634060	28.252	ng		100
9) Chloroethane	6.04	64	442705	27.685	ng		100
10) Ethanol	6.44	45	2124266	147.179	ng		100
11) Acetonitrile	6.71	41	984549	26.065	ng		100
12) Acrolein	6.90	56	365806	28.702	ng		99
13) Acetone	7.11	58	2365977	137.393	ng		94
14) Trichlorofluoromethane	7.35	101	1235147	26.587	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	3056064	55.338	ng		98
16) Acrylonitrile	7.90	53	771738	29.522	ng		100
17) 1,1-Dichloroethene	8.35	96	657370	27.795	ng		98
18) 2-Methyl-2-Propanol (t...	8.51	59	3355089	57.698	ng		99
19) Methylene Chloride	8.58	84	658222	27.364	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	825683	27.603	ng		98
21) Trichlorotrifluoroethane	8.99	151	674083	27.262	ng		100
22) Carbon Disulfide	8.85	76	2358336	27.464	ng		100
23) trans-1,2-Dichloroethene	9.87	61	893109	27.587	ng		99
24) 1,1-Dichloroethane	10.13	63	1085664	26.965	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1917212	26.926	ng		100
26) Vinyl Acetate	10.38	86	895575	148.364	ng	#	95
27) 2-Butanone (MEK)	10.62	72	440289	28.903	ng		97
28) cis-1,2-Dichloroethene	11.15	61	856203	26.900	ng		99
29) Diisopropyl Ether	11.42	87	565325	26.560	ng		96
30) Ethyl Acetate	11.44	61	490444	60.067	ng		100
31) n-Hexane	11.42	57	970431	26.084	ng		100
32) Chloroform	11.49	83	1167815	26.989	ng		100
34) Tetrahydrofuran (THF)	11.89	72	415022	27.041	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	798257	26.799	ng		99
36) 1,2-Dichloroethane	12.30	62	886016	26.462	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1070173	26.755	ng		100
39) Isopropyl Acetate	12.98	61	813849	54.213	ng	#	97
40) 1-Butanol	13.00	56	1270306	59.060	ng		96
41) Benzene	13.04	78	2563827	26.215	ng		100
42) Carbon Tetrachloride	13.20	117	1000669	27.007	ng		99
43) Cyclohexane	13.33	84	2013806	53.128	ng		100
44) tert-Amyl Methyl Ether	13.67	73	1854570	27.530	ng		100
45) 1,2-Dichloropropane	13.90	63	583870	26.882	ng		100
46) Bromodichloromethane	14.09	83	961720	28.110	ng		100
47) Trichloroethene	14.13	130	784986	27.307	ng		100
48) 1,4-Dioxane	14.11	88	555568	30.019	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	2368330	26.093	ng		99

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

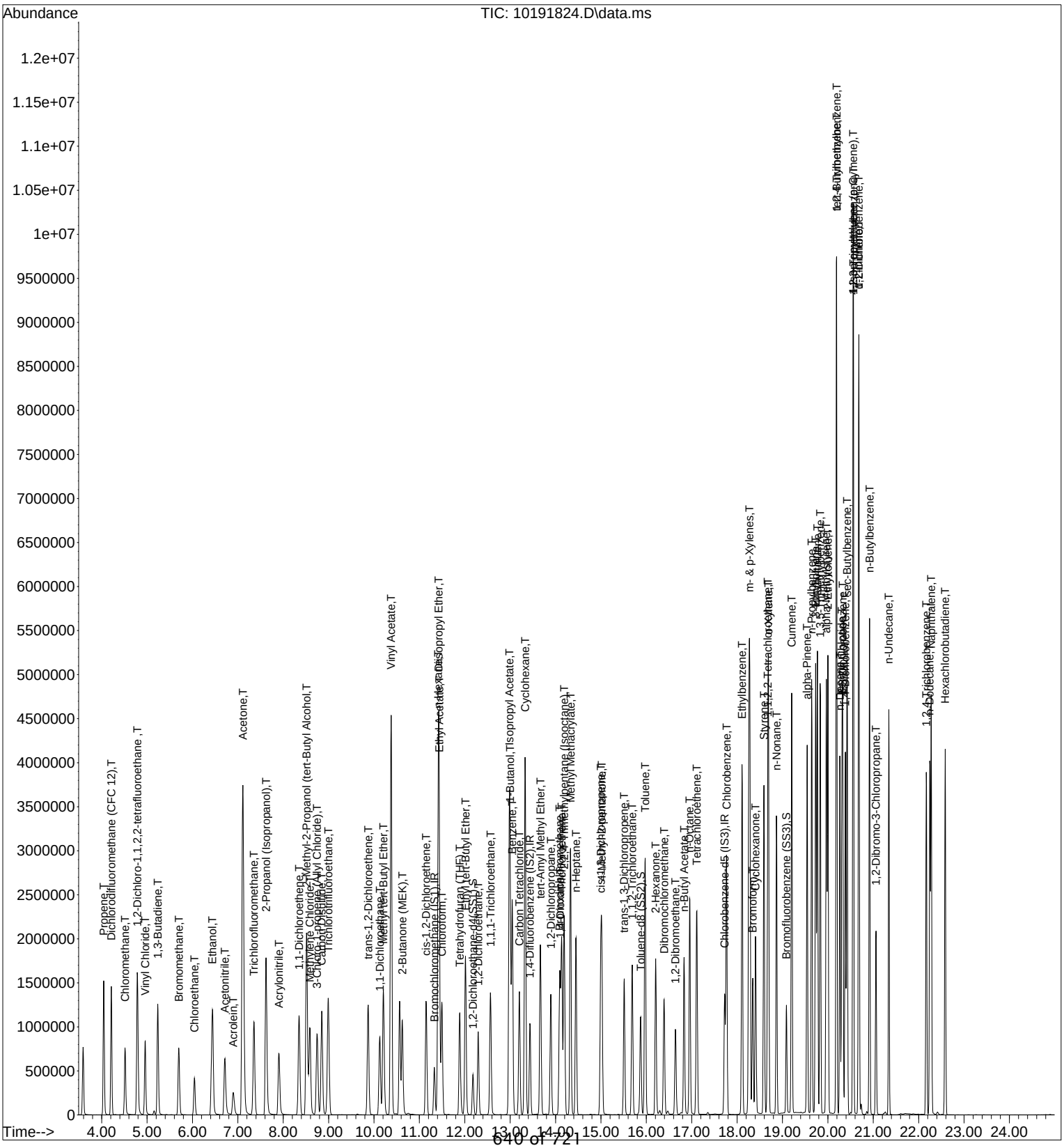
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	600700	59.291	ng	99
51) n-Heptane	14.45	71	587768	26.124	ng	100
52) cis-1,3-Dichloropropene	15.00	75	1090674	28.425	ng	100
53) 4-Methyl-2-pentanone	15.02	58	568904	28.801	ng	98
54) trans-1,3-Dichloropropene	15.51	75	1013609	29.872	ng	100
55) 1,1,2-Trichloroethane	15.69	97	656774	27.868	ng	99
58) Toluene	15.98	91	2672708	26.228	ng	100
59) 2-Hexanone	16.21	43	1336029	28.613	ng	99
60) Dibromochloromethane	16.39	129	886647	29.783	ng	100
61) 1,2-Dibromoethane	16.64	107	801489	29.359	ng	100
62) n-Butyl Acetate	16.83	43	1488818	29.420	ng	99
63) n-Octane	16.95	57	498205	25.677	ng	100
64) Tetrachloroethene	17.11	166	868081	27.681	ng	100
65) Chlorobenzene	17.77	112	1927319	27.928	ng	100
66) Ethylbenzene	18.11	91	3165590	27.279	ng	100
67) m- & p-Xylenes	18.27	91	4996416	57.659	ng	100
68) Bromoform	18.35	173	820481	30.977	ng	100
69) Styrene	18.59	104	2069842	29.366	ng	100
70) o-Xylene	18.69	91	2521250	28.663	ng	99
71) n-Nonane	18.87	43	1104320	27.321	ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1223533	29.052	ng	100
74) Cumene	19.20	105	3291859	28.515	ng	100
75) alpha-Pinene	19.54	93	1705263	28.478	ng	99
76) n-Propylbenzene	19.64	91	3877008	29.354	ng	100
77) 3-Ethyltoluene	19.73	105	3189882	27.413	ng	95
78) 4-Ethyltoluene	19.77	105	3369688	32.099	ng	95
79) 1,3,5-Trimethylbenzene	19.83	105	2744474	28.412	ng	100
80) alpha-Methylstyrene	19.97	118	1597839	30.597	ng	99
81) 2-Ethyltoluene	20.00	105	3287978	28.985	ng	100
82) 1,2,4-Trimethylbenzene	20.19	105	2937029	30.991	ng	100
83) n-Decane	20.26	58	57643	28.197	ng	98
84) Benzyl Chloride	20.31	91	2515660	30.112	ng	100
85) 1,3-Dichlorobenzene	20.33	146	1773448	30.194	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1748160	29.353	ng	99
87) sec-Butylbenzene	20.42	105	3641483	29.465	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	3643795	30.949	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	2985449	31.422	ng	100
90) 1,2-Dichlorobenzene	20.68	146	1753565	31.666	ng	100
91) d-Limonene	20.68	68	1060573	30.805	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	647693	31.363	ng	98
93) n-Undecane	21.34	57	1316157	28.916	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	1321725	29.779	ng	100
95) Naphthalene	22.28	128	3809873	27.966	ng	100
96) n-Dodecane	22.24	57	1186732	27.685	ng	100
97) Hexachlorobutadiene	22.58	225	873629	29.242	ng	100
98) Cyclohexanone	18.41	55	860014	28.865	ng	99
99) tert-Butylbenzene	20.19	119	2871839	31.004	ng	100
100) n-Butylbenzene	20.92	91	2898536	29.566	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LH 10/20/18

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10191824.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS16\DATA\2018_10\19** Sample Name: **25ng TO15 ICV STD**
Operator: **LH/TD** Misc Info: **S31-09141801/S31-10191803 (**
Date Acquired: **10/20/18 0:39** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**4.05**	**24.9**	26.43	94	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.21**	**25.8**	**26.30**	98	**64**	**115**	*	*
4)	**Chloromethane**	**4.52**	**27.3**	**26.38**	104	**47**	**140**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroetl**	**4.78**	**26.3**	**26.38**	100	**60**	**112**	*	*
6)	**Vinyl Chloride**	**4.96**	**27.4**	**26.73**	103	**63**	**127**	*	*
7)	**1,3-Butadiene**	**5.24**	**28.3**	**26.28**	108	**57**	**149**	*	*
8)	**Bromomethane**	**5.70**	**28.3**	**26.48**	107	**63**	**132**	*	*
9)	**Chloroethane**	**6.04**	**27.7**	**26.75**	104	**68**	**129**	*	*
10)	**Ethanol**	**6.44**	**147**	**128.10**	115	**62**	**131**	*	*
11)	**Acetonitrile**	**6.71**	**26.1**	**25.73**	101	**56**	**136**	*	*
12)	**Acrolein**	**6.90**	**28.7**	**25.63**	112	**60**	**132**	*	*
13)	**Acetone**	**7.11**	**137**	**132.33**	104	**63**	**124**	*	*
14)	**Trichlorofluoromethane**	**7.35**	**26.6**	**26.40**	101	**65**	**113**	*	*
15)	**2-Propanol (Isopropanol)**	**7.62**	**55.3**	**51.60**	107	**62**	**135**	*	*
16)	**Acrylonitrile**	**7.90**	**29.5**	**25.88**	114	**68**	**138**	*	*
17)	**1,1-Dichloroethene**	**8.35**	**27.8**	**27.23**	102	**72**	**118**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.51	57.7	54.25	106	61	128	*	*
19)	**Methylene Chloride**	**8.58**	**27.4**	**27.08**	101	**67**	**116**	*	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.74**	**27.6**	**27.00**	102	**61**	**143**	*	*
21)	**Trichlorotrifluoroethane**	**8.99**	**27.3**	**26.95**	101	**68**	**113**	*	*
22)	**Carbon Disulfide**	**8.85**	**27.5**	**27.20**	101	**68**	**120**	*	*
23)	**trans-1,2-Dichloroethene**	**9.87**	**27.6**	**26.73**	103	**71**	**125**	*	*
24)	**1,1-Dichloroethane**	**10.13**	**27.0**	**26.95**	100	**68**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**10.21**	**26.9**	**26.80**	100	**60**	**123**	*	*
26)	**Vinyl Acetate**	**10.38**	**148**	**133.03**	111	**73**	**135**	*	*
27)	**2-Butanone (MEK)**	**10.62**	**28.9**	**25.95**	111	**70**	**129**	*	*
28)	**cis-1,2-Dichloroethene**	**11.15**	**26.9**	**26.35**	102	**69**	**121**	*	*
29)	Diisopropyl Ether	11.42	26.6	27.18	98	65	117	*	*
30)	**Ethyl Acetate**	**11.44**	**60.1**	**54.45**	110	**66**	**140**	*	*
31)	**n-Hexane**	**11.42**	**26.1**	**26.95**	97	**61**	**124**	*	*
32)	**Chloroform**	**11.49**	**27.0**	**27.08**	100	**69**	**113**	*	*
34)	**Tetrahydrofuran (THF)**	**11.89**	**27.0**	**27.00**	100	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	12.02	26.8	26.80	100	69	120	*	*
36)	**1,2-Dichloroethane**	**12.30**	**26.5**	**26.85**	99	**62**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**12.57**	**26.8**	**26.90**	100	**65**	**116**	*	*
39)	Isopropyl Acetate	12.98	54.2	51.55	105	70	126	*	*
40)	1-Butanol	13.00	59.1	51.58	115	62	141	*	*
41)	**Benzene**	**13.04**	**26.2**	**26.38**	99	**66**	**111**	*	*
42)	**Carbon Tetrachloride**	**13.20**	**27.0**	**26.45**	102	**64**	**122**	*	*
43)	**Cyclohexane**	**13.33**	**53.1**	**52.05**	102	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	13.67	27.5	**27.08**	102	68	119	*	*
45)	**1,2-Dichloropropane**	**13.90**	**26.9**	**26.98**	100	**69**	**121**	*	*
46)	**Bromodichloromethane**	**14.09**	**28.1**	**26.83**	105	**69**	**123**	*	*
47)	**Trichloroethene**	**14.13**	**27.3**	**26.68**	102	**69**	**112**	*	*
48)	**1,4-Dioxane**	**14.11**	**30.0**	**26.73**	112	**74**	**123**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.19	26.1	26.65	98	67	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10191824.D** **TO15.M**
Data File Path: **I:\MS16\DATA\2018_10\19** Sample Name: **25ng TO15 ICV STD**
Operator: **LH/TD** Misc Info: **S31-09141801/S31-10191803 (**
Date Acquired: **10/20/18** **0:39** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**14.33**	**59.3**	**53.88**	110	**75**	**125**	*	*
51)	**n-Heptane**	**14.45**	**26.1**	**26.90**	97	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**15.00**	**28.4**	**26.78**	106	**74**	**129**	*	*
53)	**4-Methyl-2-pentanone**	**15.02**	**28.8**	**26.15**	110	**66**	**138**	*	*
54)	**trans-1,3-Dichloropropene**	**15.51**	**29.9**	**26.60**	112	**75**	**130**	*	*
55)	**1,1,2-Trichloroethane**	**15.69**	**27.9**	**26.85**	104	**73**	**117**	*	*
58)	**Toluene**	**15.98**	**26.2**	**26.50**	99	**66**	**114**	*	*
59)	**2-Hexanone**	**16.21**	**28.6**	**26.78**	107	**58**	**146**	*	*
60)	**Dibromochloromethane**	**16.39**	**29.8**	**26.60**	112	**67**	**130**	*	*
61)	**1,2-Dibromoethane**	**16.64**	**29.4**	**27.03**	109	**70**	**127**	*	*
62)	**n-Butyl Acetate**	**16.83**	**29.4**	**27.35**	107	**62**	**140**	*	*
63)	**n-Octane**	**16.95**	**25.7**	**27.13**	95	**65**	**121**	*	*
64)	**Tetrachloroethene**	**17.11**	**27.7**	**26.60**	104	**62**	**119**	*	*
65)	**Chlorobenzene**	**17.77**	**27.9**	**26.83**	104	**66**	**115**	*	*
66)	**Ethylbenzene**	**18.11**	**27.3**	**26.53**	103	**69**	**117**	*	*
67)	**m- & p-Xylenes**	**18.27**	**57.7**	**53.28**	108	**67**	**117**	*	*
68)	**Bromoform**	**18.35**	**31.0**	**26.68**	116	**67**	**135**	*	*
69)	**Styrene**	**18.59**	**29.4**	**26.50**	111	**70**	**128**	*	*
70)	**o-Xylene**	**18.69**	**28.7**	**26.75**	107	**67**	**118**	*	*
71)	**n-Nonane**	**18.87**	**27.3**	**26.83**	102	**61**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.68**	**29.1**	**26.80**	109	**70**	**125**	*	*
74)	**Cumene**	**19.20**	**28.5**	**26.80**	106	**68**	**116**	*	*
75)	**alpha-Pinene**	**19.54**	**28.5**	**26.40**	108	**69**	**122**	*	*
76)	**n-Propylbenzene**	**19.64**	**29.4**	**27.23**	108	**70**	**118**	*	*
77)	3-Ethyltoluene	19.73	27.4	26.83	102	68	117	*	*
78)	**4-Ethyltoluene**	**19.77**	**32.1**	**26.80**	**120**	**69**	**124**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.83**	**28.4**	**26.73**	**106**	**65**	**117**	*	*
80)	alpha-Methylstyrene	19.97	30.6	26.75	**114**	71	132	*	*
81)	2-Ethyltoluene	20.00	29.0	27.08	**107**	67	119	*	*
82)	**1,2,4-Trimethylbenzene**	**20.19**	**31.0**	**26.90**	**115**	**67**	**124**	*	*
83)	n-Decane	20.26	28.2	26.88	**105**	63	129	*	*
84)	**Benzyl Chloride**	**20.31**	**30.1**	**27.08**	**111**	**75**	**142**	*	*
85)	**1,3-Dichlorobenzene**	**20.33**	**30.2**	**26.98**	**112**	**70**	**124**	*	*
86)	**1,4-Dichlorobenzene**	**20.39**	**29.4**	**27.00**	**109**	**63**	**124**	*	*
87)	sec-Butylbenzene	20.42	29.5	26.55	**111**	68	119	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.56	30.9	26.95	**115**	65	122	*	*
89)	1,2,3-Trimethylbenzene	20.56	31.4	26.95	**117**	66	128	*	*
90)	**1,2-Dichlorobenzene**	**20.68**	**31.7**	**26.95**	**118**	**66**	**125**	*	*
91)	**d-Limonene**	**20.68**	**30.8**	**26.38**	**117**	**64**	**135**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.06**	**31.4**	**26.15**	**120**	**73**	**136**	*	*
93)	n-Undecane	21.34	28.9	27.03	**107**	67	135	*	*
94)	**1,2,4-Trichlorobenzene**	**22.17**	**29.8**	**26.78**	**111**	**70**	**141**	*	*
95)	**Naphthalene**	**22.28**	**28.0**	**25.38**	**110**	**71**	**146**	*	*
96)	n-Dodecane	22.24	27.7	25.63	**108**	69	152	*	*
97)	**Hexachlorobutadiene**	**22.58**	**29.2**	**26.13**	**112**	63	126	*	*
98)	Cyclohexanone	18.41	28.9	24.45	118	58	138	*	*
99)	tert-Butylbenzene	20.19	31.0	26.88	115	65	121	*	*
100)	n-Butylbenzene	20.92	29.6	27.00	110	71	125	*	*

Bold = 75 Compound List
*** = Pass**

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018
Response Via : Initial Calibration

Calibration Files
0.40=10201835.D 1.0 =10201836.D 2.5 =10201837.D 5.0 =10201838.D 25 =10201839.D 50 =10201

	Compound	0.40	1.0	2.5	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	----------ISTD----------								
2) T	Chloropentaflu...	1.618	1.415	1.470	1.450	1.489	1.476	1.502	1.489	4.29
3) T	1,1,1,2-Tetraf...	1.370	1.195	1.253	1.251	1.257	1.239	1.211	1.253	4.50
4) T	1,1-Difluoroet...	1.048	0.943	0.978	0.955	0.982	0.955	0.841	0.958	6.49
5) T	Chlorodifluoro...	0.381	0.350	0.376	0.373	0.379	0.373	0.369	0.372	2.78
6) T	1-Chloro-1,1-D...	2.934	2.636	2.782	2.733	2.724	2.642	2.549	2.714	4.56
7) T	Dichlorofluoro...	2.560	2.299	2.418	2.408	2.420	2.425	2.457	2.427	3.17
8) T	Vinylbromide	1.108	1.028	1.099	1.103	1.123	1.120	1.139	1.103	3.23
9) T	2,2-Dichloro-1...	1.748	1.555	1.637	1.621	1.605	1.588	1.610	1.623	3.75
10) T	2-Methylbutane	1.064	0.963	1.019	1.016	1.006	1.023	1.059	1.021	3.33
11) T	Methyl Acetate	2.324	2.052	2.154	2.129	2.128	2.114	2.141	2.149	3.90
12) T	2-Methylpentane	1.137	0.976	1.043	1.034	1.039	1.069	1.139	1.062	5.53
13) T	2,2-Dichloropr...	1.842	1.675	1.611	1.587	1.717	1.719	1.778	1.704	5.25
14) T	1,1-Dichloropr...	1.751	1.571	1.672	1.660	1.707	1.731	1.813	1.700	4.52
15) T	Thiophene	2.752	2.488	2.602	2.602	2.661	2.682	2.833	2.660	4.21
16) IR	1,4-Difluorobenzen...	----------ISTD----------								
17) T	2,3-Dimethylpe...	0.474	0.426	0.433	0.433	0.448	0.461	0.489	0.452	5.23
18) T	Dibromomethane	0.291	0.256	0.268	0.271	0.282	0.283	0.292	0.278	4.69
19) IR	Chlorobenzene-d5 (...	----------ISTD----------								
20) T	Methyl Cyclohe...	0.885	0.791	0.828	0.817	0.793	0.747	0.675	0.791	8.37
21) T	1,3-Dichloropr...	1.021	0.929	0.983	0.973	0.932	0.863	0.786	0.927	8.60
22) T	1,1,1,2-Tetrac...	0.757	0.661	0.708	0.720	0.710	0.666	0.604	0.689	7.25
23) T	1-Chlorohexane	1.061	0.941	1.000	0.997	0.980	0.930	0.860	0.967	6.63
24) T	1,2,3-Trichlor...	1.004	0.911	0.965	0.967	0.965	0.905	0.826	0.935	6.32
25) T	Bromobenzene	1.215	1.078	1.139	1.130	1.135	1.069	0.972	1.105	6.87
26) T	2-Chlorotoluene	2.189	1.972	2.099	2.083	2.086	1.977	1.769	2.025	6.69
27) T	4-Chlorotoluene	2.251	2.000	2.138	2.117	2.155	2.046	1.844	2.079	6.30
28) T	Indan	2.699	2.531	2.705	2.712	2.768	2.639	2.233	2.613	7.02
29) T	Indene	2.189	2.072	2.289	2.307	2.562	2.412	2.096	2.275	7.67
30) T	1,2,4,5-Tetram...	2.716	2.594	2.864	2.882	3.281	3.137	2.686	2.880	8.66
31) T	1,2,3,4-Tetram...	2.808	2.549	2.696	2.711	3.154	3.115	2.445	2.783	9.62
32) T	1,2,3,5-Tetram...	2.608	2.419	2.627	2.621	3.060	2.977	2.491	2.686	8.97
33) T	1,2,3-Trichlor...	1.207	1.152	1.250	1.262	1.440	1.362	1.219	1.270	7.75

(#) = Out of Range

C16102018.M Tue Oct 30 10:34:59 2018

LH 10/30/18

TO-15 CUSTOM COMPOUND LIST
ICAL CONCENTRATIONS

Std#: **Working Standards**

(1) 200 ng/L Working Std. ID: S31-10191806

(2) 20 ng/L Working Std. ID: S31-10191807

Injection Amts.(L):	0.020	0.050	0.125	0.250	0.125	0.250	0.500
Standards Used:	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Compounds/ Concentrations (ng):	0.4ng	1.0ng	2.5ng	5.0ng	25ng	50ng	100ng
Vinylbromide	0.396	0.990	2.475	4.95	24.75	49.5	99
2-Methylbutane (Isopentane)	0.404	1.010	2.525	5.05	25.25	50.5	101
2-Methylpentane	0.396	0.990	2.475	4.95	24.75	49.5	99
2,2-Dichloropropane	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1-Dichloropropene	0.408	1.020	2.550	5.10	25.50	51.0	102
Thiophene	0.396	0.990	2.475	4.95	24.75	49.5	99
2,3-Dimethylpentane	0.408	1.020	2.550	5.10	25.50	51.0	102
Dibromomethane	0.420	1.050	2.625	5.25	26.25	52.5	105
1,3-Dichloropropane	0.424	1.060	2.650	5.30	26.50	53.0	106
1,1,1,2-Tetrachloroethane	0.376	0.940	2.350	4.70	23.50	47.0	94
1-Chlorohexane	0.408	1.020	2.550	5.10	25.50	51.0	102
1,2,3-Trichloropropane	0.412	1.030	2.575	5.15	25.75	51.5	103
Bromobenzene	0.416	1.040	2.600	5.20	26.00	52.0	104
2-Chlorotoluene	0.428	1.070	2.675	5.35	26.75	53.5	107
4-Chlorotoluene	0.412	1.030	2.575	5.15	25.75	51.5	103
Indane	0.396	0.990	2.475	4.95	24.75	49.5	99
Indene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,4,5-Tetramethylbenzene	0.384	0.960	2.400	4.80	24.00	48.0	96
1,2,3,4-Tetramethylbenzene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,3,5-Tetramethylbenzene	0.380	0.950	2.375	4.75	23.75	47.5	95
1,2,3-Trichlorobenzene	0.368	0.920	2.300	4.60	23.00	46.0	92
Chloropentafluoroethane (R115)	0.440	1.100	2.750	5.50	27.50	55.0	110
2,2-Dichloro-1,1,1-trifluoroethane (R123)	0.420	1.050	2.625	5.25	26.25	52.5	105
1,1-Difluoroethane (R152a)	0.416	1.040	2.600	5.20	26.00	52.0	104
Chlorodifluoromethane (R22)	0.416	1.040	2.600	5.20	26.00	52.0	104
Dichlorofluoromethane (R21)	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1,1,2-Tetrafluoroethane (R134a)	0.400	1.000	2.500	5.00	25.00	50.0	100
1-Chloro-1,1-Difluoroethane	0.408	1.020	2.550	5.10	25.50	51.0	102
Methyl Acetate	0.408	1.020	2.550	5.10	25.50	51.0	102
Methylcyclohexane	0.424	1.060	2.650	5.30	26.50	53.0	106
Chlorotrifluoroethene	0.392	0.980	2.450	4.90	24.50	49.0	98

LH 10/30/18

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\C16102018.M (RTE Integrator)
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.40	0	13	I:\MS16\DATA\2018_10\20\10201835.D
2	1.0	1	13	I:\MS16\DATA\2018_10\20\10201836.D
3	2.5	3	13	I:\MS16\DATA\2018_10\20\10201837.D
4	5.0	6	13	I:\MS16\DATA\2018_10\20\10201838.D
5	25	28	13	I:\MS16\DATA\2018_10\20\10201839.D
6	50	55	13	I:\MS16\DATA\2018_10\20\10201840.D
7	100	110	13	I:\MS16\DATA\2018_10\20\10201841.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.40	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 22:25
2	1.0	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 22:58
3	2.5	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 23:32
4	5.0	Oct 22 12:26 2018	Oct 22 12:22 2018	21 Oct 2018 00:05
5	25	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 00:39
6	50	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 1:12
7	100	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 1:45

C16102018.M Tue Oct 30 10:36:30 2018

LH 10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201835.D
Acq On : 20 Oct 2018 22:25 Operator: LH/TD
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M LH 10/22/18
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

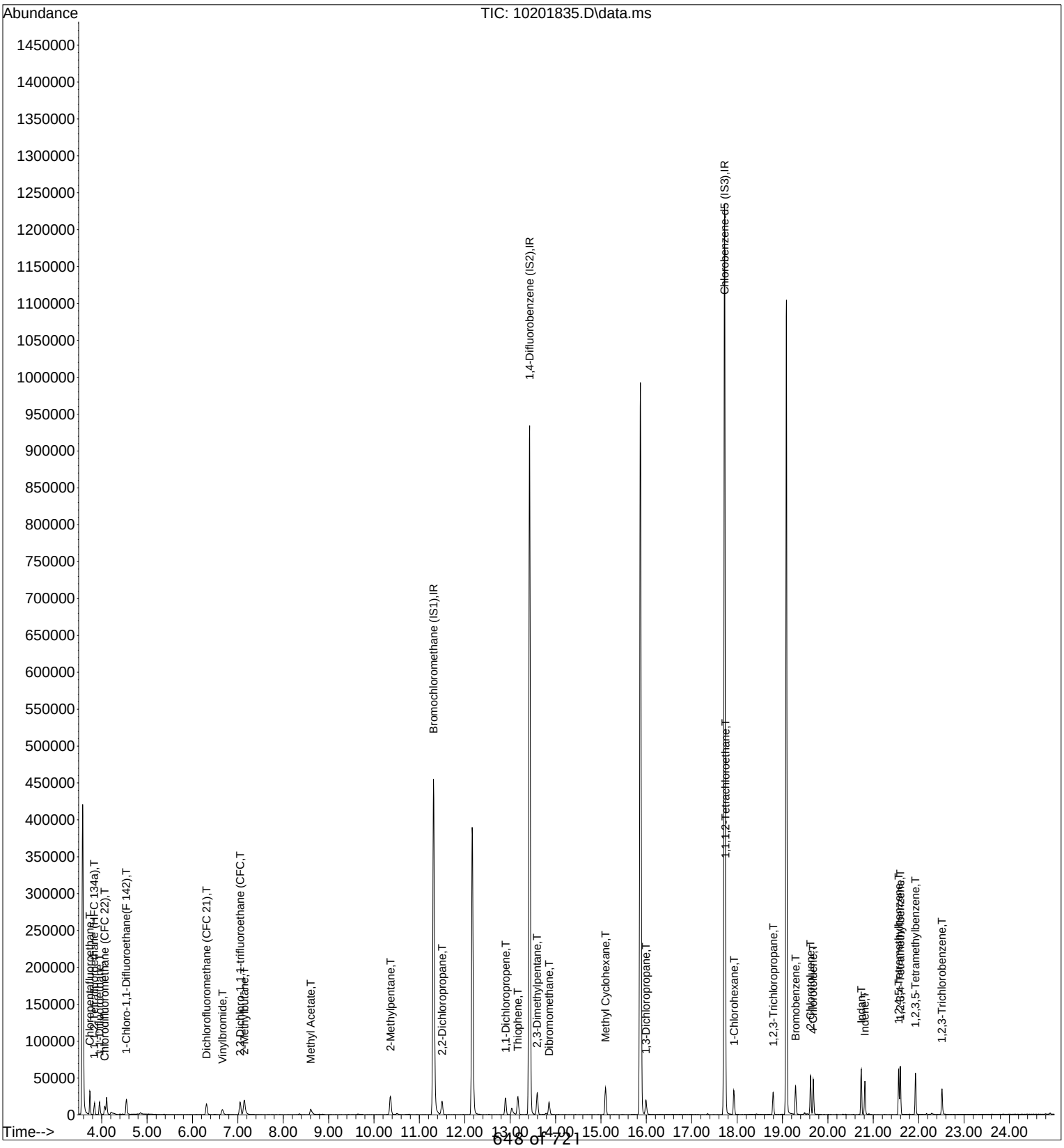
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	227958	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	951312	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	402403	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	12986	0.479	ng	97
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	9994	0.530	ng	99
4) 1,1-Difluoroethane	3.95	65	7954	0.382	ng	96
5) Chlorodifluoromethane ...	4.06	67	2894	0.510	ng	95
6) 1-Chloro-1,1-Difluoroe...	4.54	65	22473	0.648	ng	99
7) Dichlorofluoromethane ...	6.31	67	18673	0.375	ng	100
8) Vinylbromide	6.66	108	8005	0.370	ng	95
9) 2,2-Dichloro-1,1,1-tri...	7.05	83	13390	0.390	ng	100
10) 2-Methylbutane	7.14	57	7837	0.316	ng	93
11) Methyl Acetate	8.61	43	17294	0.317	ng	95
12) 2-Methylpentane	10.37	71	8210	0.345	ng	93
13) 2,2-Dichloropropane	11.50	77	13434	0.405	ng	98
14) 1,1-Dichloropropene	12.90	75	13026	0.380	ng	96
15) Thiophene	13.17	84	19877	0.358	ng	99
17) 2,3-Dimethylpentane	13.59	56	14707	0.342	ng	95
18) Dibromomethane	13.86	174	9298	0.469	ng	98
20) Methyl Cyclohexane	15.10	55	12079	0.372	ng	99
21) 1,3-Dichloropropane	15.99	76	13936	0.403	ng	96
22) 1,1,1,2-Tetrachloroethane	17.75	131	9164	0.432	ng	99
23) 1-Chlorohexane	17.93	91	13939	0.408	ng	98
24) 1,2,3-Trichloropropane	18.80	75	13321	0.385	ng	98
25) Bromobenzene	19.29	77	16265	0.398	ng	97
26) 2-Chlorotoluene	19.62	91	30161	0.428	ng	99
27) 4-Chlorotoluene	19.68	91	29855	0.411	ng	97
28) Indan	20.74	117	34411	0.393	ng	99
29) Indene	20.81	115	26494	0.334	ng	96
30) 1,2,4,5-Tetramethylben...	21.56	119	33577	0.352	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	33985	0.378	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	31901	0.360	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	14302	0.358	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201835.D
Acq On : 20 Oct 2018 22:25 Operator: LH/TD
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201836.D
Acq On : 20 Oct 2018 22:58 Operator: LH/TD
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:56 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

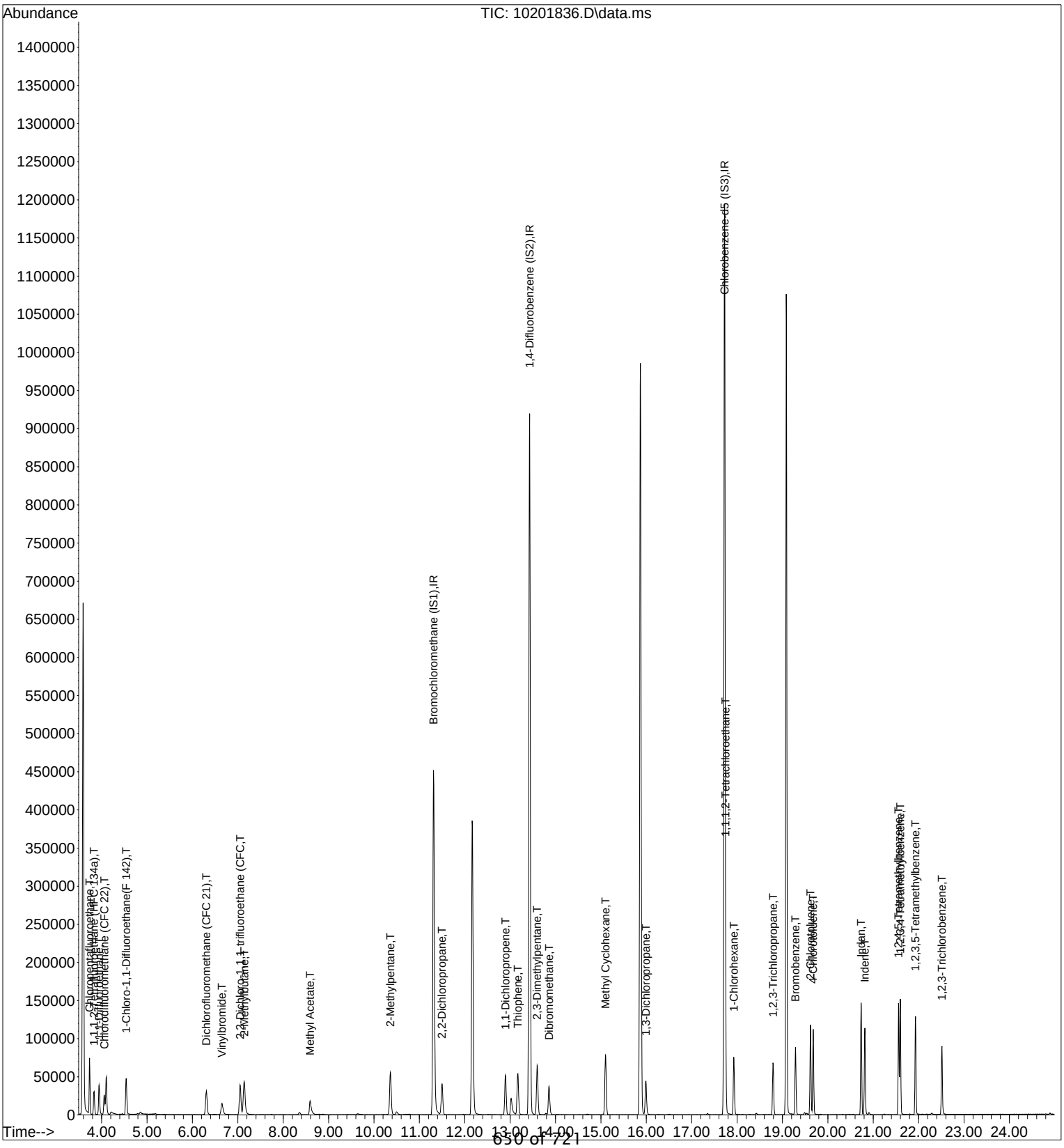
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	223837	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	938259	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	394961	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	27869	1.047	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	21393	1.156	ng	98
4) 1,1-Difluoroethane	3.94	65	17568	0.859	ng	98
5) Chlorodifluoromethane ...	4.06	67	6521	1.170	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.54	65	49566	1.456	ng	100
7) Dichlorofluoromethane ...	6.31	67	41167	0.842	ng	100
8) Vinylbromide	6.65	108	18229	0.857	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.05	83	29229	0.866	ng	99
10) 2-Methylbutane	7.14	57	17410	0.715	ng	98
11) Methyl Acetate	8.59	43	37488	0.701	ng	96
12) 2-Methylpentane	10.36	71	17295	0.740	ng	90
13) 2,2-Dichloropropane	11.50	77	30002	0.921	ng	99
14) 1,1-Dichloropropene	12.90	75	28686	0.852	ng	98
15) Thiophene	13.17	84	44107	0.809	ng	99
17) 2,3-Dimethylpentane	13.59	56	32582	0.769	ng	100
18) Dibromomethane	13.86	174	20197	1.032	ng	99
20) Methyl Cyclohexane	15.10	55	26496	0.831	ng	99
21) 1,3-Dichloropropane	15.99	76	31124	0.917	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	19647	0.943	ng	99
23) 1-Chlorohexane	17.93	91	30331	0.904	ng	99
24) 1,2,3-Trichloropropane	18.79	75	29657	0.873	ng	99
25) Bromobenzene	19.29	77	35411	0.882	ng	99
26) 2-Chlorotoluene	19.62	91	66664	0.963	ng	99
27) 4-Chlorotoluene	19.68	91	65083	0.913	ng	99
28) Indan	20.73	117	79162	0.922	ng	99
29) Indene	20.81	115	61547	0.790	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	78676	0.840	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	75695	0.858	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	72615	0.835	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	33497	0.855	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201836.D
Acq On : 20 Oct 2018 22:58 Operator: LH/TD
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:56 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201837.D
Acq On : 20 Oct 2018 23:32 Operator: LH/TD
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:57 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

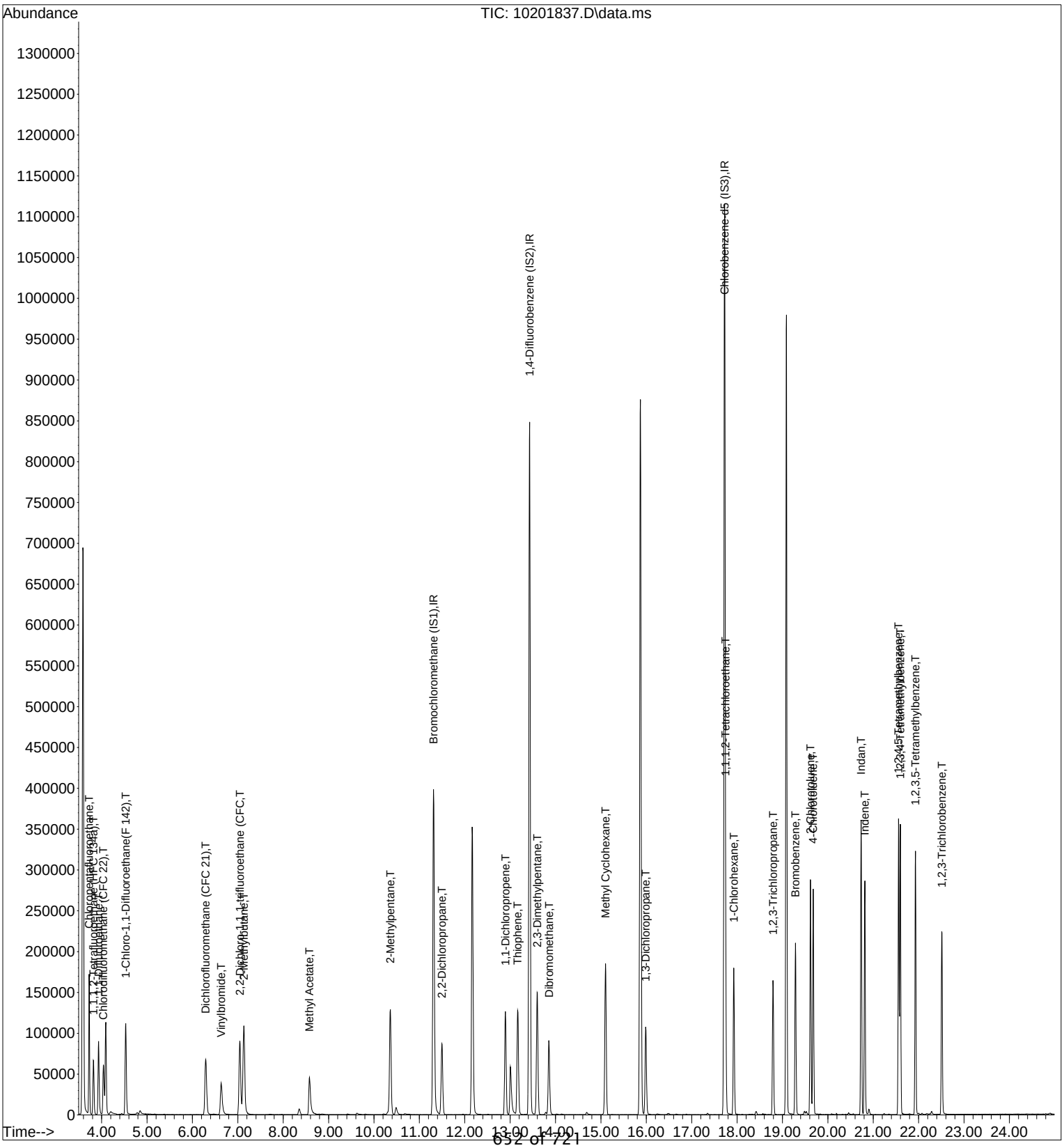
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	199541	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	847016	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	355061	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.72	85	64526	2.720	ng		99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	49991	3.031	ng		99
4) 1,1-Difluoroethane	3.93	65	40605	2.227	ng		99
5) Chlorodifluoromethane ...	4.04	67	15623	3.145	ng		99
6) 1-Chloro-1,1-Difluoroe...	4.53	65	116568	3.841	ng		100
7) Dichlorofluoromethane ...	6.29	67	96496	2.215	ng		99
8) Vinylbromide	6.63	108	43411	2.290	ng		99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	68586	2.279	ng		99
10) 2-Methylbutane	7.13	57	41081	1.891	ng		96
11) Methyl Acetate	8.58	43	87663	1.839	ng	#	97
12) 2-Methylpentane	10.36	71	41220	1.979	ng		94
13) 2,2-Dichloropropane	11.49	77	64290	2.215	ng		100
14) 1,1-Dichloropropene	12.90	75	68042	2.267	ng		99
15) Thiophene	13.17	84	102800	2.116	ng		99
17) 2,3-Dimethylpentane	13.60	56	74816	1.956	ng		98
18) Dibromomethane	13.86	174	47727	2.701	ng		99
20) Methyl Cyclohexane	15.10	55	62363	2.175	ng		99
21) 1,3-Dichloropropane	15.99	76	73981	2.424	ng		100
22) 1,1,1,2-Tetrachloroethane	17.75	131	47284	2.526	ng		99
23) 1-Chlorohexane	17.93	91	72435	2.401	ng		99
24) 1,2,3-Trichloropropane	18.79	75	70613	2.311	ng		100
25) Bromobenzene	19.29	77	84142	2.331	ng		99
26) 2-Chlorotoluene	19.62	91	159519	2.563	ng		99
27) 4-Chlorotoluene	19.68	91	156407	2.441	ng		99
28) Indan	20.73	117	190188	2.464	ng		100
29) Indene	20.81	115	152803	2.182	ng		99
30) 1,2,4,5-Tetramethylben...	21.56	119	195265	2.320	ng		100
31) 1,2,3,4-Tetramethylben...	21.60	119	179994	2.269	ng		99
32) 1,2,3,5-Tetramethylben...	21.93	119	177188	2.267	ng		99
33) 1,2,3-Trichlorobenzene	22.51	180	81650	2.318	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201837.D
Acq On : 20 Oct 2018 23:32 Operator: LH/TD
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:57 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201838.D
Acq On : 21 Oct 2018 00:05 Operator: LH/TD
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:58 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

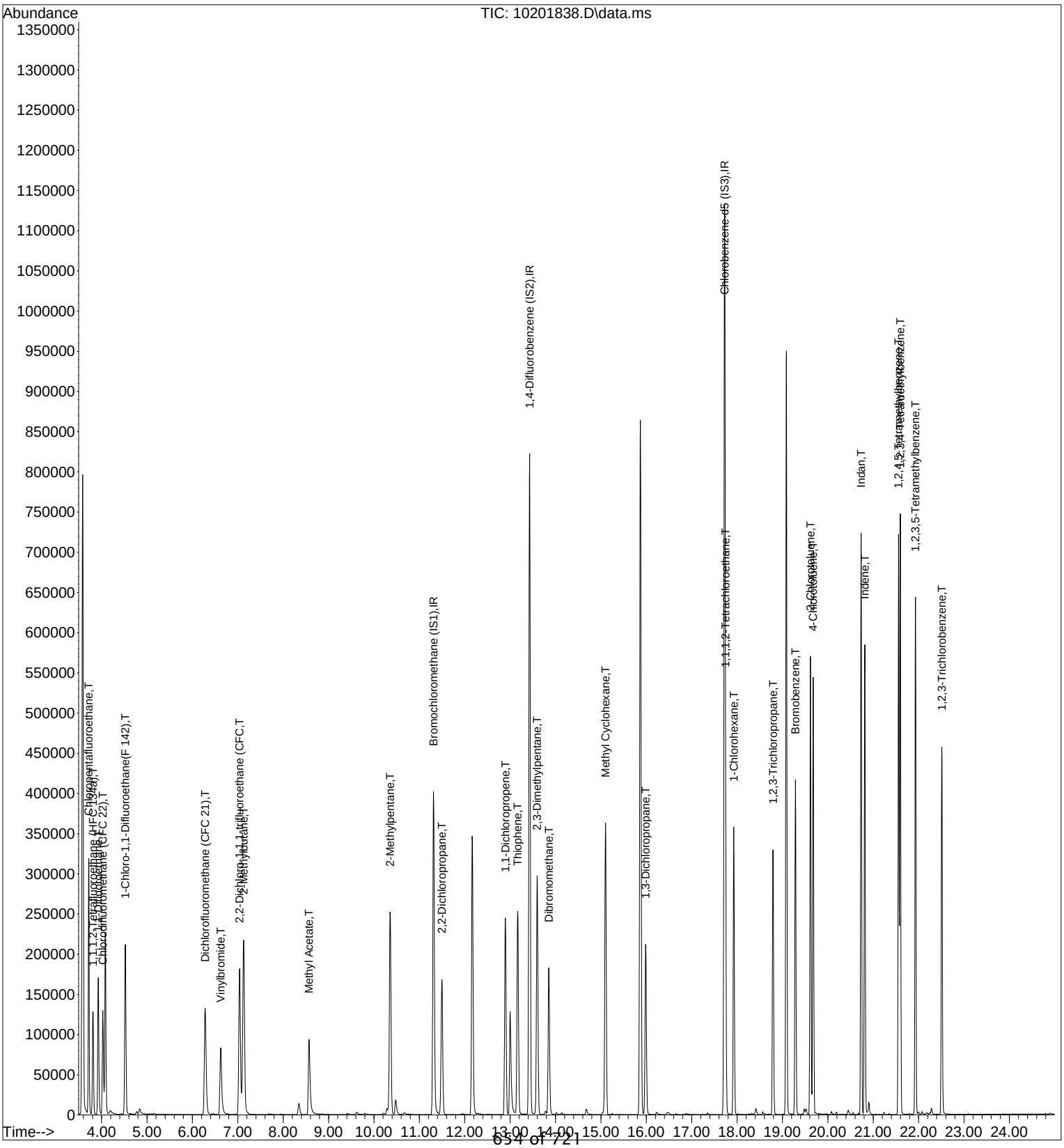
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	195226	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	829975	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	351103	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.71	85	124570	5.366	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	97665	6.052	ng		99
4) 1,1-Difluoroethane	3.93	65	77570	4.348	ng		100
5) Chlorodifluoromethane ...	4.03	67	30331	6.241	ng		99
6) 1-Chloro-1,1-Difluoroe...	4.52	65	224117	7.549	ng		100
7) Dichlorofluoromethane ...	6.28	67	188074	4.412	ng		100
8) Vinylbromide	6.62	108	85281	4.599	ng		100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	132946	4.516	ng		99
10) 2-Methylbutane	7.13	57	80115	3.770	ng		97
11) Methyl Acetate	8.57	43	169584	3.635	ng	#	97
12) 2-Methylpentane	10.36	71	79961	3.924	ng		96
13) 2,2-Dichloropropane	11.49	77	123944	4.364	ng		99
14) 1,1-Dichloropropene	12.90	75	132184	4.502	ng		99
15) Thiophene	13.17	84	201166	4.233	ng		100
17) 2,3-Dimethylpentane	13.59	56	146566	3.910	ng		99
18) Dibromomethane	13.85	174	94530	5.460	ng		100
20) Methyl Cyclohexane	15.10	55	121639	4.291	ng		100
21) 1,3-Dichloropropane	15.99	76	144886	4.801	ng		100
22) 1,1,1,2-Tetrachloroethane	17.75	131	95078	5.136	ng		100
23) 1-Chlorohexane	17.93	91	142861	4.788	ng		99
24) 1,2,3-Trichloropropane	18.79	75	139951	4.632	ng		100
25) Bromobenzene	19.29	77	165056	4.624	ng		99
26) 2-Chlorotoluene	19.62	91	313089	5.087	ng		99
27) 4-Chlorotoluene	19.68	91	306290	4.834	ng		100
28) Indan	20.73	117	377114	4.942	ng		99
29) Indene	20.81	115	304618	4.399	ng		100
30) 1,2,4,5-Tetramethylben...	21.56	119	388533	4.668	ng		100
31) 1,2,3,4-Tetramethylben...	21.60	119	357914	4.562	ng		100
32) 1,2,3,5-Tetramethylben...	21.93	119	349647	4.524	ng		100
33) 1,2,3-Trichlorobenzene	22.51	180	163104	4.682	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201838.D
Acq On : 21 Oct 2018 00:05 Operator: LH/TD
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:58 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201839.D
Acq On : 21 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:00 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

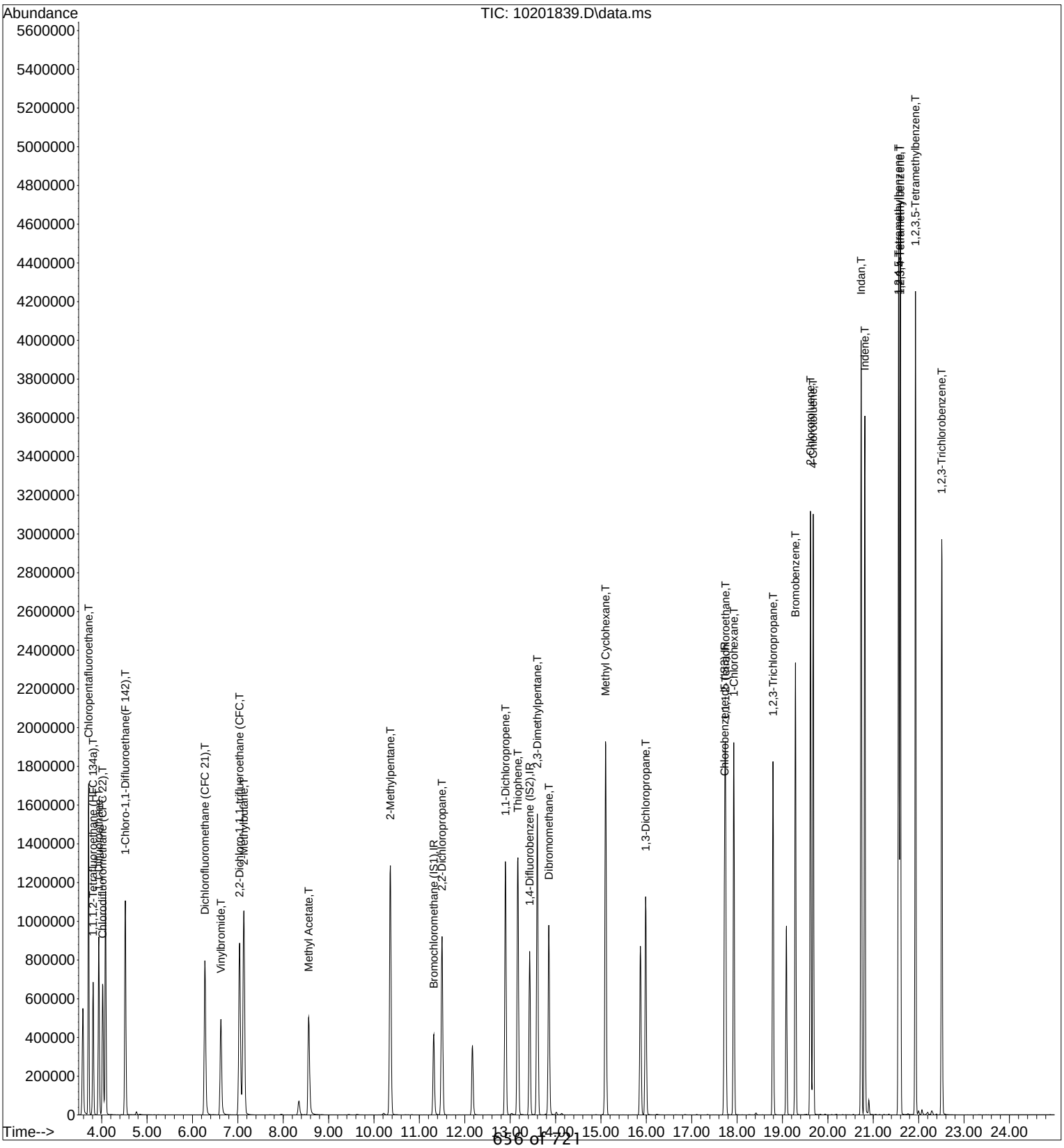
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	199476	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	835773	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	382201	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	653302	27.544	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	501379	30.406	ng	100
4) 1,1-Difluoroethane	3.94	65	407599	22.360	ng	100
5) Chlorodifluoromethane ...	4.02	67	157061	31.627	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1141211	37.621	ng	100
7) Dichlorofluoromethane ...	6.27	67	965475	22.167	ng	100
8) Vinylbromide	6.63	108	443664	23.415	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	672530	22.357	ng	100
10) 2-Methylbutane	7.13	57	405294	18.666	ng	100
11) Methyl Acetate	8.56	43	865861	18.165	ng	100
12) 2-Methylpentane	10.36	71	410486	19.714	ng	100
13) 2,2-Dichloropropane	11.50	77	685082	23.609	ng	100
14) 1,1-Dichloropropene	12.90	75	694471	23.148	ng	100
15) Thiophene	13.17	84	1051176	21.646	ng	100
17) 2,3-Dimethylpentane	13.60	56	764276	20.246	ng	100
18) Dibromomethane	13.85	174	494889	28.388	ng	100
20) Methyl Cyclohexane	15.10	55	642467	20.818	ng	100
21) 1,3-Dichloropropane	15.99	76	754807	22.978	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	510206	25.317	ng	100
23) 1-Chlorohexane	17.93	91	764100	23.527	ng	100
24) 1,2,3-Trichloropropane	18.79	75	759882	23.104	ng	100
25) Bromobenzene	19.29	77	902467	23.226	ng	100
26) 2-Chlorotoluene	19.62	91	1706302	25.468	ng	100
27) 4-Chlorotoluene	19.68	91	1696590	24.597	ng	100
28) Indan	20.73	117	2095073	25.219	ng	100
29) Indene	20.81	115	1840567	24.417	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2407664	26.572	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	2266614	26.539	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	2222253	26.413	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	1012339	26.695	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201839.D
Acq On : 21 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:00 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201840.D
Acq On : 21 Oct 2018 1:12 Operator: LH/TD
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:01 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

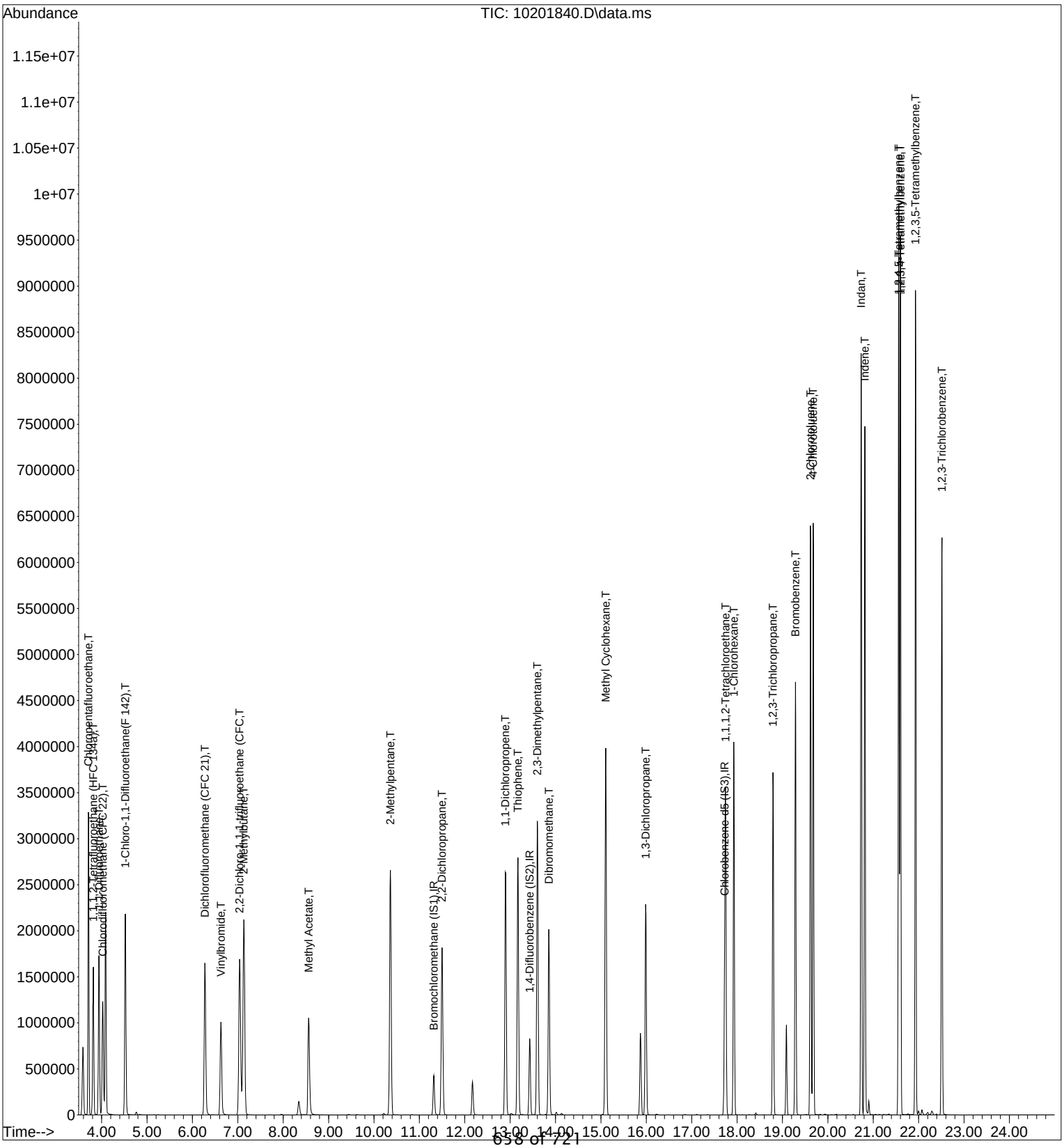
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	200924	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	838471	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	419502	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	1304715	54.611	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	995594	59.943	ng	99
4) 1,1-Difluoroethane	3.94	65	798002	43.462	ng	99
5) Chlorodifluoromethane ...	4.03	67	311451	62.264	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.52	65	2229450	72.965	ng	99
7) Dichlorofluoromethane ...	6.27	67	1948637	44.417	ng	100
8) Vinylbromide	6.63	108	891231	46.697	ng	99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	1340033	44.227	ng	100
10) 2-Methylbutane	7.13	57	830518	37.974	ng	99
11) Methyl Acetate	8.56	43	1733065	36.097	ng	100
12) 2-Methylpentane	10.36	71	850347	40.544	ng	99
13) 2,2-Dichloropropane	11.50	77	1381431	47.264	ng	100
14) 1,1-Dichloropropene	12.90	75	1418773	46.950	ng	99
15) Thiophene	13.17	84	2133922	43.626	ng	100
17) 2,3-Dimethylpentane	13.60	56	1576967	41.640	ng	99
18) Dibromomethane	13.85	174	996640	56.985	ng	100
20) Methyl Cyclohexane	15.11	55	1328813	39.230	ng	100
21) 1,3-Dichloropropane	15.99	76	1535331	42.582	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	1049799	47.460	ng	100
23) 1-Chlorohexane	17.93	91	1591082	44.633	ng	100
24) 1,2,3-Trichloropropane	18.79	75	1564476	43.337	ng	100
25) Bromobenzene	19.29	77	1864721	43.724	ng	100
26) 2-Chlorotoluene	19.62	91	3549720	48.272	ng	100
27) 4-Chlorotoluene	19.68	91	3536049	46.706	ng	99
28) Indan	20.73	117	4383747	48.077	ng	100
29) Indene	20.81	115	3805126	45.990	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	5053013	50.808	ng	99
31) 1,2,3,4-Tetramethylben...	21.60	119	4912957	52.409	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	4745701	51.390	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	2103129	50.527	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201840.D
Acq On : 21 Oct 2018 1:12 Operator: LH/TD
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:01 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201841.D
Acq On : 21 Oct 2018 1:45 Operator: LH/TD
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:03 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD LH 10/22/18
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

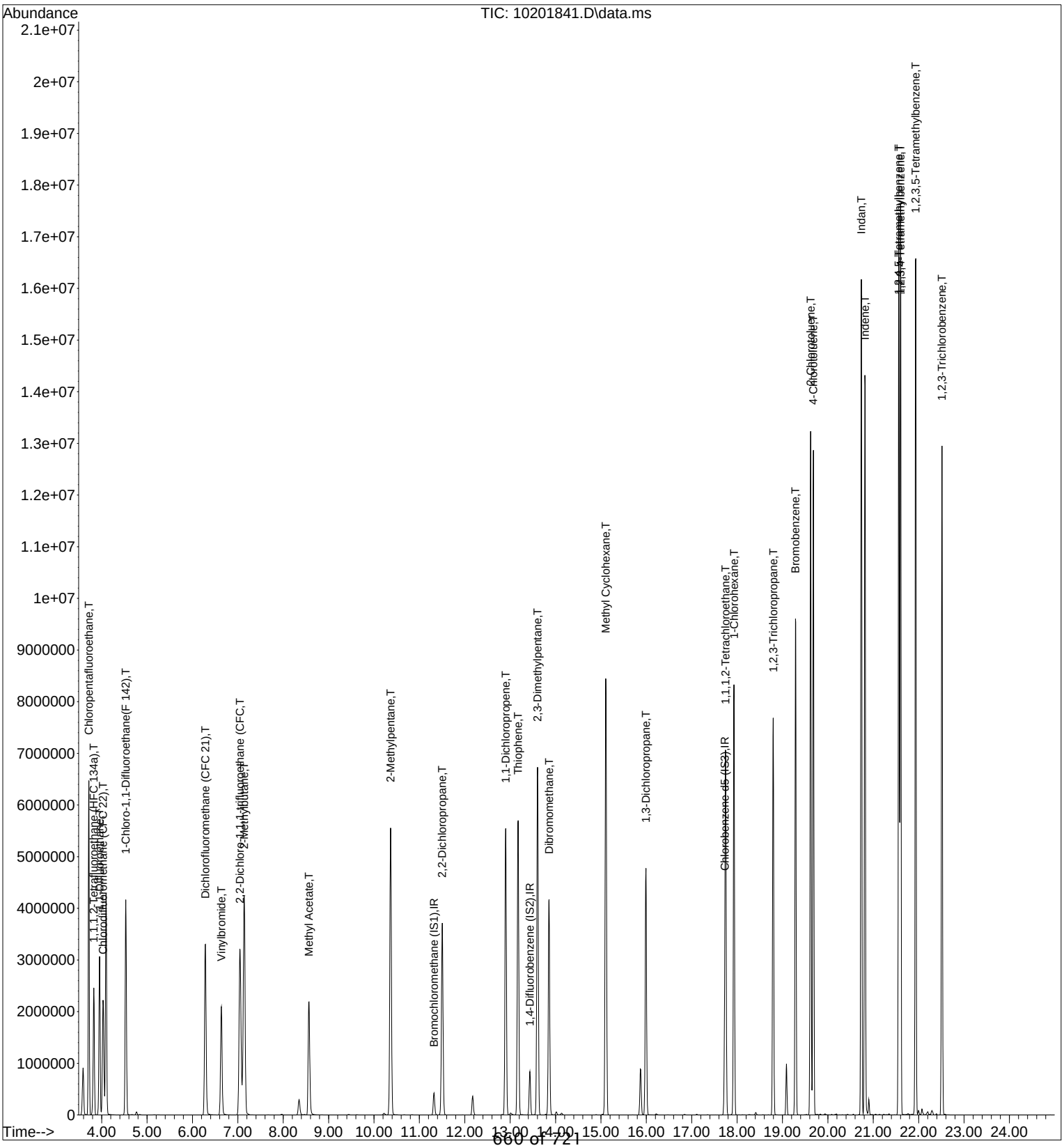
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	203775	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	849000	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.73	82	493504	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	2693919	111.182	ng	98
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	1974011	117.188	ng	99
4) 1,1-Difluoroethane	3.95	65	1425379	76.544	ng	99
5) Chlorodifluoromethane ...	4.03	67	625915	123.380	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.53	65	4363682	140.817	ng	98
7) Dichlorofluoromethane ...	6.29	67	4004587	90.003	ng	100
8) Vinylbromide	6.64	108	1837985	94.955	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	2756027	89.688	ng	100
10) 2-Methylbutane	7.14	57	1743787	78.616	ng	95
11) Methyl Acetate	8.57	43	3560299	73.117	ng	99
12) 2-Methylpentane	10.37	71	1838837	86.448	ng	95
13) 2,2-Dichloropropane	11.50	77	2898971	97.797	ng	99
14) 1,1-Dichloropropene	12.90	75	3014193	98.351	ng	95
15) Thiophene	13.18	84	4572744	92.177	ng	98
17) 2,3-Dimethylpentane	13.60	56	3386270	88.305	ng	95
18) Dibromomethane	13.86	174	2083086	117.628	ng	100
20) Methyl Cyclohexane	15.11	55	2825074	70.897	ng	96
21) 1,3-Dichloropropane	15.99	76	3288481	77.529	ng	97
22) 1,1,1,2-Tetrachloroethane	17.75	131	2240345	86.096	ng	100
23) 1-Chlorohexane	17.93	91	3461609	82.544	ng	98
24) 1,2,3-Trichloropropane	18.80	75	3360326	79.126	ng	99
25) Bromobenzene	19.29	77	3989195	79.513	ng	99
26) 2-Chlorotoluene	19.62	91	7472908	86.385	ng	98
27) 4-Chlorotoluene	19.68	91	7498279	84.190	ng	98
28) Indan	20.74	117	8729008	81.376	ng	98
29) Indene	20.82	115	7777194	79.902	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	10180072	87.011	ng	97
31) 1,2,3,4-Tetramethylben...	21.60	119	9074930	82.291	ng	96
32) 1,2,3,5-Tetramethylben...	21.94	119	9342170	85.994	ng	97
33) 1,2,3-Trichlorobenzene	22.51	180	4428467	90.439	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201841.D
Acq On : 21 Oct 2018 1:45 Operator: LH/TD
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:03 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201842.D
Acq On : 21 Oct 2018 2:19 Operator: LH/TD
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-09141801/S31-10201801 (11/18)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 22 12:27:11 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018 LH 10/22/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

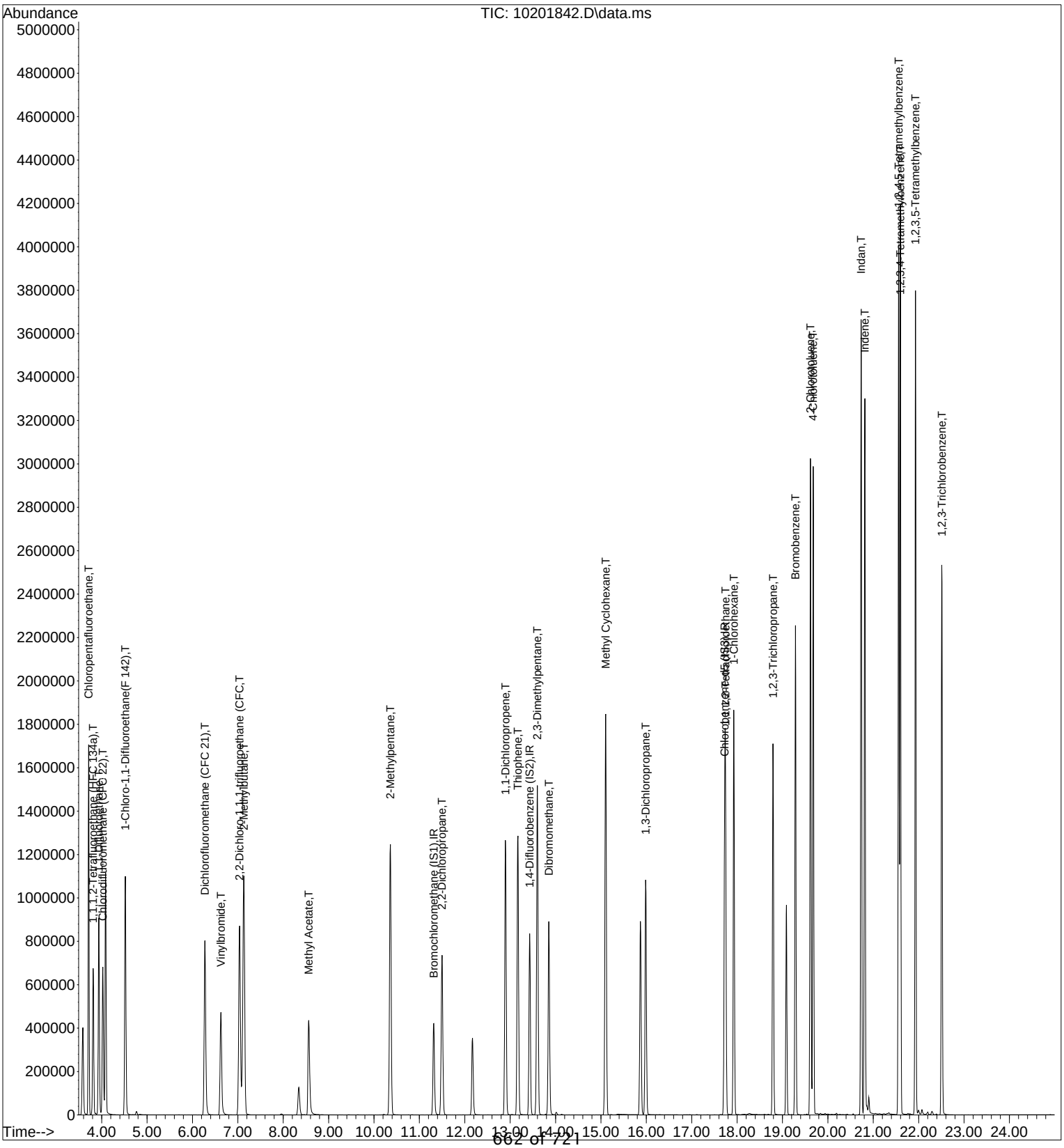
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	204839	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	846543	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	378351	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	639057	26.198	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	494861	24.091	ng	100
4) 1,1-Difluoroethane	3.94	65	399786	25.477	ng	99
5) Chlorodifluoromethane ...	4.03	67	156007	25.613	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1132323	25.456	ng	100
7) Dichlorofluoromethane ...	6.27	67	970369	24.403	ng	100
8) Vinylbromide	6.63	108	429093	23.740	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	655802	24.650	ng	100
10) 2-Methylbutane	7.13	57	417611	24.952	ng	95
11) Methyl Acetate	8.56	43	755828	21.464	ng	100
12) 2-Methylpentane	10.36	71	400182	22.984	ng	100
13) 2,2-Dichloropropane	11.50	77	555365	19.886	ng	100
14) 1,1-Dichloropropene	12.90	75	669890	24.042	ng	100
15) Thiophene	13.17	84	1014836	23.280	ng	100
17) 2,3-Dimethylpentane	13.60	56	751275	24.550	ng	100
18) Dibromomethane	13.85	174	452941	24.086	ng	100
20) Methyl Cyclohexane	15.11	55	623099	26.027	ng	100
21) 1,3-Dichloropropane	15.99	76	731928	26.094	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	437583	20.967	ng	100
23) 1-Chlorohexane	17.93	91	740178	25.289	ng	100
24) 1,2,3-Trichloropropane	18.79	75	717491	25.352	ng	100
25) Bromobenzene	19.29	77	862128	25.770	ng	100
26) 2-Chlorotoluene	19.62	91	1665058	27.164	ng	100
27) 4-Chlorotoluene	19.68	91	1628812	25.887	ng	100
28) Indan	20.73	117	1957097	24.749	ng	100
29) Indene	20.81	115	1725930	25.061	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2150697	24.672	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	2040691	24.229	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	1962666	24.141	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	872535	22.691	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201842.D
Acq On : 21 Oct 2018 2:19 Operator: LH/TD
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-09141801/S31-10201801 (11/18)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 22 12:27:11 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10201842.D**
Data File Path: **I:\MS16\DATA\2018_10\20**
Operator: **LH/TD**
Date Acquired: **10/21/18** **2:19**

Acq. Method File: **TO15.M**
Sample Name: **25ng TO-15 Custom I**
Misc Info: **S31-09141801/S31-10**
Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	AZ Check 70-130%
2)	**Chloropentafluoroethane**	3.71	26.2	27.00	97	70	130	*
3)	**1,1,1,2-Tetrafluoroethane (HFC 1**	3.81	24.1	27.00	89	70	130	*
4)	**1,1-Difluoroethane**	3.94	25.5	26.00	98	70	130	*
5)	**Chlorodifluoromethane (CFC 22)**	4.03	25.6	27.00	95	70	130	*
6)	**1-Chloro-1,1-Difluoroethane(F 14**	4.52	25.5	26.25	97	70	130	*
7)	**Dichlorofluoromethane (CFC 21)**	6.27	24.4	25.75	95	70	130	*
8)	**Vinylbromide**	6.63	23.7	24.75	96	70	130	*
9)	**2,2-Dichloro-1,1,1-trifluoroethane**	7.04	24.7	26.50	93	70	130	*
10)	**2-Methylbutane**	7.13	25.0	27.50	91	70	130	*
11)	**Methyl Acetate**	8.56	21.5	23.25	92	70	130	*
12)	**2-Methylpentane**	10.36	23.0	24.75	93	70	130	*
13)	**2,2-Dichloropropane**	11.50	19.9	22.50	88	70	130	*
14)	**1,1-Dichloropropene**	12.90	24.0	25.50	94	70	130	*
15)	**Thiophene**	13.17	23.3	25.25	92	70	130	*
17)	**2,3-Dimethylpentane**	13.60	24.6	26.00	95	70	130	*
18)	**Dibromomethane**	13.85	24.1	25.50	95	70	130	*
20)	**Methyl Cyclohexane**	15.11	26.0	27.25	95	70	130	*
21)	**1,3-Dichloropropane**	15.99	26.1	26.50	98	70	130	*
22)	**1,1,1,2-Tetrachloroethane**	17.75	21.0	22.50	93	70	130	*
23)	**1-Chlorohexane**	17.93	25.3	26.00	97	70	130	*
24)	**1,2,3-Trichloropropane**	18.79	25.4	26.50	96	70	130	*
25)	**Bromobenzene**	19.29	25.8	26.75	96	70	130	*
26)	**2-Chlorotoluene**	19.62	27.2	27.50	99	70	130	*
27)	**4-Chlorotoluene**	19.68	25.9	26.50	98	70	130	*
28)	**Indan**	20.73	24.7	25.25	98	70	130	*
29)	**Indene**	20.81	25.1	24.25	104	70	130	*
30)	**1,2,4,5-Tetramethylbenzene**	21.56	24.7	25.25	98	70	130	*
31)	**1,2,3,4-Tetramethylbenzene**	21.60	24.2	25.00	97	70	130	*
32)	**1,2,3,5-Tetramethylbenzene**	21.93	24.1	24.75	97	70	130	*
33)	**1,2,3-Trichlorobenzene**	22.51	22.7	24.50	93	70	130	*

* = Pass

LH *10/22/18*

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\25\10251801.D
Acq On : 25 Oct 2018 4:40 am Operator: SC
Sample : CCV R9102518_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 06:44:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/25/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	95	0.02
2	T	Propene	3.160	2.547	19.4	84	0.03
3	T	Dichlorodifluoromethane (CF	3.404	3.125	8.2	94	0.02
4	T	Chloromethane	4.130	3.707	10.2	93	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.197	1.156	3.4	100	0.02
6	T	Vinyl Chloride	3.224	2.859	11.3	87	0.00
7	T	1,3-Butadiene	2.137	1.775	16.9	80	0.01
8	T	Bromomethane	1.302	1.267	2.7	107	0.00
9	T	Chloroethane	1.445	1.494	-3.4	103	0.00
10	T	Ethanol	1.707	1.784	-4.5	88	-0.06
11	T	Acetonitrile	4.622	4.709	-1.9	83	-0.04
12	T	Acrolein	1.322	1.203	9.0	86	-0.01
13	T	Acetone	1.764	1.615	8.4	86	-0.03
14	T	Trichlorofluoromethane	2.438	2.356	3.4	95	0.02
15	T	2-Propanol (Isopropanol)	5.493	6.088	-10.8	92	-0.04
16	T	Acrylonitrile	2.996	2.980	0.5	88	-0.03
17	T	1,1-Dichloroethene	1.477	1.394	5.6	97	0.02
18	T	2-Methyl-2-Propanol (tert-B	4.805	5.118	-6.5	91	-0.02
19	T	Methylene Chloride	1.766	1.676	5.1	94	0.00
20	T	3-Chloro-1-propene (Allyl C	3.231	3.083	4.6	83	0.00
21	T	Trichlorotrifluoroethane	0.975	0.922	5.4	102	0.03
22	T	Carbon Disulfide	6.627	6.414	3.2	95	0.01
23	T	trans-1,2-Dichloroethene	2.929	2.866	2.2	91	0.00
24	T	1,1-Dichloroethane	3.533	3.395	3.9	91	0.00
25	T	Methyl tert-Butyl Ether	5.359	5.266	1.7	93	0.03
26	T	Vinyl Acetate	0.291	0.325	-11.7	96	0.00
27	T	2-Butanone (MEK)	1.376	1.323	3.9	95	0.01
28	T	cis-1,2-Dichloroethene	2.816	2.757	2.1	101	0.01
29	T	Diisopropyl Ether	1.327	1.330	-0.2	97	0.03
30	T	Ethyl Acetate	0.729	0.781	-7.1	102	0.02
31	T	n-Hexane	3.350	3.719	-11.0	102	0.04
32	T	Chloroform	2.950	2.843	3.6	103	0.01
33	S	1,2-Dichloroethane-d4(SS1)	2.168	2.292	-5.7	119	0.03
34	T	Tetrahydrofuran (THF)	1.323	1.254	5.2	108	0.04
35	T	Ethyl tert-Butyl Ether	1.948	1.920	1.4	103	0.03
36	T	1,2-Dichloroethane	2.344	2.353	-0.4	118	0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	106	0.00
38	T	1,1,1-Trichloroethane	0.473	0.425	10.1	100	0.00
39	T	Isopropyl Acetate	0.257	0.258	-0.4	111	0.00
40	T	1-Butanol	0.425	0.433	-1.9	115	-0.02
41	T	Benzene	1.522	1.396	8.3	107	0.00
42	T	Carbon Tetrachloride	0.368	0.337	8.4	102	0.00
43	T	Cyclohexane	0.541	0.509	5.9	104	0.01
44	T	tert-Amyl Methyl Ether	1.034	0.940	9.1	105	0.00
45	T	1,2-Dichloropropane	0.429	0.386	10.0	114	0.00
46	T	Bromodichloromethane	0.456	0.416	8.8	101	0.00
47	T	Trichloroethene	0.300	0.253	15.7	92	0.00
48	T	1,4-Dioxane	0.273	0.254	7.0	98	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.873	1.744	6.9	103	0.00
50	T	Methyl Methacrylate	0.117	0.109	6.8	95	0.00
51	T	n-Heptane	0.402	0.366	9.0	106	0.01
52	T	cis-1,3-Dichloropropene	0.578	0.545	5.7	107	0.01
53	T	4-Methyl-2-pentanone	0.380	0.386	-1.6	116	0.01
54	T	trans-1,3-Dichloropropene	0.506	0.491	3.0	98	0.02

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\25\10251801.D
Acq On : 25 Oct 2018 4:40 am Operator: SC
Sample : CCV R9102518_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 25 06:44:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	1,1,2-Trichloroethane	0.308	0.278	9.7	97	0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	108	0.00
57	S	Toluene-d8 (SS2)	2.184	2.162	1.0	108	0.00
58	T	Toluene	2.442	2.183	10.6	102	0.00
59	T	2-Hexanone	1.533	1.668	-8.8	124	0.00
60	T	Dibromochloromethane	0.521	0.464	10.9	96	0.00
61	T	1,2-Dibromoethane	0.558	0.500	10.4	99	0.00
62	T	n-Butyl Acetate	1.728	1.848	-6.9	125	0.00
63	T	n-Octane	0.606	0.612	-1.0	116	0.00
64	T	Tetrachloroethene	0.504	0.388	23.0	89	0.00
65	T	Chlorobenzene	1.416	1.225	13.5	96	0.00
66	T	Ethylbenzene	2.675	2.464	7.9	102	0.00
67	T	m- & p-Xylenes	2.055	1.883	8.4	103	0.00
68	T	Bromoform	0.363	0.315	13.2	90	0.00
69	T	Styrene	1.456	1.334	8.4	96	0.00
70	T	o-Xylene	2.006	1.909	4.8	103	0.00
71	T	n-Nonane	1.411	1.590	-12.7	125	0.00
72	T	1,1,2,2-Tetrachloroethane	0.988	0.964	2.4	105	0.00
73	S	Bromofluorobenzene (SS3)	0.491	0.448	8.8	98	0.00
74	T	Cumene	2.425	2.200	9.3	96	0.00
75	T	alpha-Pinene	1.310	1.206	7.9	92	0.00
76	T	n-Propylbenzene	3.013	2.916	3.2	98	0.00
77	T	3-Ethyltoluene	2.373	2.197	7.4	93	0.00
78	T	4-Ethyltoluene	2.206	2.117	4.0	100	0.00
79	T	1,3,5-Trimethylbenzene	1.953	1.839	5.8	97	0.00
80	T	alpha-Methylstyrene	0.968	0.867	10.4	91	0.00
81	T	2-Ethyltoluene	2.326	2.160	7.1	96	0.00
82	T	1,2,4-Trimethylbenzene	1.898	1.854	2.3	100	0.00
83	T	n-Decane	0.062	0.069	-11.3	119	0.00
84	T	Benzyl Chloride	1.686	1.690	-0.2	105	0.00
85	T	1,3-Dichlorobenzene	0.990	0.838	15.4	91	0.00
86	T	1,4-Dichlorobenzene	0.988	0.844	14.6	92	0.00
87	T	sec-Butylbenzene	2.655	2.474	6.8	99	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.232	2.151	3.6	98	0.00
89	T	1,2,3-Trimethylbenzene	1.932	1.889	2.2	101	0.00
90	T	1,2-Dichlorobenzene	0.925	0.799	13.6	92	0.00
91	T	d-Limonene	0.983	0.977	0.6	107	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.297	0.269	9.4	91	0.00
93	T	n-Undecane	1.509	1.627	-7.8	116	0.00
94	T	1,2,4-Trichlorobenzene	0.588	0.483	17.9	88	0.00
95	T	Naphthalene	2.218	1.958	11.7	90	0.00
96	T	n-Dodecane	1.386	1.599	-15.4	121	0.00
97	T	Hexachlorobutadiene	0.368	0.296	19.6	87	0.00
98	T	Cyclohexanone	1.039	1.040	-0.1	116	0.00
99	T	tert-Butylbenzene	1.761	1.636	7.1	96	0.00
100	T	n-Butylbenzene	2.291	2.233	2.5	104	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251801.D Vial: 2
Acq On : 25 Oct 2018 4:40 Operator: SC
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

RS 10/25/18

Quant Time: Oct 25 06:44:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	125544	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	11.24	114	666288	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	389100	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	287697	13.214	ng		0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.68%				
57) Toluene-d8 (SS2)	13.66	98	841292	12.376	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
73) Bromofluorobenzene (SS3)	17.16	174	174334	11.399	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.20%				
Target Compounds							Qvalue
2) Propene	3.97	42	131850	4.155	ng		100
3) Dichlorodifluoromethan...	4.08	85	163983	4.797	ng		99
4) Chloromethane	4.28	50	187634	4.523	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	59684	4.963	ng		100
6) Vinyl Chloride	4.56	62	150890	4.659	ng		100
7) 1,3-Butadiene	4.74	54	93523	4.358	ng		99
8) Bromomethane	5.05	94	64209	4.911	ng		97
9) Chloroethane	5.27	64	76682	5.283	ng		99
10) Ethanol	5.50	45	460498	26.854	ng		99
11) Acetonitrile	5.69	41	244285	5.262	ng		100
12) Acrolein	5.83	56	62120	4.679	ng		100
13) Acetone	5.97	58	435546	24.580	ng		86
14) Trichlorofluoromethane	6.15	101	125415	5.121	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	630662	11.432	ng		97
16) Acrylonitrile	6.51	53	154735	5.142	ng		100
17) 1,1-Dichloroethene	6.85	96	75187	5.069	ng	#	80
18) 2-Methyl-2-Propanol (t...	6.96	59	551071	11.418	ng		96
19) Methylene Chloride	7.01	84	90071	5.078	ng		80
20) 3-Chloro-1-propene (Al...	7.13	41	165181	5.091	ng		91
21) Trichlorotrifluoroethane	7.32	151	49306	5.036	ng		88
22) Carbon Disulfide	7.28	76	346252	5.202	ng		99
23) trans-1,2-Dichloroethene	8.02	61	152872	5.197	ng		91
24) 1,1-Dichloroethane	8.24	63	175627	4.950	ng		99
25) Methyl tert-Butyl Ether	8.31	73	288005	5.351	ng		99
26) Vinyl Acetate	8.41	86	85674	29.358	ng	#	95
27) 2-Butanone (MEK)	8.65	72	68210	4.935	ng	#	83
28) cis-1,2-Dichloroethene	9.11	61	145910	5.159	ng		94
29) Diisopropyl Ether	9.34	87	72182	5.417	ng	#	94
30) Ethyl Acetate	9.35	61	84932	11.605	ng		99
31) n-Hexane	9.35	57	202066	6.005	ng		100
32) Chloroform	9.42	83	153738	5.188	ng		100
34) Tetrahydrofuran (THF)	9.81	72	67241	5.062	ng		93
35) Ethyl tert-Butyl Ether	9.89	87	102200	5.222	ng		96
36) 1,2-Dichloroethane	10.16	62	125386	5.326	ng		100
38) 1,1,1-Trichloroethane	10.43	97	122410	4.857	ng		99
39) Isopropyl Acetate	10.79	61	142068	10.353	ng	#	98
40) 1-Butanol	10.80	56	238539	10.529	ng		97
41) Benzene	10.88	78	384357	4.737	ng		98
42) Carbon Tetrachloride	11.03	117	92957	4.736	ng		99
43) Cyclohexane	11.16	84	283390	9.830	ng		97
44) tert-Amyl Methyl Ether	11.48	73	269018	4.883	ng		99
45) 1,2-Dichloropropane	11.69	63	110487	4.834	ng		99
46) Bromodichloromethane	11.87	83	118460	4.872	ng		100
47) Trichloroethene	11.93	130	71736	4.491	ng		99
48) 1,4-Dioxane	11.91	88	72060	4.950	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	493059	4.940	ng		99
50) Methyl Methacrylate	12.12	100	61766	9.872	ng		99

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251801.D Vial: 2
Acq On : 25 Oct 2018 4:40 Operator: SC
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 25 06:44:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

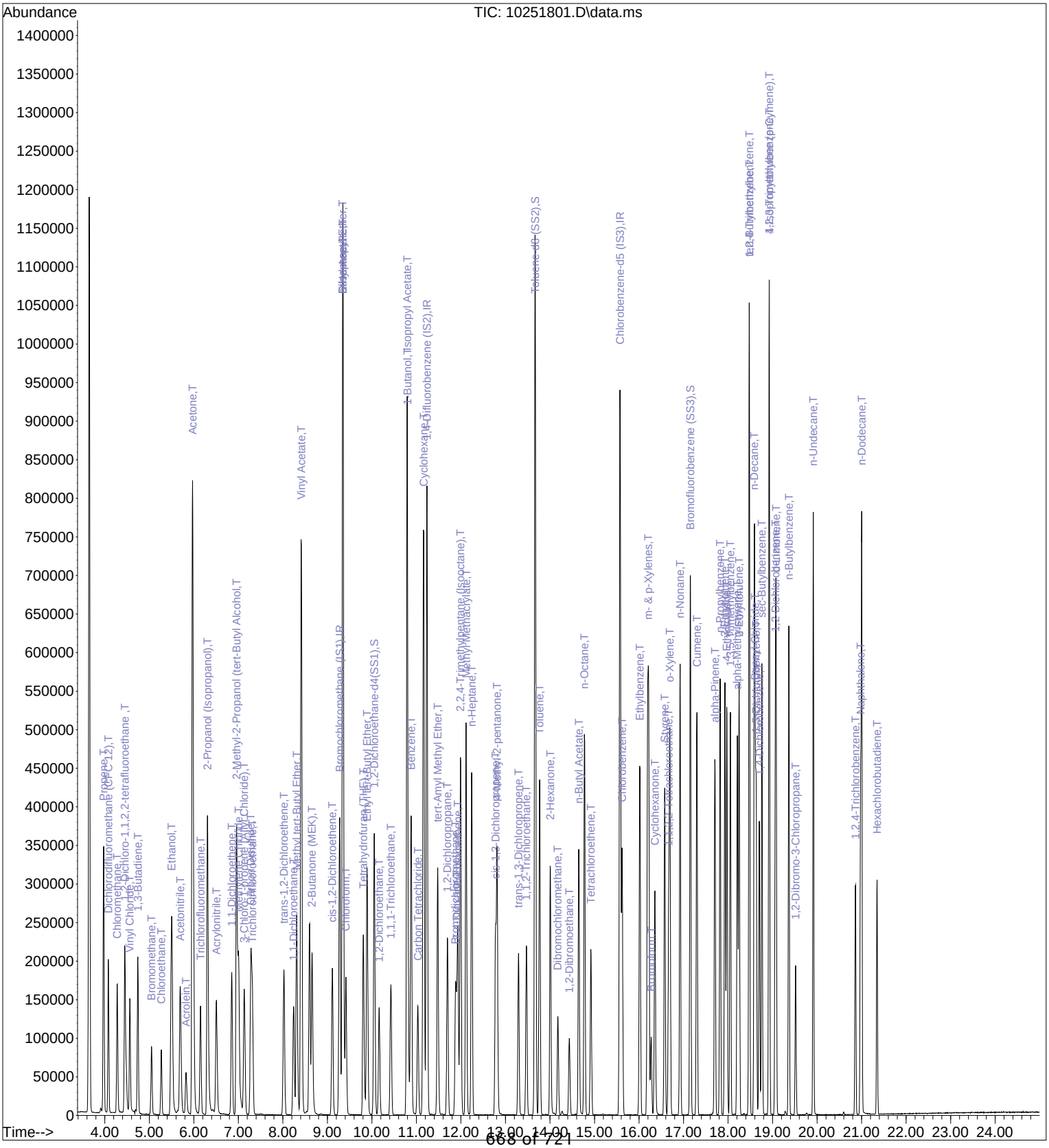
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	12.24	71	105087	4.901	ng		99
52) cis-1,3-Dichloropropene	12.78	75	162747	5.287	ng		100
53) 4-Methyl-2-pentanone	12.81	58	109162	5.393	ng		99
54) trans-1,3-Dichloropropene	13.29	75	138113	5.116	ng		100
55) 1,1,2-Trichloroethane	13.47	97	79592	4.843	ng		99
58) Toluene	13.77	91	357357	4.701	ng		99
59) 2-Hexanone	14.00	43	278788	5.841	ng		95
60) Dibromochloromethane	14.17	129	77631	4.785	ng		99
61) 1,2-Dibromoethane	14.43	107	83754	4.824	ng		100
62) n-Butyl Acetate	14.65	43	312120	5.802	ng		97
63) n-Octane	14.77	57	102478	5.429	ng		96
64) Tetrachloroethene	14.92	166	63924	4.073	ng		100
65) Chlorobenzene	15.62	112	203167	4.611	ng		99
66) Ethylbenzene	16.02	91	396202	4.759	ng		97
67) m- & p-Xylenes	16.21	91	622086	9.723	ng		97
68) Bromoform	16.27	173	52120	4.615	ng		99
69) Styrene	16.58	104	220004	4.855	ng		98
70) o-Xylene	16.69	91	315461	5.052	ng		96
71) n-Nonane	16.92	43	265049	6.036	ng		94
72) 1,1,2,2-Tetrachloroethane	16.67	83	159624	5.188	ng		100
74) Cumene	17.30	105	362004	4.795	ng		98
75) alpha-Pinene	17.71	93	194196	4.762	ng		95
76) n-Propylbenzene	17.82	91	488291	5.206	ng		96
77) 3-Ethyltoluene	17.93	105	363112	4.916	ng		97
78) 4-Ethyltoluene	17.97	105	349610	5.092	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	302563	4.977	ng		96
80) alpha-Methylstyrene	18.21	118	142739	4.738	ng		99
81) 2-Ethyltoluene	18.25	105	360460	4.978	ng		97
82) 1,2,4-Trimethylbenzene	18.48	105	308122	5.214	ng		98
83) n-Decane	18.59	58	11497	5.915	ng	#	83
84) Benzyl Chloride	18.61	91	276481	5.269	ng		95
85) 1,3-Dichlorobenzene	18.63	146	140819	4.570	ng		100
86) 1,4-Dichlorobenzene	18.70	146	142038	4.616	ng		99
87) sec-Butylbenzene	18.76	105	409303	4.952	ng		98
88) 4-Isopropyltoluene (p-...	18.92	119	348830	5.021	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	306337	5.093	ng		99
90) 1,2-Dichlorobenzene	19.06	146	135394	4.701	ng		99
91) d-Limonene	19.08	68	153651	5.022	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	43668	4.723	ng		98
93) n-Undecane	19.91	57	267674	5.700	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	79961	4.368	ng		100
95) Naphthalene	20.98	128	312425	4.526	ng		99
96) n-Dodecane	21.00	57	256582	5.949	ng		98
97) Hexachlorobutadiene	21.35	225	48503	4.237	ng		99
98) Cyclohexanone	16.36	55	158910	4.914	ng		94
99) tert-Butylbenzene	18.48	119	271712	4.958	ng		97
100) n-Butylbenzene	19.37	91	369778	5.185	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\25\10251801.D Vial: 2
Acq On : 25 Oct 2018 4:40 Operator: SC
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 25 06:44:51 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\25\10251802.D
Acq On : 25 Oct 2018 5:14 am Operator: SC
Sample : CCV C9102518_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

RS 10/25/18

Quant Time: Oct 25 08:49:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.01
2	T	Chloropentafluoroethane	1.674	1.830	-9.3	100	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.291	1.435	-11.2	102	-0.01
4	T	1,1-Difluoroethane	1.546	1.760	-13.8	103	-0.01
5	T	Chlorodifluoromethane (CFC	0.420	0.474	-12.9	104	0.00
6	T	1-Chloro-1,1-Difluoroethane	2.794	3.171	-13.5	105	0.00
7	T	Dichlorofluoromethane (CFC	3.522	3.938	-11.8	102	-0.01
8	T	Vinylbromide	1.134	1.223	-7.8	95	-0.02
9	T	2,2-Dichloro-1,1,1-trifluor	2.120	2.301	-8.5	99	-0.01
10	T	2-Methylbutane	1.809	2.160	-19.4	107	-0.01
11	T	Methyl Acetate	4.333	5.143	-18.7	108	-0.01
12	T	2-Methylpentane	1.668	1.880	-12.7	100	0.00
13	T	2,2-Dichloropropane	1.852	2.236	-20.7	99	-0.01
14	T	1,1-Dichloropropene	2.290	2.580	-12.7	100	0.00
15	T	Thiophene	3.483	3.800	-9.1	98	-0.01
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	95	-0.01
17	T	2,3-Dimethylpentane	0.696	0.795	-14.2	103	0.00
18	T	Dibromomethane	0.160	0.157	1.9	91	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	96	0.00
20	T	Methyl Cyclohexane	0.936	1.043	-11.4	103	-0.01
21	T	1,3-Dichloropropane	0.859	0.913	-6.3	100	-0.01
22	T	1,1,1,2-Tetrachloroethane	0.380	0.394	-3.7	95	0.00
23	T	1-Chlorohexane	0.738	0.787	-6.6	97	-0.01
24	T	1,2,3-Trichloropropane	0.850	0.906	-6.6	100	0.00
25	T	Bromobenzene	1.007	1.065	-5.8	98	0.00
26	T	2-Chlorotoluene	1.564	1.673	-7.0	97	0.00
27	T	4-Chlorotoluene	1.638	1.750	-6.8	97	0.00
28	T	Indane	1.650	1.772	-7.4	95	0.00
29	T	Indene	1.392	1.554	-11.6	93	0.00
30	T	1,2,4,5-Tetramethylbenzene	1.656	1.872	-13.0	92	0.00
31	T	1,2,3,4-Tetramethylbenzene	1.778	1.970	-10.8	97	0.00
32	T	1,2,3,5-Tetramethylbenzene	1.621	1.830	-12.9	94	-0.01
33	T	1,2,3-Trichlorobenzene	0.494	0.522	-5.7	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251802.D
Acq On : 25 Oct 2018 5:14 am Operator: SC
Sample : CCV C9102518_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 25 08:49:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/25/18

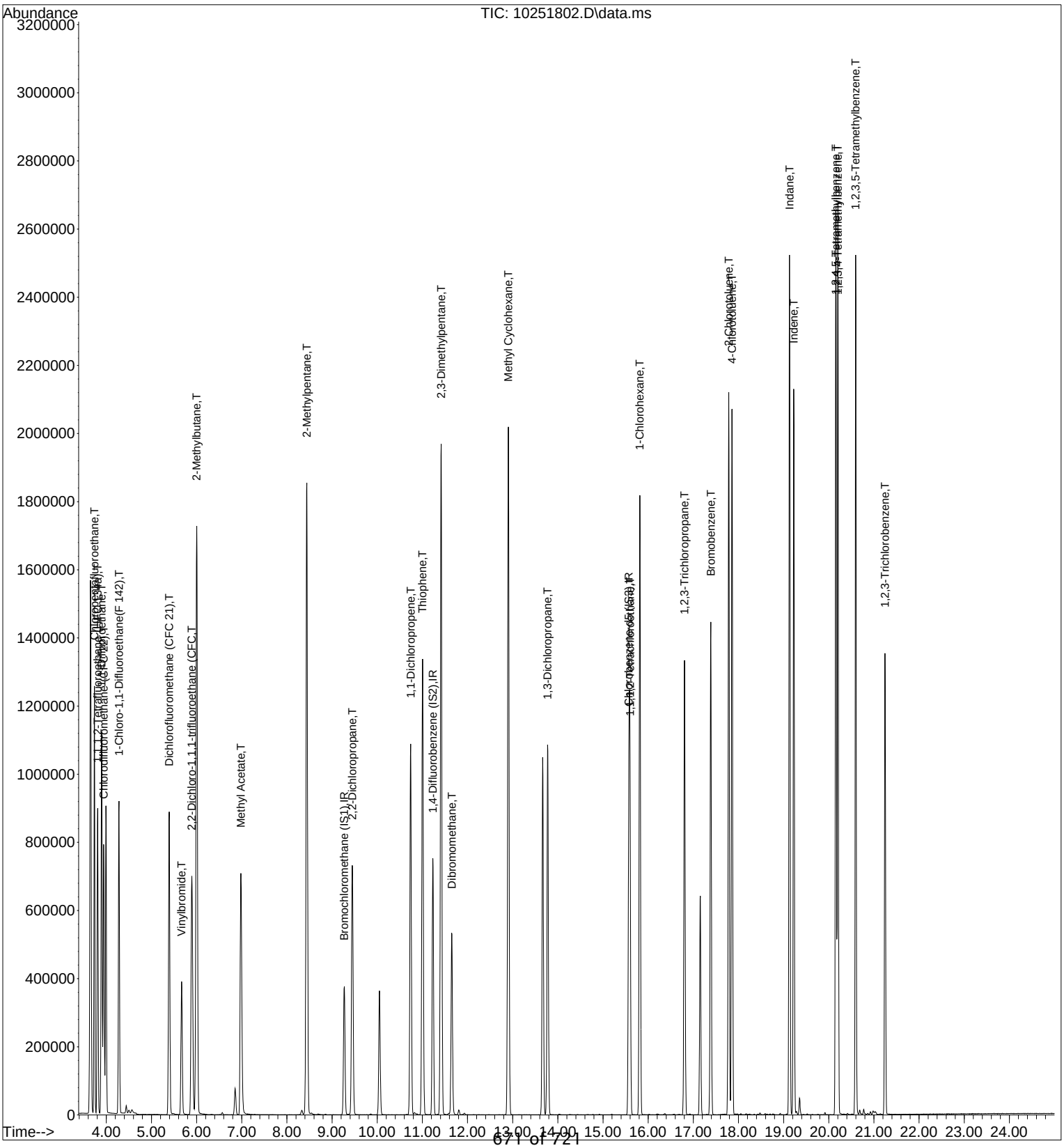
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	122811	12.500	ng	-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	608044	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	376046	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	494510	30.067	ng	97
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	352475	27.785	ng	99
4) 1,1-Difluoroethane	3.90	65	449697	29.612	ng	95
5) Chlorodifluoromethane ...	3.94	67	121159	29.360	ng	92
6) 1-Chloro-1,1-Difluoroe...	4.28	65	794486	28.943	ng	99
7) Dichlorofluoromethane ...	5.39	67	967360	27.958	ng	100
8) Vinylbromide	5.67	108	297304	26.680	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	593350	28.490	ng	100
10) 2-Methylbutane	6.00	57	535736	30.143	ng	95
11) Methyl Acetate	6.98	43	1288600	30.269	ng	97
12) 2-Methylpentane	8.44	71	457132	27.894	ng	88
13) 2,2-Dichloropropane	9.45	77	549309	30.188	ng	99
14) 1,1-Dichloropropene	10.74	75	646330	28.722	ng	96
15) Thiophene	11.00	84	924028	27.003	ng	96
17) 2,3-Dimethylpentane	11.42	56	986096	29.120	ng	97
18) Dibromomethane	11.65	174	200969	25.798	ng	92
20) Methyl Cyclohexane	12.90	55	831193	29.506	ng	95
21) 1,3-Dichloropropane	13.77	76	727773	28.175	ng	97
22) 1,1,1,2-Tetrachloroethane	15.60	131	278380	24.328	ng	99
23) 1-Chlorohexane	15.81	91	603971	27.212	ng	94
24) 1,2,3-Trichloropropane	16.80	75	701575	27.449	ng	98
25) Bromobenzene	17.39	77	833177	27.499	ng	95
26) 2-Chlorotoluene	17.78	91	1346696	28.617	ng	98
27) 4-Chlorotoluene	17.86	91	1355868	27.510	ng	98
28) Indane	19.13	117	1319145	26.573	ng	100
29) Indene	19.22	115	1098660	26.235	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	1351345	27.127	ng	98
31) 1,2,3,4-Tetramethylben...	20.20	119	1392434	26.037	ng	96
32) 1,2,3,5-Tetramethylben...	20.59	119	1307822	26.811	ng	98
33) 1,2,3-Trichlorobenzene	21.24	180	361131	24.315	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\25\10251802.D
Acq On : 25 Oct 2018 5:14 am Operator: SC
Sample : CCV C9102518_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 25 08:49:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2018_10\26\10261801.D Vial: 2
Acq On : 26 Oct 2018 4:39 Operator: RS
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

RS 10/26/18

Quant Time: Oct 26 06:39:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	95	0.01
2	T	Propene	3.160	2.351	25.6	78	0.02
3	T	Dichlorodifluoromethane (CF	3.404	2.955	13.2	89	0.02
4	T	Chloromethane	4.130	3.478	15.8	87	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.197	1.092	8.8	94	0.02
6	T	Vinyl Chloride	3.224	2.698	16.3	82	0.00
7	T	1,3-Butadiene	2.137	1.552	27.4	70	0.00
8	T	Bromomethane	1.302	1.215	6.7	103	0.00
9	T	Chloroethane	1.445	1.394	3.5	96	0.00
10	T	Ethanol	1.707	1.707	0.0	84	-0.06
11	T	Acetonitrile	4.622	4.378	5.3	78	-0.04
12	T	Acrolein	1.322	1.103	16.6	79	-0.02
13	T	Acetone	1.764	1.553	12.0	83	-0.04
14	T	Trichlorofluoromethane	2.438	2.234	8.4	91	0.01
15	T	2-Propanol (Isopropanol)	5.493	5.776	-5.2	88	-0.04
16	T	Acrylonitrile	2.996	2.798	6.6	83	-0.04
17	T	1,1-Dichloroethene	1.477	1.313	11.1	92	0.02
18	T	2-Methyl-2-Propanol (tert-B	4.805	4.812	-0.1	86	-0.03
19	T	Methylene Chloride	1.766	1.616	8.5	91	-0.01
20	T	3-Chloro-1-propene (Allyl C	3.231	2.879	10.9	78	0.00
21	T	Trichlorotrifluoroethane	0.975	0.887	9.0	99	0.02
22	T	Carbon Disulfide	6.627	6.138	7.4	91	0.01
23	T	trans-1,2-Dichloroethene	2.929	2.751	6.1	87	0.00
24	T	1,1-Dichloroethane	3.533	3.212	9.1	86	0.00
25	T	Methyl tert-Butyl Ether	5.359	5.052	5.7	89	0.02
26	T	Vinyl Acetate	0.291	0.319	-9.6	95	0.00
27	T	2-Butanone (MEK)	1.376	1.284	6.7	93	0.01
28	T	cis-1,2-Dichloroethene	2.816	2.634	6.5	97	0.01
29	T	Diisopropyl Ether	1.327	1.275	3.9	93	0.03
30	T	Ethyl Acetate	0.729	0.753	-3.3	98	0.02
31	T	n-Hexane	3.350	3.622	-8.1	99	0.04
32	T	Chloroform	2.950	2.738	7.2	99	0.01
33	S	1,2-Dichloroethane-d4(SS1)	2.168	2.286	-5.4	119	0.03
34	T	Tetrahydrofuran (THF)	1.323	1.197	9.5	103	0.04
35	T	Ethyl tert-Butyl Ether	1.948	1.856	4.7	100	0.03
36	T	1,2-Dichloroethane	2.344	2.264	3.4	113	0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	103	0.00
38	T	1,1,1-Trichloroethane	0.473	0.424	10.4	98	0.00
39	T	Isopropyl Acetate	0.257	0.255	0.8	106	0.00
40	T	1-Butanol	0.425	0.421	0.9	109	-0.02
41	T	Benzene	1.522	1.369	10.1	102	0.00
42	T	Carbon Tetrachloride	0.368	0.335	9.0	99	0.00
43	T	Cyclohexane	0.541	0.503	7.0	100	0.00
44	T	tert-Amyl Methyl Ether	1.034	0.939	9.2	102	0.00
45	T	1,2-Dichloropropane	0.429	0.378	11.9	109	0.00
46	T	Bromodichloromethane	0.456	0.416	8.8	98	0.00
47	T	Trichloroethene	0.300	0.254	15.3	90	0.00
48	T	1,4-Dioxane	0.273	0.248	9.2	93	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.873	1.726	7.8	99	0.00
50	T	Methyl Methacrylate	0.117	0.108	7.7	92	0.00
51	T	n-Heptane	0.402	0.364	9.5	103	0.01
52	T	cis-1,3-Dichloropropene	0.578	0.543	6.1	104	0.01
53	T	4-Methyl-2-pentanone	0.380	0.376	1.1	109	0.01
54	T	trans-1,3-Dichloropropene	0.506	0.484	4.3	94	0.02
55	T	1,1,2-Trichloroethane	0.308	0.276	10.4	94	0.02

Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2018_10\26\10261801.D Vial: 2
Acq On : 26 Oct 2018 4:39 Operator: RS
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 26 06:39:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	106	0.00
57	S	Toluene-d8 (SS2)	2.184	2.162	1.0	105	0.00
58	T	Toluene	2.442	2.163	11.4	99	0.00
59	T	2-Hexanone	1.533	1.620	-5.7	118	0.00
60	T	Dibromochloromethane	0.521	0.458	12.1	93	0.00
61	T	1,2-Dibromoethane	0.558	0.494	11.5	96	0.00
62	T	n-Butyl Acetate	1.728	1.818	-5.2	120	0.00
63	T	n-Octane	0.606	0.603	0.5	112	0.00
64	T	Tetrachloroethene	0.504	0.389	22.8	87	0.00
65	T	Chlorobenzene	1.416	1.224	13.6	94	0.00
66	T	Ethylbenzene	2.675	2.435	9.0	99	0.00
67	T	m- & p-Xylenes	2.055	1.858	9.6	100	0.00
68	T	Bromoform	0.363	0.312	14.0	87	0.00
69	T	Styrene	1.456	1.330	8.7	94	0.00
70	T	o-Xylene	2.006	1.891	5.7	100	0.00
71	T	n-Nonane	1.411	1.568	-11.1	120	0.00
72	T	1,1,2,2-Tetrachloroethane	0.988	0.958	3.0	102	0.00
73	S	Bromofluorobenzene (SS3)	0.491	0.460	6.3	99	0.00
74	T	Cumene	2.425	2.175	10.3	93	0.00
75	T	alpha-Pinene	1.310	1.198	8.5	89	0.00
76	T	n-Propylbenzene	3.013	2.889	4.1	95	0.00
77	T	3-Ethyltoluene	2.373	2.170	8.6	90	0.00
78	T	4-Ethyltoluene	2.206	2.098	4.9	97	0.00
79	T	1,3,5-Trimethylbenzene	1.953	1.815	7.1	94	0.00
80	T	alpha-Methylstyrene	0.968	0.860	11.2	88	0.00
81	T	2-Ethyltoluene	2.326	2.147	7.7	93	0.00
82	T	1,2,4-Trimethylbenzene	1.898	1.841	3.0	97	0.00
83	T	n-Decane	0.062	0.068	-9.7	116	0.00
84	T	Benzyl Chloride	1.686	1.652	2.0	101	0.00
85	T	1,3-Dichlorobenzene	0.990	0.832	16.0	89	0.00
86	T	1,4-Dichlorobenzene	0.988	0.840	15.0	89	0.00
87	T	sec-Butylbenzene	2.655	2.459	7.4	96	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.232	2.109	5.5	94	0.00
89	T	1,2,3-Trimethylbenzene	1.932	1.863	3.6	97	0.00
90	T	1,2-Dichlorobenzene	0.925	0.793	14.3	89	0.00
91	T	d-Limonene	0.983	0.962	2.1	103	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.297	0.265	10.8	88	0.00
93	T	n-Undecane	1.509	1.621	-7.4	113	0.00
94	T	1,2,4-Trichlorobenzene	0.588	0.475	19.2	85	0.00
95	T	Naphthalene	2.218	1.911	13.8	86	0.00
96	T	n-Dodecane	1.386	1.585	-14.4	117	0.00
97	T	Hexachlorobutadiene	0.368	0.296	19.6	85	0.00
98	T	Cyclohexanone	1.039	1.012	2.6	111	0.00
99	T	tert-Butylbenzene	1.761	1.639	6.9	94	0.00
100	T	n-Butylbenzene	2.291	2.194	4.2	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261801.D Vial: 2
Acq On : 26 Oct 2018 4:39 Operator: RS
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 26 06:39:08 2018 RS 10/26/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	125872	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	11.24	114	648355	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380860	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	287715	13.180	ng		0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.44%				
57) Toluene-d8 (SS2)	13.66	98	823268	12.373	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
73) Bromofluorobenzene (SS3)	17.16	174	175356	11.714	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.68%				
Target Compounds							Qvalue
2) Propene	3.97	42	122059	3.836	ng		99
3) Dichlorodifluoromethan...	4.08	85	155464	4.536	ng		100
4) Chloromethane	4.28	50	176512	4.244	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	56520	4.687	ng		99
6) Vinyl Chloride	4.56	62	142748	4.396	ng		100
7) 1,3-Butadiene	4.74	54	81991	3.811	ng		98
8) Bromomethane	5.05	94	61726	4.709	ng		100
9) Chloroethane	5.26	64	71709	4.928	ng		99
10) Ethanol	5.50	45	441802	25.697	ng		100
11) Acetonitrile	5.69	41	227689	4.892	ng		99
12) Acrolein	5.82	56	57069	4.287	ng		99
13) Acetone	5.97	58	420010	23.641	ng		86
14) Trichlorofluoromethane	6.15	101	119230	4.856	ng		99
15) 2-Propanol (Isopropanol)	6.30	45	599909	10.847	ng		97
16) Acrylonitrile	6.50	53	145690	4.828	ng		99
17) 1,1-Dichloroethene	6.85	96	71019	4.776	ng	#	81
18) 2-Methyl-2-Propanol (t...	6.96	59	519497	10.736	ng		95
19) Methylene Chloride	7.00	84	87046	4.895	ng		82
20) 3-Chloro-1-propene (Al...	7.13	41	154640	4.753	ng		91
21) Trichlorotrifluoroethane	7.31	151	47551	4.844	ng		86
22) Carbon Disulfide	7.28	76	332232	4.979	ng		99
23) trans-1,2-Dichloroethene	8.02	61	147090	4.988	ng		91
24) 1,1-Dichloroethane	8.24	63	166547	4.682	ng		99
25) Methyl tert-Butyl Ether	8.31	73	276981	5.133	ng		99
26) Vinyl Acetate	8.41	86	84372	28.837	ng		97
27) 2-Butanone (MEK)	8.65	72	66372	4.789	ng	#	86
28) cis-1,2-Dichloroethene	9.11	61	139787	4.930	ng		95
29) Diisopropyl Ether	9.34	87	69385	5.194	ng	#	94
30) Ethyl Acetate	9.35	61	82070	11.185	ng		99
31) n-Hexane	9.35	57	197308	5.848	ng		98
32) Chloroform	9.42	83	148451	4.997	ng		99
34) Tetrahydrofuran (THF)	9.81	72	64357	4.832	ng		94
35) Ethyl tert-Butyl Ether	9.89	87	99045	5.048	ng		95
36) 1,2-Dichloroethane	10.16	62	120966	5.125	ng		100
38) 1,1,1-Trichloroethane	10.43	97	118973	4.851	ng		98
39) Isopropyl Acetate	10.79	61	136414	10.216	ng	#	97
40) 1-Butanol	10.80	56	225903	10.247	ng		97
41) Benzene	10.88	78	366738	4.645	ng		99
42) Carbon Tetrachloride	11.03	117	90044	4.715	ng		99
43) Cyclohexane	11.16	84	272308	9.707	ng		97
44) tert-Amyl Methyl Ether	11.48	73	261616	4.880	ng		98
45) 1,2-Dichloropropane	11.69	63	105299	4.735	ng		99
46) Bromodichloromethane	11.87	83	115108	4.865	ng		100
47) Trichloroethene	11.93	130	70044	4.506	ng		99
48) 1,4-Dioxane	11.91	88	68389	4.827	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	474949	4.890	ng		99
50) Methyl Methacrylate	12.11	100	59854	9.831	ng		100

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261801.D Vial: 2
Acq On : 26 Oct 2018 4:39 Operator: RS
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 26 06:39:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

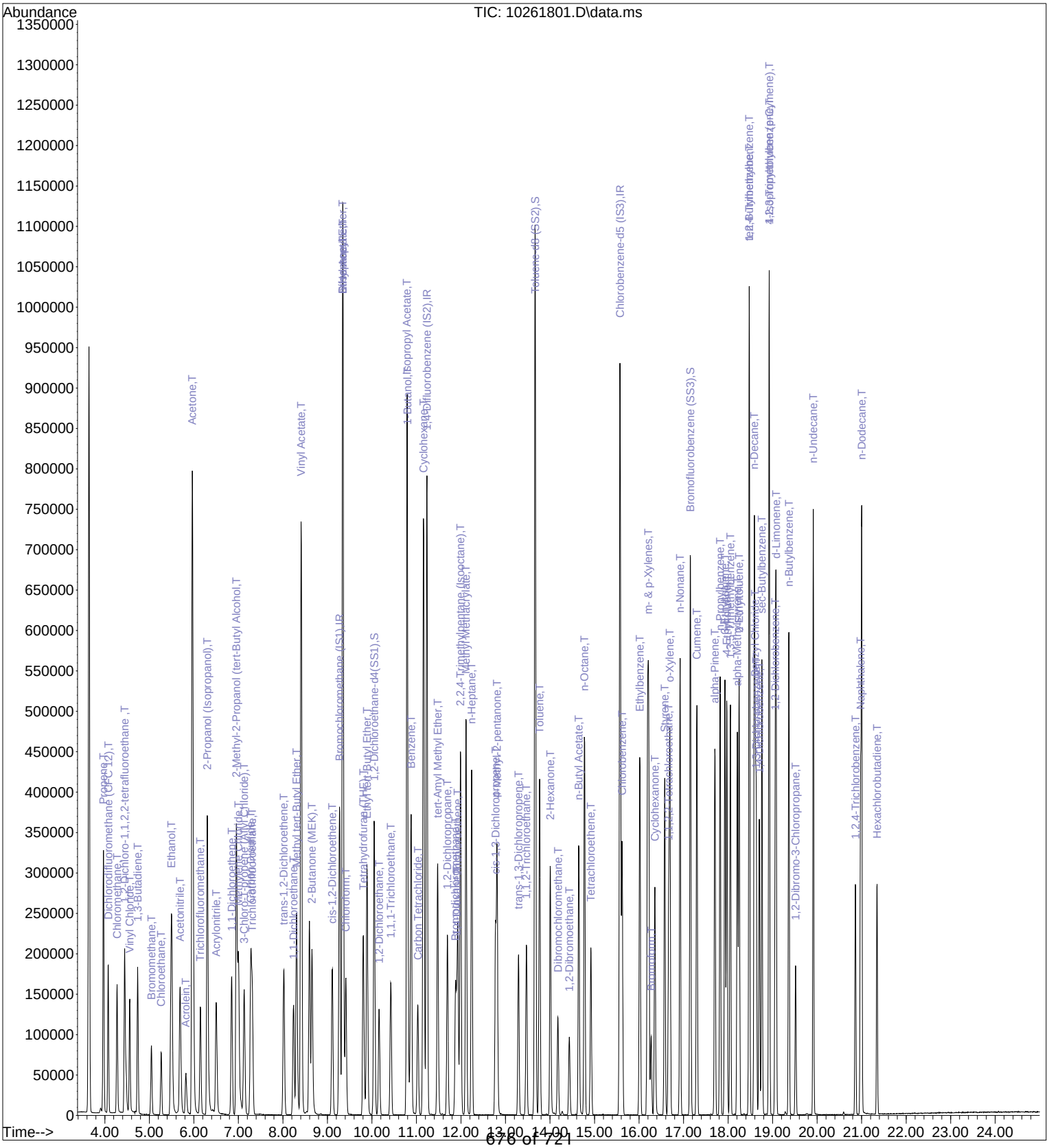
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	12.24	71	101530	4.866	ng		99
52) cis-1,3-Dichloropropene	12.78	75	157616	5.261	ng		100
53) 4-Methyl-2-pentanone	12.81	58	103297	5.244	ng		98
54) trans-1,3-Dichloropropene	13.29	75	132404	5.040	ng		99
55) 1,1,2-Trichloroethane	13.47	97	76922	4.810	ng		99
58) Toluene	13.77	91	346661	4.659	ng		99
59) 2-Hexanone	14.00	43	265033	5.673	ng		96
60) Dibromochloromethane	14.18	129	75002	4.722	ng		99
61) 1,2-Dibromoethane	14.43	107	80950	4.763	ng		99
62) n-Butyl Acetate	14.64	43	300449	5.706	ng		97
63) n-Octane	14.77	57	98819	5.348	ng		96
64) Tetrachloroethene	14.92	166	62733	4.084	ng		99
65) Chlorobenzene	15.62	112	198808	4.610	ng		99
66) Ethylbenzene	16.02	91	383220	4.703	ng		97
67) m- & p-Xylenes	16.21	91	600851	9.594	ng		97
68) Bromoform	16.27	173	50572	4.575	ng		99
69) Styrene	16.58	104	214839	4.844	ng		98
70) o-Xylene	16.69	91	305912	5.006	ng		95
71) n-Nonane	16.92	43	255766	5.951	ng		95
72) 1,1,2,2-Tetrachloroethane	16.67	83	155258	5.156	ng		100
74) Cumene	17.30	105	350247	4.740	ng		99
75) alpha-Pinene	17.70	93	188818	4.730	ng		96
76) n-Propylbenzene	17.82	91	473618	5.159	ng		96
77) 3-Ethyltoluene	17.93	105	351062	4.855	ng		97
78) 4-Ethyltoluene	17.97	105	339101	5.046	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	292254	4.912	ng		97
80) alpha-Methylstyrene	18.21	118	138588	4.699	ng		100
81) 2-Ethyltoluene	18.25	105	350637	4.947	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	299588	5.180	ng		97
83) n-Decane	18.59	58	11173	5.873	ng	#	82
84) Benzyl Chloride	18.61	91	264530	5.150	ng		96
85) 1,3-Dichlorobenzene	18.64	146	136937	4.540	ng		99
86) 1,4-Dichlorobenzene	18.70	146	138355	4.594	ng		100
87) sec-Butylbenzene	18.76	105	398156	4.921	ng		98
88) 4-Isopropyltoluene (p-...	18.92	119	334838	4.924	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	295725	5.023	ng		99
90) 1,2-Dichlorobenzene	19.06	146	131487	4.664	ng		99
91) d-Limonene	19.08	68	147990	4.942	ng		100
92) 1,2-Dibromo-3-Chloropr...	19.52	157	42028	4.644	ng		97
93) n-Undecane	19.91	57	260951	5.677	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	77032	4.299	ng		100
95) Naphthalene	20.98	128	298448	4.417	ng		99
96) n-Dodecane	21.00	57	248936	5.896	ng		98
97) Hexachlorobutadiene	21.35	225	47563	4.245	ng		99
98) Cyclohexanone	16.36	55	151428	4.784	ng		94
99) tert-Butylbenzene	18.48	119	266375	4.965	ng		97
100) n-Butylbenzene	19.37	91	355691	5.095	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261801.D Vial: 2
Acq On : 26 Oct 2018 4:39 Operator: RS
Sample : CCV R9102518_5.0ng Inst : MS09
Misc : S31-10151806/S31-10151808 (11/13)

Quant Time: Oct 26 06:39:08 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File : I:\MS09\Data\2018_10\26\10261802.D Vial: 3
Acq On : 26 Oct 2018 5:13 Operator: RS
Sample : CCV C9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10201804 (11/20)

RS 10/26/18

Quant Time: Oct 26 07:21:20 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	93	-0.01
2	T	Chloropentafluoroethane	1.674	1.794	-7.2	99	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.291	1.400	-8.4	101	-0.01
4	T	1,1-Difluoroethane	1.546	1.722	-11.4	102	-0.01
5	T	Chlorodifluoromethane (CFC	0.420	0.461	-9.8	102	0.00
6	T	1-Chloro-1,1-Difluoroethane	2.794	3.105	-11.1	104	0.00
7	T	Dichlorofluoromethane (CFC	3.522	3.820	-8.5	100	-0.01
8	T	Vinylbromide	1.134	1.191	-5.0	93	-0.02
9	T	2,2-Dichloro-1,1,1-trifluor	2.120	2.218	-4.6	96	-0.01
10	T	2-Methylbutane	1.809	2.120	-17.2	106	-0.01
11	T	Methyl Acetate	4.333	5.016	-15.8	106	-0.01
12	T	2-Methylpentane	1.668	1.842	-10.4	99	0.00
13	T	2,2-Dichloropropane	1.852	2.216	-19.7	99	-0.01
14	T	1,1-Dichloropropene	2.290	2.529	-10.4	99	0.00
15	T	Thiophene	3.483	3.717	-6.7	97	-0.01
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	95	-0.01
17	T	2,3-Dimethylpentane	0.696	0.787	-13.1	102	0.00
18	T	Dibromomethane	0.160	0.156	2.5	91	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
20	T	Methyl Cyclohexane	0.936	1.028	-9.8	102	0.00
21	T	1,3-Dichloropropane	0.859	0.896	-4.3	99	-0.01
22	T	1,1,1,2-Tetrachloroethane	0.380	0.387	-1.8	94	-0.01
23	T	1-Chlorohexane	0.738	0.770	-4.3	96	-0.01
24	T	1,2,3-Trichloropropane	0.850	0.891	-4.8	99	0.00
25	T	Bromobenzene	1.007	1.050	-4.3	97	0.00
26	T	2-Chlorotoluene	1.564	1.647	-5.3	97	0.00
27	T	4-Chlorotoluene	1.638	1.720	-5.0	96	0.00
28	T	Indane	1.650	1.742	-5.6	94	0.00
29	T	Indene	1.392	1.510	-8.5	91	0.00
30	T	1,2,4,5-Tetramethylbenzene	1.656	1.836	-10.9	91	0.00
31	T	1,2,3,4-Tetramethylbenzene	1.778	1.936	-8.9	96	0.00
32	T	1,2,3,5-Tetramethylbenzene	1.621	1.796	-10.8	93	-0.01
33	T	1,2,3-Trichlorobenzene	0.494	0.516	-4.5	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261802.D Vial: 3
Acq On : 26 Oct 2018 5:13 Operator: RS
Sample : CCV C9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10201804 (11/20)

RS 10/26/18

Quant Time: Oct 26 07:21:20 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

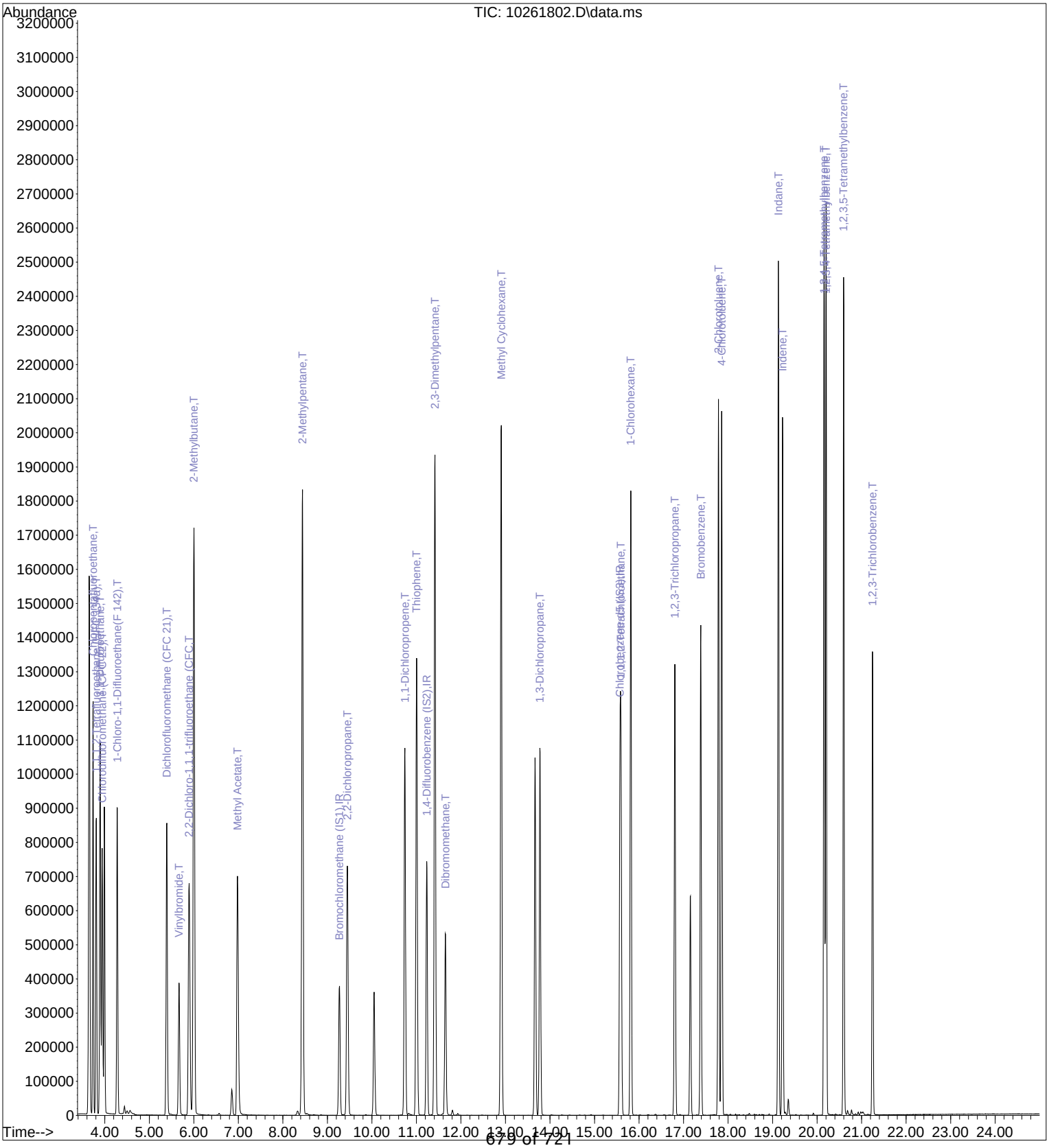
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	124160	12.500	ng	-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	609230	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	378706	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	489985	29.468	ng	98
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	347607	27.104	ng	99
4) 1,1-Difluoroethane	3.90	65	444662	28.962	ng	94
5) Chlorodifluoromethane ...	3.94	67	119087	28.545	ng	92
6) 1-Chloro-1,1-Difluoroe...	4.28	65	786431	28.338	ng	99
7) Dichlorofluoromethane ...	5.39	67	948666	27.120	ng	100
8) Vinylbromide	5.67	108	292734	25.984	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	578390	27.470	ng	99
10) 2-Methylbutane	6.00	57	531767	29.594	ng	96
11) Methyl Acetate	6.98	43	1270397	29.517	ng	97
12) 2-Methylpentane	8.44	71	452884	27.335	ng	89
13) 2,2-Dichloropropane	9.45	77	550179	29.907	ng	99
14) 1,1-Dichloropropene	10.74	75	640572	28.156	ng	96
15) Thiophene	11.00	84	913880	26.417	ng	96
17) 2,3-Dimethylpentane	11.42	56	977507	28.810	ng	97
18) Dibromomethane	11.65	174	200039	25.629	ng	93
20) Methyl Cyclohexane	12.91	55	825309	29.091	ng	95
21) 1,3-Dichloropropane	13.77	76	719067	27.642	ng	96
22) 1,1,1,2-Tetrachloroethane	15.59	131	275841	23.937	ng	99
23) 1-Chlorohexane	15.81	91	594829	26.612	ng	94
24) 1,2,3-Trichloropropane	16.80	75	695006	27.001	ng	98
25) Bromobenzene	17.39	77	827106	27.107	ng	95
26) 2-Chlorotoluene	17.78	91	1334920	28.167	ng	98
27) 4-Chlorotoluene	17.86	91	1342195	27.042	ng	99
28) Indane	19.13	117	1306069	26.124	ng	100
29) Indene	19.22	115	1075295	25.497	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	1334914	26.609	ng	98
31) 1,2,3,4-Tetramethylben...	20.20	119	1378544	25.596	ng	97
32) 1,2,3,5-Tetramethylben...	20.59	119	1292022	26.301	ng	99
33) 1,2,3-Trichlorobenzene	21.24	180	359831	24.057	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\26\10261802.D Vial: 3
Acq On : 26 Oct 2018 5:13 Operator: RS
Sample : CCV C9102518_25ng Inst : MS09
Misc : S31-10151806/S31-10201804 (11/20)

Quant Time: Oct 26 07:21:20 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\27\10271801.D
Acq On : 27 Oct 2018 2:08 Operator: RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/27/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	91	0.02
2	T	Propene	3.160	2.448	22.5	78	0.03
3	T	Dichlorodifluoromethane (CF	3.404	2.999	11.9	87	0.02
4	T	Chloromethane	4.130	3.595	13.0	86	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.197	1.096	8.4	91	0.02
6	T	Vinyl Chloride	3.224	2.757	14.5	80	0.00
7	T	1,3-Butadiene	2.137	1.463	31.5#	63	0.00
8	T	Bromomethane	1.302	1.203	7.6	98	0.00
9	T	Chloroethane	1.445	1.424	1.5	94	0.00
10	T	Ethanol	1.707	1.727	-1.2	81	-0.06
11	T	Acetonitrile	4.622	4.476	3.2	76	-0.04
12	T	Acrolein	1.322	1.092	17.4	75	-0.02
13	T	Acetone	1.764	1.574	10.8	81	-0.04
14	T	Trichlorofluoromethane	2.438	2.247	7.8	87	0.01
15	T	2-Propanol (Isopropanol)	5.493	5.884	-7.1	85	-0.04
16	T	Acrylonitrile	2.996	2.834	5.4	80	-0.03
17	T	1,1-Dichloroethene	1.477	1.292	12.5	87	0.02
18	T	2-Methyl-2-Propanol (tert-B	4.805	4.857	-1.1	83	-0.03
19	T	Methylene Chloride	1.766	1.614	8.6	87	0.00
20	T	3-Chloro-1-propene (Allyl C	3.231	2.927	9.4	76	0.00
21	T	Trichlorotrifluoroethane	0.975	0.876	10.2	93	0.03
22	T	Carbon Disulfide	6.627	6.078	8.3	86	0.01
23	T	trans-1,2-Dichloroethene	2.929	2.775	5.3	84	0.00
24	T	1,1-Dichloroethane	3.533	3.266	7.6	84	0.00
25	T	Methyl tert-Butyl Ether	5.359	4.994	6.8	84	0.03
26	T	Vinyl Acetate	0.291	0.320	-10.0	91	0.00
27	T	2-Butanone (MEK)	1.376	1.281	6.9	89	0.01
28	T	cis-1,2-Dichloroethene	2.816	2.655	5.7	94	0.01
29	T	Diisopropyl Ether	1.327	1.256	5.4	88	0.03
30	T	Ethyl Acetate	0.729	0.745	-2.2	93	0.01
31	T	n-Hexane	3.350	3.610	-7.8	95	0.04
32	T	Chloroform	2.950	2.746	6.9	95	0.01
33	S	1,2-Dichloroethane-d4(SS1)	2.168	2.360	-8.9	118	0.02
34	T	Tetrahydrofuran (THF)	1.323	1.194	9.8	99	0.03
35	T	Ethyl tert-Butyl Ether	1.948	1.814	6.9	94	0.03
36	T	1,2-Dichloroethane	2.344	2.280	2.7	109	0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	100	0.00
38	T	1,1,1-Trichloroethane	0.473	0.416	12.1	93	0.00
39	T	Isopropyl Acetate	0.257	0.250	2.7	101	0.00
40	T	1-Butanol	0.425	0.419	1.4	105	-0.02
41	T	Benzene	1.522	1.343	11.8	97	0.00
42	T	Carbon Tetrachloride	0.368	0.330	10.3	95	0.00
43	T	Cyclohexane	0.541	0.491	9.2	95	0.01
44	T	tert-Amyl Methyl Ether	1.034	0.913	11.7	96	0.00
45	T	1,2-Dichloropropane	0.429	0.379	11.7	106	0.00
46	T	Bromodichloromethane	0.456	0.407	10.7	93	0.00
47	T	Trichloroethene	0.300	0.247	17.7	84	0.00
48	T	1,4-Dioxane	0.273	0.242	11.4	88	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.873	1.718	8.3	96	0.00
50	T	Methyl Methacrylate	0.117	0.106	9.4	88	0.00
51	T	n-Heptane	0.402	0.357	11.2	98	0.01
52	T	cis-1,3-Dichloropropene	0.578	0.531	8.1	98	0.01
53	T	4-Methyl-2-pentanone	0.380	0.374	1.6	105	0.01
54	T	trans-1,3-Dichloropropene	0.506	0.477	5.7	90	0.02

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\27\10271801.D
Acq On : 27 Oct 2018 2:08 Operator: RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	1,1,2-Trichloroethane	0.308	0.271	12.0	90	0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	105	0.00
57	S	Toluene-d8 (SS2)	2.184	2.119	3.0	103	0.00
58	T	Toluene	2.442	2.051	16.0	93	0.00
59	T	2-Hexanone	1.533	1.595	-4.0	115	0.00
60	T	Dibromochloromethane	0.521	0.439	15.7	88	0.00
61	T	1,2-Dibromoethane	0.558	0.463	17.0	89	0.00
62	T	n-Butyl Acetate	1.728	1.767	-2.3	116	0.00
63	T	n-Octane	0.606	0.581	4.1	107	0.00
64	T	Tetrachloroethene	0.504	0.359	28.8	80	0.00
65	T	Chlorobenzene	1.416	1.147	19.0	88	0.00
66	T	Ethylbenzene	2.675	2.300	14.0	93	0.00
67	T	m- & p-Xylenes	2.055	1.764	14.2	94	0.00
68	T	Bromoform	0.363	0.296	18.5	82	0.00
69	T	Styrene	1.456	1.243	14.6	87	0.00
70	T	o-Xylene	2.006	1.791	10.7	95	0.00
71	T	n-Nonane	1.411	1.534	-8.7	117	0.00
72	T	1,1,2,2-Tetrachloroethane	0.988	0.925	6.4	98	0.00
73	S	Bromofluorobenzene (SS3)	0.491	0.453	7.7	97	0.00
74	T	Cumene	2.425	2.046	15.6	87	0.00
75	T	alpha-Pinene	1.310	1.133	13.5	84	0.00
76	T	n-Propylbenzene	3.013	2.755	8.6	90	0.00
77	T	3-Ethyltoluene	2.373	2.043	13.9	84	0.00
78	T	4-Ethyltoluene	2.206	1.996	9.5	92	0.00
79	T	1,3,5-Trimethylbenzene	1.953	1.737	11.1	90	0.00
80	T	alpha-Methylstyrene	0.968	0.802	17.1	82	0.00
81	T	2-Ethyltoluene	2.326	2.037	12.4	88	0.00
82	T	1,2,4-Trimethylbenzene	1.898	1.756	7.5	92	0.00
83	T	n-Decane	0.062	0.065	-4.8	111	0.00
84	T	Benzyl Chloride	1.686	1.603	4.9	97	0.00
85	T	1,3-Dichlorobenzene	0.990	0.791	20.1	84	0.00
86	T	1,4-Dichlorobenzene	0.988	0.783	20.7	83	0.00
87	T	sec-Butylbenzene	2.655	2.327	12.4	91	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.232	2.013	9.8	89	0.00
89	T	1,2,3-Trimethylbenzene	1.932	1.773	8.2	92	0.00
90	T	1,2-Dichlorobenzene	0.925	0.750	18.9	84	0.00
91	T	d-Limonene	0.983	0.935	4.9	99	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.297	0.248	16.5	82	0.00
93	T	n-Undecane	1.509	1.579	-4.6	110	0.00
94	T	1,2,4-Trichlorobenzene	0.588	0.446	24.1	79	0.00
95	T	Naphthalene	2.218	1.814	18.2	81	0.00
96	T	n-Dodecane	1.386	1.569	-13.2	115	0.00
97	T	Hexachlorobutadiene	0.368	0.278	24.5	79	0.00
98	T	Cyclohexanone	1.039	0.979	5.8	107	0.00
99	T	tert-Butylbenzene	1.761	1.533	12.9	87	0.00
100	T	n-Butylbenzene	2.291	2.104	8.2	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271801.D
Acq On : 27 Oct 2018 2:08 Operator: RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

VOA 10/27/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	120482	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	11.24	114	627729	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	379410	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	284339	13.608	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 108.88%				
57) Toluene-d8 (SS2)	13.66	98	803916	12.128	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.04%				
73) Bromofluorobenzene (SS3)	17.16	174	171913	11.528	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.24%				
Target Compounds							Qvalue
2) Propene	3.97	42	121645	3.994	ng		99
3) Dichlorodifluoromethan...	4.08	85	151057	4.604	ng		99
4) Chloromethane	4.28	50	174660	4.387	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	54292	4.704	ng		99
6) Vinyl Chloride	4.56	62	139641	4.493	ng		100
7) 1,3-Butadiene	4.74	54	73974	3.592	ng		99
8) Bromomethane	5.05	94	58513	4.663	ng		99
9) Chloroethane	5.27	64	70149	5.036	ng		99
10) Ethanol	5.50	45	427847	25.998	ng		100
11) Acetonitrile	5.69	41	222854	5.002	ng		99
12) Acrolein	5.82	56	54082	4.245	ng		99
13) Acetone	5.97	58	407215	23.947	ng		86
14) Trichlorofluoromethane	6.15	101	114771	4.883	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	584999	11.050	ng		96
16) Acrylonitrile	6.51	53	141212	4.889	ng		100
17) 1,1-Dichloroethene	6.85	96	66876	4.698	ng	#	77
18) 2-Methyl-2-Propanol (t...	6.96	59	501801	10.834	ng		95
19) Methylene Chloride	7.01	84	83226	4.889	ng	#	78
20) 3-Chloro-1-propene (Al...	7.13	41	150495	4.833	ng		90
21) Trichlorotrifluoroethane	7.32	151	44960	4.785	ng		85
22) Carbon Disulfide	7.28	76	314873	4.930	ng		99
23) trans-1,2-Dichloroethene	8.02	61	142015	5.031	ng		88
24) 1,1-Dichloroethane	8.24	63	162097	4.761	ng		100
25) Methyl tert-Butyl Ether	8.31	73	262078	5.074	ng		99
26) Vinyl Acetate	8.41	86	81014	28.928	ng	#	88
27) 2-Butanone (MEK)	8.65	72	63410	4.780	ng	#	81
28) cis-1,2-Dichloroethene	9.11	61	134865	4.969	ng		93
29) Diisopropyl Ether	9.34	87	65431	5.117	ng		99
30) Ethyl Acetate	9.34	61	77754	11.071	ng		98
31) n-Hexane	9.35	57	188227	5.829	ng		100
32) Chloroform	9.42	83	142518	5.012	ng		99
34) Tetrahydrofuran (THF)	9.80	72	61434	4.819	ng		95
35) Ethyl tert-Butyl Ether	9.89	87	92662	4.934	ng		98
36) 1,2-Dichloroethane	10.16	62	116579	5.160	ng		99
38) 1,1,1-Trichloroethane	10.43	97	112903	4.755	ng		99
39) Isopropyl Acetate	10.79	61	129585	10.023	ng	#	99
40) 1-Butanol	10.80	56	217391	10.185	ng		95
41) Benzene	10.88	78	348419	4.558	ng		99
42) Carbon Tetrachloride	11.03	117	85957	4.649	ng		100
43) Cyclohexane	11.16	84	257451	9.479	ng		99
44) tert-Amyl Methyl Ether	11.48	73	246079	4.741	ng		98
45) 1,2-Dichloropropane	11.69	63	101998	4.737	ng		100
46) Bromodichloromethane	11.87	83	109226	4.768	ng		100
47) Trichloroethene	11.93	130	65757	4.370	ng		100
48) 1,4-Dioxane	11.91	88	64733	4.719	ng		99
49) 2,2,4-Trimethylpentane...	11.99	57	457730	4.868	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271801.D
Acq On : 27 Oct 2018 2:08 Operator: RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

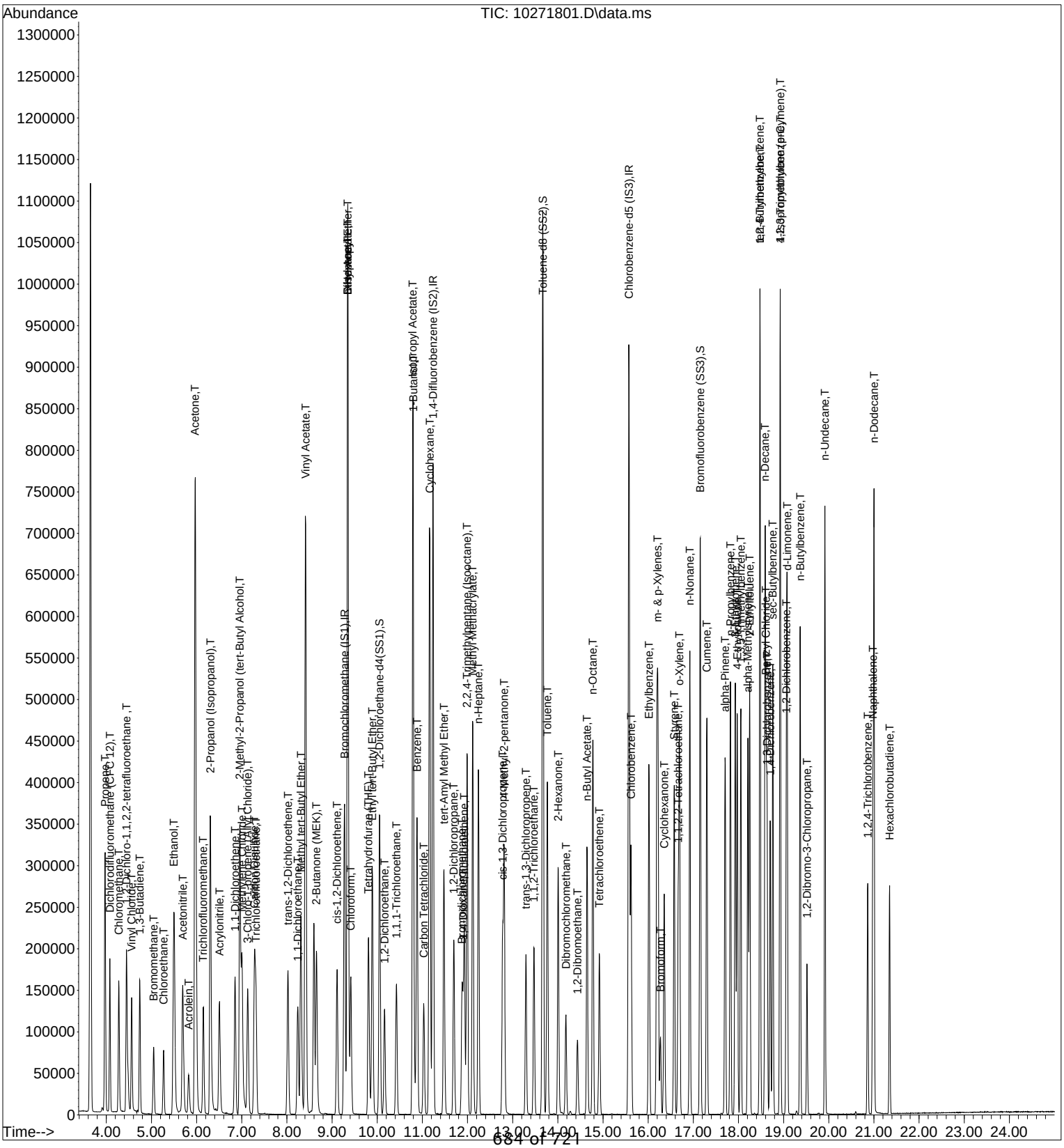
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	56984	9.668	ng		99
51) n-Heptane	12.24	71	96368	4.770	ng		99
52) cis-1,3-Dichloropropene	12.78	75	149467	5.153	ng		100
53) 4-Methyl-2-pentanone	12.81	58	99491	5.217	ng		97
54) trans-1,3-Dichloropropene	13.29	75	126260	4.964	ng		99
55) 1,1,2-Trichloroethane	13.47	97	73349	4.737	ng		99
58) Toluene	13.77	91	327447	4.418	ng		99
59) 2-Hexanone	14.00	43	259999	5.586	ng		94
60) Dibromochloromethane	14.18	129	71680	4.531	ng		99
61) 1,2-Dibromoethane	14.43	107	75581	4.464	ng		100
62) n-Butyl Acetate	14.64	43	290913	5.546	ng		96
63) n-Octane	14.77	57	94888	5.155	ng		96
64) Tetrachloroethene	14.92	166	57702	3.771	ng		99
65) Chlorobenzene	15.62	112	185625	4.320	ng		99
66) Ethylbenzene	16.02	91	360528	4.441	ng		96
67) m- & p-Xylenes	16.21	91	568445	9.112	ng		96
68) Bromoform	16.27	173	47696	4.331	ng		99
69) Styrene	16.58	104	199973	4.526	ng		98
70) o-Xylene	16.69	91	288659	4.741	ng		96
71) n-Nonane	16.92	43	249279	5.822	ng		93
72) 1,1,2,2-Tetrachloroethane	16.67	83	149407	4.980	ng		98
74) Cumene	17.30	105	328128	4.457	ng		98
75) alpha-Pinene	17.70	93	177954	4.475	ng		95
76) n-Propylbenzene	17.82	91	449890	4.919	ng		96
77) 3-Ethyltoluene	17.93	105	329321	4.572	ng		96
78) 4-Ethyltoluene	17.98	105	321430	4.801	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	278652	4.701	ng		96
80) alpha-Methylstyrene	18.21	118	128819	4.385	ng		99
81) 2-Ethyltoluene	18.25	105	331385	4.693	ng		97
82) 1,2,4-Trimethylbenzene	18.48	105	284667	4.940	ng		97
83) n-Decane	18.59	58	10685	5.638	ng	#	81
84) Benzyl Chloride	18.61	91	255705	4.997	ng		95
85) 1,3-Dichlorobenzene	18.64	146	129571	4.312	ng		99
86) 1,4-Dichlorobenzene	18.70	146	128516	4.284	ng		99
87) sec-Butylbenzene	18.76	105	375375	4.657	ng		97
88) 4-Isopropyltoluene (p-...	18.92	119	318333	4.699	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	280343	4.780	ng		98
90) 1,2-Dichlorobenzene	19.06	146	123909	4.412	ng		98
91) d-Limonene	19.08	68	143261	4.802	ng		98
92) 1,2-Dibromo-3-Chloropr...	19.52	157	39271	4.356	ng		93
93) n-Undecane	19.91	57	253224	5.530	ng		98
94) 1,2,4-Trichlorobenzene	20.86	180	72070	4.037	ng		99
95) Naphthalene	20.98	128	282245	4.193	ng		100
96) n-Dodecane	21.00	57	245573	5.839	ng		96
97) Hexachlorobutadiene	21.35	225	44456	3.983	ng		100
98) Cyclohexanone	16.36	55	145936	4.628	ng		93
99) tert-Butylbenzene	18.48	119	248194	4.644	ng		97
100) n-Butylbenzene	19.37	91	339702	4.885	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271801.D
Acq On : 27 Oct 2018 2:08 Operator: RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:22:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\27\10271802.D
Acq On : 27 Oct 2018 2:42 Operator: RS
Sample : CCV C9102718_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 27 09:13:52 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/27/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	89	-0.01
2	T	Chloropentafluoroethane	1.674	1.827	-9.1	97	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.291	1.438	-11.4	99	-0.01
4	T	1,1-Difluoroethane	1.546	1.783	-15.3	101	-0.01
5	T	Chlorodifluoromethane (CFC	0.420	0.479	-14.0	102	0.00
6	T	1-Chloro-1,1-Difluoroethane	2.794	3.214	-15.0	103	0.00
7	T	Dichlorofluoromethane (CFC	3.522	3.934	-11.7	99	-0.01
8	T	Vinylbromide	1.134	1.192	-5.1	89	-0.02
9	T	2,2-Dichloro-1,1,1-trifluor	2.120	2.240	-5.7	93	-0.01
10	T	2-Methylbutane	1.809	2.198	-21.5	105	-0.01
11	T	Methyl Acetate	4.333	5.180	-19.5	105	-0.01
12	T	2-Methylpentane	1.668	1.858	-11.4	96	0.00
13	T	2,2-Dichloropropane	1.852	2.278	-23.0	98	-0.01
14	T	1,1-Dichloropropene	2.290	2.558	-11.7	96	0.00
15	T	Thiophene	3.483	3.739	-7.3	93	-0.01
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	91	0.00
17	T	2,3-Dimethylpentane	0.696	0.807	-15.9	100	0.00
18	T	Dibromomethane	0.160	0.154	3.8	85	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	95	0.00
20	T	Methyl Cyclohexane	0.936	1.026	-9.6	100	0.00
21	T	1,3-Dichloropropane	0.859	0.891	-3.7	96	0.00
22	T	1,1,1,2-Tetrachloroethane	0.380	0.380	0.0	90	0.00
23	T	1-Chlorohexane	0.738	0.757	-2.6	92	-0.01
24	T	1,2,3-Trichloropropane	0.850	0.888	-4.5	96	0.00
25	T	Bromobenzene	1.007	1.037	-3.0	94	0.00
26	T	2-Chlorotoluene	1.564	1.616	-3.3	92	0.00
27	T	4-Chlorotoluene	1.638	1.693	-3.4	92	0.00
28	T	Indane	1.650	1.699	-3.0	89	0.00
29	T	Indene	1.392	1.459	-4.8	85	0.00
30	T	1,2,4,5-Tetramethylbenzene	1.656	1.873	-13.1	90	0.00
31	T	1,2,3,4-Tetramethylbenzene	1.778	1.830	-2.9	88	0.00
32	T	1,2,3,5-Tetramethylbenzene	1.621	1.761	-8.6	89	-0.01
33	T	1,2,3-Trichlorobenzene	0.494	0.500	-1.2	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271802.D
Acq On : 27 Oct 2018 2:42 Operator: RS
Sample : CCV C9102718_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 27 09:13:52 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/27/18

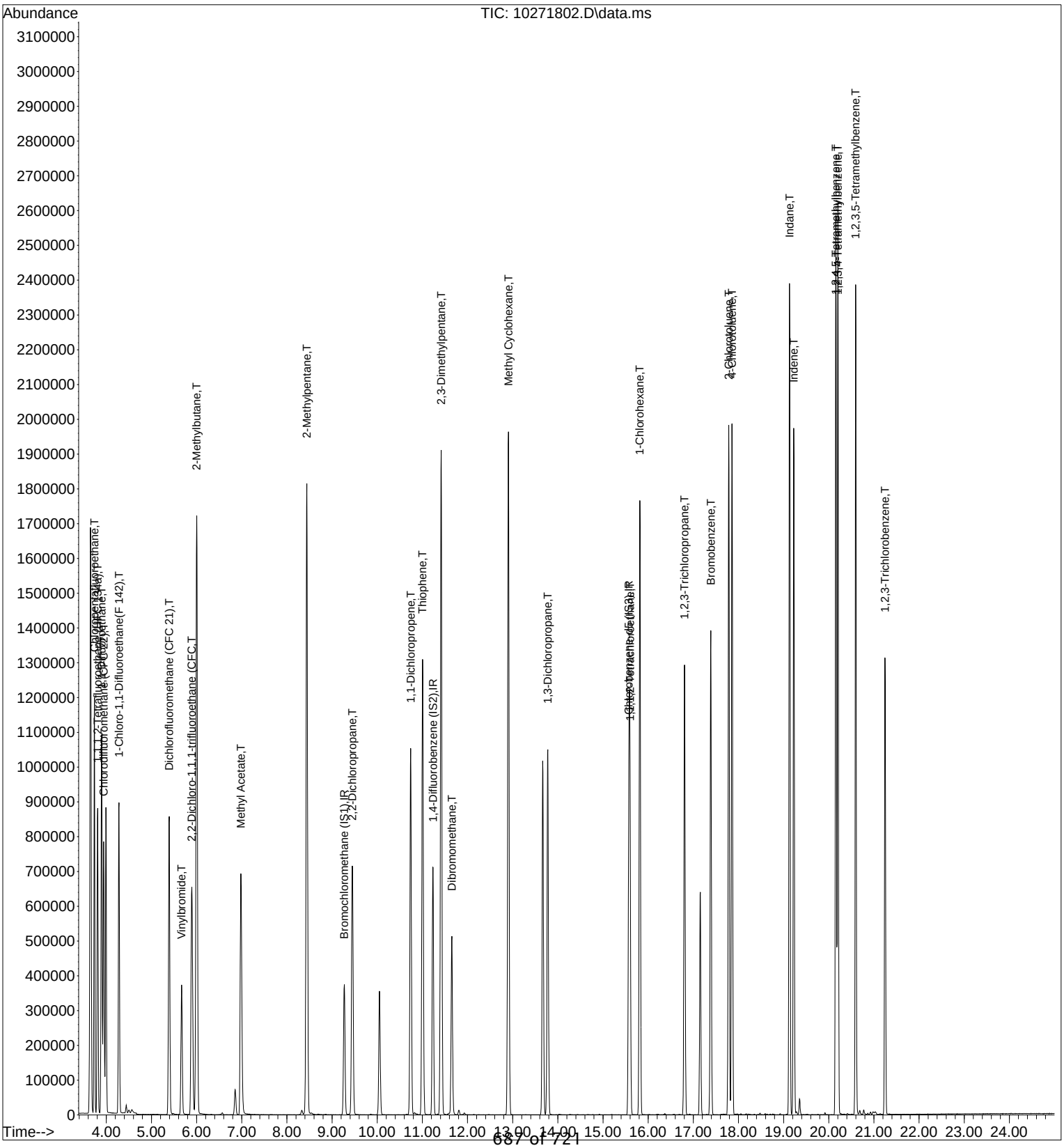
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	118715	12.500	ng	-0.01
16) 1,4-Difluorobenzene (IS2)	11.24	114	582140	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	369046	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	477195	30.015	ng	96
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	341500	27.849	ng	99
4) 1,1-Difluoroethane	3.90	65	440316	29.994	ng	94
5) Chlorodifluoromethane ...	3.94	67	118244	29.643	ng	91
6) 1-Chloro-1,1-Difluoroe...	4.28	65	778337	29.333	ng	98
7) Dichlorofluoromethane ...	5.39	67	933968	27.925	ng	99
8) Vinylbromide	5.67	108	280274	26.019	ng	99
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	558515	27.742	ng	100
10) 2-Methylbutane	6.00	57	527097	30.680	ng	95
11) Methyl Acetate	6.98	43	1254546	30.485	ng	97
12) 2-Methylpentane	8.44	71	436810	27.574	ng	85
13) 2,2-Dichloropropane	9.45	77	540945	30.754	ng	99
14) 1,1-Dichloropropene	10.74	75	619493	28.479	ng	95
15) Thiophene	11.00	84	878935	26.572	ng	94
17) 2,3-Dimethylpentane	11.42	56	958103	29.552	ng	96
18) Dibromomethane	11.65	174	187663	25.162	ng	90
20) Methyl Cyclohexane	12.91	55	803018	29.046	ng	93
21) 1,3-Dichloropropane	13.78	76	696737	27.485	ng	95
22) 1,1,1,2-Tetrachloroethane	15.60	131	263919	23.502	ng	99
23) 1-Chlorohexane	15.81	91	570139	26.175	ng	92
24) 1,2,3-Trichloropropane	16.80	75	674973	26.909	ng	97
25) Bromobenzene	17.39	77	796029	26.771	ng	95
26) 2-Chlorotoluene	17.78	91	1276623	27.642	ng	97
27) 4-Chlorotoluene	17.86	91	1287319	26.615	ng	98
28) Indane	19.13	117	1241558	25.484	ng	100
29) Indene	19.22	115	1012339	24.633	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	1326989	27.143	ng	99
31) 1,2,3,4-Tetramethylben...	20.20	119	1269473	24.188	ng	99
32) 1,2,3,5-Tetramethylben...	20.59	119	1234511	25.788	ng	98
33) 1,2,3-Trichlorobenzene	21.24	180	339648	23.302	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\27\10271802.D
Acq On : 27 Oct 2018 2:42 Operator: RS
Sample : CCV C9102718_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 27 09:13:52 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2018_10\31\10311802.D
Acq On : 31 Oct 2018 3:07 Operator: LH/TD
Sample : CCV R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 09:08:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/31/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	84	-0.02
2	T	Propene	1.163	1.103	5.2	85	0.00
3	T	Dichlorodifluoromethane (CF	2.613	2.412	7.7	78	0.00
4	T	Chloromethane	1.663	1.669	-0.4	81	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.553	1.498	3.5	81	0.00
6	T	Vinyl Chloride	1.814	1.937	-6.8	88	0.00
7	T	1,3-Butadiene	1.174	1.199	-2.1	82	-0.01
8	T	Bromomethane	1.093	1.030	5.8	76	0.00
9	T	Chloroethane	0.779	0.737	5.4	78	-0.01
10	T	Ethanol	0.703	0.685	2.6	75	-0.07
11	T	Acetonitrile	1.840	1.659	9.8	77	-0.04
12	T	Acrolein	0.621	0.594	4.3	75	-0.02
13	T	Acetone	0.839	0.797	5.0	79	-0.04
14	T	Trichlorofluoromethane	2.263	2.055	9.2	76	-0.01
15	T	2-Propanol (Isopropanol)	2.690	2.384	11.4	70	-0.05
16	T	Acrylonitrile	1.273	1.337	-5.0	78	-0.03
17	T	1,1-Dichloroethene	1.152	1.084	5.9	77	-0.01
18	T	2-Methyl-2-Propanol (tert-B	2.833	2.796	1.3	77	-0.04
19	T	Methylene Chloride	1.172	1.119	4.5	79	-0.02
20	T	3-Chloro-1-propene (Allyl C	1.457	1.328	8.9	77	-0.02
21	T	Trichlorotrifluoroethane	1.204	1.090	9.5	75	-0.01
22	T	Carbon Disulfide	4.183	3.965	5.2	79	-0.01
23	T	trans-1,2-Dichloroethene	1.577	1.541	2.3	78	-0.02
24	T	1,1-Dichloroethane	1.961	1.846	5.9	78	-0.02
25	T	Methyl tert-Butyl Ether	3.468	3.189	8.0	77	0.00
26	T	Vinyl Acetate	0.294	0.302	-2.7	76	-0.03
27	T	2-Butanone (MEK)	0.742	0.760	-2.4	76	-0.02
28	T	cis-1,2-Dichloroethene	1.550	1.513	2.4	78	-0.01
29	T	Diisopropyl Ether	1.037	0.968	6.7	78	-0.01
30	T	Ethyl Acetate	0.398	0.426	-7.0	80	-0.02
31	T	n-Hexane	1.812	1.675	7.6	78	0.00
32	T	Chloroform	2.108	2.011	4.6	78	-0.02
33	S	1,2-Dichloroethane-d4(SS1)	1.504	1.483	1.4	83	-0.01
34	T	Tetrahydrofuran (THF)	0.748	0.710	5.1	78	0.00
35	T	Ethyl tert-Butyl Ether	1.451	1.340	7.6	76	0.00
36	T	1,2-Dichloroethane	1.631	1.515	7.1	76	-0.01
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	84	-0.01
38	T	1,1,1-Trichloroethane	0.470	0.435	7.4	75	0.00
39	T	Isopropyl Acetate	0.176	0.176	0.0	79	-0.01
40	T	1-Butanol	0.253	0.276	-9.1	82	-0.03
41	T	Benzene	1.149	1.077	6.3	77	-0.01
42	T	Carbon Tetrachloride	0.435	0.402	7.6	73	-0.01
43	T	Cyclohexane	0.445	0.439	1.3	79	0.00
44	T	tert-Amyl Methyl Ether	0.792	0.757	4.4	77	0.00
45	T	1,2-Dichloropropane	0.255	0.241	5.5	77	0.00
46	T	Bromodichloromethane	0.402	0.393	2.2	77	0.00
47	T	Trichloroethene	0.338	0.314	7.1	75	-0.01
48	T	1,4-Dioxane	0.217	0.231	-6.5	77	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.067	1.034	3.1	81	-0.01
50	T	Methyl Methacrylate	0.119	0.115	3.4	73	-0.01
51	T	n-Heptane	0.264	0.230	12.9	74	0.00
52	T	cis-1,3-Dichloropropene	0.451	0.449	0.4	76	0.00
53	T	4-Methyl-2-pentanone	0.232	0.238	-2.6	77	-0.01

Evaluate Continuing Calibration Report

Data File: I:\MS16\DATA\2018_10\31\10311802.D
Acq On : 31 Oct 2018 3:07 Operator: LH/TD
Sample : CCV R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 09:08:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	trans-1,3-Dichloropropene	0.399	0.412	-3.3	75	0.00
55	T	1,1,2-Trichloroethane	0.277	0.265	4.3	76	0.00
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	81	0.00
57	S	Toluene-d8 (SS2)	1.991	1.985	0.3	81	0.00
58	T	Toluene	2.764	2.548	7.8	75	-0.01
59	T	2-Hexanone	1.266	1.263	0.2	76	-0.01
60	T	Dibromochloromethane	0.807	0.809	-0.2	74	0.00
61	T	1,2-Dibromoethane	0.740	0.745	-0.7	75	0.00
62	T	n-Butyl Acetate	1.373	1.374	-0.1	75	0.00
63	T	n-Octane	0.526	0.470	10.6	76	-0.01
64	T	Tetrachloroethene	0.851	0.791	7.1	72	0.00
65	T	Chlorobenzene	1.872	1.858	0.7	77	0.00
66	T	Ethylbenzene	3.148	3.269	-3.8	80	0.00
67	T	m- & p-Xylenes	2.350	2.608	-11.0	82	0.00
68	T	Bromoform	0.718	0.782	-8.9	75	0.00
69	T	Styrene	1.912	2.131	-11.5	80	0.00
70	T	o-Xylene	2.386	2.721	-14.0	85	-0.01
71	T	n-Nonane	1.096	1.188	-8.4	85	0.00
72	T	1,1,2,2-Tetrachloroethane	1.142	1.370	-20.0	87	0.00
73	S	Bromofluorobenzene (SS3)	0.905	0.858	5.2	75	0.00
74	T	Cumene	3.131	3.177	-1.5	77	0.00
75	T	alpha-Pinene	1.624	1.663	-2.4	77	0.00
76	T	n-Propylbenzene	3.582	3.781	-5.6	78	0.00
77	T	3-Ethyltoluene	3.156	3.199	-1.4	72	0.00
78	T	4-Ethyltoluene	2.847	3.136	-10.2	83	0.00
79	T	1,3,5-Trimethylbenzene	2.620	2.701	-3.1	77	0.00
80	T	alpha-Methylstyrene	1.416	1.488	-5.1	74	0.00
81	T	2-Ethyltoluene	3.077	3.223	-4.7	78	0.00
82	T	1,2,4-Trimethylbenzene	2.571	3.053	-18.7	82	-0.01
83	T	n-Decane	0.055	0.057	-3.6	79	0.00
84	T	Benzyl Chloride	2.266	2.491	-9.9	77	0.00
85	T	1,3-Dichlorobenzene	1.593	1.703	-6.9	77	-0.01
86	T	1,4-Dichlorobenzene	1.615	1.644	-1.8	76	0.00
87	T	sec-Butylbenzene	3.352	3.588	-7.0	78	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.193	3.729	-16.8	80	0.00
89	T	1,2,3-Trimethylbenzene	2.577	3.072	-19.2	83	0.00
90	T	1,2-Dichlorobenzene	1.502	1.723	-14.7	79	-0.01
91	T	d-Limonene	0.934	1.161	-24.3	83	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.560	0.597	-6.6	73	0.00
93	T	n-Undecane	1.235	1.320	-6.9	80	0.00
94	T	1,2,4-Trichlorobenzene	1.204	1.241	-3.1	76	0.00
95	T	Naphthalene	3.695	3.916	-6.0	77	0.00
96	T	n-Dodecane	1.163	1.151	1.0	82	0.00
97	T	Hexachlorobutadiene	0.810	0.794	2.0	73	0.00
98	T	Cyclohexanone	0.808	0.954	-18.1	82	-0.01
99	T	tert-Butylbenzene	2.512	2.904	-15.6	80	0.00
100	T	n-Butylbenzene	2.659	2.924	-10.0	79	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311802.D
Acq On : 31 Oct 2018 3:07 Operator: LH/TD
Sample : CCV R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

TD 10/31/18

Quant Time: Oct 31 09:08:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	198602	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	825736	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	353693	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	294527	12.328	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.64%				
57) Toluene-d8 (SS2)	15.87	98	702237	12.468	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.76%				
73) Bromofluorobenzene (SS3)	19.09	174	303556	11.856	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
Target Compounds							Qvalue
2) Propene	4.05	42	451543	24.431	ng		99
3) Dichlorodifluoromethan...	4.21	85	1001069	24.112	ng		100
4) Chloromethane	4.52	50	668229	25.286	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	611668	24.783	ng		100
6) Vinyl Chloride	4.96	62	808801	28.062	ng		100
7) 1,3-Butadiene	5.24	54	499542	26.792	ng		97
8) Bromomethane	5.70	94	412606	23.754	ng		100
9) Chloroethane	6.04	64	299112	24.168	ng		100
10) Ethanol	6.44	45	1399152	125.252	ng		100
11) Acetonitrile	6.71	41	680750	23.286	ng		100
12) Acrolein	6.90	56	242665	24.601	ng		99
13) Acetone	7.11	58	1699443	127.510	ng		97
14) Trichlorofluoromethane	7.35	101	865036	24.058	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	1953841	45.712	ng		99
16) Acrylonitrile	7.90	53	548981	27.134	ng		100
17) 1,1-Dichloroethene	8.35	96	462222	25.252	ng		100
18) 2-Methyl-2-Propanol (t...	8.51	59	2381111	52.908	ng		98
19) Methylene Chloride	8.58	84	475465	25.540	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	562700	24.306	ng		98
21) Trichlorotrifluoroethane	8.99	151	461191	24.099	ng		96
22) Carbon Disulfide	8.85	76	1693127	25.476	ng		100
23) trans-1,2-Dichloroethene	9.87	61	650044	25.944	ng		100
24) 1,1-Dichloroethane	10.12	63	755042	24.230	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1379413	25.031	ng		99
26) Vinyl Acetate	10.38	86	630022	134.854	ng	#	83
27) 2-Butanone (MEK)	10.62	72	310060	26.299	ng		98
28) cis-1,2-Dichloroethene	11.15	61	633319	25.709	ng		99
29) Diisopropyl Ether	11.42	87	415614	25.229	ng	#	89
30) Ethyl Acetate	11.43	61	366781	58.041	ng		96
31) n-Hexane	11.42	57	719857	25.000	ng		99
32) Chloroform	11.49	83	860308	25.690	ng		100
34) Tetrahydrofuran (THF)	11.89	72	301388	25.372	ng		100
35) Ethyl tert-Butyl Ether	12.02	87	564191	24.473	ng		97
36) 1,2-Dichloroethane	12.30	62	638474	24.638	ng		100
38) 1,1,1-Trichloroethane	12.57	97	776280	25.002	ng		99
39) Isopropyl Acetate	12.98	61	602099	51.669	ng	#	94
40) 1-Butanol	13.00	56	943546	56.514	ng		99
41) Benzene	13.04	78	1836643	24.193	ng		100
42) Carbon Tetrachloride	13.20	117	687316	23.897	ng		100
43) Cyclohexane	13.33	84	1512596	51.409	ng		97
44) tert-Amyl Methyl Ether	13.67	73	1342610	25.675	ng		99
45) 1,2-Dichloropropane	13.90	63	427461	25.354	ng		100
46) Bromodichloromethane	14.09	83	694041	26.134	ng		100
47) Trichloroethene	14.13	130	550749	24.682	ng		100
48) 1,4-Dioxane	14.11	88	406549	28.300	ng		98

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311802.D
Acq On : 31 Oct 2018 3:07 Operator: LH/TD
Sample : CCV R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 09:08:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

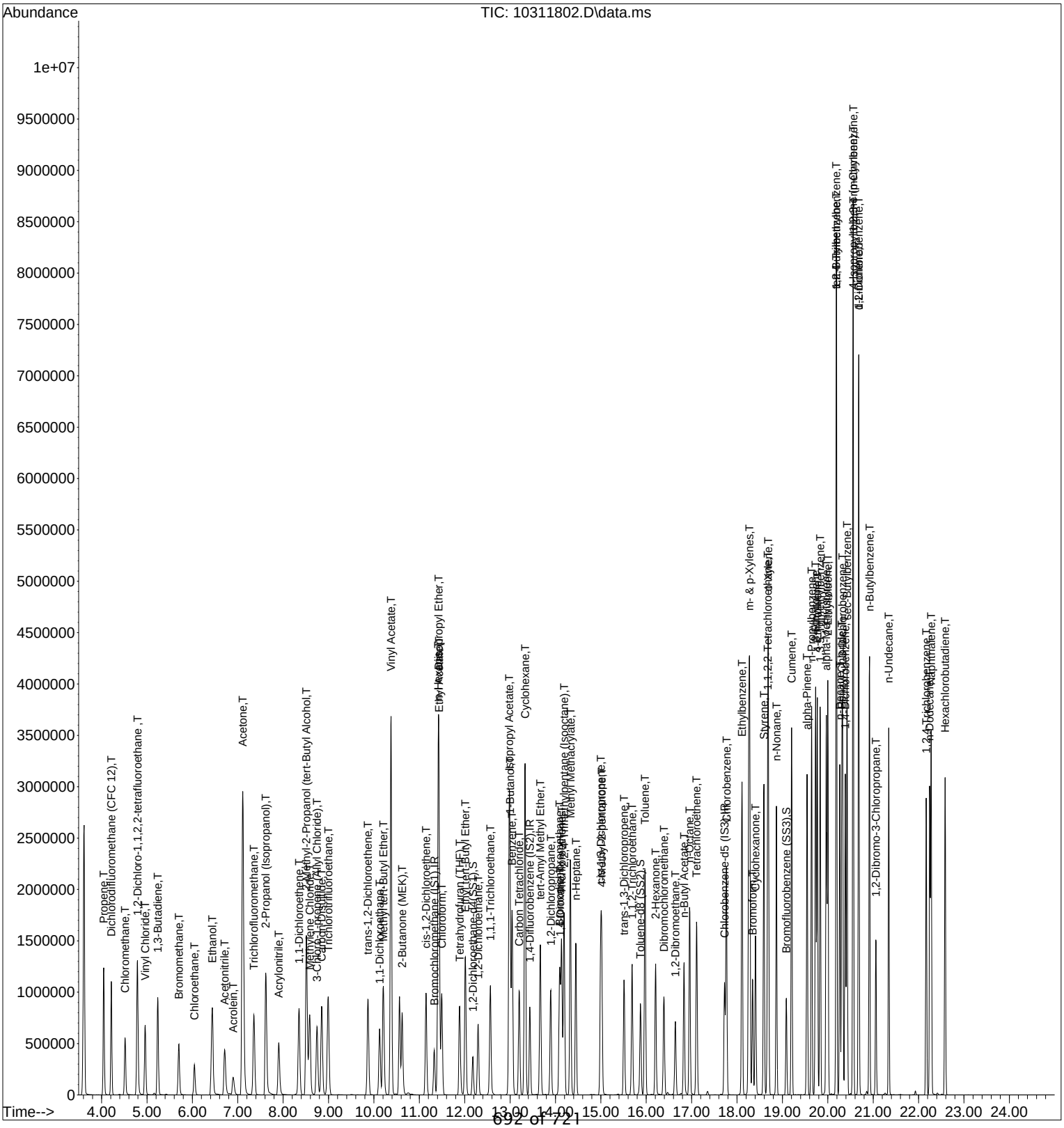
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	1811877	25.716 ng	99
50) Methyl Methacrylate	14.33	100	406172	51.647 ng	93
51) n-Heptane	14.45	71	408109	23.368 ng	99
52) cis-1,3-Dichloropropene	15.00	75	830586	27.886 ng	100
53) 4-Methyl-2-pentanone	15.02	58	416022	27.133 ng	98
54) trans-1,3-Dichloropropene	15.51	75	717712	27.249 ng	100
55) 1,1,2-Trichloroethane	15.69	97	471665	25.783 ng	98
58) Toluene	15.97	91	1896132	24.245 ng	99
59) 2-Hexanone	16.21	43	959580	26.777 ng	100
60) Dibromochloromethane	16.39	129	615112	26.922 ng	100
61) 1,2-Dibromoethane	16.64	107	567212	27.072 ng	100
62) n-Butyl Acetate	16.83	43	1054219	27.144 ng	100
63) n-Octane	16.95	57	357932	24.036 ng	97
64) Tetrachloroethene	17.11	166	592017	24.597 ng	100
65) Chlorobenzene	17.77	112	1400988	26.451 ng	100
66) Ethylbenzene	18.11	91	2388477	26.818 ng	99
67) m- & p-Xylenes	18.27	91	3916631	58.891 ng	98
68) Bromoform	18.35	173	587725	28.912 ng	100
69) Styrene	18.59	104	1598086	29.542 ng	99
70) o-Xylene	18.69	91	2043904	30.276 ng	98
71) n-Nonane	18.87	43	899979	29.011 ng	98
72) 1,1,2,2-Tetrachloroethane	18.68	83	1031309	31.906 ng	99
74) Cumene	19.20	105	2375125	26.807 ng	99
75) alpha-Pinene	19.54	93	1217330	26.489 ng	97
76) n-Propylbenzene	19.64	91	2877800	28.390 ng	98
77) 3-Ethyltoluene	19.73	105	2403223	26.910 ng	99
78) 4-Ethyltoluene	19.77	105	2353782	29.215 ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	2019680	27.243 ng	99
80) alpha-Methylstyrene	19.97	118	1113943	27.793 ng	93
81) 2-Ethyltoluene	20.00	105	2443927	28.071 ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	2306678	31.714 ng	98
83) n-Decane	20.26	58	43438	27.685 ng	96
84) Benzyl Chloride	20.31	91	1851688	28.879 ng	98
85) 1,3-Dichlorobenzene	20.32	146	1301083	28.862 ng	100
86) 1,4-Dichlorobenzene	20.39	146	1257118	27.503 ng	100
87) sec-Butylbenzene	20.42	105	2697896	28.444 ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	2748463	30.417 ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	2264020	31.048 ng	98
90) 1,2-Dichlorobenzene	20.68	146	1327390	31.232 ng	100
91) d-Limonene	20.68	68	829299	31.385 ng	97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	439922	27.756 ng	94
93) n-Undecane	21.34	57	987107	28.257 ng	98
94) 1,2,4-Trichlorobenzene	22.17	180	934026	27.420 ng	99
95) Naphthalene	22.28	128	2839434	27.157 ng	100
96) n-Dodecane	22.24	57	839260	25.511 ng	98
97) Hexachlorobutadiene	22.59	225	591717	25.806 ng	99
98) Cyclohexanone	18.41	55	663026	28.995 ng	98
99) tert-Butylbenzene	20.19	119	2191543	30.828 ng	99
100) n-Butylbenzene	20.92	91	2201133	29.254 ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\31\10311802.D
Acq On : 31 Oct 2018 3:07 Operator: LH/TD
Sample : CCV R16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 09:08:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Evaluate Continuing Calibration Report

Data File : I:\MS16\DATA\2018_10\31\10311801.D Vial: 3
Acq On : 31 Oct 2018 2:34 Operator: LH/TD
Sample : CCV C16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191806 (11/17) RS 10/31/18

Quant Time: Oct 31 11:26:47 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	94	0.00
2	T	Chloropentafluoroethane	1.489	1.440	3.3	91	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.253	1.171	6.5	87	-0.01
4	T	1,1-Difluoroethane	0.958	0.976	-1.9	93	-0.02
5	T	Chlorodifluoromethane (CFC	0.372	0.352	5.4	87	0.00
6	T	1-Chloro-1,1-Difluoroethane	2.714	2.656	2.1	91	-0.01
7	T	Dichlorofluoromethane (CFC	2.427	2.370	2.3	92	-0.01
8	T	Vinylbromide	1.103	1.044	5.3	87	-0.01
9	T	2,2-Dichloro-1,1,1-trifluor	1.623	1.551	4.4	91	0.00
10	T	2-Methylbutane	1.021	1.015	0.6	95	0.00
11	T	Methyl Acetate	2.149	2.100	2.3	93	0.00
12	T	2-Methylpentane	1.062	1.004	5.5	91	0.00
13	T	2,2-Dichloropropane	1.704	1.784	-4.7	97	0.00
14	T	1,1-Dichloropropene	1.700	1.597	6.1	88	0.00
15	T	Thiophene	2.660	2.547	4.2	90	0.00
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	95	0.00
17	T	2,3-Dimethylpentane	0.452	0.447	1.1	95	0.00
18	T	Dibromomethane	0.278	0.243	12.6	82	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	96	0.00
20	T	Methyl Cyclohexane	0.791	0.761	3.8	92	0.00
21	T	1,3-Dichloropropane	0.927	0.867	6.5	89	0.00
22	T	1,1,1,2-Tetrachloroethane	0.689	0.612	11.2	83	0.00
23	T	1-Chlorohexane	0.967	0.881	8.9	86	0.00
24	T	1,2,3-Trichloropropane	0.935	0.902	3.5	90	0.00
25	T	Bromobenzene	1.105	1.051	4.9	89	0.00
26	T	2-Chlorotoluene	2.025	1.920	5.2	88	0.00
27	T	4-Chlorotoluene	2.079	1.976	5.0	88	0.00
28	T	Indan	2.613	2.522	3.5	87	0.00
29	T	Indene	2.275	2.415	-6.2	90	0.00
30	T	1,2,4,5-Tetramethylbenzene	2.880	3.131	-8.7	92	0.00
31	T	1,2,3,4-Tetramethylbenzene	2.783	3.058	-9.9	93	0.00
32	T	1,2,3,5-Tetramethylbenzene	2.686	2.926	-8.9	92	0.00
33	T	1,2,3-Trichlorobenzene	1.270	1.244	2.0	83	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\31\10311801.D Vial: 3
Acq On : 31 Oct 2018 2:34 Operator: LH/TD
Sample : CCV C16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191806 (11/17)

Quant Time: Oct 31 11:26:47 2018 RS 10/31/18
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

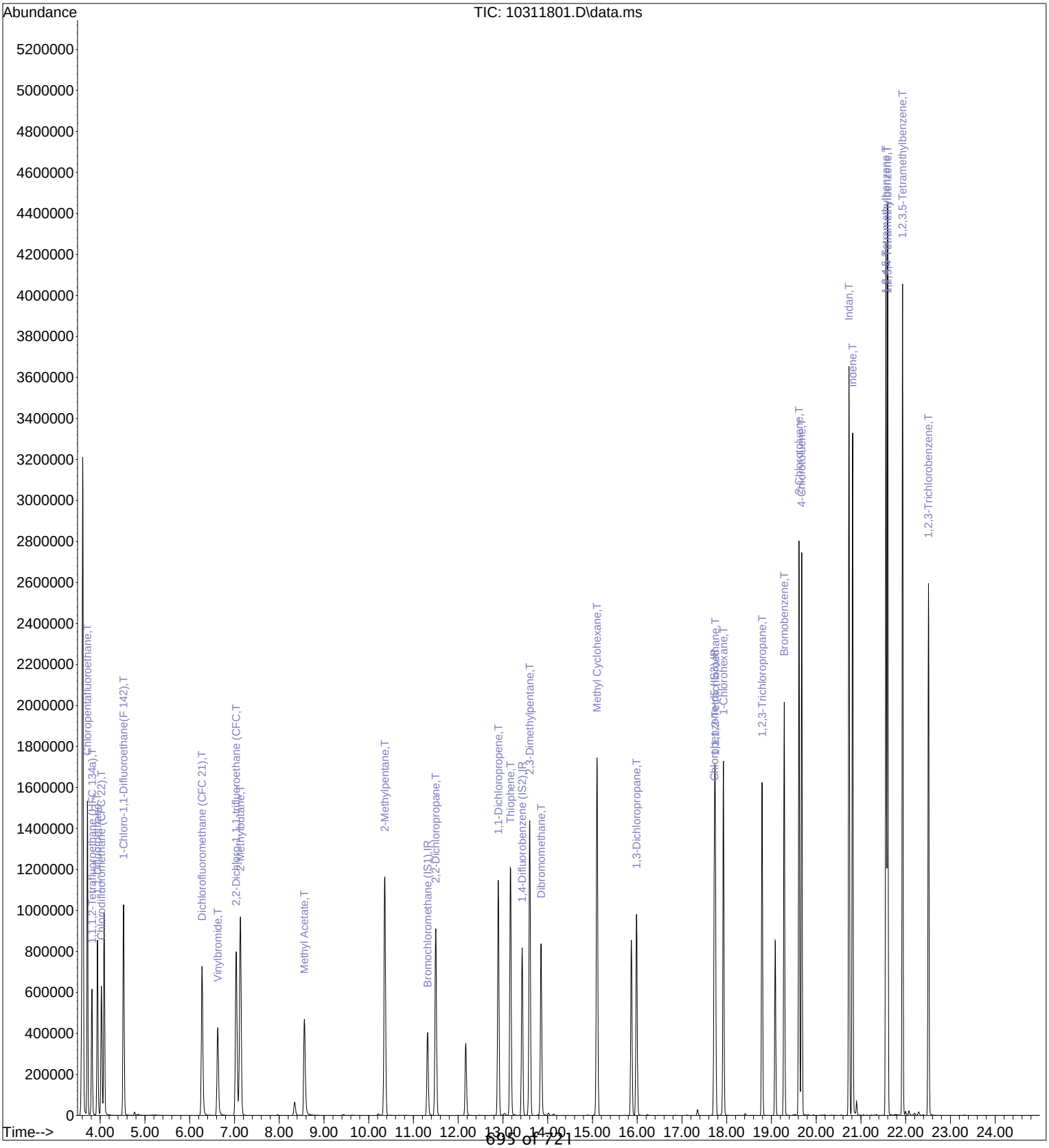
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	187103	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	792750	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	366436	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	592595	26.596	ng	97
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	438331	23.362	ng	94
4) 1,1-Difluoroethane	3.94	65	379707	26.491	ng	99
5) Chlorodifluoromethane ...	4.03	67	137119	24.646	ng	92
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1043501	25.683	ng	99
7) Dichlorofluoromethane ...	6.27	67	886977	24.420	ng	100
8) Vinylbromide	6.63	108	386677	23.421	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	609274	25.072	ng	99
10) 2-Methylbutane	7.13	57	383662	25.096	ng	92
11) Methyl Acetate	8.56	43	801689	24.924	ng	100
12) 2-Methylpentane	10.36	71	371831	23.380	ng	98
13) 2,2-Dichloropropane	11.50	77	667652	26.173	ng	100
14) 1,1-Dichloropropene	12.90	75	609711	23.956	ng	97
15) Thiophene	13.17	84	943622	23.698	ng	99
17) 2,3-Dimethylpentane	13.60	56	722929	25.227	ng	98
18) Dibromomethane	13.85	174	403724	22.926	ng	93
20) Methyl Cyclohexane	15.10	55	591192	25.497	ng	97
21) 1,3-Dichloropropane	15.99	76	673385	24.788	ng	98
22) 1,1,1,2-Tetrachloroethane	17.75	131	421454	20.851	ng	100
23) 1-Chlorohexane	17.93	91	658658	23.235	ng	98
24) 1,2,3-Trichloropropane	18.79	75	680543	24.828	ng	97
25) Bromobenzene	19.29	77	800681	24.712	ng	93
26) 2-Chlorotoluene	19.62	91	1505697	25.363	ng	98
27) 4-Chlorotoluene	19.68	91	1491385	24.474	ng	98
28) Indan	20.73	117	1829704	23.890	ng	100
29) Indene	20.81	115	1663390	24.938	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2203057	26.095	ng	98
31) 1,2,3,4-Tetramethylben...	21.60	119	2106495	25.824	ng	98
32) 1,2,3,5-Tetramethylben...	21.93	119	2037409	25.875	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	838878	22.525	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\31\10311801.D Vial: 3
Acq On : 31 Oct 2018 2:34 Operator: LH/TD
Sample : CCV C16103118_25ng Inst : GCMS-16
Misc : S31-09141801/S31-10191806 (11/17)

Quant Time: Oct 31 11:26:47 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

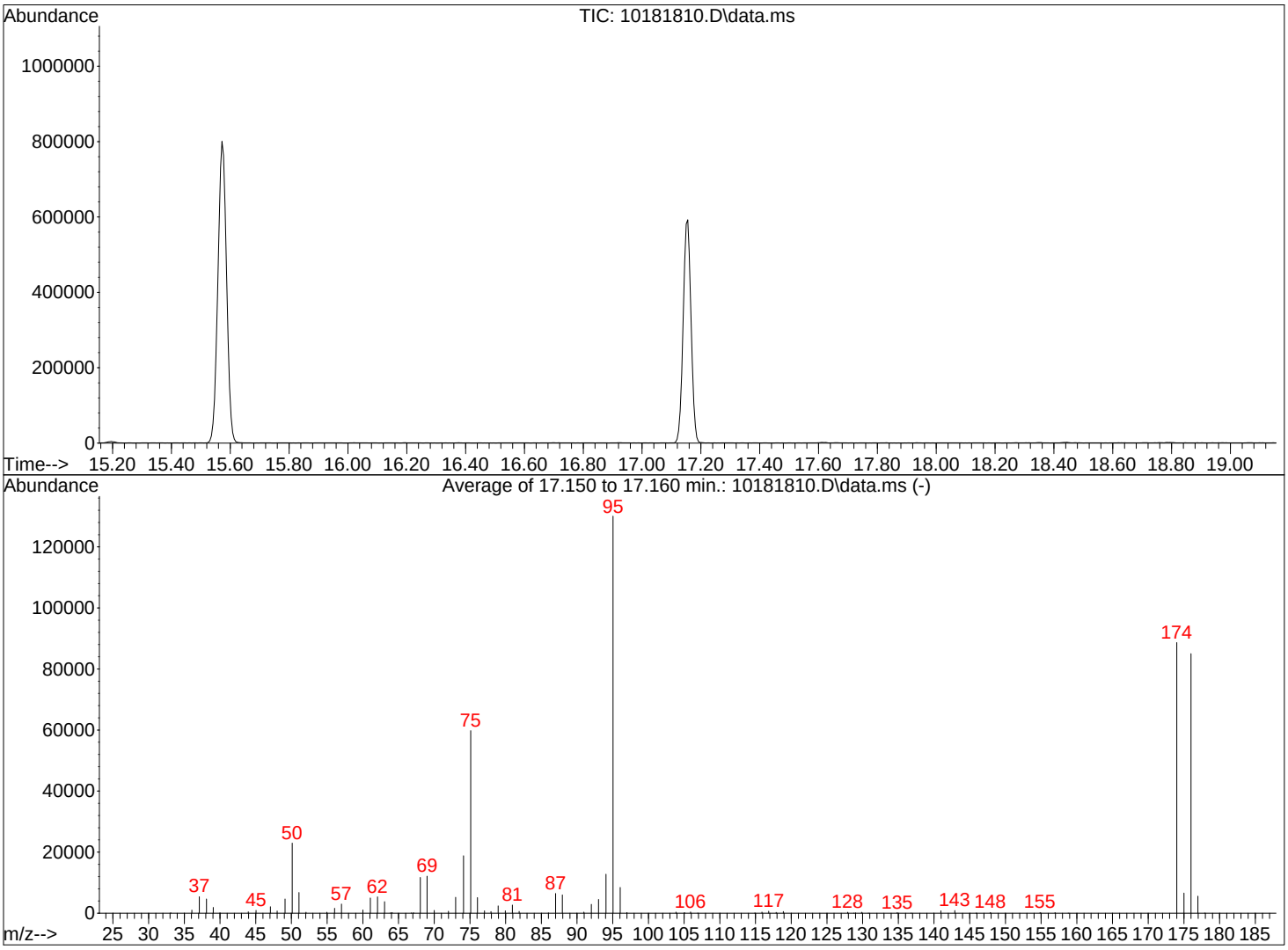


Data Path : I:\MS09\Data\2018_10\18\
Data File : 10181810.D
Acq On : 18 Oct 2018 16:09
Operator : SC
Sample : 12.5ng TO-15 BFB STD
Misc : S31-10151806
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 08:55:06 2018



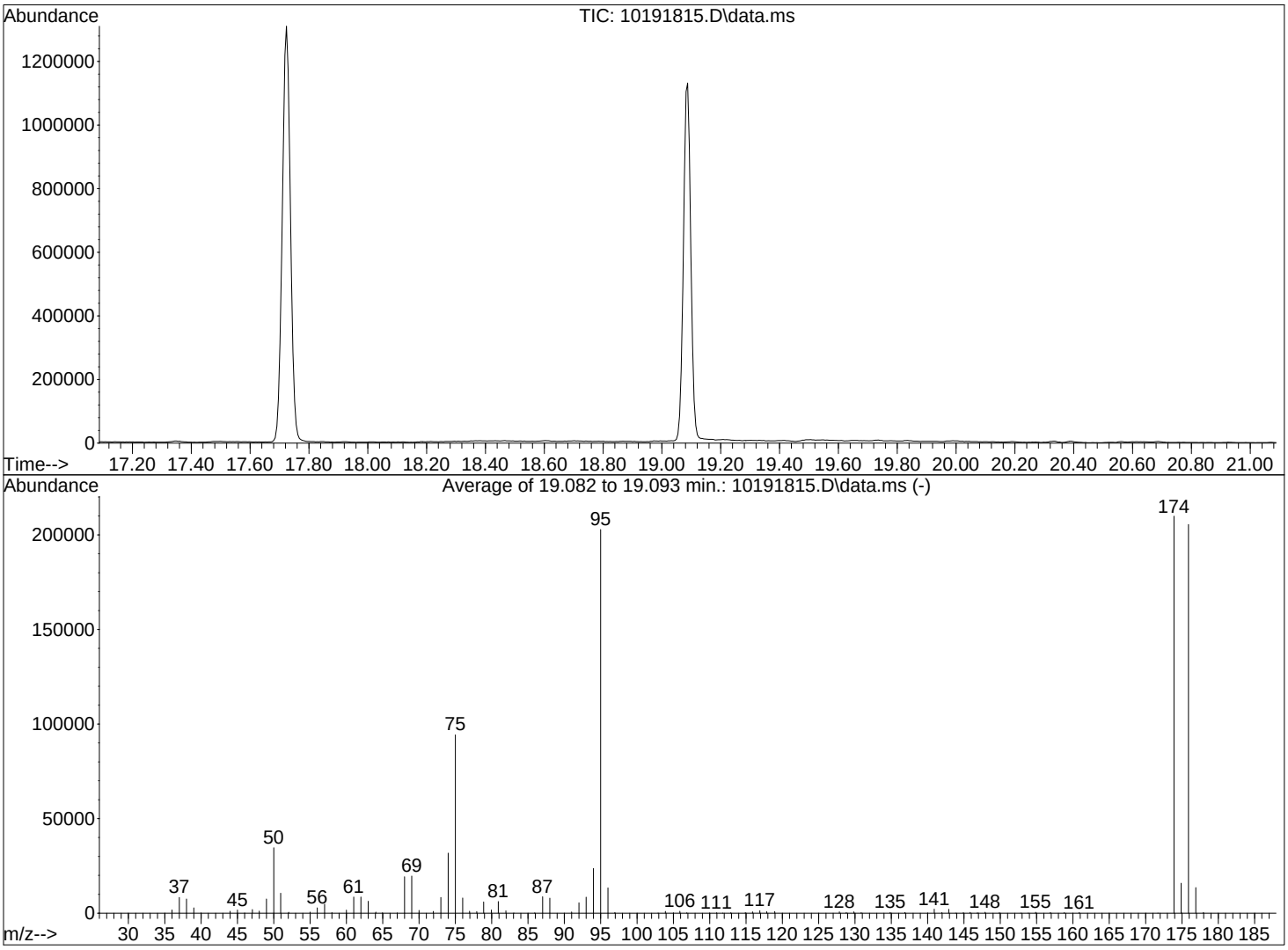
AutoFind: Scans 2655, 2656, 2657; Background Corrected with Scan 2646

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.6	22944	PASS
75	95	30	66	46.0	59792	PASS
95	95	100	100	100.0	130067	PASS
96	95	5	9	6.5	8436	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	68.2	88683	PASS
175	174	4	9	7.4	6596	PASS
176	174	93	101	95.9	85024	PASS
177	176	5	9	6.6	5579	PASS

Data Path : I:\MS16\DATA\2018_10\19\
Data File : 10191815.D
Acq On : 19 Oct 2018 19:38
Operator : LH/TD
Sample : 12.5ng TO15 BFB
Misc : S31-09141801
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16101918.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:14:30 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2828

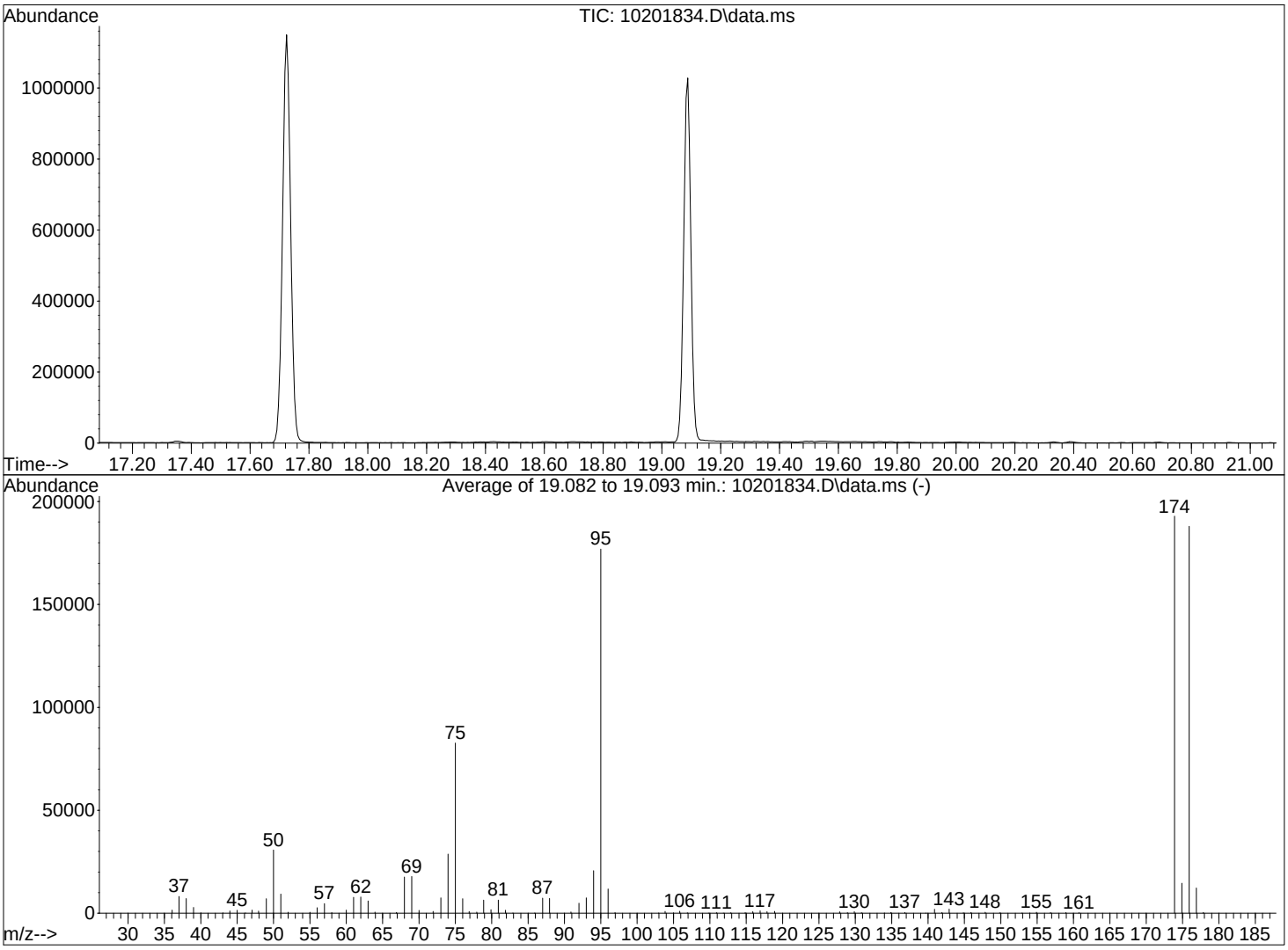
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.0	34573	PASS
75	95	30	66	46.5	94304	PASS
95	95	100	100	100.0	202816	PASS
96	95	5	9	6.6	13417	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	103.5	209899	PASS
175	174	4	9	7.6	15867	PASS
176	174	93	101	97.9	205504	PASS
177	176	5	9	6.6	13542	PASS

LH 10/20/18

Data Path : I:\MS16\DATA\2018_10\20\
Data File : 10201834.D
Acq On : 20 Oct 2018 21:51
Operator : LH/TD
Sample : 12.5ng TO-15 BFB
Misc : S31-09141801
ALS Vial : 3 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:22:36 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2827

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.4	30693	PASS
75	95	30	66	46.7	82667	PASS
95	95	100	100	100.0	176875	PASS
96	95	5	9	6.7	11778	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	109.1	192896	PASS
175	174	4	9	7.6	14568	PASS
176	174	93	101	97.4	187947	PASS
177	176	5	9	6.5	12244	PASS

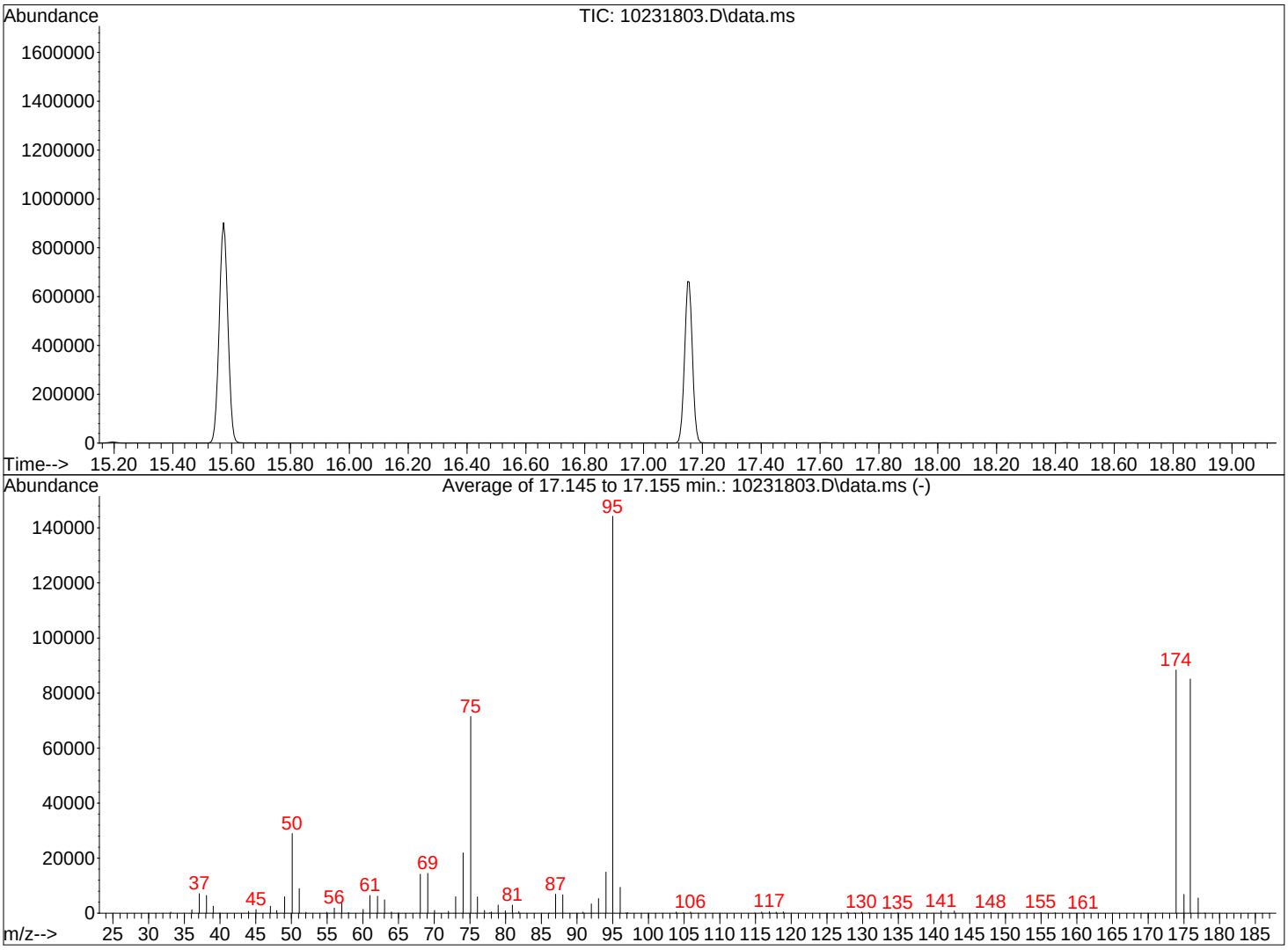
LH 10/22/18

Data Path : I:\MS09\Data\2018_10\23\
Data File : 10231803.D
Acq On : 23 Oct 2018 18:10
Operator : SC
Sample : 12.5ng TO-15 BFB STD
Misc : S31-10151806
ALS Vial : 2 Sample Multiplier: 1

10/24/18

Integration File: RTEINTVB.P

Method : I:\MS09\Methods\C9102318.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:26:22 2018



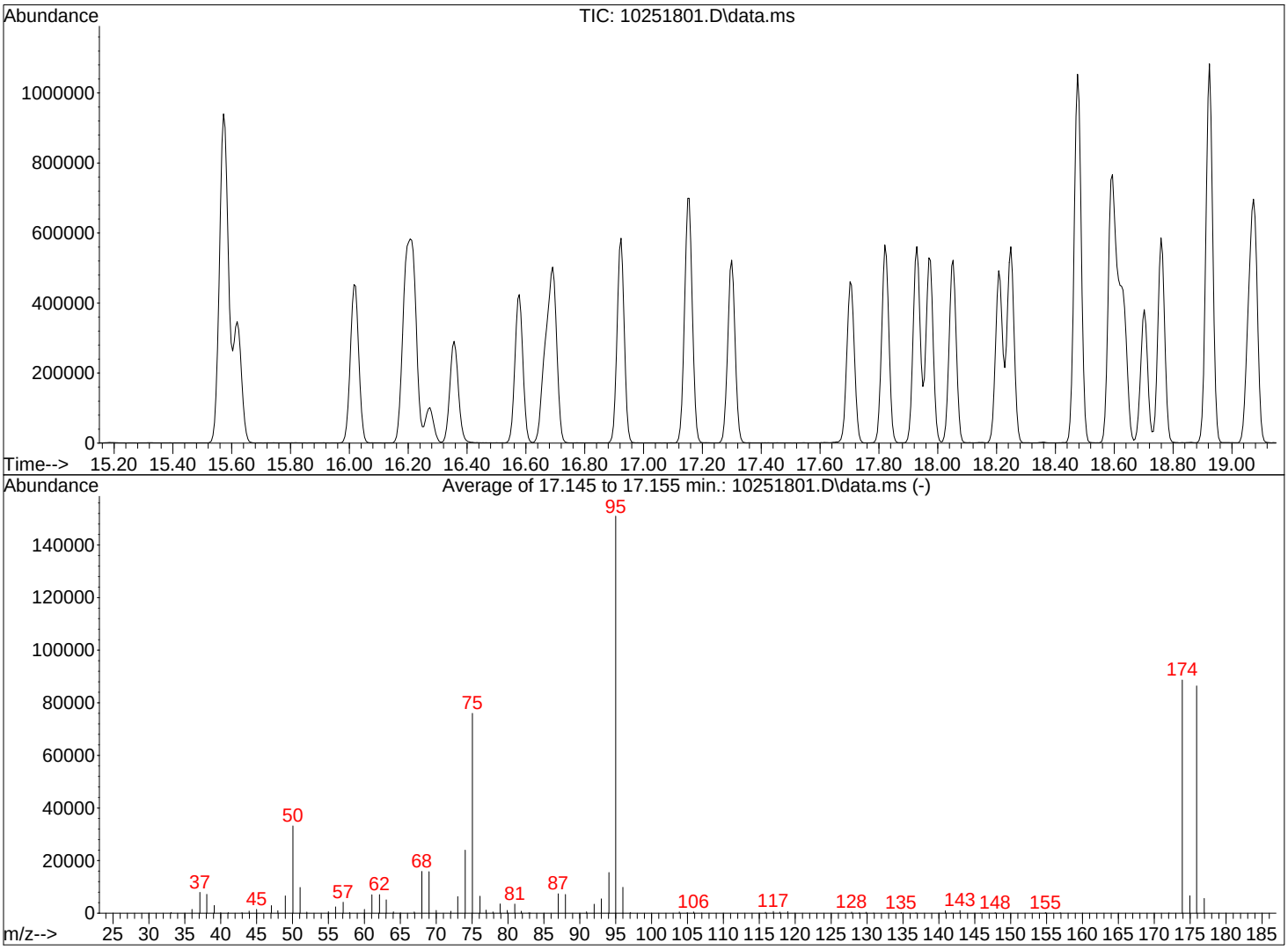
AutoFind: Scans 2654, 2655, 2656; Background Corrected with Scan 2645

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	28931	PASS
75	95	30	66	49.6	71512	PASS
95	95	100	100	100.0	144261	PASS
96	95	5	9	6.5	9430	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	61.2	88357	PASS
175	174	4	9	7.8	6864	PASS
176	174	93	101	96.3	85109	PASS
177	176	5	9	6.5	5540	PASS

Data Path : I:\MS09\Data\2018_10\25\
Data File : 10251801.D
Acq On : 25 Oct 2018 4:40
Operator : SC
Sample : CCV R9102518_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 15:55:14 2018



AutoFind: Scans 2654, 2655, 2656; Background Corrected with Scan 2646

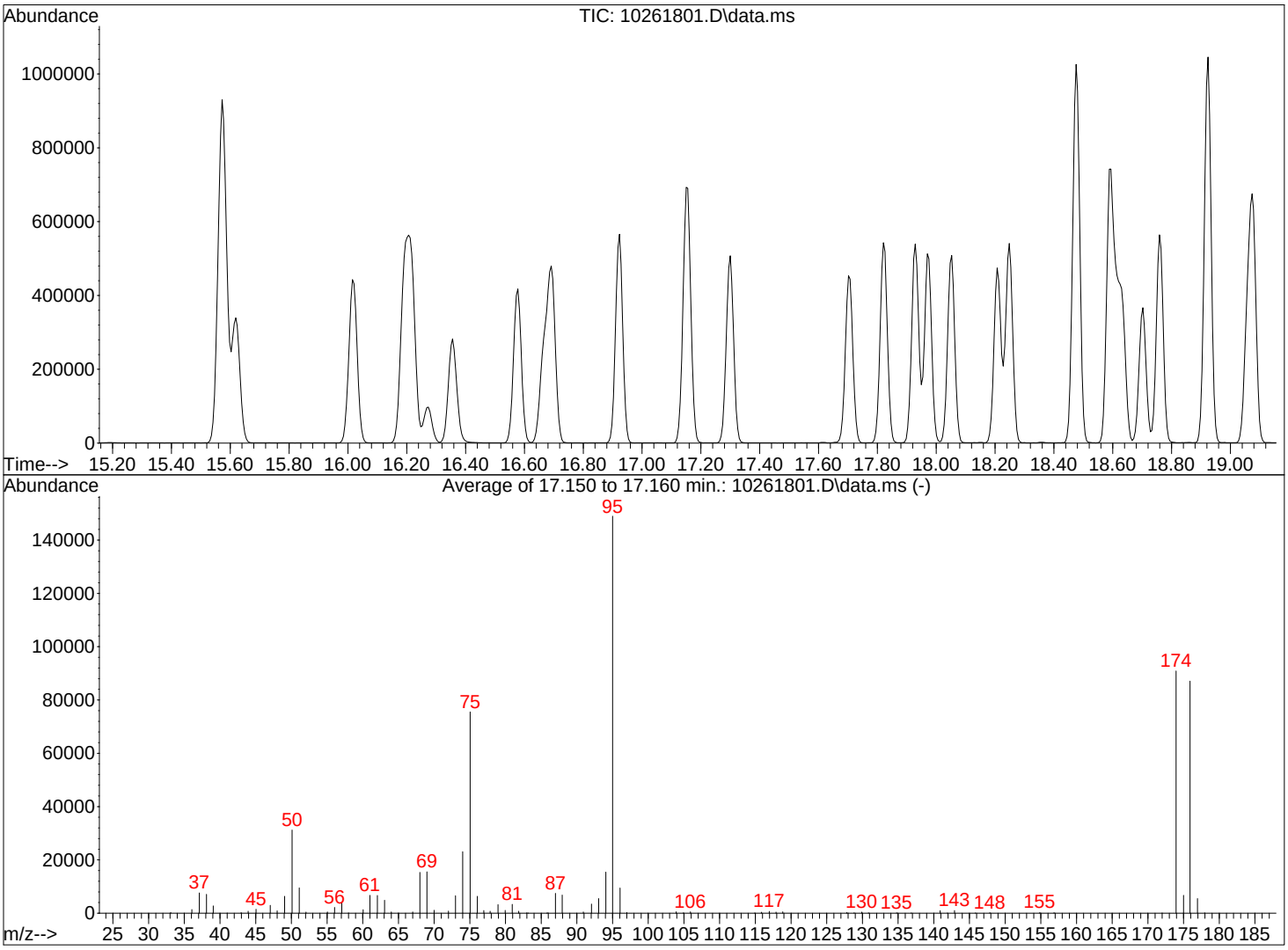
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	22.0	33205	PASS
75	95	30	66	50.3	75987	PASS
95	95	100	100	100.0	150976	PASS
96	95	5	9	6.5	9848	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	58.8	88709	PASS
175	174	4	9	7.5	6660	PASS
176	174	93	101	97.5	86456	PASS
177	176	5	9	6.5	5618	PASS

RS 10/25/18

Data Path : I:\MS09\Data\2018_10\26\
Data File : 10261801.D
Acq On : 26 Oct 2018 4:39
Operator : RS
Sample : CCV R9102518_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 15:55:14 2018



AutoFind: Scans 2655, 2656, 2657; Background Corrected with Scan 2646

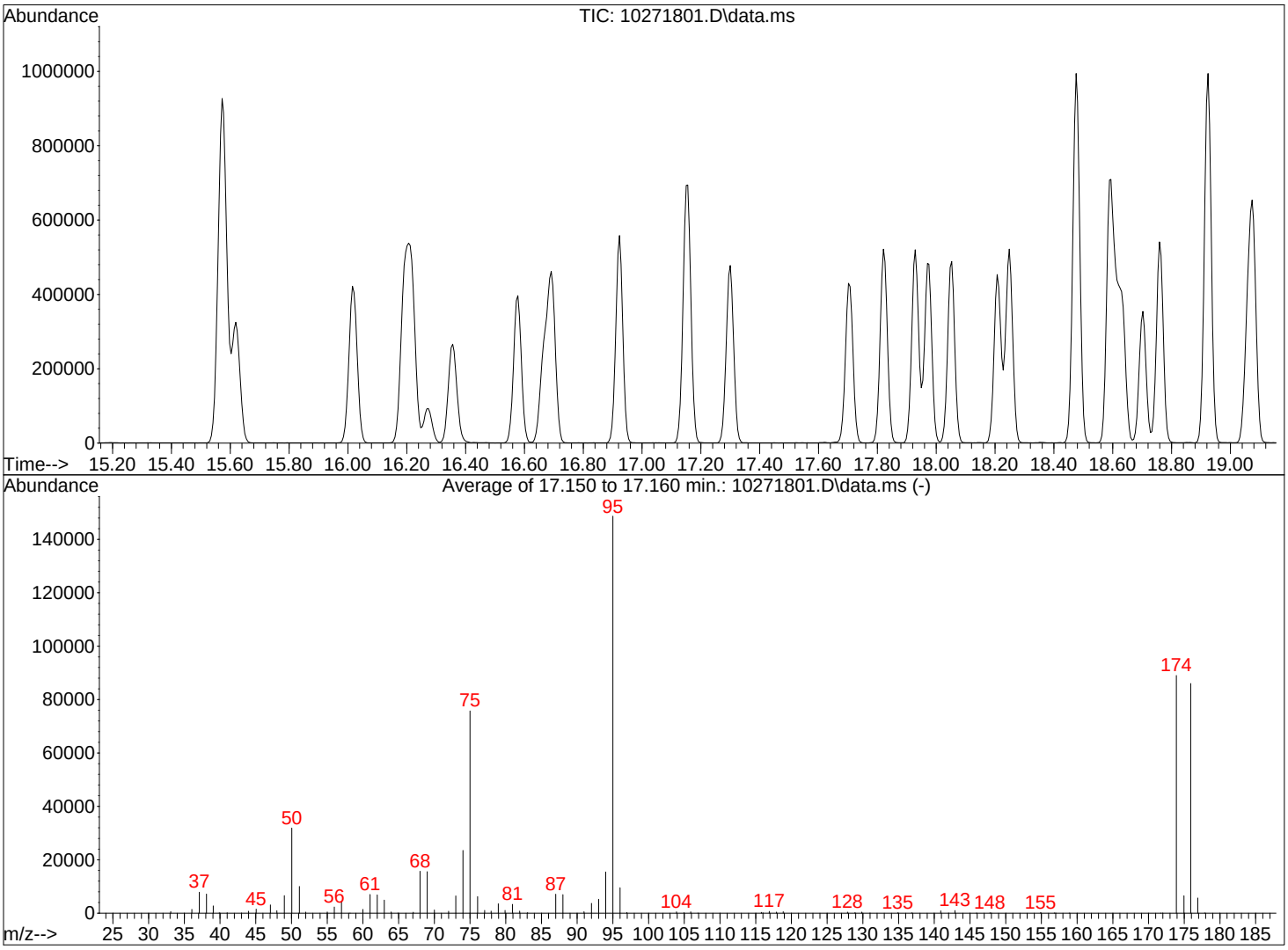
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	21.0	31211	PASS
75	95	30	66	50.7	75512	PASS
95	95	100	100	100.0	148976	PASS
96	95	5	9	6.4	9471	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	61.0	90888	PASS
175	174	4	9	7.4	6711	PASS
176	174	93	101	95.8	87069	PASS
177	176	5	9	6.3	5506	PASS

RS 10/26/18

Data Path : I:\MS09\Data\2018_10\27\
Data File : 10271801.D
Acq On : 27 Oct 2018 2:08
Operator : RS
Sample : CCV R9102718_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 15:55:14 2018



AutoFind: Scans 2655, 2656, 2657; Background Corrected with Scan 2646

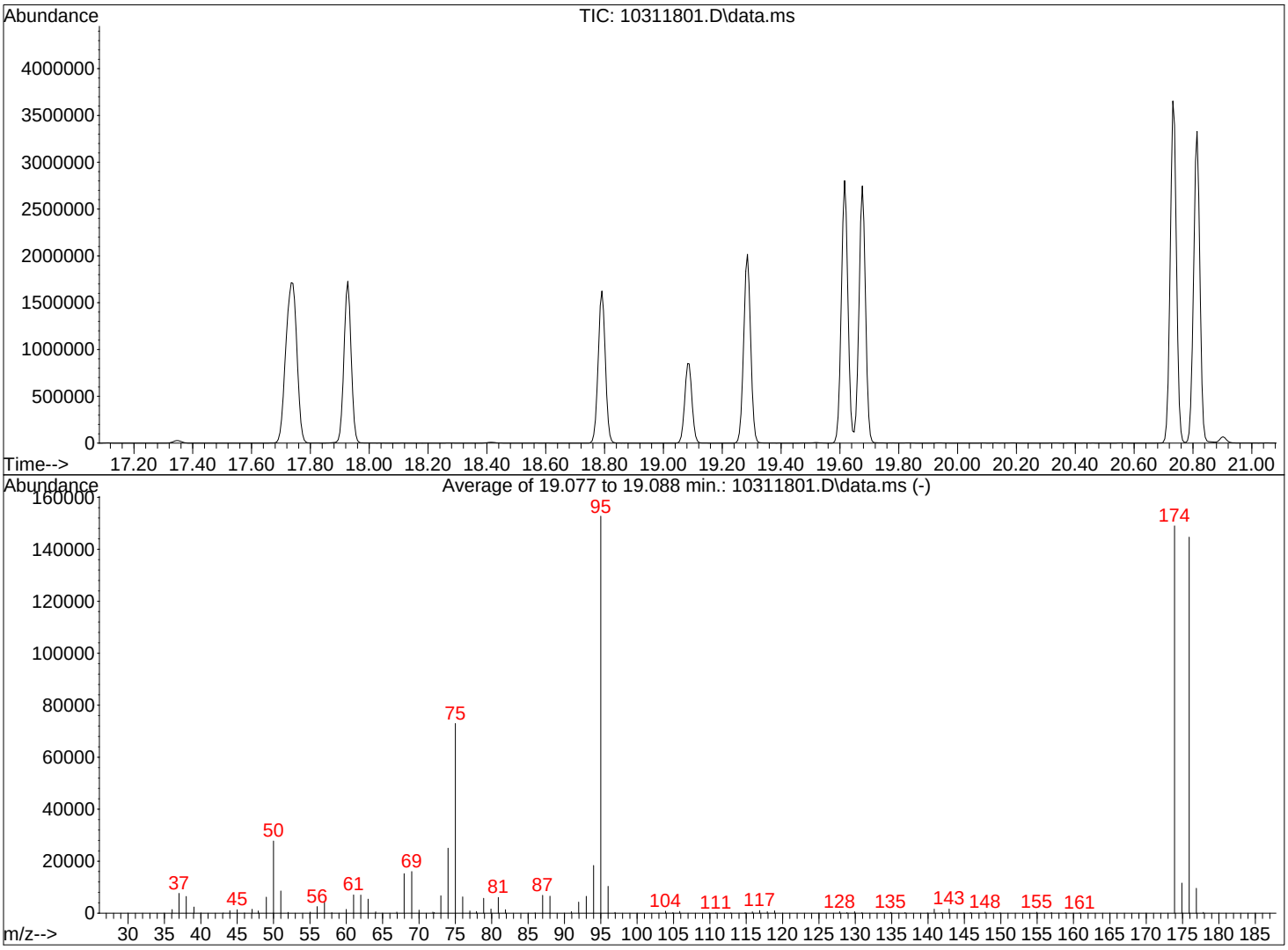
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	21.4	31877	PASS
75	95	30	66	50.9	75747	PASS
95	95	100	100	100.0	148683	PASS
96	95	5	9	6.4	9529	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	59.9	89037	PASS
175	174	4	9	7.3	6531	PASS
176	174	93	101	96.6	86005	PASS
177	176	5	9	6.6	5718	PASS

10/27/18

Data Path : I:\MS16\DATA\2018_10\31\
Data File : 10311801.D
Acq On : 31 Oct 2018 2:34
Operator : LH/TD
Sample : CCV C16103118_25ng
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018



AutoFind: Scans 2835, 2836, 2837; Background Corrected with Scan 2826

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.2	27776	PASS
75	95	30	66	47.8	72995	PASS
95	95	100	100	100.0	152725	PASS
96	95	5	9	6.8	10323	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	97.6	149011	PASS
175	174	4	9	7.8	11600	PASS
176	174	93	101	97.1	144675	PASS
177	176	5	9	6.6	9606	PASS

RS 10/31/18

Injection Log

Directory: J:\MS09\Data\2018_10\18\

9	10/18/18 15:35	10181809.D	Blank (100mL)	S31-10151806	SC	2	
10	10/18/18 16:09	10181810.D	12.5ng TO-15 BFB STD	S31-10151806	SC	2	pass
11	10/18/18 16:43	10181811.D	0.1ng TO-15 ICAL STD	S31-10151806/S31-10151812 (11/13)	SC	15	
12	10/18/18 17:17	10181812.D	0.2ng TO-15 ICAL STD	S31-10151806/S31-10151812 (11/13)	SC	15	
13	10/18/18 17:50	10181813.D	0.5ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
14	10/18/18 18:24	10181814.D	1.0ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
15	10/18/18 18:58	10181815.D	5.0ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
16	10/18/18 19:31	10181816.D	25ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
17	10/18/18 20:05	10181817.D	50ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
18	10/18/18 20:39	10181818.D	100ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
19	10/18/18 21:13	10181819.D	Blank (100mL)	S31-10151806	SC	2	
20	10/18/18 21:47	10181820.D	25ng TO-15 ICV STD	S31-10151806/S31-10151802 (11/13)	SC	2	pass
21	10/18/18 22:21	10181821.D	25ng TO-15 ICV STD	S31-10151806/S31-10151802 (11/13)	SC	2	pass
22							
23							
24							
25							*10/19/18*
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Injection Log

Directory: J:\MS16\DATA\2018_10\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/19/18 9:22	10191801.D	0.1ng std check	S31-09141801/S31-09251801 (10/23)	LH/TD	5	
2	10/19/18 9:55	10191802.D	0.5ng std check	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
3	10/19/18 10:28	10191803.D	5.0ng std check	S31-09141801/S31-10181801 (11/16)	LH/TD	7	
4	10/19/18 11:37	10191804.D	25ng std check	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
5	10/19/18 12:10	10191805.D	25ng std check	S31-09141801/S31-10191803 (11/17)	LH/TD	2	
6	10/19/18 14:38	10191806.D	Screen (20mL)	S31-09141801	LH/TD	5	
7	10/19/18 15:11	10191807.D	12.5ng TO15 BFB	S31-09141801	LH/TD	2	passed
8	10/19/18 15:45	10191808.D	0.5ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
9	10/19/18 16:18	10191809.D	1.0ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
10	10/19/18 16:51	10191810.D	5.0ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
11	10/19/18 17:24	10191811.D	25ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	**M16101918.M**
12	10/19/18 17:58	10191812.D	50ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	
13	10/19/18 18:31	10191813.D	100ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	
14	10/19/18 19:04	10191814.D	25ng MAPH ICV STD	S31-09141801/S31-10191803 (11/17)	LH/TD	2	passed
15	10/19/18 19:38	10191815.D	12.5ng TO15 BFB	S31-09141801	LH/TD	2	passed
16	10/19/18 20:11	10191816.D	0.1ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
17	10/19/18 20:45	10191817.D	0.2ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
18	10/19/18 21:18	10191818.D	0.5ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
19	10/19/18 21:52	10191819.D	1.0ng TO15 ICAL STD	S31-09141801/S31-10181801 (11/16)	LH/TD	6	
20	10/19/18 22:26	10191820.D	5.0ng TO15 ICAL STD	S31-09141801/S31-10181801 (11/16)	LH/TD	7	
21	10/19/18 22:59	10191821.D	25ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	**R16101918.M**
22	10/19/18 23:33	10191822.D	50ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
23	10/20/18 0:06	10191823.D	100ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
24	10/20/18 0:39	10191824.D	25ng TO15 ICV STD	S31-09141801/S31-10191803 (11/17)	LH/TD	2	passed
25							
26							
27				LH 10/20/18			
28							
29							
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Injection Log

Directory: J:\MS16\DATA\2018_10\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
34	10/20/18 21:51	10201834.D	12.5ng TO-15 BFB	S31-09141801	LH/TD	3	passed
35	10/20/18 22:25	10201835.D	0.4ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
36	10/20/18 22:58	10201836.D	1.0ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
37	10/20/18 23:32	10201837.D	2.5ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
38	10/21/18 0:05	10201838.D	5.0ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
39	10/21/18 0:39	10201839.D	25ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	**C16102018.M**
40	10/21/18 1:12	10201840.D	50ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	
41	10/21/18 1:45	10201841.D	100ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	
42	10/21/18 2:19	10201842.D	25ng TO-15 Custom ICV STD	S31-09141801/S31-10201801 (11/18)	LH/TD	4	passed

LH ***10/30/18***

Injection Log

Directory: J:\MS09\Data\2018_10\23\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/23/18 16:28	10231801.D	CCV R9102318_5.0ng	S31-10151806/S31-10151808 (11/13)	SC	2	
2	10/23/18 17:37	10231802.D	Blank (100mL)	S31-10151806	SC	2	
3	10/23/18 18:10	10231803.D	12.5ng TO-15 BFB STD	S31-10151806	SC	2	pass
4	10/23/18 18:44	10231804.D	0.4ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
5	10/23/18 19:18	10231805.D	1.0ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
6	10/23/18 19:52	10231806.D	2.5ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
7	10/23/18 20:26	10231807.D	5.0ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
8	10/23/18 21:00	10231808.D	25ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
9	10/23/18 21:34	10231809.D	50ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
10	10/23/18 22:08	10231810.D	100ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
11	10/23/18 22:42	10231811.D	Blank (100mL)	S31-10151806	SC	2	
12	10/23/18 23:16	10231812.D	25ng TO-15 Custom ICV STD	S31-10151806/S31-10201801 (11/18	SC	5	pass
13	10/23/18 23:50	10231813.D	25ng TO-15 Custom ICV STD	S31-10151806/S31-10201801 (11/18	SC	5	pass
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Injection Log

Directory: I:\MS09\Data\2018_10\25\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/25/18 4:40	10251801.D	CCV R9102518_5.0ng	S31-10151806/S31-10151808 (11/13)	SC	2	*passed*
2	10/25/18 5:14	10251802.D	CCV C9102518_25ng	S31-10151806/S31-10201804 (11/20)	SC	3	*passed*
3	10/25/18 5:49	10251803.D	MB R9102518_1000mL	S31-10151806_AC00463	SC	2	*passed*
4	10/25/18 6:23	10251804.D	LCS R9102518_25ng	S31-10151806/S31-10151802 (11/13)	SC	2	*passed*
5	10/25/18 6:56	10251805.D	LCSD R9102518_25ng	S31-10151806/S31-10151802 (11/13)	SC	2	*passed*
6	10/25/18 7:37	10251806.D	P1805722-001 (0.5mL)	S31-10151806	RS	1	
7	10/25/18 8:11	10251807.D	Screen5722-001dil (0.2mL)	S31-10151806	RS	1	*screen*
8	10/25/18 8:50	10251808.D	Screen5722-002 (15mL)	S31-10151806	RS	5	*screen*
9	10/25/18 9:23	10251809.D	P1805722-002 (30mL)	S31-10151806	RS	5	
10	10/25/18 10:33	10251810.D	P1805721-002 (13mL)	S31-10151806	RS	1	
11	10/25/18 11:07	10251811.D	Screen5721-004 (5.0mL)	S31-10151806	RS	1	*screen*
12	10/25/18 11:41	10251812.D	P1805721-004 (2.0mL)	S31-10151806	RS	1	
13	10/25/18 12:15	10251813.D	P1805721-001 (100mL)	S31-10151806	RS	6	
14	10/25/18 12:48	10251814.D	P1805721-003 (20mL)	S31-10151806	RS	7	
15	10/25/18 13:22	10251815.D	P1805722-002dil (25mL)	S31-10151806	RS	5	
16	10/25/18 13:59	10251816.D	P1805493-001 (400mL)	S31-10151806	RS	5	
17	10/25/18 15:30	10251817.D	P1805765-004 (15mL)	S31-10151806	RS	6	*double spike/IS's failed*
18	10/25/18 16:37	10251818.D	P1805765-004 (25mL)	S31-10151806	RS	8	*run dilution*
19	10/25/18 17:11	10251819.D	P1805721-003 (40mL)	S31-10151806	RS	7	
20	10/25/18 17:45	10251820.D	P1805721-003dup (40mL)	S31-10151806	RS	7	*passed*
21	10/25/18 18:18	10251821.D	P1805493-002 (400mL)	S31-10151806	RS	14	
22	10/25/18 18:52	10251822.D	P1805493-003 (400mL)	S31-10151806	RS	15	
23	10/25/18 19:26	10251823.D	P1805493-004 (400mL)	S31-10151806	RS	16	
24	10/25/18 20:00	10251824.D	System	S31-10151806	RS	2	
25	10/25/18 20:34	10251825.D	P1805765-001 (30mL)	S31-10151806	RS	6	*run higher*
26	10/25/18 21:08	10251826.D	P1805765-002 (30mL)	S31-10151806	RS	4	*run higher*
27	10/25/18 21:42	10251827.D	P1805765-003 (25mL)	S31-10151806	RS	5	*run higher*
28	10/25/18 22:16	10251828.D	P1805765-005 (15mL)	S31-10151806	RS	9	*run higher*
29	10/25/18 22:50	10251829.D	P1805765-006 (15mL)	S31-10151806	RS	10	*run higher*
30	10/25/18 23:23	10251830.D	System	S31-10151806	RS	2	
31	10/25/18 23:57	10251831.D	P1805765-007 (15mL)	S31-10151806	RS	11	
32	10/26/18 0:31	10251832.D	P1805765-008 (20mL)	S31-10151806	RS	12	
33	10/26/18 1:05	10251833.D	P1805765-009 (20mL)	S31-10151806	RS	13	
34	10/26/18 2:17	10251835.D	CCVend R9102518_5.0ng	S31-10151806/S31-10151808 (11/13)	RS	2	*passed*

RS 10/26/18

Injection Log

Directory: I:\MS09\Data\2018_10\26\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/26/18 4:39	10261801.D	CCV R9102518_5.0ng	S31-10151806/S31-10151808 (11/13)	RS	2	*Pass*
2	10/26/18 5:13	10261802.D	CCV C9102518_25ng	S31-10151806/S31-10201804 (11/20)	RS	3	*Pass*
3	10/26/18 5:46	10261803.D	MB R9102518_1000mL	S31-10151806_AC00463	RS	2	*Pass*
4	10/26/18 6:20	10261804.D	LCS R9102518_25ng	S31-10151806/S31-10151802 (11/13)	RS	2	*Pass*
5	10/26/18 6:54	10261805.D	LCSD R9102518_25ng	S31-10151806/S31-10151802 (11/13)	RS	2	*Pass*
6	10/26/18 7:28	10261806.D	P1805765-005 (30mL)	S31-10151806	RS	9	
7	10/26/18 8:01	10261807.D	P1805765-004dil (15mL)	S31-10151806	RS	8	
8	10/26/18 8:35	10261808.D	P1805765-006 (30mL)	S31-10151806	RS	10	
9	10/26/18 9:09	10261809.D	P1805765-007 (45mL)	S31-10151806	RS	11	
10	10/26/18 9:43	10261810.D	P1805765-008 (30mL)	S31-10151806	RS	12	
11	10/26/18 10:16	10261811.D	P1805765-009 (40mL)	S31-10151806	RS	13	
12	10/26/18 11:06	10261812.D	P1805522-001 (1000mL)	S31-10151806	RS	5	
13	10/26/18 11:46	10261813.D	P1805522-003 (1000mL)	S31-10151806	RS	4	
14	10/26/18 13:10	10261814.D	P1805522-002 (1000mL)	S31-10151806	RS	6	
15	10/26/18 13:44	10261815.D	system	S31-10151806	RS	2	
16	10/26/18 14:17	10261816.D	CCVend R9102618_5.0ng	S31-10151806/S31-10151808 (11/13)	RS	2	*Pass*
17	10/26/18 14:51	10261817.D	P1805493-015 (10mL)	S31-10151806	RS	1	
18	10/26/18 15:24	10261818.D	P1805493-015dup (10mL)	S31-10151806	RS	1	*Pass*
19	10/26/18 15:58	10261819.D	P1805493-008 (400mL)	S31-10151806	RS	6	
20	10/26/18 16:32	10261820.D	P1805493-009 (400mL)	S31-10151806	RS	7	
21	10/26/18 17:06	10261821.D	P1805493-010 (400mL)	S31-10151806	RS	8	
22	10/26/18 17:40	10261822.D	P1805493-011 (400mL)	S31-10151806	RS	9	
23	10/26/18 18:13	10261823.D	system	S31-10151806	RS	2	
24	10/26/18 18:47	10261824.D	P1805493-012 (400mL)	S31-10151806	RS	10	
25	10/26/18 19:21	10261825.D	P1805493-013 (400mL)	S31-10151806	RS	11	
26	10/26/18 19:55	10261826.D	P1805493-013dil (40mL)	S31-10151806	RS	11	
27	10/26/18 20:29	10261827.D	P1805493-014 (400mL)	S31-10151806	RS	12	
28	10/26/18 21:03	10261828.D	P1805493-014dil (40mL)	S31-10151806	RS	12	
29	10/26/18 21:37	10261829.D	system	S31-10151806	RS	2	
30	10/26/18 22:11	10261830.D	P1805493-016 (400mL)	S31-10151806	RS	13	
31	10/26/18 22:45	10261831.D	P1805493-016dil (40mL)	S31-10151806	RS	13	
32	10/26/18 23:19	10261832.D	P1805493-017 (400mL)	S31-10151806	RS	14	
33	10/26/18 23:52	10261833.D	P1805493-018 (400mL)	S31-10151806	RS	15	
34	10/27/18 0:27	10261834.D	P1805493-018dil (40mL)	S31-10151806	RS	15	
35	10/27/18 1:00	10261835.D	P1805493-019 (400mL)	S31-10151806	RS	16	
36	10/27/18 1:34	10261836.D	P1805493-019dil (40mL)	S31-10151806	RS	16	

Injection Log

Directory: I:\MS09\Data\2018_10\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/27/18 2:08	10271801.D	CCV R9102718_5.0ng	S31-10151806/S31-10151808 (11/13)	RS	2	*Pass (*)*
2	10/27/18 2:42	10271802.D	CCV C9102718_25ng	S31-10151806/S31-10201804 (11/20)	RS	3	*Pass*
3	10/27/18 3:16	10271803.D	MB R9102718_1000mL	S31-10151806_AC00463	RS	2	*Pass*
4	10/27/18 3:49	10271804.D	LCS R9102718_25ng	S31-10151806/S31-10151802 (11/13)	RS	2	*Pass*
5	10/27/18 4:23	10271805.D	LCSD R9102718_25ng	S31-10151806/S31-10151802 (11/13)	RS	2	*Pass*
6	10/27/18 4:57	10271806.D	P1805802-001 (100mL)	S31-10151806	RS	4	
7	10/27/18 5:31	10271807.D	P1805802-002 (100mL)	S31-10151806	RS	5	
8	10/27/18 6:04	10271808.D	P1805802-002dup (100mL)	S31-10151806	RS	5	
9	10/27/18 7:41	10271809.D	P1805827-002dil (0.1mL)	S31-10151806	WA	1	
10	10/27/18 8:14	10271810.D	P1805827-002 (0.2mL)	S31-10151806	WA	1	
11	10/27/18 8:50	10271811.D	P1805827-001 (100mL)	S31-10151806	WA	5	
12	10/27/18 9:25	10271812.D	RL R9102718_0.5ng	S31-10151806/S31-10151809	WA	4	*Pass*
13	10/27/18 9:59	10271813.D	P1805609-004 (25mL)	S31-10151806	WA	12	
14	10/27/18 10:32	10271814.D	P1805563-001 (1000mL)	S31-10151806	WA	4	
15	10/27/18 11:06	10271815.D	P1805574-001 (1000mL)	S31-10151806	WA	5	
16	10/27/18 11:48	10271816.D	P1805574-001dup (1000mL)	S31-10151806	WA	5	*Pass (*)*
17	10/27/18 12:21	10271817.D	P1805493-005 (400mL)	S31-10151806	WA	6	
18	10/27/18 12:55	10271818.D	P1805493-006 (400mL)	S31-10151806	WA	7	
19	10/27/18 13:29	10271819.D	P1805493-007 (400mL)	S31-10151806	WA	8	
20	10/27/18 14:03	10271820.D	Blank	S31-10151806	WA	1	
21	10/27/18 14:37	10271821.D	P1805537-001 (400mL)	S31-10151806	WA	13	
22	10/27/18 15:10	10271822.D	P1805537-002 (400mL)	S31-10151806	WA	14	
23	10/27/18 15:44	10271823.D	P1805537-003 (400mL)	S31-10151806	WA	15	
24	10/27/18 16:18	10271824.D	P1805609-001 (400mL)	S31-10151806	WA	9	
25	10/27/18 16:51	10271825.D	P1805609-002 (400mL)	S31-10151806	WA	10	
26	10/27/18 17:25	10271826.D	P1805609-003 (400mL)	S31-10151806	WA	11	
27	10/27/18 17:59	10271827.D	P1805609-005 (400mL)	S31-10151806	WA	16	
28	10/27/18 18:32	10271828.D	Blank	S31-10151806	WA	1	
29	10/27/18 19:06	10271829.D	P1805706-001 (400mL)	S31-10151806	WA	4	
30	10/27/18 19:40	10271830.D	P1805707-001 (400mL)	S31-10151806	WA	12	
31	10/27/18 20:13	10271831.D	Std check_5ng	S31-10151806	WA	2	
	CCV : 1,3-butadiene bias low (RL checked pass)						

Injection Log

Directory: I:\MS16\DATA\2018_10\31\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/31/18 2:34	10311801.D	CCV C16103118_25ng	S31-09141801/S31-10191806 (11/17)	LH/TD	3	*pass*
2	10/31/18 3:07	10311802.D	CCV R16103118_25ng	S31-09141801/S31-10181803 (11/16)	LH/TD	2	*pass*
3	10/31/18 3:41	10311803.D	CCV M16103118_25ng	S31-09141801/S31-10121803 (12/09)	LH/TD	4	*pass*
4	10/31/18 4:14	10311804.D	MB R16103118_1000mL	S31-09141801/AC00442	LH/TD	2	*pass*
5	10/31/18 4:47	10311805.D	LCS R16103118_25ng	S31-09141801/S31-10191803 (11/17)	LH/TD	2	*pass*
6	10/31/18 5:21	10311806.D	LCSD R16103118_25ng	S31-09141801/S31-10191803 (11/17)	LH/TD	2	*pass*
7	10/31/18 5:54	10311807.D	P1805493-017 (40mL)	S31-09141801	LH/TD	6	*rerun higher*
8	10/31/18 6:27	10311808.D	P1805796-001 (15mL)	S31-09141801	LH/TD	14	
9	10/31/18 7:00	10311809.D	Blank (100mL)	S31-09141801	LH/TD	2	
10	10/31/18 7:38	10311810.D	P1805796-002 (1000mL)	S31-09141801	LH/TD	15	
11	10/31/18 8:11	10311811.D	P1805493-017 (100mL)	S31-09141801	LH/TD	6	
12	10/31/18 8:45	10311812.D	P1805729-003 (0.35mL)	S31-09141801	LH/TD	1	
13	10/31/18 9:49	10311813.D	P1805729-003 (1.5mL)	S31-09141801	LH/TD	1	

RS 10/31/18

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-06
Cycles: 30
Batch: 22640

Batch Started By: HAYDEN.AKERS on 10/3/18 0232
Finished Cleaning By: HAYDEN.AKERS on 10/3/18 0233

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
1BV12846	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/9/18 0303	JHULETTE	MS21_10/03/18
1BV12847	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12849	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12853	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12854	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12862	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12865	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12871	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12874	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12875	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12876	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12877	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12878	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12879	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12881	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12848	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12850	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12851	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12852	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12855	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12856	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12857	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12858	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12859	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12860	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	

1BV12861	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12863	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12864	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12866	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12867	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12868	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12869	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12870	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12872	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12873	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12880	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0233	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

***QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

RVT 10/5/18

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	46126	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	112225	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	109963	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	62530	1010.809	pg		0.00
Spiked Amount 1000.000			Recovery = 101.08%				
57) Toluene-d8 (SS2)	12.62	98	127463	965.323	pg		0.00
Spiked Amount 1000.000			Recovery = 96.53%				
74) Bromofluorobenzene (SS3)	16.14	174	35479	1029.091	pg		0.00
Spiked Amount 1000.000			Recovery = 102.91%				
Target Compounds							Qvalue
2) * Propene	3.52	42	875	14.958	pg	#	70
3) * Dichlorodifluoromethane	3.58	85	903	5.089	pg		99
4) * Chloromethane	3.71	50	1115	10.804	pg		99
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	515	3.872	pg		97
6) * Vinyl Chloride	3.89	62	644	6.902	pg		99
7) * 1,3-Butadiene	4.00	54	411	7.238	pg	#	2
8) * Bromomethane	4.21	94	407	5.805	pg		98
9) * Chloroethane	4.35	64	225	5.478	pg		98
10) * Ethanol	4.44	45	1749	59.901	pg		93
11) * Acetonitrile	4.60	41	848	7.441	pg	#	1
12) * Acrolein	4.71	56	765	16.404	pg		96
13) * Acetone	4.83	58	12841	203.001	pg		75
14) * Trichlorofluoromethane	4.96	101	604	4.657	pg		99
15) * 2-Propanol (Isopropa...	5.04	45	1226	12.967	pg	#	55
16) * Acrylonitrile	5.18	53	866	10.369	pg		99
17) * 1,1-Dichloroethene	5.48	96	275	4.733	pg		92
18) tert-Butanol	5.56	59	1121	19.136	pg		99
19) * Methylene Chloride	5.57	84	867	11.142	pg		98
20) * 3-Chloro-1-propene (...	5.67	41	240	4.603	pg	#	69
21) * Trichlorotrifluoroet...	5.82	151	173	2.806	pg	#	49
22) * Carbon Disulfide	5.84	76	7244	26.970	pg		99
23) * trans-1,2-Dichloroet...	6.39	96	298	4.806	pg		93
24) * 1,1-Dichloroethane	6.58	63	451	4.287	pg		97
25) * Methyl tert-Butyl Ether	6.69	73	317	4.801	pg	#	51
26) * Vinyl Acetate	6.71	86	385	40.856	pg		67
27) * 2-Butanone (MEK)	6.98	72	707	20.790	pg		83
28) * cis-1,2-Dichloroethene	7.38	96	266	4.309	pg		93
29) DIPE	7.65	45	545	4.538	pg		98
30) * Ethyl Acetate	7.64	61	185	12.919	pg		100
31) * n-Hexane	7.64	57	308	4.720	pg		96
32) * Chloroform	7.68	83	570	4.494	pg		96
35) ETBE	8.24	87	100	4.182	pg		93
36) * 1,2-Dichloroethane	8.49	62	326	4.367	pg		92
38) * 1,1,1-Trichloroethane	8.80	97	304	4.913	pg		97
39) * Benzene	9.34	78	1476	8.112	pg		94
41) 1-Butanol	9.32	56	488	18.087	pg	#	48
42) * Carbon Tetrachloride	9.53	117	291	4.585	pg		98
43) * Cyclohexane	9.69	84	382	8.119	pg		96
45) * 1,2-Dichloropropane	10.33	63	261	4.994	pg		99
46) * Bromodichloromethane	10.54	83	376	5.180	pg		98
47) * Trichloroethene	10.62	130	291	5.531	pg		99
48) * 1,4-Dioxane	10.66	88	192	6.605	pg		94
49) Isooctane	10.71	56	300	5.171	pg		99
50) * Methyl Methacrylate	10.89	69	335	10.404	pg		99
51) * n-Heptane	11.02	71	534	7.720	pg		97

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

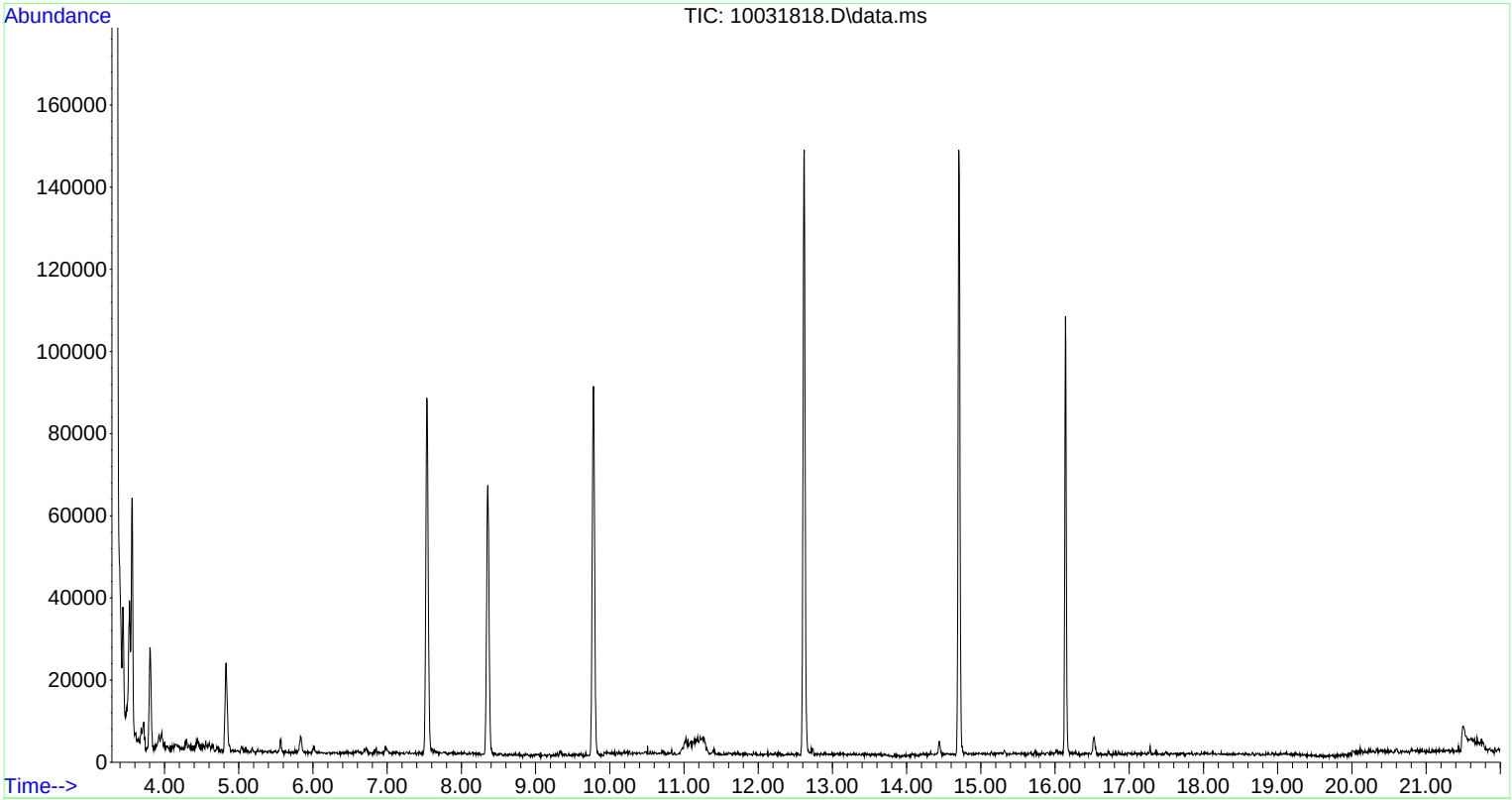
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
52) * cis-1,3-Dichloropropene	11.62	75	241	5.377	pg		98
53) * 4-Methyl-2-pentanone	11.73	58	260	9.820	pg		99
54) * trans-1,3-Dichloropr...	12.22	75	166	5.391	pg	#	43
55) * 1,1,2-Trichloroethane	12.40	97	275	5.199	pg		99
58) * Toluene	12.73	91	1446	7.546	pg		100
59) * 2-Hexanone	13.08	58	108	6.036	pg	#	59
60) * Dibromochloromethane	13.17	129	257	4.582	pg		99
61) * 1,2-Dibromoethane	13.45	107	280	5.394	pg		96
63) * n-Octane	13.92	85	104	5.046	pg		99
64) * Tetrachloroethene	14.02	166	290	4.995	pg		96
65) * Chlorobenzene	14.75	112	735	5.644	pg		100
66) * Ethylbenzene	15.14	91	697	5.183	pg		98
67) * m- & p-Xylenes	15.31	91	1126	11.545	pg		99
68) * Bromoform	15.34	173	192	5.483	pg		99
69) Cyclohexanone	15.47	98	80	6.236	pg	#	71
70) * Styrene	15.65	104	303	5.828	pg		94
71) * o-Xylene	15.74	91	499	4.987	pg		99
72) * n-Nonane	15.98	57	140	3.984	pg		96
73) * 1,1,2,2-Tetrachloroe...	15.72	83	503	4.894	pg		99
75) * Cumene	16.28	105	676	4.545	pg		98
76) * alpha-Pinene	16.61	93	257	5.093	pg		93
77) * n-Propylbenzene	16.72	91	686	5.113	pg		98
78) 3-Ethyltoluene	16.85	105	463	4.675	pg		89
79) * 4-Ethyltoluene	16.85	105	463	5.802	pg		91
80) * 1,3,5-Trimethylbenzene	16.92	105	346	3.950	pg		95
81) alpha-Methylstyrene	17.05	118	218	5.929	pg		98
82) 2-Ethyltoluene	17.07	105	468	4.184	pg		96
83) tert-Butylbenzene	17.28	134	64	3.112	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	377	5.365	pg		94
86) * 1,3-Dichlorobenzene	17.43	146	377	6.468	pg		100
87) * 1,4-Dichlorobenzene	17.43	146	375	8.095	pg		98
88) n-Decane	17.37	85	79	5.879	pg	#	42
89) sec-Butylbenzene	17.49	105	451	3.516	pg		99
90) 1,2,3-Trimethylbenzene	17.61	105	321	4.443	pg		96
91) p-Isopropyltoluene	17.62	134	87	4.061	pg		99
92) * 1,2-Dichlorobenzene	17.72	146	376	6.265	pg		98
93) * D-Limonene	17.74	68	85	3.925	pg	#	79
94) n-Butylbenzene	17.97	134	71	4.802	pg		92
95) * 1,2-Dibromo-3-chloro...	18.09	157	139	9.728	pg		99
97) * 1,2,4-Trichlorobenzene	19.19	180	155	17.064	pg		98
98) * Naphthalene	19.29	128	321	17.114	pg	#	68
100) * Hexachlorobutadiene	19.63	225	142	4.386	pg		92

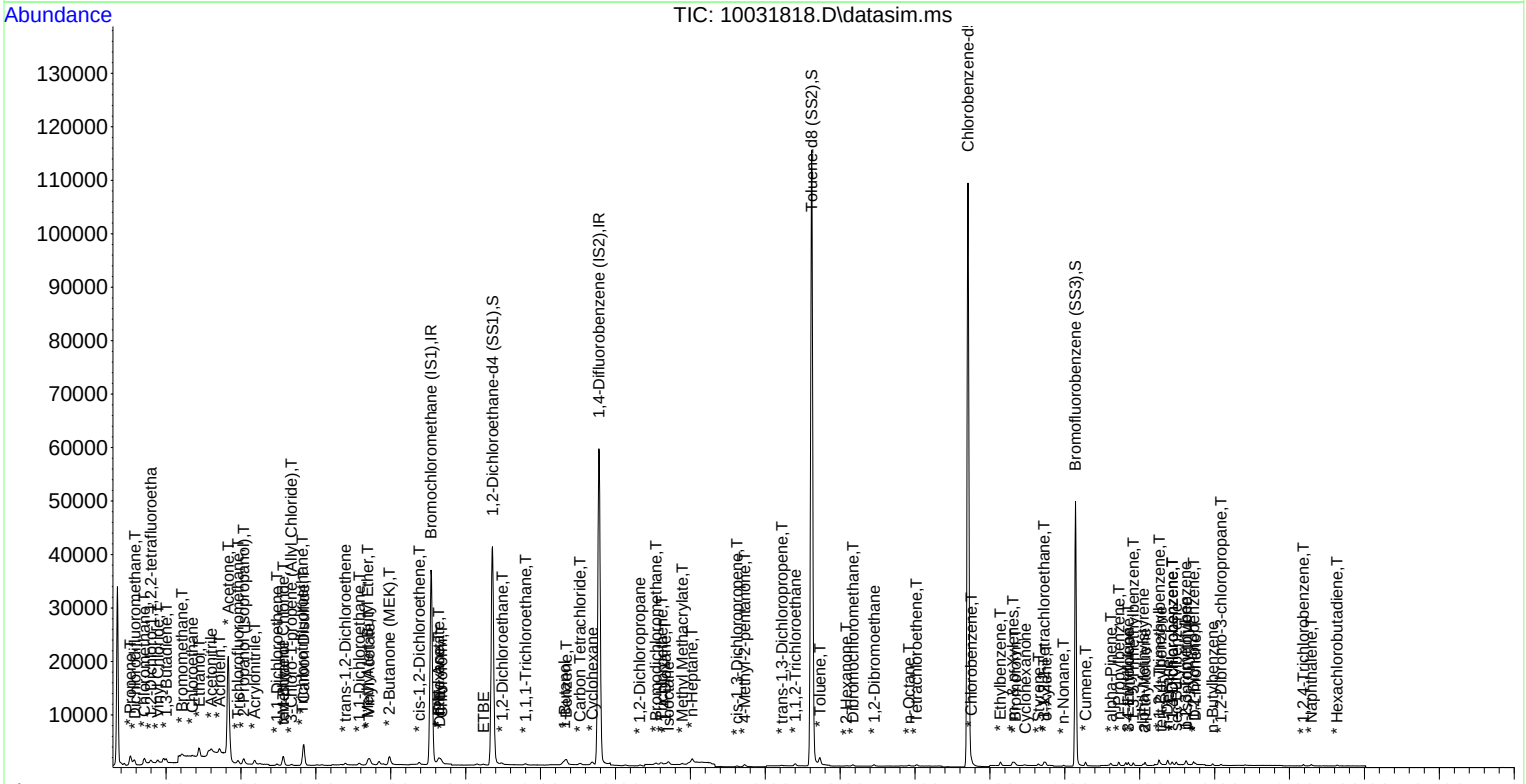
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031818.D
Acq On : 3 Oct 2018 8:56 pm
Operator : RVT
Sample : 100318_1BV12846_22640
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Oct 04 11:41:36 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-06
Cycles: 15
Batch: 22642

Batch Started By: HAYDEN.AKERS on 10/3/18 0335
Finished Cleaning By: HAYDEN.AKERS on 10/3/18 0336

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
1BV12917	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12907	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12911	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12908	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12912	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12913	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12914	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12903	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12898	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12899	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12896	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12895	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12894	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12902	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12900	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12882	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/9/18 0303	JHULETTE	MS21_10/03/18
1BV12890	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12883	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12887	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12891	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12884	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12888	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12892	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12885	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12889	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	

1BV12893	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12906	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12910	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12897	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12886	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/5/18 0232	JHULETTE
1BV12916	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12915	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12905	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12901	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12904	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12909	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

***QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

RVT 10/5/18

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	45150	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	107947	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	107329	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	61783	1020.323	pg		0.00
Spiked Amount 1000.000			Recovery = 102.03%				
57) Toluene-d8 (SS2)	12.62	98	123357	957.154	pg		0.00
Spiked Amount 1000.000			Recovery = 95.71%				
74) Bromofluorobenzene (SS3)	16.14	174	34999	1040.081	pg		0.00
Spiked Amount 1000.000			Recovery = 104.01%				
Target Compounds							Qvalue
2) * Propene	3.52	42	655	11.439	pg	#	52
3) * Dichlorodifluoromethane	3.58	85	865	4.980	pg		97
4) * Chloromethane	3.71	50	714	7.068	pg		88
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	502	3.856	pg		92
6) * Vinyl Chloride	3.89	62	590	6.460	pg	#	88
7) * 1,3-Butadiene	4.00	54	404	7.269	pg	#	73
8) * Bromomethane	4.21	94	344	5.013	pg		85
9) * Chloroethane	4.35	64	185	4.601	pg	#	77
10) * Ethanol	4.44	45	1532	53.604	pg		100
11) * Acetonitrile	4.60	41	629	5.638	pg	#	1
12) * Acrolein	4.71	56	571	12.509	pg		100
13) * Acetone	4.83	58	4848	78.298	pg		87
14) * Trichlorofluoromethane	4.96	101	583	4.593	pg		97
15) * 2-Propanol (Isopropa...	5.04	45	1050	11.345	pg	#	82
16) * Acrylonitrile	5.19	53	890	10.887	pg		95
17) * 1,1-Dichloroethene	5.48	96	283	4.976	pg		97
18) tert-Butanol	5.56	59	1025	17.875	pg		99
19) * Methylene Chloride	5.57	84	463	6.079	pg		98
20) * 3-Chloro-1-propene (...	5.67	41	272	5.330	pg	#	84
21) * Trichlorotrifluoroet...	5.81	151	268	4.440	pg		97
22) * Carbon Disulfide	5.84	76	8323	31.657	pg		99
23) * trans-1,2-Dichloroet...	6.39	96	271	4.465	pg		86
24) * 1,1-Dichloroethane	6.58	63	477	4.632	pg		100
25) * Methyl tert-Butyl Ether	6.70	73	310	4.797	pg		98
26) * Vinyl Acetate	6.72	86	330	35.776	pg	#	54
27) * 2-Butanone (MEK)	6.99	72	384	11.536	pg		79
28) * cis-1,2-Dichloroethene	7.39	96	245	4.055	pg		91
29) DIPE	7.65	45	573	4.874	pg		91
30) * Ethyl Acetate	7.63	61	168	11.985	pg		92
31) * n-Hexane	7.63	57	271	4.243	pg		98
32) * Chloroform	7.67	83	524	4.220	pg		98
34) * Tetrahydrofuran	8.16	71	87	4.211	pg	#	67
35) ETBE	8.24	87	104	4.444	pg		76
36) * 1,2-Dichloroethane	8.48	62	337	4.612	pg	#	82
38) * 1,1,1-Trichloroethane	8.80	97	323	5.427	pg		91
39) * Benzene	9.35	78	1299	7.422	pg		98
40) Isopropyl Acetate	9.29	61	112	9.959	pg	#	19
41) 1-Butanol	9.32	56	428	16.491	pg	#	69
42) * Carbon Tetrachloride	9.53	117	160	2.621	pg	#	40
43) * Cyclohexane	9.69	84	354	7.822	pg		96
44) TAME	10.14	87	54	4.501	pg		77
45) * 1,2-Dichloropropane	10.33	63	250	4.973	pg		97
46) * Bromodichloromethane	10.54	83	328	4.698	pg		99
47) * Trichloroethene	10.62	130	262	5.177	pg		100
48) * 1,4-Dioxane	10.67	88	181	6.473	pg		94

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

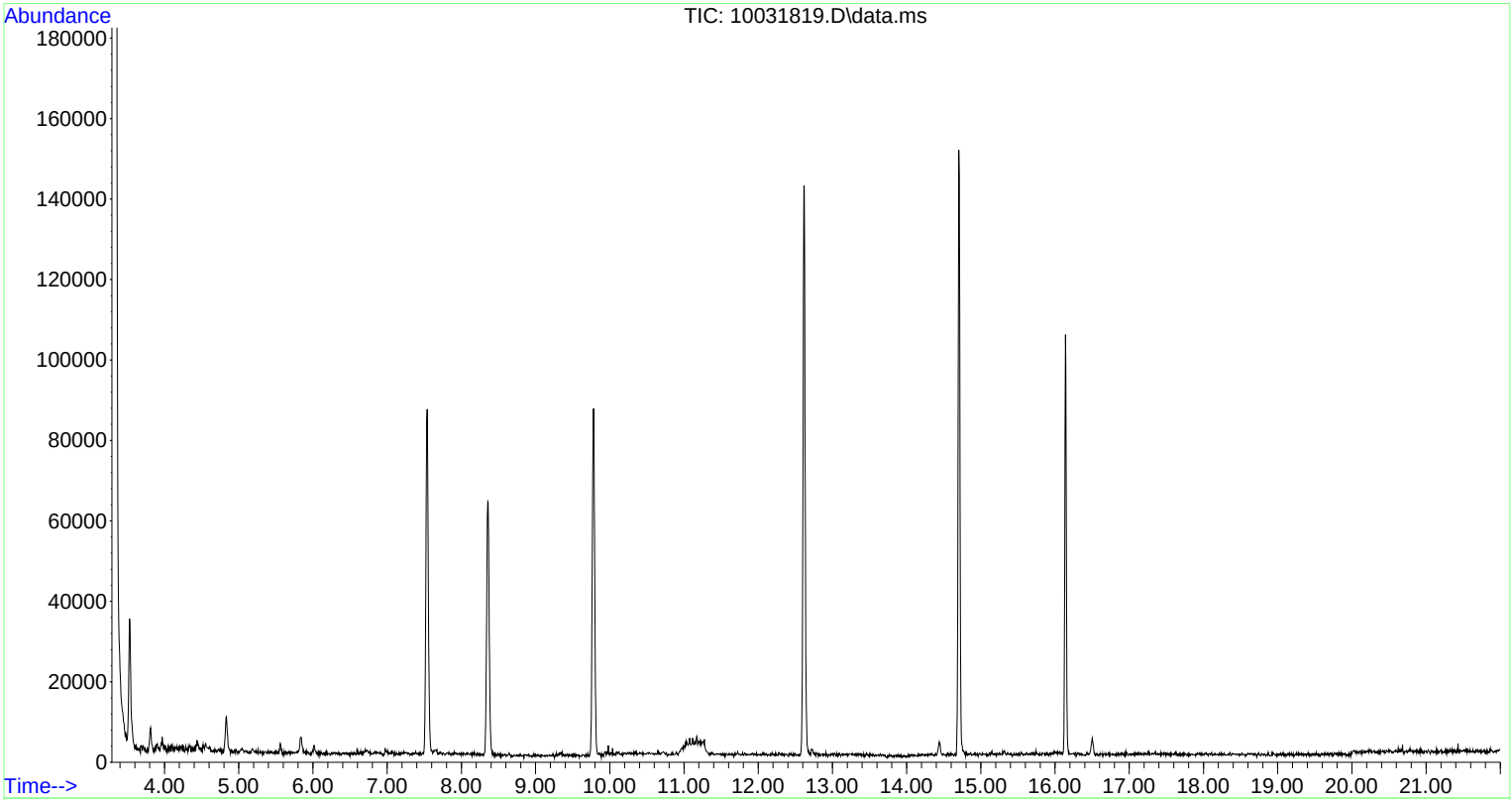
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) Isooctane	10.71	56	246	4.408	pg		87
50) * Methyl Methacrylate	10.89	69	330	10.655	pg		96
51) * n-Heptane	11.03	71	371	5.576	pg		89
52) * cis-1,3-Dichloropropene	11.62	75	225	5.219	pg		89
53) * 4-Methyl-2-pentanone	11.73	58	276	10.837	pg		90
54) * trans-1,3-Dichloropr...	12.22	75	138	4.659	pg	#	43
55) * 1,1,2-Trichloroethane	12.40	97	270	5.307	pg		98
58) * Toluene	12.73	91	1385	7.405	pg		100
59) * 2-Hexanone	13.09	58	60	3.436	pg	#	59
60) * Dibromochloromethane	13.17	129	235	4.292	pg		96
61) * 1,2-Dibromoethane	13.45	107	223	4.401	pg		93
63) * n-Octane	13.91	85	96	4.772	pg		91
64) * Tetrachloroethene	14.02	166	257	4.535	pg		95
65) * Chlorobenzene	14.75	112	640	5.035	pg		93
66) * Ethylbenzene	15.14	91	730	5.561	pg		90
67) * m- & p-Xylenes	15.31	91	1085	11.397	pg		97
68) * Bromoform	15.35	173	153	4.476	pg		95
69) Cyclohexanone	15.47	98	54	4.313	pg	#	59
70) * Styrene	15.64	104	222	4.375	pg		98
71) * o-Xylene	15.74	91	505	5.171	pg		99
72) * n-Nonane	15.99	57	155	4.519	pg		92
73) * 1,1,2,2-Tetrachloroe...	15.72	83	441	4.396	pg		92
75) * Cumene	16.28	105	595	4.098	pg		99
76) * alpha-Pinene	16.61	93	285	5.786	pg		92
77) * n-Propylbenzene	16.72	91	586	4.475	pg		97
78) 3-Ethyltoluene	16.85	105	359	3.714	pg		98
79) * 4-Ethyltoluene	16.85	105	359	4.609	pg		96
80) * 1,3,5-Trimethylbenzene	16.92	105	338	3.953	pg		98
81) alpha-Methylstyrene	17.05	118	195	5.434	pg		93
82) 2-Ethyltoluene	17.07	105	417	3.820	pg		96
83) tert-Butylbenzene	17.26	134	61	3.039	pg	#	63
84) * 1,2,4-Trimethylbenzene	17.26	105	389	5.672	pg		96
86) * 1,3-Dichlorobenzene	17.43	146	206	3.621	pg		98
87) * 1,4-Dichlorobenzene	17.43	146	206	4.556	pg		96
88) n-Decane	17.37	85	57	4.346	pg		91
89) sec-Butylbenzene	17.48	105	390	3.115	pg		93
90) 1,2,3-Trimethylbenzene	17.61	105	291	4.127	pg		99
91) p-Isopropyltoluene	17.62	134	74	3.539	pg		98
92) * 1,2-Dichlorobenzene	17.71	146	273	4.660	pg		92
93) * D-Limonene	17.75	68	86	4.068	pg	#	73
94) n-Butylbenzene	17.97	134	53	3.672	pg		95
95) * 1,2-Dibromo-3-chloro...	18.09	157	76	5.449	pg		85
97) * 1,2,4-Trichlorobenzene	19.19	180	81	9.136	pg		82
98) * Naphthalene	19.29	128	171	9.340	pg	#	68
100) * Hexachlorobutadiene	19.62	225	128	4.050	pg	#	43

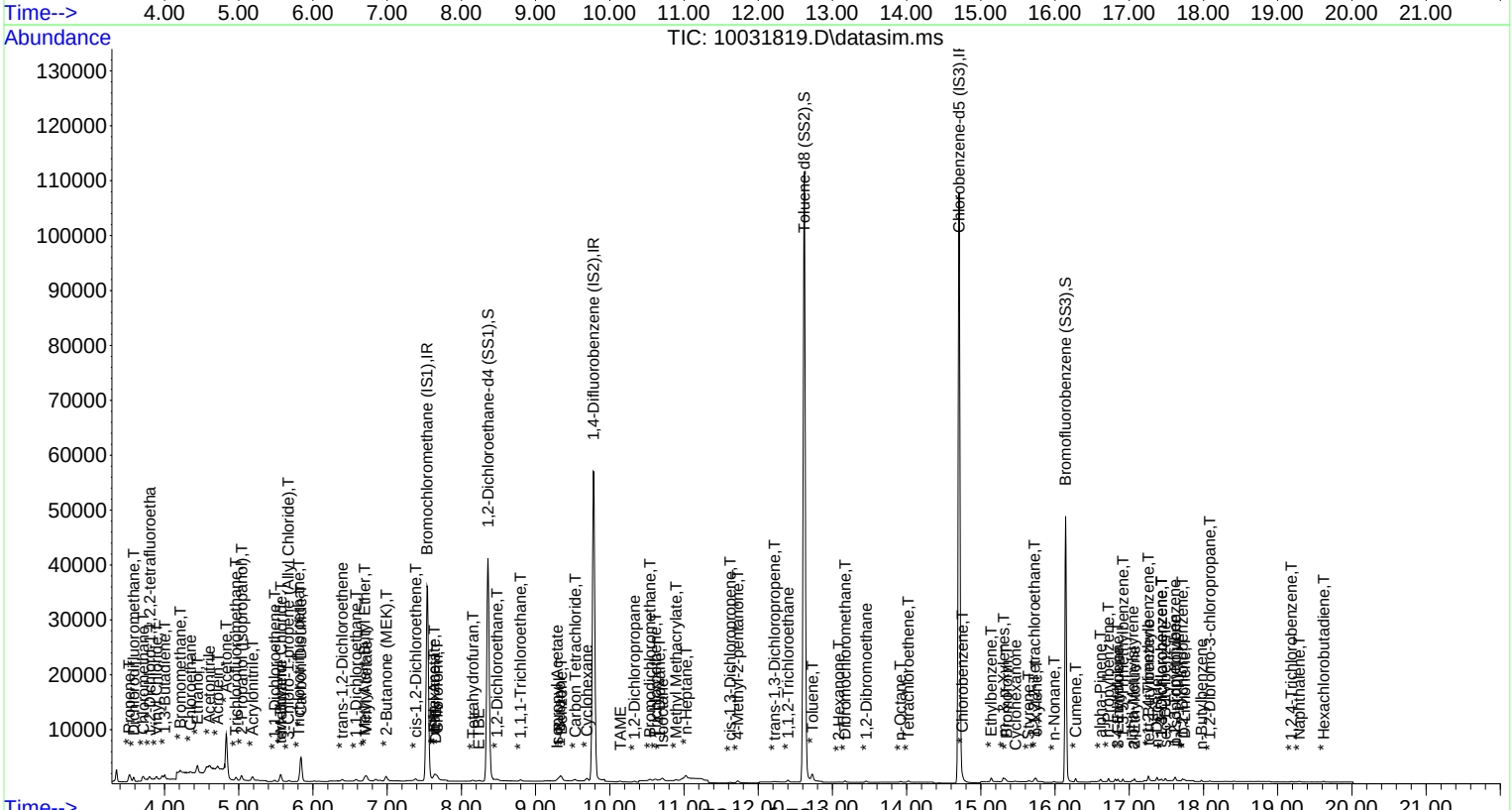
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration





2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

October 31, 2018

Rachel Grand
Jacobs
1034 South Brentwood Blvd Suite 2300
St. Louis, MO 63117

RE: PMC

Dear Rachel:

Enclosed are the results of the samples submitted to our laboratory on October 13, 2018. For your reference, these analyses have been assigned our service request number P1805497.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 11:07 am, 10/31/18

Kate Kaneko
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Jacobs
Project: PMC

Service Request No: P1805497

CASE NARRATIVE

The samples were received intact under chain of custody on October 13, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in scan and SIM mode for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The first Internal Standard (IS) and the corresponding surrogate spike exceeded the control limits in the SIM analysis of the samples 19CP01-03, 19CP01-04, 19CP01-06, 19CP01-10 and 19CP01-11 due to suspected matrix interference. The samples were re-analyzed at a lower volume. The IS and surrogate spike in question were within the control limits in the re-analysis. The results for target analytes associated with the IS and surrogate spike in question are therefore being reported from the dilutions. The data has been flagged where appropriate. No further corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Jacobs
Project ID: PMC

Service Request: P1805497

Date Received: 10/13/2018
Time Received: 10:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	2nd Pi (psig)	2nd Pf (psig)	TO-15 - VOC Cans	TO-15 - VOC SIM
19CP01-01	P1805497-001	Air	10/10/2018	12:22	AC02293	-3.29	3.85			X	X
19CP01-02	P1805497-002	Air	10/10/2018	12:27	AS00949	-2.75	3.65			X	X
19CP01-03	P1805497-003	Air	10/10/2018	12:25	AS00260	-3.06	3.70	0.52	2.03	X	X
19CP01-04	P1805497-004	Air	10/9/2018	15:11	AC01850	-3.68	3.59	0.21	1.25	X	X
19CP01-05	P1805497-005	Air	10/9/2018	15:15	AS01008	-3.37	3.59			X	X
19CP01-06	P1805497-006	Air	10/9/2018	15:25	AC02126	-3.49	3.62	0.05	1.18	X	X
19CP01-07	P1805497-007	Air	10/9/2018	15:30	AS00330	-3.91	3.62			X	X
19CP01-08	P1805497-008	Air	10/9/2018	15:39	AS00629	-3.56	3.60	0.82	1.43	X	X
19CP01-09	P1805497-009	Air	10/9/2018	15:45	AC02266	-3.72	3.66			X	X
19CP01-10	P1805497-010	Air	10/9/2018	15:56	AS01018	-3.74	3.75	0.09	1.05	X	X
19CP01-11	P1805497-011	Air	10/9/2018	16:03	AS00766	-3.52	3.52	-0.06	1.05	X	X
19CP01-12	P1805497-012	Air	10/9/2018	15:21	AC02147	-3.56	3.53			X	X
19CP01-13	P1805497-013	Air	10/9/2018	15:15	AC01848	-3.60	3.53			X	X

P1805497

USEPA CLP COC (LAB COPY)
DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

COC - Petoskey Michigan Site (PMC)

Case #:
Cooler #:

No: 5-101118-171034-0017
Lab: ALS Laboratory Group - Simi Valley
Lab Contact: Kate Kaneko
Lab Phone: 805-526-7161

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
1	PMC-ST-06-101018	19CP01-01	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-06	10/10/2018 12:22	
2	PMC-ST-05-101018	19CP01-02	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-05	10/10/2018 12:27	
3	PMC-SA-07-101018	19CP01-03	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-07	10/10/2018 12:25	
4	PMC-SA-03-100918	19CP01-04	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-03	10/09/2018 15:11	
5	PMC-ST-03-100918	19CP01-05	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-03	10/09/2018 15:15	
6	PMC-SA-04-100918	19CP01-06	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-04	10/09/2018 15:25	
7	PMC-ST-04-100918	19CP01-07	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-04	10/09/2018 15:30	
8	PMC-ST-01-100918	19CP01-08	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-01	10/09/2018 15:39	
9	PMC-SA-01-100918	19CP01-09	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-01	10/09/2018 15:45	
10	PMC-SA-05-100918	19CP01-10	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-05	10/09/2018 15:56	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (6L Can)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	10/12/18 1200	ALS	10-13-18 1015	GOOD CUSTODY SEAL INTACT

P1805497

USEPA CLP COC (LAB COPY)
DateShipped: 10/12/2018
CarrierName: FedEx Overnight
AirbillNo:

COC - Petoskey Michigan Site (PMC)

Case #:
Cooler #:

No: 5-101118-171034-0017
Lab: ALS Laboratory Group - Simi Valley
Lab Contact: Kate Kaneko
Lab Phone: 805-526-7161

	Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
11	PMC-SA-06-100918	19CP01-11	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-06	10/09/2018 16:03	
12	PMC-SA-02-100918	19CP01-12	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	SA-02	10/09/2018 15:21	
13	PMC-ST-03-100918-FD	19CP01-13	Air/ Jacobs	Grab	TO-15(21)	A (None) (1)	ST-03	10/09/2018 15:15	

6 of 1033

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (6L Can)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	10/12/18 1200	ALS	10-13-18 1015	Good

ALS Environmental
Sample Acceptance Check Form

Client: Jacobs Work order: P1805497

Project: PMC

Sample(s) received on: 10/13/18 Date opened: 10/13/18 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805497-001.01	6.0 L Ambient Can					
P1805497-002.01	6.0 L Silonite Can					
P1805497-003.01	6.0 L Silonite Can					
P1805497-004.01	6.0 L Ambient Can					
P1805497-005.01	6.0 L Silonite Can					
P1805497-006.01	6.0 L Ambient Can					
P1805497-007.01	6.0 L Silonite Can					
P1805497-008.01	6.0 L Silonite Can					
P1805497-009.01	6.0 L Ambient Can					
P1805497-010.01	6.0 L Silonite Can					
P1805497-011.01	6.0 L Silonite Can					
P1805497-012.01	6.0 L Ambient Can					
P1805497-013.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-01**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC02293

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.29 Final Pressure (psig): 3.85

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.49**	0.85	0.21	**0.29**	0.49	0.12	**J**
64-17-5	Ethanol	**1.7**	8.3	0.60	**0.90**	4.4	0.32	**J**
75-05-8	Acetonitrile	0.21	0.85	0.21	0.13	0.51	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.40**	3.4	0.36	**0.16**	1.4	0.15	**J**
107-13-1	Acrylonitrile	0.18	0.85	0.18	0.083	0.39	0.083	**U**
75-15-0	Carbon Disulfide	0.26	1.8	0.26	0.084	0.58	0.084	**U**
108-05-4	Vinyl Acetate	2.0	8.6	2.0	0.56	2.5	0.56	**U**
78-93-3	2-Butanone (MEK)	**0.41**	1.6	0.18	**0.14**	0.55	0.061	**J**
110-54-3	n-Hexane	**0.30**	0.88	0.18	**0.086**	0.25	0.051	**J**
71-36-3	1-Butanol	**0.37**	1.6	0.23	**0.12**	0.54	0.075	**J**
110-82-7	Cyclohexane	0.24	1.6	0.24	0.071	0.47	0.071	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.86	0.12	0.029	0.21	0.029	**U**
591-78-6	2-Hexanone	**0.27**	0.88	0.11	**0.067**	0.21	0.026	**J**
75-25-2	Bromoform	0.18	0.86	0.18	0.017	0.084	0.017	**U**
100-44-7	Benzyl Chloride	0.20	1.8	0.20	0.038	0.35	0.038	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.85	0.12	0.024	0.17	0.024	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.41	0.82	0.41	0.12	0.23	0.12	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-02** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-002

Test Code: EPA TO-15 Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00949

Initial Pressure (psig): -2.75 Final Pressure (psig): 3.65

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.55**	0.80	0.20	**0.32**	0.47	0.12	**J**
64-17-5	Ethanol	**1.8**	7.9	0.57	**0.98**	4.2	0.30	**J**
75-05-8	Acetonitrile	0.20	0.80	0.20	0.12	0.48	0.12	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**1.3**	3.2	0.34	**0.52**	1.3	0.14	**J**
107-13-1	Acrylonitrile	0.17	0.80	0.17	0.078	0.37	0.078	**U**
75-15-0	Carbon Disulfide	0.25	1.7	0.25	0.079	0.54	0.079	**U**
108-05-4	Vinyl Acetate	1.8	8.2	1.8	0.53	2.3	0.53	**U**
78-93-3	2-Butanone (MEK)	**0.69**	1.5	0.17	**0.23**	0.52	0.057	**J**
110-54-3	n-Hexane	**0.25**	0.83	0.17	**0.072**	0.24	0.048	**J**
71-36-3	1-Butanol	**0.87**	1.5	0.22	**0.29**	0.51	0.071	**J**
110-82-7	Cyclohexane	0.23	1.5	0.23	0.067	0.45	0.067	**U**
108-10-1	4-Methyl-2-pentanone	0.11	0.82	0.11	0.027	0.20	0.027	**U**
591-78-6	2-Hexanone	**0.22**	0.83	0.10	**0.053**	0.20	0.025	**J**
75-25-2	Bromoform	0.17	0.82	0.17	0.016	0.079	0.016	**U**
100-44-7	Benzyl Chloride	0.18	1.7	0.18	0.036	0.33	0.036	**U**
526-73-8	1,2,3-Trimethylbenzene	0.11	0.80	0.11	0.023	0.16	0.023	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.39	0.77	0.39	0.11	0.22	0.11	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-03**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00260

Date Collected: 10/10/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig):	-3.06	Final Pressure (psig):	3.70
Initial Pressure 2 (psig):	0.52	Final Pressure 2 (psig):	2.03
Initial Pressure 2 (psig):	-0.03	Final Pressure 2 (psig):	1.14

Container Dilution Factor: 1.88

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**4.4**	2.0	0.49	**2.6**	1.1	0.28	
64-17-5	Ethanol	**54**	19	1.4	**29**	10	0.74	
75-05-8	Acetonitrile	0.49	2.0	0.49	0.29	1.2	0.29	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**6.6**	7.9	0.83	**2.7**	3.2	0.34	**J**
107-13-1	Acrylonitrile	0.41	2.0	0.41	0.19	0.90	0.19	**U**
75-15-0	Carbon Disulfide	**20**	4.1	0.60	**6.5**	1.3	0.19	
108-05-4	Vinyl Acetate	4.5	20	4.5	1.3	5.7	1.3	**U**
78-93-3	2-Butanone (MEK)	**0.85**	3.8	0.41	**0.29**	1.3	0.14	**J**
110-54-3	n-Hexane	**1.7**	2.0	0.41	**0.48**	0.58	0.12	**J**
71-36-3	1-Butanol	**0.58**	3.8	0.53	**0.19**	1.2	0.17	**J**
110-82-7	Cyclohexane	**0.74**	3.8	0.56	**0.22**	1.1	0.16	**J**
108-10-1	4-Methyl-2-pentanone	0.27	2.0	0.27	0.067	0.49	0.067	**U**
591-78-6	2-Hexanone	0.25	2.0	0.25	0.061	0.50	0.061	**U**
75-25-2	Bromoform	**0.71**	2.0	0.41	**0.068**	0.19	0.040	**J**
100-44-7	Benzyl Chloride	0.45	4.1	0.45	0.087	0.80	0.087	**U**
526-73-8	1,2,3-Trimethylbenzene	0.27	2.0	0.27	0.056	0.40	0.056	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**10**	1.9	0.94	**3.0**	0.53	0.27	**X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-04** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-004

Test Code: EPA TO-15 Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.50 Liter(s)
Test Notes:
Container ID: AC01850

Initial Pressure (psig): -3.68 Final Pressure (psig): 3.59
Initial Pressure 2 (psig): 0.21 Final Pressure 2 (psig): 1.25

Container Dilution Factor: 1.78

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**2.2**	1.9	0.46	**1.3**	1.1	0.27	
64-17-5	Ethanol	**32**	18	1.3	**17**	9.6	0.70	
75-05-8	Acetonitrile	0.46	1.9	0.46	0.28	1.1	0.28	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.78	7.5	0.78	0.32	3.0	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.9	0.39	0.18	0.85	0.18	**U**
75-15-0	Carbon Disulfide	**4.9**	3.9	0.57	**1.6**	1.3	0.18	
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.4	1.2	**U**
78-93-3	2-Butanone (MEK)	0.39	3.6	0.39	0.13	1.2	0.13	**U**
110-54-3	n-Hexane	**0.58**	1.9	0.39	**0.17**	0.55	0.11	**J**
71-36-3	1-Butanol	0.50	3.6	0.50	0.16	1.2	0.16	**U**
110-82-7	Cyclohexane	0.53	3.6	0.53	0.16	1.0	0.16	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.063	0.46	0.063	**U**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.057	0.47	0.057	**U**
75-25-2	Bromoform	**2.0**	1.9	0.39	**0.20**	0.18	0.038	
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.083	0.76	0.083	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**1.9**	1.8	0.89	**0.55**	0.50	0.25	**X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-05** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-005

Test Code: EPA TO-15 Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01008

Initial Pressure (psig): -3.37 Final Pressure (psig): 3.59

Container Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**1.2**	0.84	0.21	**0.71**	0.49	0.12	**M1**
64-17-5	Ethanol	**1.8**	8.2	0.60	**0.96**	4.4	0.32	**J**
75-05-8	Acetonitrile	0.21	0.84	0.21	0.12	0.50	0.12	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.35	3.4	0.35	0.14	1.4	0.14	**U**
107-13-1	Acrylonitrile	0.18	0.84	0.18	0.082	0.39	0.082	**U**
75-15-0	Carbon Disulfide	0.26	1.8	0.26	0.083	0.57	0.083	**U**
108-05-4	Vinyl Acetate	1.9	8.5	1.9	0.55	2.4	0.55	**U**
78-93-3	2-Butanone (MEK)	**0.55**	1.6	0.18	**0.19**	0.55	0.060	**J**
110-54-3	n-Hexane	**0.76**	0.87	0.18	**0.22**	0.25	0.050	**J**
71-36-3	1-Butanol	**0.64**	1.6	0.23	**0.21**	0.53	0.074	**J**
110-82-7	Cyclohexane	0.24	1.6	0.24	0.070	0.47	0.070	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.85	0.12	0.029	0.21	0.029	**U**
591-78-6	2-Hexanone	0.11	0.87	0.11	0.026	0.21	0.026	**U**
75-25-2	Bromoform	0.18	0.85	0.18	0.017	0.083	0.017	**U**
100-44-7	Benzyl Chloride	0.19	1.8	0.19	0.037	0.34	0.037	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.84	0.12	0.024	0.17	0.024	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.50**	0.81	0.40	**0.14**	0.23	0.11	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.
M1 = Matrix interference due to coelution with a non-target compound; results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-06**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC02126

Date Collected: 10/9/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig): -3.49 Final Pressure (psig): 3.62
Initial Pressure 2 (psig): 0.05 Final Pressure 2 (psig): 1.18

Container Dilution Factor: 1.76

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**6.1**	1.8	0.46	**3.5**	1.1	0.27	
64-17-5	Ethanol	**41**	18	1.3	**22**	9.5	0.69	
75-05-8	Acetonitrile	0.46	1.8	0.46	0.27	1.1	0.27	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**9.2**	7.4	0.77	**3.8**	3.0	0.32	
107-13-1	Acrylonitrile	0.39	1.8	0.39	0.18	0.84	0.18	**U**
75-15-0	Carbon Disulfide	**4.0**	3.9	0.56	**1.3**	1.2	0.18	
108-05-4	Vinyl Acetate	4.2	19	4.2	1.2	5.3	1.2	**U**
78-93-3	2-Butanone (MEK)	**3.0**	3.5	0.39	**1.0**	1.2	0.13	**J**
110-54-3	n-Hexane	**180**	1.9	0.39	**52**	0.54	0.11	
71-36-3	1-Butanol	**3.0**	3.5	0.49	**0.98**	1.2	0.16	**J**
110-82-7	Cyclohexane	**28**	3.5	0.53	**8.1**	1.0	0.15	
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.063	0.46	0.063	**U**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.057	0.46	0.057	**U**
75-25-2	Bromoform	**0.79**	1.9	0.39	**0.077**	0.18	0.037	**J**
100-44-7	Benzyl Chloride	0.42	3.9	0.42	0.082	0.75	0.082	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.8	0.26	0.052	0.37	0.052	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**1.6**	1.8	0.88	**0.46**	0.50	0.25	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-07**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00330

Date Collected: 10/9/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.91 Final Pressure (psig): 3.62

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.49**	0.88	0.22	**0.29**	0.51	0.13	**J**
64-17-5	Ethanol	**2.4**	8.7	0.63	**1.3**	4.6	0.33	**J**
75-05-8	Acetonitrile	0.22	0.88	0.22	0.13	0.53	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.41**	3.6	0.37	**0.17**	1.5	0.15	**J**
107-13-1	Acrylonitrile	0.19	0.88	0.19	0.086	0.41	0.086	**U**
75-15-0	Carbon Disulfide	0.27	1.9	0.27	0.087	0.60	0.087	**U**
108-05-4	Vinyl Acetate	2.0	9.0	2.0	0.58	2.6	0.58	**U**
78-93-3	2-Butanone (MEK)	**0.31**	1.7	0.19	**0.11**	0.58	0.063	**J**
110-54-3	n-Hexane	**0.58**	0.92	0.19	**0.16**	0.26	0.053	**J**
71-36-3	1-Butanol	**0.27**	1.7	0.24	**0.089**	0.56	0.079	**J**
110-82-7	Cyclohexane	0.26	1.7	0.26	0.074	0.49	0.074	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.90	0.12	0.030	0.22	0.030	**U**
591-78-6	2-Hexanone	0.11	0.92	0.11	0.027	0.22	0.027	**U**
75-25-2	Bromoform	0.19	0.90	0.19	0.018	0.087	0.018	**U**
100-44-7	Benzyl Chloride	0.20	1.9	0.20	0.039	0.36	0.039	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.88	0.12	0.025	0.18	0.025	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.47**	0.85	0.43	**0.13**	0.24	0.12	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-08**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00629

Date Collected: 10/9/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.56 Final Pressure (psig): 3.60
Initial Pressure 2 (psig): 0.82 Final Pressure 2 (psig): 1.43

Container Dilution Factor: 1.71

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**1.5**	0.89	0.22	**0.87**	0.52	0.13	
64-17-5	Ethanol	**2.4**	8.7	0.63	**1.3**	4.6	0.34	**J**
75-05-8	Acetonitrile	**0.36**	0.89	0.22	**0.21**	0.53	0.13	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	**5.2**	3.6	0.38	**2.1**	1.5	0.15	
107-13-1	Acrylonitrile	0.19	0.89	0.19	0.087	0.41	0.087	**U**
75-15-0	Carbon Disulfide	0.27	1.9	0.27	0.088	0.60	0.088	**U**
108-05-4	Vinyl Acetate	2.1	9.1	2.1	0.58	2.6	0.58	**U**
78-93-3	2-Butanone (MEK)	**0.85**	1.7	0.19	**0.29**	0.58	0.064	**J**
110-54-3	n-Hexane	**0.78**	0.92	0.19	**0.22**	0.26	0.053	**J**
71-36-3	1-Butanol	**0.89**	1.7	0.24	**0.29**	0.56	0.079	**J**
110-82-7	Cyclohexane	0.26	1.7	0.26	0.075	0.50	0.075	**U**
108-10-1	4-Methyl-2-pentanone	**0.13**	0.91	0.12	**0.031**	0.22	0.030	**J**
591-78-6	2-Hexanone	**0.25**	0.92	0.11	**0.061**	0.23	0.028	**J**
75-25-2	Bromoform	0.19	0.91	0.19	0.018	0.088	0.018	**U**
100-44-7	Benzyl Chloride	0.21	1.9	0.21	0.040	0.36	0.040	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.89	0.12	0.025	0.18	0.025	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.49**	0.86	0.43	**0.14**	0.24	0.12	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-09** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-009

Test Code: EPA TO-15 Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02266

Initial Pressure (psig): -3.72 Final Pressure (psig): 3.66

Container Dilution Factor: 1.67

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**0.68**	0.87	0.22	**0.40**	0.50	0.13	**J**
64-17-5	Ethanol	0.62	8.5	0.62	0.33	4.5	0.33	**U**
75-05-8	Acetonitrile	0.22	0.87	0.22	0.13	0.52	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.49**	3.5	0.37	**0.20**	1.4	0.15	**J**
107-13-1	Acrylonitrile	0.18	0.87	0.18	0.085	0.40	0.085	**U**
75-15-0	Carbon Disulfide	**1.1**	1.8	0.27	**0.34**	0.59	0.086	**J**
108-05-4	Vinyl Acetate	2.0	8.9	2.0	0.57	2.5	0.57	**U**
78-93-3	2-Butanone (MEK)	**1.4**	1.7	0.18	**0.47**	0.57	0.062	**J**
110-54-3	n-Hexane	**4.1**	0.90	0.18	**1.2**	0.26	0.052	
71-36-3	1-Butanol	**0.32**	1.7	0.23	**0.10**	0.55	0.077	**J**
110-82-7	Cyclohexane	**1.6**	1.7	0.25	**0.47**	0.49	0.073	**J**
108-10-1	4-Methyl-2-pentanone	0.12	0.89	0.12	0.030	0.22	0.030	**U**
591-78-6	2-Hexanone	0.11	0.90	0.11	0.027	0.22	0.027	**U**
75-25-2	Bromoform	0.18	0.89	0.18	0.018	0.086	0.018	**U**
100-44-7	Benzyl Chloride	0.20	1.8	0.20	0.039	0.35	0.039	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.87	0.12	0.025	0.18	0.025	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.95**	0.84	0.42	**0.27**	0.24	0.12	**X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-10**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-010

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS01018

Date Collected: 10/9/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig): -3.74 Final Pressure (psig): 3.75
Initial Pressure 2 (psig): 0.09 Final Pressure 2 (psig): 1.05

Container Dilution Factor: 1.79

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**4.1**	1.9	0.47	**2.4**	1.1	0.27	
64-17-5	Ethanol	**3.8**	18	1.3	**2.0**	9.7	0.70	**J**
75-05-8	Acetonitrile	0.47	1.9	0.47	0.28	1.1	0.28	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.79	7.5	0.79	0.32	3.1	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.9	0.39	0.18	0.86	0.18	**U**
75-15-0	Carbon Disulfide	**3.2**	3.9	0.57	**1.0**	1.3	0.18	**J**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.4	1.2	**U**
78-93-3	2-Butanone (MEK)	**1.9**	3.6	0.39	**0.65**	1.2	0.13	**J**
110-54-3	n-Hexane	**190**	1.9	0.39	**54**	0.55	0.11	
71-36-3	1-Butanol	**2.9**	3.6	0.50	**0.95**	1.2	0.17	**J**
110-82-7	Cyclohexane	**29**	3.6	0.54	**8.5**	1.0	0.16	
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.064	0.46	0.064	**U**
591-78-6	2-Hexanone	0.24	1.9	0.24	0.058	0.47	0.058	**U**
75-25-2	Bromoform	**0.73**	1.9	0.39	**0.070**	0.18	0.038	**J**
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.083	0.76	0.083	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**1.9**	1.8	0.90	**0.55**	0.51	0.25	**X**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-11**
Client Project ID: **PMC**

ALS Project ID: P1805497
ALS Sample ID: P1805497-011

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00766

Date Collected: 10/9/18
Date Received: 10/13/18
Date Analyzed: 10/27/18
Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig): -3.52 Final Pressure (psig): 3.52
Initial Pressure 2 (psig): -0.06 Final Pressure 2 (psig): 1.05

Container Dilution Factor: 1.75

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	**6.8**	1.8	0.46	**3.9**	1.1	0.26	
64-17-5	Ethanol	**53**	18	1.3	**28**	9.5	0.69	
75-05-8	Acetonitrile	0.46	1.8	0.46	0.27	1.1	0.27	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**14**	7.4	0.77	**5.7**	3.0	0.31	
107-13-1	Acrylonitrile	0.39	1.8	0.39	0.18	0.84	0.18	**U**
75-15-0	Carbon Disulfide	**5.2**	3.9	0.56	**1.7**	1.2	0.18	
108-05-4	Vinyl Acetate	4.2	19	4.2	1.2	5.3	1.2	**U**
78-93-3	2-Butanone (MEK)	**0.82**	3.5	0.39	**0.28**	1.2	0.13	**J**
110-54-3	n-Hexane	**190**	1.9	0.39	**55**	0.54	0.11	
71-36-3	1-Butanol	**3.1**	3.5	0.49	**1.0**	1.2	0.16	**J**
110-82-7	Cyclohexane	**30**	3.5	0.53	**8.6**	1.0	0.15	
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.062	0.45	0.062	**U**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.056	0.46	0.056	**U**
75-25-2	Bromoform	**0.81**	1.9	0.39	**0.078**	0.18	0.037	**J**
100-44-7	Benzyl Chloride	0.42	3.9	0.42	0.081	0.74	0.081	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.8	0.26	0.052	0.37	0.052	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**2.0**	1.8	0.88	**0.56**	0.50	0.25	**X**

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X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-12** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-012

Test Code: EPA TO-15 Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02147

Initial Pressure (psig): -3.56 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.21	0.85	0.21	0.12	0.50	0.12	**U**
64-17-5	Ethanol	**4.1**	8.4	0.61	**2.2**	4.4	0.32	**J**
75-05-8	Acetonitrile	0.21	0.85	0.21	0.13	0.51	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	**0.52**	3.4	0.36	**0.21**	1.4	0.15	**J**
107-13-1	Acrylonitrile	0.18	0.85	0.18	0.083	0.39	0.083	**U**
75-15-0	Carbon Disulfide	0.26	1.8	0.26	0.084	0.58	0.084	**U**
108-05-4	Vinyl Acetate	**6.5**	8.7	2.0	**1.8**	2.5	0.56	**J**
78-93-3	2-Butanone (MEK)	**1.8**	1.6	0.18	**0.61**	0.56	0.061	
110-54-3	n-Hexane	**0.58**	0.89	0.18	**0.16**	0.25	0.051	**J**
71-36-3	1-Butanol	**1.0**	1.6	0.23	**0.34**	0.54	0.076	**J**
110-82-7	Cyclohexane	0.25	1.6	0.25	0.071	0.48	0.071	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.87	0.12	0.029	0.21	0.029	**U**
591-78-6	2-Hexanone	**0.34**	0.89	0.11	**0.083**	0.22	0.026	**J**
75-25-2	Bromoform	0.18	0.87	0.18	0.017	0.084	0.017	**U**
100-44-7	Benzyl Chloride	0.20	1.8	0.20	0.038	0.35	0.038	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.85	0.12	0.024	0.17	0.024	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.51**	0.82	0.41	**0.14**	0.23	0.12	**J, X**

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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-13** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-013

Test Code: EPA TO-15 Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01848

Initial Pressure (psig): -3.60 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.21	0.85	0.21	0.12	0.50	0.12	**U**
64-17-5	Ethanol	**0.81**	8.4	0.61	**0.43**	4.4	0.32	**J**
75-05-8	Acetonitrile	0.21	0.85	0.21	0.13	0.51	0.13	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.36	3.4	0.36	0.15	1.4	0.15	**U**
107-13-1	Acrylonitrile	0.18	0.85	0.18	0.083	0.39	0.083	**U**
75-15-0	Carbon Disulfide	0.26	1.8	0.26	0.084	0.58	0.084	**U**
108-05-4	Vinyl Acetate	2.0	8.7	2.0	0.56	2.5	0.56	**U**
78-93-3	2-Butanone (MEK)	**0.38**	1.6	0.18	**0.13**	0.56	0.061	**J**
110-54-3	n-Hexane	**0.77**	0.89	0.18	**0.22**	0.25	0.051	**J**
71-36-3	1-Butanol	**0.30**	1.6	0.23	**0.10**	0.54	0.076	**J**
110-82-7	Cyclohexane	0.25	1.6	0.25	0.071	0.48	0.071	**U**
108-10-1	4-Methyl-2-pentanone	0.12	0.87	0.12	0.029	0.21	0.029	**U**
591-78-6	2-Hexanone	0.11	0.89	0.11	0.026	0.22	0.026	**U**
75-25-2	Bromoform	0.18	0.87	0.18	0.017	0.084	0.017	**U**
100-44-7	Benzyl Chloride	0.20	1.8	0.20	0.038	0.35	0.038	**U**
526-73-8	1,2,3-Trimethylbenzene	0.12	0.85	0.12	0.024	0.17	0.024	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.47**	0.82	0.41	**0.13**	0.23	0.12	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
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J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181027-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
71-36-3	1-Butanol	0.14	1.0	0.14	0.046	0.33	0.046	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 10/9 - 10/10/18
Analyst: Lusine Hakobyan/Topacio De Leon Date(s) Received: 10/13/18
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 10/27/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181027-MB	**100**	**103**	**92**	70-130	
Lab Control Sample	P181027-LCS	**99**	**101**	**94**	70-130	
Duplicate Lab Control Sample	P181027-DLCS	**100**	**101**	**93**	70-130	
19CP01-01	P1805497-001	**99**	**102**	**92**	70-130	
19CP01-02	P1805497-002	**100**	**101**	**91**	70-130	
19CP01-03	P1805497-003	**96**	**102**	**93**	70-130	
19CP01-04	P1805497-004	**99**	**101**	**90**	70-130	
19CP01-05	P1805497-005	**100**	**101**	**91**	70-130	
19CP01-06	P1805497-006	**95**	**102**	**93**	70-130	
19CP01-07	P1805497-007	**98**	**101**	**93**	70-130	
19CP01-08	P1805497-008	**95**	**102**	**93**	70-130	
19CP01-09	P1805497-009	**97**	**102**	**93**	70-130	
19CP01-10	P1805497-010	**99**	**102**	**93**	70-130	
19CP01-11	P1805497-011	**100**	**101**	**92**	70-130	
19CP01-12	P1805497-012	**98**	**102**	**92**	70-130	
19CP01-13	P1805497-013	**99**	**102**	**93**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181027-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	185	192	**88**	**91**	54-133	3	25	
64-17-5	Ethanol	1,020	1130	1150	**111**	**113**	62-131	2	25	
75-05-8	Acetonitrile	206	188	194	**91**	**94**	56-136	3	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	426	505	**103**	**122**	62-135	17	25	
107-13-1	Acrylonitrile	207	220	272	**106**	**131**	68-138	21	25	
75-15-0	Carbon Disulfide	218	212	215	**97**	**99**	68-120	2	25	
108-05-4	Vinyl Acetate	1,060	1180	1190	**111**	**112**	73-135	0.9	25	
78-93-3	2-Butanone (MEK)	208	224	227	**108**	**109**	70-129	0.9	25	
110-54-3	n-Hexane	216	221	224	**102**	**104**	61-124	2	25	
71-36-3	1-Butanol	413	470	474	**114**	**115**	62-141	0.9	25	
110-82-7	Cyclohexane	416	427	428	**103**	**103**	69-115	0	25	
108-10-1	4-Methyl-2-pentanone	209	233	232	**111**	**111**	66-138	0	25	
591-78-6	2-Hexanone	214	231	232	**108**	**108**	58-146	0	25	
75-25-2	Bromoform	213	234	235	**110**	**110**	67-135	0	25	
100-44-7	Benzyl Chloride	217	232	235	**107**	**108**	75-142	0.9	25	
526-73-8	1,2,3-Trimethylbenzene	216	267	265	**124**	**123**	66-128	0.8	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs** ALS Project ID: P1805497
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10271804.D
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 05:03
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181027-LCS	10271805.D	05:36
Duplicate Lab Control Sample	P181027-DLCS	10271806.D	06:09
19CP01-03	P1805497-003	10271812.D	10:54
19CP01-01	P1805497-001	10271815.D	12:47
19CP01-02	P1805497-002	10271816.D	13:21
19CP01-04	P1805497-004	10271817.D	13:55
19CP01-05	P1805497-005	10271818.D	14:29
19CP01-06	P1805497-006	10271819.D	15:03
19CP01-07	P1805497-007	10271820.D	15:37
19CP01-08	P1805497-008	10271821.D	16:12
19CP01-09	P1805497-009	10271822.D	16:47
19CP01-10	P1805497-010	10271823.D	17:20
19CP01-11	P1805497-011	10271824.D	17:54
19CP01-12	P1805497-012	10271825.D	18:28
19CP01-13	P1805497-013	10271826.D	19:02

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs** ALS Project ID: P1805497
Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 10271802.D
Analyst: Lusine Hakobyan/Topacio De Leon Date Analyzed: 10/27/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 03:56
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	221083	11.32	932193	13.43	395491	17.72
	Upper Limit	309516	11.65	1305070	13.76	553687	18.05
	Lower Limit	132650	10.99	559316	13.10	237295	17.39
	Client Sample ID						
01	Method Blank	205772	11.31	893359	13.43	375223	17.72
02	Lab Control Sample	225277	11.33	943589	13.43	405854	17.72
03	Duplicate Lab Control Sample	231267	11.33	968968	13.43	416462	17.72
04	19CP01-03	228017	11.32	941177	13.43	402026	17.72
05	19CP01-01	212765	11.31	915896	13.43	388455	17.72
06	19CP01-02	241014	11.31	1046428	13.43	456192	17.72
07	19CP01-04	250477	11.31	1049352	13.43	457884	17.72
08	19CP01-05	238428	11.31	1027789	13.43	449361	17.72
09	19CP01-06	233409	11.32	948082	13.43	406633	17.72
10	19CP01-07	222897	11.31	952832	13.43	410356	17.72
11	19CP01-08	225651	11.31	918327	13.43	399014	17.72
12	19CP01-09	221086	11.32	933473	13.43	399600	17.72
13	19CP01-10	233410	11.32	978355	13.43	423382	17.72
14	19CP01-11	241786	11.32	1009480	13.43	437959	17.72
15	19CP01-12	234929	11.31	989798	13.43	424375	17.72
16	19CP01-13	225739	11.31	961197	13.43	412177	17.72
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-01** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-001

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02293

Initial Pressure (psig): -3.29 Final Pressure (psig): 3.85

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**		0.082	0.028	**0.44**		0.016	0.0056	
74-87-3	Chloromethane	**0.25**		0.082	0.031	**0.12**		0.039	0.015	
75-01-4	Vinyl Chloride		0.012	0.041	0.012		0.0048	0.016	0.0048	**U**
106-99-0	1,3-Butadiene	**0.027**		0.082	0.023	**0.012**		0.037	0.010	**J**
74-83-9	Bromomethane	**0.020**		0.041	0.015	**0.0051**		0.010	0.0039	**J**
75-00-3	Chloroethane		0.014	0.041	0.014		0.0053	0.015	0.0053	**U**
107-02-8	Acrolein	**0.15**		0.33	0.064	**0.066**		0.14	0.028	**J**
67-64-1	Acetone	**1.8**		4.1	0.091	**0.75**		1.7	0.038	**J, B**
75-69-4	Trichlorofluoromethane	**1.1**		0.082	0.024	**0.19**		0.015	0.0044	
75-35-4	1,1-Dichloroethene		0.014	0.041	0.014		0.0035	0.010	0.0035	**U**
75-09-2	Methylene Chloride	**0.19**		0.16	0.021	**0.055**		0.047	0.0061	
76-13-1	Trichlorotrifluoroethane	**0.38**		0.041	0.015	**0.050**		0.0053	0.0019	
75-34-3	1,1-Dichloroethane	**0.013**		0.041	0.0099	**0.0032**		0.010	0.0025	**J**
1634-04-4	Methyl tert-Butyl Ether		0.015	0.041	0.015		0.0042	0.011	0.0042	**U**
156-59-2	cis-1,2-Dichloroethene		0.015	0.041	0.015		0.0038	0.010	0.0038	**U**
67-66-3	Chloroform	**0.11**		0.16	0.029	**0.022**		0.033	0.0060	**J**
107-06-2	1,2-Dichloroethane	**0.044**		0.041	0.014	**0.011**		0.010	0.0034	
71-55-6	1,1,1-Trichloroethane		0.0096	0.041	0.0096		0.0018	0.0075	0.0018	**U**
71-43-2	Benzene	**0.33**		0.12	0.033	**0.10**		0.038	0.010	
78-87-5	1,2-Dichloropropane		0.012	0.041	0.012		0.0026	0.0088	0.0026	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-01** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-001

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02293
Initial Pressure (psig): -3.29 Final Pressure (psig): 3.85

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.011	0.041	0.011	0.0017	0.0061	0.0017	**U**
79-01-6	Trichloroethene	0.014	0.041	0.014	0.0026	0.0076	0.0026	**U**
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0038	0.045	0.0038	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.041	0.010	0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0090	0.041	0.0090	0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**0.79**	0.16	0.018	**0.21**	0.043	0.0048	
106-93-4	1,2-Dibromoethane	0.013	0.041	0.013	0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**0.051**	0.041	0.013	**0.0075**	0.0060	0.0020	
100-41-4	Ethylbenzene	**0.10**	0.16	0.016	**0.024**	0.038	0.0036	**J**
179601-23-1	m,p-Xylenes	**0.31**	0.16	0.031	**0.072**	0.038	0.0071	
100-42-5	Styrene	**0.076**	0.16	0.012	**0.018**	0.038	0.0028	**J**
95-47-6	o-Xylene	**0.13**	0.16	0.015	**0.030**	0.038	0.0033	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.041	0.012	0.0017	0.0059	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.037**	0.16	0.012	**0.0074**	0.033	0.0024	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.14**	0.16	0.014	**0.029**	0.033	0.0028	**J**
541-73-1	1,3-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.018**	0.041	0.013	**0.0030**	0.0068	0.0022	**J**
95-50-1	1,2-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	**0.039**	0.082	0.021	**0.0053**	0.011	0.0029	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-02** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-002

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00949

Initial Pressure (psig): -2.75 Final Pressure (psig): 3.65

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**		0.077	0.026	**0.45**		0.016	0.0053	
74-87-3	Chloromethane	**0.24**		0.077	0.029	**0.11**		0.037	0.014	
75-01-4	Vinyl Chloride		0.012	0.039	0.012		0.0046	0.015	0.0046	**U**
106-99-0	1,3-Butadiene		0.022	0.077	0.022		0.0097	0.035	0.0097	**U**
74-83-9	Bromomethane	**0.022**		0.039	0.014	**0.0058**		0.0099	0.0037	**J**
75-00-3	Chloroethane	**0.018**		0.039	0.013	**0.0069**		0.015	0.0050	**J**
107-02-8	Acrolein	**0.27**		0.31	0.060	**0.12**		0.13	0.026	**J**
67-64-1	Acetone	**2.1**		3.9	0.086	**0.90**		1.6	0.036	**J, B**
75-69-4	Trichlorofluoromethane	**1.1**		0.077	0.023	**0.19**		0.014	0.0041	
75-35-4	1,1-Dichloroethene		0.013	0.039	0.013		0.0033	0.0097	0.0033	**U**
75-09-2	Methylene Chloride	**0.17**		0.15	0.020	**0.050**		0.044	0.0058	
76-13-1	Trichlorotrifluoroethane	**0.37**		0.039	0.014	**0.049**		0.0050	0.0018	
75-34-3	1,1-Dichloroethane		0.0094	0.039	0.0094		0.0023	0.0095	0.0023	**U**
1634-04-4	Methyl tert-Butyl Ether		0.014	0.039	0.014		0.0040	0.011	0.0040	**U**
156-59-2	cis-1,2-Dichloroethene		0.014	0.039	0.014		0.0036	0.0097	0.0036	**U**
67-66-3	Chloroform	**0.13**		0.15	0.028	**0.027**		0.032	0.0057	**J**
107-06-2	1,2-Dichloroethane	**0.042**		0.039	0.013	**0.010**		0.0095	0.0032	
71-55-6	1,1,1-Trichloroethane		0.0091	0.039	0.0091		0.0017	0.0071	0.0017	**U**
71-43-2	Benzene	**0.26**		0.12	0.031	**0.081**		0.036	0.0096	
78-87-5	1,2-Dichloropropane		0.011	0.039	0.011		0.0024	0.0083	0.0024	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-02** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-002

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00949

Initial Pressure (psig): -2.75 Final Pressure (psig): 3.65

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.011	0.039	0.011	0.0016	0.0057	0.0016	**U**
79-01-6	Trichloroethene	0.013	0.039	0.013	0.0024	0.0072	0.0024	**U**
123-91-1	1,4-Dioxane	**0.019**	0.15	0.013	**0.0052**	0.043	0.0036	**J**
10061-01-5	cis-1,3-Dichloropropene	0.0095	0.039	0.0095	0.0021	0.0085	0.0021	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0085	0.039	0.0085	0.0019	0.0085	0.0019	**U**
79-00-5	1,1,2-Trichloroethane	0.012	0.15	0.012	0.0022	0.028	0.0022	**U**
108-88-3	Toluene	**0.48**	0.15	0.017	**0.13**	0.041	0.0045	
106-93-4	1,2-Dibromoethane	0.012	0.039	0.012	0.0016	0.0050	0.0016	**U**
127-18-4	Tetrachloroethene	**0.039**	0.039	0.013	**0.0058**	0.0057	0.0019	
100-41-4	Ethylbenzene	**0.066**	0.15	0.015	**0.015**	0.035	0.0034	**J**
179601-23-1	m,p-Xylenes	**0.20**	0.15	0.029	**0.046**	0.035	0.0067	
100-42-5	Styrene	**0.054**	0.15	0.011	**0.013**	0.036	0.0027	**J**
95-47-6	o-Xylene	**0.099**	0.15	0.014	**0.023**	0.035	0.0032	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.011	0.039	0.011	0.0016	0.0056	0.0016	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.027**	0.15	0.011	**0.0055**	0.031	0.0023	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.11**	0.15	0.013	**0.022**	0.031	0.0026	**J**
541-73-1	1,3-Dichlorobenzene	0.013	0.039	0.013	0.0022	0.0064	0.0022	**U**
106-46-7	1,4-Dichlorobenzene	0.012	0.039	0.012	0.0021	0.0064	0.0021	**U**
95-50-1	1,2-Dichlorobenzene	0.013	0.039	0.013	0.0021	0.0064	0.0021	**U**
120-82-1	1,2,4-Trichlorobenzene	0.020	0.077	0.020	0.0027	0.010	0.0027	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-03** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-003

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18 & 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: AS00260

Initial Pressure (psig): -3.06 Final Pressure (psig): 3.70
Initial Pressure 2 (psig): 0.52 Final Pressure 2 (psig): 2.03

Container Dilution Factor: 1.58
Container Dilution Factor 2: 1.74

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**14**	2.2	0.67	**2.9**	0.44	0.14	**D**
74-87-3	Chloromethane	**2.1**	2.2	0.75	**1.0**	1.1	0.36	**J, D**
75-01-4	Vinyl Chloride	**0.53**	1.1	0.30	**0.21**	0.43	0.12	**J, D**
106-99-0	1,3-Butadiene	0.55	2.2	0.55	0.25	0.98	0.25	**U, D**
74-83-9	Bromomethane	0.37	1.1	0.37	0.095	0.28	0.095	**U, D**
75-00-3	Chloroethane	**0.94**	1.1	0.34	**0.36**	0.41	0.13	**J, D**
107-02-8	Acrolein	1.5	8.7	1.5	0.67	3.8	0.67	**U, D**
67-64-1	Acetone	**39**	110	2.2	**17**	46	0.93	**J, D, B**
75-69-4	Trichlorofluoromethane	**3.6**	2.2	0.59	**0.64**	0.39	0.11	**D**
75-35-4	1,1-Dichloroethene	**0.42**	1.1	0.34	**0.11**	0.27	0.086	**J, D**
75-09-2	Methylene Chloride	**900**	4.4	0.51	**260**	1.3	0.15	**D**
76-13-1	Trichlorotrifluoroethane	**0.44**	1.1	0.35	**0.057**	0.14	0.046	**J, D**
75-34-3	1,1-Dichloroethane	0.24	1.1	0.24	0.060	0.27	0.060	**U, D**
1634-04-4	Methyl tert-Butyl Ether	0.37	1.1	0.37	0.10	0.30	0.10	**U, D**
156-59-2	cis-1,2-Dichloroethene	**0.99**	1.1	0.36	**0.25**	0.27	0.092	**J, D**
67-66-3	Chloroform	**150**	4.4	0.71	**30**	0.89	0.15	**D**
107-06-2	1,2-Dichloroethane	0.33	1.1	0.33	0.082	0.27	0.082	**U, D**
71-55-6	1,1,1-Trichloroethane	**0.45**	1.1	0.23	**0.082**	0.20	0.043	**J, D**
71-43-2	Benzene	0.79	3.3	0.79	0.25	1.0	0.25	**U, D**
78-87-5	1,2-Dichloropropane	**0.031**	0.040	0.012	**0.0067**	0.0086	0.0025	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-03** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-003

Test Code: EPA TO-15 SIM Date Collected: 10/10/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18 & 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: AS00260

Initial Pressure (psig): -3.06 Final Pressure (psig): 3.70
Initial Pressure 2 (psig): 0.52 Final Pressure 2 (psig): 2.03

Container Dilution Factor: 1.58
Container Dilution Factor 2: 1.74

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**19**		0.040	0.011	**2.8**		0.0059	0.0016	
79-01-6	Trichloroethene	**39**		0.040	0.013	**7.3**		0.0074	0.0025	
123-91-1	1,4-Dioxane		0.013	0.16	0.013		0.0037	0.044	0.0037	**U**
10061-01-5	cis-1,3-Dichloropropene		0.0098	0.040	0.0098		0.0022	0.0087	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene		0.0087	0.040	0.0087		0.0019	0.0087	0.0019	**U**
79-00-5	1,1,2-Trichloroethane		0.012	0.16	0.012		0.0023	0.029	0.0023	**U**
108-88-3	Toluene	**58**		0.16	0.017	**15**		0.042	0.0046	
106-93-4	1,2-Dibromoethane		0.012	0.040	0.012		0.0016	0.0051	0.0016	**U**
127-18-4	Tetrachloroethene	**120**		1.1	0.32	**18**		0.16	0.048	**D**
100-41-4	Ethylbenzene	**1.6**		0.16	0.015	**0.38**		0.036	0.0035	
179601-23-1	m,p-Xylenes	**5.0**		0.16	0.030	**1.2**		0.036	0.0069	
100-42-5	Styrene	**7.4**		0.16	0.012	**1.7**		0.037	0.0027	
95-47-6	o-Xylene	**1.8**		0.16	0.014	**0.42**		0.036	0.0032	
79-34-5	1,1,2,2-Tetrachloroethane		0.011	0.040	0.011		0.0017	0.0058	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.79**		0.16	0.012	**0.16**		0.032	0.0023	
95-63-6	1,2,4-Trimethylbenzene	**1.5**		0.16	0.013	**0.31**		0.032	0.0027	
541-73-1	1,3-Dichlorobenzene		0.013	0.040	0.013		0.0022	0.0066	0.0022	**U**
106-46-7	1,4-Dichlorobenzene	**3.6**		0.040	0.013	**0.60**		0.0066	0.0021	
95-50-1	1,2-Dichlorobenzene		0.013	0.040	0.013		0.0022	0.0066	0.0022	**U**
120-82-1	1,2,4-Trichlorobenzene		0.021	0.079	0.021		0.0028	0.011	0.0028	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-04** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-004

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.30 Liter(s)
Container ID: AC01850

Initial Pressure (psig): -3.68 Final Pressure (psig): 3.59

Container Dilution Factor: 1.66

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.2**		0.28	0.094	**0.85**		0.056	0.019	**D**
74-87-3	Chloromethane	**0.31**		0.28	0.11	**0.15**		0.13	0.051	**D**
75-01-4	Vinyl Chloride	**0.24**		0.14	0.042	**0.093**		0.054	0.016	**D**
106-99-0	1,3-Butadiene		0.077	0.28	0.077		0.035	0.13	0.035	**U, D**
74-83-9	Bromomethane		0.051	0.14	0.051		0.013	0.036	0.013	**U, D**
75-00-3	Chloroethane	**0.48**		0.14	0.047	**0.18**		0.052	0.018	**D**
107-02-8	Acrolein		0.22	1.1	0.22		0.094	0.48	0.094	**U, D**
67-64-1	Acetone	**17**		14	0.31	**7.2**		5.8	0.13	**D, B**
75-69-4	Trichlorofluoromethane	**1.8**		0.28	0.083	**0.32**		0.049	0.015	**D**
75-35-4	1,1-Dichloroethene	**0.082**		0.14	0.048	**0.021**		0.035	0.012	**J, D**
75-09-2	Methylene Chloride	**2.4**		0.55	0.072	**0.69**		0.16	0.021	**D**
76-13-1	Trichlorotrifluoroethane	**0.31**		0.14	0.049	**0.040**		0.018	0.0064	**D**
75-34-3	1,1-Dichloroethane	**0.085**		0.14	0.034	**0.021**		0.034	0.0083	**J, D**
1634-04-4	Methyl tert-Butyl Ether		0.051	0.14	0.051		0.014	0.038	0.014	**U, D**
156-59-2	cis-1,2-Dichloroethene	**0.068**		0.14	0.051	**0.017**		0.035	0.013	**J, D**
67-66-3	Chloroform	**74**		0.55	0.10	**15**		0.11	0.020	**D**
107-06-2	1,2-Dichloroethane	**0.099**		0.14	0.046	**0.024**		0.034	0.011	**J, D**
71-55-6	1,1,1-Trichloroethane	**0.22**		0.14	0.033	**0.040**		0.025	0.0060	**D**
71-43-2	Benzene		0.11	0.42	0.11		0.035	0.13	0.035	**U, D**
78-87-5	1,2-Dichloropropane	**0.023**		0.042	0.012	**0.0050**		0.0090	0.0026	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-04** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-004

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.30 Liter(s)
Container ID: AC01850

Initial Pressure (psig): -3.68 Final Pressure (psig): 3.59

Container Dilution Factor: 1.66

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**35**	0.042	0.011	**5.2**	0.0062	0.0017	
79-01-6	Trichloroethene	**4.7**	0.042	0.014	**0.87**	0.0077	0.0026	
123-91-1	1,4-Dioxane	0.014	0.17	0.014	0.0039	0.046	0.0039	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.042	0.010	0.0023	0.0091	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0091	0.042	0.0091	0.0020	0.0091	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**1.3**	0.17	0.018	**0.34**	0.044	0.0048	
106-93-4	1,2-Dibromoethane	0.013	0.042	0.013	0.0017	0.0054	0.0017	**U**
127-18-4	Tetrachloroethene	**13**	0.042	0.014	**1.9**	0.0061	0.0020	
100-41-4	Ethylbenzene	**0.54**	0.17	0.016	**0.12**	0.038	0.0037	
179601-23-1	m,p-Xylenes	**2.8**	0.17	0.032	**0.66**	0.038	0.0073	
100-42-5	Styrene	**0.067**	0.17	0.012	**0.016**	0.039	0.0029	**J**
95-47-6	o-Xylene	**1.1**	0.17	0.015	**0.25**	0.038	0.0034	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.042	0.012	0.0017	0.0060	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.043**	0.17	0.012	**0.0087**	0.034	0.0025	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.064**	0.17	0.014	**0.013**	0.034	0.0028	**J**
541-73-1	1,3-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0069	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.41**	0.042	0.013	**0.068**	0.0069	0.0022	
95-50-1	1,2-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0069	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.083	0.022	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-05** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-005

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01008

Initial Pressure (psig): -3.37 Final Pressure (psig): 3.59

Container Dilution Factor: 1.61

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**		0.081	0.027	**0.45**		0.016	0.0055	
74-87-3	Chloromethane	**0.19**		0.081	0.031	**0.092**		0.039	0.015	
75-01-4	Vinyl Chloride		0.012	0.040	0.012		0.0048	0.016	0.0048	**U**
106-99-0	1,3-Butadiene	**0.061**		0.081	0.023	**0.028**		0.036	0.010	**J**
74-83-9	Bromomethane		0.015	0.040	0.015		0.0039	0.010	0.0039	**U**
75-00-3	Chloroethane		0.014	0.040	0.014		0.0052	0.015	0.0052	**U**
107-02-8	Acrolein	**0.17**		0.32	0.063	**0.075**		0.14	0.027	**J**
67-64-1	Acetone	**1.7**		4.0	0.090	**0.72**		1.7	0.038	**J, B**
75-69-4	Trichlorofluoromethane	**1.1**		0.081	0.024	**0.19**		0.014	0.0043	
75-35-4	1,1-Dichloroethene		0.014	0.040	0.014		0.0035	0.010	0.0035	**U**
75-09-2	Methylene Chloride	**0.24**		0.16	0.021	**0.069**		0.046	0.0060	
76-13-1	Trichlorotrifluoroethane	**0.37**		0.040	0.014	**0.048**		0.0053	0.0019	
75-34-3	1,1-Dichloroethane		0.0098	0.040	0.0098		0.0024	0.0099	0.0024	**U**
1634-04-4	Methyl tert-Butyl Ether		0.015	0.040	0.015		0.0042	0.011	0.0042	**U**
156-59-2	cis-1,2-Dichloroethene		0.015	0.040	0.015		0.0037	0.010	0.0037	**U**
67-66-3	Chloroform	**0.13**		0.16	0.029	**0.026**		0.033	0.0059	**J**
107-06-2	1,2-Dichloroethane	**0.044**		0.040	0.014	**0.011**		0.0099	0.0033	
71-55-6	1,1,1-Trichloroethane	**0.0096**		0.040	0.0095	**0.0018**		0.0074	0.0017	**J**
71-43-2	Benzene	**0.55**		0.12	0.032	**0.17**		0.038	0.010	
78-87-5	1,2-Dichloropropane		0.012	0.040	0.012		0.0025	0.0087	0.0025	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-05** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-005

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01008

Initial Pressure (psig): -3.37 Final Pressure (psig): 3.59

Container Dilution Factor: 1.61

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.011	0.040	0.011	0.0017	0.0060	0.0017	**U**
79-01-6	Trichloroethene	**0.027**	0.040	0.014	**0.0050**	0.0075	0.0025	**J**
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0038	0.045	0.0038	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.040	0.010	0.0022	0.0089	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0089	0.040	0.0089	0.0020	0.0089	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0023	0.030	0.0023	**U**
108-88-3	Toluene	**1.4**	0.16	0.018	**0.38**	0.043	0.0047	
106-93-4	1,2-Dibromoethane	0.013	0.040	0.013	0.0017	0.0052	0.0017	**U**
127-18-4	Tetrachloroethene	**0.17**	0.040	0.013	**0.024**	0.0059	0.0019	
100-41-4	Ethylbenzene	**0.22**	0.16	0.016	**0.051**	0.037	0.0036	
179601-23-1	m,p-Xylenes	**0.68**	0.16	0.031	**0.16**	0.037	0.0070	
100-42-5	Styrene	**0.055**	0.16	0.012	**0.013**	0.038	0.0028	**J**
95-47-6	o-Xylene	**0.33**	0.16	0.014	**0.075**	0.037	0.0033	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.040	0.012	0.0017	0.0059	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.057**	0.16	0.012	**0.012**	0.033	0.0024	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.23**	0.16	0.013	**0.048**	0.033	0.0027	
541-73-1	1,3-Dichlorobenzene	0.014	0.040	0.014	0.0023	0.0067	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.015**	0.040	0.013	**0.0025**	0.0067	0.0022	**J**
95-50-1	1,2-Dichlorobenzene	0.013	0.040	0.013	0.0022	0.0067	0.0022	**U**
120-82-1	1,2,4-Trichlorobenzene	0.021	0.081	0.021	0.0028	0.011	0.0028	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-06** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-006

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AC02126

Initial Pressure (psig): -3.49 Final Pressure (psig): 3.62

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**3.7**	0.20	0.069	**0.74**	0.041	0.014	**D**
74-87-3	Chloromethane	**1.4**	0.20	0.077	**0.66**	0.099	0.038	**D**
75-01-4	Vinyl Chloride	**0.039**	0.10	0.031	**0.015**	0.040	0.012	**J, D**
106-99-0	1,3-Butadiene	0.057	0.20	0.057	0.026	0.092	0.026	**U, D**
74-83-9	Bromomethane	0.038	0.10	0.038	0.0098	0.026	0.0098	**U, D**
75-00-3	Chloroethane	**0.49**	0.10	0.035	**0.19**	0.039	0.013	**D**
107-02-8	Acrolein	**0.79**	0.82	0.16	**0.35**	0.36	0.069	**J, D**
67-64-1	Acetone	**19**	10	0.23	**8.1**	4.3	0.096	**D, B**
75-69-4	Trichlorofluoromethane	**1.6**	0.20	0.061	**0.28**	0.036	0.011	**D**
75-35-4	1,1-Dichloroethene	**0.11**	0.10	0.035	**0.029**	0.026	0.0088	**D**
75-09-2	Methylene Chloride	**2.7**	0.41	0.053	**0.77**	0.12	0.015	**D**
76-13-1	Trichlorotrifluoroethane	**0.28**	0.10	0.036	**0.036**	0.013	0.0047	**D**
75-34-3	1,1-Dichloroethane	**0.080**	0.10	0.025	**0.020**	0.025	0.0061	**J, D**
1634-04-4	Methyl tert-Butyl Ether	0.038	0.10	0.038	0.011	0.028	0.011	**U, D**
156-59-2	cis-1,2-Dichloroethene	0.037	0.10	0.037	0.0095	0.026	0.0095	**U, D**
67-66-3	Chloroform	**81**	0.41	0.073	**17**	0.083	0.015	**D**
107-06-2	1,2-Dichloroethane	0.034	0.10	0.034	0.0085	0.025	0.0085	**U, D**
71-55-6	1,1,1-Trichloroethane	**0.32**	0.10	0.024	**0.058**	0.019	0.0044	**D**
71-43-2	Benzene	**0.77**	0.31	0.082	**0.24**	0.096	0.026	**D**
78-87-5	1,2-Dichloropropane	**0.030**	0.041	0.012	**0.0066**	0.0088	0.0026	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-06** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-006

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AC02126

Initial Pressure (psig): -3.49 Final Pressure (psig): 3.62

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**19**	0.041	0.011	**2.8**	0.0061	0.0017	
79-01-6	Trichloroethene	**0.16**	0.041	0.014	**0.030**	0.0076	0.0026	
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0038	0.045	0.0038	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.041	0.010	0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0090	0.041	0.0090	0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**91**	0.41	0.045	**24**	0.11	0.012	**D**
106-93-4	1,2-Dibromoethane	0.013	0.041	0.013	0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**2.0**	0.041	0.013	**0.30**	0.0060	0.0020	
100-41-4	Ethylbenzene	**0.97**	0.16	0.016	**0.22**	0.038	0.0036	
179601-23-1	m,p-Xylenes	**3.4**	0.16	0.031	**0.79**	0.038	0.0071	
100-42-5	Styrene	**0.37**	0.16	0.012	**0.087**	0.038	0.0028	
95-47-6	o-Xylene	**1.4**	0.16	0.015	**0.33**	0.038	0.0033	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.041	0.012	0.0017	0.0059	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.97**	0.16	0.012	**0.20**	0.033	0.0024	
95-63-6	1,2,4-Trimethylbenzene	**1.4**	0.16	0.014	**0.28**	0.033	0.0028	
541-73-1	1,3-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**5.6**	0.041	0.013	**0.94**	0.0068	0.0022	
95-50-1	1,2-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.021	0.082	0.021	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-07** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-007

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00330
Initial Pressure (psig): -3.91 Final Pressure (psig): 3.62

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**		0.085	0.029	**0.43**		0.017	0.0058	
74-87-3	Chloromethane	**0.20**		0.085	0.032	**0.095**		0.041	0.016	
75-01-4	Vinyl Chloride		0.013	0.043	0.013		0.0051	0.017	0.0051	**U**
106-99-0	1,3-Butadiene	**0.044**		0.085	0.024	**0.020**		0.038	0.011	**J**
74-83-9	Bromomethane	**0.017**		0.043	0.016	**0.0044**		0.011	0.0041	**J**
75-00-3	Chloroethane		0.014	0.043	0.014		0.0055	0.016	0.0055	**U**
107-02-8	Acrolein	**0.11**		0.34	0.066	**0.047**		0.15	0.029	**J**
67-64-1	Acetone	**1.9**		4.3	0.095	**0.82**		1.8	0.040	**J, B**
75-69-4	Trichlorofluoromethane	**1.1**		0.085	0.026	**0.19**		0.015	0.0045	
75-35-4	1,1-Dichloroethene		0.015	0.043	0.015		0.0037	0.011	0.0037	**U**
75-09-2	Methylene Chloride	**0.21**		0.17	0.022	**0.060**		0.049	0.0064	
76-13-1	Trichlorotrifluoroethane	**0.38**		0.043	0.015	**0.049**		0.0055	0.0020	
75-34-3	1,1-Dichloroethane		0.010	0.043	0.010		0.0026	0.011	0.0026	**U**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.043	0.016		0.0044	0.012	0.0044	**U**
156-59-2	cis-1,2-Dichloroethene		0.016	0.043	0.016		0.0039	0.011	0.0039	**U**
67-66-3	Chloroform	**0.12**		0.17	0.031	**0.025**		0.035	0.0063	**J**
107-06-2	1,2-Dichloroethane	**0.043**		0.043	0.014	**0.011**		0.011	0.0035	
71-55-6	1,1,1-Trichloroethane		0.010	0.043	0.010		0.0018	0.0078	0.0018	**U**
71-43-2	Benzene	**0.46**		0.13	0.034	**0.14**		0.040	0.011	
78-87-5	1,2-Dichloropropane		0.012	0.043	0.012		0.0027	0.0092	0.0027	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-07** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-007

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00330
Initial Pressure (psig): -3.91 Final Pressure (psig): 3.62

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.012	0.043	0.012	0.0018	0.0063	0.0018	**U**
79-01-6	Trichloroethene	**0.030**	0.043	0.014	**0.0056**	0.0079	0.0027	**J**
123-91-1	1,4-Dioxane	0.014	0.17	0.014	0.0040	0.047	0.0040	**U**
10061-01-5	cis-1,3-Dichloropropene	0.011	0.043	0.011	0.0023	0.0094	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0094	0.043	0.0094	0.0021	0.0094	0.0021	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0025	0.031	0.0025	**U**
108-88-3	Toluene	**1.0**	0.17	0.019	**0.27**	0.045	0.0050	
106-93-4	1,2-Dibromoethane	0.013	0.043	0.013	0.0017	0.0055	0.0017	**U**
127-18-4	Tetrachloroethene	**0.092**	0.043	0.014	**0.014**	0.0063	0.0021	
100-41-4	Ethylbenzene	**0.17**	0.17	0.016	**0.039**	0.039	0.0038	**J**
179601-23-1	m,p-Xylenes	**0.54**	0.17	0.032	**0.13**	0.039	0.0074	
100-42-5	Styrene	**0.084**	0.17	0.013	**0.020**	0.040	0.0030	**J**
95-47-6	o-Xylene	**0.24**	0.17	0.015	**0.055**	0.039	0.0035	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.043	0.012	0.0018	0.0062	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.052**	0.17	0.012	**0.011**	0.035	0.0025	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.19**	0.17	0.014	**0.039**	0.035	0.0029	
541-73-1	1,3-Dichlorobenzene	0.014	0.043	0.014	0.0024	0.0071	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	**0.022**	0.043	0.014	**0.0037**	0.0071	0.0023	**J**
95-50-1	1,2-Dichlorobenzene	0.014	0.043	0.014	0.0023	0.0071	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.085	0.022	0.0030	0.011	0.0030	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-08** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-008

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00629
Initial Pressure (psig): -3.56 Final Pressure (psig): 3.60

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.0**		0.082	0.028	**0.40**		0.017	0.0056	
74-87-3	Chloromethane	**0.22**		0.082	0.031	**0.10**		0.040	0.015	
75-01-4	Vinyl Chloride		0.012	0.041	0.012		0.0049	0.016	0.0049	**U**
106-99-0	1,3-Butadiene	**0.050**		0.082	0.023	**0.023**		0.037	0.010	**J**
74-83-9	Bromomethane	**0.017**		0.041	0.015	**0.0044**		0.011	0.0039	**J**
75-00-3	Chloroethane		0.014	0.041	0.014		0.0053	0.016	0.0053	**U**
107-02-8	Acrolein	**0.13**		0.33	0.064	**0.058**		0.14	0.028	**J**
67-64-1	Acetone	**3.2**		4.1	0.092	**1.4**		1.7	0.039	**J, B**
75-69-4	Trichlorofluoromethane	**1.0**		0.082	0.025	**0.18**		0.015	0.0044	
75-35-4	1,1-Dichloroethene		0.014	0.041	0.014		0.0036	0.010	0.0036	**U**
75-09-2	Methylene Chloride	**0.20**		0.16	0.021	**0.057**		0.047	0.0061	
76-13-1	Trichlorotrifluoroethane	**0.35**		0.041	0.015	**0.045**		0.0054	0.0019	
75-34-3	1,1-Dichloroethane		0.010	0.041	0.010		0.0025	0.010	0.0025	**U**
1634-04-4	Methyl tert-Butyl Ether		0.015	0.041	0.015		0.0042	0.011	0.0042	**U**
156-59-2	cis-1,2-Dichloroethene		0.015	0.041	0.015		0.0038	0.010	0.0038	**U**
67-66-3	Chloroform	**0.10**		0.16	0.030	**0.021**		0.034	0.0060	**J**
107-06-2	1,2-Dichloroethane	**0.044**		0.041	0.014	**0.011**		0.010	0.0034	
71-55-6	1,1,1-Trichloroethane		0.0097	0.041	0.0097		0.0018	0.0075	0.0018	**U**
71-43-2	Benzene	**0.48**		0.12	0.033	**0.15**		0.039	0.010	
78-87-5	1,2-Dichloropropane		0.012	0.041	0.012		0.0026	0.0089	0.0026	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-08** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-008

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00629

Initial Pressure (psig): -3.56 Final Pressure (psig): 3.60

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.011	0.041	0.011	0.0017	0.0061	0.0017	**U**
79-01-6	Trichloroethene	**0.034**	0.041	0.014	**0.0064**	0.0076	0.0026	**J**
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0039	0.046	0.0039	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.041	0.010	0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0090	0.041	0.0090	0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**1.1**	0.16	0.018	**0.30**	0.044	0.0048	
106-93-4	1,2-Dibromoethane	0.013	0.041	0.013	0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**0.088**	0.041	0.013	**0.013**	0.0060	0.0020	
100-41-4	Ethylbenzene	**0.20**	0.16	0.016	**0.045**	0.038	0.0037	
179601-23-1	m,p-Xylenes	**0.71**	0.16	0.031	**0.16**	0.038	0.0072	
100-42-5	Styrene	**0.067**	0.16	0.012	**0.016**	0.039	0.0029	**J**
95-47-6	o-Xylene	**0.27**	0.16	0.015	**0.063**	0.038	0.0034	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.041	0.012	0.0017	0.0060	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.073**	0.16	0.012	**0.015**	0.033	0.0024	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.26**	0.16	0.014	**0.054**	0.033	0.0028	
541-73-1	1,3-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.021**	0.041	0.013	**0.0035**	0.0068	0.0022	**J**
95-50-1	1,2-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.021	0.082	0.021	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-09** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-009

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02266
Initial Pressure (psig): -3.72 Final Pressure (psig): 3.66

Container Dilution Factor: 1.67

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**3.1**		0.084	0.028	**0.62**		0.017	0.0057	
74-87-3	Chloromethane	**0.098**		0.084	0.032	**0.048**		0.040	0.015	
75-01-4	Vinyl Chloride	**0.025**		0.042	0.013	**0.0097**		0.016	0.0050	**J**
106-99-0	1,3-Butadiene	**0.039**		0.084	0.023	**0.018**		0.038	0.011	**J**
74-83-9	Bromomethane		0.016	0.042	0.016		0.0040	0.011	0.0040	**U**
75-00-3	Chloroethane	**0.074**		0.042	0.014	**0.028**		0.016	0.0054	
107-02-8	Acrolein	**0.11**		0.33	0.065	**0.049**		0.15	0.028	**J**
67-64-1	Acetone		0.094	4.2	0.094		0.039	1.8	0.039	**U**
75-69-4	Trichlorofluoromethane	**1.1**		0.084	0.025	**0.20**		0.015	0.0045	
75-35-4	1,1-Dichloroethene	**0.029**		0.042	0.014	**0.0072**		0.011	0.0036	**J**
75-09-2	Methylene Chloride	**2.0**		0.17	0.022	**0.57**		0.048	0.0063	
76-13-1	Trichlorotrifluoroethane	**0.34**		0.042	0.015	**0.044**		0.0054	0.0019	
75-34-3	1,1-Dichloroethane	**0.015**		0.042	0.010	**0.0036**		0.010	0.0025	**J**
1634-04-4	Methyl tert-Butyl Ether		0.016	0.042	0.016		0.0043	0.012	0.0043	**U**
156-59-2	cis-1,2-Dichloroethene	**0.046**		0.042	0.015	**0.011**		0.011	0.0039	
67-66-3	Chloroform	**13**		0.17	0.030	**2.6**		0.034	0.0062	
107-06-2	1,2-Dichloroethane	**0.062**		0.042	0.014	**0.015**		0.010	0.0035	
71-55-6	1,1,1-Trichloroethane	**0.043**		0.042	0.0099	**0.0078**		0.0077	0.0018	
71-43-2	Benzene	**0.073**		0.13	0.033	**0.023**		0.039	0.010	**J**
78-87-5	1,2-Dichloropropane		0.012	0.042	0.012		0.0026	0.0090	0.0026	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-09** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-009

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02266

Initial Pressure (psig): -3.72 Final Pressure (psig): 3.66

Container Dilution Factor: 1.67

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**2.9**	0.042	0.012	**0.44**	0.0062	0.0017	
79-01-6	Trichloroethene	**19**	0.042	0.014	**3.5**	0.0078	0.0026	
123-91-1	1,4-Dioxane	0.014	0.17	0.014	0.0039	0.046	0.0039	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.042	0.010	0.0023	0.0092	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0092	0.042	0.0092	0.0020	0.0092	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0024	0.031	0.0024	**U**
108-88-3	Toluene	**0.28**	0.17	0.018	**0.073**	0.044	0.0049	
106-93-4	1,2-Dibromoethane	0.013	0.042	0.013	0.0017	0.0054	0.0017	**U**
127-18-4	Tetrachloroethene	**26**	0.042	0.014	**3.8**	0.0062	0.0020	
100-41-4	Ethylbenzene	**0.040**	0.17	0.016	**0.0092**	0.038	0.0037	**J**
179601-23-1	m,p-Xylenes	**0.15**	0.17	0.032	**0.034**	0.038	0.0073	**J**
100-42-5	Styrene	0.012	0.17	0.012	0.0029	0.039	0.0029	**U**
95-47-6	o-Xylene	**0.066**	0.17	0.015	**0.015**	0.038	0.0034	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.042	0.012	0.0018	0.0061	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.022**	0.17	0.012	**0.0044**	0.034	0.0025	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.049**	0.17	0.014	**0.010**	0.034	0.0028	**J**
541-73-1	1,3-Dichlorobenzene	0.014	0.042	0.014	0.0024	0.0069	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	**0.85**	0.042	0.014	**0.14**	0.0069	0.0023	
95-50-1	1,2-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0069	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.084	0.022	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-10** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-010

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AS01018

Initial Pressure (psig): -3.74 Final Pressure (psig): 3.75

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.3**	0.21	0.071	**0.86**	0.042	0.014	**D**
74-87-3	Chloromethane	**1.3**	0.21	0.080	**0.61**	0.10	0.039	**D**
75-01-4	Vinyl Chloride	0.032	0.11	0.032	0.012	0.041	0.012	**U, D**
106-99-0	1,3-Butadiene	0.059	0.21	0.059	0.027	0.095	0.027	**U, D**
74-83-9	Bromomethane	0.039	0.11	0.039	0.010	0.027	0.010	**U, D**
75-00-3	Chloroethane	**0.31**	0.11	0.036	**0.12**	0.040	0.014	**D**
107-02-8	Acrolein	**0.19**	0.84	0.16	**0.081**	0.37	0.071	**J, D**
67-64-1	Acetone	**11**	11	0.24	**4.6**	4.4	0.099	**D, B**
75-69-4	Trichlorofluoromethane	**1.7**	0.21	0.063	**0.30**	0.037	0.011	**D**
75-35-4	1,1-Dichloroethene	**0.070**	0.11	0.036	**0.018**	0.026	0.0091	**J, D**
75-09-2	Methylene Chloride	**2.2**	0.42	0.055	**0.63**	0.12	0.016	**D**
76-13-1	Trichlorotrifluoroethane	**0.31**	0.11	0.037	**0.040**	0.014	0.0049	**D**
75-34-3	1,1-Dichloroethane	**0.052**	0.11	0.026	**0.013**	0.026	0.0063	**J, D**
1634-04-4	Methyl tert-Butyl Ether	0.039	0.11	0.039	0.011	0.029	0.011	**U, D**
156-59-2	cis-1,2-Dichloroethene	0.039	0.11	0.039	0.0097	0.026	0.0097	**U, D**
67-66-3	Chloroform	**61**	0.42	0.076	**13**	0.086	0.015	**D**
107-06-2	1,2-Dichloroethane	0.035	0.11	0.035	0.0087	0.026	0.0087	**U, D**
71-55-6	1,1,1-Trichloroethane	**0.25**	0.11	0.025	**0.046**	0.019	0.0045	**D**
71-43-2	Benzene	**1.4**	0.32	0.084	**0.45**	0.099	0.026	**D**
78-87-5	1,2-Dichloropropane	**0.024**	0.042	0.012	**0.0051**	0.0091	0.0027	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-10** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-010

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AS01018

Initial Pressure (psig): -3.74 Final Pressure (psig): 3.75

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**16**	0.042	0.012	**2.4**	0.0063	0.0017	
79-01-6	Trichloroethene	**0.16**	0.042	0.014	**0.030**	0.0078	0.0027	
123-91-1	1,4-Dioxane	0.014	0.17	0.014	0.0040	0.047	0.0040	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.042	0.010	0.0023	0.0093	0.0023	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0092	0.042	0.0092	0.0020	0.0093	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.17	0.013	0.0024	0.031	0.0024	**U**
108-88-3	Toluene	**130**	0.42	0.046	**34**	0.11	0.012	**D**
106-93-4	1,2-Dibromoethane	0.013	0.042	0.013	0.0017	0.0055	0.0017	**U**
127-18-4	Tetrachloroethene	**2.2**	0.042	0.014	**0.32**	0.0062	0.0020	
100-41-4	Ethylbenzene	**1.2**	0.17	0.016	**0.28**	0.039	0.0038	
179601-23-1	m,p-Xylenes	**4.3**	0.17	0.032	**1.0**	0.039	0.0074	
100-42-5	Styrene	**0.35**	0.17	0.012	**0.082**	0.039	0.0029	
95-47-6	o-Xylene	**1.7**	0.17	0.015	**0.39**	0.039	0.0034	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.042	0.012	0.0018	0.0061	0.0018	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.73**	0.17	0.012	**0.15**	0.034	0.0025	
95-63-6	1,2,4-Trimethylbenzene	**1.5**	0.17	0.014	**0.30**	0.034	0.0028	
541-73-1	1,3-Dichlorobenzene	0.014	0.042	0.014	0.0024	0.0070	0.0024	**U**
106-46-7	1,4-Dichlorobenzene	**3.8**	0.042	0.014	**0.63**	0.0070	0.0023	
95-50-1	1,2-Dichlorobenzene	0.014	0.042	0.014	0.0023	0.0070	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.022	0.084	0.022	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-11** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-011

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AS00766

Initial Pressure (psig): -3.52 Final Pressure (psig): 3.52

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**4.0**	0.20	0.069	**0.81**	0.041	0.014	**D**
74-87-3	Chloromethane	**1.6**	0.20	0.077	**0.78**	0.099	0.038	**D**
75-01-4	Vinyl Chloride	**0.037**	0.10	0.031	**0.014**	0.040	0.012	**J, D**
106-99-0	1,3-Butadiene	**0.40**	0.20	0.057	**0.18**	0.092	0.026	**D**
74-83-9	Bromomethane	0.038	0.10	0.038	0.0098	0.026	0.0098	**U, D**
75-00-3	Chloroethane	**0.50**	0.10	0.035	**0.19**	0.039	0.013	**D**
107-02-8	Acrolein	**0.19**	0.82	0.16	**0.082**	0.36	0.069	**J, D**
67-64-1	Acetone	**27**	10	0.23	**11**	4.3	0.096	**D, B**
75-69-4	Trichlorofluoromethane	**1.7**	0.20	0.061	**0.30**	0.036	0.011	**D**
75-35-4	1,1-Dichloroethene	**0.11**	0.10	0.035	**0.027**	0.026	0.0088	**D**
75-09-2	Methylene Chloride	**2.5**	0.41	0.053	**0.72**	0.12	0.015	**D**
76-13-1	Trichlorotrifluoroethane	**0.29**	0.10	0.036	**0.038**	0.013	0.0047	**D**
75-34-3	1,1-Dichloroethane	**0.065**	0.10	0.025	**0.016**	0.025	0.0061	**J, D**
1634-04-4	Methyl tert-Butyl Ether	0.038	0.10	0.038	0.011	0.028	0.011	**U, D**
156-59-2	cis-1,2-Dichloroethene	0.037	0.10	0.037	0.0095	0.026	0.0095	**U, D**
67-66-3	Chloroform	**79**	0.41	0.073	**16**	0.083	0.015	**D**
107-06-2	1,2-Dichloroethane	0.034	0.10	0.034	0.0085	0.025	0.0085	**U, D**
71-55-6	1,1,1-Trichloroethane	**0.30**	0.10	0.024	**0.055**	0.019	0.0044	**D**
71-43-2	Benzene	**1.3**	0.31	0.082	**0.42**	0.096	0.026	**D**
78-87-5	1,2-Dichloropropane	**0.032**	0.041	0.012	**0.0069**	0.0088	0.0026	**J**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-11** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-011

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17 - 10/18/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: 0.40 Liter(s)
Container ID: AS00766

Initial Pressure (psig): -3.52 Final Pressure (psig): 3.52

Container Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	**20**	0.041	0.011	**3.0**	0.0061	0.0017	
79-01-6	Trichloroethene	**0.16**	0.041	0.014	**0.030**	0.0076	0.0026	
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0038	0.045	0.0038	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.041	0.010	0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0090	0.041	0.0090	0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**130**	0.41	0.045	**34**	0.11	0.012	**D**
106-93-4	1,2-Dibromoethane	0.013	0.041	0.013	0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**2.1**	0.041	0.013	**0.32**	0.0060	0.0020	
100-41-4	Ethylbenzene	**1.2**	0.16	0.016	**0.28**	0.038	0.0036	
179601-23-1	m,p-Xylenes	**4.6**	0.16	0.031	**1.1**	0.038	0.0071	
100-42-5	Styrene	0.012	0.16	0.012	0.0028	0.038	0.0028	**U**
95-47-6	o-Xylene	**1.6**	0.16	0.015	**0.36**	0.038	0.0033	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.041	0.012	0.0017	0.0059	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.99**	0.16	0.012	**0.20**	0.033	0.0024	
95-63-6	1,2,4-Trimethylbenzene	**1.9**	0.16	0.014	**0.38**	0.033	0.0028	
541-73-1	1,3-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**4.5**	0.041	0.013	**0.75**	0.0068	0.0022	
95-50-1	1,2-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.021	0.082	0.021	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-12** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-012

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02147
Initial Pressure (psig): -3.56 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.1**		0.082	0.028	**0.43**		0.017	0.0056	
74-87-3	Chloromethane	**0.13**		0.082	0.031	**0.065**		0.040	0.015	
75-01-4	Vinyl Chloride		0.012	0.041	0.012		0.0049	0.016	0.0049	**U**
106-99-0	1,3-Butadiene	**0.054**		0.082	0.023	**0.024**		0.037	0.010	**J**
74-83-9	Bromomethane		0.015	0.041	0.015		0.0039	0.011	0.0039	**U**
75-00-3	Chloroethane		0.014	0.041	0.014		0.0053	0.016	0.0053	**U**
107-02-8	Acrolein	**0.63**		0.33	0.064	**0.27**		0.14	0.028	
67-64-1	Acetone	**4.2**		4.1	0.092	**1.8**		1.7	0.039	**B**
75-69-4	Trichlorofluoromethane	**1.1**		0.082	0.025	**0.19**		0.015	0.0044	
75-35-4	1,1-Dichloroethene		0.014	0.041	0.014		0.0036	0.010	0.0036	**U**
75-09-2	Methylene Chloride	**0.20**		0.16	0.021	**0.058**		0.047	0.0061	
76-13-1	Trichlorotrifluoroethane	**0.37**		0.041	0.015	**0.049**		0.0054	0.0019	
75-34-3	1,1-Dichloroethane		0.010	0.041	0.010		0.0025	0.010	0.0025	**U**
1634-04-4	Methyl tert-Butyl Ether		0.015	0.041	0.015		0.0042	0.011	0.0042	**U**
156-59-2	cis-1,2-Dichloroethene		0.015	0.041	0.015		0.0038	0.010	0.0038	**U**
67-66-3	Chloroform	**0.12**		0.16	0.030	**0.025**		0.034	0.0060	**J**
107-06-2	1,2-Dichloroethane	**0.045**		0.041	0.014	**0.011**		0.010	0.0034	
71-55-6	1,1,1-Trichloroethane		0.0097	0.041	0.0097		0.0018	0.0075	0.0018	**U**
71-43-2	Benzene	**0.38**		0.12	0.033	**0.12**		0.039	0.010	
78-87-5	1,2-Dichloropropane		0.012	0.041	0.012		0.0026	0.0089	0.0026	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-12** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-012

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02147
Initial Pressure (psig): -3.56 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³		MRL µg/m³	MDL µg/m³	Result ppbV		MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane		0.011	0.041	0.011		0.0017	0.0061	0.0017	**U**
79-01-6	Trichloroethene	**0.039**		0.041	0.014	**0.0072**		0.0076	0.0026	**J**
123-91-1	1,4-Dioxane		0.014	0.16	0.014		0.0039	0.046	0.0039	**U**
10061-01-5	cis-1,3-Dichloropropene		0.010	0.041	0.010		0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene		0.0090	0.041	0.0090		0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane		0.013	0.16	0.013		0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**0.68**		0.16	0.018	**0.18**		0.044	0.0048	
106-93-4	1,2-Dibromoethane		0.013	0.041	0.013		0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**0.078**		0.041	0.013	**0.011**		0.0060	0.0020	
100-41-4	Ethylbenzene	**0.12**		0.16	0.016	**0.027**		0.038	0.0037	**J**
179601-23-1	m,p-Xylenes	**0.42**		0.16	0.031	**0.096**		0.038	0.0072	
100-42-5	Styrene	**0.039**		0.16	0.012	**0.0092**		0.039	0.0029	**J**
95-47-6	o-Xylene	**0.25**		0.16	0.015	**0.057**		0.038	0.0034	
79-34-5	1,1,2,2-Tetrachloroethane		0.012	0.041	0.012		0.0017	0.0060	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.061**		0.16	0.012	**0.013**		0.033	0.0024	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.15**		0.16	0.014	**0.030**		0.033	0.0028	**J**
541-73-1	1,3-Dichlorobenzene		0.014	0.041	0.014		0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.022**		0.041	0.013	**0.0036**		0.0068	0.0022	**J**
95-50-1	1,2-Dichlorobenzene		0.014	0.041	0.014		0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene		0.021	0.082	0.021		0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-13** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-013

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01848
Initial Pressure (psig): -3.60 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.2**	0.082	0.028	**0.45**	0.017	0.0056	
74-87-3	Chloromethane	**0.20**	0.082	0.031	**0.097**	0.040	0.015	
75-01-4	Vinyl Chloride	0.012	0.041	0.012	0.0049	0.016	0.0049	**U**
106-99-0	1,3-Butadiene	**0.073**	0.082	0.023	**0.033**	0.037	0.010	**J**
74-83-9	Bromomethane	**0.024**	0.041	0.015	**0.0061**	0.011	0.0039	**J**
75-00-3	Chloroethane	0.014	0.041	0.014	0.0053	0.016	0.0053	**U**
107-02-8	Acrolein	**0.13**	0.33	0.064	**0.057**	0.14	0.028	**J**
67-64-1	Acetone	**1.4**	4.1	0.092	**0.60**	1.7	0.039	**J, B**
75-69-4	Trichlorofluoromethane	**1.1**	0.082	0.025	**0.20**	0.015	0.0044	
75-35-4	1,1-Dichloroethene	0.014	0.041	0.014	0.0036	0.010	0.0036	**U**
75-09-2	Methylene Chloride	**0.22**	0.16	0.021	**0.064**	0.047	0.0061	
76-13-1	Trichlorotrifluoroethane	**0.38**	0.041	0.015	**0.050**	0.0054	0.0019	
75-34-3	1,1-Dichloroethane	0.010	0.041	0.010	0.0025	0.010	0.0025	**U**
1634-04-4	Methyl tert-Butyl Ether	0.015	0.041	0.015	0.0042	0.011	0.0042	**U**
156-59-2	cis-1,2-Dichloroethene	0.015	0.041	0.015	0.0038	0.010	0.0038	**U**
67-66-3	Chloroform	**0.12**	0.16	0.030	**0.024**	0.034	0.0060	**J**
107-06-2	1,2-Dichloroethane	**0.046**	0.041	0.014	**0.011**	0.010	0.0034	
71-55-6	1,1,1-Trichloroethane	**0.010**	0.041	0.0097	**0.0019**	0.0075	0.0018	**J**
71-43-2	Benzene	**0.57**	0.12	0.033	**0.18**	0.039	0.010	
78-87-5	1,2-Dichloropropane	0.012	0.041	0.012	0.0026	0.0089	0.0026	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-13** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P1805497-013

Test Code: EPA TO-15 SIM Date Collected: 10/9/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 10/13/18
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01848
Initial Pressure (psig): -3.60 Final Pressure (psig): 3.53

Container Dilution Factor: 1.64

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.011	0.041	0.011	0.0017	0.0061	0.0017	**U**
79-01-6	Trichloroethene	**0.054**	0.041	0.014	**0.010**	0.0076	0.0026	
123-91-1	1,4-Dioxane	0.014	0.16	0.014	0.0039	0.046	0.0039	**U**
10061-01-5	cis-1,3-Dichloropropene	0.010	0.041	0.010	0.0022	0.0090	0.0022	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0090	0.041	0.0090	0.0020	0.0090	0.0020	**U**
79-00-5	1,1,2-Trichloroethane	0.013	0.16	0.013	0.0024	0.030	0.0024	**U**
108-88-3	Toluene	**1.4**	0.16	0.018	**0.37**	0.044	0.0048	
106-93-4	1,2-Dibromoethane	0.013	0.041	0.013	0.0017	0.0053	0.0017	**U**
127-18-4	Tetrachloroethene	**0.14**	0.041	0.013	**0.021**	0.0060	0.0020	
100-41-4	Ethylbenzene	**0.23**	0.16	0.016	**0.054**	0.038	0.0037	
179601-23-1	m,p-Xylenes	**0.79**	0.16	0.031	**0.18**	0.038	0.0072	
100-42-5	Styrene	**0.061**	0.16	0.012	**0.014**	0.039	0.0029	**J**
95-47-6	o-Xylene	**0.35**	0.16	0.015	**0.080**	0.038	0.0034	
79-34-5	1,1,2,2-Tetrachloroethane	0.012	0.041	0.012	0.0017	0.0060	0.0017	**U**
108-67-8	1,3,5-Trimethylbenzene	**0.065**	0.16	0.012	**0.013**	0.033	0.0024	**J**
95-63-6	1,2,4-Trimethylbenzene	**0.26**	0.16	0.014	**0.054**	0.033	0.0028	
541-73-1	1,3-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
106-46-7	1,4-Dichlorobenzene	**0.025**	0.041	0.013	**0.0042**	0.0068	0.0022	**J**
95-50-1	1,2-Dichlorobenzene	0.014	0.041	0.014	0.0023	0.0068	0.0023	**U**
120-82-1	1,2,4-Trichlorobenzene	0.021	0.082	0.021	0.0029	0.011	0.0029	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181017-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	0.017	0.050	0.017	0.0034	0.010	0.0034	**U**
74-87-3	Chloromethane	0.019	0.050	0.019	0.0092	0.024	0.0092	**U**
75-01-4	Vinyl Chloride	0.0076	0.025	0.0076	0.0030	0.0098	0.0030	**U**
106-99-0	1,3-Butadiene	0.014	0.050	0.014	0.0063	0.023	0.0063	**U**
74-83-9	Bromomethane	0.0093	0.025	0.0093	0.0024	0.0064	0.0024	**U**
75-00-3	Chloroethane	0.0085	0.025	0.0085	0.0032	0.0095	0.0032	**U**
107-02-8	Acrolein	0.039	0.20	0.039	0.017	0.087	0.017	**U**
67-64-1	Acetone	**0.31**	2.5	0.056	**0.13**	1.1	0.024	**J**
75-69-4	Trichlorofluoromethane	0.015	0.050	0.015	0.0027	0.0089	0.0027	**U**
75-35-4	1,1-Dichloroethene	0.0086	0.025	0.0086	0.0022	0.0063	0.0022	**U**
75-09-2	Methylene Chloride	0.013	0.10	0.013	0.0037	0.029	0.0037	**U**
76-13-1	Trichlorotrifluoroethane	0.0089	0.025	0.0089	0.0012	0.0033	0.0012	**U**
75-34-3	1,1-Dichloroethane	0.0061	0.025	0.0061	0.0015	0.0062	0.0015	**U**
1634-04-4	Methyl tert-Butyl Ether	0.0093	0.025	0.0093	0.0026	0.0069	0.0026	**U**
156-59-2	cis-1,2-Dichloroethene	0.0092	0.025	0.0092	0.0023	0.0063	0.0023	**U**
67-66-3	Chloroform	0.018	0.10	0.018	0.0037	0.020	0.0037	**U**
107-06-2	1,2-Dichloroethane	0.0084	0.025	0.0084	0.0021	0.0062	0.0021	**U**
71-55-6	1,1,1-Trichloroethane	0.0059	0.025	0.0059	0.0011	0.0046	0.0011	**U**
71-43-2	Benzene	0.020	0.075	0.020	0.0063	0.023	0.0063	**U**
78-87-5	1,2-Dichloropropane	0.0073	0.025	0.0073	0.0016	0.0054	0.0016	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181017-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.0069	0.025	0.0069	0.0010	0.0037	0.0010	**U**
79-01-6	Trichloroethene	0.0085	0.025	0.0085	0.0016	0.0047	0.0016	**U**
123-91-1	1,4-Dioxane	0.0085	0.10	0.0085	0.0024	0.028	0.0024	**U**
10061-01-5	cis-1,3-Dichloropropene	0.0062	0.025	0.0062	0.0014	0.0055	0.0014	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0055	0.025	0.0055	0.0012	0.0055	0.0012	**U**
79-00-5	1,1,2-Trichloroethane	0.0079	0.10	0.0079	0.0014	0.018	0.0014	**U**
108-88-3	Toluene	0.011	0.10	0.011	0.0029	0.027	0.0029	**U**
106-93-4	1,2-Dibromoethane	0.0079	0.025	0.0079	0.0010	0.0033	0.0010	**U**
127-18-4	Tetrachloroethene	0.0082	0.025	0.0082	0.0012	0.0037	0.0012	**U**
100-41-4	Ethylbenzene	0.0097	0.10	0.0097	0.0022	0.023	0.0022	**U**
179601-23-1	m,p-Xylenes	0.019	0.10	0.019	0.0044	0.023	0.0044	**U**
100-42-5	Styrene	0.0074	0.10	0.0074	0.0017	0.023	0.0017	**U**
95-47-6	o-Xylene	0.0089	0.10	0.0089	0.0020	0.023	0.0020	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.0072	0.025	0.0072	0.0010	0.0036	0.0010	**U**
108-67-8	1,3,5-Trimethylbenzene	0.0073	0.10	0.0073	0.0015	0.020	0.0015	**U**
95-63-6	1,2,4-Trimethylbenzene	0.0083	0.10	0.0083	0.0017	0.020	0.0017	**U**
541-73-1	1,3-Dichlorobenzene	0.0085	0.025	0.0085	0.0014	0.0042	0.0014	**U**
106-46-7	1,4-Dichlorobenzene	0.0081	0.025	0.0081	0.0013	0.0042	0.0013	**U**
95-50-1	1,2-Dichlorobenzene	0.0083	0.025	0.0083	0.0014	0.0042	0.0014	**U**
120-82-1	1,2,4-Trichlorobenzene	0.013	0.050	0.013	0.0018	0.0067	0.0018	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181018-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	0.017	0.050	0.017	0.0034	0.010	0.0034	**U**
74-87-3	Chloromethane	0.019	0.050	0.019	0.0092	0.024	0.0092	**U**
75-01-4	Vinyl Chloride	0.0076	0.025	0.0076	0.0030	0.0098	0.0030	**U**
106-99-0	1,3-Butadiene	0.014	0.050	0.014	0.0063	0.023	0.0063	**U**
74-83-9	Bromomethane	0.0093	0.025	0.0093	0.0024	0.0064	0.0024	**U**
75-00-3	Chloroethane	0.0085	0.025	0.0085	0.0032	0.0095	0.0032	**U**
107-02-8	Acrolein	0.039	0.20	0.039	0.017	0.087	0.017	**U**
67-64-1	Acetone	**0.34**	2.5	0.056	**0.14**	1.1	0.024	**J**
75-69-4	Trichlorofluoromethane	0.015	0.050	0.015	0.0027	0.0089	0.0027	**U**
75-35-4	1,1-Dichloroethene	0.0086	0.025	0.0086	0.0022	0.0063	0.0022	**U**
75-09-2	Methylene Chloride	0.013	0.10	0.013	0.0037	0.029	0.0037	**U**
76-13-1	Trichlorotrifluoroethane	0.0089	0.025	0.0089	0.0012	0.0033	0.0012	**U**
75-34-3	1,1-Dichloroethane	0.0061	0.025	0.0061	0.0015	0.0062	0.0015	**U**
1634-04-4	Methyl tert-Butyl Ether	0.0093	0.025	0.0093	0.0026	0.0069	0.0026	**U**
156-59-2	cis-1,2-Dichloroethene	0.0092	0.025	0.0092	0.0023	0.0063	0.0023	**U**
67-66-3	Chloroform	0.018	0.10	0.018	0.0037	0.020	0.0037	**U**
107-06-2	1,2-Dichloroethane	0.0084	0.025	0.0084	0.0021	0.0062	0.0021	**U**
71-55-6	1,1,1-Trichloroethane	0.0059	0.025	0.0059	0.0011	0.0046	0.0011	**U**
71-43-2	Benzene	0.020	0.075	0.020	0.0063	0.023	0.0063	**U**
78-87-5	1,2-Dichloropropane	0.0073	0.025	0.0073	0.0016	0.0054	0.0016	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181018-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.0069	0.025	0.0069	0.0010	0.0037	0.0010	**U**
79-01-6	Trichloroethene	0.0085	0.025	0.0085	0.0016	0.0047	0.0016	**U**
123-91-1	1,4-Dioxane	0.0085	0.10	0.0085	0.0024	0.028	0.0024	**U**
10061-01-5	cis-1,3-Dichloropropene	0.0062	0.025	0.0062	0.0014	0.0055	0.0014	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0055	0.025	0.0055	0.0012	0.0055	0.0012	**U**
79-00-5	1,1,2-Trichloroethane	0.0079	0.10	0.0079	0.0014	0.018	0.0014	**U**
108-88-3	Toluene	0.011	0.10	0.011	0.0029	0.027	0.0029	**U**
106-93-4	1,2-Dibromoethane	0.0079	0.025	0.0079	0.0010	0.0033	0.0010	**U**
127-18-4	Tetrachloroethene	0.0082	0.025	0.0082	0.0012	0.0037	0.0012	**U**
100-41-4	Ethylbenzene	0.0097	0.10	0.0097	0.0022	0.023	0.0022	**U**
179601-23-1	m,p-Xylenes	0.019	0.10	0.019	0.0044	0.023	0.0044	**U**
100-42-5	Styrene	0.0074	0.10	0.0074	0.0017	0.023	0.0017	**U**
95-47-6	o-Xylene	0.0089	0.10	0.0089	0.0020	0.023	0.0020	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.0072	0.025	0.0072	0.0010	0.0036	0.0010	**U**
108-67-8	1,3,5-Trimethylbenzene	0.0073	0.10	0.0073	0.0015	0.020	0.0015	**U**
95-63-6	1,2,4-Trimethylbenzene	0.0083	0.10	0.0083	0.0017	0.020	0.0017	**U**
541-73-1	1,3-Dichlorobenzene	0.0085	0.025	0.0085	0.0014	0.0042	0.0014	**U**
106-46-7	1,4-Dichlorobenzene	0.0081	0.025	0.0081	0.0013	0.0042	0.0013	**U**
95-50-1	1,2-Dichlorobenzene	0.0083	0.025	0.0083	0.0014	0.0042	0.0014	**U**
120-82-1	1,2,4-Trichlorobenzene	0.013	0.050	0.013	0.0018	0.0067	0.0018	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181019-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	0.017	0.050	0.017	0.0034	0.010	0.0034	**U**
74-87-3	Chloromethane	0.019	0.050	0.019	0.0092	0.024	0.0092	**U**
75-01-4	Vinyl Chloride	0.0076	0.025	0.0076	0.0030	0.0098	0.0030	**U**
106-99-0	1,3-Butadiene	0.014	0.050	0.014	0.0063	0.023	0.0063	**U**
74-83-9	Bromomethane	0.0093	0.025	0.0093	0.0024	0.0064	0.0024	**U**
75-00-3	Chloroethane	0.0085	0.025	0.0085	0.0032	0.0095	0.0032	**U**
107-02-8	Acrolein	0.039	0.20	0.039	0.017	0.087	0.017	**U**
67-64-1	Acetone	**0.33**	2.5	0.056	**0.14**	1.1	0.024	**J**
75-69-4	Trichlorofluoromethane	0.015	0.050	0.015	0.0027	0.0089	0.0027	**U**
75-35-4	1,1-Dichloroethene	0.0086	0.025	0.0086	0.0022	0.0063	0.0022	**U**
75-09-2	Methylene Chloride	0.013	0.10	0.013	0.0037	0.029	0.0037	**U**
76-13-1	Trichlorotrifluoroethane	0.0089	0.025	0.0089	0.0012	0.0033	0.0012	**U**
75-34-3	1,1-Dichloroethane	0.0061	0.025	0.0061	0.0015	0.0062	0.0015	**U**
1634-04-4	Methyl tert-Butyl Ether	0.0093	0.025	0.0093	0.0026	0.0069	0.0026	**U**
156-59-2	cis-1,2-Dichloroethene	0.0092	0.025	0.0092	0.0023	0.0063	0.0023	**U**
67-66-3	Chloroform	0.018	0.10	0.018	0.0037	0.020	0.0037	**U**
107-06-2	1,2-Dichloroethane	0.0084	0.025	0.0084	0.0021	0.0062	0.0021	**U**
71-55-6	1,1,1-Trichloroethane	0.0059	0.025	0.0059	0.0011	0.0046	0.0011	**U**
71-43-2	Benzene	0.020	0.075	0.020	0.0063	0.023	0.0063	**U**
78-87-5	1,2-Dichloropropane	0.0073	0.025	0.0073	0.0016	0.0054	0.0016	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181019-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-27-4	Bromodichloromethane	0.0069	0.025	0.0069	0.0010	0.0037	0.0010	**U**
79-01-6	Trichloroethene	0.0085	0.025	0.0085	0.0016	0.0047	0.0016	**U**
123-91-1	1,4-Dioxane	0.0085	0.10	0.0085	0.0024	0.028	0.0024	**U**
10061-01-5	cis-1,3-Dichloropropene	0.0062	0.025	0.0062	0.0014	0.0055	0.0014	**U**
10061-02-6	trans-1,3-Dichloropropene	0.0055	0.025	0.0055	0.0012	0.0055	0.0012	**U**
79-00-5	1,1,2-Trichloroethane	0.0079	0.10	0.0079	0.0014	0.018	0.0014	**U**
108-88-3	Toluene	0.011	0.10	0.011	0.0029	0.027	0.0029	**U**
106-93-4	1,2-Dibromoethane	0.0079	0.025	0.0079	0.0010	0.0033	0.0010	**U**
127-18-4	Tetrachloroethene	0.0082	0.025	0.0082	0.0012	0.0037	0.0012	**U**
100-41-4	Ethylbenzene	0.0097	0.10	0.0097	0.0022	0.023	0.0022	**U**
179601-23-1	m,p-Xylenes	0.019	0.10	0.019	0.0044	0.023	0.0044	**U**
100-42-5	Styrene	0.0074	0.10	0.0074	0.0017	0.023	0.0017	**U**
95-47-6	o-Xylene	0.0089	0.10	0.0089	0.0020	0.023	0.0020	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.0072	0.025	0.0072	0.0010	0.0036	0.0010	**U**
108-67-8	1,3,5-Trimethylbenzene	0.0073	0.10	0.0073	0.0015	0.020	0.0015	**U**
95-63-6	1,2,4-Trimethylbenzene	0.0083	0.10	0.0083	0.0017	0.020	0.0017	**U**
541-73-1	1,3-Dichlorobenzene	0.0085	0.025	0.0085	0.0014	0.0042	0.0014	**U**
106-46-7	1,4-Dichlorobenzene	0.0081	0.025	0.0081	0.0013	0.0042	0.0013	**U**
95-50-1	1,2-Dichlorobenzene	0.0083	0.025	0.0083	0.0014	0.0042	0.0014	**U**
120-82-1	1,2,4-Trichlorobenzene	0.013	0.050	0.013	0.0018	0.0067	0.0018	**U**

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 10/9 - 10/10/18
Analyst: Wida Ang Date(s) Received: 10/13/18
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 10/17 - 10/19/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181017-MB	**98**	**105**	**103**	70-130	
Method Blank	P181018-MB	**100**	**105**	**104**	70-130	
Method Blank	P181019-MB	**97**	**104**	**103**	70-130	
Lab Control Sample	P181017-LCS	**97**	**100**	**110**	70-130	
Lab Control Sample	P181018-LCS	**98**	**102**	**109**	70-130	
Lab Control Sample	P181019-LCS	**98**	**100**	**109**	70-130	
Duplicate Lab Control Sample	P181017-DLCS	**97**	**99**	**110**	70-130	
Duplicate Lab Control Sample	P181018-DLCS	**98**	**101**	**109**	70-130	
Duplicate Lab Control Sample	P181019-DLCS	**96**	**105**	**101**	70-130	
19CP01-01	P1805497-001	**93**	**106**	**104**	70-130	
19CP01-02	P1805497-002	**92**	**106**	**110**	70-130	
19CP01-03	P1805497-003	**48**	**106**	**99**	70-130	**S**
19CP01-04	P1805497-004	**51**	**106**	**105**	70-130	**S**
19CP01-05	P1805497-005	**92**	**105**	**108**	70-130	
19CP01-06	P1805497-006	**60**	**104**	**86**	70-130	**S**
19CP01-07	P1805497-007	**94**	**107**	**107**	70-130	
19CP01-08	P1805497-008	**93**	**106**	**109**	70-130	
19CP01-09	P1805497-009	**85**	**105**	**104**	70-130	
19CP01-10	P1805497-010	**62**	**104**	**84**	70-130	**S**
19CP01-11	P1805497-011	**56**	**104**	**80**	70-130	**S**
19CP01-12	P1805497-012	**93**	**105**	**108**	70-130	
19CP01-13	P1805497-013	**93**	**108**	**106**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.
S = Surrogate recovery not within specified limits.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181017-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	8.42	7.59	7.61	**90**	**90**	80-130	0	25	
74-87-3	Chloromethane	8.44	7.39	7.41	**88**	**88**	54-144	0	25	
75-01-4	Vinyl Chloride	8.55	7.61	7.65	**89**	**89**	65-136	0	25	
106-99-0	1,3-Butadiene	8.41	6.73	6.76	**80**	**80**	27-154	0	25	
74-83-9	Bromomethane	8.47	7.20	7.21	**85**	**85**	71-126	0	25	
75-00-3	Chloroethane	8.56	7.36	7.40	**86**	**86**	71-129	0	25	
107-02-8	Acrolein	8.20	7.07	7.11	**86**	**87**	49-117	1	25	
67-64-1	Acetone	42.3	38.1	38.3	**90**	**91**	62-158	1	25	
75-69-4	Trichlorofluoromethane	8.45	7.51	7.51	**89**	**89**	82-122	0	25	
75-35-4	1,1-Dichloroethene	8.71	8.76	8.79	**101**	**101**	76-120	0	25	
75-09-2	Methylene Chloride	8.66	7.56	7.57	**87**	**87**	76-120	0	25	
76-13-1	Trichlorotrifluoroethane	8.62	7.44	7.47	**86**	**87**	77-118	1	25	
75-34-3	1,1-Dichloroethane	8.62	7.54	7.57	**87**	**88**	73-126	1	25	
1634-04-4	Methyl tert-Butyl Ether	8.58	7.67	7.70	**89**	**90**	69-125	1	25	
156-59-2	cis-1,2-Dichloroethene	8.43	7.68	7.69	**91**	**91**	76-121	0	25	
67-66-3	Chloroform	8.66	7.34	7.34	**85**	**85**	80-121	0	25	
107-06-2	1,2-Dichloroethane	8.59	7.64	7.66	**89**	**89**	68-126	0	25	
71-55-6	1,1,1-Trichloroethane	8.61	7.64	7.62	**89**	**89**	75-121	0	25	
71-43-2	Benzene	8.44	7.62	7.34	**90**	**87**	76-126	3	25	
78-87-5	1,2-Dichloropropane	8.63	7.78	7.77	**90**	**90**	65-126	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181017-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-27-4	Bromodichloromethane	8.58	7.82	7.79	**91**	**91**	72-119	0	25	
79-01-6	Trichloroethene	8.54	8.02	8.00	**94**	**94**	73-121	0	25	
123-91-1	1,4-Dioxane	8.55	8.08	8.06	**95**	**94**	66-119	1	25	
10061-01-5	cis-1,3-Dichloropropene	8.57	7.70	7.70	**90**	**90**	60-122	0	25	
10061-02-6	trans-1,3-Dichloropropene	8.51	7.83	7.84	**92**	**92**	58-122	0	25	
79-00-5	1,1,2-Trichloroethane	8.59	7.82	7.79	**91**	**91**	68-124	0	25	
108-88-3	Toluene	8.48	7.61	7.61	**90**	**90**	69-122	0	25	
106-93-4	1,2-Dibromoethane	8.65	7.86	7.82	**91**	**90**	71-119	1	25	
127-18-4	Tetrachloroethene	8.51	7.83	7.80	**92**	**92**	72-118	0	25	
100-41-4	Ethylbenzene	8.49	8.29	8.33	**98**	**98**	76-122	0	25	
179601-23-1	m,p-Xylenes	17.0	16.7	16.8	**98**	**99**	73-126	1	25	
100-42-5	Styrene	8.48	8.43	8.40	**99**	**99**	53-129	0	25	
95-47-6	o-Xylene	8.56	8.33	8.33	**97**	**97**	70-129	0	25	
79-34-5	1,1,2,2-Tetrachloroethane	8.58	7.69	7.76	**90**	**90**	73-123	0	25	
108-67-8	1,3,5-Trimethylbenzene	8.55	8.50	8.53	**99**	**100**	63-132	1	25	
95-63-6	1,2,4-Trimethylbenzene	8.61	8.59	8.63	**100**	**100**	57-134	0	25	
541-73-1	1,3-Dichlorobenzene	8.63	8.16	8.14	**95**	**94**	59-133	1	25	
106-46-7	1,4-Dichlorobenzene	8.64	7.93	8.06	**92**	**93**	59-125	1	25	
95-50-1	1,2-Dichlorobenzene	8.62	8.31	8.34	**96**	**97**	60-127	1	25	
120-82-1	1,2,4-Trichlorobenzene	8.57	8.64	8.85	**101**	**103**	36-136	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181018-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	8.42	7.58	7.61	**90**	**90**	80-130	0	25	
74-87-3	Chloromethane	8.44	7.44	7.46	**88**	**88**	54-144	0	25	
75-01-4	Vinyl Chloride	8.55	7.91	8.09	**93**	**95**	65-136	2	25	
106-99-0	1,3-Butadiene	8.41	7.37	7.56	**88**	**90**	27-154	2	25	
74-83-9	Bromomethane	8.47	7.12	7.17	**84**	**85**	71-126	1	25	
75-00-3	Chloroethane	8.56	7.35	7.32	**86**	**86**	71-129	0	25	
107-02-8	Acrolein	8.20	7.20	7.19	**88**	**88**	49-117	0	25	
67-64-1	Acetone	42.3	38.7	38.4	**91**	**91**	62-158	0	25	
75-69-4	Trichlorofluoromethane	8.45	7.49	7.49	**89**	**89**	82-122	0	25	
75-35-4	1,1-Dichloroethene	8.71	8.82	8.85	**101**	**102**	76-120	1	25	
75-09-2	Methylene Chloride	8.66	7.55	7.50	**87**	**87**	76-120	0	25	
76-13-1	Trichlorotrifluoroethane	8.62	7.42	7.38	**86**	**86**	77-118	0	25	
75-34-3	1,1-Dichloroethane	8.62	7.63	7.63	**89**	**89**	73-126	0	25	
1634-04-4	Methyl tert-Butyl Ether	8.58	7.94	7.94	**93**	**93**	69-125	0	25	
156-59-2	cis-1,2-Dichloroethene	8.43	7.72	7.74	**92**	**92**	76-121	0	25	
67-66-3	Chloroform	8.66	7.31	7.30	**84**	**84**	80-121	0	25	
107-06-2	1,2-Dichloroethane	8.59	7.67	7.67	**89**	**89**	68-126	0	25	
71-55-6	1,1,1-Trichloroethane	8.61	7.66	7.64	**89**	**89**	75-121	0	25	
71-43-2	Benzene	8.44	7.55	7.35	**89**	**87**	76-126	2	25	
78-87-5	1,2-Dichloropropane	8.63	7.79	7.75	**90**	**90**	65-126	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181018-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-27-4	Bromodichloromethane	8.58	7.74	7.70	**90**	**90**	72-119	0	25	
79-01-6	Trichloroethene	8.54	7.93	7.89	**93**	**92**	73-121	1	25	
123-91-1	1,4-Dioxane	8.55	8.15	8.13	**95**	**95**	66-119	0	25	
10061-01-5	cis-1,3-Dichloropropene	8.57	7.83	7.80	**91**	**91**	60-122	0	25	
10061-02-6	trans-1,3-Dichloropropene	8.51	7.95	7.96	**93**	**94**	58-122	1	25	
79-00-5	1,1,2-Trichloroethane	8.59	7.76	7.73	**90**	**90**	68-124	0	25	
108-88-3	Toluene	8.48	7.64	7.62	**90**	**90**	69-122	0	25	
106-93-4	1,2-Dibromoethane	8.65	7.80	7.72	**90**	**89**	71-119	1	25	
127-18-4	Tetrachloroethene	8.51	7.69	7.68	**90**	**90**	72-118	0	25	
100-41-4	Ethylbenzene	8.49	8.17	8.19	**96**	**96**	76-122	0	25	
179601-23-1	m,p-Xylenes	17.0	16.4	16.4	**96**	**96**	73-126	0	25	
100-42-5	Styrene	8.48	8.27	8.23	**98**	**97**	53-129	1	25	
95-47-6	o-Xylene	8.56	8.12	8.14	**95**	**95**	70-129	0	25	
79-34-5	1,1,2,2-Tetrachloroethane	8.58	7.41	7.47	**86**	**87**	73-123	1	25	
108-67-8	1,3,5-Trimethylbenzene	8.55	8.29	8.31	**97**	**97**	63-132	0	25	
95-63-6	1,2,4-Trimethylbenzene	8.61	8.40	8.39	**98**	**97**	57-134	1	25	
541-73-1	1,3-Dichlorobenzene	8.63	7.83	7.80	**91**	**90**	59-133	1	25	
106-46-7	1,4-Dichlorobenzene	8.64	7.69	7.73	**89**	**89**	59-125	0	25	
95-50-1	1,2-Dichlorobenzene	8.62	8.02	7.99	**93**	**93**	60-127	0	25	
120-82-1	1,2,4-Trichlorobenzene	8.57	8.76	8.51	**102**	**99**	36-136	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181019-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-71-8	Dichlorodifluoromethane (CFC 12)	8.42	7.47	7.33	**89**	**87**	80-130	2	25	
74-87-3	Chloromethane	8.44	7.26	7.16	**86**	**85**	54-144	1	25	
75-01-4	Vinyl Chloride	8.55	8.10	7.91	**95**	**93**	65-136	2	25	
106-99-0	1,3-Butadiene	8.41	7.34	7.23	**87**	**86**	27-154	1	25	
74-83-9	Bromomethane	8.47	7.09	7.09	**84**	**84**	71-126	0	25	
75-00-3	Chloroethane	8.56	7.29	7.13	**85**	**83**	71-129	2	25	
107-02-8	Acrolein	8.20	7.10	6.88	**87**	**84**	49-117	4	25	
67-64-1	Acetone	42.3	37.8	36.9	**89**	**87**	62-158	2	25	
75-69-4	Trichlorofluoromethane	8.45	7.39	7.23	**87**	**86**	82-122	1	25	
75-35-4	1,1-Dichloroethene	8.71	8.69	8.49	**100**	**97**	76-120	3	25	
75-09-2	Methylene Chloride	8.66	7.44	7.29	**86**	**84**	76-120	2	25	
76-13-1	Trichlorotrifluoroethane	8.62	7.35	7.17	**85**	**83**	77-118	2	25	
75-34-3	1,1-Dichloroethane	8.62	7.51	7.39	**87**	**86**	73-126	1	25	
1634-04-4	Methyl tert-Butyl Ether	8.58	7.76	7.63	**90**	**89**	69-125	1	25	
156-59-2	cis-1,2-Dichloroethene	8.43	7.64	7.66	**91**	**91**	76-121	0	25	
67-66-3	Chloroform	8.66	7.24	7.18	**84**	**83**	80-121	1	25	
107-06-2	1,2-Dichloroethane	8.59	7.57	7.35	**88**	**86**	68-126	2	25	
71-55-6	1,1,1-Trichloroethane	8.61	7.55	7.35	**88**	**85**	75-121	3	25	
71-43-2	Benzene	8.44	7.40	7.10	**88**	**84**	76-126	5	25	
78-87-5	1,2-Dichloropropane	8.63	7.63	7.58	**88**	**88**	65-126	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805497
Client Project ID: **PMC** ALS Sample ID: P181019-DLCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/19/18
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-27-4	Bromodichloromethane	8.58	7.61	7.59	**89**	**88**	72-119	1	25	
79-01-6	Trichloroethene	8.54	7.84	7.79	**92**	**91**	73-121	1	25	
123-91-1	1,4-Dioxane	8.55	7.99	7.97	**93**	**93**	66-119	0	25	
10061-01-5	cis-1,3-Dichloropropene	8.57	7.60	7.87	**89**	**92**	60-122	3	25	
10061-02-6	trans-1,3-Dichloropropene	8.51	7.71	8.09	**91**	**95**	58-122	4	25	
79-00-5	1,1,2-Trichloroethane	8.59	7.60	7.95	**88**	**93**	68-124	6	25	
108-88-3	Toluene	8.48	7.51	7.79	**89**	**92**	69-122	3	25	
106-93-4	1,2-Dibromoethane	8.65	7.65	8.00	**88**	**92**	71-119	4	25	
127-18-4	Tetrachloroethene	8.51	7.62	7.81	**90**	**92**	72-118	2	25	
100-41-4	Ethylbenzene	8.49	8.25	7.94	**97**	**94**	76-122	3	25	
179601-23-1	m,p-Xylenes	17.0	16.6	16.4	**98**	**96**	73-126	2	25	
100-42-5	Styrene	8.48	8.35	7.82	**98**	**92**	53-129	6	25	
95-47-6	o-Xylene	8.56	8.24	7.71	**96**	**90**	70-129	6	25	
79-34-5	1,1,2,2-Tetrachloroethane	8.58	7.48	7.12	**87**	**83**	73-123	5	25	
108-67-8	1,3,5-Trimethylbenzene	8.55	8.77	7.78	**103**	**91**	63-132	12	25	
95-63-6	1,2,4-Trimethylbenzene	8.61	8.86	7.82	**103**	**91**	57-134	12	25	
541-73-1	1,3-Dichlorobenzene	8.63	8.23	7.30	**95**	**85**	59-133	11	25	
106-46-7	1,4-Dichlorobenzene	8.64	8.02	7.21	**93**	**83**	59-125	11	25	
95-50-1	1,2-Dichlorobenzene	8.62	8.35	7.49	**97**	**87**	60-127	11	25	
120-82-1	1,2,4-Trichlorobenzene	8.57	8.57	7.94	**100**	**93**	36-136	7	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 10171804.D
Analyst: Wida Ang Date Analyzed: 10/17/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 09:25
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181017-LCS	10171805.D	09:56
Duplicate Lab Control Sample	P181017-DLCS	10171806.D	10:28
19CP01-01	P1805497-001	10171808.D	16:34
19CP01-02	P1805497-002	10171809.D	17:06
19CP01-03	P1805497-003	10171810.D	17:38
19CP01-04	P1805497-004	10171811.D	18:10
19CP01-05	P1805497-005	10171812.D	18:41
19CP01-06	P1805497-006	10171814.D	19:44
19CP01-07	P1805497-007	10171815.D	20:16
19CP01-08	P1805497-008	10171816.D	20:47
19CP01-09	P1805497-009	10171817.D	21:19
19CP01-10	P1805497-010	10171818.D	21:51
19CP01-11	P1805497-011	10171820.D	22:55
19CP01-12	P1805497-012	10171821.D	23:27
19CP01-13	P1805497-013	10171822.D	23:58

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 10181804.D
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 01:52
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181018-LCS	10181805.D	02:23
Duplicate Lab Control Sample	P181018-DLCS	10181806.D	02:54
19CP01-04 (Dilution)	P1805497-004	10181810.D	17:36
19CP01-06 (Dilution)	P1805497-006	10181812.D	18:39
19CP01-10 (Dilution)	P1805497-010	10181813.D	19:11
19CP01-11 (Dilution)	P1805497-011	10181814.D	19:42

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 10191804.D
Analyst: Wida Ang Date Analyzed: 10/19/18
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 05:56
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181019-LCS	10191805.D	06:28
Duplicate Lab Control Sample	P181019-DLCS	10191806.D	06:59
19CP01-03 (Dilution)	P1805497-003	10191807.D	08:35

Client: **Jacobs**

Client Project ID: **PMC** ALS Project ID: P1805497

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 10171802.D

Analyst: Wida Ang Date Analyzed: 10/17/18

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:16

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	19400		9.62	89510		11.58		11405		15.91	
	Upper Limit	27160		9.95	125314		11.91		15967		16.24	
	Lower Limit	11640		9.29	53706		11.25		6843		15.58	
	Client Sample ID											
01	Method Blank	17481		9.62	74108		11.58		9879		15.92	
02	Lab Control Sample	18742		9.62	85457		11.58		10747		15.92	
03	Duplicate Lab Control Sample	18906		9.62	86082		11.58		10738		15.91	
04	19CP01-01	17207		9.61	76055		11.58		11077		15.92	
05	19CP01-02	17668		9.62	79144		11.58		10496		15.92	
06	19CP01-03	36959	I	9.64	87857		11.59		12751		15.92	
07	19CP01-04	34030	I	9.62	86493		11.58		11908		15.92	
08	19CP01-05	18303		9.62	82909		11.58		11111		15.92	
09	19CP01-06	32646	I	9.64	90041		11.59		14918		15.92	
10	19CP01-07	18053		9.62	82406		11.58		11359		15.92	
11	19CP01-08	19472		9.62	88075		11.58		12086		15.91	
12	19CP01-09	21217		9.62	90343		11.58		12543		15.91	
13	19CP01-10	30127	I	9.64	91806		11.59		15402		15.92	
14	19CP01-11	31702	I	9.64	89628		11.59		15723		15.92	
15	19CP01-12	18132		9.61	83843		11.57		11283		15.92	
16	19CP01-13	17684		9.62	81249		11.58		11314		15.91	
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805497

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 10181802.D
Analyst: Wida Ang Date Analyzed: 10/18/18
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 00:49
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	19359		9.62	89454		11.58		11676		15.92	
	Upper Limit	27103		9.95	125236		11.91		16346		16.25	
	Lower Limit	11615		9.29	53672		11.25		7006		15.59	
	Client Sample ID											
01	Method Blank	17687		9.62	78272		11.58		10384		15.92	
02	Lab Control Sample	18562		9.62	84998		11.58		10944		15.92	
03	Duplicate Lab Control Sample	18678		9.62	85728		11.58		10942		15.91	
04	19CP01-04 (Dilution)	22451		9.62	82627		11.58		11012		15.92	
05	19CP01-06 (Dilution)	25067		9.63	91653		11.59		13406		15.92	
06	19CP01-10 (Dilution)	23056		9.63	92149		11.59		13672		15.92	
07	19CP01-11 (Dilution)	24289		9.63	90166		11.59		13626		15.92	
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Client: **Jacobs**

Client Project ID: **PMC** ALS Project ID: P1805497

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 10191802.D

Analyst: Wida Ang Date Analyzed: 10/19/18

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 04:53

Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	18325		9.62	85337		11.58		11901		15.91	
	Upper Limit	25655		9.95	119472		11.91		16661		16.24	
	Lower Limit	10995		9.29	51202		11.25		7141		15.58	
	Client Sample ID											
01	Method Blank	17044		9.62	74665		11.58		9739		15.92	
02	Lab Control Sample	17711		9.62	81784		11.58		10206		15.92	
03	Duplicate Lab Control Sample	18235		9.62	82187		11.58		11153		15.92	
04	19CP01-03 (Dilution)	17604		9.61	74450		11.57		10761		15.91	
05												
06												
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 13:44:24 2018 TD 10/29/18
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration VOA 10/30/18
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	212765	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	915896	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	388455	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	315839	12.340	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.72%				
57) Toluene-d8 (SS2)	15.87	98	790754	12.783	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
73) Bromofluorobenzene (SS3)	19.09	174	324160	11.528	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.24%				
Target Compounds							Qvalue
2) Propene	4.08	42	5957m	0.301	ng		
3) Dichlorodifluoromethan...	4.23	85	68701	1.545	ng		100
4) Chloromethane	4.54	50	2940	0.104	ng		85
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1971	0.075	ng		90
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.26	54	113	N.D.			
8) Bromomethane	5.74	94	102	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.44	45	12429	1.039	ng		94
11) Acetonitrile	6.74	41	2318	0.074	ng	#	21
12) Acrolein	6.93	56	1577	0.149	ng		84
13) Acetone	7.12	58	20701m	1.450	ng		
14) Trichlorofluoromethane	7.35	101	30838	0.801	ng		99
15) 2-Propanol (Isopropanol)	7.66	45	11280	0.246	ng		81
16) Acrylonitrile	7.96	53	656	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.62	59	52	N.D.			
19) Methylene Chloride	8.58	84	2804	0.141	ng		93
20) 3-Chloro-1-propene (Al...	8.66	41	490	N.D.			
21) Trichlorotrifluoroethane	9.00	151	6188	0.302	ng		93
22) Carbon Disulfide	8.86	76	2411	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	10.22	63	339	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.65	72	3167	0.251	ng	#	75
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.45	61	5514	0.814	ng		91
31) n-Hexane	11.41	57	5740	0.186	ng		97
32) Chloroform	11.49	83	2518	0.070	ng		96
34) Tetrahydrofuran (THF)	11.94	72	452	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	879	N.D.			
38) 1,1,1-Trichloroethane	12.56	97	103	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.04	56	4165m	0.225	ng		
41) Benzene	13.04	78	20780	0.247	ng		100
42) Carbon Tetrachloride	13.19	117	8190	0.257	ng		100
43) Cyclohexane	13.33	84	1093	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	14.14	130	169	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 13:44:24 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

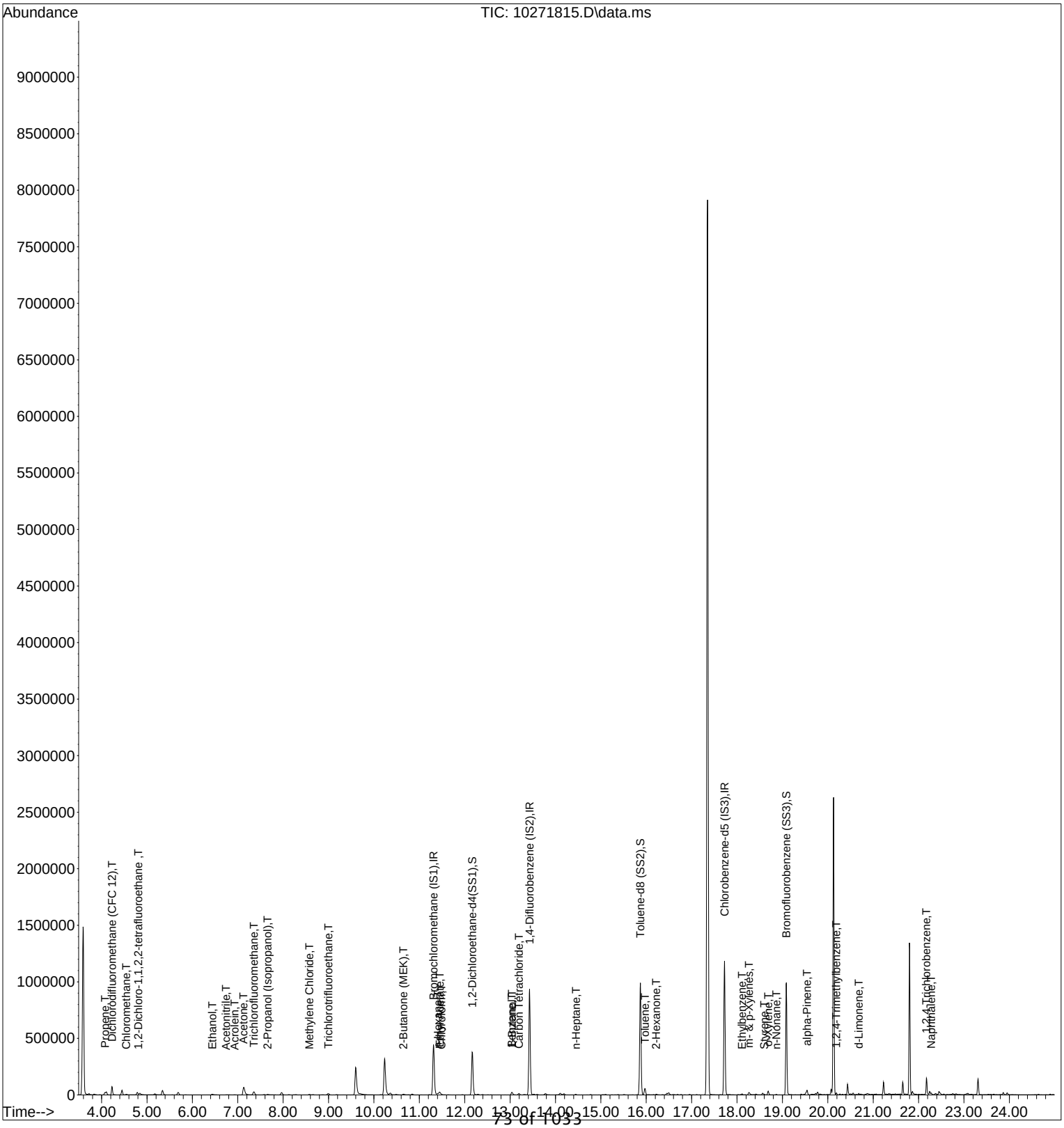
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	14.45	100	422	N.D.		
51) n-Heptane	14.45	71	1481	0.076 ng		97
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.04	58	448	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	48554	0.565 ng		95
59) 2-Hexanone	16.22	43	6600	0.168 ng		86
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	2008	N.D.		
63) n-Octane	16.95	57	773	N.D.		
64) Tetrachloroethene	17.11	166	976	N.D.		
65) Chlorobenzene	17.76	112	462	N.D.		
66) Ethylbenzene	18.11	91	7851	0.080 ng		95
67) m- & p-Xylenes	18.26	91	17921	0.245 ng		96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	3309	0.056 ng		99
70) o-Xylene	18.69	91	7691	0.104 ng		97
71) n-Nonane	18.87	43	2199	0.065 ng		83
72) 1,1,2,2-Tetrachloroethane	18.68	83	1348	N.D.		
74) Cumene	19.20	105	1549	N.D.		
75) alpha-Pinene	19.54	93	15261	0.302 ng	#	10
76) n-Propylbenzene	19.64	91	3624	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	2915	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	2681	N.D.		
80) alpha-Methylstyrene	19.97	118	677	N.D.		
81) 2-Ethyltoluene	20.00	105	2698	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	8027	0.100 ng		91
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.30	91	857	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	688	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	2410	N.D.		
87) sec-Butylbenzene	20.42	105	512	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	4386	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	2992	N.D.		
90) 1,2-Dichlorobenzene	20.68	146	494	N.D.		
91) d-Limonene	20.68	68	2249	0.077 ng	#	55
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.17	180	2379	0.064 ng		99
95) Naphthalene	22.28	128	10498	0.091 ng		99
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1248	N.D.		
100) n-Butylbenzene	20.92	91	2587	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 13:44:24 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 13:44:24 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

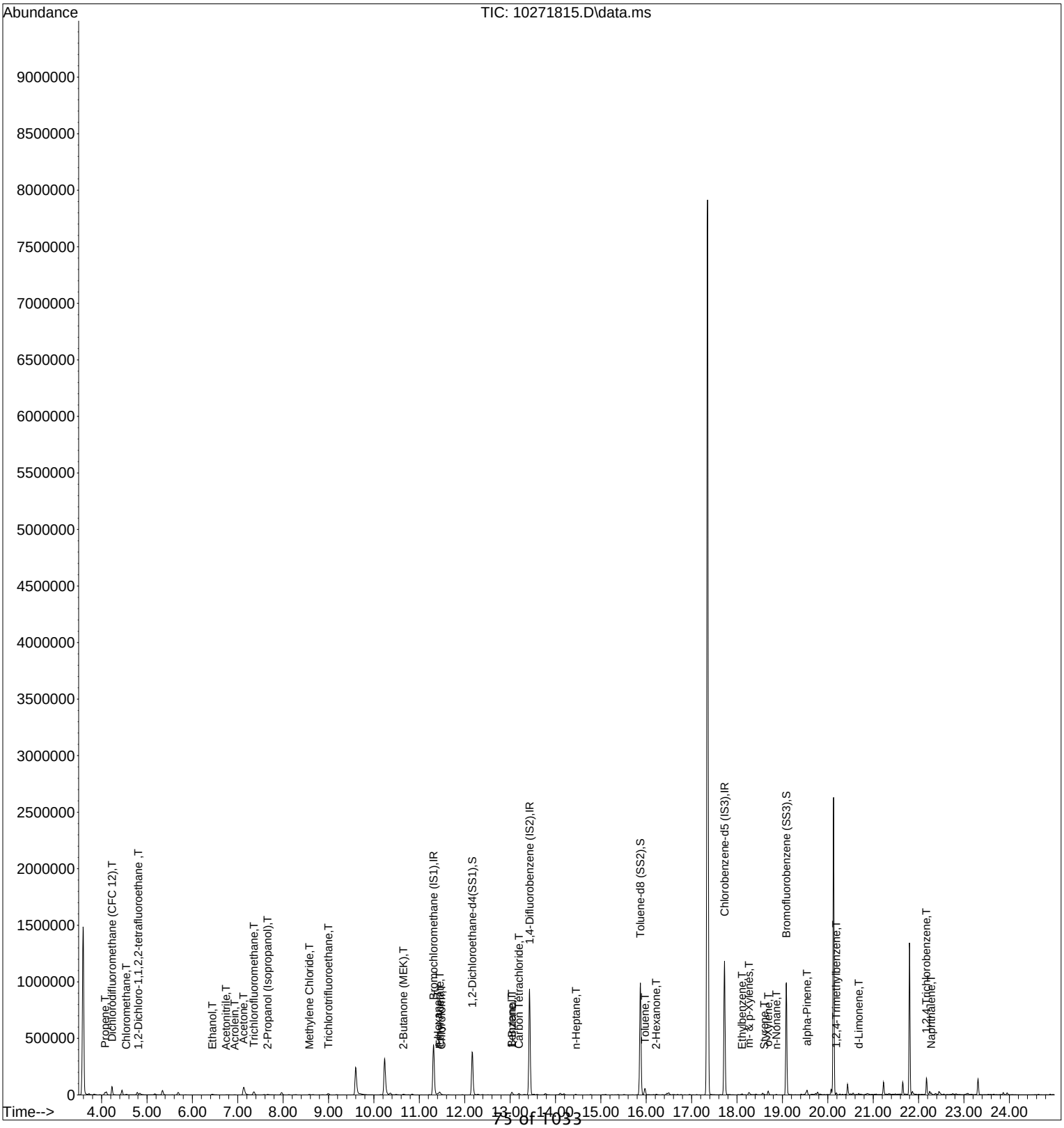
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	212765	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	915896	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	388455	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	315839	12.340	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.72%				
57) Toluene-d8 (SS2)	15.87	98	790754	12.783	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
73) Bromofluorobenzene (SS3)	19.09	174	324160	11.528	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.24%				
Target Compounds							Qvalue
2) Propene	4.08	42	5957m	0.301	ng		
3) Dichlorodifluoromethan...	4.23	85	68701	1.545	ng		100
4) Chloromethane	4.54	50	2940	0.104	ng		85
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1971	0.075	ng		90
10) Ethanol	6.44	45	12429	1.039	ng		94
11) Acetonitrile	6.74	41	2318	0.074	ng	#	21
12) Acrolein	6.93	56	1577	0.149	ng		84
13) Acetone	7.12	58	20701m	1.450	ng		
14) Trichlorofluoromethane	7.35	101	30838	0.801	ng		99
15) 2-Propanol (Isopropanol)	7.66	45	11280	0.246	ng		81
19) Methylene Chloride	8.58	84	2804	0.141	ng		93
21) Trichlorotrifluoroethane	9.00	151	6188	0.302	ng		93
27) 2-Butanone (MEK)	10.65	72	3167	0.251	ng	#	75
30) Ethyl Acetate	11.45	61	5514	0.814	ng		91
31) n-Hexane	11.41	57	5740	0.186	ng		97
32) Chloroform	11.49	83	2518	0.070	ng		96
40) 1-Butanol	13.04	56	4165m	0.225	ng		
41) Benzene	13.04	78	20780	0.247	ng		100
42) Carbon Tetrachloride	13.19	117	8190	0.257	ng		100
51) n-Heptane	14.45	71	1481	0.076	ng		97
58) Toluene	15.97	91	48554	0.565	ng		95
59) 2-Hexanone	16.22	43	6600	0.168	ng		86
66) Ethylbenzene	18.11	91	7851	0.080	ng		95
67) m- & p-Xylenes	18.26	91	17921	0.245	ng		96
69) Styrene	18.60	104	3309	0.056	ng		99
70) o-Xylene	18.69	91	7691	0.104	ng		97
71) n-Nonane	18.87	43	2199	0.065	ng		83
75) alpha-Pinene	19.54	93	15261	0.302	ng	#	10
82) 1,2,4-Trimethylbenzene	20.19	105	8027	0.100	ng		91
91) d-Limonene	20.68	68	2249	0.077	ng	#	55
94) 1,2,4-Trichlorobenzene	22.17	180	2379	0.064	ng		99
95) Naphthalene	22.28	128	10498	0.091	ng		99

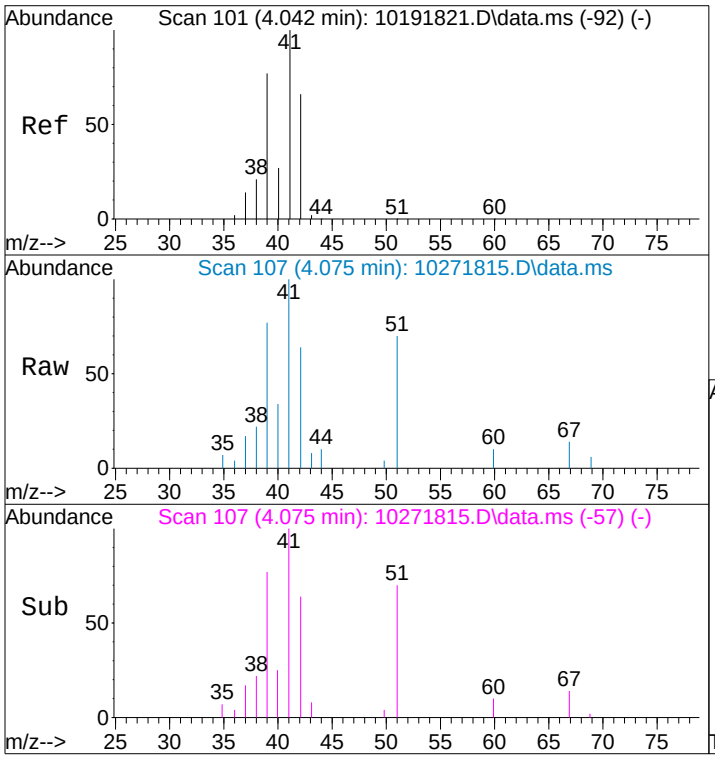
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 13:44:24 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

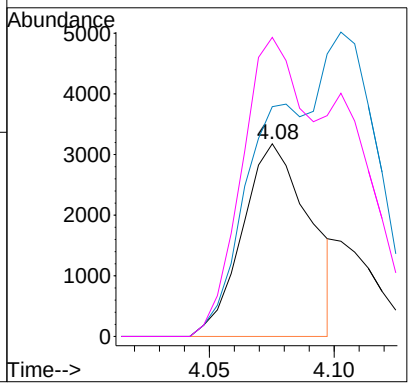


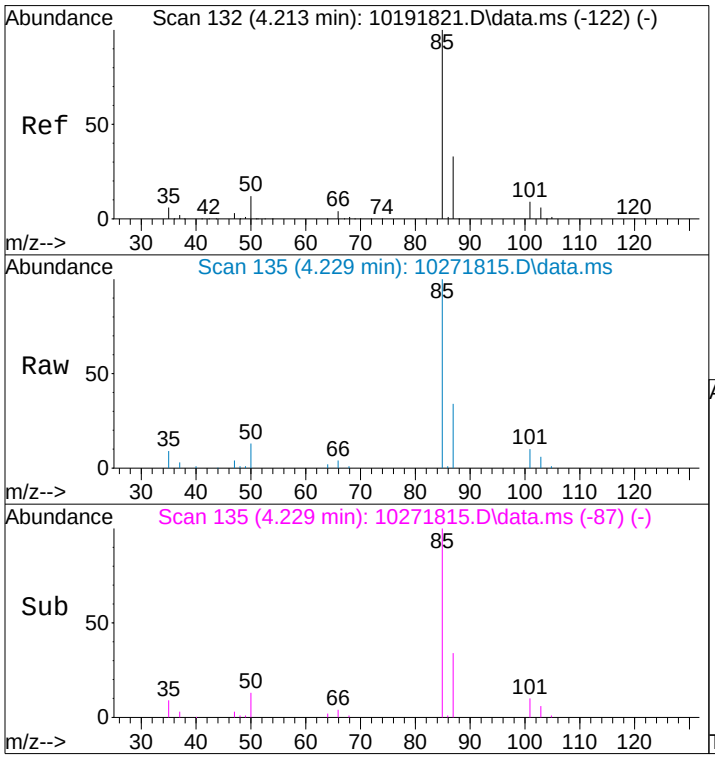


#2
Propene
Concen: 0.30 ng m
RT: 4.08 min Scan# 107
Delta R.T. 0.027 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 42 Resp: 5957

Ion	Ratio	Lower	Upper
42	100		
39	258.0	98.5	138.5#
41	249.9	131.9	171.9#

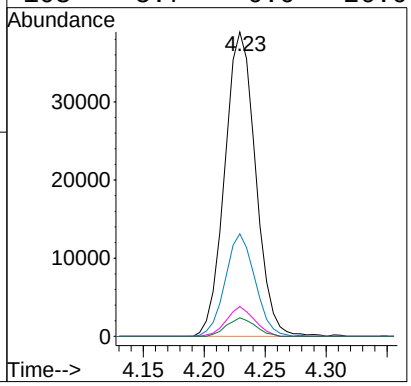


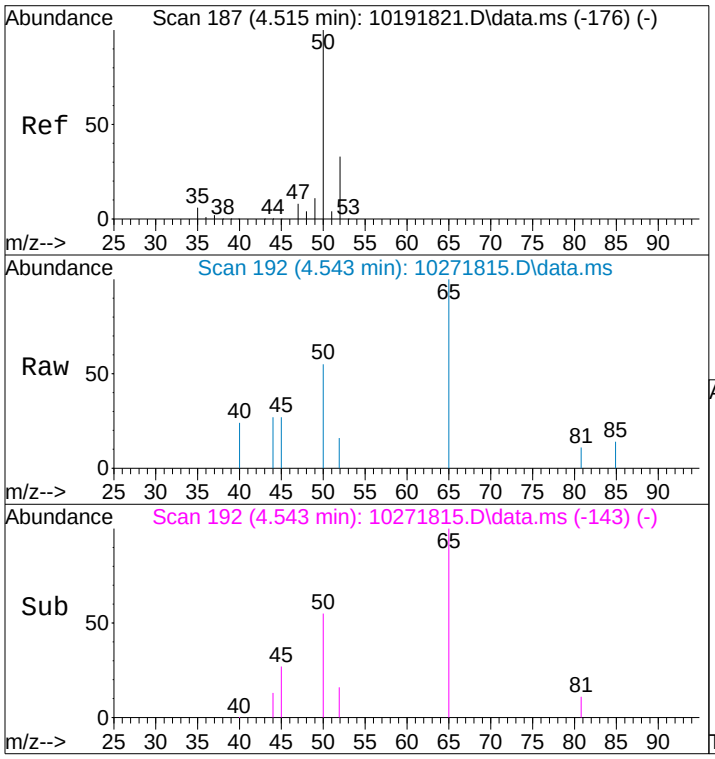


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.54 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.016 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 85 Resp: 68701

Ion	Ratio	Lower	Upper
85	100		
87	32.5	12.6	52.6
101	8.9	0.0	29.4
103	5.7	0.0	26.0

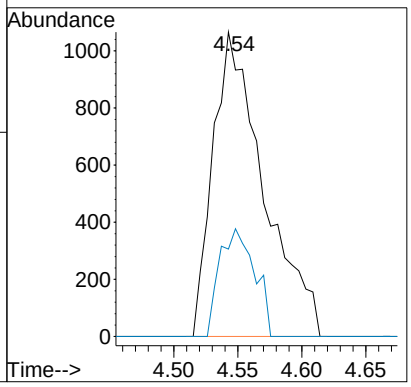


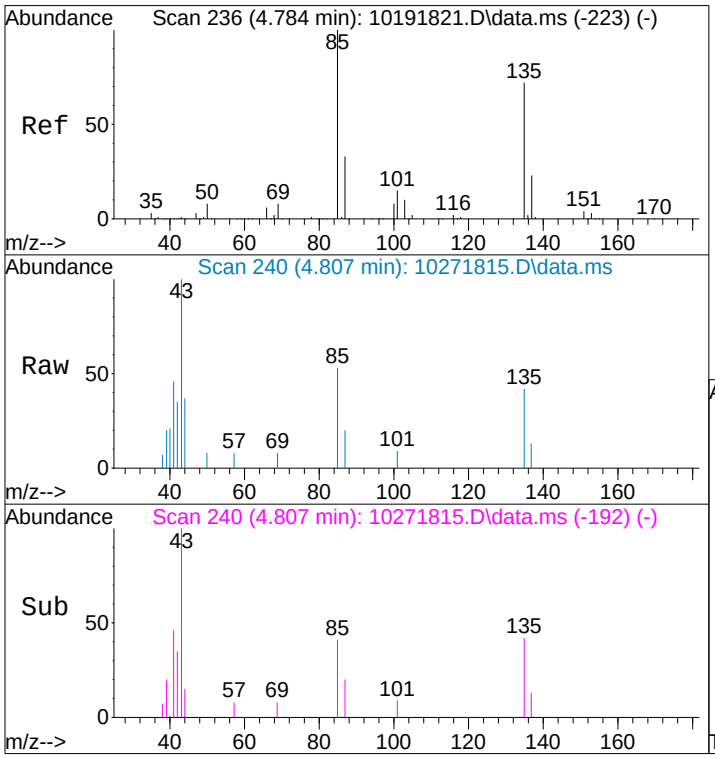


#4
Chloromethane
Concen: 0.10 ng
RT: 4.54 min Scan# 192
Delta R.T. 0.022 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 50 Resp: 2940

Ion	Ratio	Lower	Upper
50	100		
52	24.5	13.2	53.2

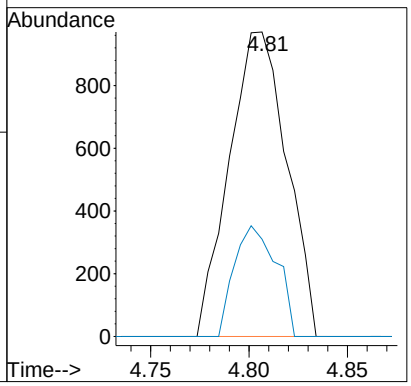


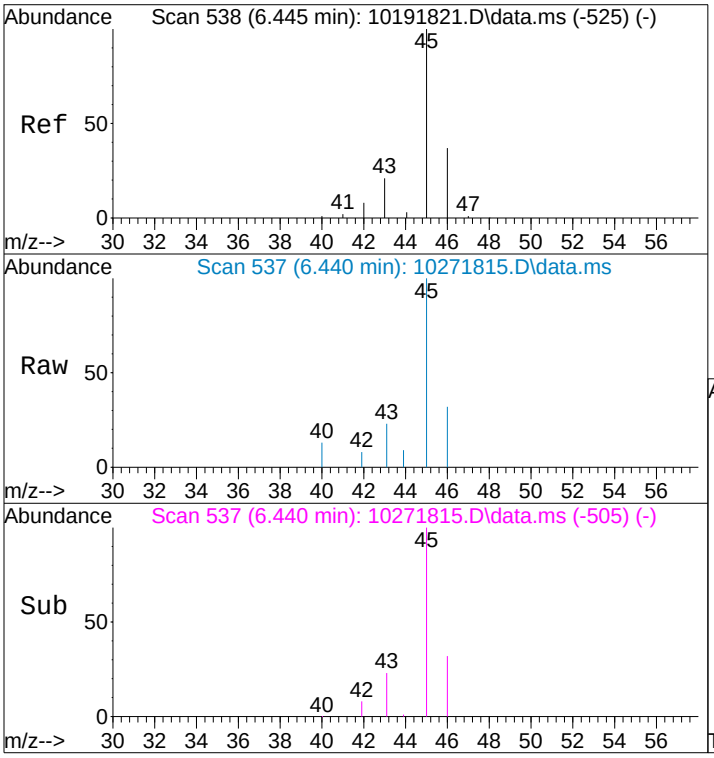


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.81 min Scan# 240
Delta R.T. 0.016 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:135 Resp: 1971

Ion	Ratio	Lower	Upper
135	100		
137	26.7	12.3	52.3

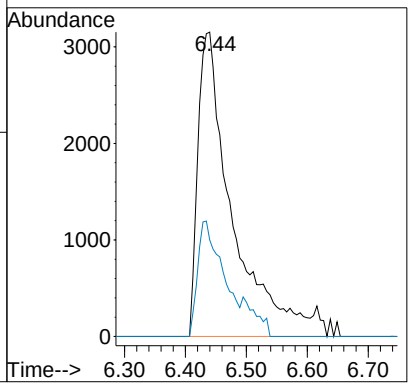


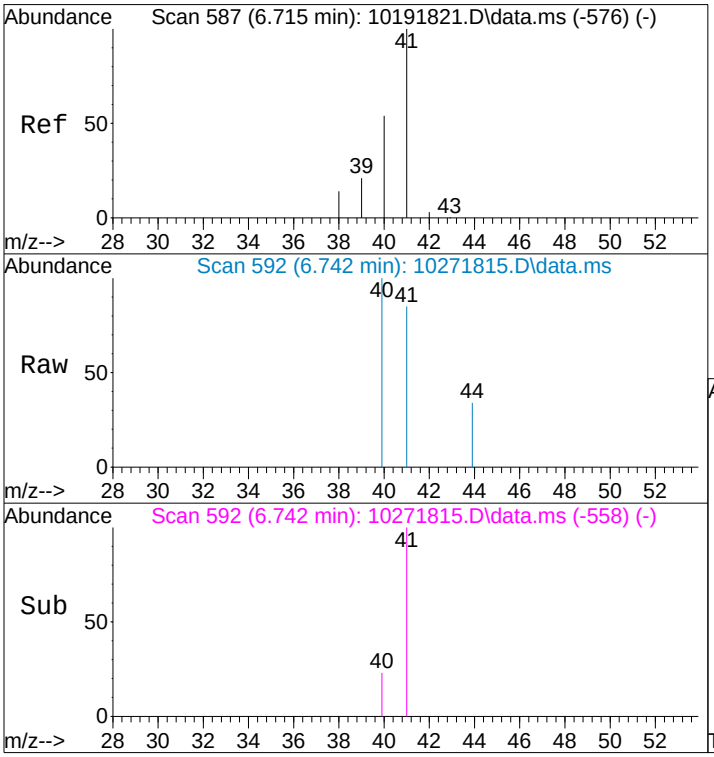


#10
Ethanol
Concen: 1.04 ng
RT: 6.44 min Scan# 537
Delta R.T. -0.071 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 45 Resp: 12429

Ion	Ratio	Lower	Upper
45	100		
46	33.2	16.6	56.6

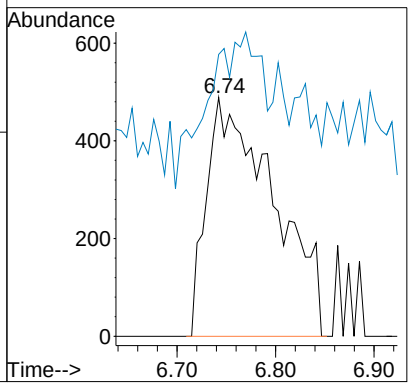


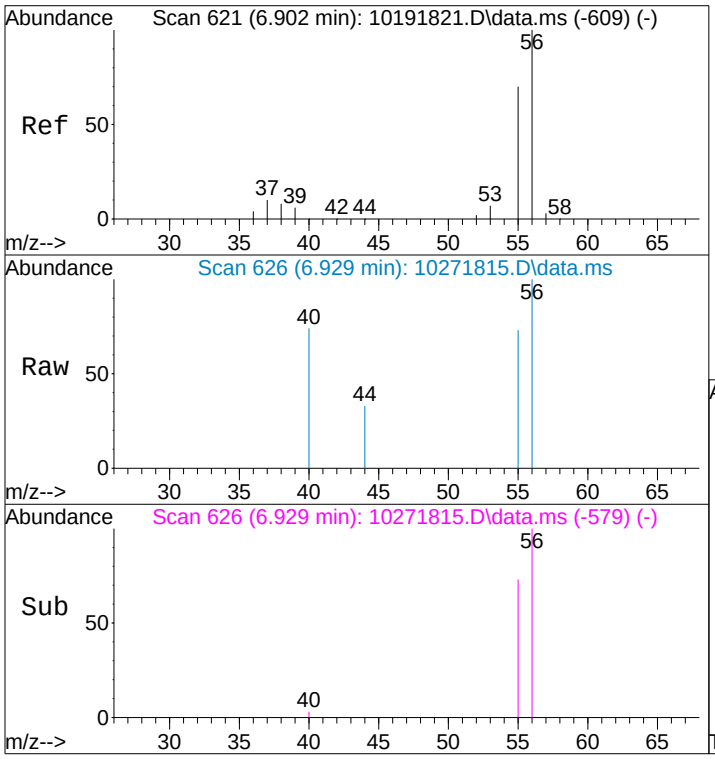


#11
Acetonitrile
Concen: 0.07 ng
RT: 6.74 min Scan# 592
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 41 Resp: 2318

Ion	Ratio	Lower	Upper
41	100		
40	110.9	34.2	74.2#

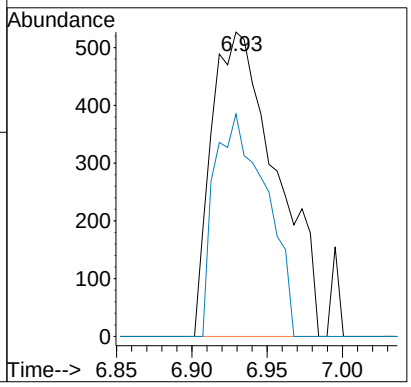


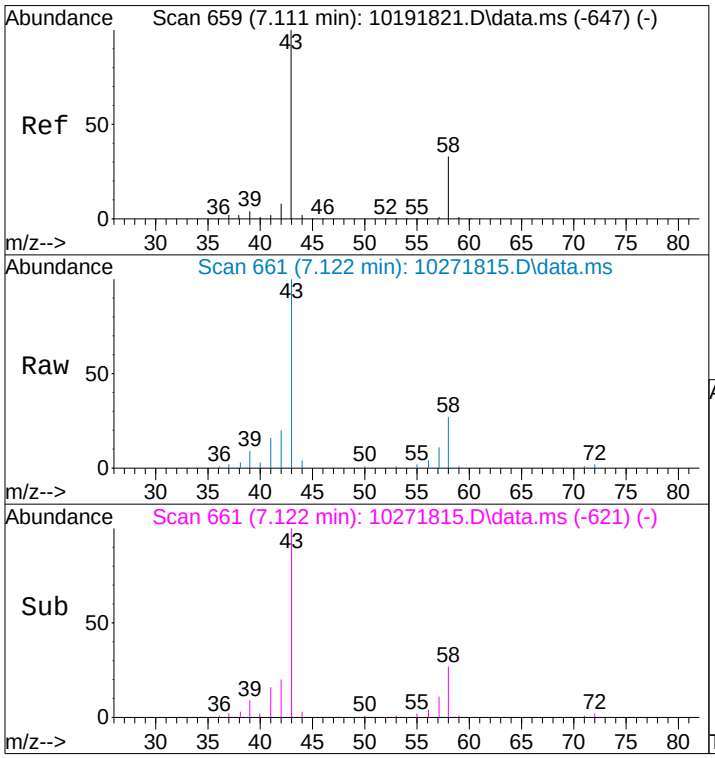


#12
Acrolein
Concen: 0.15 ng
RT: 6.93 min Scan# 626
Delta R.T. 0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 56 Resp: 1577

Ion	Ratio	Lower	Upper
56	100		
55	58.1	51.0	91.0

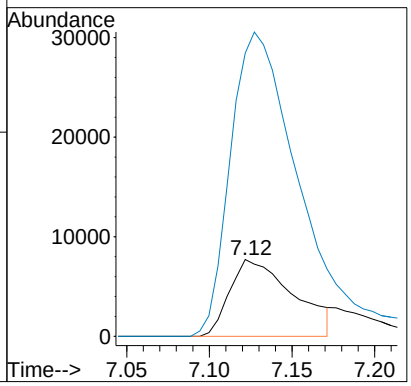


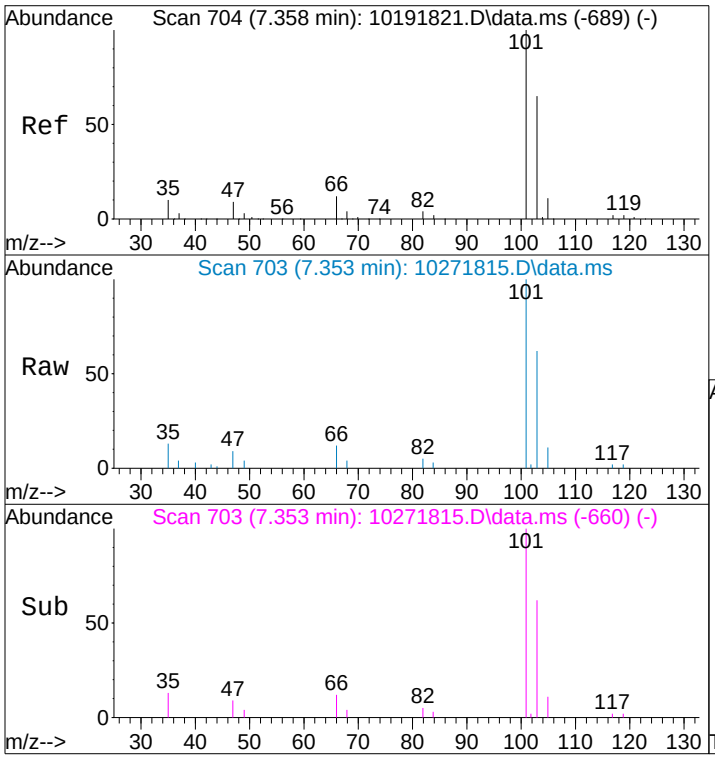


#13
Acetone
Concen: 1.45 ng m
RT: 7.12 min Scan# 661
Delta R.T. -0.027 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 58 Resp: 20701

Ion	Ratio	Lower	Upper
58	100		
43	458.7	283.4	343.4#

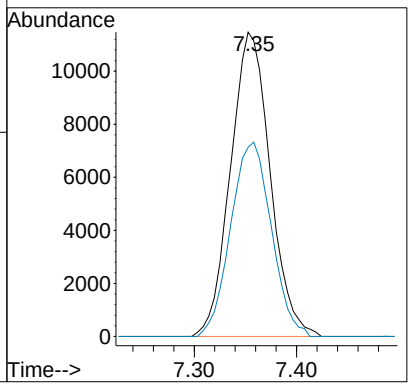


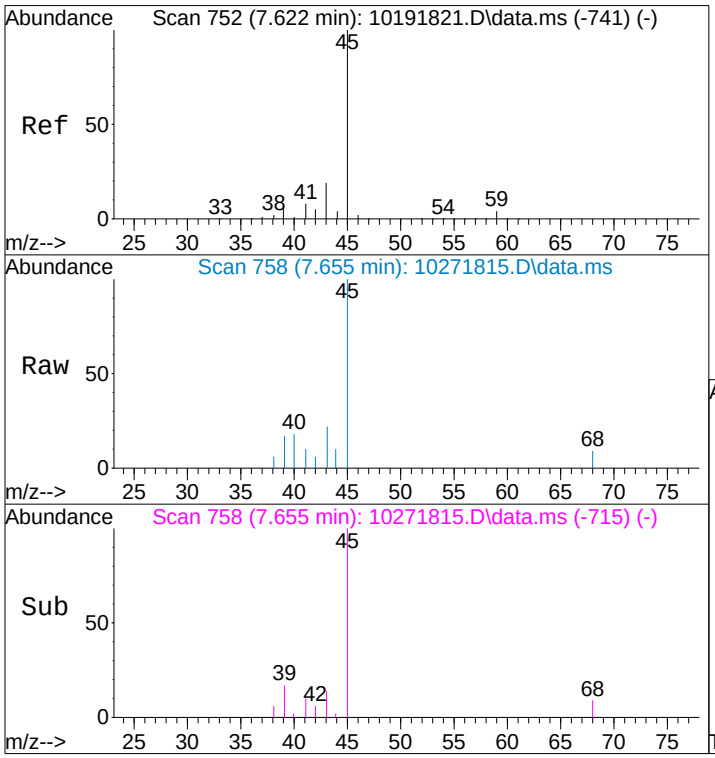


#14
Trichlorofluoromethane
Concen: 0.80 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:101 Resp: 30838

Ion	Ratio	Lower	Upper
101	100		
103	65.4	44.8	84.8

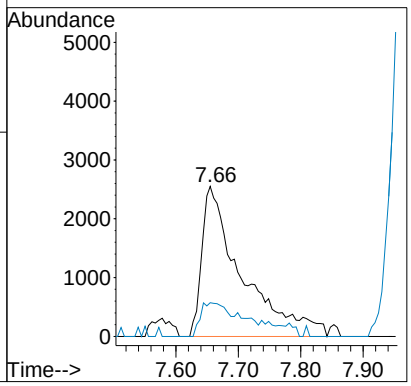


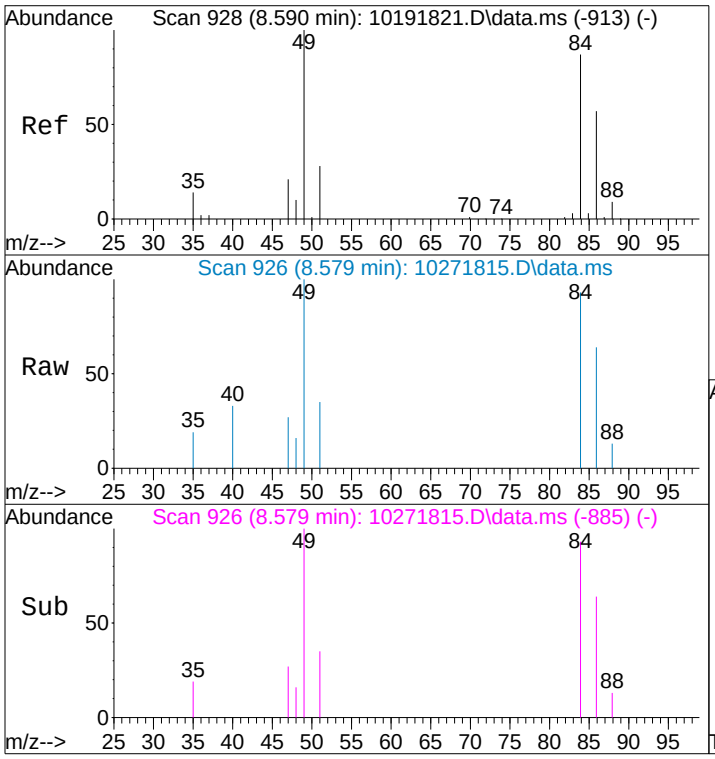


#15
2-Propanol (Isopropanol)
Concen: 0.25 ng
RT: 7.66 min Scan# 758
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 45 Resp: 11280

Ion	Ratio	Lower	Upper
45	100		
43	28.3	0.0	39.6

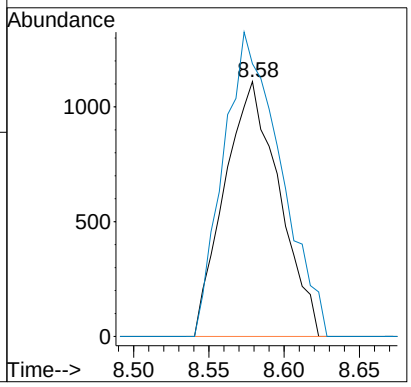


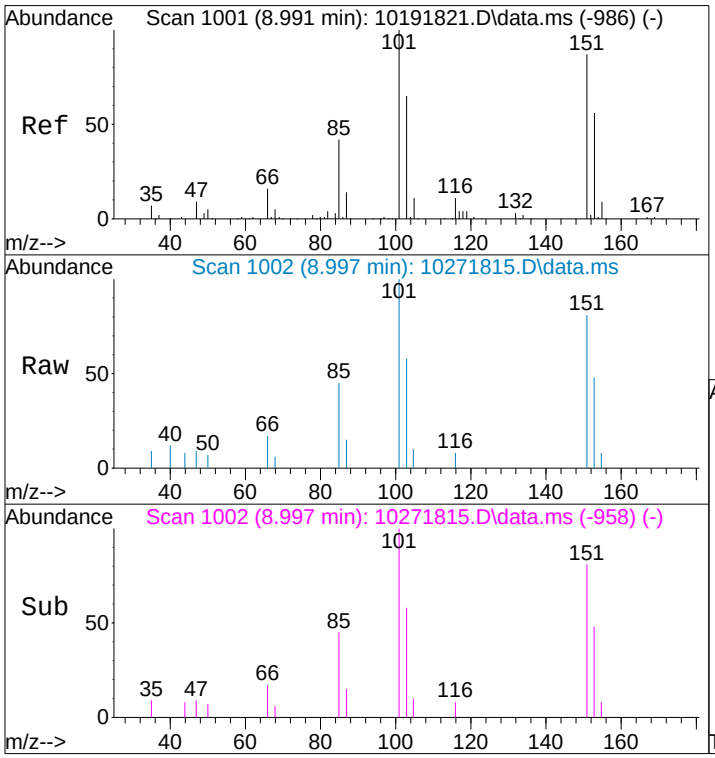


#19
Methylene Chloride
Concen: 0.14 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 84 Resp: 2804

Ion	Ratio	Lower	Upper
84	100		
49	124.9	92.1	142.1

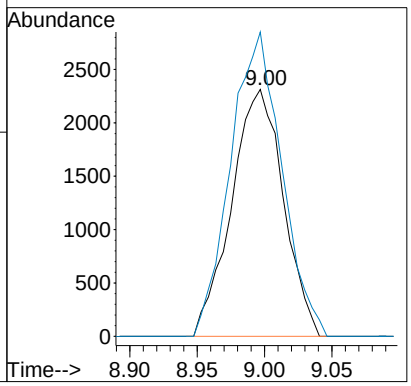


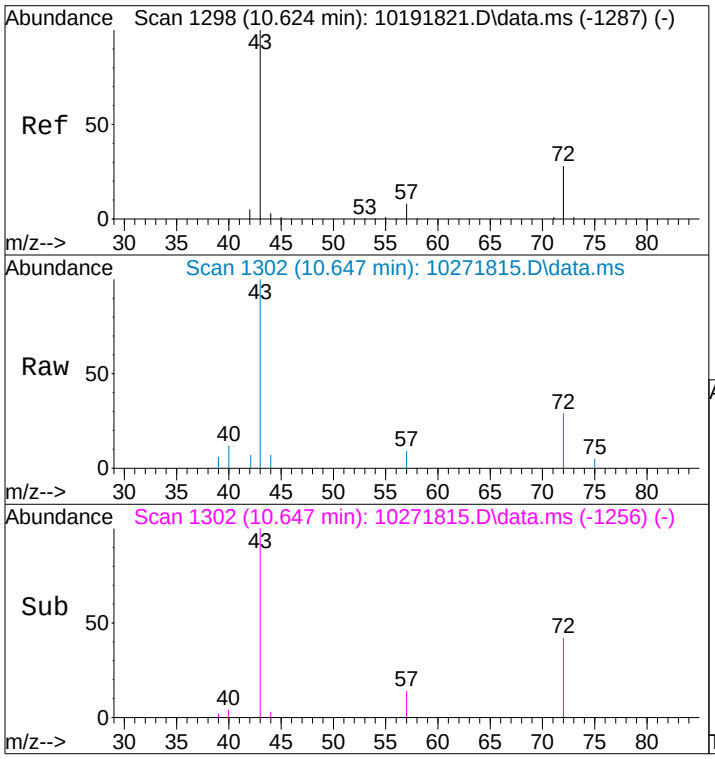


#21
Trichlorotrifluoroethane
Concen: 0.30 ng
RT: 9.00 min Scan# 1002
Delta R.T. -0.005 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:151 Resp: 6188

Ion	Ratio	Lower	Upper
151	100		
101	121.8	94.4	134.4

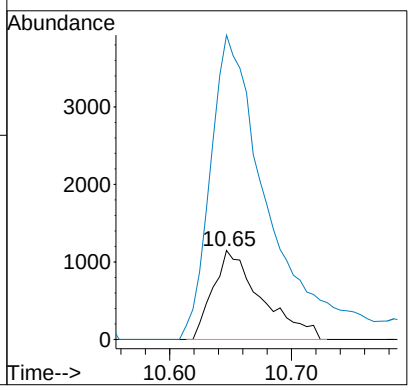


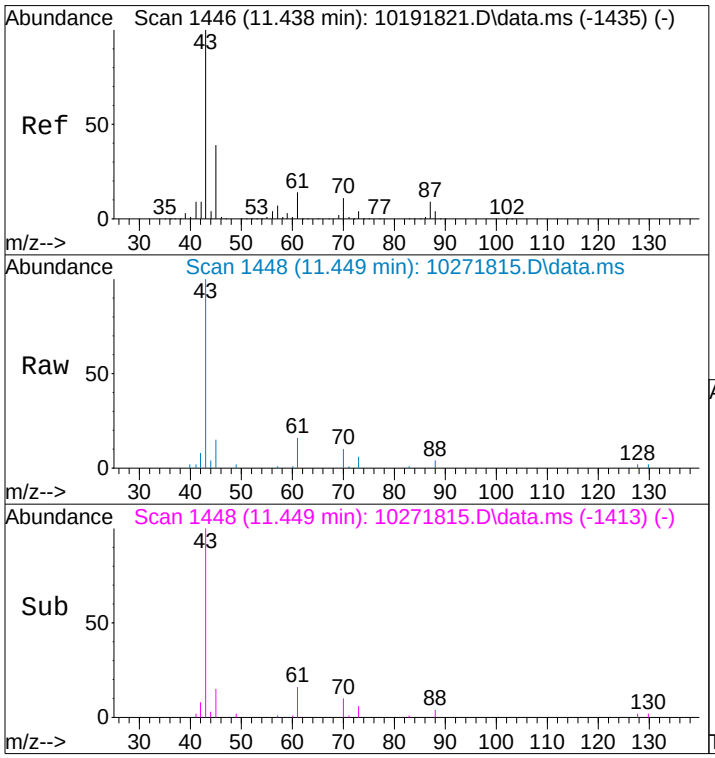


#27
2-Butanone (MEK)
Concen: 0.25 ng
RT: 10.65 min Scan# 1302
Delta R.T. 0.006 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 72 Resp: 3167

Ion	Ratio	Lower	Upper
72	100		
43	426.4	350.1	390.1#

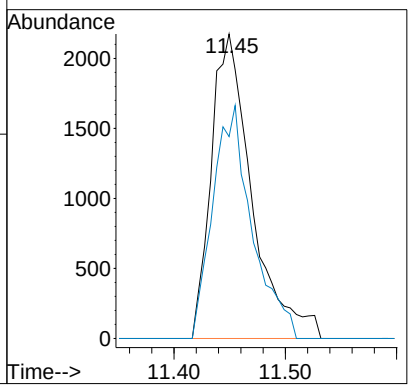


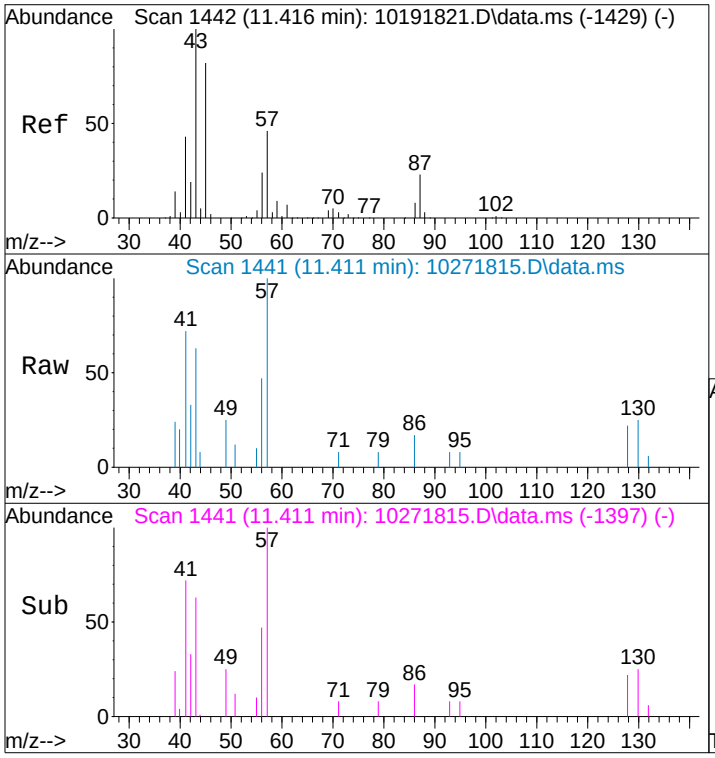


#30
Ethyl Acetate
Concen: 0.81 ng
RT: 11.45 min Scan# 1448
Delta R.T. -0.006 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 61 Resp: 5514

Ion	Ratio	Lower	Upper
61	100		
70	73.6	61.7	101.7

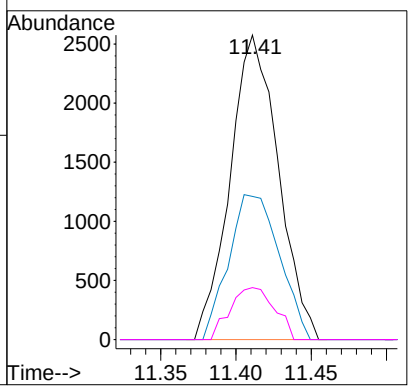


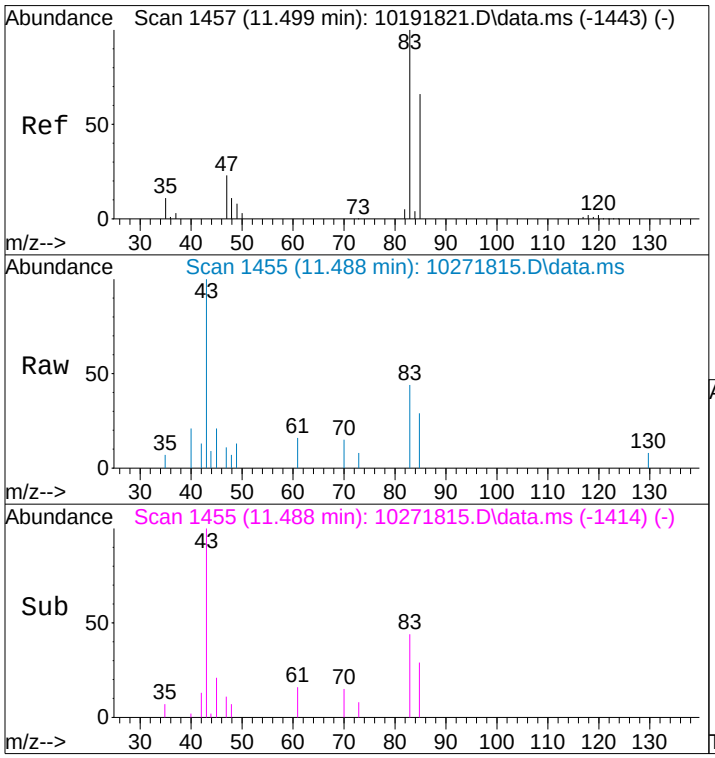


#31
n-Hexane
Concen: 0.19 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.005 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 57 Resp: 5740

Ion	Ratio	Lower	Upper
57	100		
56	49.9	41.4	62.0
86	15.7	13.7	20.5

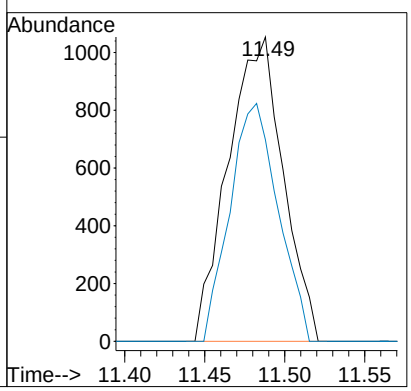


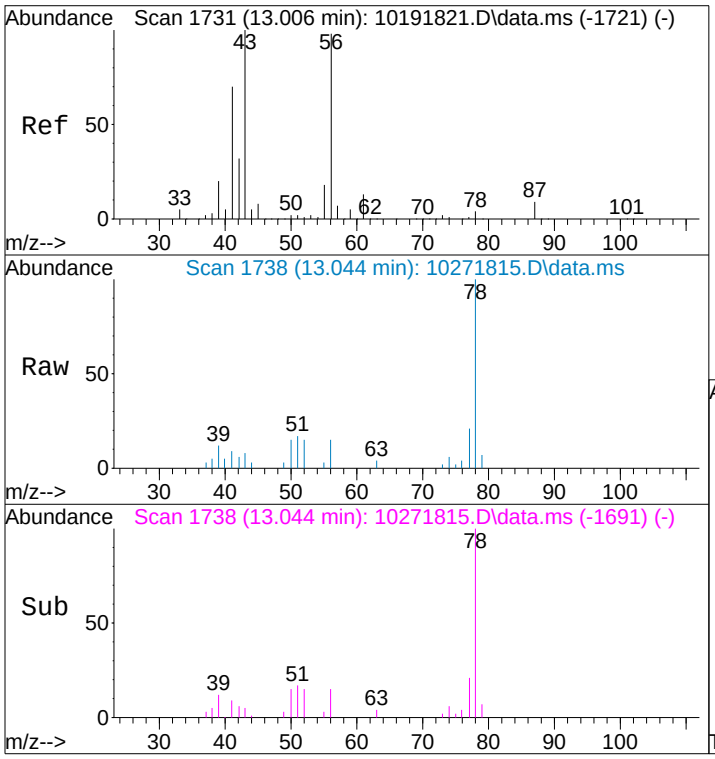


#32
Chloroform
Concen: 0.07 ng
RT: 11.49 min Scan# 1455
Delta R.T. -0.022 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 83 Resp: 2518

Ion	Ratio	Lower	Upper
83	100		
85	68.6	45.5	85.5

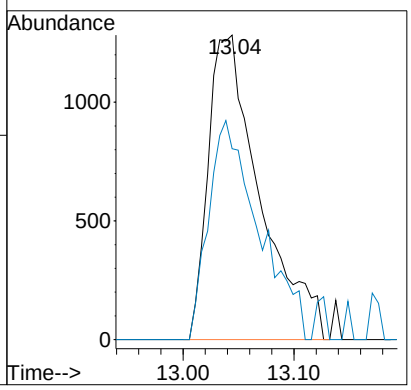


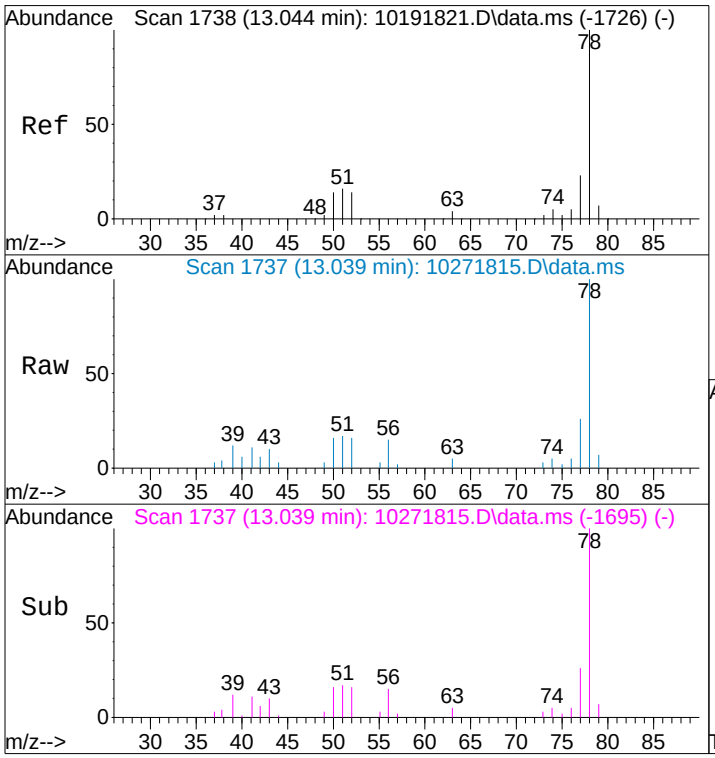


#40
1-Butanol
Concen: 0.22 ng m
RT: 13.04 min Scan# 1738
Delta R.T. 0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 56 Resp: 4165

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

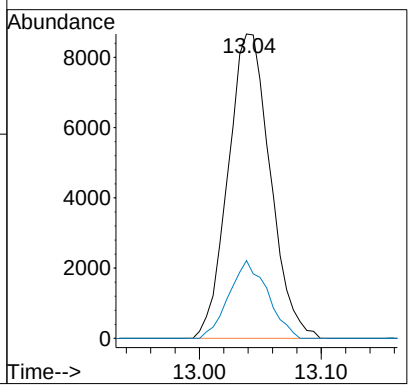


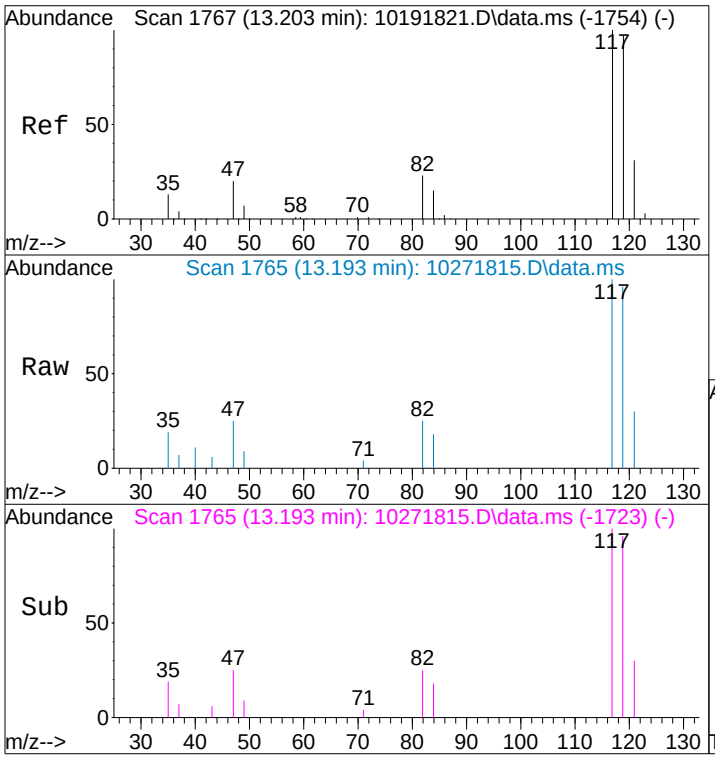


#41
Benzene
Concen: 0.25 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.017 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 78 Resp: 20780

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.5	43.5

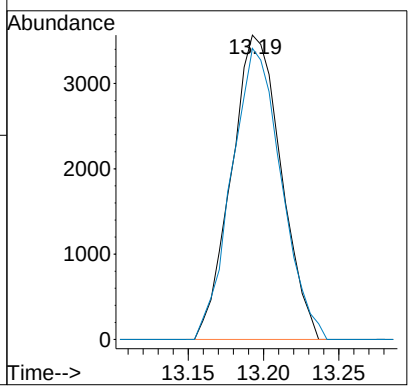


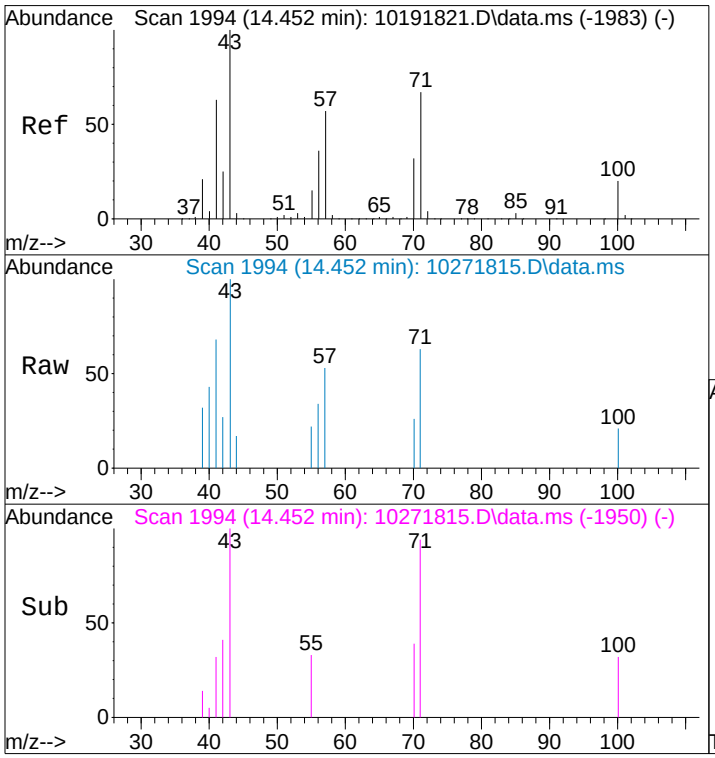


#42
Carbon Tetrachloride
Concen: 0.26 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.017 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:117 Resp: 8190

Ion	Ratio	Lower	Upper
117	100		
119	95.8	76.0	116.0

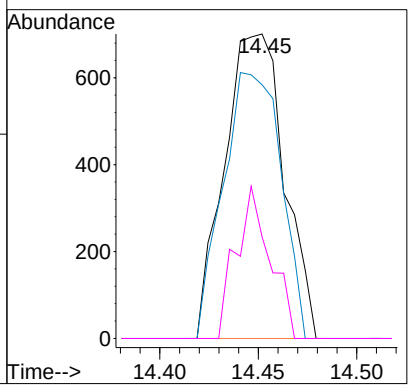


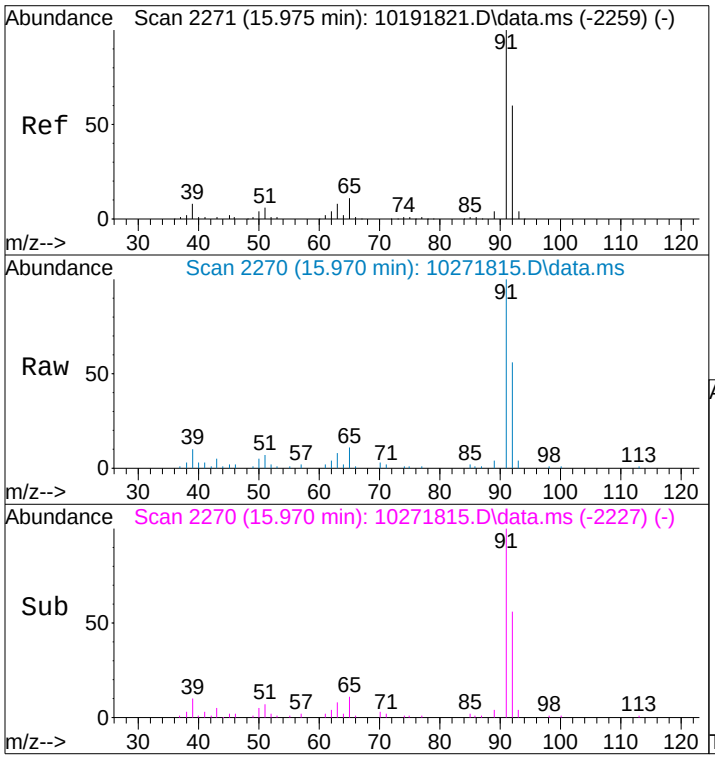


#51
n-Heptane
Concen: 0.08 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 71 Resp: 1481

Ion	Ratio	Lower	Upper
71	100		
57	84.4	66.4	106.4
100	28.5	10.6	50.6

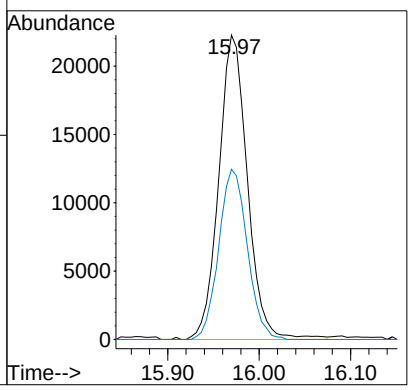


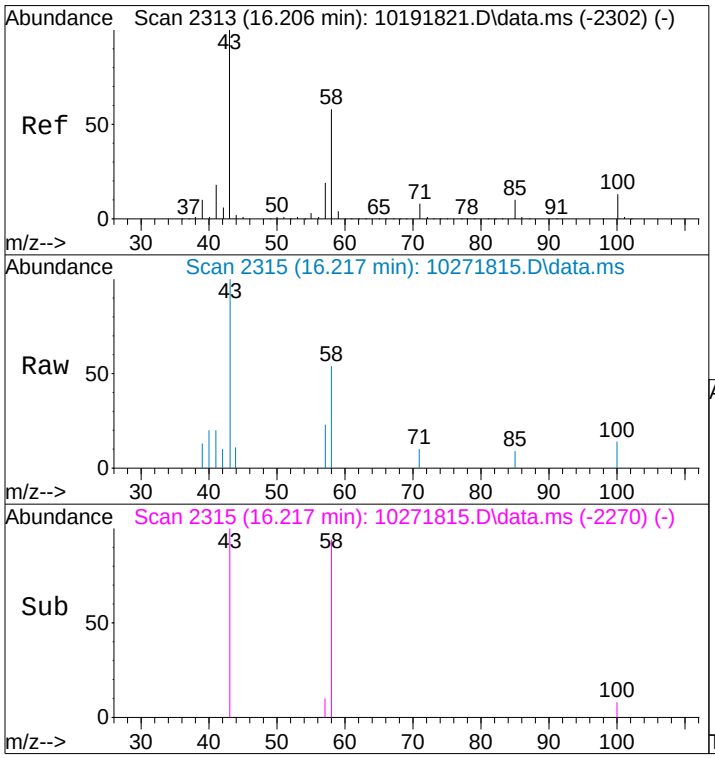


#58
Toluene
Concen: 0.57 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 91 Resp: 48554

Ion	Ratio	Lower	Upper
91	100		
92	55.7	39.4	79.4

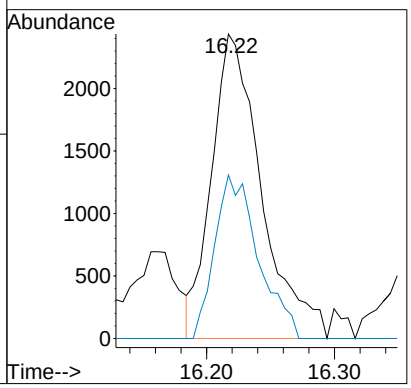


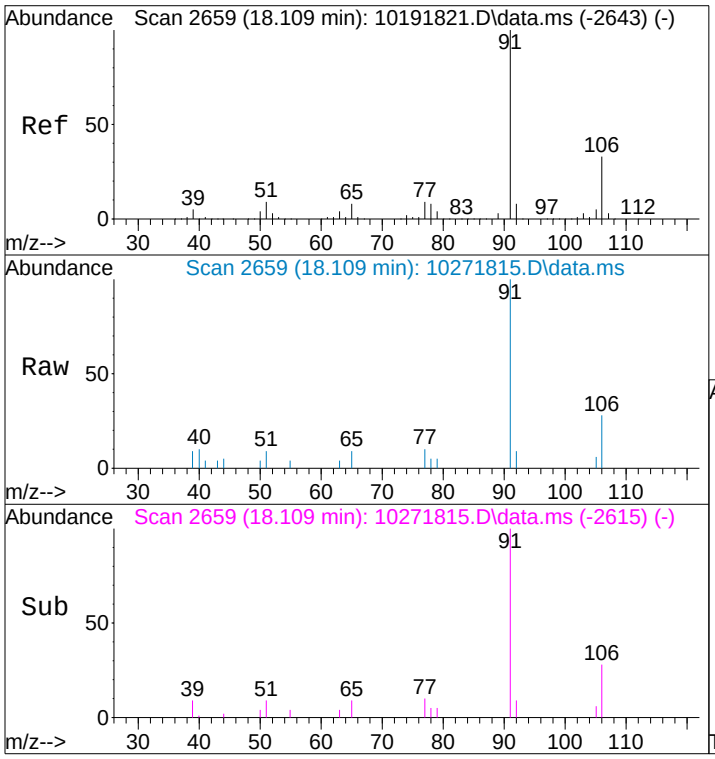


#59
2-Hexanone
Concen: 0.17 ng
RT: 16.22 min Scan# 2315
Delta R.T. 0.000 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 43 Resp: 6600

Ion	Ratio	Lower	Upper
43	100		
58	46.7	37.4	77.4

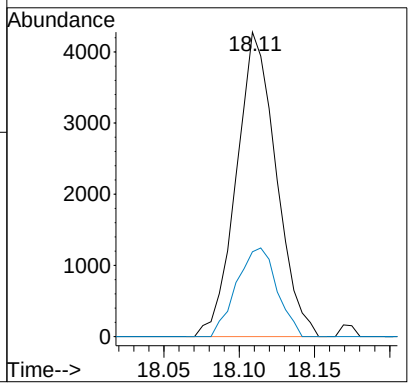


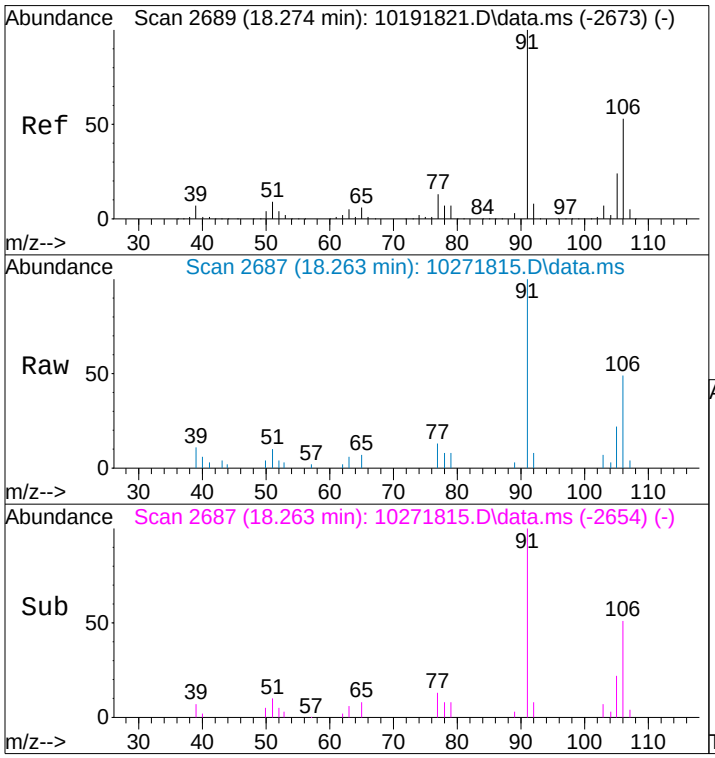


#66
Ethylbenzene
Concen: 0.08 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 91 Resp: 7851

Ion	Ratio	Lower	Upper
91	100		
106	29.5	12.6	52.6

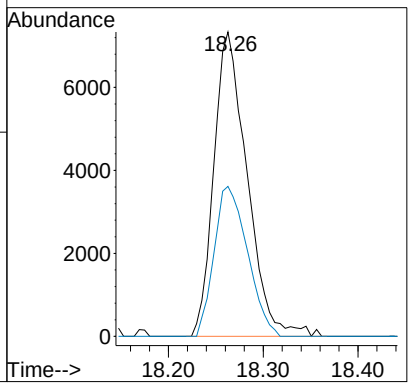


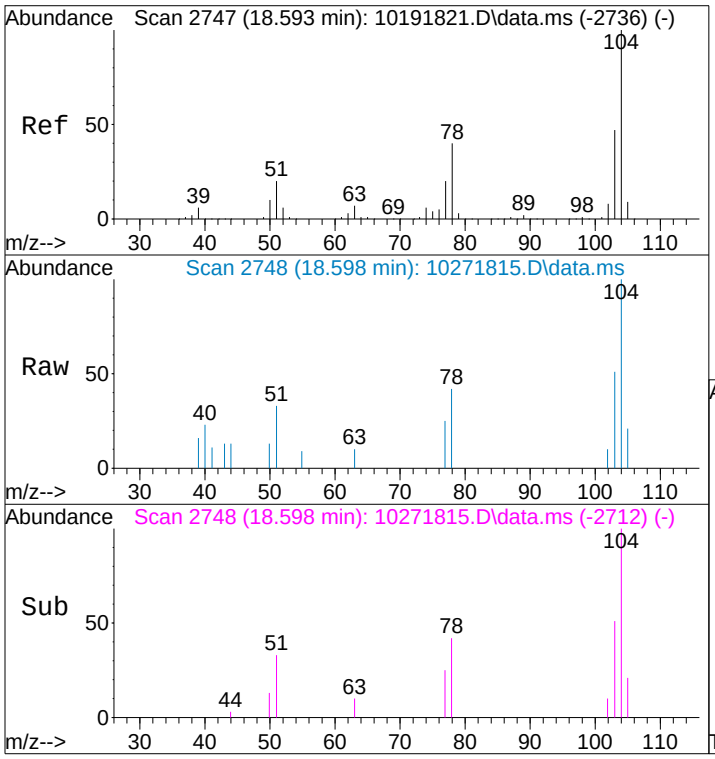


#67
m- & p-Xylenes
Concen: 0.25 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 91 Resp: 17921

Ion	Ratio	Lower	Upper
91	100		
106	49.3	32.2	72.2

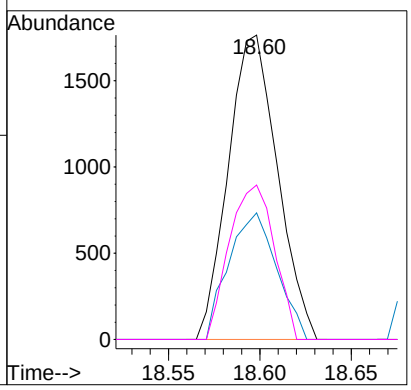


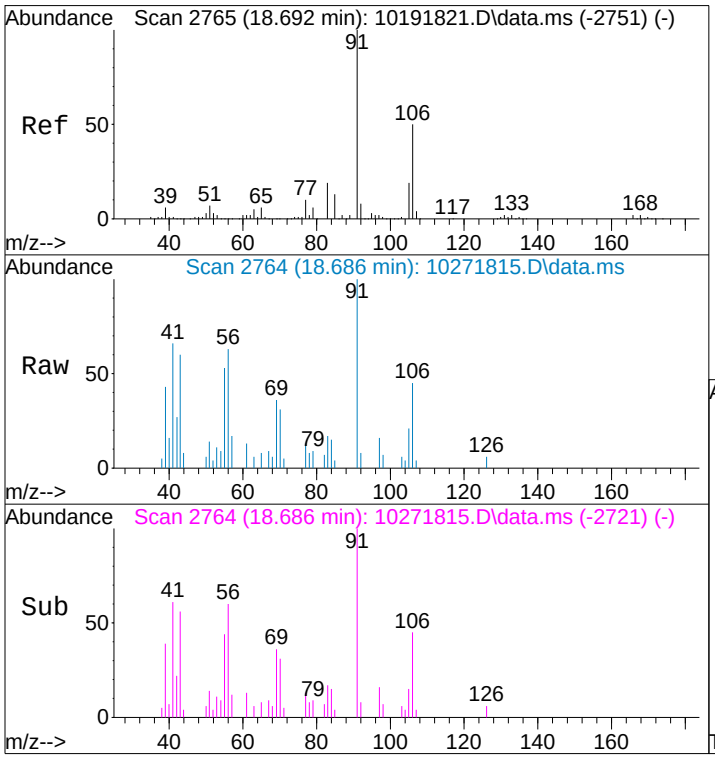


#69
Styrene
Concen: 0.06 ng
RT: 18.60 min Scan# 2748
Delta R.T. 0.000 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:104 Resp: 3309

Ion	Ratio	Lower	Upper
104	100		
78	40.6	20.1	60.1
103	46.5	27.0	67.0

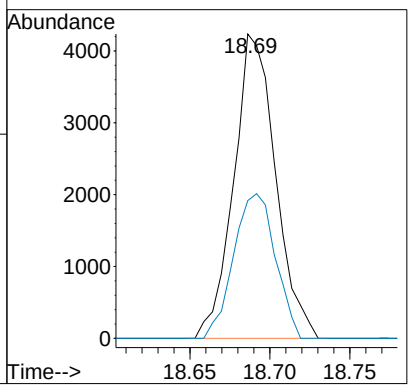


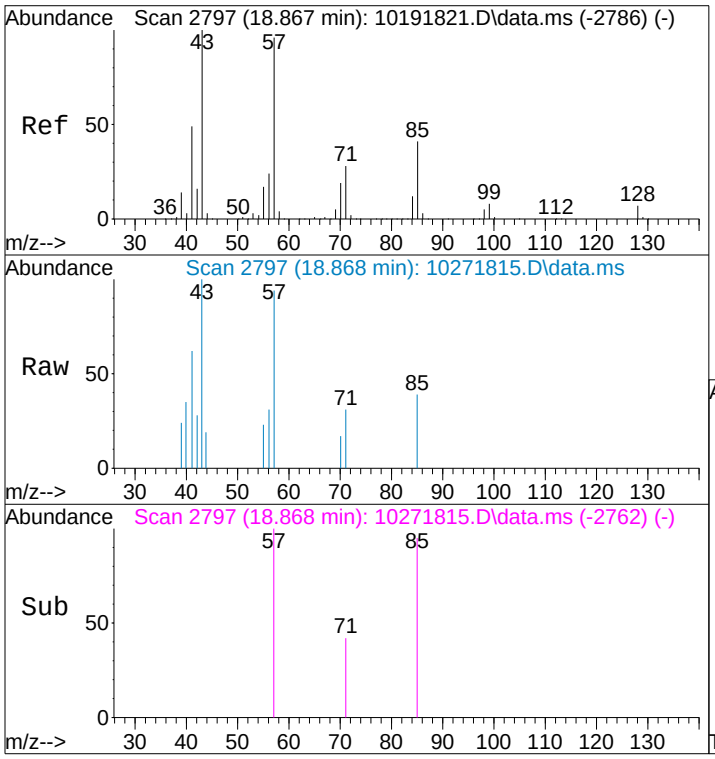


#70
o-Xylene
Concen: 0.10 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 91 Resp: 7691

Ion	Ratio	Lower	Upper
91	100		
106	47.5	29.4	69.4

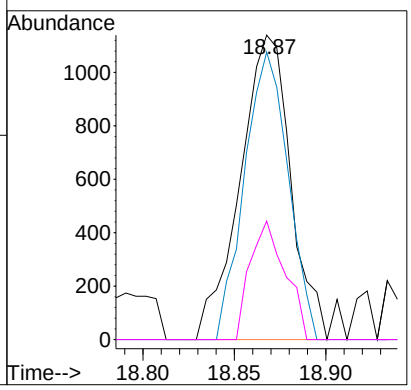


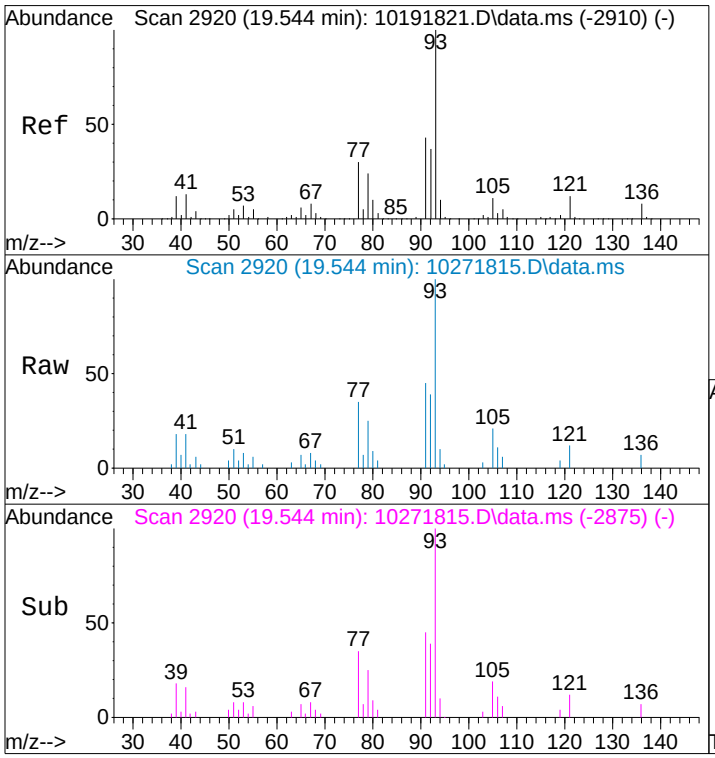


#71
n-Nonane
Concen: 0.06 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.006 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 43 Resp: 2199

Ion	Ratio	Lower	Upper
43	100		
57	81.2	75.4	115.4
85	27.0	20.8	60.8

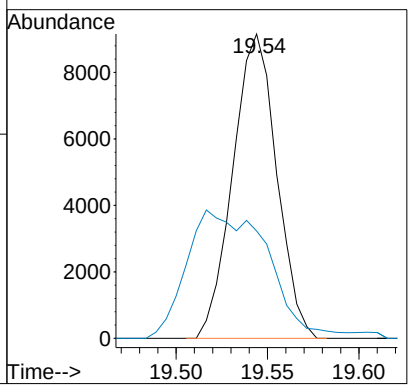


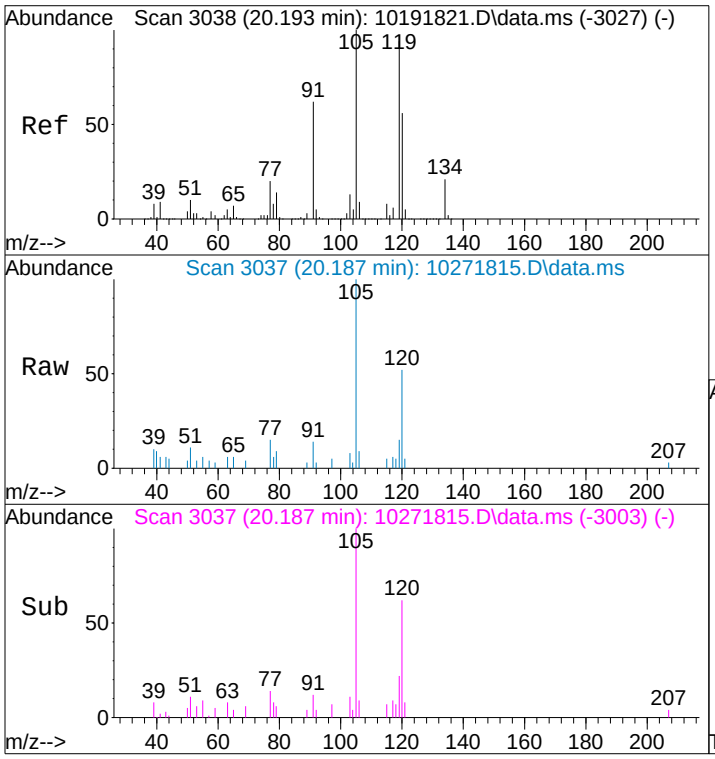


#75
alpha-Pinene
Concen: 0.30 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 93 Resp: 15261

Ion	Ratio	Lower	Upper
93	100		
77	79.0	10.2	50.2#

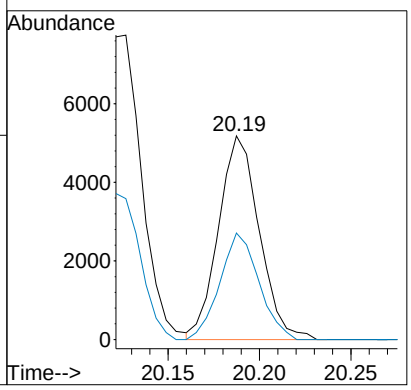


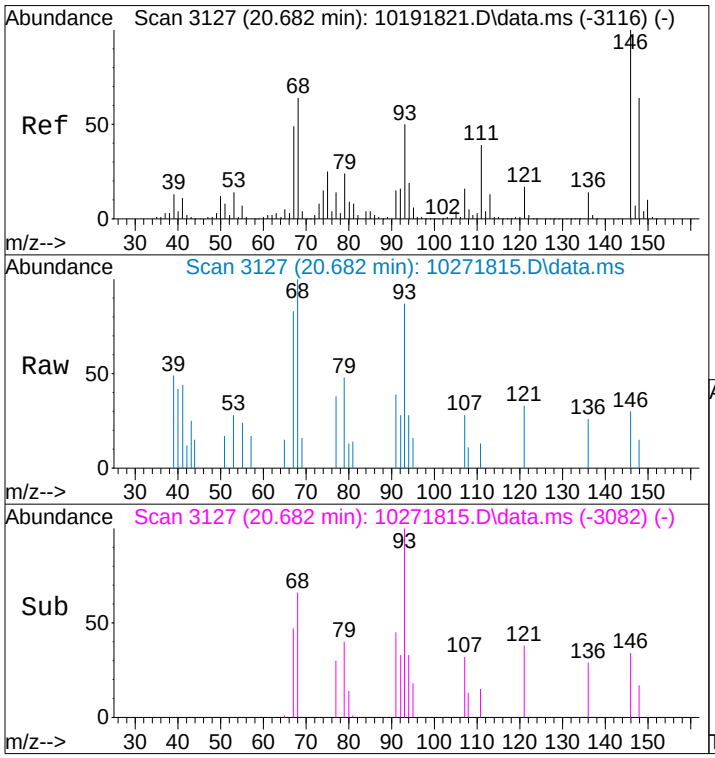


#82
1,2,4-Trimethylbenzene
Concen: 0.10 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:105 Resp: 8027

Ion	Ratio	Lower	Upper
105	100		
120	50.1	36.5	76.5

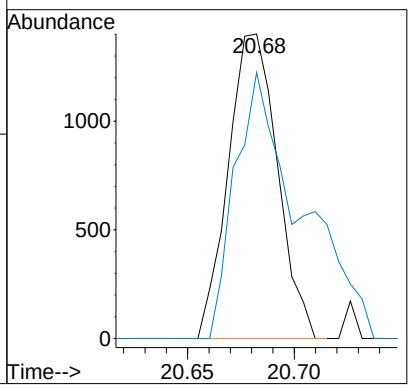


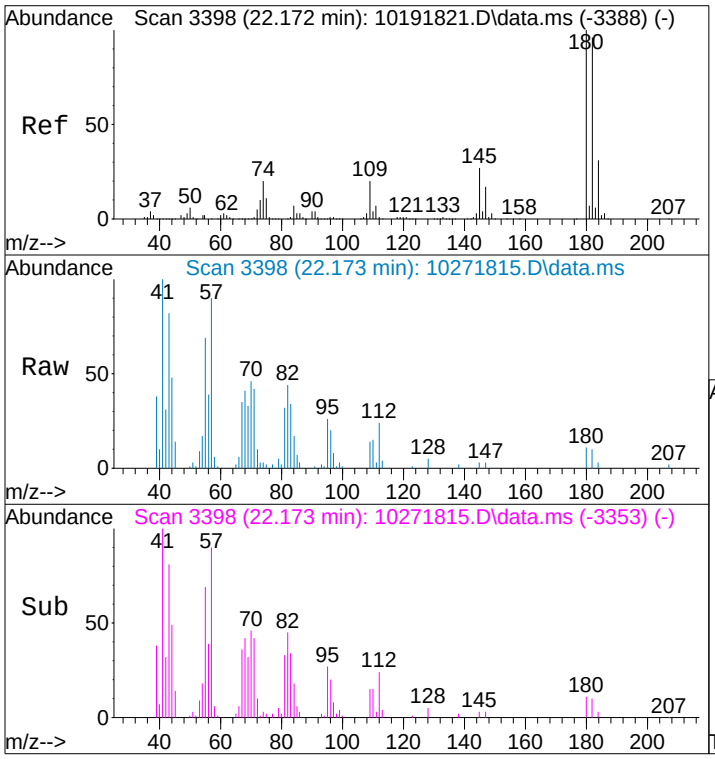


#91
d-Limonene
Concen: 0.08 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion: 68 Resp: 2249

Ion	Ratio	Lower	Upper
68	100		
93	116.5	57.4	97.4#

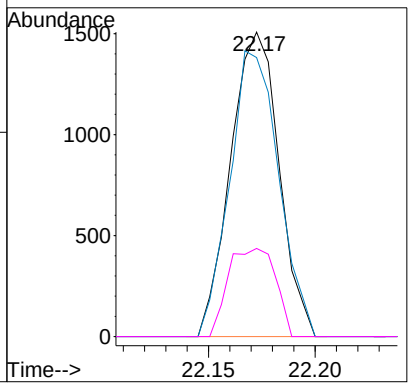


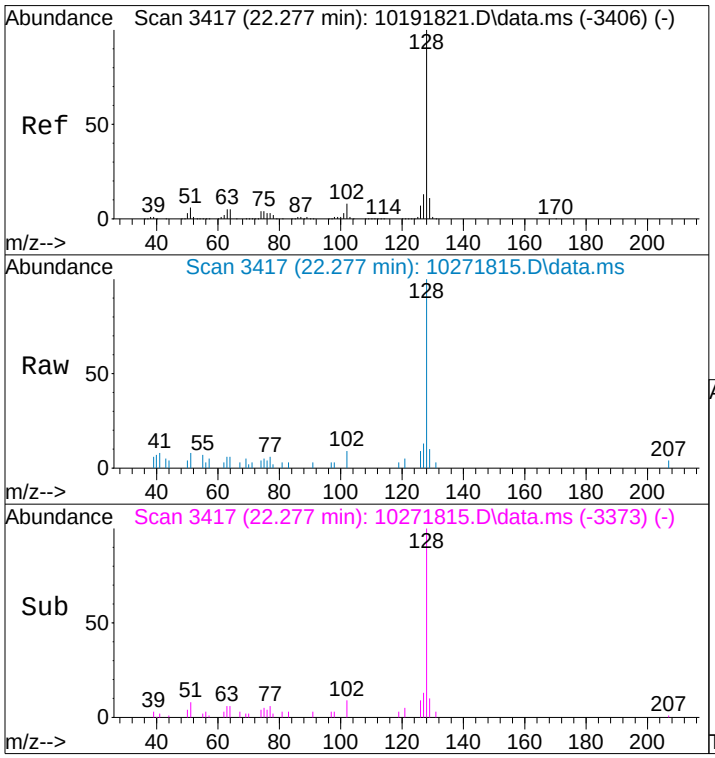


#94
1,2,4-Trichlorobenzene
Concen: 0.06 ng
RT: 22.17 min Scan# 3398
Delta R.T. -0.000 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:180 Resp: 2379

Ion	Ratio	Lower	Upper
180	100		
182	95.1	76.4	114.6
184	28.3	24.5	36.7

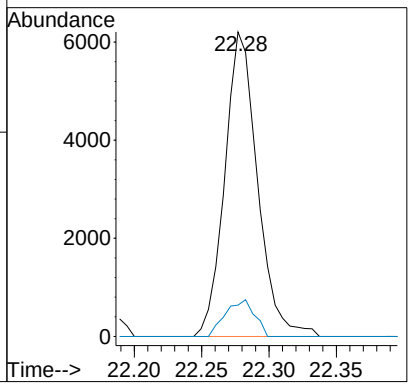




#95
Naphthalene
Concen: 0.09 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271815.D
Acq: 27 Oct 2018 12:47

Tgt Ion:128 Resp: 10498

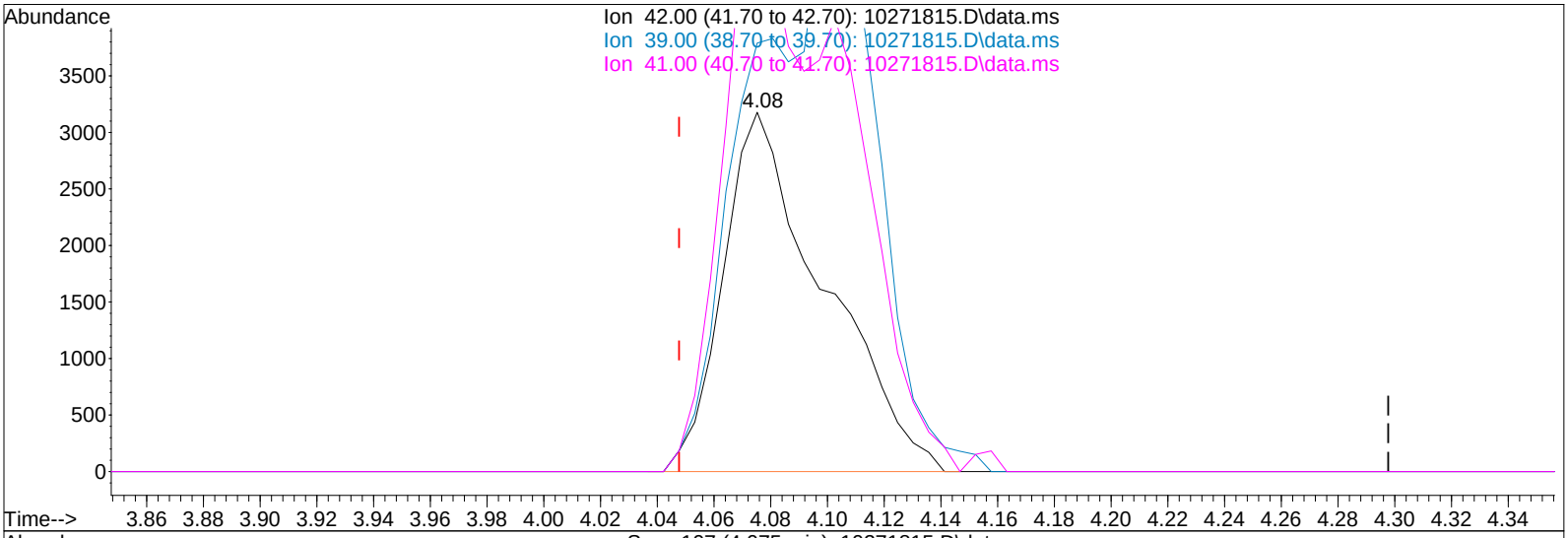
Ion	Ratio	Lower	Upper
128	100		
129	10.7	0.0	31.1

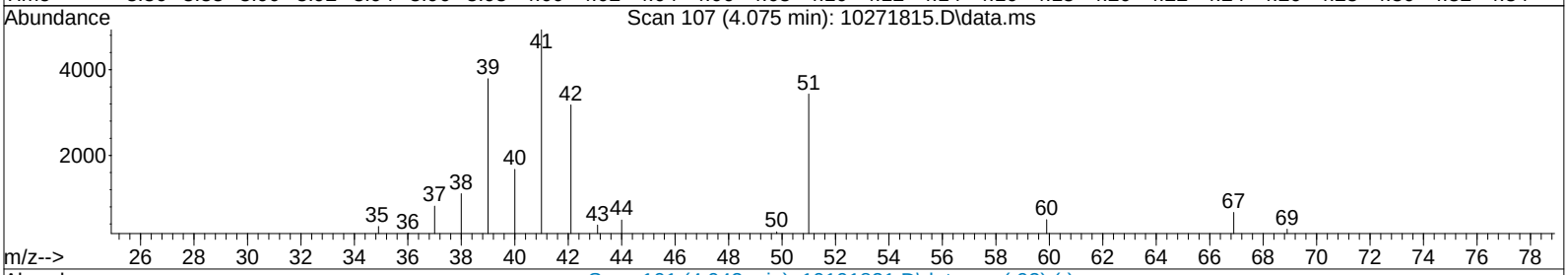


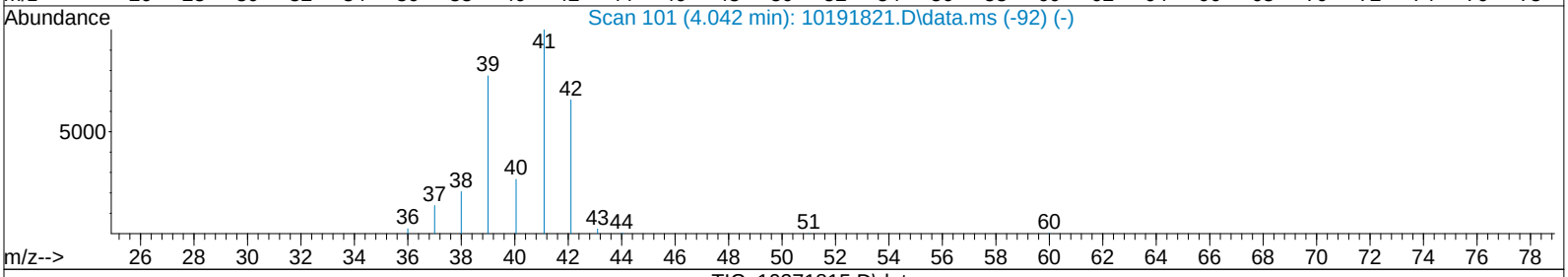
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 28 11:33:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271815.D\data.ms

(2) Propene (T)

4.075min (+0.027) 0.40ng

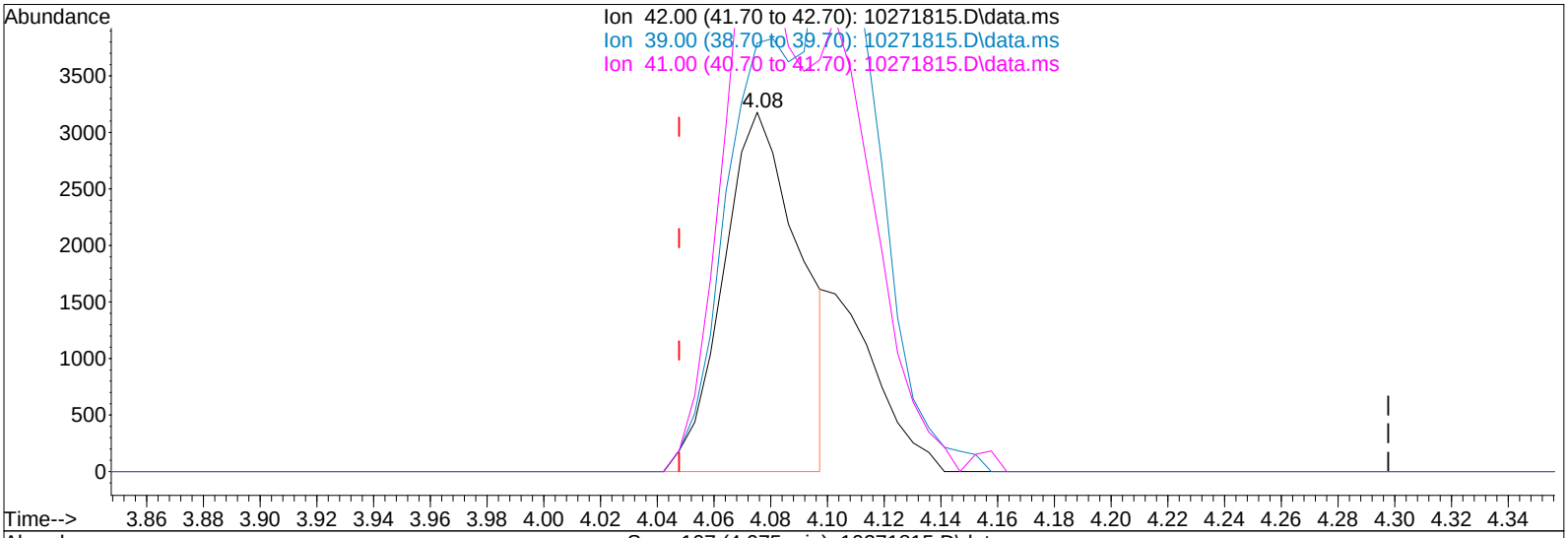
response 7837

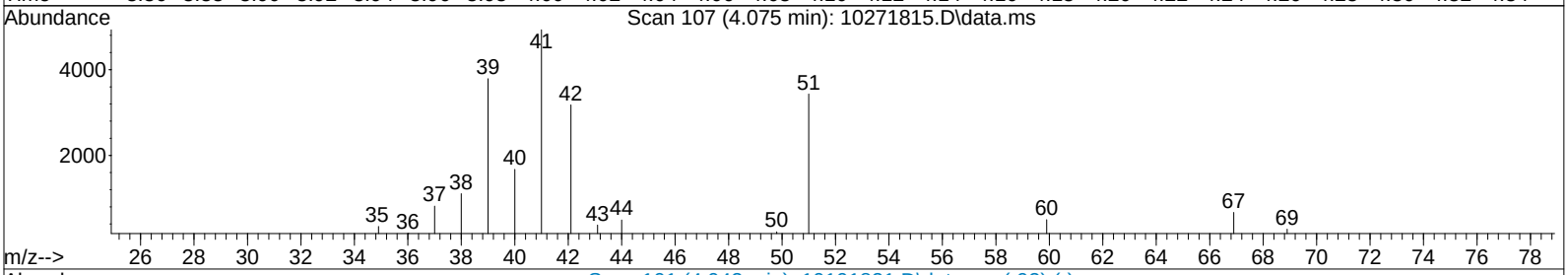
Ion	Exp%	Act%
42.00	100	100
39.00	118.50	196.08#
41.00	151.90	189.98#
0.00	0.00	0.00

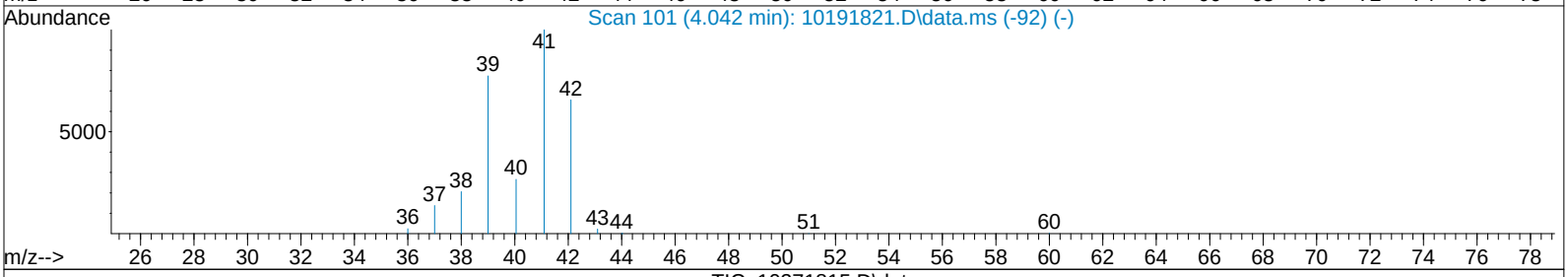
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 28 11:33:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271815.D\data.ms

(2) Propene (T)

4.075min (+0.027) 0.30ng m

response 5957

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	257.97#
41.00	151.90	249.94#
0.00	0.00	0.00

IPC TD 10/29/18

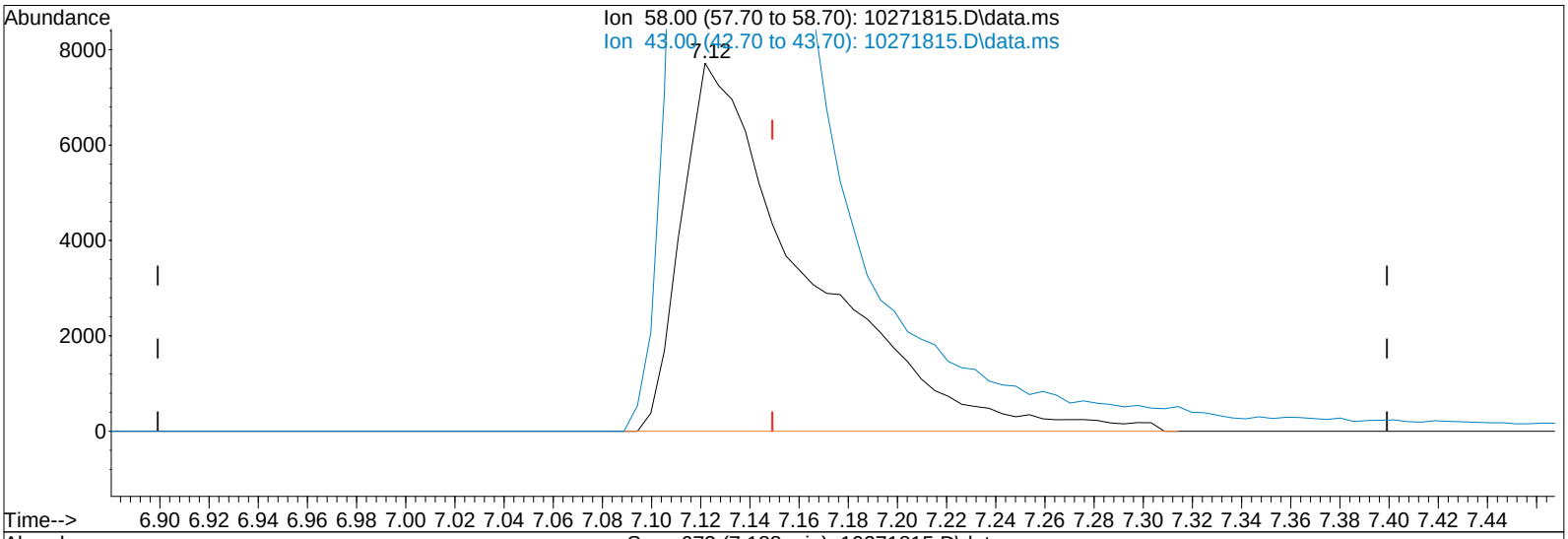
10/30/18

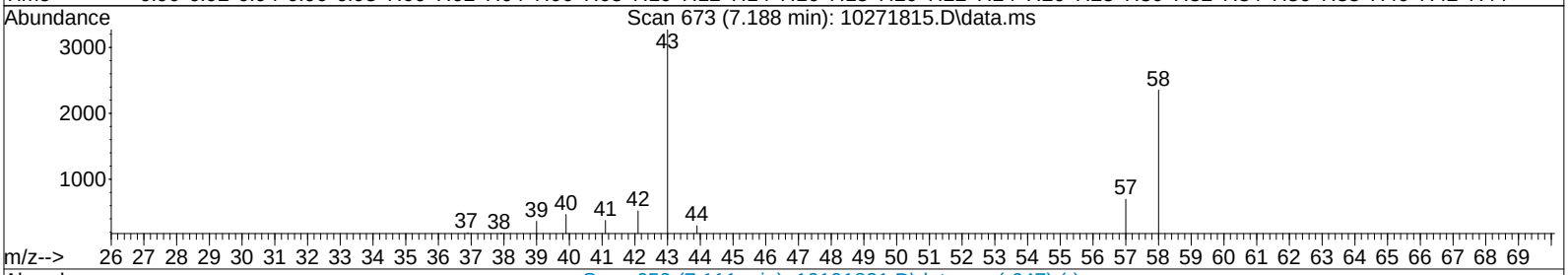
10/30/18

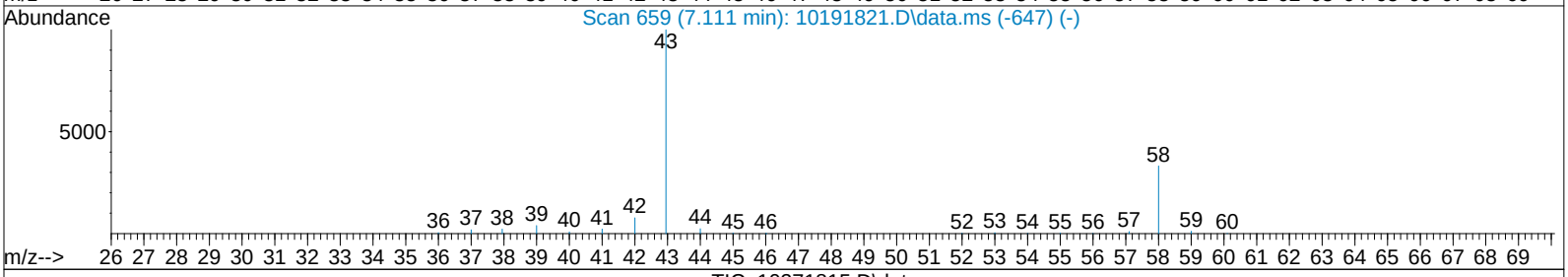
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 28 11:33:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271815.D\data.ms

(13) Acetone (T)

7.122min (-0.027) 1.92ng

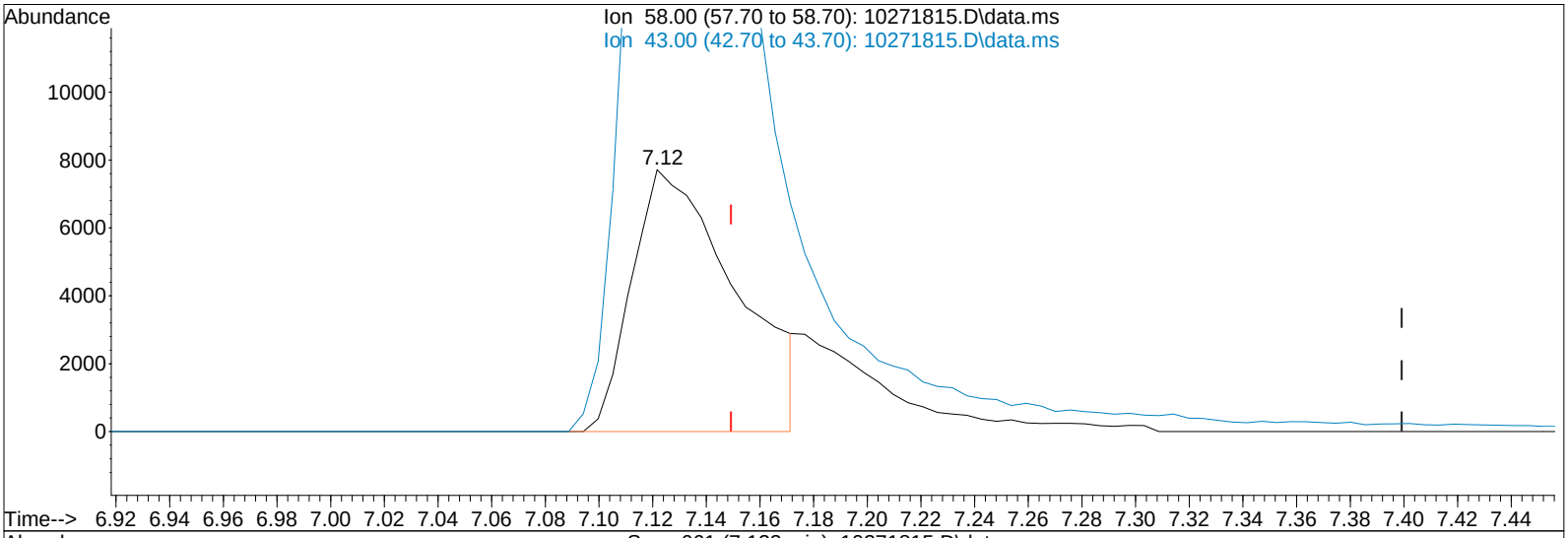
response 27364

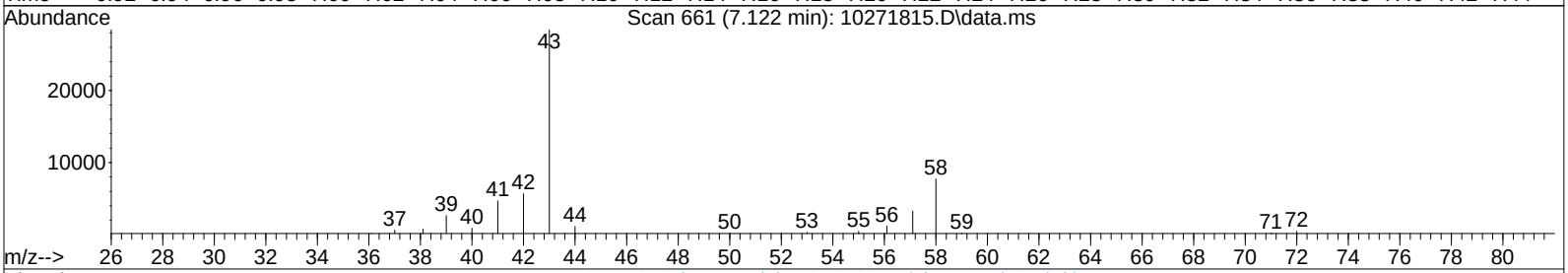
Ion	Exp%	Act%
58.00	100	100
43.00	313.40	347.01#
0.00	0.00	0.00
0.00	0.00	0.00

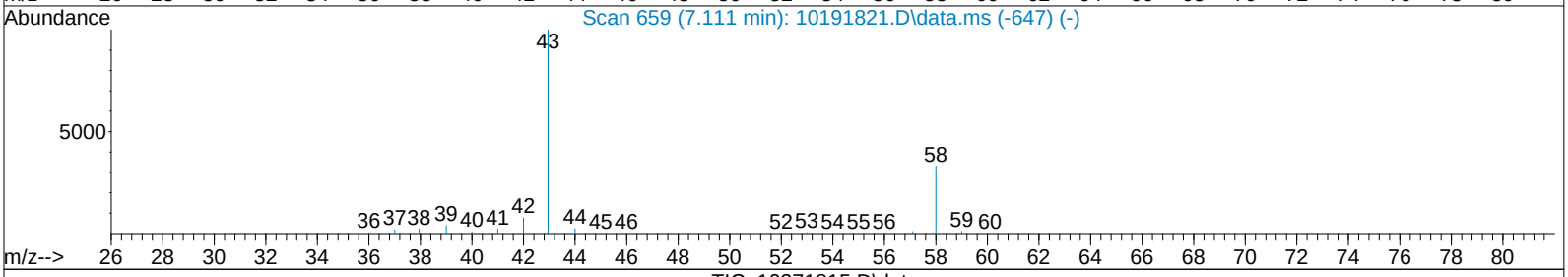
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 28 11:33:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271815.D\data.ms

(13) Acetone (T)

7.122min (-0.027) 1.45ng m

response 20701

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	458.70#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IPC

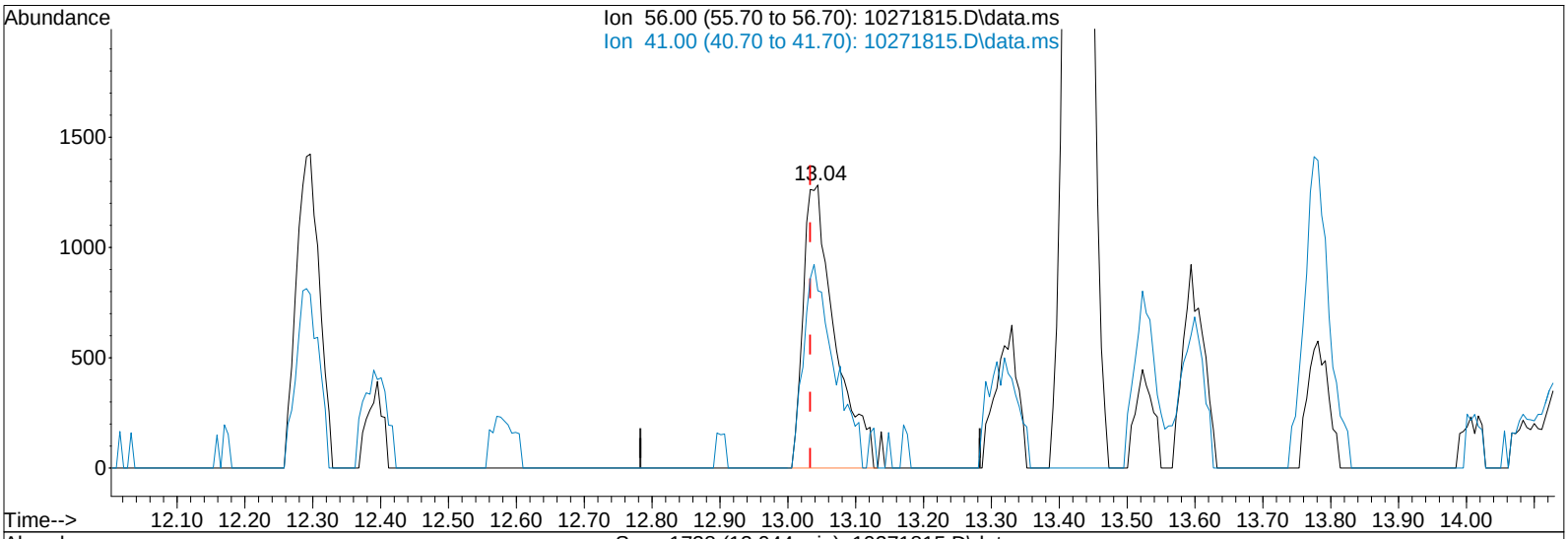
10/30/18

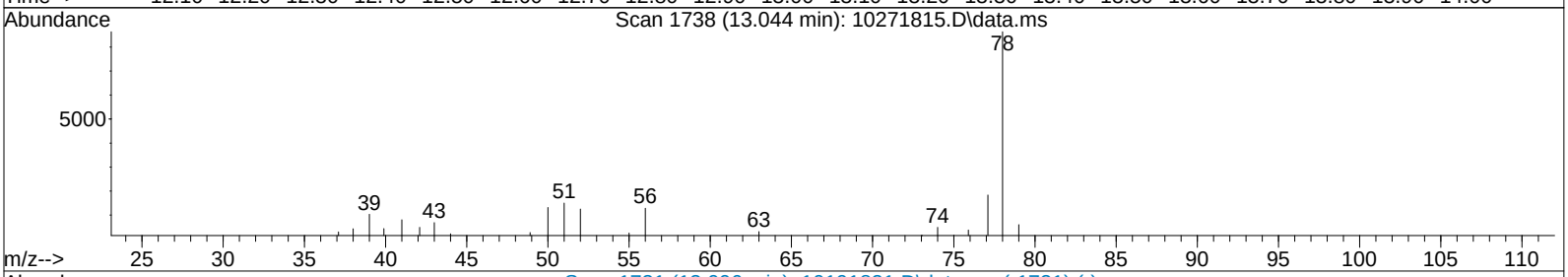
10/30/18

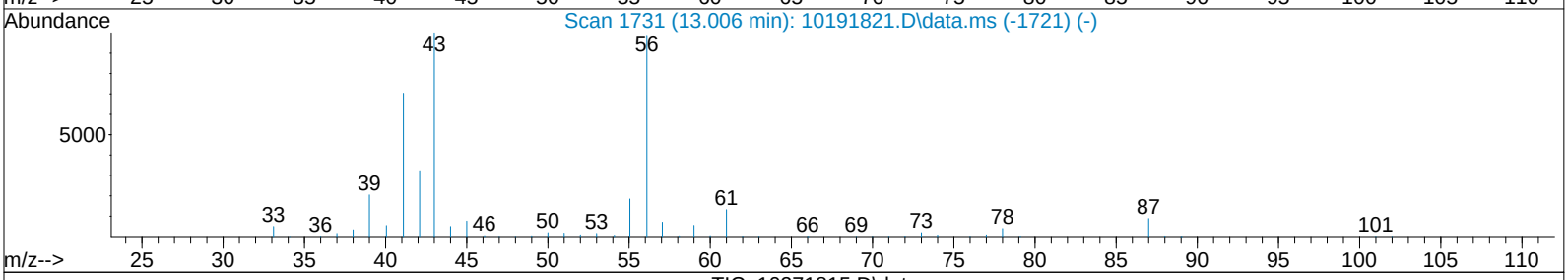
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 11:17:03 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271815.D\data.ms

(40) 1-Butanol (T)

13.044min (+0.011) 0.22ng m

response 4165

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IC-

WA 10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 14:36:24 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

WA 10/30/18

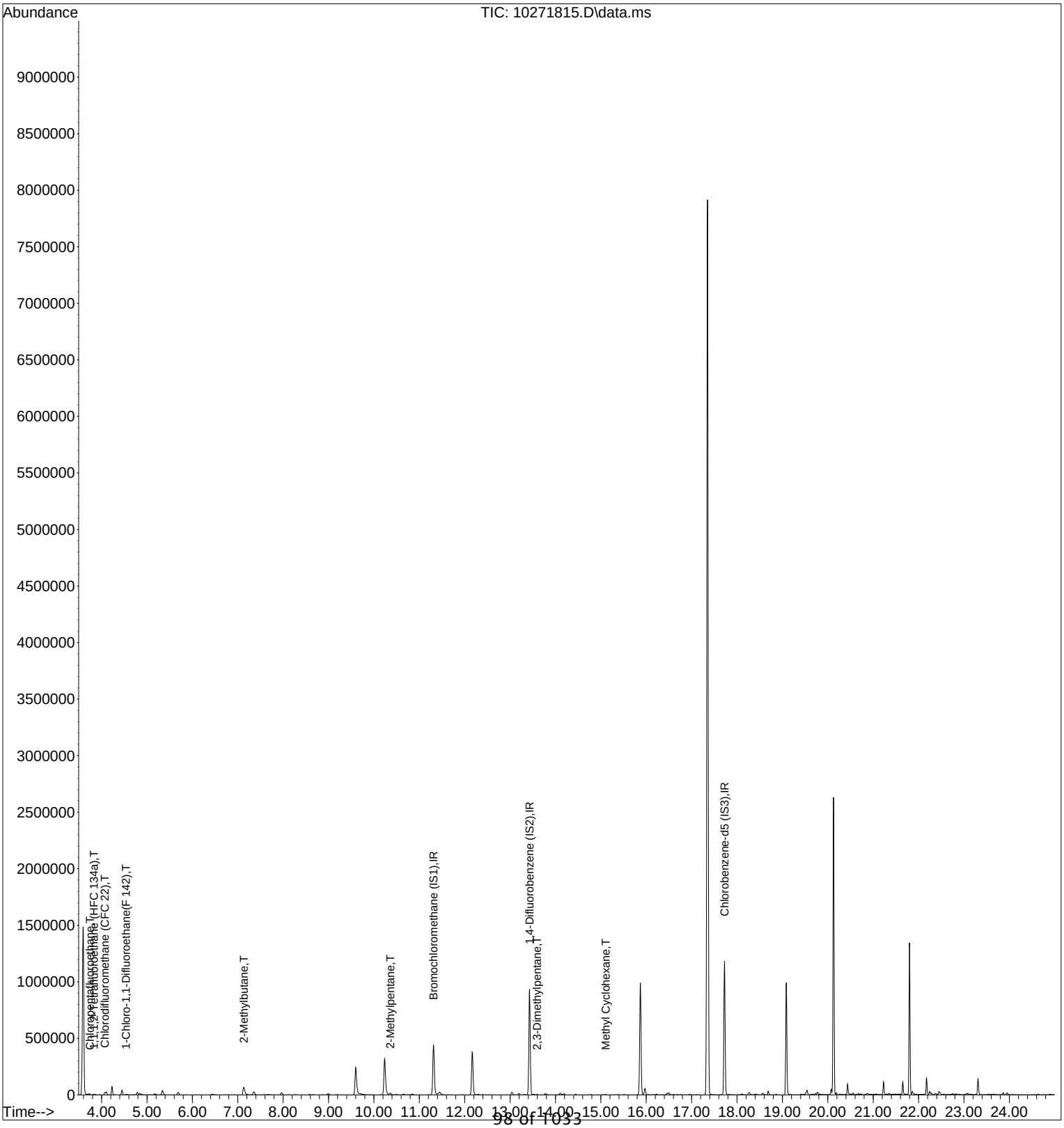
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	212765	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	915896	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	388455	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	1368	0.054	ng	#	40
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	3654	0.171	ng	#	1
4) 1,1-Difluoroethane	3.95	65	540	N.D.			
5) Chlorodifluoromethane ...	4.07	67	1553	0.245	ng		71
6) 1-Chloro-1,1-Difluoroe...	4.54	65	3847	0.083	ng	#	93
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.14	57	15191	0.874	ng	#	81
11) Methyl Acetate	8.62	43	1690	N.D.			
12) 2-Methylpentane	10.36	71	3827	0.212	ng	#	38
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	1550	N.D.			
17) 2,3-Dimethylpentane	13.59	56	1929	0.058	ng	#	87
18) Dibromomethane	13.86	174	347	N.D.			
20) Methyl Cyclohexane	15.11	55	1660	0.068	ng	#	77
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.64	131	125	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.69	75	57	N.D.			
25) Bromobenzene	19.29	77	167	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	20.74	117	1544	N.D.			
29) Indene	20.81	115	657	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	1048	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	1348	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	1171	N.D.			
33) 1,2,3-Trichlorobenzene	22.52	180	51	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271815.D
Acq On : 27 Oct 2018 12:47 Operator: WA
Sample : P1805497-001 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 29 14:36:24 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 13:48:45 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/29/18

10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	241014	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1046428	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	456192	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	363127	12.525	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
57) Toluene-d8 (SS2)	15.87	98	921194	12.681	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.44%				
73) Bromofluorobenzene (SS3)	19.09	174	377088	11.419	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.36%				
Target Compounds							Qvalue
2) Propene	4.08	42	7976m	0.356	ng		
3) Dichlorodifluoromethan...	4.23	85	74693	1.482	ng		99
4) Chloromethane	4.55	50	3041	0.095	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	2072	0.069	ng		89
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.26	54	246	N.D.			
8) Bromomethane	5.73	94	282	N.D.			
9) Chloroethane	6.05	64	115	N.D.			
10) Ethanol	6.43	45	16254	1.199	ng		93
11) Acetonitrile	6.77	41	1732	N.D.			
12) Acrolein	6.92	56	5709	0.477	ng		95
13) Acetone	7.12	58	31273m	1.934	ng		
14) Trichlorofluoromethane	7.35	101	36321	0.832	ng		100
15) 2-Propanol (Isopropanol)	7.63	45	43162	0.832	ng		91
16) Acrylonitrile	7.97	53	314	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.61	59	2075	N.D.			
19) Methylene Chloride	8.57	84	4135	0.183	ng		95
20) 3-Chloro-1-propene (Al...	8.65	41	608	N.D.			
21) Trichlorotrifluoroethane	8.99	151	7318	0.315	ng		95
22) Carbon Disulfide	8.86	76	3661	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	10.65	72	6404	0.448	ng	#	84
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	11.49	87	176	N.D.			
30) Ethyl Acetate	11.45	61	4443	0.579	ng		87
31) n-Hexane	11.42	57	5732	0.164	ng		97
32) Chloroform	11.48	83	4423	0.109	ng		99
34) Tetrahydrofuran (THF)	11.95	72	224	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	975	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	12005m	0.567	ng		
41) Benzene	13.04	78	19507	0.203	ng		99
42) Carbon Tetrachloride	13.19	117	9992	0.274	ng		98
43) Cyclohexane	13.31	84	1964	0.053	ng	#	62
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.09	83	324	N.D.			
47) Trichloroethene	14.13	130	391	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 13:48:45 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

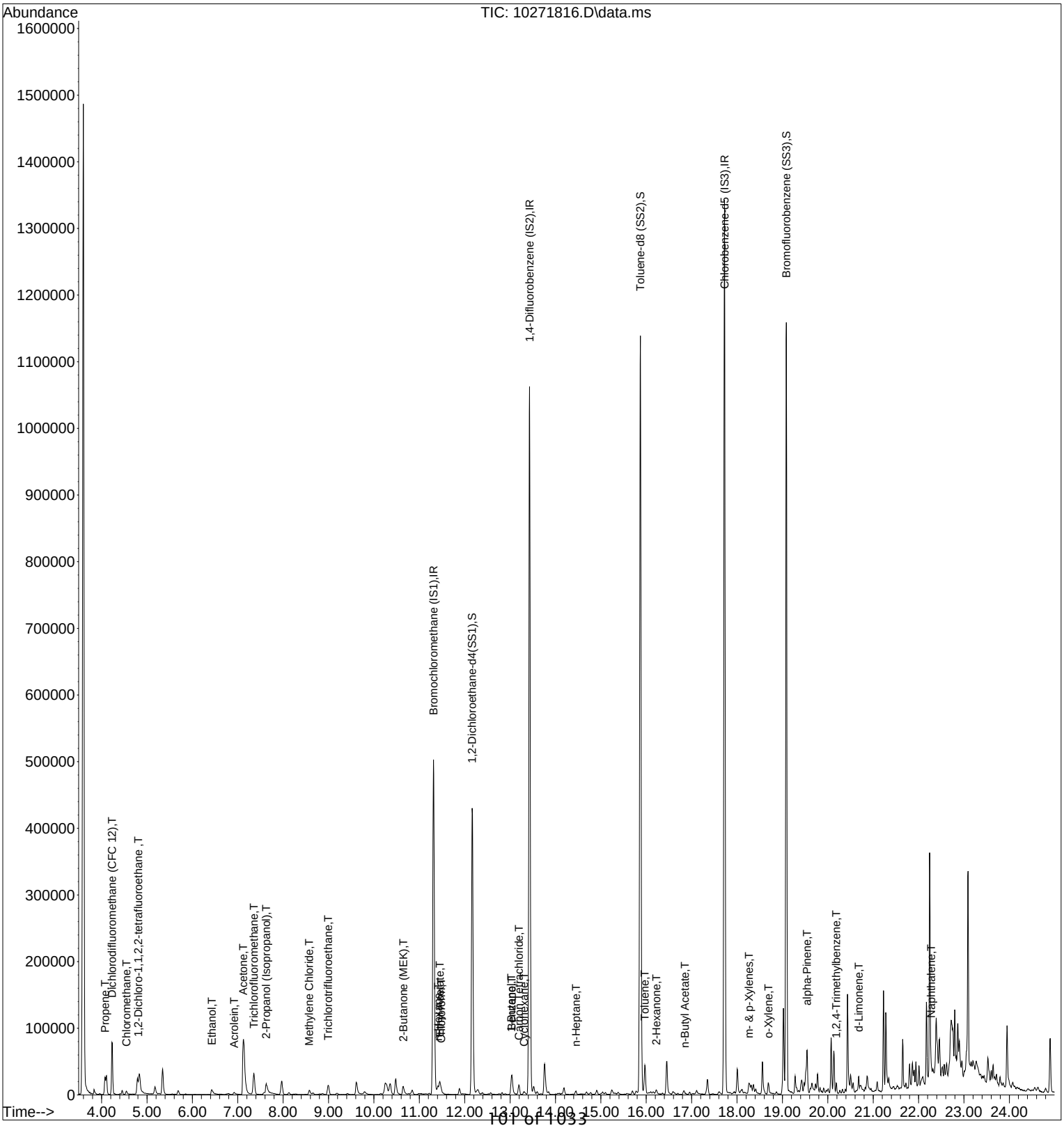
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	14.45	100	299	N.D.		
51) n-Heptane	14.45	71	1223	0.055 ng		90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.04	58	891	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	36210	0.359 ng		98
59) 2-Hexanone	16.22	43	6483	0.140 ng		77
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.85	43	2656	0.053 ng	#	67
63) n-Octane	16.96	57	624	N.D.		
64) Tetrachloroethene	17.11	166	1437	N.D.		
65) Chlorobenzene	17.76	112	105	N.D.		
66) Ethylbenzene	18.11	91	5729	N.D.		
67) m- & p-Xylenes	18.26	91	13150	0.153 ng		95
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	2607	N.D.		
70) o-Xylene	18.69	91	5988	0.069 ng		96
71) n-Nonane	18.87	43	1439	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.68	83	163	N.D.		
74) Cumene	19.20	105	629	N.D.		
75) alpha-Pinene	19.54	93	25259	0.426 ng	#	12
76) n-Propylbenzene	19.64	91	2895	N.D.		
77) 3-Ethyltoluene	19.73	105	5673	N.D.		
78) 4-Ethyltoluene	19.77	105	3043	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	1922	N.D.		
80) alpha-Methylstyrene	19.97	118	1035	N.D.		
81) 2-Ethyltoluene	20.00	105	2287	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	7490	0.080 ng		86
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.31	91	715	N.D.		
85) 1,3-Dichlorobenzene	20.33	146	254	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	1654	N.D.		
87) sec-Butylbenzene	20.42	105	770	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	4471	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	2271	N.D.		
90) 1,2-Dichlorobenzene	20.68	146	110	N.D.		
91) d-Limonene	20.68	68	5787	0.170 ng	#	74
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.17	180	476	N.D.		
95) Naphthalene	22.28	128	9298	0.069 ng		97
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1052	N.D.		
100) n-Butylbenzene	20.90	91	942	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 13:48:45 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 13:48:45 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/29/18

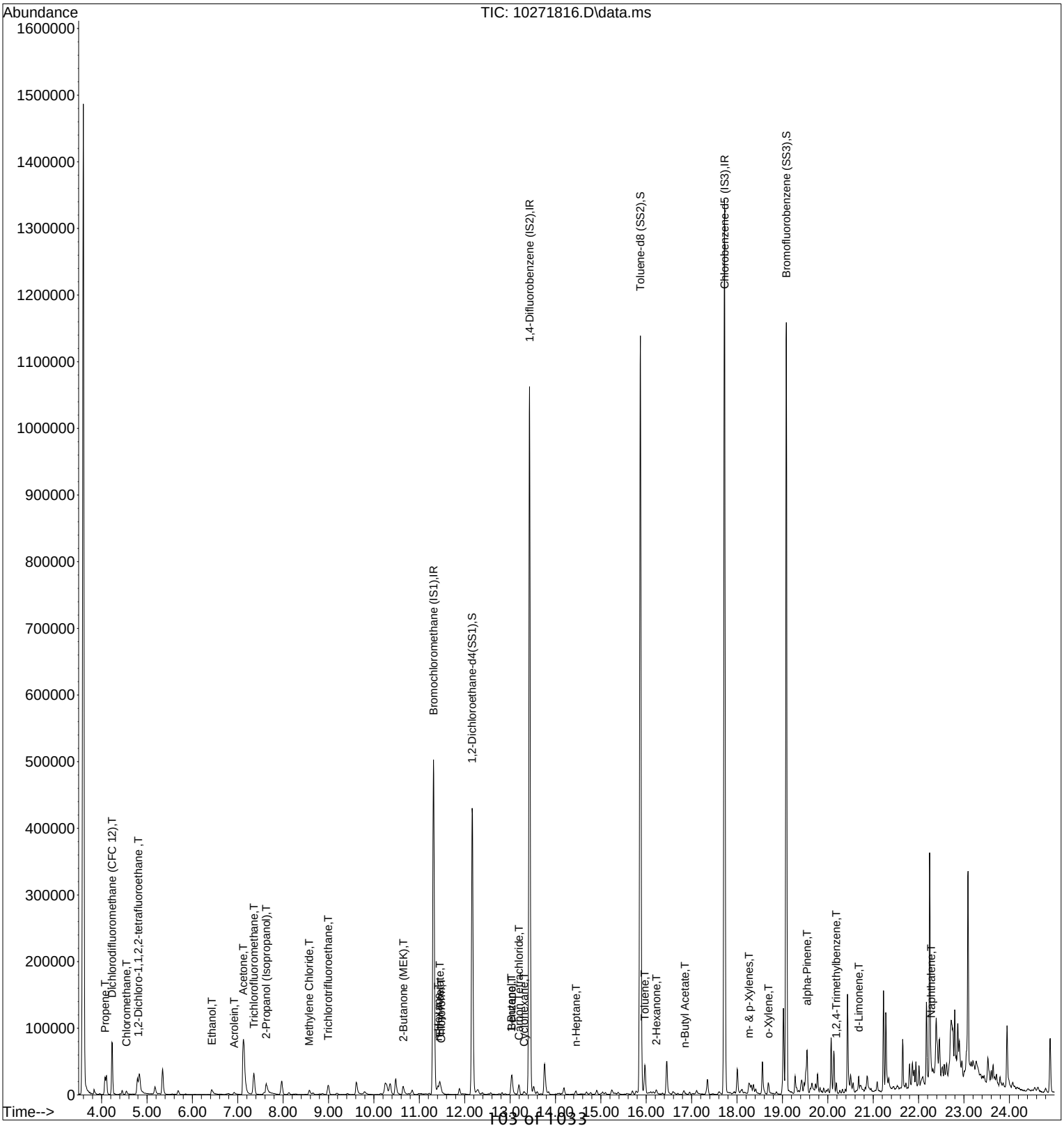
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	241014	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1046428	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	456192	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	363127	12.525	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.16%				
57) Toluene-d8 (SS2)	15.87	98	921194	12.681	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.44%				
73) Bromofluorobenzene (SS3)	19.09	174	377088	11.419	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.36%				
Target Compounds							Qvalue
2) Propene	4.08	42	7976m	0.356	ng		
3) Dichlorodifluoromethan...	4.23	85	74693	1.482	ng		99
4) Chloromethane	4.55	50	3041	0.095	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	2072	0.069	ng		89
10) Ethanol	6.43	45	16254	1.199	ng		93
12) Acrolein	6.92	56	5709	0.477	ng		95
13) Acetone	7.12	58	31273m	1.934	ng		
14) Trichlorofluoromethane	7.35	101	36321	0.832	ng		100
15) 2-Propanol (Isopropanol)	7.63	45	43162	0.832	ng		91
19) Methylene Chloride	8.57	84	4135	0.183	ng		95
21) Trichlorotrifluoroethane	8.99	151	7318	0.315	ng		95
27) 2-Butanone (MEK)	10.65	72	6404	0.448	ng	#	84
30) Ethyl Acetate	11.45	61	4443	0.579	ng		87
31) n-Hexane	11.42	57	5732	0.164	ng		97
32) Chloroform	11.48	83	4423	0.109	ng		99
40) 1-Butanol	13.03	56	12005m	0.567	ng		
41) Benzene	13.04	78	19507	0.203	ng		99
42) Carbon Tetrachloride	13.19	117	9992	0.274	ng		98
43) Cyclohexane	13.31	84	1964	0.053	ng	#	62
51) n-Heptane	14.45	71	1223	0.055	ng		90
58) Toluene	15.97	91	36210	0.359	ng		98
59) 2-Hexanone	16.22	43	6483	0.140	ng		77
62) n-Butyl Acetate	16.85	43	2656	0.053	ng	#	67
67) m- & p-Xylenes	18.26	91	13150	0.153	ng		95
70) o-Xylene	18.69	91	5988	0.069	ng		96
75) alpha-Pinene	19.54	93	25259	0.426	ng	#	12
82) 1,2,4-Trimethylbenzene	20.19	105	7490	0.080	ng		86
91) d-Limonene	20.68	68	5787	0.170	ng	#	74
95) Naphthalene	22.28	128	9298	0.069	ng		97

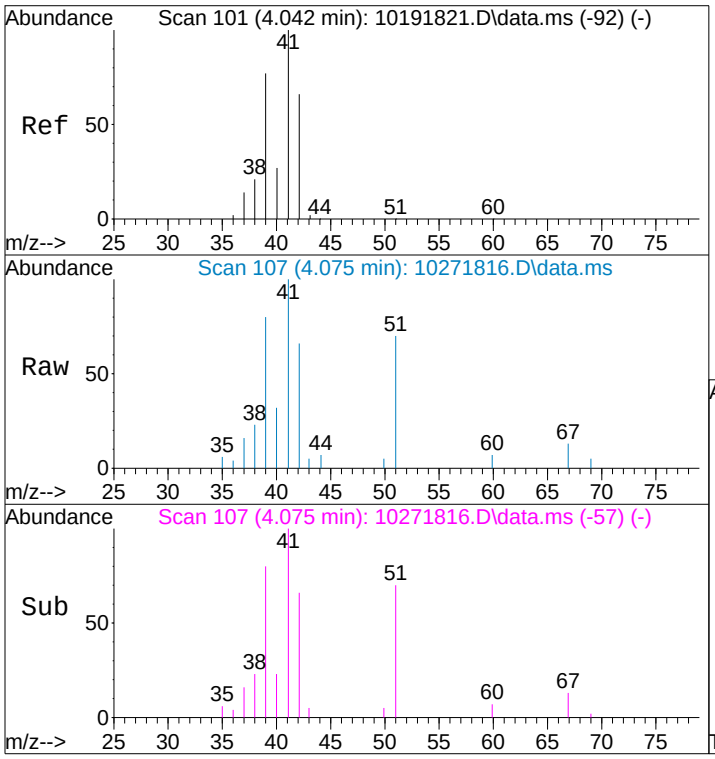
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 13:48:45 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

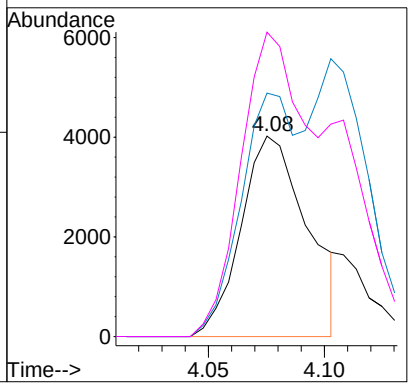


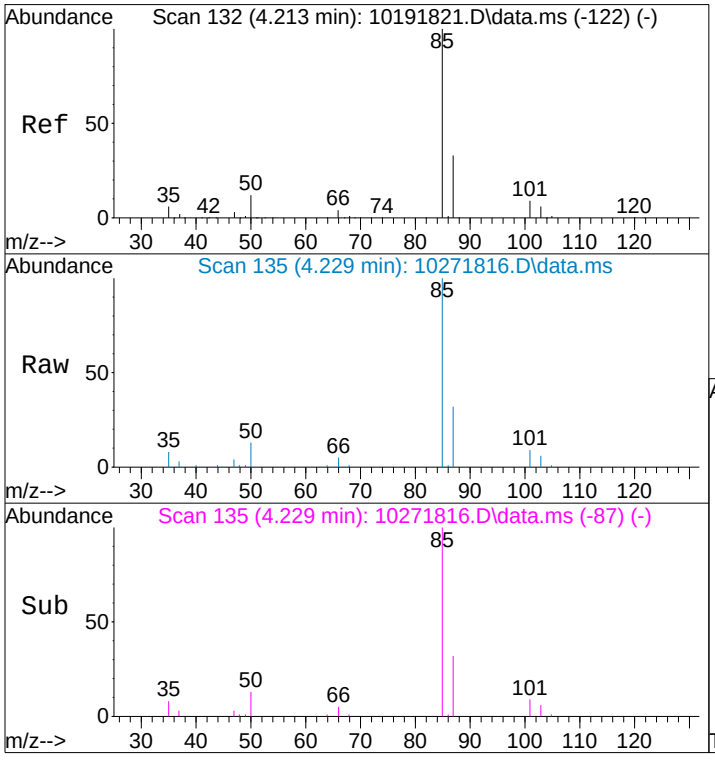


#2
Propene
Concen: 0.36 ng m
RT: 4.08 min Scan# 107
Delta R.T. 0.028 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 42 Resp: 7976

Ion	Ratio	Lower	Upper
42	100		
39	112.7	98.5	138.5
41	223.1	131.9	171.9#

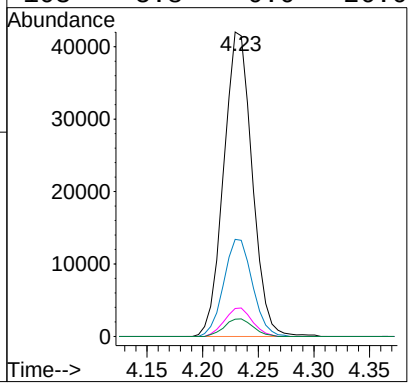


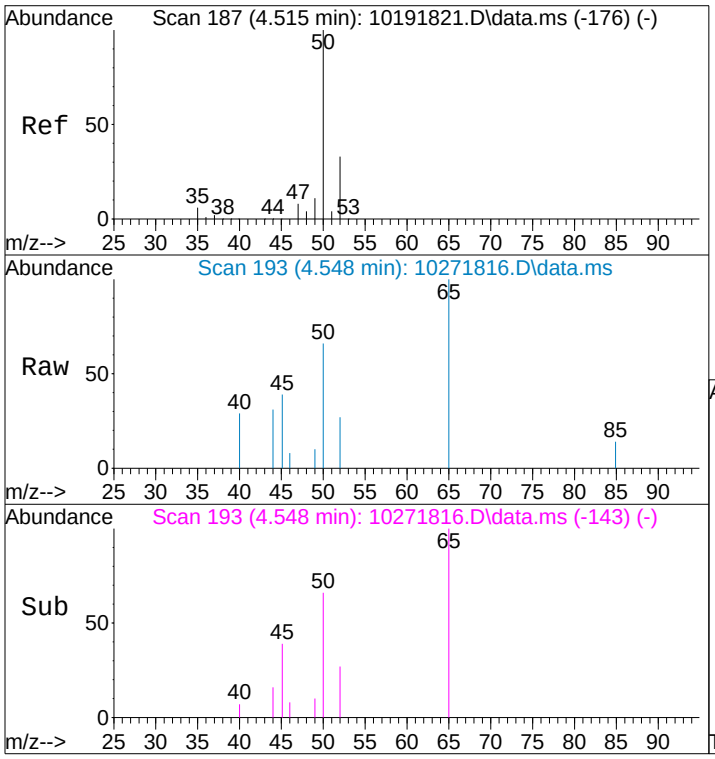


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.48 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.017 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 85 Resp: 74693

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.6	52.6
101	9.1	0.0	29.4
103	5.8	0.0	26.0

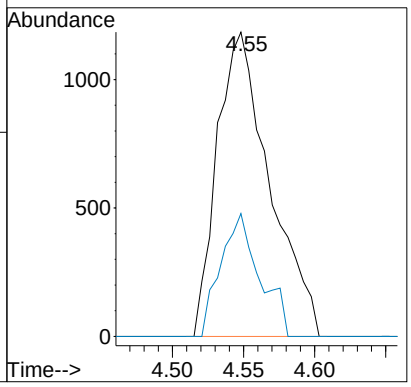


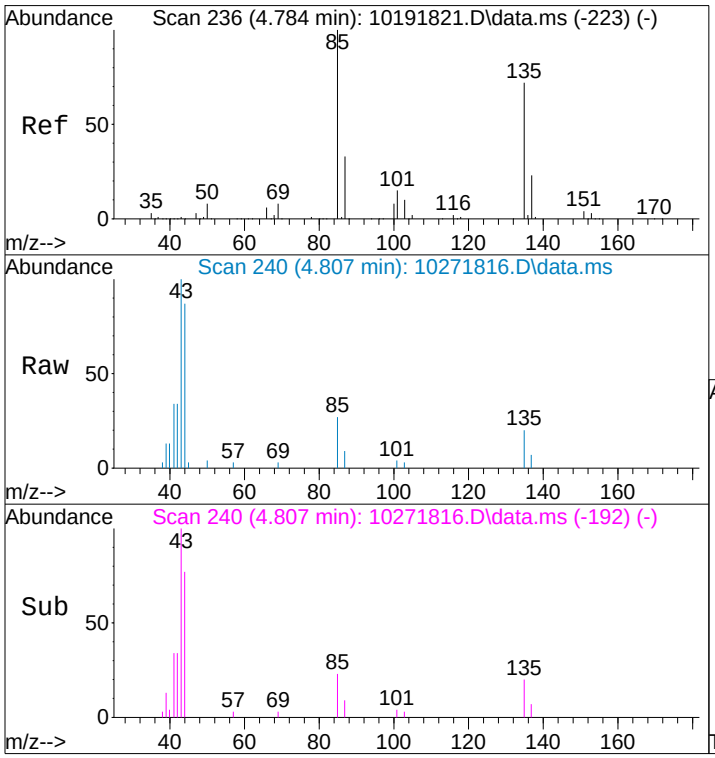


#4
Chloromethane
Concen: 0.09 ng
RT: 4.55 min Scan# 193
Delta R.T. 0.028 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 50 Resp: 3041

Ion	Ratio	Lower	Upper
50	100		
52	30.1	13.2	53.2

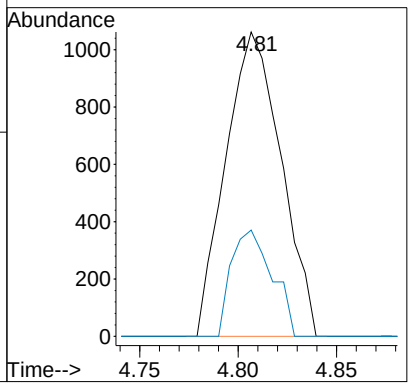


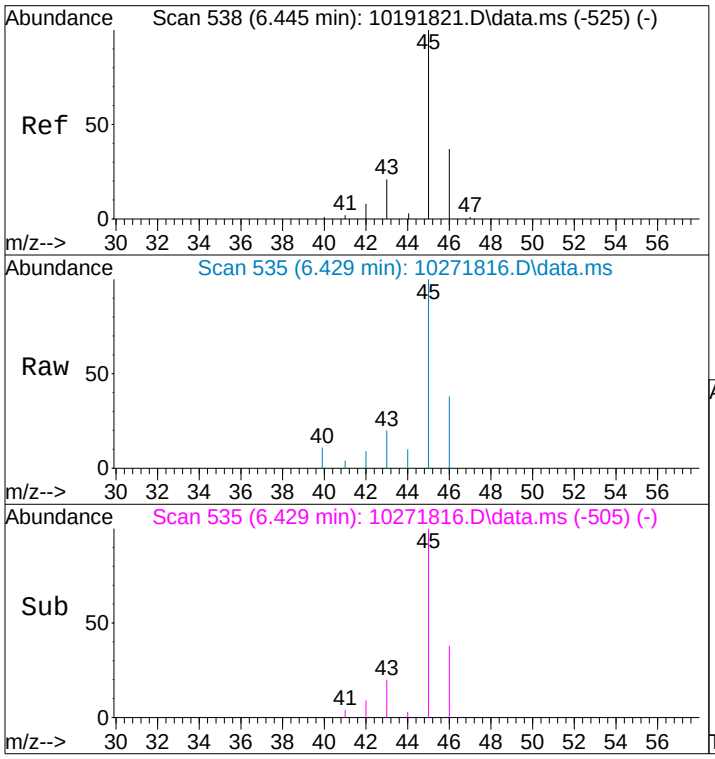


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.81 min Scan# 240
Delta R.T. 0.017 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:135 Resp: 2072

Ion	Ratio	Lower	Upper
135	100		
137	25.9	12.3	52.3

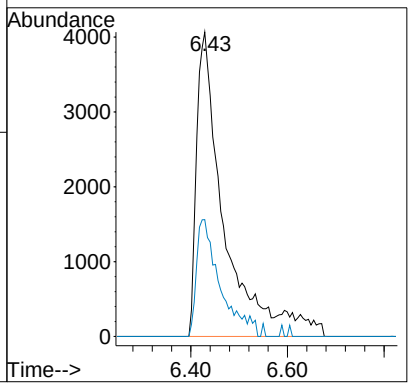


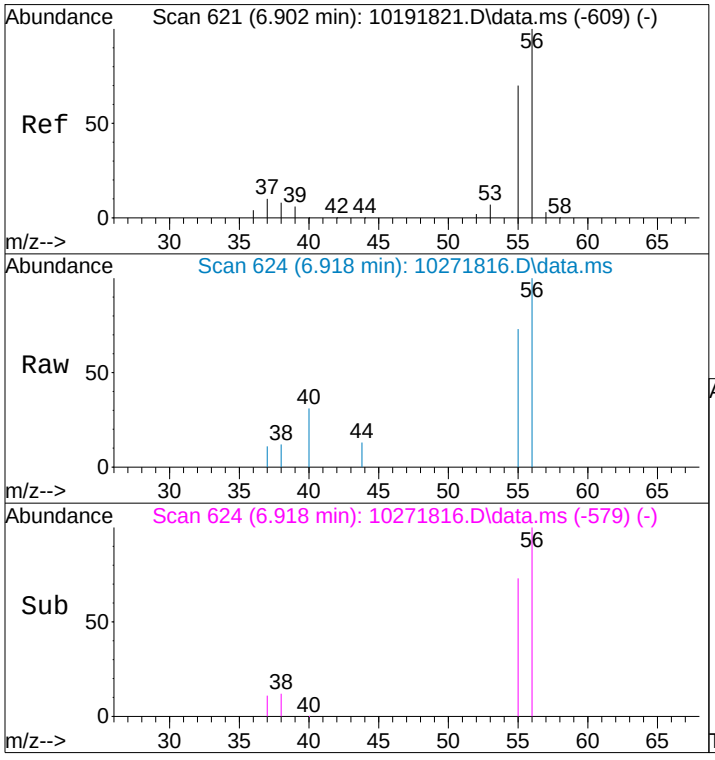


#10
Ethanol
Concen: 1.20 ng
RT: 6.43 min Scan# 535
Delta R.T. -0.082 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 45 Resp: 16254

Ion	Ratio	Lower	Upper
45	100		
46	32.7	16.6	56.6

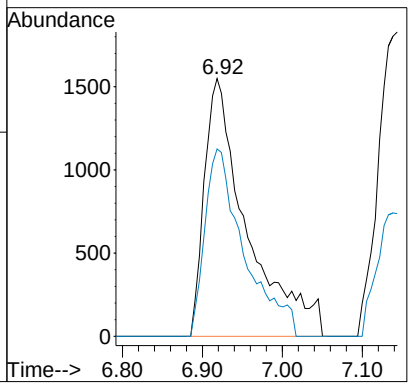


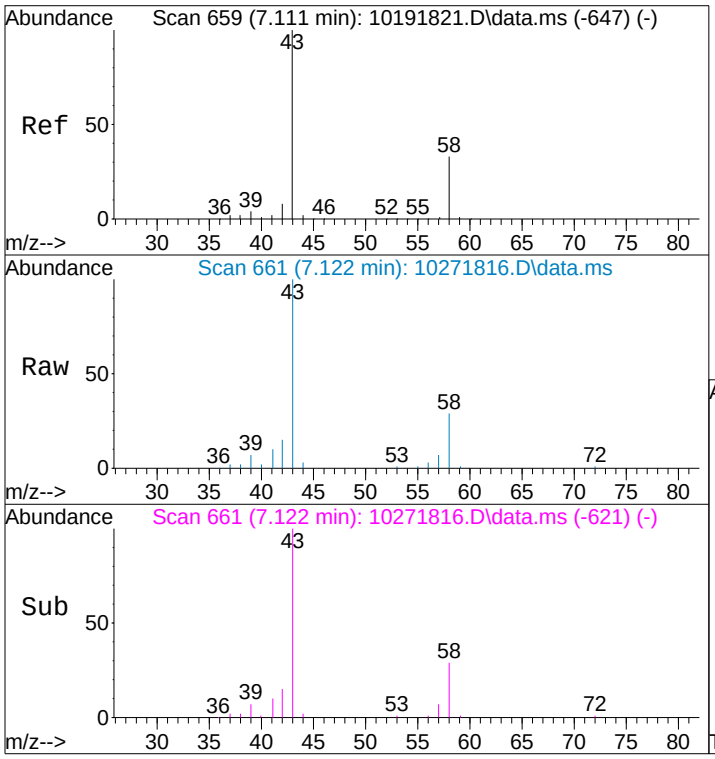


#12
Acrolein
Concen: 0.48 ng
RT: 6.92 min Scan# 624
Delta R.T. 0.000 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 56 Resp: 5709

Ion	Ratio	Lower	Upper
56	100		
55	67.0	51.0	91.0

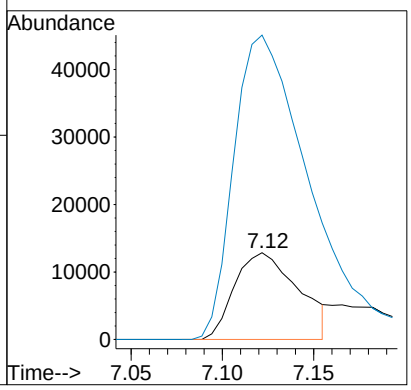


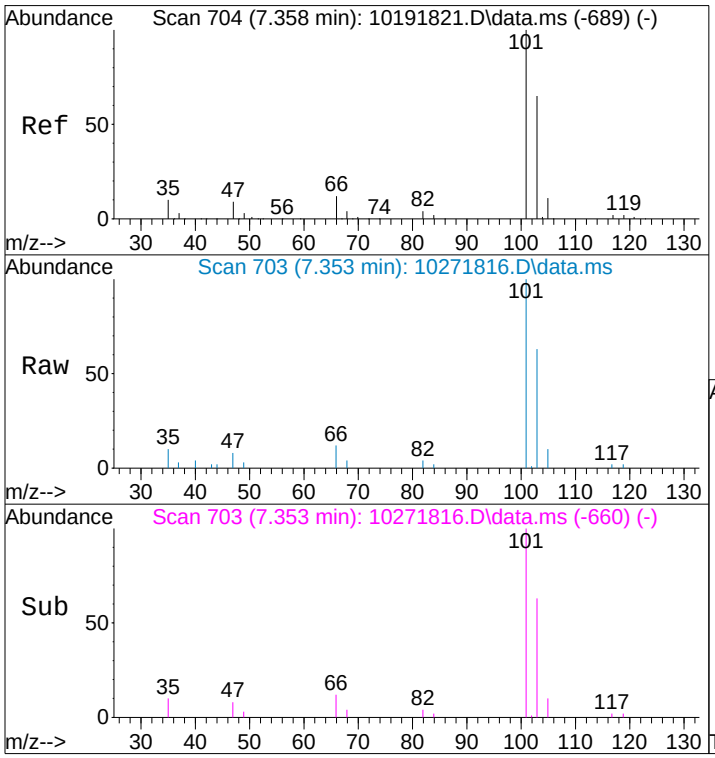


#13
Acetone
Concen: 1.93 ng m
RT: 7.12 min Scan# 661
Delta R.T. -0.027 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 58 Resp: 31273

Ion	Ratio	Lower	Upper
58	100		
43	447.0	283.4	343.4#

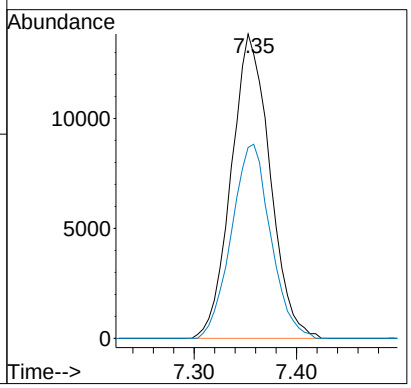


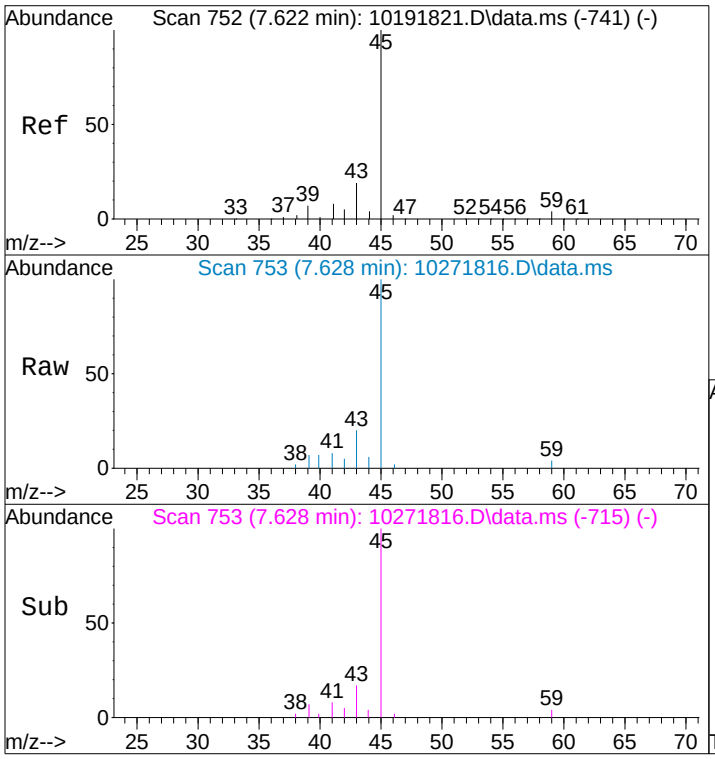


#14
Trichlorofluoromethane
Concen: 0.83 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:101 Resp: 36321

Ion	Ratio	Lower	Upper
101	100		
103	64.6	44.8	84.8

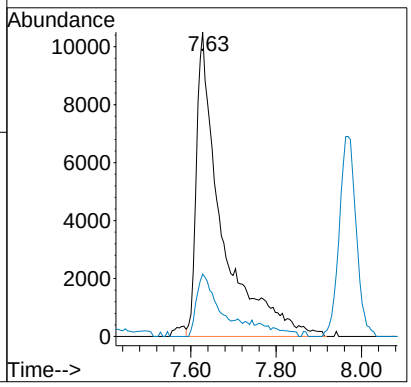


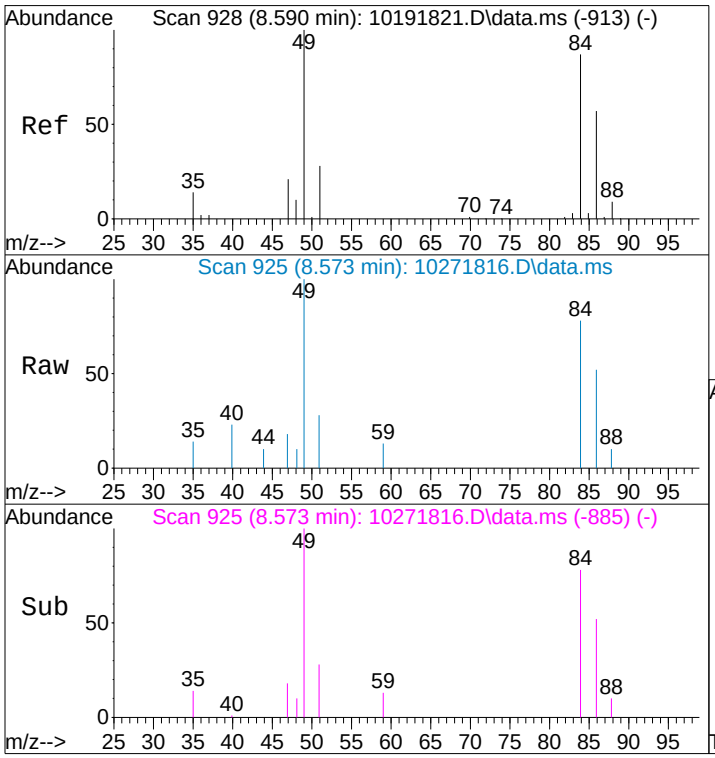


#15
2-Propanol (Isopropanol)
Concen: 0.83 ng
RT: 7.63 min Scan# 753
Delta R.T. -0.038 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 45 Resp: 43162

Ion	Ratio	Lower	Upper
45	100		
43	23.9	0.0	39.6

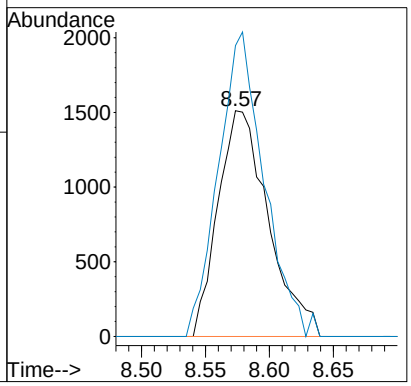


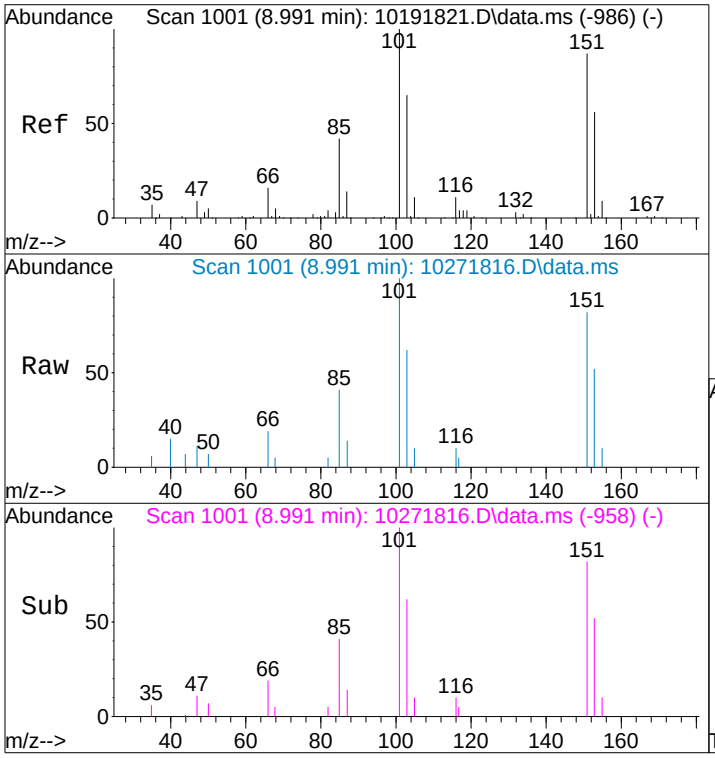


#19
Methylene Chloride
Concen: 0.18 ng
RT: 8.57 min Scan# 925
Delta R.T. -0.027 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 84 Resp: 4135

Ion	Ratio	Lower	Upper
84	100		
49	122.4	92.1	142.1

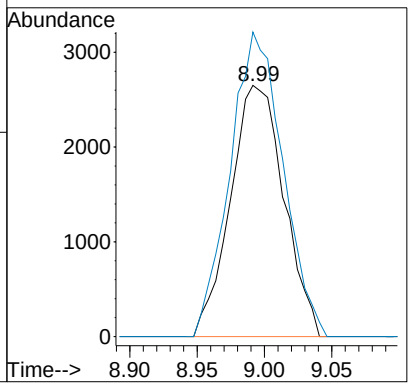


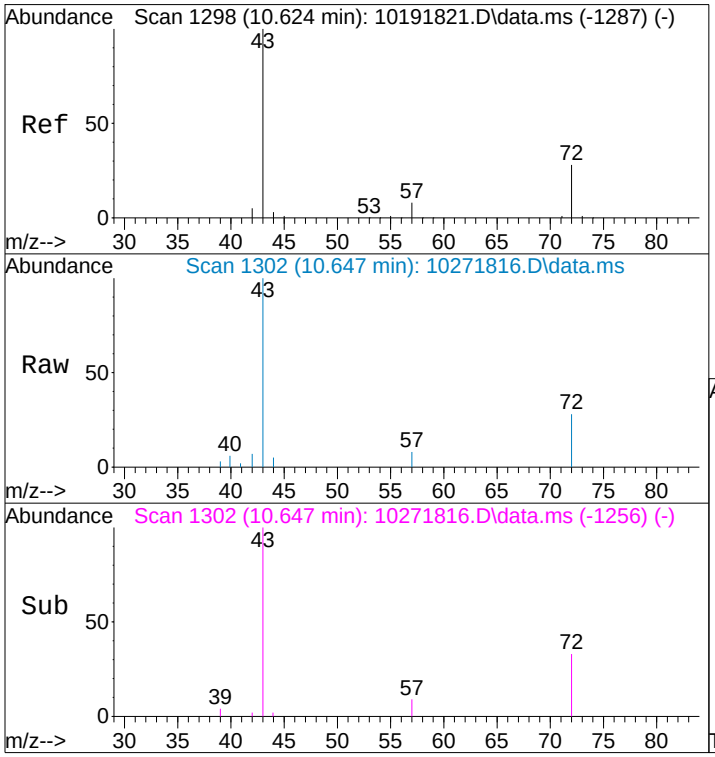


#21
Trichlorotrifluoroethane
Concen: 0.32 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:151 Resp: 7318

Ion	Ratio	Lower	Upper
151	100		
101	119.9	94.4	134.4

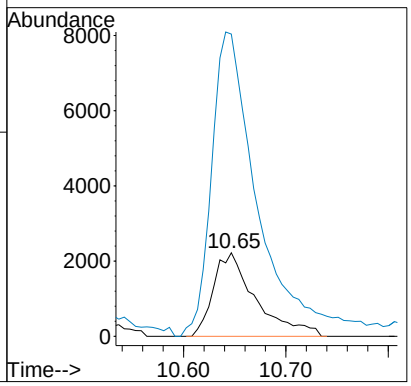


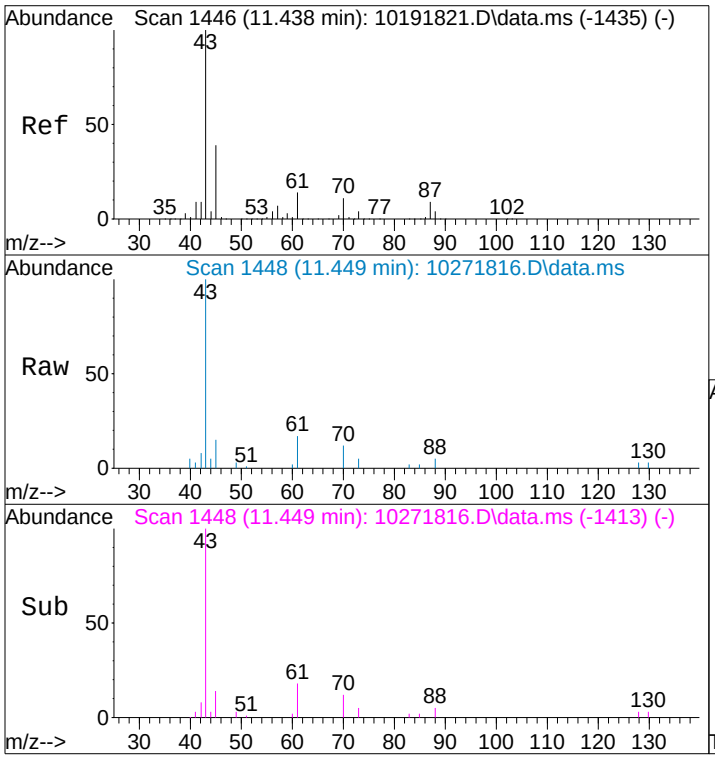


#27
2-Butanone (MEK)
Concen: 0.45 ng
RT: 10.65 min Scan# 1302
Delta R.T. 0.006 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 72 Resp: 6404

Ion	Ratio	Lower	Upper
72	100		
43	405.7	350.1	390.1#

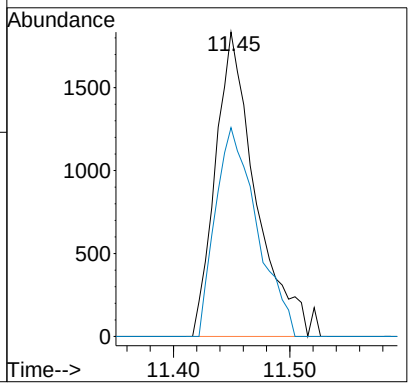


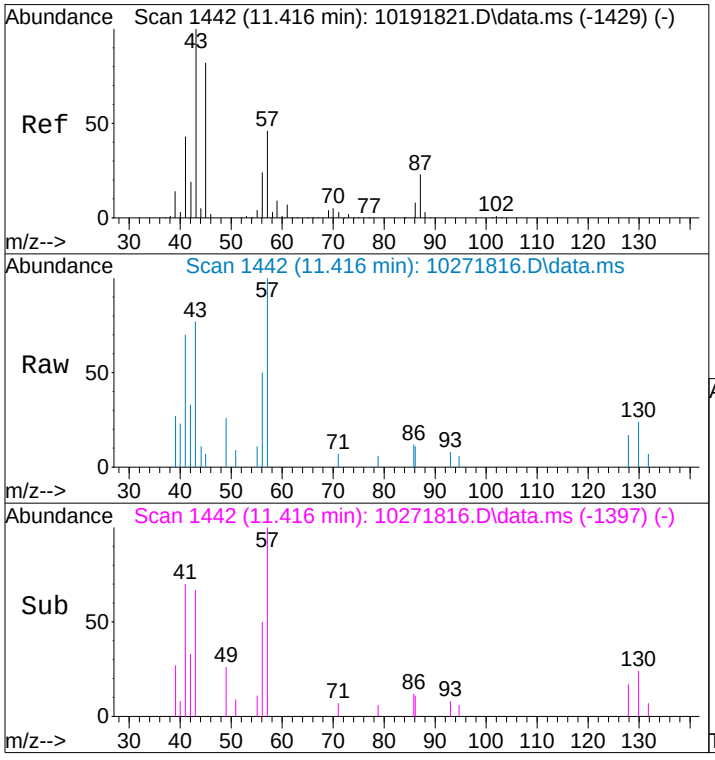


#30
Ethyl Acetate
Concen: 0.58 ng
RT: 11.45 min Scan# 1448
Delta R.T. -0.005 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 61 Resp: 4443

Ion	Ratio	Lower	Upper
61	100		
70	70.3	61.7	101.7

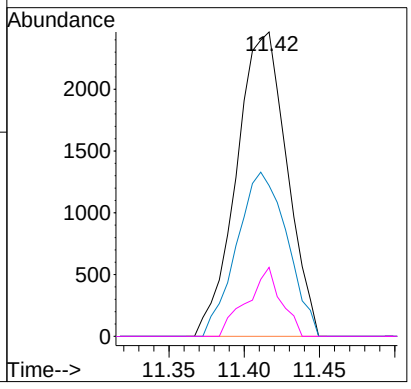


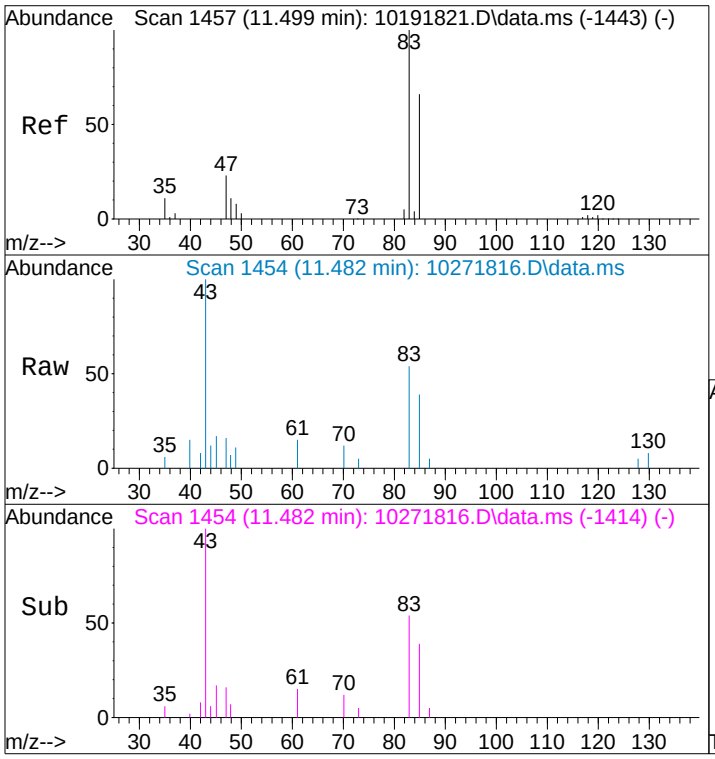


#31
n-Hexane
Concen: 0.16 ng
RT: 11.42 min Scan# 1442
Delta R.T. 0.000 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 57 Resp: 5732

Ion	Ratio	Lower	Upper
57	100		
56	54.0	41.4	62.0
86	15.3	13.7	20.5

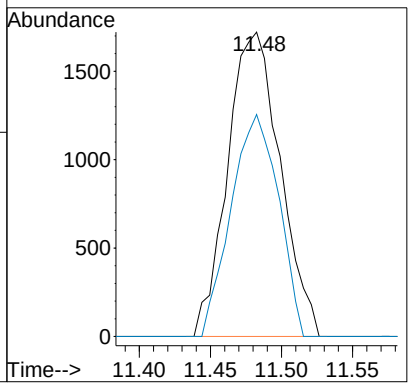


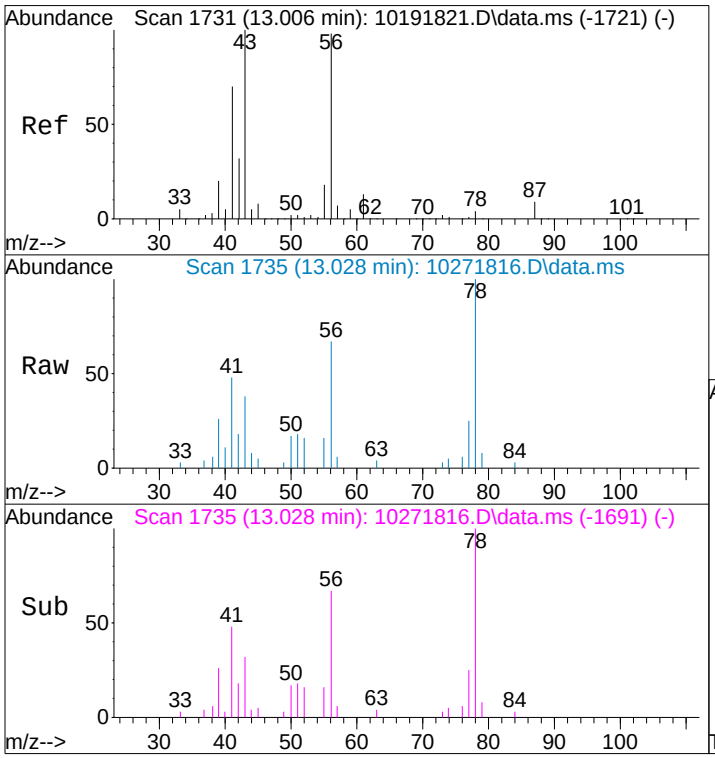


#32
Chloroform
Concen: 0.11 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 83 Resp: 4423

Ion	Ratio	Lower	Upper
83	100		
85	66.0	45.5	85.5

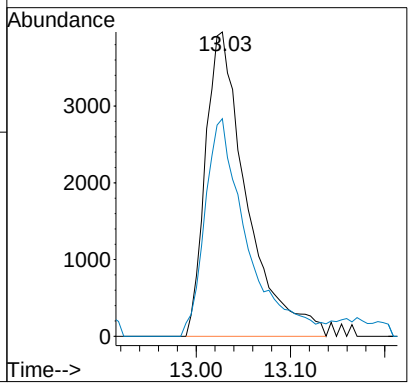


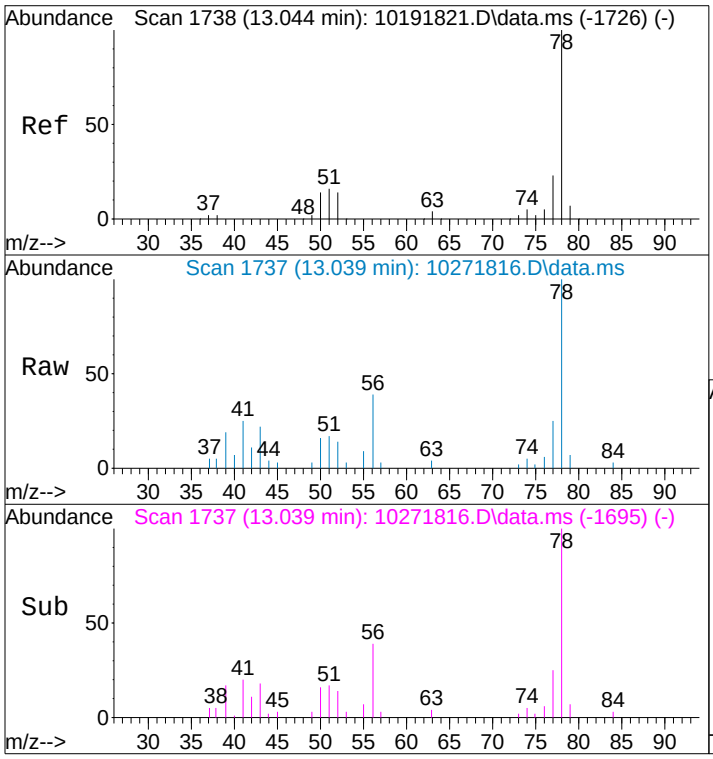


#40
1-Butanol
Concen: 0.57 ng m
RT: 13.03 min Scan# 1735
Delta R.T. -0.005 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 56 Resp: 12005

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

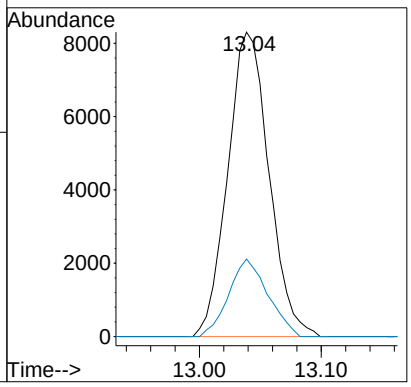


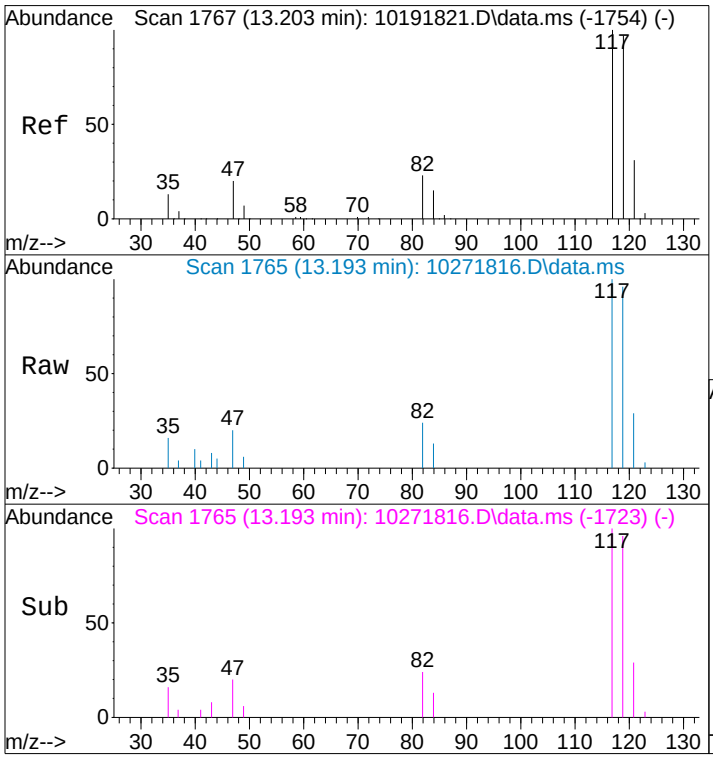


#41
Benzene
Concen: 0.20 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.016 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 78 Resp: 19507

Ion	Ratio	Lower	Upper
78	100		
77	24.2	3.5	43.5

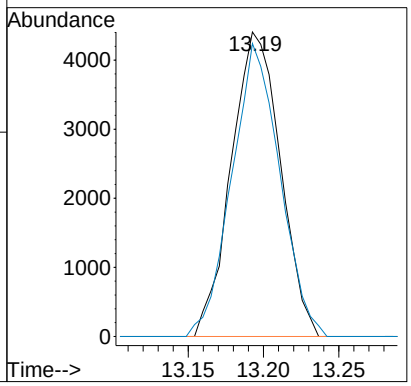


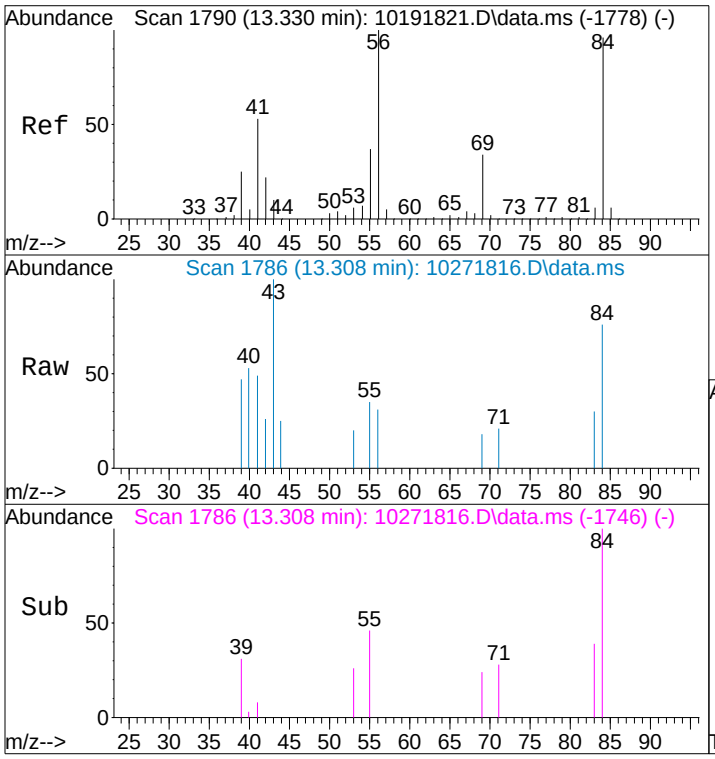


#42
Carbon Tetrachloride
Concen: 0.27 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.016 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:117 Resp: 9992

Ion	Ratio	Lower	Upper
117	100		
119	94.1	76.0	116.0

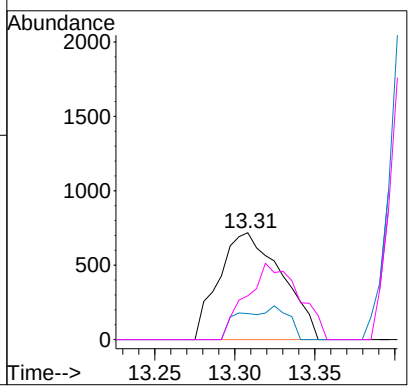


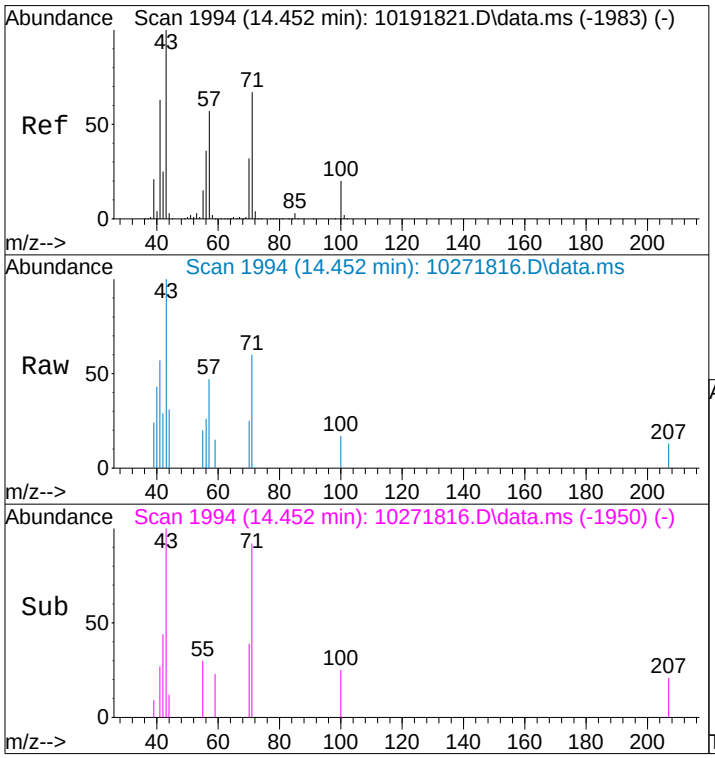


#43
Cyclohexane
Concen: 0.05 ng
RT: 13.31 min Scan# 1786
Delta R.T. -0.027 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 84 Resp: 1964

Ion	Ratio	Lower	Upper
84	100		
69	23.7	14.8	54.8
56	59.2	83.9	123.9#

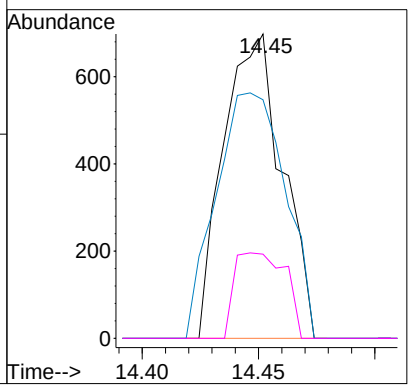


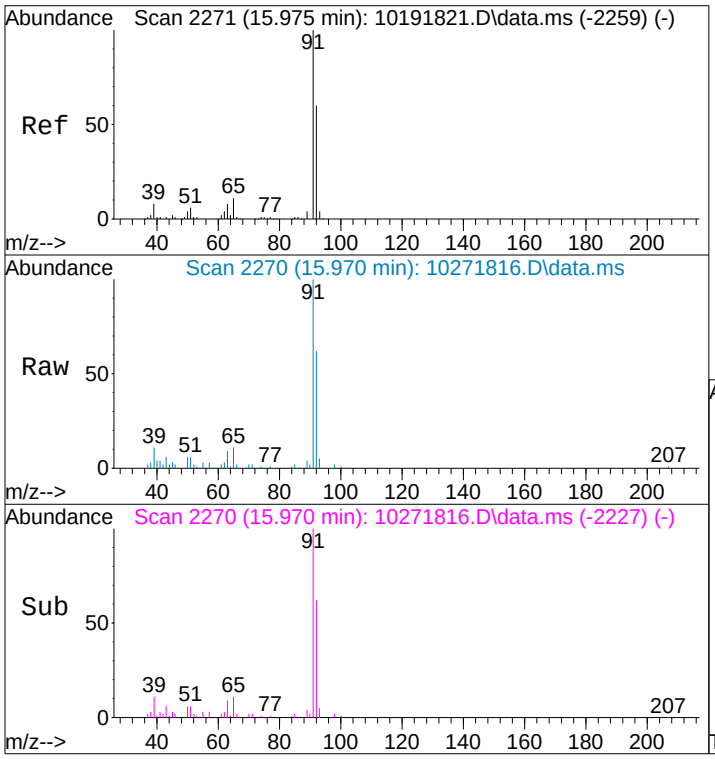


#51
n-Heptane
Concen: 0.06 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 71 Resp: 1223

Ion	Ratio	Lower	Upper
71	100		
57	95.4	66.4	106.4
100	24.4	10.6	50.6

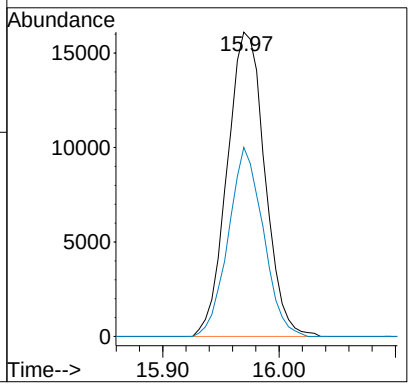


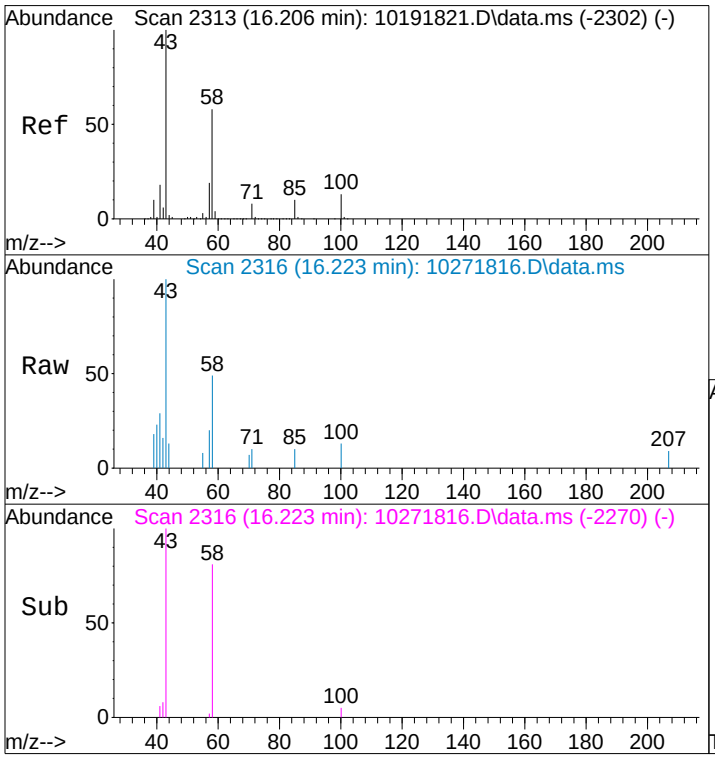


#58
Toluene
Concen: 0.36 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 91 Resp: 36210

Ion	Ratio	Lower	Upper
91	100		
92	57.6	39.4	79.4

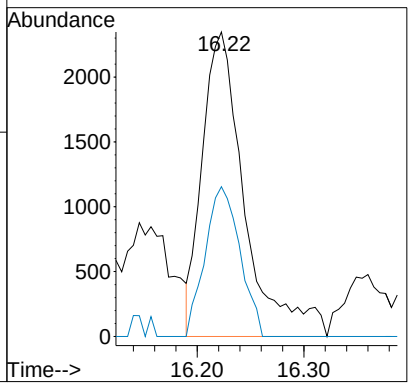


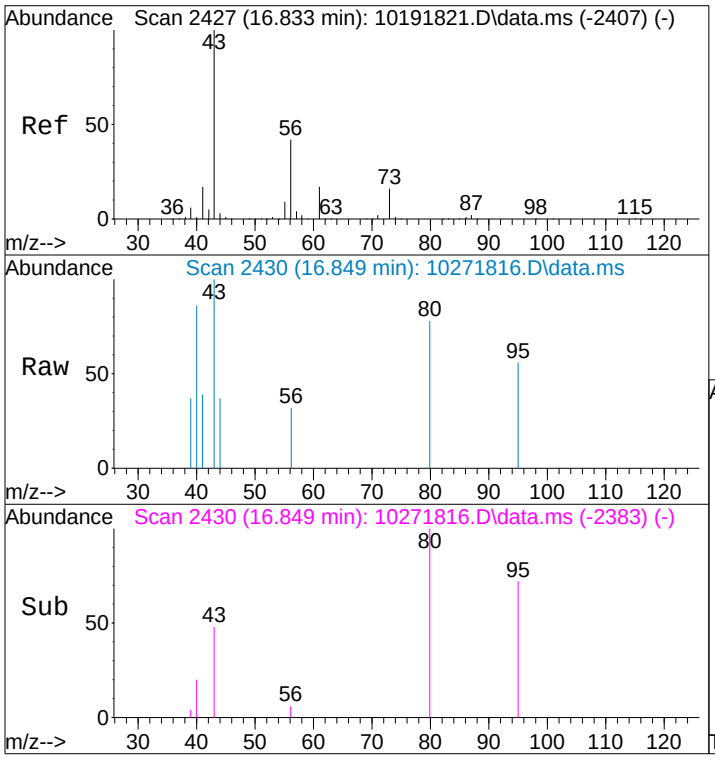


#59
2-Hexanone
Concen: 0.14 ng
RT: 16.22 min Scan# 2316
Delta R.T. 0.006 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 43 Resp: 6483

Ion	Ratio	Lower	Upper
43	100		
58	40.3	37.4	77.4

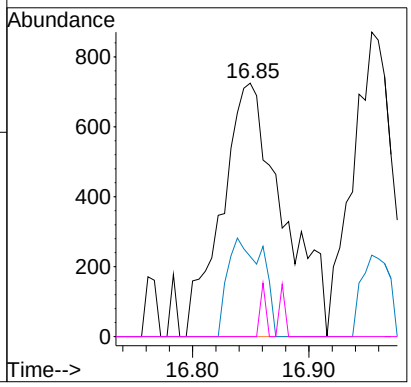


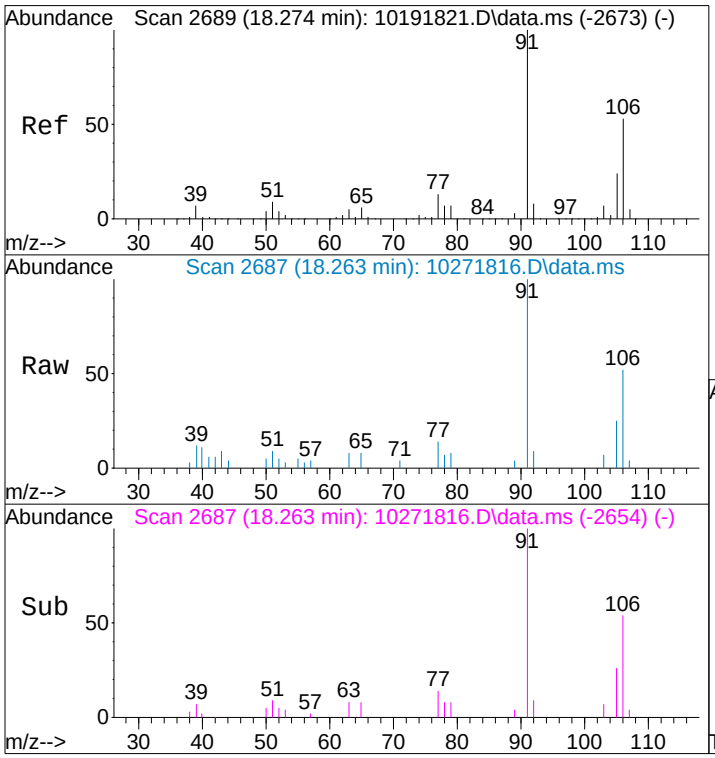


#62
n-Butyl Acetate
Concen: 0.05 ng
RT: 16.85 min Scan# 2430
Delta R.T. 0.011 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 43 Resp: 2656

Ion	Ratio	Lower	Upper
43	100		
56	22.0	21.3	61.3
73	0.0	0.0	36.1

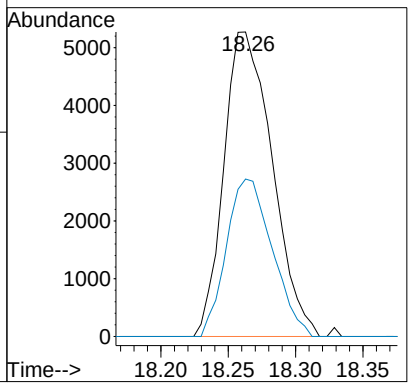


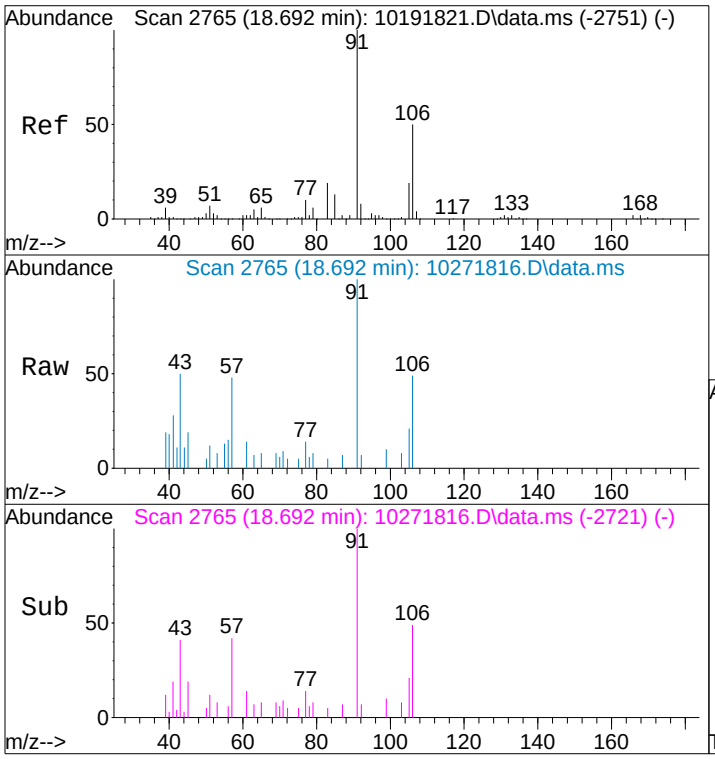


#67
m- & p-Xylenes
Concen: 0.15 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 91 Resp: 13150

Ion	Ratio	Lower	Upper
91	100		
106	49.0	32.2	72.2

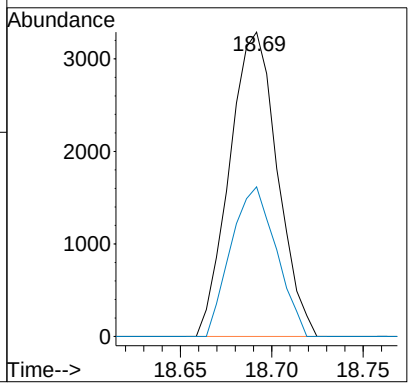


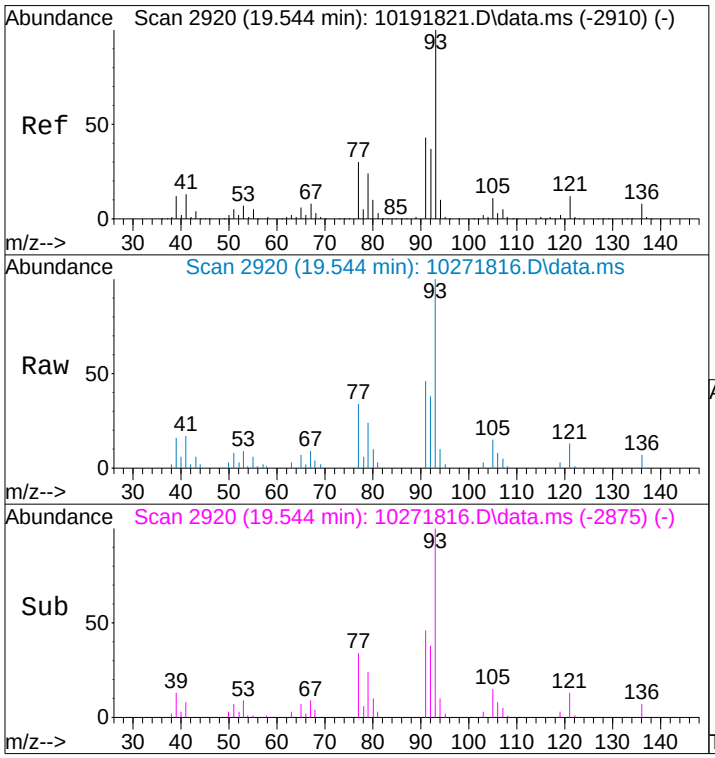


#70
o-Xylene
Concen: 0.07 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.005 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 91 Resp: 5988

Ion	Ratio	Lower	Upper
91	100		
106	46.7	29.4	69.4

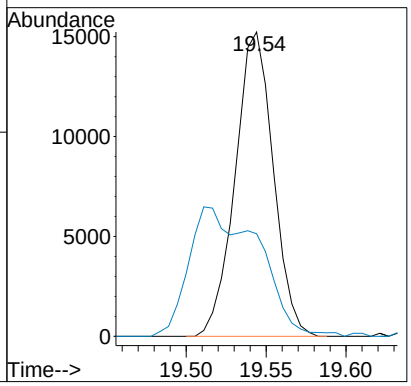


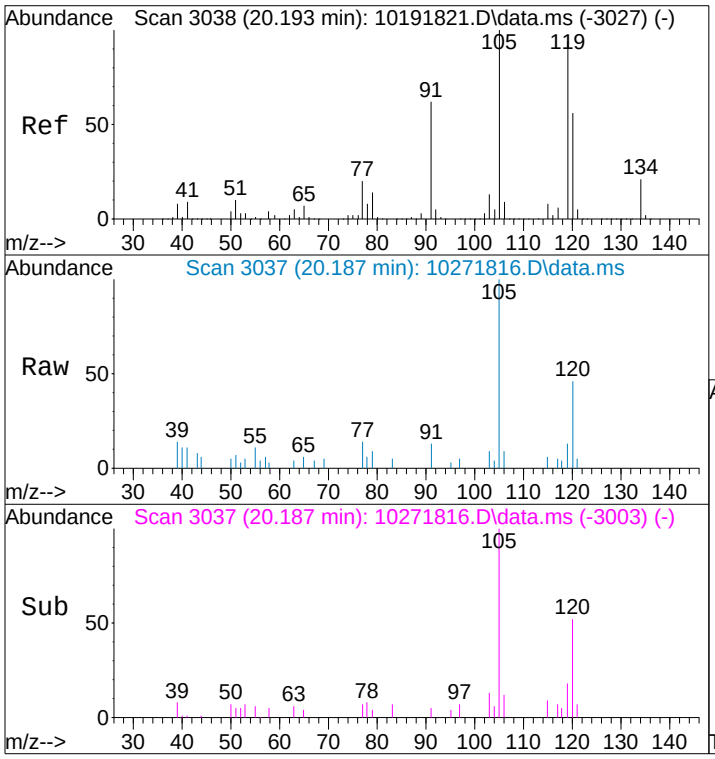


#75
alpha-Pinene
Concen: 0.43 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 93 Resp: 25259

Ion	Ratio	Lower	Upper
93	100		
77	78.1	10.2	50.2#

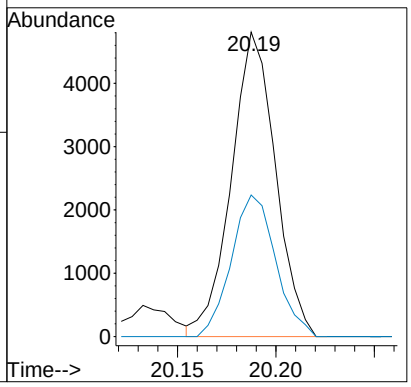


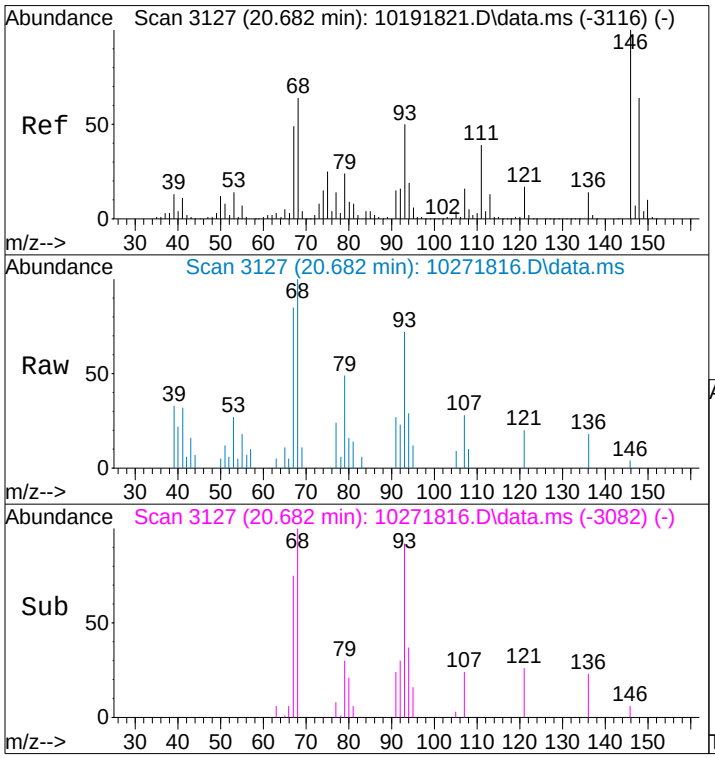


#82
1,2,4-Trimethylbenzene
Concen: 0.08 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:105 Resp: 7490

Ion	Ratio	Lower	Upper
105	100		
120	46.5	36.5	76.5

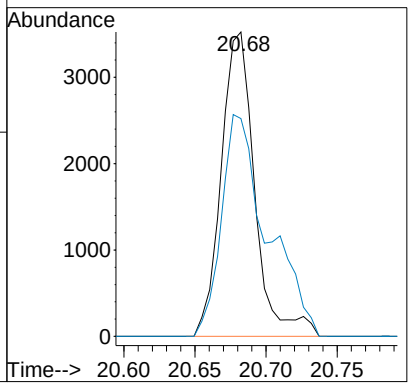


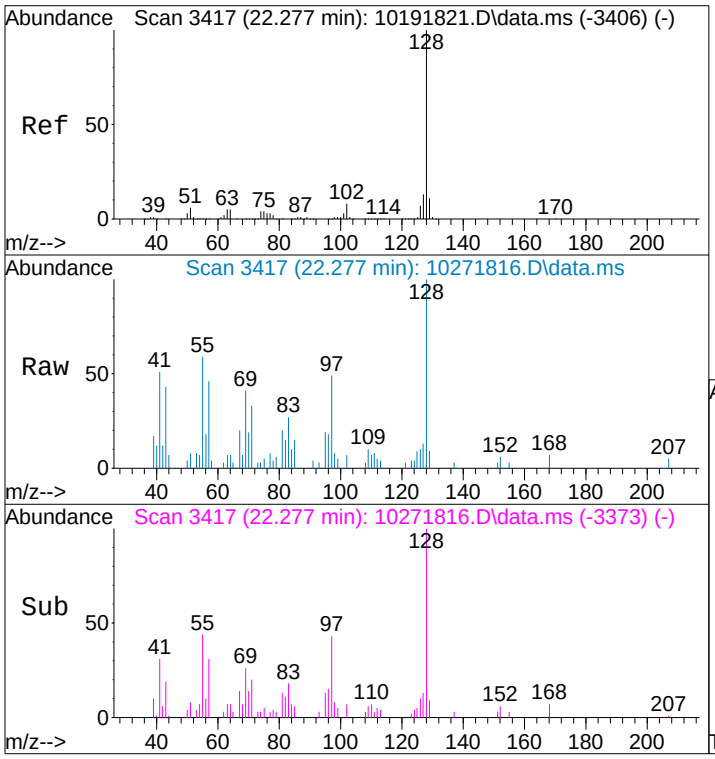


#91
d-Limonene
Concen: 0.17 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion: 68 Resp: 5787

Ion	Ratio	Lower	Upper
68	100		
93	100.0	57.4	97.4#

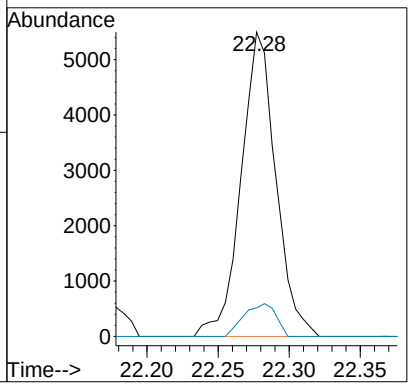




#95
Naphthalene
Concen: 0.07 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271816.D
Acq: 27 Oct 2018 13:21

Tgt Ion:128 Resp: 9298

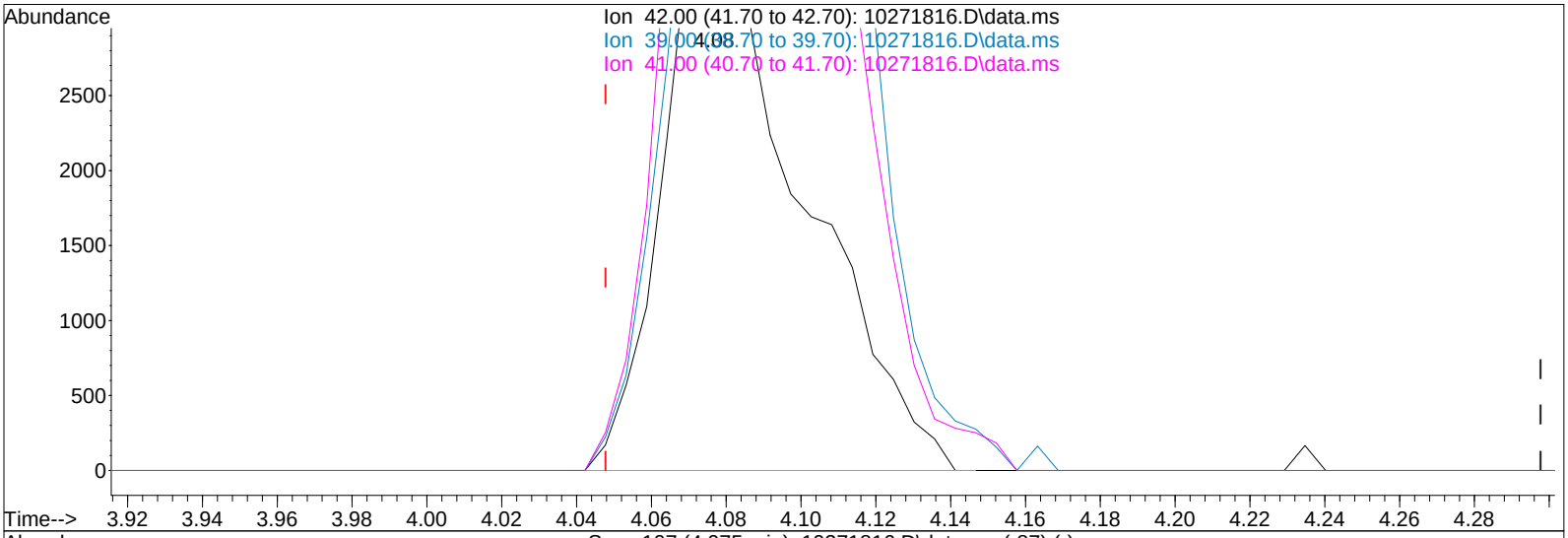
Ion	Ratio	Lower	Upper
128	100		
129	10.0	0.0	31.1

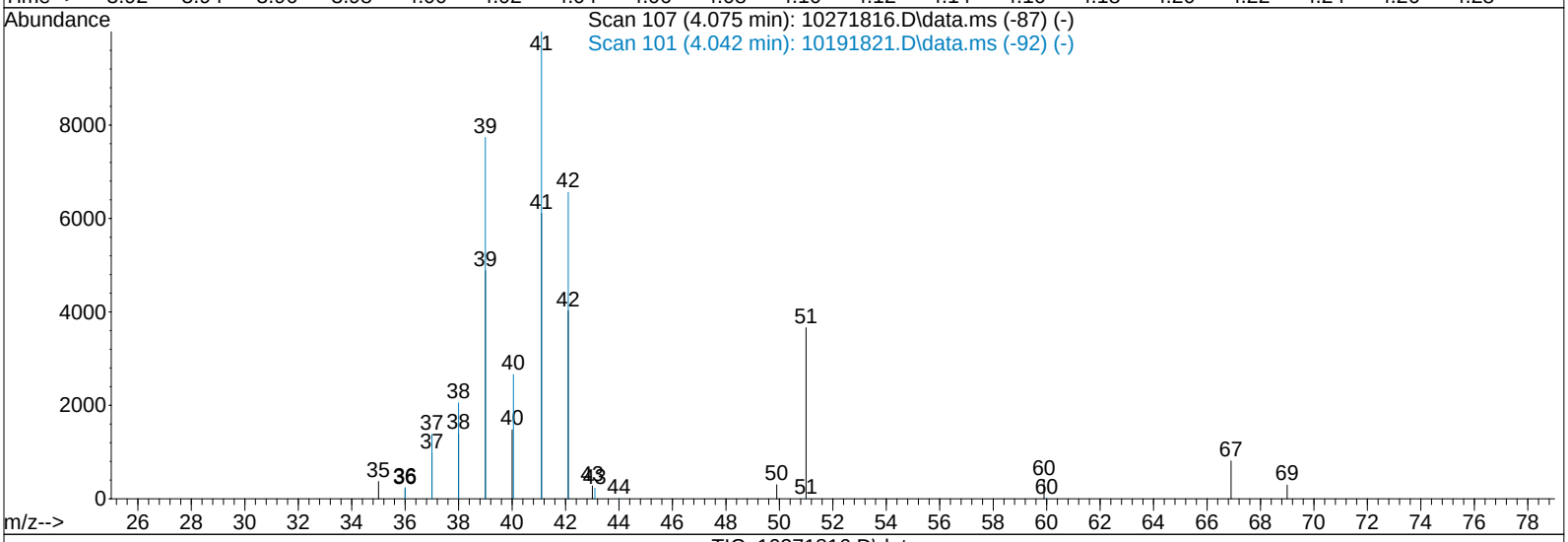


Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 28 11:33:53 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES





TIC: 10271816.D\data.ms

(2) Propene (T)

4.075min (+0.028) 0.43ng

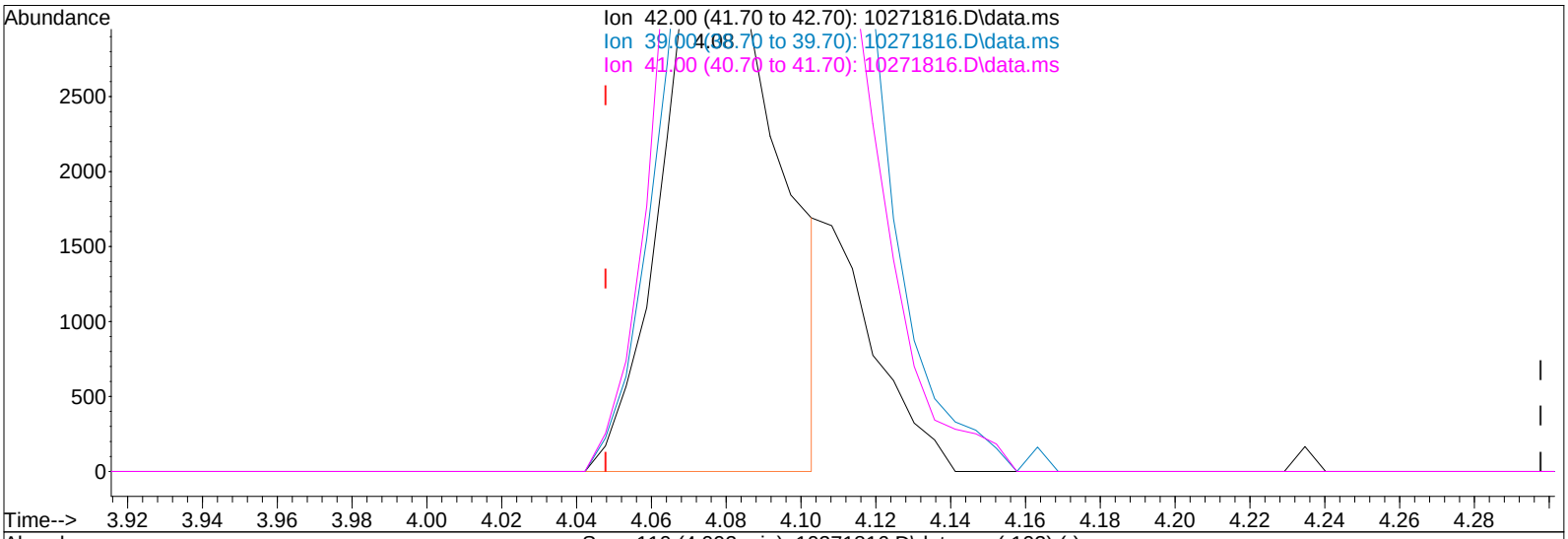
response 9594

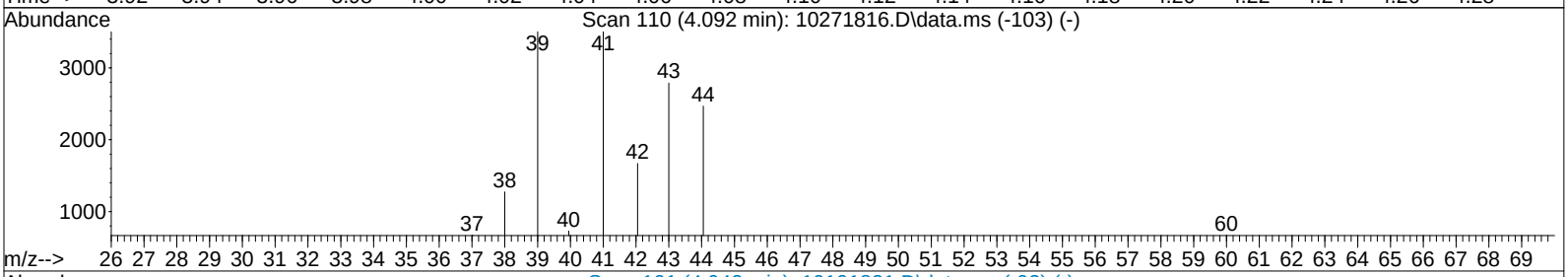
Ion	Exp%	Act%
42.00	100	100
39.00	118.50	93.66#
41.00	151.90	185.46#
0.00	0.00	0.00

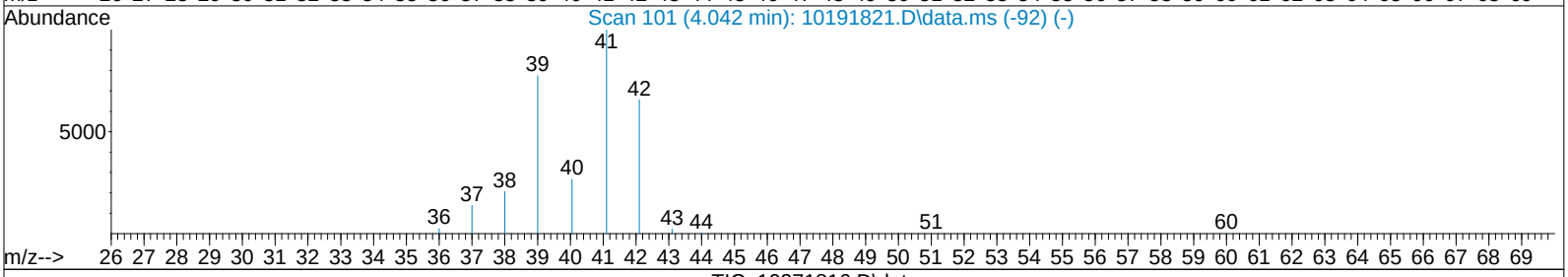
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 28 11:33:53 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271816.D\data.ms

(2) Propene (T)

4.075min (+0.028) 0.36ng m

response 7976

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	112.66
41.00	151.90	223.08#
0.00	0.00	0.00

TD 10/29/18

IPC

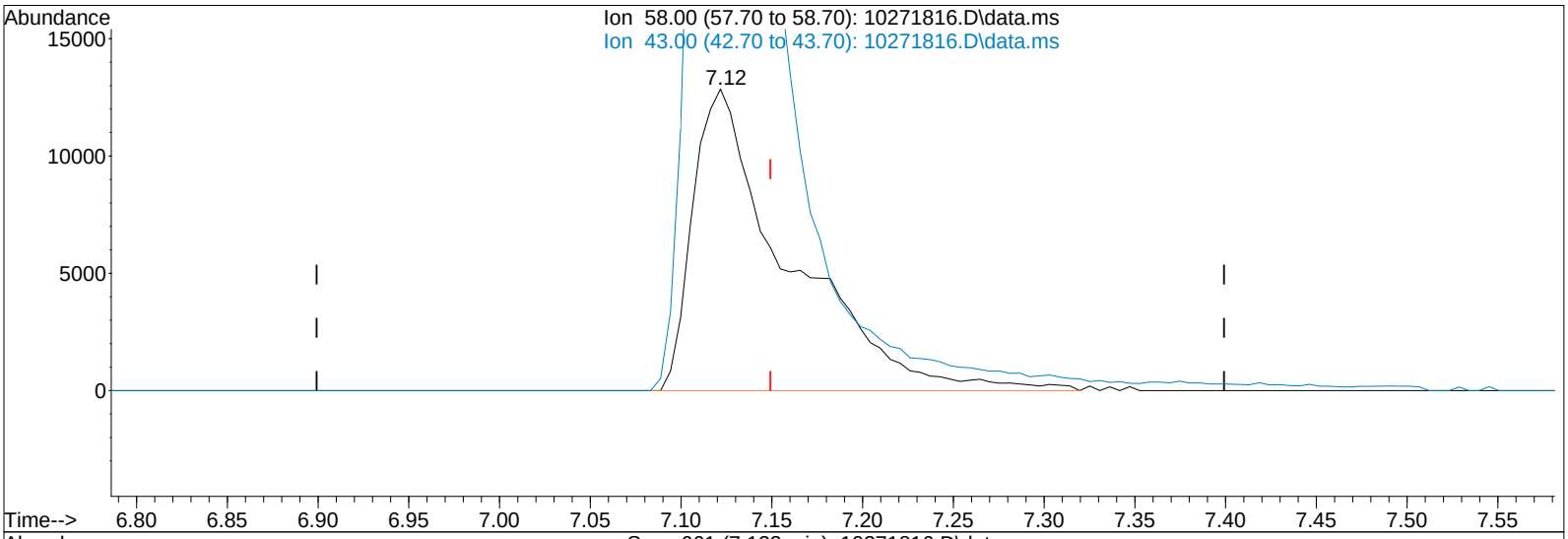
10/30/18

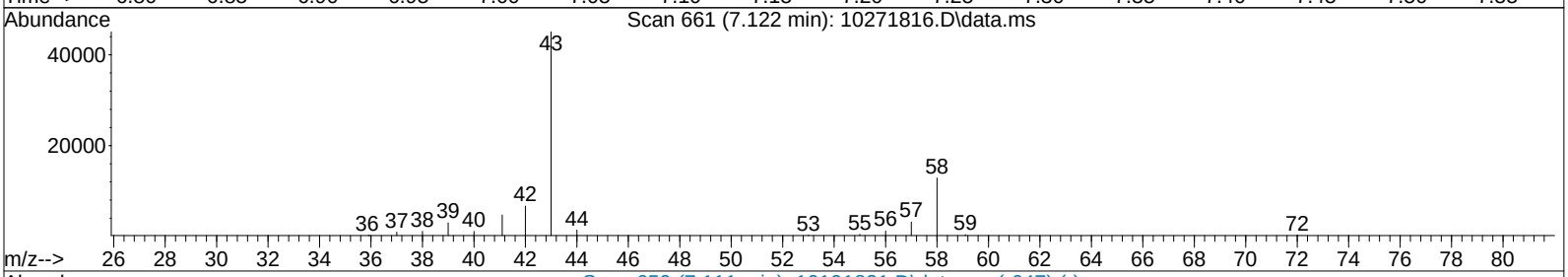
10/30/18

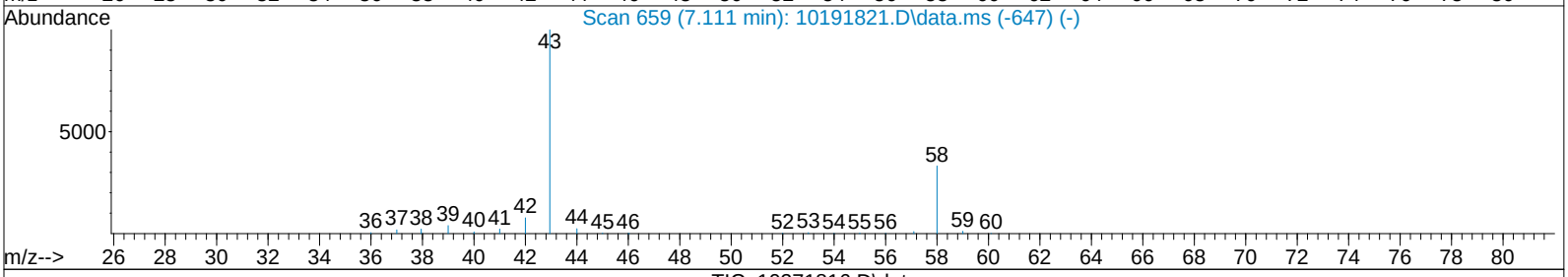
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 28 11:33:53 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271816.D\data.ms

(13) Acetone (T)

7.122min (-0.027) 2.91ng

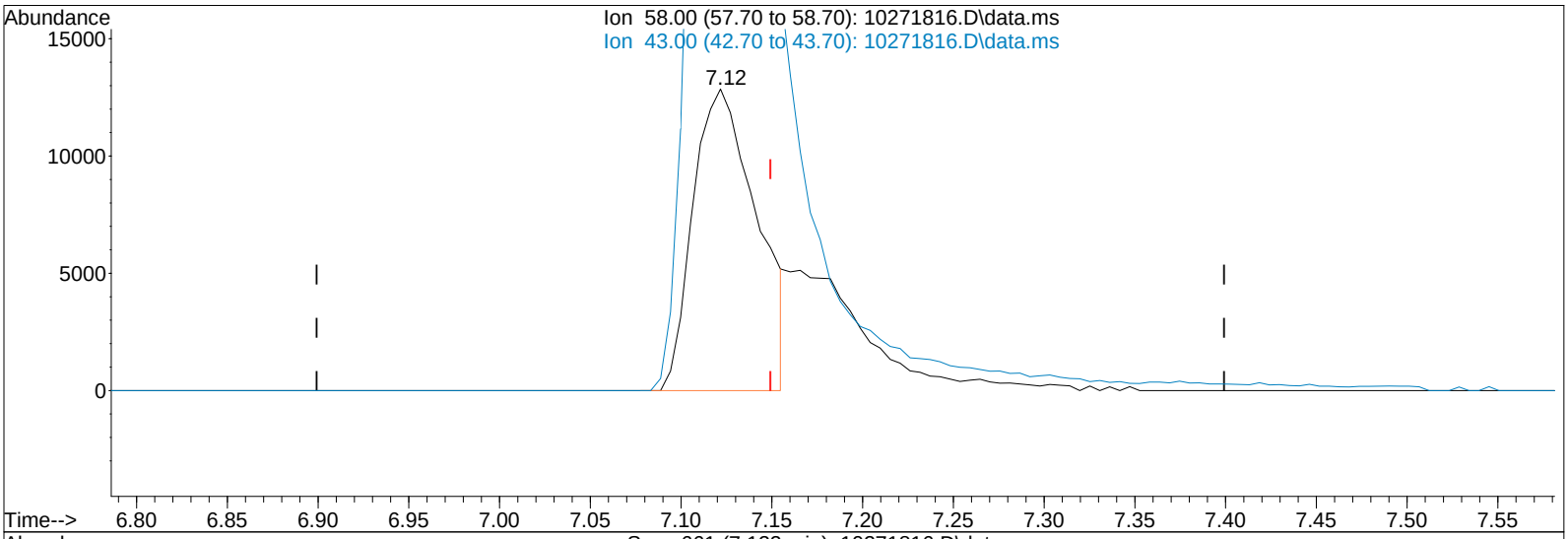
response 47094

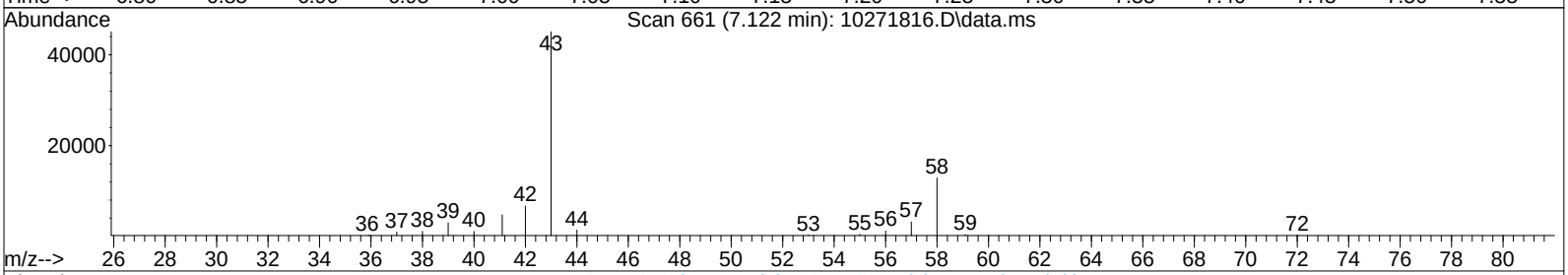
Ion	Exp%	Act%
58.00	100	100
43.00	313.40	296.82
0.00	0.00	0.00
0.00	0.00	0.00

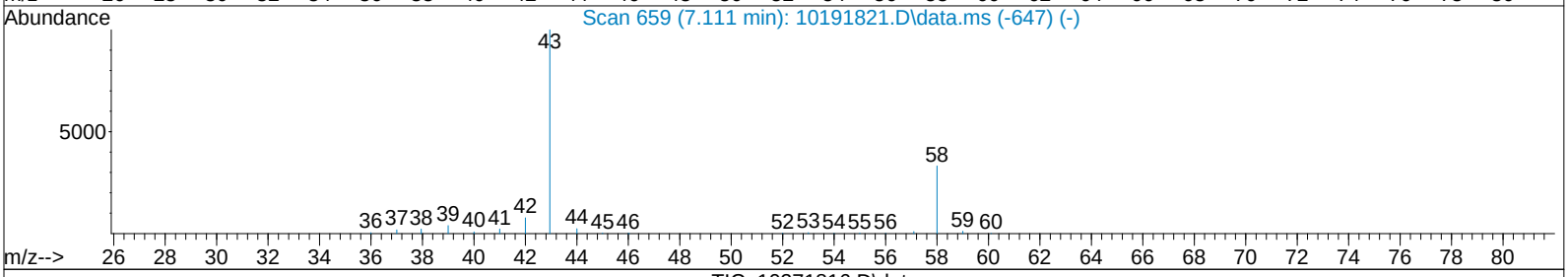
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 28 11:33:53 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271816.D\data.ms

(13) Acetone (T)

7.122min (-0.027) 1.93ng m

response 31273

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	446.98#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IPC

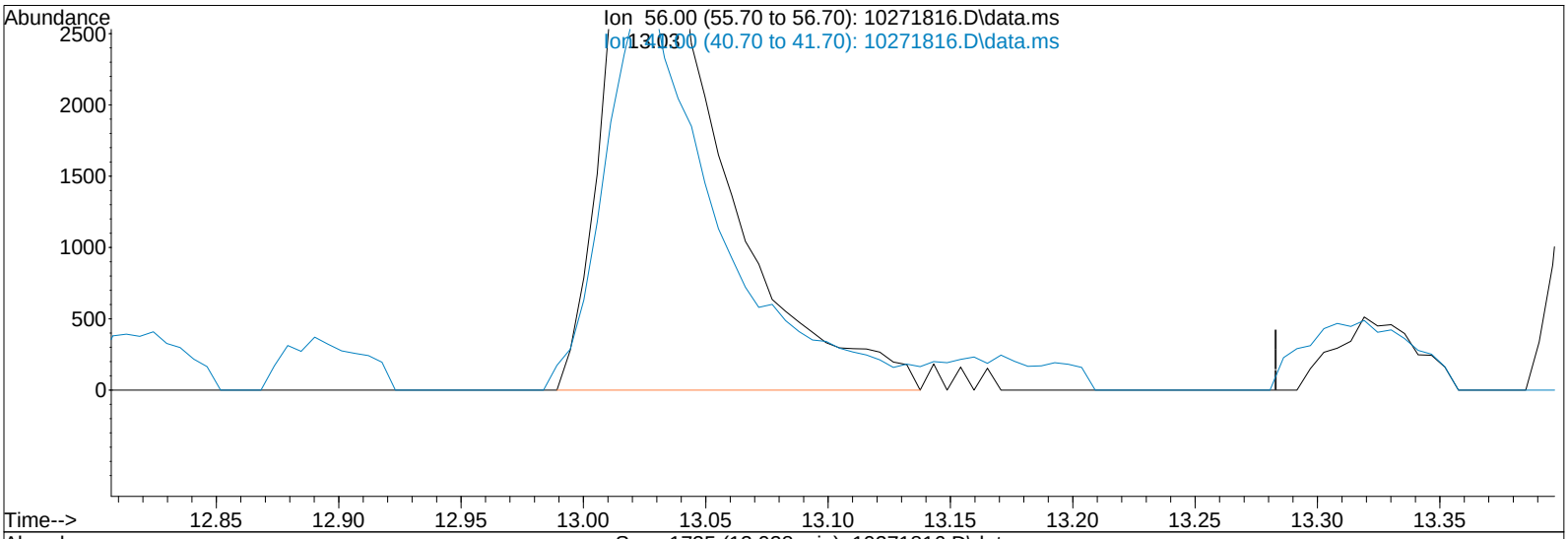
10/30/18

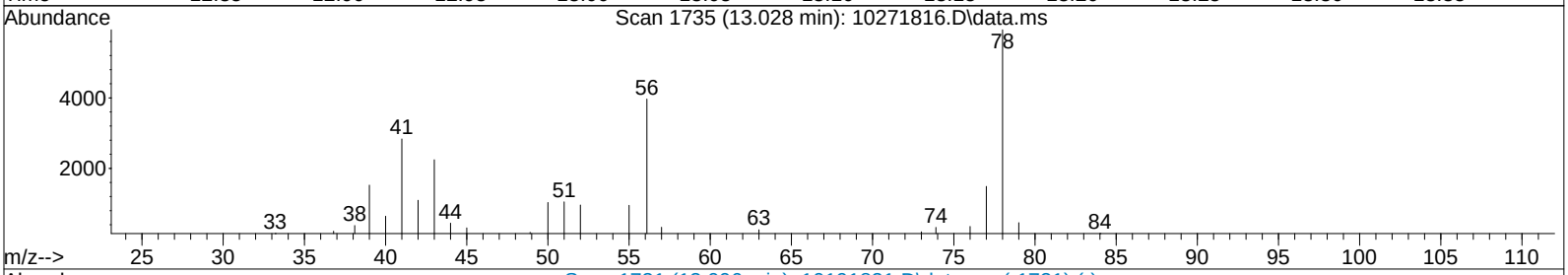
10/30/18

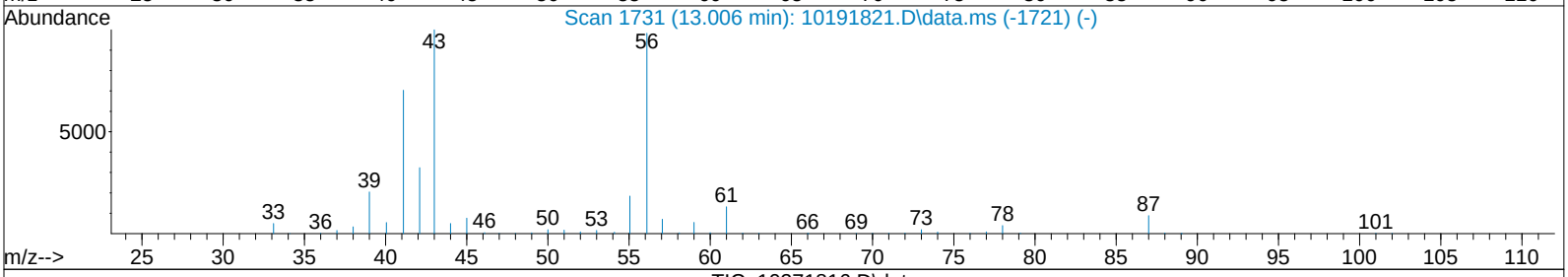
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 11:21:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271816.D\data.ms

(40) 1-Butanol (T)

13.028min (-0.005) 0.57ng m

response 12005

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IC-

WA 10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:37:08 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018

WA 10/30/18

Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

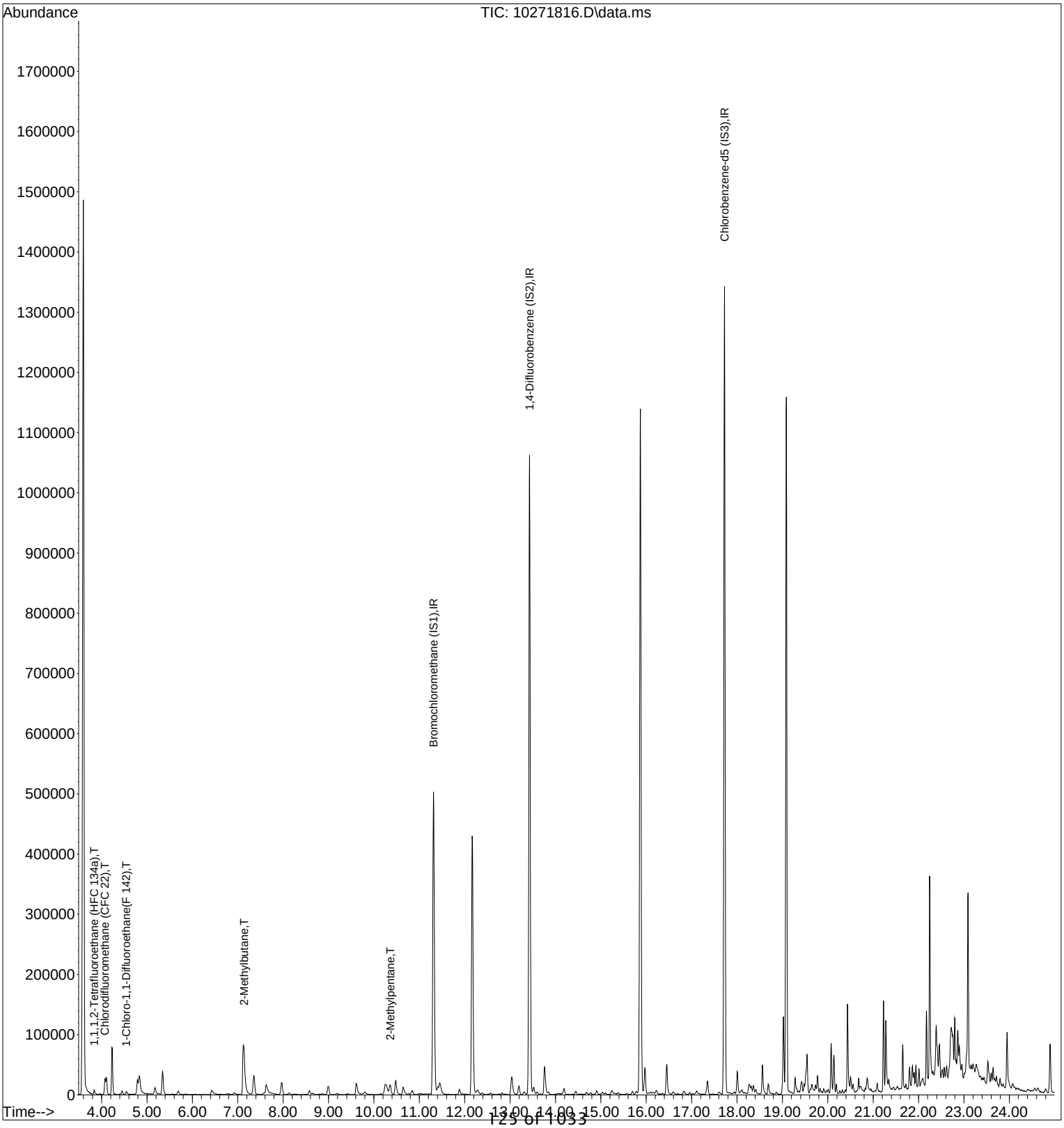
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	241014	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	1046587	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	455933	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	847	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	3785	0.157	ng	#	39
4) 1,1-Difluoroethane	3.96	65	505	N.D.			
5) Chlorodifluoromethane ...	4.07	67	1684	0.235	ng	#	81
6) 1-Chloro-1,1-Difluoroe...	4.54	65	3664	0.070	ng	#	92
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.14	57	16997	0.863	ng	#	73
11) Methyl Acetate	8.60	43	117	N.D.			
12) 2-Methylpentane	10.36	71	3155	0.154	ng	#	1
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	1572	N.D.			
17) 2,3-Dimethylpentane	13.59	56	1786	N.D.			
18) Dibromomethane	13.86	174	384	N.D.			
20) Methyl Cyclohexane	15.10	55	1270	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.65	131	69	N.D.			
23) 1-Chlorohexane	17.94	91	253	N.D.			
24) 1,2,3-Trichloropropane	18.70	75	213	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	19.64	91	2895	N.D.			
27) 4-Chlorotoluene	19.64	91	2895	N.D.			
28) Indan	20.73	117	900	N.D.			
29) Indene	20.81	115	399	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	952	N.D.			
31) 1,2,3,4-Tetramethylben...	21.56	119	952	N.D.			
32) 1,2,3,5-Tetramethylben...	21.99	119	412	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271816.D
Acq On : 27 Oct 2018 13:21 Operator: WA
Sample : P1805497-002 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 29 14:37:08 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/29/18

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	228017	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	941177	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	402026	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	330394	12.045	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.40%				
57) Toluene-d8 (SS2)	15.87	98	817062	12.763	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.08%				
73) Bromofluorobenzene (SS3)	19.09	174	337100	11.583	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.64%				
Target Compounds							Qvalue
2) Propene	4.05	42	24944	1.176	ng		93
3) Dichlorodifluoromethan...	4.21	85	189821	3.982	ng		99
4) Chloromethane	4.52	50	11576	0.382	ng		70
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	813	N.D.			
6) Vinyl Chloride	4.97	62	5193	0.157	ng		98
7) 1,3-Butadiene	5.24	54	599	N.D.			
8) Bromomethane	5.71	94	166	N.D.			
9) Chloroethane	6.05	64	3611	0.254	ng		98
10) Ethanol	6.41	45	183782	14.330	ng		99
11) Acetonitrile	6.74	41	3349	0.100	ng	#	54
12) Acrolein	6.94	56	714	0.063	ng		96
13) Acetone	7.12	58	159721	10.438	ng	#	1
14) Trichlorofluoromethane	7.35	101	42458	1.029	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	86015	1.753	ng		60
16) Acrylonitrile	0.00	53	0	N.D. d			
17) 1,1-Dichloroethene	8.34	96	2307	0.110	ng	#	1
18) 2-Methyl-2-Propanol (t...	8.60	59	1796	N.D.			
19) Methylene Chloride	8.57	84	6895409	322.607	ng		97
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D. d			
21) Trichlorotrifluoroethane	9.00	151	2620	0.119	ng		99
22) Carbon Disulfide	8.85	76	409903	5.372	ng		99
23) trans-1,2-Dichloroethene	9.87	61	8041	0.280	ng		99
24) 1,1-Dichloroethane	10.14	63	1033	N.D.			
25) Methyl tert-Butyl Ether	10.26	73	511	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	10.65	72	3042	0.225	ng	#	78
28) cis-1,2-Dichloroethene	11.14	61	7779	0.275	ng		99
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	11.45	61	4723	0.651	ng	#	1
31) n-Hexane	11.41	57	14913	0.451	ng		89
32) Chloroform	11.48	83	1793272	46.641	ng		100
34) Tetrahydrofuran (THF)	11.94	72	1345	0.099	ng	#	66
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.30	62	1592	0.054	ng		82
38) 1,1,1-Trichloroethane	12.56	97	4166	0.118	ng		98
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.04	56	2951m	0.155	ng		
41) Benzene	13.04	78	9244	0.107	ng		100
42) Carbon Tetrachloride	13.20	117	35663	1.088	ng		98
43) Cyclohexane	13.32	84	6607	0.197	ng		98
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.08	83	149386	4.935	ng		99
47) Trichloroethene	14.13	130	262297	10.313	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

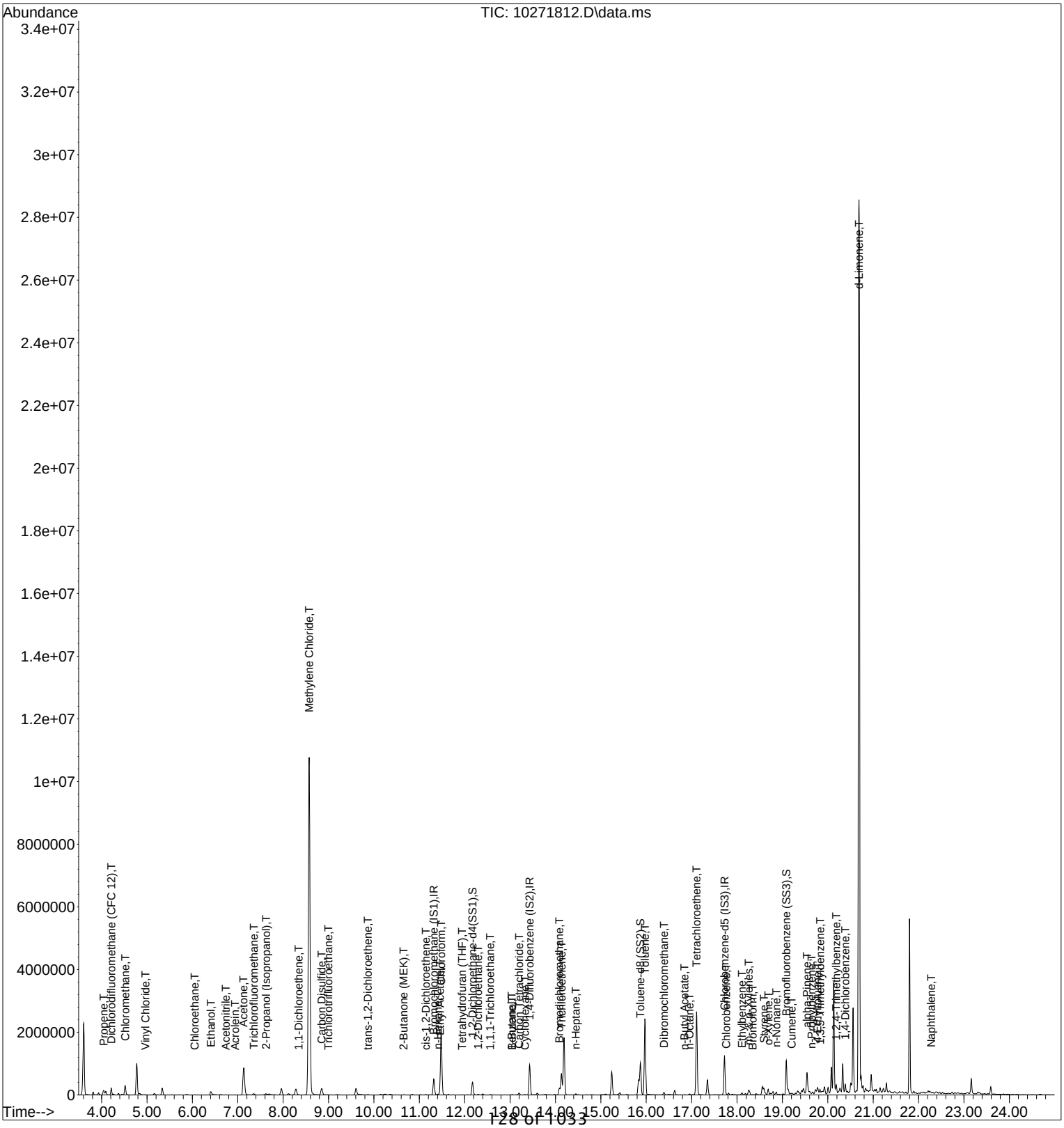
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	0.00	100	0	N.D.	d		
51) n-Heptane	14.45	71	9272	0.466	ng		95
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	15.01	58	221	N.D.			
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.97	91	1493885	16.805	ng		99
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	16.39	129	50497	1.944	ng		100
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.84	43	2677	0.061	ng	#	21
63) n-Octane	16.95	57	7047	0.416	ng		90
64) Tetrachloroethene	17.11	166	929791	33.986	ng		99
65) Chlorobenzene	17.76	112	6799	0.113	ng		89
66) Ethylbenzene	18.11	91	49060	0.485	ng		98
67) m- & p-Xylenes	18.26	91	113321	1.499	ng		98
68) Bromoform	18.35	173	4336	0.188	ng		99
69) Styrene	18.59	104	112056	1.822	ng		88
70) o-Xylene	18.69	91	44420	0.579	ng		96
71) n-Nonane	18.87	43	24910	0.706	ng		99
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
74) Cumene	19.20	105	6558	0.065	ng		98
75) alpha-Pinene	19.54	93	260932	4.995	ng		96
76) n-Propylbenzene	19.64	91	13857	0.120	ng		87
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.77	105	9270	0.101	ng		86
79) 1,3,5-Trimethylbenzene	19.83	105	19728	0.234	ng		97
80) alpha-Methylstyrene	19.96	118	1260	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.19	105	42683	0.516	ng		88
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	0.00	91	0	N.D.	d		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.39	146	61822	1.190	ng		99
87) sec-Butylbenzene	20.42	105	3692	N.D.			
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.68	146	120	N.D.			
91) d-Limonene	20.69	68	8692248	289.409	ng		98
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	22.17	180	187	N.D.			
95) Naphthalene	22.28	128	13689	0.115	ng		96
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.	d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	228017	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	941177	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	402026	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	330394	12.045	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.40%				
57) Toluene-d8 (SS2)	15.87	98	817062	12.763	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.08%				
73) Bromofluorobenzene (SS3)	19.09	174	337100	11.583	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.64%				
Target Compounds							Qvalue
2) Propene	4.05	42	24944	1.176	ng		93
3) Dichlorodifluoromethan...	4.21	85	189821	3.982	ng		99
4) Chloromethane	4.52	50	11576	0.382	ng		70
6) Vinyl Chloride	4.97	62	5193	0.157	ng		98
9) Chloroethane	6.05	64	3611	0.254	ng		98
10) Ethanol	6.41	45	183782	14.330	ng		99
11) Acetonitrile	6.74	41	3349	0.100	ng	#	54
12) Acrolein	6.94	56	714	0.063	ng		96
13) Acetone	7.12	58	159721	10.438	ng	#	1
14) Trichlorofluoromethane	7.35	101	42458	1.029	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	86015	1.753	ng		60
17) 1,1-Dichloroethene	8.34	96	2307	0.110	ng	#	1
19) Methylene Chloride	8.57	84	6895409	322.607	ng		97
21) Trichlorotrifluoroethane	9.00	151	2620	0.119	ng		99
22) Carbon Disulfide	8.85	76	409903	5.372	ng		99
23) trans-1,2-Dichloroethene	9.87	61	8041	0.280	ng		99
27) 2-Butanone (MEK)	10.65	72	3042	0.225	ng	#	78
28) cis-1,2-Dichloroethene	11.14	61	7779	0.275	ng		99
30) Ethyl Acetate	11.45	61	4723	0.651	ng	#	1
31) n-Hexane	11.41	57	14913	0.451	ng		89
32) Chloroform	11.48	83	1793272	46.641	ng		100
34) Tetrahydrofuran (THF)	11.94	72	1345	0.099	ng	#	66
36) 1,2-Dichloroethane	12.30	62	1592	0.054	ng		82
38) 1,1,1-Trichloroethane	12.56	97	4166	0.118	ng		98
40) 1-Butanol	13.04	56	2951m	0.155	ng		
41) Benzene	13.04	78	9244	0.107	ng		100
42) Carbon Tetrachloride	13.20	117	35663	1.088	ng		98
43) Cyclohexane	13.32	84	6607	0.197	ng		98
46) Bromodichloromethane	14.08	83	149386	4.935	ng		99
47) Trichloroethene	14.13	130	262297	10.313	ng		99
51) n-Heptane	14.45	71	9272	0.466	ng		95
58) Toluene	15.97	91	1493885	16.805	ng		99
60) Dibromochloromethane	16.39	129	50497	1.944	ng		100
62) n-Butyl Acetate	16.84	43	2677	0.061	ng	#	21
63) n-Octane	16.95	57	7047	0.416	ng		90
64) Tetrachloroethene	17.11	166	929791	33.986	ng		99
65) Chlorobenzene	17.76	112	6799	0.113	ng		89
66) Ethylbenzene	18.11	91	49060	0.485	ng		98
67) m- & p-Xylenes	18.26	91	113321	1.499	ng		98
68) Bromoform	18.35	173	4336	0.188	ng		99
69) Styrene	18.59	104	112056	1.822	ng		88
70) o-Xylene	18.69	91	44420	0.579	ng		96
71) n-Nonane	18.87	43	24910	0.706	ng		99
74) Cumene	19.20	105	6558	0.065	ng		98
75) alpha-Pinene	19.54	93	260932	4.995	ng		96

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

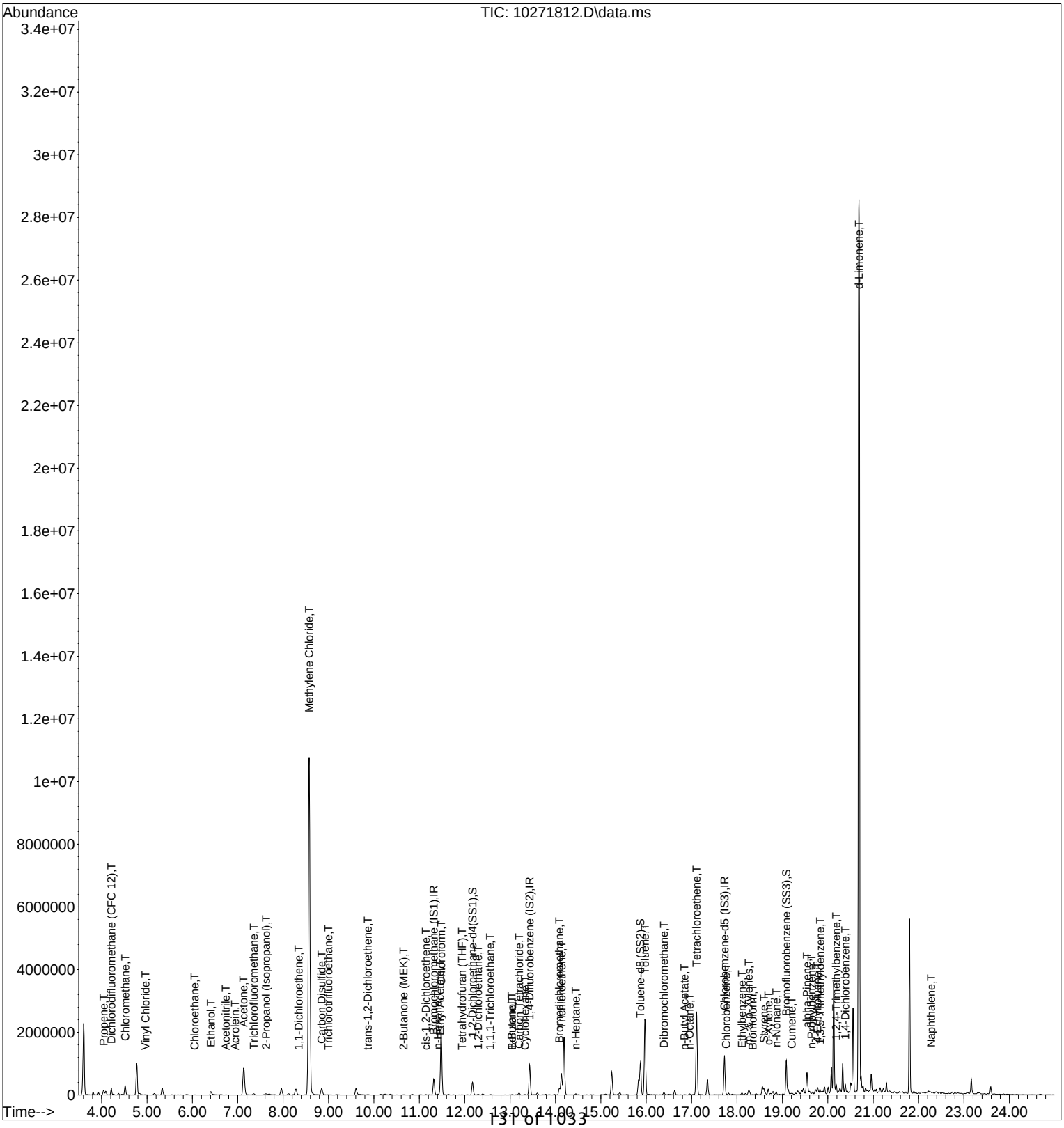
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
76) n-Propylbenzene	19.64	91	13857	0.120	ng	87
78) 4-Ethyltoluene	19.77	105	9270	0.101	ng	86
79) 1,3,5-Trimethylbenzene	19.83	105	19728	0.234	ng	97
82) 1,2,4-Trimethylbenzene	20.19	105	42683	0.516	ng	88
86) 1,4-Dichlorobenzene	20.39	146	61822	1.190	ng	99
91) d-Limonene	20.69	68	8692248	289.409	ng	98
95) Naphthalene	22.28	128	13689	0.115	ng	96

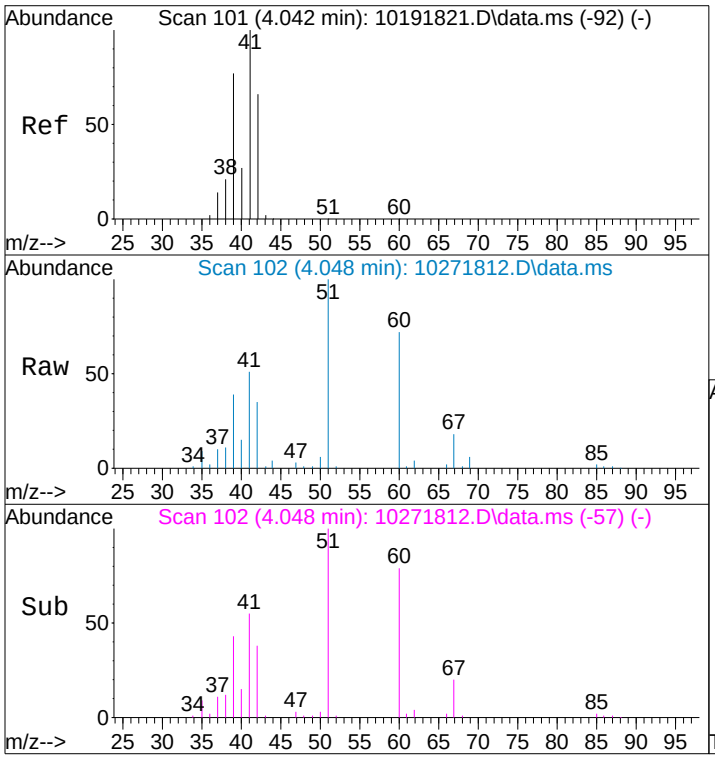
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 13:40:49 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

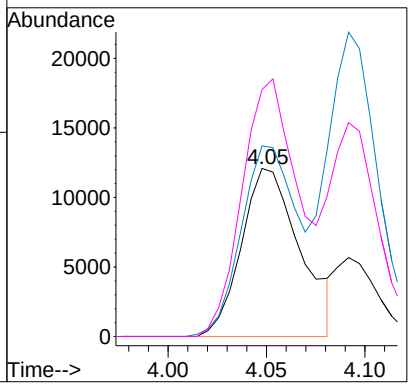


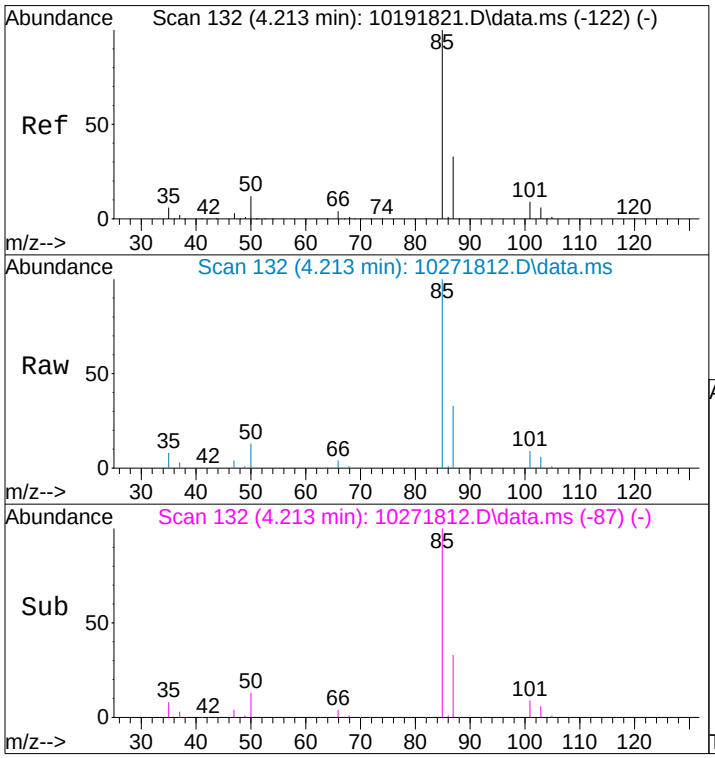


#2
Propene
Concen: 1.18 ng
RT: 4.05 min Scan# 102
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 42 Resp: 24944

Ion	Ratio	Lower	Upper
42	100		
39	106.3	98.5	138.5
41	147.4	131.9	171.9

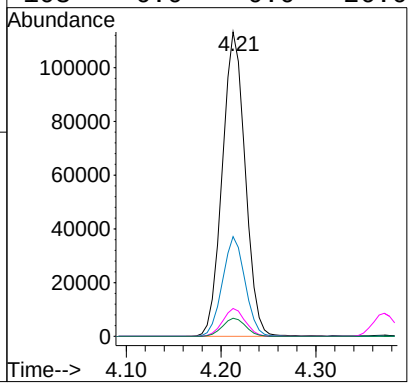


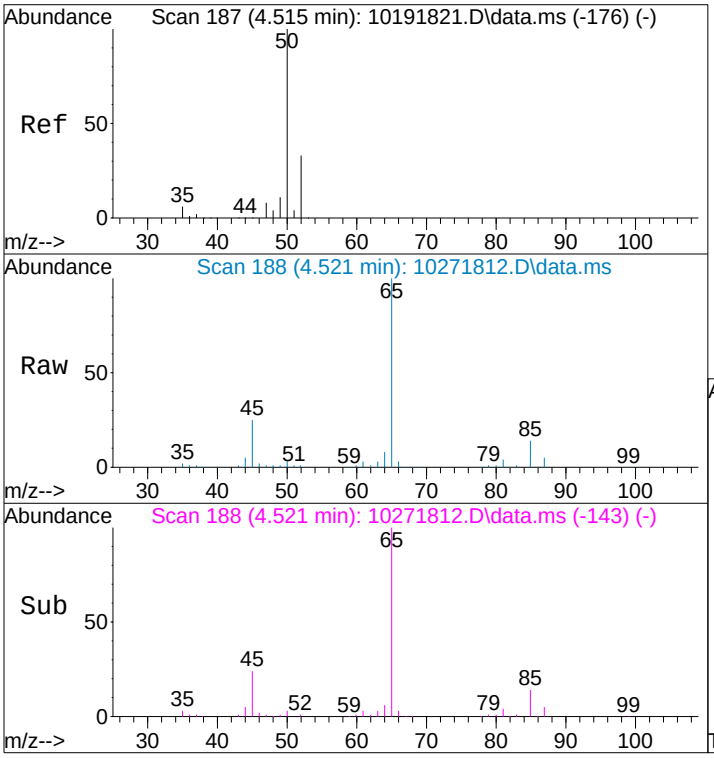


#3
Dichlorodifluoromethane (CFC 12)
Concen: 3.98 ng
RT: 4.21 min Scan# 132
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 85 Resp: 189821

Ion	Ratio	Lower	Upper
85	100		
87	32.4	12.6	52.6
101	9.0	0.0	29.4
103	6.0	0.0	26.0

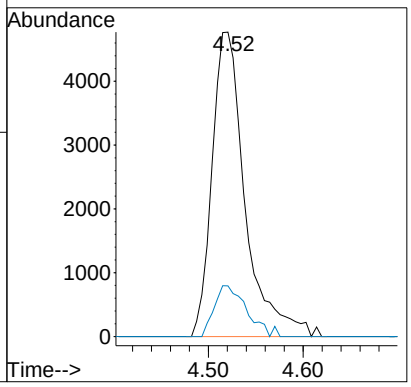


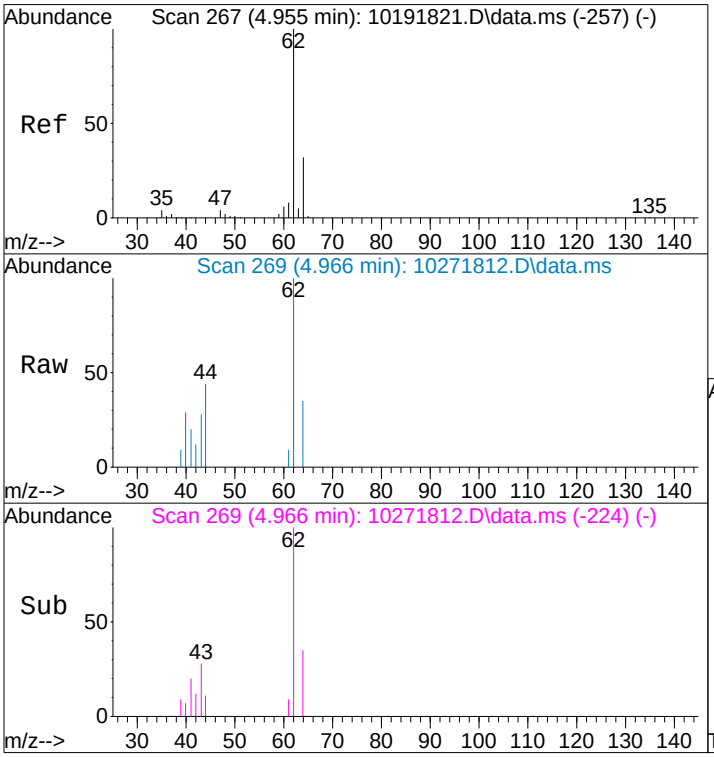


#4
Chloromethane
Concen: 0.38 ng
RT: 4.52 min Scan# 188
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 50 Resp: 11576

Ion	Ratio	Lower	Upper
50	100		
52	16.4	13.2	53.2

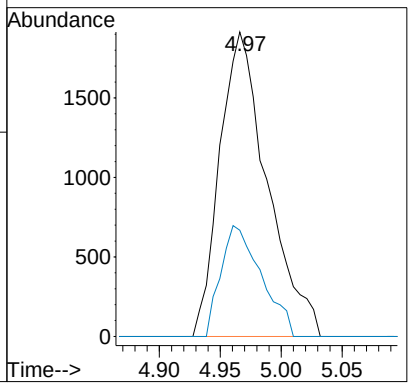


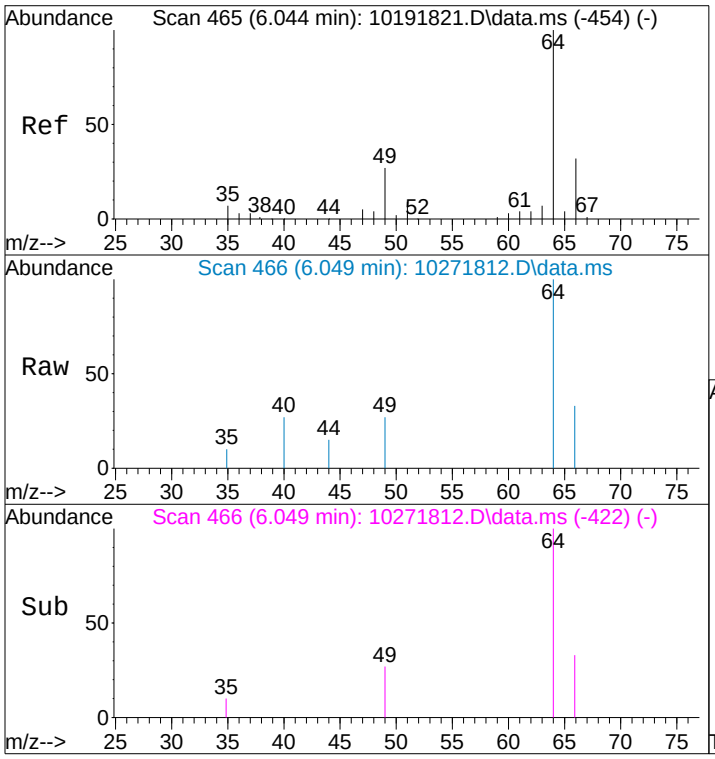


#6
Vinyl Chloride
Concen: 0.16 ng
RT: 4.97 min Scan# 269
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 62 Resp: 5193

Ion	Ratio	Lower	Upper
62	100		
64	31.0	12.2	52.2

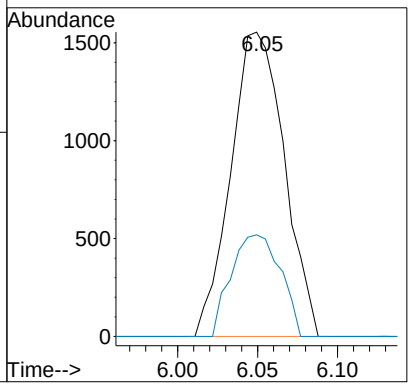


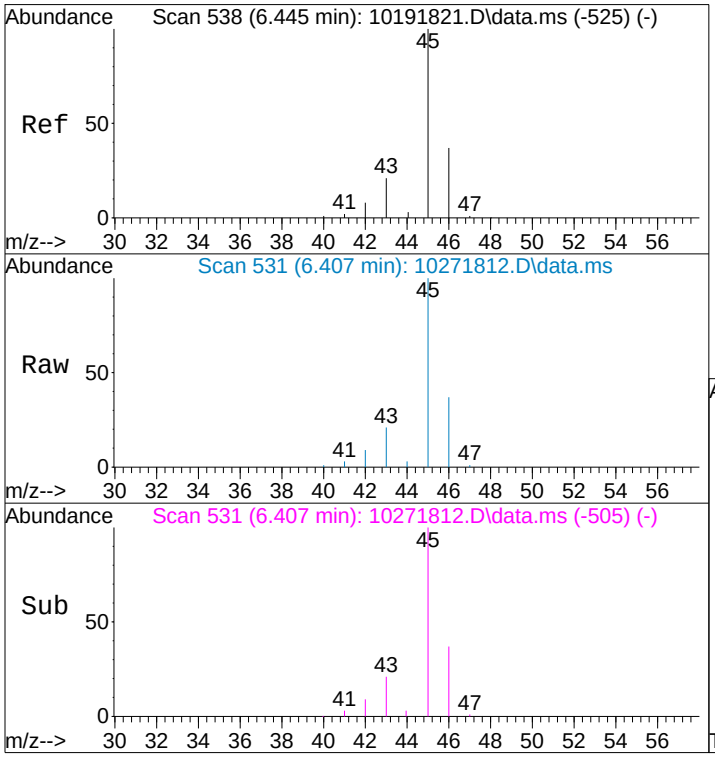


#9
Chloroethane
Concen: 0.25 ng
RT: 6.05 min Scan# 466
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 64 Resp: 3611

Ion	Ratio	Lower	Upper
64	100		
66	30.9	12.2	52.2

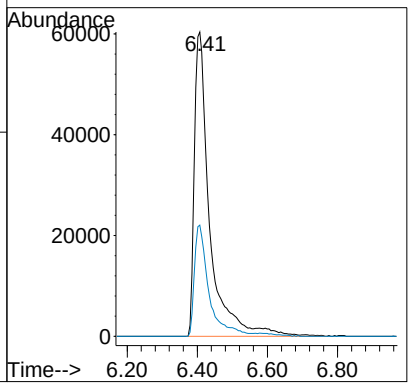


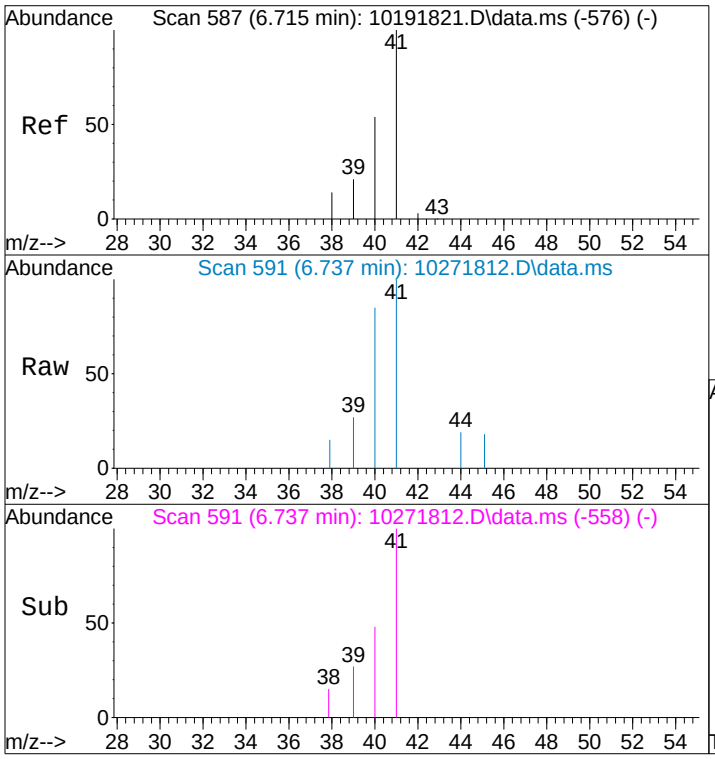


#10
Ethanol
Concen: 14.33 ng
RT: 6.41 min Scan# 531
Delta R.T. -0.104 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 45 Resp: 183782

Ion	Ratio	Lower	Upper
45	100		
46	36.1	16.6	56.6

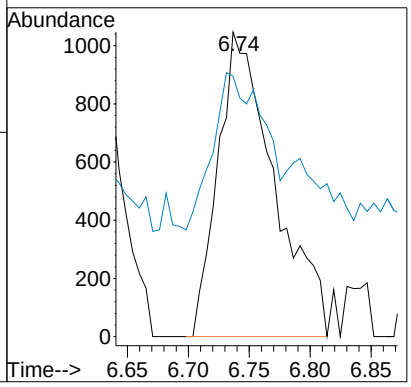


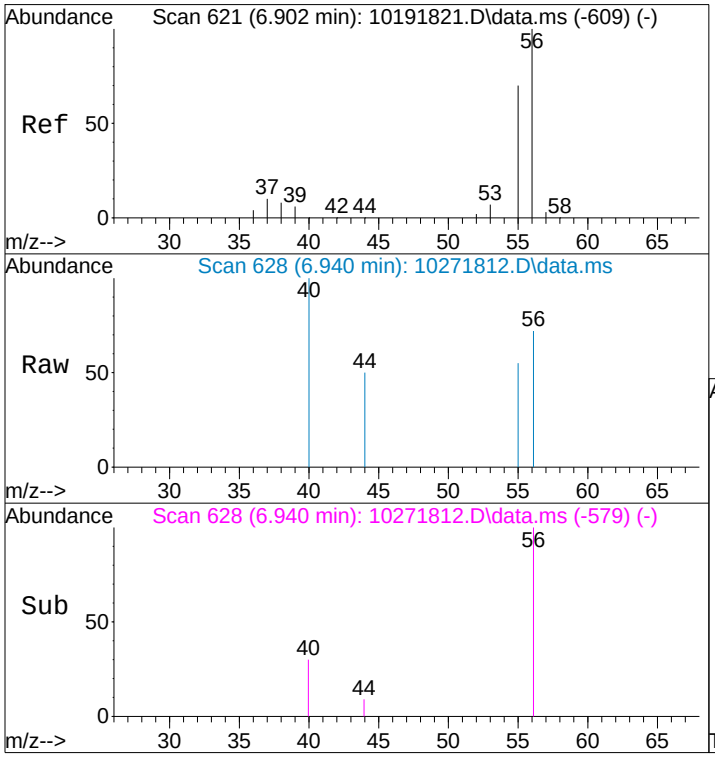


#11
Acetonitrile
Concen: 0.10 ng
RT: 6.74 min Scan# 591
Delta R.T. -0.016 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 41 Resp: 3349

Ion	Ratio	Lower	Upper
41	100		
40	86.9	34.2	74.2#

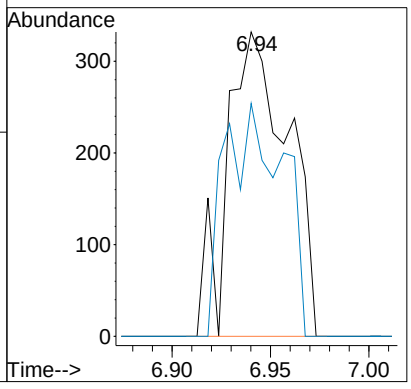


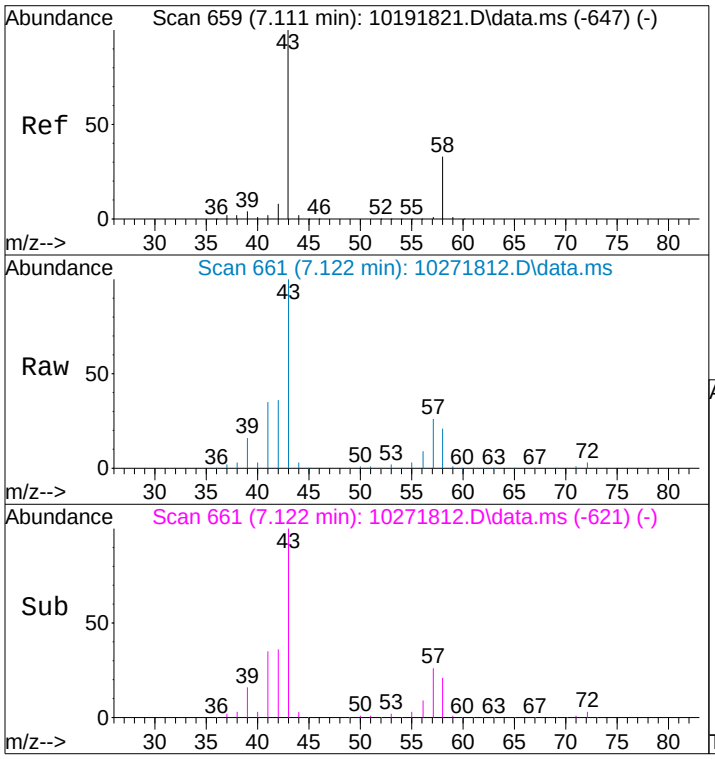


#12
Acrolein
Concen: 0.06 ng
RT: 6.94 min Scan# 628
Delta R.T. 0.022 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 56 Resp: 714

Ion	Ratio	Lower	Upper
56	100		
55	73.9	51.0	91.0

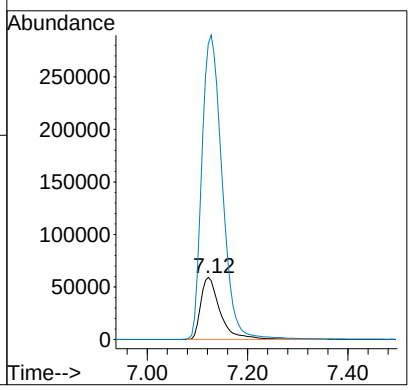


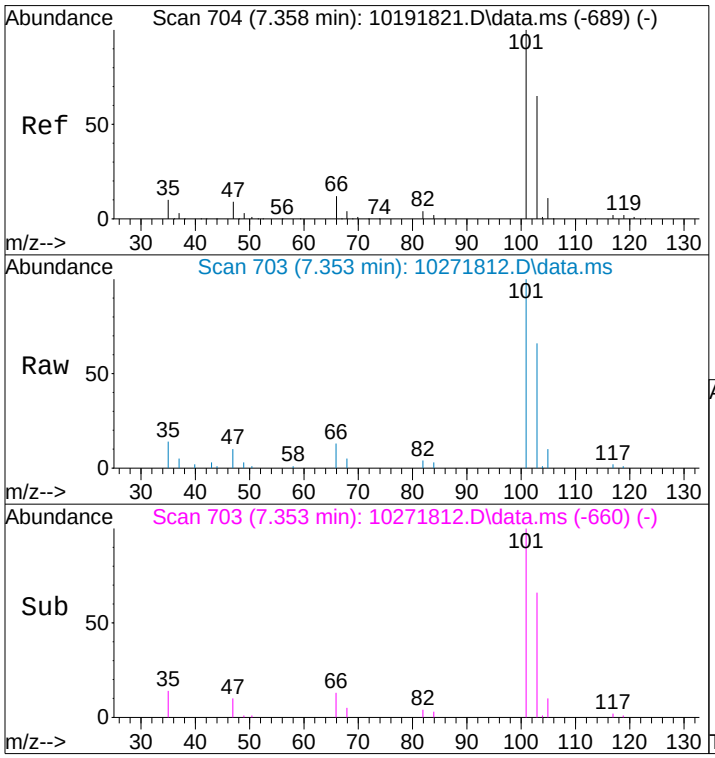


#13
Acetone
Concen: 10.44 ng
RT: 7.12 min Scan# 661
Delta R.T. -0.027 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 58 Resp: 159721

Ion	Ratio	Lower	Upper
58	100		
43	512.8	283.4	343.4#

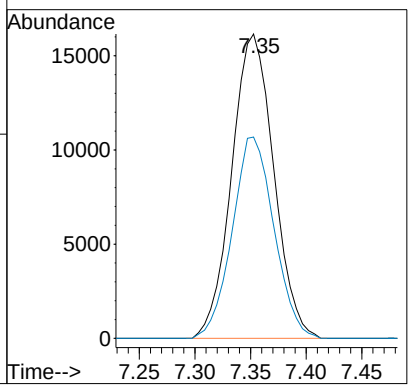


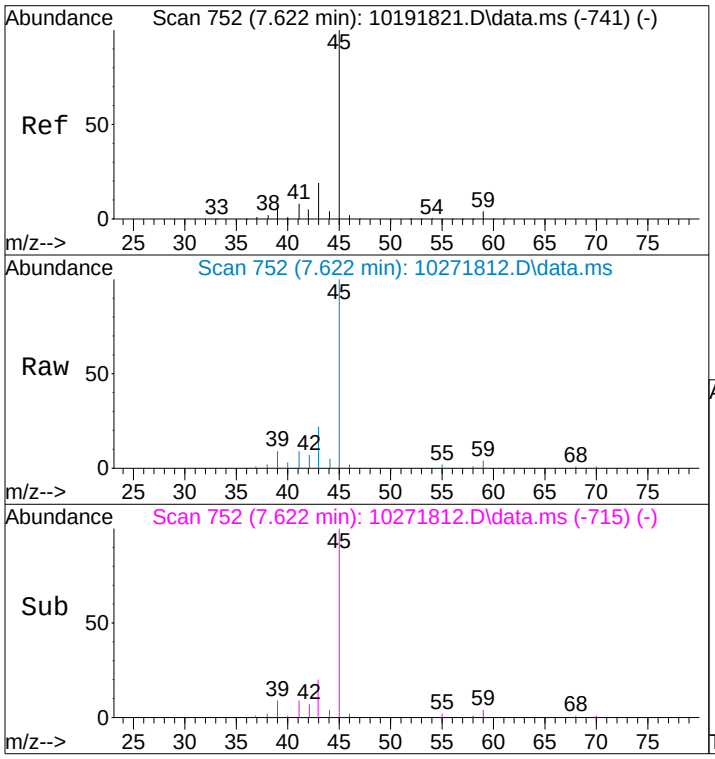


#14
Trichlorofluoromethane
Concen: 1.03 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:101 Resp: 42458

Ion	Ratio	Lower	Upper
101	100		
103	65.8	44.8	84.8

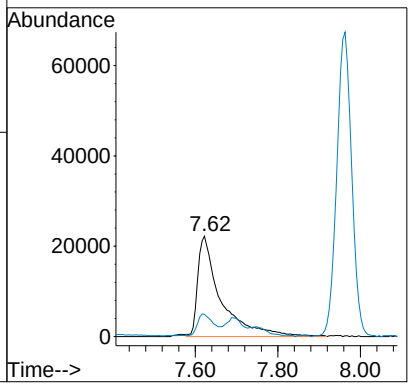


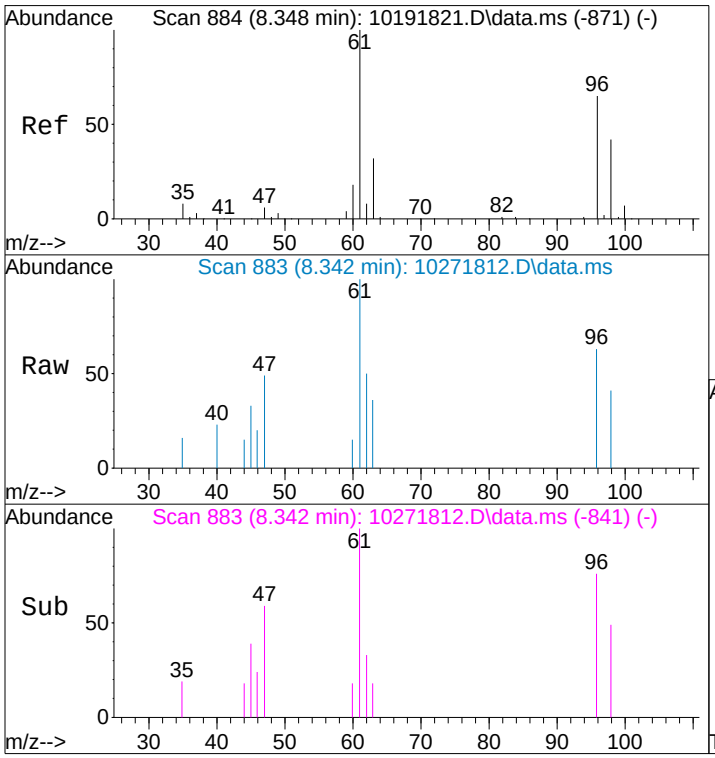


#15
2-Propanol (Isopropanol)
Concen: 1.75 ng
RT: 7.62 min Scan# 752
Delta R.T. -0.044 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 45 Resp: 86015

Ion	Ratio	Lower	Upper
45	100		
43	37.6	0.0	39.6

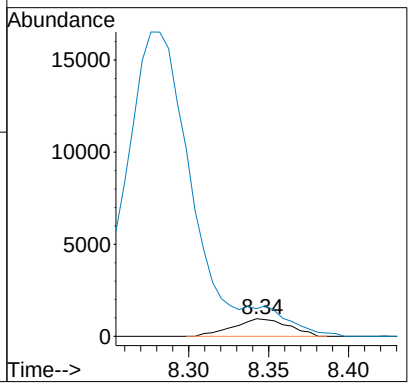


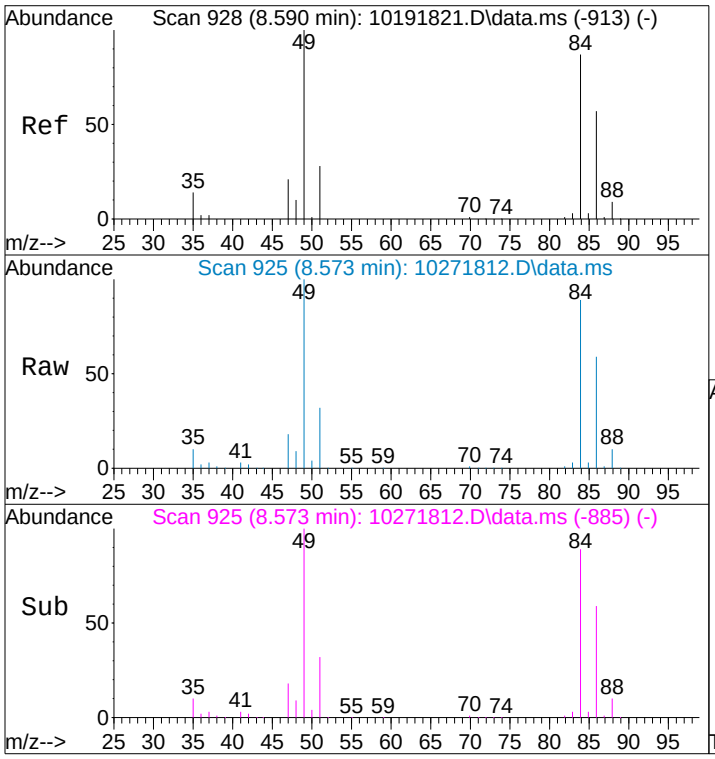


#17
1,1-Dichloroethene
Concen: 0.11 ng
RT: 8.34 min Scan# 883
Delta R.T. -0.017 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 96 Resp: 2307

Ion	Ratio	Lower	Upper
96	100		
61	2112.0	132.8	172.8#

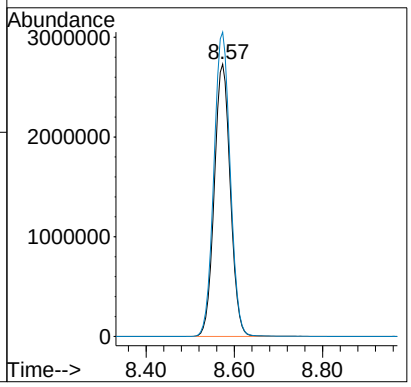


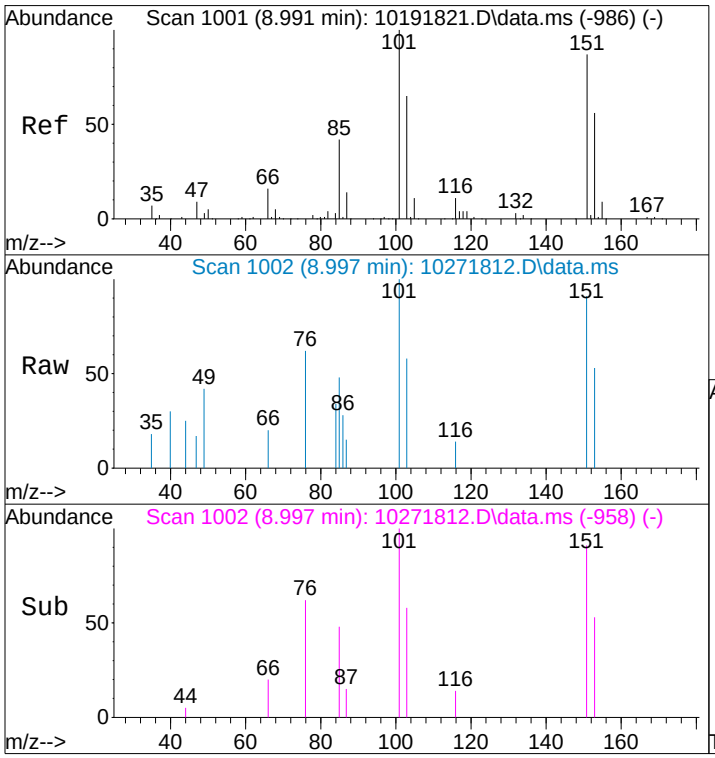


#19
Methylene Chloride
Concen: 322.61 ng
RT: 8.57 min Scan# 925
Delta R.T. -0.027 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 84 Resp: 6895409

Ion	Ratio	Lower	Upper
84	100		
49	113.8	92.1	142.1

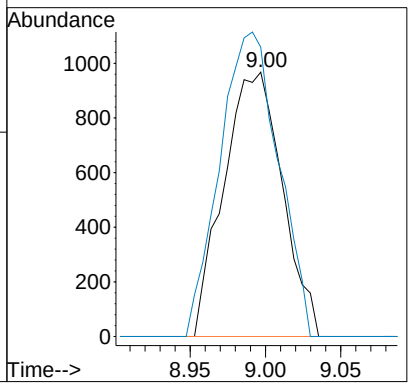


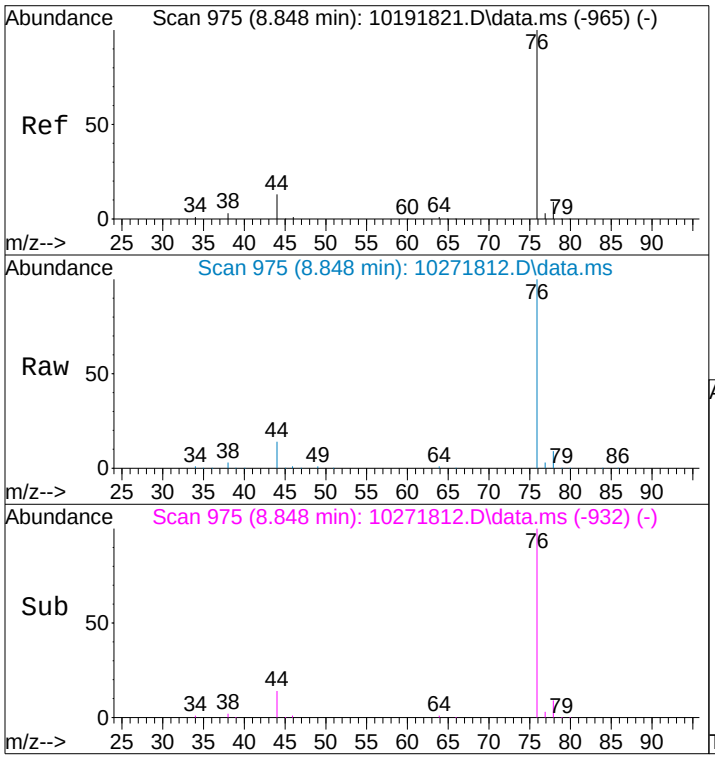


#21
Trichlorotrifluoroethane
Concen: 0.12 ng
RT: 9.00 min Scan# 1002
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:151 Resp: 2620

Ion	Ratio	Lower	Upper
151	100		
101	115.5	94.4	134.4

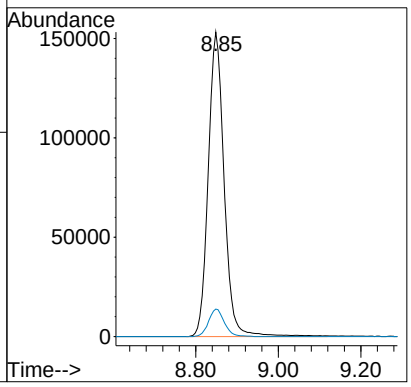


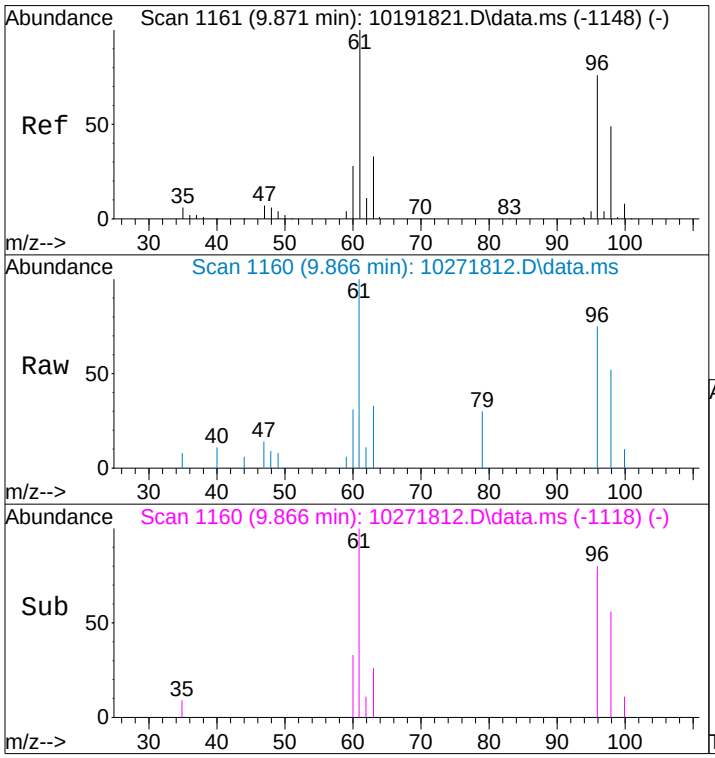


#22
Carbon Disulfide
Concen: 5.37 ng
RT: 8.85 min Scan# 975
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 76 Resp: 409903

Ion	Ratio	Lower	Upper
76	100		
78	8.9	0.0	29.3

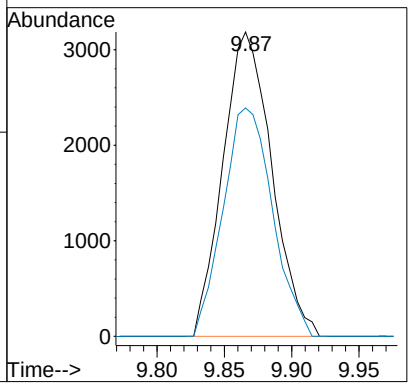


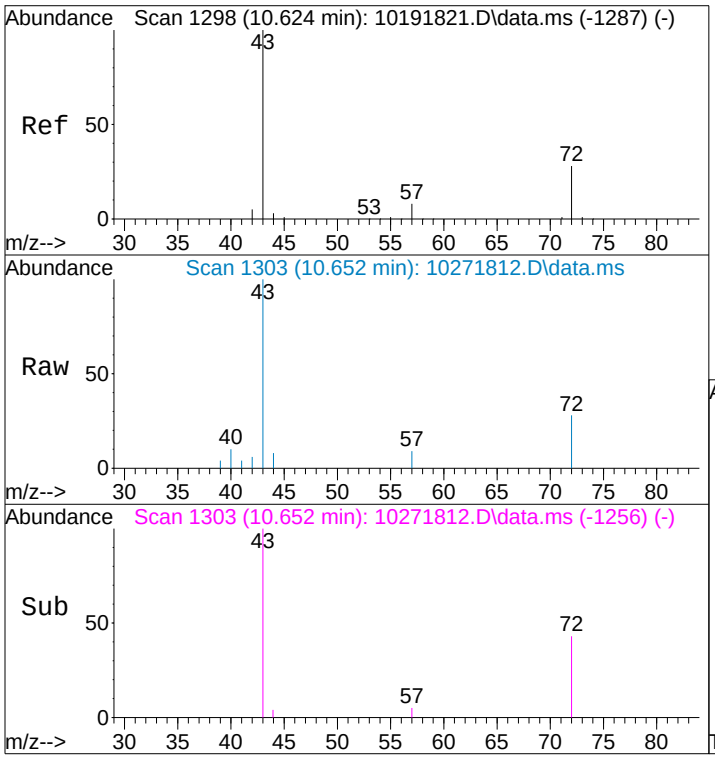


#23
trans-1,2-Dichloroethene
Concen: 0.28 ng
RT: 9.87 min Scan# 1160
Delta R.T. -0.017 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 61 Resp: 8041

Ion	Ratio	Lower	Upper
61	100		
96	75.8	56.4	96.4

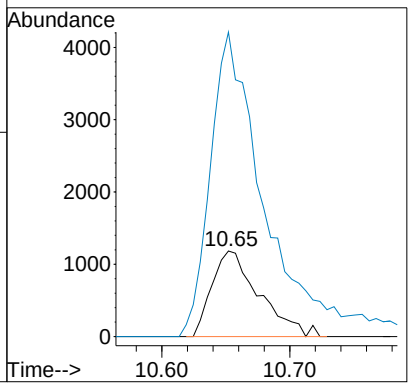


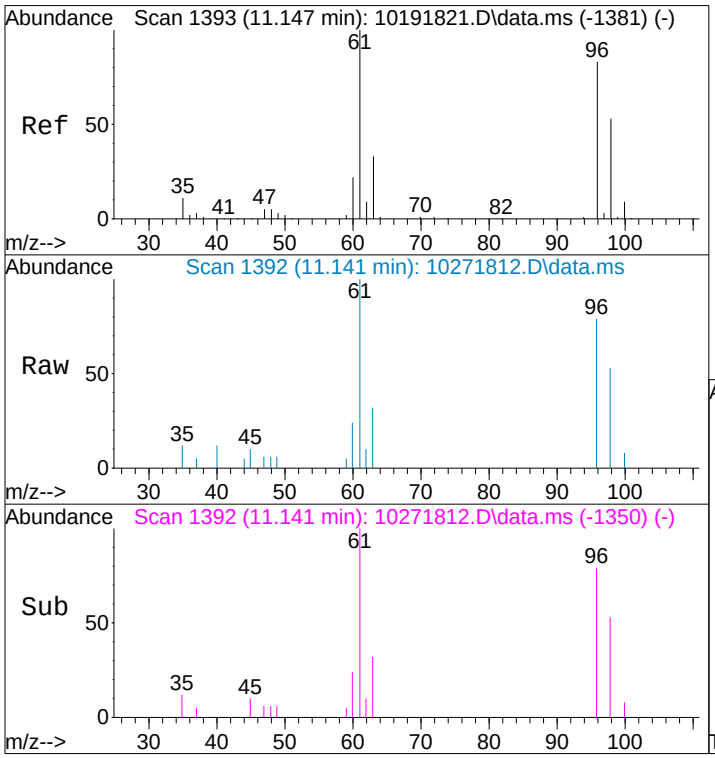


#27
2-Butanone (MEK)
Concen: 0.22 ng
RT: 10.65 min Scan# 1303
Delta R.T. 0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 72 Resp: 3042

Ion	Ratio	Lower	Upper
72	100		
43	418.9	350.1	390.1#

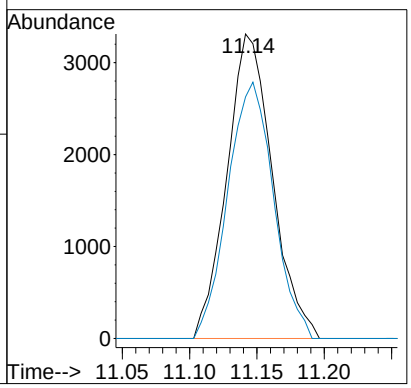


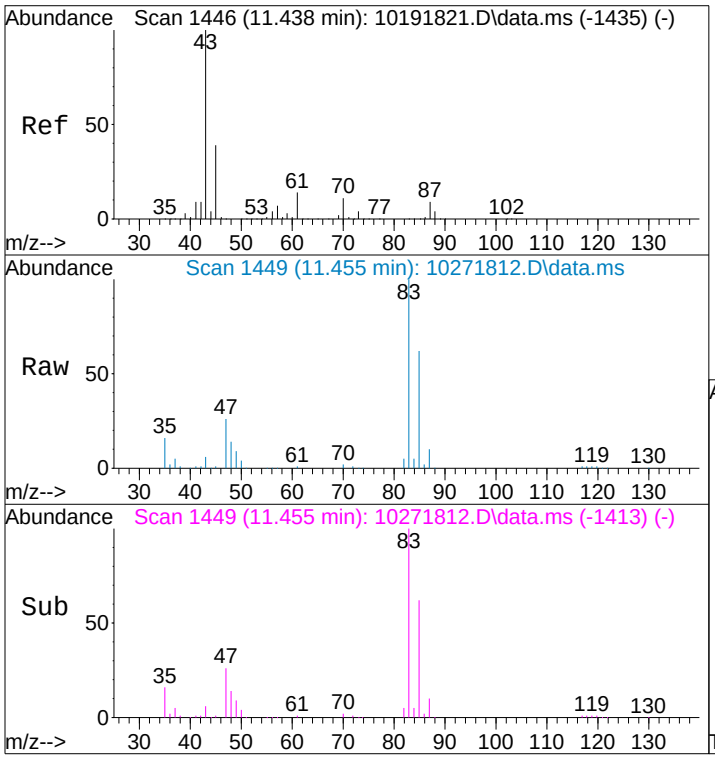


#28
cis-1,2-Dichloroethene
Concen: 0.28 ng
RT: 11.14 min Scan# 1392
Delta R.T. -0.017 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 61 Resp: 7779

Ion	Ratio	Lower	Upper
61	100		
96	84.6	64.1	104.1

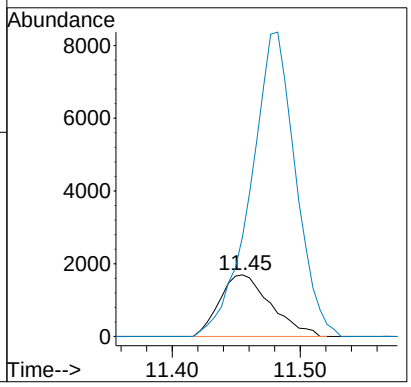


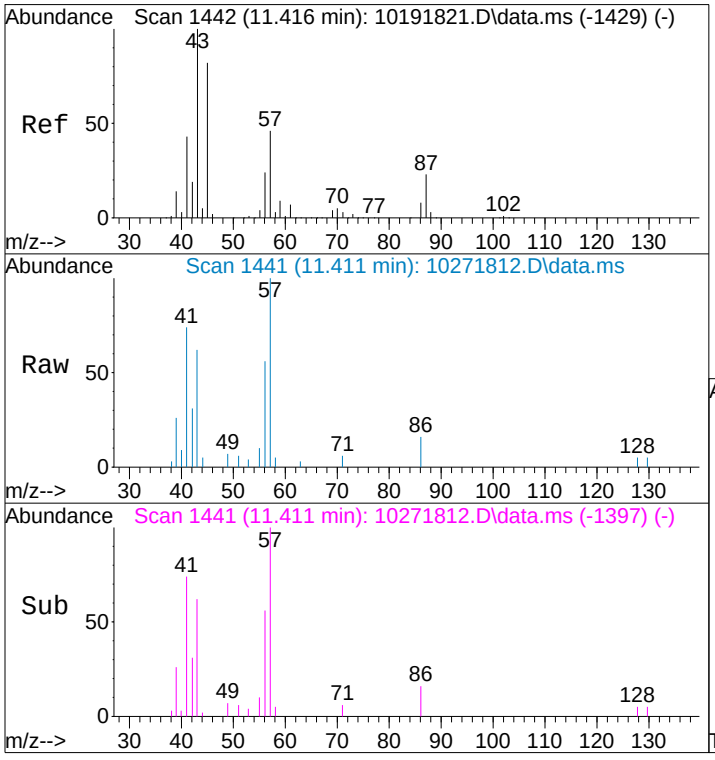


#30
Ethyl Acetate
Concen: 0.65 ng
RT: 11.45 min Scan# 1449
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 61 Resp: 4723

Ion	Ratio	Lower	Upper
61	100		
70	433.3	61.7	101.7#

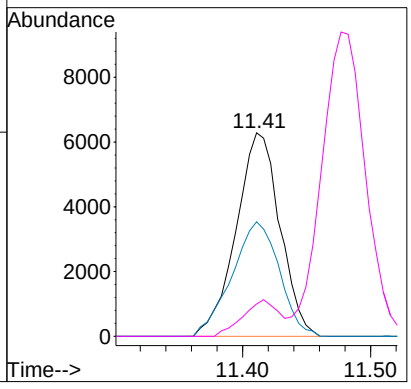


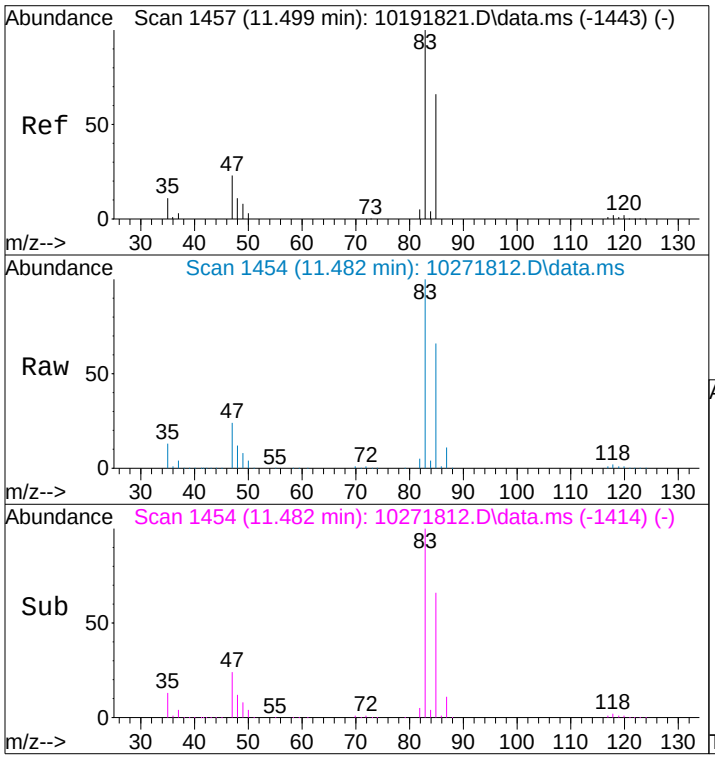


#31
n-Hexane
Concen: 0.45 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.005 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 57 Resp: 14913

Ion	Ratio	Lower	Upper
57	100		
56	61.0	41.4	62.0
86	14.8	13.7	20.5

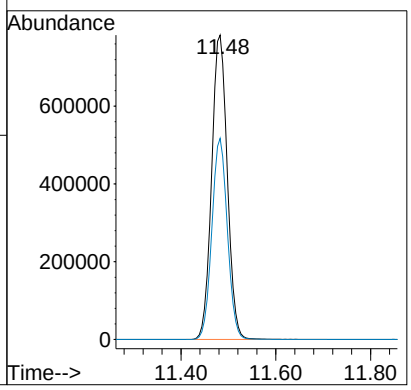


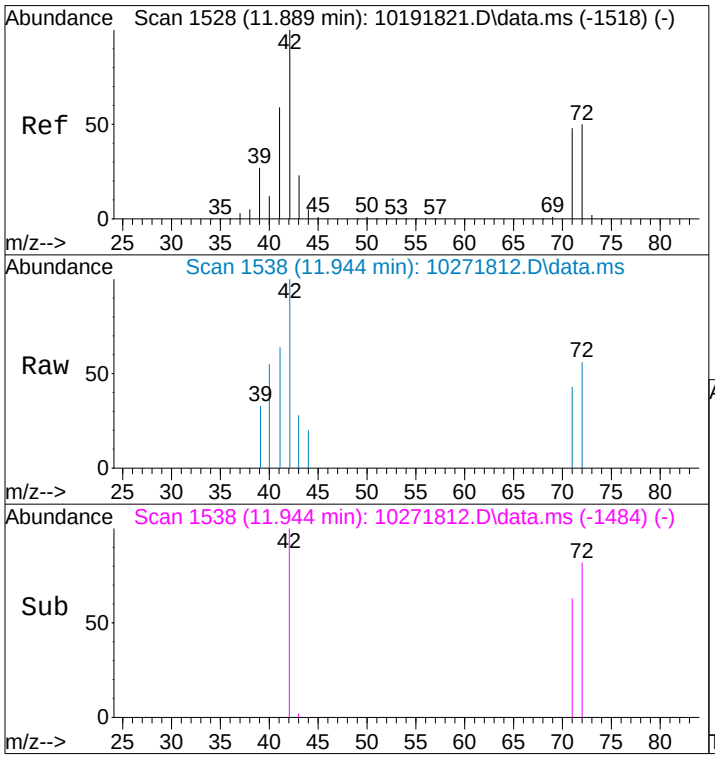


#32
Chloroform
Concen: 46.64 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 83 Resp: 1793272

Ion	Ratio	Lower	Upper
83	100		
85	65.5	45.5	85.5

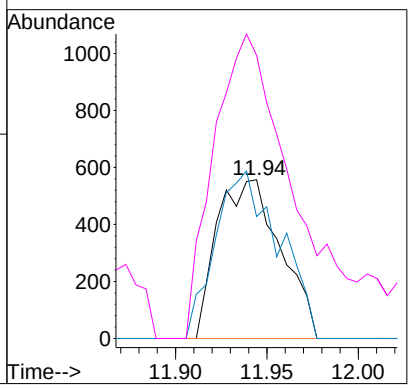


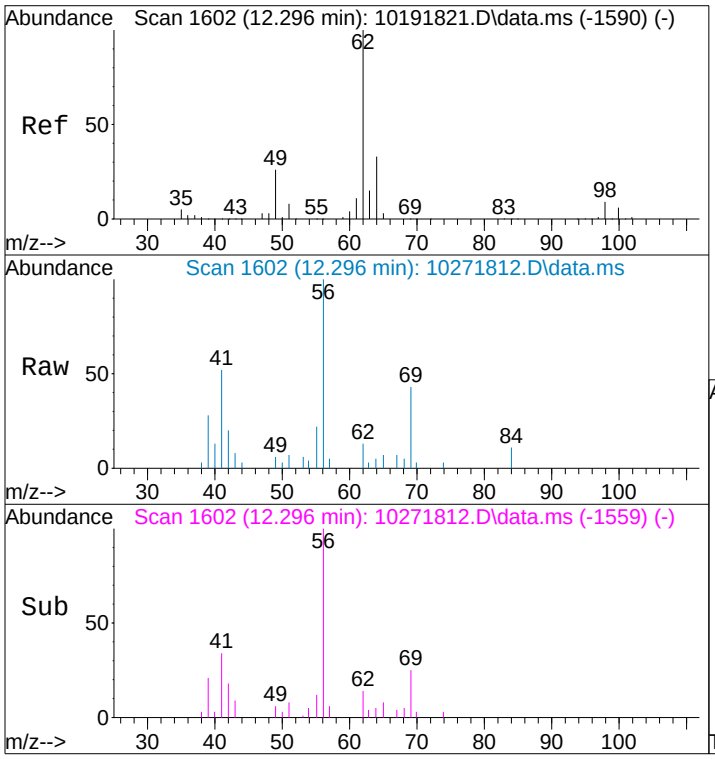


#34
Tetrahydrofuran (THF)
Concen: 0.10 ng
RT: 11.94 min Scan# 1538
Delta R.T. 0.049 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 72 Resp: 1345

Ion	Ratio	Lower	Upper
72	100		
71	105.8	77.2	117.2
42	270.6	181.3	221.3#

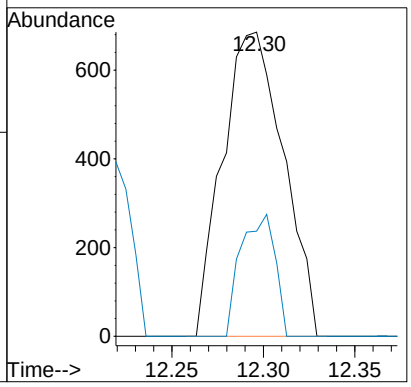


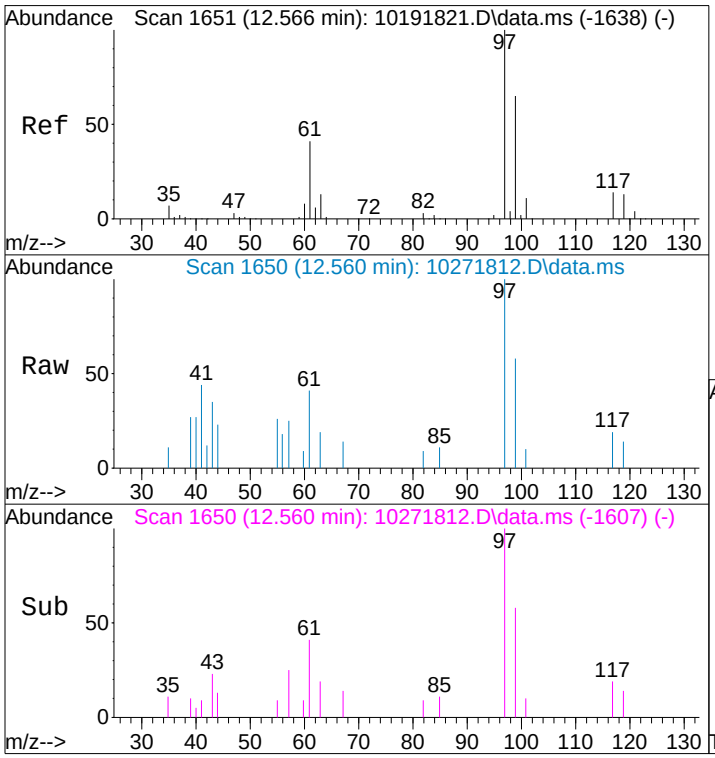


#36
1,2-Dichloroethane
Concen: 0.05 ng
RT: 12.30 min Scan# 1602
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 62 Resp: 1592

Ion	Ratio	Lower	Upper
62	100		
64	22.5	12.6	52.6

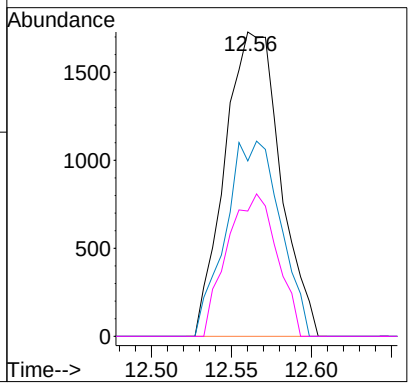


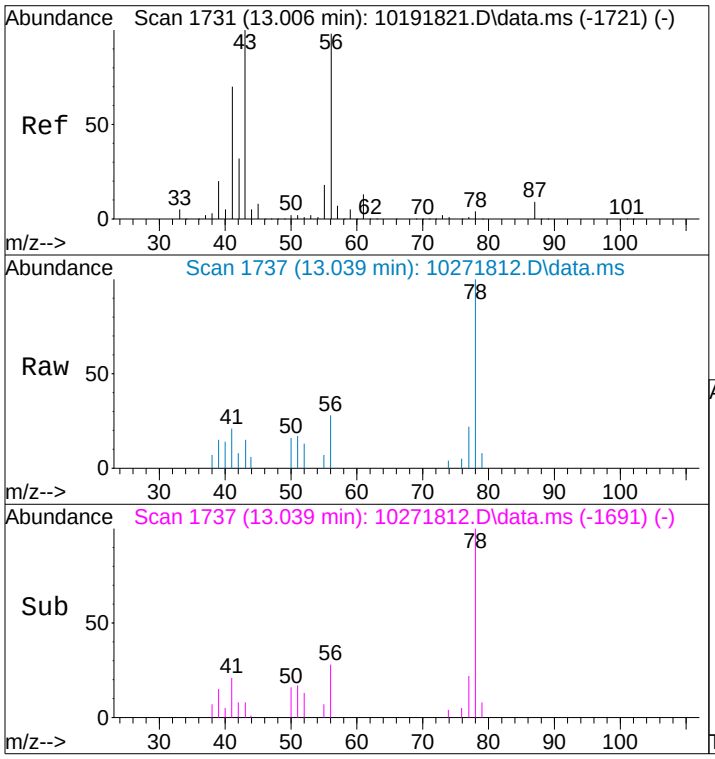


#38
1,1,1-Trichloroethane
Concen: 0.12 ng
RT: 12.56 min Scan# 1650
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 97 Resp: 4166

Ion	Ratio	Lower	Upper
97	100		
99	63.3	44.9	84.9
61	42.1	21.3	61.3

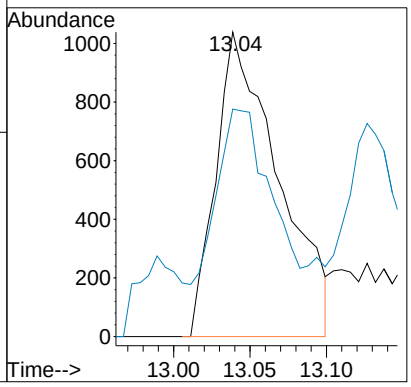


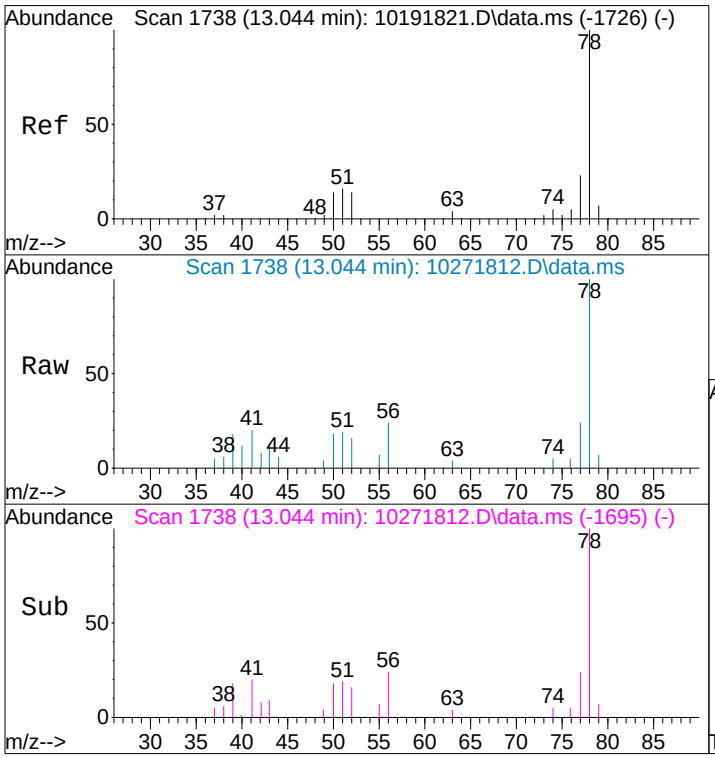


#40
1-Butanol
Concen: 0.16 ng m
RT: 13.04 min Scan# 1737
Delta R.T. 0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 56 Resp: 2951

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

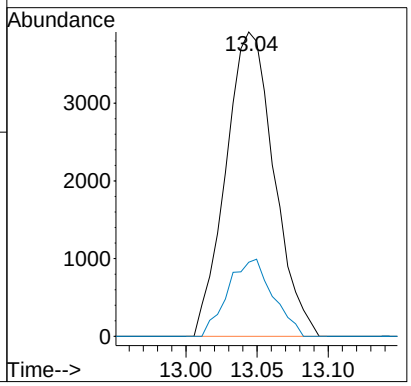


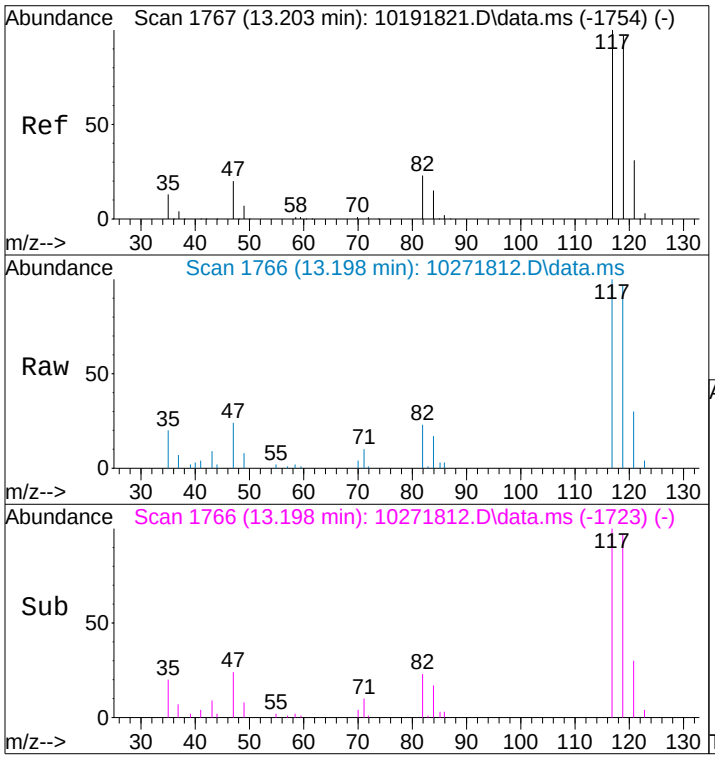


#41
Benzene
Concen: 0.11 ng
RT: 13.04 min Scan# 1738
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 78 Resp: 9244

Ion	Ratio	Lower	Upper
78	100		
77	23.6	3.5	43.5

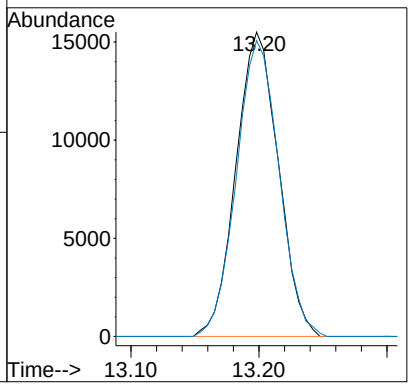


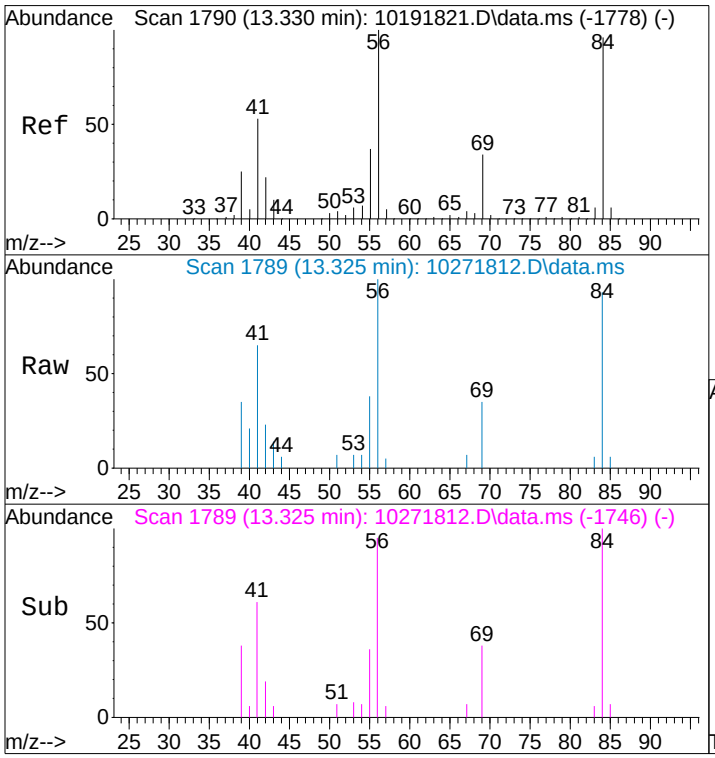


#42
Carbon Tetrachloride
Concen: 1.09 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:117 Resp: 35663

Ion	Ratio	Lower	Upper
117	100		
119	97.8	76.0	116.0

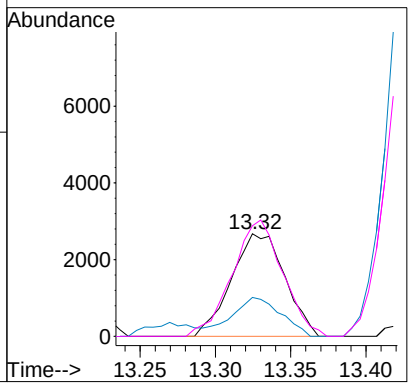


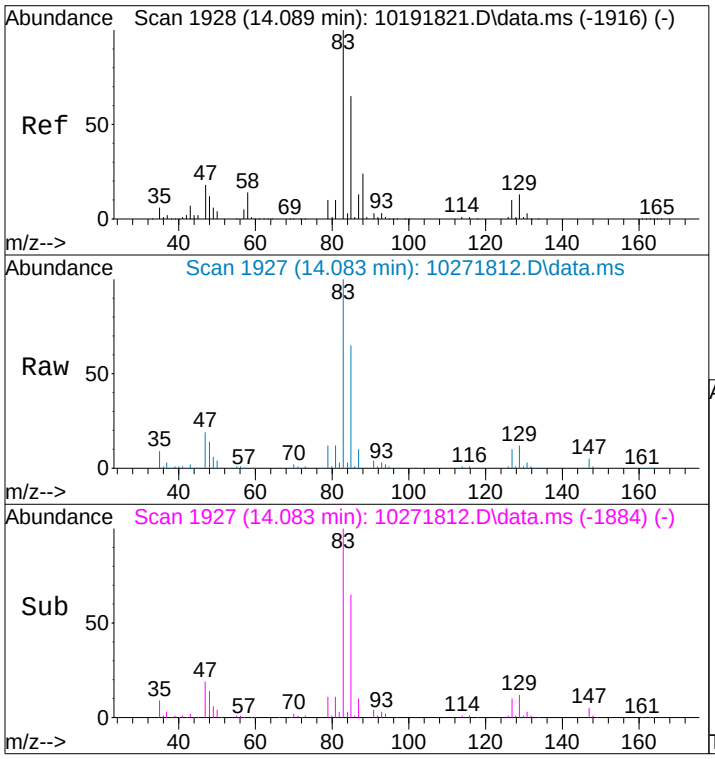


#43
Cyclohexane
Concen: 0.20 ng
RT: 13.32 min Scan# 1789
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 84 Resp: 6607

Ion	Ratio	Lower	Upper
84	100		
69	34.8	14.8	54.8
56	106.9	83.9	123.9

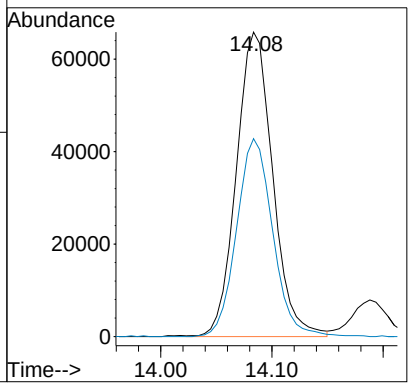


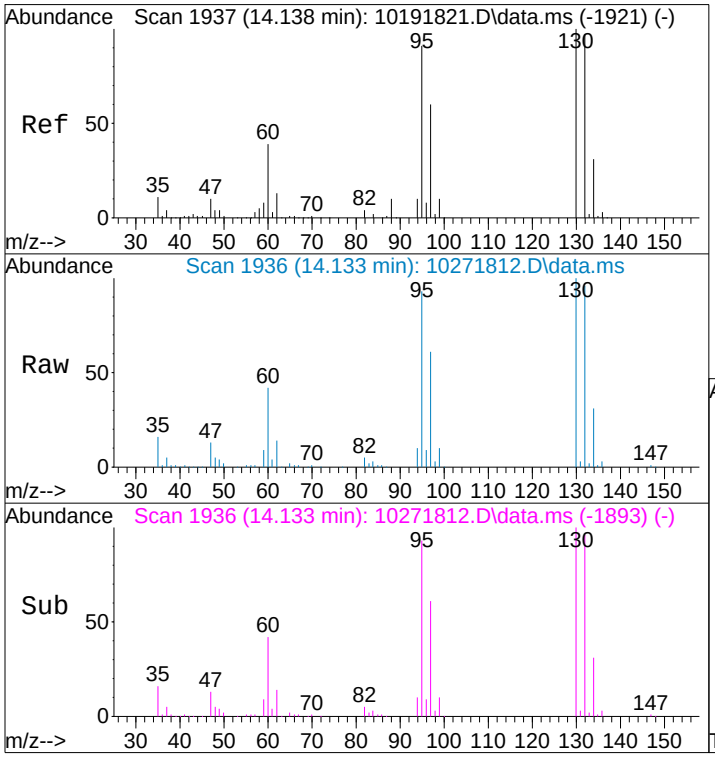


#46
Bromodichloromethane
Concen: 4.94 ng
RT: 14.08 min Scan# 1927
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 83 Resp: 149386

Ion	Ratio	Lower	Upper
83	100		
85	64.6	45.0	85.0

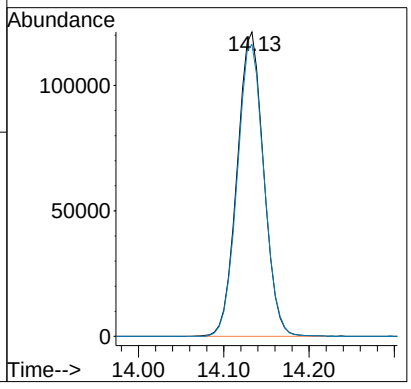


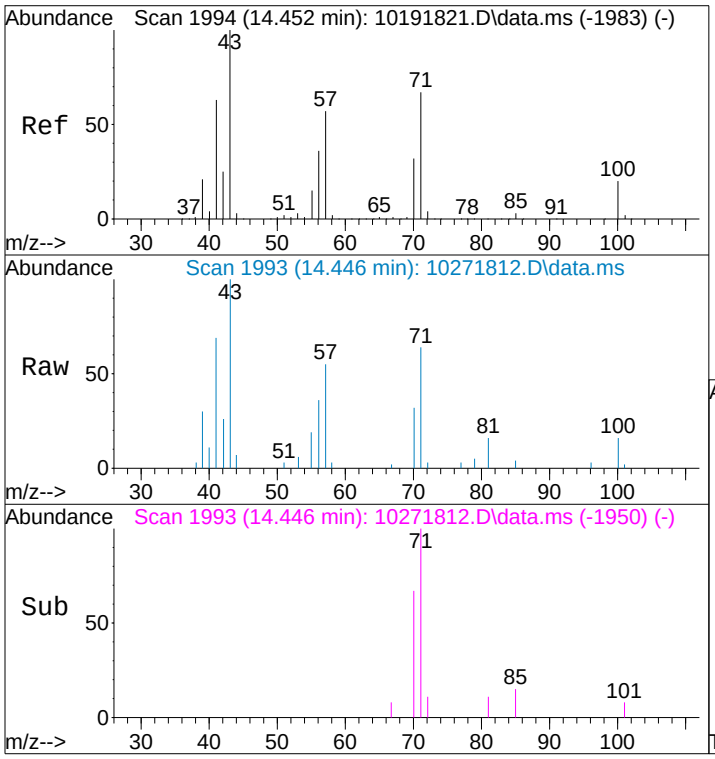


#47
Trichloroethene
Concen: 10.31 ng
RT: 14.13 min Scan# 1936
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:130 Resp: 262297

Ion	Ratio	Lower	Upper
130	100		
132	97.0	75.7	115.7

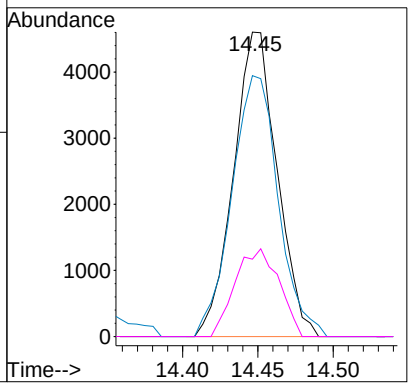


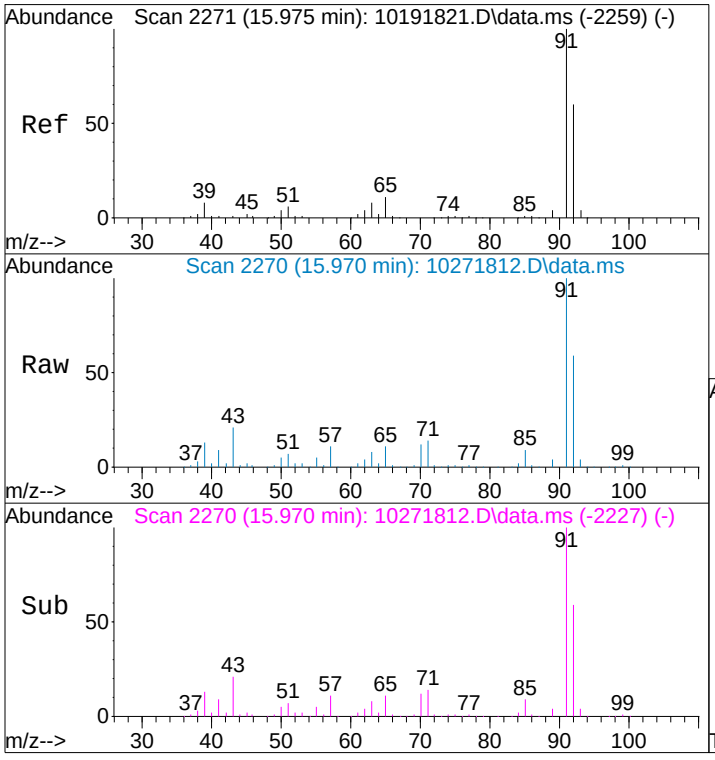


#51
n-Heptane
Concen: 0.47 ng
RT: 14.45 min Scan# 1993
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 71 Resp: 9272

Ion	Ratio	Lower	Upper
71	100		
57	91.3	66.4	106.4
100	29.0	10.6	50.6

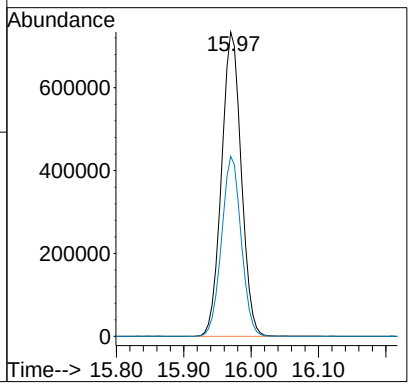


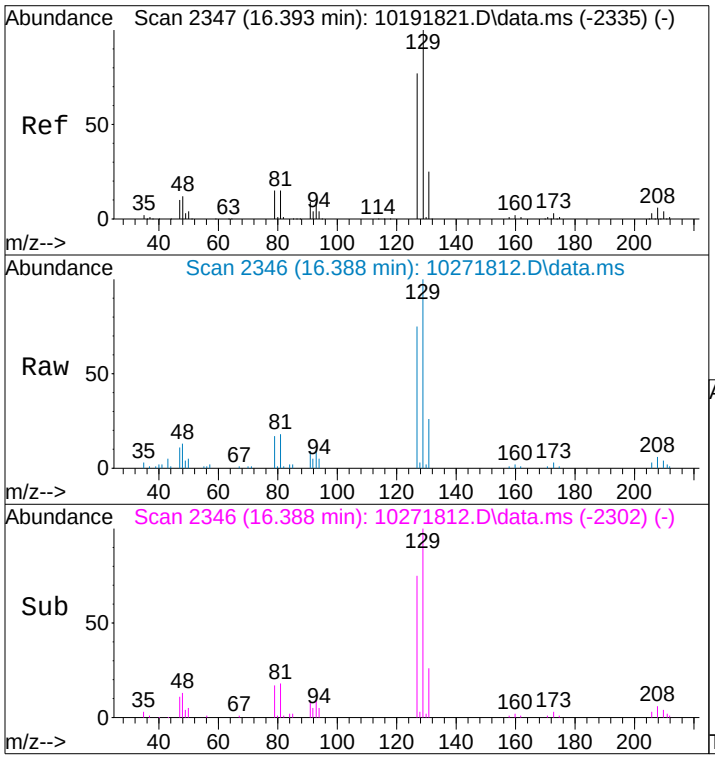


#58
Toluene
Concen: 16.80 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 91 Resp: 1493885

Ion	Ratio	Lower	Upper
91	100		
92	58.9	39.4	79.4

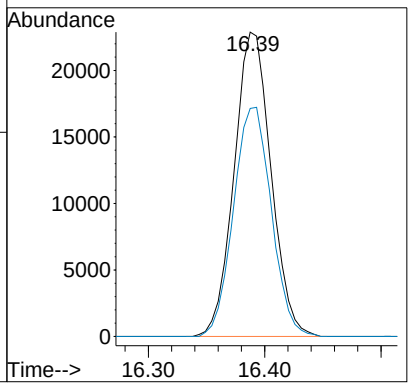


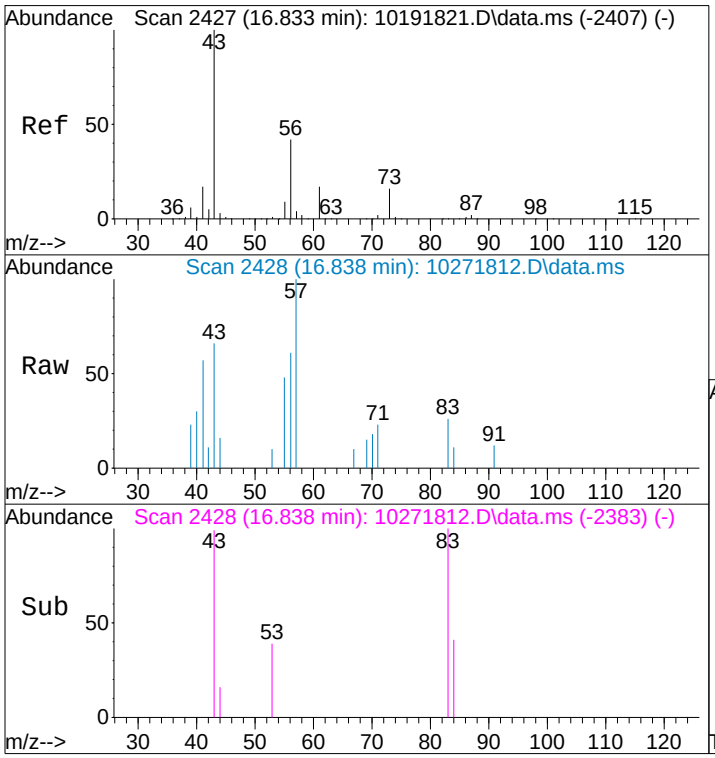


#60
Dibromochloromethane
Concen: 1.94 ng
RT: 16.39 min Scan# 2346
Delta R.T. -0.005 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:129 Resp: 50497

Ion	Ratio	Lower	Upper
129	100		
127	77.1	57.5	97.5

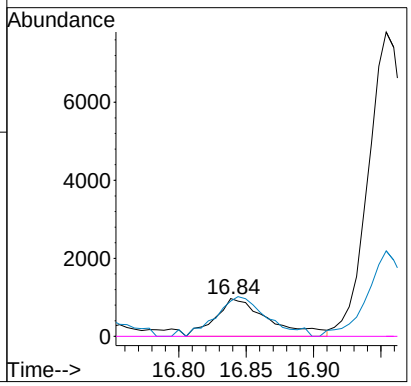


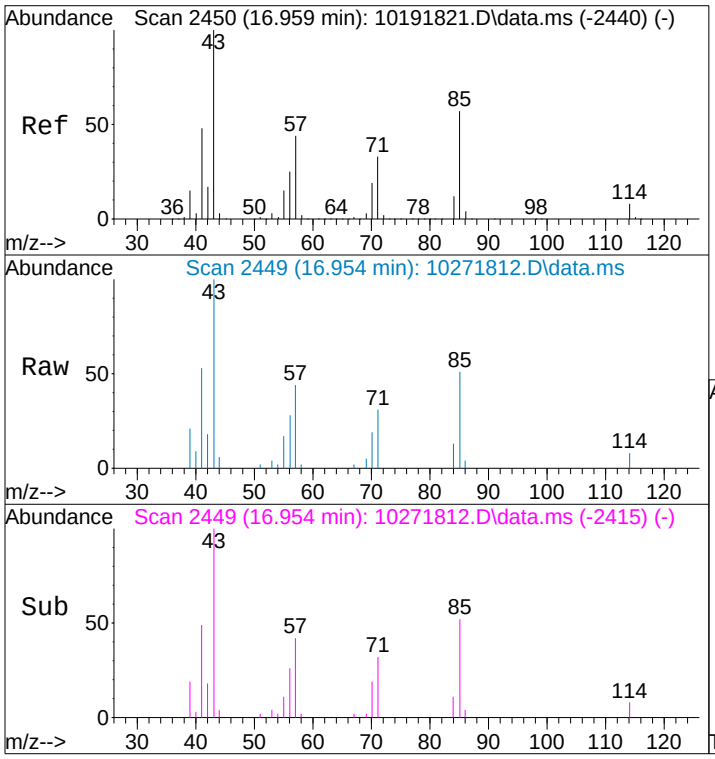


#62
n-Butyl Acetate
Concen: 0.06 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 43 Resp: 2677

Ion	Ratio	Lower	Upper
43	100		
56	100.6	21.3	61.3#
73	0.0	0.0	36.1

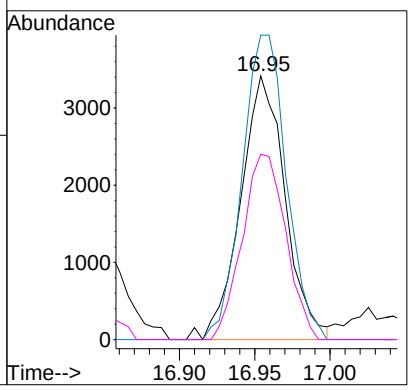


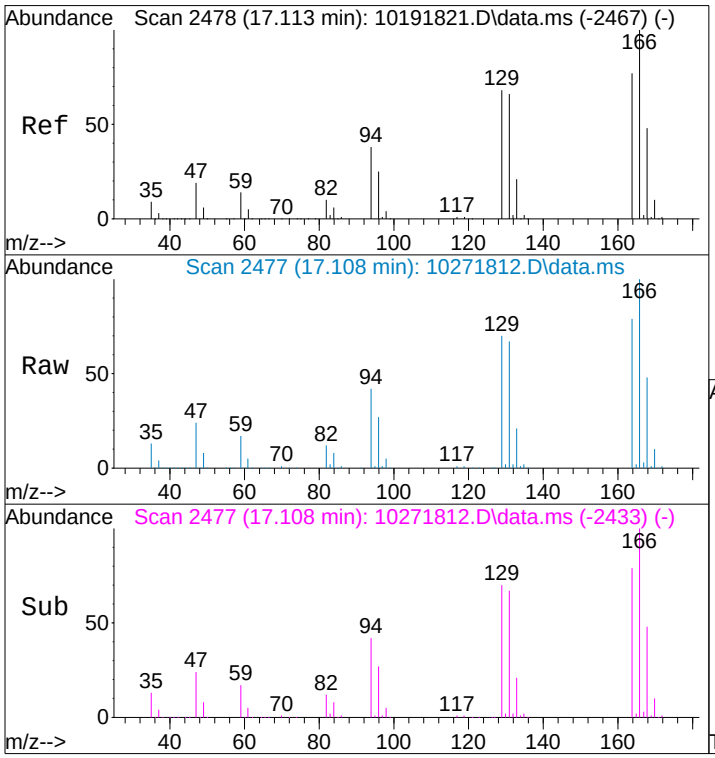


#63
n-Octane
Concen: 0.42 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 57 Resp: 7047

Ion	Ratio	Lower	Upper
57	100		
85	114.2	102.1	153.1
71	68.5	59.3	88.9

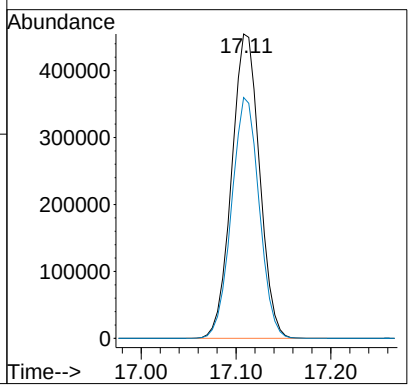


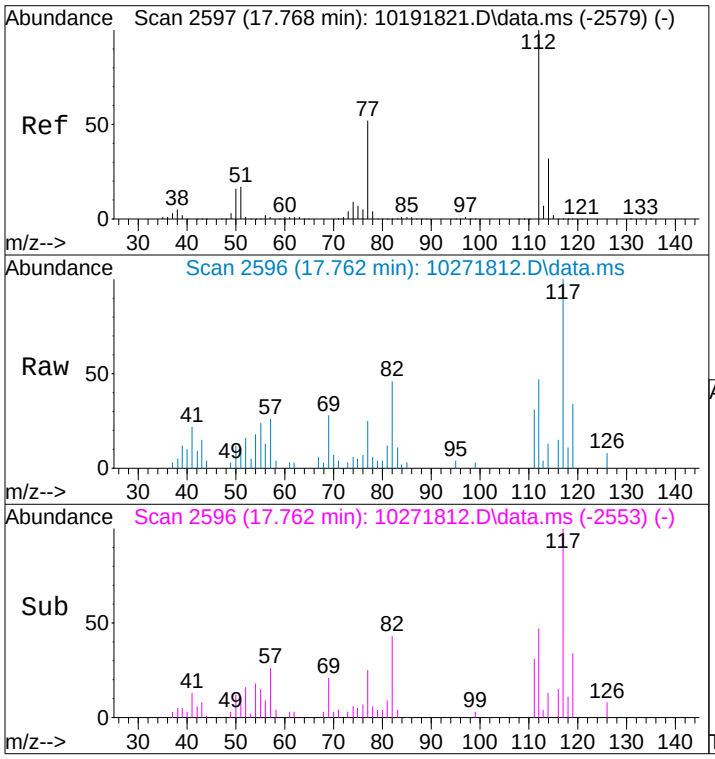


#64
Tetrachloroethene
Concen: 33.99 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:166 Resp: 929791

Ion	Ratio	Lower	Upper
166	100		
164	78.4	57.8	97.8

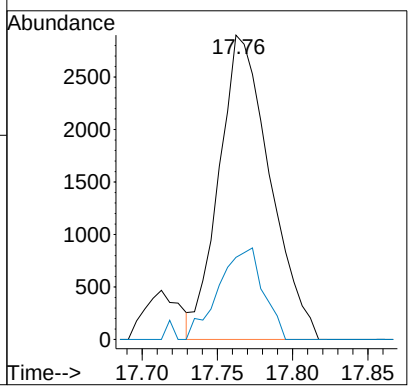


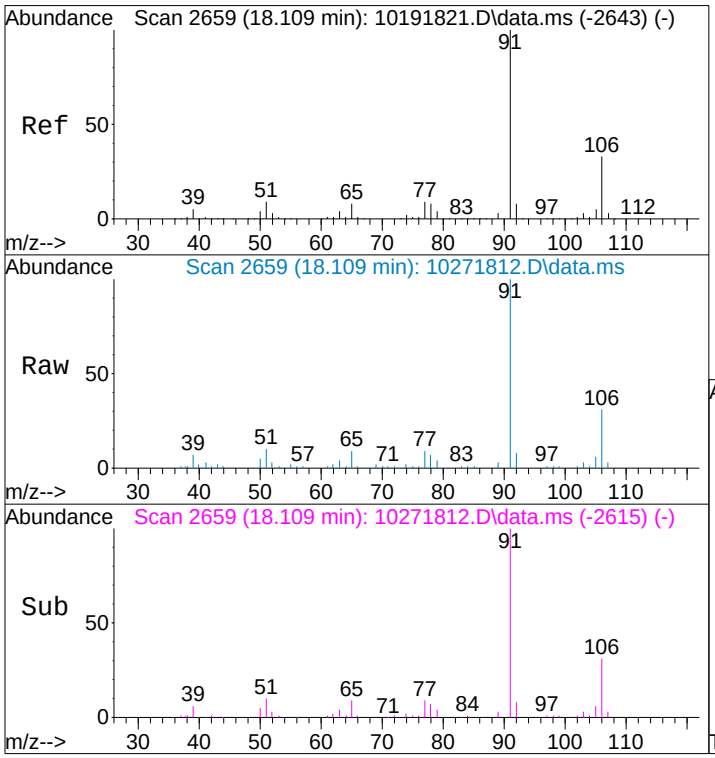


#65
Chlorobenzene
Concen: 0.11 ng
RT: 17.76 min Scan# 2596
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:112 Resp: 6799

Ion	Ratio	Lower	Upper
112	100		
114	26.3	12.4	52.4

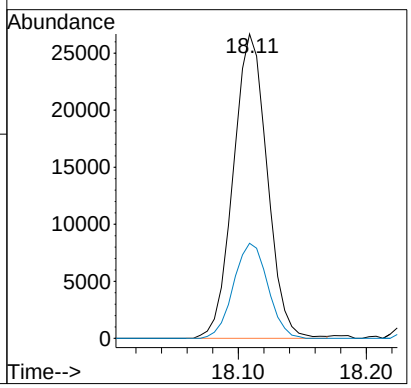


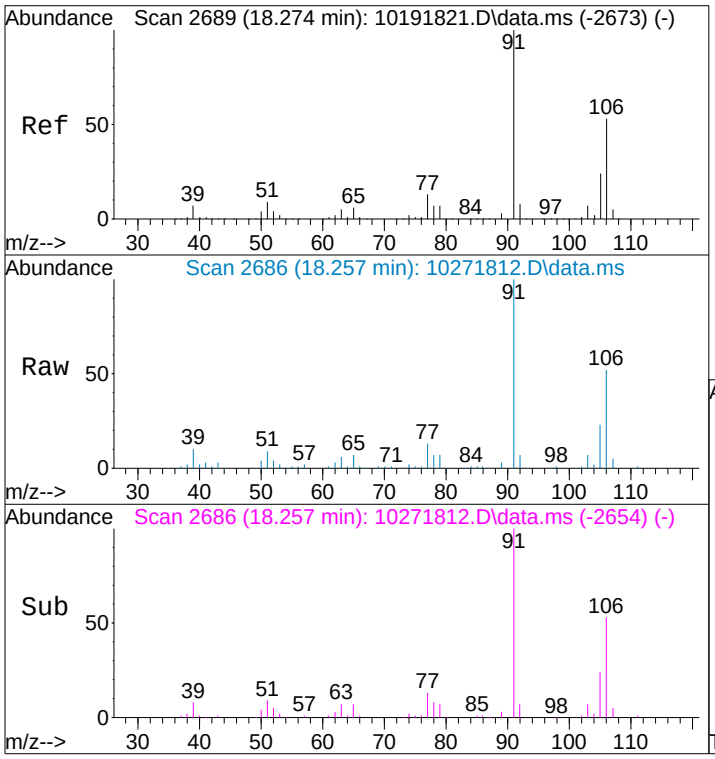


#66
Ethylbenzene
Concen: 0.48 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 91 Resp: 49060

Ion	Ratio	Lower	Upper
91	100		
106	31.7	12.6	52.6

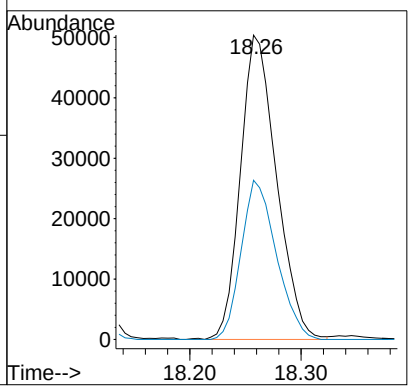


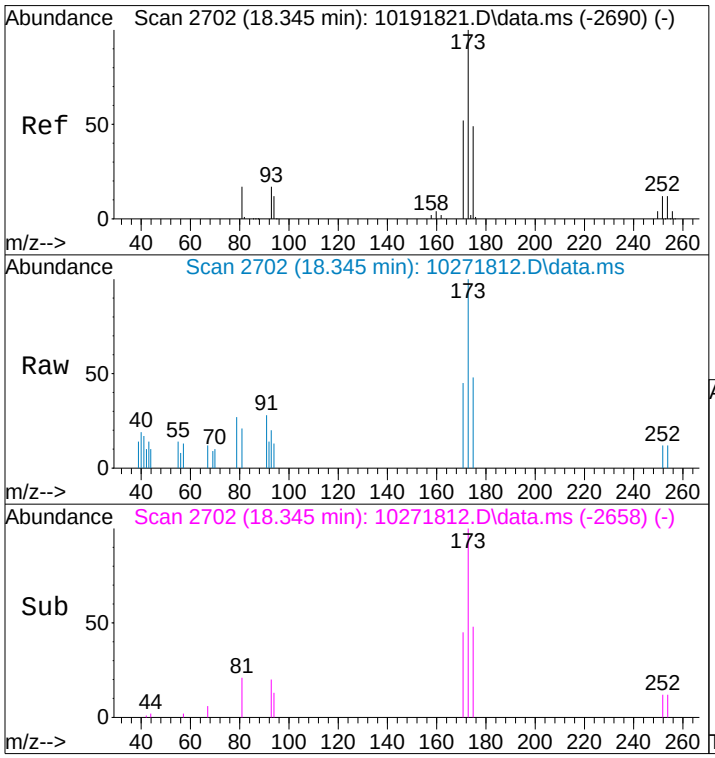


#67
m- & p-Xylenes
Concen: 1.50 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 91 Resp: 113321

Ion	Ratio	Lower	Upper
91	100		
106	51.0	32.2	72.2

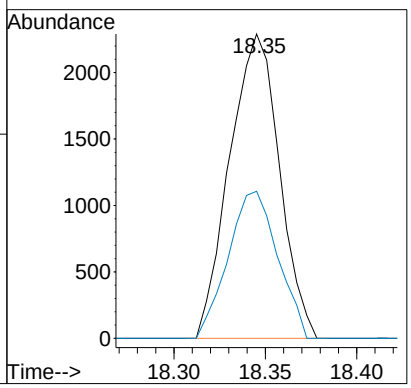


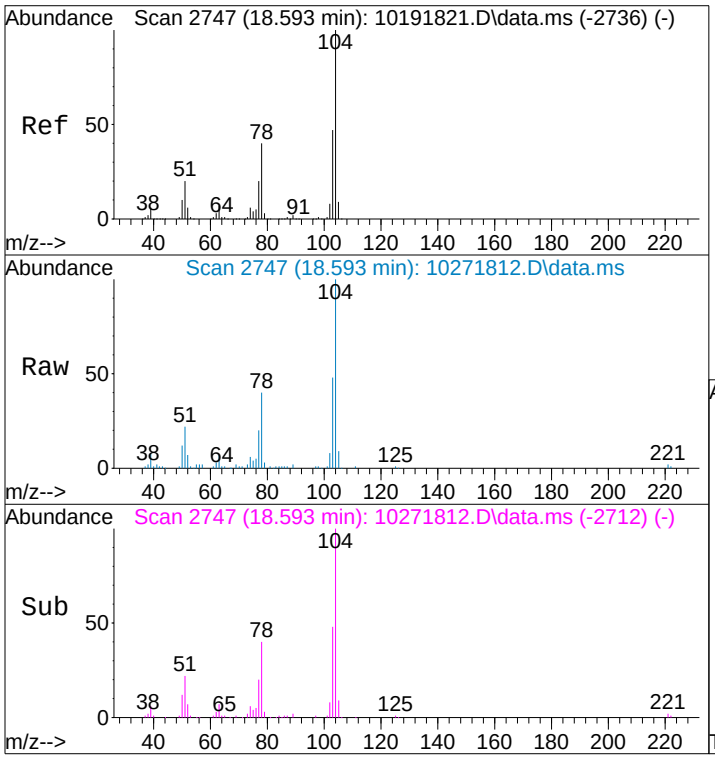


#68
Bromoform
Concen: 0.19 ng
RT: 18.35 min Scan# 2702
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:173 Resp: 4336

Ion	Ratio	Lower	Upper
173	100		
175	48.1	29.1	69.1

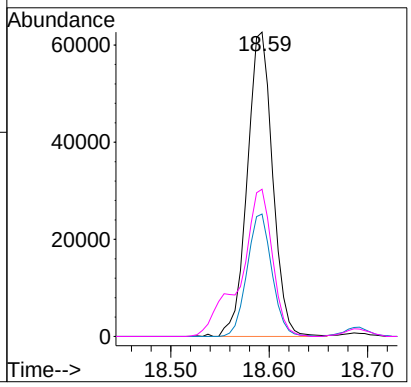


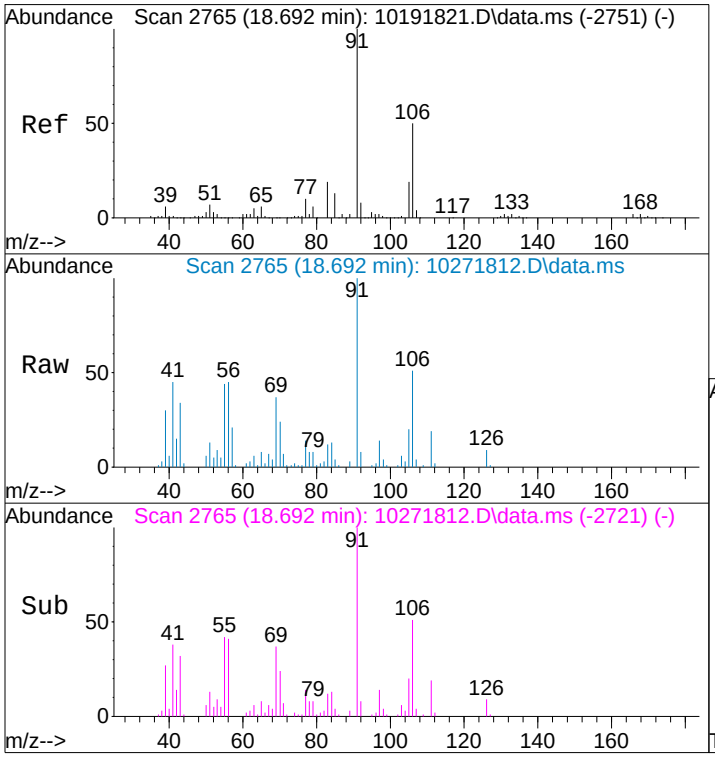


#69
Styrene
Concen: 1.82 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:104 Resp: 112056

Ion	Ratio	Lower	Upper
104	100		
78	39.5	20.1	60.1
103	60.9	27.0	67.0

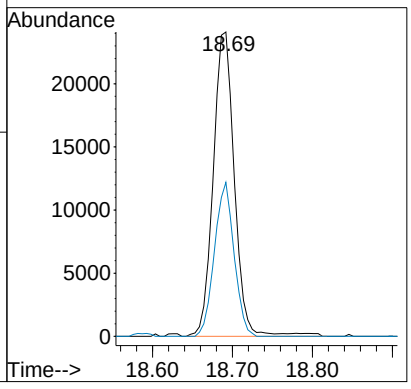


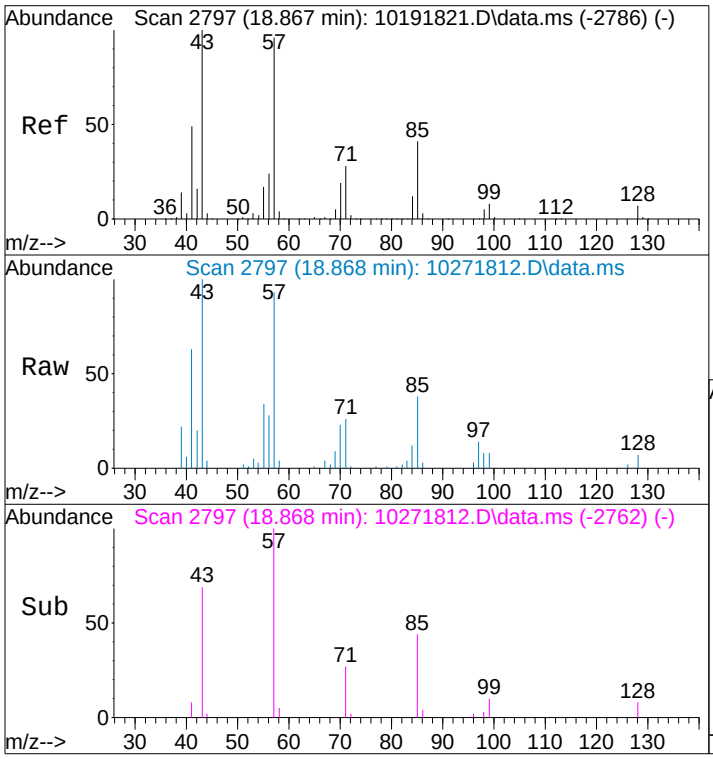


#70
o-Xylene
Concen: 0.58 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 91 Resp: 44420

Ion	Ratio	Lower	Upper
91	100		
106	46.7	29.4	69.4

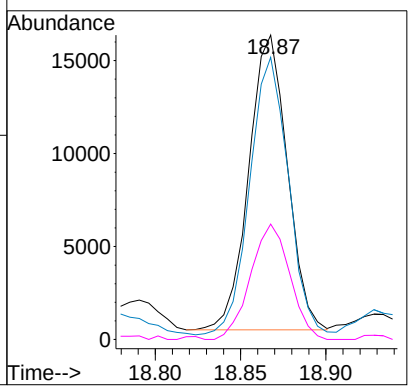


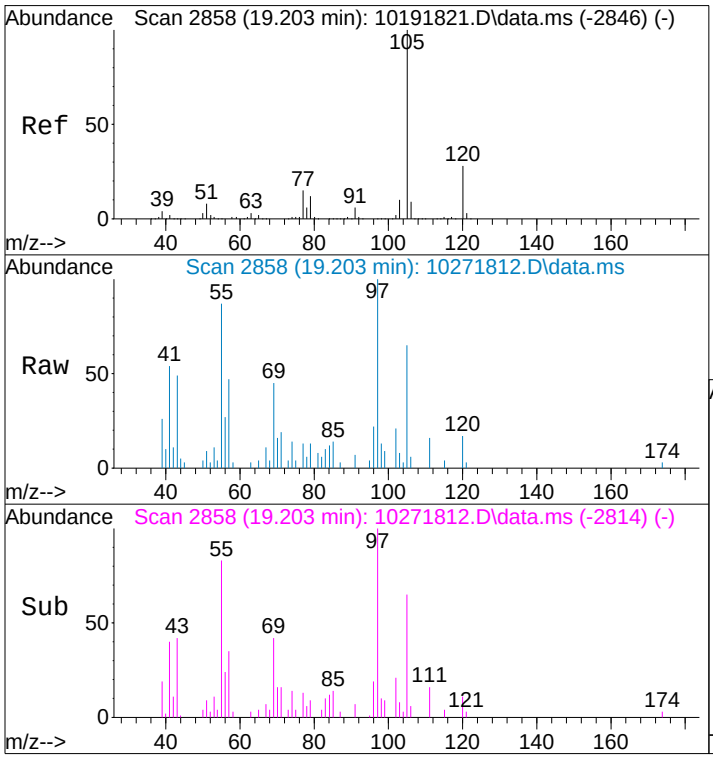


#71
n-Nonane
Concen: 0.71 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 43 Resp: 24910

Ion	Ratio	Lower	Upper
43	100		
57	94.2	75.4	115.4
85	39.8	20.8	60.8

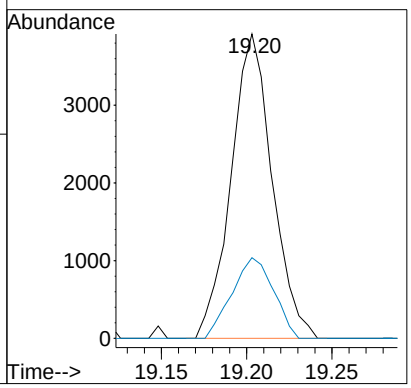


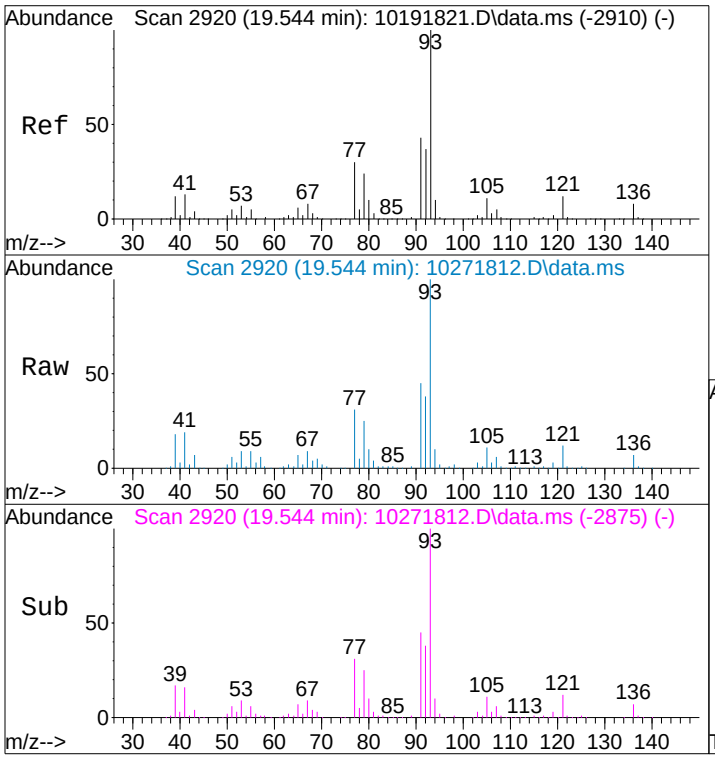


#74
Cumene
Concen: 0.07 ng
RT: 19.20 min Scan# 2858
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:105 Resp: 6558

Ion	Ratio	Lower	Upper
105	100		
120	26.8	7.8	47.8

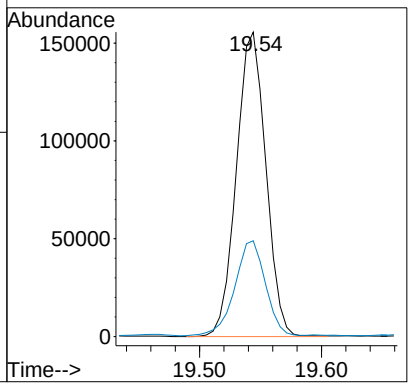


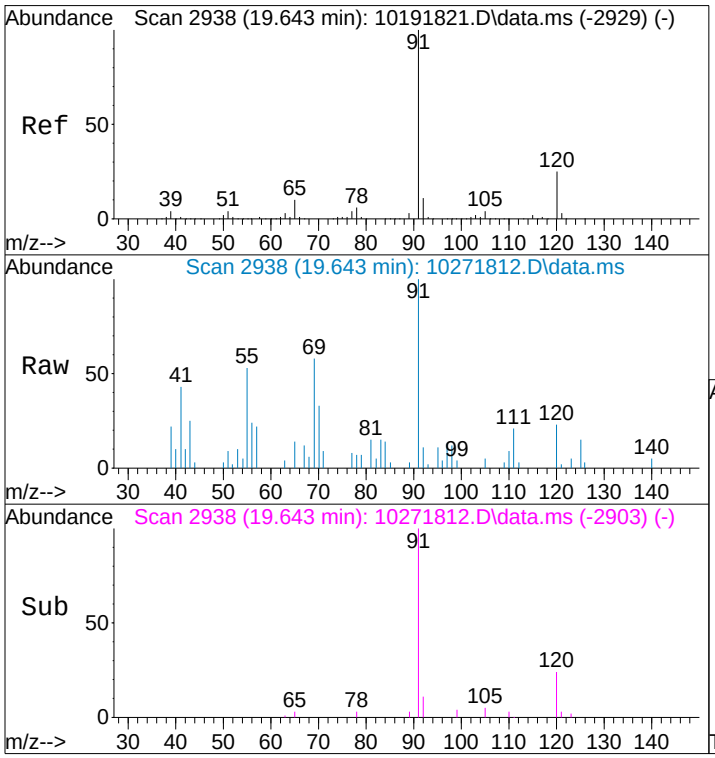


#75
alpha-Pinene
Concen: 5.00 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 93 Resp: 260932

Ion	Ratio	Lower	Upper
93	100		
77	32.4	10.2	50.2

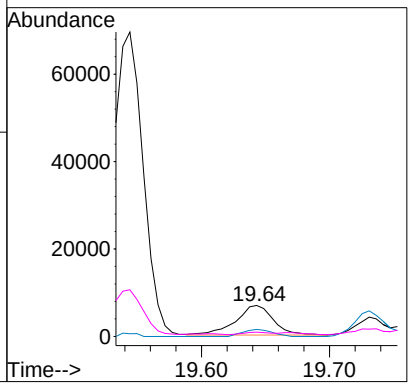


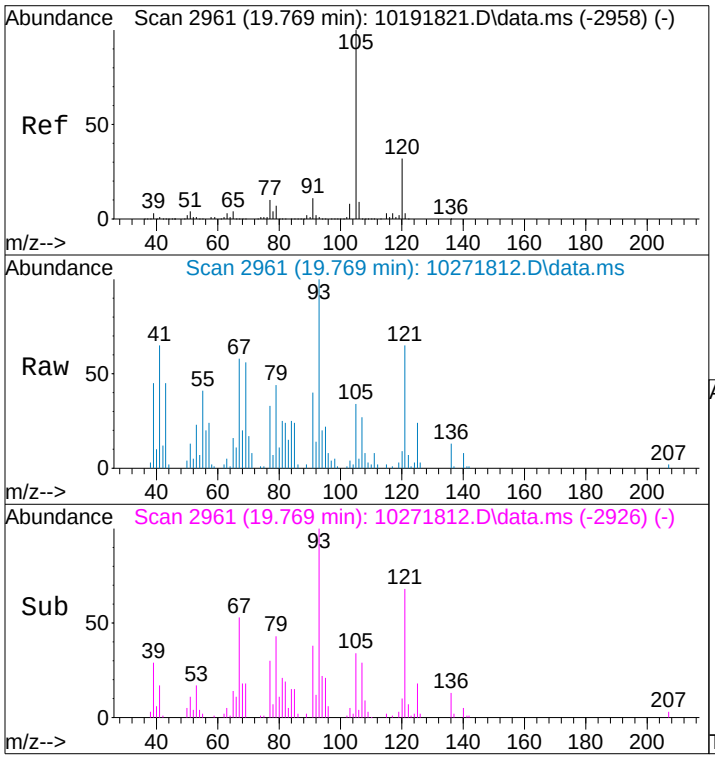


#76
n-Propylbenzene
Concen: 0.12 ng
RT: 19.64 min Scan# 2938
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 91 Resp: 13857

Ion	Ratio	Lower	Upper
91	100		
120	18.1	4.9	44.9
65	6.2	0.0	30.0

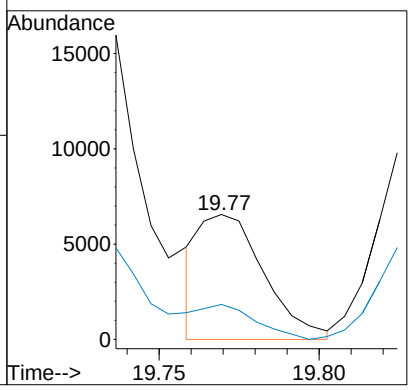


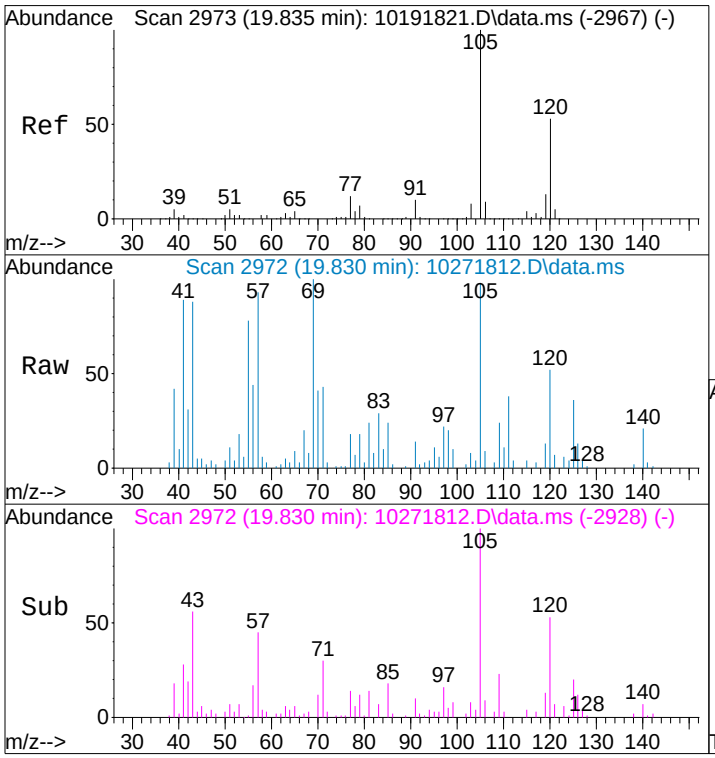


#78
4-Ethyltoluene
Concen: 0.10 ng
RT: 19.77 min Scan# 2961
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:105 Resp: 9270

Ion	Ratio	Lower	Upper
105	100		
120	24.0	11.8	51.8

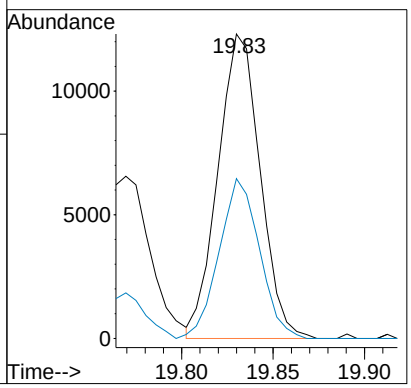


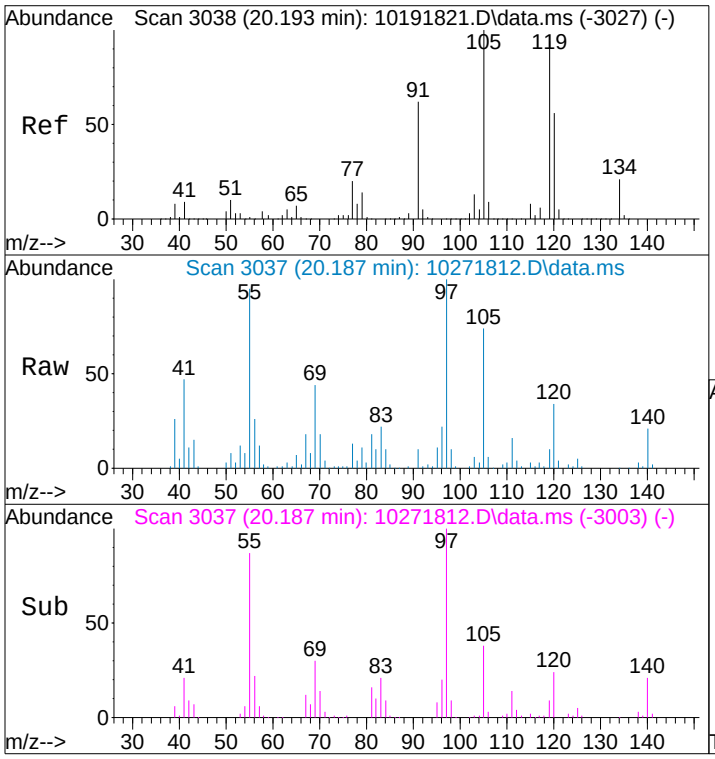


#79
1,3,5-Trimethylbenzene
Concen: 0.23 ng
RT: 19.83 min Scan# 2972
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:105 Resp: 19728

Ion	Ratio	Lower	Upper
105	100		
120	50.3	32.1	72.1

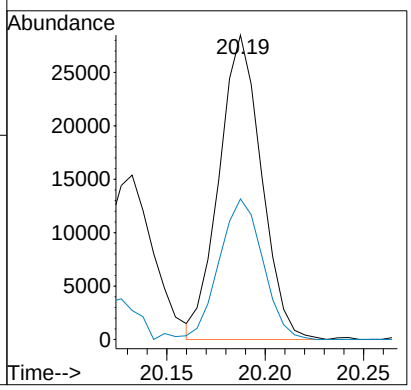


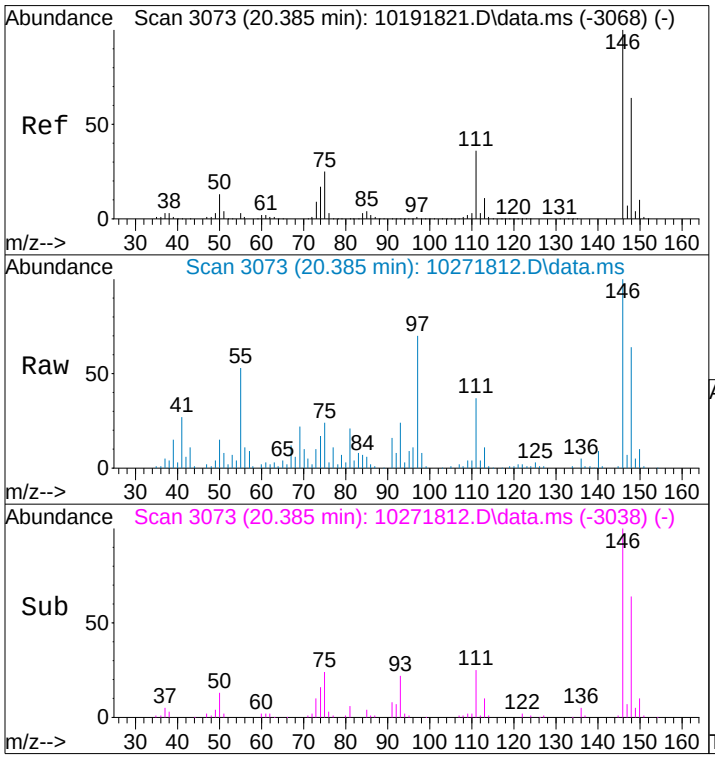


#82
1,2,4-Trimethylbenzene
Concen: 0.52 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:105 Resp: 42683

Ion	Ratio	Lower	Upper
105	100		
120	47.4	36.5	76.5

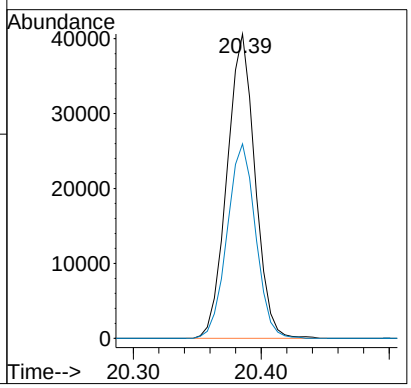


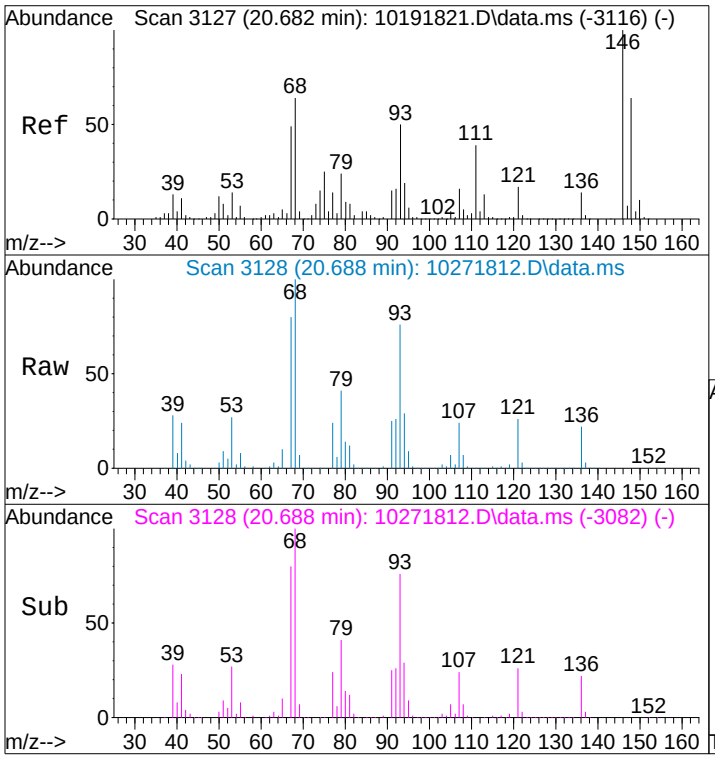


#86
1,4-Dichlorobenzene
Concen: 1.19 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:146 Resp: 61822

Ion	Ratio	Lower	Upper
146	100		
148	64.9	44.2	84.2

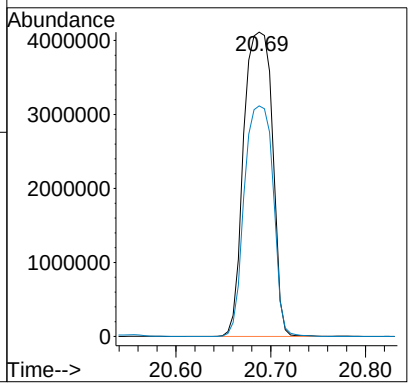


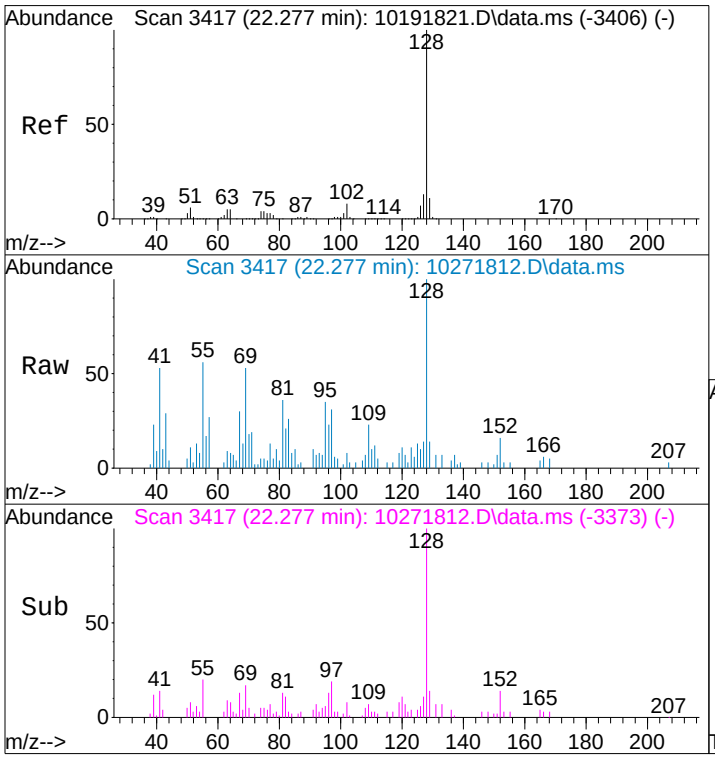


#91
d-Limonene
Concen: 289.41 ng
RT: 20.69 min Scan# 3128
Delta R.T. 0.005 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion: 68 Resp: 8692248

Ion	Ratio	Lower	Upper
68	100		
93	75.6	57.4	97.4

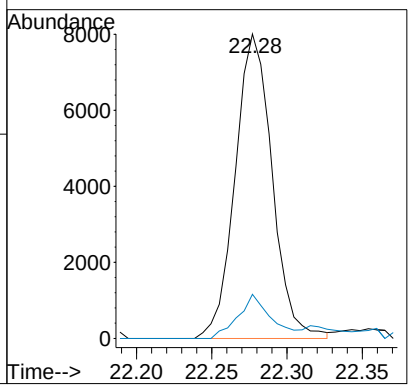




#95
Naphthalene
Concen: 0.12 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271812.D
Acq: 27 Oct 2018 10:54

Tgt Ion:128 Resp: 13689

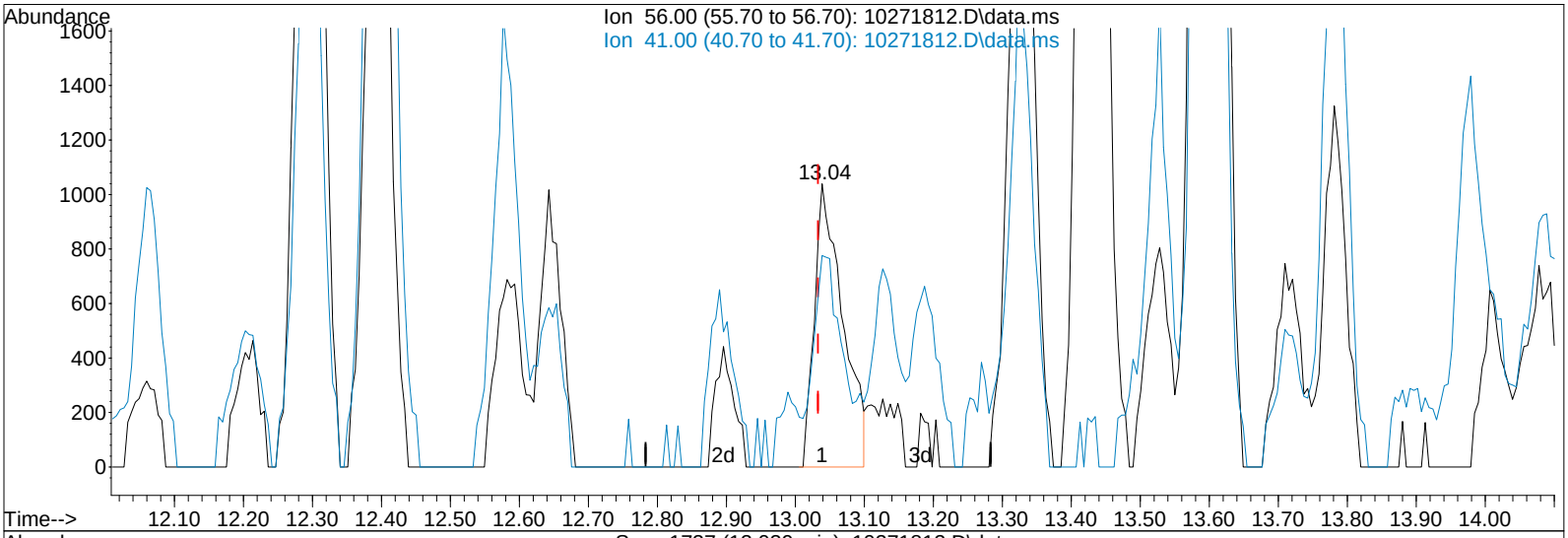
Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	31.1

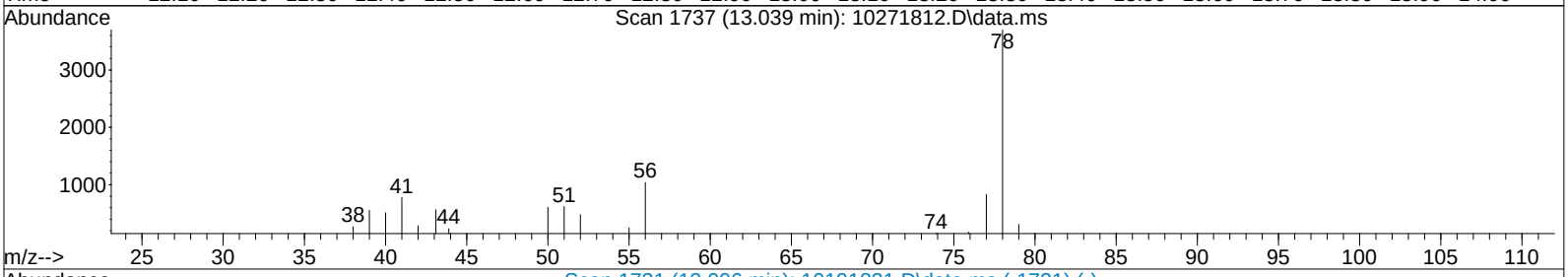


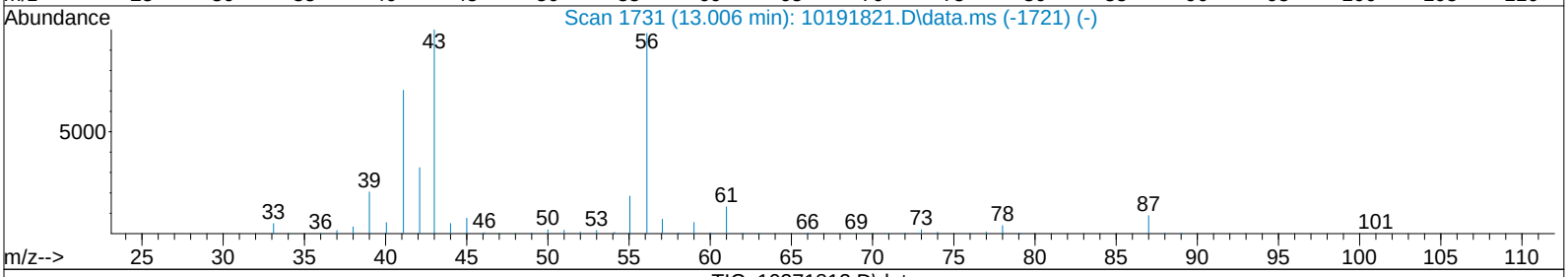
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 11:03:33 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271812.D\data.ms

(40) 1-Butanol (T)

13.039min (+0.006) 0.16ng m

response 2951

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

IPC

TD 10/29/18

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:34:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

WA 10/30/18

DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

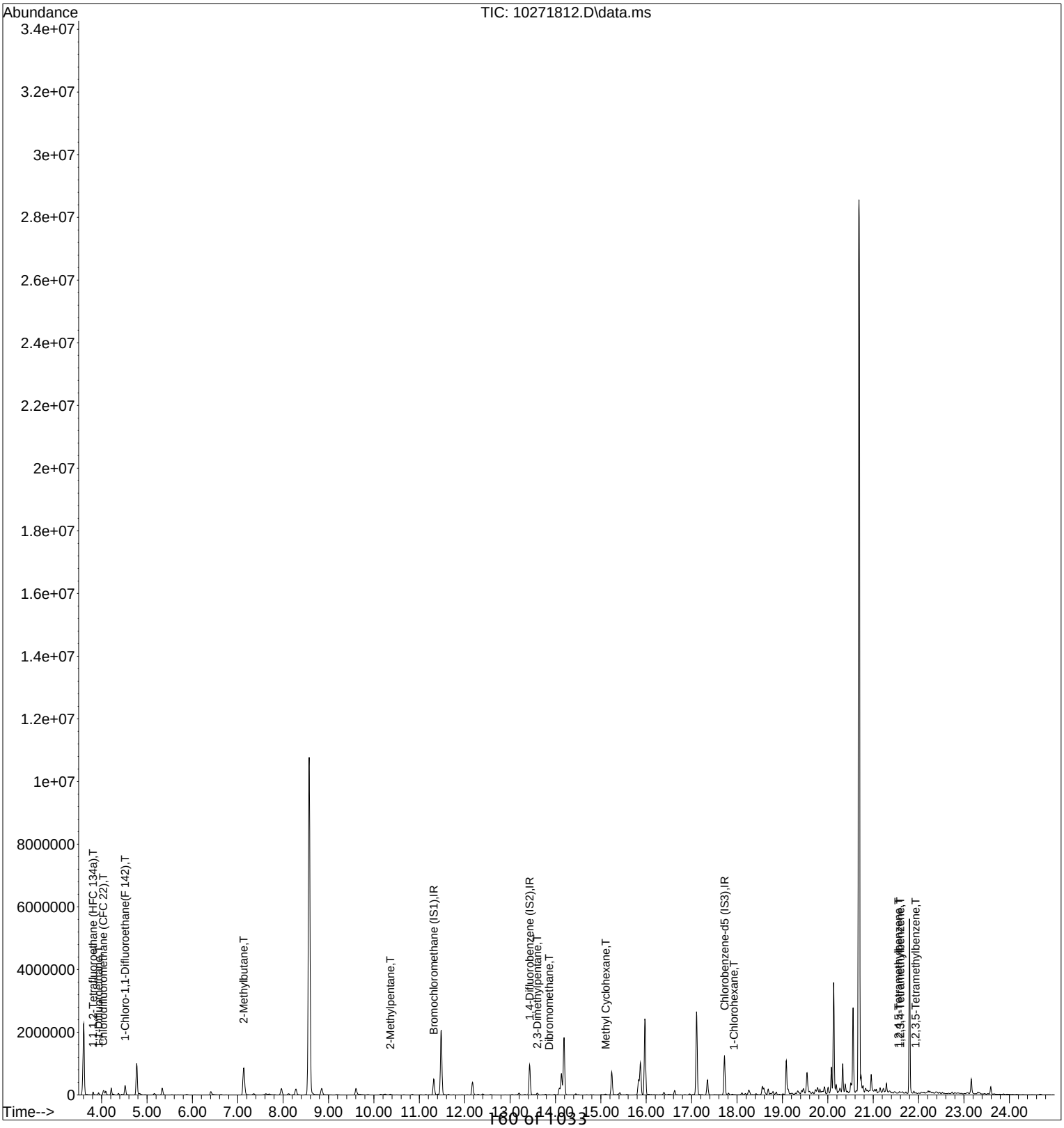
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	228285	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	941177	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	404917	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.72	85	217	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	56569	2.471	ng		88
4) 1,1-Difluoroethane	3.93	65	27434	1.569	ng		99
5) Chlorodifluoromethane ...	4.04	67	18837	2.775	ng		90
6) 1-Chloro-1,1-Difluoroe...	4.52	65	308490	6.223	ng		100
7) Dichlorofluoromethane ...	6.29	67	306	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	262175	14.056	ng		88
11) Methyl Acetate	0.00	43	0	N.D.	d		
12) 2-Methylpentane	10.36	71	7178	0.370	ng	#	62
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.	d		
17) 2,3-Dimethylpentane	13.60	56	29456	0.866	ng		99
18) Dibromomethane	13.86	174	1619	0.077	ng		98
20) Methyl Cyclohexane	15.11	55	13366	0.522	ng	#	71
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.75	131	243	N.D.			
23) 1-Chlorohexane	17.93	91	1619	0.052	ng	#	28
24) 1,2,3-Trichloropropane	18.69	75	545	N.D.			
25) Bromobenzene	19.29	77	663	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	20.73	117	4201	N.D.			
29) Indene	20.81	115	1078	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	6667	0.071	ng		91
31) 1,2,3,4-Tetramethylben...	21.60	119	8062	0.089	ng		98
32) 1,2,3,5-Tetramethylben...	21.94	119	7648	0.088	ng	#	72
33) 1,2,3-Trichlorobenzene	22.51	180	51	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

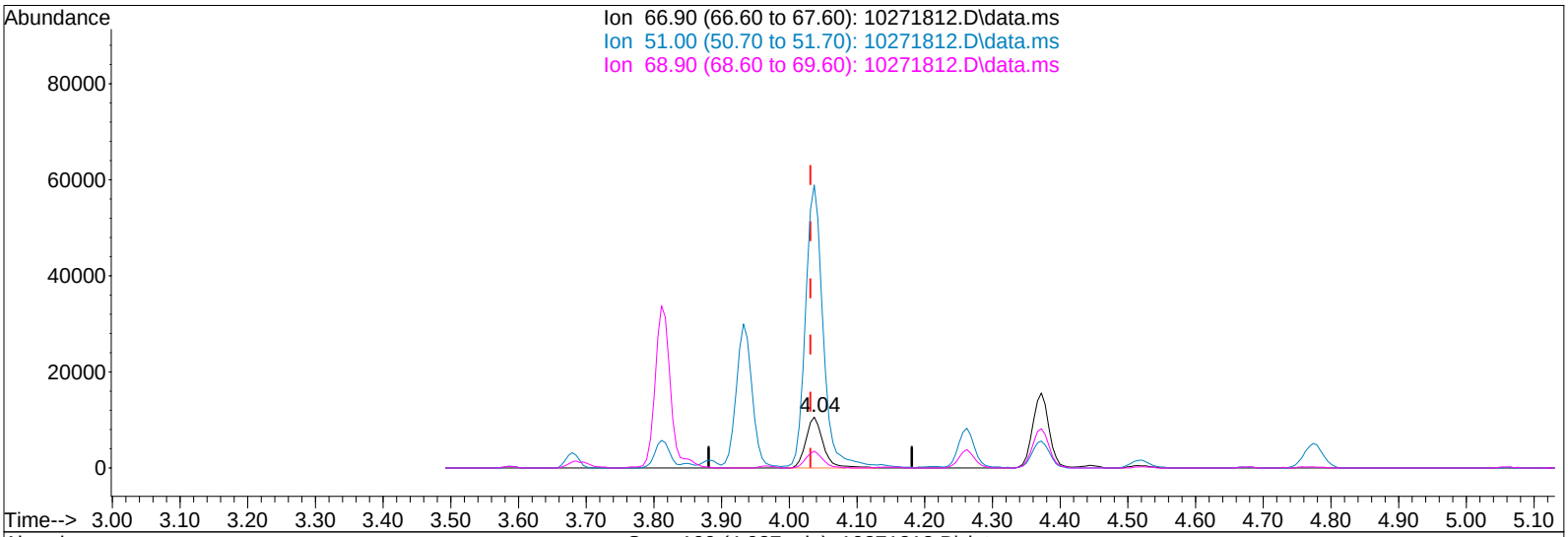
Quant Time: Oct 29 14:34:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

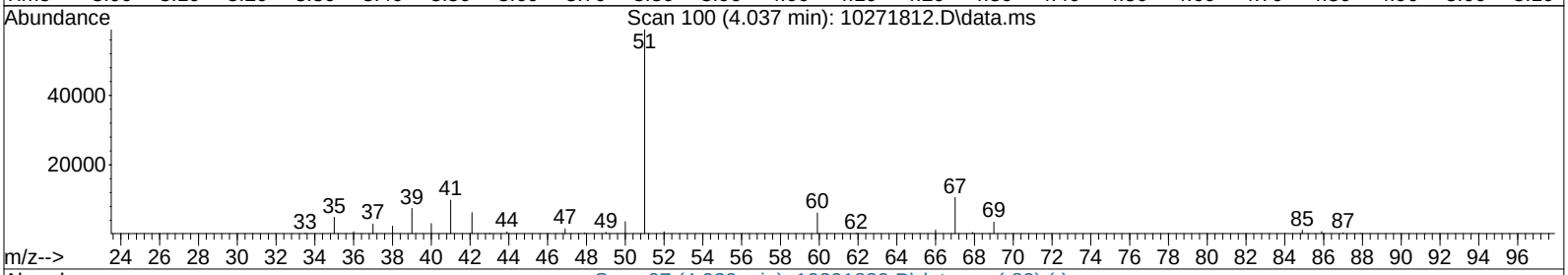


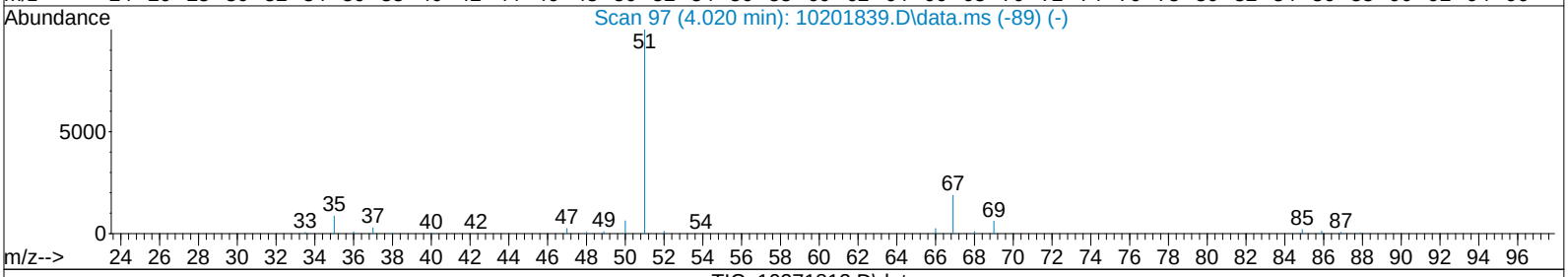
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271812.D
Acq On : 27 Oct 2018 10:54 Operator: WA
Sample : P1805497-003 (500mL) Pf4 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 29 14:32:23 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271812.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.037min (+0.006) 2.77ng

response 18837

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	558.14
68.90	31.80	32.39
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 11:24:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/29/18

10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	250477	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1049352	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	457884	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	372194	12.353	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.80%				
57) Toluene-d8 (SS2)	15.87	98	923165	12.661	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.28%				
73) Bromofluorobenzene (SS3)	19.09	174	372884	11.250	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.00%				
Target Compounds							Qvalue
2) Propene	4.05	42	14624	0.627	ng		91
3) Dichlorodifluoromethan...	4.22	85	87598	1.673	ng		100
4) Chloromethane	4.52	50	4755	0.143	ng	#	54
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	861	N.D.			
6) Vinyl Chloride	4.96	62	3357	0.092	ng		93
7) 1,3-Butadiene	5.24	54	601	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	6.05	64	3106	0.199	ng		92
10) Ethanol	6.40	45	126296	8.964	ng		100
11) Acetonitrile	6.74	41	1480	N.D.			
12) Acrolein	6.94	56	656	0.053	ng		93
13) Acetone	7.11	58	126714	7.538	ng	#	42
14) Trichlorofluoromethane	7.35	101	32986	0.727	ng		99
15) 2-Propanol (Isopropanol)	7.57	45	1359	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.	d		
17) 1,1-Dichloroethene	8.35	96	600	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.57	84	22857	0.973	ng		98
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	9.00	151	2980	0.123	ng		91
22) Carbon Disulfide	8.85	76	115256	1.375	ng		99
23) trans-1,2-Dichloroethene	9.87	61	1591	0.050	ng		91
24) 1,1-Dichloroethane	10.11	63	1387	N.D.			
25) Methyl tert-Butyl Ether	10.25	73	117	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.67	72	1144	0.077	ng	#	30
28) cis-1,2-Dichloroethene	11.14	61	736	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	11.45	61	4993	0.626	ng	#	1
31) n-Hexane	11.41	57	5939	0.164	ng	#	1
32) Chloroform	11.48	83	1418881	33.594	ng		100
34) Tetrahydrofuran (THF)	11.93	72	1028	0.069	ng	#	59
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	1147	N.D.			
38) 1,1,1-Trichloroethane	12.56	97	3297	0.084	ng		95
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	13.04	78	3625	N.D.			
42) Carbon Tetrachloride	13.19	117	14760	0.404	ng		99
43) Cyclohexane	13.32	84	4999	0.134	ng		97
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.08	83	371697	11.014	ng		100
47) Trichloroethene	14.13	130	41058	1.448	ng		98
48) 1,4-Dioxane	14.08	88	328	N.D.			

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 11:24:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

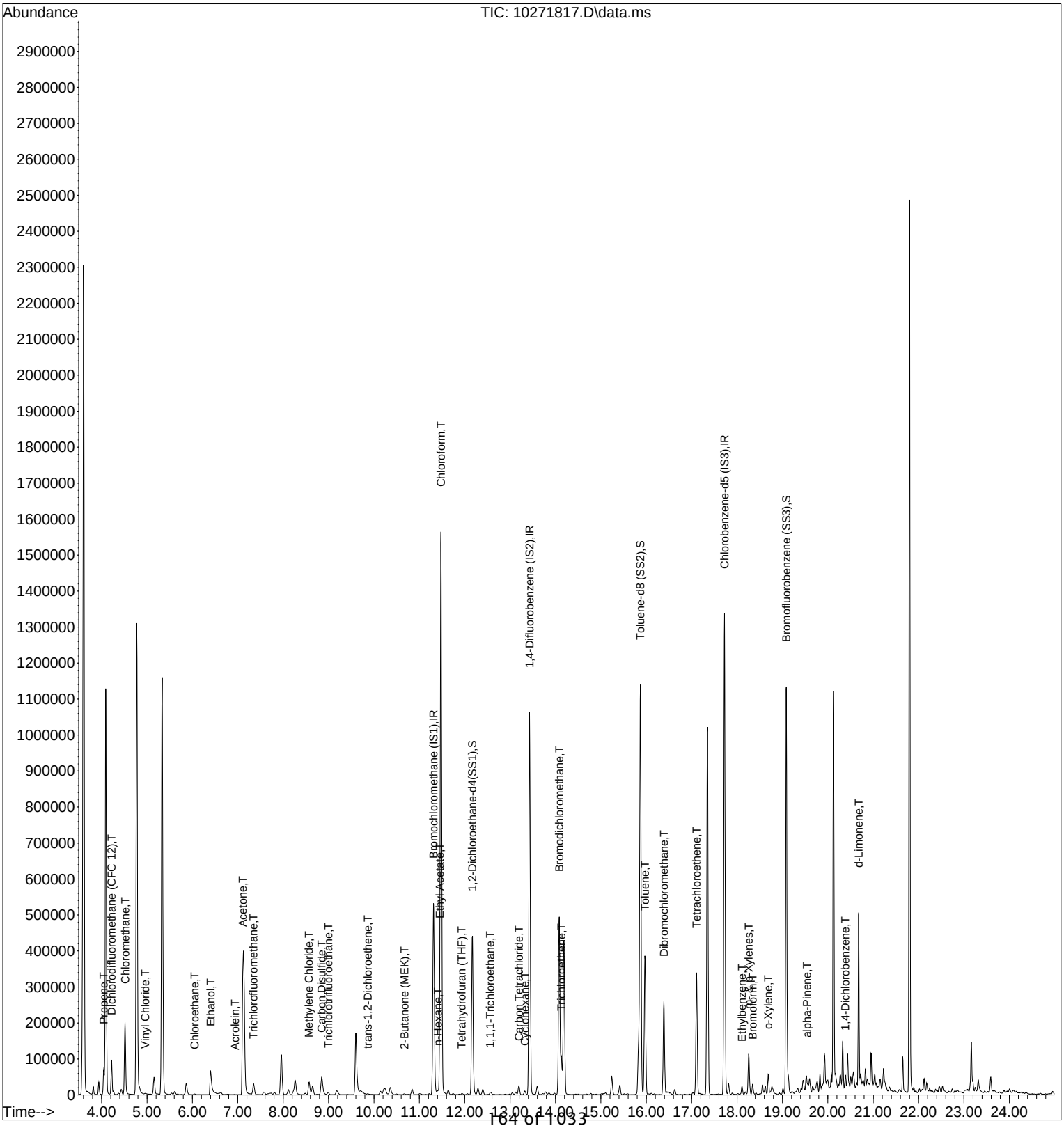
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	0.00	100	0	N.D. d		
51) n-Heptane	14.45	71	314	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	40541	0.400 ng		99
59) 2-Hexanone	16.24	43	723	N.D.		
60) Dibromochloromethane	16.39	129	168348	5.691 ng		100
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.85	43	808	N.D.		
63) n-Octane	16.95	57	183	N.D.		
64) Tetrachloroethene	17.11	166	122724	3.939 ng		99
65) Chlorobenzene	17.76	112	191	N.D.		
66) Ethylbenzene	18.11	91	19344	0.168 ng		95
67) m- & p-Xylenes	18.26	91	77118	0.896 ng		97
68) Bromoform	18.35	173	14976	0.569 ng		99
69) Styrene	18.60	104	1269	N.D.		
70) o-Xylene	18.69	91	30611	0.350 ng		97
71) n-Nonane	18.86	43	655	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.69	83	332	N.D.		
74) Cumene	19.21	105	388	N.D.		
75) alpha-Pinene	19.54	93	5502	0.092 ng	#	1
76) n-Propylbenzene	19.62	91	4478	N.D.		
77) 3-Ethyltoluene	19.73	105	1558	N.D.		
78) 4-Ethyltoluene	19.77	105	903	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	1346	N.D.		
80) alpha-Methylstyrene	19.97	118	205	N.D.		
81) 2-Ethyltoluene	20.00	105	1201	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	2431	N.D.		
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.32	91	1471	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
86) 1,4-Dichlorobenzene	20.39	146	8413	0.142 ng		99
87) sec-Butylbenzene	20.50	105	539	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	20.56	105	1699	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	103186	3.016 ng		99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.35	57	1775	N.D.		
94) 1,2,4-Trichlorobenzene	22.17	180	175	N.D.		
95) Naphthalene	22.28	128	3082	N.D.		
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	501	N.D.		
100) n-Butylbenzene	20.96	91	997	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 11:24:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
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Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

TD 10/29/18

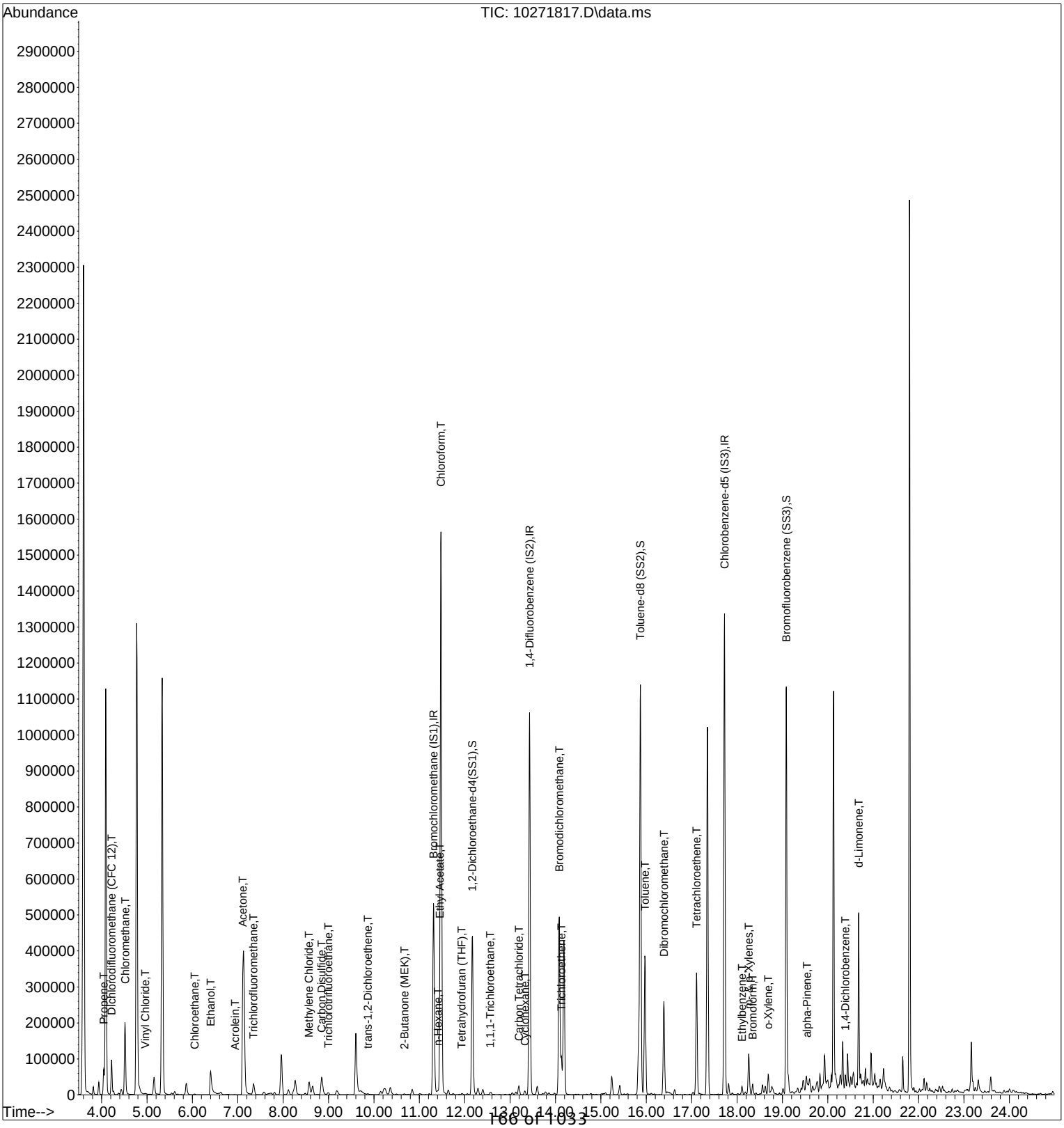
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	250477	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1049352	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	457884	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	372194	12.353	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.80%				
57) Toluene-d8 (SS2)	15.87	98	923165	12.661	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.28%				
73) Bromofluorobenzene (SS3)	19.09	174	372884	11.250	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 90.00%				
Target Compounds							Qvalue
2) Propene	4.05	42	14624	0.627	ng		91
3) Dichlorodifluoromethan...	4.22	85	87598	1.673	ng		100
4) Chloromethane	4.52	50	4755	0.143	ng	#	54
6) Vinyl Chloride	4.96	62	3357	0.092	ng		93
9) Chloroethane	6.05	64	3106	0.199	ng		92
10) Ethanol	6.40	45	126296	8.964	ng		100
12) Acrolein	6.94	56	656	0.053	ng		93
13) Acetone	7.11	58	126714	7.538	ng	#	42
14) Trichlorofluoromethane	7.35	101	32986	0.727	ng		99
19) Methylene Chloride	8.57	84	22857	0.973	ng		98
21) Trichlorotrifluoroethane	9.00	151	2980	0.123	ng		91
22) Carbon Disulfide	8.85	76	115256	1.375	ng		99
23) trans-1,2-Dichloroethene	9.87	61	1591	0.050	ng		91
27) 2-Butanone (MEK)	10.67	72	1144	0.077	ng	#	30
30) Ethyl Acetate	11.45	61	4993	0.626	ng	#	1
31) n-Hexane	11.41	57	5939	0.164	ng	#	1
32) Chloroform	11.48	83	1418881	33.594	ng		100
34) Tetrahydrofuran (THF)	11.93	72	1028	0.069	ng	#	59
38) 1,1,1-Trichloroethane	12.56	97	3297	0.084	ng		95
42) Carbon Tetrachloride	13.19	117	14760	0.404	ng		99
43) Cyclohexane	13.32	84	4999	0.134	ng		97
46) Bromodichloromethane	14.08	83	371697	11.014	ng		100
47) Trichloroethene	14.13	130	41058	1.448	ng		98
58) Toluene	15.97	91	40541	0.400	ng		99
60) Dibromochloromethane	16.39	129	168348	5.691	ng		100
64) Tetrachloroethene	17.11	166	122724	3.939	ng		99
66) Ethylbenzene	18.11	91	19344	0.168	ng		95
67) m- & p-Xylenes	18.26	91	77118	0.896	ng		97
68) Bromoform	18.35	173	14976	0.569	ng		99
70) o-Xylene	18.69	91	30611	0.350	ng		97
75) alpha-Pinene	19.54	93	5502	0.092	ng	#	1
86) 1,4-Dichlorobenzene	20.39	146	8413	0.142	ng		99
91) d-Limonene	20.68	68	103186	3.016	ng		99

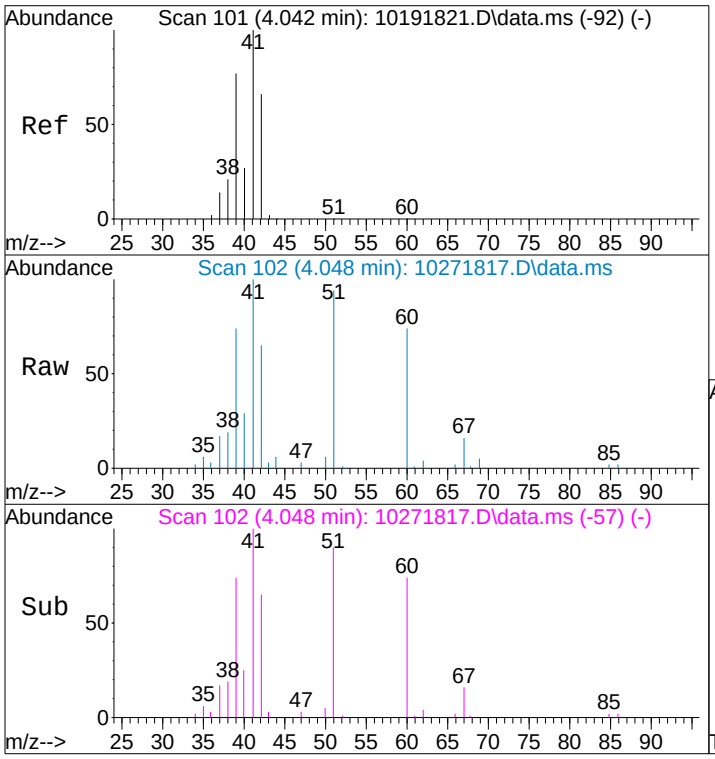
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 11:24:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

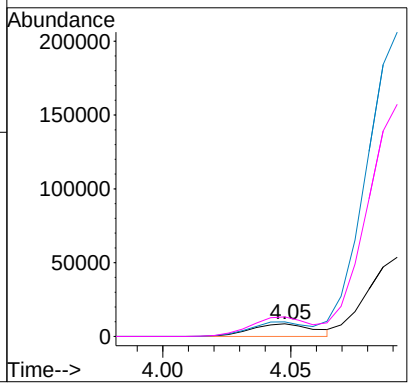


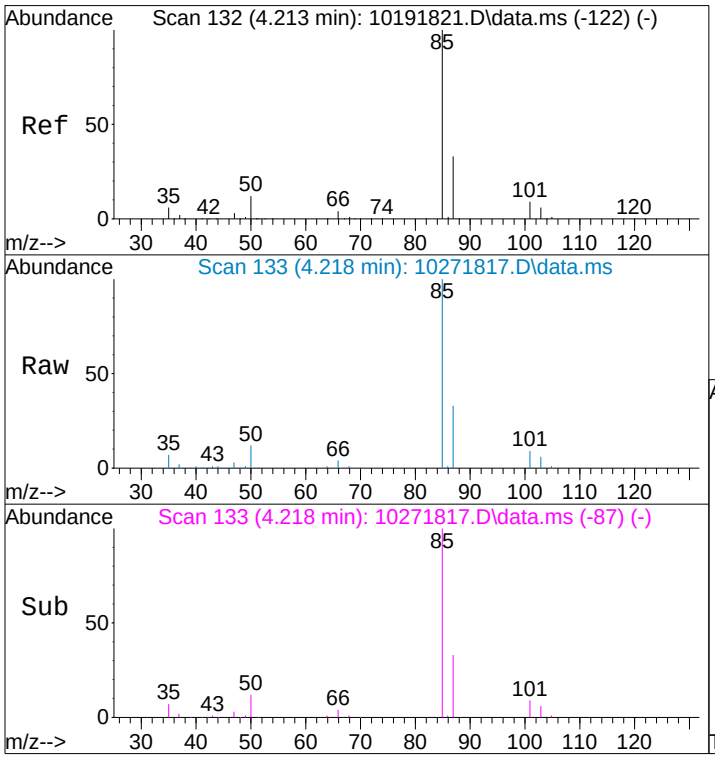


#2
Propene
Concen: 0.63 ng
RT: 4.05 min Scan# 102
Delta R.T. -0.000 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 42 Resp: 14624

Ion	Ratio	Lower	Upper
42	100		
39	108.0	98.5	138.5
41	141.0	131.9	171.9

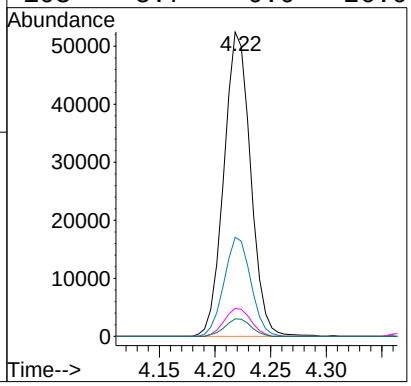


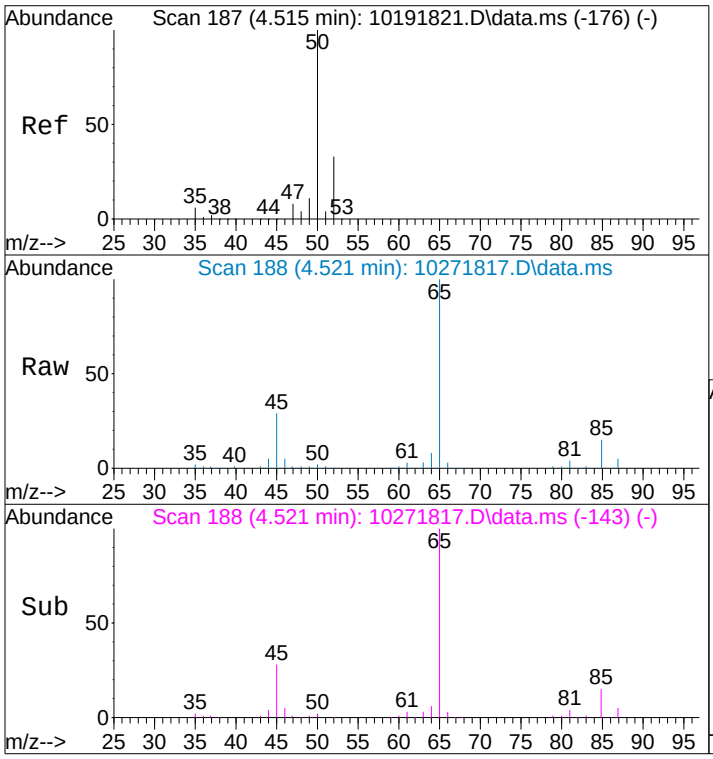


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.67 ng
RT: 4.22 min Scan# 133
Delta R.T. 0.005 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 85 Resp: 87598

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.6	52.6
101	9.2	0.0	29.4
103	5.7	0.0	26.0

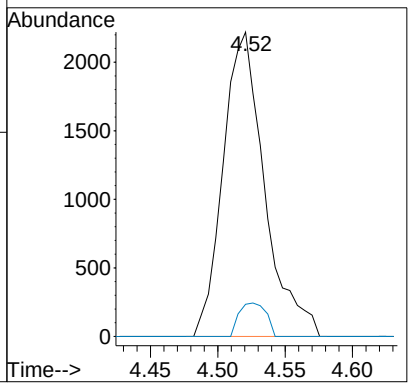


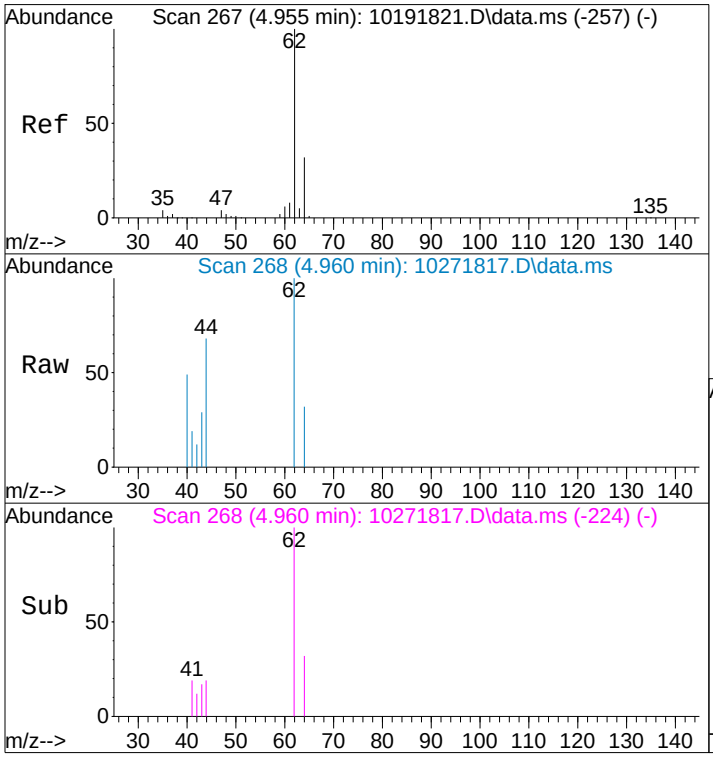


#4
Chloromethane
Concen: 0.14 ng
RT: 4.52 min Scan# 188
Delta R.T. -0.000 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 50 Resp: 4755

Ion	Ratio	Lower	Upper
50	100		
52	7.2	13.2	53.2#

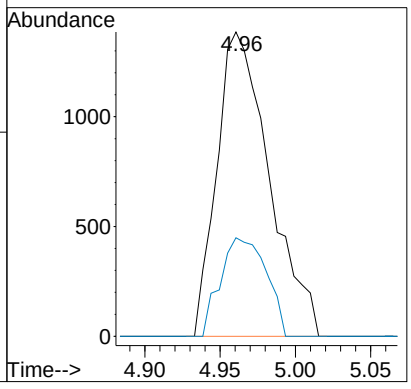


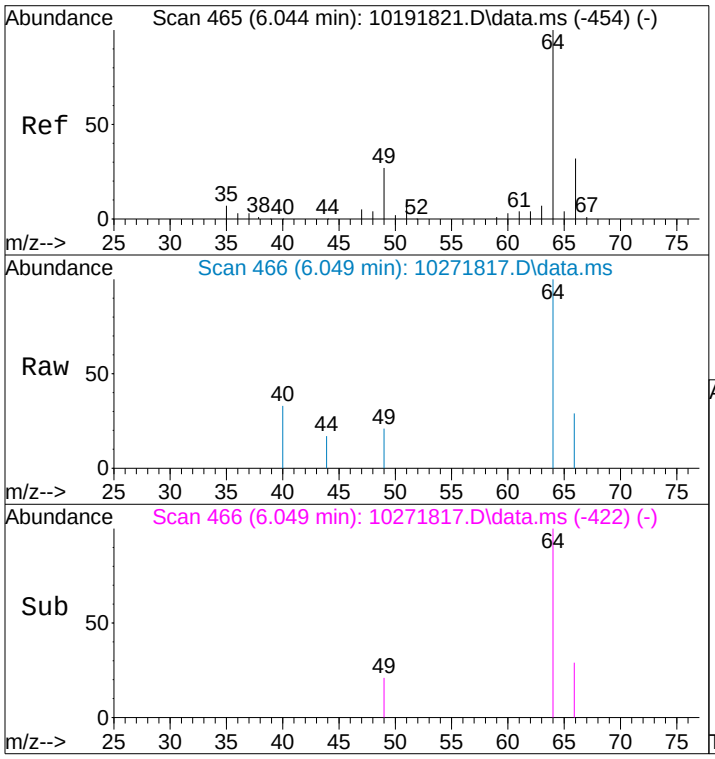


#6
Vinyl Chloride
Concen: 0.09 ng
RT: 4.96 min Scan# 268
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 62 Resp: 3357

Ion	Ratio	Lower	Upper
62	100		
64	28.4	12.2	52.2

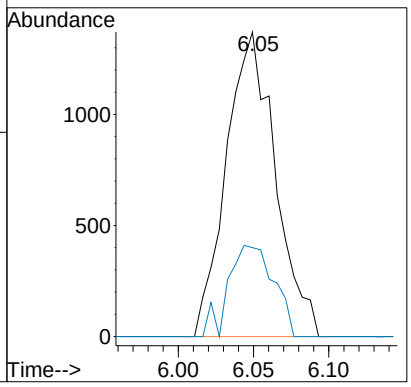


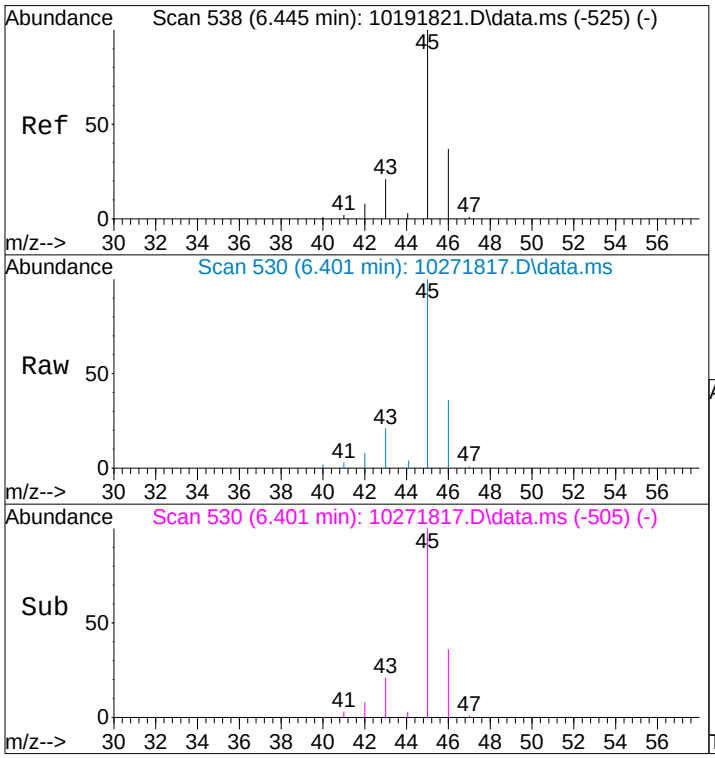


#9
Chloroethane
Concen: 0.20 ng
RT: 6.05 min Scan# 466
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 64 Resp: 3106

Ion	Ratio	Lower	Upper
64	100		
66	27.7	12.2	52.2

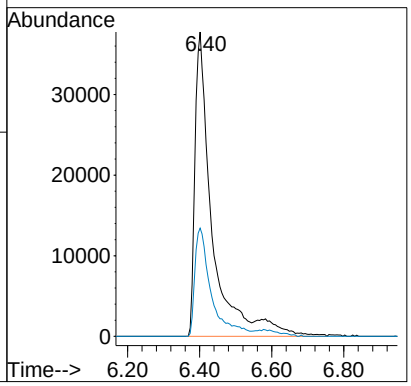


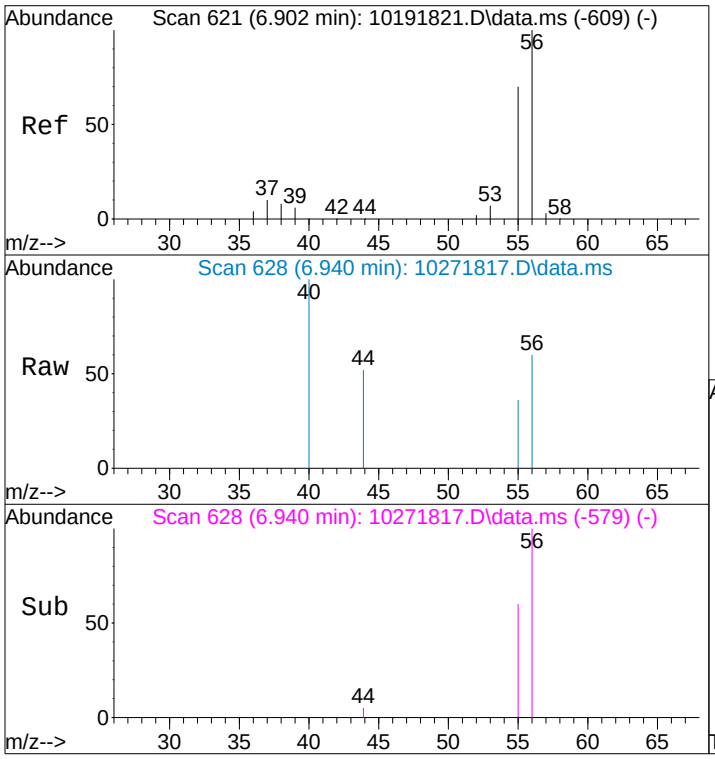


#10
Ethanol
Concen: 8.96 ng
RT: 6.40 min Scan# 530
Delta R.T. -0.110 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 45 Resp: 126296

Ion	Ratio	Lower	Upper
45	100		
46	36.8	16.6	56.6

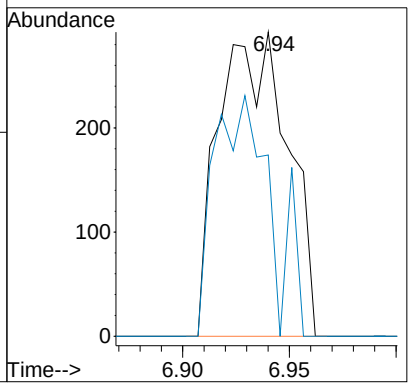


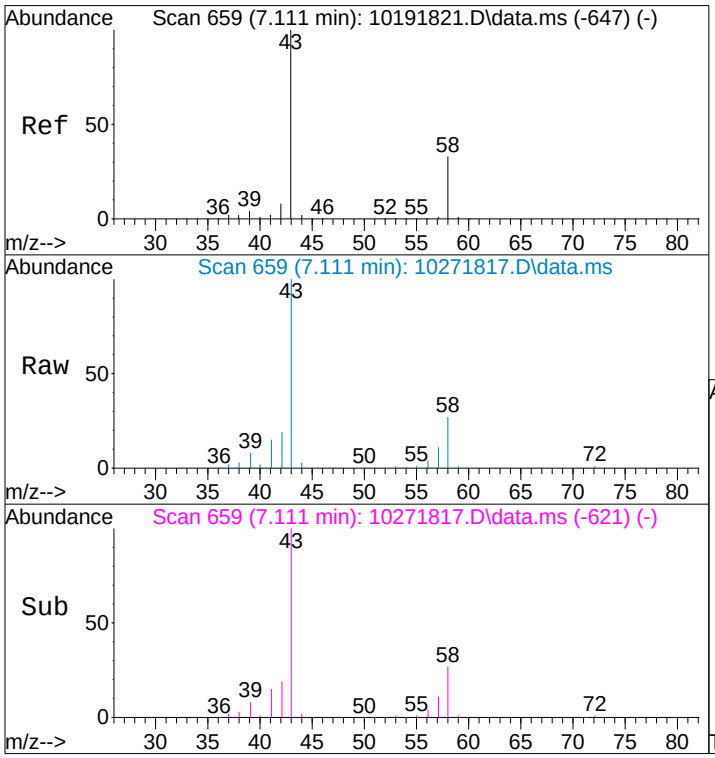


#12
Acrolein
Concen: 0.05 ng
RT: 6.94 min Scan# 628
Delta R.T. 0.022 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 56 Resp: 656

Ion	Ratio	Lower	Upper
56	100		
55	65.1	51.0	91.0

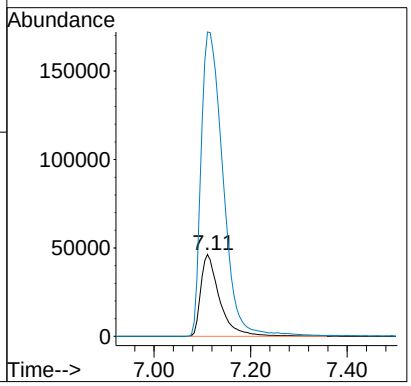


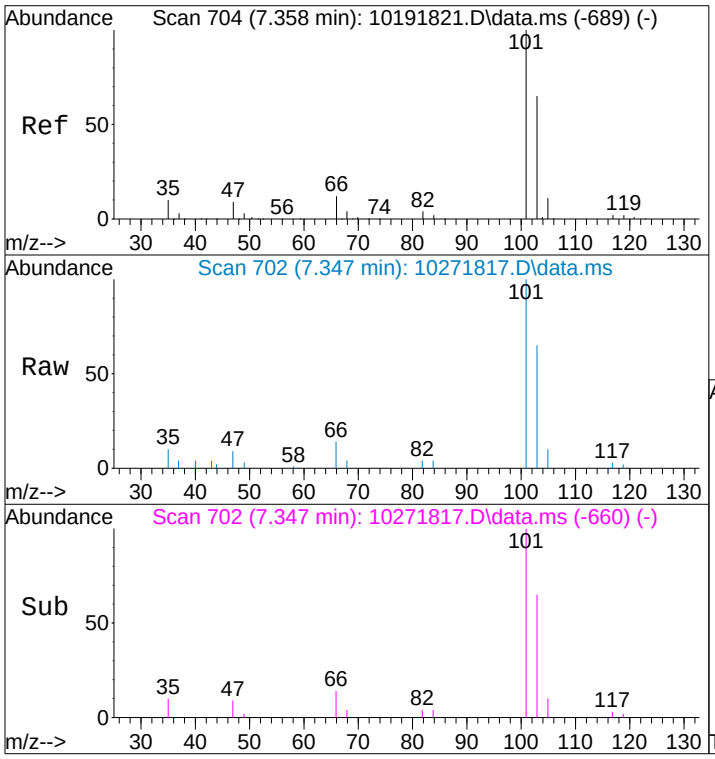


#13
Acetone
Concen: 7.54 ng
RT: 7.11 min Scan# 659
Delta R.T. -0.039 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 58 Resp: 126714

Ion	Ratio	Lower	Upper
58	100		
43	429.7	283.4	343.4#

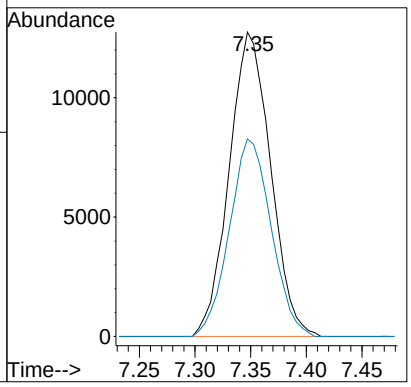


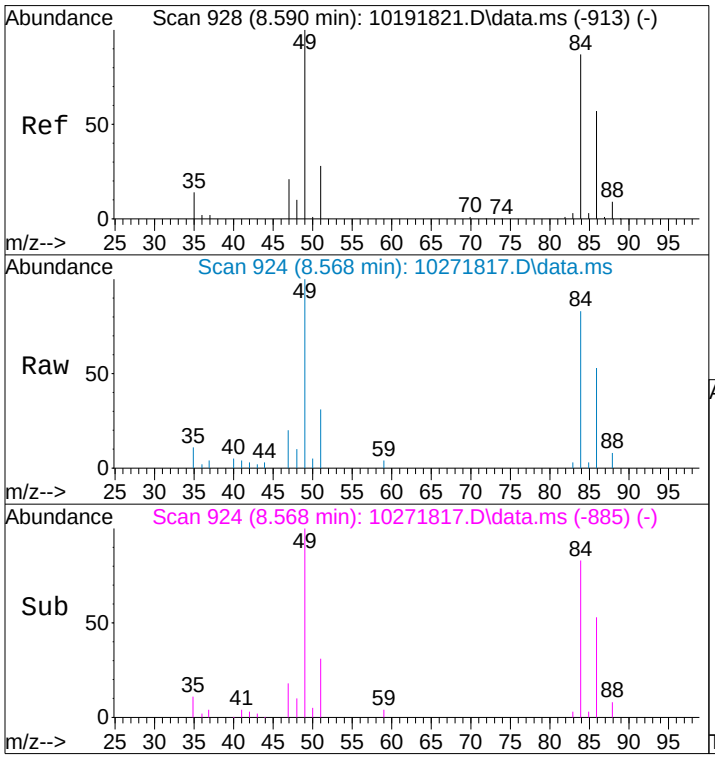


#14
Trichlorofluoromethane
Concen: 0.73 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.017 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:101 Resp: 32986

Ion	Ratio	Lower	Upper
101	100		
103	65.5	44.8	84.8

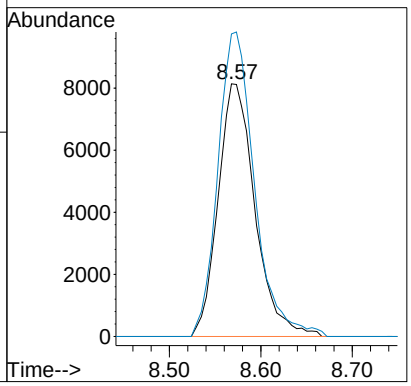


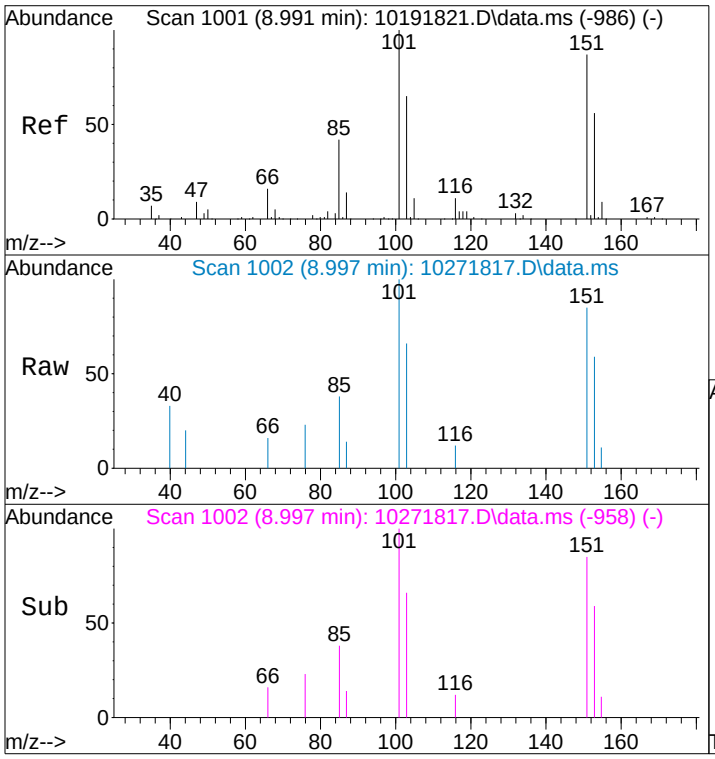


#19
Methylene Chloride
Concen: 0.97 ng
RT: 8.57 min Scan# 924
Delta R.T. -0.033 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 84 Resp: 22857

Ion	Ratio	Lower	Upper
84	100		
49	119.5	92.1	142.1

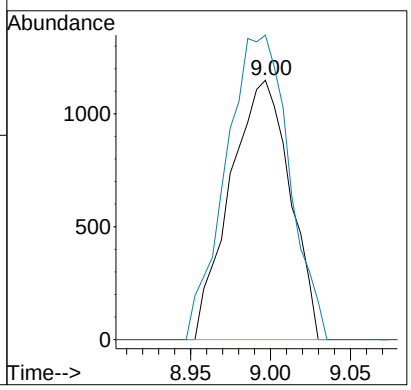


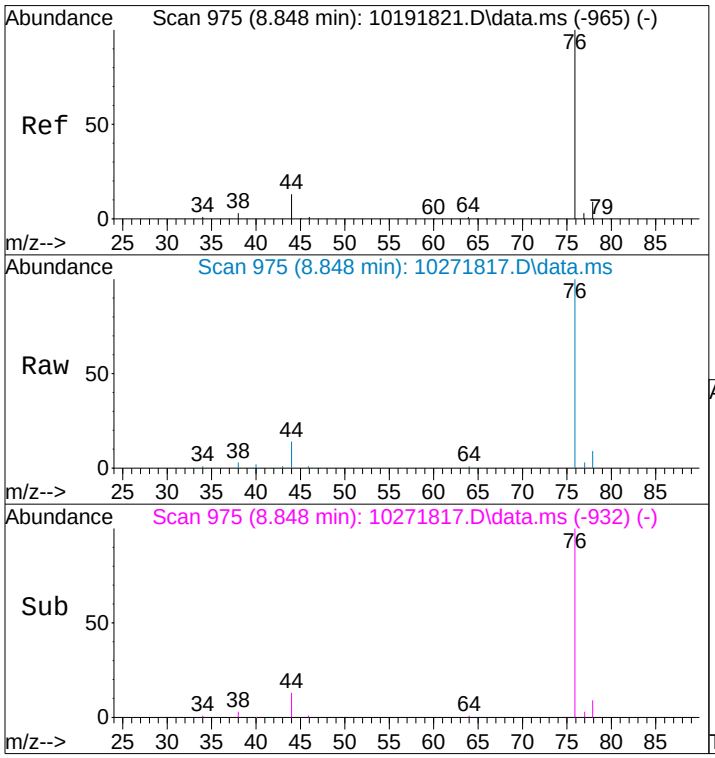


#21
Trichlorotrifluoroethane
Concen: 0.12 ng
RT: 9.00 min Scan# 1002
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:151 Resp: 2980

Ion	Ratio	Lower	Upper
151	100		
101	124.5	94.4	134.4

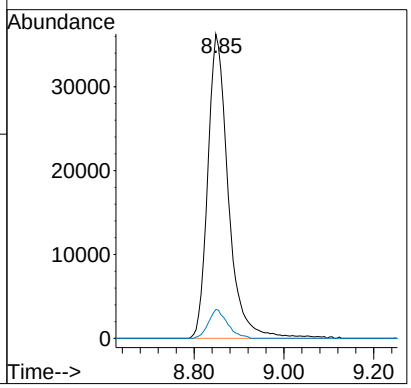


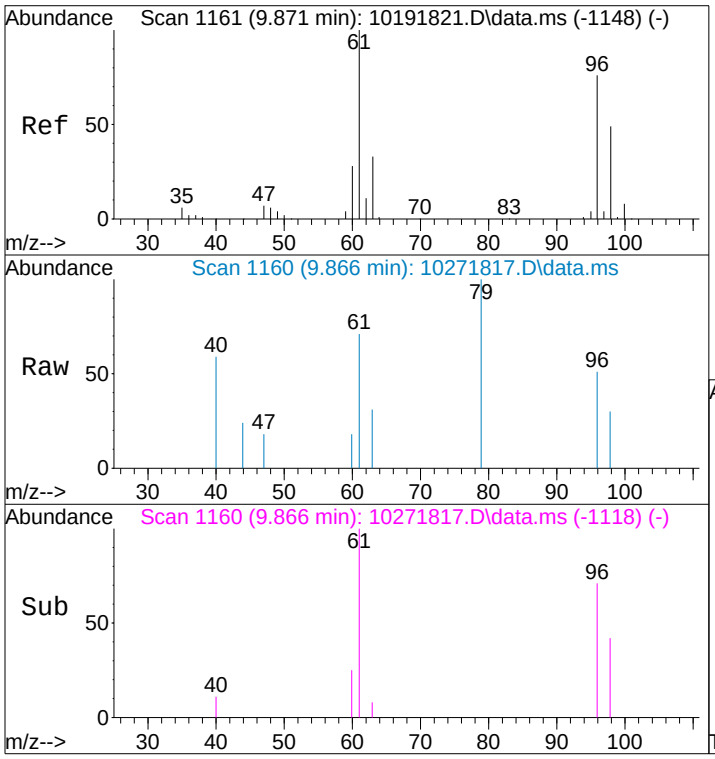


#22
Carbon Disulfide
Concen: 1.38 ng
RT: 8.85 min Scan# 975
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 76 Resp: 115256

Ion	Ratio	Lower	Upper
76	100		
78	8.8	0.0	29.3

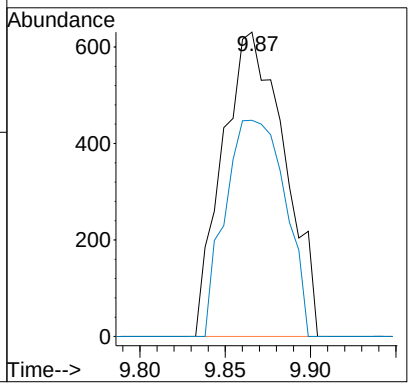


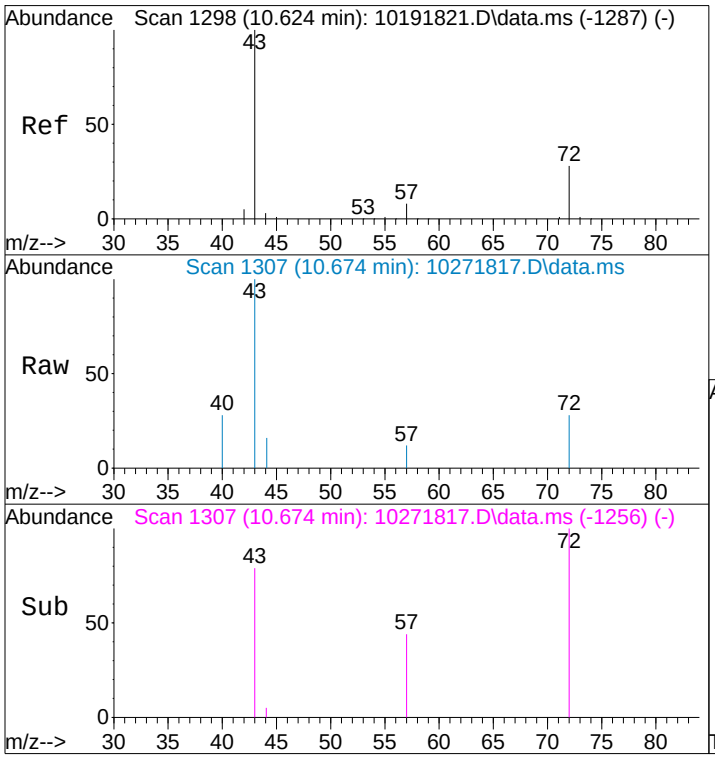


#23
trans-1,2-Dichloroethene
Concen: 0.05 ng
RT: 9.87 min Scan# 1160
Delta R.T. -0.017 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 61 Resp: 1591

Ion	Ratio	Lower	Upper
61	100		
96	68.6	56.4	96.4

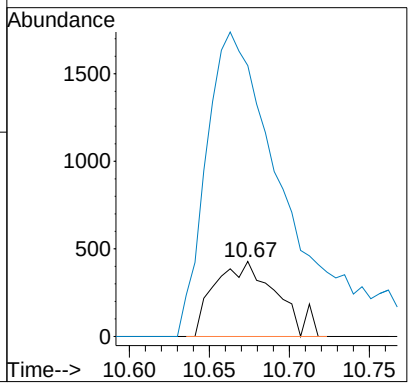


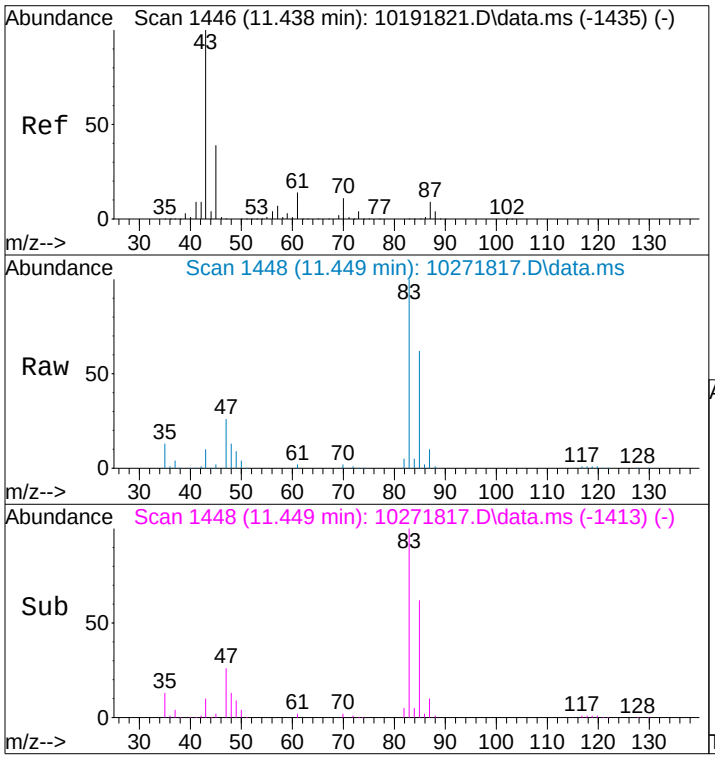


#27
2-Butanone (MEK)
Concen: 0.08 ng
RT: 10.67 min Scan# 1307
Delta R.T. 0.033 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 72 Resp: 1144

Ion	Ratio	Lower	Upper
72	100		
43	528.1	350.1	390.1#

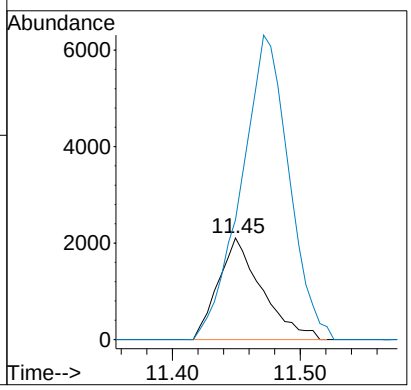


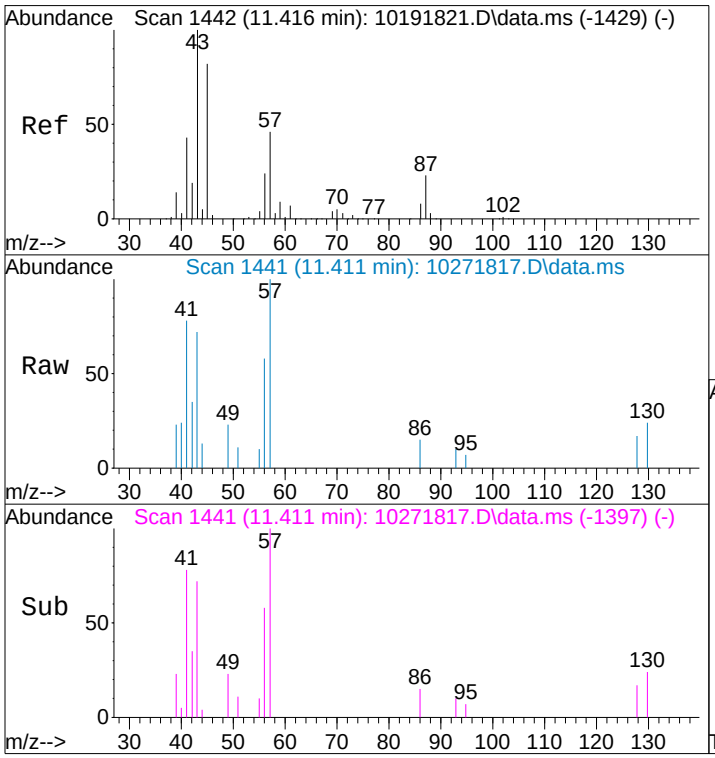


#30
Ethyl Acetate
Concen: 0.63 ng
RT: 11.45 min Scan# 1448
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 61 Resp: 4993

Ion	Ratio	Lower	Upper
61	100		
70	327.8	61.7	101.7#

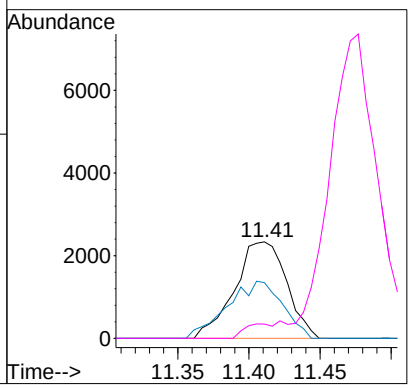


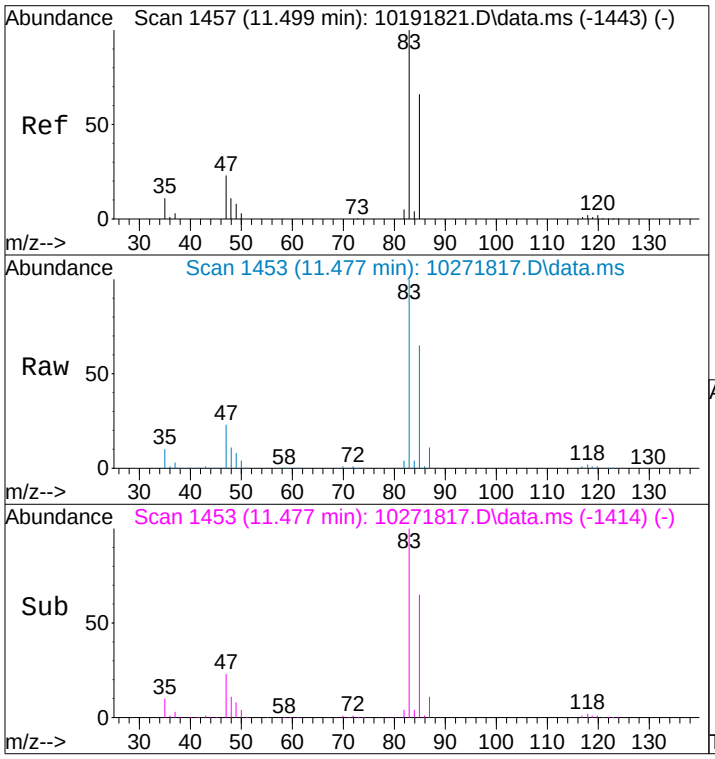


#31
n-Hexane
Concen: 0.16 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 57 Resp: 5939

Ion	Ratio	Lower	Upper
57	100		
56	62.9	41.4	62.0#
86	297.9	13.7	20.5#

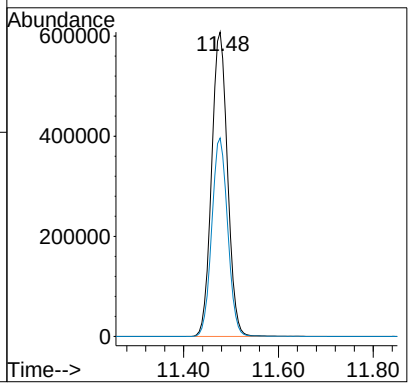


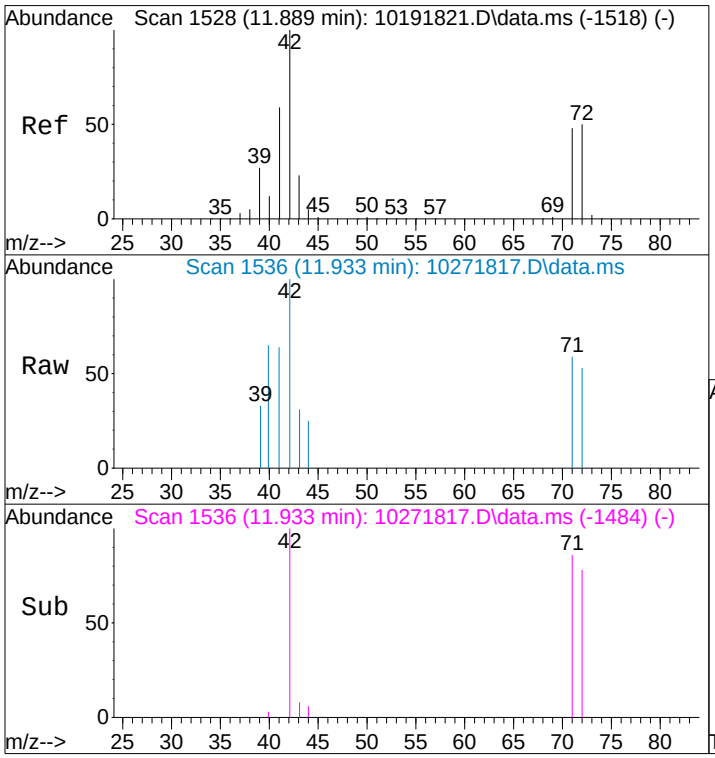


#32
Chloroform
Concen: 33.59 ng
RT: 11.48 min Scan# 1453
Delta R.T. -0.033 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 83 Resp: 1418881

Ion	Ratio	Lower	Upper
83	100		
85	65.3	45.5	85.5

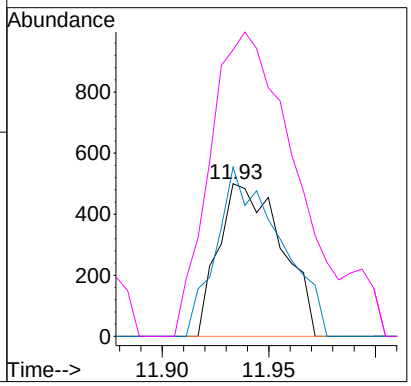


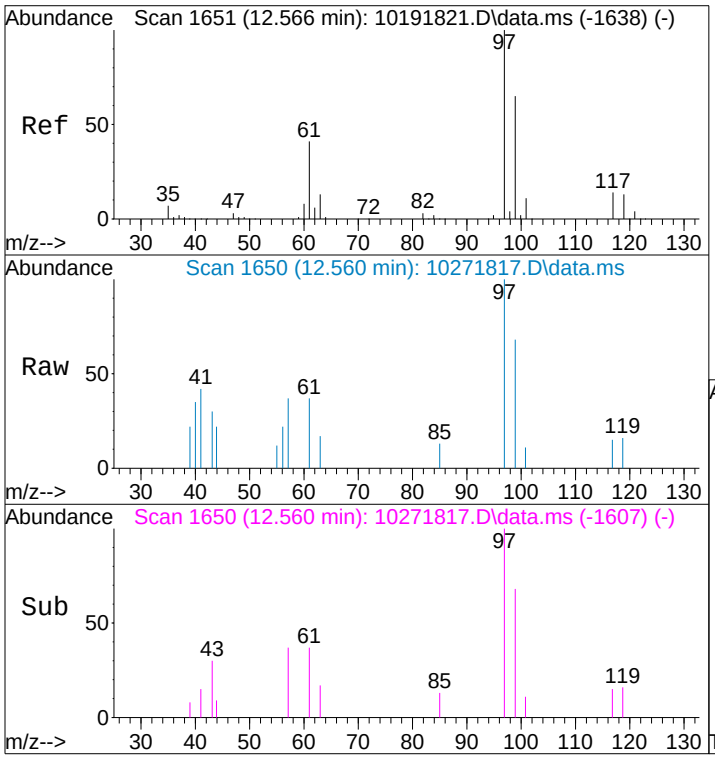


#34
Tetrahydrofuran (THF)
Concen: 0.07 ng
RT: 11.93 min Scan# 1536
Delta R.T. 0.038 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 72 Resp: 1028

Ion	Ratio	Lower	Upper
72	100		
71	111.8	77.2	117.2
42	283.9	181.3	221.3#

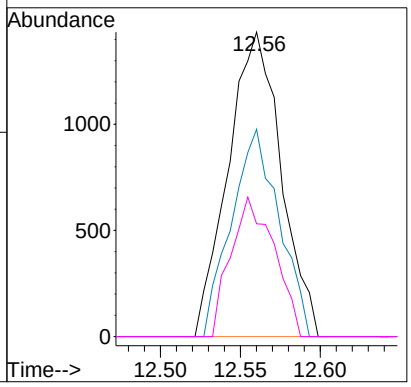


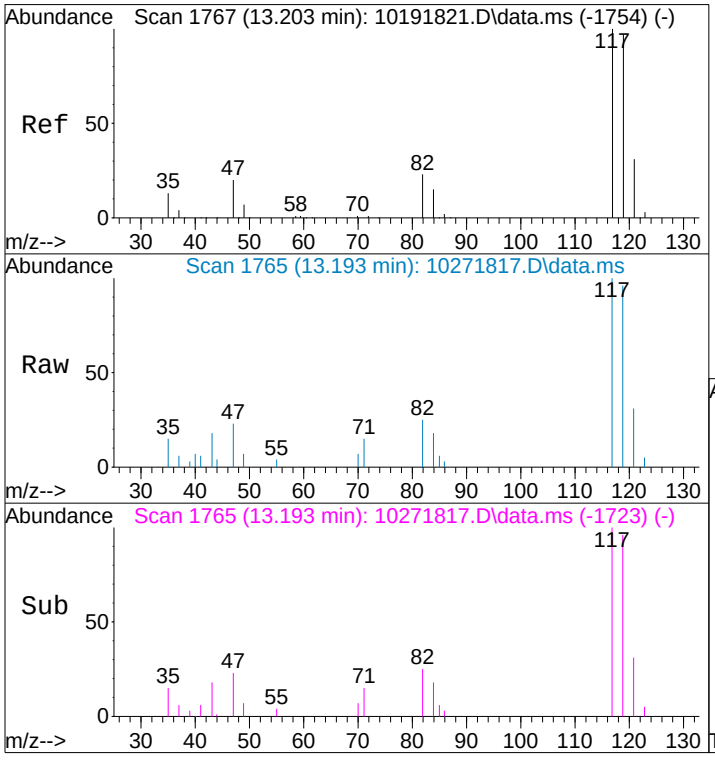


#38
1,1,1-Trichloroethane
Concen: 0.08 ng
RT: 12.56 min Scan# 1650
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 97 Resp: 3297

Ion	Ratio	Lower	Upper
97	100		
99	61.4	44.9	84.9
61	37.7	21.3	61.3

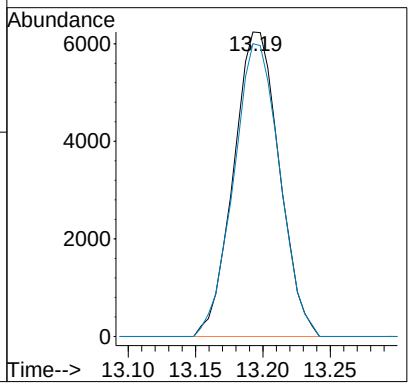


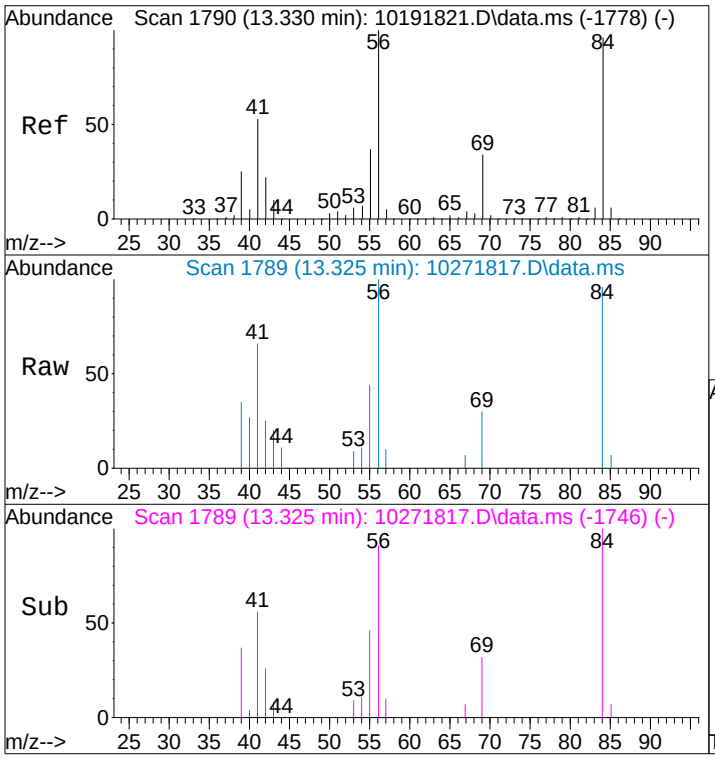


#42
Carbon Tetrachloride
Concen: 0.40 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.017 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:117 Resp: 14760

Ion	Ratio	Lower	Upper
117	100		
119	96.6	76.0	116.0

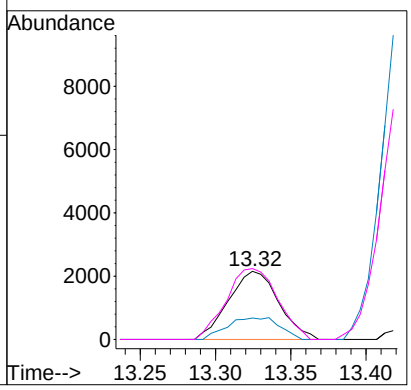


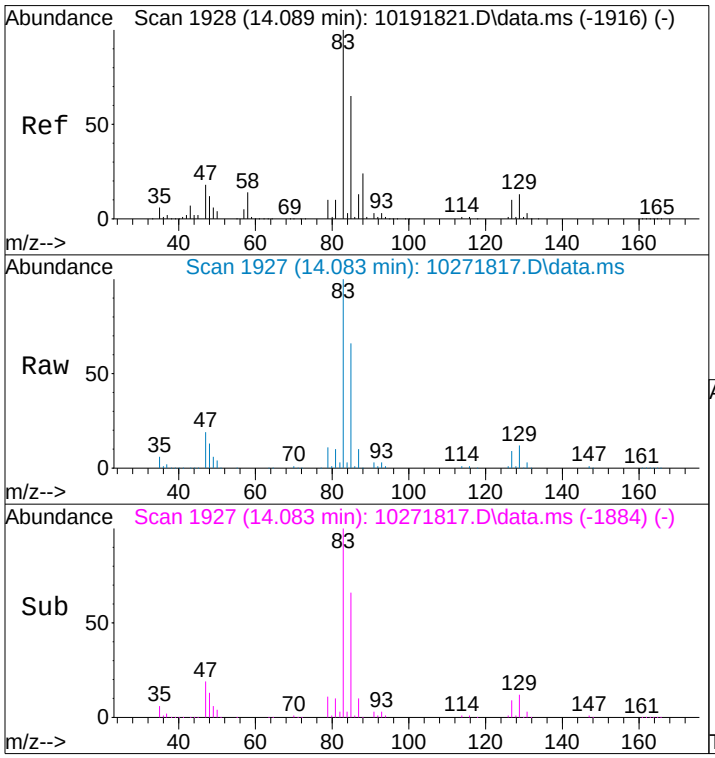


#43
Cyclohexane
Concen: 0.13 ng
RT: 13.32 min Scan# 1789
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 84 Resp: 4999

Ion	Ratio	Lower	Upper
84	100		
69	33.4	14.8	54.8
56	106.6	83.9	123.9

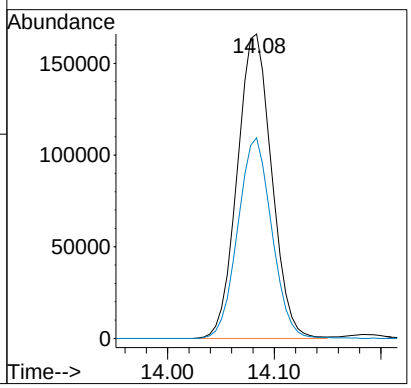


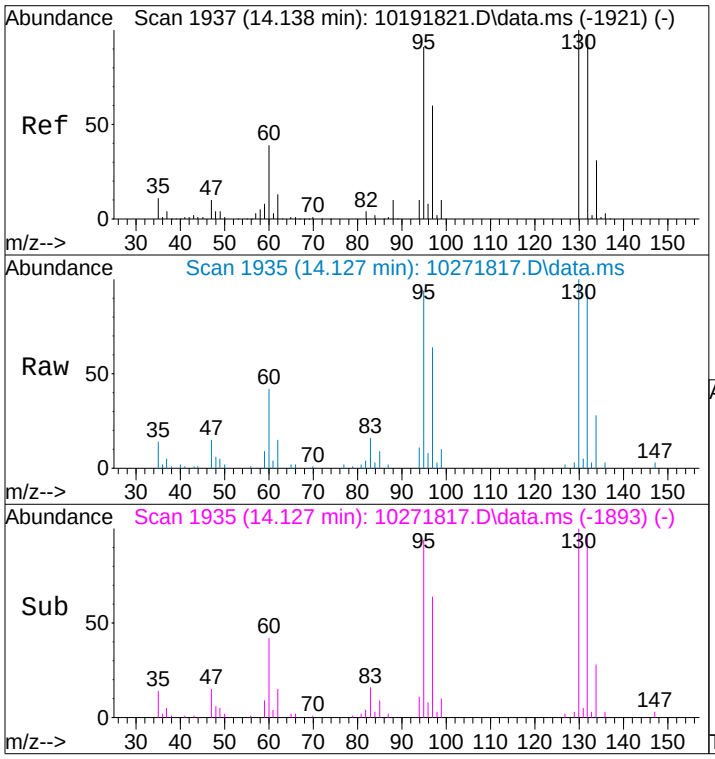


#46
Bromodichloromethane
Concen: 11.01 ng
RT: 14.08 min Scan# 1927
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 83 Resp: 371697

Ion	Ratio	Lower	Upper
83	100		
85	65.0	45.0	85.0

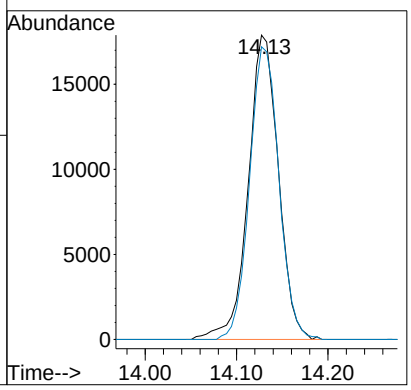


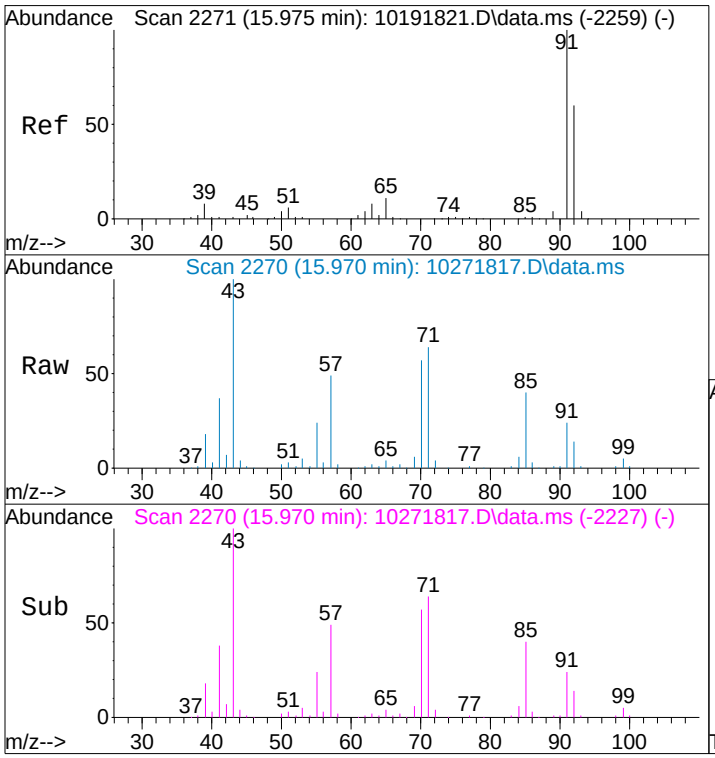


#47
Trichloroethene
Concen: 1.45 ng
RT: 14.13 min Scan# 1935
Delta R.T. -0.017 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:130 Resp: 41058

Ion	Ratio	Lower	Upper
130	100		
132	93.7	75.7	115.7

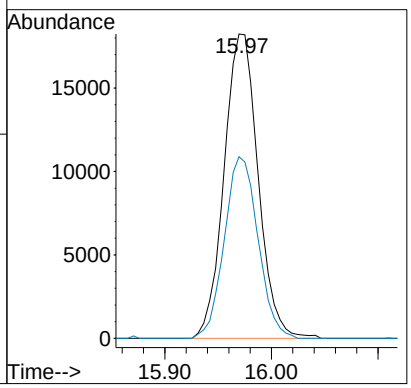


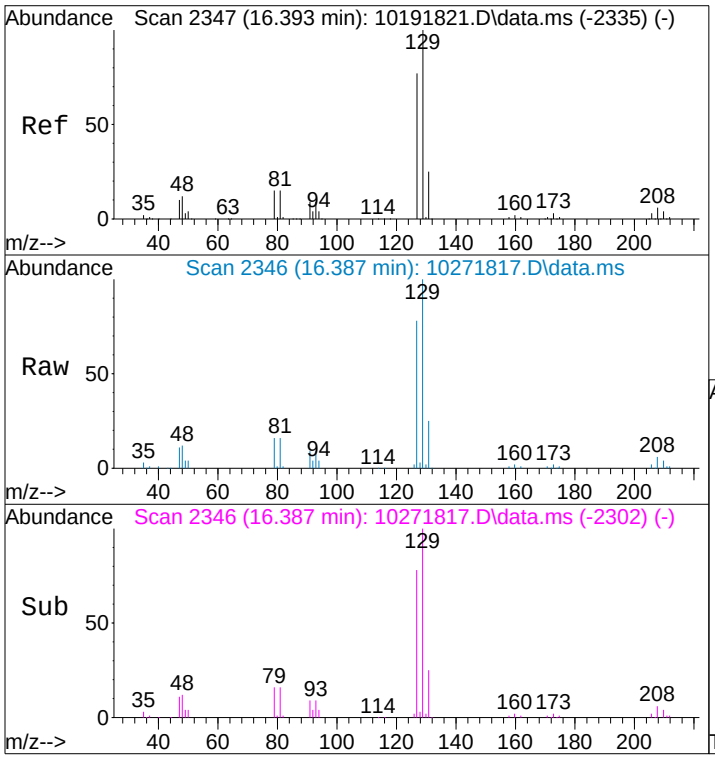


#58
Toluene
Concen: 0.40 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 91 Resp: 40541

Ion	Ratio	Lower	Upper
91	100		
92	58.9	39.4	79.4

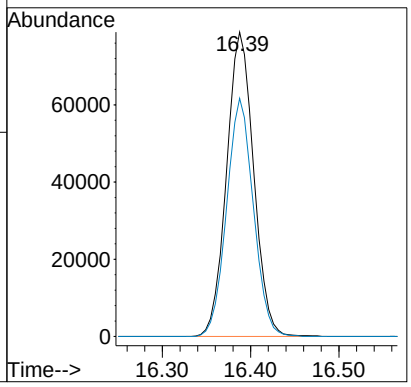


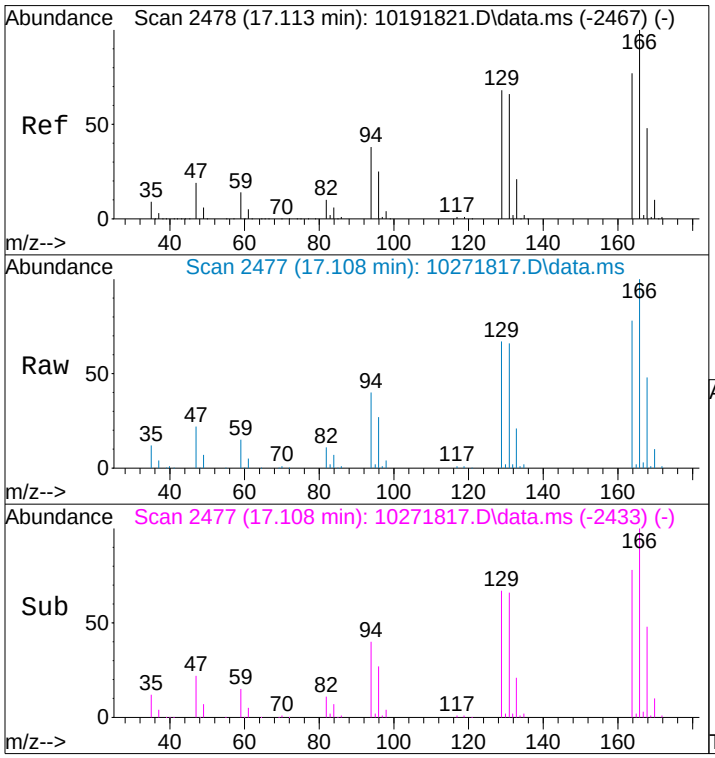


#60
Dibromochloromethane
Concen: 5.69 ng
RT: 16.39 min Scan# 2346
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:129 Resp: 168348

Ion	Ratio	Lower	Upper
129	100		
127	77.2	57.5	97.5

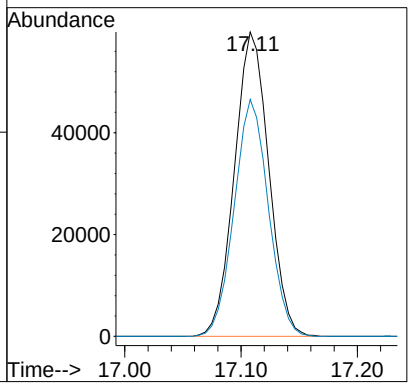


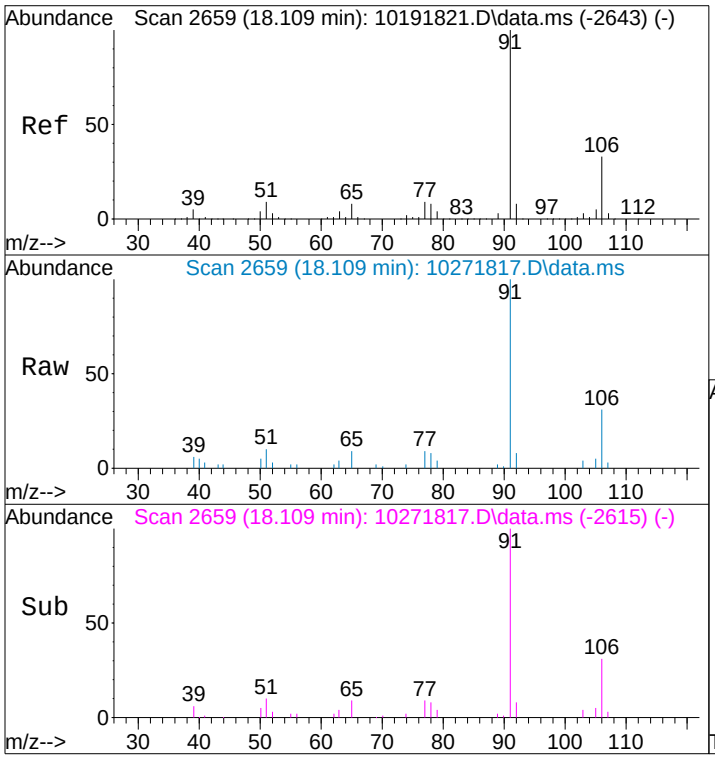


#64
Tetrachloroethene
Concen: 3.94 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:166 Resp: 122724

Ion	Ratio	Lower	Upper
166	100		
164	77.3	57.8	97.8

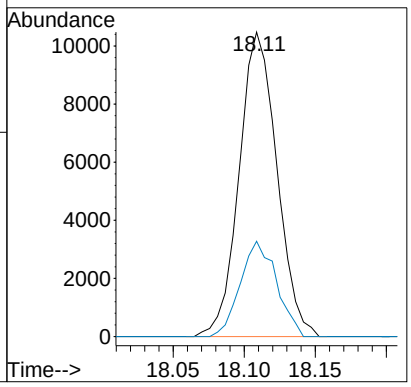


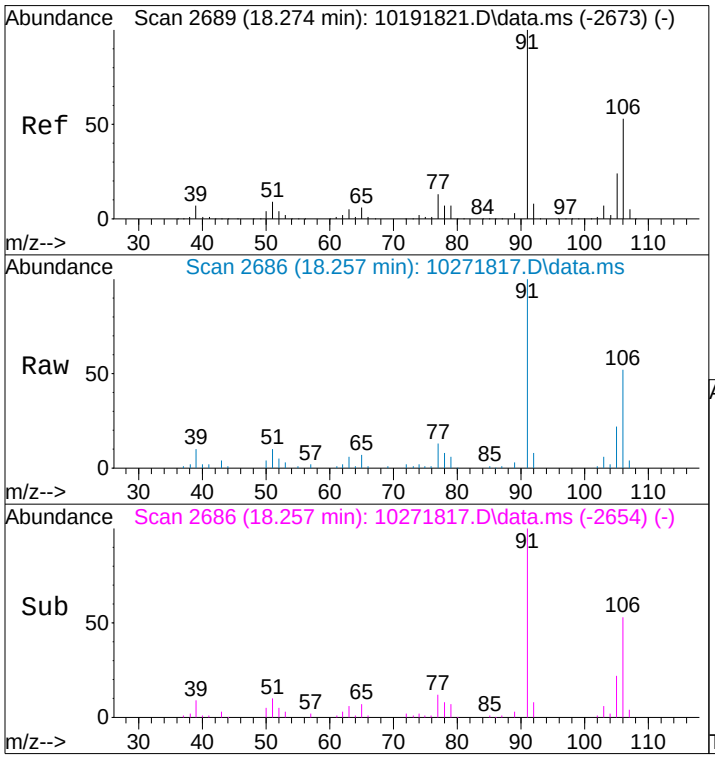


#66
Ethylbenzene
Concen: 0.17 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 91 Resp: 19344

Ion	Ratio	Lower	Upper
91	100		
106	30.0	12.6	52.6

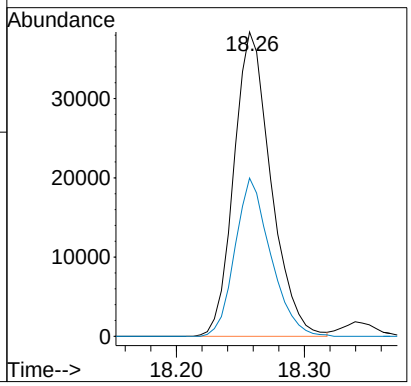


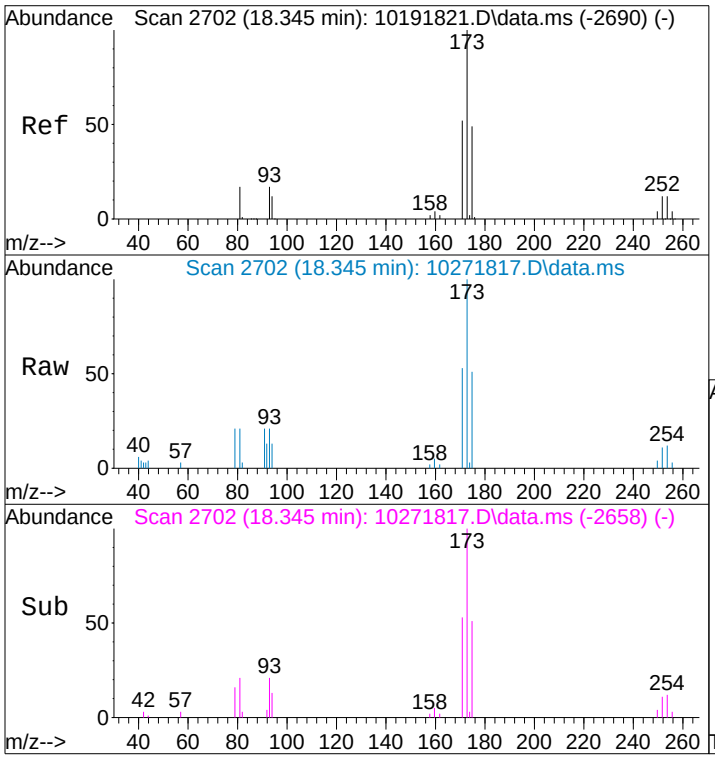


#67
m- & p-Xylenes
Concen: 0.90 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 91 Resp: 77118

Ion	Ratio	Lower	Upper
91	100		
106	50.1	32.2	72.2

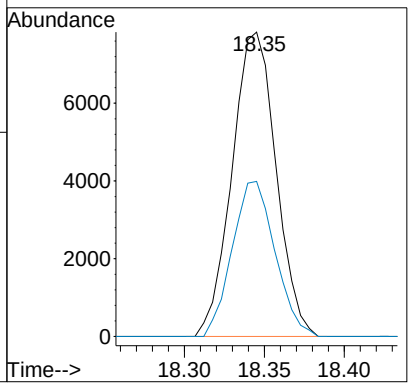


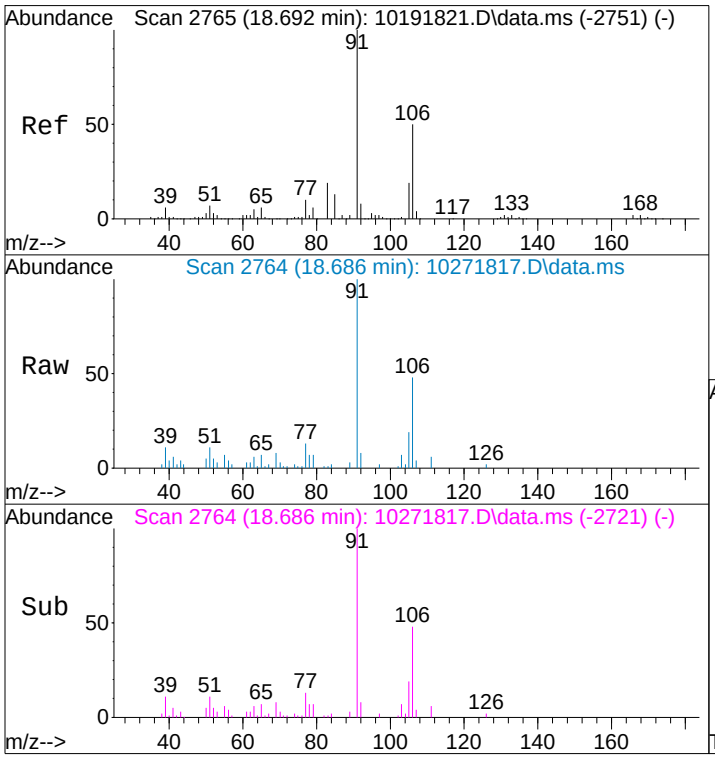


#68
Bromoform
Concen: 0.57 ng
RT: 18.35 min Scan# 2702
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:173 Resp: 14976

Ion	Ratio	Lower	Upper
173	100		
175	49.6	29.1	69.1

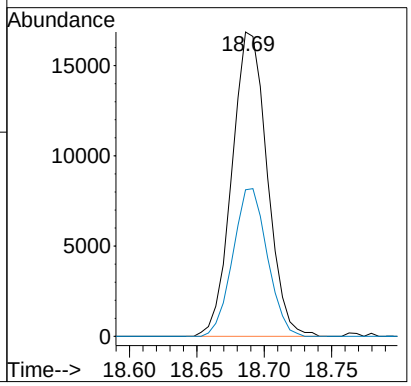


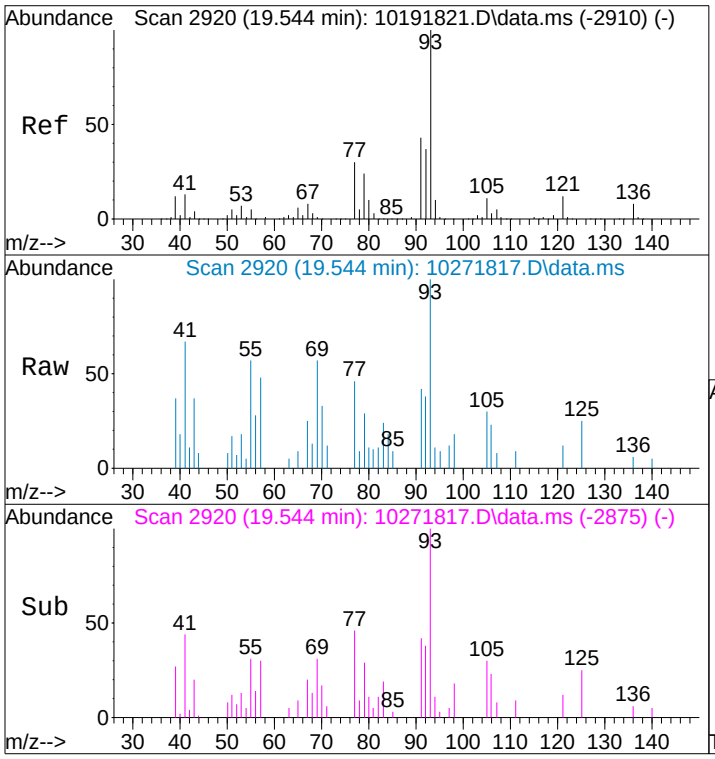


#70
o-Xylene
Concen: 0.35 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.011 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 91 Resp: 30611

Ion	Ratio	Lower	Upper
91	100		
106	47.6	29.4	69.4

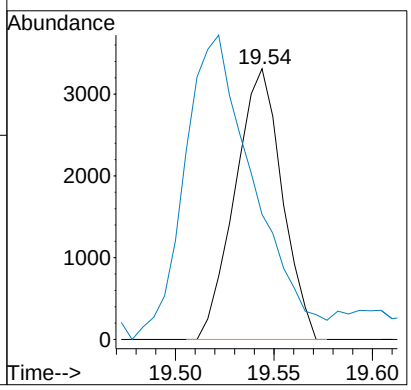


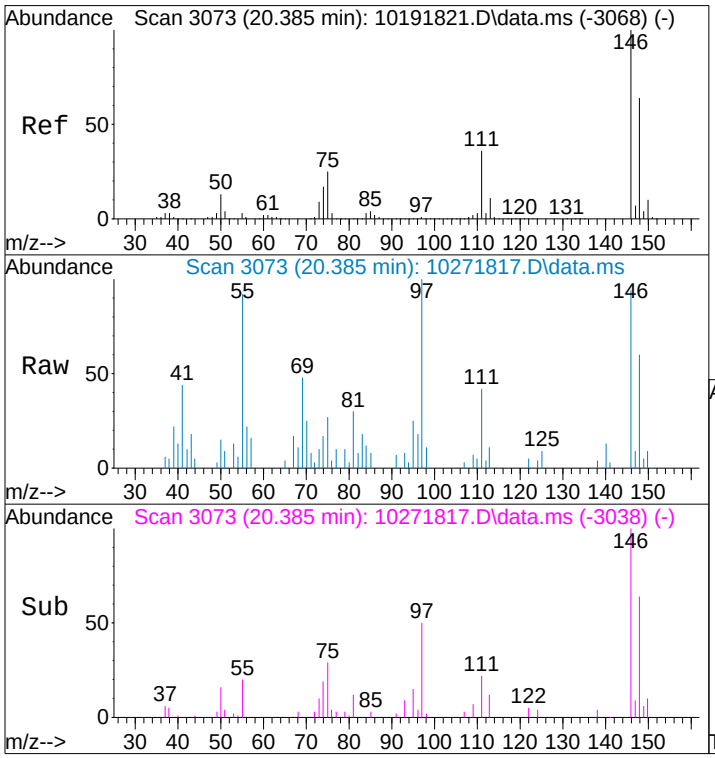


#75
alpha-Pinene
Concen: 0.09 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 93 Resp: 5502

Ion	Ratio	Lower	Upper
93	100		
77	166.0	10.2	50.2#

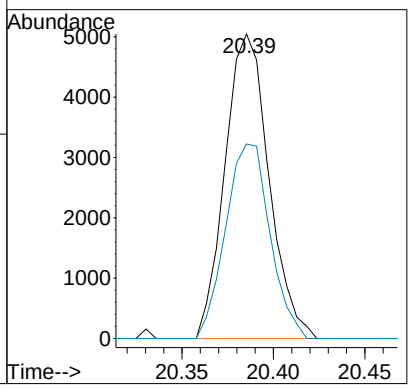


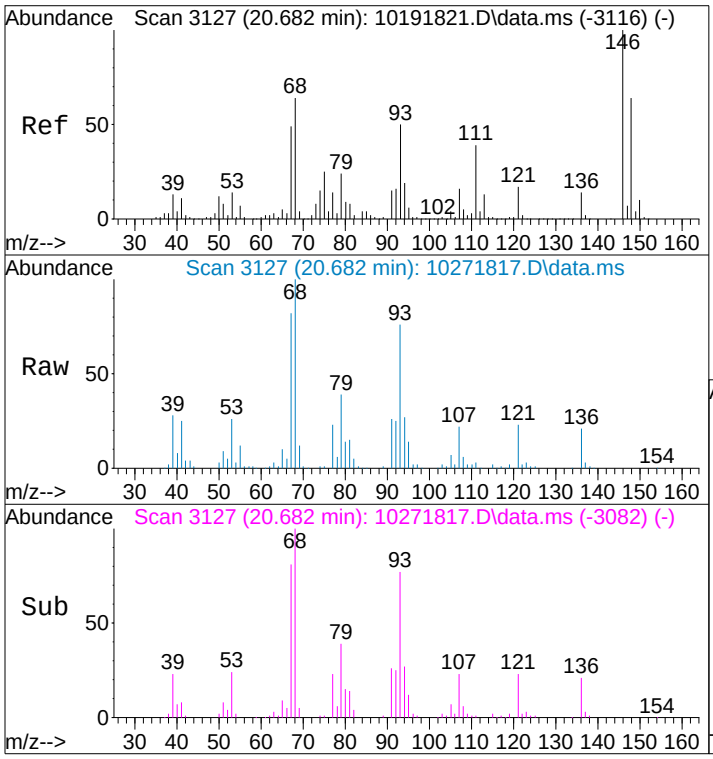


#86
1,4-Dichlorobenzene
Concen: 0.14 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.006 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion:146 Resp: 8413

Ion	Ratio	Lower	Upper
146	100		
148	64.6	44.2	84.2

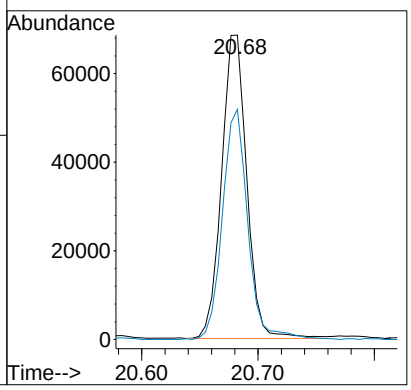




#91
d-Limonene
Concen: 3.02 ng
RT: 20.68 min Scan# 3127
Delta R.T. -0.000 min
Lab File: 10271817.D
Acq: 27 Oct 2018 13:55

Tgt Ion: 68 Resp: 103186

Ion	Ratio	Lower	Upper
68	100		
93	76.4	57.4	97.4



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 14:37:36 2018 TD 10/29/18
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration WA 10/30/18
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

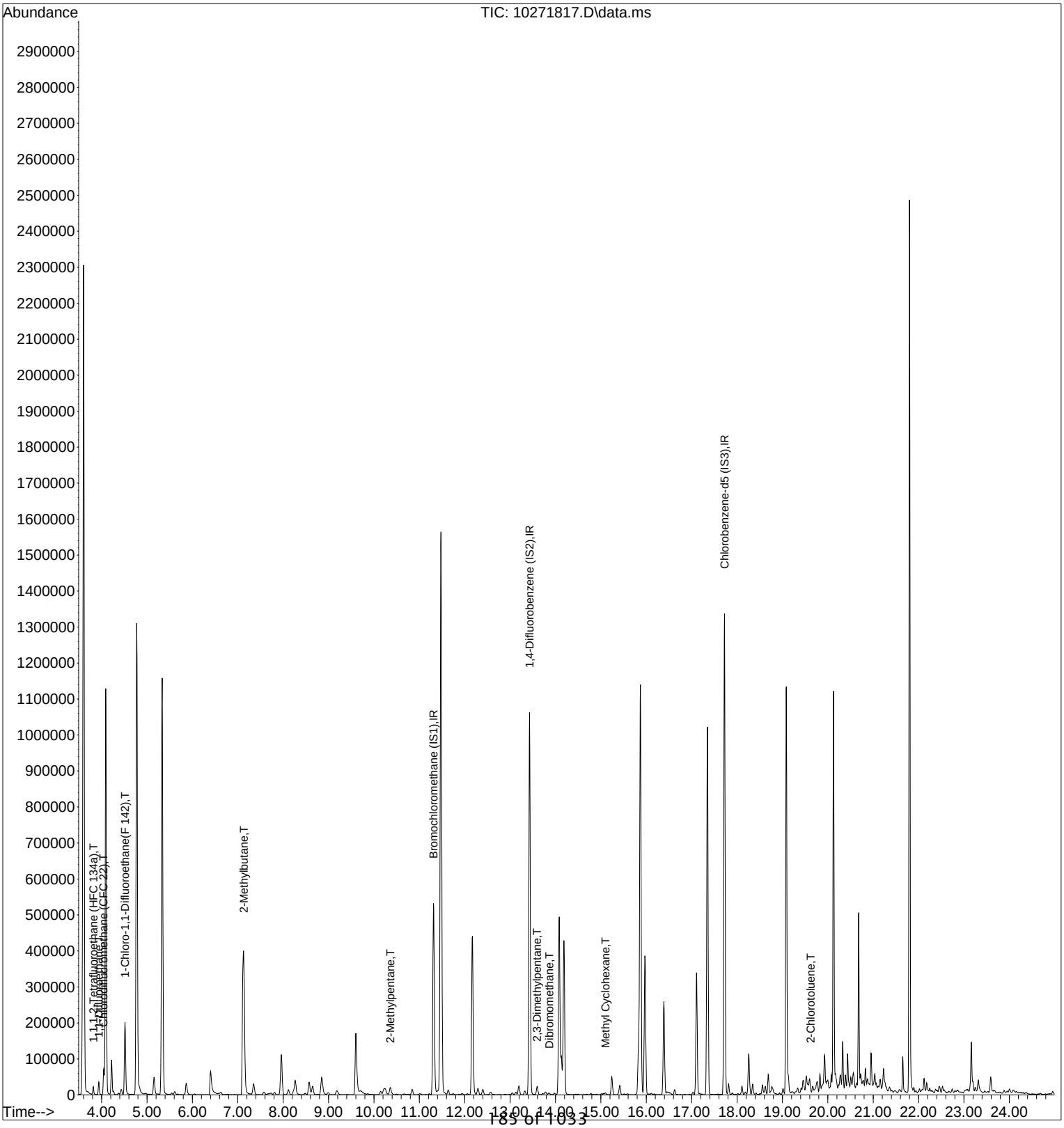
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	250477	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	1049593	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	457827	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.71	85	358	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	11885	0.473	ng	#	67
4) 1,1-Difluoroethane	3.94	65	14388	0.750	ng		99
5) Chlorodifluoromethane ...	4.04	67	4050	0.544	ng		80
6) 1-Chloro-1,1-Difluoroe...	4.52	65	196091	3.605	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	112190	5.482	ng		83
11) Methyl Acetate	8.64	43	1795	N.D.			
12) 2-Methylpentane	10.36	71	6006	0.282	ng	#	58
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.19	84	2640	N.D.			
17) 2,3-Dimethylpentane	13.59	56	12126	0.320	ng	#	89
18) Dibromomethane	13.86	174	2076	0.089	ng		93
20) Methyl Cyclohexane	15.10	55	2325	0.080	ng	#	79
21) 1,3-Dichloropropane	15.98	76	51	N.D.			
22) 1,1,1,2-Tetrachloroethane	17.81	131	106	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.69	75	359	N.D.			
25) Bromobenzene	19.35	77	437	N.D.			
26) 2-Chlorotoluene	19.62	91	4478	0.060	ng	#	83
27) 4-Chlorotoluene	19.68	91	1140	N.D.			
28) Indan	20.74	117	308	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	800	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	803	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	523	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

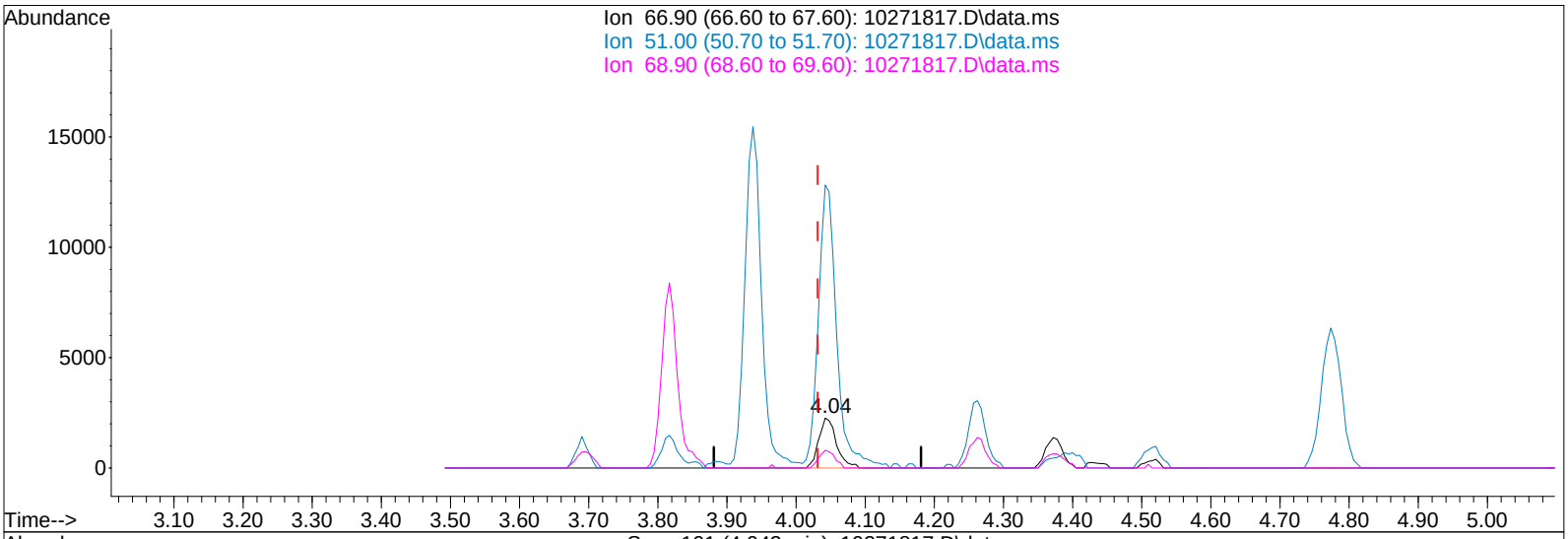
Quant Time: Oct 29 14:37:36 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

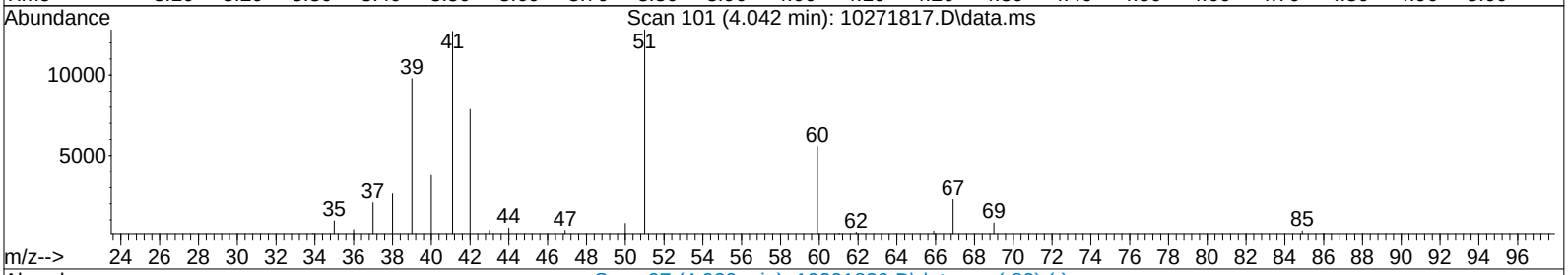


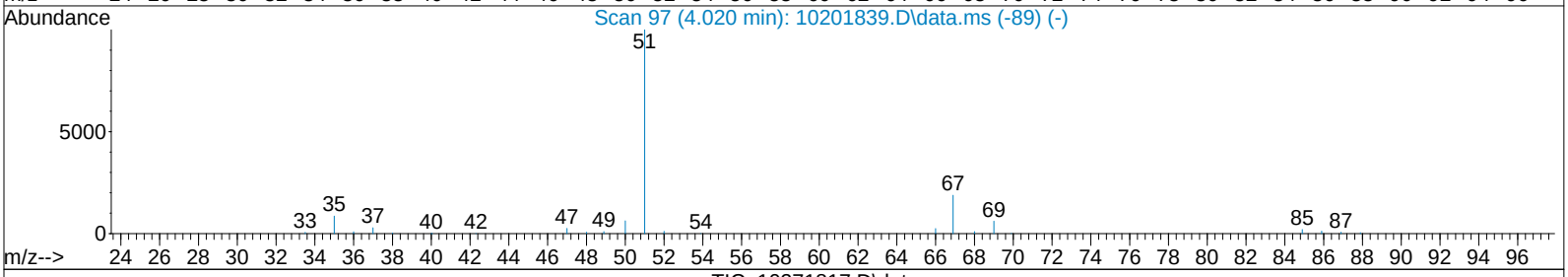
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271817.D
Acq On : 27 Oct 2018 13:55 Operator: WA
Sample : P1805497-004 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 29 14:37:36 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271817.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.042min (+0.011) 0.54ng

response 4050

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	586.79
68.90	31.80	31.93
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 13:58:47 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

WH 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	238428	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1027789	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	449361	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	357285	12.457	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%				
57) Toluene-d8 (SS2)	15.87	98	905326	12.652	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.20%				
73) Bromofluorobenzene (SS3)	19.09	174	370213	11.381	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.04%				
Target Compounds							Qvalue
2) Propene	4.08	42	16911	0.762	ng	#	13
3) Dichlorodifluoromethan...	4.23	85	79781	1.601	ng		99
4) Chloromethane	4.54	50	3089	0.097	ng		80
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1963	0.066	ng		87
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.25	54	784	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.43	45	15018	1.120	ng		95
11) Acetonitrile	6.78	41	1296	N.D.			
12) Acrolein	6.92	56	2521	0.213	ng		96
13) Acetone	7.13	58	33470	2.092	ng	#	27
14) Trichlorofluoromethane	7.35	101	35068	0.812	ng		98
15) 2-Propanol (Isopropanol)	7.66	45	9971	0.194	ng		85
16) Acrylonitrile	7.96	53	1015	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.63	59	1033	N.D.			
19) Methylene Chloride	8.58	84	3923	0.176	ng		99
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	8.99	151	6967	0.303	ng		100
22) Carbon Disulfide	8.86	76	4184	0.052	ng		81
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.65	72	4872	0.344	ng	#	84
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	11.48	87	174	N.D.			
30) Ethyl Acetate	11.44	61	8117	1.070	ng		94
31) n-Hexane	11.41	57	16276	0.471	ng		97
32) Chloroform	11.48	83	3285	0.082	ng		99
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	940	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	8225m	0.396	ng		
41) Benzene	13.04	78	38024	0.402	ng		100
42) Carbon Tetrachloride	13.20	117	8902	0.249	ng		98
43) Cyclohexane	13.32	84	2999	0.082	ng		94
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.09	83	506	N.D.			
47) Trichloroethene	14.14	130	1312	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 13:58:47 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

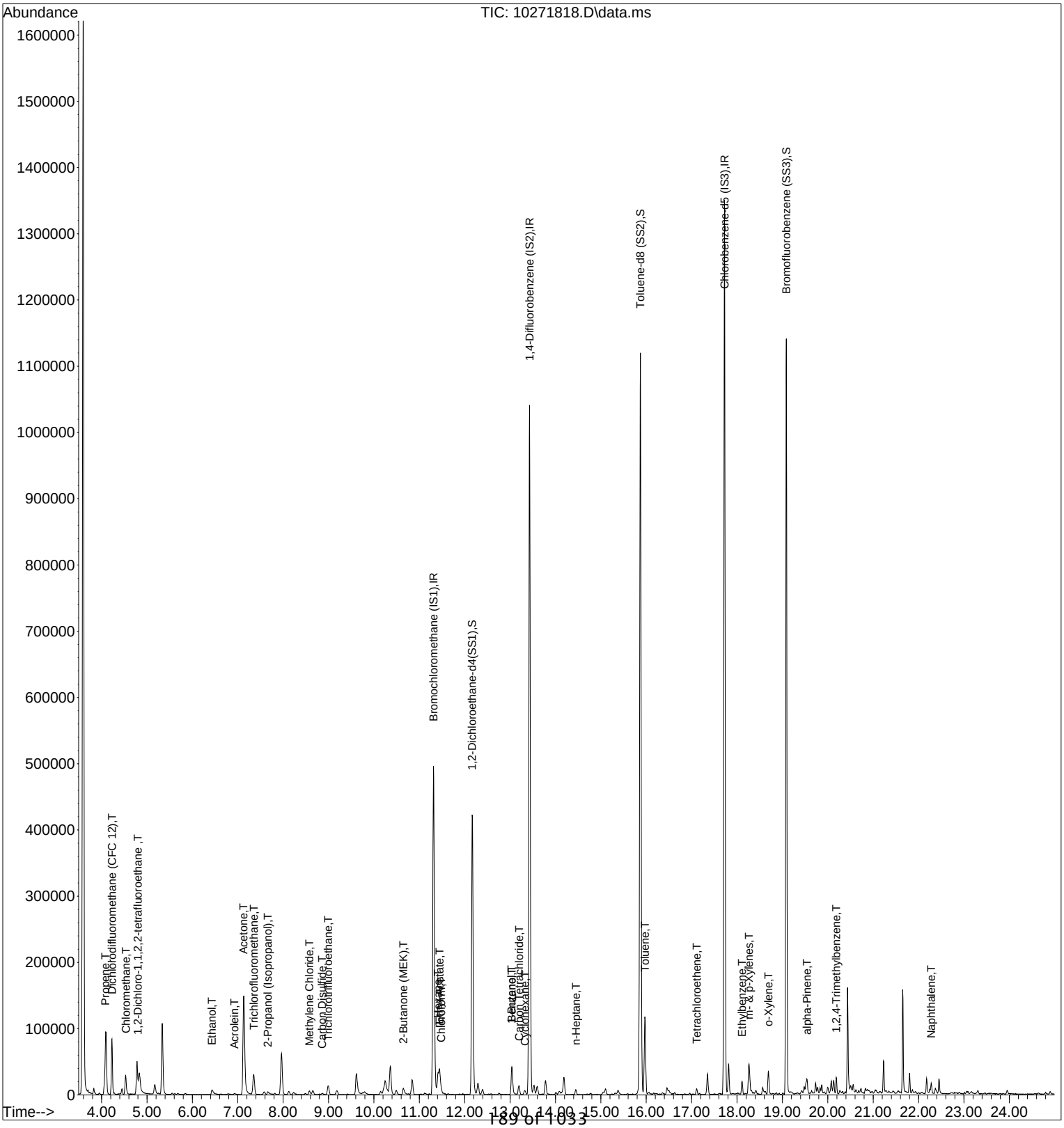
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	14.45	100	462	N.D.		
51) n-Heptane	14.45	71	2073	0.095 ng		95
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.05	58	672	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	98210	0.988 ng		100
59) 2-Hexanone	0.00	43	0	N.D. d		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.85	43	1132	N.D.		
63) n-Octane	16.95	57	419	N.D.		
64) Tetrachloroethene	17.11	166	3299	0.108 ng		98
65) Chlorobenzene	17.76	112	211	N.D.		
66) Ethylbenzene	18.11	91	17482	0.154 ng		96
67) m- & p-Xylenes	18.26	91	39071	0.462 ng		98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	2238	N.D.		
70) o-Xylene	18.69	91	18591	0.217 ng		97
71) n-Nonane	18.86	43	1293	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.69	83	405	N.D.		
74) Cumene	19.20	105	1230	N.D.		
75) alpha-Pinene	19.54	93	7763	0.133 ng	#	1
76) n-Propylbenzene	19.64	91	3424	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	2410	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	3274	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.00	105	5150	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	13015	0.141 ng		87
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.39	91	119	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	309	N.D.		
86) 1,4-Dichlorobenzene	20.39	146	905	N.D.		
87) sec-Butylbenzene	20.42	105	415	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	1904	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	3943	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	977	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.34	57	777	N.D.		
94) 1,2,4-Trichlorobenzene	22.18	180	159	N.D.		
95) Naphthalene	22.28	128	13753	0.104 ng		97
96) n-Dodecane	22.24	57	1804	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	1647	N.D.		
100) n-Butylbenzene	20.92	91	1615	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 13:58:47 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 13:58:47 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

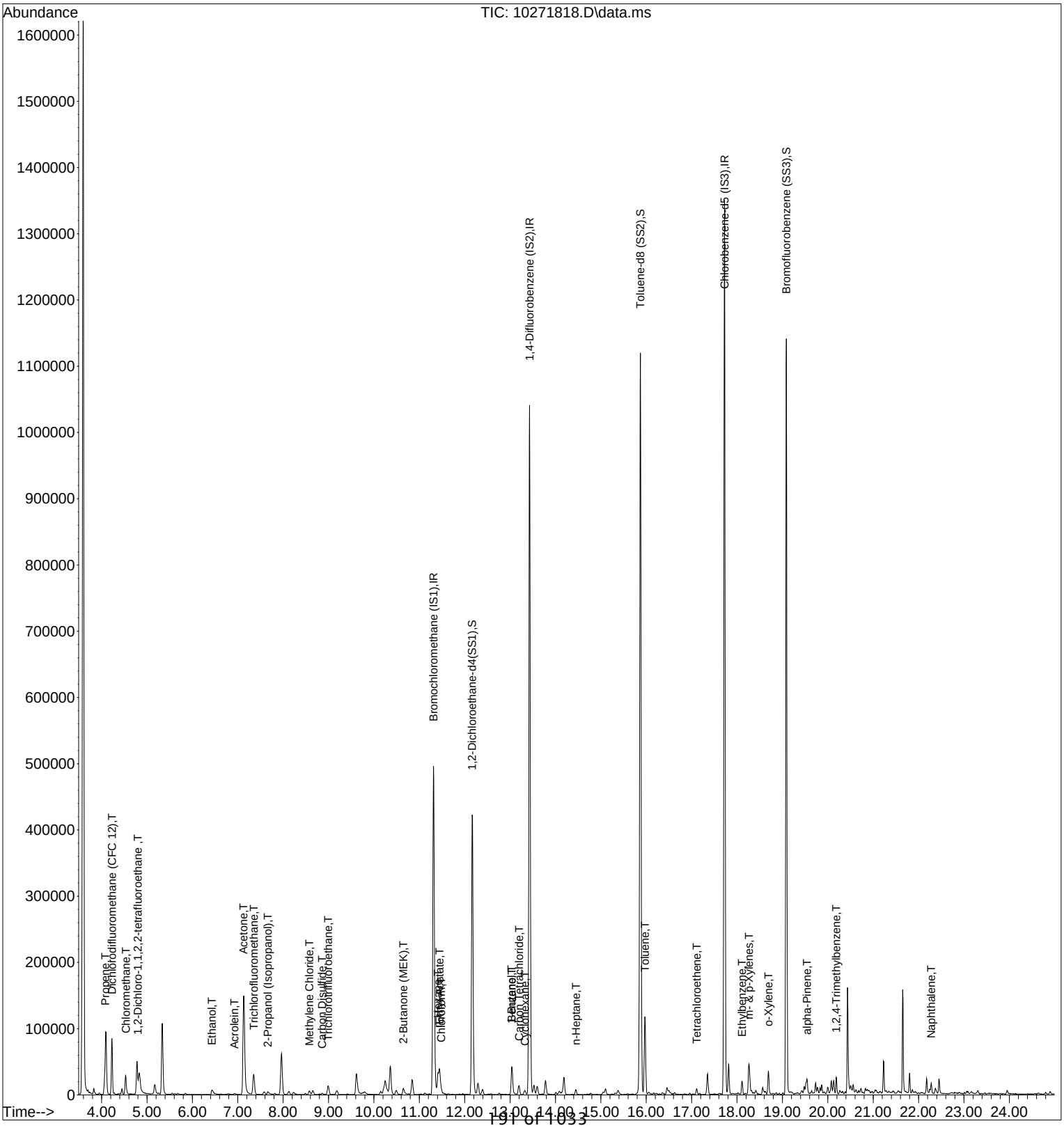
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	238428	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	1027789	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	449361	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	357285	12.457	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%				
57) Toluene-d8 (SS2)	15.87	98	905326	12.652	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.20%				
73) Bromofluorobenzene (SS3)	19.09	174	370213	11.381	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.04%				
Target Compounds							Qvalue
2) Propene	4.08	42	16911	0.762	ng	M #	13
3) Dichlorodifluoromethan...	4.23	85	79781	1.601	ng		99
4) Chloromethane	4.54	50	3089	0.097	ng		80
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1963	0.066	ng		87
10) Ethanol	6.43	45	15018	1.120	ng		95
12) Acrolein	6.92	56	2521	0.213	ng		96
13) Acetone	7.13	58	33470	2.092	ng	#	27
14) Trichlorofluoromethane	7.35	101	35068	0.812	ng		98
15) 2-Propanol (Isopropanol)	7.66	45	9971	0.194	ng		85
19) Methylene Chloride	8.58	84	3923	0.176	ng		99
21) Trichlorotrifluoroethane	8.99	151	6967	0.303	ng		100
22) Carbon Disulfide	8.86	76	4184	0.052	ng		81
27) 2-Butanone (MEK)	10.65	72	4872	0.344	ng	#	84
30) Ethyl Acetate	11.44	61	8117	1.070	ng		94
31) n-Hexane	11.41	57	16276	0.471	ng		97
32) Chloroform	11.48	83	3285	0.082	ng		99
40) 1-Butanol	13.03	56	8225m	0.396	ng		
41) Benzene	13.04	78	38024	0.402	ng		100
42) Carbon Tetrachloride	13.20	117	8902	0.249	ng		98
43) Cyclohexane	13.32	84	2999	0.082	ng		94
51) n-Heptane	14.45	71	2073	0.095	ng		95
58) Toluene	15.97	91	98210	0.988	ng		100
64) Tetrachloroethene	17.11	166	3299	0.108	ng		98
66) Ethylbenzene	18.11	91	17482	0.154	ng		96
67) m- & p-Xylenes	18.26	91	39071	0.462	ng		98
70) o-Xylene	18.69	91	18591	0.217	ng		97
75) alpha-Pinene	19.54	93	7763	0.133	ng	#	1
82) 1,2,4-Trimethylbenzene	20.19	105	13015	0.141	ng		87
95) Naphthalene	22.28	128	13753	0.104	ng		97

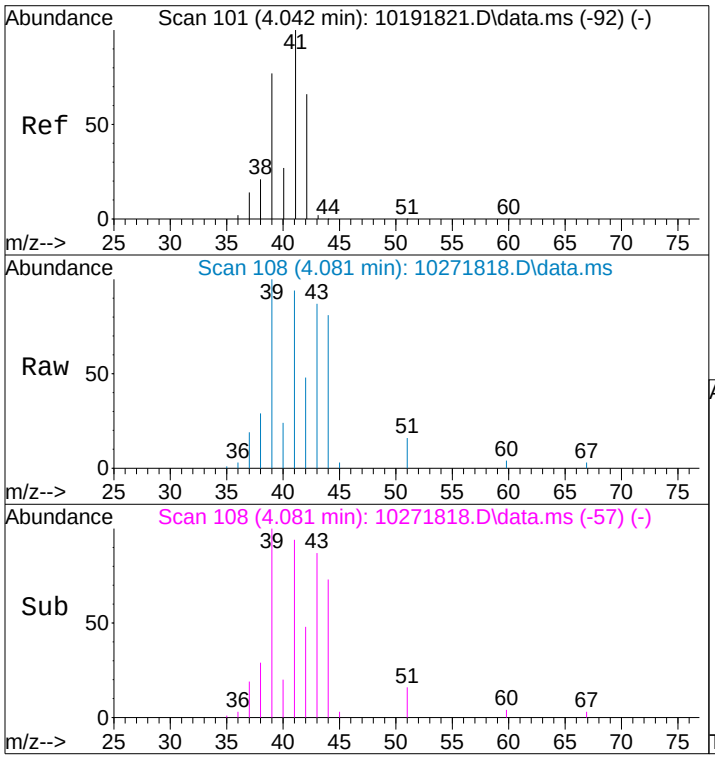
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 13:58:47 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

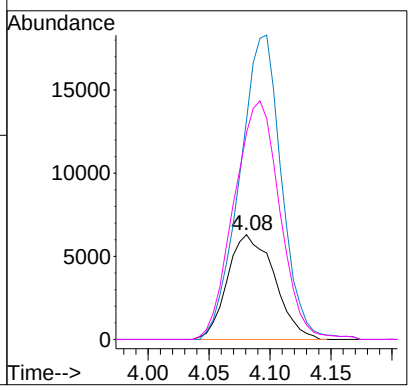


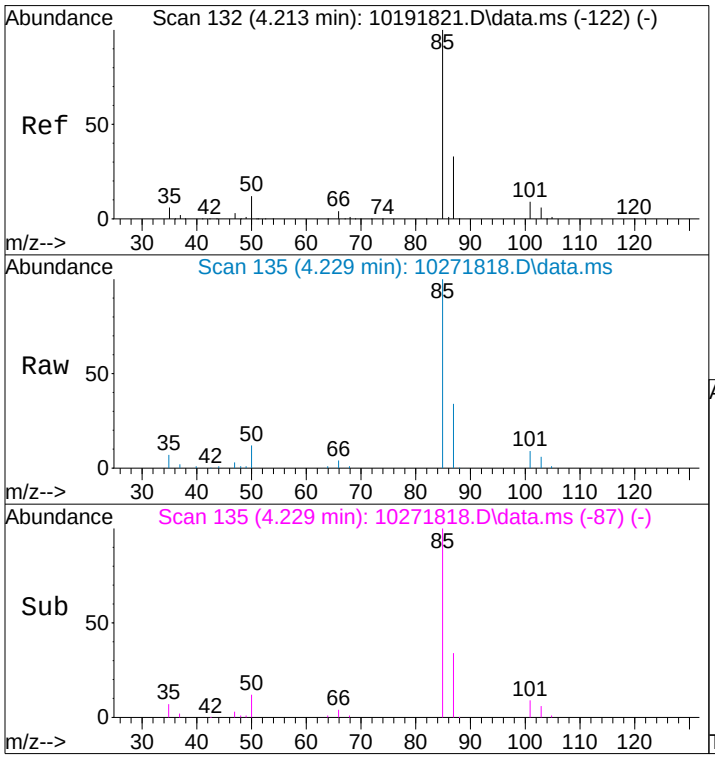


#2
Propene
Concen: 0.76 ng
RT: 4.08 min Scan# 108
Delta R.T. 0.033 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 42 Resp: 16911

Ion	Ratio	Lower	Upper
42	100		
39	259.2	98.5	138.5#
41	222.5	131.9	171.9#

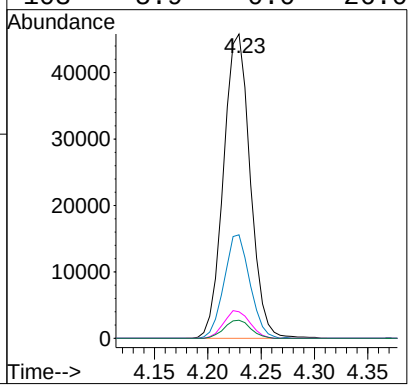


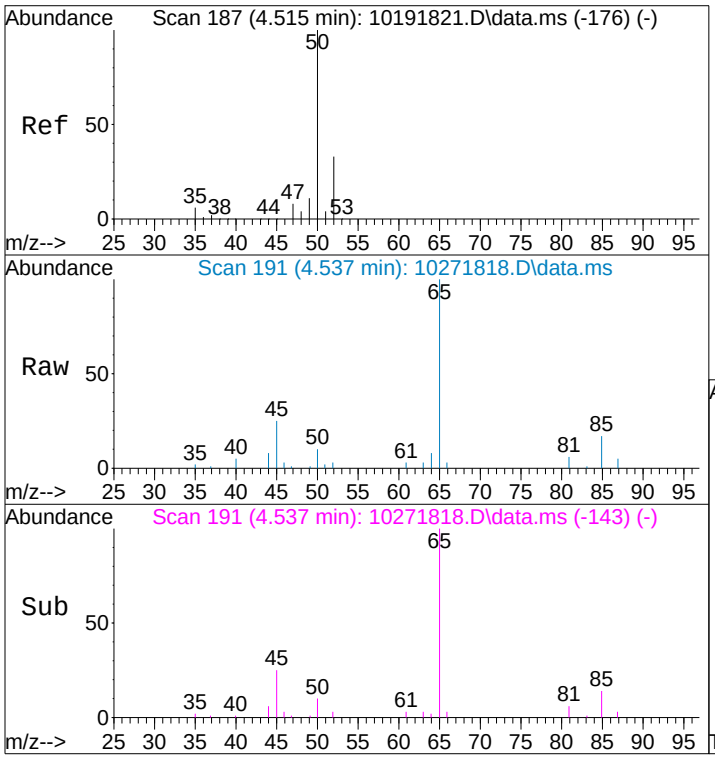


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.60 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.017 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 85 Resp: 79781

Ion	Ratio	Lower	Upper
85	100		
87	33.0	12.6	52.6
101	8.9	0.0	29.4
103	5.9	0.0	26.0

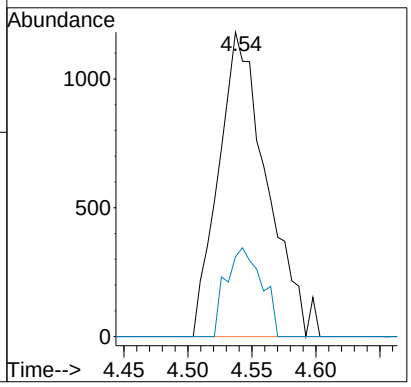


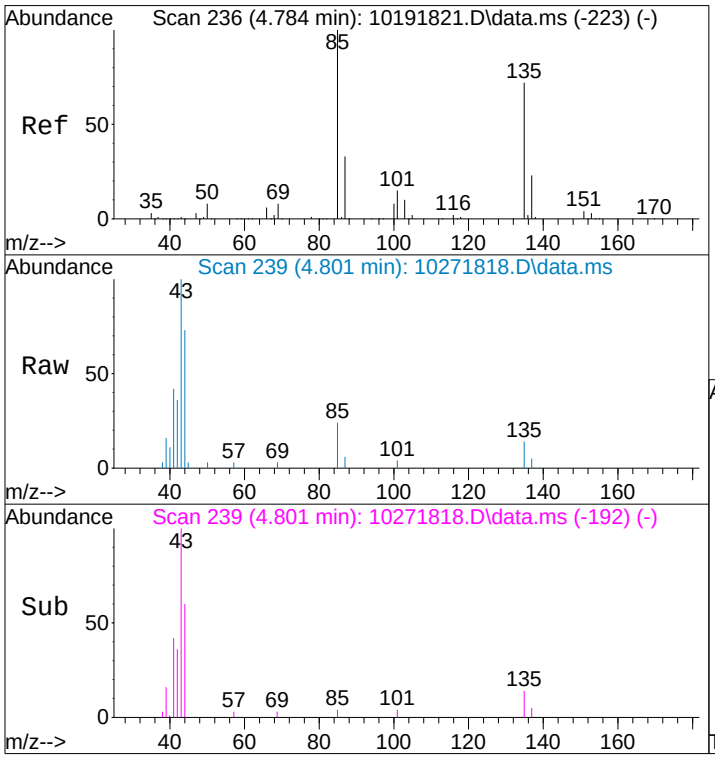


#4
Chloromethane
Concen: 0.10 ng
RT: 4.54 min Scan# 191
Delta R.T. 0.017 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 50 Resp: 3089

Ion	Ratio	Lower	Upper
50	100		
52	21.7	13.2	53.2

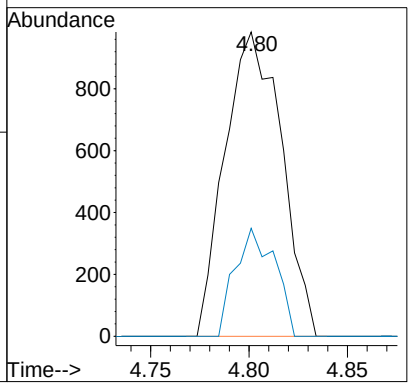


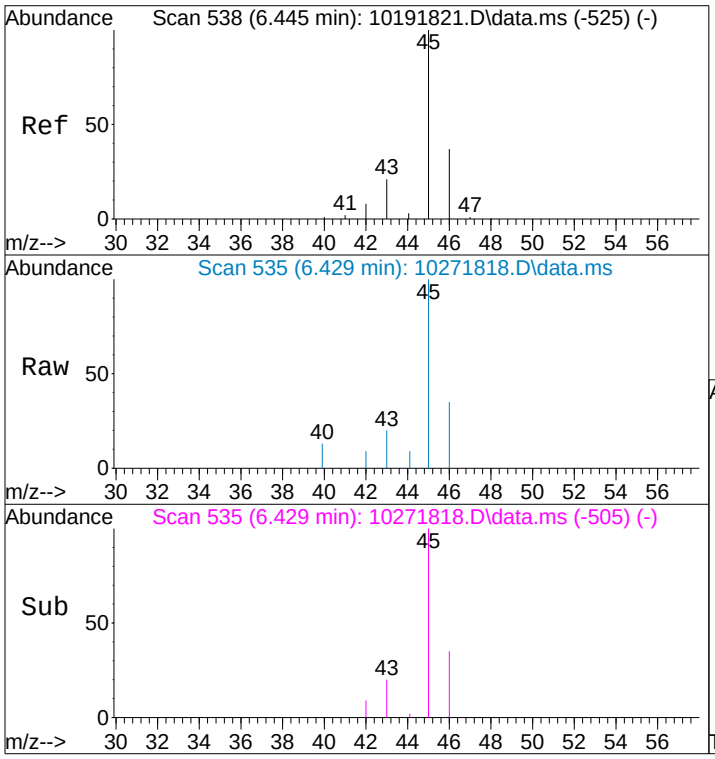


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.80 min Scan# 239
Delta R.T. 0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:135 Resp: 1963

Ion	Ratio	Lower	Upper
135	100		
137	25.0	12.3	52.3

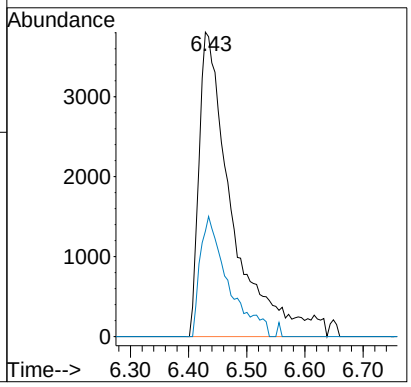


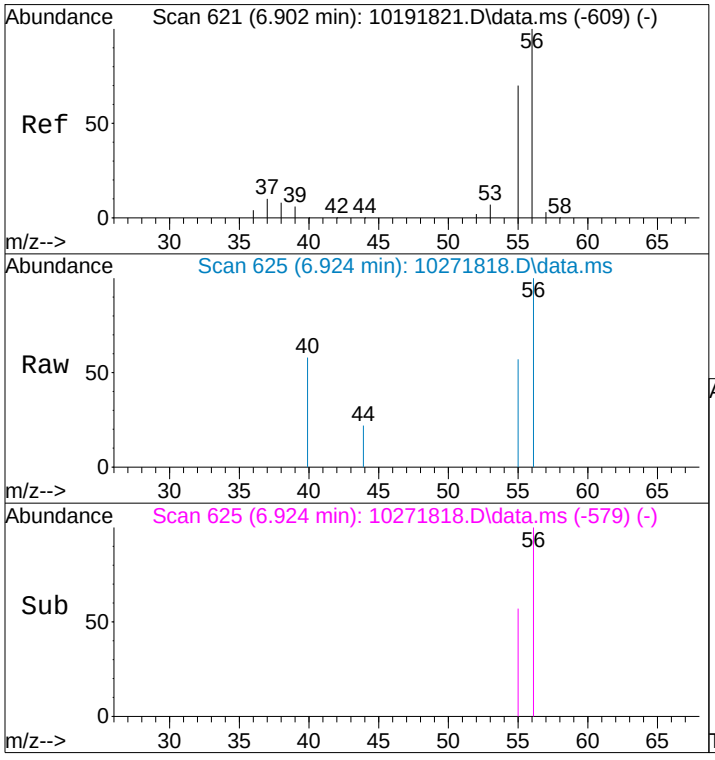


#10
Ethanol
Concen: 1.12 ng
RT: 6.43 min Scan# 535
Delta R.T. -0.082 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 45 Resp: 15018

Ion	Ratio	Lower	Upper
45	100		
46	33.4	16.6	56.6

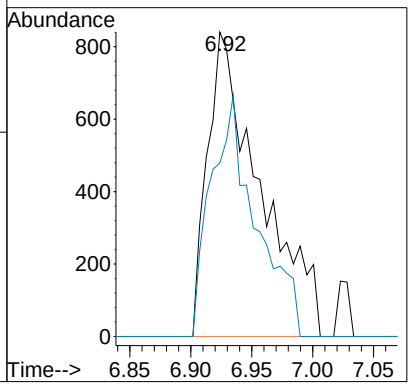


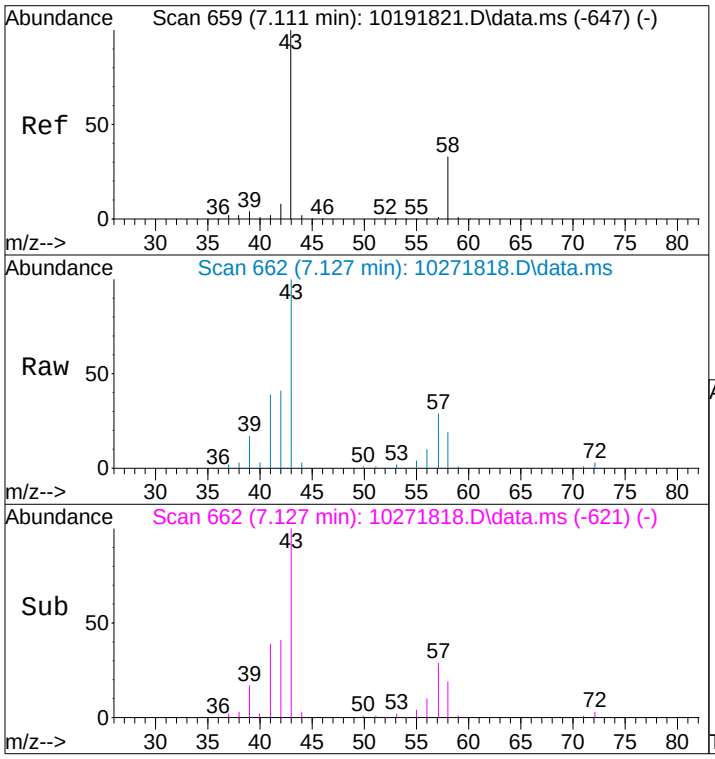


#12
Acrolein
Concen: 0.21 ng
RT: 6.92 min Scan# 625
Delta R.T. 0.006 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 56 Resp: 2521

Ion	Ratio	Lower	Upper
56	100		
55	67.6	51.0	91.0

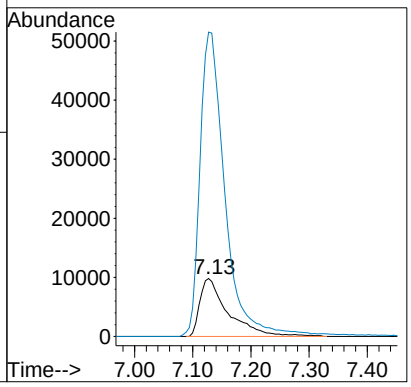


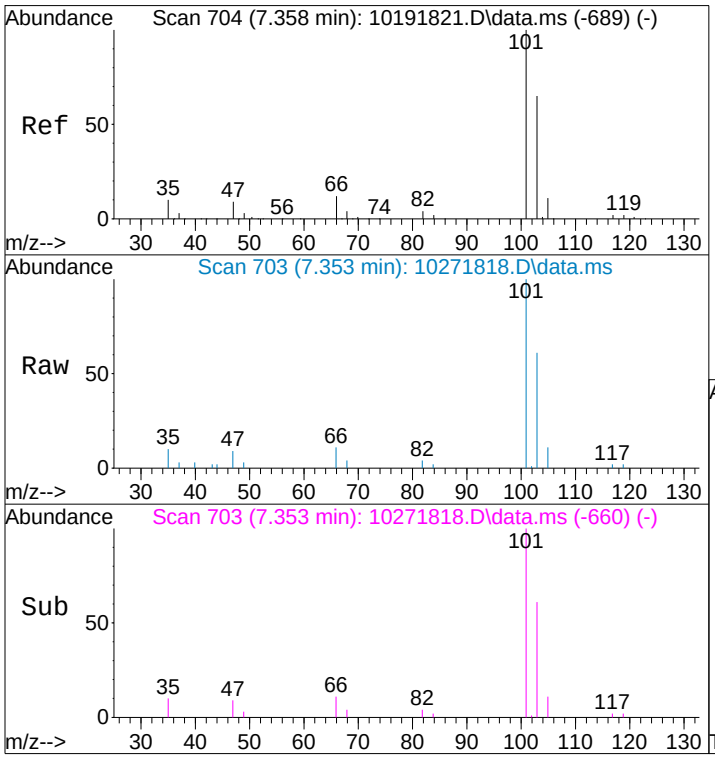


#13
Acetone
Concen: 2.09 ng
RT: 7.13 min Scan# 662
Delta R.T. -0.022 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 58 Resp: 33470

Ion	Ratio	Lower	Upper
58	100		
43	460.4	283.4	343.4#

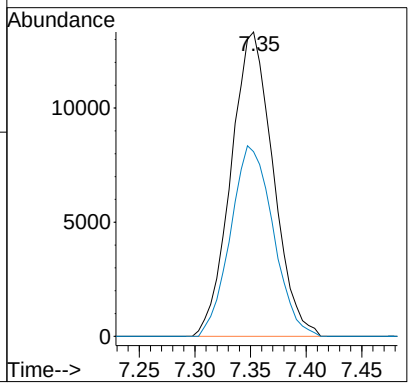


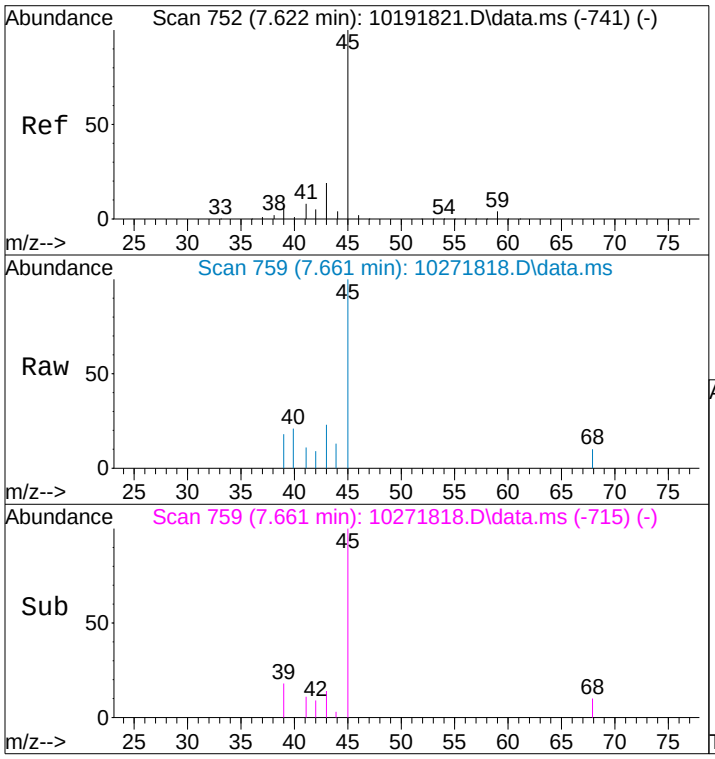


#14
Trichlorofluoromethane
Concen: 0.81 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:101 Resp: 35068

Ion	Ratio	Lower	Upper
101	100		
103	63.4	44.8	84.8

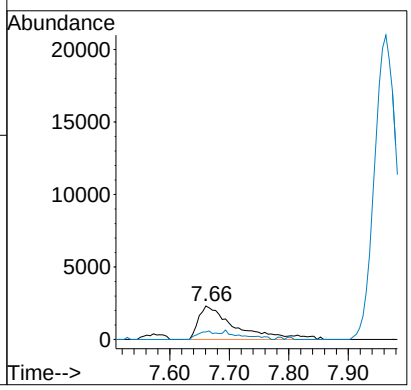


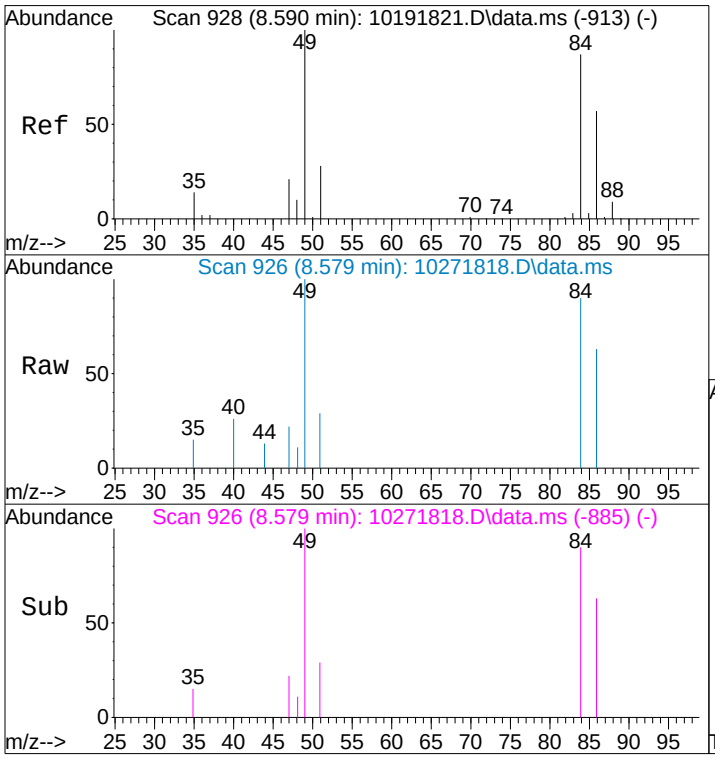


#15
2-Propanol (Isopropanol)
Concen: 0.19 ng
RT: 7.66 min Scan# 759
Delta R.T. -0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 45 Resp: 9971

Ion	Ratio	Lower	Upper
45	100		
43	26.5	0.0	39.6

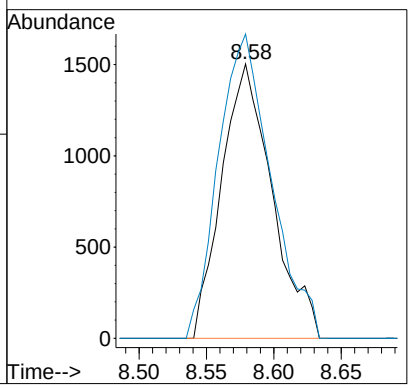


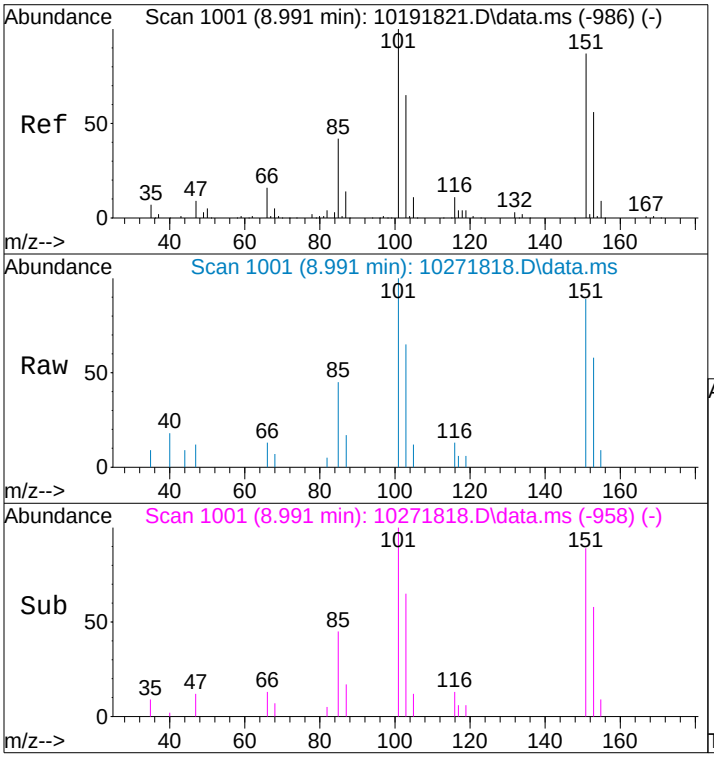


#19
Methylene Chloride
Concen: 0.18 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 84 Resp: 3923

Ion	Ratio	Lower	Upper
84	100		
49	116.1	92.1	142.1

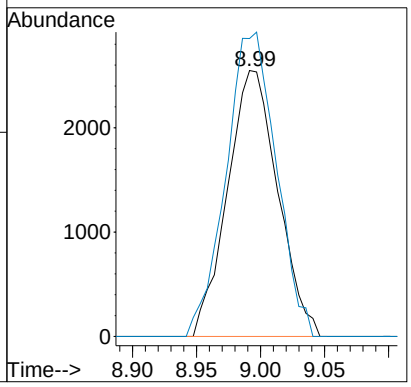


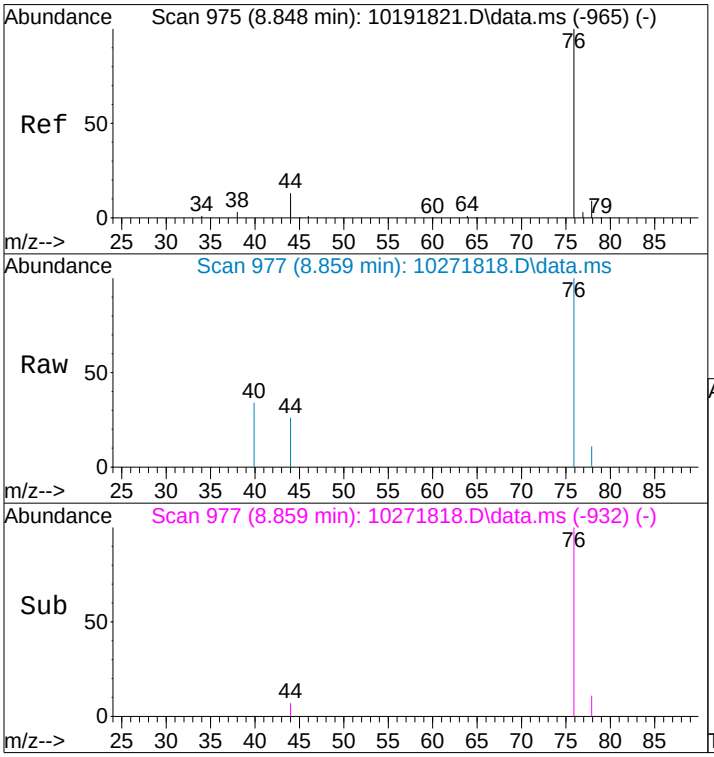


#21
Trichlorotrifluoroethane
Concen: 0.30 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:151 Resp: 6967

Ion	Ratio	Lower	Upper
151	100		
101	114.3	94.4	134.4

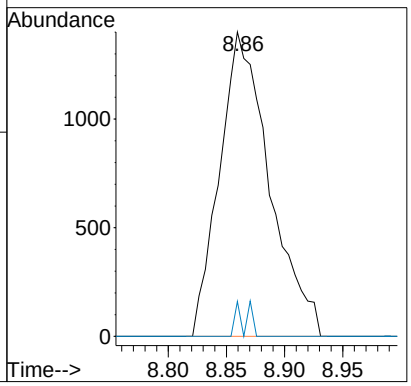


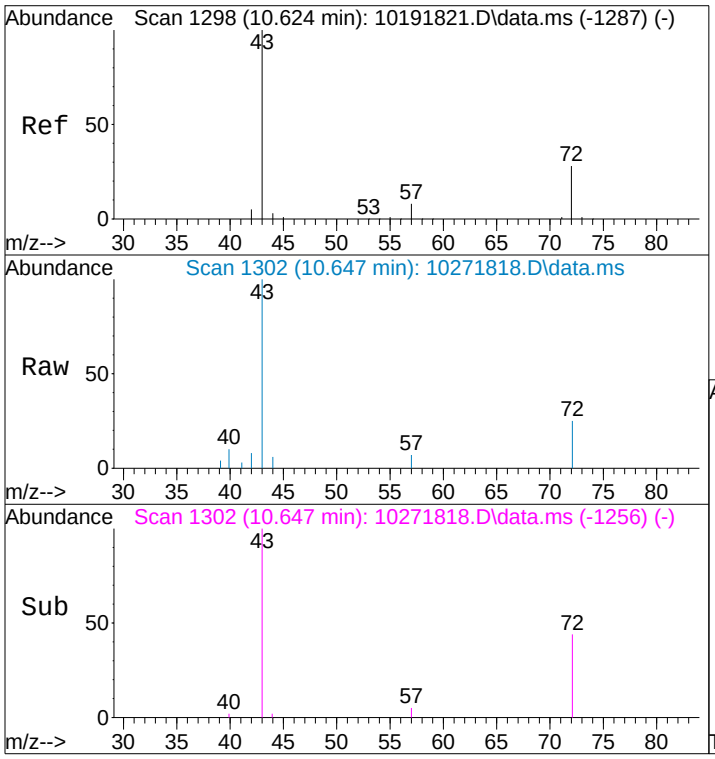


#22
Carbon Disulfide
Concen: 0.05 ng
RT: 8.86 min Scan# 977
Delta R.T. 0.000 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 76 Resp: 4184

Ion	Ratio	Lower	Upper
76	100		
78	2.6	0.0	29.3

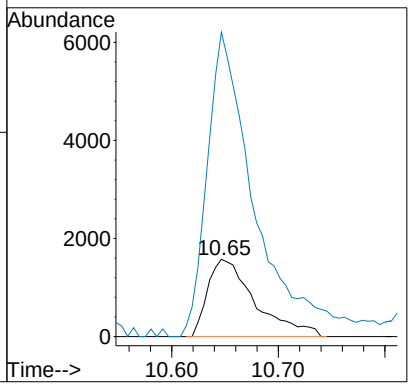


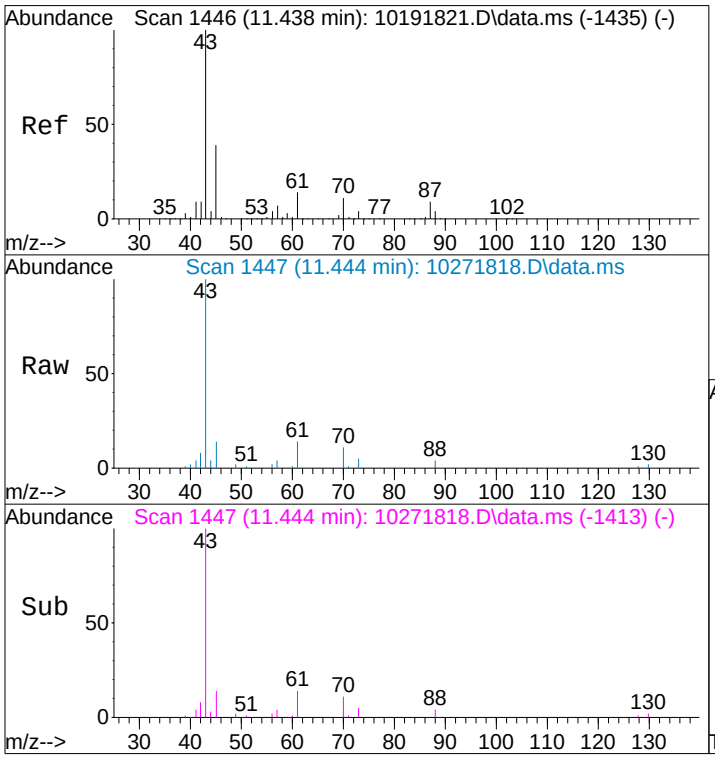


#27
2-Butanone (MEK)
Concen: 0.34 ng
RT: 10.65 min Scan# 1302
Delta R.T. 0.006 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 72 Resp: 4872

Ion	Ratio	Lower	Upper
72	100		
43	405.5	350.1	390.1#

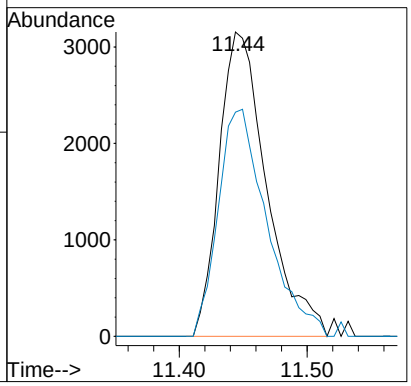


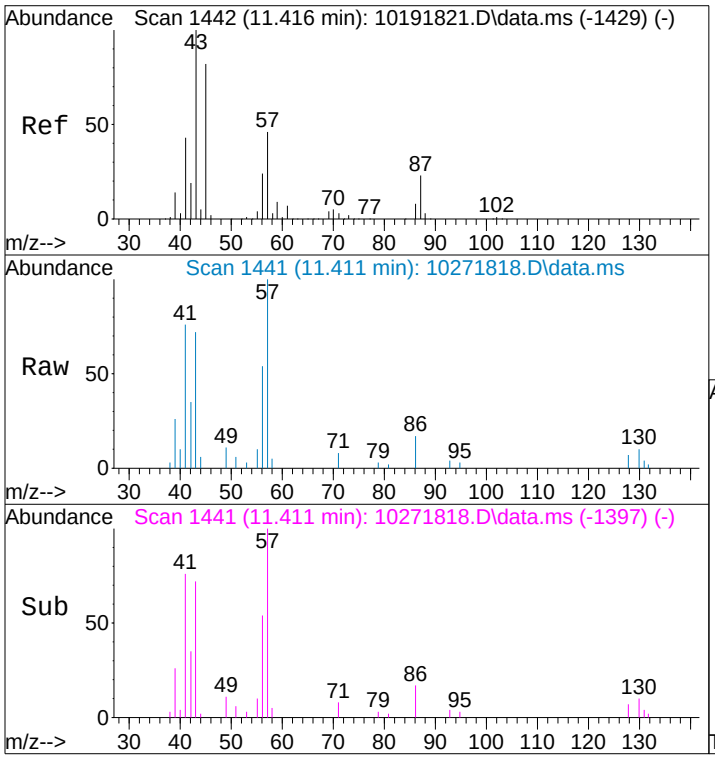


#30
Ethyl Acetate
Concen: 1.07 ng
RT: 11.44 min Scan# 1447
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 61 Resp: 8117

Ion	Ratio	Lower	Upper
61	100		
70	76.6	61.7	101.7

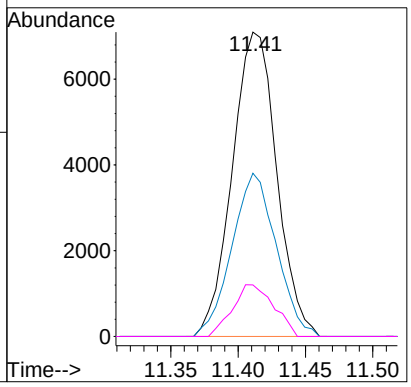


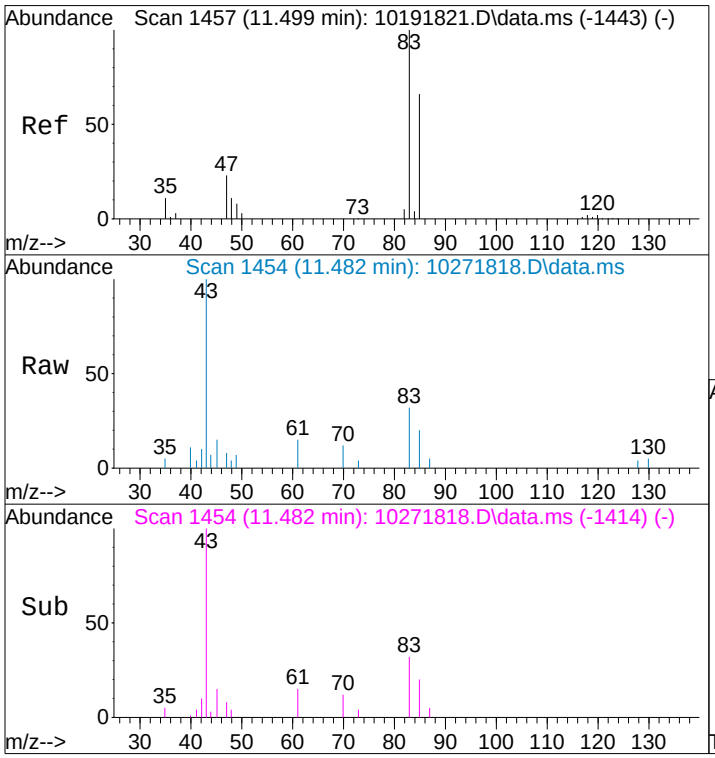


#31
n-Hexane
Concen: 0.47 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 57 Resp: 16276

Ion	Ratio	Lower	Upper
57	100		
56	53.6	41.4	62.0
86	15.8	13.7	20.5

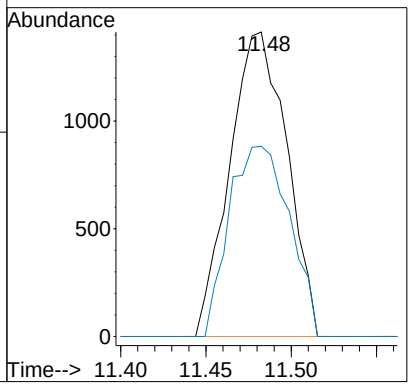


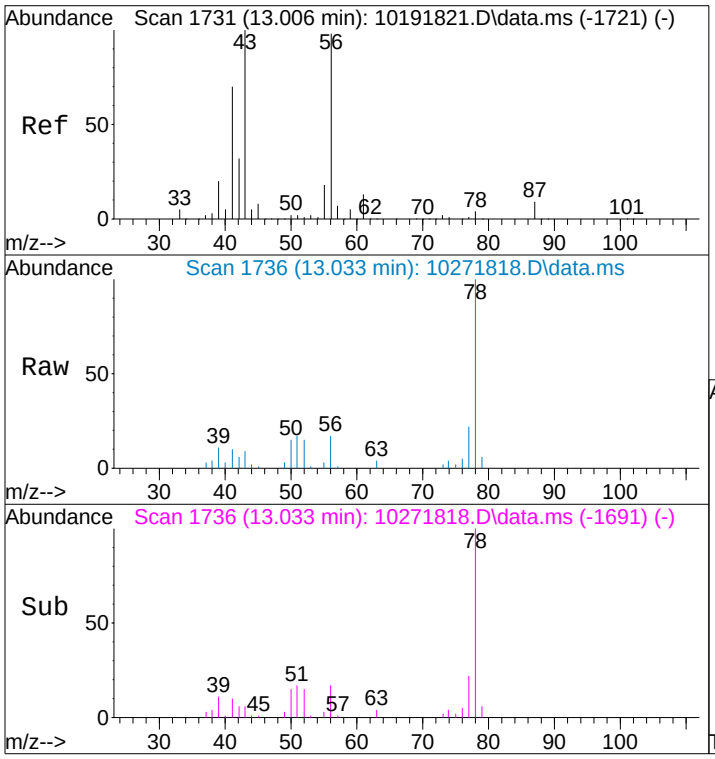


#32
Chloroform
Concen: 0.08 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 83 Resp: 3285

Ion	Ratio	Lower	Upper
83	100		
85	66.2	45.5	85.5

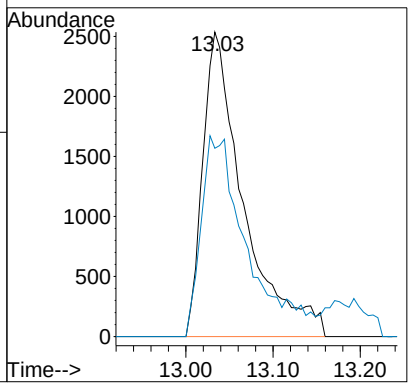


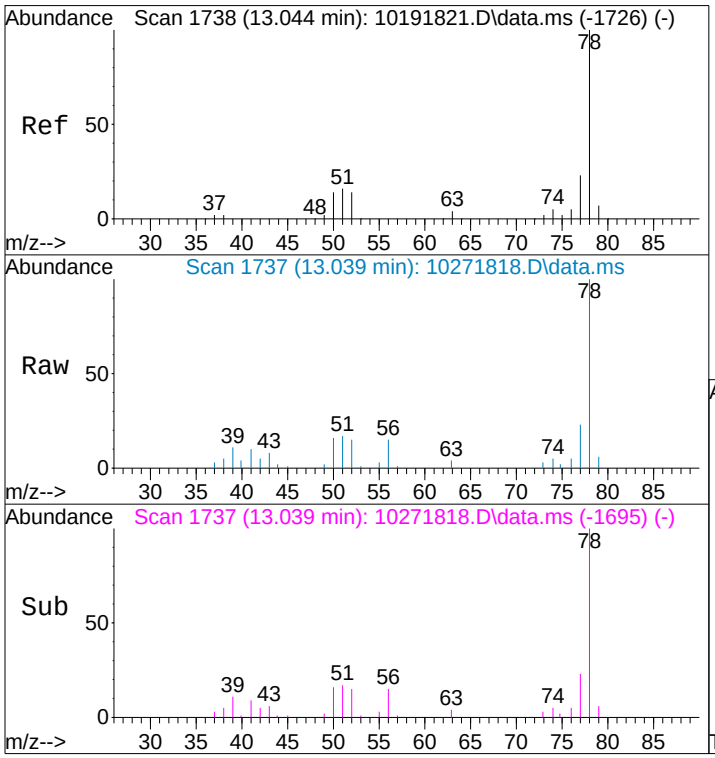


#40
1-Butanol
Concen: 0.40 ng m
RT: 13.03 min Scan# 1736
Delta R.T. 0.000 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 56 Resp: 8225

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

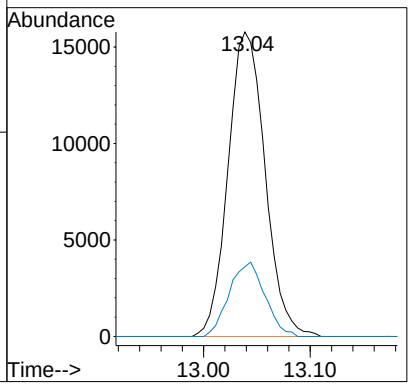


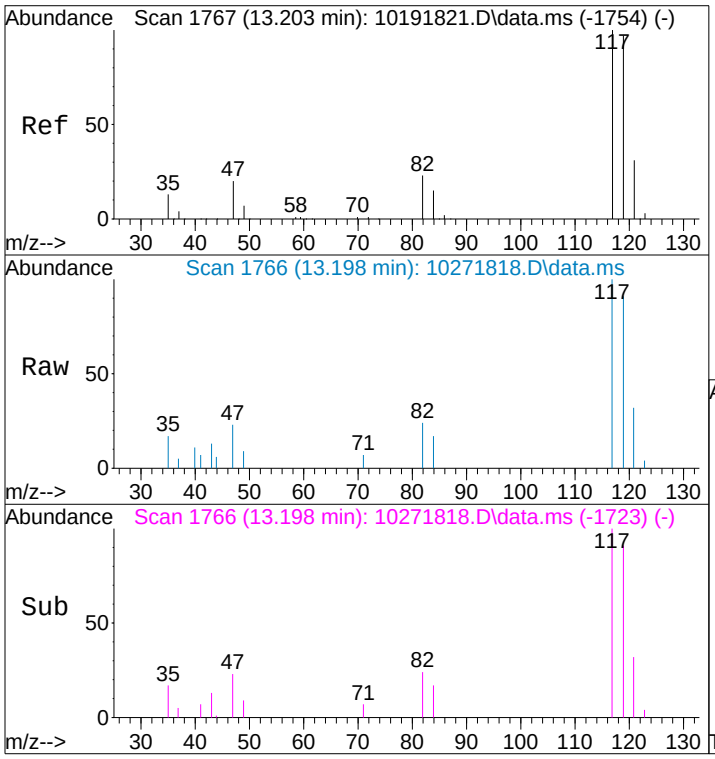


#41
Benzene
Concen: 0.40 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.016 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 78 Resp: 38024

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.5	43.5

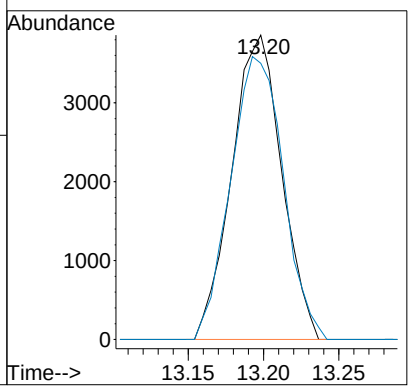


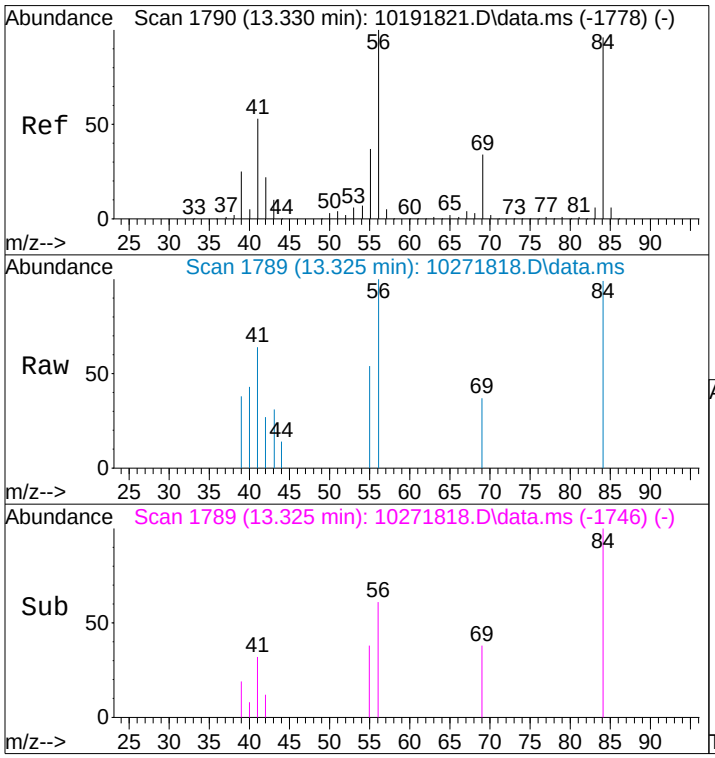


#42
Carbon Tetrachloride
Concen: 0.25 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:117 Resp: 8902

Ion	Ratio	Lower	Upper
117	100		
119	98.2	76.0	116.0

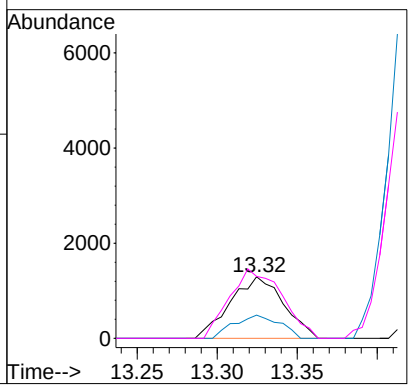


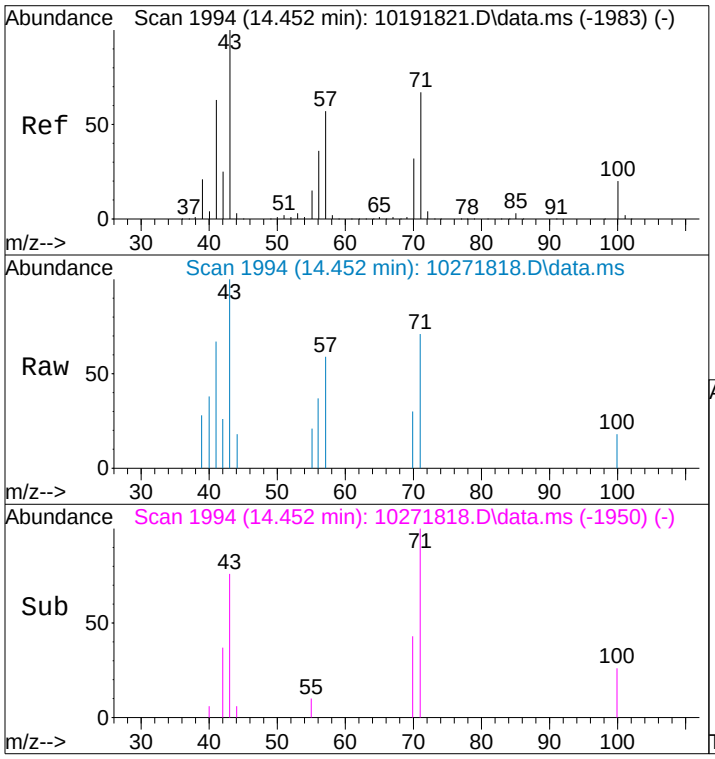


#43
Cyclohexane
Concen: 0.08 ng
RT: 13.32 min Scan# 1789
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 84 Resp: 2999

Ion	Ratio	Lower	Upper
84	100		
69	32.4	14.8	54.8
56	111.0	83.9	123.9

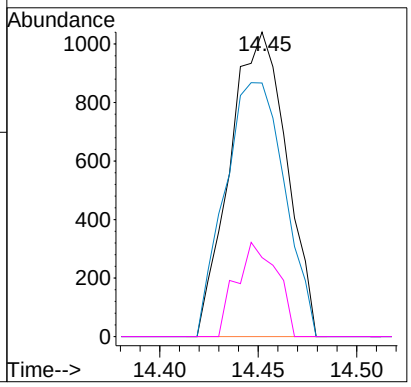


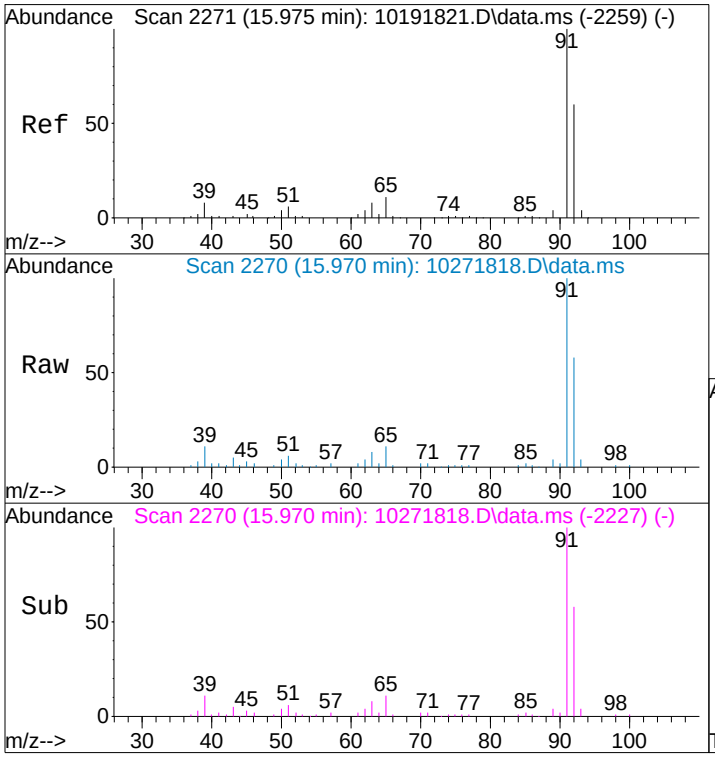


#51
n-Heptane
Concen: 0.10 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 71 Resp: 2073

Ion	Ratio	Lower	Upper
71	100		
57	88.2	66.4	106.4
100	22.3	10.6	50.6

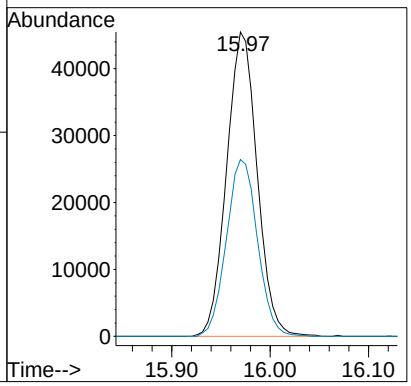


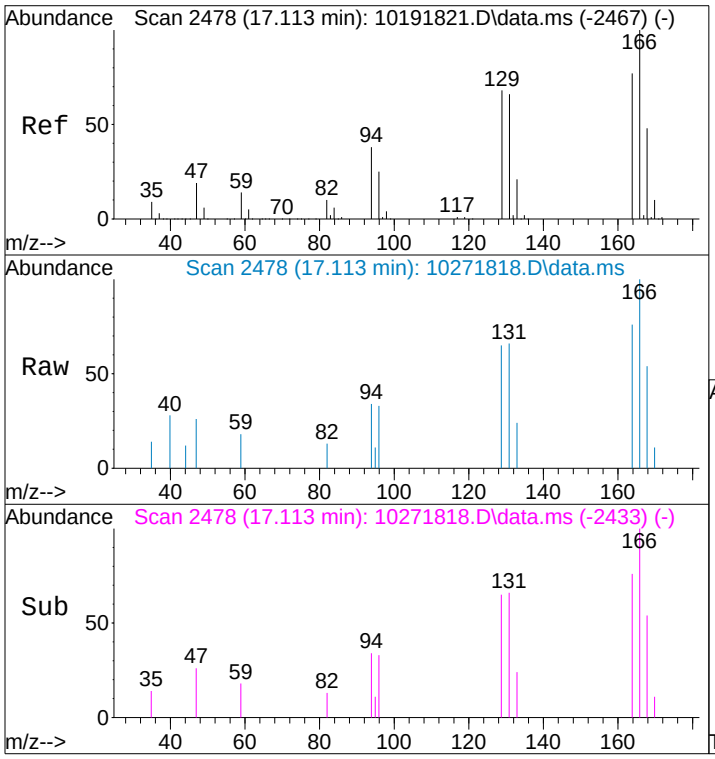


#58
Toluene
Concen: 0.99 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 91 Resp: 98210

Ion	Ratio	Lower	Upper
91	100		
92	59.1	39.4	79.4

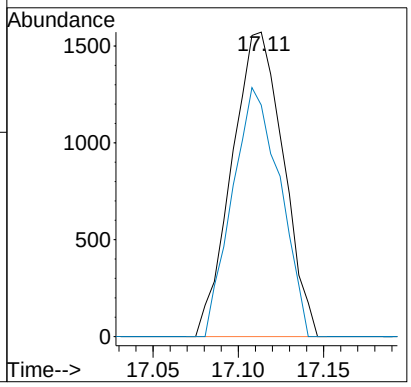


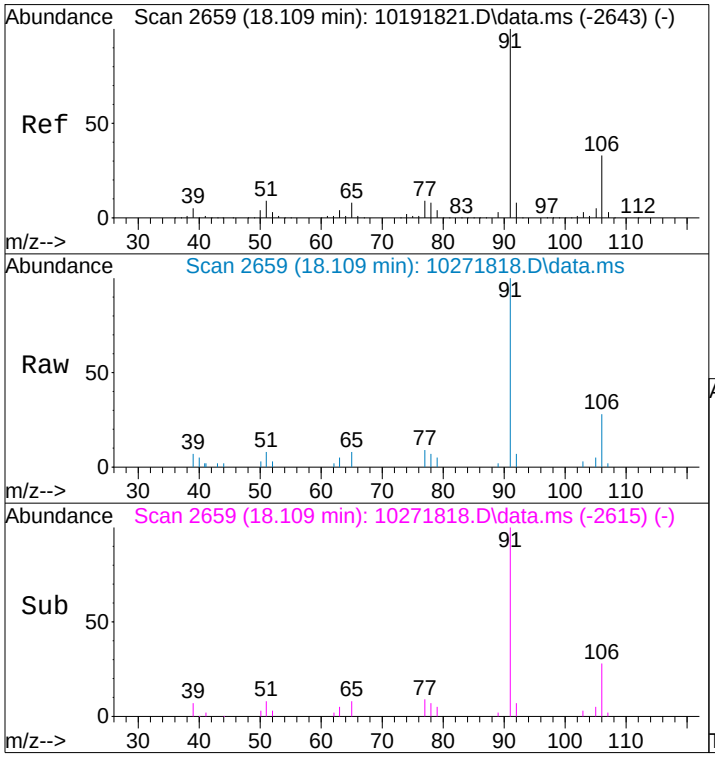


#64
Tetrachloroethene
Concen: 0.11 ng
RT: 17.11 min Scan# 2478
Delta R.T. 0.000 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:166 Resp: 3299

Ion	Ratio	Lower	Upper
166	100		
164	75.6	57.8	97.8

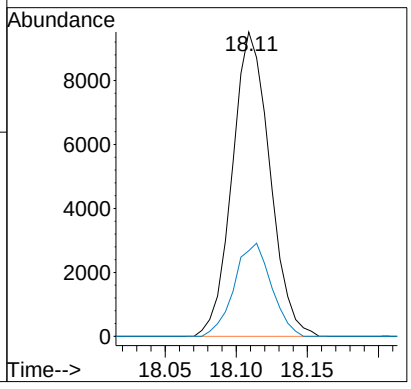


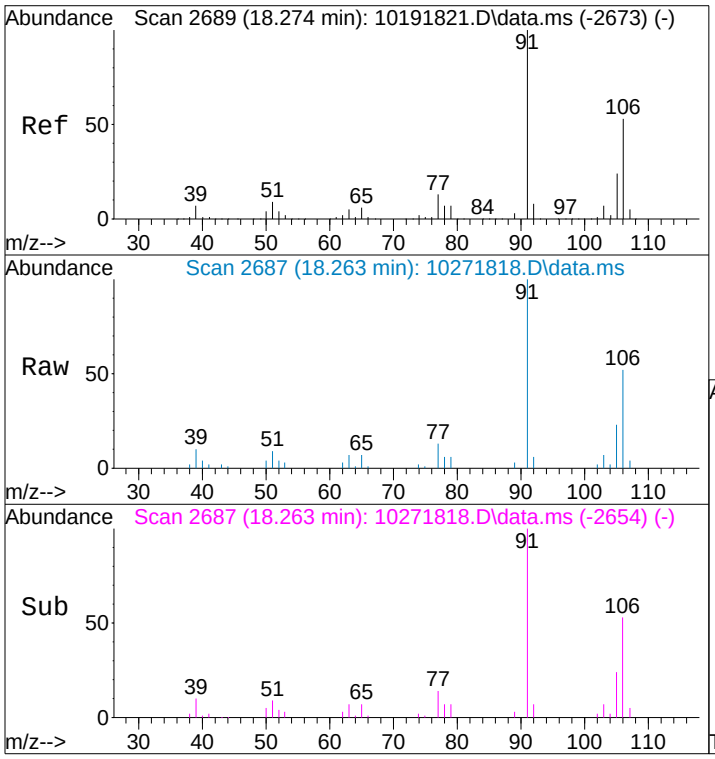


#66
Ethylbenzene
Concen: 0.15 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 91 Resp: 17482

Ion	Ratio	Lower	Upper
91	100		
106	30.3	12.6	52.6

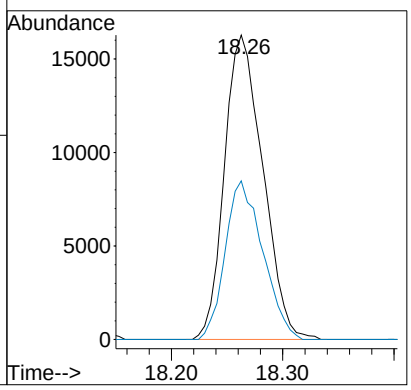


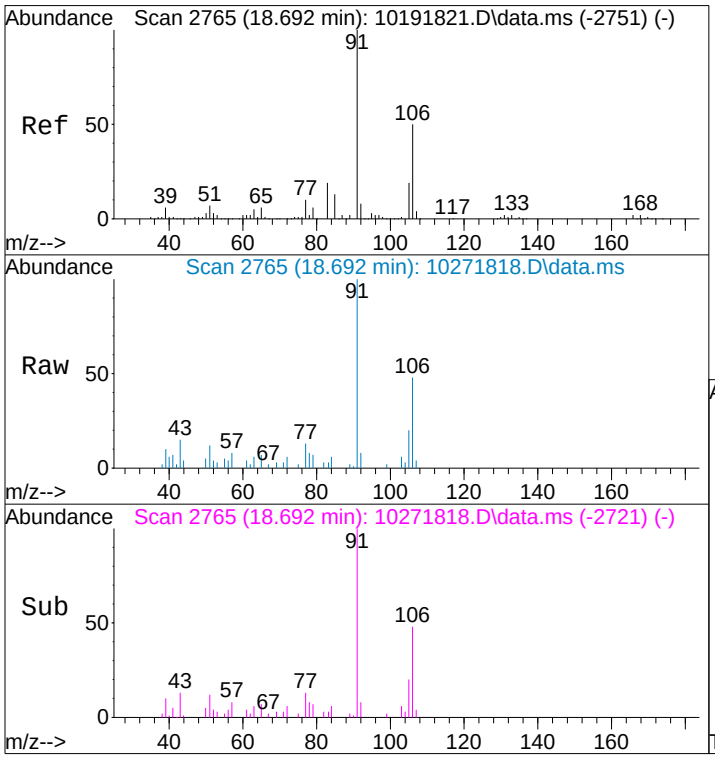


#67
m- & p-Xylenes
Concen: 0.46 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 91 Resp: 39071

Ion	Ratio	Lower	Upper
91	100		
106	50.9	32.2	72.2

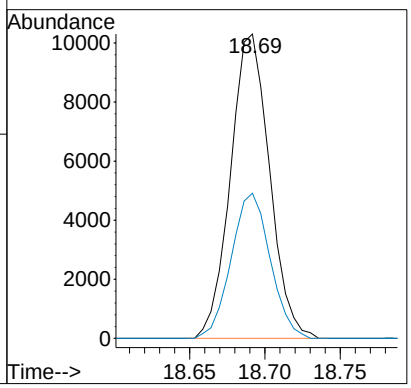


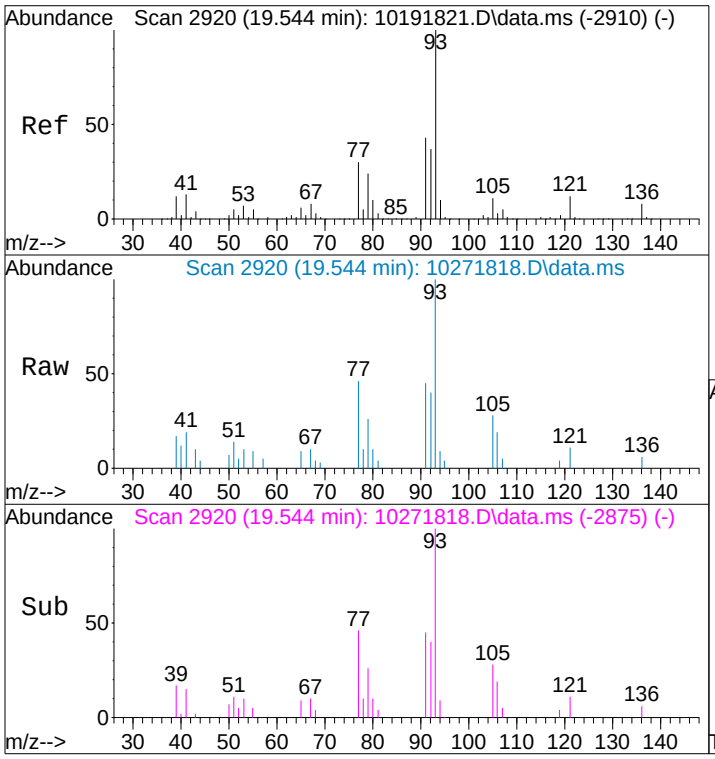


#70
o-Xylene
Concen: 0.22 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.005 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 91 Resp: 18591

Ion	Ratio	Lower	Upper
91	100		
106	47.6	29.4	69.4

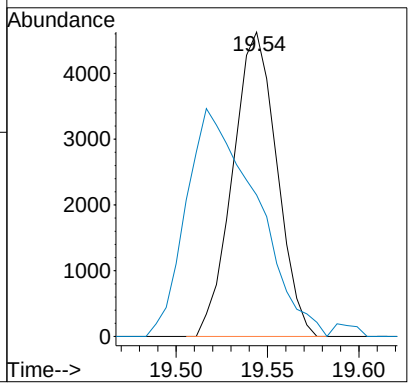


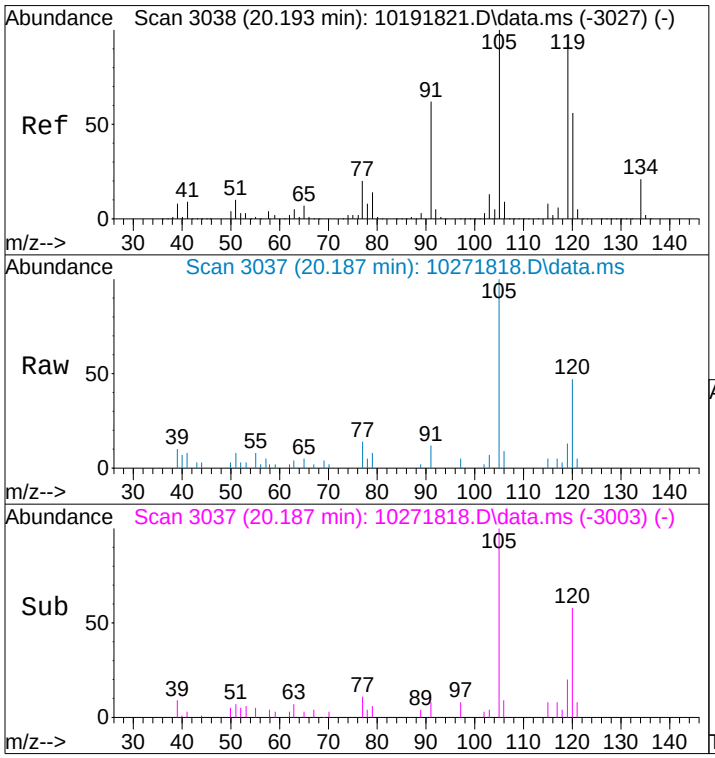


#75
alpha-Pinene
Concen: 0.13 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion: 93 Resp: 7763

Ion	Ratio	Lower	Upper
93	100		
77	118.8	10.2	50.2#

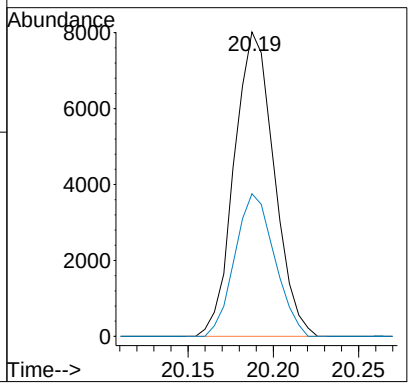


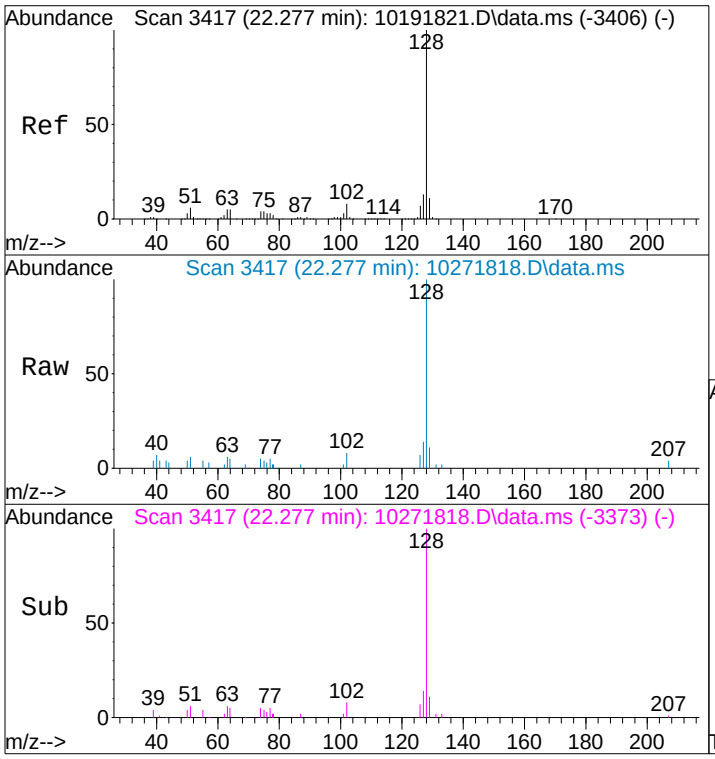


#82
1,2,4-Trimethylbenzene
Concen: 0.14 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:105 Resp: 13015

Ion	Ratio	Lower	Upper
105	100		
120	46.7	36.5	76.5

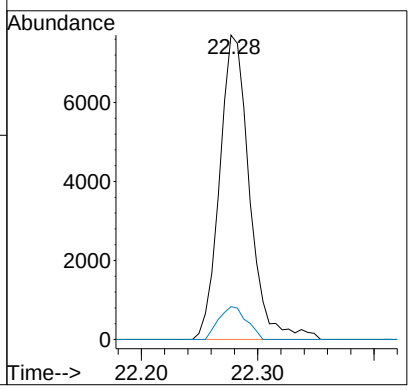




#95
Naphthalene
Concen: 0.10 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271818.D
Acq: 27 Oct 2018 14:29

Tgt Ion:128 Resp: 13753

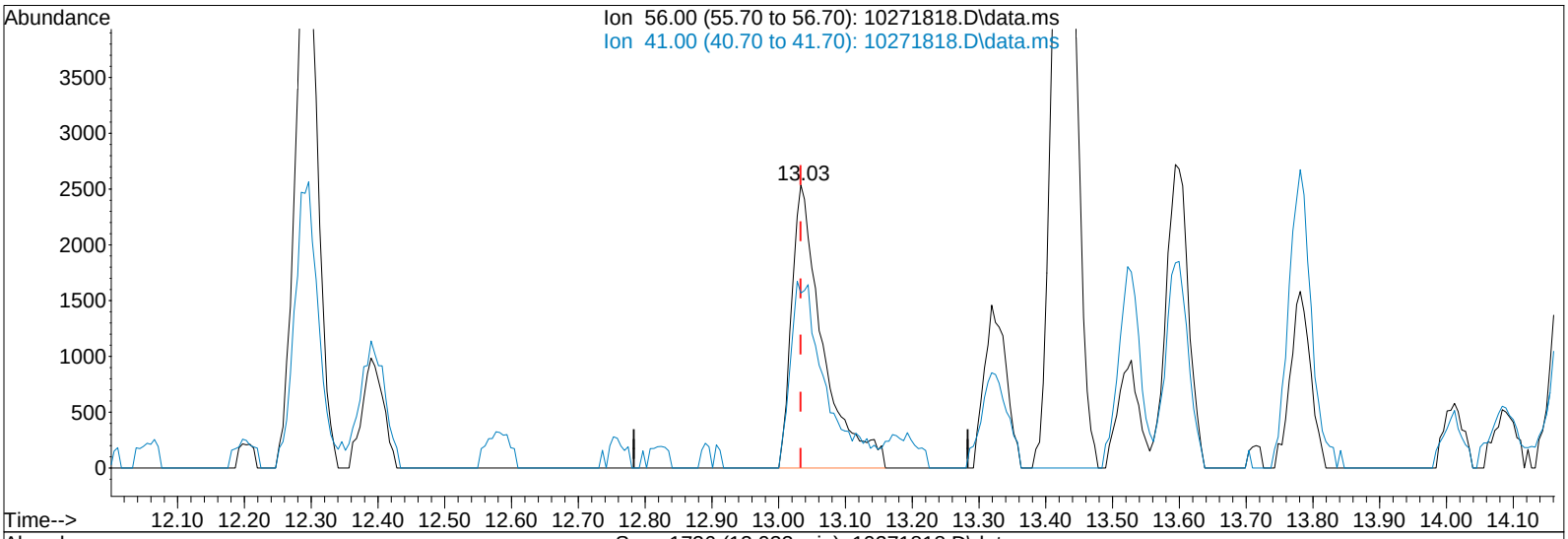
Ion	Ratio	Lower	Upper
128	100		
129	10.1	0.0	31.1

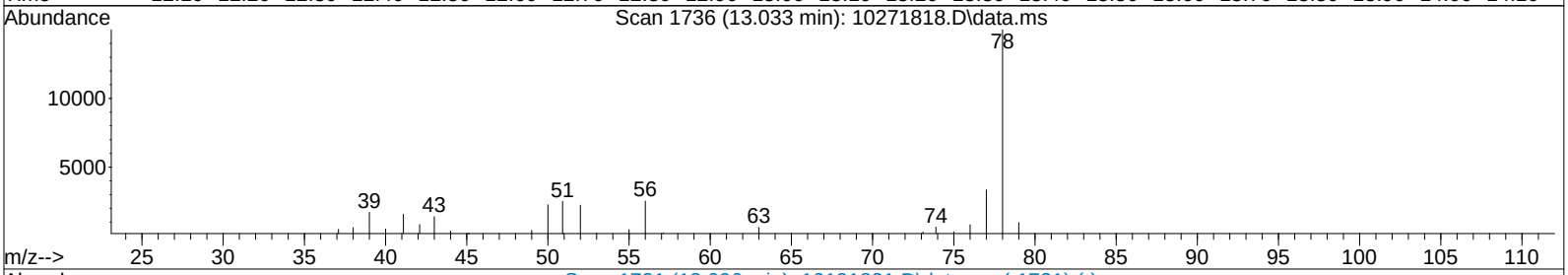


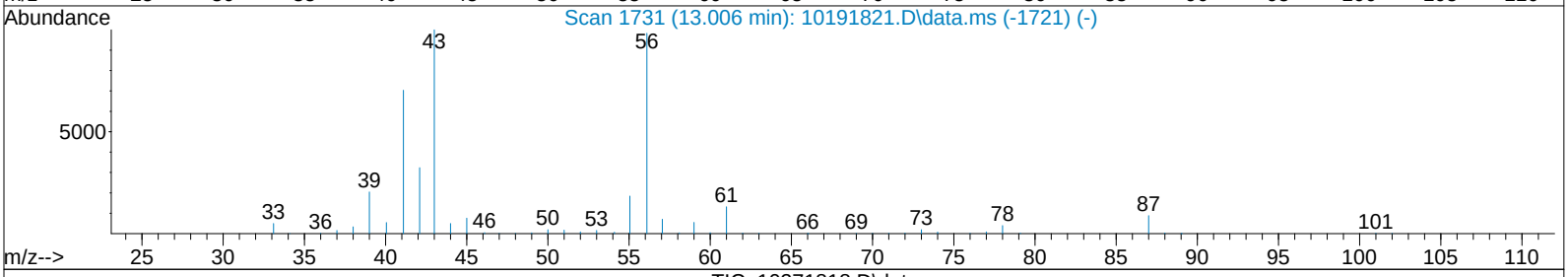
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 11:30:00 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271818.D\data.ms

(40) 1-Butanol (T)

13.033min (+0.000) 0.40ng m

response 8225

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IC-

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:38:35 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018

WA 10/30/18

Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

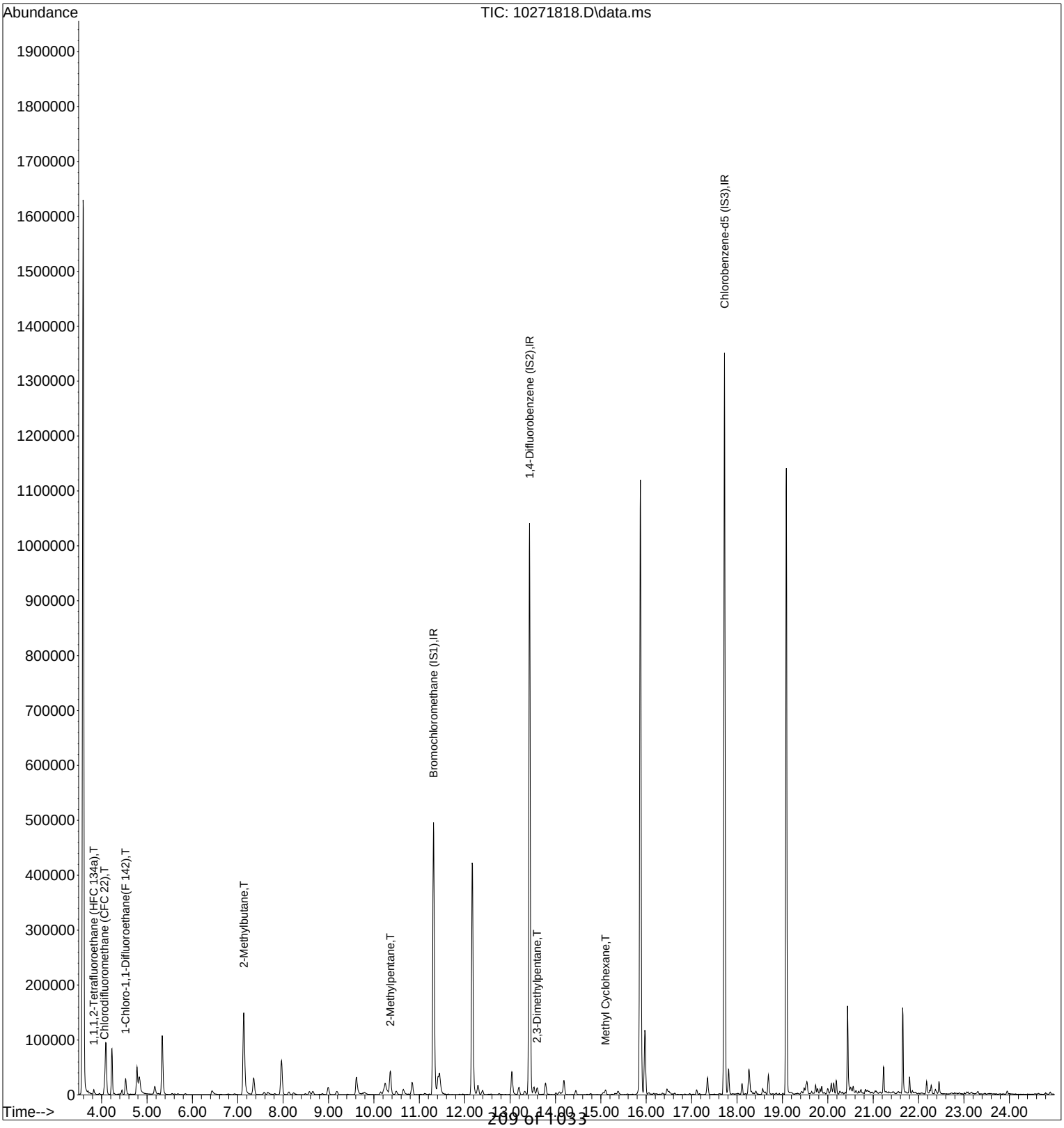
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	238428	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	1028022	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	449225	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	795	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	5364	0.224	ng	#	50
4) 1,1-Difluoroethane	3.95	65	823	N.D.			
5) Chlorodifluoromethane ...	4.06	67	2216	0.313	ng		81
6) 1-Chloro-1,1-Difluoroe...	4.53	65	30376	0.587	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	44906	2.305	ng		86
11) Methyl Acetate	8.61	43	52	N.D.			
12) 2-Methylpentane	10.36	71	12210	0.602	ng	#	56
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	1457	N.D.			
17) 2,3-Dimethylpentane	13.59	56	6331	0.170	ng		96
18) Dibromomethane	13.86	174	353	N.D.			
20) Methyl Cyclohexane	15.10	55	3507	0.123	ng	#	80
21) 1,3-Dichloropropane	15.97	76	318	N.D.			
22) 1,1,1,2-Tetrachloroethane	17.81	131	261	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	18.69	75	230	N.D.			
25) Bromobenzene	19.21	77	52	N.D.			
26) 2-Chlorotoluene	19.64	91	3424	N.D.			
27) 4-Chlorotoluene	19.64	91	3424	N.D.			
28) Indan	20.73	117	1746	N.D.			
29) Indene	20.81	115	508	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	1405	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	1501	N.D.			
32) 1,2,3,5-Tetramethylben...	21.94	119	1057	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

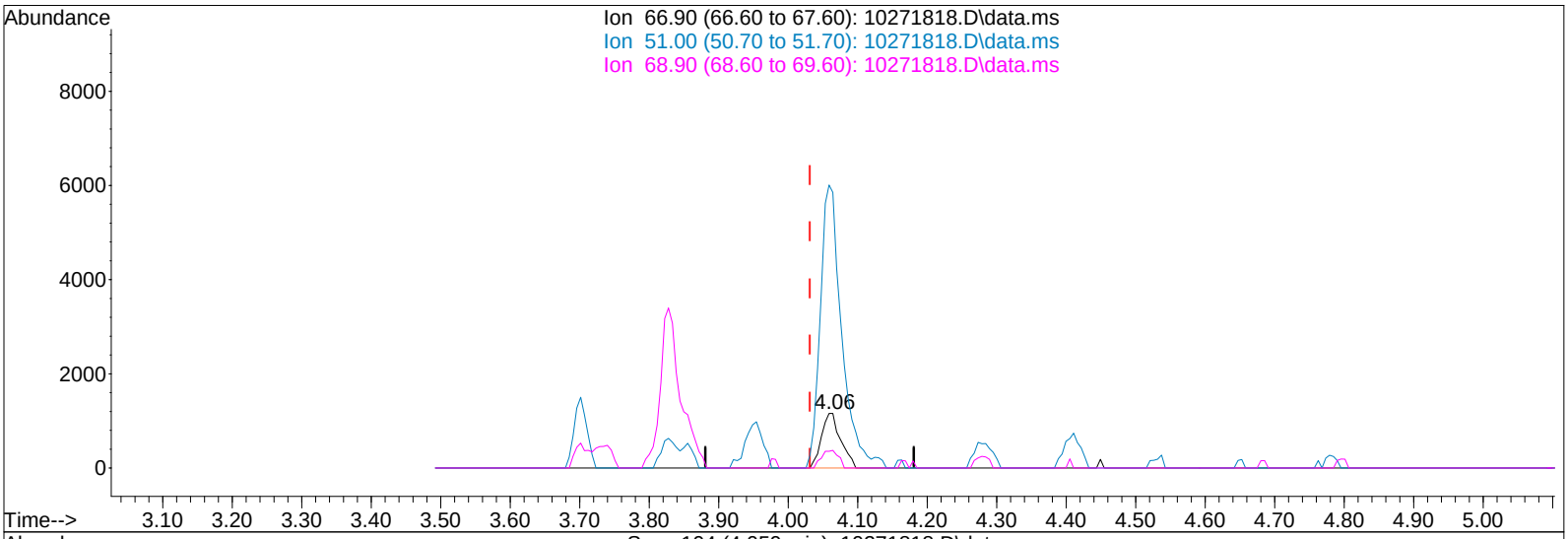
Quant Time: Oct 29 14:38:35 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

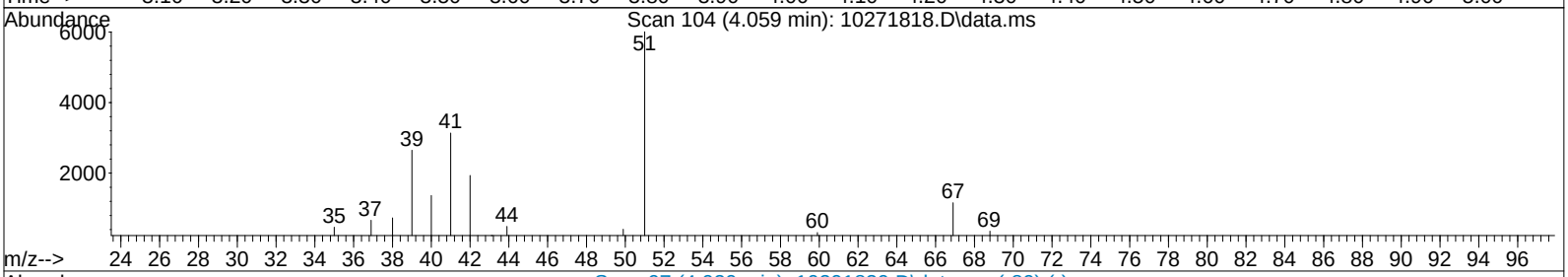


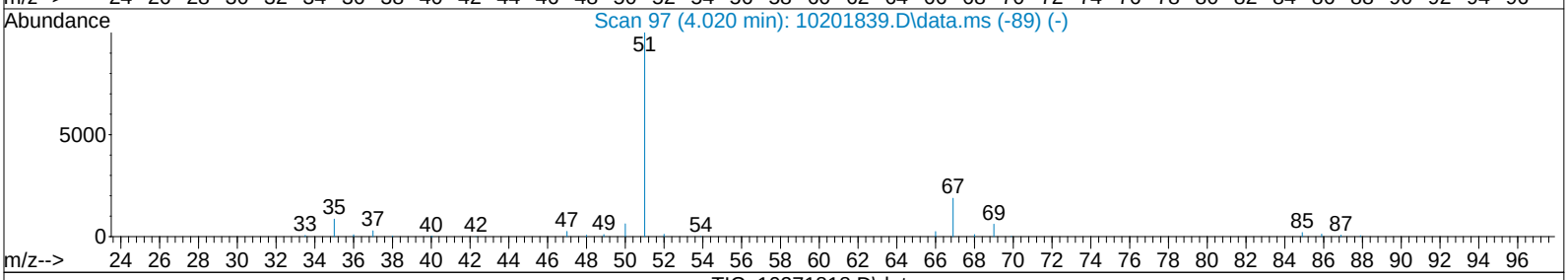
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271818.D
Acq On : 27 Oct 2018 14:29 Operator: WA
Sample : P1805497-005 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 29 14:38:35 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271818.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.028) 0.31ng

response 2216

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	583.57
68.90	31.80	28.84
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271819.D Vial: 10
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:12:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233409	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	948082	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	406633	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.18	65	335076	11.934	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.44%			
57) Toluene-d8 (SS2)	15.87	98	826919	12.770	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.16%			
73) Bromofluorobenzene (SS3)	19.09	174	342731	11.643	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.12%			
Target Compounds						Qvalue
2) Propene	4.04	42	37490	1.726	ng	93
3) Dichlorodifluoromethan...	4.22	85	78401	1.607	ng	99
4) Chloromethane	4.52	50	13631	0.439	ng	87
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	862	N.D.		
6) Vinyl Chloride	4.96	62	111	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.	d	
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	6.06	64	2969	0.204	ng	95
10) Ethanol	6.40	45	152253	11.597	ng	99
11) Acetonitrile	0.00	41	0	N.D.	d	
12) Acrolein	6.91	56	8349	0.720	ng	94
13) Acetone	7.10	58	145780m	9.307	ng	
14) Trichlorofluoromethane	7.39	101	27788	0.658	ng	99
15) 2-Propanol (Isopropanol)	7.61	45	131516	2.618	ng	83
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.36	96	833	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.58	84	23902	1.092	ng	99
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	9.02	151	2876	0.128	ng	95
22) Carbon Disulfide	8.88	76	89144	1.141	ng	100
23) trans-1,2-Dichloroethene	9.80	61	516	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.	d	
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.64	72	11619	0.839	ng	97
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	11.43	57	1749392	51.695	ng	99
32) Chloroform	11.48	83	1551924	39.431	ng	99
34) Tetrahydrofuran (THF)	11.94	72	777	0.056	ng	90
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.	d	
38) 1,1,1-Trichloroethane	12.57	97	4912	0.138	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	12.90	56	16184m	0.844	ng	
41) Benzene	13.05	78	27786	0.319	ng	98
42) Carbon Tetrachloride	13.20	117	45095	1.366	ng	100
43) Cyclohexane	13.34	84	268976	7.962	ng	97
44) tert-Amyl Methyl Ether	13.59	73	692	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.	d	
46) Bromodichloromethane	14.09	83	247015	8.101	ng	79
47) Trichloroethene	14.13	130	3611	0.141	ng	97
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	14.27	100	108	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271819.D Vial: 10
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:12:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

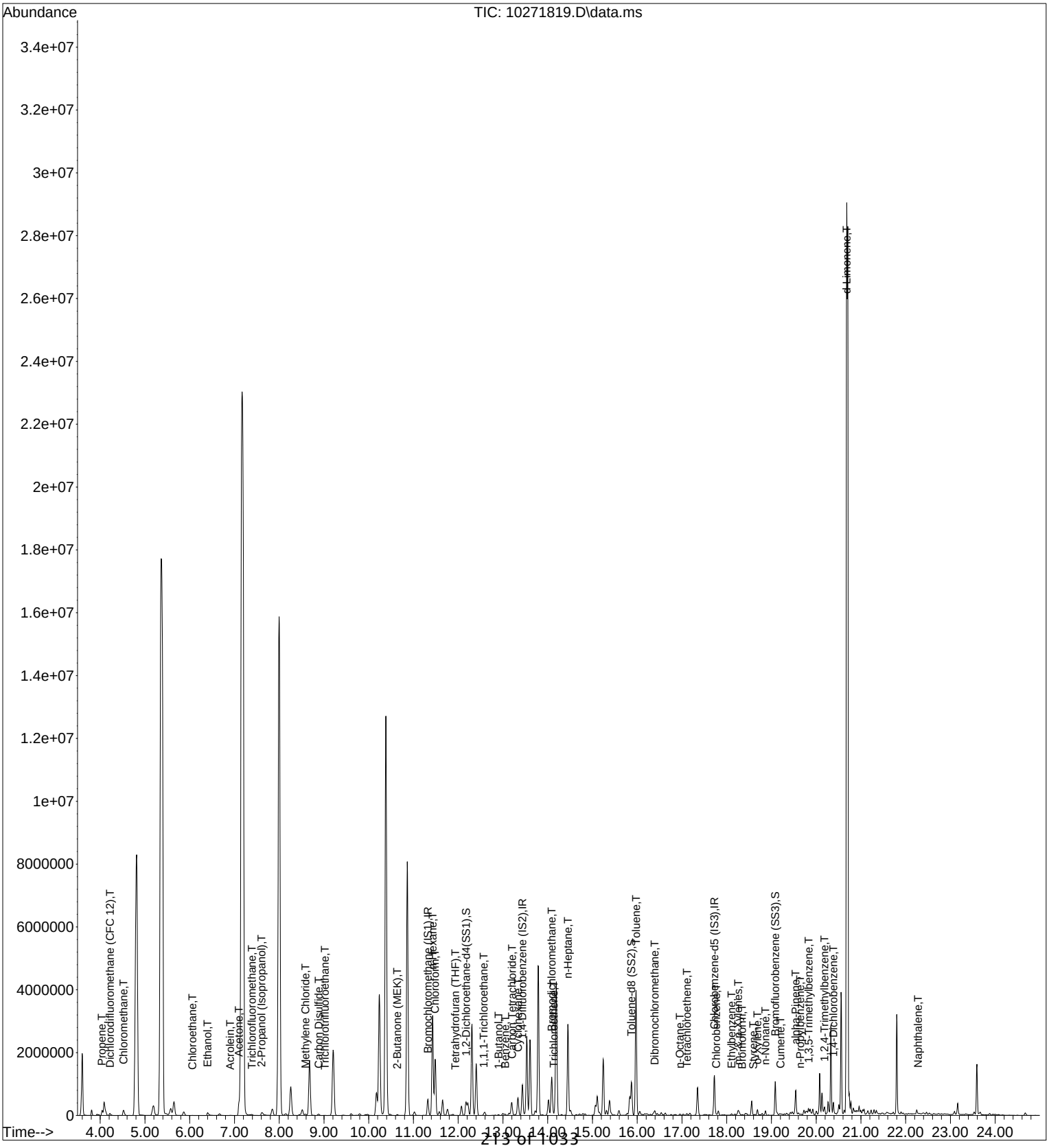
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	781717	38.984	ng		98
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	d		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	15.65	97	333	N.D.			
58) Toluene	15.98	91	3028006	33.677	ng		100
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	16.39	129	61332	2.335	ng		99
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.85	43	1995	N.D.			
63) n-Octane	16.95	57	8913	0.521	ng		95
64) Tetrachloroethene	17.11	166	18942	0.685	ng		99
65) Chlorobenzene	17.77	112	8101	0.133	ng		82
66) Ethylbenzene	18.11	91	38486	0.376	ng		98
67) m- & p-Xylenes	18.26	91	105091	1.374	ng		98
68) Bromoform	18.35	173	5257	0.225	ng		99
69) Styrene	18.59	104	5002	0.080	ng	#	61
70) o-Xylene	18.69	91	40291	0.519	ng		97
71) n-Nonane	18.87	43	47293	1.326	ng		97
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
74) Cumene	19.20	105	9184	0.090	ng		98
75) alpha-Pinene	19.54	93	313240	5.929	ng		92
76) n-Propylbenzene	19.64	91	18625	0.160	ng		88
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	0.00	105	0	N.D.	d		
79) 1,3,5-Trimethylbenzene	19.83	105	31855	0.374	ng		98
80) alpha-Methylstyrene	19.97	118	1551	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.19	105	44890	0.537	ng		88
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	0.00	91	0	N.D.	d		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.39	146	129174	2.458	ng		99
87) sec-Butylbenzene	0.00	105	0	N.D.	d		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.67	146	116	N.D.			
91) d-Limonene	20.68	68	11216305	369.217	ng		96
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	22.17	180	115	N.D.			
95) Naphthalene	22.28	128	7150	0.059	ng		85
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.	d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271819.D Vial: 10
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:12:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271819.D Vial: 10
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
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Quant Time: Oct 30 11:12:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/30/18

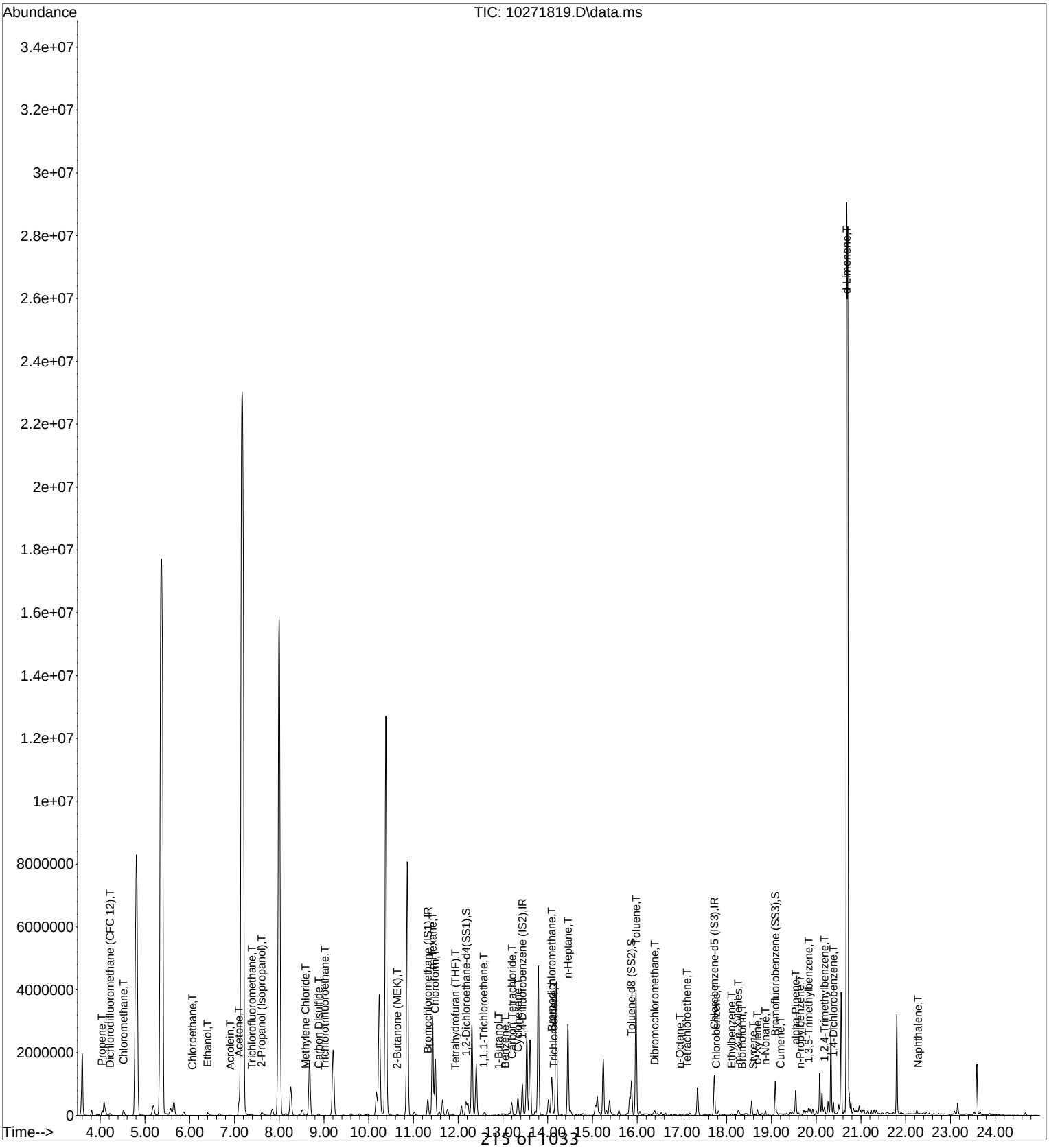
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233409	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	948082	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	406633	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	335076	11.934	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.44%				
57) Toluene-d8 (SS2)	15.87	98	826919	12.770	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.16%				
73) Bromofluorobenzene (SS3)	19.09	174	342731	11.643	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.12%				
Target Compounds							Qvalue
2) Propene	4.04	42	37490	1.726	ng		93
3) Dichlorodifluoromethan...	4.22	85	78401	1.607	ng		99
4) Chloromethane	4.52	50	13631	0.439	ng		87
9) Chloroethane	6.06	64	2969	0.204	ng		95
10) Ethanol	6.40	45	152253	11.597	ng		99
12) Acrolein	6.91	56	8349	0.720	ng		94
13) Acetone	7.10	58	145780m	9.307	ng		
14) Trichlorofluoromethane	7.39	101	27788	0.658	ng		99
15) 2-Propanol (Isopropanol)	7.61	45	131516	2.618	ng		83
19) Methylene Chloride	8.58	84	23902	1.092	ng		99
21) Trichlorotrifluoroethane	9.02	151	2876	0.128	ng		95
22) Carbon Disulfide	8.88	76	89144	1.141	ng		100
27) 2-Butanone (MEK)	10.64	72	11619	0.839	ng		97
31) n-Hexane	11.43	57	1749392	51.695	ng		99
32) Chloroform	11.48	83	1551924	39.431	ng		99
34) Tetrahydrofuran (THF)	11.94	72	777	0.056	ng		90
38) 1,1,1-Trichloroethane	12.57	97	4912	0.138	ng		99
40) 1-Butanol	12.90	56	16184m	0.844	ng		
41) Benzene	13.05	78	27786	0.319	ng		98
42) Carbon Tetrachloride	13.20	117	45095	1.366	ng		100
43) Cyclohexane	13.34	84	268976	7.962	ng		97
46) Bromodichloromethane	14.09	83	247015	8.101	ng		79
47) Trichloroethene	14.13	130	3611	0.141	ng		97
51) n-Heptane	14.45	71	781717	38.984	ng		98
58) Toluene	15.98	91	3028006	33.677	ng		100
60) Dibromochloromethane	16.39	129	61332	2.335	ng		99
63) n-Octane	16.95	57	8913	0.521	ng		95
64) Tetrachloroethene	17.11	166	18942	0.685	ng		99
65) Chlorobenzene	17.77	112	8101	0.133	ng		82
66) Ethylbenzene	18.11	91	38486	0.376	ng		98
67) m- & p-Xylenes	18.26	91	105091	1.374	ng		98
68) Bromoform	18.35	173	5257	0.225	ng		99
69) Styrene	18.59	104	5002	0.080	ng	#	61
70) o-Xylene	18.69	91	40291	0.519	ng		97
71) n-Nonane	18.87	43	47293	1.326	ng		97
74) Cumene	19.20	105	9184	0.090	ng		98
75) alpha-Pinene	19.54	93	313240	5.929	ng		92
76) n-Propylbenzene	19.64	91	18625	0.160	ng		88
79) 1,3,5-Trimethylbenzene	19.83	105	31855	0.374	ng		98
82) 1,2,4-Trimethylbenzene	20.19	105	44890	0.537	ng		88
86) 1,4-Dichlorobenzene	20.39	146	129174	2.458	ng		99
91) d-Limonene	20.68	68	11216305	369.217	ng		96
95) Naphthalene	22.28	128	7150	0.059	ng		85

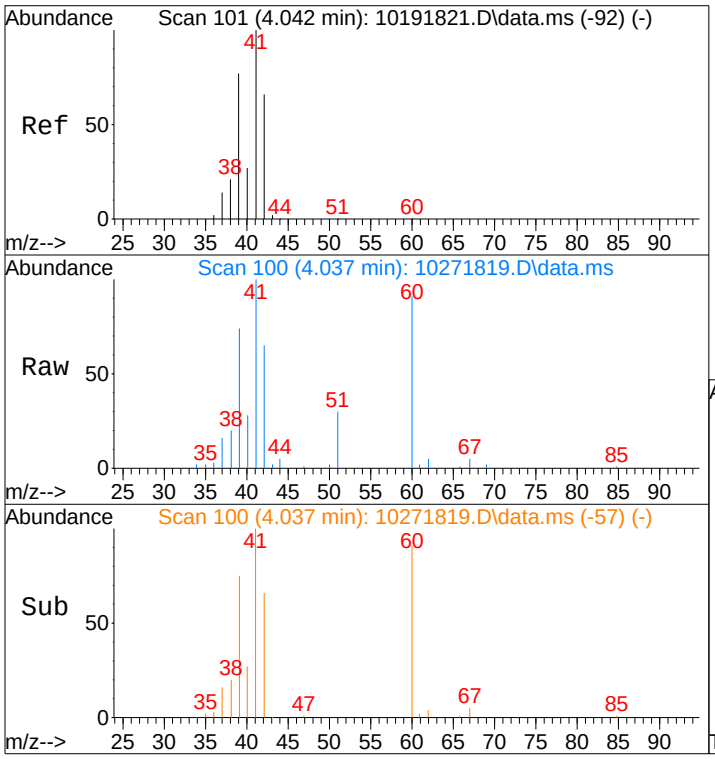
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271819.D Vial: 10
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:12:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

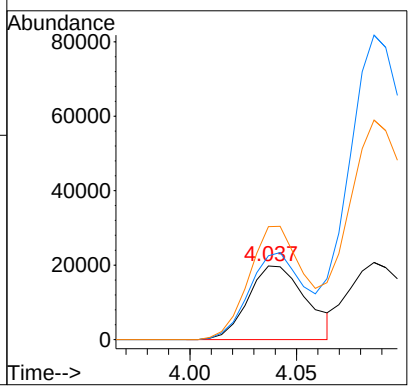


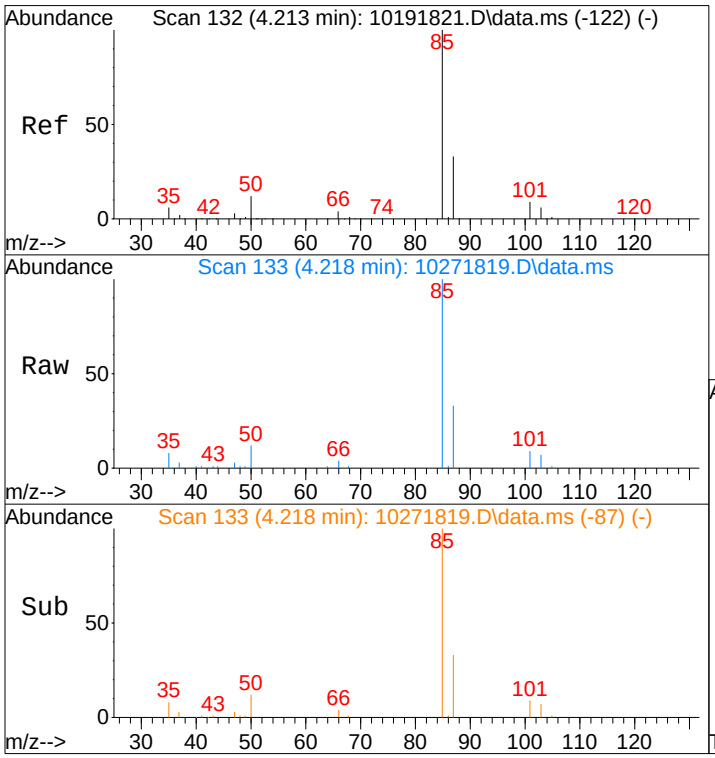


#2
Propene
Concen: 1.73 ng
RT: 4.04 min Scan# 100
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 42 Resp: 37490

Ion	Ratio	Lower	Upper
42	100		
39	111.6	98.5	138.5
41	142.7	131.9	171.9

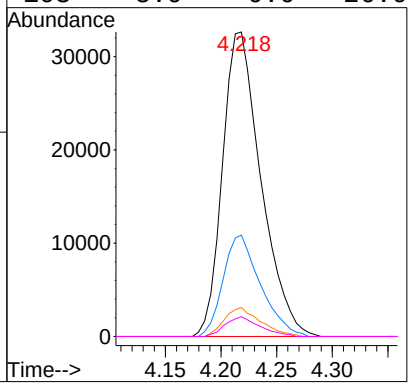


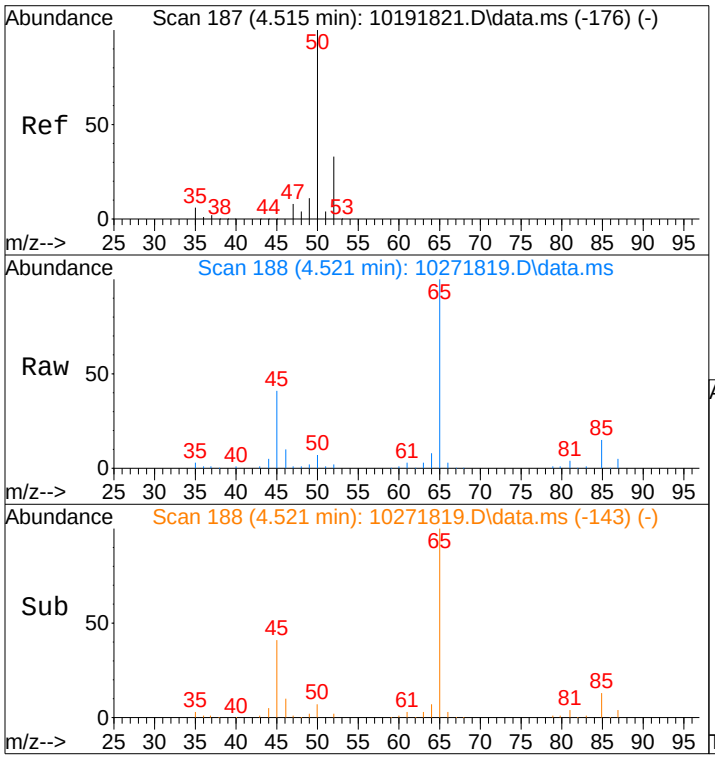


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.61 ng
RT: 4.22 min Scan# 133
Delta R.T. 0.006 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 85 Resp: 78401

Ion	Ratio	Lower	Upper
85	100		
87	32.2	12.6	52.6
101	9.0	0.0	29.4
103	5.9	0.0	26.0

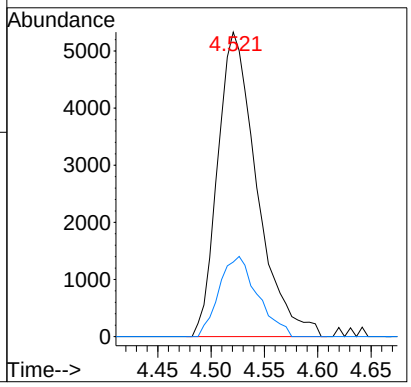


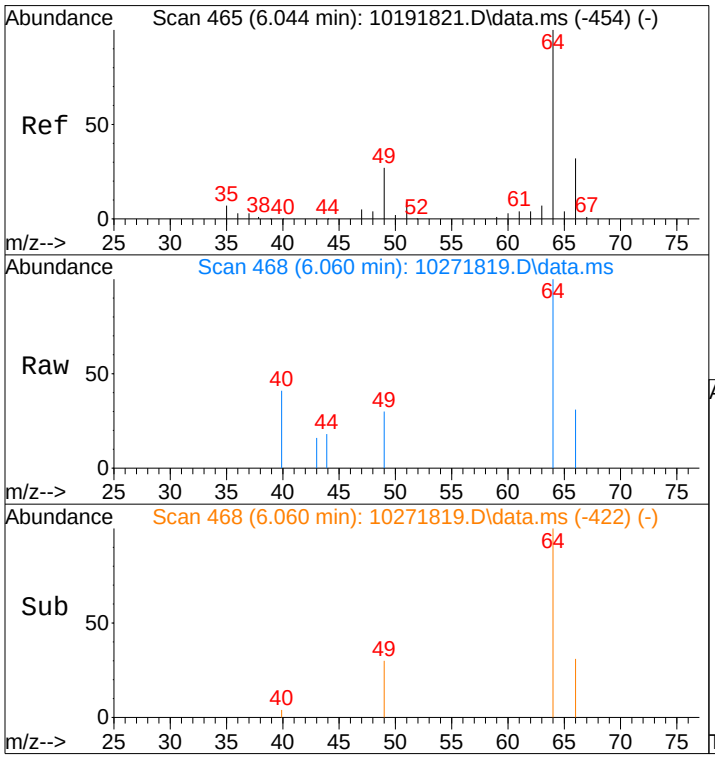


#4
Chloromethane
Concen: 0.44 ng
RT: 4.52 min Scan# 188
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 50 Resp: 13631

Ion	Ratio	Lower	Upper
50	100		
52	25.8	13.2	53.2

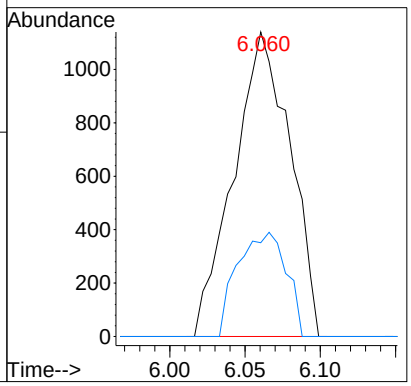


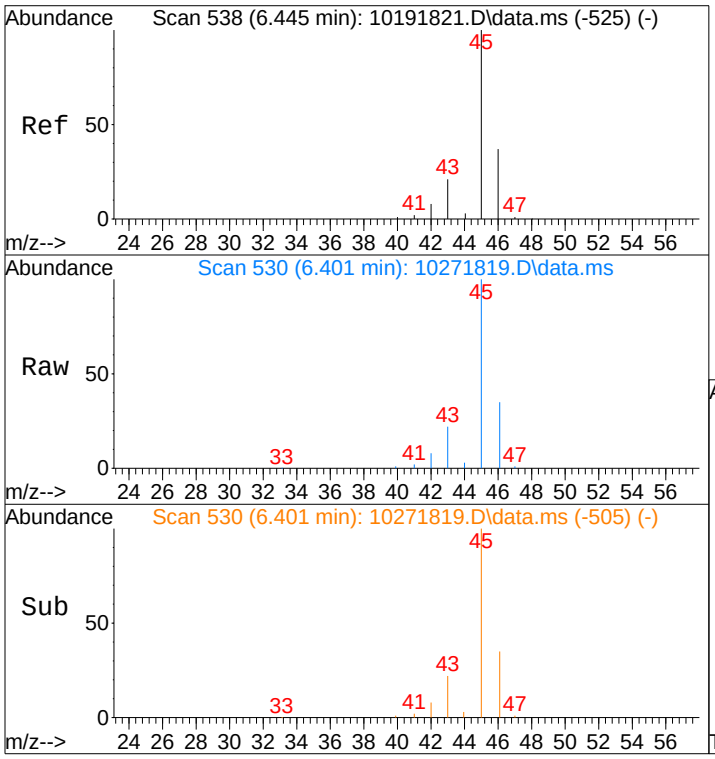


#9
Chloroethane
Concen: 0.20 ng
RT: 6.06 min Scan# 468
Delta R.T. 0.006 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 64 Resp: 2969

Ion	Ratio	Lower	Upper
64	100		
66	29.5	12.2	52.2

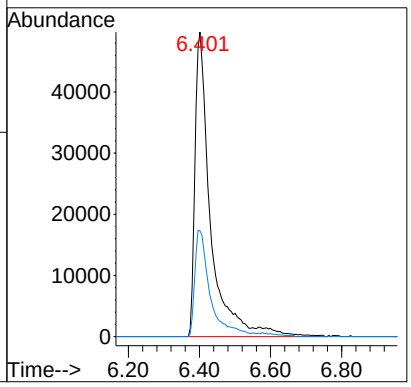


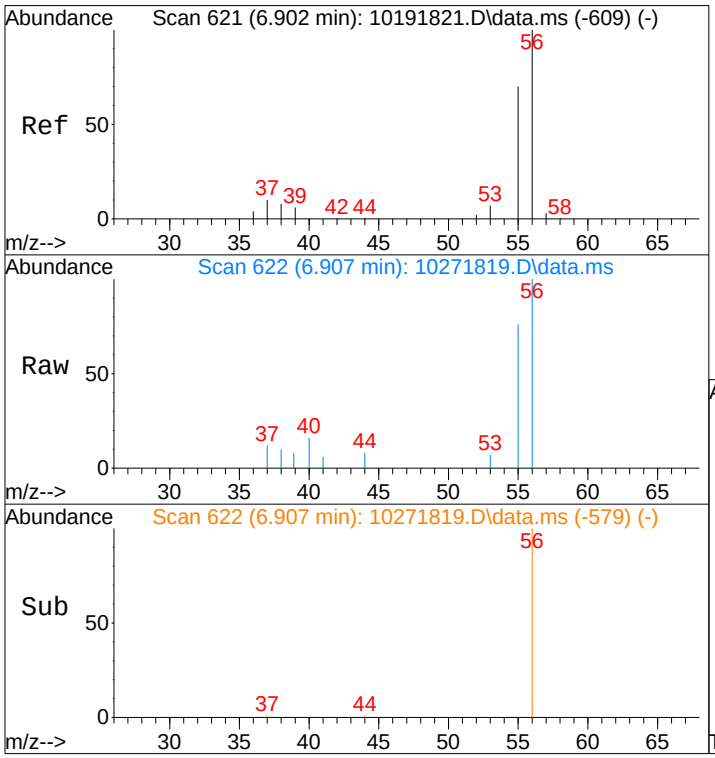


#10
Ethanol
Concen: 11.60 ng
RT: 6.40 min Scan# 530
Delta R.T. -0.110 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 45 Resp: 152253

Ion	Ratio	Lower	Upper
45	100		
46	36.0	16.6	56.6

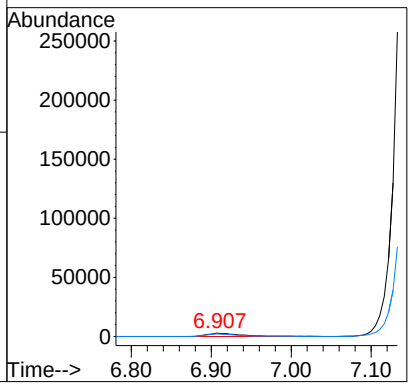


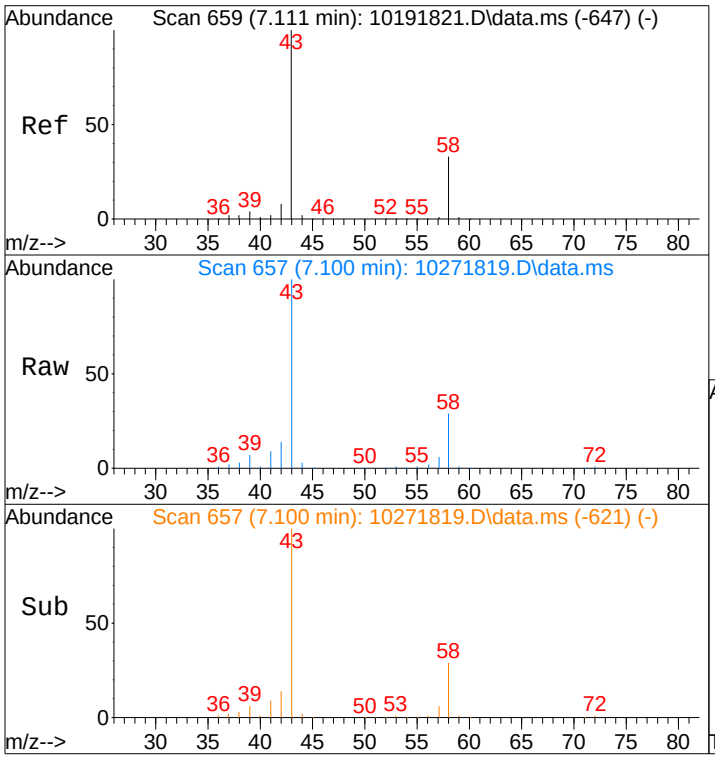


#12
Acrolein
Concen: 0.72 ng
RT: 6.91 min Scan# 622
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 56 Resp: 8349

Ion	Ratio	Lower	Upper
56	100		
55	76.1	51.0	91.0

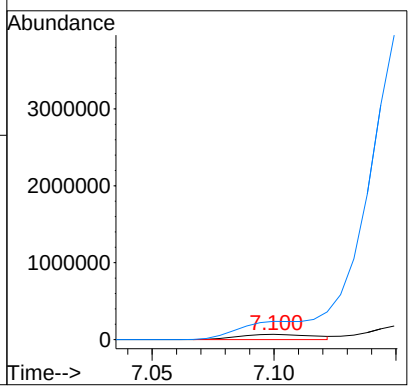


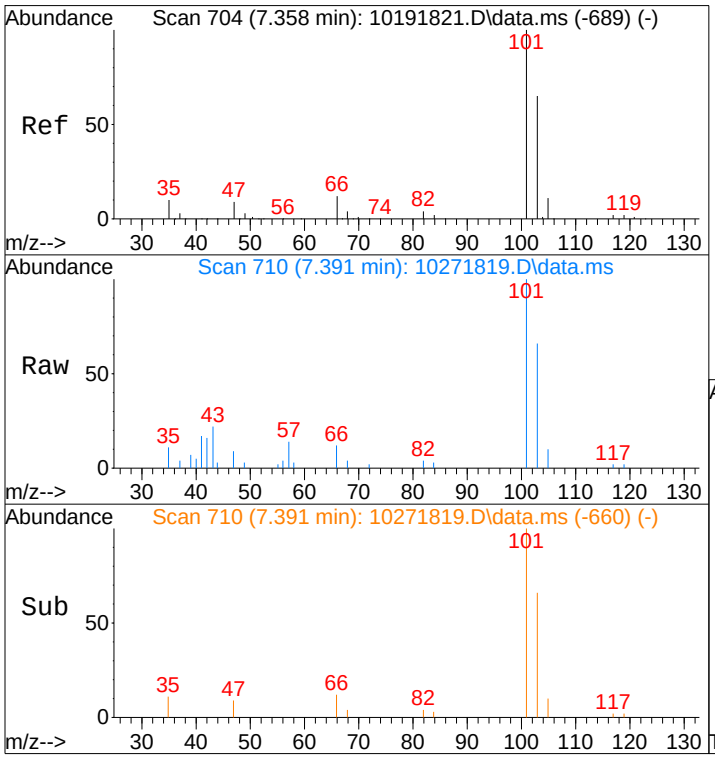


#13
Acetone
Concen: 9.31 ng m
RT: 7.10 min Scan# 657
Delta R.T. -0.049 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 58 Resp: 145780

Ion	Ratio	Lower	Upper
58	100		
43	13543.1	283.4	343.4#

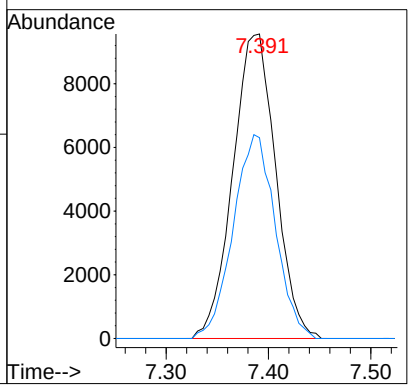


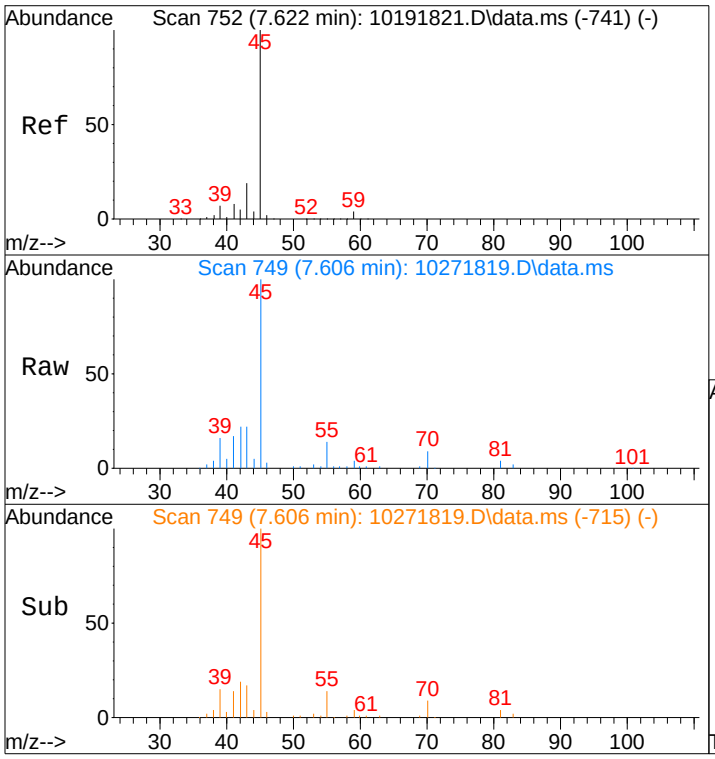


#14
Trichlorofluoromethane
Concen: 0.66 ng
RT: 7.39 min Scan# 710
Delta R.T. 0.028 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:101 Resp: 27788

Ion	Ratio	Lower	Upper
101	100		
103	65.7	44.8	84.8

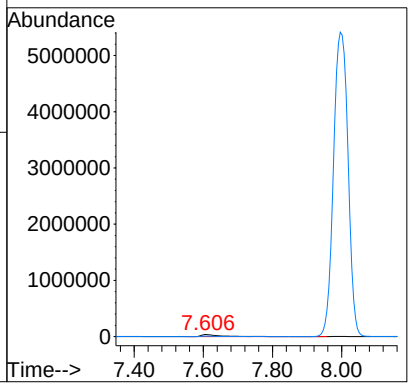


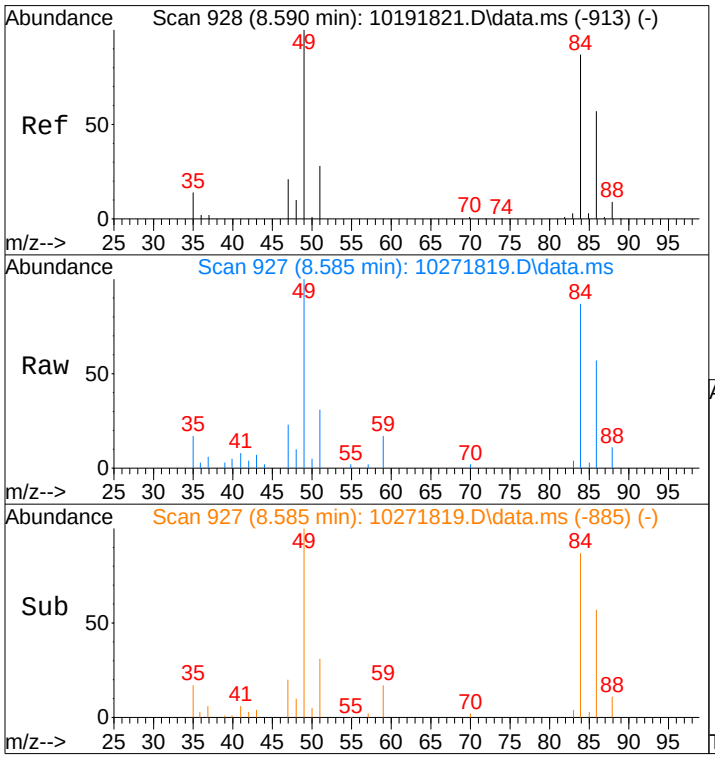


#15
2-Propanol (Isopropanol)
Concen: 2.62 ng
RT: 7.61 min Scan# 749
Delta R.T. -0.060 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 45 Resp: 131516

Ion	Ratio	Lower	Upper
45	100		
43	27.1	0.0	39.6

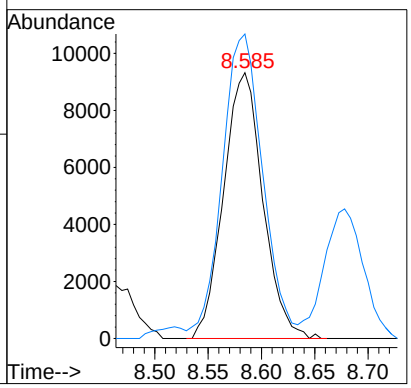


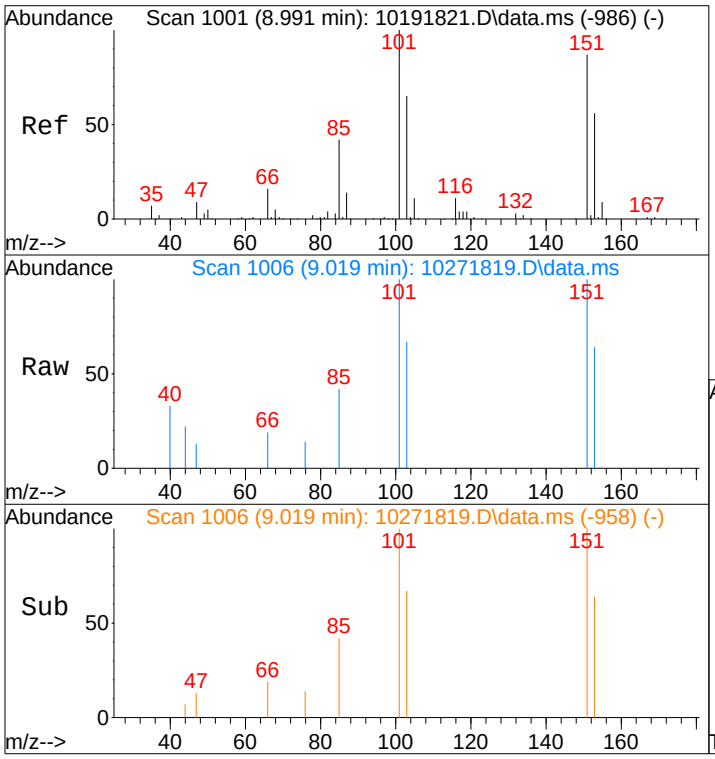


#19
Methylene Chloride
Concen: 1.09 ng
RT: 8.58 min Scan# 927
Delta R.T. -0.016 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 84 Resp: 23902

Ion	Ratio	Lower	Upper
84	100		
49	118.1	92.1	142.1

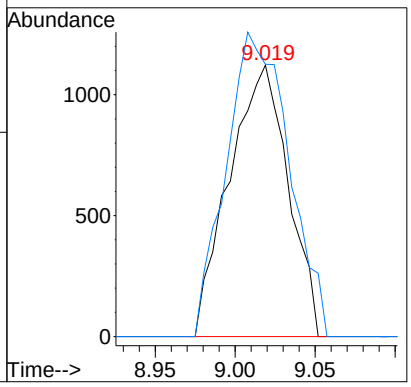


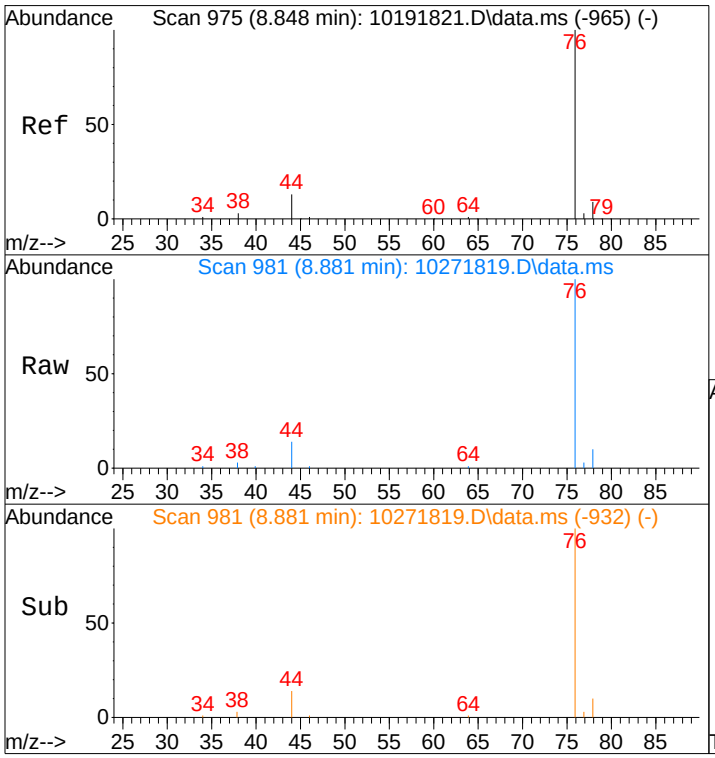


#21
Trichlorotrifluoroethane
Concen: 0.13 ng
RT: 9.02 min Scan# 1006
Delta R.T. 0.017 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:151 Resp: 2876

Ion	Ratio	Lower	Upper
151	100		
101	119.7	94.4	134.4

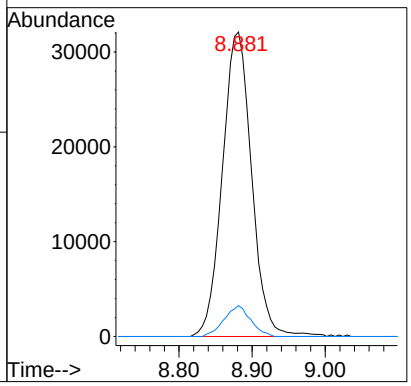


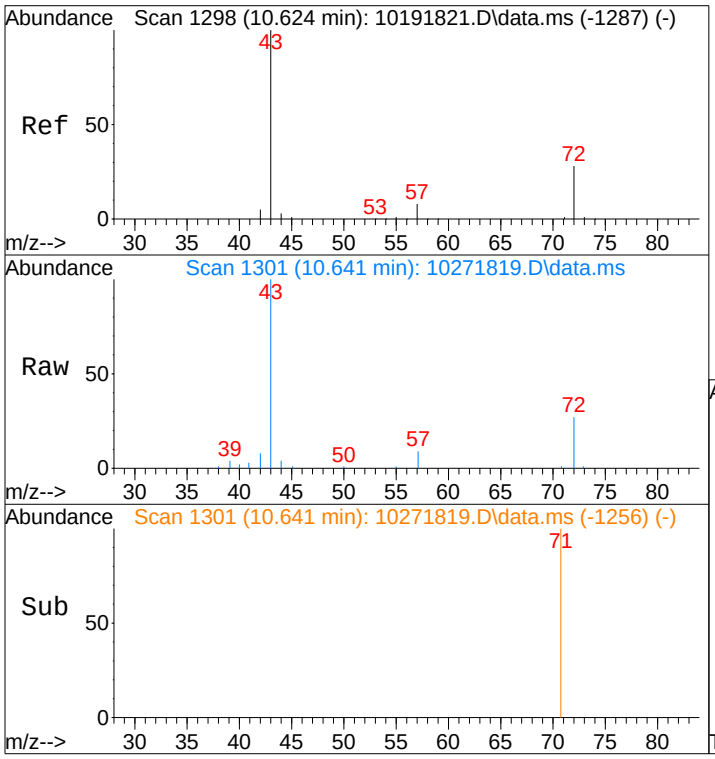


#22
Carbon Disulfide
Concen: 1.14 ng
RT: 8.88 min Scan# 981
Delta R.T. 0.022 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 76 Resp: 89144

Ion	Ratio	Lower	Upper
76	100		
78	9.2	0.0	29.3

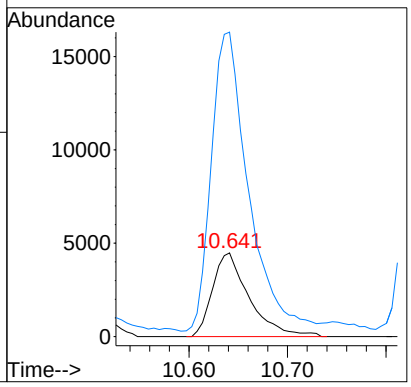


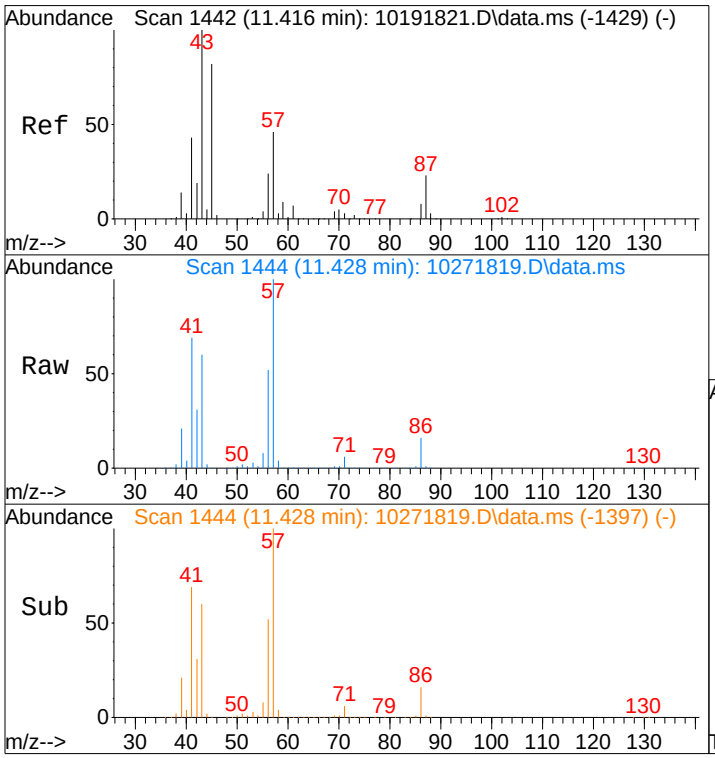


#27
2-Butanone (MEK)
Concen: 0.84 ng
RT: 10.64 min Scan# 1301
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 72 Resp: 11619

Ion	Ratio	Lower	Upper
72	100		
43	362.7	350.1	390.1

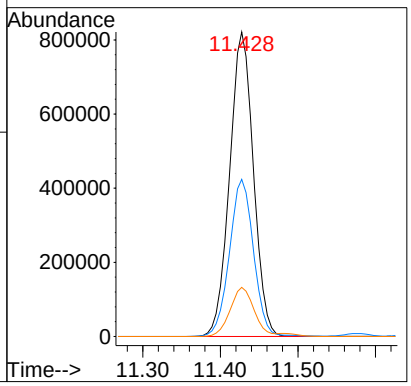


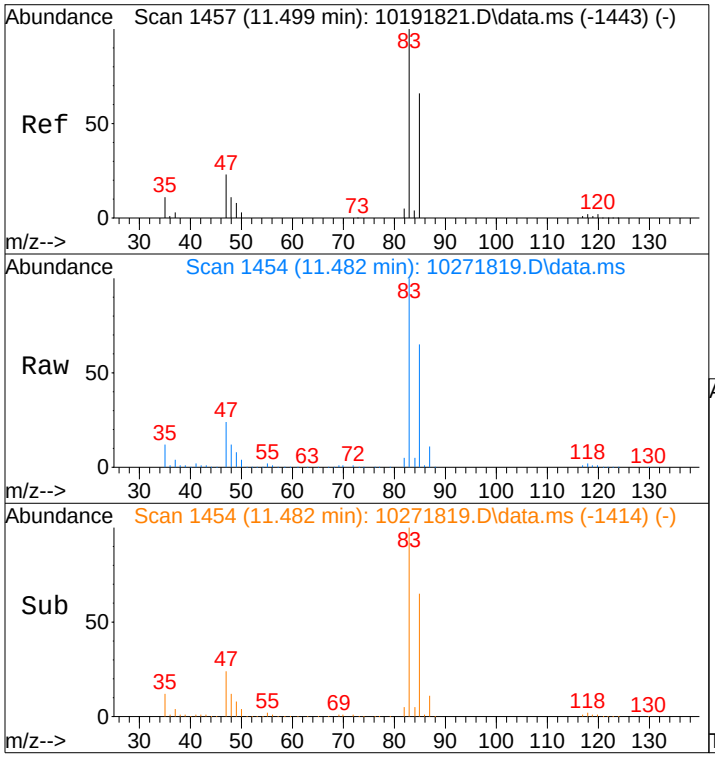


#31
n-Hexane
Concen: 51.70 ng
RT: 11.43 min Scan# 1444
Delta R.T. 0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 57 Resp: 1749392

Ion	Ratio	Lower	Upper
57	100		
56	52.5	41.4	62.0
86	17.1	13.7	20.5

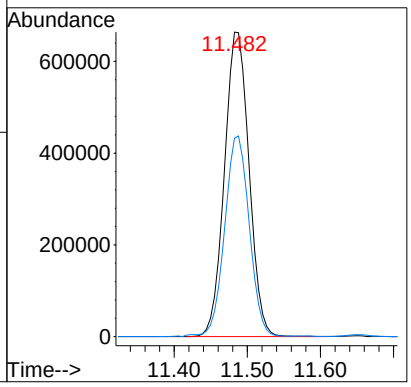


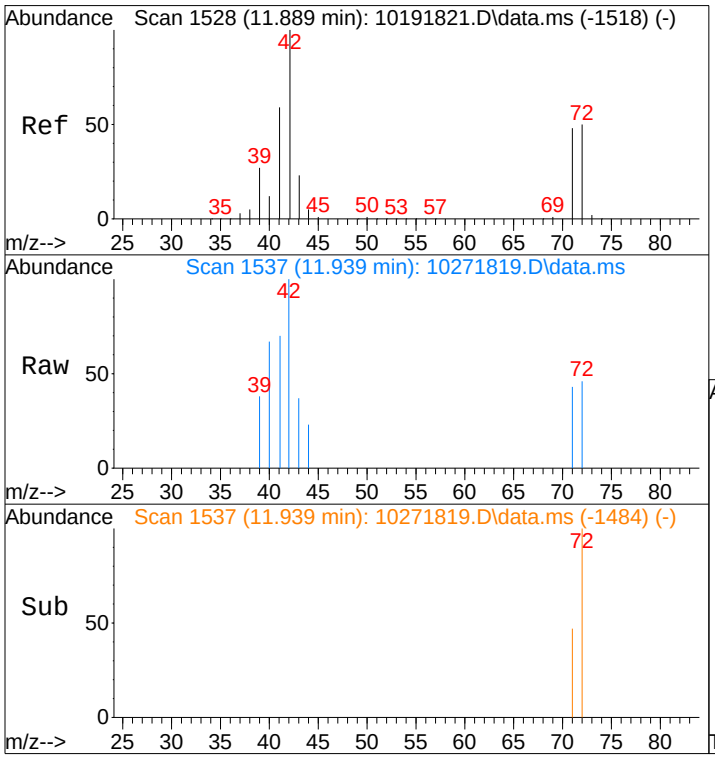


#32
Chloroform
Concen: 39.43 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 83 Resp: 1551924

Ion	Ratio	Lower	Upper
83	100		
85	66.0	45.5	85.5

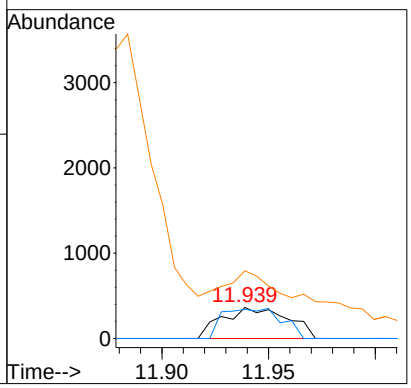


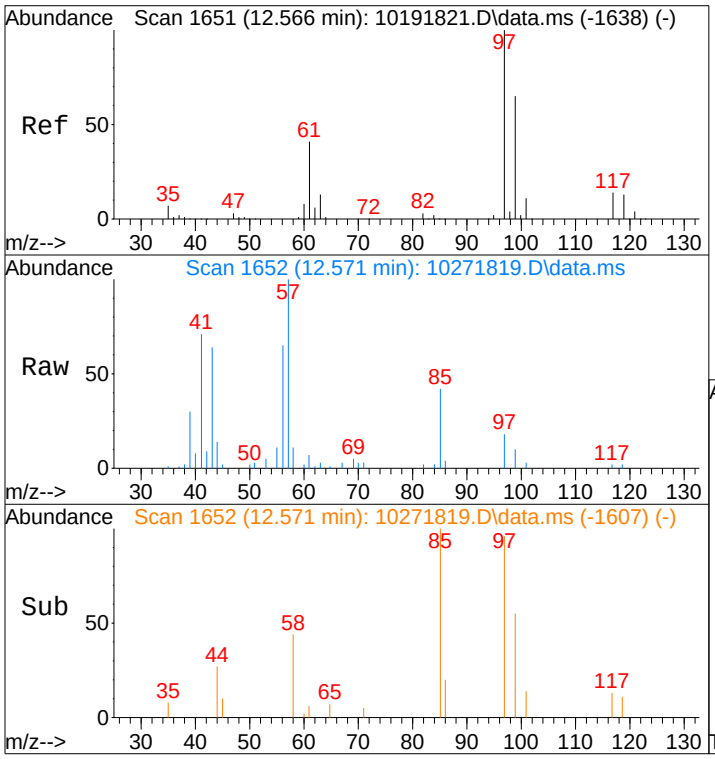


#34
Tetrahydrofuran (THF)
Concen: 0.06 ng
RT: 11.94 min Scan# 1537
Delta R.T. 0.044 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 72 Resp: 777

Ion	Ratio	Lower	Upper
72	100		
71	86.6	77.2	117.2
42	215.7	181.3	221.3

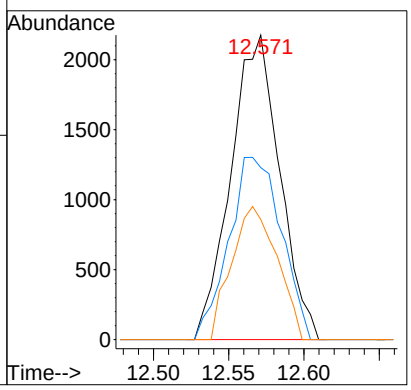


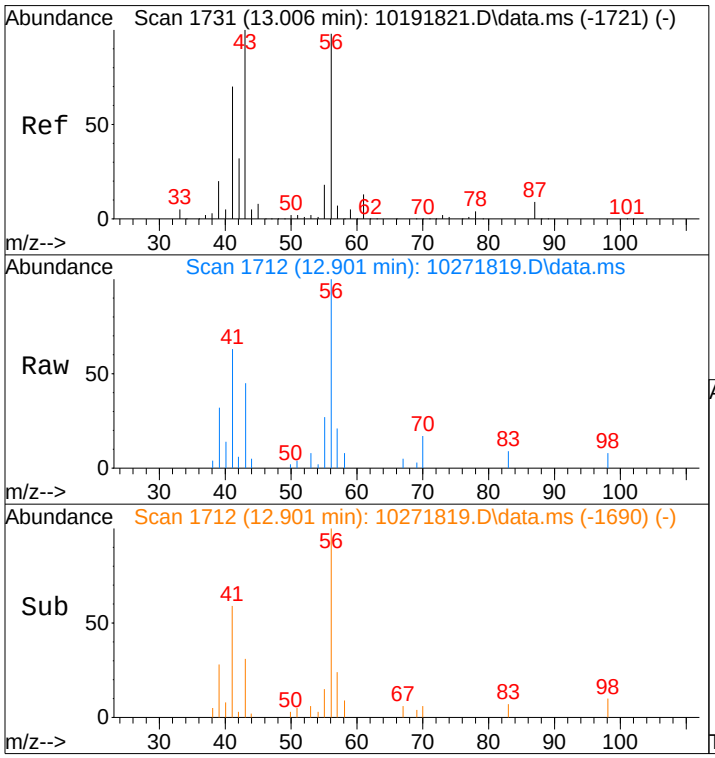


#38
1,1,1-Trichloroethane
Concen: 0.14 ng
RT: 12.57 min Scan# 1652
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 97 Resp: 4912

Ion	Ratio	Lower	Upper
97	100		
99	64.1	44.9	84.9
61	40.8	21.3	61.3

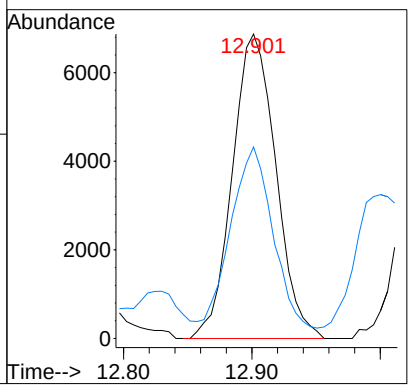


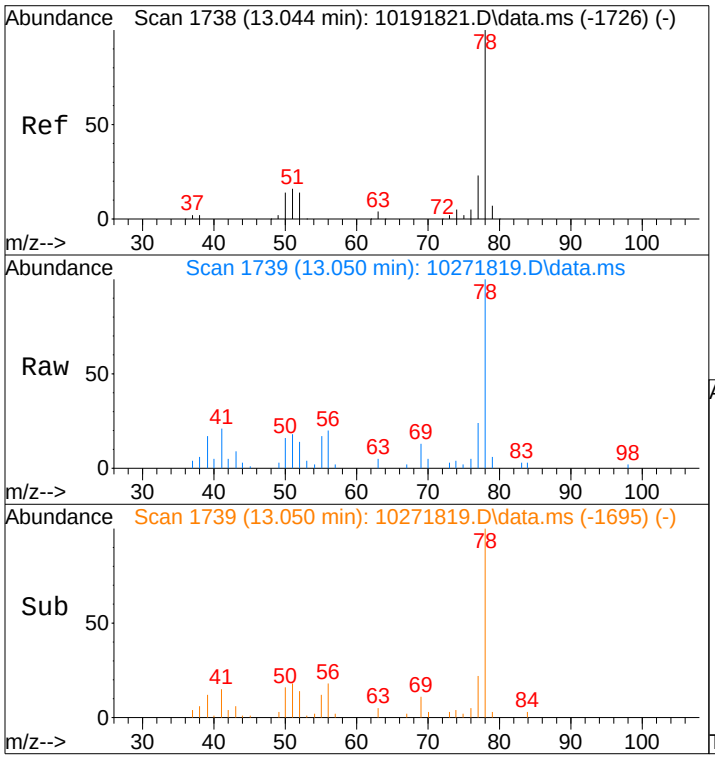


#40
1-Butanol
Concen: 0.84 ng m
RT: 12.90 min Scan# 1712
Delta R.T. -0.132 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 56 Resp: 16184

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

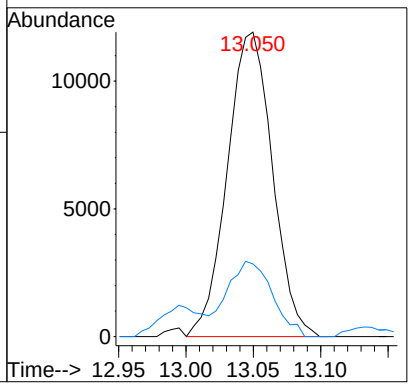


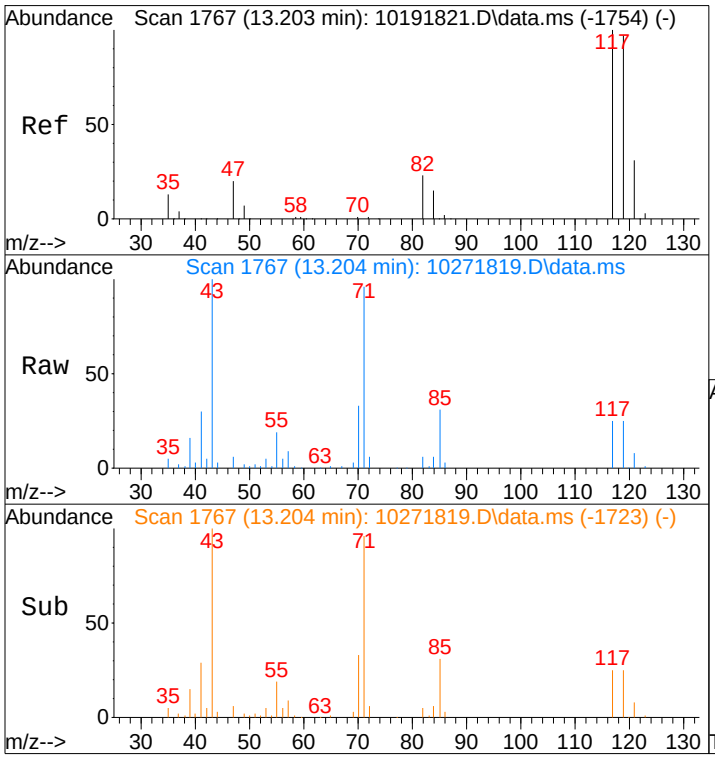


#41
Benzene
Concen: 0.32 ng
RT: 13.05 min Scan# 1739
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 78 Resp: 27786

Ion	Ratio	Lower	Upper
78	100		
77	24.7	3.5	43.5

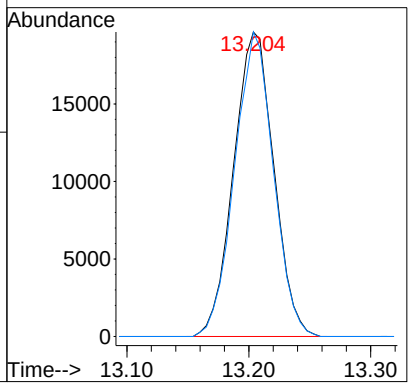


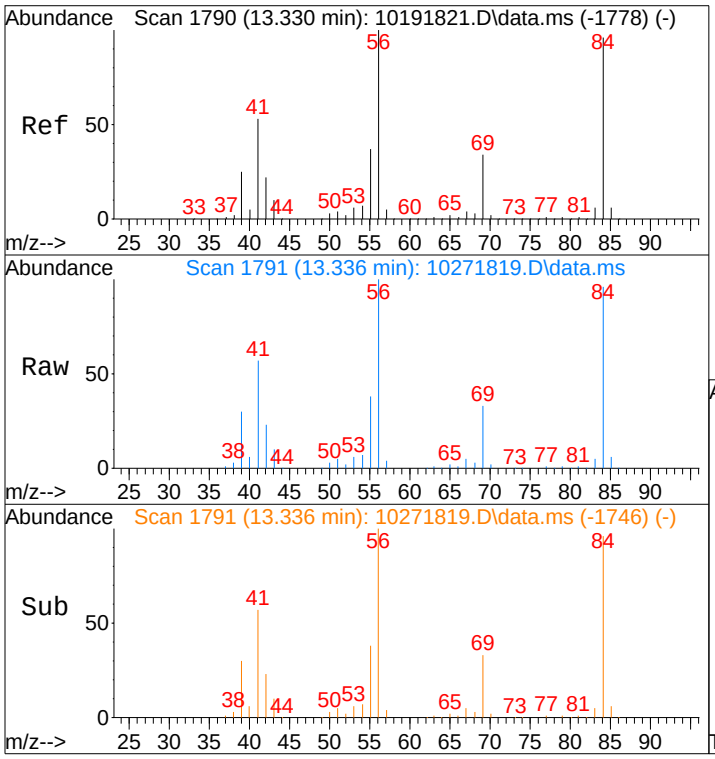


#42
Carbon Tetrachloride
Concen: 1.37 ng
RT: 13.20 min Scan# 1767
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:117 Resp: 45095

Ion	Ratio	Lower	Upper
117	100		
119	96.2	76.0	116.0

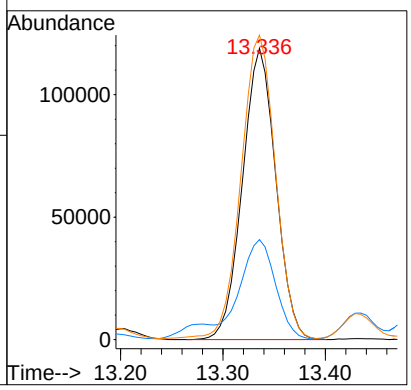


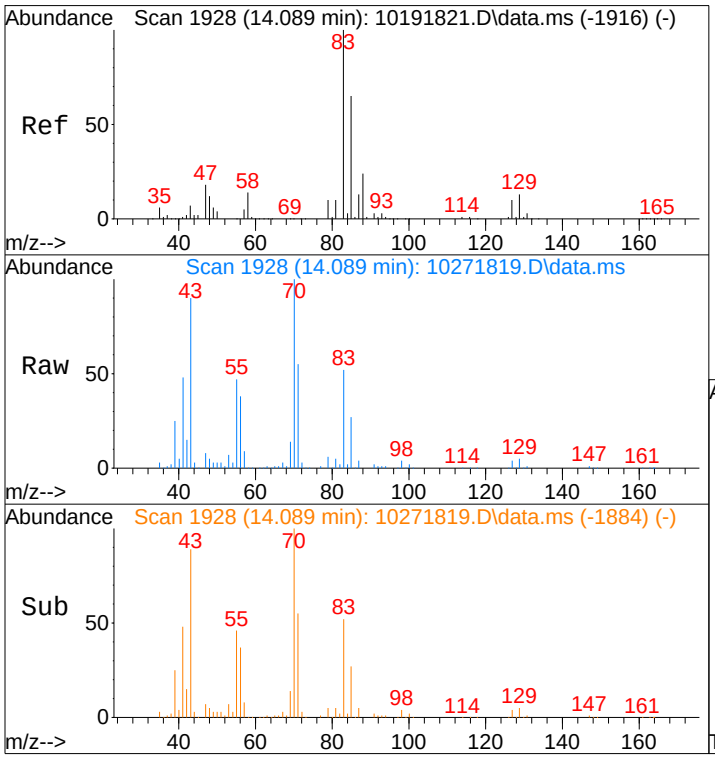


#43
Cyclohexane
Concen: 7.96 ng
RT: 13.34 min Scan# 1791
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 84 Resp: 268976

Ion	Ratio	Lower	Upper
84	100		
69	36.1	14.8	54.8
56	107.2	83.9	123.9

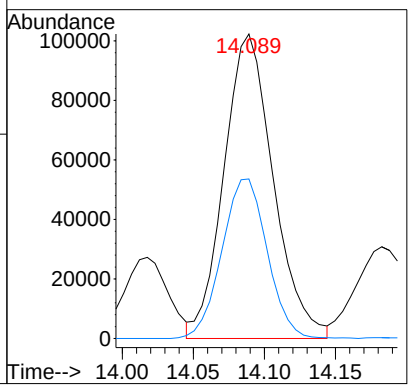


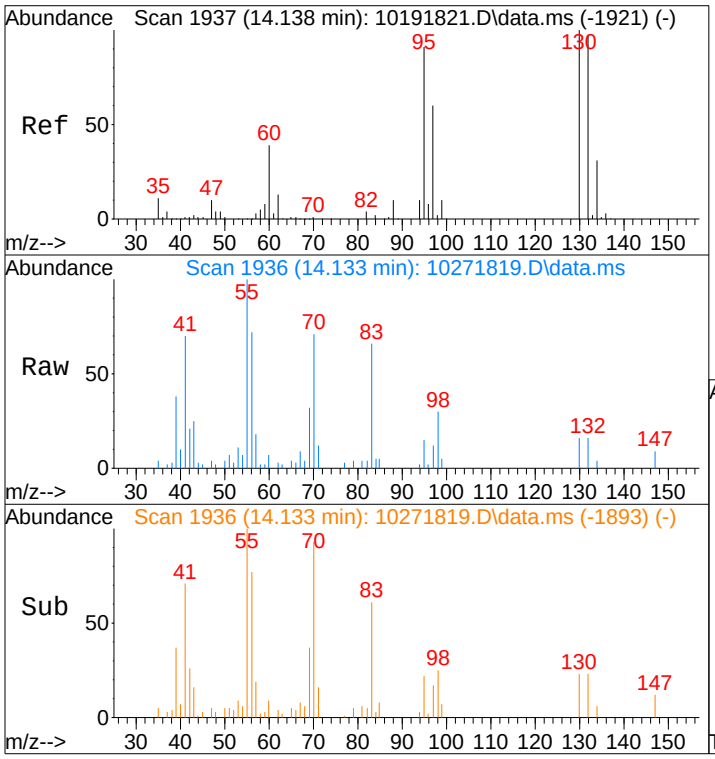


#46
Bromodichloromethane
Concen: 8.10 ng
RT: 14.09 min Scan# 1928
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 83 Resp: 247015

Ion	Ratio	Lower	Upper
83	100		
85	48.1	45.0	85.0

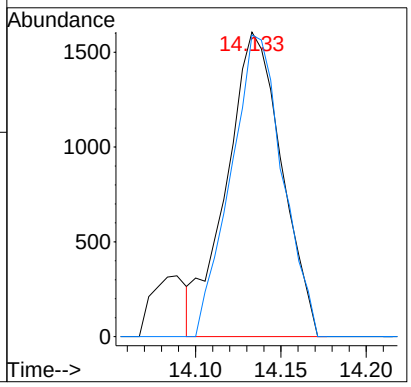


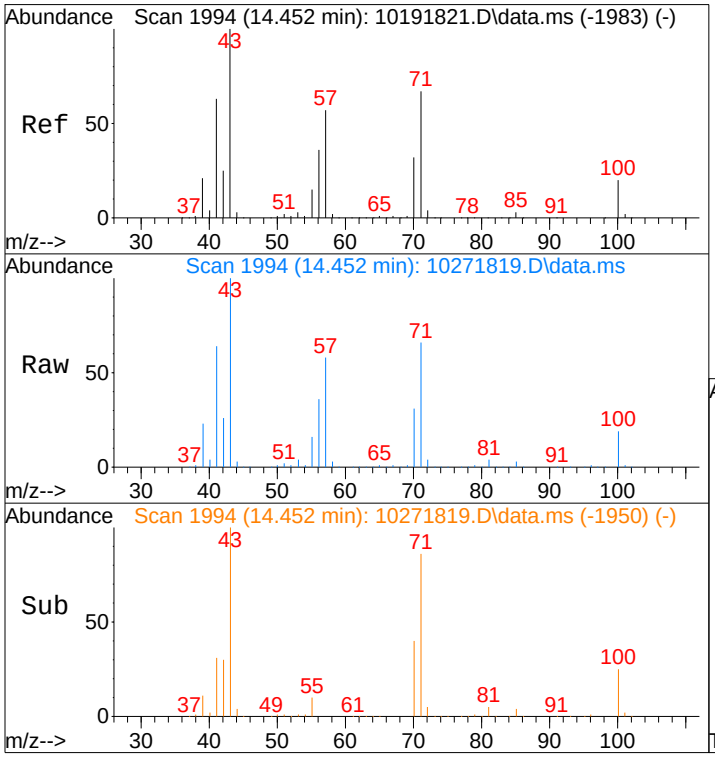


#47
Trichloroethene
Concen: 0.14 ng
RT: 14.13 min Scan# 1936
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:130 Resp: 3611

Ion	Ratio	Lower	Upper
130	100		
132	93.0	75.7	115.7

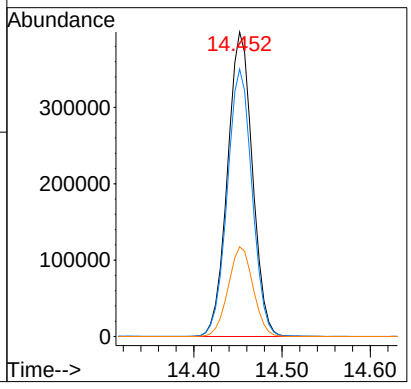


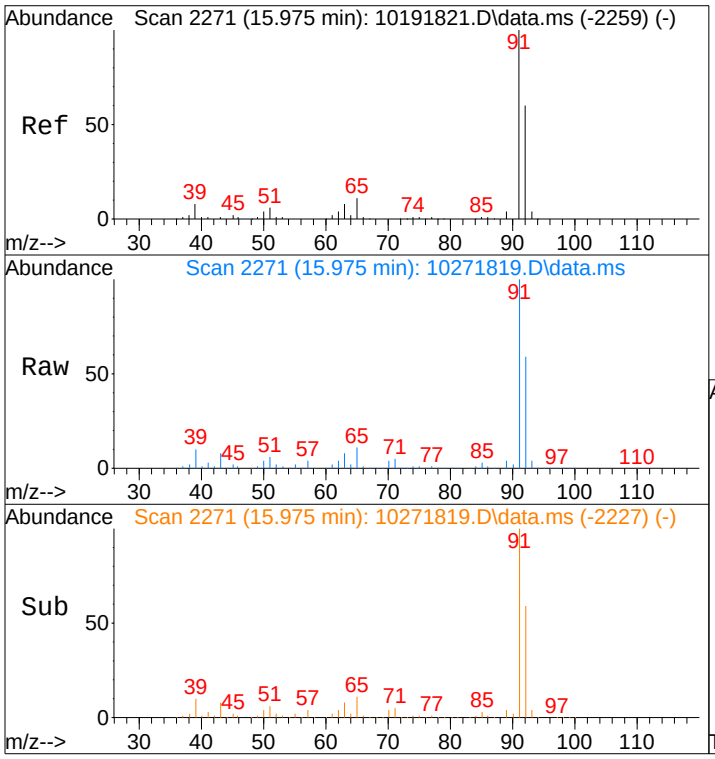


#51
n-Heptane
Concen: 38.98 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 71 Resp: 781717

Ion	Ratio	Lower	Upper
71	100		
57	87.6	66.4	106.4
100	29.4	10.6	50.6

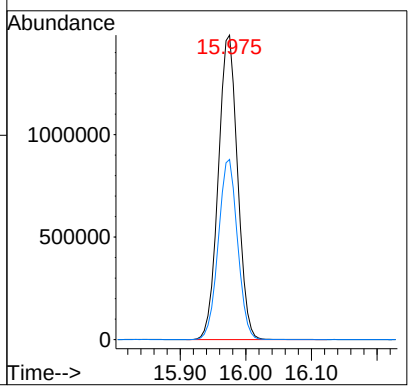


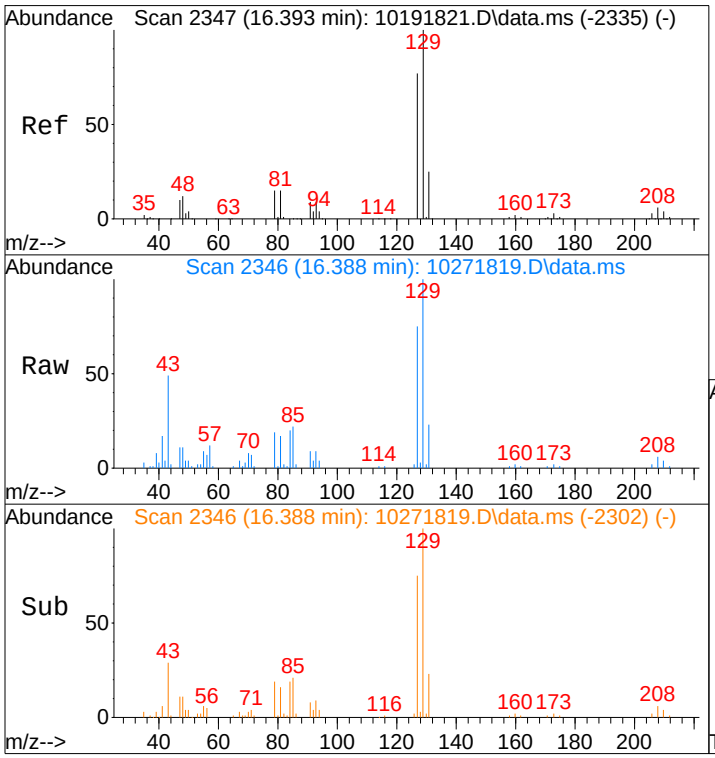


#58
Toluene
Concen: 33.68 ng
RT: 15.98 min Scan# 2271
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 91 Resp: 3028006

Ion	Ratio	Lower	Upper
91	100		
92	59.1	39.4	79.4

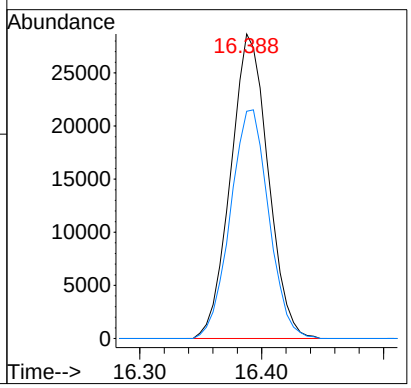


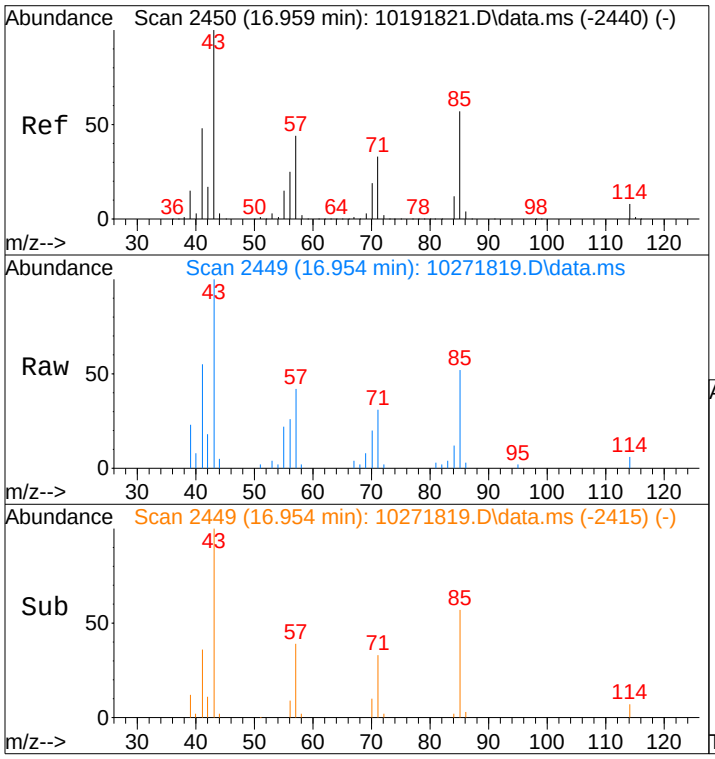


#60
Dibromochloromethane
Concen: 2.33 ng
RT: 16.39 min Scan# 2346
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:129 Resp: 61332

Ion	Ratio	Lower	Upper
129	100		
127	76.8	57.5	97.5

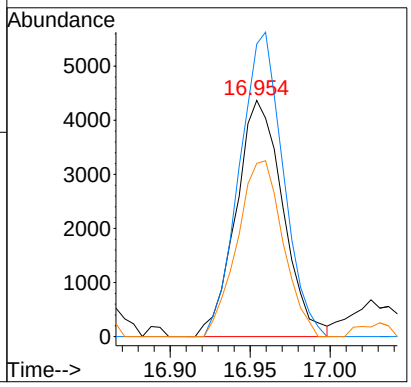


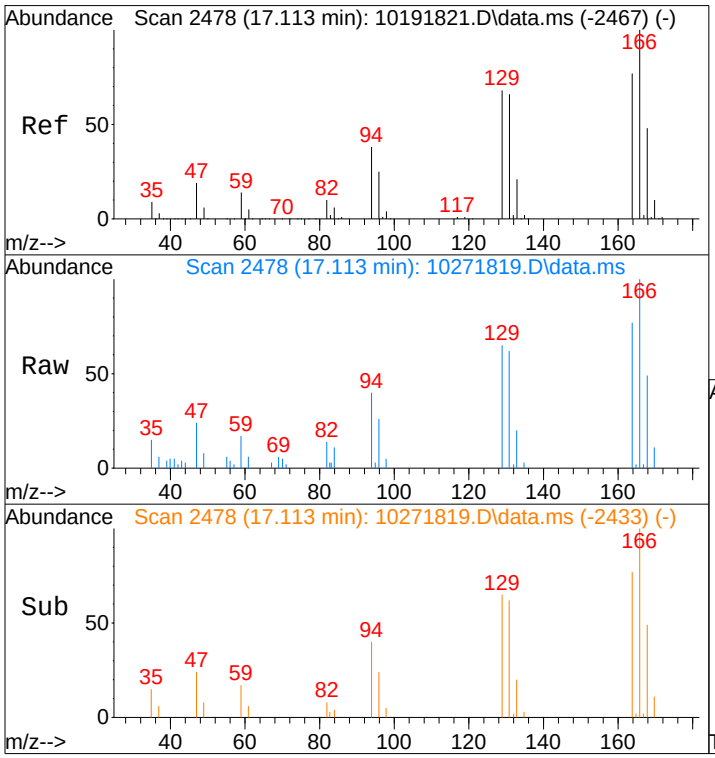


#63
n-Octane
Concen: 0.52 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 57 Resp: 8913

Ion	Ratio	Lower	Upper
57	100		
85	120.0	102.1	153.1
71	72.7	59.3	88.9

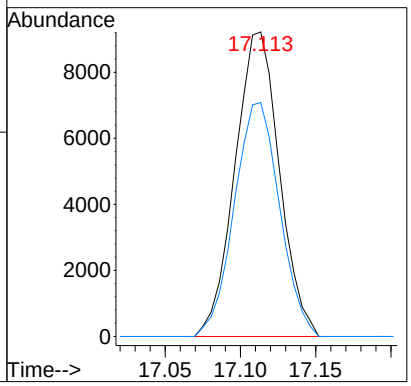


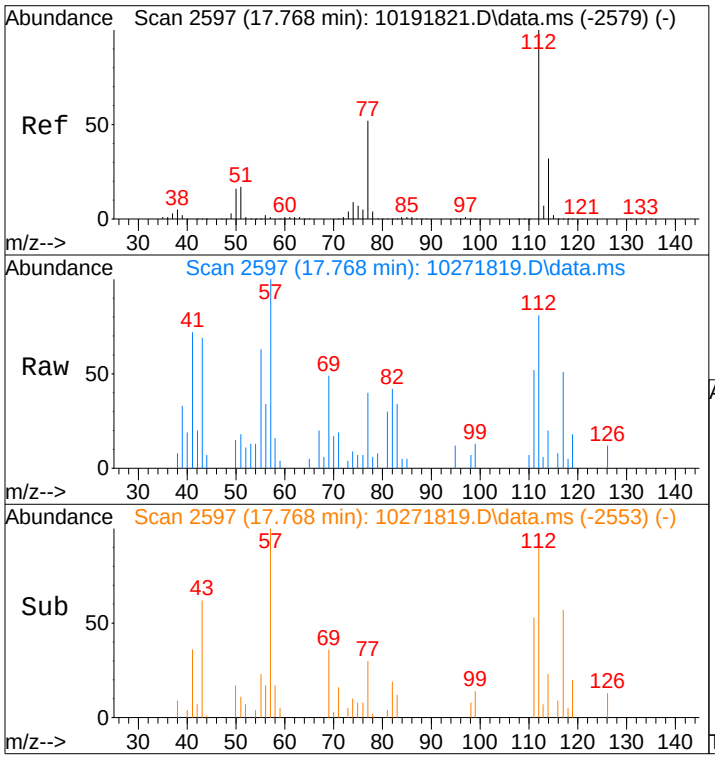


#64
Tetrachloroethene
Concen: 0.68 ng
RT: 17.11 min Scan# 2478
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:166 Resp: 18942

Ion	Ratio	Lower	Upper
166	100		
164	78.3	57.8	97.8

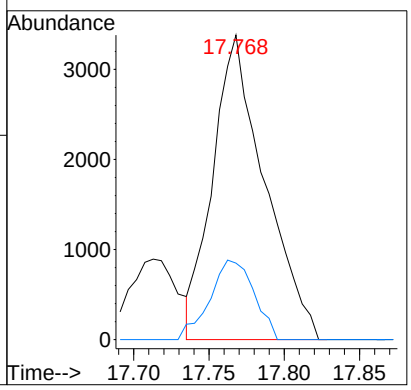


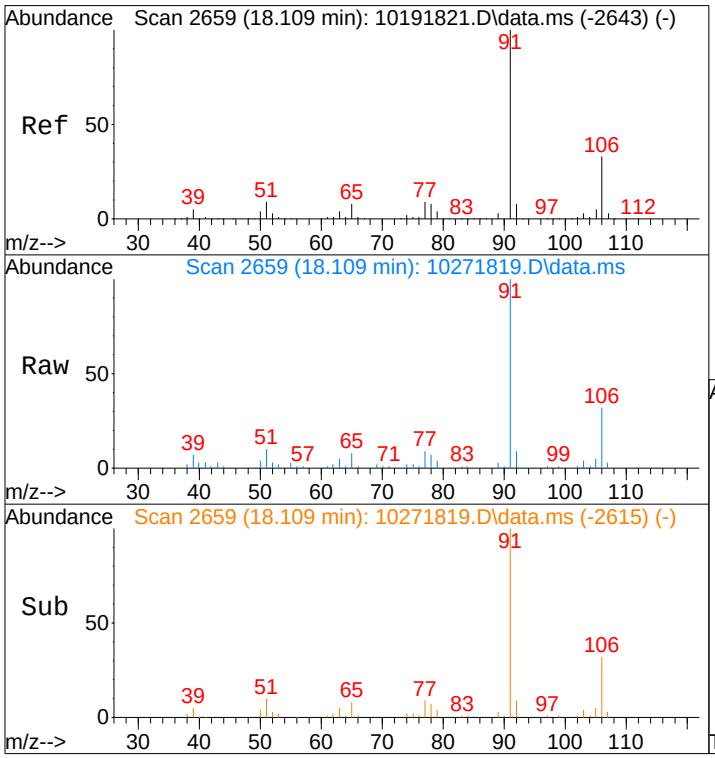


#65
Chlorobenzene
Concen: 0.13 ng
RT: 17.77 min Scan# 2597
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:112 Resp: 8101

Ion	Ratio	Lower	Upper
112	100		
114	22.3	12.4	52.4

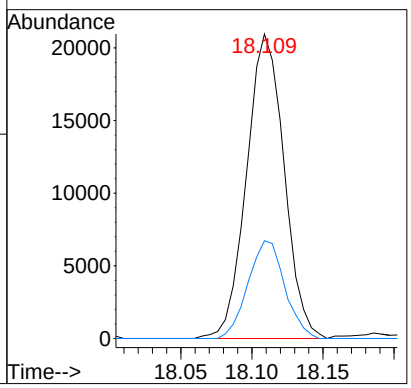


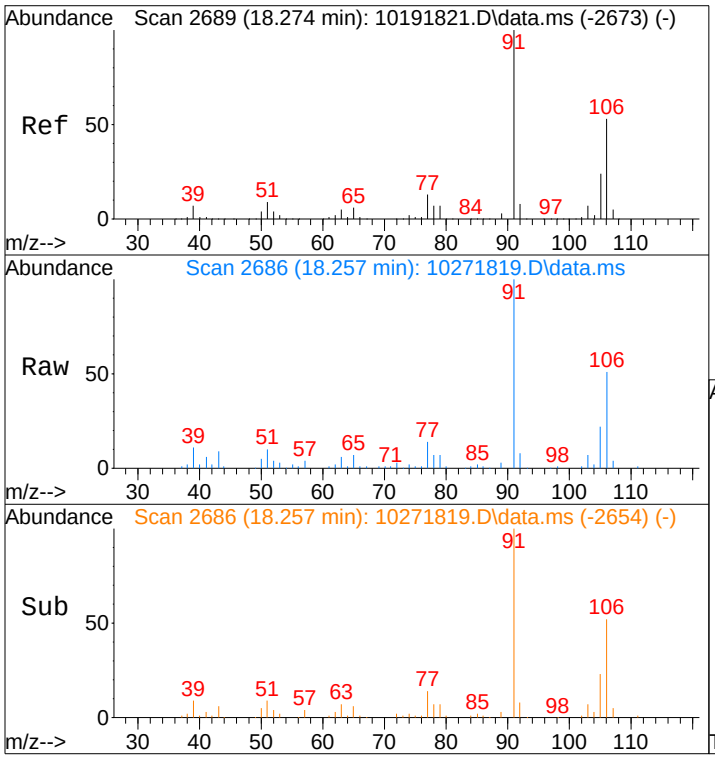


#66
Ethylbenzene
Concen: 0.38 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 91 Resp: 38486

Ion	Ratio	Lower	Upper
91	100		
106	31.3	12.6	52.6

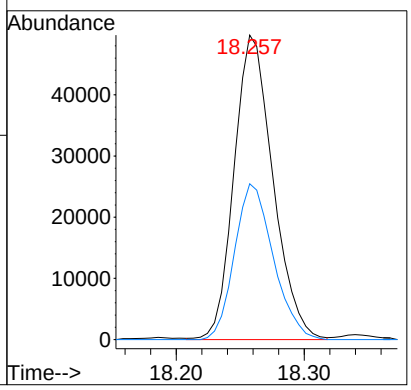


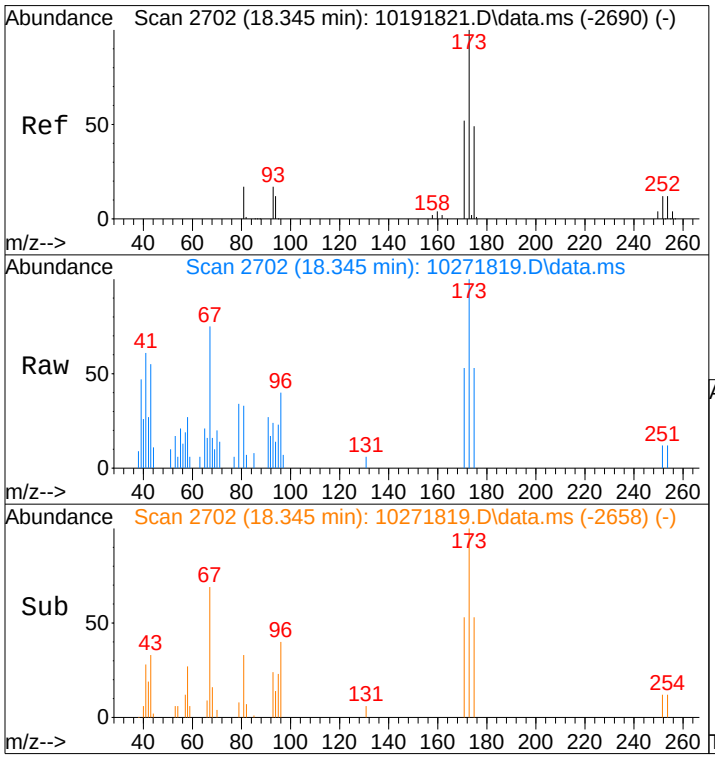


#67
m- & p-Xylenes
Concen: 1.37 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 91 Resp: 105091

Ion	Ratio	Lower	Upper
91	100		
106	51.0	32.2	72.2

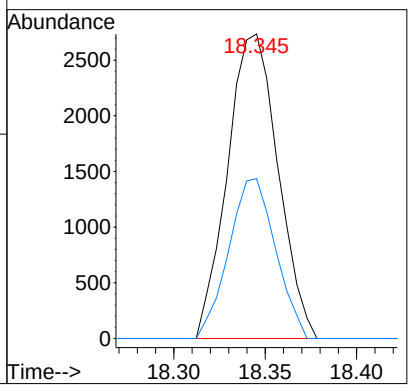


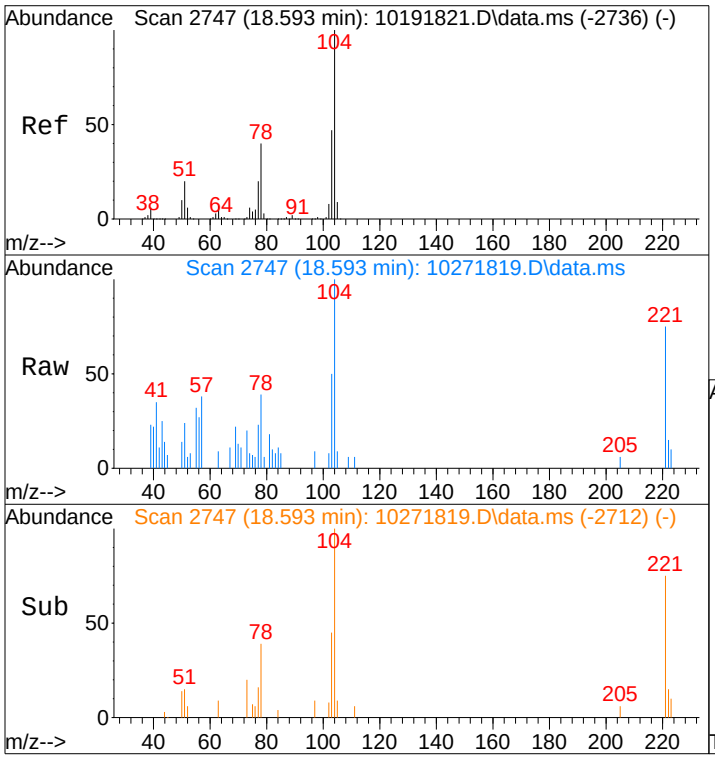


#68
Bromoform
Concen: 0.22 ng
RT: 18.35 min Scan# 2702
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:173 Resp: 5257

Ion	Ratio	Lower	Upper
173	100		
175	48.6	29.1	69.1

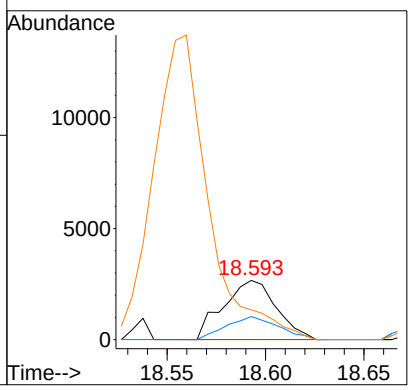


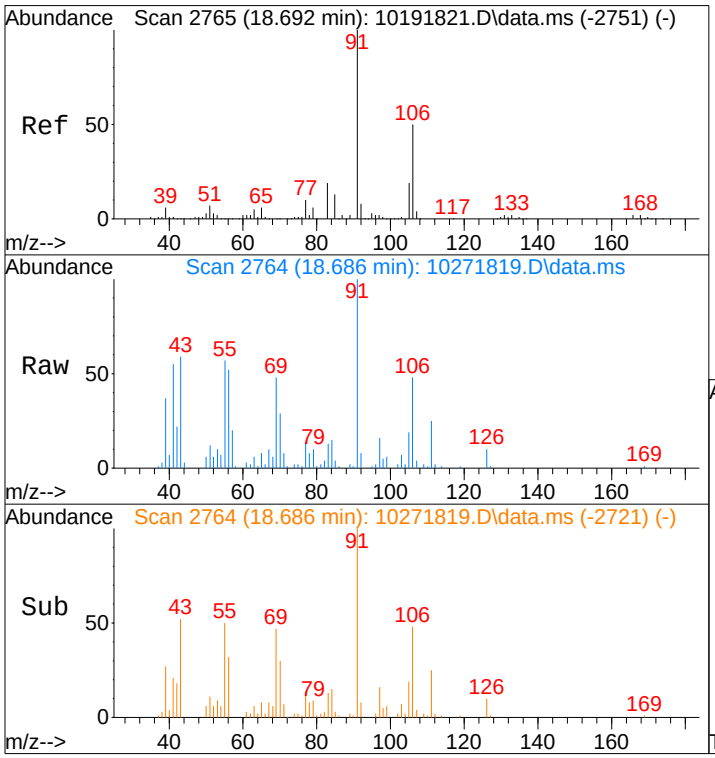


#69
Styrene
Concen: 0.08 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:104 Resp: 5002

Ion	Ratio	Lower	Upper
104	100		
78	38.0	20.1	60.1
103	0.0	27.0	67.0#

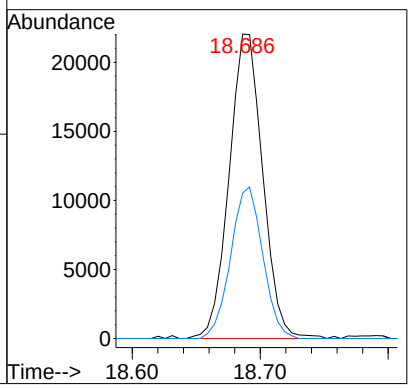


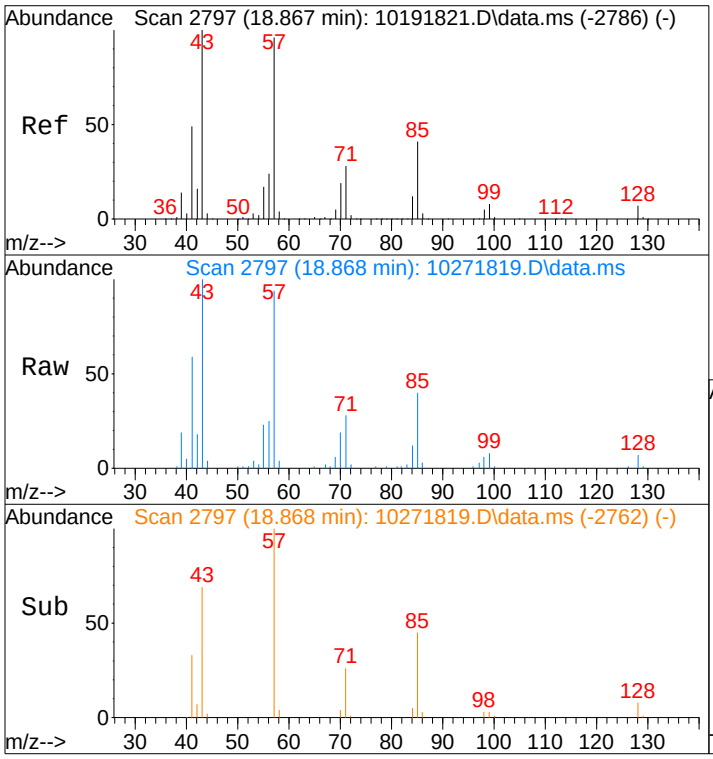


#70
o-Xylene
Concen: 0.52 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 91 Resp: 40291

Ion	Ratio	Lower	Upper
91	100		
106	47.6	29.4	69.4

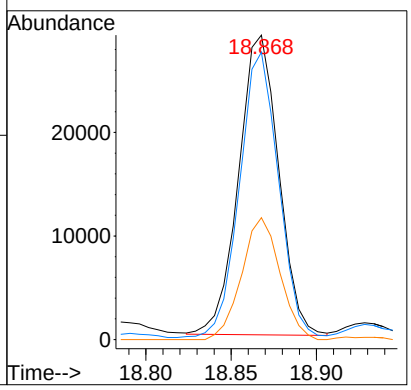


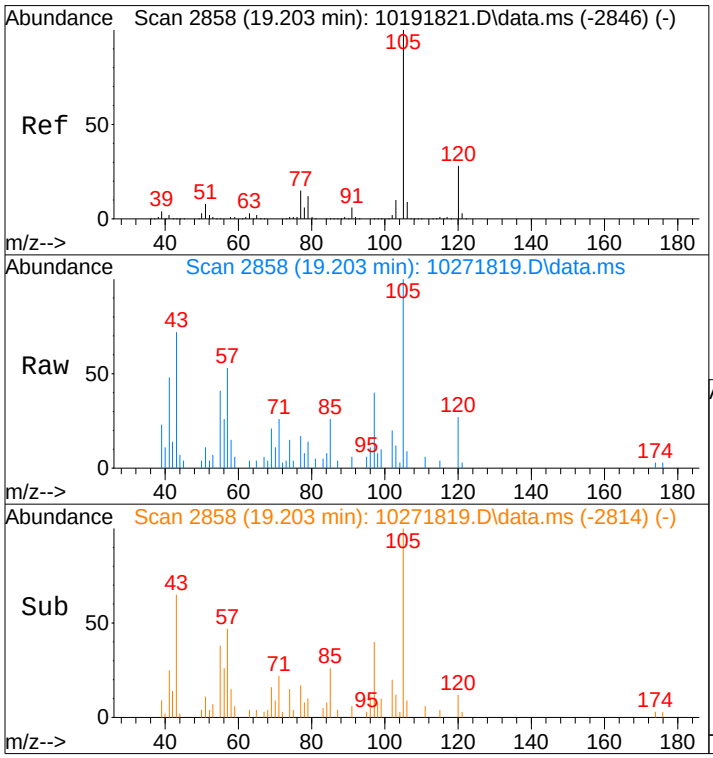


#71
n-Nonane
Concen: 1.33 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 43 Resp: 47293

Ion	Ratio	Lower	Upper
43	100		
57	92.2	75.4	115.4
85	38.8	20.8	60.8

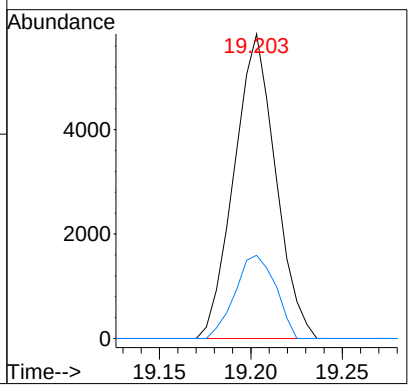


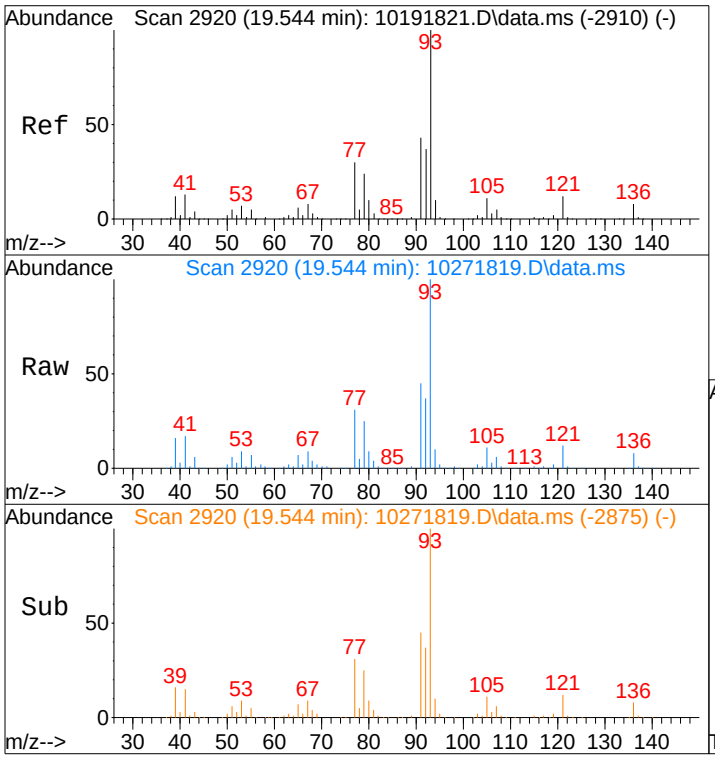


#74
Cumene
Concen: 0.09 ng
RT: 19.20 min Scan# 2858
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:105 Resp: 9184

Ion	Ratio	Lower	Upper
105	100		
120	26.8	7.8	47.8

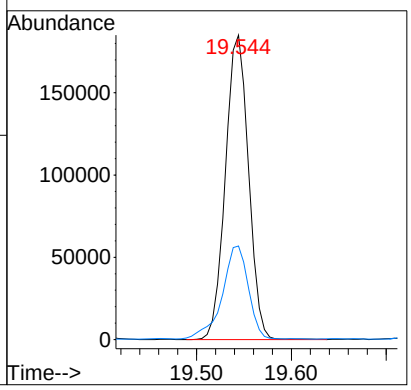


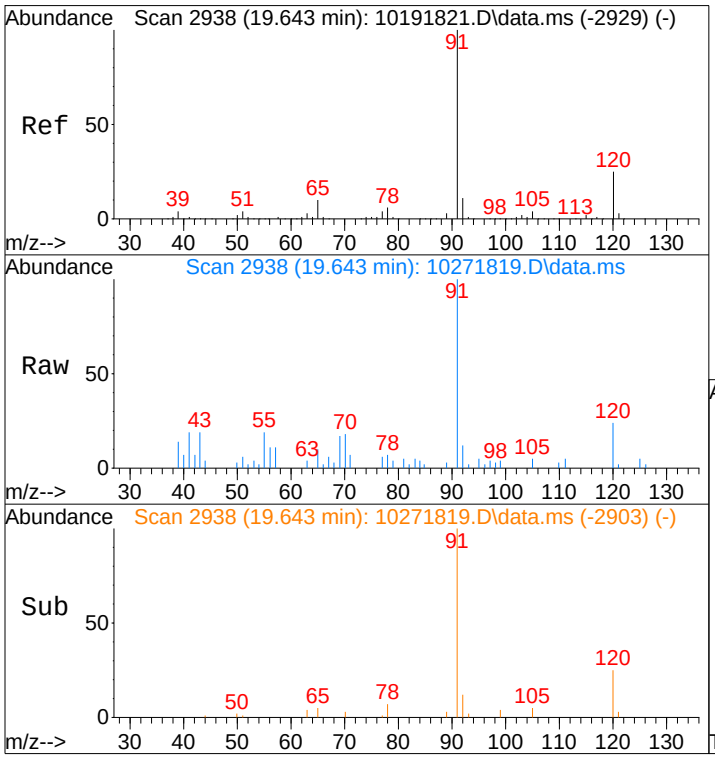


#75
alpha-Pinene
Concen: 5.93 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 93 Resp: 313240

Ion	Ratio	Lower	Upper
93	100		
77	34.5	10.2	50.2

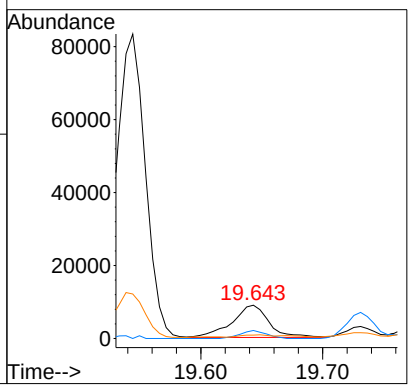


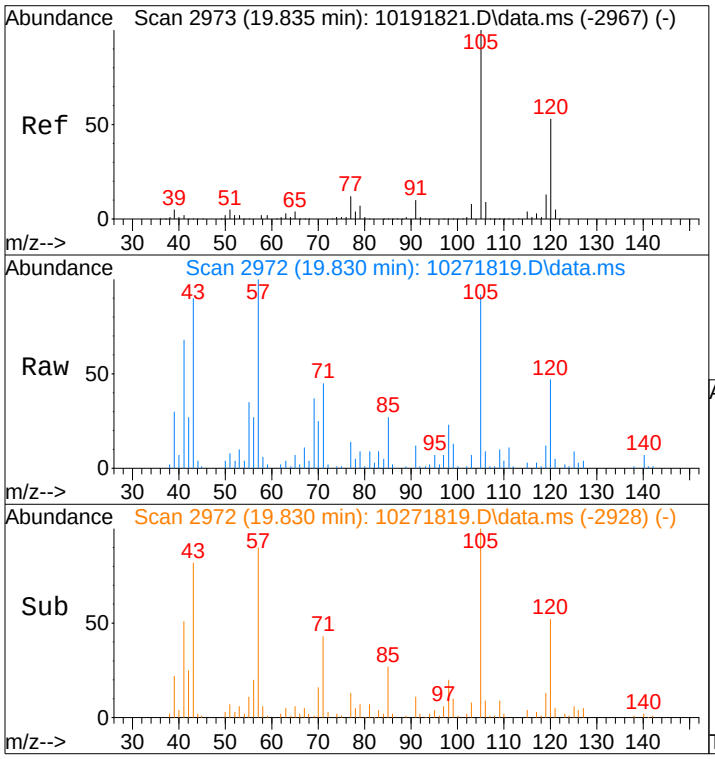


#76
n-Propylbenzene
Concen: 0.16 ng
RT: 19.64 min Scan# 2938
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 91 Resp: 18625

Ion	Ratio	Lower	Upper
91	100		
120	17.5	4.9	44.9
65	12.3	0.0	30.0

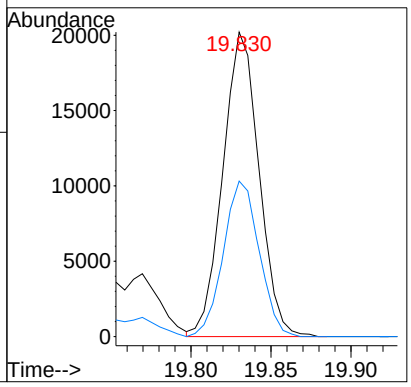


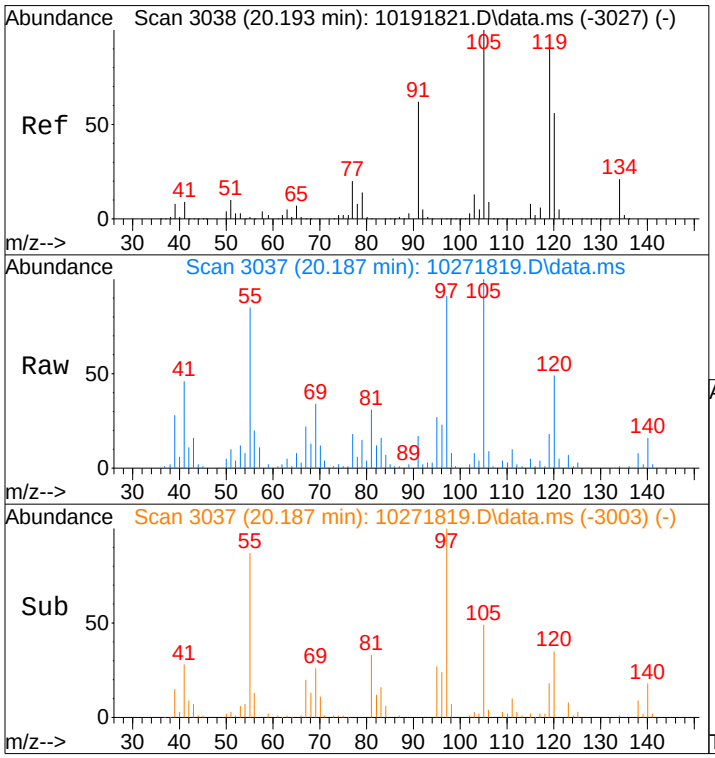


#79
1,3,5-Trimethylbenzene
Concen: 0.37 ng
RT: 19.83 min Scan# 2972
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:105 Resp: 31855

Ion	Ratio	Lower	Upper
105	100		
120	50.5	32.1	72.1

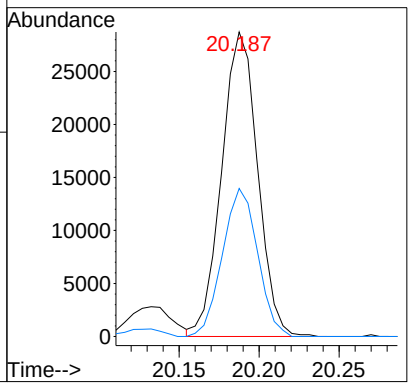


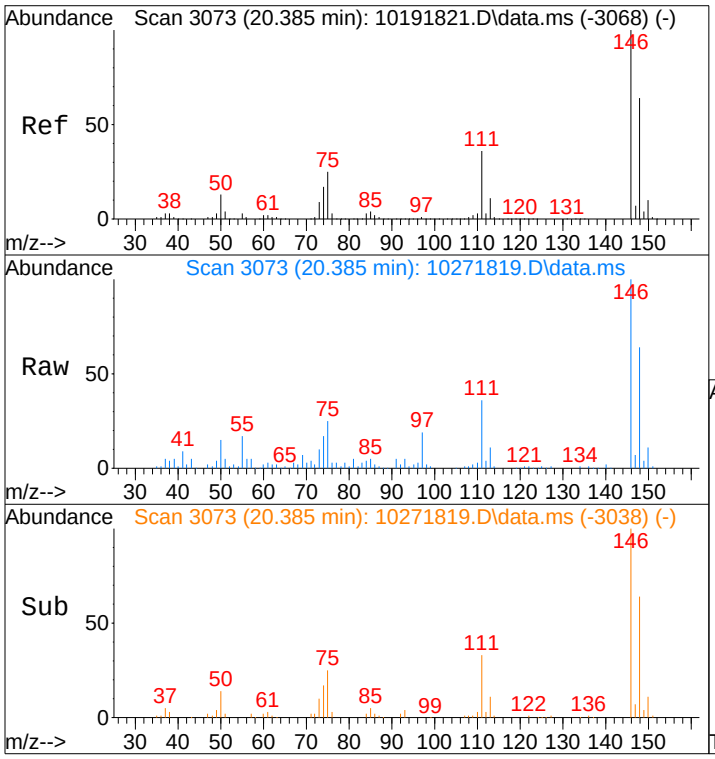


#82
1,2,4-Trimethylbenzene
Concen: 0.54 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:105 Resp: 44890

Ion	Ratio	Lower	Upper
105	100		
120	47.6	36.5	76.5

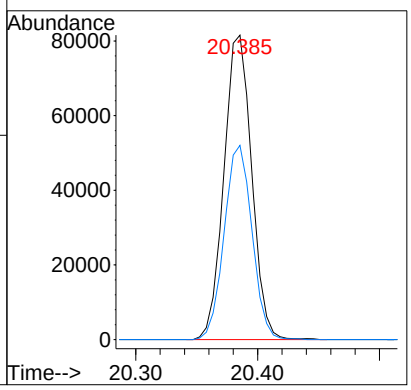


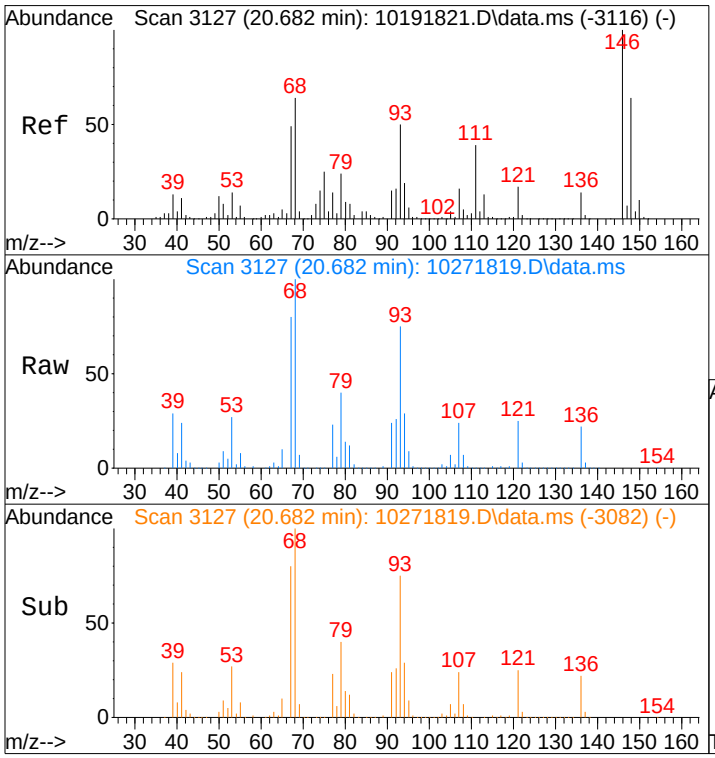


#86
1,4-Dichlorobenzene
Concen: 2.46 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.005 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:146 Resp: 129174

Ion	Ratio	Lower	Upper
146	100		
148	63.8	44.2	84.2

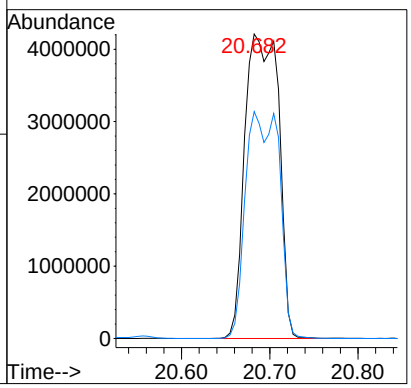


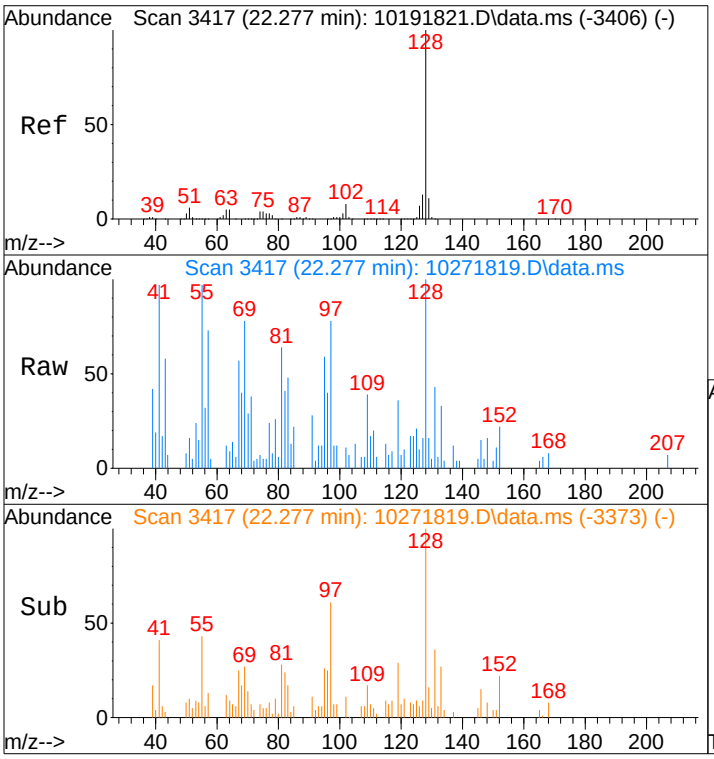


#91
d-Limonene
Concen: 369.22 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion: 68 Resp:11216305

Ion	Ratio	Lower	Upper
68	100		
93	74.2	57.4	97.4

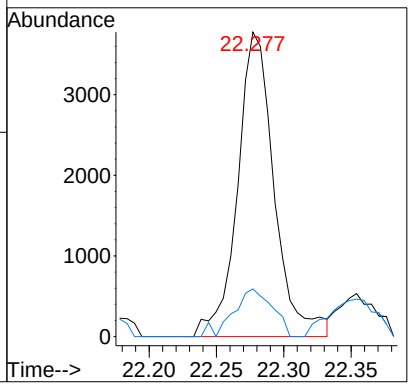




#95
Naphthalene
Concen: 0.06 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271819.D
Acq: 27 Oct 2018 15:03

Tgt Ion:128 Resp: 7150

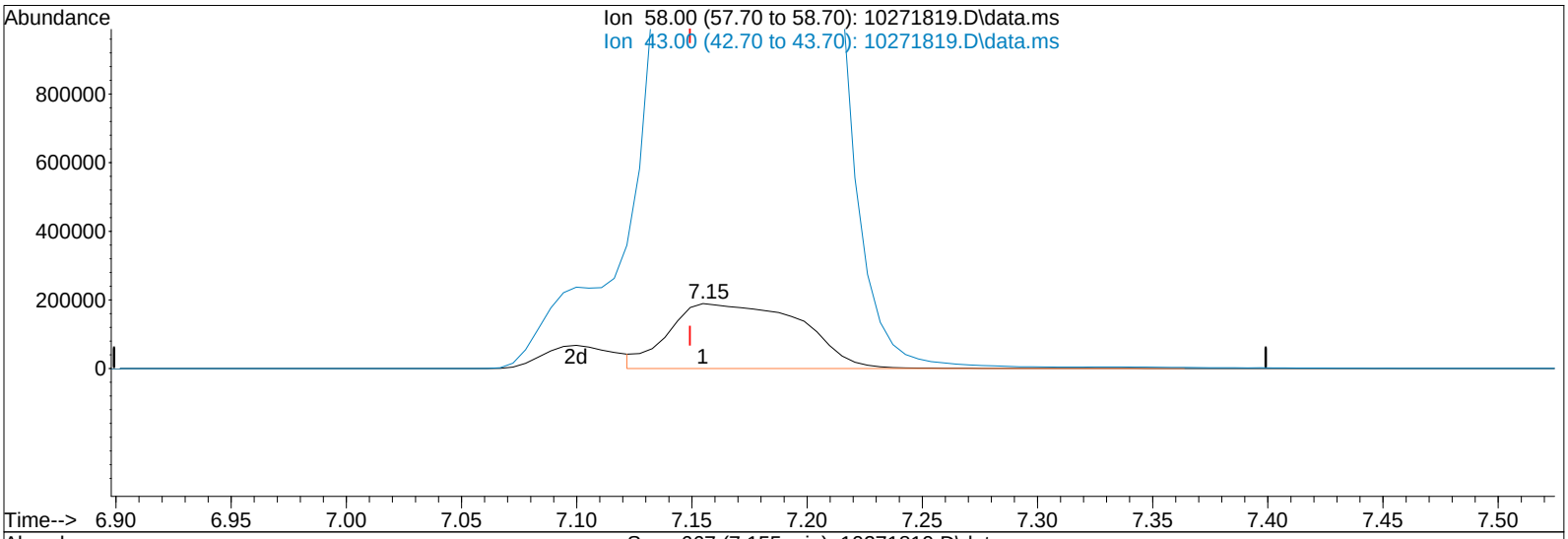
Ion	Ratio	Lower	Upper
128	100		
129	16.7	0.0	31.1

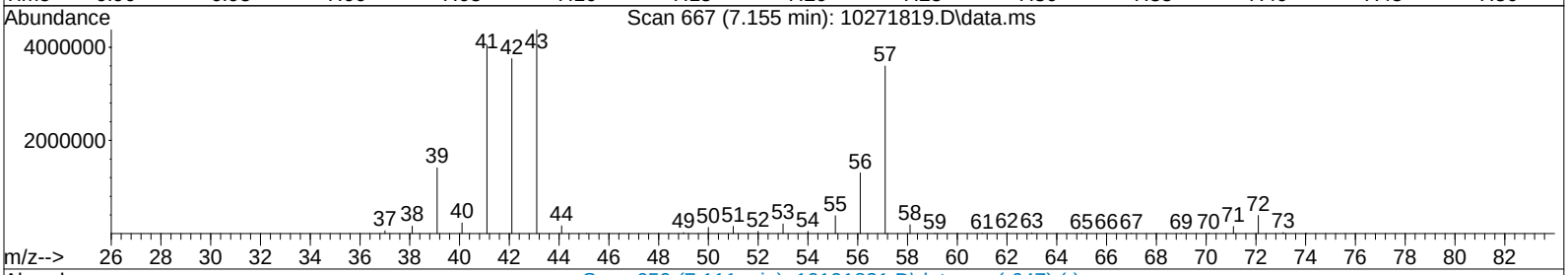


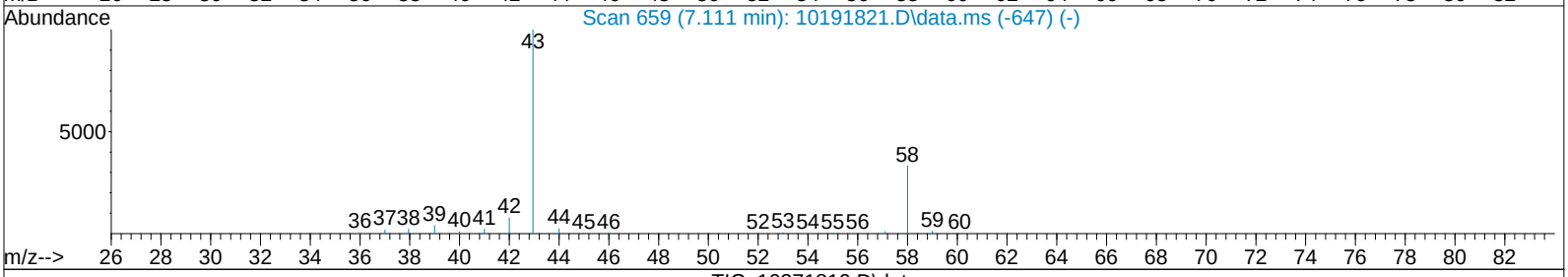
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 28 11:33:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271819.D\data.ms

(13) Acetone (T)

7.155min (+0.006) 48.26ng

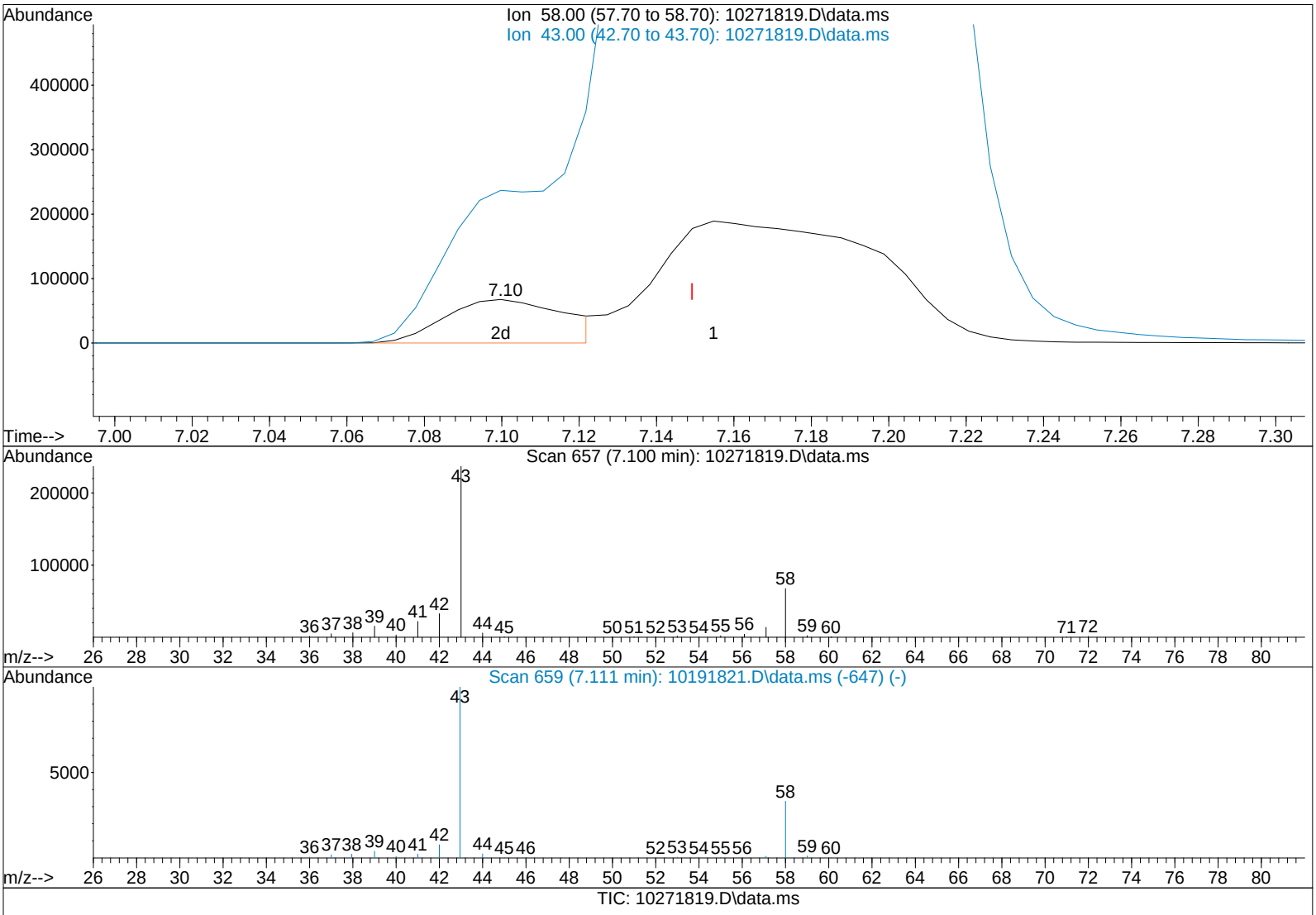
response 755875

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	2611.96#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 28 11:33:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



TIC: 10271819.D\data.ms

(13) Acetone (T)

7.100min (-0.049) 9.31ng m

response 145780

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	13543.10#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

WP

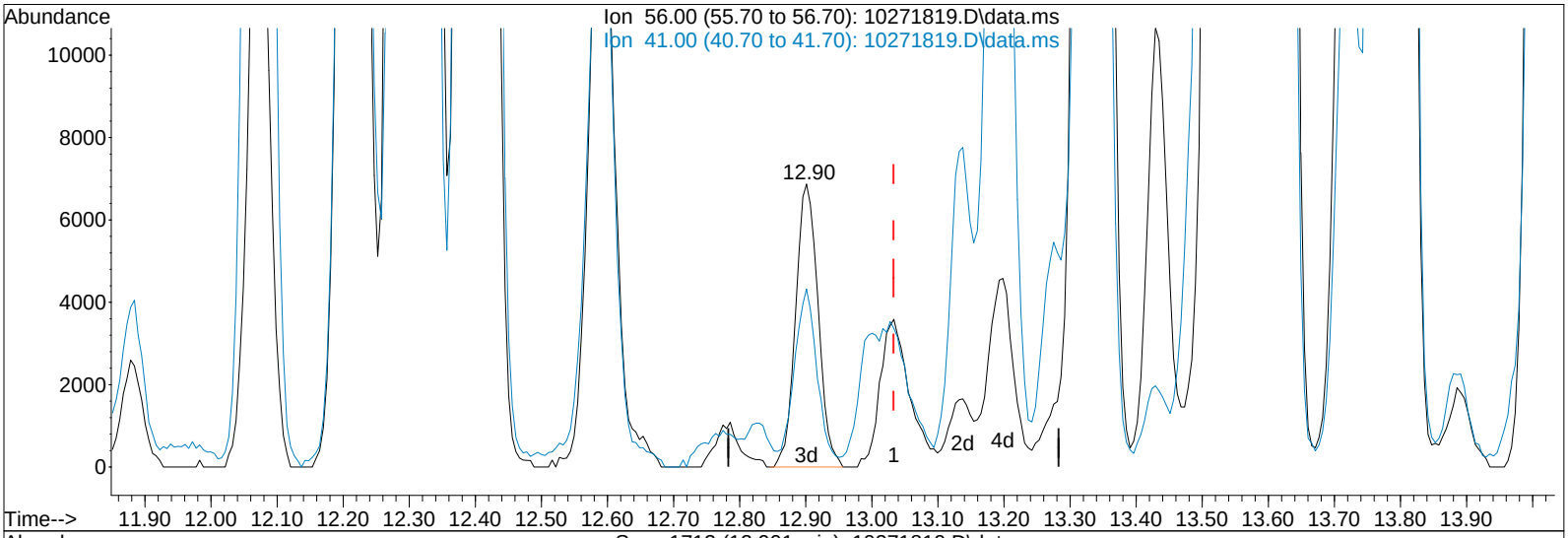
10/30/18

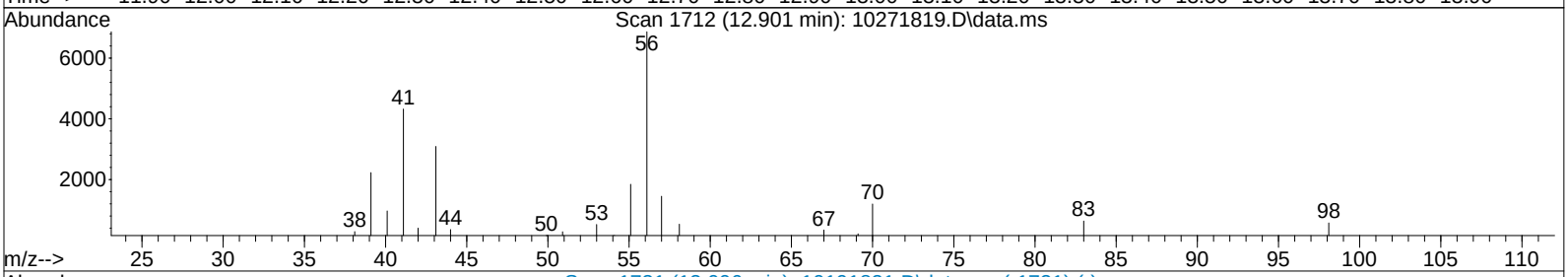
10/30/18

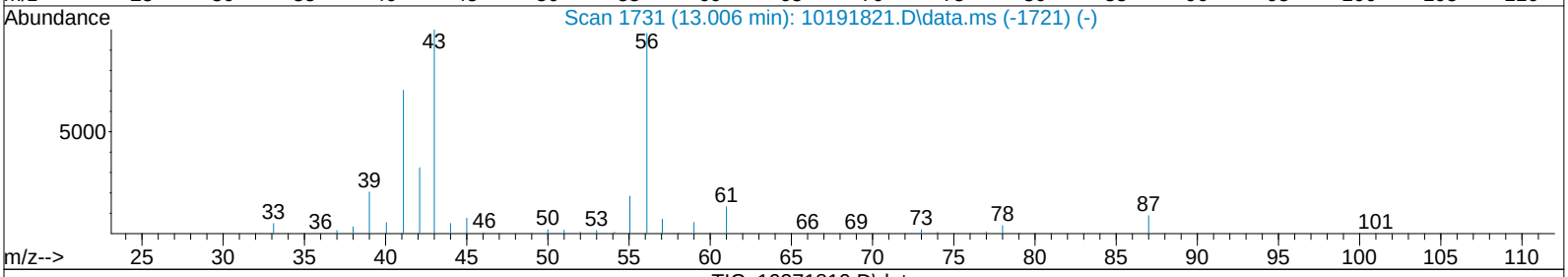
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 29 11:41:15 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271819.D\data.ms

(40) 1-Butanol (T)

12.901min (-0.132) 0.84ng m

response 16184

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 29 14:41:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

WA 10/30/18

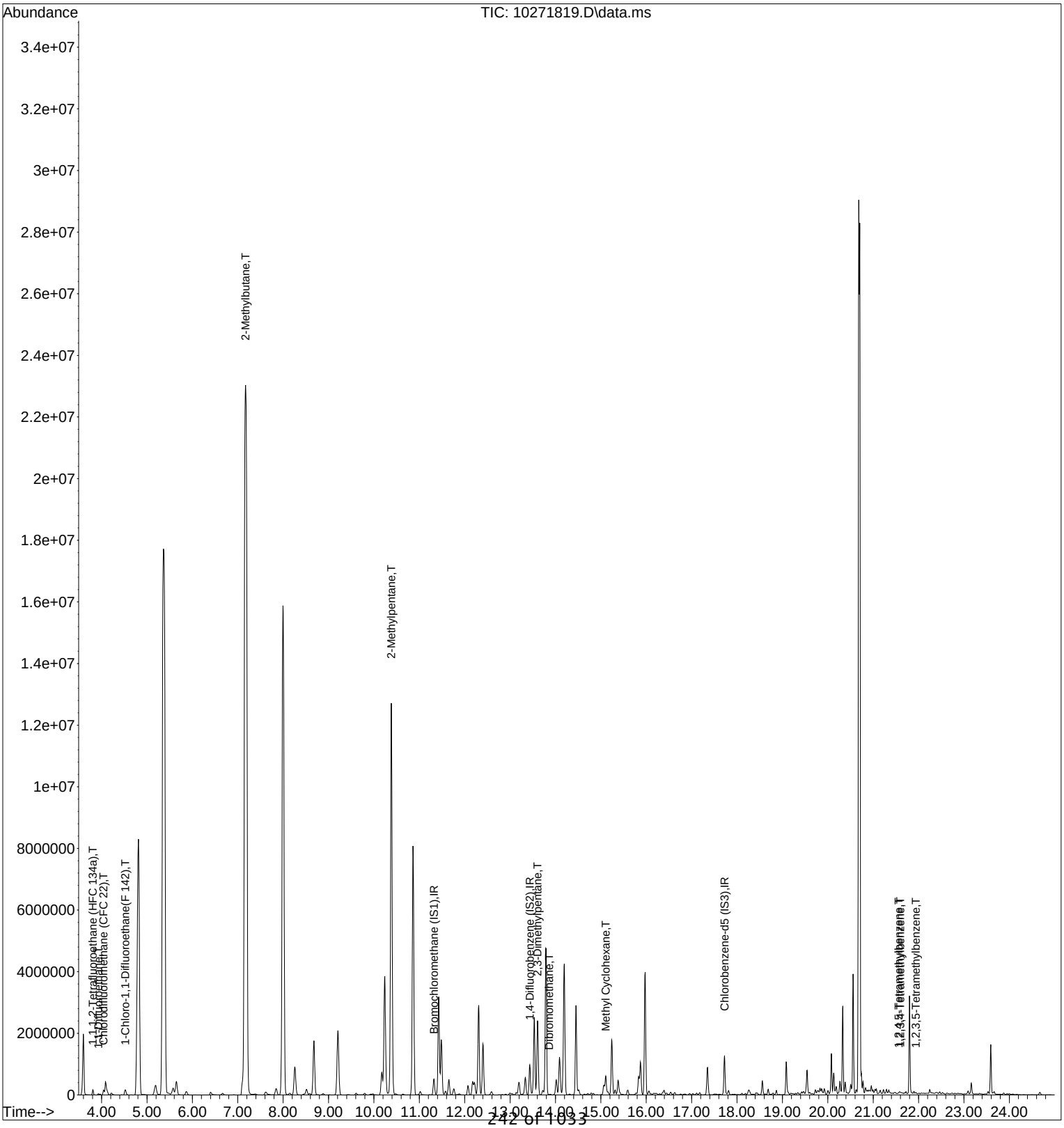
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233409	12.500 ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	948082	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	411352	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.70	85	216	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	113823	4.863 ng		94
4) 1,1-Difluoroethane	3.93	65	17007	0.951 ng		92
5) Chlorodifluoromethane ...	4.04	67	3237	0.466 ng		72
6) 1-Chloro-1,1-Difluoroe...	4.52	65	179685	3.545 ng		100
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.17	57	15459902	810.643 ng	#	79
11) Methyl Acetate	0.00	43	0	N.D. d		
12) 2-Methylpentane	10.38	71	4321083	217.801 ng		93
13) 2,2-Dichloropropane	11.50	77	54	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	0.00	84	0	N.D. d		
17) 2,3-Dimethylpentane	13.61	56	1176915	34.340 ng		98
18) Dibromomethane	13.86	174	1393	0.066 ng		92
20) Methyl Cyclohexane	15.11	55	304249	11.689 ng	#	71
21) 1,3-Dichloropropane	0.00	76	0	N.D. d		
22) 1,1,1,2-Tetrachloroethane	17.82	131	825	N.D.		
23) 1-Chlorohexane	17.93	91	1415	N.D.		
24) 1,2,3-Trichloropropane	18.69	75	502	N.D.		
25) Bromobenzene	19.27	77	175	N.D.		
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	0.00	91	0	N.D. d		
28) Indan	0.00	117	0	N.D. d		
29) Indene	20.81	115	1691	N.D.		
30) 1,2,4,5-Tetramethylben...	21.56	119	12847	0.136 ng		91
31) 1,2,3,4-Tetramethylben...	21.60	119	14731	0.161 ng		98
32) 1,2,3,5-Tetramethylben...	21.94	119	13475	0.152 ng	#	62
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

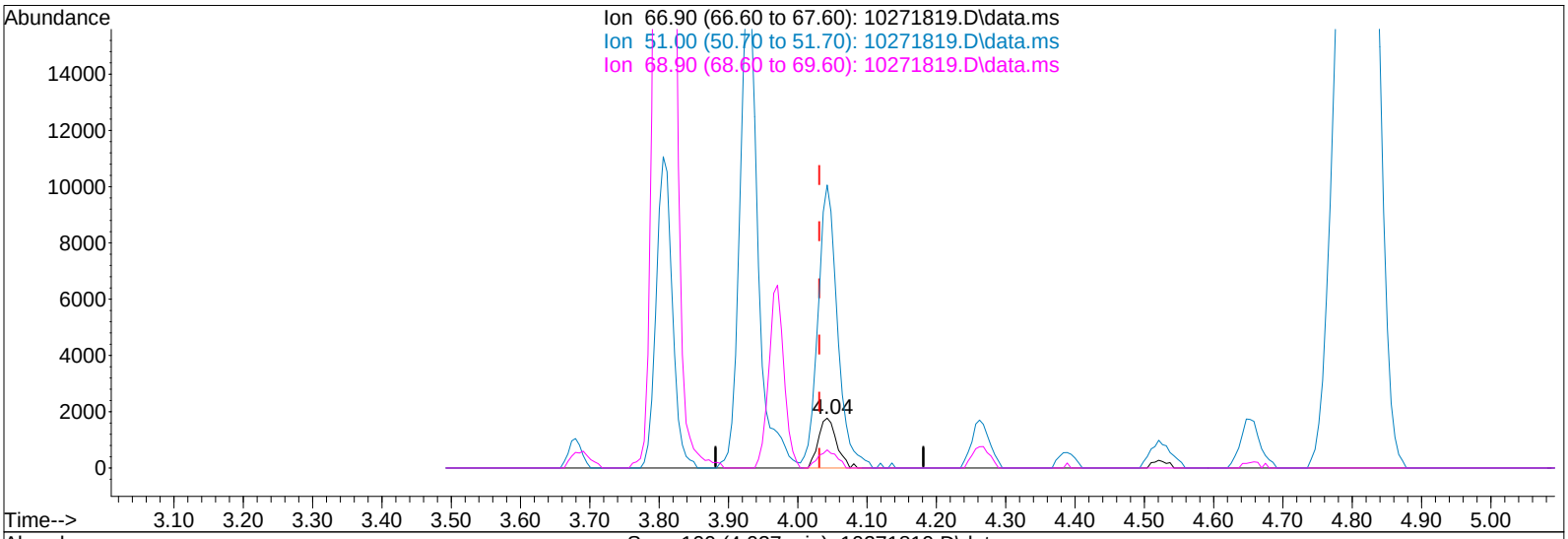
Quant Time: Oct 29 14:41:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

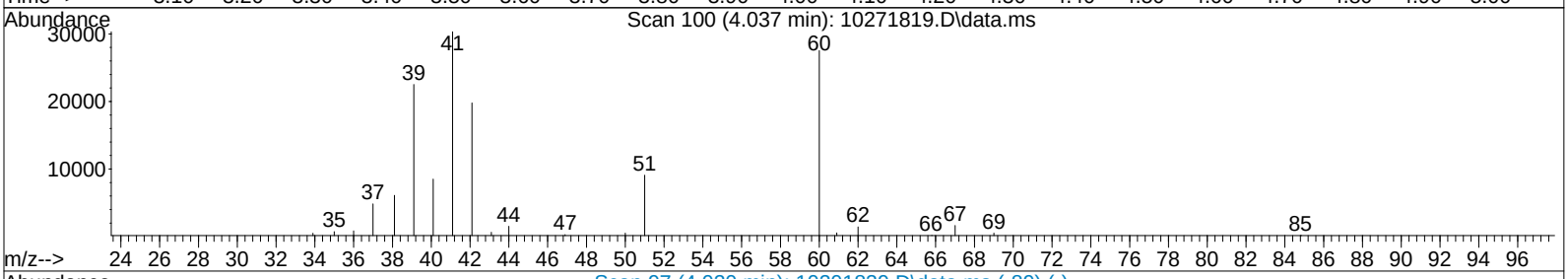


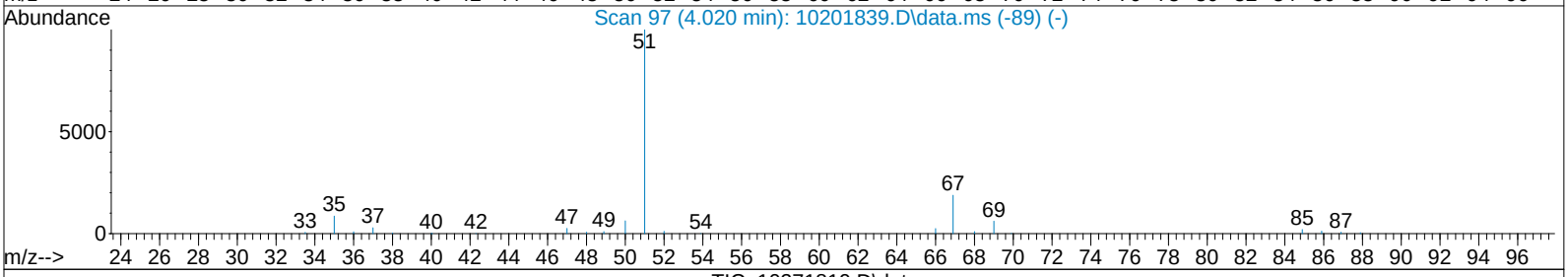
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271819.D
Acq On : 27 Oct 2018 15:03 Operator: WA
Sample : P1805497-006 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 29 14:39:22 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271819.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.042min (+0.011) 0.47ng

response 3237

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	611.37
68.90	31.80	36.92
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:10:17 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	222897	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	952832	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	410356	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	329755	12.298	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
57) Toluene-d8 (SS2)	15.87	98	825749	12.636	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
73) Bromofluorobenzene (SS3)	19.09	174	343608	11.567	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.56%				
Target Compounds							Qvalue
2) Propene	4.08	42	5999m	0.289	ng		
3) Dichlorodifluoromethan...	4.23	85	67695	1.453	ng		100
4) Chloromethane	4.54	50	2263	0.076	ng		90
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1757	0.063	ng		92
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.26	54	393	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.43	45	17561	1.401	ng		95
11) Acetonitrile	6.75	41	1483	N.D.			
12) Acrolein	6.95	56	969	0.088	ng		98
13) Acetone	7.13	58	24136	1.614	ng	#	20
14) Trichlorofluoromethane	7.35	101	30583	0.758	ng		99
15) 2-Propanol (Isopropanol)	7.66	45	11505	0.240	ng		81
16) Acrylonitrile	7.96	53	802	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.63	59	104	N.D.			
19) Methylene Chloride	8.58	84	3120	0.149	ng		99
20) 3-Chloro-1-propene (Al...	8.66	41	1151	N.D.			
21) Trichlorotrifluoroethane	8.99	151	6132	0.285	ng		100
22) Carbon Disulfide	8.86	76	2296	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	10.66	72	2430	0.184	ng	#	64
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.46	61	3026	0.427	ng		94
31) n-Hexane	11.41	57	11011	0.341	ng		96
32) Chloroform	11.48	83	2831	0.075	ng		96
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	814	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.04	56	3040m	0.158	ng		
41) Benzene	13.04	78	27092	0.309	ng		99
42) Carbon Tetrachloride	13.20	117	7654	0.231	ng		97
43) Cyclohexane	13.32	84	2143	0.063	ng		93
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.10	83	165	N.D.			
47) Trichloroethene	14.13	130	789	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:10:17 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

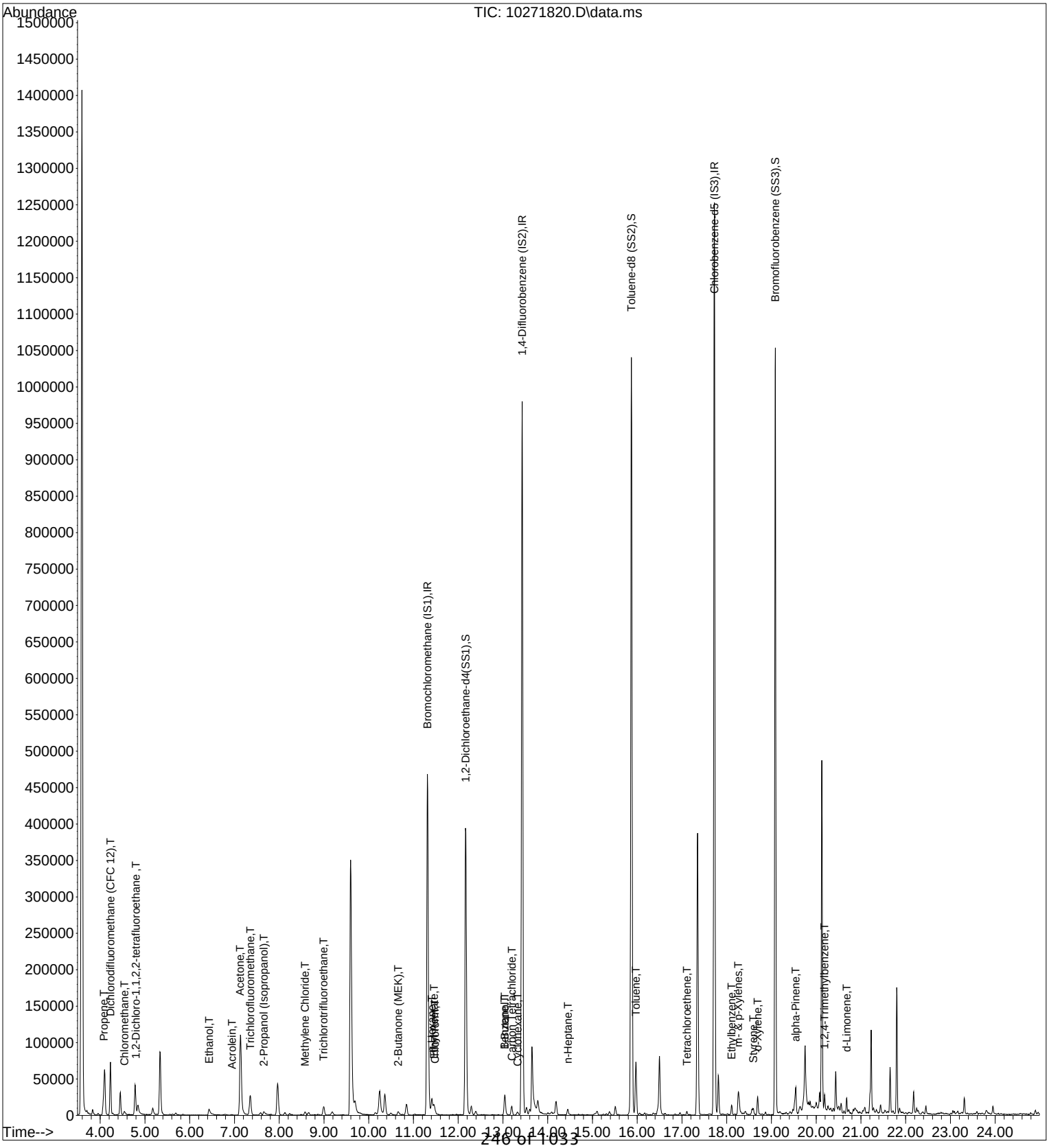
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	2151	0.107	ng		97
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	15.04	58	197	N.D.			
54) trans-1,3-Dichloropropene	15.51	75	452	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.97	91	59924	0.660	ng		98
59) 2-Hexanone	16.22	43	1578	N.D.			
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.85	43	1807	N.D.			
63) n-Octane	16.95	57	655	N.D.			
64) Tetrachloroethene	17.11	166	1707	0.061	ng		96
65) Chlorobenzene	0.00	112	0	N.D.			
66) Ethylbenzene	18.11	91	11740	0.114	ng		94
67) m- & p-Xylenes	18.26	91	26891	0.349	ng		99
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.59	104	4951	0.079	ng		98
70) o-Xylene	18.69	91	11888	0.152	ng		96
71) n-Nonane	18.87	43	1255	N.D.			
72) 1,1,2,2-Tetrachloroethane	18.69	83	272	N.D.			
74) Cumene	19.20	105	1017	N.D.			
75) alpha-Pinene	19.54	93	13214	0.248	ng	#	2
76) n-Propylbenzene	19.64	91	4530	N.D.			
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	0.00	105	0	N.D.	d		
79) 1,3,5-Trimethylbenzene	19.83	105	2876	N.D.			
80) alpha-Methylstyrene	19.97	118	429	N.D.			
81) 2-Ethyltoluene	20.00	105	4122	N.D.			
82) 1,2,4-Trimethylbenzene	20.19	105	10462	0.124	ng		84
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.30	91	368	N.D.			
85) 1,3-Dichlorobenzene	20.33	146	176	N.D.			
86) 1,4-Dichlorobenzene	20.39	146	1592	N.D.			
87) sec-Butylbenzene	20.42	105	551	N.D.			
88) 4-Isopropyltoluene (p-...	20.56	119	3327	N.D.			
89) 1,2,3-Trimethylbenzene	20.56	105	2893	N.D.			
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
91) d-Limonene	20.68	68	4861	0.159	ng		89
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	21.34	57	1431	N.D.			
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	22.28	128	4119	N.D.			
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	20.19	119	1247	N.D.			
100) n-Butylbenzene	20.92	91	1885	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:10:17 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:10:17 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018 *WA 10/30/18*
Response via : Initial Calibration
DataAcq Meth:TO15.M

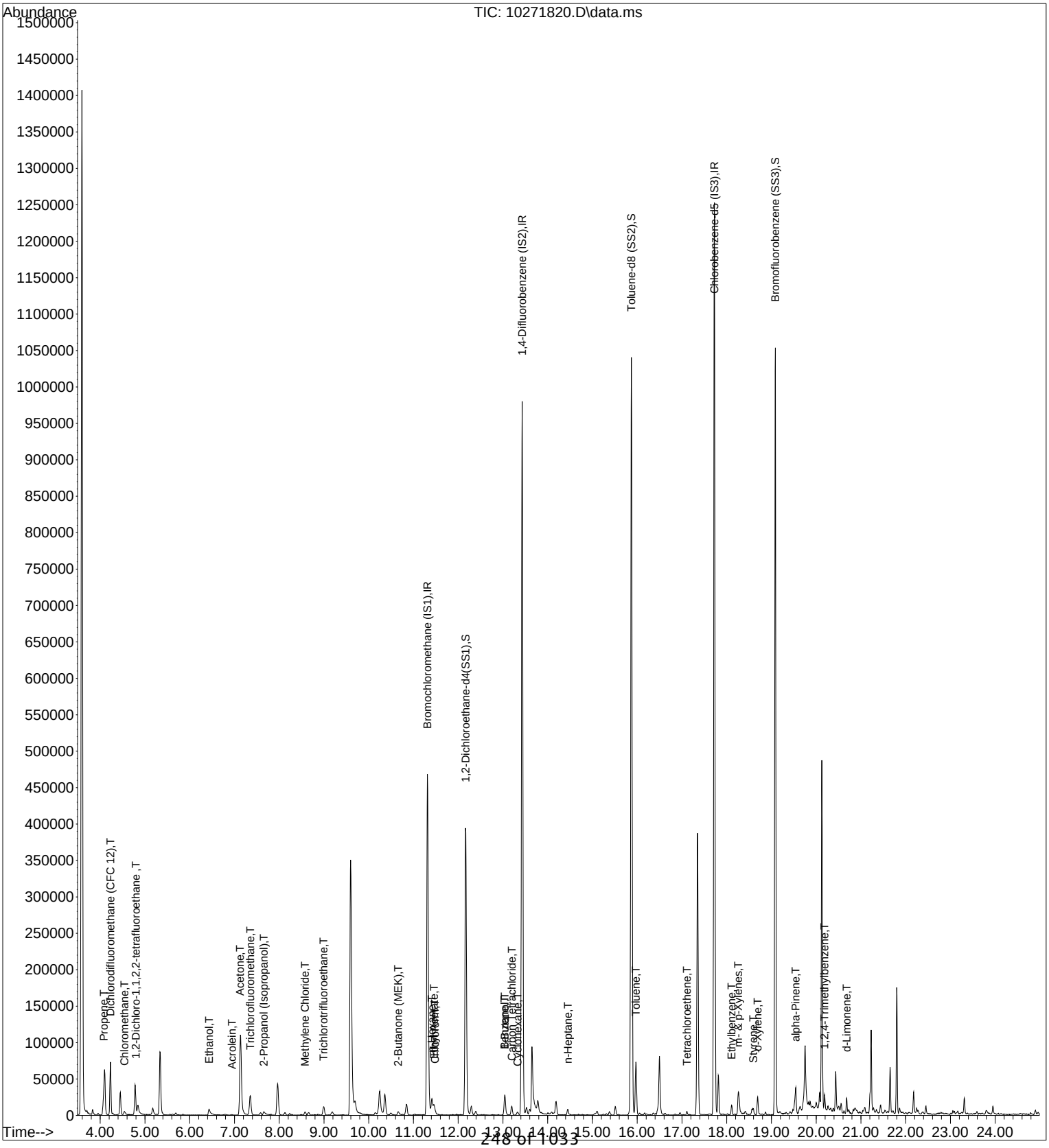
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	222897	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	952832	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	410356	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	329755	12.298	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.40%				
57) Toluene-d8 (SS2)	15.87	98	825749	12.636	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.12%				
73) Bromofluorobenzene (SS3)	19.09	174	343608	11.567	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.56%				
Target Compounds							Qvalue
2) Propene	4.08	42	5999m	0.289	ng		
3) Dichlorodifluoromethan...	4.23	85	67695	1.453	ng		100
4) Chloromethane	4.54	50	2263	0.076	ng		90
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1757	0.063	ng		92
10) Ethanol	6.43	45	17561	1.401	ng		95
12) Acrolein	6.95	56	969	0.088	ng		98
13) Acetone	7.13	58	24136	1.614	ng	#	20
14) Trichlorofluoromethane	7.35	101	30583	0.758	ng		99
15) 2-Propanol (Isopropanol)	7.66	45	11505	0.240	ng		81
19) Methylene Chloride	8.58	84	3120	0.149	ng		99
21) Trichlorotrifluoroethane	8.99	151	6132	0.285	ng		100
27) 2-Butanone (MEK)	10.66	72	2430	0.184	ng	#	64
30) Ethyl Acetate	11.46	61	3026	0.427	ng		94
31) n-Hexane	11.41	57	11011	0.341	ng		96
32) Chloroform	11.48	83	2831	0.075	ng		96
40) 1-Butanol	13.04	56	3040m	0.158	ng		
41) Benzene	13.04	78	27092	0.309	ng		99
42) Carbon Tetrachloride	13.20	117	7654	0.231	ng		97
43) Cyclohexane	13.32	84	2143	0.063	ng		93
51) n-Heptane	14.45	71	2151	0.107	ng		97
58) Toluene	15.97	91	59924	0.660	ng		98
64) Tetrachloroethene	17.11	166	1707	0.061	ng		96
66) Ethylbenzene	18.11	91	11740	0.114	ng		94
67) m- & p-Xylenes	18.26	91	26891	0.349	ng		99
69) Styrene	18.59	104	4951	0.079	ng		98
70) o-Xylene	18.69	91	11888	0.152	ng		96
75) alpha-Pinene	19.54	93	13214	0.248	ng	#	2
82) 1,2,4-Trimethylbenzene	20.19	105	10462	0.124	ng		84
91) d-Limonene	20.68	68	4861	0.159	ng		89

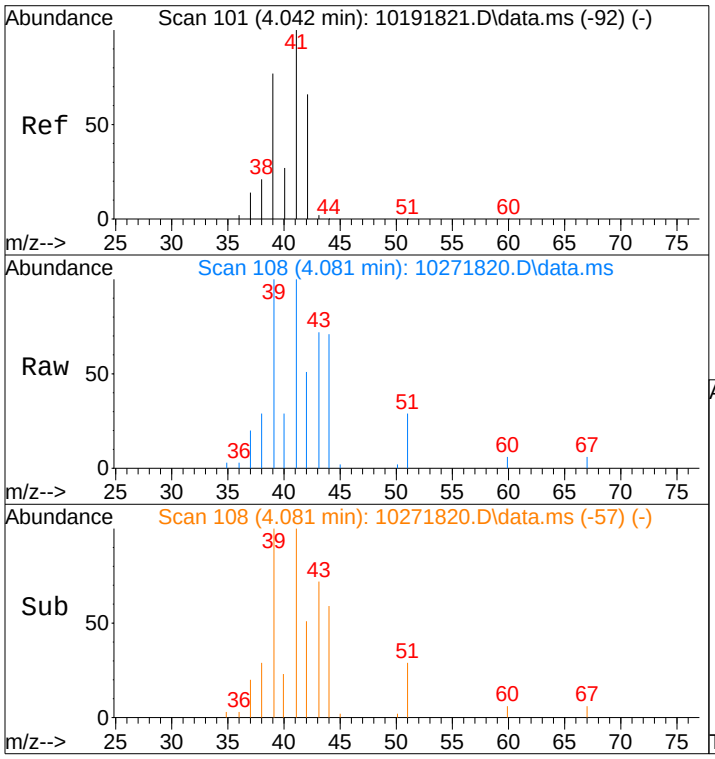
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 11:10:17 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

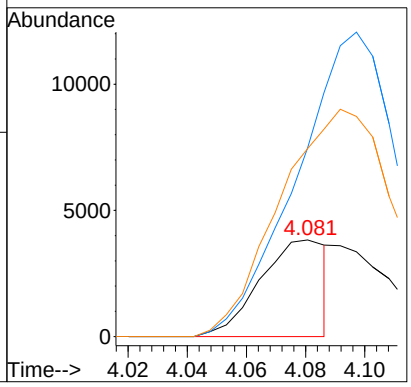


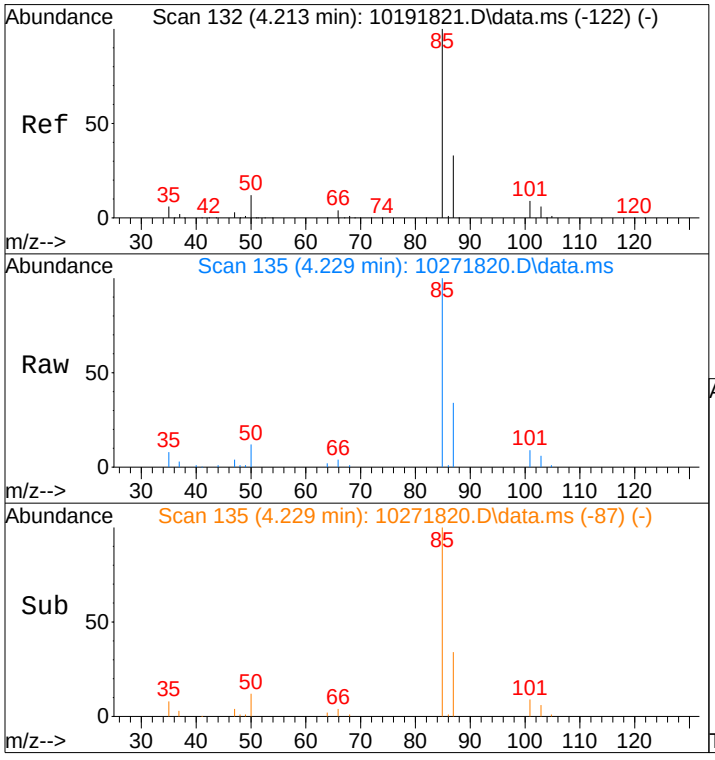


#2
Propene
Concen: 0.29 ng m
RT: 4.08 min Scan# 108
Delta R.T. 0.033 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 42 Resp: 5999

Ion	Ratio	Lower	Upper
42	100		
39	125.0	98.5	138.5
41	409.2	131.9	171.9#

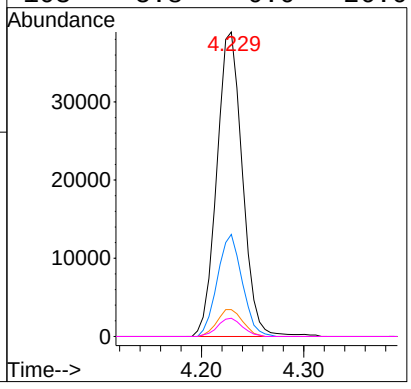


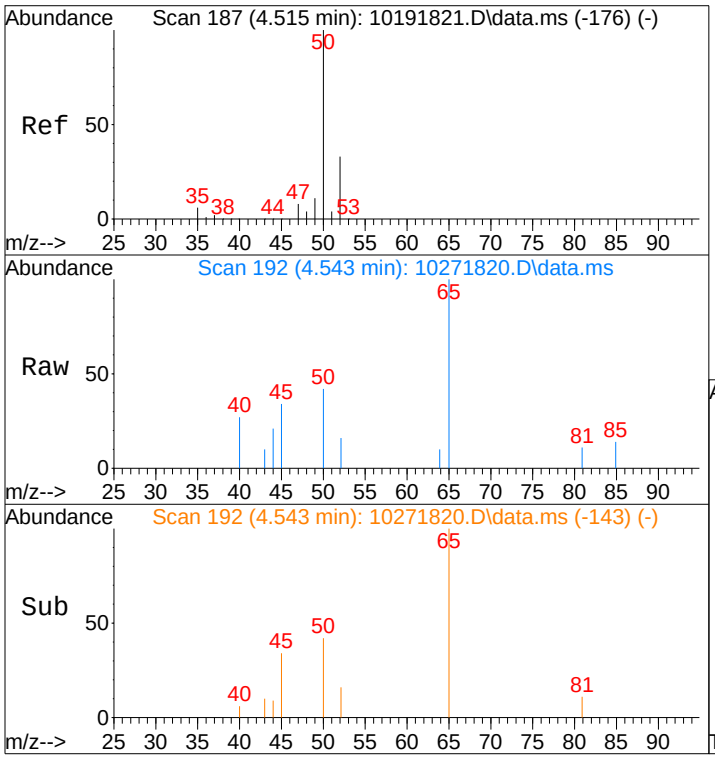


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.45 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.016 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 85 Resp: 67695

Ion	Ratio	Lower	Upper
85	100		
87	32.5	12.6	52.6
101	8.9	0.0	29.4
103	5.8	0.0	26.0

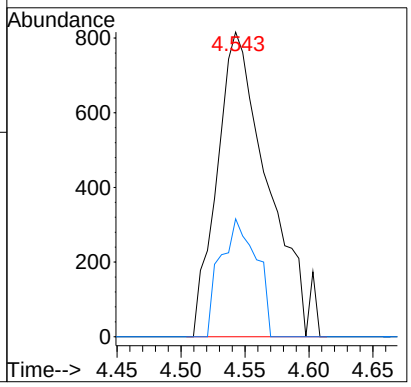


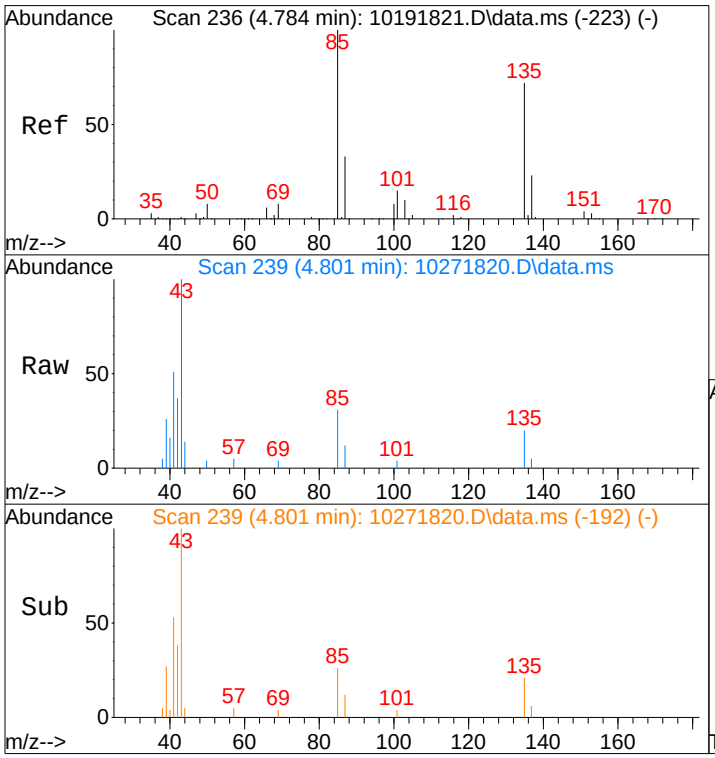


#4
Chloromethane
Concen: 0.08 ng
RT: 4.54 min Scan# 192
Delta R.T. 0.022 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 50 Resp: 2263

Ion	Ratio	Lower	Upper
50	100		
52	27.4	13.2	53.2

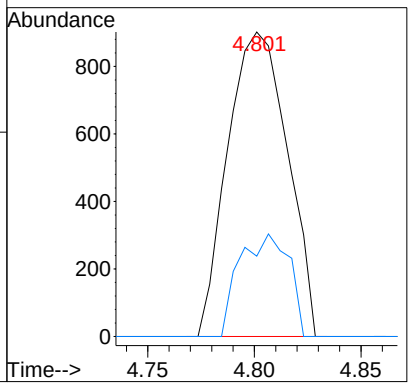


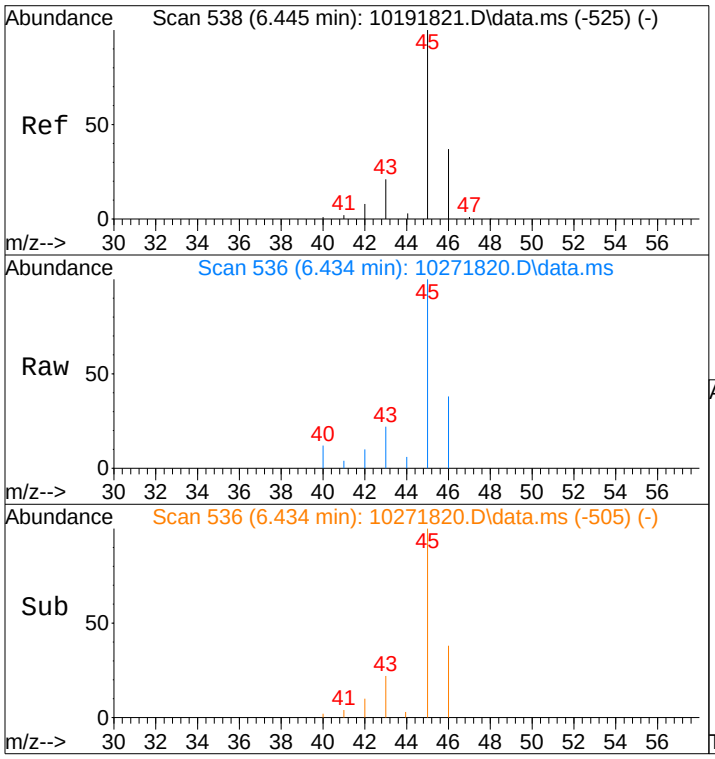


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.06 ng
RT: 4.80 min Scan# 239
Delta R.T. 0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:135 Resp: 1757

Ion	Ratio	Lower	Upper
135	100		
137	27.9	12.3	52.3

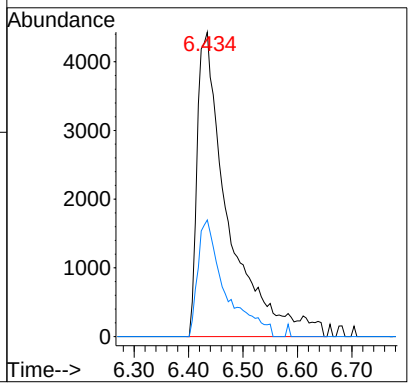


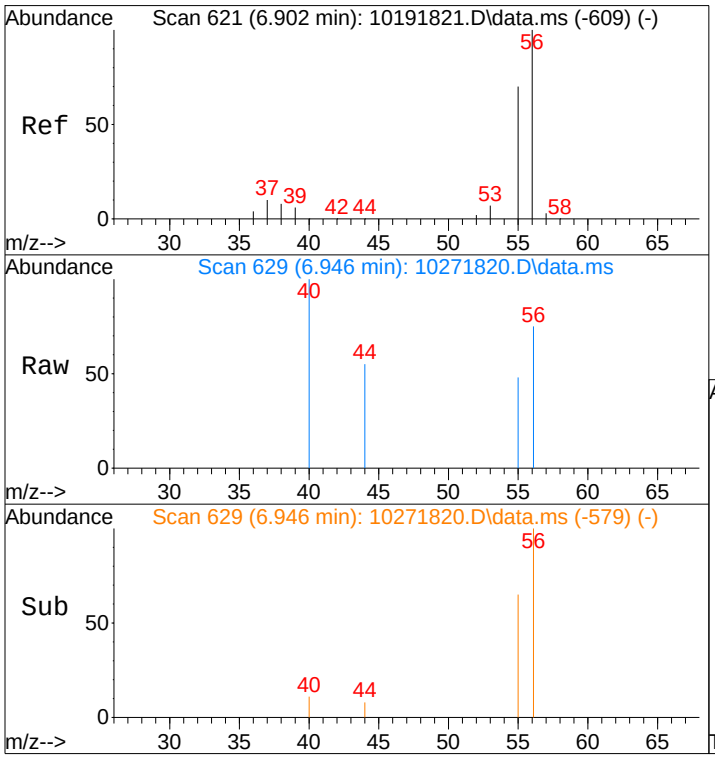


#10
Ethanol
Concen: 1.40 ng
RT: 6.43 min Scan# 536
Delta R.T. -0.077 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 45 Resp: 17561

Ion	Ratio	Lower	Upper
45	100		
46	33.5	16.6	56.6

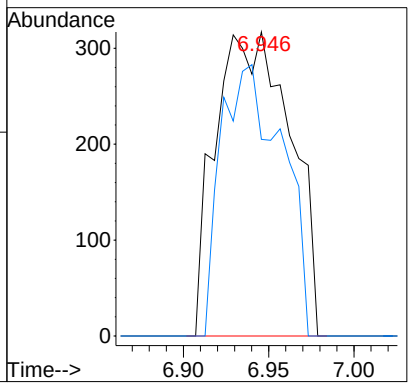


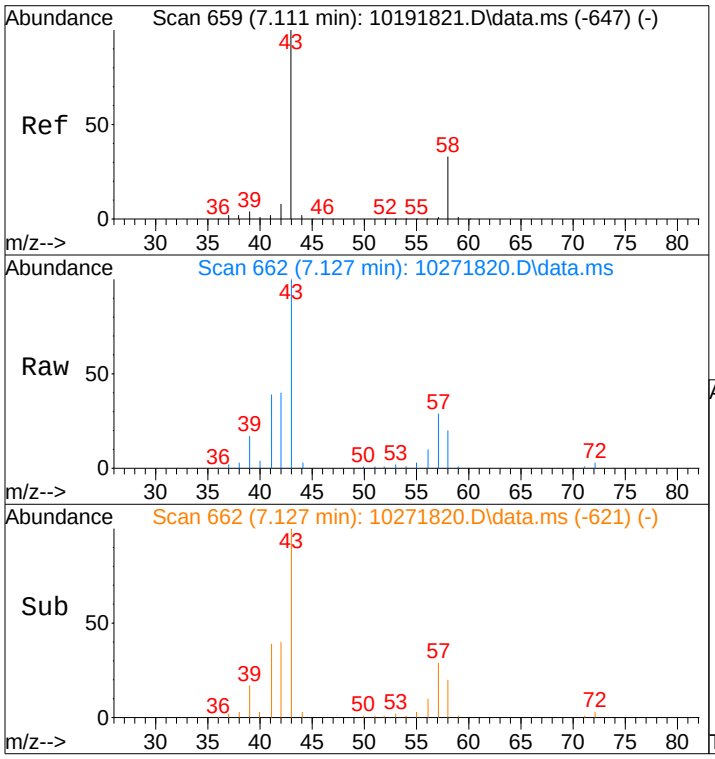


#12
Acrolein
Concen: 0.09 ng
RT: 6.95 min Scan# 629
Delta R.T. 0.027 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 56 Resp: 969

Ion	Ratio	Lower	Upper
56	100		
55	73.1	51.0	91.0

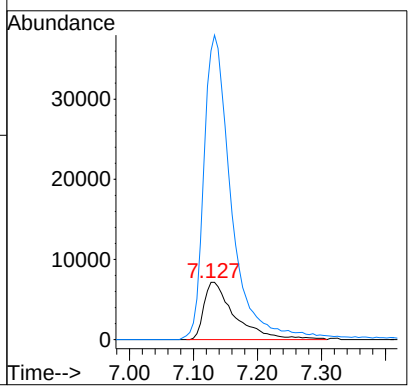


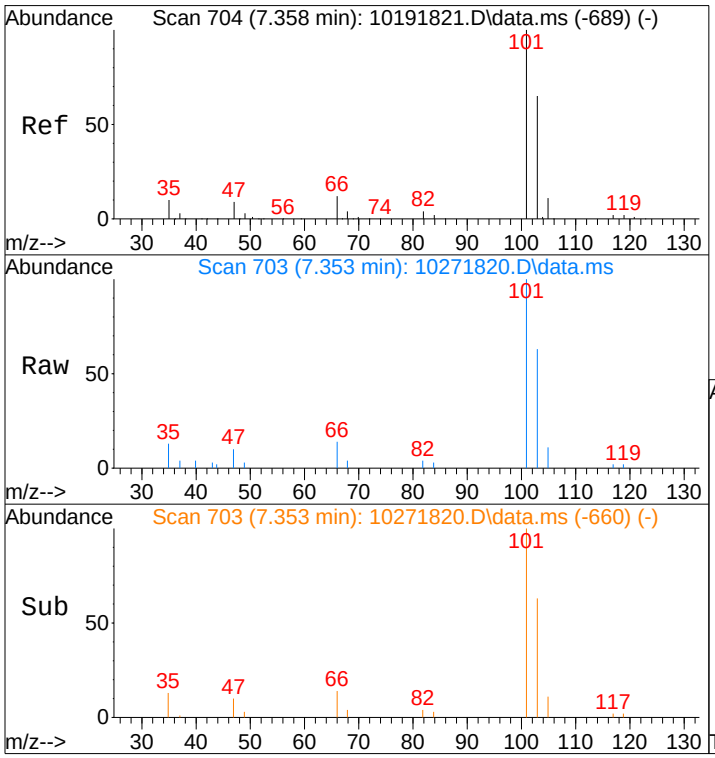


#13
Acetone
Concen: 1.61 ng
RT: 7.13 min Scan# 662
Delta R.T. -0.022 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 58 Resp: 24136

Ion	Ratio	Lower	Upper
58	100		
43	474.1	283.4	343.4#

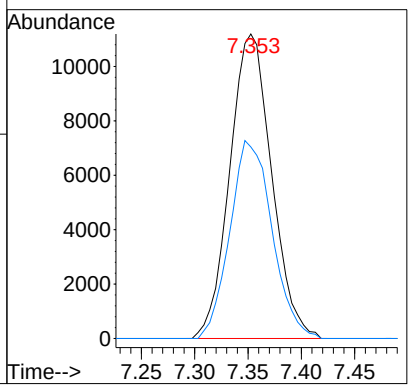


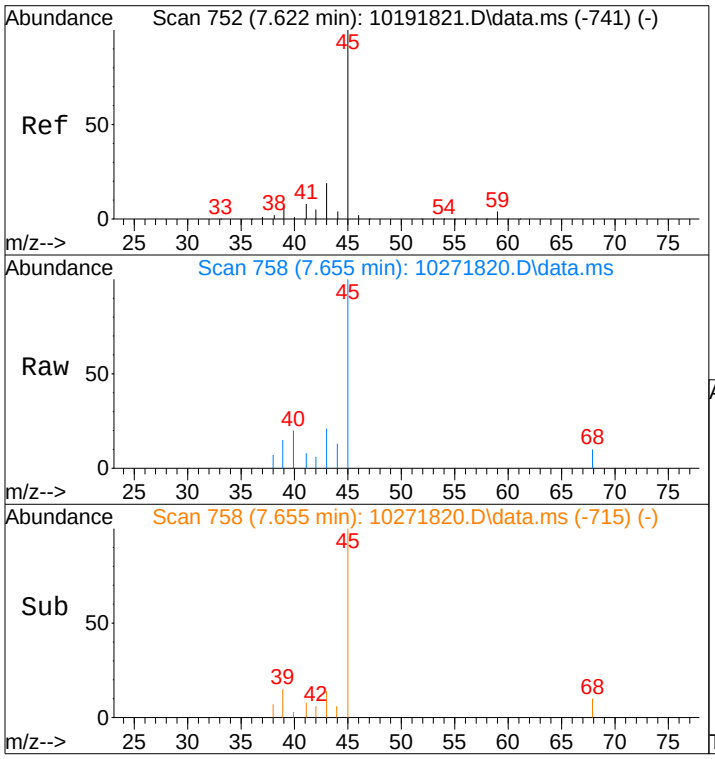


#14
Trichlorofluoromethane
Concen: 0.76 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:101 Resp: 30583

Ion	Ratio	Lower	Upper
101	100		
103	65.4	44.8	84.8

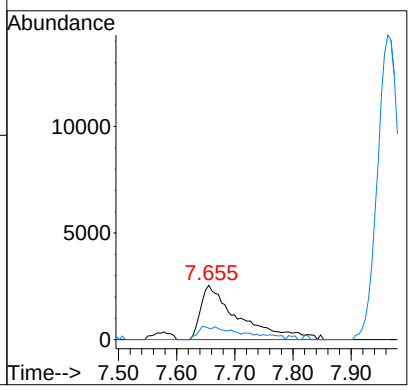


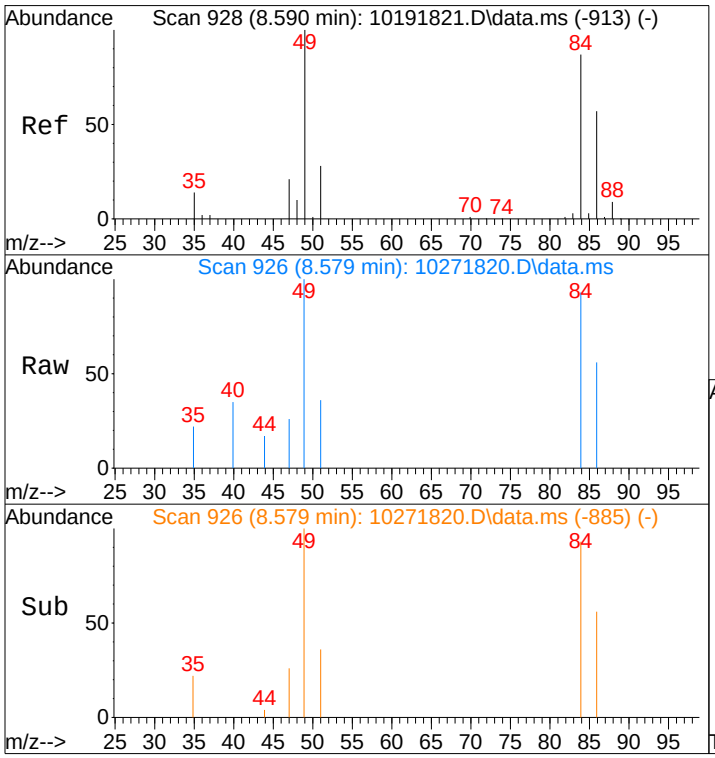


#15
2-Propanol (Isopropanol)
Concen: 0.24 ng
RT: 7.66 min Scan# 758
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 45 Resp: 11505

Ion	Ratio	Lower	Upper
45	100		
43	28.2	0.0	39.6

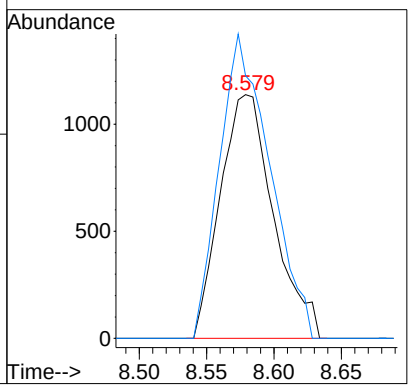


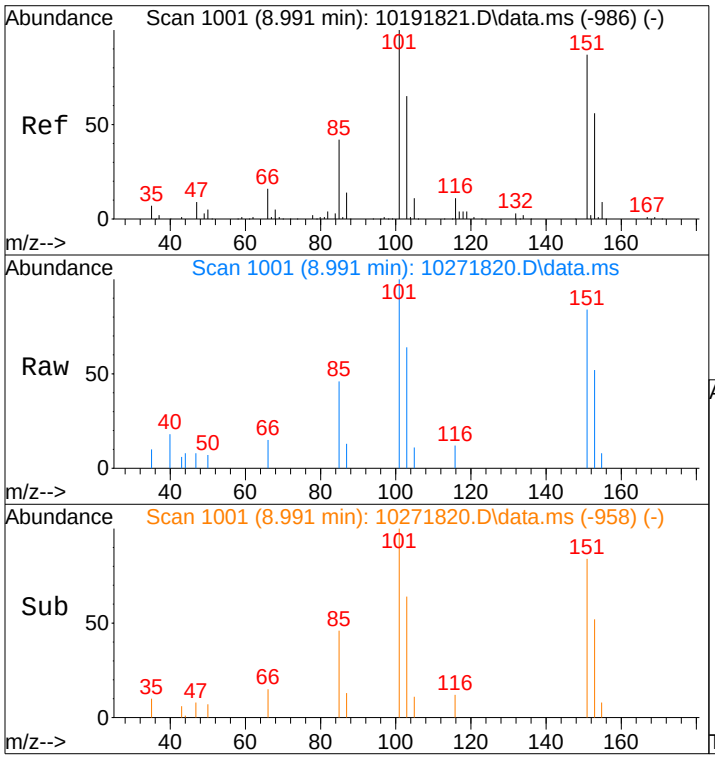


#19
Methylene Chloride
Concen: 0.15 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 84 Resp: 3120

Ion	Ratio	Lower	Upper
84	100		
49	118.3	92.1	142.1

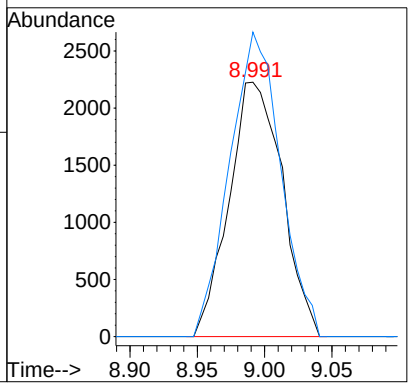


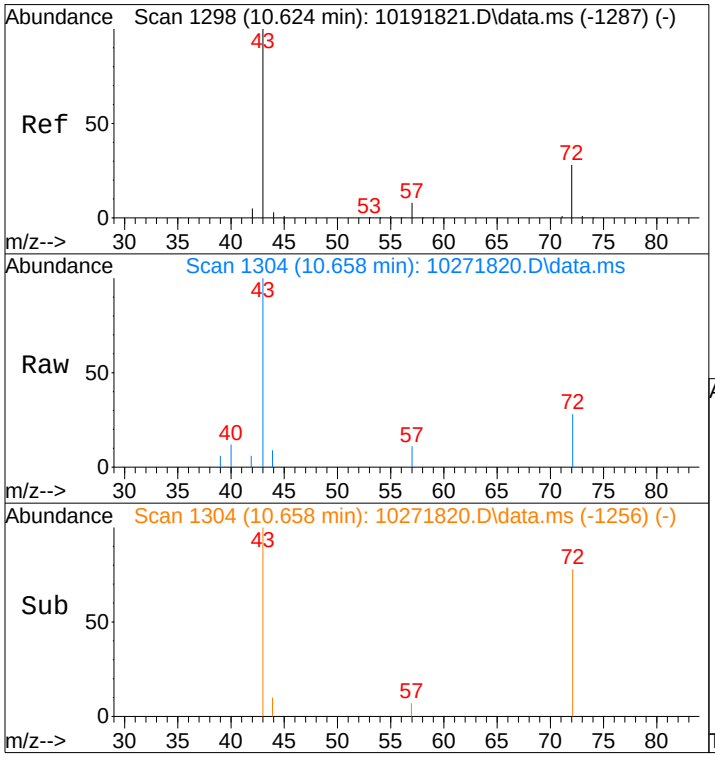


#21
Trichlorotrifluoroethane
Concen: 0.29 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:151 Resp: 6132

Ion	Ratio	Lower	Upper
151	100		
101	114.5	94.4	134.4

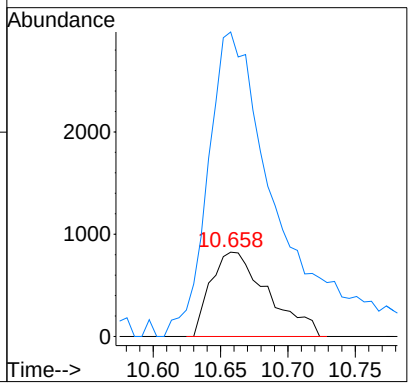


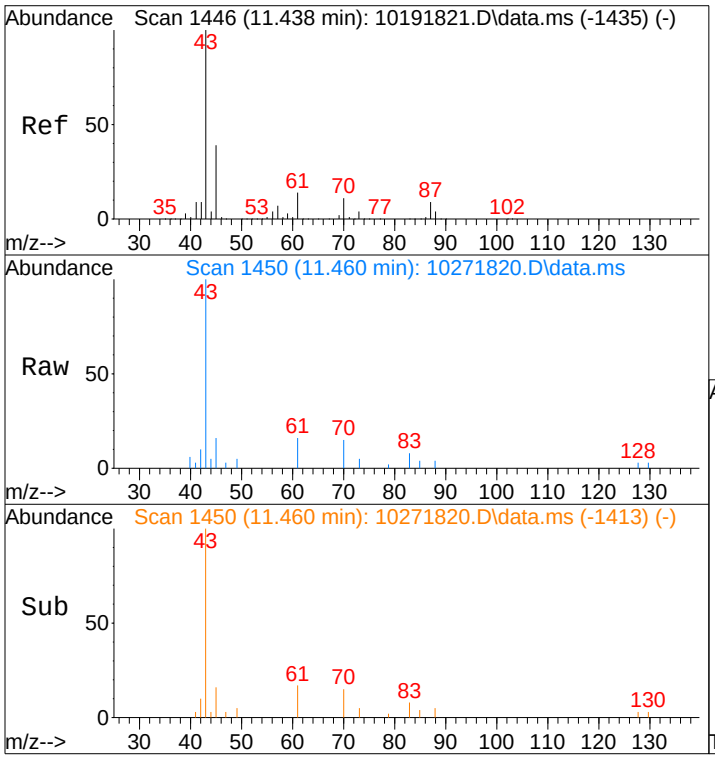


#27
2-Butanone (MEK)
Concen: 0.18 ng
RT: 10.66 min Scan# 1304
Delta R.T. 0.016 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 72 Resp: 2430

Ion	Ratio	Lower	Upper
72	100		
43	451.1	350.1	390.1#

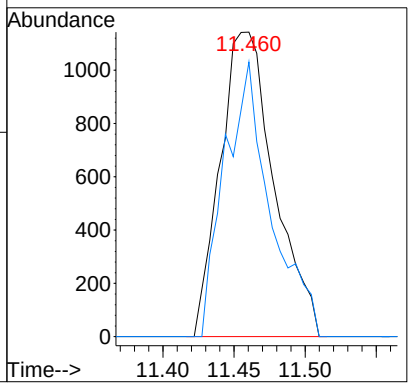


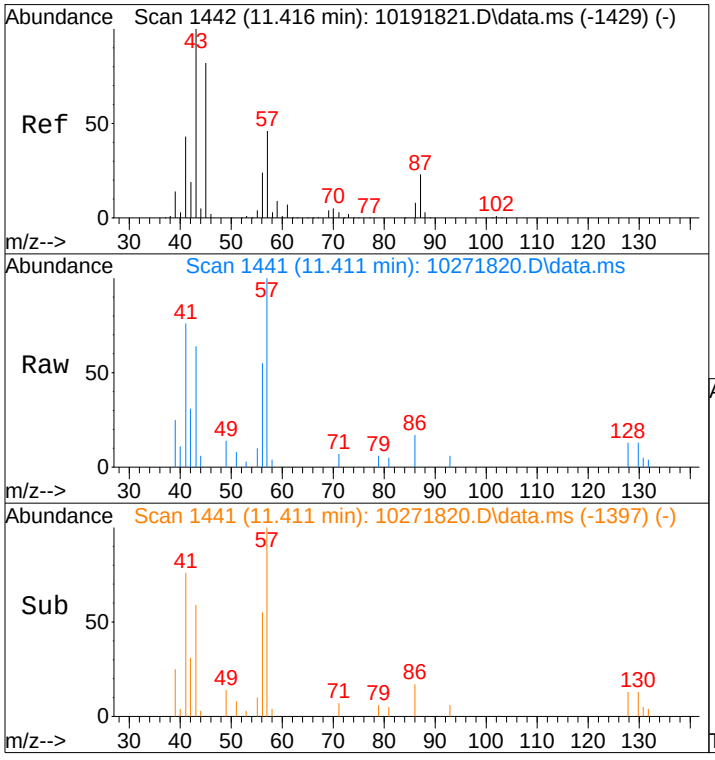


#30
Ethyl Acetate
Concen: 0.43 ng
RT: 11.46 min Scan# 1450
Delta R.T. 0.005 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 61 Resp: 3026

Ion	Ratio	Lower	Upper
61	100		
70	76.5	61.7	101.7

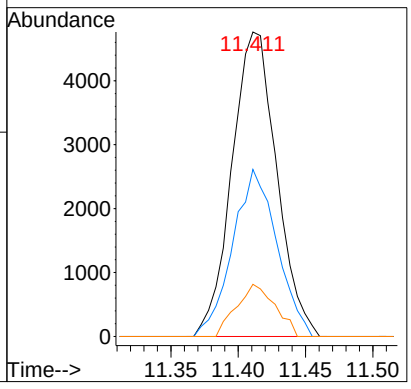


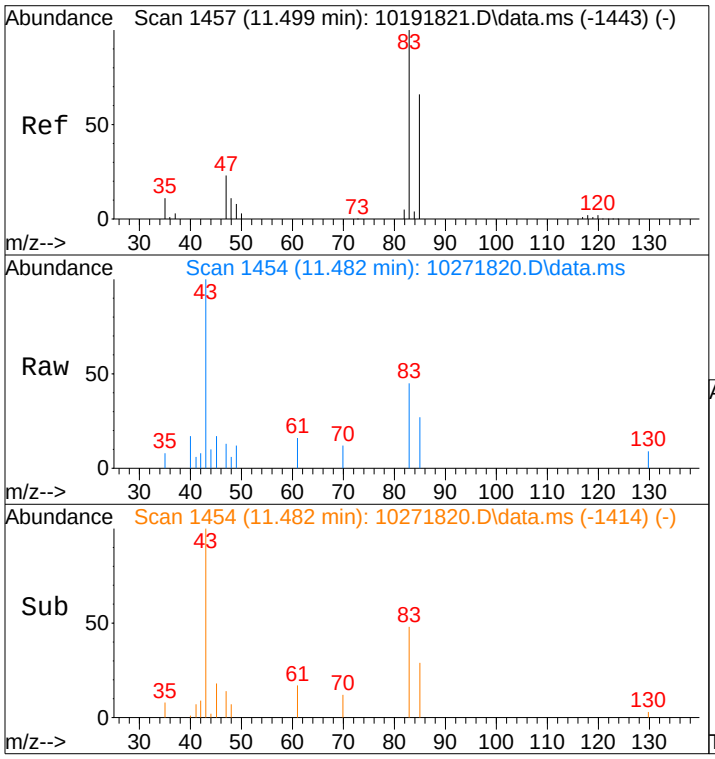


#31
n-Hexane
Concen: 0.34 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.006 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 57 Resp: 11011

Ion	Ratio	Lower	Upper
57	100		
56	54.2	41.4	62.0
86	14.8	13.7	20.5

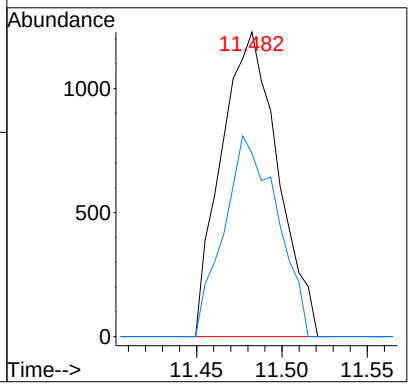


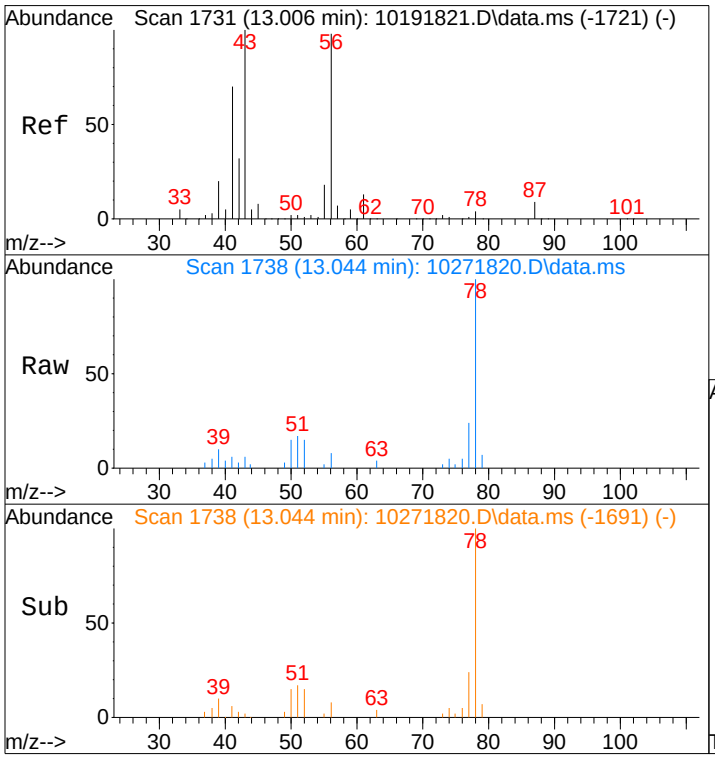


#32
Chloroform
Concen: 0.08 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.028 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 83 Resp: 2831

Ion	Ratio	Lower	Upper
83	100		
85	62.1	45.5	85.5

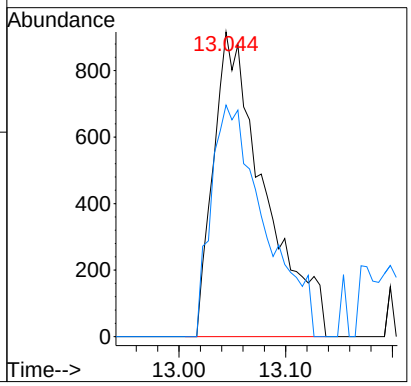


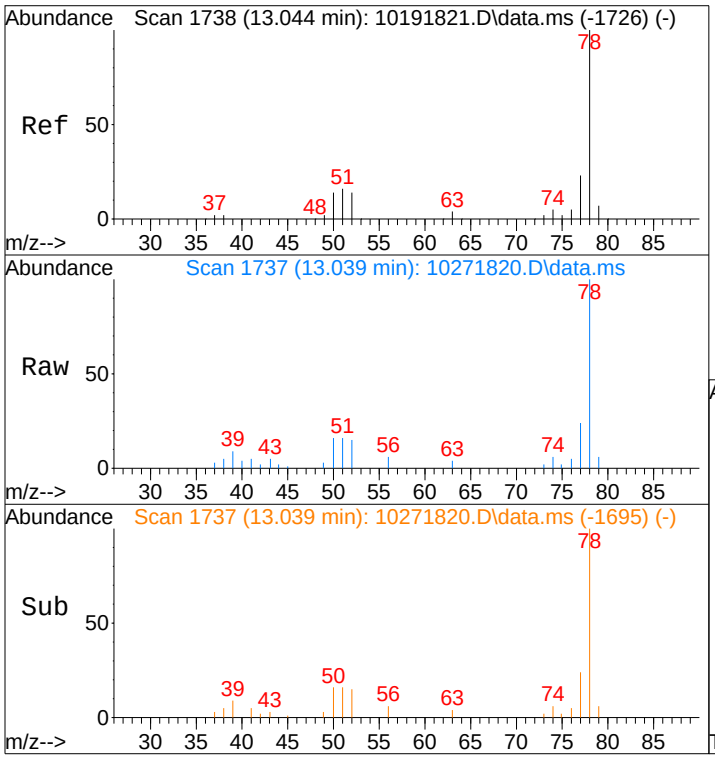


#40
1-Butanol
Concen: 0.16 ng m
RT: 13.04 min Scan# 1738
Delta R.T. 0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 56 Resp: 3040

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

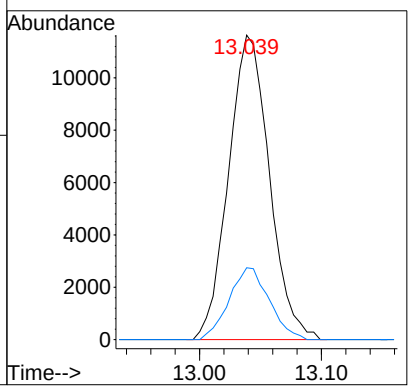


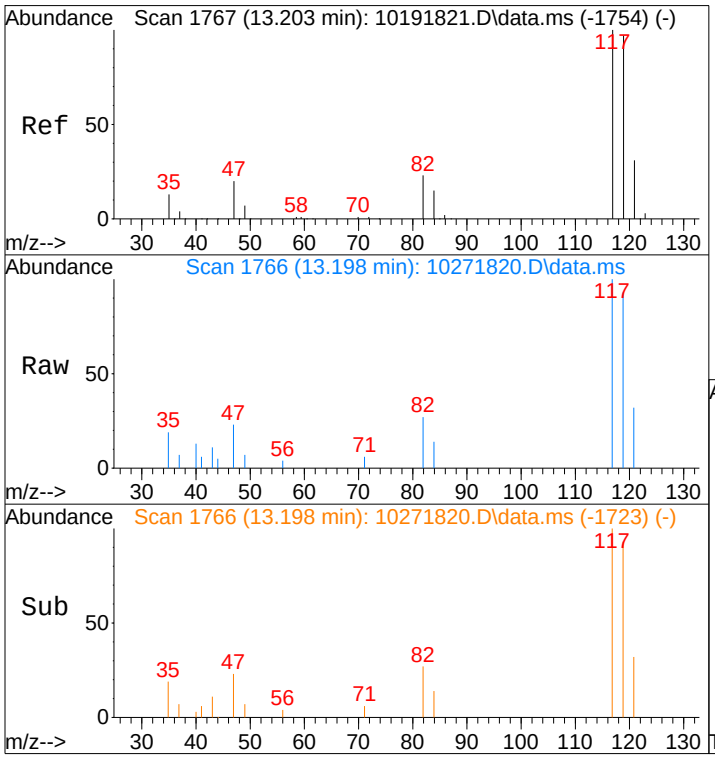


#41
Benzene
Concen: 0.31 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.017 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 78 Resp: 27092

Ion	Ratio	Lower	Upper
78	100		
77	23.2	3.5	43.5

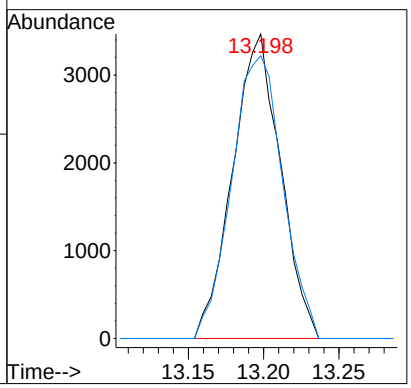


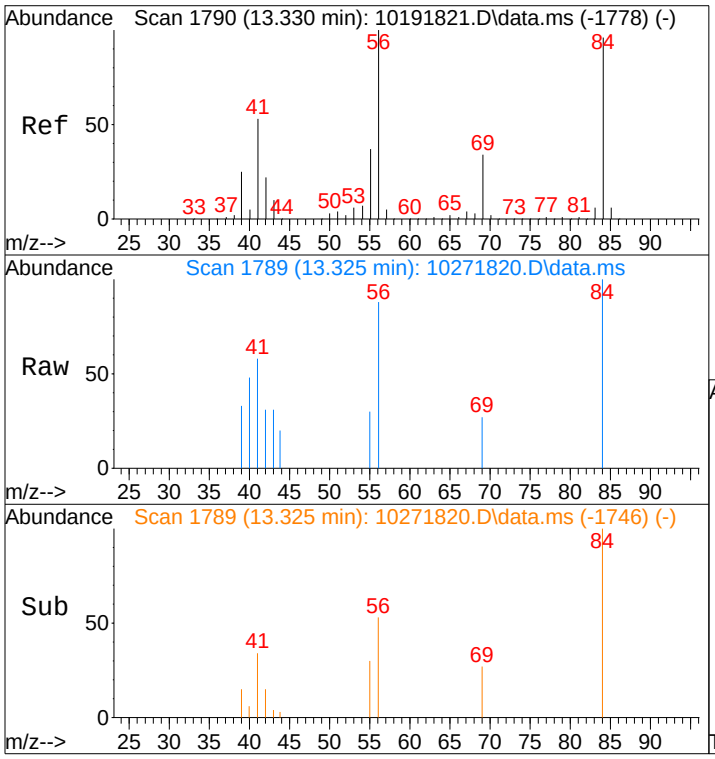


#42
Carbon Tetrachloride
Concen: 0.23 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:117 Resp: 7654

Ion	Ratio	Lower	Upper
117	100		
119	99.4	76.0	116.0

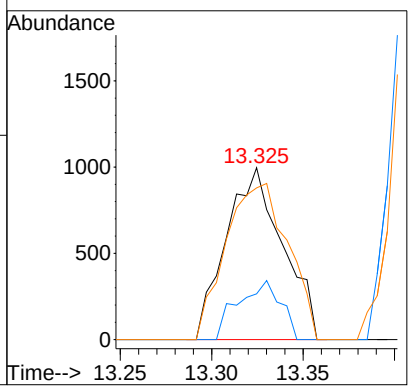


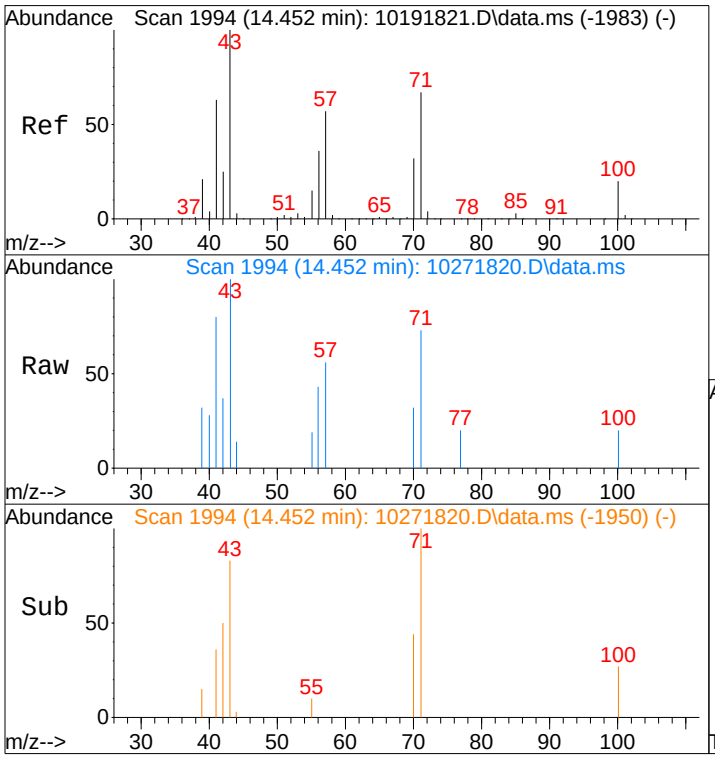


#43
Cyclohexane
Concen: 0.06 ng
RT: 13.32 min Scan# 1789
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 84 Resp: 2143

Ion	Ratio	Lower	Upper
84	100		
69	25.8	14.8	54.8
56	99.9	83.9	123.9

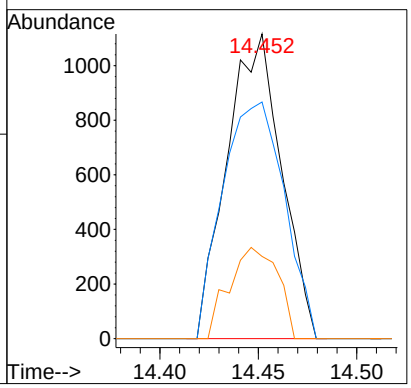


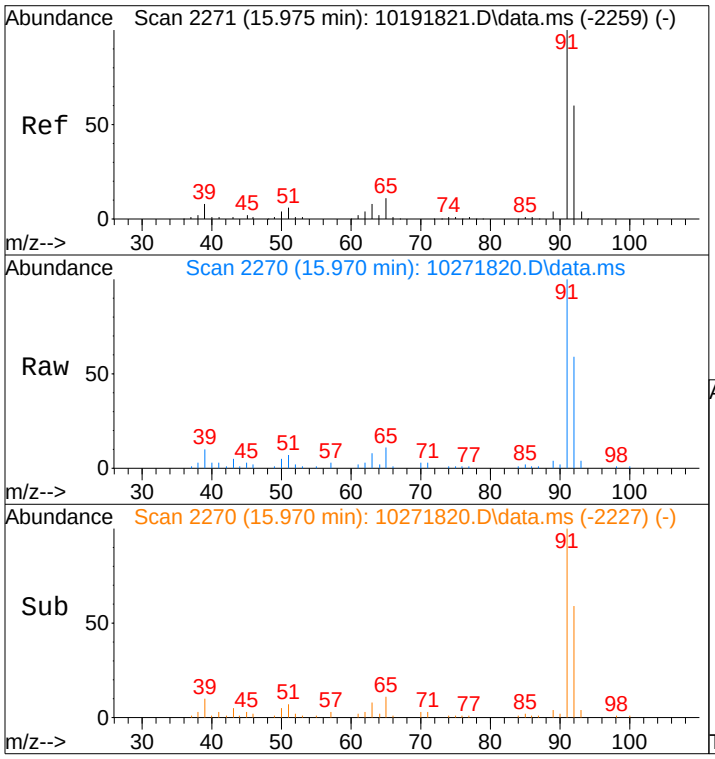


#51
n-Heptane
Concen: 0.11 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.006 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 71 Resp: 2151

Ion	Ratio	Lower	Upper
71	100		
57	87.9	66.4	106.4
100	26.7	10.6	50.6

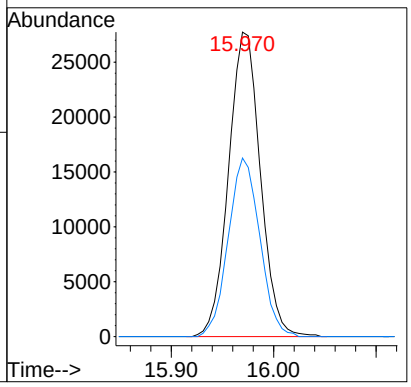


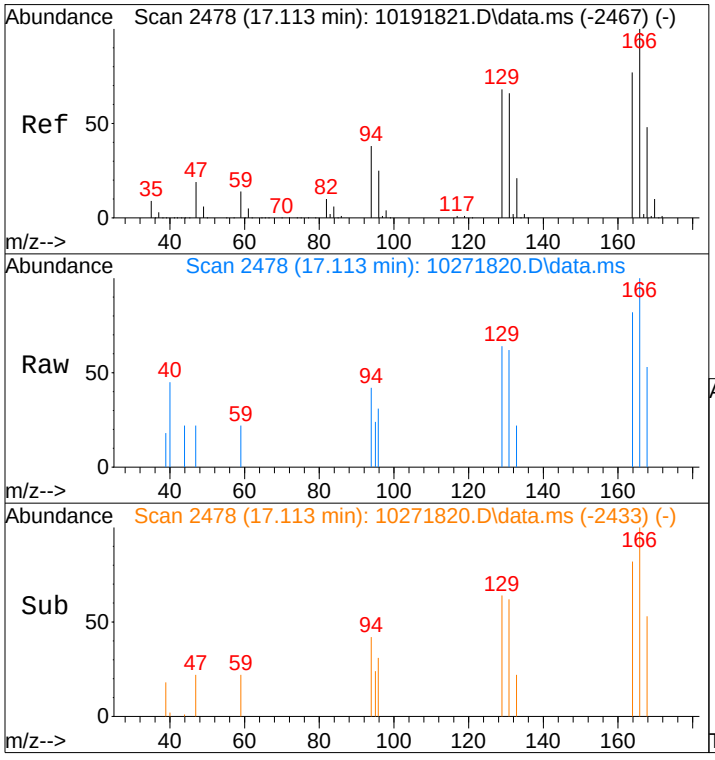


#58
Toluene
Concen: 0.66 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 91 Resp: 59924

Ion	Ratio	Lower	Upper
91	100		
92	58.1	39.4	79.4

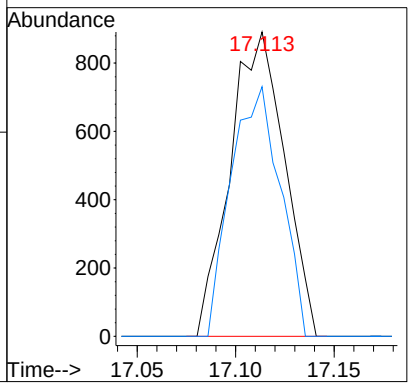


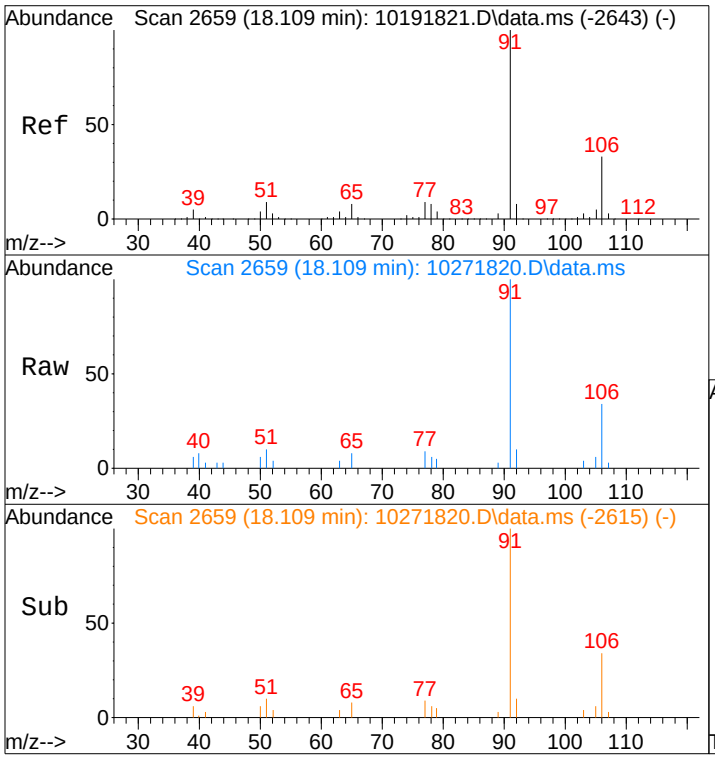


#64
Tetrachloroethene
Concen: 0.06 ng
RT: 17.11 min Scan# 2478
Delta R.T. -0.000 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:166 Resp: 1707

Ion	Ratio	Lower	Upper
166	100		
164	74.7	57.8	97.8

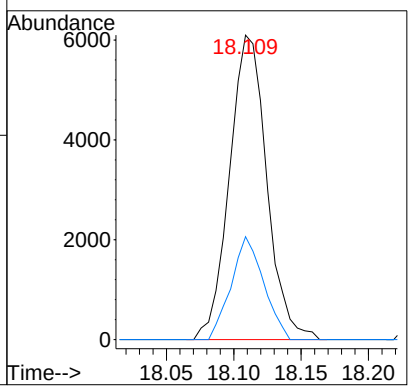


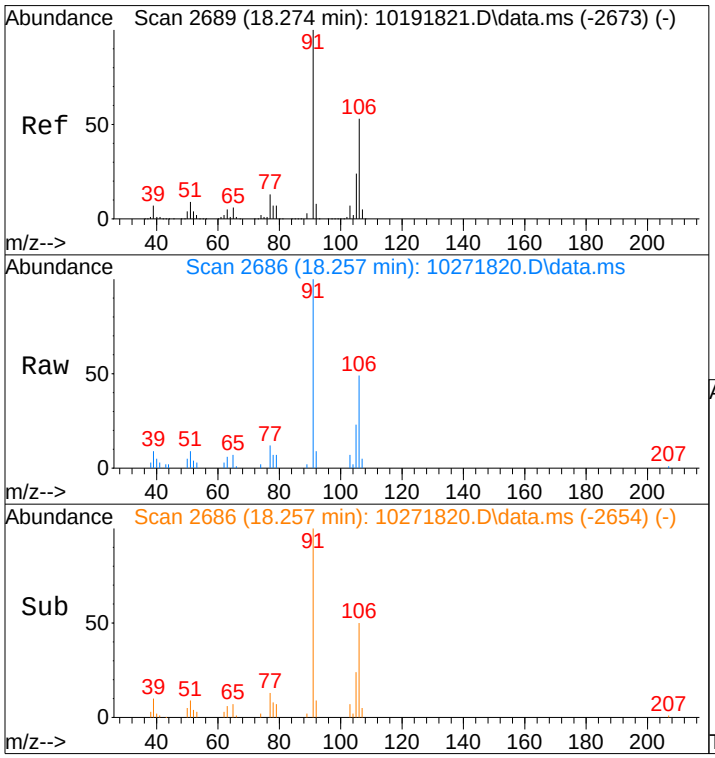


#66
Ethylbenzene
Concen: 0.11 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.006 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 91 Resp: 11740

Ion	Ratio	Lower	Upper
91	100		
106	29.4	12.6	52.6

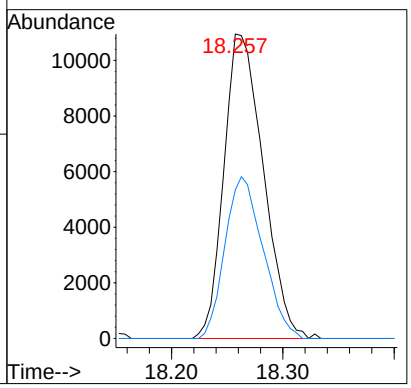


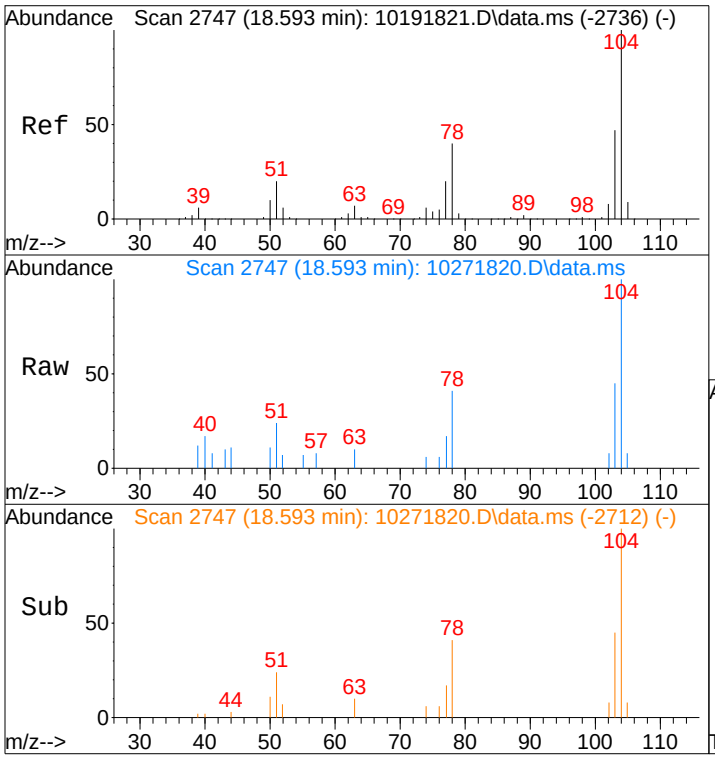


#67
m- & p-Xylenes
Concen: 0.35 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 91 Resp: 26891

Ion	Ratio	Lower	Upper
91	100		
106	51.4	32.2	72.2

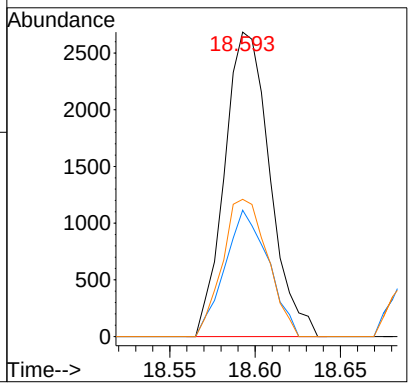


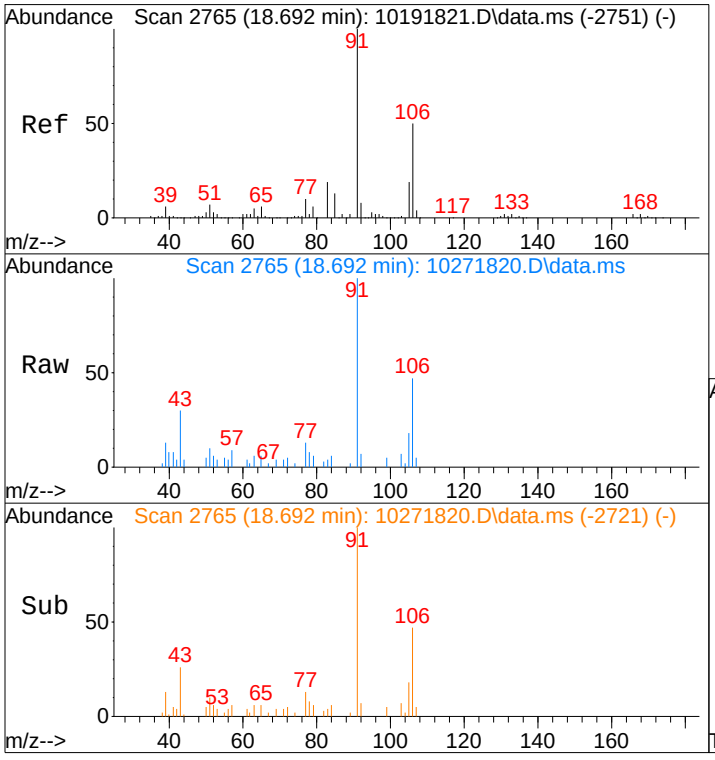


#69
Styrene
Concen: 0.08 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.006 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:104 Resp: 4951

Ion	Ratio	Lower	Upper
104	100		
78	39.9	20.1	60.1
103	45.0	27.0	67.0

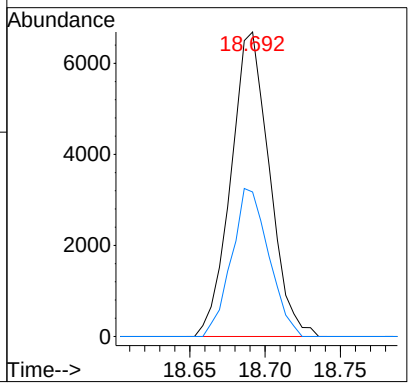


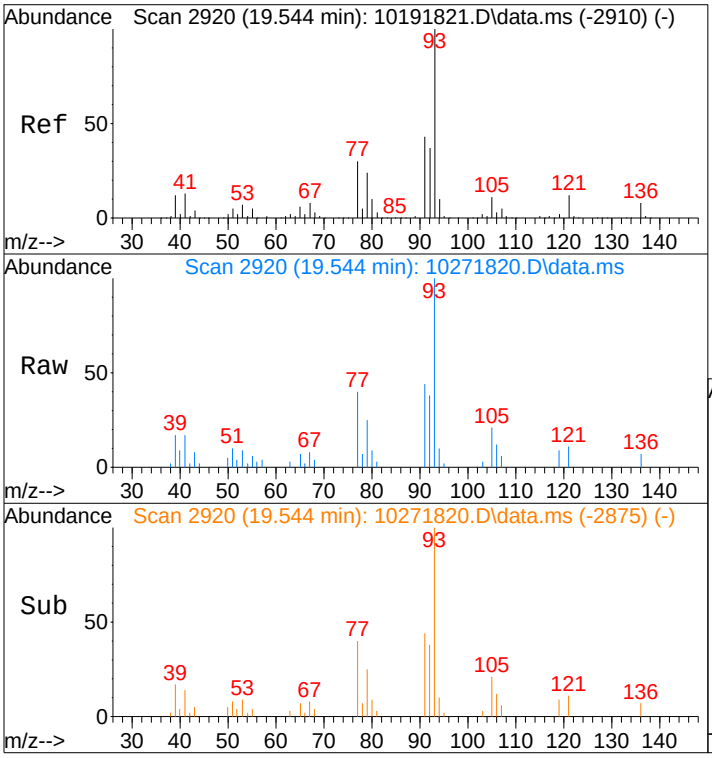


#70
o-Xylene
Concen: 0.15 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.006 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 91 Resp: 11888

Ion	Ratio	Lower	Upper
91	100		
106	47.0	29.4	69.4

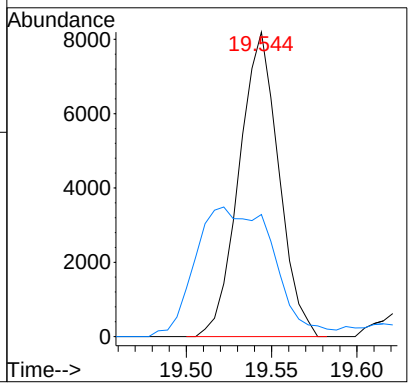


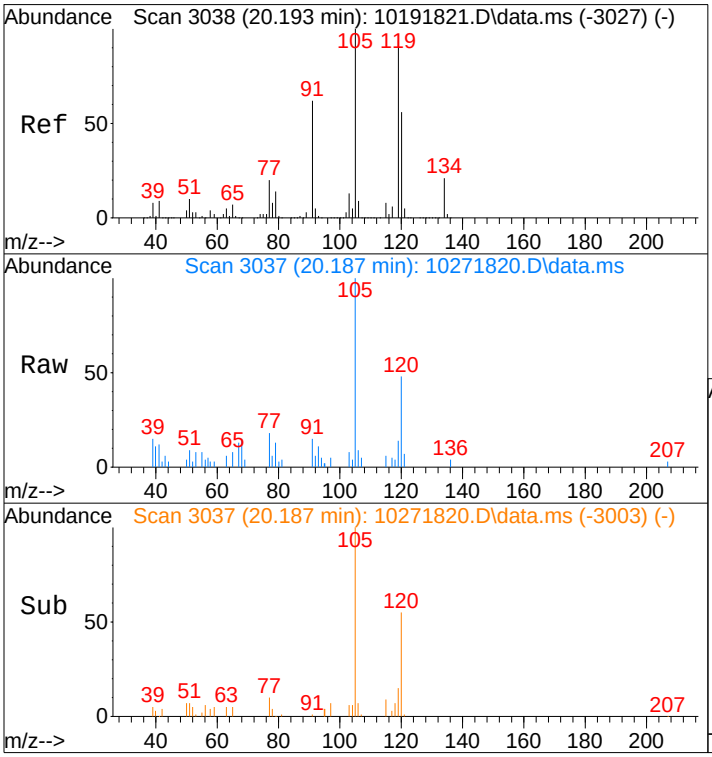


#75
alpha-Pinene
Concen: 0.25 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 93 Resp: 13214

Ion	Ratio	Lower	Upper
93	100		
77	83.6	10.2	50.2#

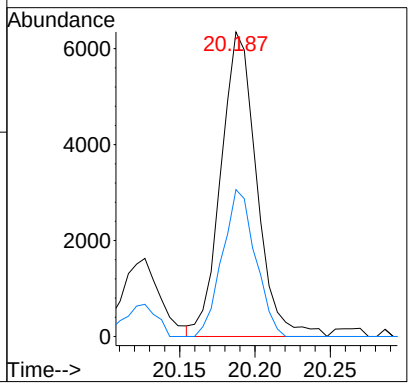


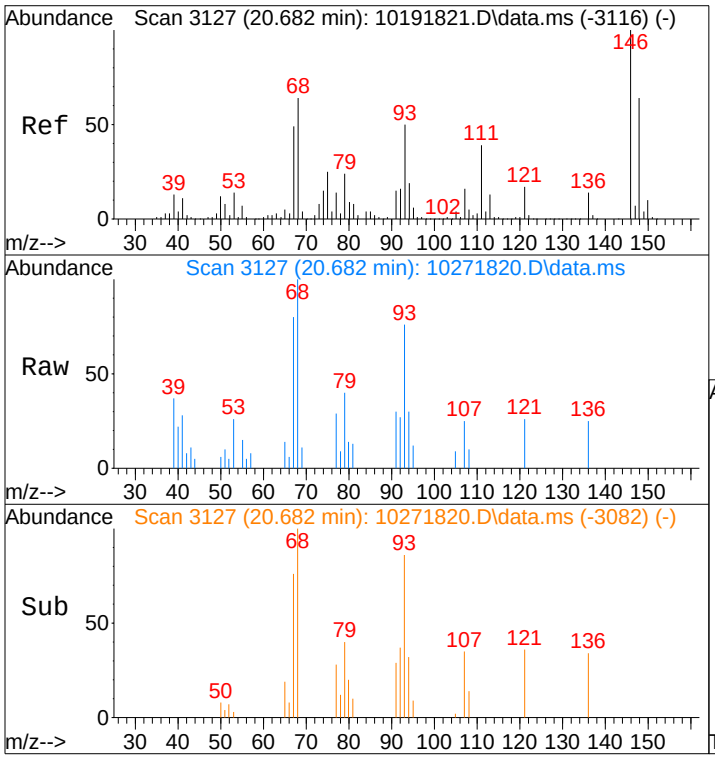


#82
1,2,4-Trimethylbenzene
Concen: 0.12 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion:105 Resp: 10462

Ion	Ratio	Lower	Upper
105	100		
120	44.6	36.5	76.5

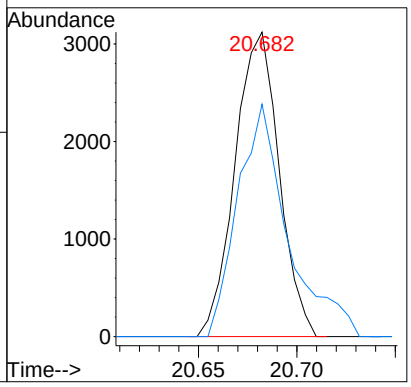




#91
d-Limonene
Concen: 0.16 ng
RT: 20.68 min Scan# 3127
Delta R.T. -0.000 min
Lab File: 10271820.D
Acq: 27 Oct 2018 15:37

Tgt Ion: 68 Resp: 4861

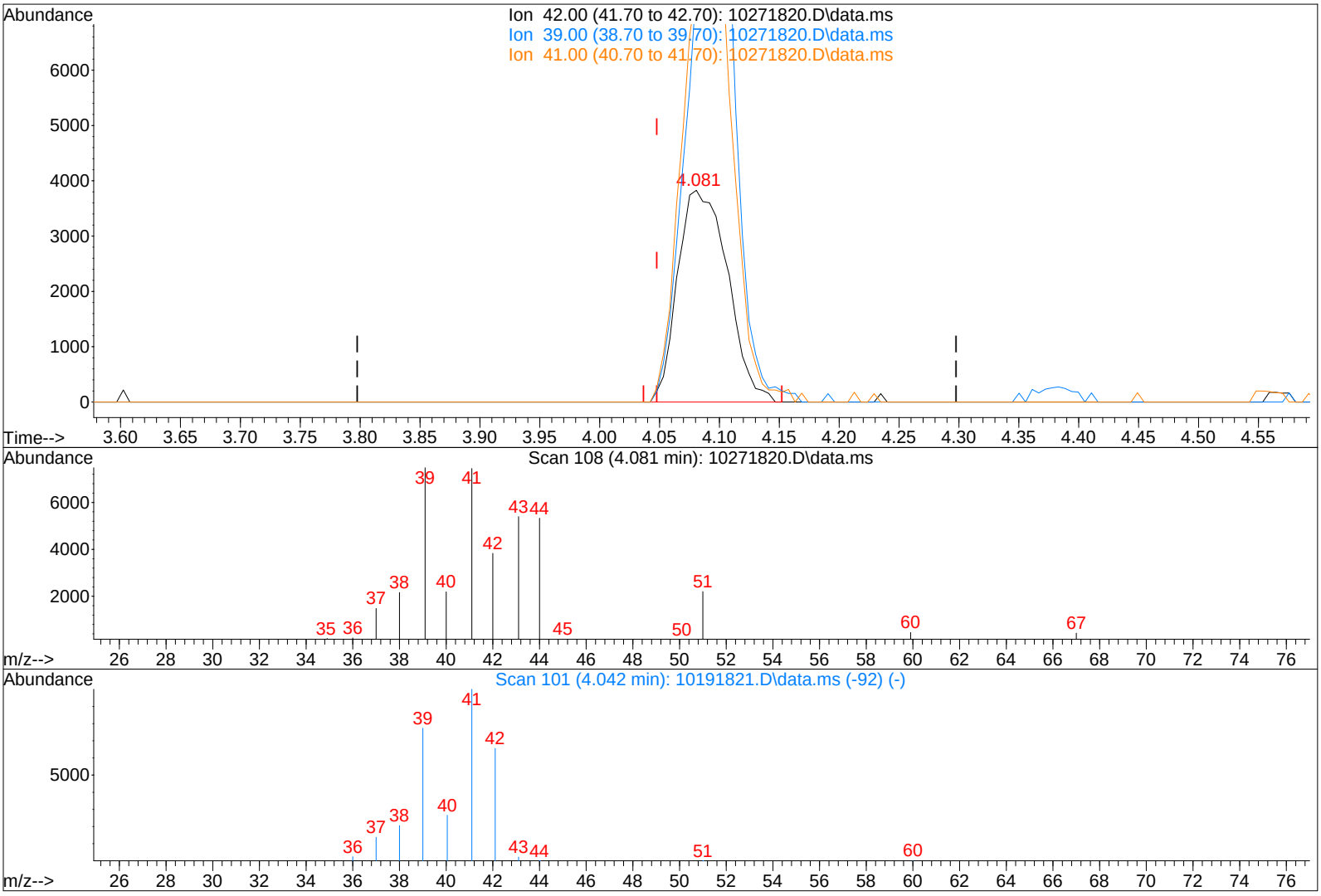
Ion	Ratio	Lower	Upper
68	100		
93	86.8	57.4	97.4



Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 29 14:06:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271820.D\data.ms

(2) Propene (T)

4.081min (+0.033) 0.54ng

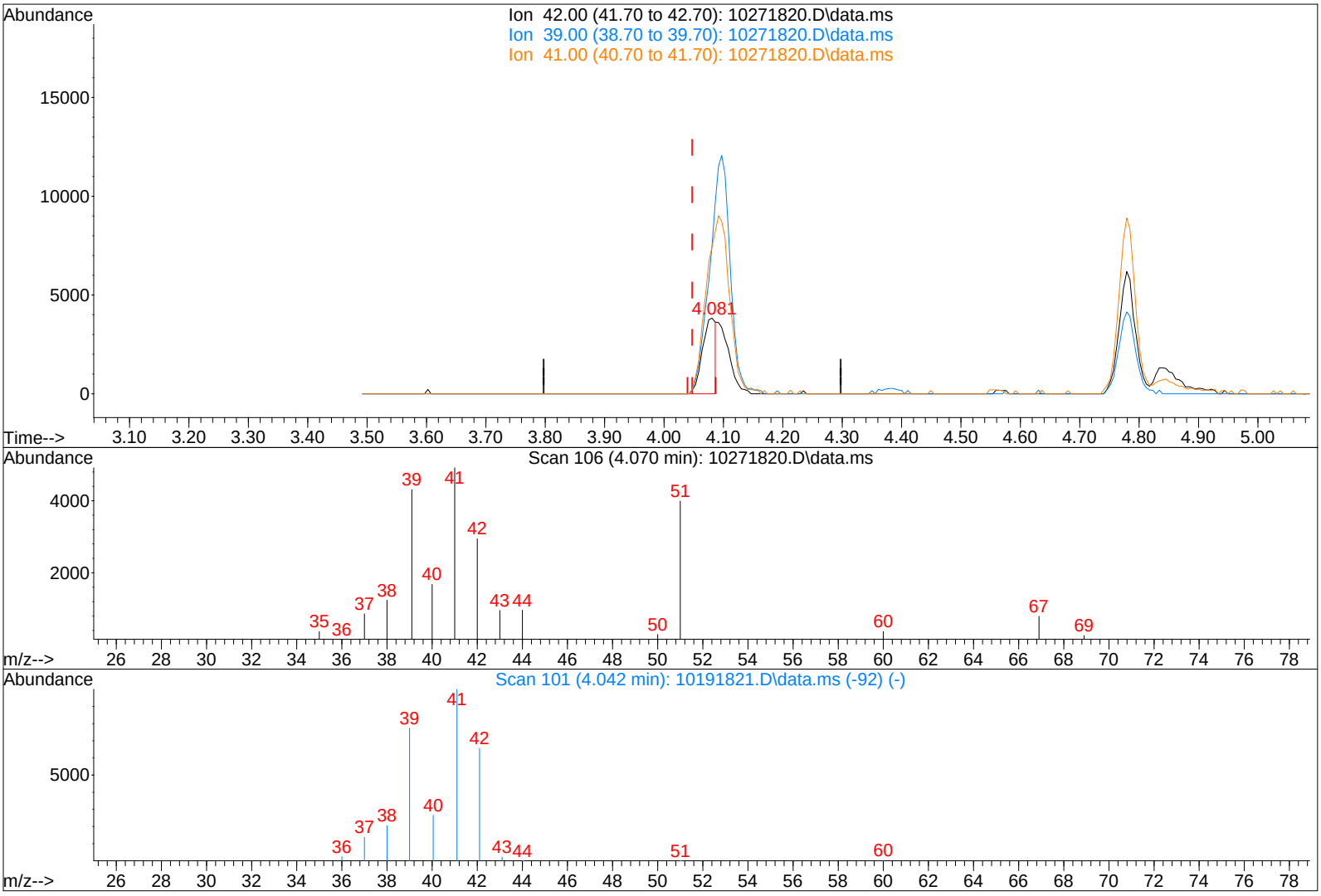
response 11099

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	260.48#
41.00	151.90	221.18#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS16\DATA\2018_10\27\10271820.D Vial: 11
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 29 14:06:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10271820.D\data.ms

(2) Propene (T)

4.081min (+0.033) 0.29ng m

response 5999

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	125.02
41.00	151.90	409.22#
0.00	0.00	0.00

IPC

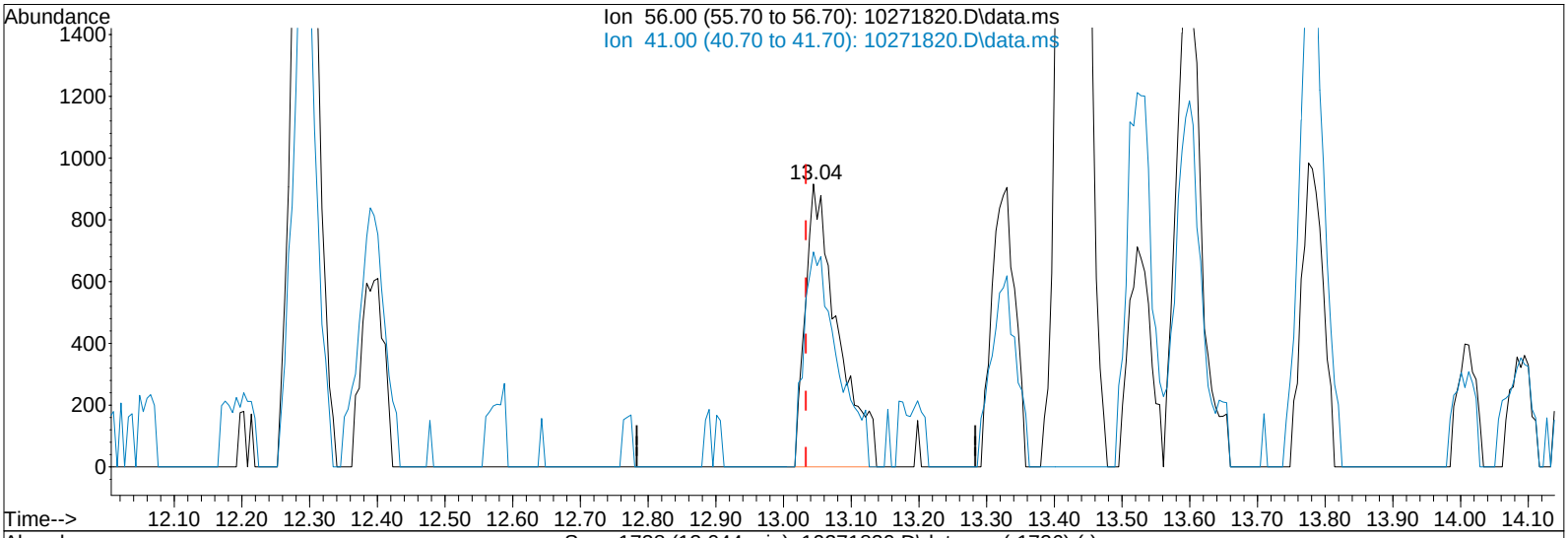
10/30/18

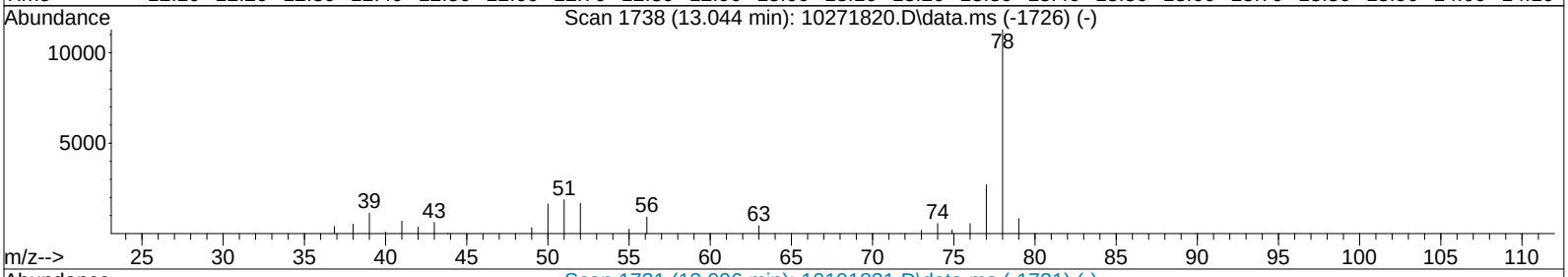
10/30/18

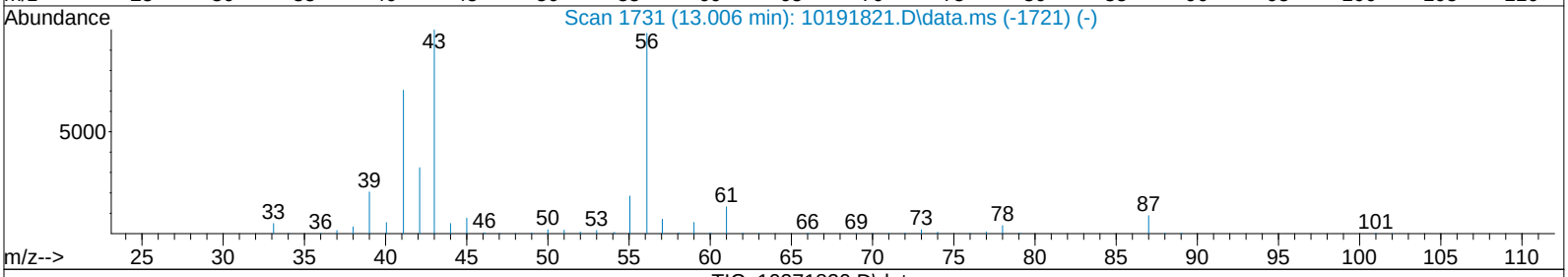
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271820.D
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 29 11:44:39 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271820.D\data.ms

(40) 1-Butanol (T)

13.044min (+0.011) 0.16ng m

response 3040

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

IC-

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271820.D
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 11 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:42:10 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

WA 10/30/18

DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

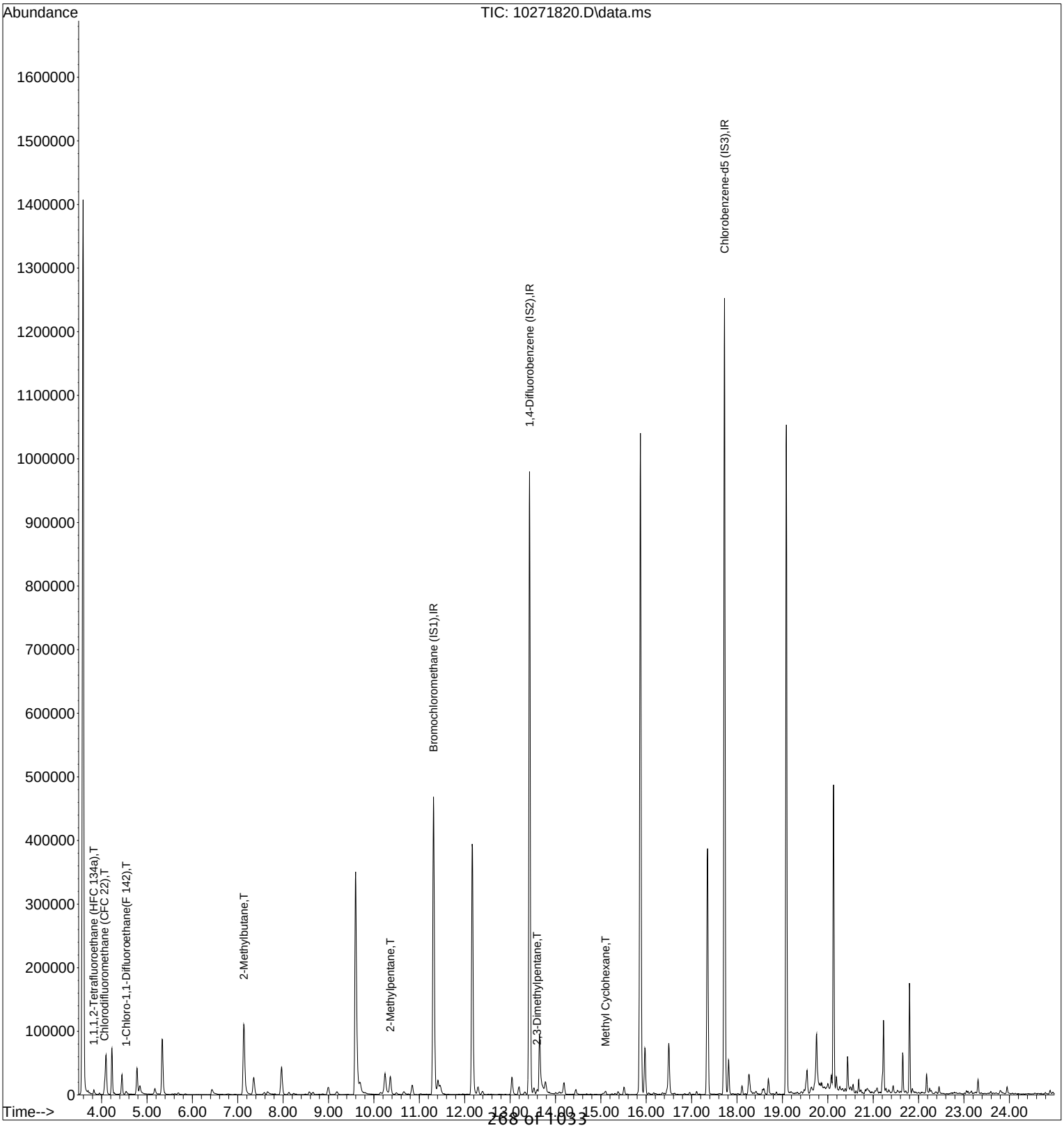
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	222897	12.500 ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	952832	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	410354	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	695	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	4661	0.209 ng	#	56
4) 1,1-Difluoroethane	3.95	65	761	N.D.		
5) Chlorodifluoromethane ...	4.06	67	1821	0.275 ng		68
6) 1-Chloro-1,1-Difluoroe...	4.54	65	3848	0.079 ng	#	95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.13	57	32792	1.801 ng		87
11) Methyl Acetate	8.63	43	925	N.D.		
12) 2-Methylpentane	10.36	71	8371	0.442 ng	#	70
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	13.19	84	1255	N.D.		
17) 2,3-Dimethylpentane	13.59	56	4155	0.121 ng	#	76
18) Dibromomethane	13.86	174	188	N.D.		
20) Methyl Cyclohexane	15.10	55	2685	0.103 ng	#	67
21) 1,3-Dichloropropane	15.98	76	108	N.D.		
22) 1,1,1,2-Tetrachloroethane	17.81	131	233	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	19.20	77	234	N.D.		
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	0.00	91	0	N.D. d		
28) Indan	20.73	117	1437	N.D.		
29) Indene	20.81	115	358	N.D.		
30) 1,2,4,5-Tetramethylben...	21.60	119	1000	N.D.		
31) 1,2,3,4-Tetramethylben...	21.60	119	1000	N.D.		
32) 1,2,3,5-Tetramethylben...	21.94	119	855	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271820.D
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 11 Sample Multiplier: 1

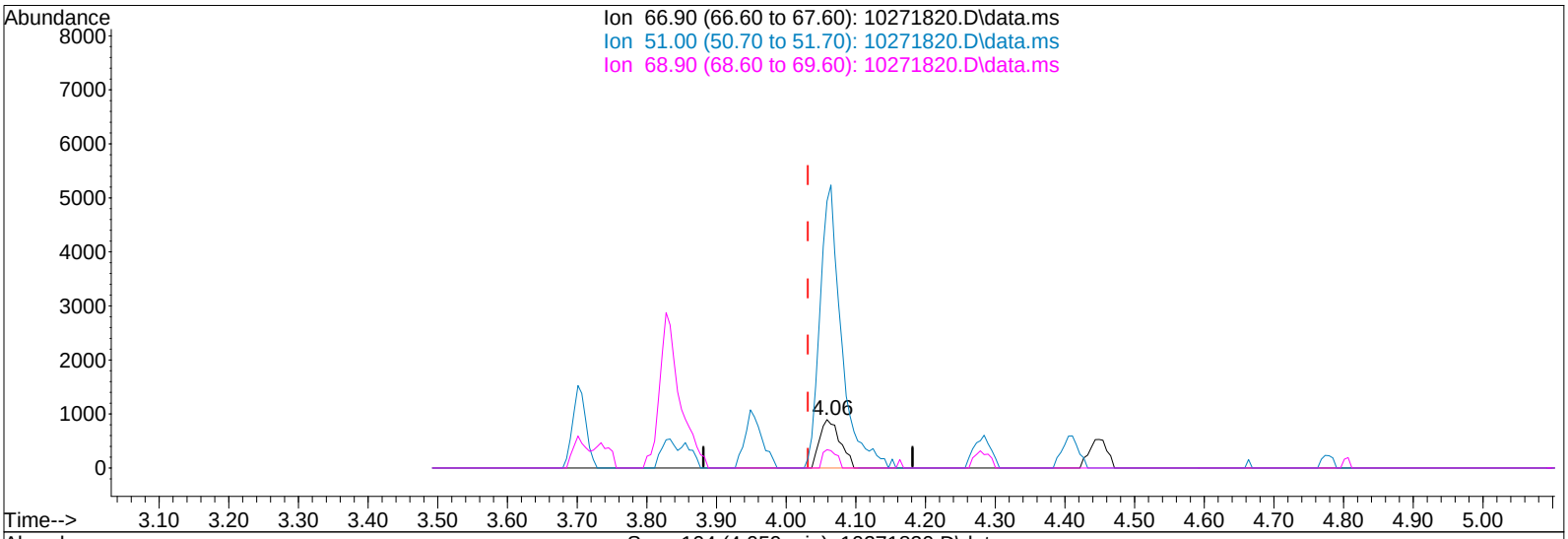
Quant Time: Oct 29 14:42:10 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

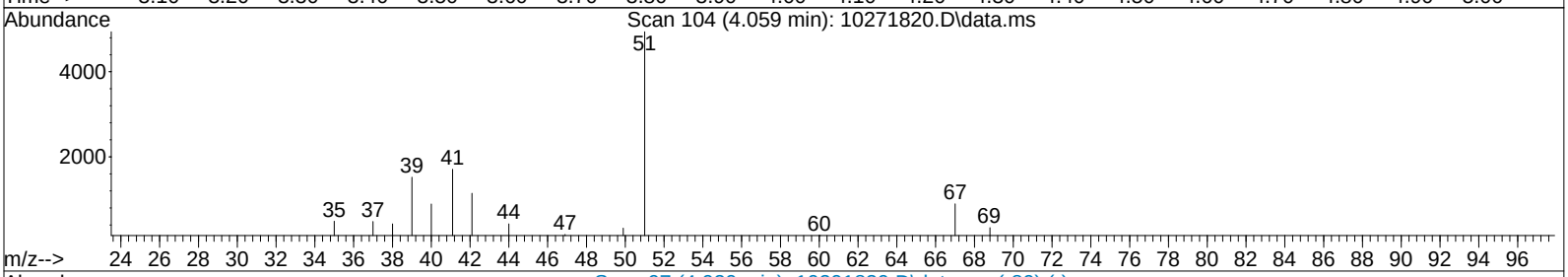


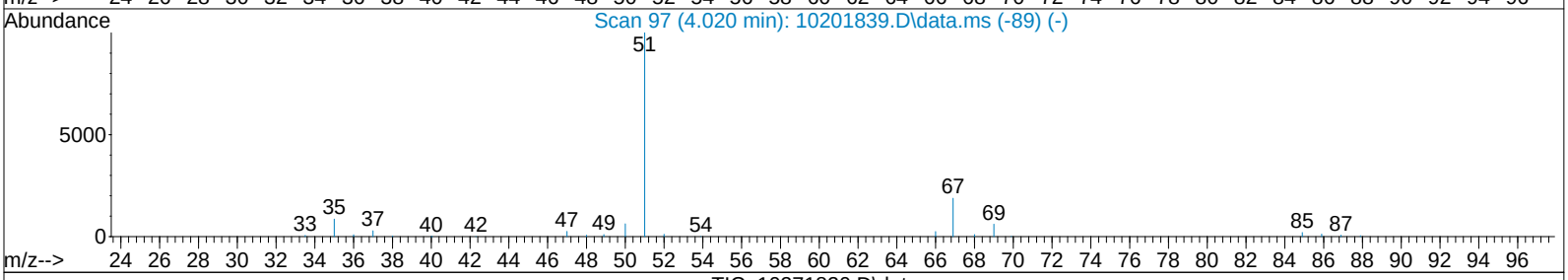
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271820.D
Acq On : 27 Oct 2018 15:37 Operator: WA
Sample : P1805497-007 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 29 14:41:40 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271820.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.028) 0.27ng

response 1821

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	620.26
68.90	31.80	25.86
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 14:08:50 2018 TD 10/29/18
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018 VOA 10/30/18
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	225651	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	918327	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	399014	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	321971	11.861	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
57) Toluene-d8 (SS2)	15.87	98	812006	12.779	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
73) Bromofluorobenzene (SS3)	19.09	174	337075	11.670	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.36%				
Target Compounds							Qvalue
2) Propene	4.06	42	18323m	0.873	ng		
3) Dichlorodifluoromethan...	4.23	85	68328	1.448	ng		99
4) Chloromethane	4.54	50	2763	0.092	ng		80
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1879	0.067	ng		87
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.26	54	1697	0.080	ng		91
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.43	45	17575	1.385	ng		98
11) Acetonitrile	6.74	41	7022	0.211	ng		92
12) Acrolein	6.93	56	1528	0.136	ng		98
13) Acetone	7.11	58	67474	4.456	ng	#	69
14) Trichlorofluoromethane	7.35	101	30554	0.748	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	148252	3.053	ng		95
16) Acrylonitrile	7.97	53	1057	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.62	59	567	N.D.			
19) Methylene Chloride	8.57	84	7435	0.351	ng		99
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	8.99	151	6323	0.291	ng		100
22) Carbon Disulfide	8.86	76	11724	0.155	ng		96
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.64	72	6663	0.497	ng		93
28) cis-1,2-Dichloroethene	11.15	61	519	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.	d		
31) n-Hexane	11.41	57	15024	0.459	ng		90
32) Chloroform	11.48	83	2627	0.069	ng		96
34) Tetrahydrofuran (THF)	11.92	72	1207	0.089	ng	#	66
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.28	62	990	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	9640m	0.519	ng		
41) Benzene	13.04	78	30593	0.362	ng		99
42) Carbon Tetrachloride	13.20	117	8704	0.272	ng		99
43) Cyclohexane	13.32	84	3808	0.116	ng	#	75
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	13.73	63	175	N.D.			
46) Bromodichloromethane	14.08	83	399	N.D.			
47) Trichloroethene	14.13	130	559	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 14:08:50 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d		
50) Methyl Methacrylate	0.00	100	0	N.D. d		
51) n-Heptane	14.44	71	3016	0.155 ng	#	76
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	1256	0.074 ng	#	51
54) trans-1,3-Dichloropropene	15.50	75	460	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	89146	1.010 ng		99
59) 2-Hexanone	16.21	43	5898	0.146 ng		88
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	3204	0.073 ng	#	73
63) n-Octane	16.95	57	1422	0.085 ng	#	76
64) Tetrachloroethene	17.11	166	1680	0.062 ng		96
65) Chlorobenzene	17.77	112	213	N.D.		
66) Ethylbenzene	18.11	91	16219	0.161 ng		98
67) m- & p-Xylenes	18.26	91	42759	0.570 ng		100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.59	104	3242	0.053 ng		98
70) o-Xylene	18.69	91	16216	0.213 ng		97
71) n-Nonane	18.87	43	2107	0.060 ng		94
72) 1,1,2,2-Tetrachloroethane	18.69	83	739	N.D.		
74) Cumene	19.20	105	1326	N.D.		
75) alpha-Pinene	19.54	93	21942	0.423 ng	#	1
76) n-Propylbenzene	19.64	91	5160	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.77	105	5714	0.063 ng		94
79) 1,3,5-Trimethylbenzene	19.83	105	4582	0.055 ng		95
80) alpha-Methylstyrene	19.97	118	134	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.19	105	16710	0.204 ng		88
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	20.38	91	783	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
86) 1,4-Dichlorobenzene	20.39	146	14708	0.285 ng		99
87) sec-Butylbenzene	20.43	105	1493	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	6366	0.214 ng	#	64
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.28	128	15416	0.131 ng		100
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	20.19	119	2365	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Acq On : 27 Oct 2018 16:12 Operator: WA
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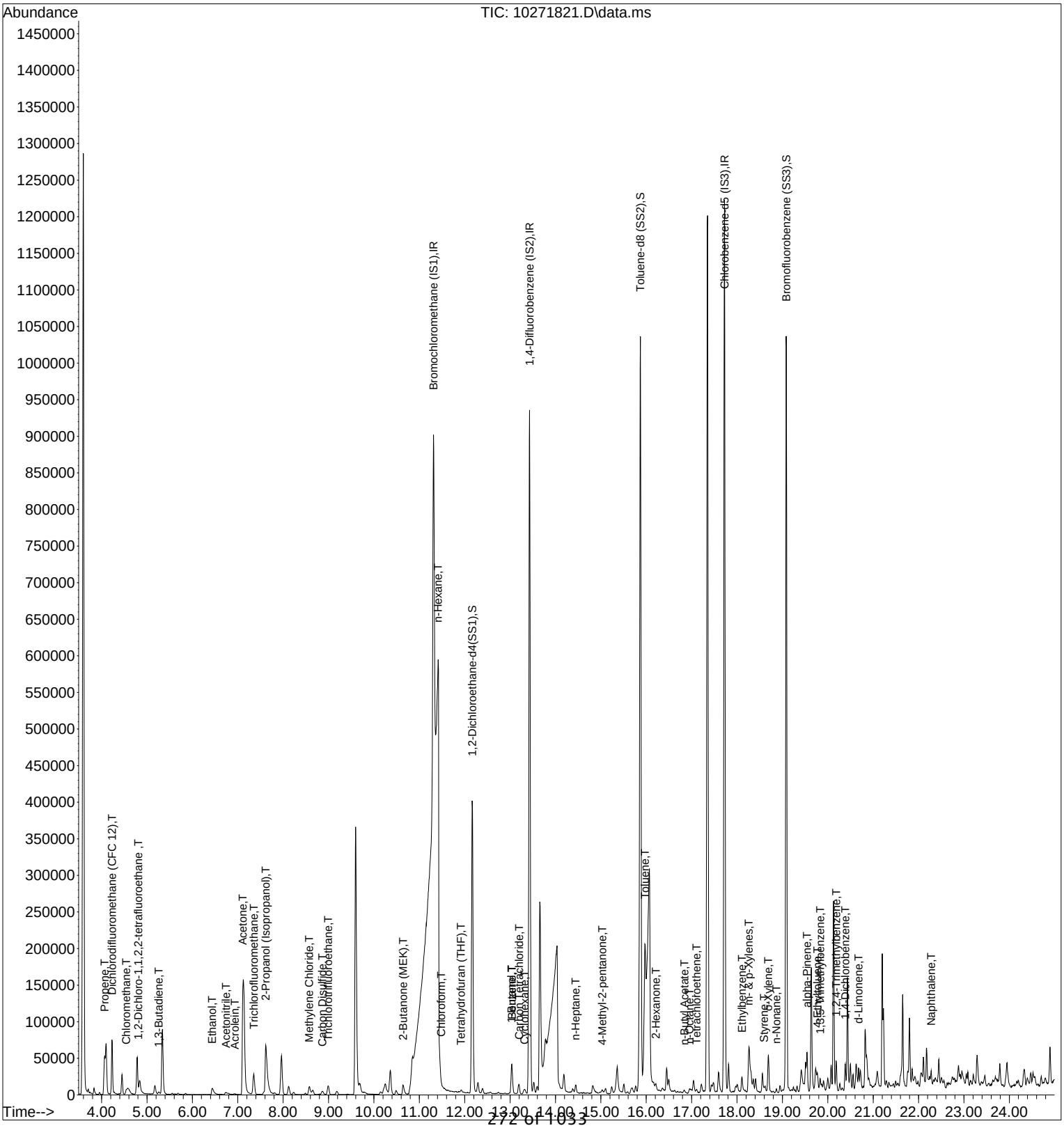
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 14:08:50 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES



Quantitation Report (QT Reviewed)

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Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
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DataAcq Meth:TO15.M
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TD 10/29/18

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37) 1,4-Difluorobenzene (IS2)	13.43	114	918327	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	399014	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	321971	11.861	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
57) Toluene-d8 (SS2)	15.87	98	812006	12.779	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.24%				
73) Bromofluorobenzene (SS3)	19.09	174	337075	11.670	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.36%				
Target Compounds							Qvalue
2) Propene	4.06	42	18323m	0.873	ng		
3) Dichlorodifluoromethan...	4.23	85	68328	1.448	ng		99
4) Chloromethane	4.54	50	2763	0.092	ng		80
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1879	0.067	ng		87
7) 1,3-Butadiene	5.26	54	1697	0.080	ng		91
10) Ethanol	6.43	45	17575	1.385	ng		98
11) Acetonitrile	6.74	41	7022	0.211	ng		92
12) Acrolein	6.93	56	1528	0.136	ng		98
13) Acetone	7.11	58	67474	4.456	ng	#	69
14) Trichlorofluoromethane	7.35	101	30554	0.748	ng		99
15) 2-Propanol (Isopropanol)	7.62	45	148252	3.053	ng		95
19) Methylene Chloride	8.57	84	7435	0.351	ng		99
21) Trichlorotrifluoroethane	8.99	151	6323	0.291	ng		100
22) Carbon Disulfide	8.86	76	11724	0.155	ng		96
27) 2-Butanone (MEK)	10.64	72	6663	0.497	ng		93
31) n-Hexane	11.41	57	15024	0.459	ng		90
32) Chloroform	11.48	83	2627	0.069	ng		96
34) Tetrahydrofuran (THF)	11.92	72	1207	0.089	ng	#	66
40) 1-Butanol	13.03	56	9640m	0.519	ng		
41) Benzene	13.04	78	30593	0.362	ng		99
42) Carbon Tetrachloride	13.20	117	8704	0.272	ng		99
43) Cyclohexane	13.32	84	3808	0.116	ng	#	75
51) n-Heptane	14.44	71	3016	0.155	ng	#	76
53) 4-Methyl-2-pentanone	15.03	58	1256	0.074	ng	#	51
58) Toluene	15.97	91	89146	1.010	ng		99
59) 2-Hexanone	16.21	43	5898	0.146	ng		88
62) n-Butyl Acetate	16.84	43	3204	0.073	ng	#	73
63) n-Octane	16.95	57	1422	0.085	ng	#	76
64) Tetrachloroethene	17.11	166	1680	0.062	ng		96
66) Ethylbenzene	18.11	91	16219	0.161	ng		98
67) m- & p-Xylenes	18.26	91	42759	0.570	ng		100
69) Styrene	18.59	104	3242	0.053	ng		98
70) o-Xylene	18.69	91	16216	0.213	ng		97
71) n-Nonane	18.87	43	2107	0.060	ng		94
75) alpha-Pinene	19.54	93	21942	0.423	ng	#	1
78) 4-Ethyltoluene	19.77	105	5714	0.063	ng		94
79) 1,3,5-Trimethylbenzene	19.83	105	4582	0.055	ng		95
82) 1,2,4-Trimethylbenzene	20.19	105	16710	0.204	ng		88
86) 1,4-Dichlorobenzene	20.39	146	14708	0.285	ng		99
91) d-Limonene	20.68	68	6366	0.214	ng	#	64
95) Naphthalene	22.28	128	15416	0.131	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Data File: I:\MS16\DATA\2018_10\27\10271821.D
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Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

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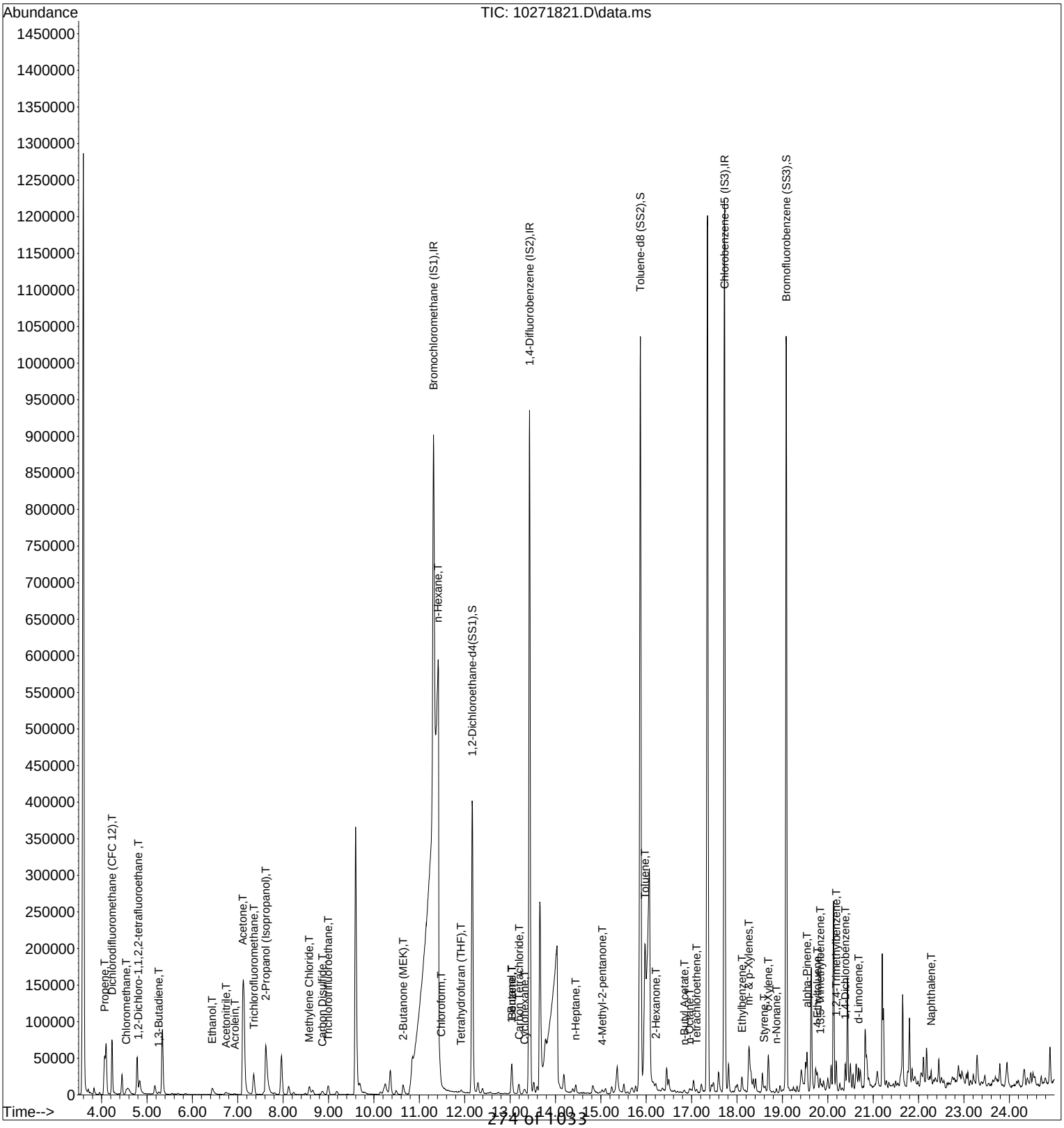
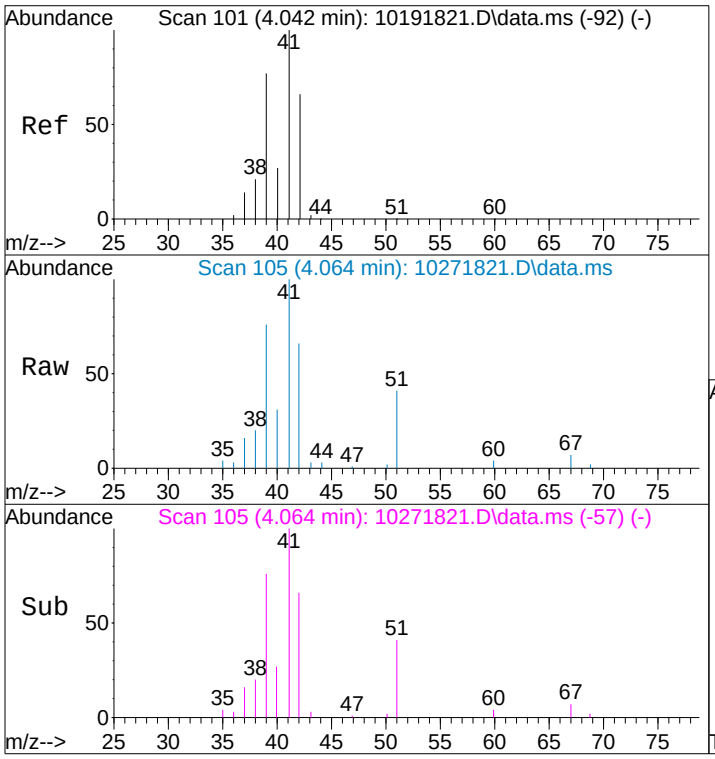
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES

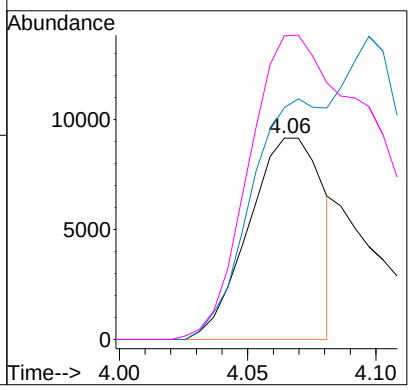


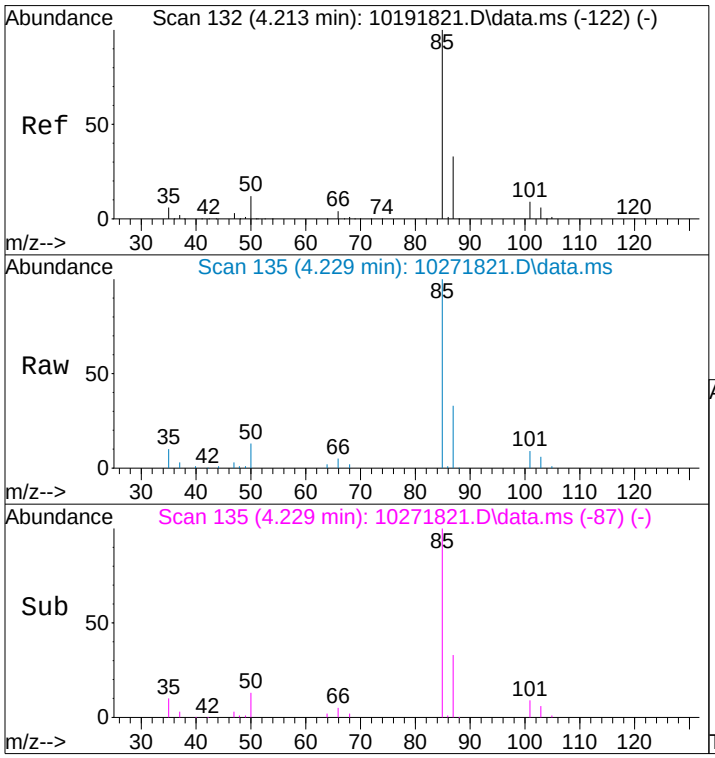


#2
Propene
Concen: 0.87 ng m
RT: 4.06 min Scan# 105
Delta R.T. 0.017 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 42 Resp: 18323

Ion	Ratio	Lower	Upper
42	100		
39	123.5	98.5	138.5
41	269.7	131.9	171.9#

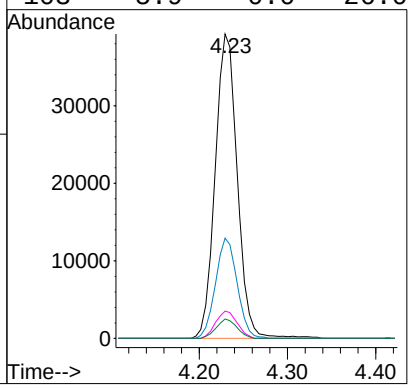


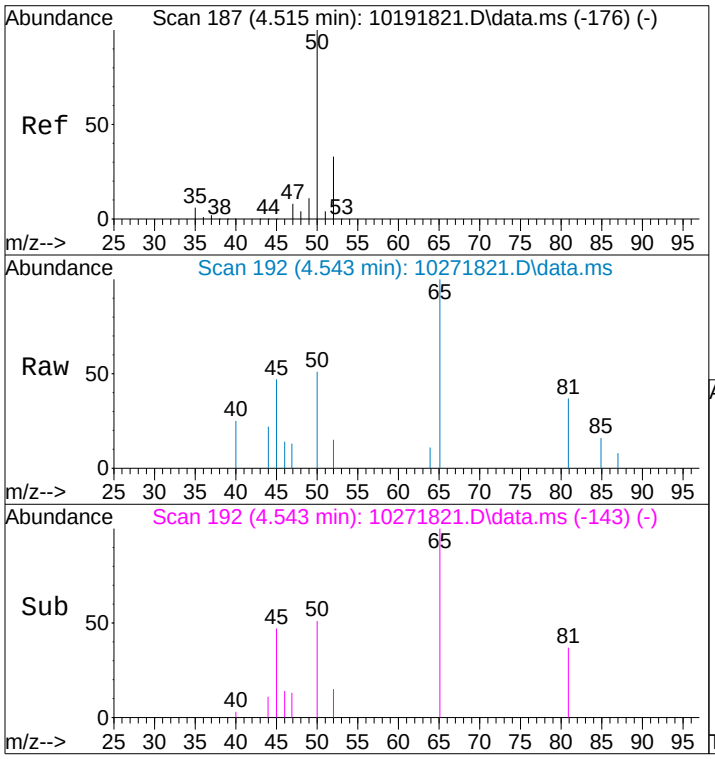


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.45 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.017 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 85 Resp: 68328

Ion	Ratio	Lower	Upper
85	100		
87	32.2	12.6	52.6
101	8.7	0.0	29.4
103	5.9	0.0	26.0

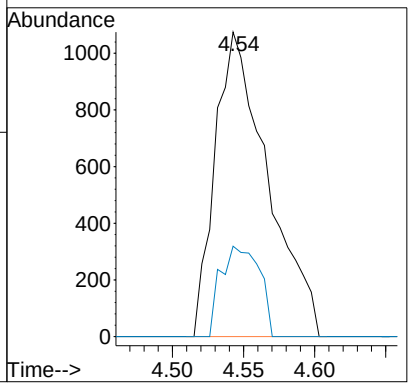


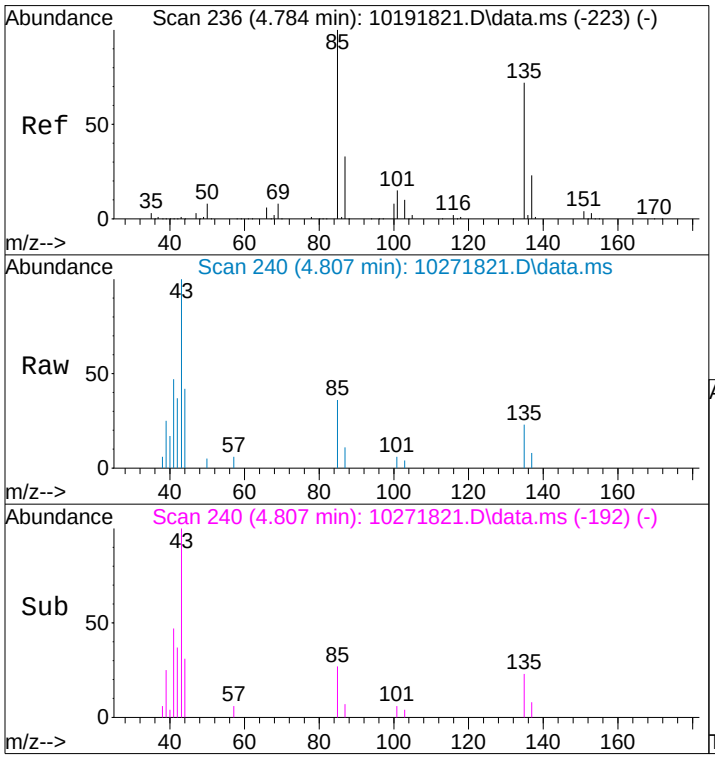


#4
Chloromethane
Concen: 0.09 ng
RT: 4.54 min Scan# 192
Delta R.T. 0.022 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 50 Resp: 2763

Ion	Ratio	Lower	Upper
50	100		
52	21.8	13.2	53.2

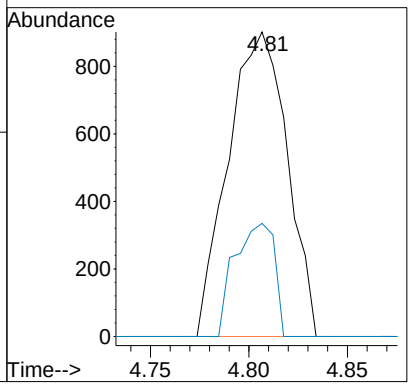


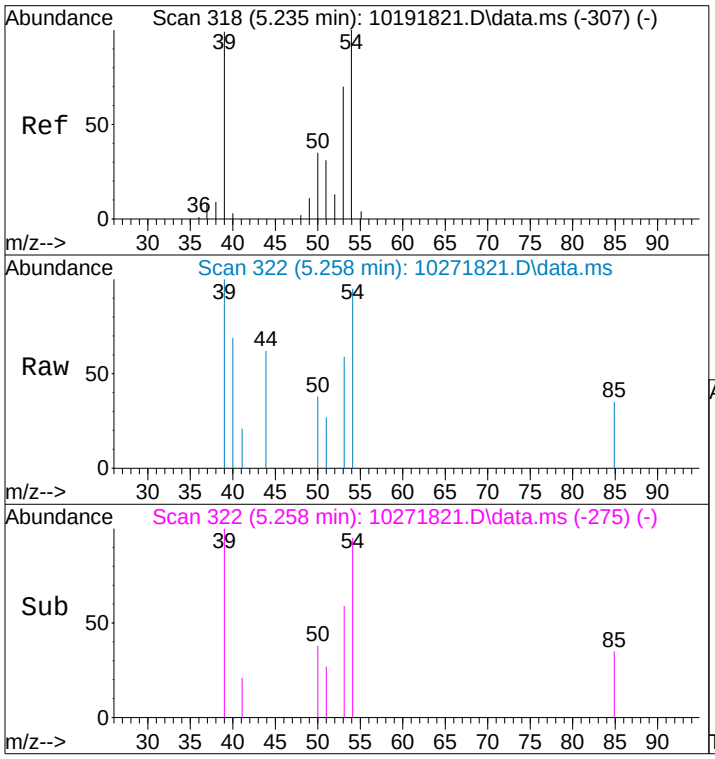


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.81 min Scan# 240
Delta R.T. 0.017 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:135 Resp: 1879

Ion	Ratio	Lower	Upper
135	100		
137	25.1	12.3	52.3

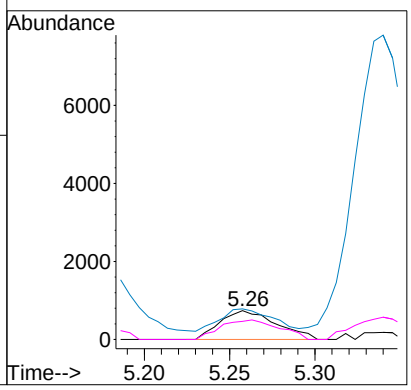


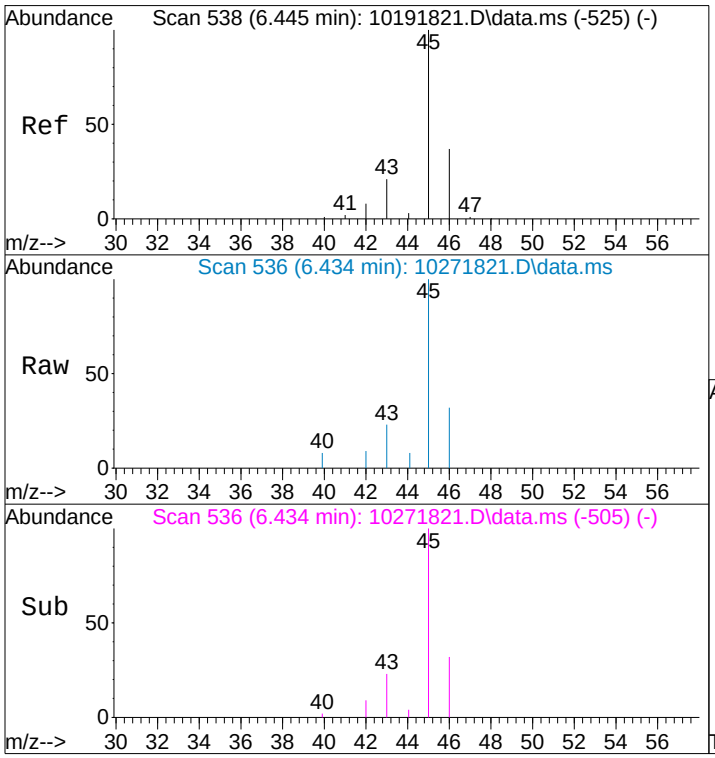


#7
1,3-Butadiene
Concen: 0.08 ng
RT: 5.26 min Scan# 322
Delta R.T. 0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 54 Resp: 1697

Ion	Ratio	Lower	Upper
54	100		
39	115.3	80.8	120.8
53	70.9	49.9	89.9

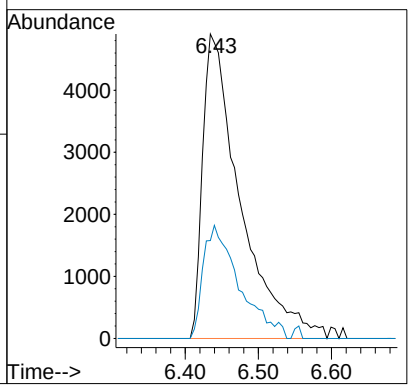


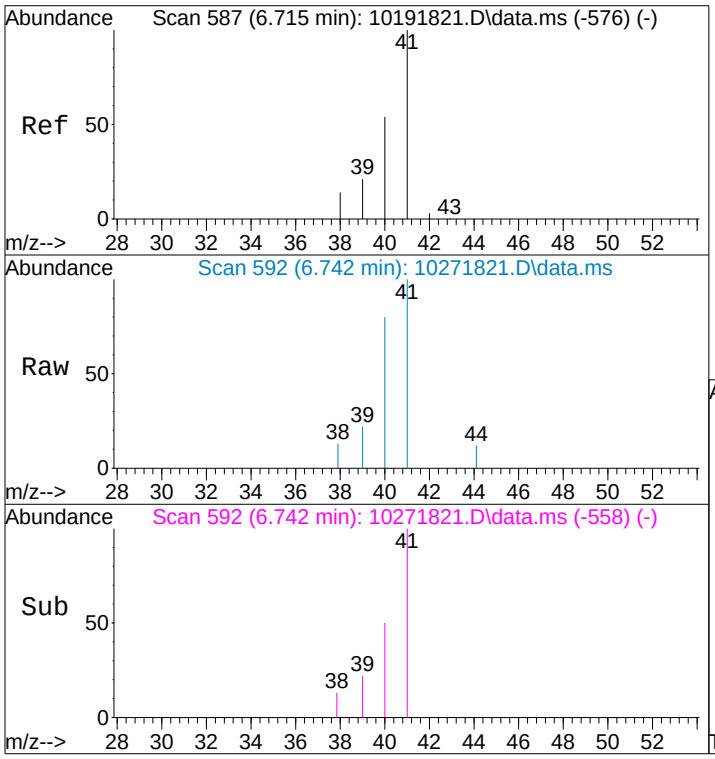


#10
Ethanol
Concen: 1.38 ng
RT: 6.43 min Scan# 536
Delta R.T. -0.077 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 45 Resp: 17575

Ion	Ratio	Lower	Upper
45	100		
46	35.6	16.6	56.6

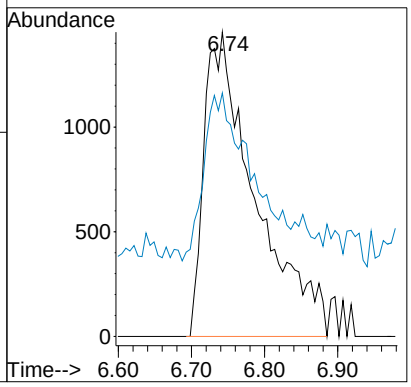


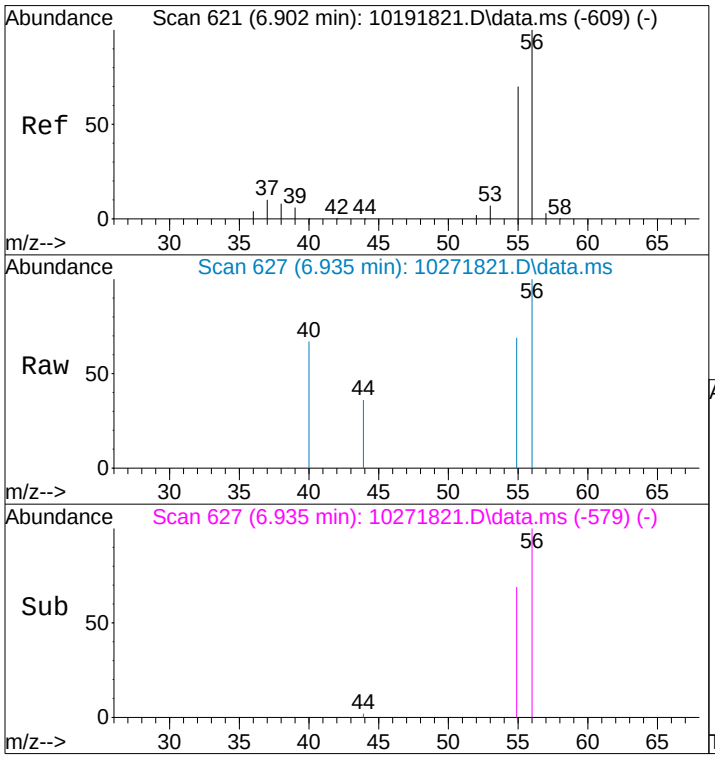


#11
Acetonitrile
Concen: 0.21 ng
RT: 6.74 min Scan# 592
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 41 Resp: 7022

Ion	Ratio	Lower	Upper
41	100		
40	59.8	34.2	74.2

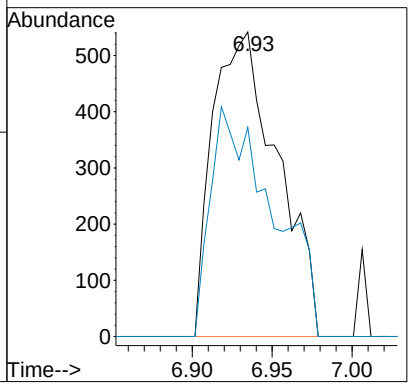


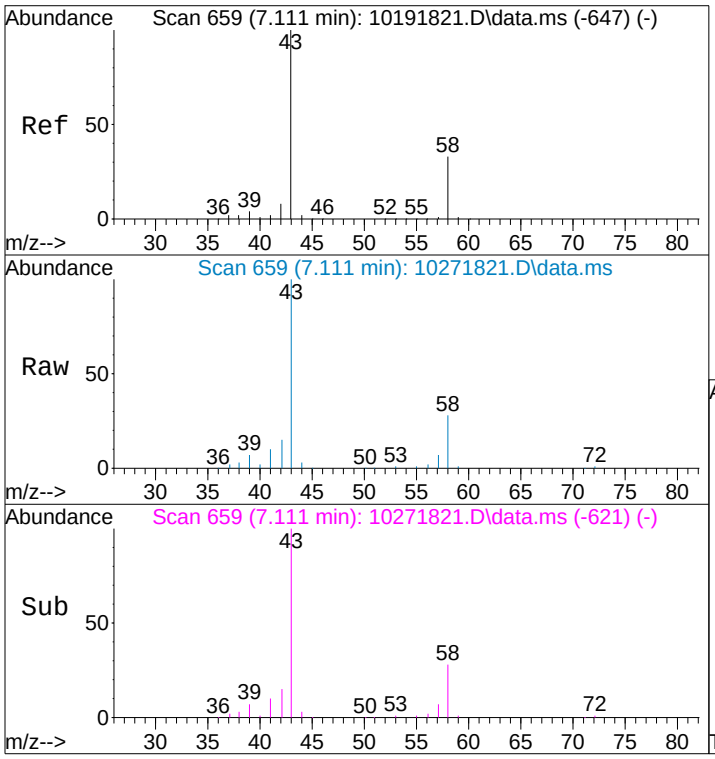


#12
Acrolein
Concen: 0.14 ng
RT: 6.93 min Scan# 627
Delta R.T. 0.017 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 56 Resp: 1528

Ion	Ratio	Lower	Upper
56	100		
55	72.3	51.0	91.0

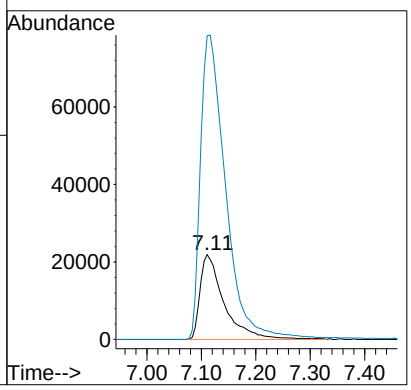


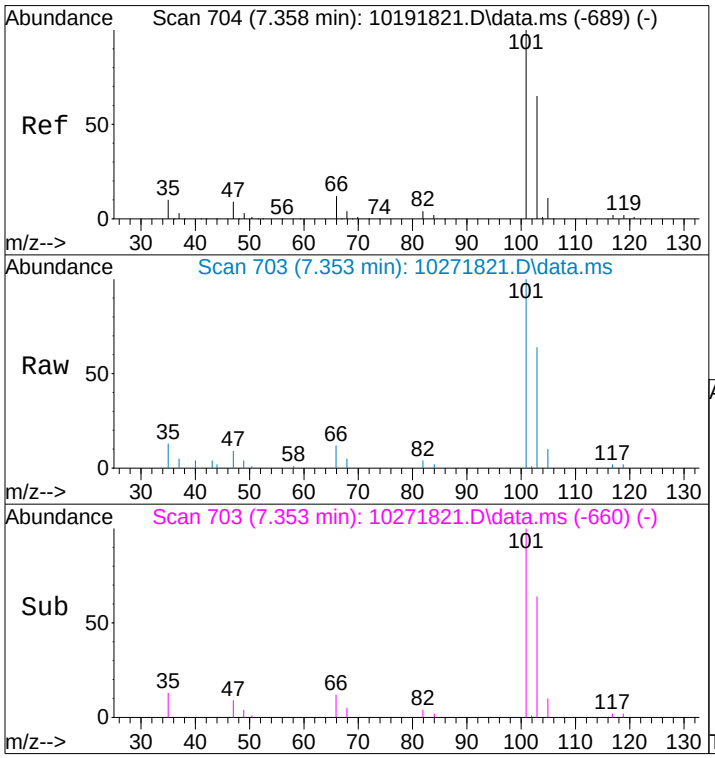


#13
Acetone
Concen: 4.46 ng
RT: 7.11 min Scan# 659
Delta R.T. -0.038 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 58 Resp: 67474

Ion	Ratio	Lower	Upper
58	100		
43	375.8	283.4	343.4#

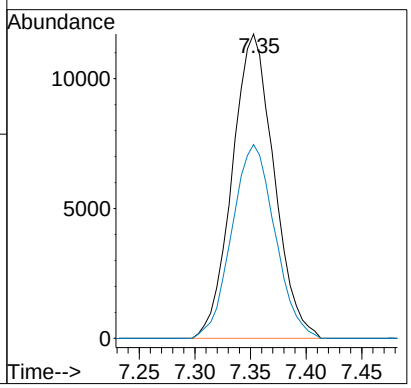


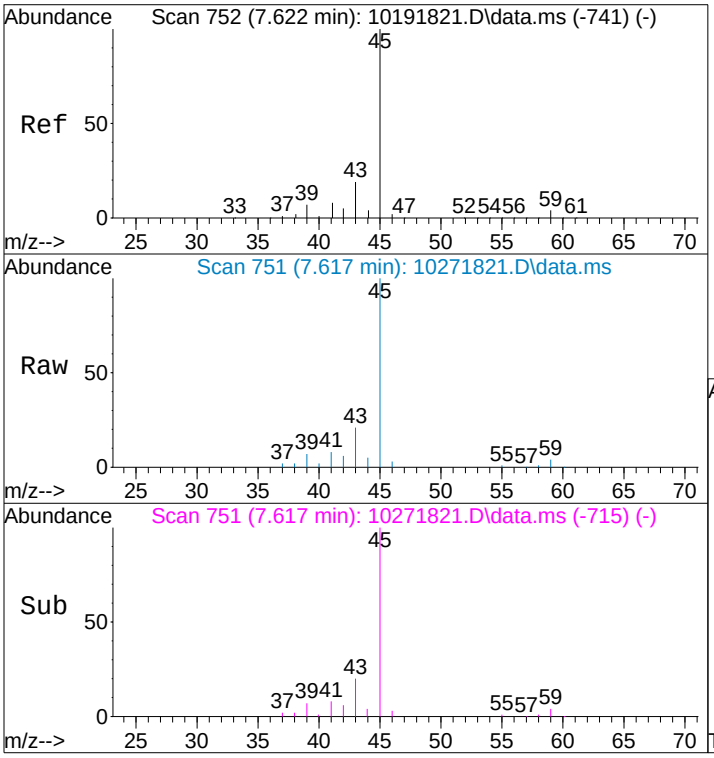


#14
Trichlorofluoromethane
Concen: 0.75 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:101 Resp: 30554

Ion	Ratio	Lower	Upper
101	100		
103	65.6	44.8	84.8

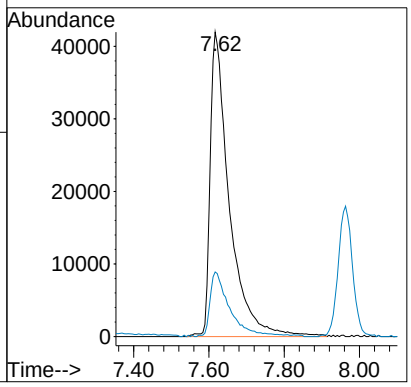


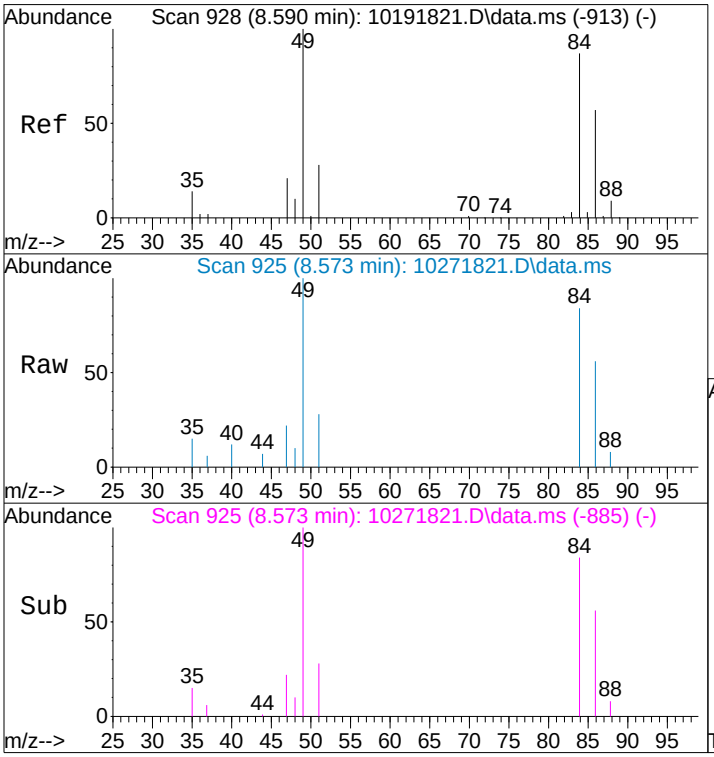


#15
2-Propanol (Isopropanol)
Concen: 3.05 ng
RT: 7.62 min Scan# 751
Delta R.T. -0.049 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 45 Resp: 148252

Ion	Ratio	Lower	Upper
45	100		
43	22.1	0.0	39.6

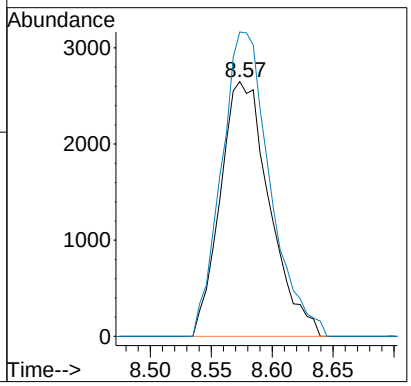


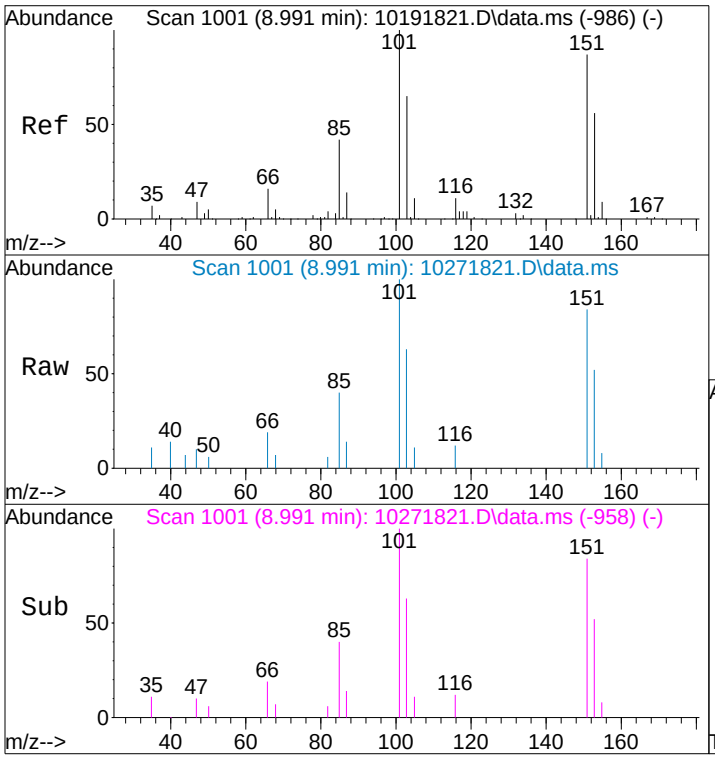


#19
Methylene Chloride
Concen: 0.35 ng
RT: 8.57 min Scan# 925
Delta R.T. -0.027 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 84 Resp: 7435

Ion	Ratio	Lower	Upper
84	100		
49	118.3	92.1	142.1

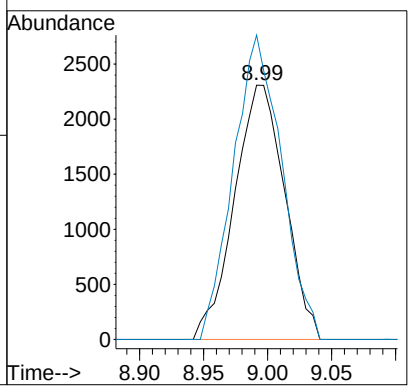


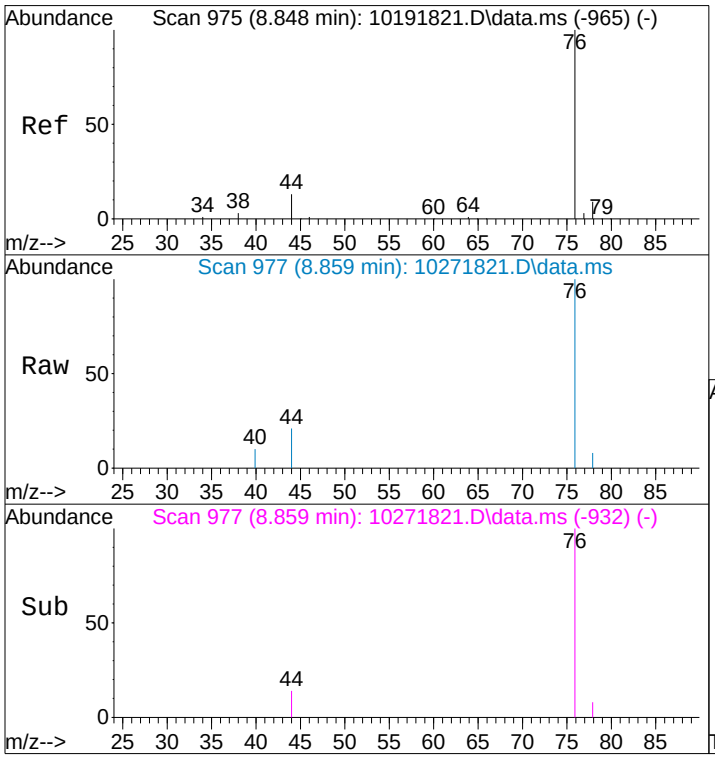


#21
Trichlorotrifluoroethane
Concen: 0.29 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:151 Resp: 6323

Ion	Ratio	Lower	Upper
151	100		
101	114.5	94.4	134.4

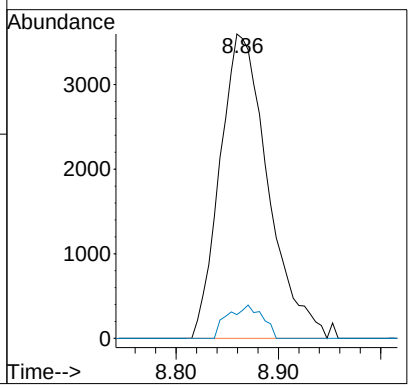


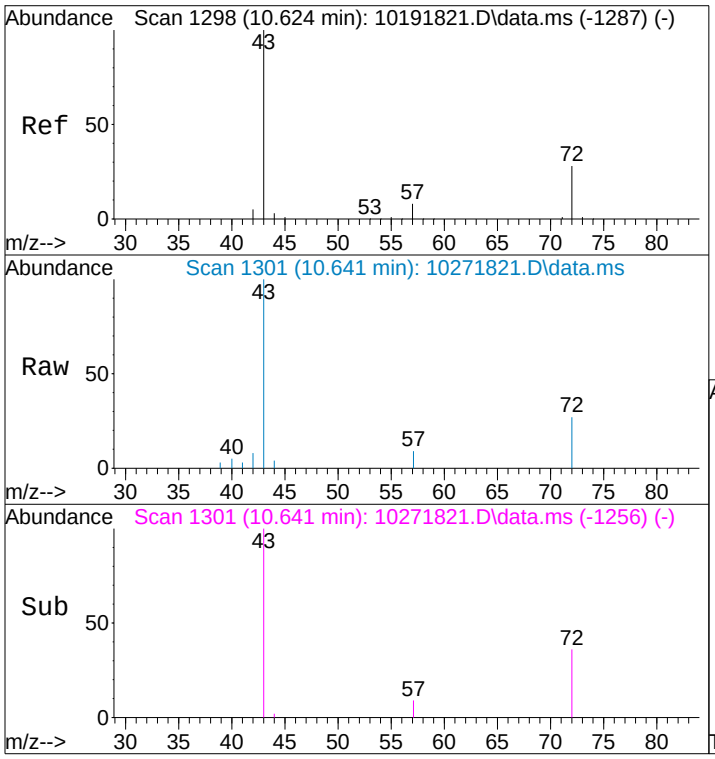


#22
Carbon Disulfide
Concen: 0.16 ng
RT: 8.86 min Scan# 977
Delta R.T. 0.000 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 76 Resp: 11724

Ion	Ratio	Lower	Upper
76	100		
78	7.9	0.0	29.3

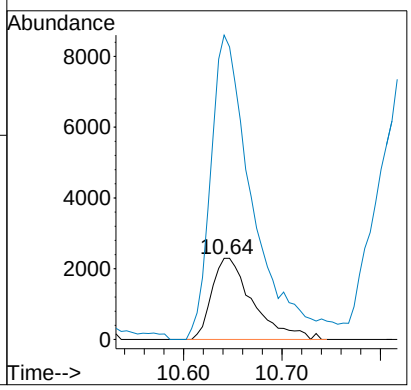


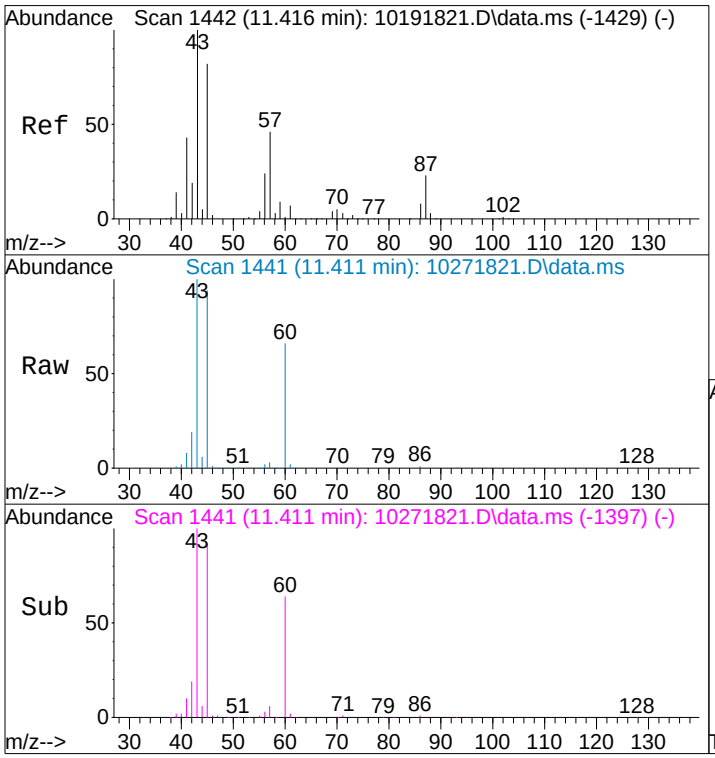


#27
2-Butanone (MEK)
Concen: 0.50 ng
RT: 10.64 min Scan# 1301
Delta R.T. 0.000 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 72 Resp: 6663

Ion	Ratio	Lower	Upper
72	100		
43	386.3	350.1	390.1

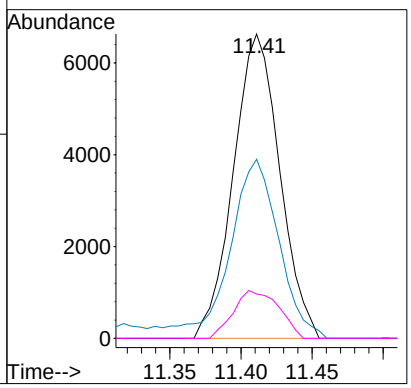


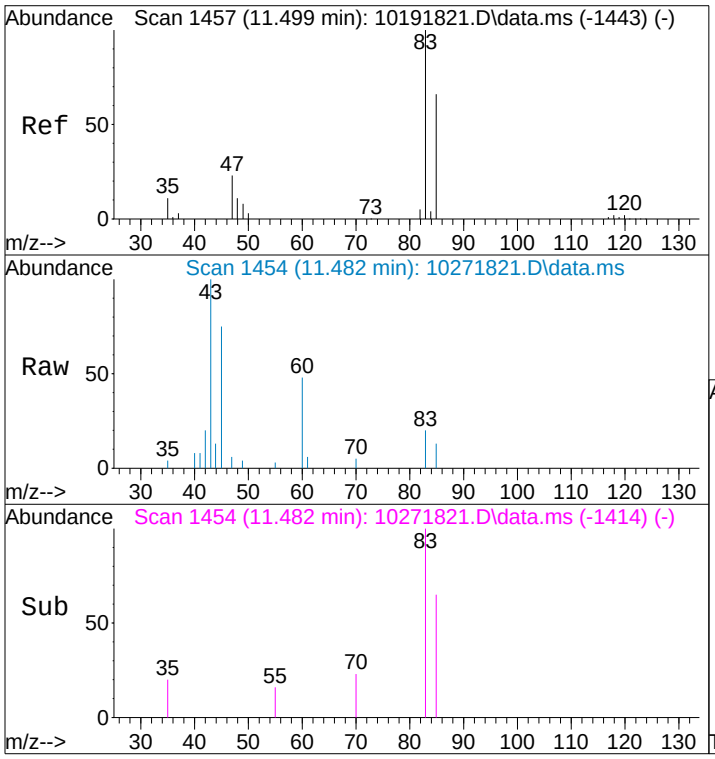


#31
n-Hexane
Concen: 0.46 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 57 Resp: 15024

Ion	Ratio	Lower	Upper
57	100		
56	60.4	41.4	62.0
86	15.4	13.7	20.5

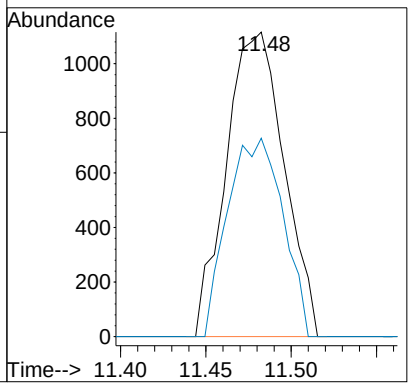


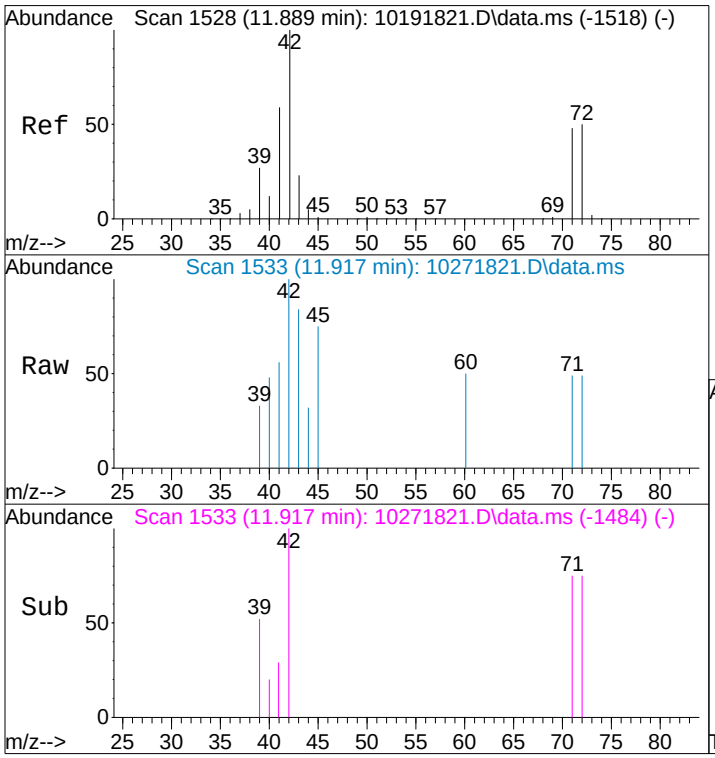


#32
Chloroform
Concen: 0.07 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 83 Resp: 2627

Ion	Ratio	Lower	Upper
83	100		
85	62.4	45.5	85.5

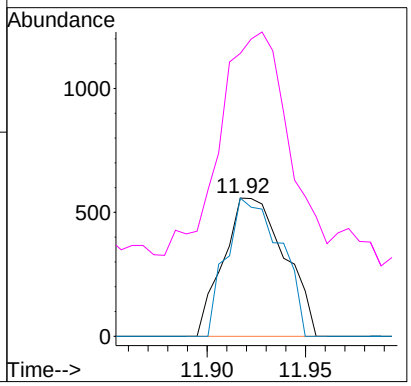


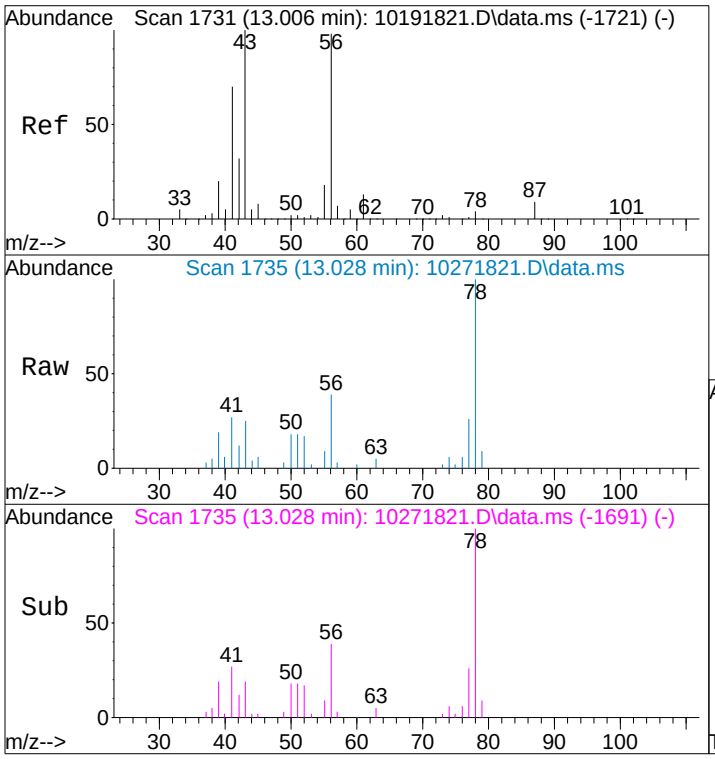


#34
Tetrahydrofuran (THF)
Concen: 0.09 ng
RT: 11.92 min Scan# 1533
Delta R.T. 0.022 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 72 Resp: 1207

Ion	Ratio	Lower	Upper
72	100		
71	88.2	77.2	117.2
42	271.9	181.3	221.3#

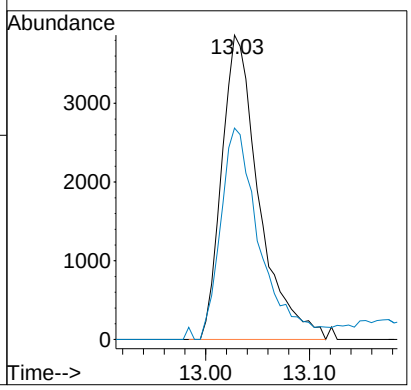


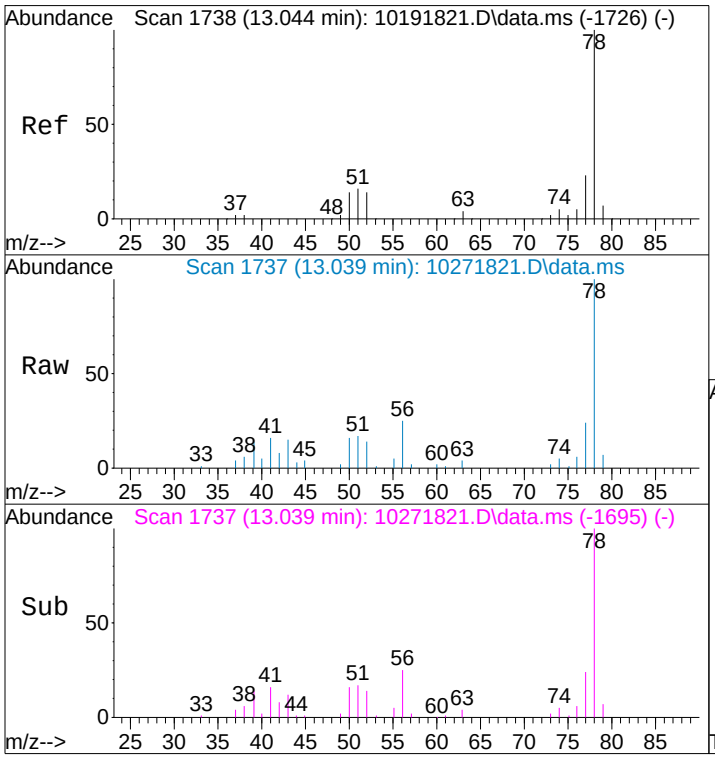


#40
1-Butanol
Concen: 0.52 ng m
RT: 13.03 min Scan# 1735
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 56 Resp: 9640

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

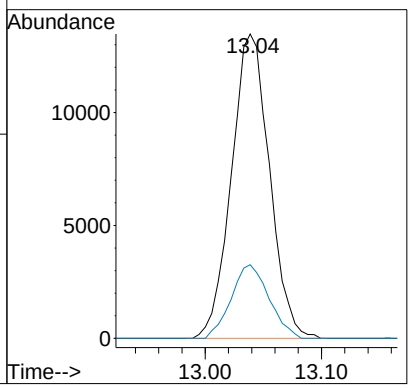


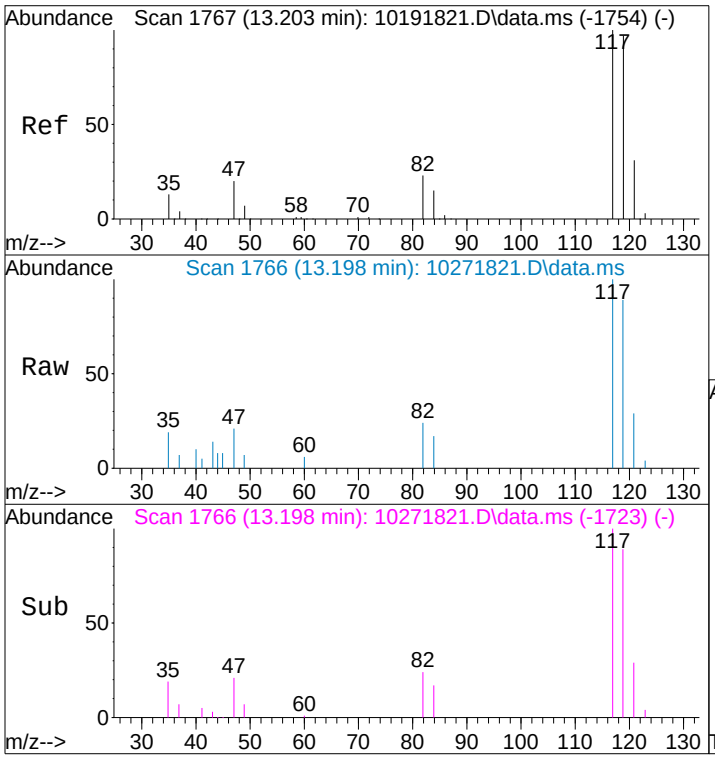


#41
Benzene
Concen: 0.36 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.016 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 78 Resp: 30593

Ion	Ratio	Lower	Upper
78	100		
77	24.0	3.5	43.5

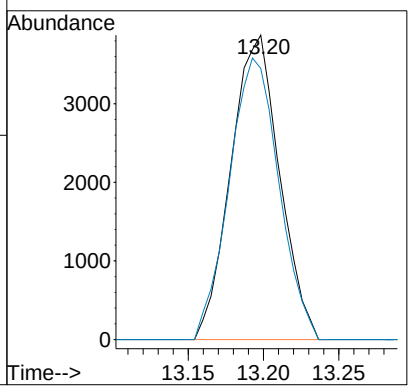


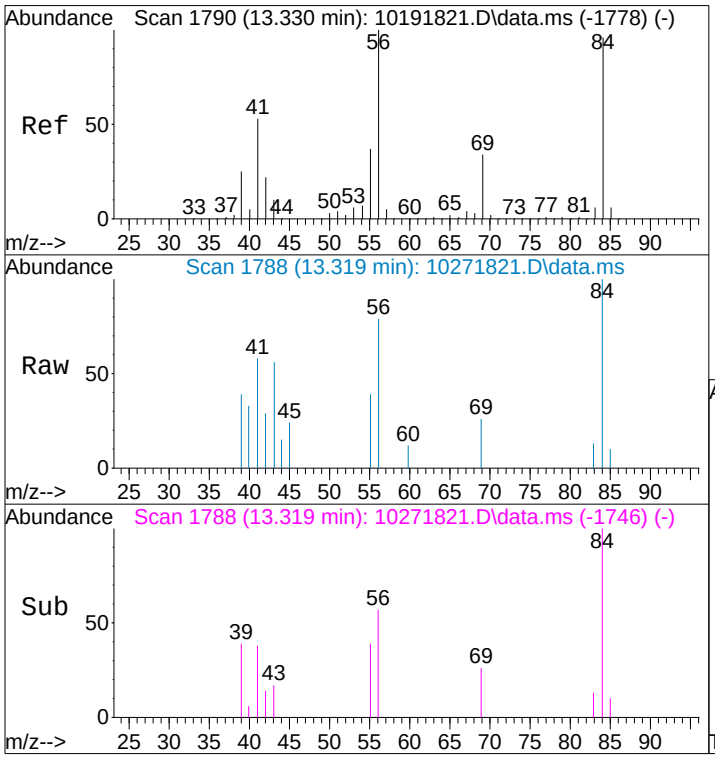


#42
Carbon Tetrachloride
Concen: 0.27 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:117 Resp: 8704

Ion	Ratio	Lower	Upper
117	100		
119	94.6	76.0	116.0

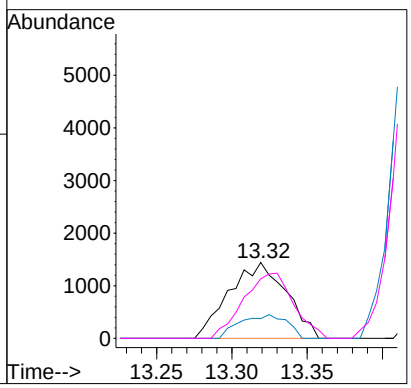


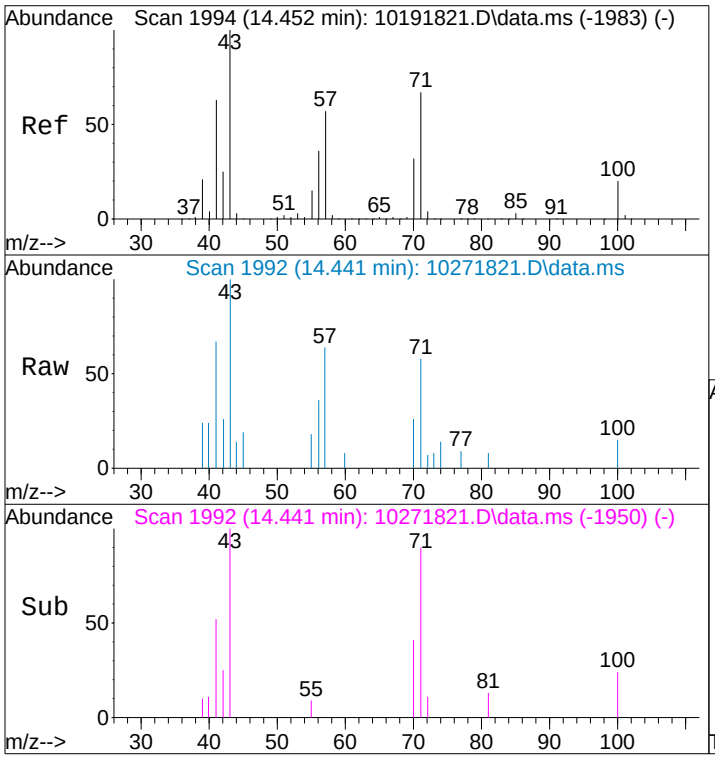


#43
Cyclohexane
Concen: 0.12 ng
RT: 13.32 min Scan# 1788
Delta R.T. -0.016 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 84 Resp: 3808

Ion	Ratio	Lower	Upper
84	100		
69	25.7	14.8	54.8
56	75.0	83.9	123.9#

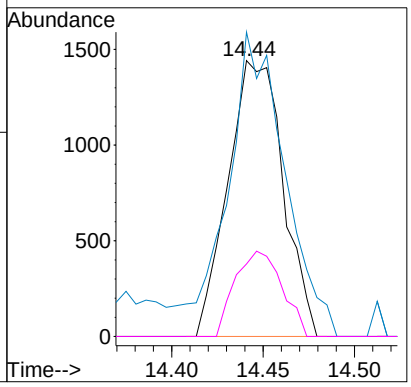


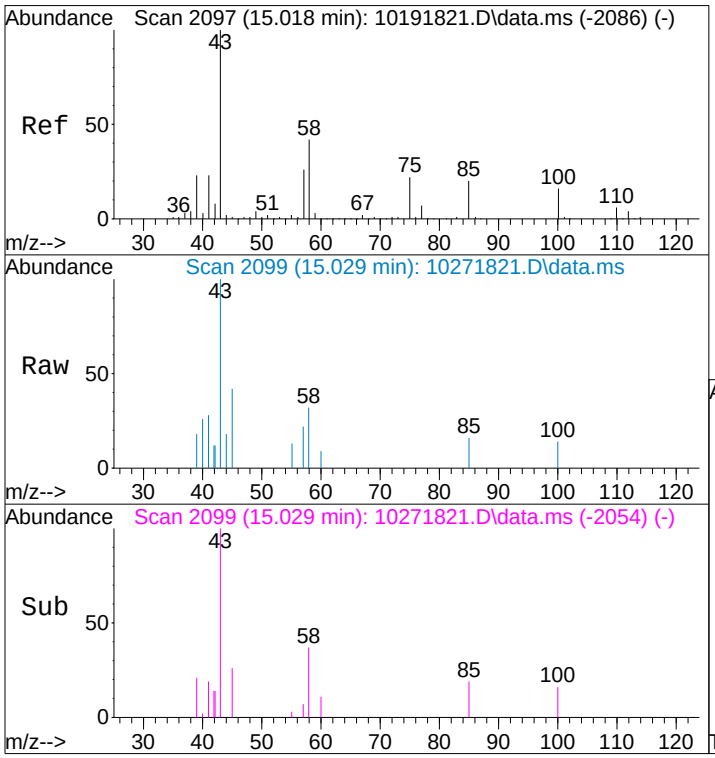


#51
n-Heptane
Concen: 0.16 ng
RT: 14.44 min Scan# 1992
Delta R.T. -0.016 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 71 Resp: 3016

Ion	Ratio	Lower	Upper
71	100		
57	114.3	66.4	106.4#
100	26.5	10.6	50.6

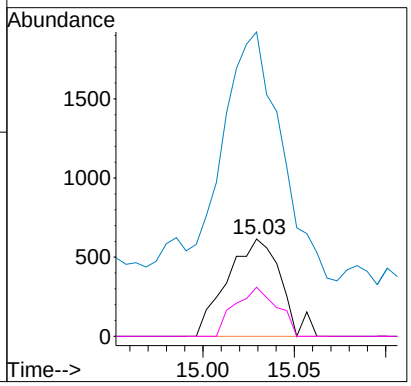


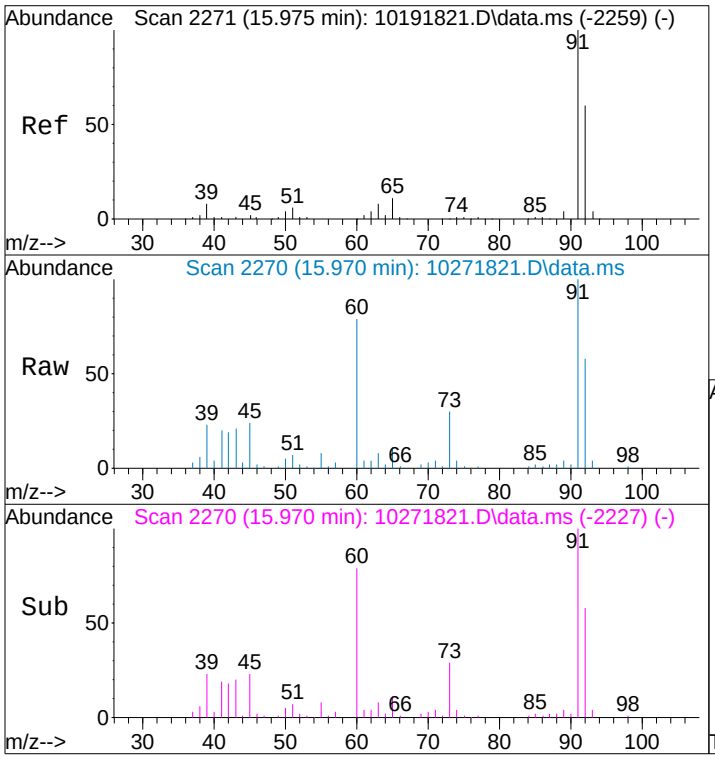


#53
4-Methyl-2-pentanone
Concen: 0.07 ng
RT: 15.03 min Scan# 2099
Delta R.T. 0.000 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 58 Resp: 1256

Ion	Ratio	Lower	Upper
58	100		
43	335.0	191.8	287.6#
85	39.7	39.7	59.5

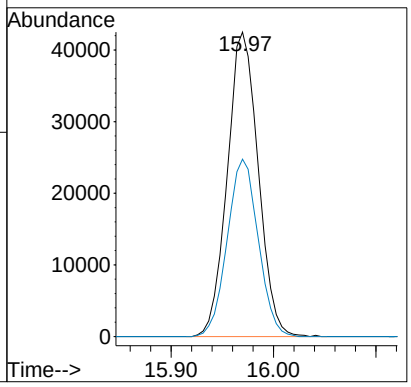


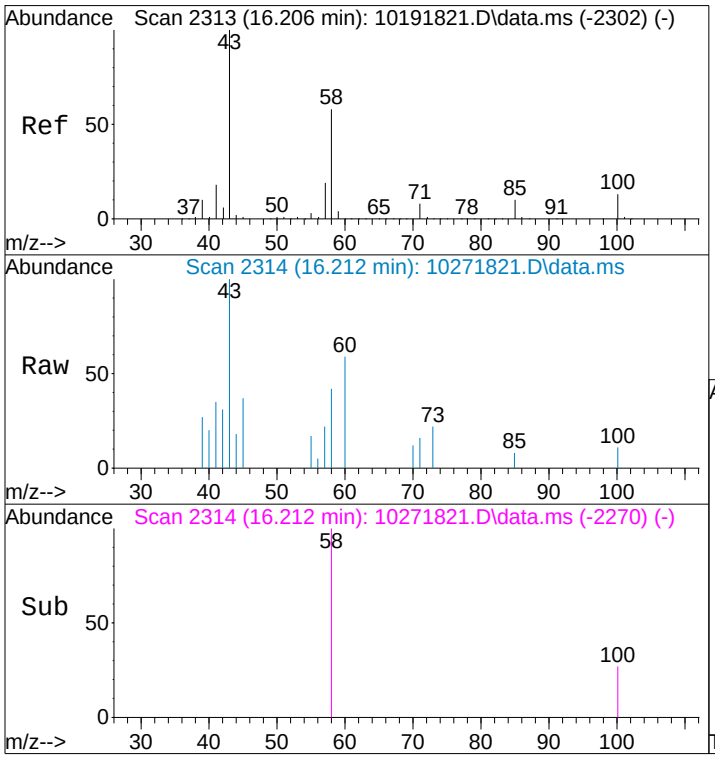


#58
Toluene
Concen: 1.01 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 91 Resp: 89146

Ion	Ratio	Lower	Upper
91	100		
92	58.4	39.4	79.4

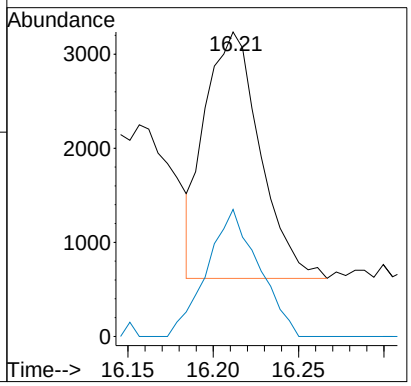


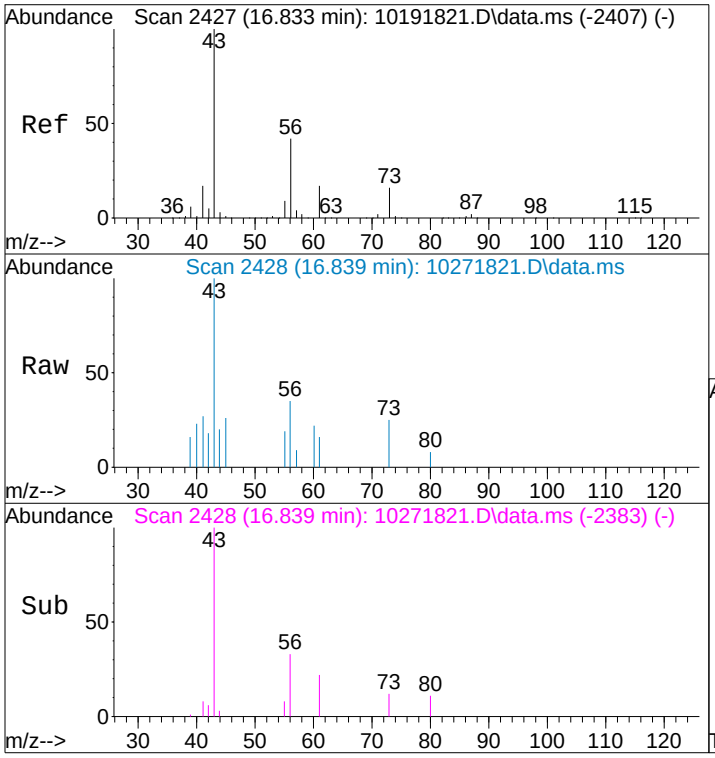


#59
2-Hexanone
Concen: 0.15 ng
RT: 16.21 min Scan# 2314
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 43 Resp: 5898

Ion	Ratio	Lower	Upper
43	100		
58	48.2	37.4	77.4

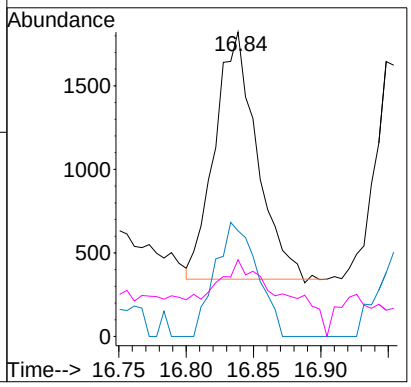


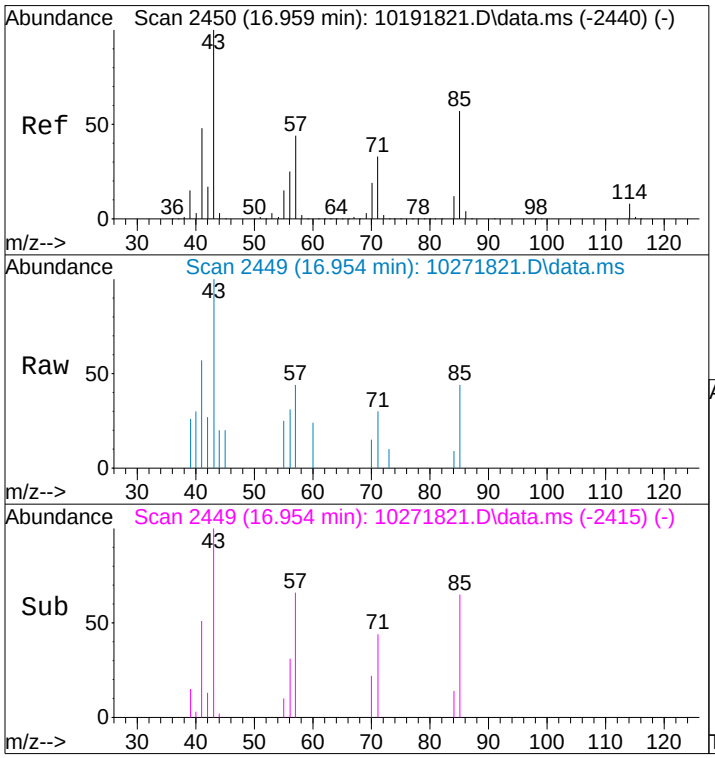


#62
n-Butyl Acetate
Concen: 0.07 ng
RT: 16.84 min Scan# 2428
Delta R.T. 0.000 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 43 Resp: 3204

Ion	Ratio	Lower	Upper
43	100		
56	46.3	21.3	61.3
73	48.5	0.0	36.1#

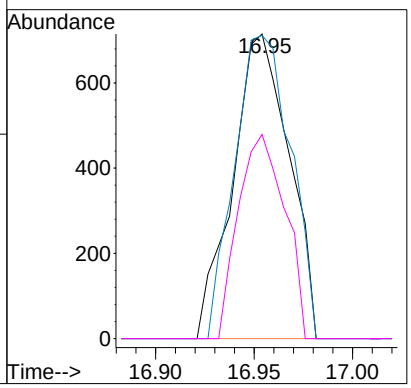


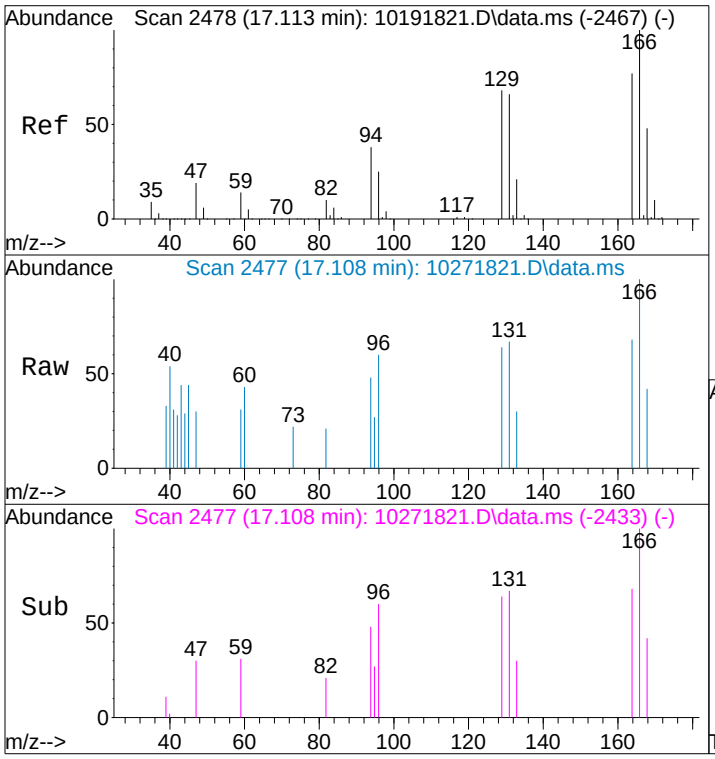


#63
n-Octane
Concen: 0.08 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 57 Resp: 1422

Ion	Ratio	Lower	Upper
57	100		
85	99.2	102.1	153.1#
71	55.5	59.3	88.9#

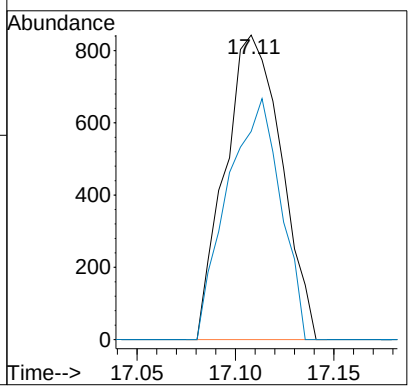


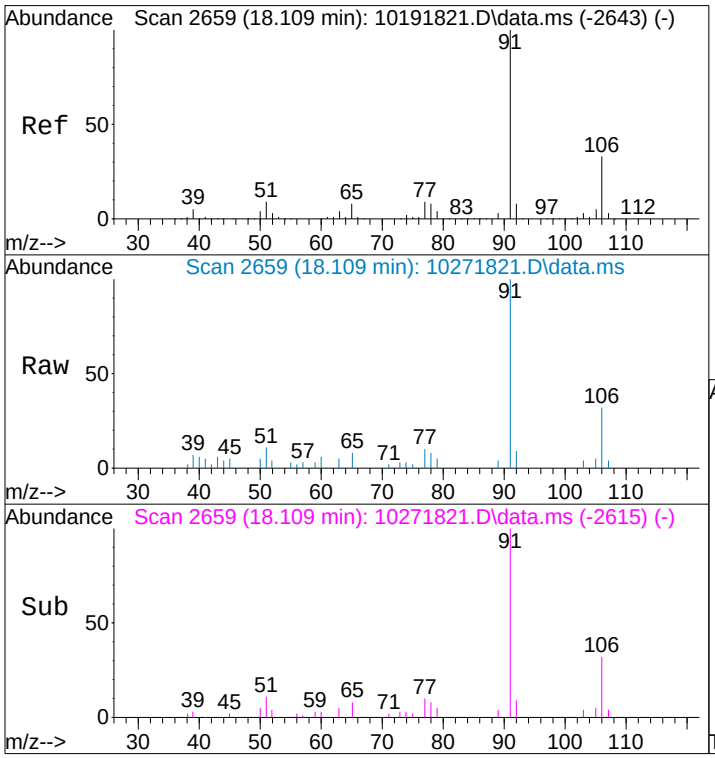


#64
Tetrachloroethene
Concen: 0.06 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:166 Resp: 1680

Ion	Ratio	Lower	Upper
166	100		
164	74.5	57.8	97.8

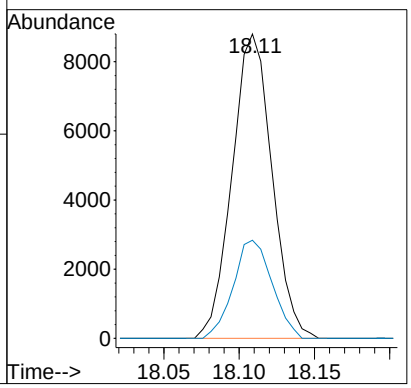


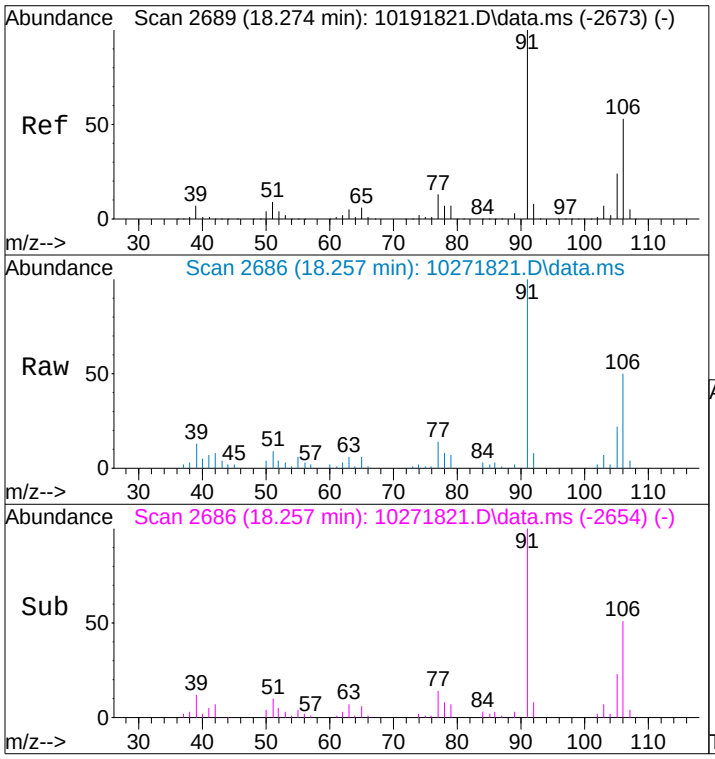


#66
Ethylbenzene
Concen: 0.16 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 91 Resp: 16219

Ion	Ratio	Lower	Upper
91	100		
106	31.4	12.6	52.6

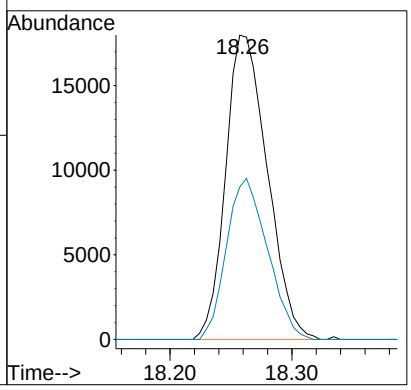


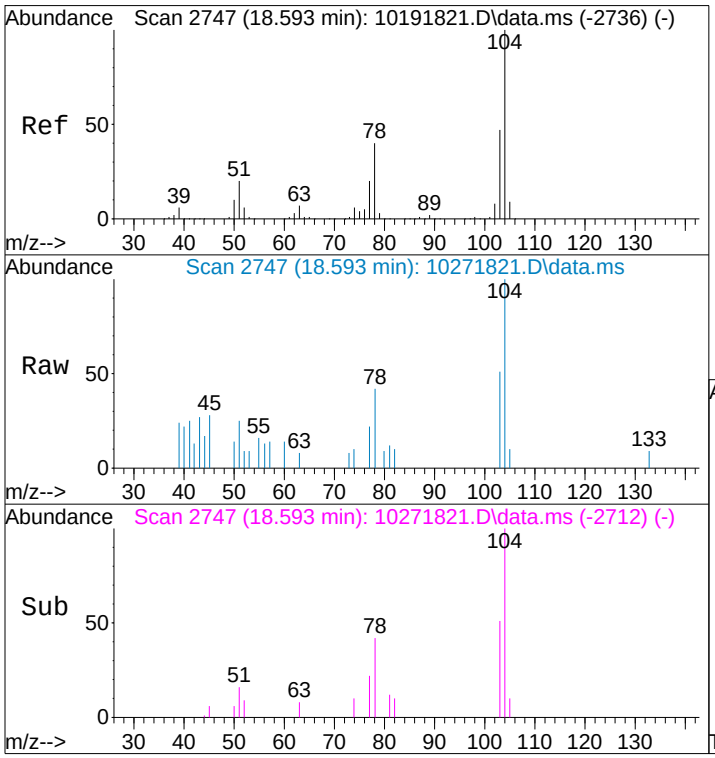


#67
m- & p-Xylenes
Concen: 0.57 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 91 Resp: 42759

Ion	Ratio	Lower	Upper
91	100		
106	52.1	32.2	72.2

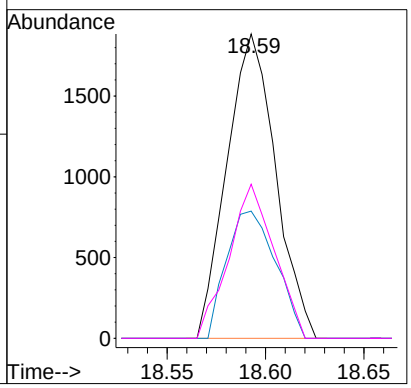


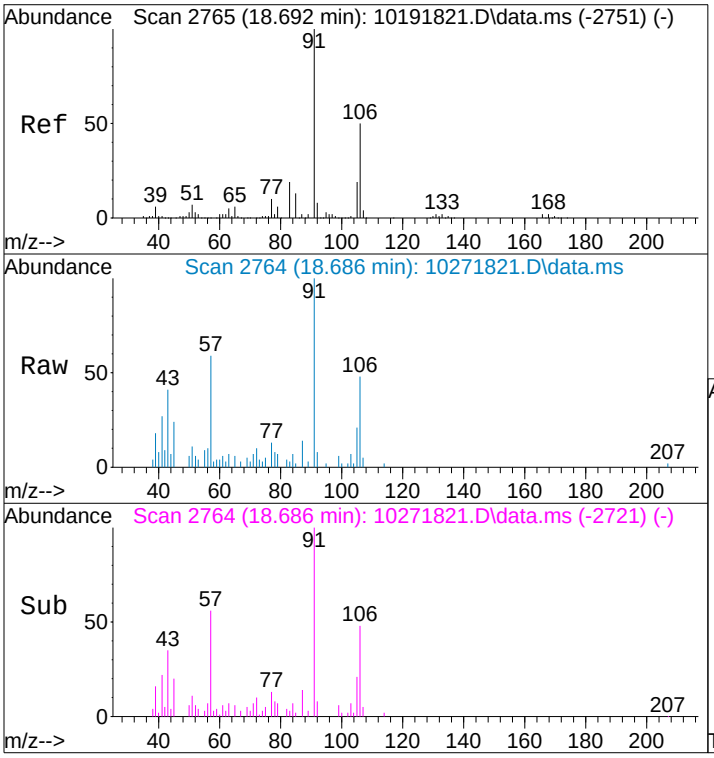


#69
Styrene
Concen: 0.05 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:104 Resp: 3242

Ion	Ratio	Lower	Upper
104	100		
78	42.3	20.1	60.1
103	47.2	27.0	67.0

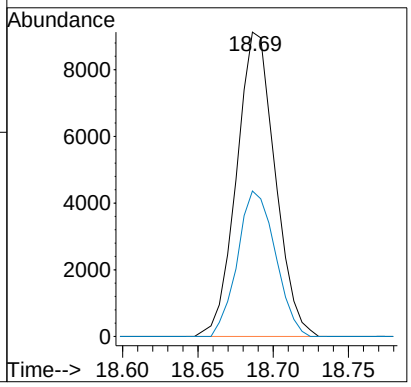


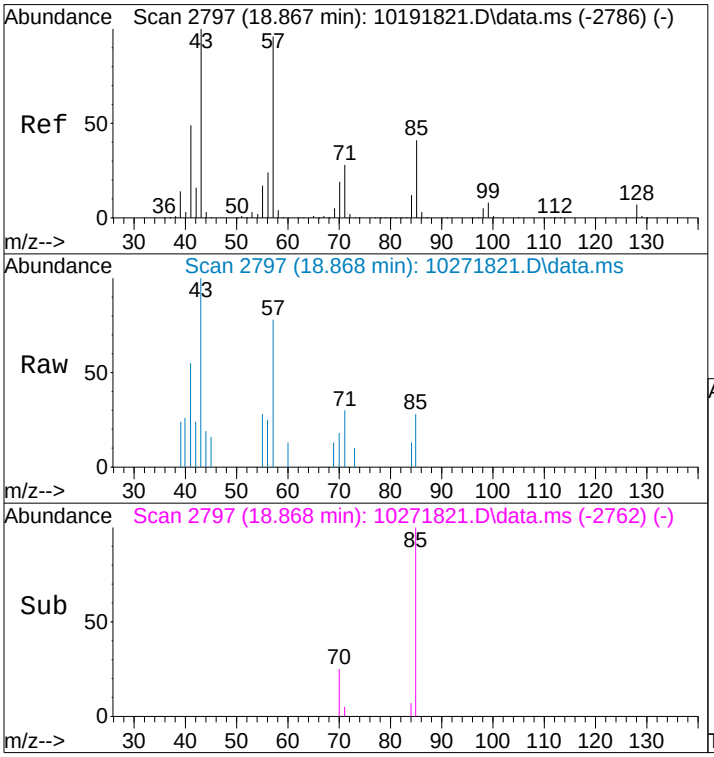


#70
o-Xylene
Concen: 0.21 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 91 Resp: 16216

Ion	Ratio	Lower	Upper
91	100		
106	47.0	29.4	69.4

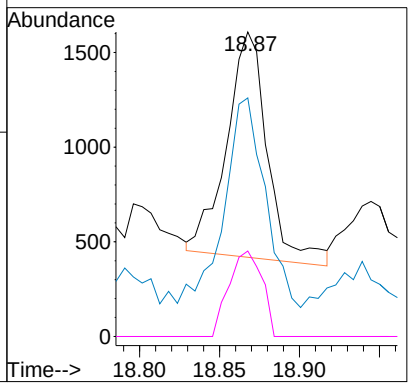


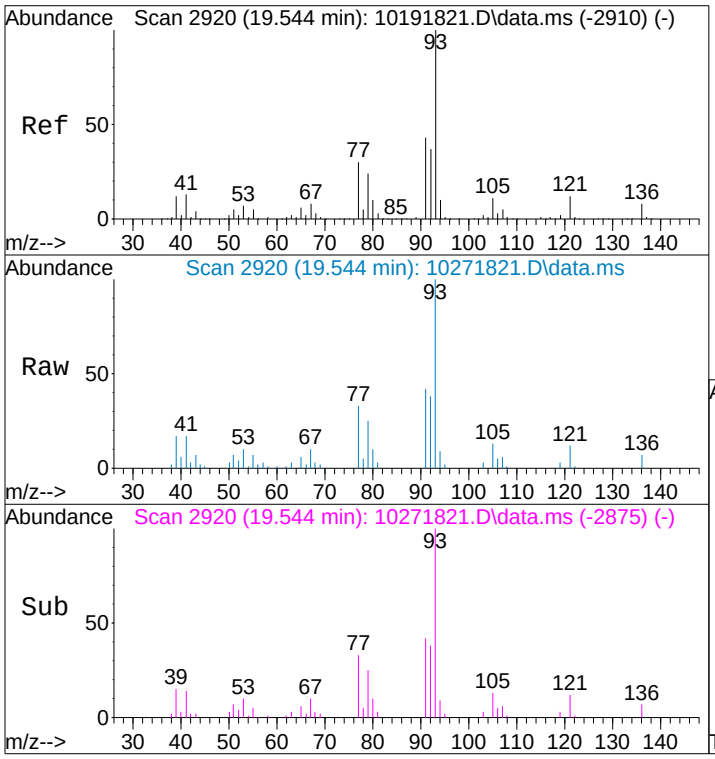


#71
n-Nonane
Concen: 0.06 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 43 Resp: 2107

Ion	Ratio	Lower	Upper
43	100		
57	93.2	75.4	115.4
85	30.8	20.8	60.8

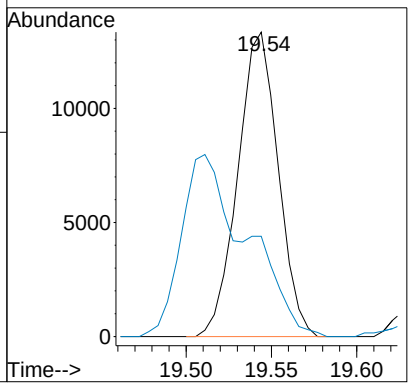


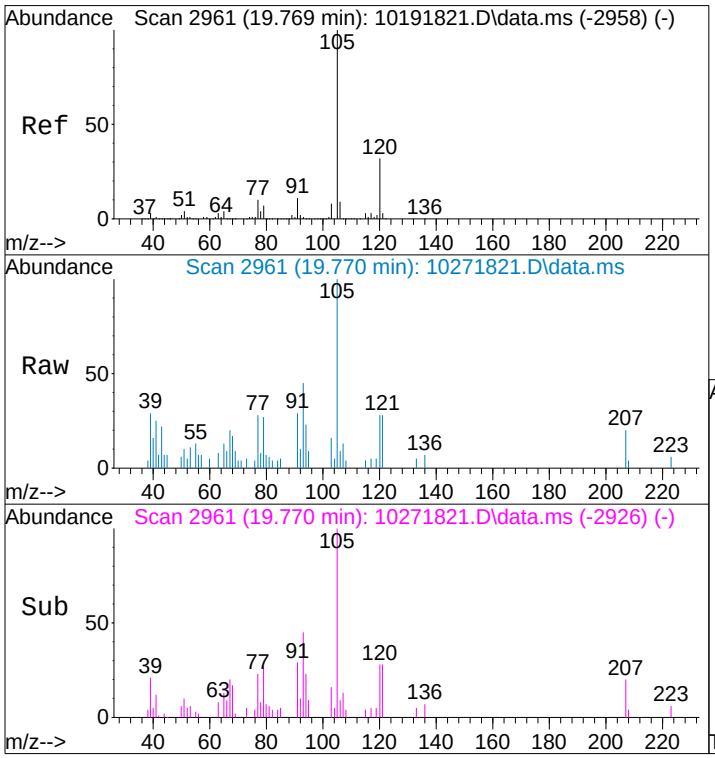


#75
alpha-Pinene
Concen: 0.42 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 93 Resp: 21942

Ion	Ratio	Lower	Upper
93	100		
77	96.3	10.2	50.2#

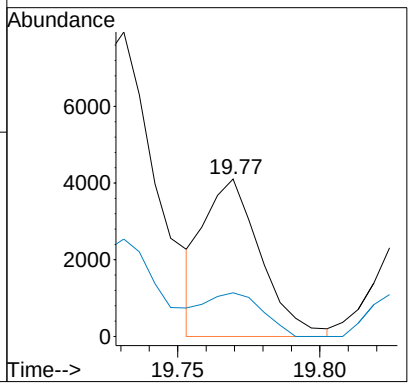


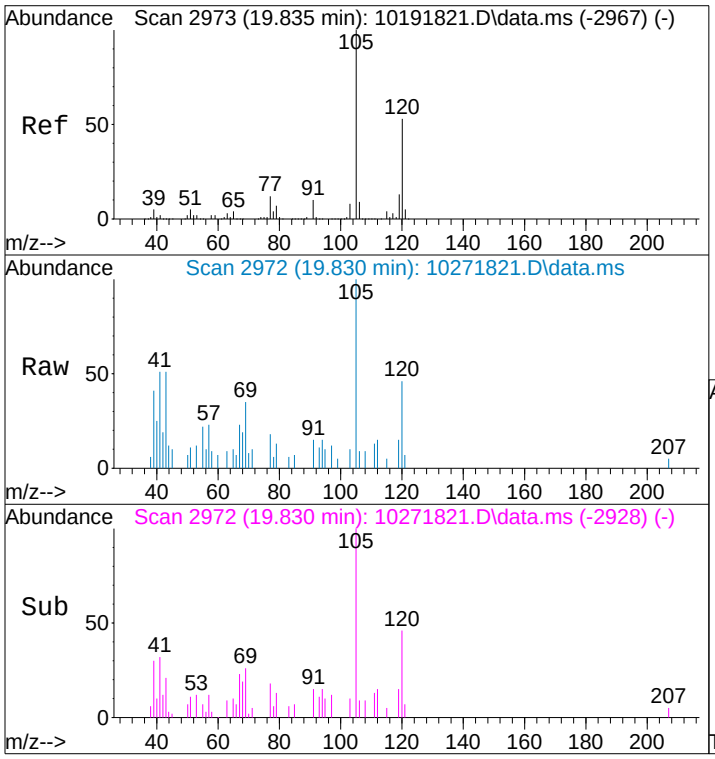


#78
4-Ethyltoluene
Concen: 0.06 ng
RT: 19.77 min Scan# 2961
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:105 Resp: 5714

Ion	Ratio	Lower	Upper
105	100		
120	28.5	11.8	51.8

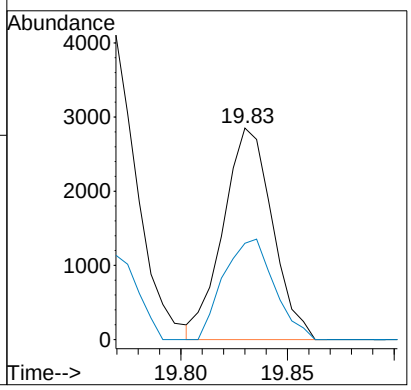


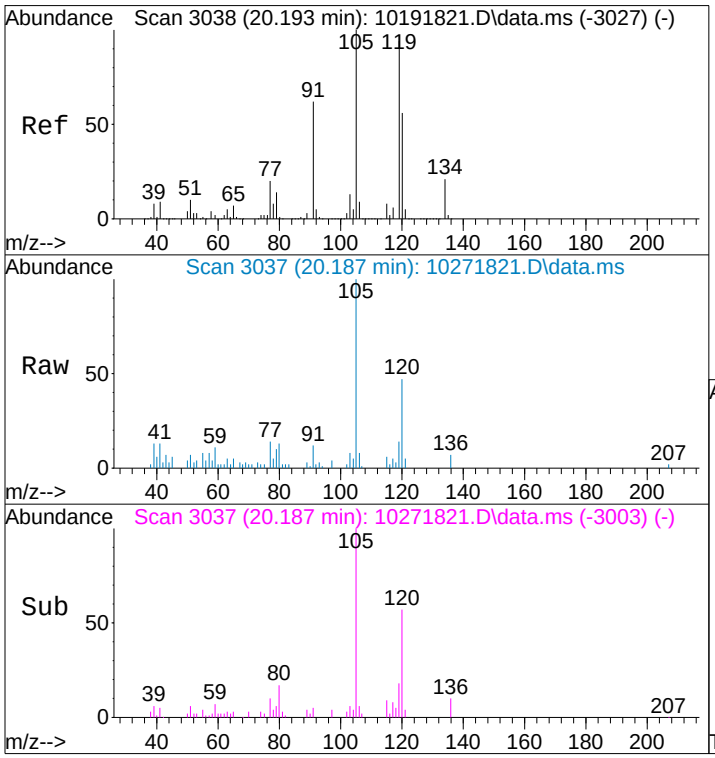


#79
1,3,5-Trimethylbenzene
Concen: 0.05 ng
RT: 19.83 min Scan# 2972
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:105 Resp: 4582

Ion	Ratio	Lower	Upper
105	100		
120	48.8	32.1	72.1

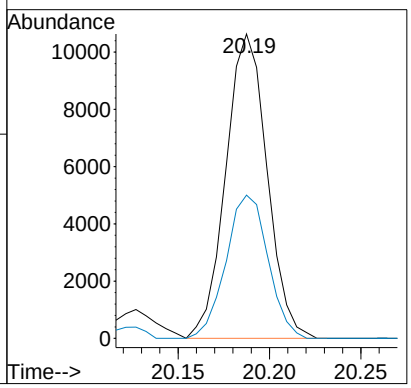


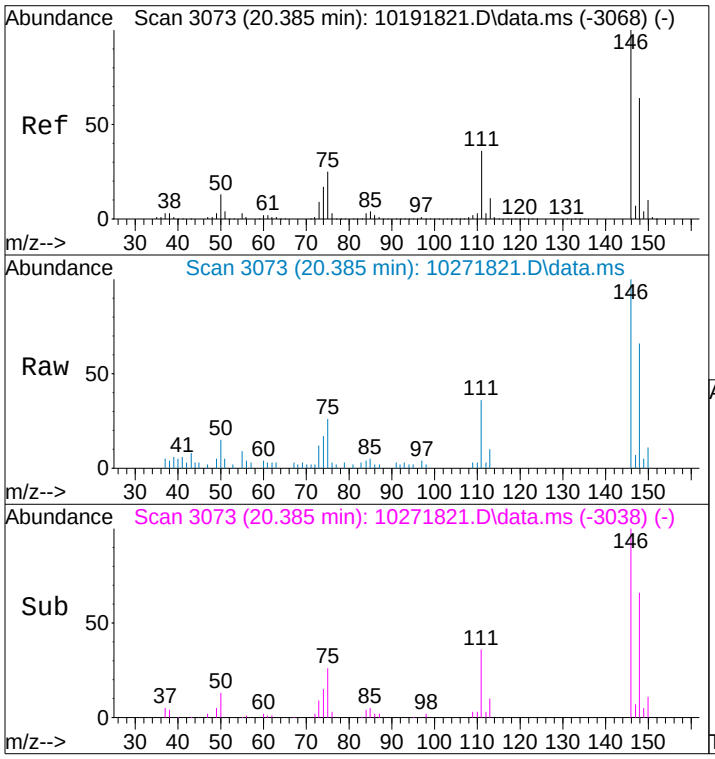


#82
1,2,4-Trimethylbenzene
Concen: 0.20 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:105 Resp: 16710

Ion	Ratio	Lower	Upper
105	100		
120	47.9	36.5	76.5

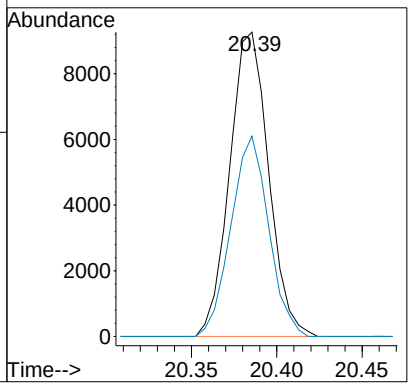


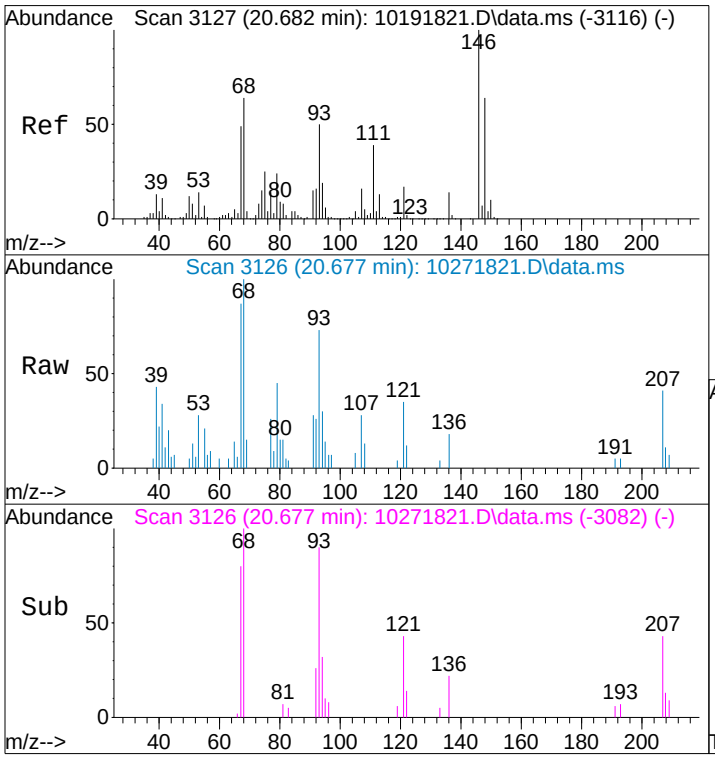


#86
1,4-Dichlorobenzene
Concen: 0.29 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:146 Resp: 14708

Ion	Ratio	Lower	Upper
146	100		
148	63.8	44.2	84.2

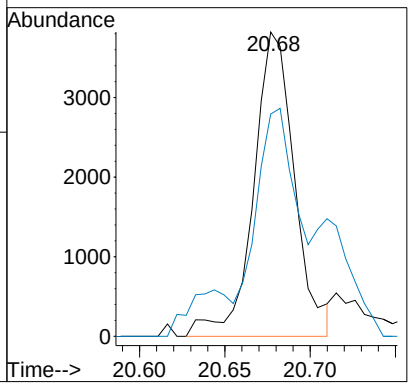


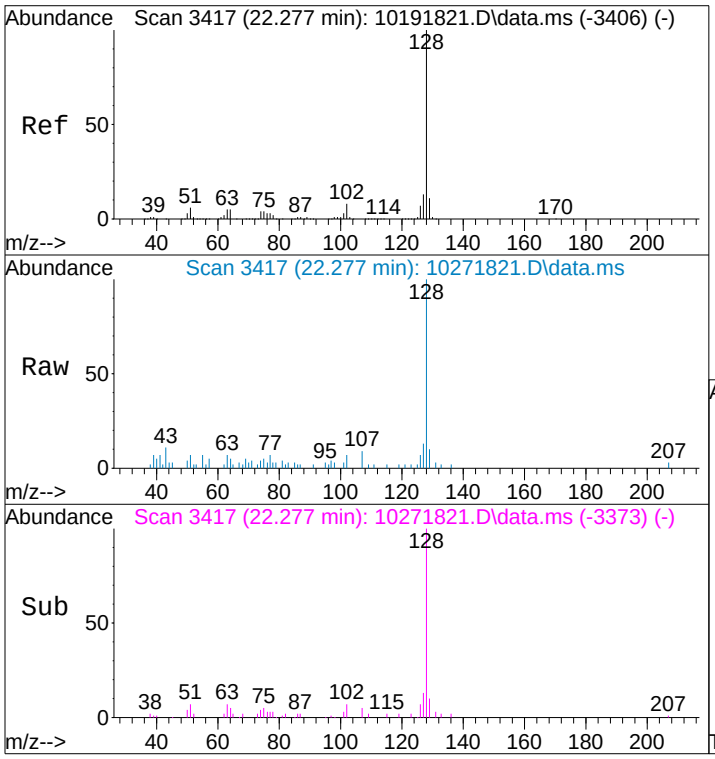


#91
d-Limonene
Concen: 0.21 ng
RT: 20.68 min Scan# 3126
Delta R.T. -0.005 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion: 68 Resp: 6366

Ion	Ratio	Lower	Upper
68	100		
93	108.3	57.4	97.4#

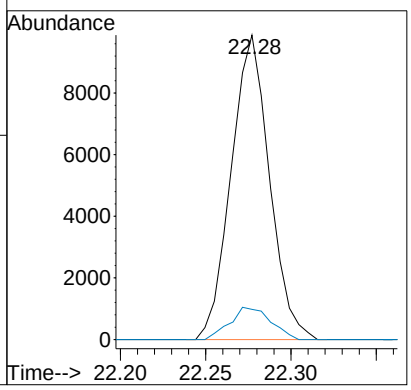




#95
Naphthalene
Concen: 0.13 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271821.D
Acq: 27 Oct 2018 16:12

Tgt Ion:128 Resp: 15416

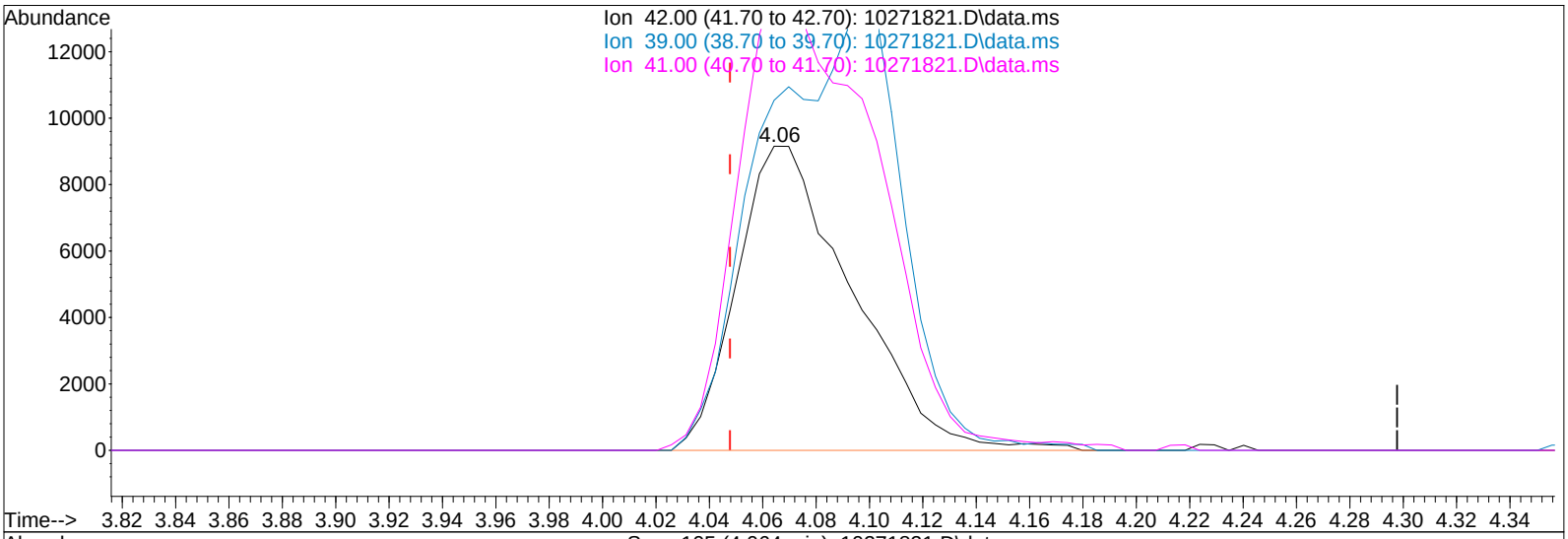
Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	31.1

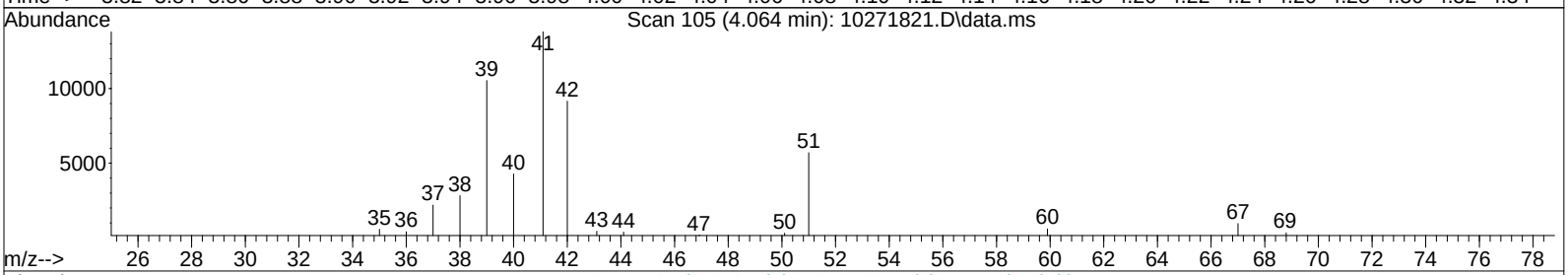


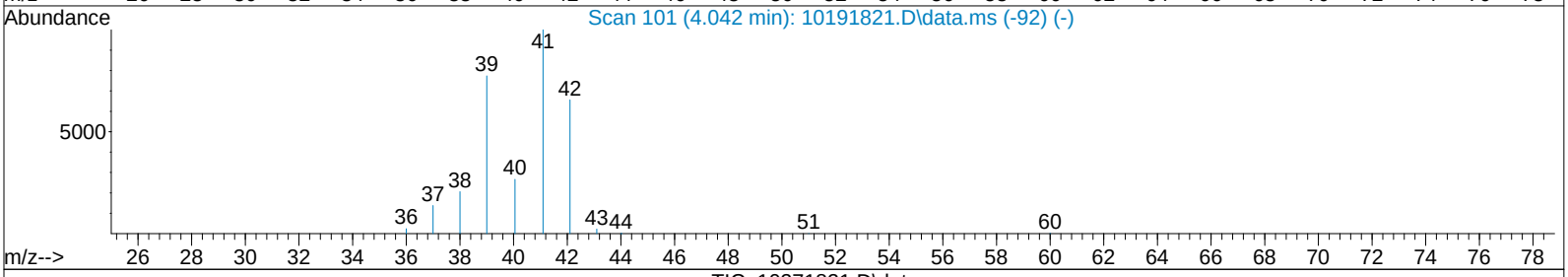
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 28 11:34:03 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271821.D\data.ms

(2) Propene (T)

4.064min (+0.017) 1.31ng

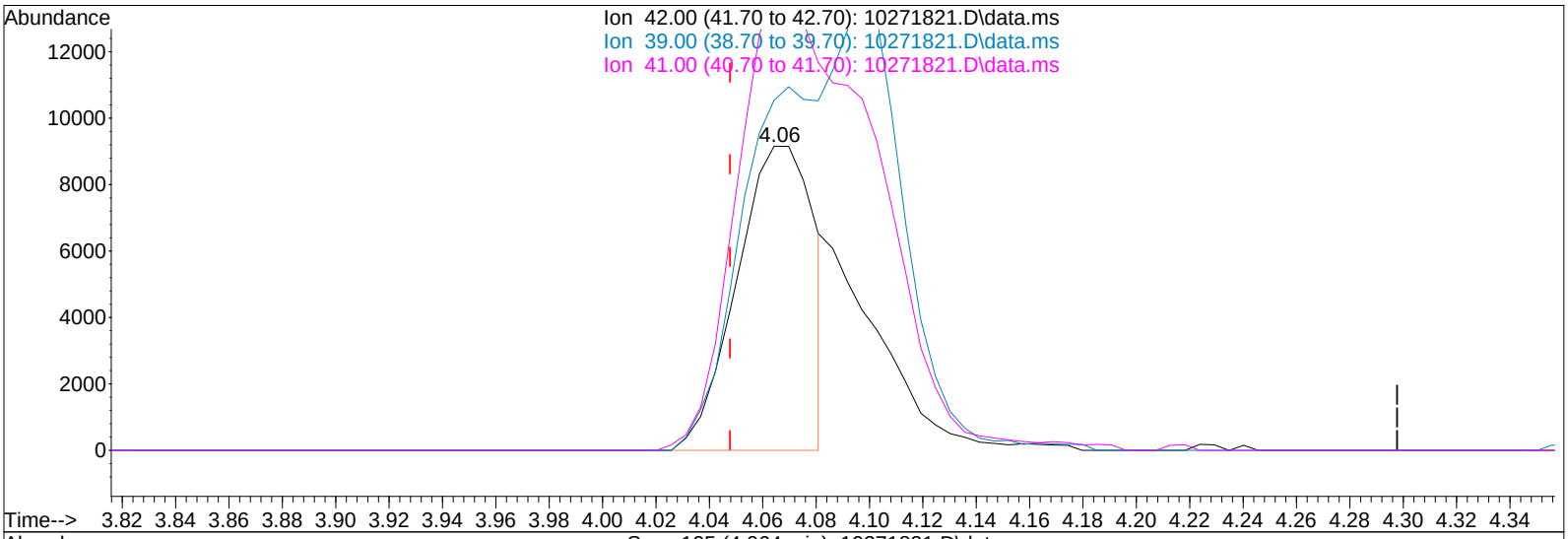
response 27563

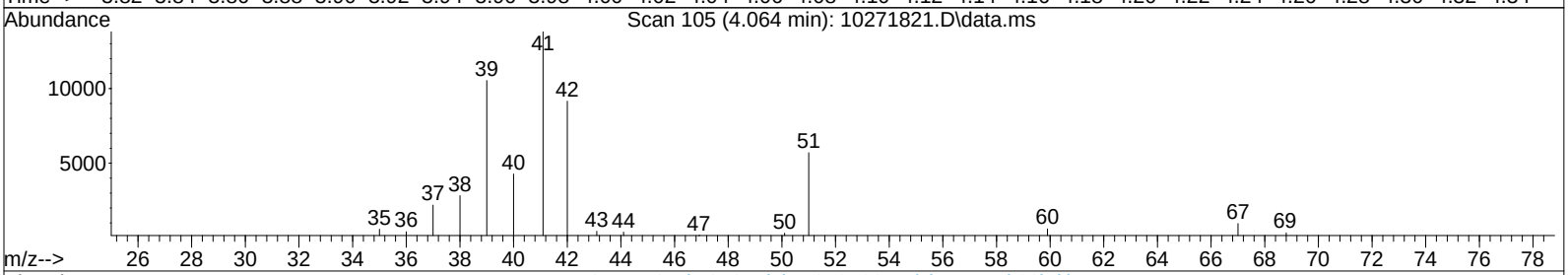
Ion	Exp%	Act%
42.00	100	100
39.00	118.50	82.12#
41.00	151.90	179.29#
0.00	0.00	0.00

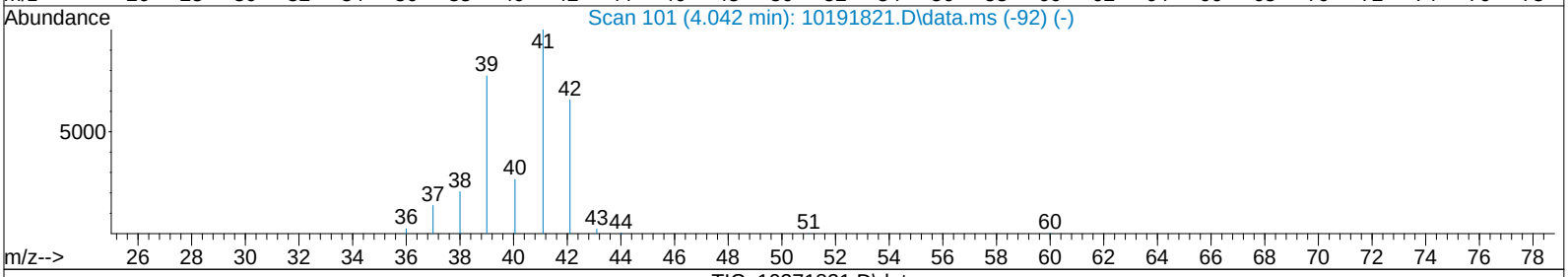
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 28 11:34:03 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271821.D\data.ms

(2) Propene (T)

4.064min (+0.017) 0.87ng m

response 18323

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	123.53
41.00	151.90	269.70#
0.00	0.00	0.00

TD 10/29/18

IPC

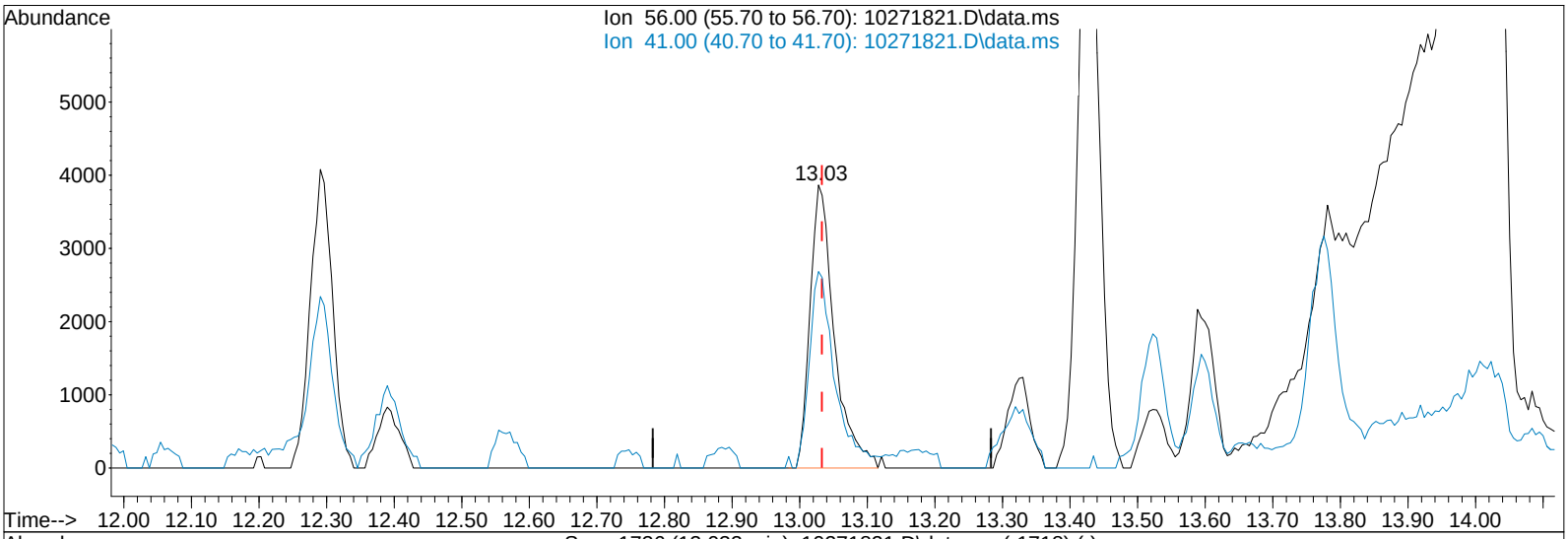
10/30/18

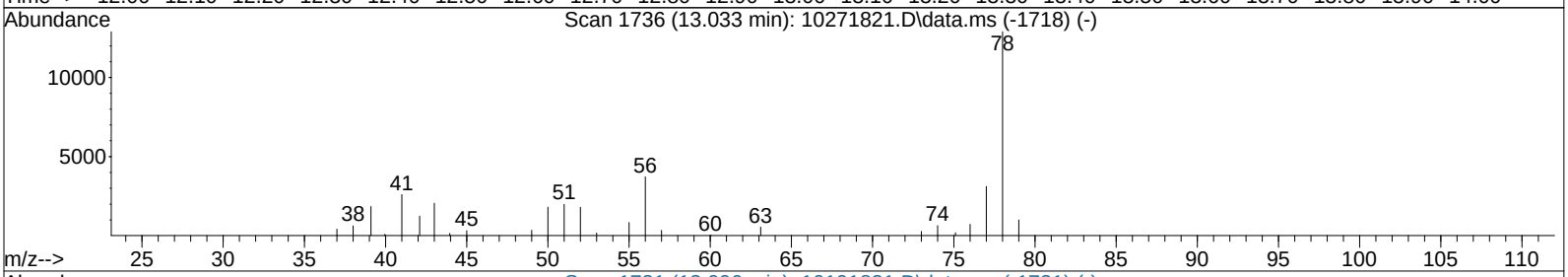
10/30/18

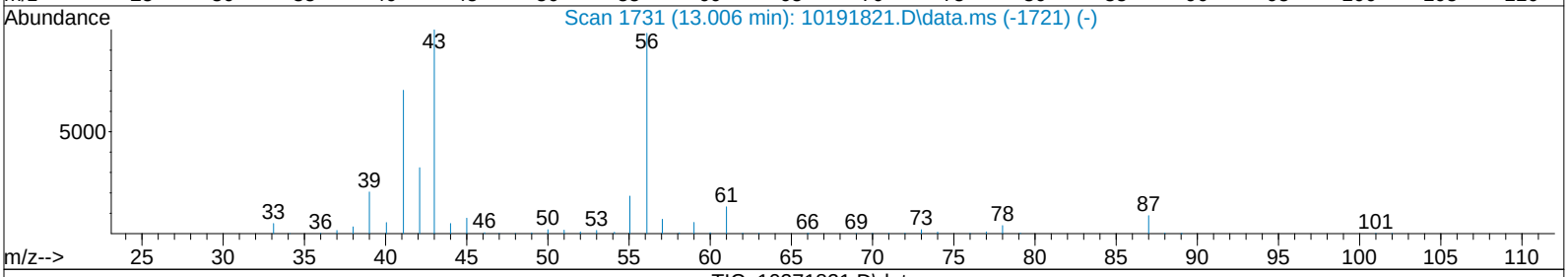
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 11:48:12 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271821.D\data.ms

(40) 1-Butanol (T)

13.028min (-0.005) 0.52ng m

response 9640

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

IC-

TD 10/29/18

WA 10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 14:43:19 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

WA 10/30/18

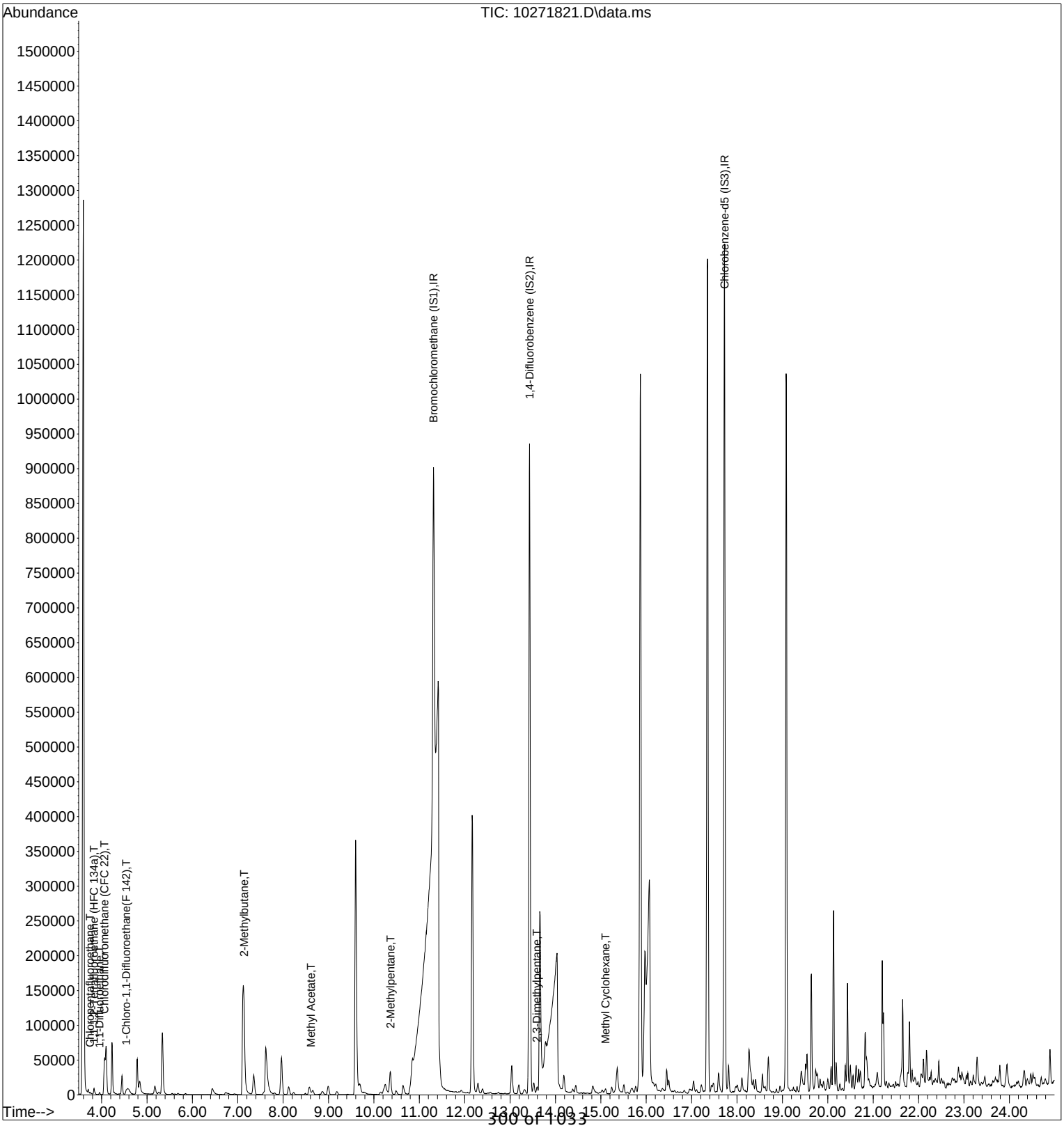
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	225651	12.500 ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	918327	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	399014	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.75	85	1345	0.050 ng	#	57
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	5191	0.229 ng	#	49
4) 1,1-Difluoroethane	3.95	65	1136	0.066 ng		90
5) Chlorodifluoromethane ...	4.06	67	1925	0.287 ng	#	61
6) 1-Chloro-1,1-Difluoroe...	4.54	65	4048	0.083 ng	#	93
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.14	57	36667	1.989 ng	#	79
11) Methyl Acetate	8.61	43	3885	0.100 ng	#	80
12) 2-Methylpentane	10.37	71	9114	0.475 ng	#	43
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	13.20	84	1574	N.D.		
17) 2,3-Dimethylpentane	13.59	56	4603	0.139 ng	#	90
18) Dibromomethane	13.85	174	329	N.D.		
20) Methyl Cyclohexane	15.10	55	2929	0.116 ng	#	74
21) 1,3-Dichloropropane	15.96	76	232	N.D.		
22) 1,1,1,2-Tetrachloroethane	17.81	131	126	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	18.70	75	1295	N.D.		
25) Bromobenzene	19.21	77	250	N.D.		
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	19.73	91	2231	N.D.		
28) Indan	20.73	117	2938	N.D.		
29) Indene	20.81	115	1117	N.D.		
30) 1,2,4,5-Tetramethylben...	21.56	119	2010	N.D.		
31) 1,2,3,4-Tetramethylben...	21.60	119	2710	N.D.		
32) 1,2,3,5-Tetramethylben...	21.94	119	3438	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

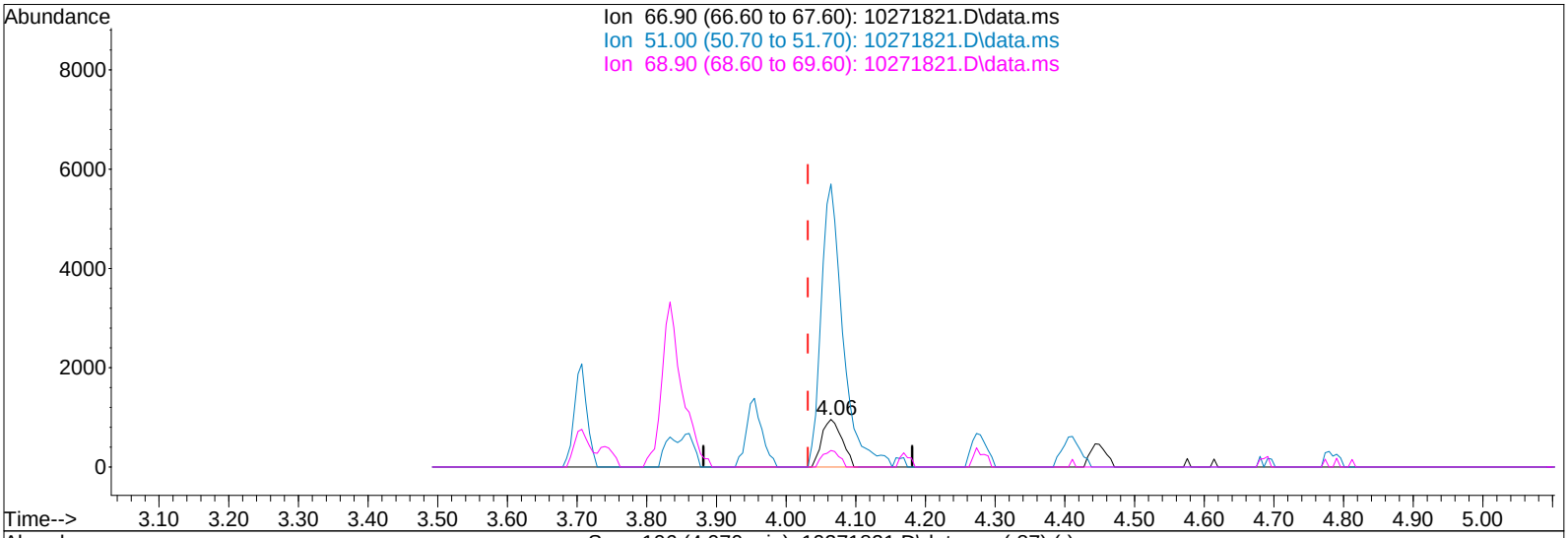
Quant Time: Oct 29 14:43:19 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

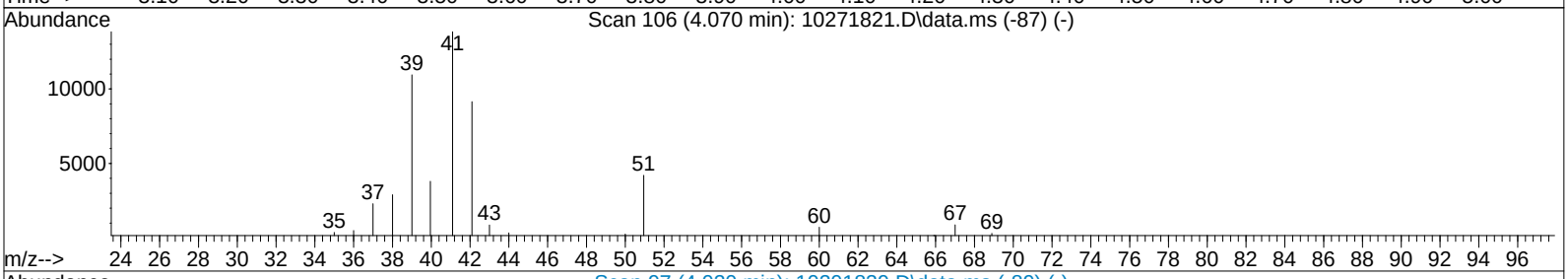


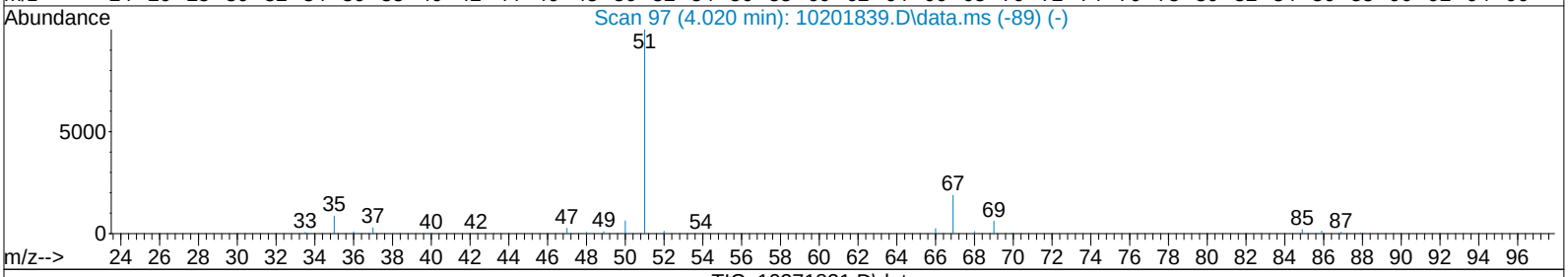
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271821.D
Acq On : 27 Oct 2018 16:12 Operator: WA
Sample : P1805497-008 (1000mL)Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 29 14:42:39 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271821.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.064min (+0.033) 0.29ng

response 1925

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	643.17#
68.90	31.80	29.19
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271822.D Vial: 13
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:46:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	221086	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	933473	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	399600	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	323369	12.159	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
57) Toluene-d8 (SS2)	15.87	98	811270	12.749	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.00%				
73) Bromofluorobenzene (SS3)	19.09	174	337402	11.664	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.28%				
Target Compounds							Qvalue
2) Propene	4.07	42	8424m	0.409	ng		
3) Dichlorodifluoromethan...	4.22	85	112910	2.443	ng		100
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.	d		
6) Vinyl Chloride	4.97	62	554	N.D.			
7) 1,3-Butadiene	5.24	54	481	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.	d		
10) Ethanol	6.45	45	4555	0.366	ng		88
11) Acetonitrile	6.80	41	852	N.D.			
12) Acrolein	6.93	56	1026	0.093	ng		99
13) Acetone	0.00	58	0	N.D.	d		
14) Trichlorofluoromethane	7.36	101	35639	0.890	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	14078	0.296	ng	#	38
16) Acrylonitrile	0.00	53	0	N.D.	d		
17) 1,1-Dichloroethene	8.35	96	170	N.D.			
18) 2-Methyl-2-Propanol (t...	8.62	59	794	N.D.			
19) Methylene Chloride	8.57	84	31896	1.539	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	120	N.D.			
21) Trichlorotrifluoroethane	8.99	151	6124	0.287	ng		94
22) Carbon Disulfide	8.86	76	46752	0.632	ng		99
23) trans-1,2-Dichloroethene	9.87	61	2907	0.104	ng		97
24) 1,1-Dichloroethane	10.16	63	1081	N.D.			
25) Methyl tert-Butyl Ether	10.36	73	164	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.64	72	10930	0.833	ng	#	91
28) cis-1,2-Dichloroethene	11.15	61	937	N.D.			
29) Diisopropyl Ether	11.41	87	555	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.	d		
31) n-Hexane	11.42	57	78556	2.451	ng		98
32) Chloroform	11.48	83	415743	11.152	ng		100
34) Tetrahydrofuran (THF)	11.93	72	1609	0.122	ng	#	65
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.	d		
38) 1,1,1-Trichloroethane	12.56	97	1148	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.03	56	3585m	0.190	ng		
41) Benzene	13.04	78	5205	0.061	ng		96
42) Carbon Tetrachloride	13.20	117	23091	0.710	ng		99
43) Cyclohexane	13.33	84	32468	0.976	ng		99
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.08	83	54261	1.807	ng		100
47) Trichloroethene	14.13	130	334934	13.278	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	14.19	100	274	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271822.D Vial: 13
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:46:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

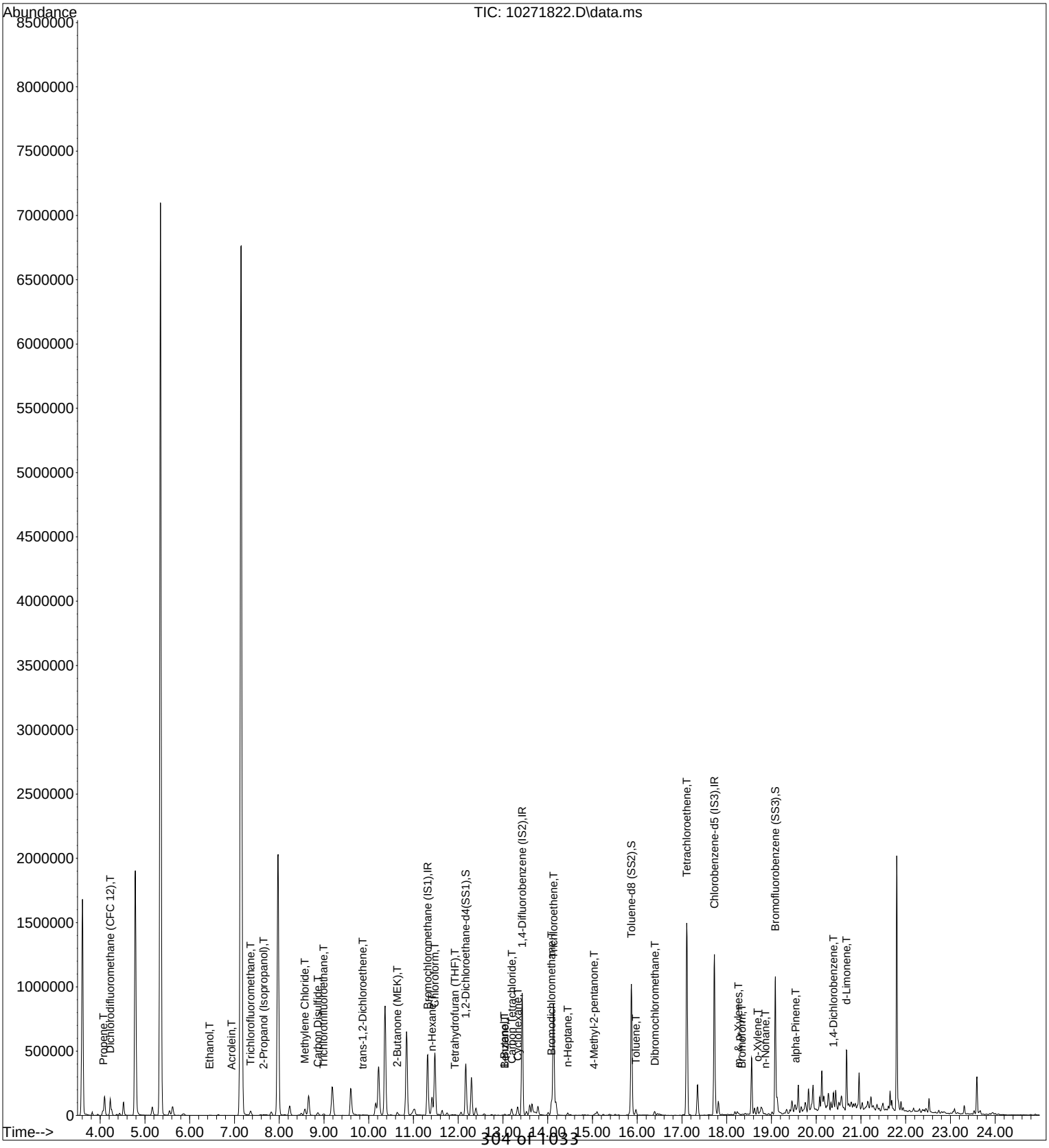
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	4643	0.235	ng		94
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	15.03	58	1009	0.058	ng	#	1
54) trans-1,3-Dichloropropene	15.50	75	308	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.97	91	17486	0.198	ng		99
59) 2-Hexanone	16.22	43	948	N.D.			
60) Dibromochloromethane	16.39	129	19657	0.761	ng		97
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.84	43	1091	N.D.			
63) n-Octane	16.96	57	449	N.D.			
64) Tetrachloroethene	17.11	166	529481	19.472	ng		99
65) Chlorobenzene	0.00	112	0	N.D.	d		
66) Ethylbenzene	18.11	91	3429	N.D.			
67) m- & p-Xylenes	18.26	91	8339	0.111	ng		95
68) Bromoform	18.34	173	2237	0.097	ng		93
69) Styrene	18.58	104	1411	N.D.			
70) o-Xylene	18.69	91	4273	0.056	ng		88
71) n-Nonane	18.87	43	2047	0.058	ng		80
72) 1,1,2,2-Tetrachloroethane	18.69	83	1393	N.D.			
74) Cumene	19.20	105	1457	N.D.			
75) alpha-Pinene	19.54	93	6037	0.116	ng	#	1
76) n-Propylbenzene	19.64	91	5300	N.D.			
77) 3-Ethyltoluene	19.73	105	2476	N.D.			
78) 4-Ethyltoluene	19.76	105	821	N.D.			
79) 1,3,5-Trimethylbenzene	19.84	105	1950	N.D.			
80) alpha-Methylstyrene	19.97	118	691	N.D.			
81) 2-Ethyltoluene	20.00	105	2309	N.D.			
82) 1,2,4-Trimethylbenzene	20.19	105	2908	N.D.			
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.28	91	959	N.D.			
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.39	146	32296	0.625	ng		100
87) sec-Butylbenzene	20.42	105	729	N.D.			
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	20.56	105	2219	N.D.			
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
91) d-Limonene	20.68	68	86953	2.913	ng		96
92) 1,2-Dibromo-3-Chloropr...	20.97	157	238	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	22.17	180	107	N.D.			
95) Naphthalene	22.28	128	5493	N.D.			
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	20.92	91	1845	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271822.D Vial: 13
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:46:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271822.D Vial: 13
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:46:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

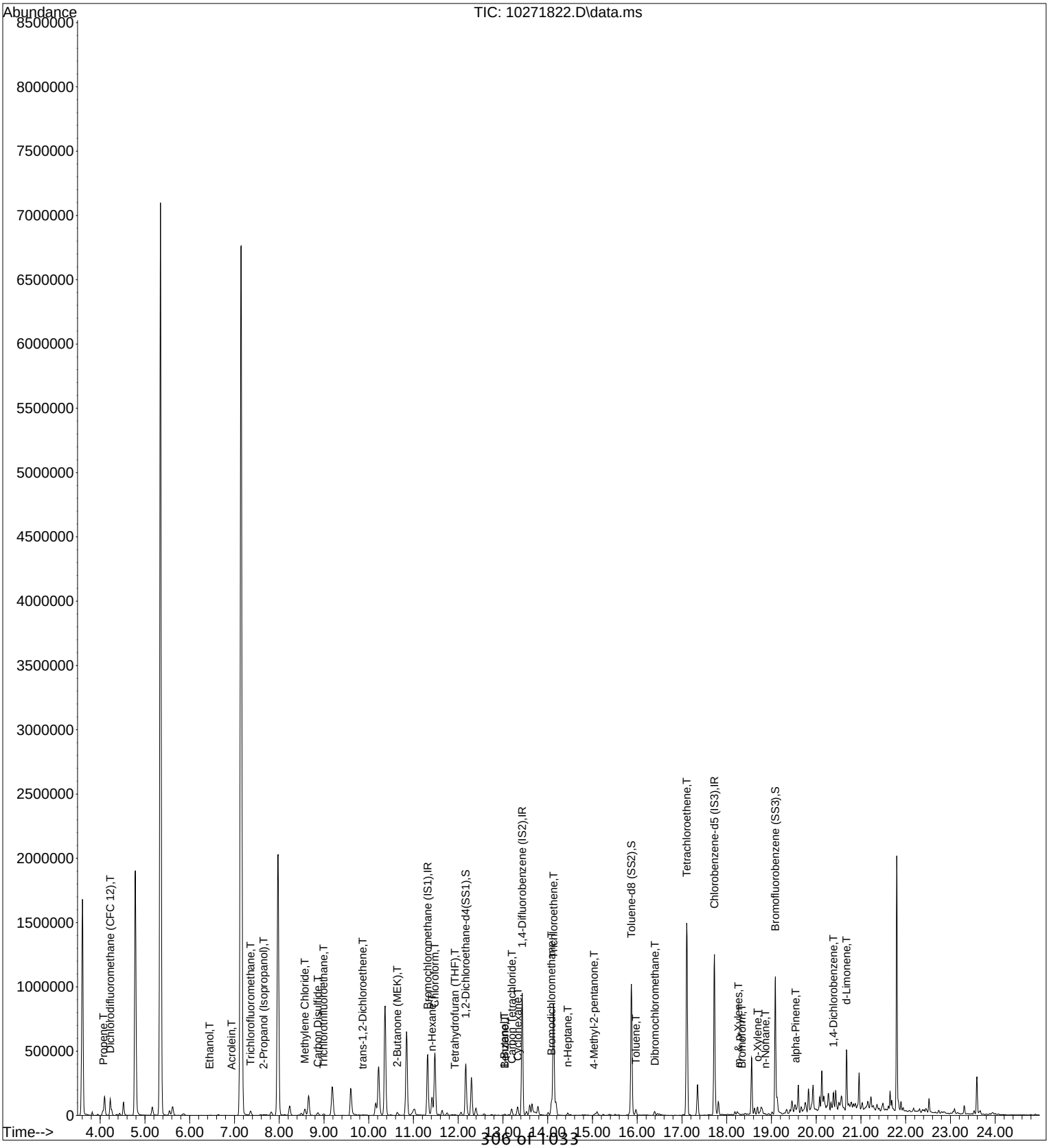
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	221086	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	933473	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	399600	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	323369	12.159	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.28%				
57) Toluene-d8 (SS2)	15.87	98	811270	12.749	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.00%				
73) Bromofluorobenzene (SS3)	19.09	174	337402	11.664	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.28%				
Target Compounds							Qvalue
2) Propene	4.07	42	8424m	0.409	ng		
3) Dichlorodifluoromethan...	4.22	85	112910	2.443	ng		100
10) Ethanol	6.45	45	4555	0.366	ng		88
12) Acrolein	6.93	56	1026	0.093	ng		99
14) Trichlorofluoromethane	7.36	101	35639	0.890	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	14078	0.296	ng	#	38
19) Methylene Chloride	8.57	84	31896	1.539	ng		97
21) Trichlorotrifluoroethane	8.99	151	6124	0.287	ng		94
22) Carbon Disulfide	8.86	76	46752	0.632	ng		99
23) trans-1,2-Dichloroethene	9.87	61	2907	0.104	ng		97
27) 2-Butanone (MEK)	10.64	72	10930	0.833	ng	#	91
31) n-Hexane	11.42	57	78556	2.451	ng		98
32) Chloroform	11.48	83	415743	11.152	ng		100
34) Tetrahydrofuran (THF)	11.93	72	1609	0.122	ng	#	65
40) 1-Butanol	13.03	56	3585m	0.190	ng		
41) Benzene	13.04	78	5205	0.061	ng		96
42) Carbon Tetrachloride	13.20	117	23091	0.710	ng		99
43) Cyclohexane	13.33	84	32468	0.976	ng		99
46) Bromodichloromethane	14.08	83	54261	1.807	ng		100
47) Trichloroethene	14.13	130	334934	13.278	ng		100
51) n-Heptane	14.45	71	4643	0.235	ng		94
53) 4-Methyl-2-pentanone	15.03	58	1009	0.058	ng	#	1
58) Toluene	15.97	91	17486	0.198	ng		99
60) Dibromochloromethane	16.39	129	19657	0.761	ng		97
64) Tetrachloroethene	17.11	166	529481	19.472	ng		99
67) m- & p-Xylenes	18.26	91	8339	0.111	ng		95
68) Bromoform	18.34	173	2237	0.097	ng		93
70) o-Xylene	18.69	91	4273	0.056	ng		88
71) n-Nonane	18.87	43	2047	0.058	ng		80
75) alpha-Pinene	19.54	93	6037	0.116	ng	#	1
86) 1,4-Dichlorobenzene	20.39	146	32296	0.625	ng		100
91) d-Limonene	20.68	68	86953	2.913	ng		96

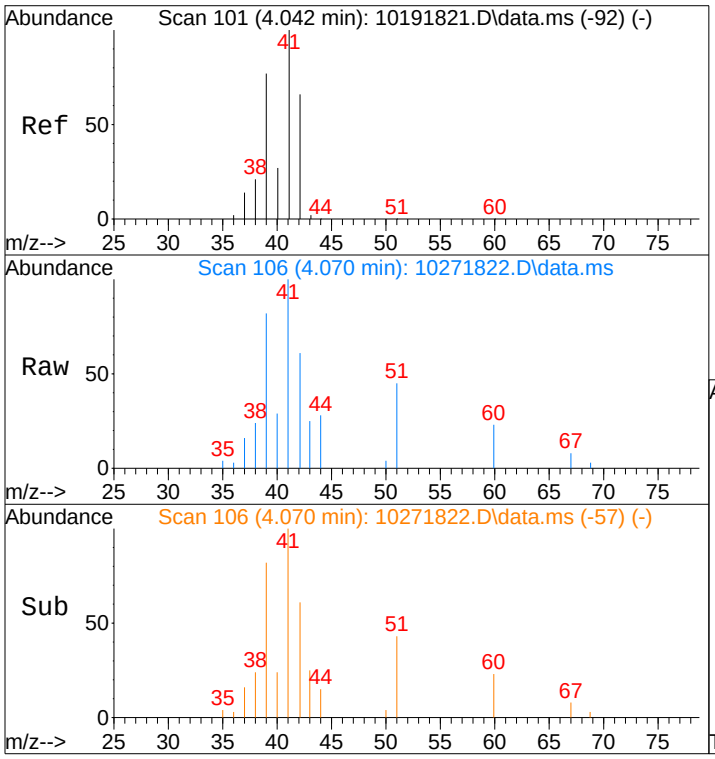
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271822.D Vial: 13
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:46:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

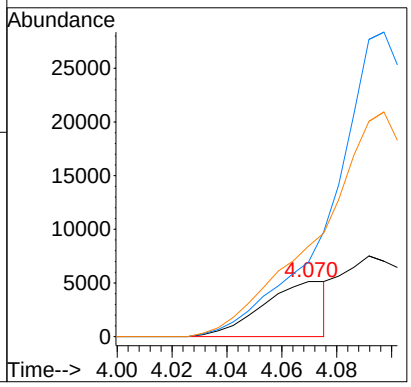


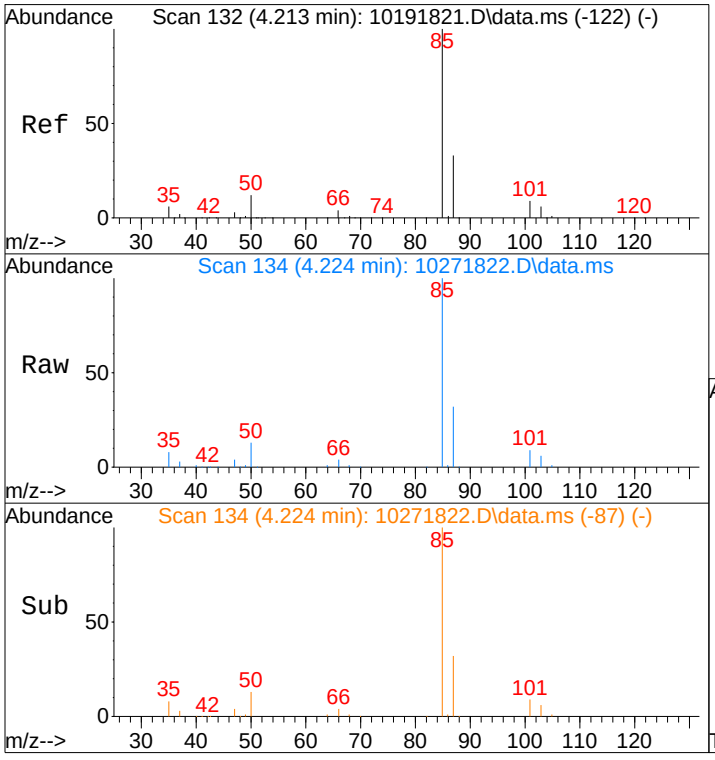


#2
Propene
Concen: 0.41 ng m
RT: 4.07 min Scan# 106
Delta R.T. 0.022 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 42 Resp: 8424

Ion	Ratio	Lower	Upper
42	100		
39	772.0	98.5	138.5#
41	645.4	131.9	171.9#

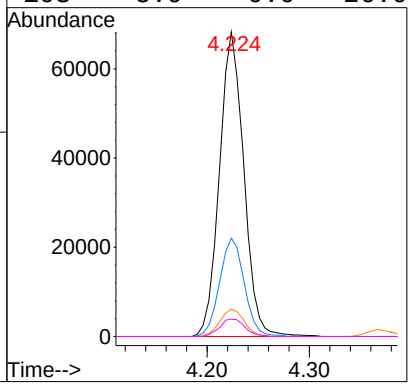


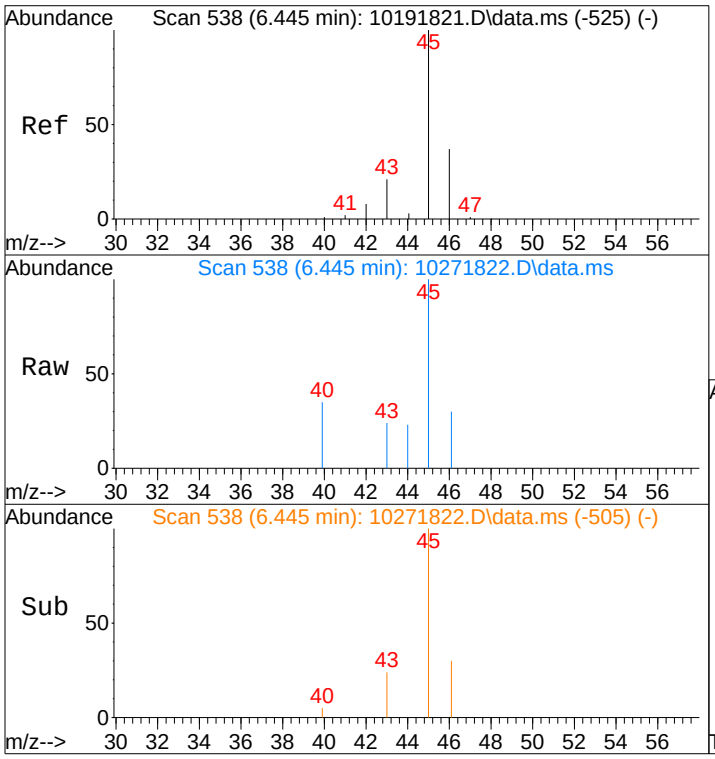


#3
Dichlorodifluoromethane (CFC 12)
Concen: 2.44 ng
RT: 4.22 min Scan# 134
Delta R.T. 0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 85 Resp: 112910

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.6	52.6
101	8.9	0.0	29.4
103	5.9	0.0	26.0

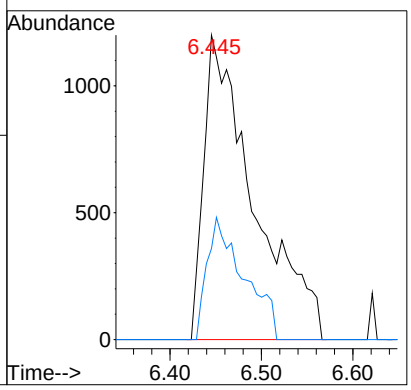


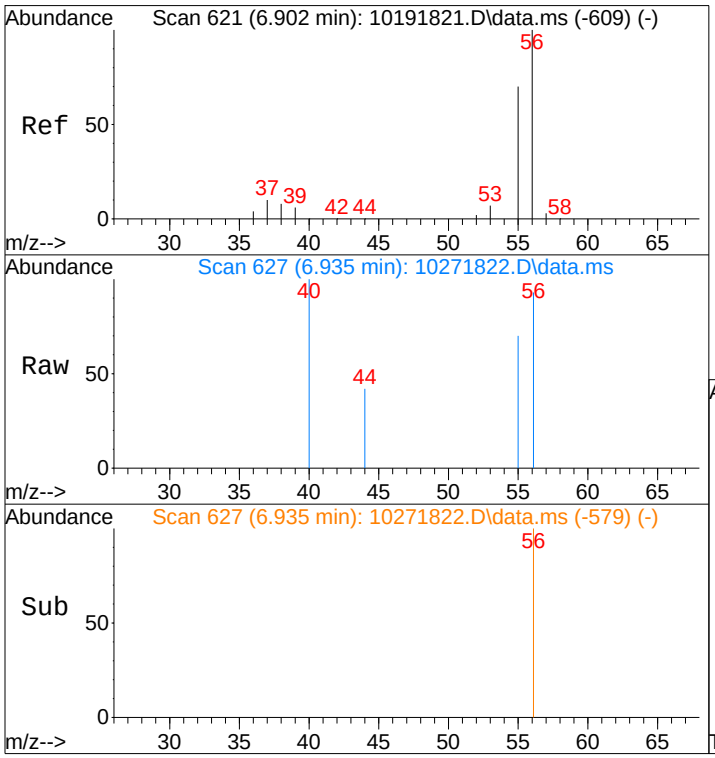


#10
Ethanol
Concen: 0.37 ng
RT: 6.45 min Scan# 538
Delta R.T. -0.066 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 45 Resp: 4555

Ion	Ratio	Lower	Upper
45	100		
46	29.7	16.6	56.6

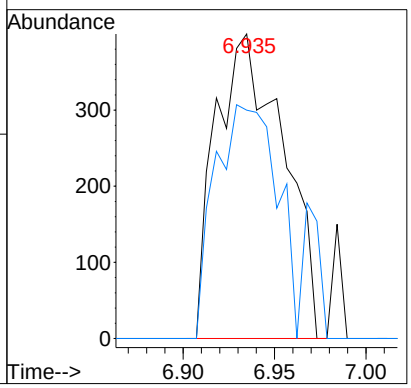


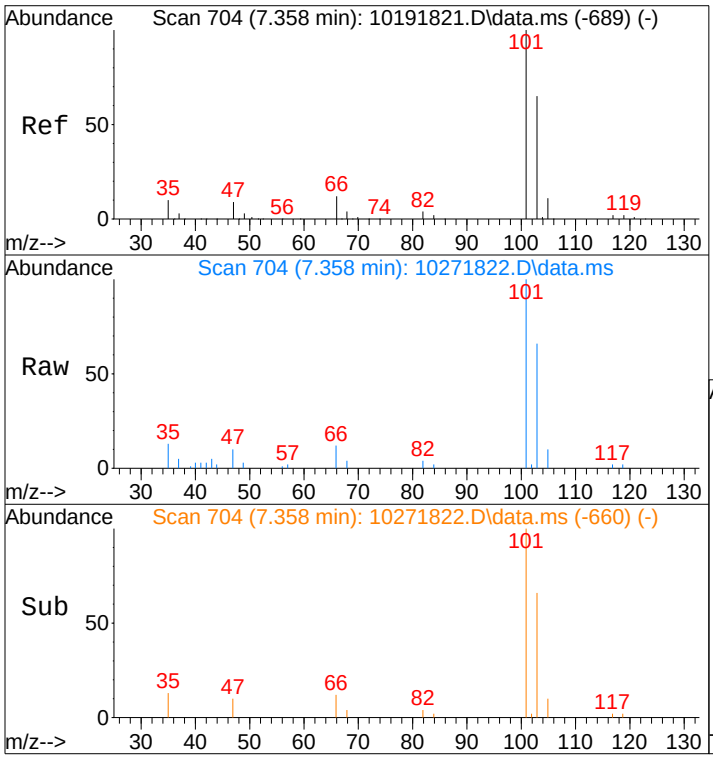


#12
Acrolein
Concen: 0.09 ng
RT: 6.93 min Scan# 627
Delta R.T. 0.016 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 56 Resp: 1026

Ion	Ratio	Lower	Upper
56	100		
55	70.6	51.0	91.0

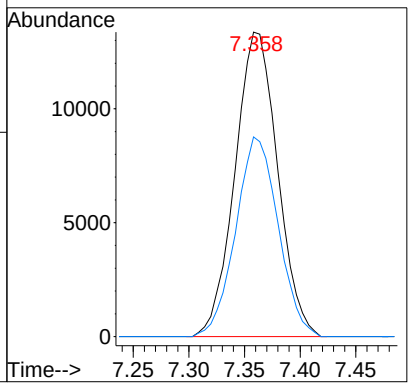


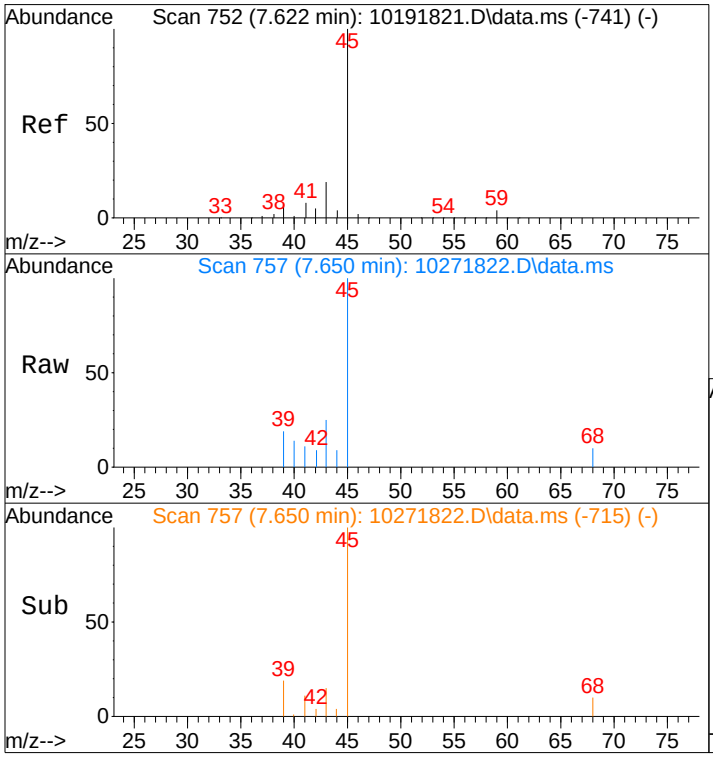


#14
Trichlorofluoromethane
Concen: 0.89 ng
RT: 7.36 min Scan# 704
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:101 Resp: 35639

Ion	Ratio	Lower	Upper
101	100		
103	65.2	44.8	84.8

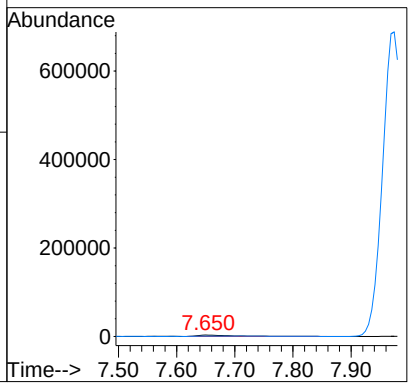


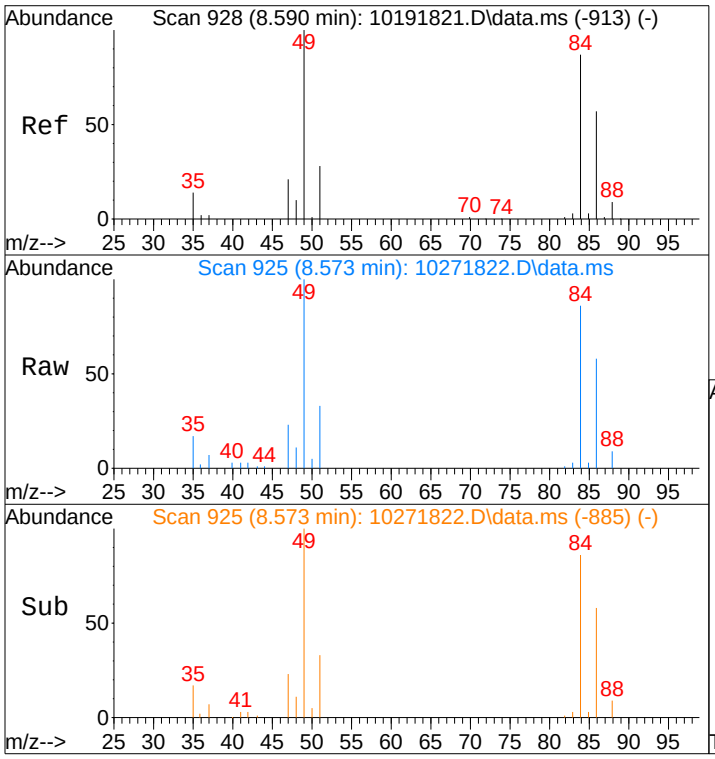


#15
2-Propanol (Isopropanol)
Concen: 0.30 ng
RT: 7.65 min Scan# 757
Delta R.T. -0.016 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 45 Resp: 14078

Ion	Ratio	Lower	Upper
45	100		
43	48.1	0.0	39.6#

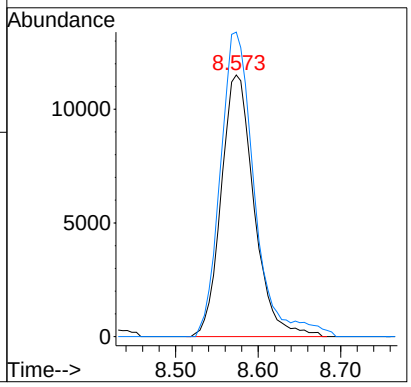


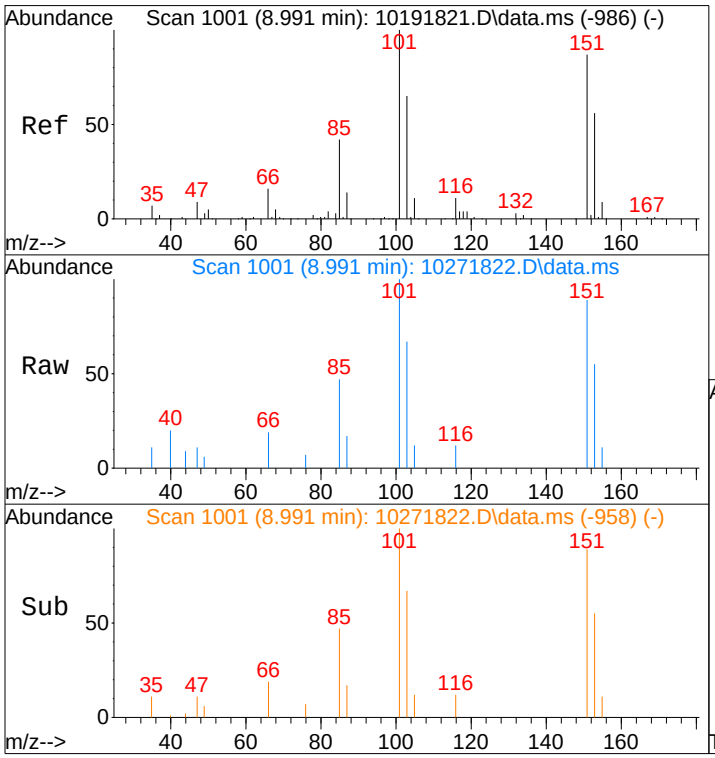


#19
Methylene Chloride
Concen: 1.54 ng
RT: 8.57 min Scan# 925
Delta R.T. -0.027 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 84 Resp: 31896

Ion	Ratio	Lower	Upper
84	100		
49	120.5	92.1	142.1

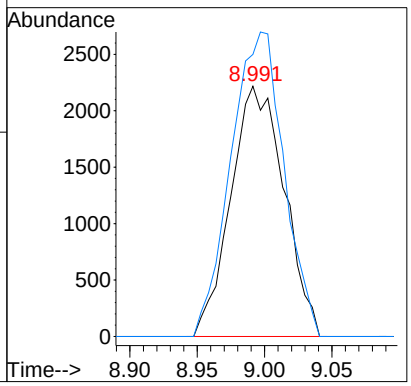


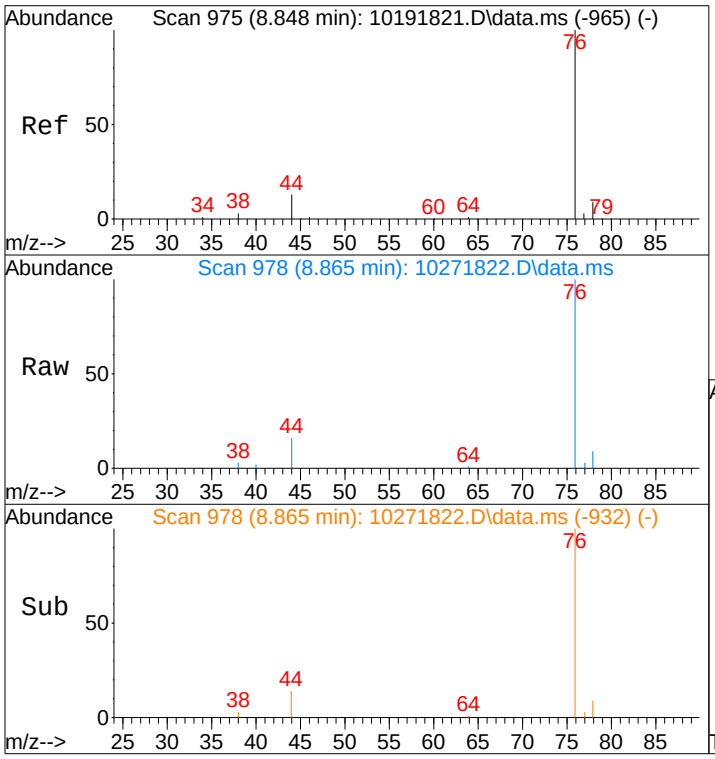


#21
Trichlorotrifluoroethane
Concen: 0.29 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:151 Resp: 6124

Ion	Ratio	Lower	Upper
151	100		
101	120.8	94.4	134.4

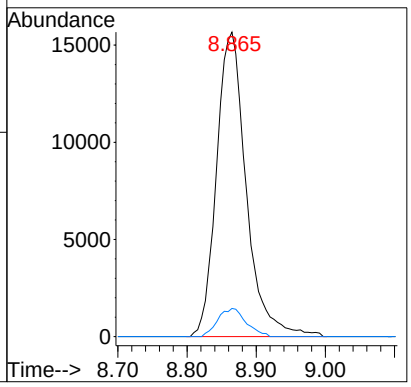


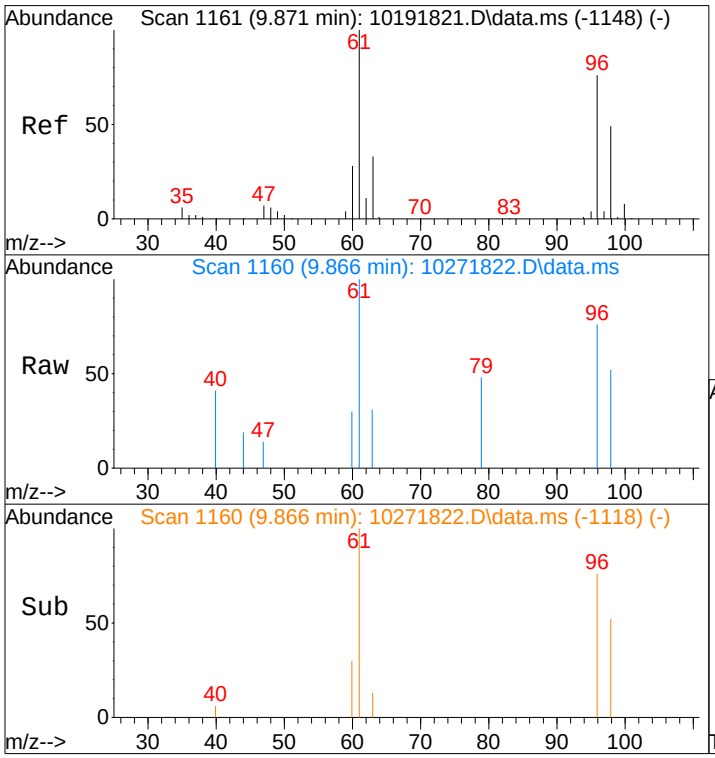


#22
Carbon Disulfide
Concen: 0.63 ng
RT: 8.86 min Scan# 978
Delta R.T. 0.005 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 76 Resp: 46752

Ion	Ratio	Lower	Upper
76	100		
78	8.8	0.0	29.3

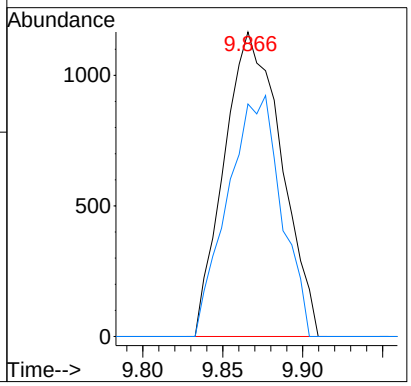


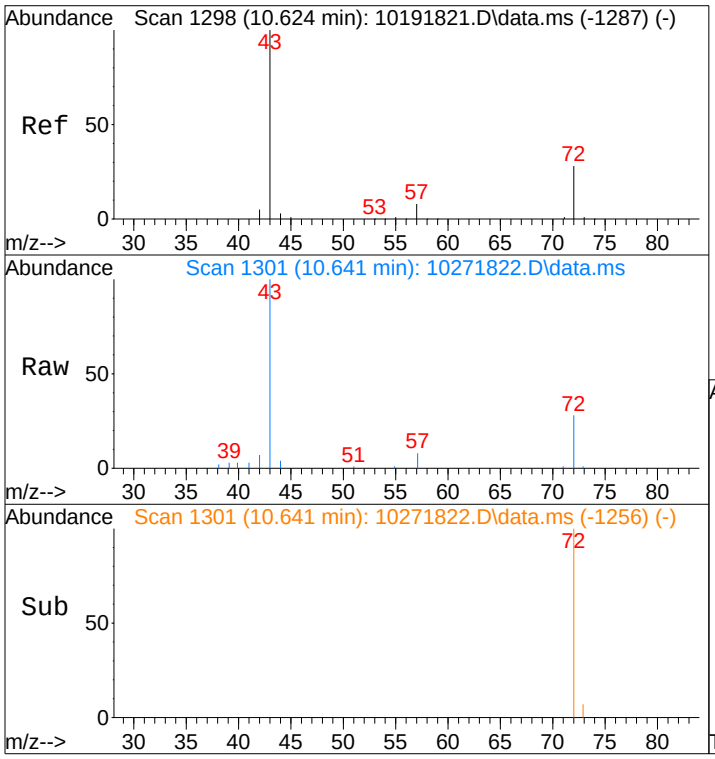


#23
trans-1,2-Dichloroethene
Concen: 0.10 ng
RT: 9.87 min Scan# 1160
Delta R.T. -0.016 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 61 Resp: 2907

Ion	Ratio	Lower	Upper
61	100		
96	74.0	56.4	96.4

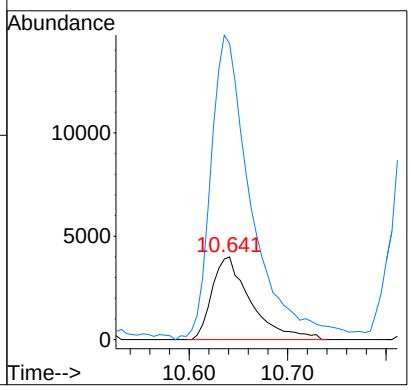


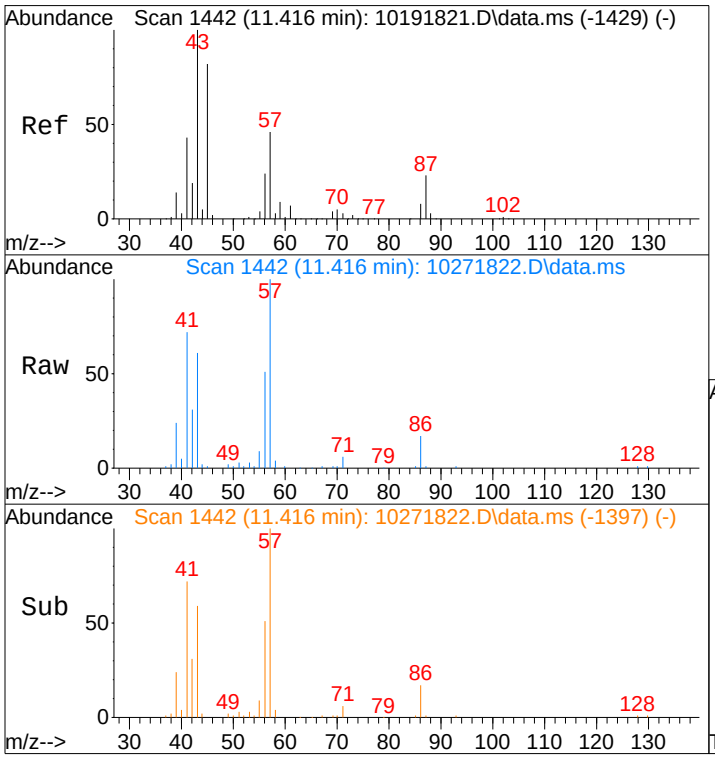


#27
2-Butanone (MEK)
Concen: 0.83 ng
RT: 10.64 min Scan# 1301
Delta R.T. 0.000 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 72 Resp: 10930

Ion	Ratio	Lower	Upper
72	100		
43	390.8	350.1	390.1#

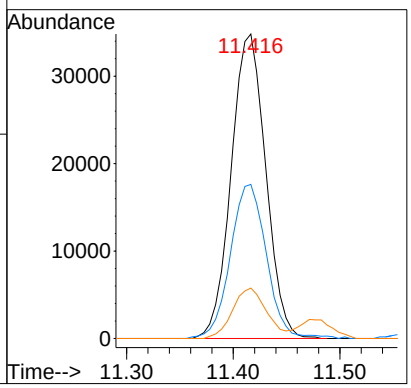


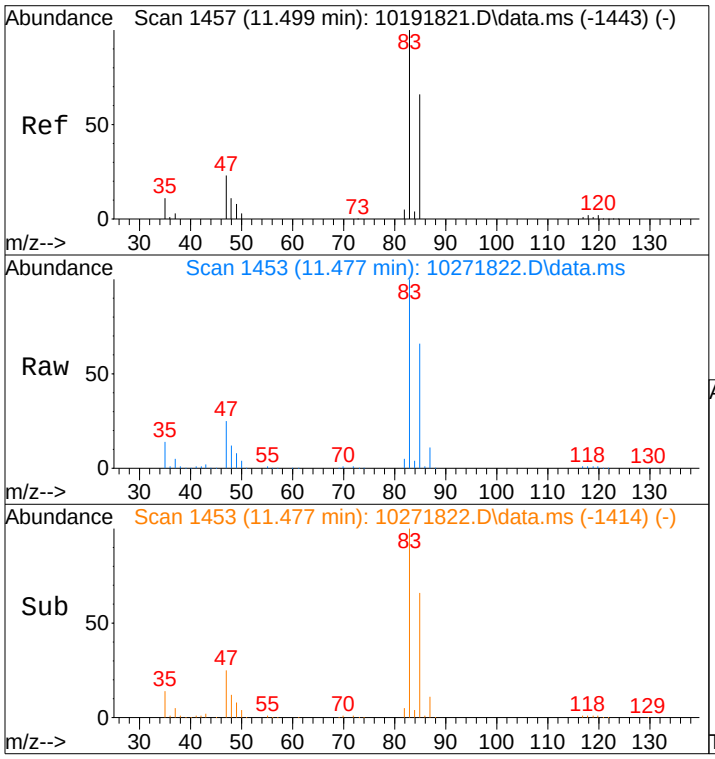


#31
n-Hexane
Concen: 2.45 ng
RT: 11.42 min Scan# 1442
Delta R.T. 0.000 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 57 Resp: 78556

Ion	Ratio	Lower	Upper
57	100		
56	52.8	41.4	62.0
86	16.3	13.7	20.5

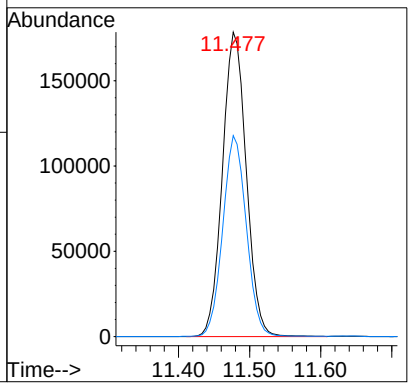


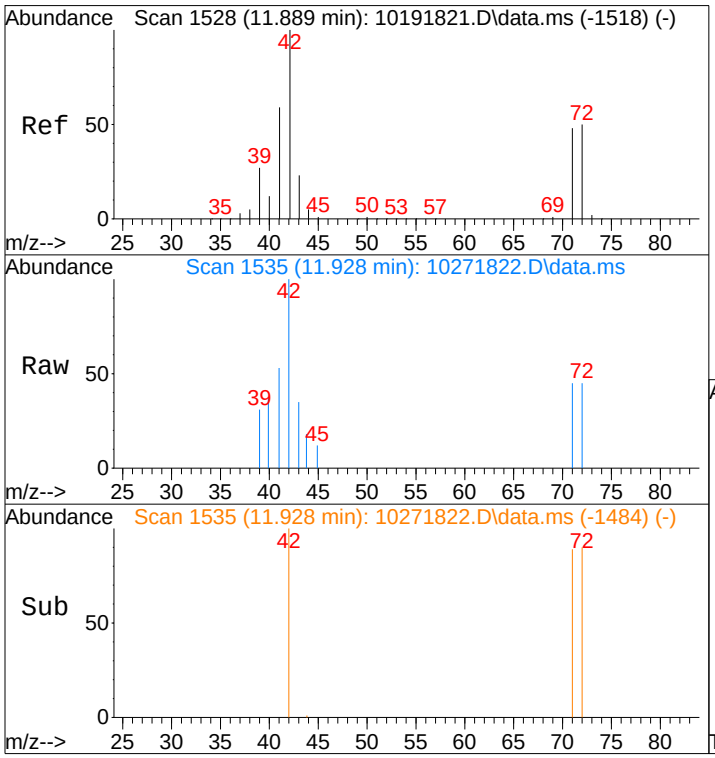


#32
Chloroform
Concen: 11.15 ng
RT: 11.48 min Scan# 1453
Delta R.T. -0.033 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 83 Resp: 415743

Ion	Ratio	Lower	Upper
83	100		
85	65.5	45.5	85.5

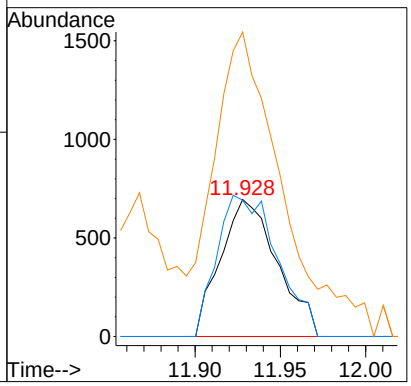


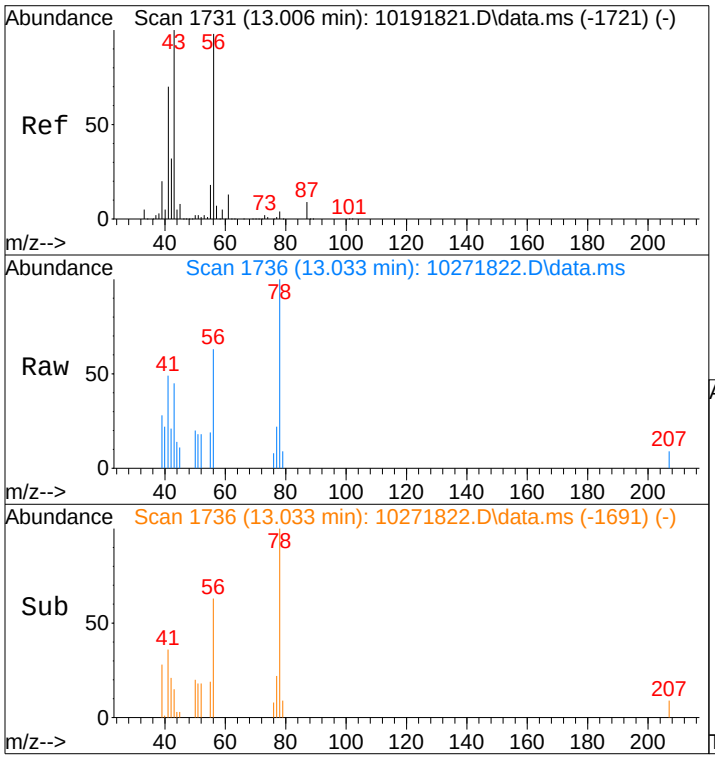


#34
Tetrahydrofuran (THF)
Concen: 0.12 ng
RT: 11.93 min Scan# 1535
Delta R.T. 0.033 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 72 Resp: 1609

Ion	Ratio	Lower	Upper
72	100		
71	109.4	77.2	117.2
42	270.5	181.3	221.3#

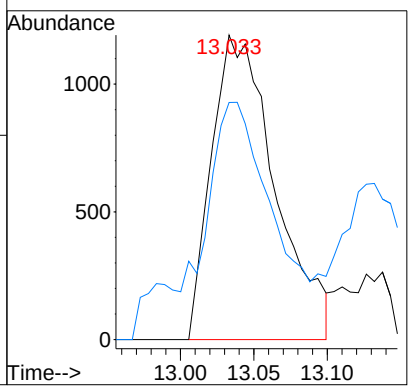


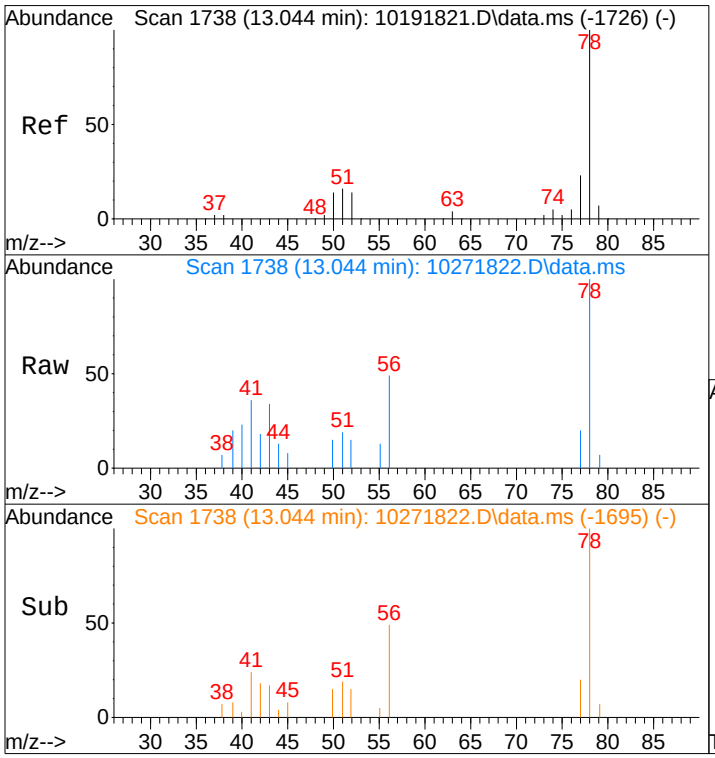


#40
1-Butanol
Concen: 0.19 ng m
RT: 13.03 min Scan# 1736
Delta R.T. 0.000 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 56 Resp: 3585

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

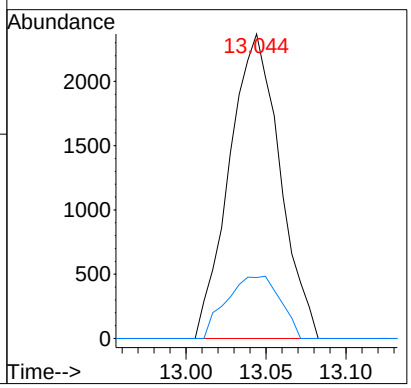


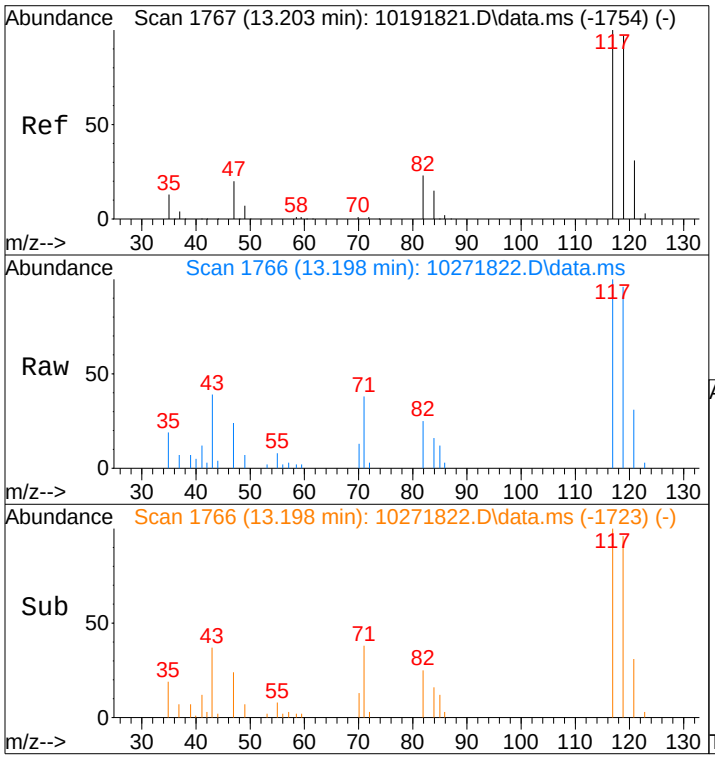


#41
Benzene
Concen: 0.06 ng
RT: 13.04 min Scan# 1738
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 78 Resp: 5205

Ion	Ratio	Lower	Upper
78	100		
77	21.7	3.5	43.5

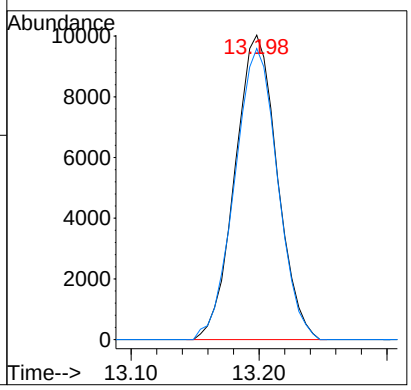


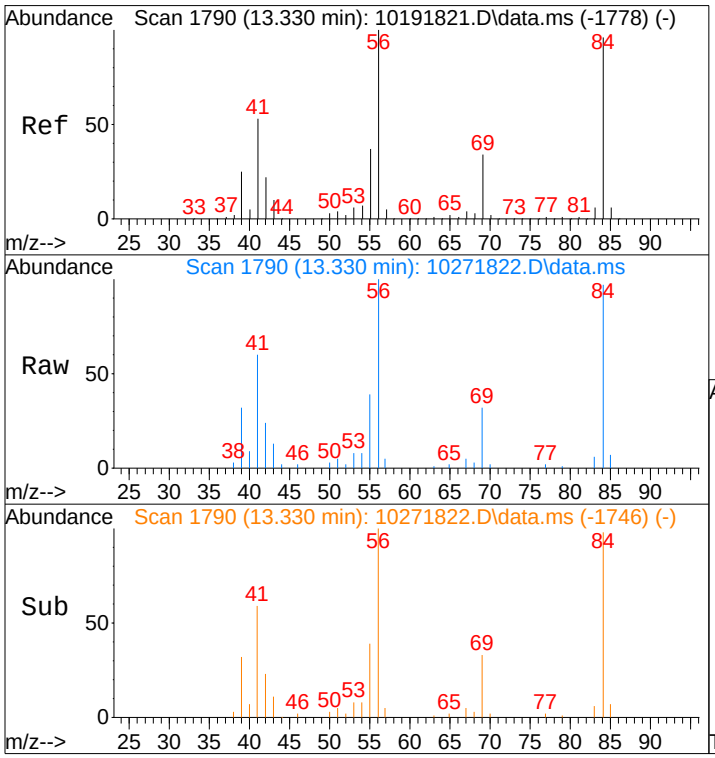


#42
Carbon Tetrachloride
Concen: 0.71 ng
RT: 13.20 min Scan# 1766
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:117 Resp: 23091

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.0	116.0

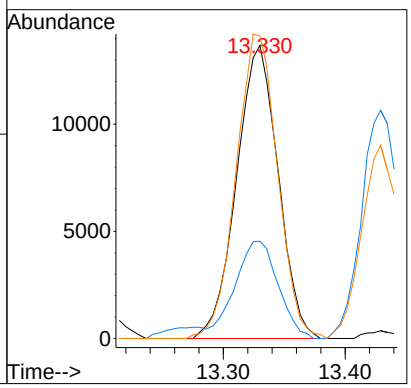


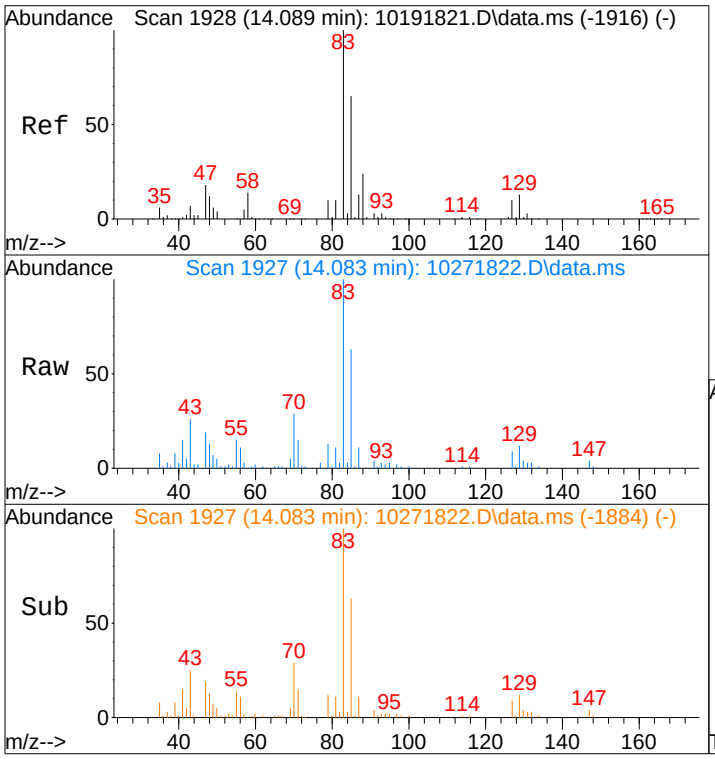


#43
Cyclohexane
Concen: 0.98 ng
RT: 13.33 min Scan# 1790
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 84 Resp: 32468

Ion	Ratio	Lower	Upper
84	100		
69	34.4	14.8	54.8
56	103.4	83.9	123.9

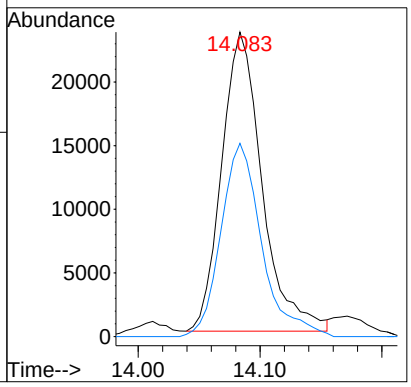


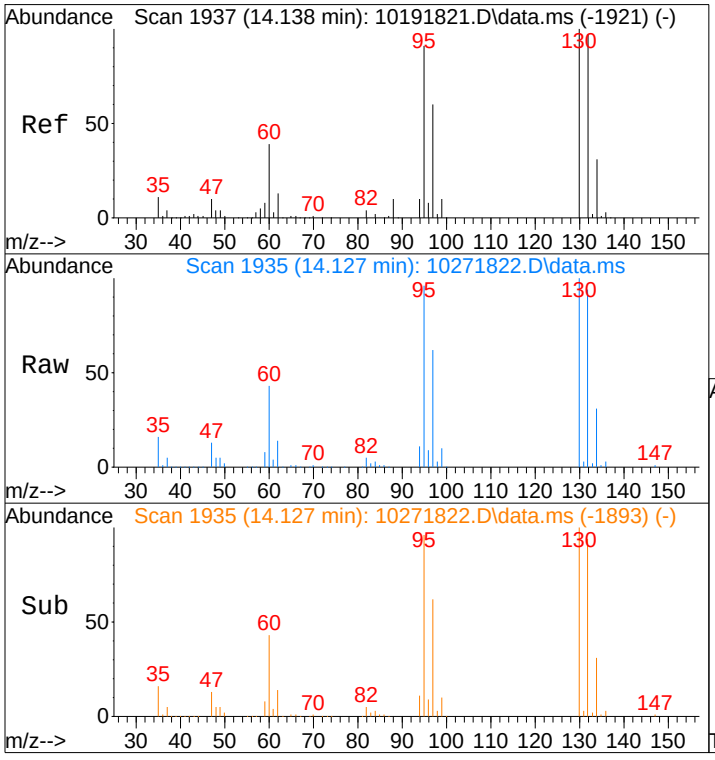


#46
Bromodichloromethane
Concen: 1.81 ng
RT: 14.08 min Scan# 1927
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 83 Resp: 54261

Ion	Ratio	Lower	Upper
83	100		
85	65.0	45.0	85.0

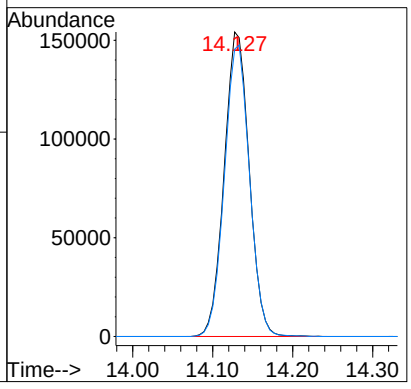


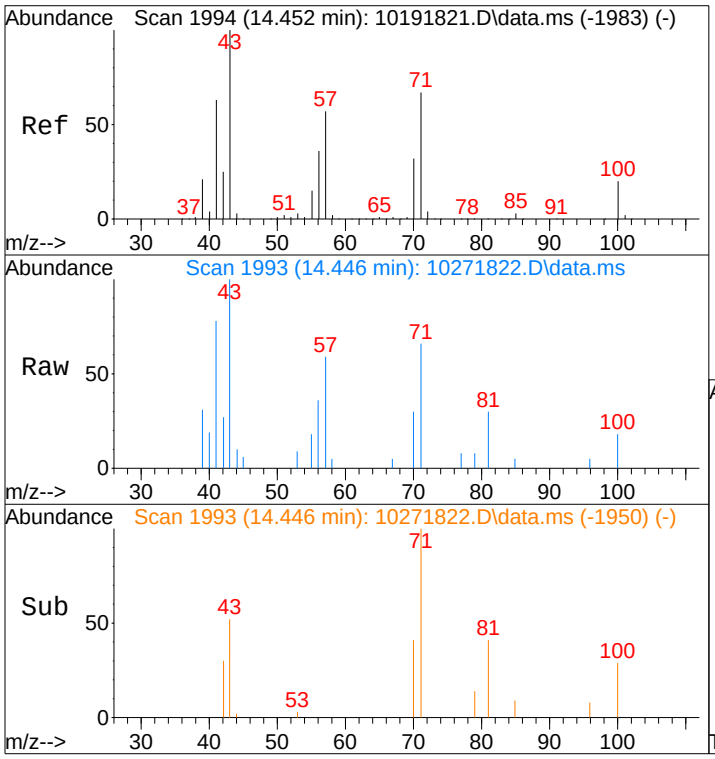


#47
Trichloroethene
Concen: 13.28 ng
RT: 14.13 min Scan# 1935
Delta R.T. -0.017 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:130 Resp: 334934

Ion	Ratio	Lower	Upper
130	100		
132	96.1	75.7	115.7

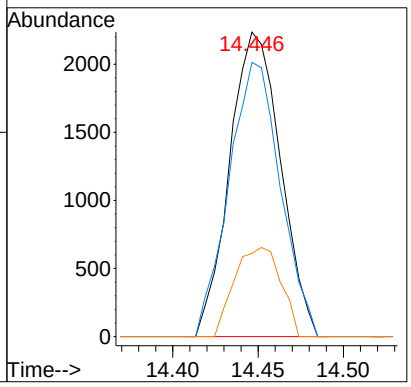


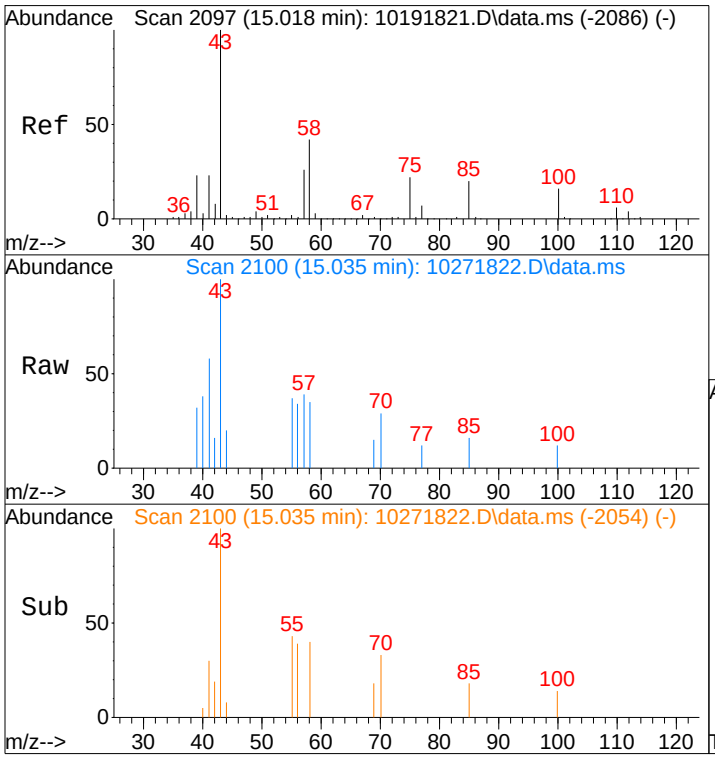


#51
n-Heptane
Concen: 0.24 ng
RT: 14.45 min Scan# 1993
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 71 Resp: 4643

Ion	Ratio	Lower	Upper
71	100		
57	91.1	66.4	106.4
100	26.7	10.6	50.6

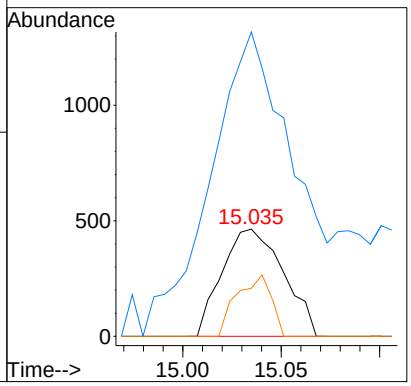


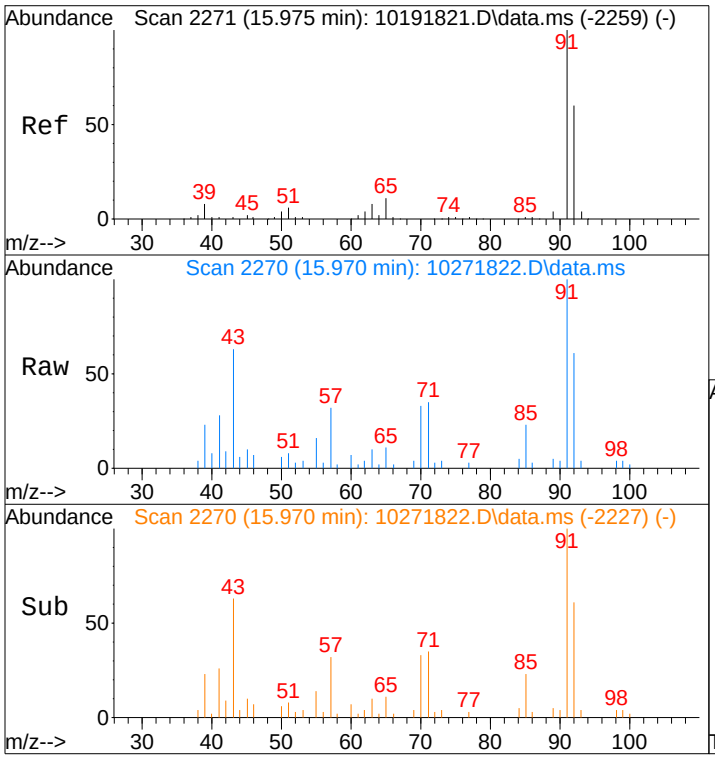


#53
4-Methyl-2-pentanone
Concen: 0.06 ng
RT: 15.03 min Scan# 2100
Delta R.T. 0.005 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 58 Resp: 1009

Ion	Ratio	Lower	Upper
58	100		
43	446.2	191.8	287.6#
85	32.0	39.7	59.5#

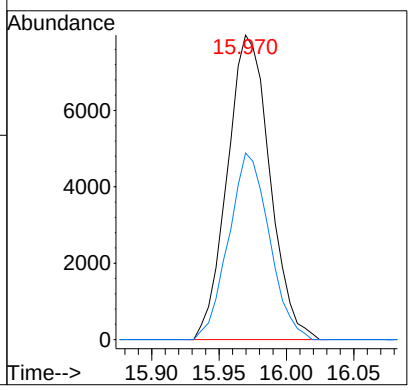


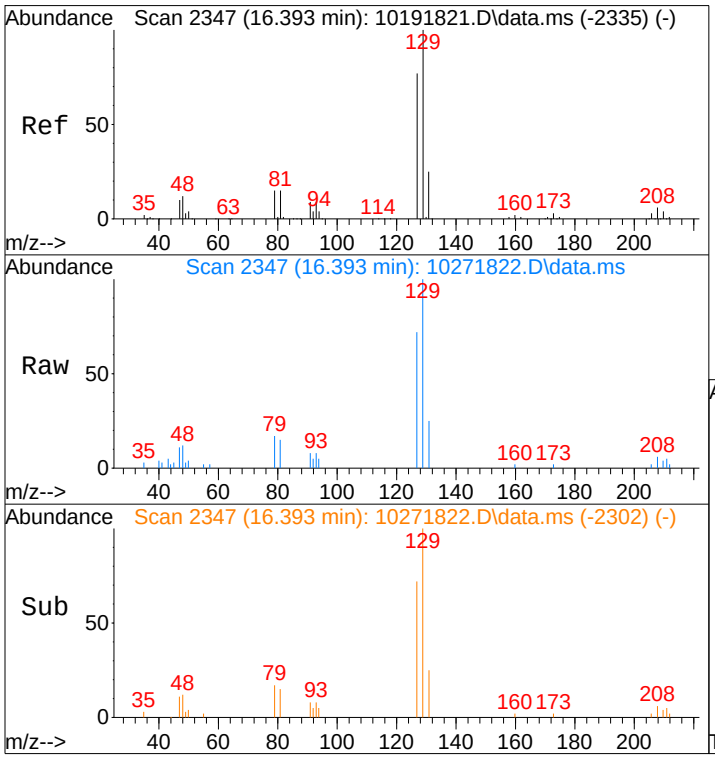


#58
Toluene
Concen: 0.20 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 91 Resp: 17486

Ion	Ratio	Lower	Upper
91	100		
92	58.7	39.4	79.4

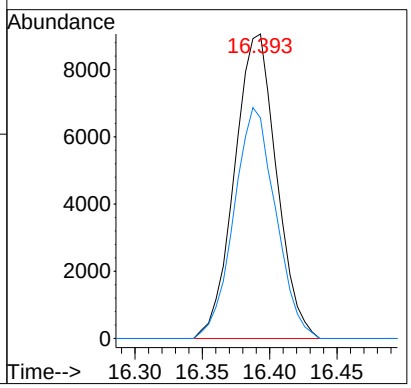


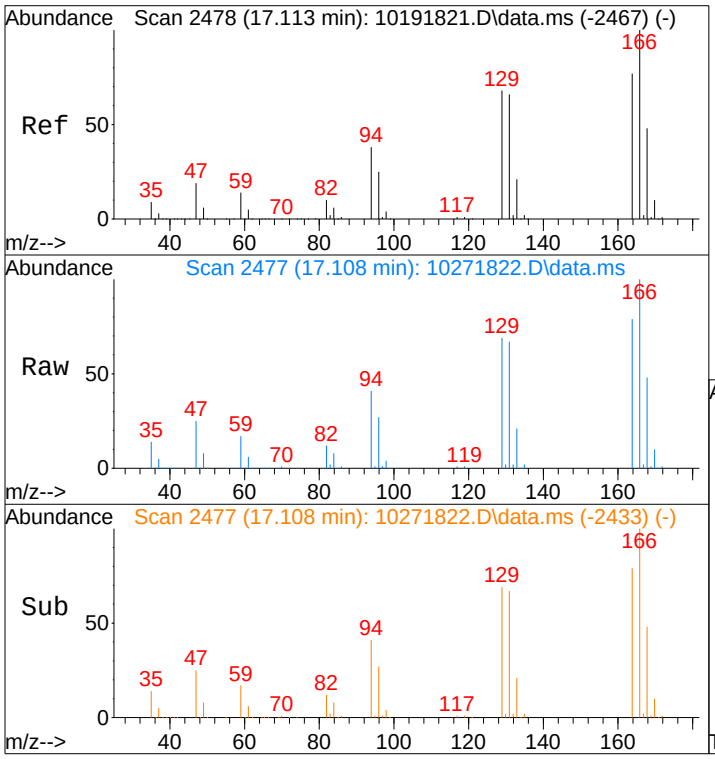


#60
Dibromochloromethane
Concen: 0.76 ng
RT: 16.39 min Scan# 2347
Delta R.T. 0.000 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:129 Resp: 19657

Ion	Ratio	Lower	Upper
129	100		
127	75.3	57.5	97.5

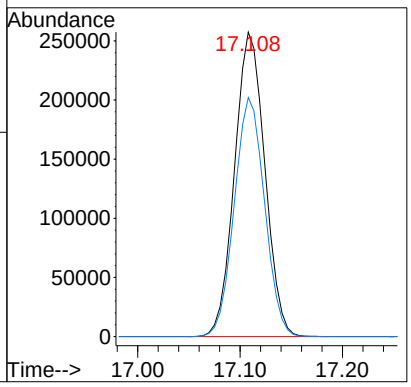


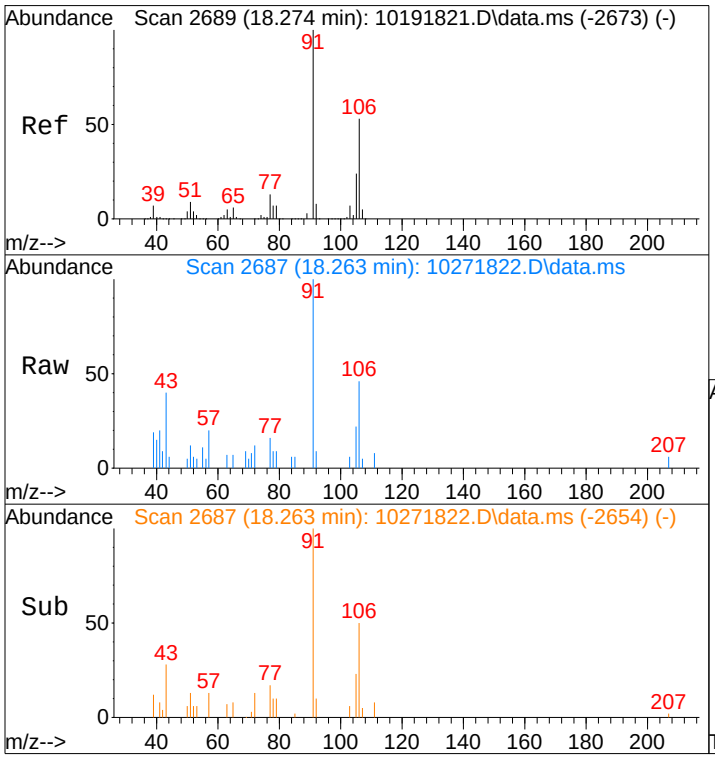


#64
Tetrachloroethene
Concen: 19.47 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:166 Resp: 529481

Ion	Ratio	Lower	Upper
166	100		
164	78.5	57.8	97.8

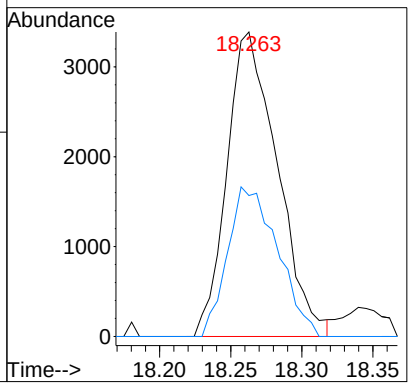


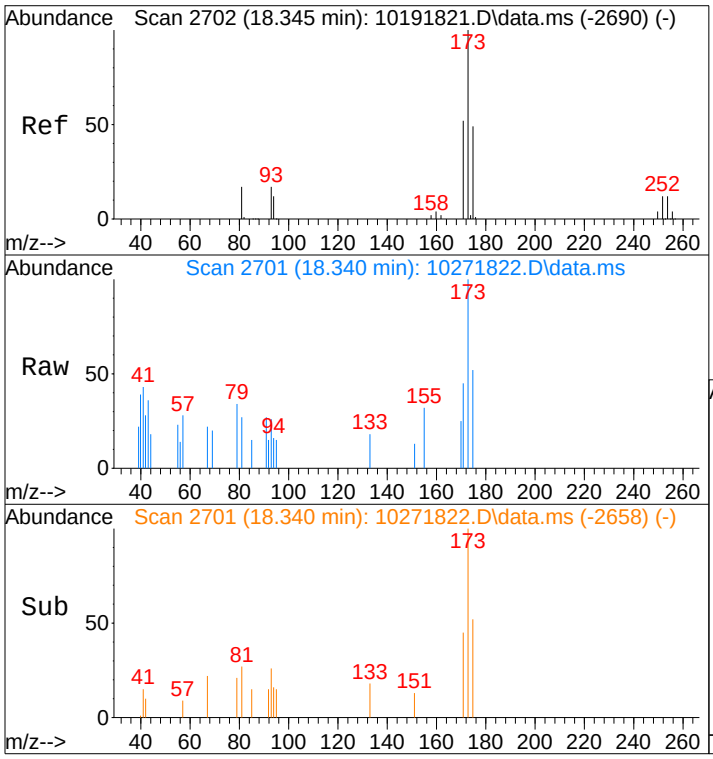


#67
m- & p-Xylenes
Concen: 0.11 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 91 Resp: 8339

Ion	Ratio	Lower	Upper
91	100		
106	48.7	32.2	72.2

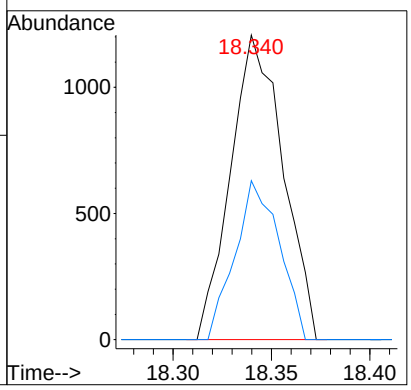


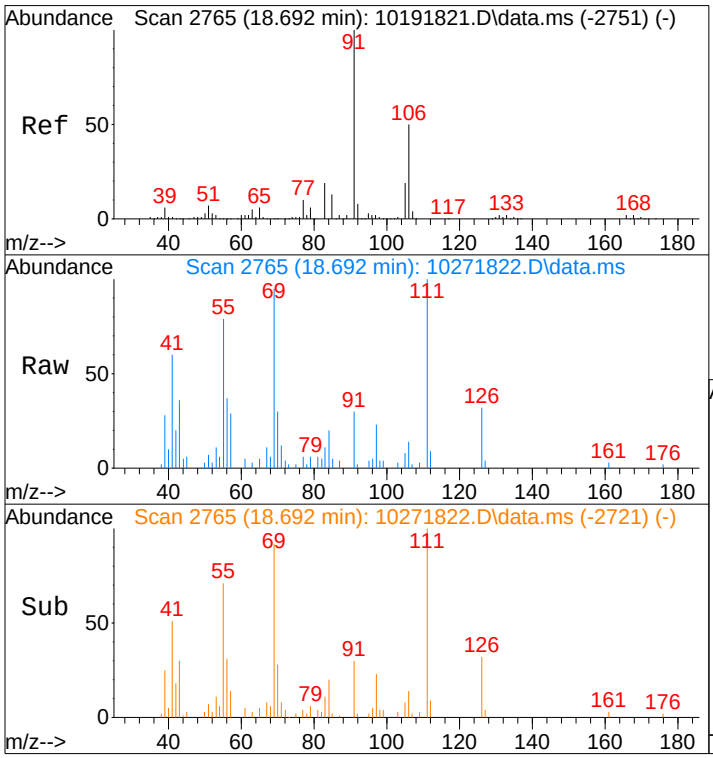


#68
Bromoform
Concen: 0.10 ng
RT: 18.34 min Scan# 2701
Delta R.T. -0.011 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:173 Resp: 2237

Ion	Ratio	Lower	Upper
173	100		
175	44.1	29.1	69.1

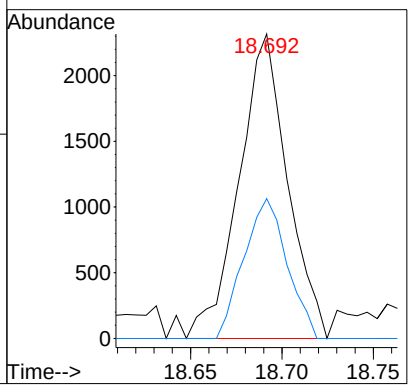


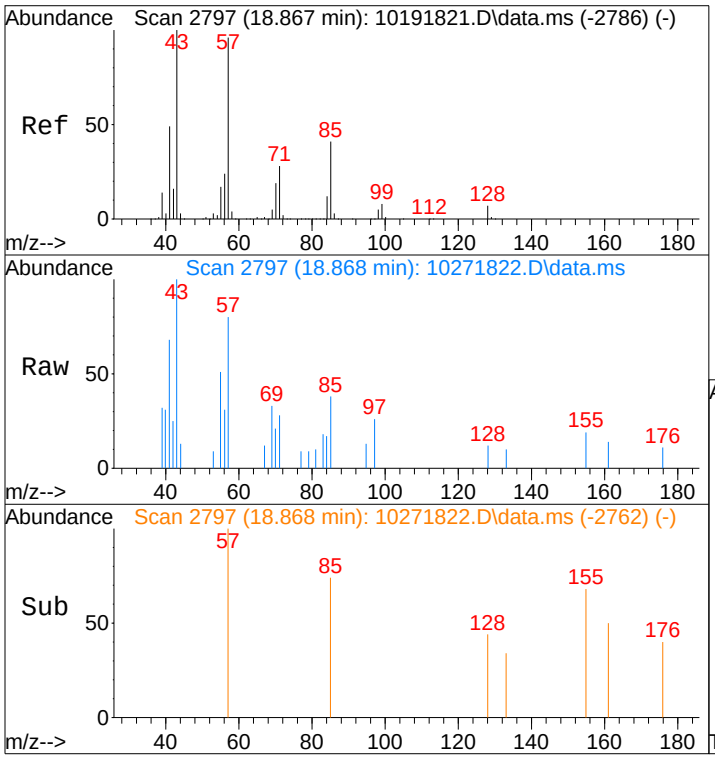


#70
o-Xylene
Concen: 0.06 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 91 Resp: 4273

Ion	Ratio	Lower	Upper
91	100		
106	41.0	29.4	69.4

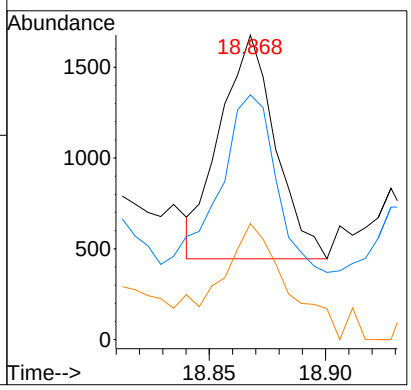


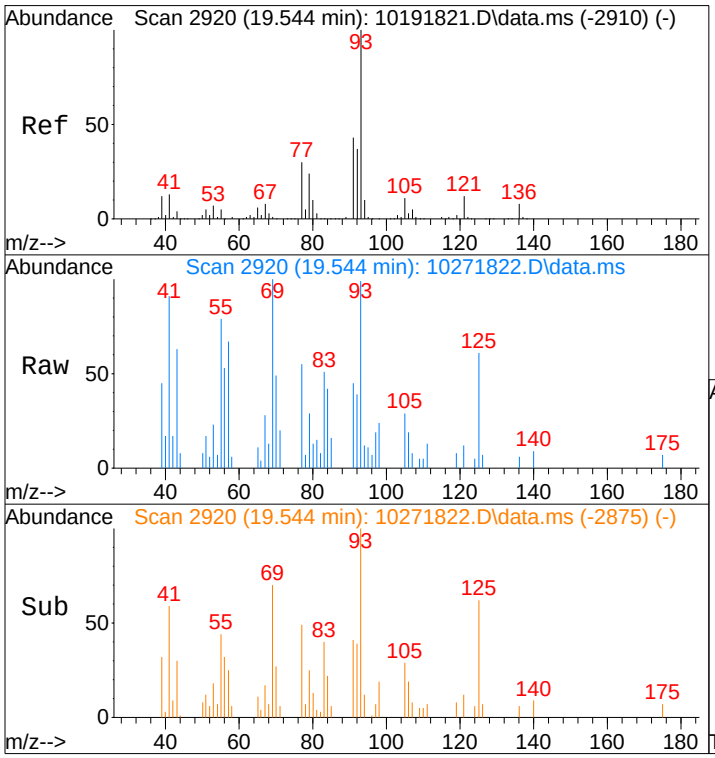


#71
n-Nonane
Concen: 0.06 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 43 Resp: 2047

Ion	Ratio	Lower	Upper
43	100		
57	80.9	75.4	115.4
85	60.2	20.8	60.8

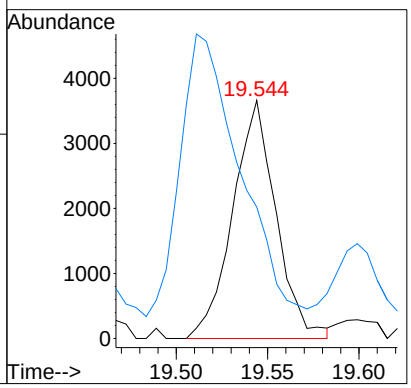


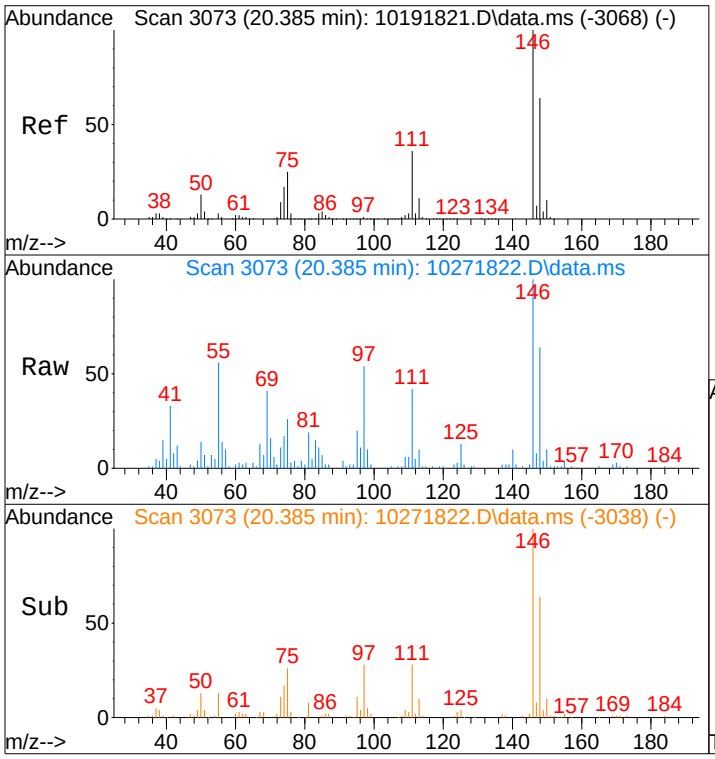


#75
alpha-Pinene
Concen: 0.12 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 93 Resp: 6037

Ion	Ratio	Lower	Upper
93	100		
77	168.5	10.2	50.2#

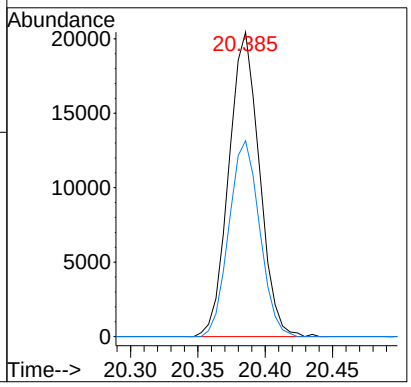


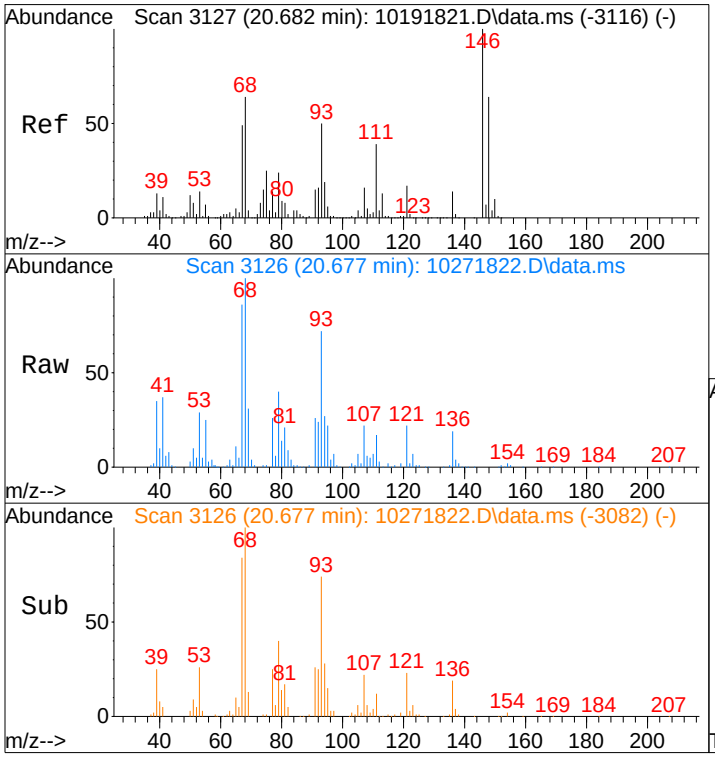


#86
1,4-Dichlorobenzene
Concen: 0.63 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion:146 Resp: 32296

Ion	Ratio	Lower	Upper
146	100		
148	64.5	44.2	84.2

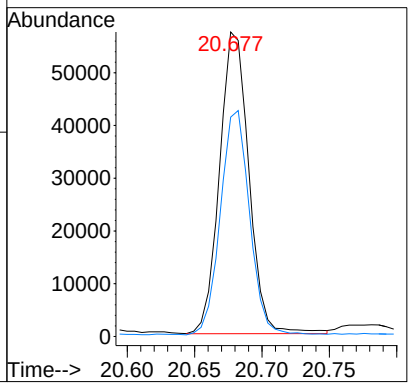




#91
d-Limonene
Concen: 2.91 ng
RT: 20.68 min Scan# 3126
Delta R.T. -0.006 min
Lab File: 10271822.D
Acq: 27 Oct 2018 16:47

Tgt Ion: 68 Resp: 86953

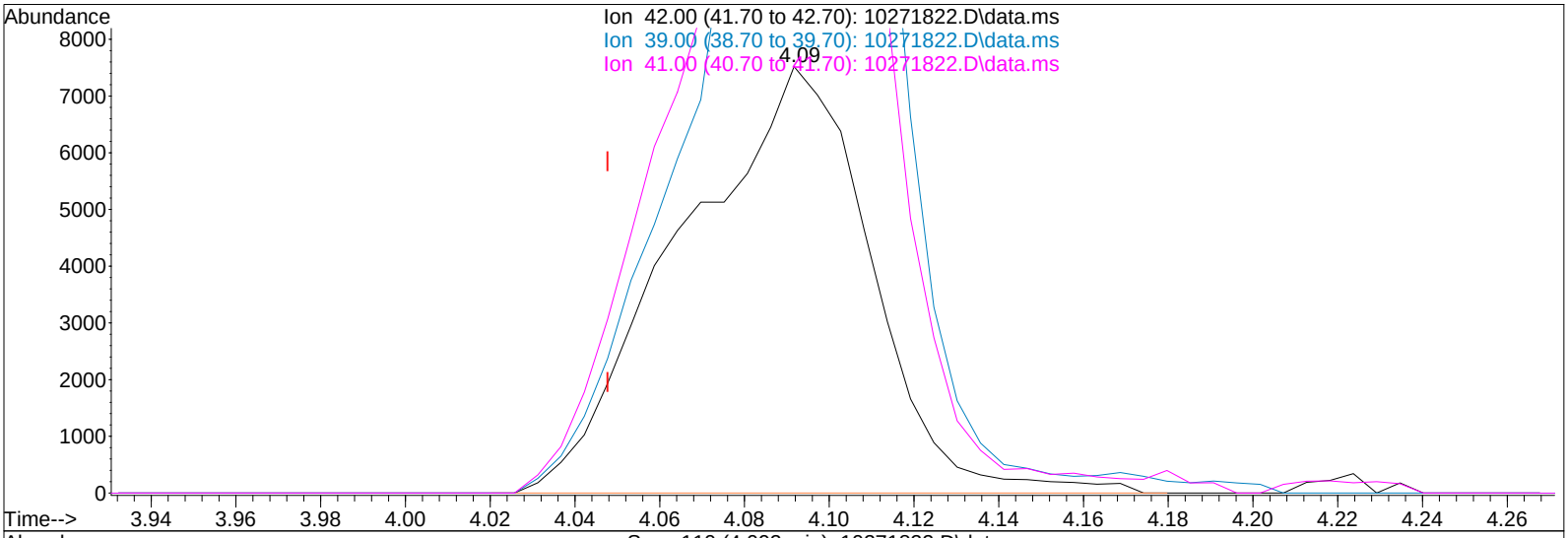
Ion	Ratio	Lower	Upper
68	100		
93	73.8	57.4	97.4

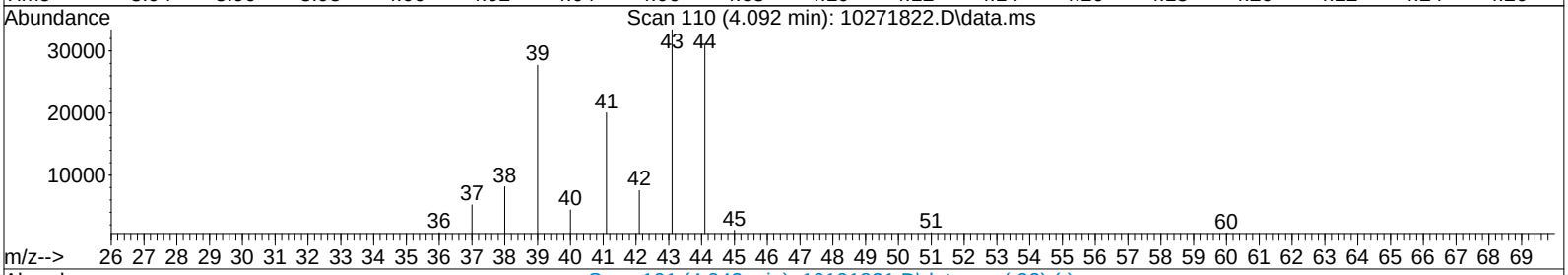


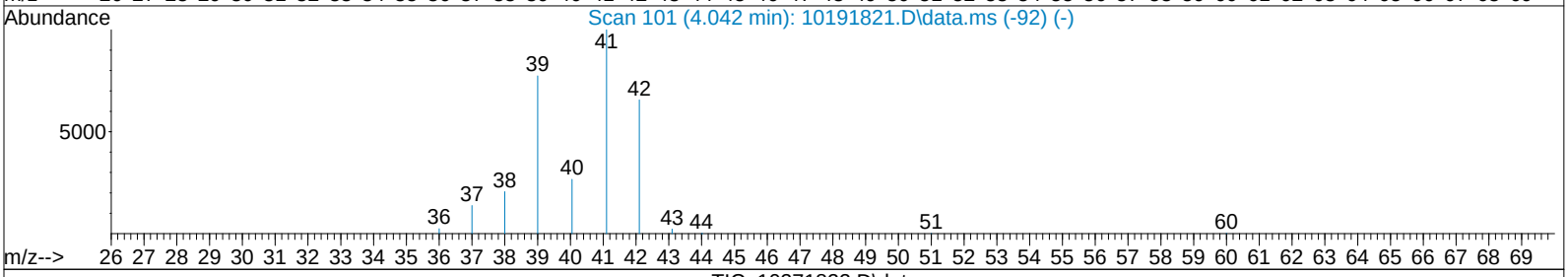
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 28 11:34:05 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271822.D\data.ms

(2) Propene (T)

4.092min (+0.044) 1.13ng

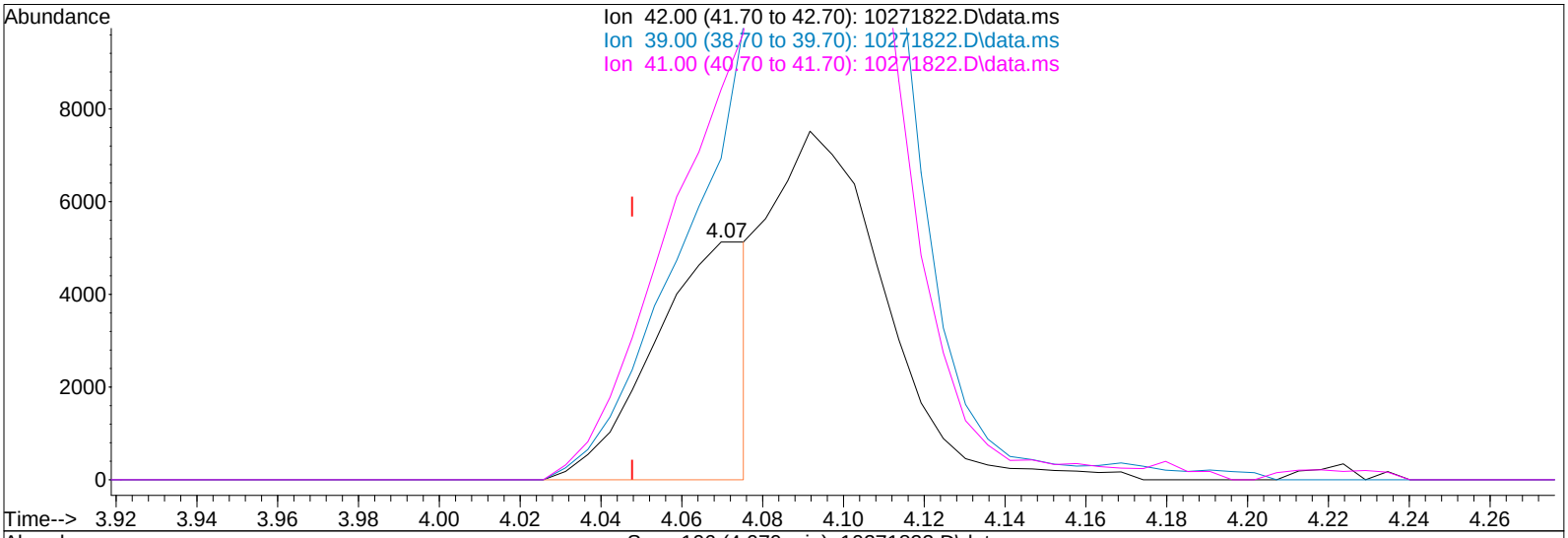
response 23337

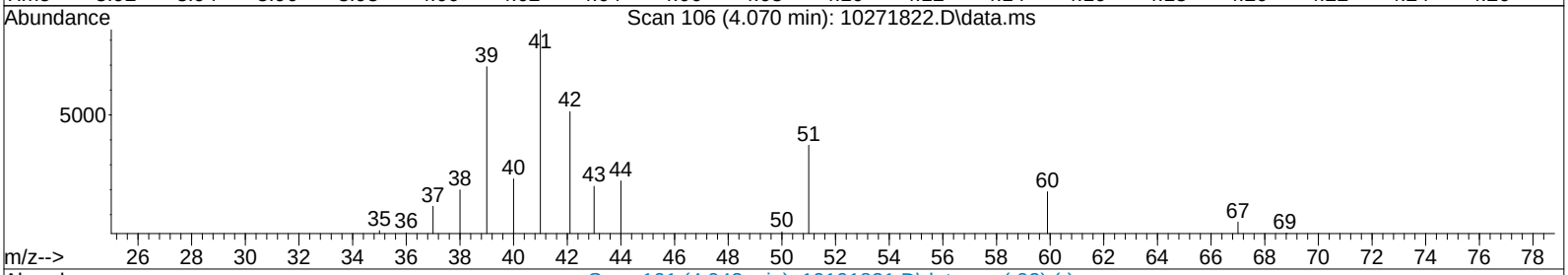
Ion	Exp%	Act%
42.00	100	100
39.00	118.50	278.66#
41.00	151.90	232.98#
0.00	0.00	0.00

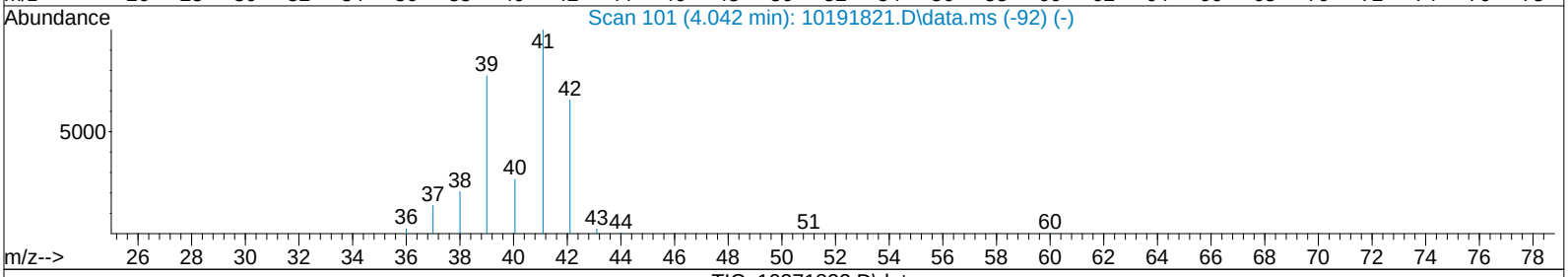
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 28 11:34:05 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271822.D\data.ms

(2) Propene (T)

4.070min (+0.022) 0.41ng m

response 8424

Ion	Exp%	Act%
42.00	100	100
39.00	118.50	771.96#
41.00	151.90	645.43#
0.00	0.00	0.00

TD 10/29/18
IPC

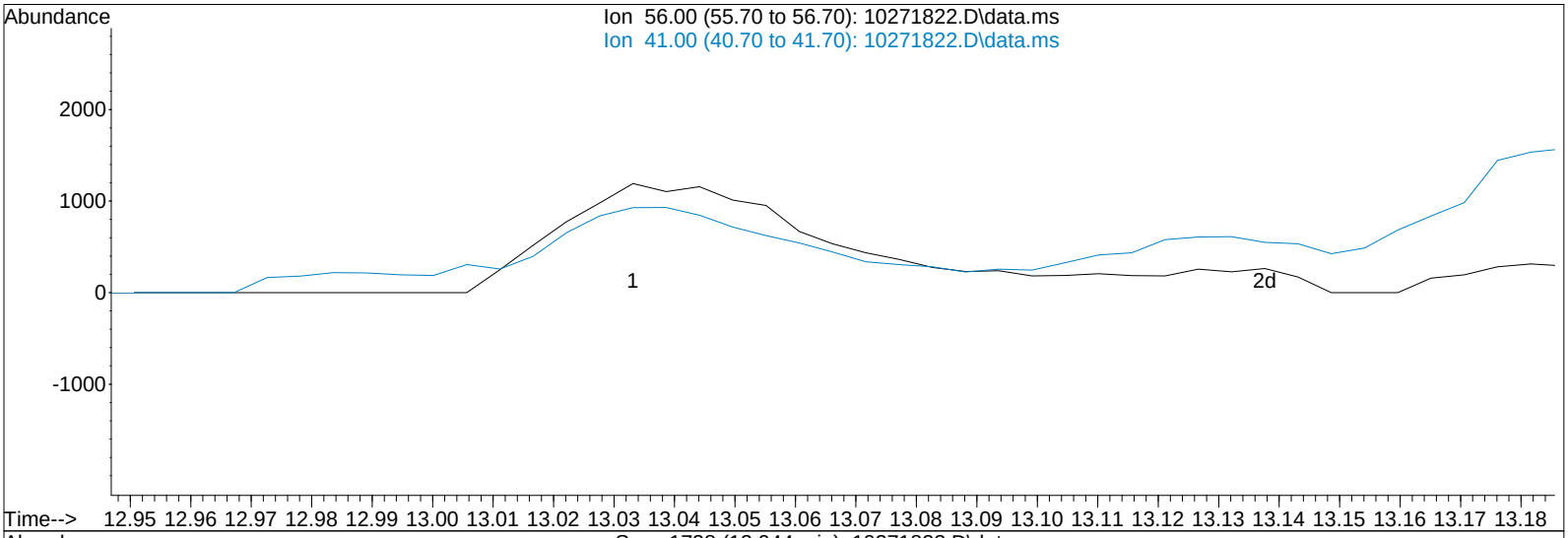
10/30/18

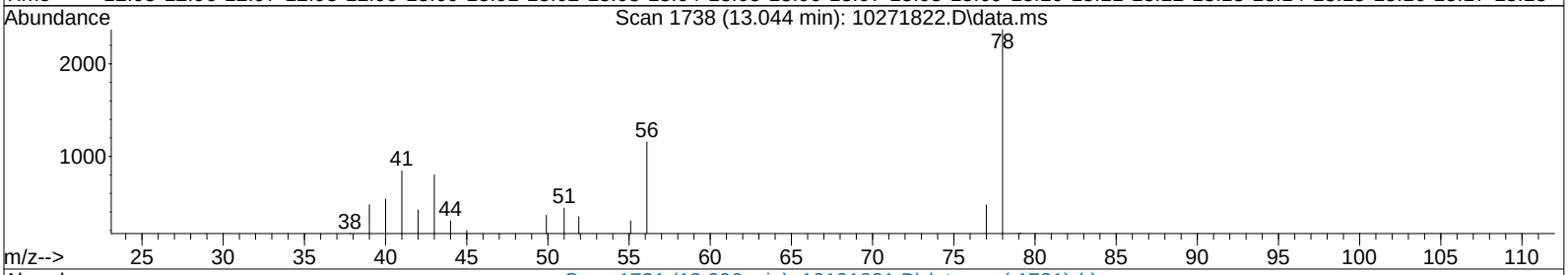
10/30/18

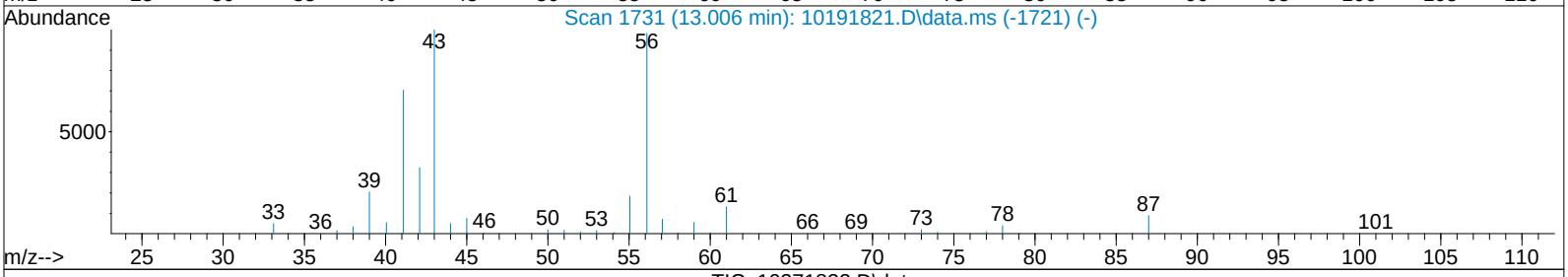
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 29 11:56:03 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271822.D\data.ms

(40) 1-Butanol (T)

13.033min 0.00ng d

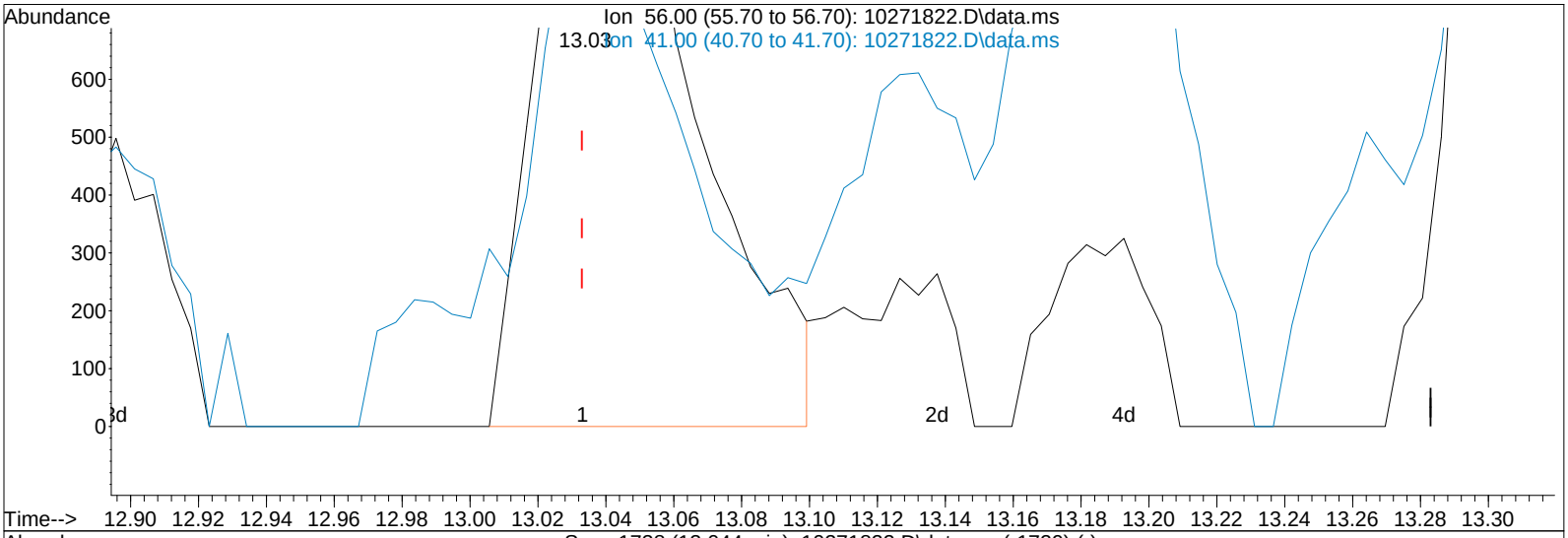
response 0

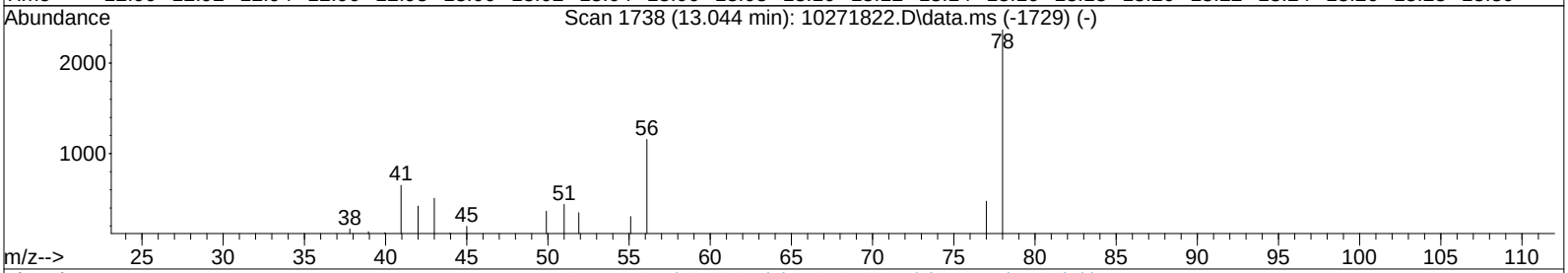
Ion	Exp%	Act%
56.00	100	0.00
41.00	102.40	0.00
0.00	0.00	0.00
0.00	0.00	0.00

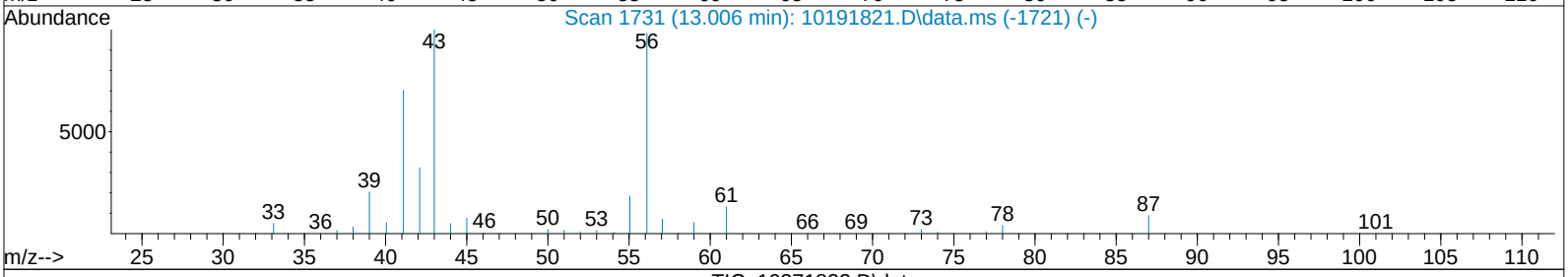
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 29 11:56:03 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271822.D\data.ms

(40) 1-Butanol (T)

13.033min (+0.000) 0.19ng m

response 3585

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

MP

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 29 14:44:10 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

WA 10/30/18

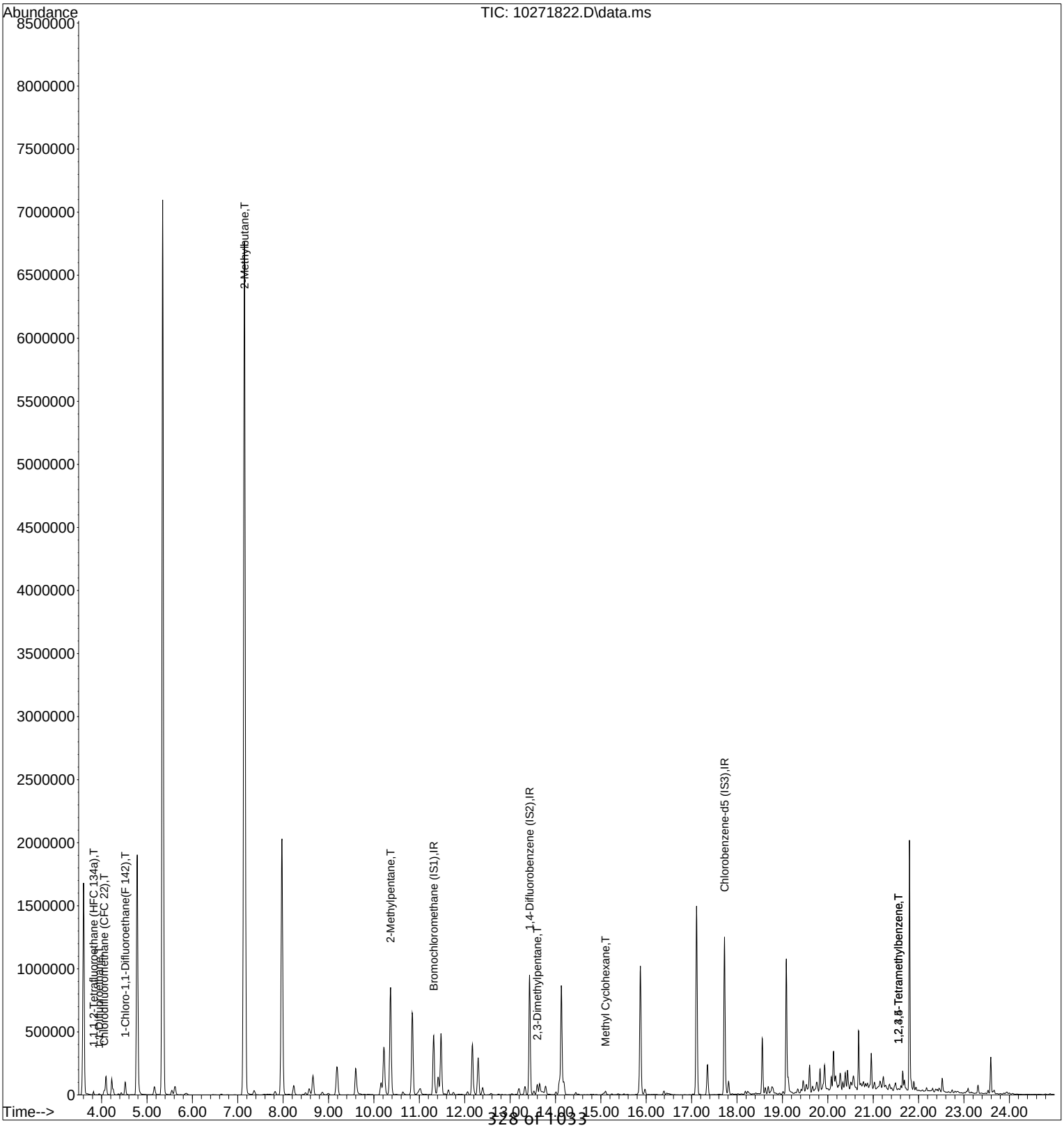
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	221086	12.500 ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	933473	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	399470	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	689	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	12585	0.568 ng	#	80
4) 1,1-Difluoroethane	3.94	65	3801	0.224 ng		95
5) Chlorodifluoromethane ...	4.05	67	3737	0.568 ng		76
6) 1-Chloro-1,1-Difluoroe...	4.52	65	96365	2.007 ng		100
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.15	57	2850714	157.809 ng		85
11) Methyl Acetate	8.57	43	49	N.D.		
12) 2-Methylpentane	10.37	71	271430	14.444 ng		98
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	0.00	84	0	N.D. d		
17) 2,3-Dimethylpentane	13.60	56	40356	1.196 ng		98
18) Dibromomethane	13.86	174	667	N.D.		
20) Methyl Cyclohexane	15.10	55	14810	0.586 ng	#	67
21) 1,3-Dichloropropane	0.00	76	0	N.D. d		
22) 1,1,1,2-Tetrachloroethane	17.82	131	781	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	18.70	75	247	N.D.		
25) Bromobenzene	19.28	77	479	N.D.		
26) 2-Chlorotoluene	19.60	91	845	N.D.		
27) 4-Chlorotoluene	0.00	91	0	N.D. d		
28) Indan	20.73	117	1396	N.D.		
29) Indene	20.82	115	333	N.D.		
30) 1,2,4,5-Tetramethylben...	21.56	119	6090	0.066 ng		86
31) 1,2,3,4-Tetramethylben...	21.56	119	6090	0.068 ng		89
32) 1,2,3,5-Tetramethylben...	21.94	119	1799	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

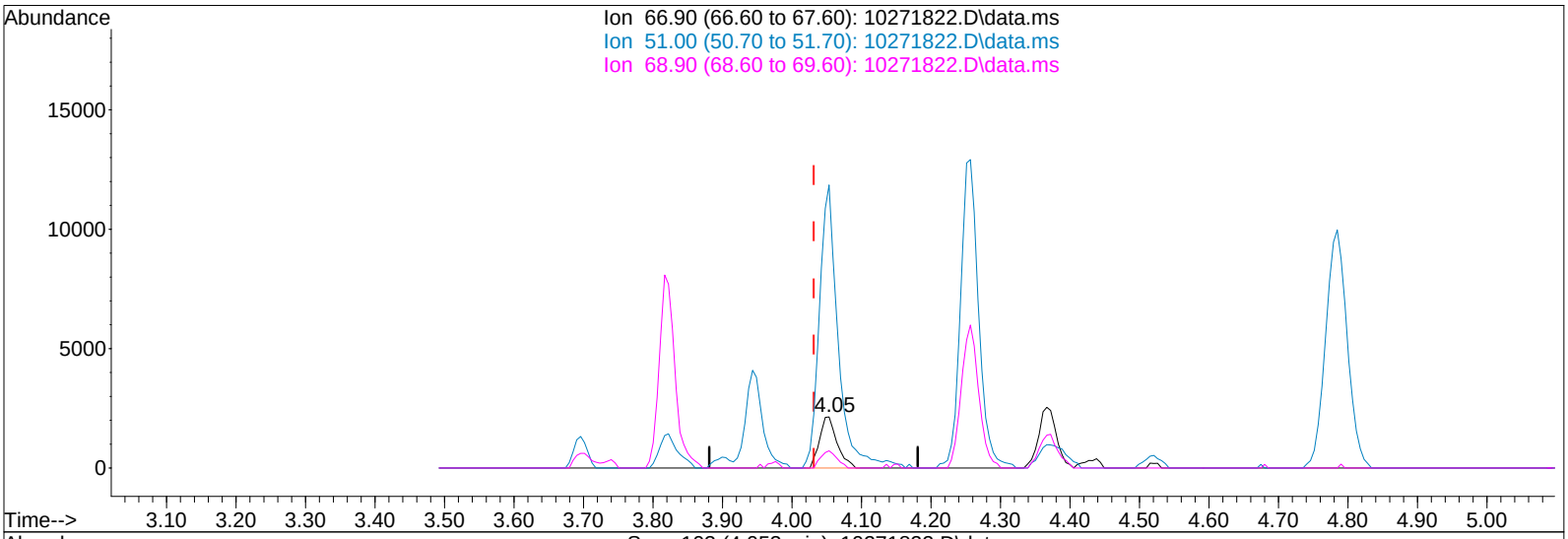
Quant Time: Oct 29 14:44:10 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

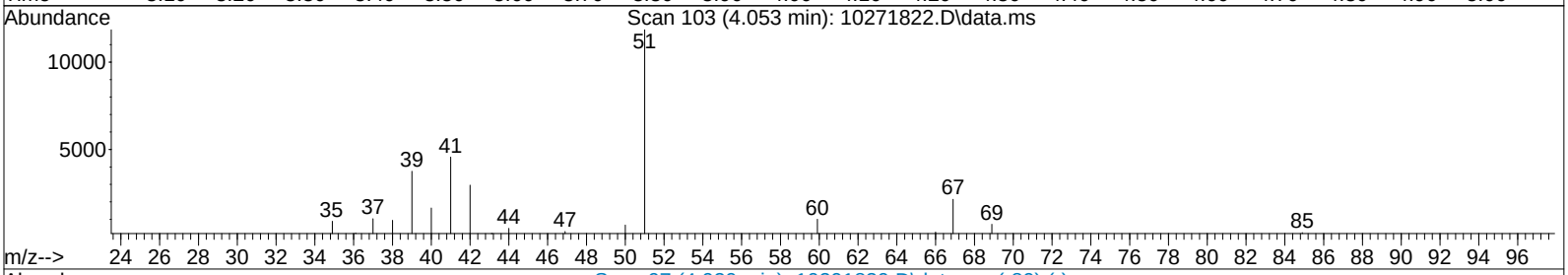


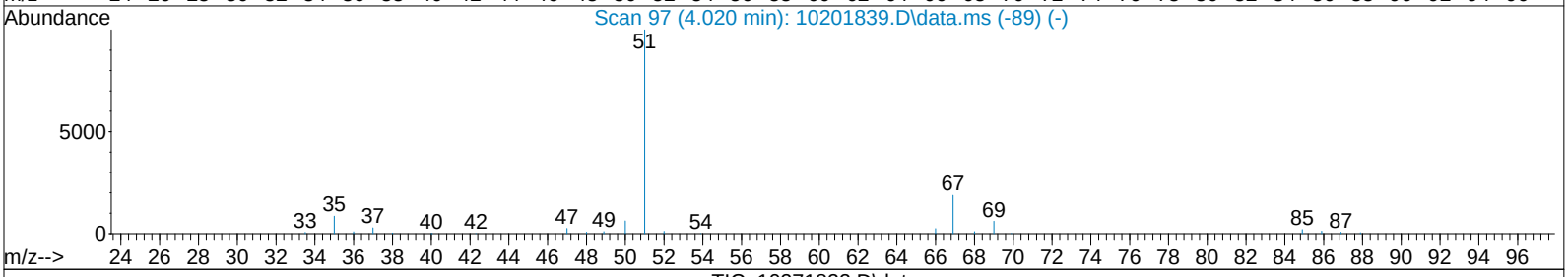
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271822.D
Acq On : 27 Oct 2018 16:47 Operator: WA
Sample : P1805497-009 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 29 14:43:34 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271822.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.053min (+0.022) 0.57ng

response 3737

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	598.88
68.90	31.80	31.26
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271823.D Vial: 15
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:49:36 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233410	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	978355	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	423382	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	347476	12.375	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
57) Toluene-d8 (SS2)	15.87	98	857750	12.722	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
73) Bromofluorobenzene (SS3)	19.09	174	357315	11.659	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.28%				
Target Compounds							Qvalue
2) Propene	4.04	42	24939	1.148	ng		92
3) Dichlorodifluoromethan...	4.21	85	82646	1.694	ng		99
4) Chloromethane	4.53	50	11203	0.361	ng		80
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	808	N.D.			
6) Vinyl Chloride	4.97	62	170	N.D.			
7) 1,3-Butadiene	5.27	54	3654	0.167	ng	#	6
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	6.06	64	1725	0.119	ng		71
10) Ethanol	6.43	45	13903	1.059	ng		89
11) Acetonitrile	6.82	41	180	N.D.			
12) Acrolein	0.00	56	0	N.D.			
13) Acetone	7.11	58	59056m	3.770	ng		
14) Trichlorofluoromethane	7.39	101	27551	0.652	ng		100
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D. d			
16) Acrylonitrile	0.00	53	0	N.D. d			
17) 1,1-Dichloroethene	8.36	96	336	N.D.			
18) 2-Methyl-2-Propanol (t...	8.59	59	2390	N.D.			
19) Methylene Chloride	8.58	84	18923	0.865	ng		98
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D. d			
21) Trichlorotrifluoroethane	9.01	151	2939	0.131	ng		92
22) Carbon Disulfide	8.88	76	69731	0.893	ng		98
23) trans-1,2-Dichloroethene	9.79	61	671	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D. d			
25) Methyl tert-Butyl Ether	10.23	73	1464	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D. d			
27) 2-Butanone (MEK)	10.65	72	7449	0.538	ng		99
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	0.00	61	0	N.D. d			
31) n-Hexane	11.43	57	1809934	53.484	ng		99
32) Chloroform	11.48	83	1074346	27.297	ng		99
34) Tetrahydrofuran (THF)	0.00	72	0	N.D. d			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D. d			
38) 1,1,1-Trichloroethane	12.57	97	3652	0.099	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	12.90	56	15873m	0.802	ng		
41) Benzene	13.05	78	49321	0.548	ng		99
42) Carbon Tetrachloride	13.20	117	32350	0.949	ng		100
43) Cyclohexane	13.34	84	285757	8.197	ng		95
44) tert-Amyl Methyl Ether	13.61	73	711	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D. d			
46) Bromodichloromethane	14.09	83	220437	7.006	ng		76
47) Trichloroethene	14.14	130	1873	0.071	ng		96
48) 1,4-Dioxane	0.00	88	0	N.D. d			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D. d			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271823.D Vial: 15
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:49:36 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

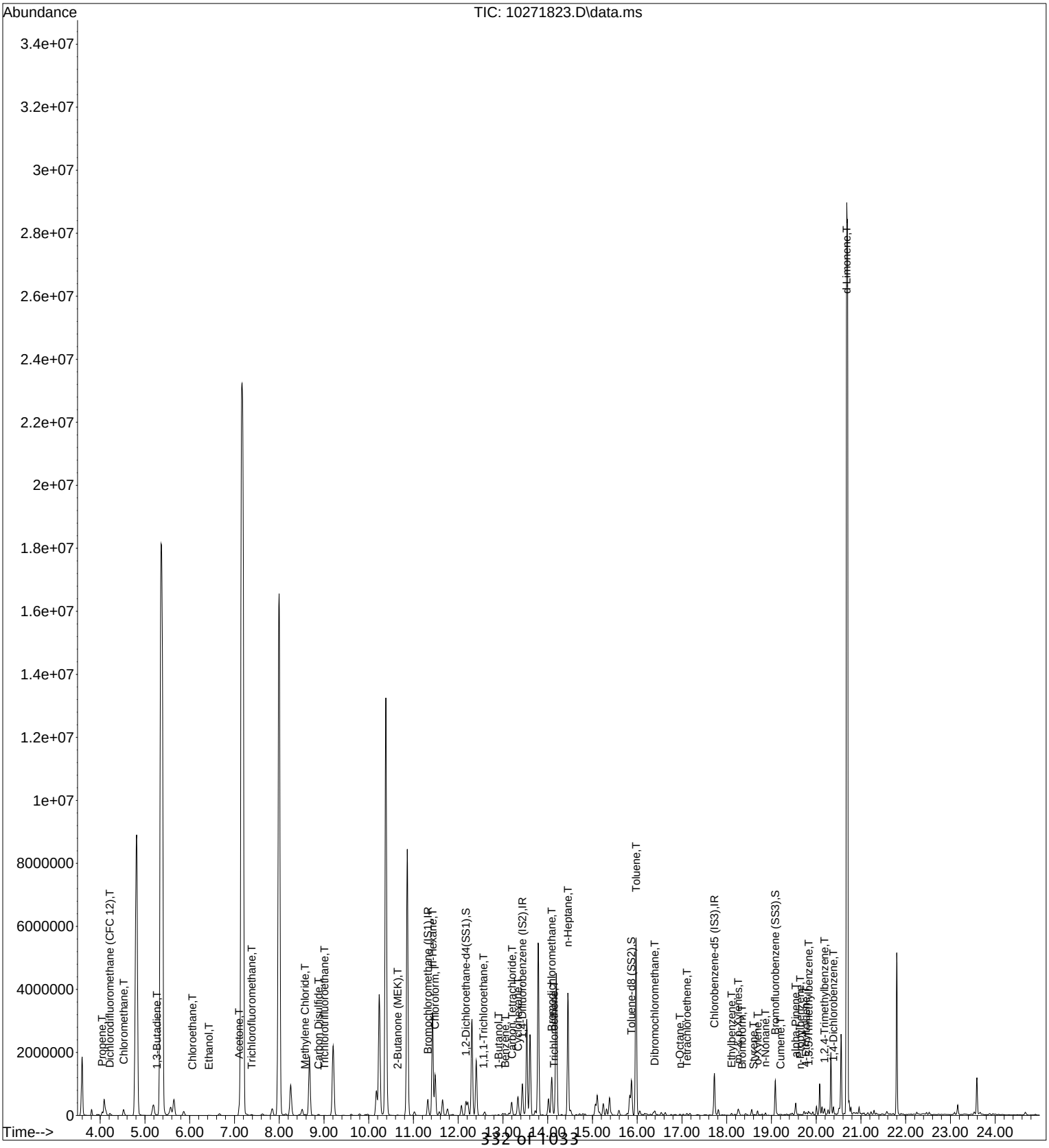
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	1041224	50.318	ng		98
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	d		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	15.65	97	279	N.D.			
58) Toluene	15.98	91	4450063	47.534	ng		100
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	16.39	129	55350	2.024	ng		99
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.85	43	1749	N.D.			
63) n-Octane	16.95	57	7734	0.434	ng		95
64) Tetrachloroethene	17.11	166	20999	0.729	ng		99
65) Chlorobenzene	0.00	112	0	N.D.	d		
66) Ethylbenzene	18.11	91	52115	0.489	ng		97
67) m- & p-Xylenes	18.26	91	137793	1.731	ng		98
68) Bromoform	18.35	173	4947	0.203	ng		98
69) Styrene	18.60	104	7126	0.110	ng	#	59
70) o-Xylene	18.69	91	56783	0.703	ng		98
71) n-Nonane	18.87	43	24438	0.658	ng		98
72) 1,1,2,2-Tetrachloroethane	18.69	83	1540	N.D.			
74) Cumene	19.20	105	8104	0.076	ng		96
75) alpha-Pinene	19.54	93	151569	2.755	ng		93
76) n-Propylbenzene	19.64	91	21379	0.176	ng		92
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.77	105	7940	0.082	ng		96
79) 1,3,5-Trimethylbenzene	19.83	105	24658	0.278	ng		99
80) alpha-Methylstyrene	19.97	118	2198	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.19	105	49645	0.570	ng		88
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	0.00	91	0	N.D.	d		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.39	146	84358	1.542	ng		99
87) sec-Butylbenzene	20.42	105	4606	N.D.			
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.68	146	187	N.D.			
91) d-Limonene	20.68	68	9843979	311.224	ng		97
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	22.17	180	183	N.D.			
95) Naphthalene	22.28	128	4912	N.D.			
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.	d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271823.D Vial: 15
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:49:36 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271823.D Vial: 15
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:49:36 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

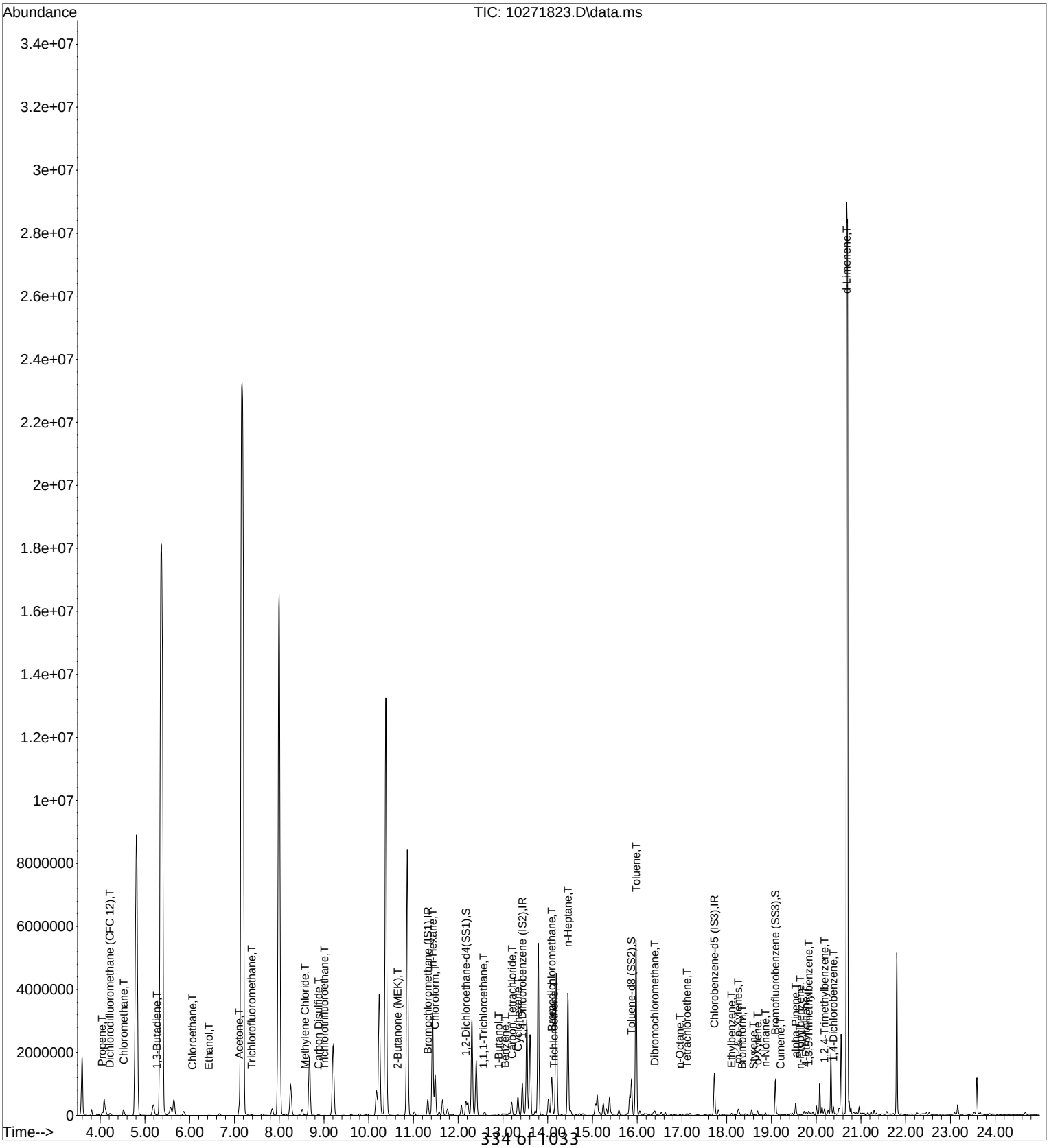
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233410	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	978355	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	423382	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	347476	12.375	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.04%				
57) Toluene-d8 (SS2)	15.87	98	857750	12.722	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.76%				
73) Bromofluorobenzene (SS3)	19.09	174	357315	11.659	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.28%				
Target Compounds							Qvalue
2) Propene	4.04	42	24939	1.148	ng		92
3) Dichlorodifluoromethan...	4.21	85	82646	1.694	ng		99
4) Chloromethane	4.53	50	11203	0.361	ng		80
7) 1,3-Butadiene	5.27	54	3654	0.167	ng	#	6
9) Chloroethane	6.06	64	1725	0.119	ng		71
10) Ethanol	6.43	45	13903	1.059	ng		89
13) Acetone	7.11	58	59056m	3.770	ng		
14) Trichlorofluoromethane	7.39	101	27551	0.652	ng		100
19) Methylene Chloride	8.58	84	18923	0.865	ng		98
21) Trichlorotrifluoroethane	9.01	151	2939	0.131	ng		92
22) Carbon Disulfide	8.88	76	69731	0.893	ng		98
27) 2-Butanone (MEK)	10.65	72	7449	0.538	ng		99
31) n-Hexane	11.43	57	1809934	53.484	ng		99
32) Chloroform	11.48	83	1074346	27.297	ng		99
38) 1,1,1-Trichloroethane	12.57	97	3652	0.099	ng		97
40) 1-Butanol	12.90	56	15873m	0.802	ng		
41) Benzene	13.05	78	49321	0.548	ng		99
42) Carbon Tetrachloride	13.20	117	32350	0.949	ng		100
43) Cyclohexane	13.34	84	285757	8.197	ng		95
46) Bromodichloromethane	14.09	83	220437	7.006	ng		76
47) Trichloroethene	14.14	130	1873	0.071	ng		96
51) n-Heptane	14.45	71	1041224	50.318	ng		98
58) Toluene	15.98	91	4450063	47.534	ng		100
60) Dibromochloromethane	16.39	129	55350	2.024	ng		99
63) n-Octane	16.95	57	7734	0.434	ng		95
64) Tetrachloroethene	17.11	166	20999	0.729	ng		99
66) Ethylbenzene	18.11	91	52115	0.489	ng		97
67) m- & p-Xylenes	18.26	91	137793	1.731	ng		98
68) Bromoform	18.35	173	4947	0.203	ng		98
69) Styrene	18.60	104	7126	0.110	ng	#	59
70) o-Xylene	18.69	91	56783	0.703	ng		98
71) n-Nonane	18.87	43	24438	0.658	ng		98
74) Cumene	19.20	105	8104	0.076	ng		96
75) alpha-Pinene	19.54	93	151569	2.755	ng		93
76) n-Propylbenzene	19.64	91	21379	0.176	ng		92
78) 4-Ethyltoluene	19.77	105	7940	0.082	ng		96
79) 1,3,5-Trimethylbenzene	19.83	105	24658	0.278	ng		99
82) 1,2,4-Trimethylbenzene	20.19	105	49645	0.570	ng		88
86) 1,4-Dichlorobenzene	20.39	146	84358	1.542	ng		99
91) d-Limonene	20.68	68	9843979	311.224	ng		97

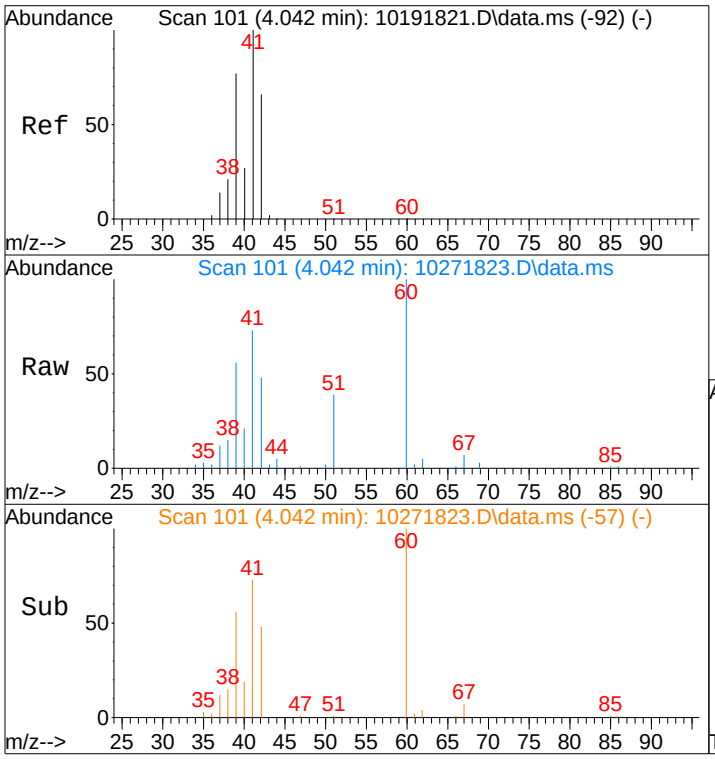
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271823.D Vial: 15
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:49:36 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

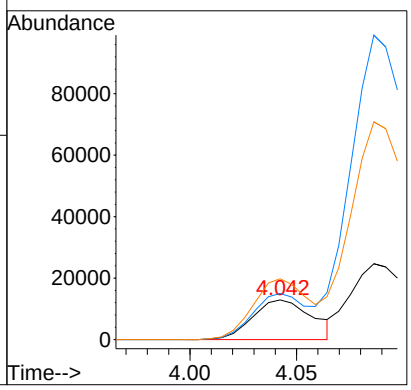


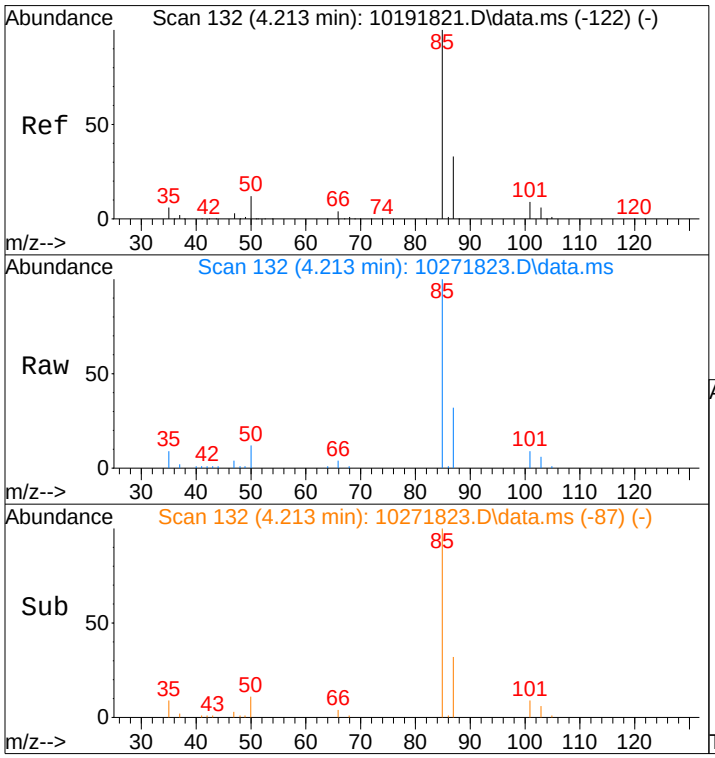


#2
Propene
Concen: 1.15 ng
RT: 4.04 min Scan# 101
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 42 Resp: 24939

Ion	Ratio	Lower	Upper
42	100		
39	110.3	98.5	138.5
41	140.6	131.9	171.9

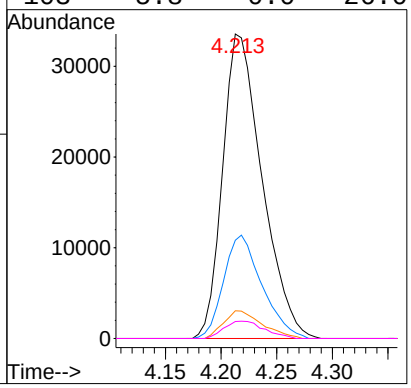


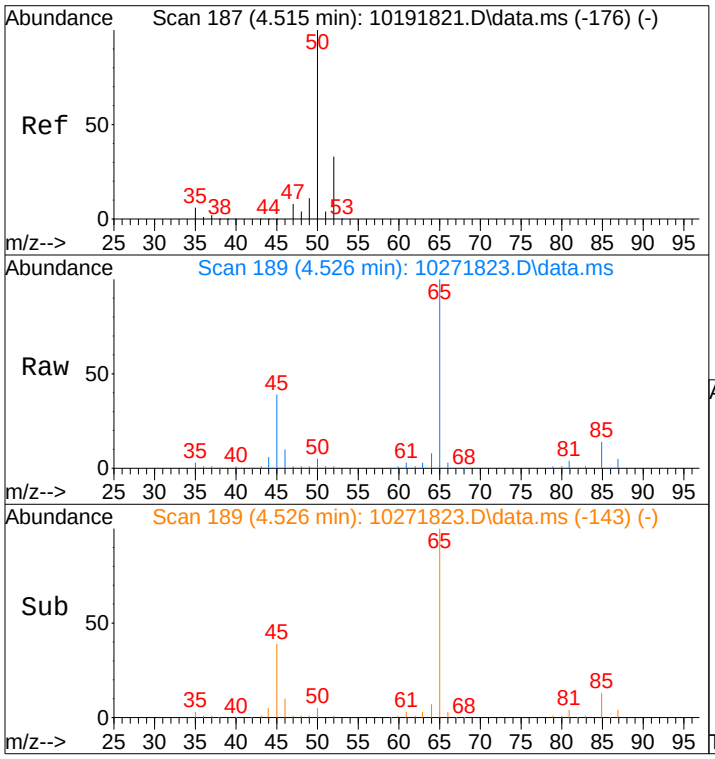


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.69 ng
RT: 4.21 min Scan# 132
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 85 Resp: 82646

Ion	Ratio	Lower	Upper
85	100		
87	33.0	12.6	52.6
101	8.9	0.0	29.4
103	5.8	0.0	26.0

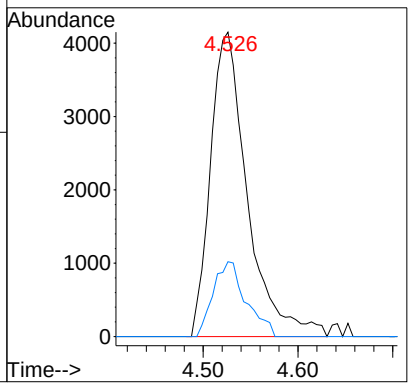


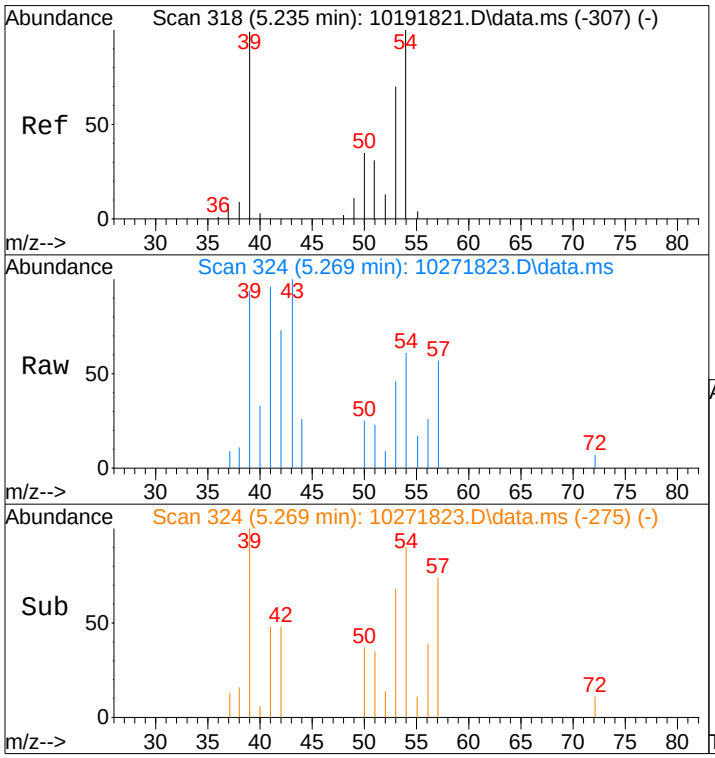


#4
Chloromethane
Concen: 0.36 ng
RT: 4.53 min Scan# 189
Delta R.T. 0.006 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 50 Resp: 11203

Ion	Ratio	Lower	Upper
50	100		
52	21.9	13.2	53.2

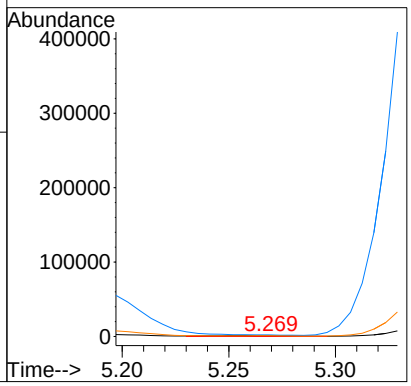


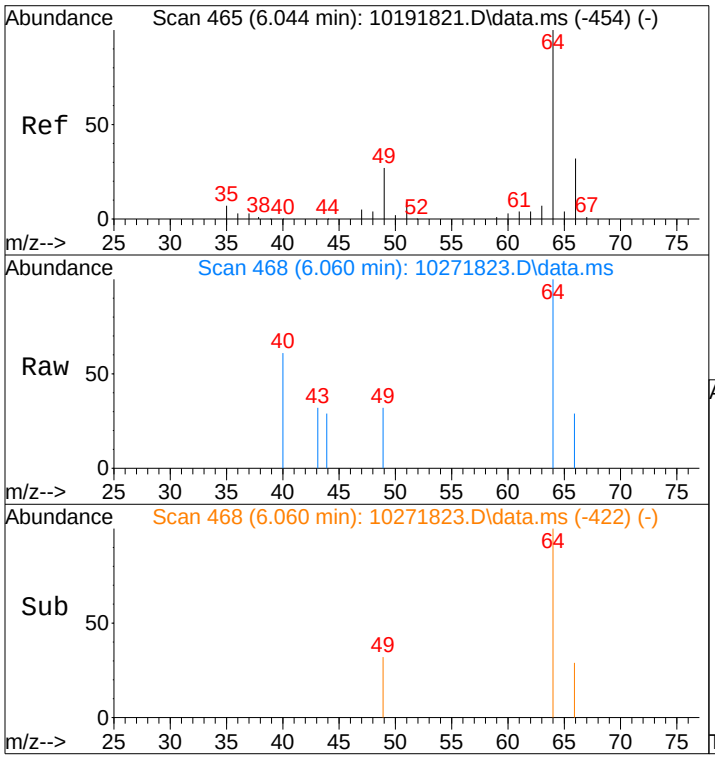


#7
1,3-Butadiene
Concen: 0.17 ng
RT: 5.27 min Scan# 324
Delta R.T. 0.022 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 54 Resp: 3654

Ion	Ratio	Lower	Upper
54	100		
39	0.0	80.8	120.8#
53	0.0	49.9	89.9#

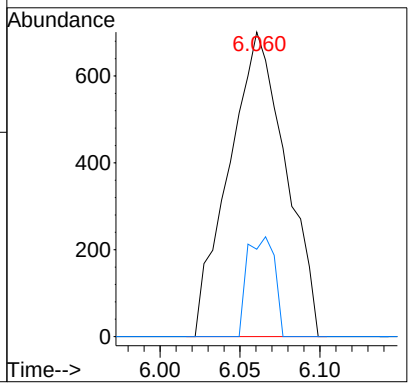


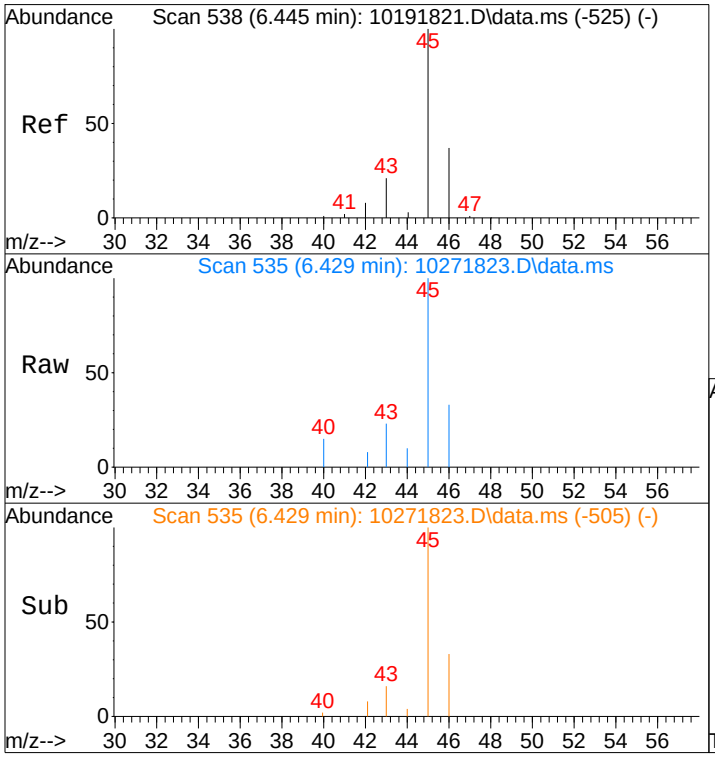


#9
Chloroethane
Concen: 0.12 ng
RT: 6.06 min Scan# 468
Delta R.T. 0.006 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 64 Resp: 1725

Ion	Ratio	Lower	Upper
64	100		
66	15.9	12.2	52.2

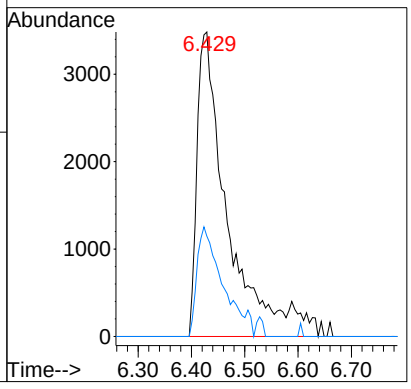


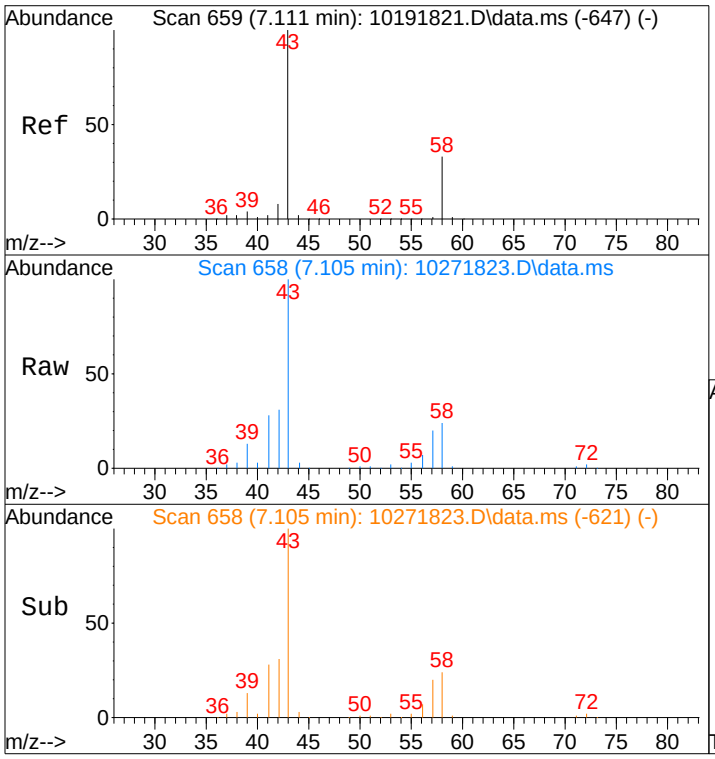


#10
Ethanol
Concen: 1.06 ng
RT: 6.43 min Scan# 535
Delta R.T. -0.082 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 45 Resp: 13903

Ion	Ratio	Lower	Upper
45	100		
46	30.3	16.6	56.6

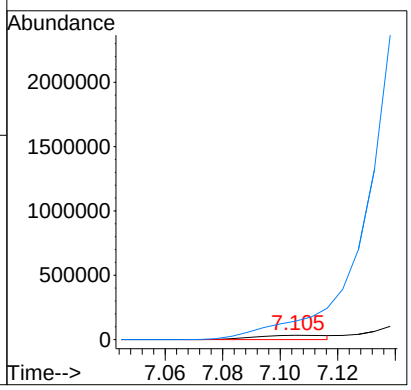


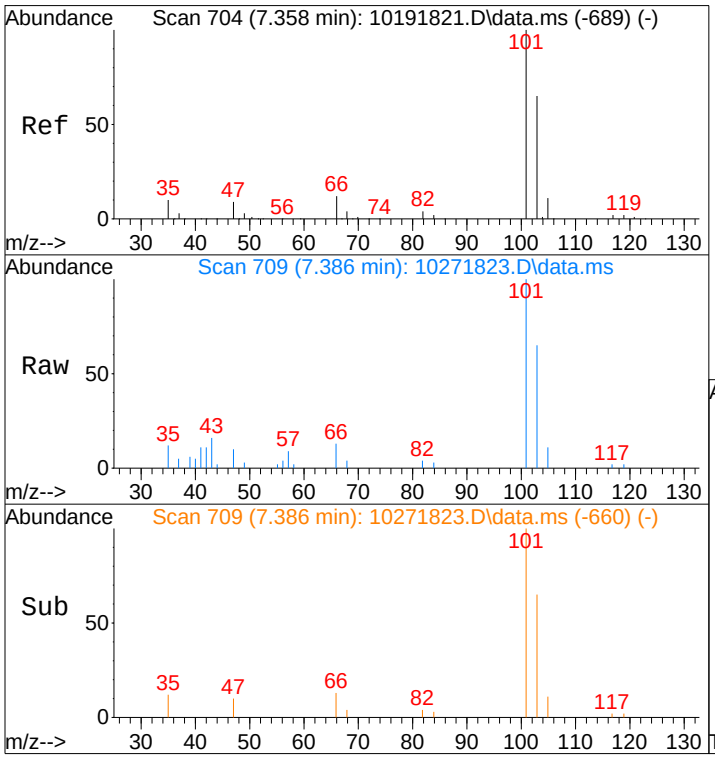


#13
Acetone
Concen: 3.77 ng m
RT: 7.11 min Scan# 658
Delta R.T. -0.044 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 58 Resp: 59056

Ion	Ratio	Lower	Upper
58	100		
43	33905.3	283.4	343.4#

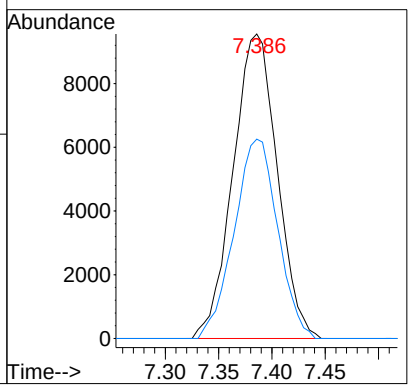


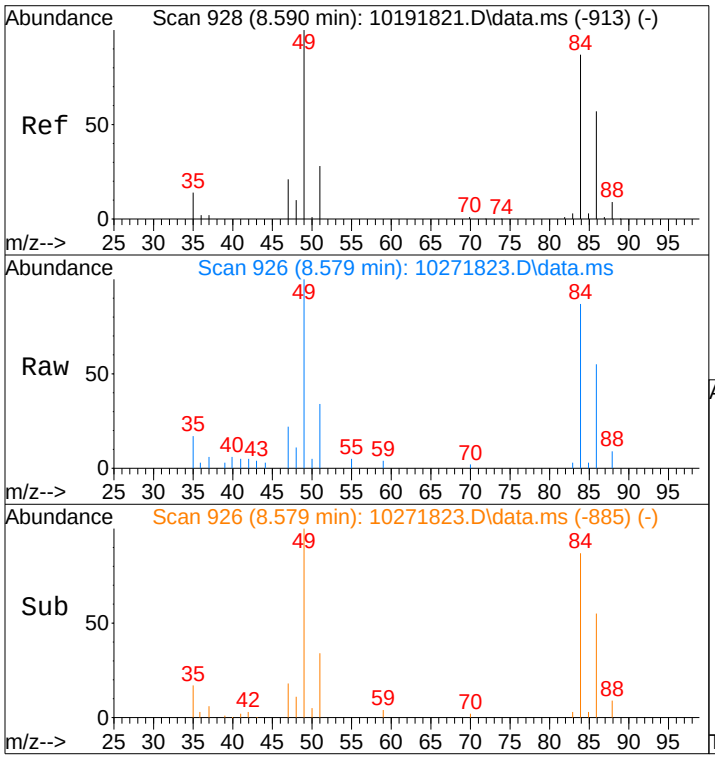


#14
Trichlorofluoromethane
Concen: 0.65 ng
RT: 7.39 min Scan# 709
Delta R.T. 0.022 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:101 Resp: 27551

Ion	Ratio	Lower	Upper
101	100		
103	64.6	44.8	84.8

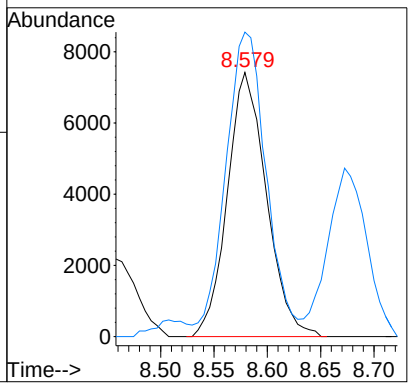


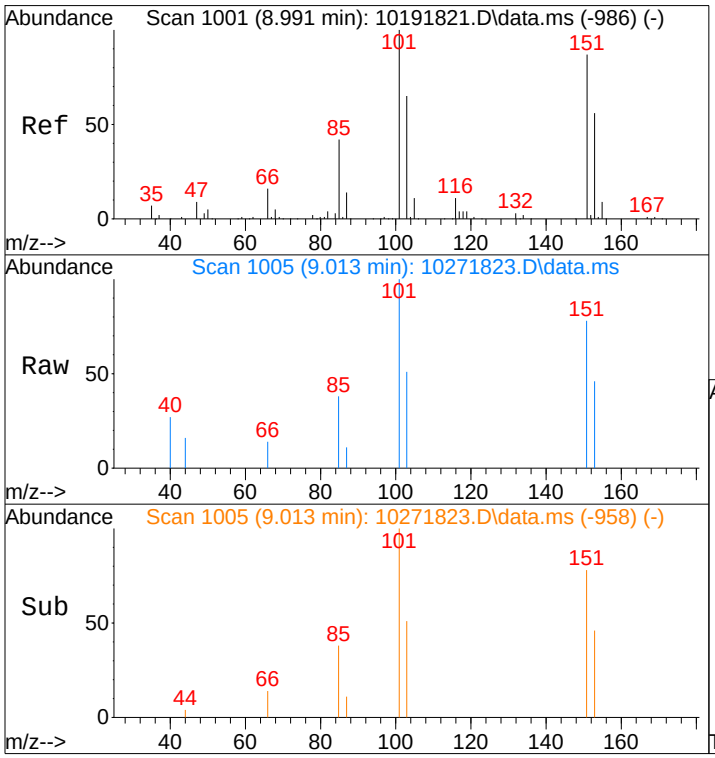


#19
Methylene Chloride
Concen: 0.86 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 84 Resp: 18923

Ion	Ratio	Lower	Upper
84	100		
49	119.0	92.1	142.1

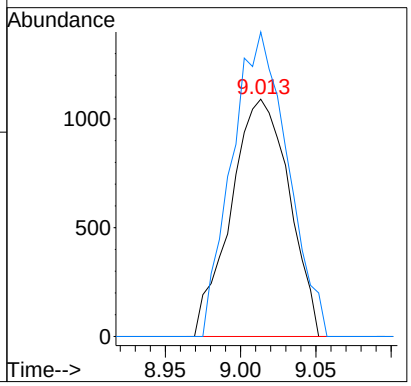


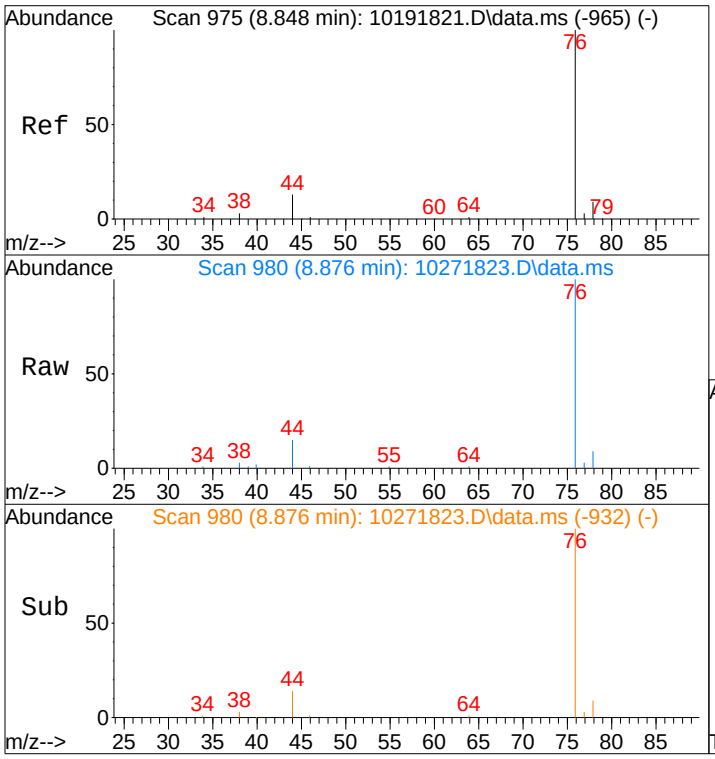


#21
Trichlorotrifluoroethane
Concen: 0.13 ng
RT: 9.01 min Scan# 1005
Delta R.T. 0.011 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:151 Resp: 2939

Ion	Ratio	Lower	Upper
151	100		
101	122.9	94.4	134.4

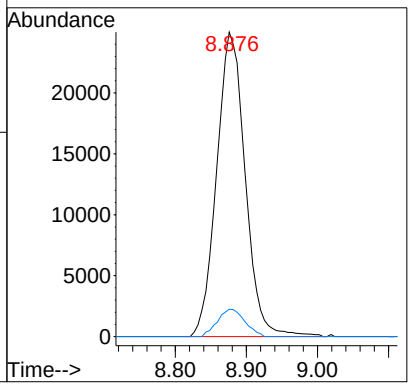


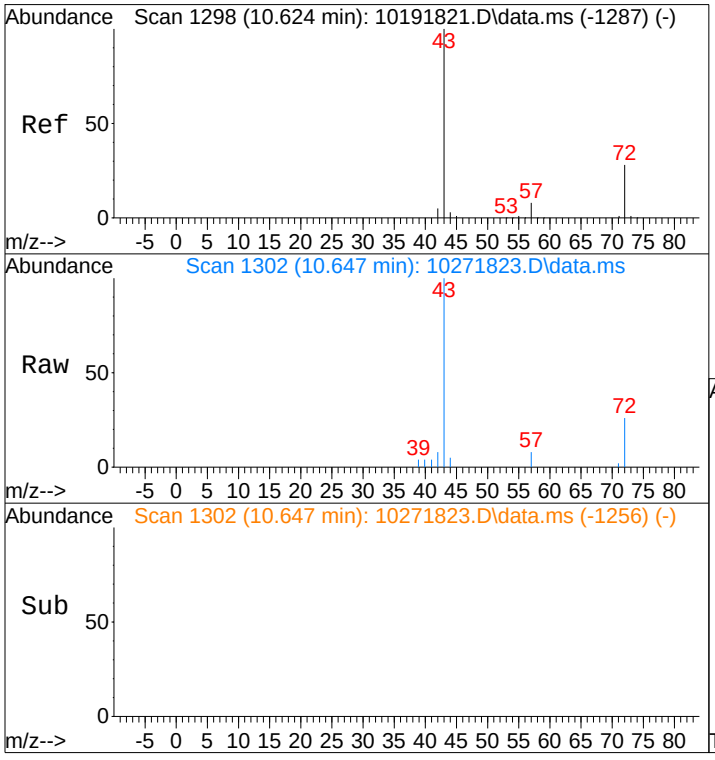


#22
Carbon Disulfide
Concen: 0.89 ng
RT: 8.88 min Scan# 980
Delta R.T. 0.017 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 76 Resp: 69731

Ion	Ratio	Lower	Upper
76	100		
78	8.6	0.0	29.3

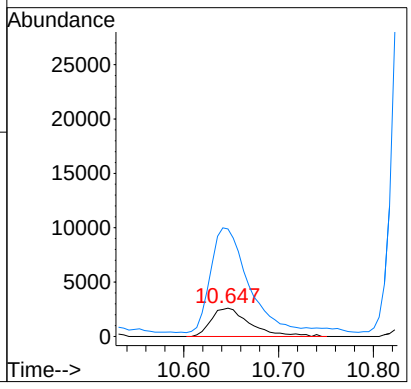


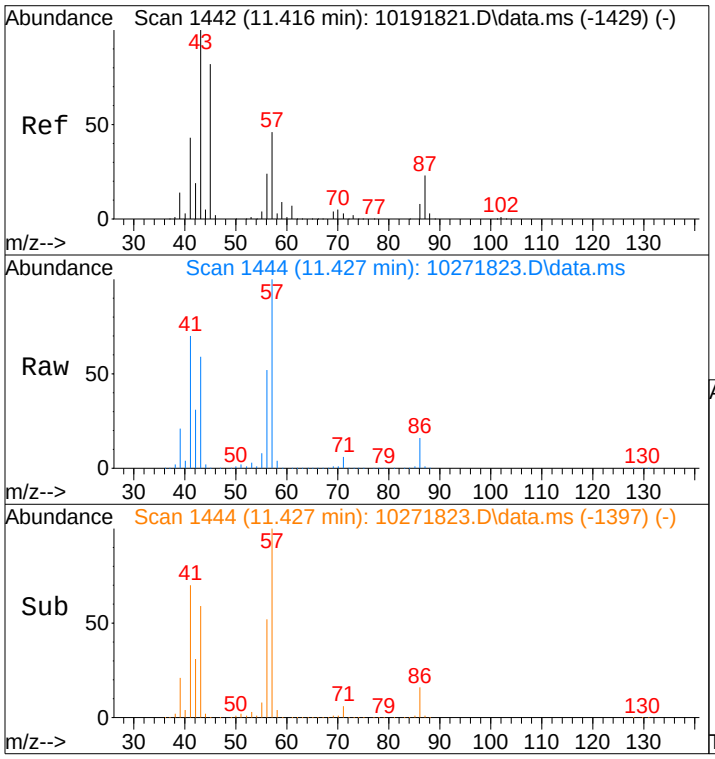


#27
2-Butanone (MEK)
Concen: 0.54 ng
RT: 10.65 min Scan# 1302
Delta R.T. 0.006 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 72 Resp: 7449

Ion	Ratio	Lower	Upper
72	100		
43	368.1	350.1	390.1

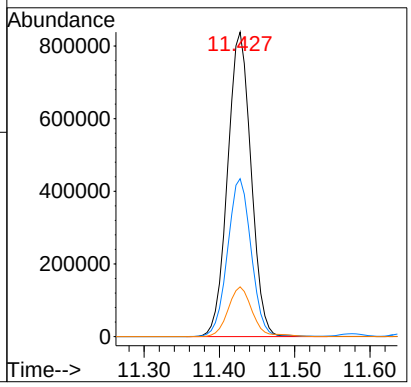


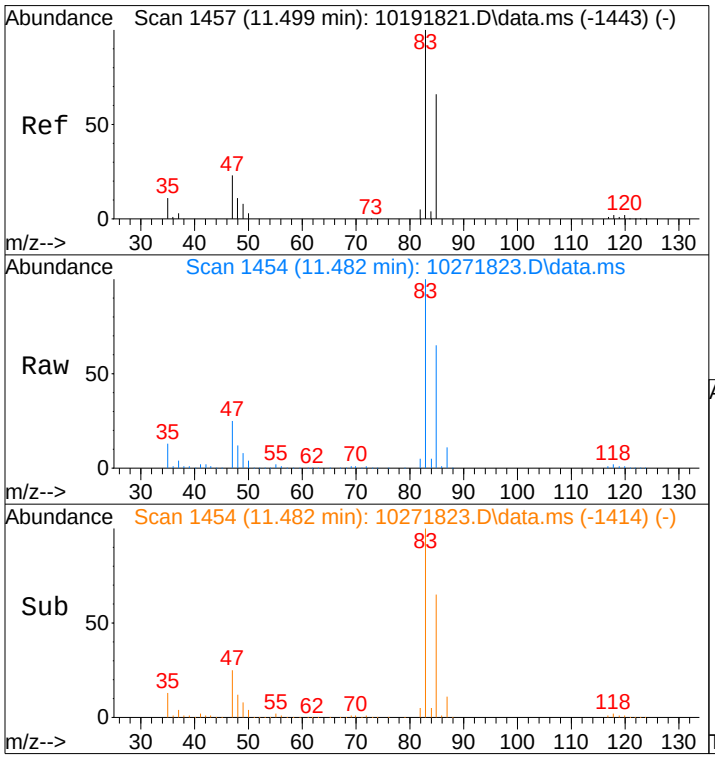


#31
n-Hexane
Concen: 53.48 ng
RT: 11.43 min Scan# 1444
Delta R.T. 0.011 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 57 Resp: 1809934

Ion	Ratio	Lower	Upper
57	100		
56	52.6	41.4	62.0
86	16.9	13.7	20.5

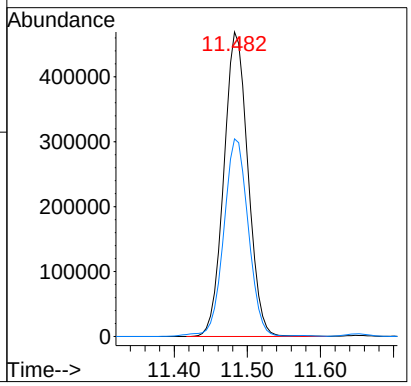


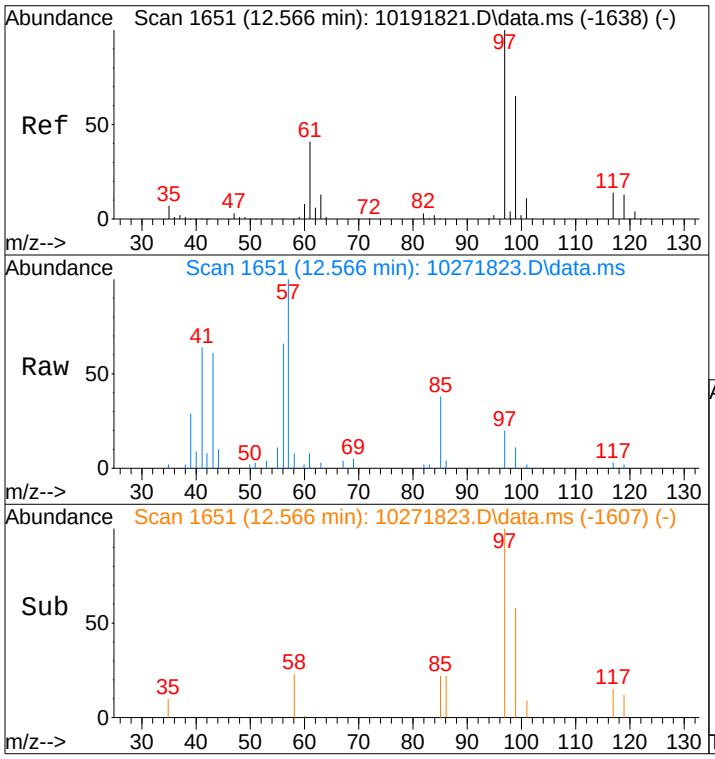


#32
Chloroform
Concen: 27.30 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 83 Resp: 1074346

Ion	Ratio	Lower	Upper
83	100		
85	66.3	45.5	85.5

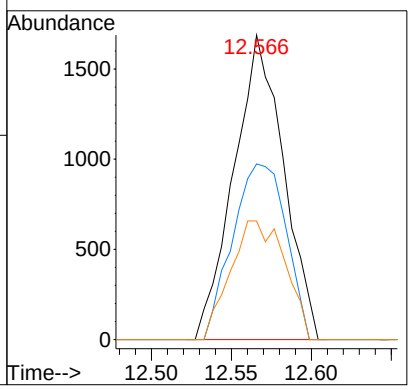


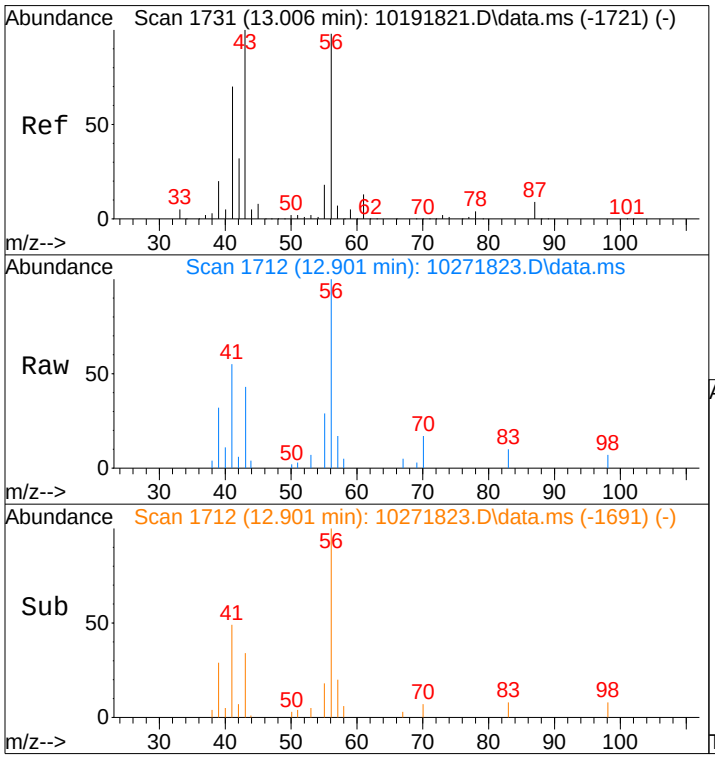


#38
1,1,1-Trichloroethane
Concen: 0.10 ng
RT: 12.57 min Scan# 1651
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 97 Resp: 3652

Ion	Ratio	Lower	Upper
97	100		
99	62.1	44.9	84.9
61	42.8	21.3	61.3

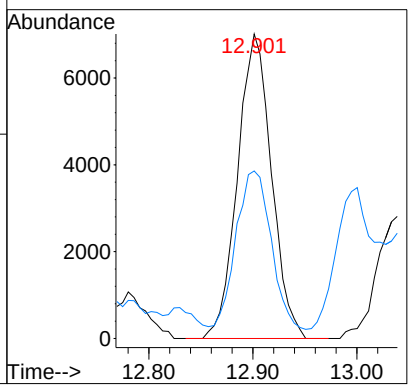


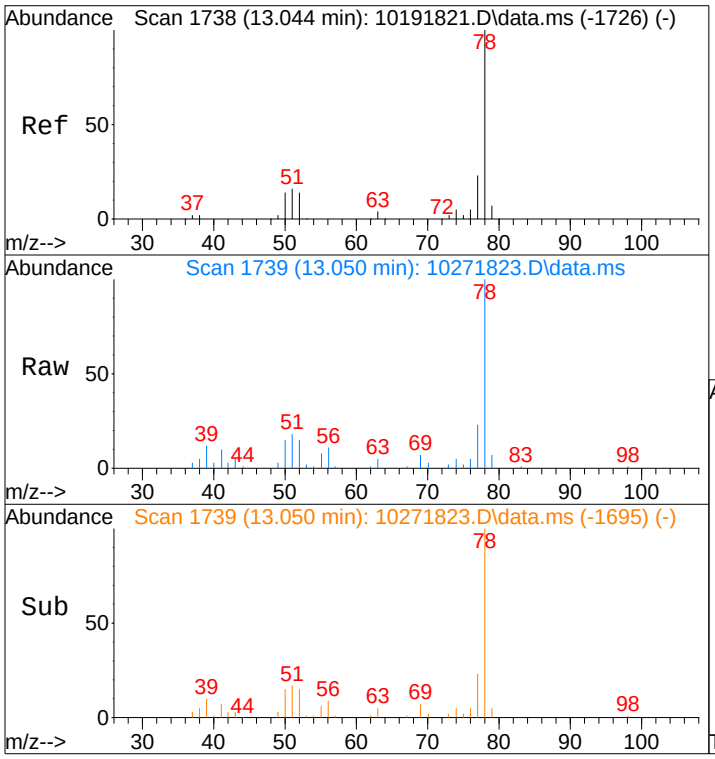


#40
1-Butanol
Concen: 0.80 ng m
RT: 12.90 min Scan# 1712
Delta R.T. -0.132 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 56 Resp: 15873

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

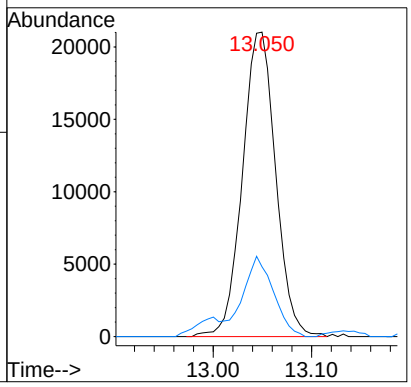


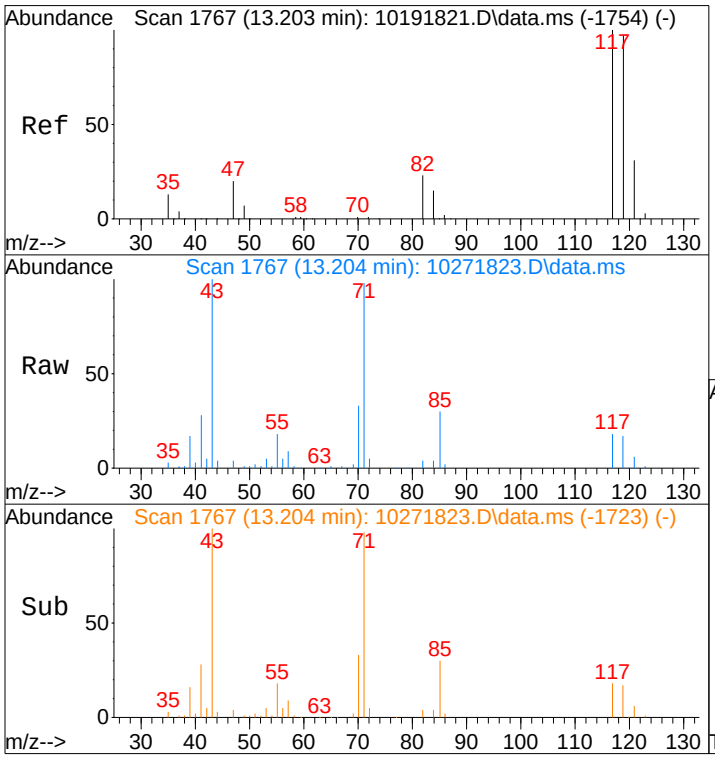


#41
Benzene
Concen: 0.55 ng
RT: 13.05 min Scan# 1739
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 78 Resp: 49321

Ion	Ratio	Lower	Upper
78	100		
77	24.0	3.5	43.5

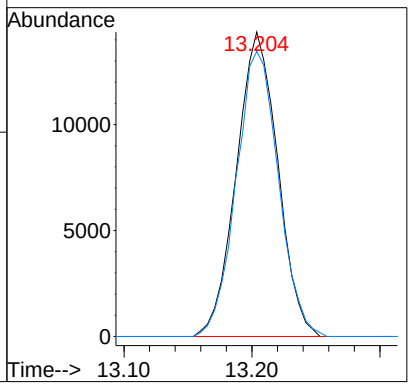


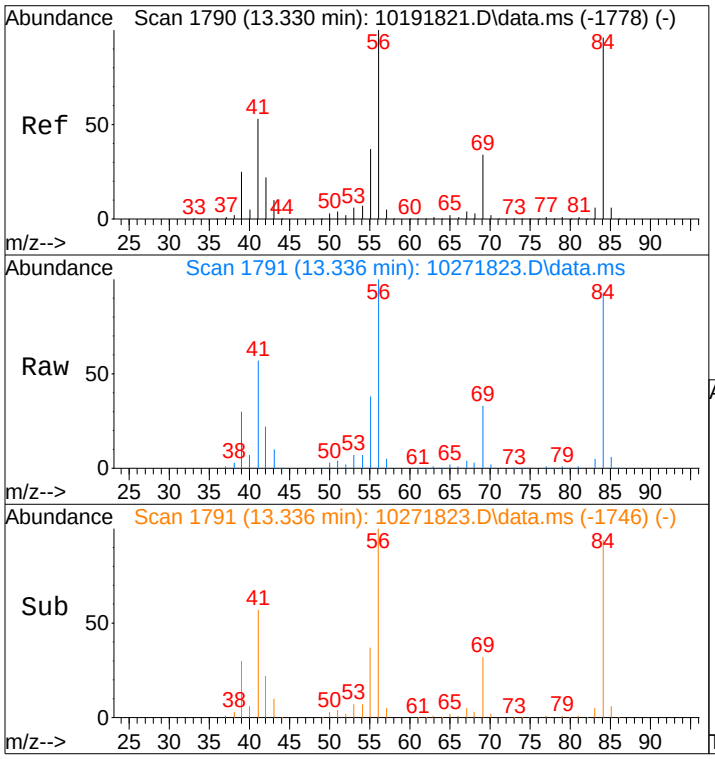


#42
Carbon Tetrachloride
Concen: 0.95 ng
RT: 13.20 min Scan# 1767
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:117 Resp: 32350

Ion	Ratio	Lower	Upper
117	100		
119	95.6	76.0	116.0

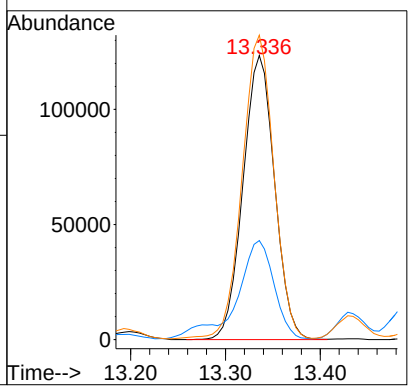


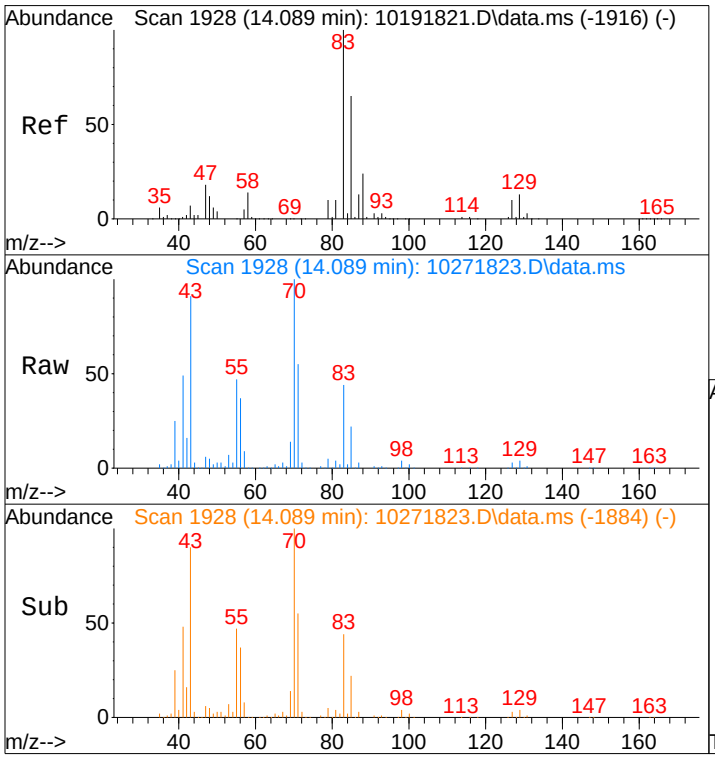


#43
Cyclohexane
Concen: 8.20 ng
RT: 13.34 min Scan# 1791
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 84 Resp: 285757

Ion	Ratio	Lower	Upper
84	100		
69	40.8	14.8	54.8
56	107.1	83.9	123.9

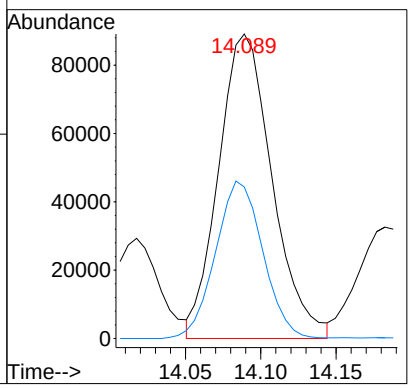


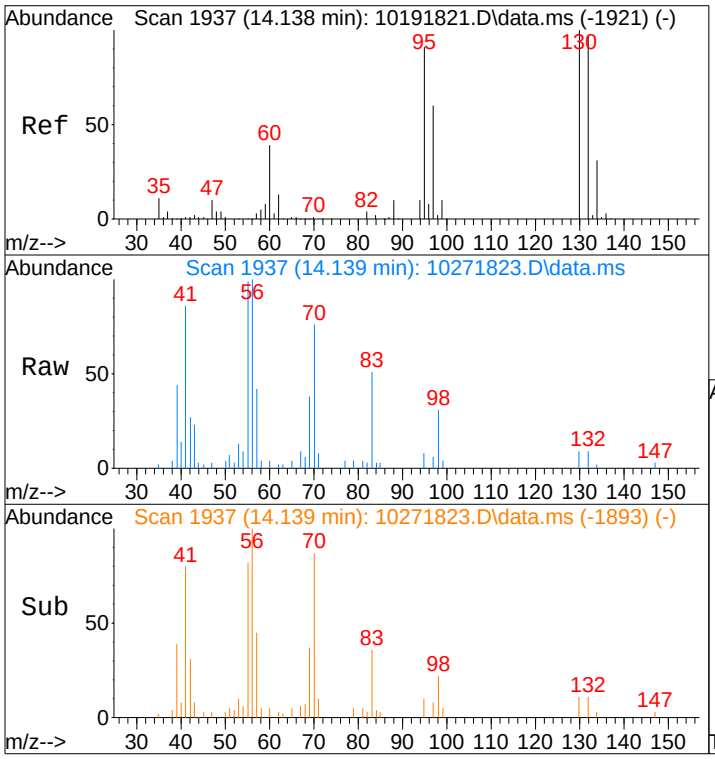


#46
Bromodichloromethane
Concen: 7.01 ng
RT: 14.09 min Scan# 1928
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 83 Resp: 220437

Ion	Ratio	Lower	Upper
83	100		
85	45.7	45.0	85.0

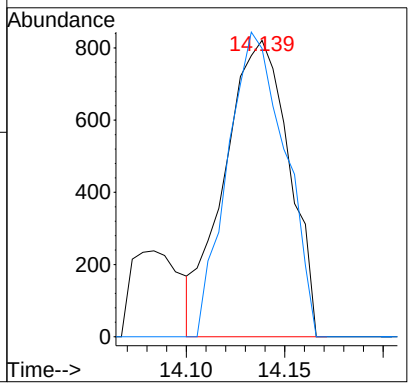


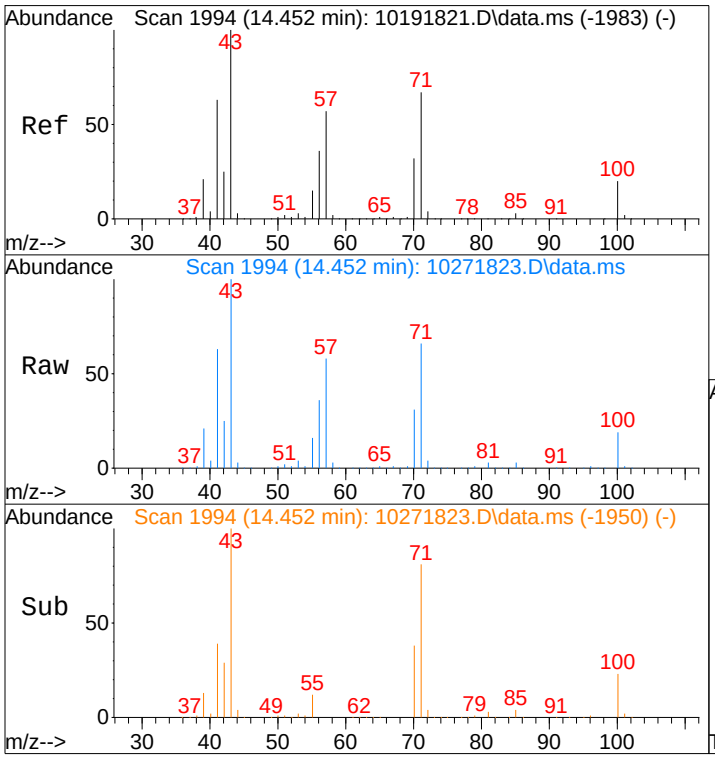


#47
Trichloroethene
Concen: 0.07 ng
RT: 14.14 min Scan# 1937
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:130 Resp: 1873

Ion	Ratio	Lower	Upper
130	100		
132	91.5	75.7	115.7

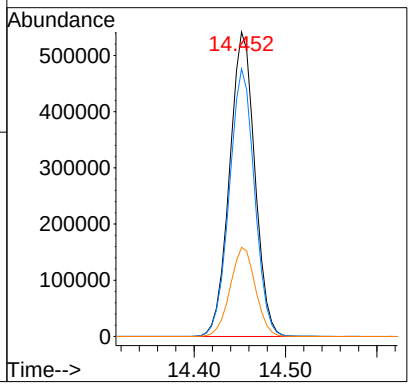


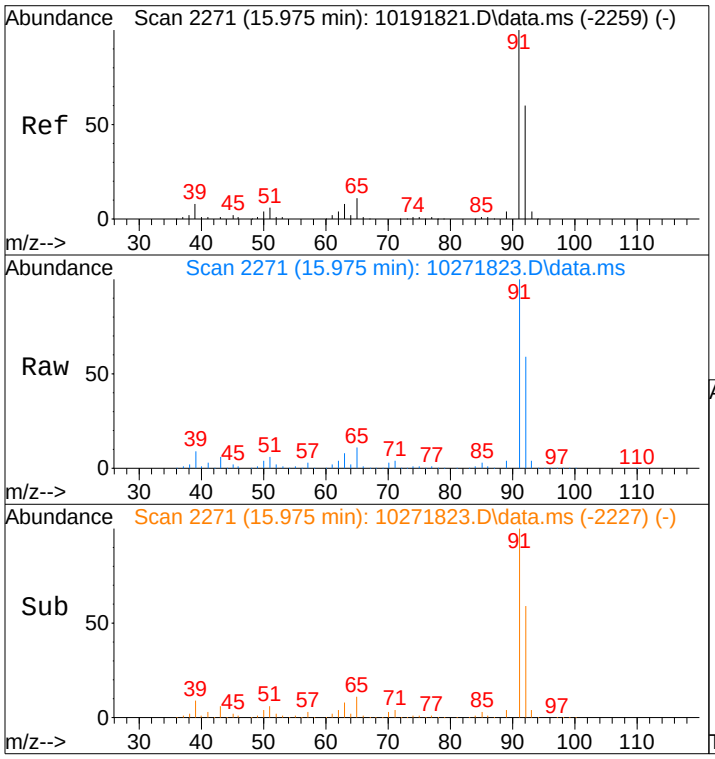


#51
n-Heptane
Concen: 50.32 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 71 Resp: 1041224

Ion	Ratio	Lower	Upper
71	100		
57	87.6	66.4	106.4
100	29.3	10.6	50.6

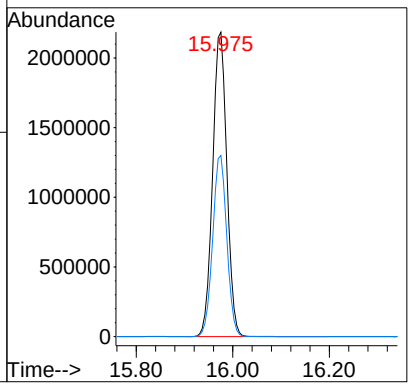


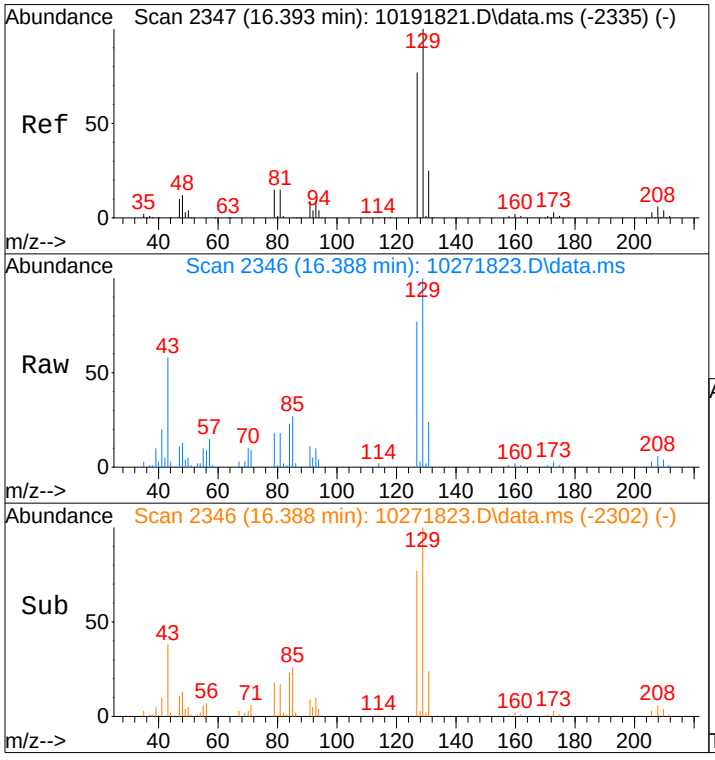


#58
Toluene
Concen: 47.53 ng
RT: 15.98 min Scan# 2271
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 91 Resp: 4450063

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.4	79.4

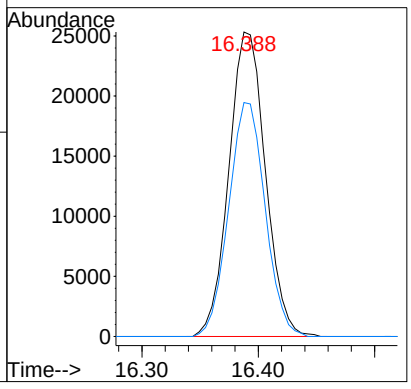


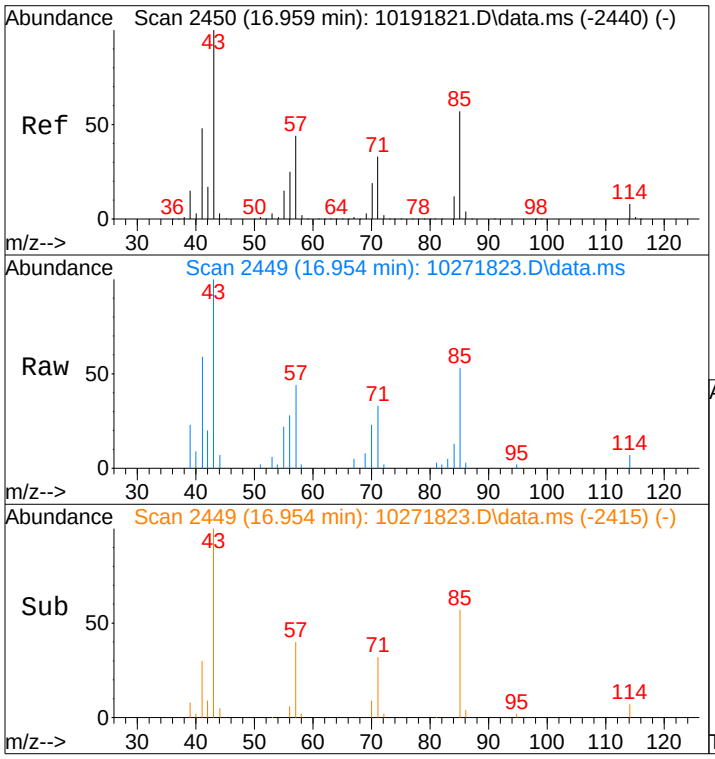


#60
Dibromochloromethane
Concen: 2.02 ng
RT: 16.39 min Scan# 2346
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:129 Resp: 55350

Ion	Ratio	Lower	Upper
129	100		
127	76.5	57.5	97.5

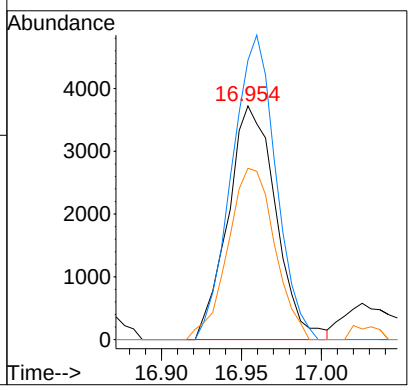


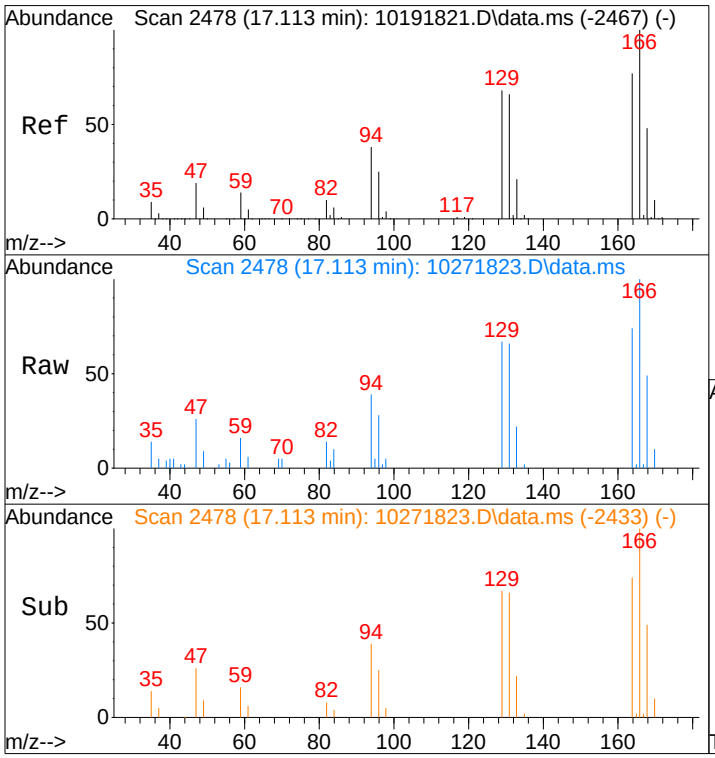


#63
n-Octane
Concen: 0.43 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.011 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 57 Resp: 7734

Ion	Ratio	Lower	Upper
57	100		
85	120.5	102.1	153.1
71	71.9	59.3	88.9

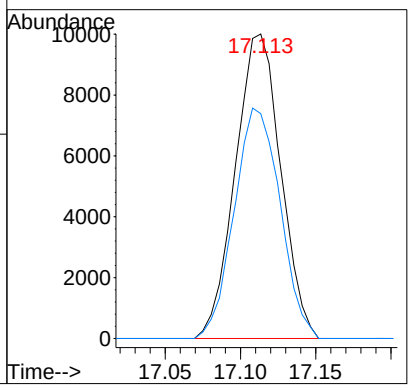


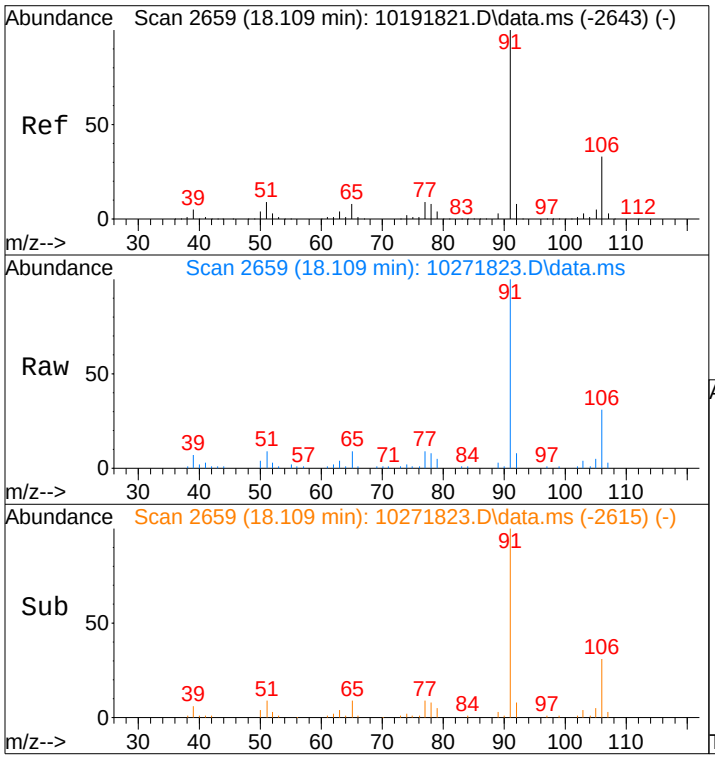


#64
Tetrachloroethene
Concen: 0.73 ng
RT: 17.11 min Scan# 2478
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:166 Resp: 20999

Ion	Ratio	Lower	Upper
166	100		
164	76.6	57.8	97.8

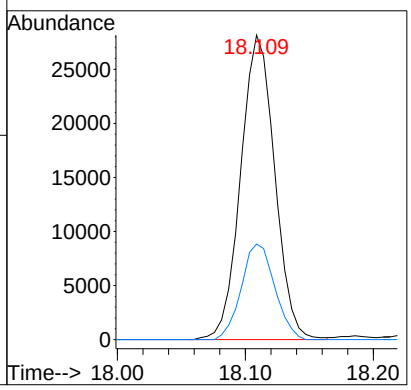


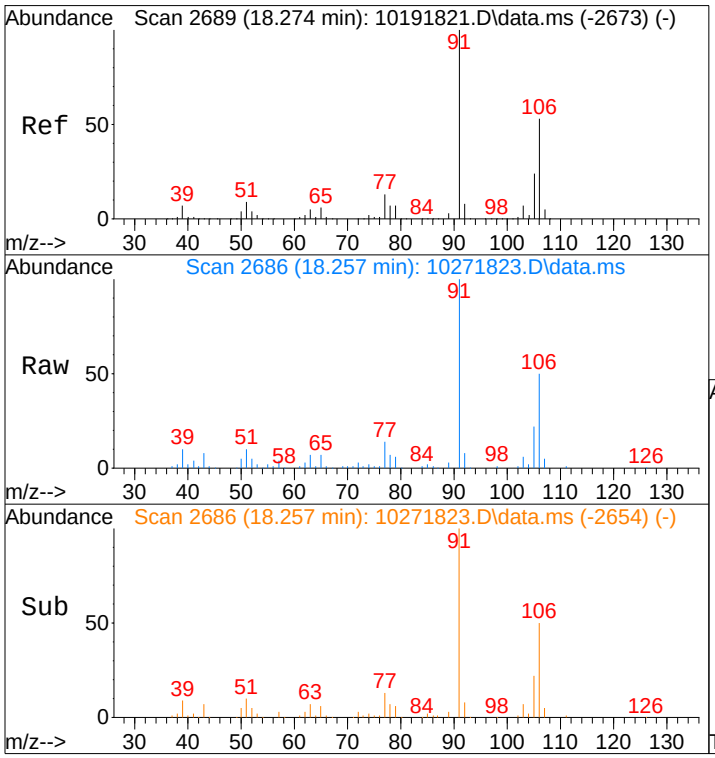


#66
Ethylbenzene
Concen: 0.49 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 91 Resp: 52115

Ion	Ratio	Lower	Upper
91	100		
106	30.8	12.6	52.6

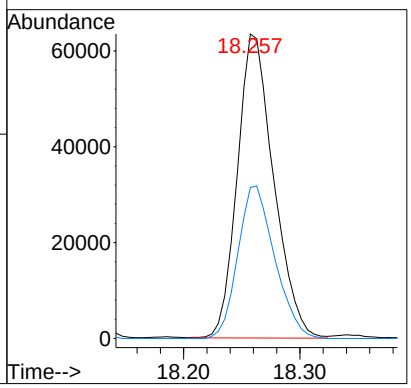


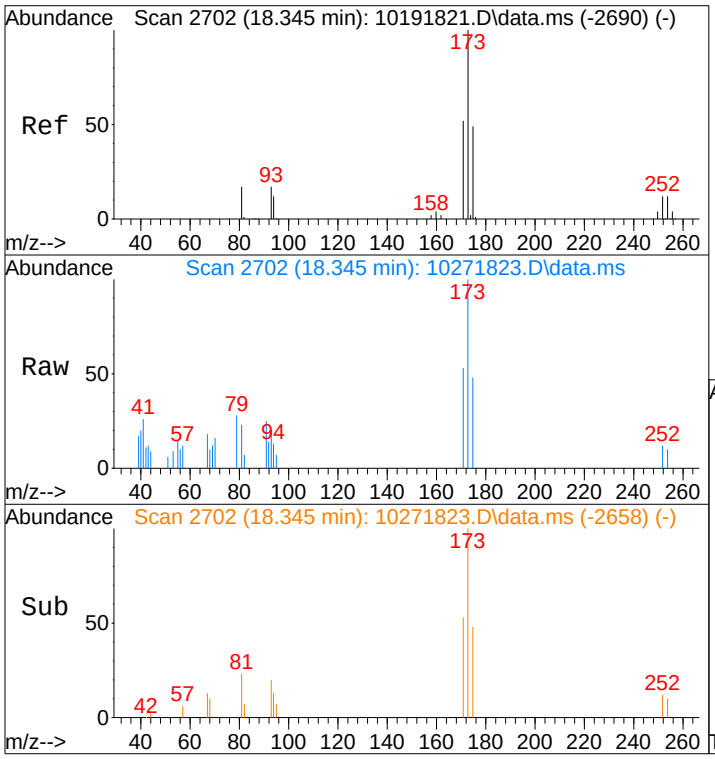


#67
m- & p-Xylenes
Concen: 1.73 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 91 Resp: 137793

Ion	Ratio	Lower	Upper
91	100		
106	50.8	32.2	72.2

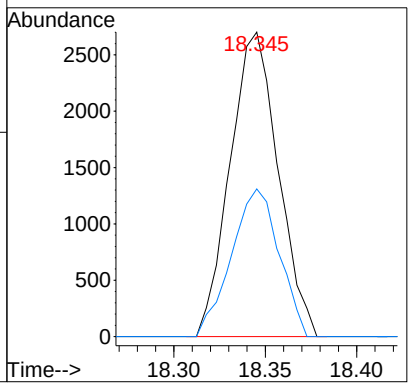


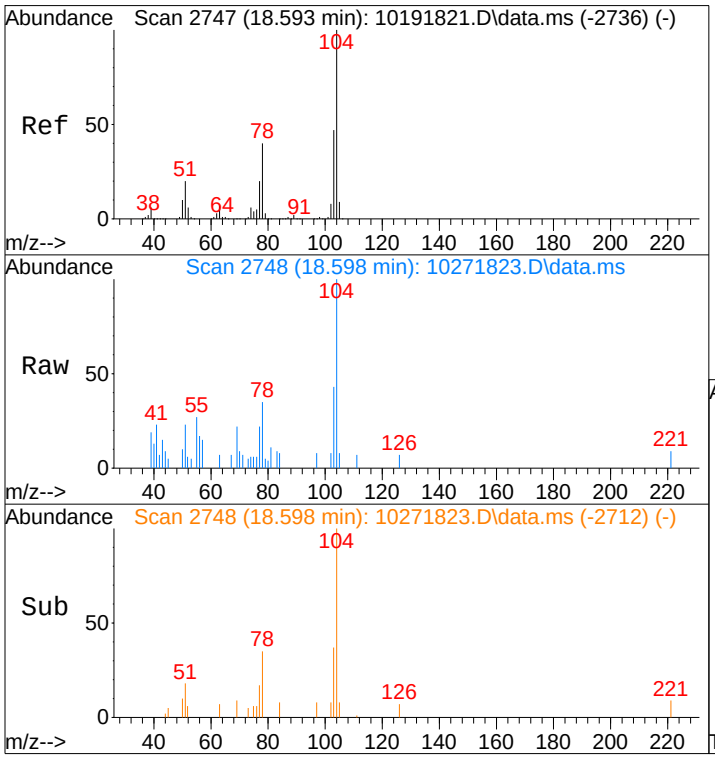


#68
Bromoform
Concen: 0.20 ng
RT: 18.35 min Scan# 2702
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:173 Resp: 4947

Ion	Ratio	Lower	Upper
173	100		
175	48.0	29.1	69.1

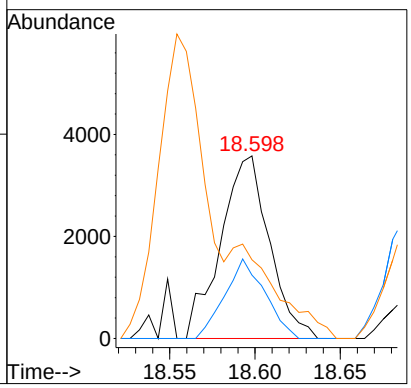


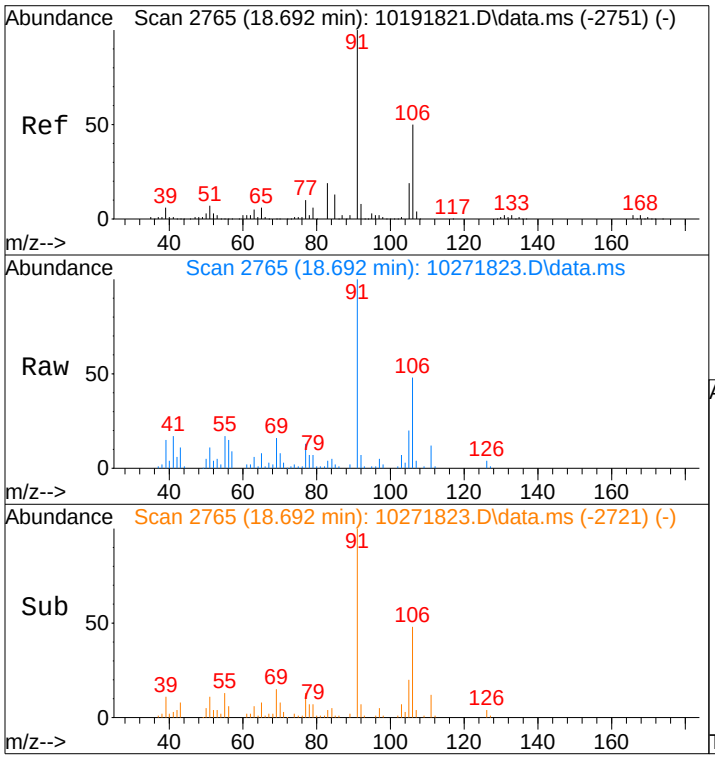


#69
Styrene
Concen: 0.11 ng
RT: 18.60 min Scan# 2748
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:104 Resp: 7126

Ion	Ratio	Lower	Upper
104	100		
78	35.9	20.1	60.1
103	0.0	27.0	67.0#

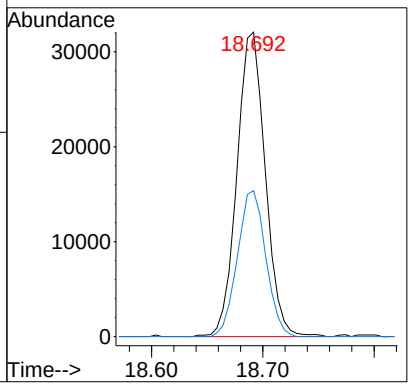


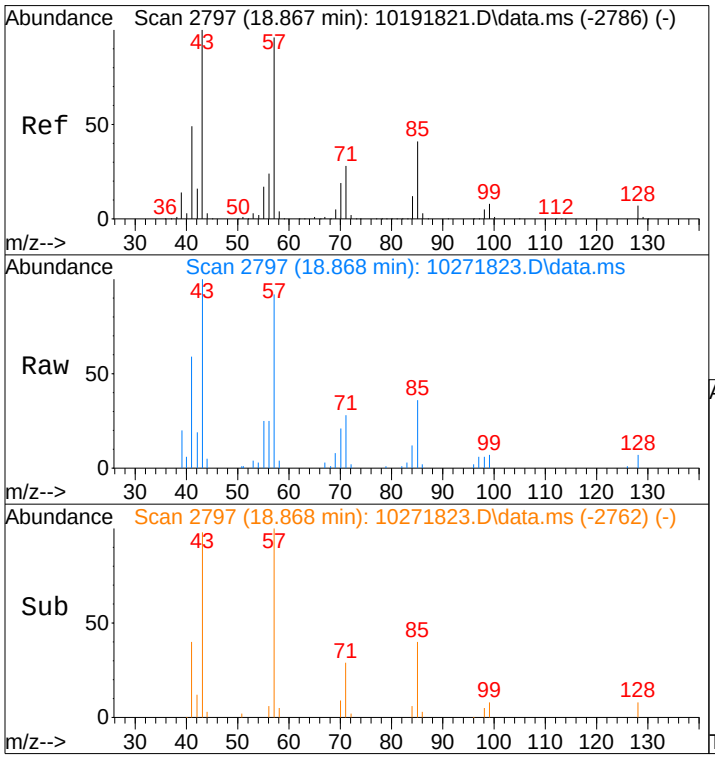


#70
o-Xylene
Concen: 0.70 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 91 Resp: 56783

Ion	Ratio	Lower	Upper
91	100		
106	47.9	29.4	69.4

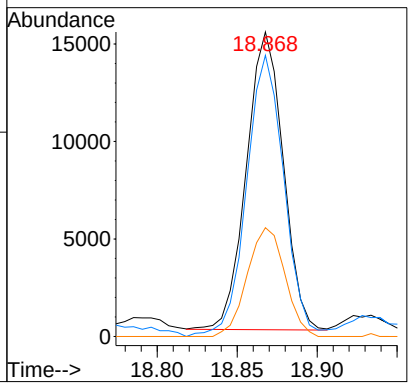


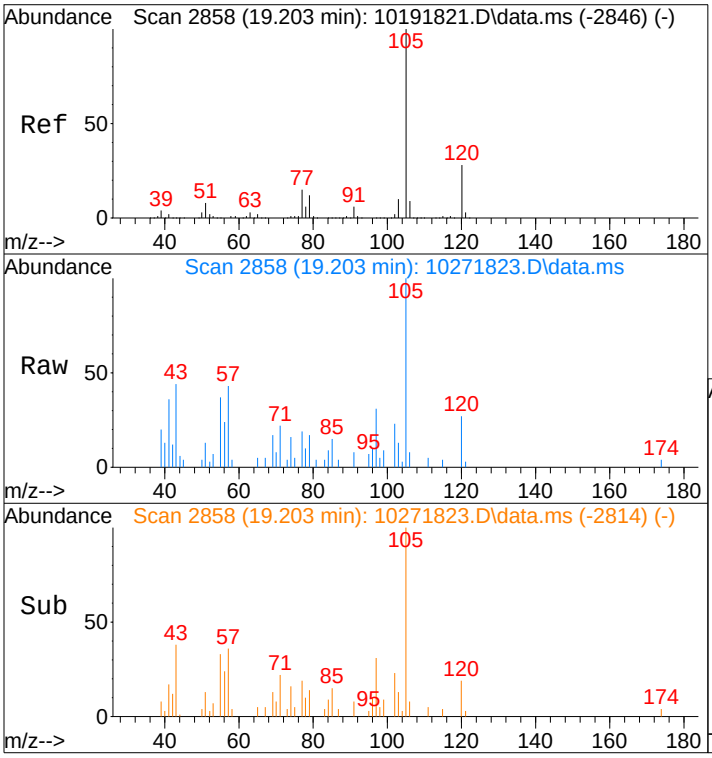


#71
n-Nonane
Concen: 0.66 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 43 Resp: 24438

Ion	Ratio	Lower	Upper
43	100		
57	96.1	75.4	115.4
85	37.3	20.8	60.8

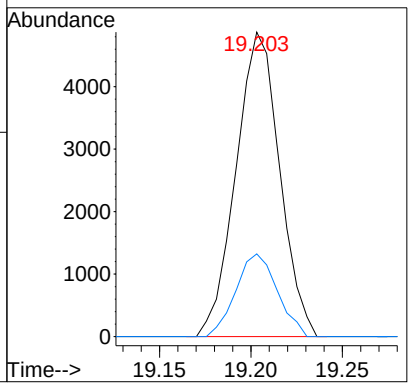


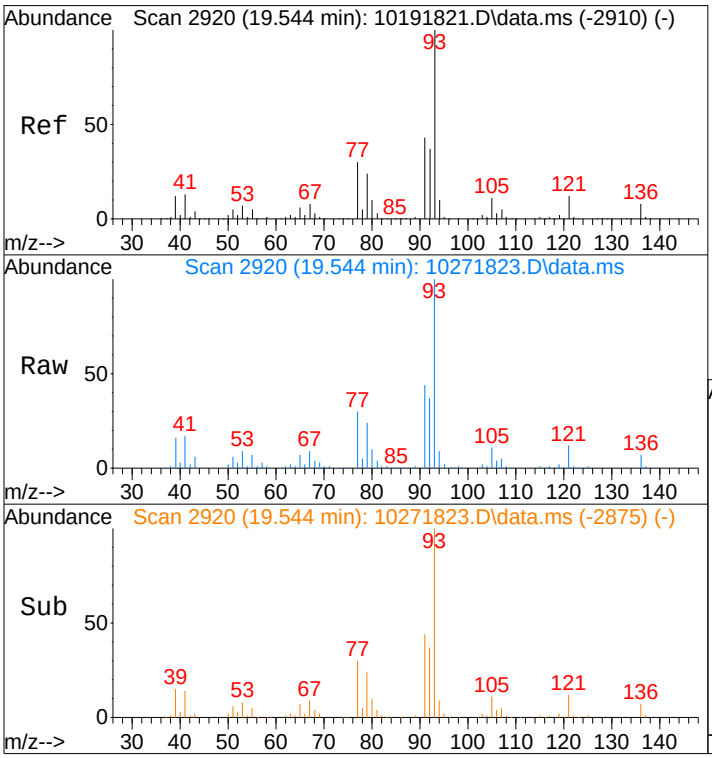


#74
Cumene
Concen: 0.08 ng
RT: 19.20 min Scan# 2858
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:105 Resp: 8104

Ion	Ratio	Lower	Upper
105	100		
120	25.7	7.8	47.8

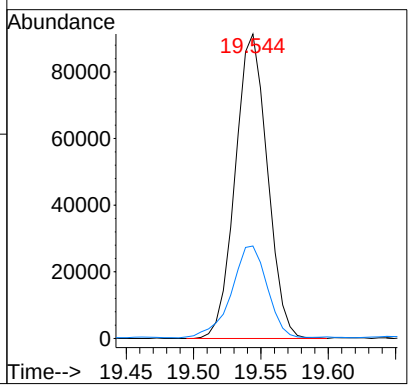


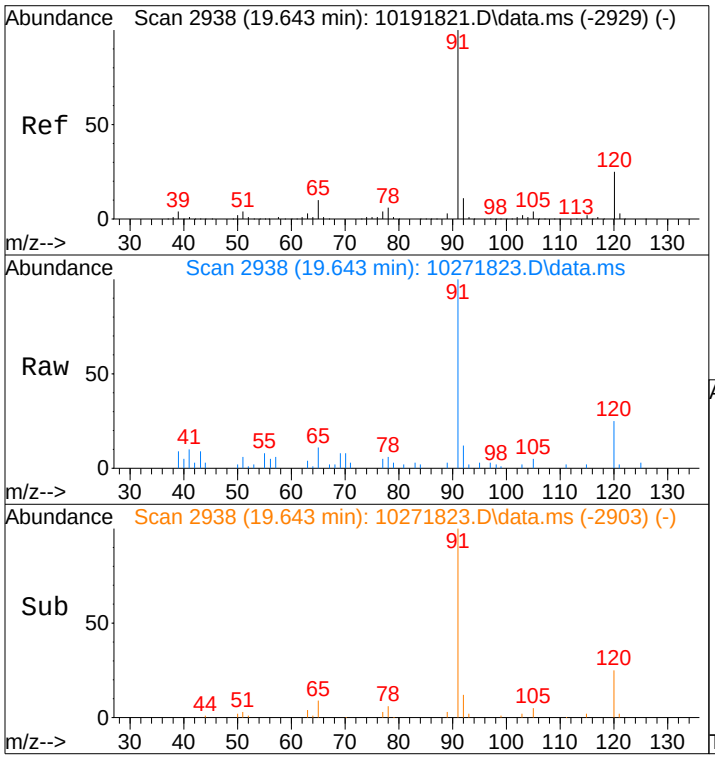


#75
alpha-Pinene
Concen: 2.76 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 93 Resp: 151569

Ion	Ratio	Lower	Upper
93	100		
77	34.0	10.2	50.2

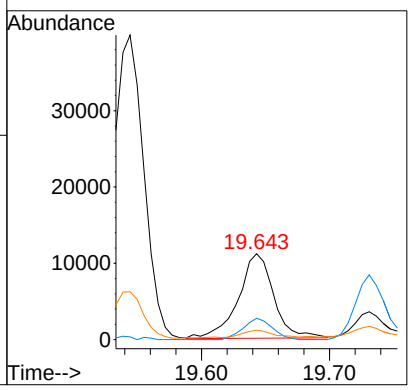


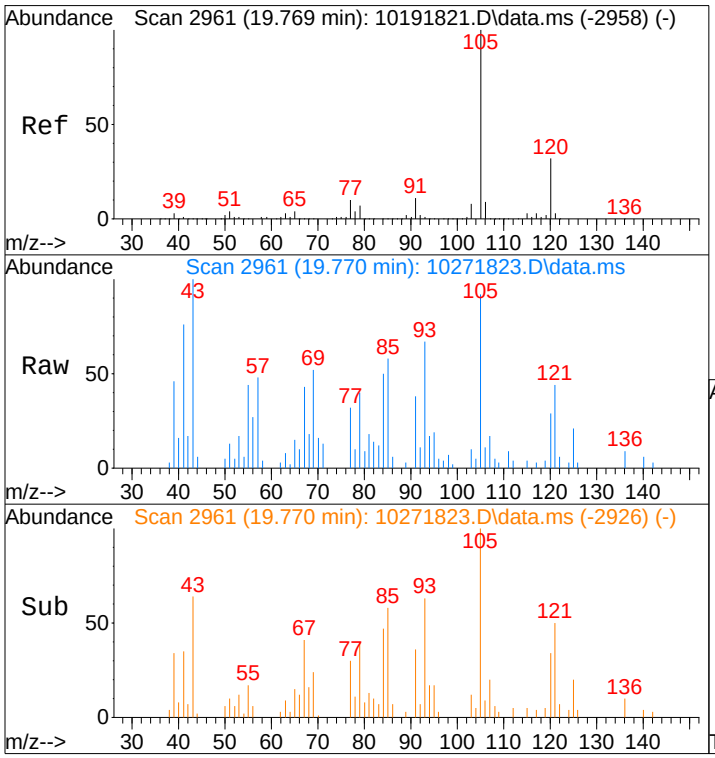


#76
n-Propylbenzene
Concen: 0.18 ng
RT: 19.64 min Scan# 2938
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 91 Resp: 21379

Ion	Ratio	Lower	Upper
91	100		
120	20.5	4.9	44.9
65	12.3	0.0	30.0

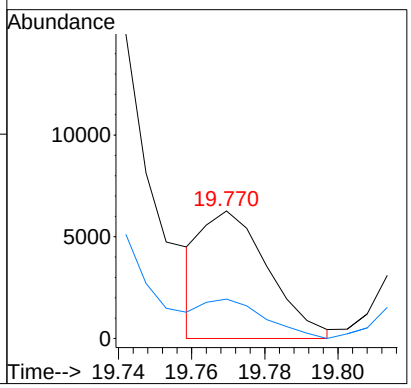


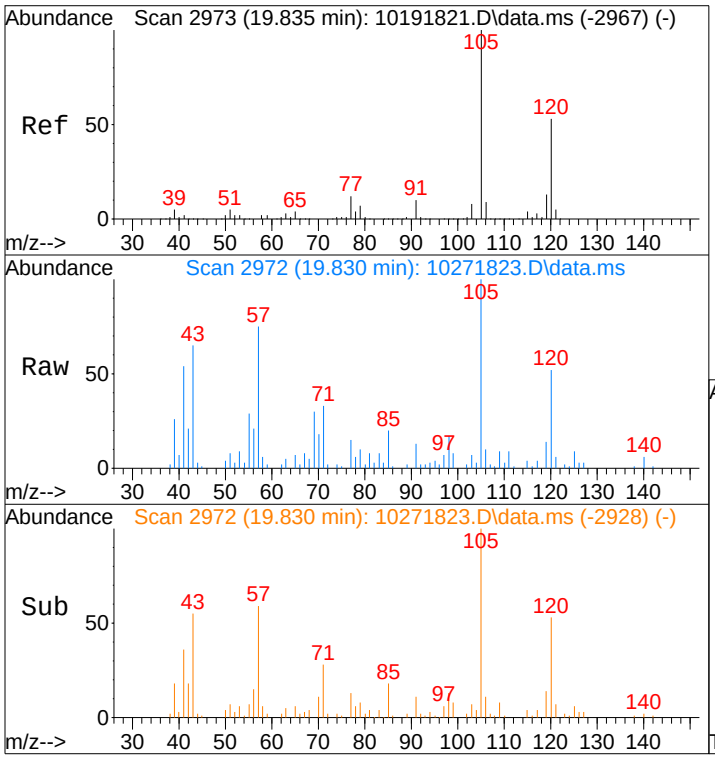


#78
4-Ethyltoluene
Concen: 0.08 ng
RT: 19.77 min Scan# 2961
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:105 Resp: 7940

Ion	Ratio	Lower	Upper
105	100		
120	29.4	11.8	51.8

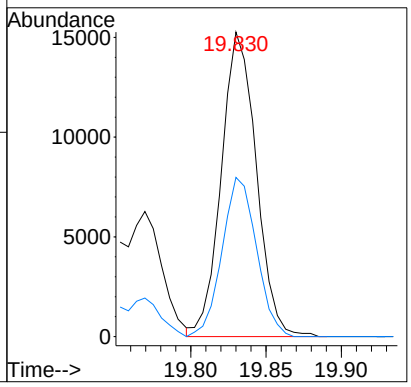


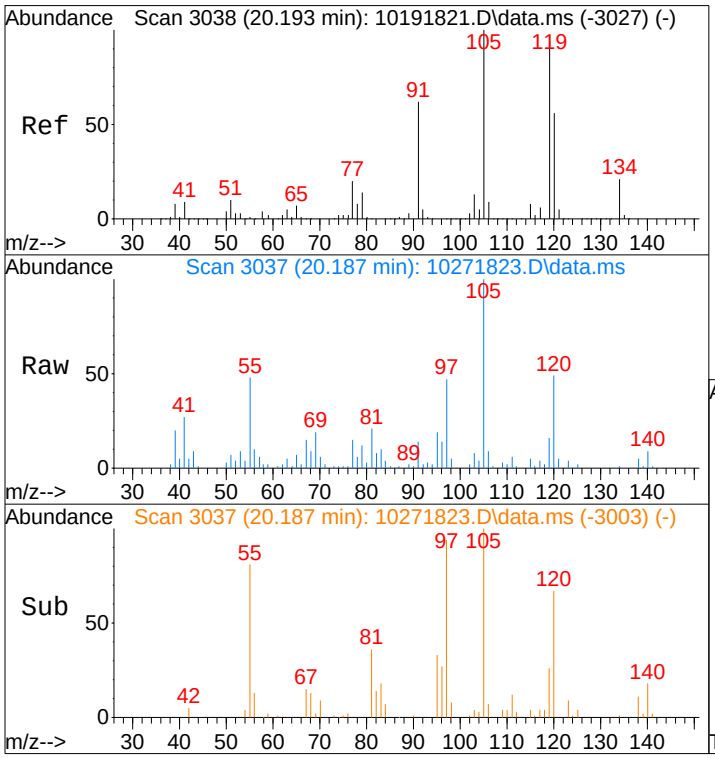


#79
1,3,5-Trimethylbenzene
Concen: 0.28 ng
RT: 19.83 min Scan# 2972
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:105 Resp: 24658

Ion	Ratio	Lower	Upper
105	100		
120	51.4	32.1	72.1

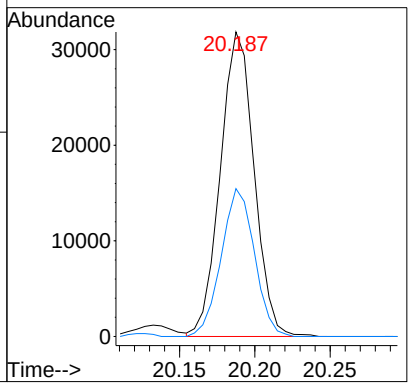


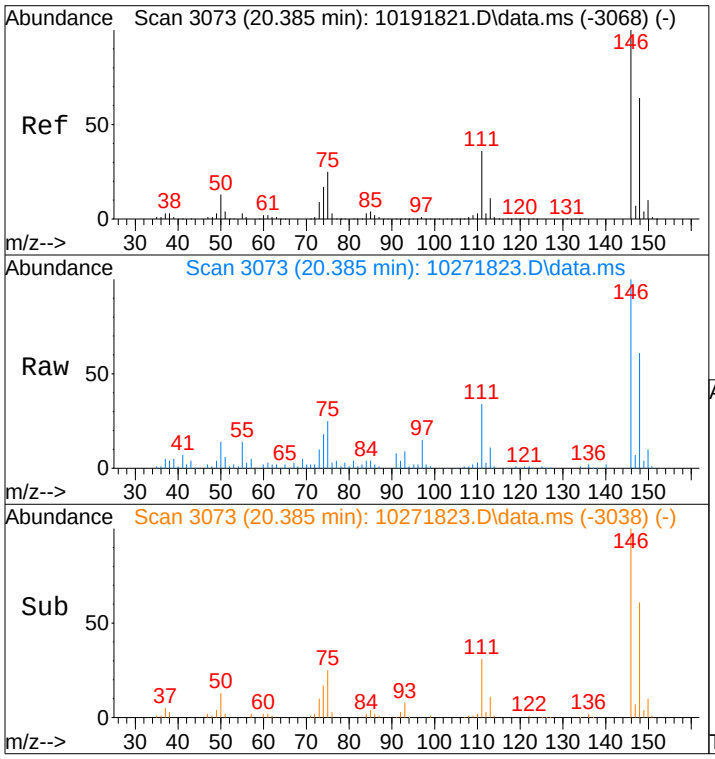


#82
1,2,4-Trimethylbenzene
Concen: 0.57 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:105 Resp: 49645

Ion	Ratio	Lower	Upper
105	100		
120	47.7	36.5	76.5

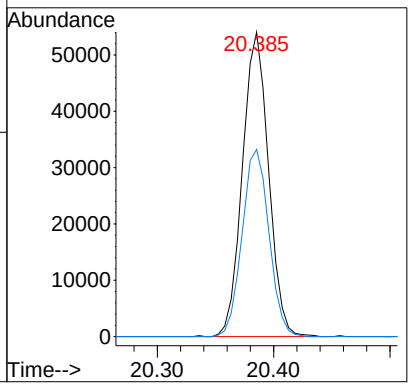


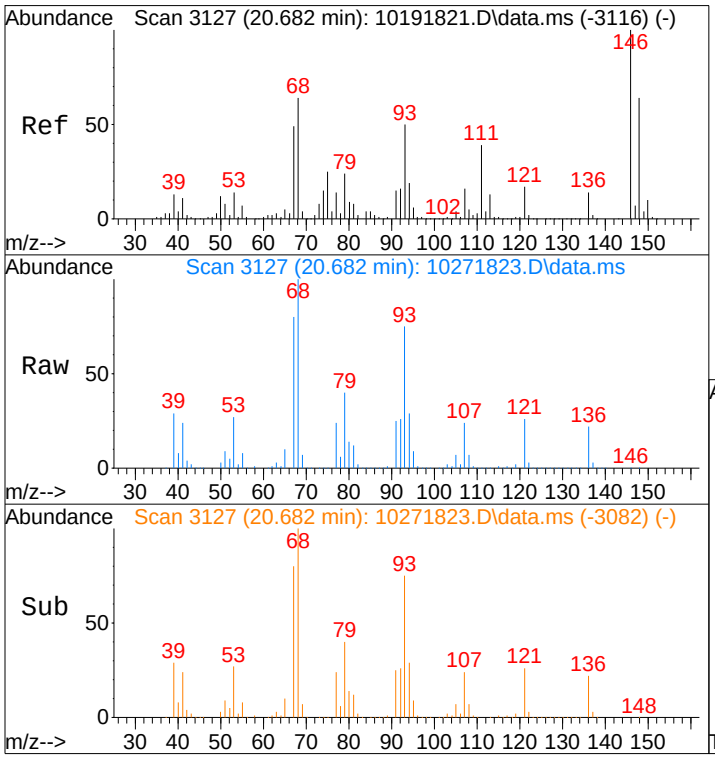


#86
1,4-Dichlorobenzene
Concen: 1.54 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.005 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion:146 Resp: 84358

Ion	Ratio	Lower	Upper
146	100		
148	63.1	44.2	84.2

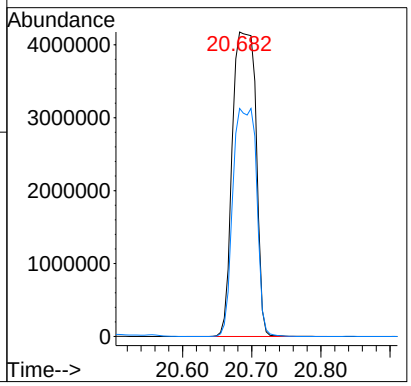




#91
d-Limonene
Concen: 311.22 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10271823.D
Acq: 27 Oct 2018 17:20

Tgt Ion: 68 Resp: 9843979

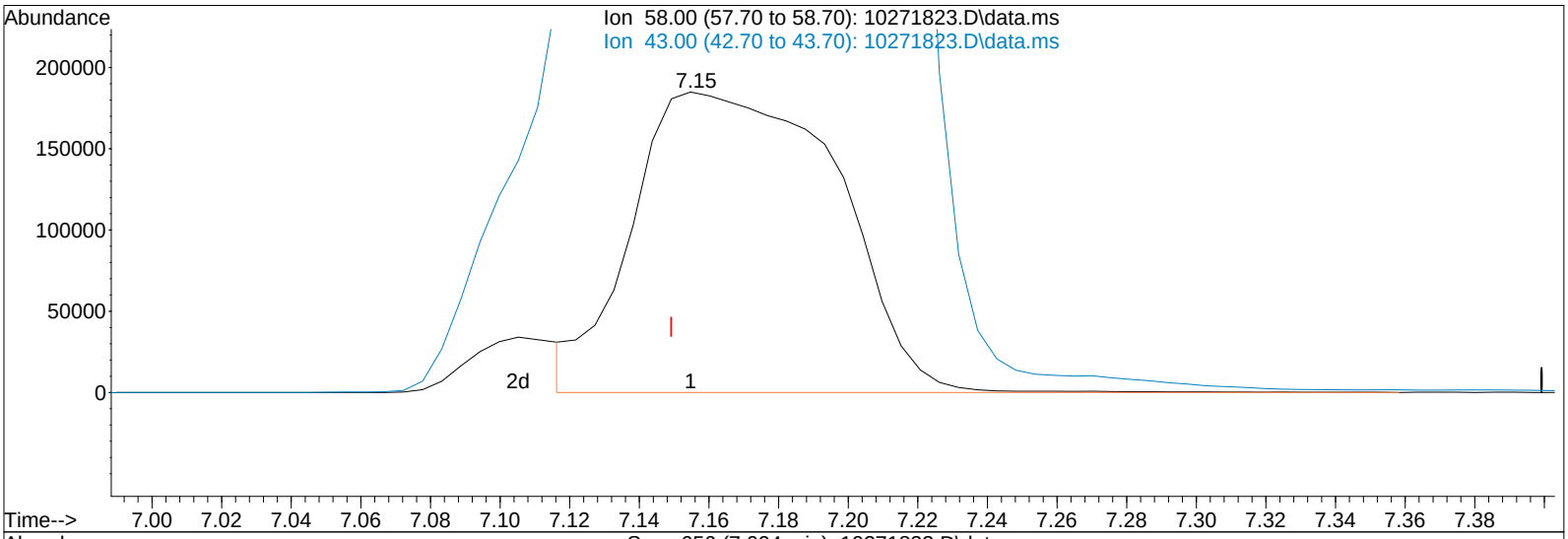
Ion	Ratio	Lower	Upper
68	100		
93	75.1	57.4	97.4

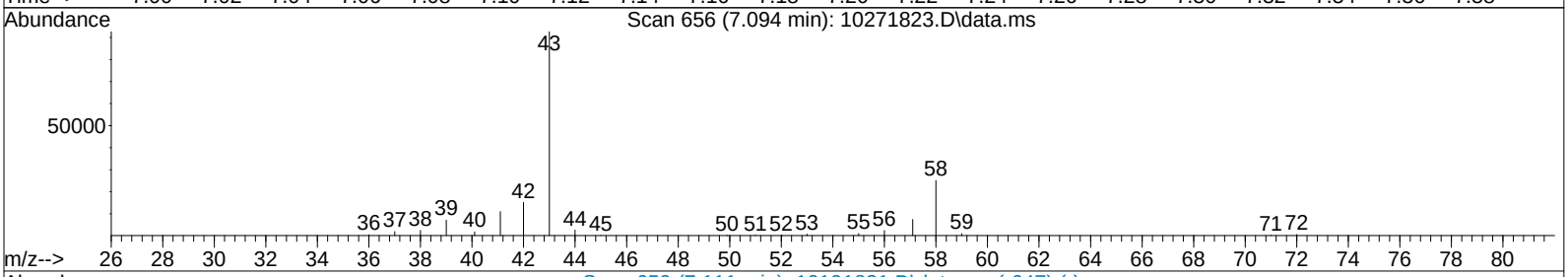


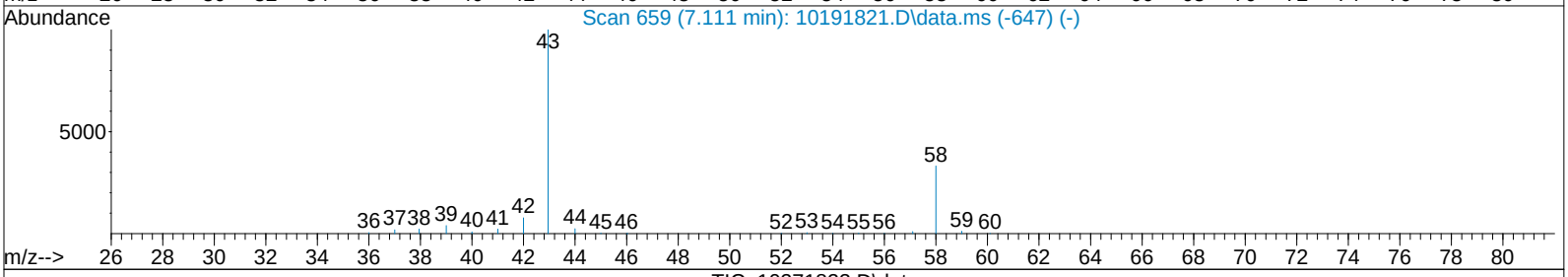
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 28 11:34:07 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271823.D\data.ms

(13) Acetone (T)

7.155min (+0.006) 48.38ng

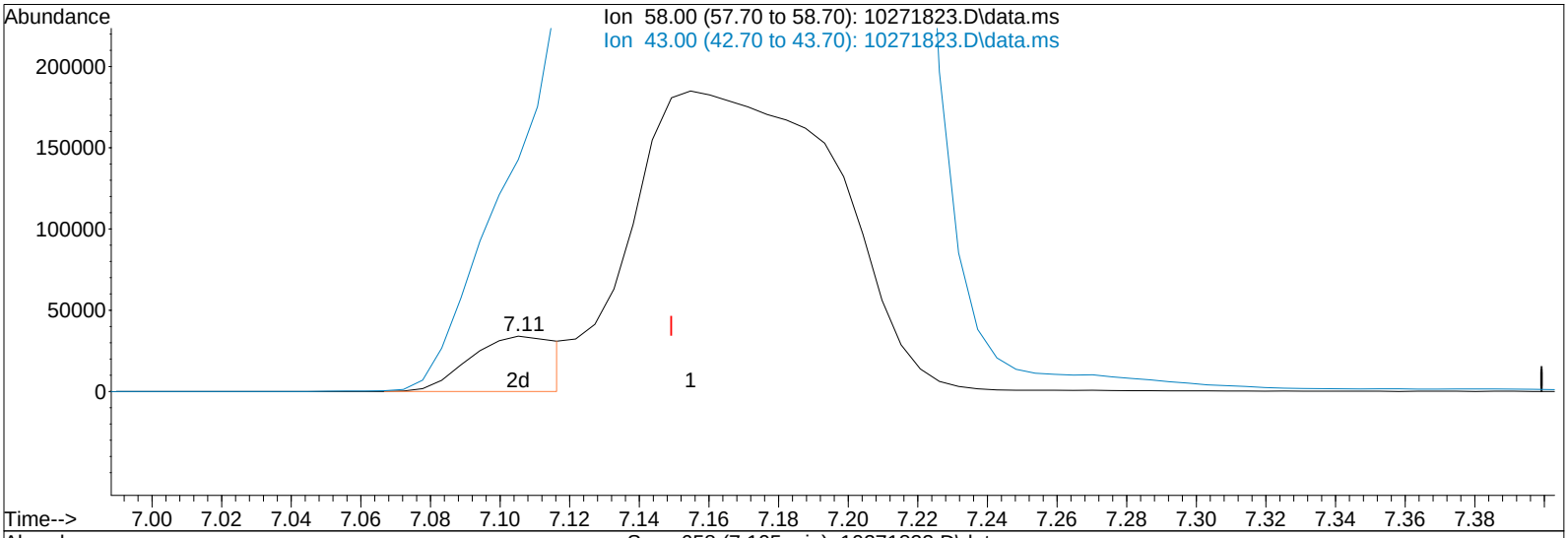
response 757765

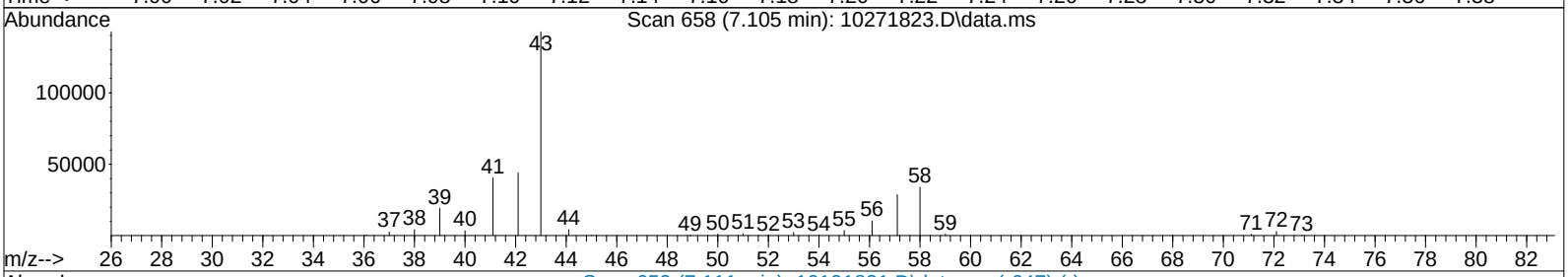
Ion	Exp%	Act%
58.00	100	100
43.00	313.40	2642.39#
0.00	0.00	0.00
0.00	0.00	0.00

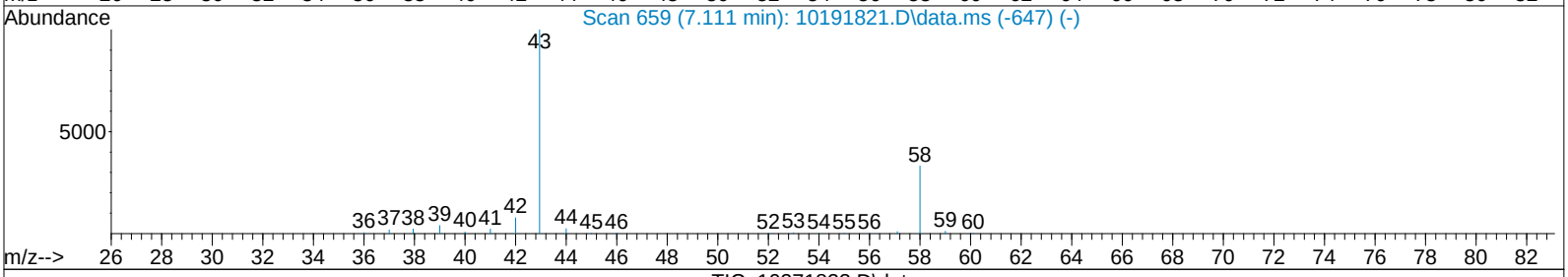
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 28 11:34:07 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271823.D\data.ms

(13) Acetone (T)

7.105min (-0.044) 3.77ng m

response 59056

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	33905.34#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

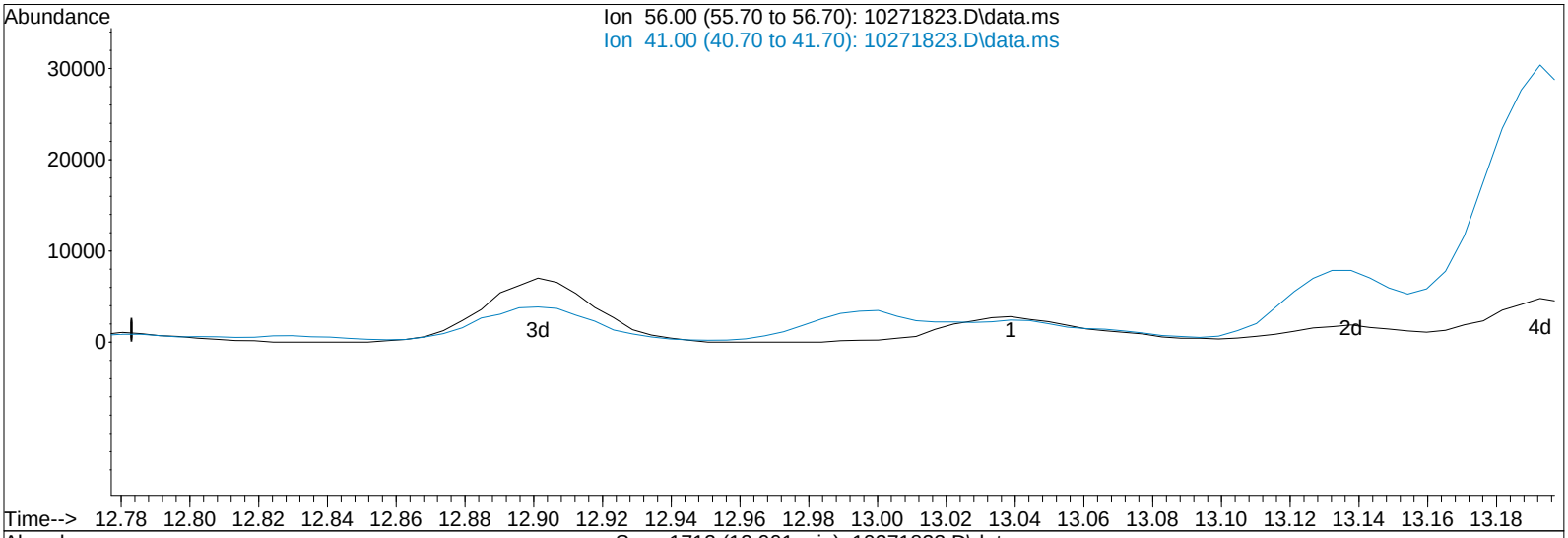
WP

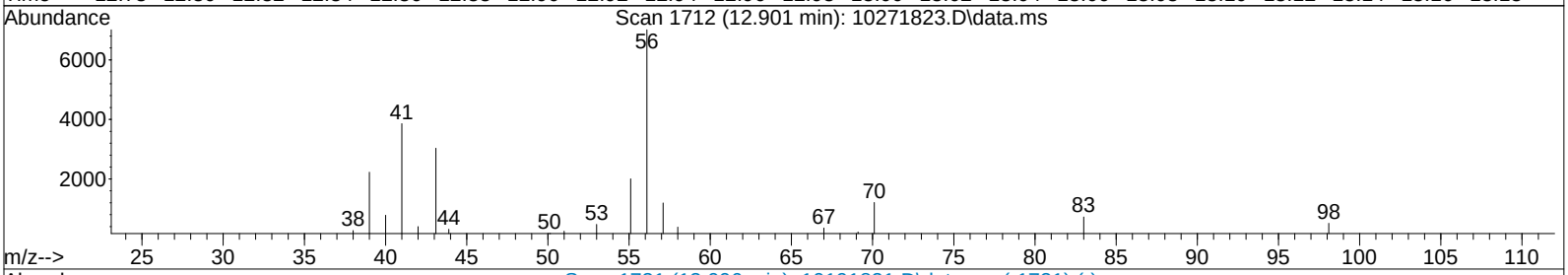
10/30/18

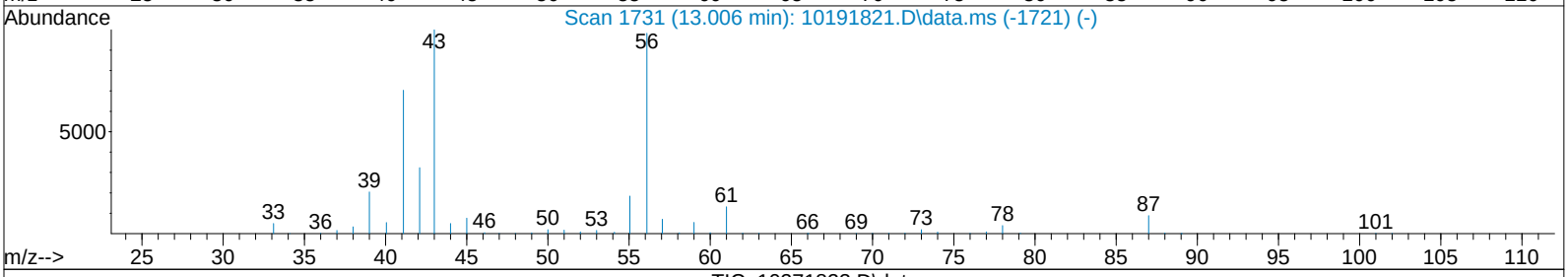
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 29 12:02:32 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271823.D\data.ms

(40) 1-Butanol (T)

13.033min 0.00ng d

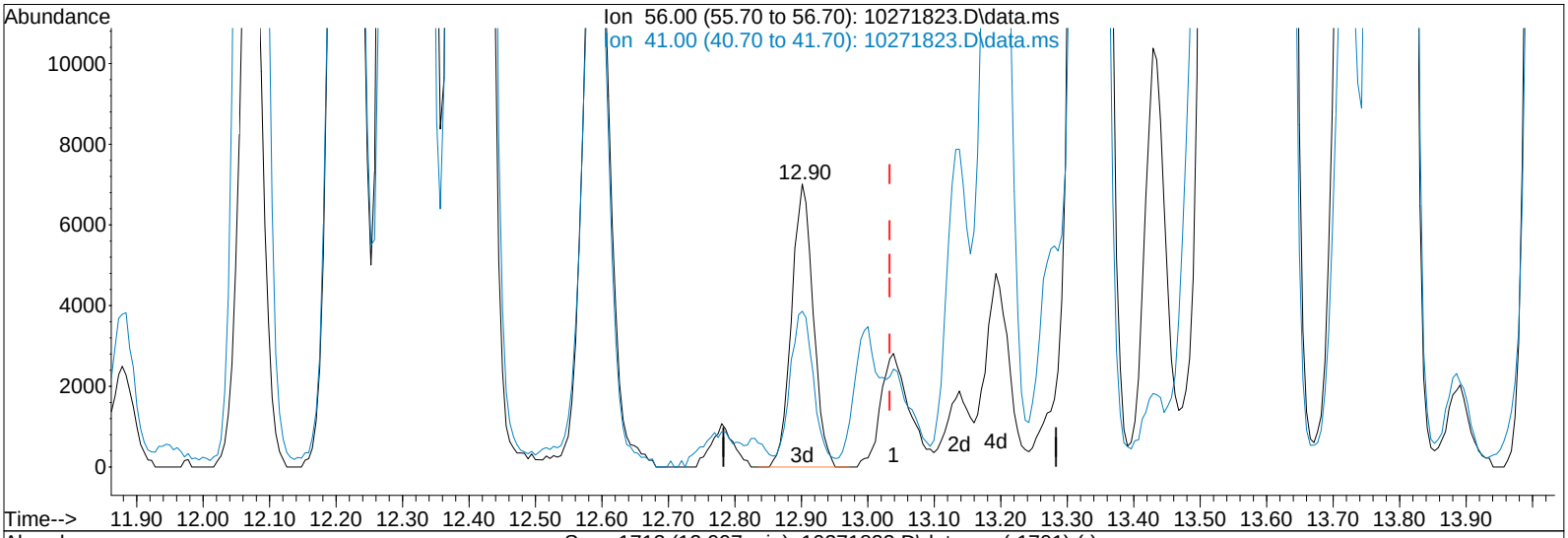
response 0

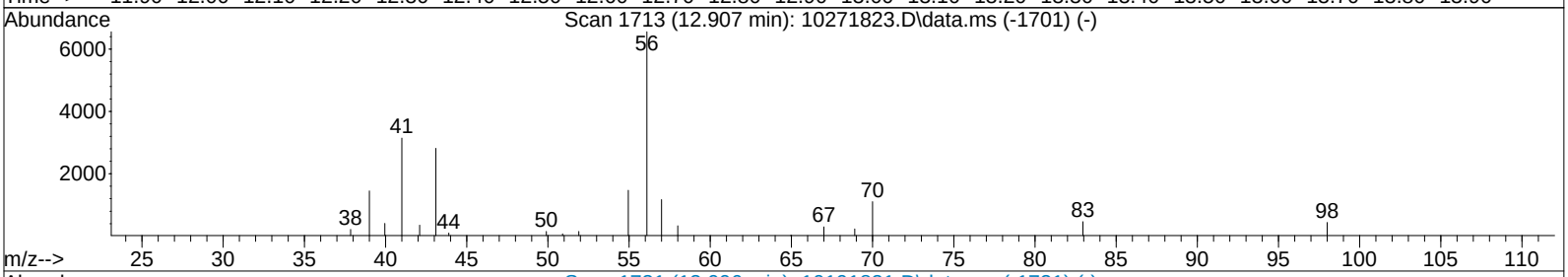
Ion	Exp%	Act%
56.00	100	0.00
41.00	102.40	0.00
0.00	0.00	0.00
0.00	0.00	0.00

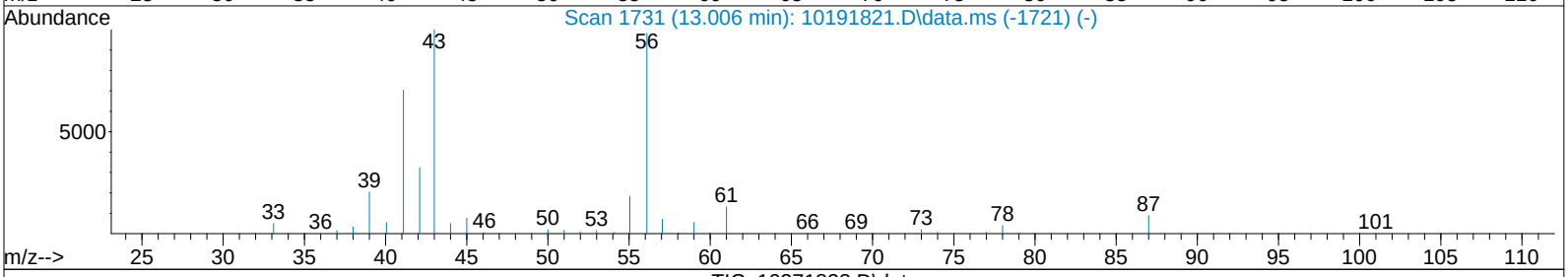
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 29 12:02:32 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271823.D\data.ms

(40) 1-Butanol (T)

12.901min (-0.132) 0.80ng m

response 15873

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

MP

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:46:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

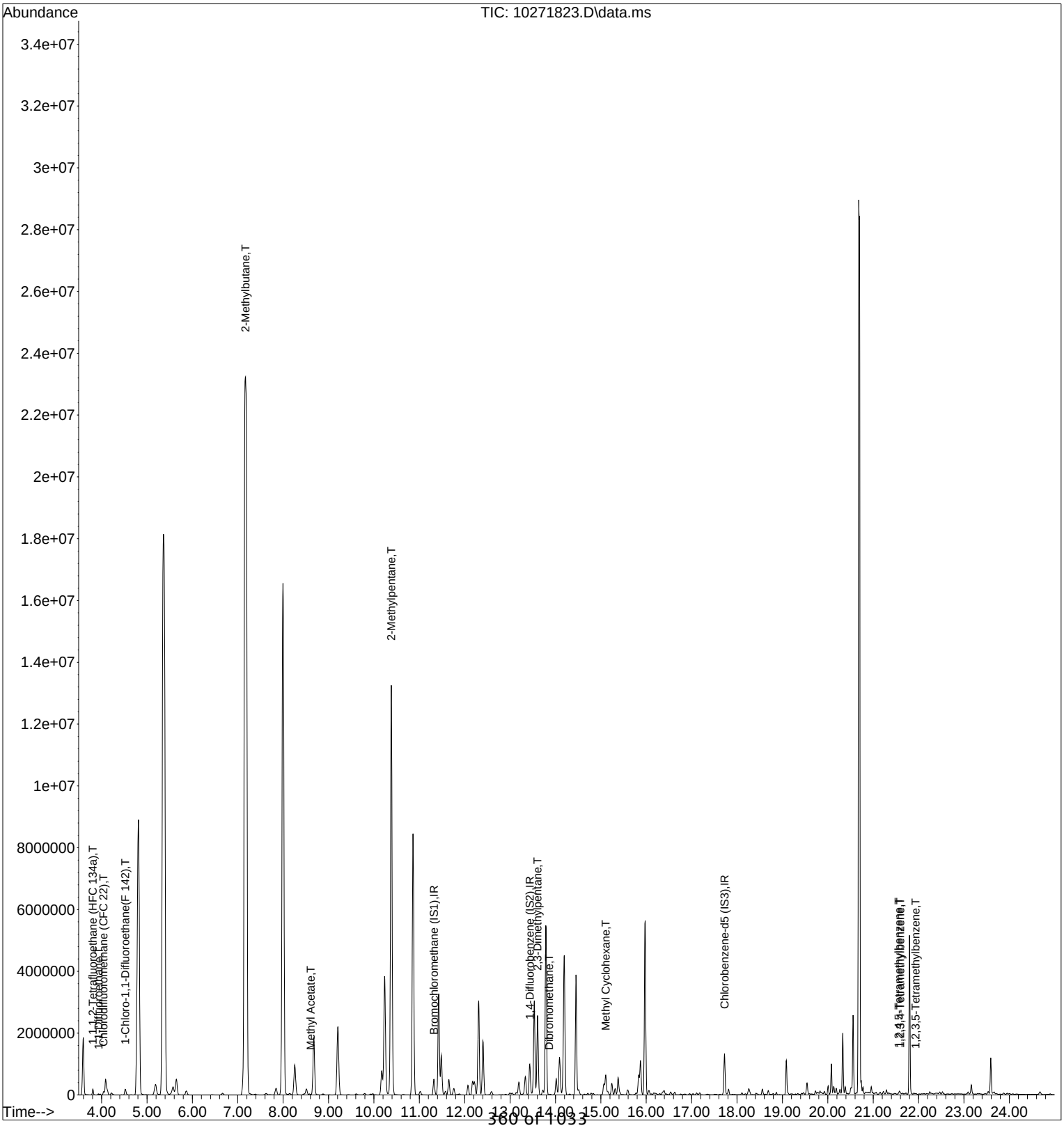
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	233410	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	978761	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	428831	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.70	85	224	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	123909	5.294	ng		94
4) 1,1-Difluoroethane	3.93	65	15191	0.850	ng		92
5) Chlorodifluoromethane ...	4.04	67	3763	0.542	ng		81
6) 1-Chloro-1,1-Difluoroe...	4.52	65	194688	3.841	ng		100
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.17	57	15862549	831.753	ng	#	80
11) Methyl Acetate	8.61	43	3530	0.088	ng	#	56
12) 2-Methylpentane	10.38	71	4547927	229.234	ng		93
13) 2,2-Dichloropropane	11.49	77	110	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.	d		
17) 2,3-Dimethylpentane	13.61	56	1246112	35.220	ng		98
18) Dibromomethane	13.86	174	1351	0.062	ng		98
20) Methyl Cyclohexane	15.11	55	319397	11.771	ng	#	71
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.81	131	1178	N.D.			
23) 1-Chlorohexane	17.93	91	975	N.D.			
24) 1,2,3-Trichloropropane	18.69	75	687	N.D.			
25) Bromobenzene	19.28	77	50	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	0.00	117	0	N.D.	d		
29) Indene	20.83	115	1812	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	13285	0.134	ng		96
31) 1,2,3,4-Tetramethylben...	21.60	119	14808	0.155	ng		97
32) 1,2,3,5-Tetramethylben...	21.94	119	12045	0.131	ng	#	66
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

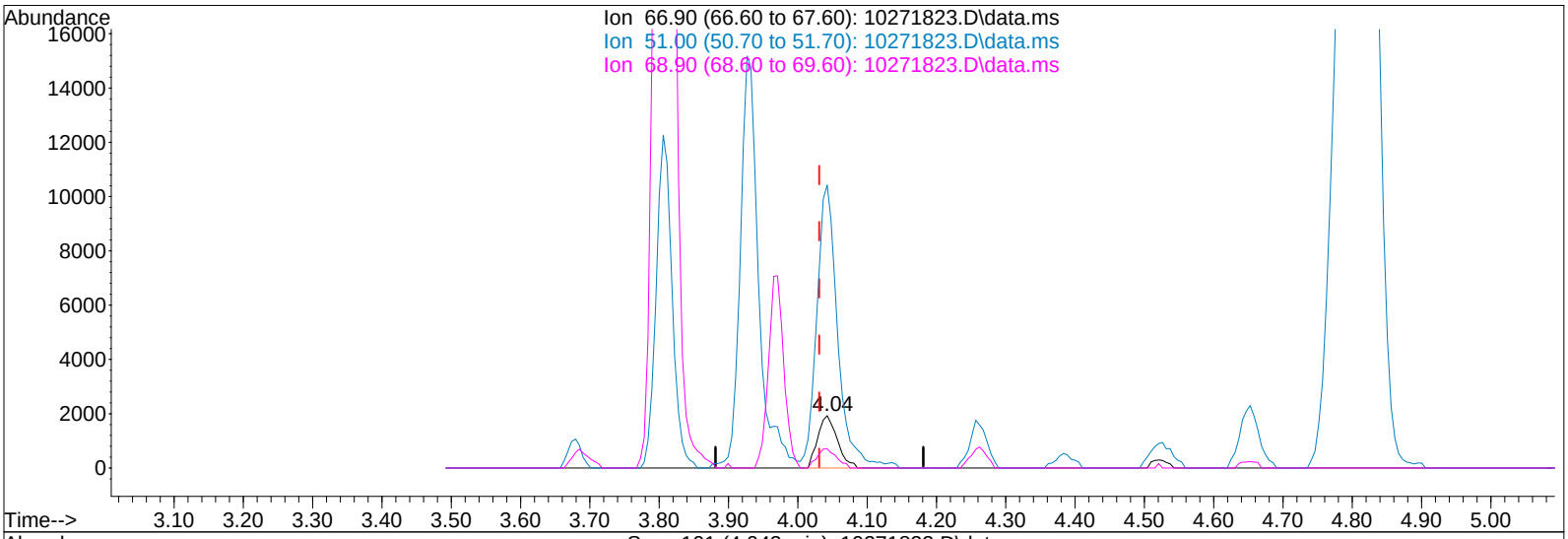
Quant Time: Oct 29 14:46:12 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

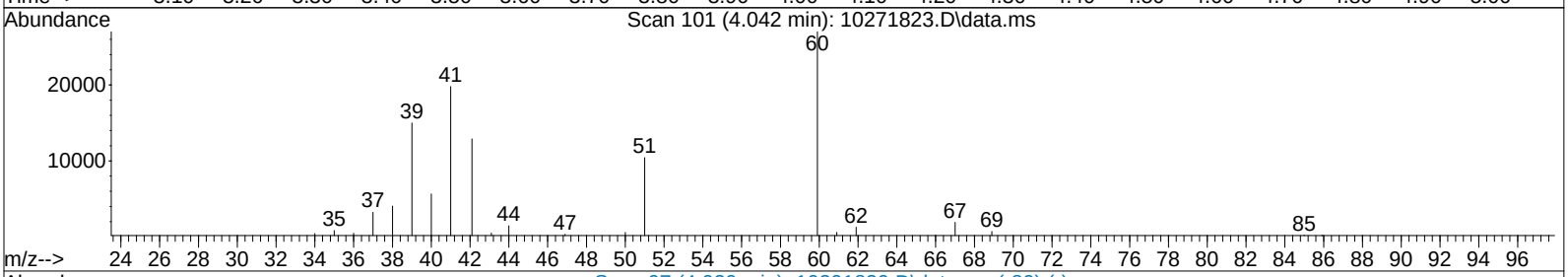


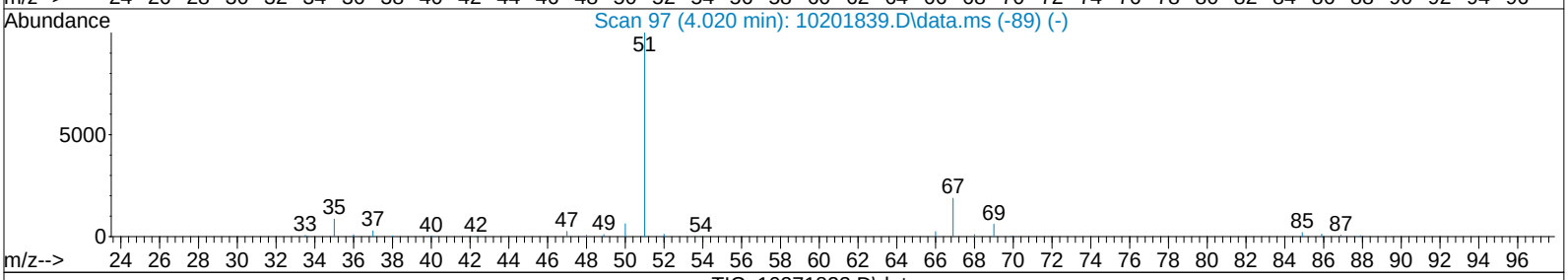
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271823.D
Acq On : 27 Oct 2018 17:20 Operator: WA
Sample : P1805497-010 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 29 14:44:59 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271823.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.042min (+0.011) 0.54ng

response 3763

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	581.90
68.90	31.80	36.73
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271824.D Vial: 14
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:53:46 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	241786	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1009480	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	437959	12.500	ng	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4(...	12.18	65	362357	12.458	ng	-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%			
57) Toluene-d8 (SS2)	15.87	98	881055	12.633	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.04%			
73) Bromofluorobenzene (SS3)	19.09	174	364377	11.493	ng	0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.92%			
Target Compounds						Qvalue
2) Propene	4.04	42	43436	1.930	ng	96
3) Dichlorodifluoromethan...	4.22	85	87585	1.733	ng	100
4) Chloromethane	4.52	50	15080	0.469	ng	83
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	864	N.D.		
6) Vinyl Chloride	4.97	62	409	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.	d	
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	6.06	64	3512	0.233	ng	96
10) Ethanol	6.40	45	205573	15.116	ng	100
11) Acetonitrile	0.00	41	0	N.D.	d	
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.09	58	217422m	13.400	ng	
14) Trichlorofluoromethane	7.39	101	33635	0.768	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	207688	3.991	ng	93
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.36	96	938	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.58	84	28238	1.246	ng	100
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	9.02	151	3473	0.149	ng	98
22) Carbon Disulfide	8.88	76	120220	1.486	ng	99
23) trans-1,2-Dichloroethene	9.79	61	714	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.	d	
25) Methyl tert-Butyl Ether	10.23	73	2267	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.65	72	3362	0.234	ng	91
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	11.43	57	1951570	55.672	ng	99
32) Chloroform	11.48	83	1511534	37.074	ng	99
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.	d	
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.	d	
38) 1,1,1-Trichloroethane	12.57	97	4845	0.128	ng	97
39) Isopropyl Acetate	13.05	61	369	N.D.		
40) 1-Butanol	12.90	56	17797m	0.872	ng	
41) Benzene	13.04	78	60675	0.654	ng	100
42) Carbon Tetrachloride	13.20	117	48308	1.374	ng	100
43) Cyclohexane	13.34	84	304408	8.463	ng	94
44) tert-Amyl Methyl Ether	13.60	73	765	N.D.		
45) 1,2-Dichloropropane	13.89	63	117	N.D.		
46) Bromodichloromethane	14.09	83	264867	8.158	ng	77
47) Trichloroethene	14.14	130	1834	0.067	ng	95
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271824.D Vial: 14
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:53:46 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

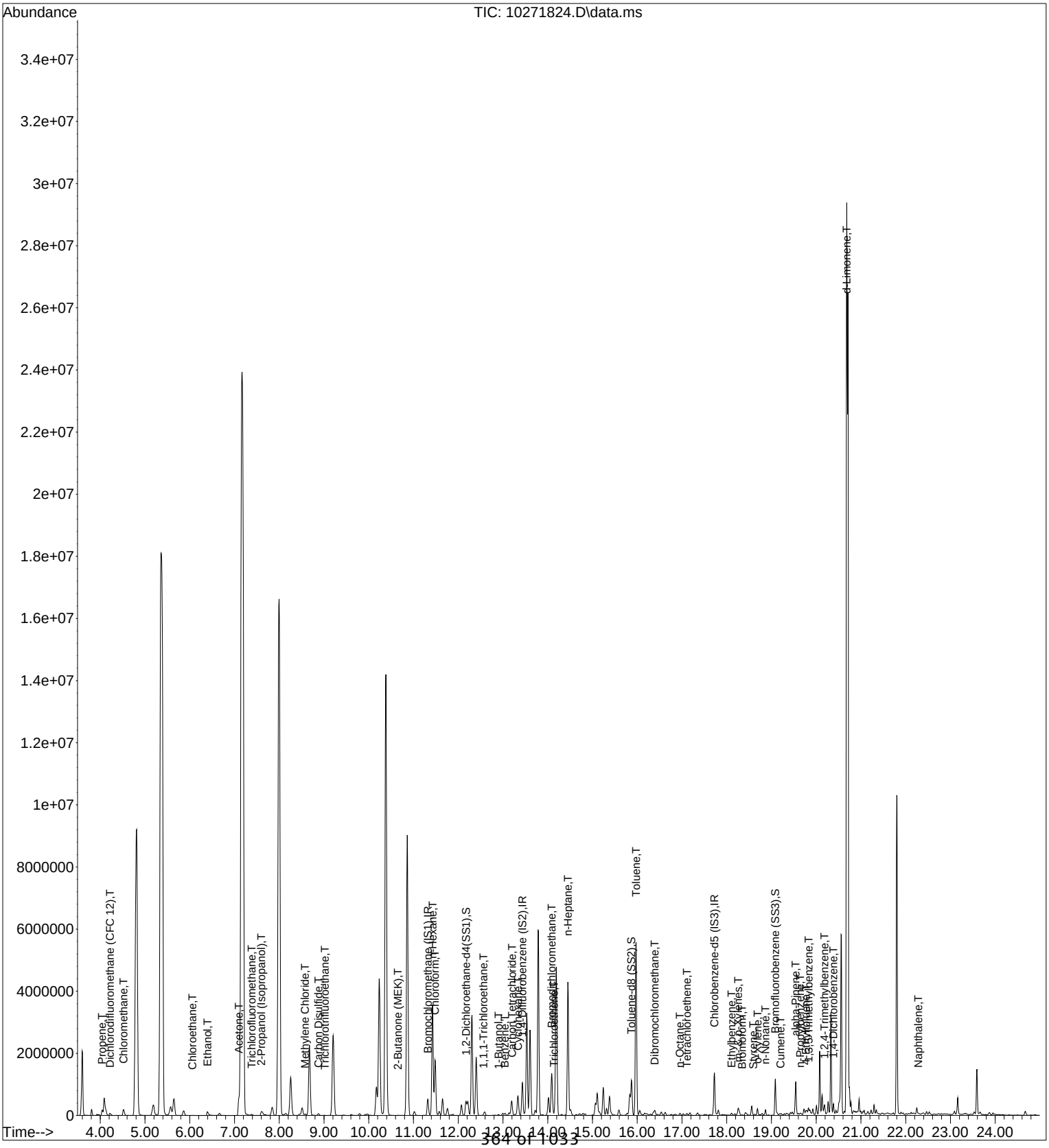
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	1167336	54.673	ng		99
52) cis-1,3-Dichloropropene	15.01	75	106	N.D.			
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	d		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	15.66	97	429	N.D.			
58) Toluene	15.98	91	4435001	45.797	ng		100
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	16.39	129	65480	2.314	ng		100
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.84	43	2309	N.D.			
63) n-Octane	16.95	57	13264	0.719	ng		94
64) Tetrachloroethene	17.11	166	21130	0.709	ng		99
65) Chlorobenzene	0.00	112	0	N.D.	d		
66) Ethylbenzene	18.11	91	53900	0.489	ng		99
67) m- & p-Xylenes	18.26	91	158972	1.930	ng		98
68) Bromoform	18.35	173	5780	0.230	ng		99
69) Styrene	18.59	104	7780	0.116	ng	#	62
70) o-Xylene	18.69	91	57078	0.683	ng		98
71) n-Nonane	18.87	43	55918	1.456	ng		96
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
74) Cumene	19.20	105	11173	0.102	ng		95
75) alpha-Pinene	19.54	93	419477	7.372	ng		95
76) n-Propylbenzene	19.64	91	27066	0.216	ng	#	77
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.77	105	10963	0.110	ng	#	43
79) 1,3,5-Trimethylbenzene	19.83	105	37158	0.405	ng		98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.19	105	68097	0.756	ng		88
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	0.00	91	0	N.D.	d		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
86) 1,4-Dichlorobenzene	20.39	146	109220	1.930	ng		100
87) sec-Butylbenzene	0.00	105	0	N.D.	d		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.68	146	207	N.D.			
91) d-Limonene	20.68	68	11929940	364.619	ng	#	63
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	0.00	57	0	N.D.	d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	22.28	128	7012	0.054	ng		78
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.	d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271824.D Vial: 14
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:53:46 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271824.D Vial: 14
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:53:46 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	241786	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1009480	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	437959	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	362357	12.458	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.68%				
57) Toluene-d8 (SS2)	15.87	98	881055	12.633	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.04%				
73) Bromofluorobenzene (SS3)	19.09	174	364377	11.493	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.92%				
Target Compounds							Qvalue
2) Propene	4.04	42	43436	1.930	ng		96
3) Dichlorodifluoromethan...	4.22	85	87585	1.733	ng		100
4) Chloromethane	4.52	50	15080	0.469	ng		83
9) Chloroethane	6.06	64	3512	0.233	ng		96
10) Ethanol	6.40	45	205573	15.116	ng		100
13) Acetone	7.09	58	217422m	13.400	ng		
14) Trichlorofluoromethane	7.39	101	33635	0.768	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	207688	3.991	ng		93
19) Methylene Chloride	8.58	84	28238	1.246	ng		100
21) Trichlorotrifluoroethane	9.02	151	3473	0.149	ng		98
22) Carbon Disulfide	8.88	76	120220	1.486	ng		99
27) 2-Butanone (MEK)	10.65	72	3362	0.234	ng		91
31) n-Hexane	11.43	57	1951570	55.672	ng		99
32) Chloroform	11.48	83	1511534	37.074	ng		99
38) 1,1,1-Trichloroethane	12.57	97	4845	0.128	ng		97
40) 1-Butanol	12.90	56	17797m	0.872	ng		
41) Benzene	13.04	78	60675	0.654	ng		100
42) Carbon Tetrachloride	13.20	117	48308	1.374	ng		100
43) Cyclohexane	13.34	84	304408	8.463	ng		94
46) Bromodichloromethane	14.09	83	264867	8.158	ng		77
47) Trichloroethene	14.14	130	1834	0.067	ng		95
51) n-Heptane	14.45	71	1167336	54.673	ng		99
58) Toluene	15.98	91	4435001	45.797	ng		100
60) Dibromochloromethane	16.39	129	65480	2.314	ng		100
63) n-Octane	16.95	57	13264	0.719	ng		94
64) Tetrachloroethene	17.11	166	21130	0.709	ng		99
66) Ethylbenzene	18.11	91	53900	0.489	ng		99
67) m- & p-Xylenes	18.26	91	158972	1.930	ng		98
68) Bromoform	18.35	173	5780	0.230	ng		99
69) Styrene	18.59	104	7780	0.116	ng	#	62
70) o-Xylene	18.69	91	57078	0.683	ng		98
71) n-Nonane	18.87	43	55918	1.456	ng		96
74) Cumene	19.20	105	11173	0.102	ng		95
75) alpha-Pinene	19.54	93	419477	7.372	ng		95
76) n-Propylbenzene	19.64	91	27066	0.216	ng	#	77
78) 4-Ethyltoluene	19.77	105	10963	0.110	ng	#	43
79) 1,3,5-Trimethylbenzene	19.83	105	37158	0.405	ng		98
82) 1,2,4-Trimethylbenzene	20.19	105	68097	0.756	ng		88
86) 1,4-Dichlorobenzene	20.39	146	109220	1.930	ng		100
91) d-Limonene	20.68	68	11929940	364.619	ng	#	63
95) Naphthalene	22.28	128	7012	0.054	ng		78

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271824.D Vial: 14
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801

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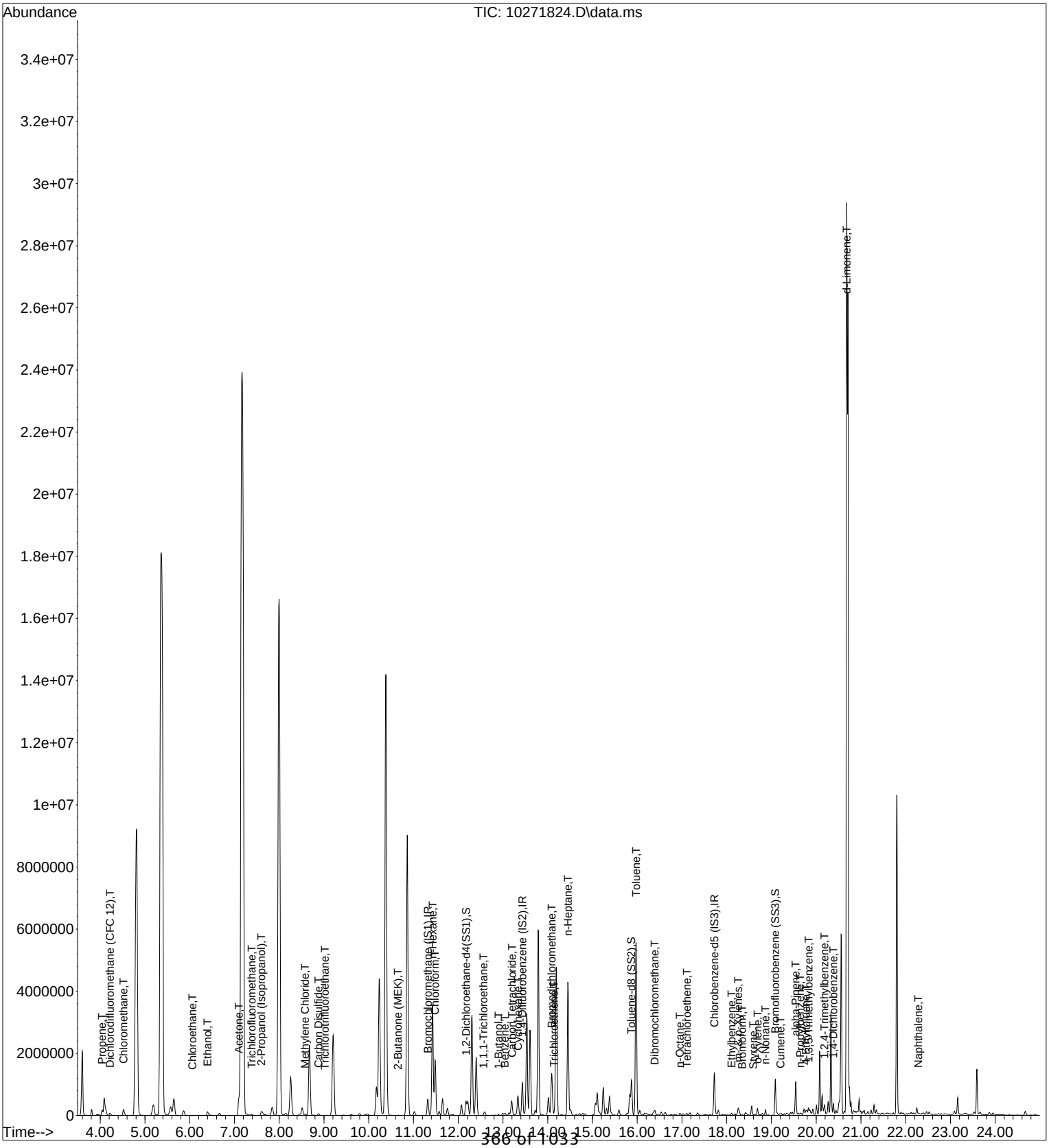
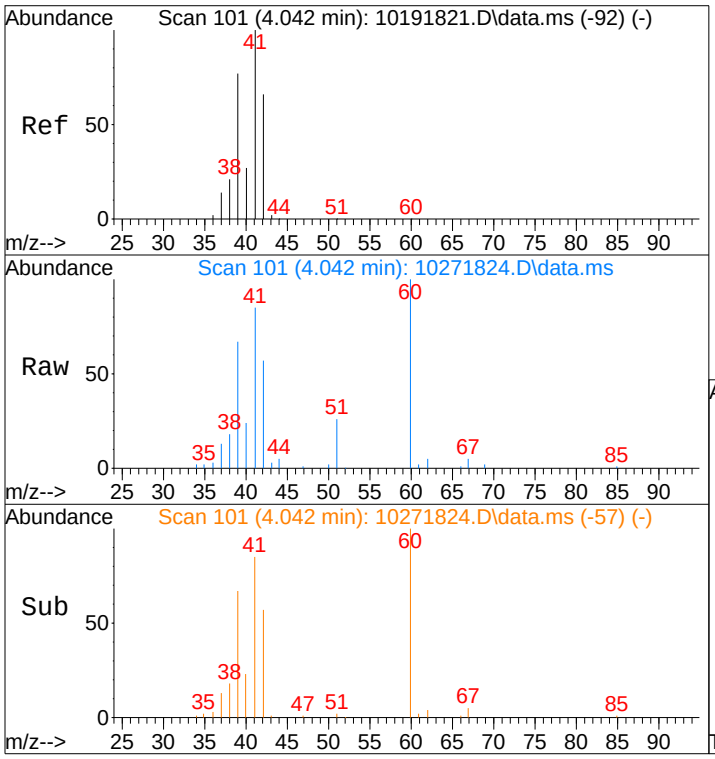
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

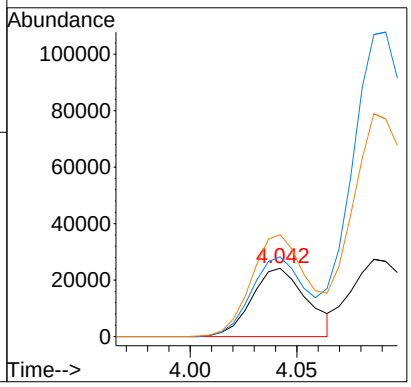


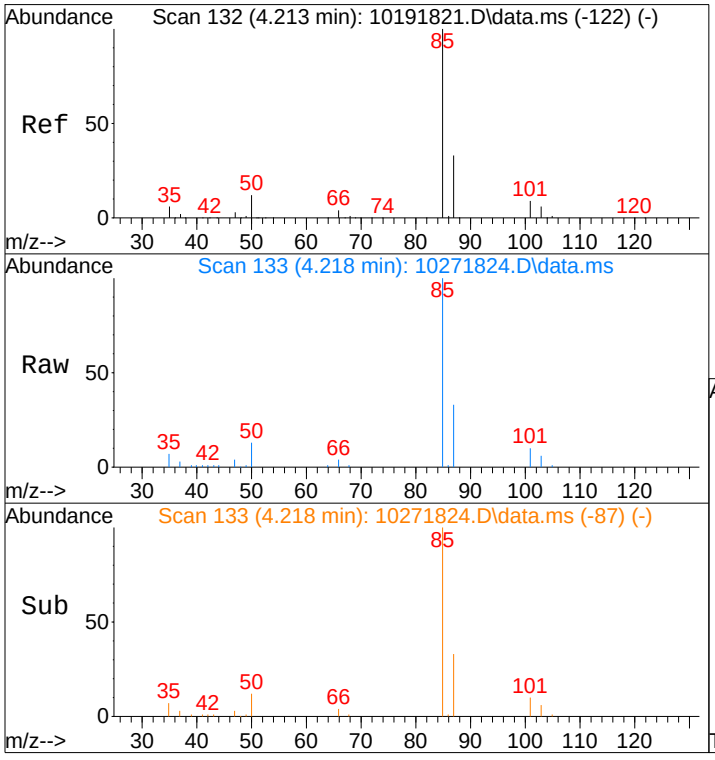


#2
Propene
Concen: 1.93 ng
RT: 4.04 min Scan# 101
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 42 Resp: 43436

Ion	Ratio	Lower	Upper
42	100		
39	112.3	98.5	138.5
41	154.8	131.9	171.9

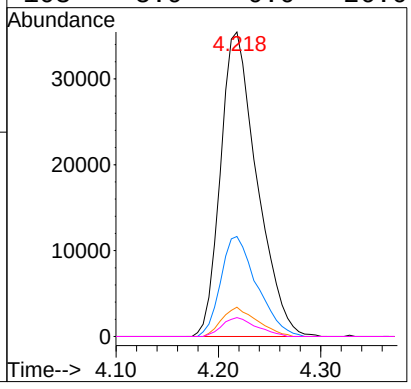


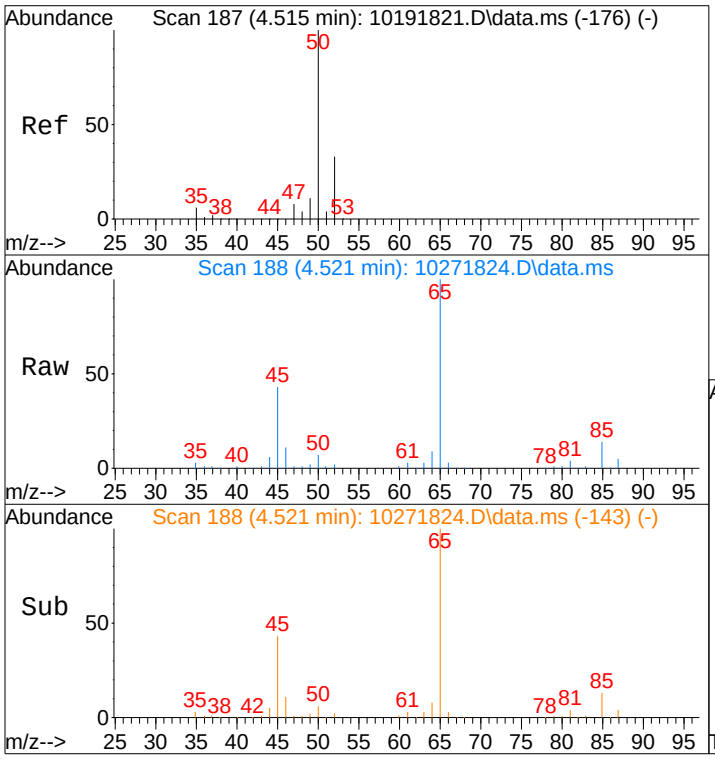


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.73 ng
RT: 4.22 min Scan# 133
Delta R.T. 0.005 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 85 Resp: 87585

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.6	52.6
101	9.2	0.0	29.4
103	5.9	0.0	26.0

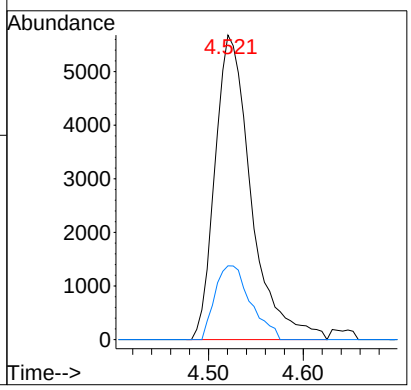


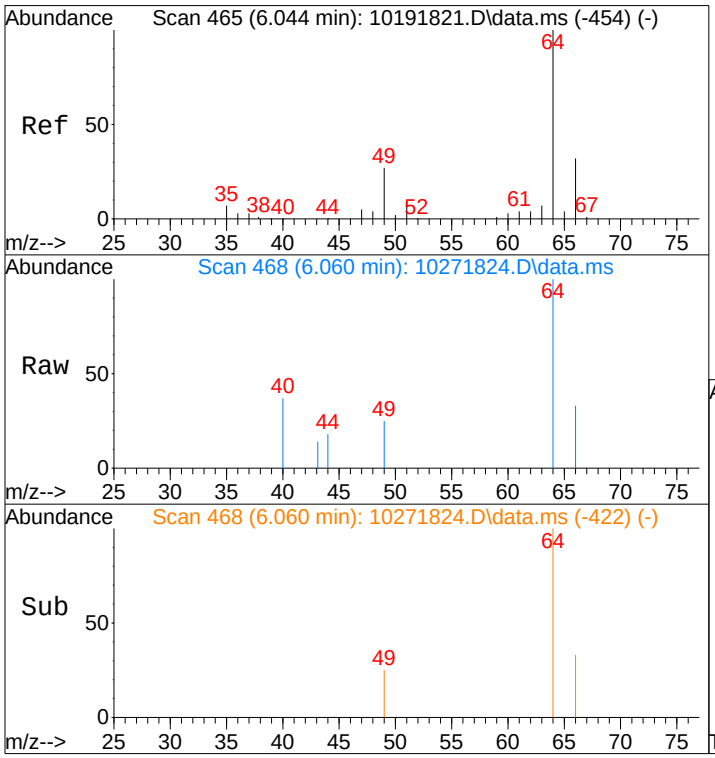


#4
Chloromethane
Concen: 0.47 ng
RT: 4.52 min Scan# 188
Delta R.T. -0.000 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 50 Resp: 15080

Ion	Ratio	Lower	Upper
50	100		
52	23.8	13.2	53.2

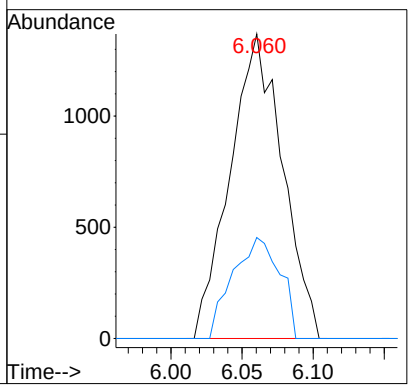


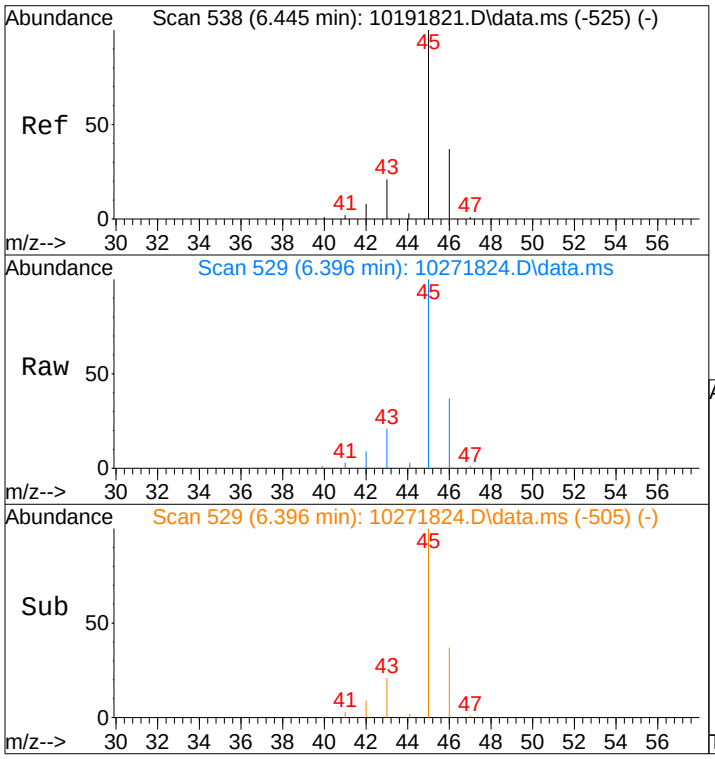


#9
Chloroethane
Concen: 0.23 ng
RT: 6.06 min Scan# 468
Delta R.T. 0.005 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 64 Resp: 3512

Ion	Ratio	Lower	Upper
64	100		
66	29.8	12.2	52.2

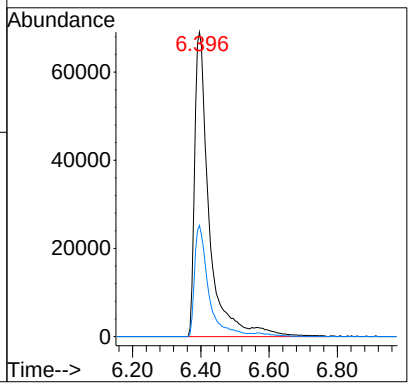


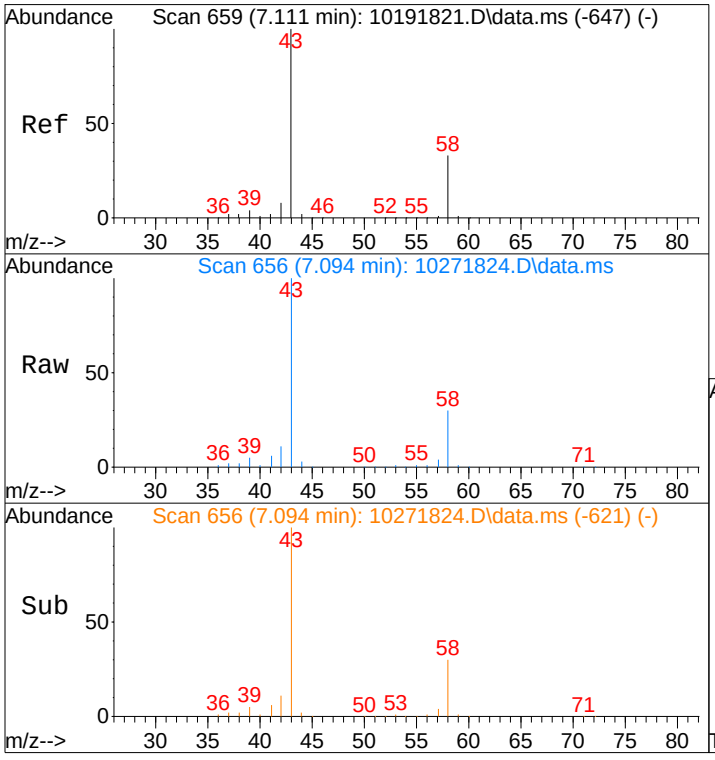


#10
Ethanol
Concen: 15.12 ng
RT: 6.40 min Scan# 529
Delta R.T. -0.116 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 45 Resp: 205573

Ion	Ratio	Lower	Upper
45	100		
46	36.5	16.6	56.6

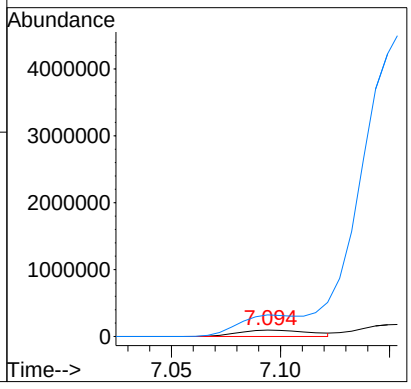


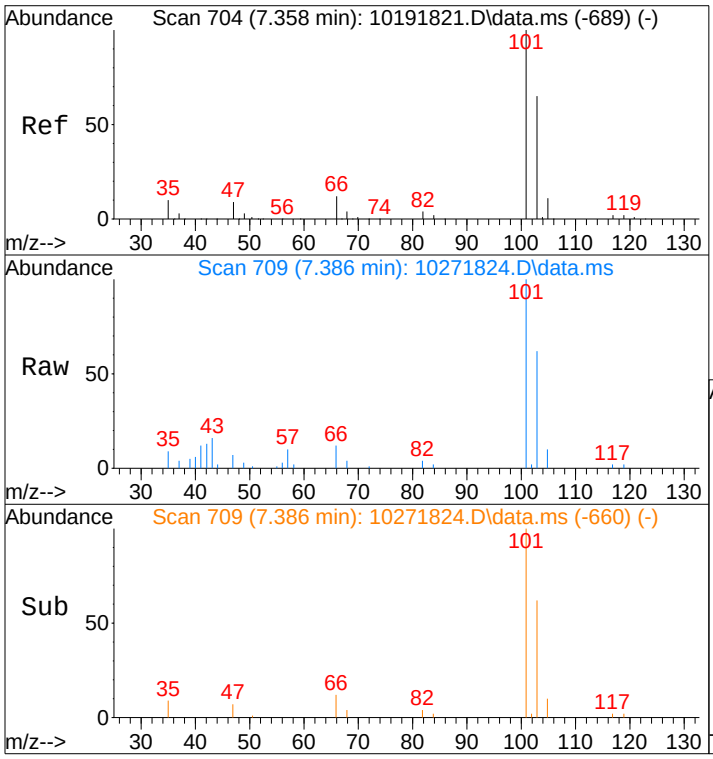


#13
Acetone
Concen: 13.40 ng m
RT: 7.09 min Scan# 656
Delta R.T. -0.055 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 58 Resp: 217422

Ion	Ratio	Lower	Upper
58	100		
43	9417.3	283.4	343.4#

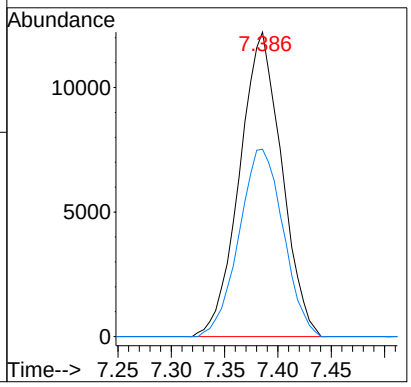


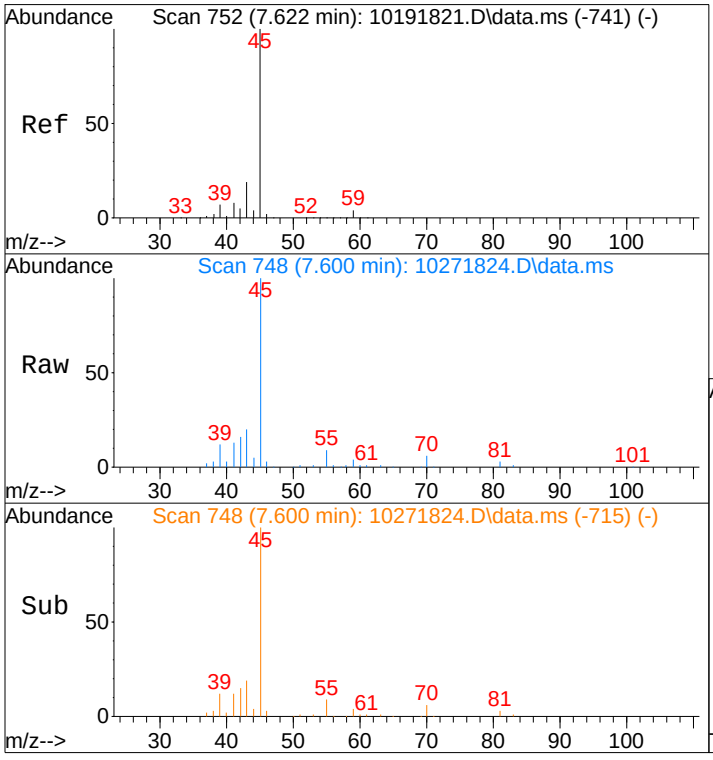


#14
Trichlorofluoromethane
Concen: 0.77 ng
RT: 7.39 min Scan# 709
Delta R.T. 0.022 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:101 Resp: 33635

Ion	Ratio	Lower	Upper
101	100		
103	64.5	44.8	84.8

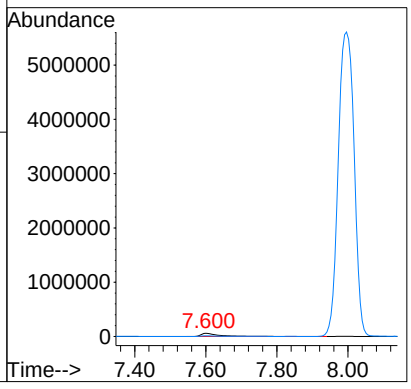


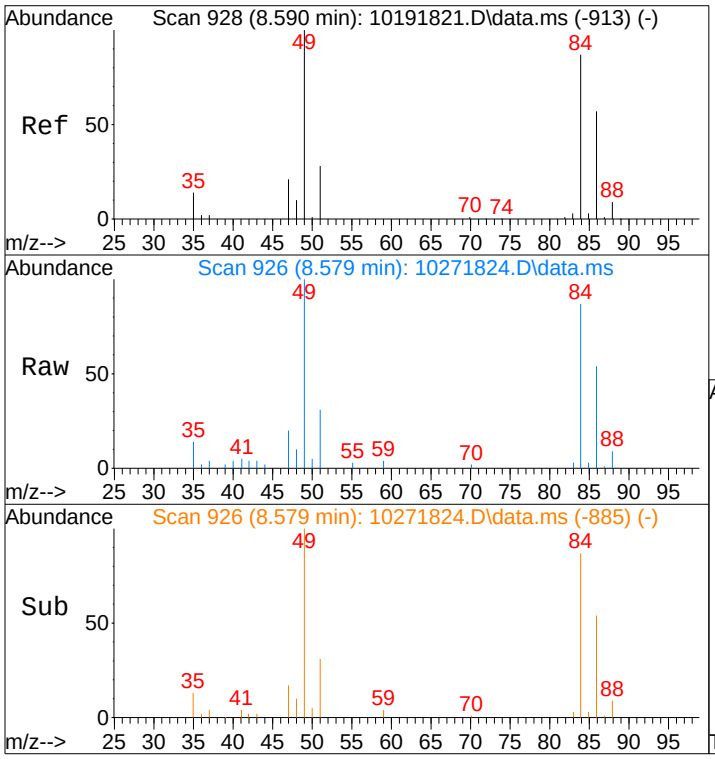


#15
2-Propanol (Isopropanol)
Concen: 3.99 ng
RT: 7.60 min Scan# 748
Delta R.T. -0.066 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 45 Resp: 207688

Ion	Ratio	Lower	Upper
45	100		
43	22.6	0.0	39.6

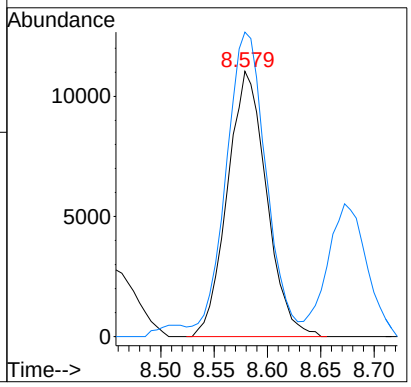


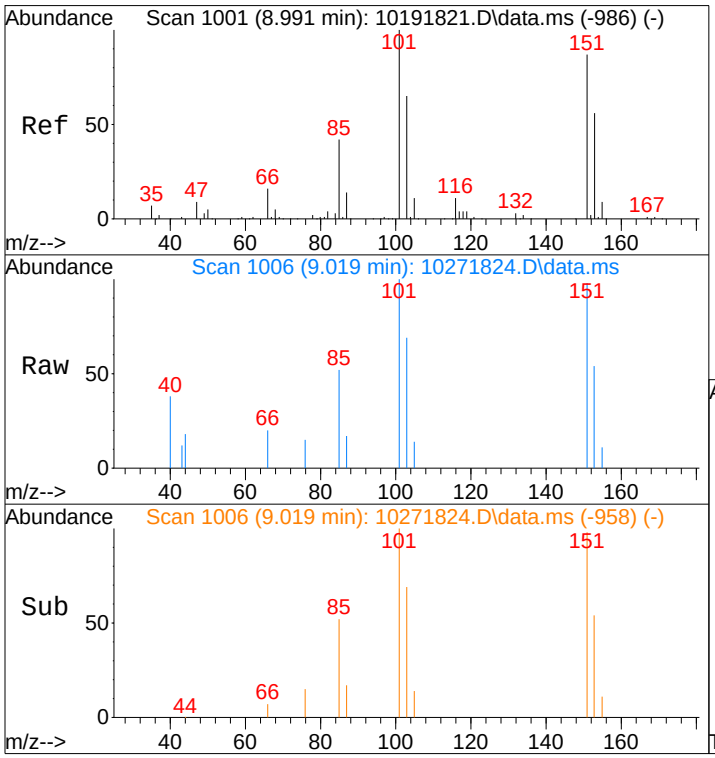


#19
Methylene Chloride
Concen: 1.25 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 84 Resp: 28238

Ion	Ratio	Lower	Upper
84	100		
49	117.4	92.1	142.1

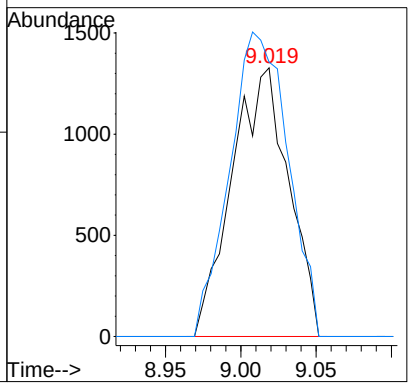


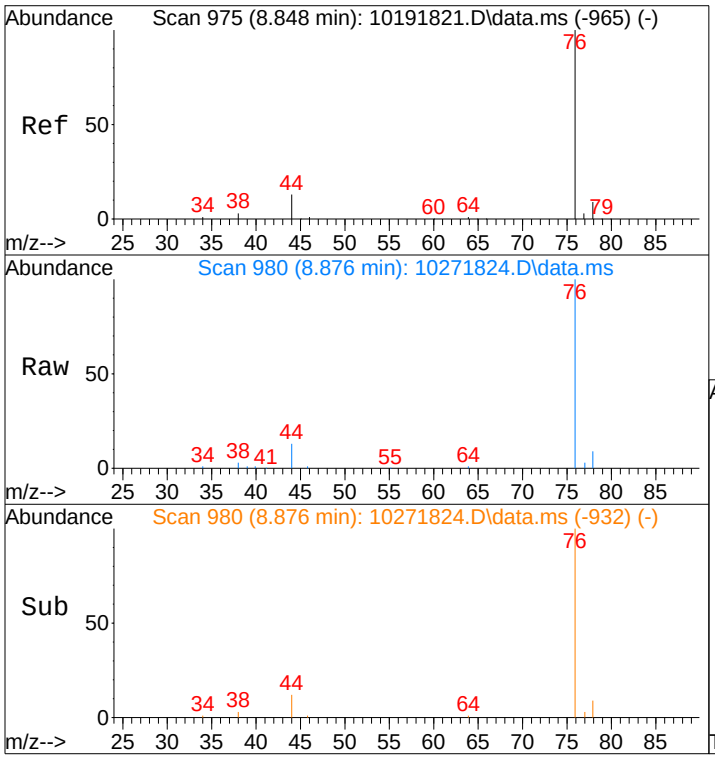


#21
Trichlorotrifluoroethane
Concen: 0.15 ng
RT: 9.02 min Scan# 1006
Delta R.T. 0.016 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:151 Resp: 3473

Ion	Ratio	Lower	Upper
151	100		
101	116.8	94.4	134.4

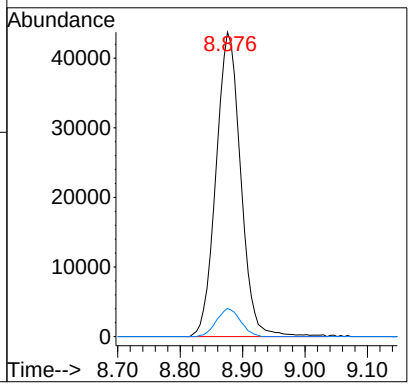


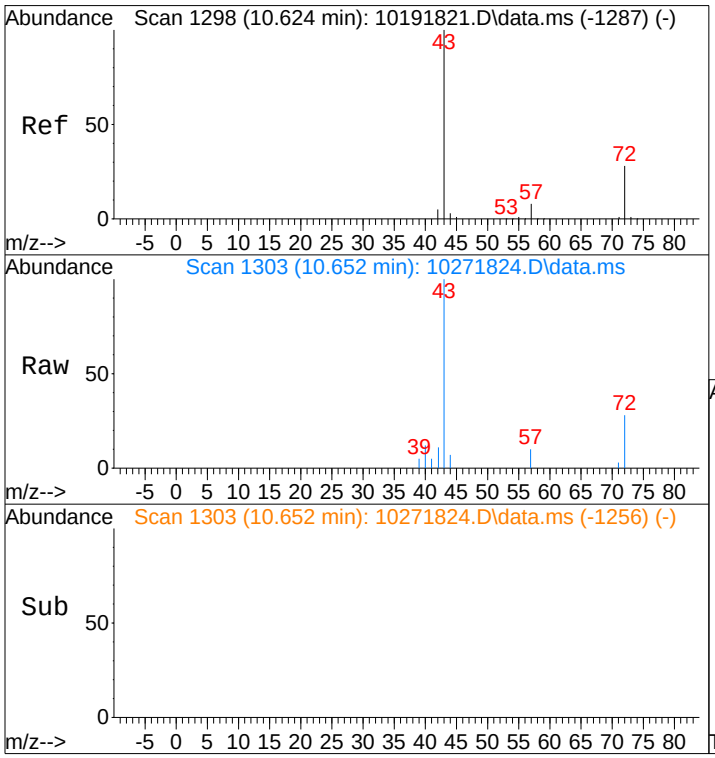


#22
Carbon Disulfide
Concen: 1.49 ng
RT: 8.88 min Scan# 980
Delta R.T. 0.016 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 76 Resp: 120220

Ion	Ratio	Lower	Upper
76	100		
78	9.0	0.0	29.3

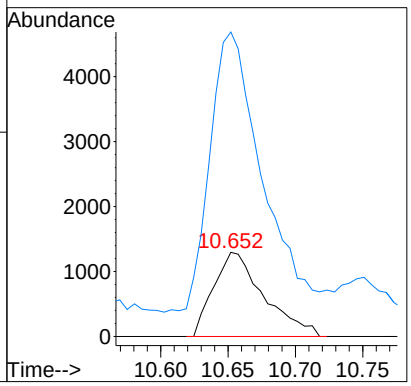


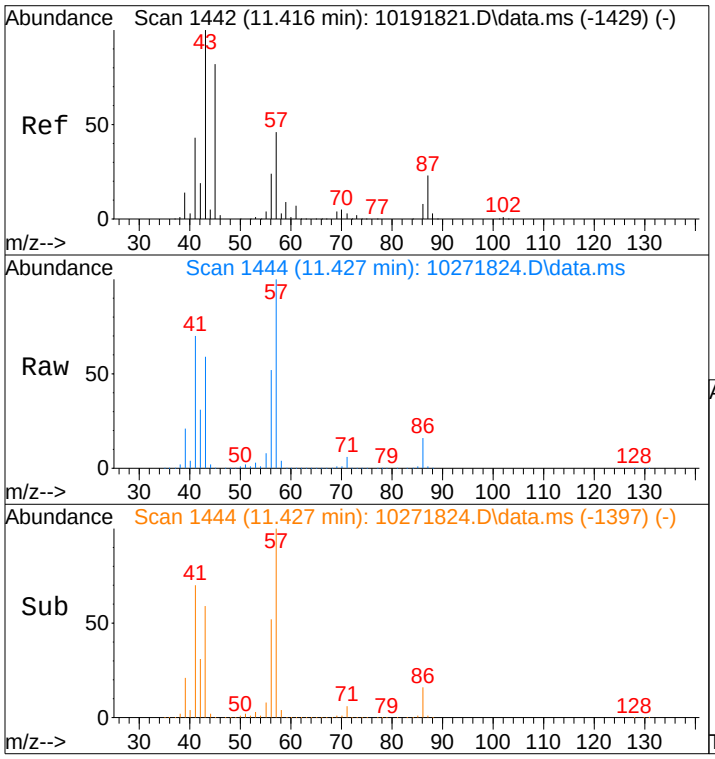


#27
2-Butanone (MEK)
Concen: 0.23 ng
RT: 10.65 min Scan# 1303
Delta R.T. 0.011 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 72 Resp: 3362

Ion	Ratio	Lower	Upper
72	100		
43	351.0	350.1	390.1

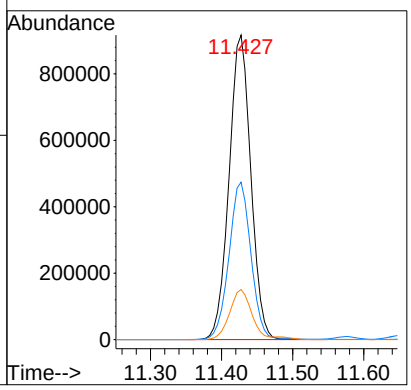


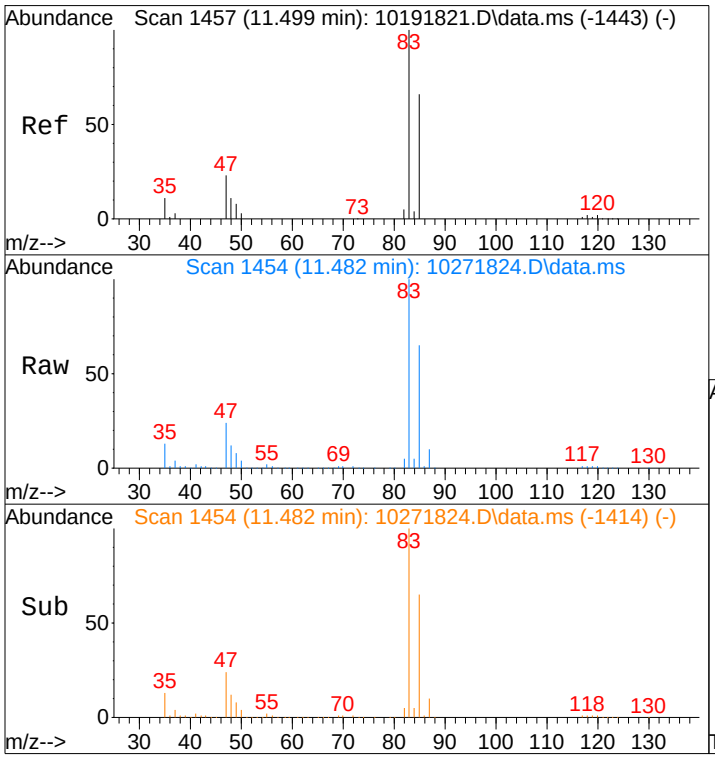


#31
n-Hexane
Concen: 55.67 ng
RT: 11.43 min Scan# 1444
Delta R.T. 0.011 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 57 Resp: 1951570

Ion	Ratio	Lower	Upper
57	100		
56	52.4	41.4	62.0
86	17.2	13.7	20.5

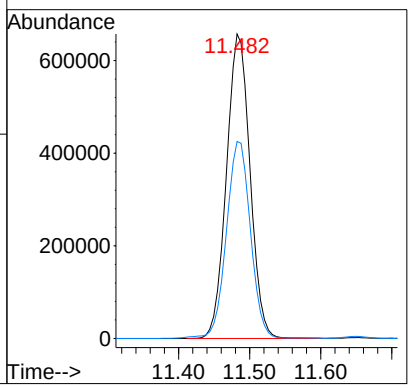


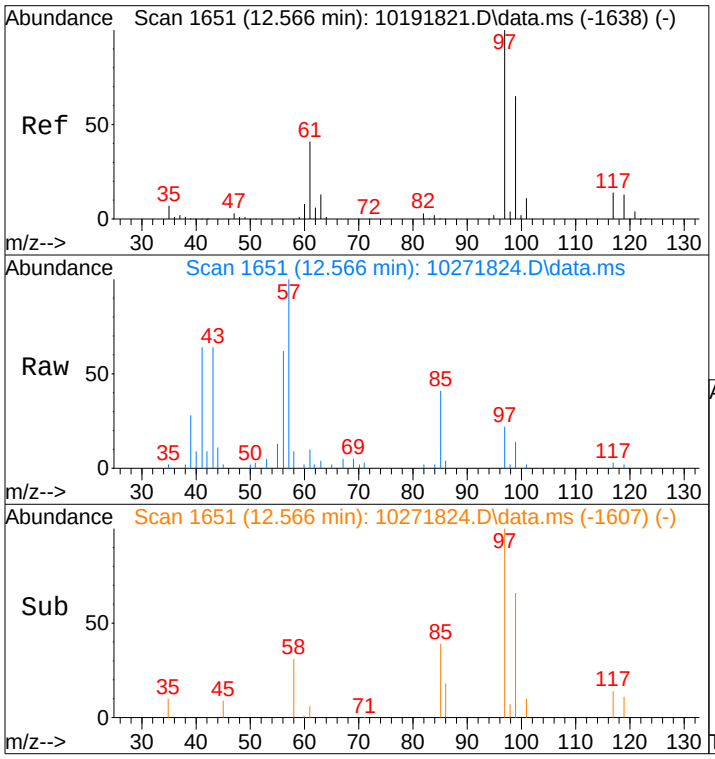


#32
Chloroform
Concen: 37.07 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.028 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 83 Resp: 1511534

Ion	Ratio	Lower	Upper
83	100		
85	66.1	45.5	85.5

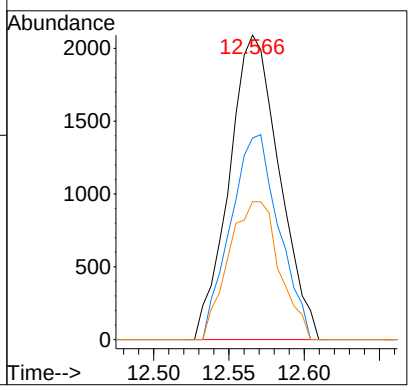


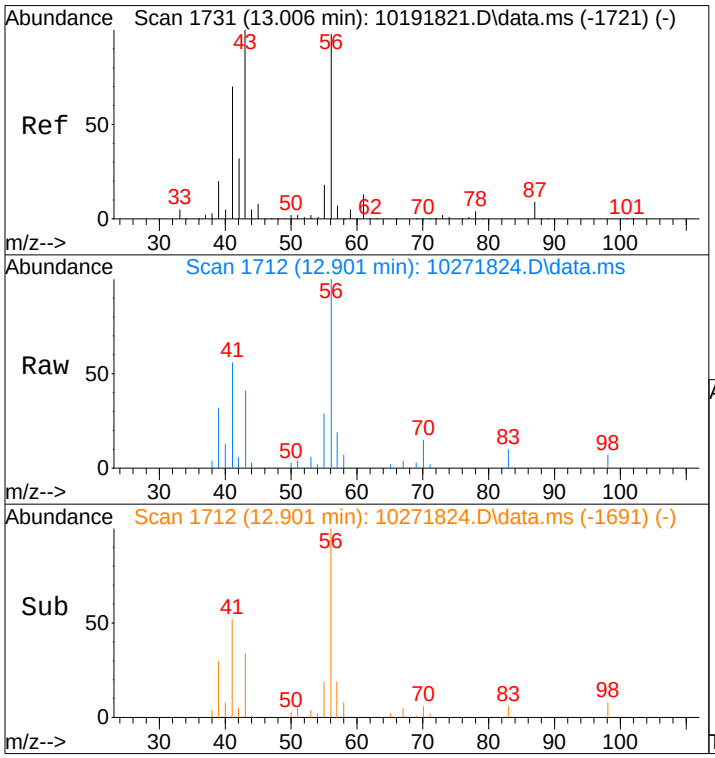


#38
1,1,1-Trichloroethane
Concen: 0.13 ng
RT: 12.57 min Scan# 1651
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 97 Resp: 4845

Ion	Ratio	Lower	Upper
97	100		
99	64.9	44.9	84.9
61	45.8	21.3	61.3

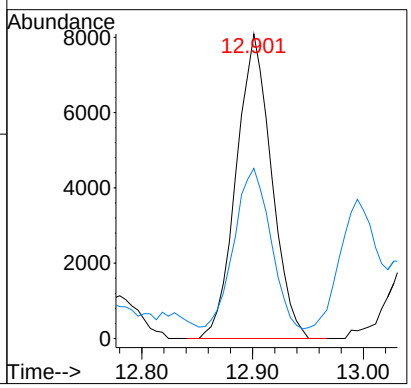


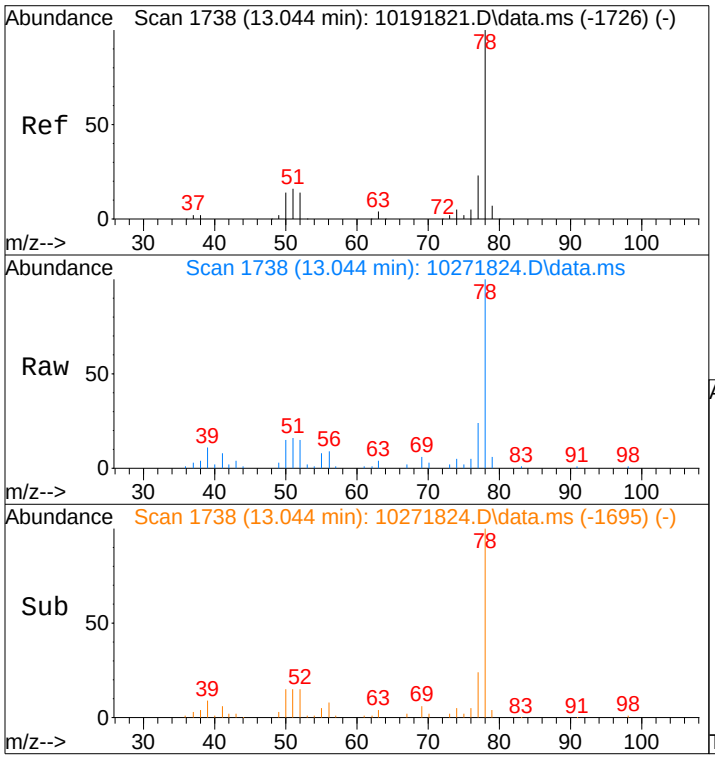


#40
1-Butanol
Concen: 0.87 ng m
RT: 12.90 min Scan# 1712
Delta R.T. -0.132 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 56 Resp: 17797

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

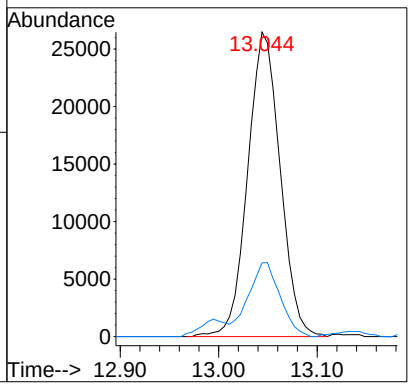


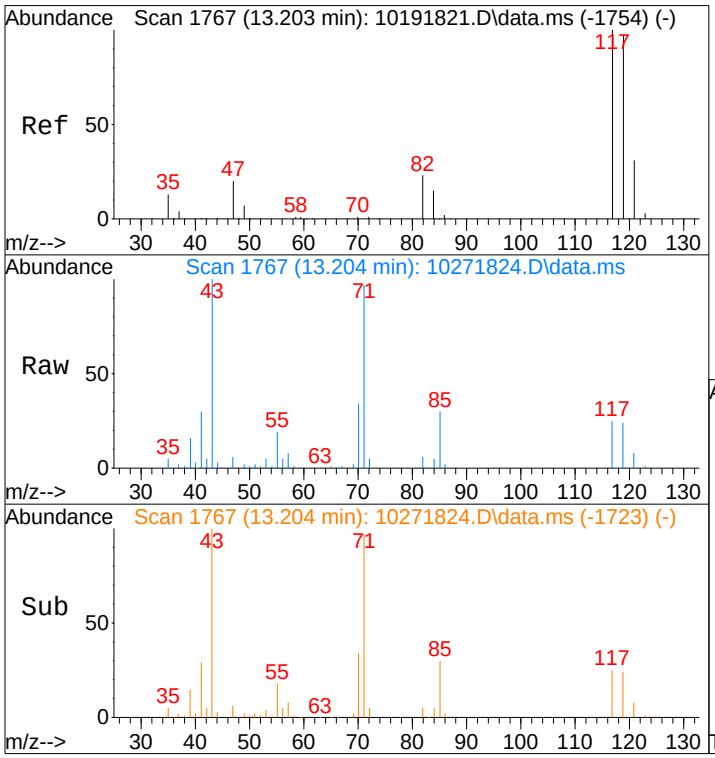


#41
Benzene
Concen: 0.65 ng
RT: 13.04 min Scan# 1738
Delta R.T. -0.011 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 78 Resp: 60675

Ion	Ratio	Lower	Upper
78	100		
77	23.7	3.5	43.5

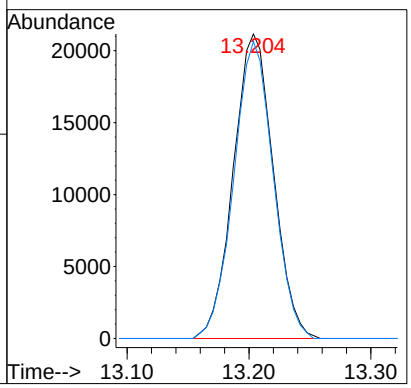


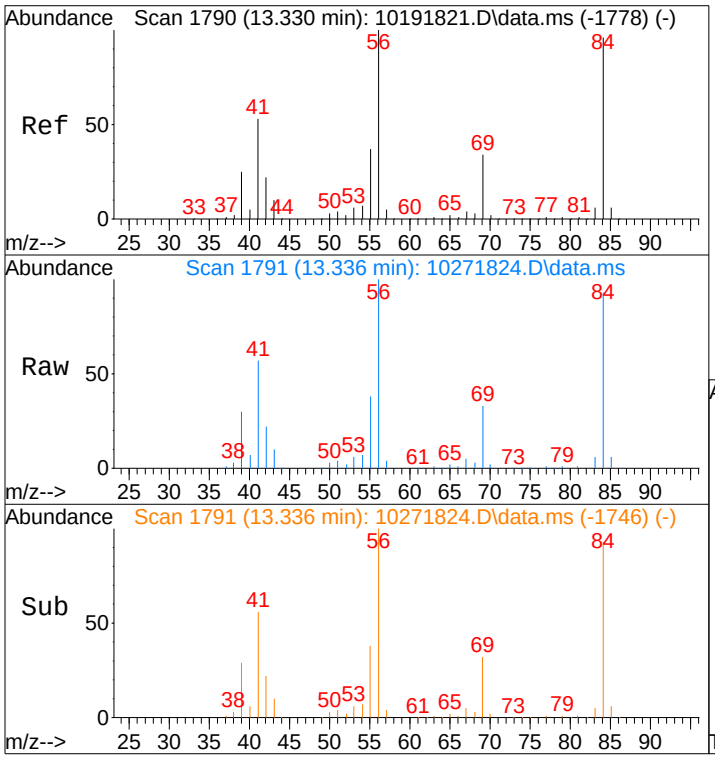


#42
Carbon Tetrachloride
Concen: 1.37 ng
RT: 13.20 min Scan# 1767
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:117 Resp: 48308

Ion	Ratio	Lower	Upper
117	100		
119	95.8	76.0	116.0

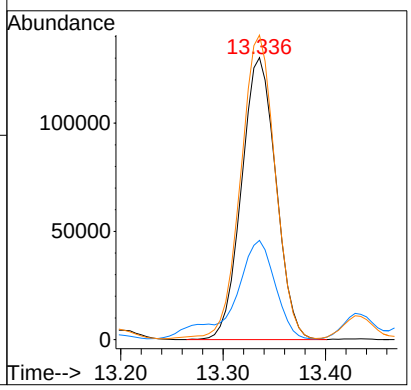


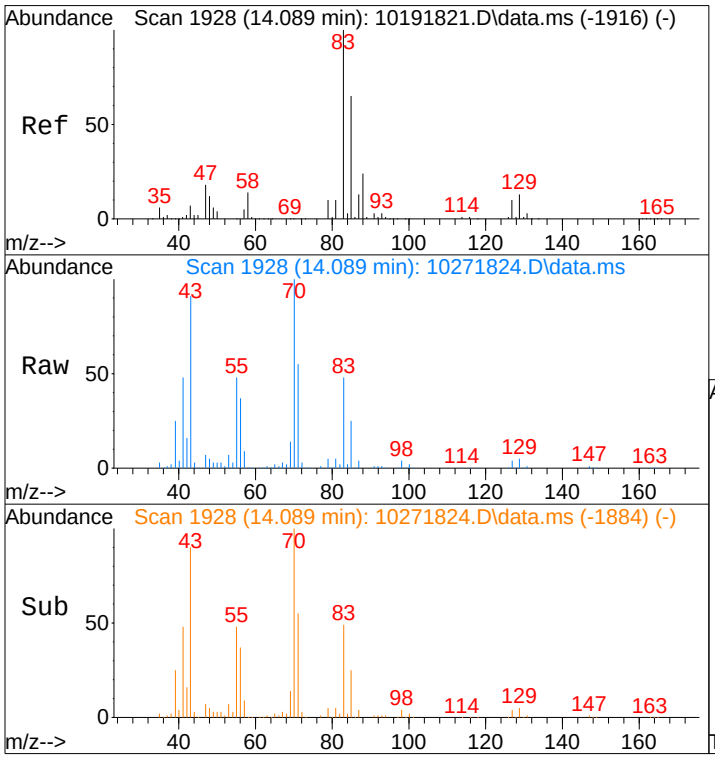


#43
Cyclohexane
Concen: 8.46 ng
RT: 13.34 min Scan# 1791
Delta R.T. -0.000 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 84 Resp: 304408

Ion	Ratio	Lower	Upper
84	100		
69	41.4	14.8	54.8
56	107.9	83.9	123.9

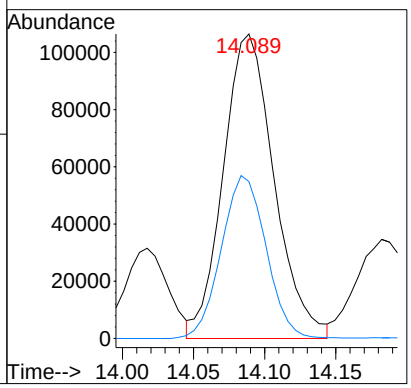


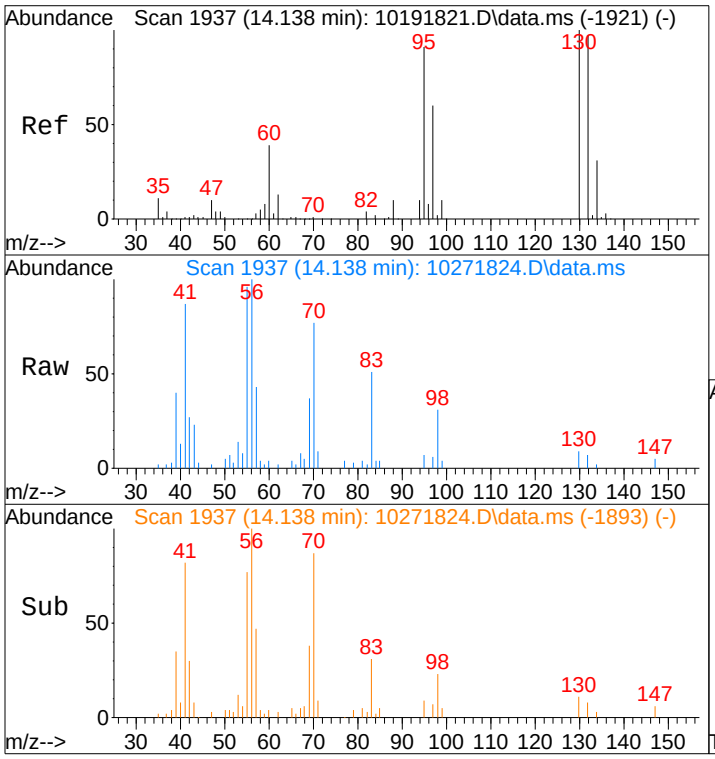


#46
Bromodichloromethane
Concen: 8.16 ng
RT: 14.09 min Scan# 1928
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 83 Resp: 264867

Ion	Ratio	Lower	Upper
83	100		
85	47.0	45.0	85.0

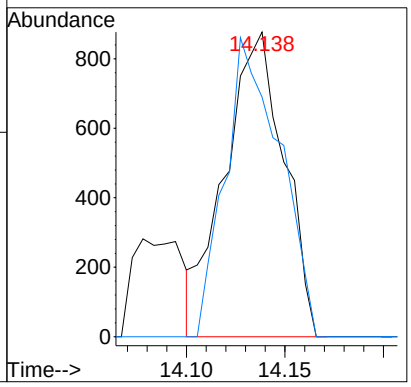


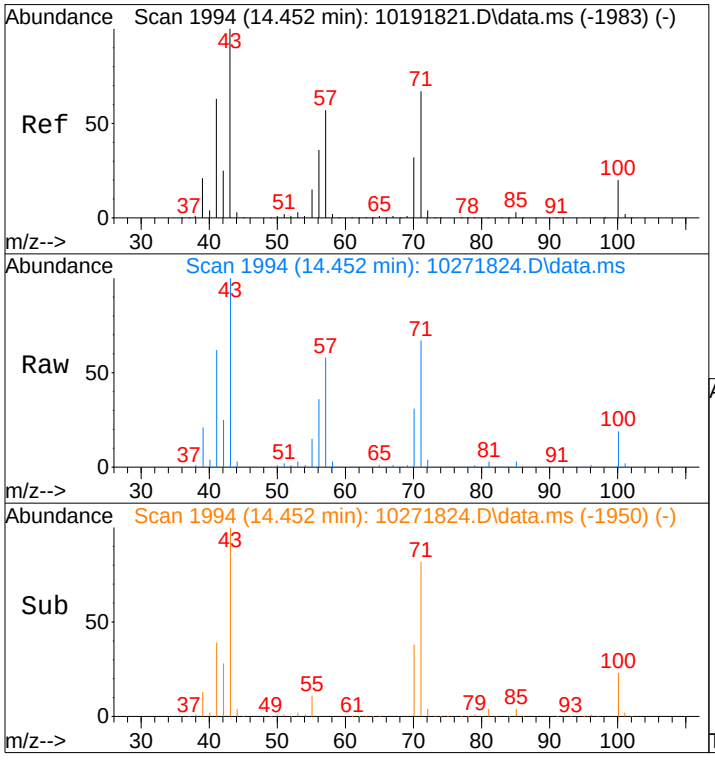


#47
Trichloroethene
Concen: 0.07 ng
RT: 14.14 min Scan# 1937
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:130 Resp: 1834

Ion	Ratio	Lower	Upper
130	100		
132	91.2	75.7	115.7

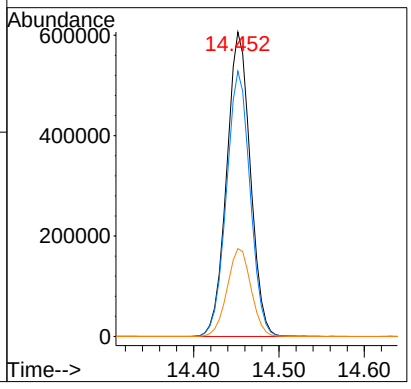


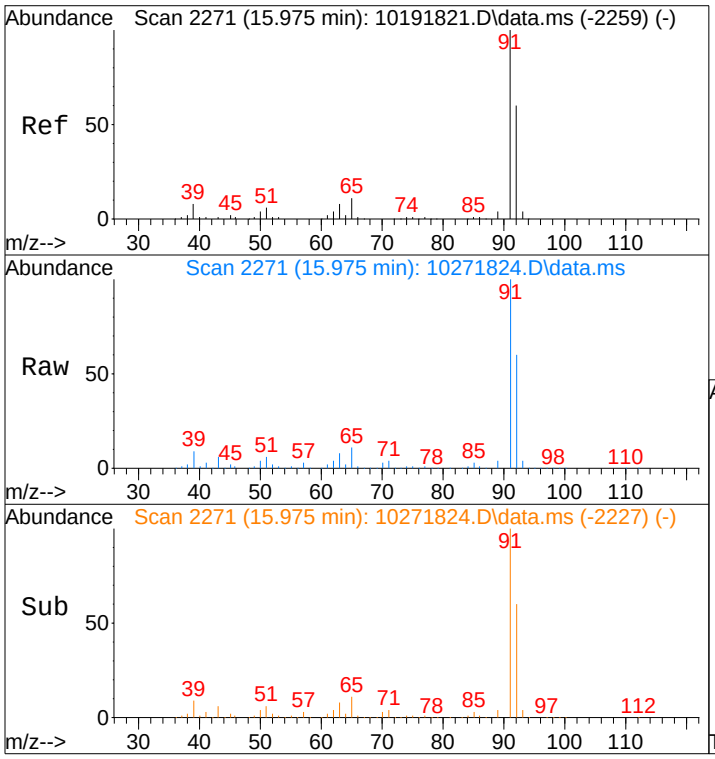


#51
n-Heptane
Concen: 54.67 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 71 Resp: 1167336

Ion	Ratio	Lower	Upper
71	100		
57	87.4	66.4	106.4
100	29.2	10.6	50.6

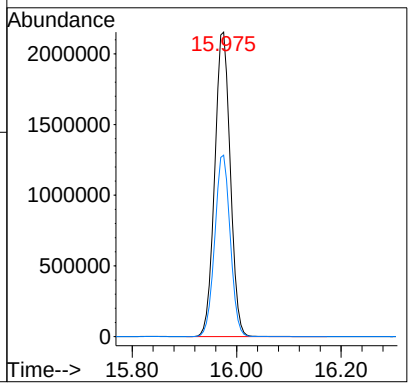


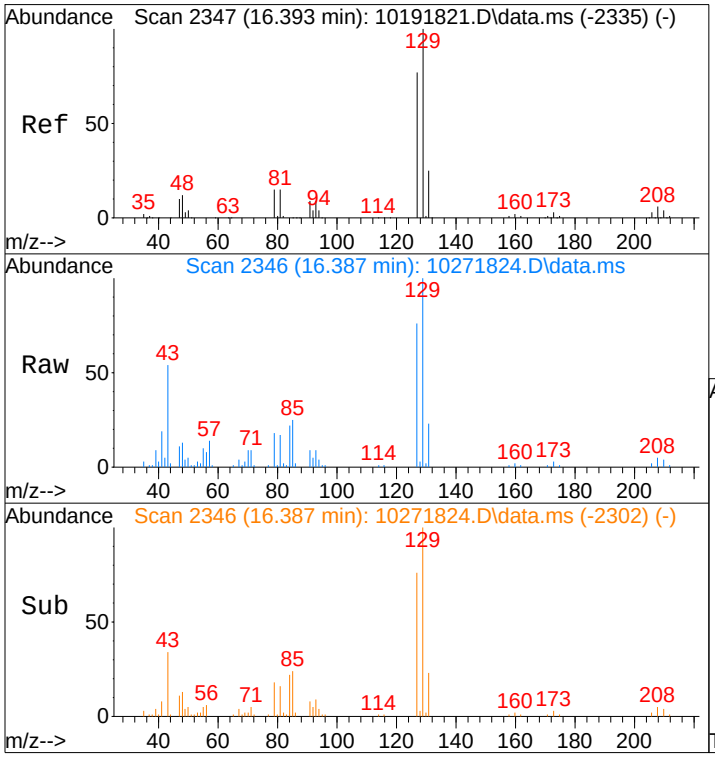


#58
Toluene
Concen: 45.80 ng
RT: 15.98 min Scan# 2271
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 91 Resp: 4435001

Ion	Ratio	Lower	Upper
91	100		
92	59.3	39.4	79.4

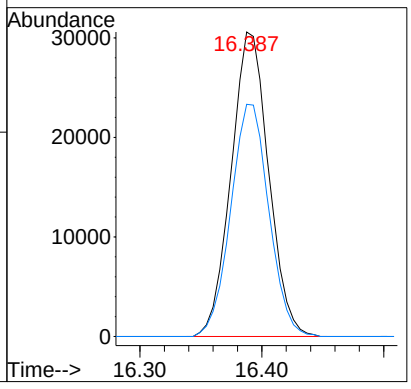


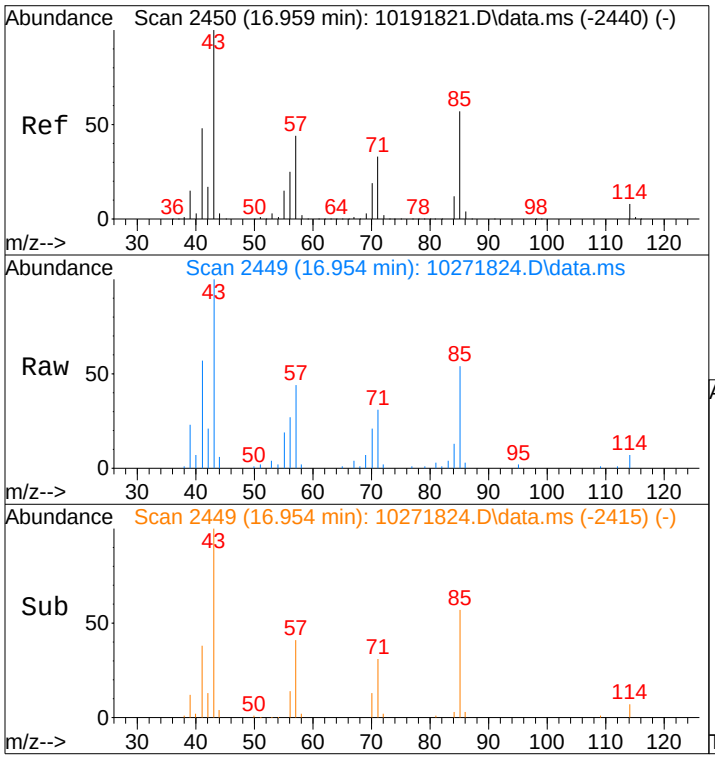


#60
Dibromochloromethane
Concen: 2.31 ng
RT: 16.39 min Scan# 2346
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:129 Resp: 65480

Ion	Ratio	Lower	Upper
129	100		
127	77.5	57.5	97.5

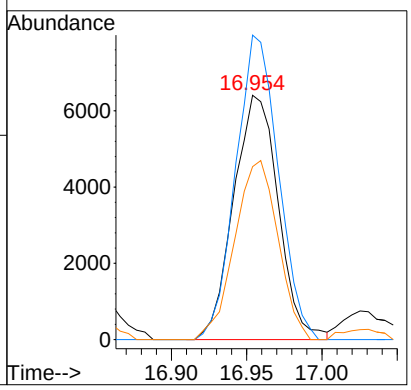


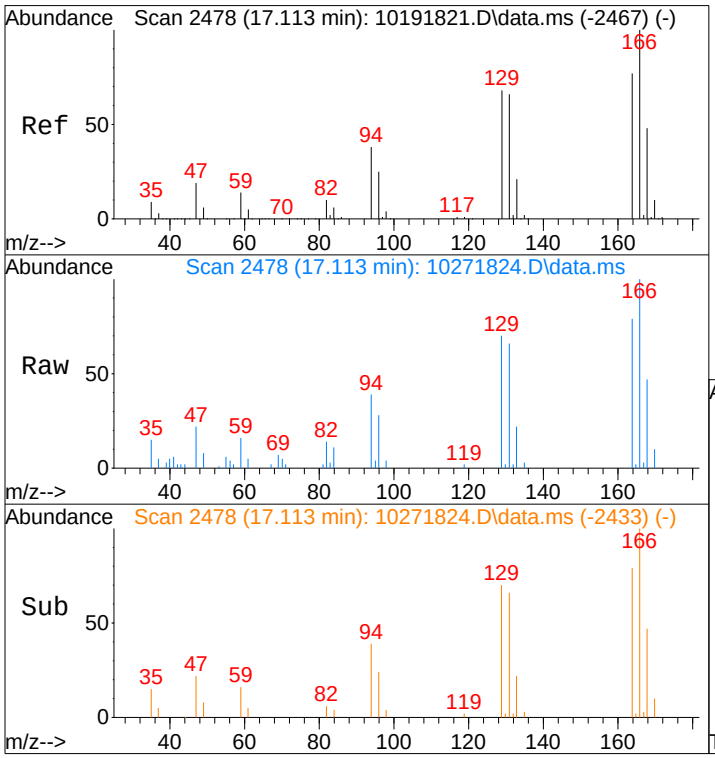


#63
n-Octane
Concen: 0.72 ng
RT: 16.95 min Scan# 2449
Delta R.T. -0.011 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 57 Resp: 13264

Ion	Ratio	Lower	Upper
57	100		
85	118.5	102.1	153.1
71	70.8	59.3	88.9

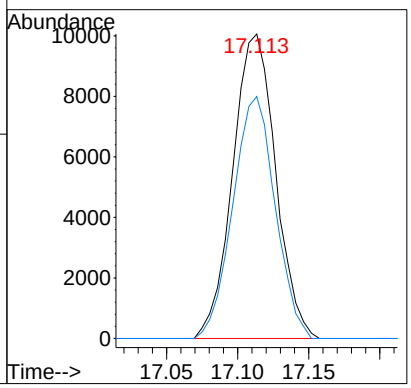


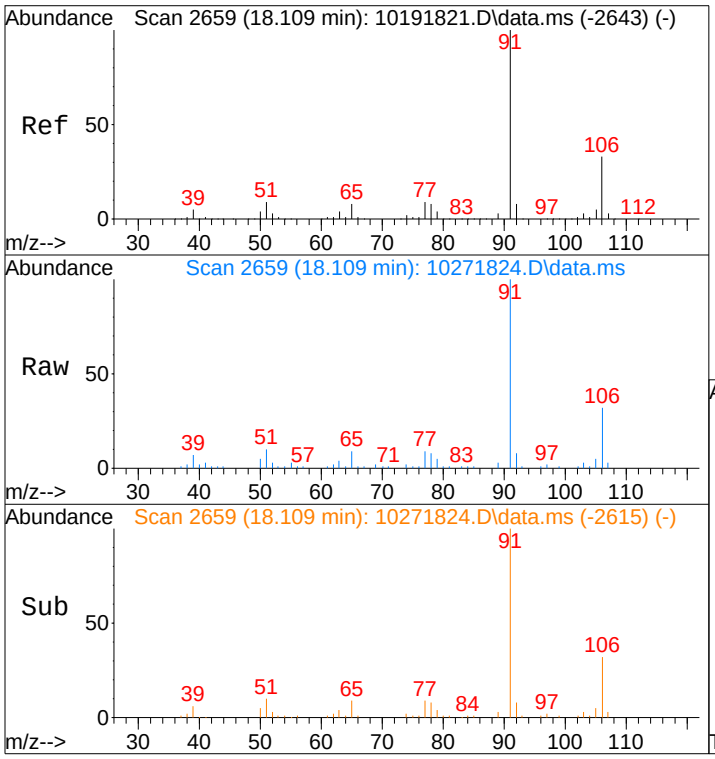


#64
Tetrachloroethene
Concen: 0.71 ng
RT: 17.11 min Scan# 2478
Delta R.T. -0.000 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:166 Resp: 21130

Ion	Ratio	Lower	Upper
166	100		
164	78.3	57.8	97.8

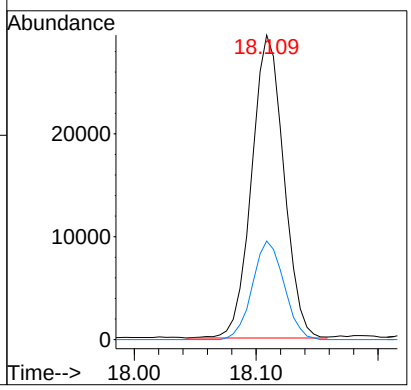


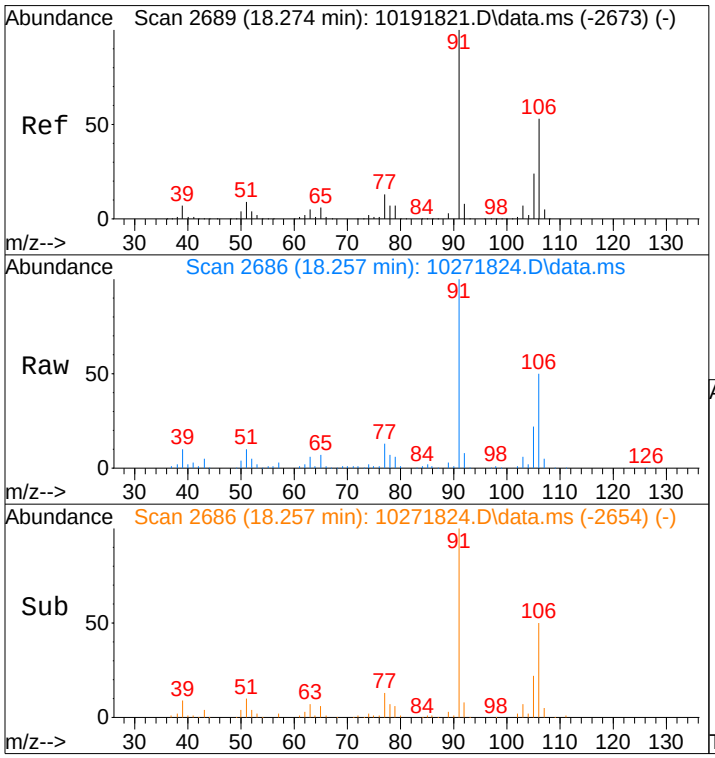


#66
Ethylbenzene
Concen: 0.49 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 91 Resp: 53900

Ion	Ratio	Lower	Upper
91	100		
106	32.1	12.6	52.6

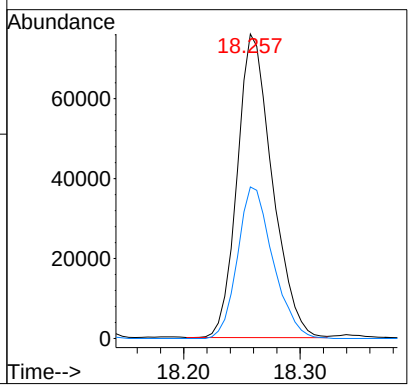


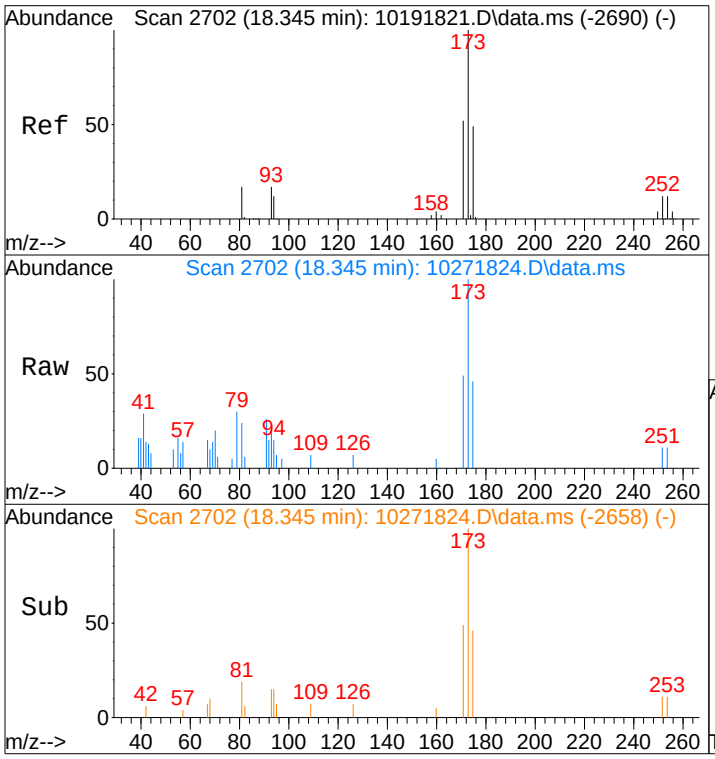


#67
m- & p-Xylenes
Concen: 1.93 ng
RT: 18.26 min Scan# 2686
Delta R.T. -0.022 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 91 Resp: 158972

Ion	Ratio	Lower	Upper
91	100		
106	50.4	32.2	72.2

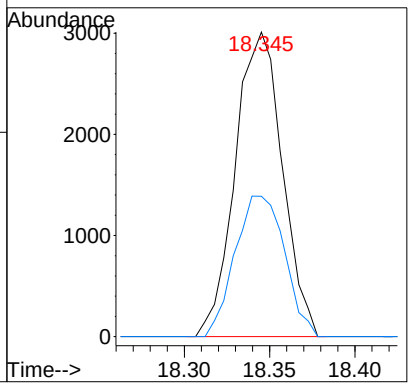


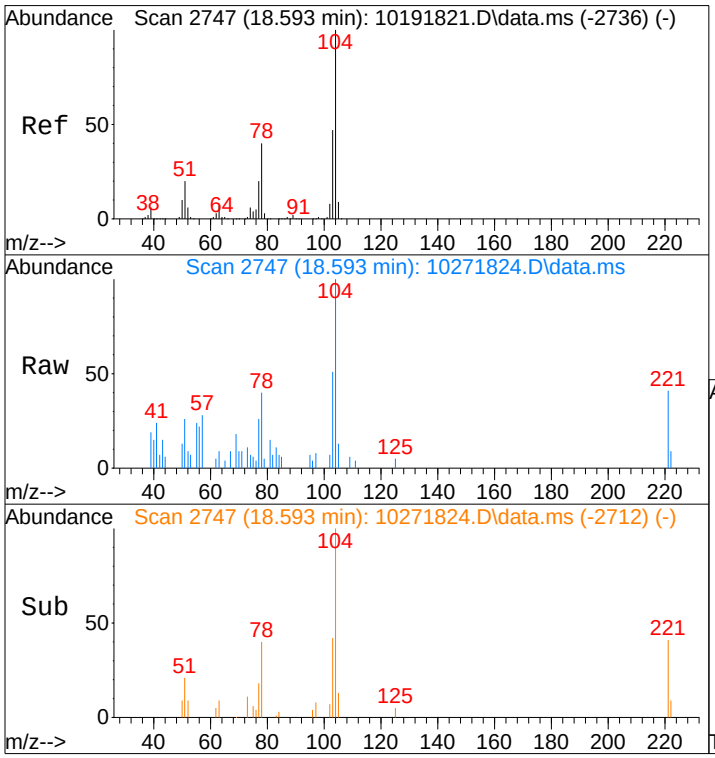


#68
Bromoform
Concen: 0.23 ng
RT: 18.35 min Scan# 2702
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:173 Resp: 5780

Ion	Ratio	Lower	Upper
173	100		
175	48.6	29.1	69.1

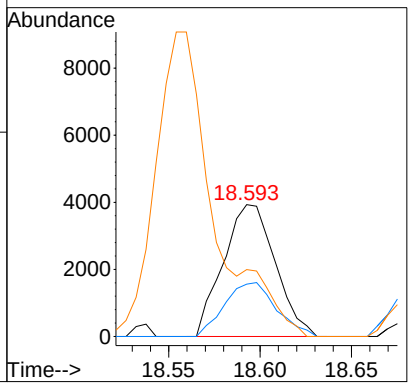


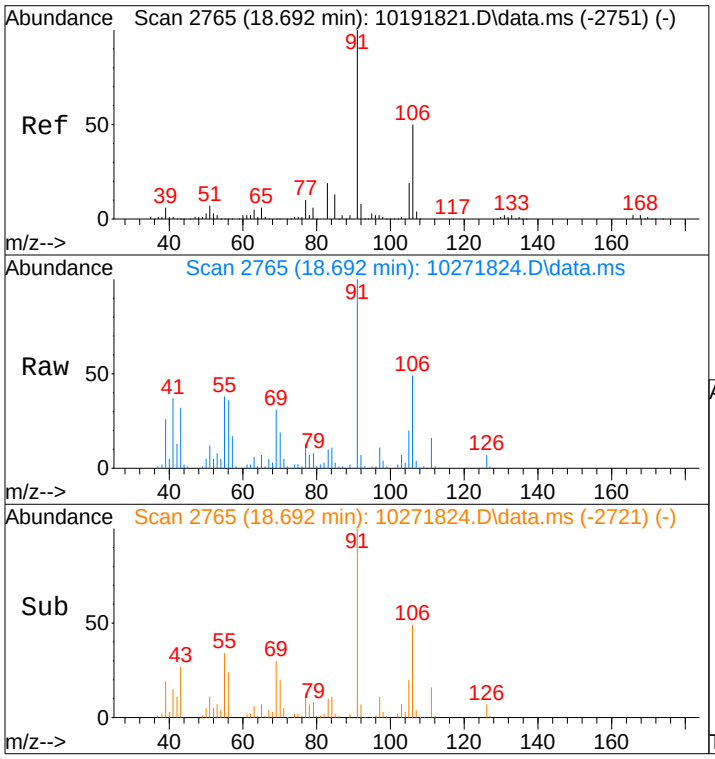


#69
Styrene
Concen: 0.12 ng
RT: 18.59 min Scan# 2747
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:104 Resp: 7780

Ion	Ratio	Lower	Upper
104	100		
78	40.7	20.1	60.1
103	0.0	27.0	67.0#

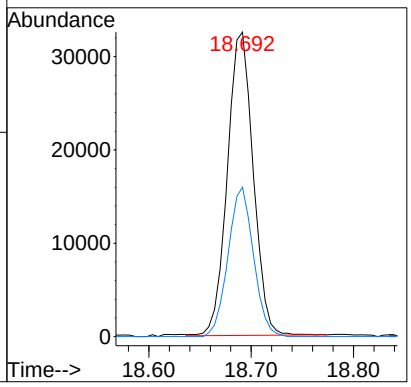


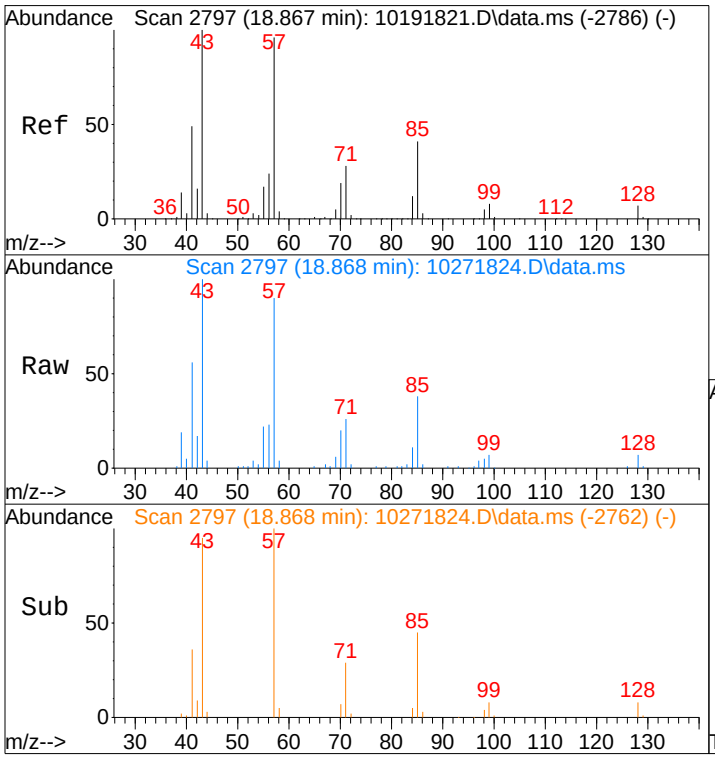


#70
o-Xylene
Concen: 0.68 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 91 Resp: 57078

Ion	Ratio	Lower	Upper
91	100		
106	48.2	29.4	69.4

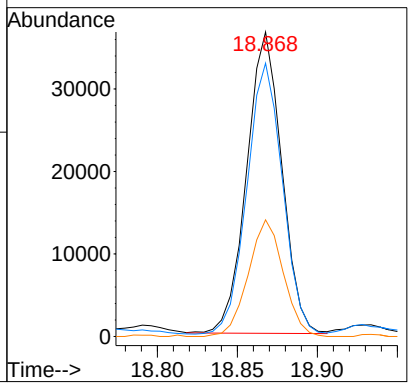


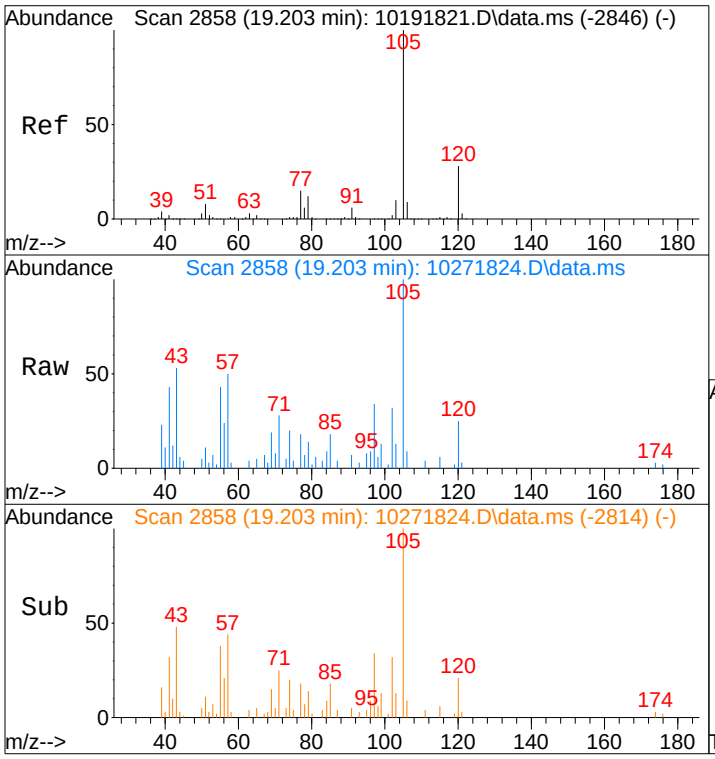


#71
n-Nonane
Concen: 1.46 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 43 Resp: 55918

Ion	Ratio	Lower	Upper
43	100		
57	91.1	75.4	115.4
85	38.6	20.8	60.8

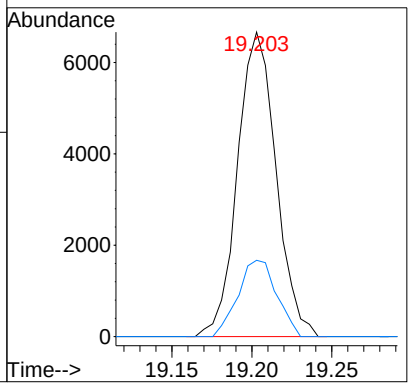


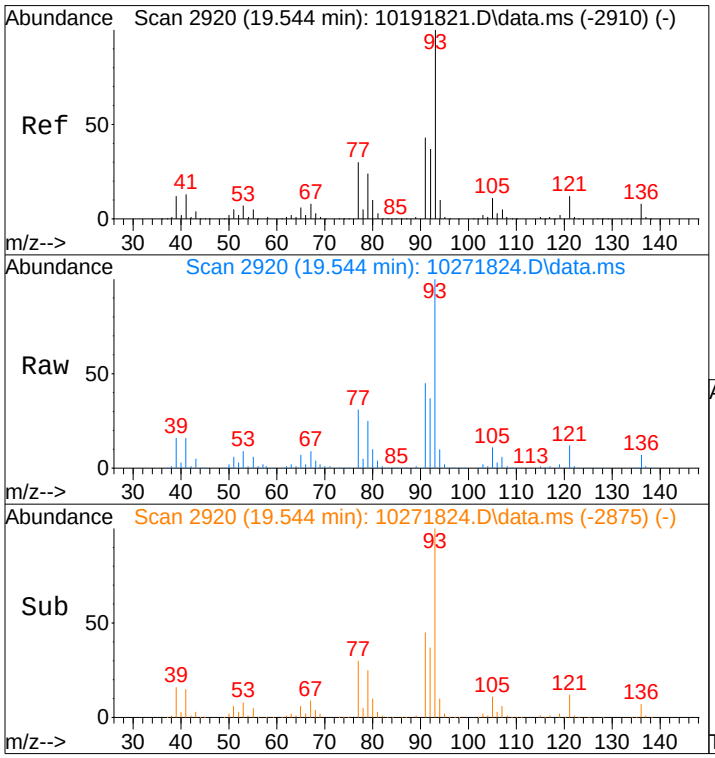


#74
Cumene
Concen: 0.10 ng
RT: 19.20 min Scan# 2858
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:105 Resp: 11173

Ion	Ratio	Lower	Upper
105	100		
120	25.2	7.8	47.8

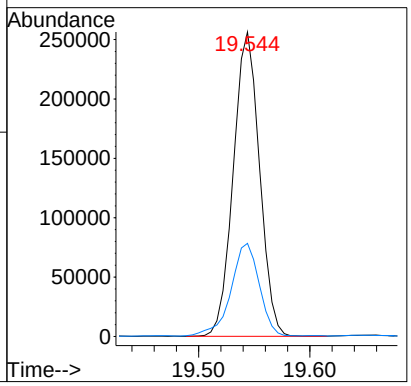


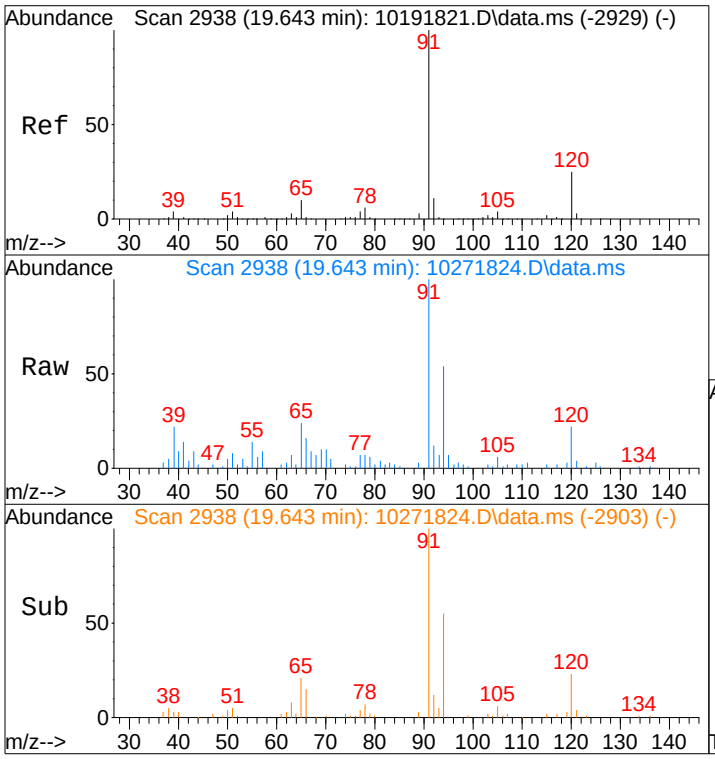


#75
alpha-Pinene
Concen: 7.37 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 93 Resp: 419477

Ion	Ratio	Lower	Upper
93	100		
77	33.1	10.2	50.2

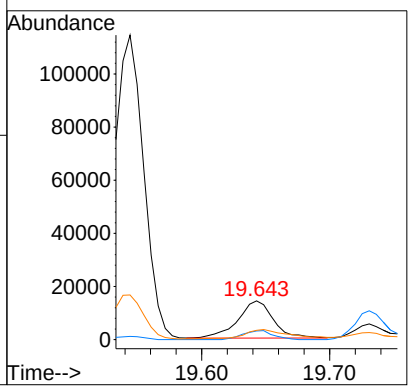


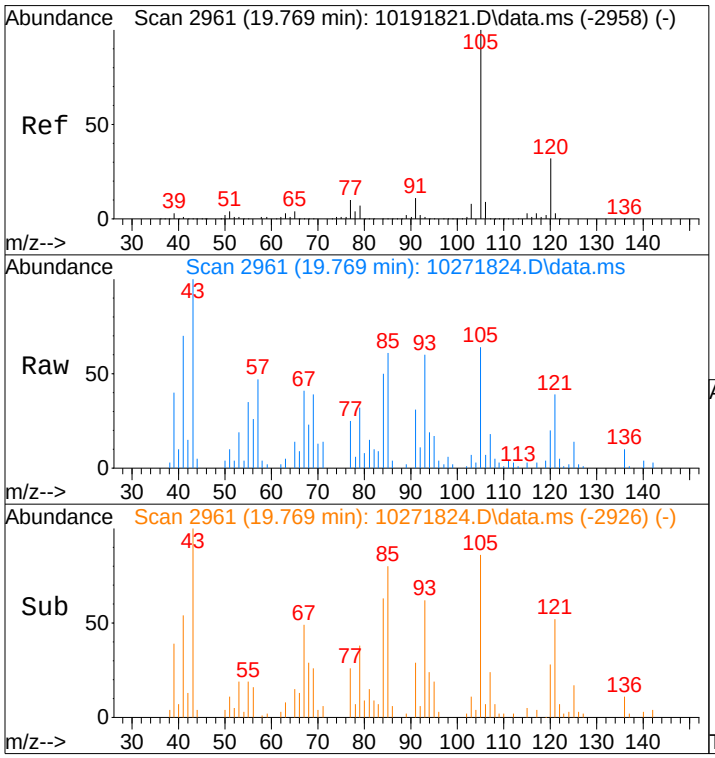


#76
n-Propylbenzene
Concen: 0.22 ng
RT: 19.64 min Scan# 2938
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 91 Resp: 27066

Ion	Ratio	Lower	Upper
91	100		
120	20.5	4.9	44.9
65	31.3	0.0	30.0#

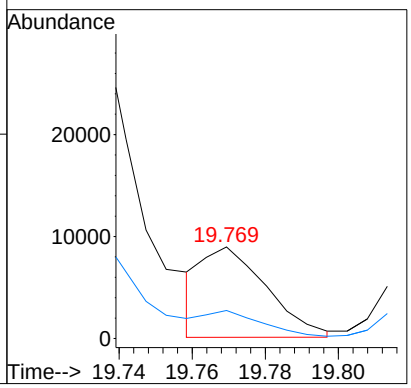


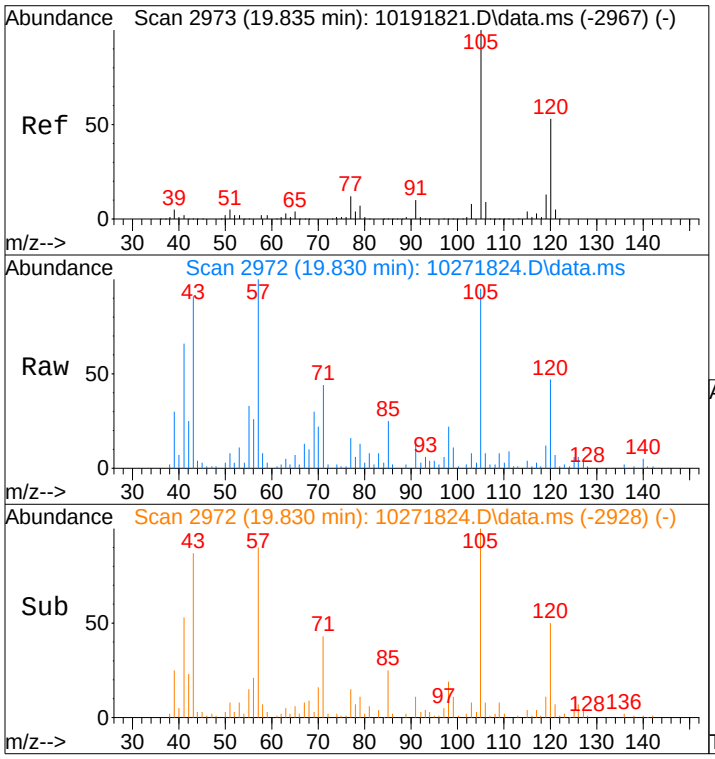


#78
4-Ethyltoluene
Concen: 0.11 ng
RT: 19.77 min Scan# 2961
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:105 Resp: 10963

Ion	Ratio	Lower	Upper
105	100		
120	0.0	11.8	51.8#

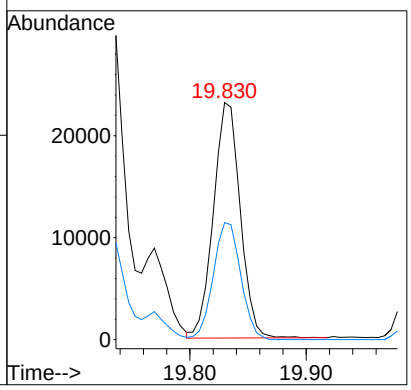


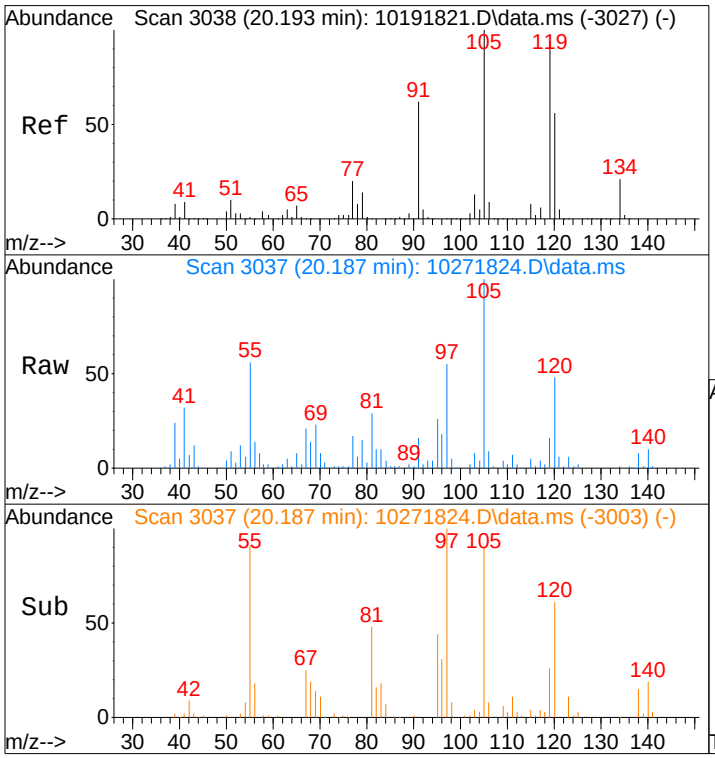


#79
1,3,5-Trimethylbenzene
Concen: 0.40 ng
RT: 19.83 min Scan# 2972
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:105 Resp: 37158

Ion	Ratio	Lower	Upper
105	100		
120	50.8	32.1	72.1

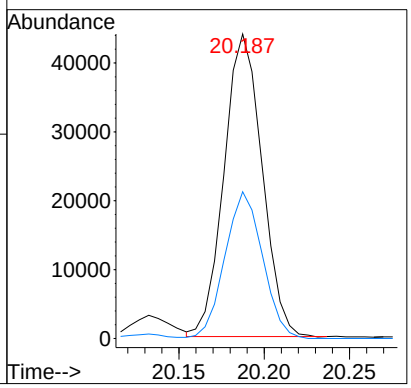


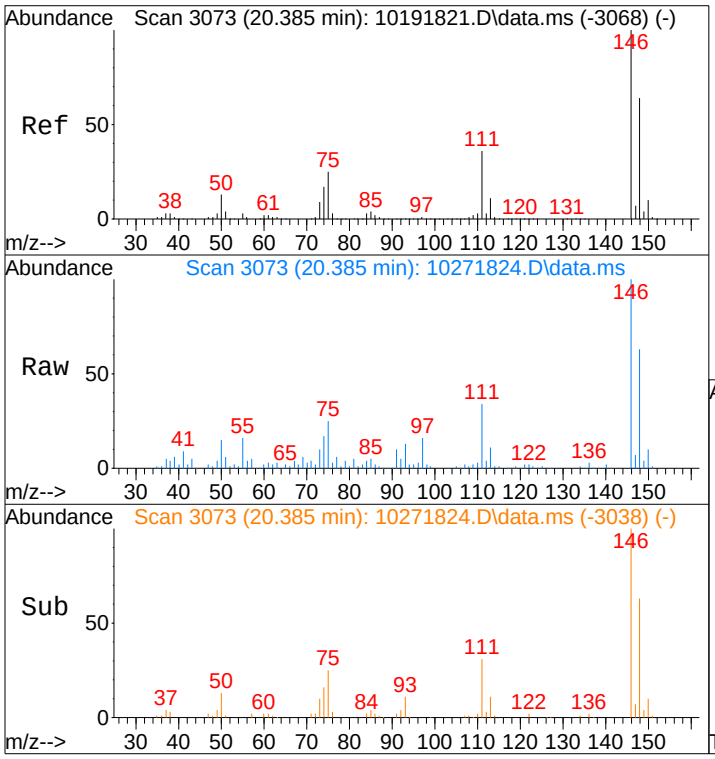


#82
1,2,4-Trimethylbenzene
Concen: 0.76 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:105 Resp: 68097

Ion	Ratio	Lower	Upper
105	100		
120	48.0	36.5	76.5

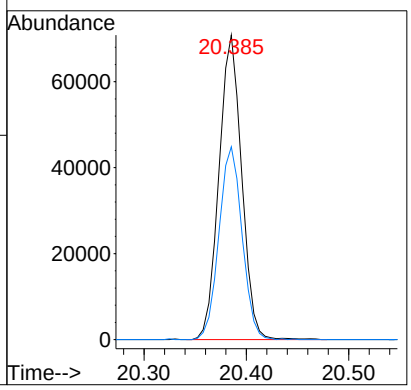


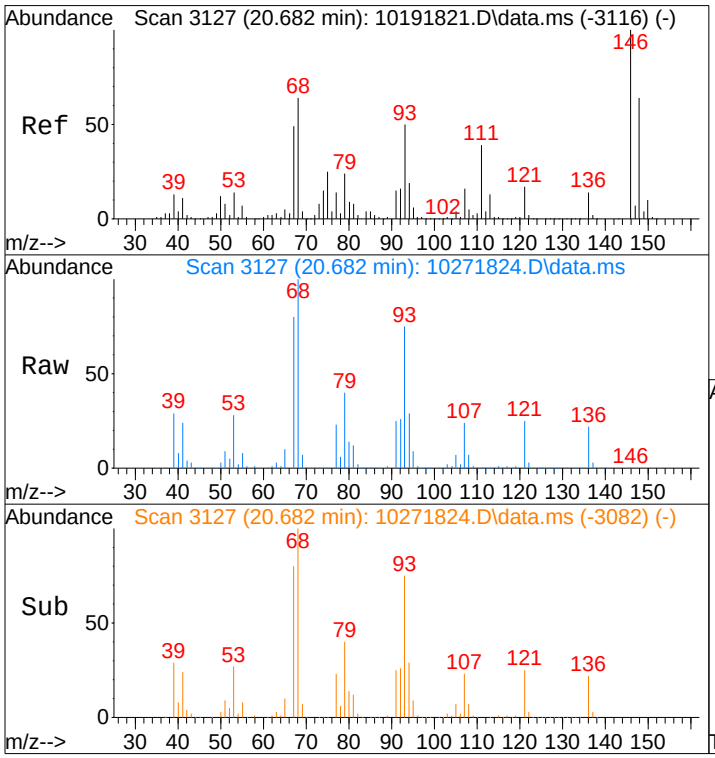


#86
1,4-Dichlorobenzene
Concen: 1.93 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.006 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion:146 Resp: 109220

Ion	Ratio	Lower	Upper
146	100		
148	64.3	44.2	84.2

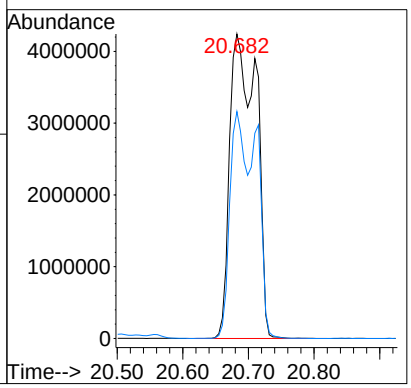


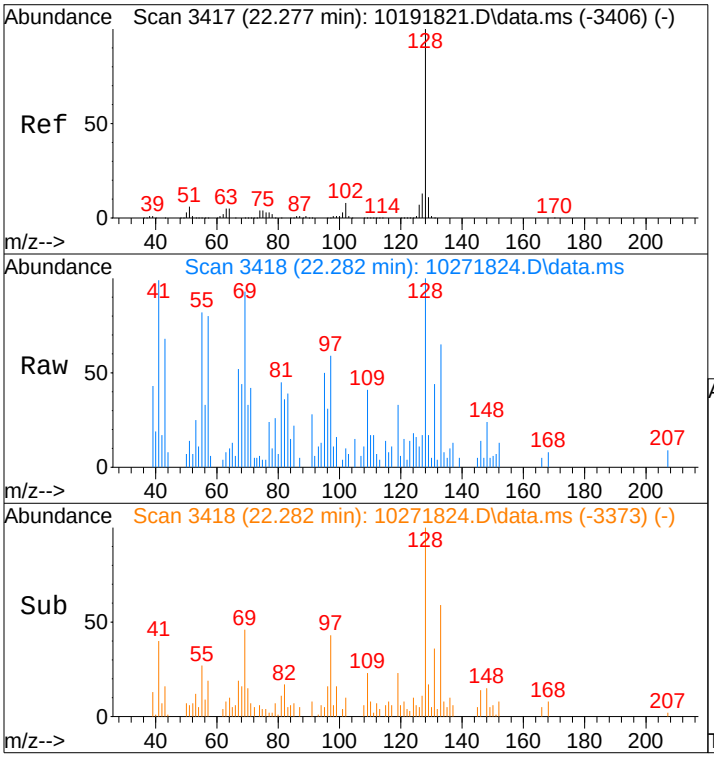


#91
d-Limonene
Concen: 364.62 ng
RT: 20.68 min Scan# 3127
Delta R.T. -0.000 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

Tgt Ion: 68 Resp:11929940

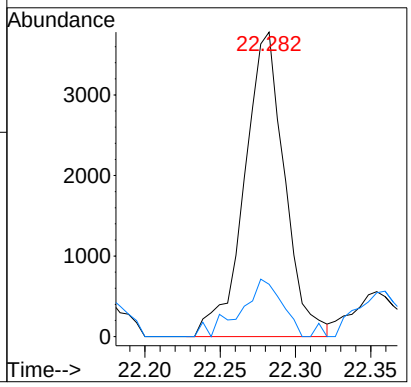
Ion	Ratio	Lower	Upper
68	100		
93	45.4	57.4	97.4#





#95
Naphthalene
Concen: 0.05 ng
RT: 22.28 min Scan# 3418
Delta R.T. -0.001 min
Lab File: 10271824.D
Acq: 27 Oct 2018 17:54

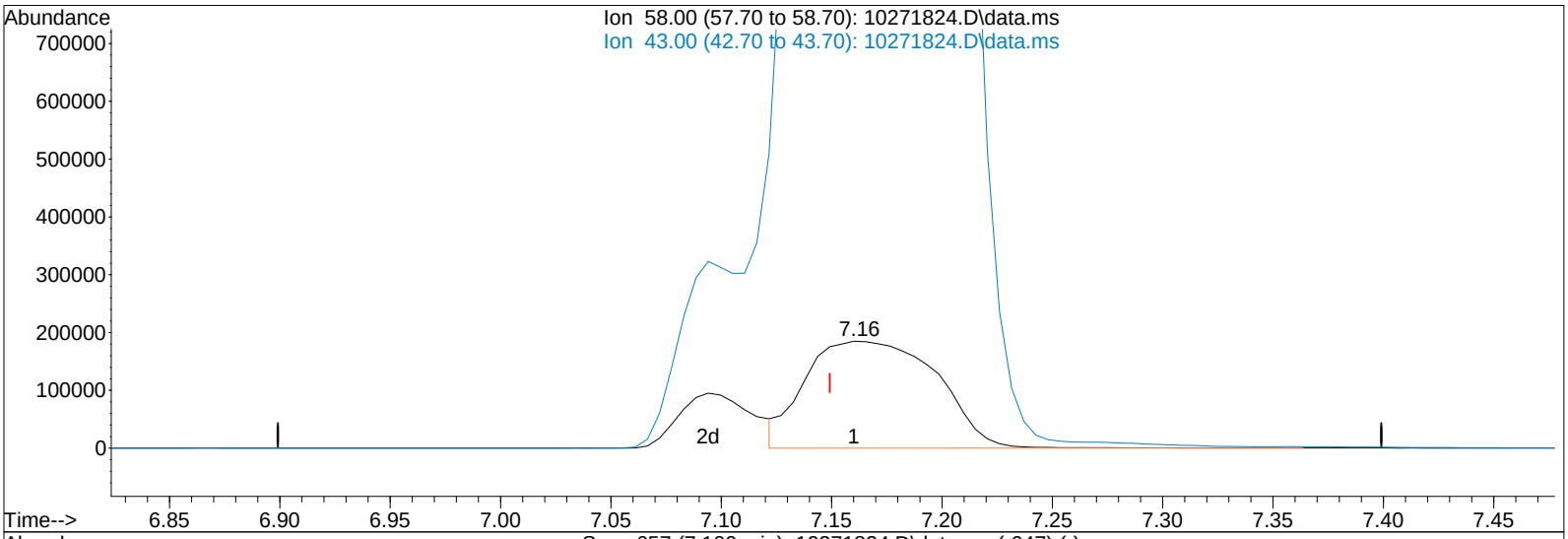
Tgt Ion:128	Resp:	7012	
Ion	Ratio	Lower	Upper
128	100		
129	19.4	0.0	31.1

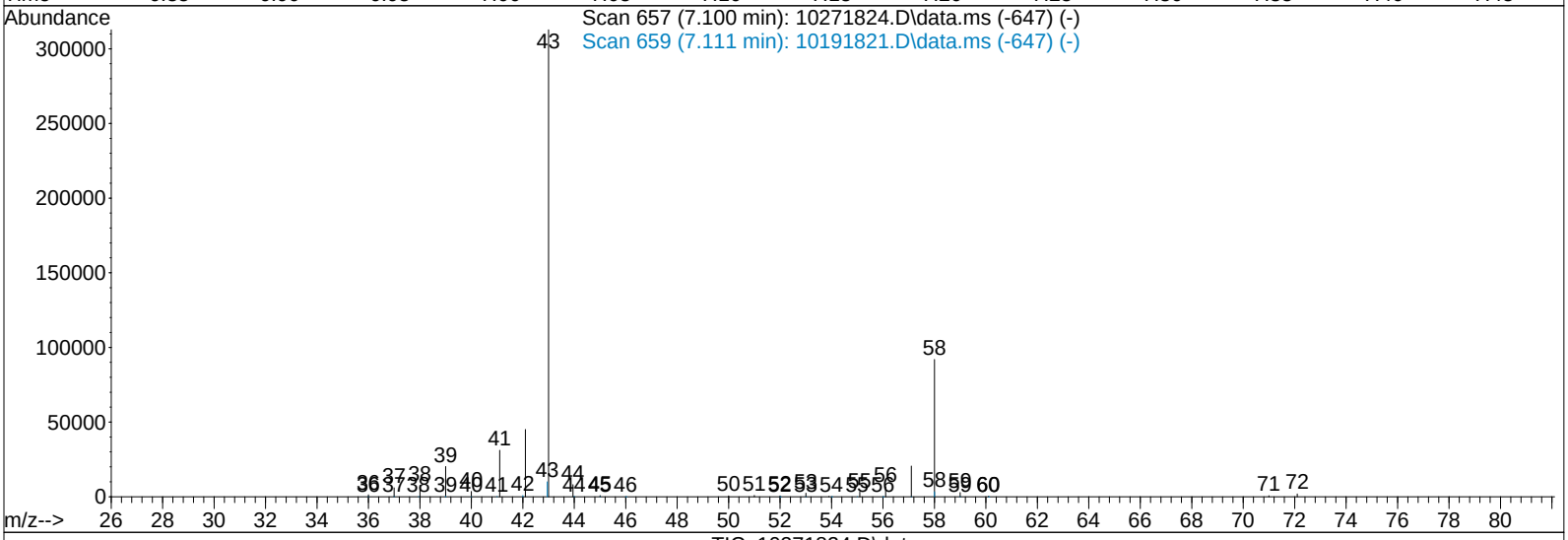


Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 28 11:34:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES





TIC: 10271824.D\data.ms

(13) Acetone (T)

7.160min (+0.011) 47.32ng

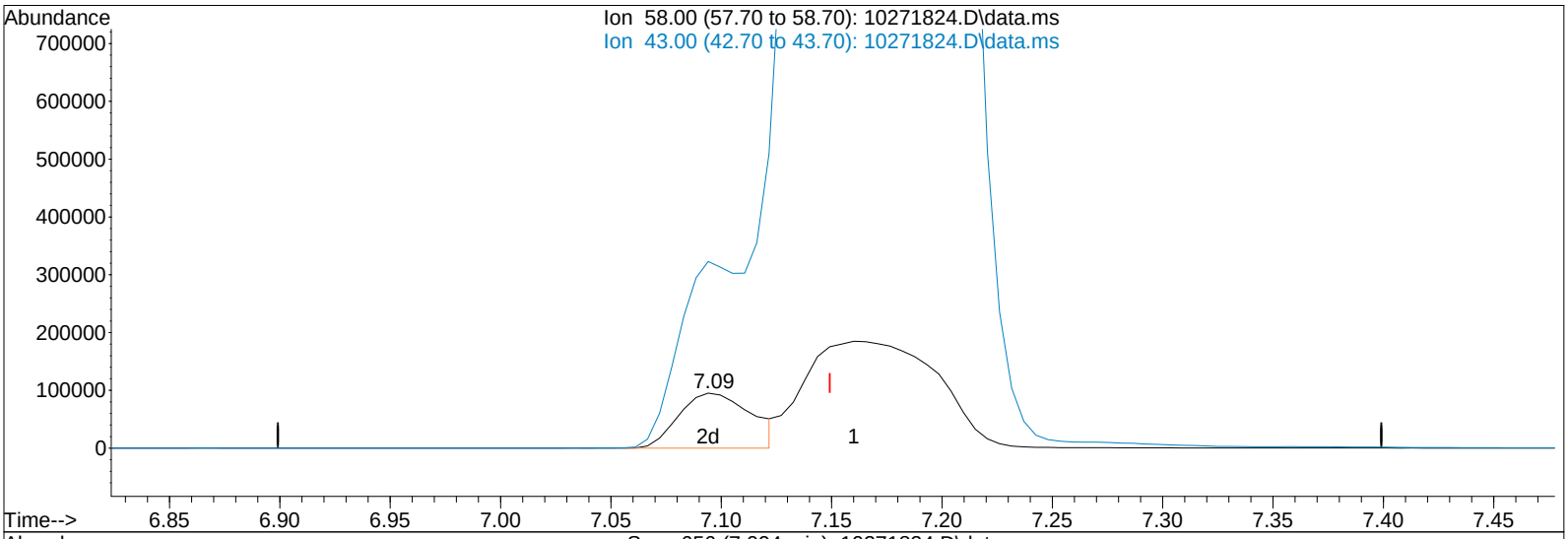
response 767742

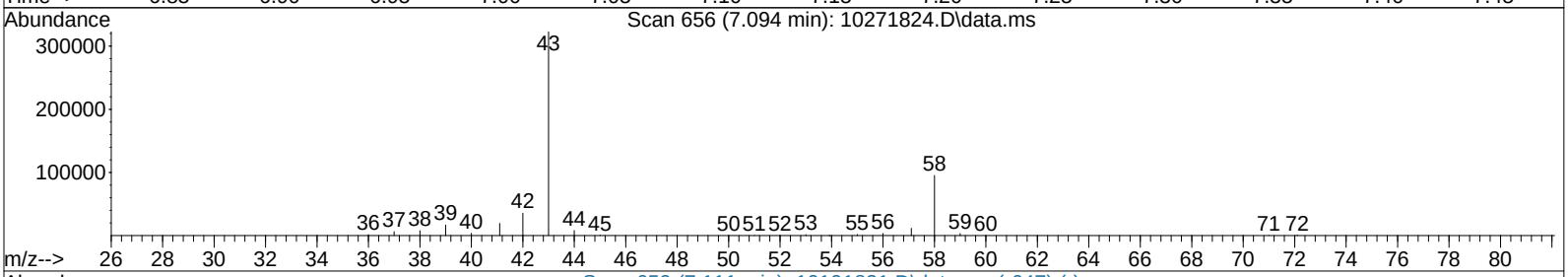
Ion	Exp%	Act%
58.00	100	100
43.00	313.40	2666.94#
0.00	0.00	0.00
0.00	0.00	0.00

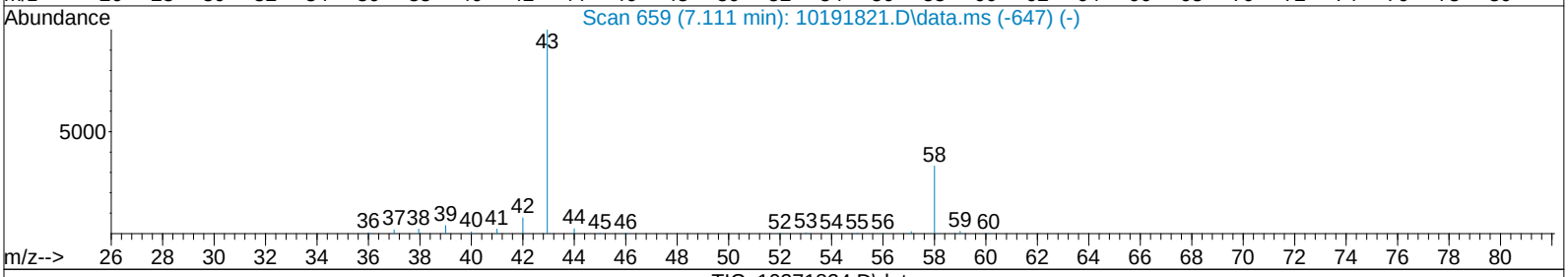
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 28 11:34:09 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271824.D\data.ms

(13) Acetone (T)

7.094min (-0.055) 13.40ng m

response 217422

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	9417.27#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18
WP

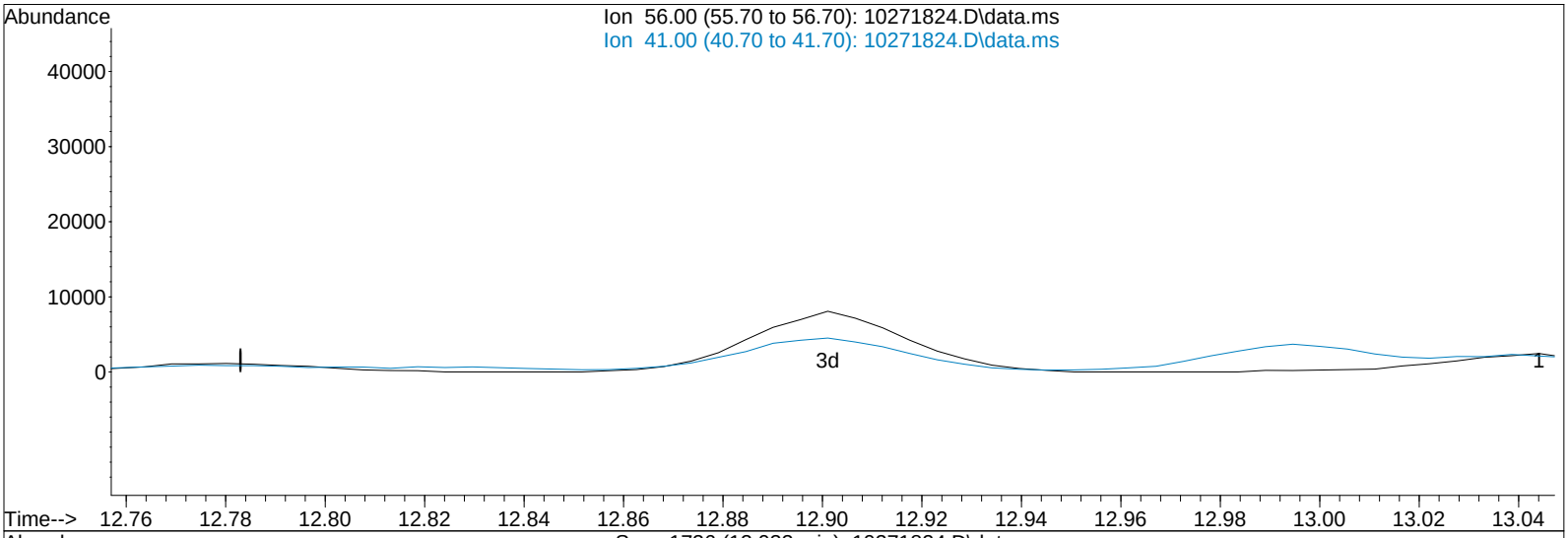
10/30/18

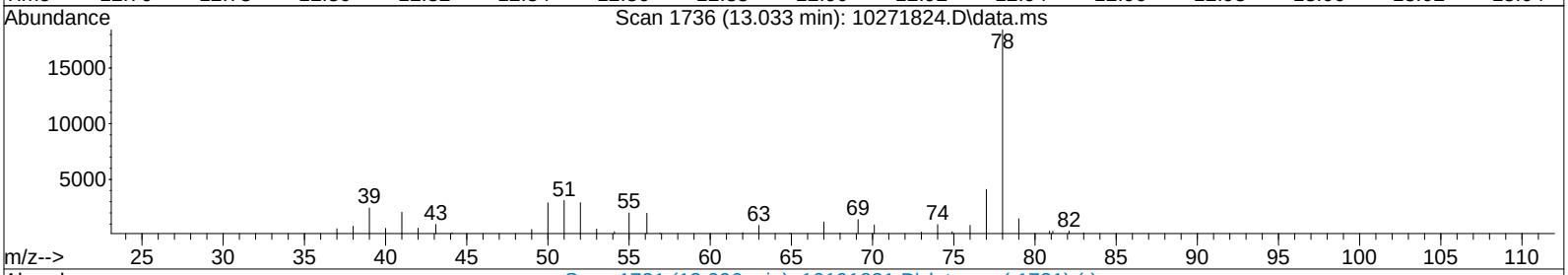
10/30/18

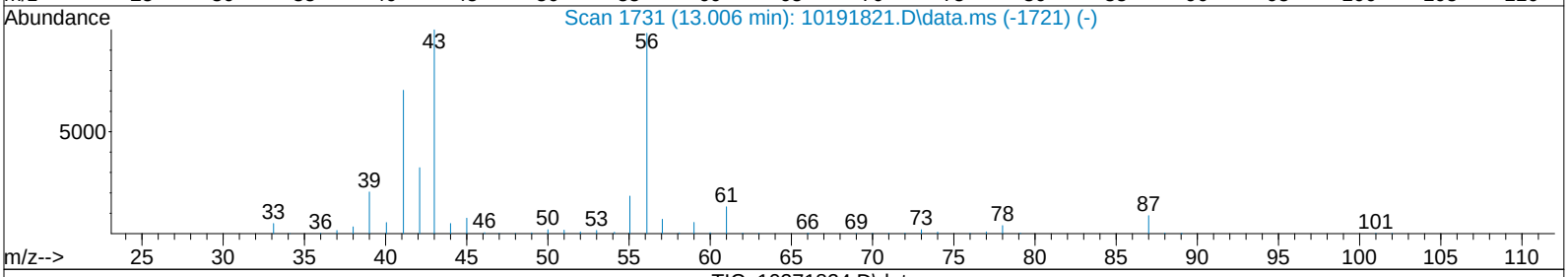
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 29 12:08:55 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271824.D\data.ms

(40) 1-Butanol (T)

13.033min 0.00ng d

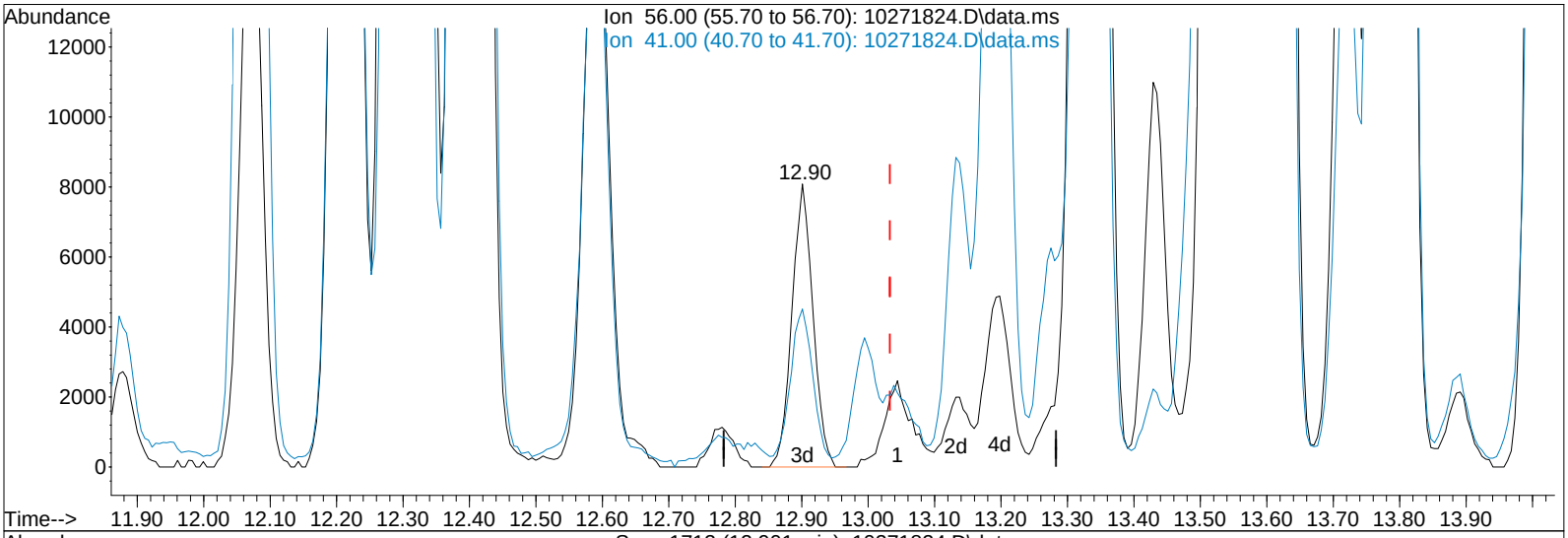
response 0

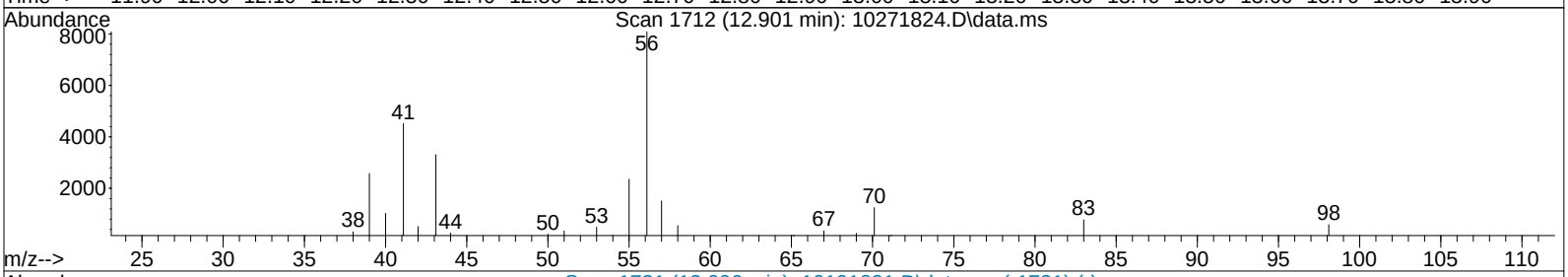
Ion	Exp%	Act%
56.00	100	0.00
41.00	102.40	0.00
0.00	0.00	0.00
0.00	0.00	0.00

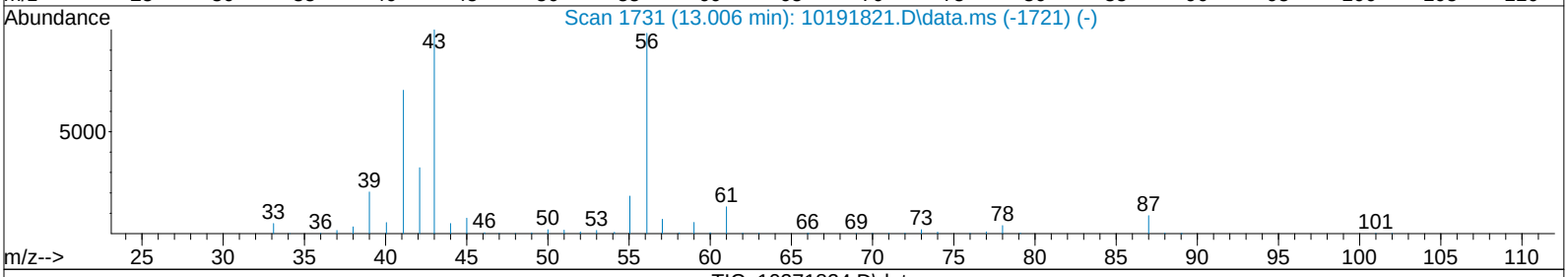
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 29 12:08:55 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271824.D\data.ms

(40) 1-Butanol (T)

12.901min (-0.132) 0.87ng m

response 17797

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

MP

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

TD 10/29/18

Quant Time: Oct 29 14:47:34 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

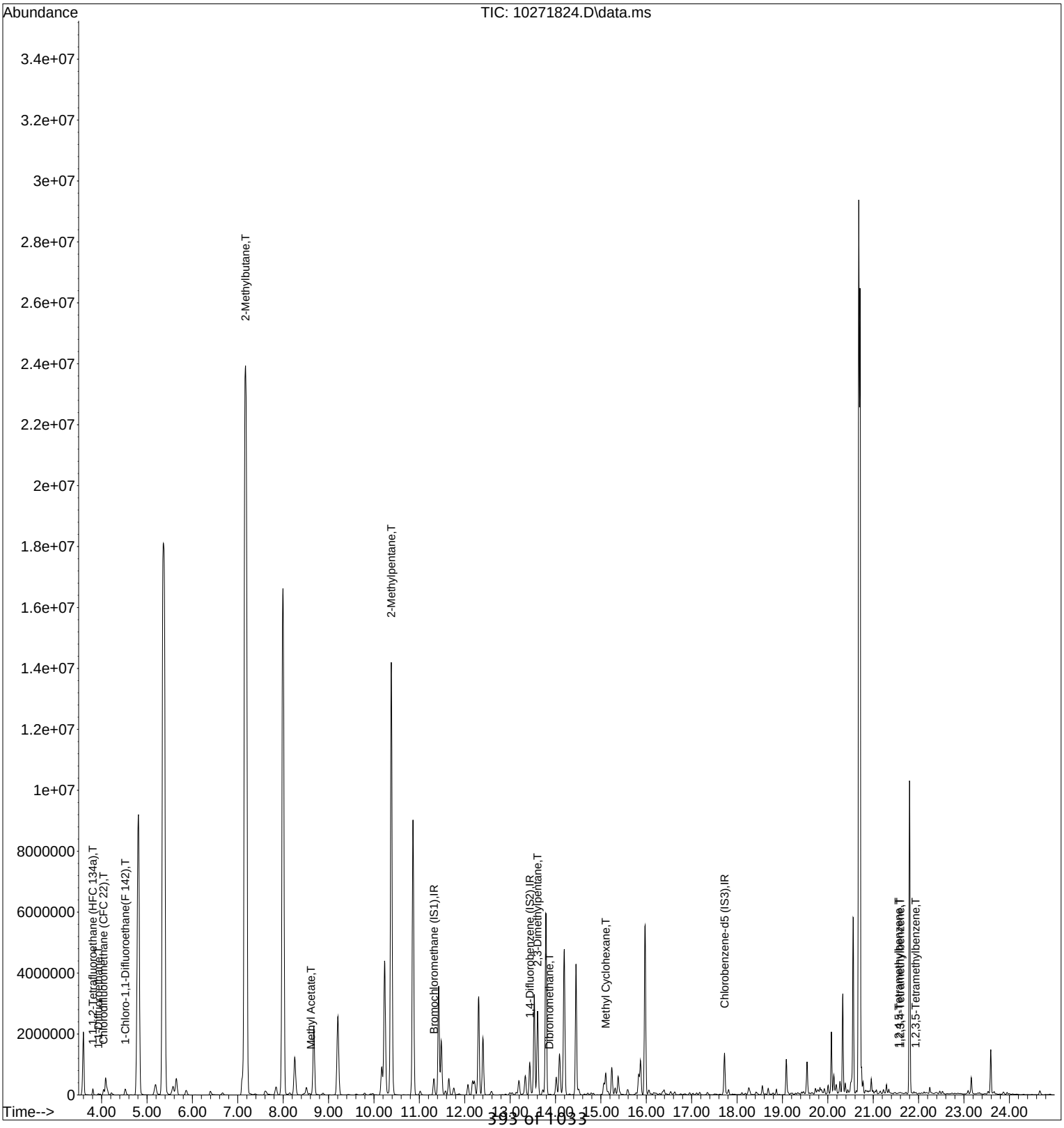
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	241786	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	1009480	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	437959	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.71	85	316	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	129470	5.340	ng		93
4) 1,1-Difluoroethane	3.93	65	17504	0.945	ng		90
5) Chlorodifluoromethane ...	4.04	67	4083	0.568	ng		79
6) 1-Chloro-1,1-Difluoroe...	4.52	65	203856	3.883	ng		100
7) Dichlorofluoromethane ...	6.31	67	158	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.17	57	16228597	821.468	ng	#	81
11) Methyl Acetate	8.61	43	4281	0.103	ng	#	93
12) 2-Methylpentane	10.38	71	5099721	248.142	ng		93
13) 2,2-Dichloropropane	11.49	77	182	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	0.00	84	0	N.D.	d		
17) 2,3-Dimethylpentane	13.60	56	1347384	36.923	ng		98
18) Dibromomethane	13.86	174	1433	0.064	ng		88
20) Methyl Cyclohexane	15.11	55	346666	12.509	ng	#	72
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.81	131	1185	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.	d		
24) 1,2,3-Trichloropropane	18.69	75	871	N.D.			
25) Bromobenzene	19.31	77	721	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	0.00	117	0	N.D.	d		
29) Indene	20.82	115	2637	N.D.			
30) 1,2,4,5-Tetramethylben...	21.56	119	14511	0.144	ng		94
31) 1,2,3,4-Tetramethylben...	21.60	119	17351	0.178	ng		98
32) 1,2,3,5-Tetramethylben...	21.94	119	15276	0.162	ng	#	66
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

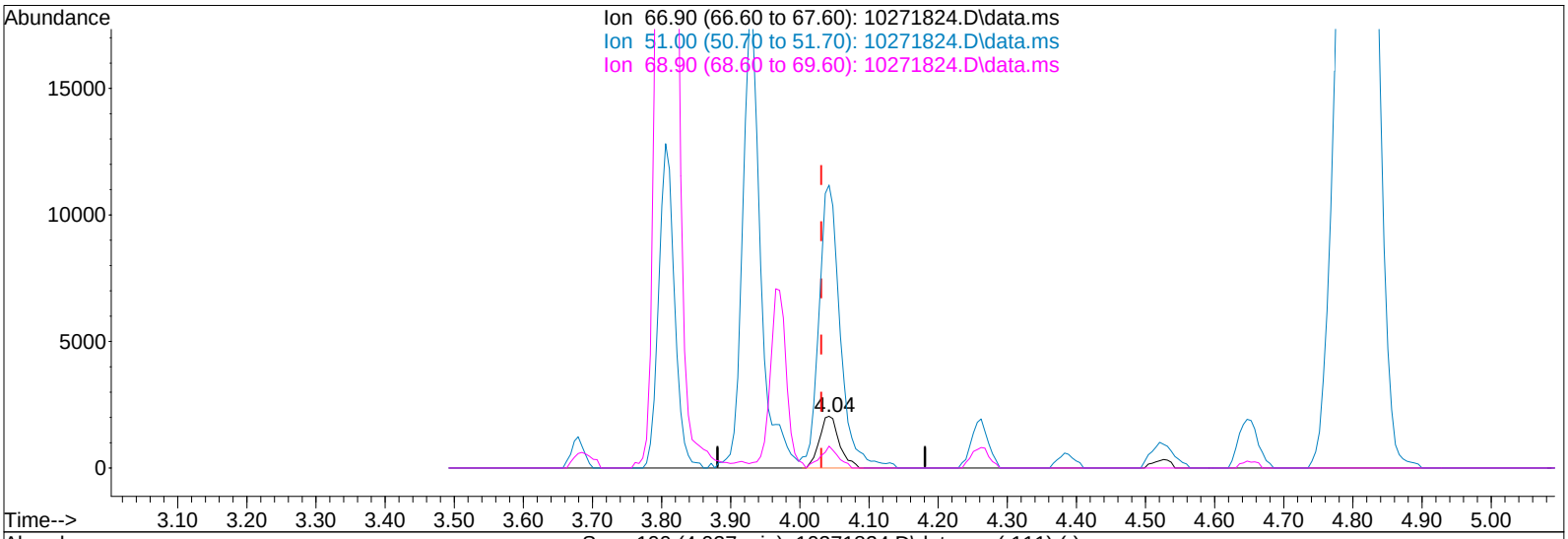
Quant Time: Oct 29 14:47:34 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

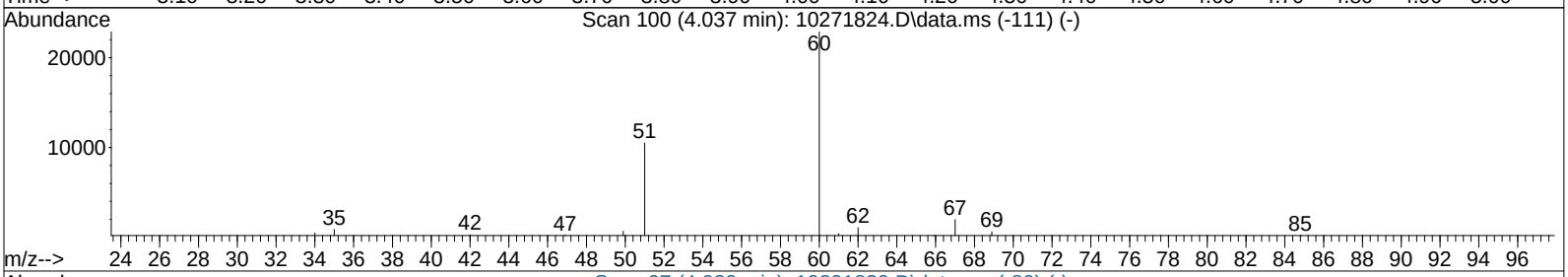


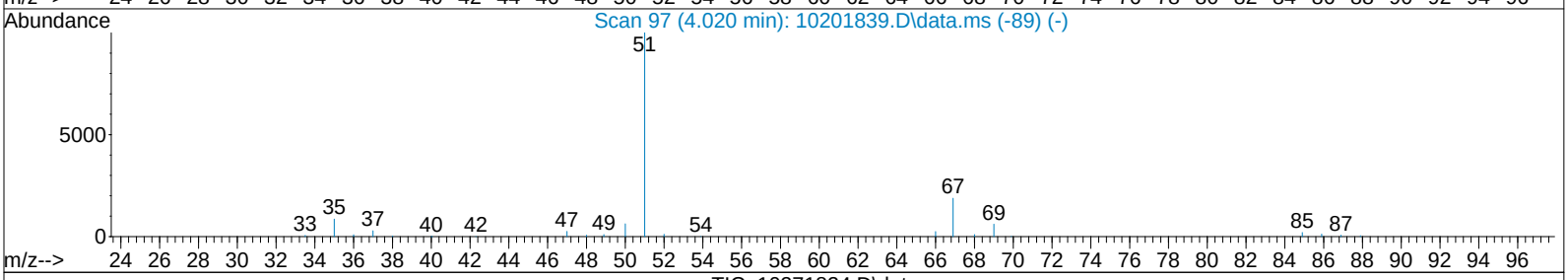
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271824.D
Acq On : 27 Oct 2018 17:54 Operator: WA
Sample : P1805497-011 (500mL) Pf2 Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 29 14:46:34 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271824.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.042min (+0.011) 0.57ng

response 4083

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	589.66
68.90	31.80	37.69
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271825.D Vial: 16
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:56:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018 *WA 10/30/18*
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	234929	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	989798	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	424375	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	347784	12.306	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
57) Toluene-d8 (SS2)	15.87	98	857875	12.694	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
73) Bromofluorobenzene (SS3)	19.09	174	352912	11.488	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.92%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.23	85	74987	1.527	ng		100
4) Chloromethane	4.54	50	1689	0.054	ng		82
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1880	0.064	ng		100
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.25	54	881	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.41	45	32983	2.496	ng		98
11) Acetonitrile	0.00	41	0	N.D.	d		
12) Acrolein	6.91	56	12366	1.060	ng		99
13) Acetone	7.10	58	76466m	4.850	ng		
14) Trichlorofluoromethane	7.35	101	33955	0.798	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	16001	0.316	ng		69
16) Acrylonitrile	7.97	53	849	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	8.57	84	3485	0.158	ng		93
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	8.99	151	6645	0.294	ng		92
22) Carbon Disulfide	0.00	76	0	N.D.	d		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.24	73	312	N.D.			
26) Vinyl Acetate	10.33	86	21935	3.969	ng	#	43
27) 2-Butanone (MEK)	10.63	72	15361	1.101	ng		98
28) cis-1,2-Dichloroethene	11.02	61	472	N.D.			
29) Diisopropyl Ether	11.48	87	249	N.D.			
30) Ethyl Acetate	11.44	61	5057	0.677	ng		97
31) n-Hexane	11.41	57	11978	0.352	ng		98
32) Chloroform	11.48	83	3495	0.088	ng		97
34) Tetrahydrofuran (THF)	11.93	72	155	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	991	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.02	56	12405m	0.620	ng		
41) Benzene	13.04	78	24598	0.270	ng		99
42) Carbon Tetrachloride	13.19	117	8623	0.250	ng		99
43) Cyclohexane	13.32	84	2488	0.071	ng		96
44) tert-Amyl Methyl Ether	13.73	73	482	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	14.08	83	323	N.D.			
47) Trichloroethene	14.13	130	788	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271825.D Vial: 16
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:56:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

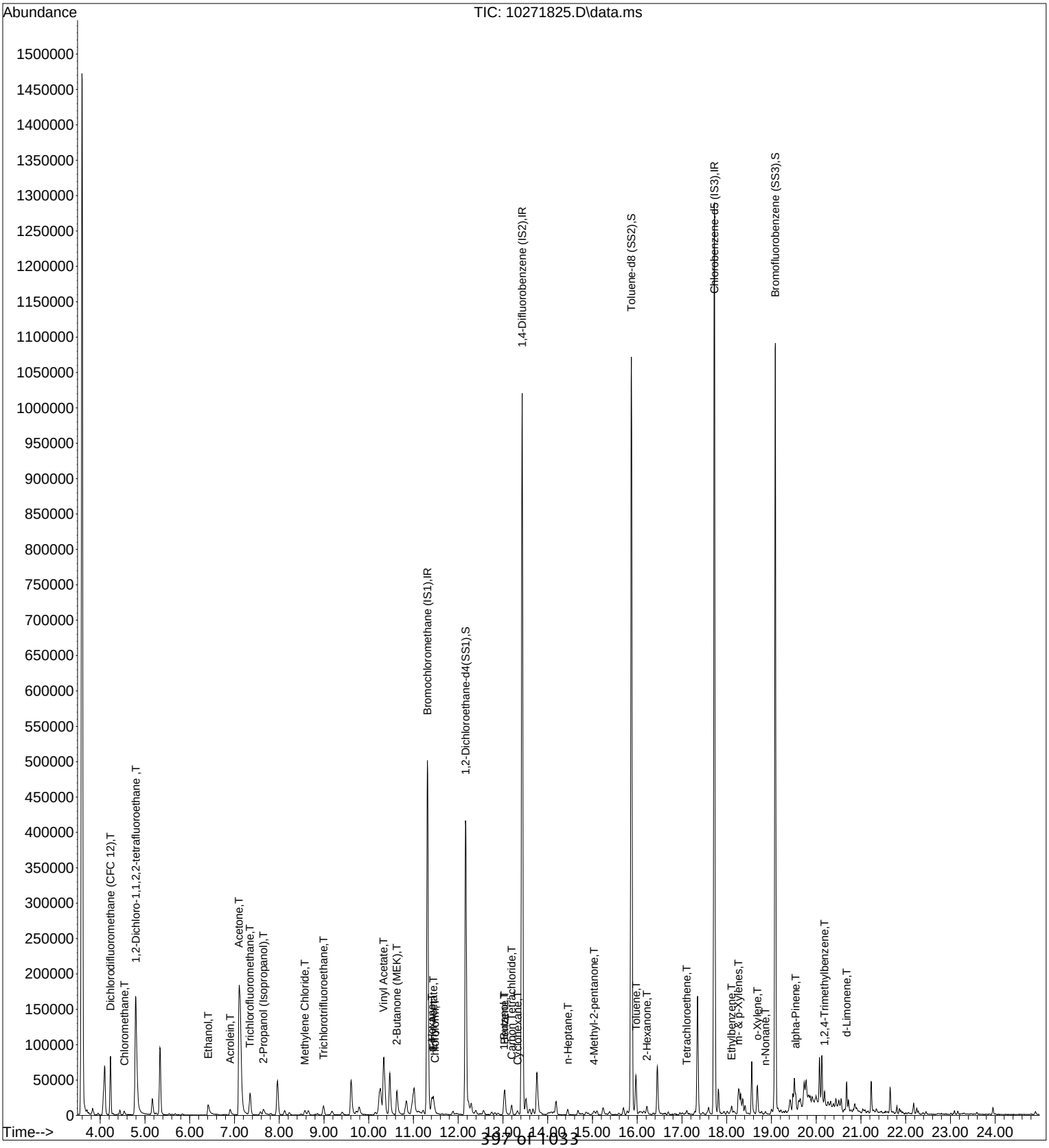
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	2122	0.101	ng		94
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	15.03	58	1281	0.070	ng	#	1
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.98	91	45057	0.480	ng		99
59) 2-Hexanone	16.22	43	8879	0.207	ng		98
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.84	43	1283	N.D.			
63) n-Octane	16.95	57	692	N.D.			
64) Tetrachloroethene	17.11	166	1509	0.052	ng		90
65) Chlorobenzene	0.00	112	0	N.D.			
66) Ethylbenzene	18.11	91	9908	0.093	ng		95
67) m- & p-Xylenes	18.26	91	24053	0.301	ng		96
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.60	104	1423	N.D.			
70) o-Xylene	18.69	91	10730	0.132	ng		97
71) n-Nonane	18.87	43	2131	0.057	ng	#	87
72) 1,1,2,2-Tetrachloroethane	18.68	83	837	N.D.			
74) Cumene	19.20	105	860	N.D.			
75) alpha-Pinene	19.54	93	9175	0.166	ng	#	44
76) n-Propylbenzene	19.64	91	3575	N.D.			
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	19.76	105	2305	N.D.			
79) 1,3,5-Trimethylbenzene	19.83	105	3380	N.D.			
80) alpha-Methylstyrene	19.97	118	200	N.D.			
81) 2-Ethyltoluene	20.00	105	4169	N.D.			
82) 1,2,4-Trimethylbenzene	20.19	105	9633	0.110	ng		86
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.32	91	537	N.D.			
85) 1,3-Dichlorobenzene	20.39	146	1182	N.D.			
86) 1,4-Dichlorobenzene	20.39	146	1182	N.D.			
87) sec-Butylbenzene	20.42	105	1092	N.D.			
88) 4-Isopropyltoluene (p-...	20.56	119	4498	N.D.			
89) 1,2,3-Trimethylbenzene	20.56	105	3630	N.D.			
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
91) d-Limonene	20.68	68	10239	0.323	ng		99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	21.34	57	1757	N.D.			
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	22.28	128	4095	N.D.			
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	20.19	119	1212	N.D.			
100) n-Butylbenzene	20.91	91	3235	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271825.D Vial: 16
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:56:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271825.D Vial: 16
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:56:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

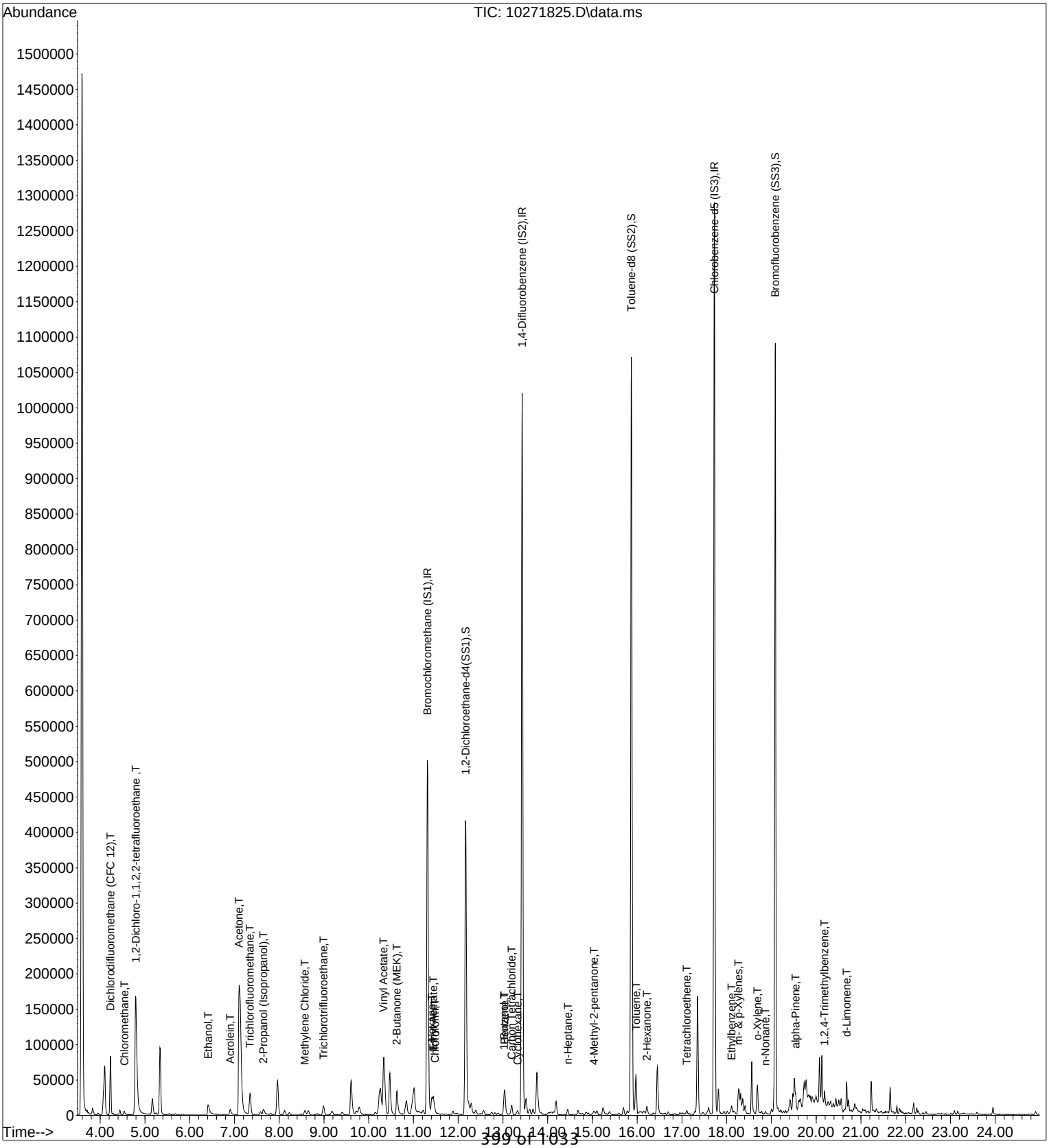
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	234929	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	989798	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	424375	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	347784	12.306	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.48%				
57) Toluene-d8 (SS2)	15.87	98	857875	12.694	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.52%				
73) Bromofluorobenzene (SS3)	19.09	174	352912	11.488	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.92%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.23	85	74987	1.527	ng		100
4) Chloromethane	4.54	50	1689	0.054	ng		82
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	1880	0.064	ng		100
10) Ethanol	6.41	45	32983	2.496	ng		98
12) Acrolein	6.91	56	12366	1.060	ng		99
13) Acetone	7.10	58	76466m	4.850	ng		
14) Trichlorofluoromethane	7.35	101	33955	0.798	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	16001	0.316	ng		69
19) Methylene Chloride	8.57	84	3485	0.158	ng		93
21) Trichlorotrifluoroethane	8.99	151	6645	0.294	ng		92
26) Vinyl Acetate	10.33	86	21935	3.969	ng	#	43
27) 2-Butanone (MEK)	10.63	72	15361	1.101	ng		98
30) Ethyl Acetate	11.44	61	5057	0.677	ng		97
31) n-Hexane	11.41	57	11978	0.352	ng		98
32) Chloroform	11.48	83	3495	0.088	ng		97
40) 1-Butanol	13.02	56	12405m	0.620	ng		
41) Benzene	13.04	78	24598	0.270	ng		99
42) Carbon Tetrachloride	13.19	117	8623	0.250	ng		99
43) Cyclohexane	13.32	84	2488	0.071	ng		96
51) n-Heptane	14.45	71	2122	0.101	ng		94
53) 4-Methyl-2-pentanone	15.03	58	1281	0.070	ng	#	1
58) Toluene	15.98	91	45057	0.480	ng		99
59) 2-Hexanone	16.22	43	8879	0.207	ng		98
64) Tetrachloroethene	17.11	166	1509	0.052	ng		90
66) Ethylbenzene	18.11	91	9908	0.093	ng		95
67) m- & p-Xylenes	18.26	91	24053	0.301	ng		96
70) o-Xylene	18.69	91	10730	0.132	ng		97
71) n-Nonane	18.87	43	2131	0.057	ng	#	87
75) alpha-Pinene	19.54	93	9175	0.166	ng	#	44
82) 1,2,4-Trimethylbenzene	20.19	105	9633	0.110	ng		86
91) d-Limonene	20.68	68	10239	0.323	ng		99

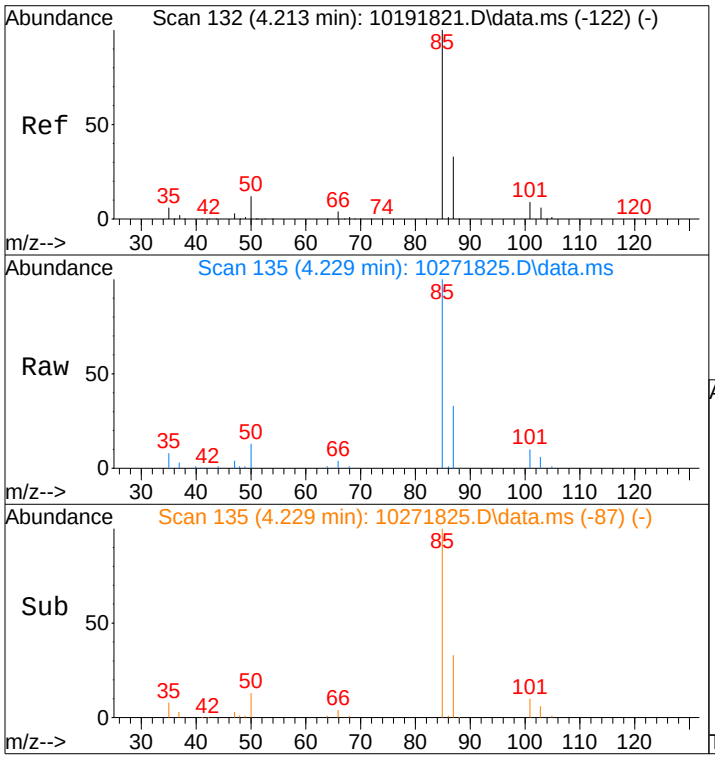
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271825.D Vial: 16
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 09:56:59 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

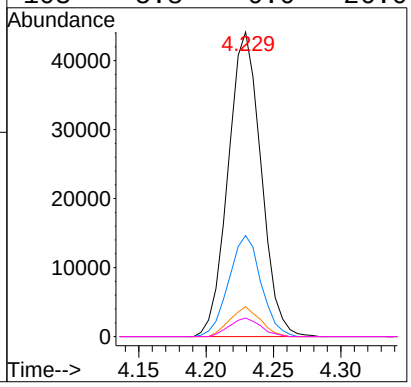


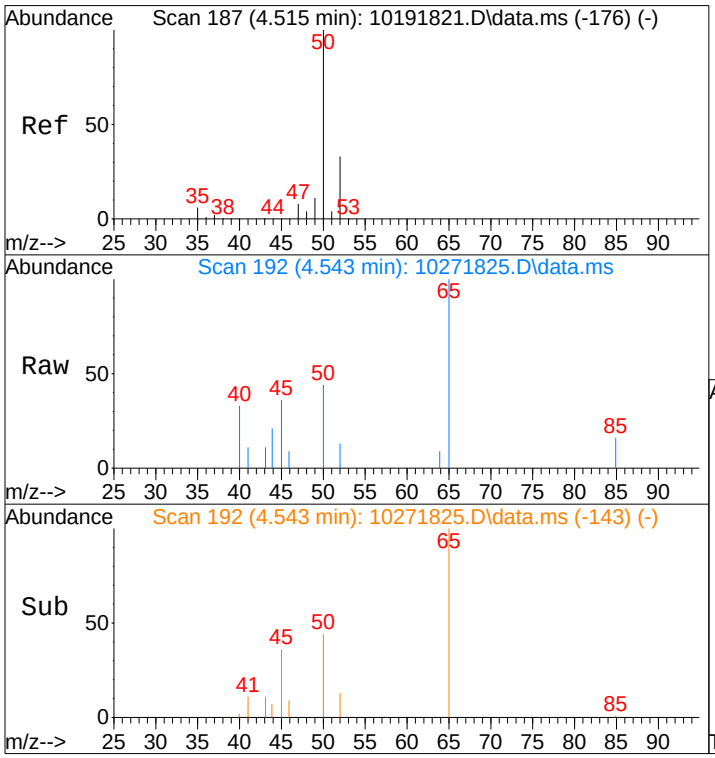


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.53 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.017 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 85 Resp: 74987

Ion	Ratio	Lower	Upper
85	100		
87	32.5	12.6	52.6
101	9.0	0.0	29.4
103	5.8	0.0	26.0

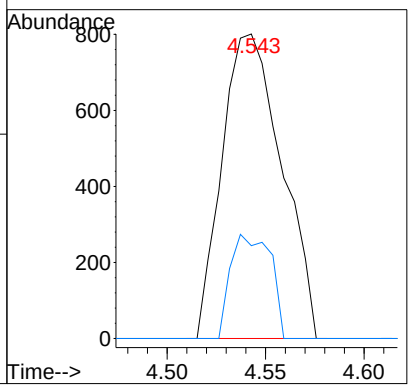


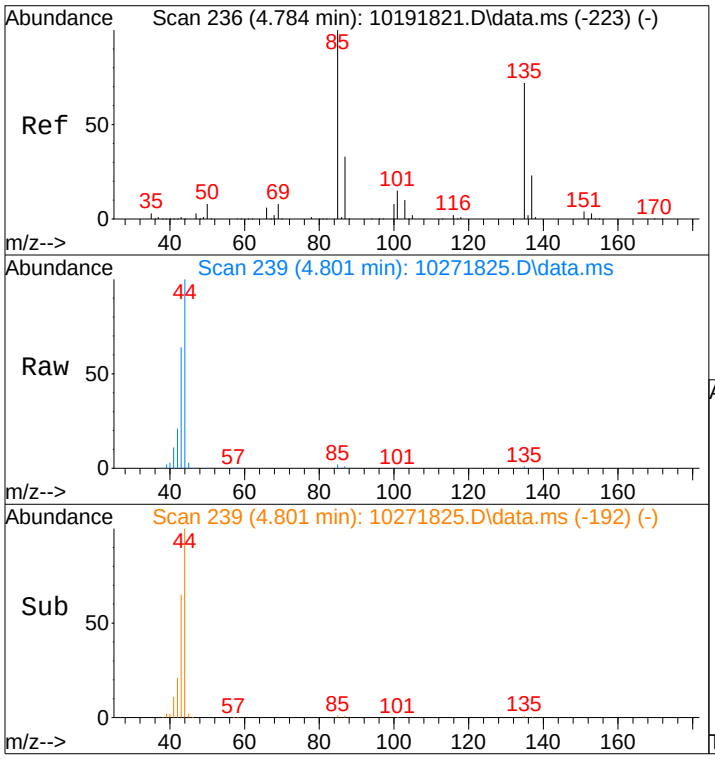


#4
Chloromethane
Concen: 0.05 ng
RT: 4.54 min Scan# 192
Delta R.T. 0.022 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 50 Resp: 1689

Ion	Ratio	Lower	Upper
50	100		
52	22.9	13.2	53.2

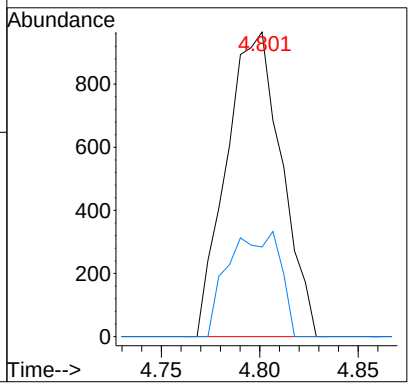


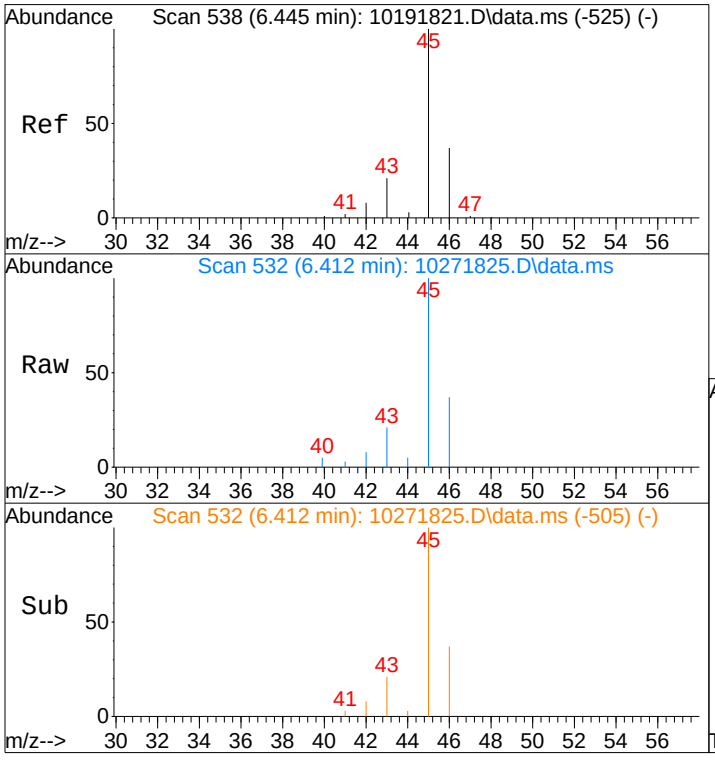


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.06 ng
RT: 4.80 min Scan# 239
Delta R.T. 0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:135 Resp: 1880

Ion	Ratio	Lower	Upper
135	100		
137	32.2	12.3	52.3

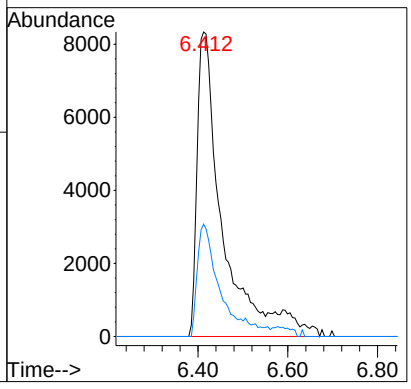


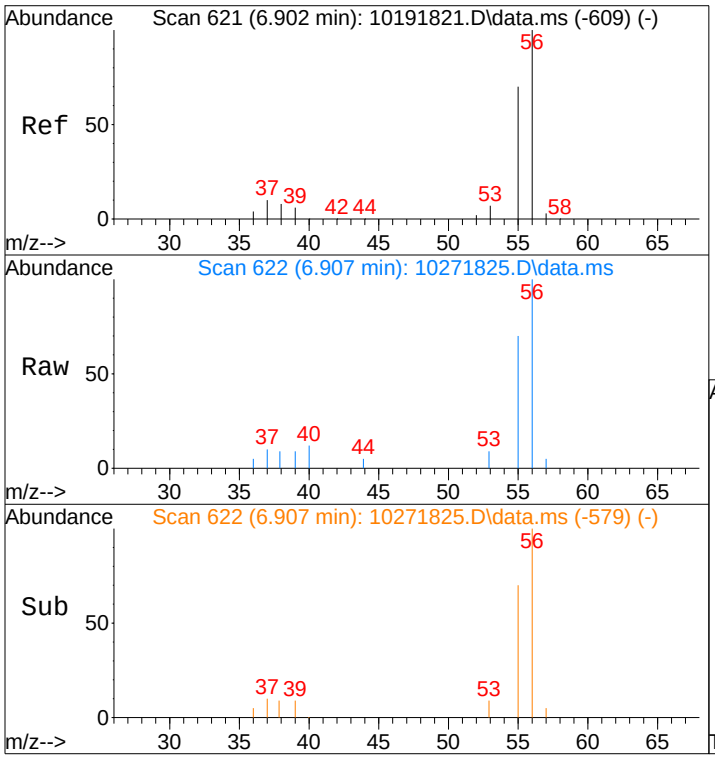


#10
Ethanol
Concen: 2.50 ng
RT: 6.41 min Scan# 532
Delta R.T. -0.099 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 45 Resp: 32983

Ion	Ratio	Lower	Upper
45	100		
46	35.5	16.6	56.6

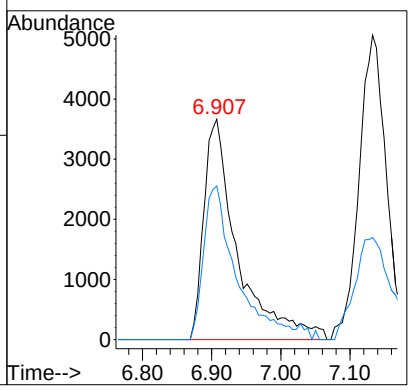


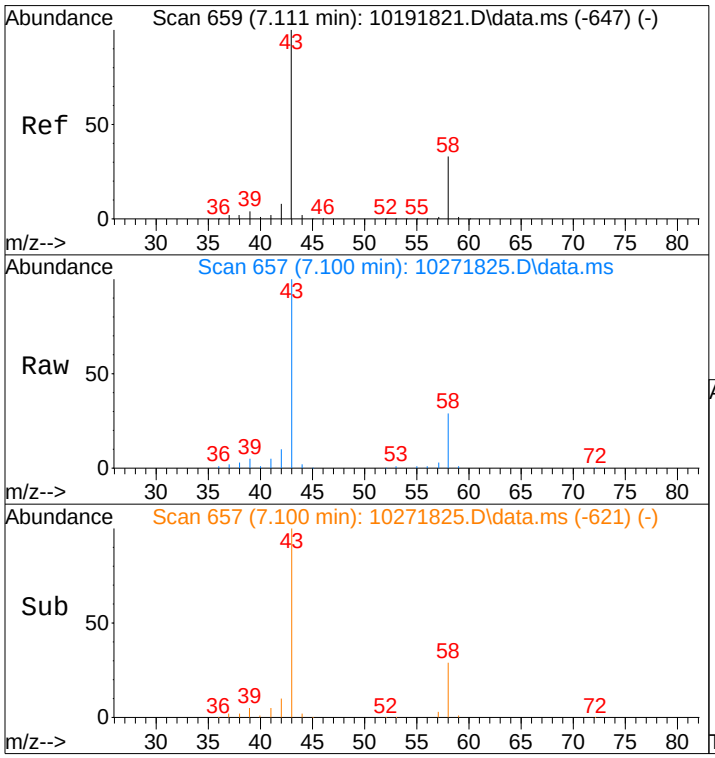


#12
Acrolein
Concen: 1.06 ng
RT: 6.91 min Scan# 622
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 56 Resp: 12366

Ion	Ratio	Lower	Upper
56	100		
55	70.0	51.0	91.0

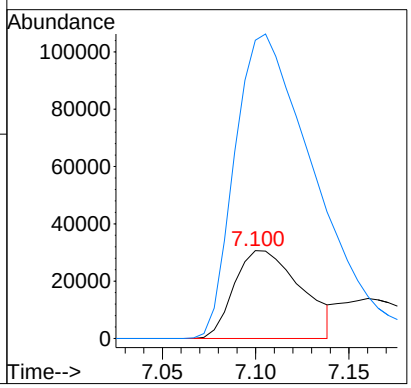


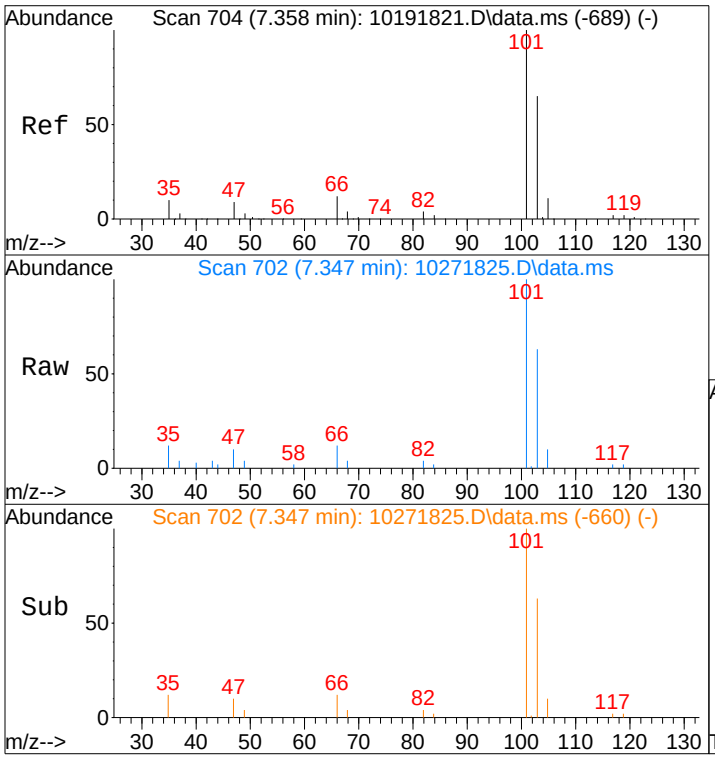


#13
Acetone
Concen: 4.85 ng m
RT: 7.10 min Scan# 657
Delta R.T. -0.049 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 58 Resp: 76466

Ion	Ratio	Lower	Upper
58	100		
43	440.8	283.4	343.4#

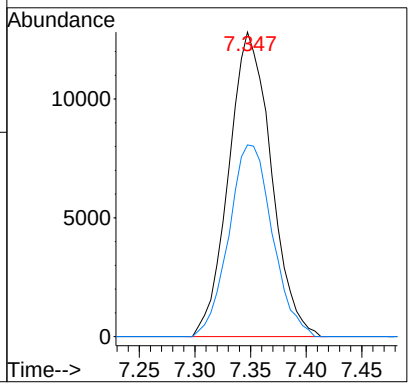


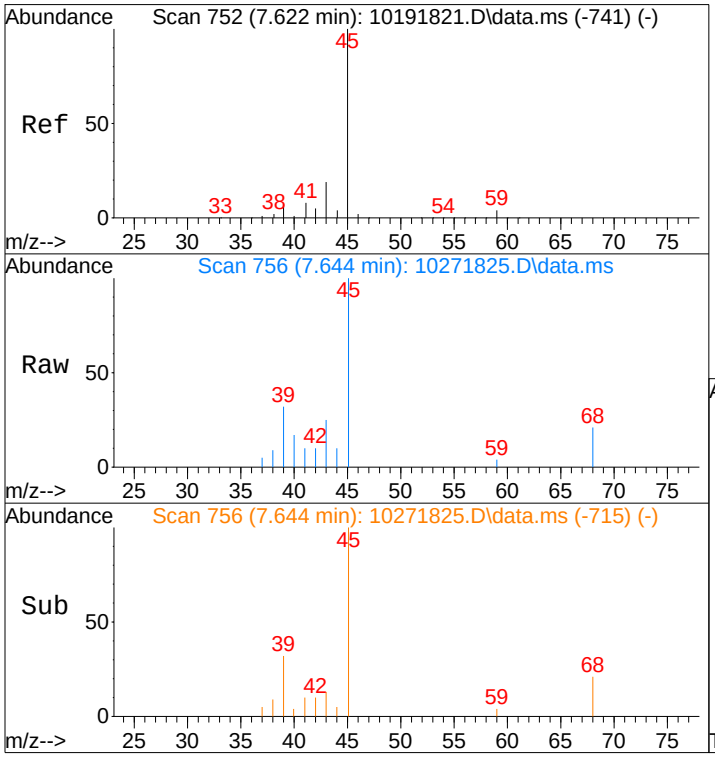


#14
Trichlorofluoromethane
Concen: 0.80 ng
RT: 7.35 min Scan# 702
Delta R.T. -0.016 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:101 Resp: 33955

Ion	Ratio	Lower	Upper
101	100		
103	64.5	44.8	84.8

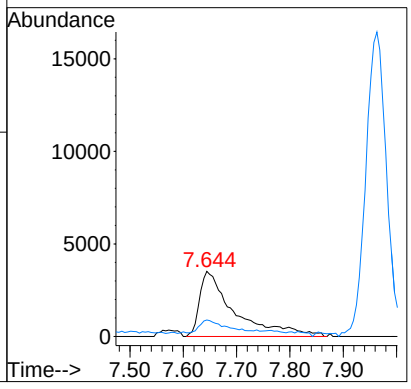


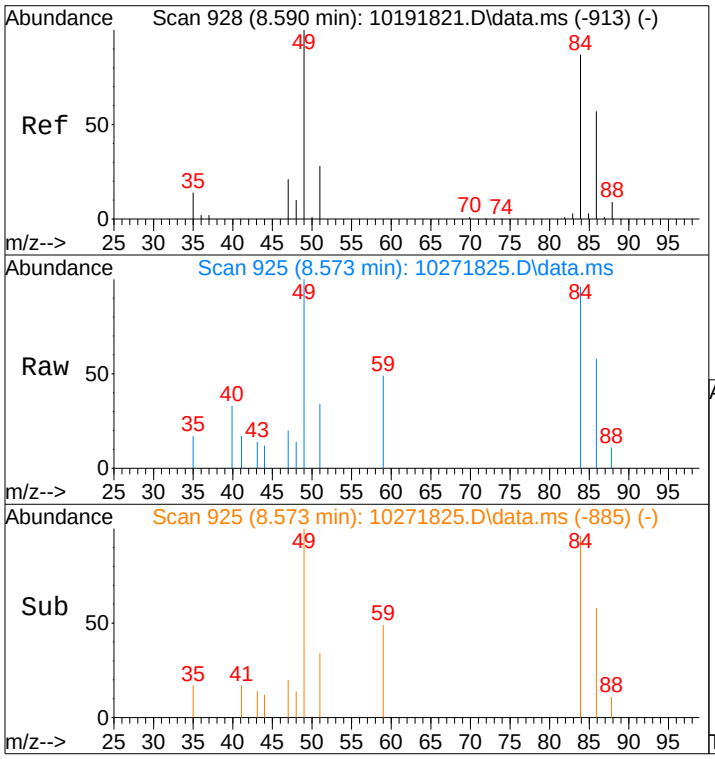


#15
2-Propanol (Isopropanol)
Concen: 0.32 ng
RT: 7.64 min Scan# 756
Delta R.T. -0.022 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 45 Resp: 16001

Ion	Ratio	Lower	Upper
45	100		
43	33.6	0.0	39.6

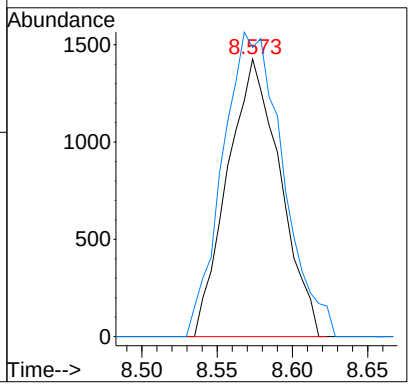


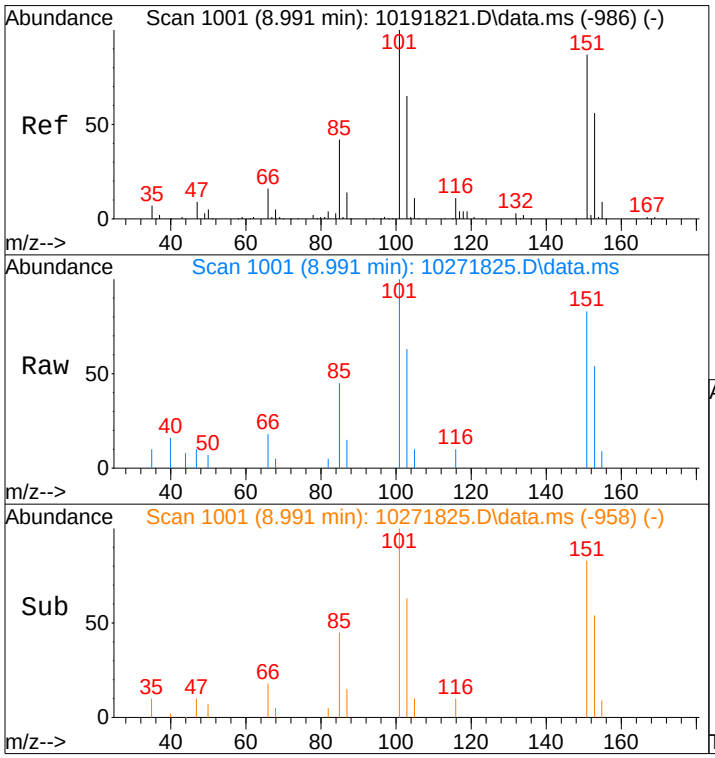


#19
Methylene Chloride
Concen: 0.16 ng
RT: 8.57 min Scan# 925
Delta R.T. -0.027 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 84 Resp: 3485

Ion	Ratio	Lower	Upper
84	100		
49	125.1	92.1	142.1

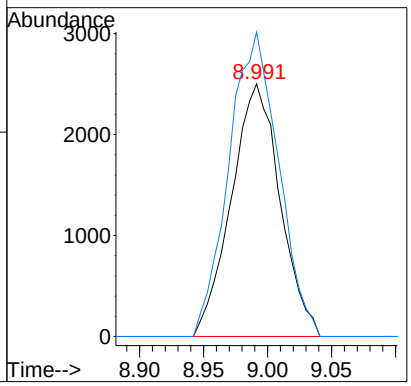


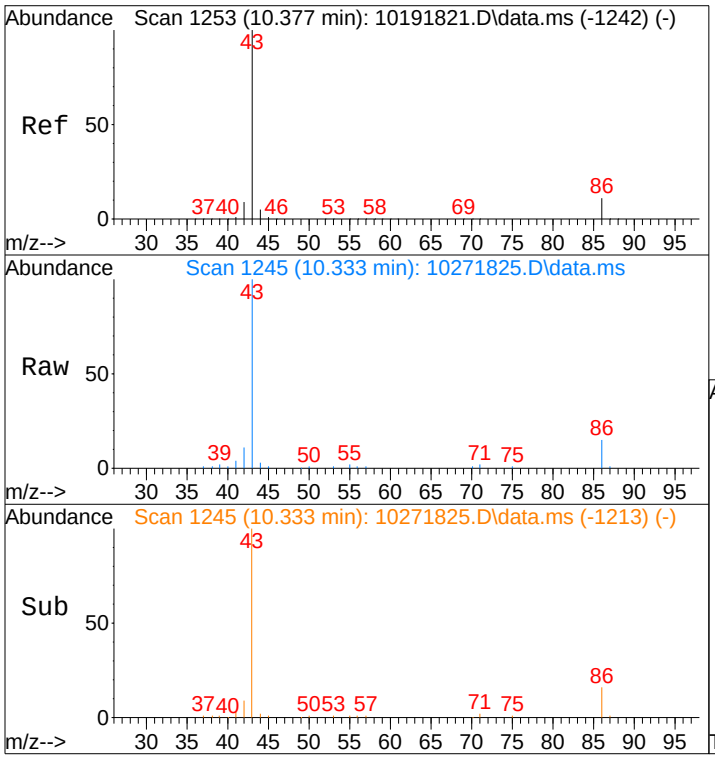


#21
Trichlorotrifluoroethane
Concen: 0.29 ng
RT: 8.99 min Scan# 1001
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:151 Resp: 6645

Ion	Ratio	Lower	Upper
151	100		
101	122.8	94.4	134.4

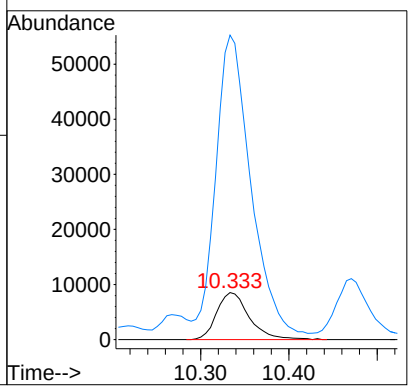


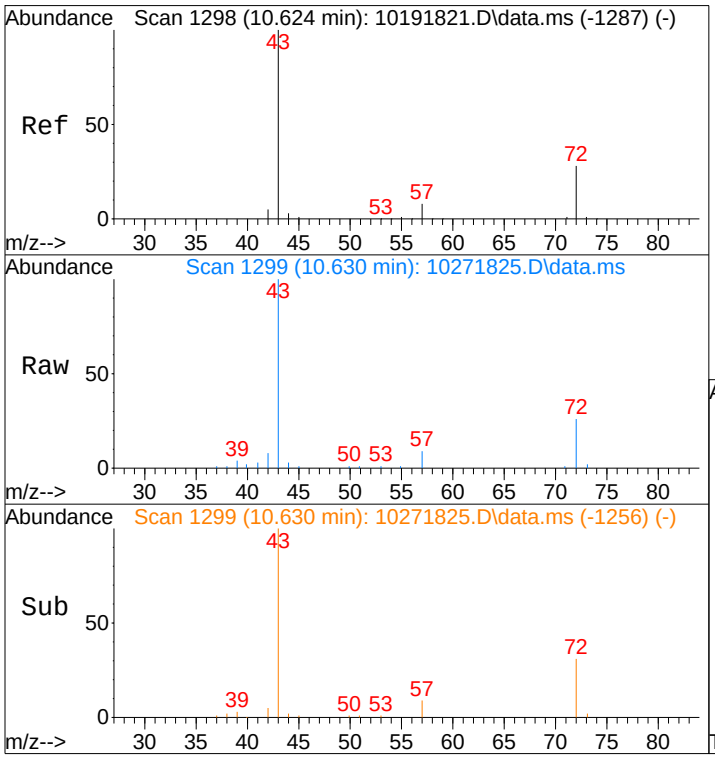


#26
Vinyl Acetate
Concen: 3.97 ng
RT: 10.33 min Scan# 1245
Delta R.T. -0.072 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 86 Resp: 21935

Ion	Ratio	Lower	Upper
86	100		
43	702.1	927.6	967.6#

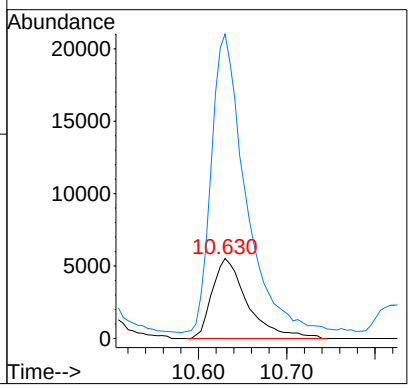


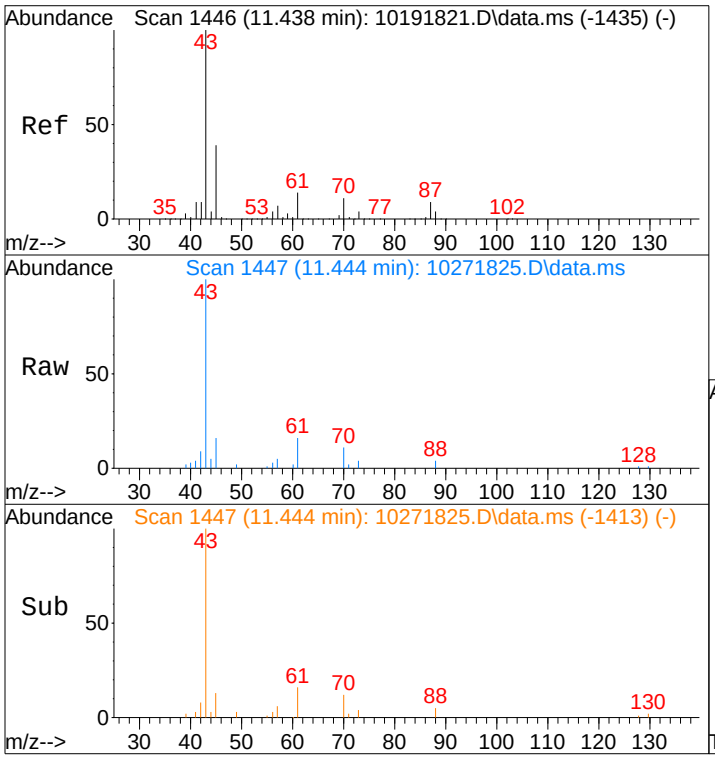


#27
2-Butanone (MEK)
Concen: 1.10 ng
RT: 10.63 min Scan# 1299
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 72 Resp: 15361

Ion	Ratio	Lower	Upper
72	100		
43	365.5	350.1	390.1

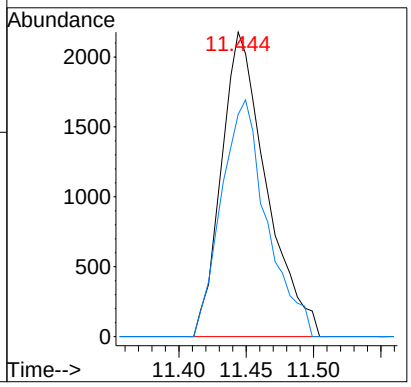


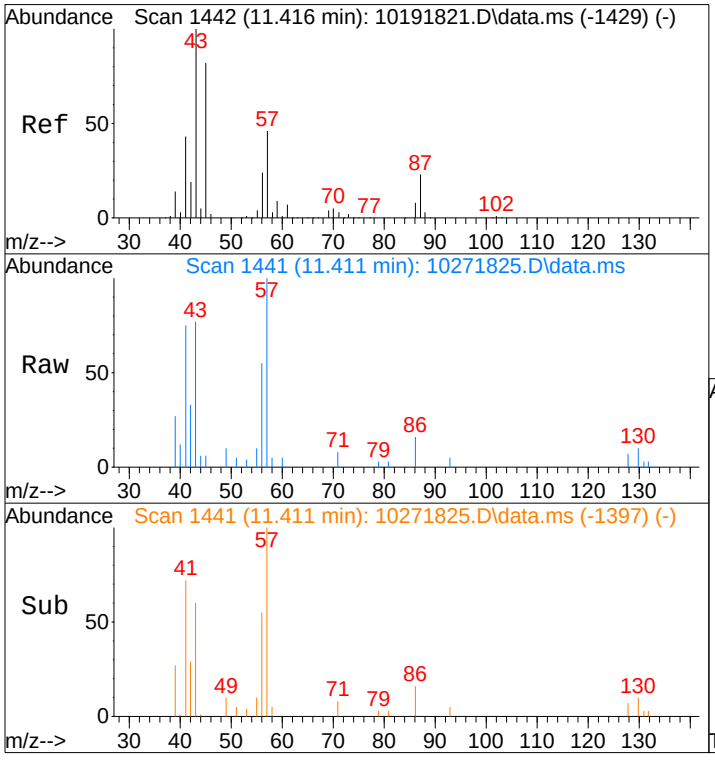


#30
Ethyl Acetate
Concen: 0.68 ng
RT: 11.44 min Scan# 1447
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 61 Resp: 5057

Ion	Ratio	Lower	Upper
61	100		
70	78.7	61.7	101.7

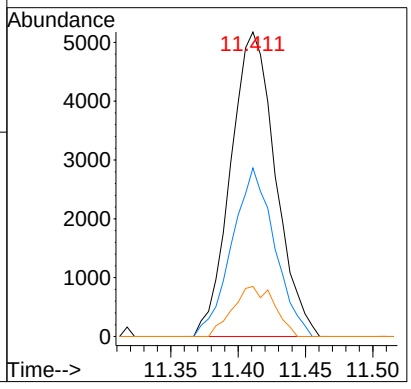


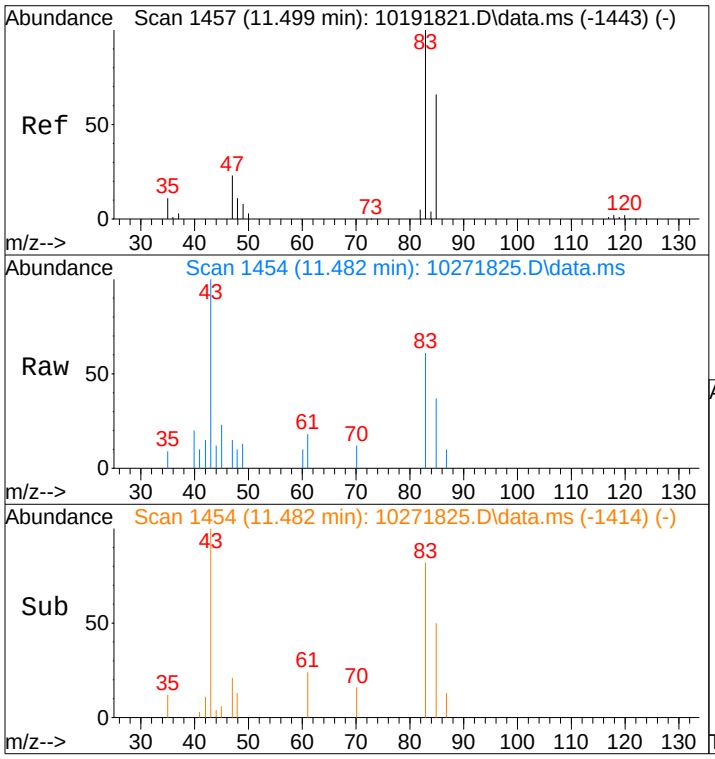


#31
n-Hexane
Concen: 0.35 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 57 Resp: 11978

Ion	Ratio	Lower	Upper
57	100		
56	52.7	41.4	62.0
86	15.3	13.7	20.5

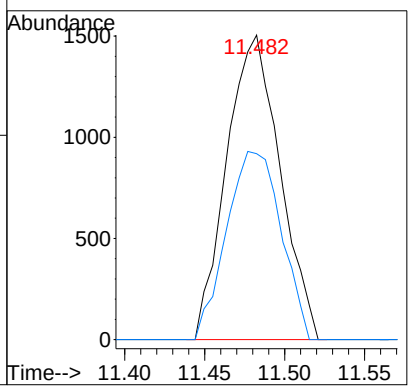


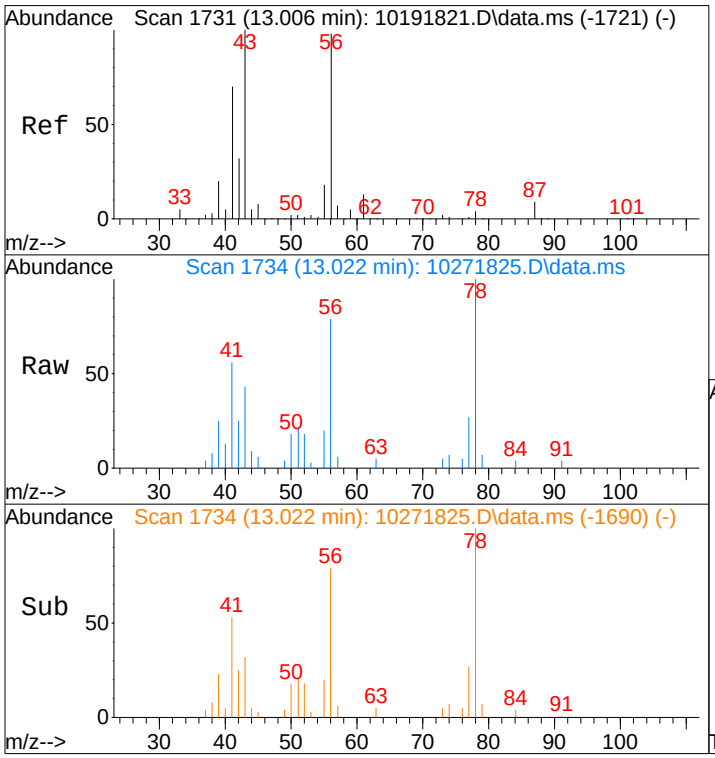


#32
Chloroform
Concen: 0.09 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.027 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 83 Resp: 3495

Ion	Ratio	Lower	Upper
83	100		
85	63.2	45.5	85.5

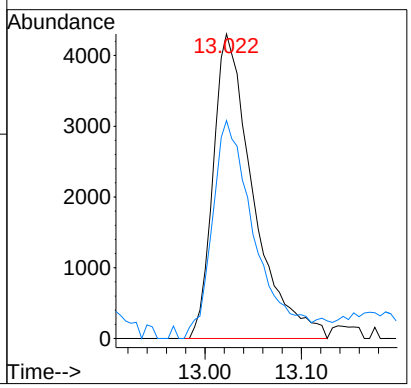


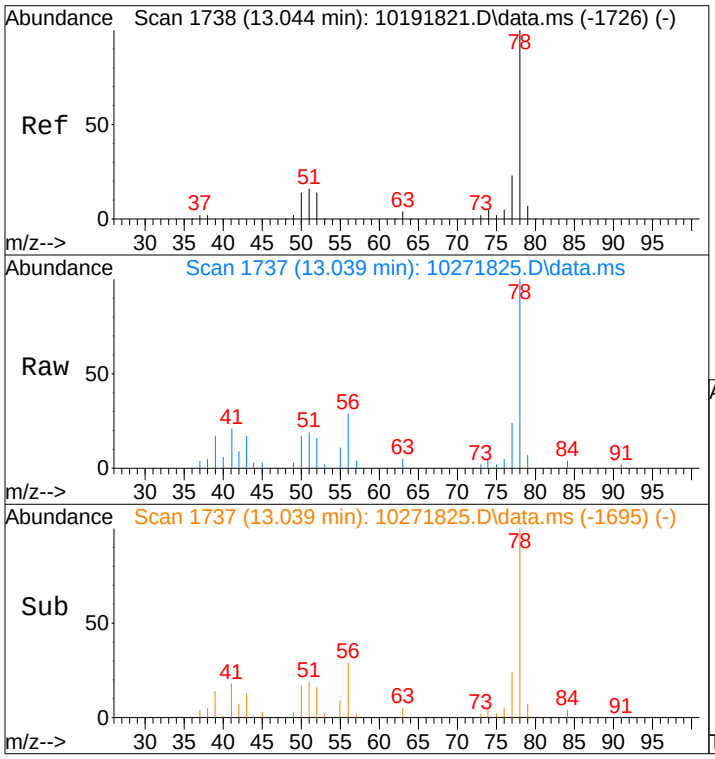


#40
1-Butanol
Concen: 0.62 ng m
RT: 13.02 min Scan# 1734
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 56 Resp: 12405

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

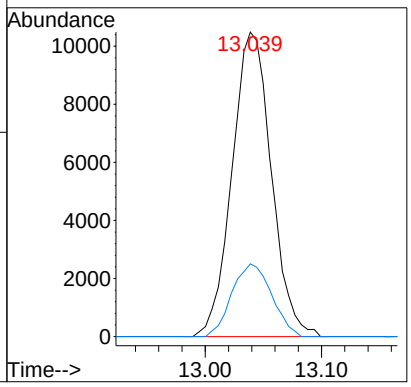


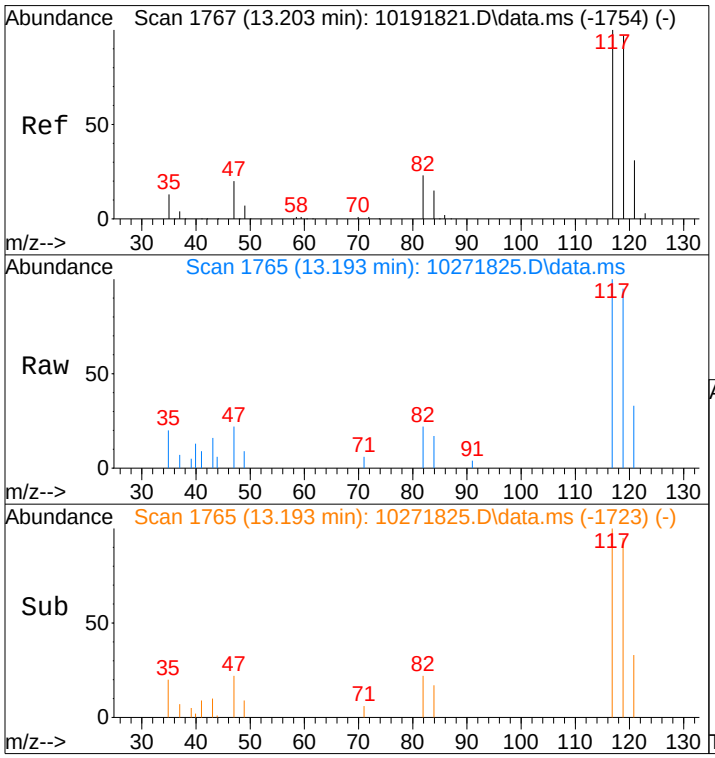


#41
Benzene
Concen: 0.27 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.016 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 78 Resp: 24598

Ion	Ratio	Lower	Upper
78	100		
77	24.1	3.5	43.5

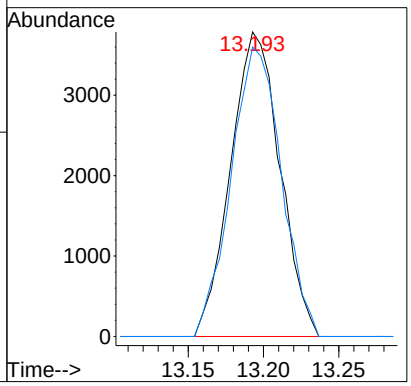


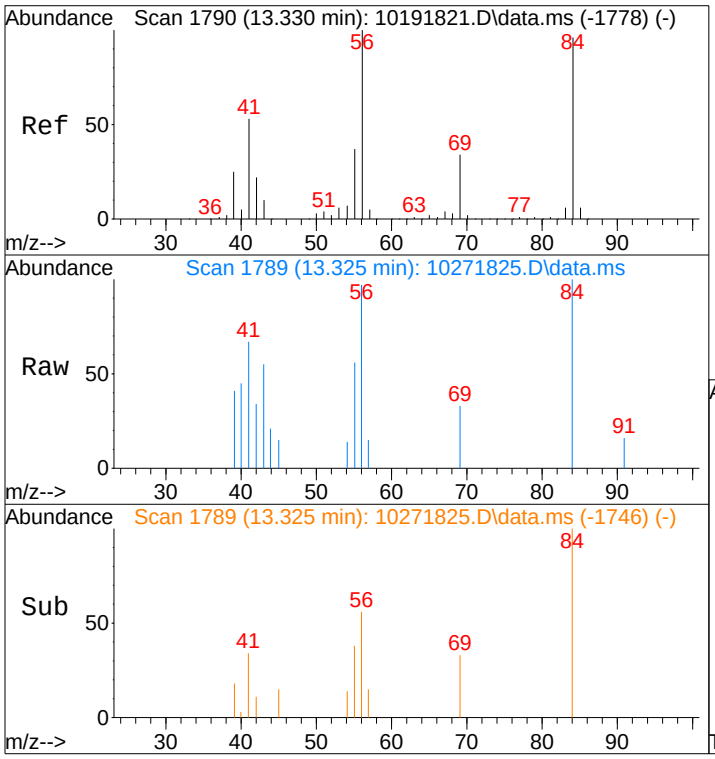


#42
Carbon Tetrachloride
Concen: 0.25 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.016 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:117 Resp: 8623

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.0	116.0

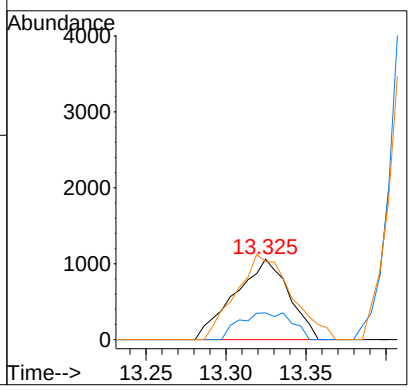


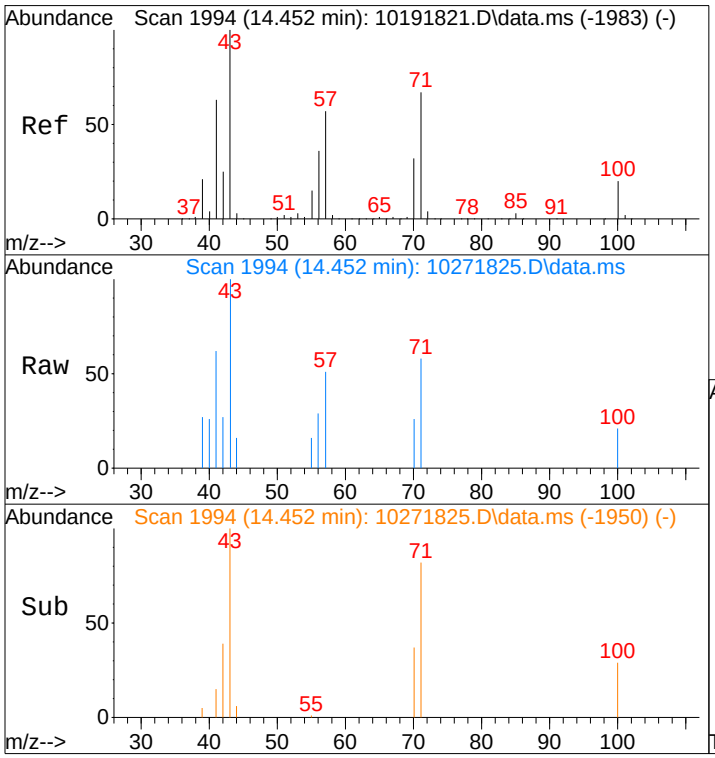


#43
Cyclohexane
Concen: 0.07 ng
RT: 13.32 min Scan# 1789
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 84 Resp: 2488

Ion	Ratio	Lower	Upper
84	100		
69	32.4	14.8	54.8
56	108.6	83.9	123.9

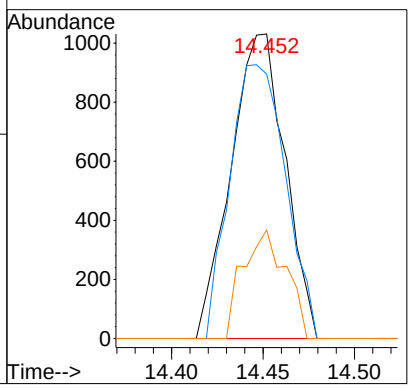


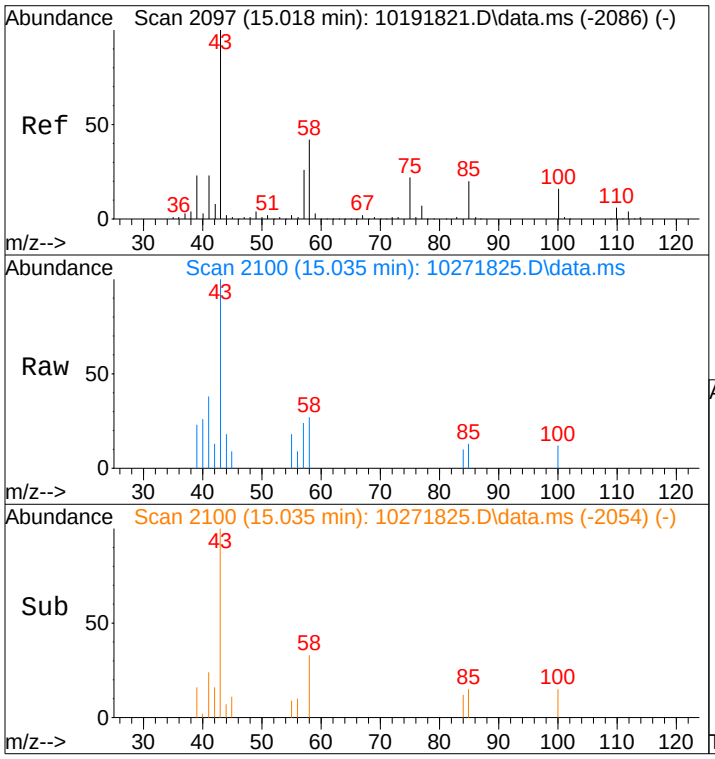


#51
n-Heptane
Concen: 0.10 ng
RT: 14.45 min Scan# 1994
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 71 Resp: 2122

Ion	Ratio	Lower	Upper
71	100		
57	92.7	66.4	106.4
100	28.3	10.6	50.6

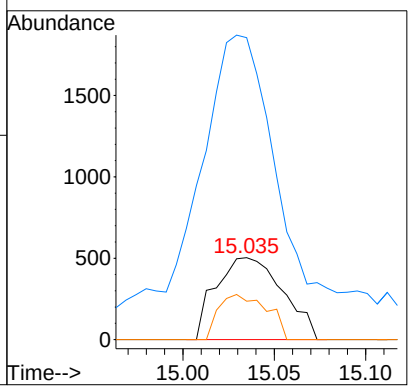


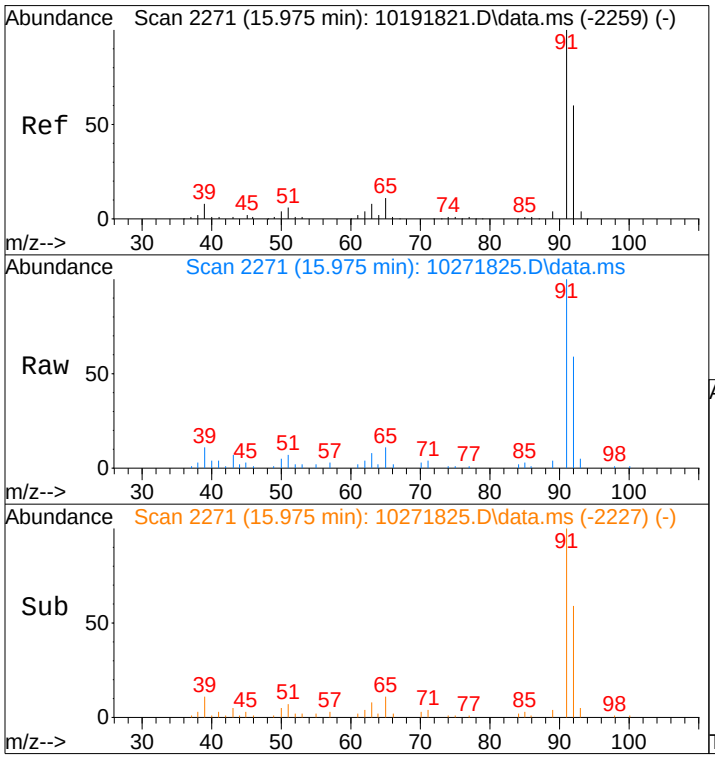


#53
4-Methyl-2-pentanone
Concen: 0.07 ng
RT: 15.03 min Scan# 2100
Delta R.T. 0.006 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 58 Resp: 1281

Ion	Ratio	Lower	Upper
58	100		
43	535.7	191.8	287.6#
85	39.9	39.7	59.5

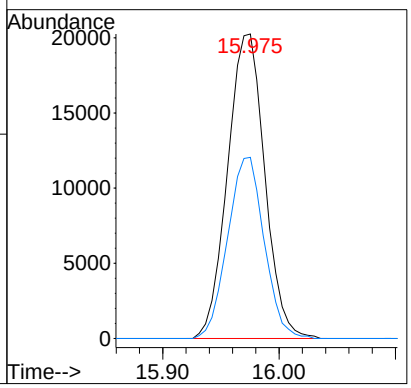


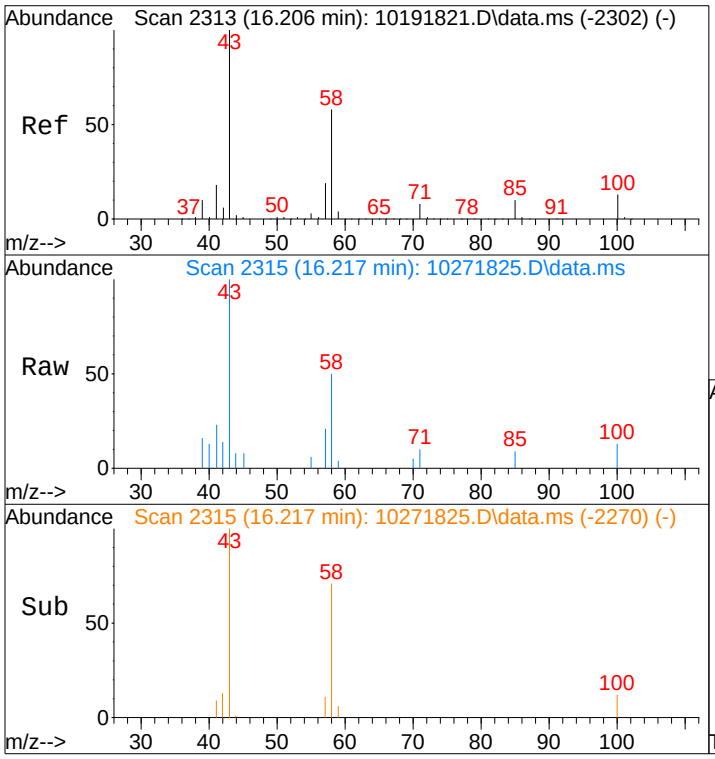


#58
Toluene
Concen: 0.48 ng
RT: 15.98 min Scan# 2271
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 91 Resp: 45057

Ion	Ratio	Lower	Upper
91	100		
92	58.3	39.4	79.4

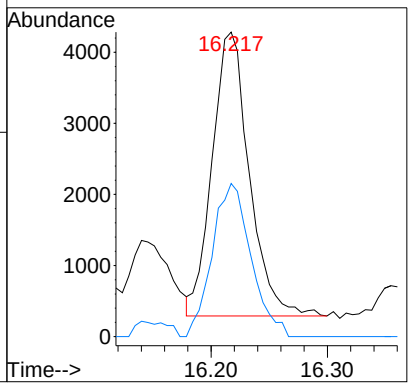


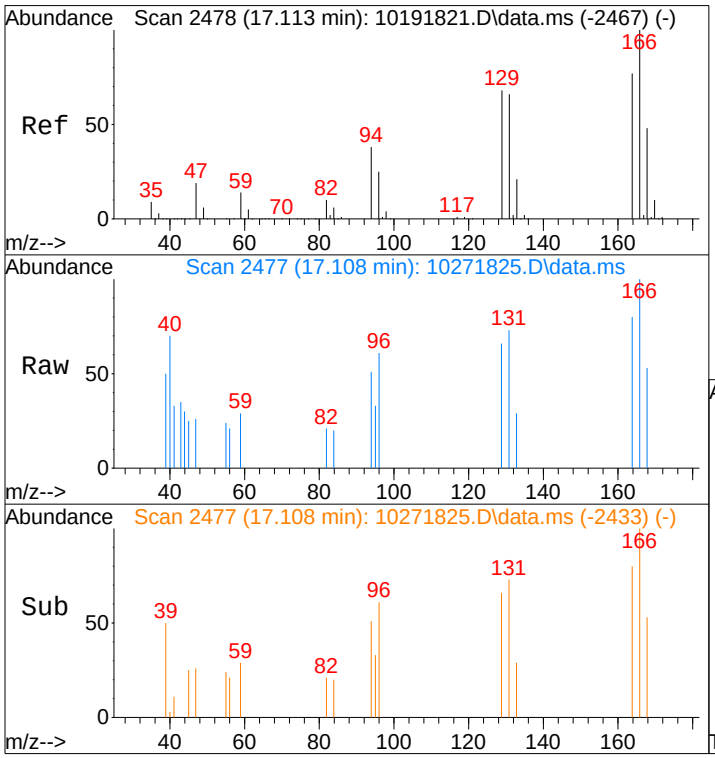


#59
2-Hexanone
Concen: 0.21 ng
RT: 16.22 min Scan# 2315
Delta R.T. 0.000 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 43 Resp: 8879

Ion	Ratio	Lower	Upper
43	100		
58	56.1	37.4	77.4

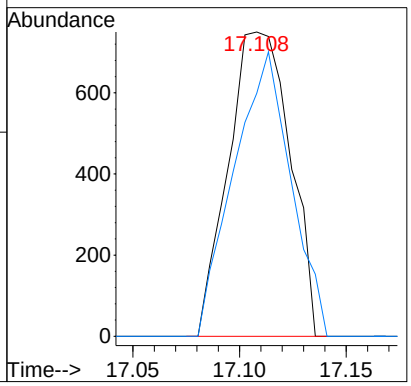


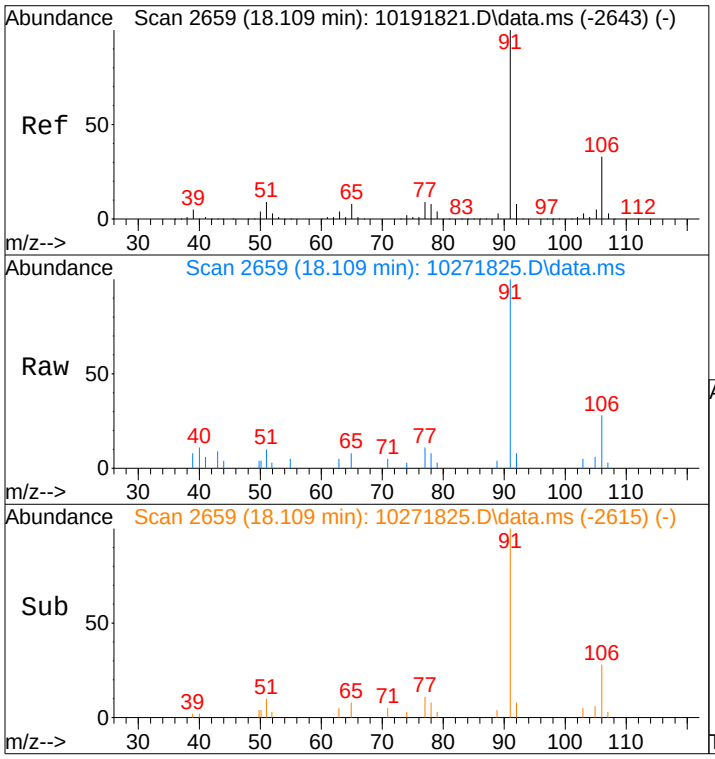


#64
Tetrachloroethene
Concen: 0.05 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:166 Resp: 1509

Ion	Ratio	Lower	Upper
166	100		
164	86.4	57.8	97.8

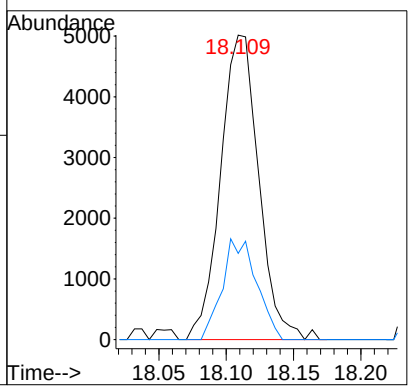


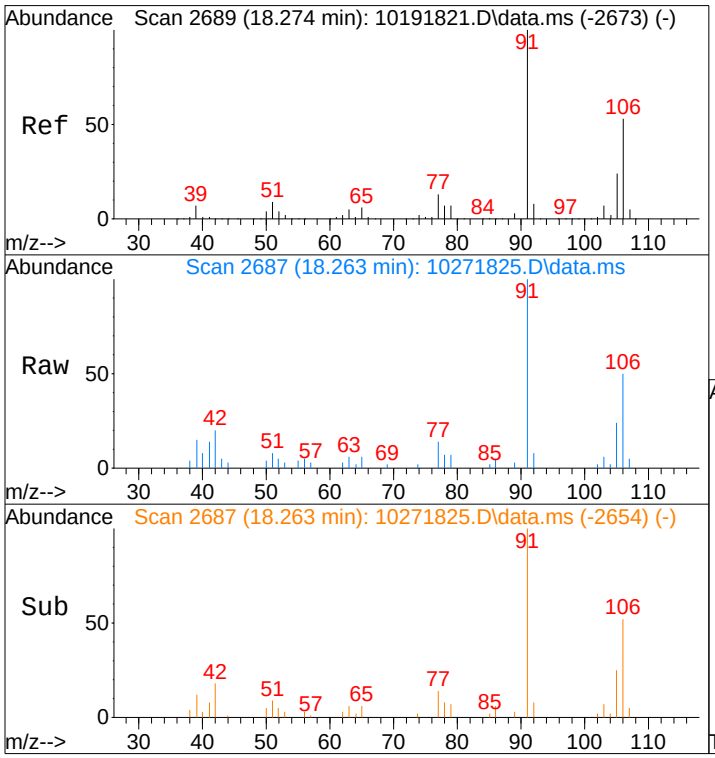


#66
Ethylbenzene
Concen: 0.09 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 91 Resp: 9908

Ion	Ratio	Lower	Upper
91	100		
106	29.7	12.6	52.6

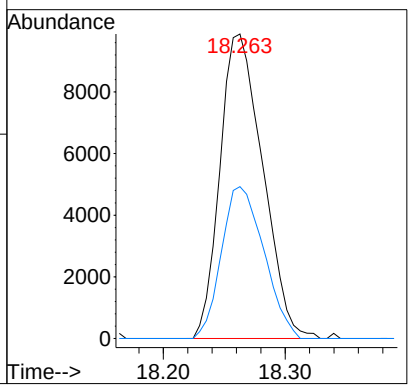


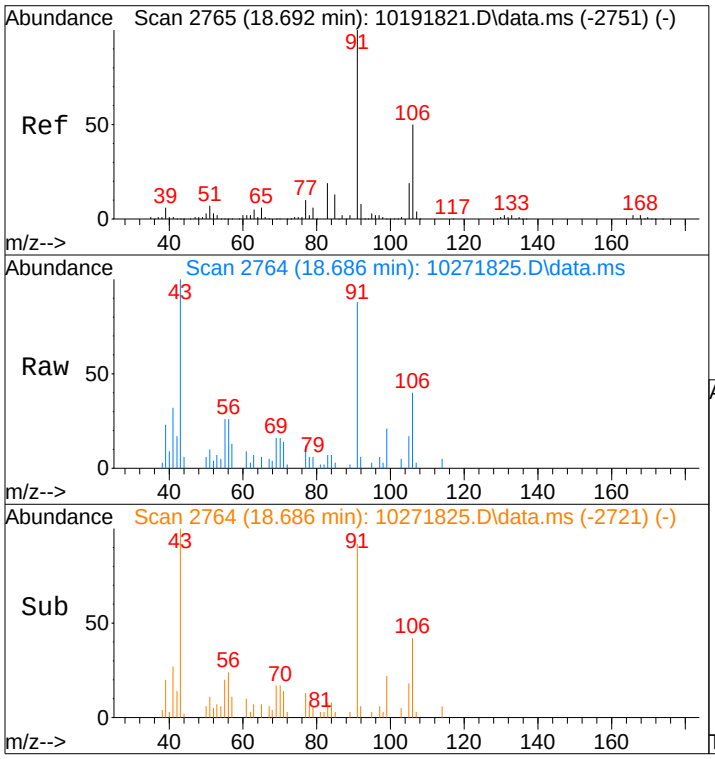


#67
m- & p-Xylenes
Concen: 0.30 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.016 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 91 Resp: 24053

Ion	Ratio	Lower	Upper
91	100		
106	49.5	32.2	72.2

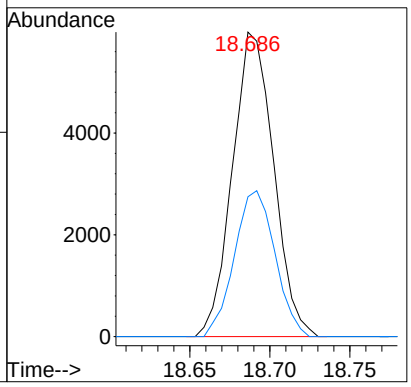


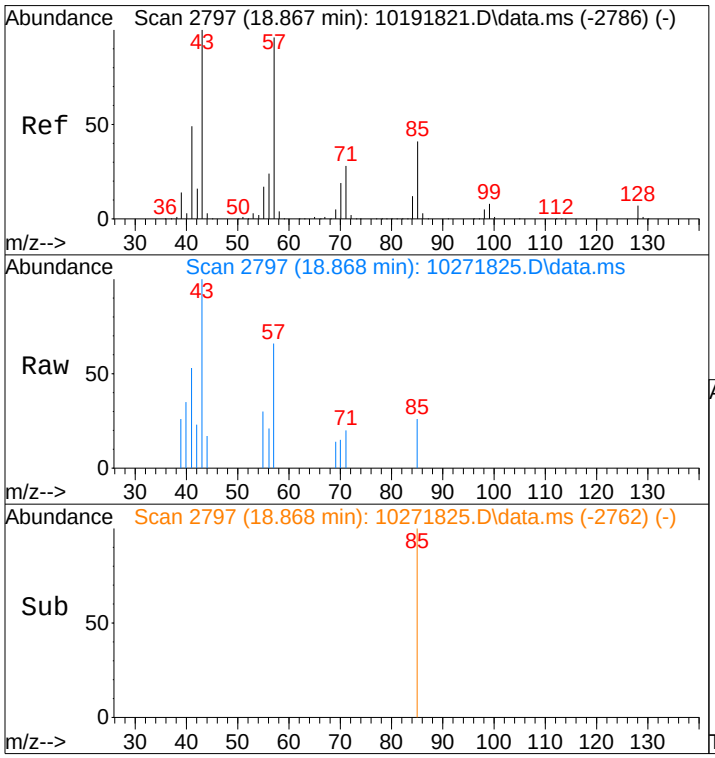


#70
o-Xylene
Concen: 0.13 ng
RT: 18.69 min Scan# 2764
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 91 Resp: 10730

Ion	Ratio	Lower	Upper
91	100		
106	47.3	29.4	69.4

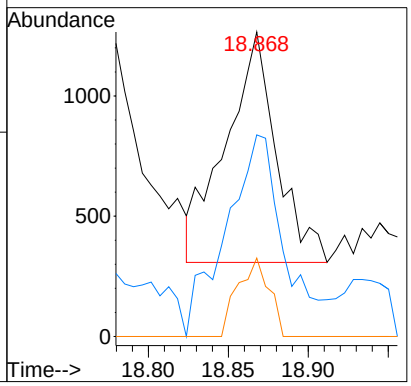


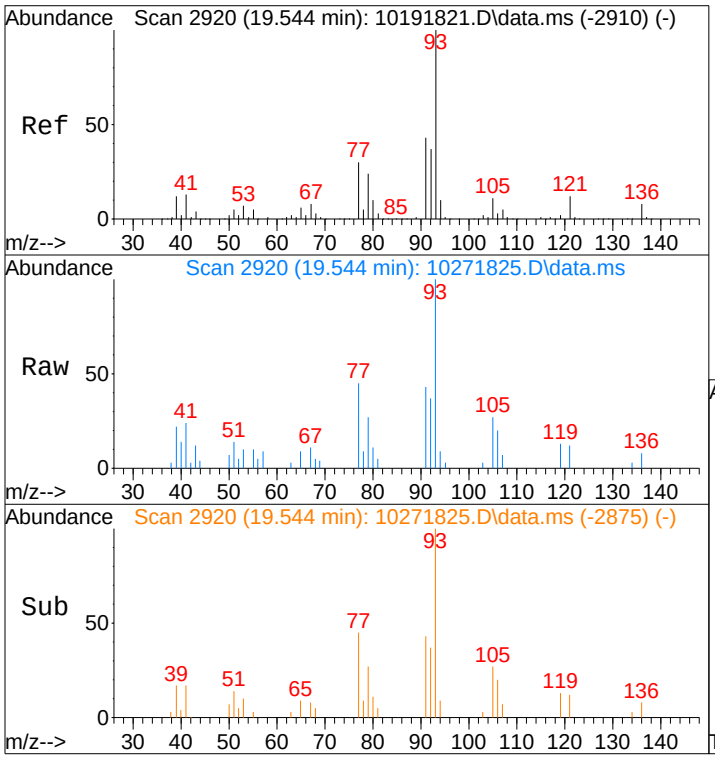


#71
n-Nonane
Concen: 0.06 ng
RT: 18.87 min Scan# 2797
Delta R.T. -0.005 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 43 Resp: 2131

Ion	Ratio	Lower	Upper
43	100		
57	99.6	75.4	115.4
85	20.7	20.8	60.8#

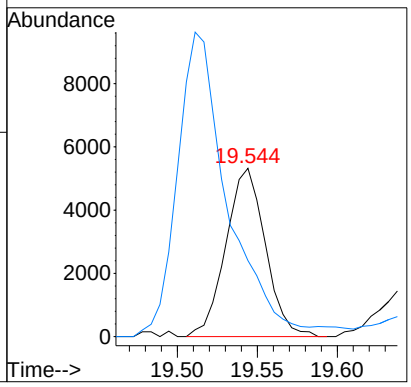


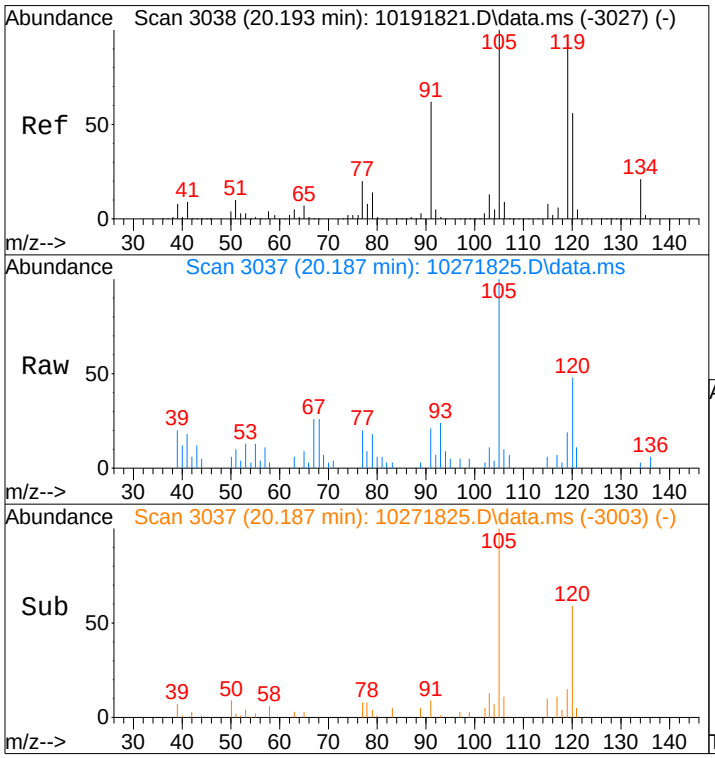


#75
alpha-Pinene
Concen: 0.17 ng
RT: 19.54 min Scan# 2920
Delta R.T. 0.000 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 93 Resp: 9175

Ion	Ratio	Lower	Upper
93	100		
77	0.0	10.2	50.2#

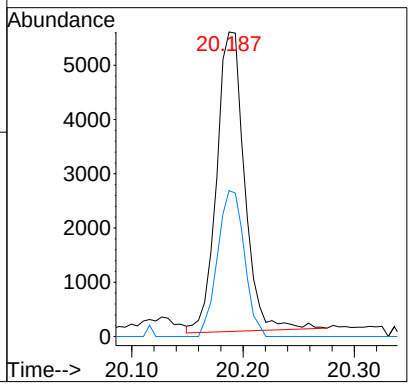


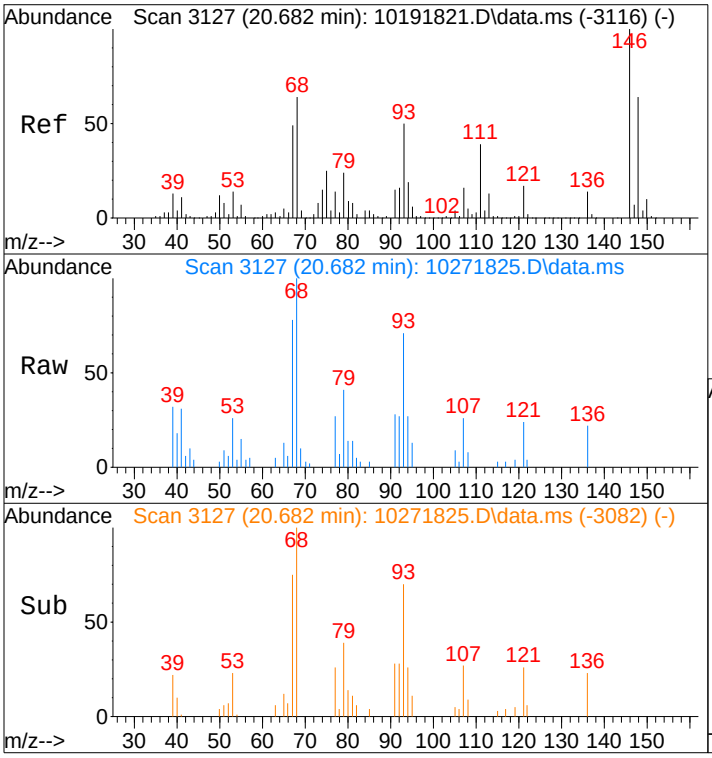


#82
1,2,4-Trimethylbenzene
Concen: 0.11 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion:105 Resp: 9633

Ion	Ratio	Lower	Upper
105	100		
120	46.5	36.5	76.5

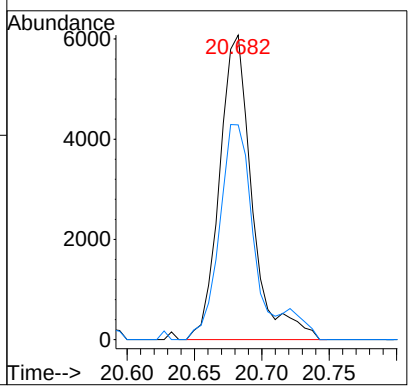




#91
d-Limonene
Concen: 0.32 ng
RT: 20.68 min Scan# 3127
Delta R.T. 0.000 min
Lab File: 10271825.D
Acq: 27 Oct 2018 18:28

Tgt Ion: 68 Resp: 10239

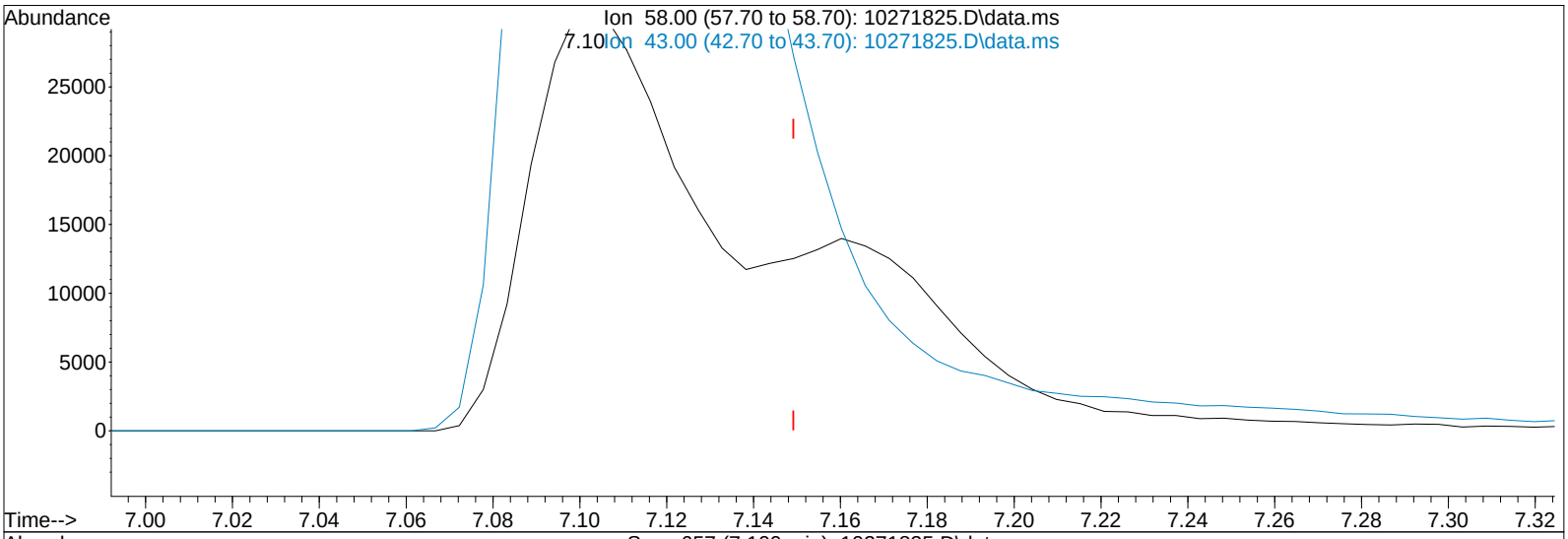
Ion	Ratio	Lower	Upper
68	100		
93	78.2	57.4	97.4

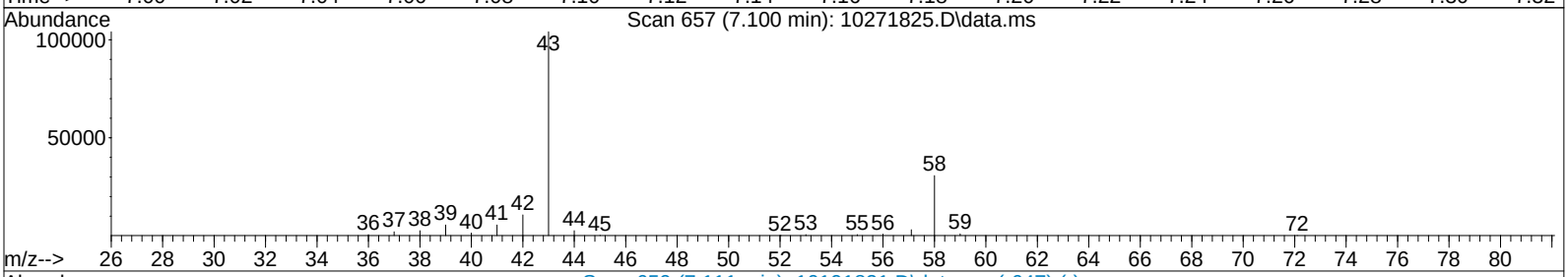


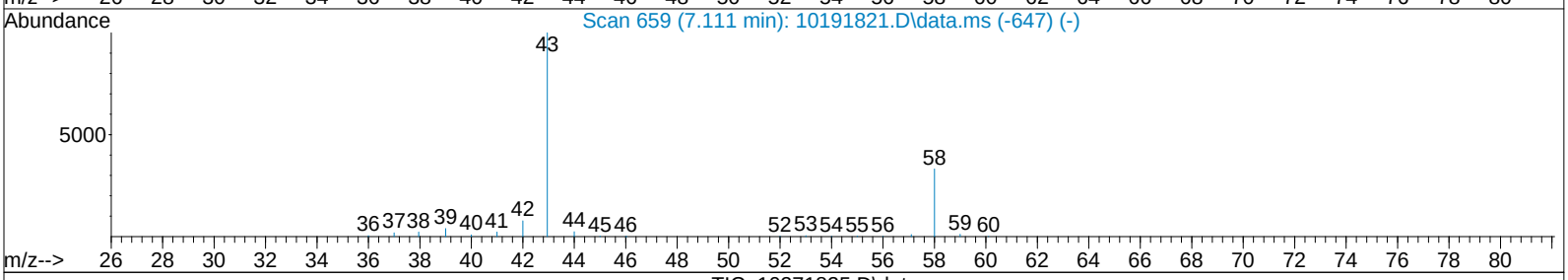
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 28 11:34:11 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271825.D\data.ms

(13) Acetone (T)

7.100min (-0.049) 7.71ng

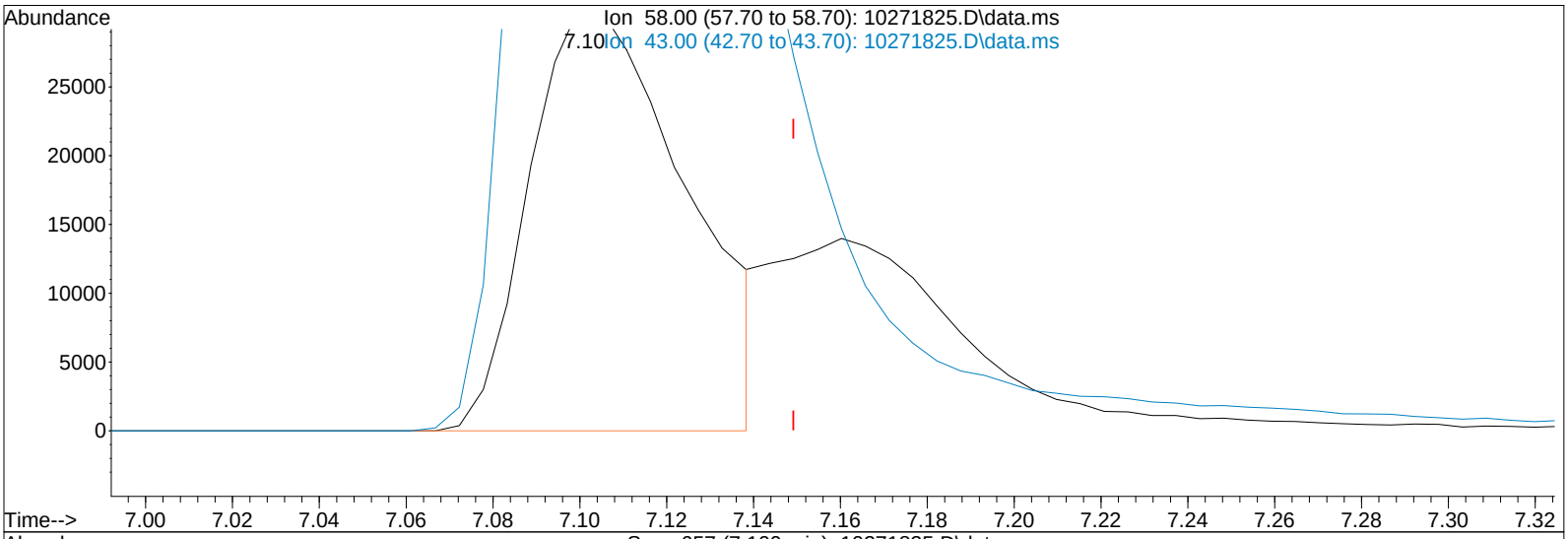
response 121509

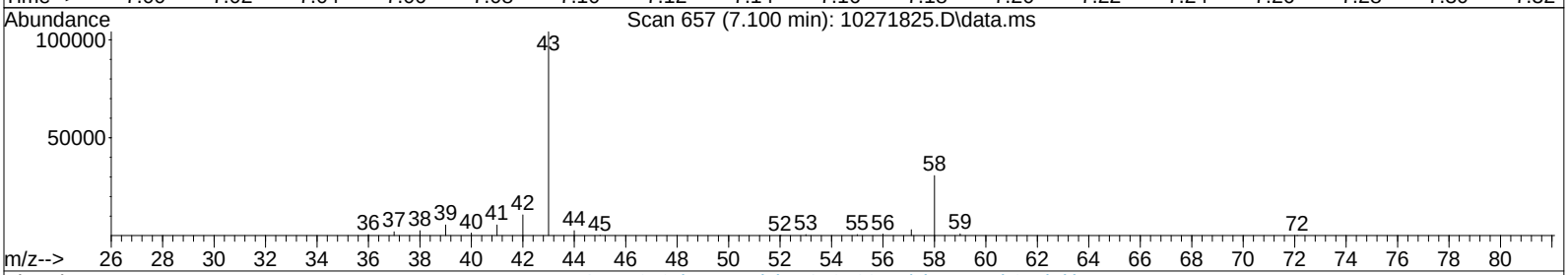
Ion	Exp%	Act%
58.00	100	100
43.00	313.40	277.42#
0.00	0.00	0.00
0.00	0.00	0.00

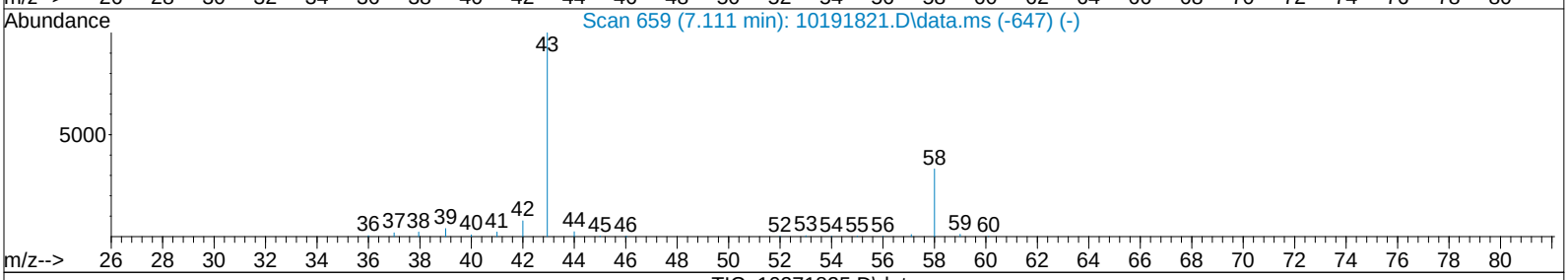
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 28 11:34:11 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271825.D\data.ms

(13) Acetone (T)

7.100min (-0.049) 4.85ng m

response 76466

Ion	Exp%	Act%
58.00	100	100
43.00	313.40	440.84#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18
IPC

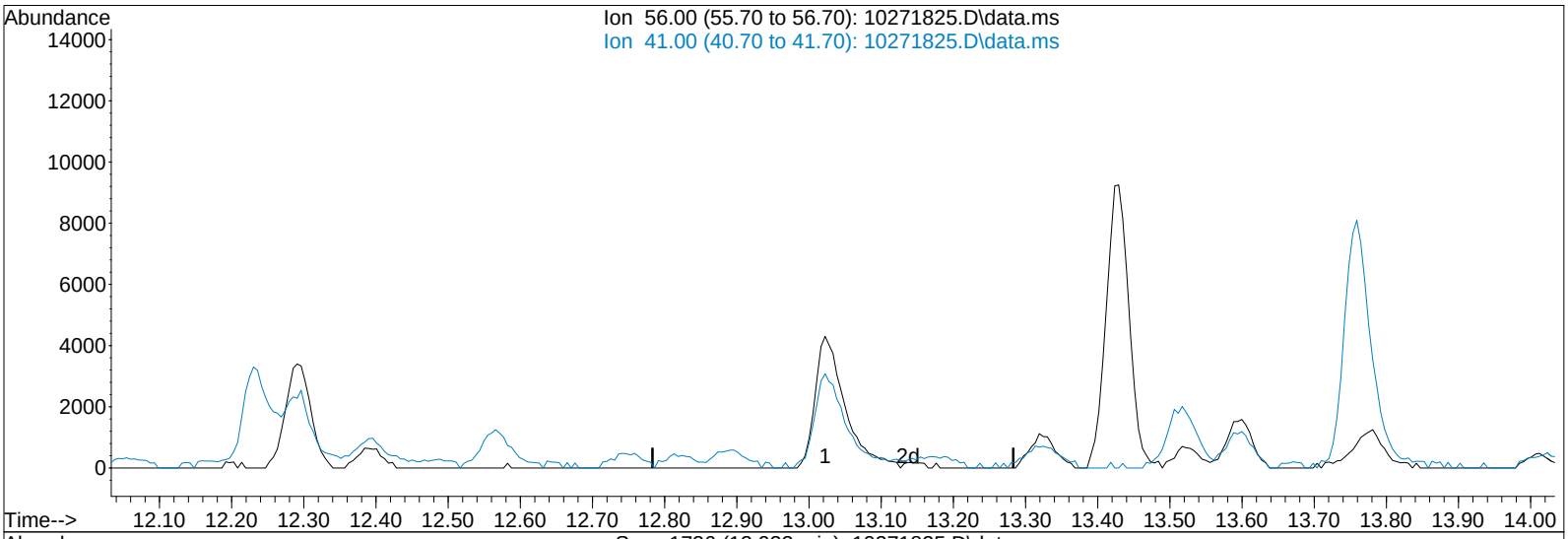
10/30/18

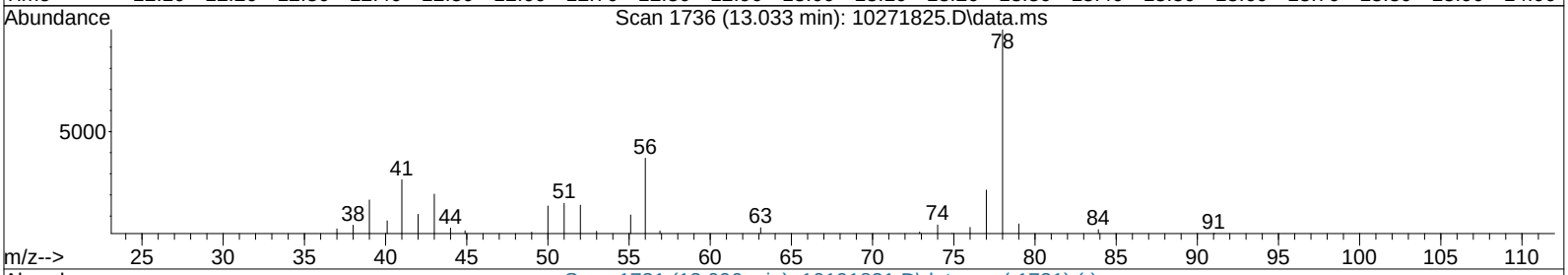
10/30/18

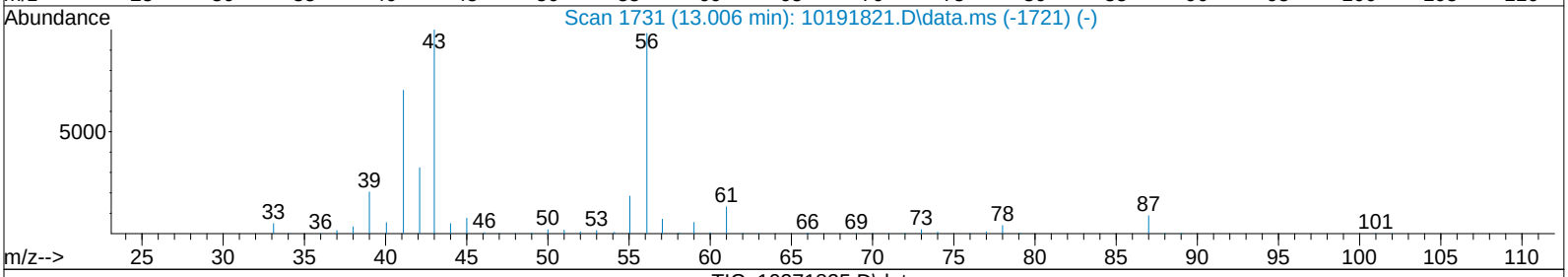
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 29 12:12:08 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271825.D\data.ms

(40) 1-Butanol (T)

13.033min 0.00ng d

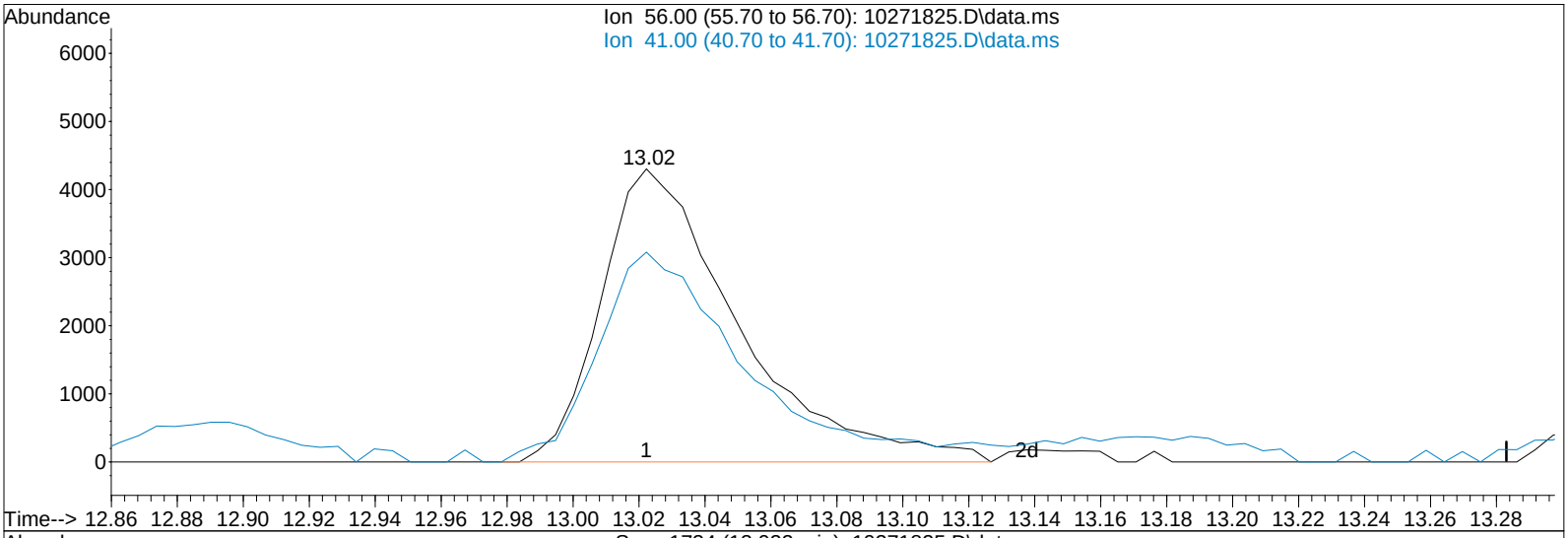
response 0

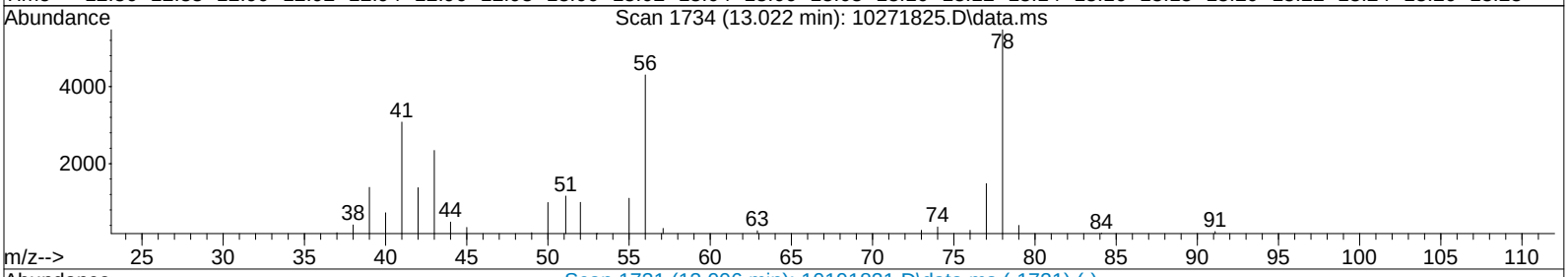
Ion	Exp%	Act%
56.00	100	0.00
41.00	102.40	0.00
0.00	0.00	0.00
0.00	0.00	0.00

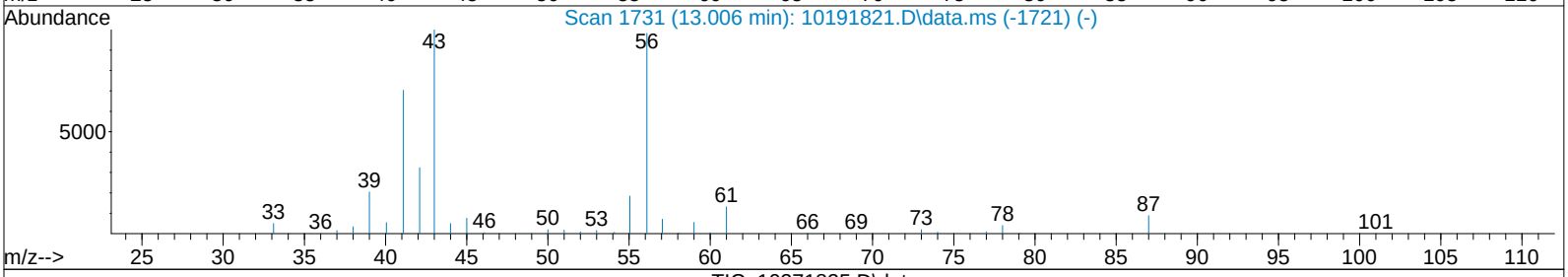
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 29 12:12:08 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271825.D\data.ms

(40) 1-Butanol (T)

13.022min (-0.011) 0.62ng m

response 12405

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

MP

10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 29 14:49:07 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

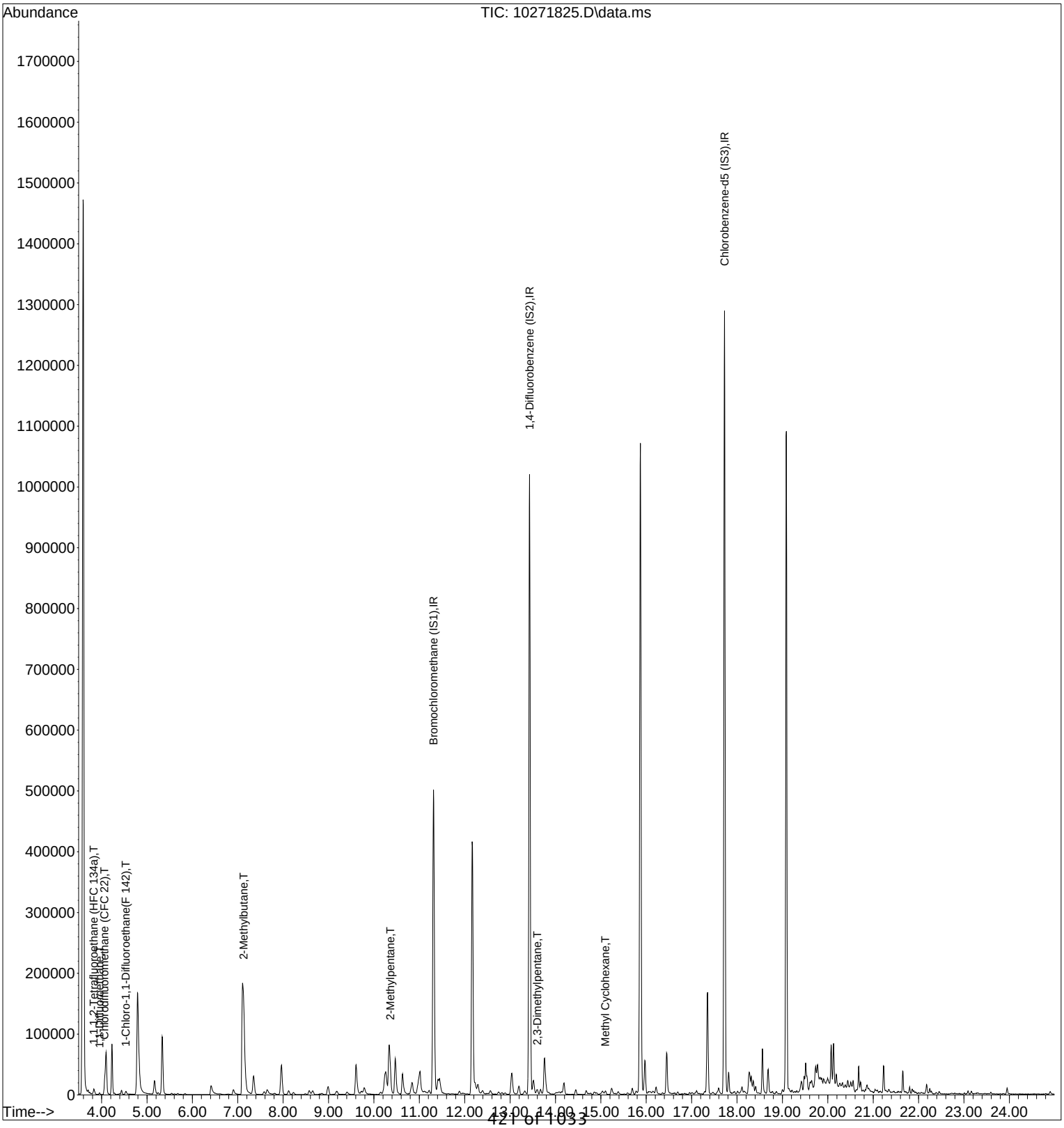
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	234929	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	989916	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	424373	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	710	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	5176	0.220	ng	#	9
4) 1,1-Difluoroethane	3.95	65	990	0.055	ng		84
5) Chlorodifluoromethane ...	4.06	67	2156	0.309	ng		91
6) 1-Chloro-1,1-Difluoroe...	4.53	65	4198	0.082	ng	#	93
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	7.13	57	47691	2.485	ng	#	76
11) Methyl Acetate	0.00	43	0	N.D.	d		
12) 2-Methylpentane	10.36	71	9054	0.453	ng	#	1
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	13.20	84	1699	N.D.			
17) 2,3-Dimethylpentane	13.60	56	3926	0.110	ng	#	85
18) Dibromomethane	13.85	174	364	N.D.			
20) Methyl Cyclohexane	15.10	55	2008	0.075	ng		89
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	17.82	131	127	N.D.			
23) 1-Chlorohexane	17.93	91	366	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	19.30	77	53	N.D.			
26) 2-Chlorotoluene	0.00	91	0	N.D.	d		
27) 4-Chlorotoluene	0.00	91	0	N.D.	d		
28) Indan	20.74	117	1715	N.D.			
29) Indene	20.81	115	311	N.D.			
30) 1,2,4,5-Tetramethylben...	21.60	119	1479	N.D.			
31) 1,2,3,4-Tetramethylben...	21.60	119	1479	N.D.			
32) 1,2,3,5-Tetramethylben...	21.93	119	1322	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

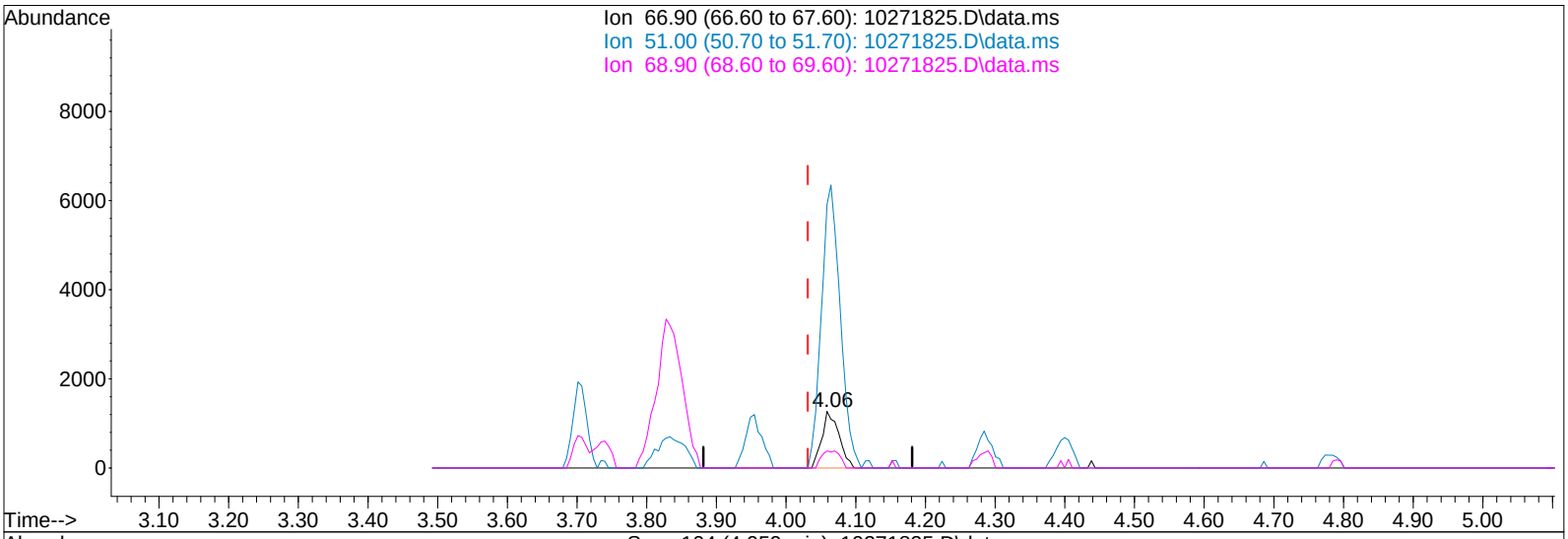
Quant Time: Oct 29 14:49:07 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

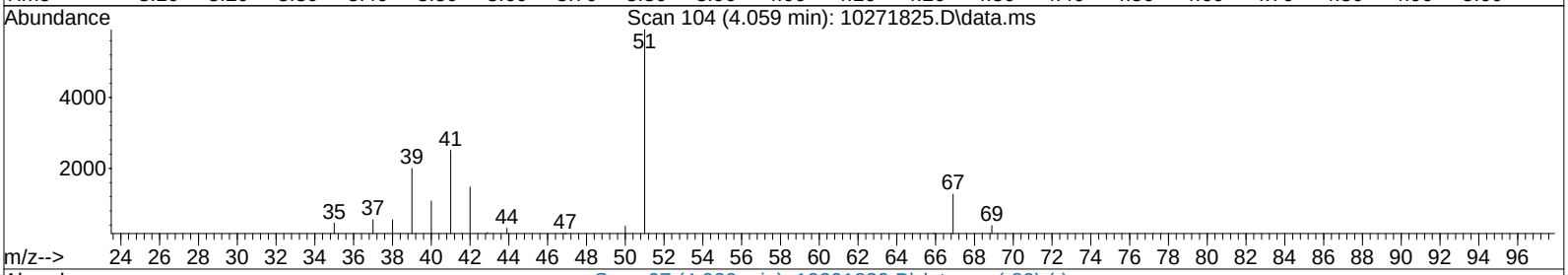


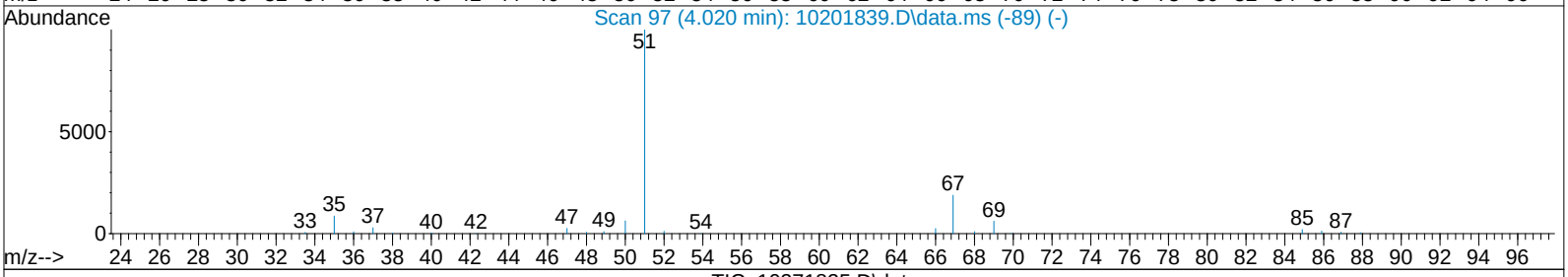
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271825.D
Acq On : 27 Oct 2018 18:28 Operator: WA
Sample : P1805497-012 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 29 14:47:50 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271825.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.059min (+0.028) 0.31ng

response 2156

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	553.53
68.90	31.80	32.75
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271826.D Vial: 6
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 10:44:48 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	225739	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	961197	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	412177	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	334933	12.334	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.64%				
57) Toluene-d8 (SS2)	15.87	98	838084	12.768	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.16%				
73) Bromofluorobenzene (SS3)	19.09	174	347450	11.645	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.12%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.23	85	73917	1.566	ng		100
4) Chloromethane	4.55	50	2867	0.095	ng		77
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1784	0.064	ng		97
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	5.27	54	1012	N.D.			
8) Bromomethane	5.72	94	301	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.45	45	6296	0.496	ng		88
11) Acetonitrile	0.00	41	0	N.D.	d		
12) Acrolein	6.93	56	1286	0.115	ng	#	72
13) Acetone	0.00	58	0	N.D.	d		
14) Trichlorofluoromethane	7.35	101	32679	0.800	ng		100
15) 2-Propanol (Isopropanol)	7.67	45	6847	0.141	ng		82
16) Acrylonitrile	7.96	53	1067	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	8.63	59	671	N.D.			
19) Methylene Chloride	8.58	84	3576	0.169	ng		99
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d		
21) Trichlorotrifluoroethane	9.00	151	6652	0.306	ng		100
22) Carbon Disulfide	0.00	76	0	N.D.	d		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	10.25	73	110	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	10.65	72	3139	0.234	ng	#	80
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	11.45	61	2982	0.415	ng		93
31) n-Hexane	11.41	57	15346	0.469	ng		98
32) Chloroform	11.48	83	3065	0.081	ng		95
34) Tetrahydrofuran (THF)	11.96	72	175	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	12.29	62	902	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	13.04	56	3572m	0.184	ng		
41) Benzene	13.04	78	35364	0.400	ng		100
42) Carbon Tetrachloride	13.19	117	8441	0.252	ng		99
43) Cyclohexane	13.33	84	2764	0.081	ng		95
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d		
45) 1,2-Dichloropropane	0.00	63	0	N.D.	d		
46) Bromodichloromethane	14.09	83	421	N.D.			
47) Trichloroethene	14.13	130	1500	0.058	ng		98
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271826.D Vial: 6
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 10:44:48 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

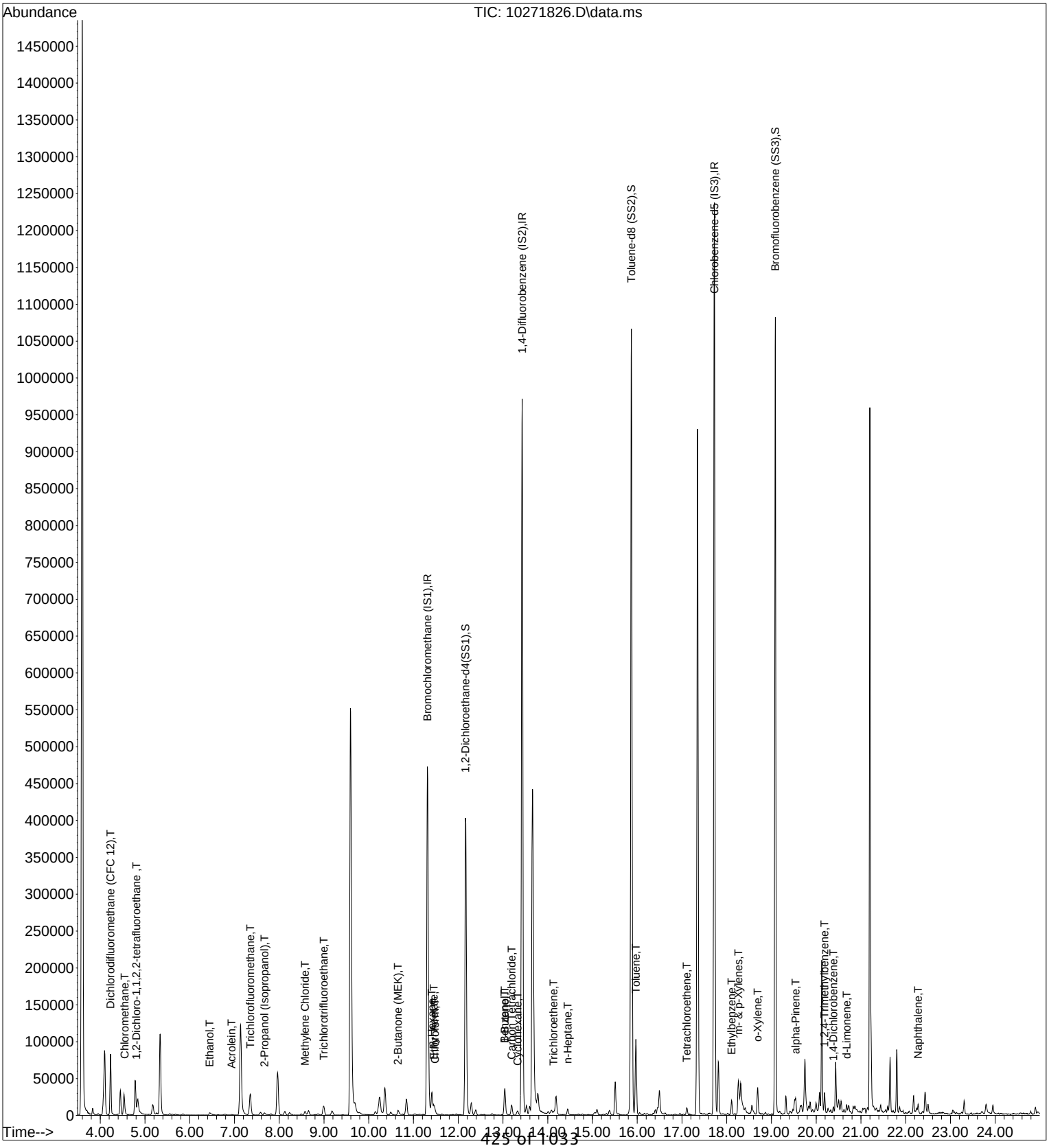
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	14.45	71	2055	0.101	ng		93
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	15.05	58	580	N.D.			
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.97	91	83345	0.914	ng		99
59) 2-Hexanone	16.22	43	1438	N.D.			
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	16.84	43	1626	N.D.			
63) n-Octane	16.95	57	451	N.D.			
64) Tetrachloroethene	17.11	166	3293	0.117	ng		99
65) Chlorobenzene	17.76	112	515	N.D.			
66) Ethylbenzene	18.11	91	16334	0.157	ng		98
67) m- & p-Xylenes	18.26	91	39422	0.509	ng		97
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	18.59	104	2142	N.D.			
70) o-Xylene	18.69	91	18190	0.231	ng		97
71) n-Nonane	18.86	43	1302	N.D.			
72) 1,1,2,2-Tetrachloroethane	18.70	83	405	N.D.			
74) Cumene	19.20	105	1214	N.D.			
75) alpha-Pinene	19.54	93	7608	0.142	ng	#	1
76) n-Propylbenzene	19.64	91	4063	N.D.			
77) 3-Ethyltoluene	0.00	105	0	N.D.	d		
78) 4-Ethyltoluene	0.00	105	0	N.D.	d		
79) 1,3,5-Trimethylbenzene	19.83	105	3488	N.D.			
80) alpha-Methylstyrene	19.97	118	249	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	20.19	105	13752	0.162	ng		86
83) n-Decane	0.00	58	0	N.D.	d		
84) Benzyl Chloride	20.31	91	815	N.D.			
85) 1,3-Dichlorobenzene	20.33	146	542	N.D.			
86) 1,4-Dichlorobenzene	20.39	146	2675	0.050	ng		92
87) sec-Butylbenzene	20.42	105	548	N.D.			
88) 4-Isopropyltoluene (p-...	20.56	119	2854	N.D.			
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d		
90) 1,2-Dichlorobenzene	20.68	146	181	N.D.			
91) d-Limonene	20.68	68	2552	0.083	ng		85
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	21.34	57	1561	N.D.			
94) 1,2,4-Trichlorobenzene	22.17	180	139	N.D.			
95) Naphthalene	22.28	128	9748	0.080	ng		98
96) n-Dodecane	0.00	57	0	N.D.	d		
97) Hexachlorobutadiene	22.44	225	296	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	20.19	119	2969	N.D.			
100) n-Butylbenzene	20.92	91	2376	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271826.D Vial: 6
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 10:44:48 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271826.D Vial: 6
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 10:08:40 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018 *WA 10/30/18*
Response via : Initial Calibration
DataAcq Meth:TO15.M

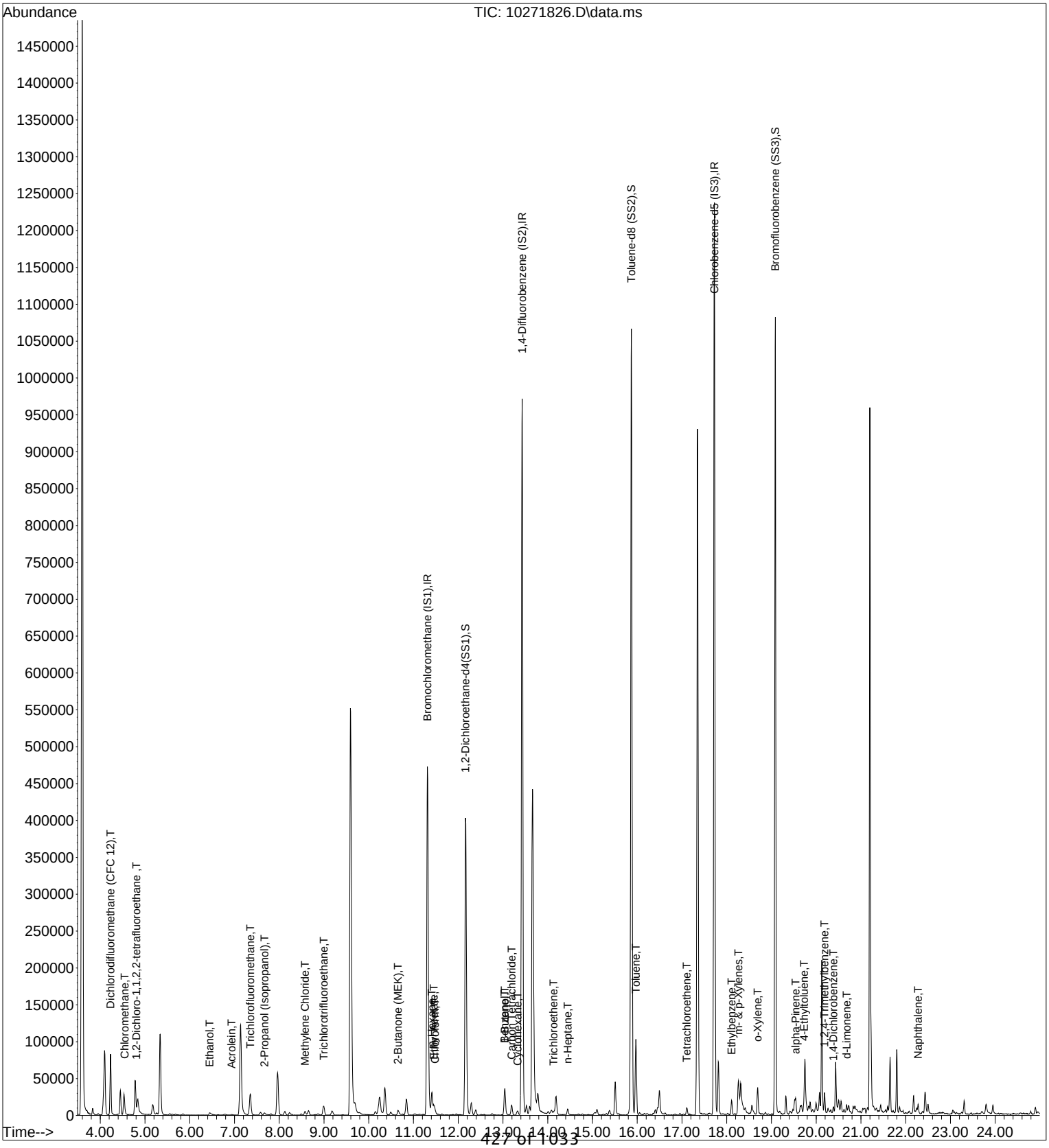
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	225739	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	961197	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	412177	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	334933	12.334	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.64%				
57) Toluene-d8 (SS2)	15.87	98	838084	12.768	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.16%				
73) Bromofluorobenzene (SS3)	19.09	174	347450	11.645	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 93.12%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.23	85	73917	1.566	ng		100
4) Chloromethane	4.55	50	2867	0.095	ng		77
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1784	0.064	ng		97
10) Ethanol	6.45	45	6296	0.496	ng		88
12) Acrolein	6.93	56	1286	0.115	ng	#	72
14) Trichlorofluoromethane	7.35	101	32679	0.800	ng		100
15) 2-Propanol (Isopropanol)	7.67	45	6847	0.141	ng		82
19) Methylene Chloride	8.58	84	3576	0.169	ng		99
21) Trichlorotrifluoroethane	9.00	151	6652	0.306	ng		100
27) 2-Butanone (MEK)	10.65	72	3139	0.234	ng	#	80
30) Ethyl Acetate	11.45	61	2982	0.415	ng		93
31) n-Hexane	11.41	57	15346	0.469	ng		98
32) Chloroform	11.48	83	3065	0.081	ng		95
40) 1-Butanol	13.04	56	3572m	0.184	ng		
41) Benzene	13.04	78	35364	0.400	ng		100
42) Carbon Tetrachloride	13.19	117	8441	0.252	ng		99
43) Cyclohexane	13.33	84	2764	0.081	ng		95
47) Trichloroethene	14.13	130	1500	0.058	ng		98
51) n-Heptane	14.45	71	2055	0.101	ng		93
58) Toluene	15.97	91	83345	0.914	ng		99
64) Tetrachloroethene	17.11	166	3293	0.117	ng		99
66) Ethylbenzene	18.11	91	16334	0.157	ng		98
67) m- & p-Xylenes	18.26	91	39422	0.509	ng		97
70) o-Xylene	18.69	91	18190	0.231	ng		97
75) alpha-Pinene	19.54	93	7608	0.142	ng	#	1
78) 4-Ethyltoluene	19.73	105	9665m	~~0.103~~ ng			*WP*
82) 1,2,4-Trimethylbenzene	20.19	105	13752	0.162	ng		86
86) 1,4-Dichlorobenzene	20.39	146	2675	0.050	ng		92
91) d-Limonene	20.68	68	2552	0.083	ng		85
95) Naphthalene	22.28	128	9748	0.080	ng		98

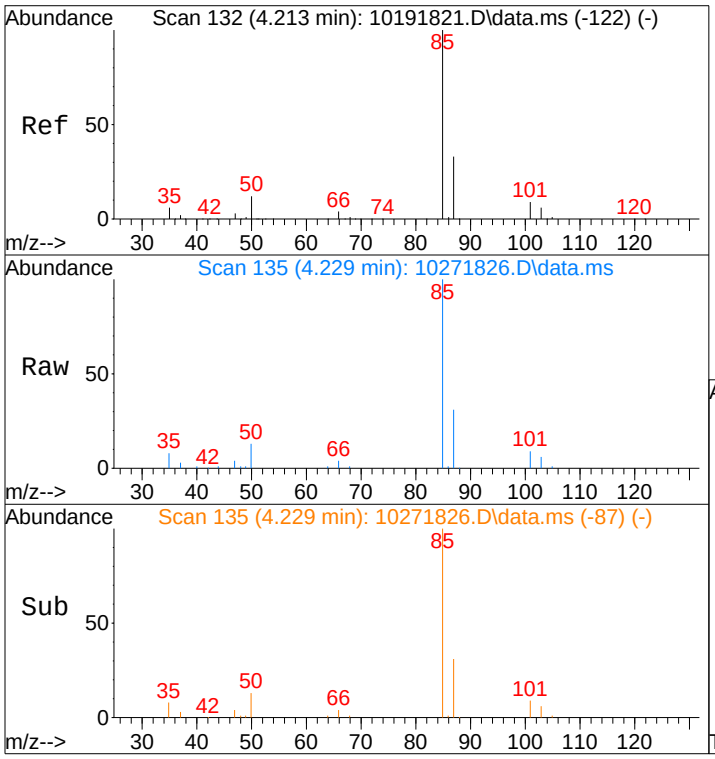
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS16\DATA\2018_10\27\10271826.D Vial: 6
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801

Quant Time: Oct 30 10:08:40 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

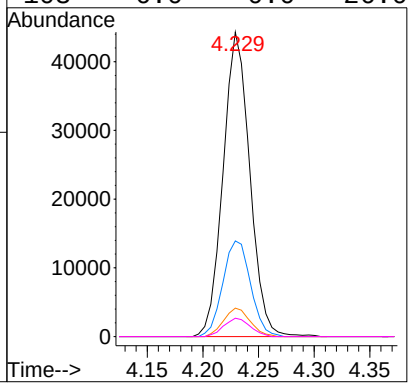


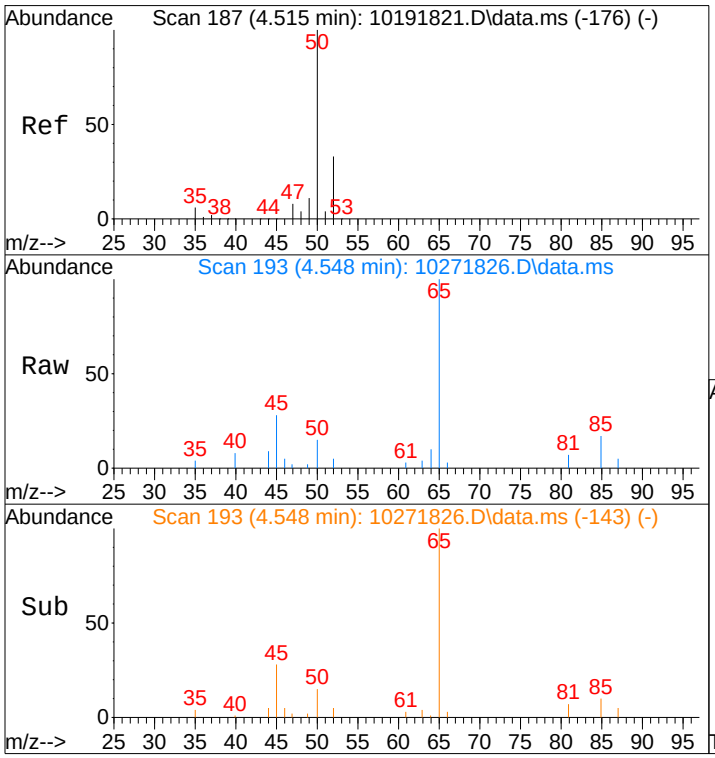


#3
Dichlorodifluoromethane (CFC 12)
Concen: 1.57 ng
RT: 4.23 min Scan# 135
Delta R.T. 0.016 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 85 Resp: 73917

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.6	52.6
101	9.3	0.0	29.4
103	6.0	0.0	26.0

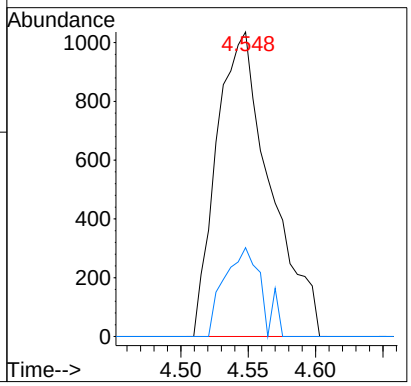


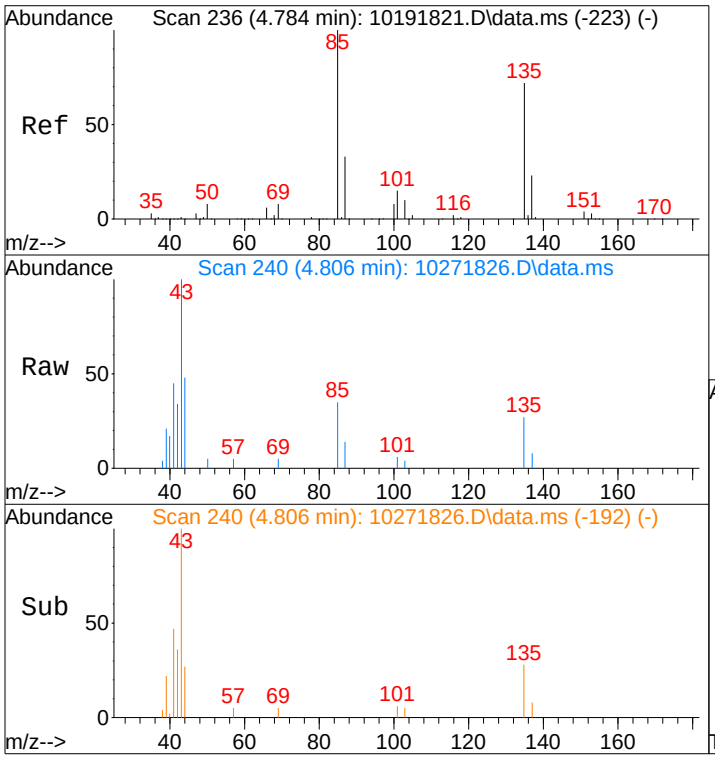


#4
Chloromethane
Concen: 0.10 ng
RT: 4.55 min Scan# 193
Delta R.T. 0.027 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 50 Resp: 2867

Ion	Ratio	Lower	Upper
50	100		
52	20.3	13.2	53.2

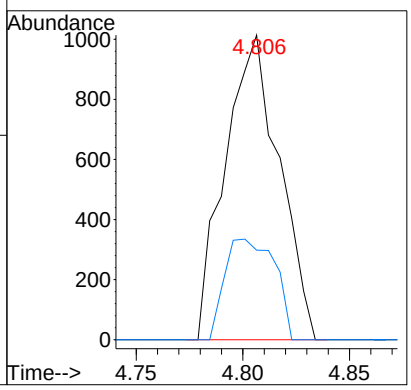


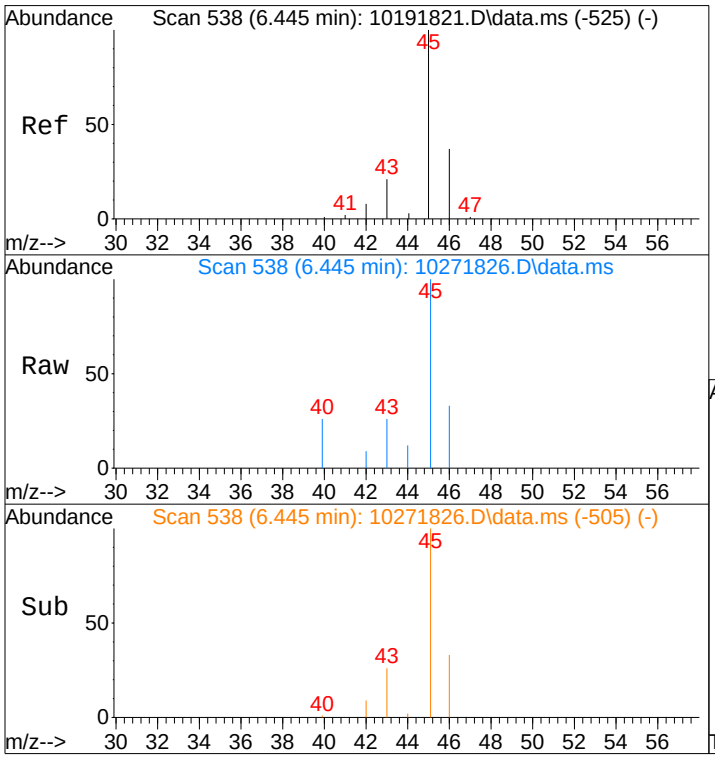


#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.06 ng
RT: 4.81 min Scan# 240
Delta R.T. 0.016 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:135 Resp: 1784

Ion	Ratio	Lower	Upper
135	100		
137	30.6	12.3	52.3

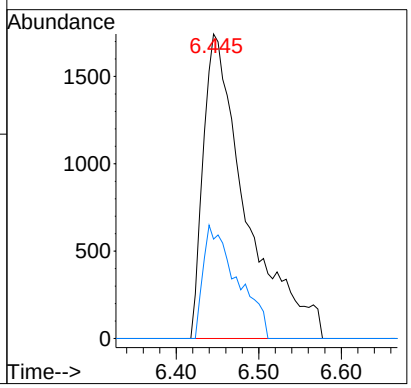


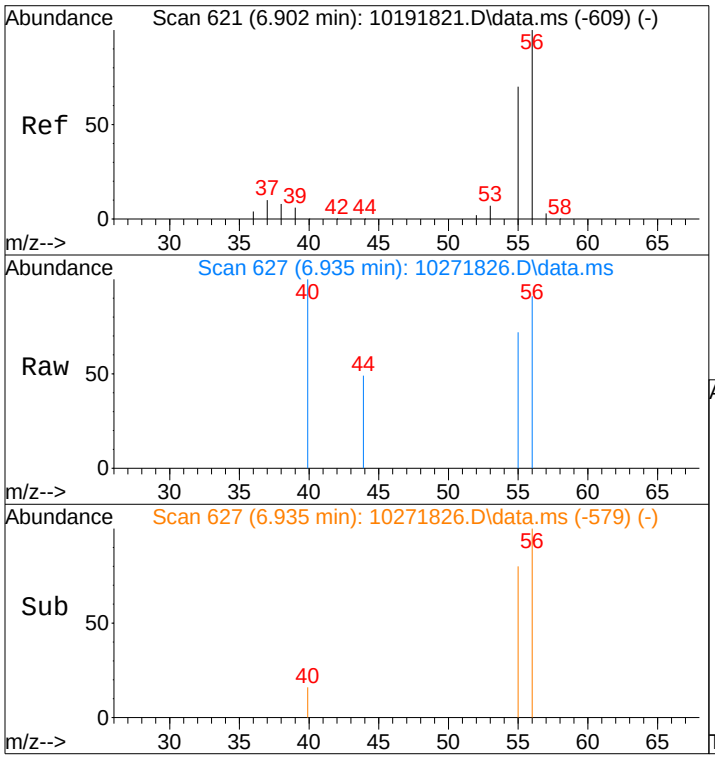


#10
Ethanol
Concen: 0.50 ng
RT: 6.45 min Scan# 538
Delta R.T. -0.066 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 45 Resp: 6296

Ion	Ratio	Lower	Upper
45	100		
46	29.4	16.6	56.6

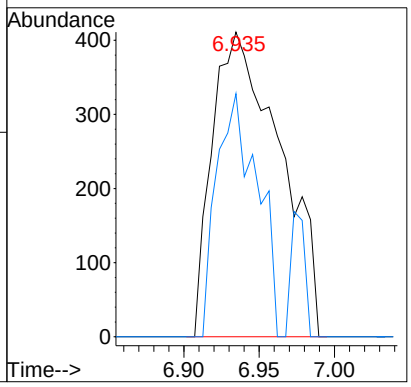


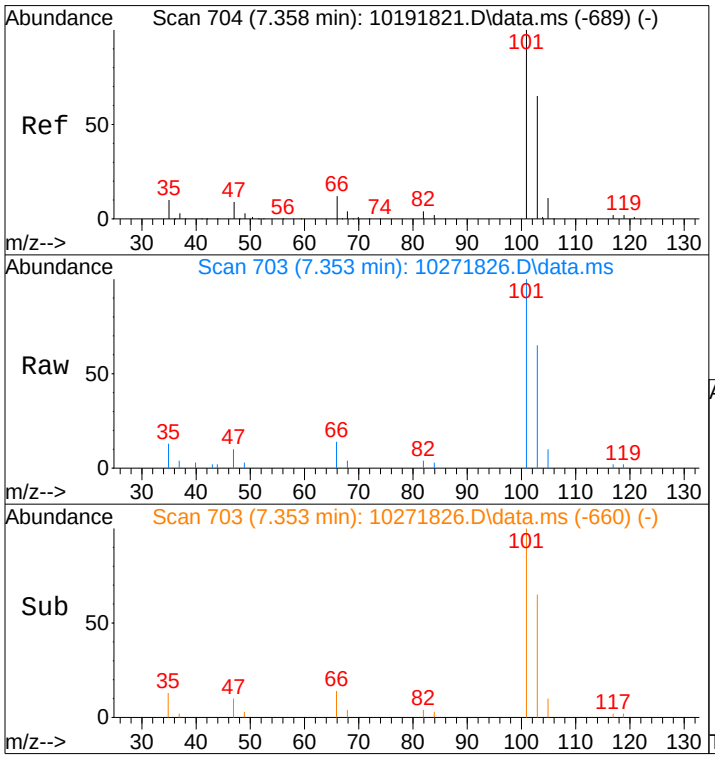


#12
Acrolein
Concen: 0.11 ng
RT: 6.93 min Scan# 627
Delta R.T. 0.016 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 56 Resp: 1286

Ion	Ratio	Lower	Upper
56	100		
55	47.9	51.0	91.0#

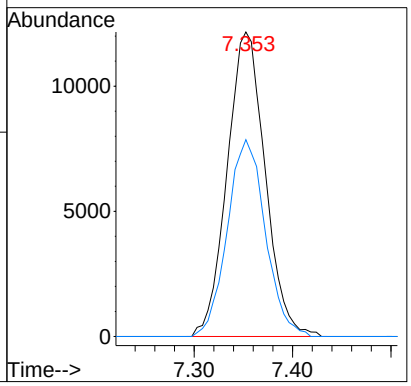


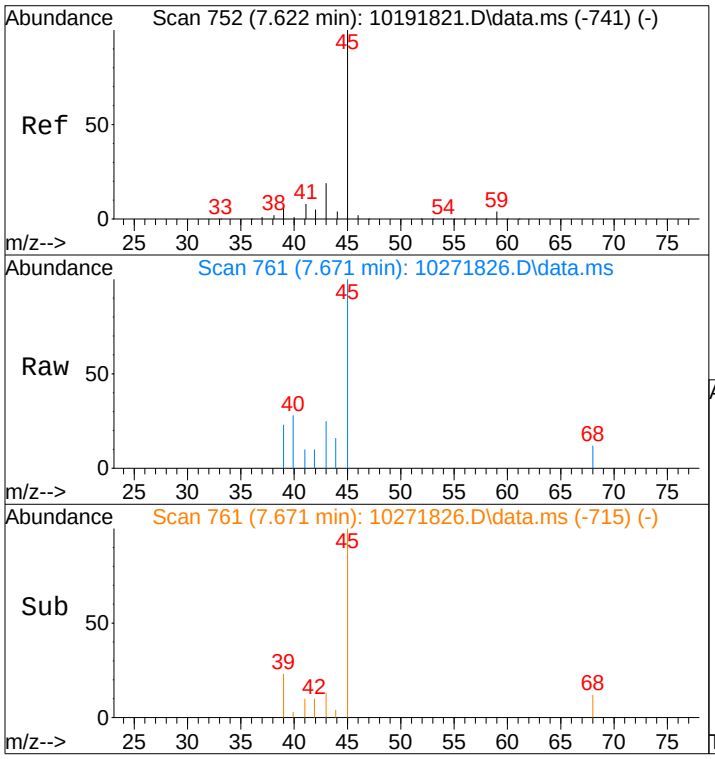


#14
Trichlorofluoromethane
Concen: 0.80 ng
RT: 7.35 min Scan# 703
Delta R.T. -0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:101 Resp: 32679

Ion	Ratio	Lower	Upper
101	100		
103	64.6	44.8	84.8

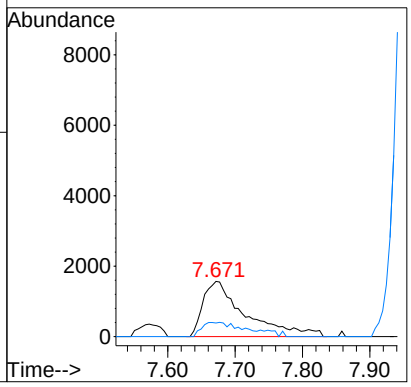


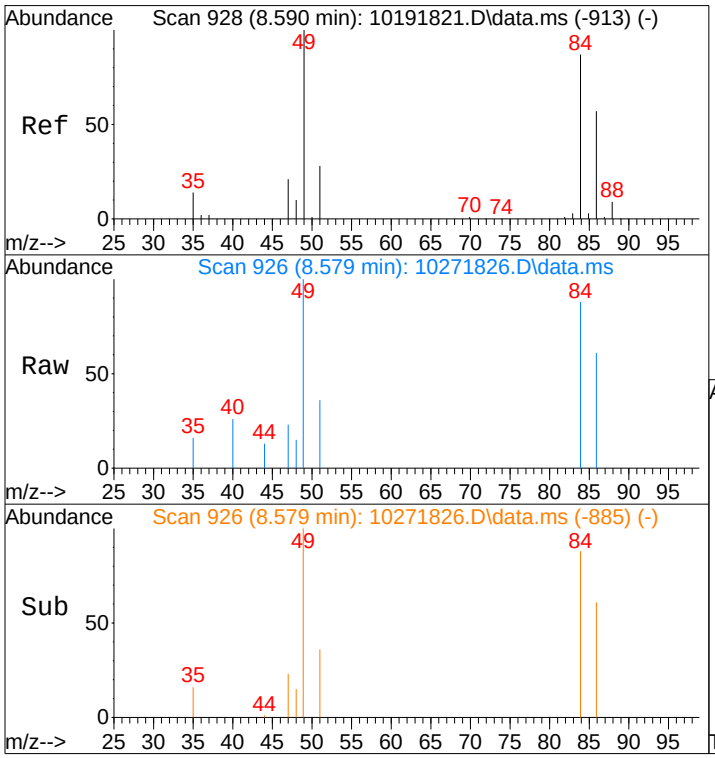


#15
2-Propanol (Isopropanol)
Concen: 0.14 ng
RT: 7.67 min Scan# 761
Delta R.T. 0.005 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 45 Resp: 6847

Ion	Ratio	Lower	Upper
45	100		
43	28.0	0.0	39.6

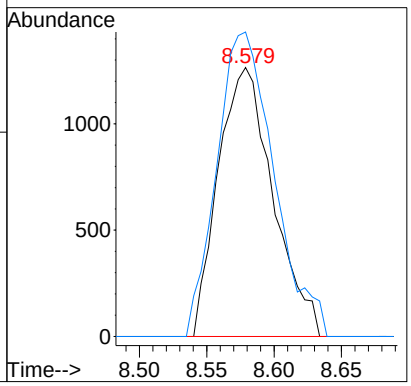


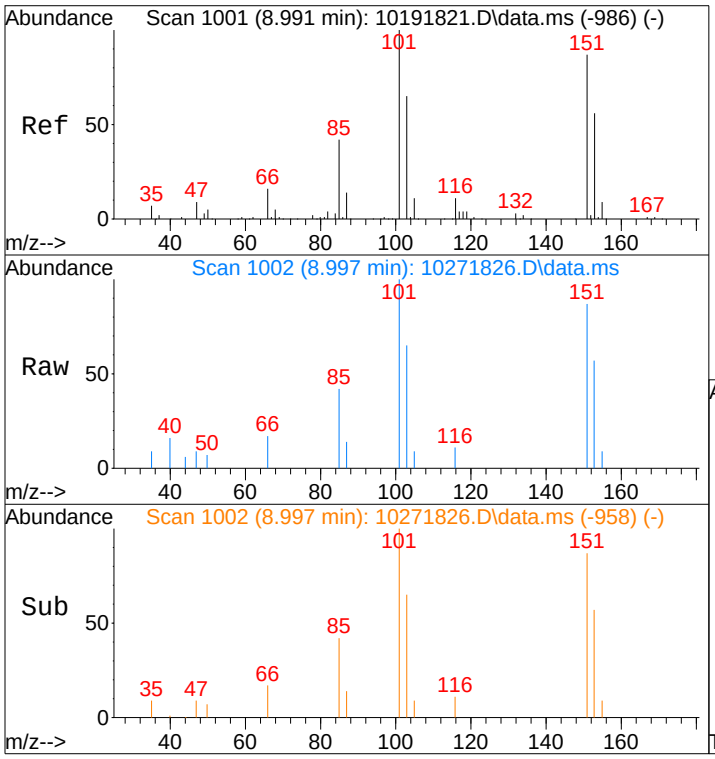


#19
Methylene Chloride
Concen: 0.17 ng
RT: 8.58 min Scan# 926
Delta R.T. -0.022 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 84 Resp: 3576

Ion	Ratio	Lower	Upper
84	100		
49	118.5	92.1	142.1

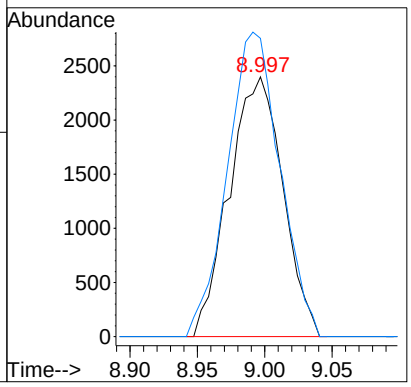


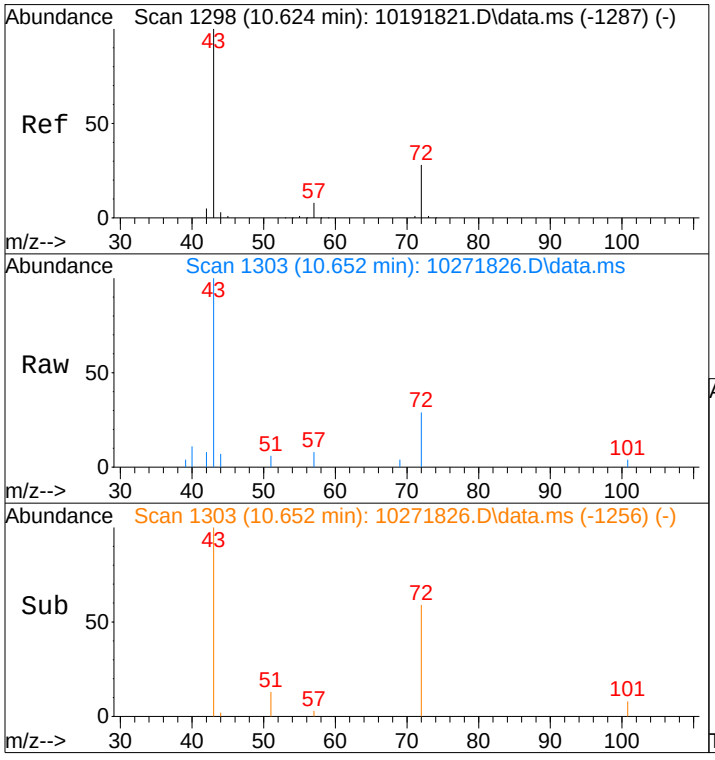


#21
Trichlorotrifluoroethane
Concen: 0.31 ng
RT: 9.00 min Scan# 1002
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:151 Resp: 6652

Ion	Ratio	Lower	Upper
151	100		
101	114.9	94.4	134.4

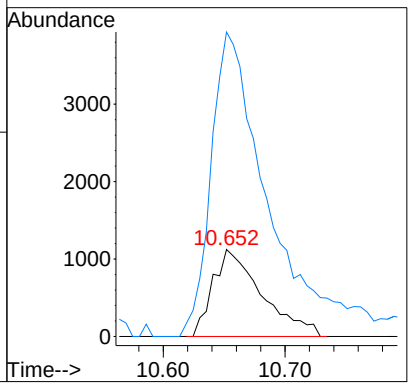


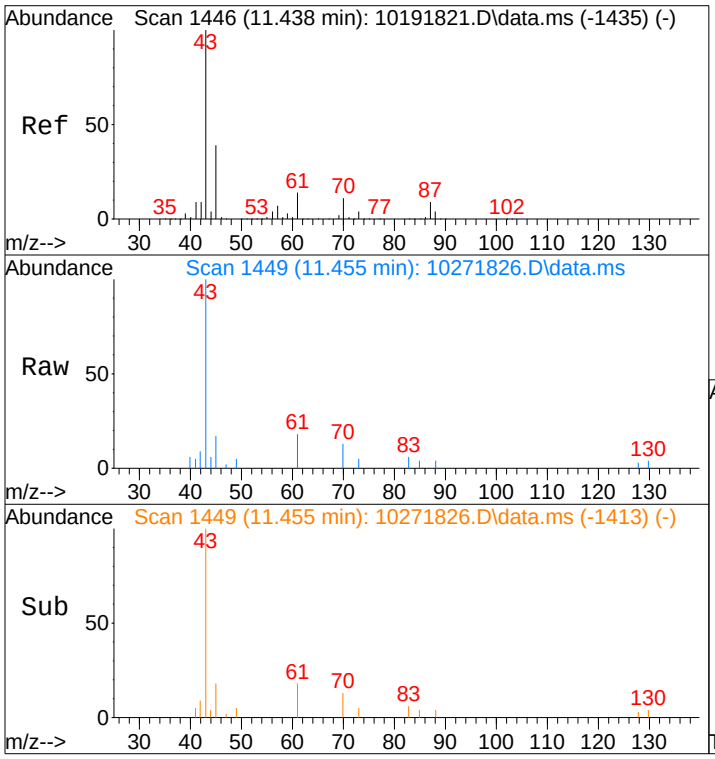


#27
2-Butanone (MEK)
Concen: 0.23 ng
RT: 10.65 min Scan# 1303
Delta R.T. 0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 72 Resp: 3139

Ion	Ratio	Lower	Upper
72	100		
43	415.2	350.1	390.1#

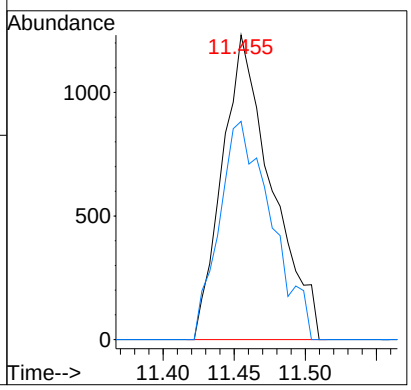


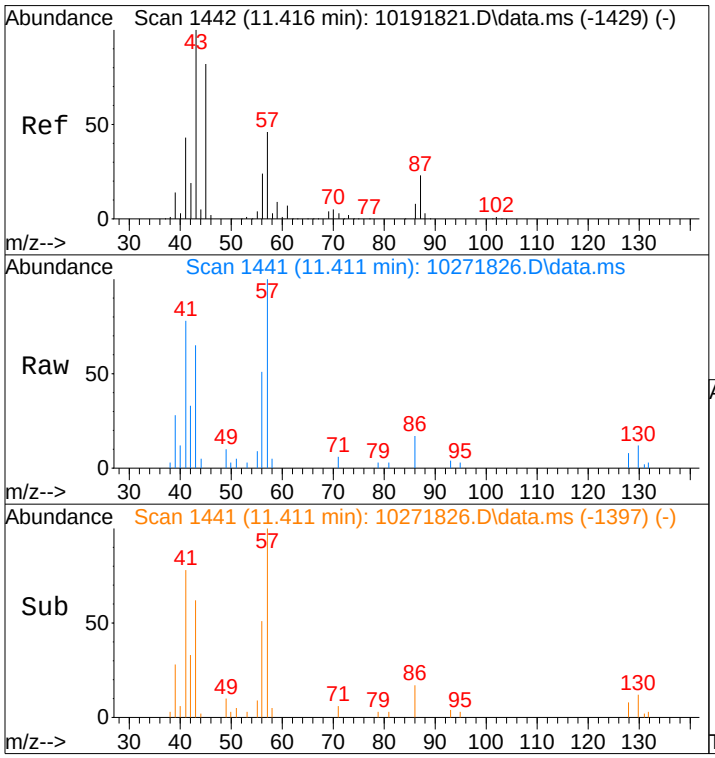


#30
Ethyl Acetate
Concen: 0.42 ng
RT: 11.45 min Scan# 1449
Delta R.T. -0.000 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 61 Resp: 2982

Ion	Ratio	Lower	Upper
61	100		
70	75.2	61.7	101.7

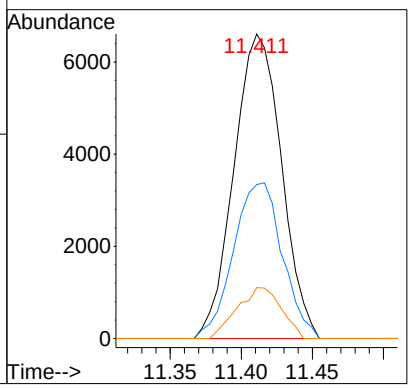


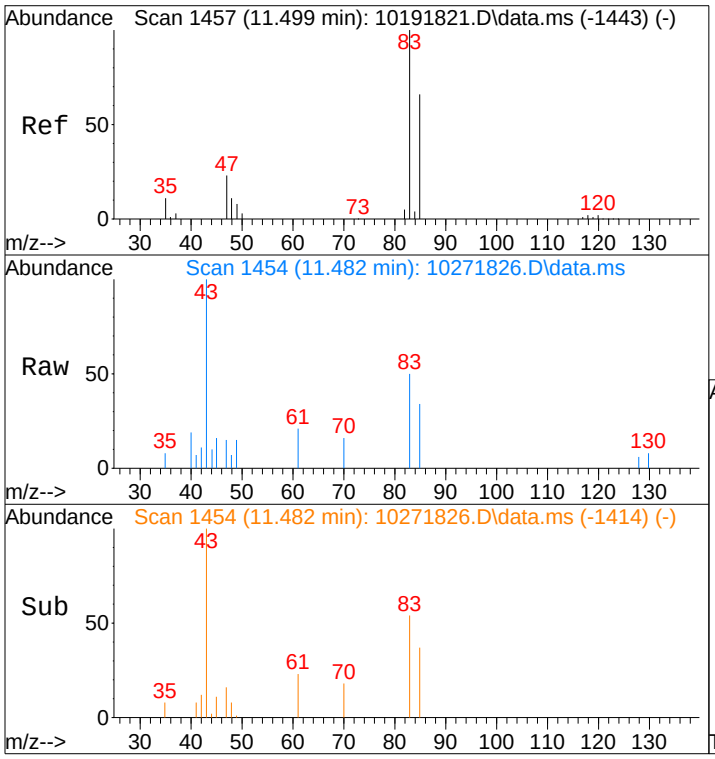


#31
n-Hexane
Concen: 0.47 ng
RT: 11.41 min Scan# 1441
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 57 Resp: 15346

Ion	Ratio	Lower	Upper
57	100		
56	52.6	41.4	62.0
86	15.5	13.7	20.5

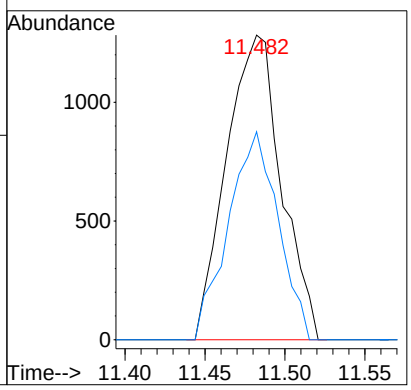


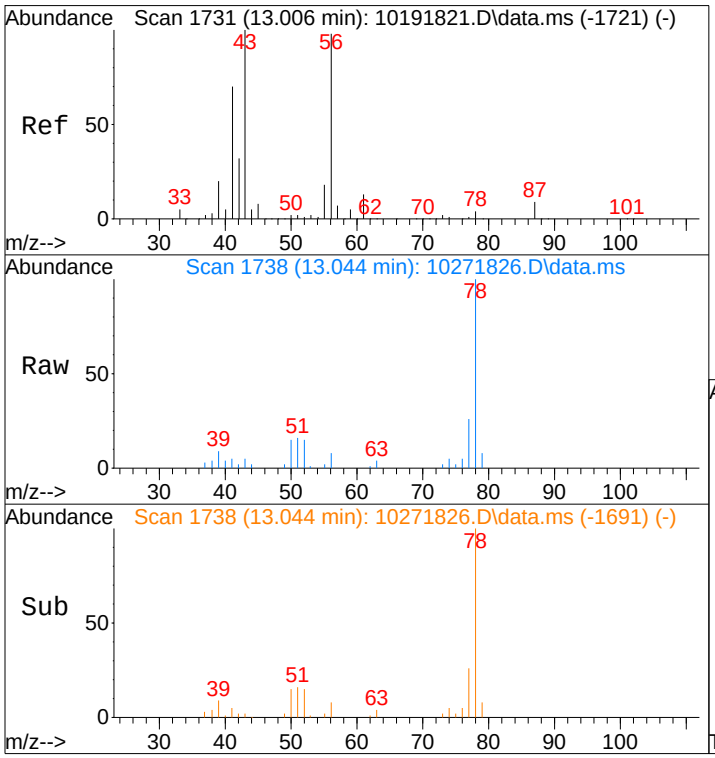


#32
Chloroform
Concen: 0.08 ng
RT: 11.48 min Scan# 1454
Delta R.T. -0.028 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 83 Resp: 3065

Ion	Ratio	Lower	Upper
83	100		
85	61.7	45.5	85.5

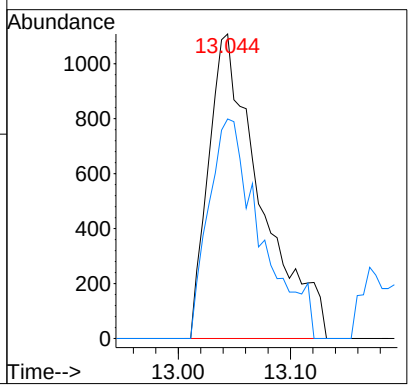


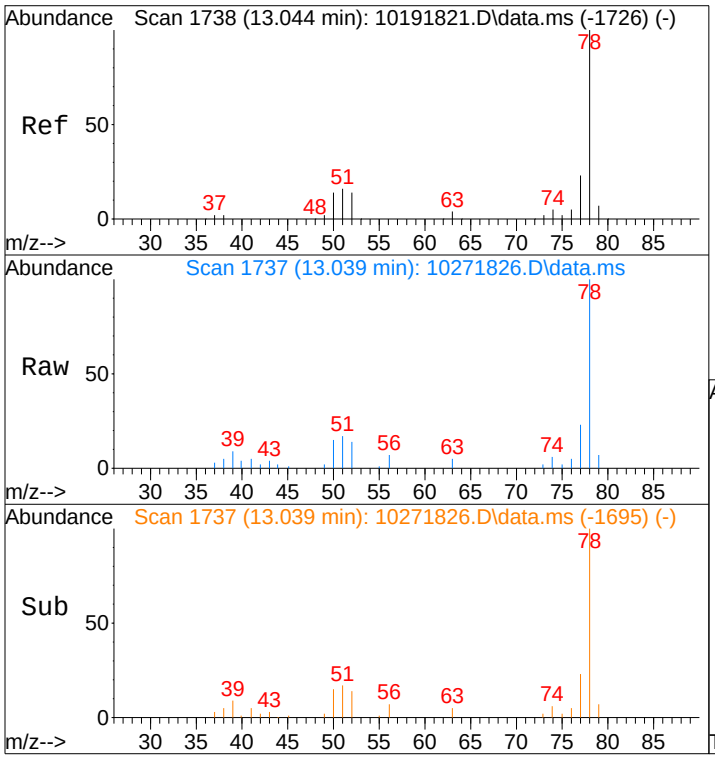


#40
1-Butanol
Concen: 0.18 ng m
RT: 13.04 min Scan# 1738
Delta R.T. 0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 56 Resp: 3572

Ion	Ratio	Lower	Upper
56	100		
41	0.0	82.4	122.4#

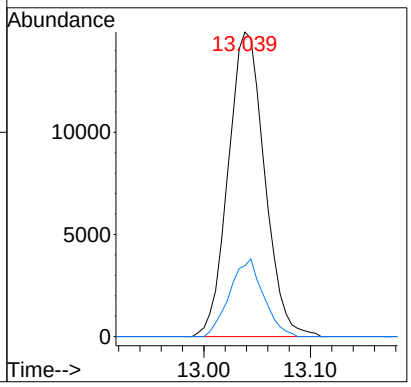


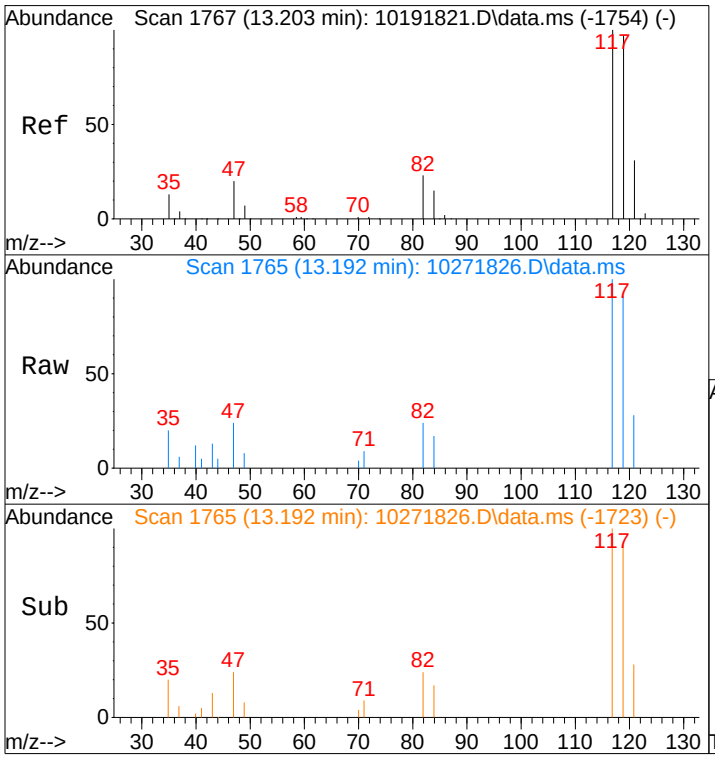


#41
Benzene
Concen: 0.40 ng
RT: 13.04 min Scan# 1737
Delta R.T. -0.017 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 78 Resp: 35364

Ion	Ratio	Lower	Upper
78	100		
77	23.6	3.5	43.5

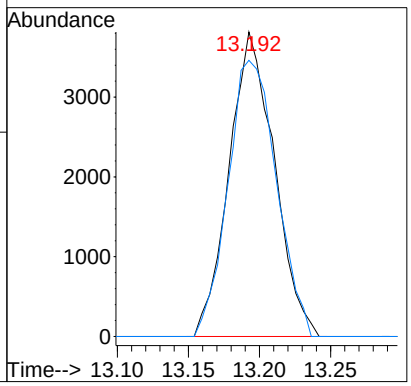


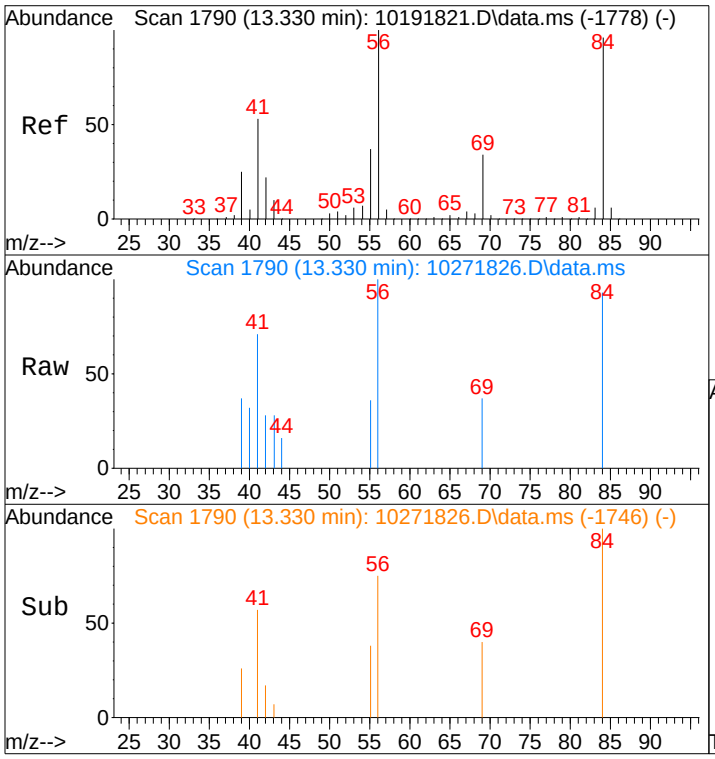


#42
Carbon Tetrachloride
Concen: 0.25 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.017 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:117 Resp: 8441

Ion	Ratio	Lower	Upper
117	100		
119	97.4	76.0	116.0

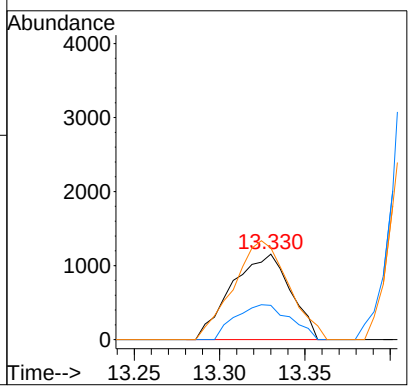


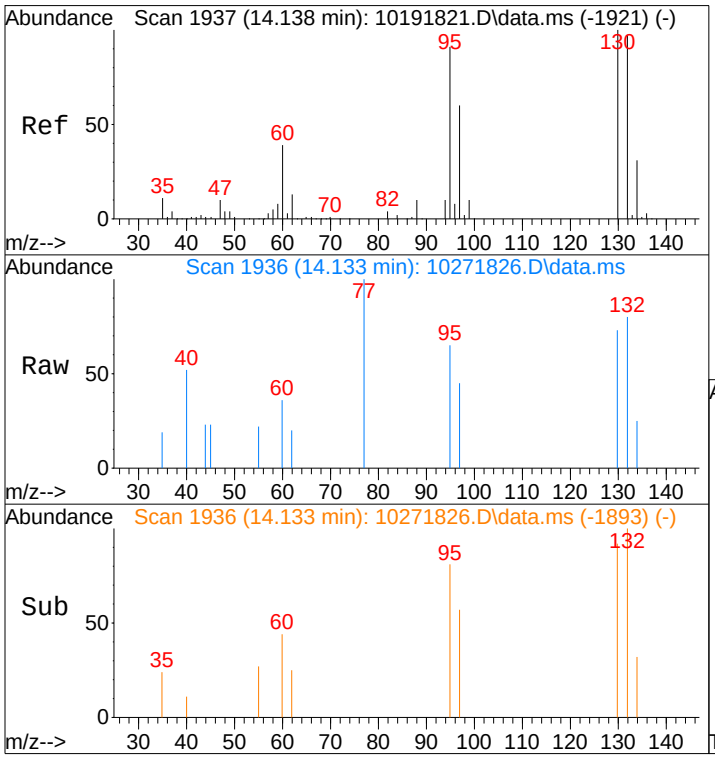


#43
Cyclohexane
Concen: 0.08 ng
RT: 13.33 min Scan# 1790
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 84 Resp: 2764

Ion	Ratio	Lower	Upper
84	100		
69	38.3	14.8	54.8
56	108.8	83.9	123.9

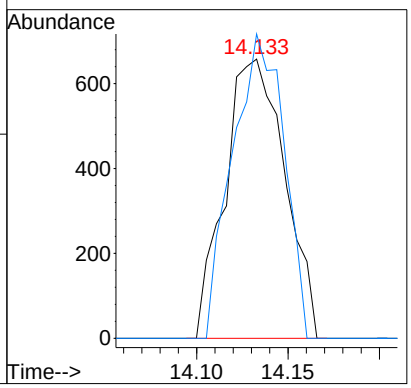


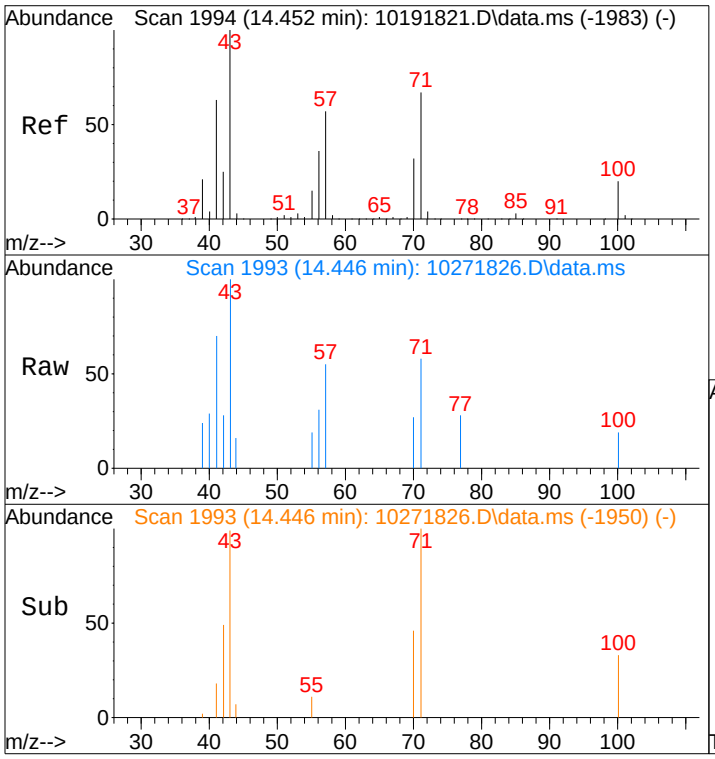


#47
Trichloroethene
Concen: 0.06 ng
RT: 14.13 min Scan# 1936
Delta R.T. -0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:130 Resp: 1500

Ion	Ratio	Lower	Upper
130	100		
132	93.6	75.7	115.7

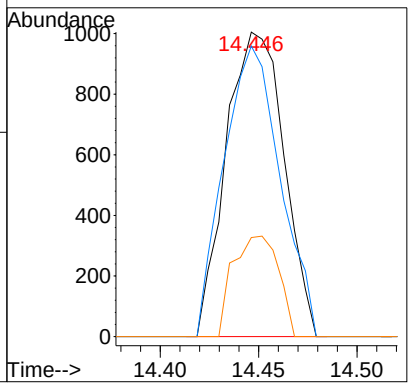


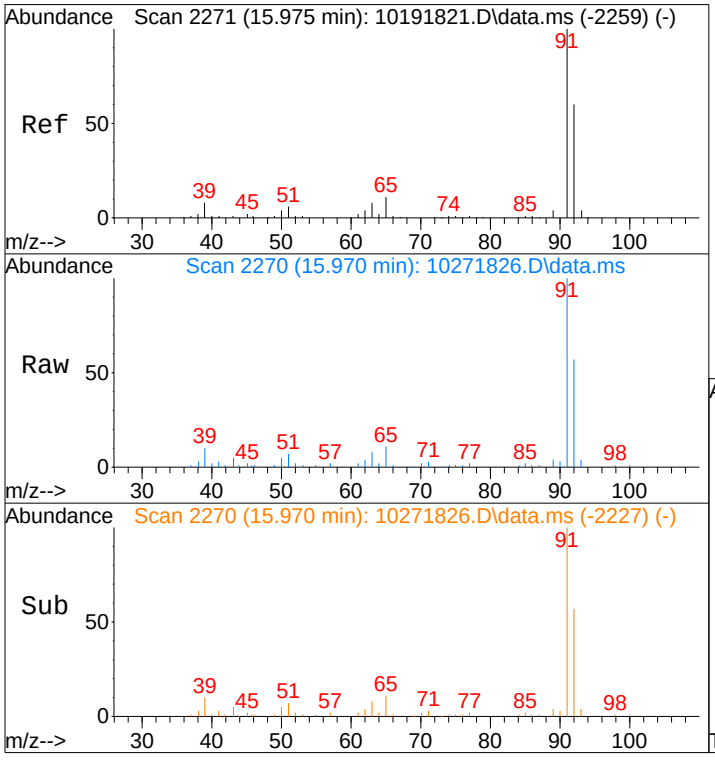


#51
n-Heptane
Concen: 0.10 ng
RT: 14.45 min Scan# 1993
Delta R.T. -0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 71 Resp: 2055

Ion	Ratio	Lower	Upper
71	100		
57	92.9	66.4	106.4
100	25.9	10.6	50.6

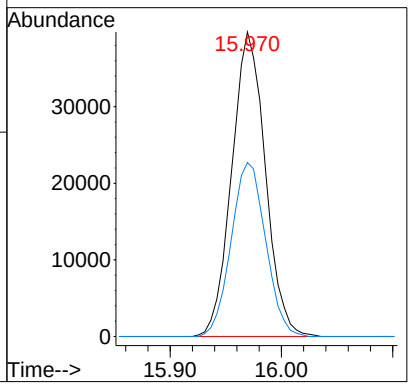


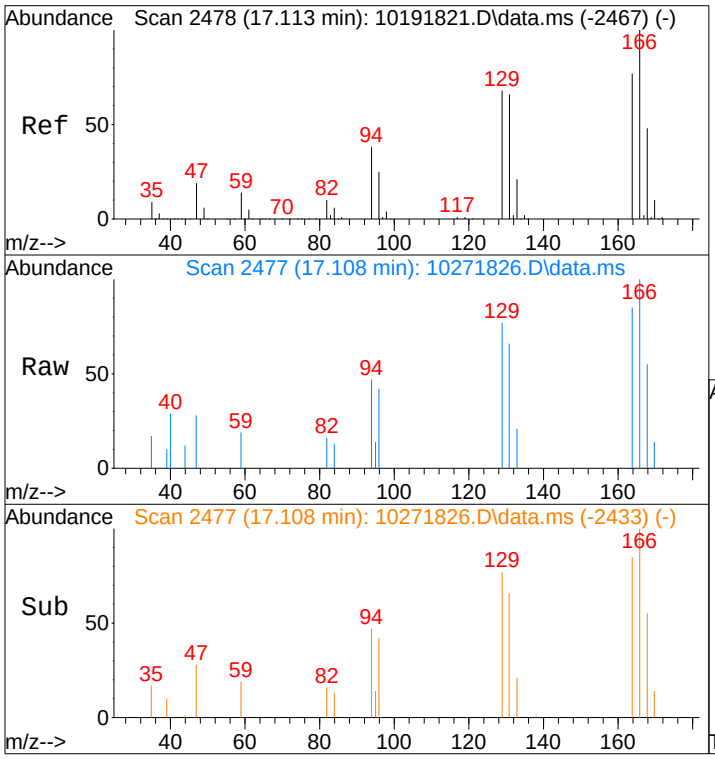


#58
Toluene
Concen: 0.91 ng
RT: 15.97 min Scan# 2270
Delta R.T. -0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 91 Resp: 83345

Ion	Ratio	Lower	Upper
91	100		
92	58.6	39.4	79.4

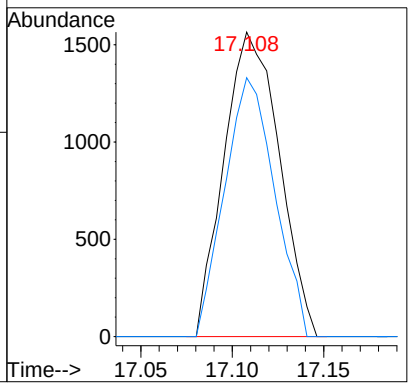


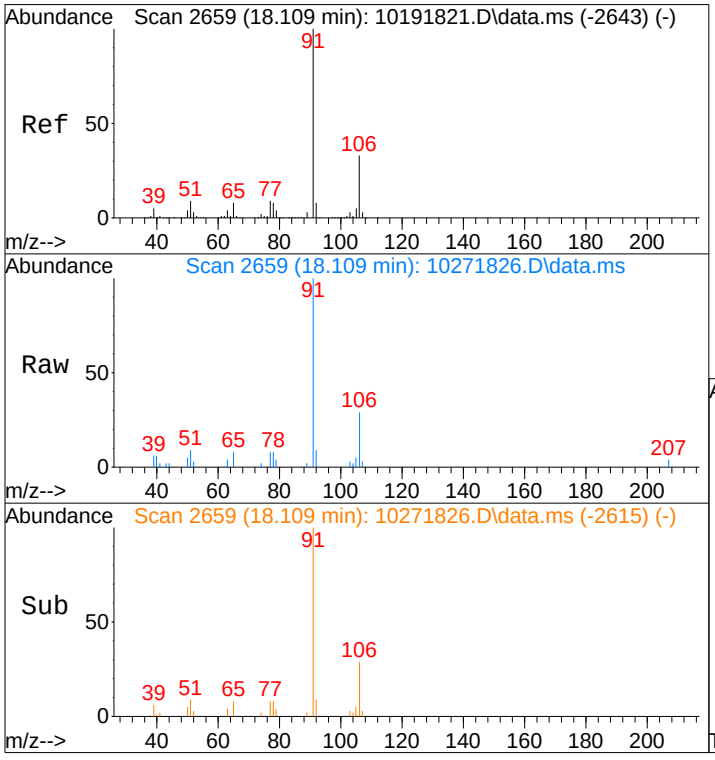


#64
Tetrachloroethene
Concen: 0.12 ng
RT: 17.11 min Scan# 2477
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:166 Resp: 3293

Ion	Ratio	Lower	Upper
166	100		
164	76.9	57.8	97.8

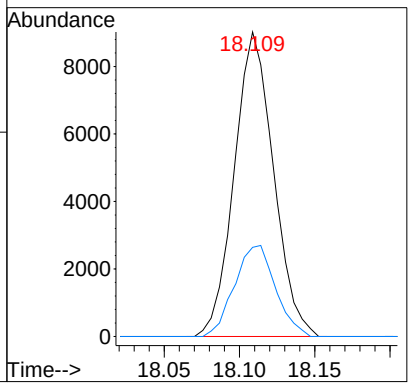


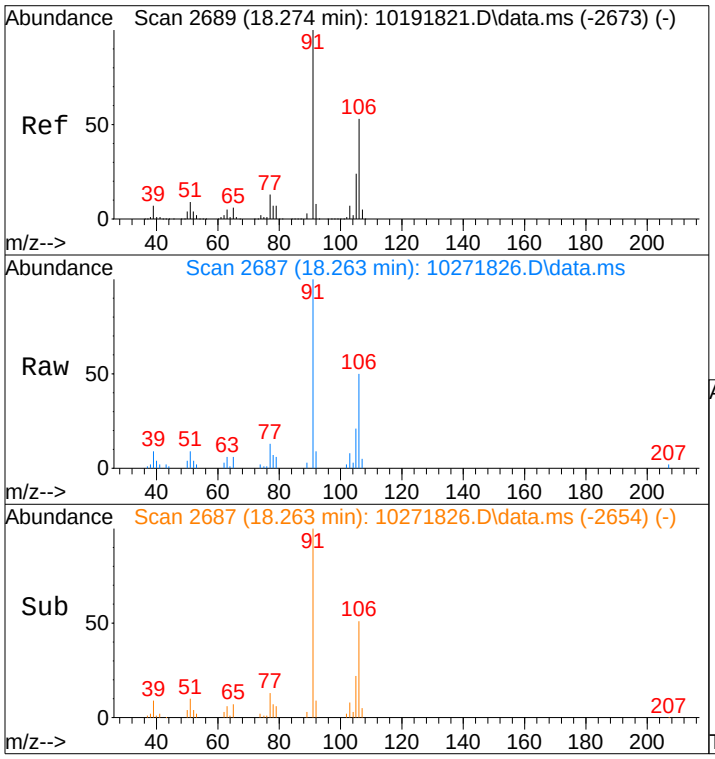


#66
Ethylbenzene
Concen: 0.16 ng
RT: 18.11 min Scan# 2659
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 91 Resp: 16334

Ion	Ratio	Lower	Upper
91	100		
106	31.3	12.6	52.6

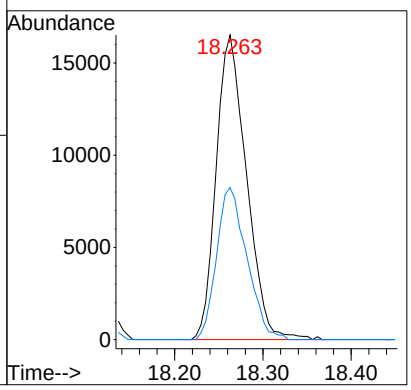


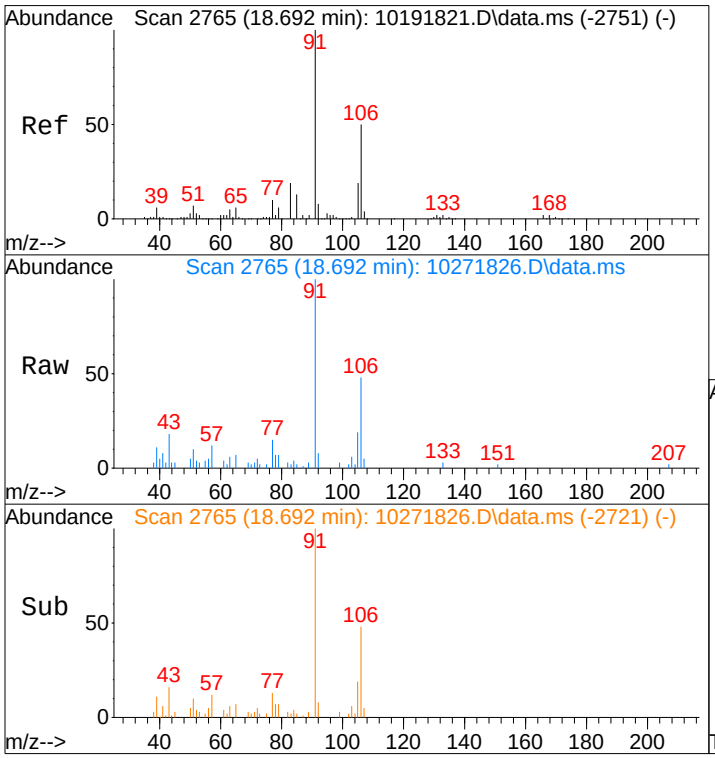


#67
m- & p-Xylenes
Concen: 0.51 ng
RT: 18.26 min Scan# 2687
Delta R.T. -0.017 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 91 Resp: 39422

Ion	Ratio	Lower	Upper
91	100		
106	49.8	32.2	72.2

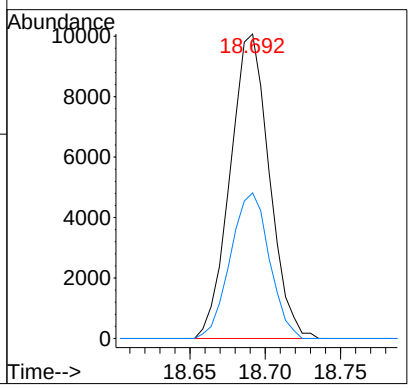


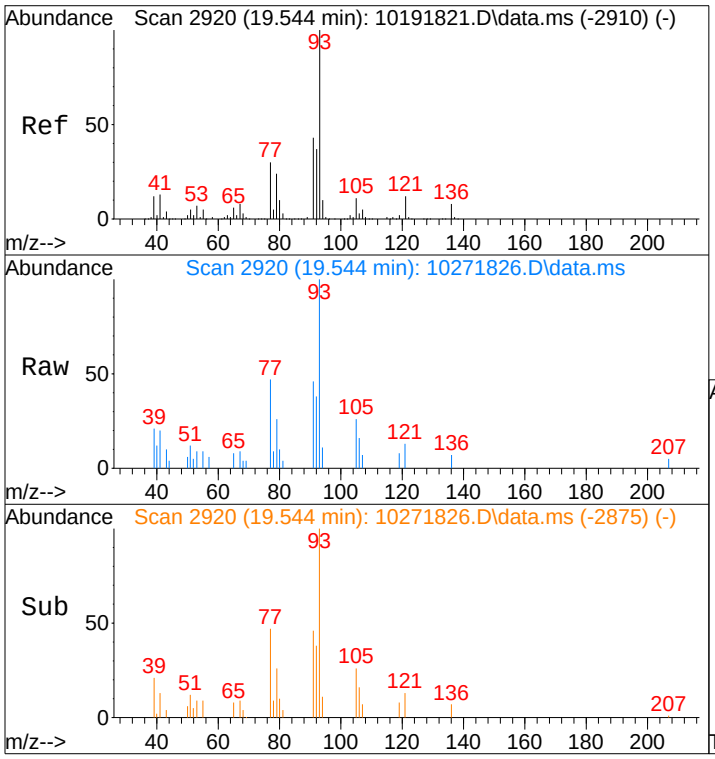


#70
o-Xylene
Concen: 0.23 ng
RT: 18.69 min Scan# 2765
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 91 Resp: 18190

Ion	Ratio	Lower	Upper
91	100		
106	47.5	29.4	69.4

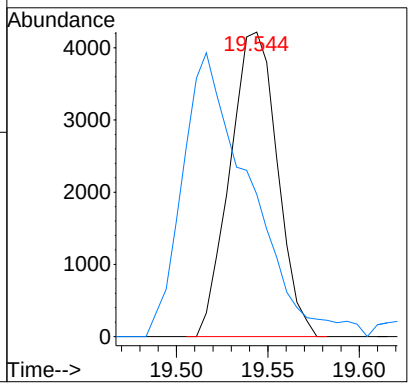


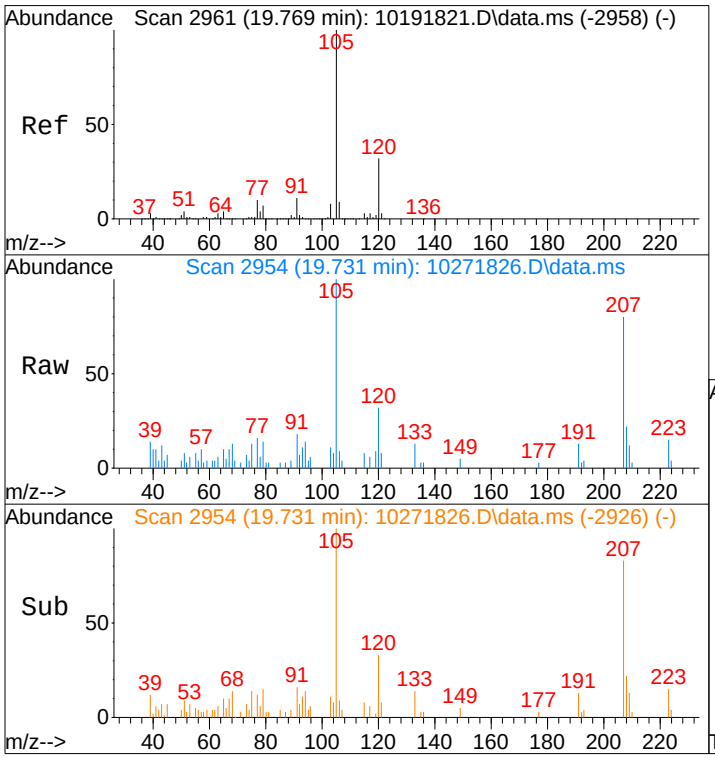


#75
alpha-Pinene
Concen: 0.14 ng
RT: 19.54 min Scan# 2920
Delta R.T. -0.000 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 93 Resp: 7608

Ion	Ratio	Lower	Upper
93	100		
77	132.1	10.2	50.2#

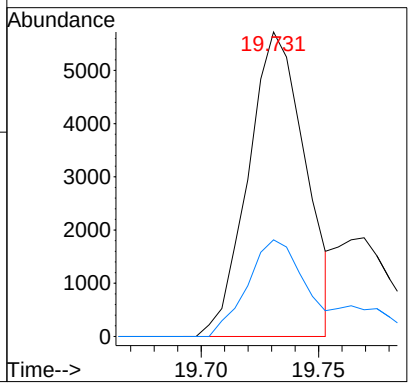


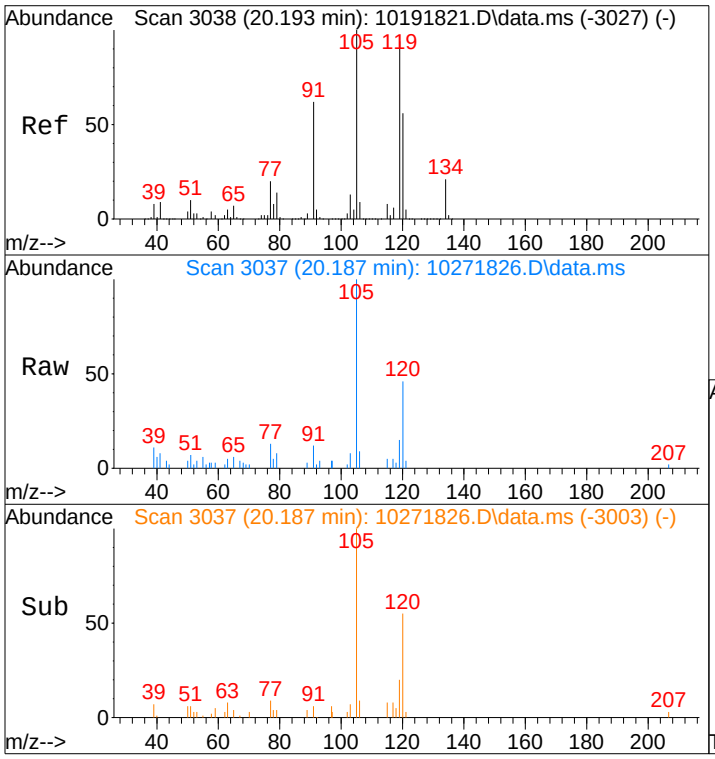


#78
4-Ethyltoluene
Concen: 0.10 ng m
RT: 19.73 min Scan# 2954
Delta R.T. -0.044 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:105 Resp: 9665

Ion	Ratio	Lower	Upper
105	100		
120	40.8	11.8	51.8

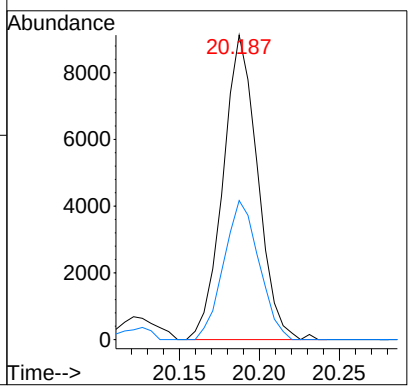


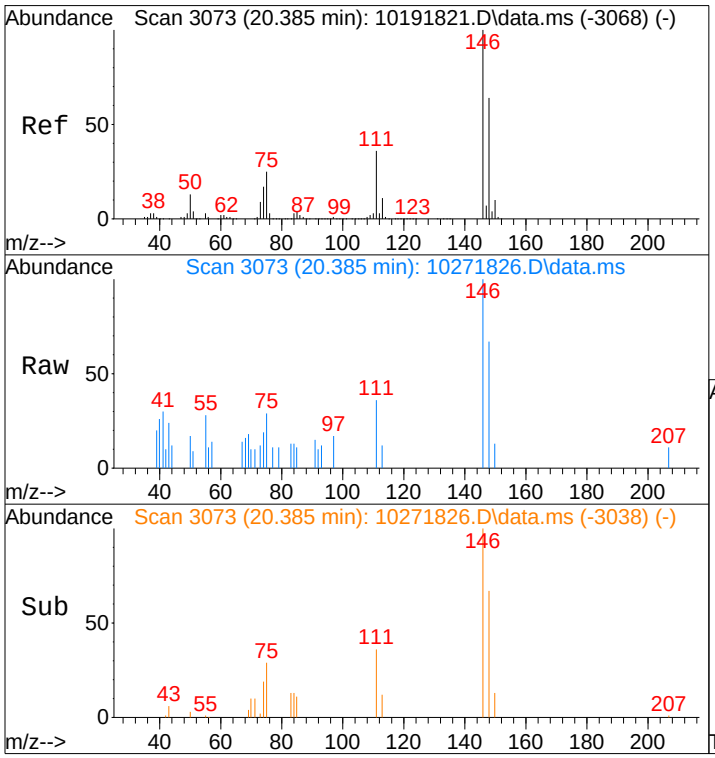


#82
1,2,4-Trimethylbenzene
Concen: 0.16 ng
RT: 20.19 min Scan# 3037
Delta R.T. -0.011 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:105 Resp: 13752

Ion	Ratio	Lower	Upper
105	100		
120	46.5	36.5	76.5

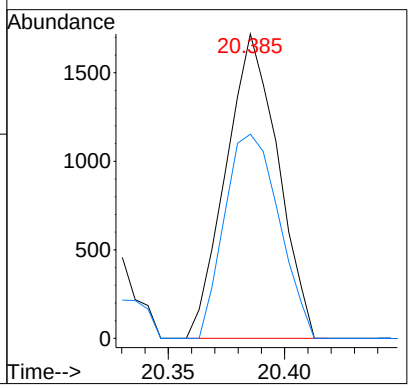


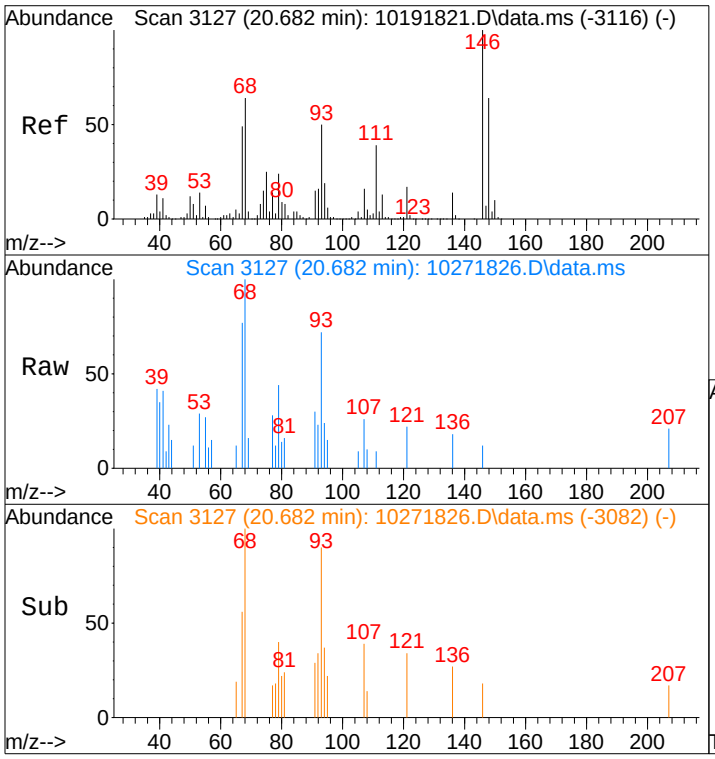


#86
1,4-Dichlorobenzene
Concen: 0.05 ng
RT: 20.39 min Scan# 3073
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:146 Resp: 2675

Ion	Ratio	Lower	Upper
146	100		
148	70.2	44.2	84.2

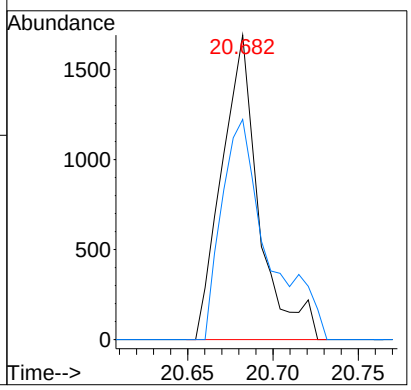


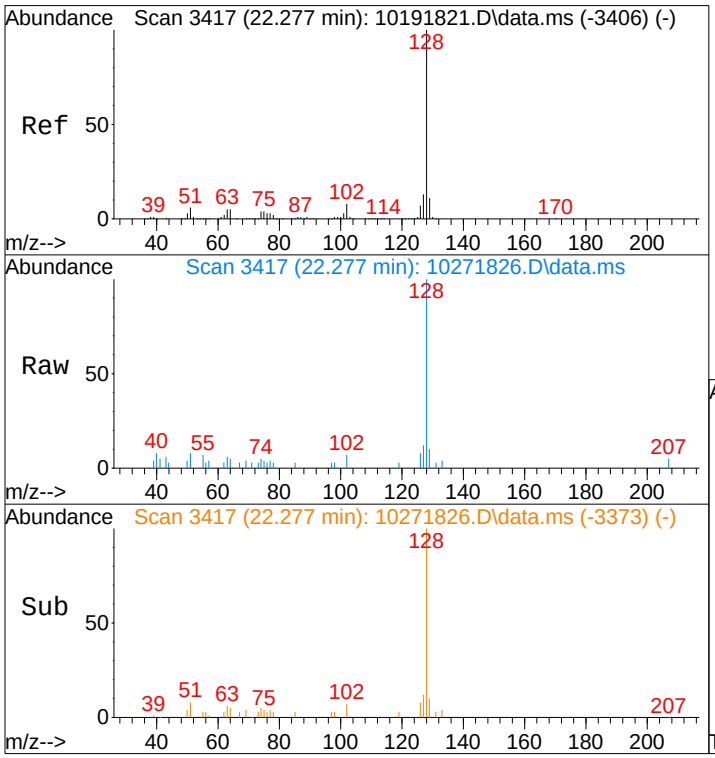


#91
d-Limonene
Concen: 0.08 ng
RT: 20.68 min Scan# 3127
Delta R.T. -0.000 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion: 68 Resp: 2552

Ion	Ratio	Lower	Upper
68	100		
93	90.2	57.4	97.4

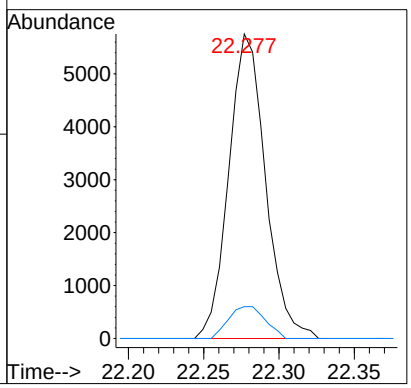




#95
Naphthalene
Concen: 0.08 ng
RT: 22.28 min Scan# 3417
Delta R.T. -0.006 min
Lab File: 10271826.D
Acq: 27 Oct 2018 19:02

Tgt Ion:128 Resp: 9748

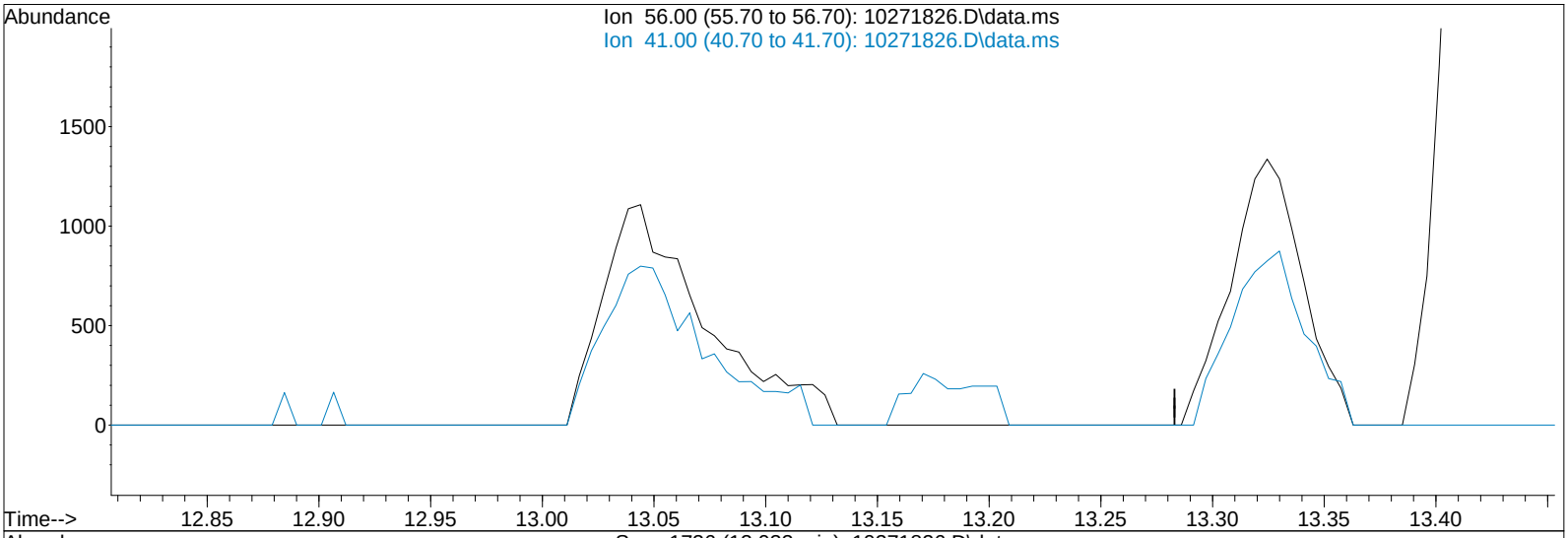
Ion	Ratio	Lower	Upper
128	100		
129	10.5	0.0	31.1

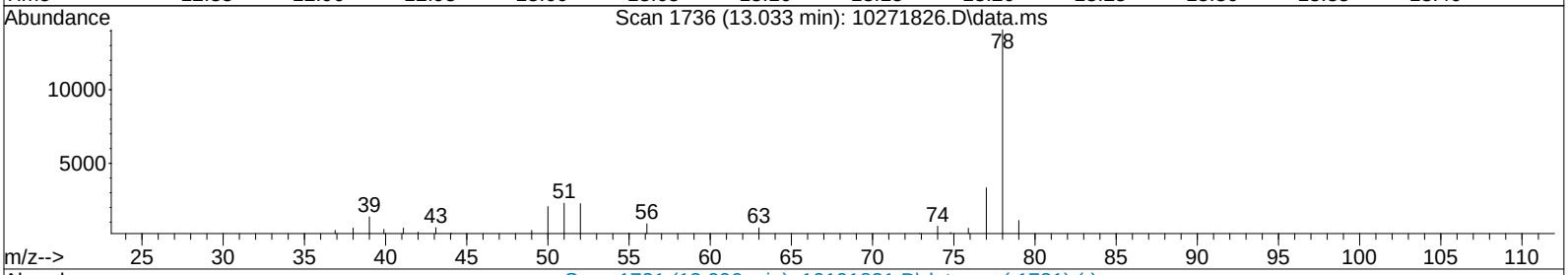


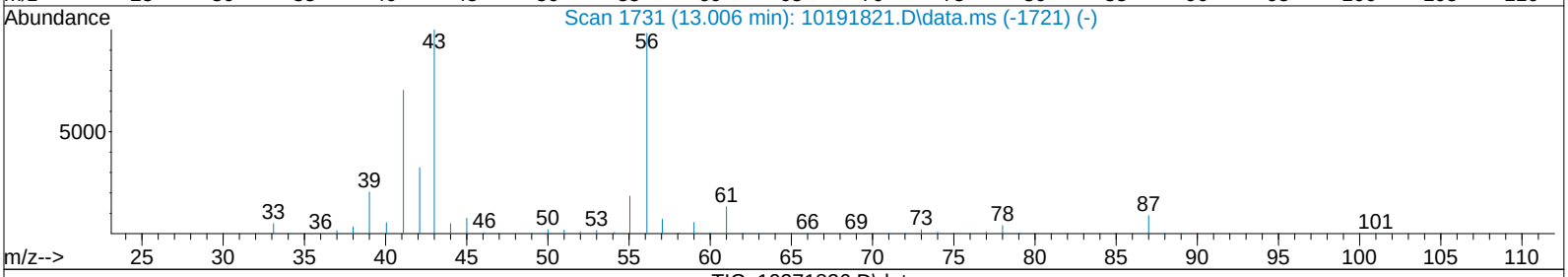
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271826.D
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 29 12:15:26 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271826.D\data.ms

(40) 1-Butanol (T)

13.033min 0.00ng d

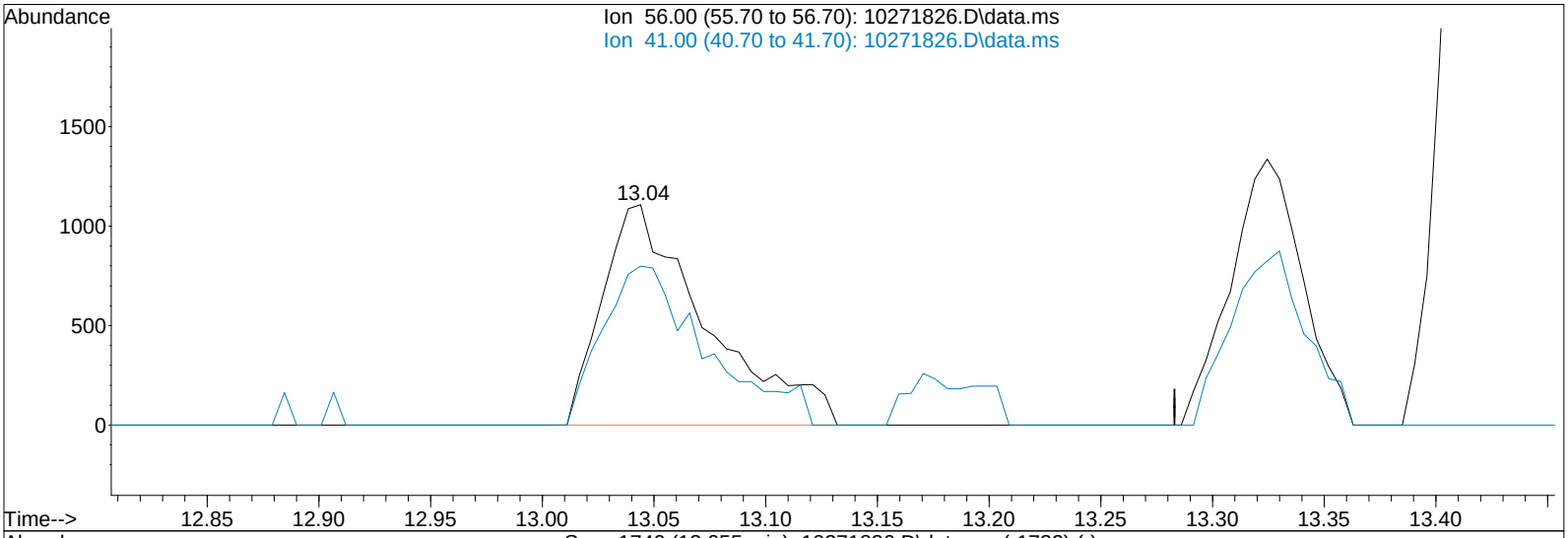
response 0

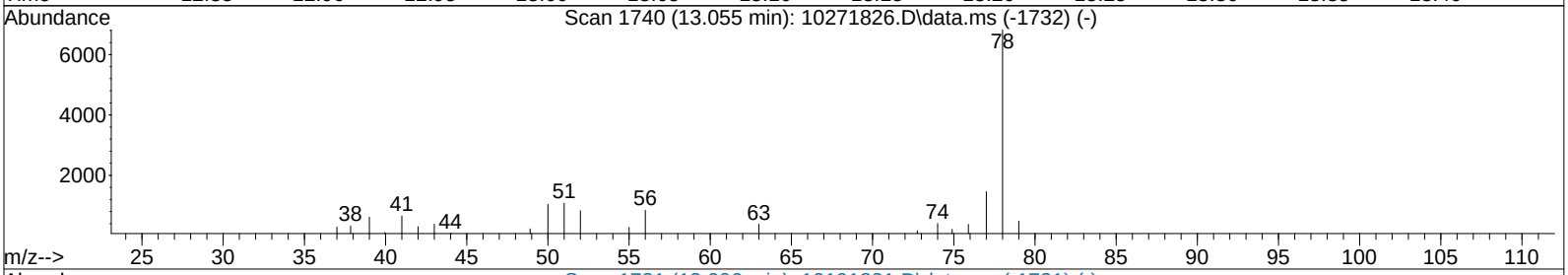
Ion	Exp%	Act%
56.00	100	0.00
41.00	102.40	0.00
0.00	0.00	0.00
0.00	0.00	0.00

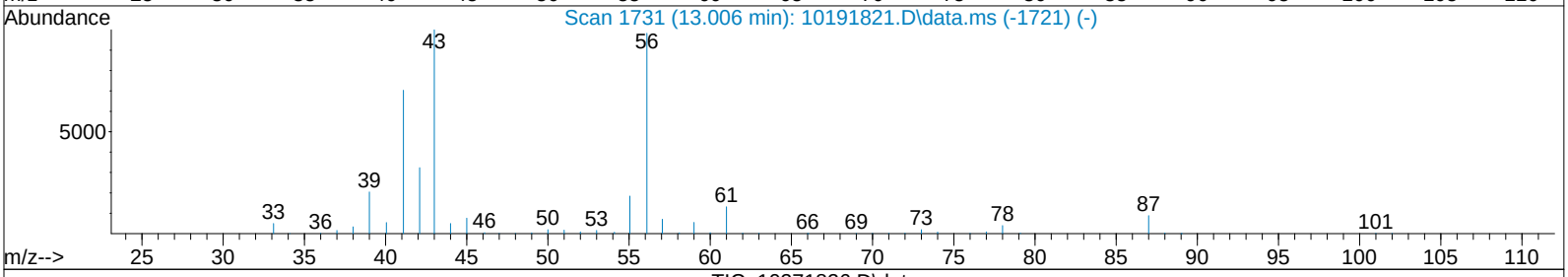
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271826.D
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 29 12:15:26 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: R16101918.RES







TIC: 10271826.D\data.ms

(40) 1-Butanol (T)

13.044min (+0.011) 0.18ng m

response 3572

Ion	Exp%	Act%
56.00	100	100
41.00	102.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

TD 10/29/18

MP

10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271826.D
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 29 14:49:50 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

TD 10/29/18

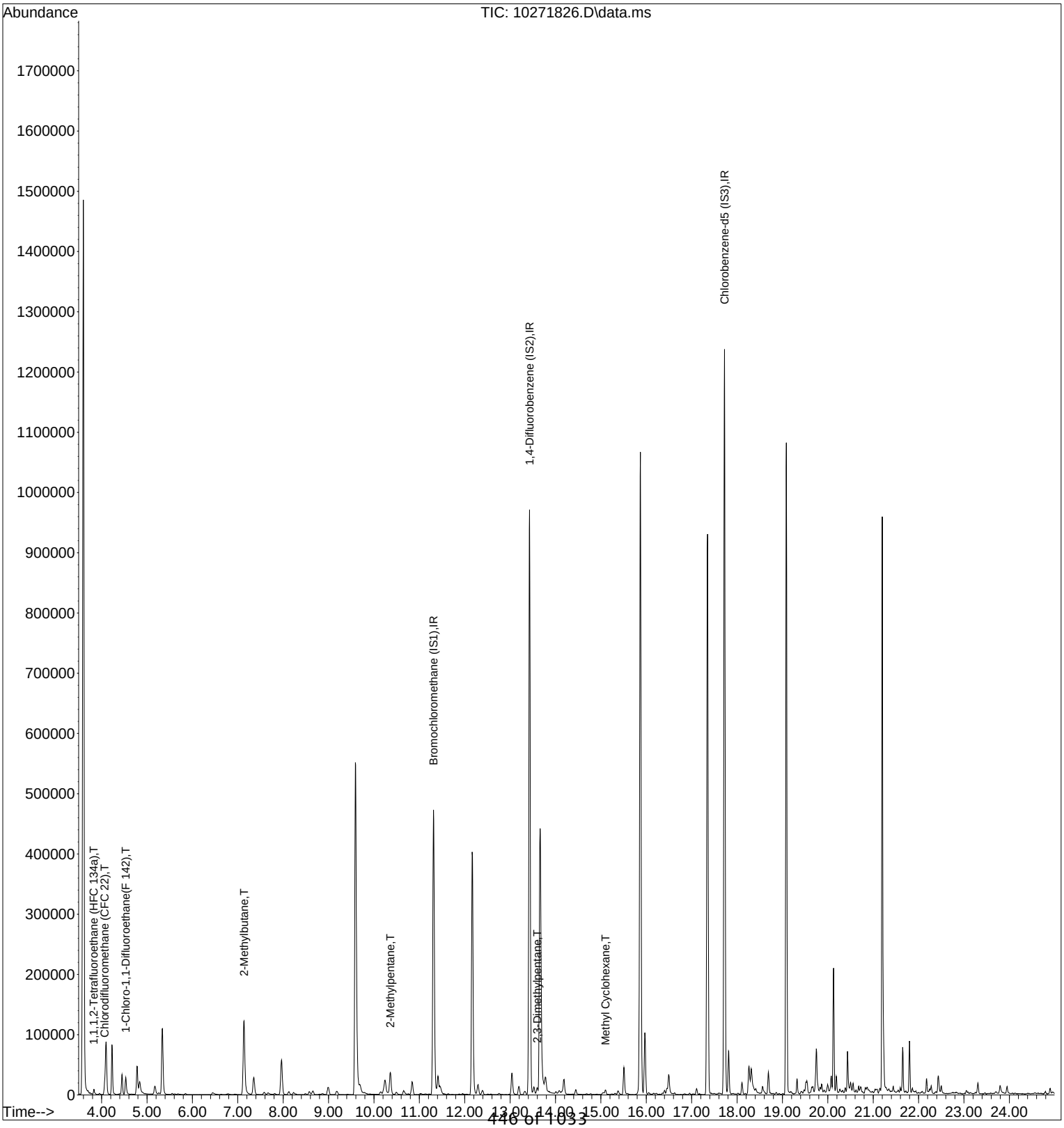
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	225739	12.500 ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	961286	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	412177	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.75	85	670	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	5143	0.227 ng	#	53
4) 1,1-Difluoroethane	3.95	65	784	N.D.		
5) Chlorodifluoromethane ...	4.06	67	1931	0.288 ng		70
6) 1-Chloro-1,1-Difluoroe...	4.53	65	29787	0.608 ng		99
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.14	57	40898	2.217 ng		89
11) Methyl Acetate	8.64	43	700	N.D.		
12) 2-Methylpentane	10.36	71	11280	0.588 ng	#	76
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	13.19	84	1489	N.D.		
17) 2,3-Dimethylpentane	13.60	56	7521	0.216 ng	#	83
18) Dibromomethane	13.86	174	187	N.D.		
20) Methyl Cyclohexane	15.10	55	3672	0.141 ng	#	68
21) 1,3-Dichloropropane	15.97	76	267	N.D.		
22) 1,1,1,2-Tetrachloroethane	17.81	131	443	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	18.70	75	308	N.D.		
25) Bromobenzene	19.32	77	113	N.D.		
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	0.00	91	0	N.D. d		
28) Indan	20.73	117	2248	N.D.		
29) Indene	20.82	115	584	N.D.		
30) 1,2,4,5-Tetramethylben...	21.56	119	1596	N.D.		
31) 1,2,3,4-Tetramethylben...	21.60	119	1680	N.D.		
32) 1,2,3,5-Tetramethylben...	21.93	119	1114	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\27\10271826.D
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

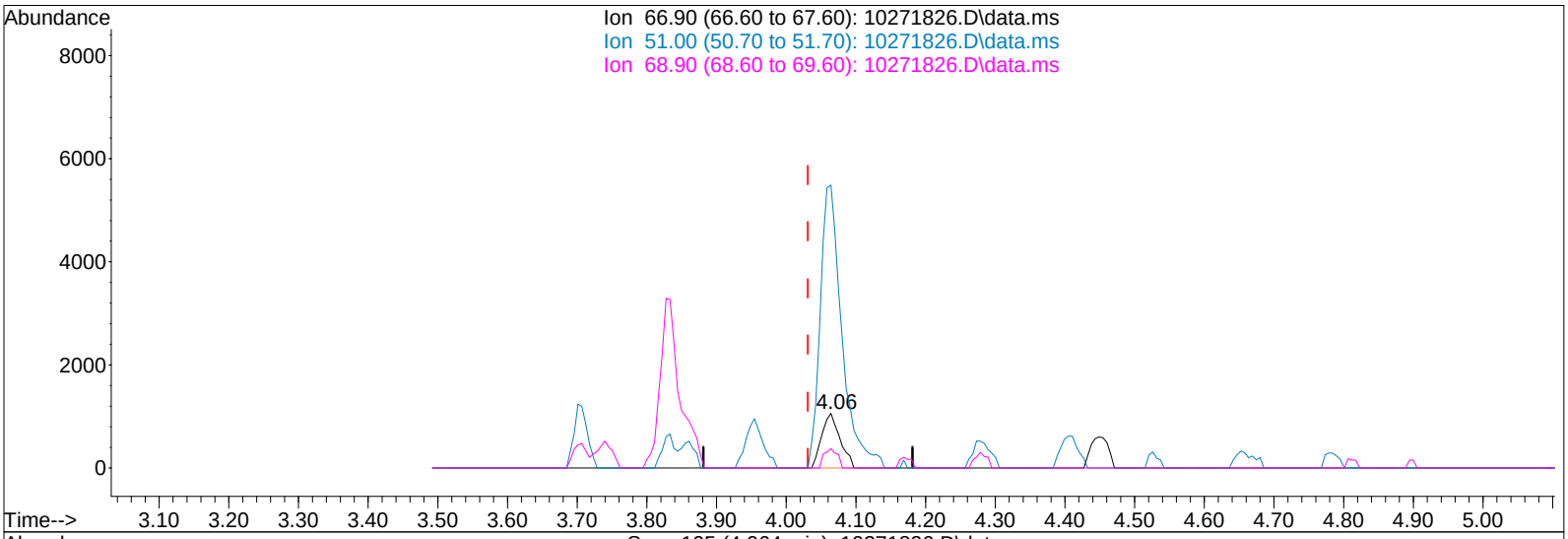
Quant Time: Oct 29 14:49:50 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES

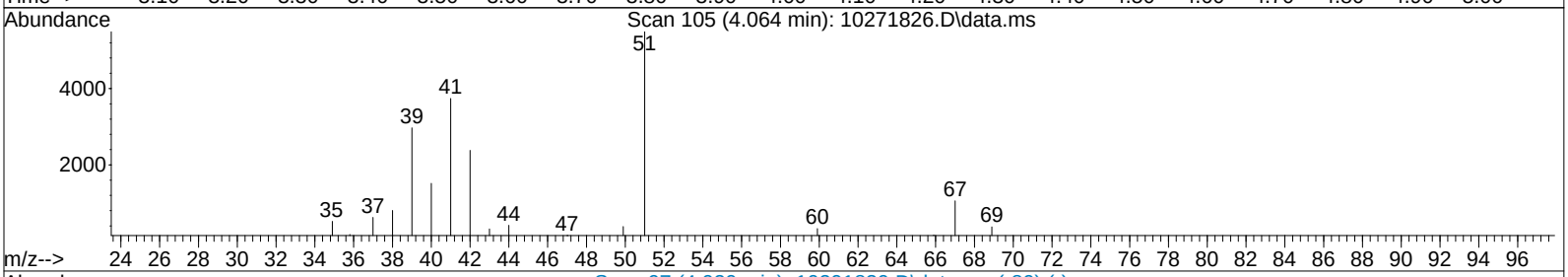


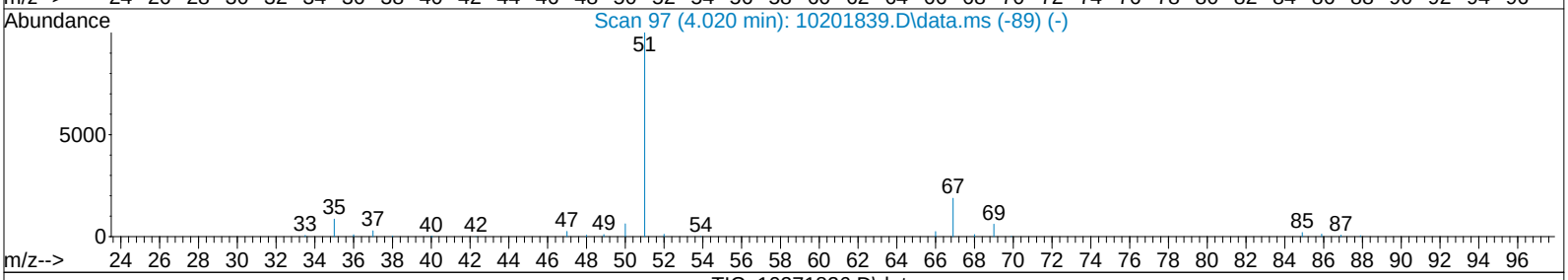
Quantitation Report (Qedit)

Data File: I:\MS16\DATA\2018_10\27\10271826.D
Acq On : 27 Oct 2018 19:02 Operator: WA
Sample : P1805497-013 (1000mL) Inst : GCMS-16
Misc : S31-09141801
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 29 14:49:27 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M
Quant Results File: C16102018.RES







TIC: 10271826.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

4.064min (+0.033) 0.29ng

response 1931

Ion	Exp%	Act%
66.90	100	100
51.00	526.70	616.31
68.90	31.80	25.89
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271804.D
Acq On : 27 Oct 2018 5:03
Operator : LH/TD
Sample : MB R16102718_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 06:23:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

WDA 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	205772	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	893359	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	375223	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	310318	12.536	ng		-0.03
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.32%				
57) Toluene-d8 (SS2)	15.87	98	766238	12.824	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.56%				
73) Bromofluorobenzene (SS3)	19.09	174	310827	11.443	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 91.52%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.			
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	6.46	45	2099	0.181	ng		76
11) Acetonitrile	0.00	41	0	N.D. d			
12) Acrolein	6.95	56	523	0.051	ng	#	70
13) Acetone	7.16	58	6163	0.446	ng	#	79
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D. d			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	10.50	72	1041	0.085	ng	#	32
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D. d			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.			
41) Benzene	0.00	78	0	N.D. d			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	13.32	84	482	0.015	ng	#	77
44) tert-Amyl Methyl Ether	0.00	73	0	N.D. d			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	0.00	130	0	N.D.			
48) 1,4-Dioxane	0.00	88	0	N.D.			

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271804.D
Acq On : 27 Oct 2018 5:03
Operator : LH/TD
Sample : MB R16102718_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 06:23:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

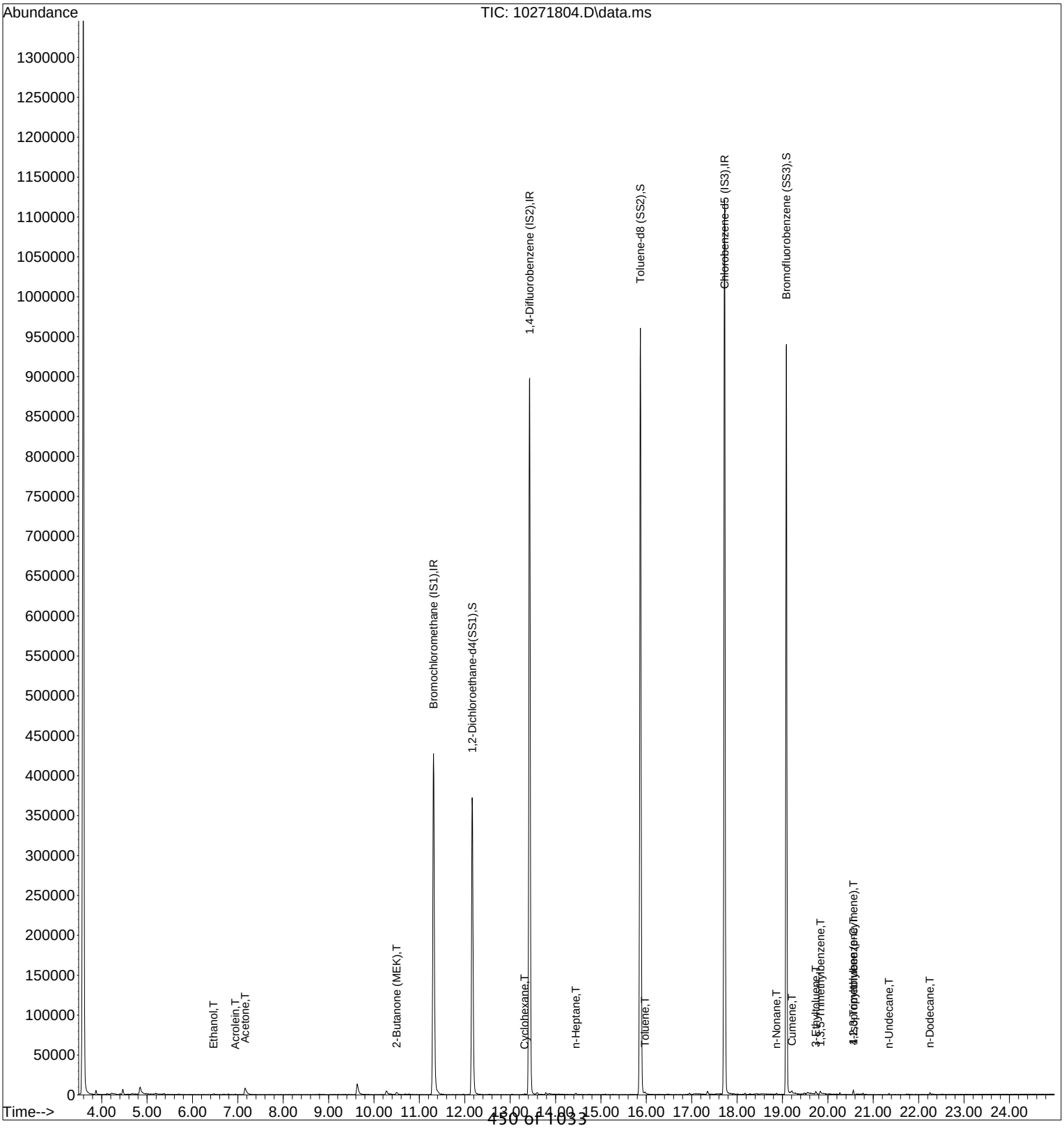
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d		
50) Methyl Methacrylate	0.00	100	0	N.D.			
51) n-Heptane	14.45	71	459	0.024	ng	#	80
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.			
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.			
58) Toluene	15.97	91	2542	0.031	ng		86
59) 2-Hexanone	0.00	43	0	N.D.	d		
60) Dibromochloromethane	0.00	129	0	N.D.			
61) 1,2-Dibromoethane	0.00	107	0	N.D.			
62) n-Butyl Acetate	0.00	43	0	N.D.	d		
63) n-Octane	0.00	57	0	N.D.	d		
64) Tetrachloroethene	0.00	166	0	N.D.			
65) Chlorobenzene	0.00	112	0	N.D.			
66) Ethylbenzene	0.00	91	0	N.D.	d		
67) m- & p-Xylenes	0.00	91	0	N.D.	d		
68) Bromoform	0.00	173	0	N.D.			
69) Styrene	0.00	104	0	N.D.			
70) o-Xylene	0.00	91	0	N.D.	d		
71) n-Nonane	18.87	43	721	0.022	ng	#	66
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.			
74) Cumene	19.21	105	3625	0.039	ng		89
75) alpha-Pinene	0.00	93	0	N.D.			
76) n-Propylbenzene	0.00	91	0	N.D.	d		
77) 3-Ethyltoluene	19.74	105	3386	0.036	ng		90
78) 4-Ethyltoluene	0.00	105	0	N.D.	d		
79) 1,3,5-Trimethylbenzene	19.84	105	2809	0.036	ng		80
80) alpha-Methylstyrene	0.00	118	0	N.D.			
81) 2-Ethyltoluene	0.00	105	0	N.D.	d		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	d		
83) n-Decane	0.00	58	0	N.D.			
84) Benzyl Chloride	0.00	91	0	N.D.			
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.			
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.			
87) sec-Butylbenzene	0.00	105	0	N.D.	d		
88) 4-Isopropyltoluene (p-...	20.56	119	2057	0.021	ng		96
89) 1,2,3-Trimethylbenzene	20.56	105	1863	0.024	ng		96
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
91) d-Limonene	0.00	68	0	N.D.			
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.			
93) n-Undecane	21.35	57	517	0.014	ng	#	70
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.			
95) Naphthalene	0.00	128	0	N.D.	d		
96) n-Dodecane	22.25	57	837	0.024	ng	#	80
97) Hexachlorobutadiene	0.00	225	0	N.D.			
98) Cyclohexanone	0.00	55	0	N.D.	d		
99) tert-Butylbenzene	0.00	119	0	N.D.	d		
100) n-Butylbenzene	0.00	91	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271804.D
Acq On : 27 Oct 2018 5:03
Operator : LH/TD
Sample : MB R16102718_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 06:23:51 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271804.D
Acq On : 27 Oct 2018 5:03
Operator : LH/TD
Sample : MB R16102718_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 10:44:06 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

10/31/18

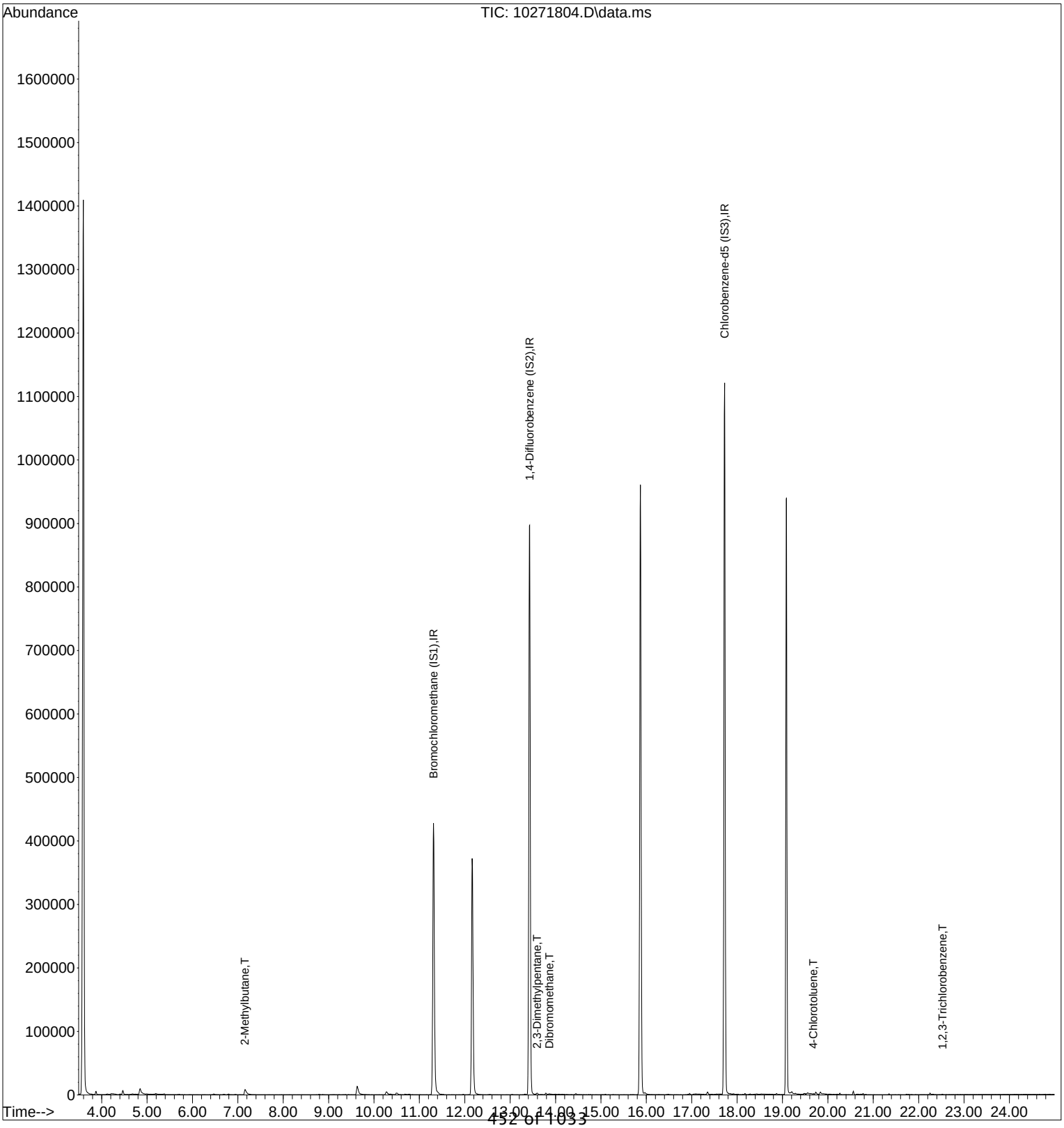
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	205772	12.500 ng		-0.01
16) 1,4-Difluorobenzene (IS2)	13.43	114	893585	12.500 ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	375223	12.500 ng		0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	0.00	85	0	N.D. d		
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.		
4) 1,1-Difluoroethane	0.00	65	0	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	0.00	65	0	N.D.		
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	7.15	57	902	0.054 ng	#	57
11) Methyl Acetate	0.00	43	0	N.D.		
12) 2-Methylpentane	0.00	71	0	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	0.00	84	0	N.D.		
17) 2,3-Dimethylpentane	13.59	56	1102	0.034 ng	#	69
18) Dibromomethane	13.86	174	263	0.013 ng	#	39
20) Methyl Cyclohexane	0.00	55	0	N.D. d		
21) 1,3-Dichloropropane	0.00	76	0	N.D. d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D. d		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D. d		
26) 2-Chlorotoluene	0.00	91	0	N.D. d		
27) 4-Chlorotoluene	19.68	91	1011	0.016 ng	#	36
28) Indan	0.00	117	0	N.D. d		
29) Indene	0.00	115	0	N.D. d		
30) 1,2,4,5-Tetramethylben...	0.00	119	0	N.D. d		
31) 1,2,3,4-Tetramethylben...	0.00	119	0	N.D. d		
32) 1,2,3,5-Tetramethylben...	0.00	119	0	N.D. d		
33) 1,2,3-Trichlorobenzene	22.52	180	273	0.007 ng	#	63

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271804.D
Acq On : 27 Oct 2018 5:03
Operator : LH/TD
Sample : MB R16102718_1000mL
Misc : S31-09141801/AC00442
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 31 10:44:06 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271805.D
Acq On : 27 Oct 2018 5:36
Operator : LH/TD
Sample : LCS R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:12 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	225277	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	943589	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	405854	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	335355	12.375	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.96%				
57) Toluene-d8 (SS2)	15.88	98	812609	12.573	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.56%				
73) Bromofluorobenzene (SS3)	19.09	174	346623	11.798	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.40%				
Target Compounds							Qvalue
2) Propene	4.04	42	485128	23.140	ng		100
3) Dichlorodifluoromethan...	4.21	85	1189111	25.250	ng		100
4) Chloromethane	4.52	50	788558	26.306	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	766857	27.392	ng		100
6) Vinyl Chloride	4.96	62	1008955	30.861	ng		100
7) 1,3-Butadiene	5.24	54	643211	30.413	ng		98
8) Bromomethane	5.70	94	572130	29.038	ng		100
9) Chloroethane	6.04	64	390558	27.820	ng		100
10) Ethanol	6.45	45	1786499	140.990	ng		100
11) Acetonitrile	6.71	41	780326	23.532	ng		100
12) Acrolein	6.90	56	297520	26.591	ng		98
13) Acetone	7.11	58	2059158	136.205	ng		98
14) Trichlorofluoromethane	7.35	101	1039365	25.484	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2584507	53.308	ng		99
16) Acrylonitrile	7.90	53	632296	27.551	ng		100
17) 1,1-Dichloroethene	8.35	96	547498	26.369	ng		100
18) 2-Methyl-2-Propanol (t...	8.52	59	2872937	56.277	ng		99
19) Methylene Chloride	8.58	84	561678	26.598	ng		98
20) 3-Chloro-1-propene (Al...	8.74	41	670295	25.525	ng		97
21) Trichlorotrifluoroethane	8.99	151	558224	25.716	ng		97
22) Carbon Disulfide	8.85	76	1995741	26.473	ng		100
23) trans-1,2-Dichloroethene	9.87	61	761702	26.800	ng		100
24) 1,1-Dichloroethane	10.12	63	925838	26.193	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1621586	25.941	ng		100
26) Vinyl Acetate	10.38	86	781242	147.422	ng	#	89
27) 2-Butanone (MEK)	10.62	72	375031	28.043	ng		100
28) cis-1,2-Dichloroethene	11.15	61	739975	26.482	ng		99
29) Diisopropyl Ether	11.42	87	505652	27.060	ng	#	93
30) Ethyl Acetate	11.44	61	443642	61.891	ng		98
31) n-Hexane	11.42	57	901109	27.589	ng		99
32) Chloroform	11.49	83	1020235	26.858	ng		100
34) Tetrahydrofuran (THF)	11.89	72	356834	26.483	ng		98
35) Ethyl tert-Butyl Ether	12.02	87	678330	25.940	ng		98
36) 1,2-Dichloroethane	12.30	62	773993	26.331	ng		100
38) 1,1,1-Trichloroethane	12.57	97	925703	26.091	ng		99
39) Isopropyl Acetate	12.98	61	740389	55.601	ng	#	96
40) 1-Butanol	13.00	56	1120423	58.726	ng		99
41) Benzene	13.04	78	2254989	25.994	ng		100
42) Carbon Tetrachloride	13.20	117	858392	26.118	ng		100
43) Cyclohexane	13.33	84	1795498	53.402	ng		98
44) tert-Amyl Methyl Ether	13.67	73	1602489	26.818	ng		99
45) 1,2-Dichloropropane	13.90	63	518169	26.895	ng		99
46) Bromodichloromethane	14.09	83	850111	28.013	ng		99
47) Trichloroethene	14.13	130	676120	26.516	ng		100
48) 1,4-Dioxane	14.11	88	490980	29.909	ng		100

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271805.D
Acq On : 27 Oct 2018 5:36
Operator : LH/TD
Sample : LCS R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:12 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

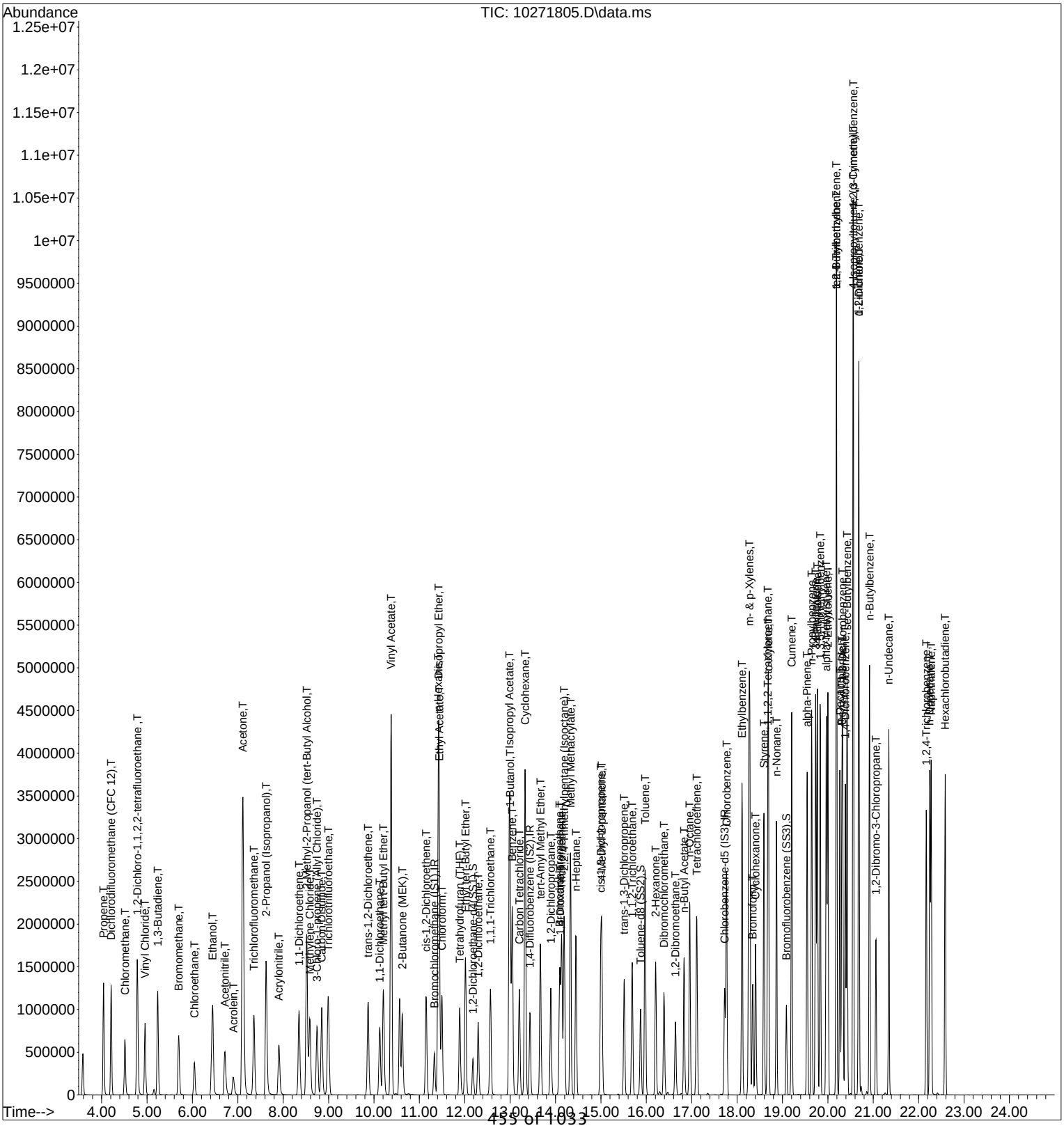
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	2121890	26.355	ng	100
50) Methyl Methacrylate	14.33	100	510067	56.757	ng	95
51) n-Heptane	14.45	71	522690	26.190	ng	99
52) cis-1,3-Dichloropropene	15.00	75	950442	27.925	ng	100
53) 4-Methyl-2-pentanone	15.02	58	510984	29.164	ng	99
54) trans-1,3-Dichloropropene	15.51	75	859303	28.550	ng	100
55) 1,1,2-Trichloroethane	15.69	97	573022	27.411	ng	99
58) Toluene	15.98	91	2333428	26.002	ng	99
59) 2-Hexanone	16.21	43	1186658	28.858	ng	99
60) Dibromochloromethane	16.39	129	754453	28.776	ng	100
61) 1,2-Dibromoethane	16.64	107	684415	28.467	ng	100
62) n-Butyl Acetate	16.83	43	1330252	29.849	ng	100
63) n-Octane	16.95	57	443940	25.980	ng	98
64) Tetrachloroethene	17.11	166	741184	26.837	ng	100
65) Chlorobenzene	17.77	112	1646310	27.088	ng	100
66) Ethylbenzene	18.11	91	2778171	27.184	ng	99
67) m- & p-Xylenes	18.27	91	4493006	58.875	ng	98
68) Bromoform	18.35	173	681640	29.223	ng	99
69) Styrene	18.59	104	1764485	28.425	ng	99
70) o-Xylene	18.69	91	2274411	29.361	ng	98
71) n-Nonane	18.87	43	1012381	28.440	ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1114170	30.040	ng	100
74) Cumene	19.20	105	2892692	28.453	ng	99
75) alpha-Pinene	19.54	93	1481941	28.102	ng	98
76) n-Propylbenzene	19.64	91	3475143	29.877	ng	98
77) 3-Ethyltoluene	19.73	105	2828421	27.601	ng	99
78) 4-Ethyltoluene	19.77	105	2946523	31.872	ng	99
79) 1,3,5-Trimethylbenzene	19.83	105	2412816	28.363	ng	99
80) alpha-Methylstyrene	19.97	118	1336108	29.052	ng	93
81) 2-Ethyltoluene	20.00	105	2909139	29.120	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	2725623	32.658	ng	99
83) n-Decane	20.26	58	51607	28.665	ng	98
84) Benzyl Chloride	20.31	91	2130574	28.958	ng	98
85) 1,3-Dichlorobenzene	20.32	146	1526523	29.511	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1460991	27.855	ng	100
87) sec-Butylbenzene	20.42	105	3225570	29.636	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	3373196	32.533	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	2793532	33.386	ng	98
90) 1,2-Dichlorobenzene	20.68	146	1566620	32.124	ng	100
91) d-Limonene	20.68	68	982888	32.417	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	532731	29.292	ng	95
93) n-Undecane	21.34	57	1195748	29.831	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	1061953	27.168	ng	100
95) Naphthalene	22.28	128	3099779	25.837	ng	100
96) n-Dodecane	22.24	57	1076608	28.519	ng	98
97) Hexachlorobutadiene	22.59	225	736611	27.996	ng	99
98) Cyclohexanone	18.41	55	757016	28.851	ng	99
99) tert-Butylbenzene	20.19	119	2636066	32.315	ng	99
100) n-Butylbenzene	20.92	91	2617879	30.322	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271805.D
Acq On : 27 Oct 2018 5:36
Operator : LH/TD
Sample : LCS R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:12 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271806.D
Acq On : 27 Oct 2018 6:09
Operator : LH/TD
Sample : LCSD R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:14 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) 10/29/18
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	231267	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	968968	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	416462	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	348505	12.527	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.24%				
57) Toluene-d8 (SS2)	15.87	98	834407	12.582	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.64%				
73) Bromofluorobenzene (SS3)	19.09	174	350389	11.623	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 92.96%				
Target Compounds							Qvalue
2) Propene	4.04	42	517676	24.053	ng		99
3) Dichlorodifluoromethan...	4.21	85	1247459	25.803	ng		100
4) Chloromethane	4.51	50	821927	26.709	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	758706	26.399	ng		100
6) Vinyl Chloride	4.96	62	966304	28.791	ng		99
7) 1,3-Butadiene	5.23	54	595709	27.437	ng		98
8) Bromomethane	5.69	94	547043	27.045	ng		100
9) Chloroethane	6.04	64	381297	26.457	ng		100
10) Ethanol	6.44	45	1871559	143.877	ng		100
11) Acetonitrile	6.71	41	827593	24.311	ng		100
12) Acrolein	6.90	56	325555	28.343	ng		99
13) Acetone	7.11	58	2247727	144.827	ng		99
14) Trichlorofluoromethane	7.35	101	1204262	28.762	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	3140726	63.102	ng		98
16) Acrylonitrile	7.90	53	801417	34.016	ng		100
17) 1,1-Dichloroethene	8.35	96	584188	27.407	ng		98
18) 2-Methyl-2-Propanol (t...	8.51	59	3018993	57.607	ng		99
19) Methylene Chloride	8.58	84	582572	26.873	ng		98
20) 3-Chloro-1-propene (Al...	8.74	41	711413	26.389	ng		99
21) Trichlorotrifluoroethane	8.99	151	577297	25.905	ng		97
22) Carbon Disulfide	8.85	76	2075174	26.814	ng		100
23) trans-1,2-Dichloroethene	9.87	61	797355	27.328	ng		99
24) 1,1-Dichloroethane	10.12	63	967219	26.655	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1695364	26.419	ng		100
26) Vinyl Acetate	10.38	86	812108	149.277	ng	#	90
27) 2-Butanone (MEK)	10.62	72	389933	28.402	ng		100
28) cis-1,2-Dichloroethene	11.15	61	770323	26.854	ng		99
29) Diisopropyl Ether	11.42	87	522784	27.253	ng	#	93
30) Ethyl Acetate	11.43	61	460344	62.558	ng		98
31) n-Hexane	11.41	57	938045	27.976	ng		99
32) Chloroform	11.49	83	1054469	27.040	ng		100
34) Tetrahydrofuran (THF)	11.88	72	369188	26.690	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	705744	26.289	ng		97
36) 1,2-Dichloroethane	12.30	62	803710	26.634	ng		99
38) 1,1,1-Trichloroethane	12.57	97	957379	26.277	ng		99
39) Isopropyl Acetate	12.98	61	767259	56.110	ng	#	97
40) 1-Butanol	13.00	56	1161530	59.286	ng		99
41) Benzene	13.04	78	2330272	26.158	ng		100
42) Carbon Tetrachloride	13.20	117	884608	26.210	ng		100
43) Cyclohexane	13.33	84	1846549	53.482	ng		98
44) tert-Amyl Methyl Ether	13.67	73	1670763	27.228	ng		99
45) 1,2-Dichloropropane	13.90	63	536137	27.099	ng		99
46) Bromodichloromethane	14.09	83	877200	28.148	ng		99
47) Trichloroethene	14.13	130	695417	26.558	ng		100
48) 1,4-Dioxane	14.11	88	502658	29.818	ng		98

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271806.D
Acq On : 27 Oct 2018 6:09
Operator : LH/TD
Sample : LCSD R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:14 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

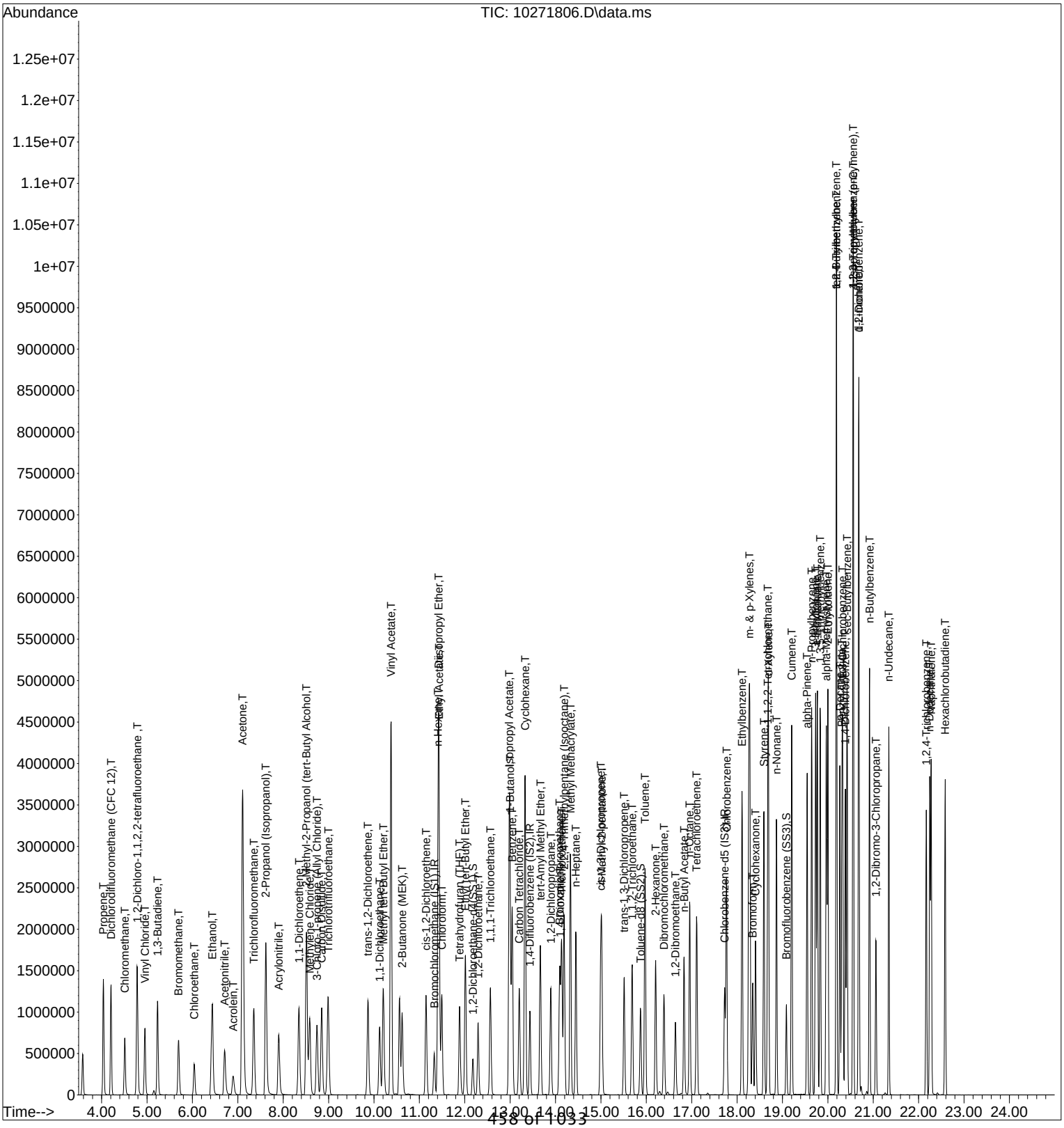
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
49) 2,2,4-Trimethylpentane...	14.19	57	2197167	26.575	ng	100
50) Methyl Methacrylate	14.33	100	525883	56.984	ng	95
51) n-Heptane	14.45	71	540875	26.392	ng	99
52) cis-1,3-Dichloropropene	15.00	75	985765	28.204	ng	100
53) 4-Methyl-2-pentanone	15.02	58	522628	29.047	ng	99
54) trans-1,3-Dichloropropene	15.51	75	894533	28.942	ng	100
55) 1,1,2-Trichloroethane	15.69	97	588422	27.410	ng	99
58) Toluene	15.97	91	2400581	26.069	ng	99
59) 2-Hexanone	16.21	43	1223054	28.985	ng	100
60) Dibromochloromethane	16.39	129	776107	28.848	ng	100
61) 1,2-Dibromoethane	16.64	107	706410	28.634	ng	99
62) n-Butyl Acetate	16.83	43	1372252	30.007	ng	100
63) n-Octane	16.95	57	461099	26.297	ng	97
64) Tetrachloroethene	17.11	166	756966	26.710	ng	100
65) Chlorobenzene	17.77	112	1690577	27.108	ng	100
66) Ethylbenzene	18.11	91	2856448	27.238	ng	99
67) m- & p-Xylenes	18.27	91	4627677	59.095	ng	98
68) Bromoform	18.35	173	703452	29.390	ng	99
69) Styrene	18.59	104	1819568	28.566	ng	99
70) o-Xylene	18.69	91	2327399	29.280	ng	98
71) n-Nonane	18.87	43	1038574	28.433	ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1145782	30.105	ng	100
74) Cumene	19.20	105	2955647	28.332	ng	99
75) alpha-Pinene	19.54	93	1524180	28.167	ng	98
76) n-Propylbenzene	19.64	91	3570135	29.911	ng	98
77) 3-Ethyltoluene	19.73	105	2905469	27.630	ng	99
78) 4-Ethyltoluene	19.77	105	3000928	31.633	ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	2469556	28.290	ng	99
80) alpha-Methylstyrene	19.97	118	1378709	29.214	ng	93
81) 2-Ethyltoluene	20.00	105	2978686	29.057	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	2787621	32.550	ng	99
83) n-Decane	20.26	58	53631	29.030	ng	98
84) Benzyl Chloride	20.31	91	2213841	29.324	ng	98
85) 1,3-Dichlorobenzene	20.32	146	1572582	29.627	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1510519	28.066	ng	100
87) sec-Butylbenzene	20.42	105	3305377	29.596	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	3417260	32.119	ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	2848349	33.174	ng	97
90) 1,2-Dichlorobenzene	20.68	146	1603672	32.046	ng	100
91) d-Limonene	20.68	68	1009523	32.447	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	546543	29.286	ng	95
93) n-Undecane	21.34	57	1223777	29.752	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	1099128	27.403	ng	100
95) Naphthalene	22.28	128	3215654	26.120	ng	100
96) n-Dodecane	22.24	57	1097541	28.333	ng	98
97) Hexachlorobutadiene	22.59	225	747042	27.669	ng	99
98) Cyclohexanone	18.41	55	781780	29.036	ng	99
99) tert-Butylbenzene	20.19	119	2678767	32.002	ng	99
100) n-Butylbenzene	20.92	91	2674880	30.193	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271806.D
Acq On : 27 Oct 2018 6:09
Operator : LH/TD
Sample : LCSD R16102718_25ng
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:14 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration



Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : R16101918.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:34:51 2018
Response Via : Initial Calibration

LH 10/20/18

Calibration Files
0.1 =10191816.D 0.2 =10191817.D 0.5 =10191818.D 1.0 =10191819.D 5.0 =10191820.D 25 =10191
100 =10191823.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------ISTD----------									
2)	T	Propene	1.201	1.058	1.133	1.147	1.082	1.083	1.203	1.399	1.163	9.42
3)	T	Dichlorodifluo...	2.763	2.575	2.705	2.579	2.615	2.607	2.582	2.479	2.613	3.31
4)	T	Chloromethane	1.925	1.817	1.839	1.624	1.741	1.720	1.582	1.058	1.663	16.17
5)	T	1,2-Dichloro-1...	1.623	1.511	1.596	1.567	1.552	1.552	1.536	1.491	1.553	2.75
6)	T	Vinyl Chloride	1.779	1.722	1.869	1.822	1.836	1.842	1.831	1.811	1.814	2.50
7)	T	1,3-Butadiene	1.118	1.078	1.084	1.099	1.157	1.230	1.275	1.346	1.174	8.48
8)	T	Bromomethane	1.057	1.018	1.115	1.083	1.100	1.130	1.132	1.110	1.093	3.59
9)	T	Chloroethane	0.780	0.747	0.757	0.779	0.782	0.792	0.796	0.799	0.779	2.36
10)	T	Ethanol	0.747	0.658	0.639	0.614	0.609	0.765	0.794	0.799	0.703	11.56
11)	T	Acetonitrile	2.203	1.879	1.834	1.694	1.626	1.817	1.845	1.822	1.840	9.22
12)	T	Acrolein	0.555	0.531	0.624	0.602	0.621	0.666	0.683	0.686	0.621	9.20
13)	T	Acetone	0.893	0.812	0.840	0.804	0.761	0.850	0.888	0.863	0.839	5.33
14)	T	Trichlorofluor...	2.274	2.190	2.363	2.272	2.268	2.278	2.265	2.195	2.263	2.39
15)	T	2-Propanol (Is...	2.896	2.688	2.855	2.613	2.625	2.868	2.699	2.278	2.690	7.45
16)	T	Acrylonitrile	0.970	1.086	1.248	1.235	1.300	1.436	1.457	1.456	1.273	14.05
17)	T	1,1-Dichloroet...	1.145	1.127	1.140	1.114	1.142	1.183	1.186	1.180	1.152	2.37
18)	T	2-Methyl-2-Pro...	2.985	2.838	2.989	2.861	2.968	3.054	2.981	1.985	2.833	12.35
19)	T	Methylene Chlo...	1.224	1.127	1.176	1.125	1.153	1.186	1.191	1.192	1.172	2.94
20)	T	3-Chloro-1-pro...	1.876	1.353	1.377	1.332	1.359	1.454	1.459	1.447	1.457	12.11
21)	T	Trichlorotrifl...	1.232	1.132	1.234	1.205	1.205	1.227	1.217	1.184	1.204	2.81
22)	T	Carbon Disulfide	4.561	4.046	4.216	4.055	4.054	4.235	4.199	4.098	4.183	4.10
23)	T	trans-1,2-Dich...	1.509	1.410	1.583	1.564	1.604	1.666	1.657	1.623	1.577	5.36
24)	T	1,1-Dichloroet...	2.043	1.857	1.994	1.933	1.964	1.999	1.978	1.922	1.961	2.90
25)	T	Methyl tert-Bu...	3.456	3.390	3.563	3.456	3.454	3.488	3.484	3.456	3.468	1.39
26)	T	Vinyl Acetate			0.245	0.240	0.276	0.335	0.351	0.317	0.294	16.13
27)	T	2-Butanone (MEK)	0.581	0.596	0.711	0.729	0.759	0.835	0.853	0.873	0.742	15.04
28)	T	cis-1,2-Dichlo...	1.463	1.442	1.571	1.546	1.576	1.622	1.611	1.573	1.550	4.21
29)	T	Diisopropyl Ether	1.138	1.073	0.994	0.952	0.952	1.036	1.104	1.045	1.037	6.55
30)	T	Ethyl Acetate	0.326	0.326	0.370	0.381	0.398	0.446	0.478	0.456	0.398	14.60
31)	T	n-Hexane	1.896	1.743	1.811	1.761	1.724	1.798	1.917	1.849	1.812	3.89
32)	T	Chloroform	2.115	2.022	2.187	2.084	2.124	2.161	2.127	2.042	2.108	2.66
33)	S	1,2-Dichloroet...	1.518	1.508	1.540	1.526	1.508	1.495	1.483	1.451	1.504	1.83
34)	T	Tetrahydrofura...	0.780	0.695	0.740	0.713	0.725	0.768	0.773	0.786	0.748	4.56
35)	T	Ethyl tert-But...	1.466	1.340	1.428	1.390	1.429	1.483	1.521	1.551	1.451	4.74
36)	T	1,2-Dichloroet...	1.666	1.558	1.655	1.621	1.645	1.683	1.653	1.567	1.631	2.82
37)	IR	1,4-Difluorobenzen...	----------ISTD----------									
38)	T	1,1,1-Trichlor...	0.487	0.449	0.467	0.457	0.468	0.484	0.479	0.468	0.470	2.81
39)	T	Isopropyl Acetate	0.156	0.159	0.170	0.163	0.172	0.188	0.202	0.201	0.176	10.35
40)	T	1-Butanol				0.185	0.194	0.284	0.302	0.298	0.253	23.00
41)	T	Benzene	1.245	1.103	1.113	1.065	1.096	1.166	1.204	1.202	1.149	5.57
42)	T	Carbon Tetrach...	0.430	0.409	0.420	0.415	0.435	0.462	0.460	0.453	0.435	4.73
43)	T	Cyclohexane	0.454	0.417	0.432	0.419	0.431	0.463	0.480	0.467	0.445	5.33
44)	T	tert-Amyl Meth...	0.809	0.732	0.773	0.751	0.777	0.822	0.832	0.837	0.792	4.95
45)	T	1,2-Dichloropr...	0.251	0.246	0.253	0.251	0.251	0.261	0.262	0.266	0.255	2.77
46)	T	Bromodichlorom...	0.407	0.366	0.393	0.376	0.402	0.426	0.429	0.418	0.402	5.65
47)	T	Trichloroethene	0.336	0.314	0.327	0.321	0.331	0.353	0.359	0.361	0.338	5.28
48)	T	1,4-Dioxane	0.188	0.183	0.194	0.197	0.203	0.251	0.257	0.268	0.217	16.03
49)	T	2,2,4-Trimethy...	1.143	1.054	1.063	1.017	1.039	1.072	1.075	1.070	1.067	3.43
50)	T	Methyl Methacr...	0.099	0.099	0.112	0.111	0.120	0.133	0.139	0.140	0.119	14.06
51)	T	n-Heptane	0.277	0.258	0.259	0.253	0.255	0.261	0.271	0.282	0.264	4.07
52)	T	cis-1,3-Dichlo...	0.430	0.386	0.418	0.436	0.438	0.494	0.505	0.511	0.451	10.44
53)	T	4-Methyl-2-pen...	0.196	0.203	0.216	0.219	0.236	0.257	0.262	0.268	0.232	12.01
54)	T	trans-1,3-Dich...	0.343	0.329	0.357	0.361	0.408	0.459	0.467	0.466	0.399	14.69

55)	T	1,1,2-Trichlor...	0.261	0.256	0.273	0.268	0.278	0.292	0.293	0.295	0.277	5.51
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.003	2.015	2.000	1.997	1.991	1.982	1.967	1.969	1.991	0.84
58)	T	Toluene	3.054	2.809	2.769	2.669	2.643	2.745	2.763	2.660	2.764	4.76
59)	T	2-Hexanone	1.530	1.004	1.229	1.186	1.235	1.344	1.328	1.276	1.266	11.82
60)	T	Dibromochlorom...	0.745	0.726	0.751	0.753	0.820	0.885	0.896	0.884	0.807	8.96
61)	T	1,2-Dibromoethane	0.709	0.666	0.713	0.705	0.754	0.802	0.793	0.782	0.740	6.66
62)	T	n-Butyl Acetate	1.443	1.250	1.266	1.299	1.397	1.480	1.449	1.397	1.373	6.48
63)	T	n-Octane	0.750	0.497	0.488	0.471	0.473	0.499	0.512	0.520	0.526	17.49
64)	T	Tetrachloroethene	0.879	0.804	0.837	0.808	0.837	0.885	0.883	0.871	0.851	3.91
65)	T	Chlorobenzene	1.926	1.803	1.804	1.763	1.825	1.952	1.975	1.927	1.872	4.35
66)	T	Ethylbenzene	3.404	2.982	3.024	2.966	3.093	3.313	3.323	3.077	3.148	5.47
67)	T	m- & p-Xylenes	2.344	2.202	2.288	2.239	2.345	2.580	2.576	2.230	2.350	6.36
68)	T	Bromoform	0.614	0.594	0.643	0.657	0.742	0.841	0.840	0.816	0.718	14.46
69)	T	Styrene	1.821	1.684	1.754	1.768	1.921	2.147	2.162	2.038	1.912	9.69
70)	T	o-Xylene	2.485	2.233	2.292	2.243	2.386	2.587	2.577	2.283	2.386	6.14
71)	T	n-Nonane	1.163	1.089	1.095	1.059	1.084	1.135	1.123	1.023	1.096	4.02
72)	T	1,1,2,2-Tetrac...	1.108	1.020	1.083	1.075	1.149	1.270	1.273	1.160	1.142	7.96
73)	S	Bromofluoroben...	0.894	0.902	0.901	0.903	0.921	0.923	0.896	0.898	0.905	1.23
74)	T	Cumene	3.219	3.066	3.045	2.937	3.114	3.359	3.348	2.963	3.131	5.19
75)	T	alpha-Pinene	1.621	1.458	1.541	1.507	1.613	1.757	1.808	1.688	1.624	7.50
76)	T	n-Propylbenzene	3.782	3.328	3.459	3.402	3.616	3.939	3.856	3.278	3.582	7.05
77)	T	3-Ethyltoluene	3.284	3.064	2.895	2.863	3.069	3.619	3.521	2.936	3.156	9.14
78)	T	4-Ethyltoluene	2.771	2.471	2.829	2.785	2.969	3.070	3.090	2.794	2.847	6.99
79)	T	1,3,5-Trimethy...	2.818	2.513	2.513	2.416	2.571	2.835	2.808	2.487	2.620	6.53
80)	T	alpha-Methylst...	1.311	1.204	1.312	1.309	1.438	1.624	1.639	1.495	1.416	11.27
81)	T	2-Ethyltoluene	3.465	2.840	2.922	2.865	3.058	3.339	3.285	2.841	3.077	8.19
82)	T	1,2,4-Trimethy...	2.752	2.339	2.452	2.411	2.646	3.018	2.820	2.126	2.571	11.31
83)	T	n-Decane	0.076	0.044	0.047	0.052	0.052	0.059	0.059	0.055	0.055	17.41
84)	T	Benzyl Chloride				1.696	2.040	2.617	2.652	2.326	2.266	17.81
85)	T	1,3-Dichlorobe...	1.605	1.404	1.508	1.480	1.603	1.796	1.780	1.568	1.593	8.65
86)	T	1,4-Dichlorobe...	1.746	1.463	1.504	1.495	1.589	1.760	1.762	1.604	1.615	7.77
87)	T	sec-Butylbenzene	3.333	3.125	3.266	3.234	3.459	3.723	3.629	3.047	3.352	7.06
88)	T	4-Isopropyltol...	3.338	2.998	3.112	3.079	3.355	3.770	3.411	2.485	3.193	11.76
89)	T	1,2,3-Trimethy...	2.734	2.417	2.448	2.434	2.665	3.013	2.808	2.097	2.577	11.07
90)	T	1,2-Dichlorobe...	1.512	1.358	1.413	1.414	1.541	1.763	1.688	1.327	1.502	10.42
91)	T	d-Limonene	0.871	0.798	0.882	0.880	0.978	1.128	1.093	0.841	0.934	12.89
92)	T	1,2-Dibromo-3-...	0.495	0.450	0.486	0.514	0.571	0.659	0.660	0.646	0.560	15.26
93)	T	n-Undecane	1.283	1.125	1.180	1.116	1.242	1.335	1.359	1.237	1.235	7.32
94)	T	1,2,4-Trichlor...	1.257	1.067	1.074	1.103	1.154	1.326	1.361	1.289	1.204	9.81
95)	T	Naphthalene	4.049	3.354	3.439	3.406	3.548	4.119	4.118	3.528	3.695	9.15
96)	T	n-Dodecane	1.245	1.082	1.139	1.124	1.222	1.139	1.196	1.155	1.163	4.68
97)	T	Hexachlorobuta...	0.788	0.717	0.769	0.754	0.802	0.888	0.902	0.863	0.810	8.25
98)	T	Cyclohexanone	0.839	0.724	0.705	0.686	0.712	0.945	0.935	0.920	0.808	14.04
99)	T	tert-Butylbenzene	2.599	2.357	2.441	2.407	2.604	2.926	2.704	2.060	2.512	10.31
100)	T	n-Butylbenzene	2.656	2.408	2.548	2.519	2.758	2.984	2.910	2.489	2.659	7.81

(#) = Out of Range

R16101918.M Sat Oct 20 11:02:54 2018

LH 10/20/18

Primary Source Standards Concentrations (Working & Initial Calibration)

40
0.125

1ng/L Std. ID:
4ng/L Std. ID: S31-10181802
20ng/L Std. ID: S31-10181801
200ng/L Std. ID: S31-10181803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	20	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.250	0.25	0.125	0.25	0.50
Compounds	mg/m³	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045		0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008		0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049		0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009		0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022		0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140		0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370		0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063		0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034		0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144		0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070		0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065		0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030		0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252		0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027		0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054		0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166		0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082		0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077		0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066		0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067		0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7
Benzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036		0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087		0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073		0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Isooctane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135		0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6

Q:\TO15 Std. Concentrations\MS16 Std. Conc\2018\R16101918\ICAL Conc. (Primary Source)

Date Updated: 08/22/18
Version: 0

LH 10/20/18

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-10181802
20ng/L Std. ID: S31-10181801
200ng/L Std. ID: S31-10181803

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	4	20	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.250	0.25	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.1120	0.2240	0.5600	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055		0.1055	0.2110	0.5275	1.055	5.275	26.375	52.75	105.5
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052		0.1052	0.2104	0.5260	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085		0.1085	0.2170	0.5425	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.1066	0.2132	0.5330	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.2123	0.4246	1.0615	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071		0.1071	0.2142	0.5355	1.071	5.355	26.775	53.55	107.1
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Pinene	1.035	207.0	20.70	4.140	1.035		0.1035	0.2070	0.5175	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072		0.1072	0.2144	0.5360	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080		0.1080	0.2160	0.5400	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010		0.1010	0.2020	0.5050	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025		0.1025	0.2050	0.5125	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053		0.1053	0.2106	0.5265	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041		0.1041	0.2082	0.5205	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982		0.0982	0.1964	0.4910	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\R16101918.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2018_10\19\10191816.D
2	0.2	0	13	I:\MS16\DATA\2018_10\19\10191817.D
3	0.5	1	13	I:\MS16\DATA\2018_10\19\10191818.D
4	1.0	1	13	I:\MS16\DATA\2018_10\19\10191819.D
5	5.0	5	13	I:\MS16\DATA\2018_10\19\10191820.D
6	25	26	13	I:\MS16\DATA\2018_10\19\10191821.D
7	50	52	13	I:\MS16\DATA\2018_10\19\10191822.D
8	100	103	13	I:\MS16\DATA\2018_10\19\10191823.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 20:11
2	0.2	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 20:45
3	0.5	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 21:18
4	1.0	Oct 20 10:22 2018	Oct 20 10:15 2018	19 Oct 2018 21:52
5	5.0	Oct 20 10:23 2018	Oct 20 10:15 2018	19 Oct 2018 22:26
6	25	Oct 20 10:23 2018	Oct 20 10:14 2018	19 Oct 2018 22:59
7	50	Oct 20 10:23 2018	Oct 20 10:15 2018	19 Oct 2018 23:33
8	100	Oct 20 10:23 2018	Oct 20 10:15 2018	20 Oct 2018 00:06

R16101918.M Sat Oct 20 11:02:20 2018

LH 10/20/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	259926	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1100773	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	483658	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	394652	15.347	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.80%				
57) Toluene-d8 (SS2)	15.87	98	968660	13.093	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.72%				
73) Bromofluorobenzene (SS3)	19.09	174	432353	14.379	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.04%				
Target Compounds							Qvalue
2) Propene	4.09	42	2575	0.087	ng		93
3) Dichlorodifluoromethan...	4.25	85	6003	0.124	ng		95
4) Chloromethane	4.55	50	4035	0.111	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	3469	0.124	ng		95
6) Vinyl Chloride	4.99	62	3888	0.102	ng		97
7) 1,3-Butadiene	5.27	54	2439	0.086	ng	#	86
8) Bromomethane	5.73	94	2218	0.086	ng		99
9) Chloroethane	6.07	64	1657	0.082	ng		80
10) Ethanol	6.45	45	7982	0.441	ng		90
11) Acetonitrile	6.76	41	4733	0.098	ng		96
12) Acrolein	6.93	56	1187	0.068	ng		92
13) Acetone	7.14	58	9971	0.490	ng	#	80
14) Trichlorofluoromethane	7.37	101	5012	0.120	ng		97
15) 2-Propanol (Isopropanol)	7.69	45	12423	0.199	ng		71
16) Acrylonitrile	7.95	53	2085	0.057	ng		97
17) 1,1-Dichloroethene	8.36	96	2557	0.094	ng		99
18) 2-Methyl-2-Propanol (t...	8.58	59	13308	0.214	ng		79
19) Methylene Chloride	8.57	84	2723	0.095	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	4162	0.118	ng		70
21) Trichlorotrifluoroethane	9.00	151	2728	0.108	ng		97
22) Carbon Disulfide	8.87	76	10195	0.097	ng		98
23) trans-1,2-Dichloroethene	9.87	61	3332	0.087	ng		99
24) 1,1-Dichloroethane	10.12	63	4376	0.093	ng		96
25) Methyl tert-Butyl Ether	10.24	73	7826	0.104	ng		97
26) Vinyl Acetate	10.38	86	2297	0.391	ng	#	34
27) 2-Butanone (MEK)	10.67	72	1240	0.066	ng	#	53
28) cis-1,2-Dichloroethene	11.14	61	3206	0.087	ng		100
29) Diisopropyl Ether	11.43	87	2558	0.114	ng	#	93
30) Ethyl Acetate	11.45	61	1470	0.151	ng		93
31) n-Hexane	11.42	57	4265	0.098	ng		98
32) Chloroform	11.48	83	4736	0.106	ng		96
34) Tetrahydrofuran (THF)	11.93	72	1733	0.092	ng	#	80
35) Ethyl tert-Butyl Ether	12.02	87	3232	0.104	ng		98
36) 1,2-Dichloroethane	12.29	62	3676	0.119	ng		97
38) 1,1,1-Trichloroethane	12.56	97	4640	0.126	ng		97
39) Isopropyl Acetate	12.99	61	2833	0.158	ng	#	52
40) 1-Butanol	13.06	56	2971	0.115	ng		92
41) Benzene	13.04	78	11323	0.098	ng		100
42) Carbon Tetrachloride	13.20	117	3923	0.116	ng		96
43) Cyclohexane	13.32	84	8341	0.199	ng		96
44) tert-Amyl Methyl Ether	13.68	73	7649	0.099	ng	#	73
45) 1,2-Dichloropropane	13.90	63	2369	0.087	ng		99
46) Bromodichloromethane	14.09	83	3824	0.113	ng		99
47) Trichloroethene	14.13	130	3141	0.101	ng		97
48) 1,4-Dioxane	14.14	88	1757	0.077	ng		99
49) 2,2,4-Trimethylpentane...	14.19	57	10681	0.093	ng		91

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

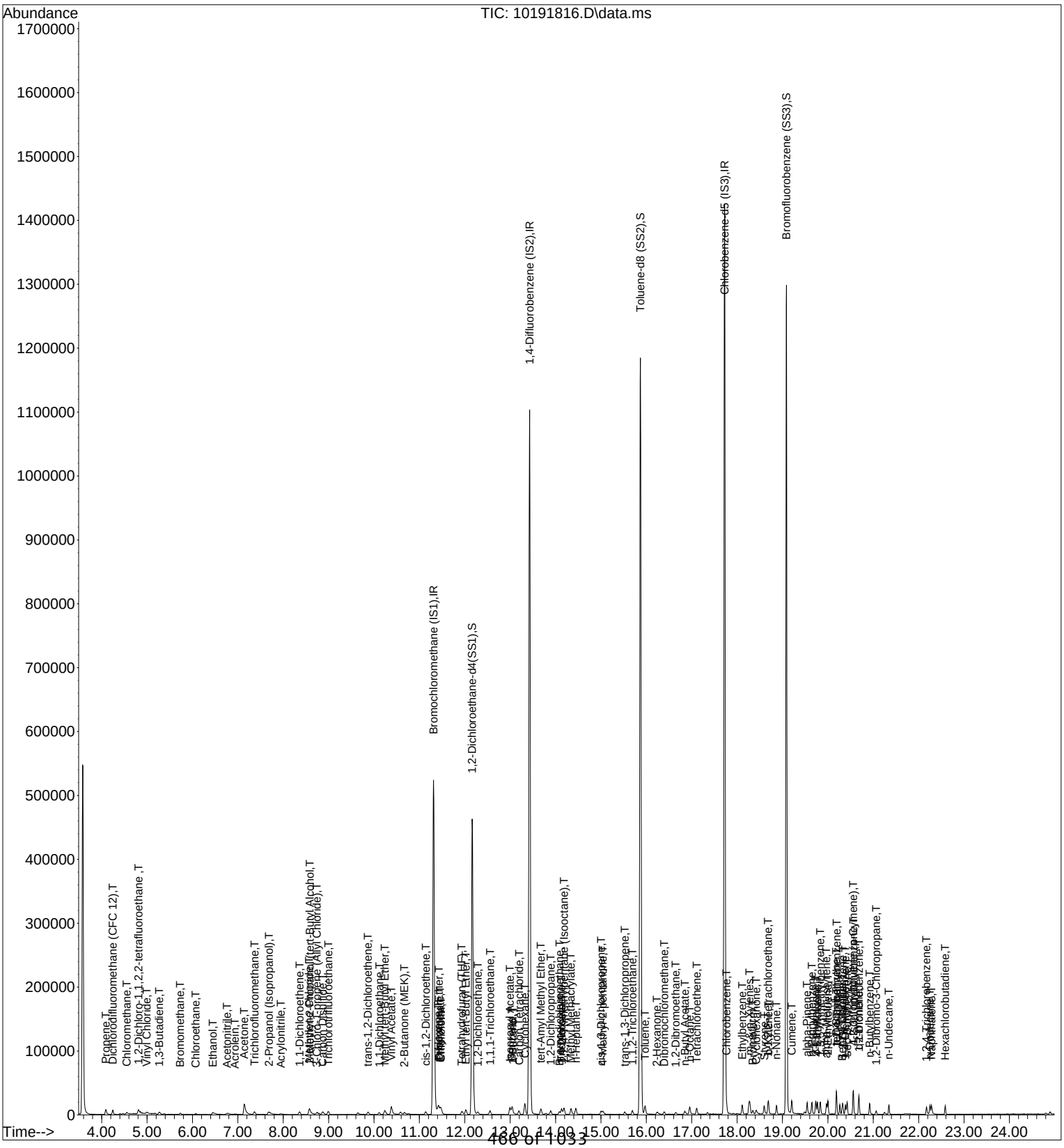
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	1862	0.162	ng	#	85
51) n-Heptane	14.45	71	2621	0.097	ng		94
52) cis-1,3-Dichloropropene	15.01	75	4237	0.099	ng		98
53) 4-Methyl-2-pentanone	15.04	58	1828	0.072	ng	#	58
54) trans-1,3-Dichloropropene	15.52	75	3183	0.085	ng		98
55) 1,1,2-Trichloroethane	15.69	97	2470	0.092	ng		94
58) Toluene	15.97	91	12432	0.098	ng		96
59) 2-Hexanone	16.23	43	6356	0.106	ng	#	65
60) Dibromochloromethane	16.39	129	3098	0.095	ng		99
61) 1,2-Dibromoethane	16.65	107	2953	0.091	ng		98
62) n-Butyl Acetate	16.85	43	6057	0.090	ng		86
63) n-Octane	16.96	57	3123	0.126	ng	#	74
64) Tetrachloroethene	17.11	166	3597	0.099	ng		97
65) Chlorobenzene	17.77	112	7946	0.096	ng		96
66) Ethylbenzene	18.11	91	13604	0.097	ng		95
67) m- & p-Xylenes	18.27	91	19254	0.185	ng		99
68) Bromoform	18.35	173	2526	0.088	ng		100
69) Styrene	18.60	104	7469	0.089	ng		96
70) o-Xylene	18.69	91	10213	0.097	ng		100
71) n-Nonane	18.87	43	4821	0.091	ng		90
72) 1,1,2,2-Tetrachloroethane	18.68	83	4563	0.089	ng		97
74) Cumene	19.20	105	13164	0.096	ng		90
75) alpha-Pinene	19.54	93	6492	0.092	ng	#	63
76) n-Propylbenzene	19.65	91	15744	0.098	ng		98
77) 3-Ethyltoluene	19.73	105	13494	0.099	ng		98
78) 4-Ethyltoluene	19.77	105	11376	0.090	ng		96
79) 1,3,5-Trimethylbenzene	19.84	105	11524	0.103	ng		100
80) alpha-Methylstyrene	19.97	118	5365	0.095	ng		93
81) 2-Ethyltoluene	20.00	105	14373	0.109	ng		92
82) 1,2,4-Trimethylbenzene	20.19	105	11372	0.105	ng		93
83) n-Decane	20.19	58	315	0.127	ng	#	24
84) Benzyl Chloride	20.31	91	7204	0.081	ng		89
85) 1,3-Dichlorobenzene	20.33	146	6709	0.099	ng		99
86) 1,4-Dichlorobenzene	20.39	146	7302	0.108	ng		94
87) sec-Butylbenzene	20.42	105	13710	0.092	ng		96
88) 4-Isopropyltoluene (p-...	20.56	119	13457	0.099	ng		96
89) 1,2,3-Trimethylbenzene	20.56	105	11024	0.102	ng		96
90) 1,2-Dichlorobenzene	20.69	146	6370	0.100	ng		99
91) d-Limonene	20.68	68	3402	0.083	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.07	157	1996	0.086	ng	#	81
93) n-Undecane	21.34	57	5247	0.094	ng		91
94) 1,2,4-Trichlorobenzene	22.17	180	5176	0.118	ng		97
95) Naphthalene	22.28	128	16060	0.129	ng		94
96) n-Dodecane	22.25	57	4967	0.113	ng		90
97) Hexachlorobutadiene	22.58	225	3212	0.100	ng		99
98) Cyclohexanone	18.42	55	3189	0.074	ng		92
99) tert-Butylbenzene	20.19	119	10732	0.100	ng		98
100) n-Butylbenzene	20.92	91	10935	0.094	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191816.D
Acq On : 19 Oct 2018 20:11 Operator: LH/TD
Sample : 0.1ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:10 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	257161	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1084550	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	477241	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	387674	15.238	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.92%				
57) Toluene-d8 (SS2)	15.87	98	961586	13.172	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.36%				
73) Bromofluorobenzene (SS3)	19.09	174	430660	14.515	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.08%				
Target Compounds							Qvalue
2) Propene	4.08	42	4487	0.153	ng		93
3) Dichlorodifluoromethan...	4.23	85	11073	0.232	ng		99
4) Chloromethane	4.54	50	7536	0.210	ng		95
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	6390	0.231	ng		97
6) Vinyl Chloride	4.98	62	7446	0.198	ng		98
7) 1,3-Butadiene	5.26	54	4654	0.167	ng	#	88
8) Bromomethane	5.71	94	4227	0.166	ng		98
9) Chloroethane	6.06	64	3142	0.157	ng		93
10) Ethanol	6.42	45	13922	0.778	ng		93
11) Acetonitrile	6.74	41	7985	0.167	ng		98
12) Acrolein	6.93	56	2246	0.130	ng		95
13) Acetone	7.12	58	17943	0.892	ng	#	84
14) Trichlorofluoromethane	7.36	101	9551	0.231	ng		99
15) 2-Propanol (Isopropanol)	7.65	45	22819	0.369	ng		82
16) Acrylonitrile	7.92	53	4620	0.129	ng		93
17) 1,1-Dichloroethene	8.35	96	4982	0.185	ng		95
18) 2-Methyl-2-Propanol (t...	8.56	59	25037	0.406	ng		92
19) Methylene Chloride	8.57	84	4960	0.175	ng		100
20) 3-Chloro-1-propene (Al...	8.74	41	5940	0.170	ng		90
21) Trichlorotrifluoroethane	8.99	151	4959	0.198	ng		95
22) Carbon Disulfide	8.86	76	17898	0.172	ng		98
23) trans-1,2-Dichloroethene	9.87	61	6160	0.163	ng		100
24) 1,1-Dichloroethane	10.11	63	7869	0.169	ng		99
25) Methyl tert-Butyl Ether	10.23	73	15191	0.205	ng		100
26) Vinyl Acetate	10.37	86	4664	0.802	ng	#	48
27) 2-Butanone (MEK)	10.65	72	2517	0.134	ng	#	84
28) cis-1,2-Dichloroethene	11.14	61	6253	0.171	ng		98
29) Diisopropyl Ether	11.42	87	4772	0.216	ng	#	84
30) Ethyl Acetate	11.45	61	2903	0.302	ng		99
31) n-Hexane	11.41	57	7761	0.180	ng		97
32) Chloroform	11.48	83	8960	0.203	ng		99
34) Tetrahydrofuran (THF)	11.93	72	3056	0.164	ng	#	91
35) Ethyl tert-Butyl Ether	12.02	87	5844	0.190	ng		95
36) 1,2-Dichloroethane	12.29	62	6800	0.223	ng		99
38) 1,1,1-Trichloroethane	12.55	97	8414	0.232	ng		99
39) Isopropyl Acetate	12.99	61	5697	0.322	ng	#	87
40) 1-Butanol	13.04	56	5712	0.224	ng		84
41) Benzene	13.04	78	19779	0.174	ng		100
42) Carbon Tetrachloride	13.19	117	7359	0.222	ng		98
43) Cyclohexane	13.32	84	15105	0.365	ng		97
44) tert-Amyl Methyl Ether	13.67	73	13643	0.180	ng		87
45) 1,2-Dichloropropane	13.89	63	4577	0.170	ng		93
46) Bromodichloromethane	14.08	83	6782	0.203	ng		98
47) Trichloroethene	14.13	130	5792	0.189	ng		99
48) 1,4-Dioxane	14.13	88	3376	0.150	ng		95
49) 2,2,4-Trimethylpentane...	14.19	57	19399	0.171	ng		90

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

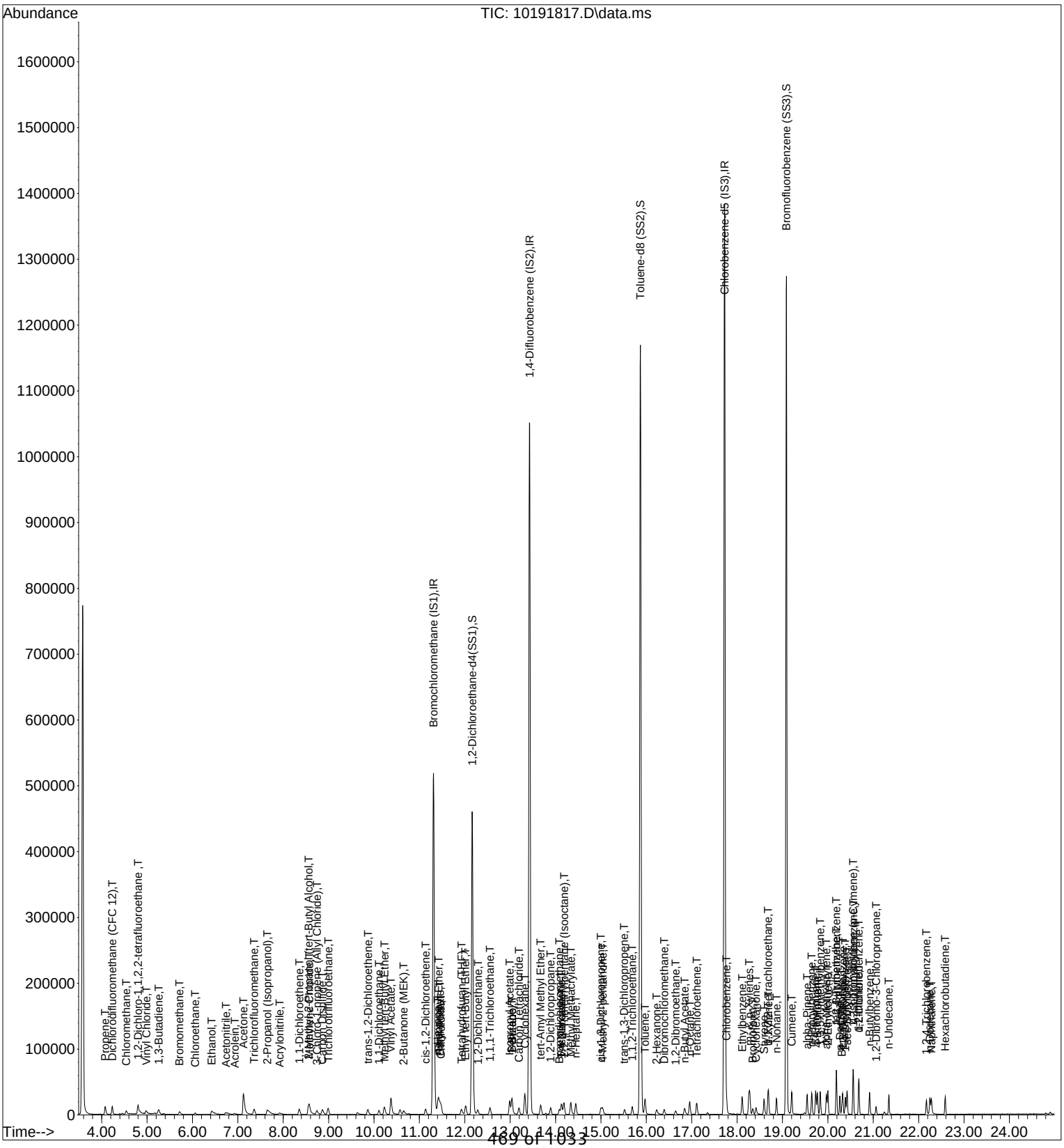
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	3658	0.323	ng	#	87
51) n-Heptane	14.45	71	4815	0.181	ng		98
52) cis-1,3-Dichloropropene	15.00	75	7493	0.177	ng		99
53) 4-Methyl-2-pentanone	15.04	58	3729	0.148	ng	#	73
54) trans-1,3-Dichloropropene	15.51	75	6026	0.163	ng		99
55) 1,1,2-Trichloroethane	15.69	97	4775	0.181	ng		100
58) Toluene	15.97	91	22567	0.181	ng		95
59) 2-Hexanone	16.23	43	8234	0.139	ng		100
60) Dibromochloromethane	16.39	129	5960	0.184	ng		96
61) 1,2-Dibromoethane	16.65	107	5470	0.171	ng		99
62) n-Butyl Acetate	16.84	43	10357	0.156	ng		95
63) n-Octane	16.96	57	4085	0.167	ng		93
64) Tetrachloroethene	17.11	166	6498	0.181	ng		99
65) Chlorobenzene	17.76	112	14677	0.180	ng		99
66) Ethylbenzene	18.11	91	23522	0.170	ng		98
67) m- & p-Xylenes	18.27	91	35704	0.349	ng		97
68) Bromoform	18.35	173	4824	0.170	ng		99
69) Styrene	18.59	104	13627	0.165	ng		99
70) o-Xylene	18.69	91	18107	0.175	ng		97
71) n-Nonane	18.87	43	8903	0.170	ng		91
72) 1,1,2,2-Tetrachloroethane	18.68	83	8288	0.163	ng		100
74) Cumene	19.20	105	24744	0.183	ng		98
75) alpha-Pinene	19.54	93	11525	0.165	ng		81
76) n-Propylbenzene	19.64	91	27347	0.173	ng		99
77) 3-Ethyltoluene	19.73	105	24845	0.184	ng		99
78) 4-Ethyltoluene	19.77	105	20021	0.161	ng		99
79) 1,3,5-Trimethylbenzene	19.83	105	20283	0.184	ng		93
80) alpha-Methylstyrene	19.97	118	9729	0.174	ng		96
81) 2-Ethyltoluene	20.00	105	23246	0.179	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	19075	0.178	ng		99
83) n-Decane	20.26	58	362	0.147	ng	#	89
84) Benzyl Chloride	20.31	91	12102	0.139	ng		94
85) 1,3-Dichlorobenzene	20.33	146	11577	0.174	ng		97
86) 1,4-Dichlorobenzene	20.39	146	12078	0.181	ng		100
87) sec-Butylbenzene	20.42	105	25369	0.172	ng		97
88) 4-Isopropyltoluene (p-...	20.56	119	23853	0.177	ng		97
89) 1,2,3-Trimethylbenzene	20.56	105	19232	0.181	ng		97
90) 1,2-Dichlorobenzene	20.68	146	11296	0.181	ng		99
91) d-Limonene	20.68	68	6157	0.152	ng		97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	3578	0.156	ng	#	82
93) n-Undecane	21.34	57	9077	0.165	ng		96
94) 1,2,4-Trichlorobenzene	22.17	180	8672	0.200	ng		99
95) Naphthalene	22.28	128	26249	0.213	ng		95
96) n-Dodecane	22.25	57	8516	0.196	ng		94
97) Hexachlorobutadiene	22.58	225	5767	0.182	ng		96
98) Cyclohexanone	18.42	55	5431	0.127	ng		95
99) tert-Butylbenzene	20.19	119	19200	0.181	ng		99
100) n-Butylbenzene	20.92	91	19566	0.171	ng		96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191817.D
Acq On : 19 Oct 2018 20:45 Operator: LH/TD
Sample : 0.2ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:13 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	225635	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	973886	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	429711	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.16	65	347374	15.561	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 124.48%				
57) Toluene-d8 (SS2)	15.87	98	859289	13.073	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.56%				
73) Bromofluorobenzene (SS3)	19.09	174	387238	14.495	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.00%				
Target Compounds							Qvalue
2) Propene	4.08	42	10541	0.410	ng		99
3) Dichlorodifluoromethan...	4.24	85	25510	0.608	ng		100
4) Chloromethane	4.54	50	16734	0.532	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	14808	0.609	ng		99
6) Vinyl Chloride	4.98	62	17732	0.536	ng		99
7) 1,3-Butadiene	5.26	54	10262	0.419	ng		95
8) Bromomethane	5.71	94	10153	0.453	ng		98
9) Chloroethane	6.06	64	6983	0.397	ng		97
10) Ethanol	6.42	45	29635	1.887	ng		96
11) Acetonitrile	6.73	41	17102	0.409	ng		94
12) Acrolein	6.92	56	5787	0.381	ng		99
13) Acetone	7.12	58	40735	2.308	ng		86
14) Trichlorofluoromethane	7.36	101	22609	0.622	ng		99
15) 2-Propanol (Isopropanol)	7.63	45	53151	0.980	ng		89
16) Acrylonitrile	7.91	53	11644	0.370	ng		97
17) 1,1-Dichloroethene	8.36	96	11055	0.468	ng		97
18) 2-Methyl-2-Propanol (t...	8.54	59	57832	1.069	ng		95
19) Methylene Chloride	8.57	84	11356	0.456	ng		99
20) 3-Chloro-1-propene (Al...	8.74	41	13258	0.431	ng		94
21) Trichlorotrifluoroethane	9.00	151	11866	0.539	ng		98
22) Carbon Disulfide	8.86	76	40904	0.447	ng		98
23) trans-1,2-Dichloroethene	9.87	61	15175	0.456	ng		99
24) 1,1-Dichloroethane	10.11	63	18533	0.454	ng		100
25) Methyl tert-Butyl Ether	10.22	73	35015	0.538	ng		100
26) Vinyl Acetate	10.37	86	11599	2.273	ng	#	64
27) 2-Butanone (MEK)	10.65	72	6589	0.401	ng	#	90
28) cis-1,2-Dichloroethene	11.14	61	14946	0.466	ng		98
29) Diisopropyl Ether	11.43	87	9698	0.500	ng	#	93
30) Ethyl Acetate	11.44	61	7230	0.858	ng		98
31) n-Hexane	11.41	57	17684	0.467	ng		98
32) Chloroform	11.48	83	21257	0.550	ng		100
34) Tetrahydrofuran (THF)	11.91	72	7135	0.438	ng		96
35) Ethyl tert-Butyl Ether	12.02	87	13660	0.505	ng		96
36) 1,2-Dichloroethane	12.29	62	15847	0.592	ng		99
38) 1,1,1-Trichloroethane	12.56	97	19675	0.603	ng		99
39) Isopropyl Acetate	12.98	61	13719	0.863	ng	#	96
40) 1-Butanol	13.03	56	14427	0.630	ng	#	76
41) Benzene	13.04	78	44790	0.438	ng		99
42) Carbon Tetrachloride	13.20	117	16951	0.569	ng		98
43) Cyclohexane	13.32	84	35112	0.946	ng		97
44) tert-Amyl Methyl Ether	13.67	73	32334	0.475	ng		94
45) 1,2-Dichloropropane	13.89	63	10588	0.439	ng		99
46) Bromodichloromethane	14.09	83	16335	0.545	ng		99
47) Trichloroethene	14.13	130	13518	0.491	ng		98
48) 1,4-Dioxane	14.12	88	8034	0.398	ng		93
49) 2,2,4-Trimethylpentane...	14.19	57	43919	0.432	ng		95

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

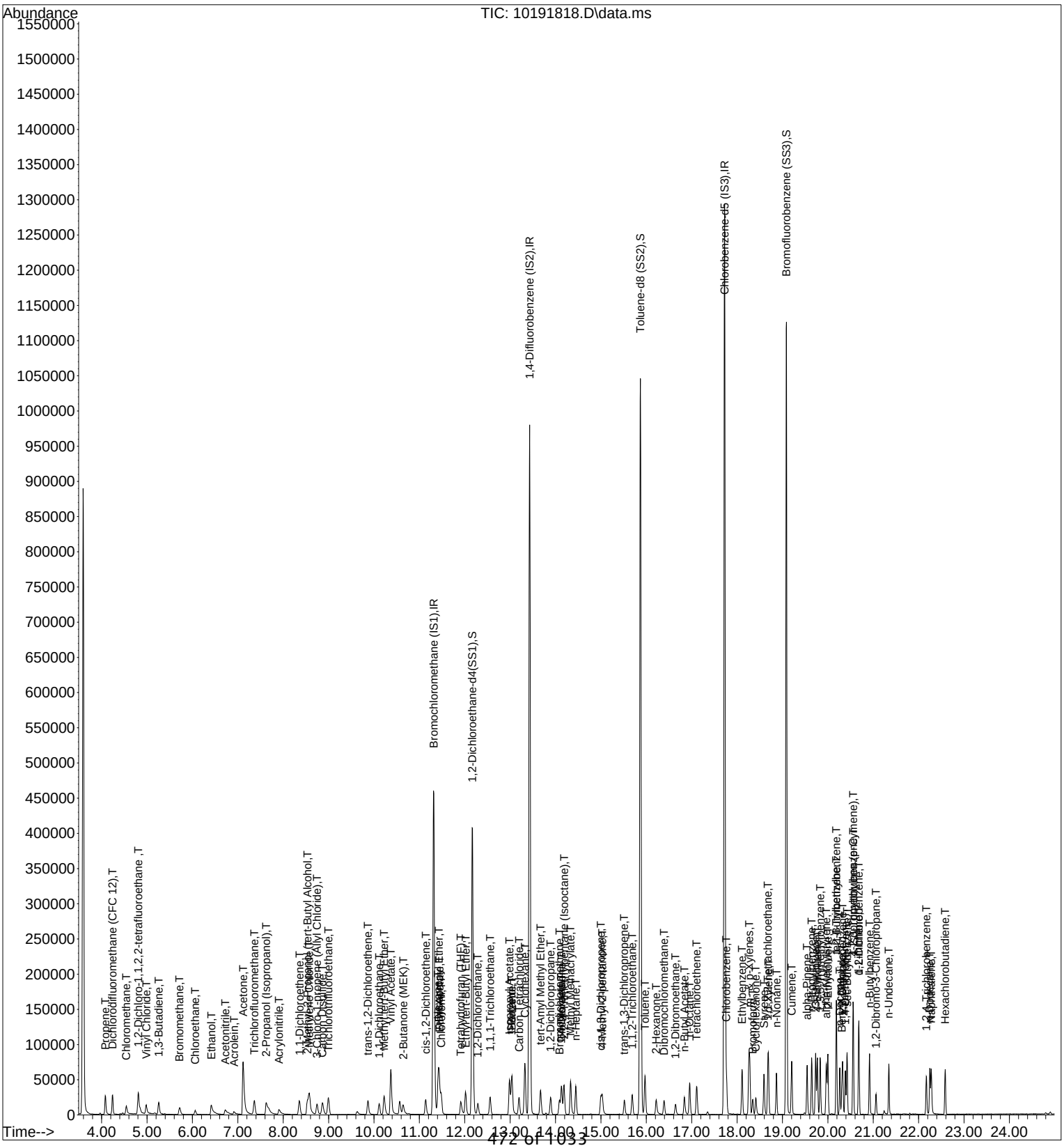
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	9281	0.912	ng		98
51) n-Heptane	14.45	71	10836	0.453	ng		97
52) cis-1,3-Dichloropropene	15.00	75	18237	0.481	ng		98
53) 4-Methyl-2-pentanone	15.03	58	8918	0.395	ng		81
54) trans-1,3-Dichloropropene	15.51	75	14670	0.442	ng		98
55) 1,1,2-Trichloroethane	15.69	97	11444	0.482	ng		99
58) Toluene	15.97	91	50062	0.445	ng		99
59) 2-Hexanone	16.22	43	22684	0.424	ng		90
60) Dibromochloromethane	16.39	129	13871	0.476	ng		97
61) 1,2-Dibromoethane	16.64	107	13196	0.459	ng		99
62) n-Butyl Acetate	16.84	43	23614	0.396	ng		99
63) n-Octane	16.95	57	9031	0.410	ng		97
64) Tetrachloroethene	17.11	166	15226	0.470	ng		98
65) Chlorobenzene	17.76	112	33049	0.449	ng		100
66) Ethylbenzene	18.11	91	53687	0.432	ng		99
67) m- & p-Xylenes	18.27	91	83480	0.905	ng		98
68) Bromoform	18.35	173	11745	0.459	ng		99
69) Styrene	18.59	104	31949	0.428	ng		99
70) o-Xylene	18.69	91	41839	0.449	ng		98
71) n-Nonane	18.87	43	20160	0.427	ng		93
72) 1,1,2,2-Tetrachloroethane	18.68	83	19807	0.433	ng		98
74) Cumene	19.20	105	55328	0.453	ng		98
75) alpha-Pinene	19.54	93	27411	0.436	ng		91
76) n-Propylbenzene	19.64	91	63970	0.449	ng		98
77) 3-Ethyltoluene	19.73	105	52839	0.435	ng		99
78) 4-Ethyltoluene	19.77	105	51597	0.460	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	45663	0.460	ng		98
80) alpha-Methylstyrene	19.97	118	23857	0.473	ng		98
81) 2-Ethyltoluene	20.00	105	53837	0.460	ng		98
82) 1,2,4-Trimethylbenzene	20.19	105	45011	0.466	ng		99
83) n-Decane	20.26	58	875	0.396	ng	#	94
84) Benzyl Chloride	20.31	91	29371	0.374	ng		95
85) 1,3-Dichlorobenzene	20.32	146	27996	0.467	ng		98
86) 1,4-Dichlorobenzene	20.39	146	27951	0.464	ng		99
87) sec-Butylbenzene	20.42	105	59665	0.448	ng		98
88) 4-Isopropyltoluene (p-...	20.56	119	55732	0.459	ng		97
89) 1,2,3-Trimethylbenzene	20.56	105	43842	0.459	ng		99
90) 1,2-Dichlorobenzene	20.68	146	26449	0.470	ng		100
91) d-Limonene	20.68	68	15317	0.421	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	8712	0.422	ng		86
93) n-Undecane	21.34	57	21430	0.432	ng		96
94) 1,2,4-Trichlorobenzene	22.17	180	19639	0.503	ng		98
95) Naphthalene	22.28	128	60589	0.547	ng		98
96) n-Dodecane	22.24	57	20181	0.515	ng		95
97) Hexachlorobutadiene	22.59	225	13910	0.489	ng		99
98) Cyclohexanone	18.41	55	11901	0.309	ng		96
99) tert-Butylbenzene	20.19	119	44776	0.470	ng		98
100) n-Butylbenzene	20.92	91	46601	0.451	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191818.D
Acq On : 19 Oct 2018 21:18 Operator: LH/TD
Sample : 0.5ng TO15 ICAL STD
Misc : S31-09141801/S31-10181802 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:16 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	224987	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	965252	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	426875	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	343361	15.426	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 123.44%				
57) Toluene-d8 (SS2)	15.87	98	852640	13.058	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.48%				
73) Bromofluorobenzene (SS3)	19.09	174	385450	14.524	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.16%				
Target Compounds							Qvalue
2) Propene	4.06	42	21283	0.831	ng		99
3) Dichlorodifluoromethan...	4.22	85	48499	1.159	ng		99
4) Chloromethane	4.53	50	29457	0.938	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	28994	1.197	ng		100
6) Vinyl Chloride	4.96	62	34476	1.046	ng		100
7) 1,3-Butadiene	5.24	54	20758	0.850	ng		96
8) Bromomethane	5.70	94	19671	0.881	ng		100
9) Chloroethane	6.04	64	14325	0.817	ng		96
10) Ethanol	6.40	45	56772	3.625	ng		99
11) Acetonitrile	6.70	41	31490	0.755	ng		100
12) Acrolein	6.90	56	11132	0.735	ng		100
13) Acetone	7.10	58	77729	4.416	ng		86
14) Trichlorofluoromethane	7.35	101	43352	1.196	ng		100
15) 2-Propanol (Isopropanol)	7.61	45	97012	1.793	ng		91
16) Acrylonitrile	7.89	53	22976	0.732	ng		98
17) 1,1-Dichloroethene	8.35	96	21529	0.914	ng		97
18) 2-Methyl-2-Propanol (t...	8.51	59	110398	2.047	ng		96
19) Methylene Chloride	8.57	84	21669	0.872	ng		97
20) 3-Chloro-1-propene (Al...	8.73	41	25573	0.834	ng		95
21) Trichlorotrifluoroethane	8.99	151	23091	1.051	ng		99
22) Carbon Disulfide	8.85	76	78459	0.861	ng		99
23) trans-1,2-Dichloroethene	9.86	61	29899	0.902	ng		98
24) 1,1-Dichloroethane	10.11	63	35845	0.881	ng		100
25) Methyl tert-Butyl Ether	10.21	73	67748	1.043	ng		99
26) Vinyl Acetate	10.37	86	22653	4.451	ng	#	69
27) 2-Butanone (MEK)	10.63	72	13467	0.822	ng		95
28) cis-1,2-Dichloroethene	11.14	61	29329	0.918	ng		98
29) Diisopropyl Ether	11.42	87	18522	0.957	ng	#	90
30) Ethyl Acetate	11.44	61	14844	1.767	ng		99
31) n-Hexane	11.41	57	34290	0.908	ng		100
32) Chloroform	11.48	83	40401	1.048	ng		100
34) Tetrahydrofuran (THF)	11.90	72	13703	0.843	ng		97
35) Ethyl tert-Butyl Ether	12.01	87	26527	0.984	ng		95
36) 1,2-Dichloroethane	12.29	62	30947	1.159	ng		99
38) 1,1,1-Trichloroethane	12.56	97	38172	1.181	ng		99
39) Isopropyl Acetate	12.98	61	26073	1.655	ng	#	92
40) 1-Butanol	13.02	56	29513	1.301	ng	#	75
41) Benzene	13.04	78	84925	0.838	ng		100
42) Carbon Tetrachloride	13.19	117	33183	1.123	ng		99
43) Cyclohexane	13.32	84	67512	1.835	ng		98
44) tert-Amyl Methyl Ether	13.67	73	62277	0.924	ng		97
45) 1,2-Dichloropropane	13.89	63	20805	0.870	ng		98
46) Bromodichloromethane	14.08	83	31050	1.045	ng		99
47) Trichloroethene	14.13	130	26317	0.965	ng		99
48) 1,4-Dioxane	14.12	88	16159	0.807	ng		97
49) 2,2,4-Trimethylpentane...	14.19	57	83311	0.827	ng		97

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

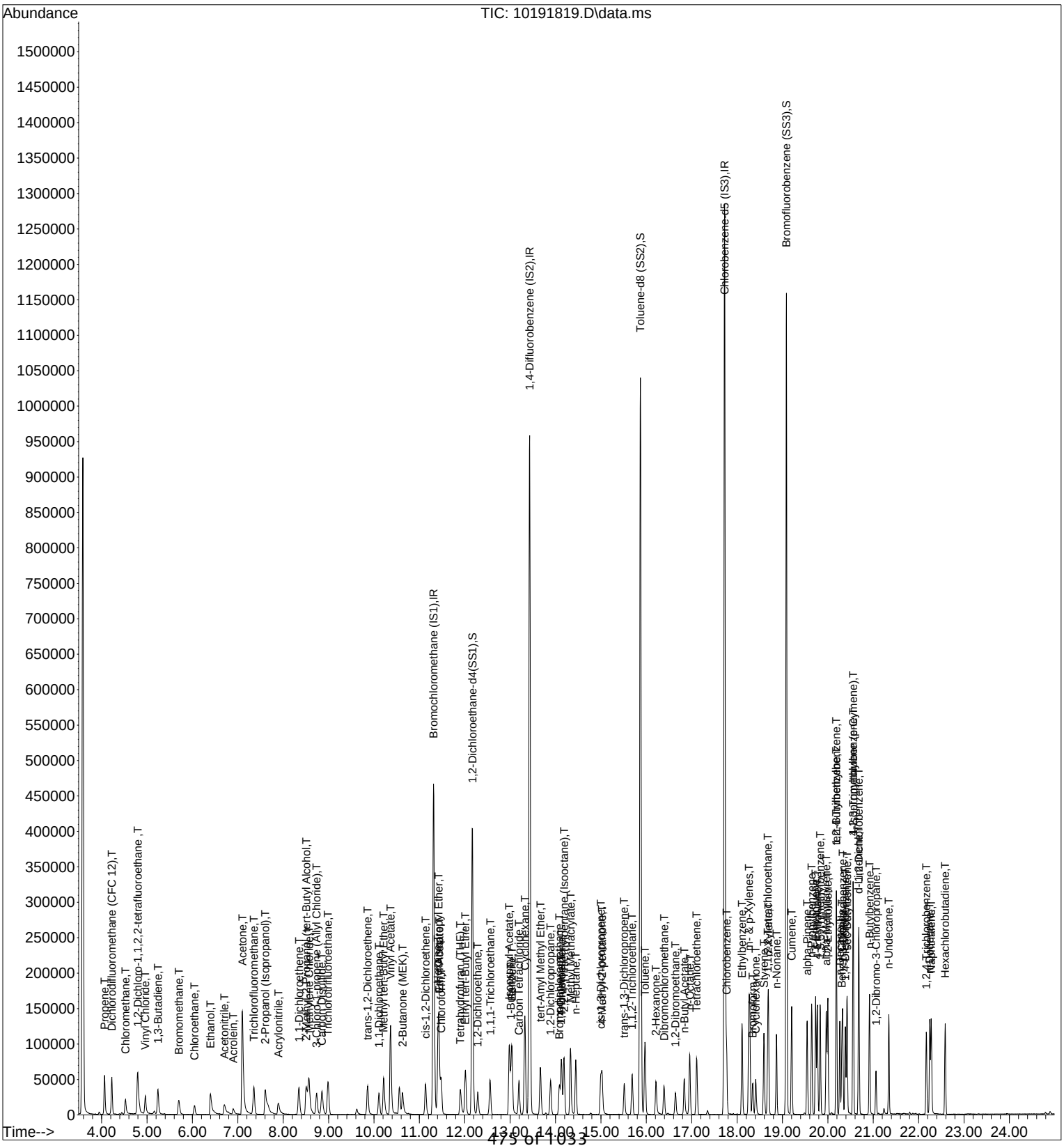
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.33	100	18333	1.818	ng		97
51) n-Heptane	14.45	71	21058	0.888	ng		99
52) cis-1,3-Dichloropropene	15.00	75	35947	0.957	ng		98
53) 4-Methyl-2-pentanone	15.02	58	17931	0.802	ng		89
54) trans-1,3-Dichloropropene	15.51	75	29427	0.894	ng		99
55) 1,1,2-Trichloroethane	15.68	97	22263	0.946	ng		100
58) Toluene	15.97	91	95872	0.858	ng		99
59) 2-Hexanone	16.21	43	43507	0.819	ng		93
60) Dibromochloromethane	16.39	129	27643	0.956	ng		99
61) 1,2-Dibromoethane	16.64	107	25890	0.906	ng		99
62) n-Butyl Acetate	16.84	43	48116	0.813	ng		97
63) n-Octane	16.96	57	17310	0.792	ng		98
64) Tetrachloroethene	17.11	166	29202	0.908	ng		100
65) Chlorobenzene	17.77	112	64179	0.878	ng		100
66) Ethylbenzene	18.11	91	104622	0.847	ng		98
67) m- & p-Xylenes	18.26	91	162352	1.772	ng		98
68) Bromoform	18.35	173	23860	0.939	ng		99
69) Styrene	18.59	104	63992	0.864	ng		99
70) o-Xylene	18.69	91	81354	0.879	ng		99
71) n-Nonane	18.87	43	38738	0.825	ng		95
72) 1,1,2,2-Tetrachloroethane	18.68	83	39068	0.861	ng		99
74) Cumene	19.20	105	105998	0.875	ng		98
75) alpha-Pinene	19.54	93	53269	0.854	ng		94
76) n-Propylbenzene	19.64	91	125025	0.884	ng		98
77) 3-Ethyltoluene	19.73	105	103817	0.861	ng		99
78) 4-Ethyltoluene	19.77	105	100902	0.905	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	87207	0.885	ng		98
80) alpha-Methylstyrene	19.97	118	47279	0.945	ng		99
81) 2-Ethyltoluene	20.00	105	104889	0.903	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	87919	0.917	ng		99
83) n-Decane	20.26	58	1906	0.868	ng	#	85
84) Benzyl Chloride	20.31	91	60859	0.779	ng		97
85) 1,3-Dichlorobenzene	20.32	146	54578	0.917	ng		100
86) 1,4-Dichlorobenzene	20.39	146	55188	0.922	ng		100
87) sec-Butylbenzene	20.42	105	117383	0.888	ng		98
88) 4-Isopropyltoluene (p-...	20.56	119	109563	0.909	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	86602	0.912	ng		100
90) 1,2-Dichlorobenzene	20.68	146	52570	0.939	ng		100
91) d-Limonene	20.68	68	30347	0.840	ng		100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	18306	0.893	ng		93
93) n-Undecane	21.34	57	40281	0.818	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	40089	1.034	ng		99
95) Naphthalene	22.28	128	119229	1.083	ng		99
96) n-Dodecane	22.24	57	39563	1.015	ng		98
97) Hexachlorobutadiene	22.59	225	27131	0.959	ng		100
98) Cyclohexanone	18.41	55	22989	0.601	ng		97
99) tert-Butylbenzene	20.19	119	87695	0.927	ng		98
100) n-Butylbenzene	20.92	91	91546	0.892	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191819.D
Acq On : 19 Oct 2018 21:52 Operator: LH/TD
Sample : 1.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 20 10:15:19 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	226819	12.500	ng		-0.01
37) 1,4-Difluorobenzene (IS2)	13.43	114	957857	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	421774	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	342140	15.247	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.00%				
57) Toluene-d8 (SS2)	15.87	98	839917	13.018	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 104.16%				
73) Bromofluorobenzene (SS3)	19.09	174	388522	14.817	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.56%				
Target Compounds							Qvalue
2) Propene	4.05	42	101200	3.919	ng		100
3) Dichlorodifluoromethan...	4.22	85	247896	5.878	ng		100
4) Chloromethane	4.52	50	159178	5.030	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	144746	5.925	ng		99
6) Vinyl Chloride	4.96	62	175036	5.268	ng		100
7) 1,3-Butadiene	5.24	54	110093	4.473	ng		98
8) Bromomethane	5.70	94	100678	4.470	ng		100
9) Chloroethane	6.04	64	72520	4.102	ng		99
10) Ethanol	6.41	45	283980	17.986	ng		100
11) Acetonitrile	6.69	41	152420	3.625	ng		100
12) Acrolein	6.89	56	57894	3.793	ng		99
13) Acetone	7.09	58	370672	20.891	ng		87
14) Trichlorofluoromethane	7.35	101	218077	5.970	ng		100
15) 2-Propanol (Isopropanol)	7.60	45	491389	9.010	ng		98
16) Acrylonitrile	7.89	53	121955	3.854	ng		99
17) 1,1-Dichloroethene	8.35	96	111254	4.686	ng		99
18) 2-Methyl-2-Propanol (t...	8.50	59	577334	10.617	ng		98
19) Methylene Chloride	8.57	84	111943	4.468	ng		100
20) 3-Chloro-1-propene (Al...	8.74	41	131587	4.259	ng		99
21) Trichlorotrifluoroethane	8.99	151	116399	5.257	ng		99
22) Carbon Disulfide	8.85	76	395407	4.302	ng		100
23) trans-1,2-Dichloroethene	9.86	61	154571	4.623	ng		100
24) 1,1-Dichloroethane	10.12	63	183544	4.476	ng		100
25) Methyl tert-Butyl Ether	10.21	73	341288	5.213	ng		100
26) Vinyl Acetate	10.37	86	131530	25.636	ng	#	78
27) 2-Butanone (MEK)	10.62	72	70732	4.283	ng		96
28) cis-1,2-Dichloroethene	11.14	61	150735	4.679	ng		99
29) Diisopropyl Ether	11.42	87	93397	4.787	ng	#	89
30) Ethyl Acetate	11.43	61	78309	9.247	ng		99
31) n-Hexane	11.41	57	169215	4.446	ng		100
32) Chloroform	11.48	83	207535	5.341	ng		100
34) Tetrahydrofuran (THF)	11.89	72	70225	4.284	ng		99
35) Ethyl tert-Butyl Ether	12.01	87	137443	5.060	ng		98
36) 1,2-Dichloroethane	12.29	62	158384	5.882	ng		100
38) 1,1,1-Trichloroethane	12.56	97	193828	6.043	ng		100
39) Isopropyl Acetate	12.98	61	136171	8.709	ng	#	97
40) 1-Butanol	13.00	56	153865	6.836	ng	#	78
41) Benzene	13.04	78	433586	4.313	ng		100
42) Carbon Tetrachloride	13.20	117	172504	5.886	ng		100
43) Cyclohexane	13.32	84	344832	9.447	ng		99
44) tert-Amyl Methyl Ether	13.67	73	319579	4.777	ng		98
45) 1,2-Dichloropropane	13.89	63	103285	4.351	ng		100
46) Bromodichloromethane	14.08	83	164399	5.578	ng		99
47) Trichloroethene	14.13	130	134864	4.985	ng		99
48) 1,4-Dioxane	14.11	88	82830	4.170	ng		99
49) 2,2,4-Trimethylpentane...	14.19	57	422546	4.229	ng		99

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

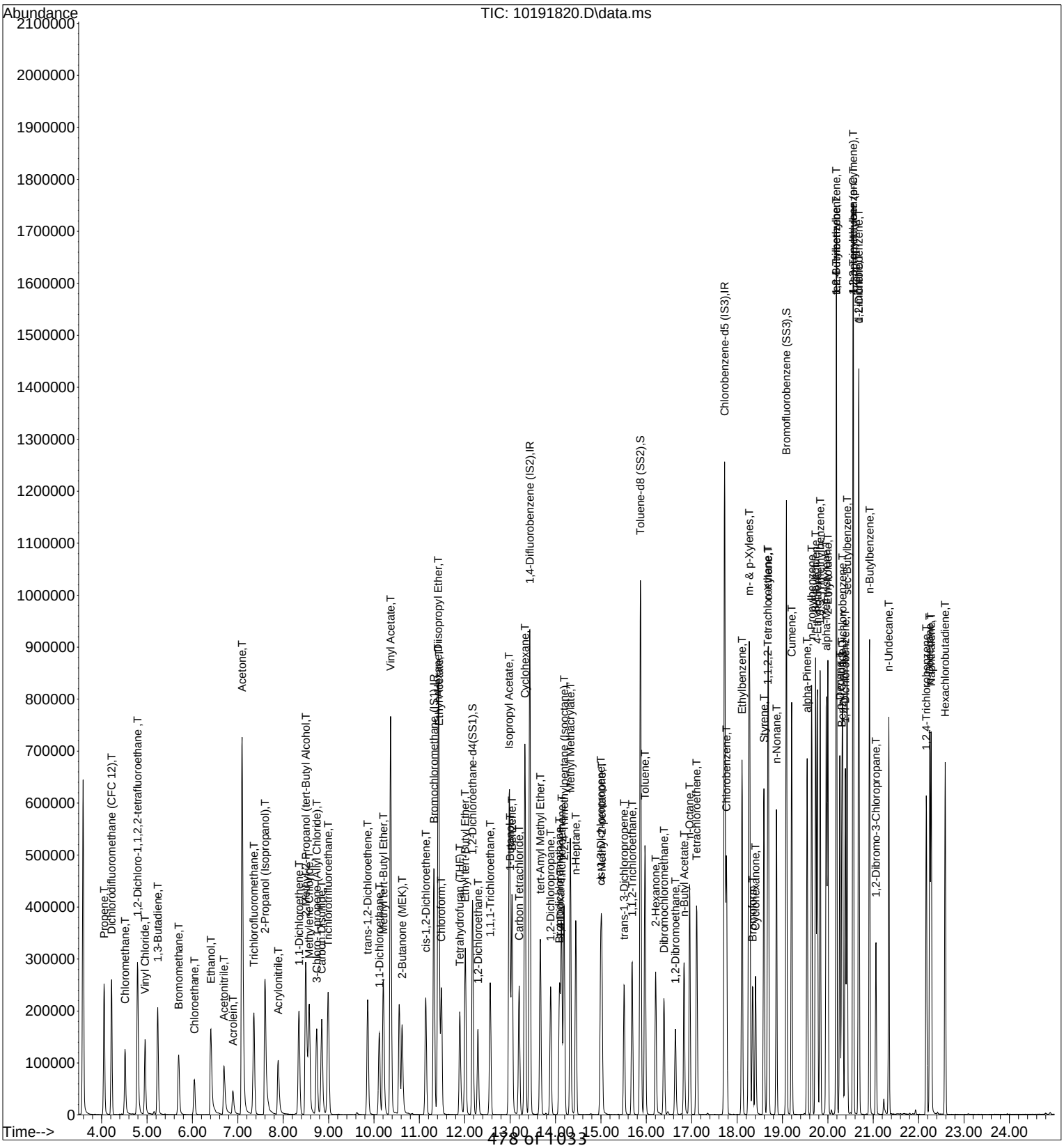
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	98071	9.799	ng	99
51) n-Heptane	14.45	71	105087	4.468	ng	99
52) cis-1,3-Dichloropropene	15.00	75	192165	5.153	ng	99
53) 4-Methyl-2-pentanone	15.02	58	95813	4.318	ng	94
54) trans-1,3-Dichloropropene	15.51	75	164963	5.049	ng	100
55) 1,1,2-Trichloroethane	15.69	97	114546	4.905	ng	99
58) Toluene	15.97	91	469105	4.249	ng	99
59) 2-Hexanone	16.21	43	223802	4.266	ng	97
60) Dibromochloromethane	16.39	129	148692	5.203	ng	99
61) 1,2-Dibromoethane	16.64	107	136852	4.846	ng	100
62) n-Butyl Acetate	16.83	43	255653	4.370	ng	98
63) n-Octane	16.95	57	85876	3.977	ng	99
64) Tetrachloroethene	17.11	166	149468	4.701	ng	100
65) Chlorobenzene	17.77	112	328197	4.546	ng	99
66) Ethylbenzene	18.11	91	538985	4.419	ng	99
67) m- & p-Xylenes	18.27	91	839857	9.278	ng	99
68) Bromoform	18.35	173	133090	5.301	ng	100
69) Styrene	18.59	104	343621	4.695	ng	100
70) o-Xylene	18.69	91	427551	4.676	ng	98
71) n-Nonane	18.87	43	195891	4.223	ng	97
72) 1,1,2,2-Tetrachloroethane	18.68	83	206226	4.597	ng	100
74) Cumene	19.20	105	555278	4.637	ng	98
75) alpha-Pinene	19.54	93	281568	4.566	ng	99
76) n-Propylbenzene	19.64	91	656340	4.697	ng	98
77) 3-Ethyltoluene	19.73	105	549817	4.615	ng	99
78) 4-Ethyltoluene	19.77	105	531428	4.827	ng	98
79) 1,3,5-Trimethylbenzene	19.83	105	458454	4.710	ng	99
80) alpha-Methylstyrene	19.97	118	256718	5.191	ng	92
81) 2-Ethyltoluene	20.00	105	553107	4.817	ng	98
82) 1,2,4-Trimethylbenzene	20.19	105	476729	5.032	ng	100
83) n-Decane	20.26	58	9501	4.380	ng	98
84) Benzyl Chloride	20.31	91	361699	4.688	ng	98
85) 1,3-Dichlorobenzene	20.32	146	292124	4.966	ng	100
86) 1,4-Dichlorobenzene	20.39	146	289746	4.900	ng	100
87) sec-Butylbenzene	20.42	105	620406	4.748	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	589834	4.954	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	468540	4.994	ng	99
90) 1,2-Dichlorobenzene	20.68	146	283167	5.122	ng	100
91) d-Limonene	20.68	68	166646	4.669	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	100340	4.951	ng	94
93) n-Undecane	21.34	57	221545	4.551	ng	98
94) 1,2,4-Trichlorobenzene	22.17	180	207115	5.405	ng	100
95) Naphthalene	22.28	128	613466	5.638	ng	100
96) n-Dodecane	22.24	57	212577	5.522	ng	98
97) Hexachlorobutadiene	22.58	225	142390	5.095	ng	100
98) Cyclohexanone	18.41	55	117911	3.122	ng	98
99) tert-Butylbenzene	20.19	119	468803	5.014	ng	99
100) n-Butylbenzene	20.92	91	494995	4.881	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191820.D
Acq On : 19 Oct 2018 22:26 Operator: LH/TD
Sample : 5.0ng TO15 ICAL STD
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 20 10:15:22 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) LH 10/20/18
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	236491	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	984745	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	436280	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	353620	15.114	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 120.88%				
57) Toluene-d8 (SS2)	15.88	98	864756	12.958	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 103.68%				
73) Bromofluorobenzene (SS3)	19.09	174	402742	14.848	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 118.80%				
Target Compounds							Qvalue
2) Propene	4.04	42	528292	19.621	ng		100
3) Dichlorodifluoromethan...	4.21	85	1288786	29.308	ng		100
4) Chloromethane	4.51	50	820237	24.858	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	754602	29.626	ng		100
6) Vinyl Chloride	4.95	62	915784	26.435	ng		100
7) 1,3-Butadiene	5.24	54	610474	23.787	ng		100
8) Bromomethane	5.70	94	539427	22.972	ng		100
9) Chloroethane	6.04	64	382854	20.770	ng		100
10) Ethanol	6.45	45	1859869	112.977	ng		100
11) Acetonitrile	6.71	41	887674	20.247	ng		100
12) Acrolein	6.90	56	323640	20.338	ng		100
13) Acetone	7.11	58	2159165	116.712	ng		100
14) Trichlorofluoromethane	7.36	101	1142096	29.988	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	2798694	49.220	ng		100
16) Acrylonitrile	7.91	53	702475	21.291	ng		100
17) 1,1-Dichloroethene	8.35	96	600788	24.271	ng		100
18) 2-Methyl-2-Propanol (t...	8.52	59	3097346	54.632	ng		100
19) Methylene Chloride	8.59	84	600009	22.968	ng		100
20) 3-Chloro-1-propene (Al...	8.75	41	734021	22.786	ng		100
21) Trichlorotrifluoroethane	8.99	151	618215	26.777	ng		100
22) Carbon Disulfide	8.85	76	2153481	22.472	ng		100
23) trans-1,2-Dichloroethene	9.87	61	836865	24.008	ng		100
24) 1,1-Dichloroethane	10.13	63	973880	22.777	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1796784	26.324	ng		100
26) Vinyl Acetate	10.38	86	833062	155.730	ng		100
27) 2-Butanone (MEK)	10.62	72	405773	23.568	ng		100
28) cis-1,2-Dichloroethene	11.15	61	808819	24.081	ng		100
29) Diisopropyl Ether	11.42	87	529934	26.053	ng		100
30) Ethyl Acetate	11.44	61	457145	51.775	ng		100
31) n-Hexane	11.42	57	920145	23.187	ng		100
32) Chloroform	11.50	83	1101034	27.176	ng		100
34) Tetrahydrofuran (THF)	11.89	72	388004	22.703	ng		100
35) Ethyl tert-Butyl Ether	12.02	87	743580	26.253	ng		100
36) 1,2-Dichloroethane	12.30	62	844764	30.091	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1030406	31.250	ng		100
39) Isopropyl Acetate	12.98	61	765017	47.594	ng	#	100
40) 1-Butanol	13.01	56	1156629	49.986	ng		100
41) Benzene	13.04	78	2372887	22.961	ng		100
42) Carbon Tetrachloride	13.20	117	941774	31.255	ng		100
43) Cyclohexane	13.33	84	1904101	50.738	ng		100
44) tert-Amyl Methyl Ether	13.67	73	1738536	25.279	ng		100
45) 1,2-Dichloropropane	13.90	63	551771	22.611	ng		100
46) Bromodichloromethane	14.09	83	896844	29.599	ng		100
47) Trichloroethene	14.14	130	737904	26.533	ng		100
48) 1,4-Dioxane	14.11	88	525147	25.716	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	2240836	21.813	ng		100

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

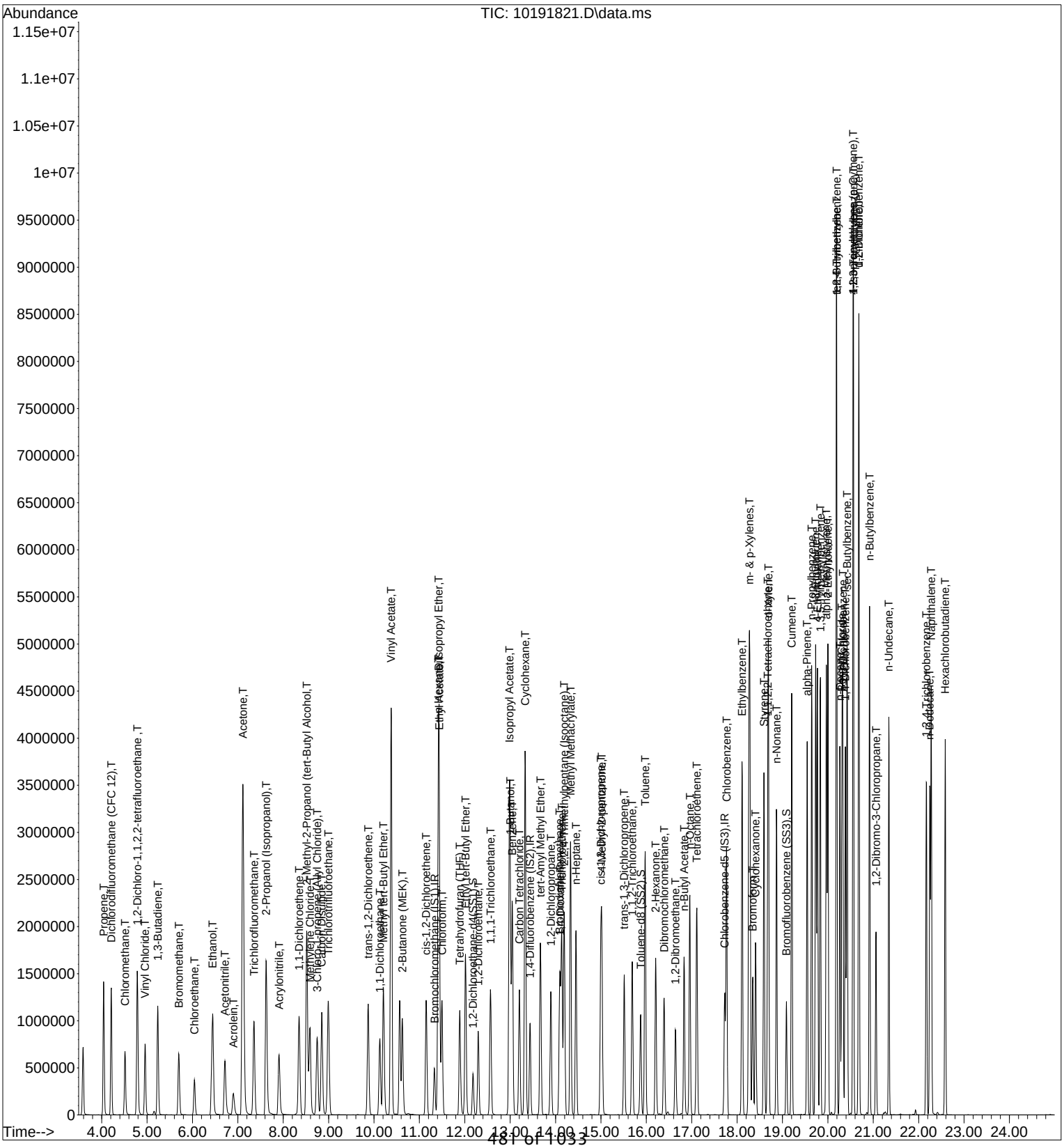
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	559191	54.350	ng	100
51) n-Heptane	14.45	71	552088	22.831	ng	100
52) cis-1,3-Dichloropropene	15.00	75	1089189	28.412	ng	100
53) 4-Methyl-2-pentanone	15.02	58	536960	23.536	ng	100
54) trans-1,3-Dichloropropene	15.51	75	952693	28.362	ng	100
55) 1,1,2-Trichloroethane	15.69	97	618290	25.751	ng	100
58) Toluene	15.97	91	2519980	22.066	ng	100
59) 2-Hexanone	16.21	43	1259865	23.219	ng	100
60) Dibromochloromethane	16.39	129	830592	28.099	ng	100
61) 1,2-Dibromoethane	16.64	107	752663	25.767	ng	100
62) n-Butyl Acetate	16.83	43	1401583	23.161	ng	100
63) n-Octane	16.96	57	468102	20.957	ng	100
64) Tetrachloroethene	17.11	166	816673	24.834	ng	100
65) Chlorobenzene	17.77	112	1815558	24.313	ng	100
66) Ethylbenzene	18.11	91	2986106	23.667	ng	100
67) m- & p-Xylenes	18.27	91	4779224	51.041	ng	100
68) Bromoform	18.35	173	779955	30.032	ng	100
69) Styrene	18.59	104	1986077	26.233	ng	100
70) o-Xylene	18.69	91	2397334	25.348	ng	100
71) n-Nonane	18.87	43	1060273	22.097	ng	100
72) 1,1,2,2-Tetrachloroethane	18.68	83	1178785	25.405	ng	100
74) Cumene	19.20	105	3098104	25.011	ng	100
75) alpha-Pinene	19.54	93	1586985	24.880	ng	100
76) n-Propylbenzene	19.64	91	3698063	25.583	ng	100
77) 3-Ethyltoluene	19.73	105	3354023	27.216	ng	100
78) 4-Ethyltoluene	19.77	105	2842235	24.956	ng	100
79) 1,3,5-Trimethylbenzene	19.84	105	2614484	25.965	ng	100
80) alpha-Methylstyrene	19.97	118	1499551	29.313	ng	100
81) 2-Ethyltoluene	20.00	105	3122893	26.294	ng	100
82) 1,2,4-Trimethylbenzene	20.19	105	2812912	28.706	ng	100
83) n-Decane	20.26	58	54927	24.481	ng	100
84) Benzyl Chloride	20.31	91	2399563	30.064	ng	100
85) 1,3-Dichlorobenzene	20.33	146	1692519	27.817	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1660530	27.148	ng	100
87) sec-Butylbenzene	20.42	105	3453453	25.552	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	3427419	27.829	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	2739799	28.231	ng	100
90) 1,2-Dichlorobenzene	20.68	146	1675558	29.298	ng	100
91) d-Limonene	20.68	68	993867	26.921	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	599025	28.577	ng	100
93) n-Undecane	21.34	57	1231359	24.454	ng	100
94) 1,2,4-Trichlorobenzene	22.17	180	1230879	31.052	ng	100
95) Naphthalene	22.28	128	3684023	32.730	ng	100
96) n-Dodecane	22.24	57	1024742	25.734	ng	100
97) Hexachlorobutadiene	22.58	225	815847	28.223	ng	100
98) Cyclohexanone	18.41	55	809597	20.723	ng	100
99) tert-Butylbenzene	20.19	119	2724476	28.168	ng	100
100) n-Butylbenzene	20.92	91	2770522	26.412	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191821.D
Acq On : 19 Oct 2018 22:59 Operator: LH/TD
Sample : 25ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:14:38 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	240049	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	13.44	114	1001501	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	447467	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	355974	14.989	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.92%				
57) Toluene-d8 (SS2)	15.88	98	880215	12.860	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.88%				
73) Bromofluorobenzene (SS3)	19.09	174	401063	14.417	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.36%				
Target Compounds							Qvalue
2) Propene	4.04	42	1191112	43.583	ng		98
3) Dichlorodifluoromethan...	4.21	85	2590877	58.045	ng		100
4) Chloromethane	4.52	50	1531165	45.715	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	1515692	58.624	ng		100
6) Vinyl Chloride	4.95	62	1848024	52.554	ng		100
7) 1,3-Butadiene	5.24	54	1284454	49.306	ng		98
8) Bromomethane	5.70	94	1097170	46.032	ng		100
9) Chloroethane	6.04	64	780919	41.738	ng		100
10) Ethanol	6.47	45	3917825	234.460	ng		100
11) Acetonitrile	6.73	41	1829720	41.116	ng		100
12) Acrolein	6.91	56	674020	41.730	ng		100
13) Acetone	7.13	58	4576836	243.730	ng		86
14) Trichlorofluoromethane	7.36	101	2305432	59.637	ng		100
15) 2-Propanol (Isopropanol)	7.64	45	5345877	92.623	ng		99
16) Acrylonitrile	7.92	53	1446547	43.192	ng		100
17) 1,1-Dichloroethene	8.35	96	1223157	48.681	ng		98
18) 2-Methyl-2-Propanol (t...	8.53	59	6137194	106.645	ng		99
19) Methylene Chloride	8.60	84	1223896	46.156	ng		98
20) 3-Chloro-1-propene (Al...	8.75	41	1494802	45.716	ng		99
21) Trichlorotrifluoroethane	9.00	151	1244462	53.102	ng		100
22) Carbon Disulfide	8.85	76	4334007	44.556	ng		100
23) trans-1,2-Dichloroethene	9.88	61	1689769	47.758	ng		99
24) 1,1-Dichloroethane	10.14	63	1955840	45.065	ng		100
25) Methyl tert-Butyl Ether	10.21	73	3643238	52.585	ng		100
26) Vinyl Acetate	10.39	86	1772269	326.392	ng	#	76
27) 2-Butanone (MEK)	10.63	72	841599	48.157	ng		96
28) cis-1,2-Dichloroethene	11.15	61	1630004	47.811	ng		99
29) Diisopropyl Ether	11.43	87	1146198	55.515	ng	#	86
30) Ethyl Acetate	11.44	61	994233	110.936	ng		100
31) n-Hexane	11.42	57	1991768	49.448	ng		100
32) Chloroform	11.50	83	2199586	53.487	ng		100
34) Tetrahydrofuran (THF)	11.89	72	793155	45.722	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	1547723	53.834	ng		98
36) 1,2-Dichloroethane	12.30	62	1684165	59.101	ng		100
38) 1,1,1-Trichloroethane	12.57	97	2075687	61.897	ng		99
39) Isopropyl Acetate	12.98	61	1668417	102.061	ng	#	84
40) 1-Butanol	13.02	56	2502875	106.356	ng		92
41) Benzene	13.05	78	4982920	47.410	ng		100
42) Carbon Tetrachloride	13.20	117	1909836	62.322	ng		100
43) Cyclohexane	13.34	84	4013488	105.157	ng		99
44) tert-Amyl Methyl Ether	13.67	73	3580625	51.192	ng		99
45) 1,2-Dichloropropane	13.90	63	1127756	45.441	ng		100
46) Bromodichloromethane	14.09	83	1834387	59.529	ng		100
47) Trichloroethene	14.14	130	1526858	53.983	ng		100
48) 1,4-Dioxane	14.11	88	1097257	52.834	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	4567940	43.722	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

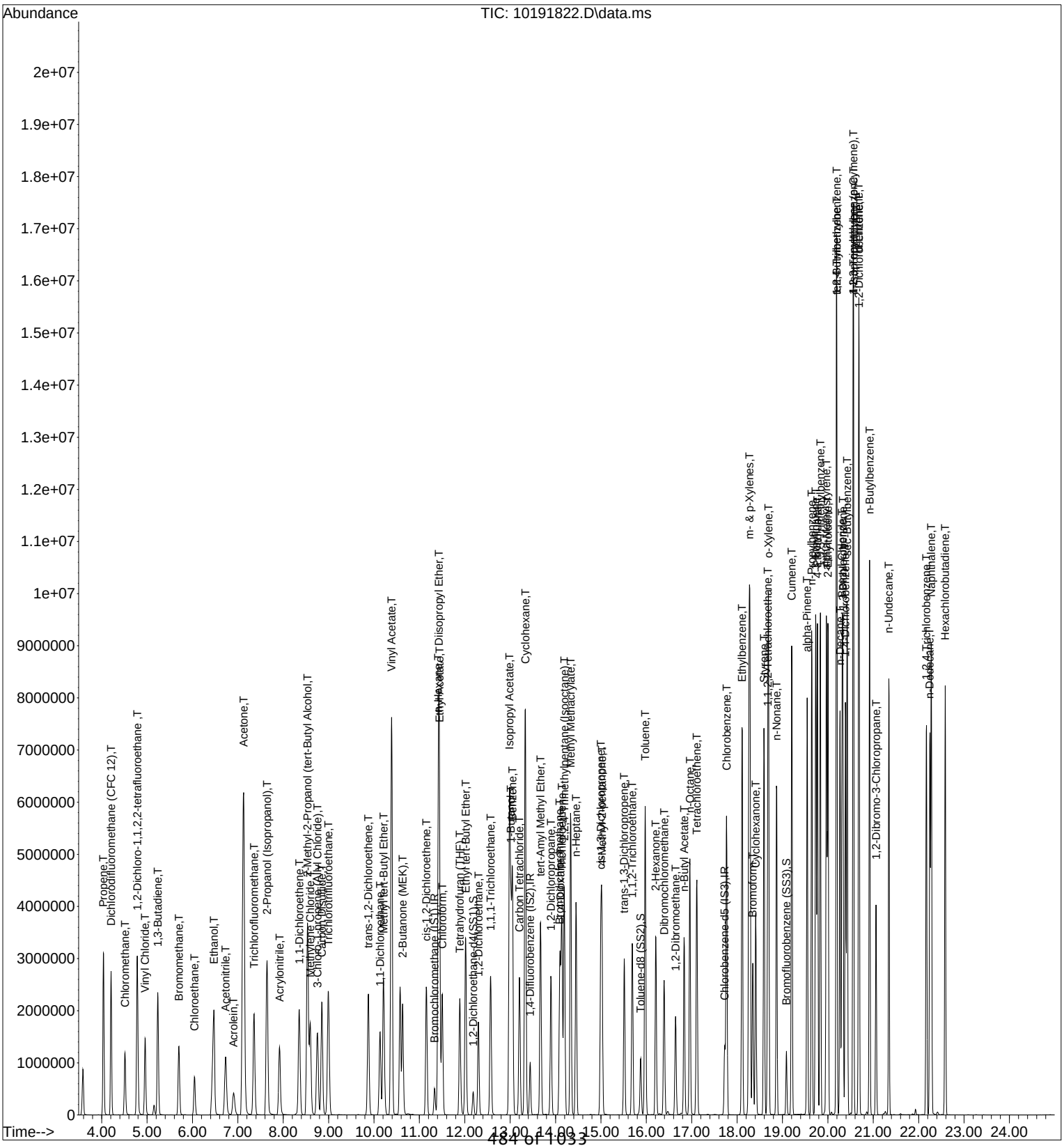
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	1191885	113.906	ng	99
51) n-Heptane	14.45	71	1168666	47.521	ng	100
52) cis-1,3-Dichloropropene	15.00	75	2267485	58.159	ng	100
53) 4-Methyl-2-pentanone	15.02	58	1114134	48.018	ng	96
54) trans-1,3-Dichloropropene	15.51	75	1974033	57.785	ng	99
55) 1,1,2-Trichloroethane	15.69	97	1262893	51.718	ng	100
58) Toluene	15.98	91	5201961	44.411	ng	99
59) 2-Hexanone	16.21	43	2553328	45.880	ng	97
60) Dibromochloromethane	16.39	129	1724151	56.869	ng	100
61) 1,2-Dibromoethane	16.65	107	1528059	51.005	ng	100
62) n-Butyl Acetate	16.83	43	2813756	45.335	ng	97
63) n-Octane	16.96	57	986237	43.049	ng	99
64) Tetrachloroethene	17.11	166	1672972	49.601	ng	100
65) Chlorobenzene	17.77	112	3767816	49.194	ng	100
66) Ethylbenzene	18.11	91	6144899	47.484	ng	98
67) m- & p-Xylenes	18.27	91	9787049	101.910	ng	99
68) Bromoform	18.35	173	1597899	59.988	ng	100
69) Styrene	18.59	104	4101831	52.824	ng	100
70) o-Xylene	18.69	91	4898413	50.498	ng	98
71) n-Nonane	18.87	43	2152007	43.729	ng	96
72) 1,1,2,2-Tetrachloroethane	18.68	83	2424655	50.949	ng	100
74) Cumene	19.20	105	6333539	49.852	ng	99
75) alpha-Pinene	19.54	93	3349302	51.197	ng	98
76) n-Propylbenzene	19.64	91	7425623	50.086	ng	99
77) 3-Ethyltoluene	19.73	105	6691946	52.943	ng	99
78) 4-Ethyltoluene	19.77	105	5867912	50.235	ng	99
79) 1,3,5-Trimethylbenzene	19.84	105	5311879	51.434	ng	99
80) alpha-Methylstyrene	19.97	118	3104005	59.160	ng	99
81) 2-Ethyltoluene	20.00	105	6303781	51.750	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	5390369	53.633	ng	100
83) n-Decane	20.27	58	114276	49.659	ng	97
84) Benzyl Chloride	20.31	91	4988481	60.938	ng	99
85) 1,3-Dichlorobenzene	20.33	146	3441743	55.152	ng	100
86) 1,4-Dichlorobenzene	20.39	146	3408689	54.335	ng	100
87) sec-Butylbenzene	20.42	105	6905092	49.813	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	6362366	50.367	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	5237795	52.622	ng	99
90) 1,2-Dichlorobenzene	20.69	146	3289758	56.085	ng	100
91) d-Limonene	20.68	68	1975759	52.179	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	1231729	57.291	ng	96
93) n-Undecane	21.34	57	2570415	49.772	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	2591008	63.731	ng	100
95) Naphthalene	22.28	128	7555463	65.446	ng	99
96) n-Dodecane	22.24	57	2206985	54.037	ng	99
97) Hexachlorobutadiene	22.58	225	1699618	57.325	ng	100
98) Cyclohexanone	18.41	55	1642693	40.996	ng	98
99) tert-Butylbenzene	20.19	119	5164894	52.065	ng	99
100) n-Butylbenzene	20.92	91	5542287	51.514	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191822.D
Acq On : 19 Oct 2018 23:33 Operator: LH/TD
Sample : 50ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:25 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/20/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.34	130	251166	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	13.45	114	1041205	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	17.73	82	466865	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.19	65	364512	14.669	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 117.36%				
57) Toluene-d8 (SS2)	15.88	98	919290	12.872	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.96%				
73) Bromofluorobenzene (SS3)	19.09	174	419191	14.442	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 115.52%				
Target Compounds							Qvalue
2) Propene	4.05	42	2898597	101.366	ng		94
3) Dichlorodifluoromethan...	4.21	85	5206237	111.476	ng		99
4) Chloromethane	4.52	50	2143539	61.165	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	3080656	113.880	ng		100
6) Vinyl Chloride	4.97	62	3824000	103.934	ng		99
7) 1,3-Butadiene	5.25	54	2837121	104.088	ng		93
8) Bromomethane	5.71	94	2250793	90.253	ng		100
9) Chloroethane	6.05	64	1640924	83.821	ng		100
10) Ethanol	6.51	45	8255289	472.165	ng		99
11) Acetonitrile	6.75	41	3782092	81.227	ng		99
12) Acrolein	6.92	56	1416737	83.830	ng		100
13) Acetone	7.15	58	9308158	473.746	ng	#	71
14) Trichlorofluoromethane	7.36	101	4674275	115.562	ng		99
15) 2-Propanol (Isopropanol)	7.67	45	9441759	156.348	ng		97
16) Acrylonitrile	7.94	53	3025442	86.338	ng		99
17) 1,1-Dichloroethene	8.36	96	2545633	96.830	ng		96
18) 2-Methyl-2-Propanol (t...	8.56	59	8550129	141.998	ng		98
19) Methylene Chloride	8.60	84	2563731	92.405	ng		95
20) 3-Chloro-1-propene (Al...	8.76	41	3102250	90.677	ng		97
21) Trichlorotrifluoroethane	9.00	151	2534749	103.372	ng		98
22) Carbon Disulfide	8.86	76	8851477	86.971	ng		100
23) trans-1,2-Dichloroethene	9.88	61	3463302	93.551	ng		98
24) 1,1-Dichloroethane	10.14	63	3978792	87.619	ng		99
25) Methyl tert-Butyl Ether	10.21	73	7562143	104.317	ng		99
26) Vinyl Acetate	10.40	86	3346588	589.048	ng	#	50
27) 2-Butanone (MEK)	10.64	72	1801308	98.511	ng	#	87
28) cis-1,2-Dichloroethene	11.16	61	3330552	93.366	ng		98
29) Diisopropyl Ether	11.43	87	2269601	105.061	ng	#	74
30) Ethyl Acetate	11.45	61	1986517	211.843	ng		98
31) n-Hexane	11.42	57	4019878	95.381	ng		99
32) Chloroform	11.51	83	4419396	102.709	ng		99
34) Tetrahydrofuran (THF)	11.89	72	1686845	92.936	ng		97
35) Ethyl tert-Butyl Ether	12.02	87	3302599	109.789	ng		94
36) 1,2-Dichloroethane	12.31	62	3341400	112.068	ng		99
38) 1,1,1-Trichloroethane	12.57	97	4217033	120.958	ng		99
39) Isopropyl Acetate	12.99	61	3460338	203.604	ng	#	69
40) 1-Butanol	13.03	56	5133211	209.811	ng		84
41) Benzene	13.06	78	10340964	94.638	ng		100
42) Carbon Tetrachloride	13.21	117	3905959	122.599	ng		100
43) Cyclohexane	13.34	84	8117219	204.569	ng		98
44) tert-Amyl Methyl Ether	13.67	73	7491506	103.022	ng		97
45) 1,2-Dichloropropane	13.90	63	2378814	92.196	ng		100
46) Bromodichloromethane	14.09	83	3714901	115.958	ng		100
47) Trichloroethene	14.14	130	3196840	108.716	ng		100
48) 1,4-Dioxane	14.12	88	2372238	109.869	ng		100
49) 2,2,4-Trimethylpentane...	14.20	57	9454201	87.040	ng		98

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

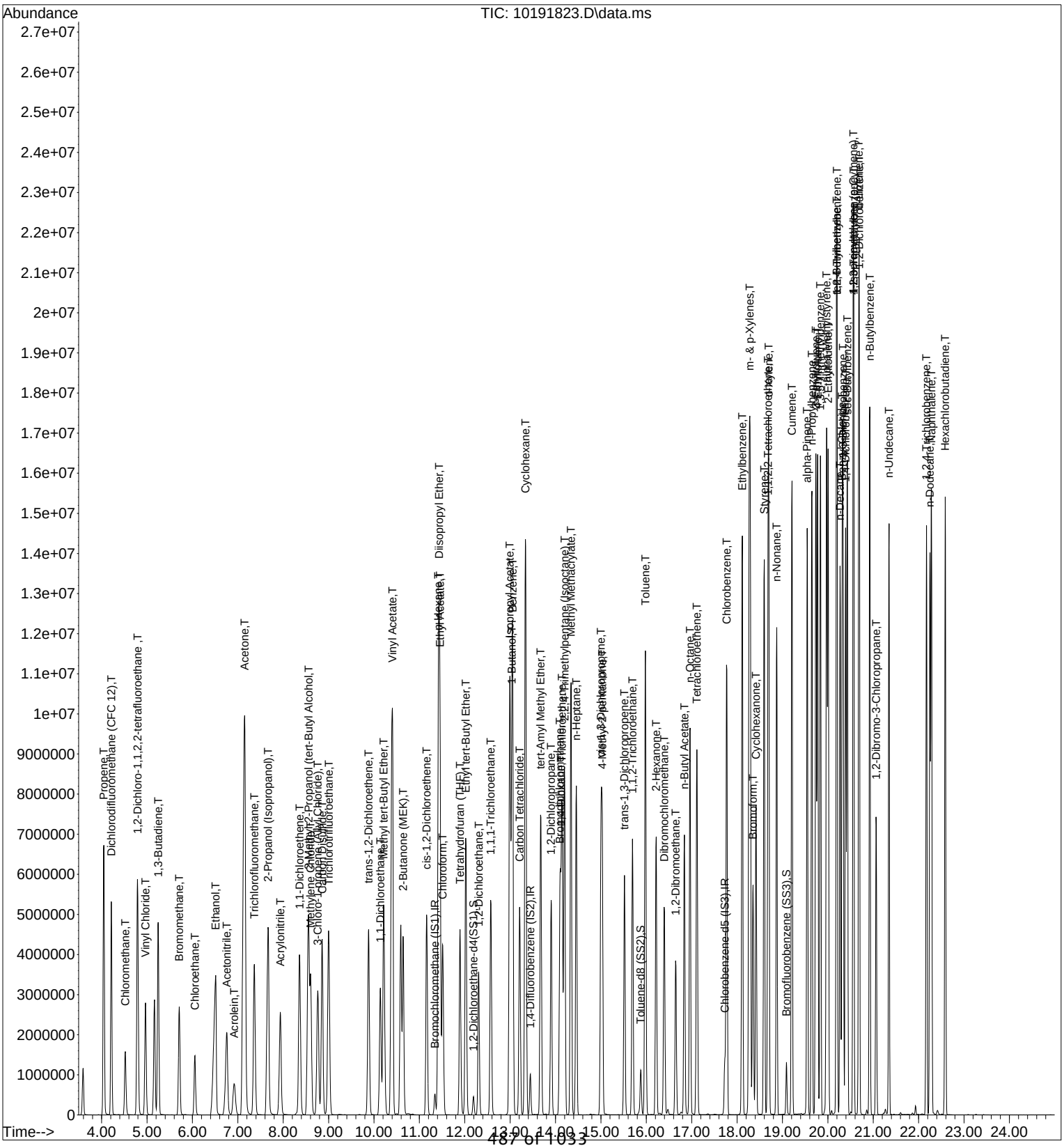
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	14.34	100	2482847	228.232	ng		97
51) n-Heptane	14.46	71	2528090	98.879	ng		99
52) cis-1,3-Dichloropropene	15.00	75	4770191	117.685	ng		99
53) 4-Methyl-2-pentanone	15.03	58	2364221	98.010	ng		88
54) trans-1,3-Dichloropropene	15.52	75	4096287	115.337	ng		99
55) 1,1,2-Trichloroethane	15.69	97	2648441	104.323	ng		100
58) Toluene	15.98	91	10451841	85.524	ng		98
59) 2-Hexanone	16.22	43	5116590	88.119	ng		93
60) Dibromochloromethane	16.39	129	3548945	112.194	ng		99
61) 1,2-Dibromoethane	16.65	107	3141734	100.510	ng		100
62) n-Butyl Acetate	16.84	43	5661983	87.436	ng		94
63) n-Octane	16.96	57	2089130	87.402	ng		98
64) Tetrachloroethene	17.11	166	3441696	97.800	ng		99
65) Chlorobenzene	17.77	112	7672586	96.014	ng		99
66) Ethylbenzene	18.11	91	11870795	87.920	ng		95
67) m- & p-Xylenes	18.28	91	17678456	176.433	ng		97
68) Bromoform	18.35	173	3239416	116.560	ng		99
69) Styrene	18.60	104	8068201	99.585	ng		99
70) o-Xylene	18.70	91	9054658	89.467	ng		97
71) n-Nonane	18.87	43	4092735	79.709	ng		90
72) 1,1,2,2-Tetrachloroethane	18.68	83	4610831	92.861	ng		100
74) Cumene	19.21	105	11696787	88.242	ng		95
75) alpha-Pinene	19.54	93	6525869	95.609	ng		99
76) n-Propylbenzene	19.65	91	13174860	85.172	ng		94
77) 3-Ethyltoluene	19.74	105	11645718	88.307	ng		95
78) 4-Ethyltoluene	19.77	105	11070996	90.840	ng		95
79) 1,3,5-Trimethylbenzene	19.84	105	9819555	91.131	ng		97
80) alpha-Methylstyrene	19.97	118	5906834	107.902	ng		100
81) 2-Ethyltoluene	20.01	105	11373408	89.488	ng		96
82) 1,2,4-Trimethylbenzene	20.20	105	8482164	80.889	ng		100
83) n-Decane	20.27	58	219108	91.258	ng	#	93
84) Benzyl Chloride	20.31	91	9131137	106.909	ng		96
85) 1,3-Dichlorobenzene	20.34	146	6325539	97.152	ng		100
86) 1,4-Dichlorobenzene	20.39	146	6476529	98.948	ng		100
87) sec-Butylbenzene	20.43	105	12098623	83.652	ng		95
88) 4-Isopropyltoluene (p-...	20.56	119	9669556	73.368	ng		97
89) 1,2,3-Trimethylbenzene	20.57	105	8159576	78.569	ng		99
90) 1,2-Dichlorobenzene	20.69	146	5397590	88.197	ng		100
91) d-Limonene	20.68	68	3172845	80.312	ng		98
92) 1,2-Dibromo-3-Chloropr...	21.07	157	2512298	111.998	ng		91
93) n-Undecane	21.35	57	4885228	90.663	ng		97
94) 1,2,4-Trichlorobenzene	22.17	180	5122924	120.773	ng		99
95) Naphthalene	22.28	128	13505825	112.128	ng		97
96) n-Dodecane	22.25	57	4447191	104.364	ng		97
97) Hexachlorobutadiene	22.58	225	3394311	109.727	ng		100
98) Cyclohexanone	18.42	55	3373661	80.696	ng		94
99) tert-Butylbenzene	20.19	119	8209986	79.322	ng		98
100) n-Butylbenzene	20.92	91	9891411	88.118	ng		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191823.D
Acq On : 20 Oct 2018 00:06 Operator: LH/TD
Sample : 100ng TO15 ICAL STD
Misc : S31-09141801/S31-10181803 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:15:28 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:14:30 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS) LH 10/20/18
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.33	130	256606	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	13.43	114	1063772	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	460848	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.18	65	372680	12.073	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.56%				
57) Toluene-d8 (SS2)	15.88	98	925101	12.606	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.88%				
73) Bromofluorobenzene (SS3)	19.09	174	421922	12.647	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.20%				
Target Compounds							Qvalue
2) Propene	4.05	42	595069	24.919	ng		98
3) Dichlorodifluoromethan...	4.21	85	1385360	25.826	ng		100
4) Chloromethane	4.52	50	933315	27.334	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	839793	26.335	ng		100
6) Vinyl Chloride	4.96	62	1021454	27.429	ng		99
7) 1,3-Butadiene	5.24	54	681705	28.298	ng		98
8) Bromomethane	5.70	94	634060	28.252	ng		100
9) Chloroethane	6.04	64	442705	27.685	ng		100
10) Ethanol	6.44	45	2124266	147.179	ng		100
11) Acetonitrile	6.71	41	984549	26.065	ng		100
12) Acrolein	6.90	56	365806	28.702	ng		99
13) Acetone	7.11	58	2365977	137.393	ng		94
14) Trichlorofluoromethane	7.35	101	1235147	26.587	ng		100
15) 2-Propanol (Isopropanol)	7.62	45	3056064	55.338	ng		98
16) Acrylonitrile	7.90	53	771738	29.522	ng		100
17) 1,1-Dichloroethene	8.35	96	657370	27.795	ng		98
18) 2-Methyl-2-Propanol (t...	8.51	59	3355089	57.698	ng		99
19) Methylene Chloride	8.58	84	658222	27.364	ng		97
20) 3-Chloro-1-propene (Al...	8.74	41	825683	27.603	ng		98
21) Trichlorotrifluoroethane	8.99	151	674083	27.262	ng		100
22) Carbon Disulfide	8.85	76	2358336	27.464	ng		100
23) trans-1,2-Dichloroethene	9.87	61	893109	27.587	ng		99
24) 1,1-Dichloroethane	10.13	63	1085664	26.965	ng		100
25) Methyl tert-Butyl Ether	10.21	73	1917212	26.926	ng		100
26) Vinyl Acetate	10.38	86	895575	148.364	ng	#	95
27) 2-Butanone (MEK)	10.62	72	440289	28.903	ng		97
28) cis-1,2-Dichloroethene	11.15	61	856203	26.900	ng		99
29) Diisopropyl Ether	11.42	87	565325	26.560	ng		96
30) Ethyl Acetate	11.44	61	490444	60.067	ng		100
31) n-Hexane	11.42	57	970431	26.084	ng		100
32) Chloroform	11.49	83	1167815	26.989	ng		100
34) Tetrahydrofuran (THF)	11.89	72	415022	27.041	ng		99
35) Ethyl tert-Butyl Ether	12.02	87	798257	26.799	ng		99
36) 1,2-Dichloroethane	12.30	62	886016	26.462	ng		100
38) 1,1,1-Trichloroethane	12.57	97	1070173	26.755	ng		100
39) Isopropyl Acetate	12.98	61	813849	54.213	ng	#	97
40) 1-Butanol	13.00	56	1270306	59.060	ng		96
41) Benzene	13.04	78	2563827	26.215	ng		100
42) Carbon Tetrachloride	13.20	117	1000669	27.007	ng		99
43) Cyclohexane	13.33	84	2013806	53.128	ng		100
44) tert-Amyl Methyl Ether	13.67	73	1854570	27.530	ng		100
45) 1,2-Dichloropropane	13.90	63	583870	26.882	ng		100
46) Bromodichloromethane	14.09	83	961720	28.110	ng		100
47) Trichloroethene	14.13	130	784986	27.307	ng		100
48) 1,4-Dioxane	14.11	88	555568	30.019	ng		100
49) 2,2,4-Trimethylpentane...	14.19	57	2368330	26.093	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

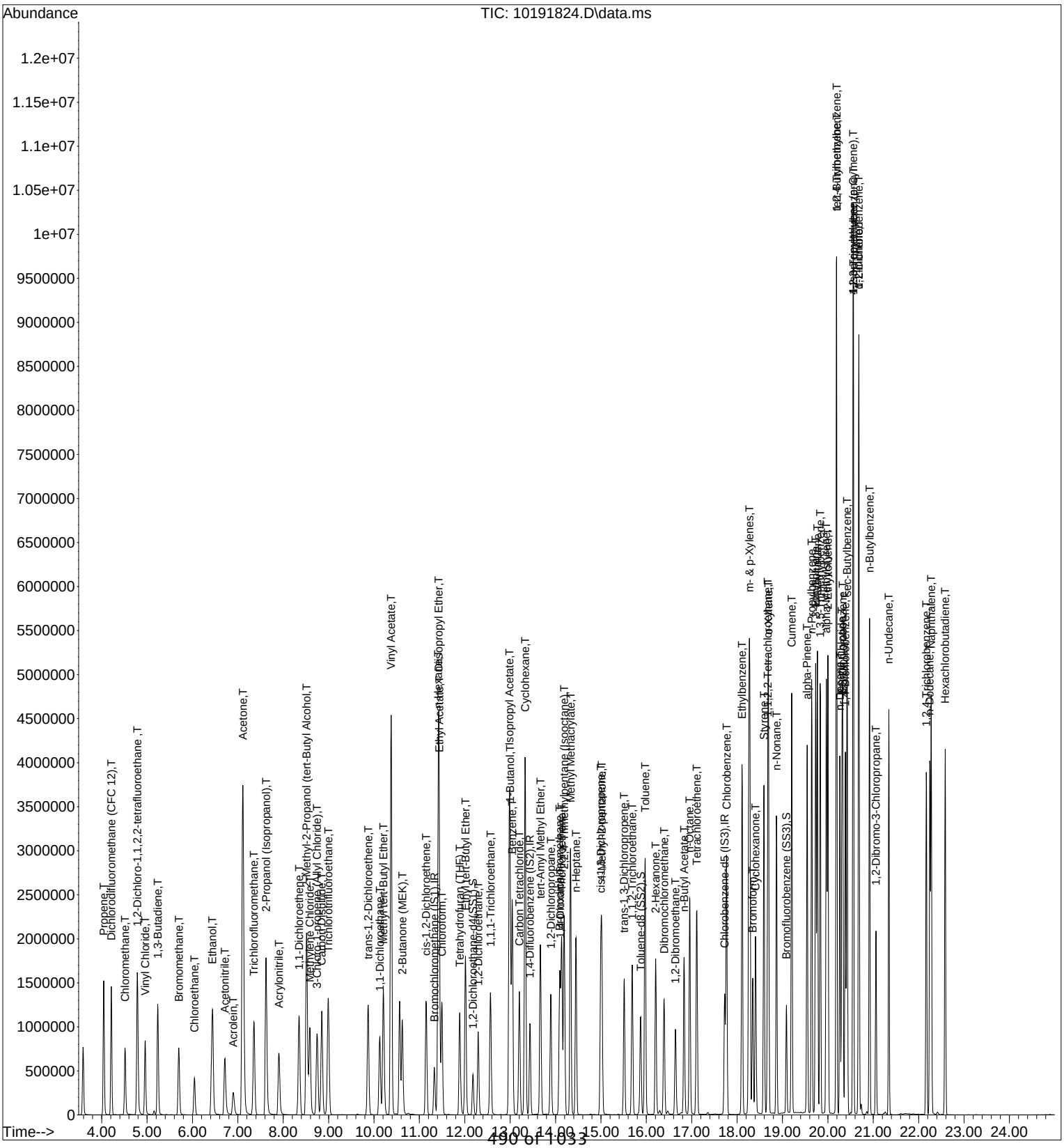
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	600700	59.291	ng	99
51) n-Heptane	14.45	71	587768	26.124	ng	100
52) cis-1,3-Dichloropropene	15.00	75	1090674	28.425	ng	100
53) 4-Methyl-2-pentanone	15.02	58	568904	28.801	ng	98
54) trans-1,3-Dichloropropene	15.51	75	1013609	29.872	ng	100
55) 1,1,2-Trichloroethane	15.69	97	656774	27.868	ng	99
58) Toluene	15.98	91	2672708	26.228	ng	100
59) 2-Hexanone	16.21	43	1336029	28.613	ng	99
60) Dibromochloromethane	16.39	129	886647	29.783	ng	100
61) 1,2-Dibromoethane	16.64	107	801489	29.359	ng	100
62) n-Butyl Acetate	16.83	43	1488818	29.420	ng	99
63) n-Octane	16.95	57	498205	25.677	ng	100
64) Tetrachloroethene	17.11	166	868081	27.681	ng	100
65) Chlorobenzene	17.77	112	1927319	27.928	ng	100
66) Ethylbenzene	18.11	91	3165590	27.279	ng	100
67) m- & p-Xylenes	18.27	91	4996416	57.659	ng	100
68) Bromoform	18.35	173	820481	30.977	ng	100
69) Styrene	18.59	104	2069842	29.366	ng	100
70) o-Xylene	18.69	91	2521250	28.663	ng	99
71) n-Nonane	18.87	43	1104320	27.321	ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1223533	29.052	ng	100
74) Cumene	19.20	105	3291859	28.515	ng	100
75) alpha-Pinene	19.54	93	1705263	28.478	ng	99
76) n-Propylbenzene	19.64	91	3877008	29.354	ng	100
77) 3-Ethyltoluene	19.73	105	3189882	27.413	ng	95
78) 4-Ethyltoluene	19.77	105	3369688	32.099	ng	95
79) 1,3,5-Trimethylbenzene	19.83	105	2744474	28.412	ng	100
80) alpha-Methylstyrene	19.97	118	1597839	30.597	ng	99
81) 2-Ethyltoluene	20.00	105	3287978	28.985	ng	100
82) 1,2,4-Trimethylbenzene	20.19	105	2937029	30.991	ng	100
83) n-Decane	20.26	58	57643	28.197	ng	98
84) Benzyl Chloride	20.31	91	2515660	30.112	ng	100
85) 1,3-Dichlorobenzene	20.33	146	1773448	30.194	ng	100
86) 1,4-Dichlorobenzene	20.39	146	1748160	29.353	ng	99
87) sec-Butylbenzene	20.42	105	3641483	29.465	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	3643795	30.949	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	2985449	31.422	ng	100
90) 1,2-Dichlorobenzene	20.68	146	1753565	31.666	ng	100
91) d-Limonene	20.68	68	1060573	30.805	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	647693	31.363	ng	98
93) n-Undecane	21.34	57	1316157	28.916	ng	99
94) 1,2,4-Trichlorobenzene	22.17	180	1321725	29.779	ng	100
95) Naphthalene	22.28	128	3809873	27.966	ng	100
96) n-Dodecane	22.24	57	1186732	27.685	ng	100
97) Hexachlorobutadiene	22.58	225	873629	29.242	ng	100
98) Cyclohexanone	18.41	55	860014	28.865	ng	99
99) tert-Butylbenzene	20.19	119	2871839	31.004	ng	100
100) n-Butylbenzene	20.92	91	2898536	29.566	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\19\10191824.D
Acq On : 20 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO15 ICV STD
Misc : S31-09141801/S31-10191803 (11/17)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 10:35:01 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:34:51 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LH 10/20/18

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10191824.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS16\DATA\2018_10\19** Sample Name: **25ng TO15 ICV STD**
Operator: **LH/TD** Misc Info: **S31-09141801/S31-10191803 (**
Date Acquired: **10/20/18 0:39** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**4.05**	**24.9**	26.43	94	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.21**	**25.8**	**26.30**	98	**64**	**115**	*	*
4)	**Chloromethane**	**4.52**	**27.3**	**26.38**	104	**47**	**140**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroetl**	**4.78**	**26.3**	**26.38**	100	**60**	**112**	*	*
6)	**Vinyl Chloride**	**4.96**	**27.4**	**26.73**	103	**63**	**127**	*	*
7)	**1,3-Butadiene**	**5.24**	**28.3**	**26.28**	108	**57**	**149**	*	*
8)	**Bromomethane**	**5.70**	**28.3**	**26.48**	107	**63**	**132**	*	*
9)	**Chloroethane**	**6.04**	**27.7**	**26.75**	104	**68**	**129**	*	*
10)	**Ethanol**	**6.44**	**147**	**128.10**	115	**62**	**131**	*	*
11)	**Acetonitrile**	**6.71**	**26.1**	**25.73**	101	**56**	**136**	*	*
12)	**Acrolein**	**6.90**	**28.7**	**25.63**	112	**60**	**132**	*	*
13)	**Acetone**	**7.11**	**137**	**132.33**	104	**63**	**124**	*	*
14)	**Trichlorofluoromethane**	**7.35**	**26.6**	**26.40**	101	**65**	**113**	*	*
15)	**2-Propanol (Isopropanol)**	**7.62**	**55.3**	**51.60**	107	**62**	**135**	*	*
16)	**Acrylonitrile**	**7.90**	**29.5**	**25.88**	114	**68**	**138**	*	*
17)	**1,1-Dichloroethene**	**8.35**	**27.8**	**27.23**	102	**72**	**118**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	8.51	57.7	54.25	106	61	128	*	*
19)	**Methylene Chloride**	**8.58**	**27.4**	**27.08**	101	**67**	**116**	*	*
20)	**3-Chloro-1-propene (Allyl Chloric**	**8.74**	**27.6**	**27.00**	102	**61**	**143**	*	*
21)	**Trichlorotrifluoroethane**	**8.99**	**27.3**	**26.95**	101	**68**	**113**	*	*
22)	**Carbon Disulfide**	**8.85**	**27.5**	**27.20**	101	**68**	**120**	*	*
23)	**trans-1,2-Dichloroethene**	**9.87**	**27.6**	**26.73**	103	**71**	**125**	*	*
24)	**1,1-Dichloroethane**	**10.13**	**27.0**	**26.95**	100	**68**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**10.21**	**26.9**	**26.80**	100	**60**	**123**	*	*
26)	**Vinyl Acetate**	**10.38**	**148**	**133.03**	111	**73**	**135**	*	*
27)	**2-Butanone (MEK)**	**10.62**	**28.9**	**25.95**	111	**70**	**129**	*	*
28)	**cis-1,2-Dichloroethene**	**11.15**	**26.9**	**26.35**	102	**69**	**121**	*	*
29)	Diisopropyl Ether	11.42	26.6	27.18	98	65	117	*	*
30)	**Ethyl Acetate**	**11.44**	**60.1**	**54.45**	110	**66**	**140**	*	*
31)	**n-Hexane**	**11.42**	**26.1**	**26.95**	97	**61**	**124**	*	*
32)	**Chloroform**	**11.49**	**27.0**	**27.08**	100	**69**	**113**	*	*
34)	**Tetrahydrofuran (THF)**	**11.89**	**27.0**	**27.00**	100	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	12.02	26.8	26.80	100	69	120	*	*
36)	**1,2-Dichloroethane**	**12.30**	**26.5**	**26.85**	99	**62**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**12.57**	**26.8**	**26.90**	100	**65**	**116**	*	*
39)	Isopropyl Acetate	12.98	54.2	51.55	105	70	126	*	*
40)	1-Butanol	13.00	59.1	51.58	115	62	141	*	*
41)	**Benzene**	**13.04**	**26.2**	**26.38**	99	**66**	**111**	*	*
42)	**Carbon Tetrachloride**	**13.20**	**27.0**	**26.45**	102	**64**	**122**	*	*
43)	**Cyclohexane**	**13.33**	**53.1**	**52.05**	102	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	13.67	27.5	**27.08**	102	68	119	*	*
45)	**1,2-Dichloropropane**	**13.90**	**26.9**	**26.98**	100	**69**	**121**	*	*
46)	**Bromodichloromethane**	**14.09**	**28.1**	**26.83**	105	**69**	**123**	*	*
47)	**Trichloroethene**	**14.13**	**27.3**	**26.68**	102	**69**	**112**	*	*
48)	**1,4-Dioxane**	**14.11**	**30.0**	**26.73**	112	**74**	**123**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.19	26.1	26.65	98	67	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10191824.D** **TO15.M**
Data File Path: **I:\MS16\DATA\2018_10\19** Sample Name: **25ng TO15 ICV STD**
Operator: **LH/TD** Misc Info: **S31-09141801/S31-10191803 (**
Date Acquired: **10/20/18** **0:39** Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**14.33**	**59.3**	**53.88**	110	**75**	**125**	*	*
51)	**n-Heptane**	**14.45**	**26.1**	**26.90**	97	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**15.00**	**28.4**	**26.78**	106	**74**	**129**	*	*
53)	**4-Methyl-2-pentanone**	**15.02**	**28.8**	**26.15**	110	**66**	**138**	*	*
54)	**trans-1,3-Dichloropropene**	**15.51**	**29.9**	**26.60**	112	**75**	**130**	*	*
55)	**1,1,2-Trichloroethane**	**15.69**	**27.9**	**26.85**	104	**73**	**117**	*	*
58)	**Toluene**	**15.98**	**26.2**	**26.50**	99	**66**	**114**	*	*
59)	**2-Hexanone**	**16.21**	**28.6**	**26.78**	107	**58**	**146**	*	*
60)	**Dibromochloromethane**	**16.39**	**29.8**	**26.60**	112	**67**	**130**	*	*
61)	**1,2-Dibromoethane**	**16.64**	**29.4**	**27.03**	109	**70**	**127**	*	*
62)	**n-Butyl Acetate**	**16.83**	**29.4**	**27.35**	107	**62**	**140**	*	*
63)	**n-Octane**	**16.95**	**25.7**	**27.13**	95	**65**	**121**	*	*
64)	**Tetrachloroethene**	**17.11**	**27.7**	**26.60**	104	**62**	**119**	*	*
65)	**Chlorobenzene**	**17.77**	**27.9**	**26.83**	104	**66**	**115**	*	*
66)	**Ethylbenzene**	**18.11**	**27.3**	**26.53**	103	**69**	**117**	*	*
67)	**m- & p-Xylenes**	**18.27**	**57.7**	**53.28**	108	**67**	**117**	*	*
68)	**Bromoform**	**18.35**	**31.0**	**26.68**	116	**67**	**135**	*	*
69)	**Styrene**	**18.59**	**29.4**	**26.50**	111	**70**	**128**	*	*
70)	**o-Xylene**	**18.69**	**28.7**	**26.75**	107	**67**	**118**	*	*
71)	**n-Nonane**	**18.87**	**27.3**	**26.83**	102	**61**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**18.68**	**29.1**	**26.80**	109	**70**	**125**	*	*
74)	**Cumene**	**19.20**	**28.5**	**26.80**	106	**68**	**116**	*	*
75)	**alpha-Pinene**	**19.54**	**28.5**	**26.40**	108	**69**	**122**	*	*
76)	**n-Propylbenzene**	**19.64**	**29.4**	**27.23**	108	**70**	**118**	*	*
77)	3-Ethyltoluene	19.73	27.4	26.83	102	68	117	*	*
78)	**4-Ethyltoluene**	**19.77**	**32.1**	**26.80**	**120**	**69**	**124**	*	*
79)	**1,3,5-Trimethylbenzene**	**19.83**	**28.4**	**26.73**	**106**	**65**	**117**	*	*
80)	alpha-Methylstyrene	19.97	30.6	26.75	**114**	71	132	*	*
81)	2-Ethyltoluene	20.00	29.0	27.08	**107**	67	119	*	*
82)	**1,2,4-Trimethylbenzene**	**20.19**	**31.0**	**26.90**	**115**	**67**	**124**	*	*
83)	n-Decane	20.26	28.2	26.88	**105**	63	129	*	*
84)	**Benzyl Chloride**	**20.31**	**30.1**	**27.08**	**111**	**75**	**142**	*	*
85)	**1,3-Dichlorobenzene**	**20.33**	**30.2**	**26.98**	**112**	**70**	**124**	*	*
86)	**1,4-Dichlorobenzene**	**20.39**	**29.4**	**27.00**	**109**	**63**	**124**	*	*
87)	sec-Butylbenzene	20.42	29.5	26.55	**111**	68	119	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.56	30.9	26.95	**115**	65	122	*	*
89)	1,2,3-Trimethylbenzene	20.56	31.4	26.95	**117**	66	128	*	*
90)	**1,2-Dichlorobenzene**	**20.68**	**31.7**	**26.95**	**118**	**66**	**125**	*	*
91)	**d-Limonene**	**20.68**	**30.8**	**26.38**	**117**	**64**	**135**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**21.06**	**31.4**	**26.15**	**120**	**73**	**136**	*	*
93)	n-Undecane	21.34	28.9	27.03	**107**	67	135	*	*
94)	**1,2,4-Trichlorobenzene**	**22.17**	**29.8**	**26.78**	**111**	**70**	**141**	*	*
95)	**Naphthalene**	**22.28**	**28.0**	**25.38**	**110**	**71**	**146**	*	*
96)	n-Dodecane	22.24	27.7	25.63	**108**	69	152	*	*
97)	**Hexachlorobutadiene**	**22.58**	**29.2**	**26.13**	**112**	63	126	*	*
98)	Cyclohexanone	18.41	28.9	24.45	118	58	138	*	*
99)	tert-Butylbenzene	20.19	31.0	26.88	115	65	121	*	*
100)	n-Butylbenzene	20.92	29.6	27.00	110	71	125	*	*

Bold = 75 Compound List
*** = Pass**

Response Factor Report GCMS-16

Method Path : I:\MS16\METHODS\
Method File : C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018
Response Via : Initial Calibration

Calibration Files
0.40=10201835.D 1.0 =10201836.D 2.5 =10201837.D 5.0 =10201838.D 25 =10201839.D 50 =10201

	Compound	0.40	1.0	2.5	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	----------ISTD----------								
2) T	Chloropentaflu...	1.618	1.415	1.470	1.450	1.489	1.476	1.502	1.489	4.29
3) T	1,1,1,2-Tetraf...	1.370	1.195	1.253	1.251	1.257	1.239	1.211	1.253	4.50
4) T	1,1-Difluoroet...	1.048	0.943	0.978	0.955	0.982	0.955	0.841	0.958	6.49
5) T	Chlorodifluoro...	0.381	0.350	0.376	0.373	0.379	0.373	0.369	0.372	2.78
6) T	1-Chloro-1,1-D...	2.934	2.636	2.782	2.733	2.724	2.642	2.549	2.714	4.56
7) T	Dichlorofluoro...	2.560	2.299	2.418	2.408	2.420	2.425	2.457	2.427	3.17
8) T	Vinylbromide	1.108	1.028	1.099	1.103	1.123	1.120	1.139	1.103	3.23
9) T	2,2-Dichloro-1...	1.748	1.555	1.637	1.621	1.605	1.588	1.610	1.623	3.75
10) T	2-Methylbutane	1.064	0.963	1.019	1.016	1.006	1.023	1.059	1.021	3.33
11) T	Methyl Acetate	2.324	2.052	2.154	2.129	2.128	2.114	2.141	2.149	3.90
12) T	2-Methylpentane	1.137	0.976	1.043	1.034	1.039	1.069	1.139	1.062	5.53
13) T	2,2-Dichloropr...	1.842	1.675	1.611	1.587	1.717	1.719	1.778	1.704	5.25
14) T	1,1-Dichloropr...	1.751	1.571	1.672	1.660	1.707	1.731	1.813	1.700	4.52
15) T	Thiophene	2.752	2.488	2.602	2.602	2.661	2.682	2.833	2.660	4.21
16) IR	1,4-Difluorobenzen...	----------ISTD----------								
17) T	2,3-Dimethylpe...	0.474	0.426	0.433	0.433	0.448	0.461	0.489	0.452	5.23
18) T	Dibromomethane	0.291	0.256	0.268	0.271	0.282	0.283	0.292	0.278	4.69
19) IR	Chlorobenzene-d5 (...	----------ISTD----------								
20) T	Methyl Cyclohe...	0.885	0.791	0.828	0.817	0.793	0.747	0.675	0.791	8.37
21) T	1,3-Dichloropr...	1.021	0.929	0.983	0.973	0.932	0.863	0.786	0.927	8.60
22) T	1,1,1,2-Tetrac...	0.757	0.661	0.708	0.720	0.710	0.666	0.604	0.689	7.25
23) T	1-Chlorohexane	1.061	0.941	1.000	0.997	0.980	0.930	0.860	0.967	6.63
24) T	1,2,3-Trichlor...	1.004	0.911	0.965	0.967	0.965	0.905	0.826	0.935	6.32
25) T	Bromobenzene	1.215	1.078	1.139	1.130	1.135	1.069	0.972	1.105	6.87
26) T	2-Chlorotoluene	2.189	1.972	2.099	2.083	2.086	1.977	1.769	2.025	6.69
27) T	4-Chlorotoluene	2.251	2.000	2.138	2.117	2.155	2.046	1.844	2.079	6.30
28) T	Indan	2.699	2.531	2.705	2.712	2.768	2.639	2.233	2.613	7.02
29) T	Indene	2.189	2.072	2.289	2.307	2.562	2.412	2.096	2.275	7.67
30) T	1,2,4,5-Tetram...	2.716	2.594	2.864	2.882	3.281	3.137	2.686	2.880	8.66
31) T	1,2,3,4-Tetram...	2.808	2.549	2.696	2.711	3.154	3.115	2.445	2.783	9.62
32) T	1,2,3,5-Tetram...	2.608	2.419	2.627	2.621	3.060	2.977	2.491	2.686	8.97
33) T	1,2,3-Trichlor...	1.207	1.152	1.250	1.262	1.440	1.362	1.219	1.270	7.75

(#) = Out of Range

C16102018.M Tue Oct 30 10:34:59 2018

LH 10/30/18

TO-15 CUSTOM COMPOUND LIST
ICAL CONCENTRATIONS

Std#: **Working Standards**

(1) **200 ng/L Working Std. ID:** **S31-10191806**

(2) **20 ng/L Working Std. ID:** **S31-10191807**

Injection Amts.(L):	0.020	0.050	0.125	0.250	0.125	0.250	0.500
Standards Used:	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Compounds/ Concentrations (ng):	0.4ng	1.0ng	2.5ng	5.0ng	25ng	50ng	100ng
Vinylbromide	0.396	0.990	2.475	4.95	24.75	49.5	99
2-Methylbutane (Isopentane)	0.404	1.010	2.525	5.05	25.25	50.5	101
2-Methylpentane	0.396	0.990	2.475	4.95	24.75	49.5	99
2,2-Dichloropropane	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1-Dichloropropene	0.408	1.020	2.550	5.10	25.50	51.0	102
Thiophene	0.396	0.990	2.475	4.95	24.75	49.5	99
2,3-Dimethylpentane	0.408	1.020	2.550	5.10	25.50	51.0	102
Dibromomethane	0.420	1.050	2.625	5.25	26.25	52.5	105
1,3-Dichloropropane	0.424	1.060	2.650	5.30	26.50	53.0	106
1,1,1,2-Tetrachloroethane	0.376	0.940	2.350	4.70	23.50	47.0	94
1-Chlorohexane	0.408	1.020	2.550	5.10	25.50	51.0	102
1,2,3-Trichloropropane	0.412	1.030	2.575	5.15	25.75	51.5	103
Bromobenzene	0.416	1.040	2.600	5.20	26.00	52.0	104
2-Chlorotoluene	0.428	1.070	2.675	5.35	26.75	53.5	107
4-Chlorotoluene	0.412	1.030	2.575	5.15	25.75	51.5	103
Indane	0.396	0.990	2.475	4.95	24.75	49.5	99
Indene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,4,5-Tetramethylbenzene	0.384	0.960	2.400	4.80	24.00	48.0	96
1,2,3,4-Tetramethylbenzene	0.376	0.940	2.350	4.70	23.50	47.0	94
1,2,3,5-Tetramethylbenzene	0.380	0.950	2.375	4.75	23.75	47.5	95
1,2,3-Trichlorobenzene	0.368	0.920	2.300	4.60	23.00	46.0	92
Chloropentafluoroethane (R115)	0.440	1.100	2.750	5.50	27.50	55.0	110
2,2-Dichloro-1,1,1-trifluoroethane (R123)	0.420	1.050	2.625	5.25	26.25	52.5	105
1,1-Difluoroethane (R152a)	0.416	1.040	2.600	5.20	26.00	52.0	104
Chlorodifluoromethane (R22)	0.416	1.040	2.600	5.20	26.00	52.0	104
Dichlorofluoromethane (R21)	0.400	1.000	2.500	5.00	25.00	50.0	100
1,1,1,2-Tetrafluoroethane (R134a)	0.400	1.000	2.500	5.00	25.00	50.0	100
1-Chloro-1,1-Difluoroethane	0.408	1.020	2.550	5.10	25.50	51.0	102
Methyl Acetate	0.408	1.020	2.550	5.10	25.50	51.0	102
Methylcyclohexane	0.424	1.060	2.650	5.30	26.50	53.0	106
Chlorotrifluoroethene	0.392	0.980	2.450	4.90	24.50	49.0	98

LH *10/30/18*

Calibration Status Report GCMS-16

Method : I:\MS16\METHODS\C16102018.M (RTE Integrator)
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.40	0	13	I:\MS16\DATA\2018_10\20\10201835.D
2	1.0	1	13	I:\MS16\DATA\2018_10\20\10201836.D
3	2.5	3	13	I:\MS16\DATA\2018_10\20\10201837.D
4	5.0	6	13	I:\MS16\DATA\2018_10\20\10201838.D
5	25	28	13	I:\MS16\DATA\2018_10\20\10201839.D
6	50	55	13	I:\MS16\DATA\2018_10\20\10201840.D
7	100	110	13	I:\MS16\DATA\2018_10\20\10201841.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.40	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 22:25
2	1.0	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 22:58
3	2.5	Oct 22 12:25 2018	Oct 22 12:22 2018	20 Oct 2018 23:32
4	5.0	Oct 22 12:26 2018	Oct 22 12:22 2018	21 Oct 2018 00:05
5	25	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 00:39
6	50	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 1:12
7	100	Oct 22 12:26 2018	Oct 22 12:23 2018	21 Oct 2018 1:45

C16102018.M Tue Oct 30 10:36:30 2018

LH 10/30/18

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201835.D
Acq On : 20 Oct 2018 22:25 Operator: LH/TD
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M LH 10/22/18
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

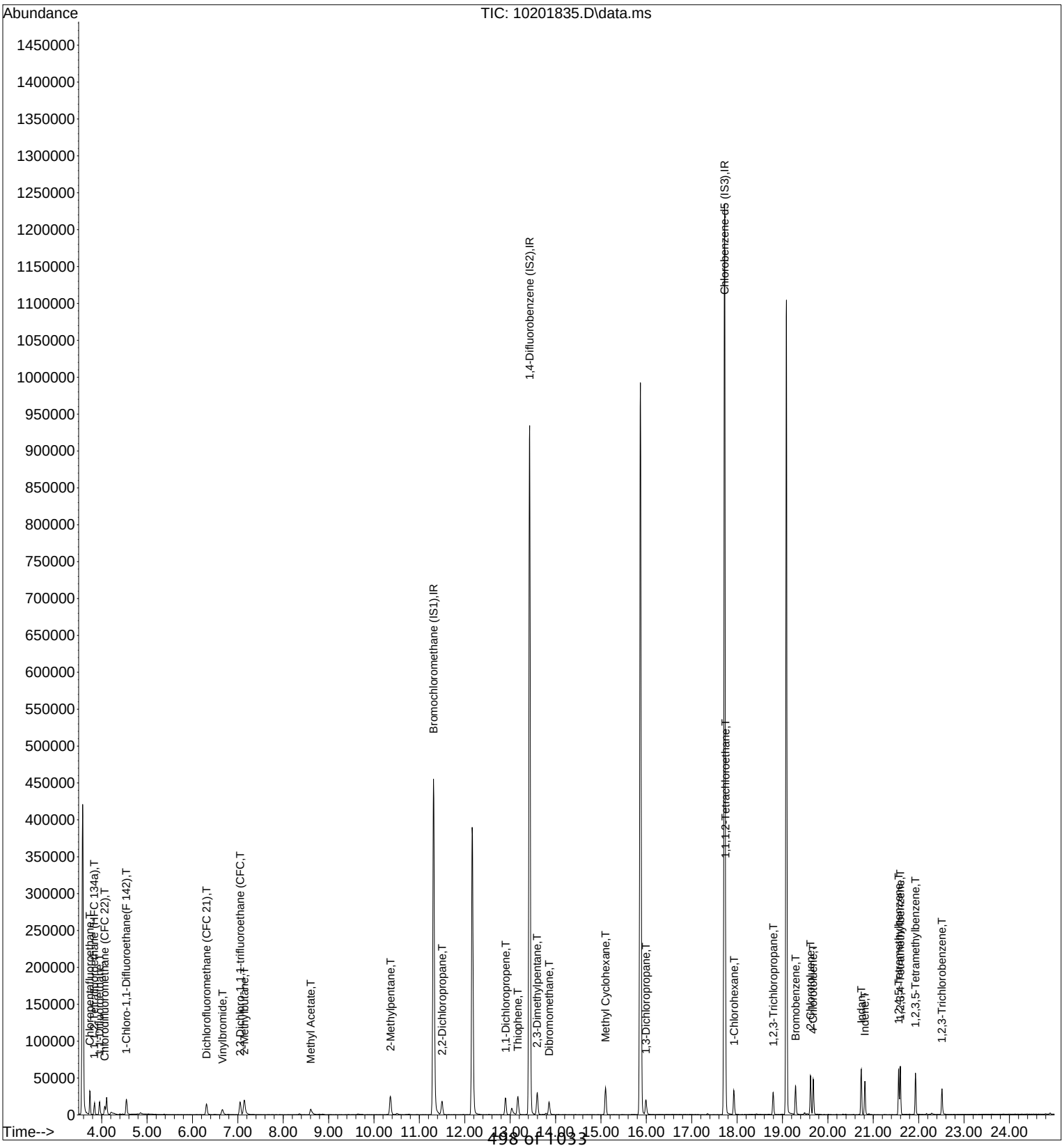
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	227958	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	951312	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	402403	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	12986	0.479	ng	97
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	9994	0.530	ng	99
4) 1,1-Difluoroethane	3.95	65	7954	0.382	ng	96
5) Chlorodifluoromethane ...	4.06	67	2894	0.510	ng	95
6) 1-Chloro-1,1-Difluoroe...	4.54	65	22473	0.648	ng	99
7) Dichlorofluoromethane ...	6.31	67	18673	0.375	ng	100
8) Vinylbromide	6.66	108	8005	0.370	ng	95
9) 2,2-Dichloro-1,1,1-tri...	7.05	83	13390	0.390	ng	100
10) 2-Methylbutane	7.14	57	7837	0.316	ng	93
11) Methyl Acetate	8.61	43	17294	0.317	ng	95
12) 2-Methylpentane	10.37	71	8210	0.345	ng	93
13) 2,2-Dichloropropane	11.50	77	13434	0.405	ng	98
14) 1,1-Dichloropropene	12.90	75	13026	0.380	ng	96
15) Thiophene	13.17	84	19877	0.358	ng	99
17) 2,3-Dimethylpentane	13.59	56	14707	0.342	ng	95
18) Dibromomethane	13.86	174	9298	0.469	ng	98
20) Methyl Cyclohexane	15.10	55	12079	0.372	ng	99
21) 1,3-Dichloropropane	15.99	76	13936	0.403	ng	96
22) 1,1,1,2-Tetrachloroethane	17.75	131	9164	0.432	ng	99
23) 1-Chlorohexane	17.93	91	13939	0.408	ng	98
24) 1,2,3-Trichloropropane	18.80	75	13321	0.385	ng	98
25) Bromobenzene	19.29	77	16265	0.398	ng	97
26) 2-Chlorotoluene	19.62	91	30161	0.428	ng	99
27) 4-Chlorotoluene	19.68	91	29855	0.411	ng	97
28) Indan	20.74	117	34411	0.393	ng	99
29) Indene	20.81	115	26494	0.334	ng	96
30) 1,2,4,5-Tetramethylben...	21.56	119	33577	0.352	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	33985	0.378	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	31901	0.360	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	14302	0.358	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201835.D
Acq On : 20 Oct 2018 22:25 Operator: LH/TD
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:55 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201836.D
Acq On : 20 Oct 2018 22:58 Operator: LH/TD
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:56 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

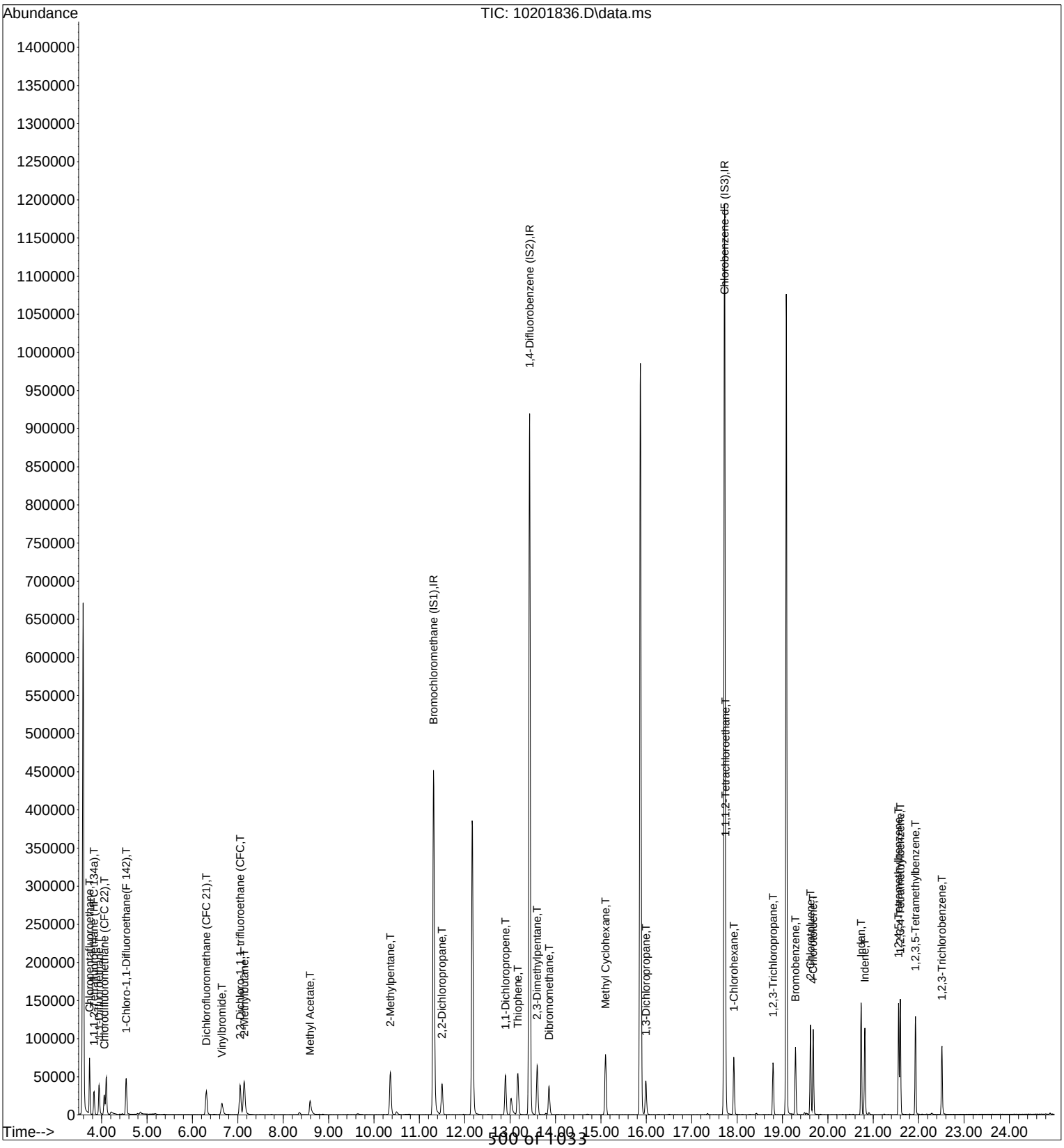
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	223837	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	938259	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	394961	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	27869	1.047	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	21393	1.156	ng	98
4) 1,1-Difluoroethane	3.94	65	17568	0.859	ng	98
5) Chlorodifluoromethane ...	4.06	67	6521	1.170	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.54	65	49566	1.456	ng	100
7) Dichlorofluoromethane ...	6.31	67	41167	0.842	ng	100
8) Vinylbromide	6.65	108	18229	0.857	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.05	83	29229	0.866	ng	99
10) 2-Methylbutane	7.14	57	17410	0.715	ng	98
11) Methyl Acetate	8.59	43	37488	0.701	ng	96
12) 2-Methylpentane	10.36	71	17295	0.740	ng	90
13) 2,2-Dichloropropane	11.50	77	30002	0.921	ng	99
14) 1,1-Dichloropropene	12.90	75	28686	0.852	ng	98
15) Thiophene	13.17	84	44107	0.809	ng	99
17) 2,3-Dimethylpentane	13.59	56	32582	0.769	ng	100
18) Dibromomethane	13.86	174	20197	1.032	ng	99
20) Methyl Cyclohexane	15.10	55	26496	0.831	ng	99
21) 1,3-Dichloropropane	15.99	76	31124	0.917	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	19647	0.943	ng	99
23) 1-Chlorohexane	17.93	91	30331	0.904	ng	99
24) 1,2,3-Trichloropropane	18.79	75	29657	0.873	ng	99
25) Bromobenzene	19.29	77	35411	0.882	ng	99
26) 2-Chlorotoluene	19.62	91	66664	0.963	ng	99
27) 4-Chlorotoluene	19.68	91	65083	0.913	ng	99
28) Indan	20.73	117	79162	0.922	ng	99
29) Indene	20.81	115	61547	0.790	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	78676	0.840	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	75695	0.858	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	72615	0.835	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	33497	0.855	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201836.D
Acq On : 20 Oct 2018 22:58 Operator: LH/TD
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:56 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201837.D
Acq On : 20 Oct 2018 23:32 Operator: LH/TD
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:57 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

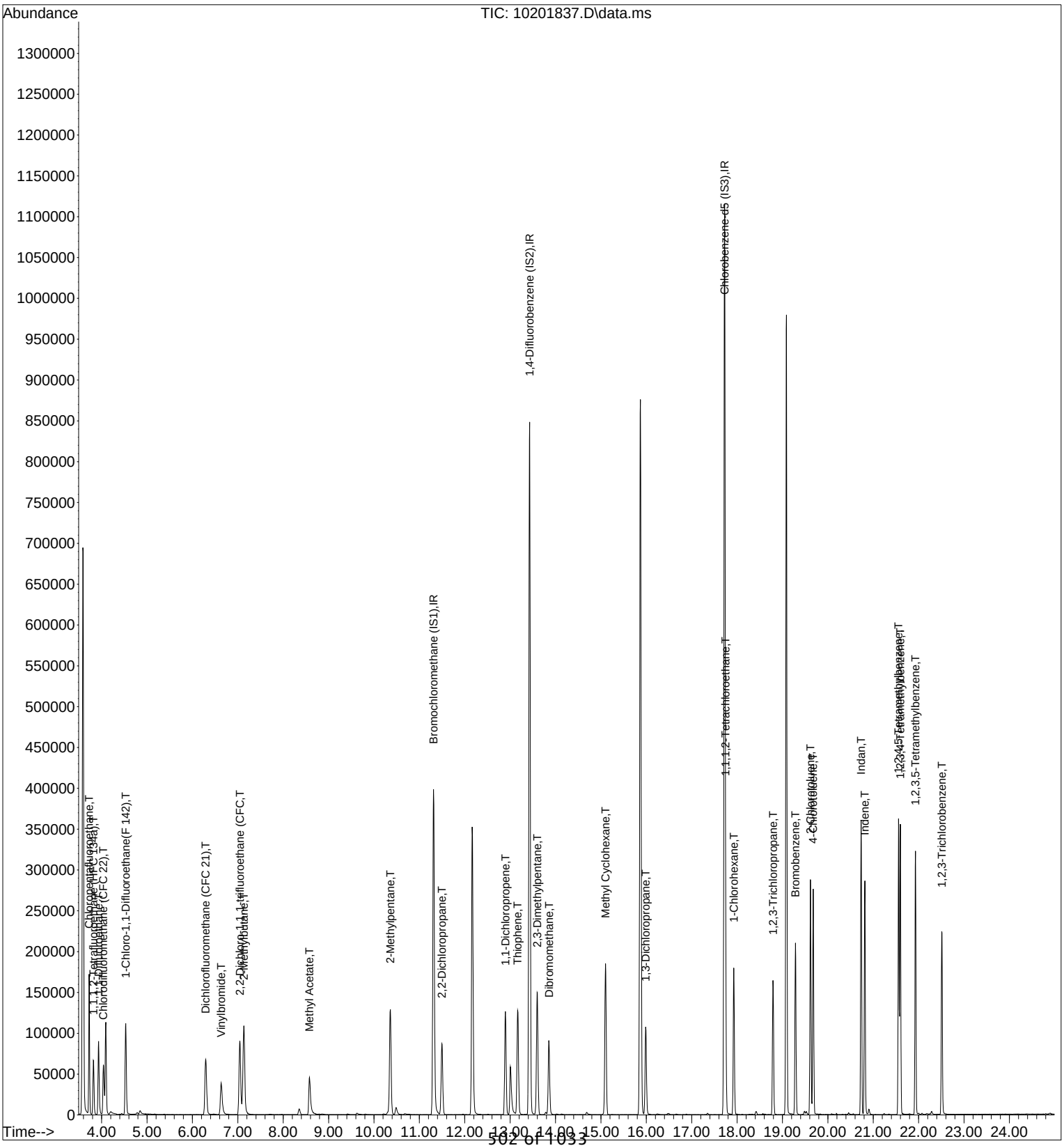
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	199541	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	847016	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	355061	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.72	85	64526	2.720	ng		99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	49991	3.031	ng		99
4) 1,1-Difluoroethane	3.93	65	40605	2.227	ng		99
5) Chlorodifluoromethane ...	4.04	67	15623	3.145	ng		99
6) 1-Chloro-1,1-Difluoroe...	4.53	65	116568	3.841	ng		100
7) Dichlorofluoromethane ...	6.29	67	96496	2.215	ng		99
8) Vinylbromide	6.63	108	43411	2.290	ng		99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	68586	2.279	ng		99
10) 2-Methylbutane	7.13	57	41081	1.891	ng		96
11) Methyl Acetate	8.58	43	87663	1.839	ng	#	97
12) 2-Methylpentane	10.36	71	41220	1.979	ng		94
13) 2,2-Dichloropropane	11.49	77	64290	2.215	ng		100
14) 1,1-Dichloropropene	12.90	75	68042	2.267	ng		99
15) Thiophene	13.17	84	102800	2.116	ng		99
17) 2,3-Dimethylpentane	13.60	56	74816	1.956	ng		98
18) Dibromomethane	13.86	174	47727	2.701	ng		99
20) Methyl Cyclohexane	15.10	55	62363	2.175	ng		99
21) 1,3-Dichloropropane	15.99	76	73981	2.424	ng		100
22) 1,1,1,2-Tetrachloroethane	17.75	131	47284	2.526	ng		99
23) 1-Chlorohexane	17.93	91	72435	2.401	ng		99
24) 1,2,3-Trichloropropane	18.79	75	70613	2.311	ng		100
25) Bromobenzene	19.29	77	84142	2.331	ng		99
26) 2-Chlorotoluene	19.62	91	159519	2.563	ng		99
27) 4-Chlorotoluene	19.68	91	156407	2.441	ng		99
28) Indan	20.73	117	190188	2.464	ng		100
29) Indene	20.81	115	152803	2.182	ng		99
30) 1,2,4,5-Tetramethylben...	21.56	119	195265	2.320	ng		100
31) 1,2,3,4-Tetramethylben...	21.60	119	179994	2.269	ng		99
32) 1,2,3,5-Tetramethylben...	21.93	119	177188	2.267	ng		99
33) 1,2,3-Trichlorobenzene	22.51	180	81650	2.318	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201837.D
Acq On : 20 Oct 2018 23:32 Operator: LH/TD
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:57 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201838.D
Acq On : 21 Oct 2018 00:05 Operator: LH/TD
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:58 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

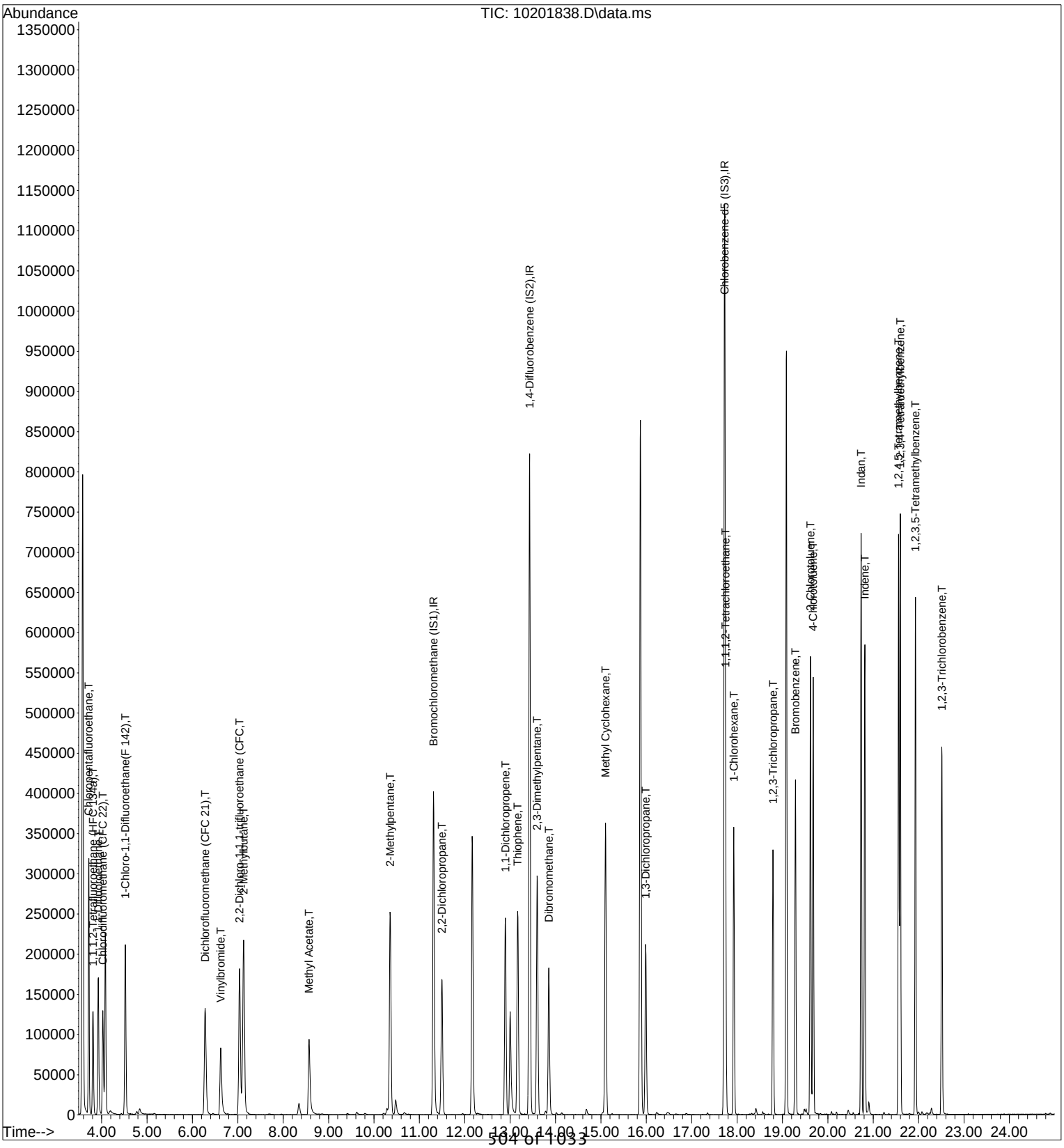
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.31	130	195226	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	829975	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	351103	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.71	85	124570	5.366	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	97665	6.052	ng		99
4) 1,1-Difluoroethane	3.93	65	77570	4.348	ng		100
5) Chlorodifluoromethane ...	4.03	67	30331	6.241	ng		99
6) 1-Chloro-1,1-Difluoroe...	4.52	65	224117	7.549	ng		100
7) Dichlorofluoromethane ...	6.28	67	188074	4.412	ng		100
8) Vinylbromide	6.62	108	85281	4.599	ng		100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	132946	4.516	ng		99
10) 2-Methylbutane	7.13	57	80115	3.770	ng		97
11) Methyl Acetate	8.57	43	169584	3.635	ng	#	97
12) 2-Methylpentane	10.36	71	79961	3.924	ng		96
13) 2,2-Dichloropropane	11.49	77	123944	4.364	ng		99
14) 1,1-Dichloropropene	12.90	75	132184	4.502	ng		99
15) Thiophene	13.17	84	201166	4.233	ng		100
17) 2,3-Dimethylpentane	13.59	56	146566	3.910	ng		99
18) Dibromomethane	13.85	174	94530	5.460	ng		100
20) Methyl Cyclohexane	15.10	55	121639	4.291	ng		100
21) 1,3-Dichloropropane	15.99	76	144886	4.801	ng		100
22) 1,1,1,2-Tetrachloroethane	17.75	131	95078	5.136	ng		100
23) 1-Chlorohexane	17.93	91	142861	4.788	ng		99
24) 1,2,3-Trichloropropane	18.79	75	139951	4.632	ng		100
25) Bromobenzene	19.29	77	165056	4.624	ng		99
26) 2-Chlorotoluene	19.62	91	313089	5.087	ng		99
27) 4-Chlorotoluene	19.68	91	306290	4.834	ng		100
28) Indan	20.73	117	377114	4.942	ng		99
29) Indene	20.81	115	304618	4.399	ng		100
30) 1,2,4,5-Tetramethylben...	21.56	119	388533	4.668	ng		100
31) 1,2,3,4-Tetramethylben...	21.60	119	357914	4.562	ng		100
32) 1,2,3,5-Tetramethylben...	21.93	119	349647	4.524	ng		100
33) 1,2,3-Trichlorobenzene	22.51	180	163104	4.682	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201838.D
Acq On : 21 Oct 2018 00:05 Operator: LH/TD
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191807 (11/17)
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 22 12:22:58 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201839.D
Acq On : 21 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:00 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

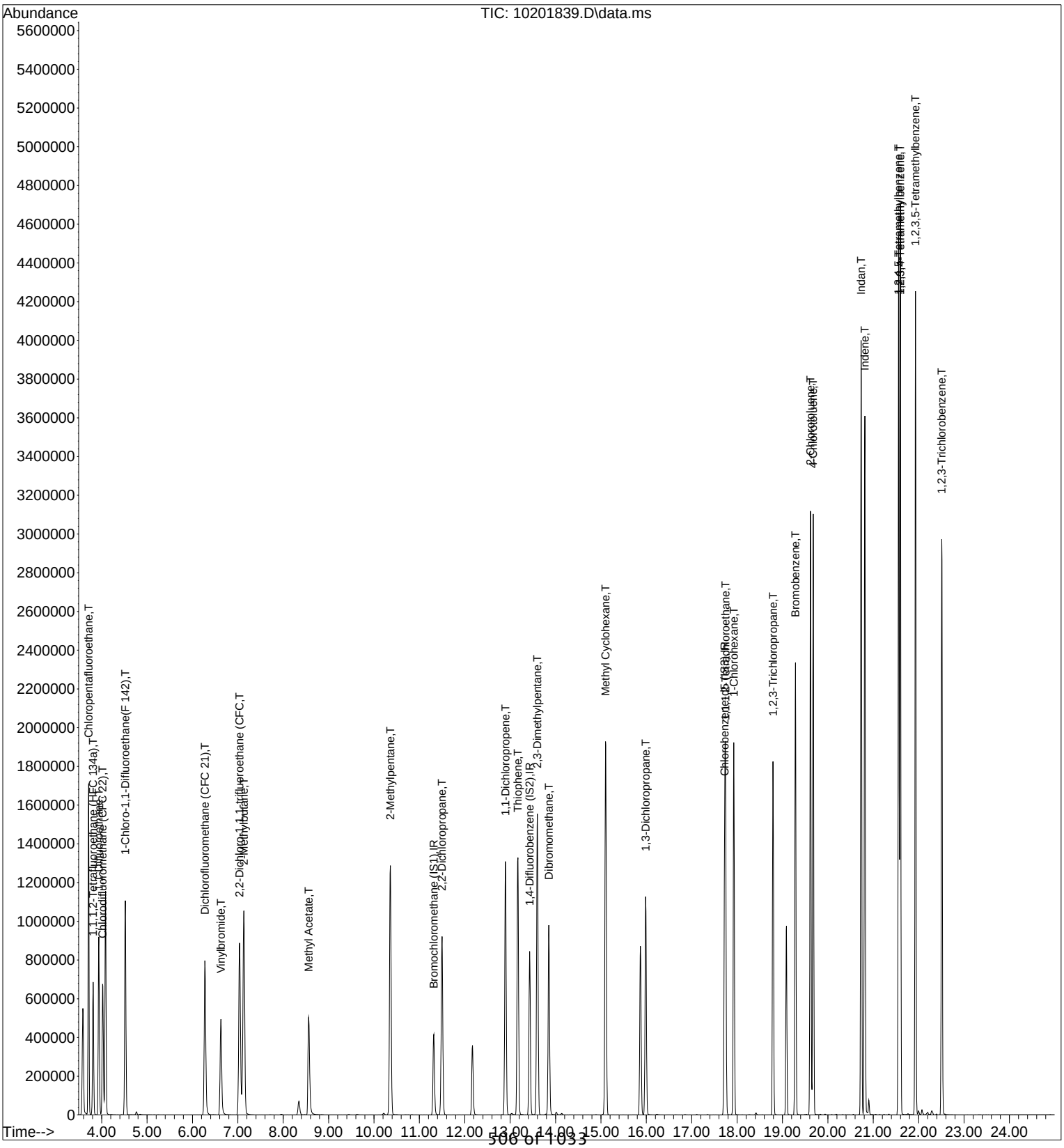
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	199476	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	835773	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	382201	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	653302	27.544	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	501379	30.406	ng	100
4) 1,1-Difluoroethane	3.94	65	407599	22.360	ng	100
5) Chlorodifluoromethane ...	4.02	67	157061	31.627	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1141211	37.621	ng	100
7) Dichlorofluoromethane ...	6.27	67	965475	22.167	ng	100
8) Vinylbromide	6.63	108	443664	23.415	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	672530	22.357	ng	100
10) 2-Methylbutane	7.13	57	405294	18.666	ng	100
11) Methyl Acetate	8.56	43	865861	18.165	ng	100
12) 2-Methylpentane	10.36	71	410486	19.714	ng	100
13) 2,2-Dichloropropane	11.50	77	685082	23.609	ng	100
14) 1,1-Dichloropropene	12.90	75	694471	23.148	ng	100
15) Thiophene	13.17	84	1051176	21.646	ng	100
17) 2,3-Dimethylpentane	13.60	56	764276	20.246	ng	100
18) Dibromomethane	13.85	174	494889	28.388	ng	100
20) Methyl Cyclohexane	15.10	55	642467	20.818	ng	100
21) 1,3-Dichloropropane	15.99	76	754807	22.978	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	510206	25.317	ng	100
23) 1-Chlorohexane	17.93	91	764100	23.527	ng	100
24) 1,2,3-Trichloropropane	18.79	75	759882	23.104	ng	100
25) Bromobenzene	19.29	77	902467	23.226	ng	100
26) 2-Chlorotoluene	19.62	91	1706302	25.468	ng	100
27) 4-Chlorotoluene	19.68	91	1696590	24.597	ng	100
28) Indan	20.73	117	2095073	25.219	ng	100
29) Indene	20.81	115	1840567	24.417	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2407664	26.572	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	2266614	26.539	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	2222253	26.413	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	1012339	26.695	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201839.D
Acq On : 21 Oct 2018 00:39 Operator: LH/TD
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:00 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201840.D
Acq On : 21 Oct 2018 1:12 Operator: LH/TD
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:01 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

LH 10/22/18

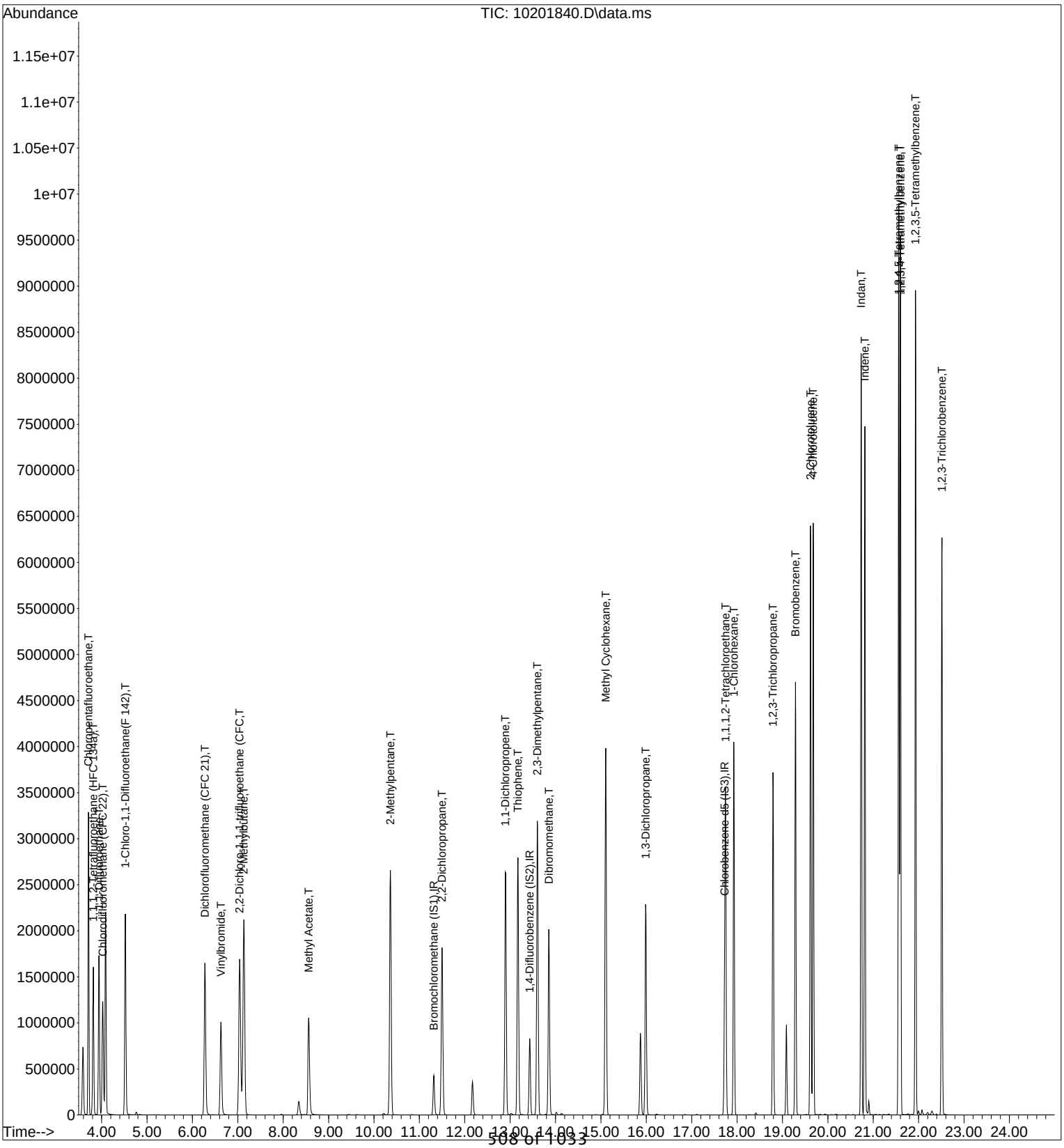
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	200924	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	838471	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	419502	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	1304715	54.611	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	995594	59.943	ng	99
4) 1,1-Difluoroethane	3.94	65	798002	43.462	ng	99
5) Chlorodifluoromethane ...	4.03	67	311451	62.264	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.52	65	2229450	72.965	ng	99
7) Dichlorofluoromethane ...	6.27	67	1948637	44.417	ng	100
8) Vinylbromide	6.63	108	891231	46.697	ng	99
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	1340033	44.227	ng	100
10) 2-Methylbutane	7.13	57	830518	37.974	ng	99
11) Methyl Acetate	8.56	43	1733065	36.097	ng	100
12) 2-Methylpentane	10.36	71	850347	40.544	ng	99
13) 2,2-Dichloropropane	11.50	77	1381431	47.264	ng	100
14) 1,1-Dichloropropene	12.90	75	1418773	46.950	ng	99
15) Thiophene	13.17	84	2133922	43.626	ng	100
17) 2,3-Dimethylpentane	13.60	56	1576967	41.640	ng	99
18) Dibromomethane	13.85	174	996640	56.985	ng	100
20) Methyl Cyclohexane	15.11	55	1328813	39.230	ng	100
21) 1,3-Dichloropropane	15.99	76	1535331	42.582	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	1049799	47.460	ng	100
23) 1-Chlorohexane	17.93	91	1591082	44.633	ng	100
24) 1,2,3-Trichloropropane	18.79	75	1564476	43.337	ng	100
25) Bromobenzene	19.29	77	1864721	43.724	ng	100
26) 2-Chlorotoluene	19.62	91	3549720	48.272	ng	100
27) 4-Chlorotoluene	19.68	91	3536049	46.706	ng	99
28) Indan	20.73	117	4383747	48.077	ng	100
29) Indene	20.81	115	3805126	45.990	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	5053013	50.808	ng	99
31) 1,2,3,4-Tetramethylben...	21.60	119	4912957	52.409	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	4745701	51.390	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	2103129	50.527	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201840.D
Acq On : 21 Oct 2018 1:12 Operator: LH/TD
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:01 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201841.D
Acq On : 21 Oct 2018 1:45 Operator: LH/TD
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:03 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD LH 10/22/18
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

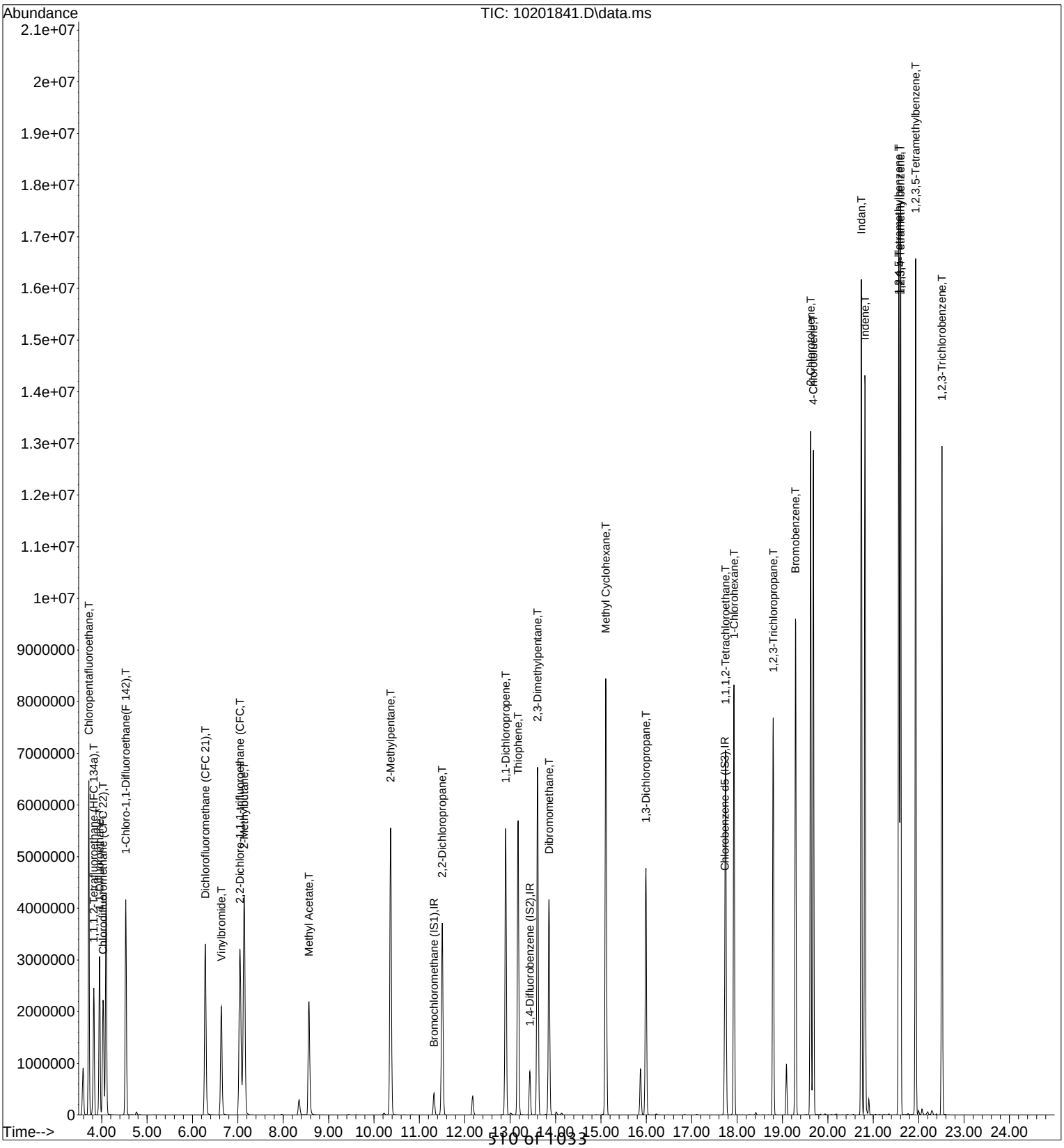
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	203775	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	849000	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.73	82	493504	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.72	85	2693919	111.182	ng	98
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	1974011	117.188	ng	99
4) 1,1-Difluoroethane	3.95	65	1425379	76.544	ng	99
5) Chlorodifluoromethane ...	4.03	67	625915	123.380	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.53	65	4363682	140.817	ng	98
7) Dichlorofluoromethane ...	6.29	67	4004587	90.003	ng	100
8) Vinylbromide	6.64	108	1837985	94.955	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	2756027	89.688	ng	100
10) 2-Methylbutane	7.14	57	1743787	78.616	ng	95
11) Methyl Acetate	8.57	43	3560299	73.117	ng	99
12) 2-Methylpentane	10.37	71	1838837	86.448	ng	95
13) 2,2-Dichloropropane	11.50	77	2898971	97.797	ng	99
14) 1,1-Dichloropropene	12.90	75	3014193	98.351	ng	95
15) Thiophene	13.18	84	4572744	92.177	ng	98
17) 2,3-Dimethylpentane	13.60	56	3386270	88.305	ng	95
18) Dibromomethane	13.86	174	2083086	117.628	ng	100
20) Methyl Cyclohexane	15.11	55	2825074	70.897	ng	96
21) 1,3-Dichloropropane	15.99	76	3288481	77.529	ng	97
22) 1,1,1,2-Tetrachloroethane	17.75	131	2240345	86.096	ng	100
23) 1-Chlorohexane	17.93	91	3461609	82.544	ng	98
24) 1,2,3-Trichloropropane	18.80	75	3360326	79.126	ng	99
25) Bromobenzene	19.29	77	3989195	79.513	ng	99
26) 2-Chlorotoluene	19.62	91	7472908	86.385	ng	98
27) 4-Chlorotoluene	19.68	91	7498279	84.190	ng	98
28) Indan	20.74	117	8729008	81.376	ng	98
29) Indene	20.82	115	7777194	79.902	ng	99
30) 1,2,4,5-Tetramethylben...	21.56	119	10180072	87.011	ng	97
31) 1,2,3,4-Tetramethylben...	21.60	119	9074930	82.291	ng	96
32) 1,2,3,5-Tetramethylben...	21.94	119	9342170	85.994	ng	97
33) 1,2,3-Trichlorobenzene	22.51	180	4428467	90.439	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201841.D
Acq On : 21 Oct 2018 1:45 Operator: LH/TD
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 22 12:23:03 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:22:36 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201842.D
Acq On : 21 Oct 2018 2:19 Operator: LH/TD
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-09141801/S31-10201801 (11/18)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 22 12:27:11 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018 LH 10/22/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

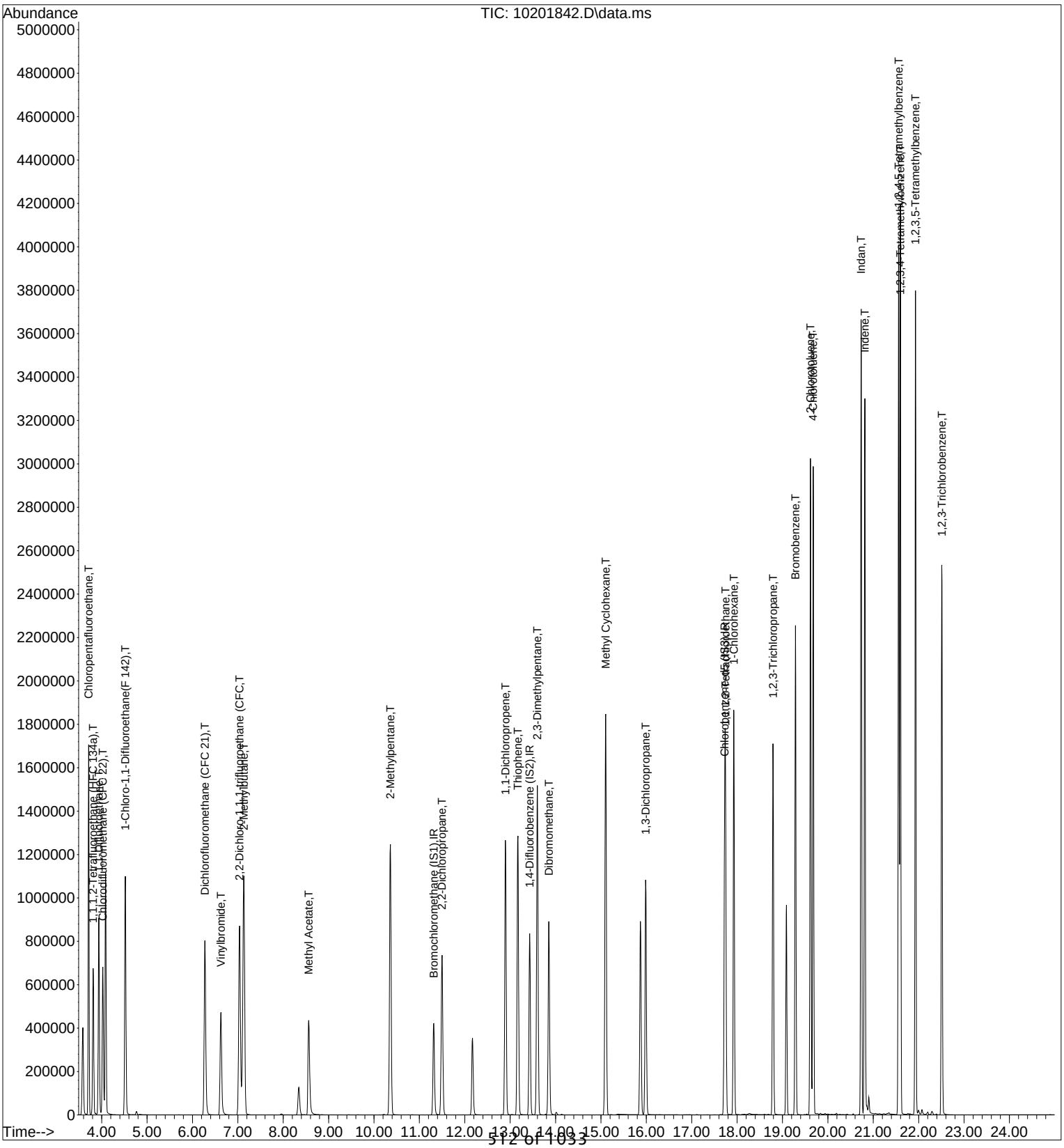
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	204839	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	846543	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	378351	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	639057	26.198	ng	99
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	494861	24.091	ng	100
4) 1,1-Difluoroethane	3.94	65	399786	25.477	ng	99
5) Chlorodifluoromethane ...	4.03	67	156007	25.613	ng	100
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1132323	25.456	ng	100
7) Dichlorofluoromethane ...	6.27	67	970369	24.403	ng	100
8) Vinylbromide	6.63	108	429093	23.740	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	655802	24.650	ng	100
10) 2-Methylbutane	7.13	57	417611	24.952	ng	95
11) Methyl Acetate	8.56	43	755828	21.464	ng	100
12) 2-Methylpentane	10.36	71	400182	22.984	ng	100
13) 2,2-Dichloropropane	11.50	77	555365	19.886	ng	100
14) 1,1-Dichloropropene	12.90	75	669890	24.042	ng	100
15) Thiophene	13.17	84	1014836	23.280	ng	100
17) 2,3-Dimethylpentane	13.60	56	751275	24.550	ng	100
18) Dibromomethane	13.85	174	452941	24.086	ng	100
20) Methyl Cyclohexane	15.11	55	623099	26.027	ng	100
21) 1,3-Dichloropropane	15.99	76	731928	26.094	ng	100
22) 1,1,1,2-Tetrachloroethane	17.75	131	437583	20.967	ng	100
23) 1-Chlorohexane	17.93	91	740178	25.289	ng	100
24) 1,2,3-Trichloropropane	18.79	75	717491	25.352	ng	100
25) Bromobenzene	19.29	77	862128	25.770	ng	100
26) 2-Chlorotoluene	19.62	91	1665058	27.164	ng	100
27) 4-Chlorotoluene	19.68	91	1628812	25.887	ng	100
28) Indan	20.73	117	1957097	24.749	ng	100
29) Indene	20.81	115	1725930	25.061	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2150697	24.672	ng	100
31) 1,2,3,4-Tetramethylben...	21.60	119	2040691	24.229	ng	100
32) 1,2,3,5-Tetramethylben...	21.93	119	1962666	24.141	ng	100
33) 1,2,3-Trichlorobenzene	22.51	180	872535	22.691	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS16\DATA\2018_10\20\10201842.D
Acq On : 21 Oct 2018 2:19 Operator: LH/TD
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-09141801/S31-10201801 (11/18)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 22 12:27:11 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10201842.D**
Data File Path: **I:\MS16\DATA\2018_10\20**
Operator: **LH/TD**
Date Acquired: **10/21/18** **2:19**

Acq. Method File: **TO15.M**
Sample Name: **25ng TO-15 Custom I**
Misc Info: **S31-09141801/S31-10**
Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	AZ Check 70-130%
2)	**Chloropentafluoroethane**	3.71	26.2	27.00	97	70	130	*
3)	**1,1,1,2-Tetrafluoroethane (HFC 1**	3.81	24.1	27.00	89	70	130	*
4)	**1,1-Difluoroethane**	3.94	25.5	26.00	98	70	130	*
5)	**Chlorodifluoromethane (CFC 22)**	4.03	25.6	27.00	95	70	130	*
6)	**1-Chloro-1,1-Difluoroethane(F 14**	4.52	25.5	26.25	97	70	130	*
7)	**Dichlorofluoromethane (CFC 21)**	6.27	24.4	25.75	95	70	130	*
8)	**Vinylbromide**	6.63	23.7	24.75	96	70	130	*
9)	**2,2-Dichloro-1,1,1-trifluoroethane**	7.04	24.7	26.50	93	70	130	*
10)	**2-Methylbutane**	7.13	25.0	27.50	91	70	130	*
11)	**Methyl Acetate**	8.56	21.5	23.25	92	70	130	*
12)	**2-Methylpentane**	10.36	23.0	24.75	93	70	130	*
13)	**2,2-Dichloropropane**	11.50	19.9	22.50	88	70	130	*
14)	**1,1-Dichloropropene**	12.90	24.0	25.50	94	70	130	*
15)	**Thiophene**	13.17	23.3	25.25	92	70	130	*
17)	**2,3-Dimethylpentane**	13.60	24.6	26.00	95	70	130	*
18)	**Dibromomethane**	13.85	24.1	25.50	95	70	130	*
20)	**Methyl Cyclohexane**	15.11	26.0	27.25	95	70	130	*
21)	**1,3-Dichloropropane**	15.99	26.1	26.50	98	70	130	*
22)	**1,1,1,2-Tetrachloroethane**	17.75	21.0	22.50	93	70	130	*
23)	**1-Chlorohexane**	17.93	25.3	26.00	97	70	130	*
24)	**1,2,3-Trichloropropane**	18.79	25.4	26.50	96	70	130	*
25)	**Bromobenzene**	19.29	25.8	26.75	96	70	130	*
26)	**2-Chlorotoluene**	19.62	27.2	27.50	99	70	130	*
27)	**4-Chlorotoluene**	19.68	25.9	26.50	98	70	130	*
28)	**Indan**	20.73	24.7	25.25	98	70	130	*
29)	**Indene**	20.81	25.1	24.25	104	70	130	*
30)	**1,2,4,5-Tetramethylbenzene**	21.56	24.7	25.25	98	70	130	*
31)	**1,2,3,4-Tetramethylbenzene**	21.60	24.2	25.00	97	70	130	*
32)	**1,2,3,5-Tetramethylbenzene**	21.93	24.1	24.75	97	70	130	*
33)	**1,2,3-Trichlorobenzene**	22.51	22.7	24.50	93	70	130	*

* = Pass

LH ***10/22/18***

Evaluate Continuing Calibration Report

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271802.D
Acq On : 27 Oct 2018 3:56
Operator : LH/TD
Sample : CCV R16102718_5.0ng
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

10/29/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	97	-0.03
2	T	Propene	1.163	1.014	12.8	91	0.00
3	T	Dichlorodifluoromethane (CF	2.613	2.564	1.9	96	0.00
4	T	Chloromethane	1.663	1.751	-5.3	98	-0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.553	1.621	-4.4	102	0.00
6	T	Vinyl Chloride	1.814	2.030	-11.9	108	-0.02
7	T	1,3-Butadiene	1.174	1.176	-0.2	99	-0.02
8	T	Bromomethane	1.093	1.091	0.2	97	-0.02
9	T	Chloroethane	0.779	0.760	2.4	95	-0.02
10	T	Ethanol	0.703	0.584	16.9	94	-0.12
11	T	Acetonitrile	1.840	1.535	16.6	92	-0.07
12	T	Acrolein	0.621	0.604	2.7	95	-0.03
13	T	Acetone	0.839	0.759	9.5	97	-0.06
14	T	Trichlorofluoromethane	2.263	2.182	3.6	94	-0.02
15	T	2-Propanol (Isopropanol)	2.690	2.471	8.1	92	-0.07
16	T	Acrylonitrile	1.273	1.260	1.0	94	-0.05
17	T	1,1-Dichloroethene	1.152	1.115	3.2	95	-0.02
18	T	2-Methyl-2-Propanol (tert-B	2.833	2.777	2.0	91	-0.07
19	T	Methylene Chloride	1.172	1.138	2.9	96	-0.03
20	T	3-Chloro-1-propene (Allyl C	1.457	1.258	13.7	90	-0.03
21	T	Trichlorotrifluoroethane	1.204	1.157	3.9	94	-0.02
22	T	Carbon Disulfide	4.183	3.979	4.9	96	-0.02
23	T	trans-1,2-Dichloroethene	1.577	1.562	1.0	95	-0.03
24	T	1,1-Dichloroethane	1.961	1.899	3.2	94	-0.03
25	T	Methyl tert-Butyl Ether	3.468	3.267	5.8	92	-0.01
26	T	Vinyl Acetate	0.294	0.266	9.5	94	-0.04
27	T	2-Butanone (MEK)	0.742	0.737	0.7	95	-0.03
28	T	cis-1,2-Dichloroethene	1.550	1.516	2.2	94	-0.02
29	T	Diisopropyl Ether	1.037	0.925	10.8	95	-0.02
30	T	Ethyl Acetate	0.398	0.396	0.5	97	-0.03
31	T	n-Hexane	1.812	1.691	6.7	96	0.00
32	T	Chloroform	2.108	2.080	1.3	95	-0.03
33	S	1,2-Dichloroethane-d4(SS1)	1.504	1.492	0.8	96	-0.02
34	T	Tetrahydrofuran (THF)	0.748	0.705	5.7	95	0.00
35	T	Ethyl tert-Butyl Ether	1.451	1.360	6.3	93	-0.01
36	T	1,2-Dichloroethane	1.631	1.566	4.0	93	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	97	-0.02
38	T	1,1,1-Trichloroethane	0.470	0.444	5.5	92	-0.01
39	T	Isopropyl Acetate	0.176	0.169	4.0	95	-0.02
40	T	1-Butanol	0.253	0.181	28.5	91	-0.04
41	T	Benzene	1.149	1.086	5.5	96	-0.02
42	T	Carbon Tetrachloride	0.435	0.410	5.7	92	-0.02
43	T	Cyclohexane	0.445	0.423	4.9	95	-0.01
44	T	tert-Amyl Methyl Ether	0.792	0.737	6.9	92	-0.01
45	T	1,2-Dichloropropane	0.255	0.248	2.7	96	-0.01
46	T	Bromodichloromethane	0.402	0.383	4.7	93	-0.01
47	T	Trichloroethene	0.338	0.319	5.6	94	-0.02
48	T	1,4-Dioxane	0.217	0.198	8.8	95	-0.01
49	T	2,2,4-Trimethylpentane (Iso	1.067	1.011	5.2	95	-0.02
50	T	Methyl Methacrylate	0.119	0.113	5.0	92	-0.02
51	T	n-Heptane	0.264	0.248	6.1	95	-0.01
52	T	cis-1,3-Dichloropropene	0.451	0.422	6.4	92	-0.01
53	T	4-Methyl-2-pentanone	0.232	0.227	2.2	94	-0.01

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271802.D
Acq On : 27 Oct 2018 3:56
Operator : LH/TD
Sample : CCV R16102718_5.0ng
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	trans-1,3-Dichloropropene	0.399	0.378	5.3	90	0.00
55	T	1,1,2-Trichloroethane	0.277	0.272	1.8	95	-0.01
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	94	0.00
57	S	Toluene-d8 (SS2)	1.991	2.028	-1.9	96	0.00
58	T	Toluene	2.764	2.677	3.1	95	-0.01
59	T	2-Hexanone	1.266	1.192	5.8	90	-0.01
60	T	Dibromochloromethane	0.807	0.797	1.2	91	0.00
61	T	1,2-Dibromoethane	0.740	0.747	-0.9	93	0.00
62	T	n-Butyl Acetate	1.373	1.348	1.8	91	0.00
63	T	n-Octane	0.526	0.474	9.9	94	-0.01
64	T	Tetrachloroethene	0.851	0.835	1.9	93	0.00
65	T	Chlorobenzene	1.872	1.805	3.6	93	-0.01
66	T	Ethylbenzene	3.148	3.097	1.6	94	0.00
67	T	m- & p-Xylenes	2.350	2.335	0.6	93	-0.01
68	T	Bromoform	0.718	0.694	3.3	88	-0.01
69	T	Styrene	1.912	1.859	2.8	91	-0.01
70	T	o-Xylene	2.386	2.379	0.3	93	-0.01
71	T	n-Nonane	1.096	1.045	4.7	90	0.00
72	T	1,1,2,2-Tetrachloroethane	1.142	1.170	-2.5	95	0.00
73	S	Bromofluorobenzene (SS3)	0.905	0.859	5.1	87	0.00
74	T	Cumene	3.131	3.081	1.6	93	0.00
75	T	alpha-Pinene	1.624	1.568	3.4	91	0.00
76	T	n-Propylbenzene	3.582	3.625	-1.2	94	0.00
77	T	3-Ethyltoluene	3.156	3.045	3.5	93	0.00
78	T	4-Ethyltoluene	2.847	2.861	-0.5	90	0.00
79	T	1,3,5-Trimethylbenzene	2.620	2.543	2.9	93	0.00
80	T	alpha-Methylstyrene	1.416	1.370	3.2	89	-0.01
81	T	2-Ethyltoluene	3.077	3.015	2.0	92	0.00
82	T	1,2,4-Trimethylbenzene	2.571	2.622	-2.0	93	-0.01
83	T	n-Decane	0.055	0.052	5.5	94	0.00
84	T	Benzyl Chloride	2.266	1.821	19.6	84	0.00
85	T	1,3-Dichlorobenzene	1.593	1.543	3.1	90	-0.01
86	T	1,4-Dichlorobenzene	1.615	1.540	4.6	91	0.00
87	T	sec-Butylbenzene	3.352	3.447	-2.8	93	0.00
88	T	4-Isopropyltoluene (p-Cymen	3.193	3.324	-4.1	93	0.00
89	T	1,2,3-Trimethylbenzene	2.577	2.638	-2.4	93	-0.01
90	T	1,2-Dichlorobenzene	1.502	1.508	-0.4	92	-0.01
91	T	d-Limonene	0.934	0.952	-1.9	91	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.560	0.534	4.6	88	0.00
93	T	n-Undecane	1.235	1.196	3.2	90	0.00
94	T	1,2,4-Trichlorobenzene	1.204	1.077	10.5	87	0.00
95	T	Naphthalene	3.695	3.287	11.0	87	0.00
96	T	n-Dodecane	1.163	1.164	-0.1	89	0.00
97	T	Hexachlorobutadiene	0.810	0.753	7.0	88	0.00
98	T	Cyclohexanone	0.808	0.679	16.0	89	-0.01
99	T	tert-Butylbenzene	2.512	2.574	-2.5	93	0.00
100	T	n-Butylbenzene	2.659	2.716	-2.1	92	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271802.D
Acq On : 27 Oct 2018 3:56
Operator : LH/TD
Sample : CCV R16102718_5.0ng
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	221083	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	13.43	114	932193	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	395491	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	12.17	65	329877	12.404	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 99.20%				
57) Toluene-d8 (SS2)	15.87	98	802206	12.738	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.92%				
73) Bromofluorobenzene (SS3)	19.09	174	339696	11.865	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.96%				
Target Compounds							Qvalue
2) Propene	4.05	42	92486	4.495	ng		99
3) Dichlorodifluoromethan...	4.21	85	236965	5.127	ng		100
4) Chloromethane	4.51	50	156082	5.306	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.78	135	147375	5.364	ng		99
6) Vinyl Chloride	4.95	62	188718	5.882	ng		100
7) 1,3-Butadiene	5.23	54	109049	5.254	ng		98
8) Bromomethane	5.69	94	97315	5.033	ng		100
9) Chloroethane	6.04	64	68667	4.984	ng		100
10) Ethanol	6.40	45	265608	21.359	ng		100
11) Acetonitrile	6.69	41	140234	4.309	ng		99
12) Acrolein	6.89	56	54878	4.998	ng		99
13) Acetone	7.09	58	360405	24.292	ng		92
14) Trichlorofluoromethane	7.35	101	204568	5.111	ng		100
15) 2-Propanol (Isopropanol)	7.59	45	450758	9.474	ng		97
16) Acrylonitrile	7.89	53	115195	5.115	ng		100
17) 1,1-Dichloroethene	8.34	96	105861	5.195	ng		100
18) 2-Methyl-2-Propanol (t...	8.49	59	526545	10.510	ng		98
19) Methylene Chloride	8.57	84	107726	5.198	ng		99
20) 3-Chloro-1-propene (Al...	8.73	41	118708	4.606	ng		98
21) Trichlorotrifluoroethane	8.99	151	108984	5.116	ng		97
22) Carbon Disulfide	8.84	76	378231	5.112	ng		100
23) trans-1,2-Dichloroethene	9.85	61	146678	5.259	ng		100
24) 1,1-Dichloroethane	10.11	63	173007	4.987	ng		100
25) Methyl tert-Butyl Ether	10.20	73	314620	5.129	ng		100
26) Vinyl Acetate	10.36	86	123499	23.747	ng	#	80
27) 2-Butanone (MEK)	10.61	72	66961	5.102	ng		100
28) cis-1,2-Dichloroethene	11.14	61	141347	5.154	ng		100
29) Diisopropyl Ether	11.42	87	88394	4.820	ng	#	89
30) Ethyl Acetate	11.43	61	75820	10.778	ng		96
31) n-Hexane	11.41	57	161799	5.048	ng		100
32) Chloroform	11.48	83	198084	5.313	ng		100
34) Tetrahydrofuran (THF)	11.89	72	66544	5.032	ng		98
35) Ethyl tert-Butyl Ether	12.01	87	127446	4.966	ng		98
36) 1,2-Dichloroethane	12.29	62	146921	5.093	ng		99
38) 1,1,1-Trichloroethane	12.56	97	179052	5.108	ng		99
39) Isopropyl Acetate	12.97	61	129953	9.878	ng	#	99
40) 1-Butanol	12.99	56	139723	7.413	ng	#	79
41) Benzene	13.04	78	418385	4.882	ng		100
42) Carbon Tetrachloride	13.19	117	158526	4.882	ng		99
43) Cyclohexane	13.32	84	329015	9.905	ng		98
44) tert-Amyl Methyl Ether	13.66	73	295266	5.002	ng		98
45) 1,2-Dichloropropane	13.89	63	99402	5.223	ng		99
46) Bromodichloromethane	14.08	83	152411	5.084	ng		99
47) Trichloroethene	14.13	130	126190	5.009	ng		100
48) 1,4-Dioxane	14.11	88	78605	4.847	ng		99

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271802.D
Acq On : 27 Oct 2018 3:56
Operator : LH/TD
Sample : CCV R16102718_5.0ng
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration

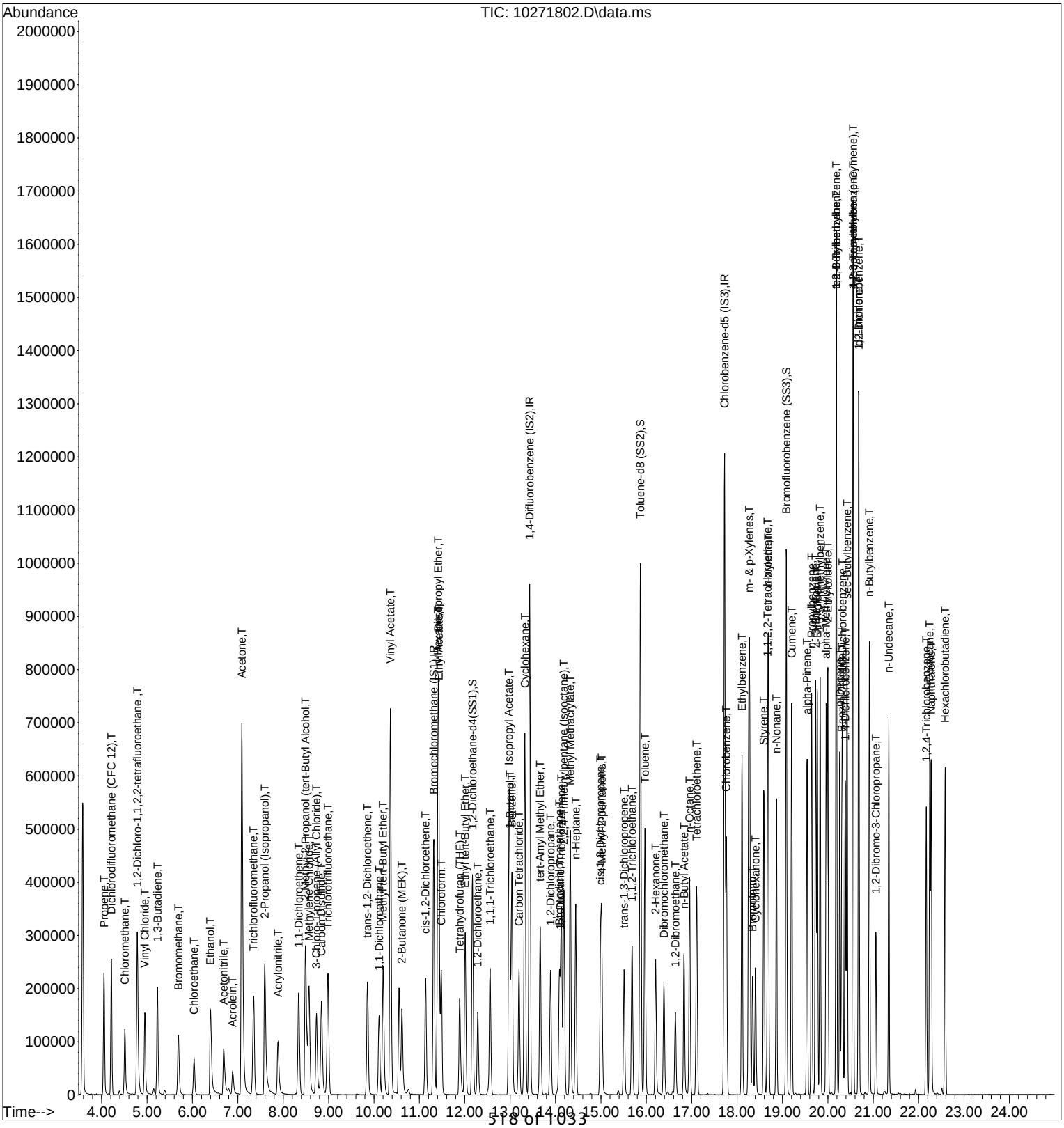
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) 2,2,4-Trimethylpentane...	14.18	57	399923	5.028	ng		99
50) Methyl Methacrylate	14.33	100	89913	10.127	ng		95
51) n-Heptane	14.45	71	99326	5.038	ng		99
52) cis-1,3-Dichloropropene	14.99	75	176213	5.241	ng		100
53) 4-Methyl-2-pentanone	15.02	58	89844	5.190	ng		97
54) trans-1,3-Dichloropropene	15.51	75	148839	5.006	ng		100
55) 1,1,2-Trichloroethane	15.68	97	108987	5.277	ng		100
58) Toluene	15.97	91	445488	5.094	ng		99
59) 2-Hexanone	16.21	43	202472	5.053	ng		98
60) Dibromochloromethane	16.39	129	135530	5.305	ng		100
61) 1,2-Dibromoethane	16.64	107	127172	5.428	ng		100
62) n-Butyl Acetate	16.83	43	231400	5.328	ng		99
63) n-Octane	16.95	57	80701	4.847	ng		98
64) Tetrachloroethene	17.11	166	139672	5.190	ng		100
65) Chlorobenzene	17.76	112	304357	5.139	ng		100
66) Ethylbenzene	18.11	91	506167	5.083	ng		99
67) m- & p-Xylenes	18.27	91	784357	10.547	ng		98
68) Bromoform	18.34	173	116684	5.133	ng		99
69) Styrene	18.59	104	311691	5.153	ng		100
70) o-Xylene	18.69	91	399610	5.294	ng		98
71) n-Nonane	18.87	43	177120	5.106	ng		99
72) 1,1,2,2-Tetrachloroethane	18.68	83	196873	5.447	ng		99
74) Cumene	19.20	105	515261	5.201	ng		98
75) alpha-Pinene	19.54	93	256676	4.995	ng		98
76) n-Propylbenzene	19.64	91	617029	5.444	ng		98
77) 3-Ethyltoluene	19.73	105	511603	5.123	ng		99
78) 4-Ethyltoluene	19.77	105	480272	5.331	ng		98
79) 1,3,5-Trimethylbenzene	19.83	105	425277	5.130	ng		97
80) alpha-Methylstyrene	19.96	118	229260	5.116	ng		99
81) 2-Ethyltoluene	20.00	105	511345	5.253	ng		97
82) 1,2,4-Trimethylbenzene	20.19	105	443067	5.448	ng		99
83) n-Decane	20.26	58	8891	5.068	ng	#	94
84) Benzyl Chloride	20.31	91	302704	4.222	ng		98
85) 1,3-Dichlorobenzene	20.32	146	263674	5.231	ng		100
86) 1,4-Dichlorobenzene	20.39	146	263375	5.153	ng		100
87) sec-Butylbenzene	20.42	105	579622	5.465	ng		99
88) 4-Isopropyltoluene (p-...	20.56	119	547963	5.423	ng		98
89) 1,2,3-Trimethylbenzene	20.56	105	434902	5.334	ng		99
90) 1,2-Dichlorobenzene	20.68	146	259709	5.465	ng		100
91) d-Limonene	20.68	68	152184	5.151	ng		99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	88024	4.967	ng		93
93) n-Undecane	21.34	57	200015	5.121	ng		99
94) 1,2,4-Trichlorobenzene	22.17	180	181215	4.758	ng		100
95) Naphthalene	22.28	128	532955	4.559	ng		99
96) n-Dodecane	22.24	57	189925	5.163	ng		98
97) Hexachlorobutadiene	22.58	225	125472	4.894	ng		100
98) Cyclohexanone	18.41	55	105501	4.126	ng		98
99) tert-Butylbenzene	20.19	119	434441	5.465	ng		98
100) n-Butylbenzene	20.91	91	457133	5.433	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271802.D
Acq On : 27 Oct 2018 3:56
Operator : LH/TD
Sample : CCV R16102718_5.0ng
Misc : S31-09141801/S31-10181801 (11/16)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 27 07:10:06 2018
Quant Method : I:\MS16\METHODS\R16101918.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Sat Oct 20 10:23:27 2018
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271801.D
Acq On : 27 Oct 2018 3:23
Operator : LH/TD
Sample : CCV C16102718_25ng
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 06:20:59 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

10/29/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	107	0.00
2	T	Chloropentafluoroethane	1.489	1.533	-3.0	110	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.253	1.260	-0.6	108	-0.02
4	T	1,1-Difluoroethane	0.958	1.042	-8.8	114	-0.02
5	T	Chlorodifluoromethane (CFC	0.372	0.379	-1.9	107	0.00
6	T	1-Chloro-1,1-Difluoroethane	2.714	2.772	-2.1	109	-0.01
7	T	Dichlorofluoromethane (CFC	2.427	2.509	-3.4	111	-0.01
8	T	Vinylbromide	1.103	1.123	-1.8	107	-0.01
9	T	2,2-Dichloro-1,1,1-trifluor	1.623	1.665	-2.6	111	0.00
10	T	2-Methylbutane	1.021	1.077	-5.5	115	0.00
11	T	Methyl Acetate	2.149	2.224	-3.5	112	0.00
12	T	2-Methylpentane	1.062	1.101	-3.7	114	0.00
13	T	2,2-Dichloropropane	1.704	1.709	-0.3	107	0.00
14	T	1,1-Dichloropropene	1.700	1.754	-3.2	110	0.00
15	T	Thiophene	2.660	2.731	-2.7	110	0.00
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	109	0.00
17	T	2,3-Dimethylpentane	0.452	0.475	-5.1	115	0.00
18	T	Dibromomethane	0.278	0.264	5.0	102	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	111	0.00
20	T	Methyl Cyclohexane	0.791	0.812	-2.7	113	0.00
21	T	1,3-Dichloropropane	0.927	0.936	-1.0	111	0.00
22	T	1,1,1,2-Tetrachloroethane	0.689	0.659	4.4	103	0.00
23	T	1-Chlorohexane	0.967	0.975	-0.8	110	0.00
24	T	1,2,3-Trichloropropane	0.935	0.963	-3.0	110	0.00
25	T	Bromobenzene	1.105	1.133	-2.5	110	0.00
26	T	2-Chlorotoluene	2.025	2.077	-2.6	110	0.00
27	T	4-Chlorotoluene	2.079	2.137	-2.8	110	0.00
28	T	Indan	2.613	2.670	-2.2	107	0.00
29	T	Indene	2.275	2.449	-7.6	106	0.00
30	T	1,2,4,5-Tetramethylbenzene	2.880	3.152	-9.4	106	0.00
31	T	1,2,3,4-Tetramethylbenzene	2.783	3.068	-10.2	108	0.00
32	T	1,2,3,5-Tetramethylbenzene	2.686	2.955	-10.0	107	0.00
33	T	1,2,3-Trichlorobenzene	1.270	1.282	-0.9	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271801.D
Acq On : 27 Oct 2018 3:23
Operator : LH/TD
Sample : CCV C16102718_25ng
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 06:20:59 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration

10/29/18

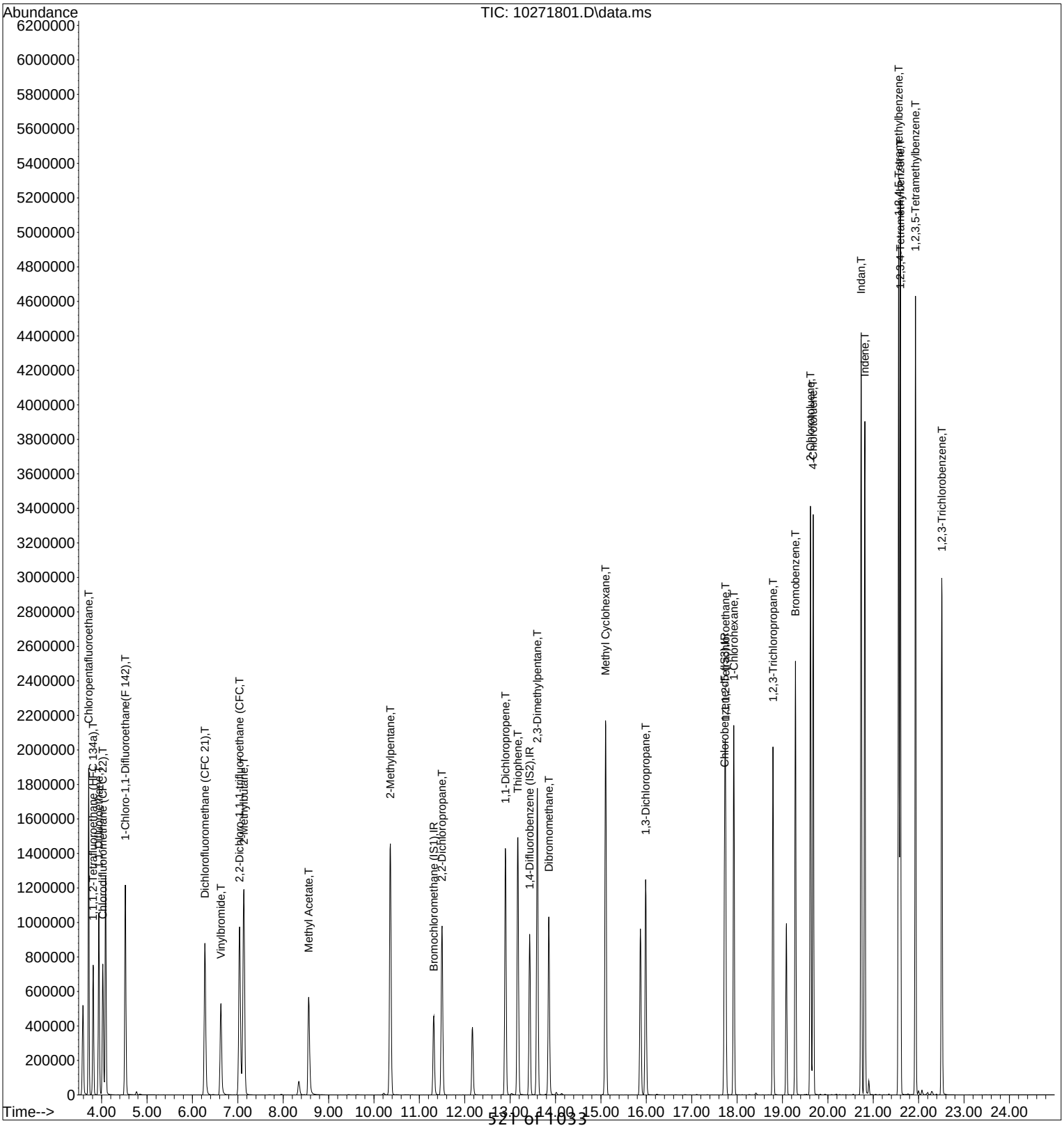
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.32	130	213912	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	13.43	114	908720	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	17.72	82	422822	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.71	85	721545	28.325	ng	97
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	539015	25.128	ng	96
4) 1,1-Difluoroethane	3.94	65	463627	28.292	ng	99
5) Chlorodifluoromethane ...	4.03	67	168533	26.496	ng	94
6) 1-Chloro-1,1-Difluoroe...	4.52	65	1245344	26.810	ng	100
7) Dichlorofluoromethane ...	6.27	67	1073275	25.846	ng	100
8) Vinylbromide	6.63	108	475702	25.202	ng	100
9) 2,2-Dichloro-1,1,1-tri...	7.04	83	747737	26.914	ng	99
10) 2-Methylbutane	7.13	57	465255	26.619	ng	98
11) Methyl Acetate	8.56	43	970655	26.395	ng	100
12) 2-Methylpentane	10.36	71	466528	25.658	ng	99
13) 2,2-Dichloropropane	11.50	77	731006	25.065	ng	100
14) 1,1-Dichloropropene	12.90	75	765345	26.303	ng	98
15) Thiophene	13.17	84	1156624	25.407	ng	98
17) 2,3-Dimethylpentane	13.60	56	881386	26.831	ng	98
18) Dibromomethane	13.85	174	502856	24.911	ng	94
20) Methyl Cyclohexane	15.10	55	727532	27.193	ng	97
21) 1,3-Dichloropropane	15.99	76	838943	26.764	ng	99
22) 1,1,1,2-Tetrachloroethane	17.75	131	524151	22.474	ng	100
23) 1-Chlorohexane	17.93	91	841087	25.714	ng	99
24) 1,2,3-Trichloropropane	18.79	75	838777	26.520	ng	98
25) Bromobenzene	19.29	77	996697	26.659	ng	93
26) 2-Chlorotoluene	19.62	91	1879063	27.431	ng	97
27) 4-Chlorotoluene	19.68	91	1861486	26.473	ng	97
28) Indan	20.73	117	2235467	25.296	ng	100
29) Indene	20.81	115	1946840	25.295	ng	100
30) 1,2,4,5-Tetramethylben...	21.56	119	2558570	26.264	ng	98
31) 1,2,3,4-Tetramethylben...	21.60	119	2438460	25.907	ng	99
32) 1,2,3,5-Tetramethylben...	21.93	119	2373737	26.126	ng	99
33) 1,2,3-Trichlorobenzene	22.51	180	997161	23.205	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271801.D
Acq On : 27 Oct 2018 3:23
Operator : LH/TD
Sample : CCV C16102718_25ng
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

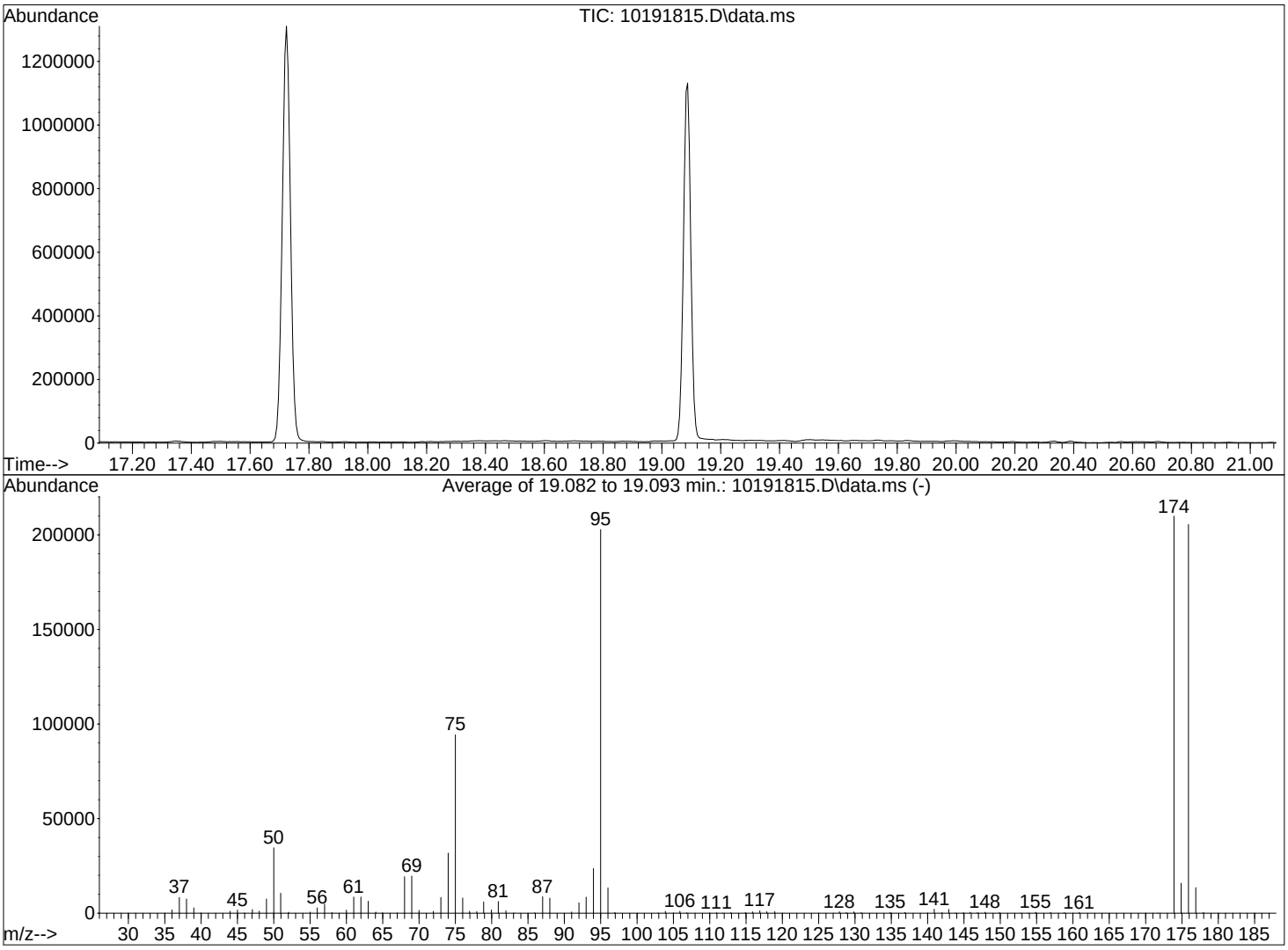
Quant Time: Oct 29 06:20:59 2018
Quant Method : I:\MS16\METHODS\C16102018.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Oct 22 12:26:24 2018
Response via : Initial Calibration



Data Path : I:\MS16\DATA\2018_10\19\
Data File : 10191815.D
Acq On : 19 Oct 2018 19:38
Operator : LH/TD
Sample : 12.5ng TO15 BFB
Misc : S31-09141801
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16101918.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Oct 20 10:14:30 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2828

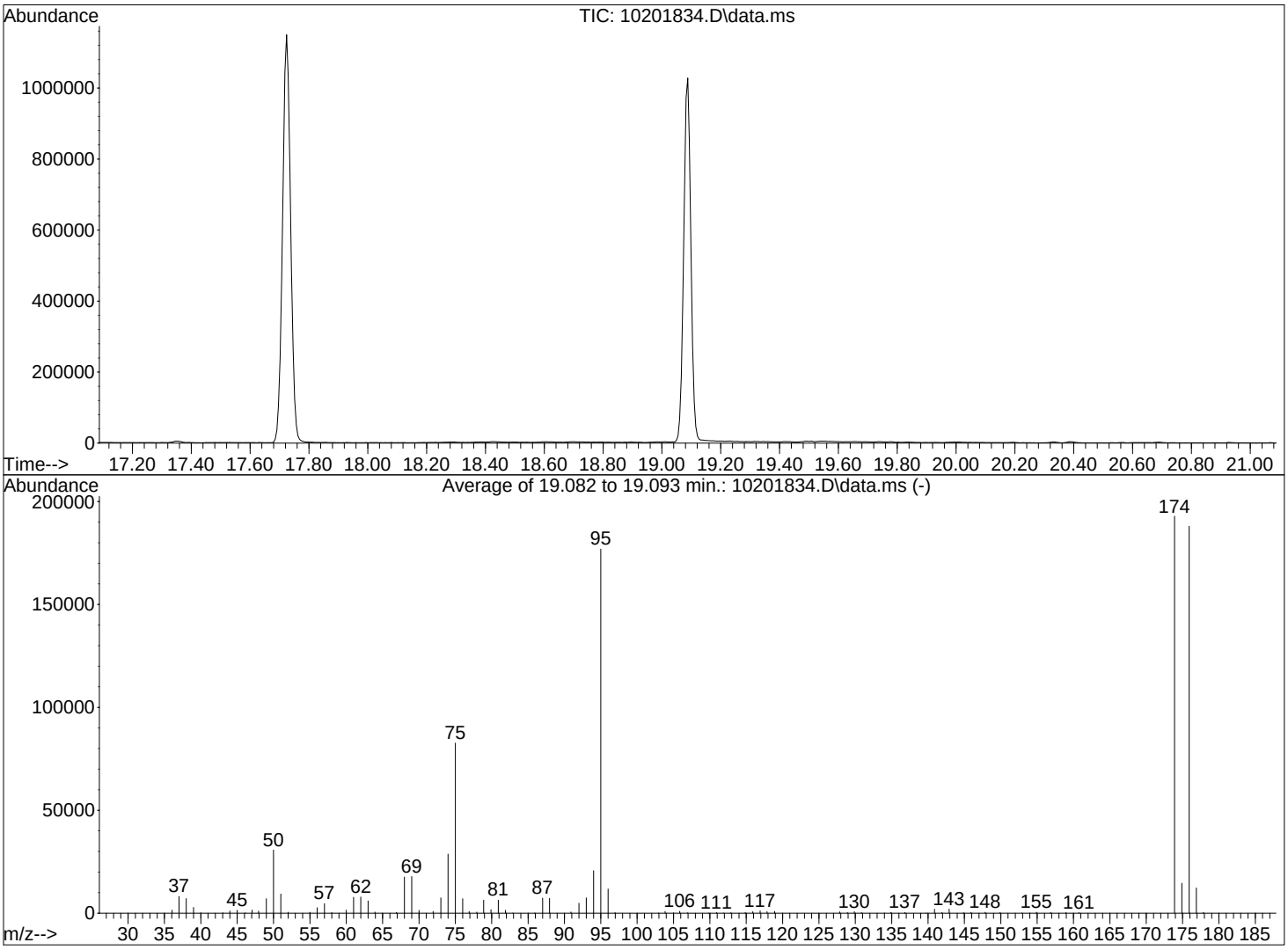
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.0	34573	PASS
75	95	30	66	46.5	94304	PASS
95	95	100	100	100.0	202816	PASS
96	95	5	9	6.6	13417	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	103.5	209899	PASS
175	174	4	9	7.6	15867	PASS
176	174	93	101	97.9	205504	PASS
177	176	5	9	6.6	13542	PASS

LH 10/20/18

Data Path : I:\MS16\DATA\2018_10\20\
Data File : 10201834.D
Acq On : 20 Oct 2018 21:51
Operator : LH/TD
Sample : 12.5ng TO-15 BFB
Misc : S31-09141801
ALS Vial : 3 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:22:36 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2827

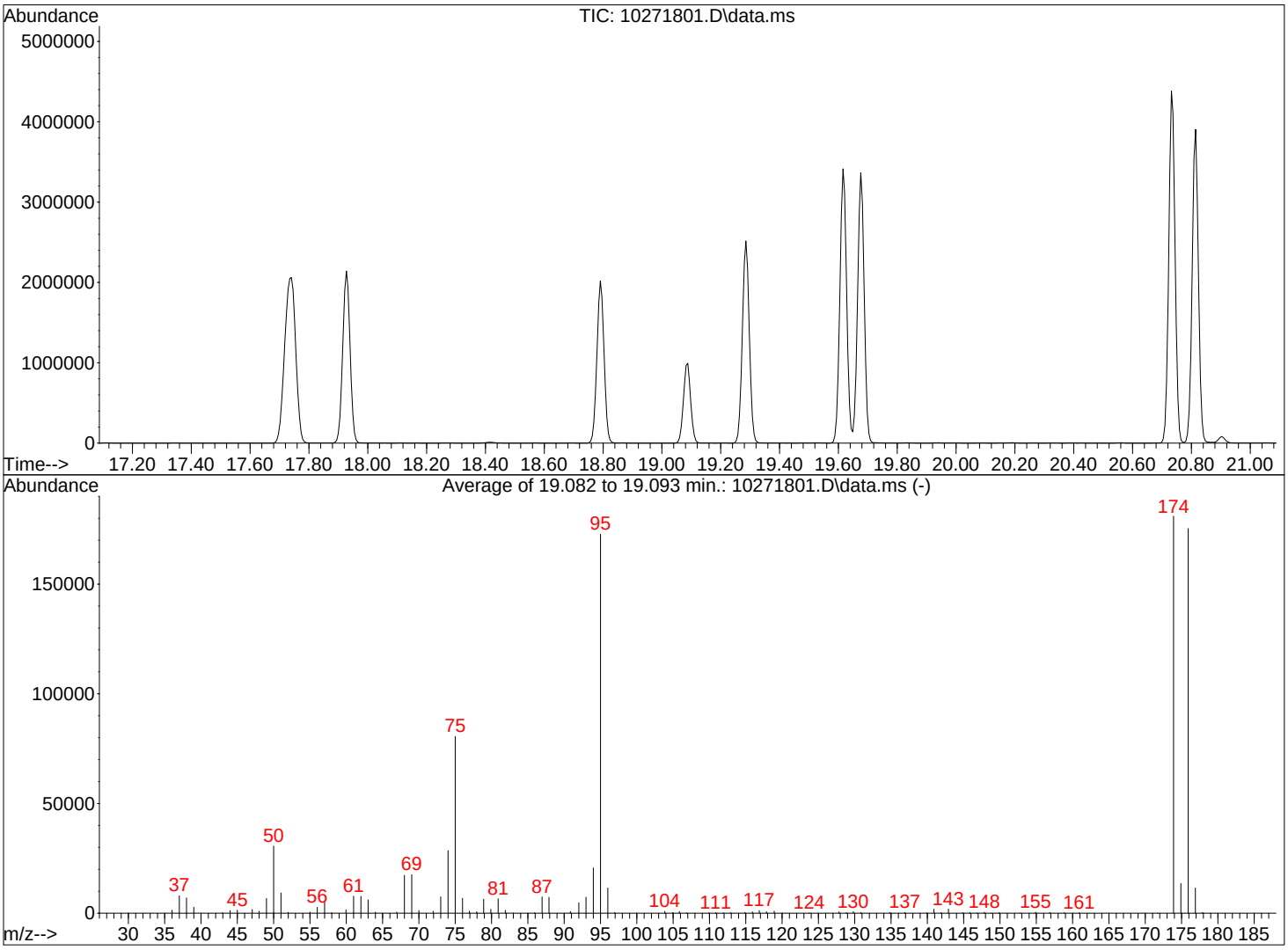
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.4	30693	PASS
75	95	30	66	46.7	82667	PASS
95	95	100	100	100.0	176875	PASS
96	95	5	9	6.7	11778	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	109.1	192896	PASS
175	174	4	9	7.6	14568	PASS
176	174	93	101	97.4	187947	PASS
177	176	5	9	6.5	12244	PASS

LH 10/22/18

Data Path : I:\MS16\DATA\2018_10\27\
Data File : 10271801.D
Acq On : 27 Oct 2018 3:23
Operator : LH/TD
Sample : CCV C16102718_25ng
Misc : S31-09141801/S31-10191806 (11/17)
ALS Vial : 3 Sample Multiplier: 1

Integration File: RTEINTVB.P

Method : I:\MS16\METHODS\C16102018.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Mon Oct 22 12:26:24 2018



AutoFind: Scans 2836, 2837, 2838; Background Corrected with Scan 2827

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.7	30629	PASS
75	95	30	66	46.7	80605	PASS
95	95	100	100	100.0	172757	PASS
96	95	5	9	6.6	11468	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	104.8	180971	PASS
175	174	4	9	7.5	13532	PASS
176	174	93	101	96.9	175317	PASS
177	176	5	9	6.5	11468	PASS

10/29/18

Injection Log

Directory: J:\MS16\DATA\2018_10\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/19/18 9:22	10191801.D	0.1ng std check	S31-09141801/S31-09251801 (10/23)	LH/TD	5	
2	10/19/18 9:55	10191802.D	0.5ng std check	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
3	10/19/18 10:28	10191803.D	5.0ng std check	S31-09141801/S31-10181801 (11/16)	LH/TD	7	
4	10/19/18 11:37	10191804.D	25ng std check	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
5	10/19/18 12:10	10191805.D	25ng std check	S31-09141801/S31-10191803 (11/17)	LH/TD	2	
6	10/19/18 14:38	10191806.D	Screen (20mL)	S31-09141801	LH/TD	5	
7	10/19/18 15:11	10191807.D	12.5ng TO15 BFB	S31-09141801	LH/TD	2	passed
8	10/19/18 15:45	10191808.D	0.5ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
9	10/19/18 16:18	10191809.D	1.0ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
10	10/19/18 16:51	10191810.D	5.0ng MAPH ICAL STD	S31-09141801/S31-10121805 (12/9)	LH/TD	1	
11	10/19/18 17:24	10191811.D	25ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	**M16101918.M**
12	10/19/18 17:58	10191812.D	50ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	
13	10/19/18 18:31	10191813.D	100ng MAPH ICAL STD	S31-09141801/S31-10121803 (12/9)	LH/TD	4	
14	10/19/18 19:04	10191814.D	25ng MAPH ICV STD	S31-09141801/S31-10191803 (11/17)	LH/TD	2	passed
15	10/19/18 19:38	10191815.D	12.5ng TO15 BFB	S31-09141801	LH/TD	2	passed
16	10/19/18 20:11	10191816.D	0.1ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
17	10/19/18 20:45	10191817.D	0.2ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
18	10/19/18 21:18	10191818.D	0.5ng TO15 ICAL STD	S31-09141801/S31-10181802 (11/16)	LH/TD	6	
19	10/19/18 21:52	10191819.D	1.0ng TO15 ICAL STD	S31-09141801/S31-10181801 (11/16)	LH/TD	6	
20	10/19/18 22:26	10191820.D	5.0ng TO15 ICAL STD	S31-09141801/S31-10181801 (11/16)	LH/TD	7	
21	10/19/18 22:59	10191821.D	25ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	**R16101918.M**
22	10/19/18 23:33	10191822.D	50ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
23	10/20/18 0:06	10191823.D	100ng TO15 ICAL STD	S31-09141801/S31-10181803 (11/16)	LH/TD	2	
24	10/20/18 0:39	10191824.D	25ng TO15 ICV STD	S31-09141801/S31-10191803 (11/17)	LH/TD	2	passed
25							
26							
27				LH 10/20/18			
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							

Injection Log

Directory: J:\MS16\DATA\2018_10\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
34	10/20/18 21:51	10201834.D	12.5ng TO-15 BFB	S31-09141801	LH/TD	3	passed
35	10/20/18 22:25	10201835.D	0.4ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
36	10/20/18 22:58	10201836.D	1.0ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
37	10/20/18 23:32	10201837.D	2.5ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
38	10/21/18 0:05	10201838.D	5.0ng TO-15 Custom ICAL STD	S31-09141801/S31-10191807 (11/17)	LH/TD	1	
39	10/21/18 0:39	10201839.D	25ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	**C16102018.M**
40	10/21/18 1:12	10201840.D	50ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	
41	10/21/18 1:45	10201841.D	100ng TO-15 Custom ICAL STD	S31-09141801/S31-10191806 (11/17)	LH/TD	3	
42	10/21/18 2:19	10201842.D	25ng TO-15 Custom ICV STD	S31-09141801/S31-10201801 (11/18)	LH/TD	4	passed

LH ***10/30/18***

Injection Log

Directory: I:\MS16\DATA\2018_10\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/27/18 3:23	10271801.D	CCV C16102718_25ng	S31-09141801/S31-10191806 (11/17)	LH/TD	3	*Passes*
2	10/27/18 3:56	10271802.D	CCV R16102718_5.0ng	S31-09141801/S31-10181801 (11/16)	LH/TD	2	*Passes*
3	10/27/18 4:29	10271803.D	CCV M16102718_25ng	S31-09141801/S31-10121803 (12/09)	LH/TD	4	
4	10/27/18 5:03	10271804.D	MB R16102718_1000mL	S31-09141801/AC00442	LH/TD	2	*Passes*
5	10/27/18 5:36	10271805.D	LCS R16102718_25ng	S31-09141801/S31-10191803 (11/17)	LH/TD	2	*Passes*
6	10/27/18 6:09	10271806.D	LCSD R16102718_25ng	S31-09141801/S31-10191803 (11/17)	LH/TD	2	*Passes*
7	10/27/18 7:34	10271807.D	P1805701-001 (400mL)	S31-09141801	WA	6	
8	10/27/18 8:39	10271808.D	P1805539-001 (400mL)	S31-09141801	WA	5	
9	10/27/18 9:12	10271809.D	P1805539-002 (400mL)	S31-09141801	WA	6	
10	10/27/18 9:47	10271810.D	P1805678-002RA (25mL)	S31-09141801	WA	5	
11	10/27/18 10:21	10271811.D	Blank	S31-09141801	WA	1	
12	10/27/18 10:54	10271812.D	P1805497-003 (500mL) Pf3	S31-09141801	WA	1	
13	10/27/18 11:27	10271813.D	P1805497-003dil (50mL) Pf3	S31-09141801	WA	1	
14	10/27/18 12:13	10271814.D	CCV2 R16102718_5.0ng	S31-09141801/S31-10181801 (11/16)	WA	2	
15	10/27/18 12:47	10271815.D	P1805497-001 (1000mL)	S31-09141801	WA	4	
16	10/27/18 13:21	10271816.D	P1805497-002 (1000mL)	S31-09141801	WA	7	
17	10/27/18 13:55	10271817.D	P1805497-004 (500mL) Pf2	S31-09141801	WA	8	
18	10/27/18 14:29	10271818.D	P1805497-005 (1000mL)	S31-09141801	WA	9	
19	10/27/18 15:03	10271819.D	P1805497-006 (500mL) Pf2	S31-09141801	WA	10	
20	10/27/18 15:37	10271820.D	P1805497-007 (1000mL)	S31-09141801	WA	11	
21	10/27/18 16:12	10271821.D	P1805497-008 (1000mL)Pf2	S31-09141801	WA	12	
22	10/27/18 16:47	10271822.D	P1805497-009 (1000mL)	S31-09141801	WA	13	
23	10/27/18 17:20	10271823.D	P1805497-010 (500mL) Pf2	S31-09141801	WA	15	
24	10/27/18 17:54	10271824.D	P1805497-011 (500mL) Pf2	S31-09141801	WA	14	
25	10/27/18 18:28	10271825.D	P1805497-012 (1000mL)	S31-09141801	WA	16	
26	10/27/18 19:02	10271826.D	P1805497-013 (1000mL)	S31-09141801	WA	6	
27	10/27/18 19:36	10271827.D	Blank	S31-09141801	WA	2	
28	10/27/18 20:09	10271828.D	P1805709-001 (400mL)	S31-09141801	WA	1	
29	10/27/18 20:43	10271829.D	P1805738-001 (100mL)	S31-09141801	WA	5	
30	10/27/18 21:16	10271830.D	P1805738-001dil (25mL)	S31-09141801	WA	5	
31	10/27/18 21:50	10271831.D	P1805738-001dupdil (25mL)	S31-09141801	WA	5	
32	10/27/18 22:23	10271832.D	CCVend R16102718_5.0ng	S31-09141801/S31-10181801 (11/16)	WA	2	*Passes*

WA 10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:27:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17207	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.58	114	76055	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11077	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19156	930.007	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.00%				
33) Toluene-d8 (SS2)	14.01	98	83105	1059.586	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.96%				
45) Bromofluorobenzene (SS3)	17.43	174	32659	1043.414	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.34%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	48544	1324.027	pg		100
3) Chloromethane	4.53	52	1297	151.286	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1543	58.383	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.02	54	294	16.335	pg		91
7) Bromomethane	5.35	94	205	12.257	pg		97
8) Chloroethane	5.57	64	92	7.385	pg	#	42
9) Acrolein	6.13	56	937	93.052	pg		99
10) Acetone	6.27	58	13922m	1090.538	pg		
11) Trichlorofluoromethane	6.48	101	19186	669.126	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	2506	117.897	pg		98
14) Trichlorotrifluoroethane	7.67	151	4692	233.479	pg		100
15) trans-1,2-Dichloroethene	8.37	96	84	N.D.			
16) 1,1-Dichloroethane	8.58	63	261	7.921	pg		98
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.75	83	2348	66.054	pg		100
21) 1,2-Dichloroethane	10.51	62	591	26.881	pg		97
22) 1,1,1-Trichloroethane	10.78	97	152	5.041	pg		100
23) Benzene	11.23	78	18337	205.338	pg		100
24) Carbon Tetrachloride	11.39	117	6427	233.537	pg		100
26) 1,2-Dichloropropane	12.05	63	80	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	175	7.364	pg		94
29) 1,4-Dioxane	12.27	88	50	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	42038	484.087	pg		100
35) Dibromochloromethane	14.52	129	53	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	795	31.110	pg		100
39) Chlorobenzene	15.97	112	281	N.D.			
40) Ethylbenzene	16.35	91	6486	63.512	pg		99
41) m,p-Xylene	16.52	91	14937	191.298	pg		100
42) Styrene	16.89	104	2896	46.694	pg		98
43) o-Xylene	16.99	106	3365	81.060	pg		96
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	1959	22.437	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	7657	87.911	pg		88
48) 1,3-Dichlorobenzene	18.81	146	95	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	626	10.955	pg		100
50) 1,2-Dichlorobenzene	19.20	146	90	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	775	23.974	pg		100
53) Naphthalene	20.94	128	5192	50.963	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:27:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

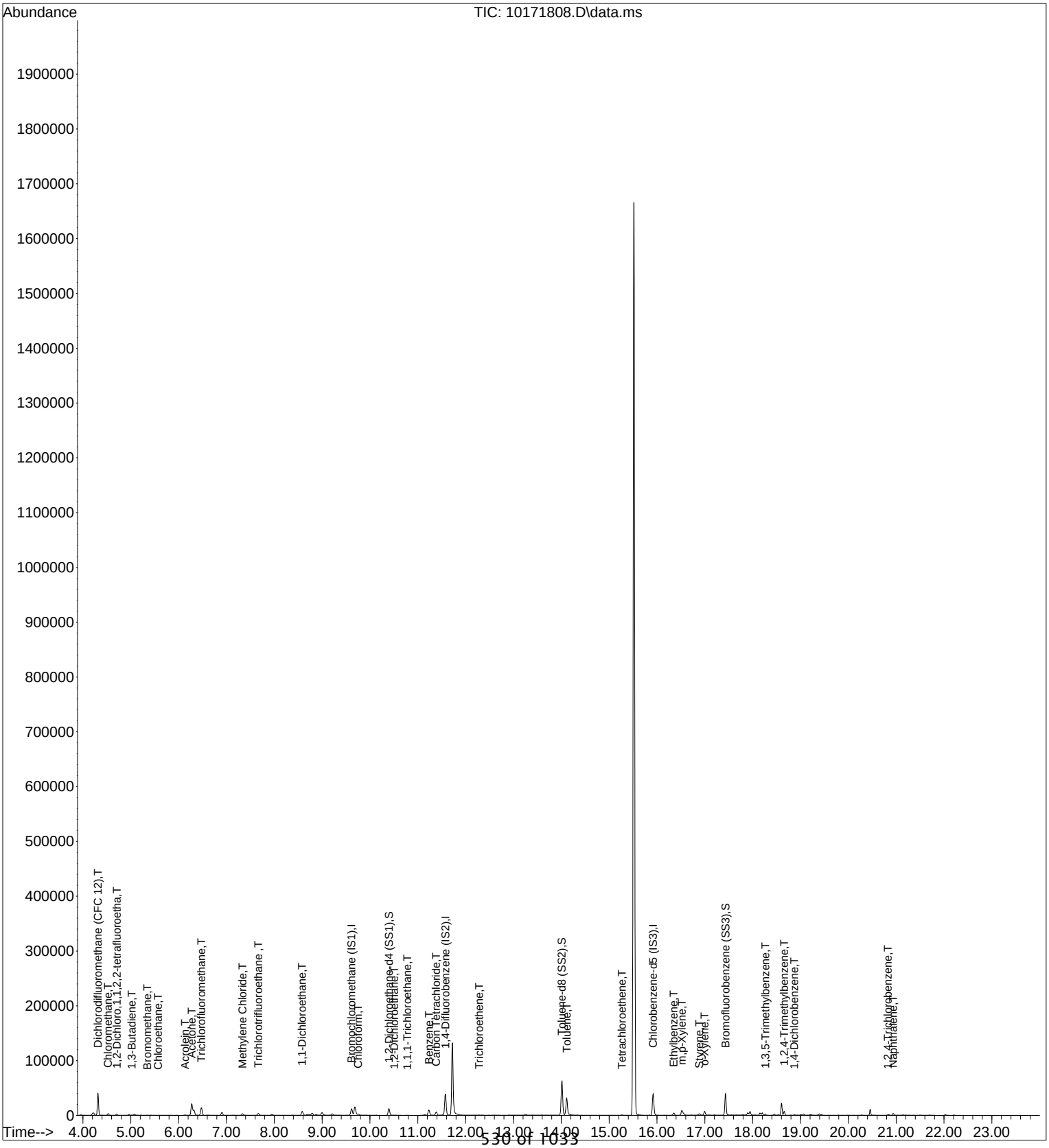
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	85	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:27:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:27:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

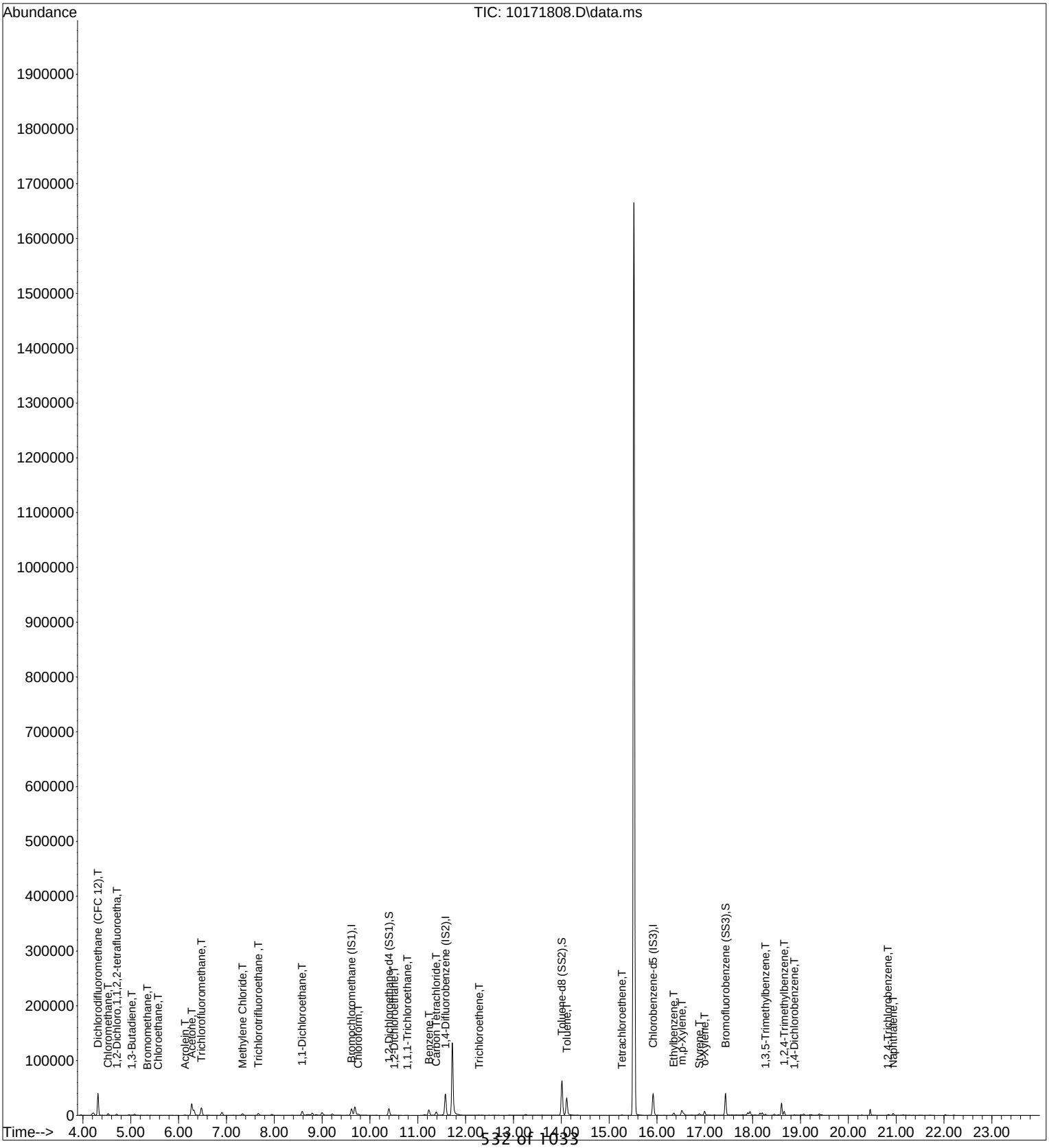
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17207	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.58	114	76055	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11077	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19156	930.007	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.00%				
33) Toluene-d8 (SS2)	14.01	98	83105	1059.586	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.96%				
45) Bromofluorobenzene (SS3)	17.43	174	32659	1043.414	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.34%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	48544	1324.027	pg		100
3) Chloromethane	4.53	52	1297	151.286	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1543	58.383	pg		100
6) 1,3-Butadiene	5.02	54	294	16.335	pg		91
7) Bromomethane	5.35	94	205	12.257	pg		97
8) Chloroethane	5.57	64	92	7.385	pg	#	42
9) Acrolein	6.13	56	937	93.052	pg		99
10) Acetone	6.27	58	13922m	1090.538	pg		
11) Trichlorofluoromethane	6.48	101	19186	669.126	pg		100
13) Methylene Chloride	7.34	84	2506	117.897	pg		98
14) Trichlorotrifluoroethane	7.67	151	4692	233.479	pg		100
16) 1,1-Dichloroethane	8.58	63	261	7.921	pg		98
19) Chloroform	9.75	83	2348	66.054	pg		100
21) 1,2-Dichloroethane	10.51	62	591	26.881	pg		97
22) 1,1,1-Trichloroethane	10.78	97	152	5.041	pg		100
23) Benzene	11.23	78	18337	205.338	pg		100
24) Carbon Tetrachloride	11.39	117	6427	233.537	pg		100
28) Trichloroethene	12.28	130	175	7.364	pg		94
34) Toluene	14.11	91	42038	484.087	pg		100
37) Tetrachloroethene	15.27	166	795	31.110	pg		100
40) Ethylbenzene	16.35	91	6486	63.512	pg		99
41) m,p-Xylene	16.52	91	14937	191.298	pg		100
42) Styrene	16.89	104	2896	46.694	pg		98
43) o-Xylene	16.99	106	3365	81.060	pg		96
46) 1,3,5-Trimethylbenzene	18.27	105	1959	22.437	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	7657	87.911	pg		88
49) 1,4-Dichlorobenzene	18.87	146	626	10.955	pg		100
52) 1,2,4-Trichlorobenzene	20.82	182	775	23.974	pg		100
53) Naphthalene	20.94	128	5192	50.963	pg		97

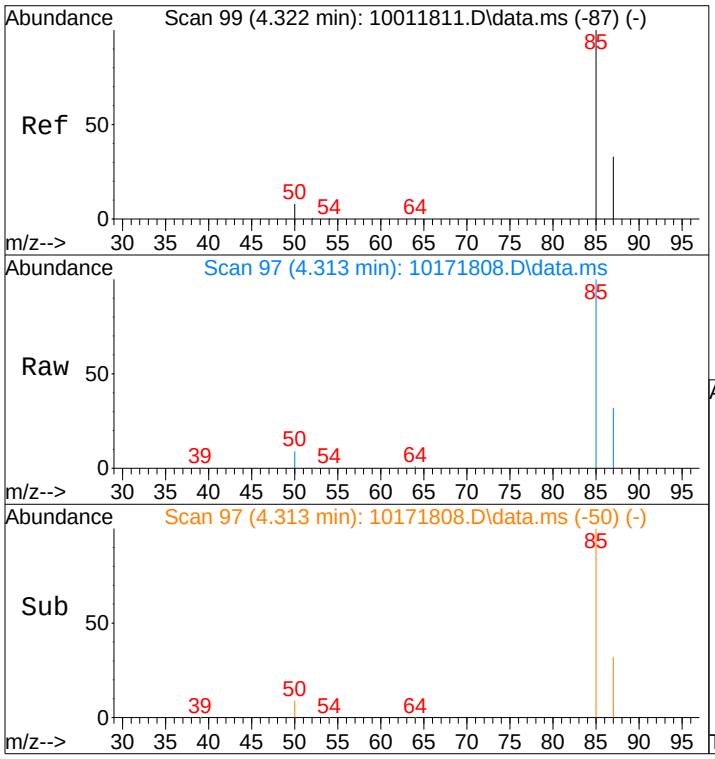
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:27:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

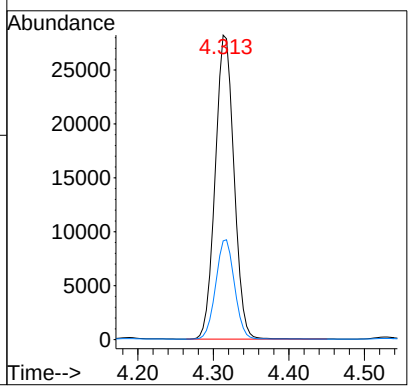


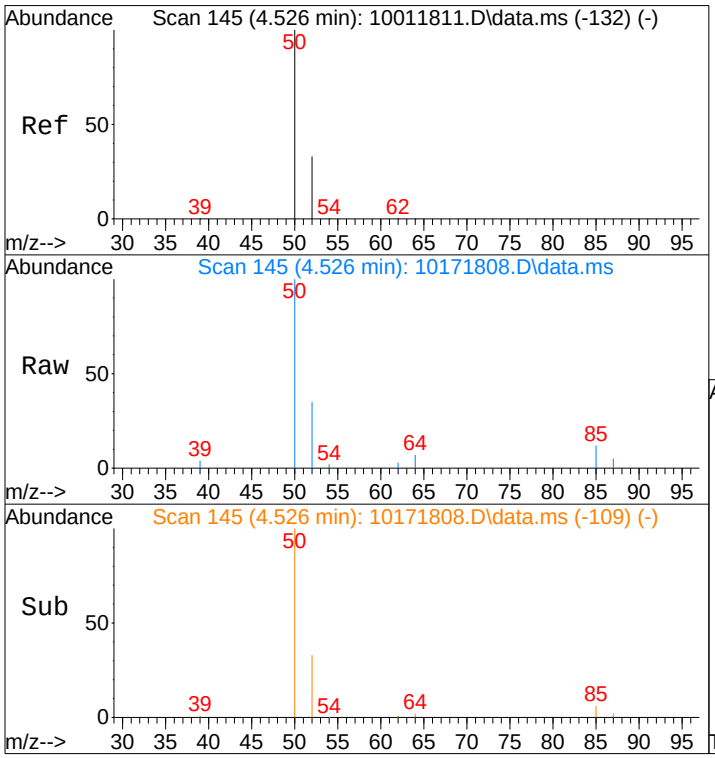


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1324.03 pg
RT: 4.31 min Scan# 97
Delta R.T. 0.009 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 85 Resp: 48544

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

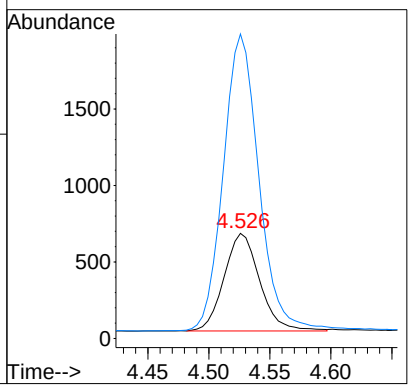


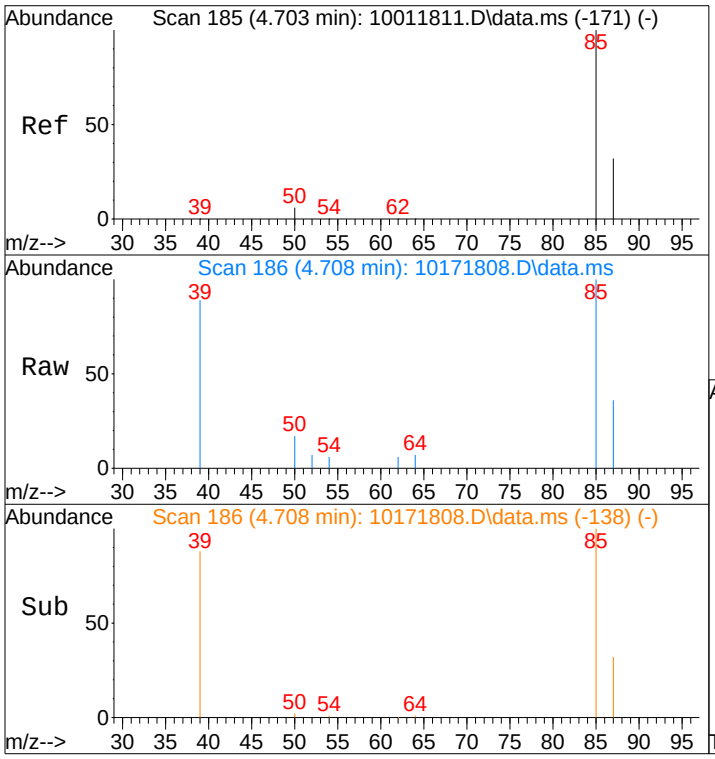


#3
Chloromethane
Concen: 151.29 pg
RT: 4.53 min Scan# 145
Delta R.T. 0.009 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 52 Resp: 1297

Ion	Ratio	Lower	Upper
52	100		
50	305.6	281.8	321.8

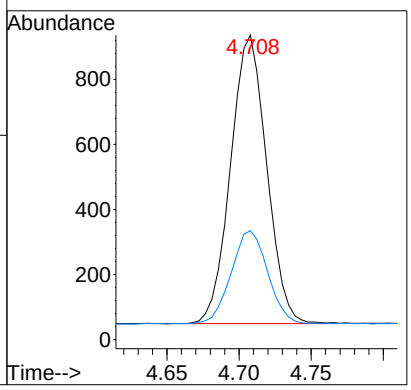


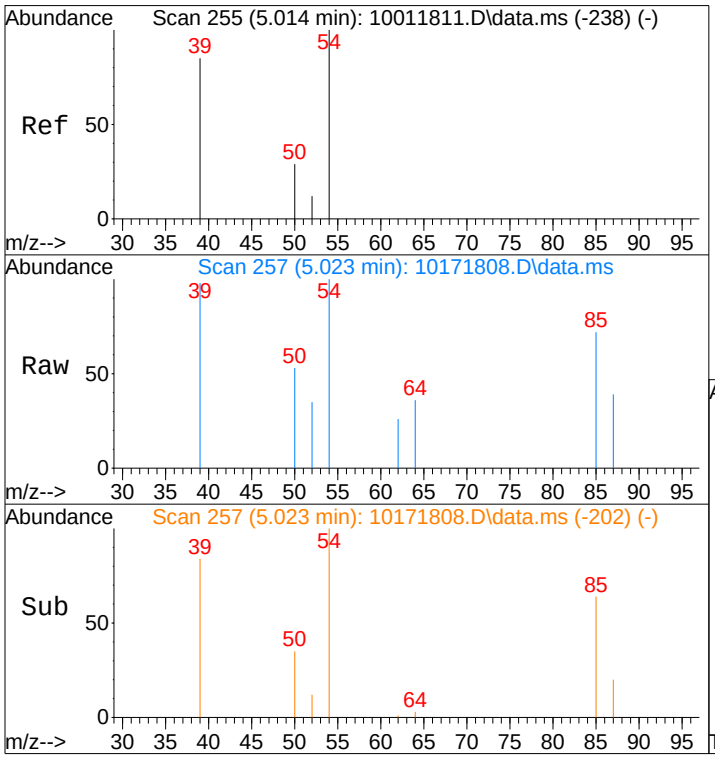


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 58.38 pg
RT: 4.71 min Scan# 186
Delta R.T. 0.014 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 85 Resp: 1543

Ion	Ratio	Lower	Upper
85	100		
87	32.6	26.0	39.0

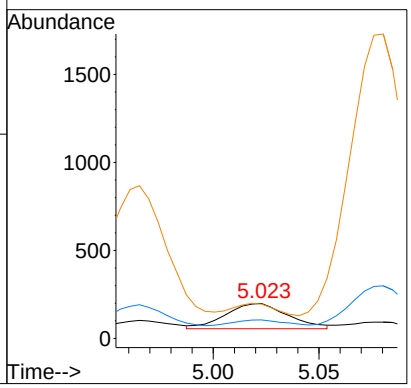


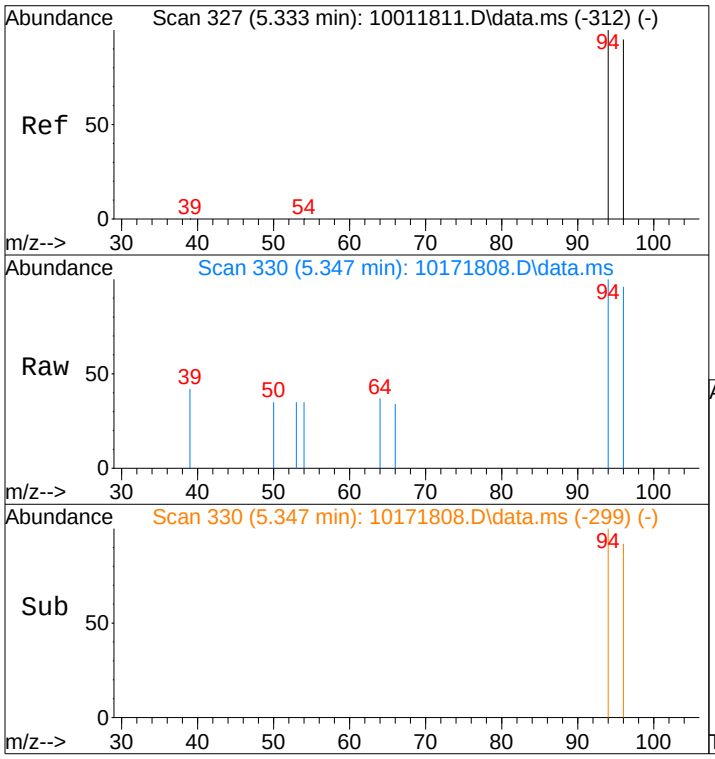


#6
1,3-Butadiene
Concen: 16.34 pg
RT: 5.02 min Scan# 257
Delta R.T. 0.014 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 54 Resp: 294

Ion	Ratio	Lower	Upper
54	100		
50	35.4	23.6	35.4
39	79.6	69.9	104.9

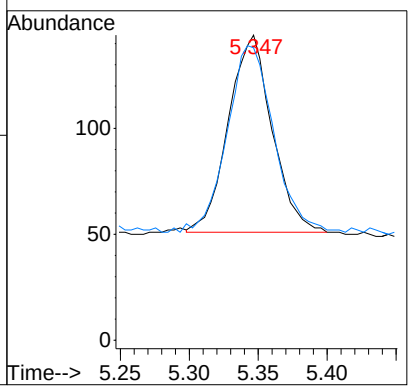


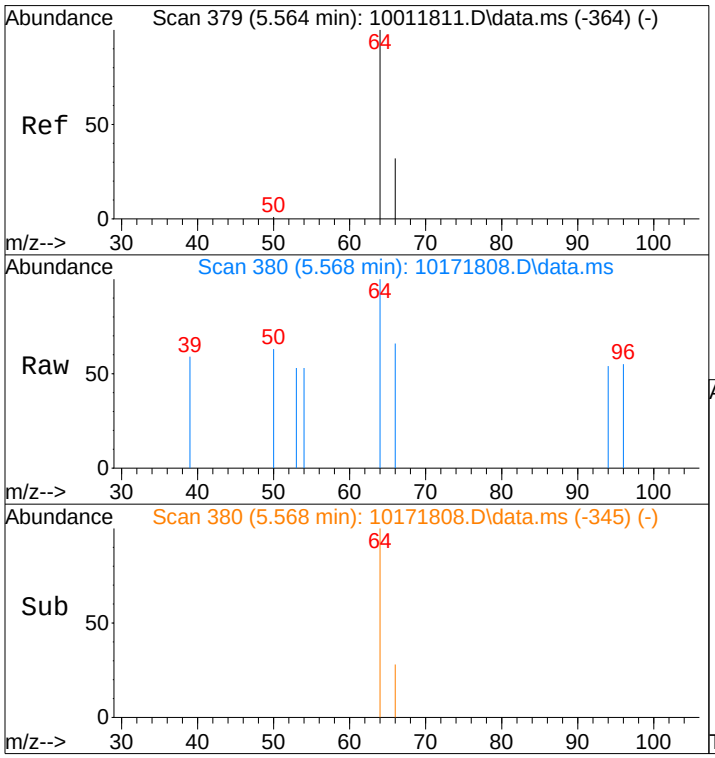


#7
Bromomethane
Concen: 12.26 pg
RT: 5.35 min Scan# 330
Delta R.T. 0.009 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 94 Resp: 205

Ion	Ratio	Lower	Upper
94	100		
96	97.1	75.7	113.5

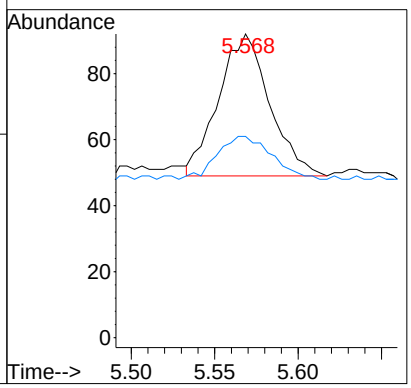


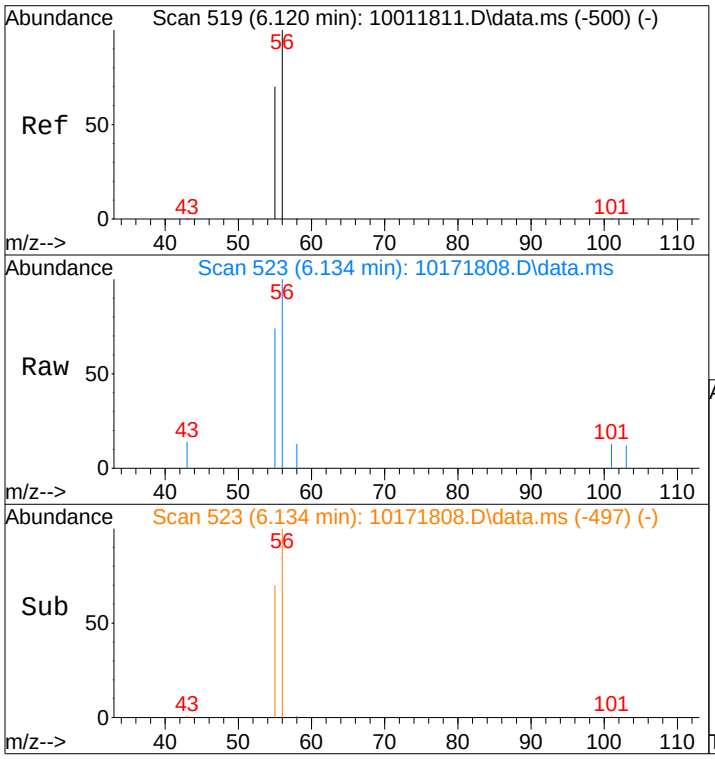


#8
Chloroethane
Concen: 7.39 pg
RT: 5.57 min Scan# 380
Delta R.T. 0.005 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 64 Resp: 92

Ion	Ratio	Lower	Upper
64	100		
66	0.0	12.3	52.3#

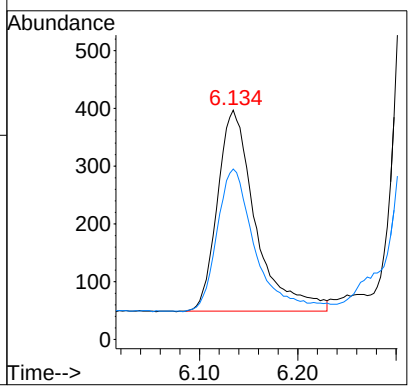


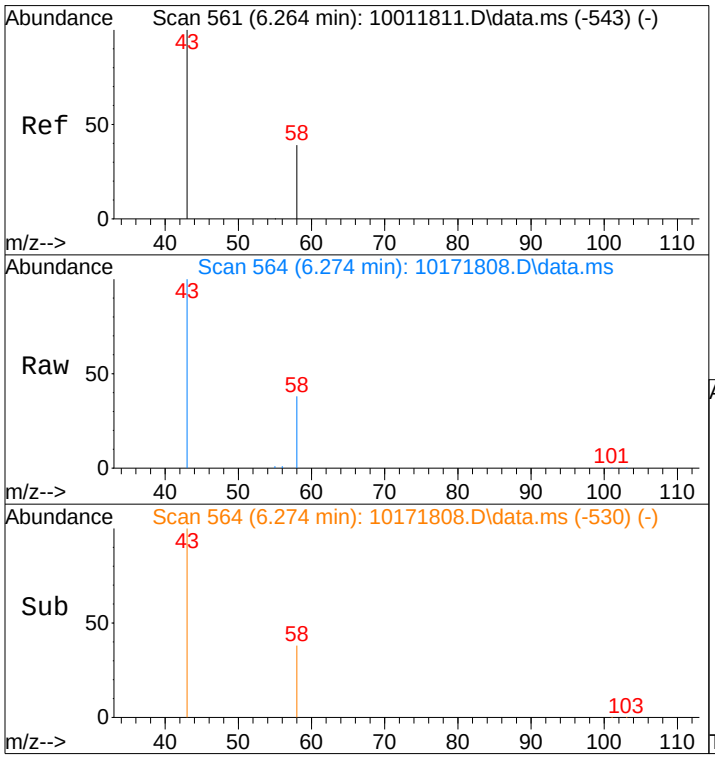


#9
Acrolein
Concen: 93.05 pg
RT: 6.13 min Scan# 523
Delta R.T. -0.020 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 56 Resp: 937

Ion	Ratio	Lower	Upper
56	100		
55	69.9	55.3	82.9

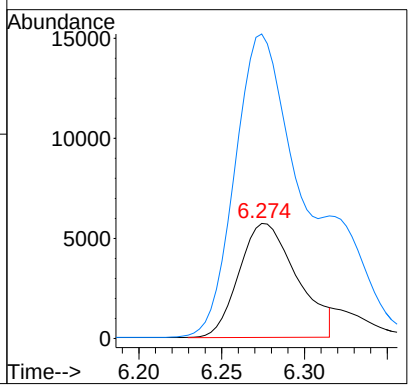


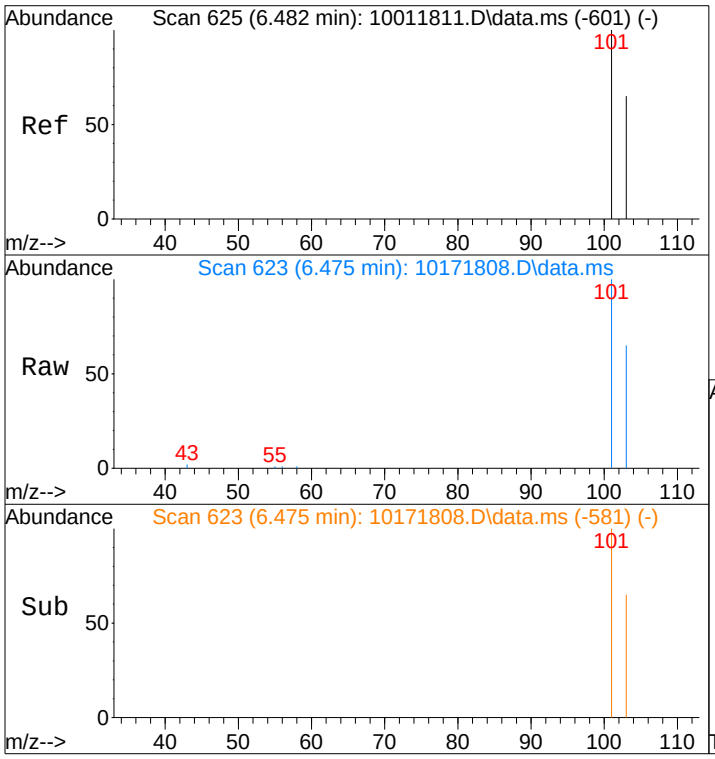


#10
Acetone
Concen: 1090.54 pg m
RT: 6.27 min Scan# 564
Delta R.T. -0.034 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 58 Resp: 13922

Ion	Ratio	Lower	Upper
58	100		
43	357.0	234.7	274.7#

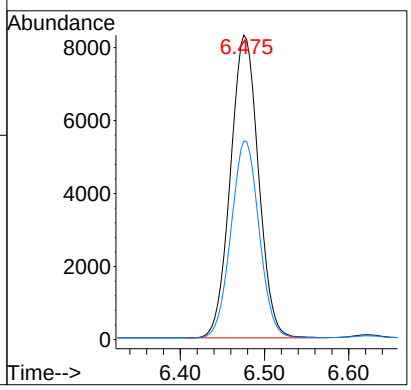


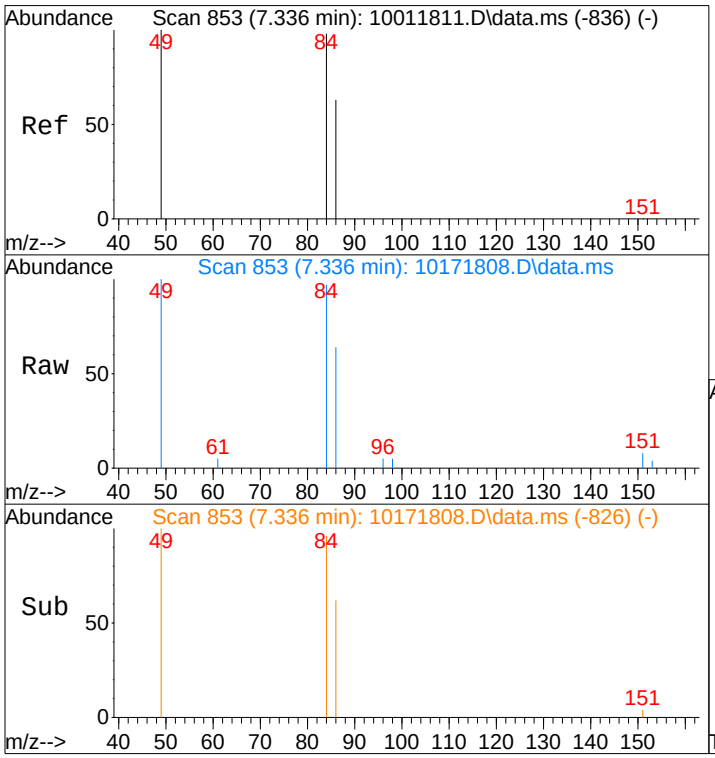


#11
Trichlorofluoromethane
Concen: 669.13 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:101 Resp: 19186

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

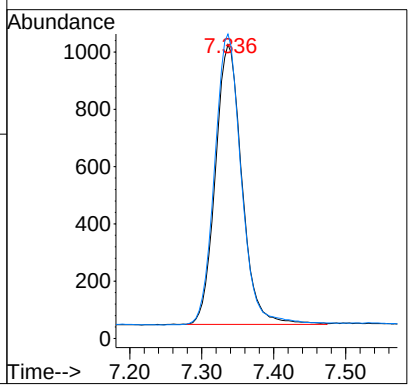


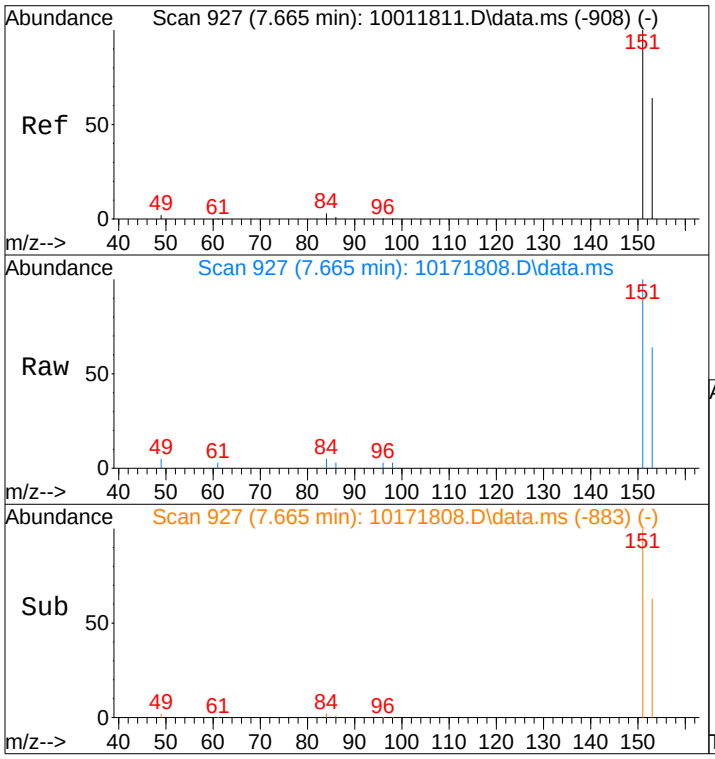


#13
Methylene Chloride
Concen: 117.90 pg
RT: 7.34 min Scan# 853
Delta R.T. -0.040 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 84 Resp: 2506

Ion	Ratio	Lower	Upper
84	100		
49	104.9	83.3	123.3

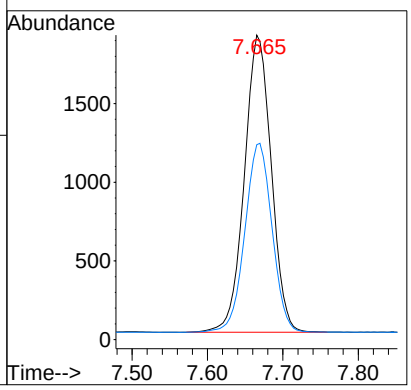


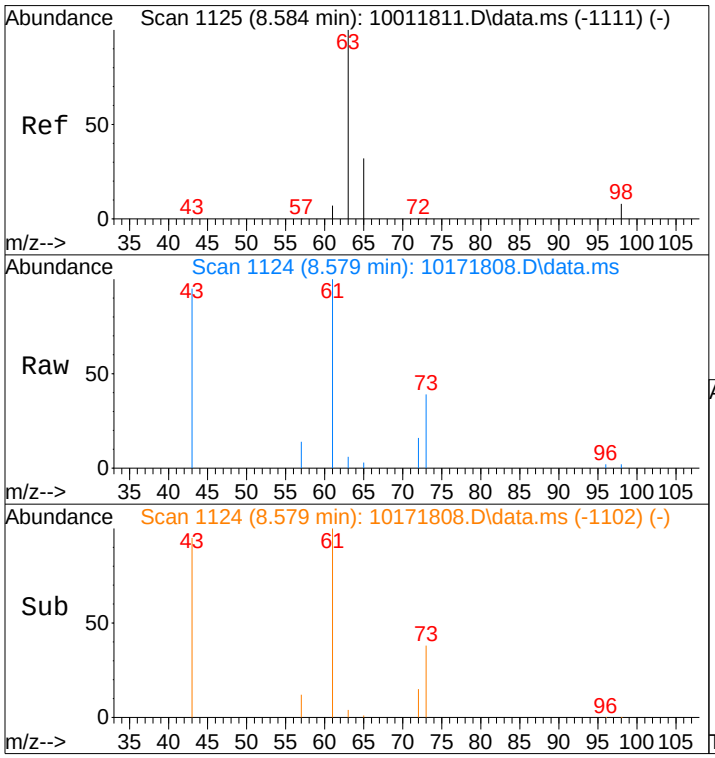


#14
Trichlorotrifluoroethane
Concen: 233.48 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:151 Resp: 4692

Ion	Ratio	Lower	Upper
151	100		
153	64.2	44.3	84.3

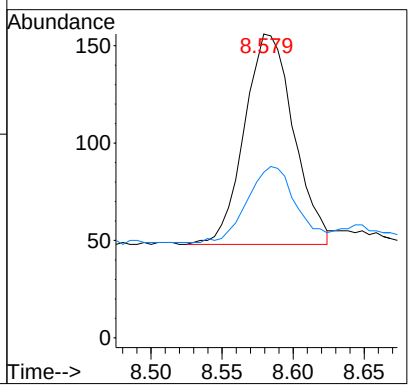


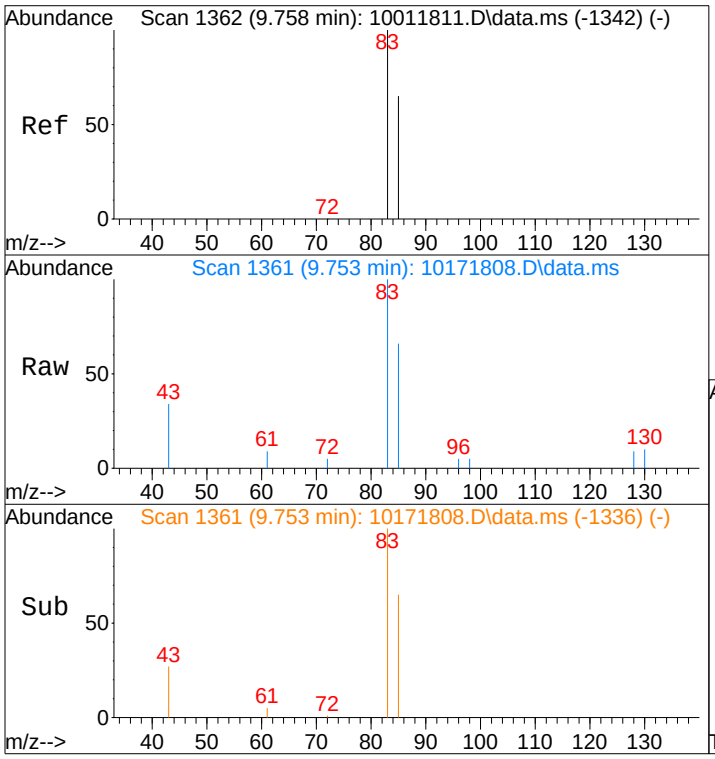


#16
1,1-Dichloroethane
Concen: 7.92 pg
RT: 8.58 min Scan# 1124
Delta R.T. -0.039 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 63 Resp: 261

Ion	Ratio	Lower	Upper
63	100		
65	33.3	12.2	52.2

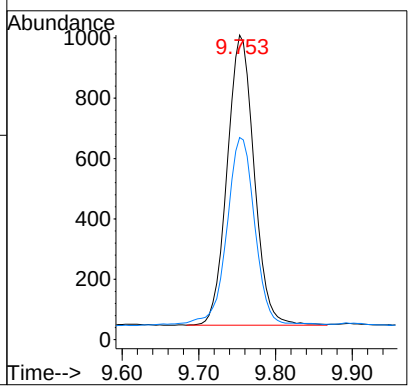


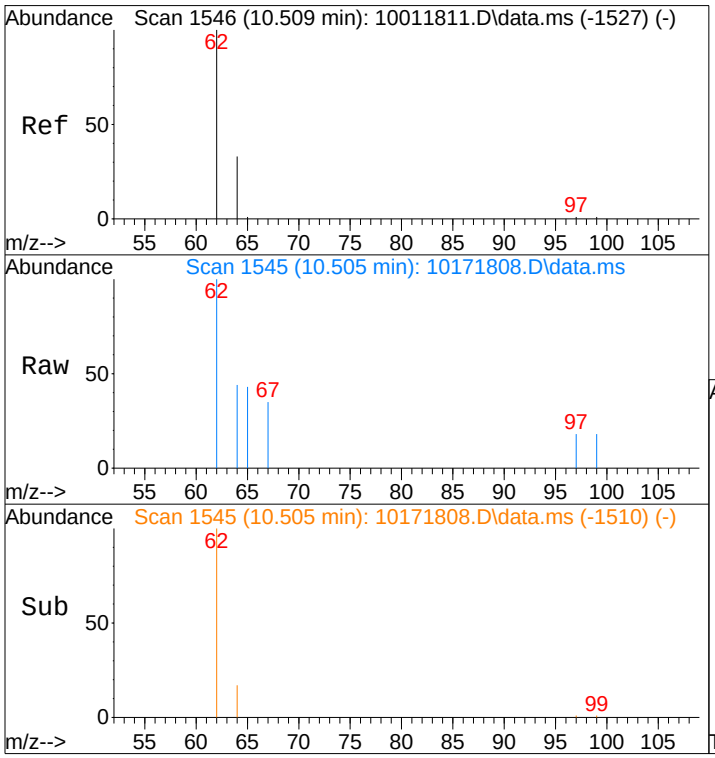


#19
Chloroform
Concen: 66.05 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 83 Resp: 2348

Ion	Ratio	Lower	Upper
83	100		
85	66.4	46.0	86.0

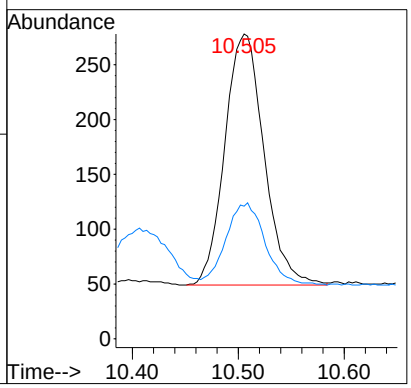


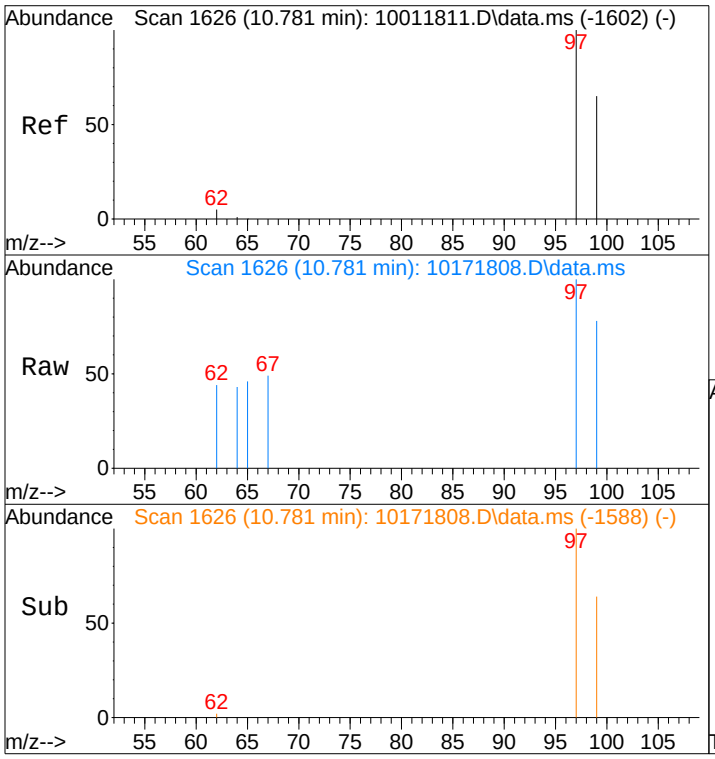


#21
1,2-Dichloroethane
Concen: 26.88 pg
RT: 10.51 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 62 Resp: 591

Ion	Ratio	Lower	Upper
62	100		
64	31.5	12.9	52.9

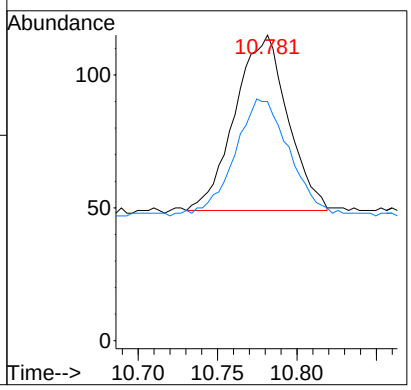


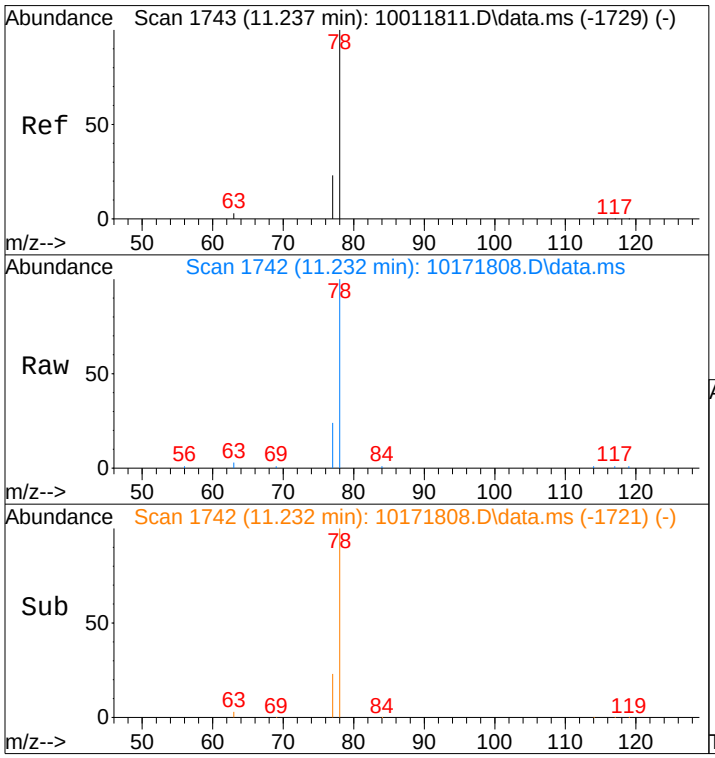


#22
1,1,1-Trichloroethane
Concen: 5.04 pg
RT: 10.78 min Scan# 1626
Delta R.T. -0.020 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 97 Resp: 152

Ion	Ratio	Lower	Upper
97	100		
99	65.1	44.9	84.9

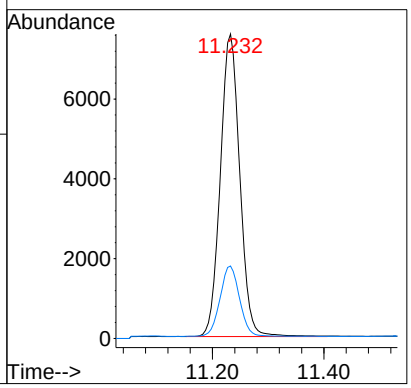


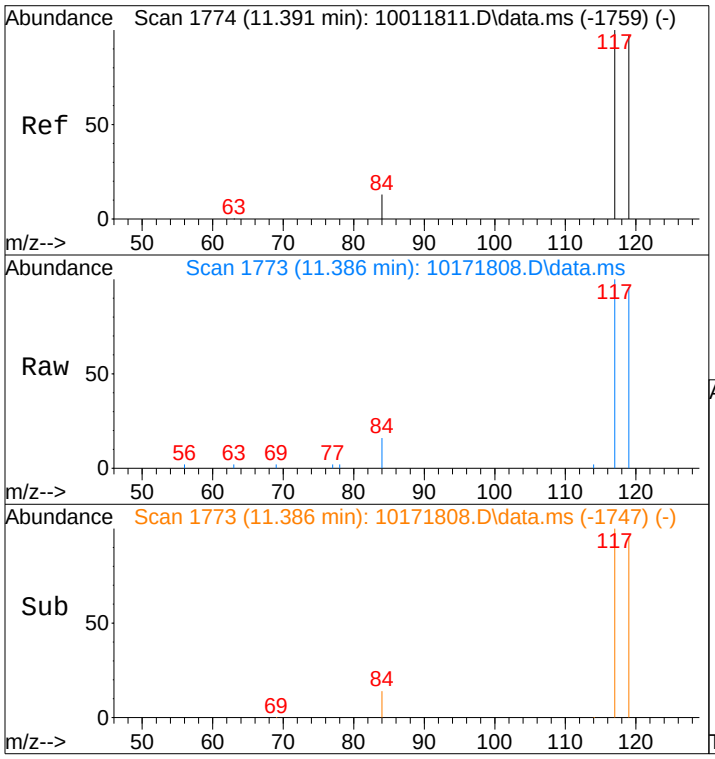


#23
Benzene
Concen: 205.34 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 78 Resp: 18337

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.3	43.3

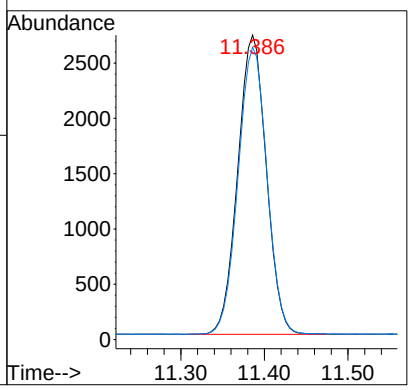


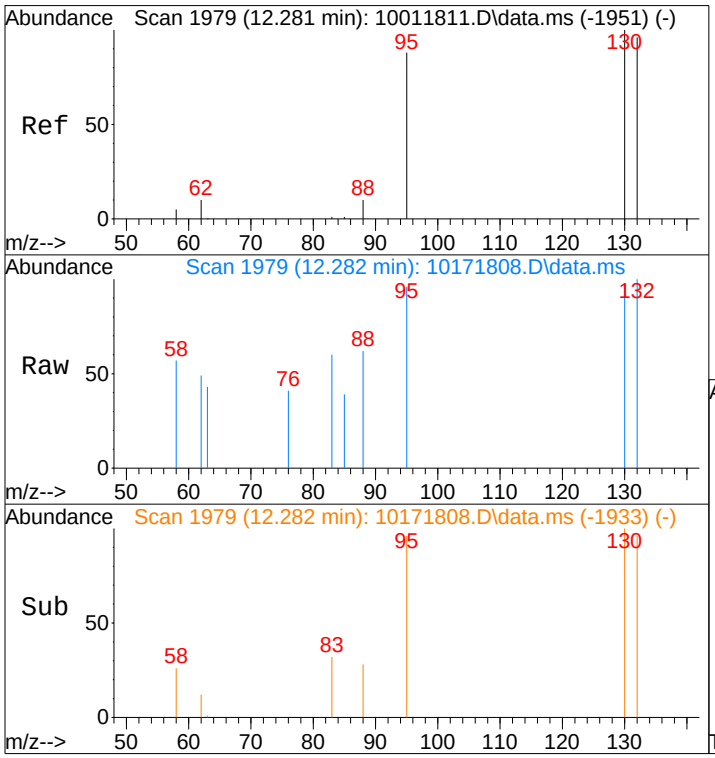


#24
Carbon Tetrachloride
Concen: 233.54 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:117 Resp: 6427

Ion	Ratio	Lower	Upper
117	100		
119	96.6	76.7	116.7

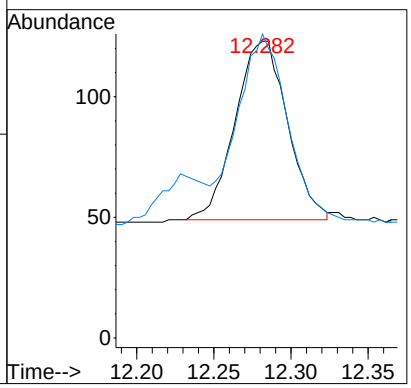


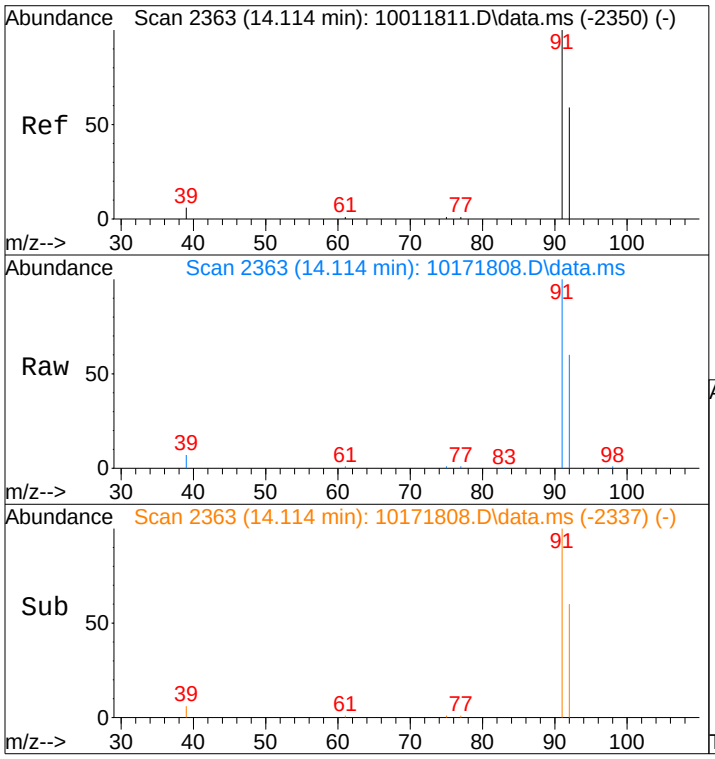


#28
Trichloroethene
Concen: 7.36 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.014 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:130 Resp: 175

Ion	Ratio	Lower	Upper
130	100		
132	101.7	75.6	115.6

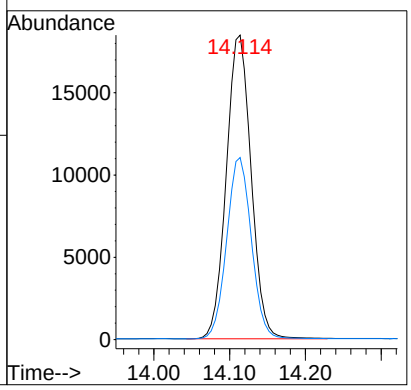


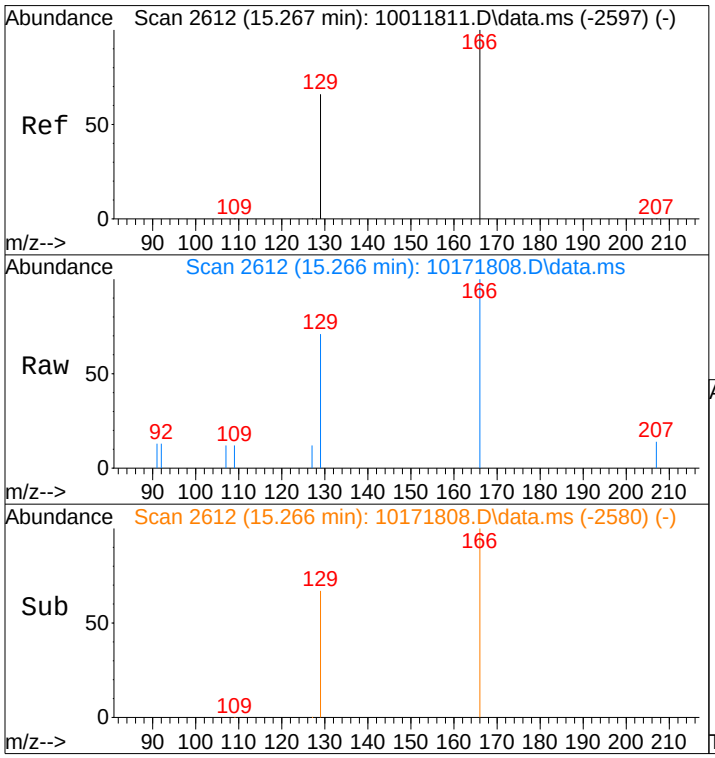


#34
Toluene
Concen: 484.09 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 91 Resp: 42038

Ion	Ratio	Lower	Upper
91	100		
92	59.3	39.2	79.2

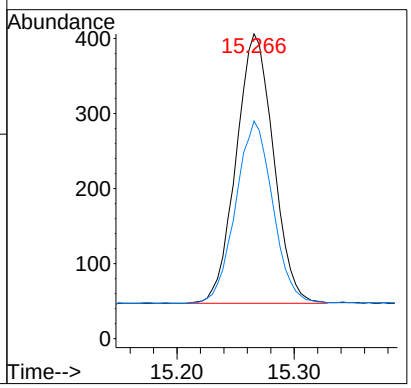


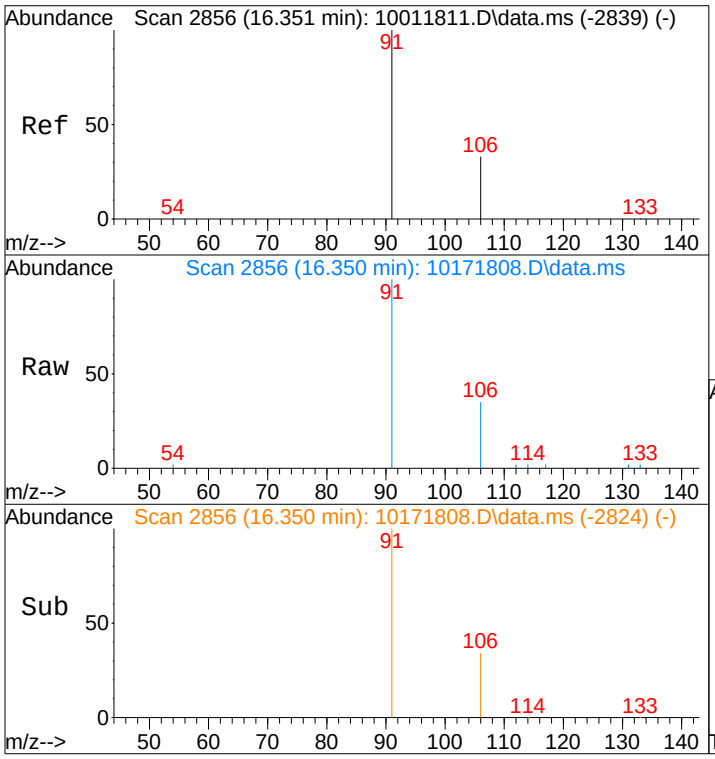


#37
Tetrachloroethene
Concen: 31.11 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:166 Resp: 795

Ion	Ratio	Lower	Upper
166	100		
129	67.0	46.7	86.7

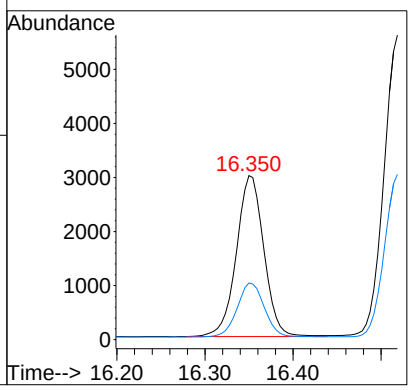


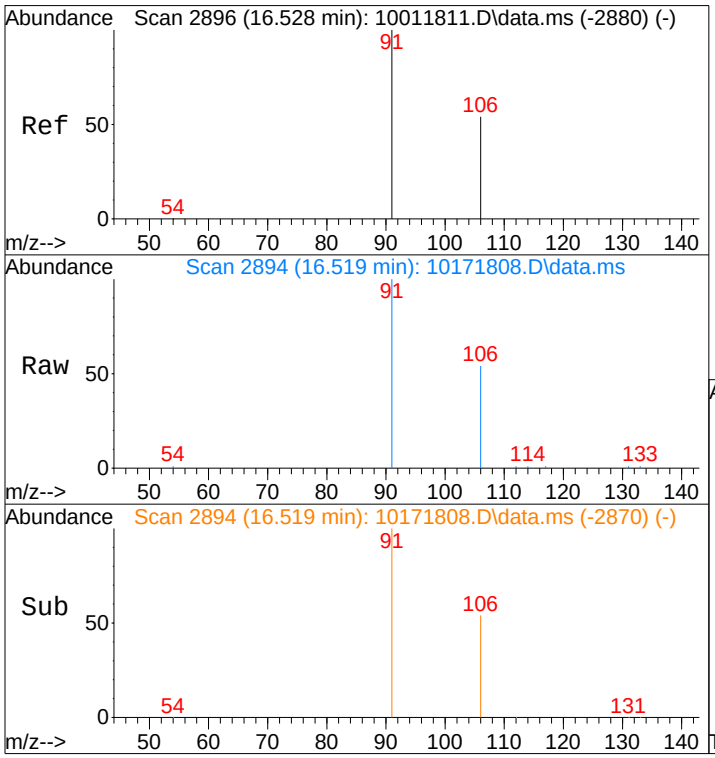


#40
Ethylbenzene
Concen: 63.51 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 91 Resp: 6486

Ion	Ratio	Lower	Upper
91	100		
106	33.2	13.7	53.7

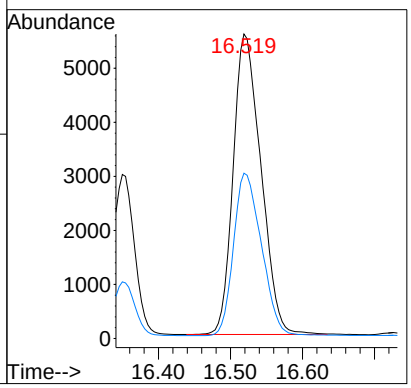


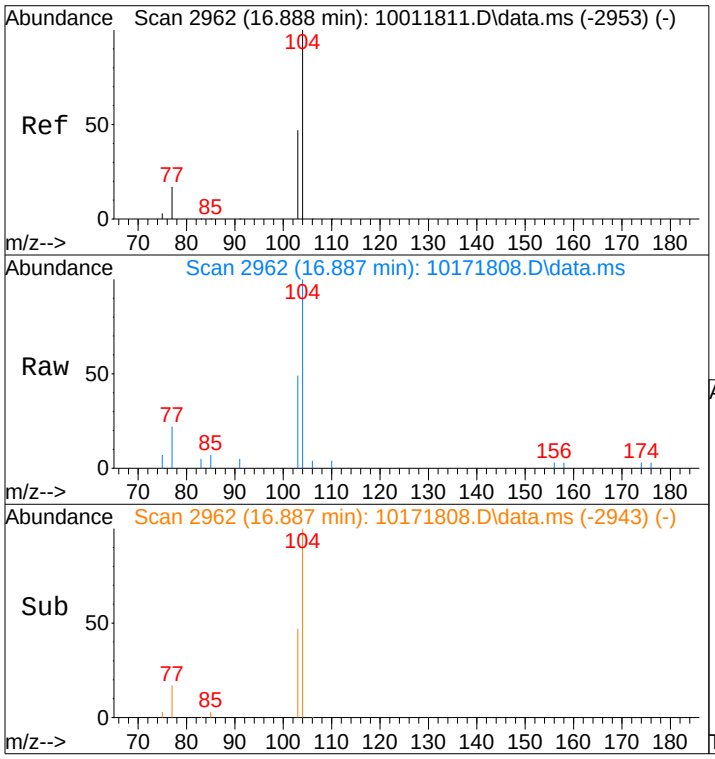


#41
m,p-Xylene
Concen: 191.30 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion: 91 Resp: 14937

Ion	Ratio	Lower	Upper
91	100		
106	54.2	34.3	74.3

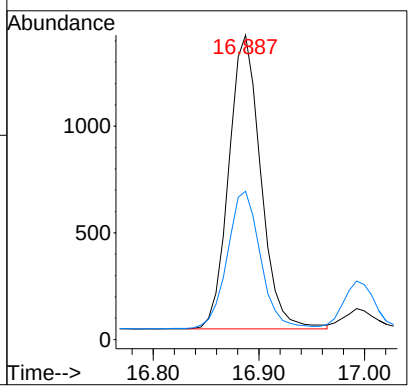


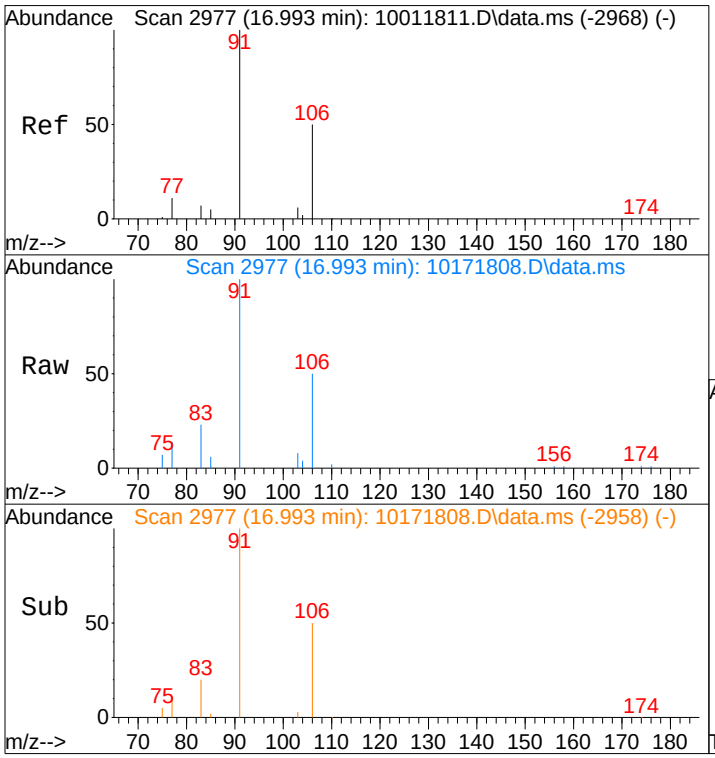


#42
Styrene
Concen: 46.69 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:104 Resp: 2896

Ion	Ratio	Lower	Upper
104	100		
103	48.3	37.7	56.5

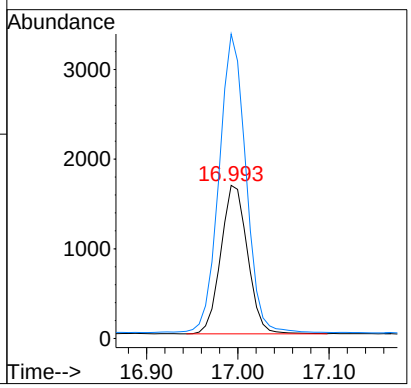


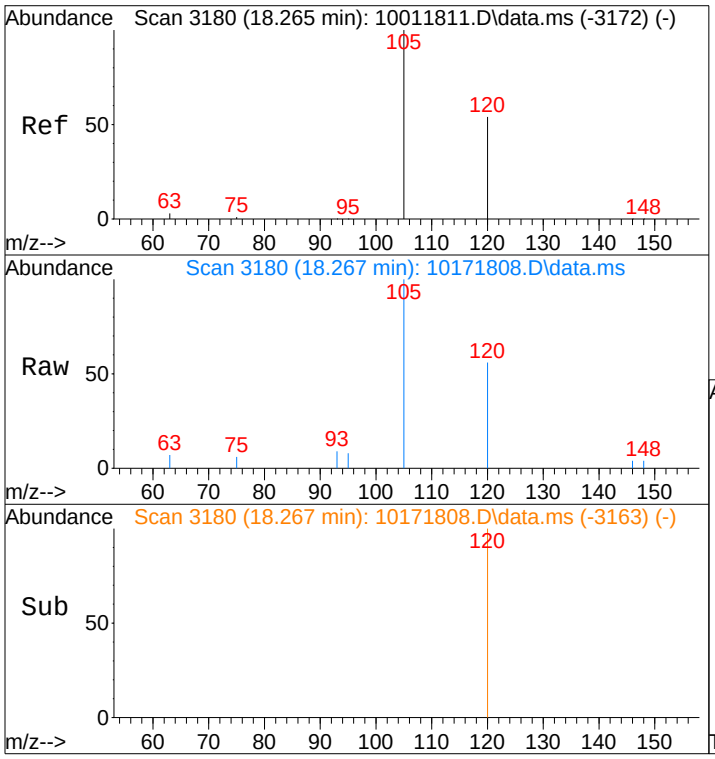


#43
o-Xylene
Concen: 81.06 pg
RT: 16.99 min Scan# 2977
Delta R.T. -0.013 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:106 Resp: 3365

Ion	Ratio	Lower	Upper
106	100		
91	201.1	175.6	215.6

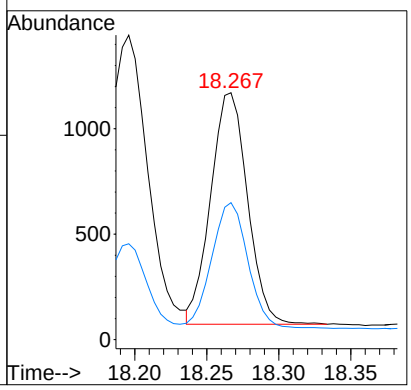


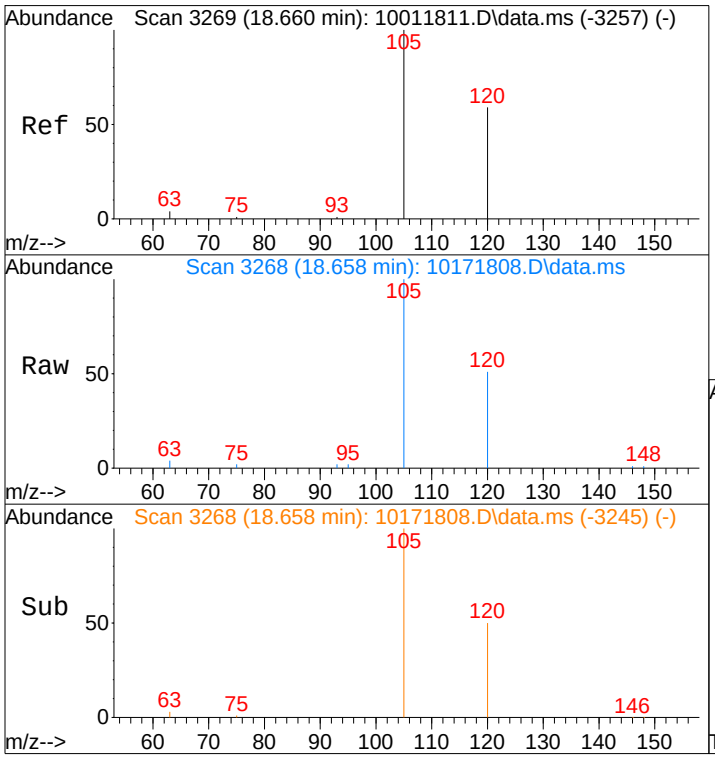


#46
1,3,5-Trimethylbenzene
Concen: 22.44 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:105 Resp: 1959

Ion	Ratio	Lower	Upper
105	100		
120	53.9	42.8	64.2

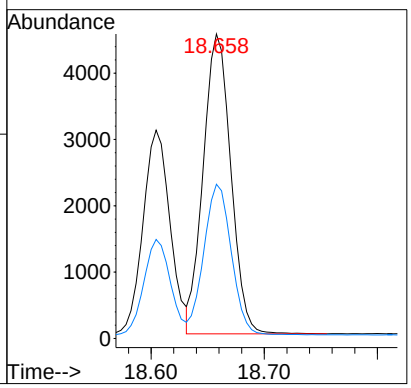


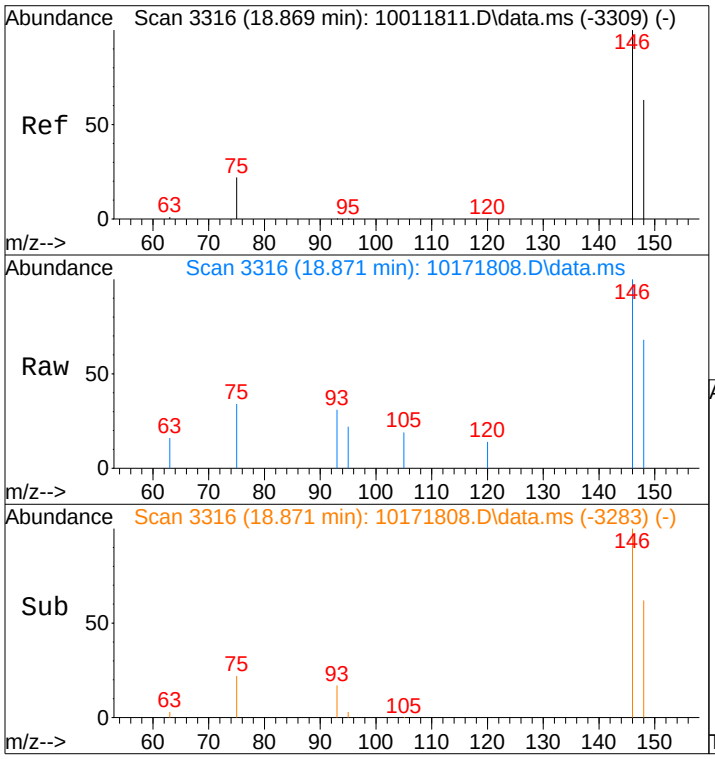


#47
1,2,4-Trimethylbenzene
Concen: 87.91 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:105 Resp: 7657

Ion	Ratio	Lower	Upper
105	100		
120	49.7	47.1	70.7

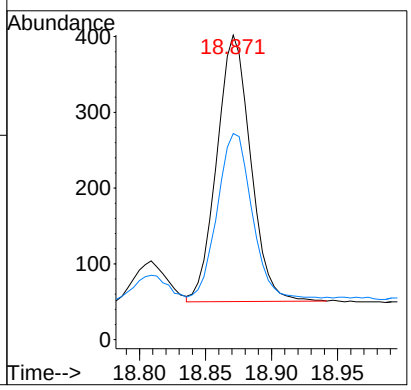


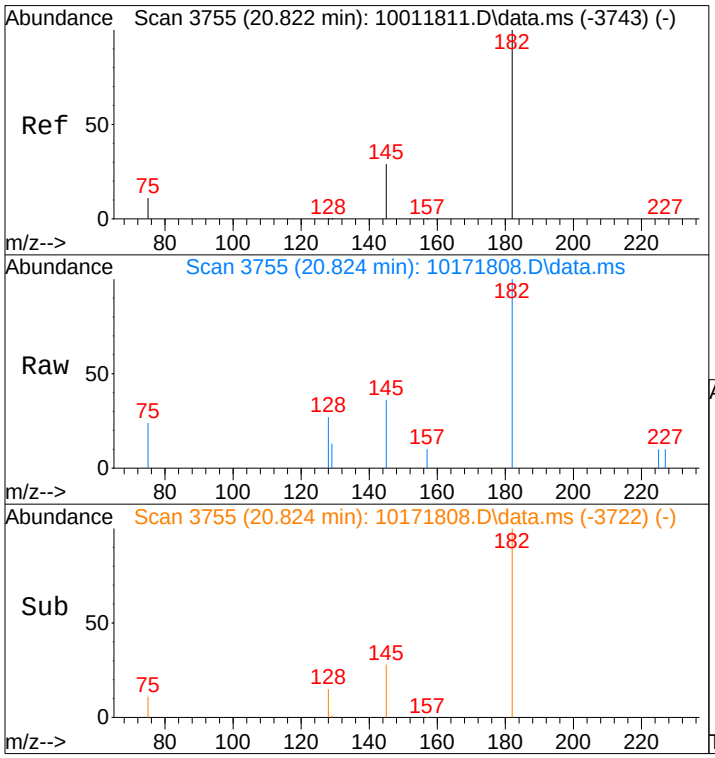


#49
1,4-Dichlorobenzene
Concen: 10.95 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:146 Resp: 626

Ion	Ratio	Lower	Upper
146	100		
148	64.1	43.8	83.8

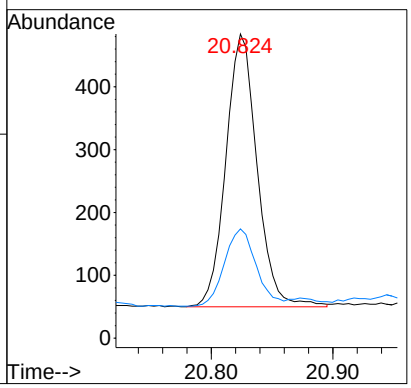


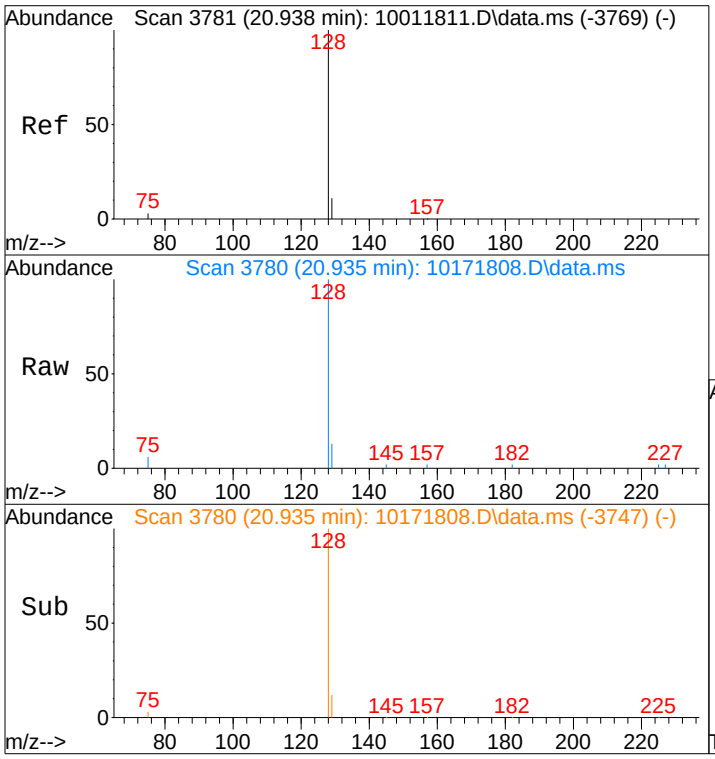


#52
1,2,4-Trichlorobenzene
Concen: 23.97 pg
RT: 20.82 min Scan# 3755
Delta R.T. -0.004 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:182 Resp: 775

Ion	Ratio	Lower	Upper
182	100		
145	28.8	8.7	48.7

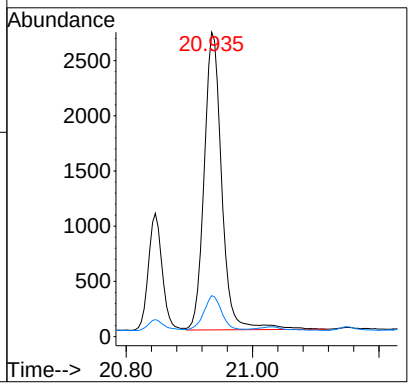




#53
Naphthalene
Concen: 50.96 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171808.D
Acq: 17 Oct 2018 16:34

Tgt Ion:128 Resp: 5192

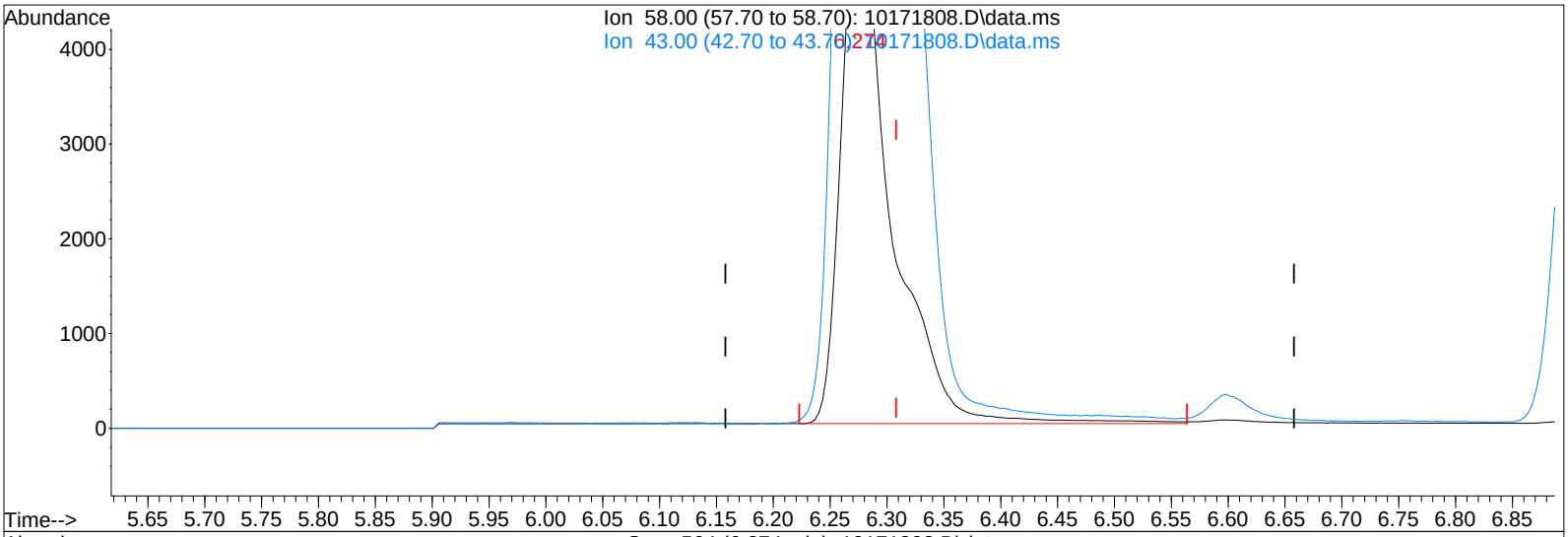
Ion	Ratio	Lower	Upper
128	100		
129	12.0	0.0	30.8

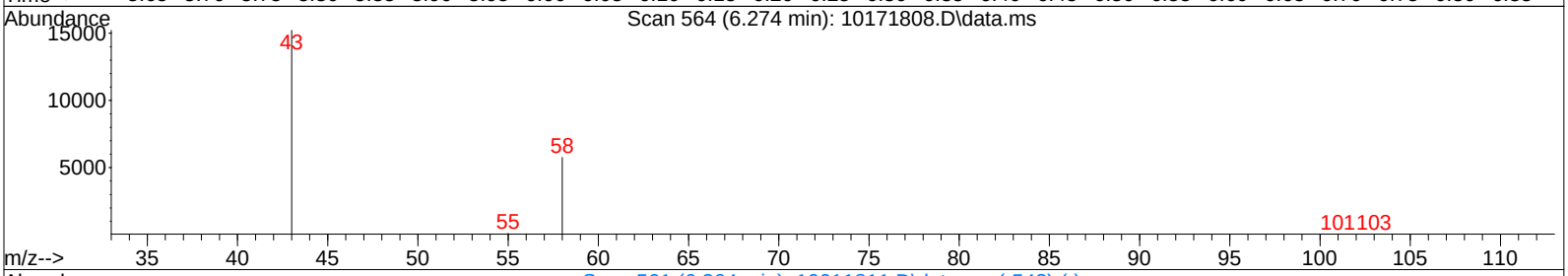


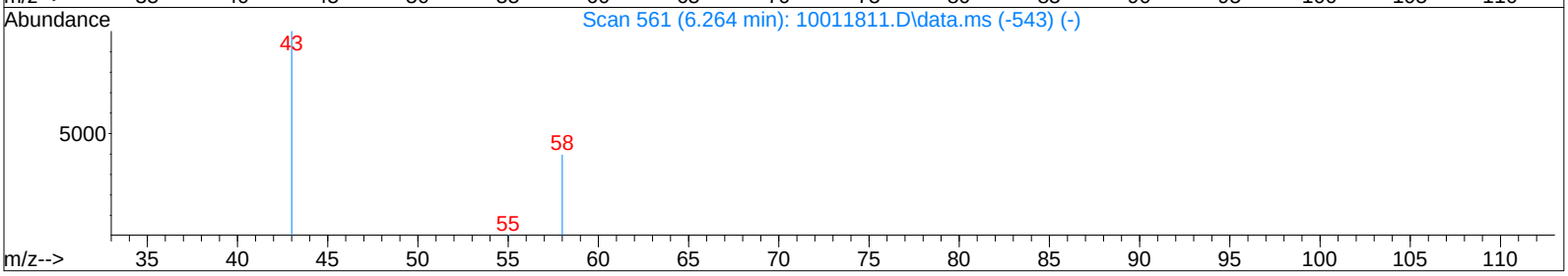
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171808.D\data.ms

(10) Acetone (T)

6.274min (-0.034) 1301.96pg

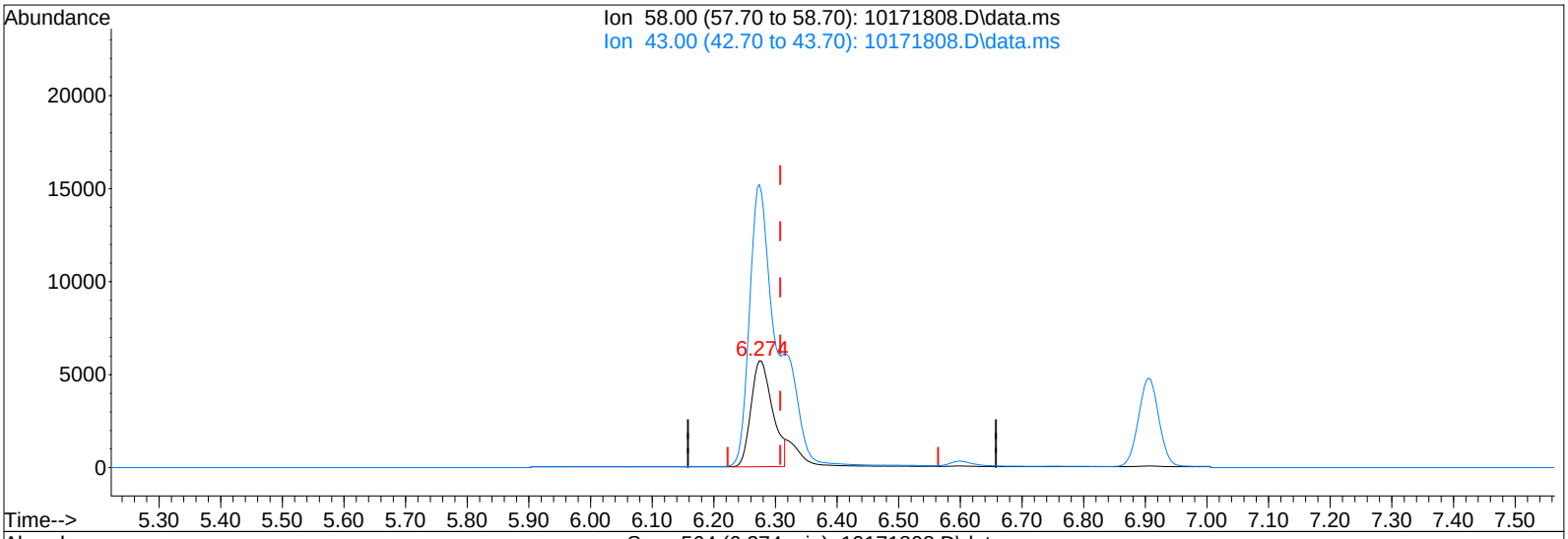
response 16621

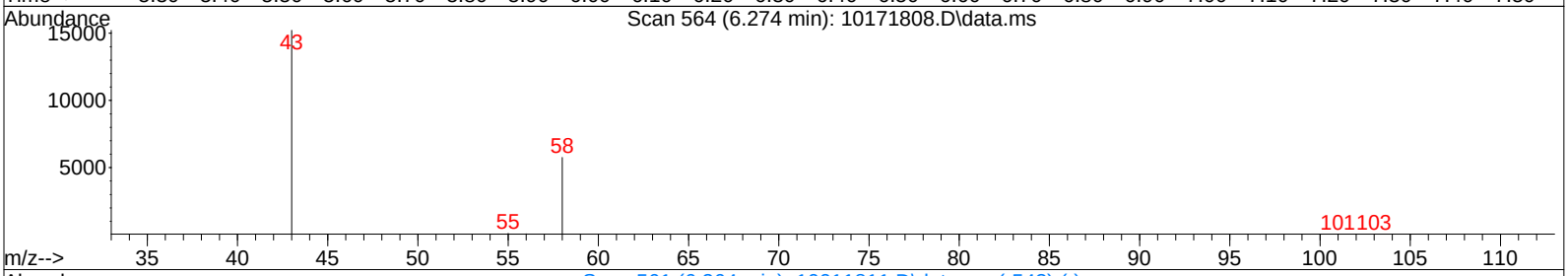
Ion	Exp%	Act%
58.00	100	100
43.00	254.70	299.05#
0.00	0.00	0.00
0.00	0.00	0.00

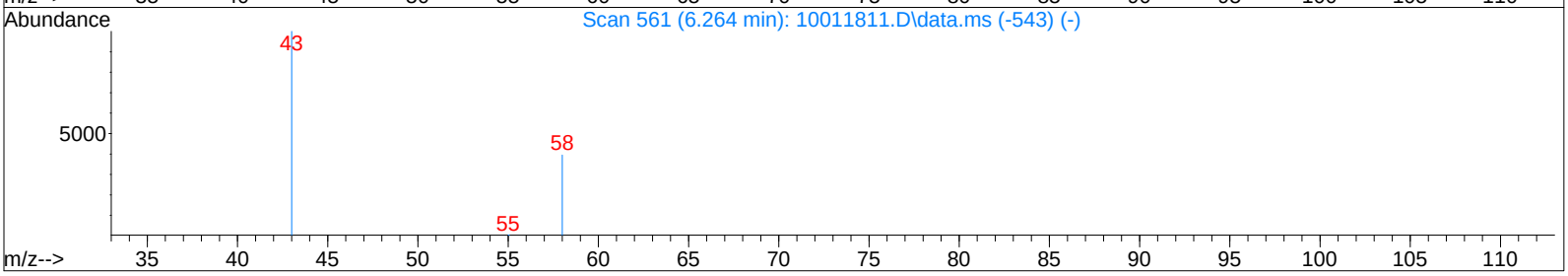
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171808.D Vial: 1
Acq On : 17 Oct 2018 16:34 Operator: WA
Sample : P1805497-001 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171808.D\data.ms

(10) Acetone (T)

6.274min (-0.034) 1090.54pg m

response 13922

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	357.02#
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171809.D Vial: 3
Acq On : 17 Oct 2018 17:06 Operator: WA
Sample : P1805497-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:28:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17668	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	79144	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10496	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19441	919.216	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.92%				
33) Toluene-d8 (SS2)	14.02	98	86126	1055.245	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.52%				
45) Bromofluorobenzene (SS3)	17.43	174	32656	1101.070	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.11%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	54783	1455.208	pg		100
3) Chloromethane	4.53	52	1350	153.360	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1682	61.981	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	4.97	54	75	N.D.			
7) Bromomethane	5.35	94	249	14.499	pg		89
8) Chloroethane	5.57	64	151	11.805	pg	#	42
9) Acrolein	6.14	56	1813	175.348	pg		99
10) Acetone	6.28	58	18154	1384.935	pg	#	86
11) Trichlorofluoromethane	6.48	101	20557	698.234	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	2456	112.530	pg		100
14) Trichlorotrifluoroethane	7.67	151	4980	241.344	pg		100
15) trans-1,2-Dichloroethene	8.38	96	69	N.D.			
16) 1,1-Dichloroethane	8.59	63	59	N.D.			
17) Methyl tert-Butyl Ether	8.59	73	148	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	3136	85.921	pg		99
21) 1,2-Dichloroethane	10.51	62	610	27.021	pg		97
22) 1,1,1-Trichloroethane	10.78	97	177	5.717	pg		97
23) Benzene	11.23	78	15462	168.626	pg		99
24) Carbon Tetrachloride	11.39	117	6964	246.448	pg		100
26) 1,2-Dichloropropane	12.05	63	92	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D. d			
28) Trichloroethene	12.28	130	157	6.349	pg		95
29) 1,4-Dioxane	12.27	88	206	12.176	pg		95
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d			
32) 1,1,2-Trichloroethane	13.81	83	52	N.D.			
34) Toluene	14.11	91	27944	309.229	pg		100
35) Dibromochloromethane	14.52	129	127	5.246	pg		99
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	678	25.496	pg		99
39) Chlorobenzene	15.96	112	79	N.D.			
40) Ethylbenzene	16.35	91	4171	43.104	pg		99
41) m,p-Xylene	16.52	91	9492	128.293	pg		100
42) Styrene	16.89	104	2064	35.121	pg		99
43) o-Xylene	17.00	106	2531	64.345	pg		89
44) 1,1,2,2-Tetrachloroethane	17.00	83	150	N.D.			
46) 1,3,5-Trimethylbenzene	18.26	105	1440	17.406	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	5818	70.495	pg		88
48) 1,3-Dichlorobenzene	0.00	146	0	N.D. d			
49) 1,4-Dichlorobenzene	18.87	146	436	8.052	pg		99
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.			
53) Naphthalene	20.94	128	6044	62.610	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171809.D Vial: 3
Acq On : 17 Oct 2018 17:06 Operator: WA
Sample : P1805497-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:28:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

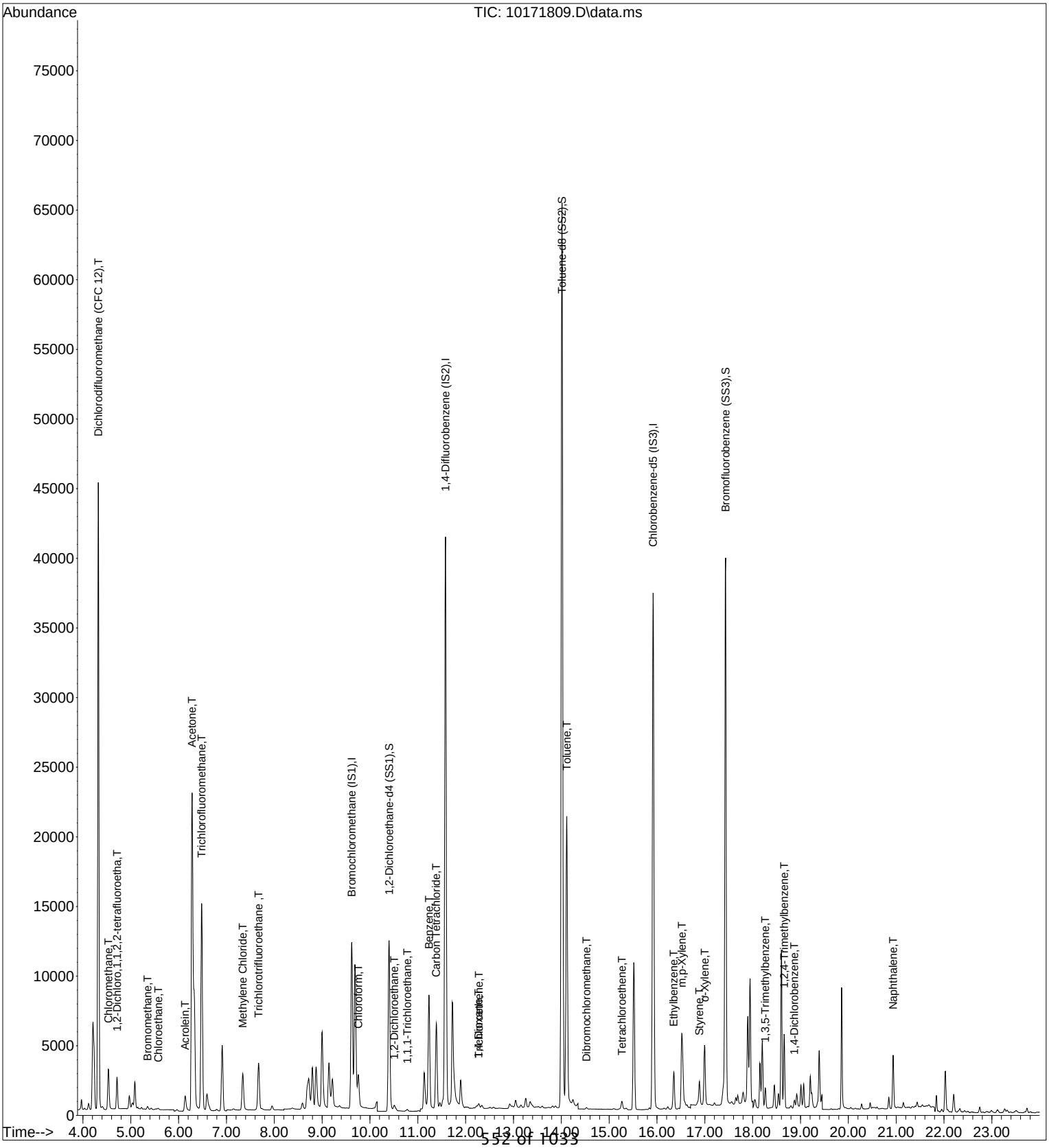
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171809.D Vial: 3
Acq On : 17 Oct 2018 17:06 Operator: WA
Sample : P1805497-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:28:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171809.D Vial: 3
Acq On : 17 Oct 2018 17:06 Operator: WA
Sample : P1805497-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:28:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

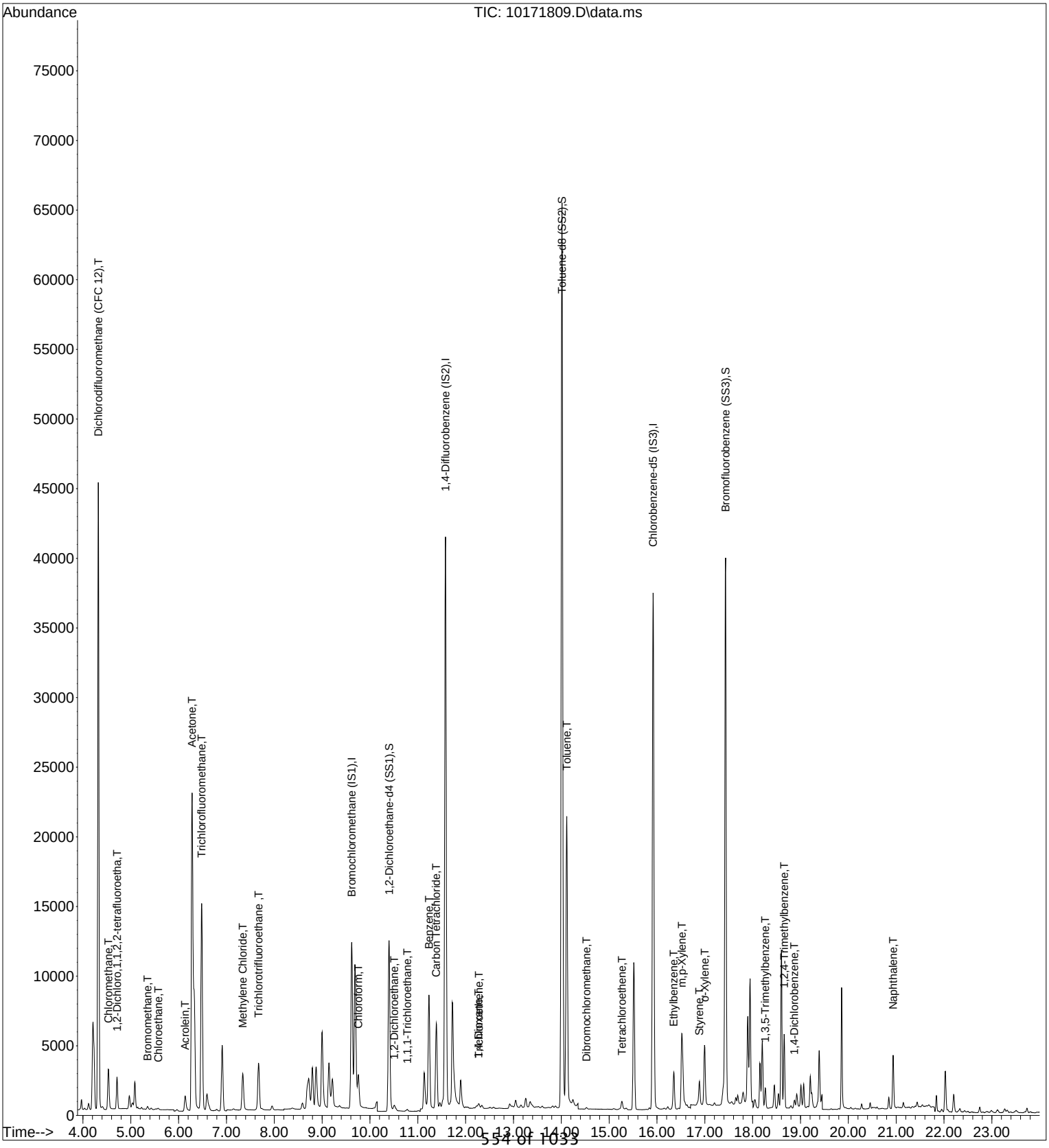
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17668	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	79144	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10496	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19441	919.216	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.92%				
33) Toluene-d8 (SS2)	14.02	98	86126	1055.245	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.52%				
45) Bromofluorobenzene (SS3)	17.43	174	32656	1101.070	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.11%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	54783	1455.208	pg		100
3) Chloromethane	4.53	52	1350	153.360	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1682	61.981	pg		100
7) Bromomethane	5.35	94	249	14.499	pg		89
8) Chloroethane	5.57	64	151	11.805	pg	#	42
9) Acrolein	6.14	56	1813	175.348	pg		99
10) Acetone	6.28	58	18154	1384.935	pg	#	86
11) Trichlorofluoromethane	6.48	101	20557	698.234	pg		100
13) Methylene Chloride	7.34	84	2456	112.530	pg		100
14) Trichlorotrifluoroethane	7.67	151	4980	241.344	pg		100
19) Chloroform	9.76	83	3136	85.921	pg		99
21) 1,2-Dichloroethane	10.51	62	610	27.021	pg		97
22) 1,1,1-Trichloroethane	10.78	97	177	5.717	pg		97
23) Benzene	11.23	78	15462	168.626	pg		99
24) Carbon Tetrachloride	11.39	117	6964	246.448	pg		100
28) Trichloroethene	12.28	130	157	6.349	pg		95
29) 1,4-Dioxane	12.27	88	206	12.176	pg		95
34) Toluene	14.11	91	27944	309.229	pg		100
35) Dibromochloromethane	14.52	129	127	5.246	pg		99
37) Tetrachloroethene	15.27	166	678	25.496	pg		99
40) Ethylbenzene	16.35	91	4171	43.104	pg		99
41) m,p-Xylene	16.52	91	9492	128.293	pg		100
42) Styrene	16.89	104	2064	35.121	pg		99
43) o-Xylene	17.00	106	2531	64.345	pg		89
46) 1,3,5-Trimethylbenzene	18.26	105	1440	17.406	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	5818	70.495	pg		88
49) 1,4-Dichlorobenzene	18.87	146	436	8.052	pg		99
53) Naphthalene	20.94	128	6044	62.610	pg		98

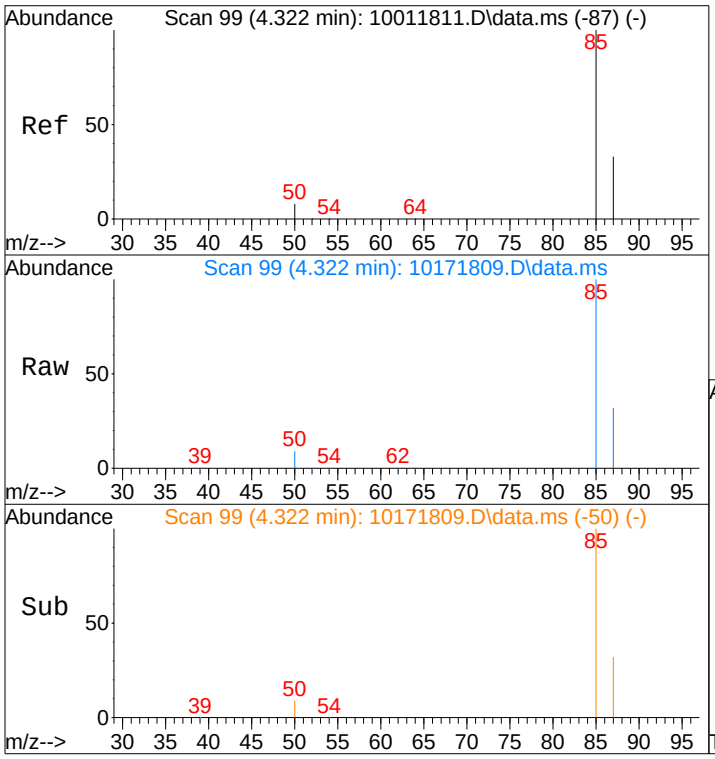
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171809.D Vial: 3
Acq On : 17 Oct 2018 17:06 Operator: WA
Sample : P1805497-002 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:28:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

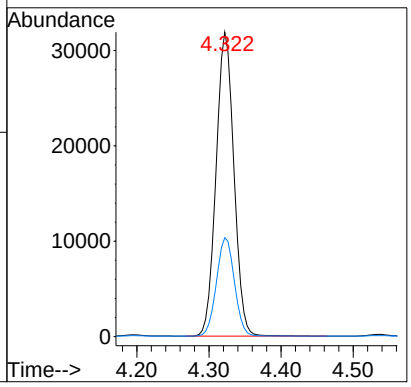


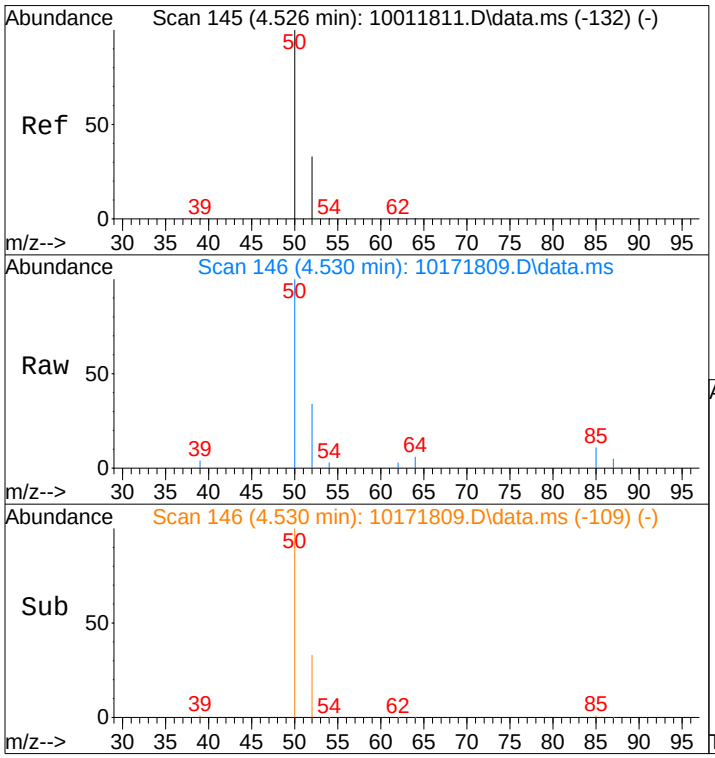


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1455.21 pg
RT: 4.32 min Scan# 99
Delta R.T. 0.018 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 85 Resp: 54783

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.7	52.7

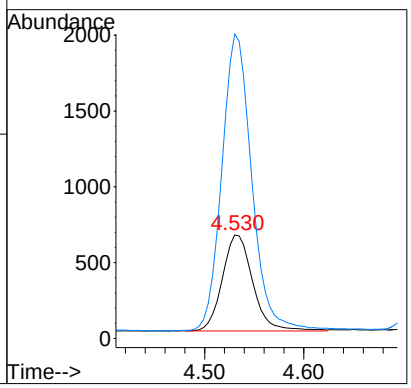


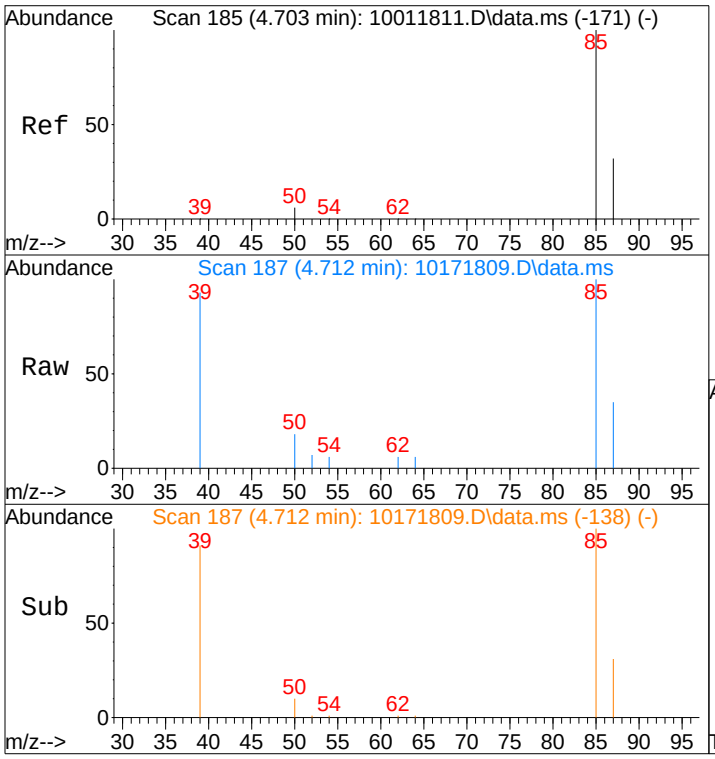


#3
Chloromethane
Concen: 153.36 pg
RT: 4.53 min Scan# 146
Delta R.T. 0.014 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 52 Resp: 1350

Ion	Ratio	Lower	Upper
52	100		
50	305.5	281.8	321.8

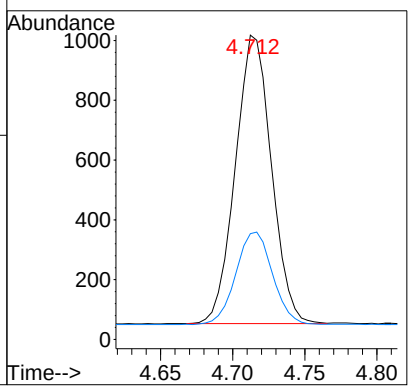


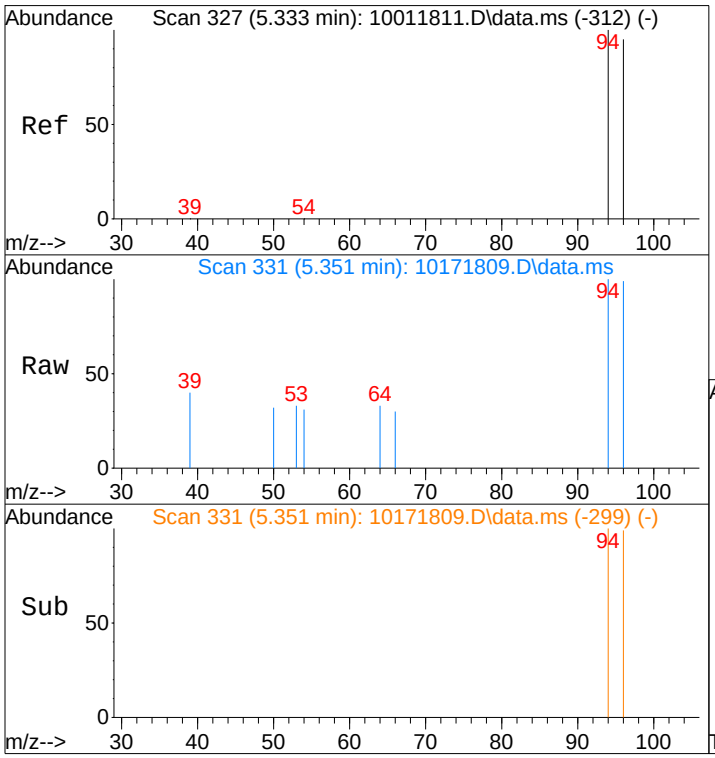


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 61.98 pg
RT: 4.71 min Scan# 187
Delta R.T. 0.018 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 85 Resp: 1682

Ion	Ratio	Lower	Upper
85	100		
87	32.7	26.0	39.0

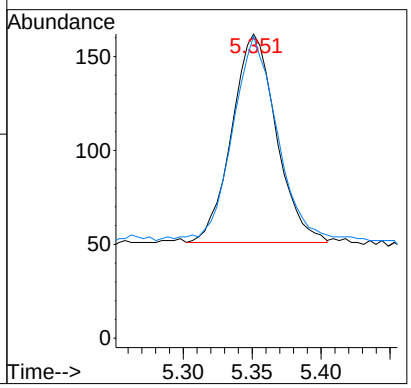


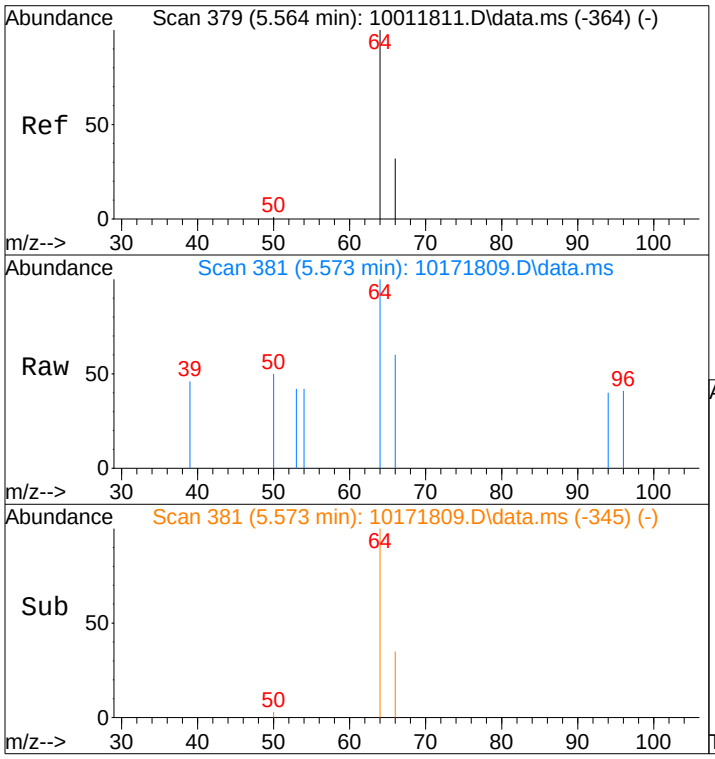


#7
Bromomethane
Concen: 14.50 pg
RT: 5.35 min Scan# 331
Delta R.T. 0.014 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 94 Resp: 249

Ion	Ratio	Lower	Upper
94	100		
96	104.8	75.7	113.5

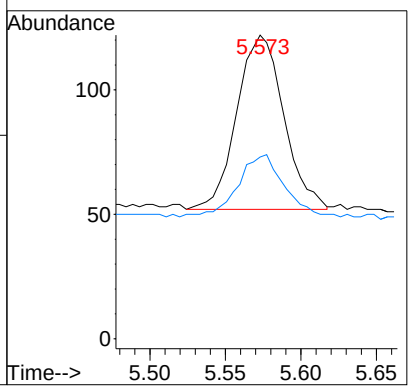


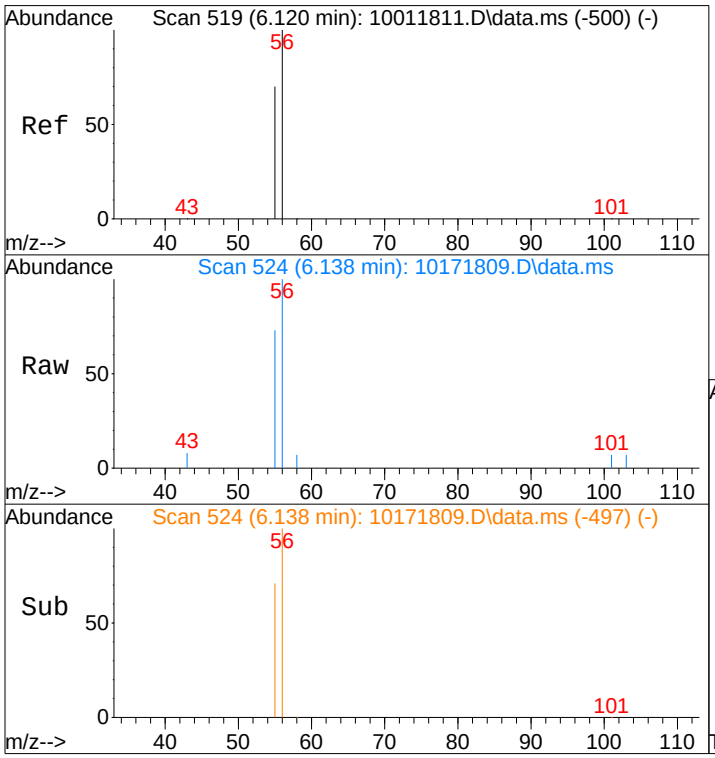


#8
Chloroethane
Concen: 11.81 pg
RT: 5.57 min Scan# 381
Delta R.T. 0.009 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 64 Resp: 151

Ion	Ratio	Lower	Upper
64	100		
66	0.0	12.3	52.3#

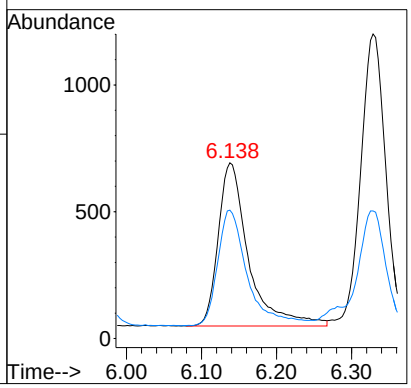


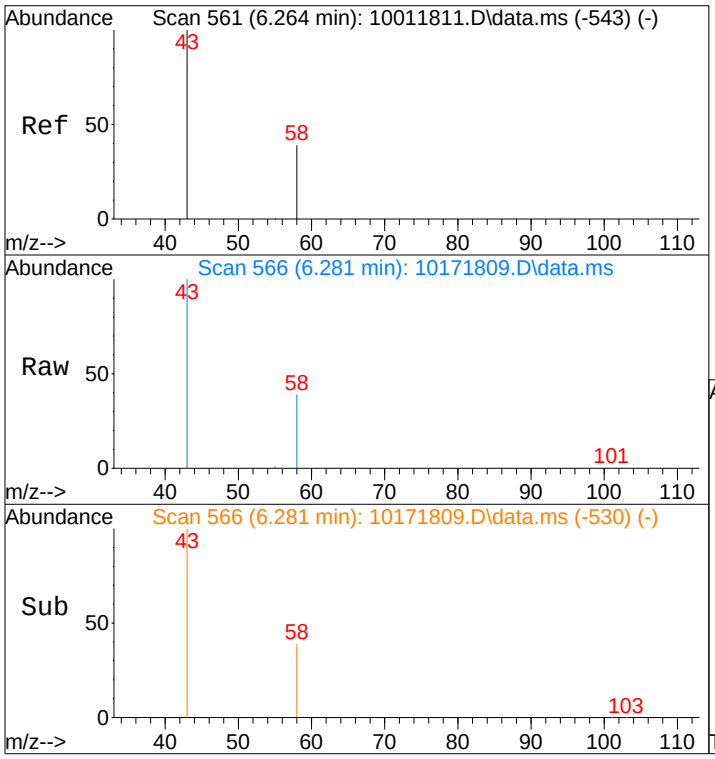


#9
Acrolein
Concen: 175.35 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 56 Resp: 1813

Ion	Ratio	Lower	Upper
56	100		
55	69.7	55.3	82.9

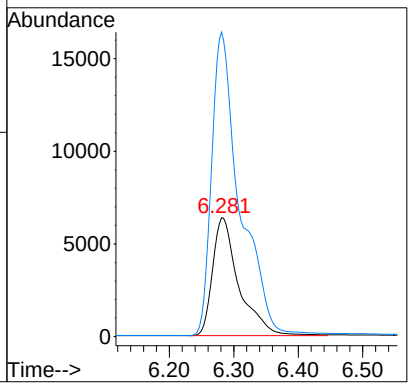


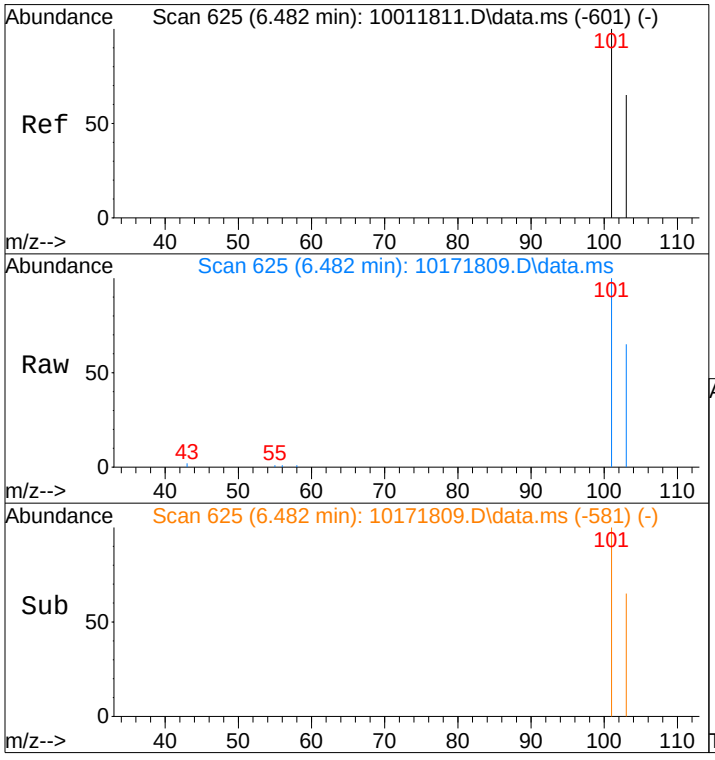


#10
Acetone
Concen: 1384.94 pg
RT: 6.28 min Scan# 566
Delta R.T. -0.027 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 58 Resp: 18154

Ion	Ratio	Lower	Upper
58	100		
43	278.9	234.7	274.7#

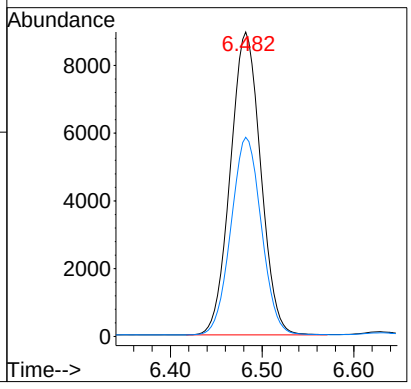


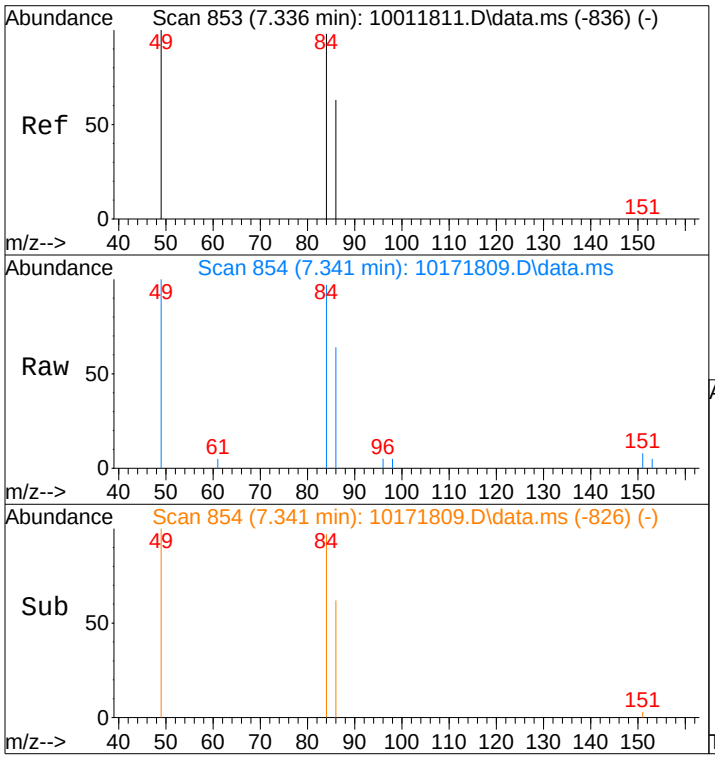


#11
Trichlorofluoromethane
Concen: 698.23 pg
RT: 6.48 min Scan# 625
Delta R.T. 0.000 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:101 Resp: 20557

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

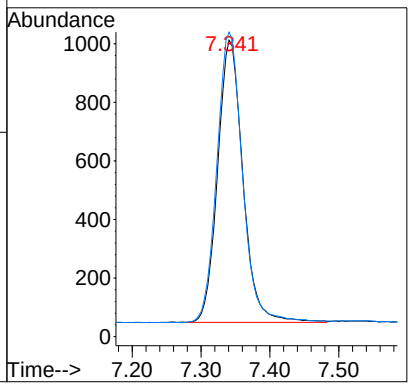


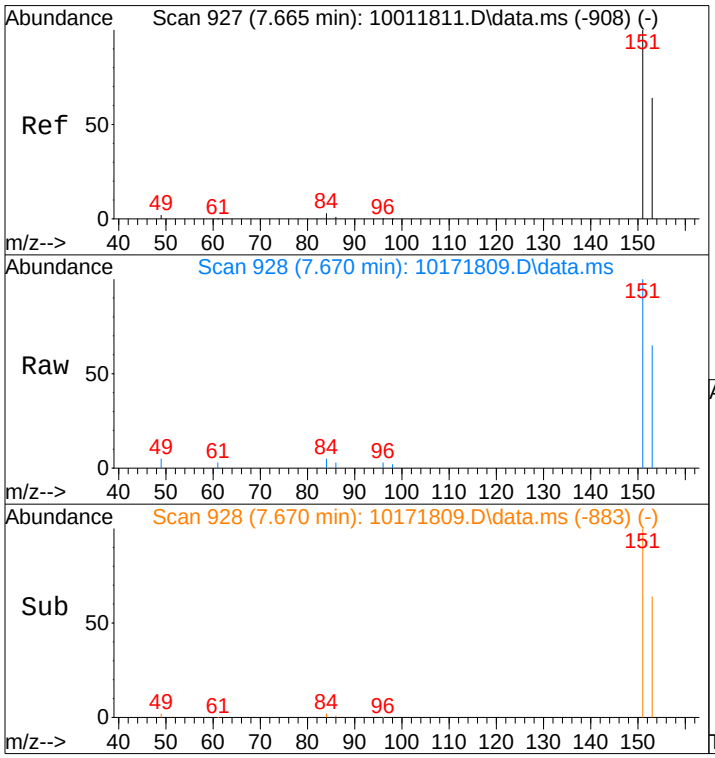


#13
Methylene Chloride
Concen: 112.53 pg
RT: 7.34 min Scan# 854
Delta R.T. -0.035 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 84 Resp: 2456

Ion	Ratio	Lower	Upper
84	100		
49	103.6	83.3	123.3

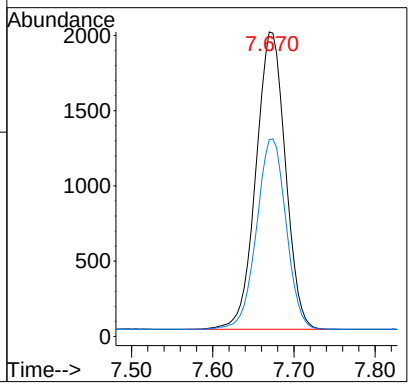


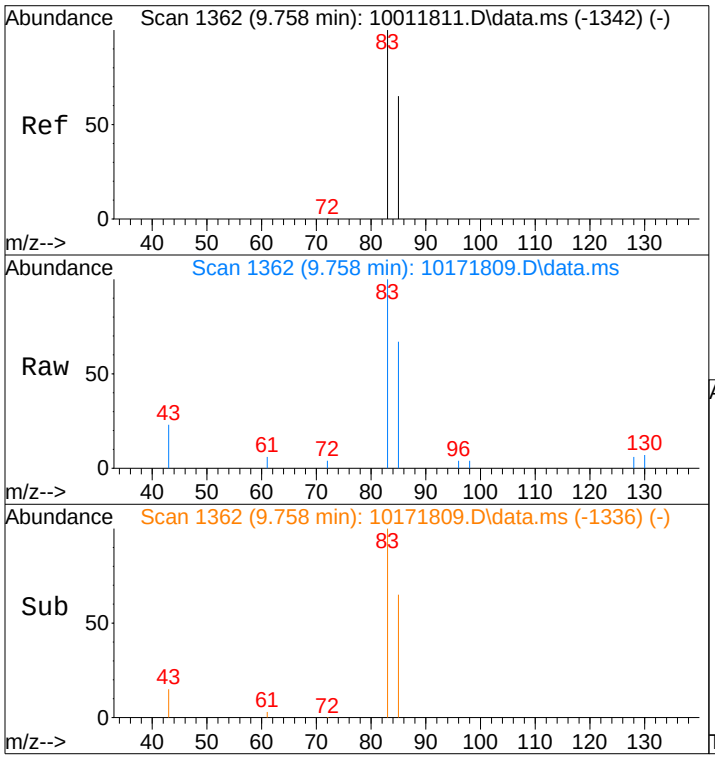


#14
Trichlorotrifluoroethane
Concen: 241.34 pg
RT: 7.67 min Scan# 928
Delta R.T. 0.000 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:151 Resp: 4980

Ion	Ratio	Lower	Upper
151	100		
153	64.3	44.3	84.3

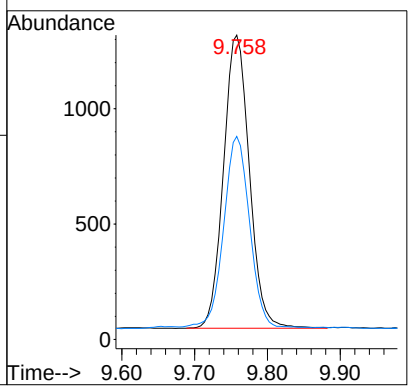


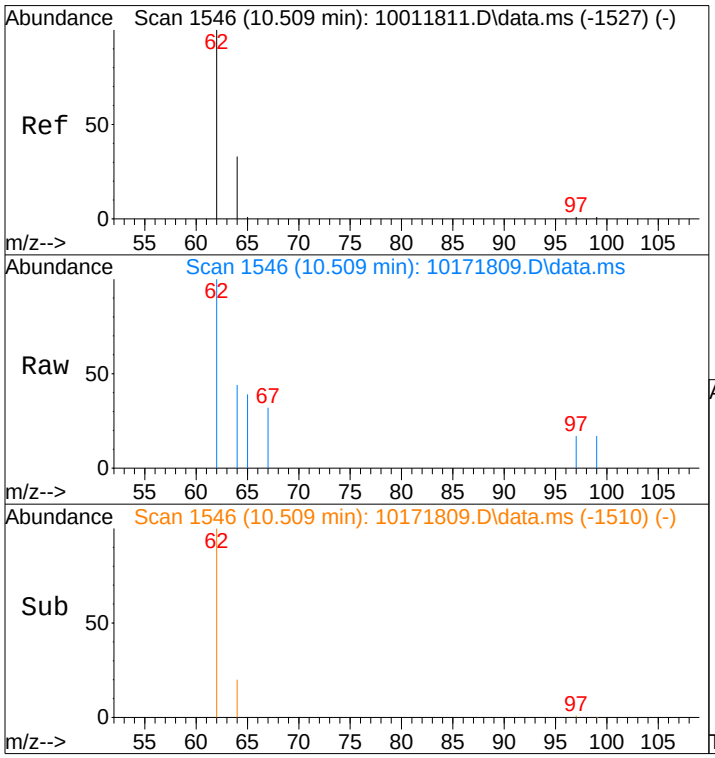


#19
Chloroform
Concen: 85.92 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.039 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 83 Resp: 3136

Ion	Ratio	Lower	Upper
83	100		
85	65.3	46.0	86.0

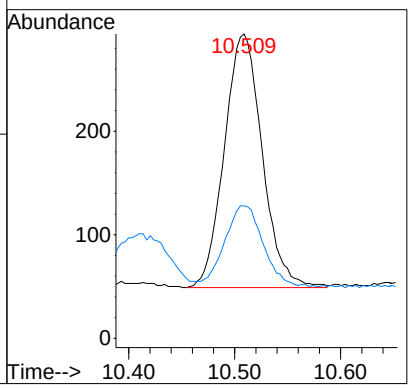


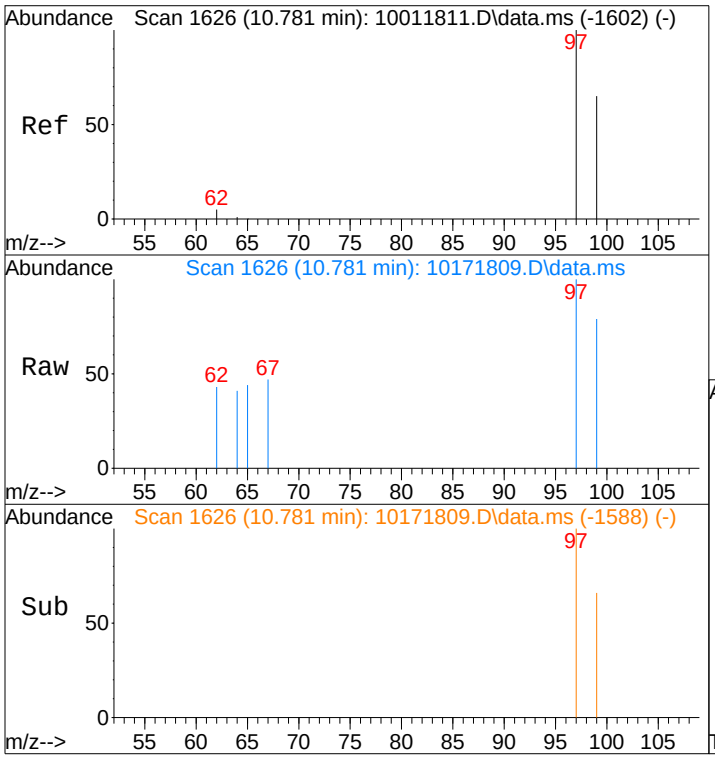


#21
1,2-Dichloroethane
Concen: 27.02 pg
RT: 10.51 min Scan# 1546
Delta R.T. -0.027 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 62 Resp: 610

Ion	Ratio	Lower	Upper
62	100		
64	31.0	12.9	52.9

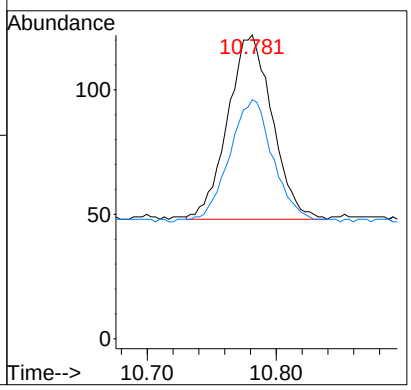


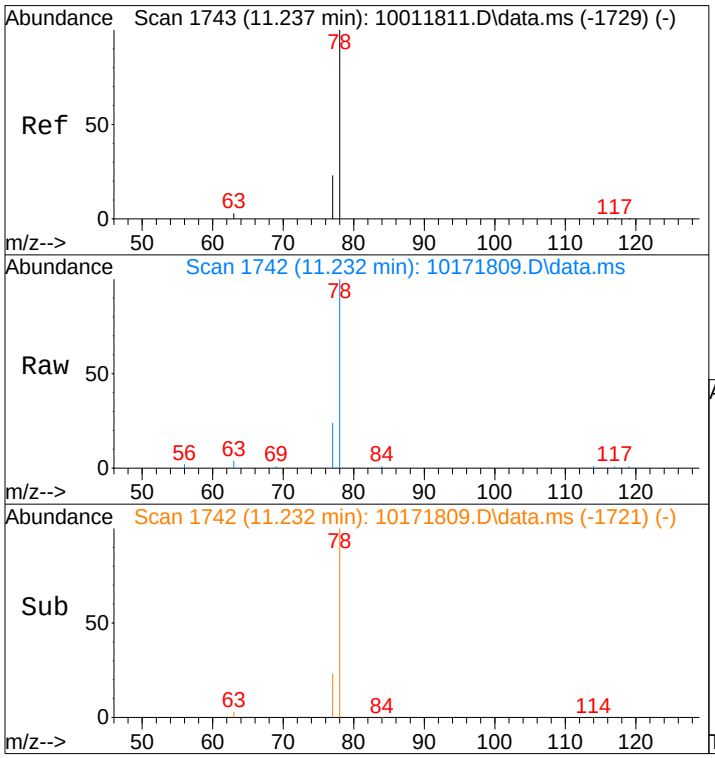


#22
1,1,1-Trichloroethane
Concen: 5.72 pg
RT: 10.78 min Scan# 1626
Delta R.T. -0.020 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 97 Resp: 177

Ion	Ratio	Lower	Upper
97	100		
99	62.1	44.9	84.9

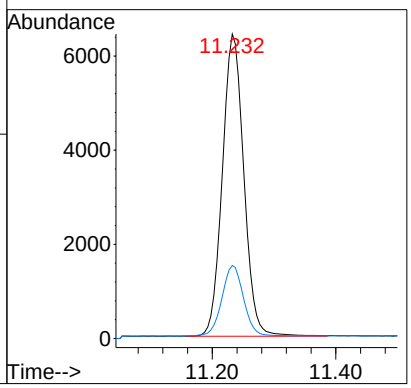


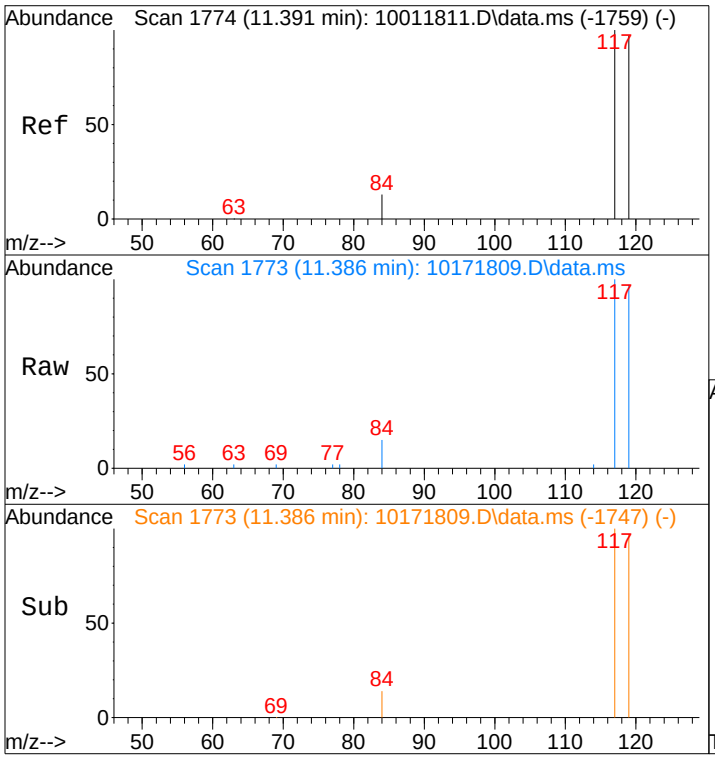


#23
Benzene
Concen: 168.63 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 78 Resp: 15462

Ion	Ratio	Lower	Upper
78	100		
77	23.6	3.3	43.3

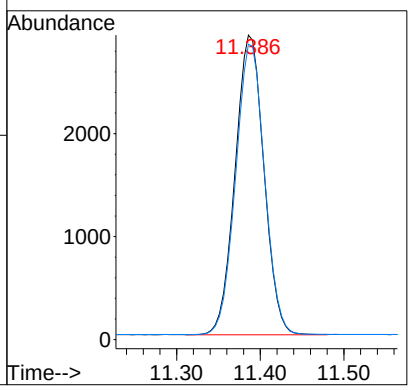


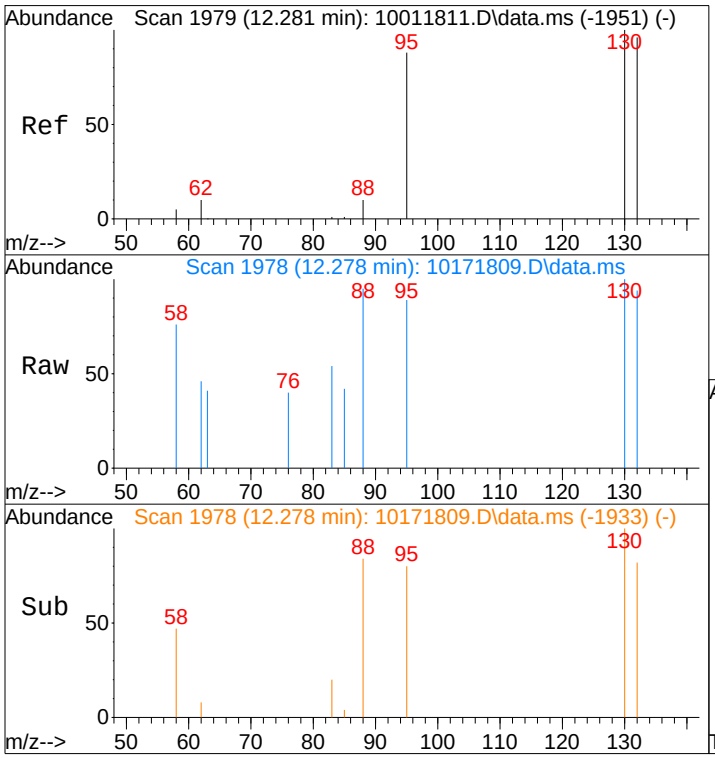


#24
Carbon Tetrachloride
Concen: 246.45 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:117 Resp: 6964

Ion	Ratio	Lower	Upper
117	100		
119	97.1	76.7	116.7

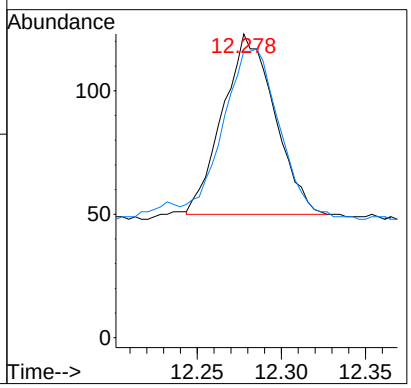


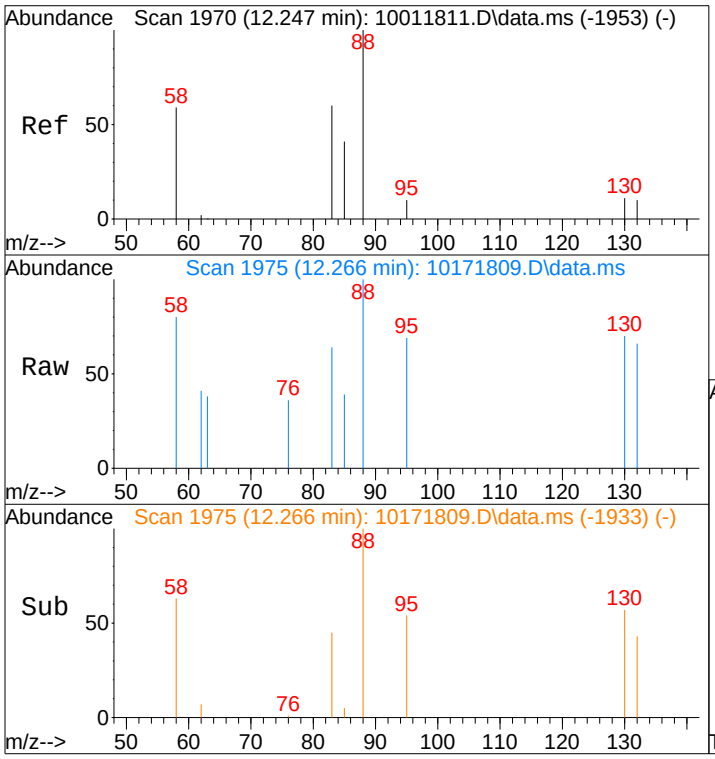


#28
Trichloroethene
Concen: 6.35 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:130 Resp: 157

Ion	Ratio	Lower	Upper
130	100		
132	100.0	75.6	115.6

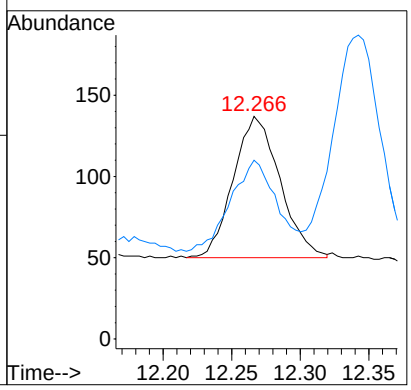


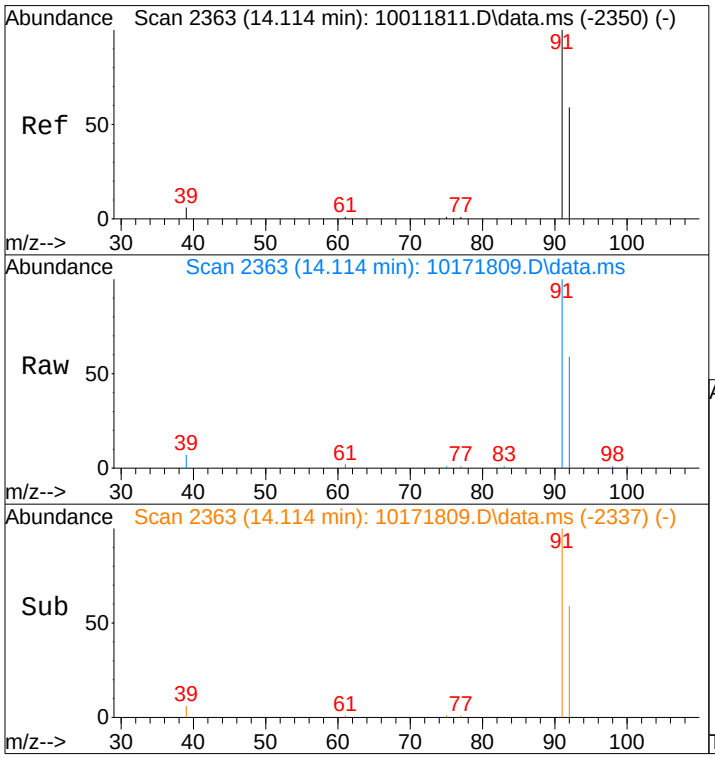


#29
1,4-Dioxane
Concen: 12.18 pg
RT: 12.27 min Scan# 1975
Delta R.T. 0.008 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 88 Resp: 206

Ion	Ratio	Lower	Upper
88	100		
58	63.1	39.2	79.2

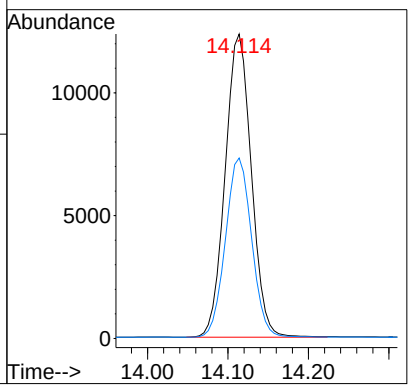


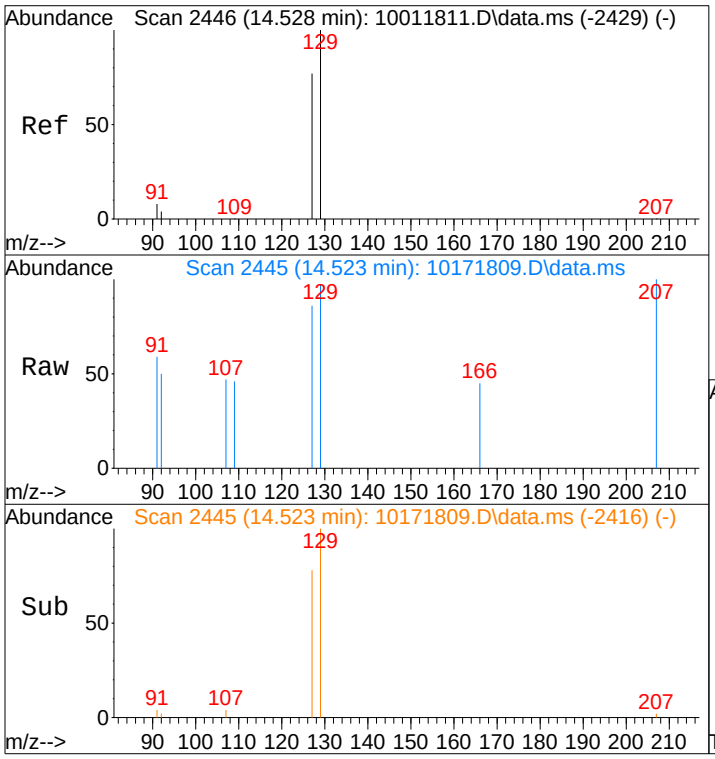


#34
Toluene
Concen: 309.23 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 91 Resp: 27944

Ion	Ratio	Lower	Upper
91	100		
92	59.3	39.2	79.2

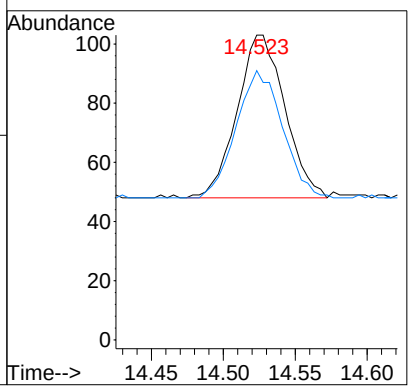


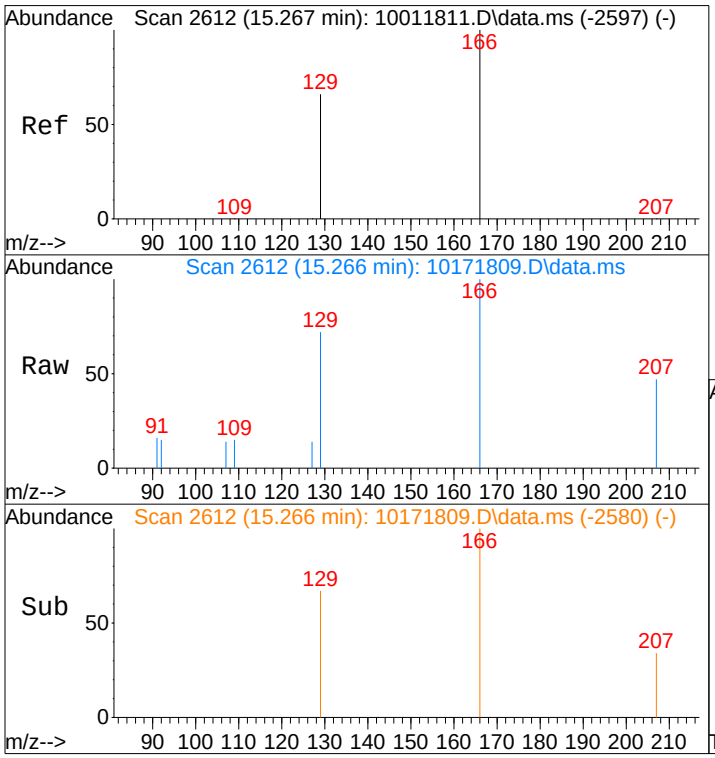


#35
Dibromochloromethane
Concen: 5.25 pg
RT: 14.52 min Scan# 2445
Delta R.T. -0.013 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:129 Resp: 127

Ion	Ratio	Lower	Upper
129	100		
127	76.4	61.8	92.6

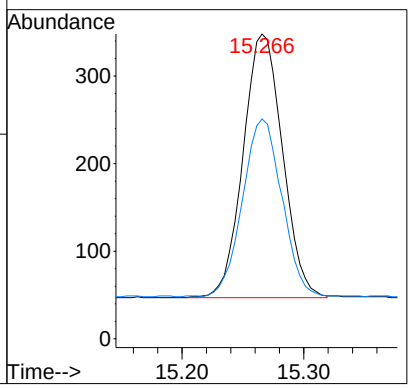


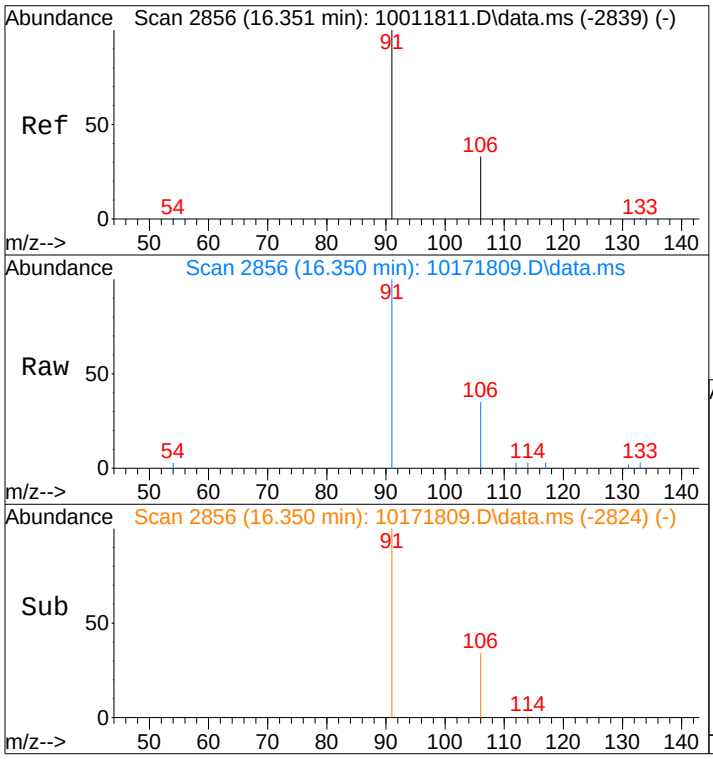


#37
Tetrachloroethene
Concen: 25.50 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:166 Resp: 678

Ion	Ratio	Lower	Upper
166	100		
129	67.3	46.7	86.7

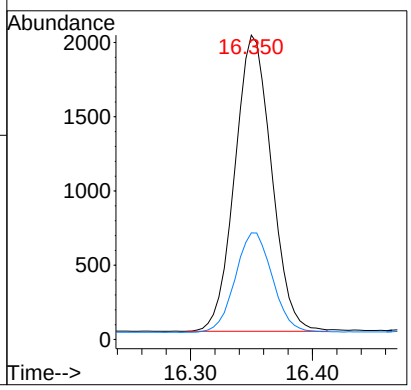


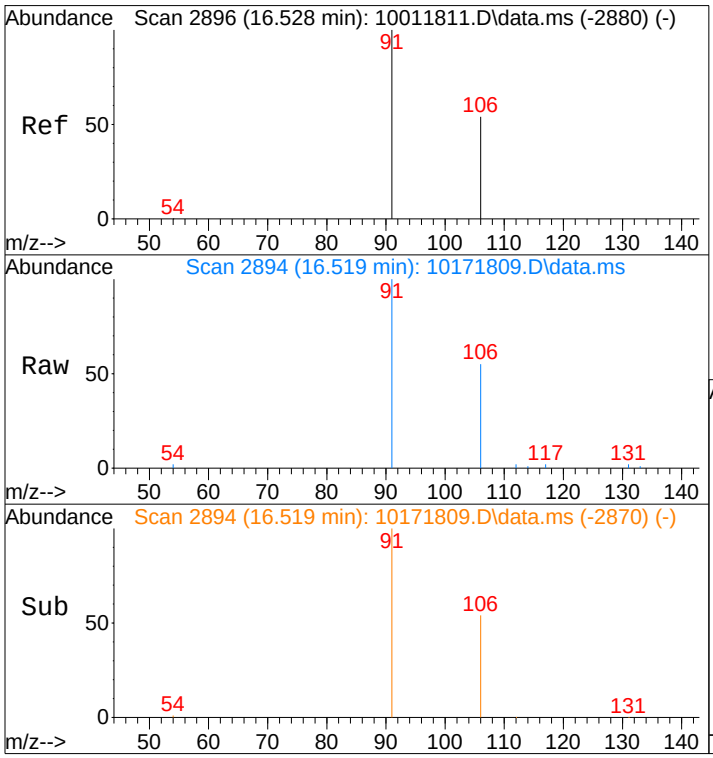


#40
Ethylbenzene
Concen: 43.10 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 91 Resp: 4171

Ion	Ratio	Lower	Upper
91	100		
106	34.2	13.7	53.7

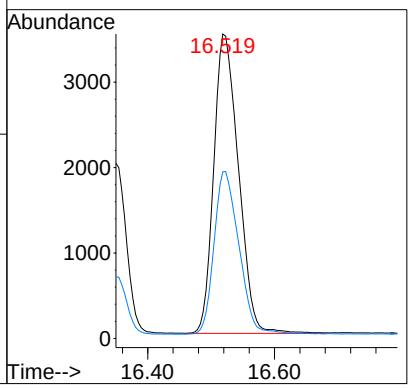


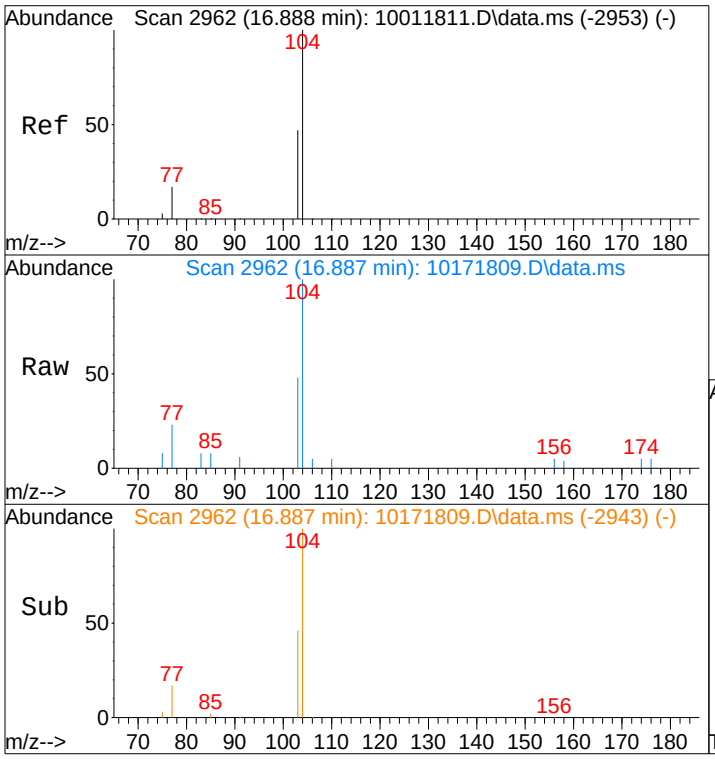


#41
m,p-Xylene
Concen: 128.29 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion: 91 Resp: 9492

Ion	Ratio	Lower	Upper
91	100		
106	54.6	34.3	74.3

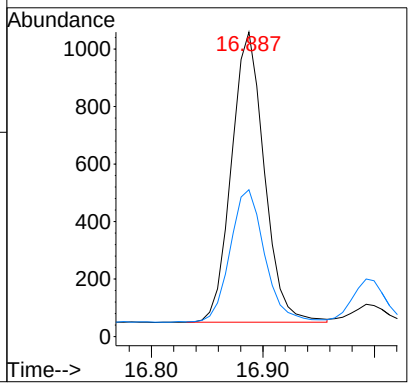


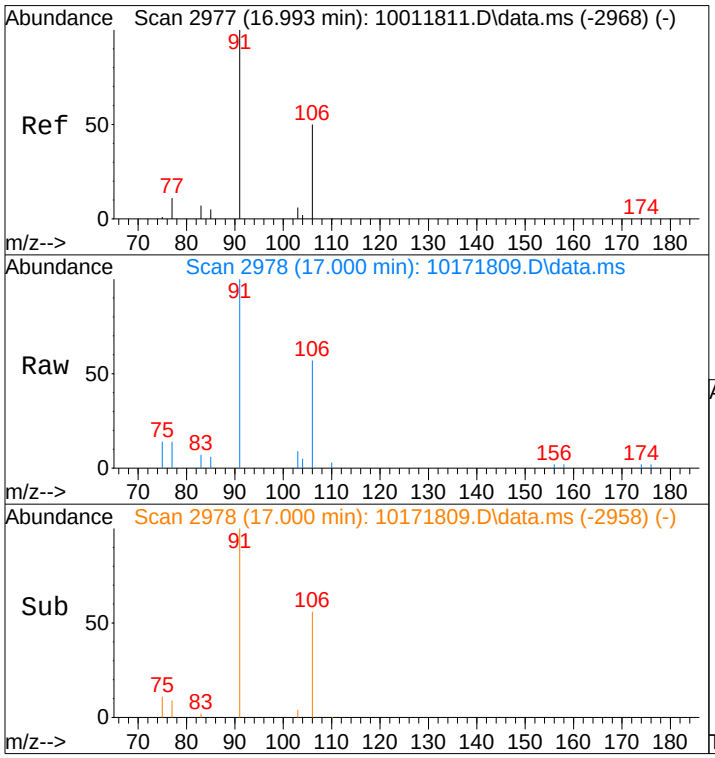


#42
Styrene
Concen: 35.12 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:104 Resp: 2064

Ion	Ratio	Lower	Upper
104	100		
103	47.7	37.7	56.5

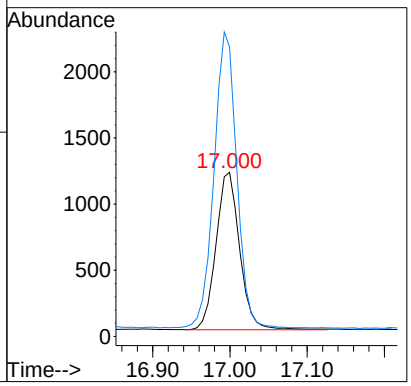


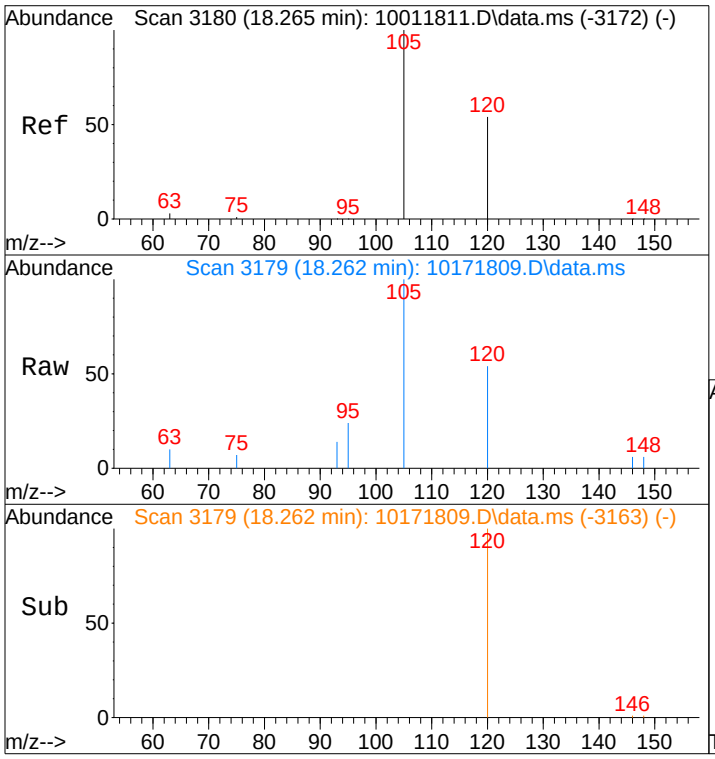


#43
o-Xylene
Concen: 64.34 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:106 Resp: 2531

Ion	Ratio	Lower	Upper
106	100		
91	179.8	175.6	215.6

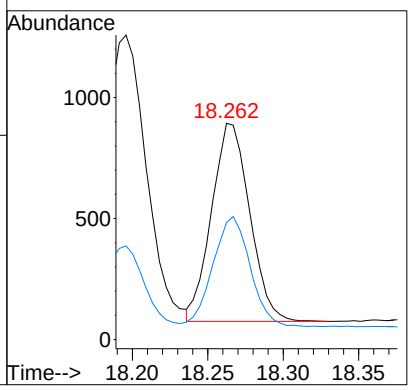


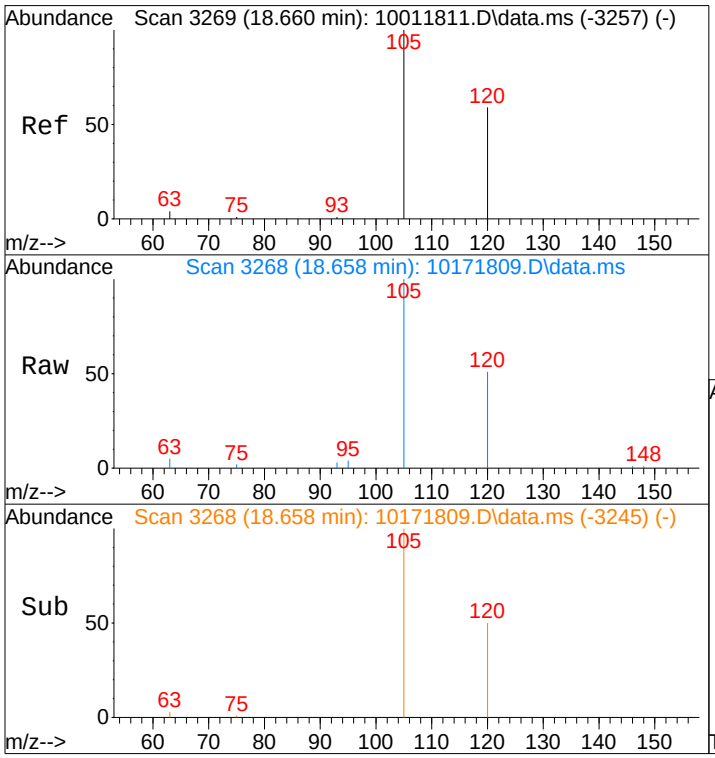


#46
1,3,5-Trimethylbenzene
Concen: 17.41 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:105 Resp: 1440

Ion	Ratio	Lower	Upper
105	100		
120	54.0	42.8	64.2

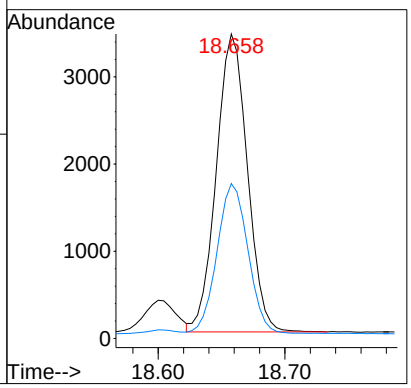


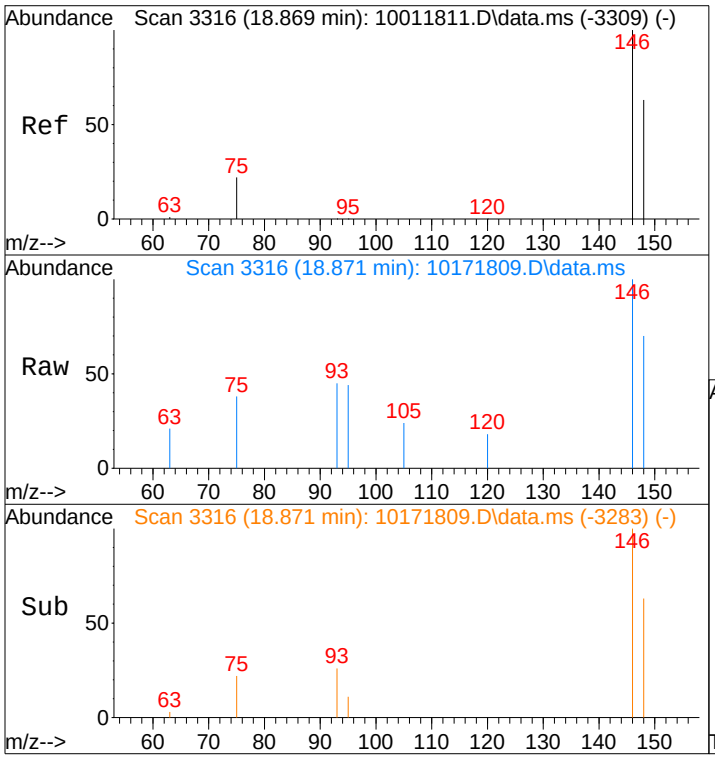


#47
1,2,4-Trimethylbenzene
Concen: 70.49 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:105 Resp: 5818

Ion	Ratio	Lower	Upper
105	100		
120	50.0	47.1	70.7

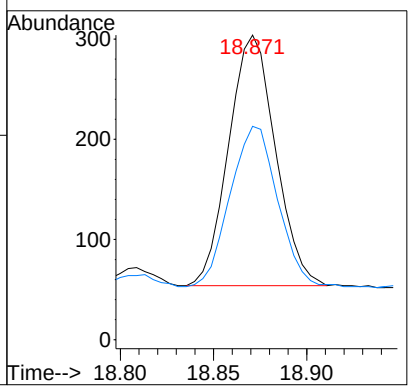


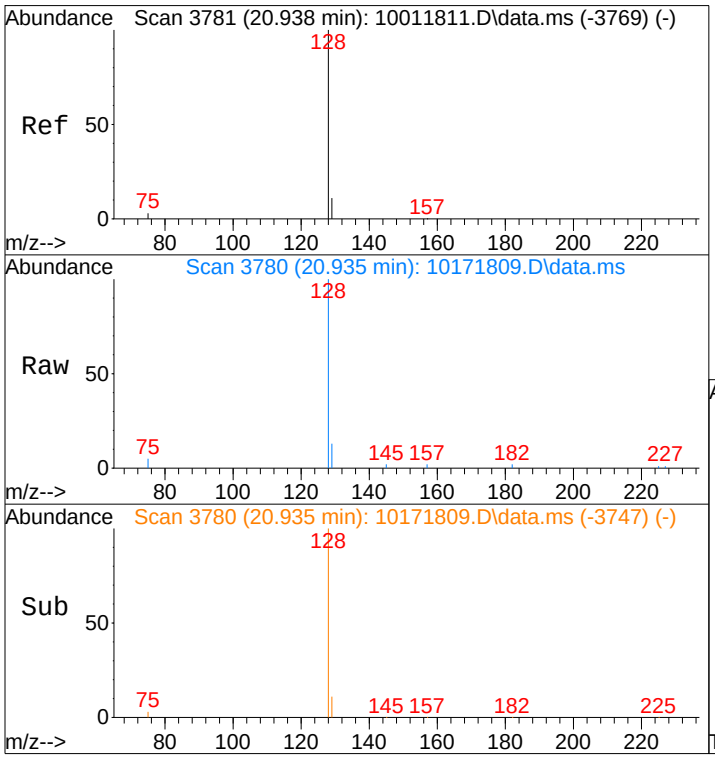


#49
1,4-Dichlorobenzene
Concen: 8.05 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:146 Resp: 436

Ion	Ratio	Lower	Upper
146	100		
148	64.7	43.8	83.8

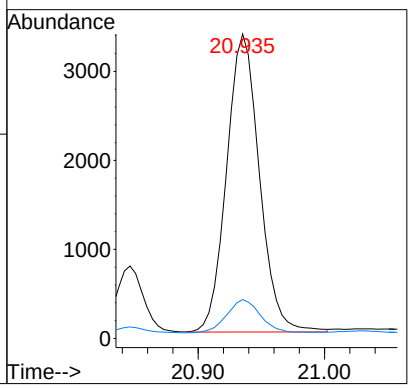




#53
Naphthalene
Concen: 62.61 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171809.D
Acq: 17 Oct 2018 17:06

Tgt Ion:128 Resp: 6044

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:31:47 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 10/25/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	36959	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	87857	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12751	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	21315	481.783 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 48.18%#			NR
33) Toluene-d8 (SS2)	14.02	98	95903	1058.505 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.85%			
45) Bromofluorobenzene (SS3)	17.43	174	35714	991.220 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.12%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	362539	4603.637 pg		100 NR
3) Chloromethane	4.52	52	3687	200.225 pg	#	24
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1722	30.334 pg		99
5) Vinyl Chloride	4.82	62	8239	161.115 pg		99
6) 1,3-Butadiene	5.00	54	655	16.943 pg	#	27
7) Bromomethane	5.33	94	616	17.147 pg		91
8) Chloroethane	5.56	64	7948	297.052 pg		100
9) Acrolein	6.17	56	1479	68.382 pg		100
10) Acetone	6.31	58	279934	10208.924 pg	#	1
11) Trichlorofluoromethane	6.48	101	75556	1226.810 pg		100
12) 1,1-Dichloroethene	7.20	96	6554	150.378 pg	#	1
13) Methylene Chloride	7.35	84	11640534	254965.054 pg		87
14) Trichlorotrifluoroethane	7.67	151	5311	123.041 pg		100
15) trans-1,2-Dichloroethene	8.39	96	16511	364.121 pg		100
16) 1,1-Dichloroethane	8.61	63	2818	39.818 pg	#	60
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.48	96	17206	356.508 pg		99
19) Chloroform	9.77	83	3533770	46283.618 pg		100
21) 1,2-Dichloroethane	10.52	62	3166	67.042 pg		99
22) 1,1,1-Trichloroethane	10.80	97	8587	132.598 pg		100
23) Benzene	11.25	78	19488	101.600 pg		98
24) Carbon Tetrachloride	11.40	117	79939	1352.359 pg		100
26) 1,2-Dichloropropane	12.05	63	431	19.696 pg		97
27) Bromodichloromethane	12.23	83	346514	11929.313 pg		99
28) Trichloroethene	12.29	130	676724	24651.253 pg		99
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.12	91	3652610	36411.278 pg		98
35) Dibromochloromethane	14.53	129	129601	4822.598 pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	2226403	75420.301 pg		99
39) Chlorobenzene	15.97	112	19396	251.253 pg		87
40) Ethylbenzene	16.35	91	122453	1041.668 pg		100
41) m,p-Xylene	16.52	91	285957	3181.450 pg		100
42) Styrene	16.89	104	333230	4667.517 pg	#	82
43) o-Xylene	17.00	106	55594	1163.396 pg		100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	50459	502.055 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	96995	967.414 pg		88
48) 1,3-Dichlorobenzene	18.81	146	127	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	150041	2280.995 pg		100
50) 1,2-Dichlorobenzene	19.20	146	442m	7.032 pg		
51) 1,2-Dibromo-3-chloropr...	19.60	157	54	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D. d		
53) Naphthalene	20.94	128	30173	257.286 pg		94

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:31:47 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

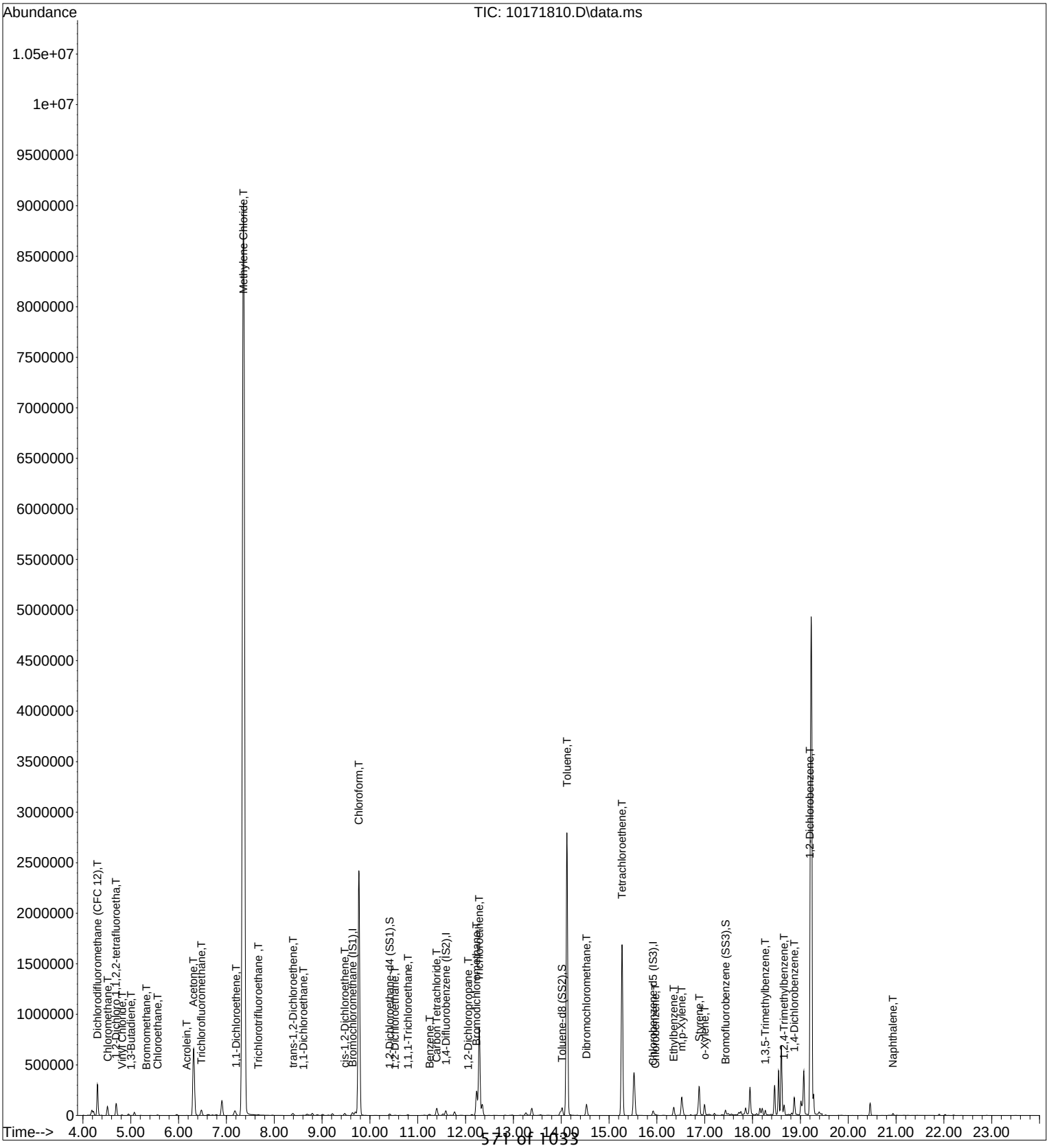
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.22	225	61	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:31:47 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:31:47 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	36959	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	87857	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12751	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	21315	481.783 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 48.18%#			
33) Toluene-d8 (SS2)	14.02	98	95903	1058.505 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.85%			
45) Bromofluorobenzene (SS3)	17.43	174	35714	991.220 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.12%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	362539	4603.637 pg		100
3) Chloromethane	4.52	52	3687	200.225 pg	#	24
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1722	30.334 pg		99
5) Vinyl Chloride	4.82	62	8239	161.115 pg		99
6) 1,3-Butadiene	5.00	54	655	16.943 pg	#	27
7) Bromomethane	5.33	94	616	17.147 pg		91
8) Chloroethane	5.56	64	7948	297.052 pg		100
9) Acrolein	6.17	56	1479	68.382 pg		100
10) Acetone	6.31	58	279934	10208.924 pg	#	1
11) Trichlorofluoromethane	6.48	101	75556	1226.810 pg		100
12) 1,1-Dichloroethene	7.20	96	6554	150.378 pg	#	1
13) Methylene Chloride	7.35	84	11640534	254965.054 pg		87
14) Trichlorotrifluoroethane	7.67	151	5311	123.041 pg		100
15) trans-1,2-Dichloroethene	8.39	96	16511	364.121 pg		100
16) 1,1-Dichloroethane	8.61	63	2818	39.818 pg	#	60
18) cis-1,2-Dichloroethene	9.48	96	17206	356.508 pg		99
19) Chloroform	9.77	83	3533770	46283.618 pg		100
21) 1,2-Dichloroethane	10.52	62	3166	67.042 pg		99
22) 1,1,1-Trichloroethane	10.80	97	8587	132.598 pg		100
23) Benzene	11.25	78	19488	101.600 pg		98
24) Carbon Tetrachloride	11.40	117	79939	1352.359 pg		100
26) 1,2-Dichloropropane	12.05	63	431	19.696 pg		97
27) Bromodichloromethane	12.23	83	346514	11929.313 pg		99
28) Trichloroethene	12.29	130	676724	24651.253 pg		99
34) Toluene	14.12	91	3652610	36411.278 pg		98
35) Dibromochloromethane	14.53	129	129601	4822.598 pg		100
37) Tetrachloroethene	15.27	166	2226403	75420.301 pg		99
39) Chlorobenzene	15.97	112	19396	251.253 pg		87
40) Ethylbenzene	16.35	91	122453	1041.668 pg		100
41) m,p-Xylene	16.52	91	285957	3181.450 pg		100
42) Styrene	16.89	104	333230	4667.517 pg	#	82
43) o-Xylene	17.00	106	55594	1163.396 pg		100
46) 1,3,5-Trimethylbenzene	18.27	105	50459	502.055 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	96995	967.414 pg		88
49) 1,4-Dichlorobenzene	18.87	146	150041	2280.995 pg		100
50) 1,2-Dichlorobenzene	19.20	146	442m	7.032 pg		
53) Naphthalene	20.94	128	30173	257.286 pg		94

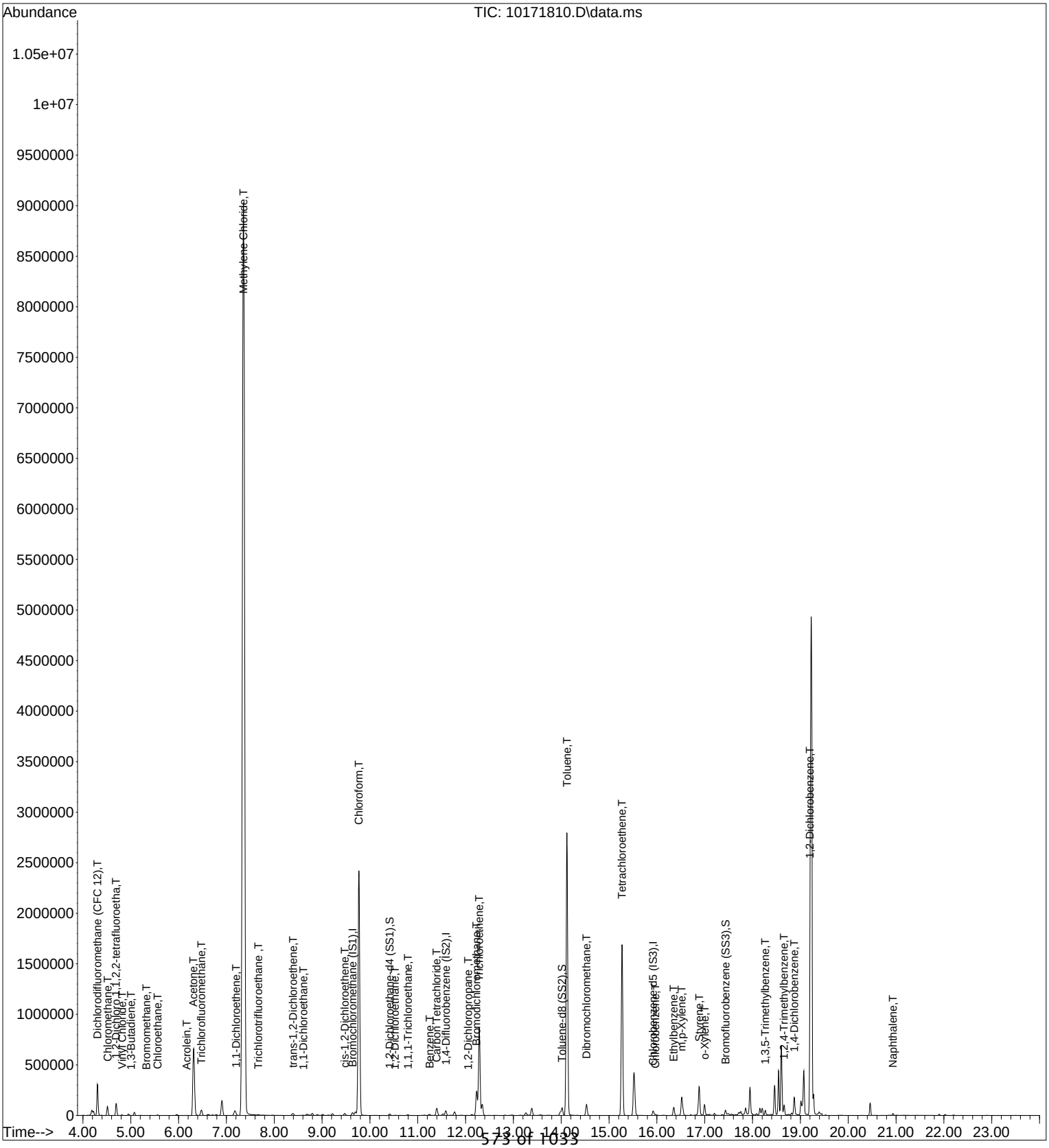
NR

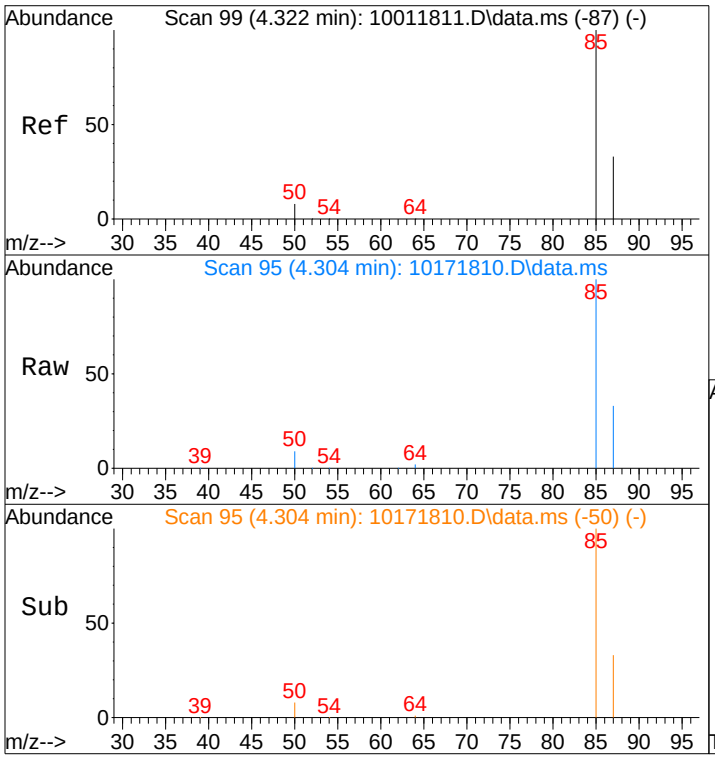
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:31:47 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

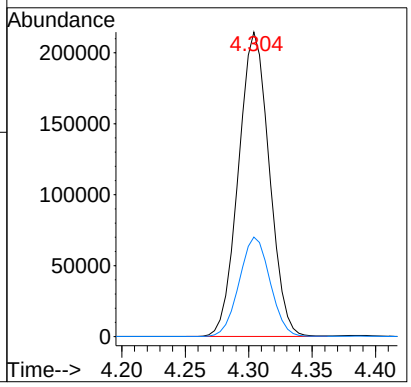


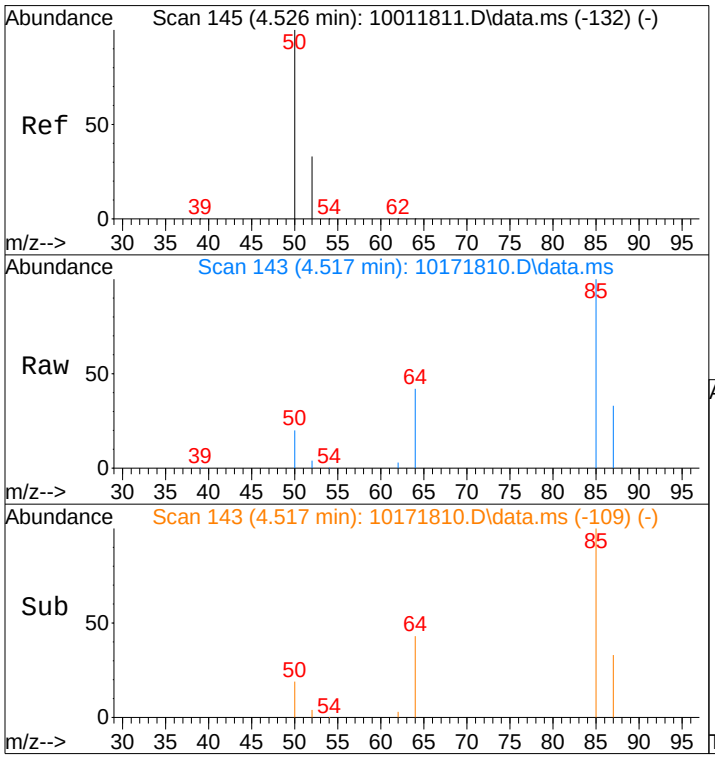


#2
Dichlorodifluoromethane (CFC 12)
Concen: 4603.64 pg
RT: 4.30 min Scan# 95
Delta R.T. 0.000 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 85 Resp: 362539

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

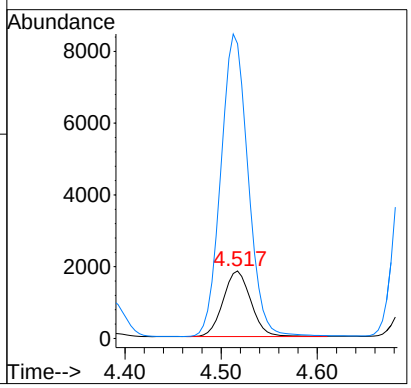


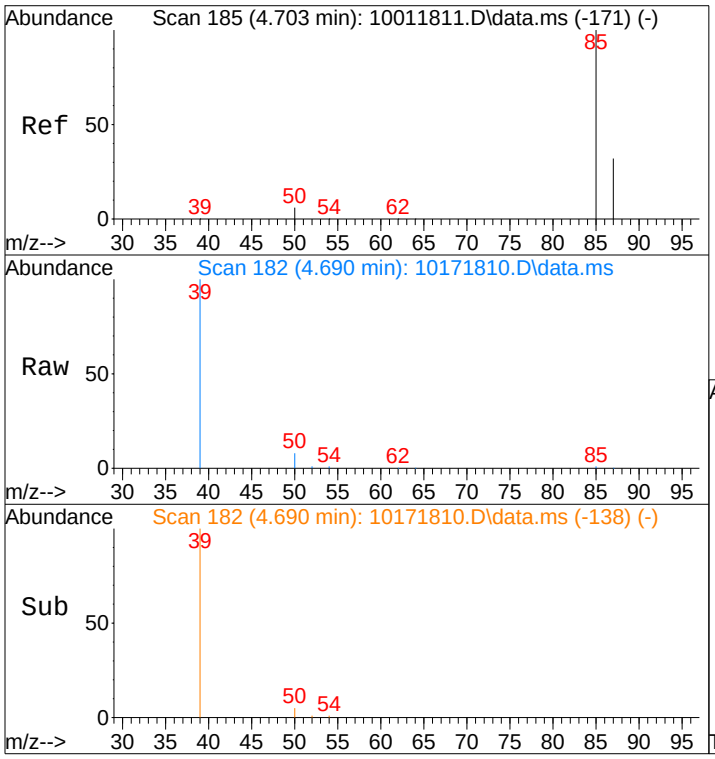


#3
Chloromethane
Concen: 200.22 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 52 Resp: 3687

Ion	Ratio	Lower	Upper
52	100		
50	451.4	281.8	321.8#

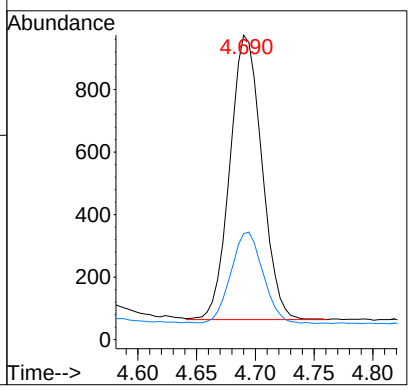


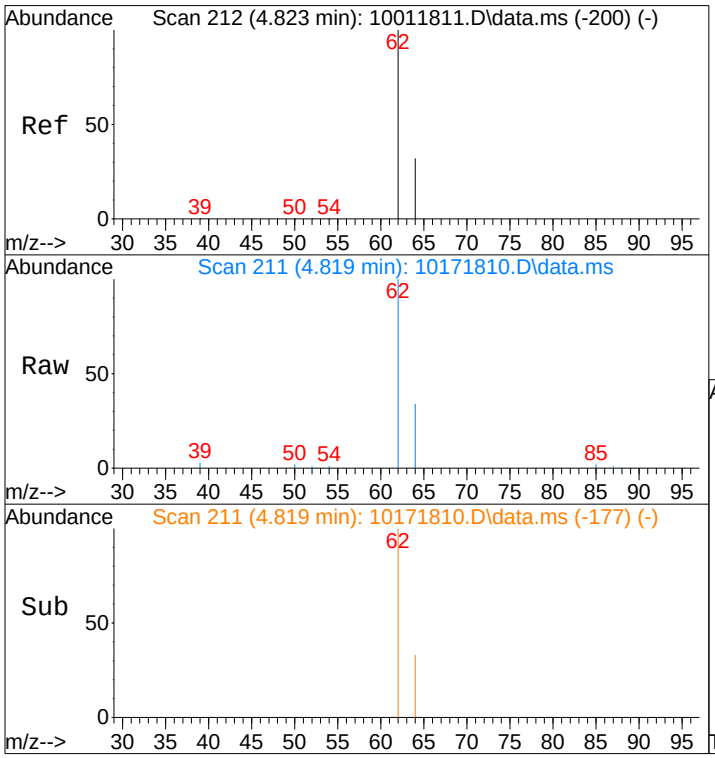


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 30.33 pg
RT: 4.69 min Scan# 182
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 85 Resp: 1722

Ion	Ratio	Lower	Upper
85	100		
87	32.0	26.0	39.0

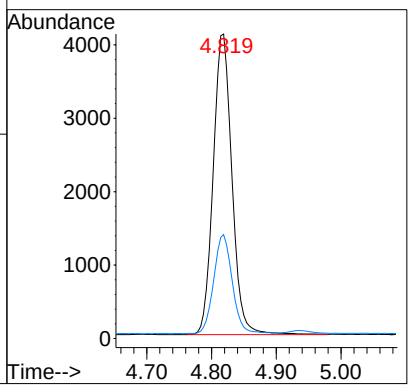


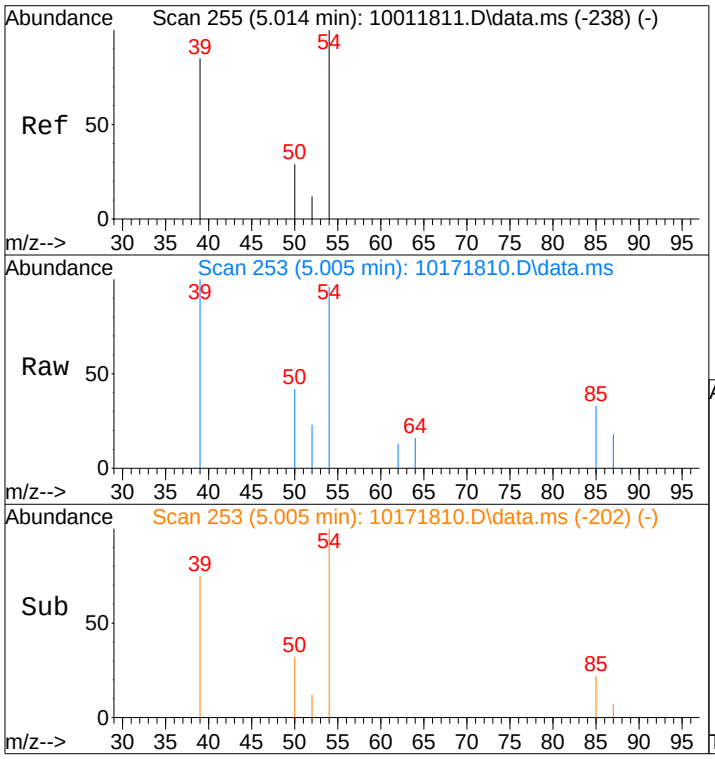


#5
Vinyl Chloride
Concen: 161.12 pg
RT: 4.82 min Scan# 211
Delta R.T. 0.000 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 62 Resp: 8239

Ion	Ratio	Lower	Upper
62	100		
64	32.4	12.8	52.8

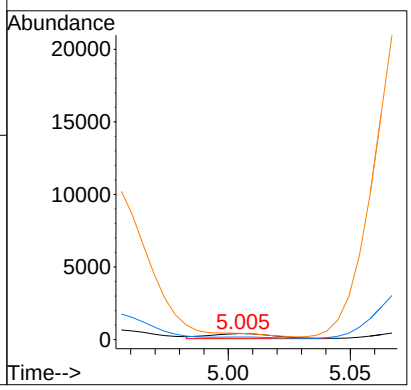


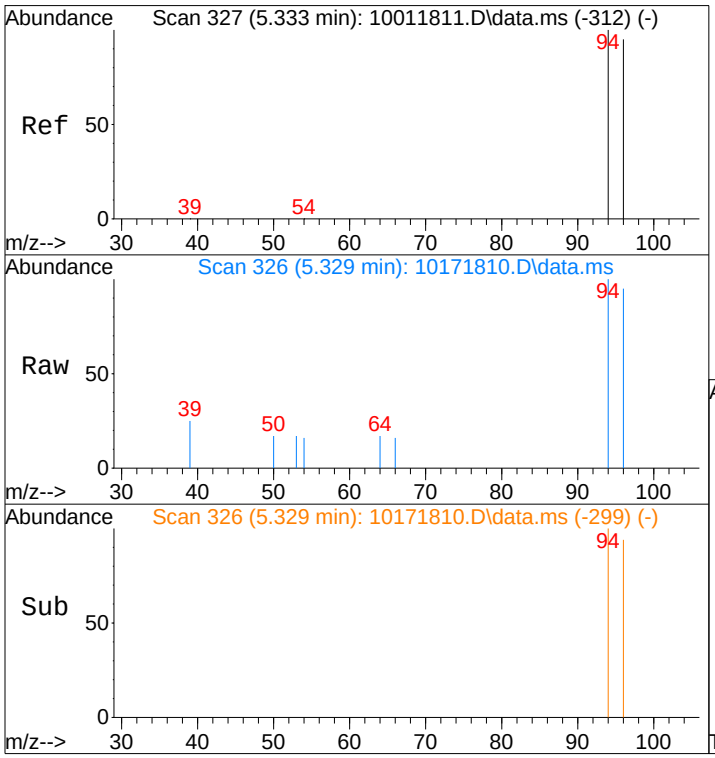


#6
1,3-Butadiene
Concen: 16.94 pg
RT: 5.00 min Scan# 253
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 54 Resp: 655

Ion	Ratio	Lower	Upper
54	100		
50	24.6	23.6	35.4
39	0.0	69.9	104.9#

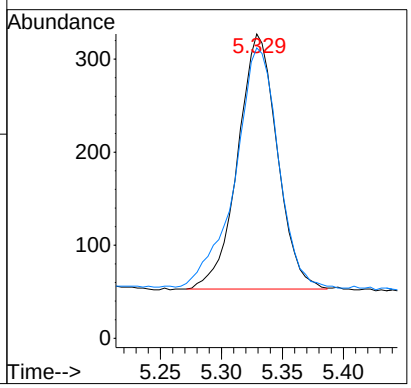


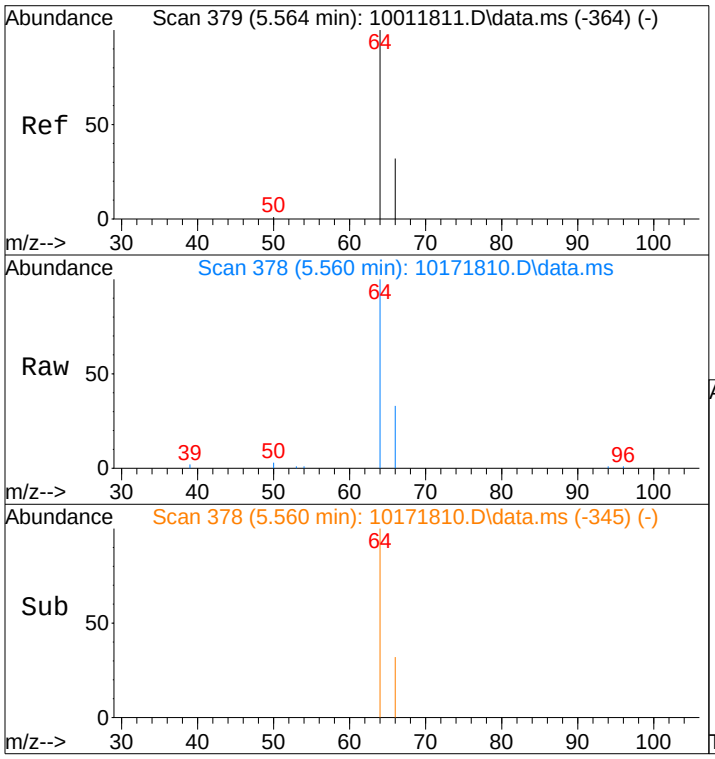


#7
Bromomethane
Concen: 17.15 pg
RT: 5.33 min Scan# 326
Delta R.T. -0.009 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 94 Resp: 616

Ion	Ratio	Lower	Upper
94	100		
96	103.4	75.7	113.5

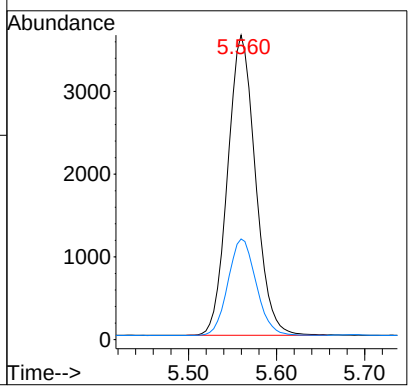


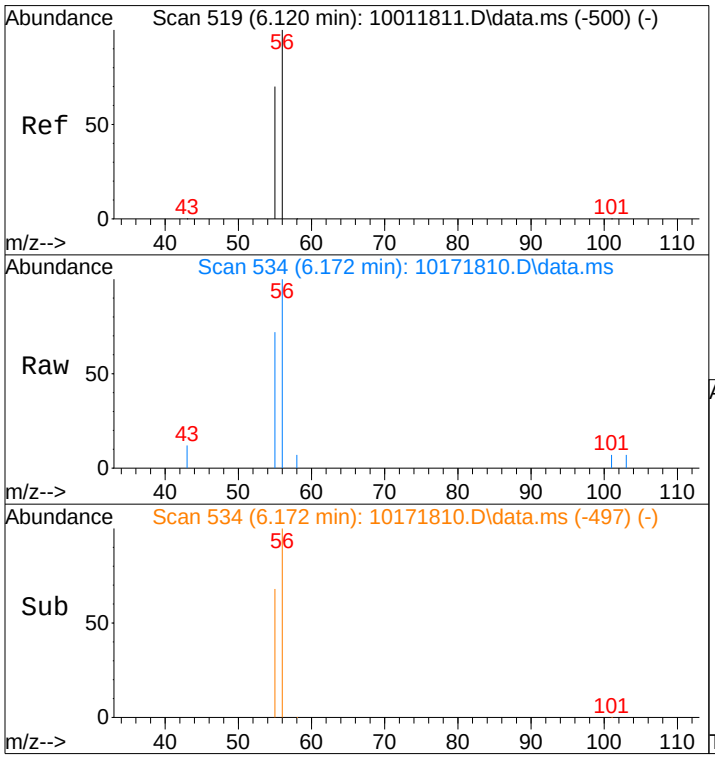


#8
Chloroethane
Concen: 297.05 pg
RT: 5.56 min Scan# 378
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 64 Resp: 7948

Ion	Ratio	Lower	Upper
64	100		
66	32.5	12.3	52.3

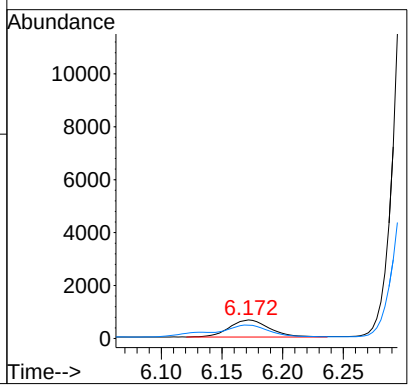


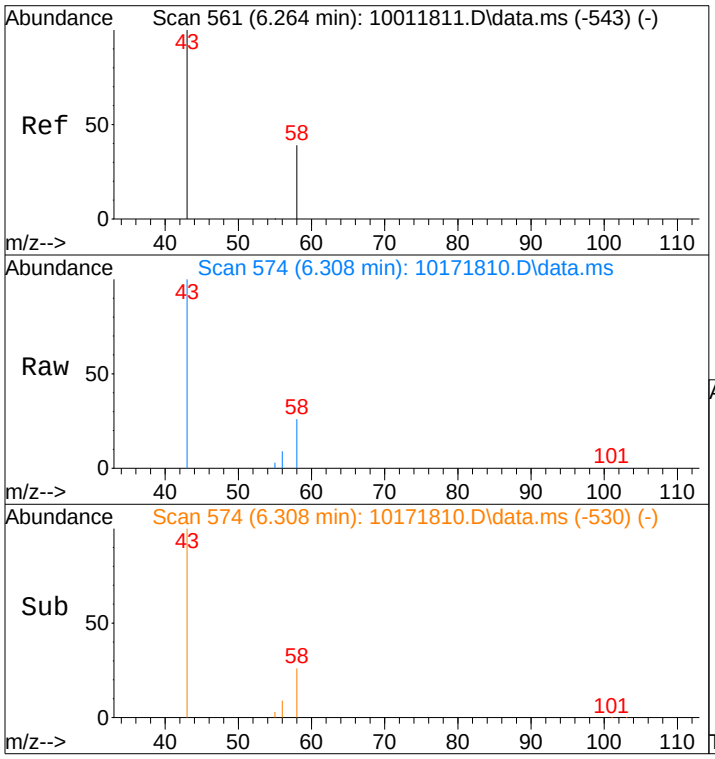


#9
Acrolein
Concen: 68.38 pg
RT: 6.17 min Scan# 534
Delta R.T. 0.017 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 56 Resp: 1479

Ion	Ratio	Lower	Upper
56	100		
55	68.8	55.3	82.9

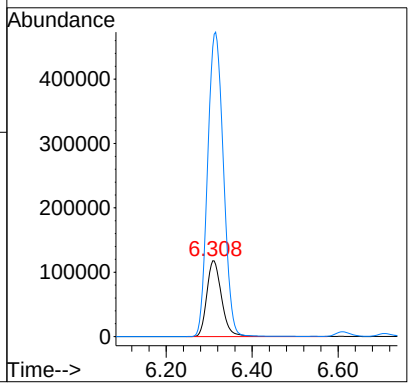


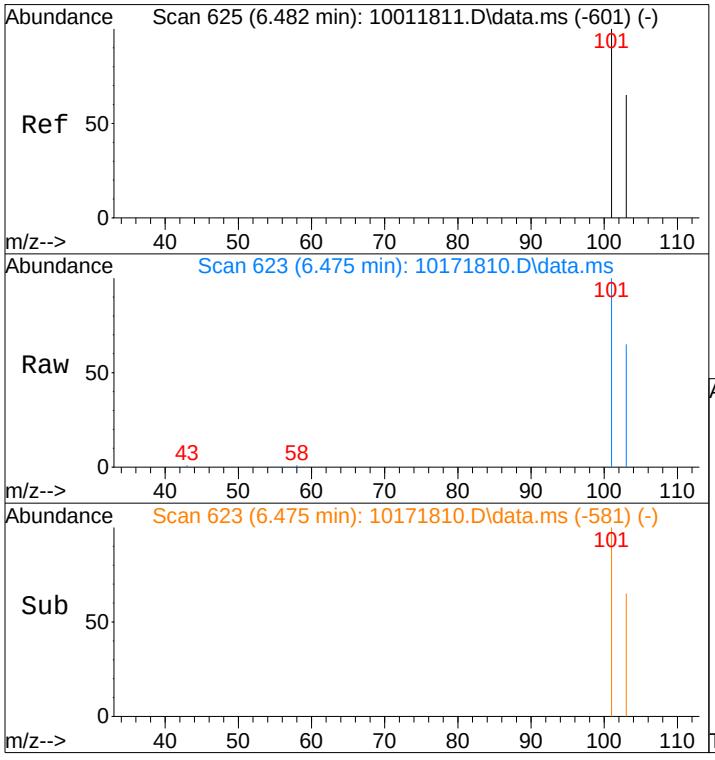


#10
Acetone
Concen: 10208.92 pg
RT: 6.31 min Scan# 574
Delta R.T. 0.000 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 58 Resp: 279934

Ion	Ratio	Lower	Upper
58	100		
43	431.2	234.7	274.7#

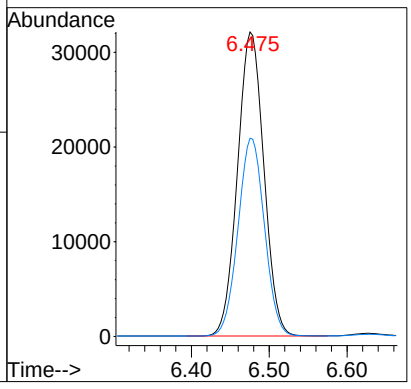


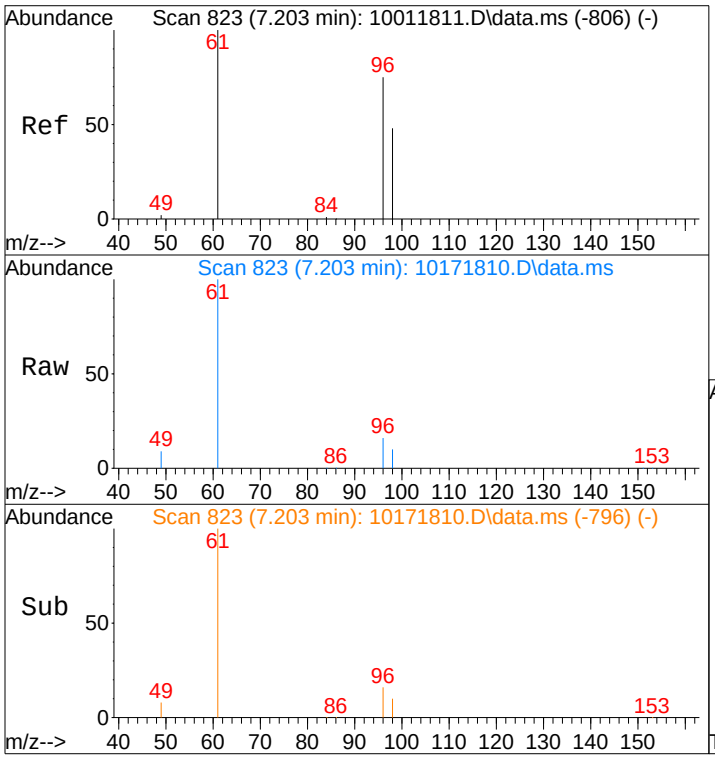


#11
Trichlorofluoromethane
Concen: 1226.81 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:101 Resp: 75556

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

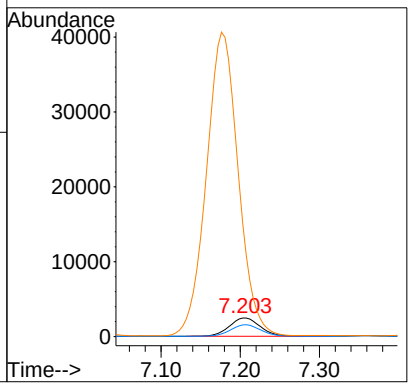


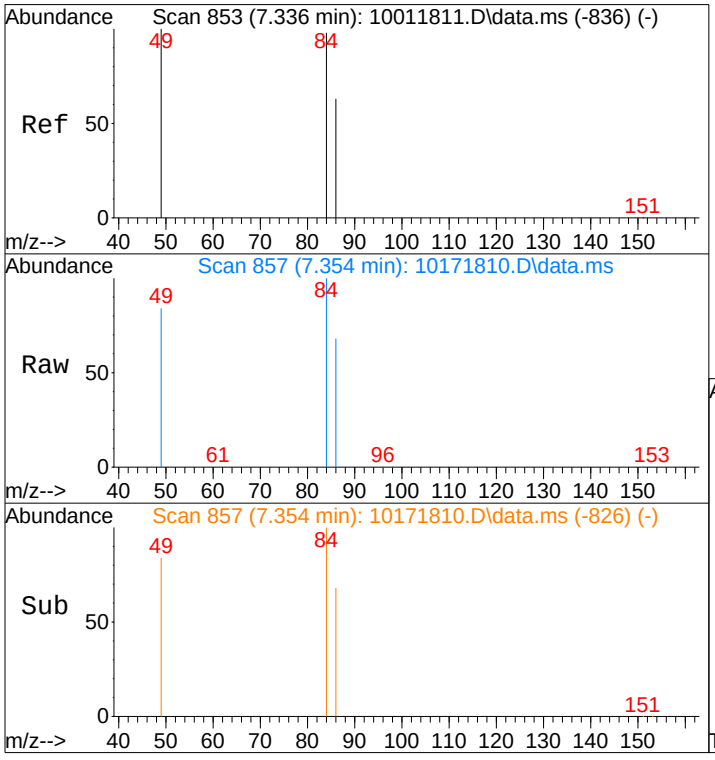


#12
1,1-Dichloroethene
Concen: 150.38 pg
RT: 7.20 min Scan# 823
Delta R.T. -0.009 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 96 Resp: 6554

Ion	Ratio	Lower	Upper
96	100		
98	61.7	44.2	84.2
61	1730.2	114.1	154.1#

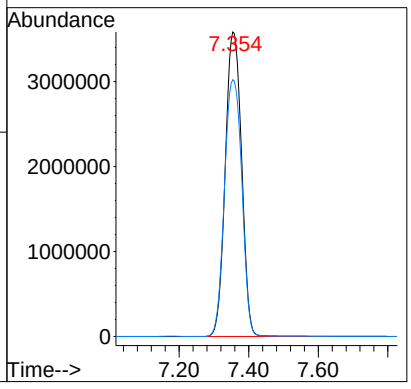


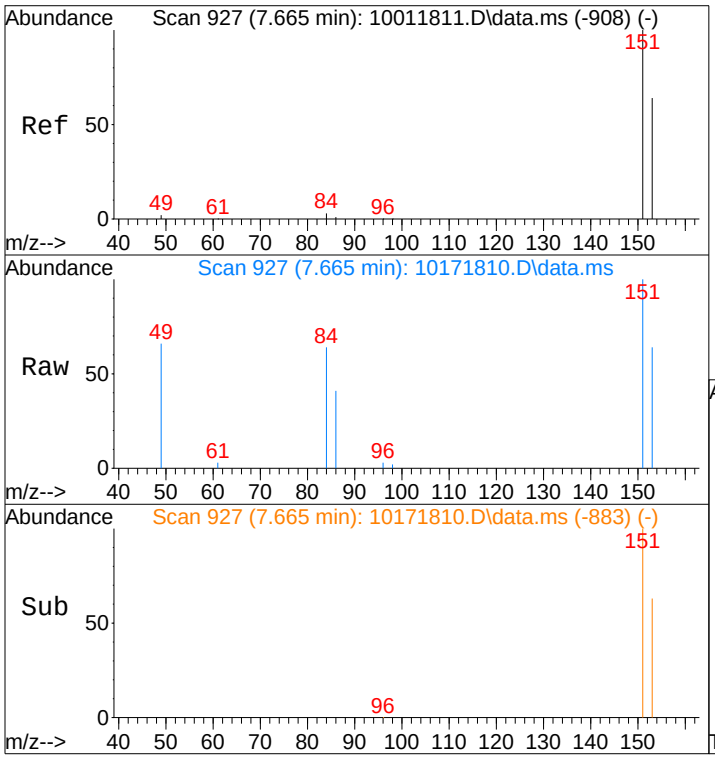


#13
Methylene Chloride
Concen: 254965.05 pg
RT: 7.35 min Scan# 857
Delta R.T. -0.022 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 84 Resp:11640534

Ion	Ratio	Lower	Upper
84	100		
49	90.3	83.3	123.3

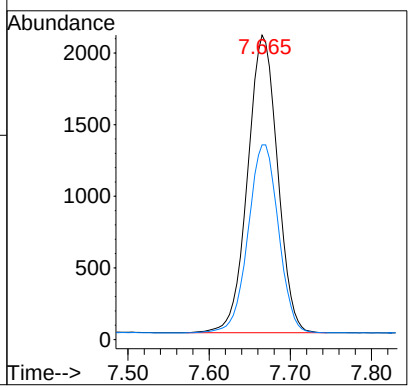


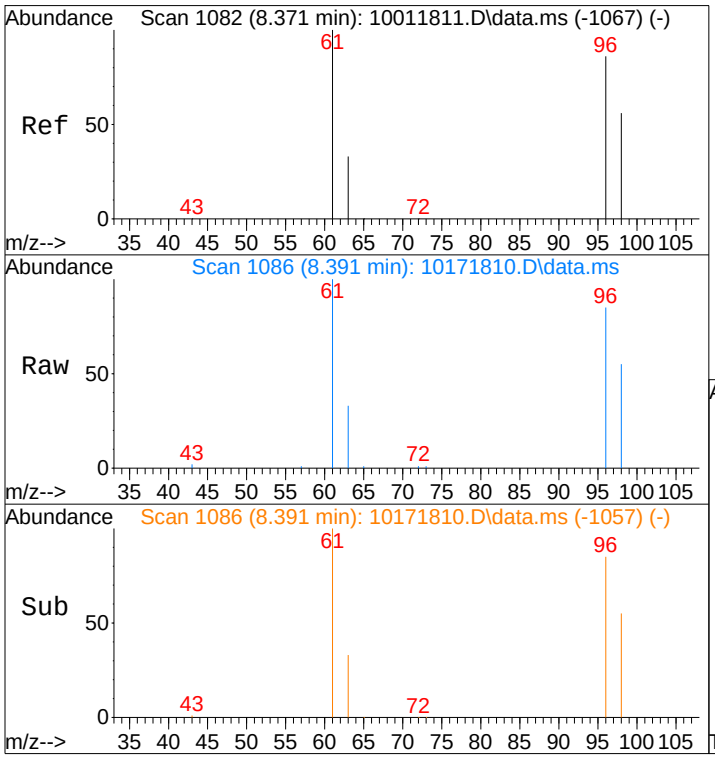


#14
Trichlorotrifluoroethane
Concen: 123.04 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:151 Resp: 5311

Ion	Ratio	Lower	Upper
151	100		
153	64.1	44.3	84.3

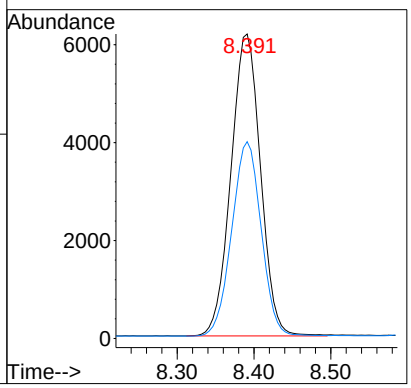


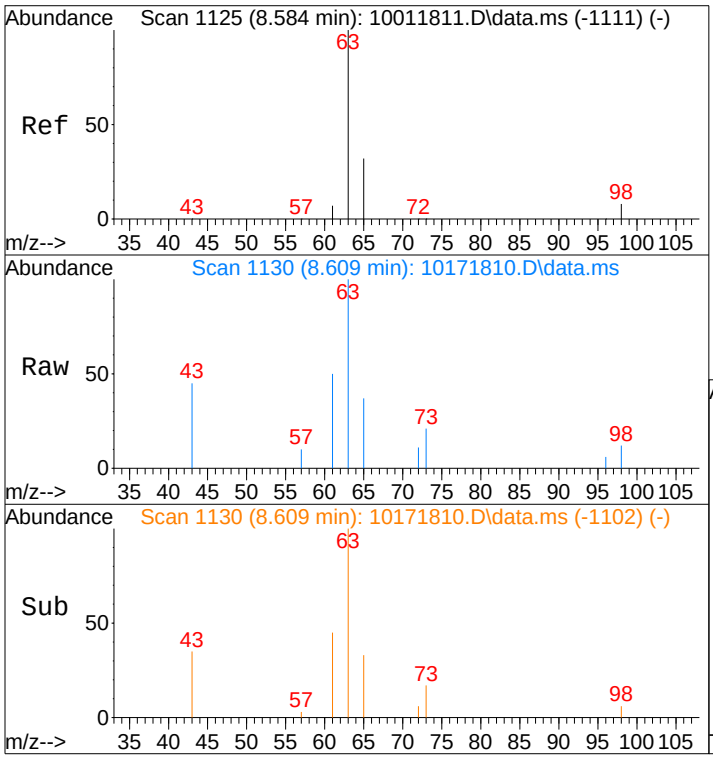


#15
trans-1,2-Dichloroethene
Concen: 364.12 pg
RT: 8.39 min Scan# 1086
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 96 Resp: 16511

Ion	Ratio	Lower	Upper
96	100		
98	64.1	44.1	84.1

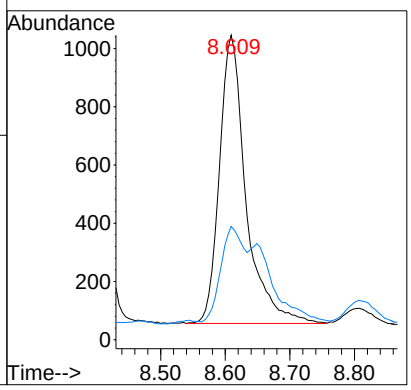


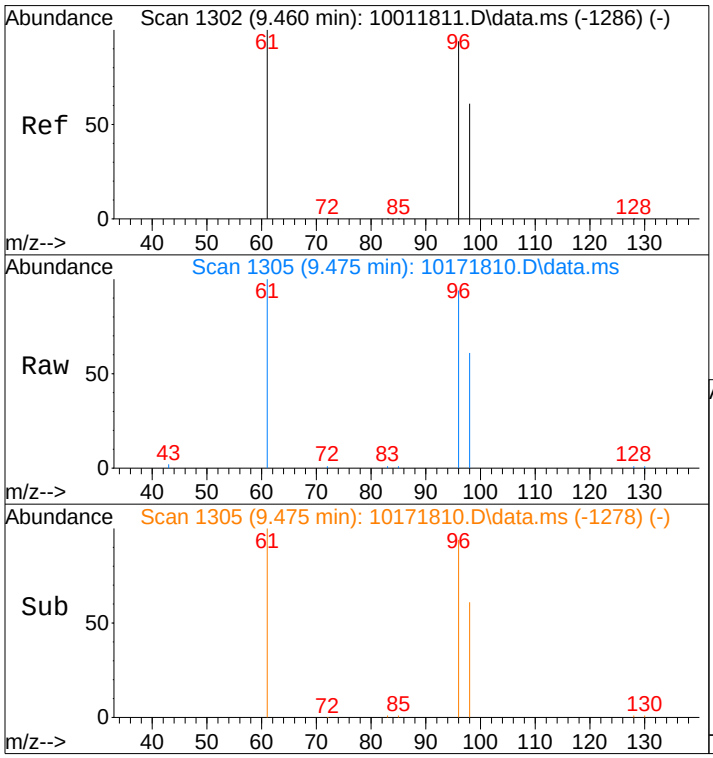


#16
1,1-Dichloroethane
Concen: 39.82 pg
RT: 8.61 min Scan# 1130
Delta R.T. -0.009 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 63 Resp: 2818

Ion	Ratio	Lower	Upper
63	100		
65	54.3	12.2	52.2#

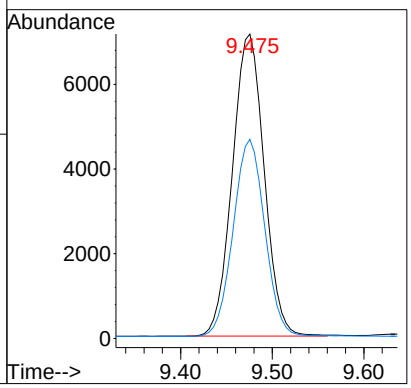


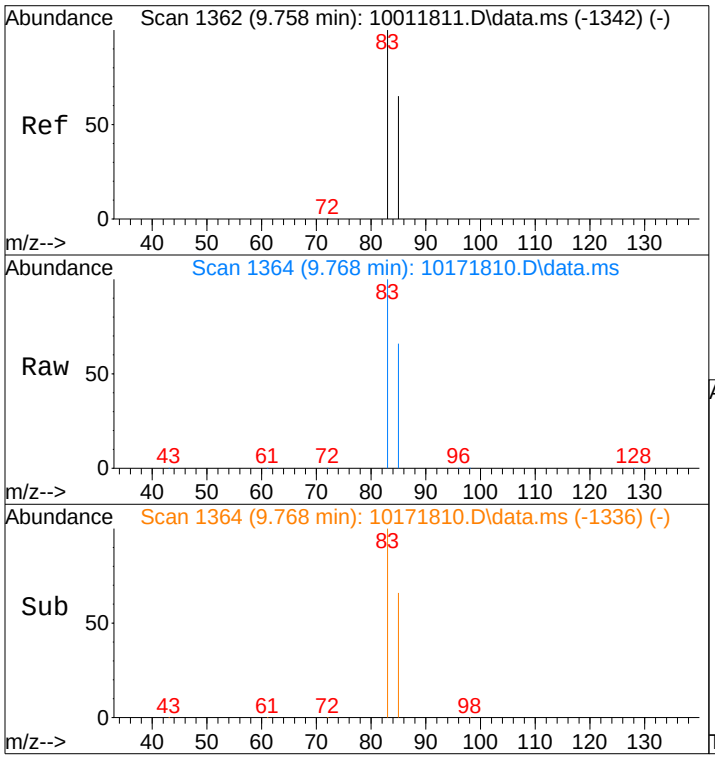


#18
cis-1,2-Dichloroethene
Concen: 356.51 pg
RT: 9.48 min Scan# 1305
Delta R.T. -0.014 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 96 Resp: 17206

Ion	Ratio	Lower	Upper
96	100		
98	65.0	44.5	84.5

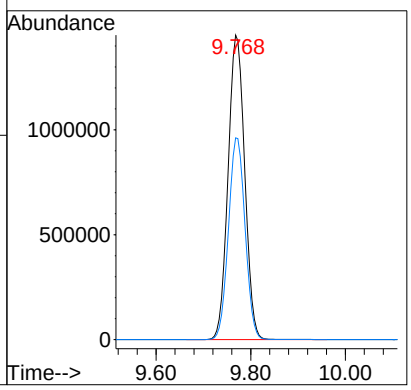


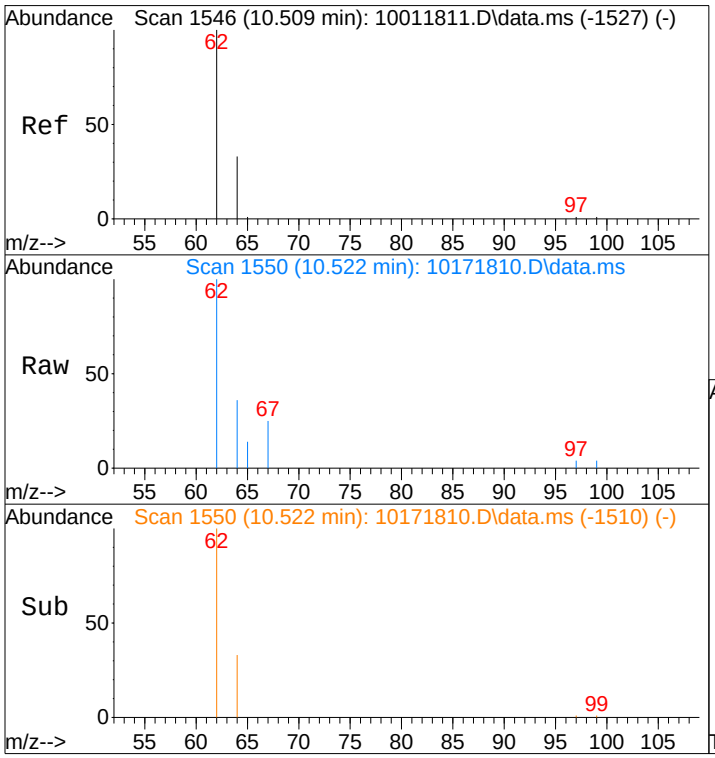


#19
Chloroform
Concen: 46283.62 pg
RT: 9.77 min Scan# 1364
Delta R.T. -0.029 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 83 Resp: 3533770

Ion	Ratio	Lower	Upper
83	100		
85	66.3	46.0	86.0

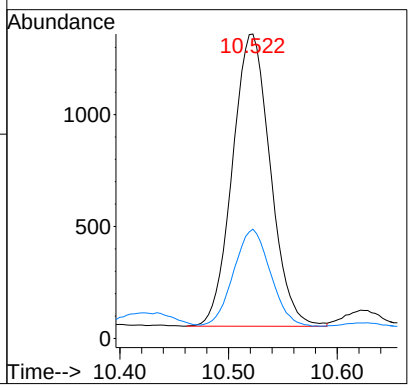


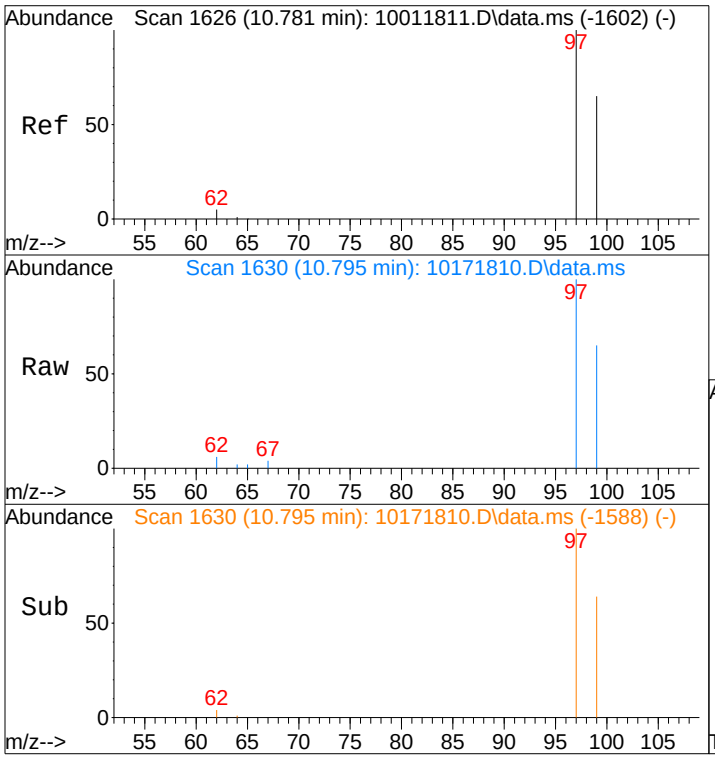


#21
1,2-Dichloroethane
Concen: 67.04 pg
RT: 10.52 min Scan# 1550
Delta R.T. -0.013 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 62 Resp: 3166

Ion	Ratio	Lower	Upper
62	100		
64	32.3	12.9	52.9

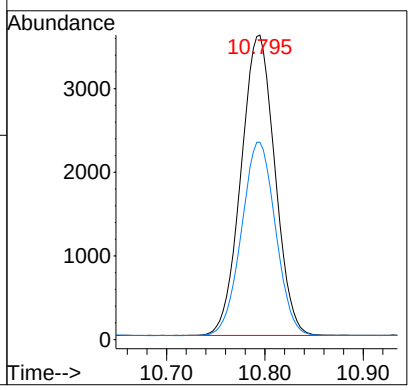


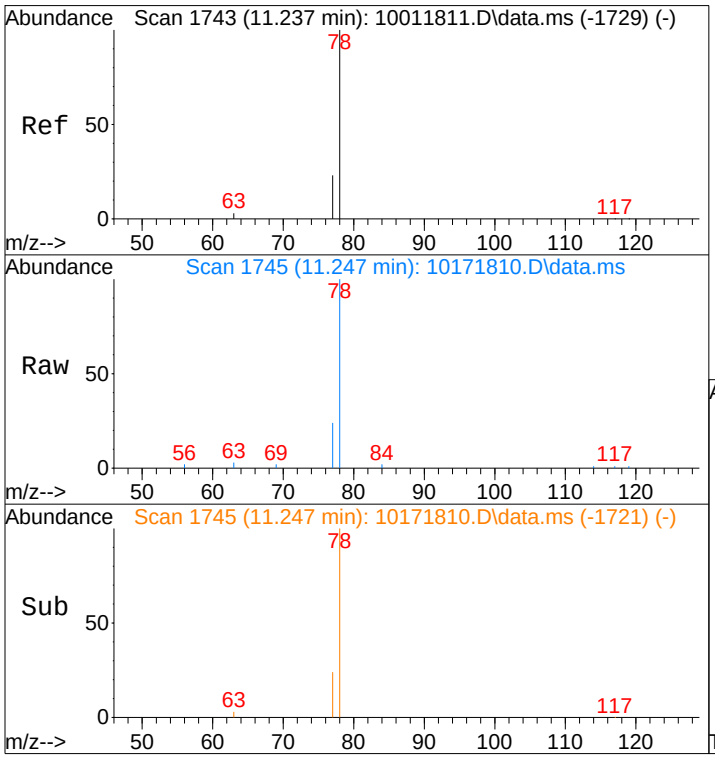


#22
1,1,1-Trichloroethane
Concen: 132.60 pg
RT: 10.80 min Scan# 1630
Delta R.T. -0.006 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 97 Resp: 8587

Ion	Ratio	Lower	Upper
97	100		
99	64.7	44.9	84.9

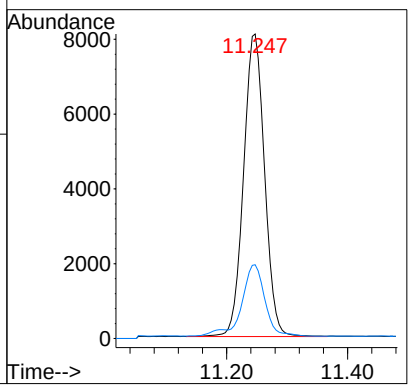


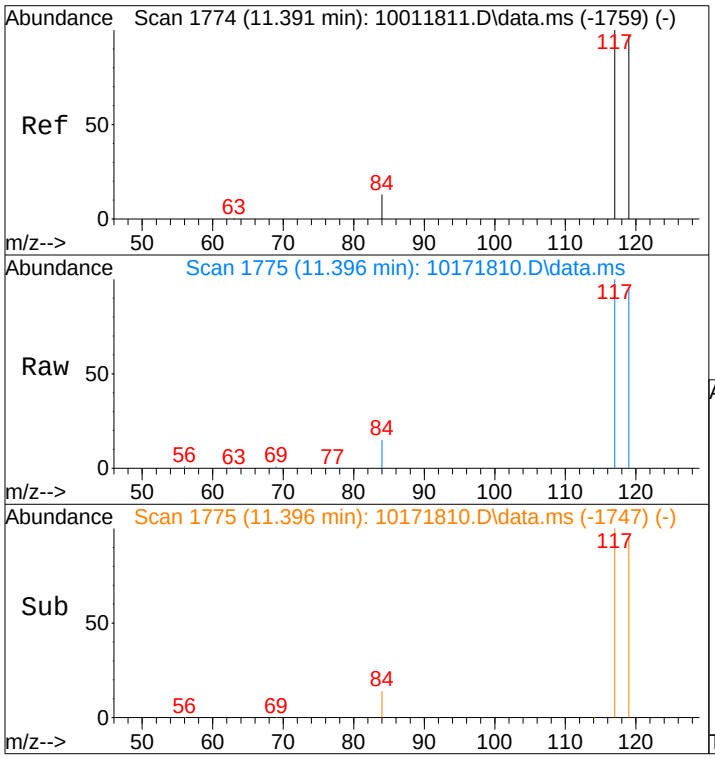


#23
Benzene
Concen: 101.60 pg
RT: 11.25 min Scan# 1745
Delta R.T. -0.009 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 78 Resp: 19488

Ion	Ratio	Lower	Upper
78	100		
77	24.3	3.3	43.3

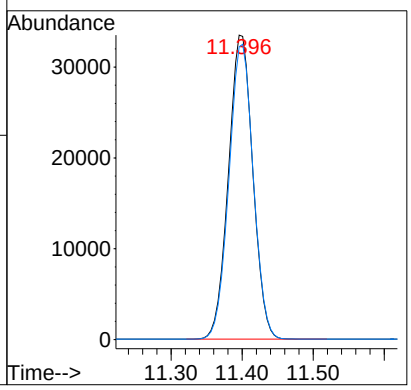


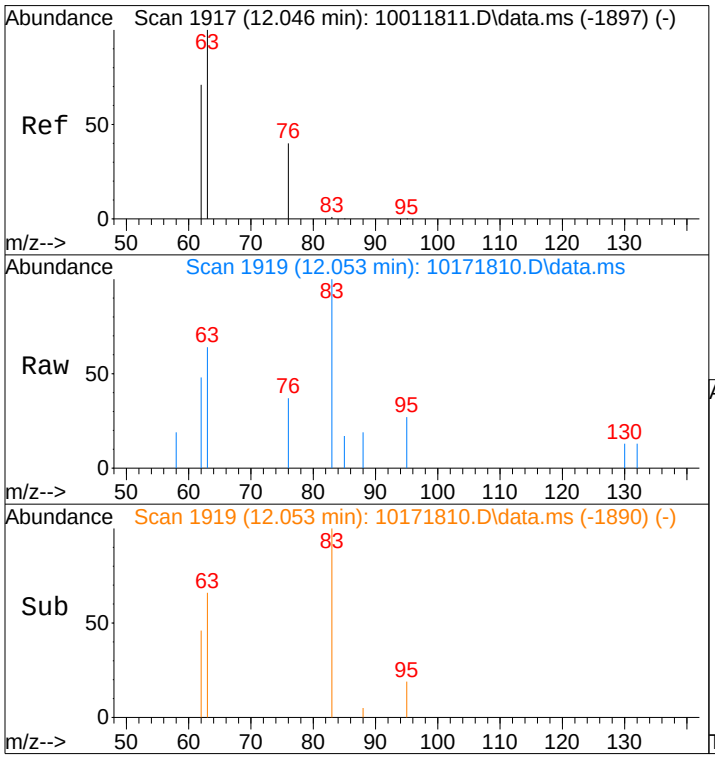


#24
Carbon Tetrachloride
Concen: 1352.36 pg
RT: 11.40 min Scan# 1775
Delta R.T. -0.009 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:117 Resp: 79939

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

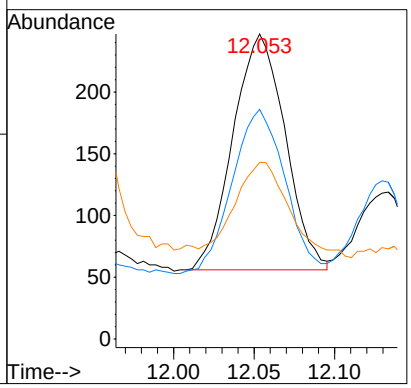


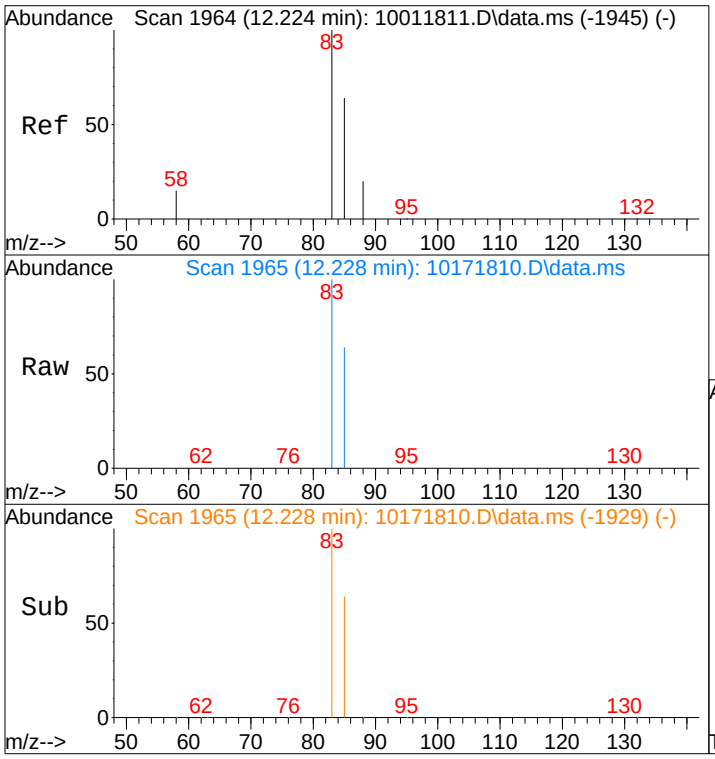


#26
1,2-Dichloropropane
Concen: 19.70 pg
RT: 12.05 min Scan# 1919
Delta R.T. -0.011 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 63 Resp: 431

Ion	Ratio	Lower	Upper
63	100		
62	70.3	50.7	90.7
76	35.0	19.6	59.6

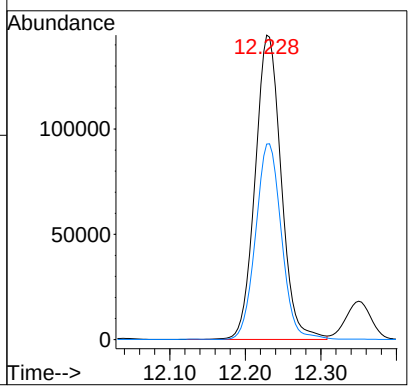


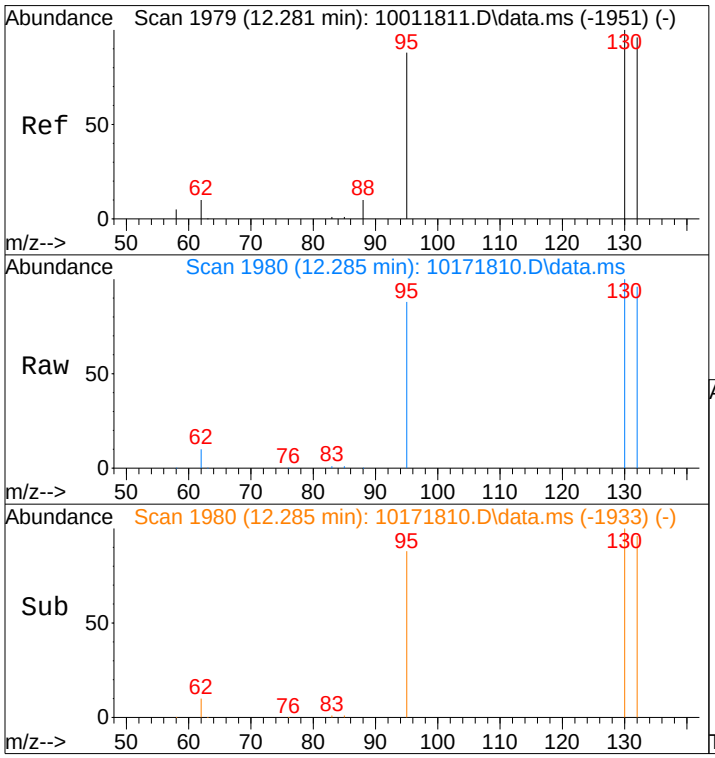


#27
Bromodichloromethane
Concen: 11929.31 pg
RT: 12.23 min Scan# 1965
Delta R.T. -0.014 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 83 Resp: 346514

Ion	Ratio	Lower	Upper
83	100		
85	63.8	51.7	77.5

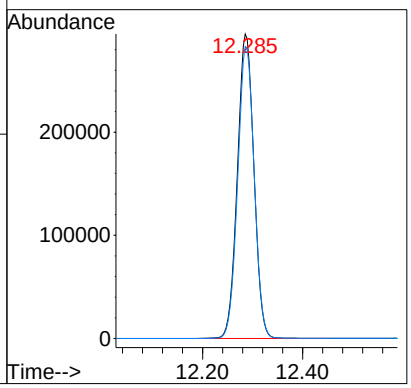


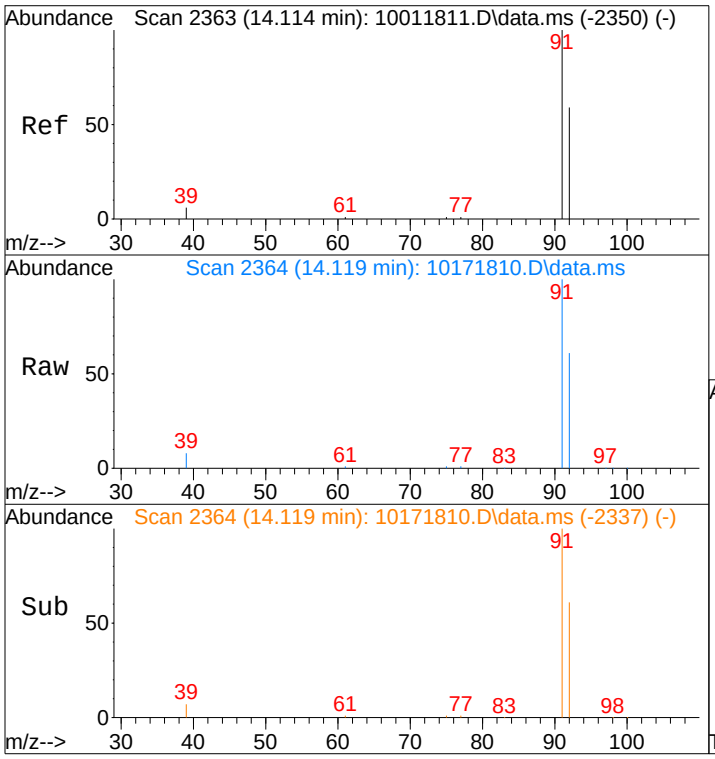


#28
Trichloroethene
Concen: 24651.25 pg
RT: 12.29 min Scan# 1980
Delta R.T. -0.011 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:130 Resp: 676724

Ion	Ratio	Lower	Upper
130	100		
132	96.1	75.6	115.6

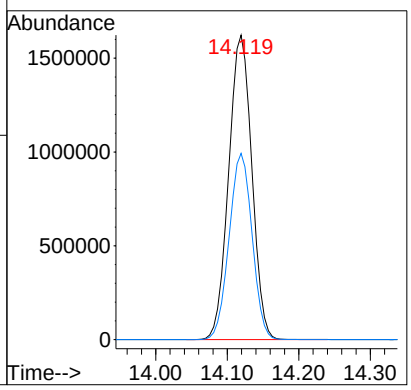


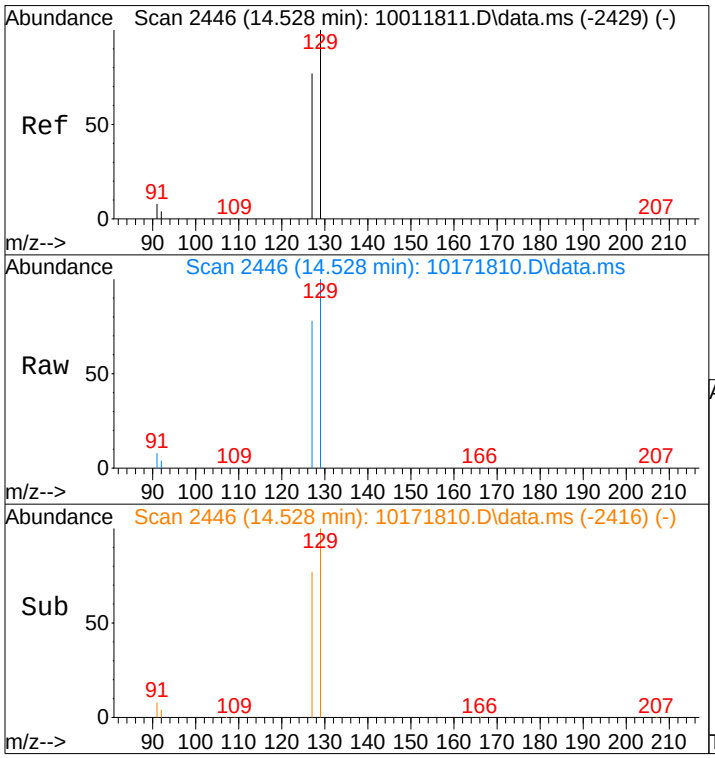


#34
Toluene
Concen: 36411.28 pg
RT: 14.12 min Scan# 2364
Delta R.T. -0.005 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 91 Resp: 3652610

Ion	Ratio	Lower	Upper
91	100		
92	60.6	39.2	79.2

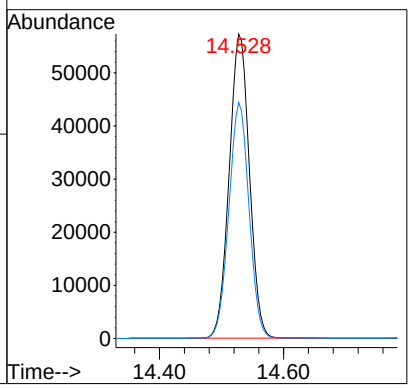


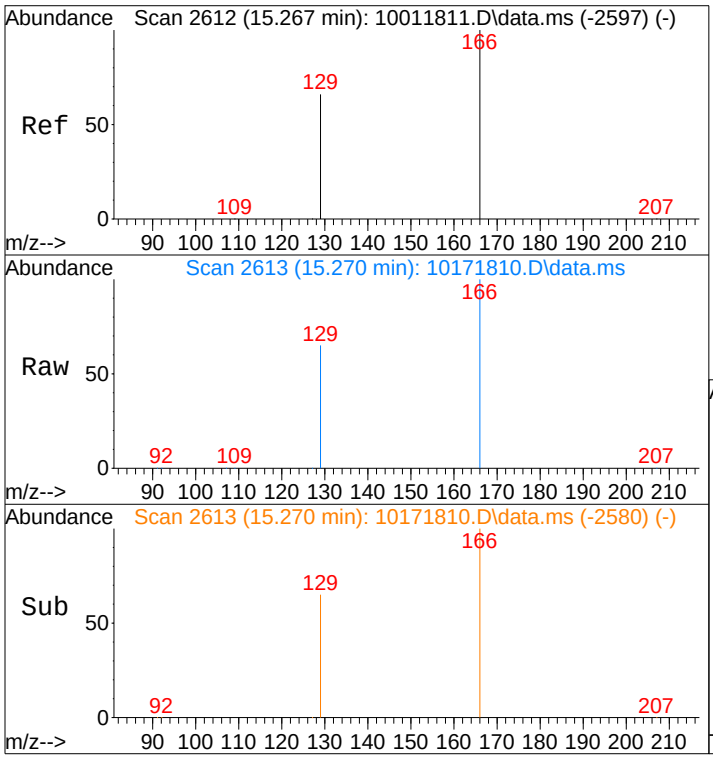


#35
Dibromochloromethane
Concen: 4822.60 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:129 Resp: 129601

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

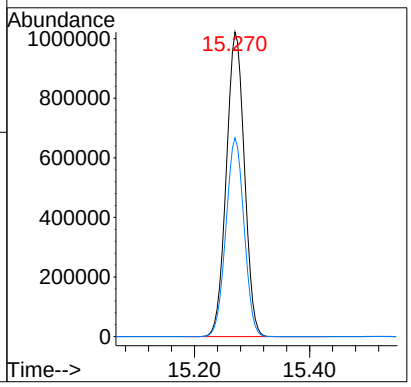


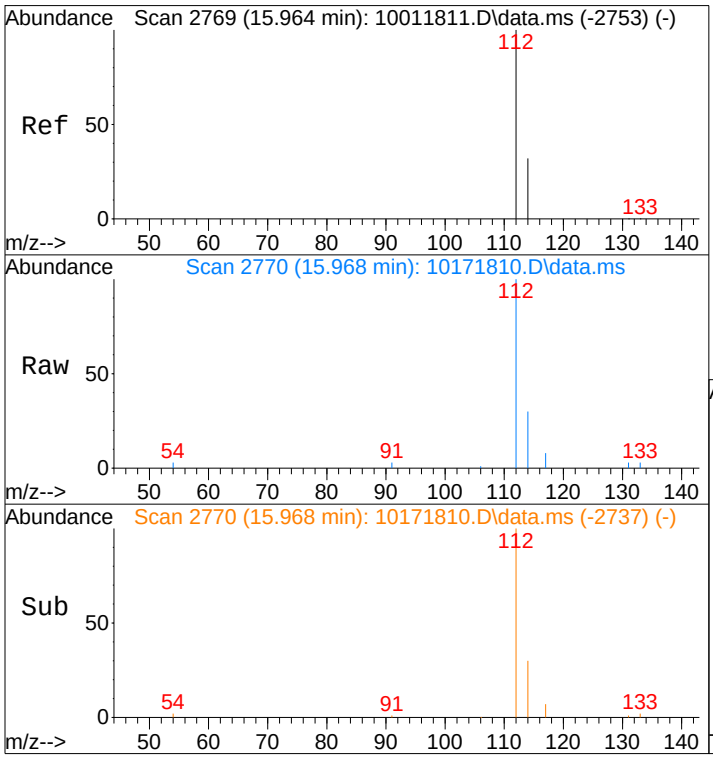


#37
Tetrachloroethene
Concen: 75420.30 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:166 Resp: 2226403

Ion	Ratio	Lower	Upper
166	100		
129	65.6	46.7	86.7

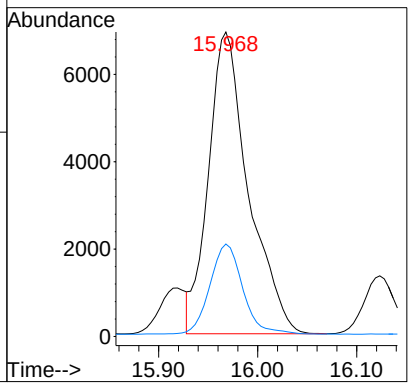


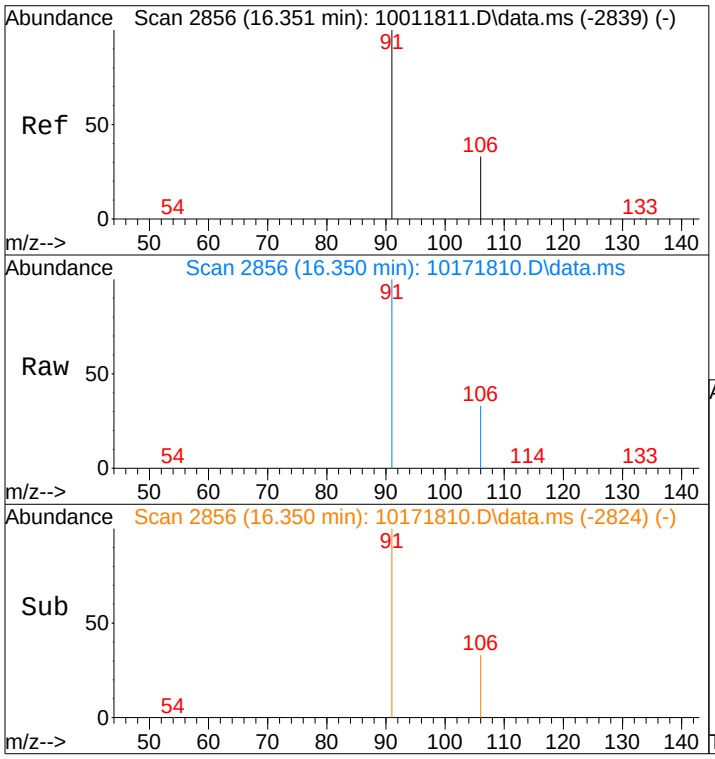


#39
Chlorobenzene
Concen: 251.25 pg
RT: 15.97 min Scan# 2770
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:112 Resp: 19396

Ion	Ratio	Lower	Upper
112	100		
114	24.7	12.2	52.2

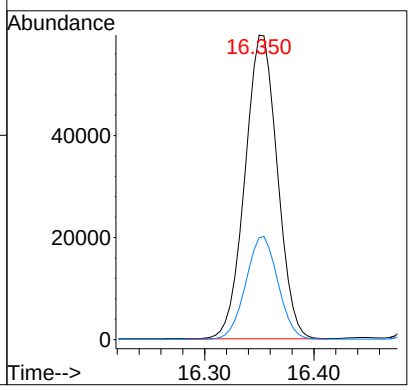


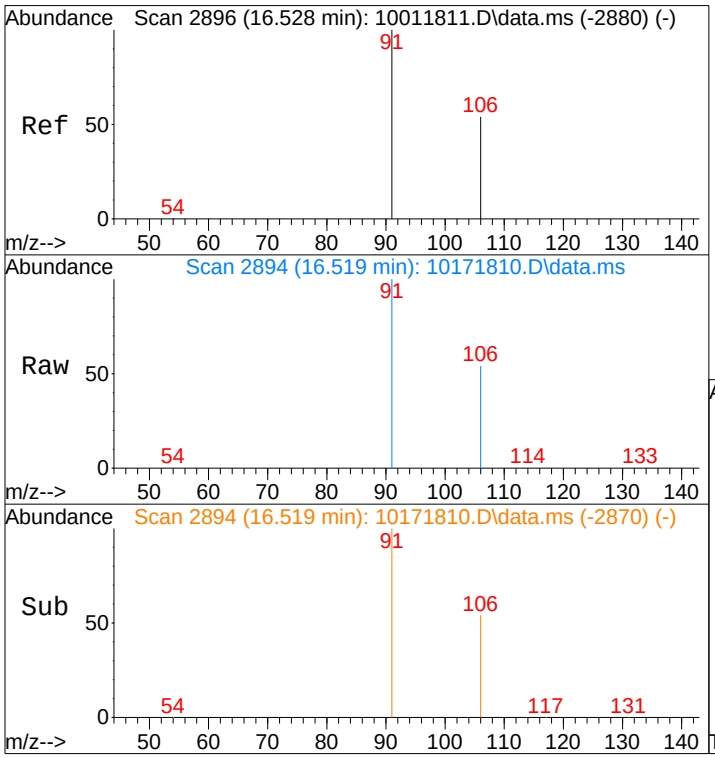


#40
Ethylbenzene
Concen: 1041.67 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 91 Resp: 122453

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

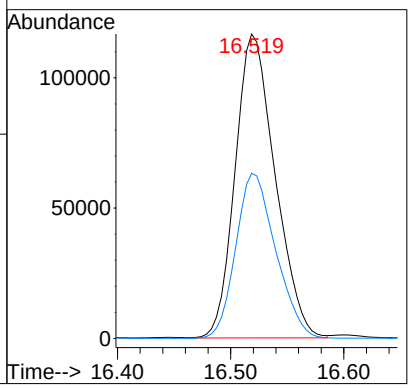


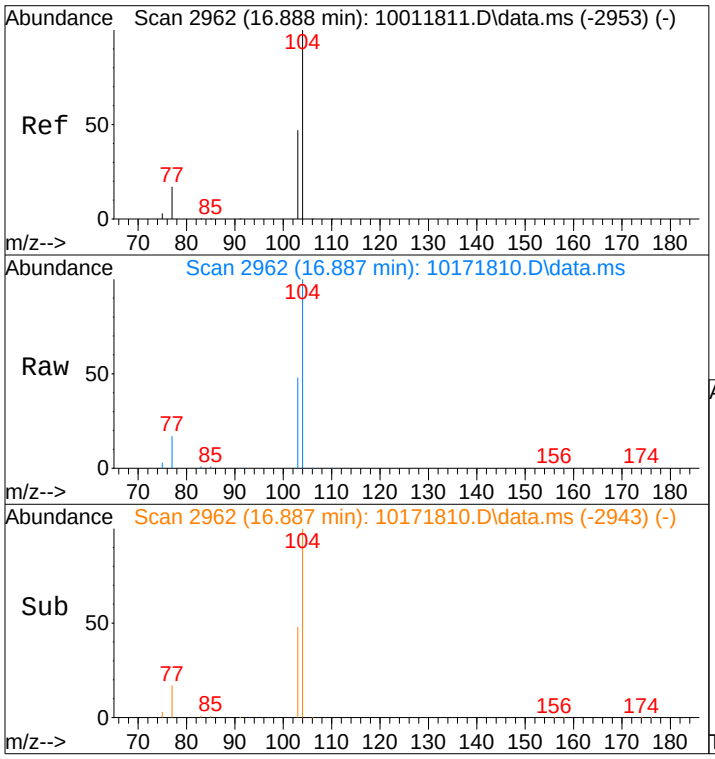


#41
m,p-Xylene
Concen: 3181.45 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion: 91 Resp: 285957

Ion	Ratio	Lower	Upper
91	100		
106	54.1	34.3	74.3

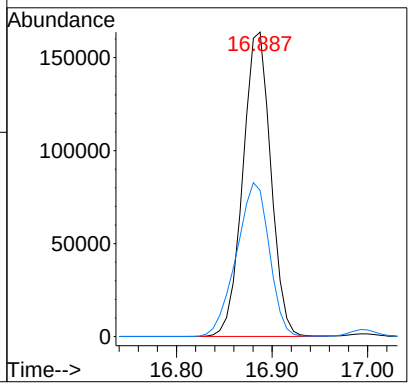


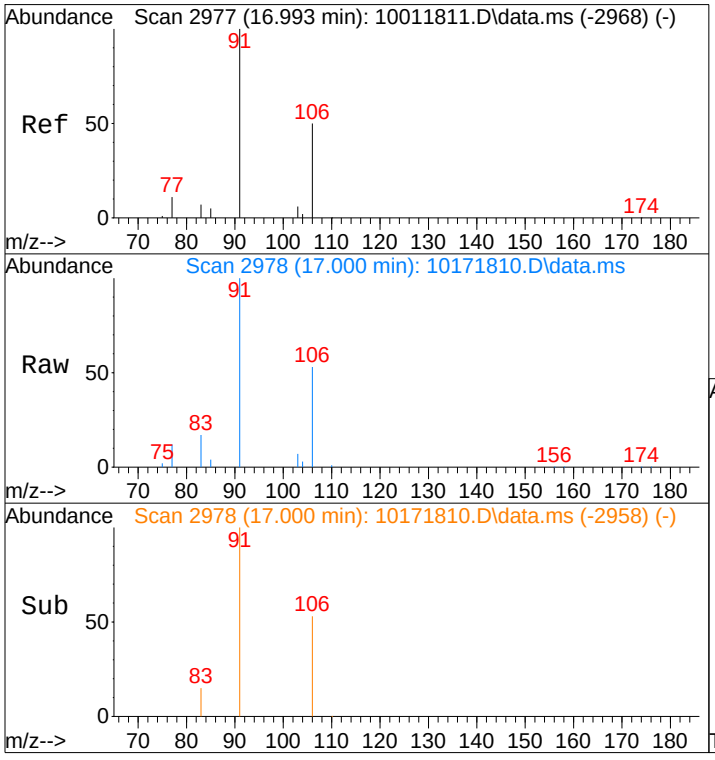


#42
Styrene
Concen: 4667.52 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:104 Resp: 333230

Ion	Ratio	Lower	Upper
104	100		
103	59.4	37.7	56.5#

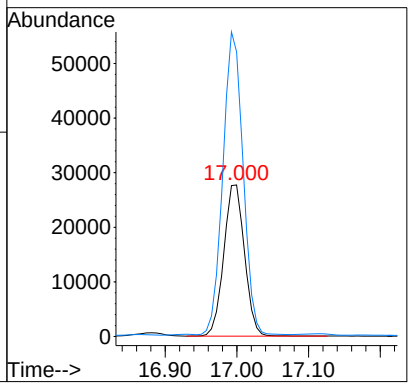


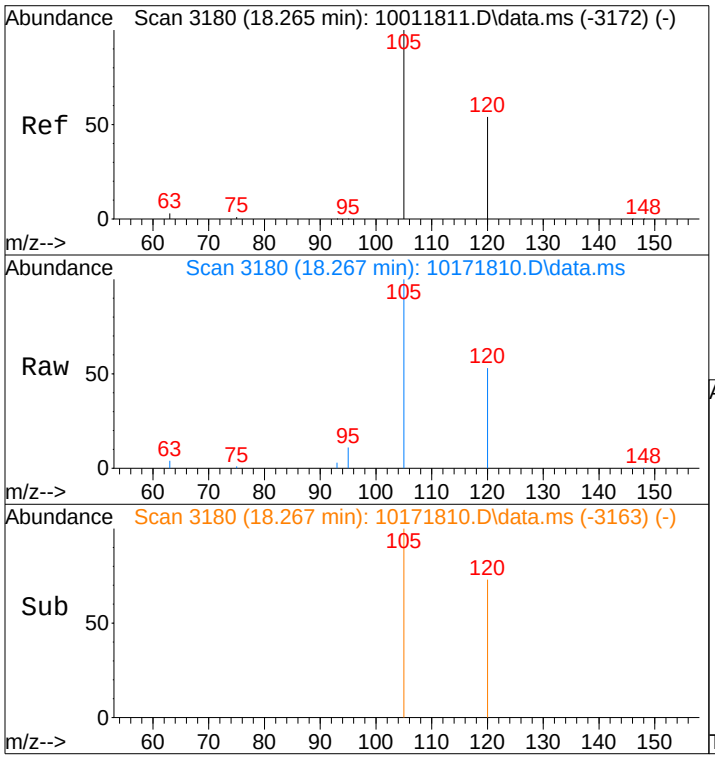


#43
o-Xylene
Concen: 1163.40 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:106 Resp: 55594

Ion	Ratio	Lower	Upper
106	100		
91	194.9	175.6	215.6

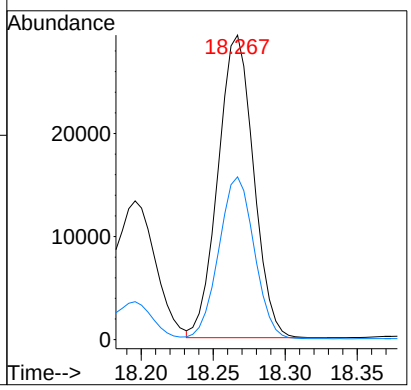


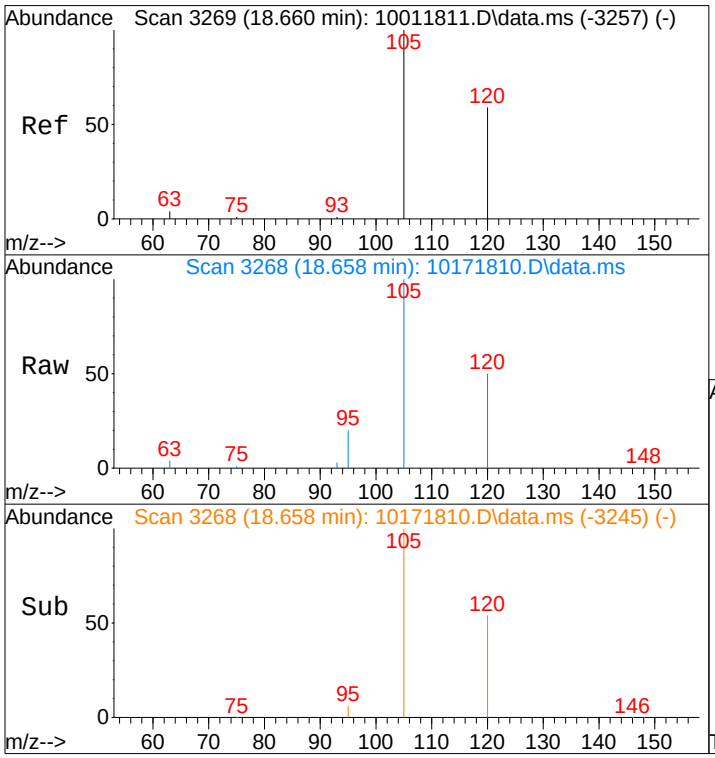


#46
1,3,5-Trimethylbenzene
Concen: 502.05 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:105 Resp: 50459

Ion	Ratio	Lower	Upper
105	100		
120	53.4	42.8	64.2

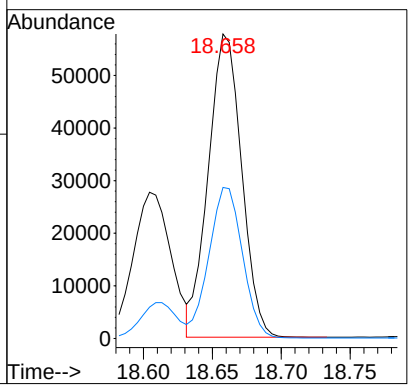


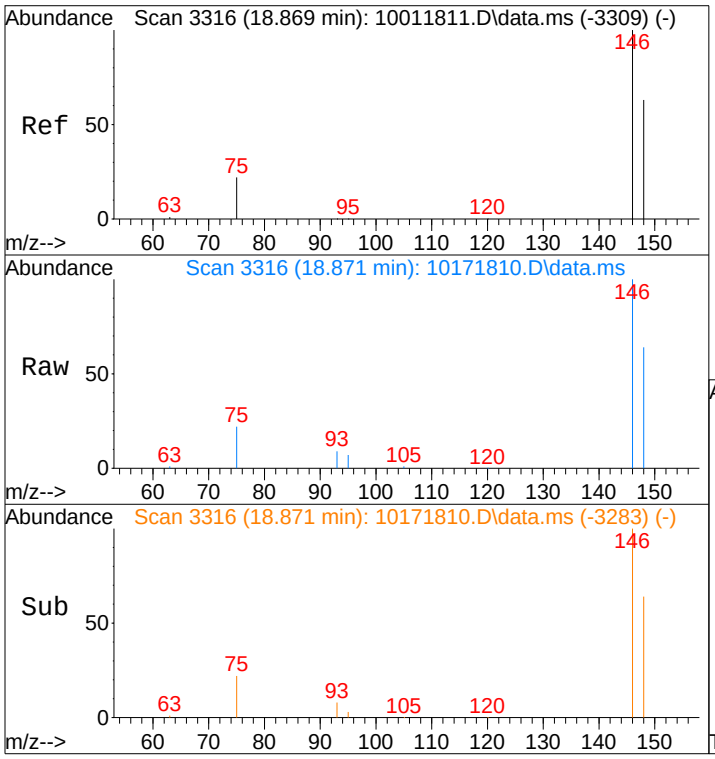


#47
1,2,4-Trimethylbenzene
Concen: 967.41 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:105 Resp: 96995

Ion	Ratio	Lower	Upper
105	100		
120	50.0	47.1	70.7

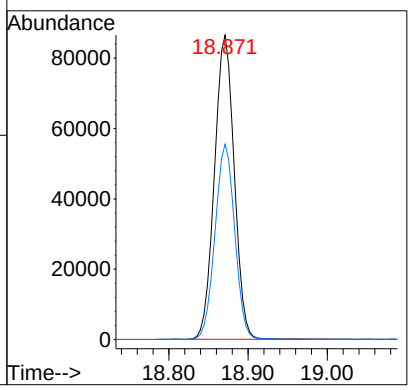


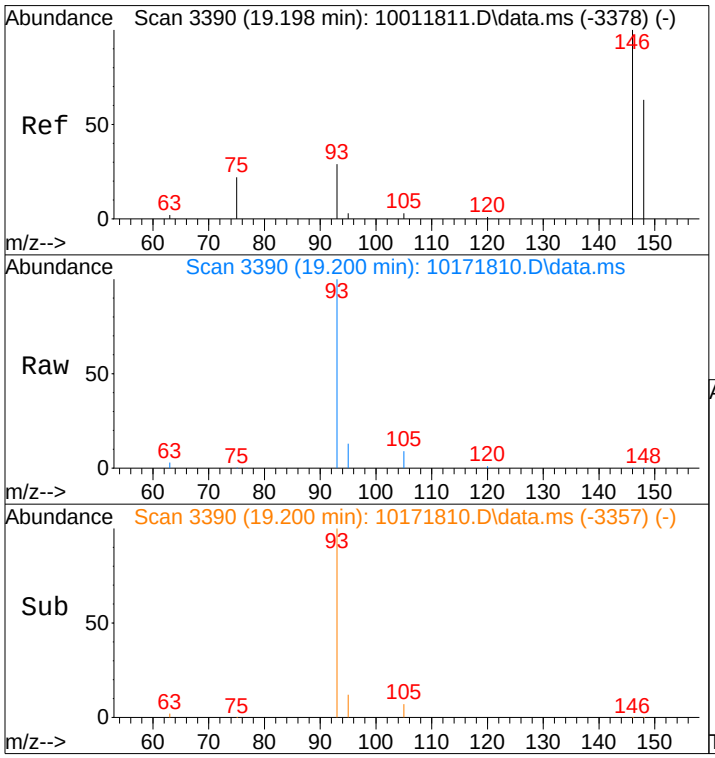


#49
1,4-Dichlorobenzene
Concen: 2280.99 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:146 Resp: 150041

Ion	Ratio	Lower	Upper
146	100		
148	64.0	43.8	83.8

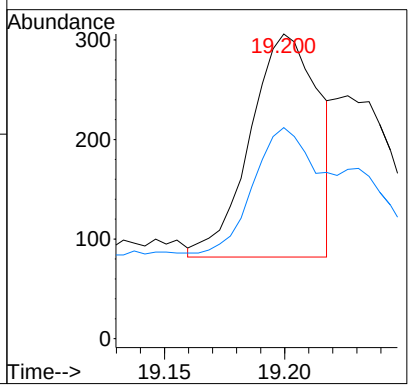


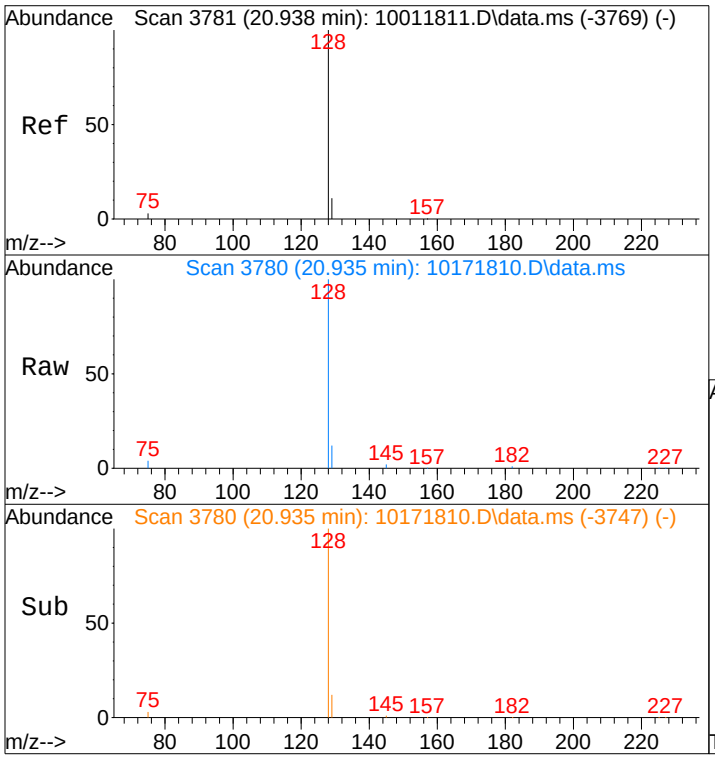


#50
1,2-Dichlorobenzene
Concen: 7.03 pg m
RT: 19.20 min Scan# 3390
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:146 Resp: 442

Ion	Ratio	Lower	Upper
146	100		
148	56.1	43.7	83.7

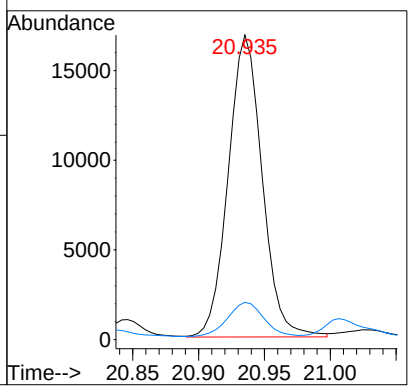




#53
Naphthalene
Concen: 257.29 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171810.D
Acq: 17 Oct 2018 17:38

Tgt Ion:128 Resp: 30173

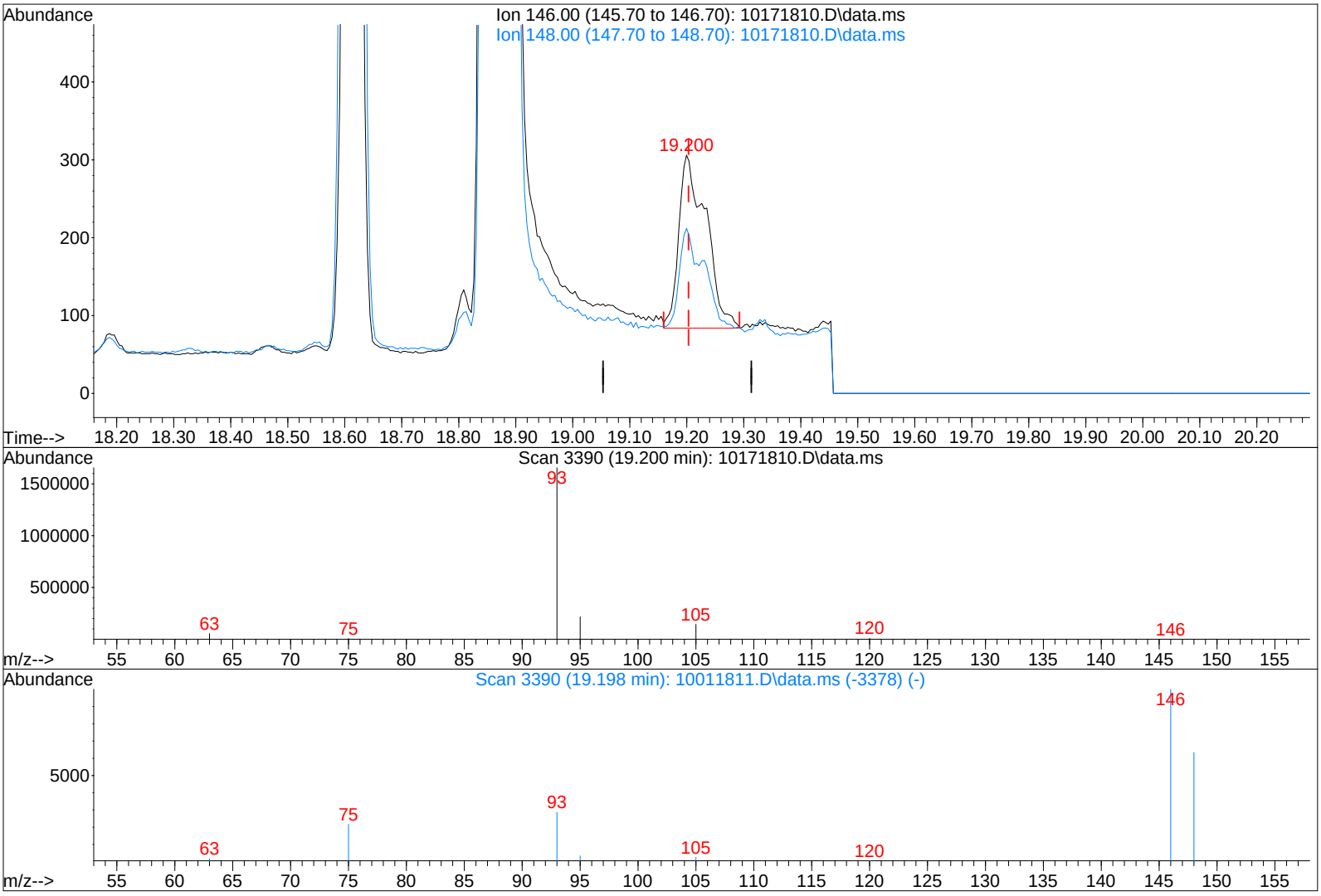
Ion	Ratio	Lower	Upper
128	100		
129	13.0	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171810.D\data.ms

(50) 1,2-Dichlorobenzene (T)

19.200min (-0.004) 11.66pg

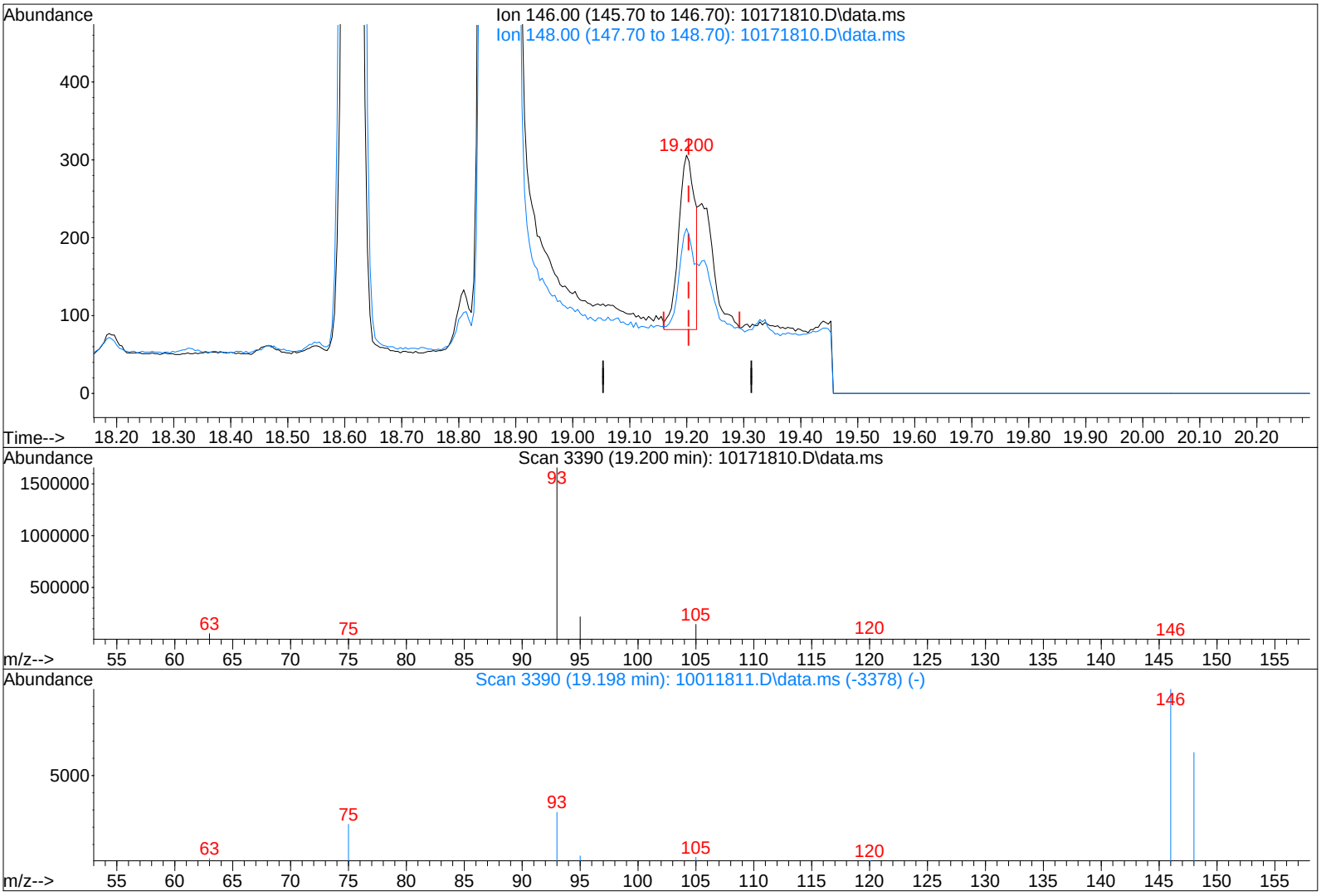
response 733

Ion	Exp%	Act%
146.00	100	100
148.00	63.70	33.83#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171810.D Vial: 4
Acq On : 17 Oct 2018 17:38 Operator: WA
Sample : P1805497-003 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171810.D\data.ms

(50) 1,2-Dichlorobenzene (T)

19.200min (-0.004) 7.03pg m

response 442

Ion	Exp%	Act%
146.00	100	100
148.00	63.70	56.11
0.00	0.00	0.00
0.00	0.00	0.00

IPC

WA 10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191807.D Vial: 4
Acq On : 19 Oct 2018 8:35 Operator: WA
Sample : P1805497-003dil (40mL) Pf2 Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:38:28 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17604	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.57	114	74450	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10761	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20326	964.555	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.46%				
33) Toluene-d8 (SS2)	14.01	98	86209	1122.858	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.29%				
45) Bromofluorobenzene (SS3)	17.43	174	29964	985.424	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.54%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	12427	331.300	pg		100
3) Chloromethane	4.53	52	430	49.025	pg	#	81
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	68	N.D.			
5) Vinyl Chloride	4.83	62	299	12.276	pg		76
6) 1,3-Butadiene	4.97	54	59	N.D.			
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	5.56	64	275	21.578	pg		97
9) Acrolein	6.15	56	76	7.377	pg	#	65
10) Acetone	6.29	58	11787	902.478	pg	#	14
11) Trichlorofluoromethane	6.48	101	2430	82.837	pg		100
12) 1,1-Dichloroethene	7.19	96	201	9.682	pg	#	1
13) Methylene Chloride	7.32	84	447781	20591.229	pg		100
14) Trichlorotrifluoroethane	7.67	151	207	10.068	pg		99
15) trans-1,2-Dichloroethene	8.37	96	516	23.891	pg		100
16) 1,1-Dichloroethane	8.58	63	89	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	9.45	96	525	22.838	pg		99
19) Chloroform	9.75	83	122920	3380.029	pg		99
21) 1,2-Dichloroethane	10.51	62	98	N.D.			
22) 1,1,1-Trichloroethane	10.77	97	317	10.277	pg		99
23) Benzene	11.23	78	1107	12.117	pg		100
24) Carbon Tetrachloride	11.38	117	2697	95.791	pg		100
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	12.22	83	10444	424.300	pg		99
28) Trichloroethene	12.28	130	20911	898.905	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.74	83	57	N.D.			
34) Toluene	14.11	91	124471	1464.241	pg		100
35) Dibromochloromethane	14.52	129	3861	169.545	pg		99
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	71226	2847.310	pg		100
39) Chlorobenzene	15.96	112	624	9.578	pg		91
40) Ethylbenzene	16.35	91	3483	35.108	pg		100
41) m,p-Xylene	16.52	91	8117	107.007	pg		99
42) Styrene	16.89	104	8331	138.271	pg	#	81
43) o-Xylene	16.99	106	1658	41.113	pg		97
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d			
46) 1,3,5-Trimethylbenzene	18.27	105	1560	18.392	pg		97
47) 1,2,4-Trimethylbenzene	18.66	105	3080	36.400	pg		88
48) 1,3-Dichlorobenzene	0.00	146	0	N.D. d			
49) 1,4-Dichlorobenzene	18.87	146	4594	82.756	pg		99
50) 1,2-Dichlorobenzene	19.20	146	82	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	99	N.D.			
53) Naphthalene	20.94	128	1289	13.024	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191807.D Vial: 4
Acq On : 19 Oct 2018 8:35 Operator: WA
Sample : P1805497-003dil (40mL) Pf2 Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:38:28 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191807.D Vial: 4
Acq On : 19 Oct 2018 8:35 Operator: WA
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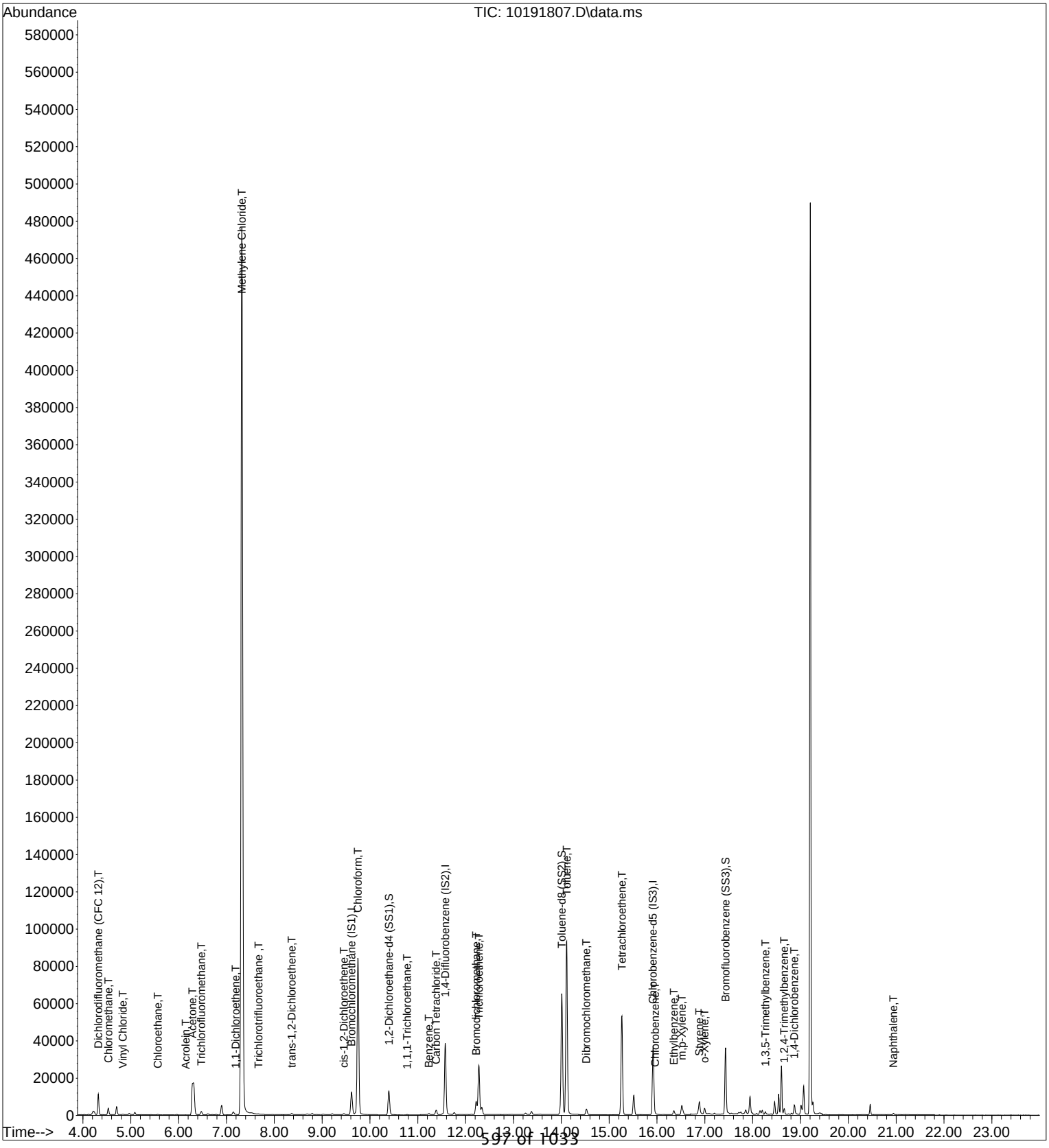
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191807.D Vial: 4
Acq On : 19 Oct 2018 8:35 Operator: WA
Sample : P1805497-003dil (40mL) Pf2 Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:38:28 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 WA 10/25/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17604	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.57	114	74450	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10761	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20326	964.555	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.46%				
33) Toluene-d8 (SS2)	14.01	98	86209	1122.858	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.29%				
45) Bromofluorobenzene (SS3)	17.43	174	29964	985.424	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.54%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	12427	331.300	pg		100
3) Chloromethane	4.53	52	430	49.025	pg	#	81
5) Vinyl Chloride	4.83	62	299	12.276	pg		76
8) Chloroethane	5.56	64	275	21.578	pg		97
9) Acrolein	6.15	56	76	7.377	pg	#	65
10) Acetone	6.29	58	11787	902.478	pg	#	14
11) Trichlorofluoromethane	6.48	101	2430	82.837	pg		100
12) 1,1-Dichloroethene	7.19	96	201	9.682	pg	#	1
13) Methylene Chloride	7.32	84	447781	20591.229	pg		100
14) Trichlorotrifluoroethane	7.67	151	207	10.068	pg		99
15) trans-1,2-Dichloroethene	8.37	96	516	23.891	pg		100
18) cis-1,2-Dichloroethene	9.45	96	525	22.838	pg		99
19) Chloroform	9.75	83	122920	3380.029	pg		99
22) 1,1,1-Trichloroethane	10.77	97	317	10.277	pg		99
23) Benzene	11.23	78	1107	12.117	pg		100
24) Carbon Tetrachloride	11.38	117	2697	95.791	pg		100
27) Bromodichloromethane	12.22	83	10444	424.300	pg		99
28) Trichloroethene	12.28	130	20911	898.905	pg		100
34) Toluene	14.11	91	124471	1464.241	pg		100
35) Dibromochloromethane	14.52	129	3861	169.545	pg		99
37) Tetrachloroethene	15.27	166	71226	2847.310	pg		100
39) Chlorobenzene	15.96	112	624	9.578	pg		91
40) Ethylbenzene	16.35	91	3483	35.108	pg		100
41) m,p-Xylene	16.52	91	8117	107.007	pg		99
42) Styrene	16.89	104	8331	138.271	pg	#	81
43) o-Xylene	16.99	106	1658	41.113	pg		97
46) 1,3,5-Trimethylbenzene	18.27	105	1560	18.392	pg		97
47) 1,2,4-Trimethylbenzene	18.66	105	3080	36.400	pg		88
49) 1,4-Dichlorobenzene	18.87	146	4594	82.756	pg		99
53) Naphthalene	20.94	128	1289	13.024	pg		97

NR

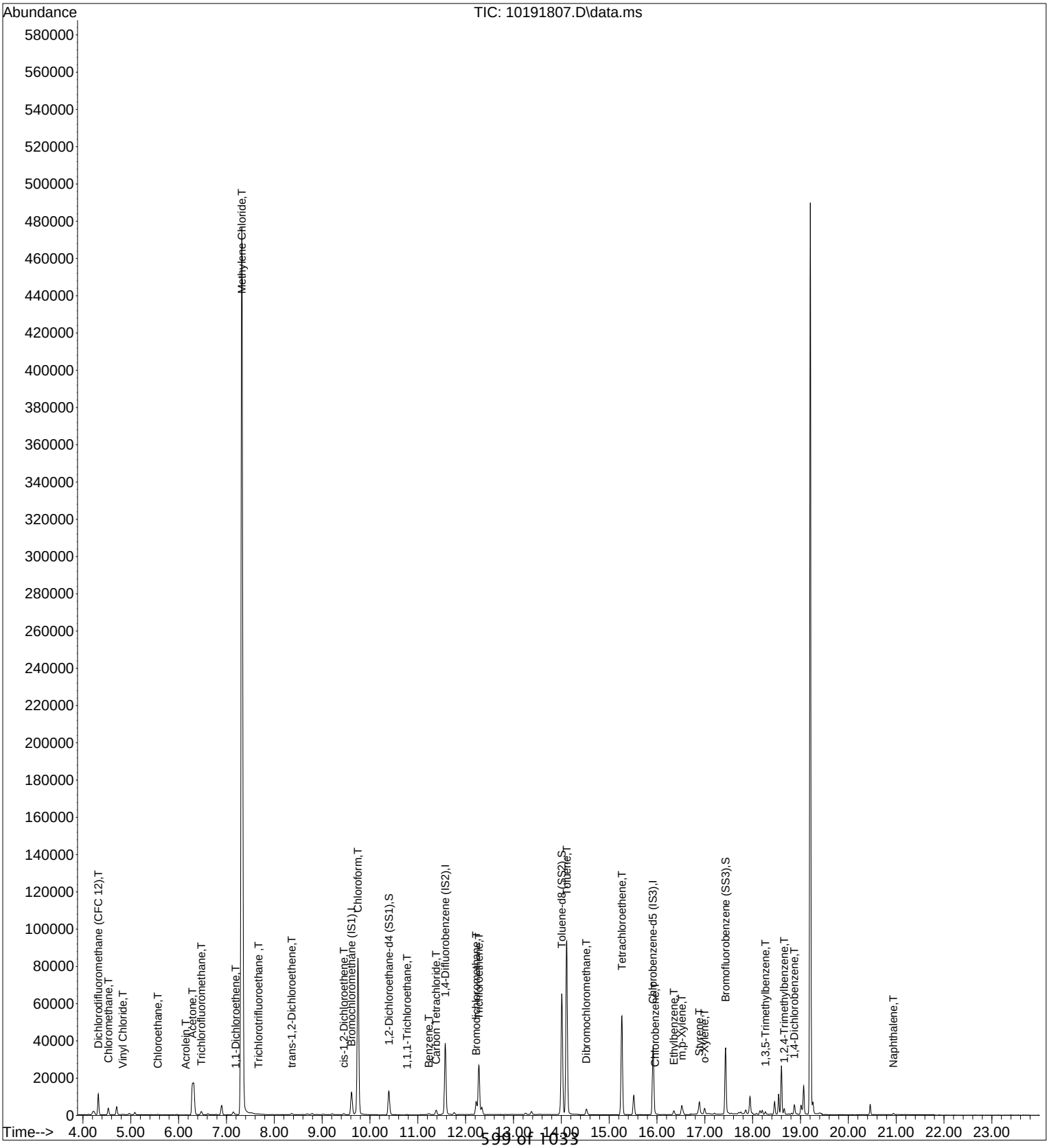
NR

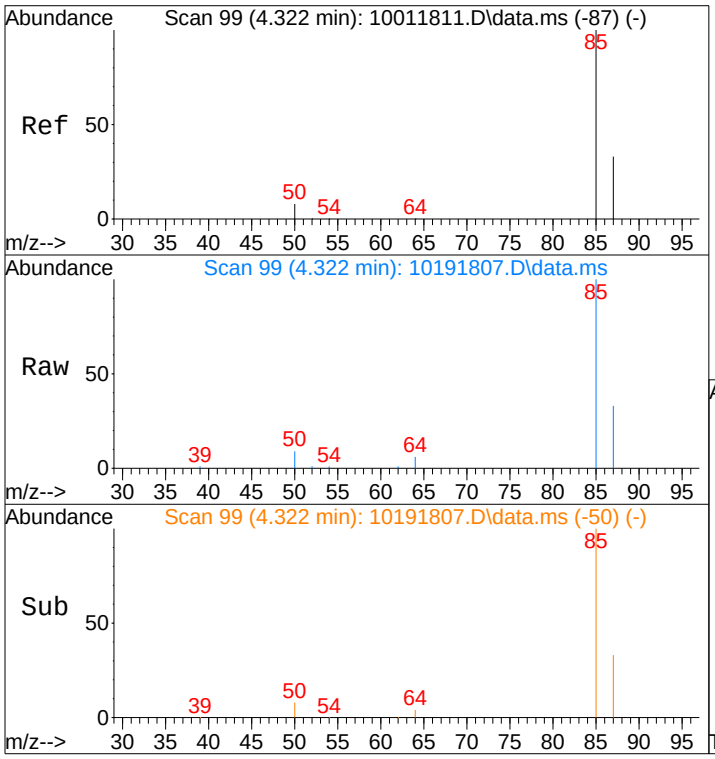
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191807.D Vial: 4
Acq On : 19 Oct 2018 8:35 Operator: WA
Sample : P1805497-003dil (40mL) Pf2 Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:38:28 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

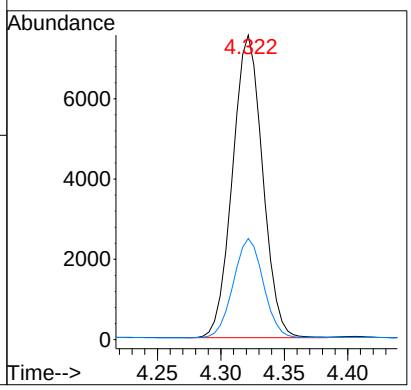


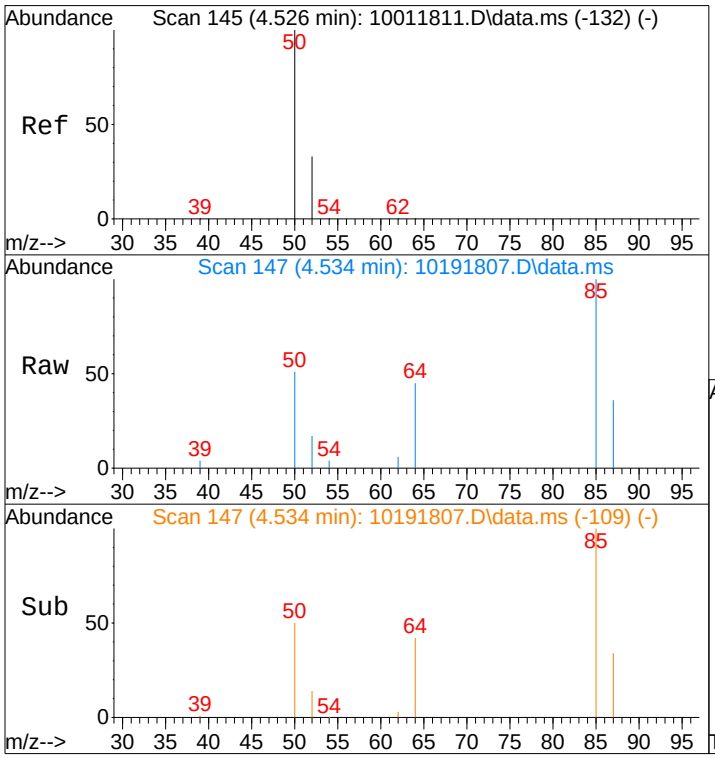


#2
Dichlorodifluoromethane (CFC 12)
Concen: 331.30 pg
RT: 4.32 min Scan# 99
Delta R.T. 0.018 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 85 Resp: 12427

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

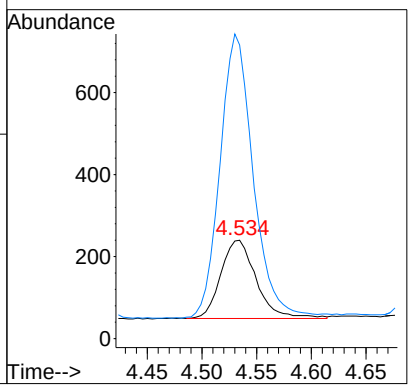


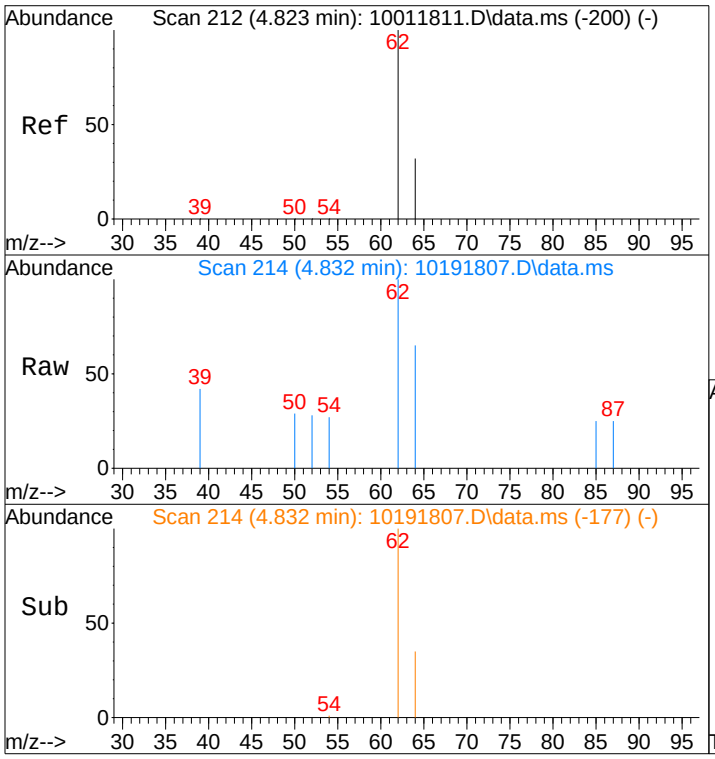


#3
Chloromethane
Concen: 49.03 pg
RT: 4.53 min Scan# 147
Delta R.T. 0.018 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 52 Resp: 430

Ion	Ratio	Lower	Upper
52	100		
50	339.8	281.8	321.8#

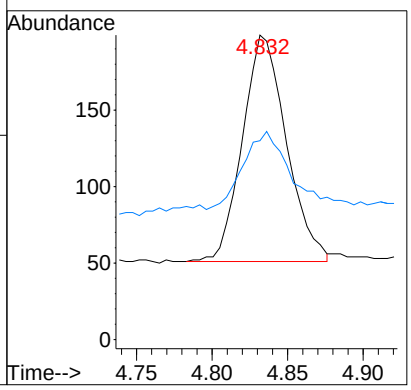


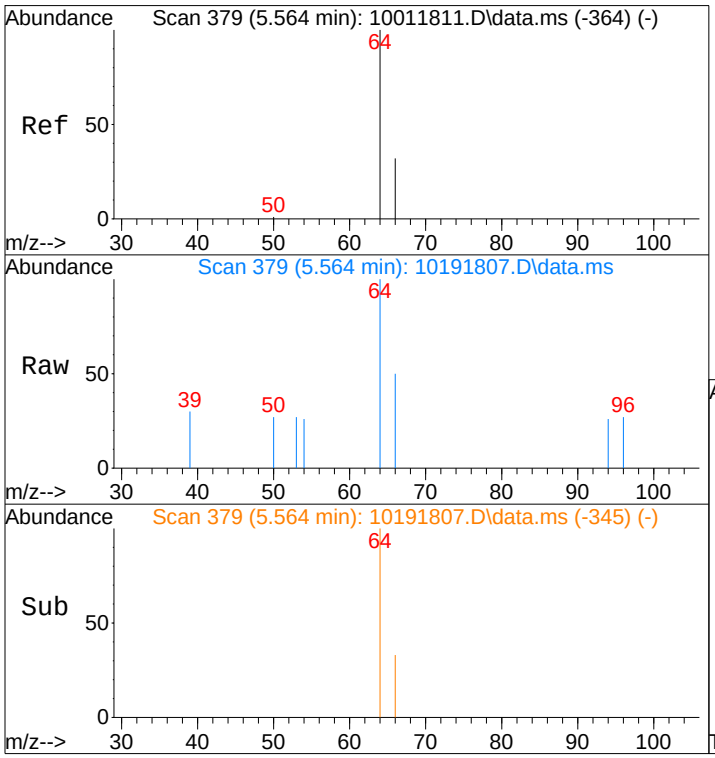


#5
Vinyl Chloride
Concen: 12.28 pg
RT: 4.83 min Scan# 214
Delta R.T. 0.013 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 62 Resp: 299

Ion	Ratio	Lower	Upper
62	100		
64	46.5	12.8	52.8

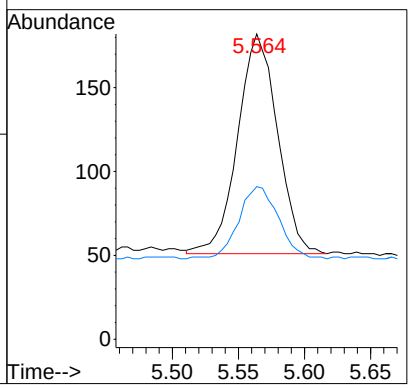


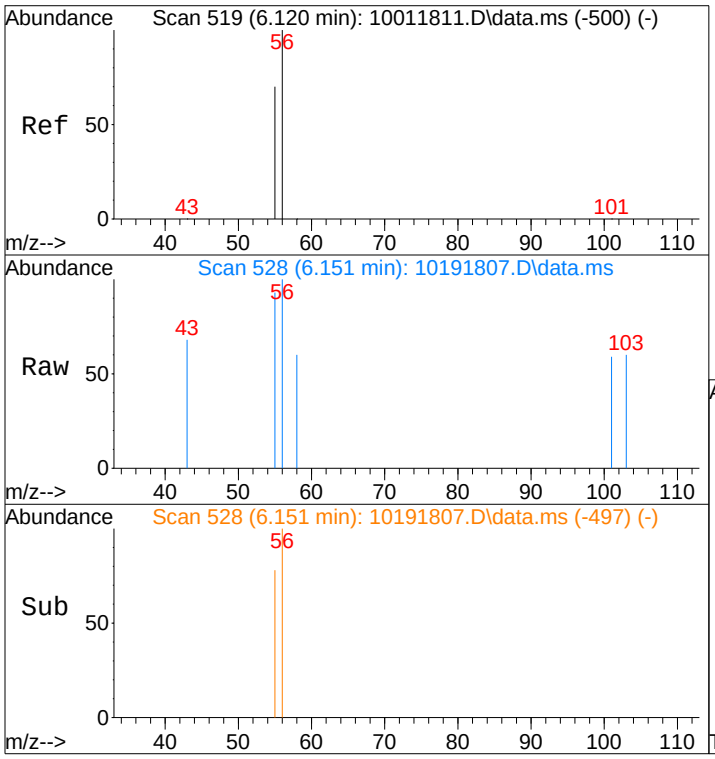


#8
Chloroethane
Concen: 21.58 pg
RT: 5.56 min Scan# 379
Delta R.T. -0.000 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 64 Resp: 275

Ion	Ratio	Lower	Upper
64	100		
66	30.5	12.3	52.3

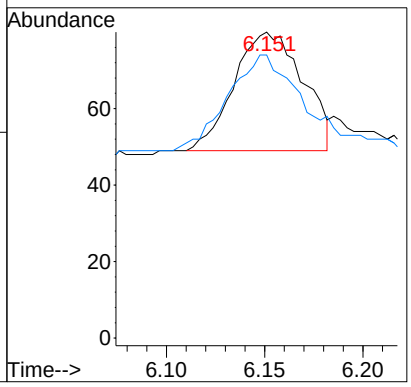


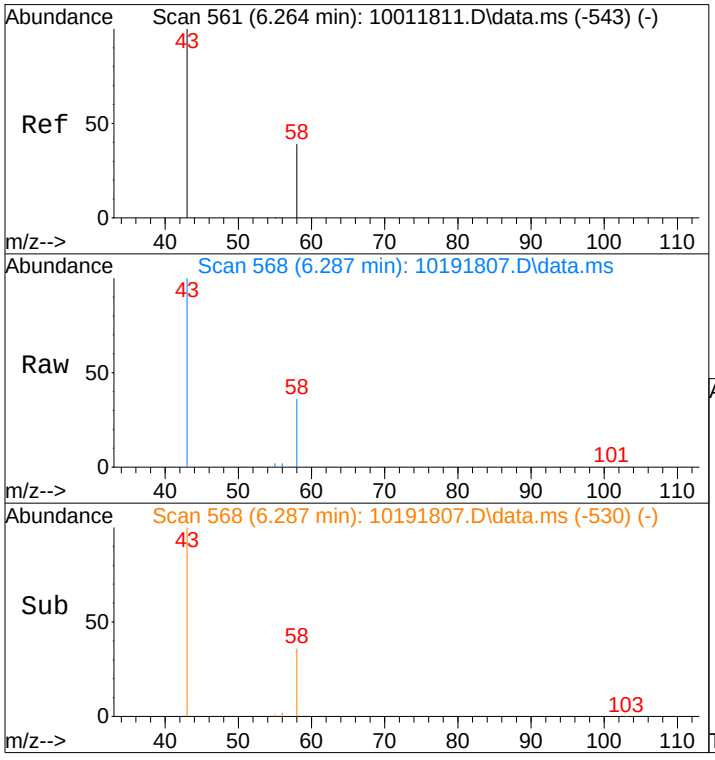


#9
Acrolein
Concen: 7.38 pg
RT: 6.15 min Scan# 528
Delta R.T. -0.003 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 56 Resp: 76

Ion	Ratio	Lower	Upper
56	100		
55	97.4	55.3	82.9#

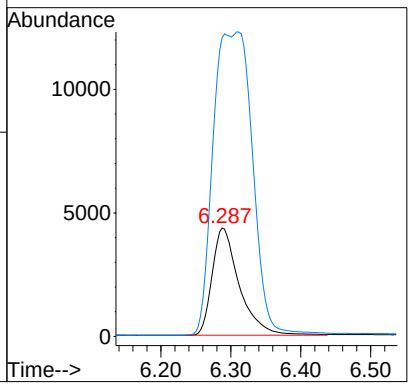


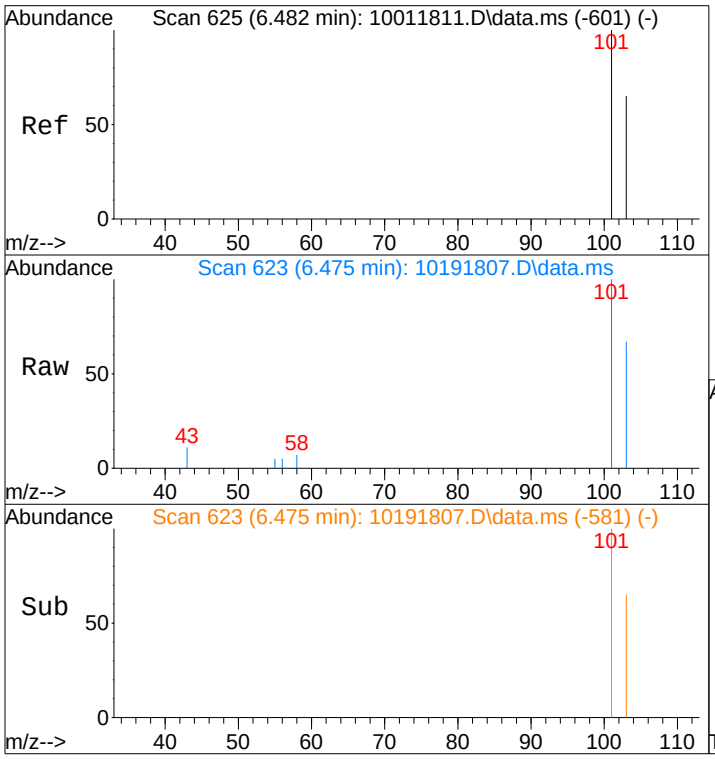


#10
Acetone
Concen: 902.48 pg
RT: 6.29 min Scan# 568
Delta R.T. -0.021 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 58 Resp: 11787

Ion	Ratio	Lower	Upper
58	100		
43	406.9	234.7	274.7#

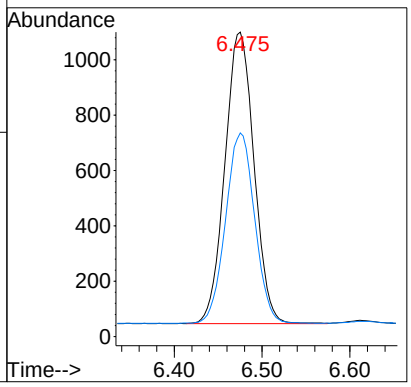


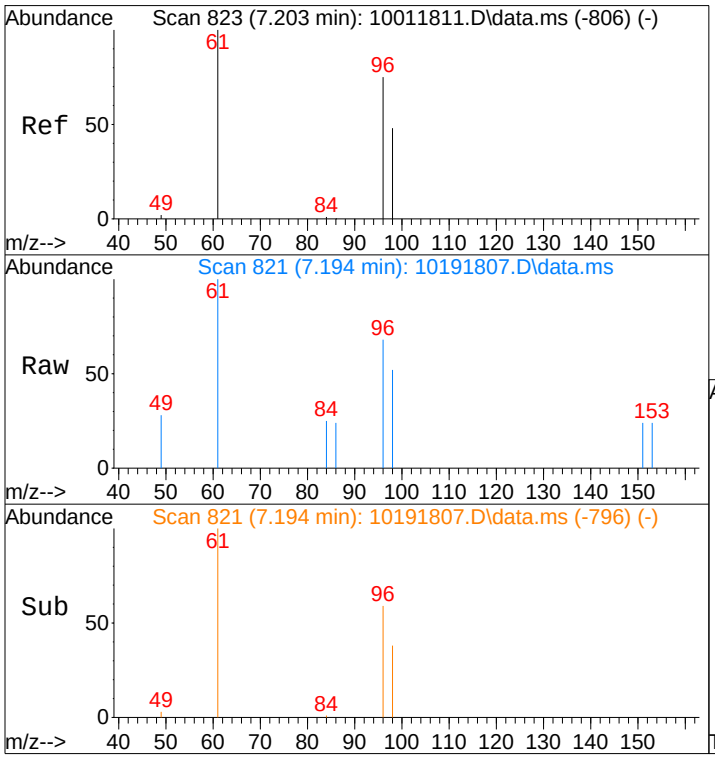


#11
Trichlorofluoromethane
Concen: 82.84 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:101 Resp: 2430

Ion	Ratio	Lower	Upper
101	100		
103	65.1	52.2	78.2

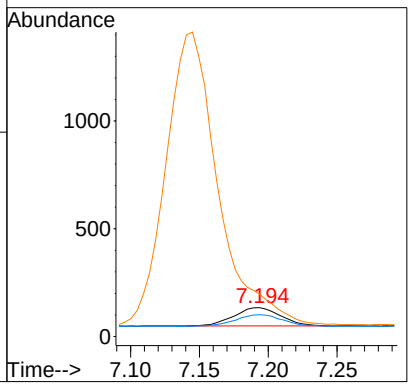


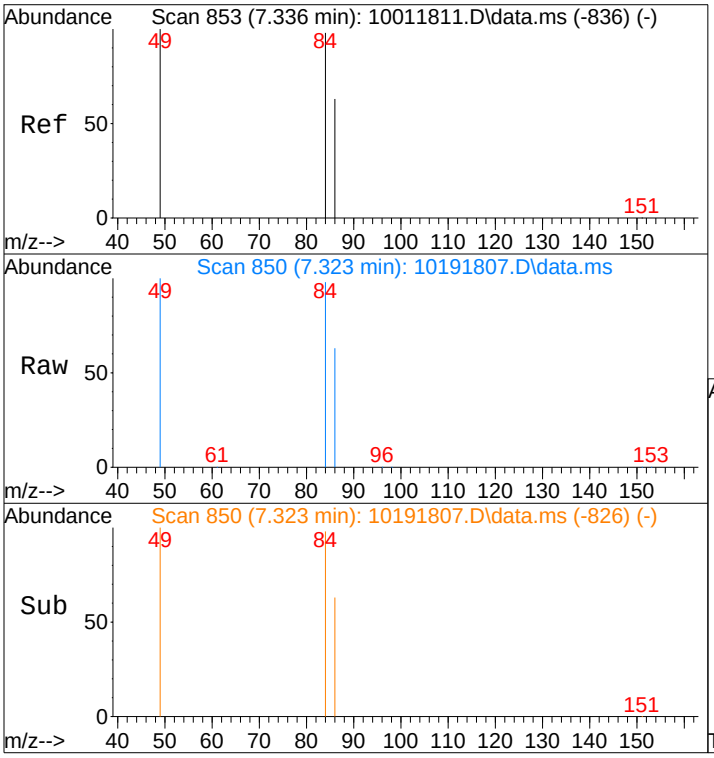


#12
1,1-Dichloroethene
Concen: 9.68 pg
RT: 7.19 min Scan# 821
Delta R.T. -0.018 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 96 Resp: 201

Ion	Ratio	Lower	Upper
96	100		
98	65.2	44.2	84.2
61	1811.9	114.1	154.1#

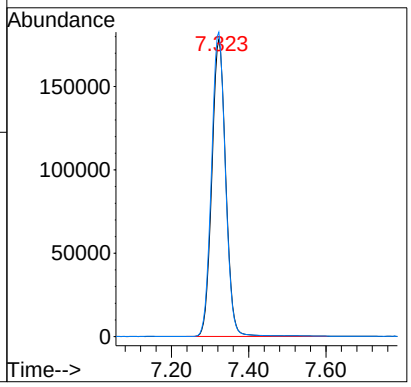


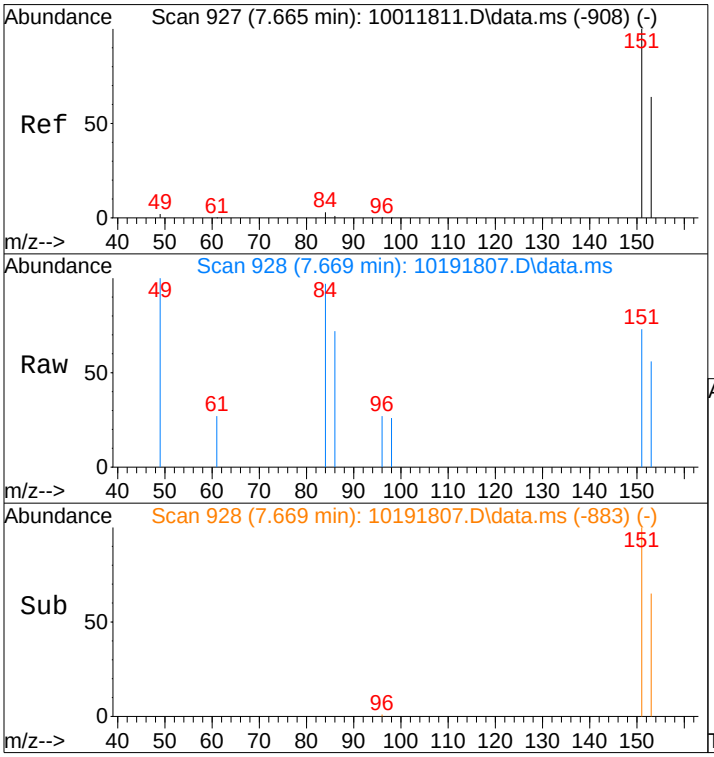


#13
Methylene Chloride
Concen: 20591.23 pg
RT: 7.32 min Scan# 850
Delta R.T. -0.053 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 84 Resp: 447781

Ion	Ratio	Lower	Upper
84	100		
49	103.0	83.3	123.3

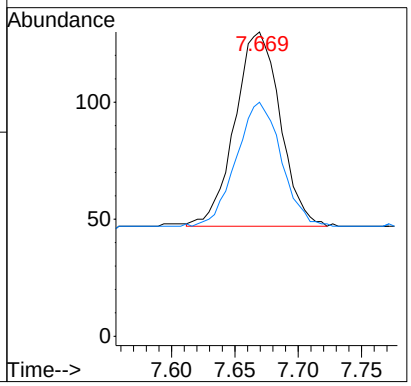


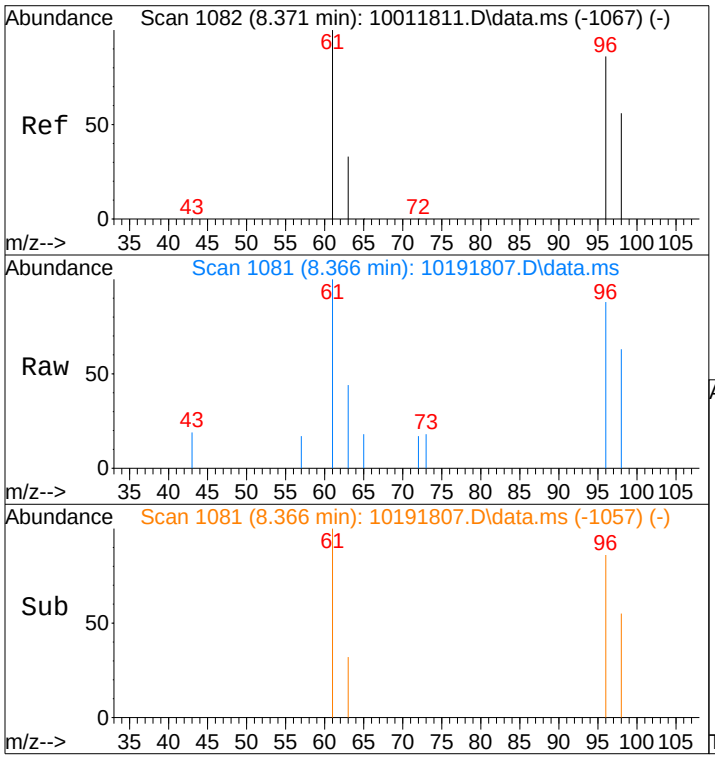


#14
Trichlorotrifluoroethane
Concen: 10.07 pg
RT: 7.67 min Scan# 928
Delta R.T. -0.000 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:151 Resp: 207

Ion	Ratio	Lower	Upper
151	100		
153	63.3	44.3	84.3

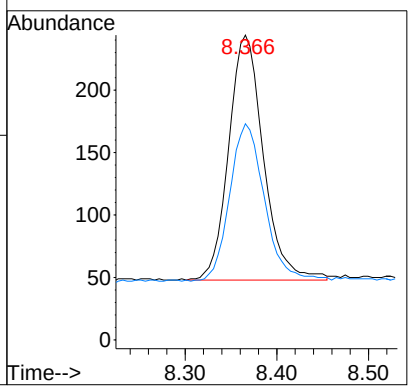


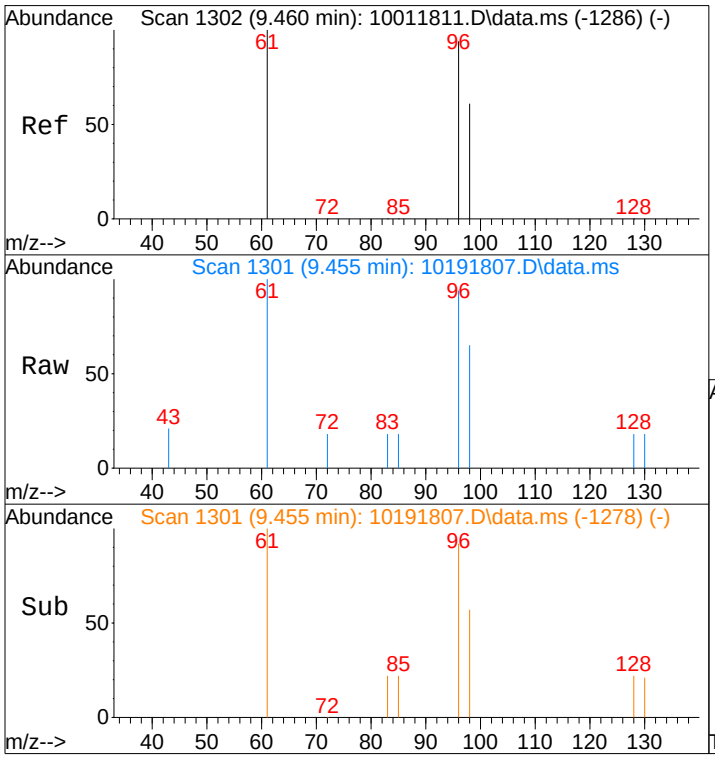


#15
trans-1,2-Dichloroethene
Concen: 23.89 pg
RT: 8.37 min Scan# 1081
Delta R.T. -0.030 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 96 Resp: 516

Ion	Ratio	Lower	Upper
96	100		
98	64.3	44.1	84.1

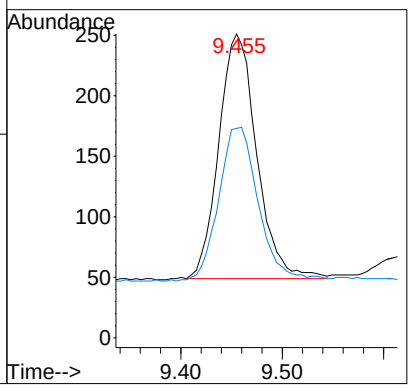


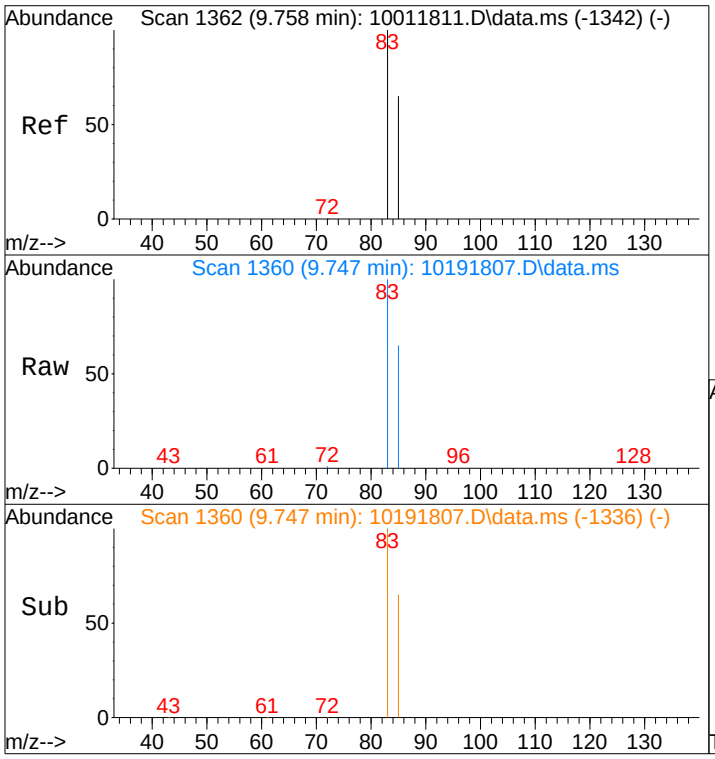


#18
cis-1,2-Dichloroethene
Concen: 22.84 pg
RT: 9.45 min Scan# 1301
Delta R.T. -0.035 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 96 Resp: 525

Ion	Ratio	Lower	Upper
96	100		
98	65.1	44.5	84.5

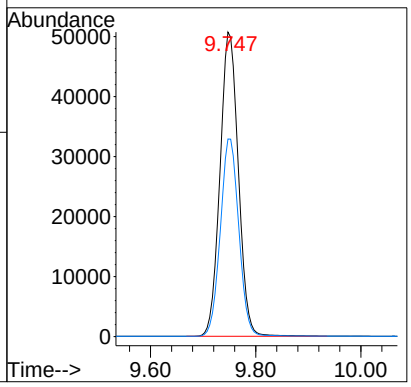


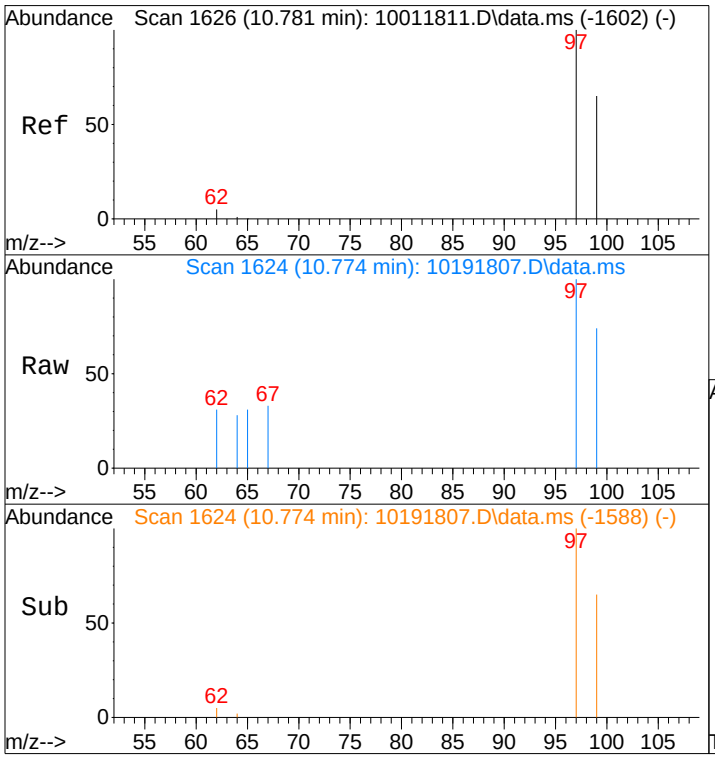


#19
Chloroform
Concen: 3380.03 pg
RT: 9.75 min Scan# 1360
Delta R.T. -0.050 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 83 Resp: 122920

Ion	Ratio	Lower	Upper
83	100		
85	65.3	46.0	86.0

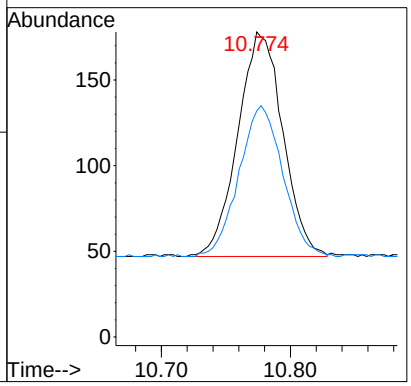


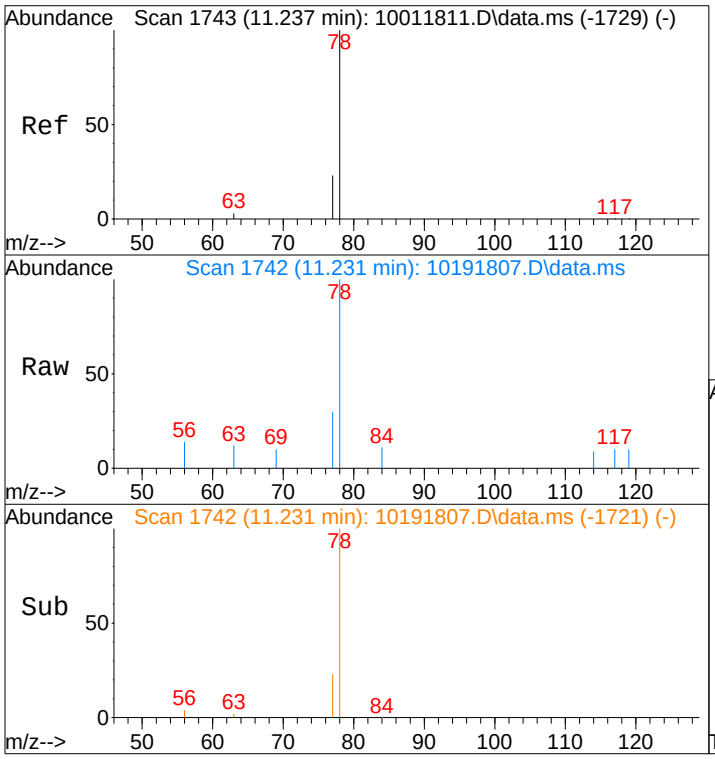


#22
1,1,1-Trichloroethane
Concen: 10.28 pg
RT: 10.77 min Scan# 1624
Delta R.T. -0.027 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 97 Resp: 317

Ion	Ratio	Lower	Upper
97	100		
99	65.6	44.9	84.9

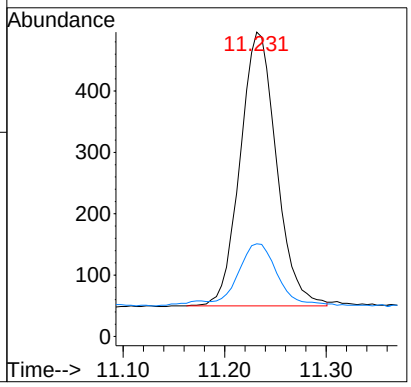


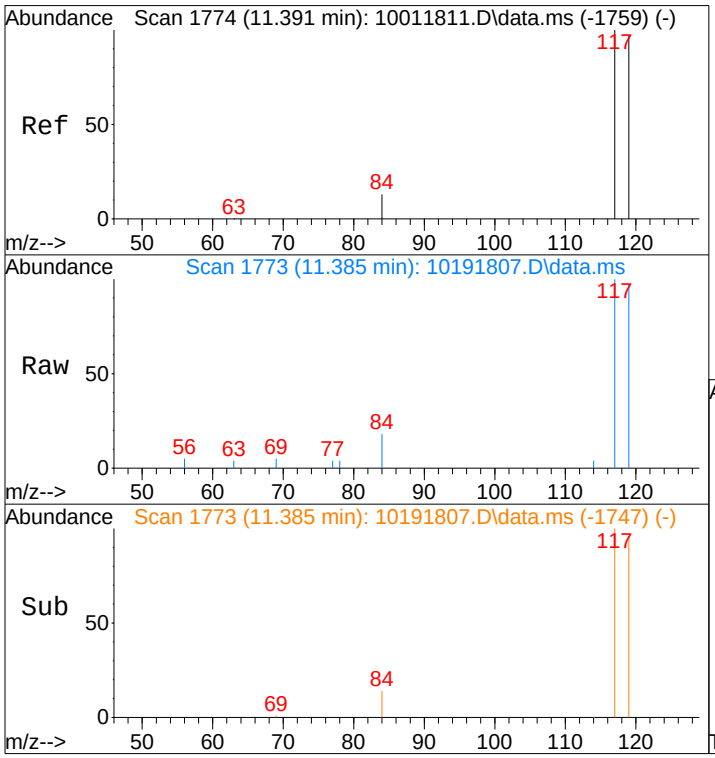


#23
Benzene
Concen: 12.12 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.025 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 78 Resp: 1107

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.3	43.3

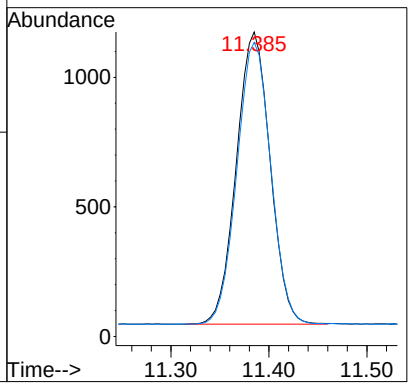


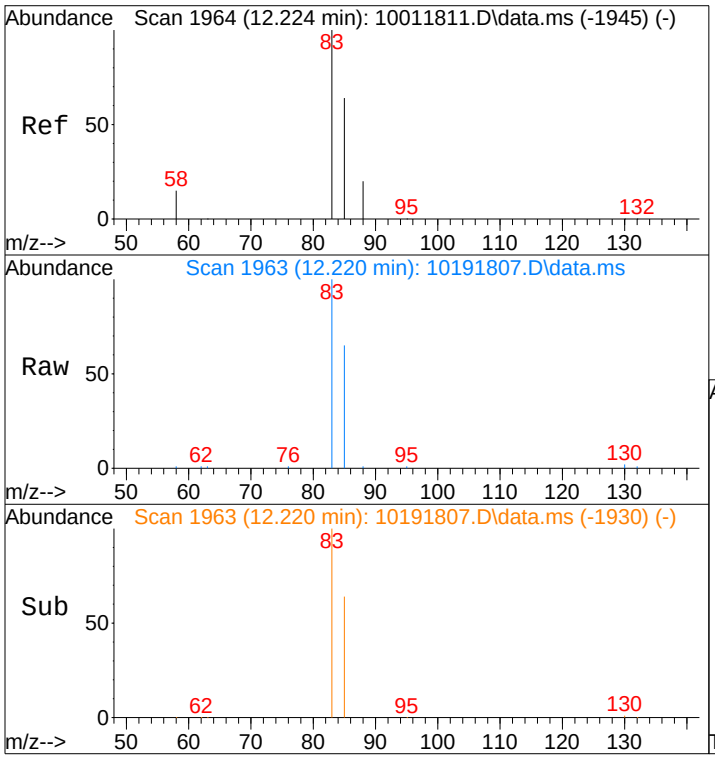


#24
Carbon Tetrachloride
Concen: 95.79 pg
RT: 11.38 min Scan# 1773
Delta R.T. -0.020 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:117 Resp: 2697

Ion	Ratio	Lower	Upper
117	100		
119	96.7	76.7	116.7

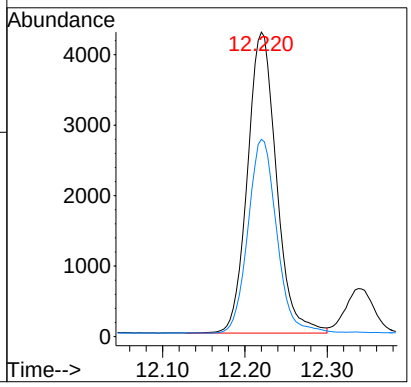


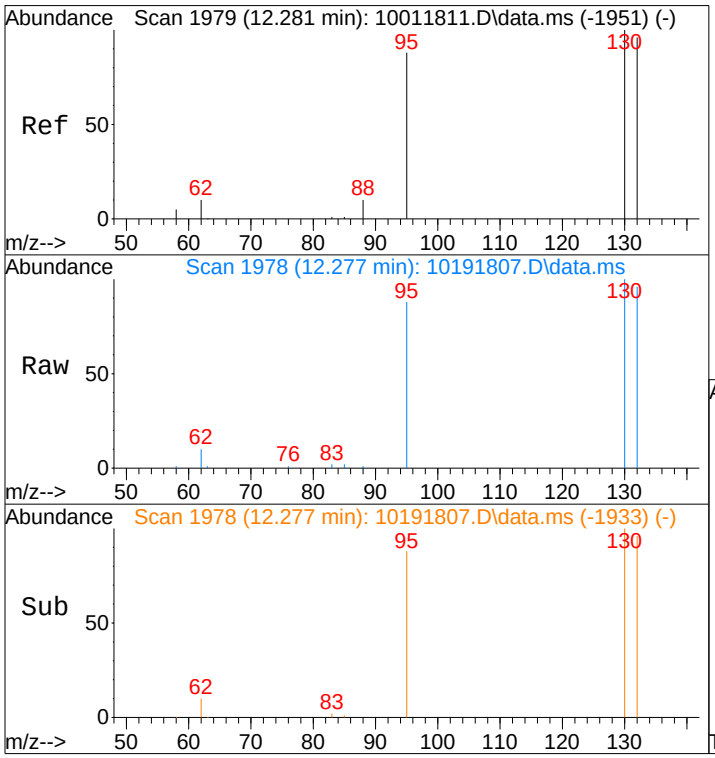


#27
Bromodichloromethane
Concen: 424.30 pg
RT: 12.22 min Scan# 1963
Delta R.T. -0.023 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 83 Resp: 10444

Ion	Ratio	Lower	Upper
83	100		
85	63.9	51.7	77.5

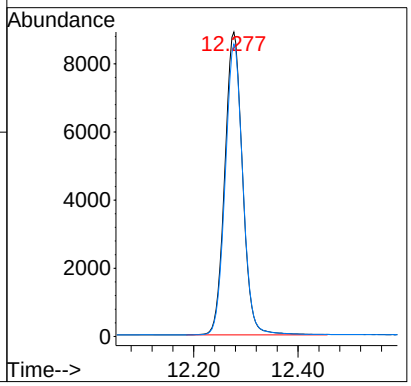


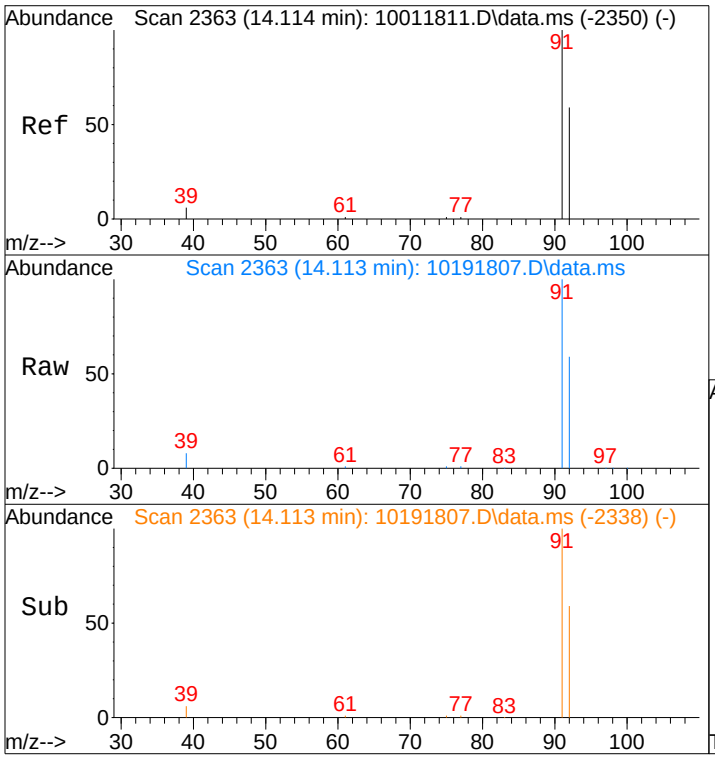


#28
Trichloroethene
Concen: 898.91 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:130 Resp: 20911

Ion	Ratio	Lower	Upper
130	100		
132	95.8	75.6	115.6

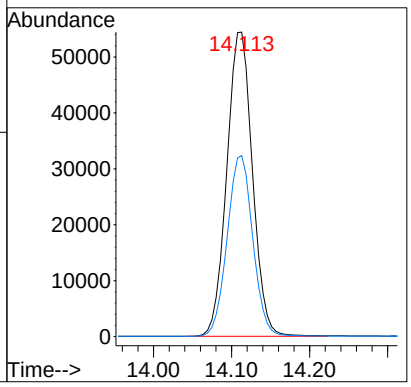


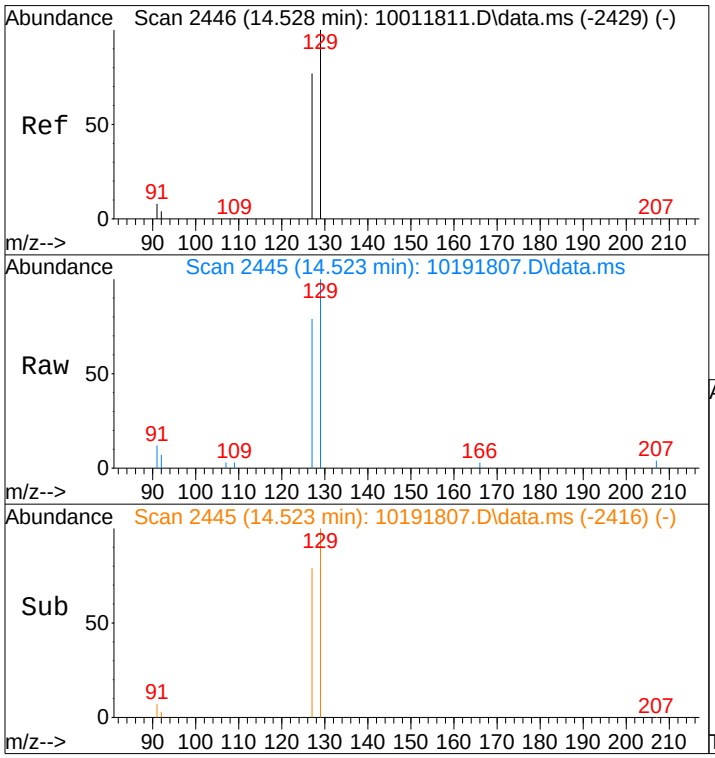


#34
Toluene
Concen: 1464.24 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 91 Resp: 124471

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

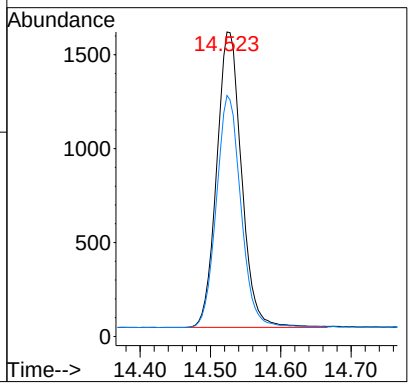


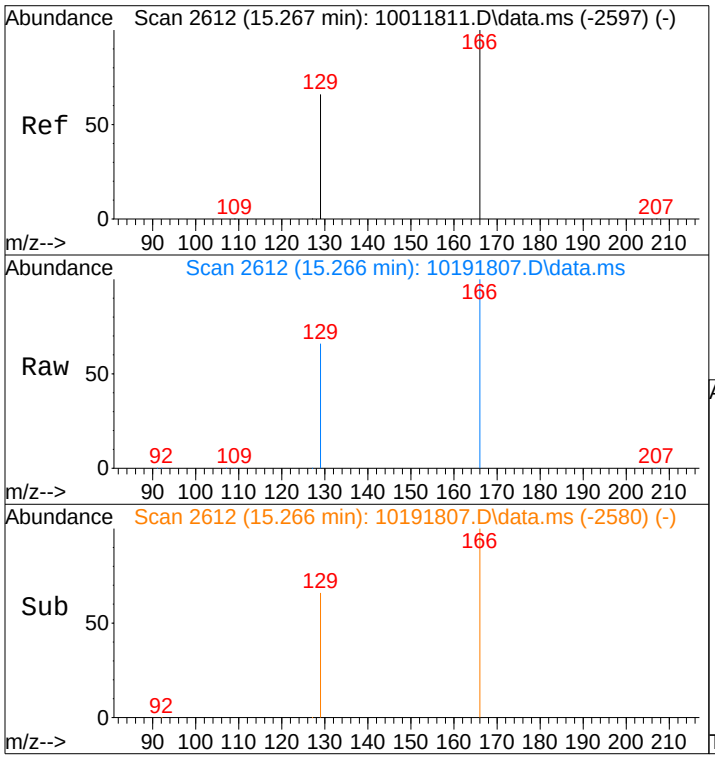


#35
Dibromochloromethane
Concen: 169.54 pg
RT: 14.52 min Scan# 2445
Delta R.T. -0.012 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:129 Resp: 3861

Ion	Ratio	Lower	Upper
129	100		
127	77.9	61.8	92.6

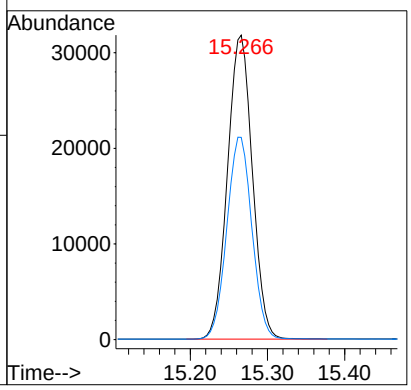


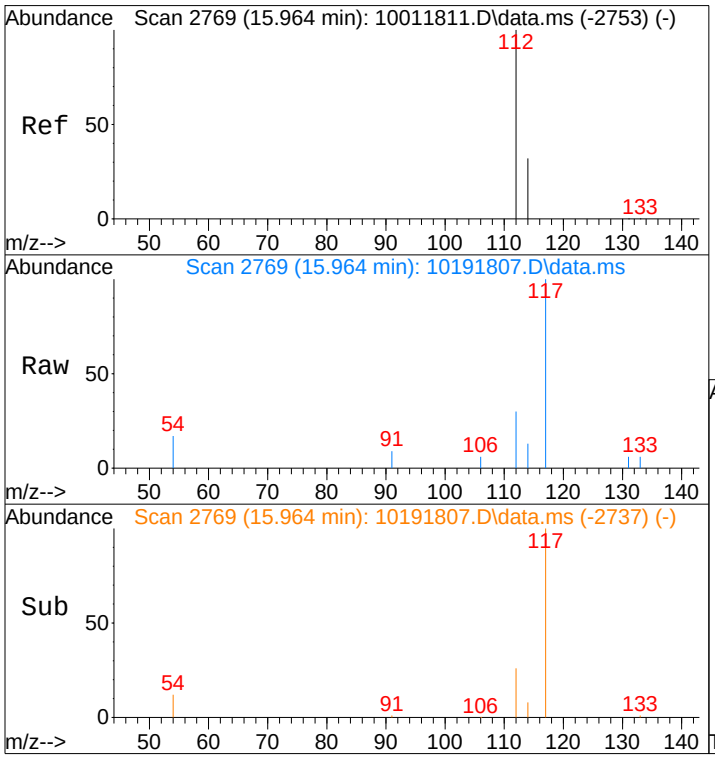


#37
Tetrachloroethene
Concen: 2847.31 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:166 Resp: 71226

Ion	Ratio	Lower	Upper
166	100		
129	66.9	46.7	86.7

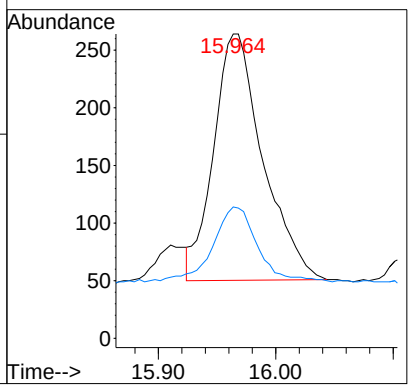


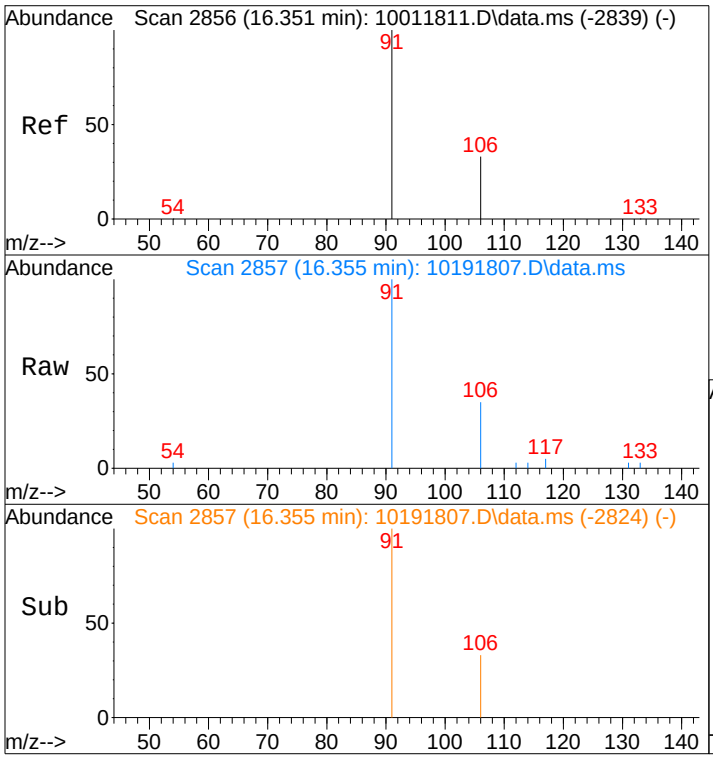


#39
Chlorobenzene
Concen: 9.58 pg
RT: 15.96 min Scan# 2769
Delta R.T. -0.008 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:112 Resp: 624

Ion	Ratio	Lower	Upper
112	100		
114	27.4	12.2	52.2

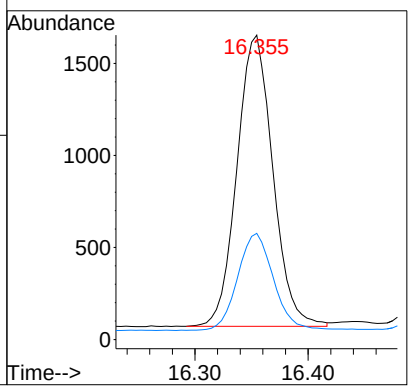


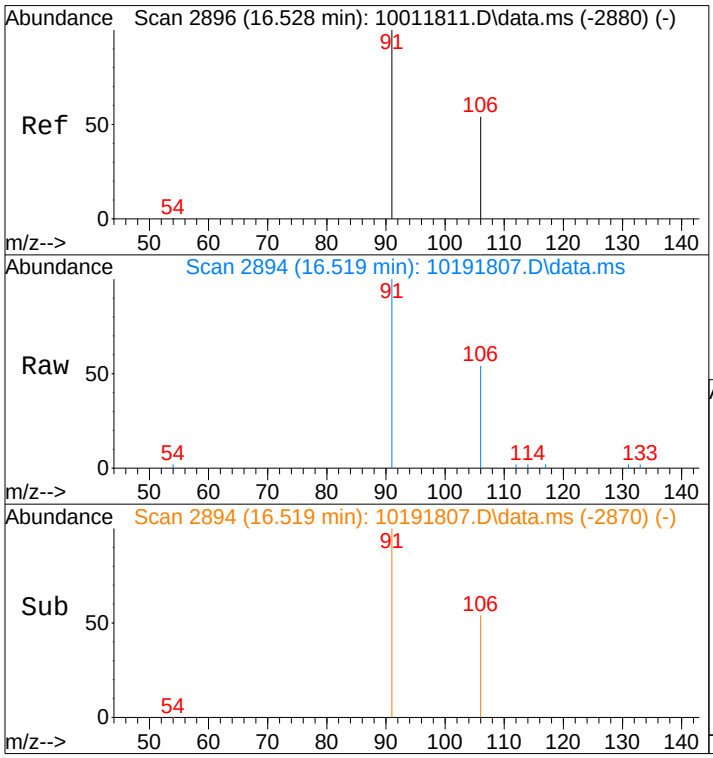


#40
Ethylbenzene
Concen: 35.11 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.003 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 91 Resp: 3483

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

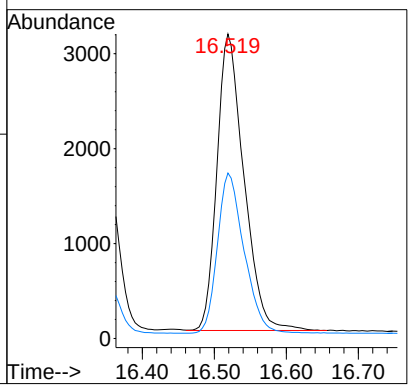


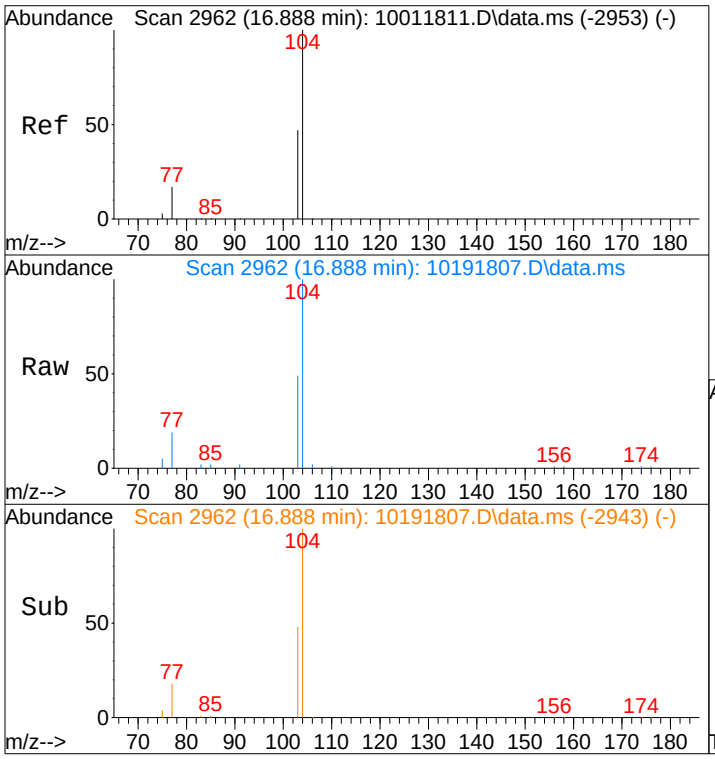


#41
m,p-Xylene
Concen: 107.01 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion: 91 Resp: 8117

Ion	Ratio	Lower	Upper
91	100		
106	53.3	34.3	74.3

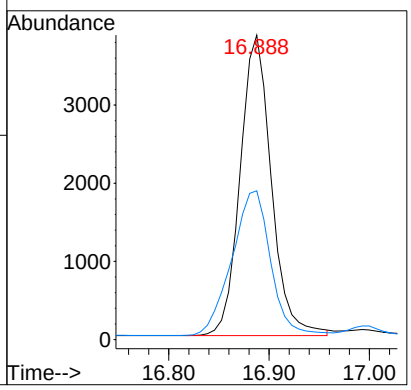


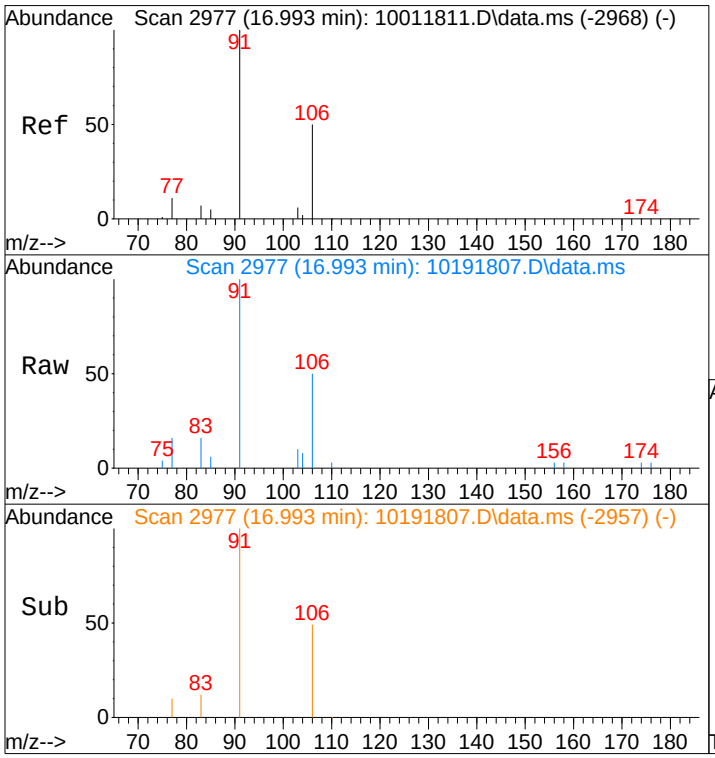


#42
Styrene
Concen: 138.27 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:104 Resp: 8331

Ion	Ratio	Lower	Upper
104	100		
103	59.6	37.7	56.5#

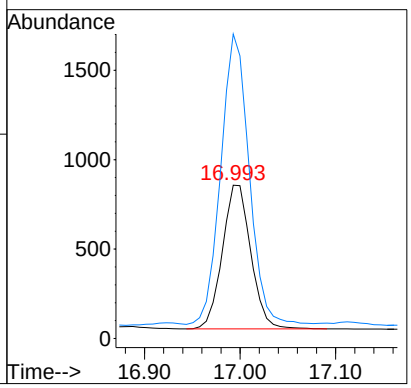


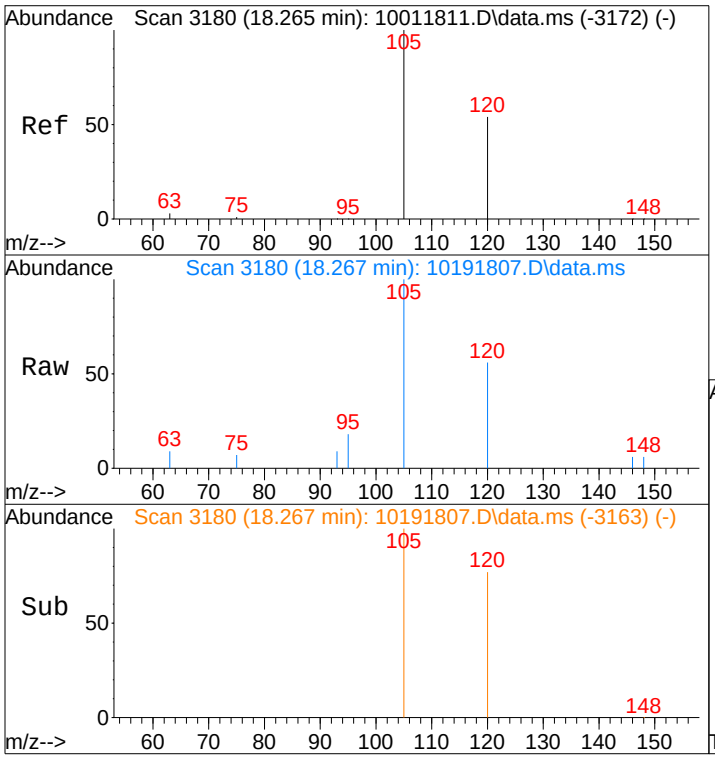


#43
o-Xylene
Concen: 41.11 pg
RT: 16.99 min Scan# 2977
Delta R.T. -0.013 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:106 Resp: 1658

Ion	Ratio	Lower	Upper
106	100		
91	200.5	175.6	215.6

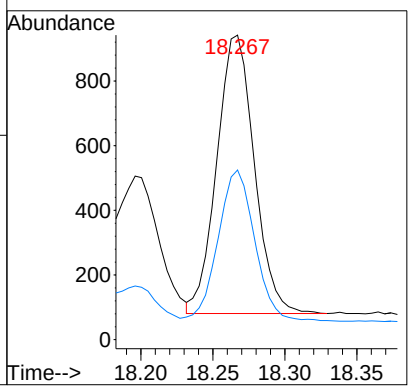


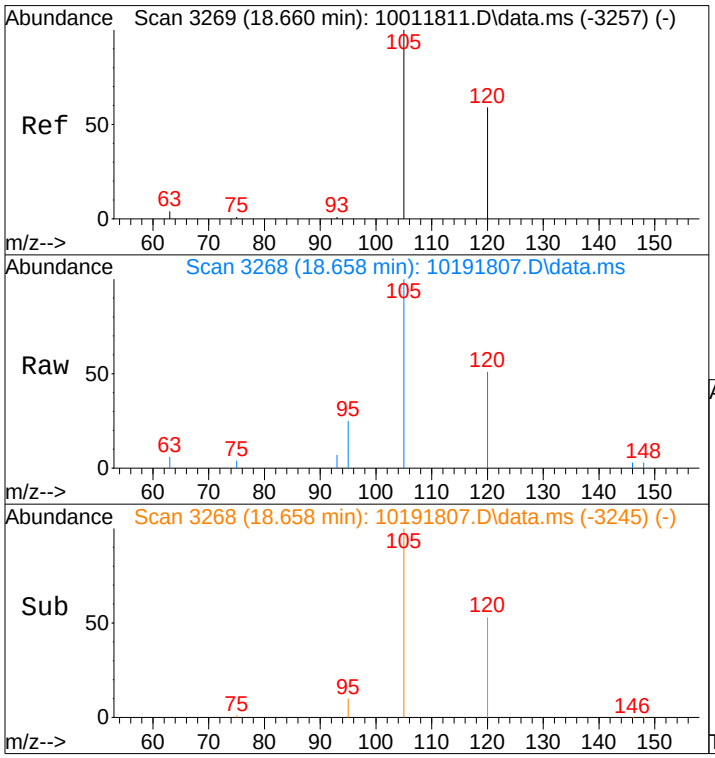


#46
1,3,5-Trimethylbenzene
Concen: 18.39 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.003 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:105 Resp: 1560

Ion	Ratio	Lower	Upper
105	100		
120	51.4	42.8	64.2

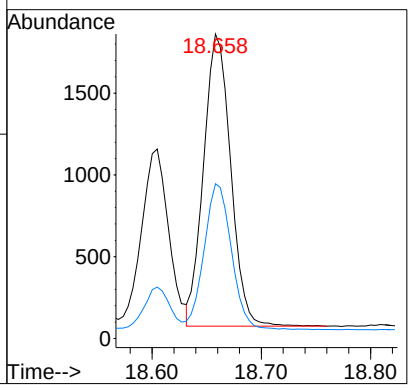


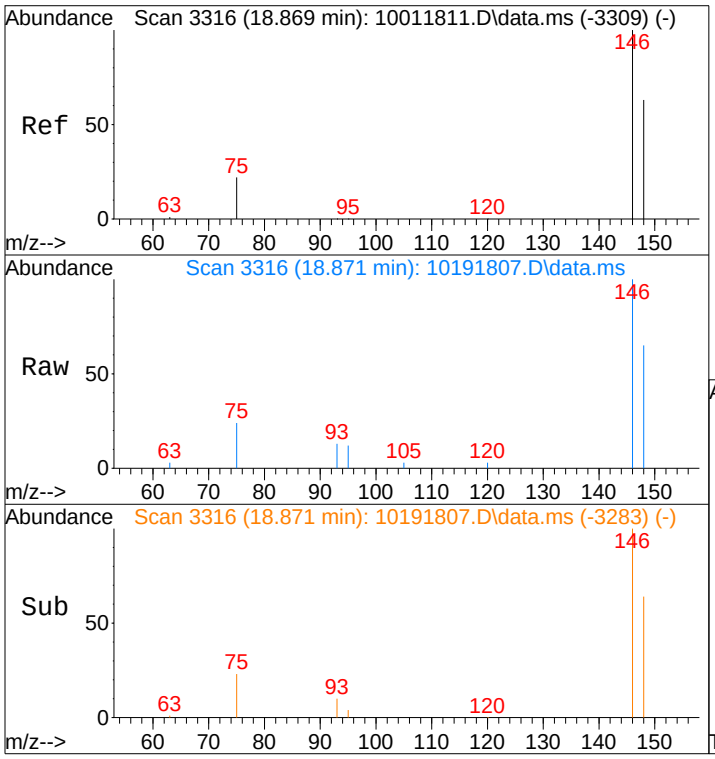


#47
1,2,4-Trimethylbenzene
Concen: 36.40 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:105 Resp: 3080

Ion	Ratio	Lower	Upper
105	100		
120	49.8	47.1	70.7

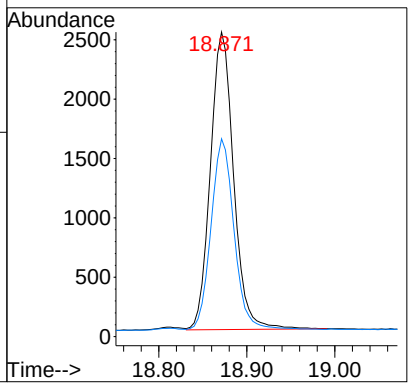


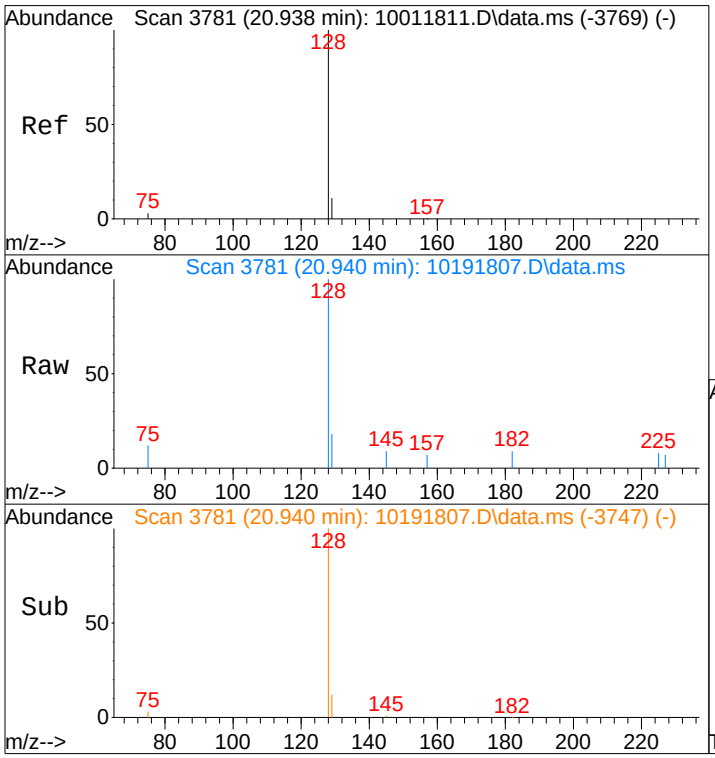


#49
1,4-Dichlorobenzene
Concen: 82.76 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.003 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:146 Resp: 4594

Ion	Ratio	Lower	Upper
146	100		
148	63.3	43.8	83.8

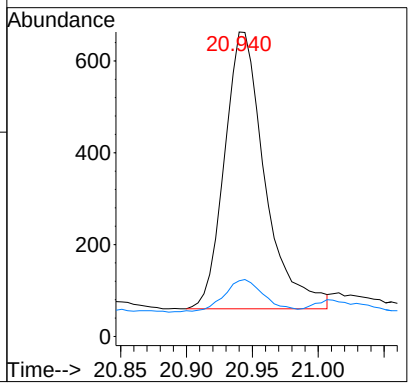




#53
Naphthalene
Concen: 13.02 pg
RT: 20.94 min Scan# 3781
Delta R.T. 0.001 min
Lab File: 10191807.D
Acq: 19 Oct 2018 8:35

Tgt Ion:128 Resp: 1289

Ion	Ratio	Lower	Upper
128	100		
129	11.8	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171811.D Vial: 5
Acq On : 17 Oct 2018 18:10 Operator: WA
Sample : P1805497-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:34:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 VOA 10/25/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	34030	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	86493	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11908	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	20870	512.327 pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 51.23%#			
33) Toluene-d8 (SS2)	14.01	98	94180	1055.880 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.59%			
45) Bromofluorobenzene (SS3)	17.43	174	35455	1053.694 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.37%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	123005	1696.396 pg		100
3) Chloromethane	4.52	52	854	50.369 pg	#	1
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1670	31.950 pg		100
5) Vinyl Chloride	4.82	62	4368	92.769 pg		99
6) 1,3-Butadiene	5.00	54	958	26.914 pg	#	86
7) Bromomethane	5.33	94	120	N.D.		
8) Chloroethane	5.55	64	4963	201.454 pg		99
9) Acrolein	6.14	56	1058	53.127 pg		93
10) Acetone	6.28	58	168678	6680.993 pg	#	46
11) Trichlorofluoromethane	6.48	101	42686	752.752 pg		100
12) 1,1-Dichloroethene	7.20	96	1501	37.404 pg	#	81
13) Methylene Chloride	7.33	84	42740	1016.718 pg		99
14) Trichlorotrifluoroethane	7.67	151	4821	121.303 pg		99
15) trans-1,2-Dichloroethene	8.37	96	2349	56.262 pg		98
16) 1,1-Dichloroethane	8.58	63	2251	34.544 pg		99
17) Methyl tert-Butyl Ether	8.59	73	195	N.D.		
18) cis-1,2-Dichloroethene	9.45	96	1221	27.477 pg		99
19) Chloroform	9.76	83	2043876	29073.802 pg		100
21) 1,2-Dichloroethane	10.51	62	1779	40.914 pg		99
22) 1,1,1-Trichloroethane	10.78	97	4709	78.974 pg		100
23) Benzene	11.24	78	5886	33.328 pg		98
24) Carbon Tetrachloride	11.39	117	23717	435.764 pg		100
26) 1,2-Dichloropropane	12.05	63	301	13.972 pg		99
27) Bromodichloromethane	12.22	83	598756	20938.229 pg		100
28) Trichloroethene	12.28	130	76076	2814.949 pg		98
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	13.82	83	85	N.D.		
34) Toluene	14.11	91	75587	765.377 pg		100
35) Dibromochloromethane	14.53	129	294370	11126.579 pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	221888	7635.082 pg		100
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.35	91	35401	322.464 pg		100
41) m,p-Xylene	16.52	91	143915	1714.493 pg		100
42) Styrene	16.89	104	2707	40.601 pg	#	1
43) o-Xylene	17.00	106	29562	662.429 pg		100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	2418	25.762 pg		91
47) 1,2,4-Trimethylbenzene	18.66	105	3595	38.394 pg		88
48) 1,3-Dichlorobenzene	18.81	146	76	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	15171	246.964 pg		100
50) 1,2-Dichlorobenzene	19.19	146	77	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D. d		
53) Naphthalene	20.94	128	3563	32.533 pg		95

NR

NR

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171811.D Vial: 5
Acq On : 17 Oct 2018 18:10 Operator: WA
Sample : P1805497-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:34:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

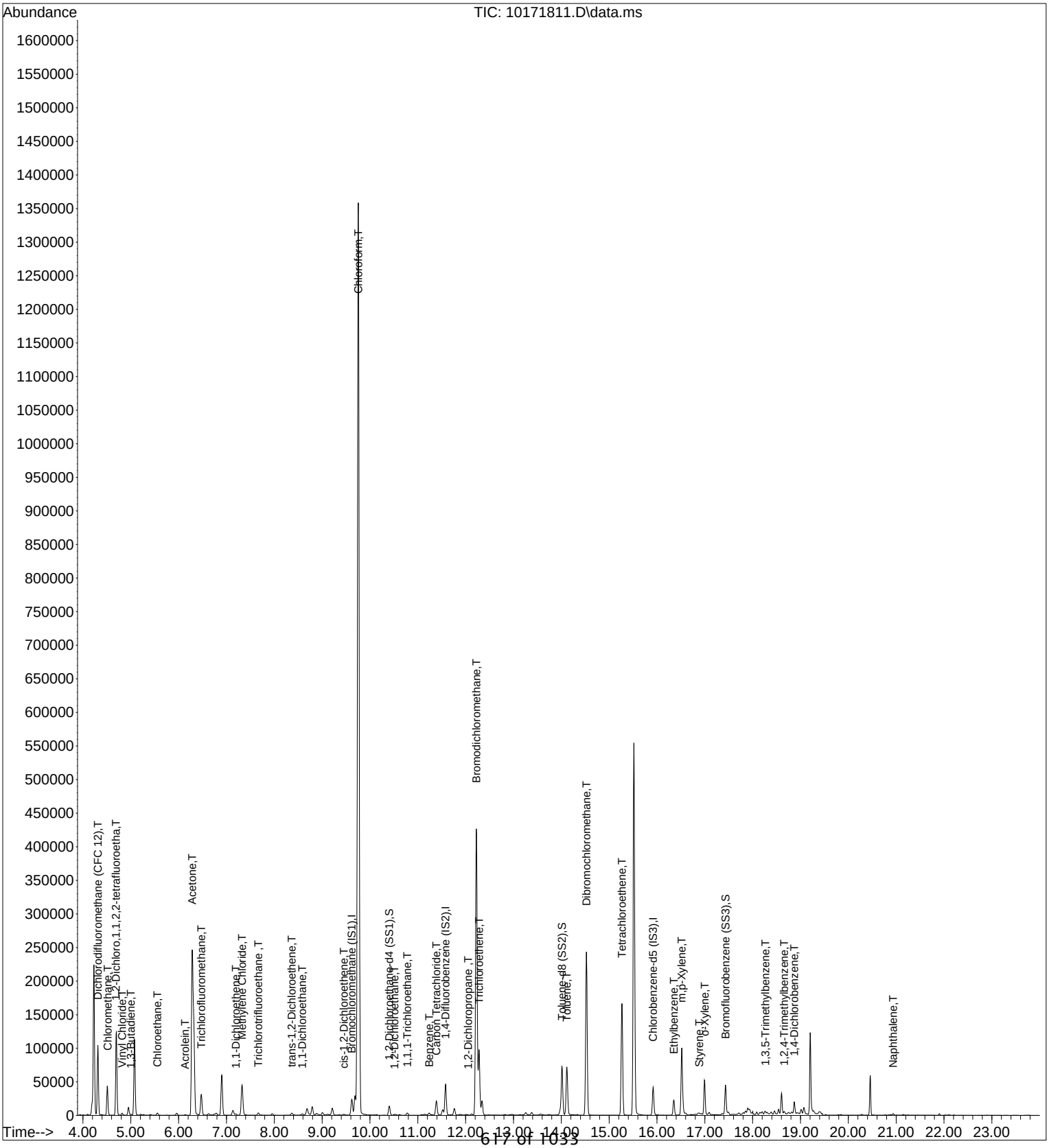
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	59	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171811.D Vial: 5
Acq On : 17 Oct 2018 18:10 Operator: WA
Sample : P1805497-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:34:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171811.D Vial: 5
Acq On : 17 Oct 2018 18:10 Operator: WA
Sample : P1805497-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:34:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	34030	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	86493	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11908	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	20870	512.327 pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 51.23%#			
33) Toluene-d8 (SS2)	14.01	98	94180	1055.880 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.59%			
45) Bromofluorobenzene (SS3)	17.43	174	35455	1053.694 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.37%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	123005	1696.396 pg		100
3) Chloromethane	4.52	52	854	50.369 pg	#	1
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1670	31.950 pg		100
5) Vinyl Chloride	4.82	62	4368	92.769 pg		99
6) 1,3-Butadiene	5.00	54	958	26.914 pg	#	86
8) Chloroethane	5.55	64	4963	201.454 pg		99
9) Acrolein	6.14	56	1058	53.127 pg		93
10) Acetone	6.28	58	168678	6680.993 pg	#	46
11) Trichlorofluoromethane	6.48	101	42686	752.752 pg		100
12) 1,1-Dichloroethene	7.20	96	1501	37.404 pg	#	81
13) Methylene Chloride	7.33	84	42740	1016.718 pg		99
14) Trichlorotrifluoroethane	7.67	151	4821	121.303 pg		99
15) trans-1,2-Dichloroethene	8.37	96	2349	56.262 pg		98
16) 1,1-Dichloroethane	8.58	63	2251	34.544 pg		99
18) cis-1,2-Dichloroethene	9.45	96	1221	27.477 pg		99
19) Chloroform	9.76	83	2043876	29073.802 pg		100
21) 1,2-Dichloroethane	10.51	62	1779	40.914 pg		99
22) 1,1,1-Trichloroethane	10.78	97	4709	78.974 pg		100
23) Benzene	11.24	78	5886	33.328 pg		98
24) Carbon Tetrachloride	11.39	117	23717	435.764 pg		100
26) 1,2-Dichloropropane	12.05	63	301	13.972 pg		99
27) Bromodichloromethane	12.22	83	598756	20938.229 pg		100
28) Trichloroethene	12.28	130	76076	2814.949 pg		98
34) Toluene	14.11	91	75587	765.377 pg		100
35) Dibromochloromethane	14.53	129	294370	11126.579 pg		100
37) Tetrachloroethene	15.27	166	221888	7635.082 pg		100
40) Ethylbenzene	16.35	91	35401	322.464 pg		100
41) m,p-Xylene	16.52	91	143915	1714.493 pg		100
42) Styrene	16.89	104	2707	40.601 pg	#	1
43) o-Xylene	17.00	106	29562	662.429 pg		100
46) 1,3,5-Trimethylbenzene	18.27	105	2418	25.762 pg		91
47) 1,2,4-Trimethylbenzene	18.66	105	3595	38.394 pg		88
49) 1,4-Dichlorobenzene	18.87	146	15171	246.964 pg		100
53) Naphthalene	20.94	128	3563	32.533 pg		95

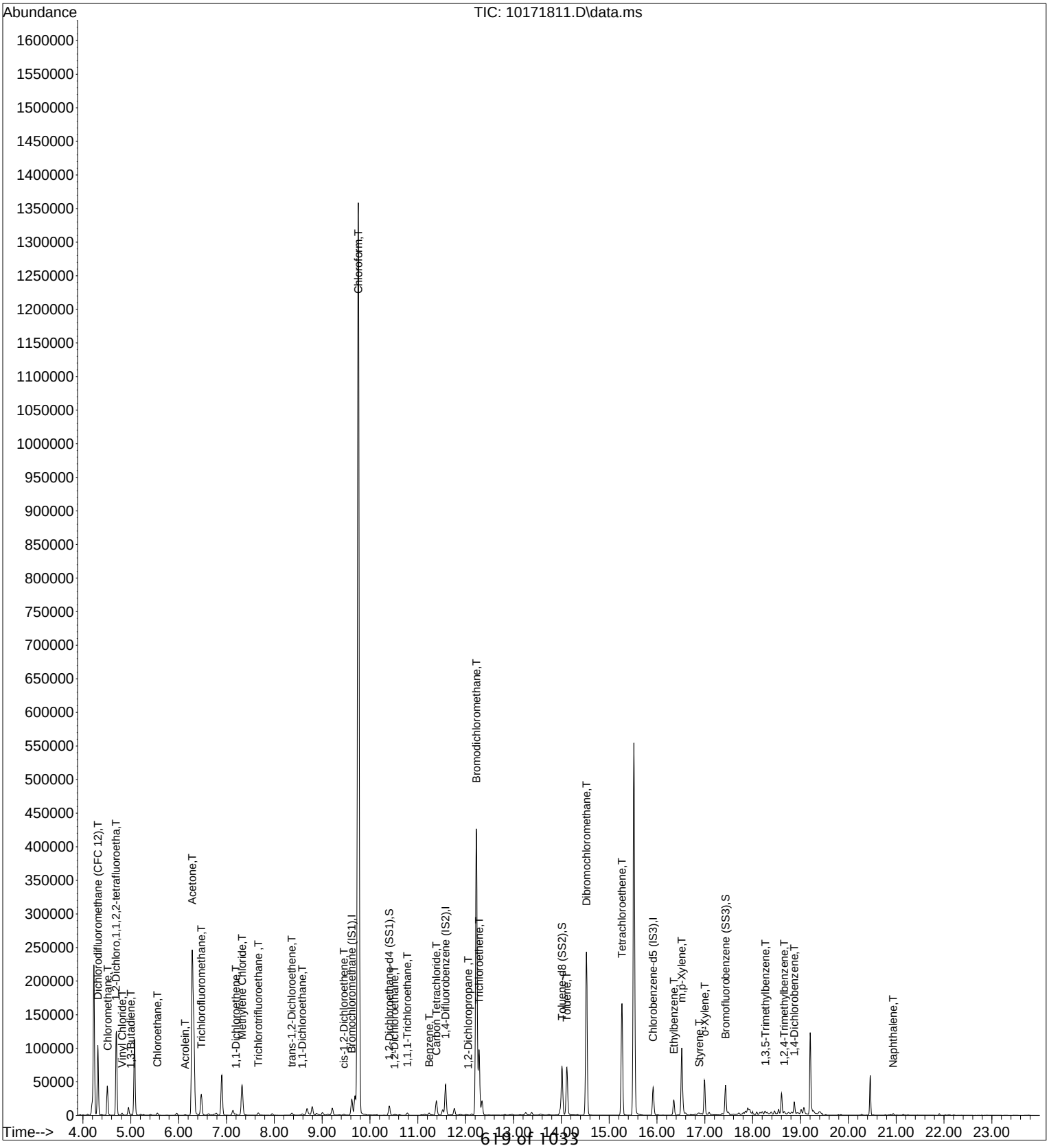
NR

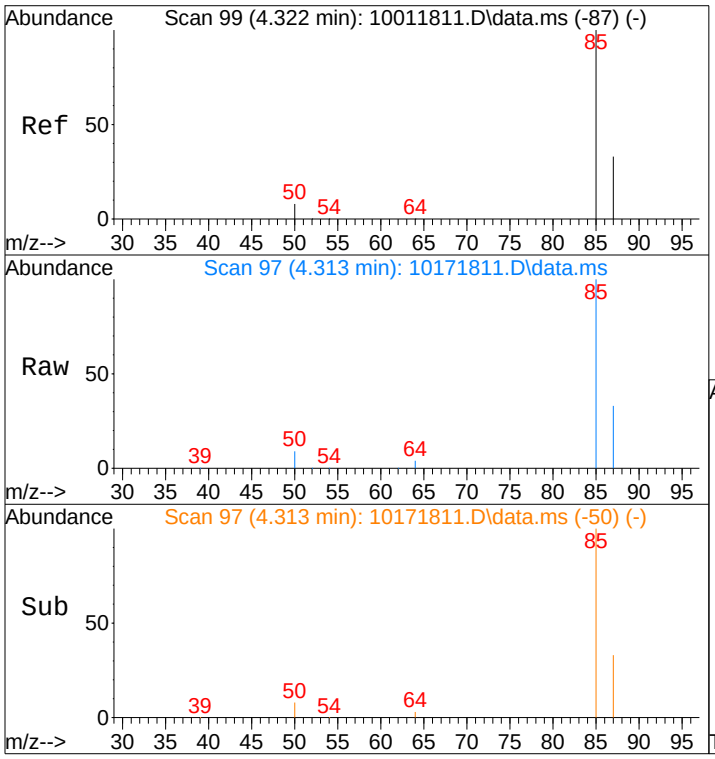
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171811.D Vial: 5
Acq On : 17 Oct 2018 18:10 Operator: WA
Sample : P1805497-004 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:34:55 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

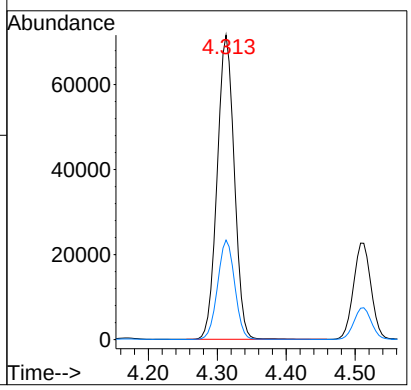


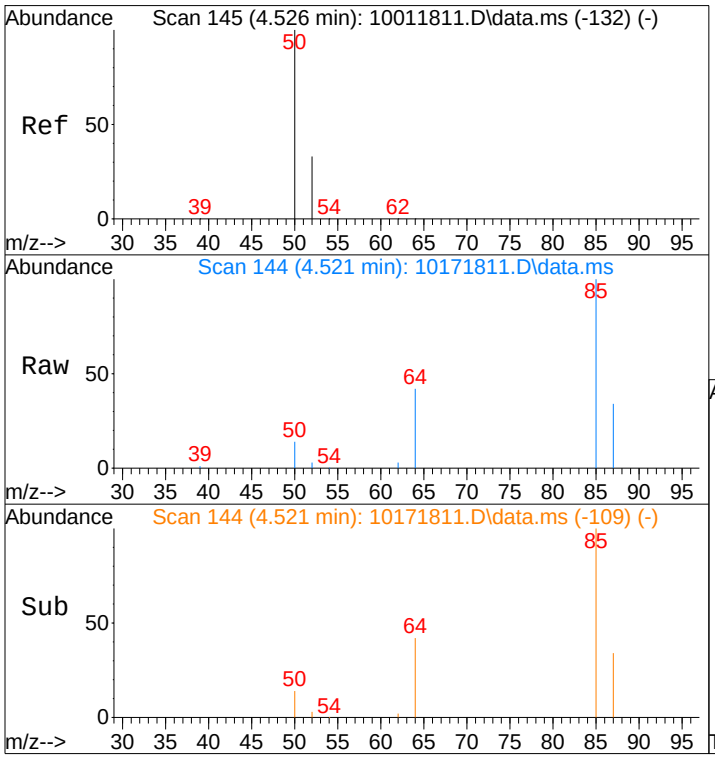


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1696.40 pg
RT: 4.31 min Scan# 97
Delta R.T. 0.009 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 85 Resp: 123005

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

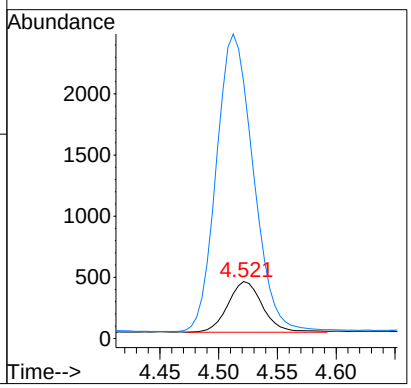


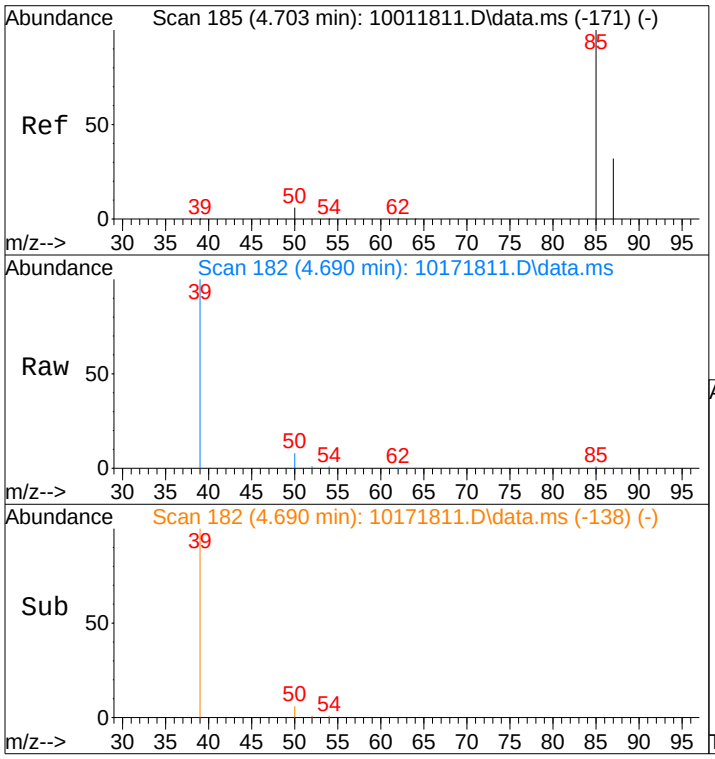


#3
Chloromethane
Concen: 50.37 pg
RT: 4.52 min Scan# 144
Delta R.T. 0.004 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 52 Resp: 854

Ion	Ratio	Lower	Upper
52	100		
50	624.4	281.8	321.8#

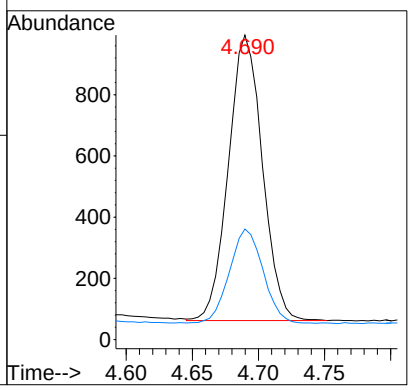


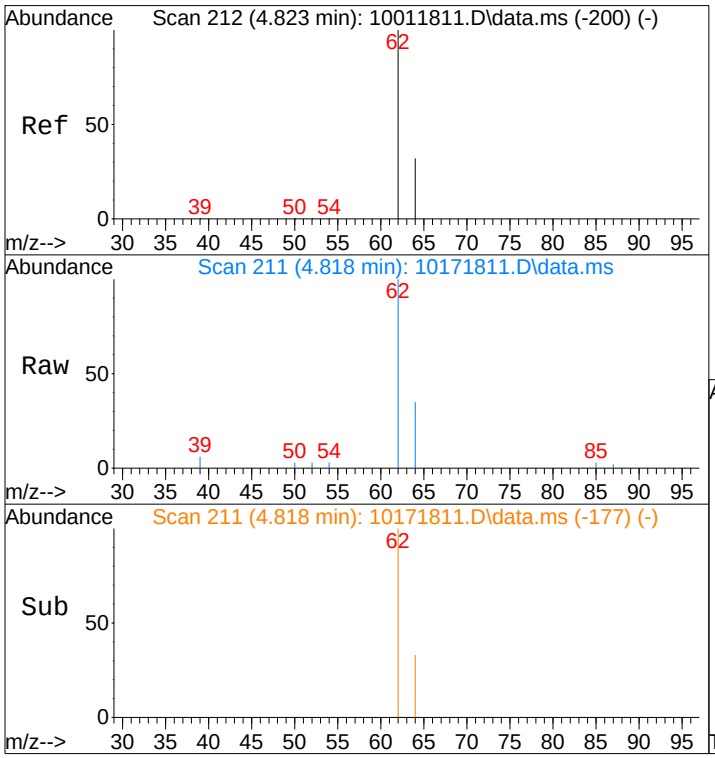


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 31.95 pg
RT: 4.69 min Scan# 182
Delta R.T. -0.004 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 85 Resp: 1670

Ion	Ratio	Lower	Upper
85	100		
87	32.6	26.0	39.0

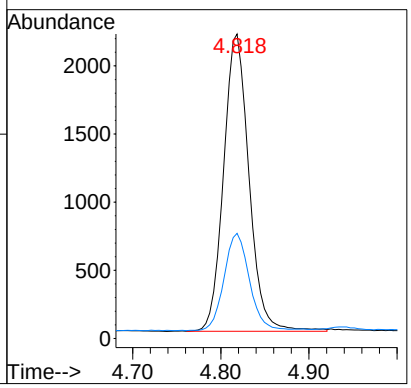


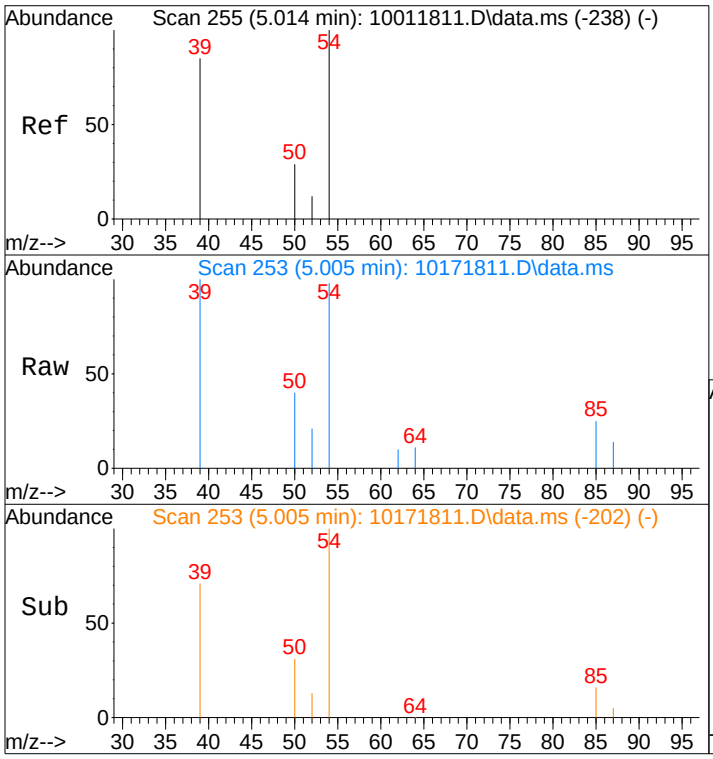


#5
Vinyl Chloride
Concen: 92.77 pg
RT: 4.82 min Scan# 211
Delta R.T. 0.000 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 62 Resp: 4368

Ion	Ratio	Lower	Upper
62	100		
64	32.2	12.8	52.8

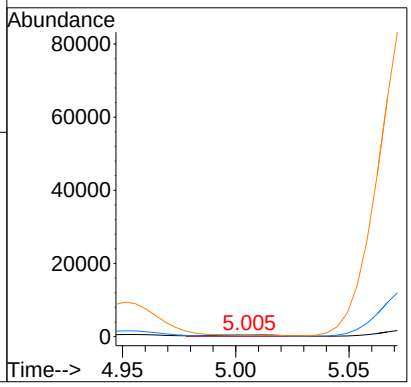


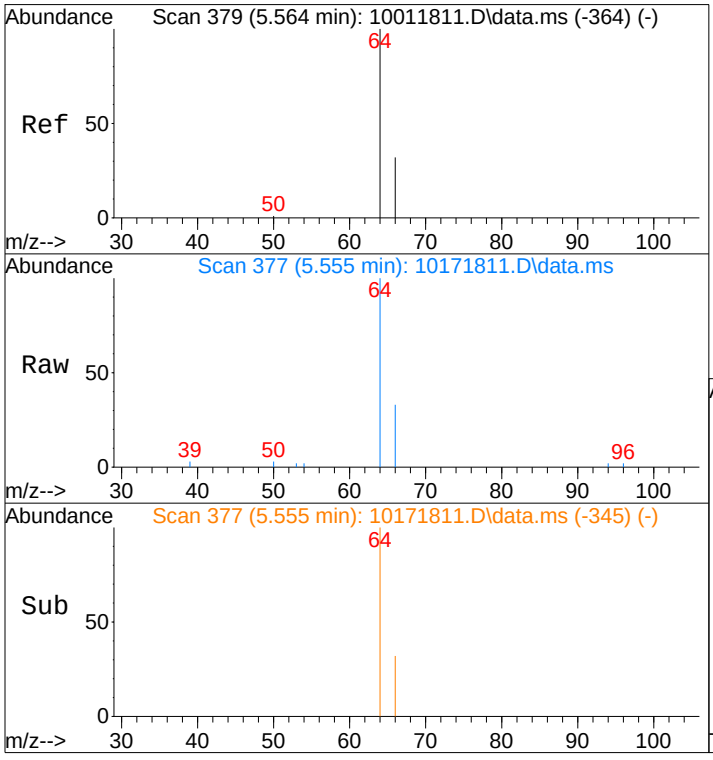


#6
1,3-Butadiene
Concen: 26.91 pg
RT: 5.00 min Scan# 253
Delta R.T. -0.004 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 54 Resp: 958

Ion	Ratio	Lower	Upper
54	100		
50	29.6	23.6	35.4
39	69.6	69.9	104.9#

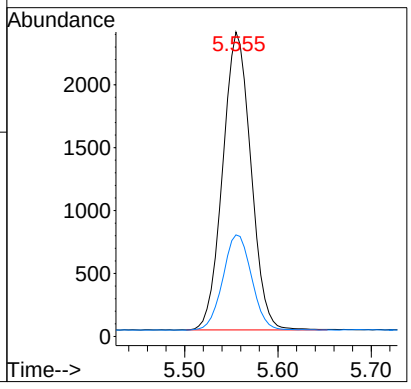


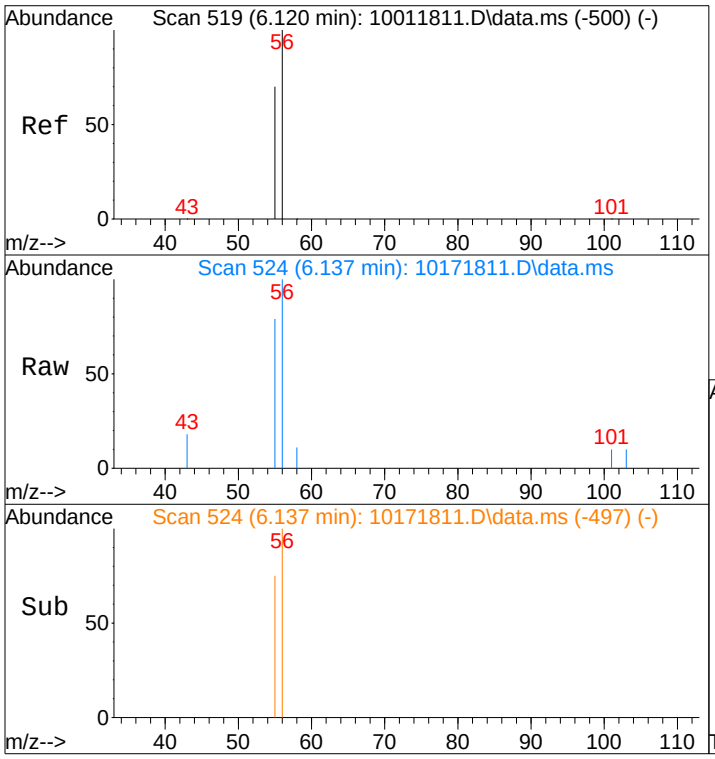


#8
Chloroethane
Concen: 201.45 pg
RT: 5.55 min Scan# 377
Delta R.T. -0.009 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 64 Resp: 4963

Ion	Ratio	Lower	Upper
64	100		
66	32.7	12.3	52.3

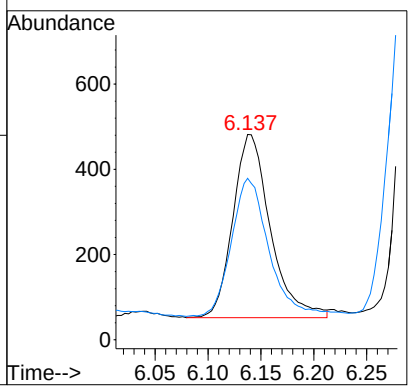


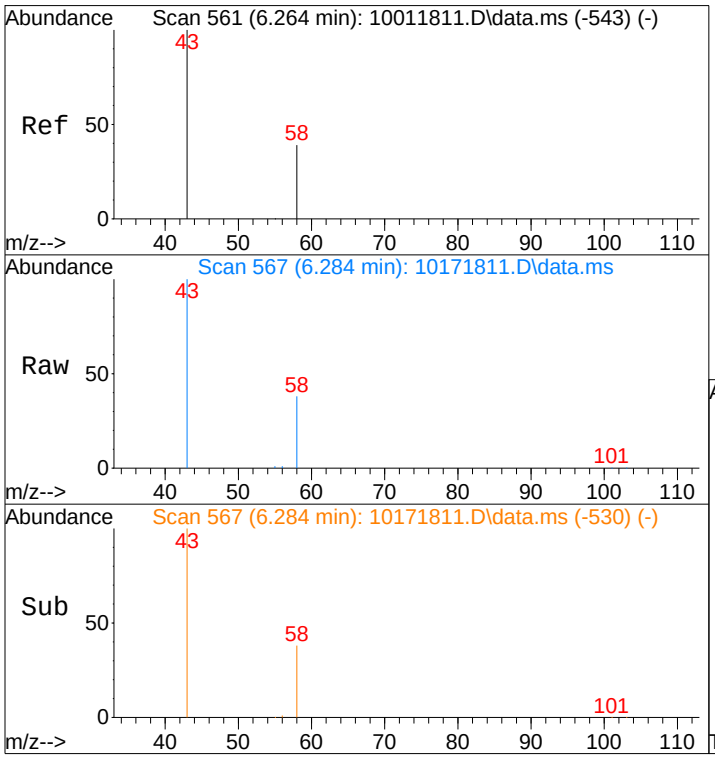


#9
Acrolein
Concen: 53.13 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 56 Resp: 1058

Ion	Ratio	Lower	Upper
56	100		
55	75.1	55.3	82.9

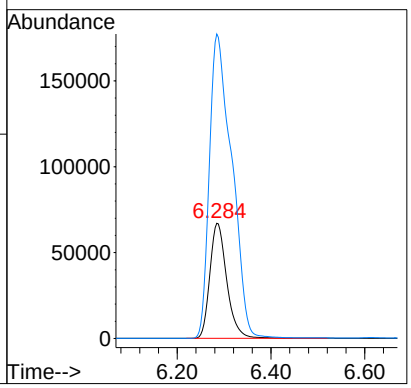


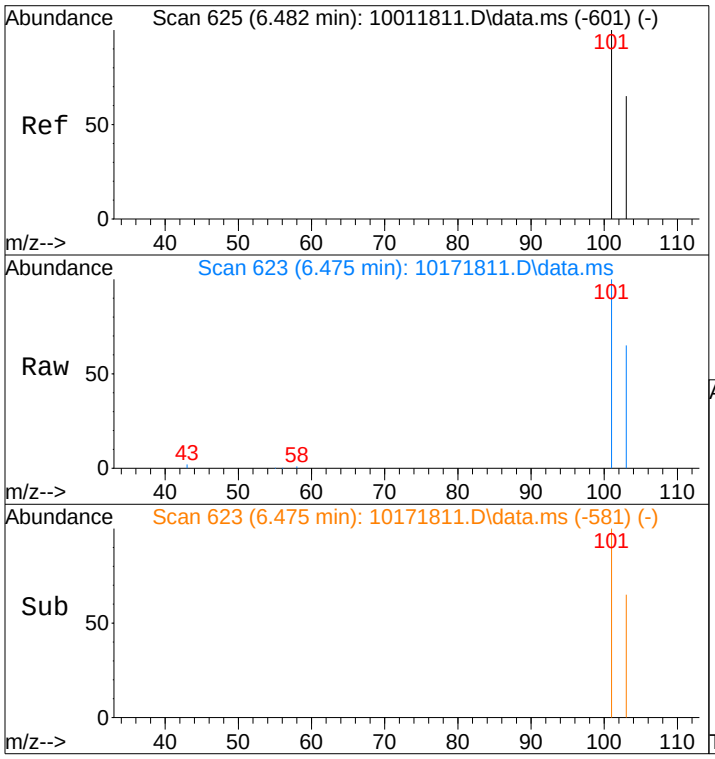


#10
Acetone
Concen: 6680.99 pg
RT: 6.28 min Scan# 567
Delta R.T. -0.024 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 58 Resp: 168678

Ion	Ratio	Lower	Upper
58	100		
43	349.7	234.7	274.7#

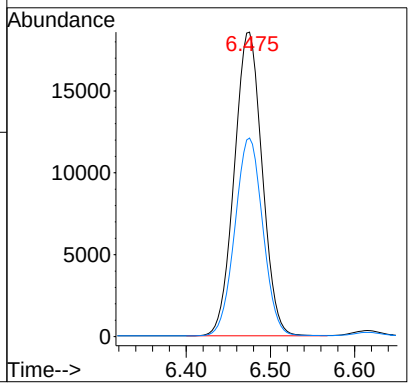


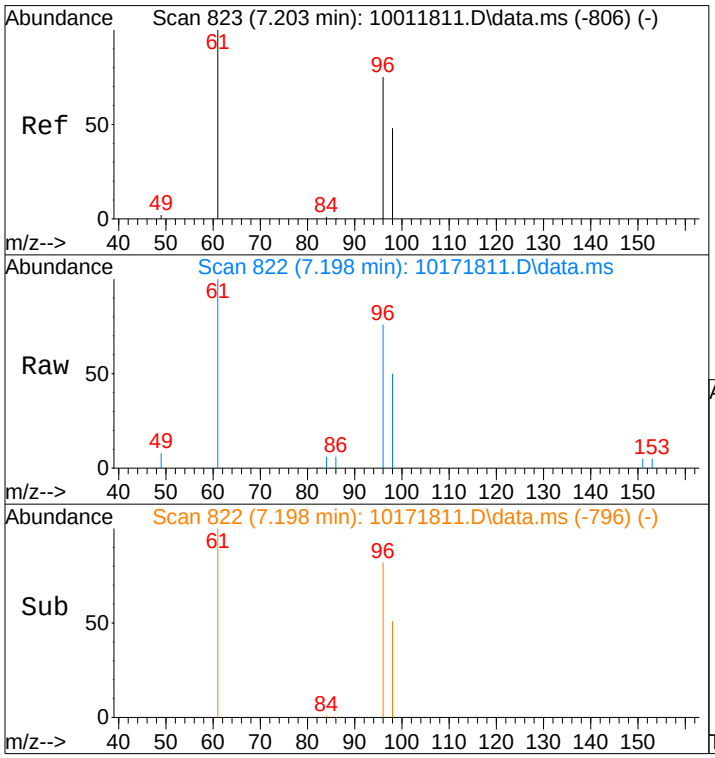


#11
Trichlorofluoromethane
Concen: 752.75 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:101 Resp: 42686

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

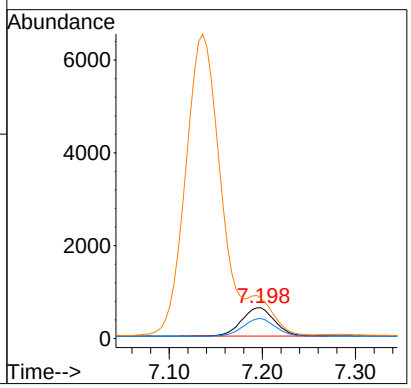


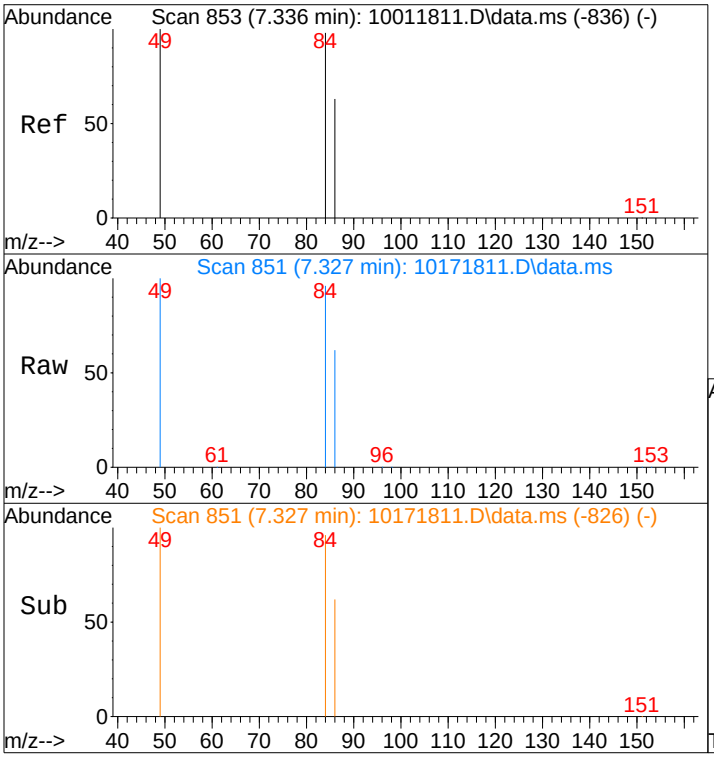


#12
1,1-Dichloroethene
Concen: 37.40 pg
RT: 7.20 min Scan# 822
Delta R.T. -0.013 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 96 Resp: 1501

Ion	Ratio	Lower	Upper
96	100		
98	61.2	44.2	84.2
61	103.6	114.1	154.1#

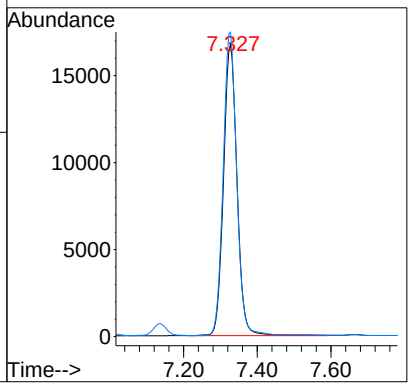


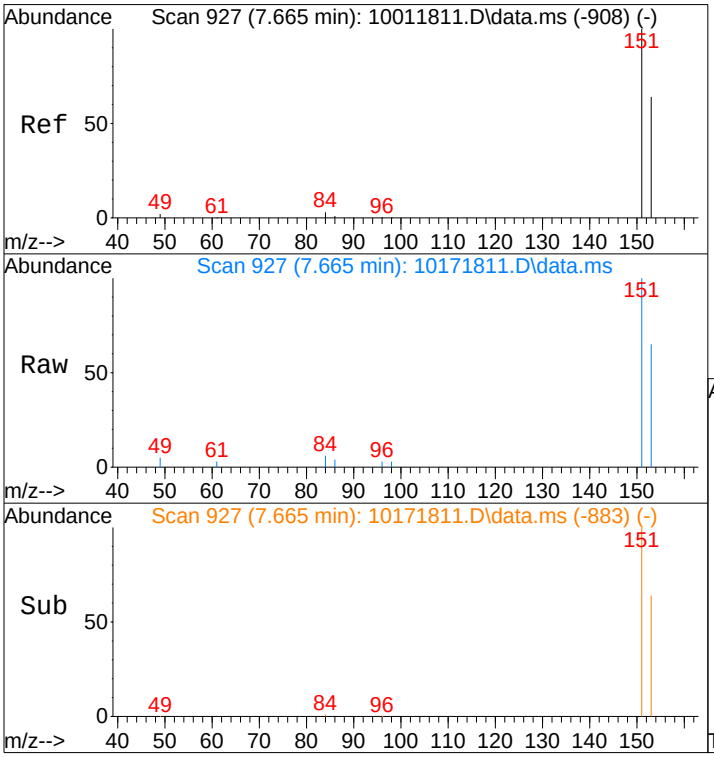


#13
Methylene Chloride
Concen: 1016.72 pg
RT: 7.33 min Scan# 851
Delta R.T. -0.049 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 84 Resp: 42740

Ion	Ratio	Lower	Upper
84	100		
49	104.4	83.3	123.3

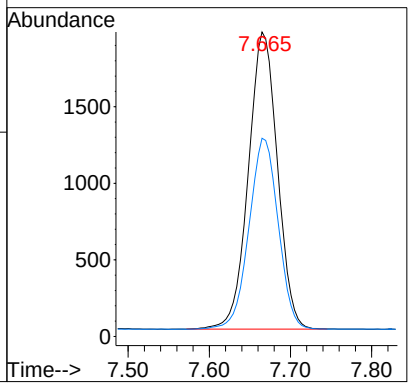


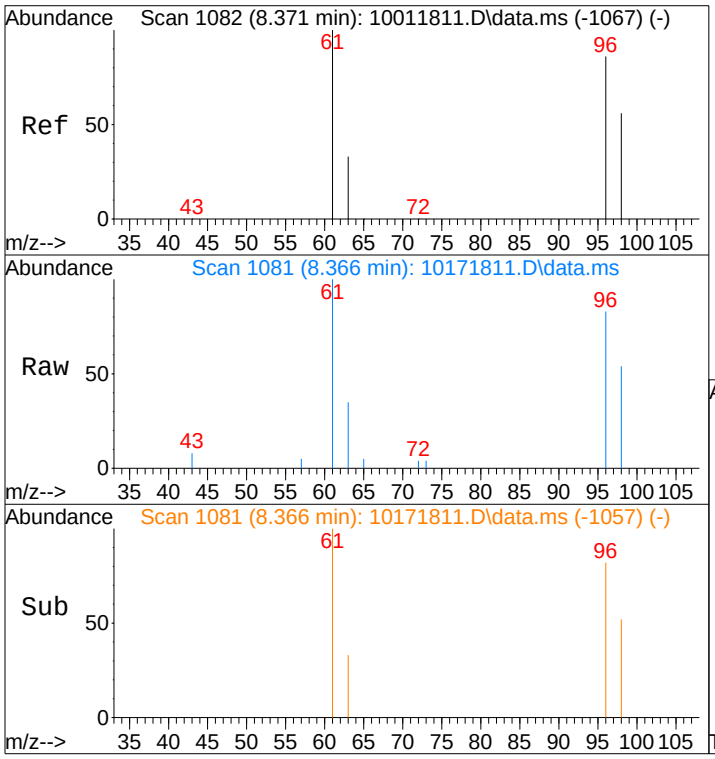


#14
Trichlorotrifluoroethane
Concen: 121.30 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:151 Resp: 4821

Ion	Ratio	Lower	Upper
151	100		
153	64.7	44.3	84.3

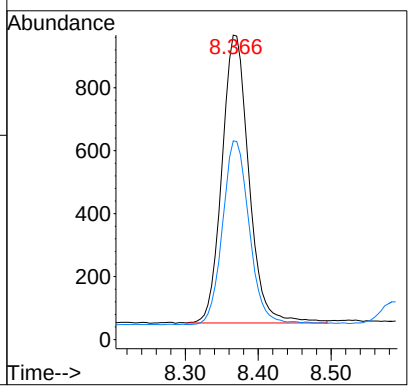


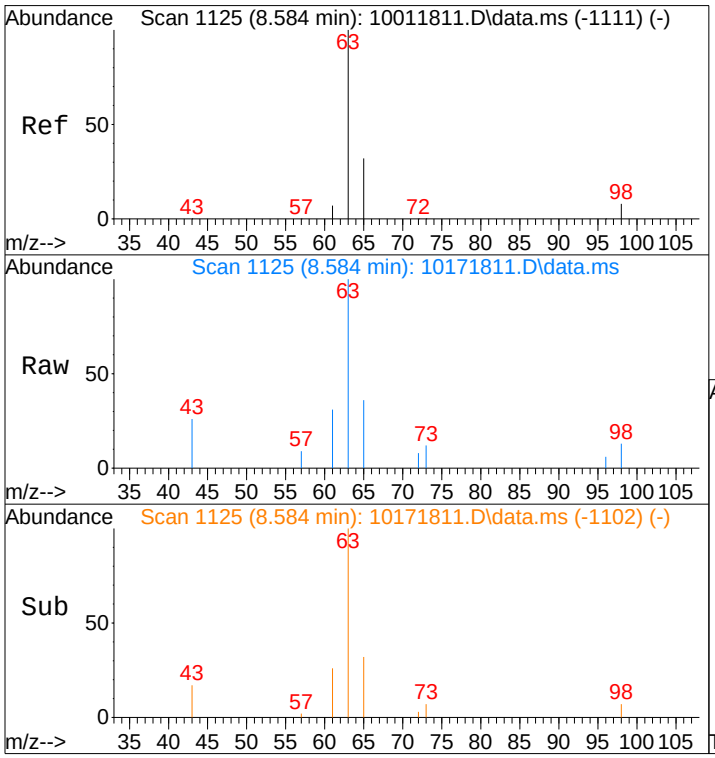


#15
trans-1,2-Dichloroethene
Concen: 56.26 pg
RT: 8.37 min Scan# 1081
Delta R.T. -0.030 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 96 Resp: 2349

Ion	Ratio	Lower	Upper
96	100		
98	62.9	44.1	84.1

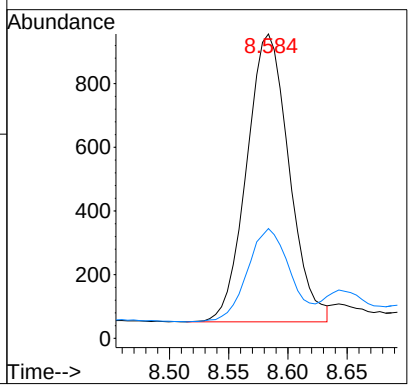


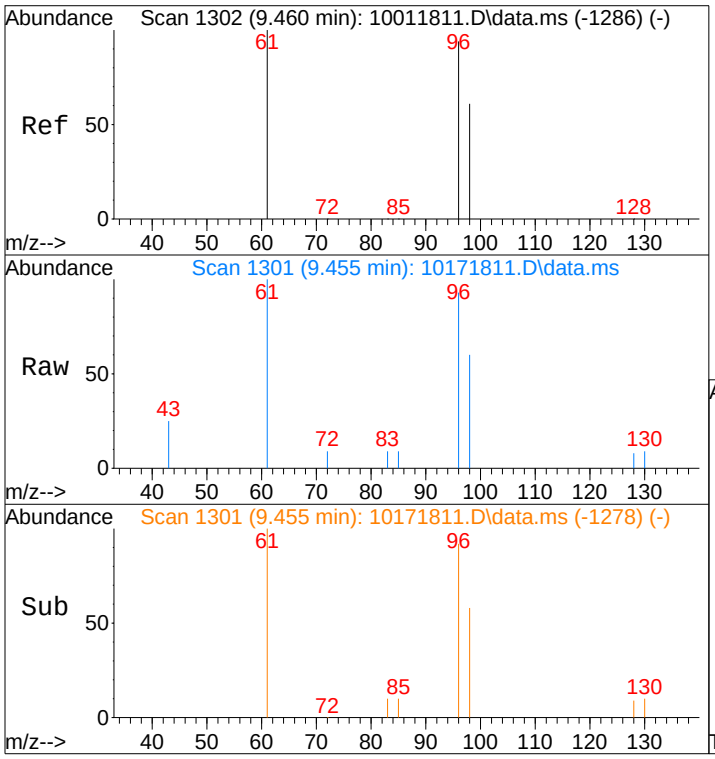


#16
1,1-Dichloroethane
Concen: 34.54 pg
RT: 8.58 min Scan# 1125
Delta R.T. -0.035 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 63 Resp: 2251

Ion	Ratio	Lower	Upper
63	100		
65	32.9	12.2	52.2

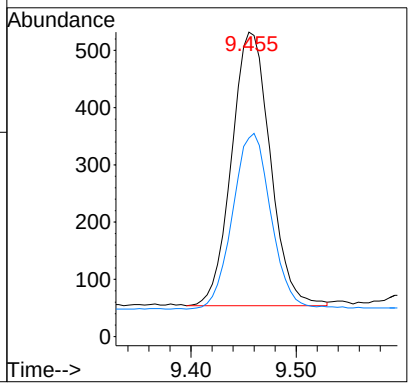


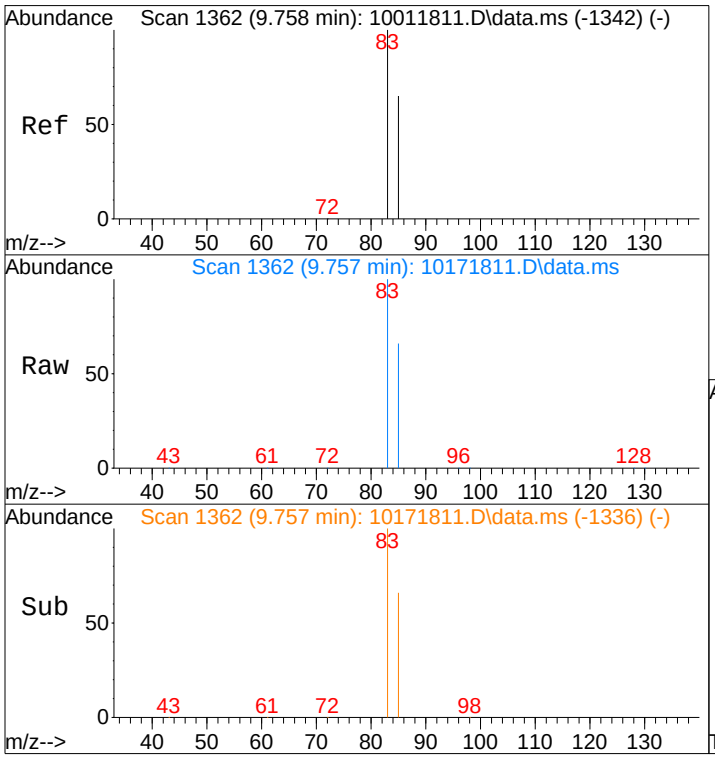


#18
cis-1,2-Dichloroethene
Concen: 27.48 pg
RT: 9.45 min Scan# 1301
Delta R.T. -0.035 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 96 Resp: 1221

Ion	Ratio	Lower	Upper
96	100		
98	64.0	44.5	84.5

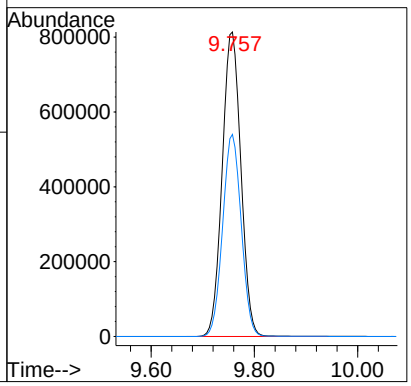


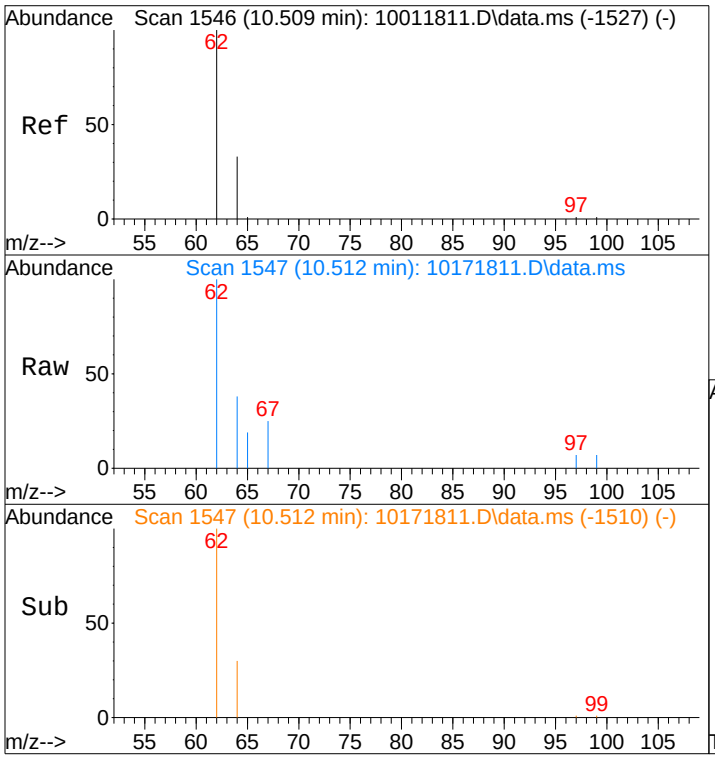


#19
Chloroform
Concen: 29073.80 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.040 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 83 Resp: 2043876

Ion	Ratio	Lower	Upper
83	100		
85	65.8	46.0	86.0

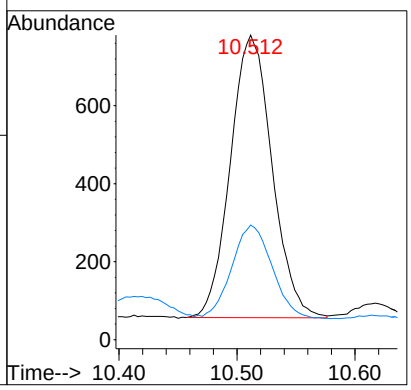


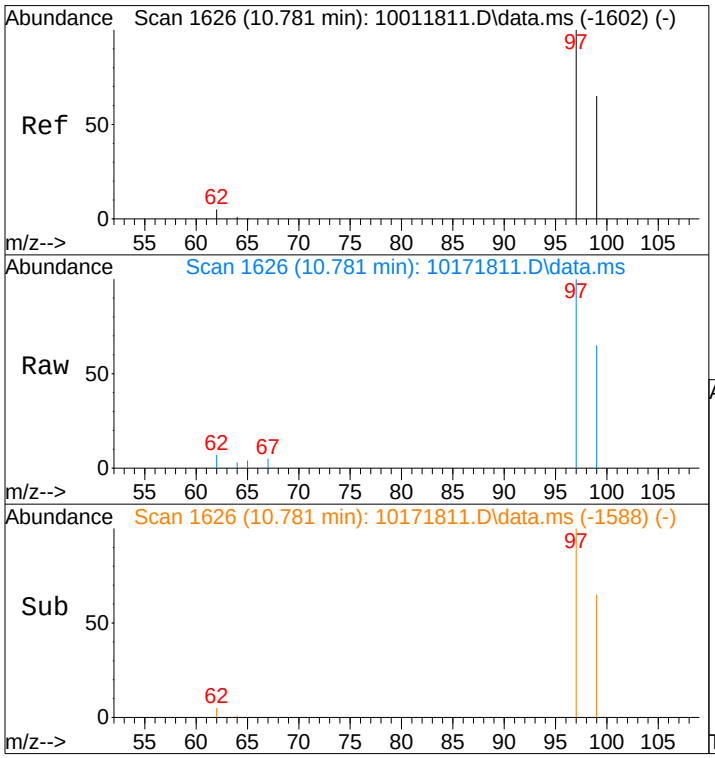


#21
1,2-Dichloroethane
Concen: 40.91 pg
RT: 10.51 min Scan# 1547
Delta R.T. -0.024 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 62 Resp: 1779

Ion	Ratio	Lower	Upper
62	100		
64	32.3	12.9	52.9

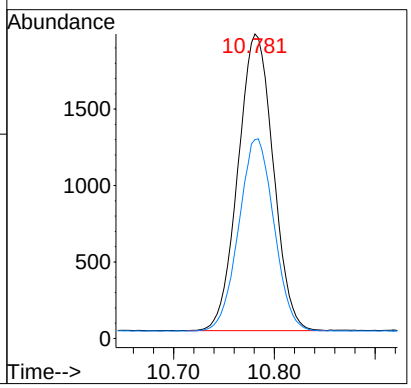


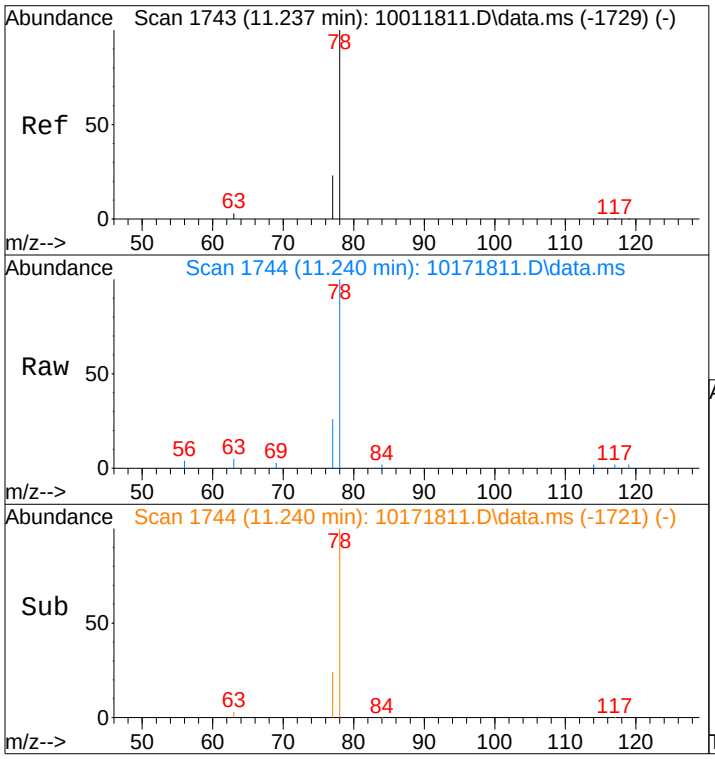


#22
1,1,1-Trichloroethane
Concen: 78.97 pg
RT: 10.78 min Scan# 1626
Delta R.T. -0.020 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 97 Resp: 4709

Ion	Ratio	Lower	Upper
97	100		
99	64.8	44.9	84.9

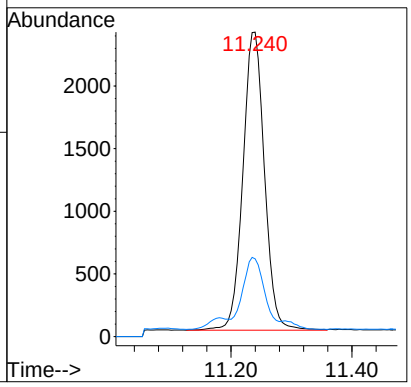


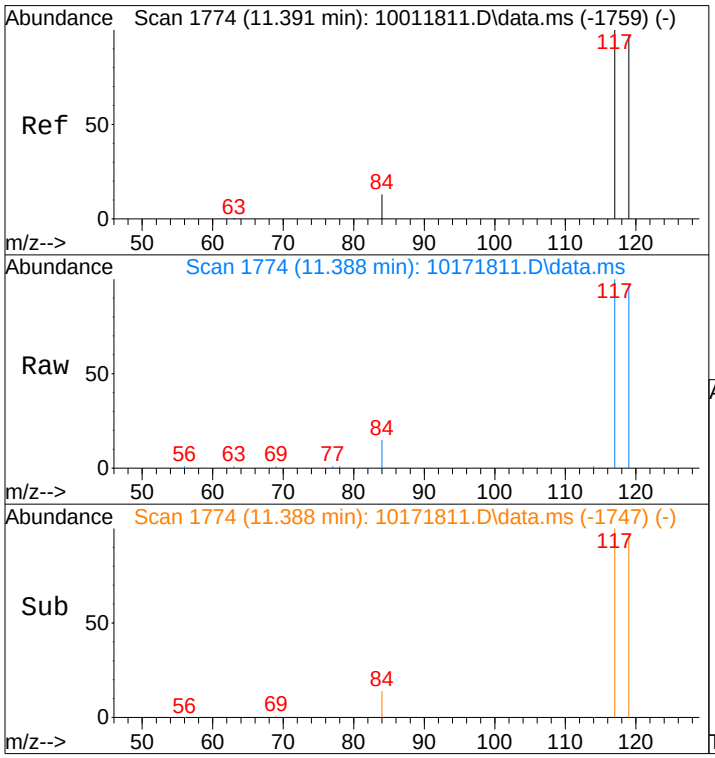


#23
Benzene
Concen: 33.33 pg
RT: 11.24 min Scan# 1744
Delta R.T. -0.016 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 78 Resp: 5886

Ion	Ratio	Lower	Upper
78	100		
77	24.1	3.3	43.3

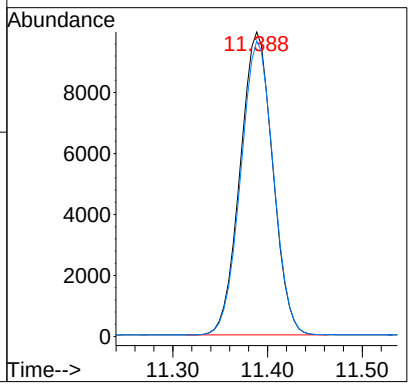


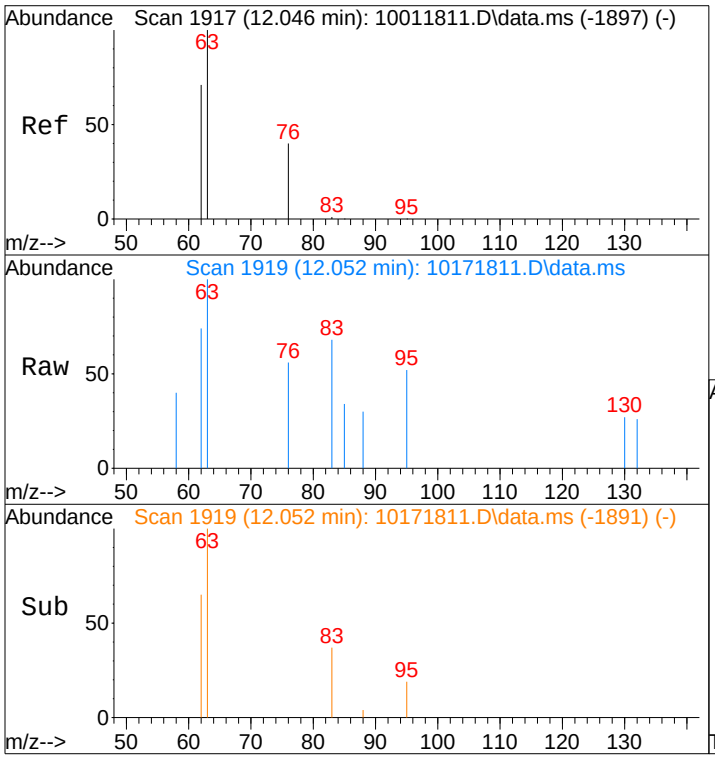


#24
Carbon Tetrachloride
Concen: 435.76 pg
RT: 11.39 min Scan# 1774
Delta R.T. -0.016 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:117 Resp: 23717

Ion	Ratio	Lower	Upper
117	100		
119	97.0	76.7	116.7

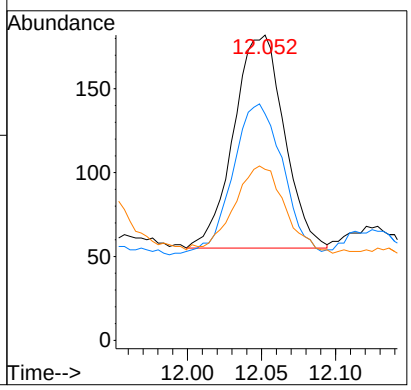


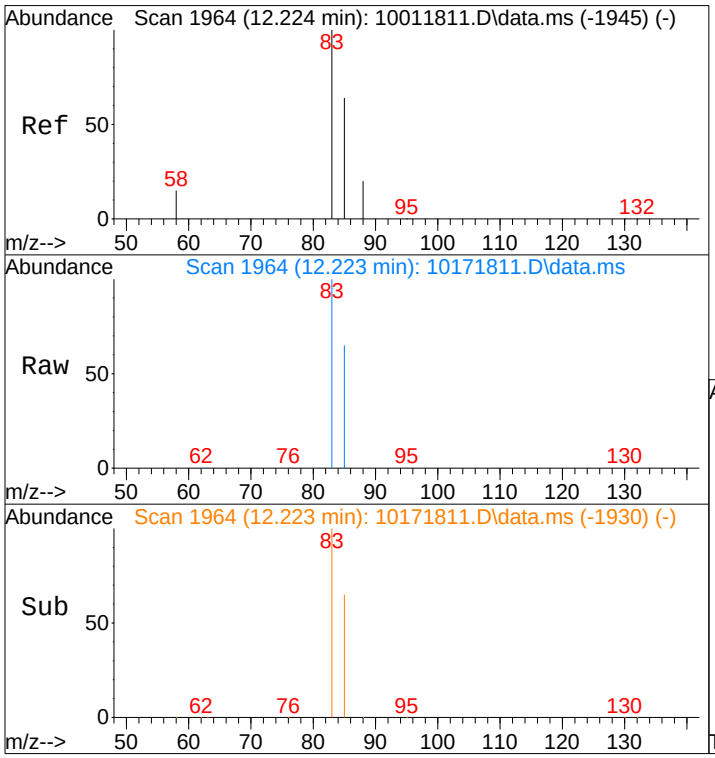


#26
1,2-Dichloropropane
Concen: 13.97 pg
RT: 12.05 min Scan# 1919
Delta R.T. -0.012 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 63 Resp: 301

Ion	Ratio	Lower	Upper
63	100		
62	70.8	50.7	90.7
76	40.9	19.6	59.6

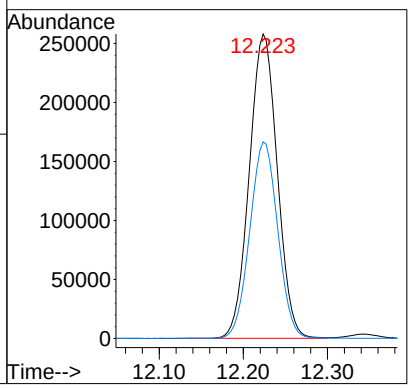


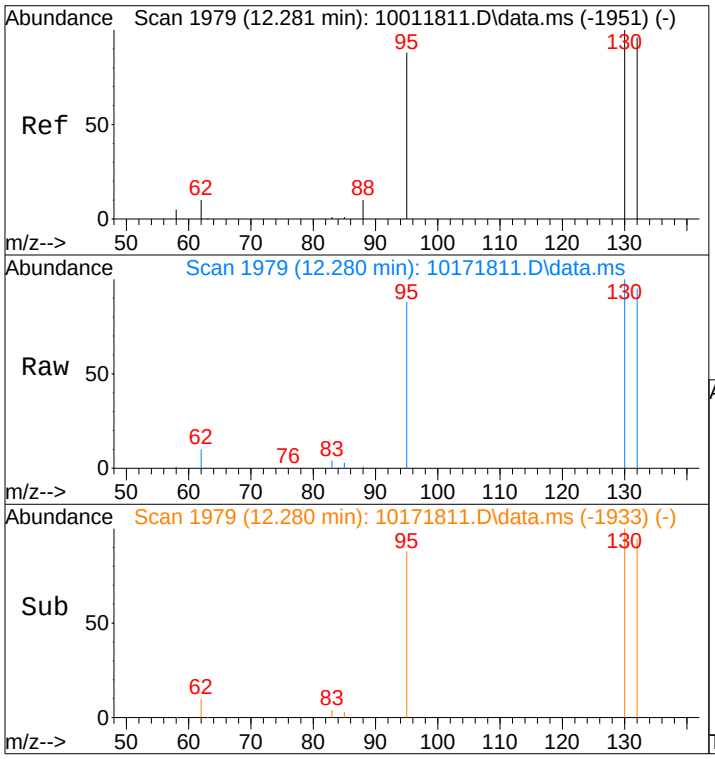


#27
Bromodichloromethane
Concen: 20938.23 pg
RT: 12.22 min Scan# 1964
Delta R.T. -0.019 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 83 Resp: 598756

Ion	Ratio	Lower	Upper
83	100		
85	64.6	51.7	77.5

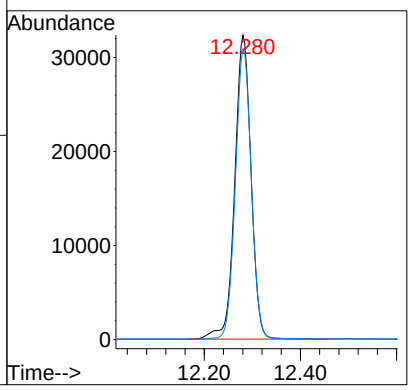


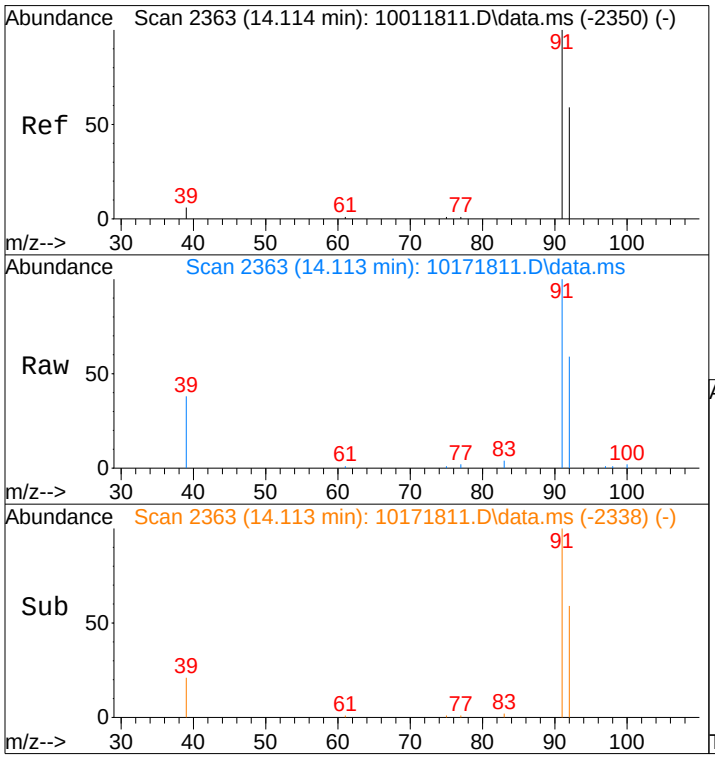


#28
Trichloroethene
Concen: 2814.95 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.016 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:130 Resp: 76076

Ion	Ratio	Lower	Upper
130	100		
132	93.6	75.6	115.6

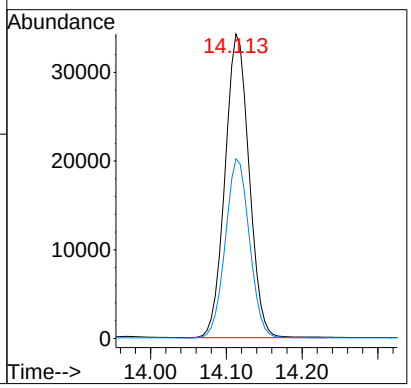


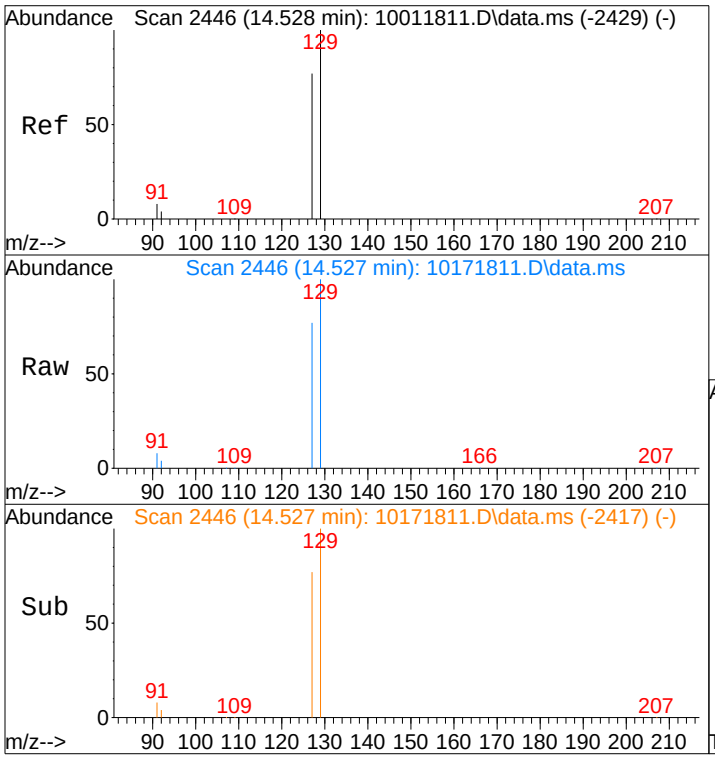


#34
Toluene
Concen: 765.38 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 91 Resp: 75587

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

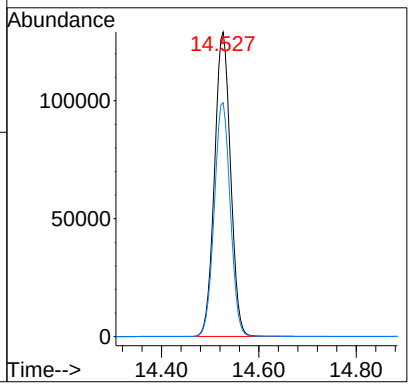


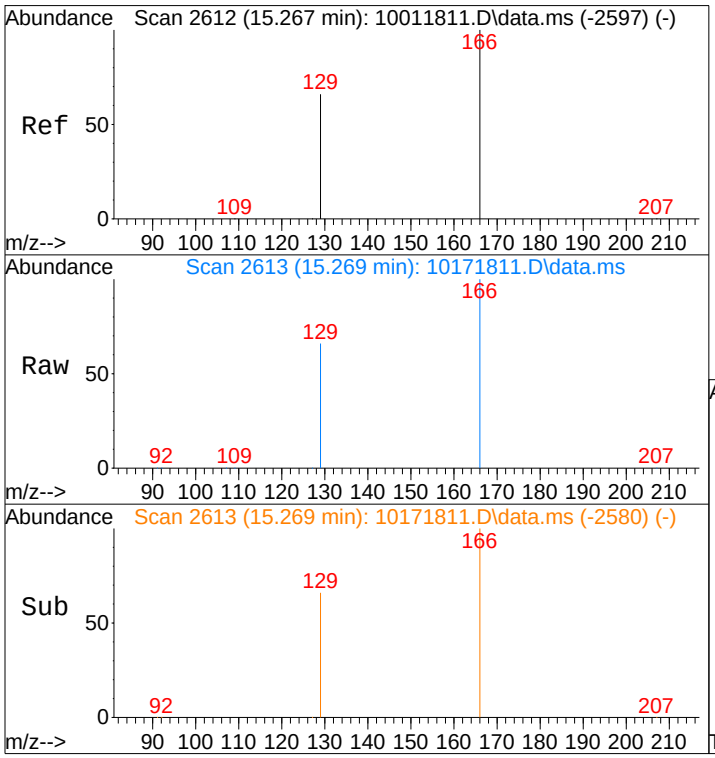


#35
Dibromochloromethane
Concen: 11126.58 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.009 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:129 Resp: 294370

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

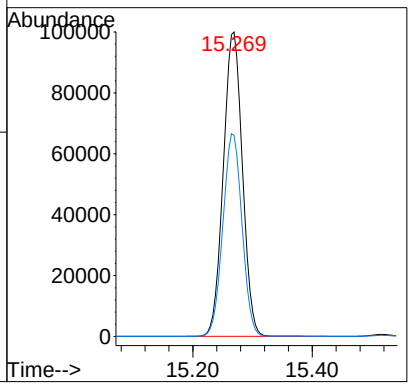


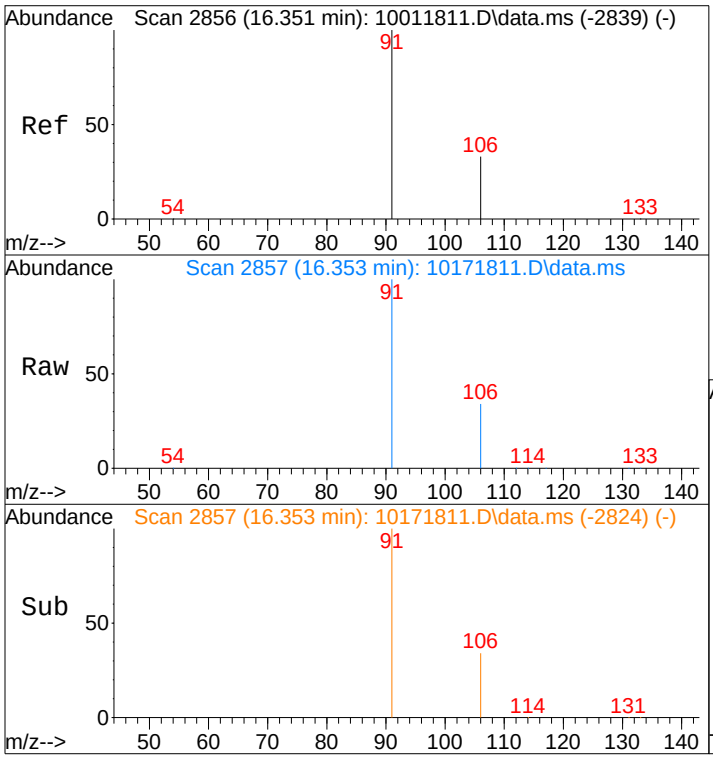


#37
Tetrachloroethene
Concen: 7635.08 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.005 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:166 Resp: 221888

Ion	Ratio	Lower	Upper
166	100		
129	66.6	46.7	86.7

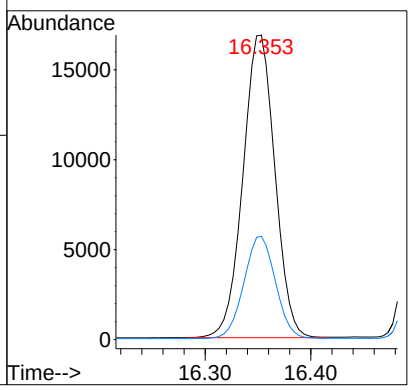


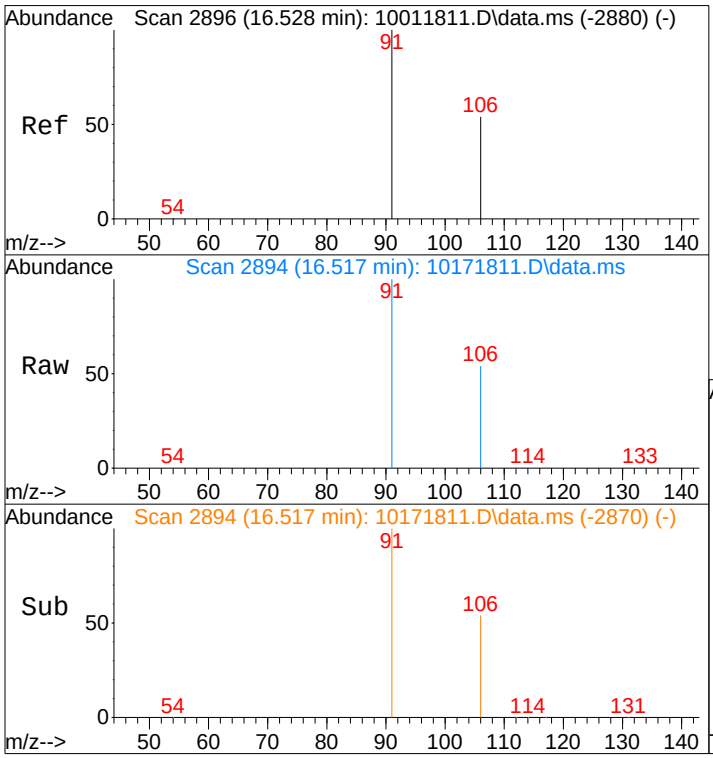


#40
Ethylbenzene
Concen: 322.46 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.005 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 91 Resp: 35401

Ion	Ratio	Lower	Upper
91	100		
106	33.5	13.7	53.7

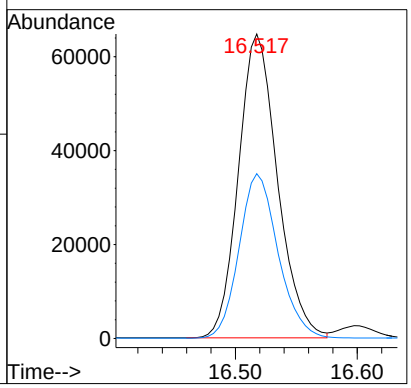


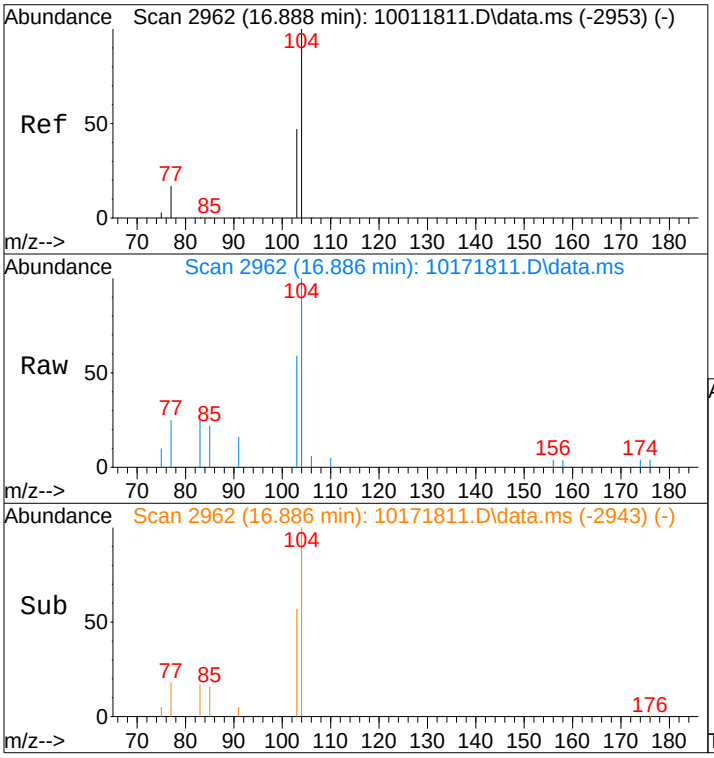


#41
m,p-Xylene
Concen: 1714.49 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.023 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion: 91 Resp: 143915

Ion	Ratio	Lower	Upper
91	100		
106	54.1	34.3	74.3

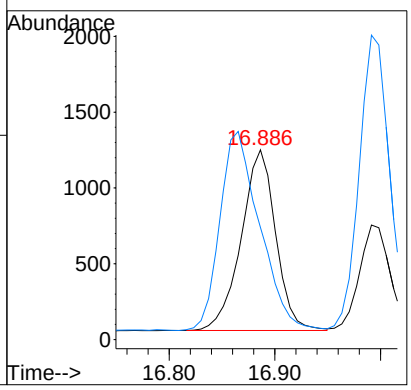


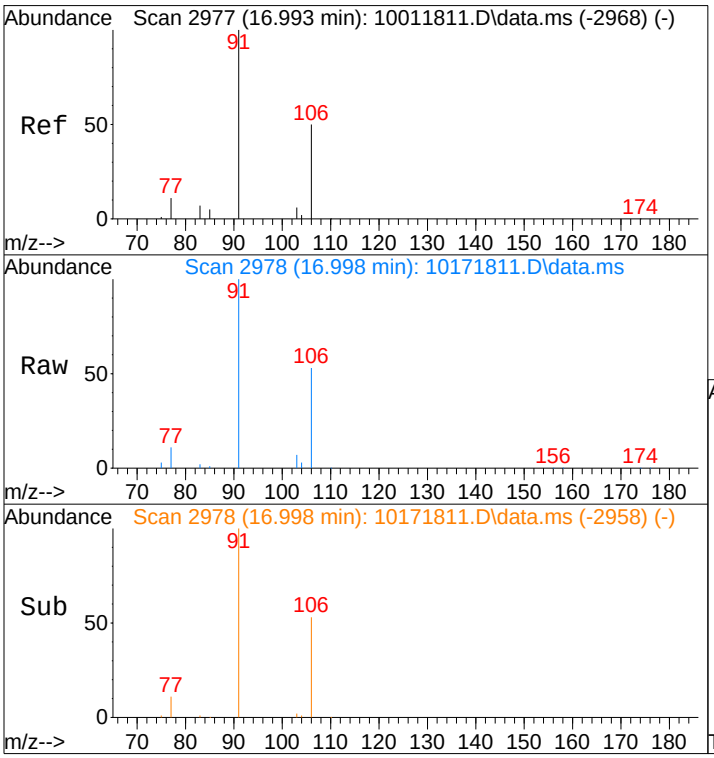


#42
Styrene
Concen: 40.60 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.007 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:104 Resp: 2707

Ion	Ratio	Lower	Upper
104	100		
103	127.1	37.7	56.5#

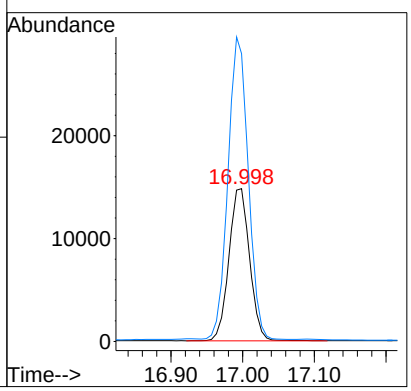


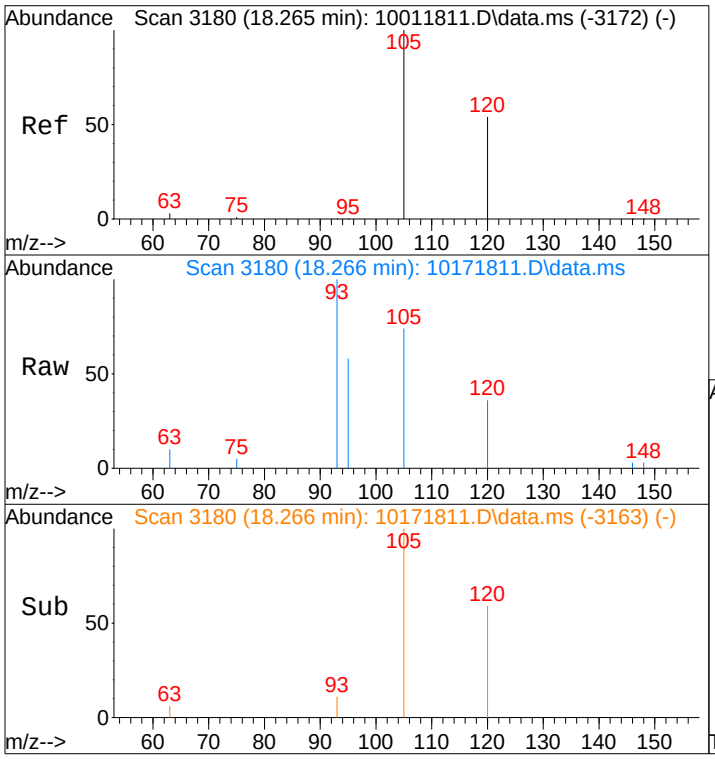


#43
o-Xylene
Concen: 662.43 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.007 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:106 Resp: 29562

Ion	Ratio	Lower	Upper
106	100		
91	195.1	175.6	215.6

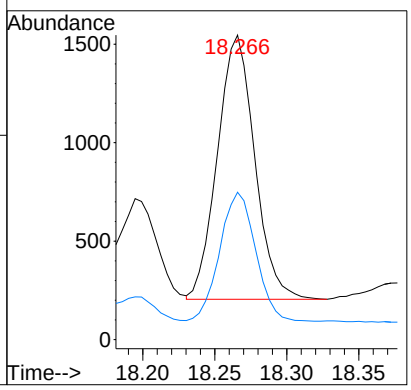


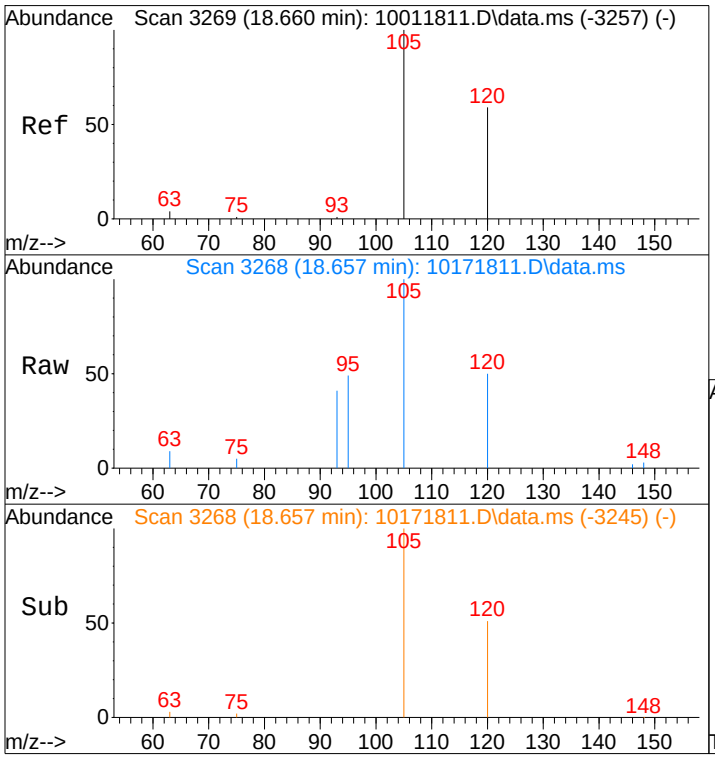


#46
1,3,5-Trimethylbenzene
Concen: 25.76 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.005 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:105 Resp: 2418

Ion	Ratio	Lower	Upper
105	100		
120	46.8	42.8	64.2

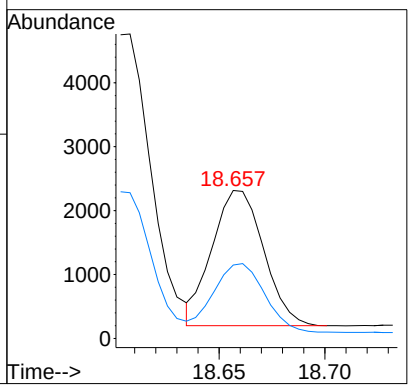


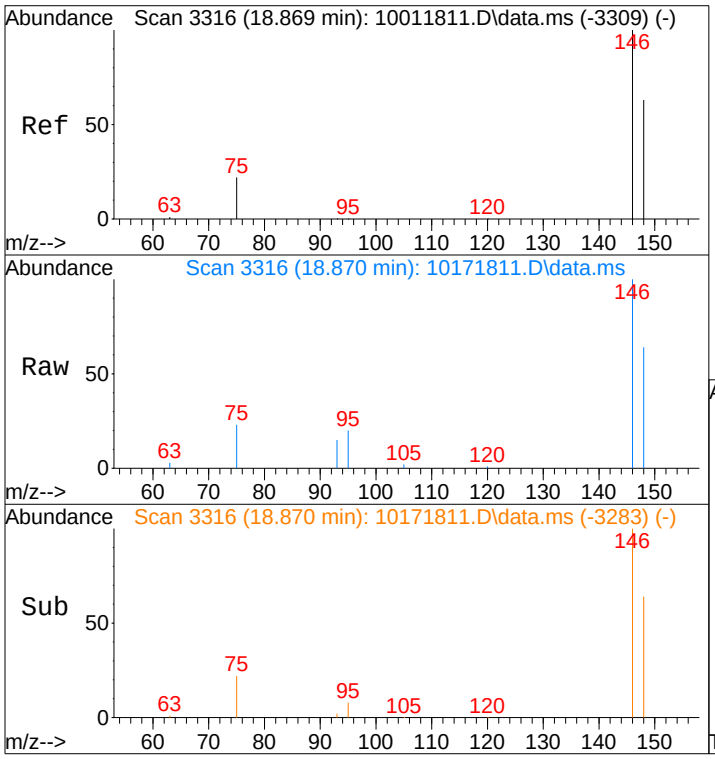


#47
1,2,4-Trimethylbenzene
Concen: 38.39 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.009 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:105 Resp: 3595

Ion	Ratio	Lower	Upper
105	100		
120	50.2	47.1	70.7

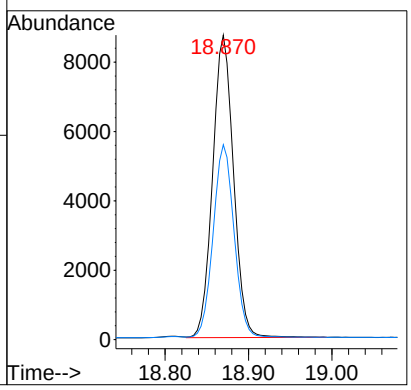


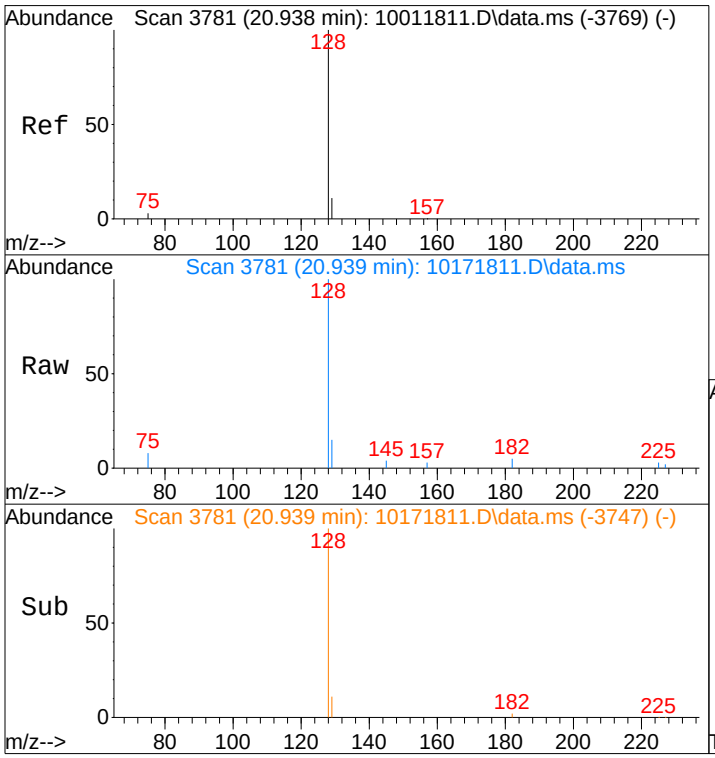


#49
1,4-Dichlorobenzene
Concen: 246.96 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.005 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:146 Resp: 15171

Ion	Ratio	Lower	Upper
146	100		
148	63.6	43.8	83.8

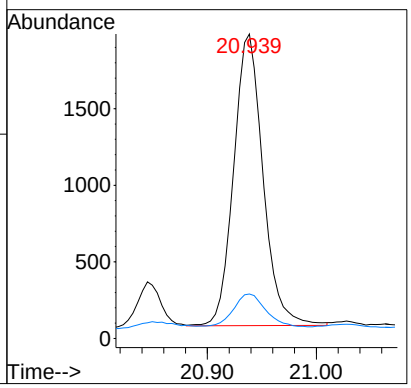




#53
Naphthalene
Concen: 32.53 pg
RT: 20.94 min Scan# 3781
Delta R.T. -0.000 min
Lab File: 10171811.D
Acq: 17 Oct 2018 18:10

Tgt Ion:128 Resp: 3563

Ion	Ratio	Lower	Upper
128	100		
129	12.7	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181810.D Vial: 5
Acq On : 18 Oct 2018 17:36 Operator: WA
Sample : P1805497-004dil (300mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:55:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	22451	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82627	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11012	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	22306	829.989	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.00%				
33) Toluene-d8 (SS2)	14.02	98	90156	1058.058	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.81%				
45) Bromofluorobenzene (SS3)	17.43	174	32762	1052.883	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.29%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	36326	759.361	pg		100
3) Chloromethane	4.53	52	629	56.231	pg	#	34
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	467	13.543	pg		100
5) Vinyl Chloride	4.82	62	1327	42.719	pg		100
6) 1,3-Butadiene	5.01	54	301	12.818	pg	#	83
7) Bromomethane	0.00	94	0	N.D.			
8) Chloroethane	5.56	64	1402	86.259	pg		99
9) Acrolein	6.14	56	345	26.259	pg		98
10) Acetone	6.28	58	51583	3096.816	pg	#	47
11) Trichlorofluoromethane	6.48	101	12314	329.149	pg		100
12) 1,1-Dichloroethene	7.20	96	391	14.769	pg	#	1
13) Methylene Chloride	7.34	84	12060	434.850	pg		97
14) Trichlorotrifluoroethane	7.67	151	1465	55.872	pg		99
15) trans-1,2-Dichloroethene	8.37	96	672	24.396	pg		98
16) 1,1-Dichloroethane	8.58	63	657	15.282	pg		99
17) Methyl tert-Butyl Ether	8.59	73	75	N.D.			
18) cis-1,2-Dichloroethene	9.46	96	361	12.313	pg		99
19) Chloroform	9.75	83	620795	13385.104	pg		99
21) 1,2-Dichloroethane	10.51	62	511	17.813	pg		100
22) 1,1,1-Trichloroethane	10.78	97	1546	39.300	pg		100
23) Benzene	11.24	78	2047	17.568	pg		93
24) Carbon Tetrachloride	11.39	117	7204	200.628	pg		100
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	12.22	83	170842	6253.796	pg		100
28) Trichloroethene	12.28	130	21201	821.180	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D. d			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d			
34) Toluene	14.11	91	21737	230.402	pg		100
35) Dibromochloromethane	14.53	129	82499	3264.193	pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	63540	2288.685	pg		100
39) Chlorobenzene	15.96	112	206	N.D.			
40) Ethylbenzene	16.35	91	9632	94.876	pg		100
41) m,p-Xylene	16.52	91	39222	505.280	pg		100
42) Styrene	0.00	104	0	N.D. d			
43) o-Xylene	17.00	106	8166	197.873	pg		99
44) 1,1,2,2-Tetrachloroethane	17.00	83	150	N.D.			
46) 1,3,5-Trimethylbenzene	18.27	105	683	7.869	pg		89
47) 1,2,4-Trimethylbenzene	18.66	105	1033	11.930	pg		89
48) 1,3-Dichlorobenzene	0.00	146	0	N.D. d			
49) 1,4-Dichlorobenzene	18.87	146	4255	74.902	pg		99
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	74	N.D.			
53) Naphthalene	20.94	128	1141	11.266	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181810.D Vial: 5
Acq On : 18 Oct 2018 17:36 Operator: WA
Sample : P1805497-004dil (300mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:55:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

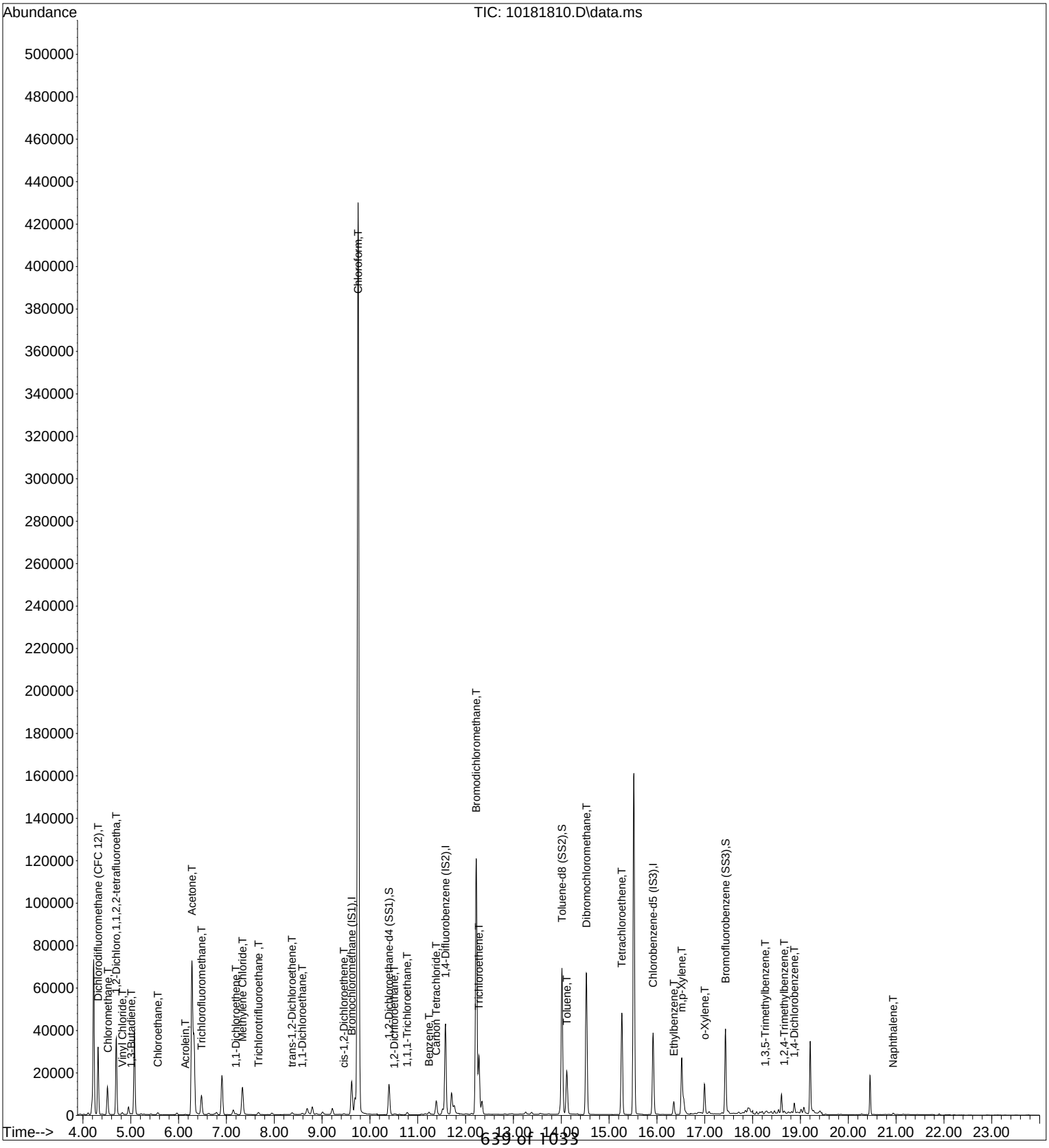
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181810.D Vial: 5
Acq On : 18 Oct 2018 17:36 Operator: WA
Sample : P1805497-004dil (300mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:55:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181810.D Vial: 5
Acq On : 18 Oct 2018 17:36 Operator: WA
Sample : P1805497-004dil (300mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:55:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	22451	1000.000 pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82627	1000.000 pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11012	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	22306	829.989 pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.00%			
33) Toluene-d8 (SS2)	14.02	98	90156	1058.058 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.81%			
45) Bromofluorobenzene (SS3)	17.43	174	32762	1052.883 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.29%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	36326	759.361 pg		100
3) Chloromethane	4.53	52	629	56.231 pg	#	34
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	467	13.543 pg		100
5) Vinyl Chloride	4.82	62	1327	42.719 pg		100
6) 1,3-Butadiene	5.01	54	301	12.818 pg	#	83
8) Chloroethane	5.56	64	1402	86.259 pg		99
9) Acrolein	6.14	56	345	26.259 pg		98
10) Acetone	6.28	58	51583	3096.816 pg	#	47
11) Trichlorofluoromethane	6.48	101	12314	329.149 pg		100
12) 1,1-Dichloroethene	7.20	96	391	14.769 pg	#	1
13) Methylene Chloride	7.34	84	12060	434.850 pg		97
14) Trichlorotrifluoroethane	7.67	151	1465	55.872 pg		99
15) trans-1,2-Dichloroethene	8.37	96	672	24.396 pg		98
16) 1,1-Dichloroethane	8.58	63	657	15.282 pg		99
18) cis-1,2-Dichloroethene	9.46	96	361	12.313 pg		99
19) Chloroform	9.75	83	620795	13385.104 pg		99
21) 1,2-Dichloroethane	10.51	62	511	17.813 pg		100
22) 1,1,1-Trichloroethane	10.78	97	1546	39.300 pg		100
23) Benzene	11.24	78	2047	17.568 pg		93
24) Carbon Tetrachloride	11.39	117	7204	200.628 pg		100
27) Bromodichloromethane	12.22	83	170842	6253.796 pg		100
28) Trichloroethene	12.28	130	21201	821.180 pg		100
34) Toluene	14.11	91	21737	230.402 pg		100
35) Dibromochloromethane	14.53	129	82499	3264.193 pg		100
37) Tetrachloroethene	15.27	166	63540	2288.685 pg		100
40) Ethylbenzene	16.35	91	9632	94.876 pg		100
41) m,p-Xylene	16.52	91	39222	505.280 pg		100
43) o-Xylene	17.00	106	8166	197.873 pg		99
46) 1,3,5-Trimethylbenzene	18.27	105	683	7.869 pg		89
47) 1,2,4-Trimethylbenzene	18.66	105	1033	11.930 pg		89
49) 1,4-Dichlorobenzene	18.87	146	4255	74.902 pg		99
53) Naphthalene	20.94	128	1141	11.266 pg		96

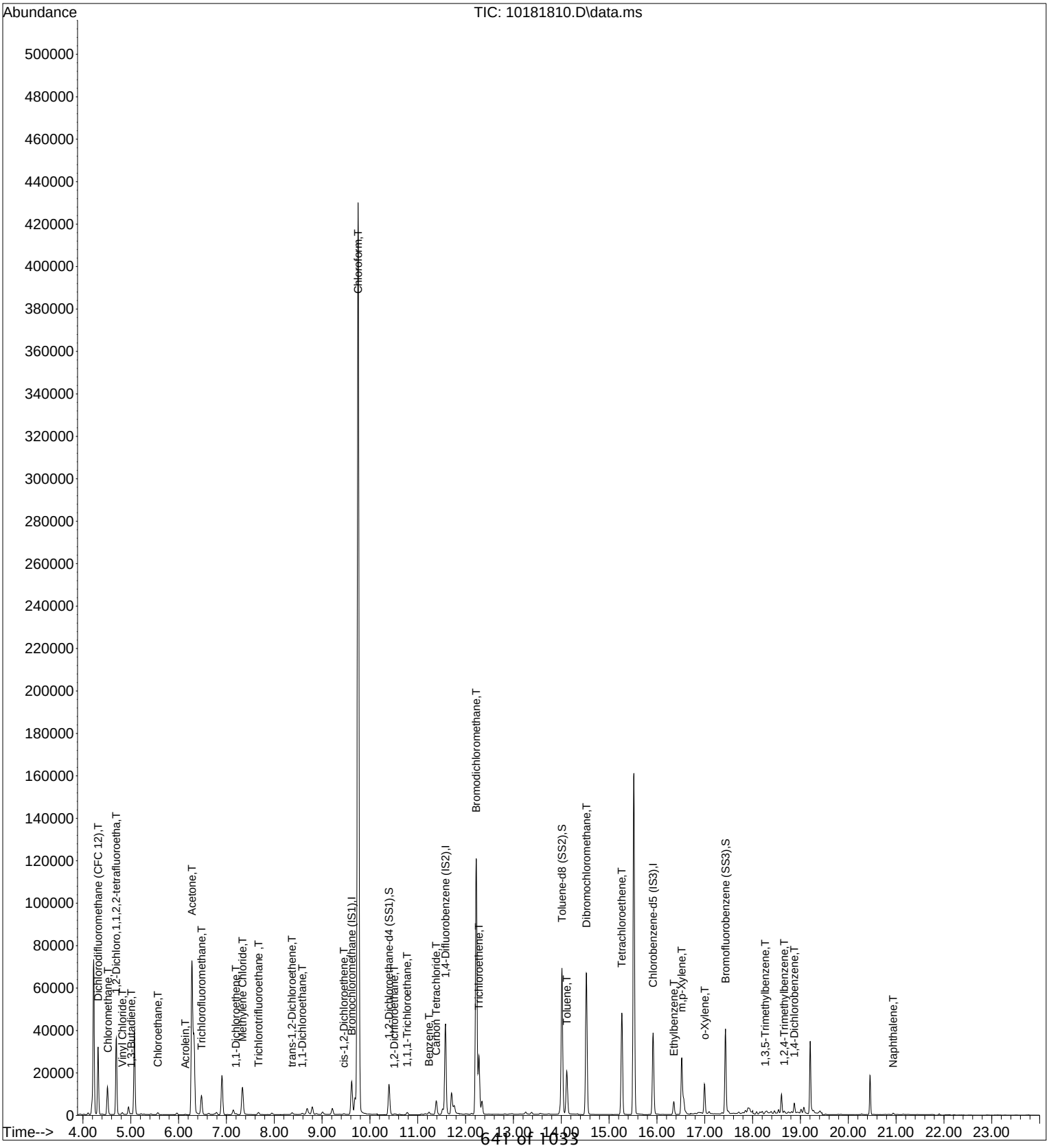
NR

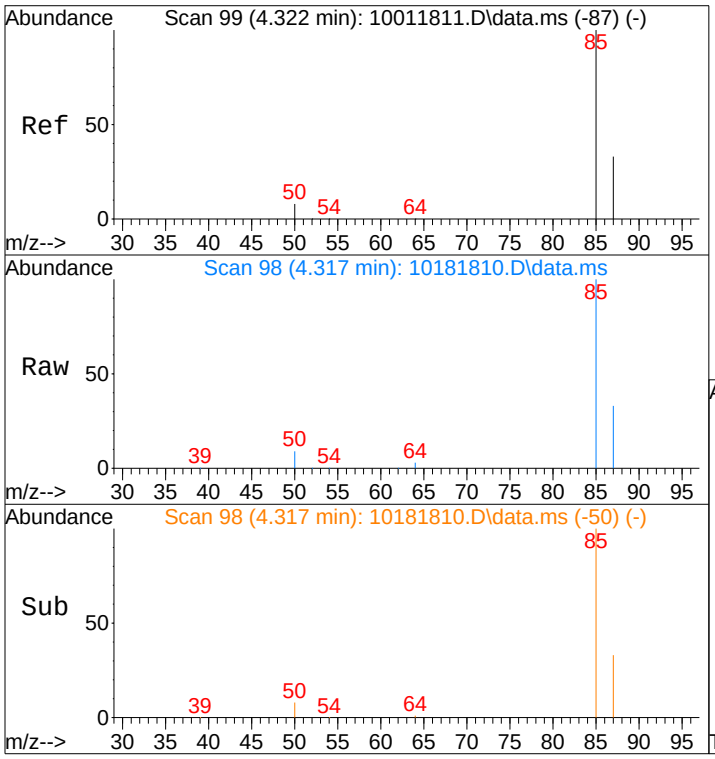
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181810.D Vial: 5
Acq On : 18 Oct 2018 17:36 Operator: WA
Sample : P1805497-004dil (300mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 11:55:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

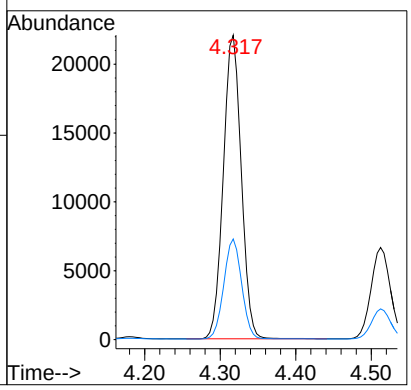


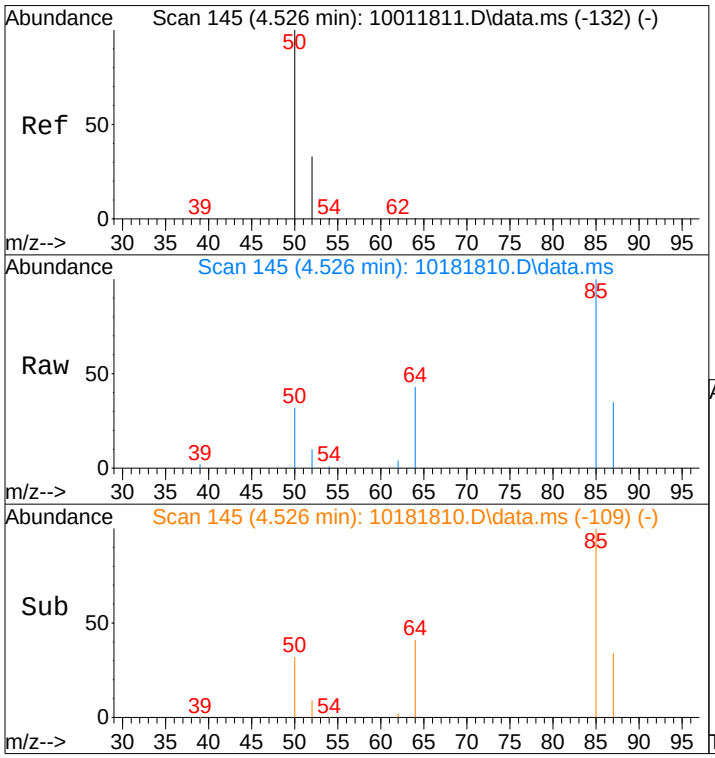


#2
Dichlorodifluoromethane (CFC 12)
Concen: 759.36 pg
RT: 4.32 min Scan# 98
Delta R.T. 0.013 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 85 Resp: 36326

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

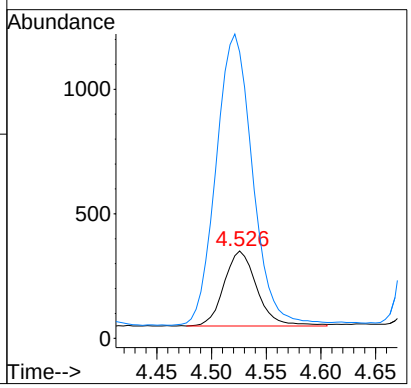


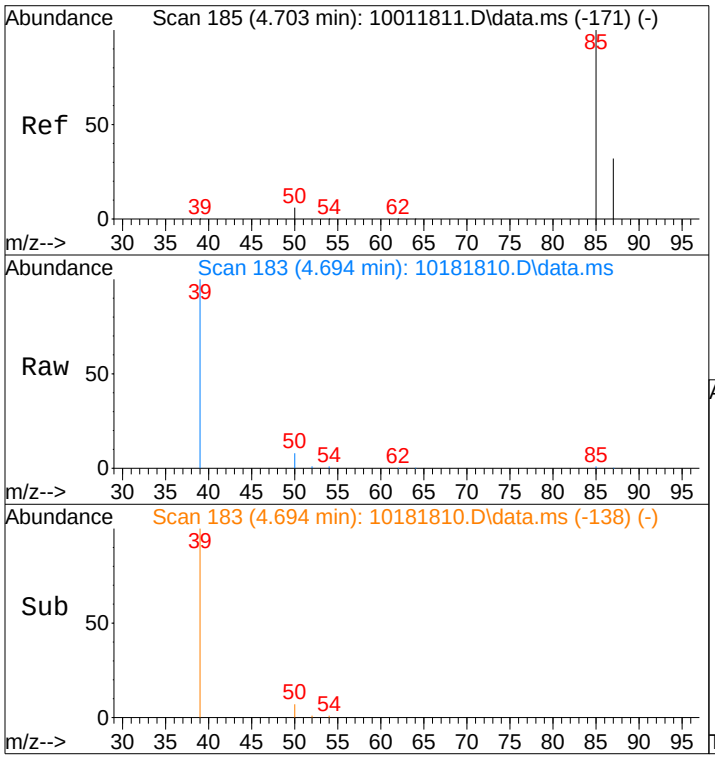


#3
Chloromethane
Concen: 56.23 pg
RT: 4.53 min Scan# 145
Delta R.T. 0.009 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 52 Resp: 629

Ion	Ratio	Lower	Upper
52	100		
50	431.2	281.8	321.8#

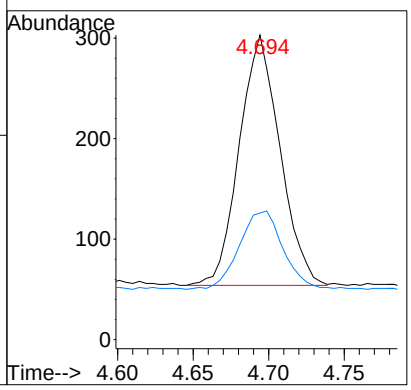


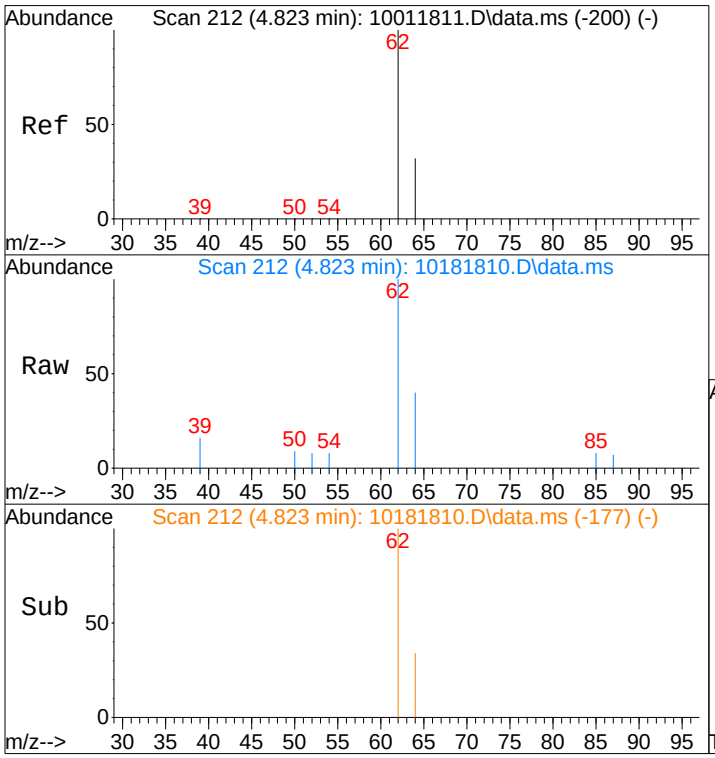


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 13.54 pg
RT: 4.69 min Scan# 183
Delta R.T. 0.000 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 85 Resp: 467

Ion	Ratio	Lower	Upper
85	100		
87	32.3	26.0	39.0

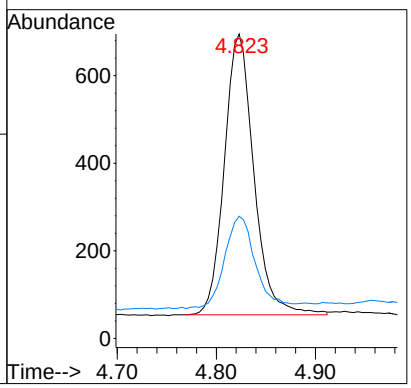


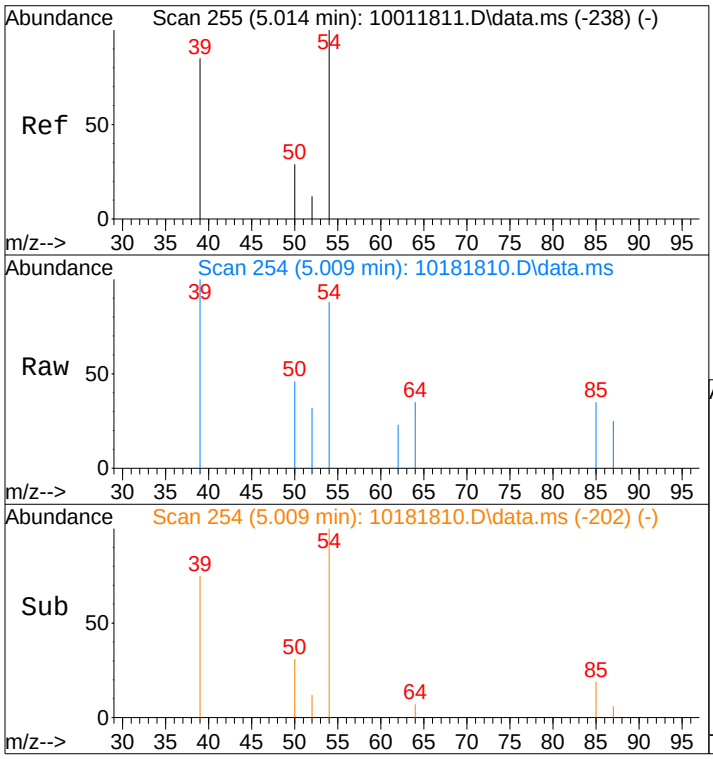


#5
Vinyl Chloride
Concen: 42.72 pg
RT: 4.82 min Scan# 212
Delta R.T. 0.005 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 62 Resp: 1327

Ion	Ratio	Lower	Upper
62	100		
64	33.0	12.8	52.8

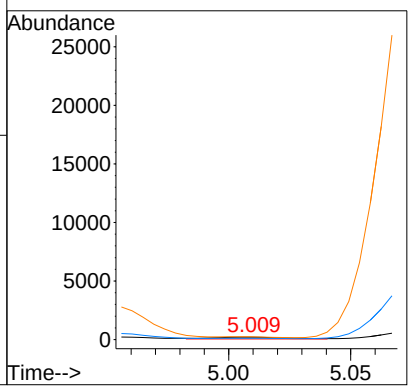


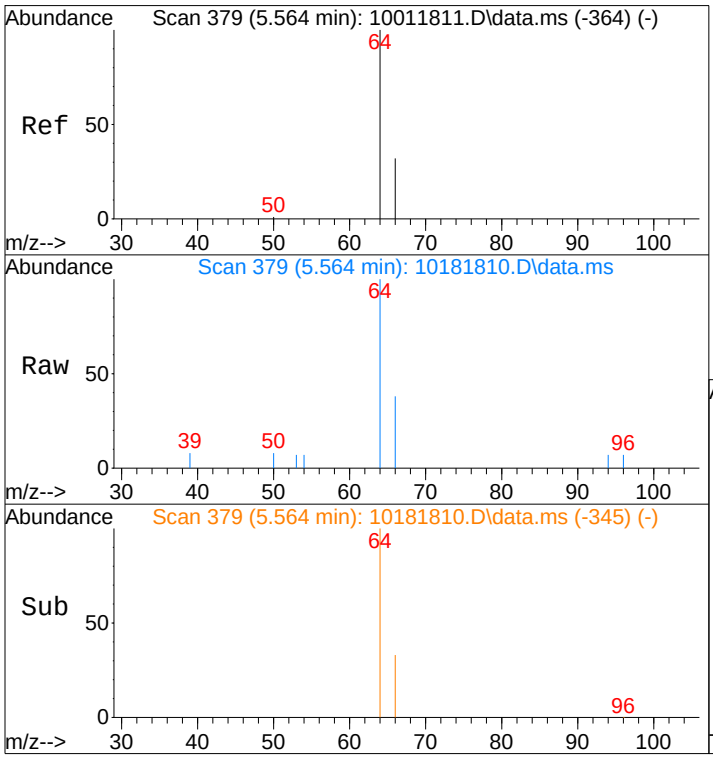


#6
1,3-Butadiene
Concen: 12.82 pg
RT: 5.01 min Scan# 254
Delta R.T. 0.000 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 54 Resp: 301

Ion	Ratio	Lower	Upper
54	100		
50	0.0	23.6	35.4#
39	83.4	69.9	104.9

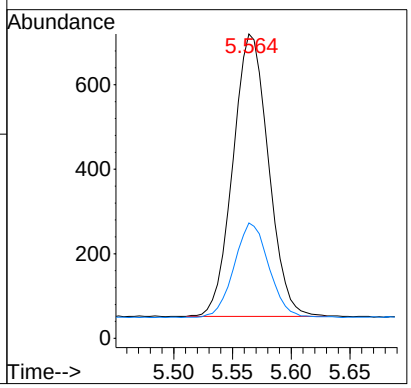


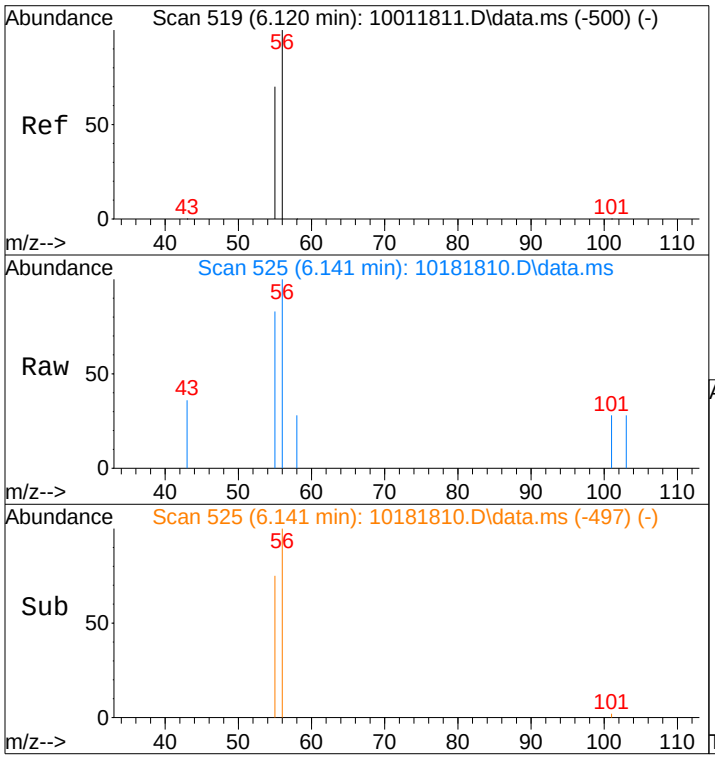


#8
Chloroethane
Concen: 86.26 pg
RT: 5.56 min Scan# 379
Delta R.T. 0.000 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 64 Resp: 1402

Ion	Ratio	Lower	Upper
64	100		
66	33.0	12.3	52.3

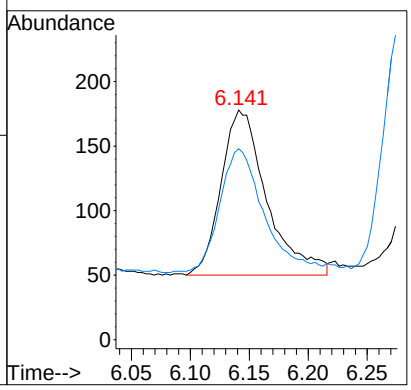


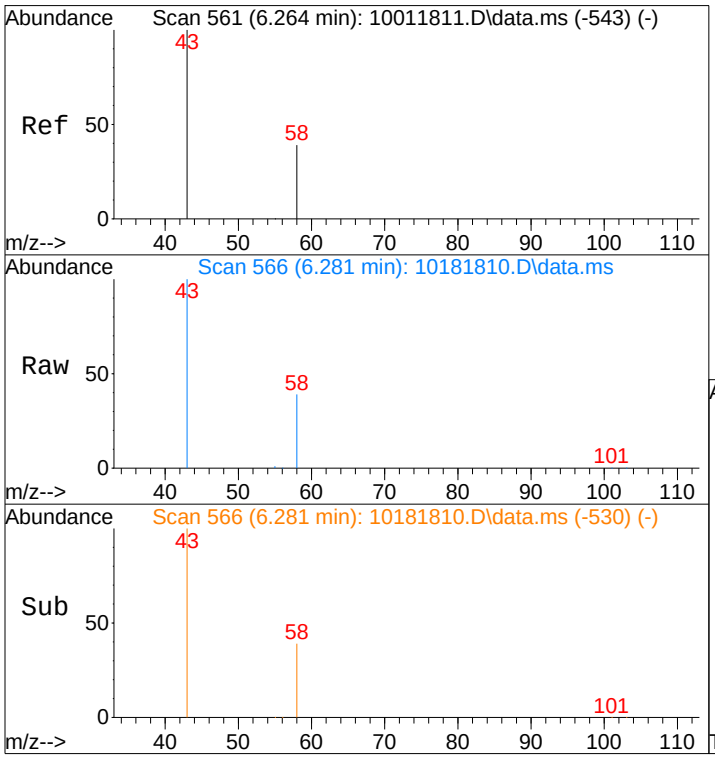


#9
Acrolein
Concen: 26.26 pg
RT: 6.14 min Scan# 525
Delta R.T. -0.014 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 56 Resp: 345

Ion	Ratio	Lower	Upper
56	100		
55	70.4	55.3	82.9

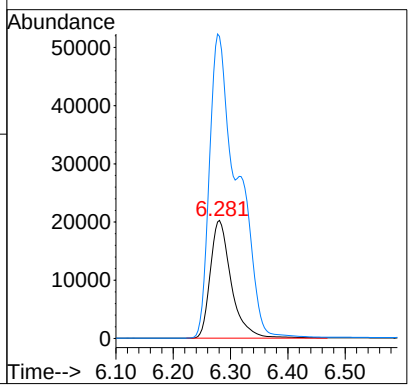


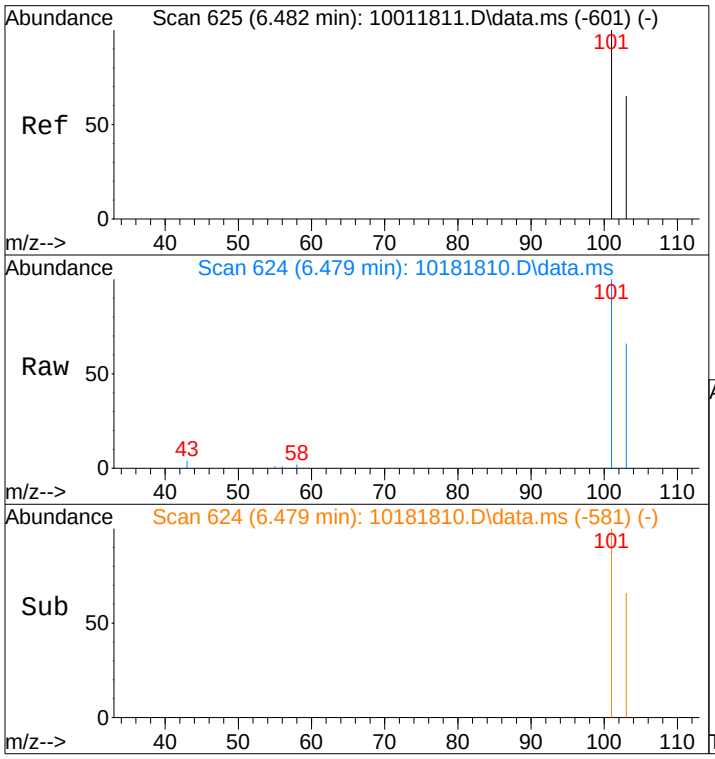


#10
Acetone
Concen: 3096.82 pg
RT: 6.28 min Scan# 566
Delta R.T. -0.027 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 58 Resp: 51583

Ion	Ratio	Lower	Upper
58	100		
43	348.2	234.7	274.7#

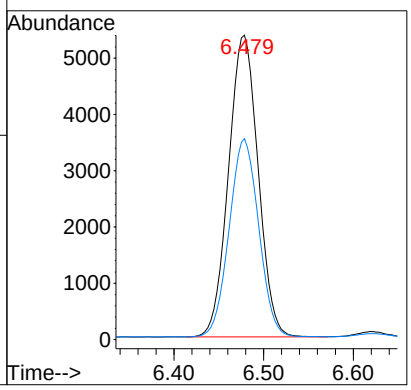


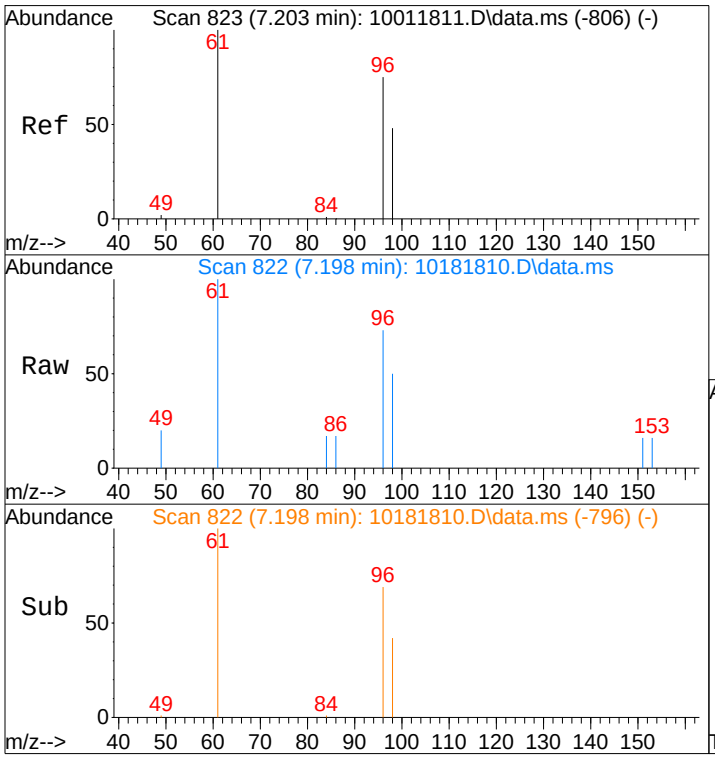


#11
Trichlorofluoromethane
Concen: 329.15 pg
RT: 6.48 min Scan# 624
Delta R.T. -0.003 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:101 Resp: 12314

Ion	Ratio	Lower	Upper
101	100		
103	65.4	52.2	78.2

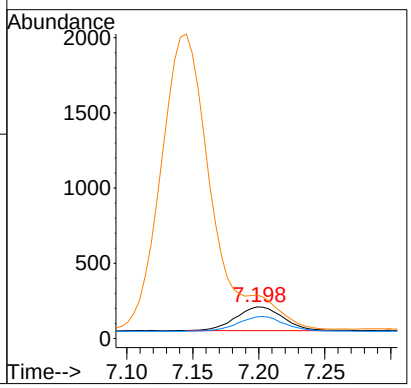


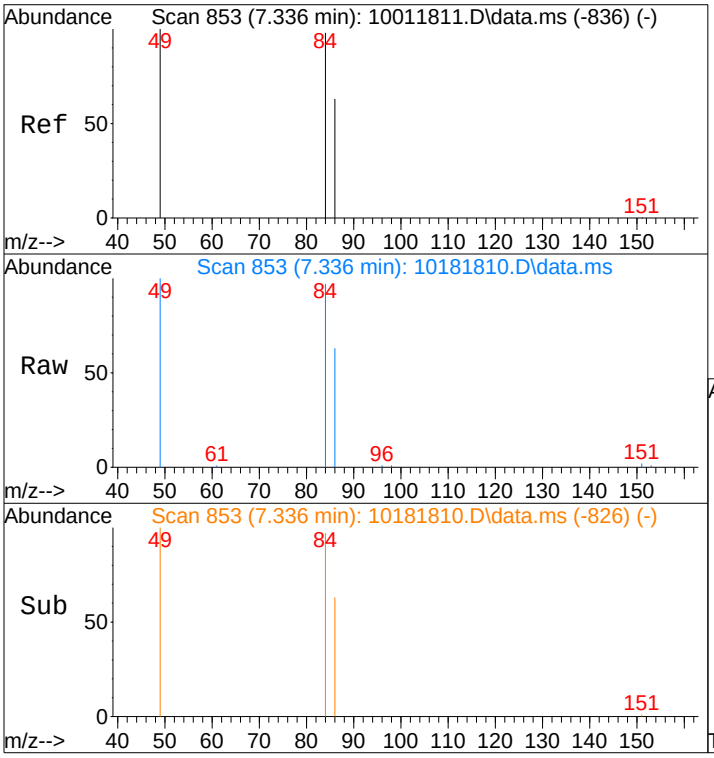


#12
1,1-Dichloroethene
Concen: 14.77 pg
RT: 7.20 min Scan# 822
Delta R.T. -0.013 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 96 Resp: 391

Ion	Ratio	Lower	Upper
96	100		
98	60.9	44.2	84.2
61	1376.7	114.1	154.1#

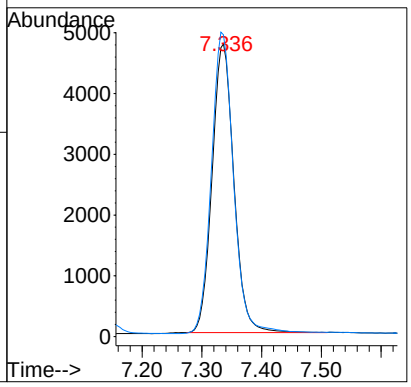


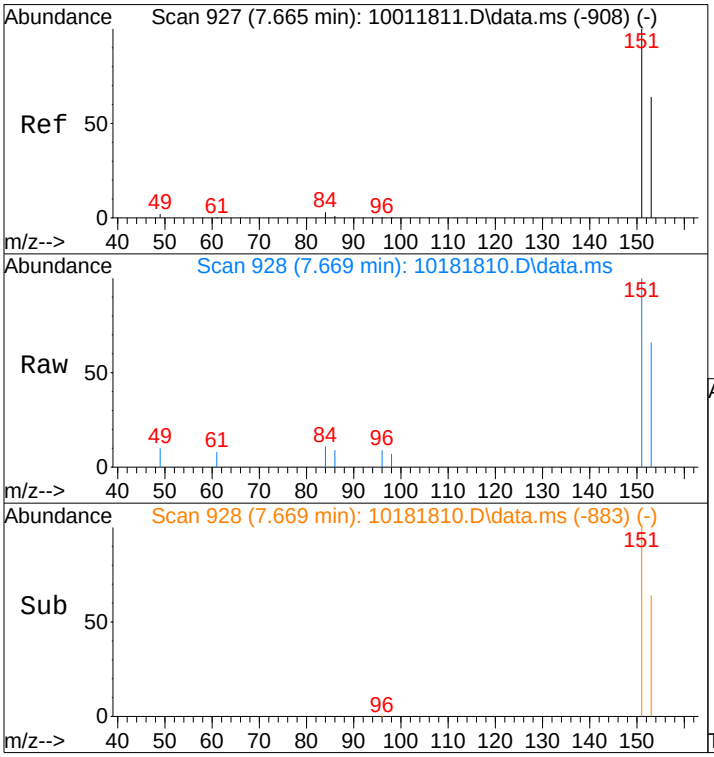


#13
Methylene Chloride
Concen: 434.85 pg
RT: 7.34 min Scan# 853
Delta R.T. -0.040 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 84 Resp: 12060

Ion	Ratio	Lower	Upper
84	100		
49	106.5	83.3	123.3

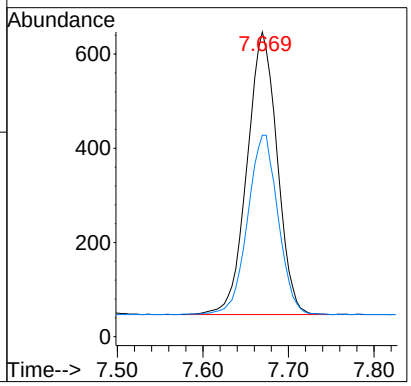


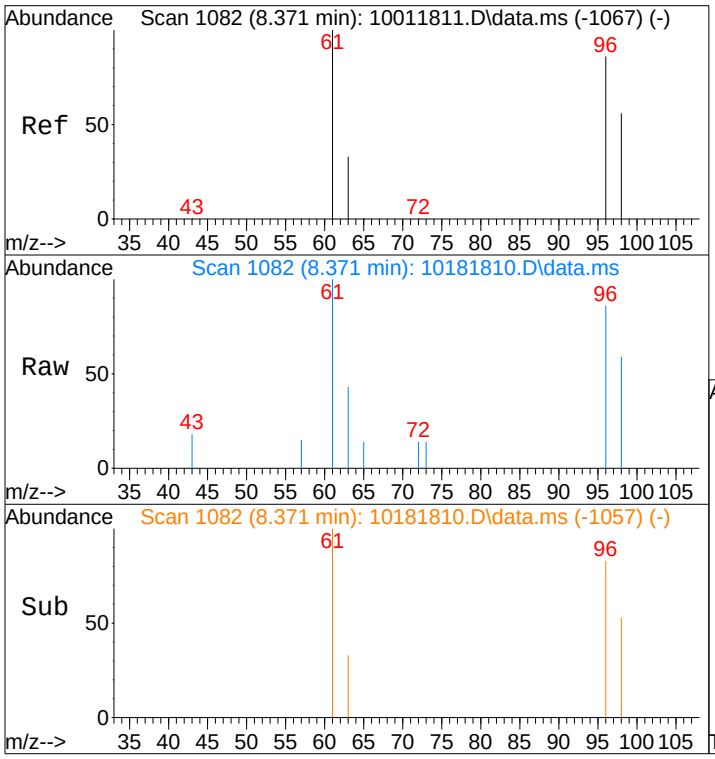


#14
Trichlorotrifluoroethane
Concen: 55.87 pg
RT: 7.67 min Scan# 928
Delta R.T. 0.000 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:151 Resp: 1465

Ion	Ratio	Lower	Upper
151	100		
153	63.6	44.3	84.3

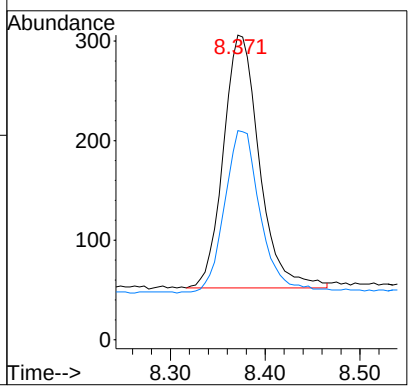


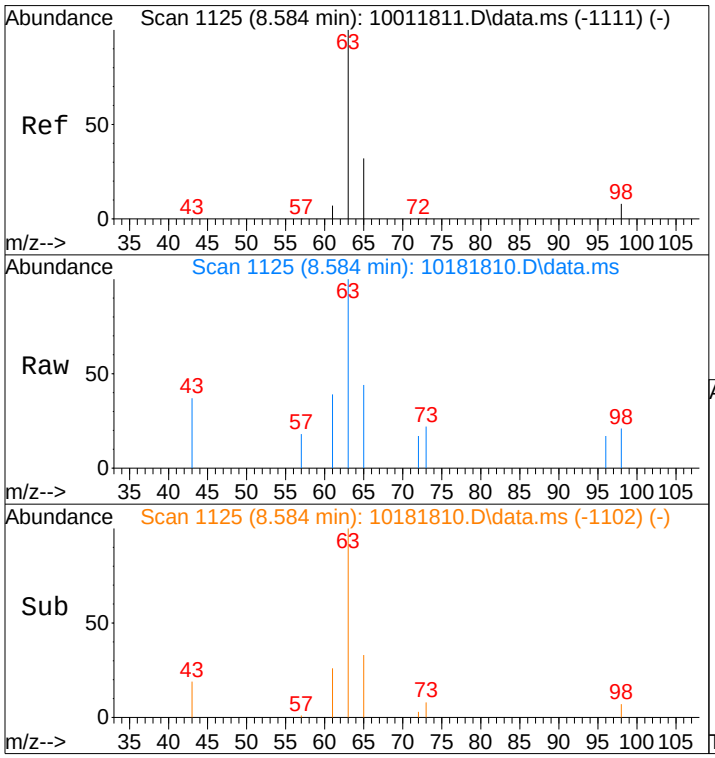


#15
trans-1,2-Dichloroethene
Concen: 24.40 pg
RT: 8.37 min Scan# 1082
Delta R.T. -0.024 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 96 Resp: 672

Ion	Ratio	Lower	Upper
96	100		
98	62.4	44.1	84.1

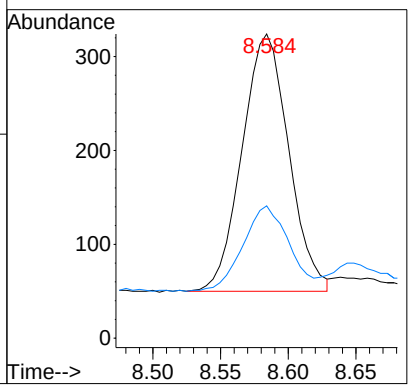


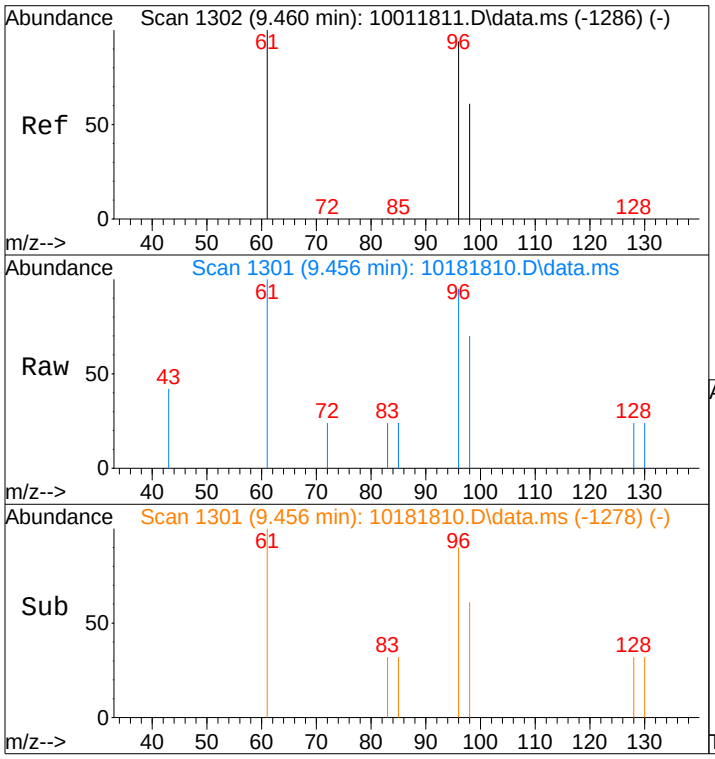


#16
1,1-Dichloroethane
Concen: 15.28 pg
RT: 8.58 min Scan# 1125
Delta R.T. -0.034 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 63 Resp: 657

Ion	Ratio	Lower	Upper
63	100		
65	32.6	12.2	52.2

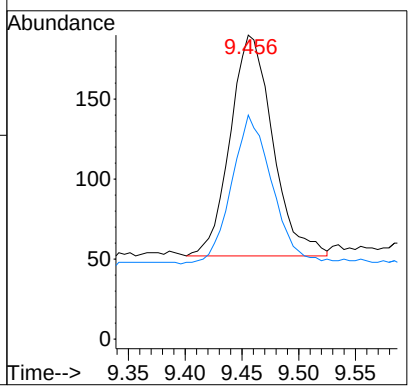


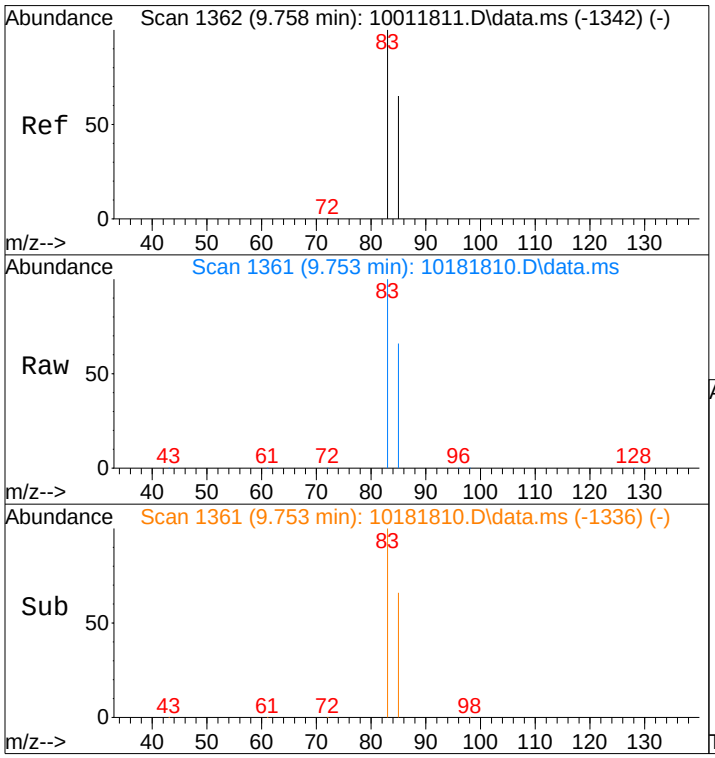


#18
cis-1,2-Dichloroethene
Concen: 12.31 pg
RT: 9.46 min Scan# 1301
Delta R.T. -0.034 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 96 Resp: 361

Ion	Ratio	Lower	Upper
96	100		
98	63.7	44.5	84.5

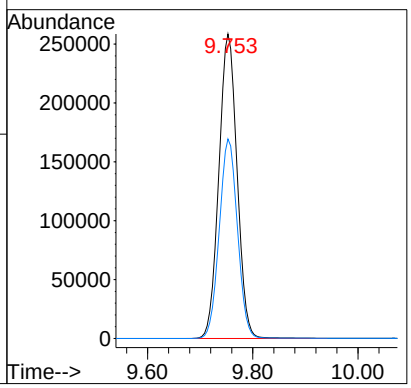


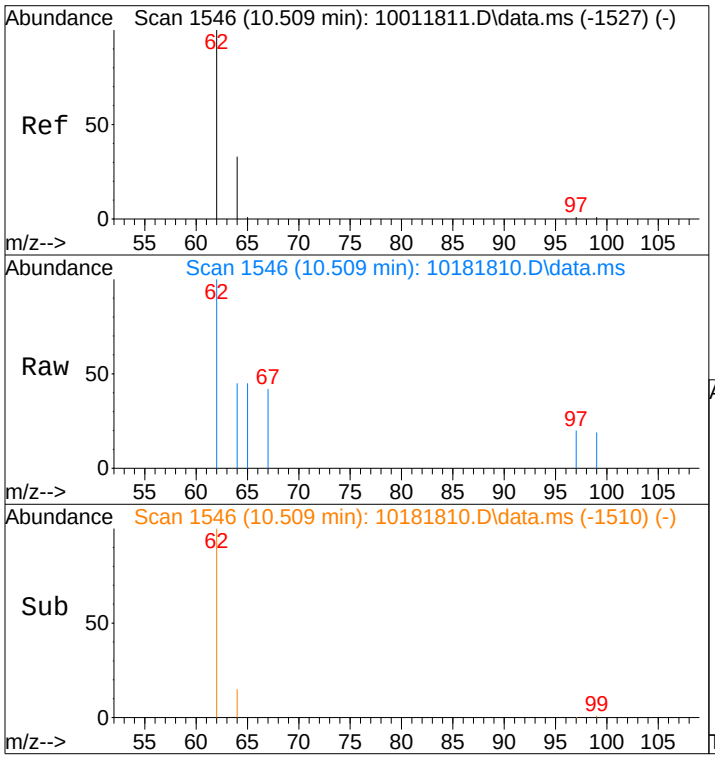


#19
Chloroform
Concen: 13385.10 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 83 Resp: 620795

Ion	Ratio	Lower	Upper
83	100		
85	65.5	46.0	86.0

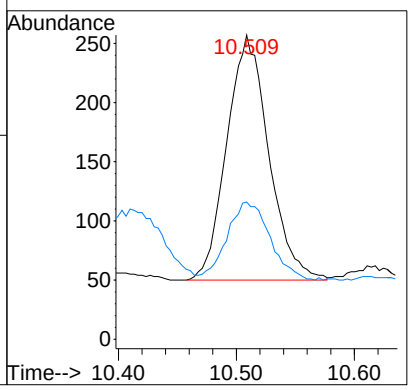


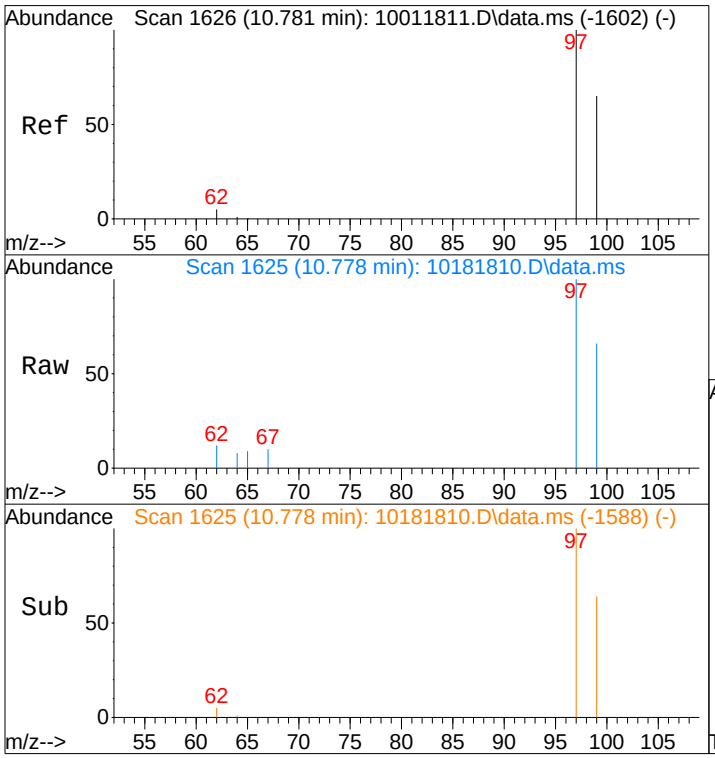


#21
1,2-Dichloroethane
Concen: 17.81 pg
RT: 10.51 min Scan# 1546
Delta R.T. -0.027 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 62 Resp: 511

Ion	Ratio	Lower	Upper
62	100		
64	32.7	12.9	52.9

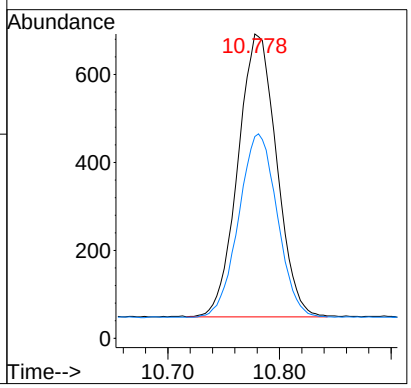


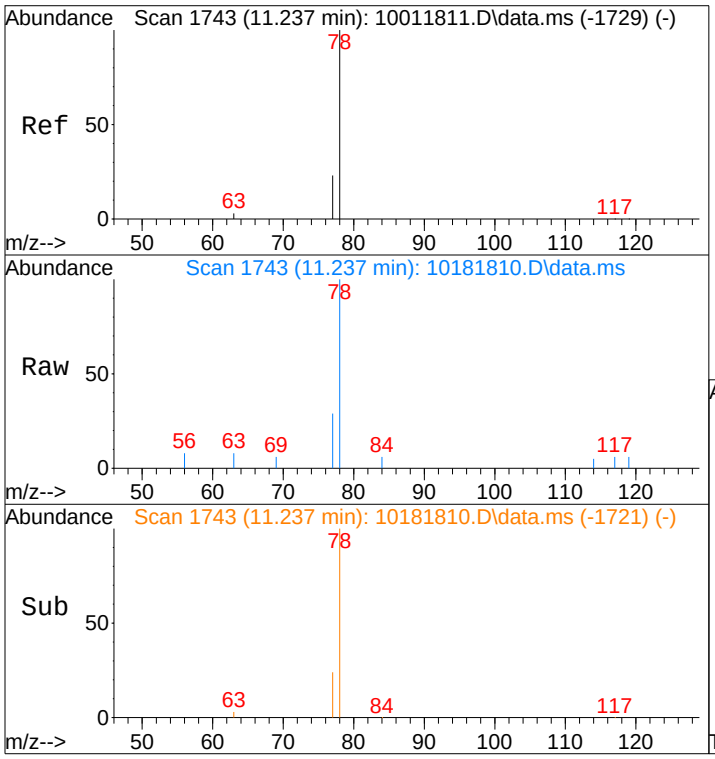


#22
1,1,1-Trichloroethane
Concen: 39.30 pg
RT: 10.78 min Scan# 1625
Delta R.T. -0.023 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 97 Resp: 1546

Ion	Ratio	Lower	Upper
97	100		
99	64.8	44.9	84.9

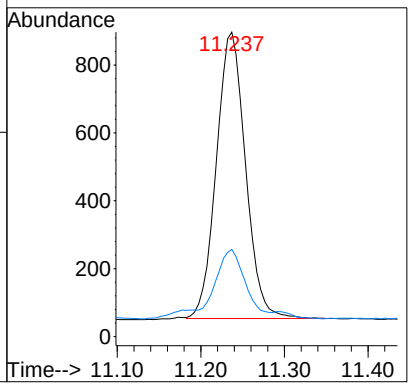


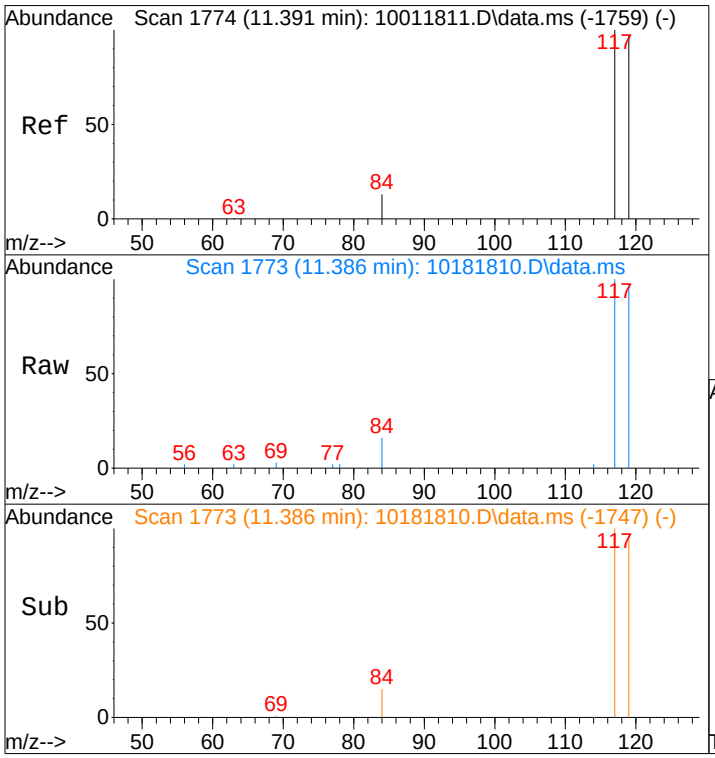


#23
Benzene
Concen: 17.57 pg
RT: 11.24 min Scan# 1743
Delta R.T. -0.019 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 78 Resp: 2047

Ion	Ratio	Lower	Upper
78	100		
77	19.7	3.3	43.3

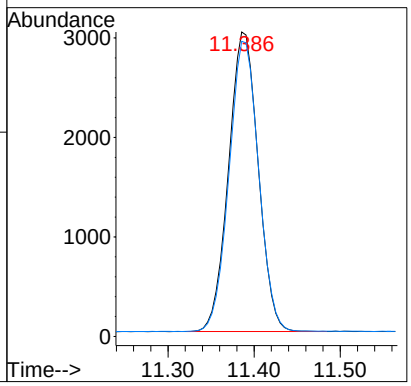


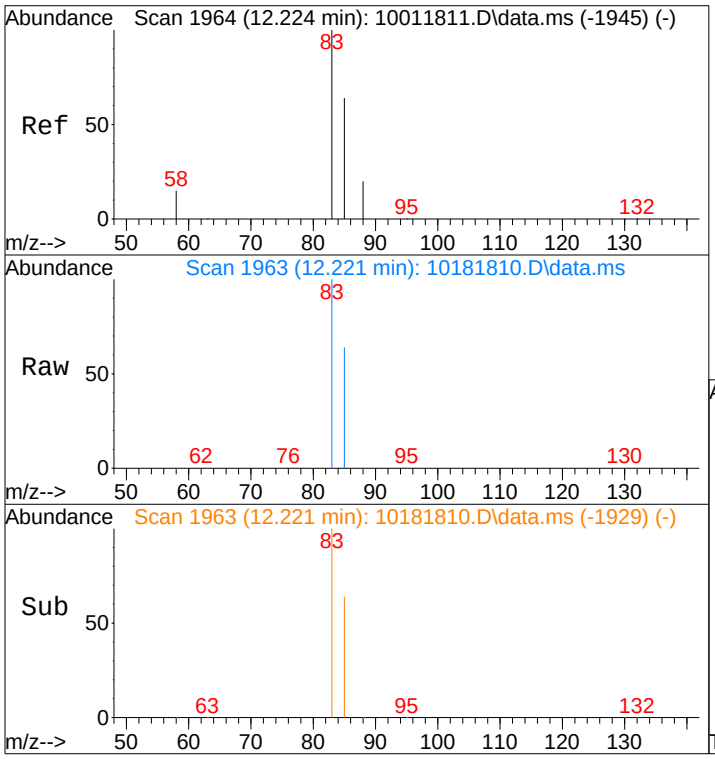


#24
Carbon Tetrachloride
Concen: 200.63 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:117 Resp: 7204

Ion	Ratio	Lower	Upper
117	100		
119	96.7	76.7	116.7

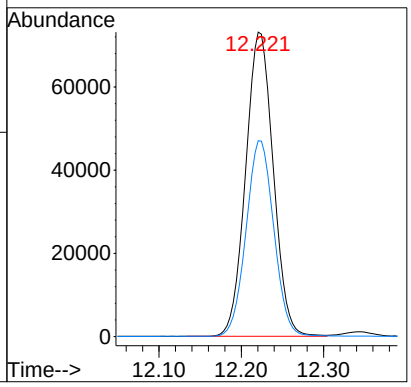


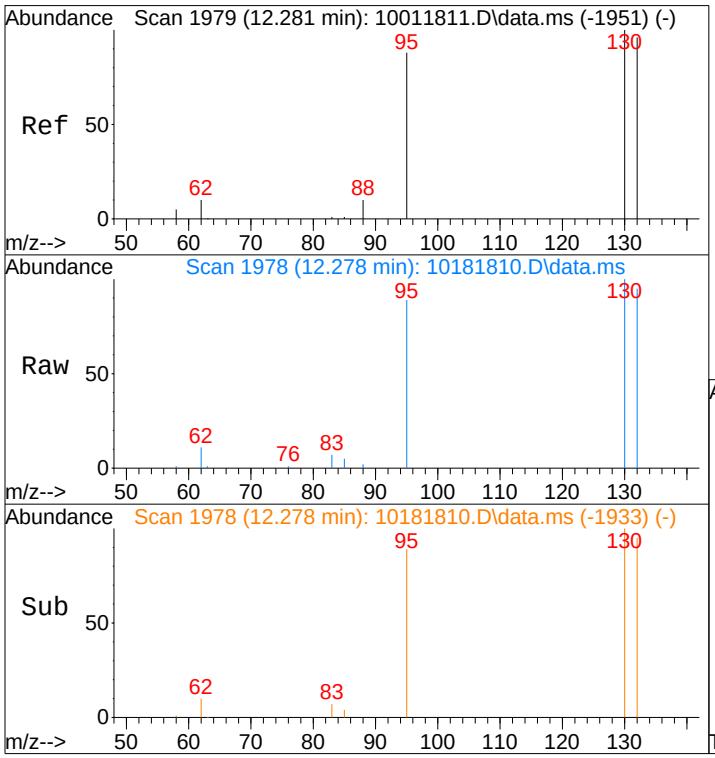


#27
Bromodichloromethane
Concen: 6253.80 pg
RT: 12.22 min Scan# 1963
Delta R.T. -0.022 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 83 Resp: 170842

Ion	Ratio	Lower	Upper
83	100		
85	64.5	51.7	77.5

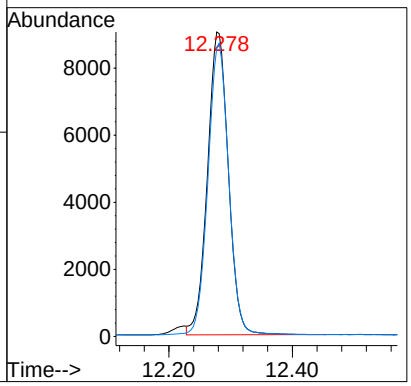


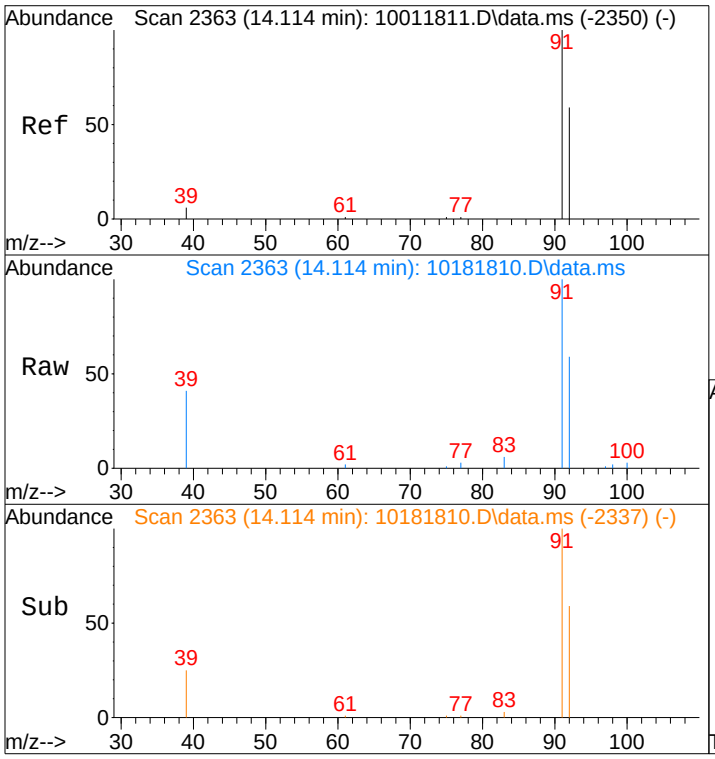


#28
Trichloroethene
Concen: 821.18 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:130 Resp: 21201

Ion	Ratio	Lower	Upper
130	100		
132	95.7	75.6	115.6

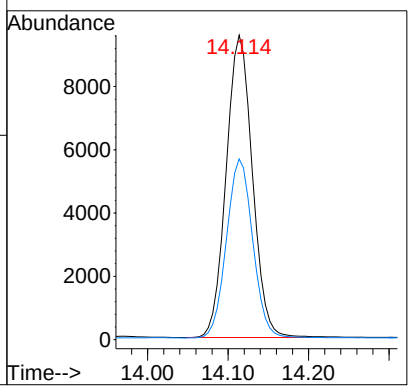


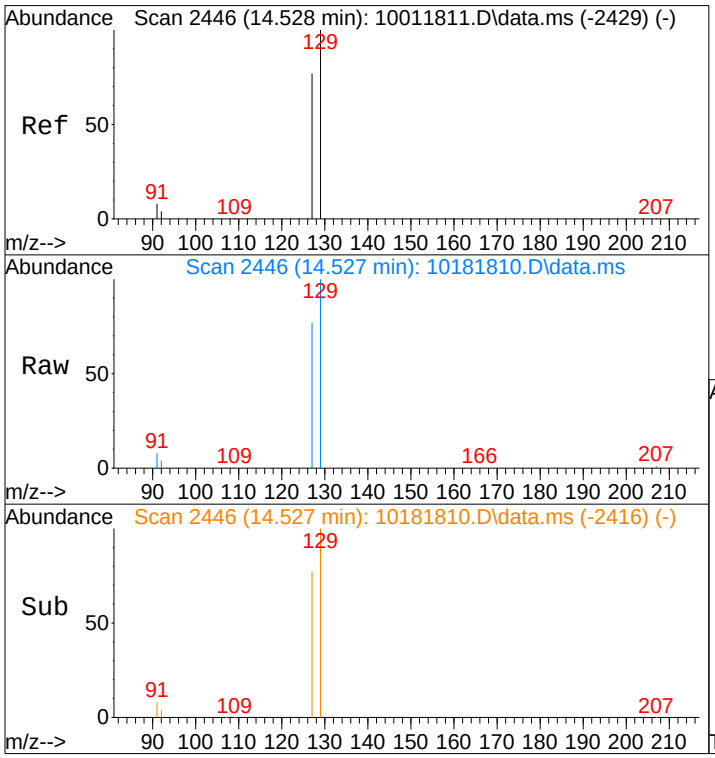


#34
Toluene
Concen: 230.40 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 91 Resp: 21737

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

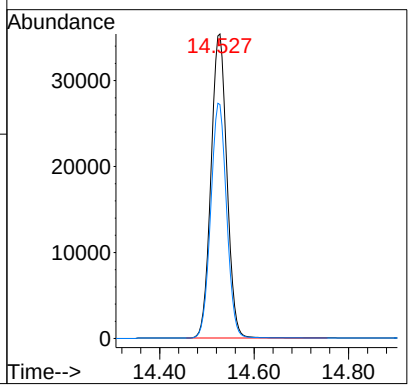


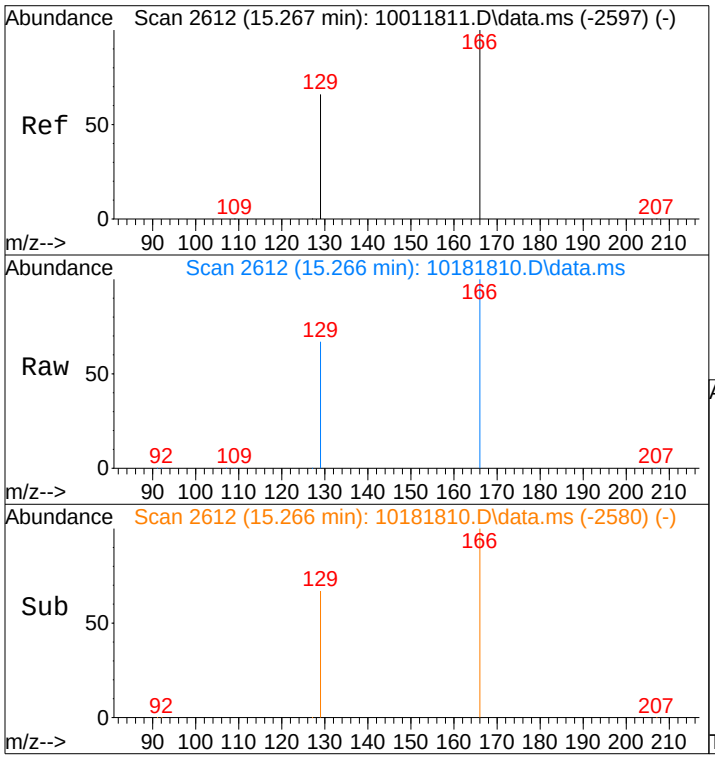


#35
Dibromochloromethane
Concen: 3264.19 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:129 Resp: 82499

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

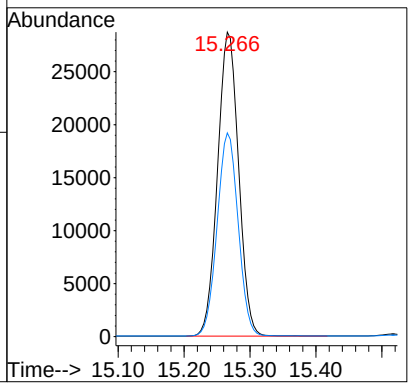


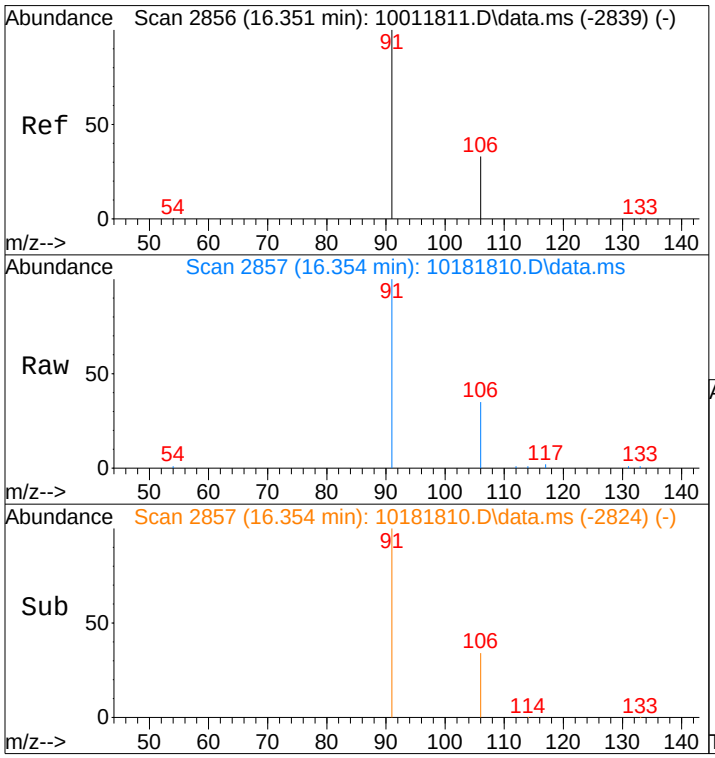


#37
Tetrachloroethene
Concen: 2288.69 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:166 Resp: 63540

Ion	Ratio	Lower	Upper
166	100		
129	66.7	46.7	86.7

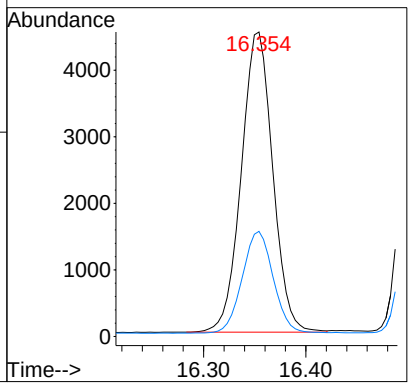


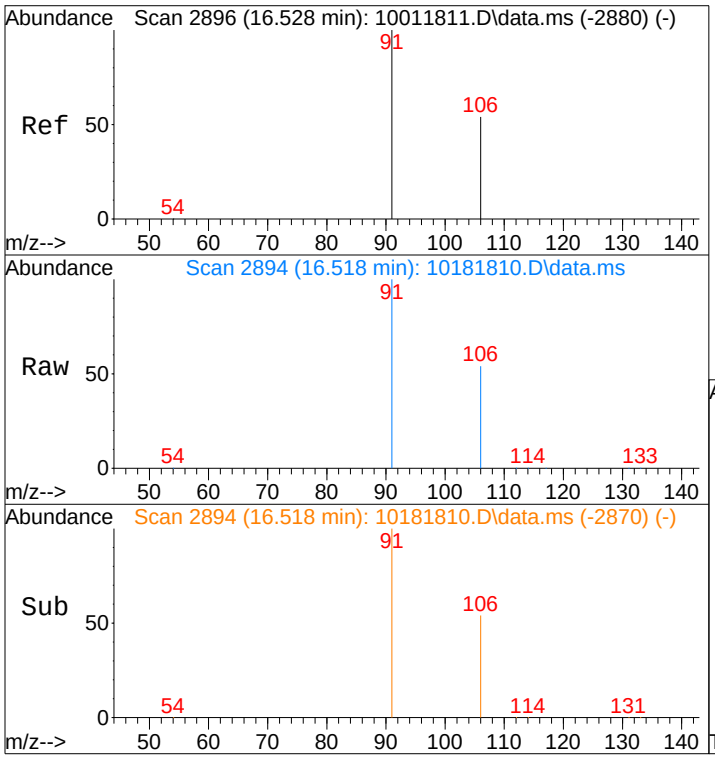


#40
Ethylbenzene
Concen: 94.88 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.004 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 91 Resp: 9632

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

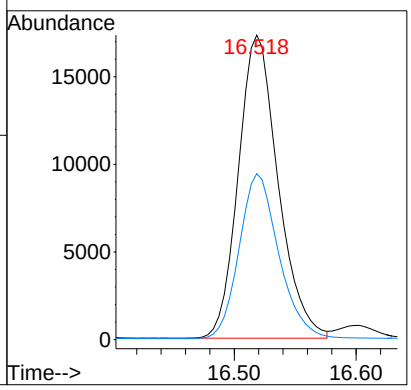


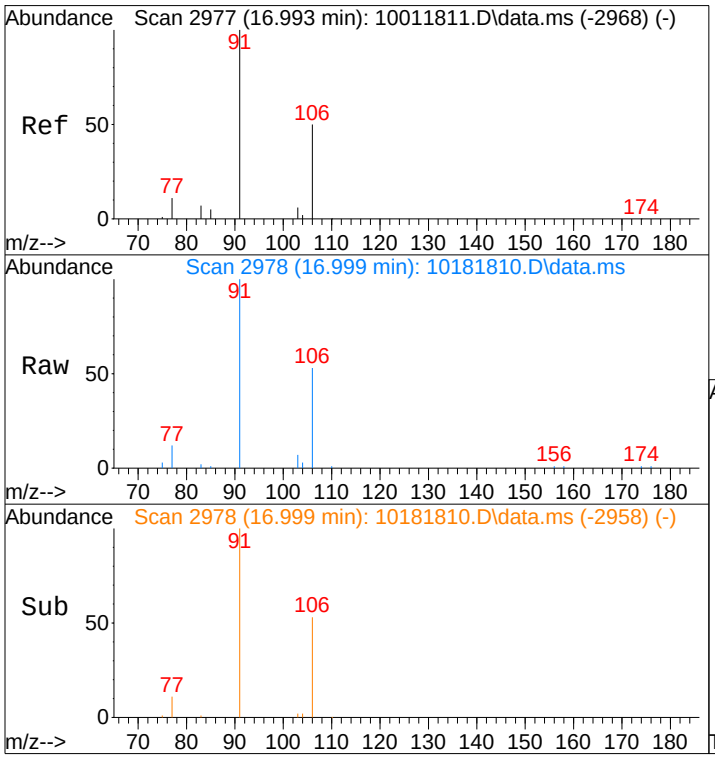


#41
m,p-Xylene
Concen: 505.28 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.022 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion: 91 Resp: 39222

Ion	Ratio	Lower	Upper
91	100		
106	54.4	34.3	74.3

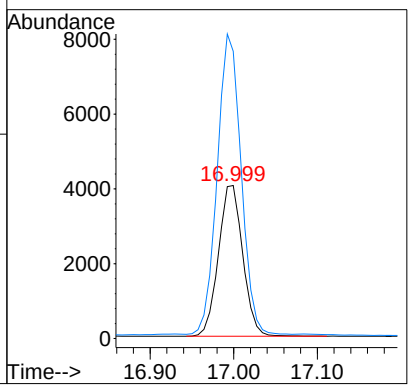


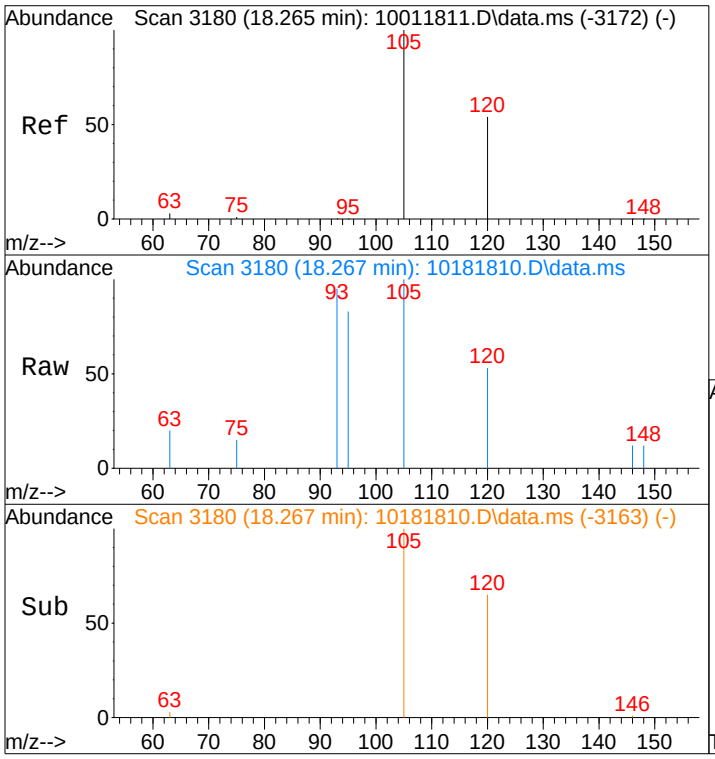


#43
o-Xylene
Concen: 197.87 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:106 Resp: 8166

Ion	Ratio	Lower	Upper
106	100		
91	194.7	175.6	215.6

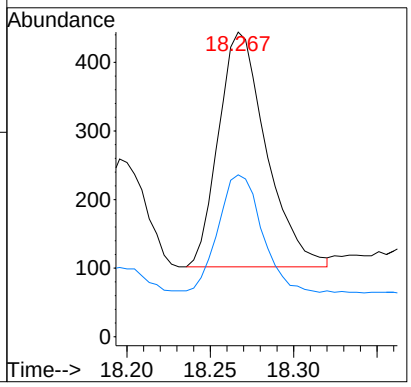


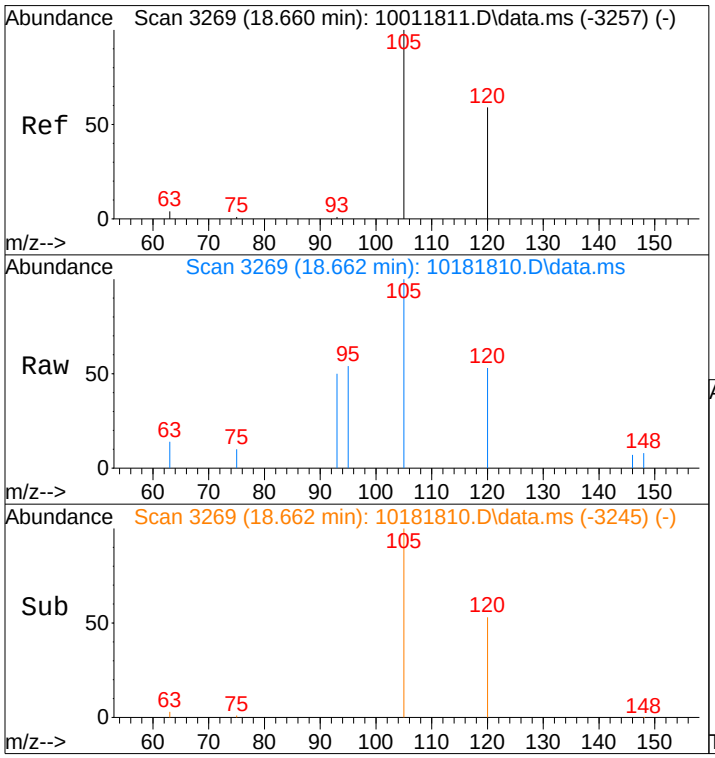


#46
1,3,5-Trimethylbenzene
Concen: 7.87 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:105 Resp: 683

Ion	Ratio	Lower	Upper
105	100		
120	45.5	42.8	64.2

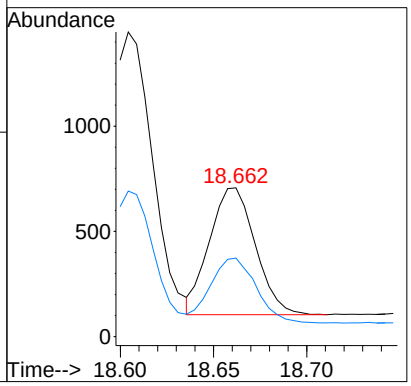


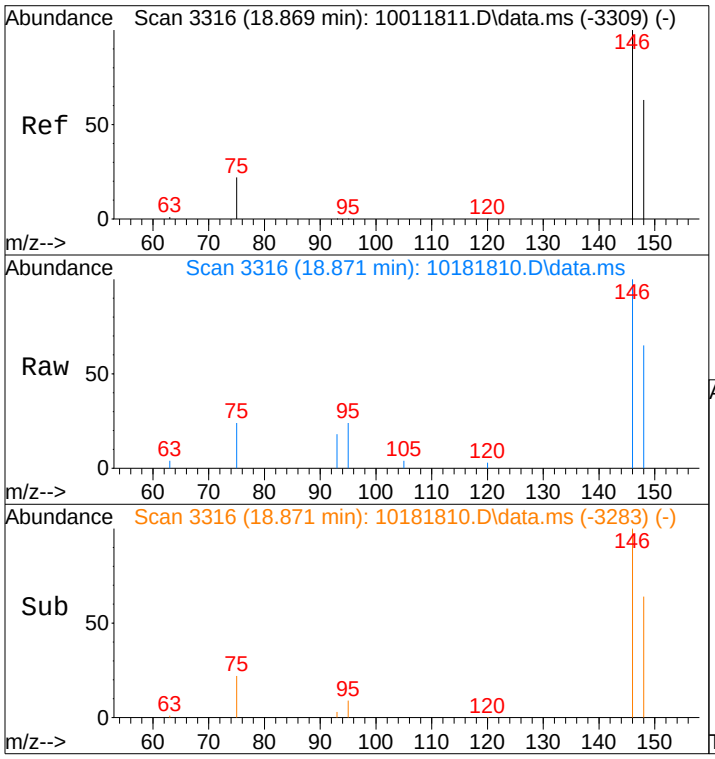


#47
1,2,4-Trimethylbenzene
Concen: 11.93 pg
RT: 18.66 min Scan# 3269
Delta R.T. -0.004 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:105 Resp: 1033

Ion	Ratio	Lower	Upper
105	100		
120	50.9	47.1	70.7

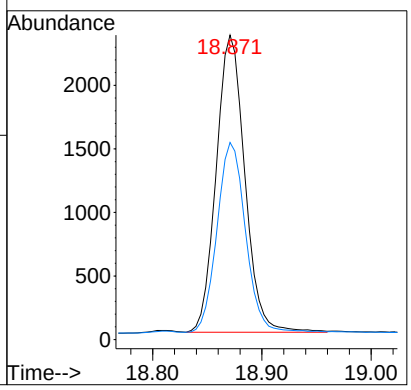


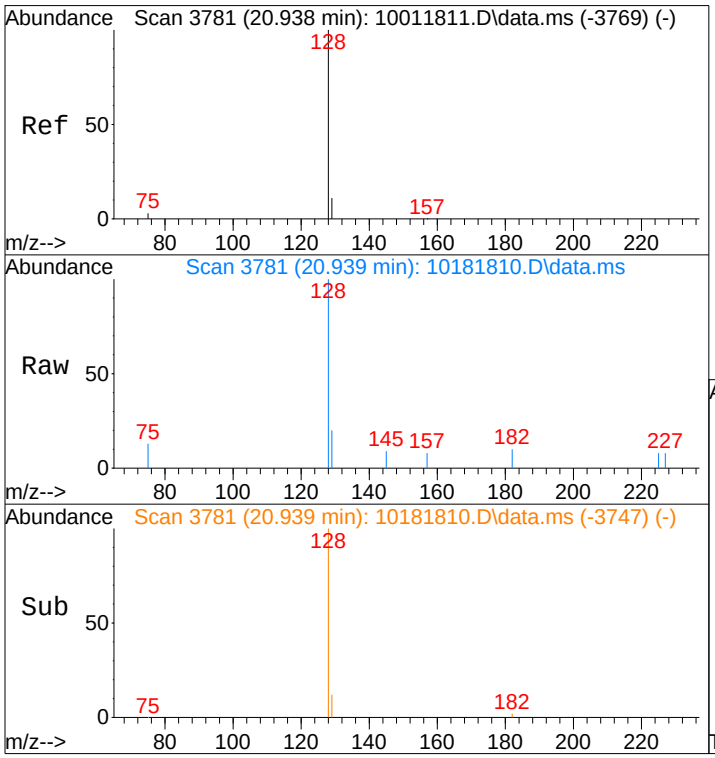


#49
1,4-Dichlorobenzene
Concen: 74.90 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:146 Resp: 4255

Ion	Ratio	Lower	Upper
146	100		
148	63.4	43.8	83.8

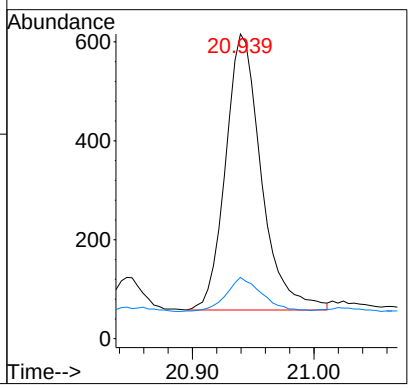




#53
Naphthalene
Concen: 11.27 pg
RT: 20.94 min Scan# 3781
Delta R.T. 0.001 min
Lab File: 10181810.D
Acq: 18 Oct 2018 17:36

Tgt Ion:128 Resp: 1141

Ion	Ratio	Lower	Upper
128	100		
129	12.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171812.D Vial: 6
Acq On : 17 Oct 2018 18:41 Operator: WA
Sample : P1805497-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:36:51 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18303	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82909	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11111	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20066	915.851	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.59%				
33) Toluene-d8 (SS2)	14.01	98	89566	1047.559	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.76%				
45) Bromofluorobenzene (SS3)	17.43	174	33818	1077.136	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.71%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	53768	1378.695	pg		100
3) Chloromethane	4.53	52	1071	117.444	pg	#	88
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1655	58.871	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.02	54	730	38.131	pg		95
7) Bromomethane	5.35	94	154	8.656	pg		96
8) Chloroethane	5.56	64	55	N.D.			
9) Acrolein	6.14	56	1140	106.432	pg		96
10) Acetone	6.28	58	14382	1059.111	pg	#	77
11) Trichlorofluoromethane	6.48	101	20690	678.370	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	3386	149.759	pg		96
14) Trichlorotrifluoroethane	7.67	151	4931	230.679	pg		100
15) trans-1,2-Dichloroethene	8.38	96	179	7.971	pg		95
16) 1,1-Dichloroethane	8.58	63	56	N.D.			
17) Methyl tert-Butyl Ether	8.59	73	157	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	3017	79.793	pg		99
21) 1,2-Dichloroethane	10.51	62	634	27.110	pg		96
22) 1,1,1-Trichloroethane	10.78	97	191	5.956	pg		99
23) Benzene	11.23	78	32601	343.207	pg		99
24) Carbon Tetrachloride	11.39	117	6756	230.792	pg		100
26) 1,2-Dichloropropane	12.05	63	83	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	432	16.676	pg		98
29) 1,4-Dioxane	12.27	88	93	5.247	pg		98
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	13.81	83	71	N.D.			
34) Toluene	14.11	91	85228	900.305	pg		100
35) Dibromochloromethane	14.53	129	95	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	2861	102.702	pg		100
39) Chlorobenzene	15.97	112	138	N.D.			
40) Ethylbenzene	16.35	91	13964	136.320	pg		100
41) m,p-Xylene	16.52	91	32988	421.184	pg		100
42) Styrene	16.89	104	2117	34.029	pg		100
43) o-Xylene	17.00	106	8408	201.922	pg		96
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	3079	35.157	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	12751	145.948	pg		88
48) 1,3-Dichlorobenzene	18.81	146	154	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	528	9.212	pg		99
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.			
53) Naphthalene	20.93	128	8629	84.440	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171812.D Vial: 6
Acq On : 17 Oct 2018 18:41 Operator: WA
Sample : P1805497-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:36:51 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

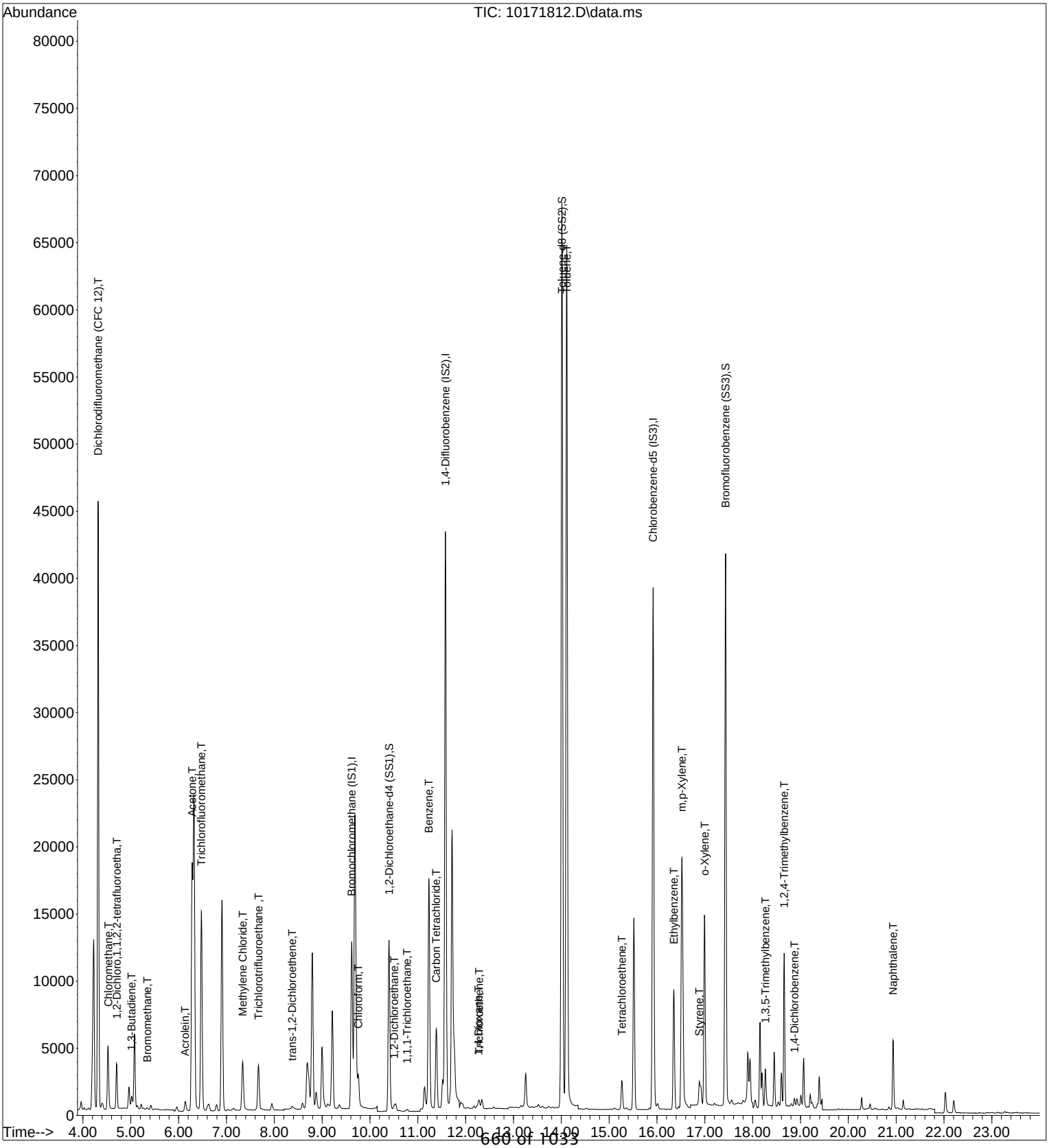
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171812.D Vial: 6
Acq On : 17 Oct 2018 18:41 Operator: WA
Sample : P1805497-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:36:51 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171812.D Vial: 6
Acq On : 17 Oct 2018 18:41 Operator: WA
Sample : P1805497-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:36:51 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

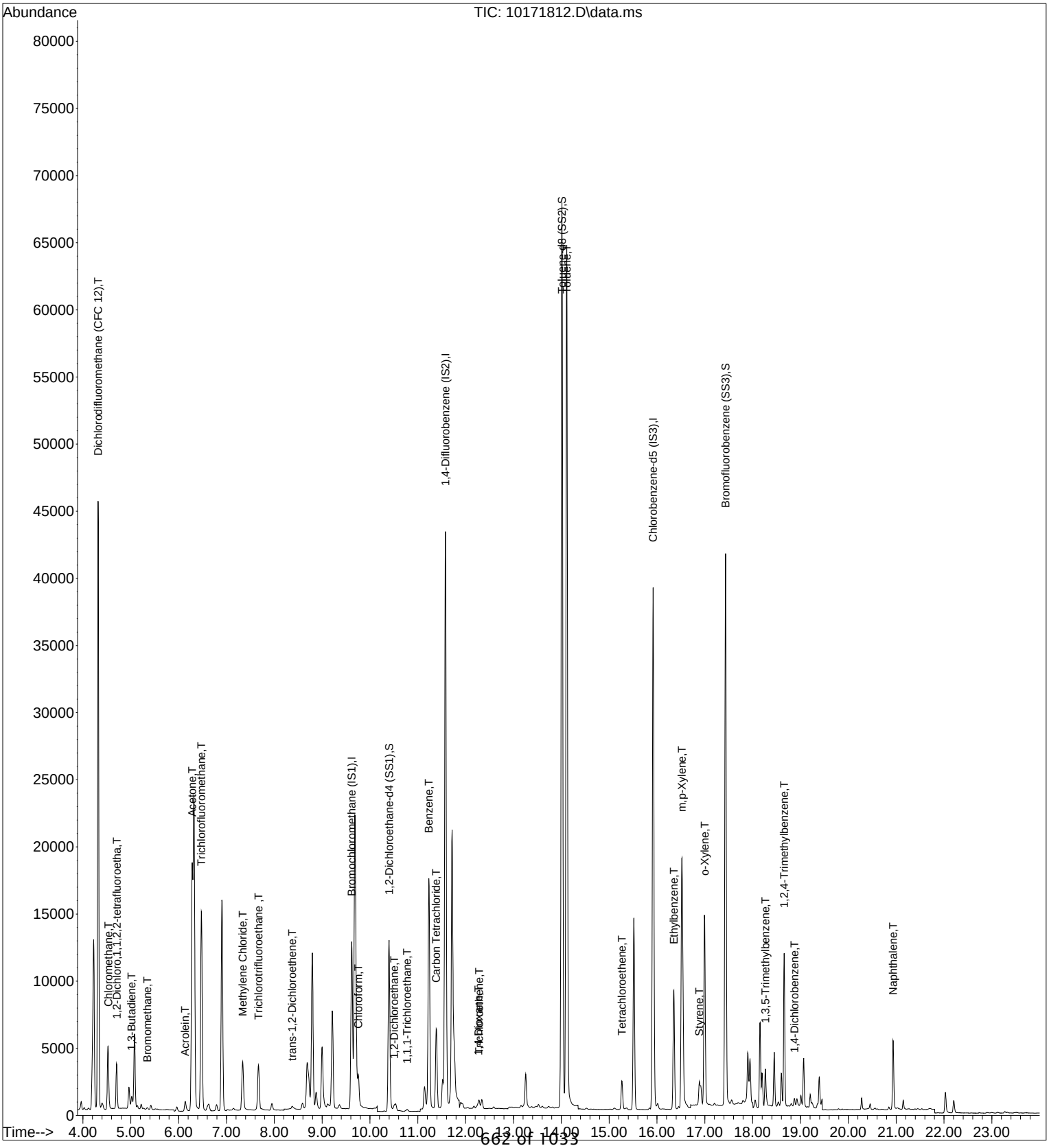
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18303	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82909	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11111	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20066	915.851	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 91.59%				
33) Toluene-d8 (SS2)	14.01	98	89566	1047.559	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.76%				
45) Bromofluorobenzene (SS3)	17.43	174	33818	1077.136	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.71%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	53768	1378.695	pg		100
3) Chloromethane	4.53	52	1071	117.444	pg	#	88
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1655	58.871	pg		100
6) 1,3-Butadiene	5.02	54	730	38.131	pg		95
7) Bromomethane	5.35	94	154	8.656	pg		96
9) Acrolein	6.14	56	1140	106.432	pg		96
10) Acetone	6.28	58	14382	1059.111	pg	#	77
11) Trichlorofluoromethane	6.48	101	20690	678.370	pg		100
13) Methylene Chloride	7.34	84	3386	149.759	pg		96
14) Trichlorotrifluoroethane	7.67	151	4931	230.679	pg		100
15) trans-1,2-Dichloroethene	8.38	96	179	7.971	pg		95
19) Chloroform	9.76	83	3017	79.793	pg		99
21) 1,2-Dichloroethane	10.51	62	634	27.110	pg		96
22) 1,1,1-Trichloroethane	10.78	97	191	5.956	pg		99
23) Benzene	11.23	78	32601	343.207	pg		99
24) Carbon Tetrachloride	11.39	117	6756	230.792	pg		100
28) Trichloroethene	12.28	130	432	16.676	pg		98
29) 1,4-Dioxane	12.27	88	93	5.247	pg		98
34) Toluene	14.11	91	85228	900.305	pg		100
37) Tetrachloroethene	15.27	166	2861	102.702	pg		100
40) Ethylbenzene	16.35	91	13964	136.320	pg		100
41) m,p-Xylene	16.52	91	32988	421.184	pg		100
42) Styrene	16.89	104	2117	34.029	pg		100
43) o-Xylene	17.00	106	8408	201.922	pg		96
46) 1,3,5-Trimethylbenzene	18.27	105	3079	35.157	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	12751	145.948	pg		88
49) 1,4-Dichlorobenzene	18.87	146	528	9.212	pg		99
53) Naphthalene	20.93	128	8629	84.440	pg		98

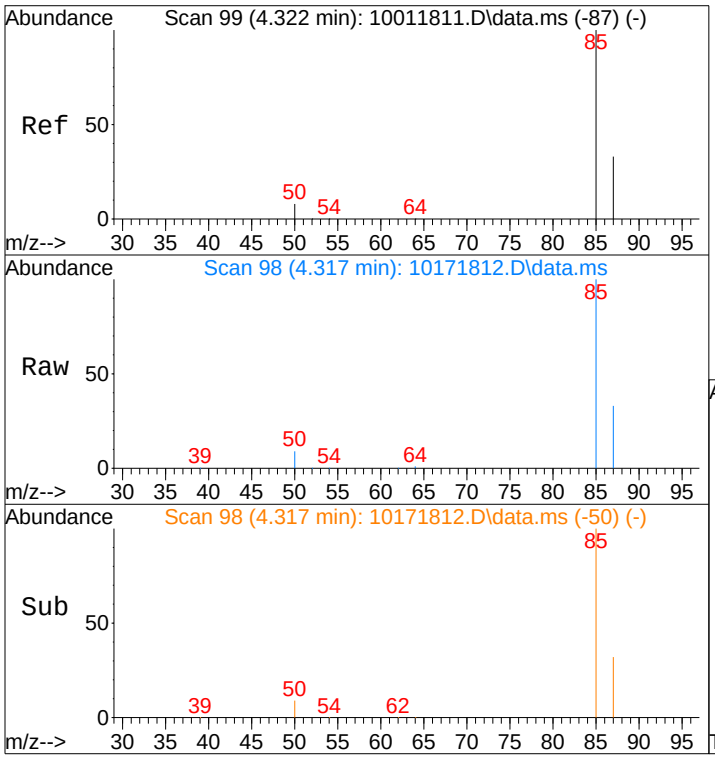
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171812.D Vial: 6
Acq On : 17 Oct 2018 18:41 Operator: WA
Sample : P1805497-005 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:36:51 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

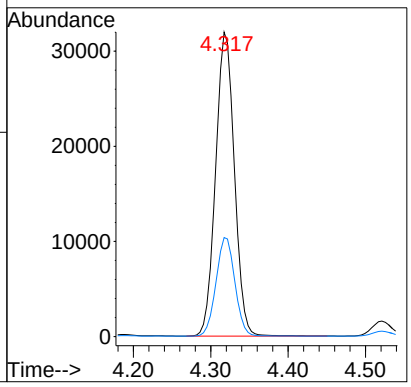


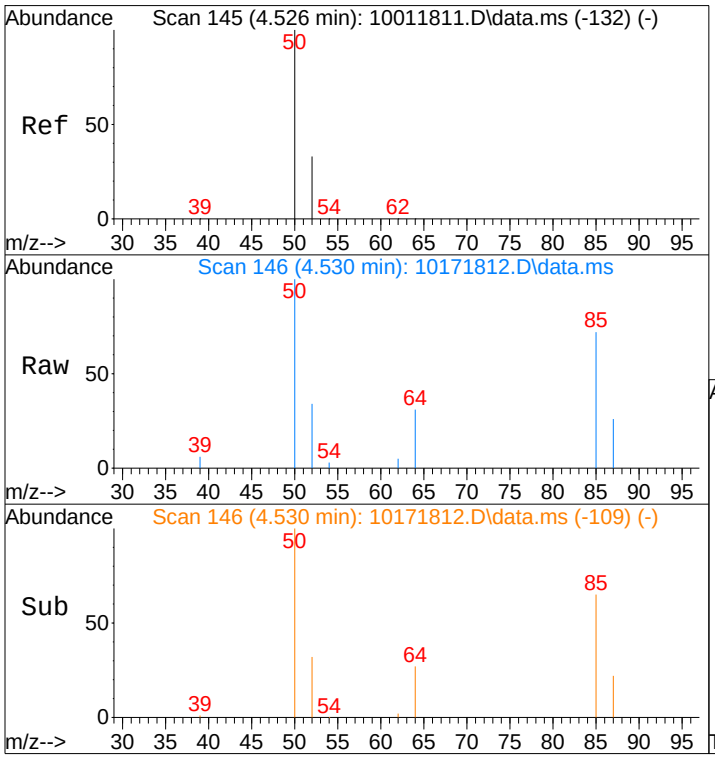


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1378.69 pg
RT: 4.32 min Scan# 98
Delta R.T. 0.013 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 85 Resp: 53768

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.7	52.7

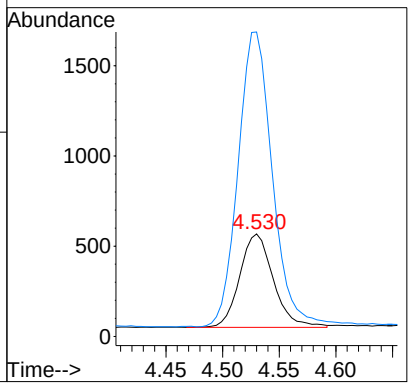


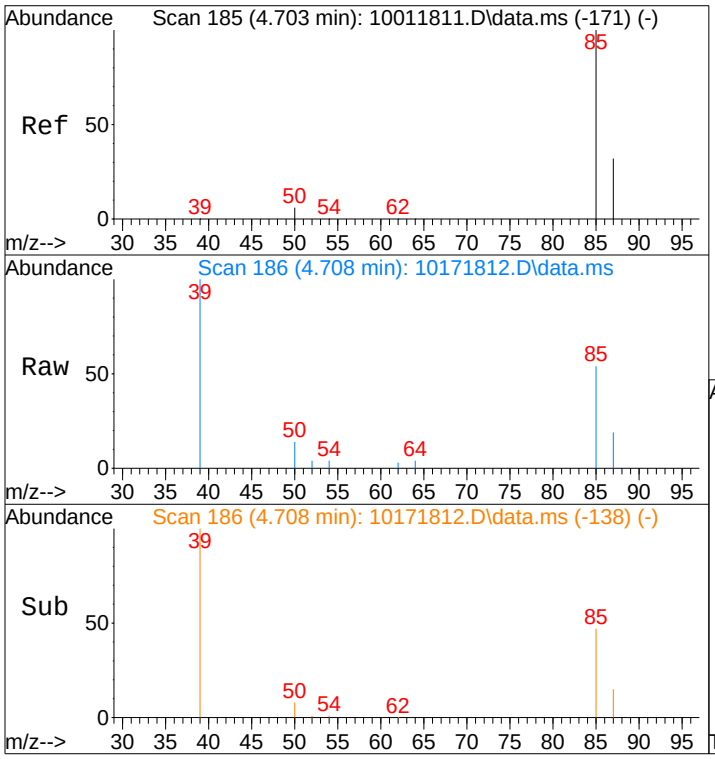


#3
Chloromethane
Concen: 117.44 pg
RT: 4.53 min Scan# 146
Delta R.T. 0.013 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 52 Resp: 1071

Ion	Ratio	Lower	Upper
52	100		
50	326.0	281.8	321.8#

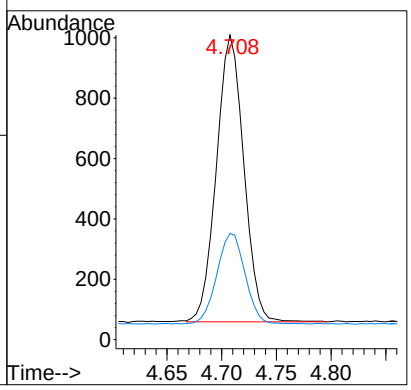


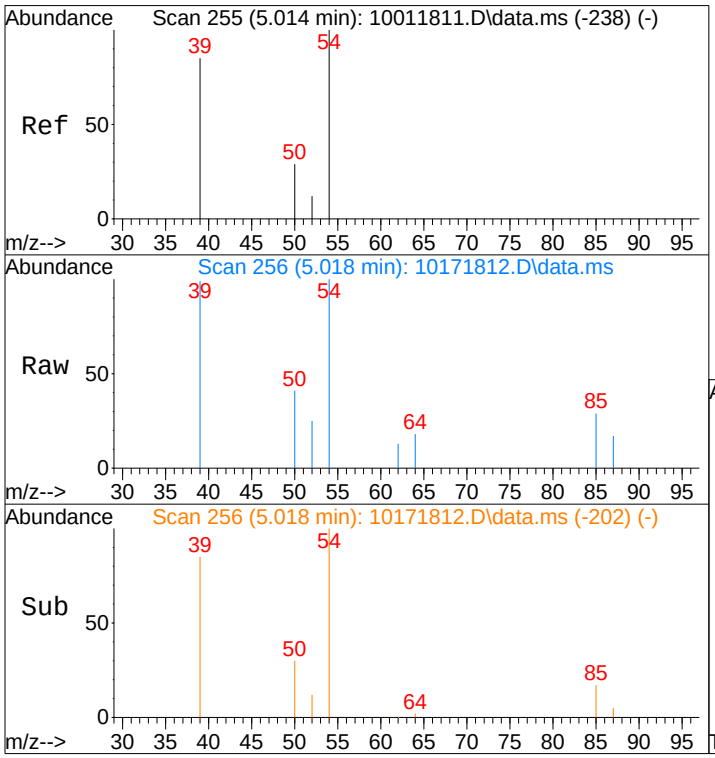


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 58.87 pg
RT: 4.71 min Scan# 186
Delta R.T. 0.014 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 85 Resp: 1655

Ion	Ratio	Lower	Upper
85	100		
87	32.4	26.0	39.0

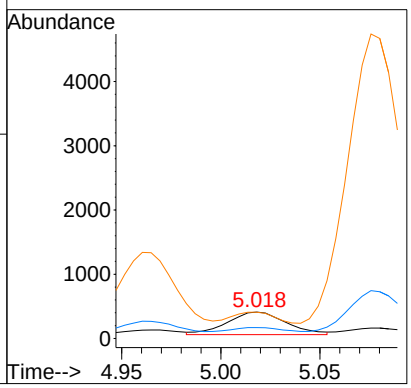


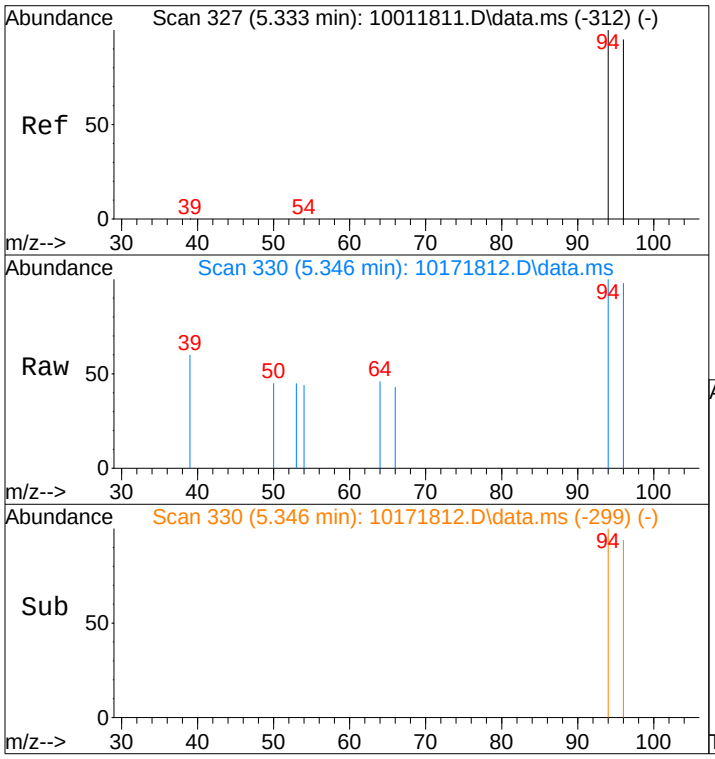


#6
1,3-Butadiene
Concen: 38.13 pg
RT: 5.02 min Scan# 256
Delta R.T. 0.009 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 54 Resp: 730

Ion	Ratio	Lower	Upper
54	100		
50	33.3	23.6	35.4
39	83.8	69.9	104.9

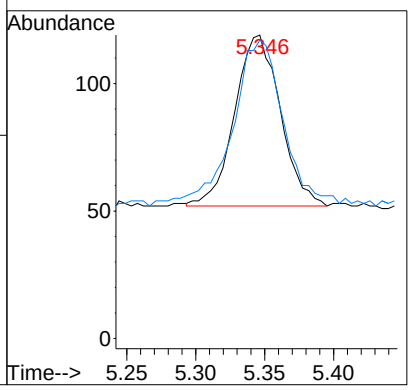


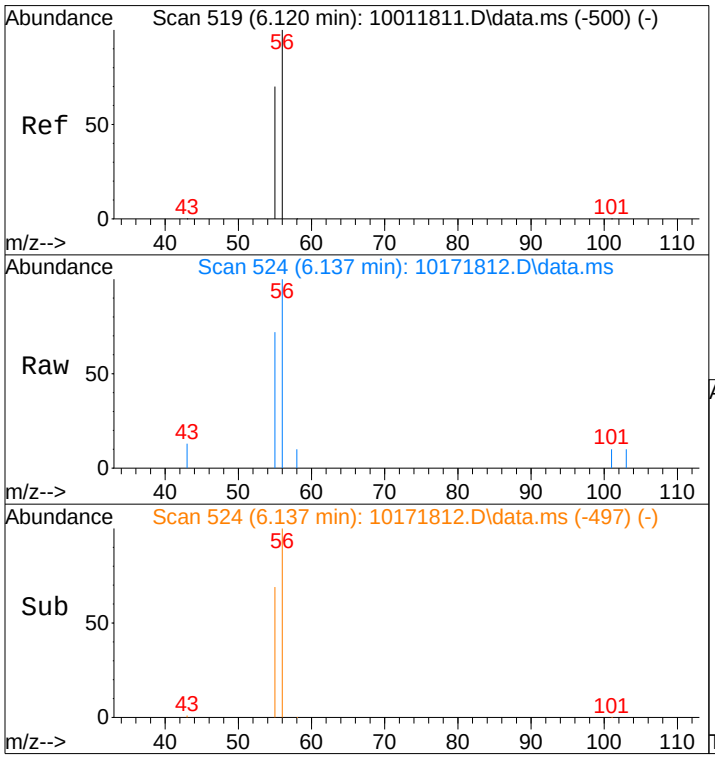


#7
Bromomethane
Concen: 8.66 pg
RT: 5.35 min Scan# 330
Delta R.T. 0.009 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 94 Resp: 154

Ion	Ratio	Lower	Upper
94	100		
96	98.1	75.7	113.5

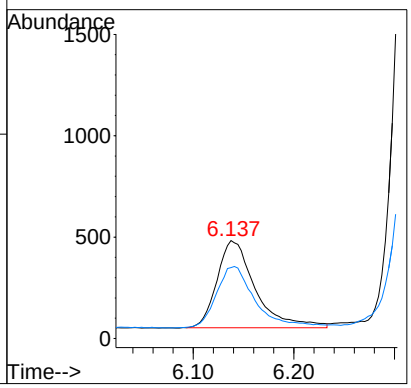


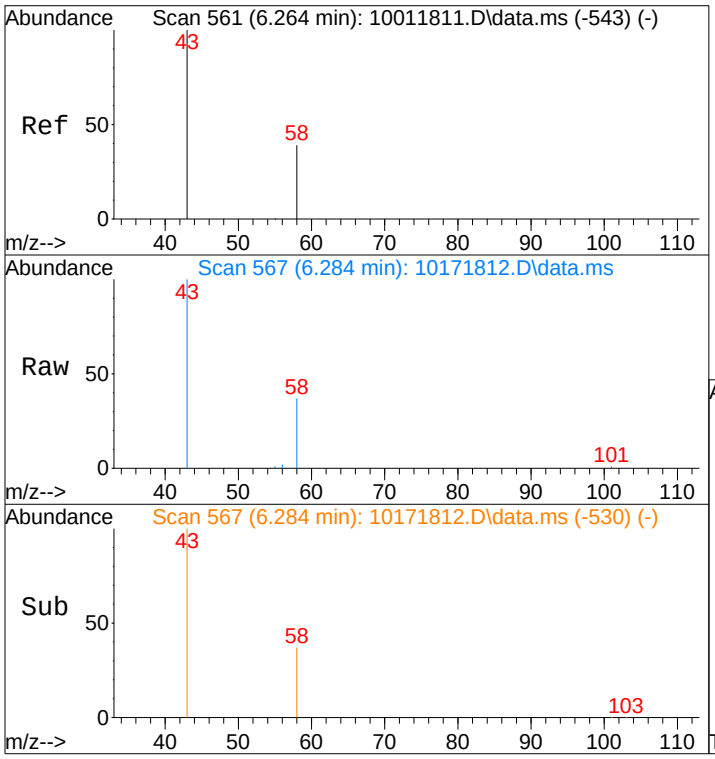


#9
Acrolein
Concen: 106.43 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 56 Resp: 1140

Ion	Ratio	Lower	Upper
56	100		
55	72.1	55.3	82.9

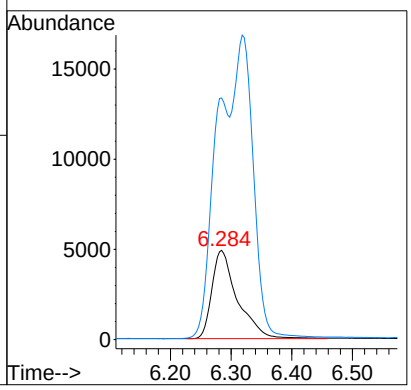


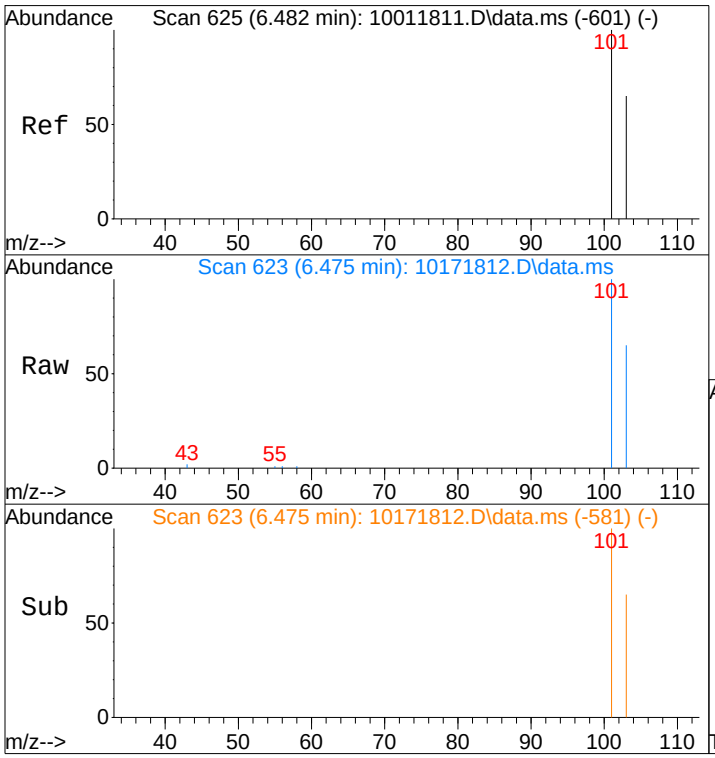


#10
Acetone
Concen: 1059.11 pg
RT: 6.28 min Scan# 567
Delta R.T. -0.024 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 58 Resp: 14382

Ion	Ratio	Lower	Upper
58	100		
43	213.3	234.7	274.7#

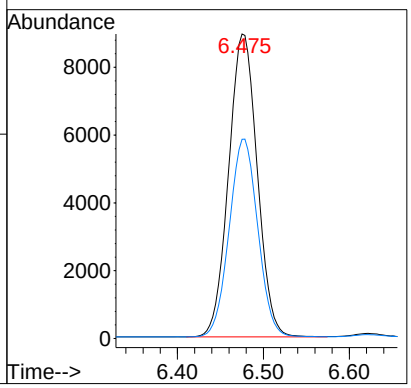


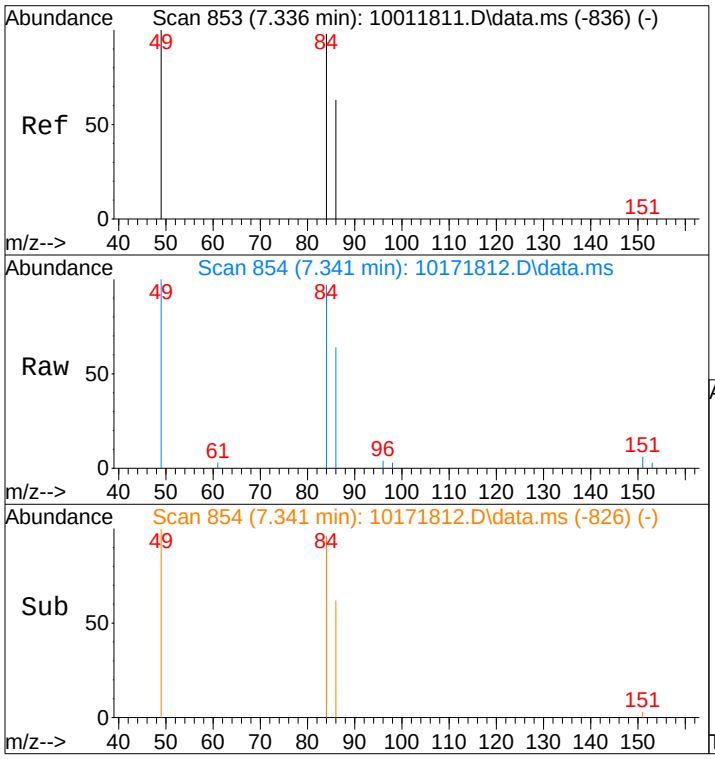


#11
Trichlorofluoromethane
Concen: 678.37 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:101 Resp: 20690

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

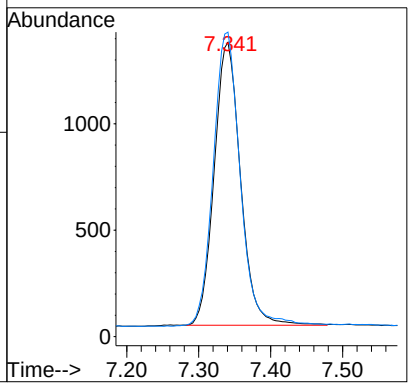


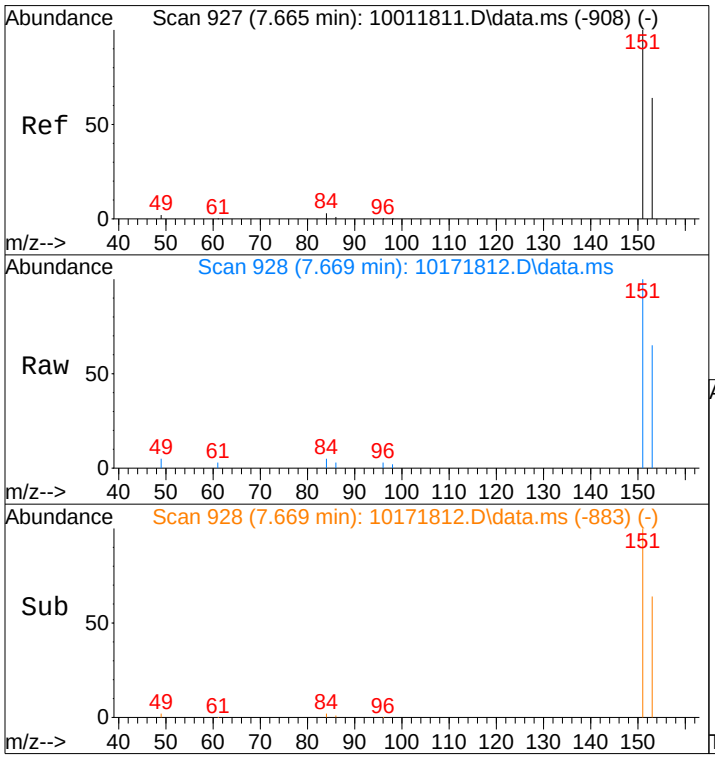


#13
Methylene Chloride
Concen: 149.76 pg
RT: 7.34 min Scan# 854
Delta R.T. -0.036 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 84 Resp: 3386

Ion	Ratio	Lower	Upper
84	100		
49	107.0	83.3	123.3

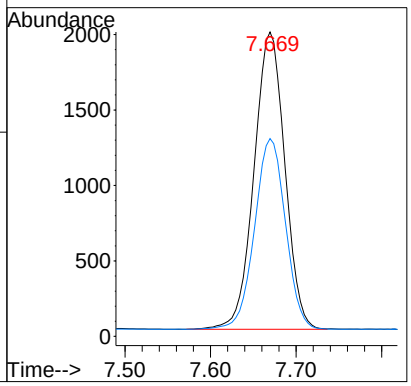


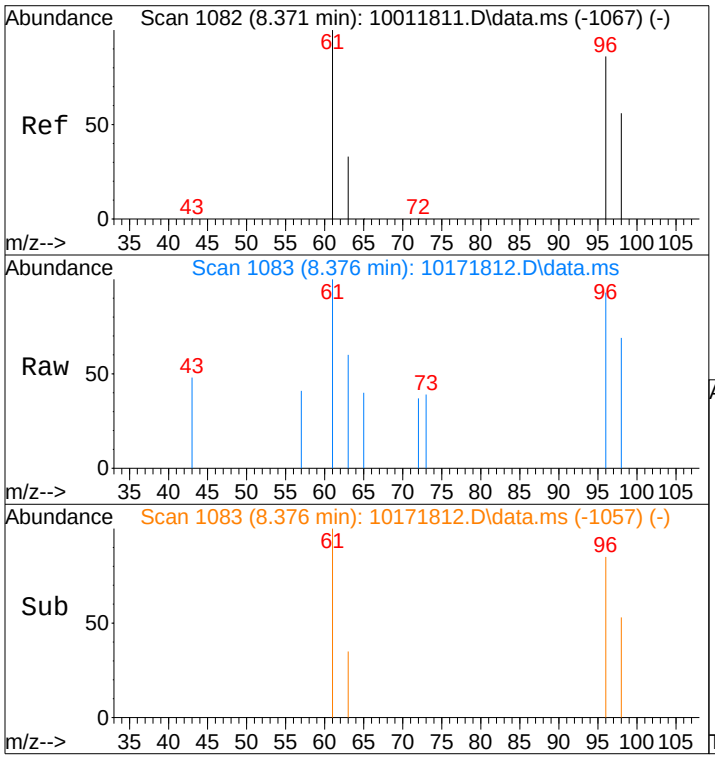


#14
Trichlorotrifluoroethane
Concen: 230.68 pg
RT: 7.67 min Scan# 928
Delta R.T. 0.000 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:151 Resp: 4931

Ion	Ratio	Lower	Upper
151	100		
153	64.4	44.3	84.3

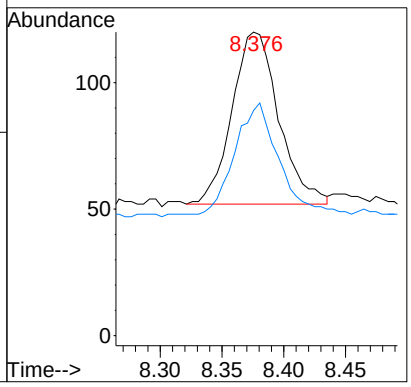


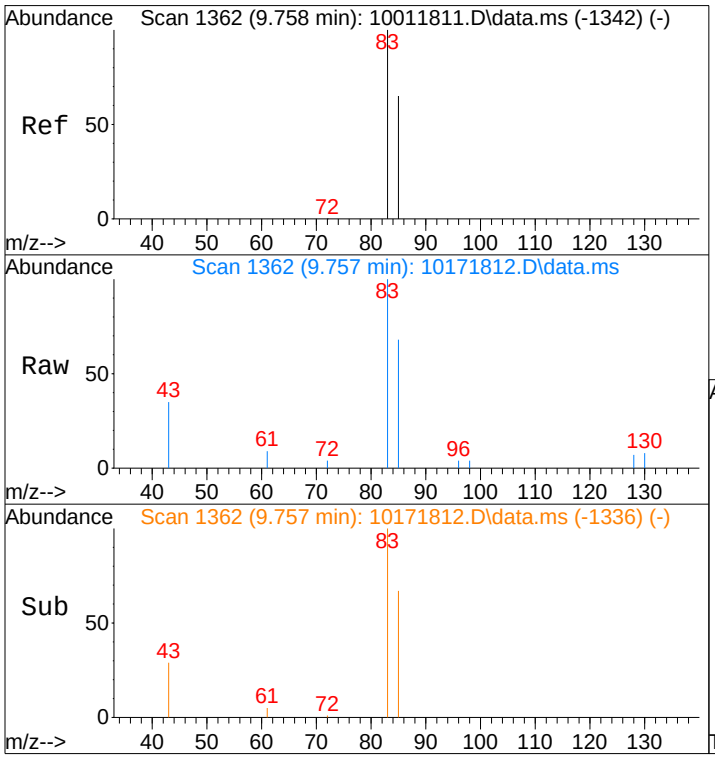


#15
trans-1,2-Dichloroethene
Concen: 7.97 pg
RT: 8.38 min Scan# 1083
Delta R.T. -0.020 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 96 Resp: 179

Ion	Ratio	Lower	Upper
96	100		
98	60.3	44.1	84.1

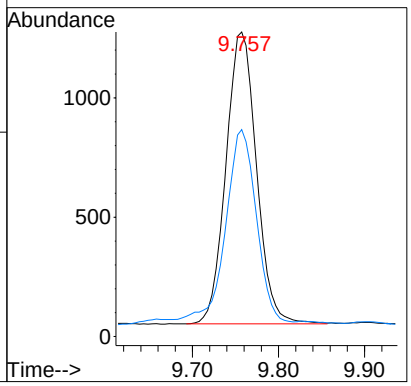


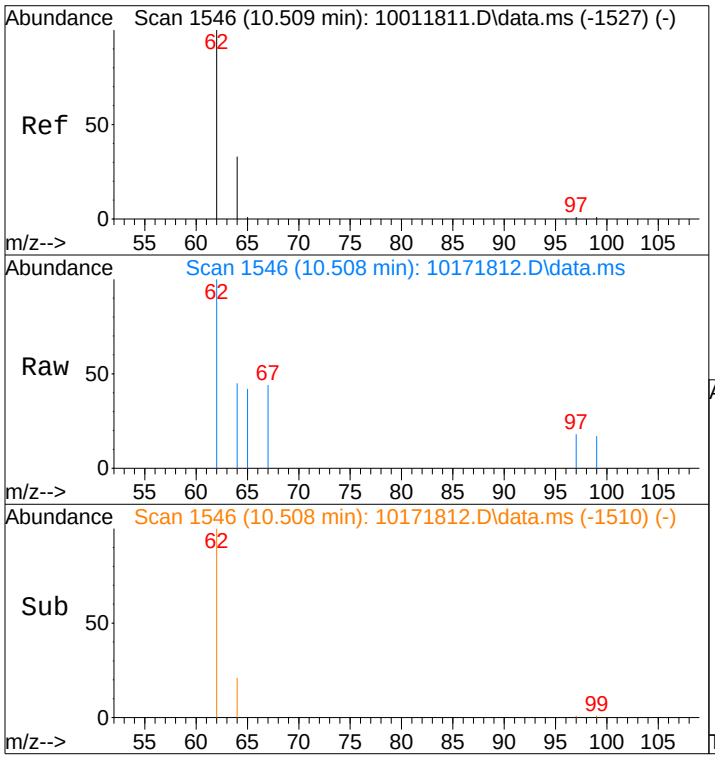


#19
Chloroform
Concen: 79.79 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.040 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 83 Resp: 3017

Ion	Ratio	Lower	Upper
83	100		
85	66.7	46.0	86.0

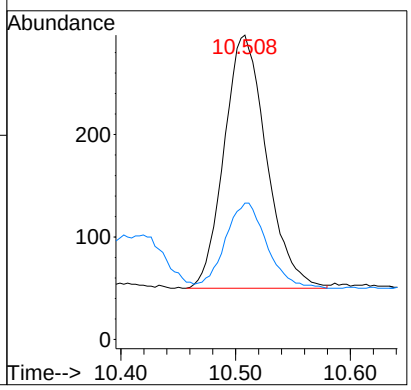


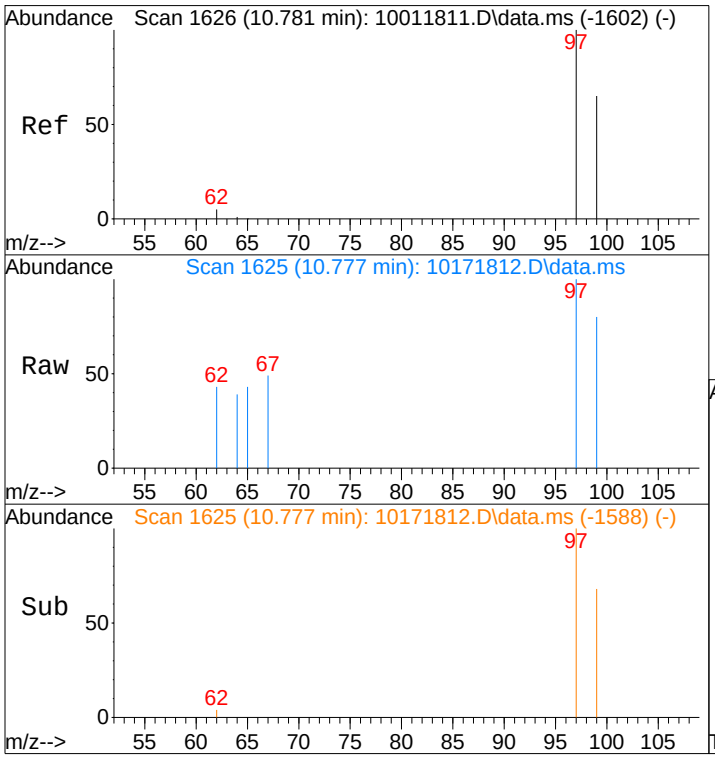


#21
1,2-Dichloroethane
Concen: 27.11 pg
RT: 10.51 min Scan# 1546
Delta R.T. -0.027 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 62 Resp: 634

Ion	Ratio	Lower	Upper
62	100		
64	30.4	12.9	52.9

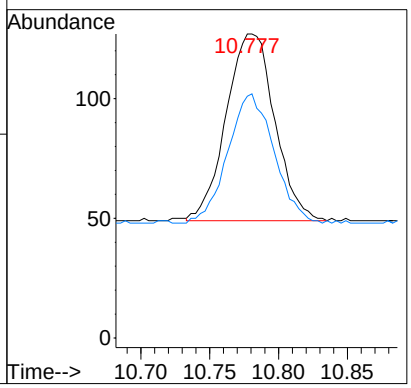


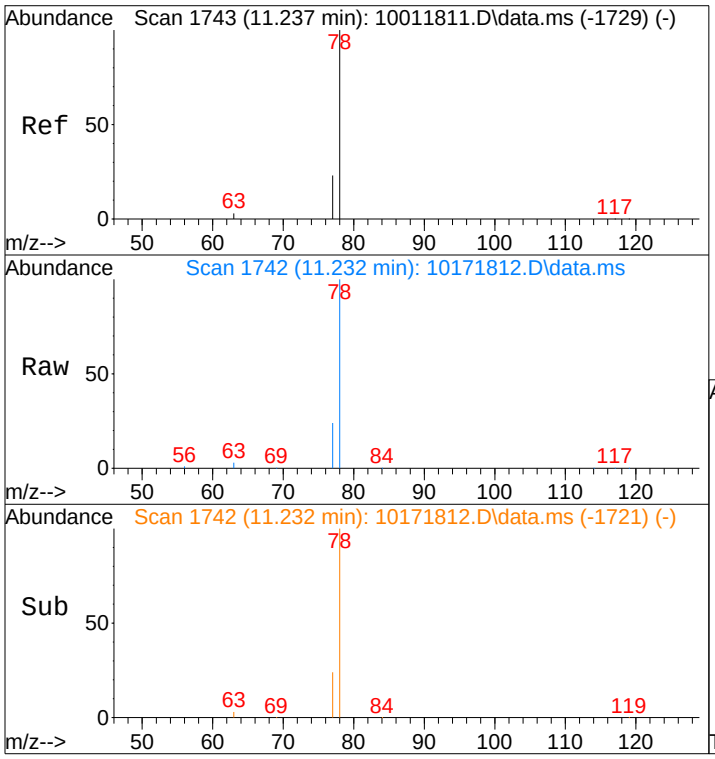


#22
1,1,1-Trichloroethane
Concen: 5.96 pg
RT: 10.78 min Scan# 1625
Delta R.T. -0.024 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 97 Resp: 191

Ion	Ratio	Lower	Upper
97	100		
99	66.0	44.9	84.9

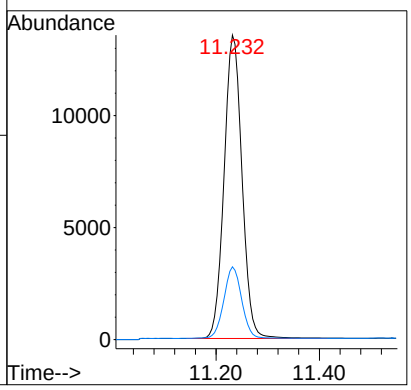


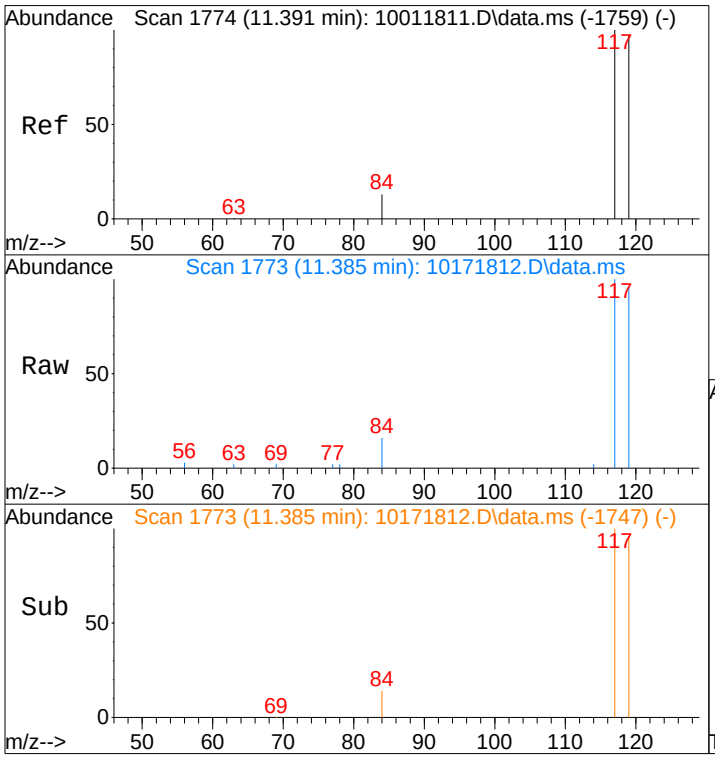


#23
Benzene
Concen: 343.21 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.025 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 78 Resp: 32601

Ion	Ratio	Lower	Upper
78	100		
77	23.6	3.3	43.3

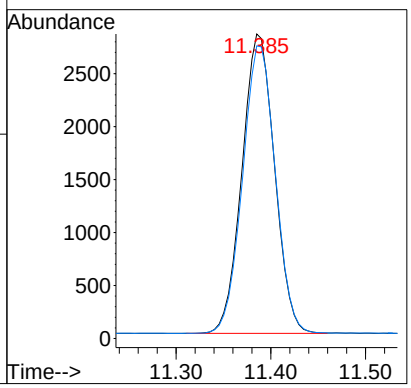


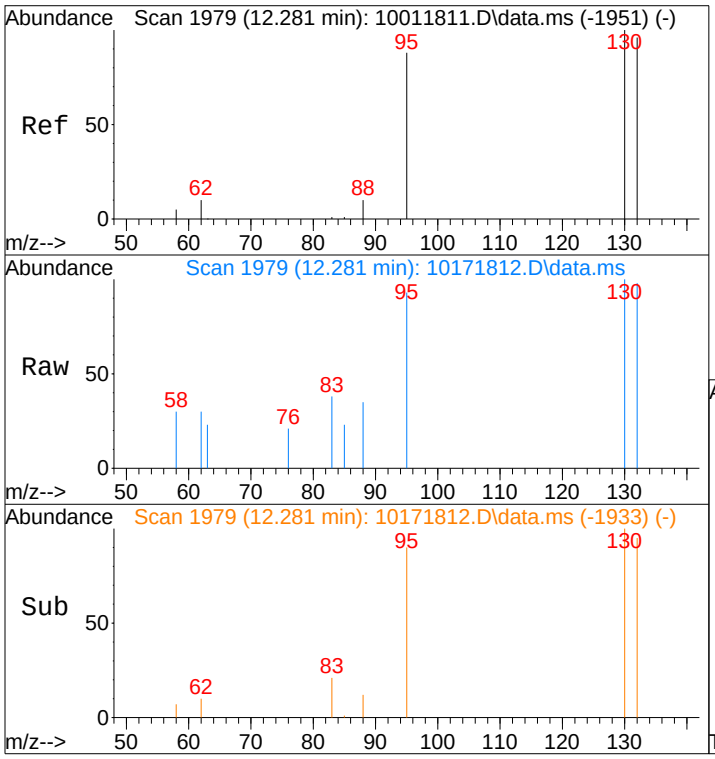


#24
Carbon Tetrachloride
Concen: 230.79 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.020 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:117 Resp: 6756

Ion	Ratio	Lower	Upper
117	100		
119	96.6	76.7	116.7

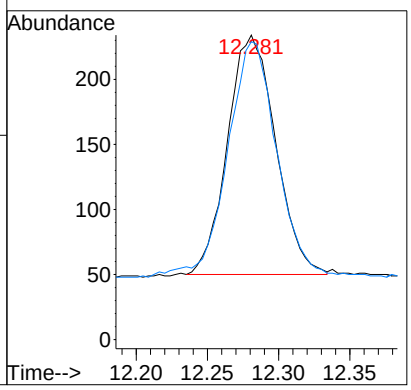


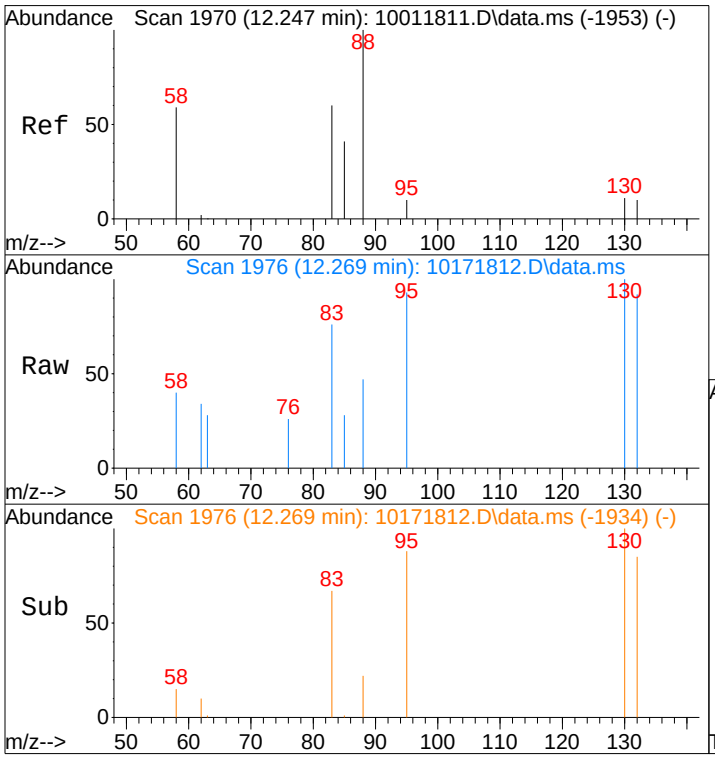


#28
Trichloroethene
Concen: 16.68 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.015 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:130 Resp: 432

Ion	Ratio	Lower	Upper
130	100		
132	97.7	75.6	115.6

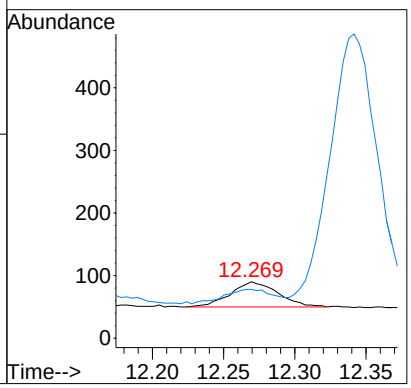


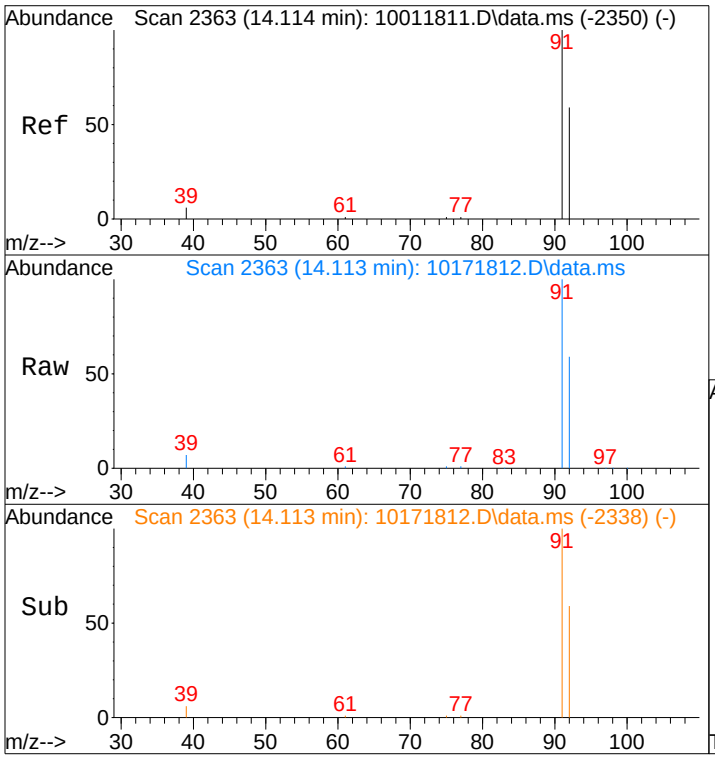


#29
1,4-Dioxane
Concen: 5.25 pg
RT: 12.27 min Scan# 1976
Delta R.T. 0.011 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 88 Resp: 93

Ion	Ratio	Lower	Upper
88	100		
58	58.1	39.2	79.2

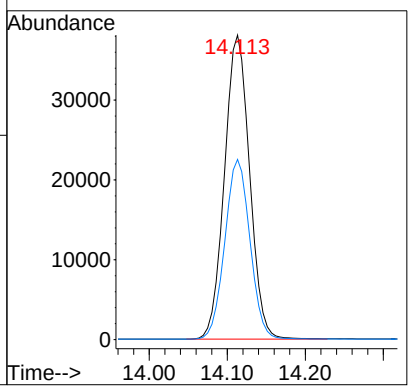


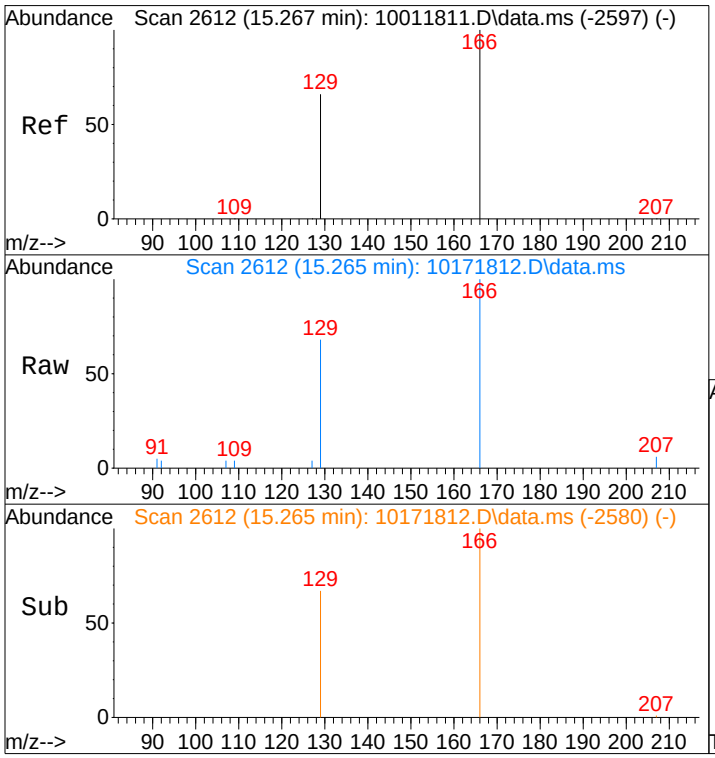


#34
Toluene
Concen: 900.30 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 91 Resp: 85228

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

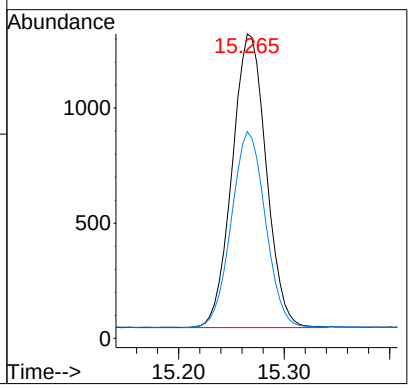


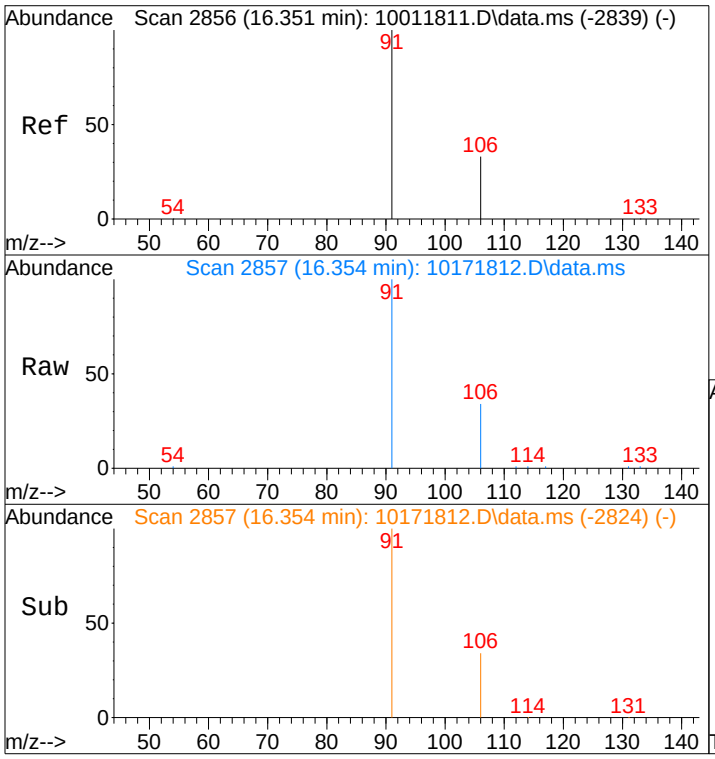


#37
Tetrachloroethene
Concen: 102.70 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.009 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:166 Resp: 2861

Ion	Ratio	Lower	Upper
166	100		
129	66.7	46.7	86.7

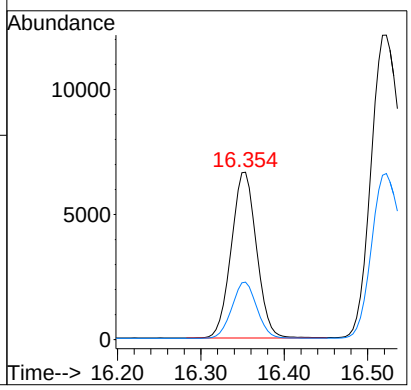


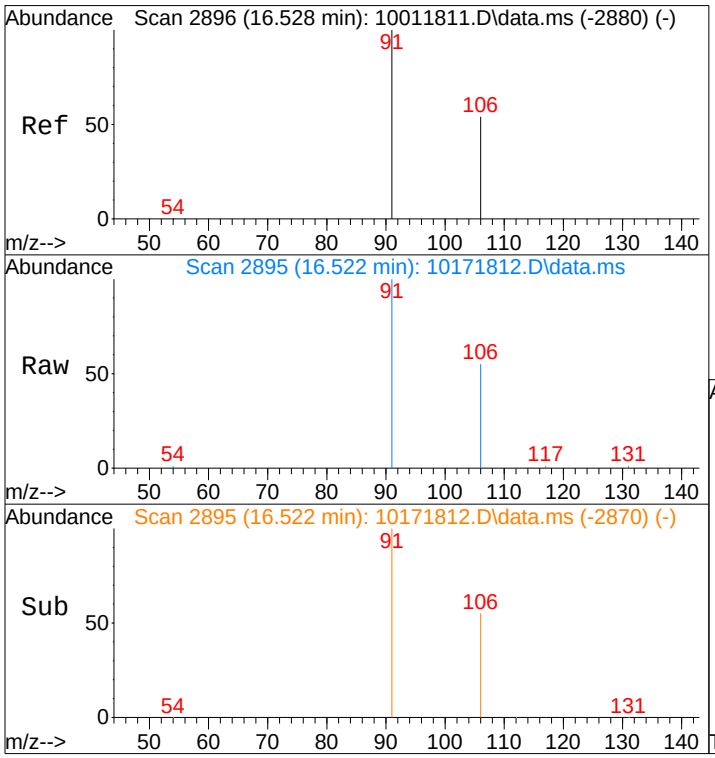


#40
Ethylbenzene
Concen: 136.32 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.004 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 91 Resp: 13964

Ion	Ratio	Lower	Upper
91	100		
106	33.7	13.7	53.7

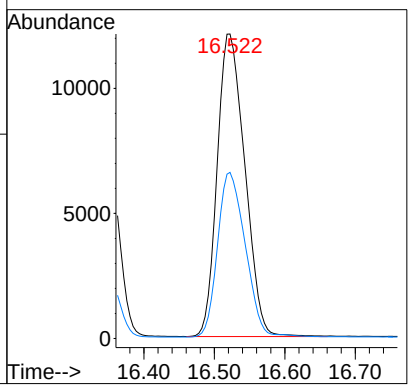


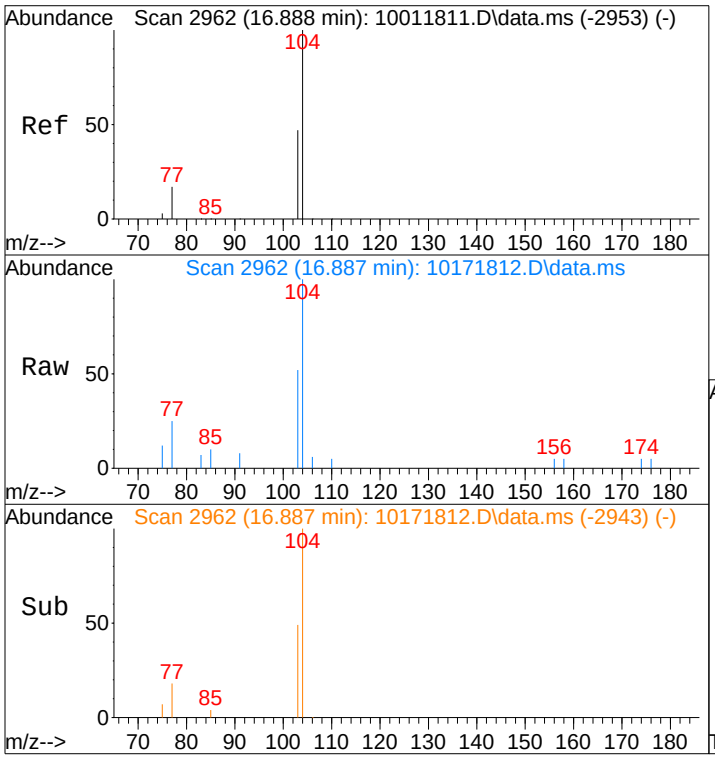


#41
m,p-Xylene
Concen: 421.18 pg
RT: 16.52 min Scan# 2895
Delta R.T. -0.018 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion: 91 Resp: 32988

Ion	Ratio	Lower	Upper
91	100		
106	54.6	34.3	74.3

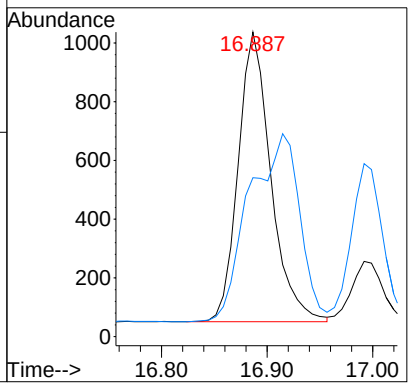


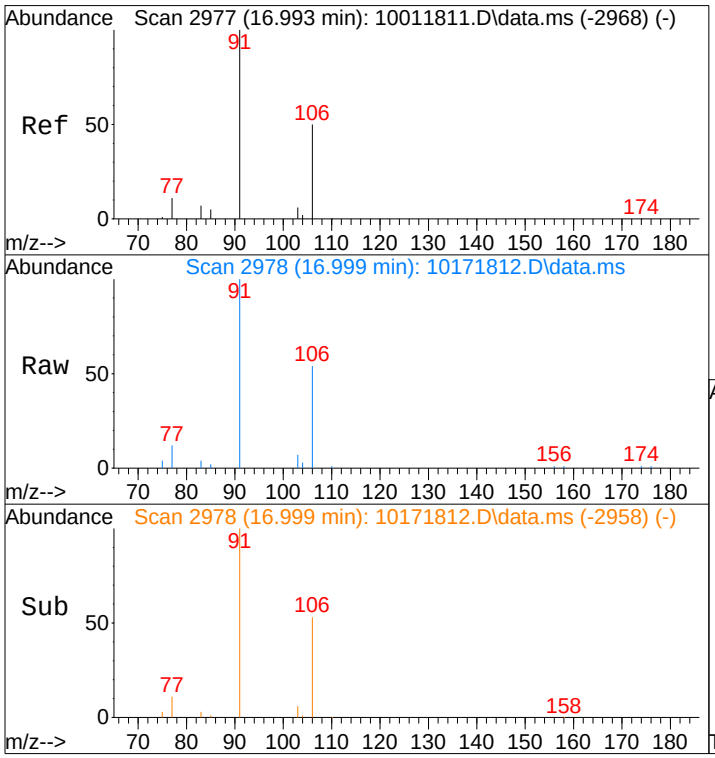


#42
Styrene
Concen: 34.03 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.007 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:104 Resp: 2117

Ion	Ratio	Lower	Upper
104	100		
103	47.1	37.7	56.5

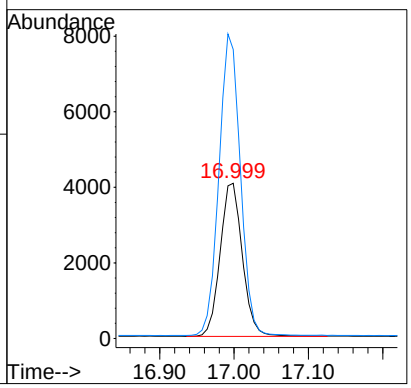


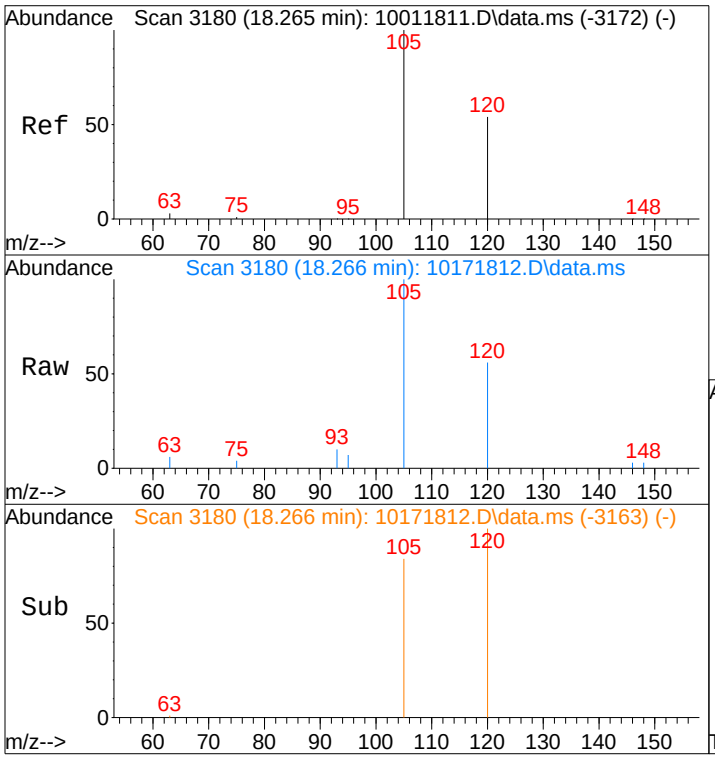


#43
o-Xylene
Concen: 201.92 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.007 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:106 Resp: 8408

Ion	Ratio	Lower	Upper
106	100		
91	189.5	175.6	215.6

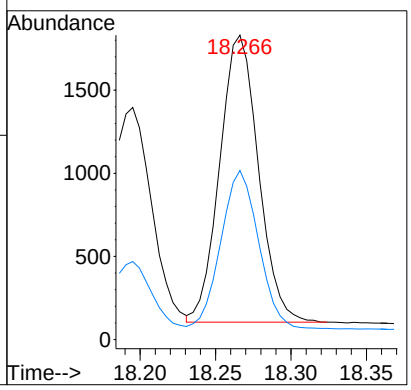


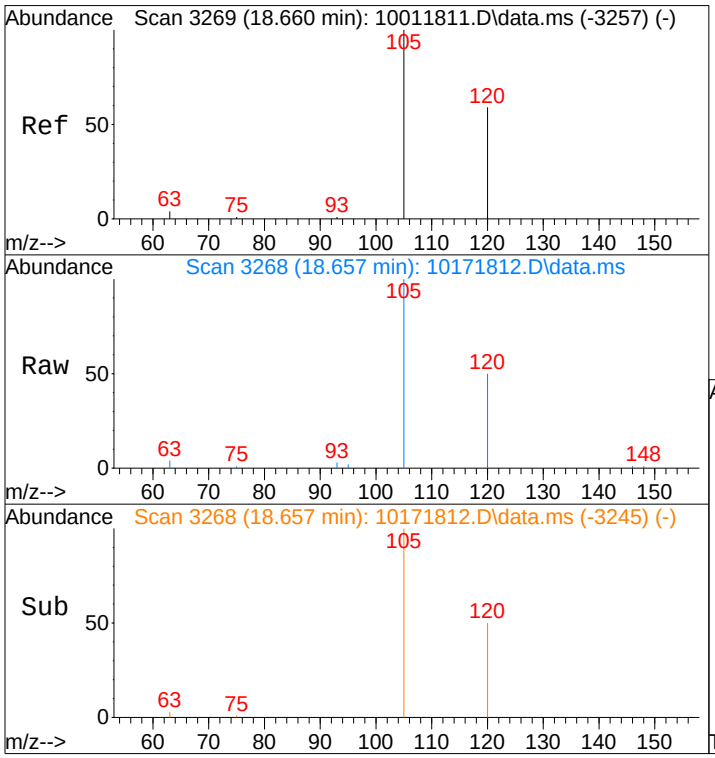


#46
1,3,5-Trimethylbenzene
Concen: 35.16 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:105 Resp: 3079

Ion	Ratio	Lower	Upper
105	100		
120	53.9	42.8	64.2

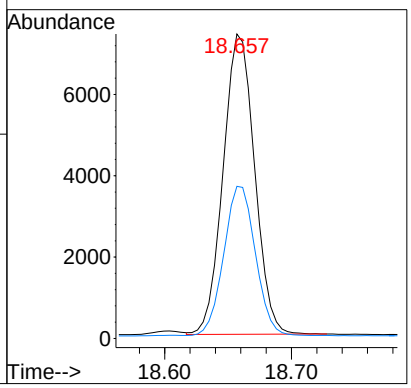


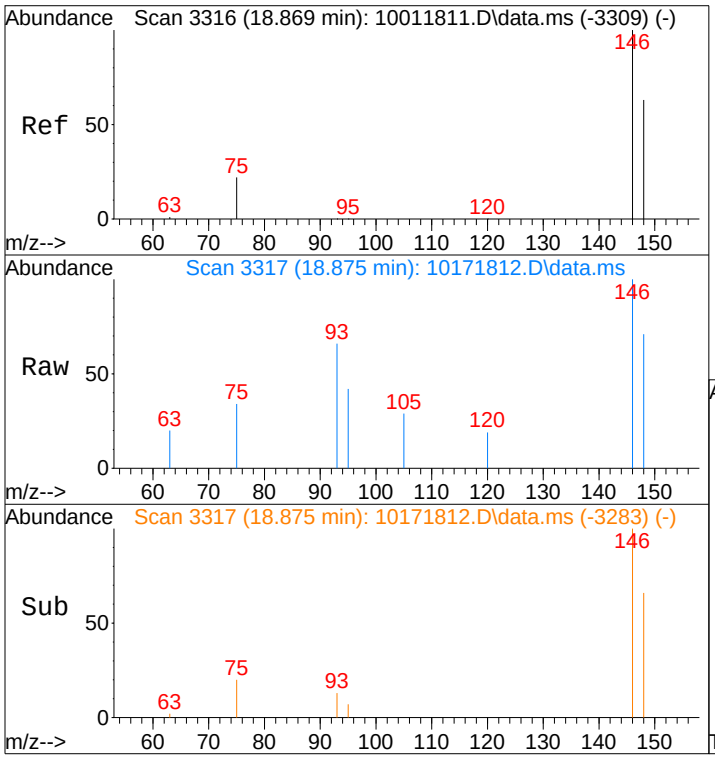


#47
1,2,4-Trimethylbenzene
Concen: 145.95 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.009 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:105 Resp: 12751

Ion	Ratio	Lower	Upper
105	100		
120	50.1	47.1	70.7

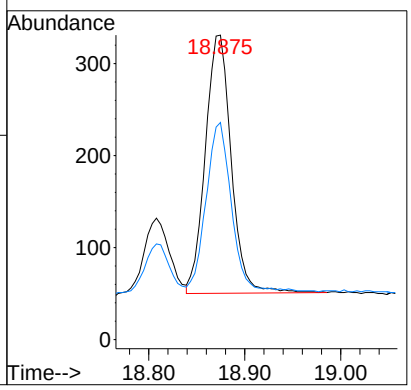


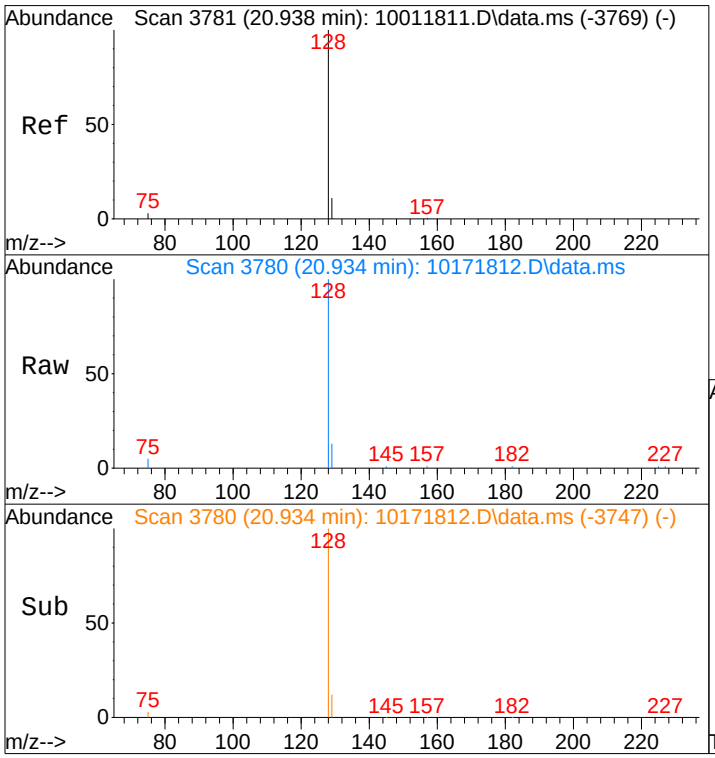


#49
1,4-Dichlorobenzene
Concen: 9.21 pg
RT: 18.87 min Scan# 3317
Delta R.T. 0.000 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:146 Resp: 528

Ion	Ratio	Lower	Upper
146	100		
148	64.6	43.8	83.8

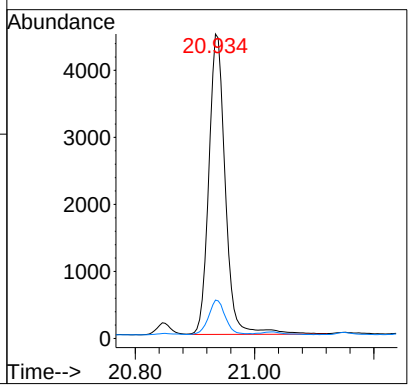




#53
Naphthalene
Concen: 84.44 pg
RT: 20.93 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171812.D
Acq: 17 Oct 2018 18:41

Tgt Ion:128 Resp: 8629

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:42:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

VOA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	32646	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	90041	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	14918	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	23207	593.848 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 59.38%#			NR
33) Toluene-d8 (SS2)	14.02	98	96719	1041.618 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.16%			
45) Bromofluorobenzene (SS3)	17.43	174	36270	860.425 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 86.04%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	122948	1767.494 pg		100
3) Chloromethane	4.51	52	4999	307.339 pg	#	74
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1402	27.960 pg		100
5) Vinyl Chloride	4.82	62	771	17.069 pg		76
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.33	94	435	13.708 pg		99
8) Chloroethane	5.58	64	5746	243.125 pg		100
9) Acrolein	6.13	56	6789	355.359 pg		92
10) Acetone	6.27	58	217992	9000.261 pg		98
11) Trichlorofluoromethane	6.52	101	41865	769.573 pg		100
12) 1,1-Dichloroethene	7.24	96	2271	58.991 pg	#	83
13) Methylene Chloride	7.35	84	52148	1293.111 pg		100
14) Trichlorotrifluoroethane	7.71	151	4959	130.065 pg		100
15) trans-1,2-Dichloroethene	8.40	96	387	9.662 pg		99
16) 1,1-Dichloroethane	8.61	63	2253	36.041 pg		97
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.48	96	92	N.D.		
19) Chloroform	9.77	83	2427010	35987.429 pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D. d		
22) 1,1,1-Trichloroethane	10.80	97	7185	125.606 pg		97
23) Benzene	11.25	78	59268	349.814 pg		100
24) Carbon Tetrachloride	11.41	117	73374	1405.289 pg		100
26) 1,2-Dichloropropane	12.05	63	418	18.639 pg		87
27) Bromodichloromethane	12.23	83	341993m	11488.093 pg		
28) Trichloroethene	12.29	130	2791	99.203 pg		97
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.12	91	5687008	55316.222 pg		97
35) Dibromochloromethane	14.53	129	121274	4403.282 pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	37844	1250.886 pg		100
39) Chlorobenzene	15.97	112	14075m	155.841 pg		
40) Ethylbenzene	16.35	91	81778	594.607 pg		100
41) m,p-Xylene	16.52	91	222532	2116.169 pg		100
42) Styrene	16.87	104	19082	228.454 pg	#	1
43) o-Xylene	17.00	106	49648	888.045 pg	#	82
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	69635	592.207 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	99062	844.508 pg		89
48) 1,3-Dichlorobenzene	18.80	146	73	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	265857	3454.587 pg		100
50) 1,2-Dichlorobenzene	19.20	146	544m	7.397 pg		
51) 1,2-Dibromo-3-chloropr...	19.65	157	74	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	206	N.D.		
53) Naphthalene	20.94	128	12136	88.452 pg		73

NR

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:42:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

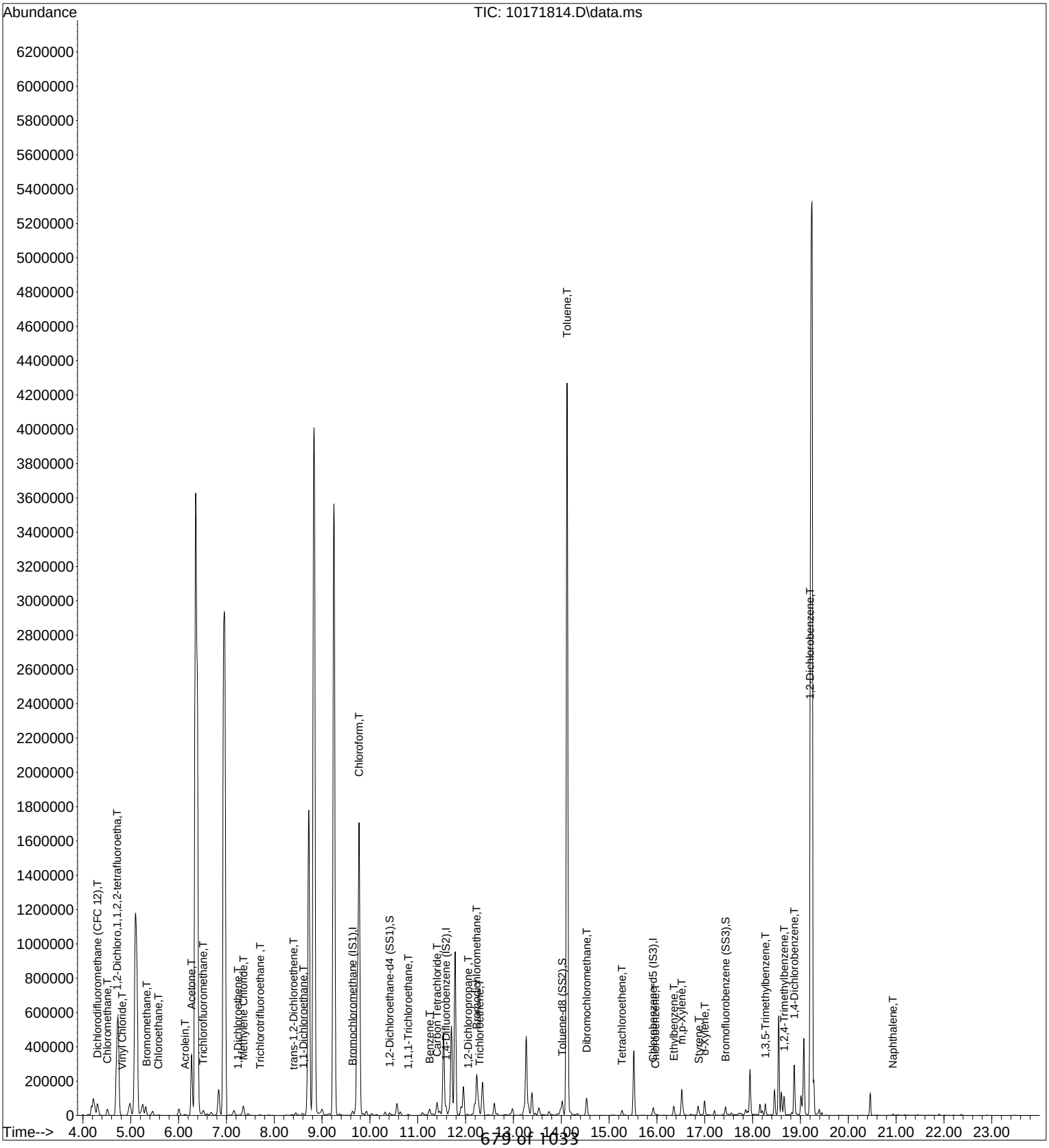
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:42:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:42:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

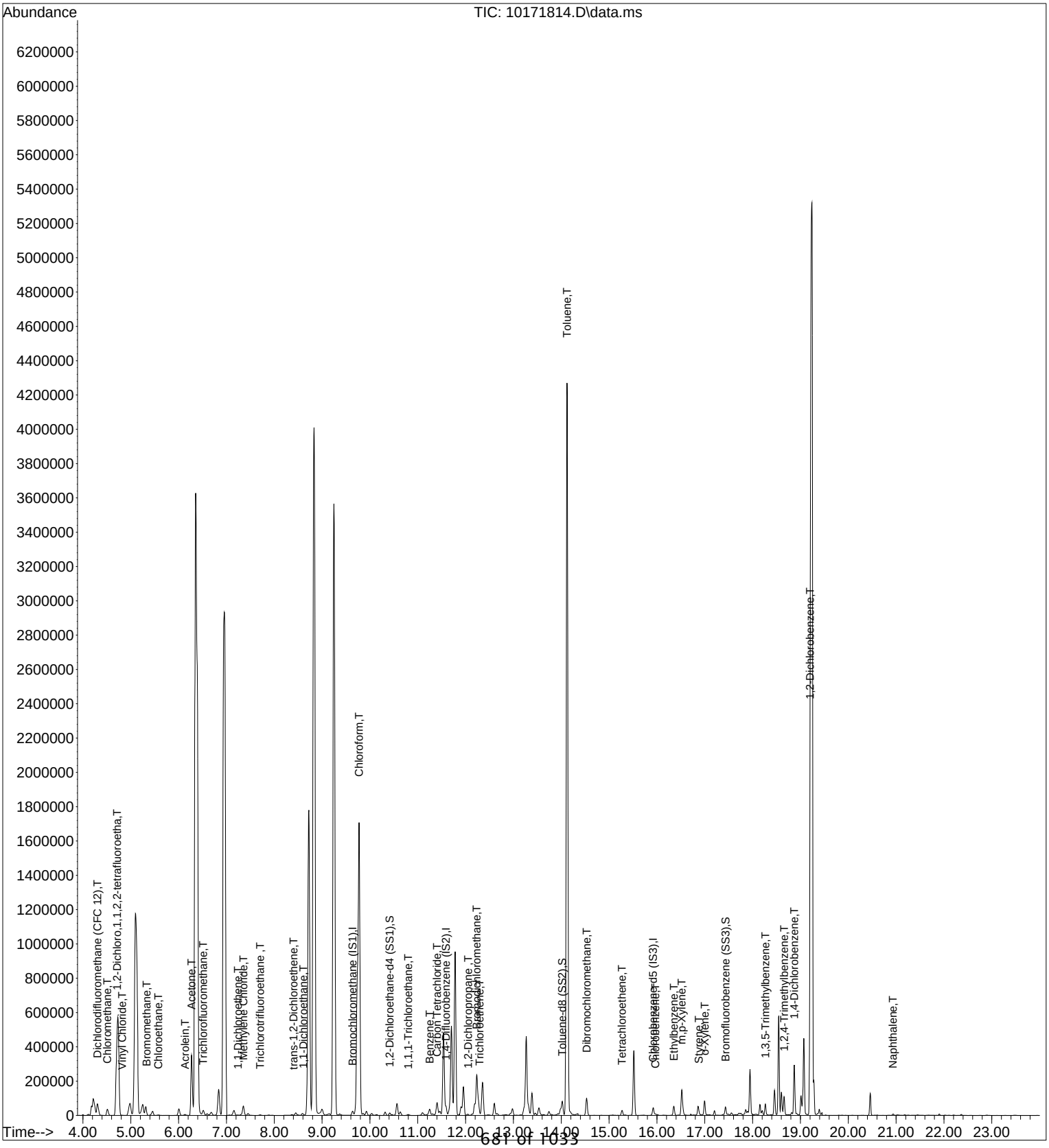
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	32646	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	90041	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	14918	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	23207	593.848 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 59.38%#			
33) Toluene-d8 (SS2)	14.02	98	96719	1041.618 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.16%			
45) Bromofluorobenzene (SS3)	17.43	174	36270	860.425 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 86.04%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	122948	1767.494 pg		100
3) Chloromethane	4.51	52	4999	307.339 pg	#	74
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1402	27.960 pg		100
5) Vinyl Chloride	4.82	62	771	17.069 pg		76
7) Bromomethane	5.33	94	435	13.708 pg		99
8) Chloroethane	5.58	64	5746	243.125 pg		100
9) Acrolein	6.13	56	6789	355.359 pg		92
10) Acetone	6.27	58	217992	9000.261 pg		98
11) Trichlorofluoromethane	6.52	101	41865	769.573 pg		100
12) 1,1-Dichloroethene	7.24	96	2271	58.991 pg	#	83
13) Methylene Chloride	7.35	84	52148	1293.111 pg		100
14) Trichlorotrifluoroethane	7.71	151	4959	130.065 pg		100
15) trans-1,2-Dichloroethene	8.40	96	387	9.662 pg		99
16) 1,1-Dichloroethane	8.61	63	2253	36.041 pg		97
19) Chloroform	9.77	83	2427010	35987.429 pg		99
22) 1,1,1-Trichloroethane	10.80	97	7185	125.606 pg		97
23) Benzene	11.25	78	59268	349.814 pg		100
24) Carbon Tetrachloride	11.41	117	73374	1405.289 pg		100
26) 1,2-Dichloropropane	12.05	63	418	18.639 pg		87
27) Bromodichloromethane	12.23	83	341993m	11488.093 pg		
28) Trichloroethene	12.29	130	2791	99.203 pg		97
34) Toluene	14.12	91	5687008	55316.222 pg		97
35) Dibromochloromethane	14.53	129	121274	4403.282 pg		100
37) Tetrachloroethene	15.27	166	37844	1250.886 pg		100
39) Chlorobenzene	15.97	112	14075m	155.841 pg		
40) Ethylbenzene	16.35	91	81778	594.607 pg		100
41) m,p-Xylene	16.52	91	222532	2116.169 pg		100
42) Styrene	16.87	104	19082	228.454 pg	#	1
43) o-Xylene	17.00	106	49648	888.045 pg	#	82
46) 1,3,5-Trimethylbenzene	18.27	105	69635	592.207 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	99062	844.508 pg		89
49) 1,4-Dichlorobenzene	18.87	146	265857	3454.587 pg		100
50) 1,2-Dichlorobenzene	19.20	146	544m	7.397 pg		
53) Naphthalene	20.94	128	12136	88.452 pg		73

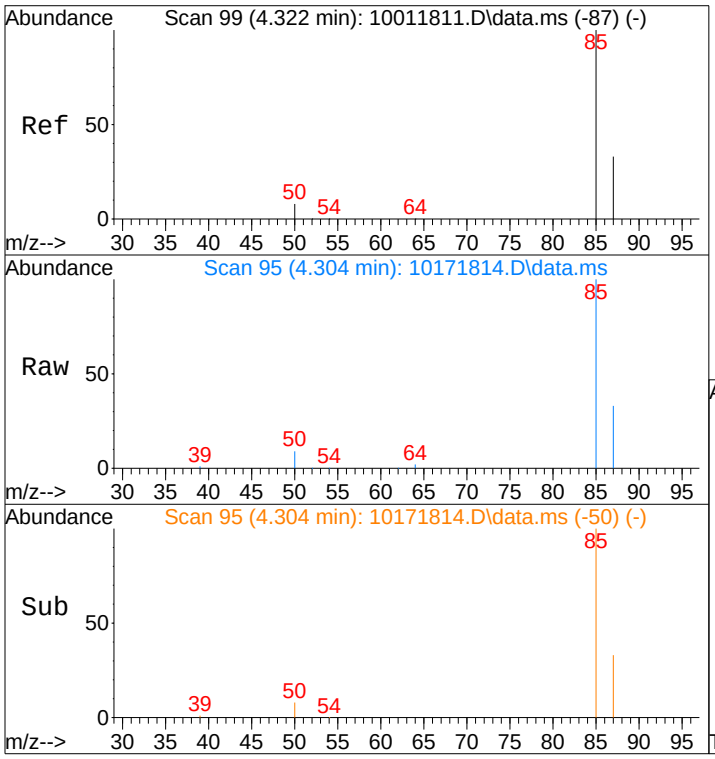
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:42:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

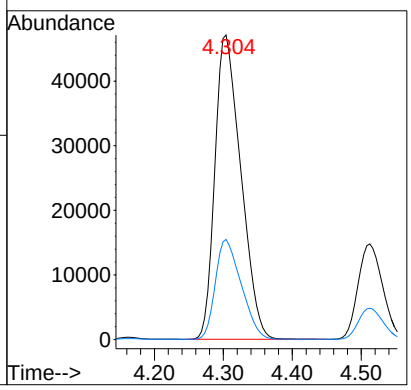


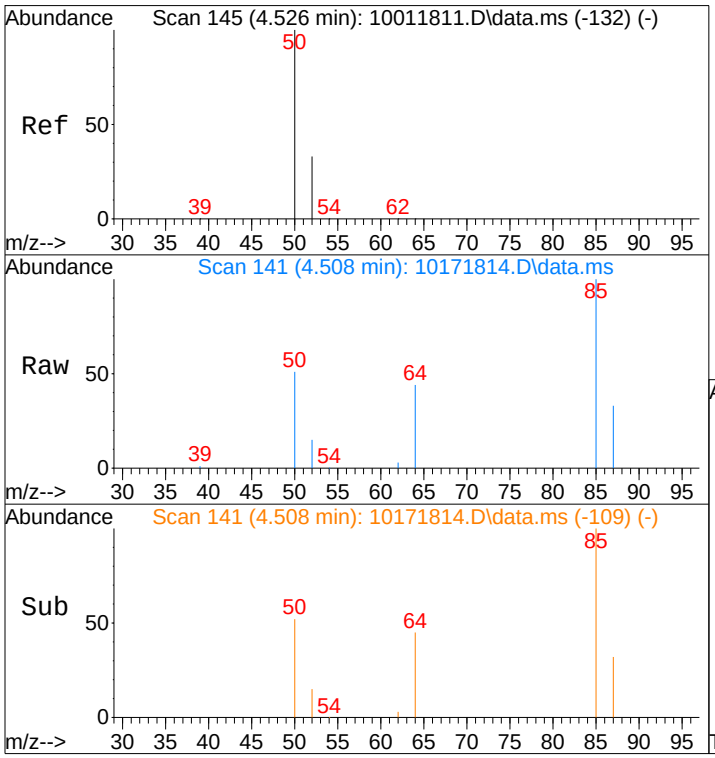


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1767.49 pg
RT: 4.30 min Scan# 95
Delta R.T. 0.000 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 85 Resp: 122948

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

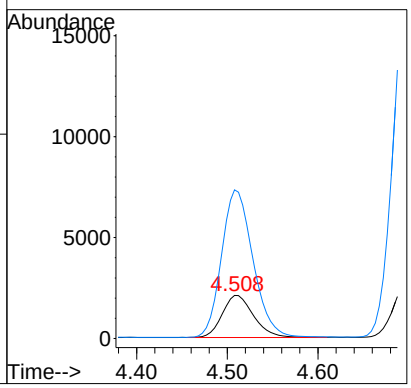


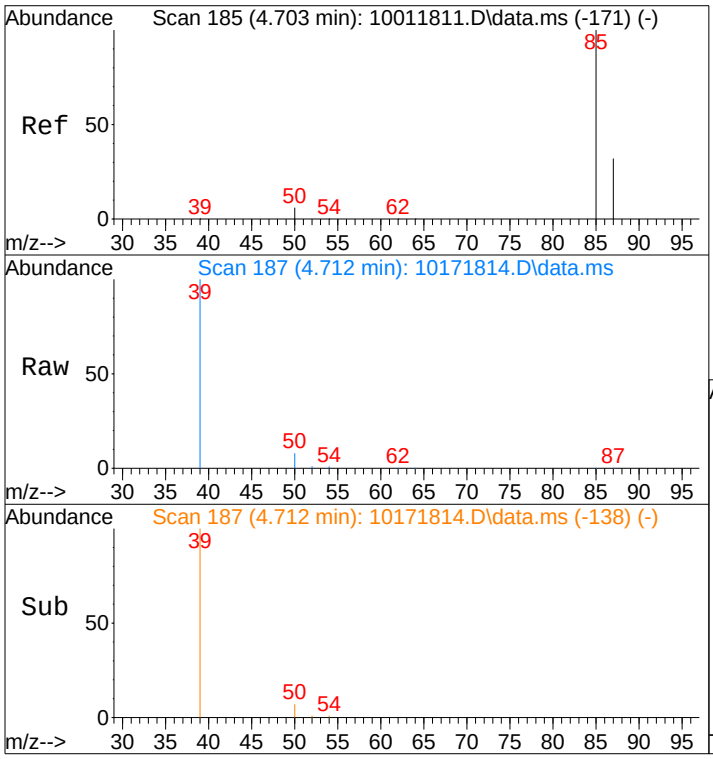


#3
Chloromethane
Concen: 307.34 pg
RT: 4.51 min Scan# 141
Delta R.T. -0.009 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 52 Resp: 4999

Ion	Ratio	Lower	Upper
52	100		
50	353.1	281.8	321.8#

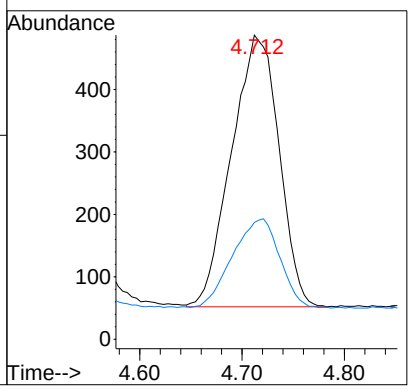


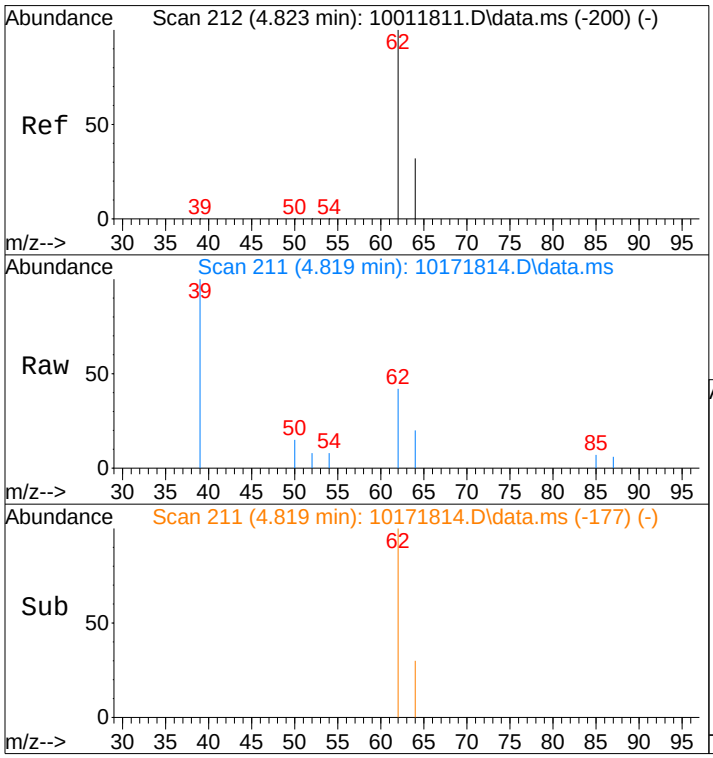


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 27.96 pg
RT: 4.71 min Scan# 187
Delta R.T. 0.018 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 85 Resp: 1402

Ion	Ratio	Lower	Upper
85	100		
87	32.2	26.0	39.0

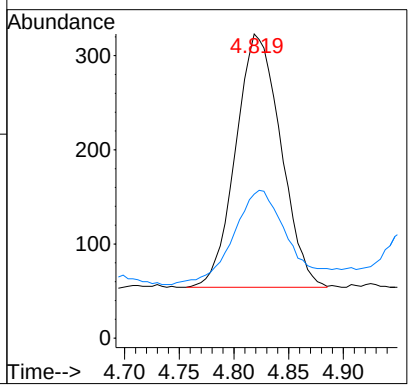


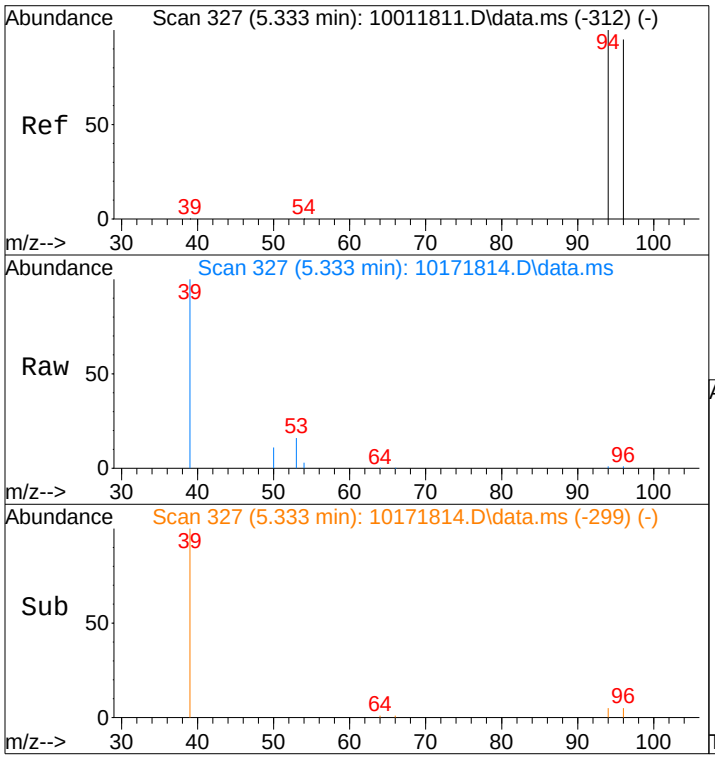


#5
Vinyl Chloride
Concen: 17.07 pg
RT: 4.82 min Scan# 211
Delta R.T. 0.000 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 62 Resp: 771

Ion	Ratio	Lower	Upper
62	100		
64	46.3	12.8	52.8

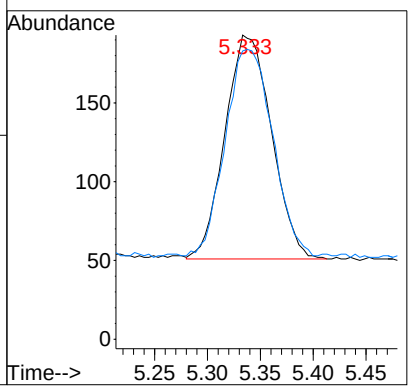


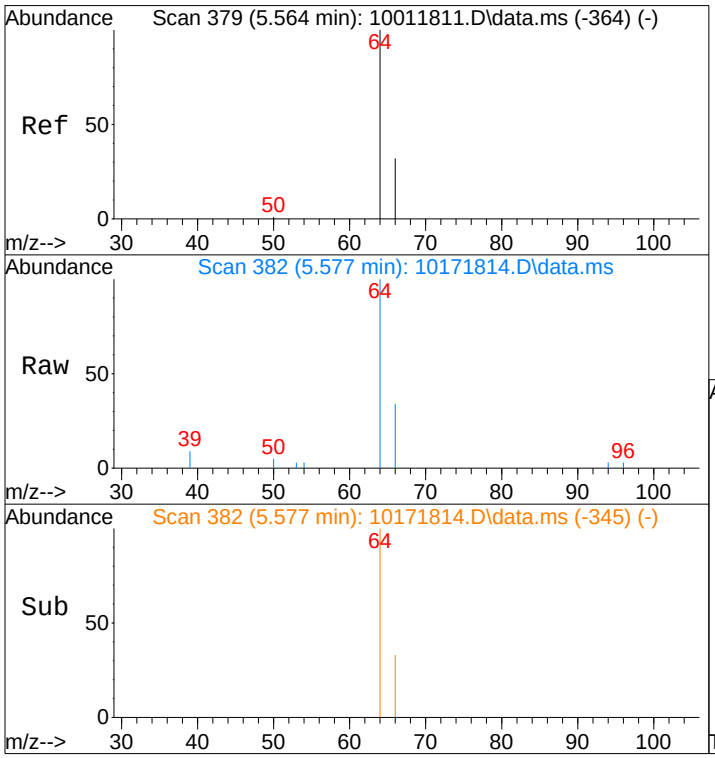


#7
Bromomethane
Concen: 13.71 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 94 Resp: 435

Ion	Ratio	Lower	Upper
94	100		
96	93.6	75.7	113.5

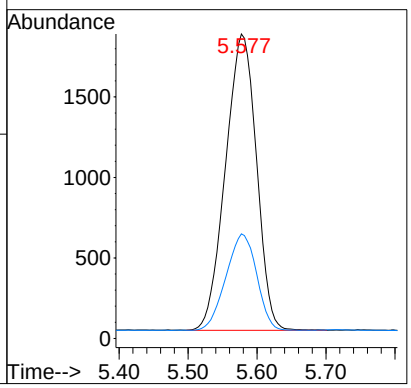


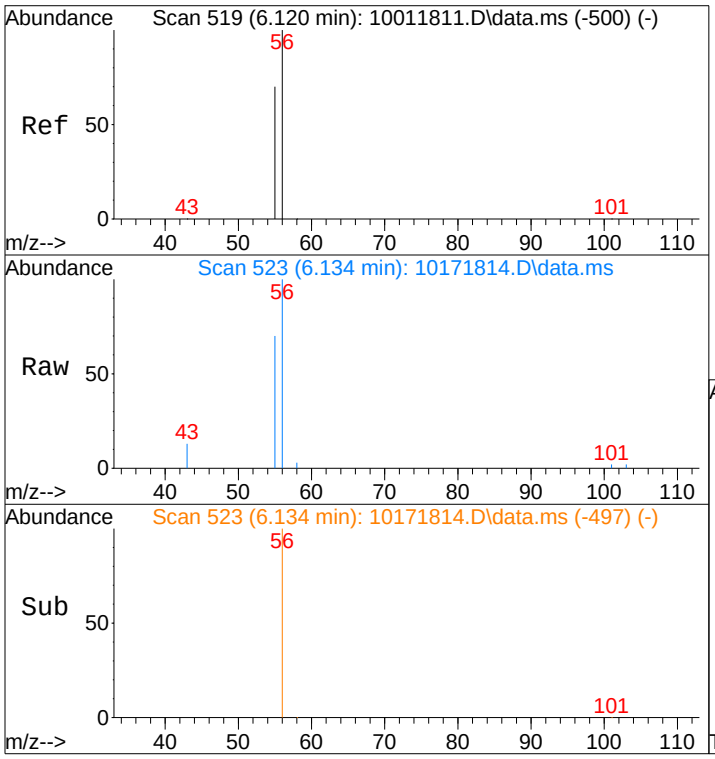


#8
Chloroethane
Concen: 243.13 pg
RT: 5.58 min Scan# 382
Delta R.T. 0.013 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 64 Resp: 5746

Ion	Ratio	Lower	Upper
64	100		
66	32.3	12.3	52.3

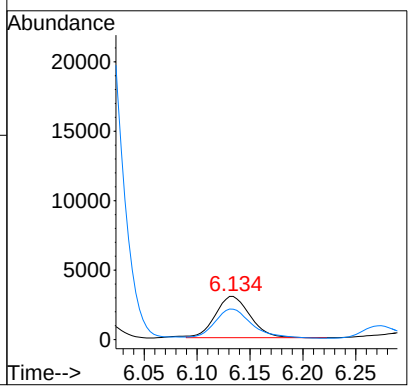


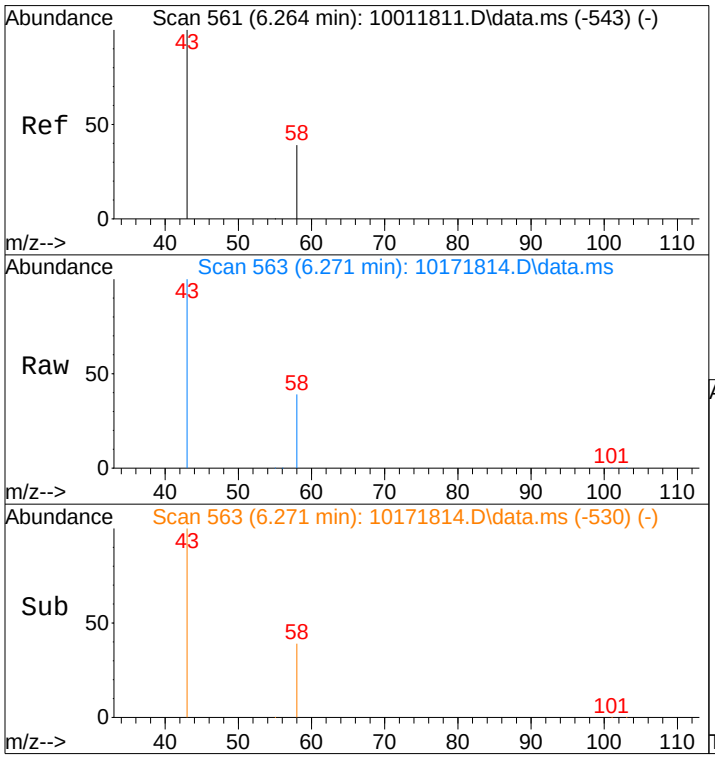


#9
Acrolein
Concen: 355.36 pg
RT: 6.13 min Scan# 523
Delta R.T. -0.020 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 56 Resp: 6789

Ion	Ratio	Lower	Upper
56	100		
55	75.6	55.3	82.9

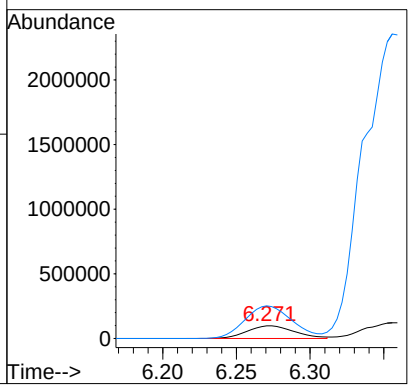


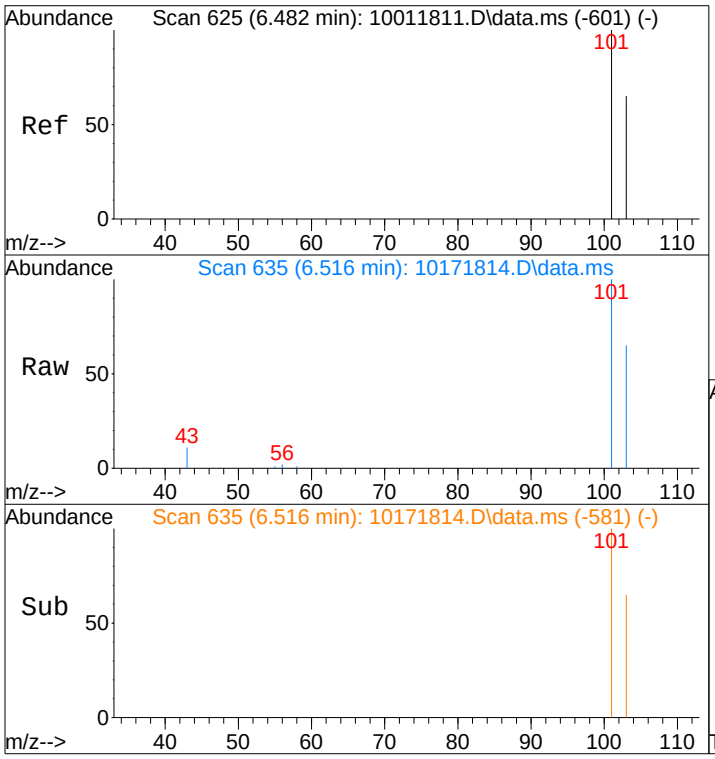


#10
Acetone
Concen: 9000.26 pg
RT: 6.27 min Scan# 563
Delta R.T. -0.037 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 58 Resp: 217992

Ion	Ratio	Lower	Upper
58	100		
43	258.2	234.7	274.7

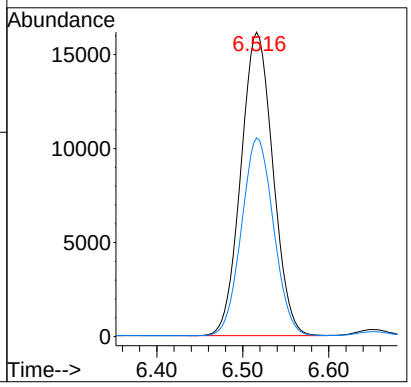


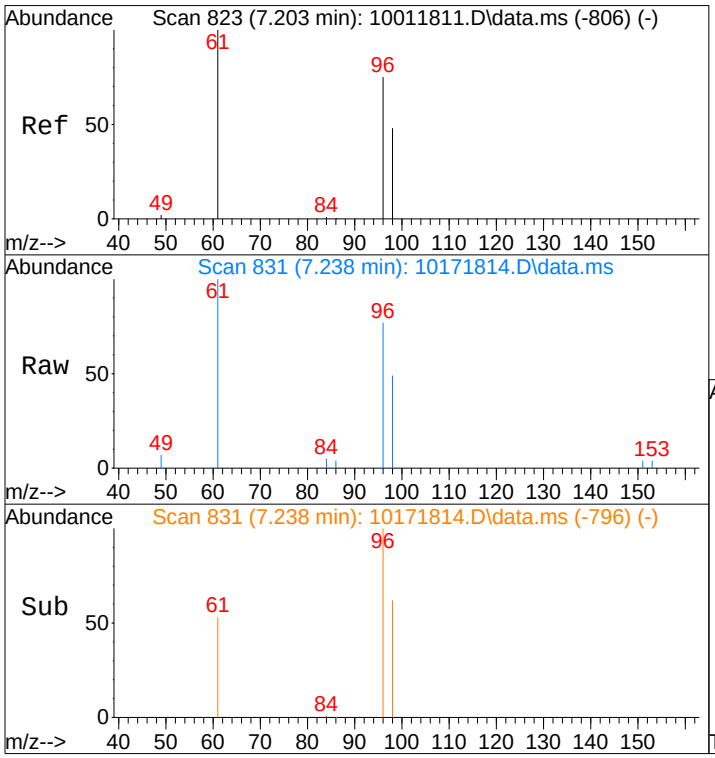


#11
Trichlorofluoromethane
Concen: 769.57 pg
RT: 6.52 min Scan# 635
Delta R.T. 0.034 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:101 Resp: 41865

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

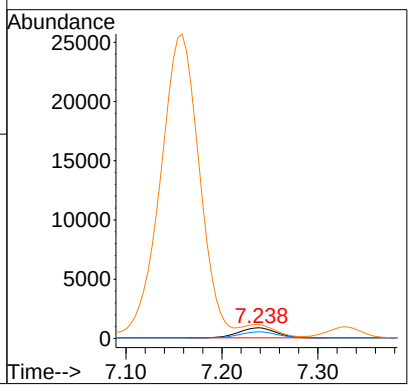


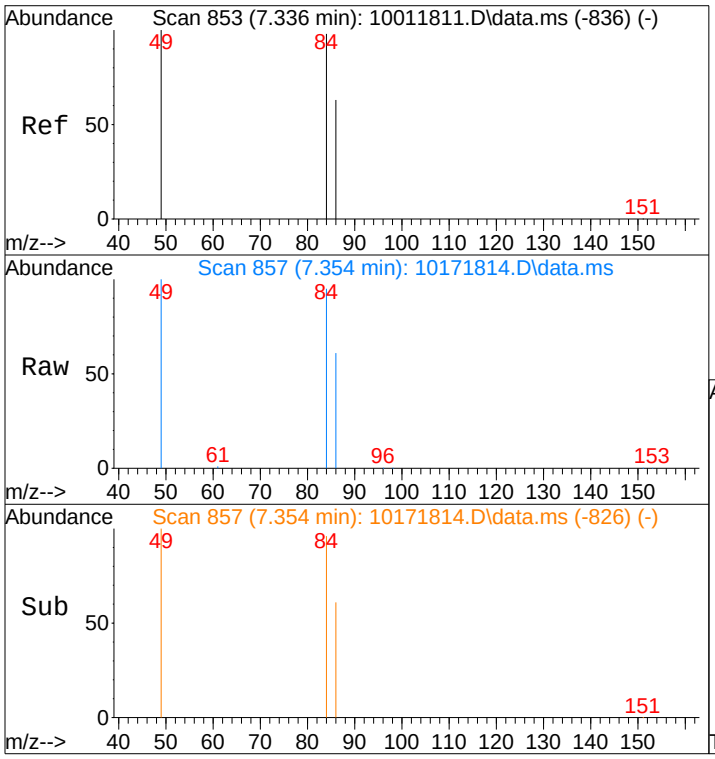


#12
1,1-Dichloroethene
Concen: 58.99 pg
RT: 7.24 min Scan# 831
Delta R.T. 0.027 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 96 Resp: 2271

Ion	Ratio	Lower	Upper
96	100		
98	60.8	44.2	84.2
61	105.9	114.1	154.1#

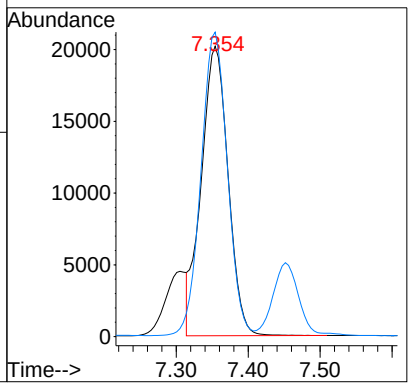


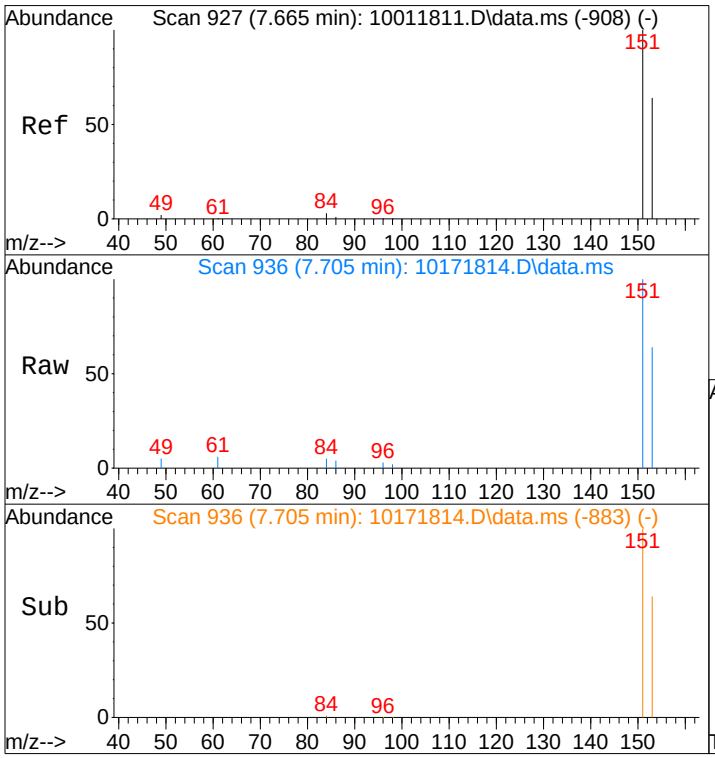


#13
Methylene Chloride
Concen: 1293.11 pg
RT: 7.35 min Scan# 857
Delta R.T. -0.022 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 84 Resp: 52148

Ion	Ratio	Lower	Upper
84	100		
49	103.0	83.3	123.3

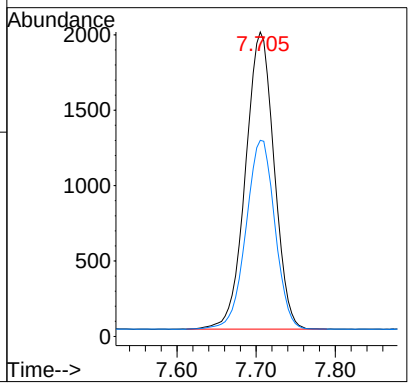


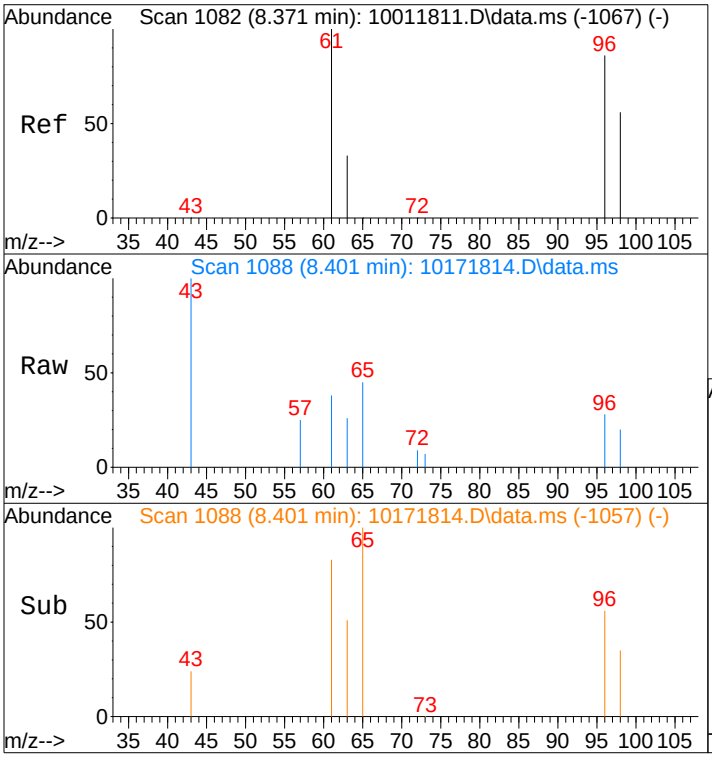


#14
Trichlorotrifluoroethane
Concen: 130.06 pg
RT: 7.71 min Scan# 936
Delta R.T. 0.036 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:151 Resp: 4959

Ion	Ratio	Lower	Upper
151	100		
153	64.5	44.3	84.3

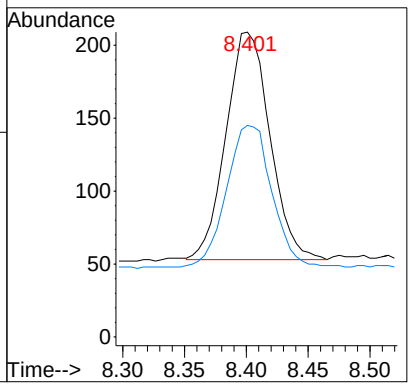


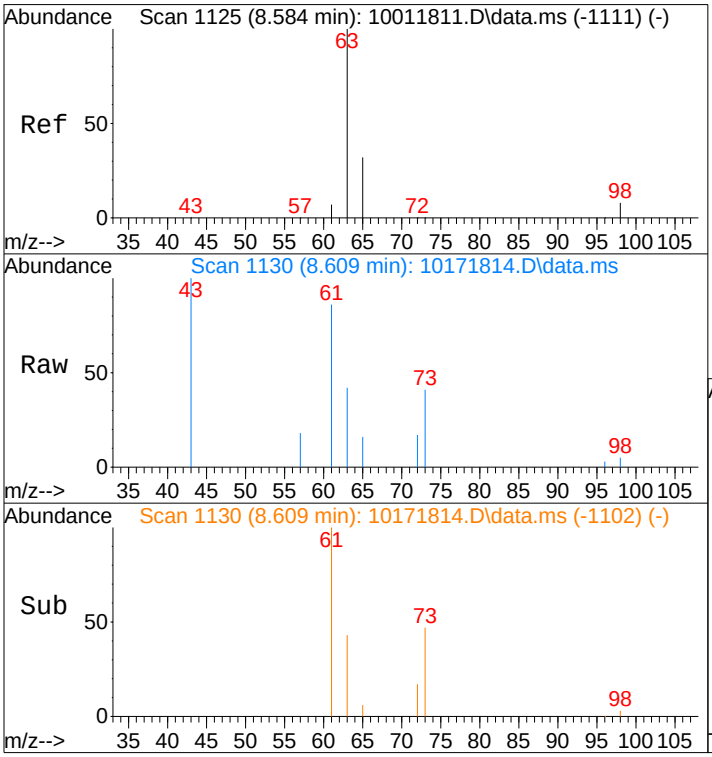


#15
trans-1,2-Dichloroethene
Concen: 9.66 pg
RT: 8.40 min Scan# 1088
Delta R.T. 0.006 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 96 Resp: 387

Ion	Ratio	Lower	Upper
96	100		
98	63.6	44.1	84.1

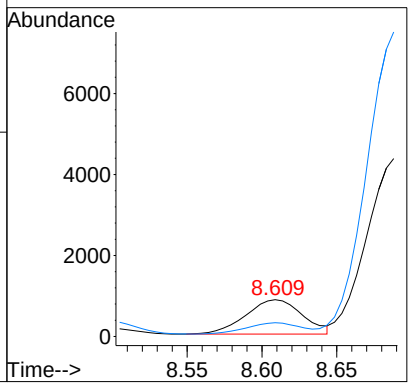


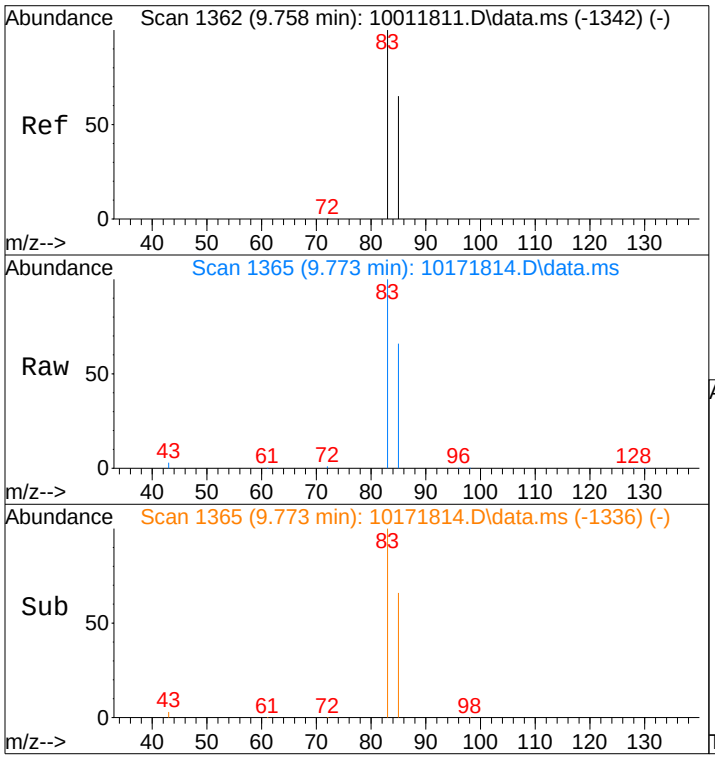


#16
1,1-Dichloroethane
Concen: 36.04 pg
RT: 8.61 min Scan# 1130
Delta R.T. -0.009 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 63 Resp: 2253

Ion	Ratio	Lower	Upper
63	100		
65	30.6	12.2	52.2

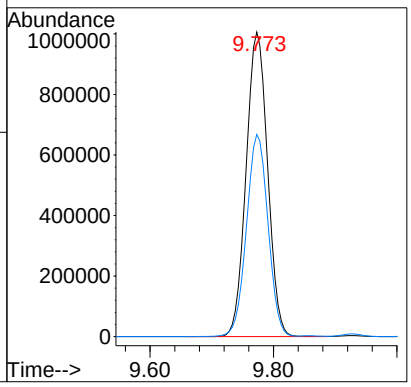


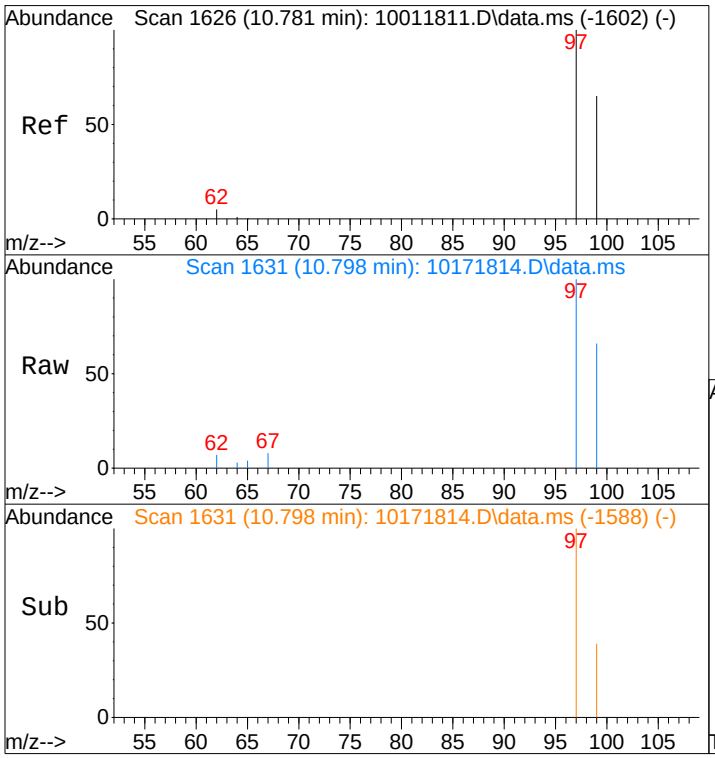


#19
Chloroform
Concen: 35987.43 pg
RT: 9.77 min Scan# 1365
Delta R.T. -0.024 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 83 Resp: 2427010

Ion	Ratio	Lower	Upper
83	100		
85	66.9	46.0	86.0

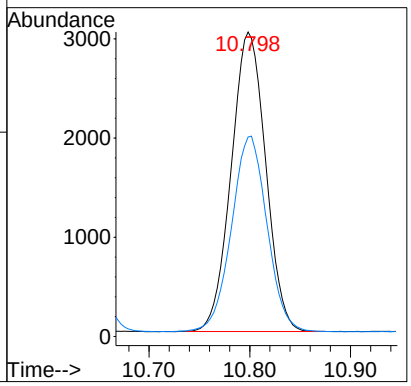


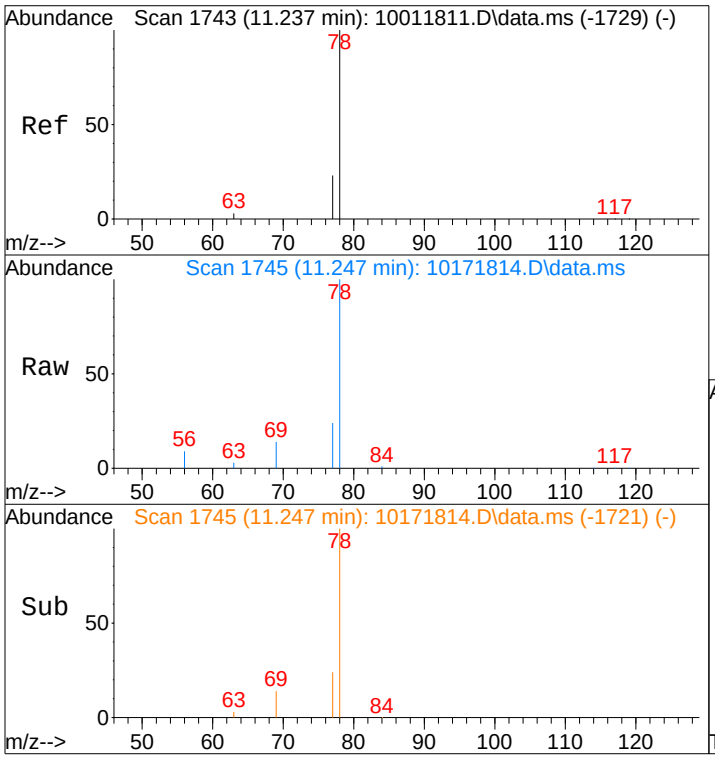


#22
1,1,1-Trichloroethane
Concen: 125.61 pg
RT: 10.80 min Scan# 1631
Delta R.T. -0.003 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 97 Resp: 7185

Ion	Ratio	Lower	Upper
97	100		
99	67.4	44.9	84.9

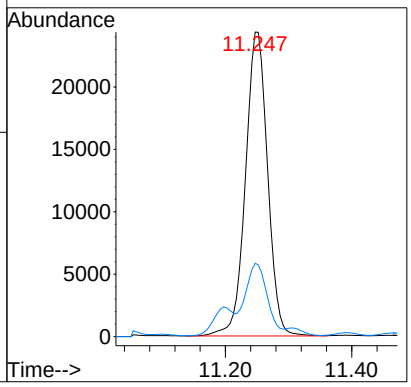


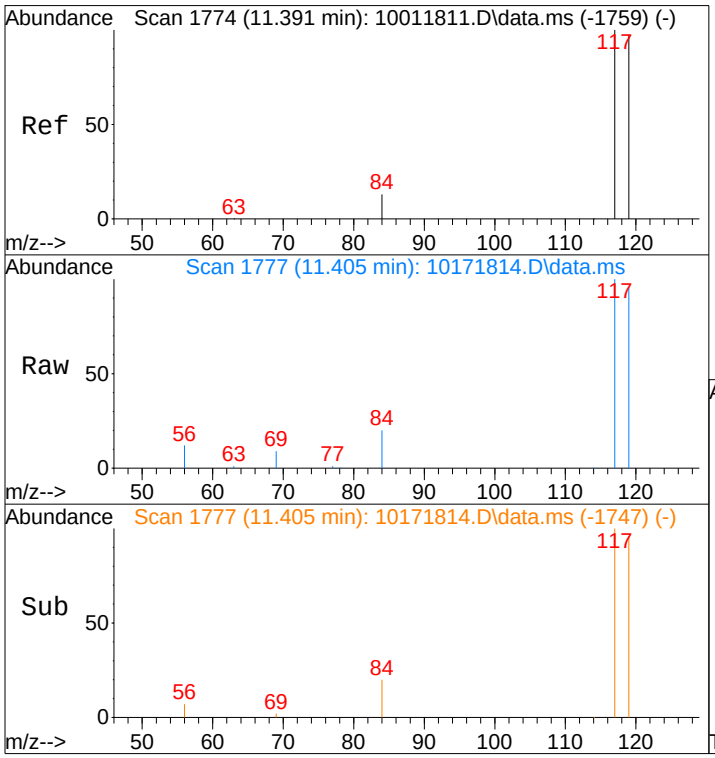


#23
Benzene
Concen: 349.81 pg
RT: 11.25 min Scan# 1745
Delta R.T. -0.009 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 78 Resp: 59268

Ion	Ratio	Lower	Upper
78	100		
77	23.4	3.3	43.3

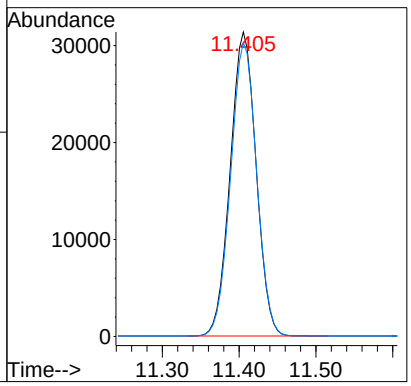


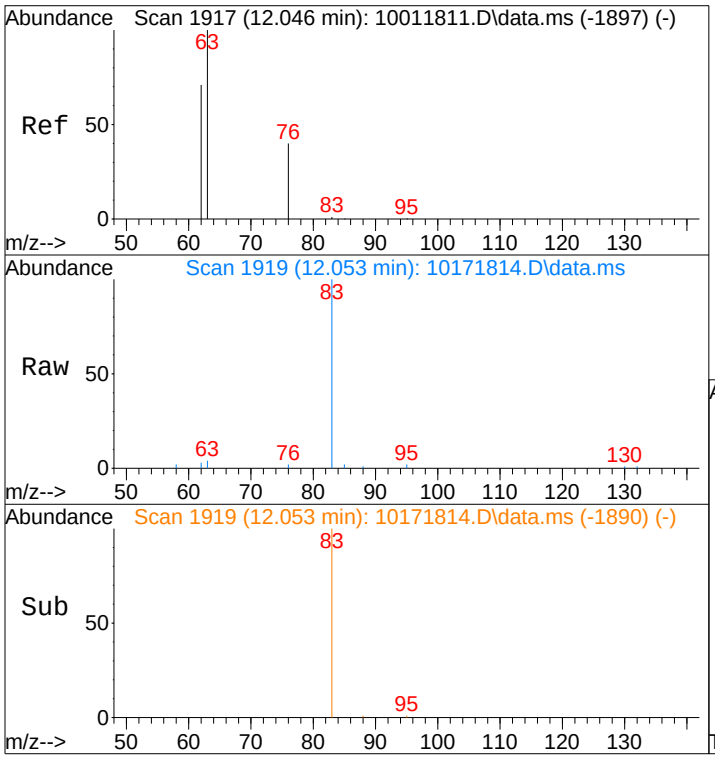


#24
Carbon Tetrachloride
Concen: 1405.29 pg
RT: 11.41 min Scan# 1777
Delta R.T. 0.001 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:117 Resp: 73374

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

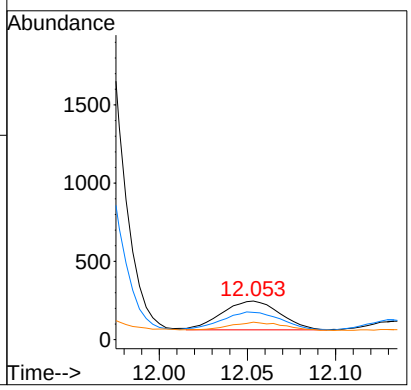


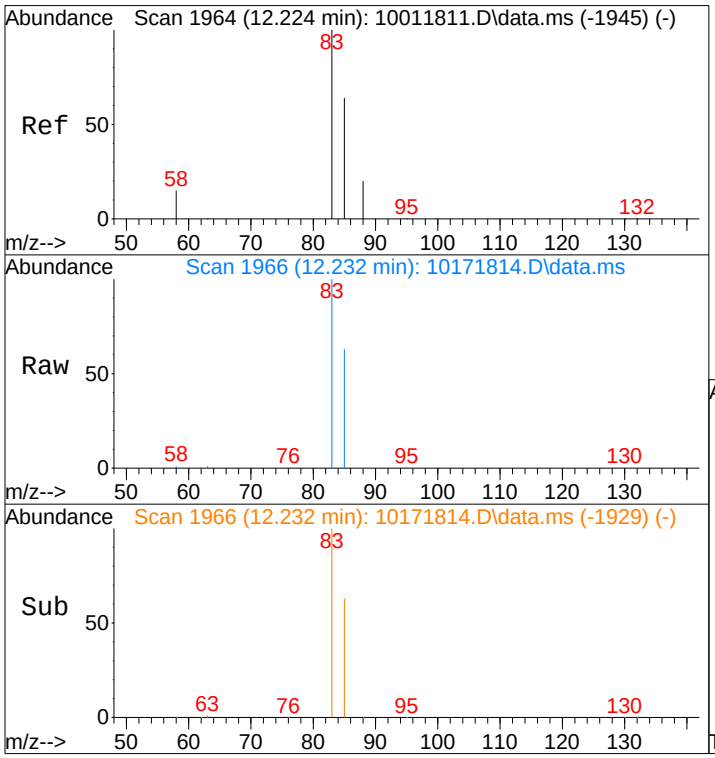


#26
1,2-Dichloropropane
Concen: 18.64 pg
RT: 12.05 min Scan# 1919
Delta R.T. -0.011 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 63 Resp: 418

Ion	Ratio	Lower	Upper
63	100		
62	63.6	50.7	90.7
76	27.3	19.6	59.6

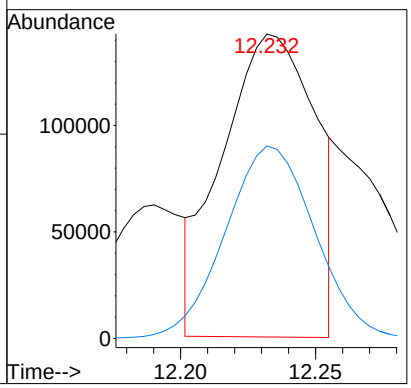


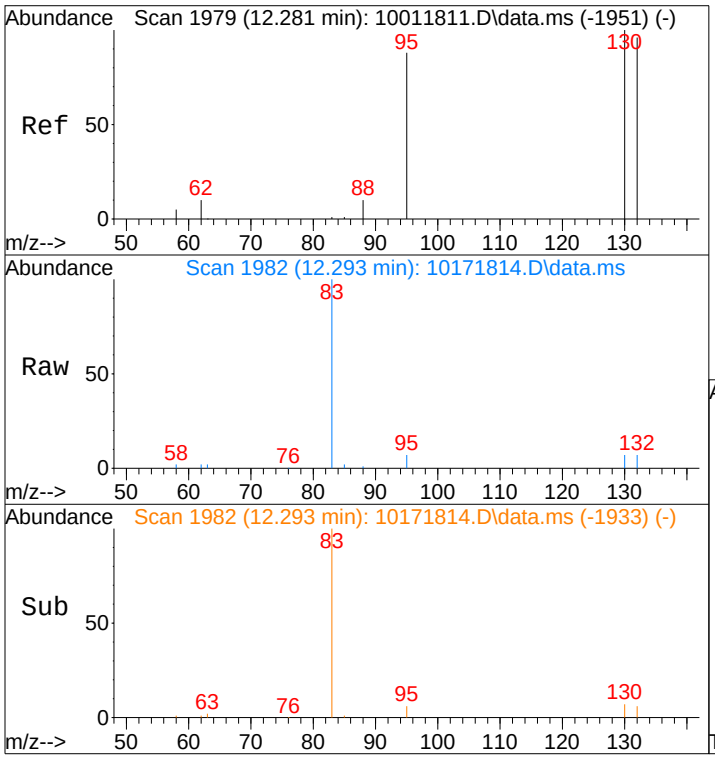


#27
Bromodichloromethane
Concen: 11488.09 pg m
RT: 12.23 min Scan# 1966
Delta R.T. -0.011 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 83 Resp: 341993

Ion	Ratio	Lower	Upper
83	100		
85	61.0	51.7	77.5

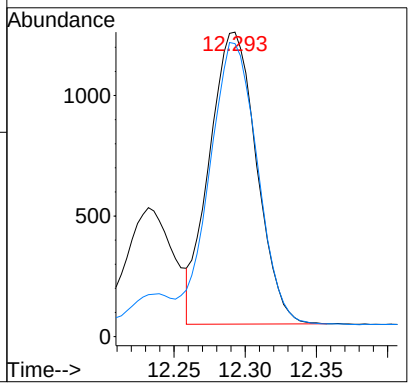


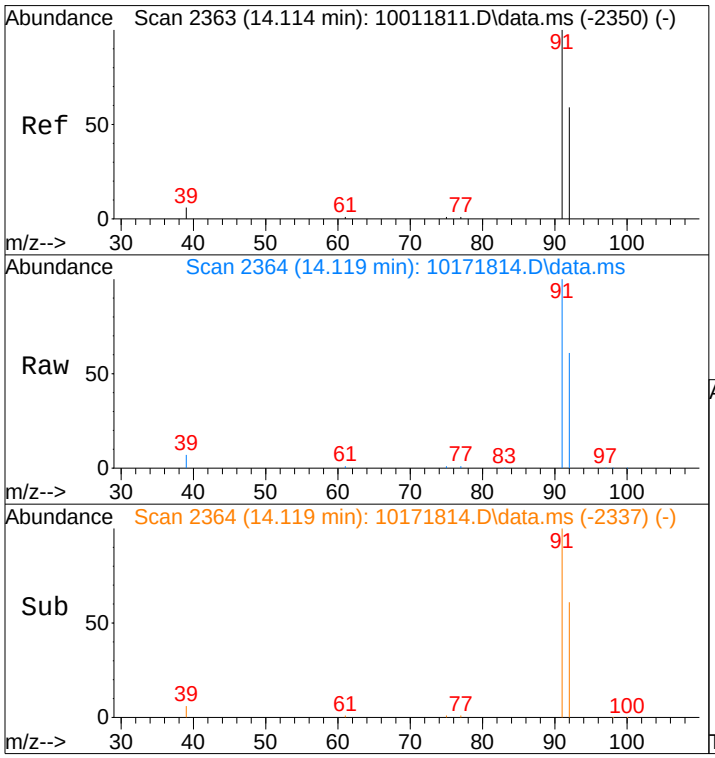


#28
Trichloroethene
Concen: 99.20 pg
RT: 12.29 min Scan# 1982
Delta R.T. -0.003 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:130 Resp: 2791

Ion	Ratio	Lower	Upper
130	100		
132	98.5	75.6	115.6

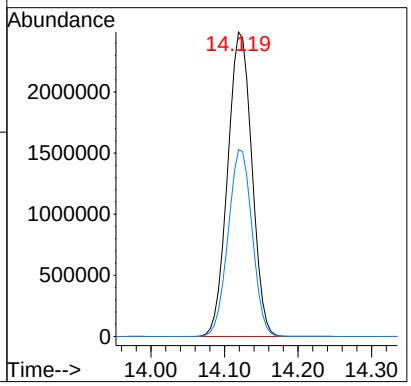


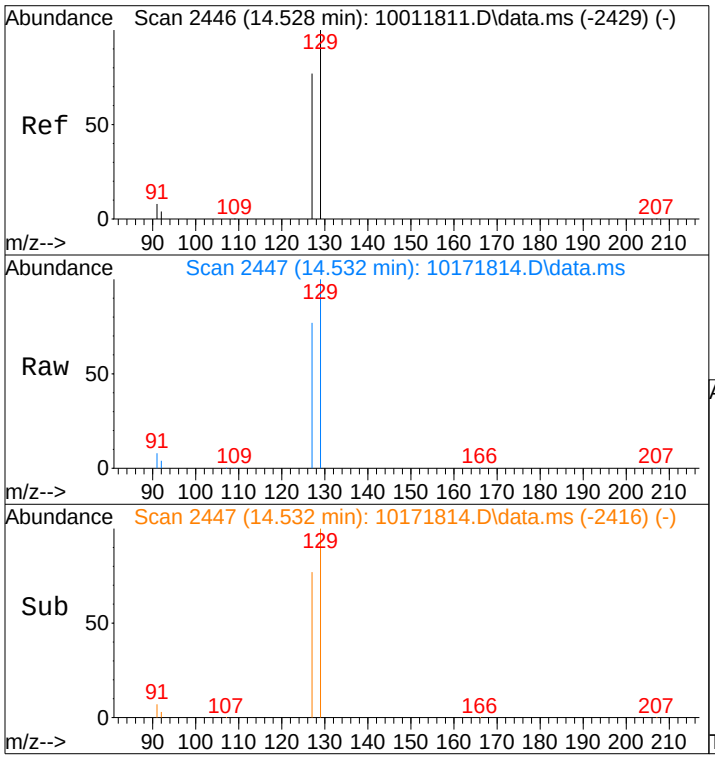


#34
Toluene
Concen: 55316.22 pg
RT: 14.12 min Scan# 2364
Delta R.T. -0.005 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 91 Resp: 5687008

Ion	Ratio	Lower	Upper
91	100		
92	61.1	39.2	79.2

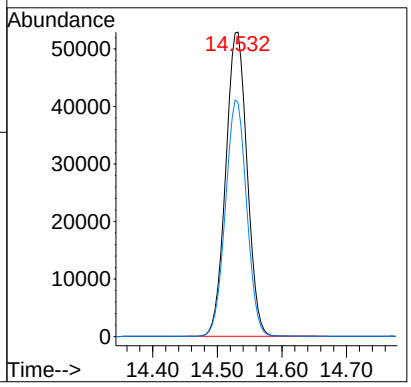


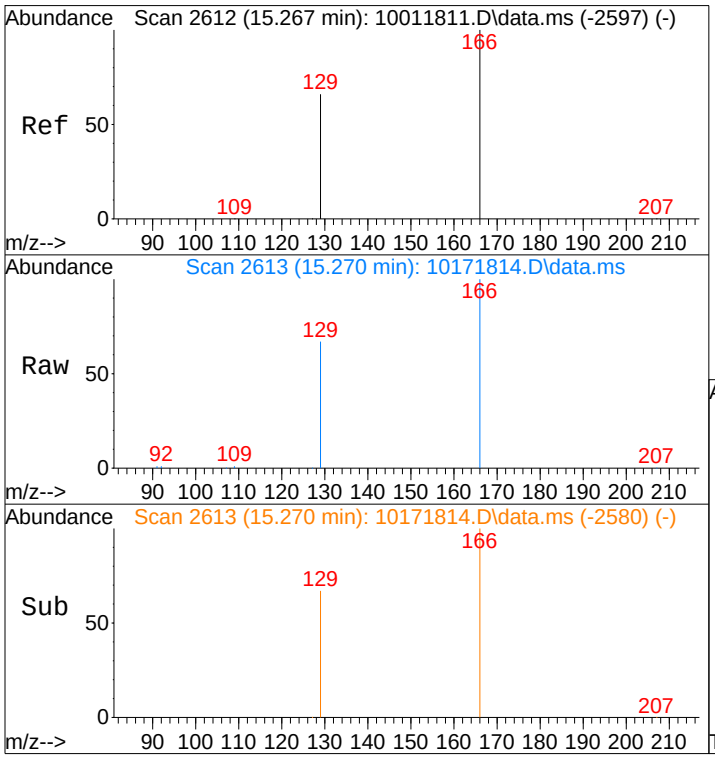


#35
Dibromochloromethane
Concen: 4403.28 pg
RT: 14.53 min Scan# 2447
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:129 Resp: 121274

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

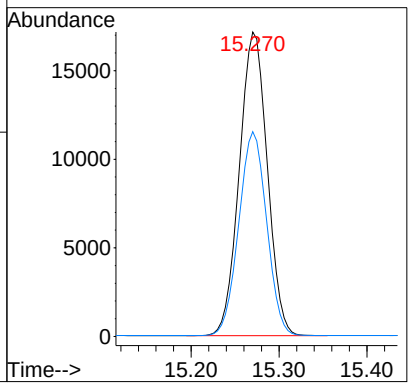


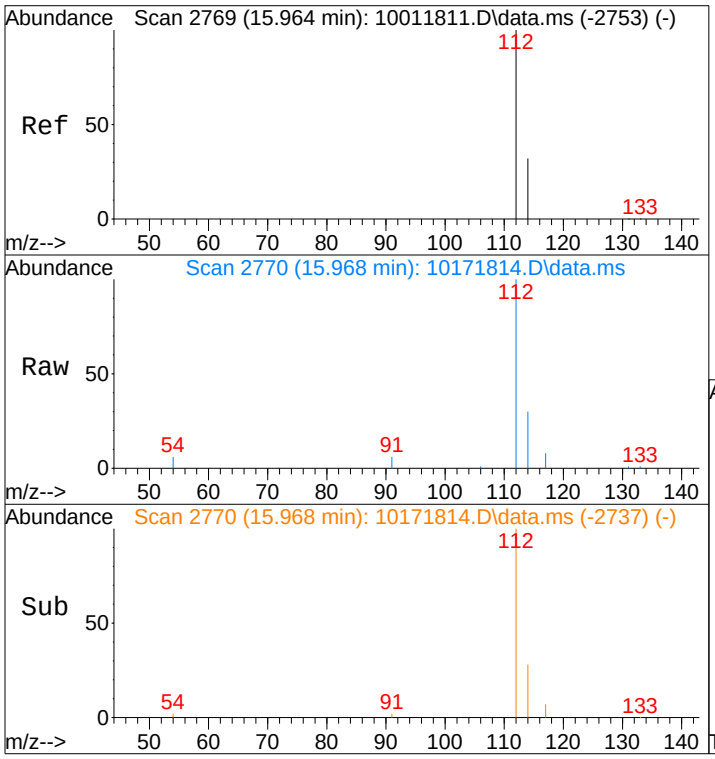


#37
Tetrachloroethene
Concen: 1250.89 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:166 Resp: 37844

Ion	Ratio	Lower	Upper
166	100		
129	66.8	46.7	86.7

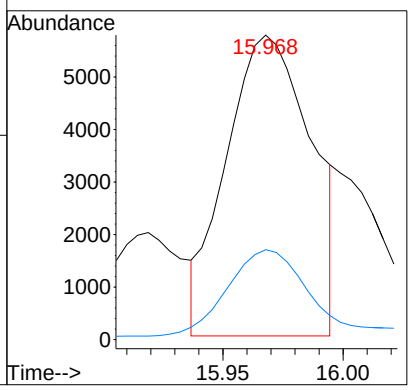


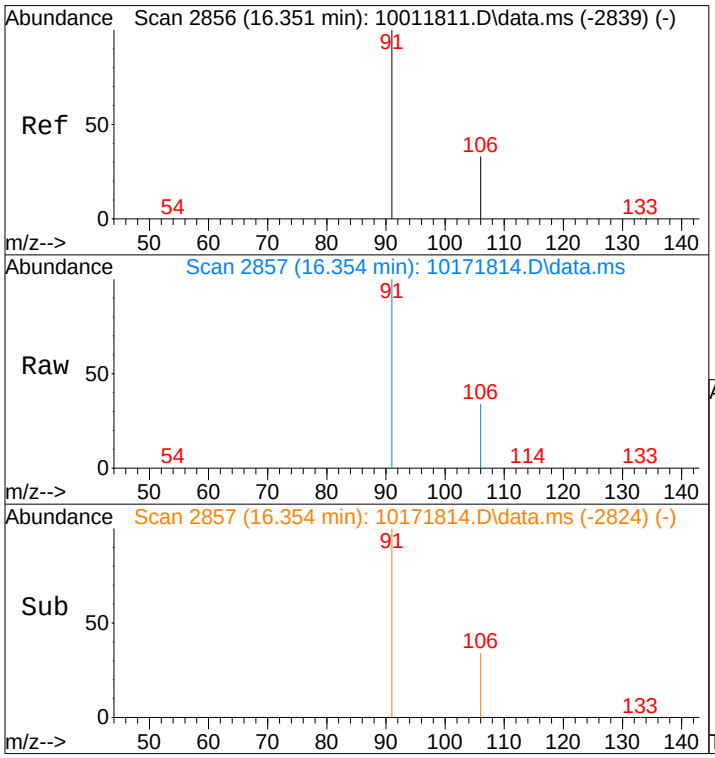


#39
Chlorobenzene
Concen: 155.84 pg m
RT: 15.97 min Scan# 2770
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:112 Resp: 14075

Ion	Ratio	Lower	Upper
112	100		
114	29.3	12.2	52.2

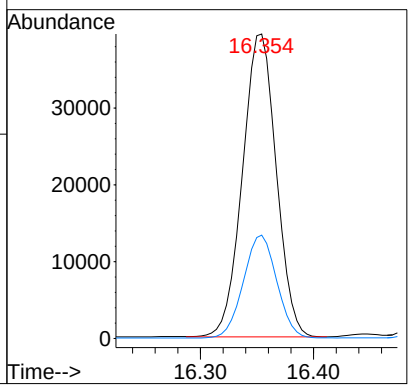


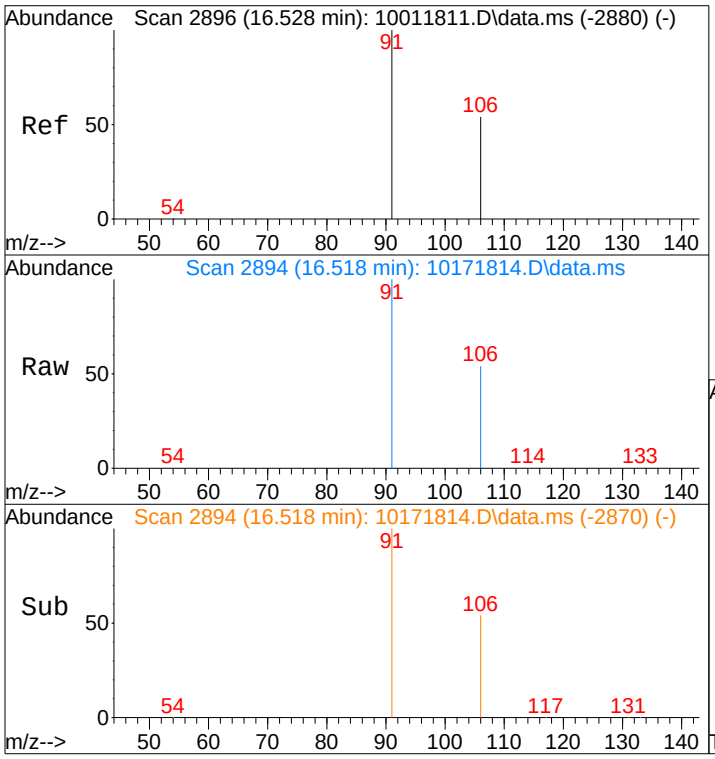


#40
Ethylbenzene
Concen: 594.61 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 91 Resp: 81778

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

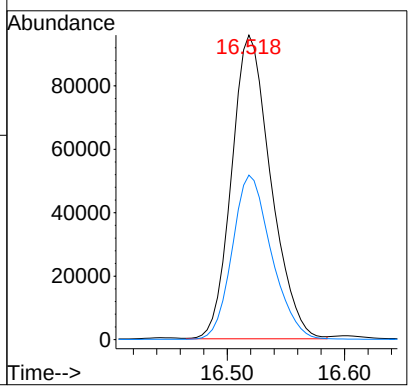


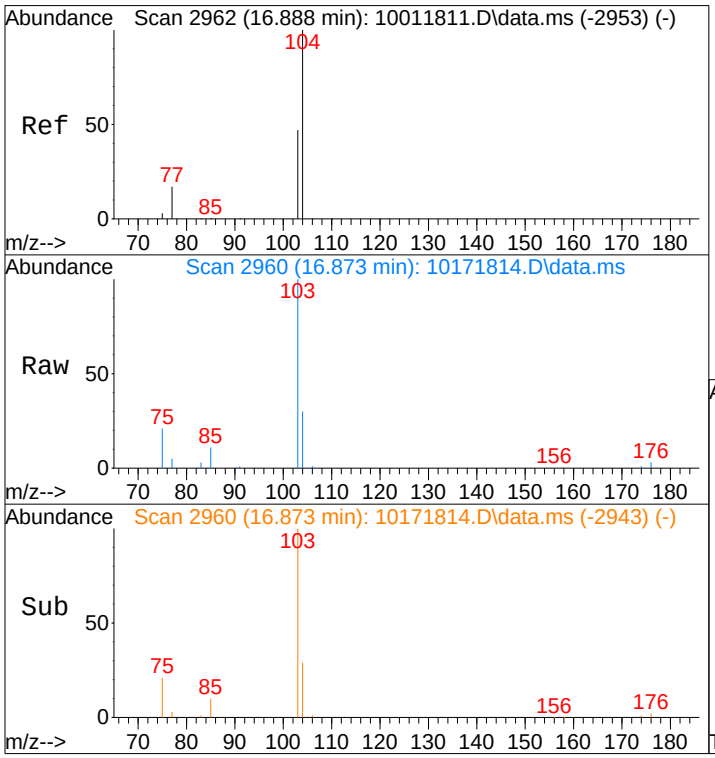


#41
m,p-Xylene
Concen: 2116.17 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.022 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion: 91 Resp: 222532

Ion	Ratio	Lower	Upper
91	100		
106	54.0	34.3	74.3

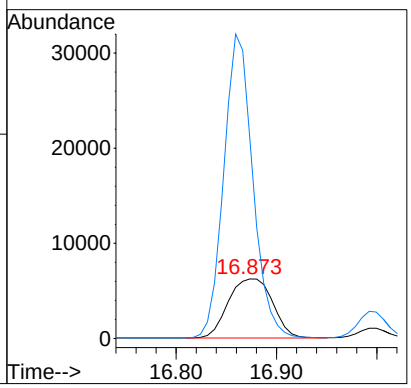


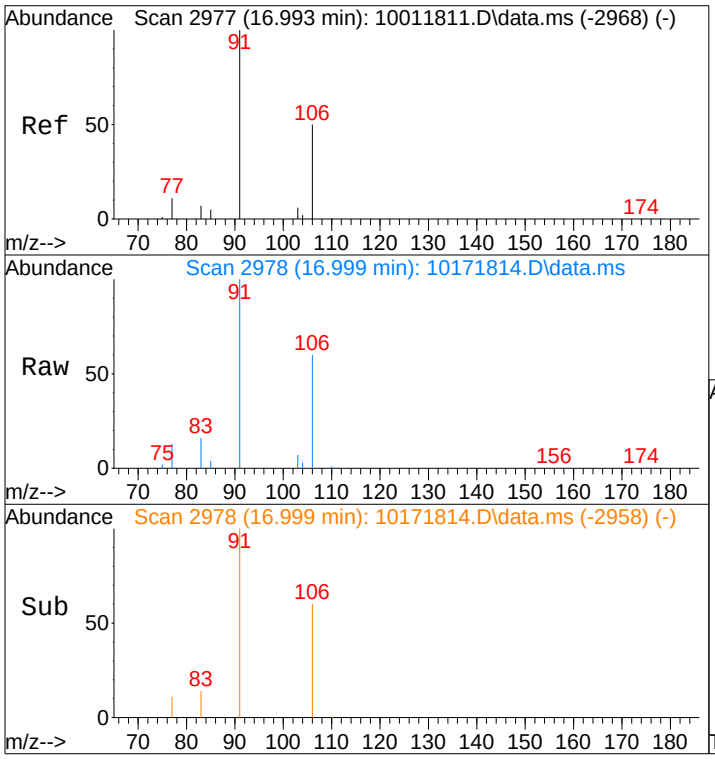


#42
Styrene
Concen: 228.45 pg
RT: 16.87 min Scan# 2960
Delta R.T. -0.020 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:104 Resp: 19082

Ion	Ratio	Lower	Upper
104	100		
103	336.4	37.7	56.5#

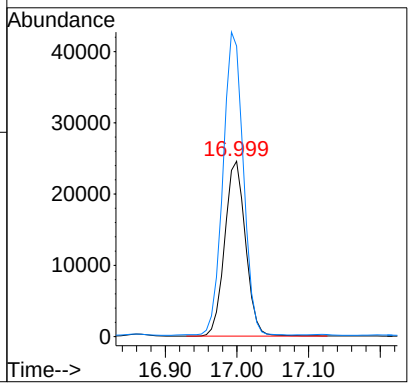


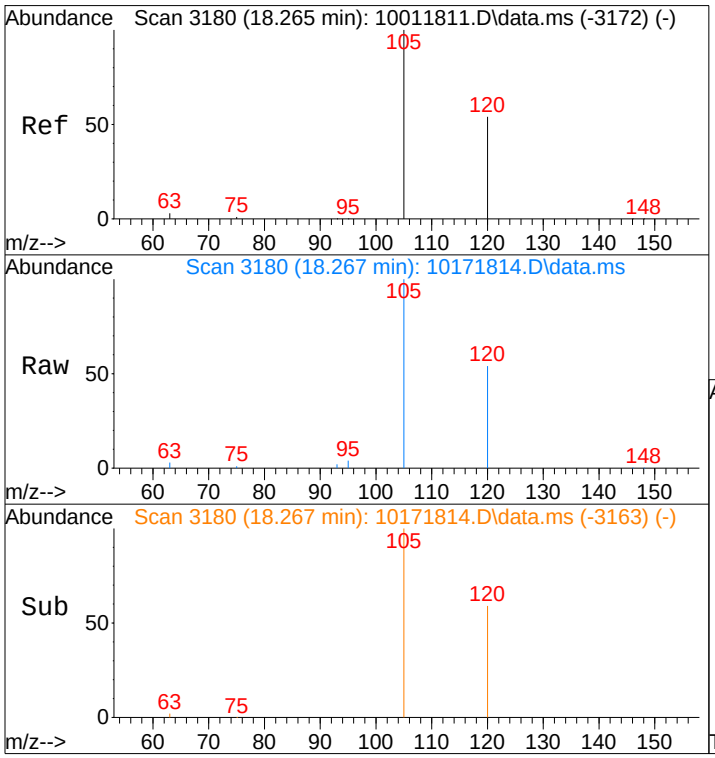


#43
o-Xylene
Concen: 888.05 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:106 Resp: 49648

Ion	Ratio	Lower	Upper
106	100		
91	168.4	175.6	215.6#

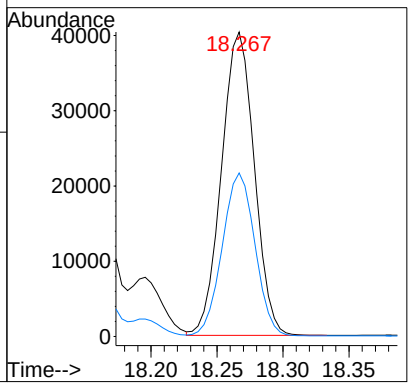


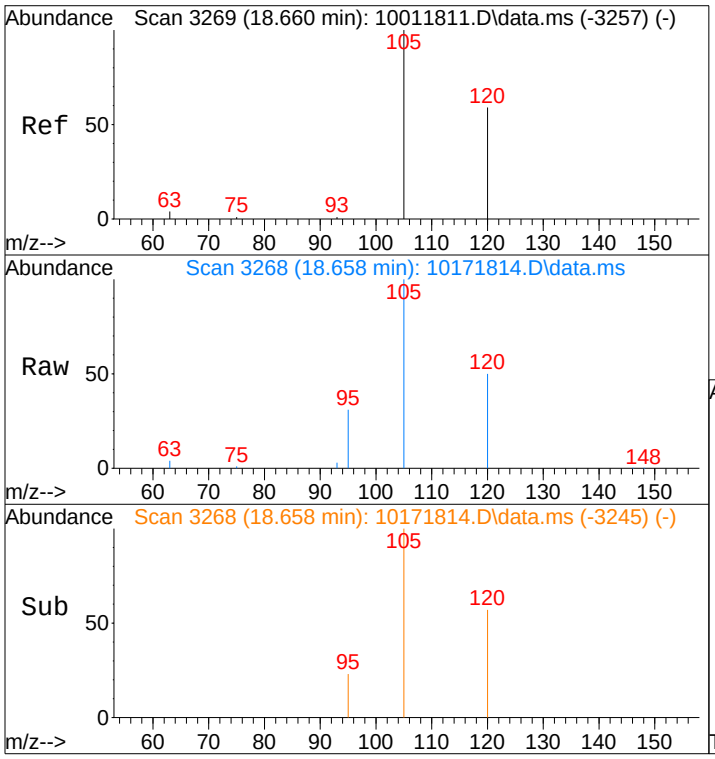


#46
1,3,5-Trimethylbenzene
Concen: 592.21 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:105 Resp: 69635

Ion	Ratio	Lower	Upper
105	100		
120	53.4	42.8	64.2

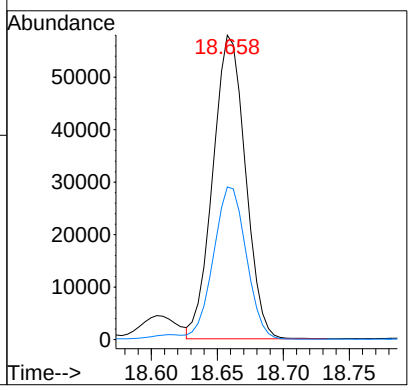


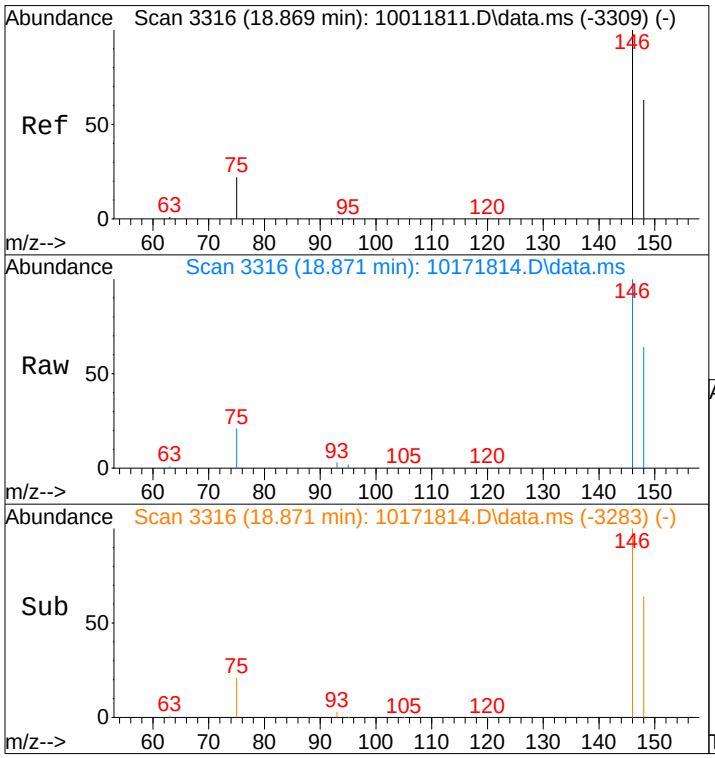


#47
1,2,4-Trimethylbenzene
Concen: 844.51 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:105 Resp: 99062

Ion	Ratio	Lower	Upper
105	100		
120	50.6	47.1	70.7

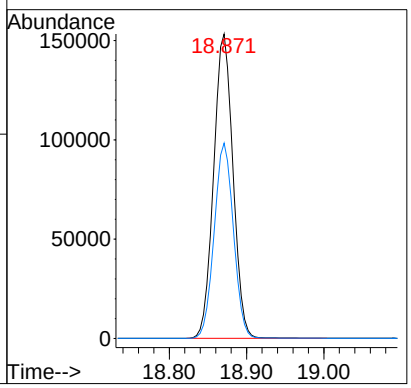


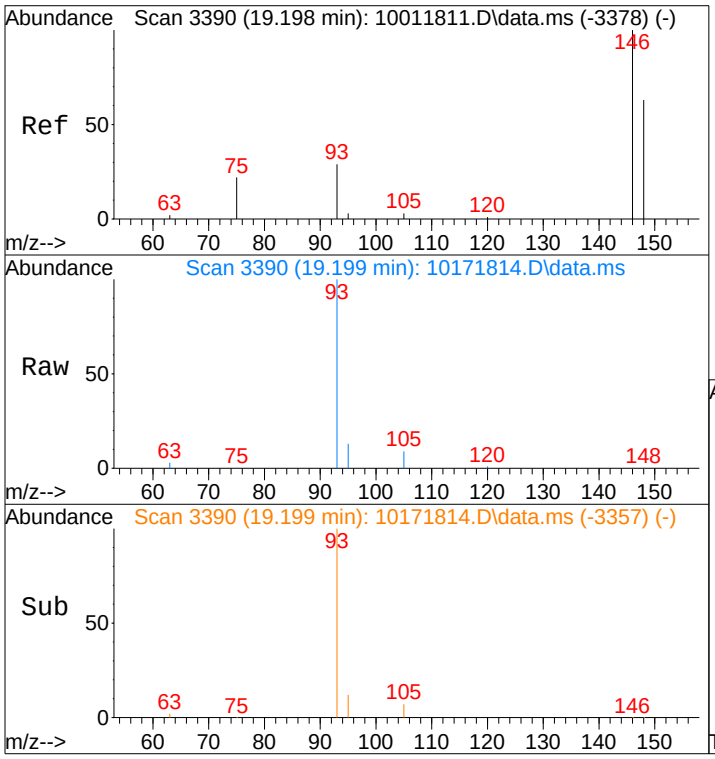


#49
1,4-Dichlorobenzene
Concen: 3454.59 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:146 Resp: 265857

Ion	Ratio	Lower	Upper
146	100		
148	64.0	43.8	83.8

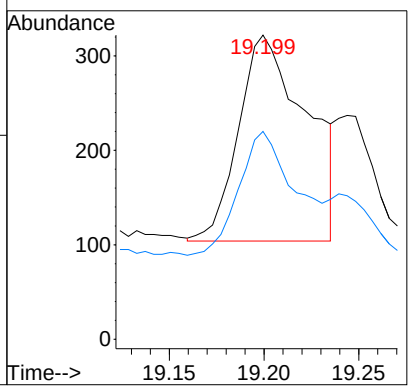


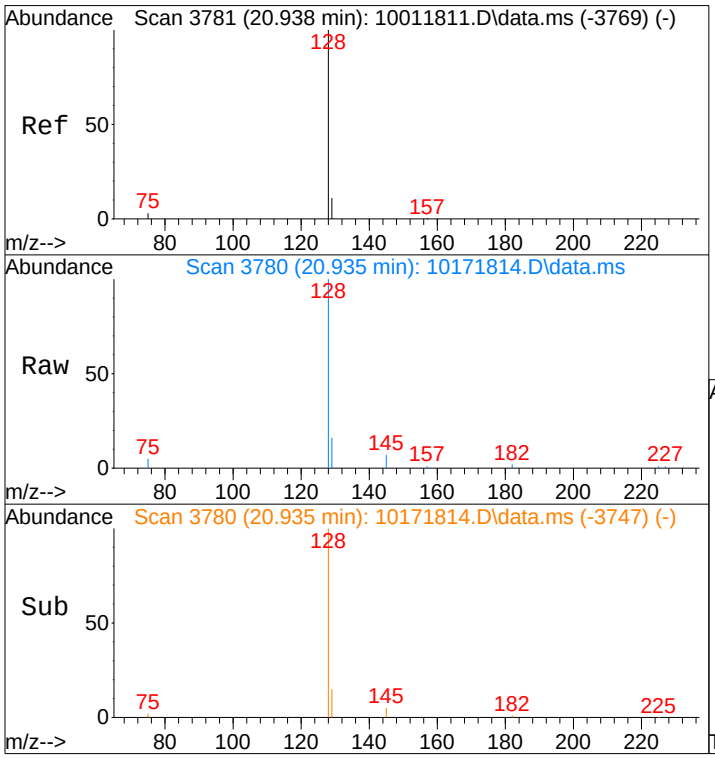


#50
1,2-Dichlorobenzene
Concen: 7.40 pg m
RT: 19.20 min Scan# 3390
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:146 Resp: 544

Ion	Ratio	Lower	Upper
146	100		
148	50.4	43.7	83.7

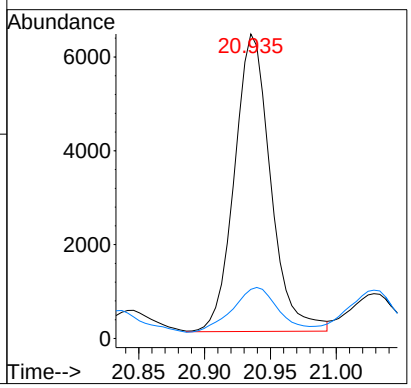




#53
Naphthalene
Concen: 88.45 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171814.D
Acq: 17 Oct 2018 19:44

Tgt Ion:128 Resp: 12136

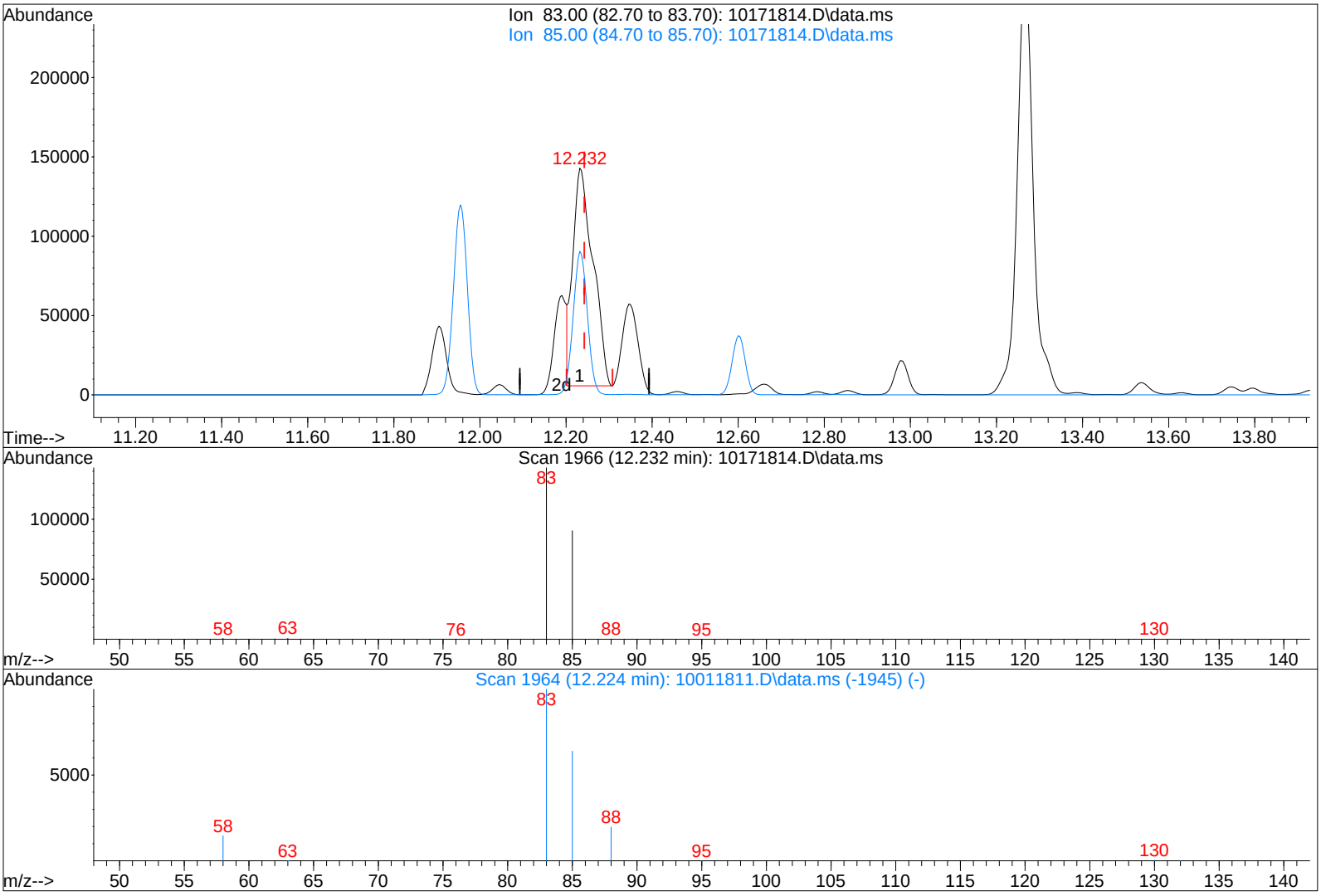
Ion	Ratio	Lower	Upper
128	100		
129	20.9	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(27) Bromodichloromethane (T)

12.232min (-0.011) 15030.29pg

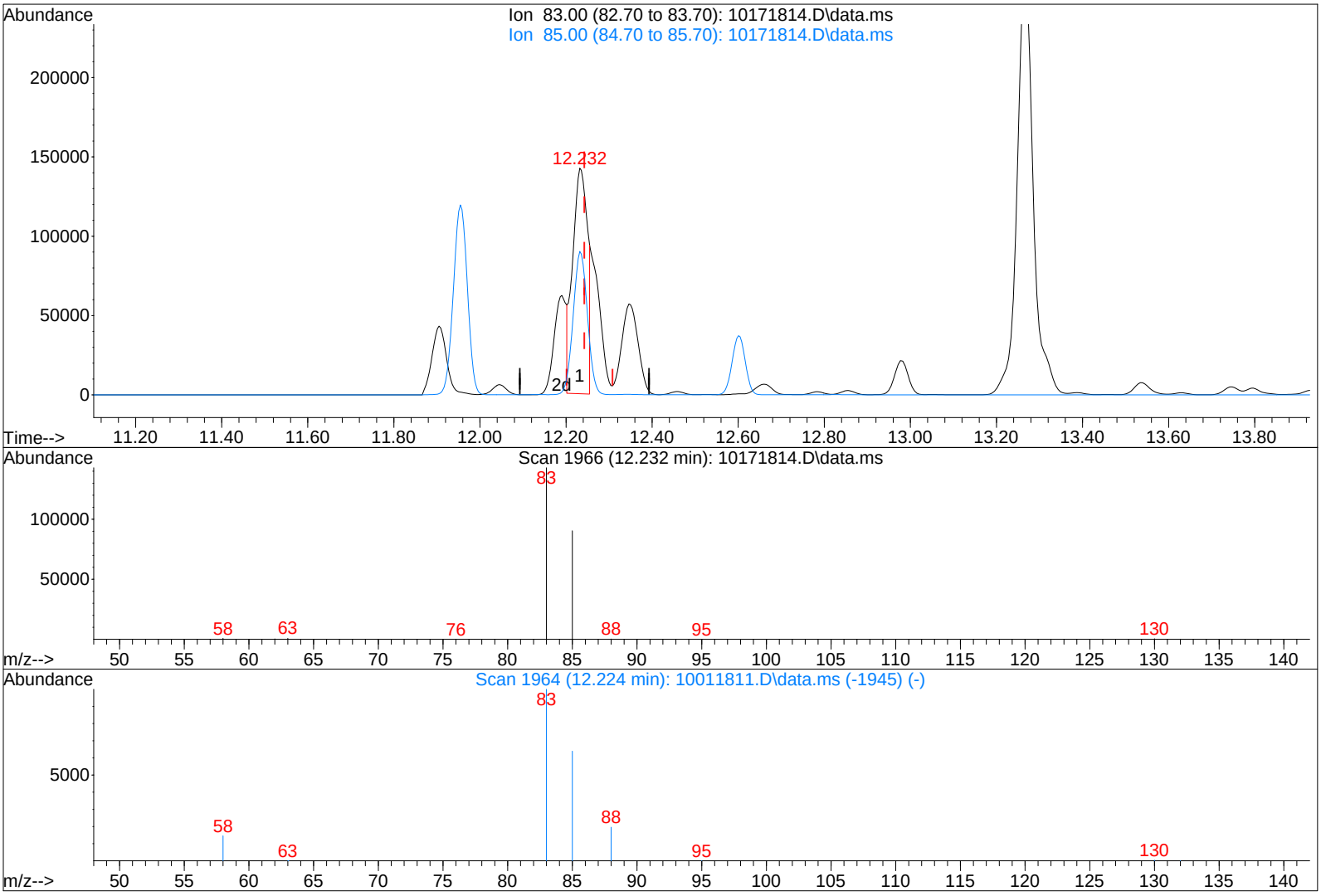
response 447442

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	46.60#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(27) Bromodichloromethane (T)

12.232min (-0.011) 11488.09pg m

response 341993

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	60.97
0.00	0.00	0.00
0.00	0.00	0.00

IPC

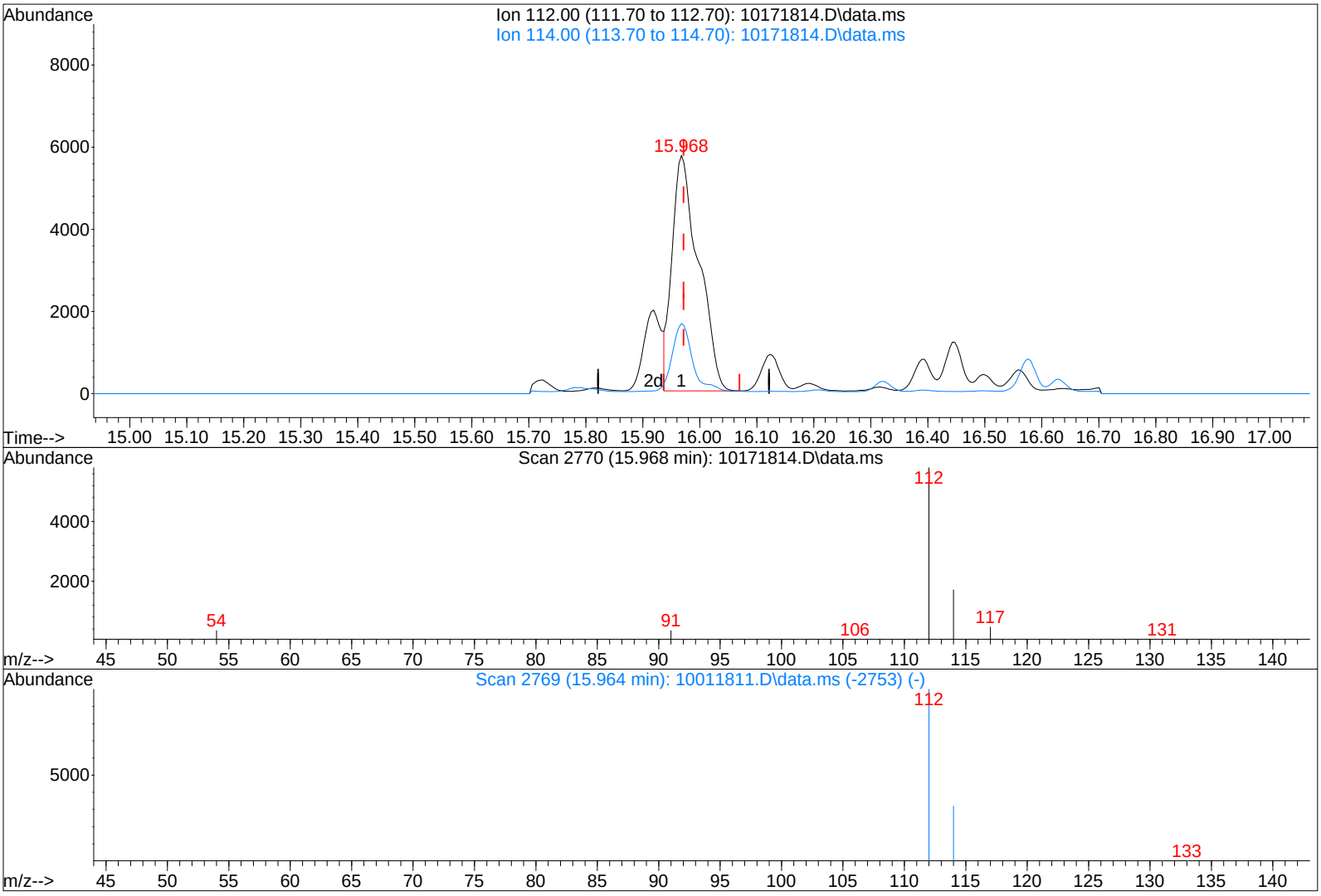
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(39) Chlorobenzene (T)

15.968min (-0.004) 204.81pg

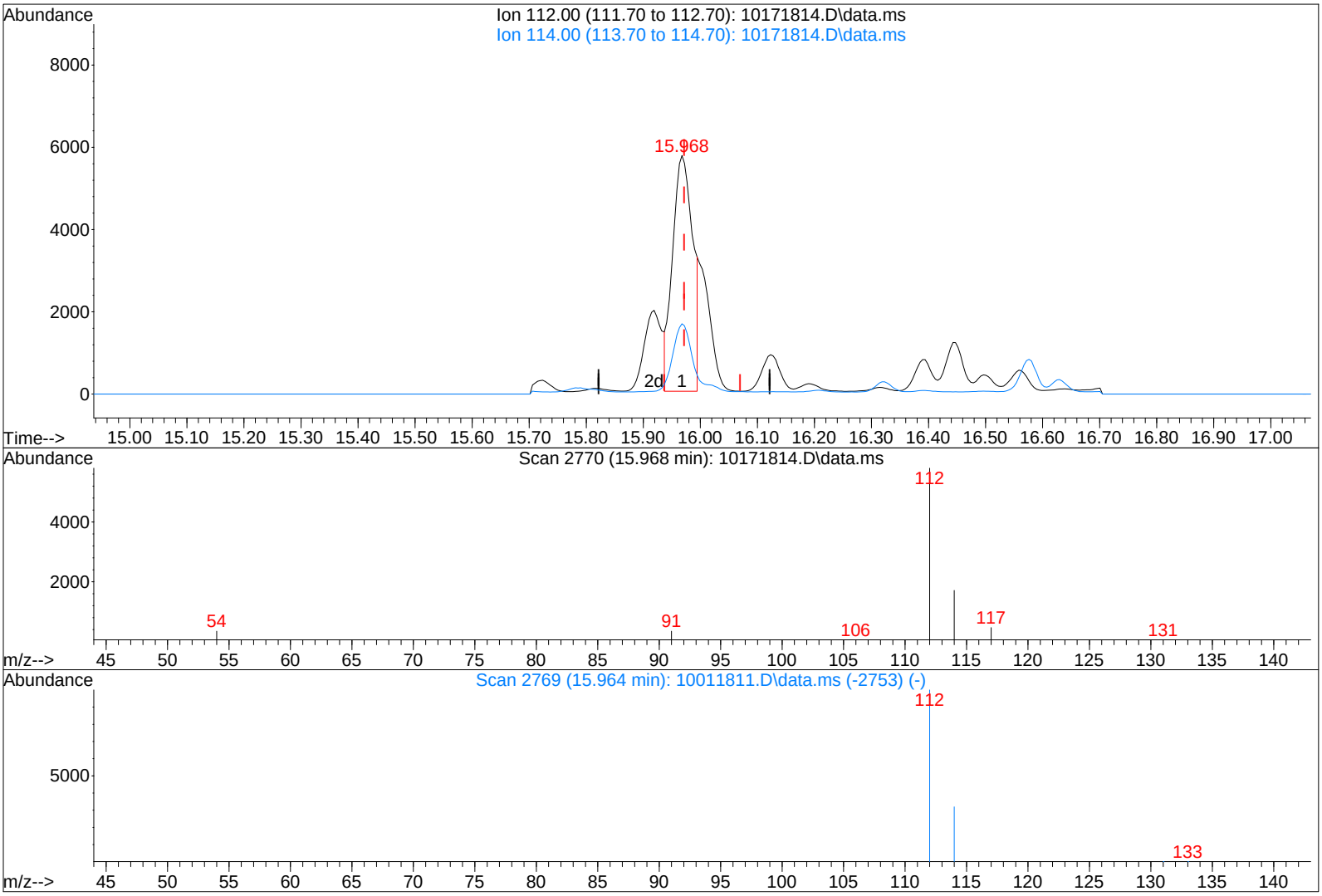
response 18498

Ion	Exp%	Act%
112.00	100	100
114.00	32.20	22.29
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(39) Chlorobenzene (T)

15.968min (-0.004) 155.84pg m

response 14075

Ion	Exp%	Act%
112.00	100	100
114.00	32.20	29.30
0.00	0.00	0.00
0.00	0.00	0.00

IPC

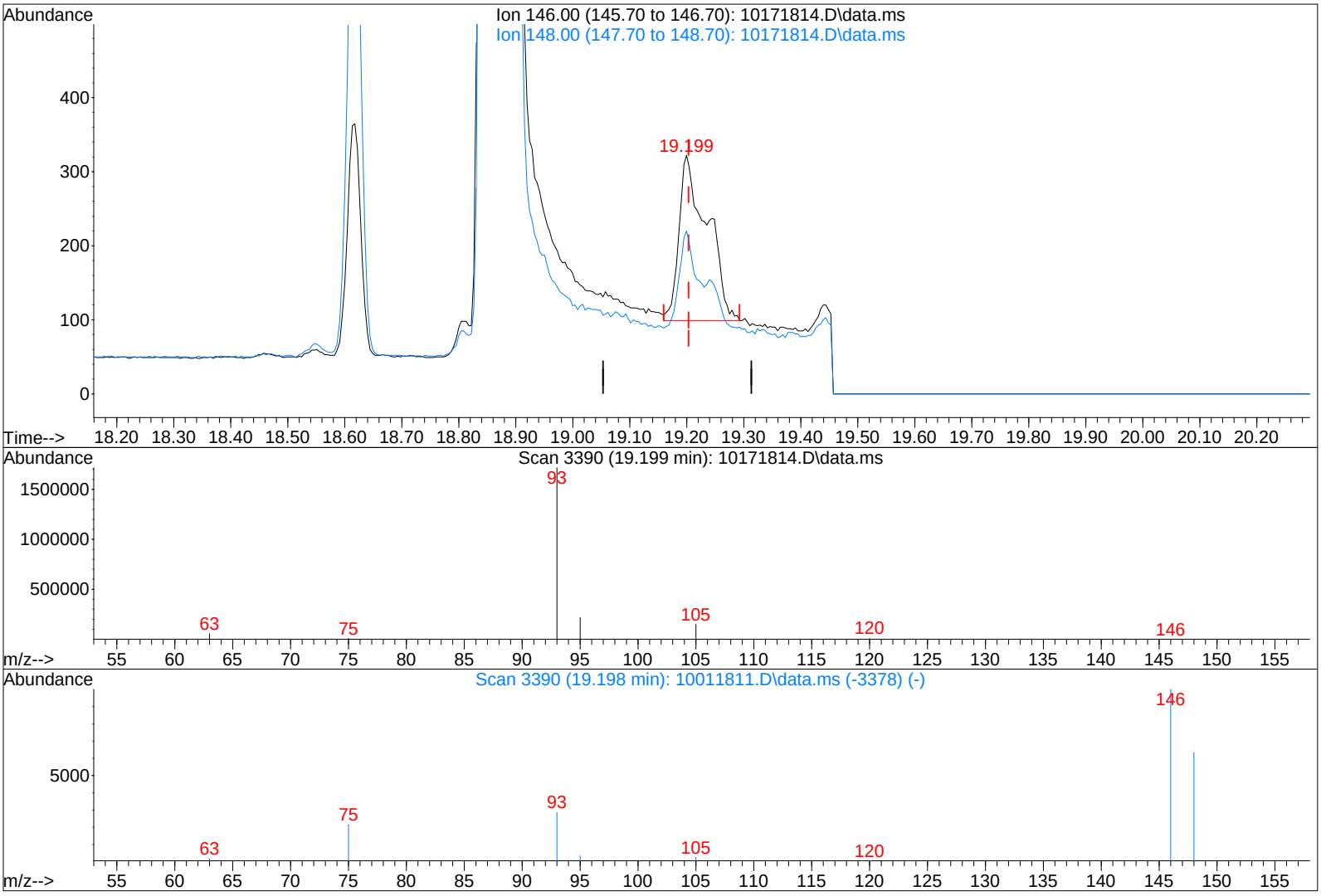
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(50) 1,2-Dichlorobenzene (T)

19.199min (-0.004) 10.39pg

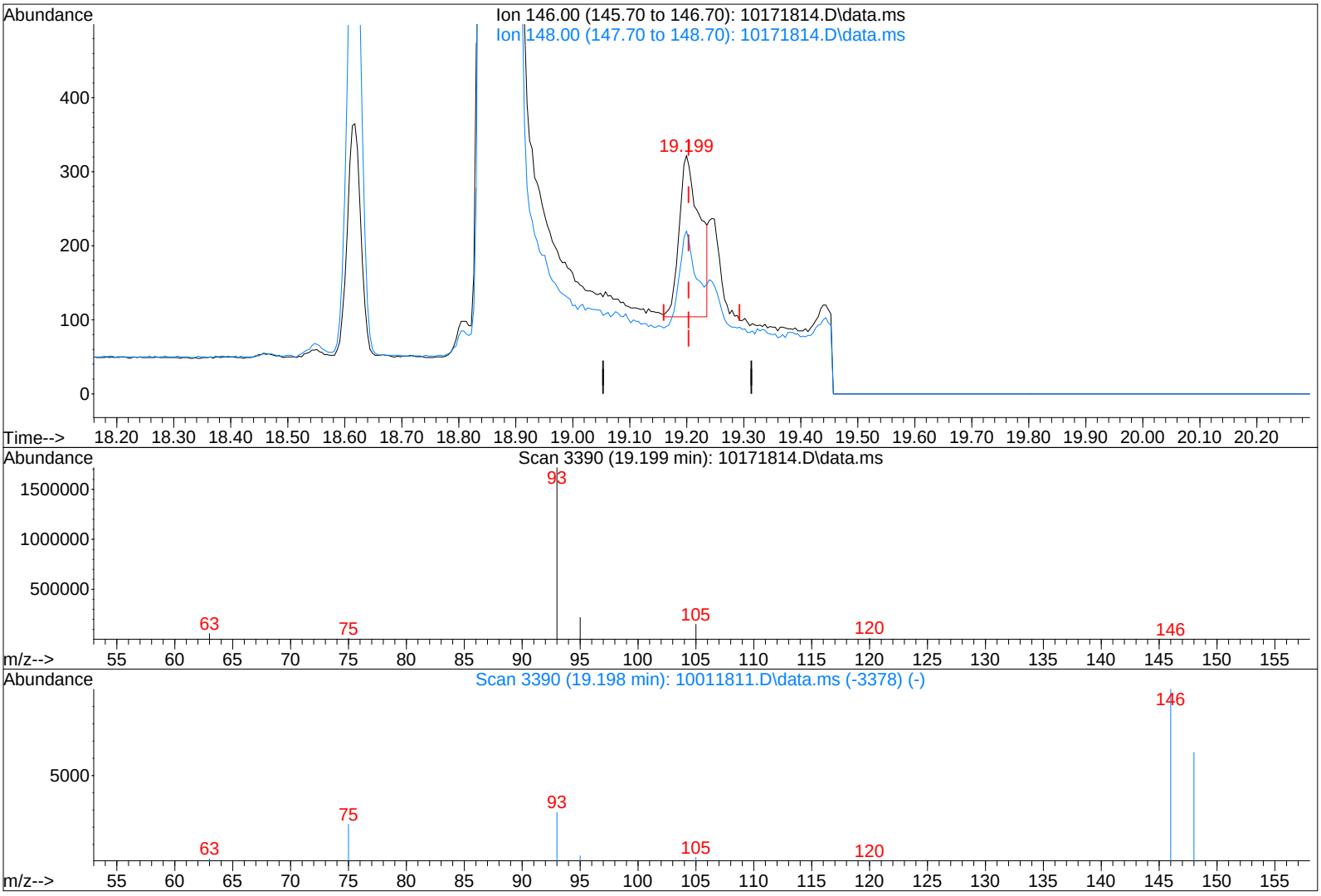
response 764

Ion	Exp%	Act%
146.00	100	100
148.00	63.70	35.86#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171814.D Vial: 7
Acq On : 17 Oct 2018 19:44 Operator: WA
Sample : P1805497-006 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:19 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171814.D\data.ms

(50) 1,2-Dichlorobenzene (T)

19.199min (-0.004) 7.40pg m

response 544

Ion	Exp%	Act%
146.00	100	100
148.00	63.70	50.37
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	25067	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	91653	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	13406	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	24801	826.520 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.65%			
33) Toluene-d8 (SS2)	14.01	98	97532	1031.899 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.19%			
45) Bromofluorobenzene (SS3)	17.43	174	36222	956.201 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.62%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	48154	901.564 pg		100
3) Chloromethane	4.52	52	4201	336.368 pg	#	87
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	618	16.051 pg		98
5) Vinyl Chloride	4.82	62	328	9.457 pg		96
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.33	94	187	7.675 pg		100
8) Chloroethane	5.57	64	2188	120.570 pg		98
9) Acrolein	6.13	56	2853	194.487 pg		95
10) Acetone	6.26	58	87894	4726.084 pg		96
11) Trichlorofluoromethane	6.50	101	16365	391.780 pg		100
12) 1,1-Dichloroethene	7.22	96	824	27.875 pg	#	79
13) Methylene Chloride	7.35	84	20327	656.446 pg		99
14) Trichlorotrifluoroethane	7.69	151	1987	67.872 pg		100
15) trans-1,2-Dichloroethene	8.40	96	162	5.268 pg		93
16) 1,1-Dichloroethane	8.60	63	941	19.604 pg		98
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.77	83	1030789	19905.663 pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D. d		
22) 1,1,1-Trichloroethane	10.79	97	3435	78.206 pg		97
23) Benzene	11.25	78	24547	188.687 pg		100
24) Carbon Tetrachloride	11.40	117	33028	823.822 pg		100
26) 1,2-Dichloropropane	12.05	63	171	7.491 pg		86
27) Bromodichloromethane	12.23	83	146208m	4824.980 pg		
28) Trichloroethene	12.29	130	1132	39.528 pg		98
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	13.14	75	169	N.D.		
31) trans-1,3-Dichloropropene	13.60	75	121	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.12	91	2349601	22452.072 pg		99
35) Dibromochloromethane	14.53	129	47369	1689.649 pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	15268	495.788 pg		99
39) Chlorobenzene	15.97	112	5616m	69.194 pg		
40) Ethylbenzene	16.35	91	32315	261.462 pg		100
41) m,p-Xylene	16.52	91	88812	939.812 pg		99
42) Styrene	16.88	104	7561	100.732 pg	#	1
43) o-Xylene	17.00	106	18074	359.749 pg		94
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.26	105	27715	262.284 pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	38912	369.140 pg		88
48) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
49) 1,4-Dichlorobenzene	18.87	146	104375	1509.232 pg		100
50) 1,2-Dichlorobenzene	19.20	146	281	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	80	N.D.		
53) Naphthalene	20.94	128	4760	38.606 pg		73

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

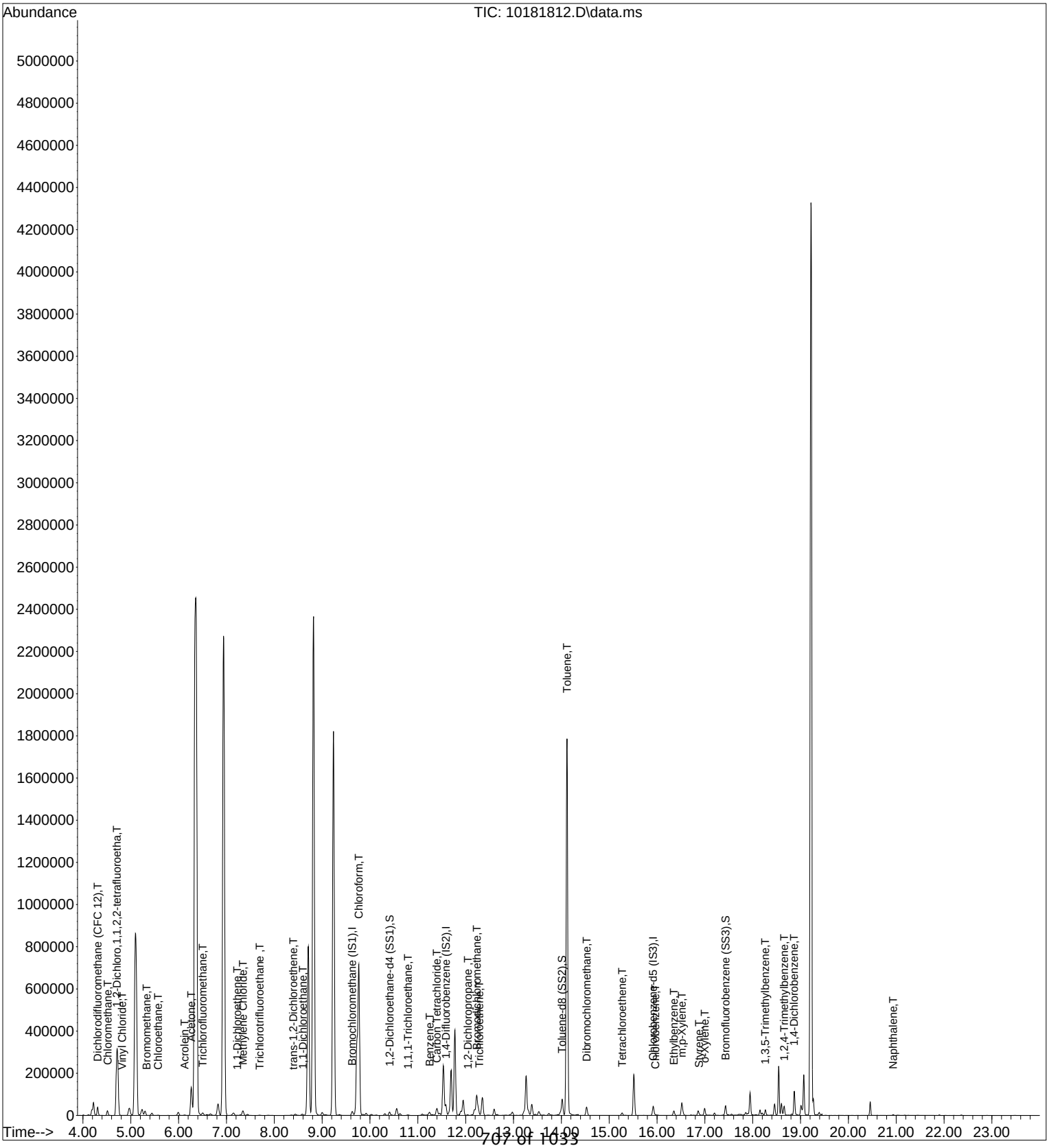
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

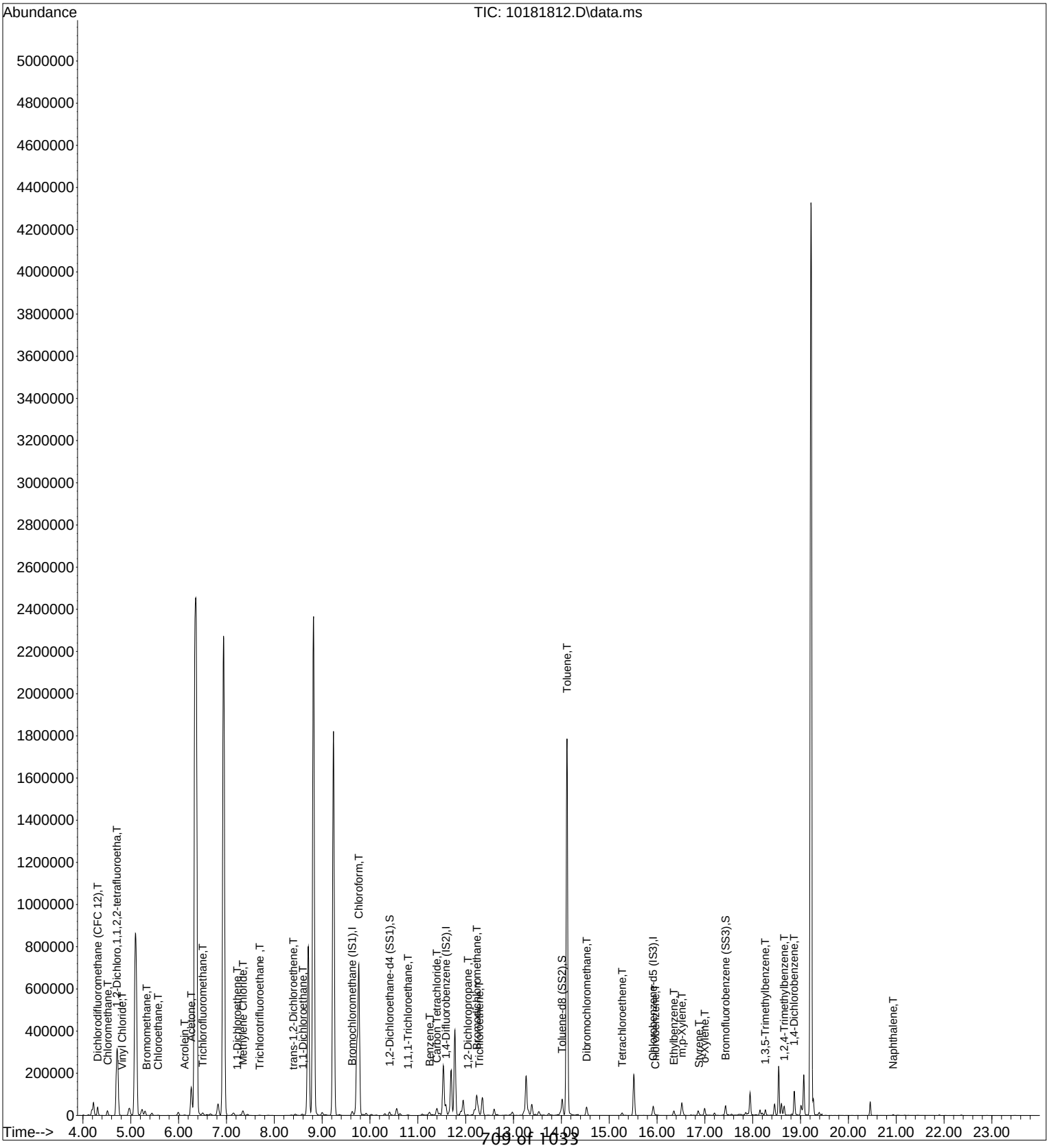
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	25067	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	91653	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	13406	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	24801	826.520 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.65%			
33) Toluene-d8 (SS2)	14.01	98	97532	1031.899 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.19%			
45) Bromofluorobenzene (SS3)	17.43	174	36222	956.201 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.62%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	48154	901.564 pg		100
3) Chloromethane	4.52	52	4201	336.368 pg	#	87
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	618	16.051 pg		98
5) Vinyl Chloride	4.82	62	328	9.457 pg		96
7) Bromomethane	5.33	94	187	7.675 pg		100
8) Chloroethane	5.57	64	2188	120.570 pg		98
9) Acrolein	6.13	56	2853	194.487 pg		95
10) Acetone	6.26	58	87894	4726.084 pg		96
11) Trichlorofluoromethane	6.50	101	16365	391.780 pg		100
12) 1,1-Dichloroethene	7.22	96	824	27.875 pg	#	79
13) Methylene Chloride	7.35	84	20327	656.446 pg		99
14) Trichlorotrifluoroethane	7.69	151	1987	67.872 pg		100
15) trans-1,2-Dichloroethene	8.40	96	162	5.268 pg		93
16) 1,1-Dichloroethane	8.60	63	941	19.604 pg		98
19) Chloroform	9.77	83	1030789	19905.663 pg		99
22) 1,1,1-Trichloroethane	10.79	97	3435	78.206 pg		97
23) Benzene	11.25	78	24547	188.687 pg		100
24) Carbon Tetrachloride	11.40	117	33028	823.822 pg		100
26) 1,2-Dichloropropane	12.05	63	171	7.491 pg		86
27) Bromodichloromethane	12.23	83	146208m	4824.980 pg		
28) Trichloroethene	12.29	130	1132	39.528 pg		98
34) Toluene	14.12	91	2349601	22452.072 pg		99
35) Dibromochloromethane	14.53	129	47369	1689.649 pg		100
37) Tetrachloroethene	15.27	166	15268	495.788 pg		99
39) Chlorobenzene	15.97	112	5616m	69.194 pg		
40) Ethylbenzene	16.35	91	32315	261.462 pg		100
41) m,p-Xylene	16.52	91	88812	939.812 pg		99
42) Styrene	16.88	104	7561	100.732 pg	#	1
43) o-Xylene	17.00	106	18074	359.749 pg		94
46) 1,3,5-Trimethylbenzene	18.26	105	27715	262.284 pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	38912	369.140 pg		88
49) 1,4-Dichlorobenzene	18.87	146	104375	1509.232 pg		100
53) Naphthalene	20.94	128	4760	38.606 pg		73

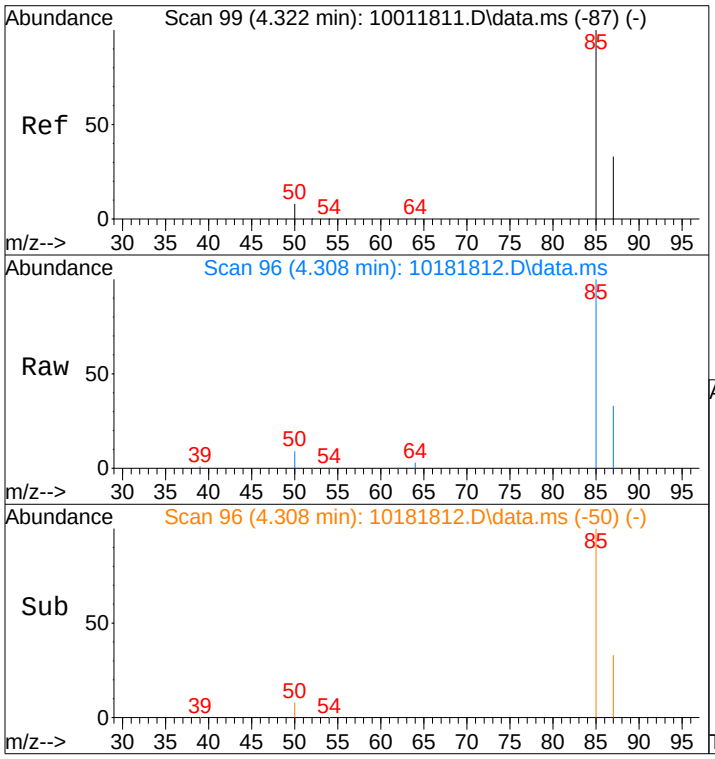
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

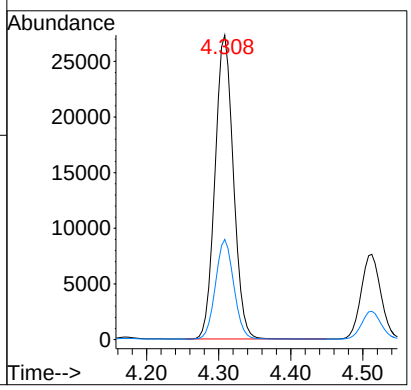


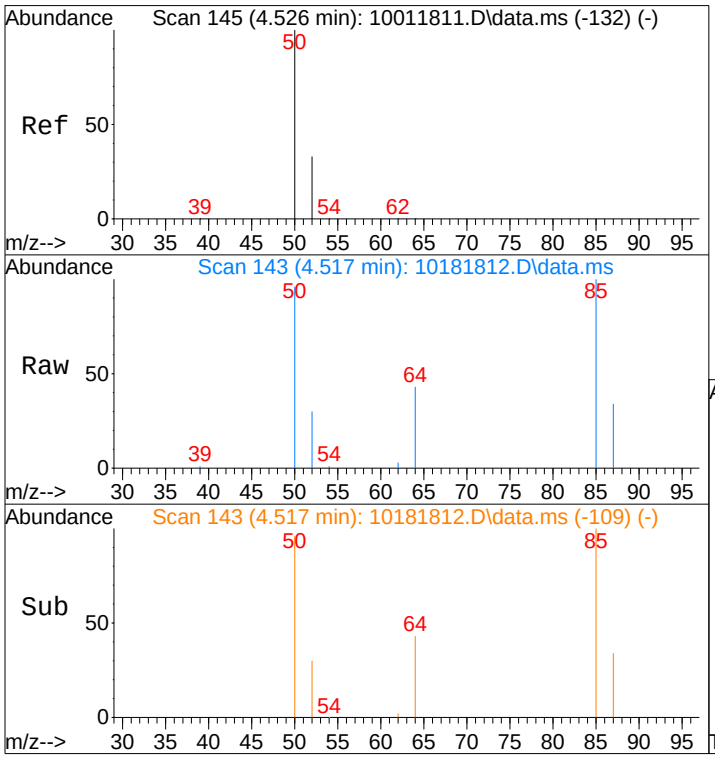


#2
Dichlorodifluoromethane (CFC 12)
Concen: 901.56 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.004 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 85 Resp: 48154

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

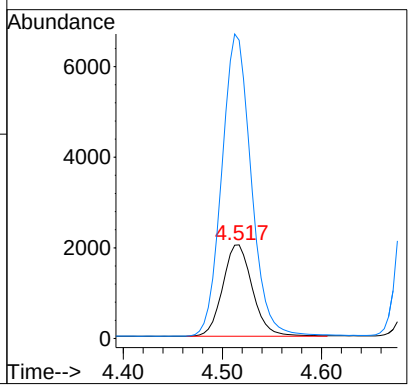


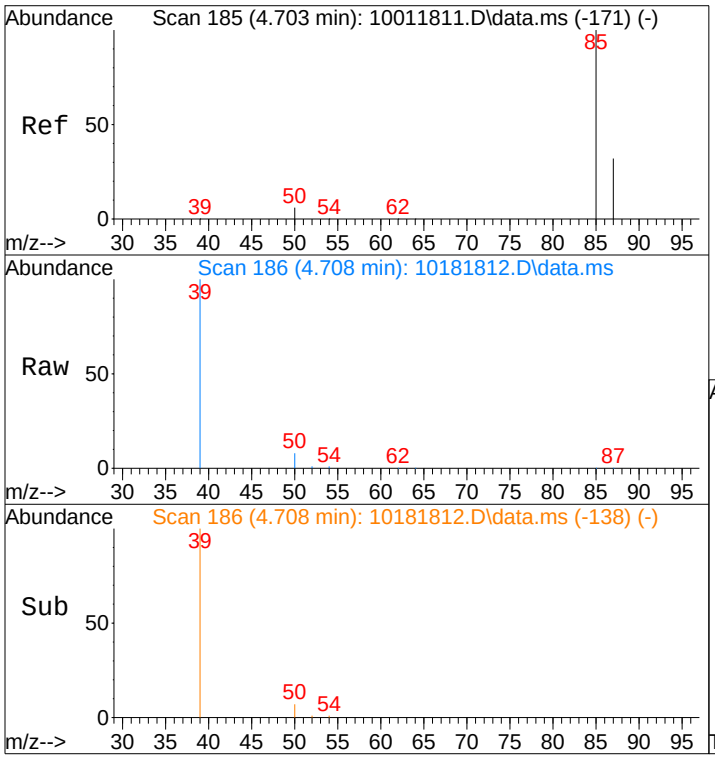


#3
Chloromethane
Concen: 336.37 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 52 Resp: 4201

Ion	Ratio	Lower	Upper
52	100		
50	327.8	281.8	321.8#

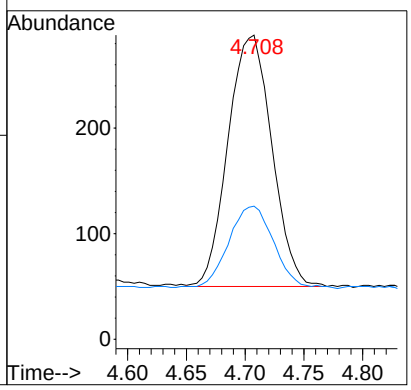


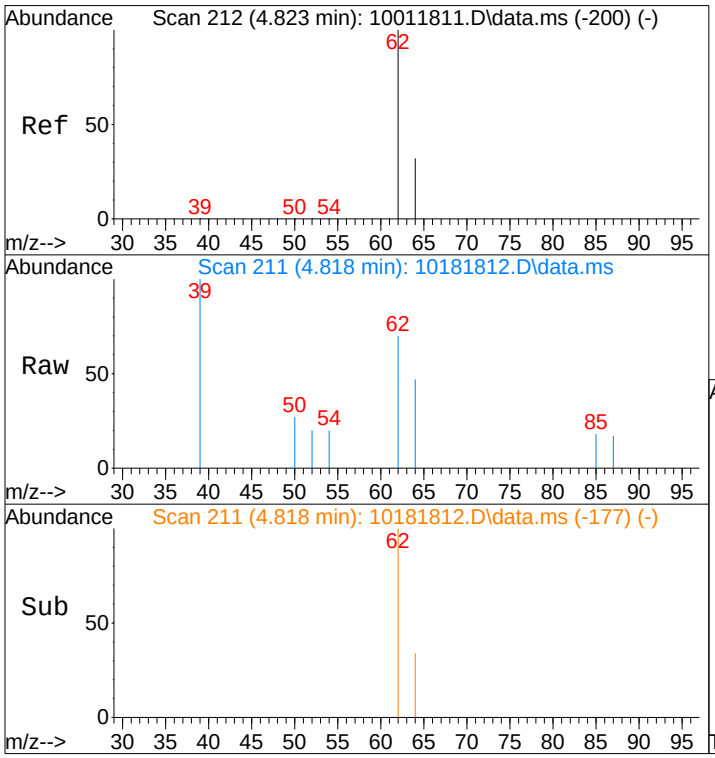


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 16.05 pg
RT: 4.71 min Scan# 186
Delta R.T. 0.014 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 85 Resp: 618

Ion	Ratio	Lower	Upper
85	100		
87	31.6	26.0	39.0

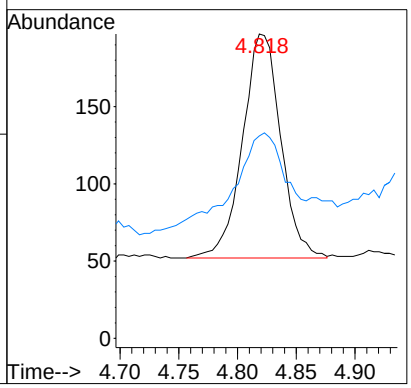


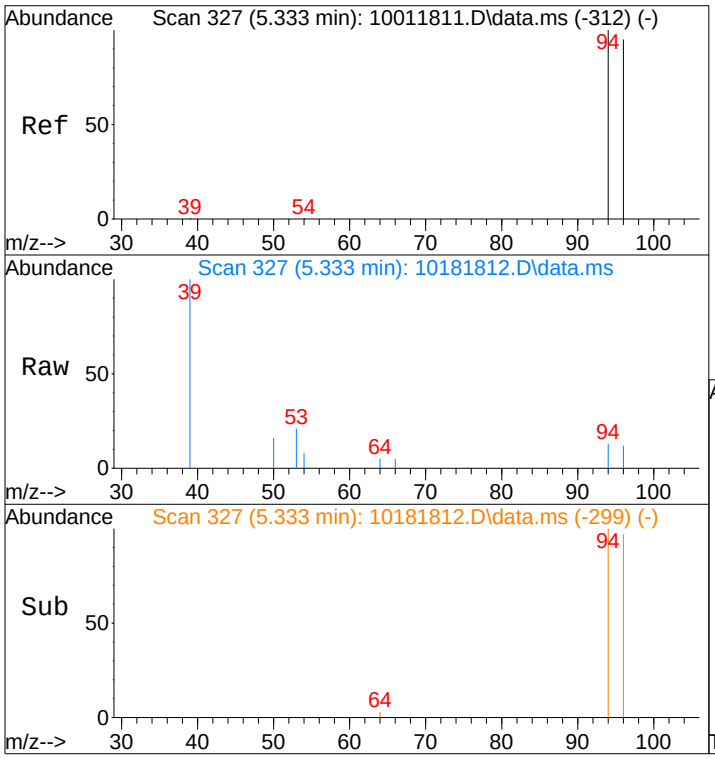


#5
Vinyl Chloride
Concen: 9.46 pg
RT: 4.82 min Scan# 211
Delta R.T. 0.000 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 62 Resp: 328

Ion	Ratio	Lower	Upper
62	100		
64	30.5	12.8	52.8

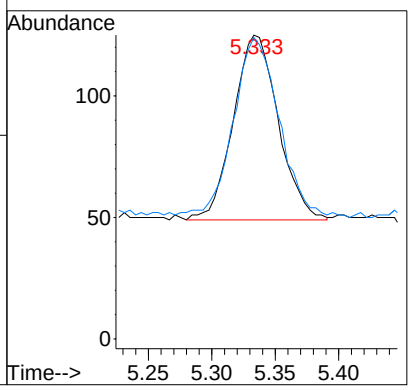


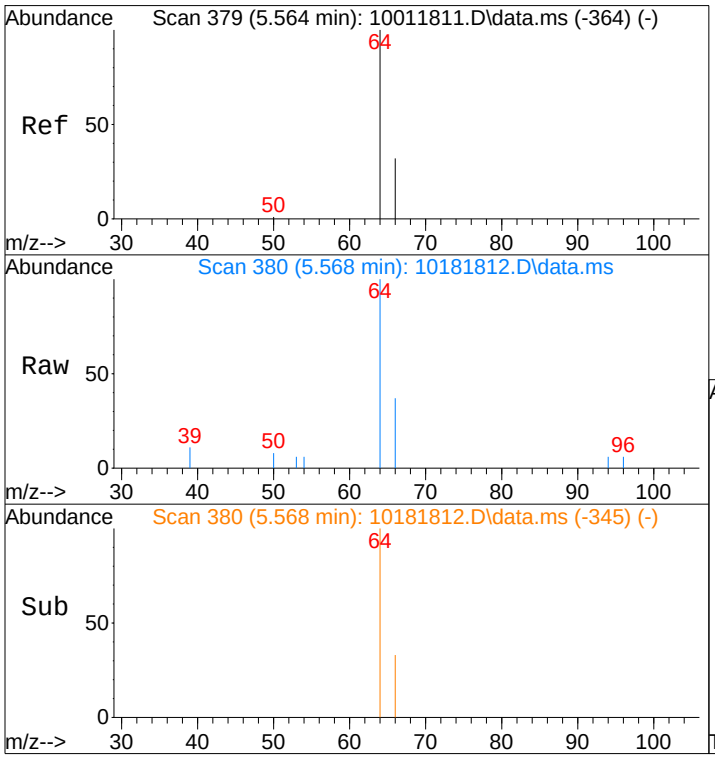


#7
Bromomethane
Concen: 7.67 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.004 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 94 Resp: 187

Ion	Ratio	Lower	Upper
94	100		
96	94.7	75.7	113.5

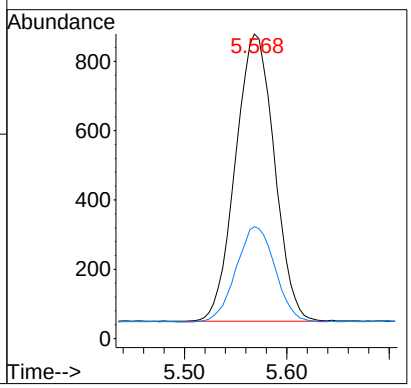


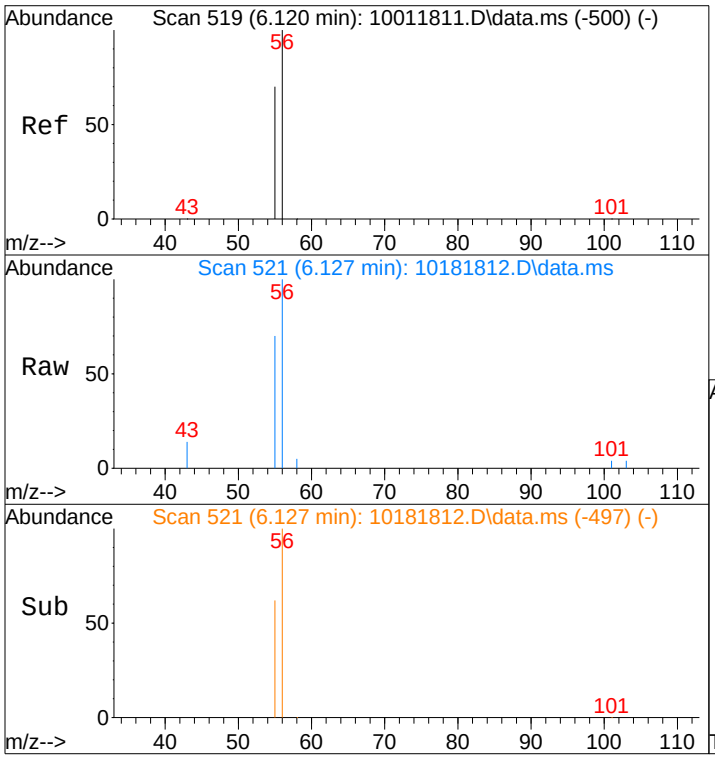


#8
Chloroethane
Concen: 120.57 pg
RT: 5.57 min Scan# 380
Delta R.T. 0.004 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 64 Resp: 2188

Ion	Ratio	Lower	Upper
64	100		
66	33.2	12.3	52.3

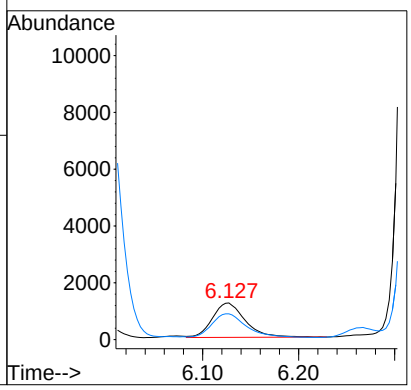


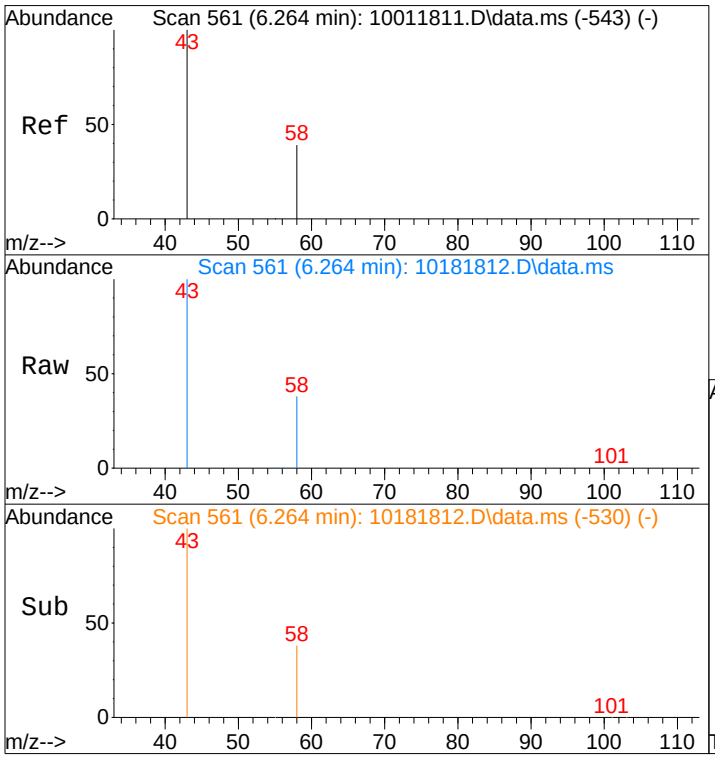


#9
Acrolein
Concen: 194.49 pg
RT: 6.13 min Scan# 521
Delta R.T. -0.027 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 56 Resp: 2853

Ion	Ratio	Lower	Upper
56	100		
55	72.8	55.3	82.9

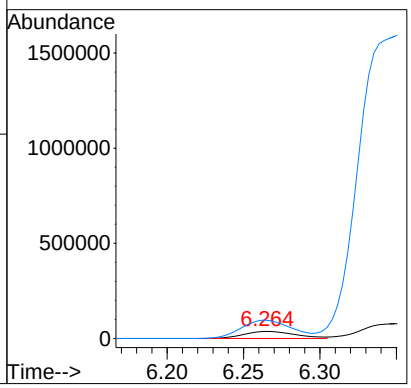


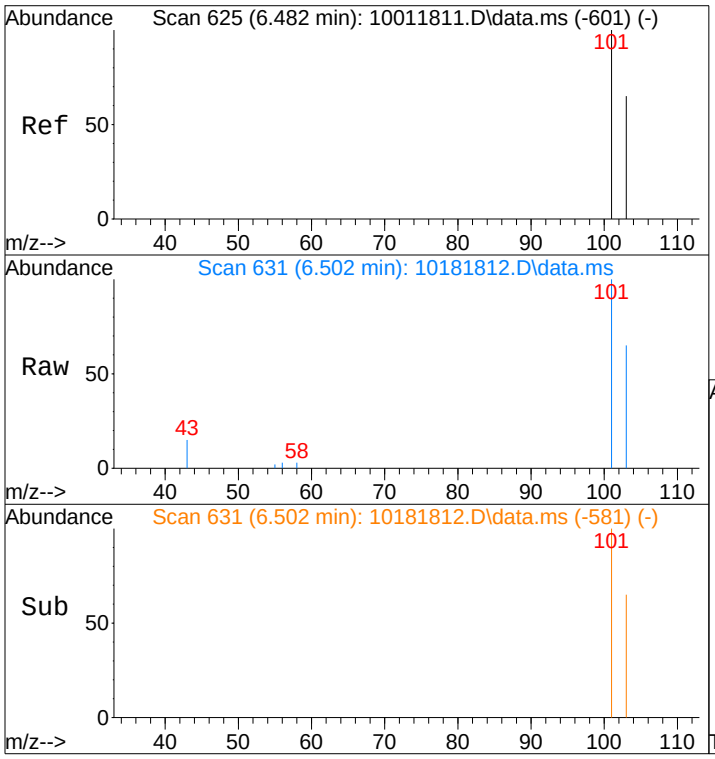


#10
Acetone
Concen: 4726.08 pg
RT: 6.26 min Scan# 561
Delta R.T. -0.044 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 58 Resp: 87894

Ion	Ratio	Lower	Upper
58	100		
43	248.0	234.7	274.7

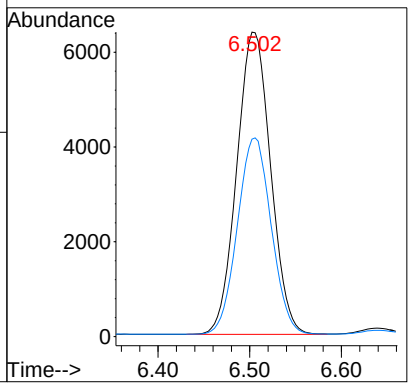


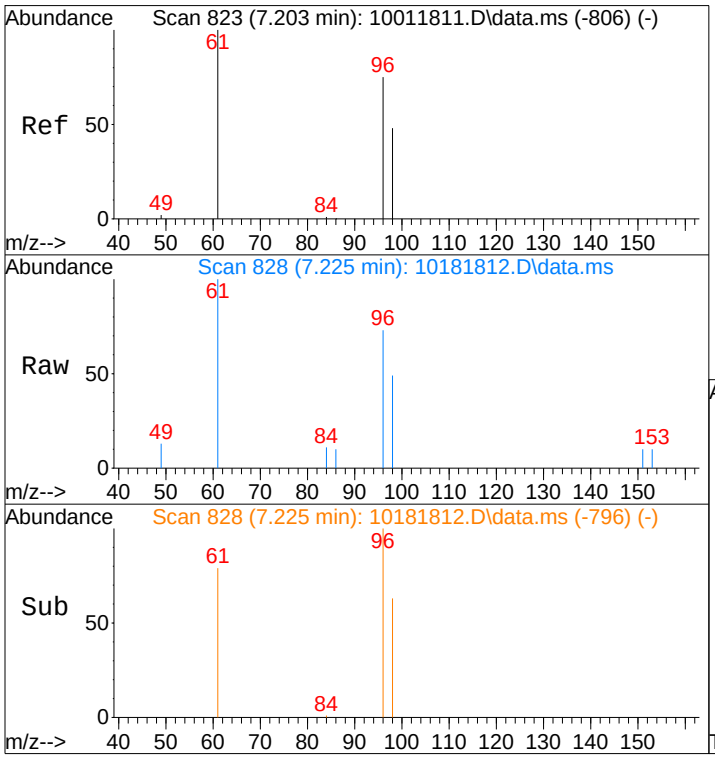


#11
Trichlorofluoromethane
Concen: 391.78 pg
RT: 6.50 min Scan# 631
Delta R.T. 0.021 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:101 Resp: 16365

Ion	Ratio	Lower	Upper
101	100		
103	64.9	52.2	78.2

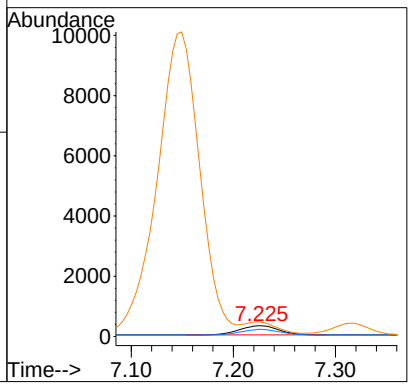


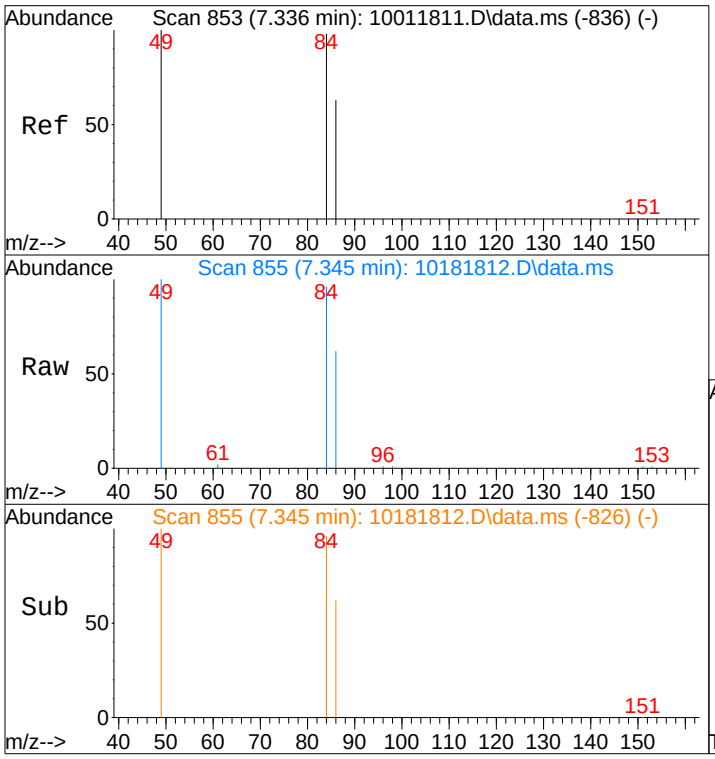


#12
1,1-Dichloroethene
Concen: 27.88 pg
RT: 7.22 min Scan# 828
Delta R.T. 0.013 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 96 Resp: 824

Ion	Ratio	Lower	Upper
96	100		
98	59.7	44.2	84.2
61	101.1	114.1	154.1#

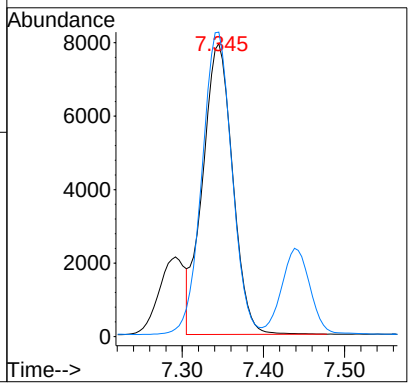


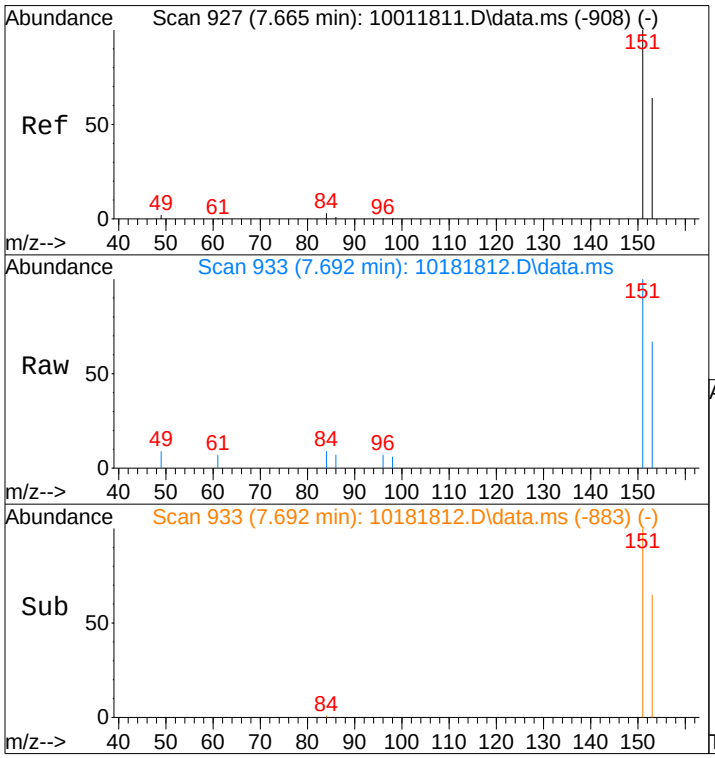


#13
Methylene Chloride
Concen: 656.45 pg
RT: 7.35 min Scan# 855
Delta R.T. -0.031 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 84 Resp: 20327

Ion	Ratio	Lower	Upper
84	100		
49	104.2	83.3	123.3

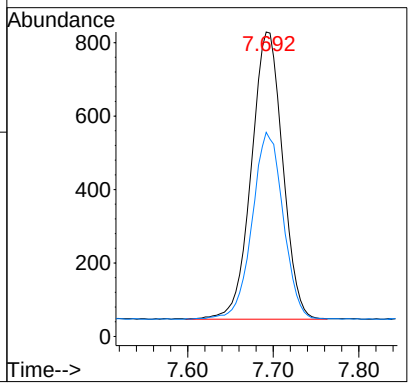


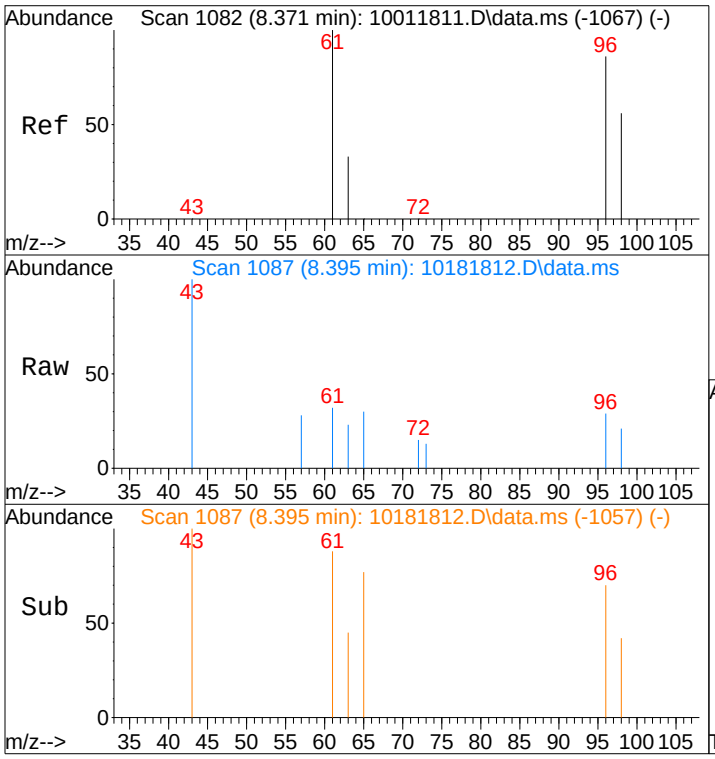


#14
Trichlorotrifluoroethane
Concen: 67.87 pg
RT: 7.69 min Scan# 933
Delta R.T. 0.022 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:151 Resp: 1987

Ion	Ratio	Lower	Upper
151	100		
153	63.9	44.3	84.3

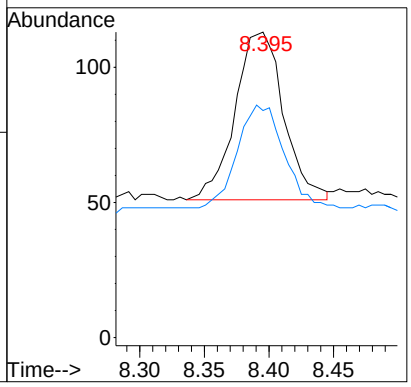


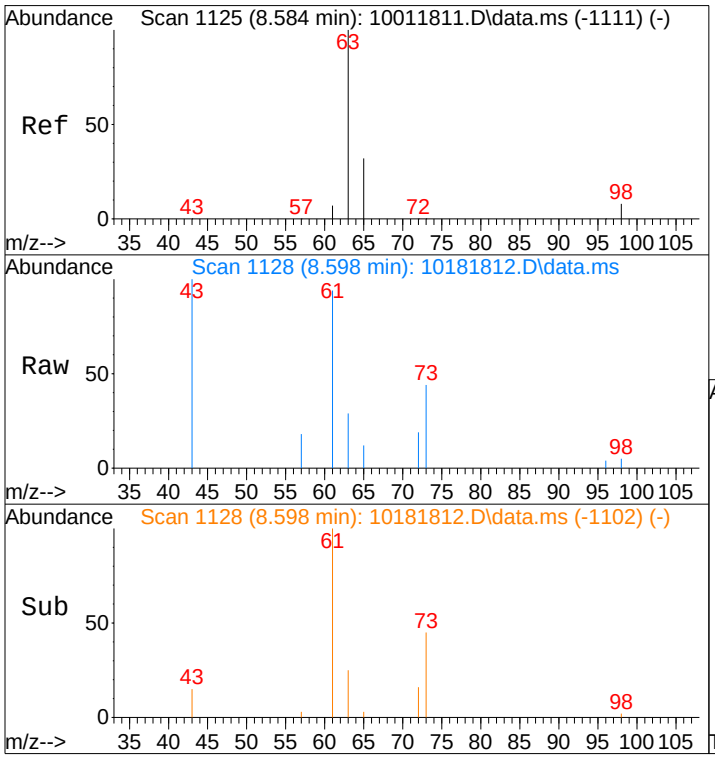


#15
trans-1,2-Dichloroethene
Concen: 5.27 pg
RT: 8.40 min Scan# 1087
Delta R.T. 0.000 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 96 Resp: 162

Ion	Ratio	Lower	Upper
96	100		
98	58.6	44.1	84.1

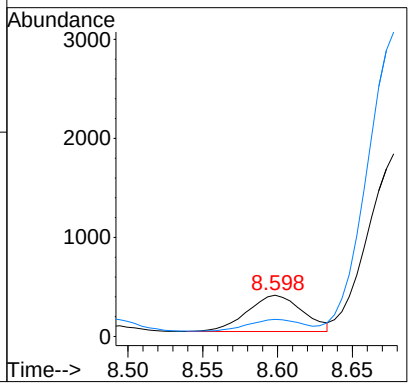


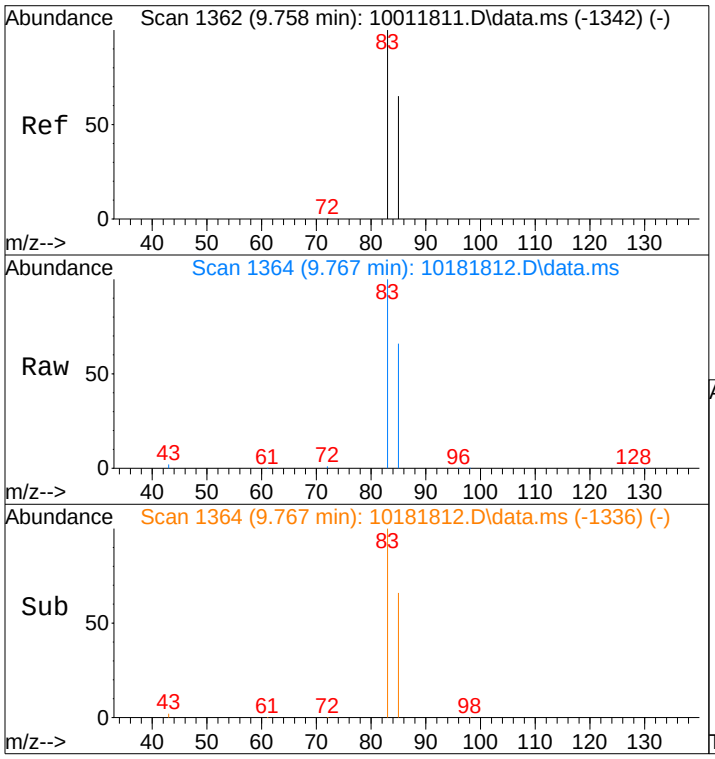


#16
1,1-Dichloroethane
Concen: 19.60 pg
RT: 8.60 min Scan# 1128
Delta R.T. -0.020 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 63 Resp: 941

Ion	Ratio	Lower	Upper
63	100		
65	30.8	12.2	52.2

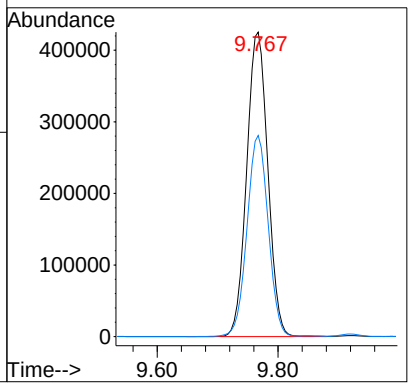


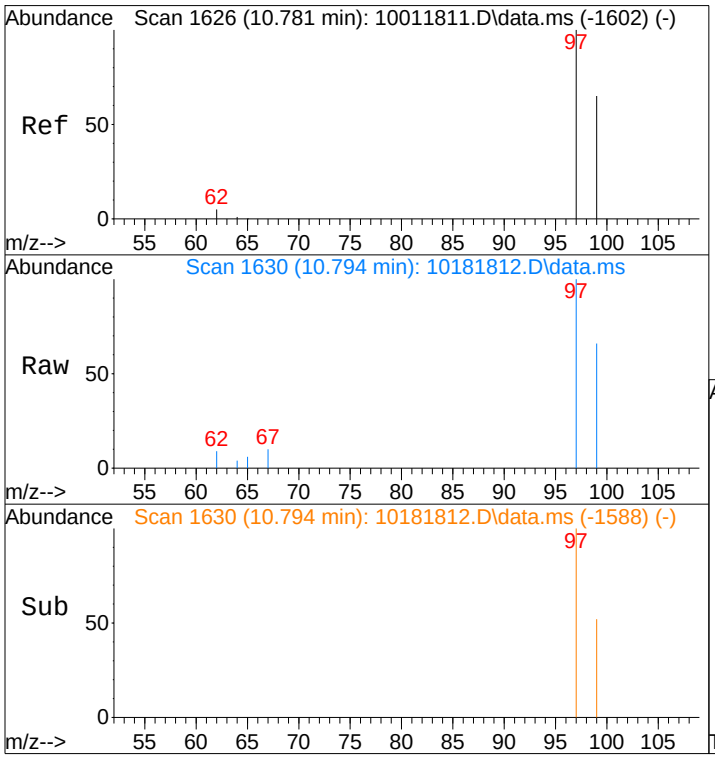


#19
Chloroform
Concen: 19905.66 pg
RT: 9.77 min Scan# 1364
Delta R.T. -0.030 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 83 Resp: 1030789

Ion	Ratio	Lower	Upper
83	100		
85	66.4	46.0	86.0

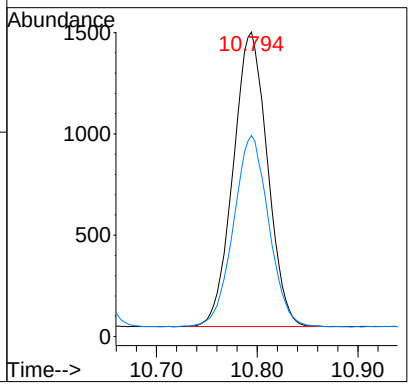


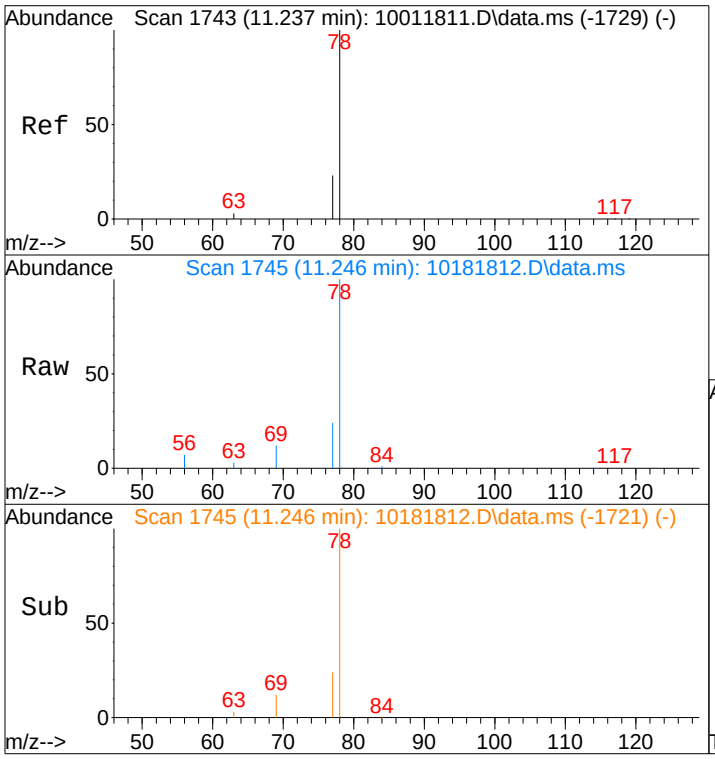


#22
1,1,1-Trichloroethane
Concen: 78.21 pg
RT: 10.79 min Scan# 1630
Delta R.T. -0.007 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 97 Resp: 3435

Ion	Ratio	Lower	Upper
97	100		
99	66.9	44.9	84.9

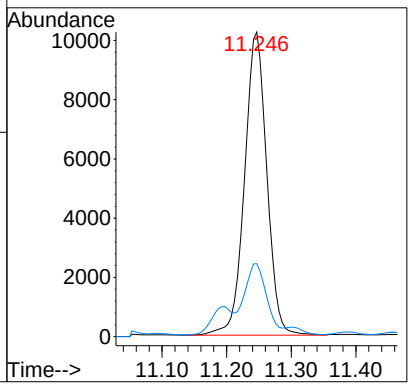


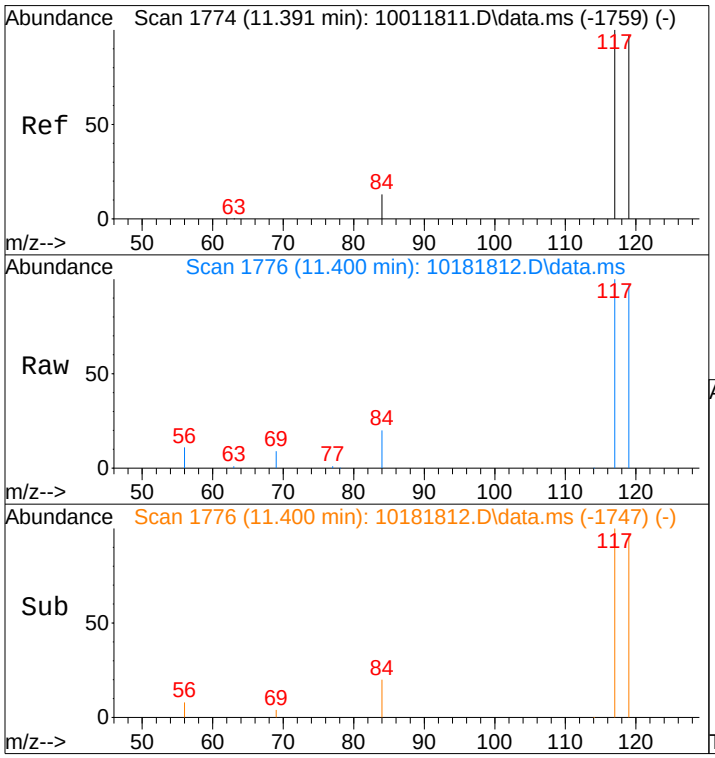


#23
Benzene
Concen: 188.69 pg
RT: 11.25 min Scan# 1745
Delta R.T. -0.010 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 78 Resp: 24547

Ion	Ratio	Lower	Upper
78	100		
77	23.5	3.3	43.3

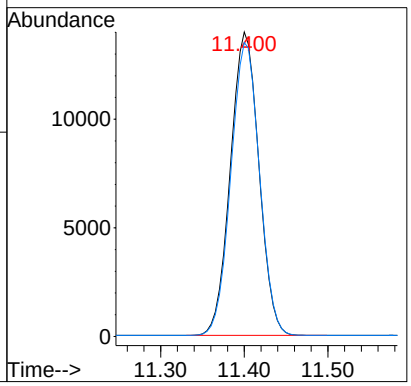


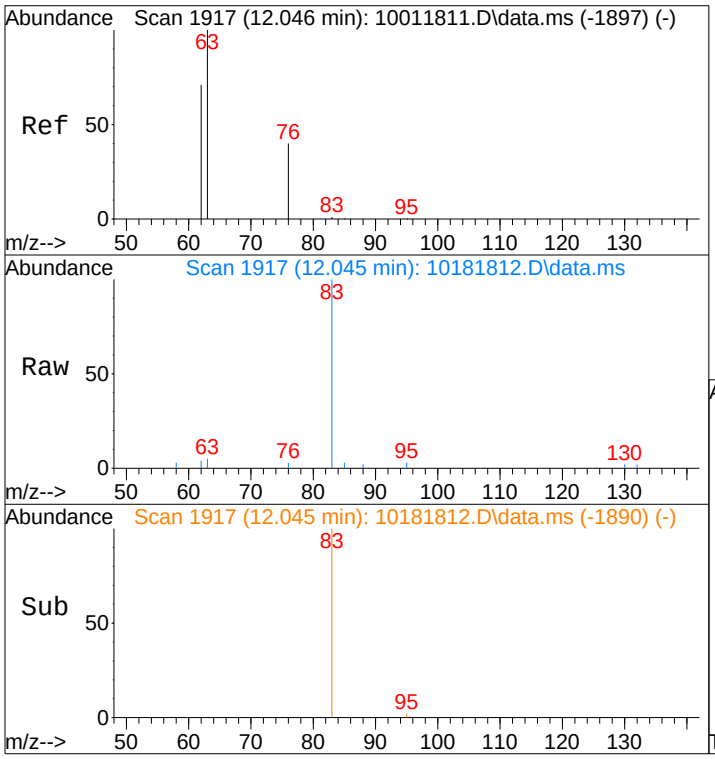


#24
Carbon Tetrachloride
Concen: 823.82 pg
RT: 11.40 min Scan# 1776
Delta R.T. -0.005 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:117 Resp: 33028

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

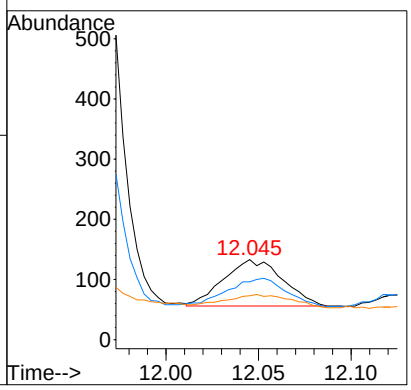


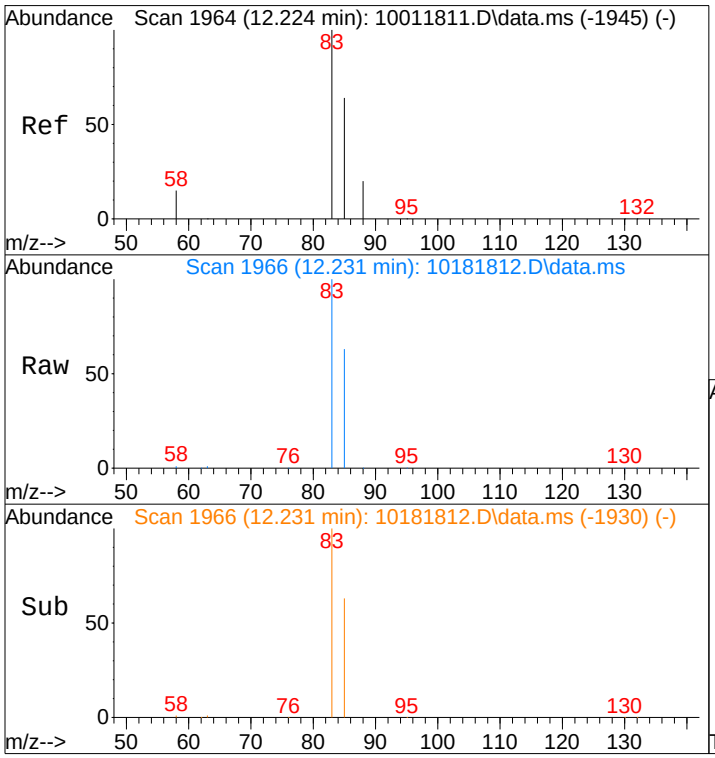


#26
1,2-Dichloropropane
Concen: 7.49 pg
RT: 12.05 min Scan# 1917
Delta R.T. -0.019 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 63 Resp: 171

Ion	Ratio	Lower	Upper
63	100		
62	58.5	50.7	90.7
76	31.6	19.6	59.6

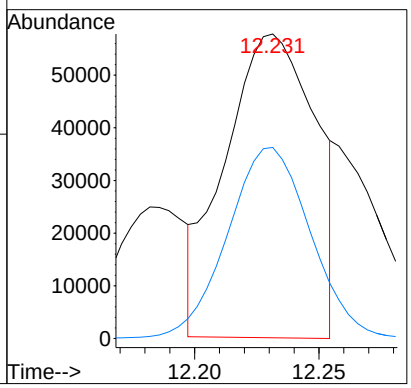


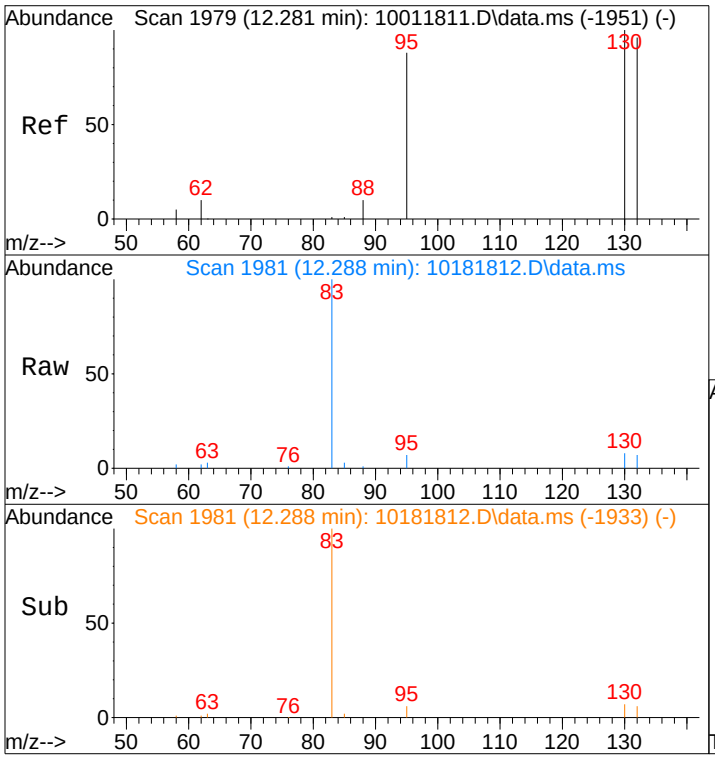


#27
Bromodichloromethane
Concen: 4824.98 pg m
RT: 12.23 min Scan# 1966
Delta R.T. -0.011 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 83 Resp: 146208

Ion	Ratio	Lower	Upper
83	100		
85	57.5	51.7	77.5

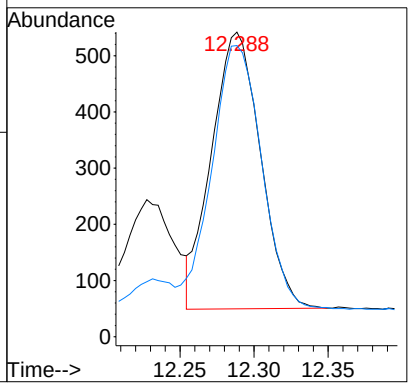


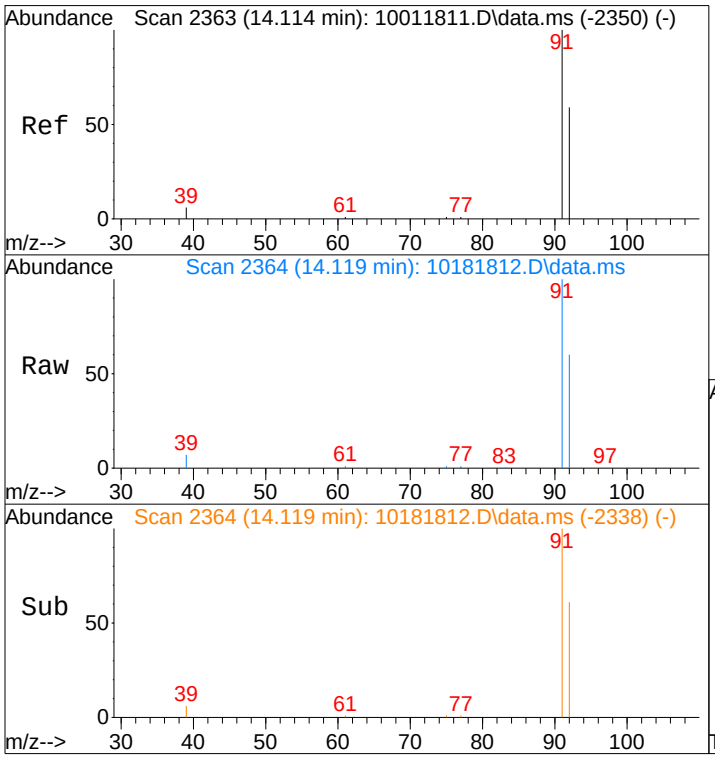


#28
Trichloroethene
Concen: 39.53 pg
RT: 12.29 min Scan# 1981
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:130 Resp: 1132

Ion	Ratio	Lower	Upper
130	100		
132	97.3	75.6	115.6

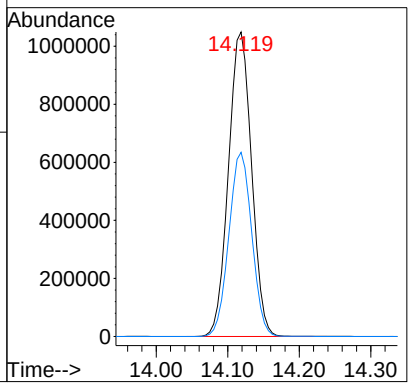


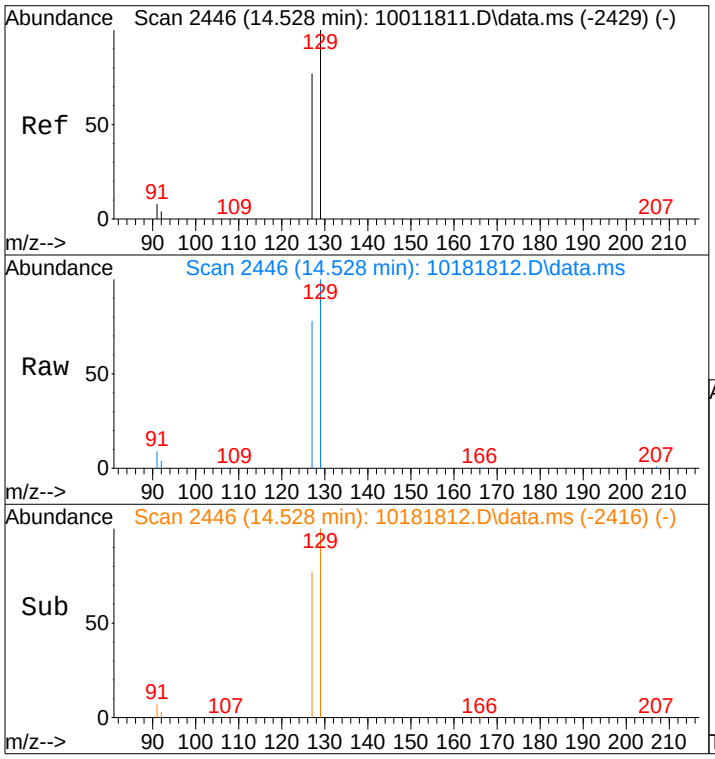


#34
Toluene
Concen: 22452.07 pg
RT: 14.12 min Scan# 2364
Delta R.T. -0.005 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 91 Resp: 2349601

Ion	Ratio	Lower	Upper
91	100		
92	60.0	39.2	79.2

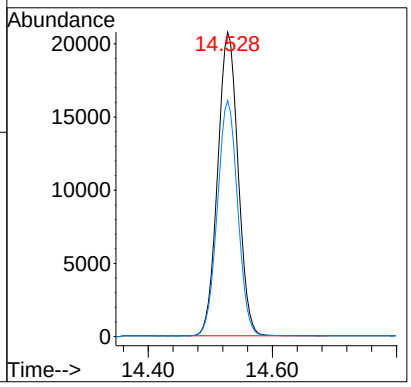


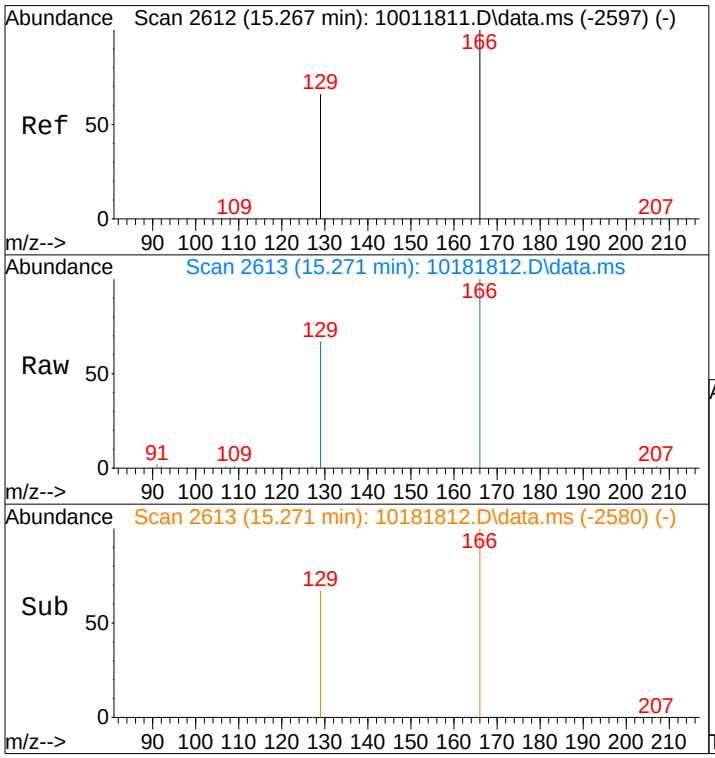


#35
Dibromochloromethane
Concen: 1689.65 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:129 Resp: 47369

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

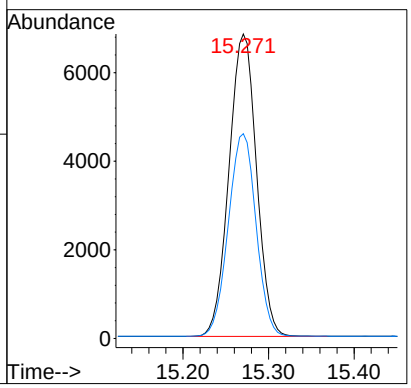


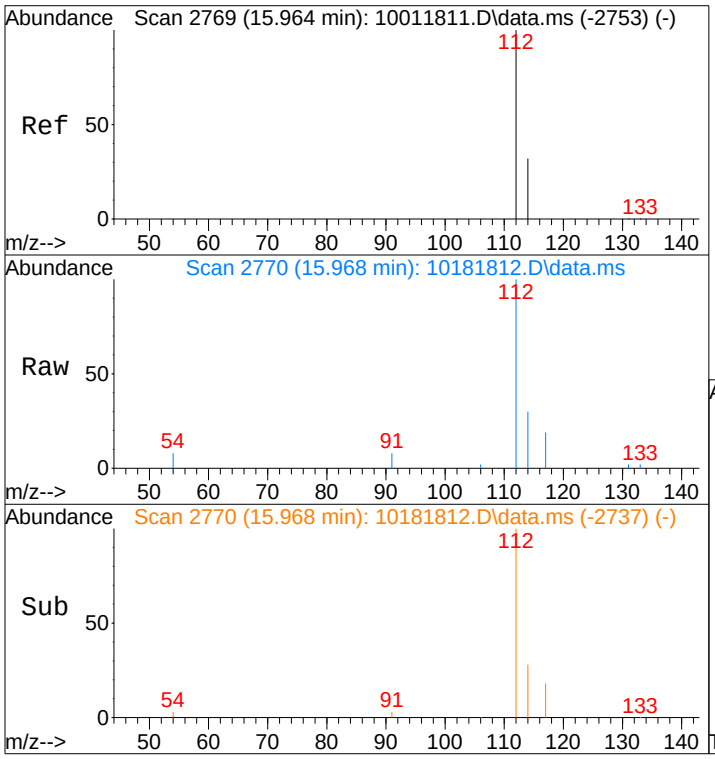


#37
Tetrachloroethene
Concen: 495.79 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.003 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:166 Resp: 15268

Ion	Ratio	Lower	Upper
166	100		
129	67.3	46.7	86.7

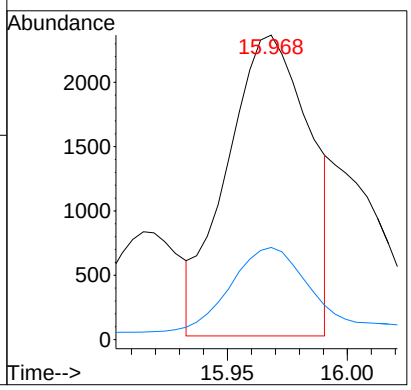


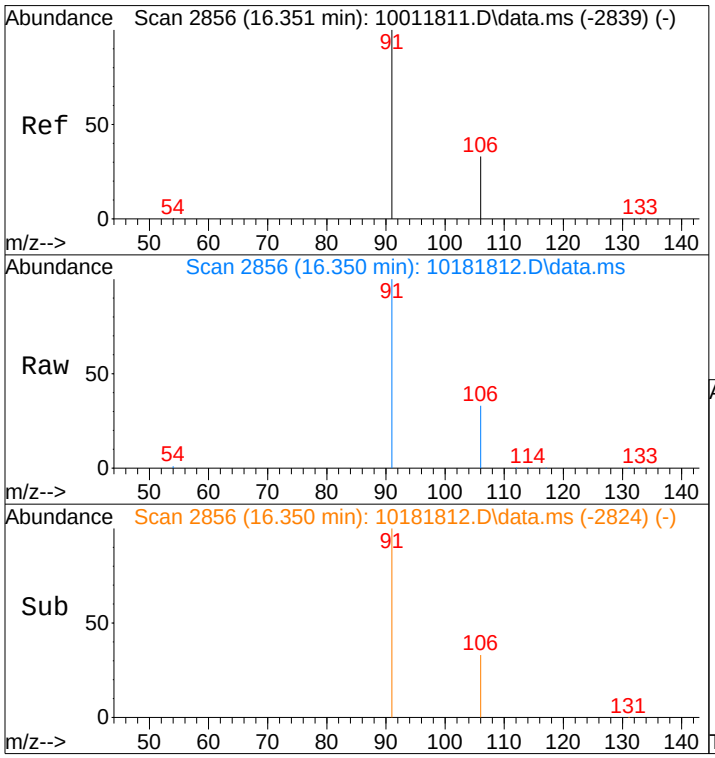


#39
Chlorobenzene
Concen: 69.19 pg m
RT: 15.97 min Scan# 2770
Delta R.T. -0.003 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:112 Resp: 5616

Ion	Ratio	Lower	Upper
112	100		
114	29.7	12.2	52.2

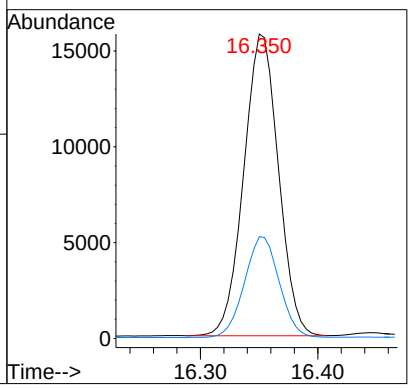


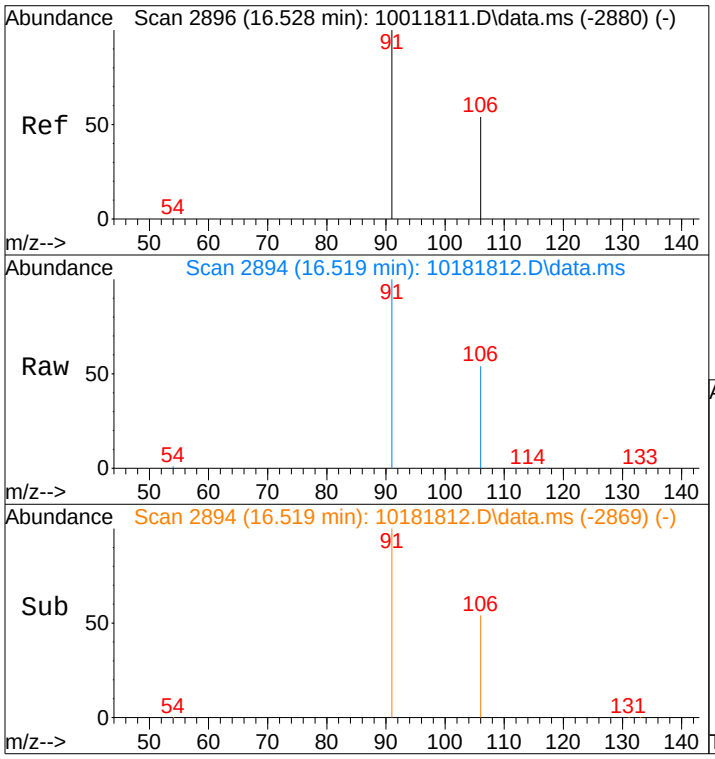


#40
Ethylbenzene
Concen: 261.46 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 91 Resp: 32315

Ion	Ratio	Lower	Upper
91	100		
106	33.5	13.7	53.7

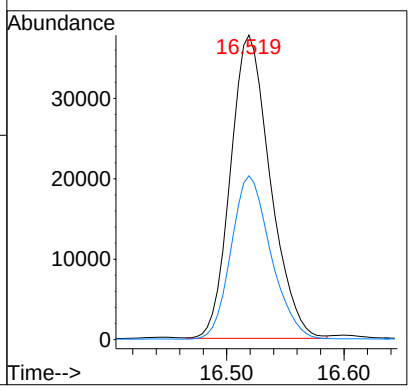


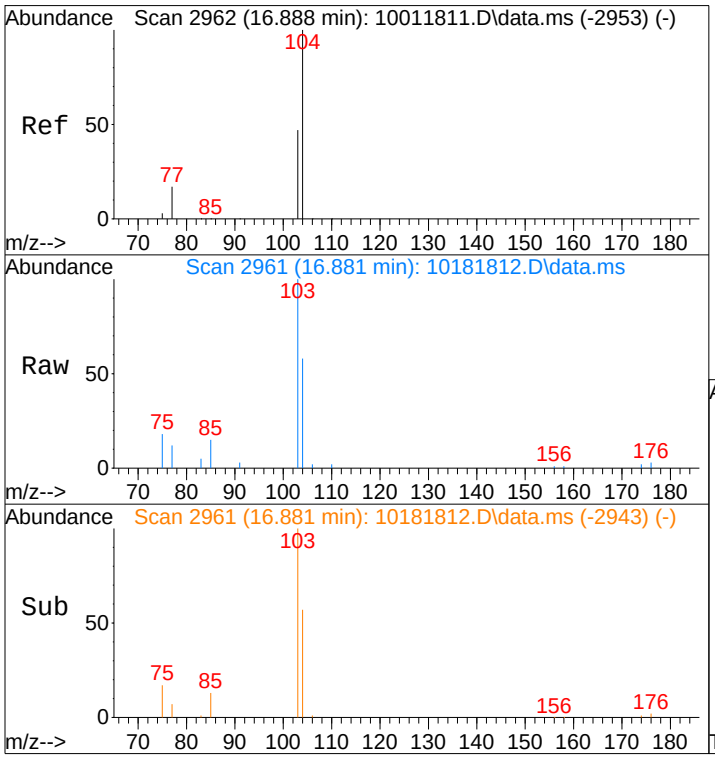


#41
m,p-Xylene
Concen: 939.81 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion: 91 Resp: 88812

Ion	Ratio	Lower	Upper
91	100		
106	53.7	34.3	74.3

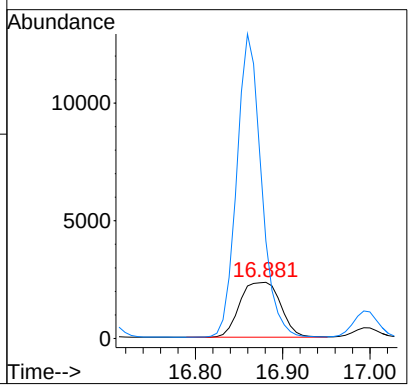


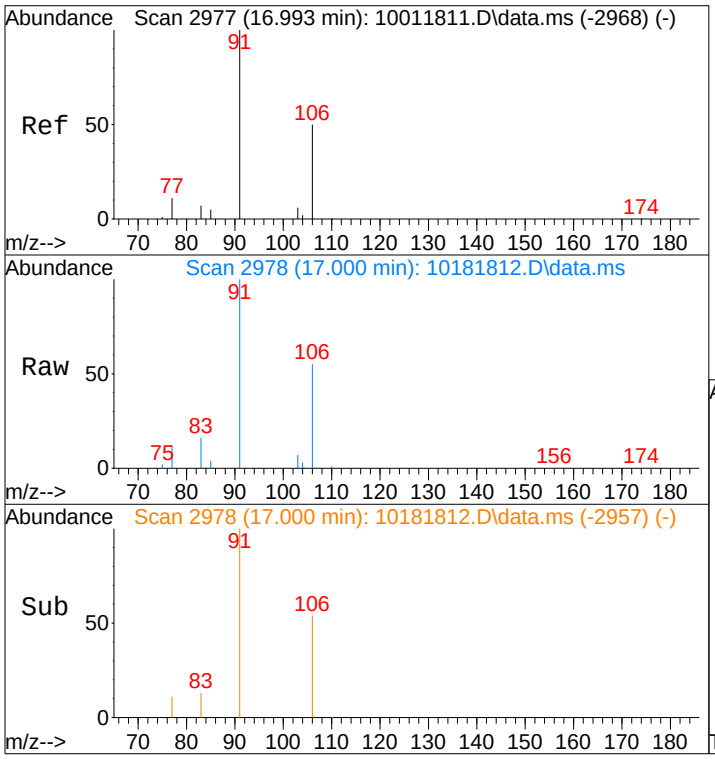


#42
Styrene
Concen: 100.73 pg
RT: 16.88 min Scan# 2961
Delta R.T. -0.013 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:104 Resp: 7561

Ion	Ratio	Lower	Upper
104	100		
103	334.8	37.7	56.5#

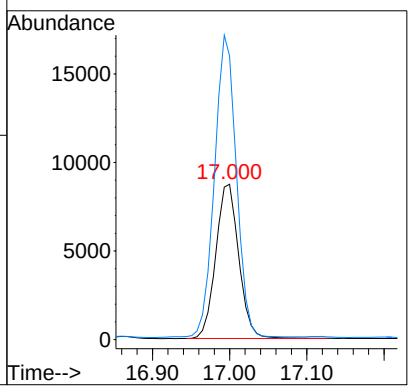


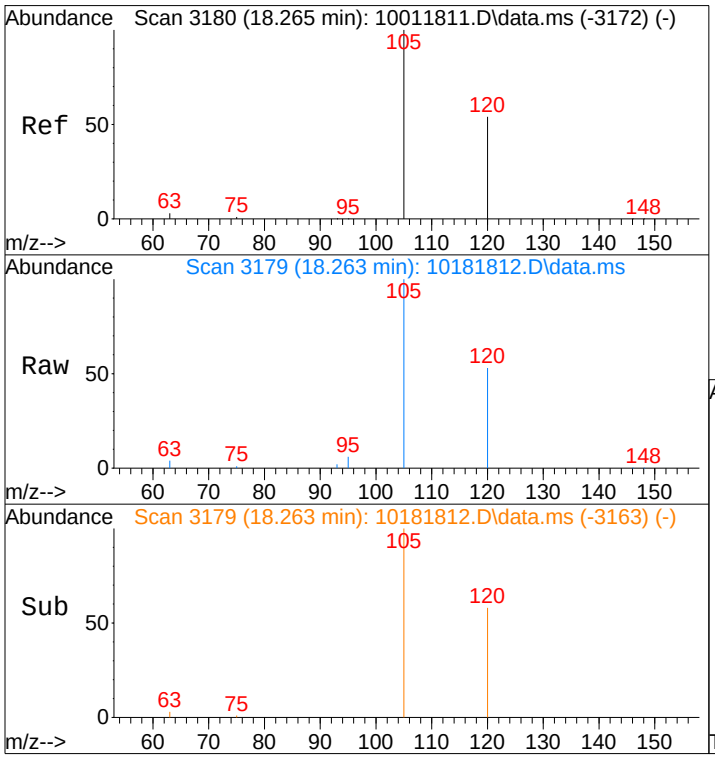


#43
o-Xylene
Concen: 359.75 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:106 Resp: 18074

Ion	Ratio	Lower	Upper
106	100		
91	186.5	175.6	215.6

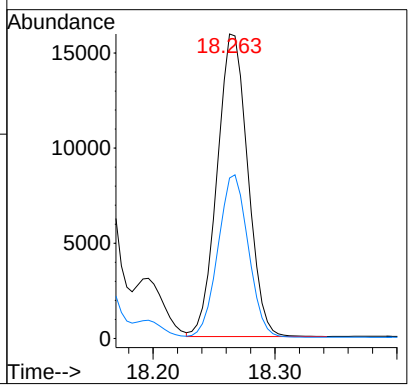


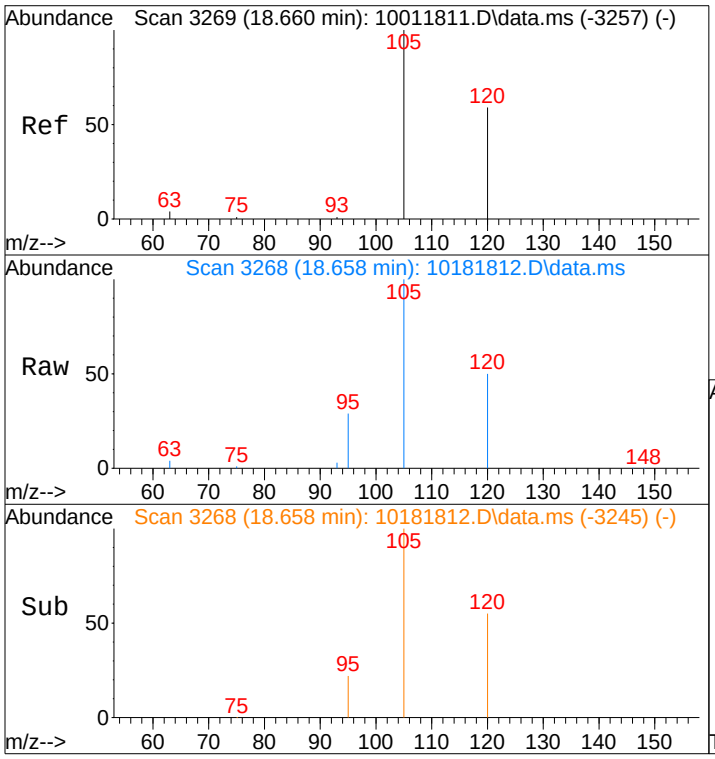


#46
1,3,5-Trimethylbenzene
Concen: 262.28 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:105 Resp: 27715

Ion	Ratio	Lower	Upper
105	100		
120	53.1	42.8	64.2

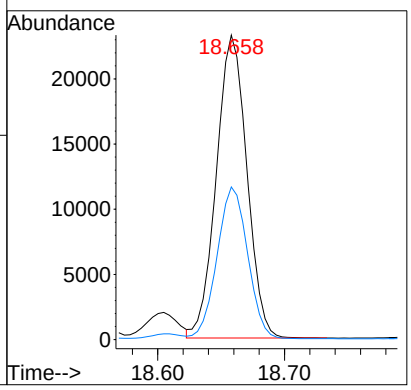


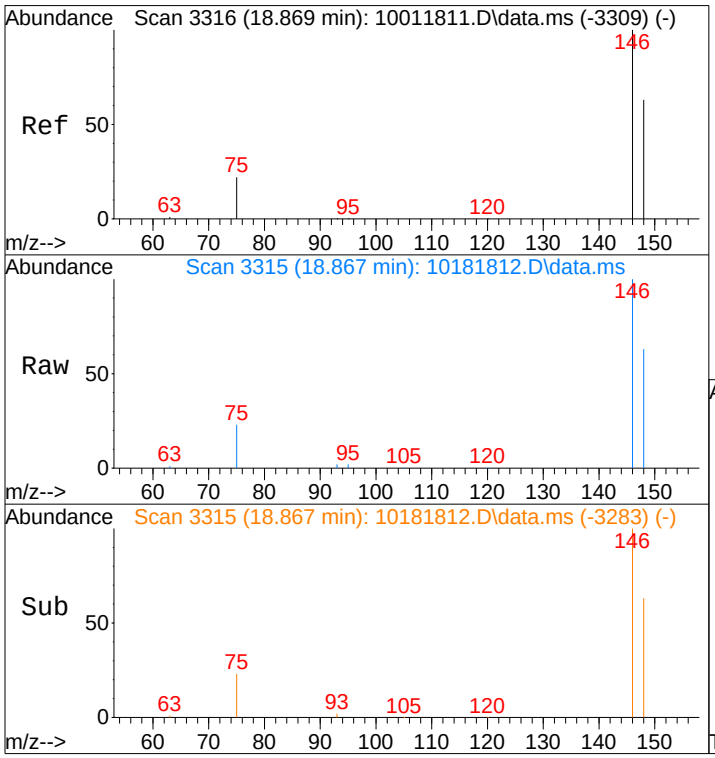


#47
1,2,4-Trimethylbenzene
Concen: 369.14 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:105 Resp: 38912

Ion	Ratio	Lower	Upper
105	100		
120	50.2	47.1	70.7

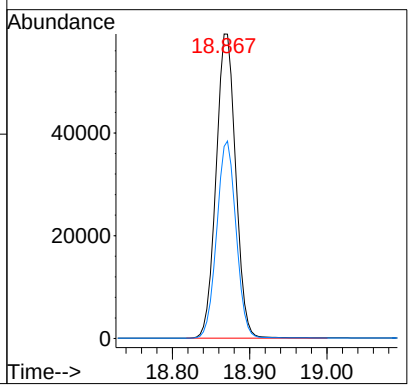


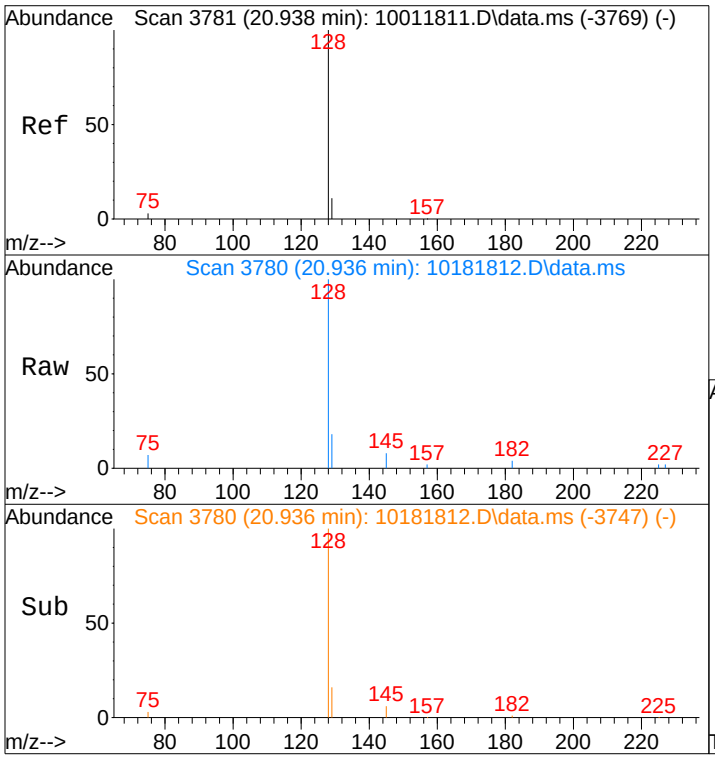


#49
1,4-Dichlorobenzene
Concen: 1509.23 pg
RT: 18.87 min Scan# 3315
Delta R.T. -0.008 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:146 Resp: 104375

Ion	Ratio	Lower	Upper
146	100		
148	63.9	43.8	83.8

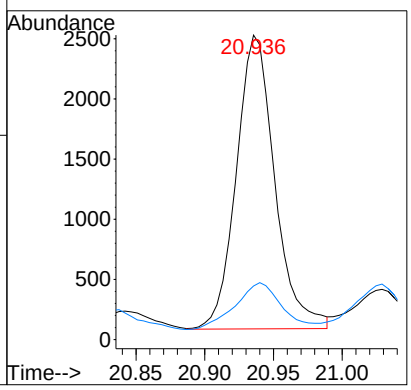




#53
Naphthalene
Concen: 38.61 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10181812.D
Acq: 18 Oct 2018 18:39

Tgt Ion:128 Resp: 4760

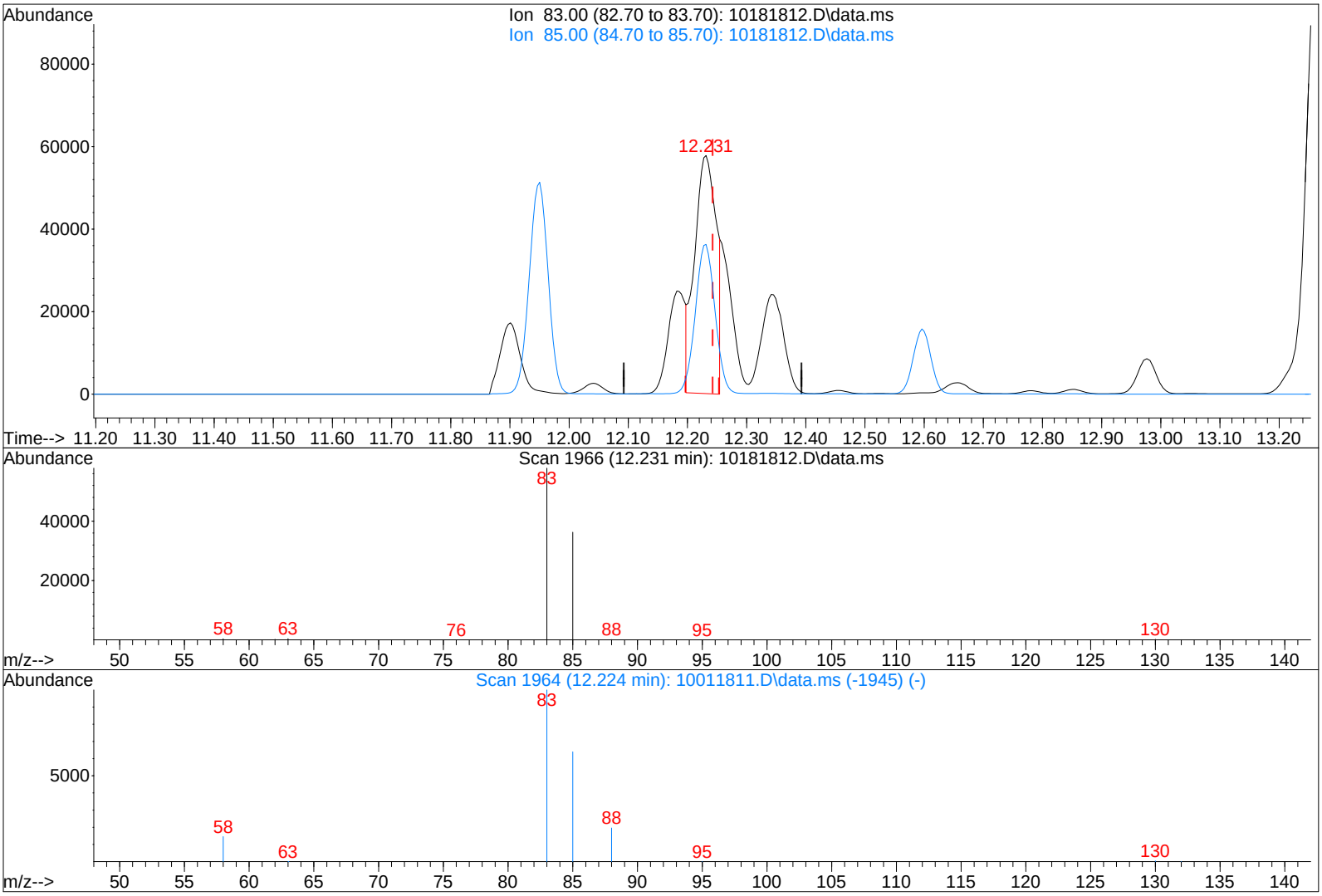
Ion	Ratio	Lower	Upper
128	100		
129	20.9	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181812.D\data.ms

(27) Bromodichloromethane (T)

12.231min (-0.011) 4824.98pg m

response 146208

IPC

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	57.52
0.00	0.00	0.00
0.00	0.00	0.00

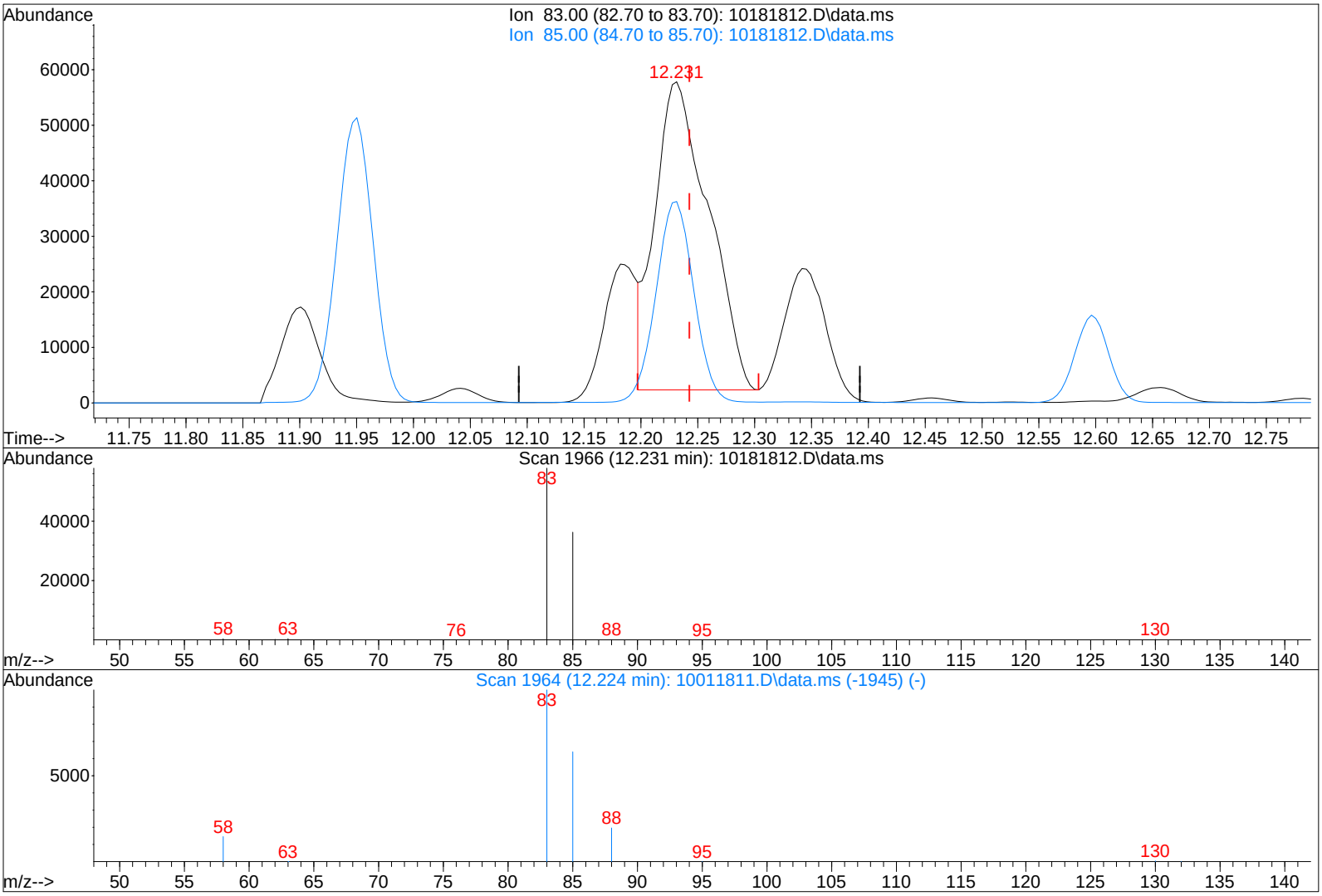
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006RA (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 19 06:24:46 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181812.D\data.ms

(27) Bromodichloromethane (T)

12.231min (-0.011) 5982.15pg

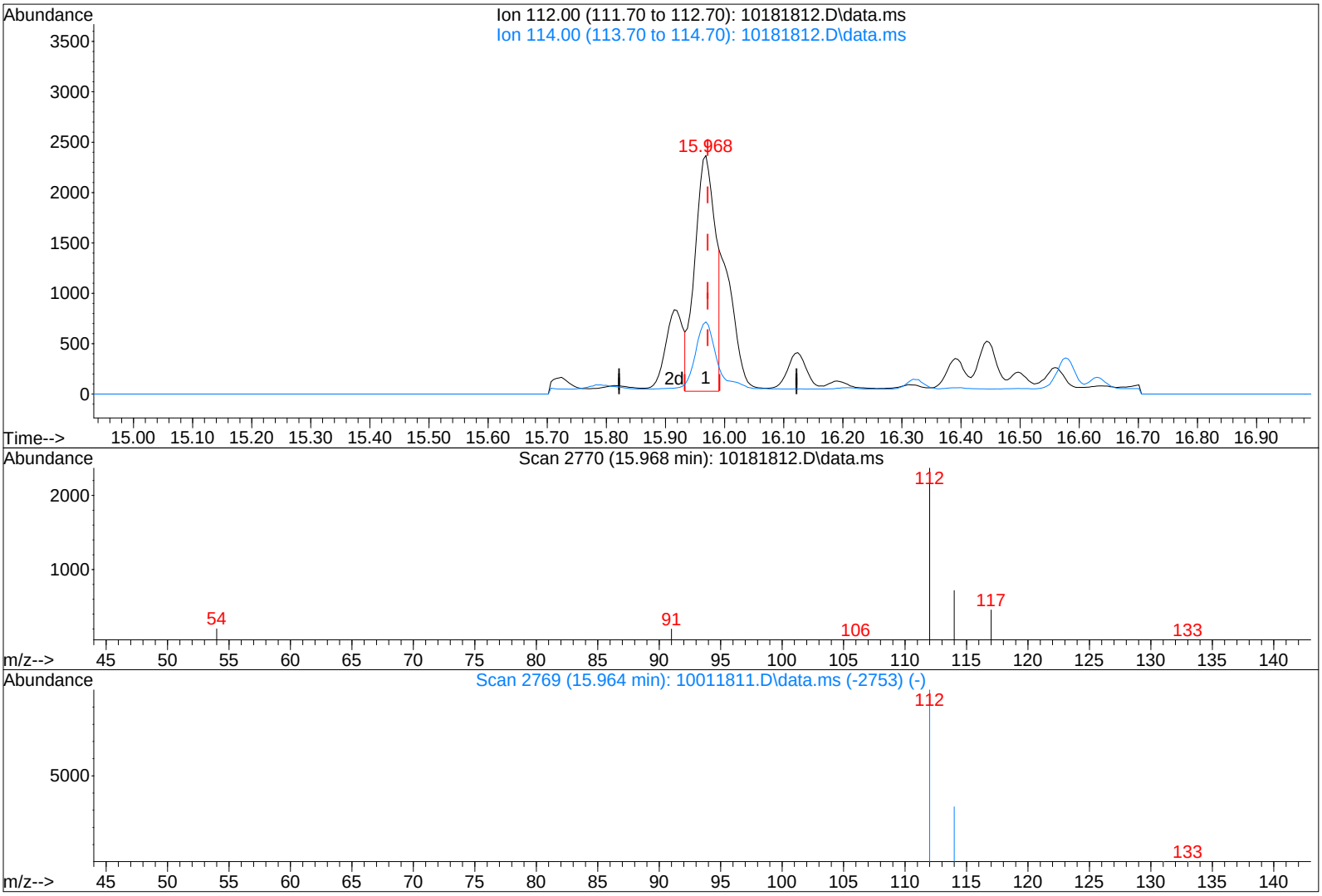
response 181273

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	46.40#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 12:06:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181812.D\data.ms

(39) Chlorobenzene (T)

15.968min (-0.003) 69.19pg m

response 5616

Ion	Exp%	Act%
112.00	100	100
114.00	32.20	29.68
0.00	0.00	0.00
0.00	0.00	0.00

IPC

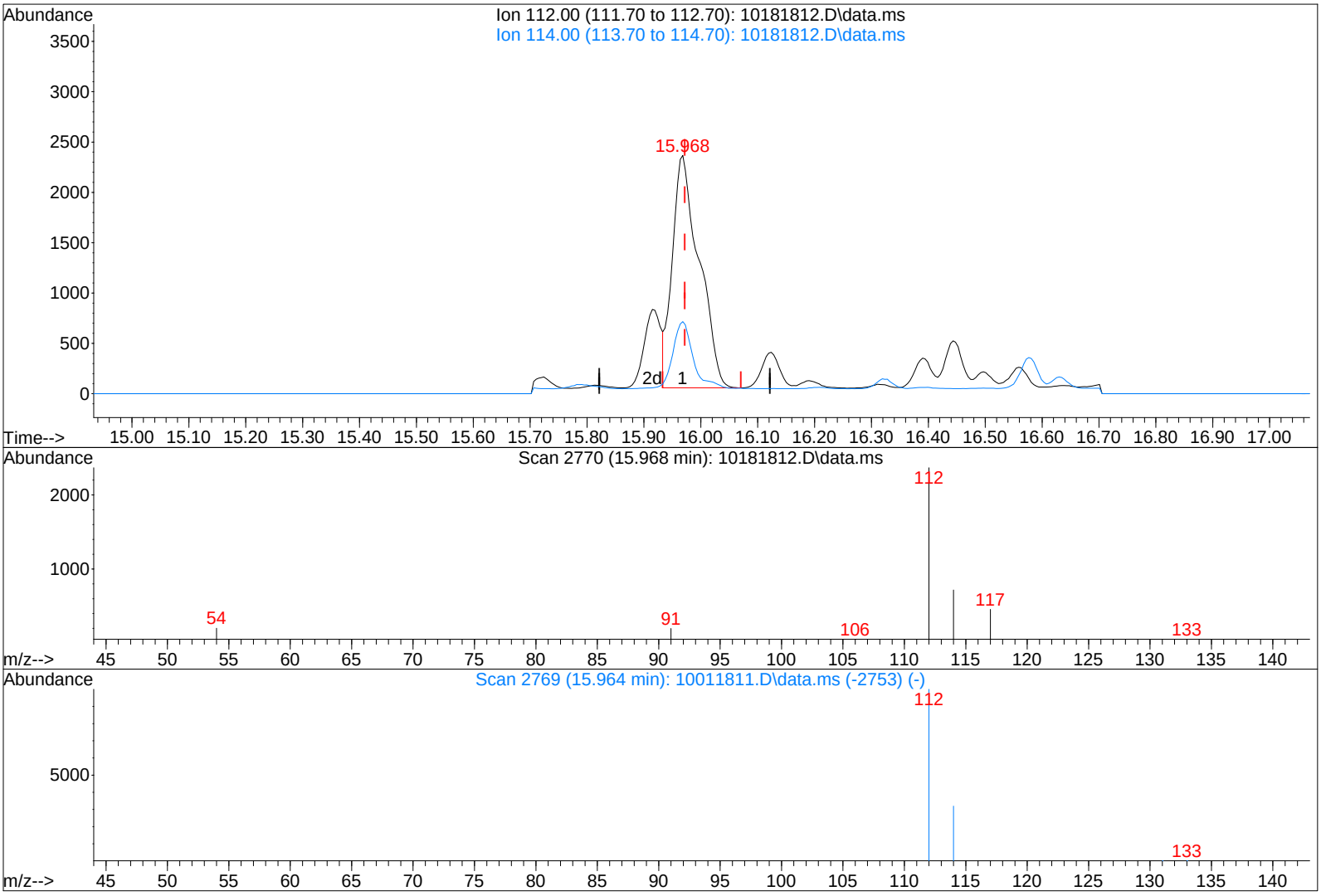
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181812.D Vial: 7
Acq On : 18 Oct 2018 18:39 Operator: WA
Sample : P1805497-006RA (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 19 06:24:46 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181812.D\data.ms

(39) Chlorobenzene (T)

15.968min (-0.003) 92.78pg

response 7530

Ion	Exp%	Act%
112.00	100	100
114.00	32.20	22.14
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171815.D Vial: 8
Acq On : 17 Oct 2018 20:16 Operator: WA
Sample : P1805497-007 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:53:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18053	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82406	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11359	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	20290	938.900	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.89%			
33) Toluene-d8 (SS2)	14.01	98	90918	1069.862	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.99%			
45) Bromofluorobenzene (SS3)	17.43	174	34192	1065.272	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.53%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	48179	1252.492	pg	100
3) Chloromethane	4.53	52	1041	115.735	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1682	60.660	pg	100
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.02	54	487	25.791	pg	94
7) Bromomethane	5.35	94	175	9.973	pg	98
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	6.14	56	673	63.703	pg	98
10) Acetone	6.28	58	15252	1138.733	pg	# 79
11) Trichlorofluoromethane	6.48	101	19232	639.298	pg	100
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.34	84	2750	123.314	pg	95
14) Trichlorotrifluoroethane	7.67	151	4693	222.585	pg	100
15) trans-1,2-Dichloroethene	8.38	96	195	8.804	pg	89
16) 1,1-Dichloroethane	8.58	63	70	N.D.		
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.76	83	2642	70.842	pg	99
21) 1,2-Dichloroethane	10.50	62	587	25.448	pg	98
22) 1,1,1-Trichloroethane	10.78	97	165	5.216	pg	99
23) Benzene	11.23	78	25116	268.070	pg	99
24) Carbon Tetrachloride	11.39	117	6299	218.160	pg	100
26) 1,2-Dichloropropane	12.05	63	76	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	457	17.748	pg	99
29) 1,4-Dioxane	12.27	88	61	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.74	83	68	N.D.		
34) Toluene	14.11	91	57095	606.804	pg	100
35) Dibromochloromethane	14.52	129	57	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	1502	54.247	pg	100
39) Chlorobenzene	15.97	112	104	N.D.		
40) Ethylbenzene	16.35	91	10306	98.413	pg	100
41) m,p-Xylene	16.52	91	25602	319.744	pg	99
42) Styrene	16.89	104	3146	49.466	pg	98
43) o-Xylene	17.00	106	6030	141.652	pg	95
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	2722	30.402	pg	97
47) 1,2,4-Trimethylbenzene	18.66	105	10060	112.633	pg	88
48) 1,3-Dichlorobenzene	18.81	146	103	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	758	12.936	pg	100
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.		
53) Naphthalene	20.94	128	3706	35.474	pg	96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171815.D Vial: 8
Acq On : 17 Oct 2018 20:16 Operator: WA
Sample : P1805497-007 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:53:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

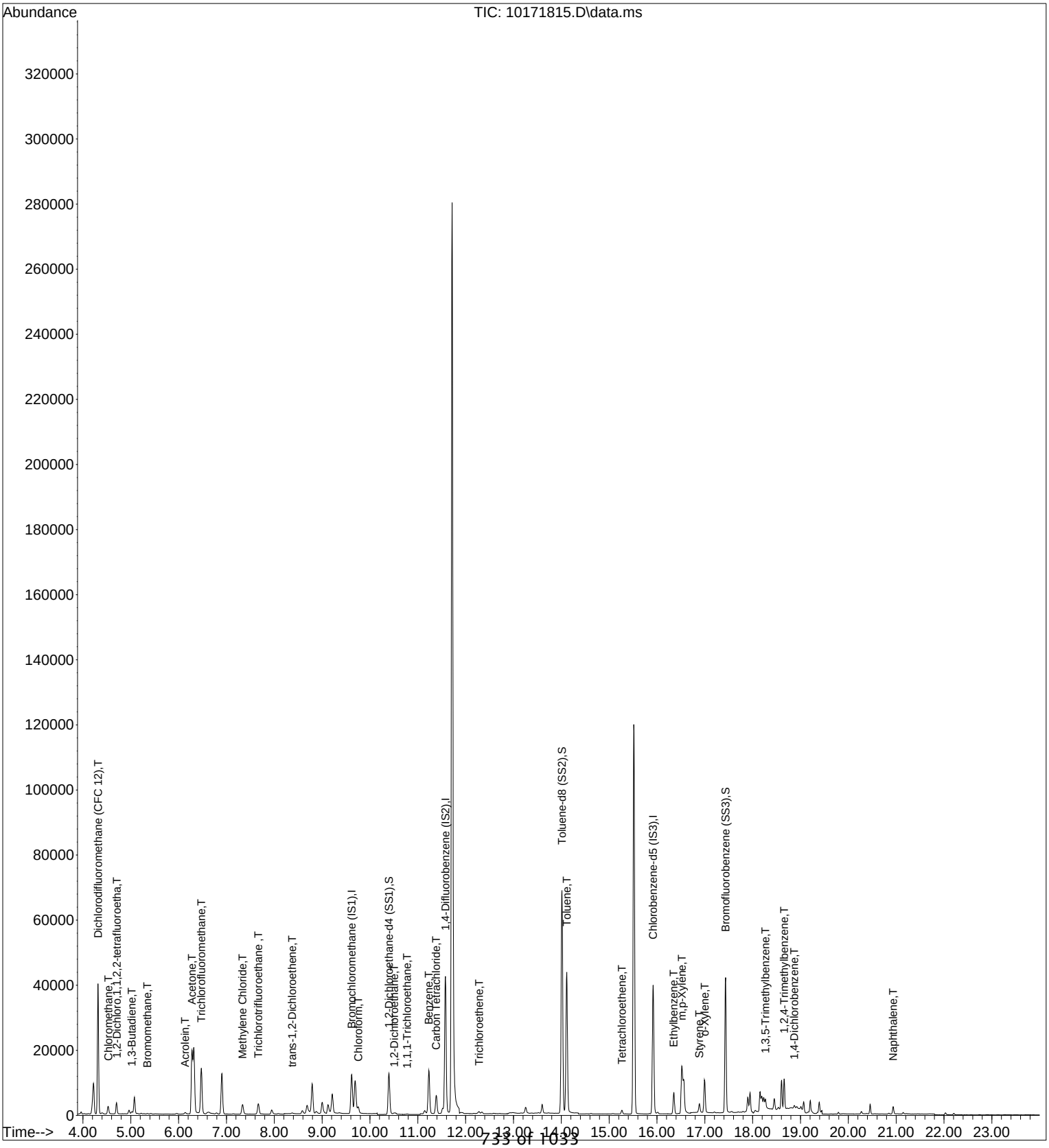
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171815.D Vial: 8
Acq On : 17 Oct 2018 20:16 Operator: WA
Sample : P1805497-007 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:53:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171815.D Vial: 8
Acq On : 17 Oct 2018 20:16 Operator: WA
Sample : P1805497-007 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:53:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

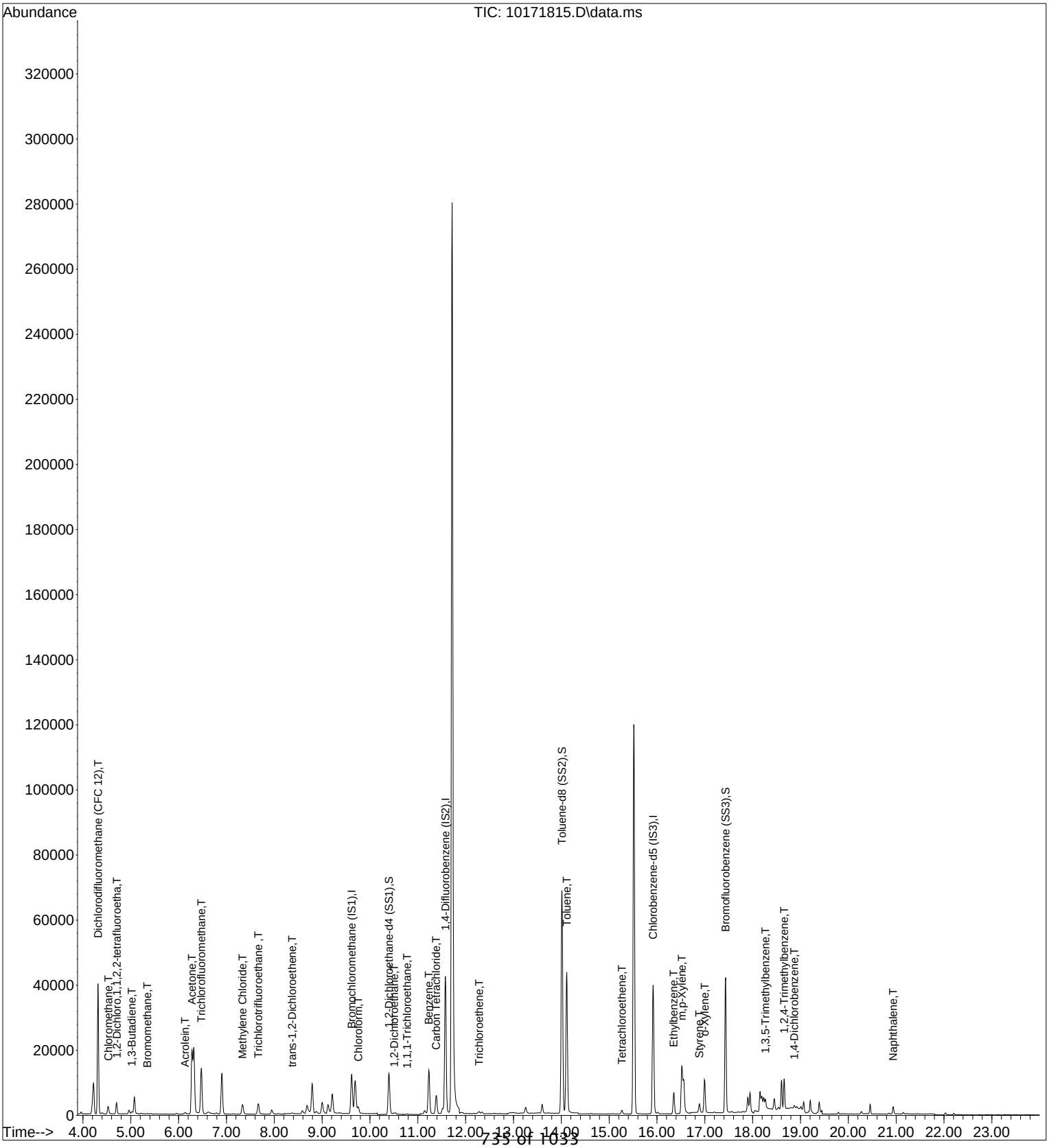
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18053	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82406	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11359	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	20290	938.900	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.89%			
33) Toluene-d8 (SS2)	14.01	98	90918	1069.862	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.99%			
45) Bromofluorobenzene (SS3)	17.43	174	34192	1065.272	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.53%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	48179	1252.492	pg	100
3) Chloromethane	4.53	52	1041	115.735	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1682	60.660	pg	100
6) 1,3-Butadiene	5.02	54	487	25.791	pg	94
7) Bromomethane	5.35	94	175	9.973	pg	98
9) Acrolein	6.14	56	673	63.703	pg	98
10) Acetone	6.28	58	15252	1138.733	pg	# 79
11) Trichlorofluoromethane	6.48	101	19232	639.298	pg	100
13) Methylene Chloride	7.34	84	2750	123.314	pg	95
14) Trichlorotrifluoroethane	7.67	151	4693	222.585	pg	100
15) trans-1,2-Dichloroethene	8.38	96	195	8.804	pg	89
19) Chloroform	9.76	83	2642	70.842	pg	99
21) 1,2-Dichloroethane	10.50	62	587	25.448	pg	98
22) 1,1,1-Trichloroethane	10.78	97	165	5.216	pg	99
23) Benzene	11.23	78	25116	268.070	pg	99
24) Carbon Tetrachloride	11.39	117	6299	218.160	pg	100
28) Trichloroethene	12.28	130	457	17.748	pg	99
34) Toluene	14.11	91	57095	606.804	pg	100
37) Tetrachloroethene	15.27	166	1502	54.247	pg	100
40) Ethylbenzene	16.35	91	10306	98.413	pg	100
41) m,p-Xylene	16.52	91	25602	319.744	pg	99
42) Styrene	16.89	104	3146	49.466	pg	98
43) o-Xylene	17.00	106	6030	141.652	pg	95
46) 1,3,5-Trimethylbenzene	18.27	105	2722	30.402	pg	97
47) 1,2,4-Trimethylbenzene	18.66	105	10060	112.633	pg	88
49) 1,4-Dichlorobenzene	18.87	146	758	12.936	pg	100
53) Naphthalene	20.94	128	3706	35.474	pg	96

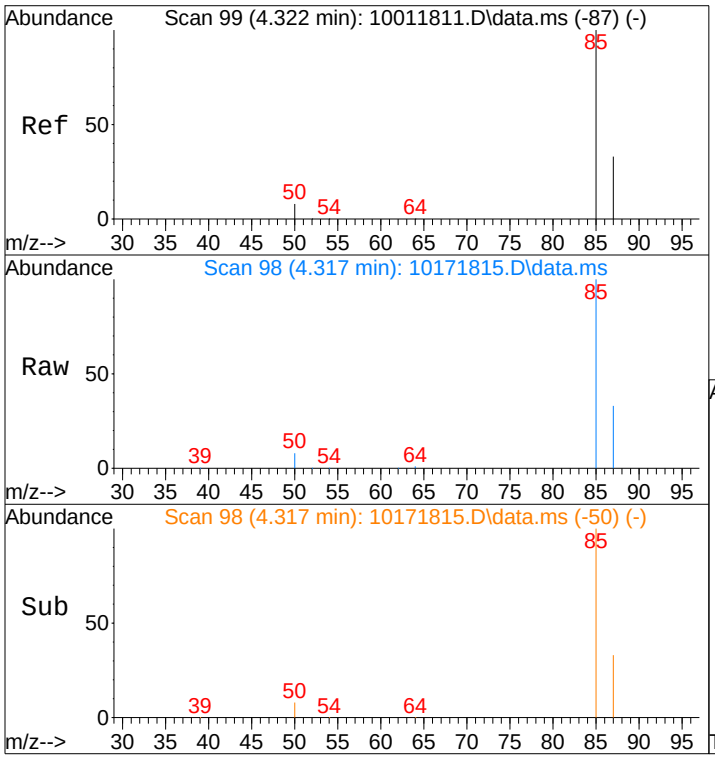
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171815.D Vial: 8
Acq On : 17 Oct 2018 20:16 Operator: WA
Sample : P1805497-007 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:53:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

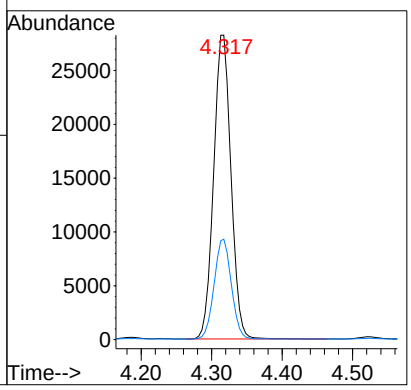


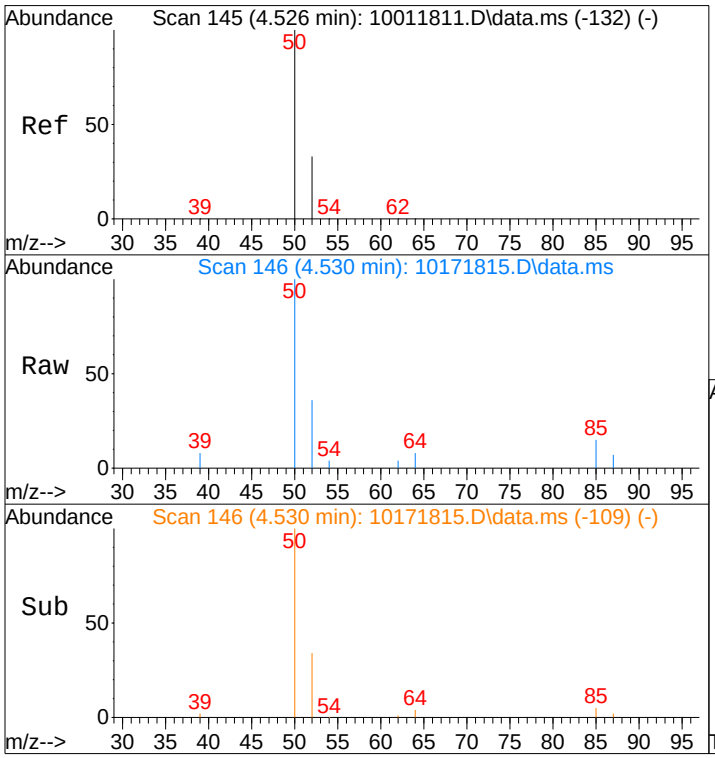


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1252.49 pg
RT: 4.32 min Scan# 98
Delta R.T. 0.013 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 85 Resp: 48179

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

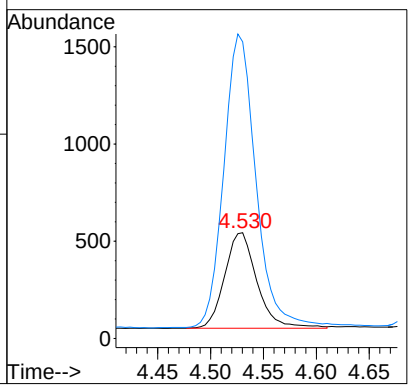


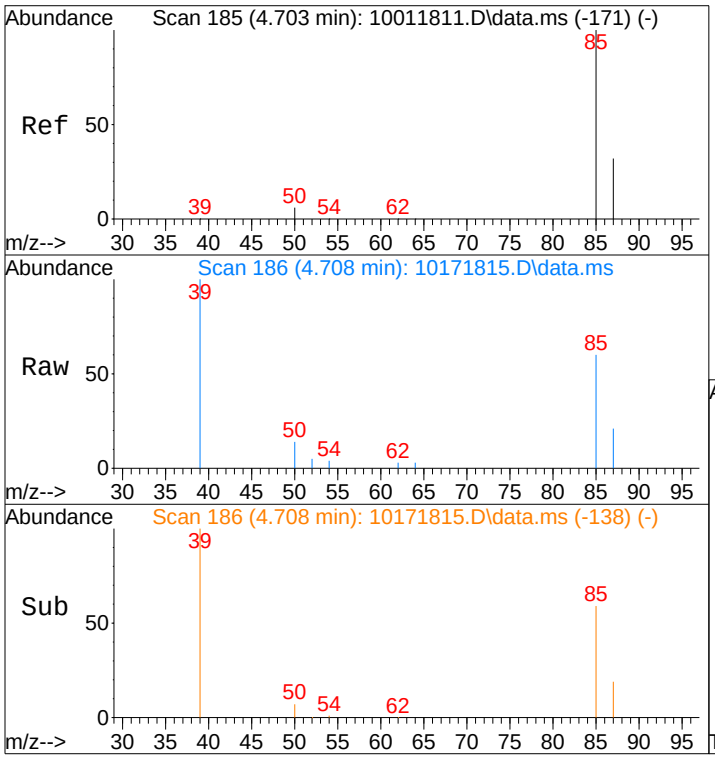


#3
Chloromethane
Concen: 115.74 pg
RT: 4.53 min Scan# 146
Delta R.T. 0.013 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 52 Resp: 1041

Ion	Ratio	Lower	Upper
52	100		
50	308.2	281.8	321.8

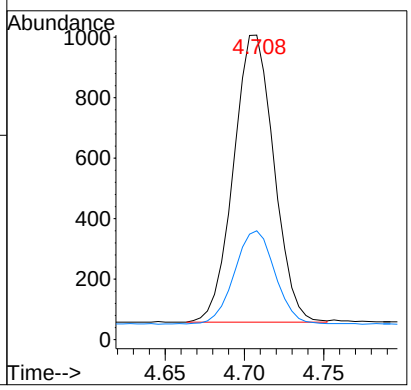


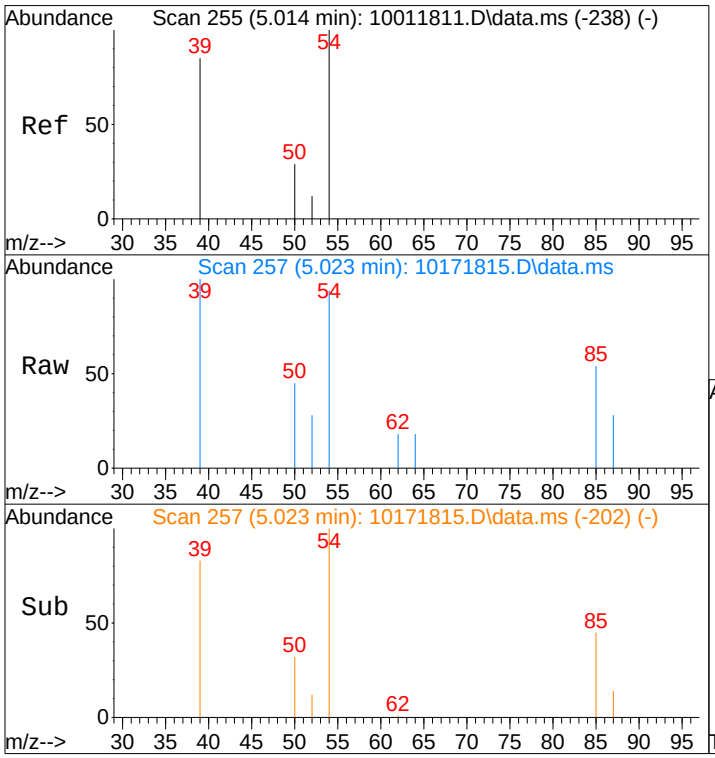


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 60.66 pg
RT: 4.71 min Scan# 186
Delta R.T. 0.014 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 85 Resp: 1682

Ion	Ratio	Lower	Upper
85	100		
87	32.5	26.0	39.0

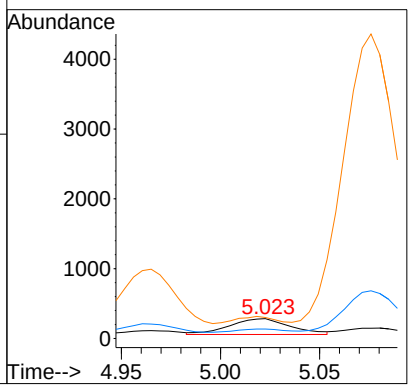


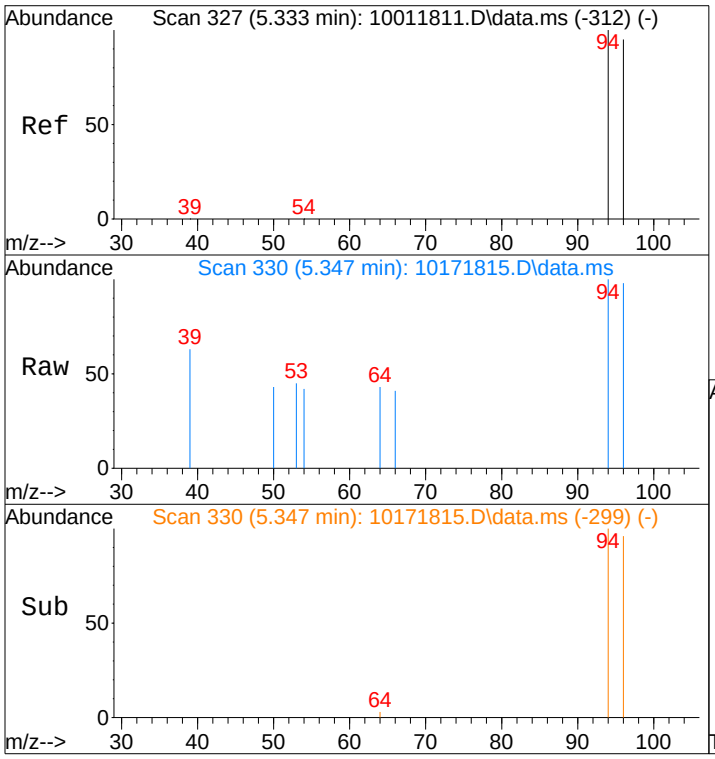


#6
1,3-Butadiene
Concen: 25.79 pg
RT: 5.02 min Scan# 257
Delta R.T. 0.013 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 54 Resp: 487

Ion	Ratio	Lower	Upper
54	100		
50	30.6	23.6	35.4
39	80.1	69.9	104.9

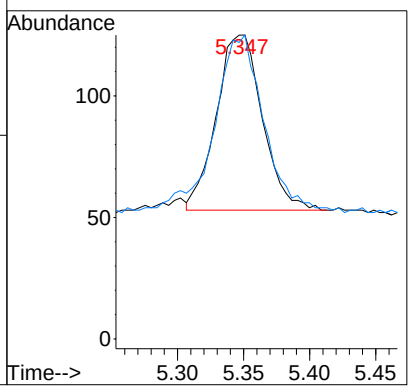


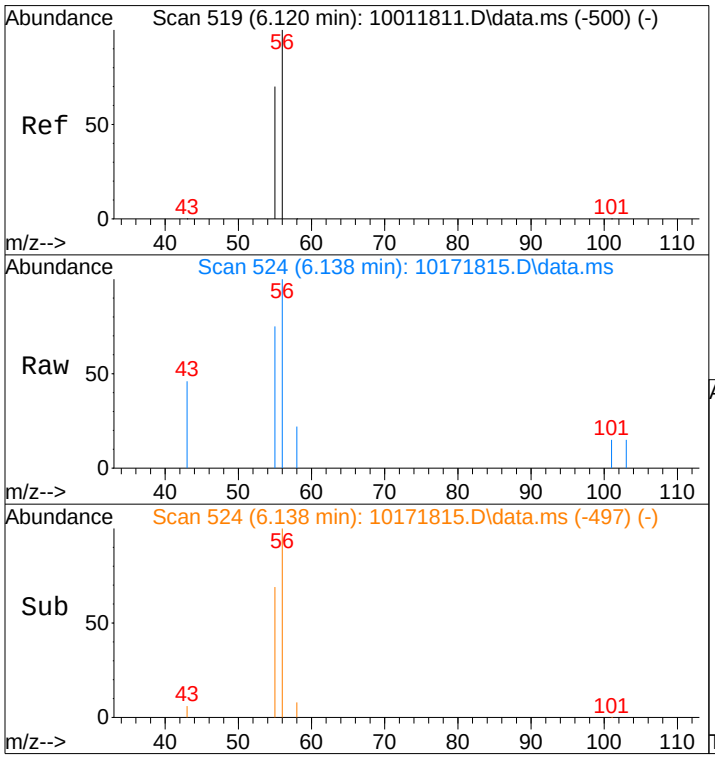


#7
Bromomethane
Concen: 9.97 pg
RT: 5.35 min Scan# 330
Delta R.T. 0.009 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 94 Resp: 175

Ion	Ratio	Lower	Upper
94	100		
96	96.6	75.7	113.5

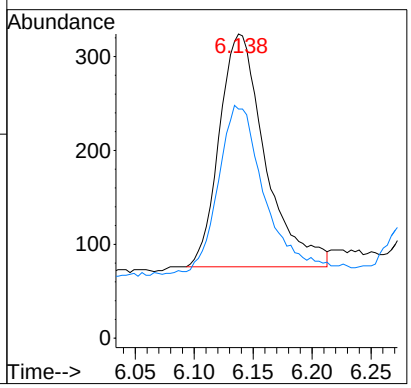


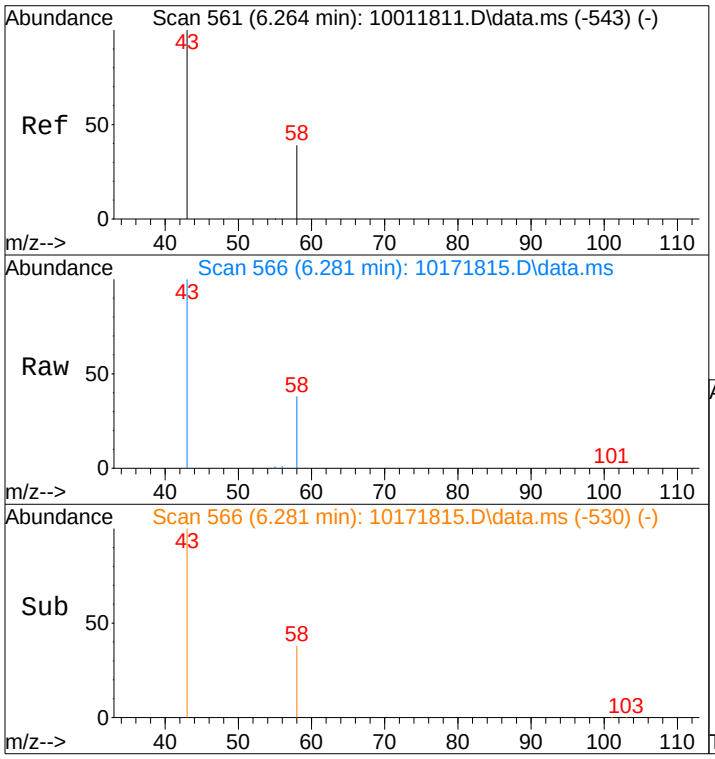


#9
Acrolein
Concen: 63.70 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 56 Resp: 673

Ion	Ratio	Lower	Upper
56	100		
55	70.7	55.3	82.9

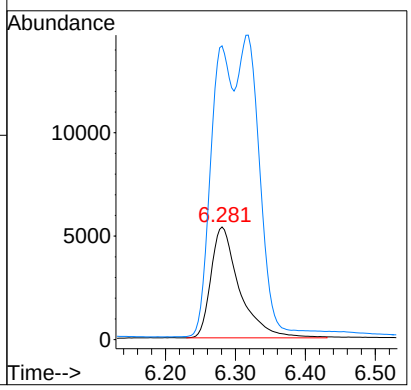


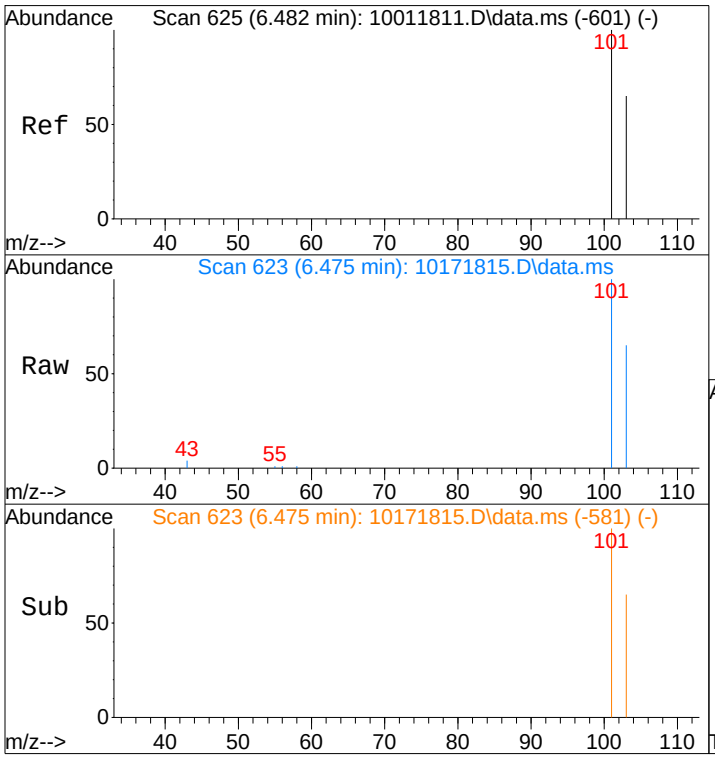


#10
Acetone
Concen: 1138.73 pg
RT: 6.28 min Scan# 566
Delta R.T. -0.027 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 58 Resp: 15252

Ion	Ratio	Lower	Upper
58	100		
43	217.7	234.7	274.7#

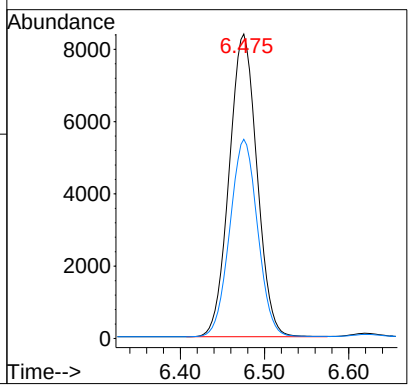


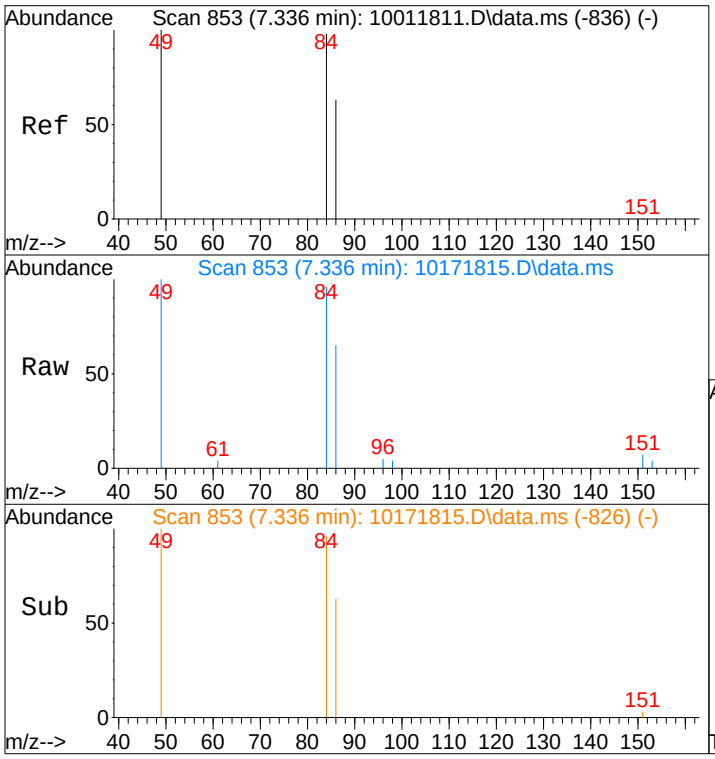


#11
Trichlorofluoromethane
Concen: 639.30 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:101 Resp: 19232

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

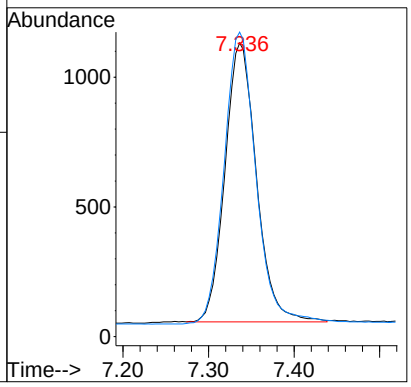


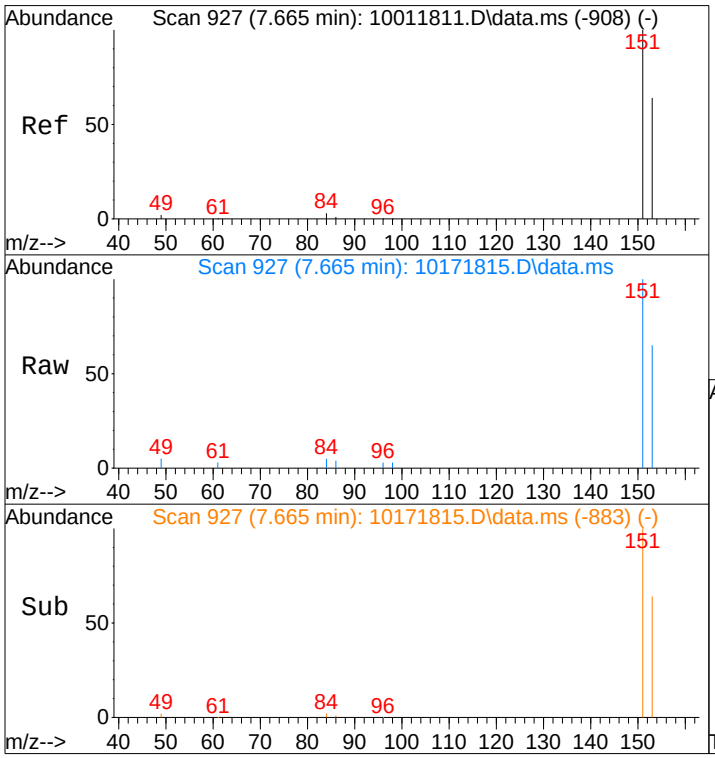


#13
Methylene Chloride
Concen: 123.31 pg
RT: 7.34 min Scan# 853
Delta R.T. -0.040 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 84 Resp: 2750

Ion	Ratio	Lower	Upper
84	100		
49	108.0	83.3	123.3

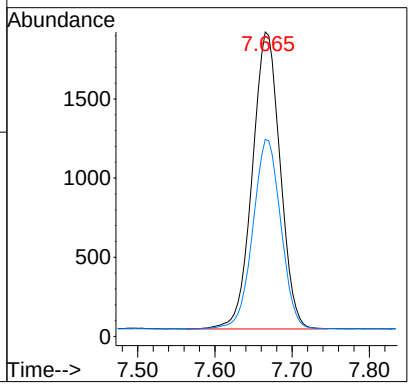


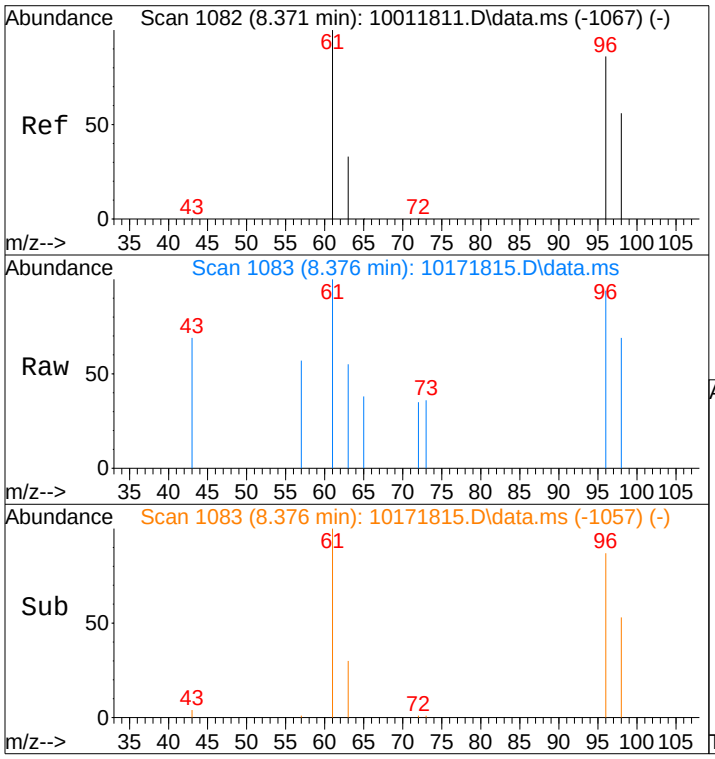


#14
Trichlorotrifluoroethane
Concen: 222.59 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:151 Resp: 4693

Ion	Ratio	Lower	Upper
151	100		
153	64.0	44.3	84.3

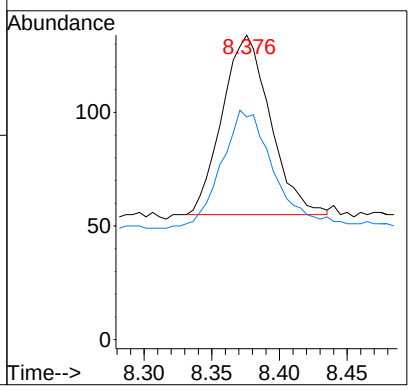


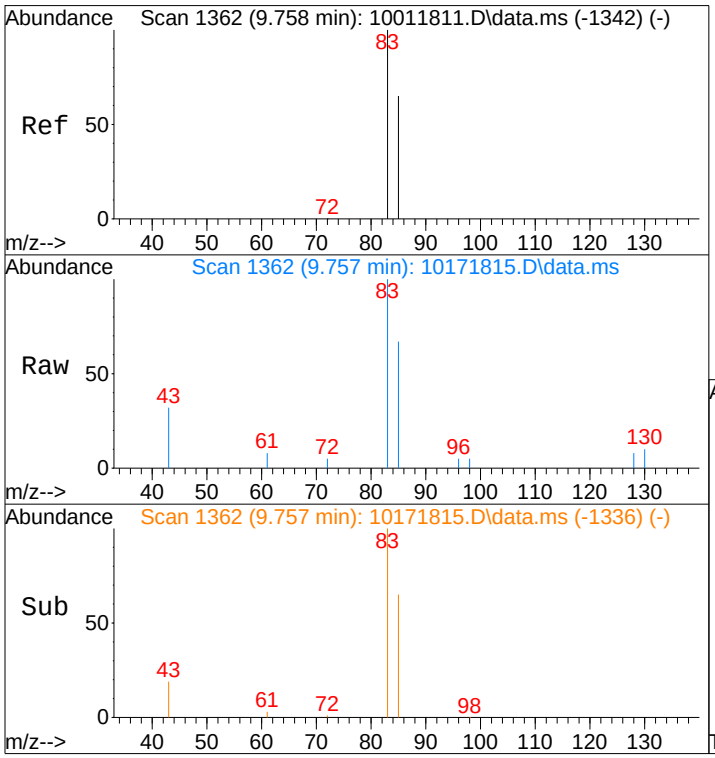


#15
trans-1,2-Dichloroethene
Concen: 8.80 pg
RT: 8.38 min Scan# 1083
Delta R.T. -0.020 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 96 Resp: 195

Ion	Ratio	Lower	Upper
96	100		
98	72.8	44.1	84.1

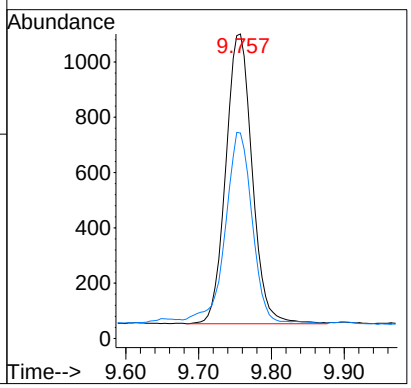


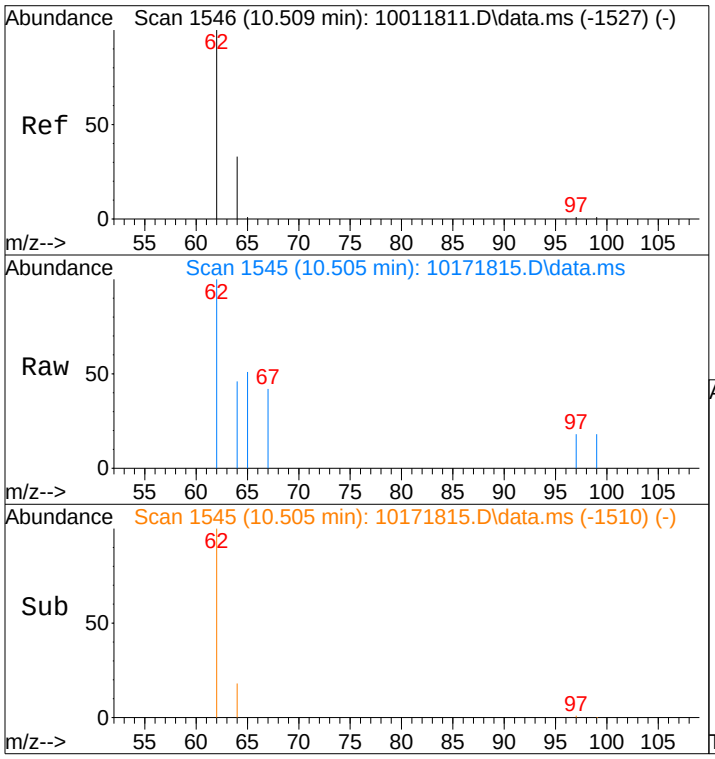


#19
Chloroform
Concen: 70.84 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.040 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 83 Resp: 2642

Ion	Ratio	Lower	Upper
83	100		
85	65.1	46.0	86.0

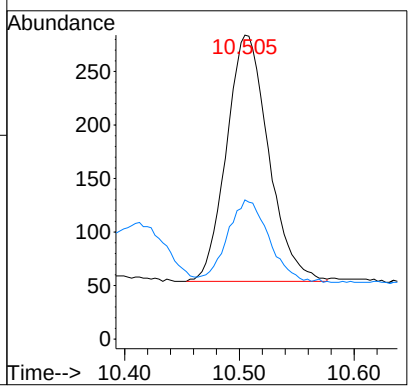


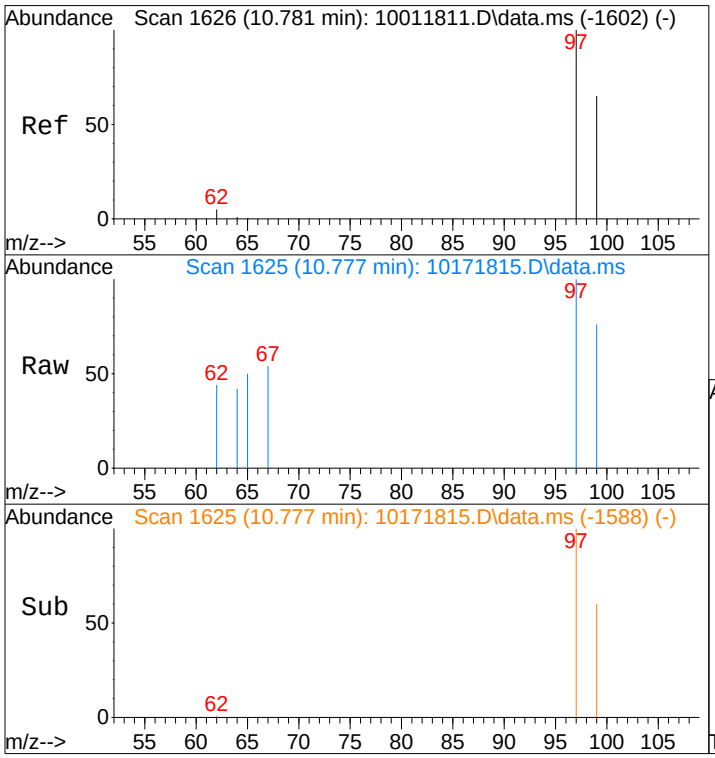


#21
1,2-Dichloroethane
Concen: 25.45 pg
RT: 10.50 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 62 Resp: 587

Ion	Ratio	Lower	Upper
62	100		
64	32.0	12.9	52.9

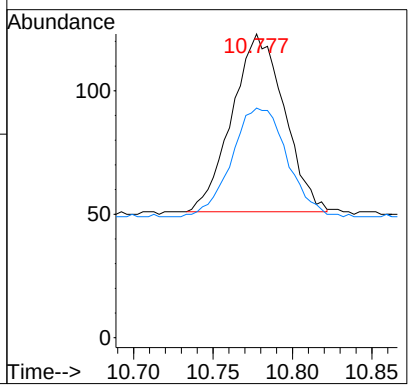


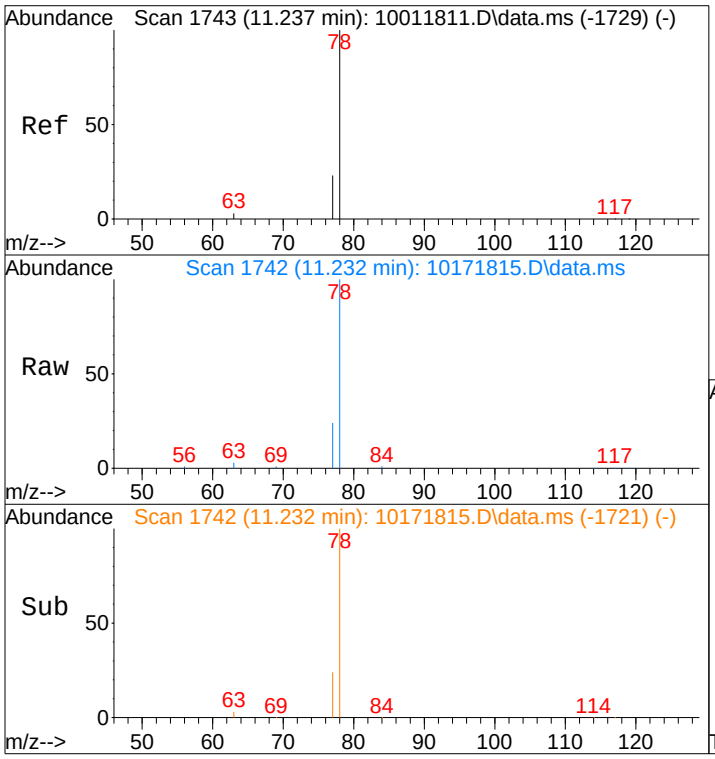


#22
1,1,1-Trichloroethane
Concen: 5.22 pg
RT: 10.78 min Scan# 1625
Delta R.T. -0.024 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 97 Resp: 165

Ion	Ratio	Lower	Upper
97	100		
99	64.2	44.9	84.9

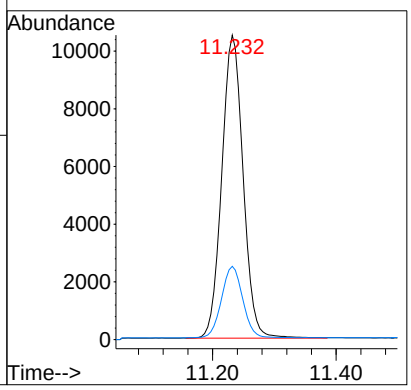


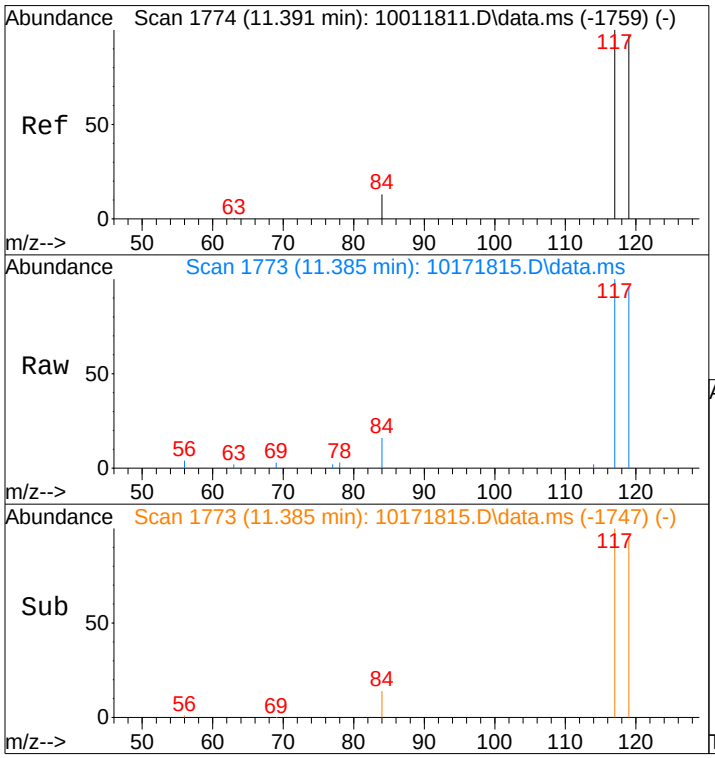


#23
Benzene
Concen: 268.07 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.025 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 78 Resp: 25116

Ion	Ratio	Lower	Upper
78	100		
77	23.7	3.3	43.3

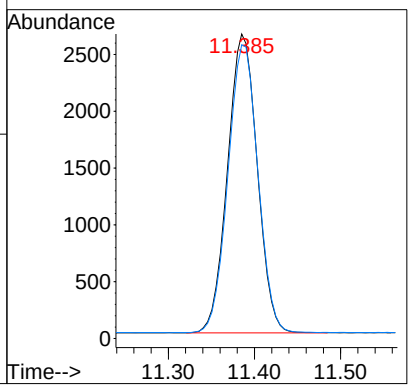


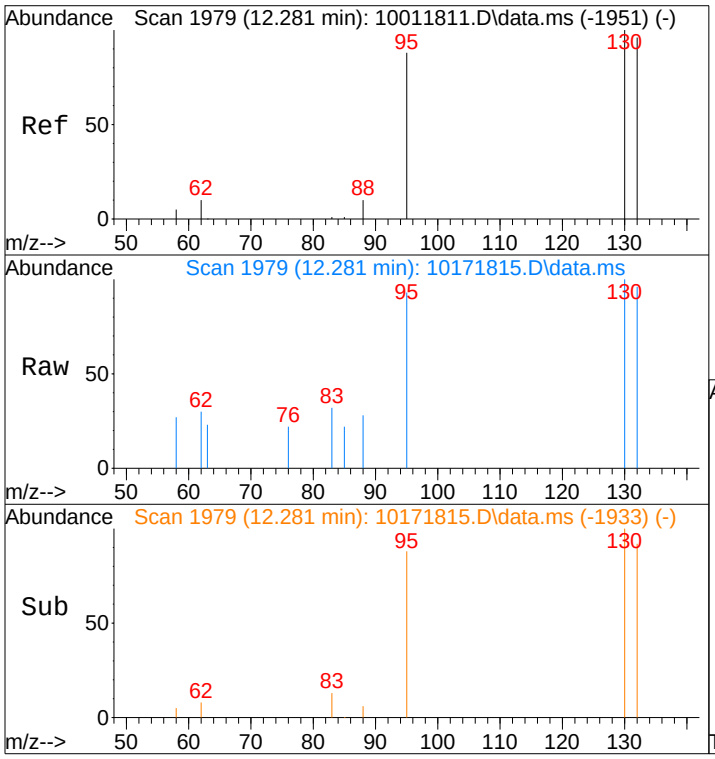


#24
Carbon Tetrachloride
Concen: 218.16 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.020 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:117 Resp: 6299

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

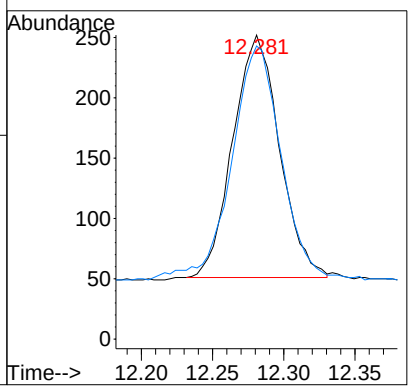


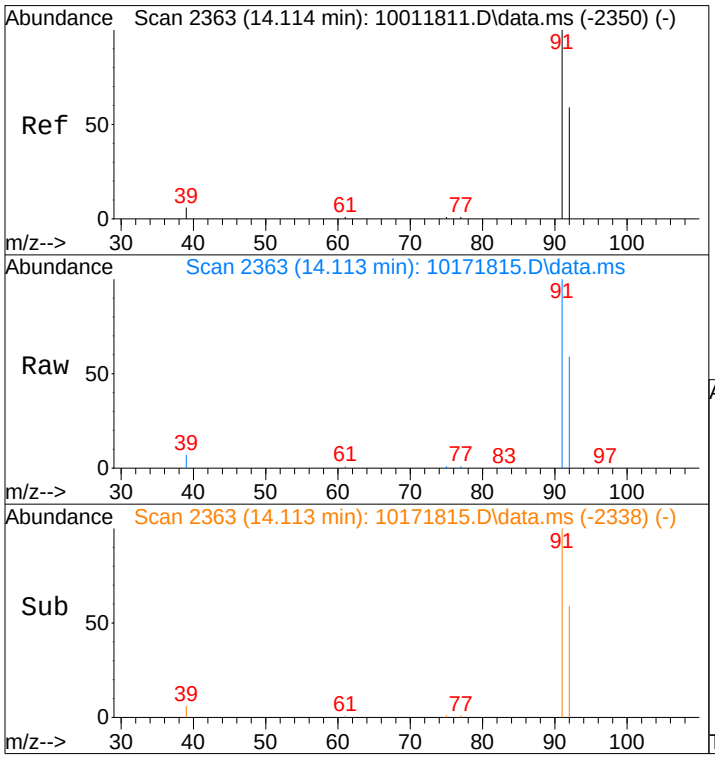


#28
Trichloroethene
Concen: 17.75 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.015 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:130 Resp: 457

Ion	Ratio	Lower	Upper
130	100		
132	95.0	75.6	115.6

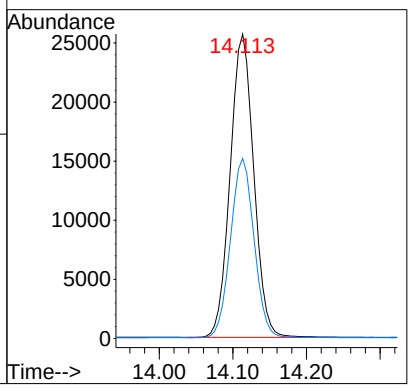


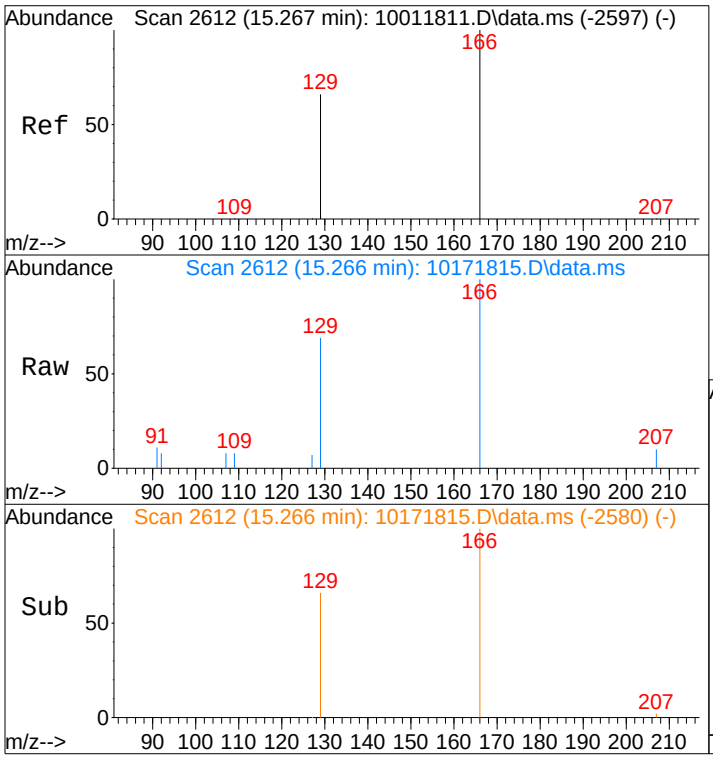


#34
Toluene
Concen: 606.80 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 91 Resp: 57095

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

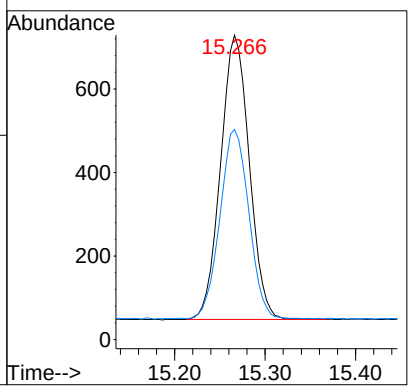


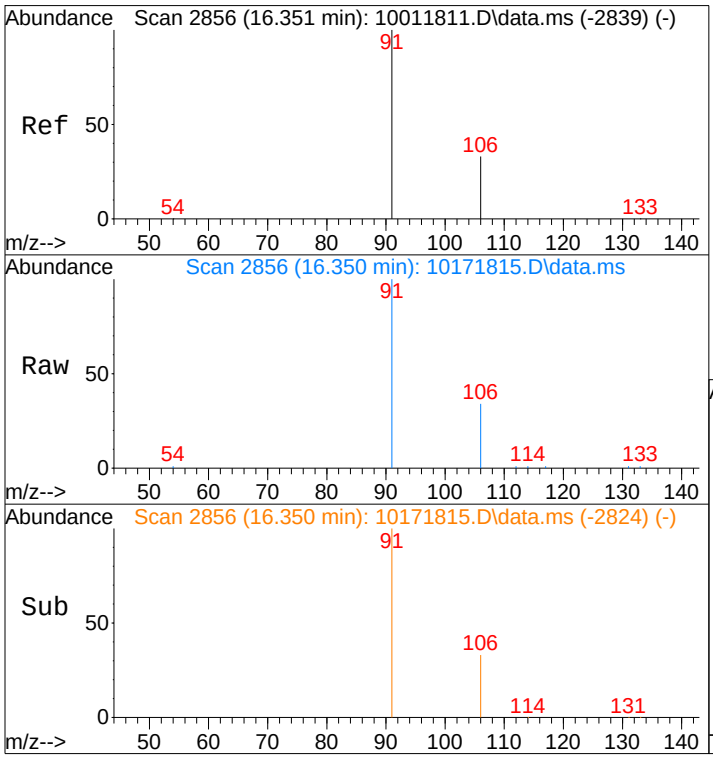


#37
Tetrachloroethene
Concen: 54.25 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:166 Resp: 1502

Ion	Ratio	Lower	Upper
166	100		
129	66.8	46.7	86.7

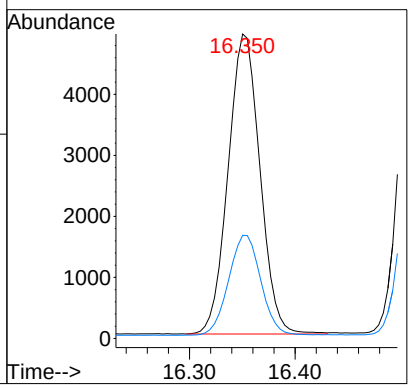


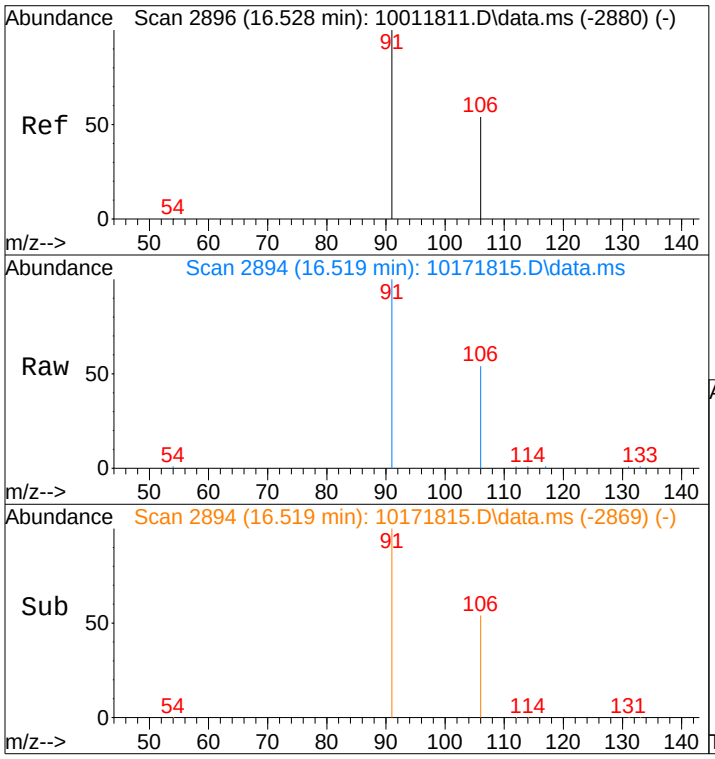


#40
Ethylbenzene
Concen: 98.41 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 91 Resp: 10306

Ion	Ratio	Lower	Upper
91	100		
106	33.9	13.7	53.7

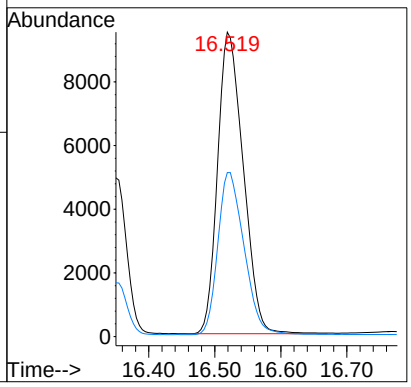


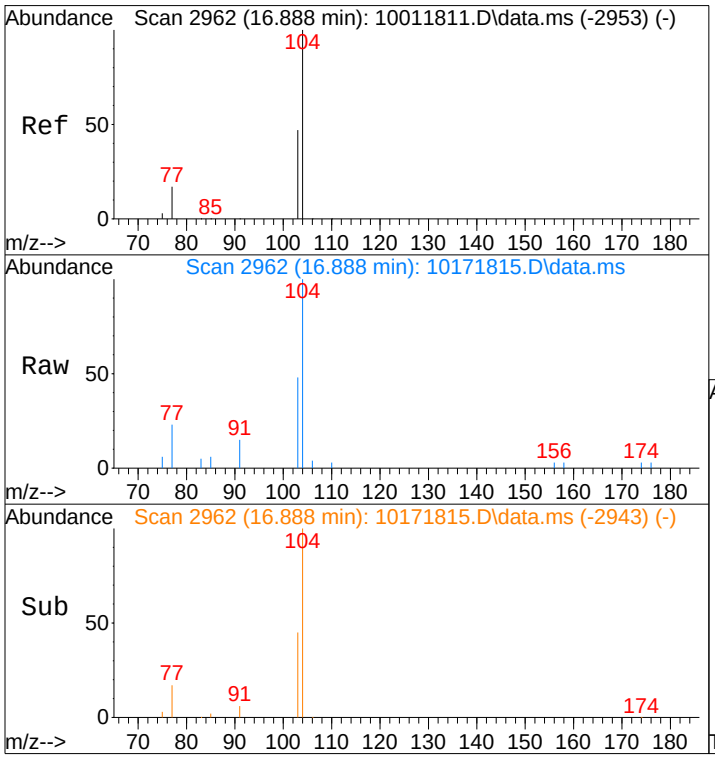


#41
m,p-Xylene
Concen: 319.74 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion: 91 Resp: 25602

Ion	Ratio	Lower	Upper
91	100		
106	54.9	34.3	74.3

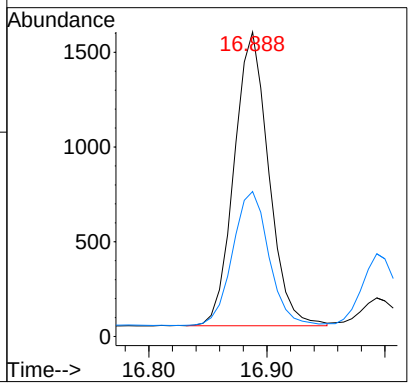


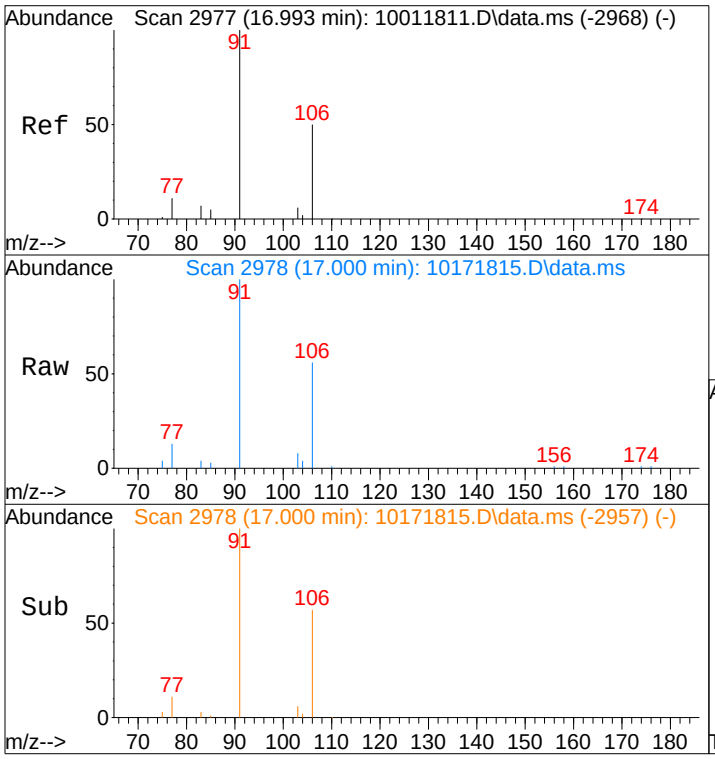


#42
Styrene
Concen: 49.47 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:104 Resp: 3146

Ion	Ratio	Lower	Upper
104	100		
103	48.1	37.7	56.5

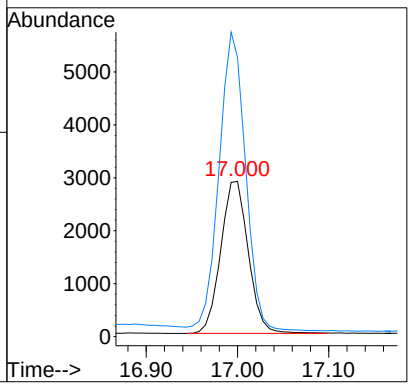


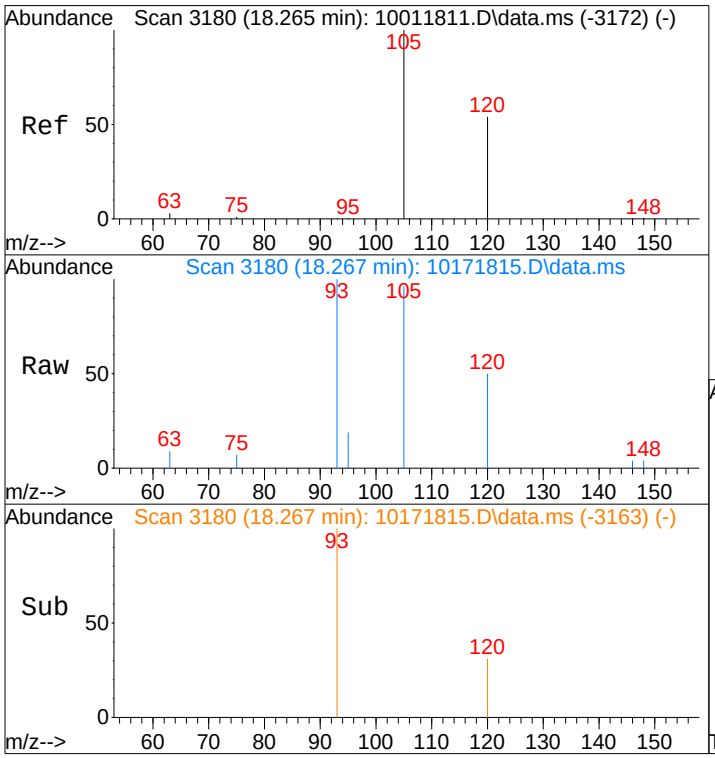


#43
o-Xylene
Concen: 141.65 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:106 Resp: 6030

Ion	Ratio	Lower	Upper
106	100		
91	188.9	175.6	215.6

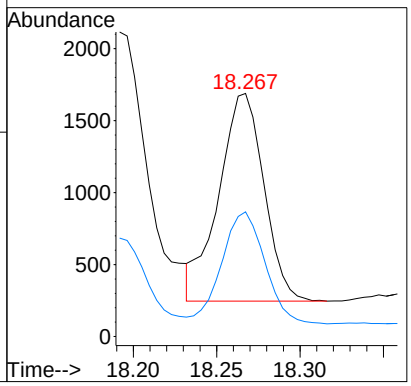


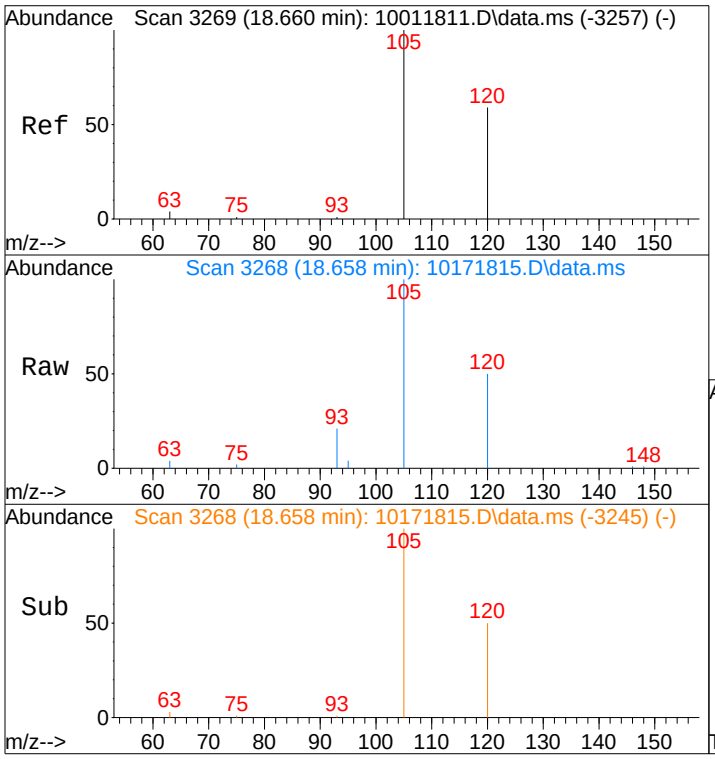


#46
1,3,5-Trimethylbenzene
Concen: 30.40 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.003 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:105 Resp: 2722

Ion	Ratio	Lower	Upper
105	100		
120	51.7	42.8	64.2

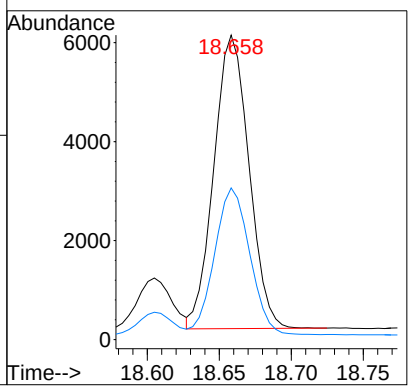


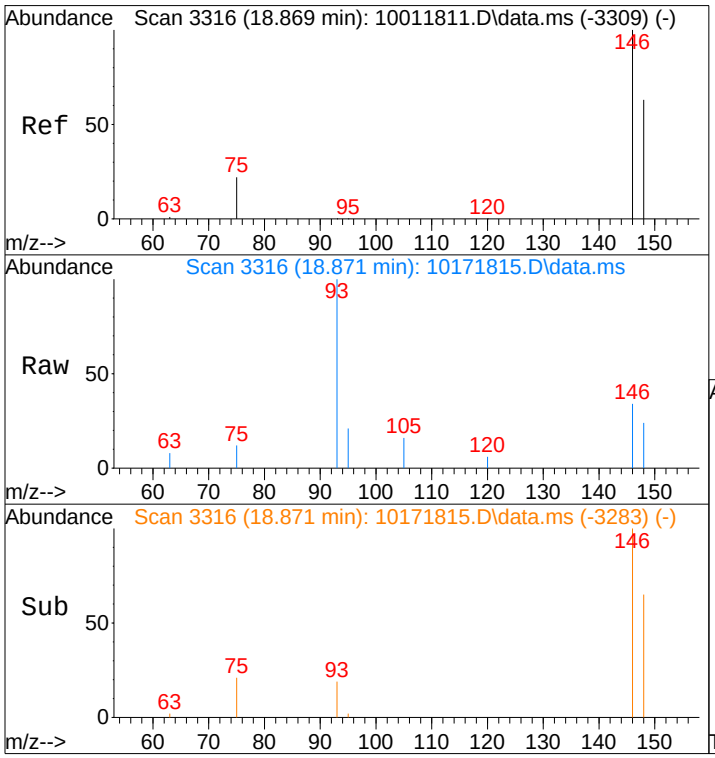


#47
1,2,4-Trimethylbenzene
Concen: 112.63 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:105 Resp: 10060

Ion	Ratio	Lower	Upper
105	100		
120	50.0	47.1	70.7

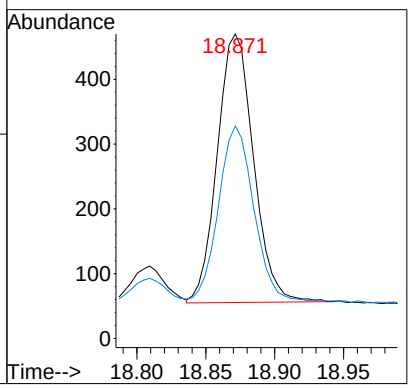


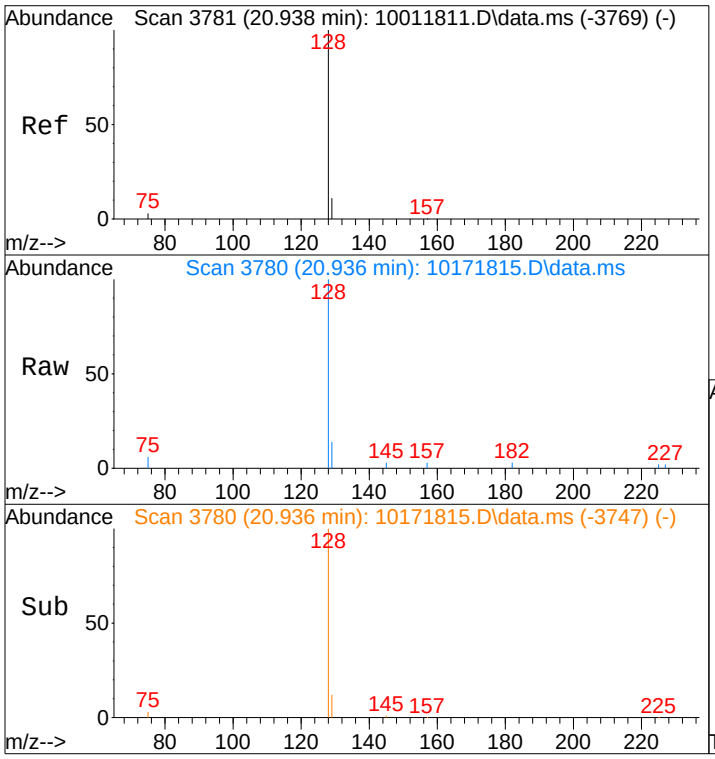


#49
1,4-Dichlorobenzene
Concen: 12.94 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.003 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:146 Resp: 758

Ion	Ratio	Lower	Upper
146	100		
148	63.6	43.8	83.8

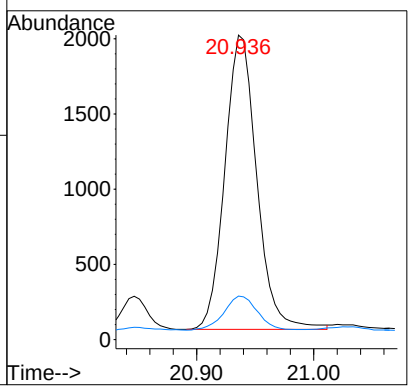




#53
Naphthalene
Concen: 35.47 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10171815.D
Acq: 17 Oct 2018 20:16

Tgt Ion:128 Resp: 3706

Ion	Ratio	Lower	Upper
128	100		
129	12.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171816.D Vial: 9
Acq On : 17 Oct 2018 20:47 Operator: WA
Sample : P1805497-008 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:54:39 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19472	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	88075	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	12086	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21620	927.538	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.75%				
33) Toluene-d8 (SS2)	14.01	98	96593	1063.481	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.35%				
45) Bromofluorobenzene (SS3)	17.43	174	37063	1085.260	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.53%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	50218	1210.362	pg		100
3) Chloromethane	4.53	52	1275	131.421	pg		99
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1719	57.476	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.02	54	622	30.539	pg		93
7) Bromomethane	5.35	94	196	10.355	pg		93
8) Chloroethane	5.57	64	52	N.D.			
9) Acrolein	6.13	56	919	80.648	pg		99
10) Acetone	6.28	58	28306	1959.352	pg	#	52
11) Trichlorofluoromethane	6.48	101	20008	616.626	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	2913	121.104	pg		96
14) Trichlorotrifluoroethane	7.67	151	4804	211.246	pg		100
15) trans-1,2-Dichloroethene	8.38	96	244	10.213	pg		98
16) 1,1-Dichloroethane	8.58	63	51	N.D.			
17) Methyl tert-Butyl Ether	8.60	73	197	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	2549	63.368	pg		99
21) 1,2-Dichloroethane	10.51	62	674	27.090	pg		98
22) 1,1,1-Trichloroethane	10.78	97	188	5.510	pg		100
23) Benzene	11.23	78	29302	289.957	pg		99
24) Carbon Tetrachloride	11.39	117	7041	226.088	pg		100
26) 1,2-Dichloropropane	0.00	63	0	N.D.	d		
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	577	20.967	pg		98
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	13.81	83	72	N.D.			
34) Toluene	14.11	91	70193	697.992	pg		100
35) Dibromochloromethane	14.52	129	94	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	1582	53.458	pg		99
39) Chlorobenzene	15.96	112	213	N.D.			
40) Ethylbenzene	16.35	91	13361	119.911	pg		100
41) m,p-Xylene	16.52	91	36764	431.528	pg		99
42) Styrene	16.89	104	2779	41.067	pg		97
43) o-Xylene	16.99	106	7520	166.027	pg		96
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.26	105	4223	44.330	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	15353	161.554	pg		88
48) 1,3-Dichlorobenzene	18.80	146	70	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	795	12.751	pg		99
50) 1,2-Dichlorobenzene	19.20	146	66	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	65	N.D.			
53) Naphthalene	20.94	128	13533	121.746	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171816.D Vial: 9
Acq On : 17 Oct 2018 20:47 Operator: WA
Sample : P1805497-008 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:54:39 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	55	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171816.D Vial: 9
Acq On : 17 Oct 2018 20:47 Operator: WA
Sample : P1805497-008 (1000mL) Inst : MS19
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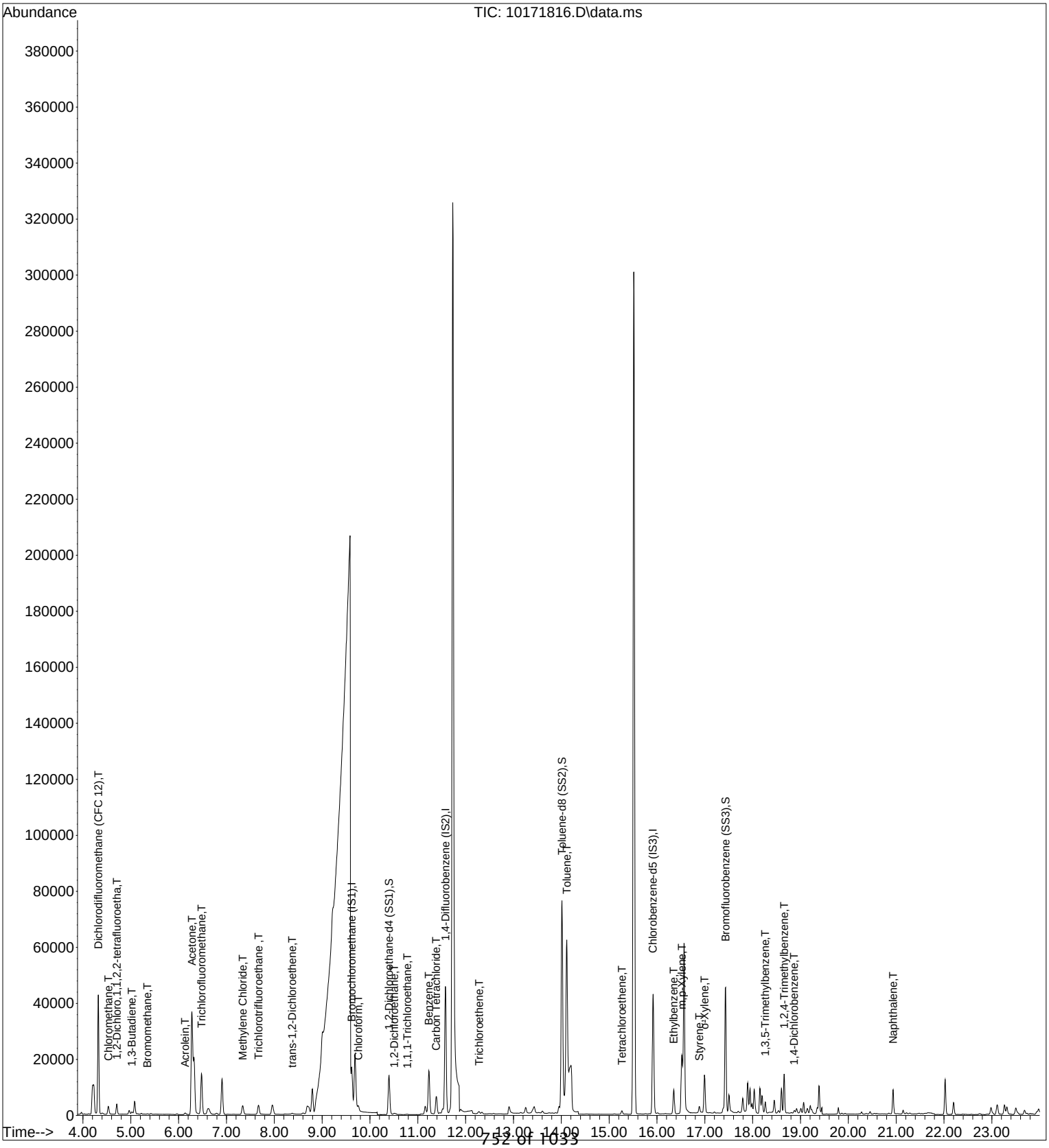
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

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Acq On : 17 Oct 2018 20:47 Operator: WA
Sample : P1805497-008 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:54:39 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 WA 10/25/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19472	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	88075	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	12086	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	21620	927.538	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.75%			
33) Toluene-d8 (SS2)	14.01	98	96593	1063.481	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.35%			
45) Bromofluorobenzene (SS3)	17.43	174	37063	1085.260	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.53%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	50218	1210.362	pg	100
3) Chloromethane	4.53	52	1275	131.421	pg	99
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6) 1,3-Butadiene	5.02	54	622	30.539	pg	93
7) Bromomethane	5.35	94	196	10.355	pg	93
9) Acrolein	6.13	56	919	80.648	pg	99
10) Acetone	6.28	58	28306	1959.352	pg	# 52
11) Trichlorofluoromethane	6.48	101	20008	616.626	pg	100
13) Methylene Chloride	7.34	84	2913	121.104	pg	96
14) Trichlorotrifluoroethane	7.67	151	4804	211.246	pg	100
15) trans-1,2-Dichloroethene	8.38	96	244	10.213	pg	98
19) Chloroform	9.76	83	2549	63.368	pg	99
21) 1,2-Dichloroethane	10.51	62	674	27.090	pg	98
22) 1,1,1-Trichloroethane	10.78	97	188	5.510	pg	100
23) Benzene	11.23	78	29302	289.957	pg	99
24) Carbon Tetrachloride	11.39	117	7041	226.088	pg	100
28) Trichloroethene	12.28	130	577	20.967	pg	98
34) Toluene	14.11	91	70193	697.992	pg	100
37) Tetrachloroethene	15.27	166	1582	53.458	pg	99
40) Ethylbenzene	16.35	91	13361	119.911	pg	100
41) m,p-Xylene	16.52	91	36764	431.528	pg	99
42) Styrene	16.89	104	2779	41.067	pg	97
43) o-Xylene	16.99	106	7520	166.027	pg	96
46) 1,3,5-Trimethylbenzene	18.26	105	4223	44.330	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	15353	161.554	pg	88
49) 1,4-Dichlorobenzene	18.87	146	795	12.751	pg	99
53) Naphthalene	20.94	128	13533	121.746	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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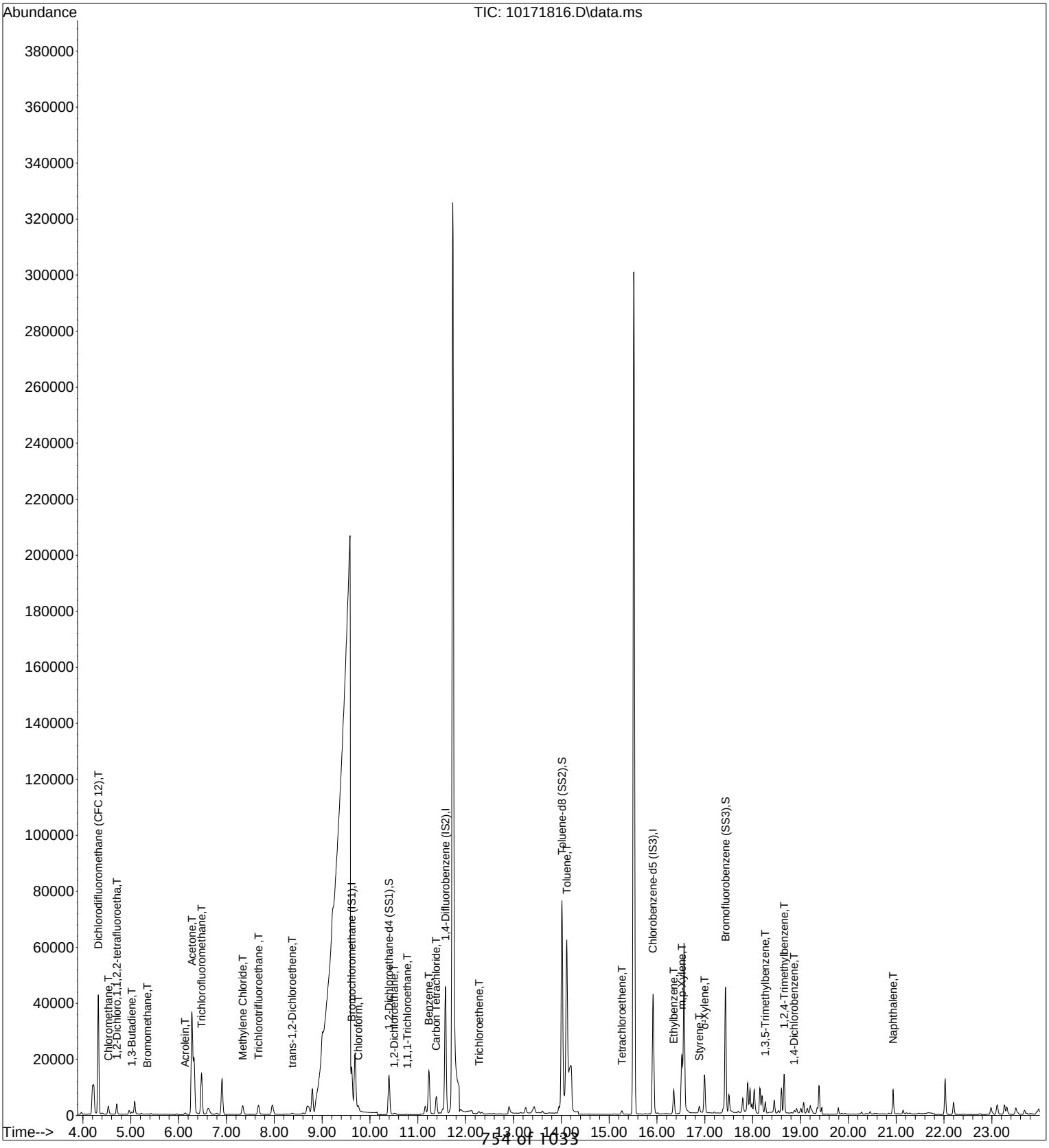
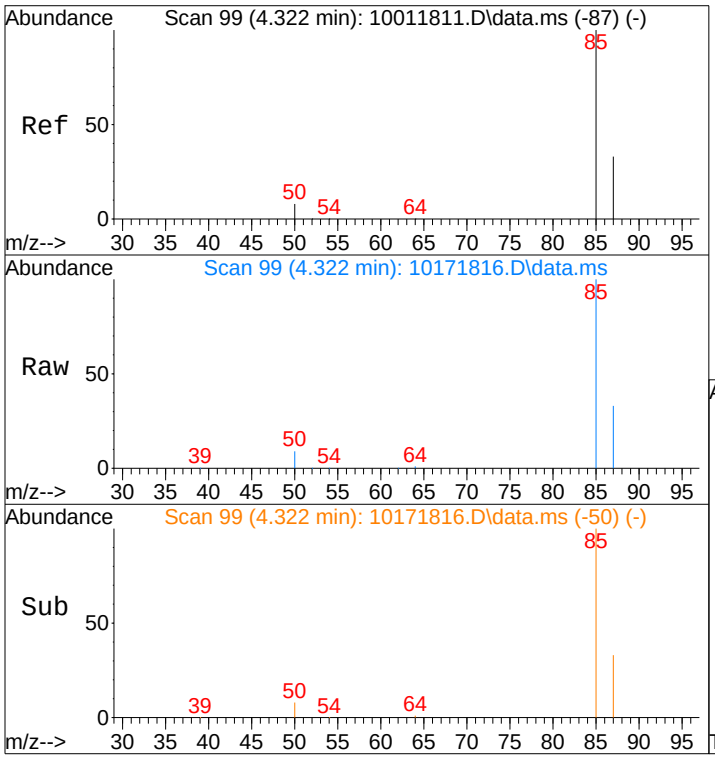
DataAcq Meth:TO15SIM.M

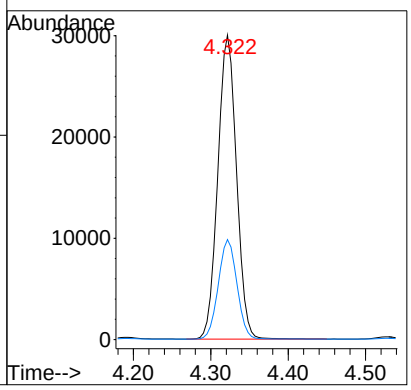


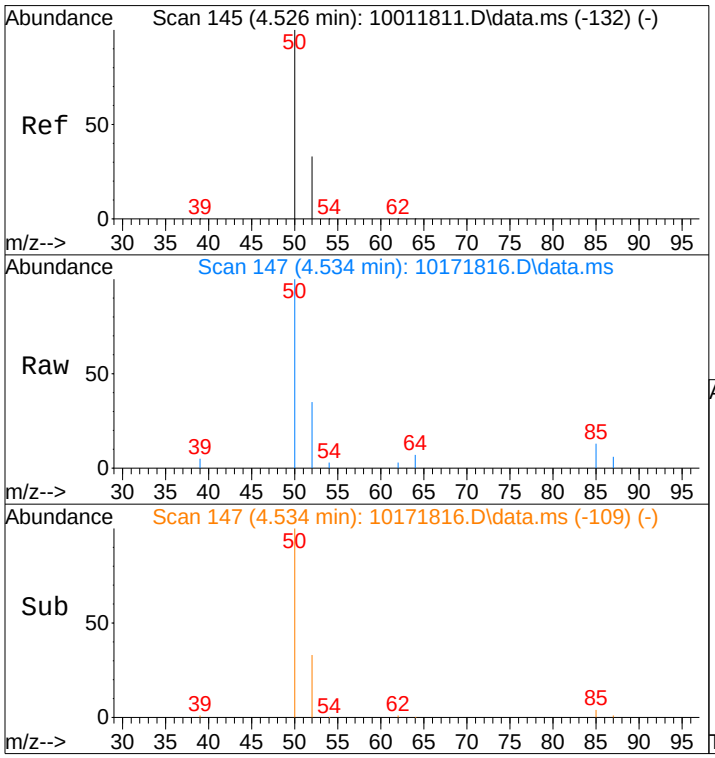


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1210.36 pg
RT: 4.32 min Scan# 99
Delta R.T. 0.018 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 85 Resp: 50218

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

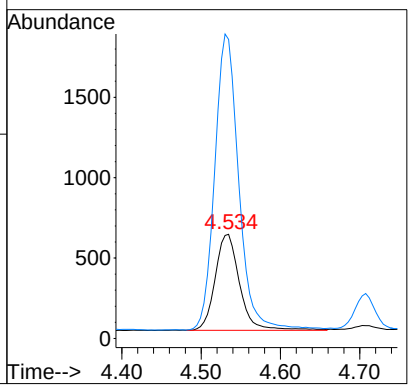


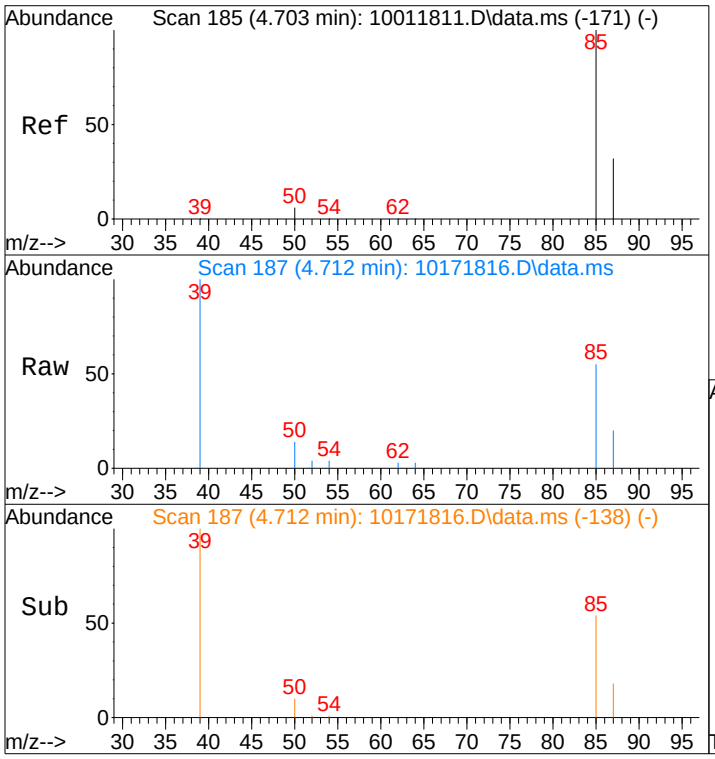


#3
Chloromethane
Concen: 131.42 pg
RT: 4.53 min Scan# 147
Delta R.T. 0.018 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 52 Resp: 1275

Ion	Ratio	Lower	Upper
52	100		
50	303.5	281.8	321.8

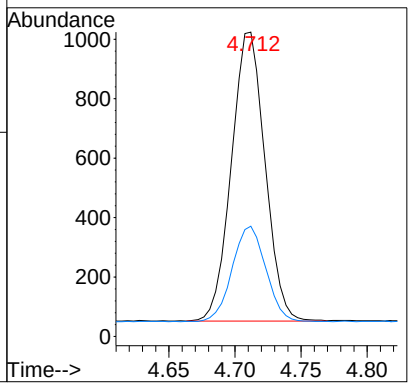


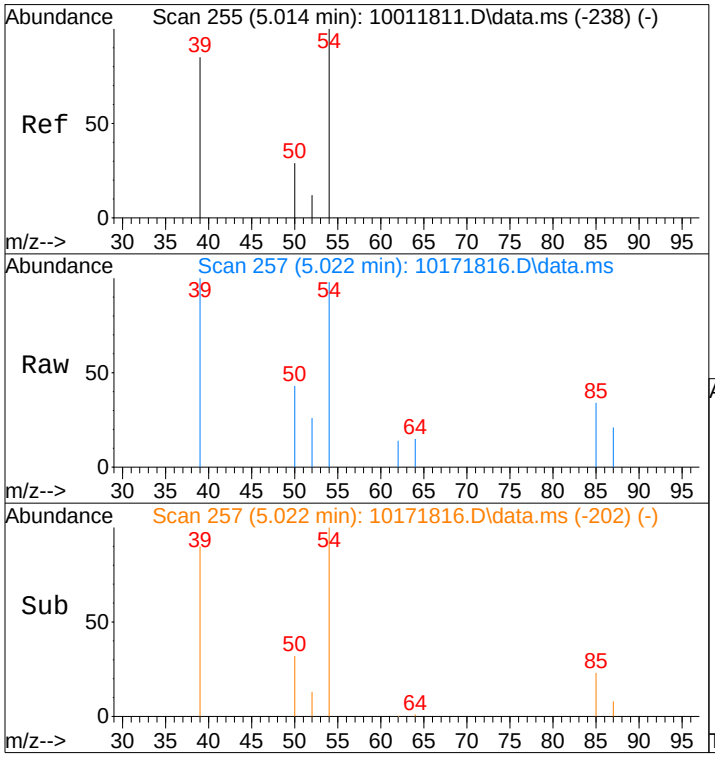


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 57.48 pg
RT: 4.71 min Scan# 187
Delta R.T. 0.018 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 85 Resp: 1719

Ion	Ratio	Lower	Upper
85	100		
87	32.7	26.0	39.0

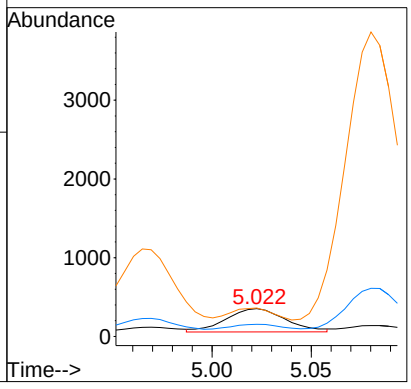


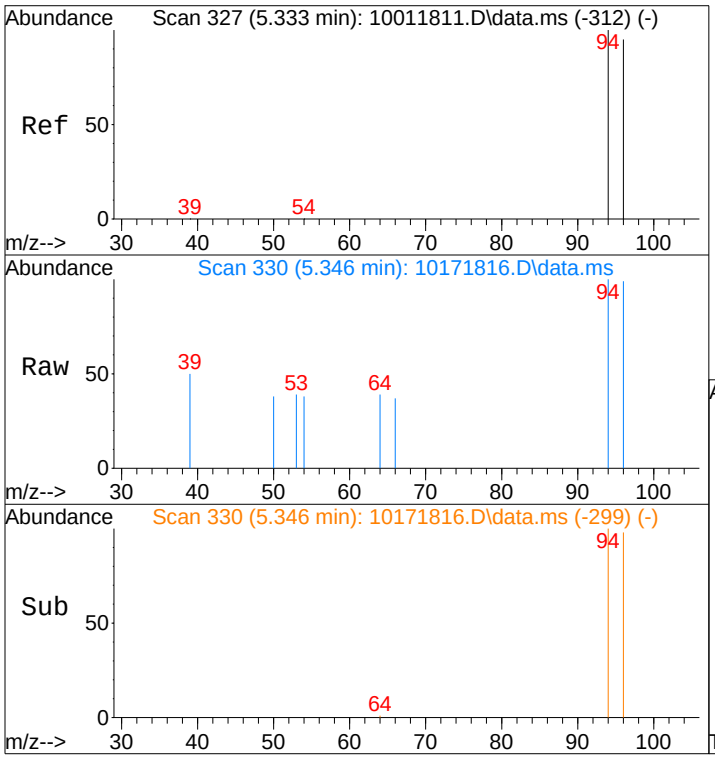


#6
1,3-Butadiene
Concen: 30.54 pg
RT: 5.02 min Scan# 257
Delta R.T. 0.013 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 54 Resp: 622

Ion	Ratio	Lower	Upper
54	100		
50	31.8	23.6	35.4
39	80.5	69.9	104.9

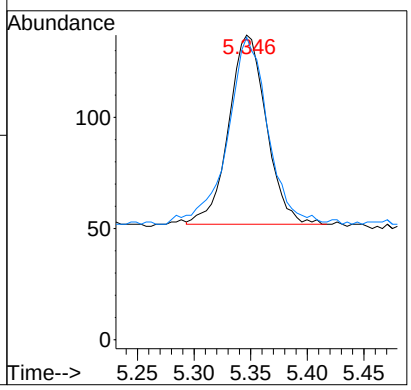


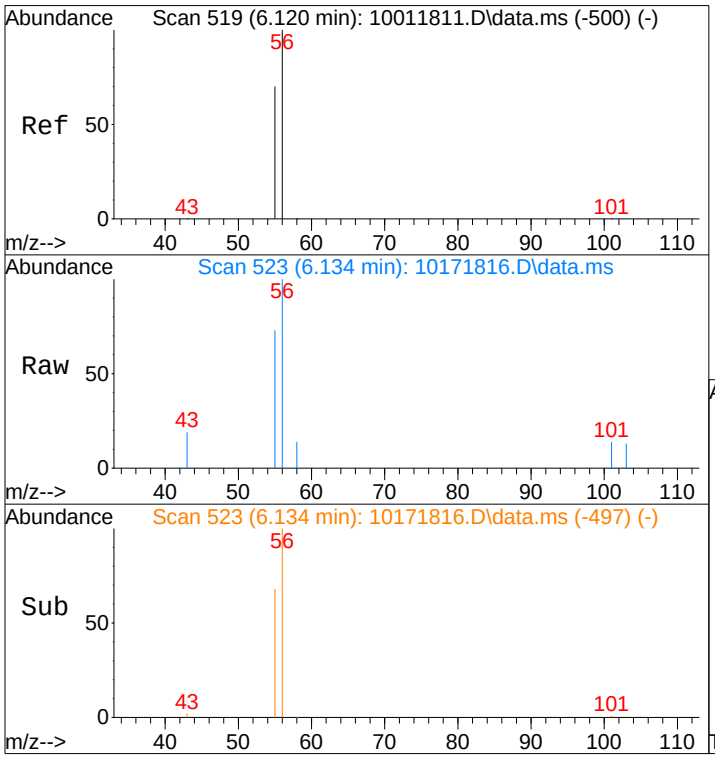


#7
Bromomethane
Concen: 10.36 pg
RT: 5.35 min Scan# 330
Delta R.T. 0.009 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 94 Resp: 196

Ion	Ratio	Lower	Upper
94	100		
96	101.0	75.7	113.5

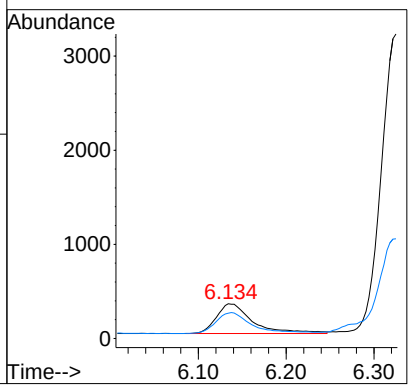


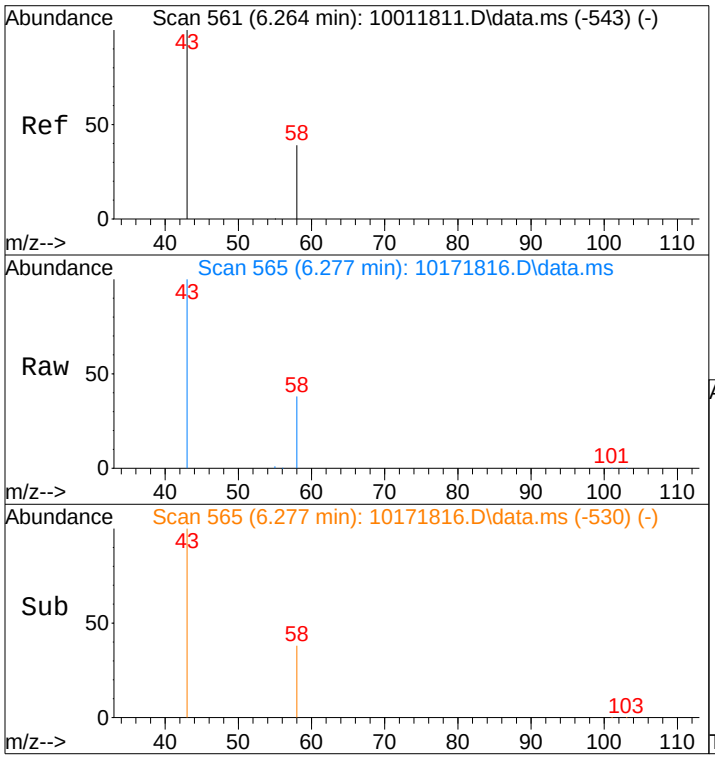


#9
Acrolein
Concen: 80.65 pg
RT: 6.13 min Scan# 523
Delta R.T. -0.020 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 56 Resp: 919

Ion	Ratio	Lower	Upper
56	100		
55	68.7	55.3	82.9

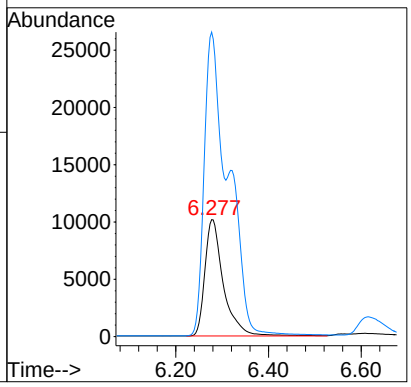


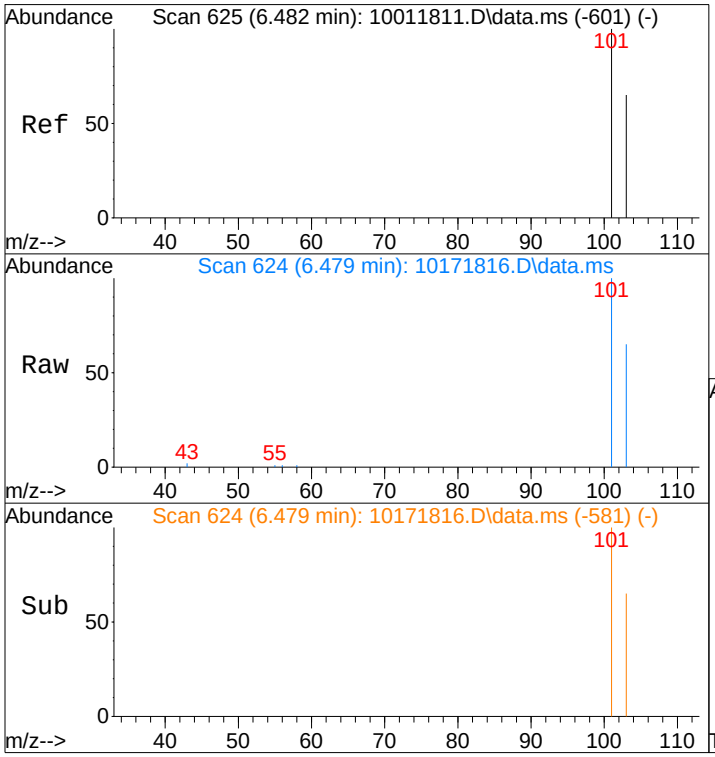


#10
Acetone
Concen: 1959.35 pg
RT: 6.28 min Scan# 565
Delta R.T. -0.031 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 58 Resp: 28306

Ion	Ratio	Lower	Upper
58	100		
43	338.9	234.7	274.7#

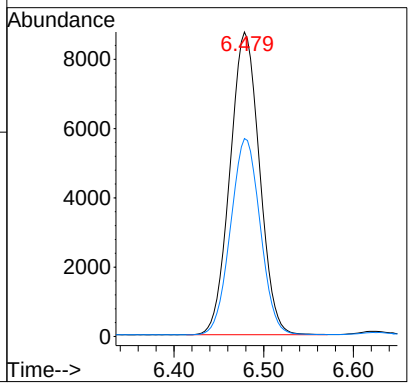


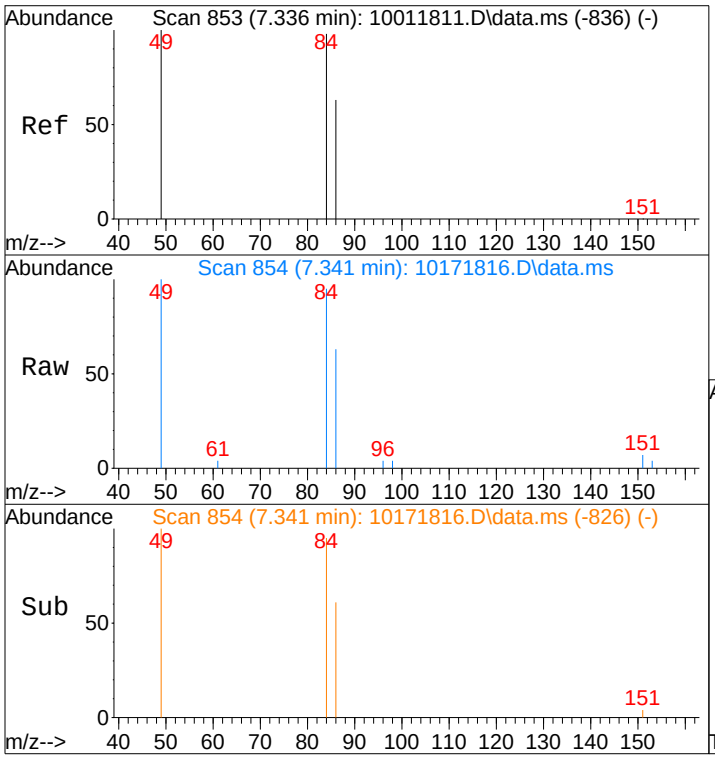


#11
Trichlorofluoromethane
Concen: 616.63 pg
RT: 6.48 min Scan# 624
Delta R.T. -0.003 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:101 Resp: 20008

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

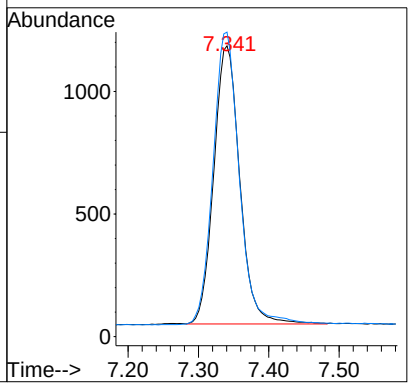


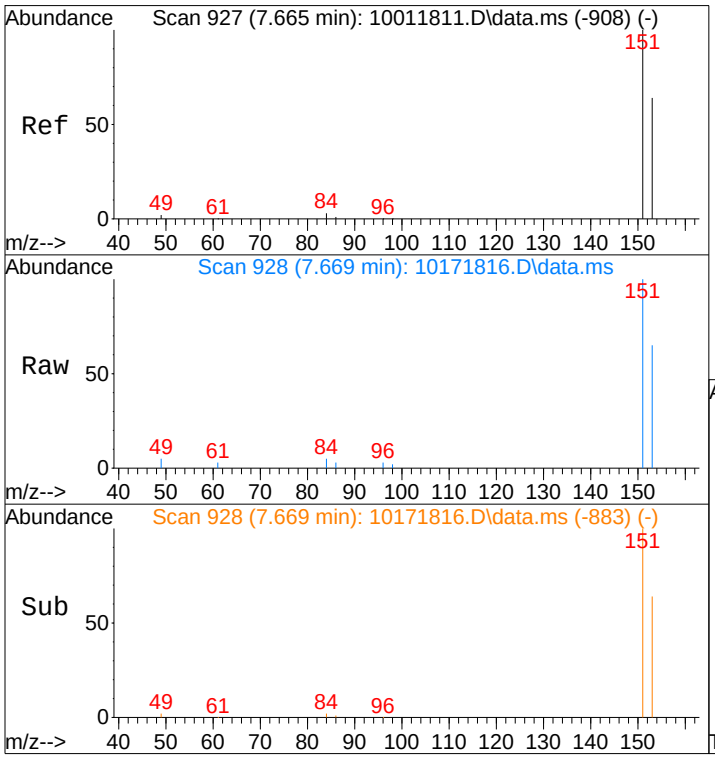


#13
Methylene Chloride
Concen: 121.10 pg
RT: 7.34 min Scan# 854
Delta R.T. -0.036 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 84 Resp: 2913

Ion	Ratio	Lower	Upper
84	100		
49	107.1	83.3	123.3

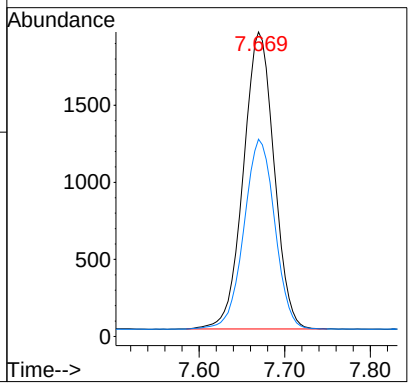


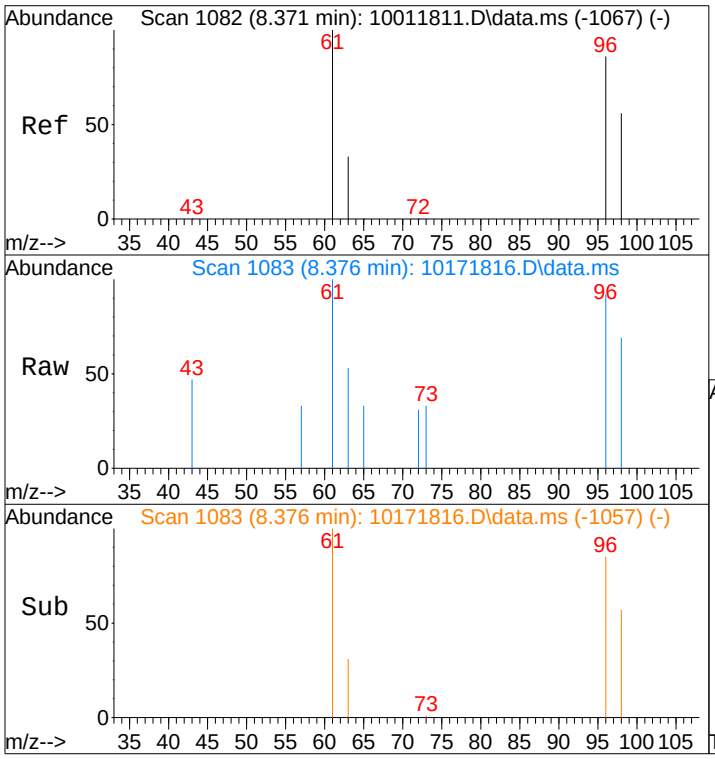


#14
Trichlorotrifluoroethane
Concen: 211.25 pg
RT: 7.67 min Scan# 928
Delta R.T. -0.000 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:151 Resp: 4804

Ion	Ratio	Lower	Upper
151	100		
153	64.3	44.3	84.3

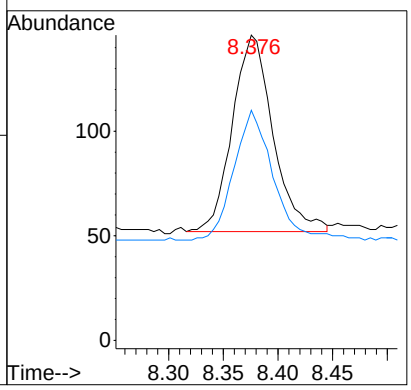


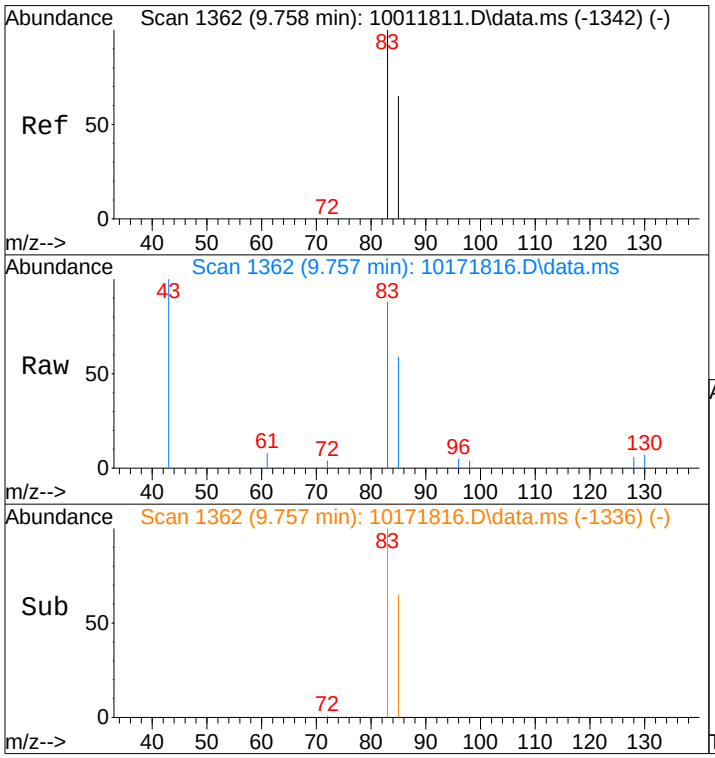


#15
trans-1,2-Dichloroethene
Concen: 10.21 pg
RT: 8.38 min Scan# 1083
Delta R.T. -0.020 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 96 Resp: 244

Ion	Ratio	Lower	Upper
96	100		
98	62.7	44.1	84.1

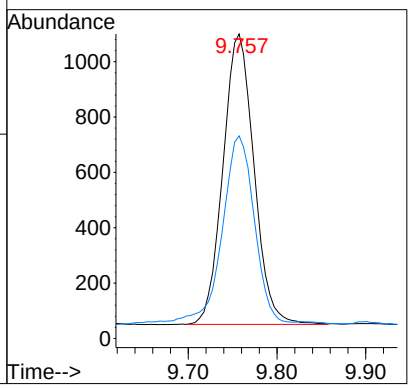


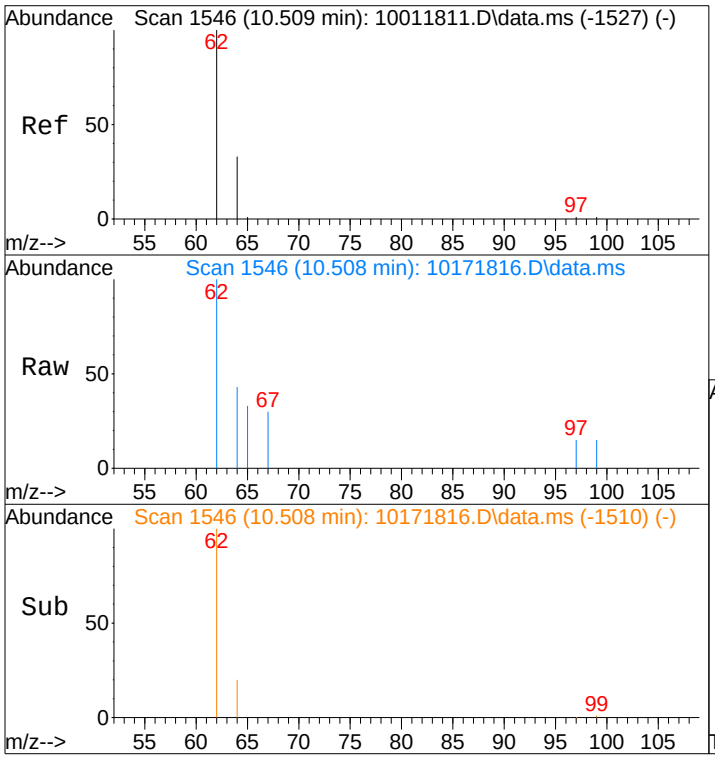


#19
Chloroform
Concen: 63.37 pg
RT: 9.76 min Scan# 1362
Delta R.T. -0.040 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 83 Resp: 2549

Ion	Ratio	Lower	Upper
83	100		
85	64.8	46.0	86.0

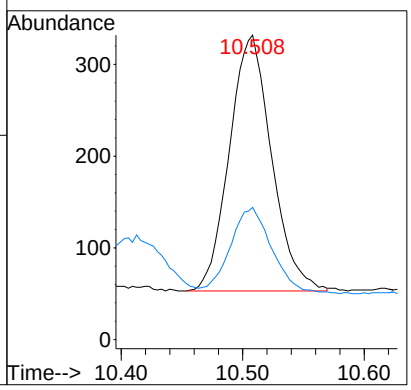


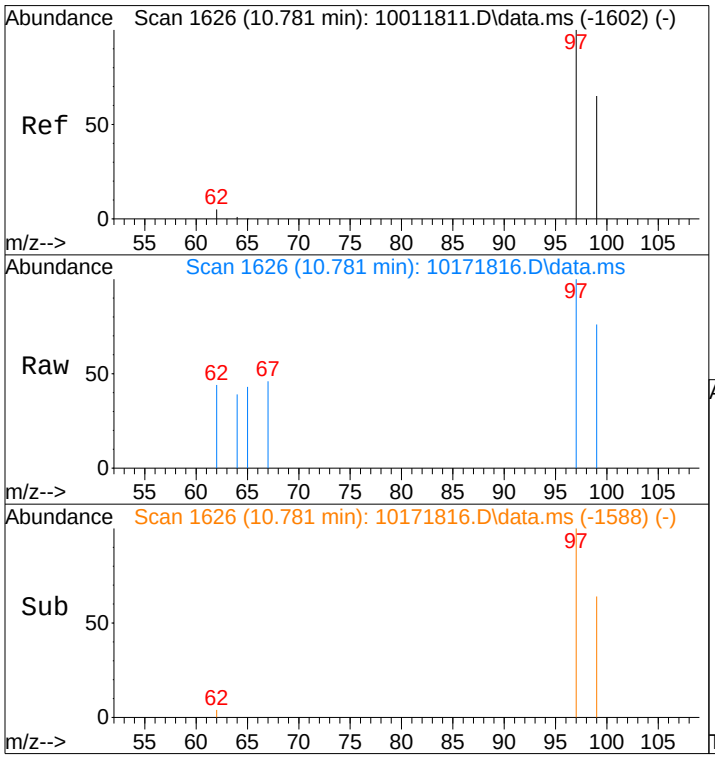


#21
1,2-Dichloroethane
Concen: 27.09 pg
RT: 10.51 min Scan# 1546
Delta R.T. -0.027 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 62 Resp: 674

Ion	Ratio	Lower	Upper
62	100		
64	32.0	12.9	52.9

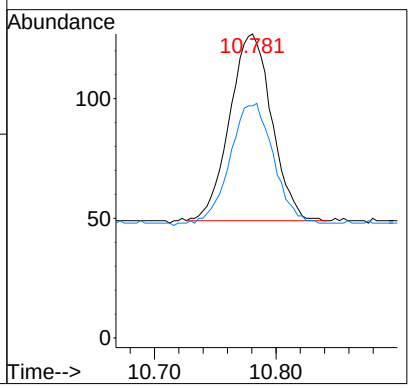


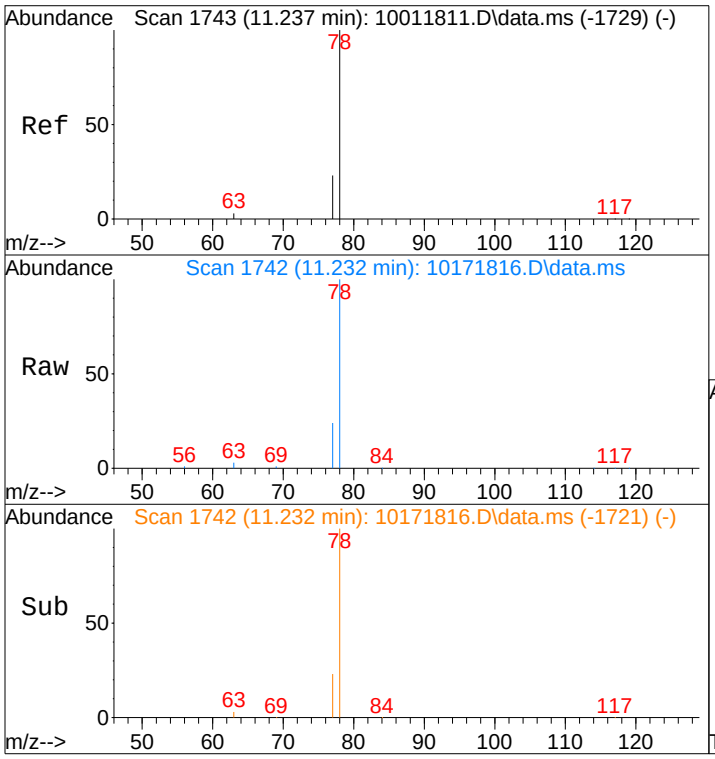


#22
1,1,1-Trichloroethane
Concen: 5.51 pg
RT: 10.78 min Scan# 1626
Delta R.T. -0.020 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 97 Resp: 188

Ion	Ratio	Lower	Upper
97	100		
99	64.9	44.9	84.9

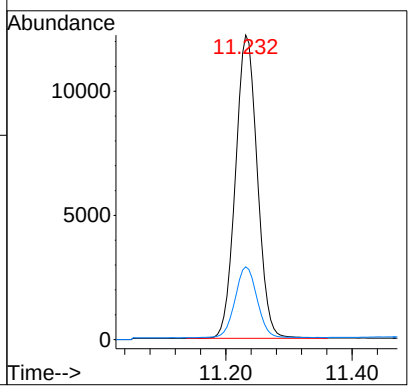


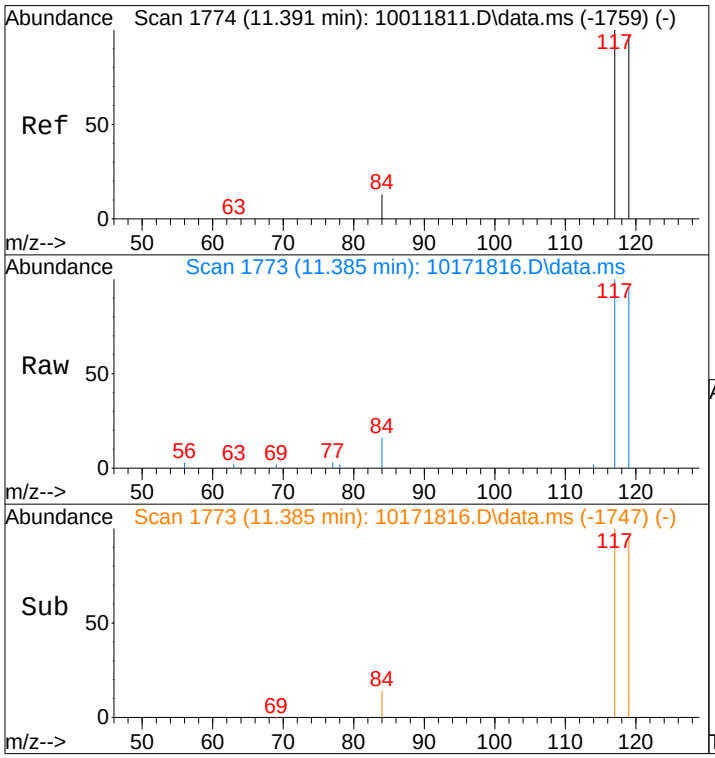


#23
Benzene
Concen: 289.96 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.025 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 78 Resp: 29302

Ion	Ratio	Lower	Upper
78	100		
77	23.7	3.3	43.3

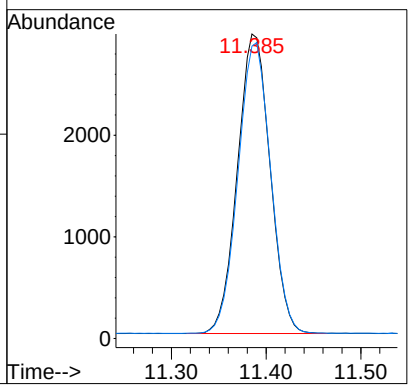


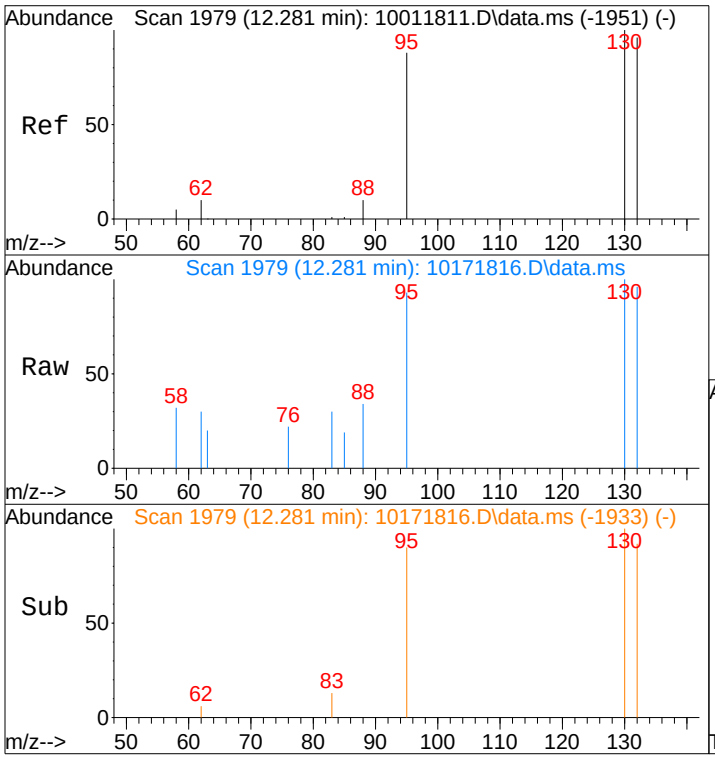


#24
Carbon Tetrachloride
Concen: 226.09 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.020 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:117 Resp: 7041

Ion	Ratio	Lower	Upper
117	100		
119	96.9	76.7	116.7

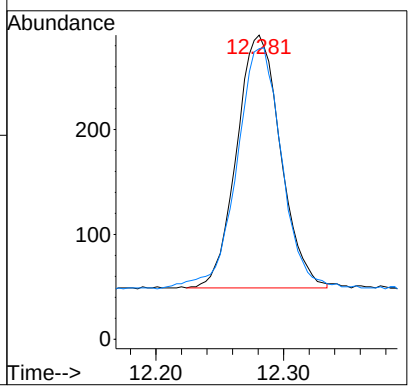


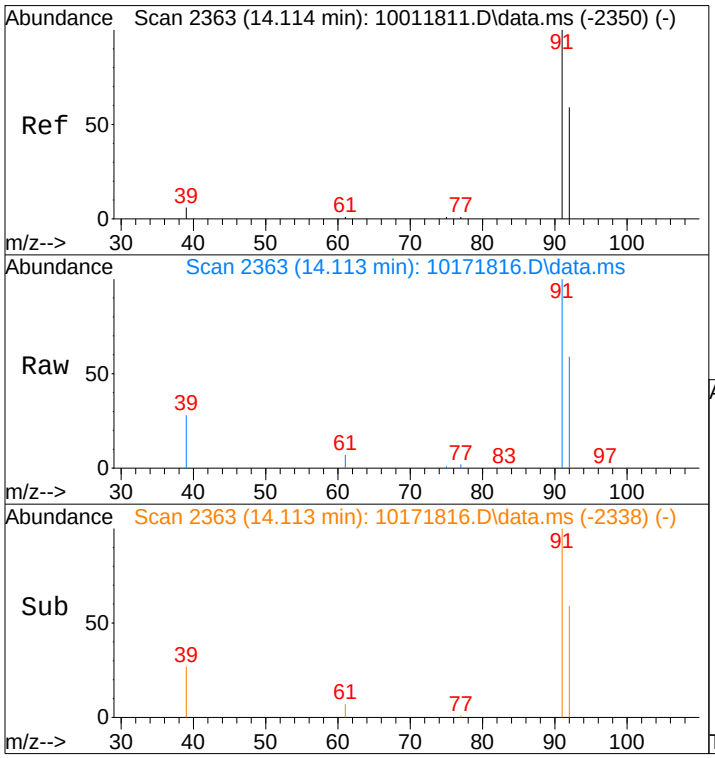


#28
Trichloroethene
Concen: 20.97 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.015 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:130 Resp: 577

Ion	Ratio	Lower	Upper
130	100		
132	97.6	75.6	115.6

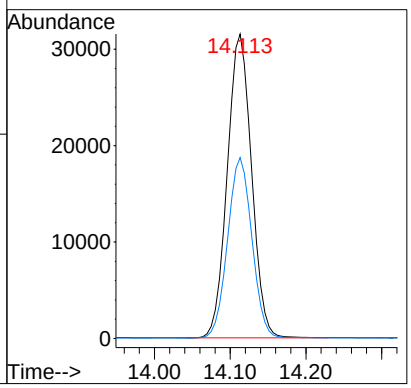


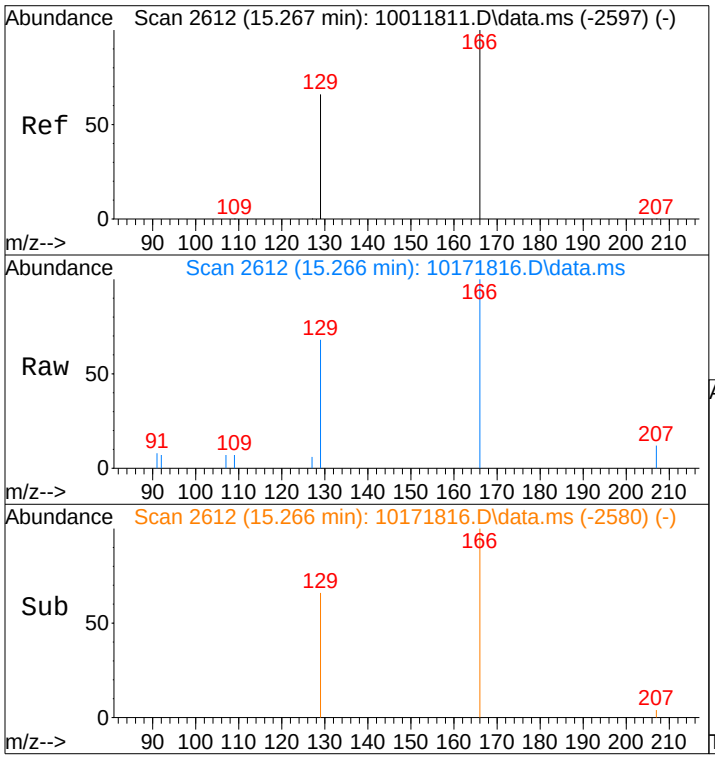


#34
Toluene
Concen: 697.99 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 91 Resp: 70193

Ion	Ratio	Lower	Upper
91	100		
92	59.3	39.2	79.2

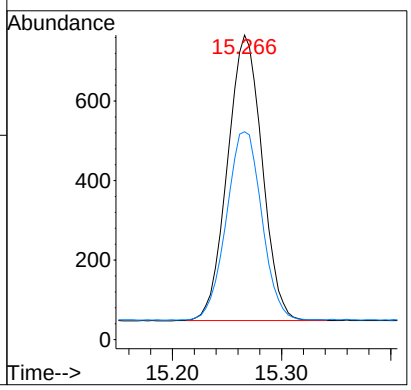


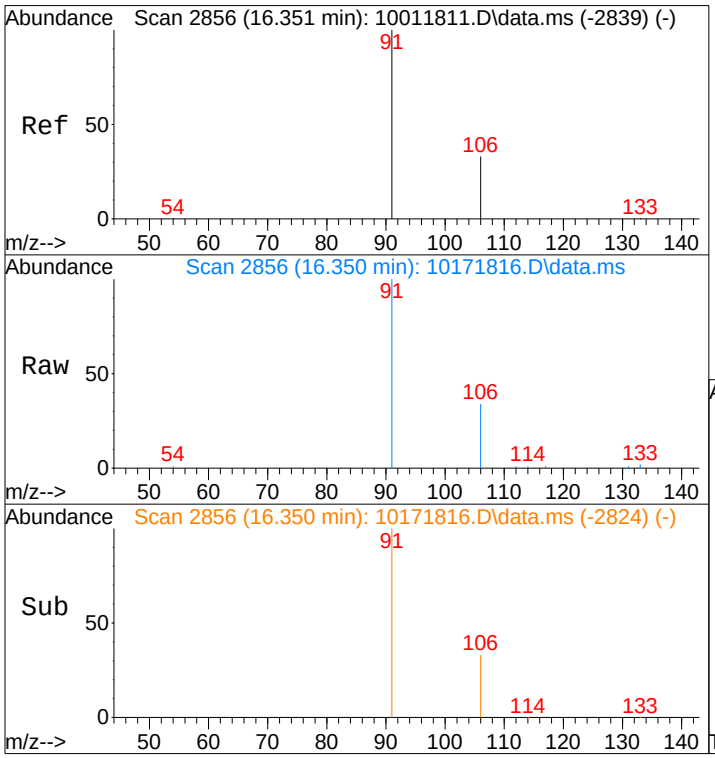


#37
Tetrachloroethene
Concen: 53.46 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:166 Resp: 1582

Ion	Ratio	Lower	Upper
166	100		
129	67.5	46.7	86.7

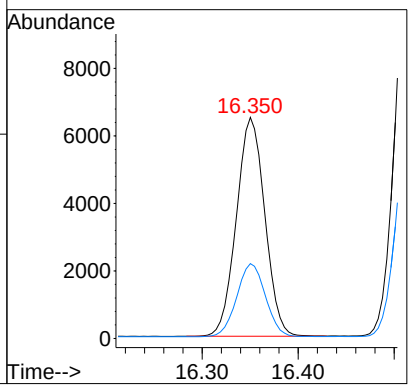


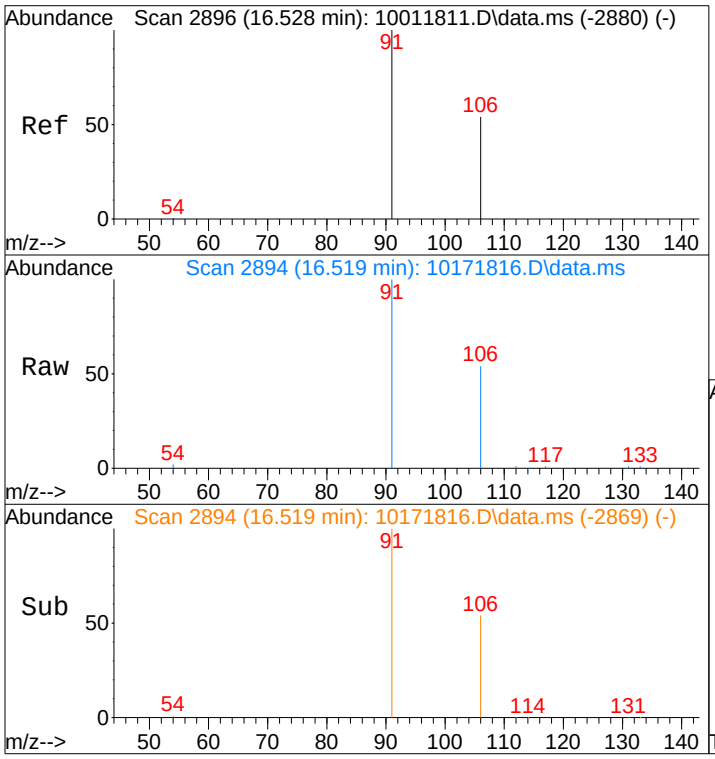


#40
Ethylbenzene
Concen: 119.91 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 91 Resp: 13361

Ion	Ratio	Lower	Upper
91	100		
106	33.7	13.7	53.7

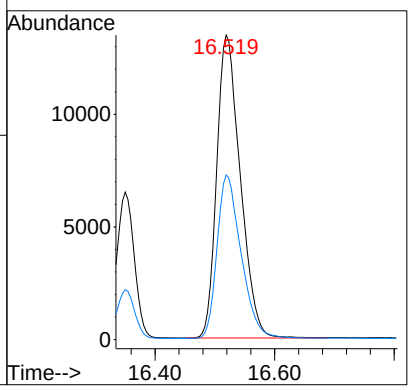


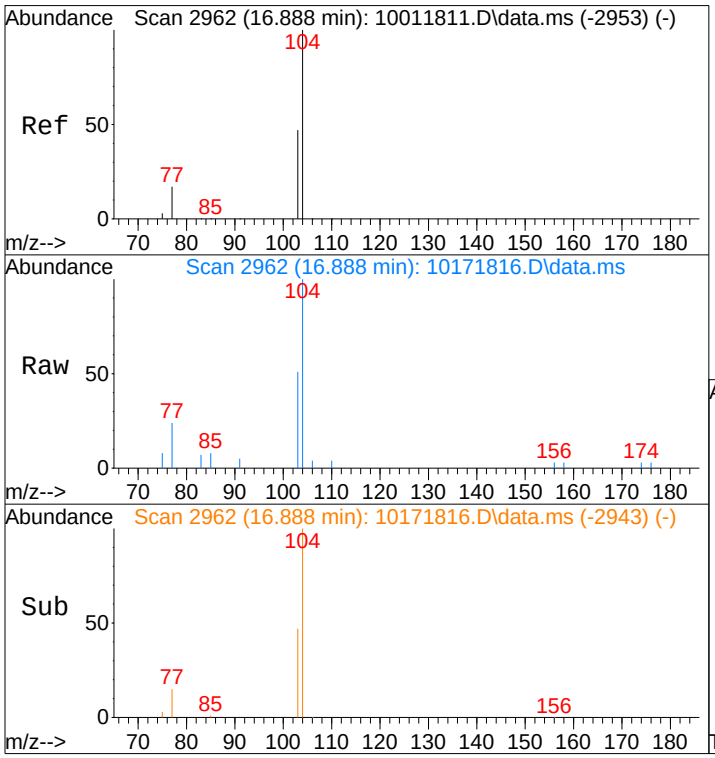


#41
m,p-Xylene
Concen: 431.53 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion: 91 Resp: 36764

Ion	Ratio	Lower	Upper
91	100		
106	55.0	34.3	74.3

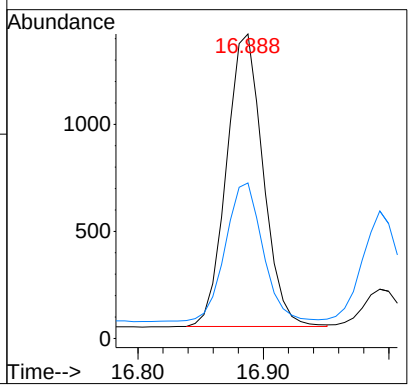


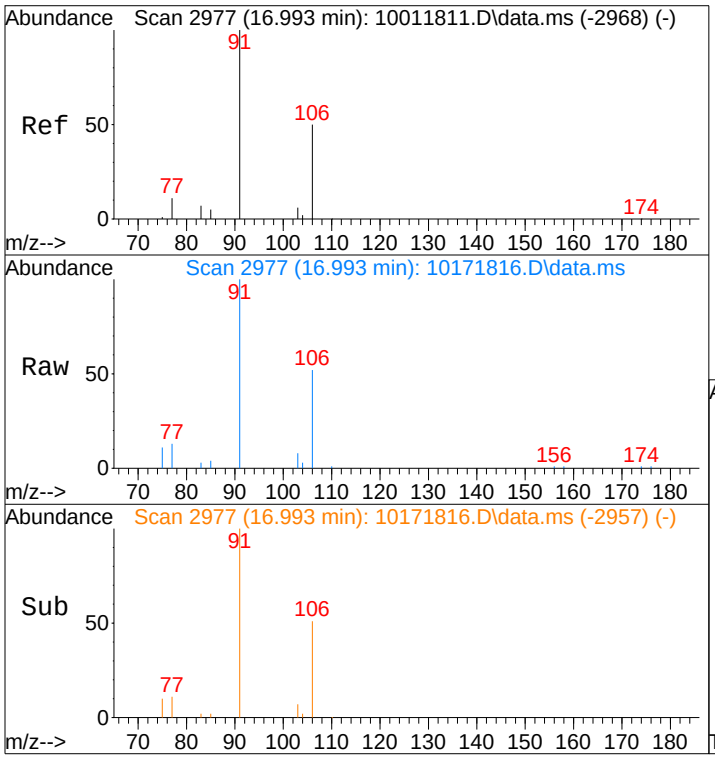


#42
Styrene
Concen: 41.07 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:104 Resp: 2779

Ion	Ratio	Lower	Upper
104	100		
103	49.0	37.7	56.5

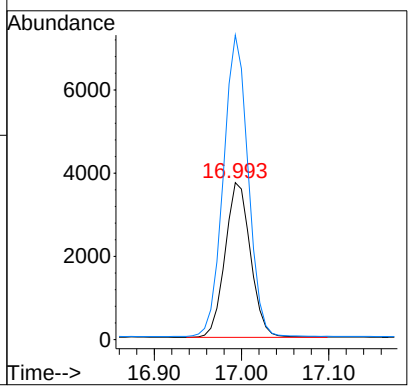


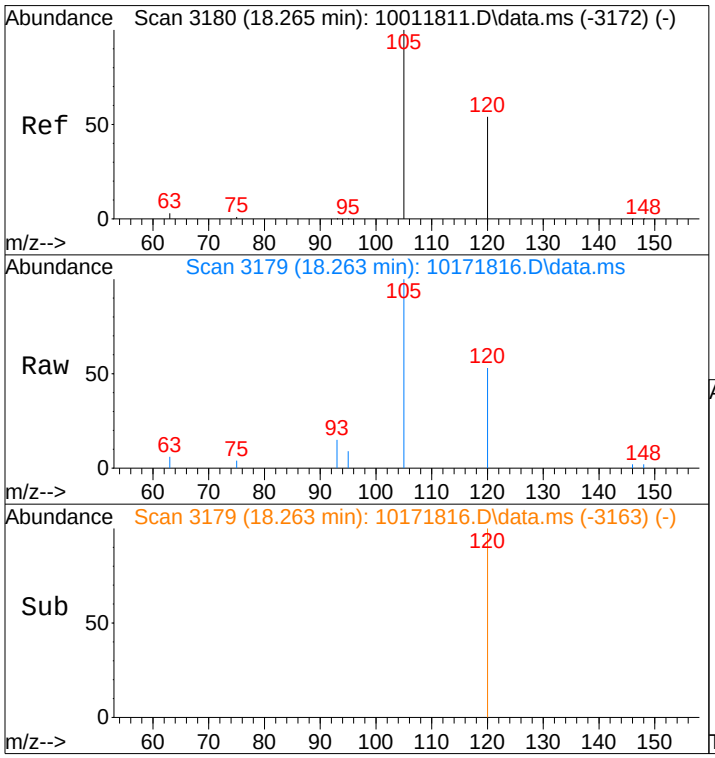


#43
o-Xylene
Concen: 166.03 pg
RT: 16.99 min Scan# 2977
Delta R.T. -0.013 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:106 Resp: 7520

Ion	Ratio	Lower	Upper
106	100		
91	189.0	175.6	215.6

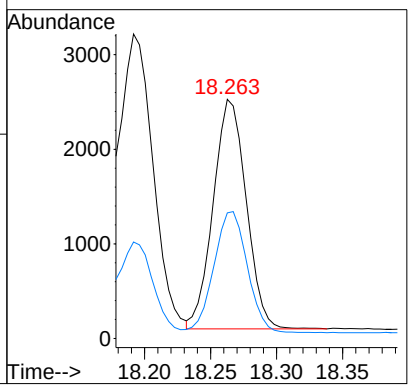


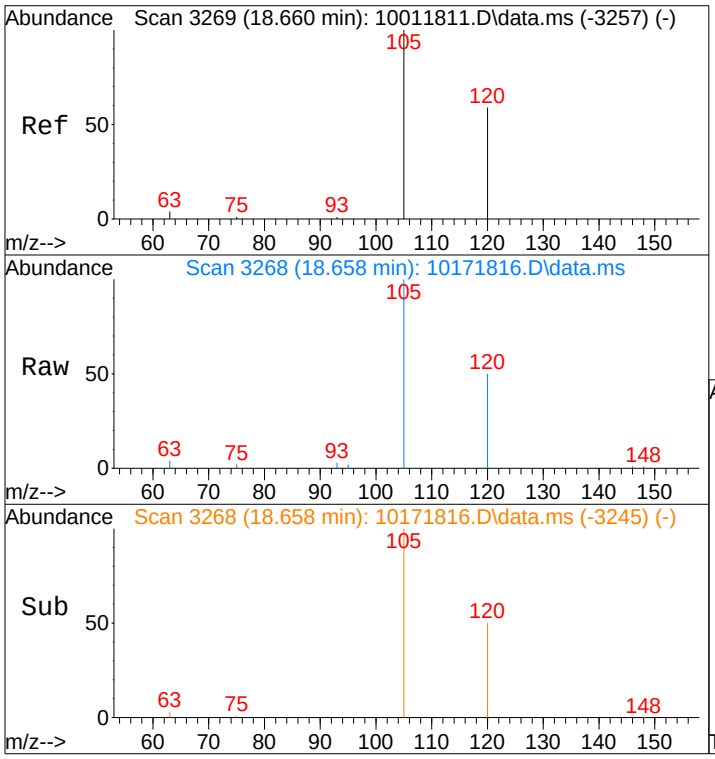


#46
1,3,5-Trimethylbenzene
Concen: 44.33 pg
RT: 18.26 min Scan# 3179
Delta R.T. -0.008 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:105 Resp: 4223

Ion	Ratio	Lower	Upper
105	100		
120	53.1	42.8	64.2

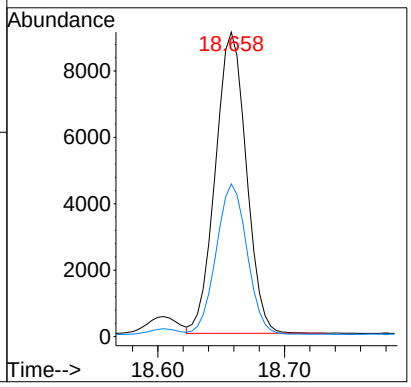


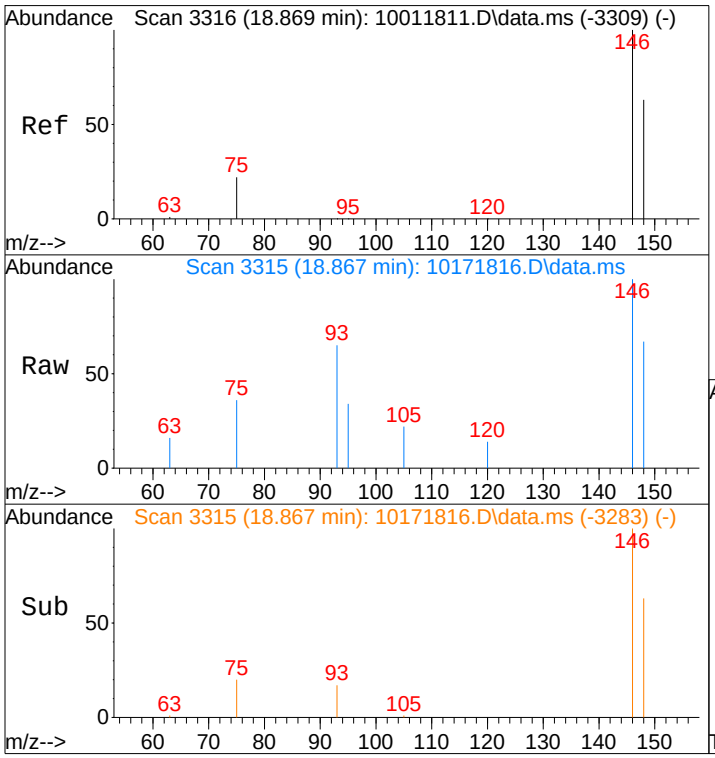


#47
1,2,4-Trimethylbenzene
Concen: 161.55 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:105 Resp: 15353

Ion	Ratio	Lower	Upper
105	100		
120	50.0	47.1	70.7

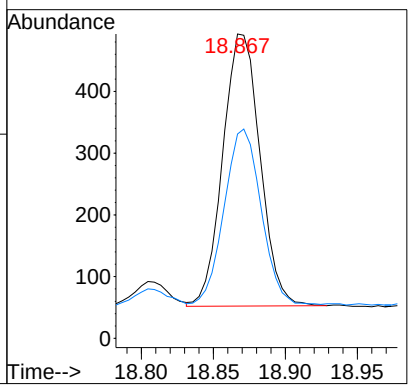


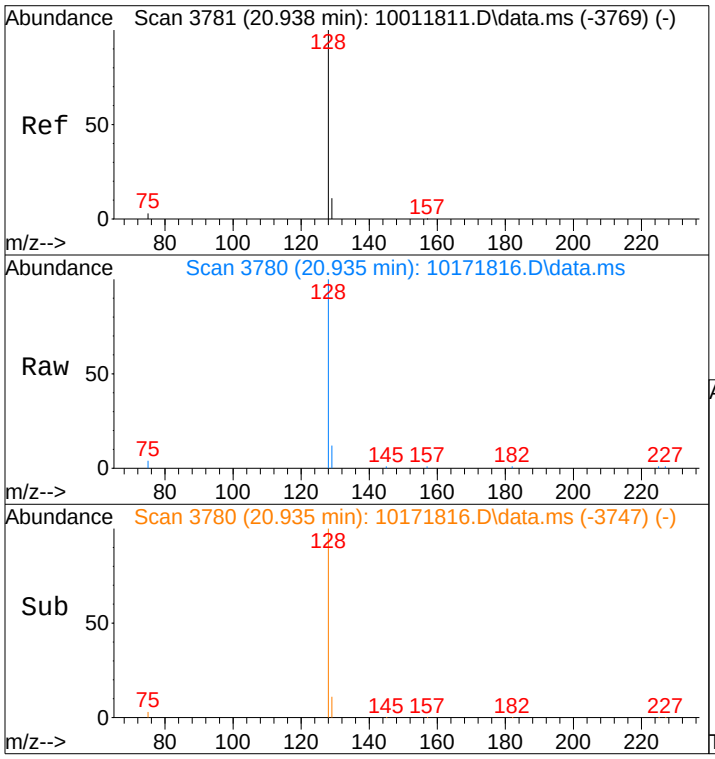


#49
1,4-Dichlorobenzene
Concen: 12.75 pg
RT: 18.87 min Scan# 3315
Delta R.T. -0.008 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:146 Resp: 795

Ion	Ratio	Lower	Upper
146	100		
148	63.4	43.8	83.8

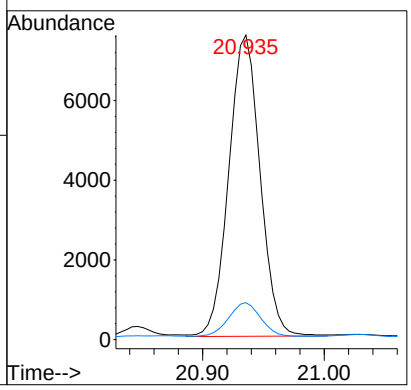




#53
Naphthalene
Concen: 121.75 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10171816.D
Acq: 17 Oct 2018 20:47

Tgt Ion:128 Resp: 13533

Ion	Ratio	Lower	Upper
128	100		
129	11.4	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:57:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21217	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	90343	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	12543	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21602	850.543	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.05%				
33) Toluene-d8 (SS2)	14.01	98	97267	1044.018	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.40%				
45) Bromofluorobenzene (SS3)	17.43	174	36876	1040.443	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.04%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	83229	1841.015	pg		100
3) Chloromethane	4.52	52	622	58.840	pg	#	45
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1576	48.361	pg		99
5) Vinyl Chloride	4.82	62	437	14.886	pg		91
6) 1,3-Butadiene	5.00	54	518	23.341	pg	#	27
7) Bromomethane	5.33	94	90	N.D.			
8) Chloroethane	5.55	64	677	44.076	pg		99
9) Acrolein	6.13	56	834	67.170	pg		96
10) Acetone	0.00	58	0	N.D.	d		
11) Trichlorofluoromethane	6.48	101	24259	686.148	pg		100
12) 1,1-Dichloroethene	7.20	96	428	17.106	pg		88
13) Methylene Chloride	7.33	84	30999	1182.747	pg		100
14) Trichlorotrifluoroethane	7.67	151	5002	201.862	pg		99
15) trans-1,2-Dichloroethene	8.37	96	2270	87.204	pg		99
16) 1,1-Dichloroethane	8.58	63	357	8.787	pg		99
17) Methyl tert-Butyl Ether	8.60	73	118	N.D.			
18) cis-1,2-Dichloroethene	9.45	96	756	27.286	pg		99
19) Chloroform	9.75	83	335213	7647.969	pg		100
21) 1,2-Dichloroethane	10.51	62	1003m	36.998	pg		
22) 1,1,1-Trichloroethane	10.78	97	950	25.554	pg		99
23) Benzene	11.24	78	4801	43.601	pg		97
24) Carbon Tetrachloride	11.39	117	18757	552.755	pg		100
26) 1,2-Dichloropropane	12.04	63	111	N.D.			
27) Bromodichloromethane	12.22	83	52400	1754.316	pg		91
28) Trichloroethene	12.28	130	317736	11255.783	pg		100
29) 1,4-Dioxane	12.22	88	54	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.11	91	17042	165.210	pg		100
35) Dibromochloromethane	14.52	129	17833	645.326	pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	474267	15623.893	pg		100
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	2780	24.041	pg		99
41) m,p-Xylene	16.52	91	7900	89.350	pg		99
42) Styrene	0.00	104	0	N.D.	d		
43) o-Xylene	17.00	106	1861	39.590	pg		98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	1279	12.937	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	2916	29.566	pg		85
48) 1,3-Dichlorobenzene	18.75	146	74	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	32887	508.255	pg		100
50) 1,2-Dichlorobenzene	19.20	146	125	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	d		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.	d		
53) Naphthalene	20.94	128	4556	39.493	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:57:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

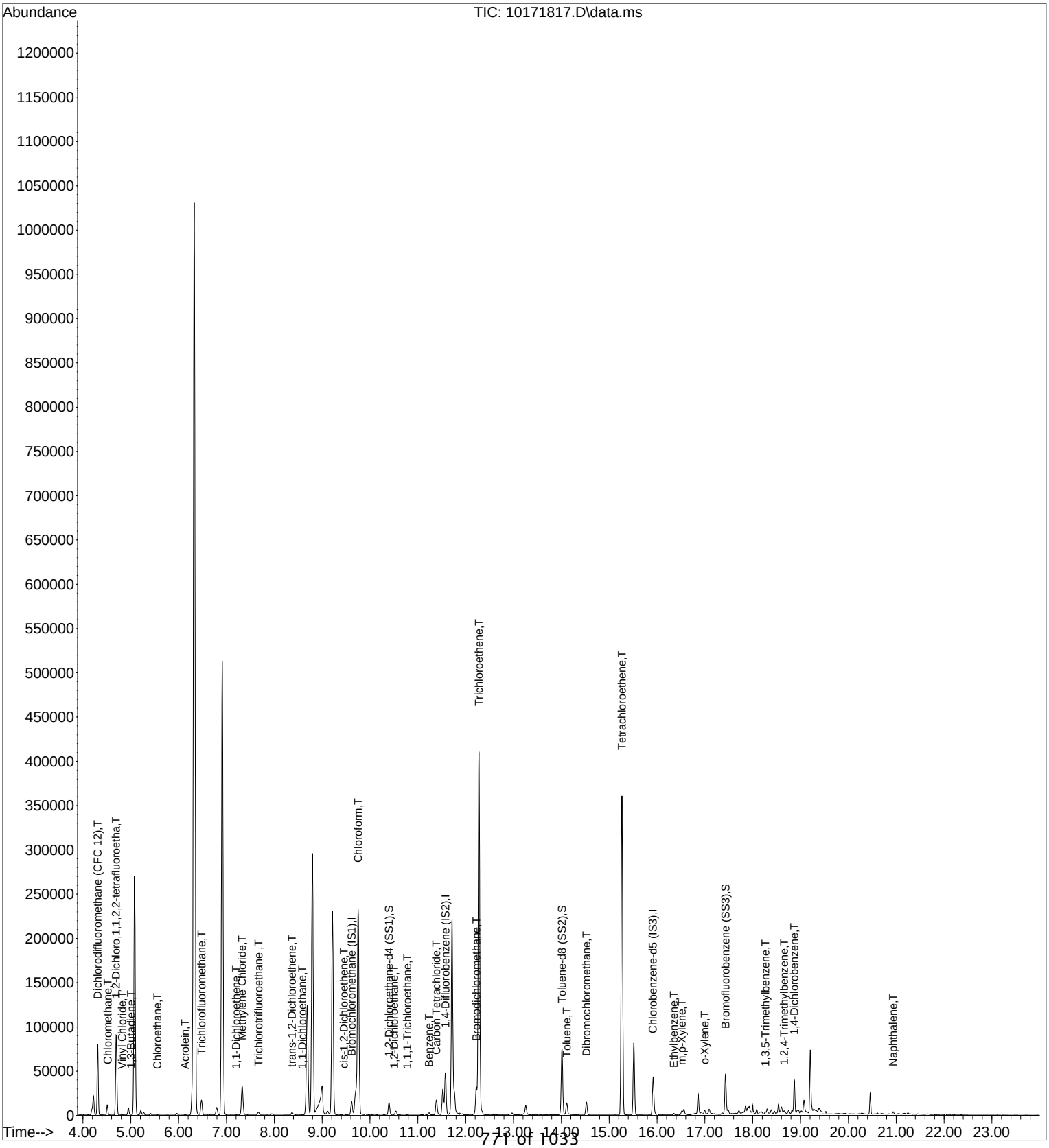
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:57:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:57:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21217	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	90343	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	12543	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21602	850.543	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 85.05%				
33) Toluene-d8 (SS2)	14.01	98	97267	1044.018	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.40%				
45) Bromofluorobenzene (SS3)	17.43	174	36876	1040.443	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.04%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	83229	1841.015	pg		100
3) Chloromethane	4.52	52	622	58.840	pg	#	45
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1576	48.361	pg		99
5) Vinyl Chloride	4.82	62	437	14.886	pg		91
6) 1,3-Butadiene	5.00	54	518	23.341	pg	#	27
8) Chloroethane	5.55	64	677	44.076	pg		99
9) Acrolein	6.13	56	834	67.170	pg		96
11) Trichlorofluoromethane	6.48	101	24259	686.148	pg		100
12) 1,1-Dichloroethene	7.20	96	428	17.106	pg		88
13) Methylene Chloride	7.33	84	30999	1182.747	pg		100
14) Trichlorotrifluoroethane	7.67	151	5002	201.862	pg		99
15) trans-1,2-Dichloroethene	8.37	96	2270	87.204	pg		99
16) 1,1-Dichloroethane	8.58	63	357	8.787	pg		99
18) cis-1,2-Dichloroethene	9.45	96	756	27.286	pg		99
19) Chloroform	9.75	83	335213	7647.969	pg		100
21) 1,2-Dichloroethane	10.51	62	1003m	36.998	pg		
22) 1,1,1-Trichloroethane	10.78	97	950	25.554	pg		99
23) Benzene	11.24	78	4801	43.601	pg		97
24) Carbon Tetrachloride	11.39	117	18757	552.755	pg		100
27) Bromodichloromethane	12.22	83	52400	1754.316	pg		91
28) Trichloroethene	12.28	130	317736	11255.783	pg		100
34) Toluene	14.11	91	17042	165.210	pg		100
35) Dibromochloromethane	14.52	129	17833	645.326	pg		100
37) Tetrachloroethene	15.27	166	474267	15623.893	pg		100
40) Ethylbenzene	16.35	91	2780	24.041	pg		99
41) m,p-Xylene	16.52	91	7900	89.350	pg		99
43) o-Xylene	17.00	106	1861	39.590	pg		98
46) 1,3,5-Trimethylbenzene	18.27	105	1279	12.937	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	2916	29.566	pg		85
49) 1,4-Dichlorobenzene	18.87	146	32887	508.255	pg		100
53) Naphthalene	20.94	128	4556	39.493	pg		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:57:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
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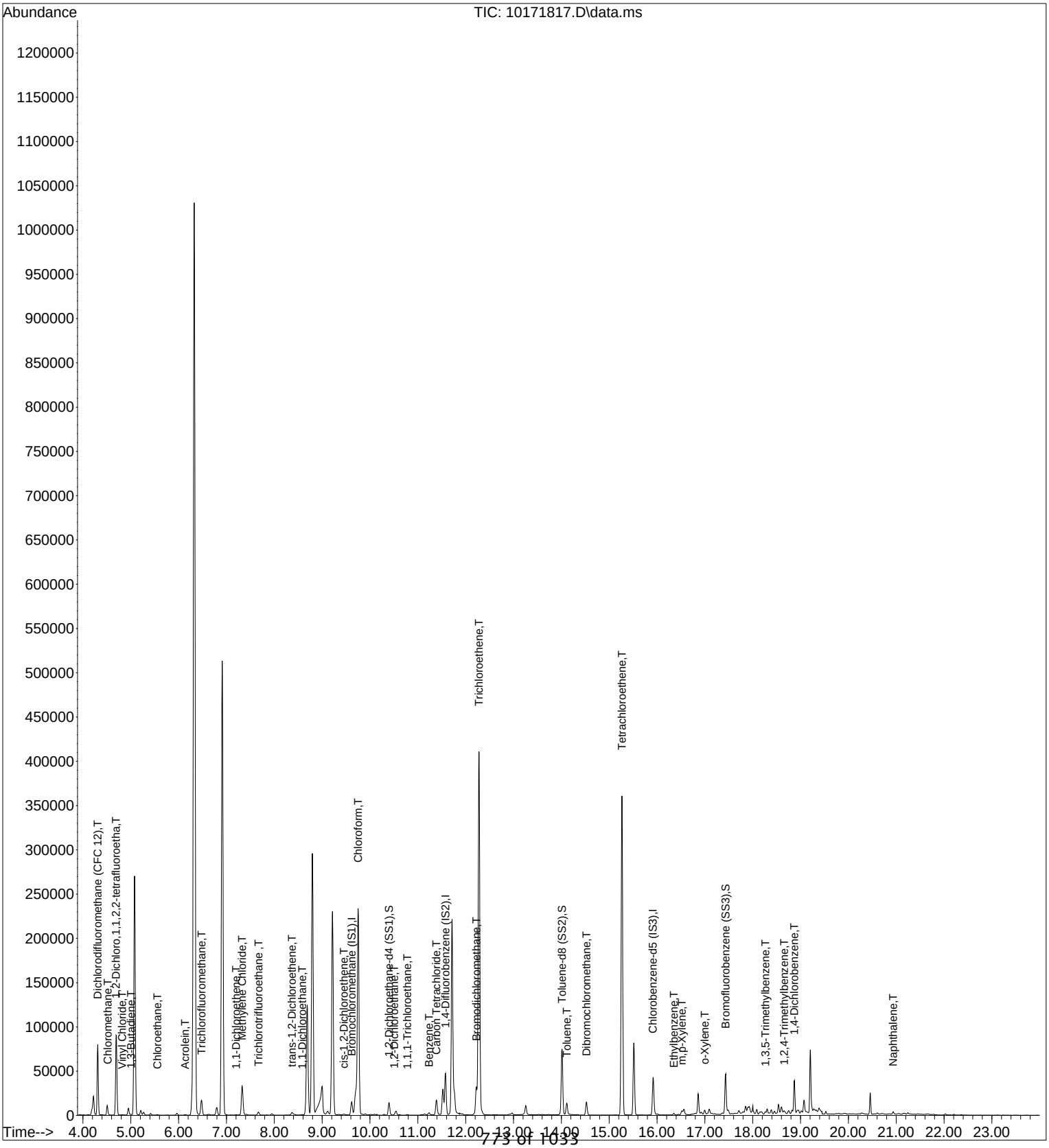
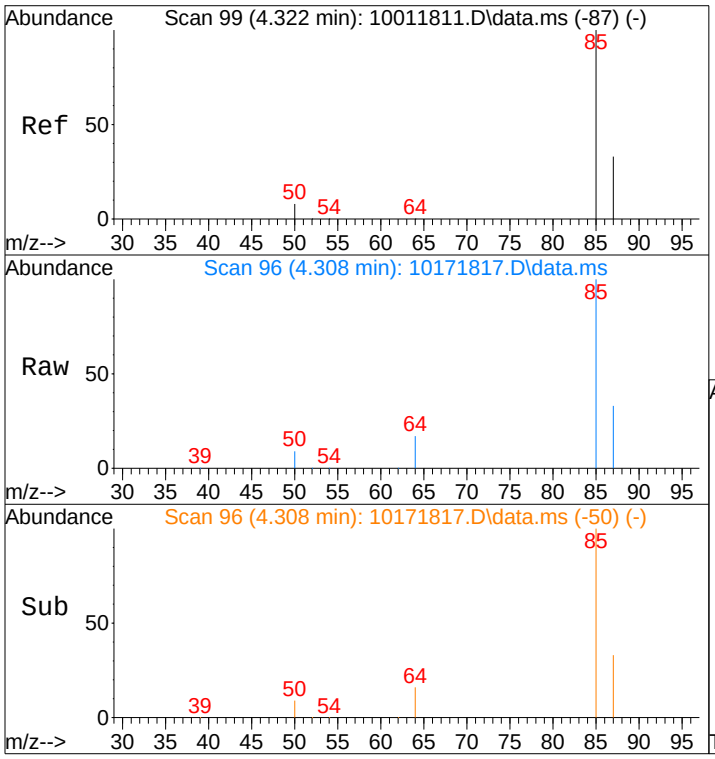
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

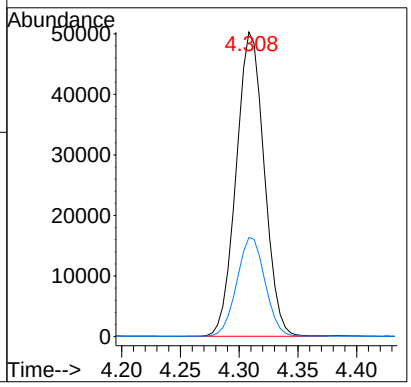


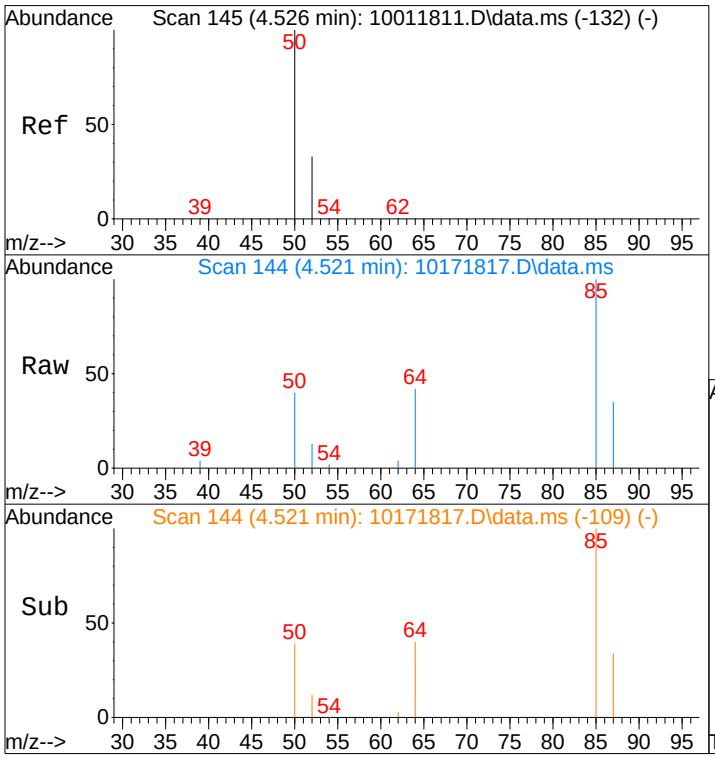


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1841.01 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.004 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 85 Resp: 83229

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

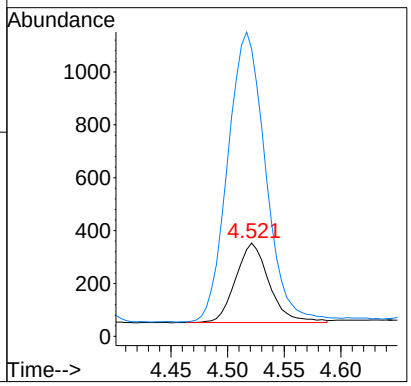


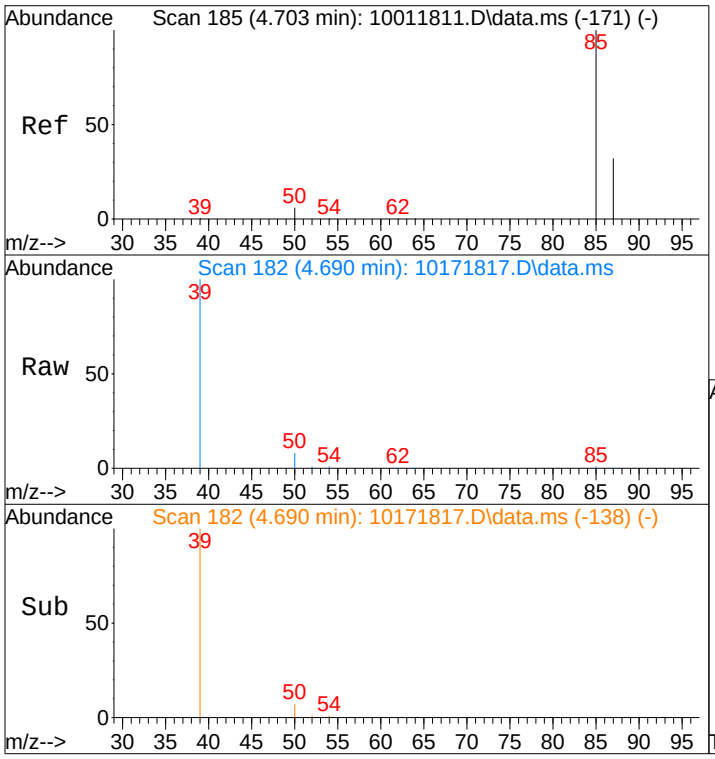


#3
Chloromethane
Concen: 58.84 pg
RT: 4.52 min Scan# 144
Delta R.T. 0.004 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 52 Resp: 622

Ion	Ratio	Lower	Upper
52	100		
50	410.9	281.8	321.8#

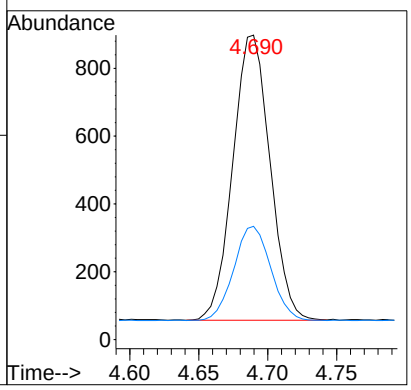


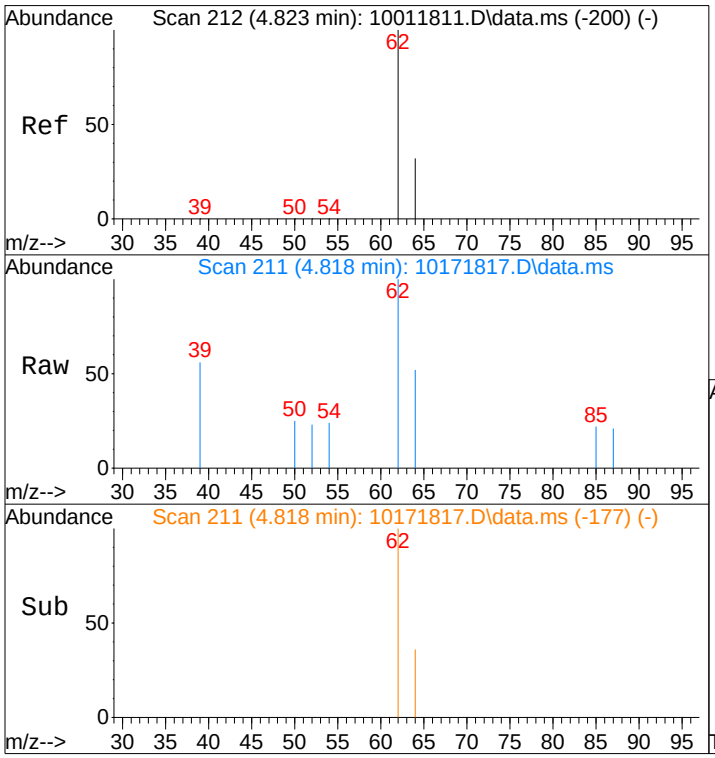


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 48.36 pg
RT: 4.69 min Scan# 182
Delta R.T. -0.004 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 85 Resp: 1576

Ion	Ratio	Lower	Upper
85	100		
87	33.0	26.0	39.0

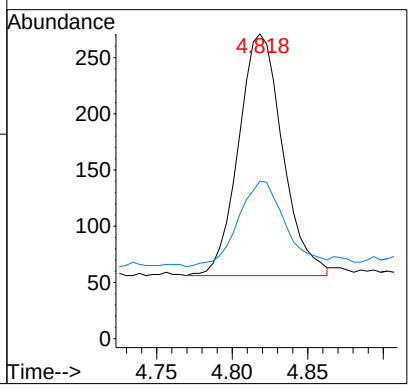


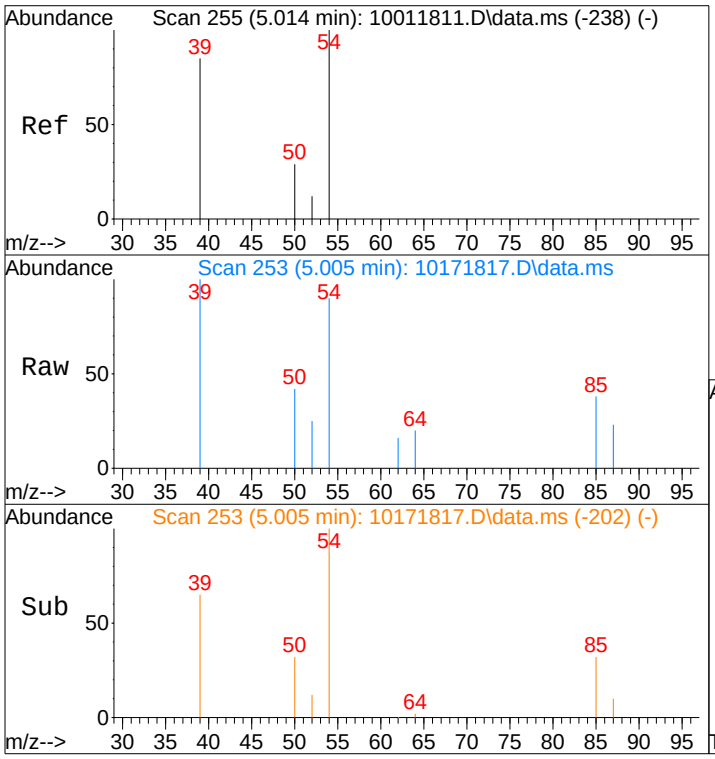


#5
Vinyl Chloride
Concen: 14.89 pg
RT: 4.82 min Scan# 211
Delta R.T. -0.000 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 62 Resp: 437

Ion	Ratio	Lower	Upper
62	100		
64	37.8	12.8	52.8

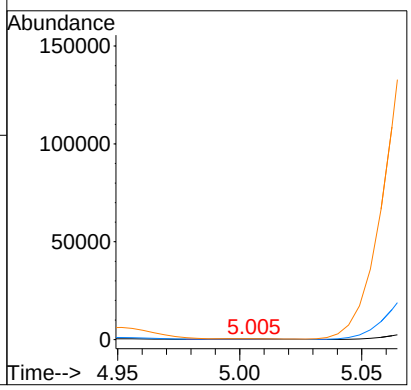


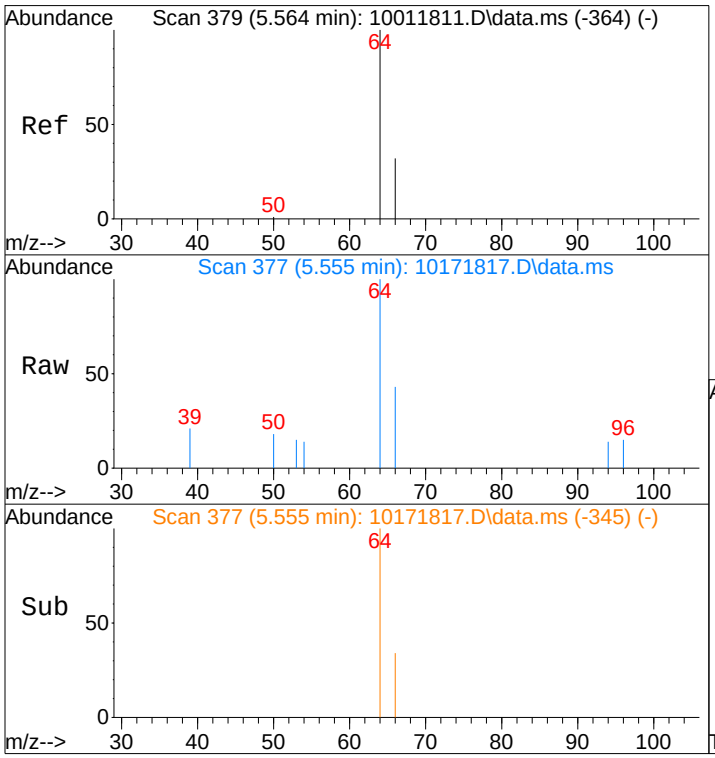


#6
1,3-Butadiene
Concen: 23.34 pg
RT: 5.00 min Scan# 253
Delta R.T. -0.004 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 54 Resp: 518

Ion	Ratio	Lower	Upper
54	100		
50	23.7	23.6	35.4
39	0.0	69.9	104.9#

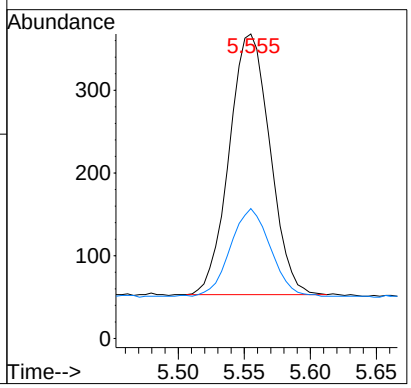


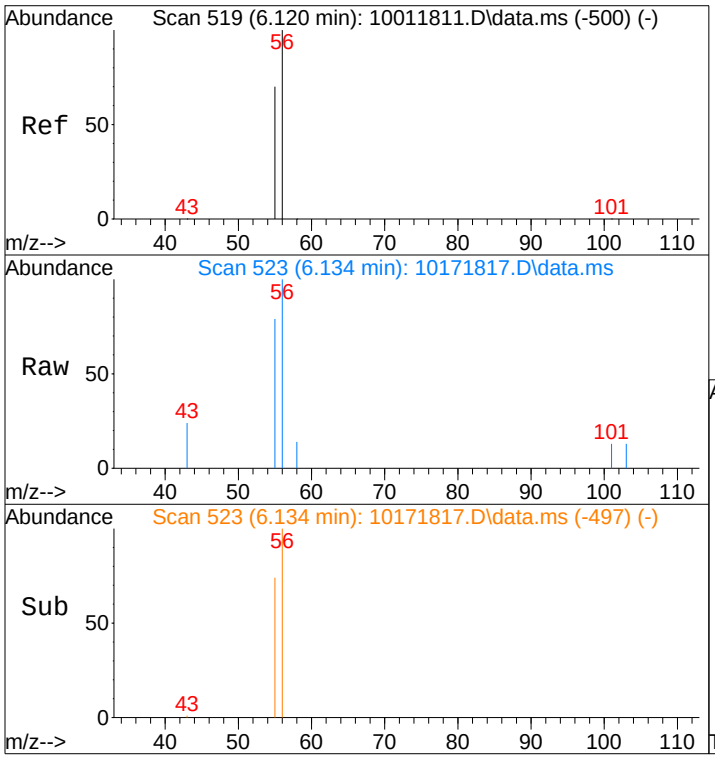


#8
Chloroethane
Concen: 44.08 pg
RT: 5.55 min Scan# 377
Delta R.T. -0.009 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 64 Resp: 677

Ion	Ratio	Lower	Upper
64	100		
66	32.9	12.3	52.3

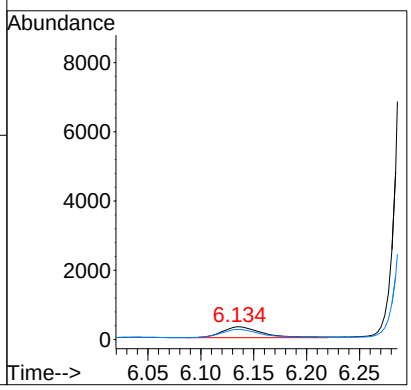


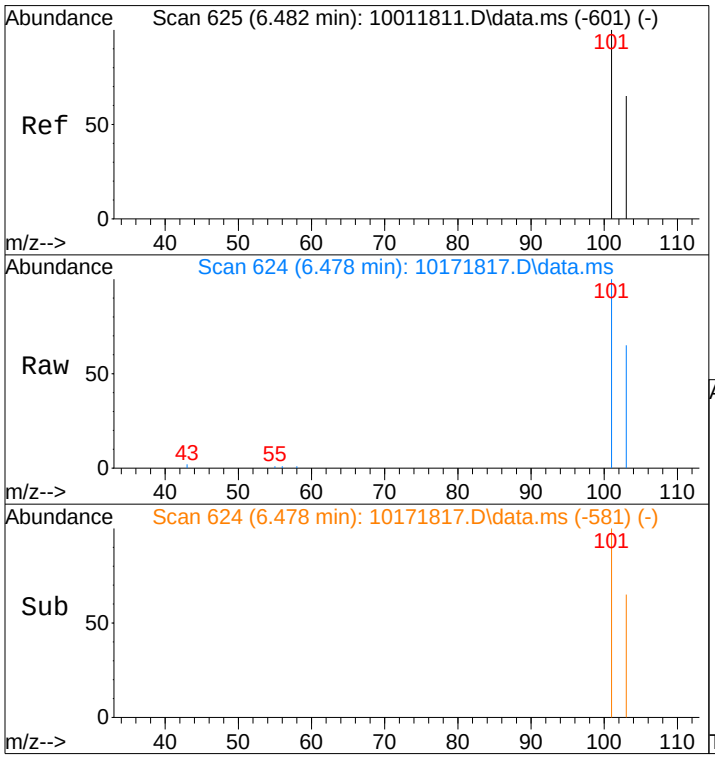


#9
Acrolein
Concen: 67.17 pg
RT: 6.13 min Scan# 523
Delta R.T. -0.021 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 56 Resp: 834

Ion	Ratio	Lower	Upper
56	100		
55	72.5	55.3	82.9

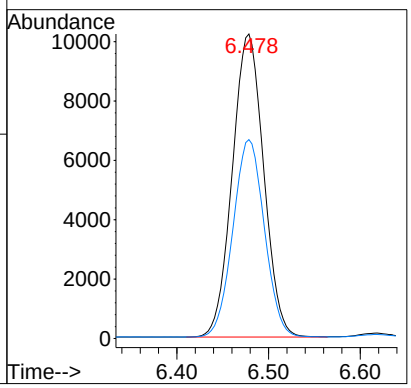


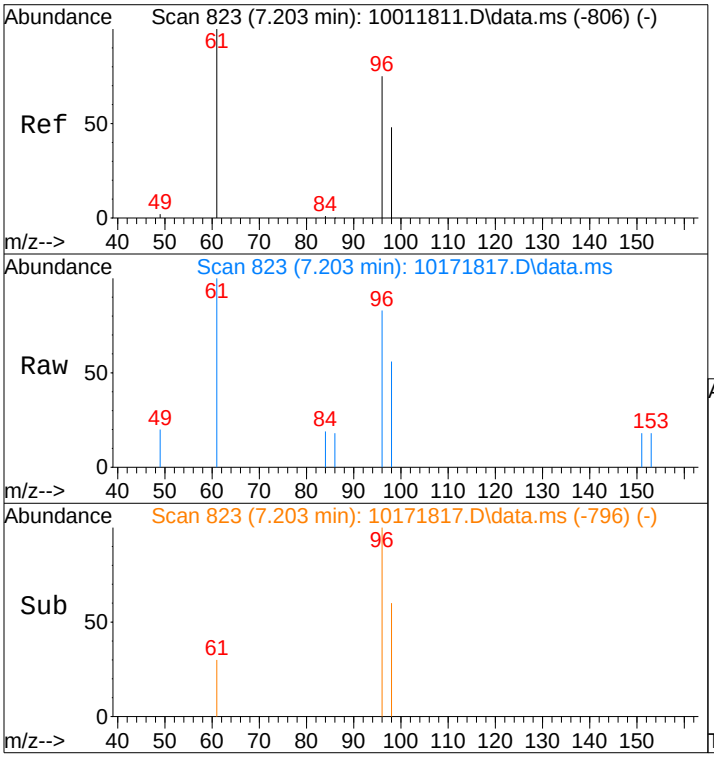


#11
Trichlorofluoromethane
Concen: 686.15 pg
RT: 6.48 min Scan# 624
Delta R.T. -0.003 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:101 Resp: 24259

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

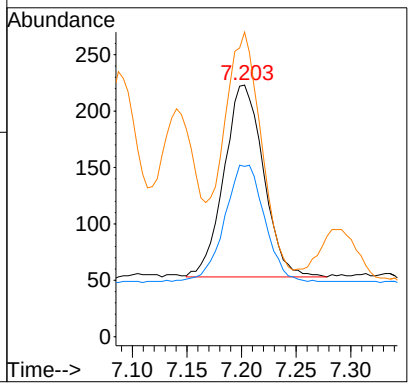


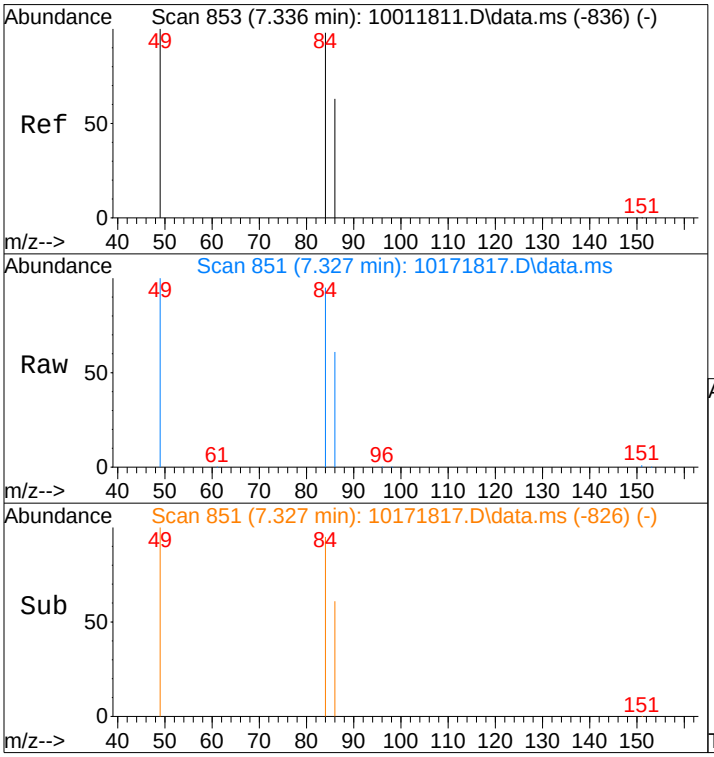


#12
1,1-Dichloroethene
Concen: 17.11 pg
RT: 7.20 min Scan# 823
Delta R.T. -0.009 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 96 Resp: 428

Ion	Ratio	Lower	Upper
96	100		
98	61.0	44.2	84.2
61	116.1	114.1	154.1

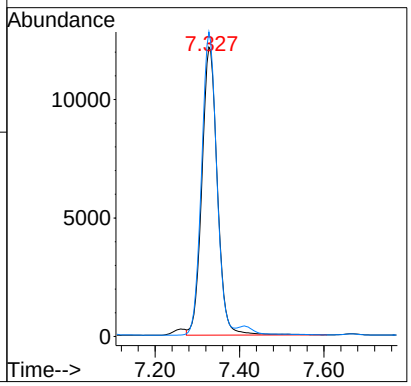


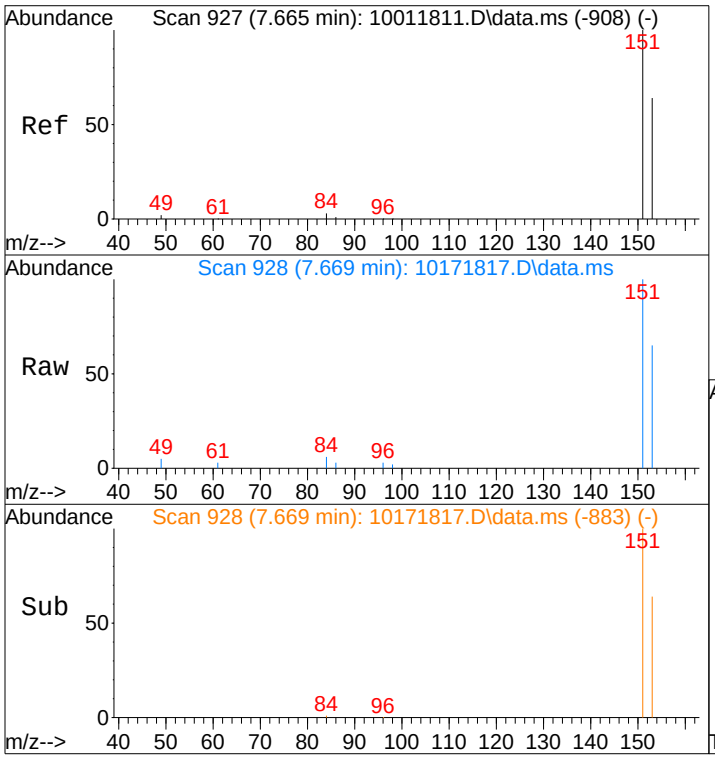


#13
Methylene Chloride
Concen: 1182.75 pg
RT: 7.33 min Scan# 851
Delta R.T. -0.049 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 84 Resp: 30999

Ion	Ratio	Lower	Upper
84	100		
49	103.1	83.3	123.3

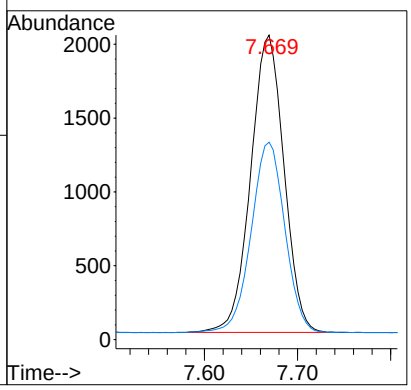


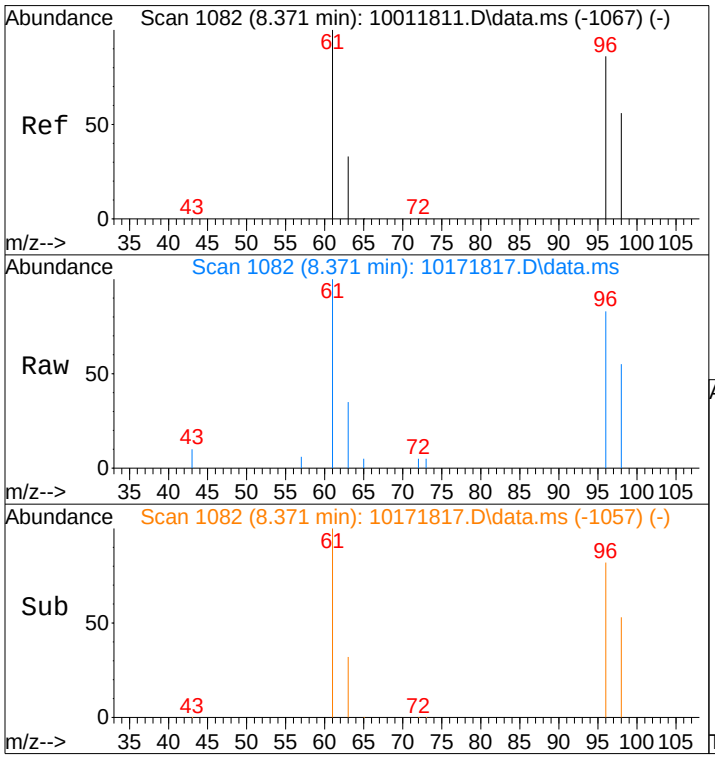


#14
Trichlorotrifluoroethane
Concen: 201.86 pg
RT: 7.67 min Scan# 928
Delta R.T. -0.000 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:151 Resp: 5002

Ion	Ratio	Lower	Upper
151	100		
153	64.8	44.3	84.3

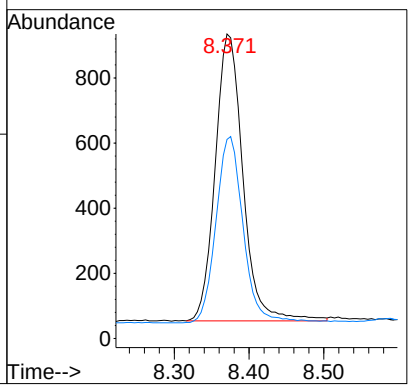


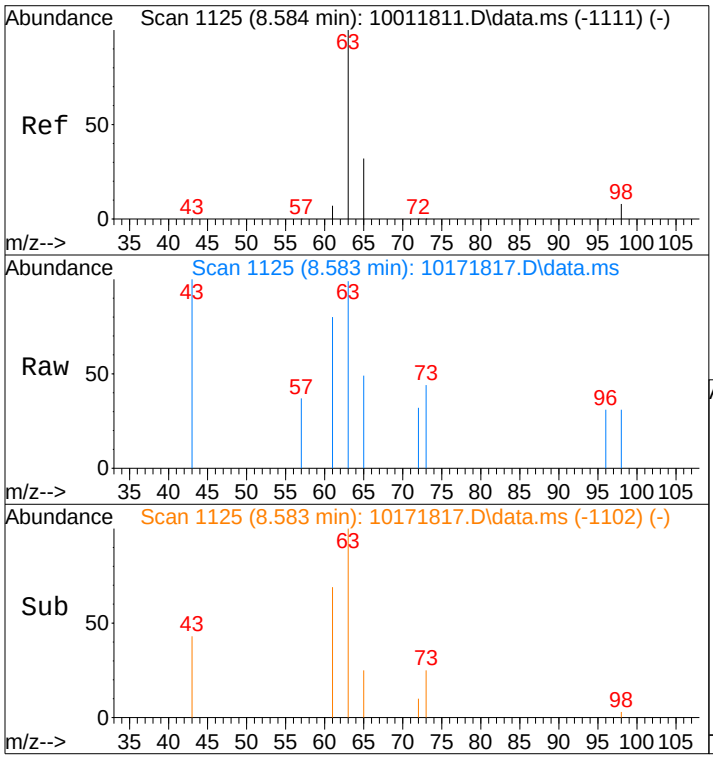


#15
trans-1,2-Dichloroethene
Concen: 87.20 pg
RT: 8.37 min Scan# 1082
Delta R.T. -0.025 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 96 Resp: 2270

Ion	Ratio	Lower	Upper
96	100		
98	63.4	44.1	84.1

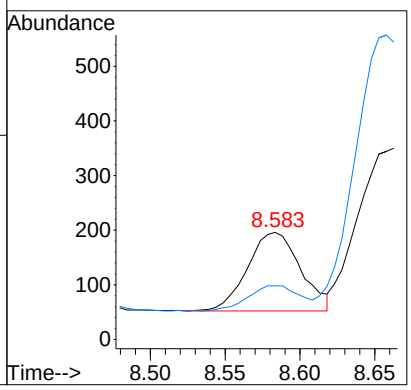


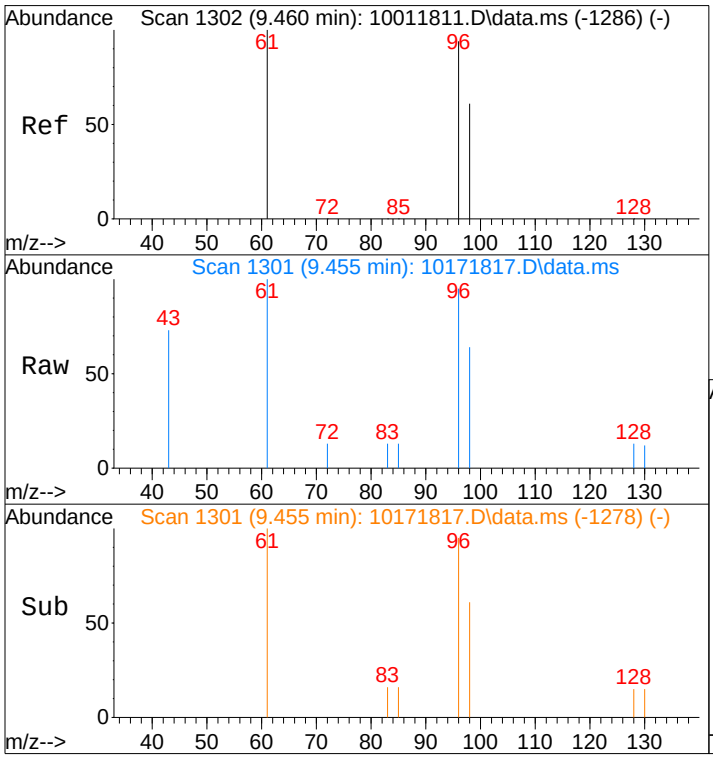


#16
1,1-Dichloroethane
Concen: 8.79 pg
RT: 8.58 min Scan# 1125
Delta R.T. -0.035 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 63 Resp: 357

Ion	Ratio	Lower	Upper
63	100		
65	31.4	12.2	52.2

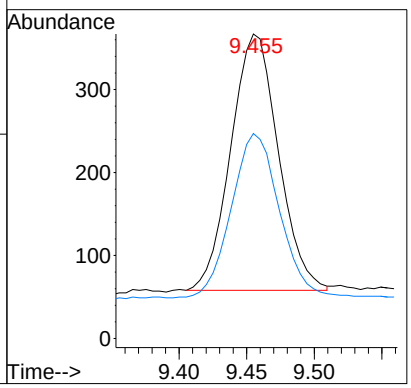


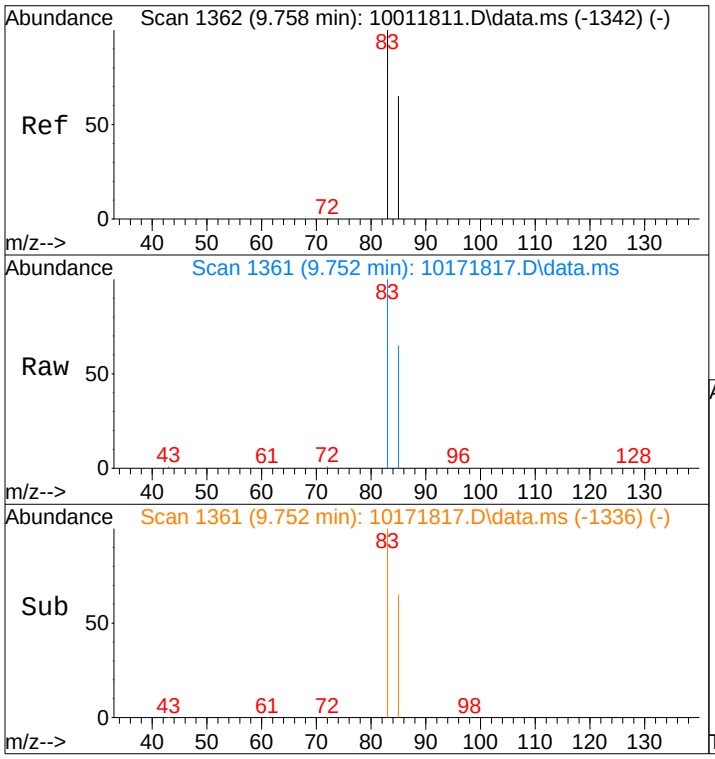


#18
cis-1,2-Dichloroethene
Concen: 27.29 pg
RT: 9.45 min Scan# 1301
Delta R.T. -0.035 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 96 Resp: 756

Ion	Ratio	Lower	Upper
96	100		
98	65.5	44.5	84.5

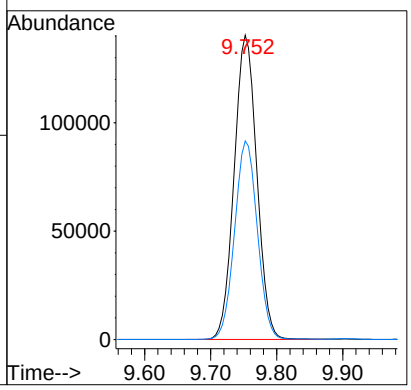


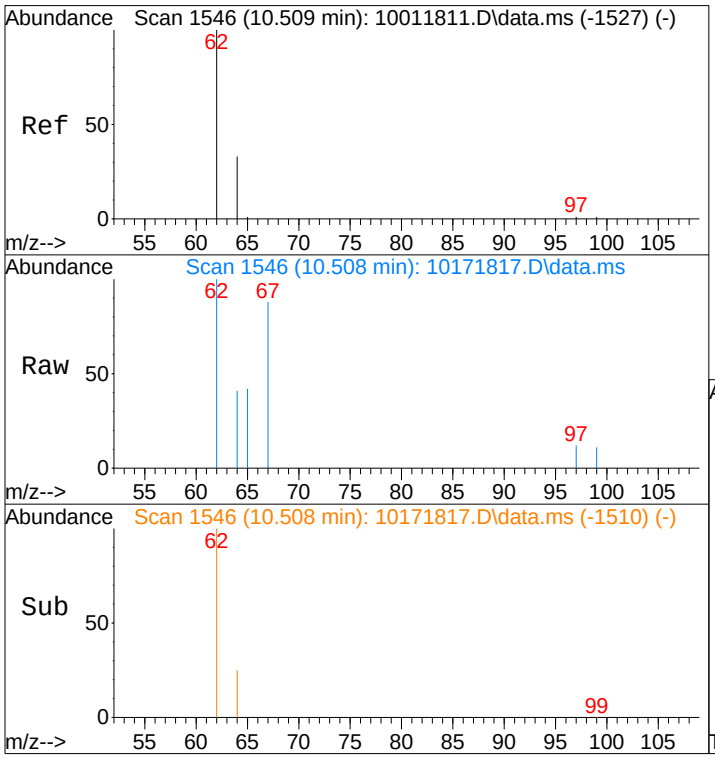


#19
Chloroform
Concen: 7647.97 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.045 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 83 Resp: 335213

Ion	Ratio	Lower	Upper
83	100		
85	65.6	46.0	86.0

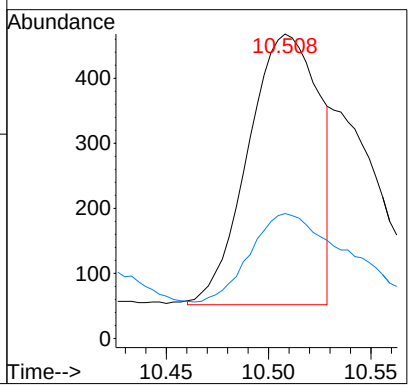


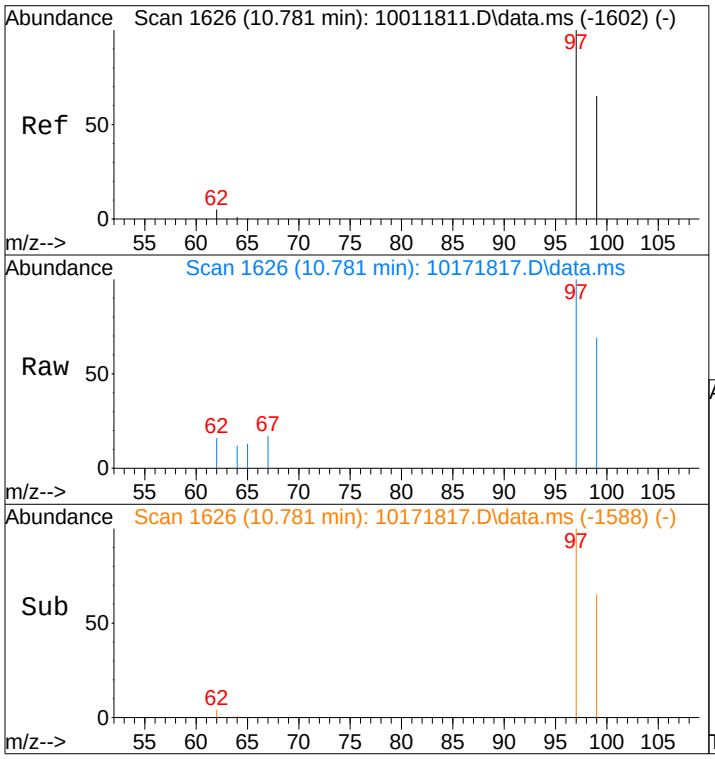


#21
1,2-Dichloroethane
Concen: 37.00 pg m
RT: 10.51 min Scan# 1546
Delta R.T. -0.027 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 62 Resp: 1003

Ion	Ratio	Lower	Upper
62	100		
64	46.0	12.9	52.9

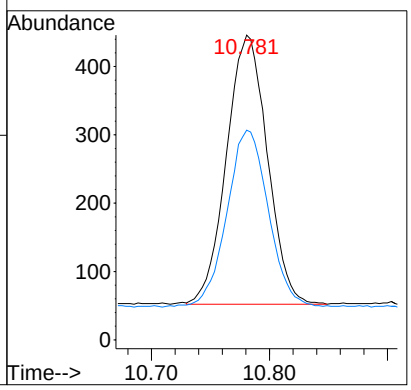


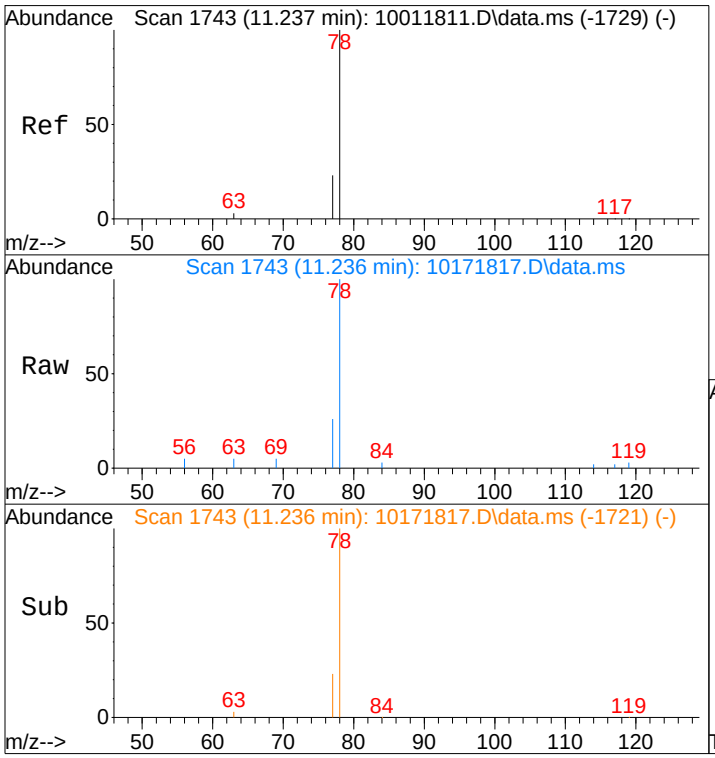


#22
1,1,1-Trichloroethane
Concen: 25.55 pg
RT: 10.78 min Scan# 1626
Delta R.T. -0.020 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 97 Resp: 950

Ion	Ratio	Lower	Upper
97	100		
99	65.7	44.9	84.9

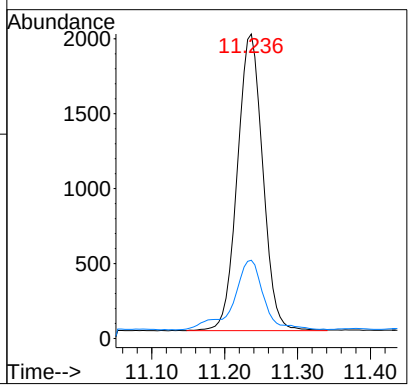


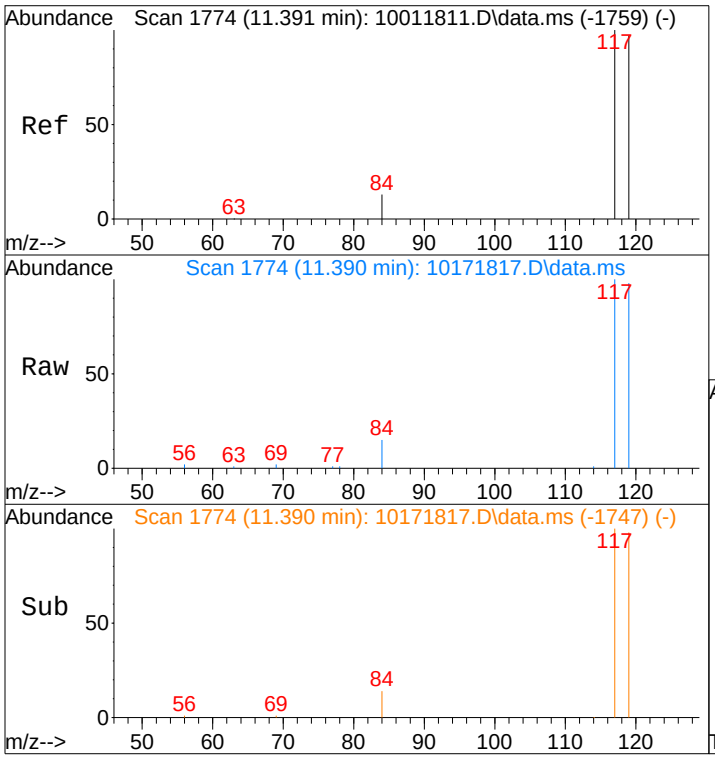


#23
Benzene
Concen: 43.60 pg
RT: 11.24 min Scan# 1743
Delta R.T. -0.020 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 78 Resp: 4801

Ion	Ratio	Lower	Upper
78	100		
77	24.6	3.3	43.3

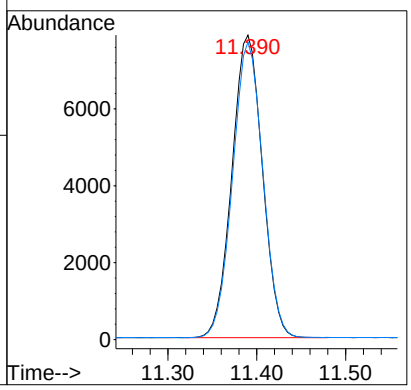


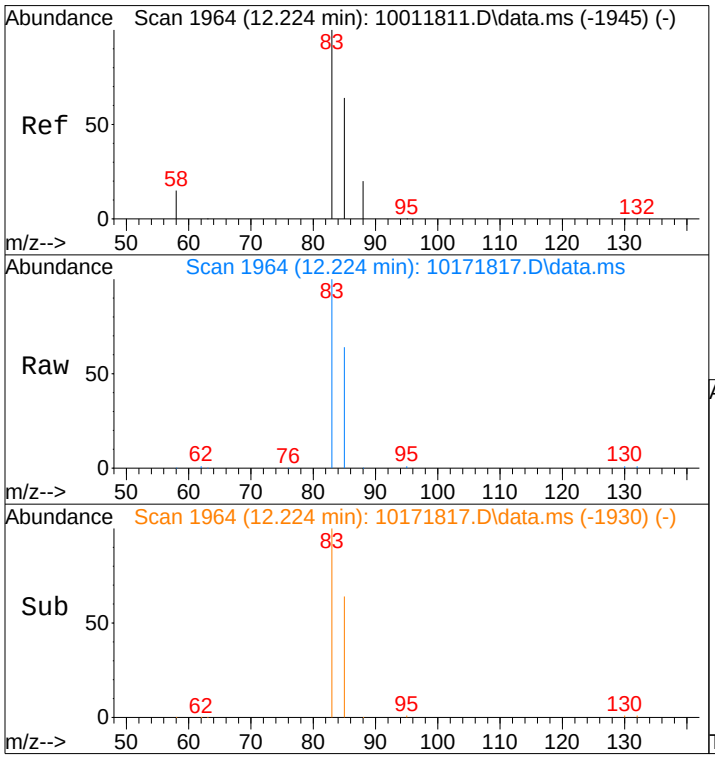


#24
Carbon Tetrachloride
Concen: 552.76 pg
RT: 11.39 min Scan# 1774
Delta R.T. -0.015 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:117 Resp: 18757

Ion	Ratio	Lower	Upper
117	100		
119	97.0	76.7	116.7

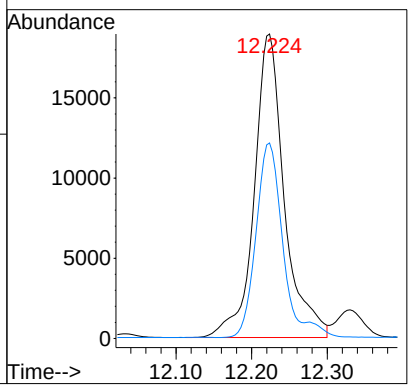


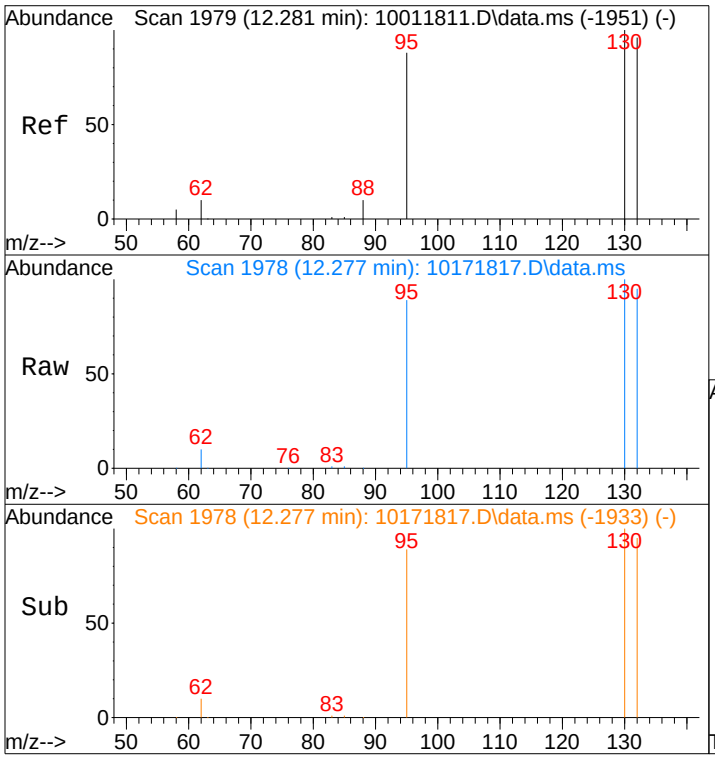


#27
Bromodichloromethane
Concen: 1754.32 pg
RT: 12.22 min Scan# 1964
Delta R.T. -0.019 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 83 Resp: 52400

Ion	Ratio	Lower	Upper
83	100		
85	57.5	51.7	77.5

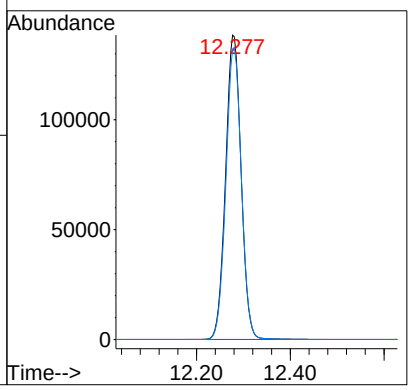


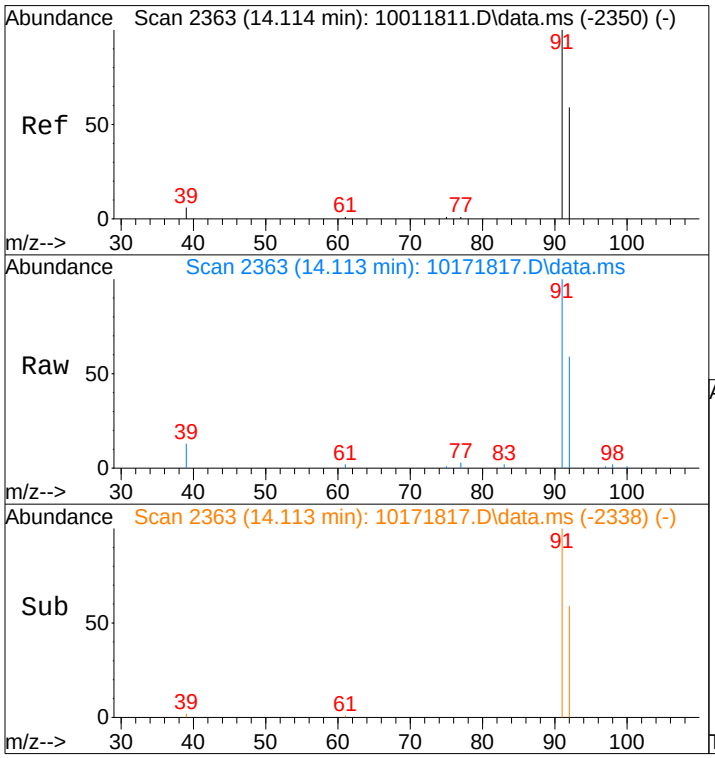


#28
Trichloroethene
Concen: 11255.78 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.019 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:130 Resp: 317736

Ion	Ratio	Lower	Upper
130	100		
132	96.0	75.6	115.6

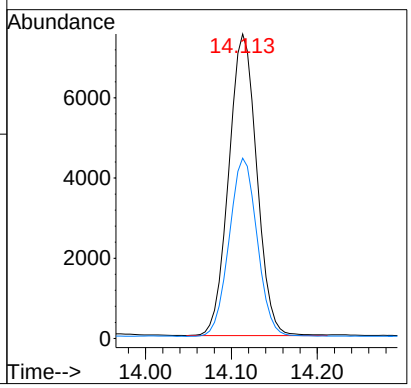


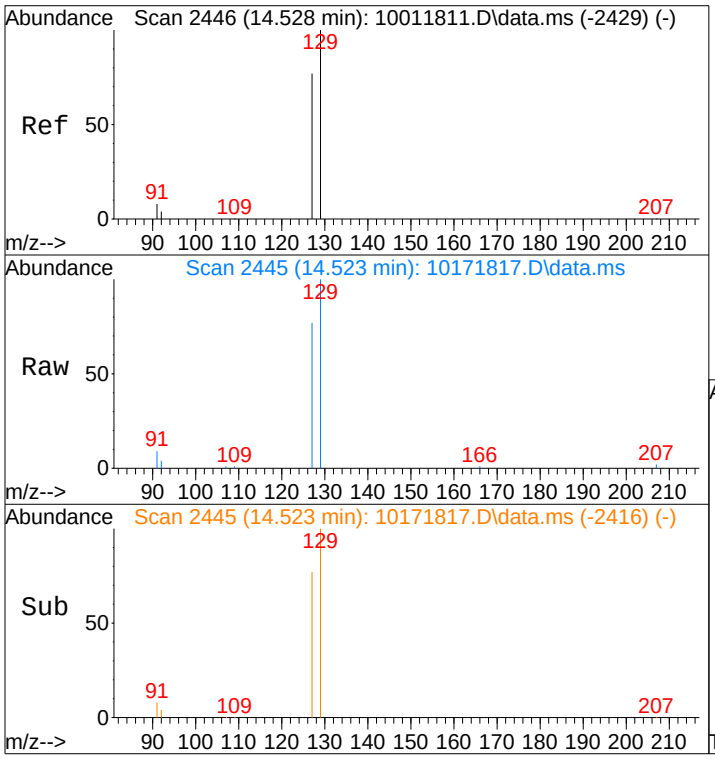


#34
Toluene
Concen: 165.21 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.011 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 91 Resp: 17042

Ion	Ratio	Lower	Upper
91	100		
92	59.0	39.2	79.2

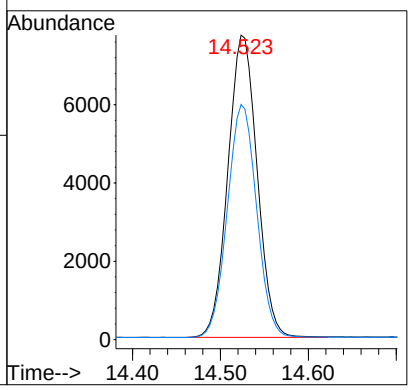


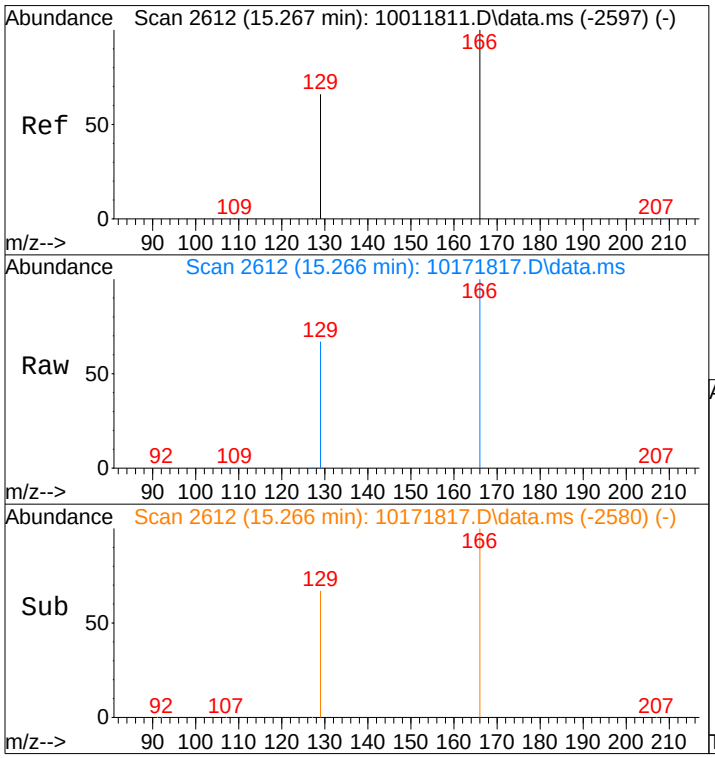


#35
Dibromochloromethane
Concen: 645.33 pg
RT: 14.52 min Scan# 2445
Delta R.T. -0.012 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:129 Resp: 17833

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

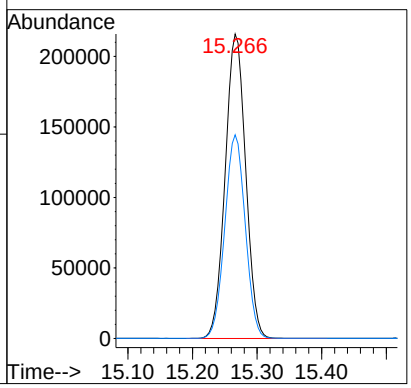


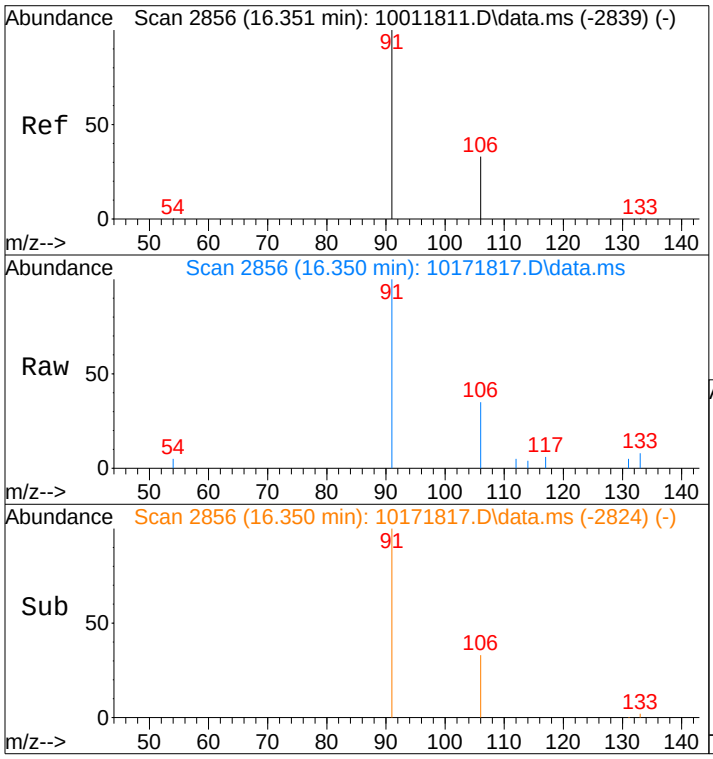


#37
Tetrachloroethene
Concen: 15623.89 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:166 Resp: 474267

Ion	Ratio	Lower	Upper
166	100		
129	66.9	46.7	86.7

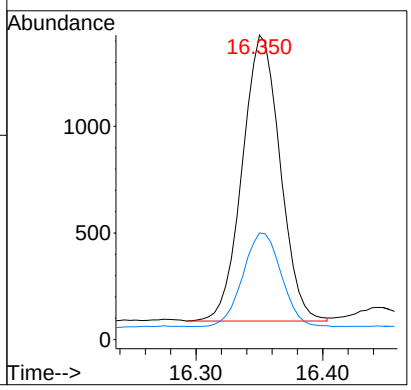


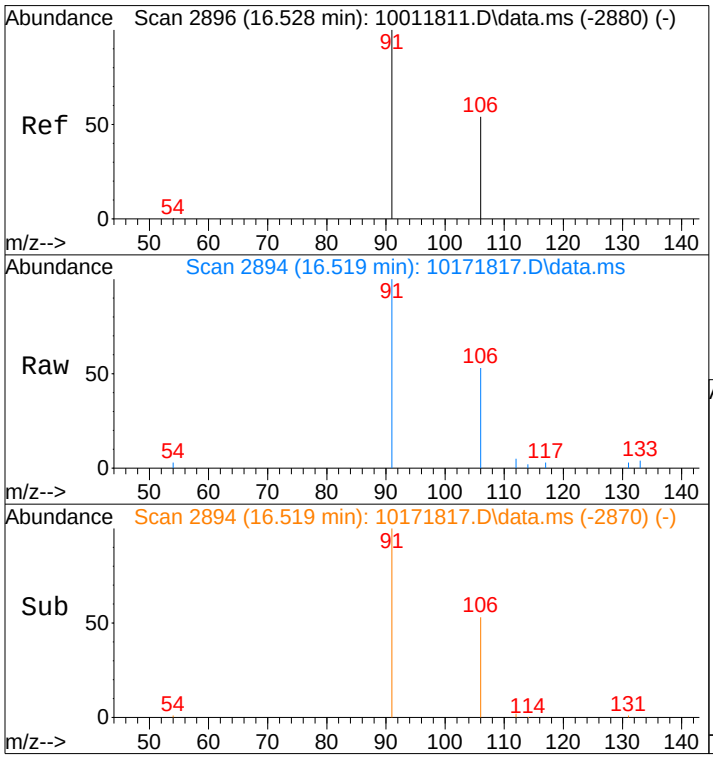


#40
Ethylbenzene
Concen: 24.04 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 91 Resp: 2780

Ion	Ratio	Lower	Upper
91	100		
106	33.2	13.7	53.7

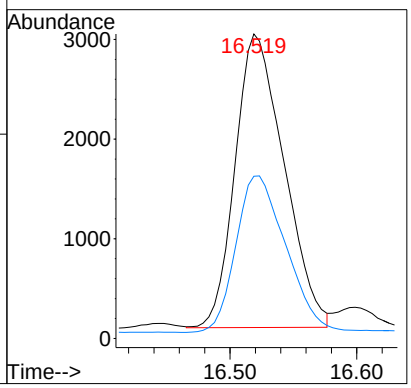


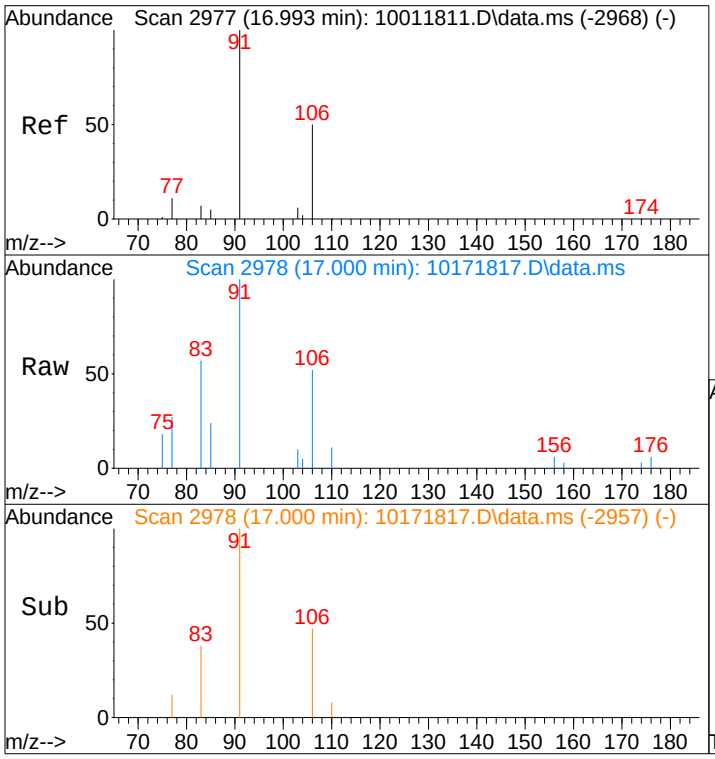


#41
m,p-Xylene
Concen: 89.35 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion: 91 Resp: 7900

Ion	Ratio	Lower	Upper
91	100		
106	55.1	34.3	74.3

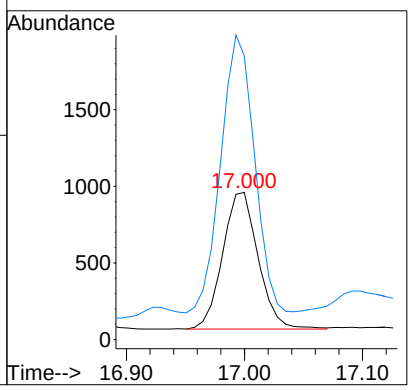


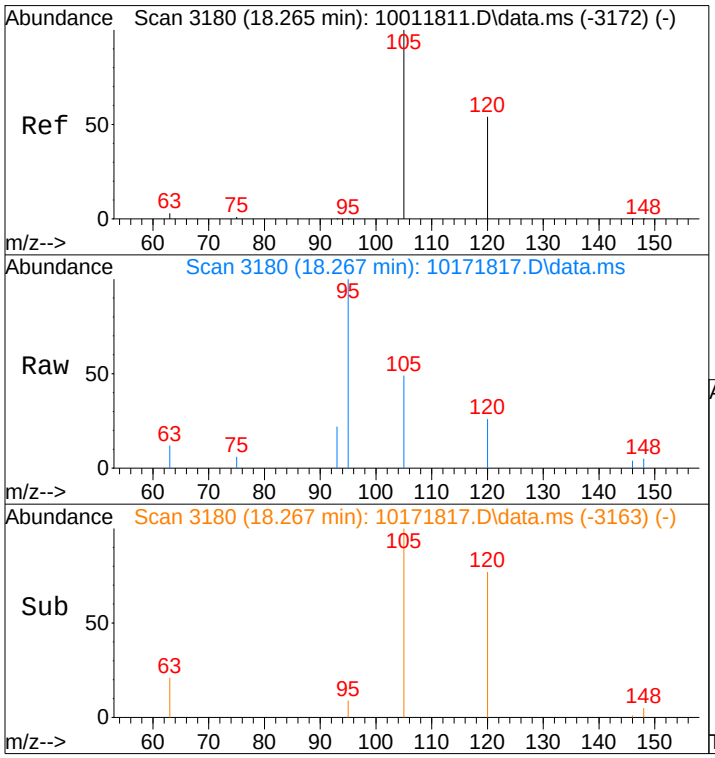


#43
o-Xylene
Concen: 39.59 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:106 Resp: 1861

Ion	Ratio	Lower	Upper
106	100		
91	193.2	175.6	215.6

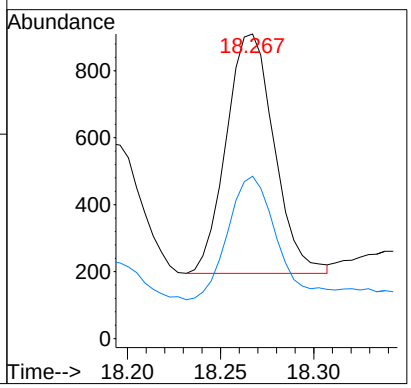


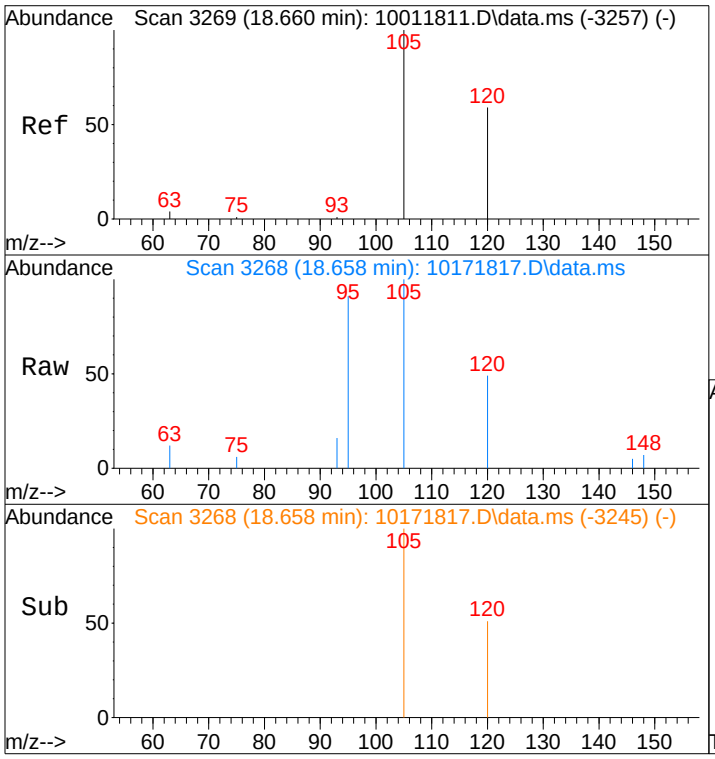


#46
1,3,5-Trimethylbenzene
Concen: 12.94 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.003 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:105 Resp: 1279

Ion	Ratio	Lower	Upper
105	100		
120	52.9	42.8	64.2

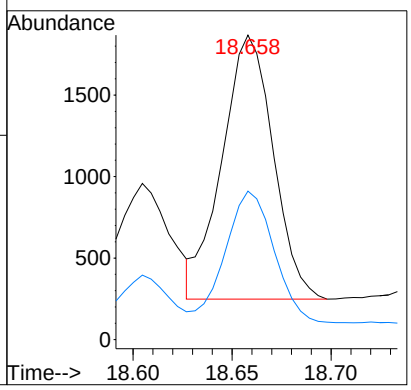


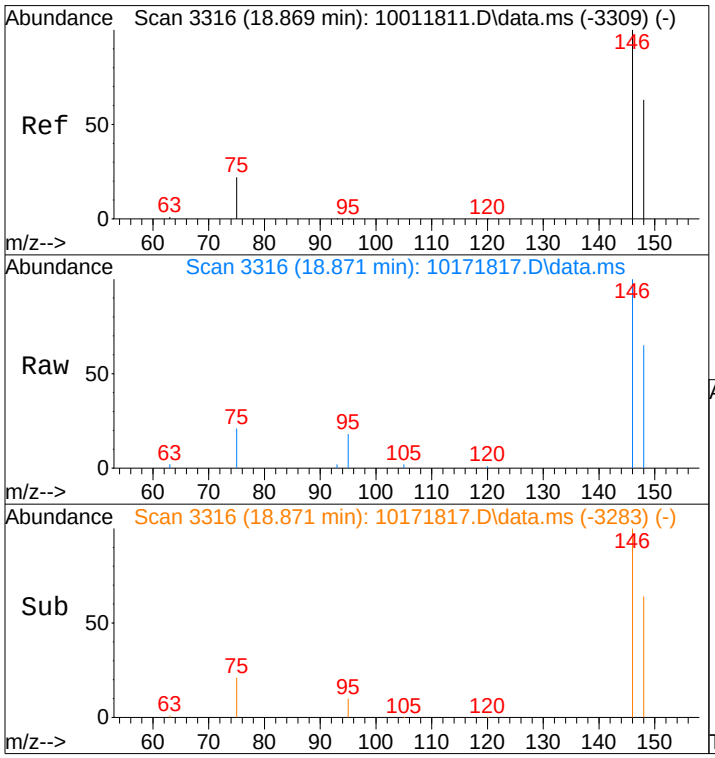


#47
1,2,4-Trimethylbenzene
Concen: 29.57 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:105 Resp: 2916

Ion	Ratio	Lower	Upper
105	100		
120	47.7	47.1	70.7

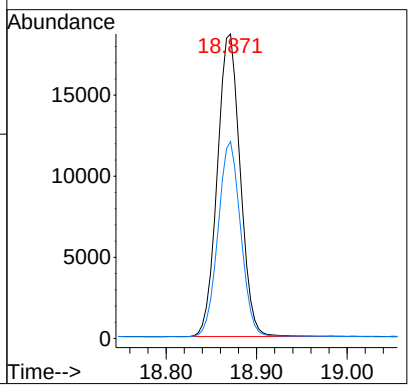


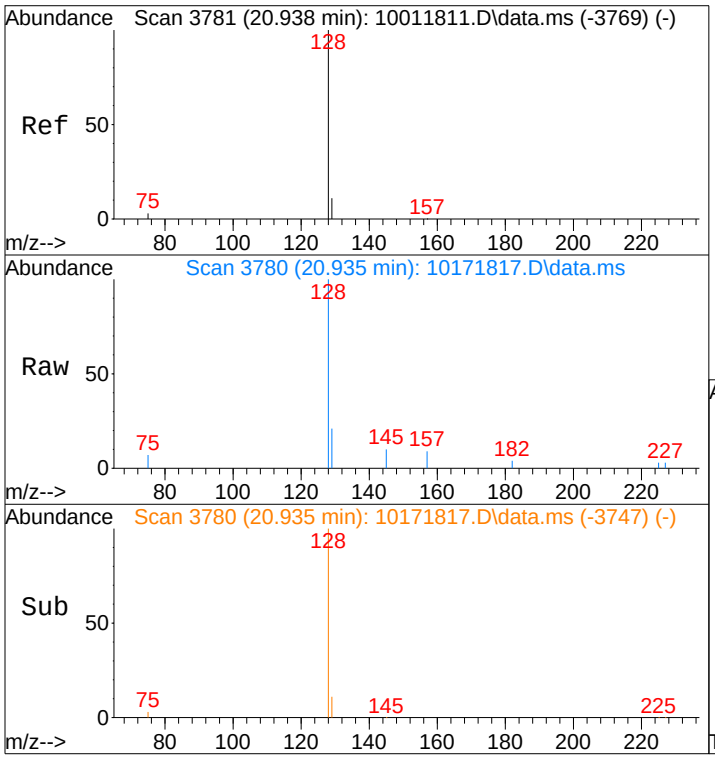


#49
1,4-Dichlorobenzene
Concen: 508.25 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.003 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:146 Resp: 32887

Ion	Ratio	Lower	Upper
146	100		
148	63.9	43.8	83.8

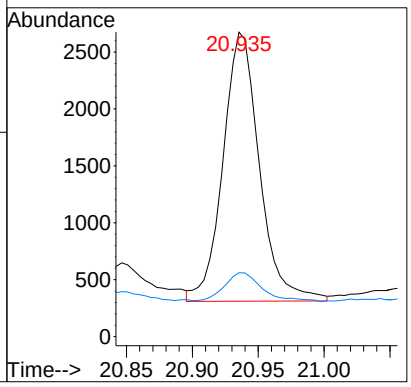




#53
Naphthalene
Concen: 39.49 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10171817.D
Acq: 17 Oct 2018 21:19

Tgt Ion:128 Resp: 4556

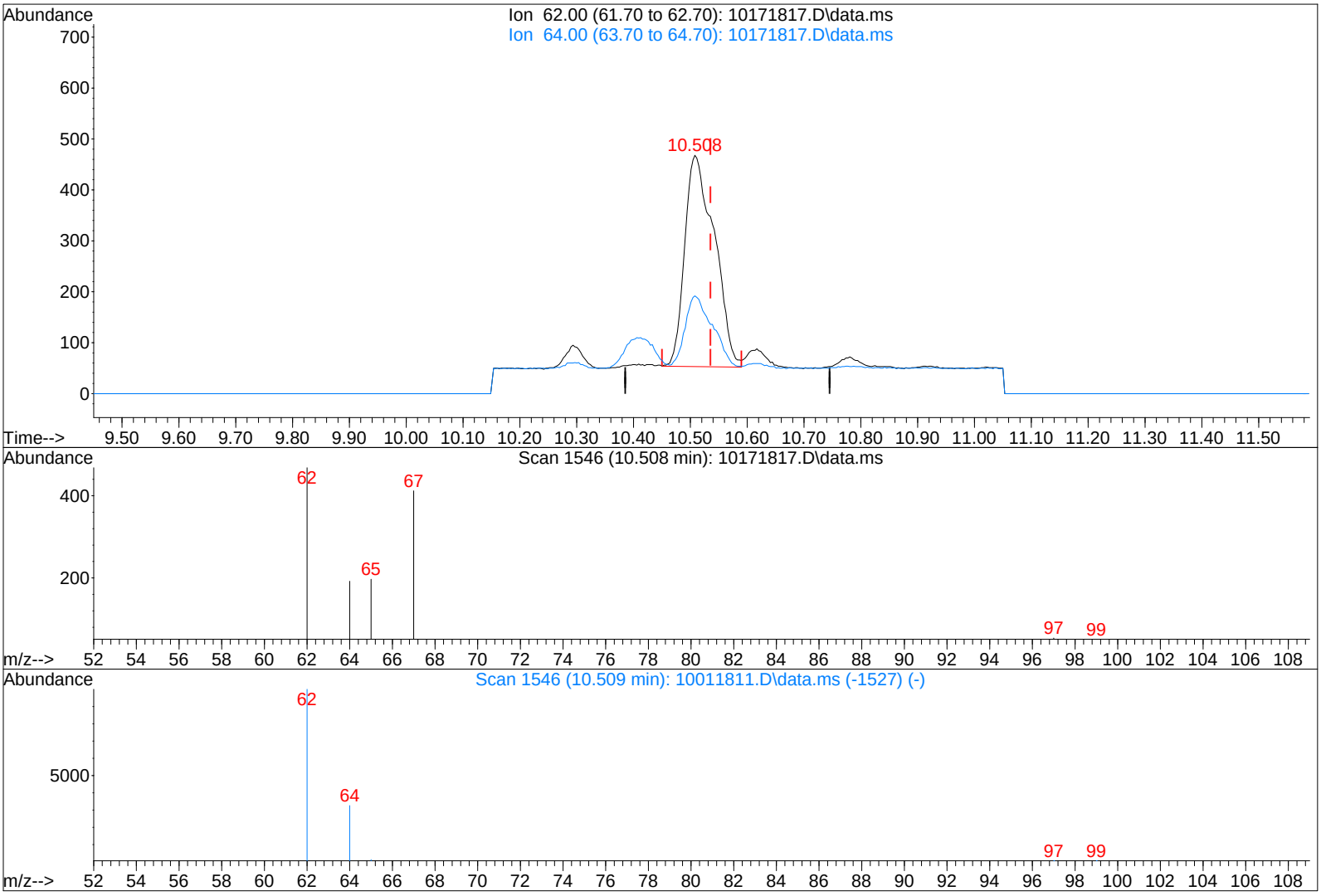
Ion	Ratio	Lower	Upper
128	100		
129	11.7	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:23 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171817.D\data.ms

(21) 1,2-Dichloroethane (T)

10.508min (-0.027) 55.37pg

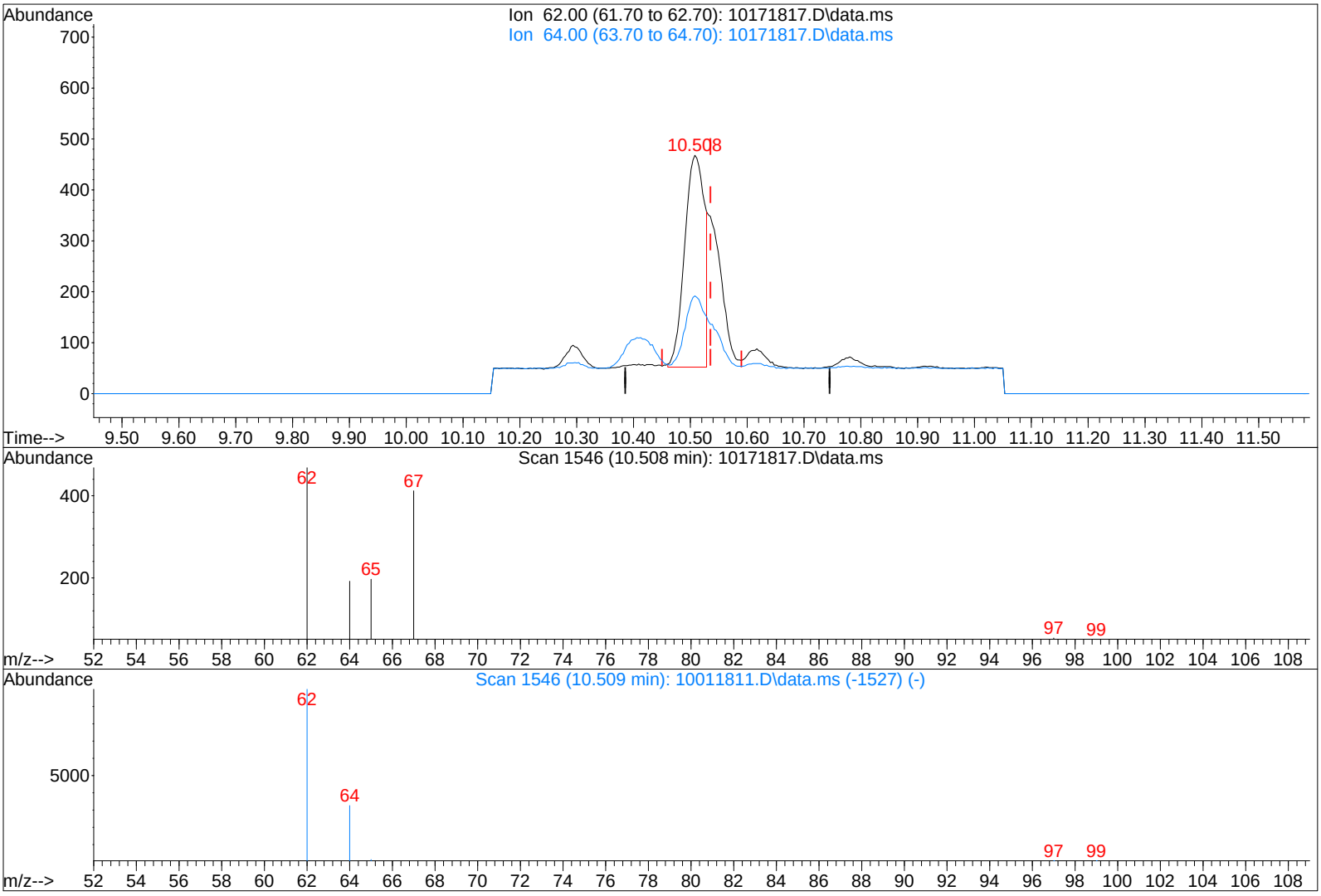
response 1501

Ion	Exp%	Act%
62.00	100	100
64.00	32.90	30.71
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171817.D Vial: 10
Acq On : 17 Oct 2018 21:19 Operator: WA
Sample : P1805497-009 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:23 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171817.D\data.ms

(21) 1,2-Dichloroethane (T)

10.508min (-0.027) 37.00pg m

response 1003

IPC

Ion	Exp%	Act%
62.00	100	100
64.00	32.90	45.96
0.00	0.00	0.00
0.00	0.00	0.00

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:01:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	30127	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	91806	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	15402	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	22214m	615.967 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 61.60%#			
33) Toluene-d8 (SS2)	14.02	98	98258	1037.848 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.79%			
45) Bromofluorobenzene (SS3)	17.43	174	36479	838.189 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.82%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	128696	2004.821 pg		100
3) Chloromethane	4.52	52	3943	262.685 pg	#	64
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	1437	31.054 pg		99
5) Vinyl Chloride	4.82	62	535	12.835 pg		68
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.34	94	288	9.835 pg		98
8) Chloroethane	5.58	64	3176	145.619 pg		100
9) Acrolein	6.14	56	1632	92.567 pg	#	77
10) Acetone	6.28	58	113754	5089.268 pg		96
11) Trichlorofluoromethane	6.52	101	40580	808.323 pg		100
12) 1,1-Dichloroethene	7.24	96	1353	38.084 pg	#	75
13) Methylene Chloride	7.35	84	39545	1062.585 pg		98
14) Trichlorotrifluoroethane	7.71	151	5003	142.190 pg		100
15) trans-1,2-Dichloroethene	8.40	96	464	12.553 pg		100
16) 1,1-Dichloroethane	8.61	63	1466	25.412 pg		95
17) Methyl tert-Butyl Ether	8.59	73	122	N.D.		
18) cis-1,2-Dichloroethene	9.48	96	183	N.D.		
19) Chloroform	9.77	83	1750981	28134.214 pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D. d		
22) 1,1,1-Trichloroethane	10.80	97	5310	100.590 pg		96
23) Benzene	11.25	78	101376	648.375 pg		97
24) Carbon Tetrachloride	11.41	117	51243	1063.487 pg		100
26) 1,2-Dichloropropane	12.05	63	320	13.994 pg		81
27) Bromodichloromethane	12.23	83	292474m	9635.788 pg		
28) Trichloroethene	12.29	130	2719	94.786 pg		99
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	13.63	75	108	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.12	91	7753992	73971.303 pg		97
35) Dibromochloromethane	14.53	129	106775	3802.311 pg		100
36) 1,2-Dibromoethane	14.79	107	63	N.D.		
37) Tetrachloroethene	15.27	166	39851	1291.900 pg		100
39) Chlorobenzene	0.00	112	0	N.D. d		
40) Ethylbenzene	16.35	91	103910	731.786 pg		100
41) m,p-Xylene	16.52	91	281054	2588.697 pg		99
42) Styrene	16.89	104	17905	207.627 pg	#	1
43) o-Xylene	17.00	106	57996	1004.766 pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	52457	432.099 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	105201	868.661 pg		88
48) 1,3-Dichlorobenzene	18.81	146	137	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	178962	2252.383 pg		100
50) 1,2-Dichlorobenzene	0.00	146	0	N.D. d		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	201	N.D.		
53) Naphthalene	20.94	128	8366	59.059 pg		62

NR

NR

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:01:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	54	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
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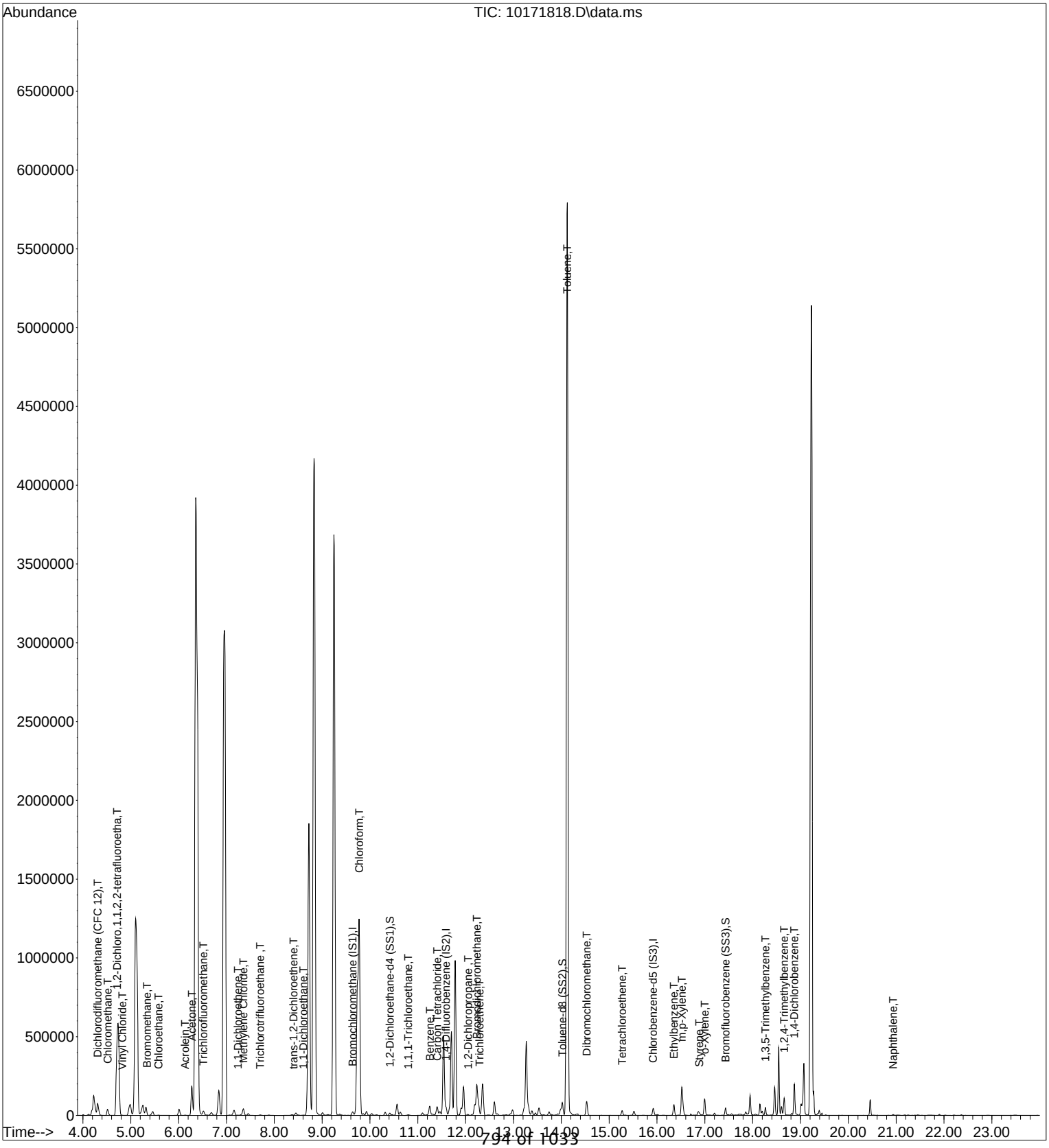
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

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QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	30127	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	91806	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	15402	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	22214m	615.967 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 61.60%#			
33) Toluene-d8 (SS2)	14.02	98	98258	1037.848 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.79%			
45) Bromofluorobenzene (SS3)	17.43	174	36479	838.189 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 83.82%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	128696	2004.821 pg		100
3) Chloromethane	4.52	52	3943	262.685 pg	#	64
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	1437	31.054 pg		99
5) Vinyl Chloride	4.82	62	535	12.835 pg		68
7) Bromomethane	5.34	94	288	9.835 pg		98
8) Chloroethane	5.58	64	3176	145.619 pg		100
9) Acrolein	6.14	56	1632	92.567 pg	#	77
10) Acetone	6.28	58	113754	5089.268 pg		96
11) Trichlorofluoromethane	6.52	101	40580	808.323 pg		100
12) 1,1-Dichloroethene	7.24	96	1353	38.084 pg	#	75
13) Methylene Chloride	7.35	84	39545	1062.585 pg		98
14) Trichlorotrifluoroethane	7.71	151	5003	142.190 pg		100
15) trans-1,2-Dichloroethene	8.40	96	464	12.553 pg		100
16) 1,1-Dichloroethane	8.61	63	1466	25.412 pg		95
19) Chloroform	9.77	83	1750981	28134.214 pg		99
22) 1,1,1-Trichloroethane	10.80	97	5310	100.590 pg		96
23) Benzene	11.25	78	101376	648.375 pg		97
24) Carbon Tetrachloride	11.41	117	51243	1063.487 pg		100
26) 1,2-Dichloropropane	12.05	63	320	13.994 pg		81
27) Bromodichloromethane	12.23	83	292474m	9635.788 pg		
28) Trichloroethene	12.29	130	2719	94.786 pg		99
34) Toluene	14.12	91	7753992	73971.303 pg		97
35) Dibromochloromethane	14.53	129	106775	3802.311 pg		100
37) Tetrachloroethene	15.27	166	39851	1291.900 pg		100
40) Ethylbenzene	16.35	91	103910	731.786 pg		100
41) m,p-Xylene	16.52	91	281054	2588.697 pg		99
42) Styrene	16.89	104	17905	207.627 pg	#	1
43) o-Xylene	17.00	106	57996	1004.766 pg		99
46) 1,3,5-Trimethylbenzene	18.27	105	52457	432.099 pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	105201	868.661 pg		88
49) 1,4-Dichlorobenzene	18.87	146	178962	2252.383 pg		100
53) Naphthalene	20.94	128	8366	59.059 pg		62

NR

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Quantitation Report (QT Reviewed)

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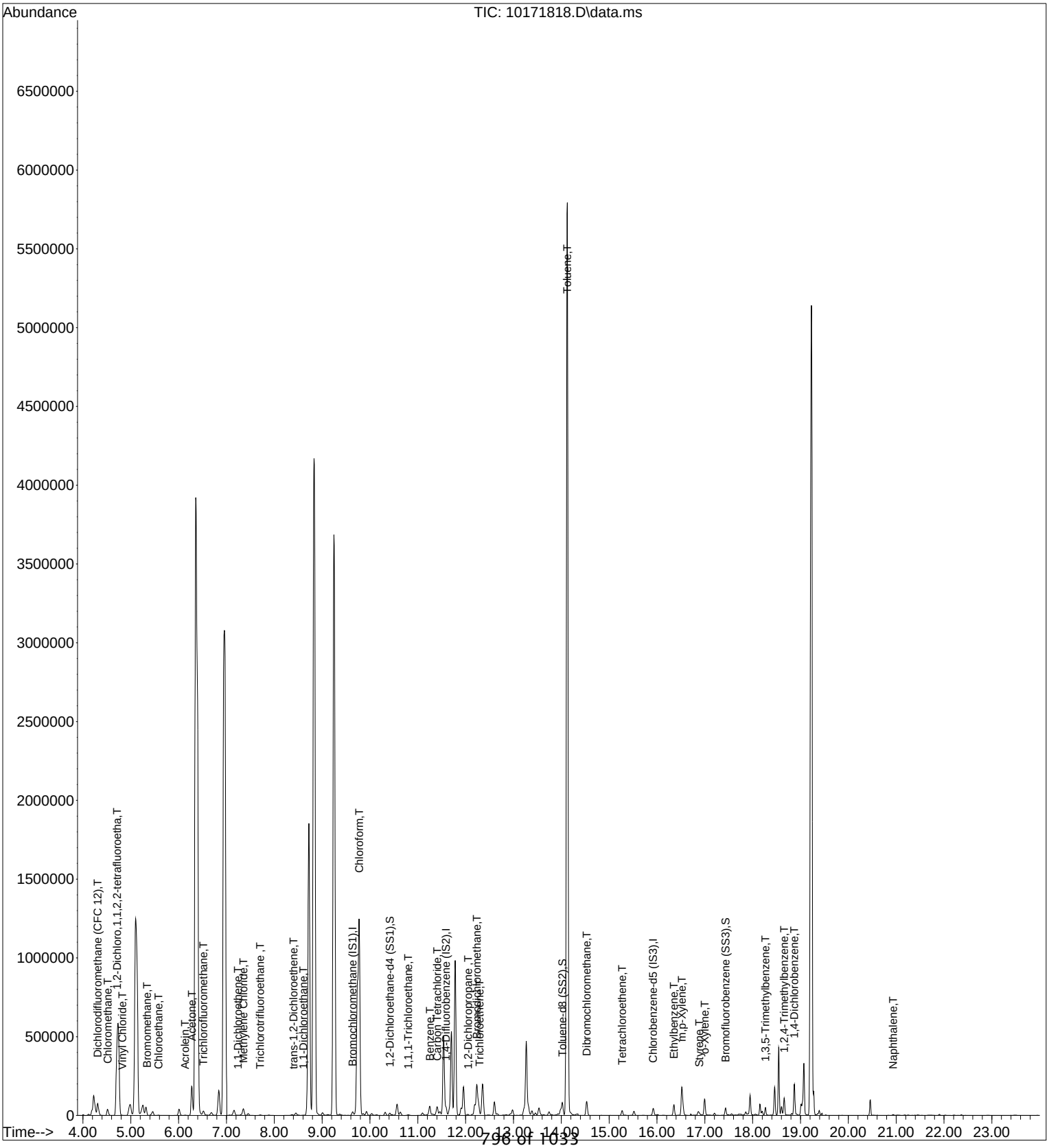
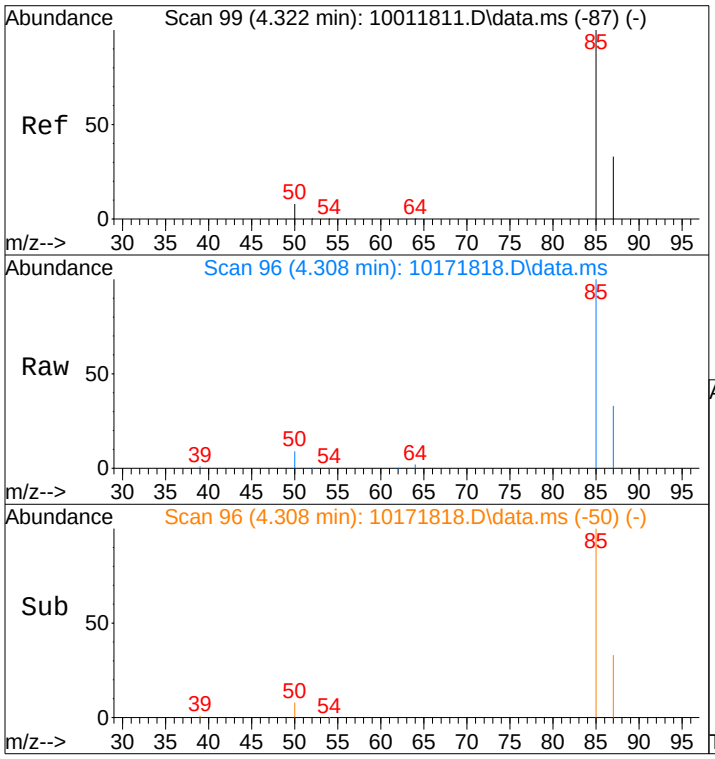
Misc : S31-09241806

Quant Time: Oct 25 14:01:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

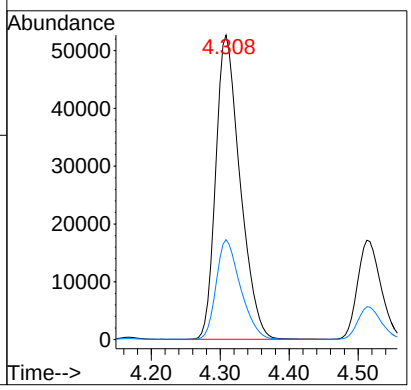


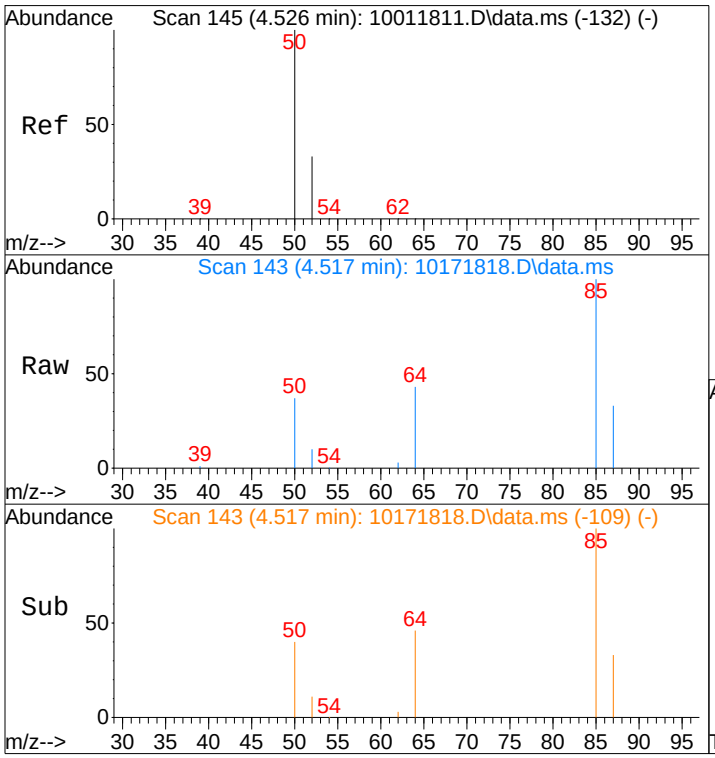


#2
Dichlorodifluoromethane (CFC 12)
Concen: 2004.82 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.005 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 85 Resp: 128696

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

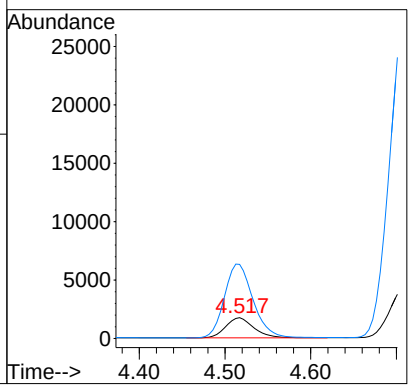


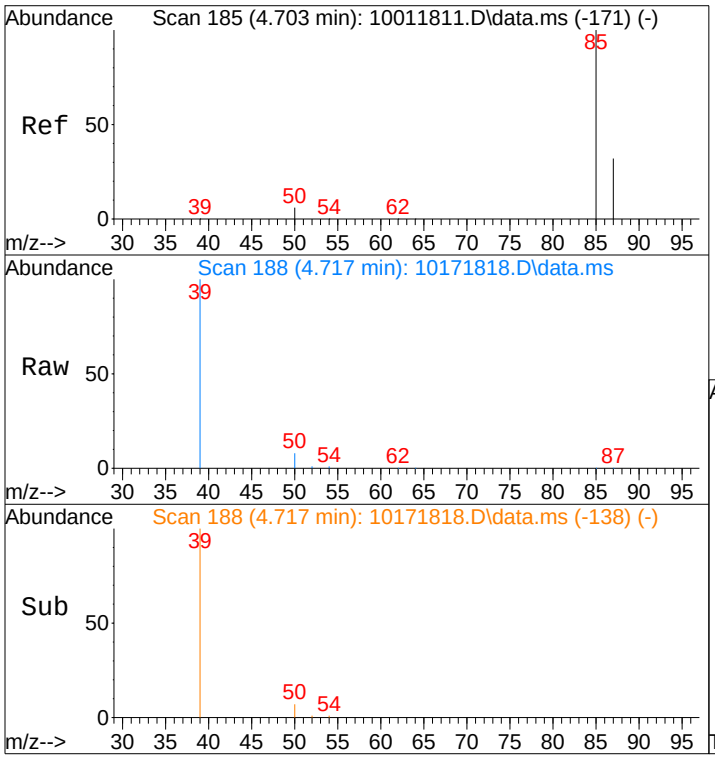


#3
Chloromethane
Concen: 262.69 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 52 Resp: 3943

Ion	Ratio	Lower	Upper
52	100		
50	372.9	281.8	321.8#

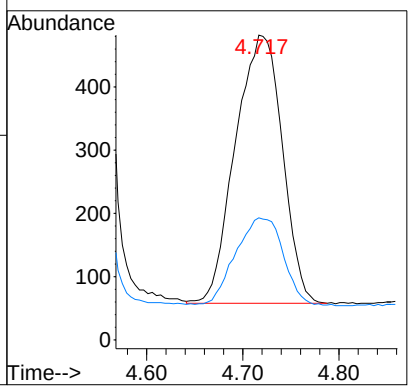


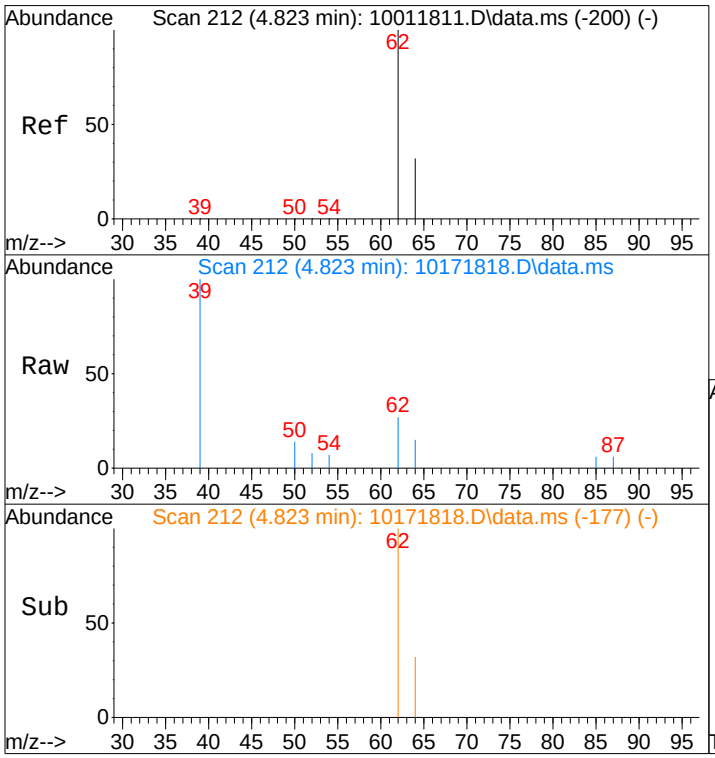


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 31.05 pg
RT: 4.72 min Scan# 188
Delta R.T. 0.023 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 85 Resp: 1437

Ion	Ratio	Lower	Upper
85	100		
87	32.9	26.0	39.0

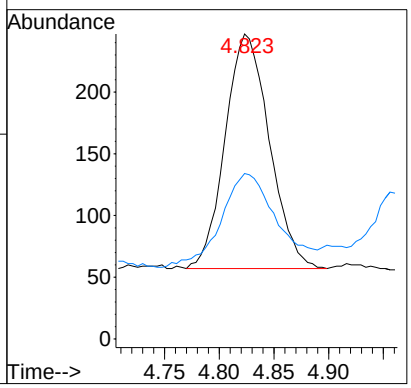


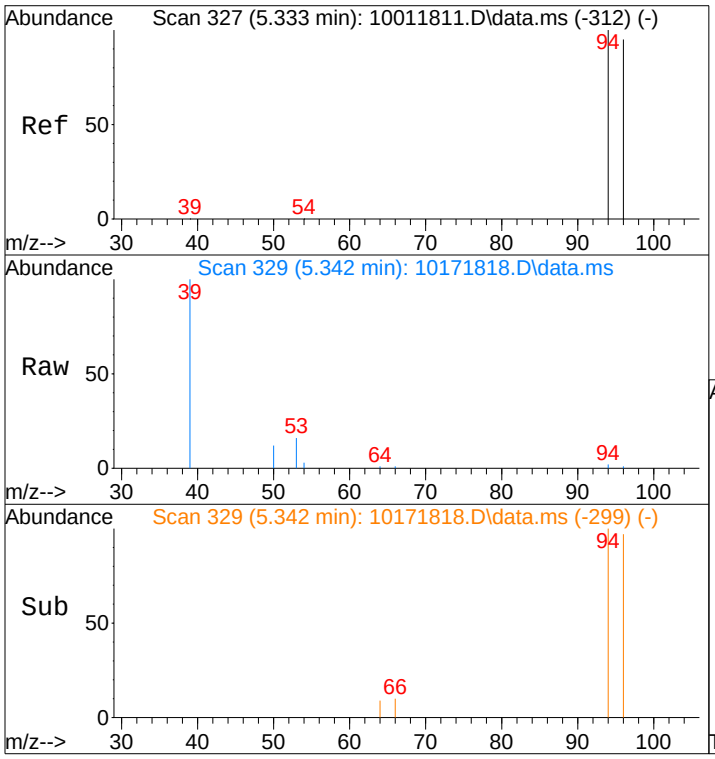


#5
Vinyl Chloride
Concen: 12.83 pg
RT: 4.82 min Scan# 212
Delta R.T. 0.005 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 62 Resp: 535

Ion	Ratio	Lower	Upper
62	100		
64	50.8	12.8	52.8

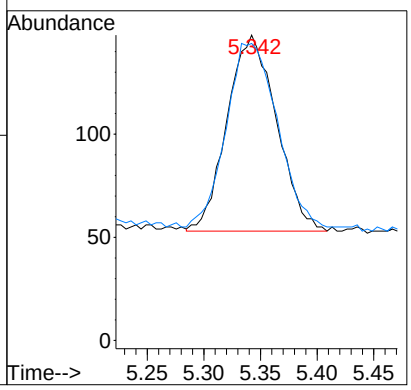


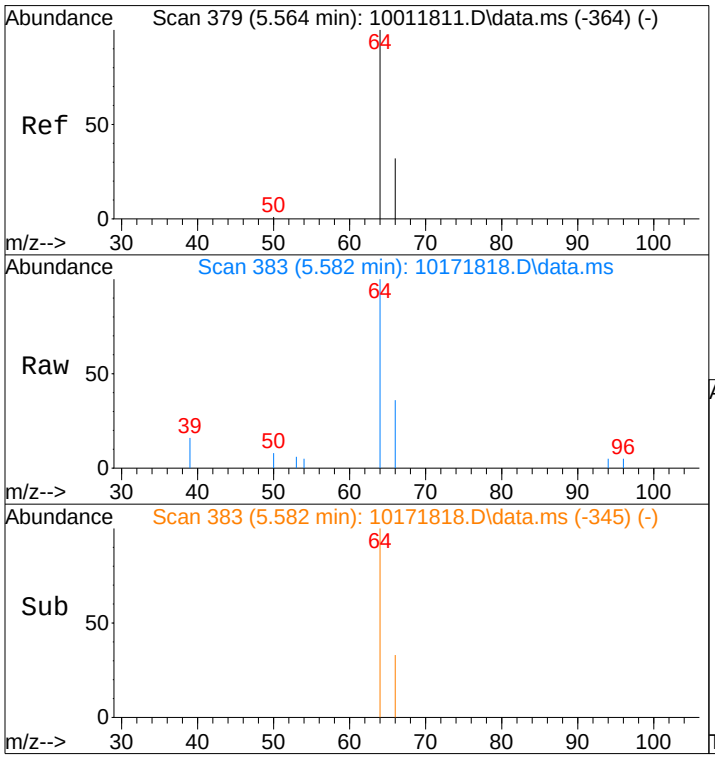


#7
Bromomethane
Concen: 9.83 pg
RT: 5.34 min Scan# 329
Delta R.T. 0.005 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 94 Resp: 288

Ion	Ratio	Lower	Upper
94	100		
96	96.5	75.7	113.5

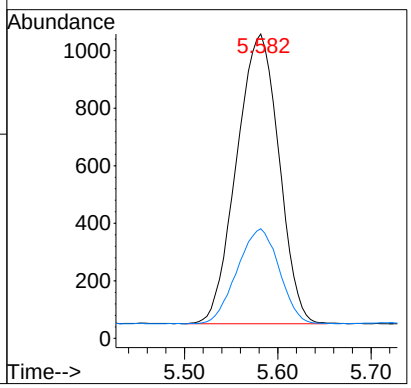


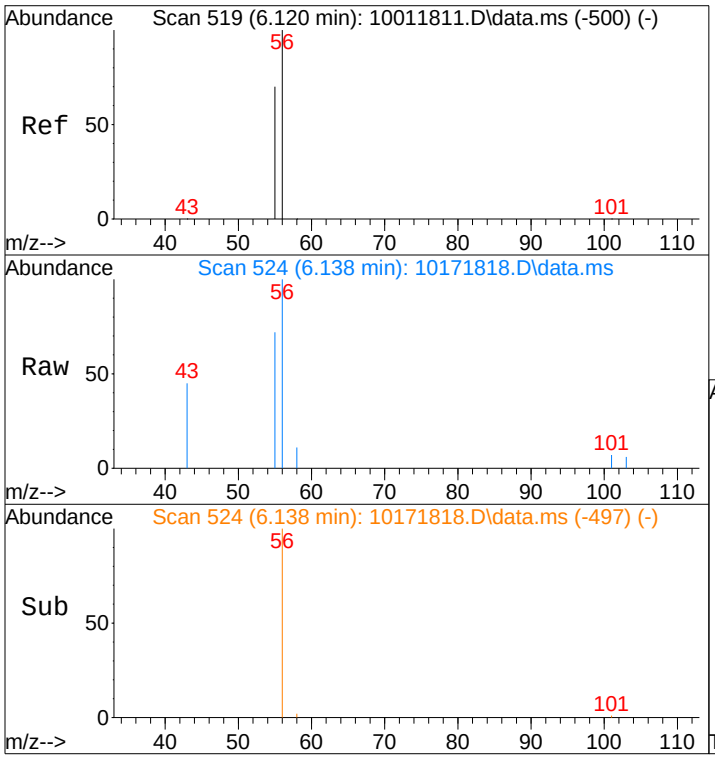


#8
Chloroethane
Concen: 145.62 pg
RT: 5.58 min Scan# 383
Delta R.T. 0.018 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 64 Resp: 3176

Ion	Ratio	Lower	Upper
64	100		
66	32.2	12.3	52.3

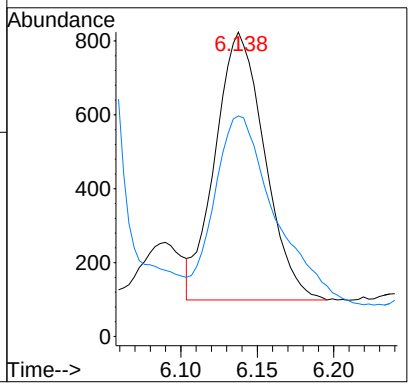


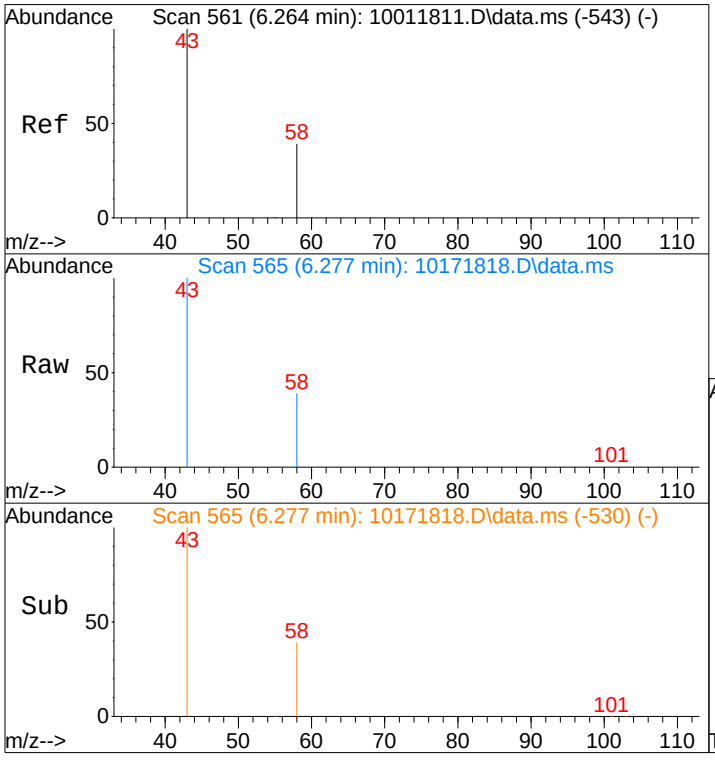


#9
Acrolein
Concen: 92.57 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 56 Resp: 1632

Ion	Ratio	Lower	Upper
56	100		
55	87.8	55.3	82.9#

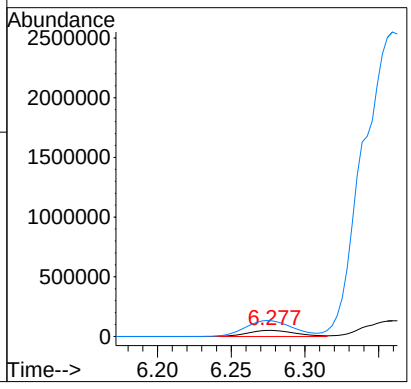


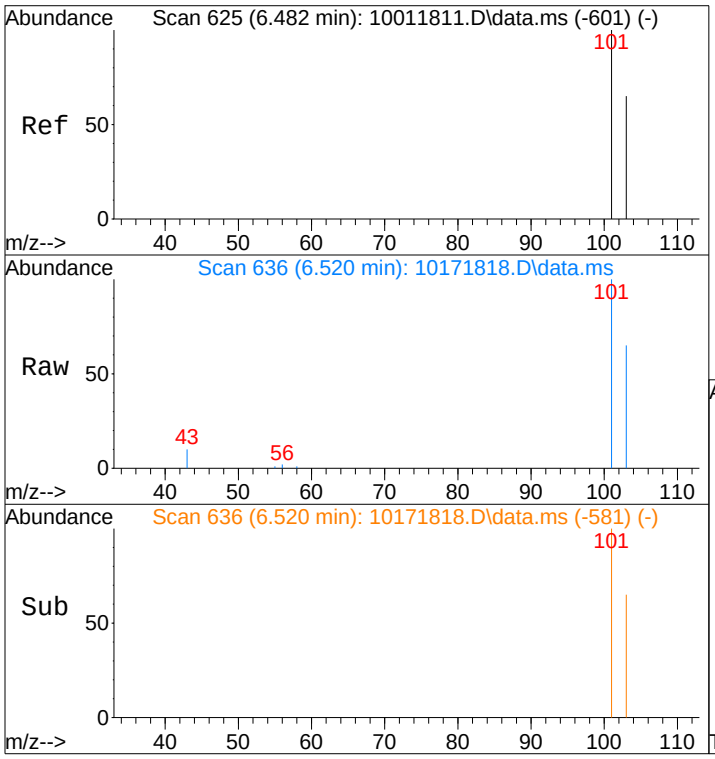


#10
Acetone
Concen: 5089.27 pg
RT: 6.28 min Scan# 565
Delta R.T. -0.031 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 58 Resp: 113754

Ion	Ratio	Lower	Upper
58	100		
43	261.7	234.7	274.7

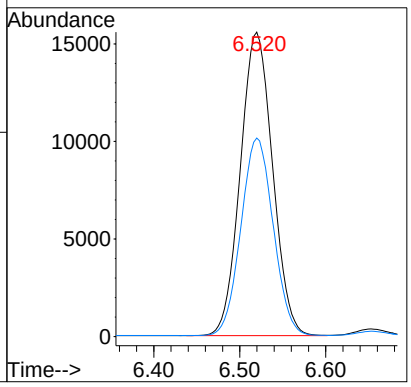


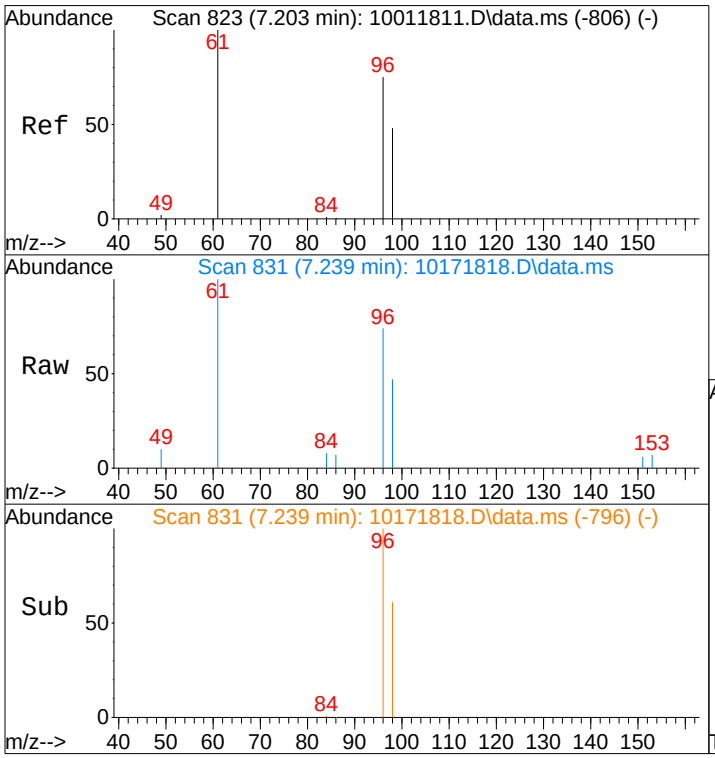


#11
Trichlorofluoromethane
Concen: 808.32 pg
RT: 6.52 min Scan# 636
Delta R.T. 0.038 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:101 Resp: 40580

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

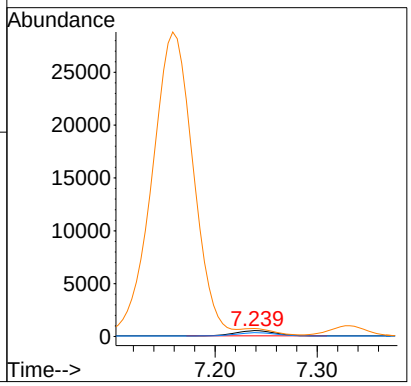


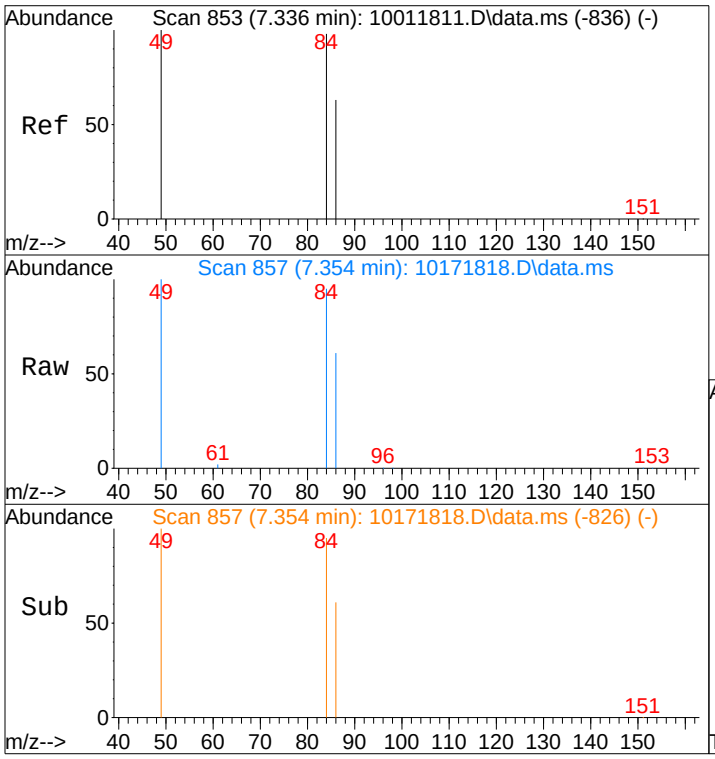


#12
1,1-Dichloroethene
Concen: 38.08 pg
RT: 7.24 min Scan# 831
Delta R.T. 0.027 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 96 Resp: 1353

Ion	Ratio	Lower	Upper
96	100		
98	60.8	44.2	84.2
61	92.6	114.1	154.1#

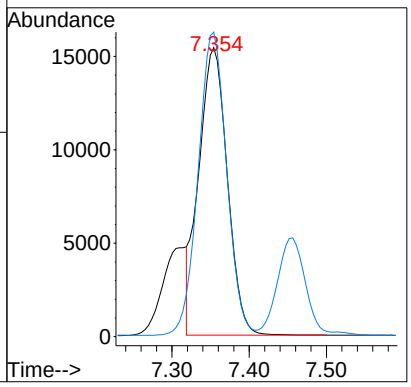


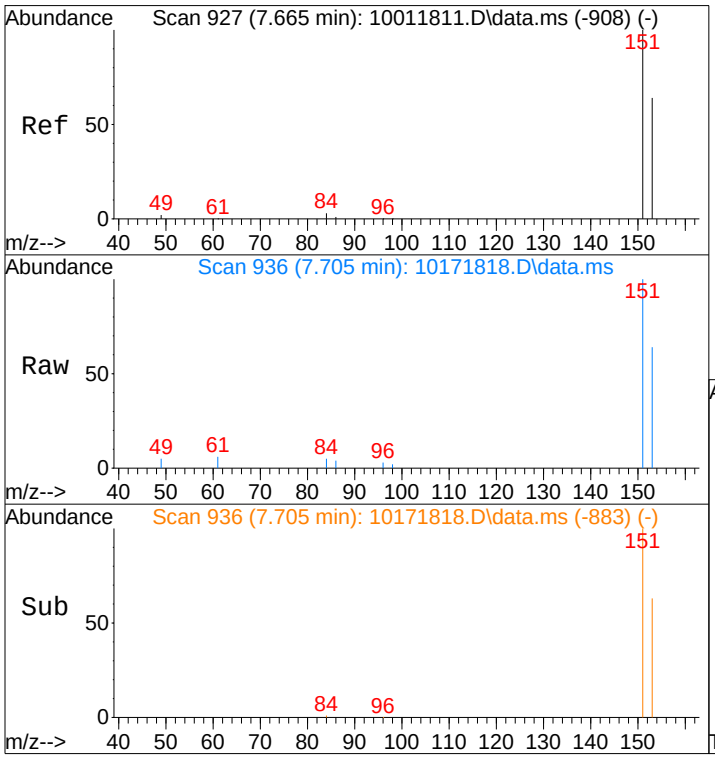


#13
Methylene Chloride
Concen: 1062.58 pg
RT: 7.35 min Scan# 857
Delta R.T. -0.022 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 84 Resp: 39545

Ion	Ratio	Lower	Upper
84	100		
49	105.0	83.3	123.3

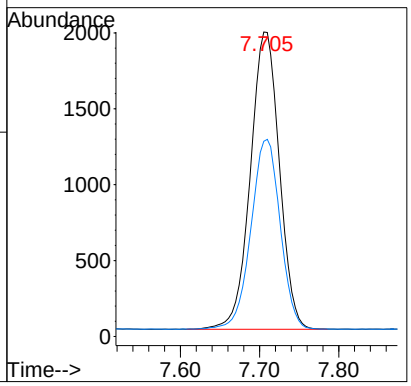


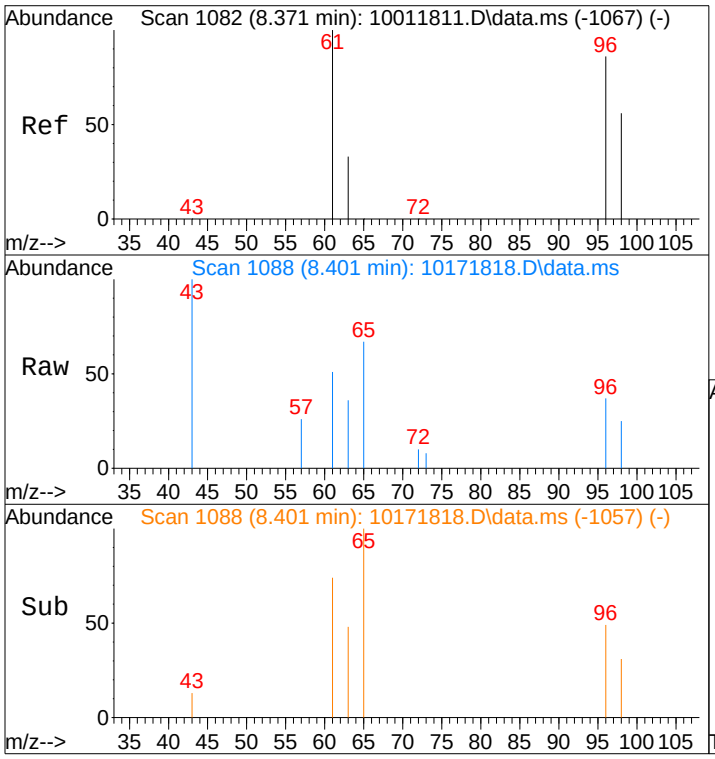


#14
Trichlorotrifluoroethane
Concen: 142.19 pg
RT: 7.71 min Scan# 936
Delta R.T. 0.036 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:151 Resp: 5003

Ion	Ratio	Lower	Upper
151	100		
153	64.3	44.3	84.3

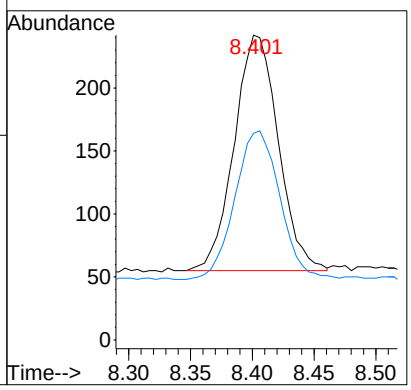


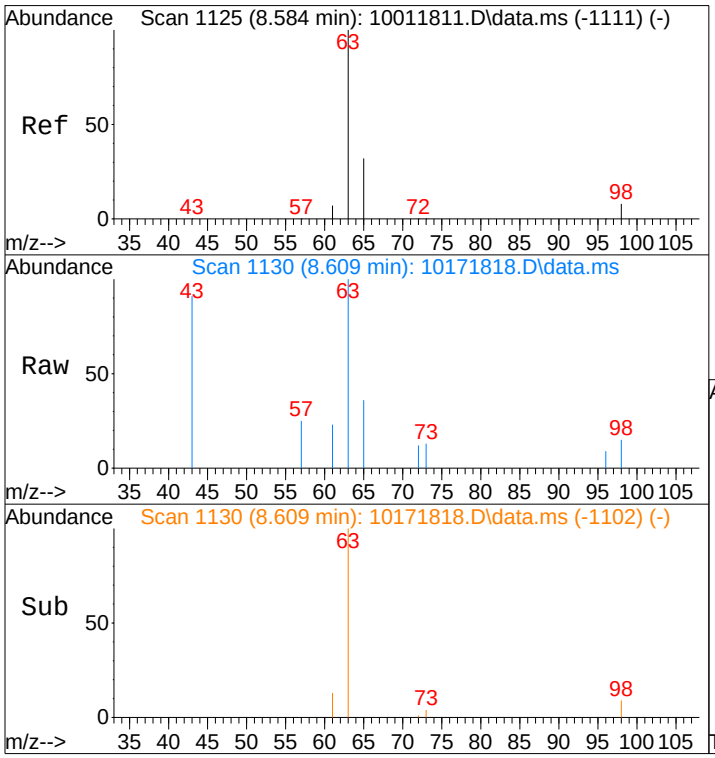


#15
trans-1,2-Dichloroethene
Concen: 12.55 pg
RT: 8.40 min Scan# 1088
Delta R.T. 0.006 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 96 Resp: 464

Ion	Ratio	Lower	Upper
96	100		
98	64.4	44.1	84.1

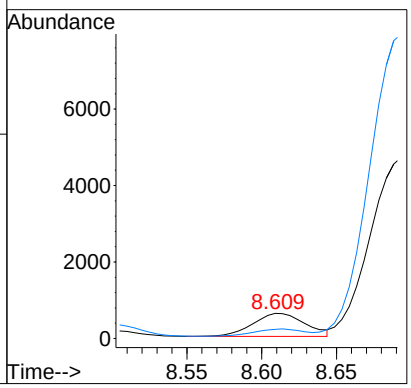


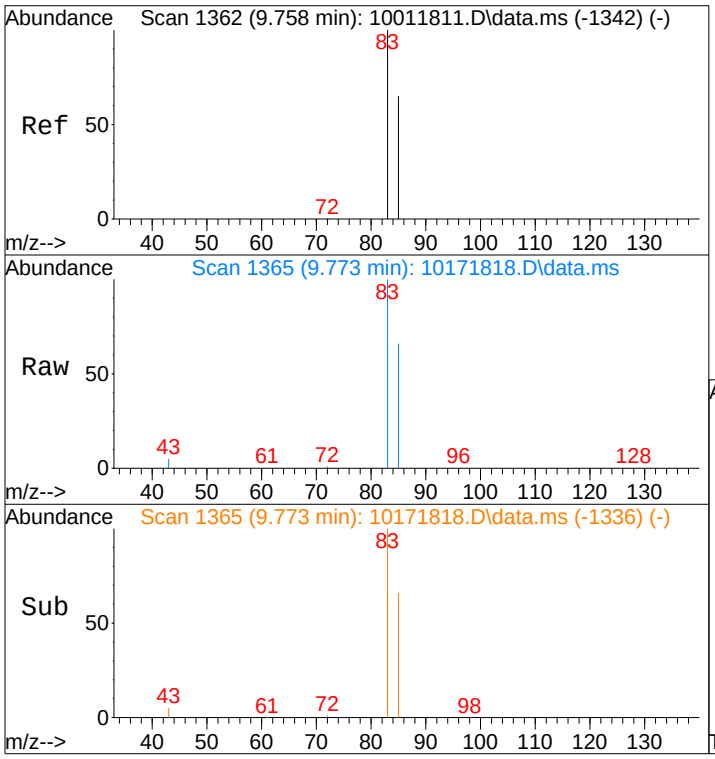


#16
1,1-Dichloroethane
Concen: 25.41 pg
RT: 8.61 min Scan# 1130
Delta R.T. -0.009 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 63 Resp: 1466

Ion	Ratio	Lower	Upper
63	100		
65	29.5	12.2	52.2

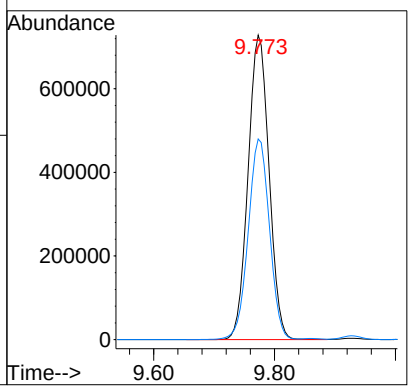


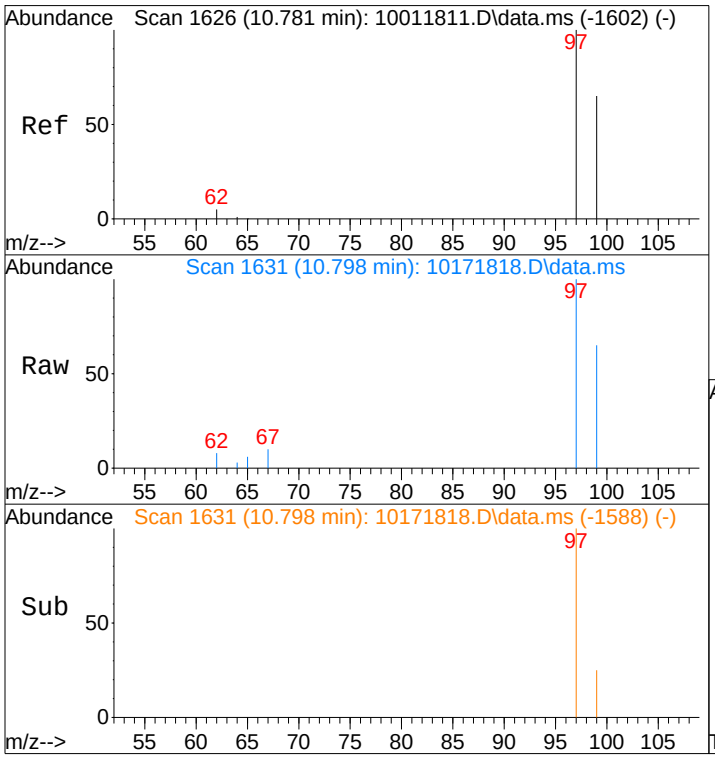


#19
Chloroform
Concen: 28134.21 pg
RT: 9.77 min Scan# 1365
Delta R.T. -0.024 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 83 Resp: 1750981

Ion	Ratio	Lower	Upper
83	100		
85	67.0	46.0	86.0

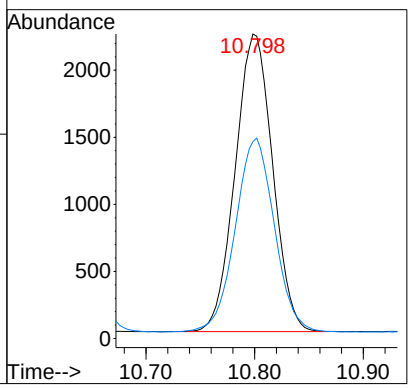


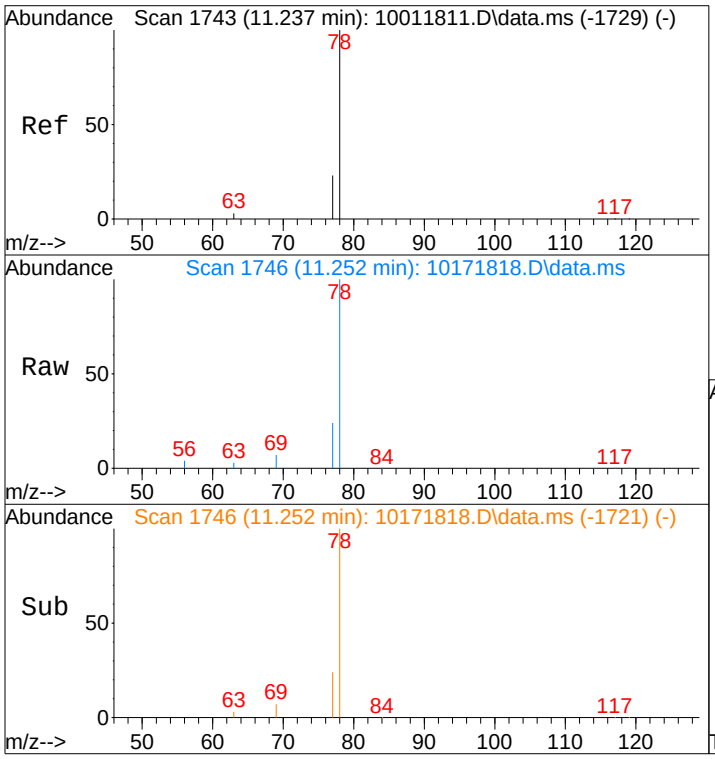


#22
1,1,1-Trichloroethane
Concen: 100.59 pg
RT: 10.80 min Scan# 1631
Delta R.T. -0.003 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 97 Resp: 5310

Ion	Ratio	Lower	Upper
97	100		
99	67.9	44.9	84.9

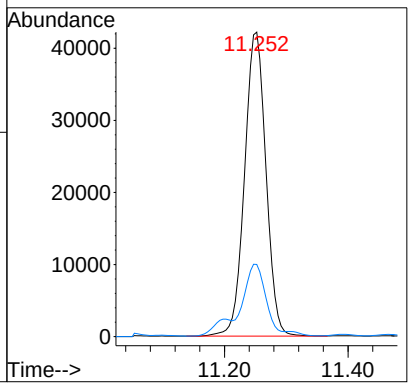


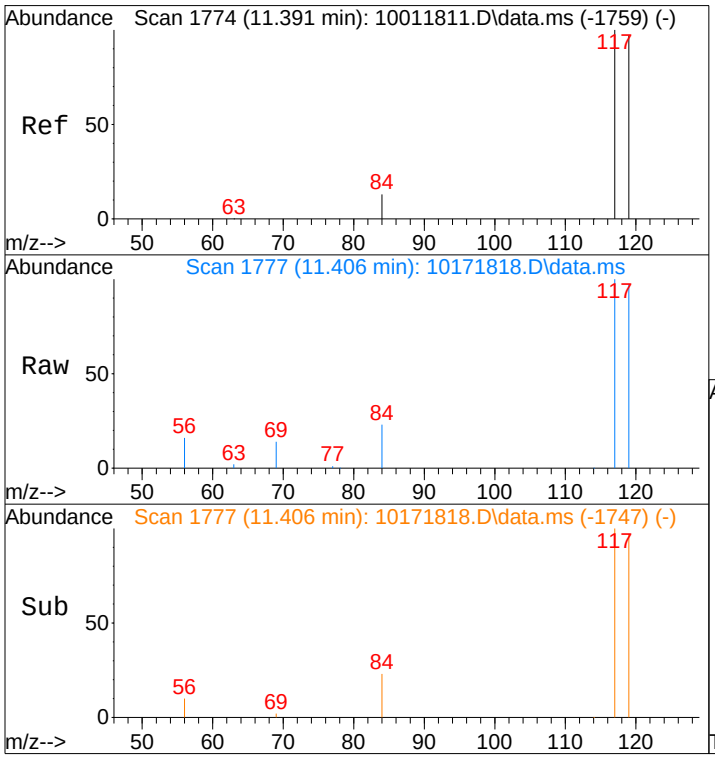


#23
Benzene
Concen: 648.37 pg
RT: 11.25 min Scan# 1746
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 78 Resp: 101376

Ion	Ratio	Lower	Upper
78	100		
77	25.0	3.3	43.3

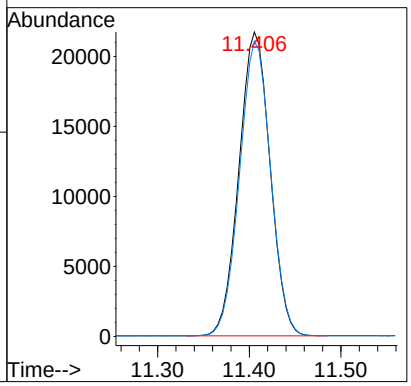


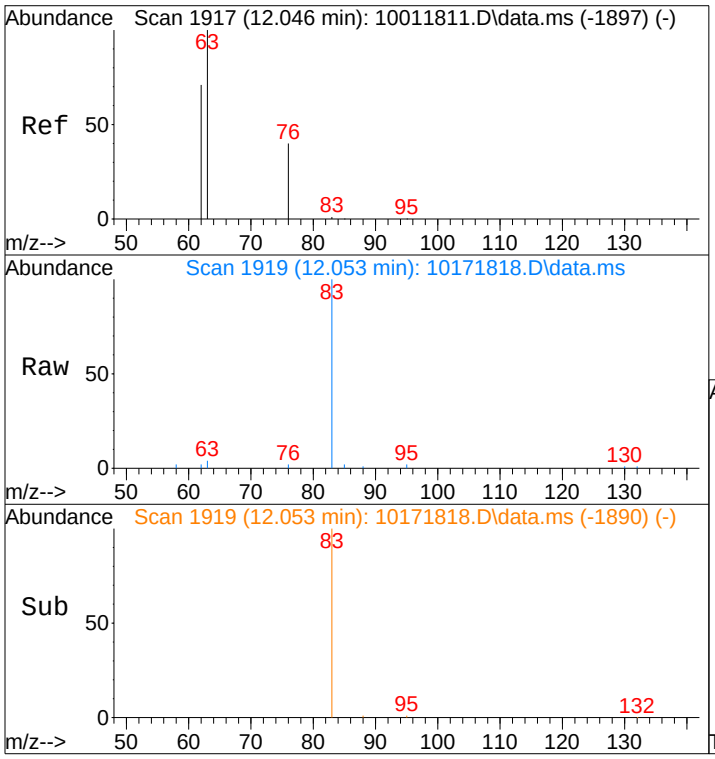


#24
Carbon Tetrachloride
Concen: 1063.49 pg
RT: 11.41 min Scan# 1777
Delta R.T. 0.001 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:117 Resp: 51243

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

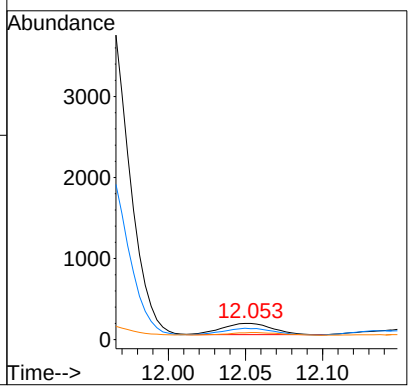


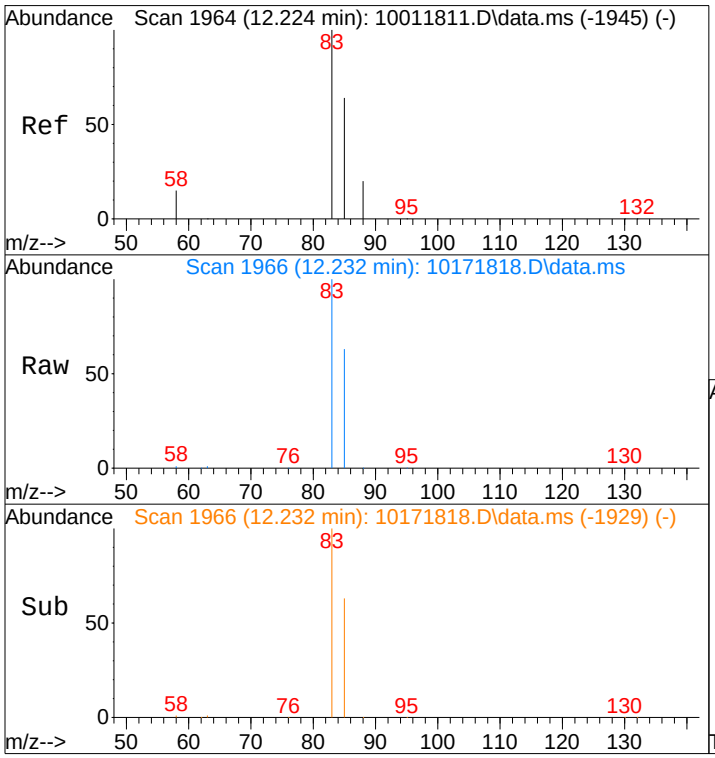


#26
1,2-Dichloropropane
Concen: 13.99 pg
RT: 12.05 min Scan# 1919
Delta R.T. -0.011 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 63 Resp: 320

Ion	Ratio	Lower	Upper
63	100		
62	57.5	50.7	90.7
76	24.4	19.6	59.6

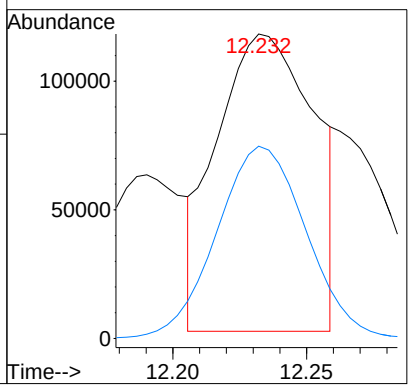


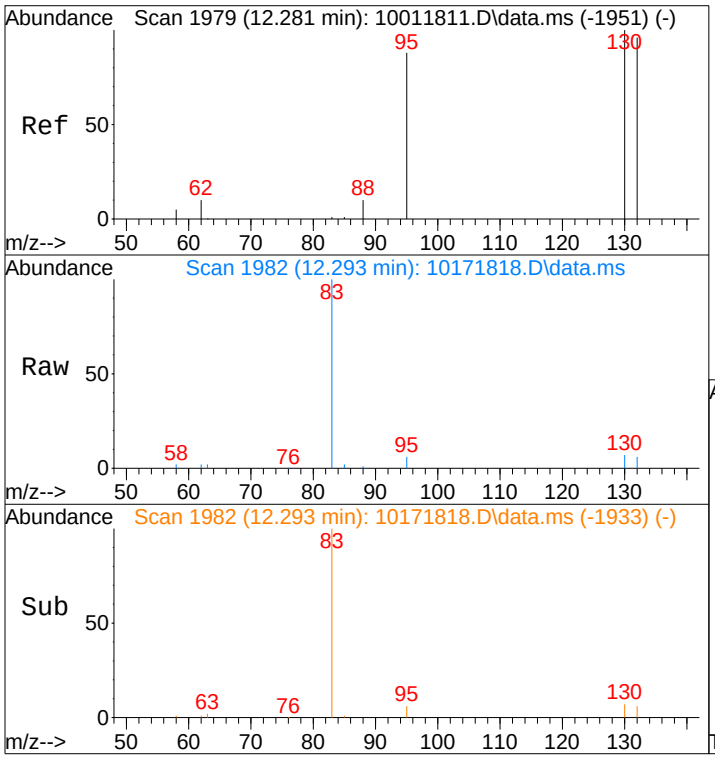


#27
Bromodichloromethane
Concen: 9635.79 pg m
RT: 12.23 min Scan# 1966
Delta R.T. -0.011 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 83 Resp: 292474

Ion	Ratio	Lower	Upper
83	100		
85	59.4	51.7	77.5

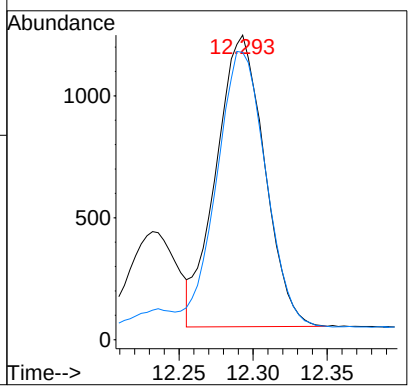


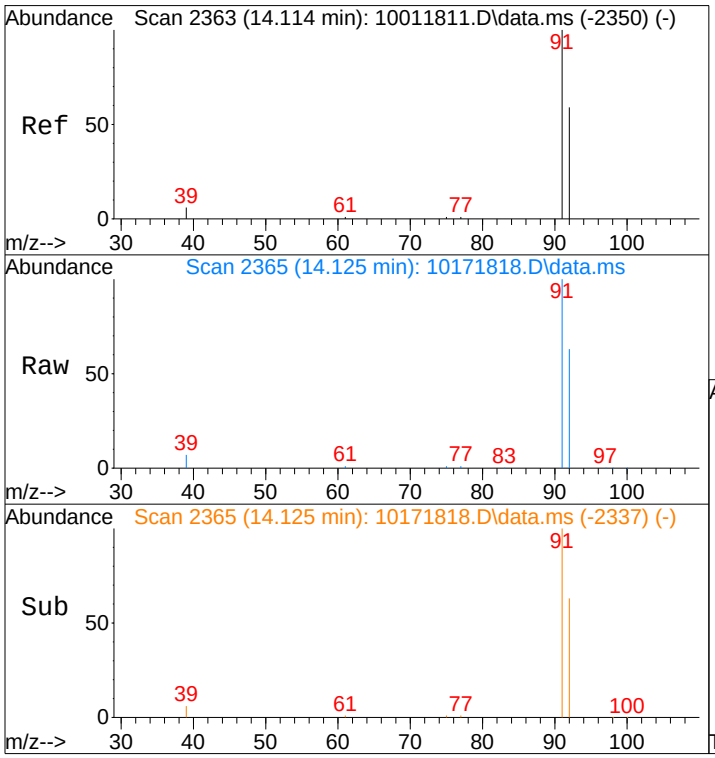


#28
Trichloroethene
Concen: 94.79 pg
RT: 12.29 min Scan# 1982
Delta R.T. -0.003 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:130 Resp: 2719

Ion	Ratio	Lower	Upper
130	100		
132	96.3	75.6	115.6

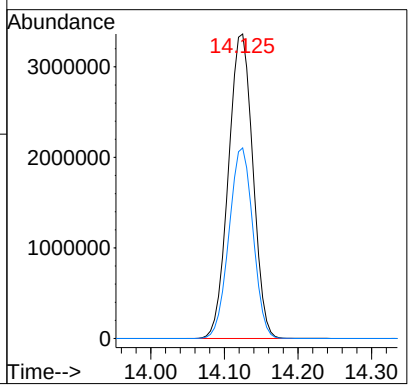


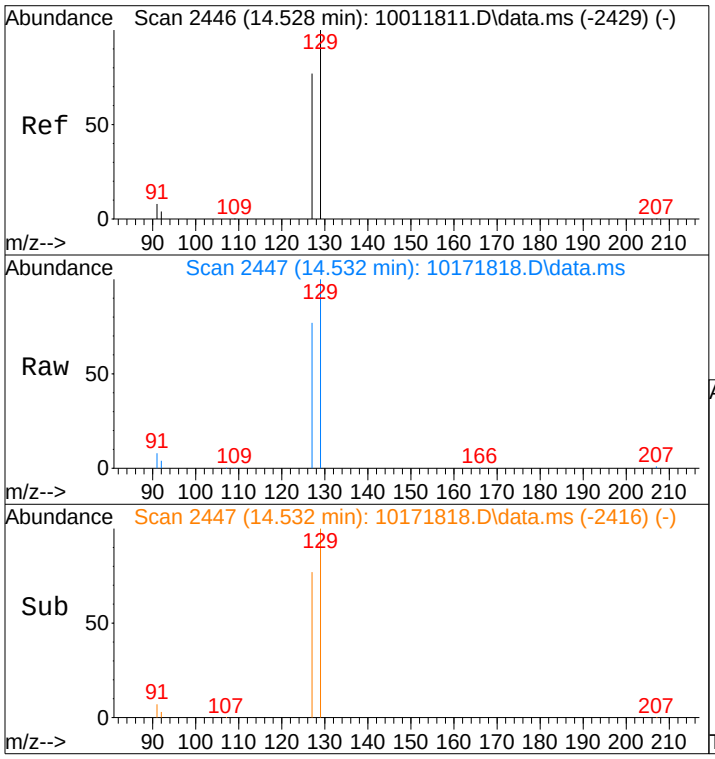


#34
Toluene
Concen: 73971.30 pg
RT: 14.12 min Scan# 2365
Delta R.T. 0.001 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 91 Resp: 7753992

Ion	Ratio	Lower	Upper
91	100		
92	61.6	39.2	79.2

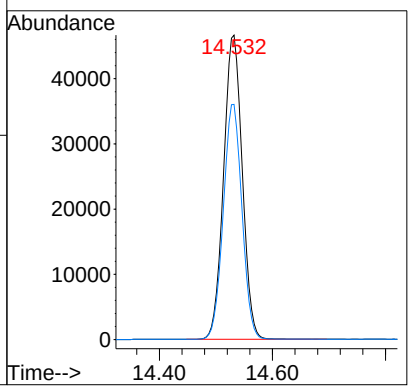


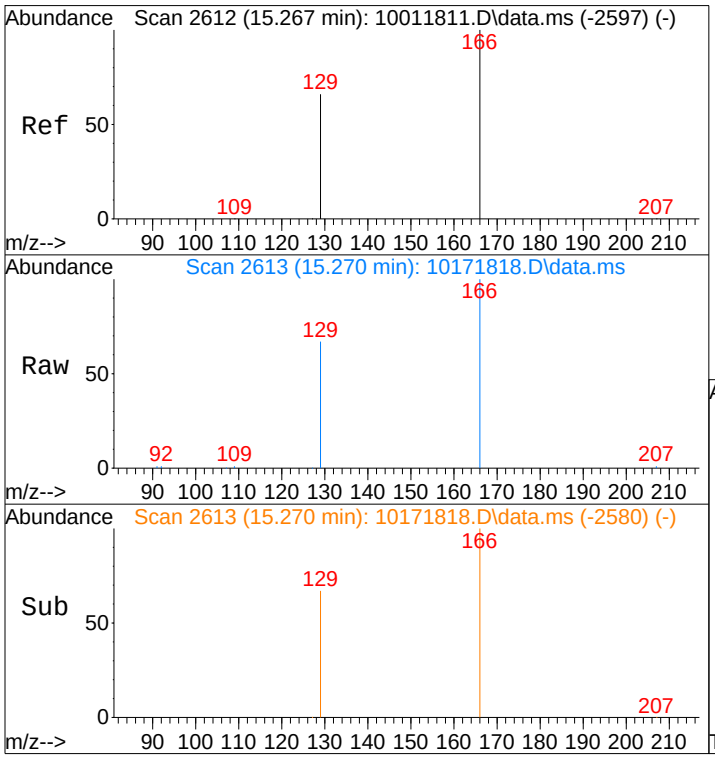


#35
Dibromochloromethane
Concen: 3802.31 pg
RT: 14.53 min Scan# 2447
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:129 Resp: 106775

Ion	Ratio	Lower	Upper
129	100		
127	77.3	61.8	92.6

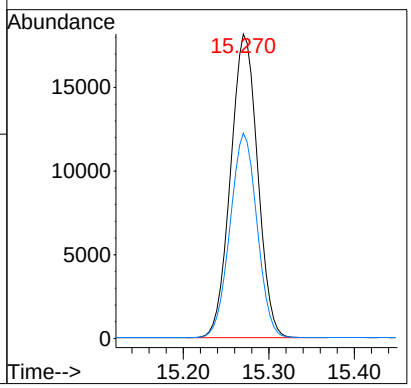


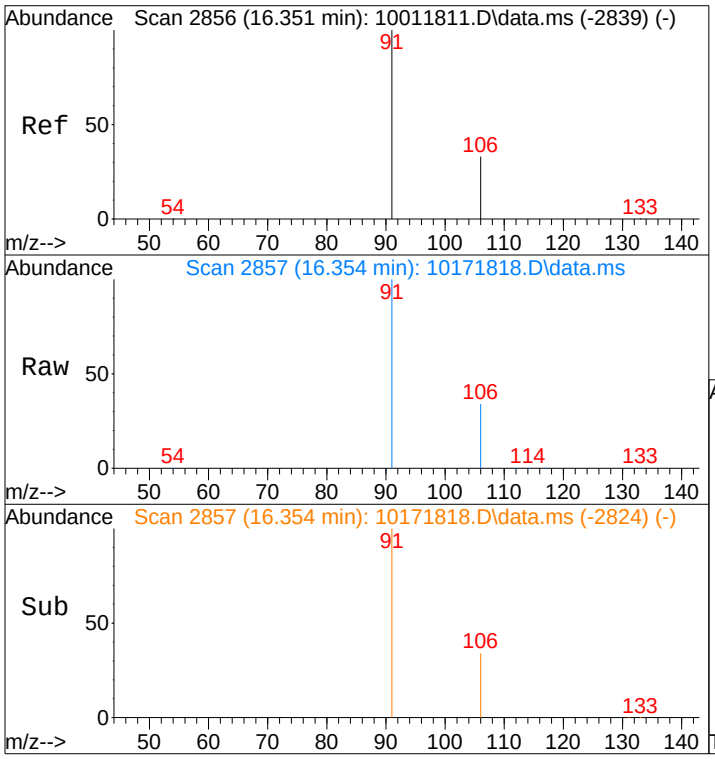


#37
Tetrachloroethene
Concen: 1291.90 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:166 Resp: 39851

Ion	Ratio	Lower	Upper
166	100		
129	67.0	46.7	86.7

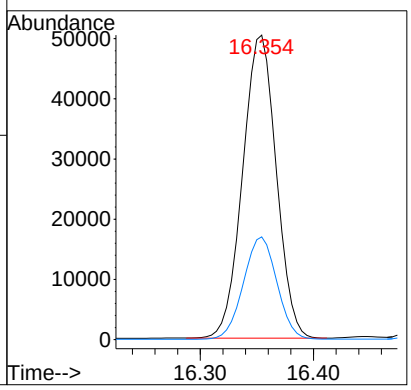


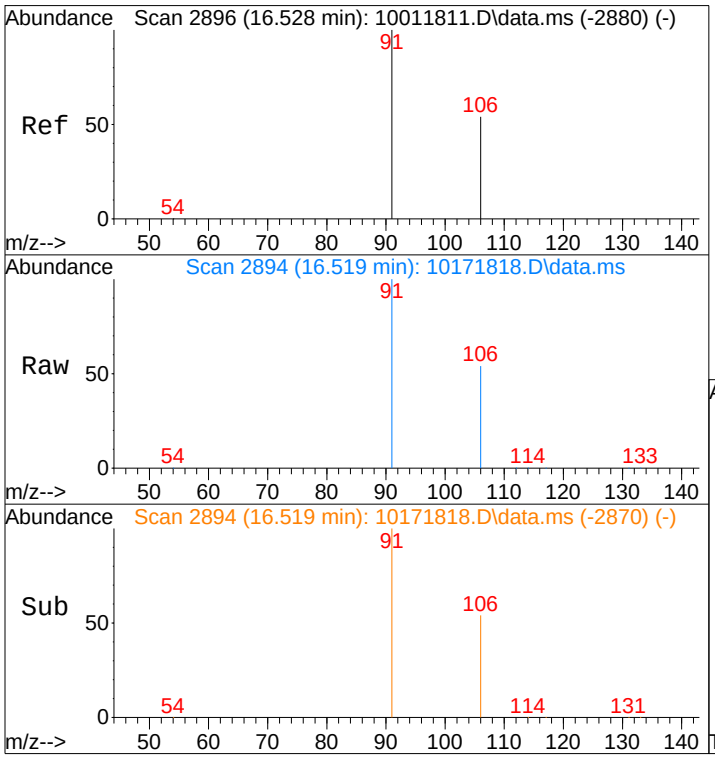


#40
Ethylbenzene
Concen: 731.79 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 91 Resp: 103910

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

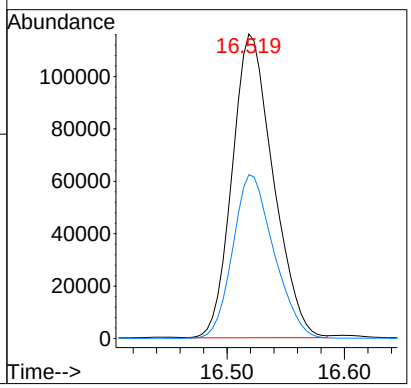


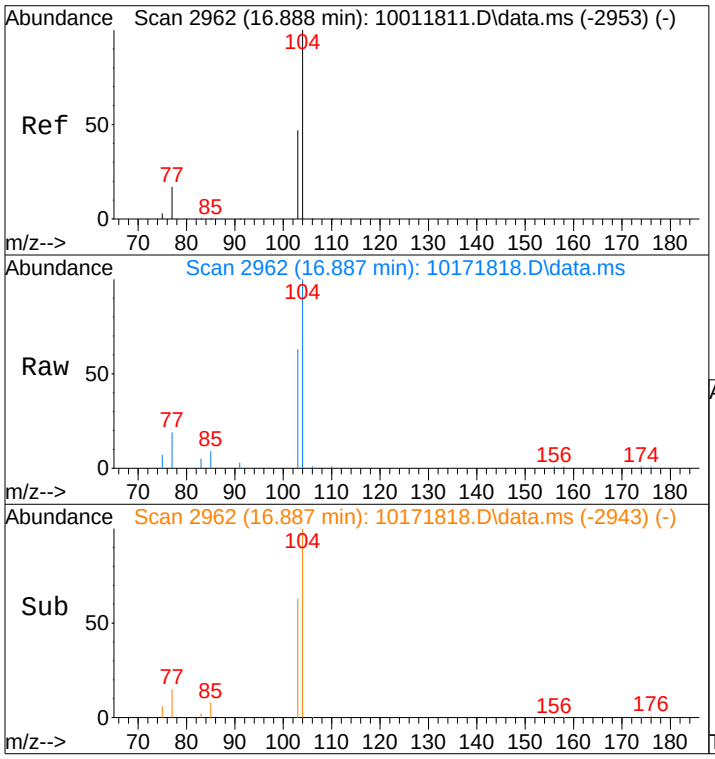


#41
m,p-Xylene
Concen: 2588.70 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion: 91 Resp: 281054

Ion	Ratio	Lower	Upper
91	100		
106	53.9	34.3	74.3

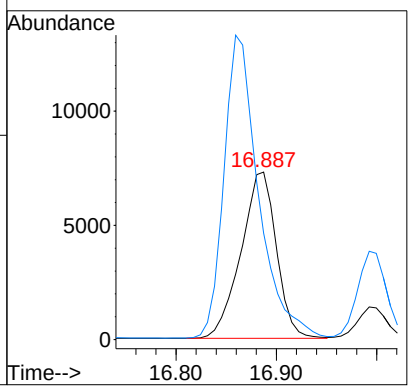


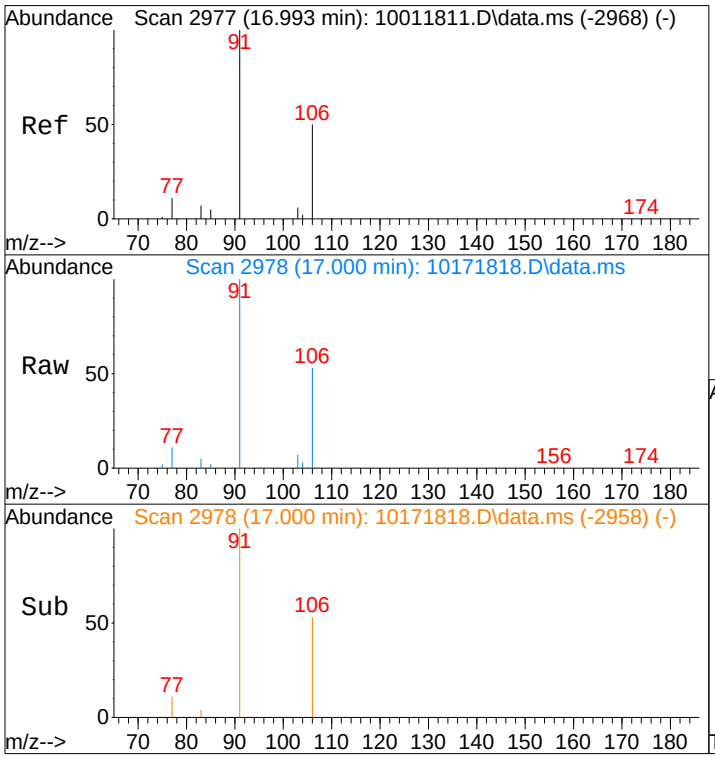


#42
Styrene
Concen: 207.63 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:104 Resp: 17905

Ion	Ratio	Lower	Upper
104	100		
103	176.9	37.7	56.5#

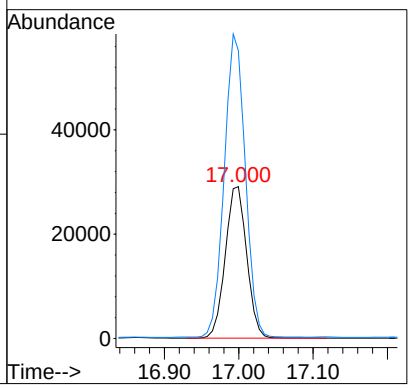


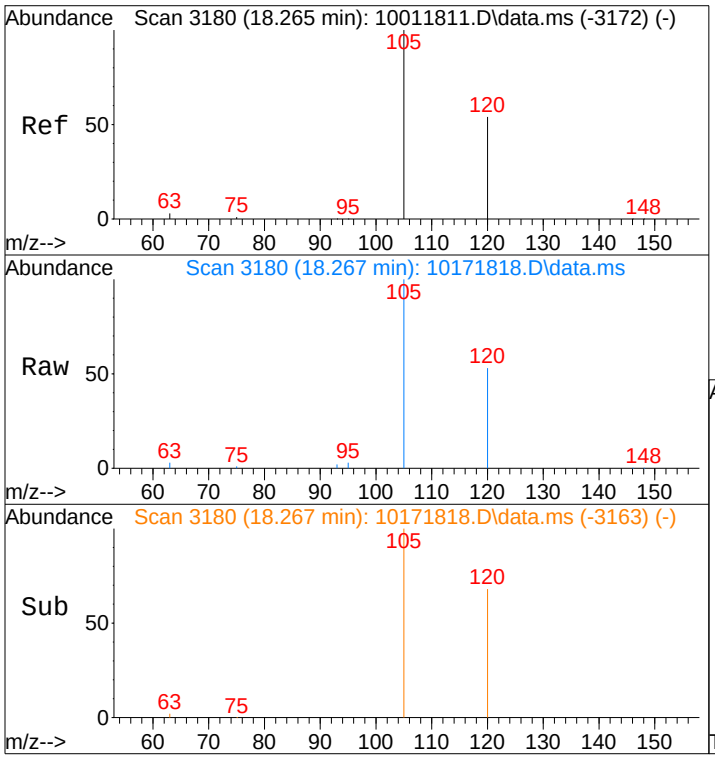


#43
o-Xylene
Concen: 1004.77 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:106 Resp: 57996

Ion	Ratio	Lower	Upper
106	100		
91	197.0	175.6	215.6

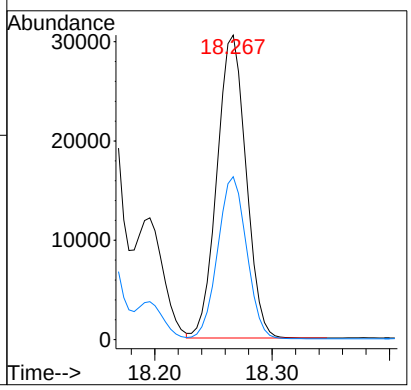


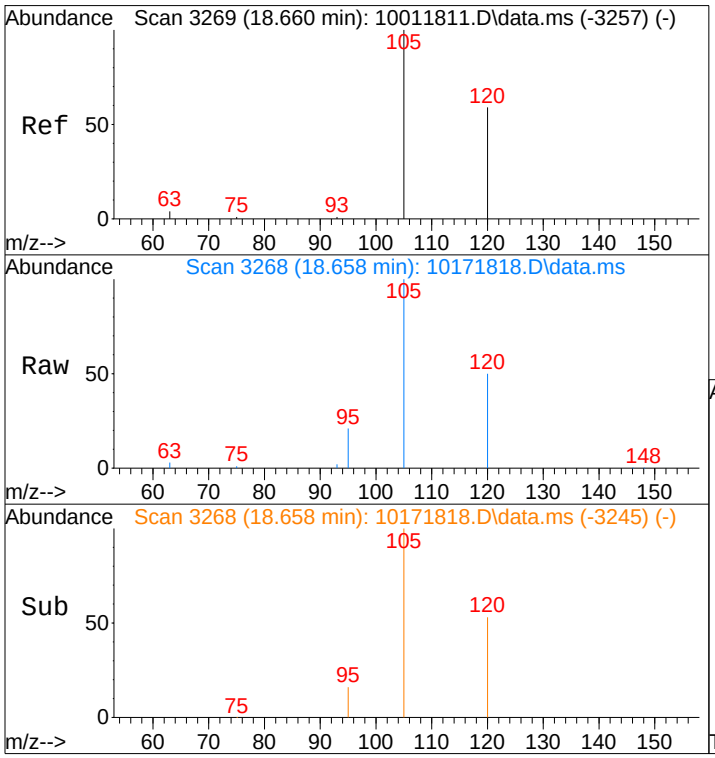


#46
1,3,5-Trimethylbenzene
Concen: 432.10 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:105 Resp: 52457

Ion	Ratio	Lower	Upper
105	100		
120	53.2	42.8	64.2

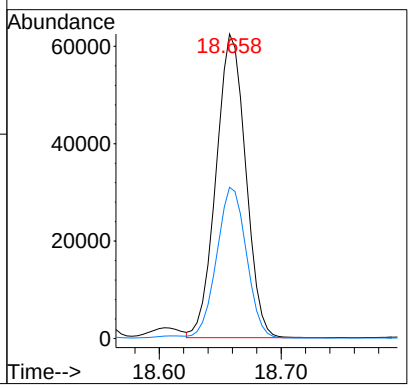


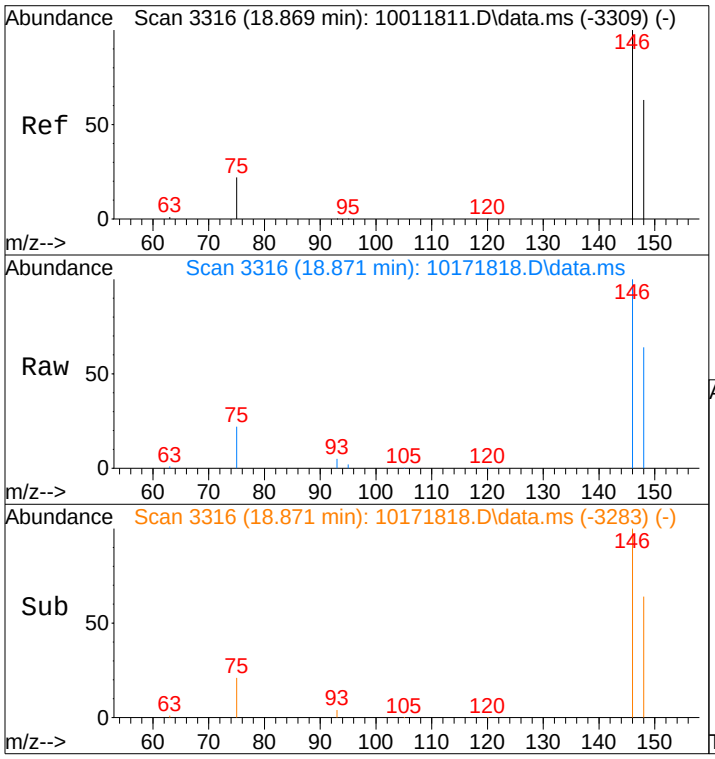


#47
1,2,4-Trimethylbenzene
Concen: 868.66 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:105 Resp: 105201

Ion	Ratio	Lower	Upper
105	100		
120	49.9	47.1	70.7

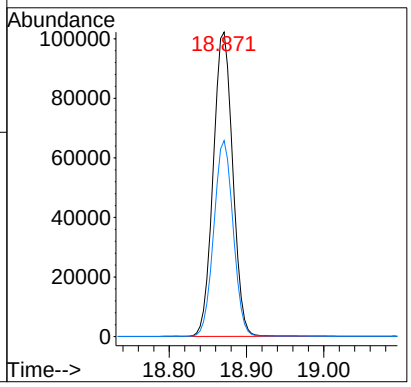


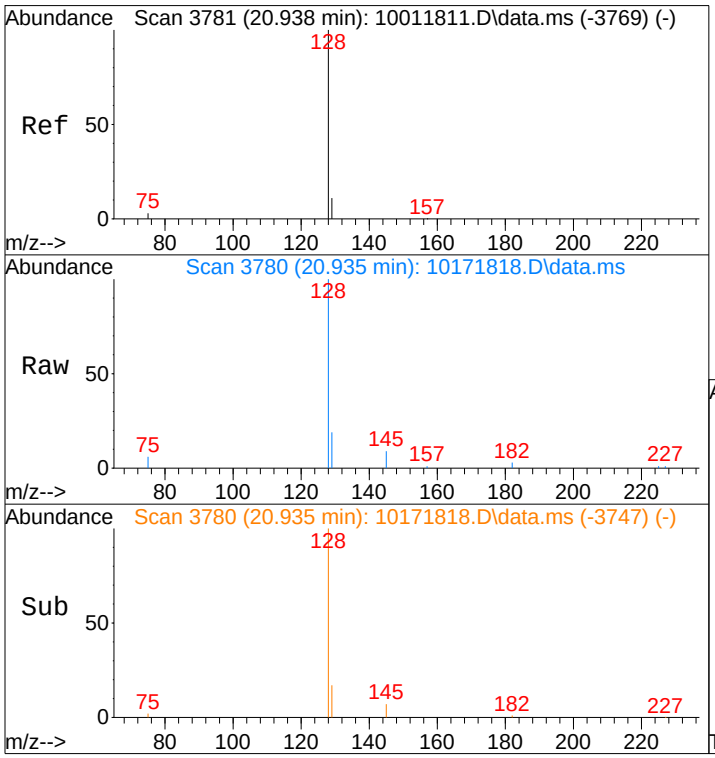


#49
1,4-Dichlorobenzene
Concen: 2252.38 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:146 Resp: 178962

Ion	Ratio	Lower	Upper
146	100		
148	63.9	43.8	83.8

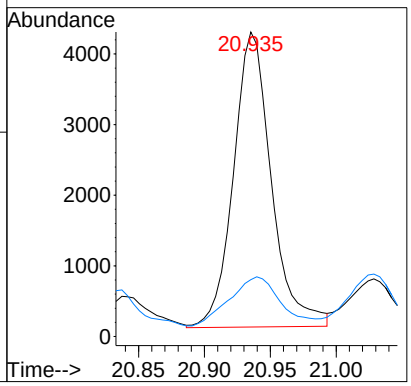




#53
Naphthalene
Concen: 59.06 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171818.D
Acq: 17 Oct 2018 21:51

Tgt Ion:128 Resp: 8366

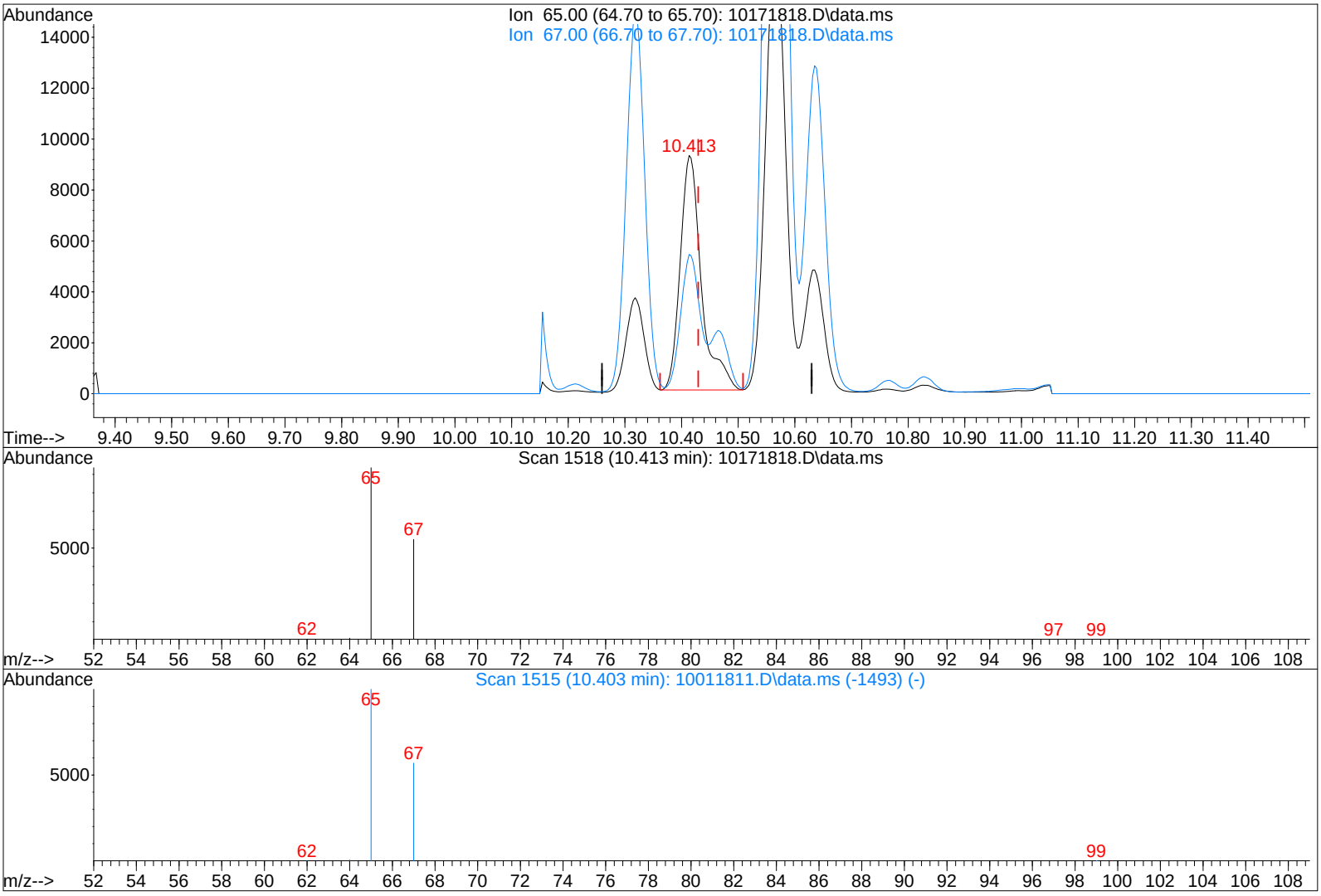
Ion	Ratio	Lower	Upper
128	100		
129	25.3	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171818.D\data.ms

(20) 1,2-Dichloroethane-d4 (SS1) (S)

10.413min (-0.016) 665.44pg

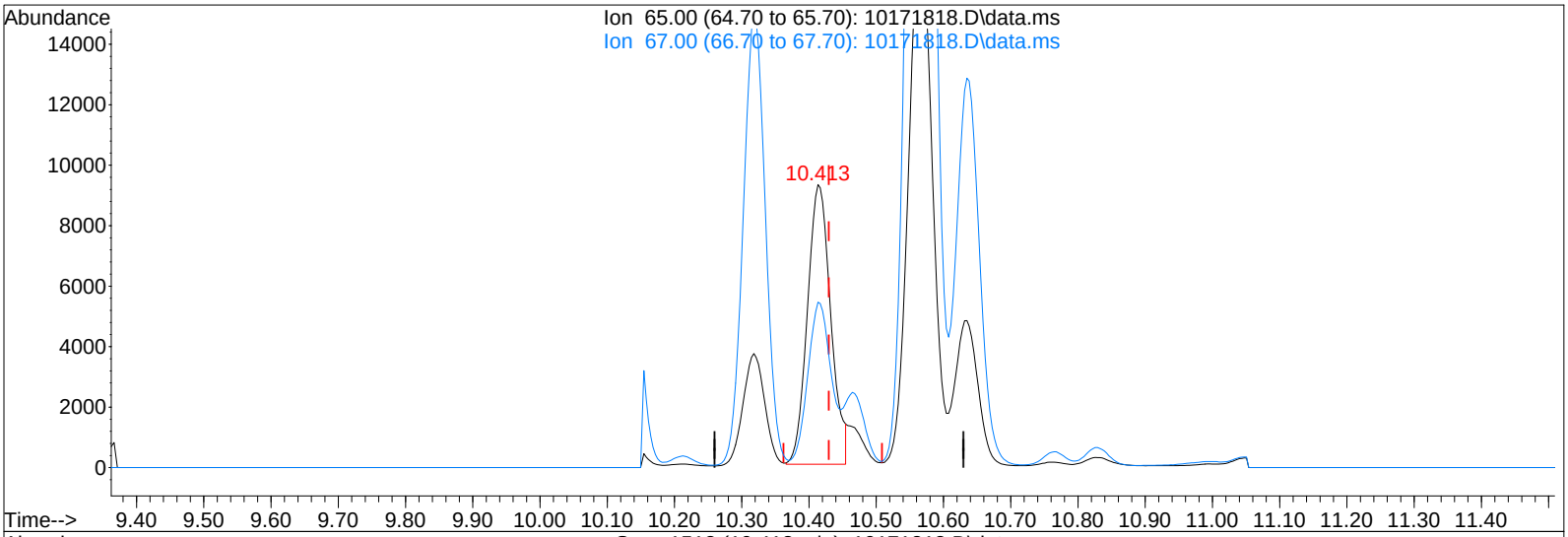
response 23998

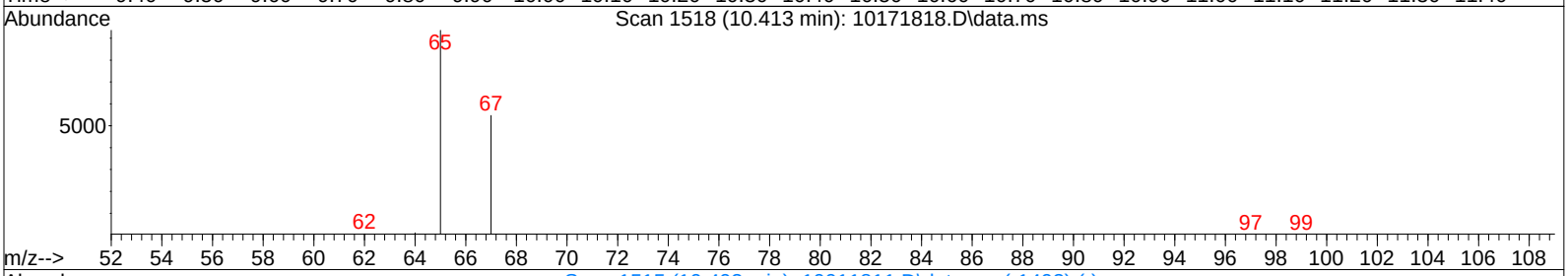
Ion	Exp%	Act%
65.00	100	100
67.00	57.10	51.85
0.00	0.00	0.00
0.00	0.00	0.00

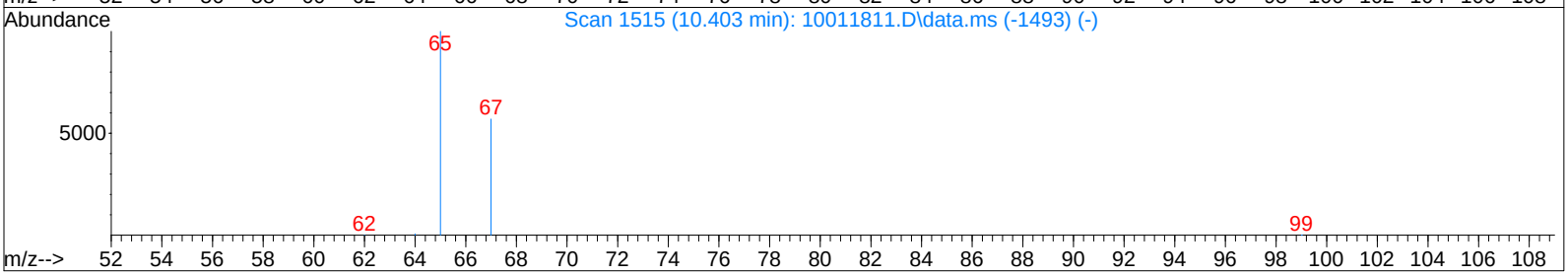
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171818.D\data.ms

(20) 1,2-Dichloroethane-d4 (SS1) (S)

10.413min (-0.016) 615.97pg m

response 22214

Ion	Exp%	Act%
65.00	100	100
67.00	57.10	56.01
0.00	0.00	0.00
0.00	0.00	0.00

IPC

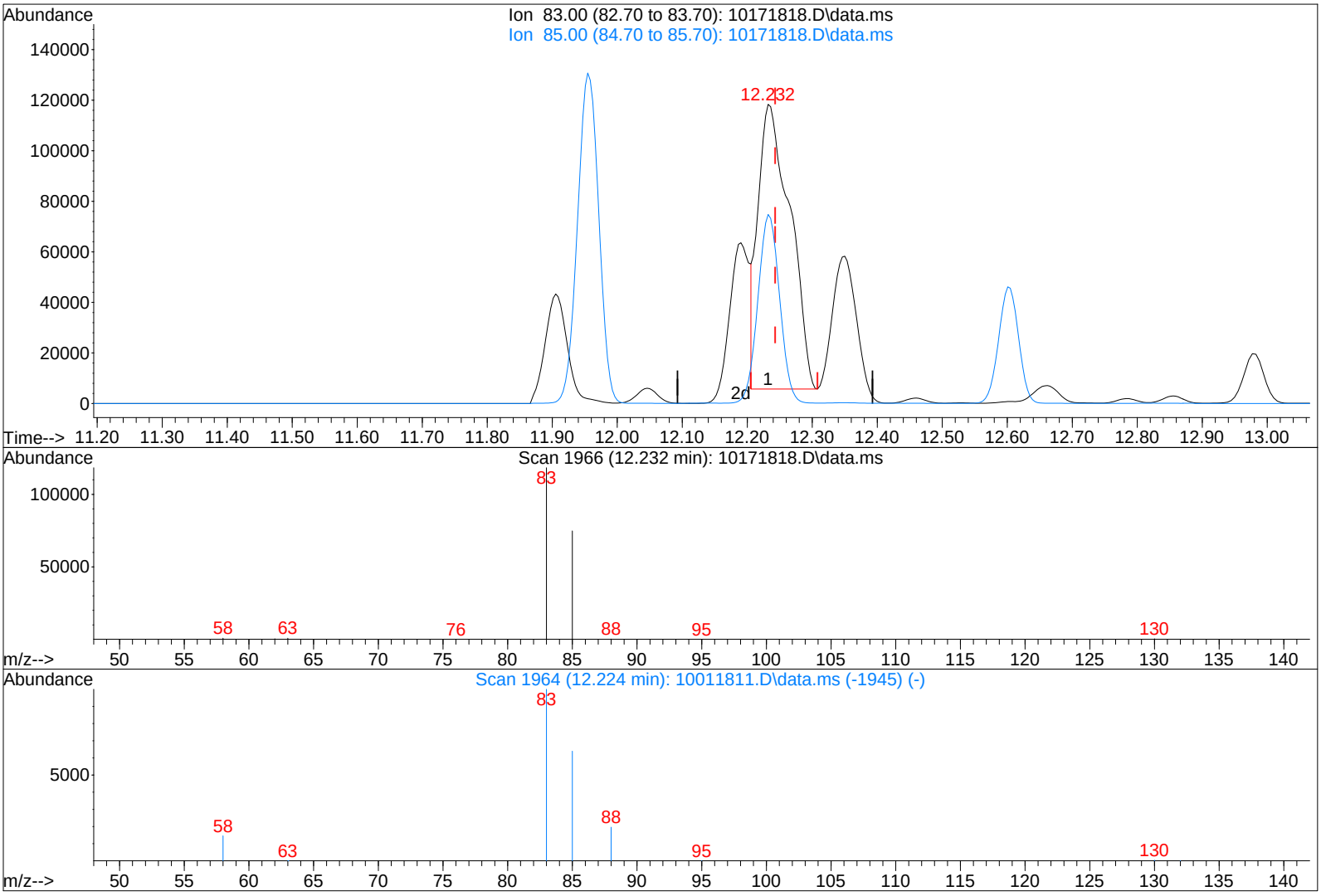
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171818.D\data.ms

(27) Bromodichloromethane (T)

12.232min (-0.011) 12664.56pg

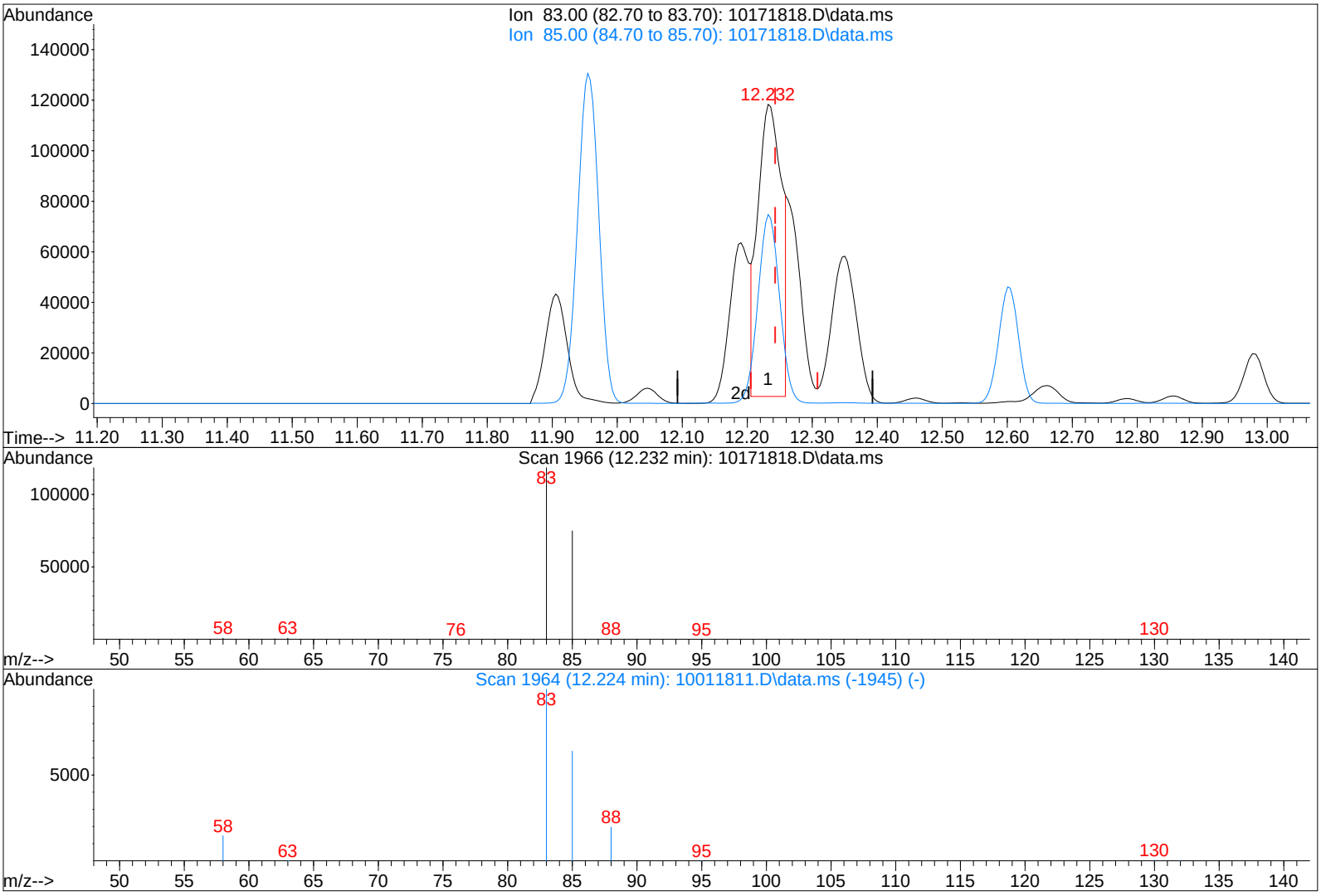
response 384406

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	45.16#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171818.D Vial: 12
Acq On : 17 Oct 2018 21:51 Operator: WA
Sample : P1805497-010 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171818.D\data.ms

(27) Bromodichloromethane (T)

12.232min (-0.011) 9635.79pg m

response 292474

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	59.36
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:19:04 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/25/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	23056	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	92149	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	13672	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.41	65	24014	870.096	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.01%				
33) Toluene-d8 (SS2)	14.02	98	98030	1031.586	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%				
45) Bromofluorobenzene (SS3)	17.43	174	35577	920.902	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.09%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	49752	1012.729	pg		100
3) Chloromethane	4.52	52	3447	300.070	pg	#	83
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	604	17.056	pg		98
5) Vinyl Chloride	4.82	62	207	6.489	pg		98
6) 1,3-Butadiene	0.00	54	0	N.D.	d		
7) Bromomethane	5.33	94	132	5.890	pg		97
8) Chloroethane	5.57	64	1216	72.852	pg		100
9) Acrolein	6.13	56	597	44.247	pg	#	76
10) Acetone	6.27	58	44329	2591.484	pg		98
11) Trichlorofluoromethane	6.51	101	15559	404.973	pg		100
12) 1,1-Dichloroethene	7.23	96	455	16.735	pg	#	1
13) Methylene Chloride	7.34	84	14894	522.944	pg		97
14) Trichlorotrifluoroethane	7.69	151	1962	72.864	pg		100
15) trans-1,2-Dichloroethene	8.39	96	198	7.000	pg		97
16) 1,1-Dichloroethane	8.60	63	549	12.435	pg		97
17) Methyl tert-Butyl Ether	8.59	73	73	N.D.			
18) cis-1,2-Dichloroethene	9.47	96	95	N.D.			
19) Chloroform	9.77	83	692394	14537.126	pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D.	d		
22) 1,1,1-Trichloroethane	10.79	97	2431	60.175	pg		97
23) Benzene	11.25	78	40757	340.616	pg		96
24) Carbon Tetrachloride	11.40	117	22216	602.470	pg		100
26) 1,2-Dichloropropane	0.00	63	0	N.D.	d		
27) Bromodichloromethane	12.23	83	126401m	4148.880	pg		
28) Trichloroethene	12.29	130	1065	36.988	pg		97
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d		
31) trans-1,3-Dichloropropene	13.64	75	69	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.12	91	3217824	30583.039	pg		98
35) Dibromochloromethane	14.53	129	40887	1450.587	pg		100
36) 1,2-Dibromoethane	14.79	107	59	N.D.			
37) Tetrachloroethene	15.27	166	15853	512.014	pg		99
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	40600	322.105	pg		100
41) m,p-Xylene	16.52	91	110862	1150.321	pg		99
42) Styrene	16.89	104	6833	89.262	pg	#	1
43) o-Xylene	17.00	106	22748	443.972	pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	20724	192.308	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	40639	378.023	pg		88
48) 1,3-Dichlorobenzene	18.80	146	97	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	69517	985.638	pg		100
50) 1,2-Dichlorobenzene	19.20	146	257	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	123	N.D.			
53) Naphthalene	20.94	128	3318	26.387	pg		60

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:19:04 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

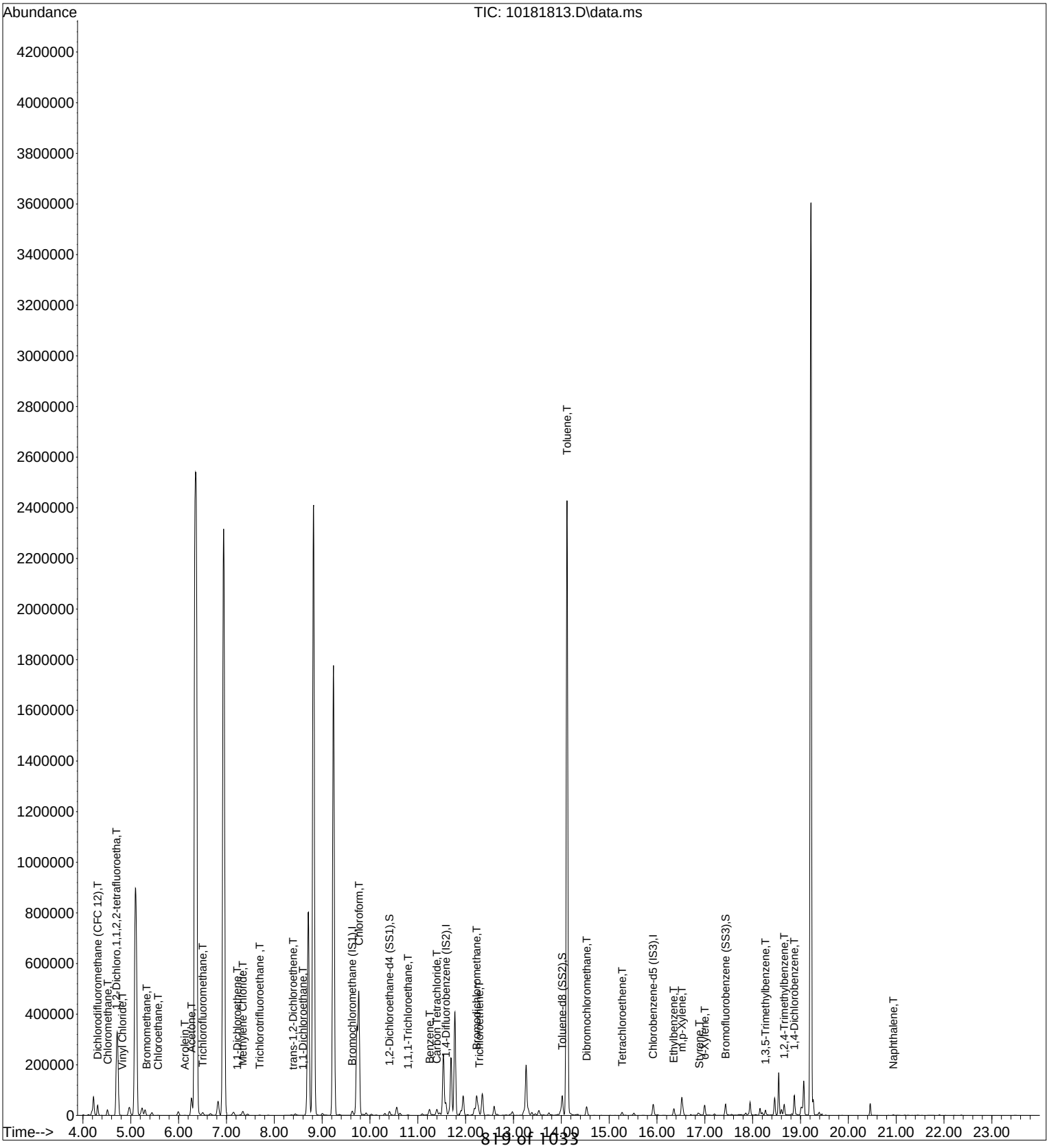
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:19:04 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:19:04 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

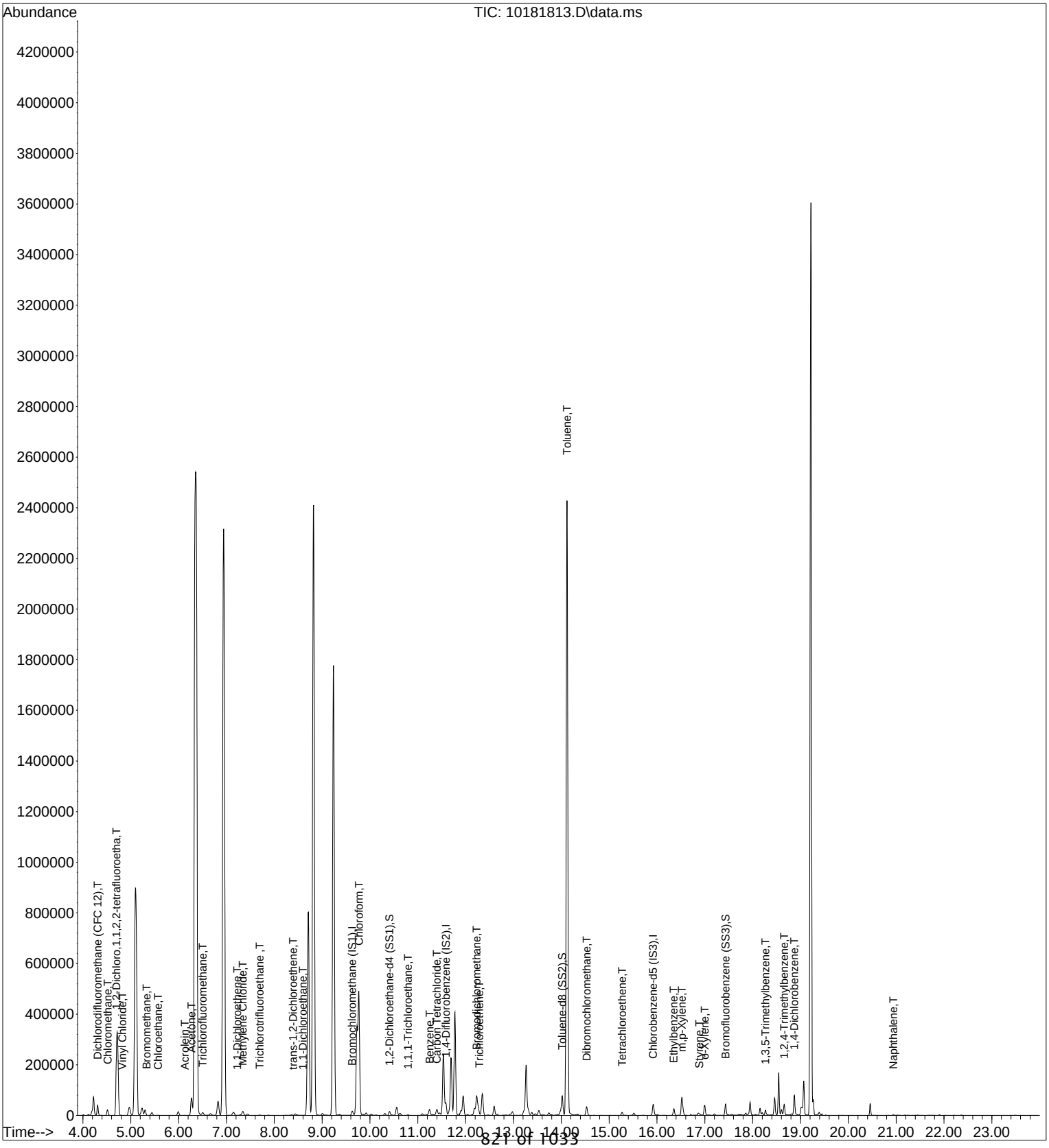
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	23056	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	92149	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	13672	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.41	65	24014	870.096	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.01%				
33) Toluene-d8 (SS2)	14.02	98	98030	1031.586	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%				
45) Bromofluorobenzene (SS3)	17.43	174	35577	920.902	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.09%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	49752	1012.729	pg		100
3) Chloromethane	4.52	52	3447	300.070	pg	#	83
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	604	17.056	pg		98
5) Vinyl Chloride	4.82	62	207	6.489	pg		98
7) Bromomethane	5.33	94	132	5.890	pg		97
8) Chloroethane	5.57	64	1216	72.852	pg		100
9) Acrolein	6.13	56	597	44.247	pg	#	76
10) Acetone	6.27	58	44329	2591.484	pg		98
11) Trichlorofluoromethane	6.51	101	15559	404.973	pg		100
12) 1,1-Dichloroethene	7.23	96	455	16.735	pg	#	1
13) Methylene Chloride	7.34	84	14894	522.944	pg		97
14) Trichlorotrifluoroethane	7.69	151	1962	72.864	pg		100
15) trans-1,2-Dichloroethene	8.39	96	198	7.000	pg		97
16) 1,1-Dichloroethane	8.60	63	549	12.435	pg		97
19) Chloroform	9.77	83	692394	14537.126	pg		99
22) 1,1,1-Trichloroethane	10.79	97	2431	60.175	pg		97
23) Benzene	11.25	78	40757	340.616	pg		96
24) Carbon Tetrachloride	11.40	117	22216	602.470	pg		100
27) Bromodichloromethane	12.23	83	126401m	4148.880	pg		
28) Trichloroethene	12.29	130	1065	36.988	pg		97
34) Toluene	14.12	91	3217824	30583.039	pg		98
35) Dibromochloromethane	14.53	129	40887	1450.587	pg		100
37) Tetrachloroethene	15.27	166	15853	512.014	pg		99
40) Ethylbenzene	16.35	91	40600	322.105	pg		100
41) m,p-Xylene	16.52	91	110862	1150.321	pg		99
42) Styrene	16.89	104	6833	89.262	pg	#	1
43) o-Xylene	17.00	106	22748	443.972	pg		99
46) 1,3,5-Trimethylbenzene	18.27	105	20724	192.308	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	40639	378.023	pg		88
49) 1,4-Dichlorobenzene	18.87	146	69517	985.638	pg		100
53) Naphthalene	20.94	128	3318	26.387	pg		60

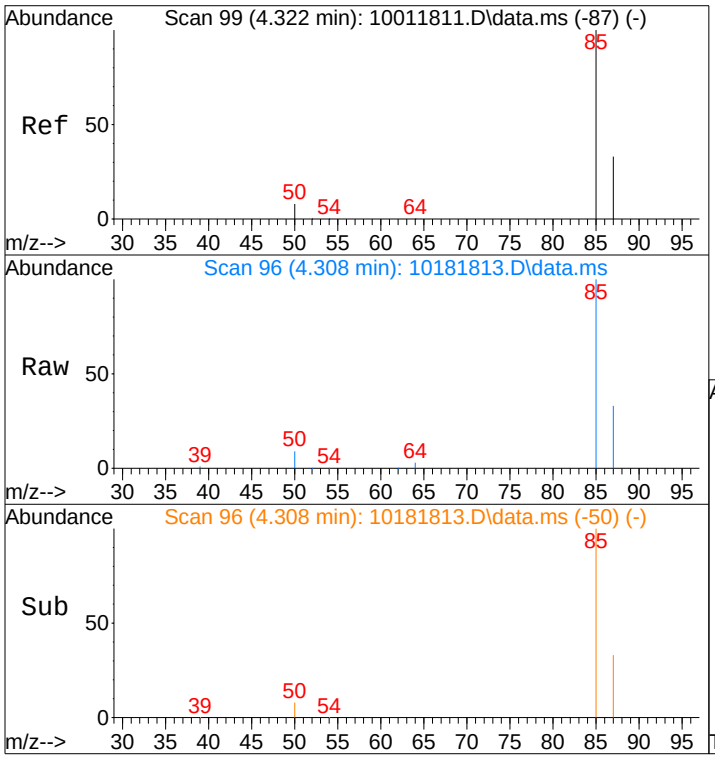
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:19:04 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

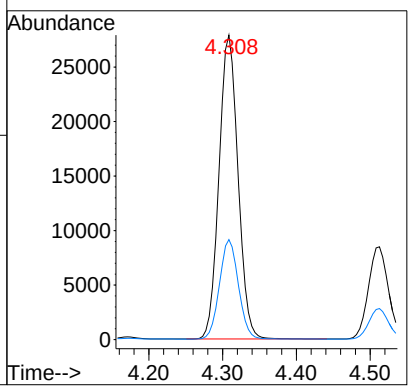


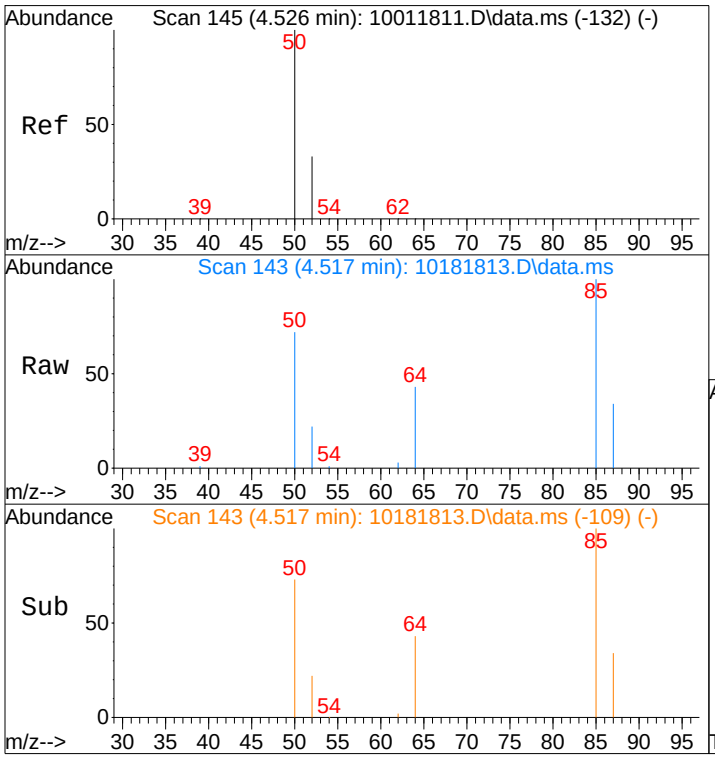


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1012.73 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.005 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 85 Resp: 49752

Ion	Ratio	Lower	Upper
85	100		
87	32.6	12.7	52.7

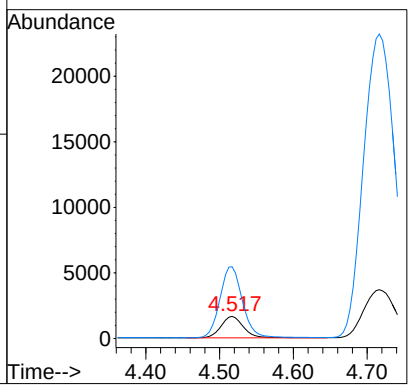


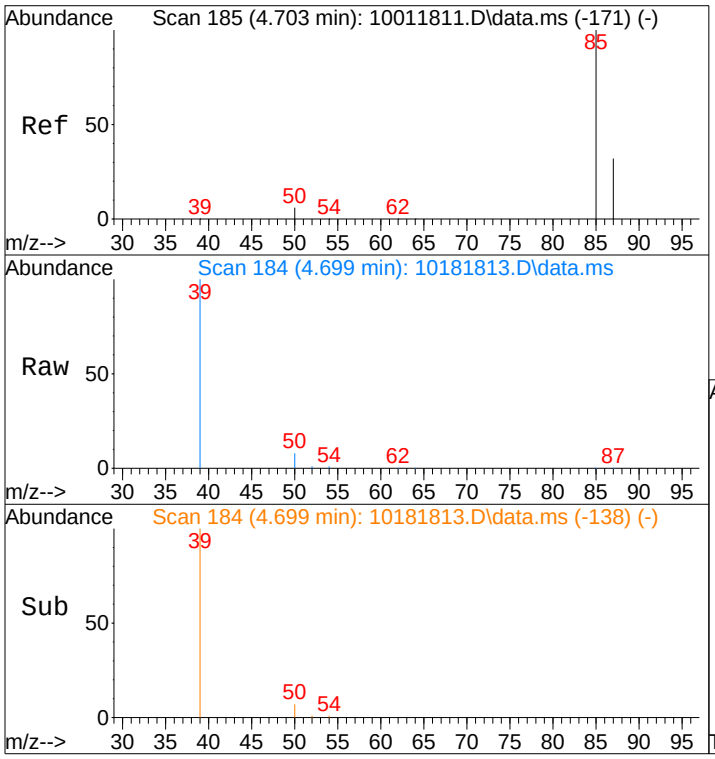


#3
Chloromethane
Concen: 300.07 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 52 Resp: 3447

Ion	Ratio	Lower	Upper
52	100		
50	334.5	281.8	321.8#

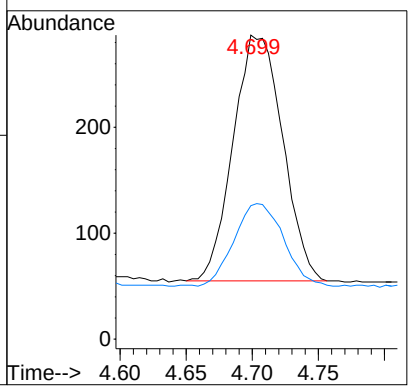


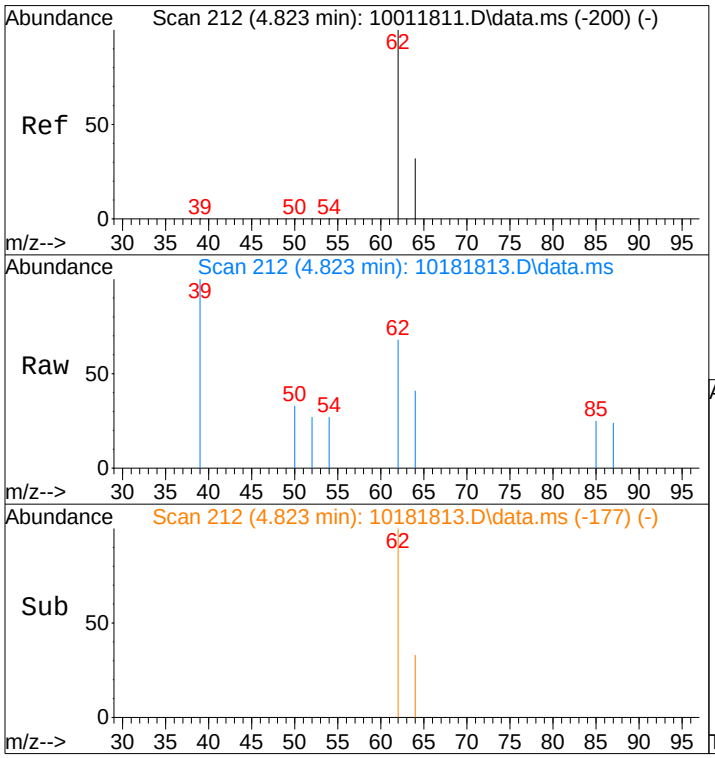


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 17.06 pg
RT: 4.70 min Scan# 184
Delta R.T. 0.005 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 85 Resp: 604

Ion	Ratio	Lower	Upper
85	100		
87	33.6	26.0	39.0

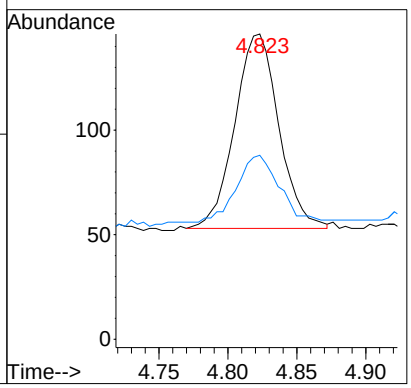


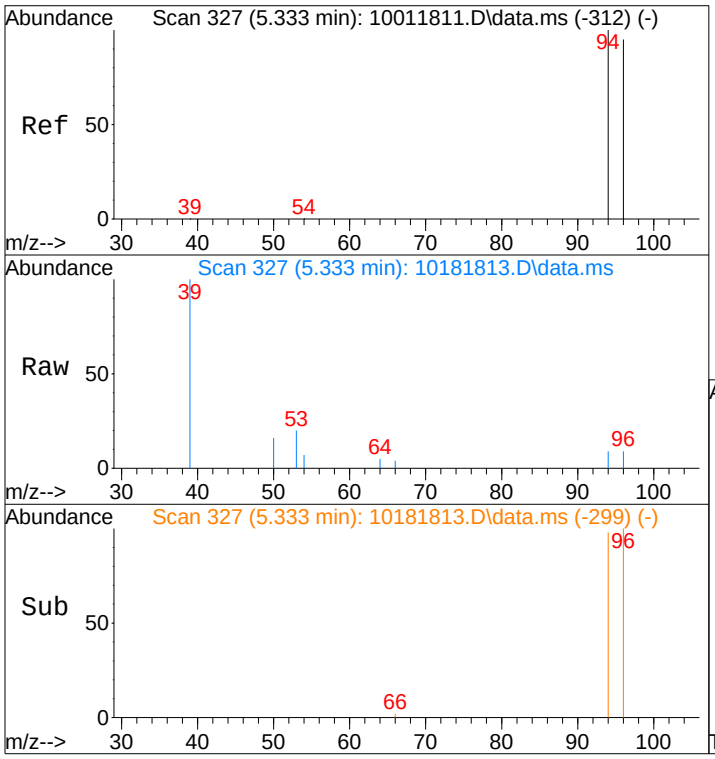


#5
Vinyl Chloride
Concen: 6.49 pg
RT: 4.82 min Scan# 212
Delta R.T. 0.005 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 62 Resp: 207

Ion	Ratio	Lower	Upper
62	100		
64	31.9	12.8	52.8

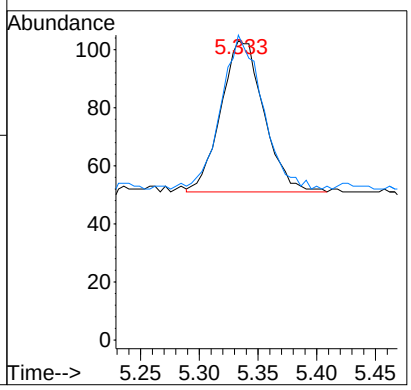


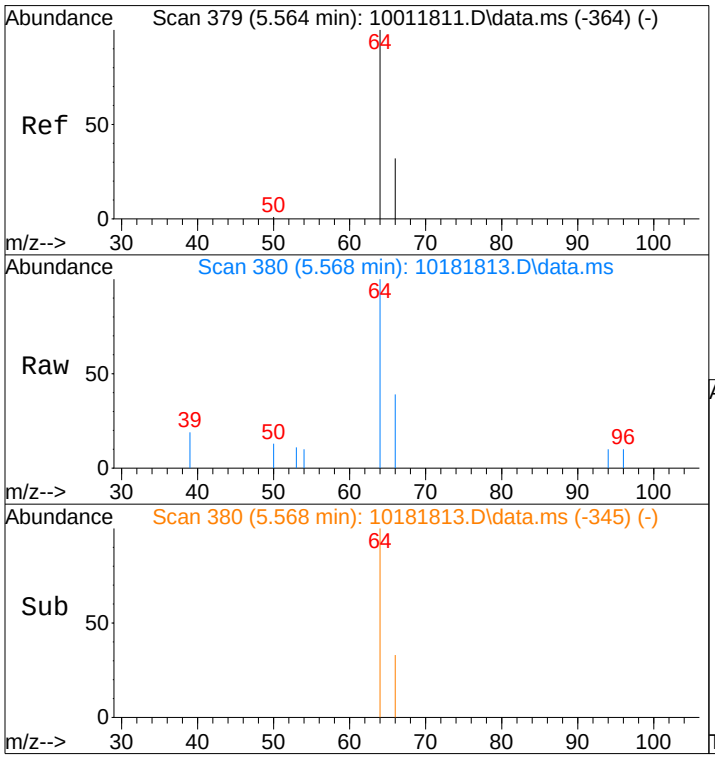


#7
Bromomethane
Concen: 5.89 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 94 Resp: 132

Ion	Ratio	Lower	Upper
94	100		
96	97.7	75.7	113.5

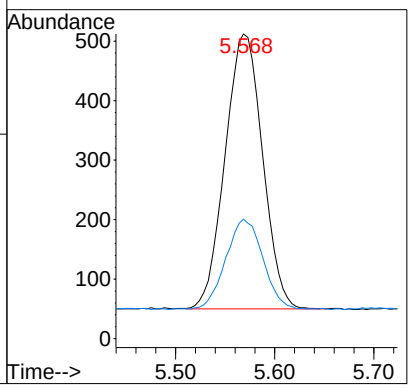


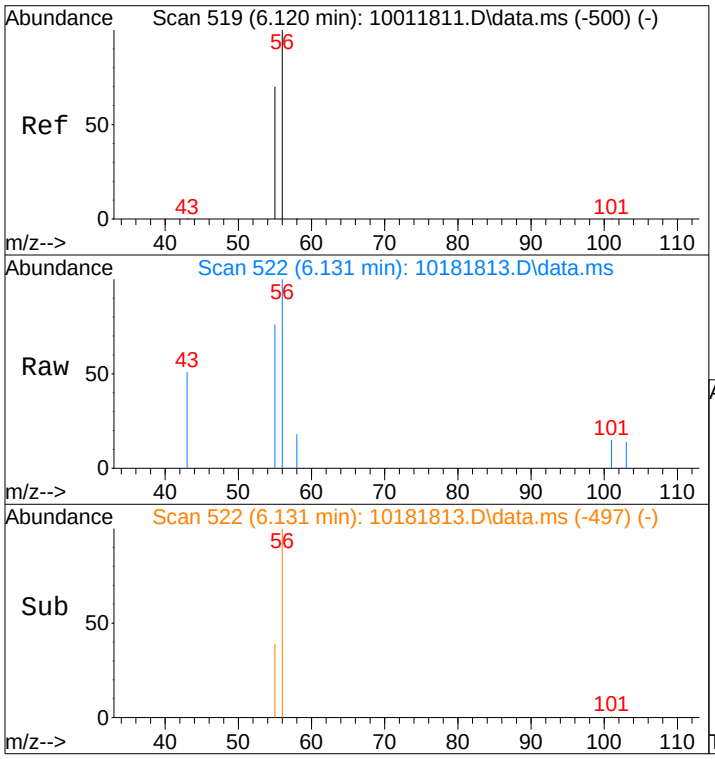


#8
Chloroethane
Concen: 72.85 pg
RT: 5.57 min Scan# 380
Delta R.T. 0.005 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 64 Resp: 1216

Ion	Ratio	Lower	Upper
64	100		
66	32.1	12.3	52.3

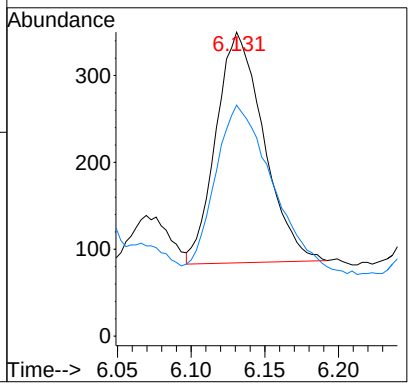


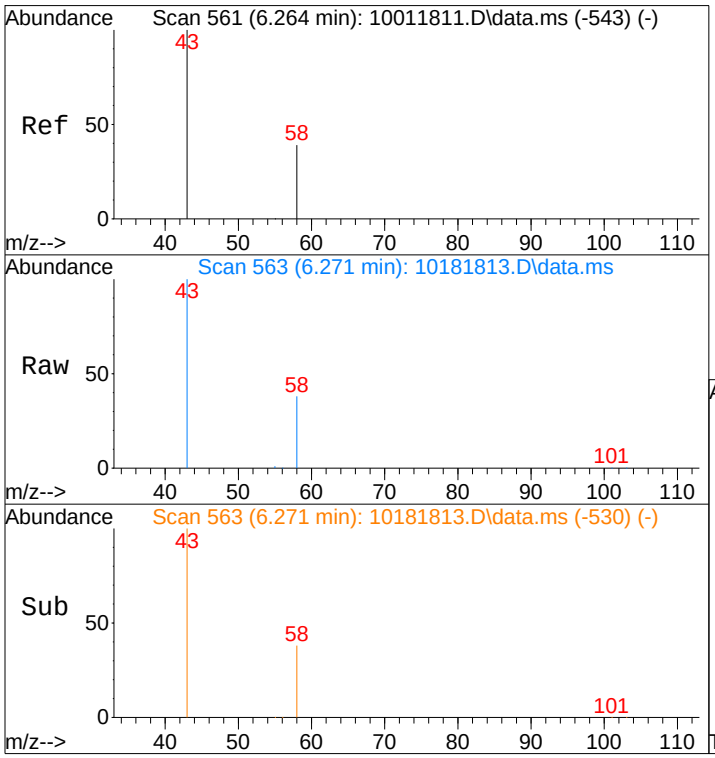


#9
Acrolein
Concen: 44.25 pg
RT: 6.13 min Scan# 522
Delta R.T. -0.024 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 56 Resp: 597

Ion	Ratio	Lower	Upper
56	100		
55	88.8	55.3	82.9#

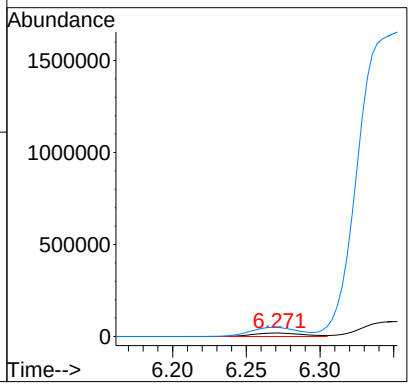


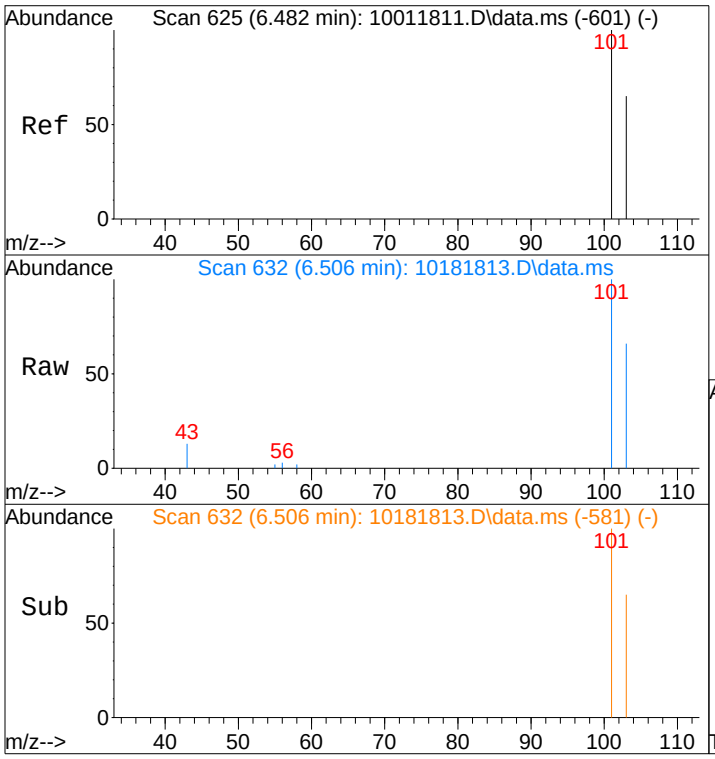


#10
Acetone
Concen: 2591.48 pg
RT: 6.27 min Scan# 563
Delta R.T. -0.037 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 58 Resp: 44329

Ion	Ratio	Lower	Upper
58	100		
43	251.7	234.7	274.7

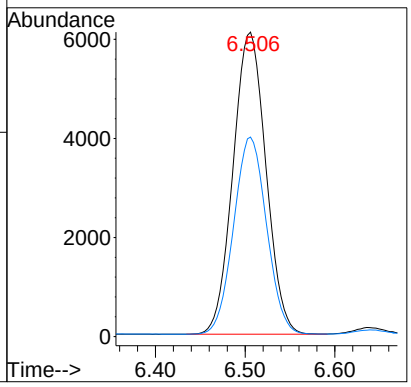


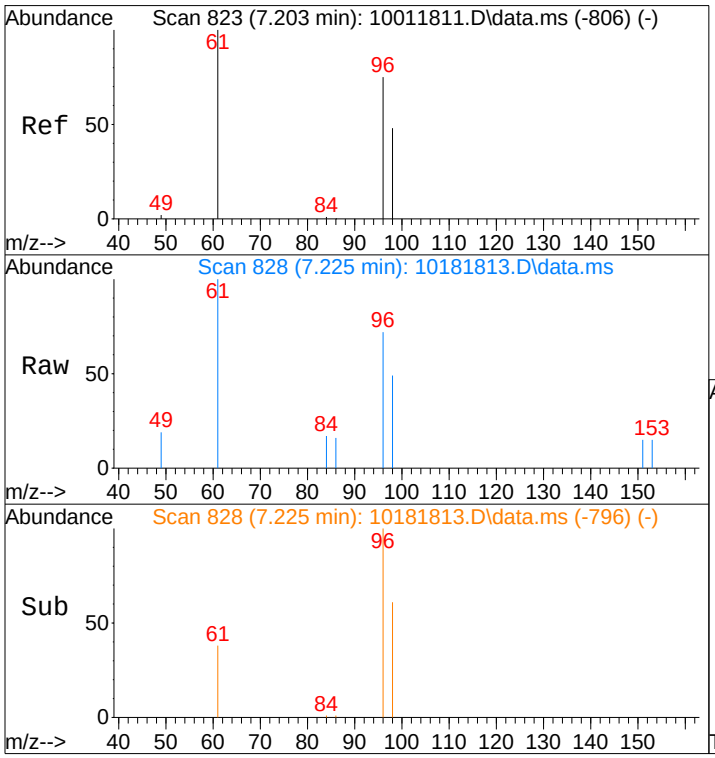


#11
Trichlorofluoromethane
Concen: 404.97 pg
RT: 6.51 min Scan# 632
Delta R.T. 0.024 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:101 Resp: 15559

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

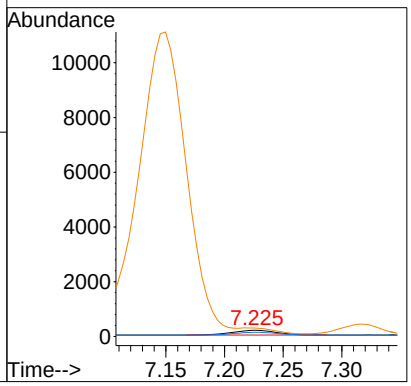


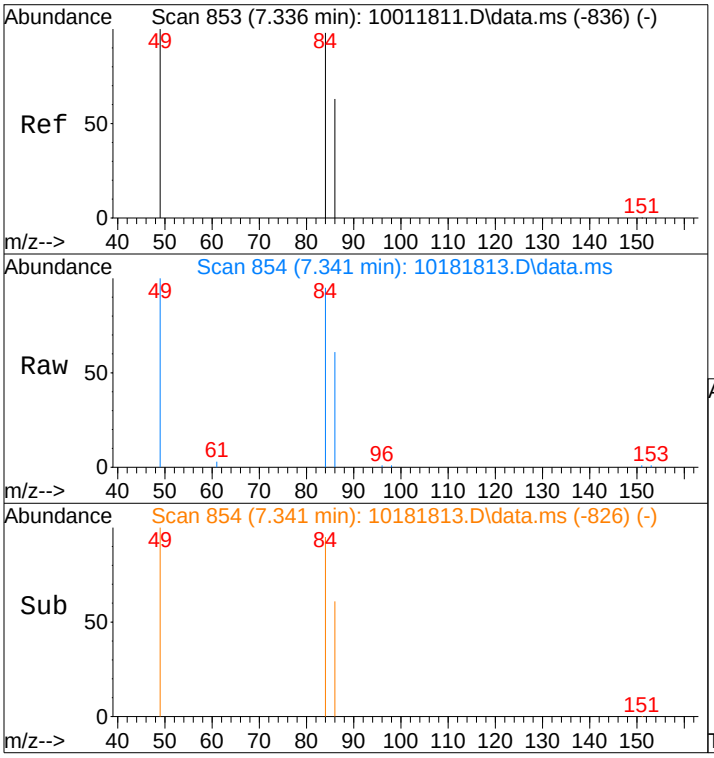


#12
1,1-Dichloroethene
Concen: 16.73 pg
RT: 7.23 min Scan# 828
Delta R.T. 0.014 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 96 Resp: 455

Ion	Ratio	Lower	Upper
96	100		
98	60.7	44.2	84.2
61	7009.9	114.1	154.1#

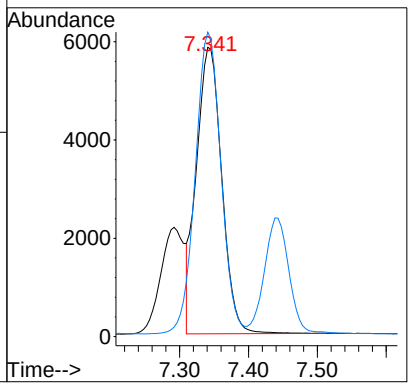


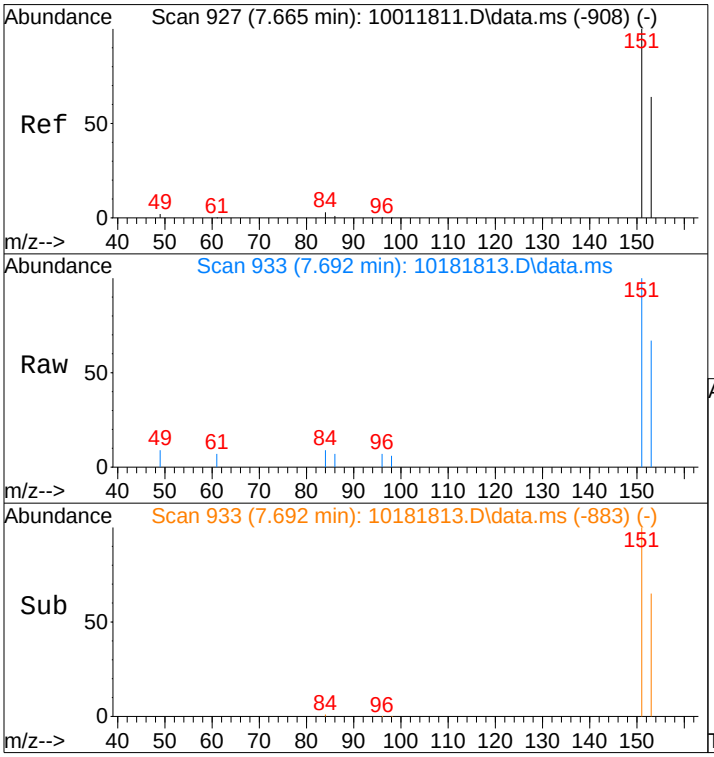


#13
Methylene Chloride
Concen: 522.94 pg
RT: 7.34 min Scan# 854
Delta R.T. -0.035 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 84 Resp: 14894

Ion	Ratio	Lower	Upper
84	100		
49	106.5	83.3	123.3

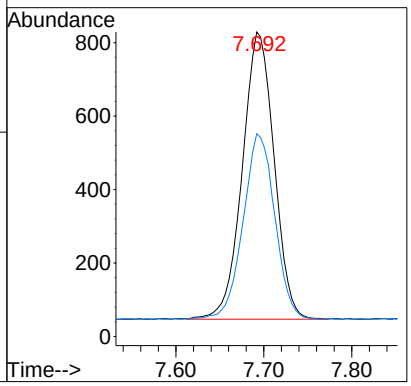


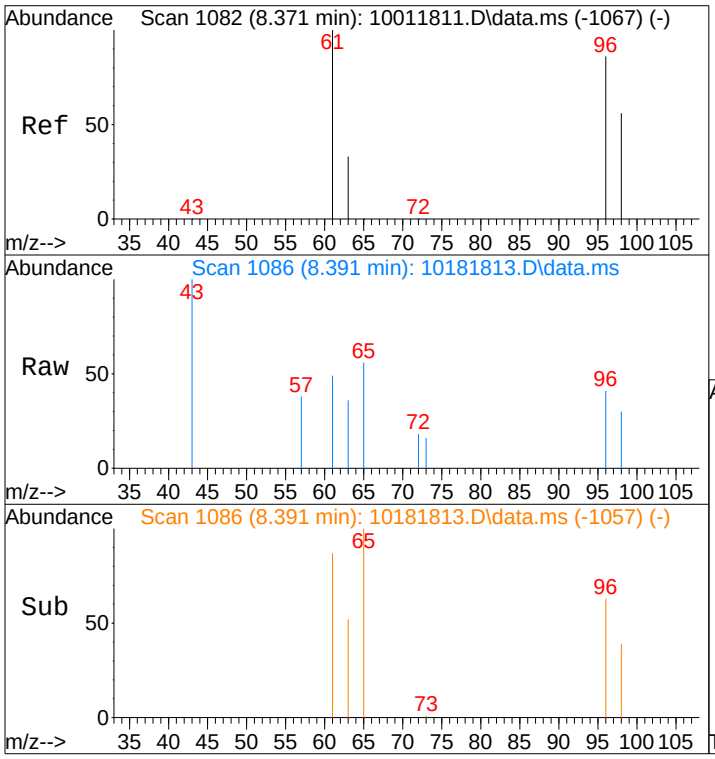


#14
Trichlorotrifluoroethane
Concen: 72.86 pg
RT: 7.69 min Scan# 933
Delta R.T. 0.022 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:151 Resp: 1962

Ion	Ratio	Lower	Upper
151	100		
153	64.5	44.3	84.3

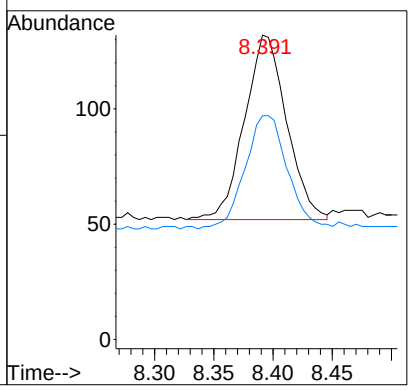


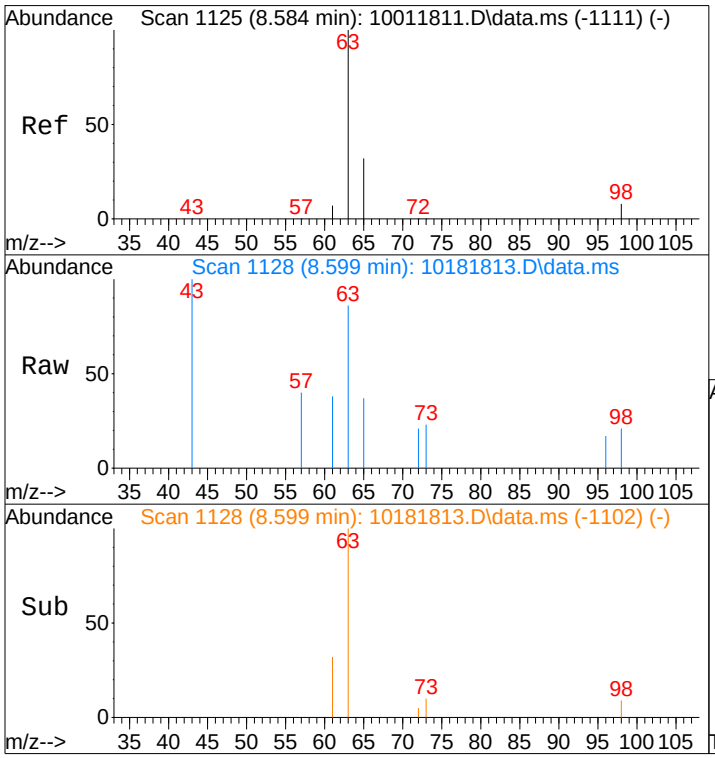


#15
trans-1,2-Dichloroethene
Concen: 7.00 pg
RT: 8.39 min Scan# 1086
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 96 Resp: 198

Ion	Ratio	Lower	Upper
96	100		
98	61.6	44.1	84.1

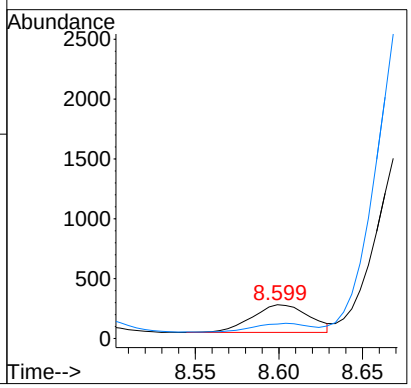


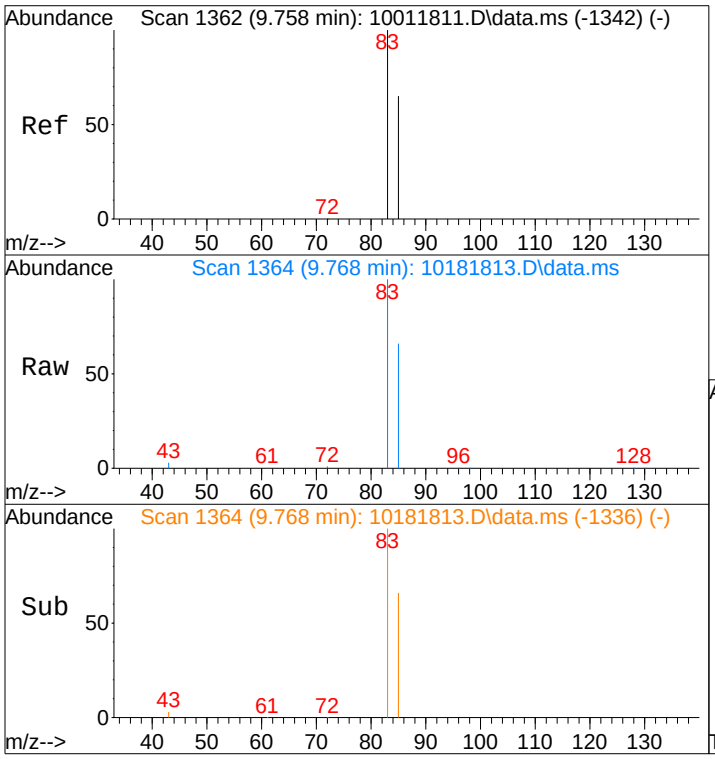


#16
1,1-Dichloroethane
Concen: 12.44 pg
RT: 8.60 min Scan# 1128
Delta R.T. -0.019 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 63 Resp: 549

Ion	Ratio	Lower	Upper
63	100		
65	30.6	12.2	52.2

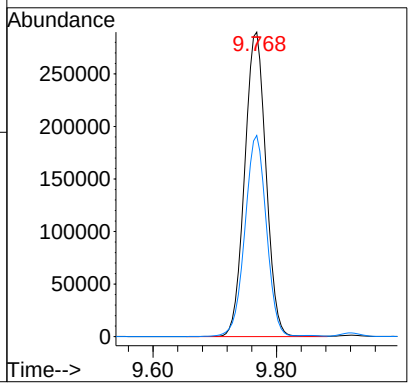


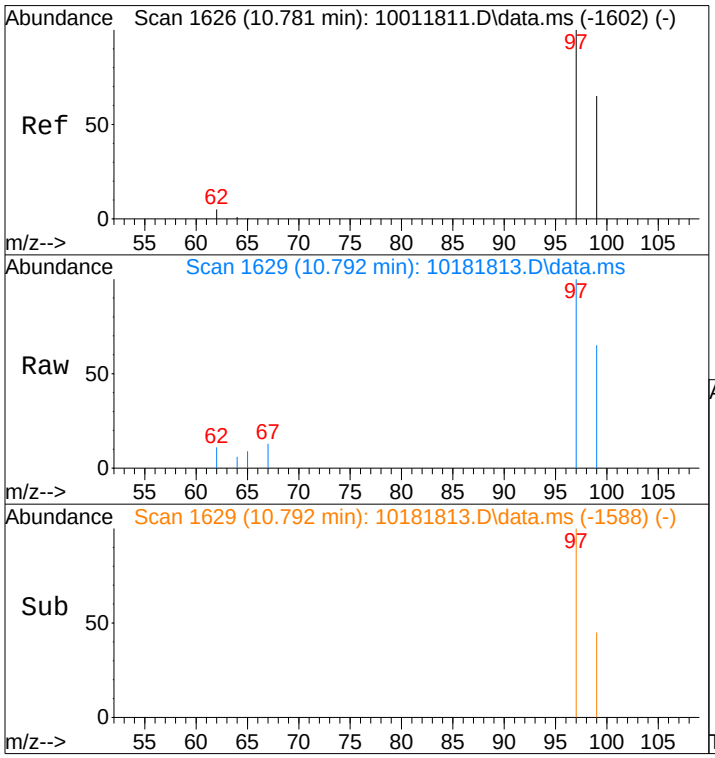


#19
Chloroform
Concen: 14537.13 pg
RT: 9.77 min Scan# 1364
Delta R.T. -0.029 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 83 Resp: 692394

Ion	Ratio	Lower	Upper
83	100		
85	66.7	46.0	86.0

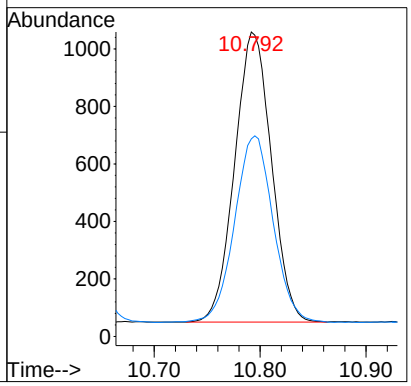


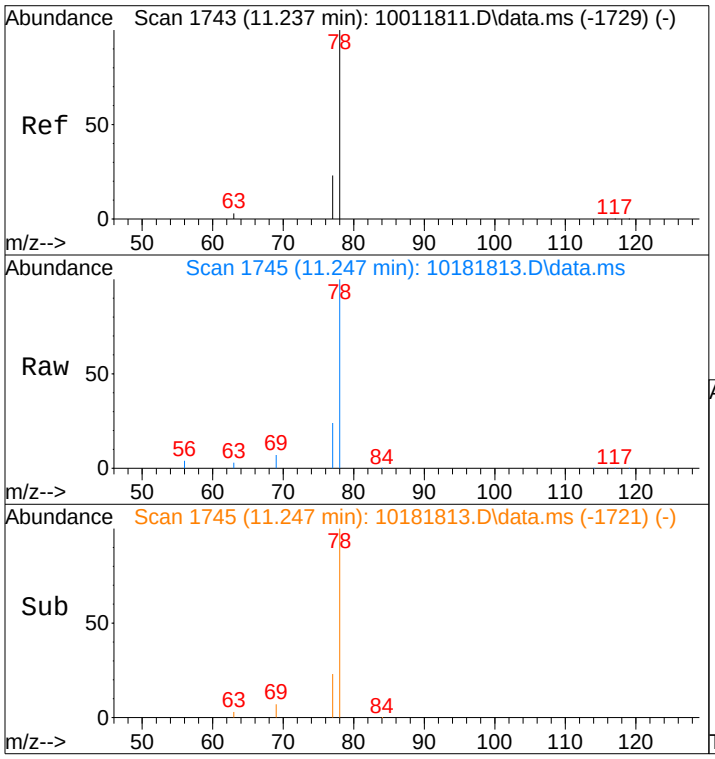


#22
1,1,1-Trichloroethane
Concen: 60.18 pg
RT: 10.79 min Scan# 1629
Delta R.T. -0.010 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 97 Resp: 2431

Ion	Ratio	Lower	Upper
97	100		
99	67.4	44.9	84.9

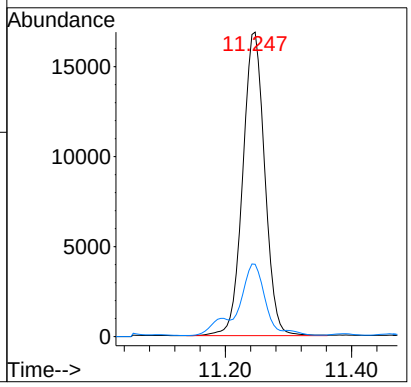


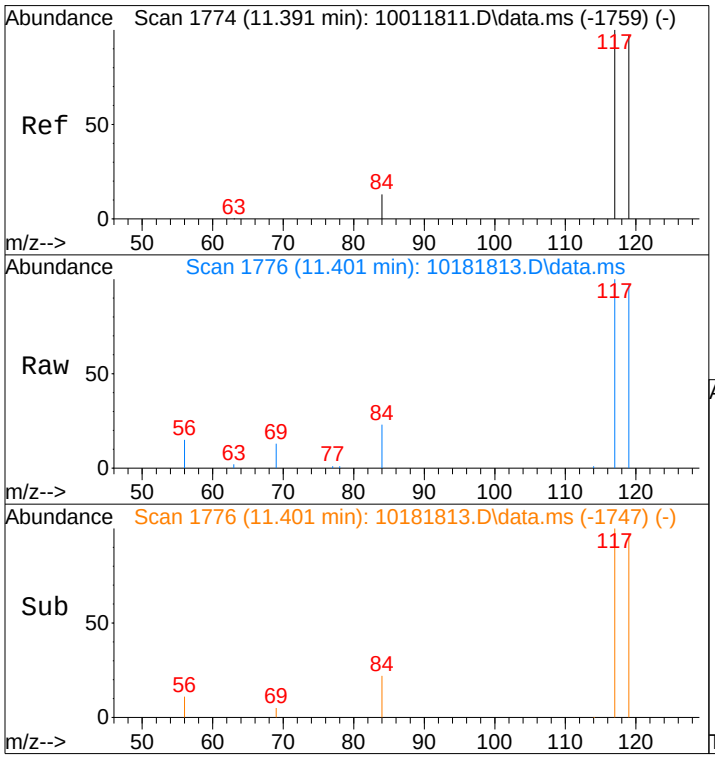


#23
Benzene
Concen: 340.62 pg
RT: 11.25 min Scan# 1745
Delta R.T. -0.009 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 78 Resp: 40757

Ion	Ratio	Lower	Upper
78	100		
77	25.0	3.3	43.3

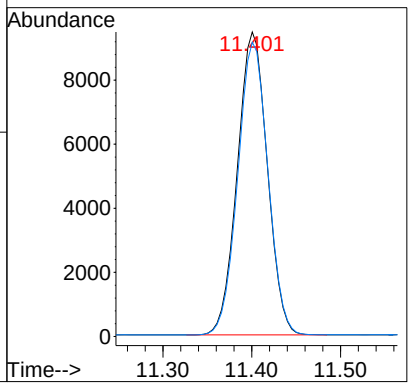


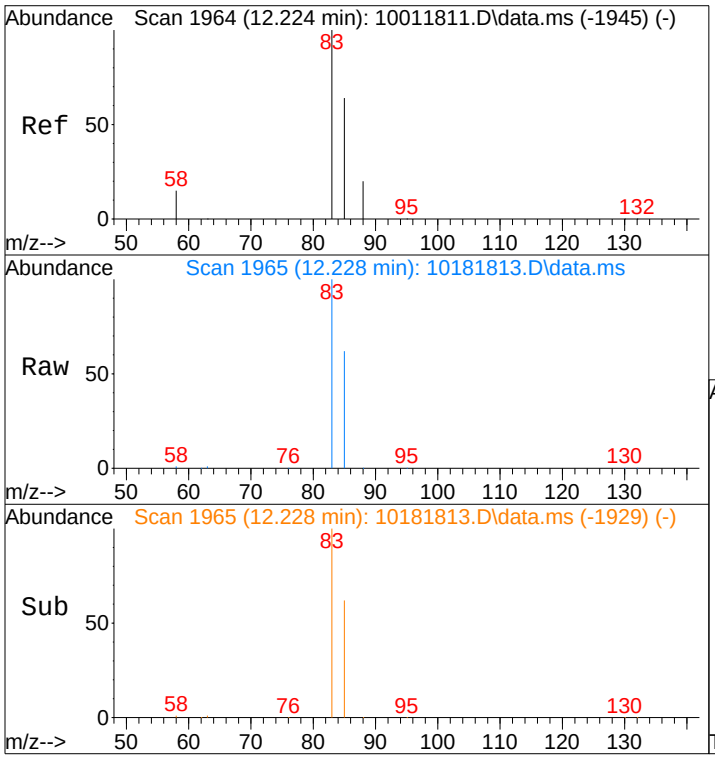


#24
Carbon Tetrachloride
Concen: 602.47 pg
RT: 11.40 min Scan# 1776
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:117 Resp: 22216

Ion	Ratio	Lower	Upper
117	100		
119	96.9	76.7	116.7

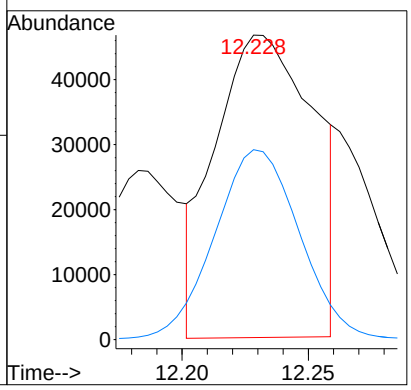


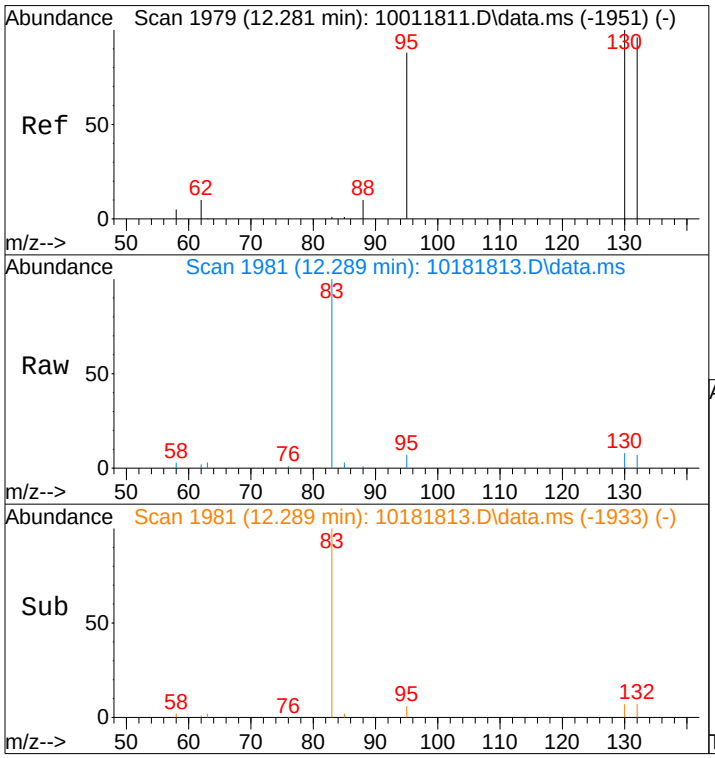


#27
Bromodichloromethane
Concen: 4148.88 pg m
RT: 12.23 min Scan# 1965
Delta R.T. -0.014 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 83 Resp: 126401

Ion	Ratio	Lower	Upper
83	100		
85	54.2	51.7	77.5

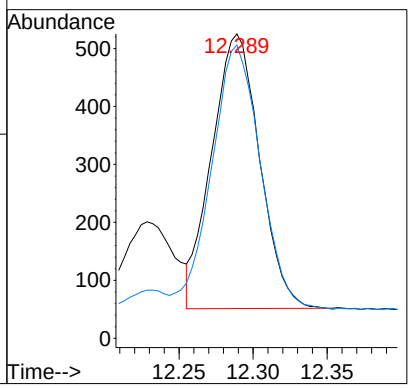


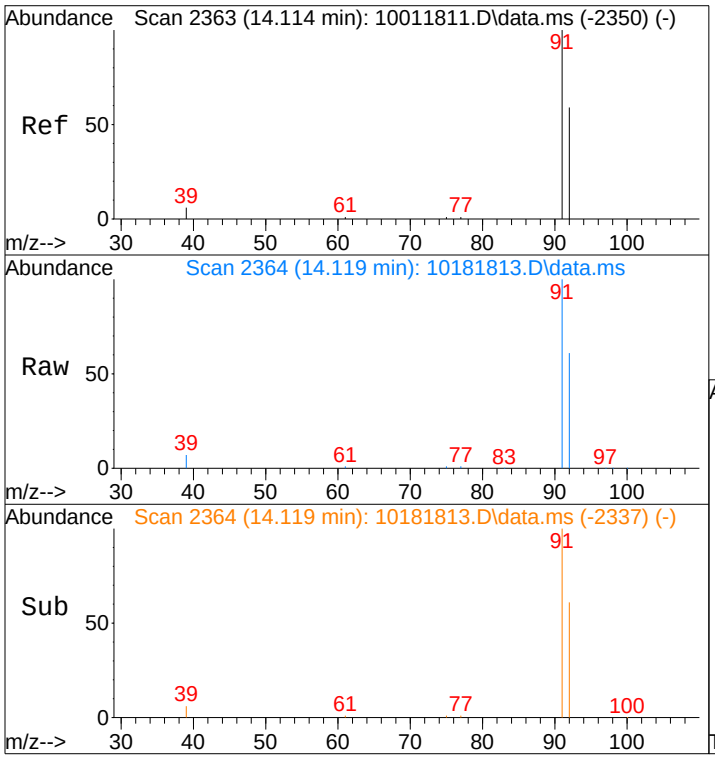


#28
Trichloroethene
Concen: 36.99 pg
RT: 12.29 min Scan# 1981
Delta R.T. -0.007 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:130 Resp: 1065

Ion	Ratio	Lower	Upper
130	100		
132	98.1	75.6	115.6

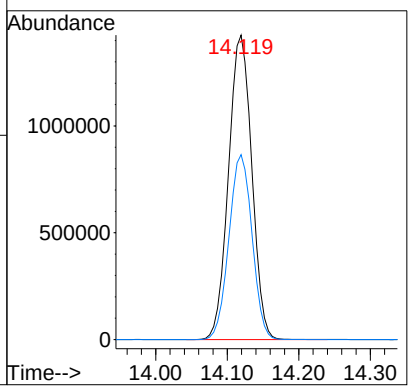


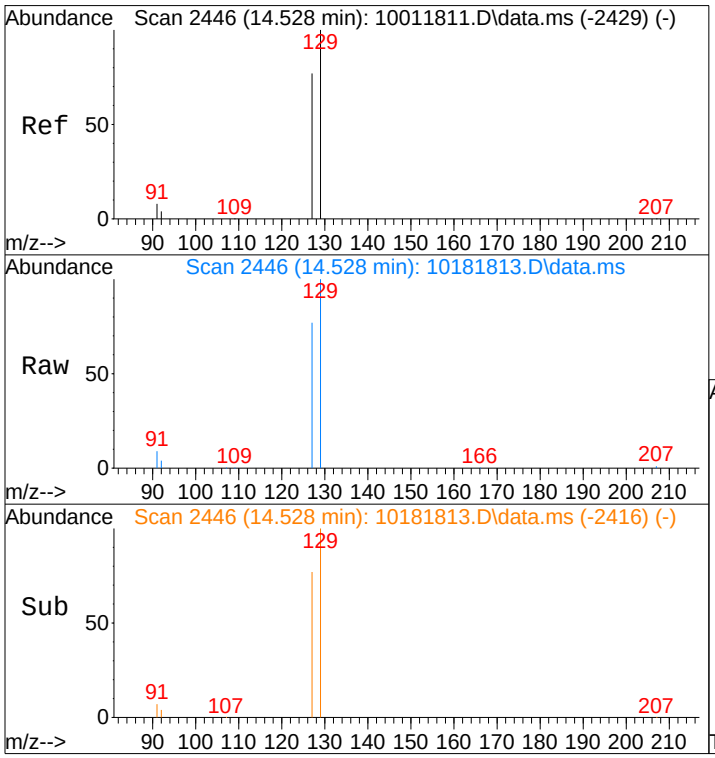


#34
Toluene
Concen: 30583.04 pg
RT: 14.12 min Scan# 2364
Delta R.T. -0.005 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 91 Resp: 3217824

Ion	Ratio	Lower	Upper
91	100		
92	60.3	39.2	79.2

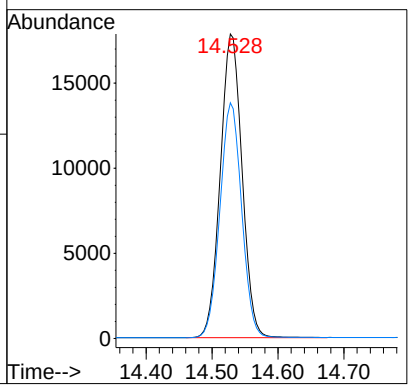


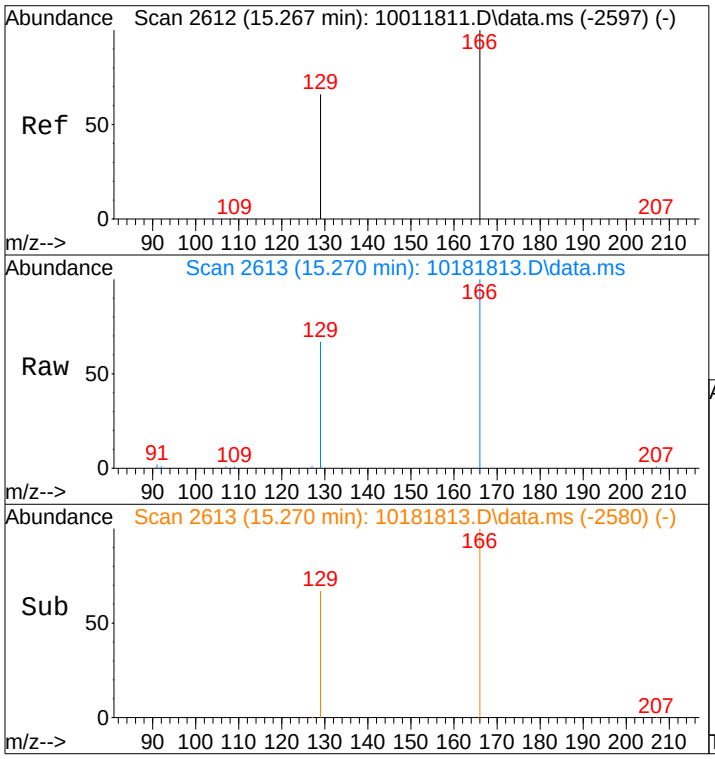


#35
Dibromochloromethane
Concen: 1450.59 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:129 Resp: 40887

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

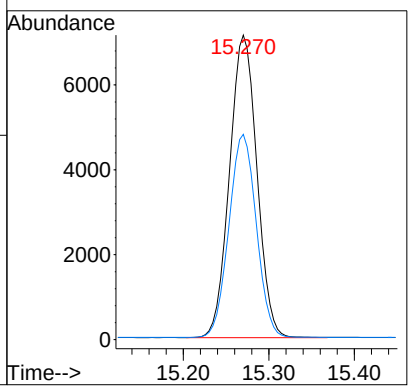


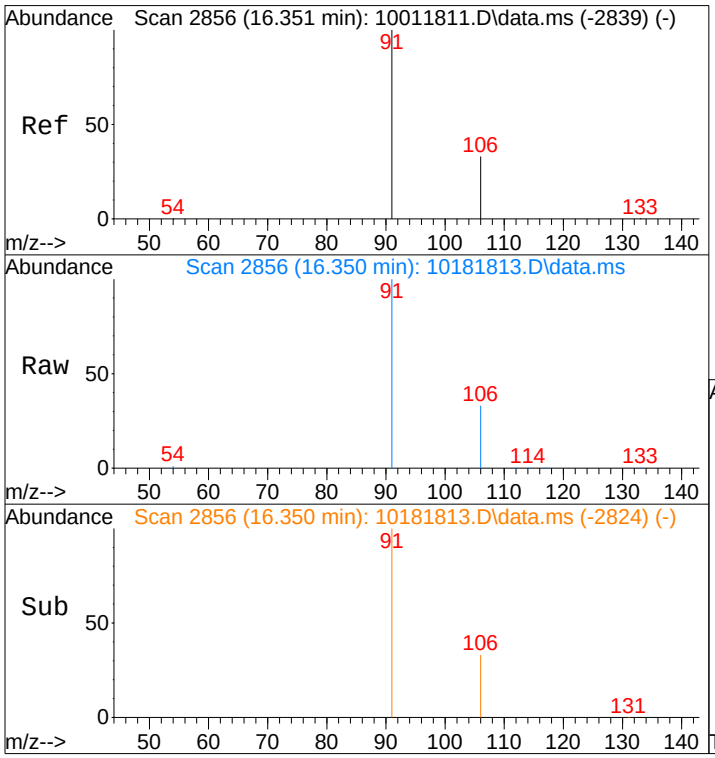


#37
Tetrachloroethene
Concen: 512.01 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:166 Resp: 15853

Ion	Ratio	Lower	Upper
166	100		
129	67.2	46.7	86.7

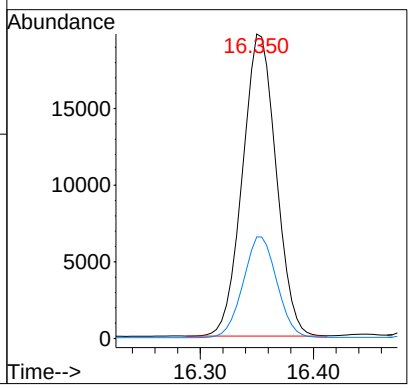


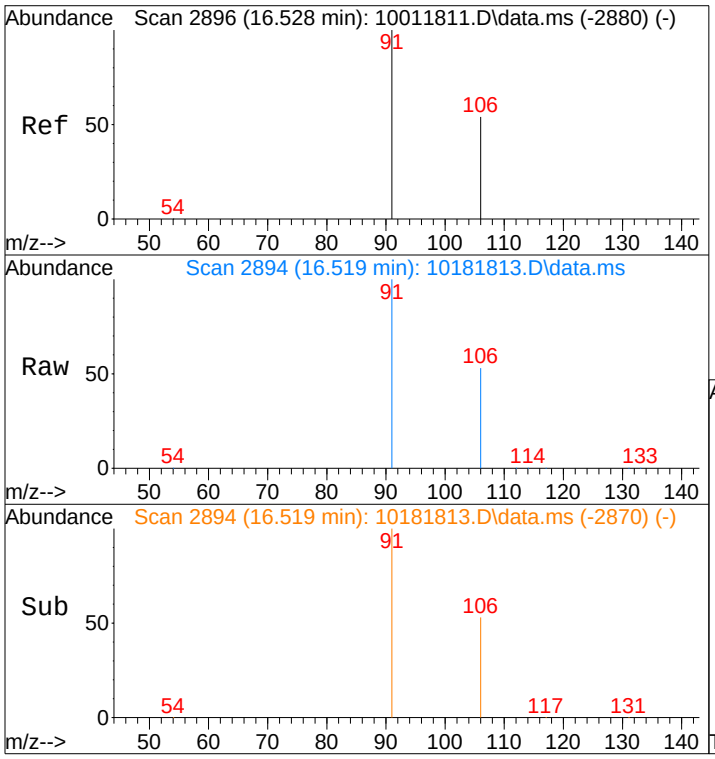


#40
Ethylbenzene
Concen: 322.11 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 91 Resp: 40600

Ion	Ratio	Lower	Upper
91	100		
106	33.6	13.7	53.7

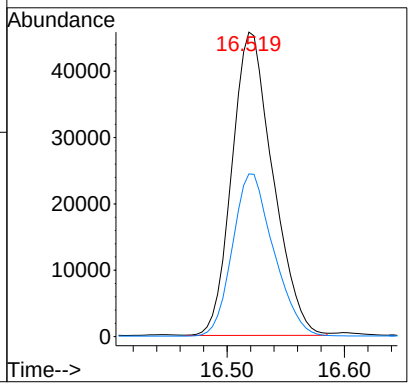


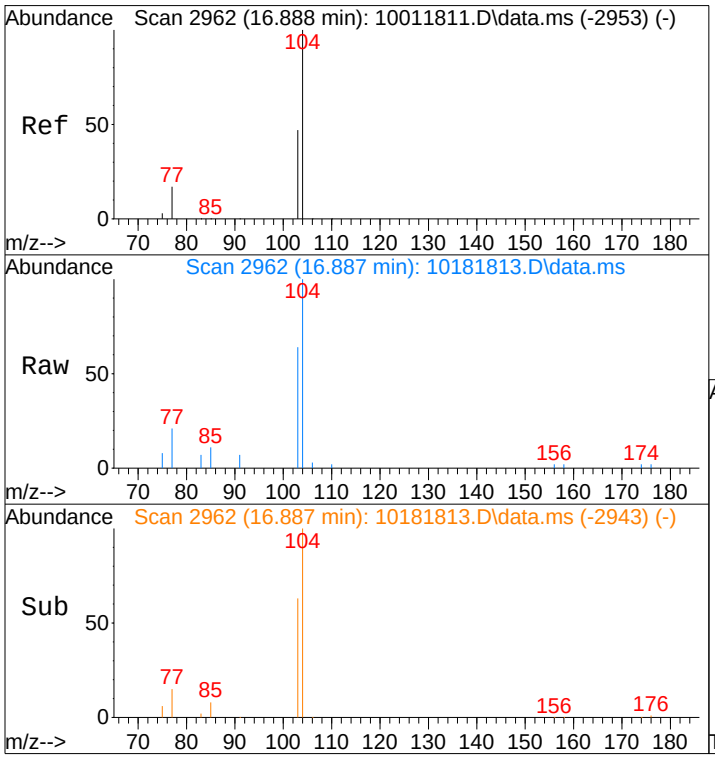


#41
m,p-Xylene
Concen: 1150.32 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion: 91 Resp: 110862

Ion	Ratio	Lower	Upper
91	100		
106	53.7	34.3	74.3

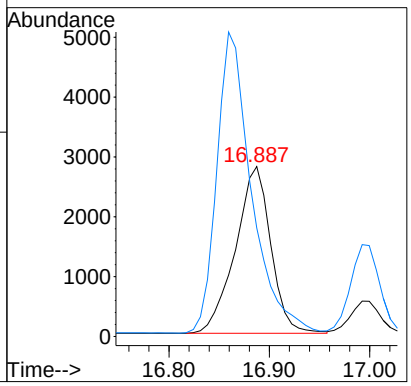


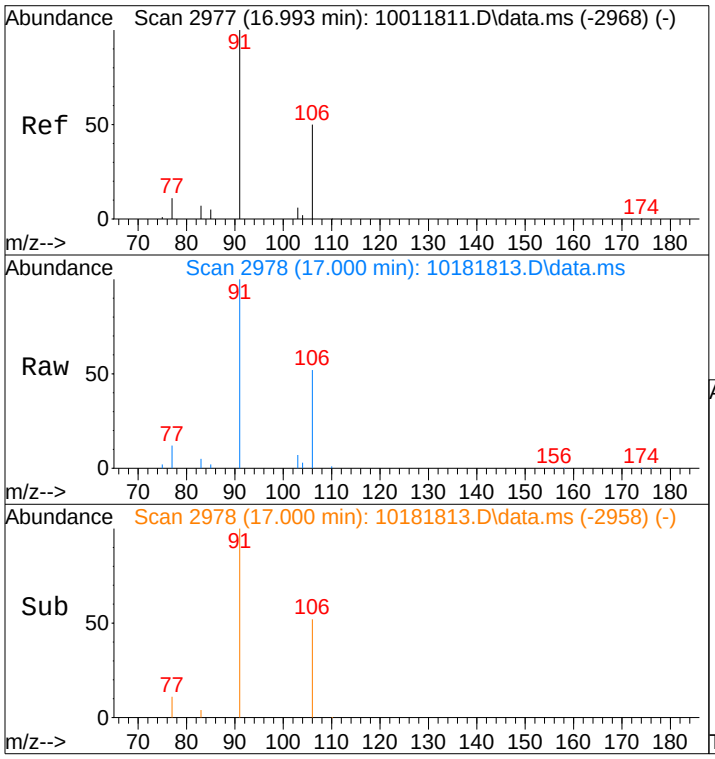


#42
Styrene
Concen: 89.26 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:104 Resp: 6833

Ion	Ratio	Lower	Upper
104	100		
103	176.6	37.7	56.5#

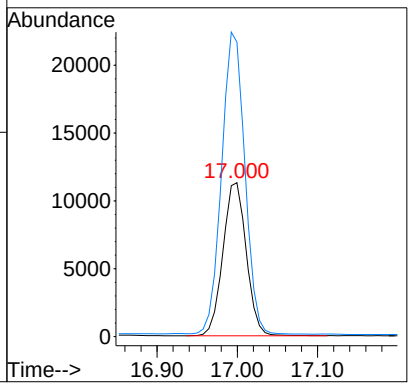


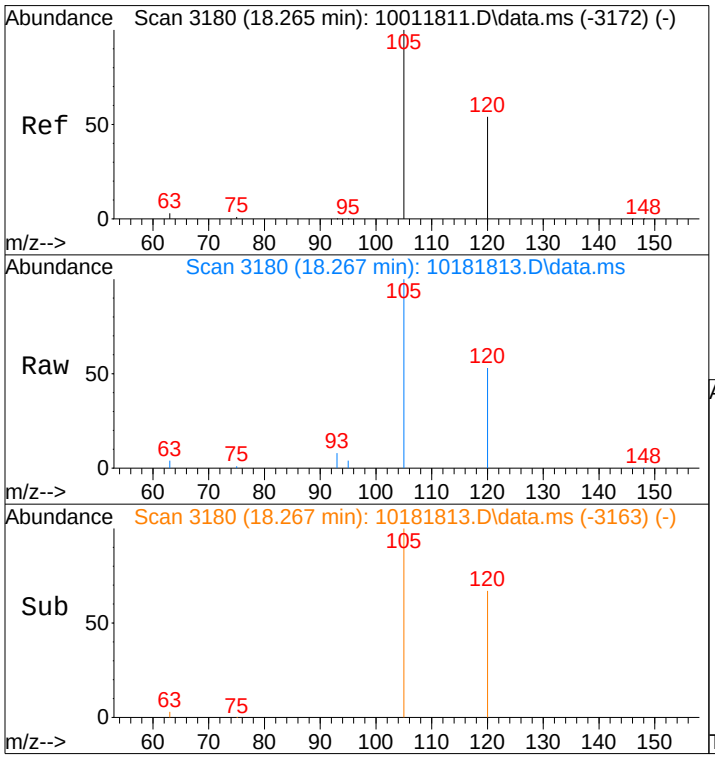


#43
o-Xylene
Concen: 443.97 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:106 Resp: 22748

Ion	Ratio	Lower	Upper
106	100		
91	196.4	175.6	215.6

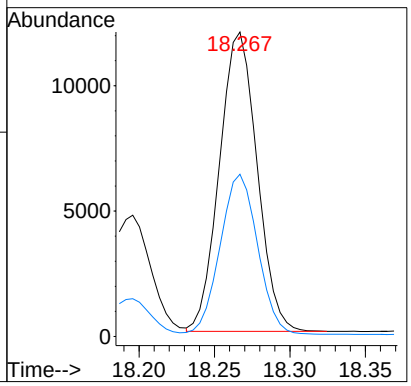


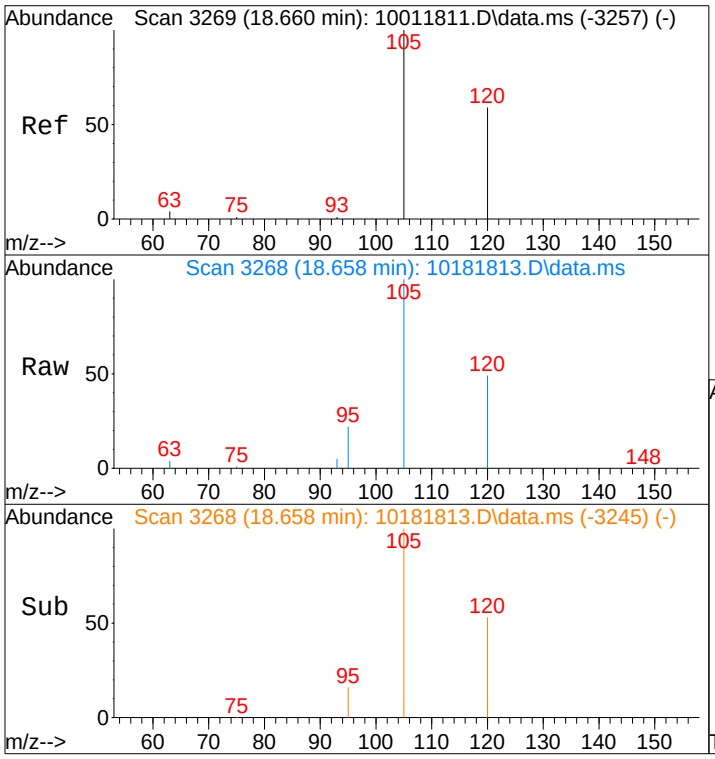


#46
1,3,5-Trimethylbenzene
Concen: 192.31 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:105 Resp: 20724

Ion	Ratio	Lower	Upper
105	100		
120	53.4	42.8	64.2

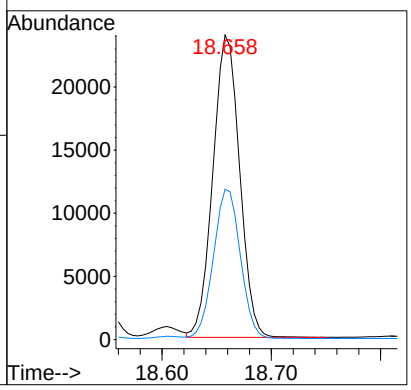


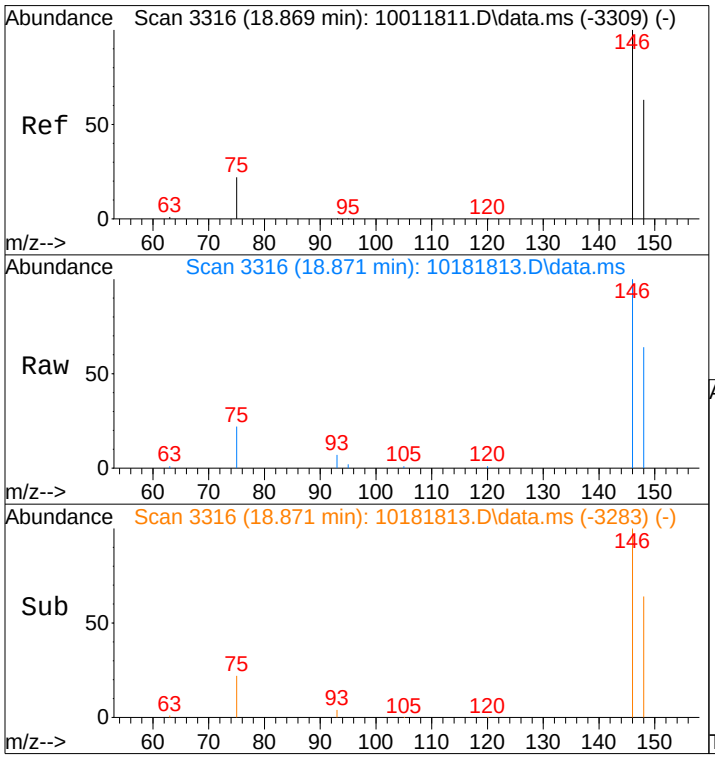


#47
1,2,4-Trimethylbenzene
Concen: 378.02 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:105 Resp: 40639

Ion	Ratio	Lower	Upper
105	100		
120	49.8	47.1	70.7

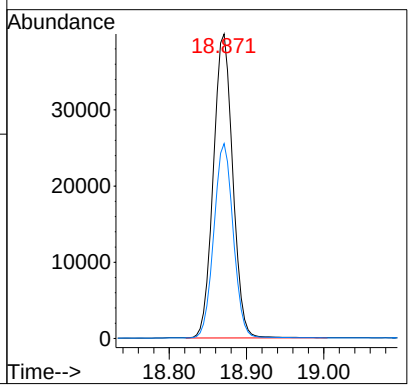


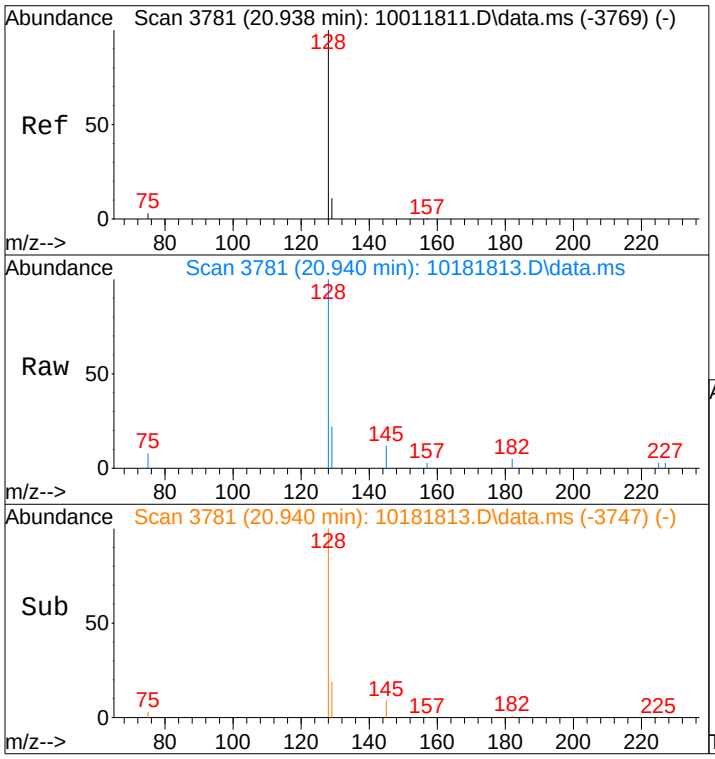


#49
1,4-Dichlorobenzene
Concen: 985.64 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:146 Resp: 69517

Ion	Ratio	Lower	Upper
146	100		
148	63.9	43.8	83.8

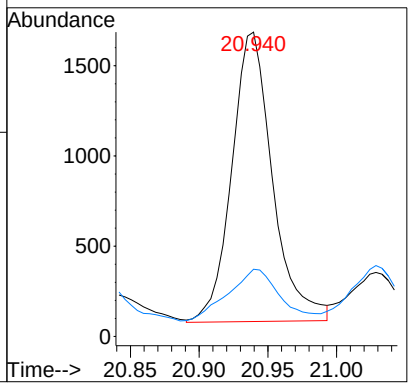




#53
Naphthalene
Concen: 26.39 pg
RT: 20.94 min Scan# 3781
Delta R.T. 0.001 min
Lab File: 10181813.D
Acq: 18 Oct 2018 19:11

Tgt Ion:128 Resp: 3318

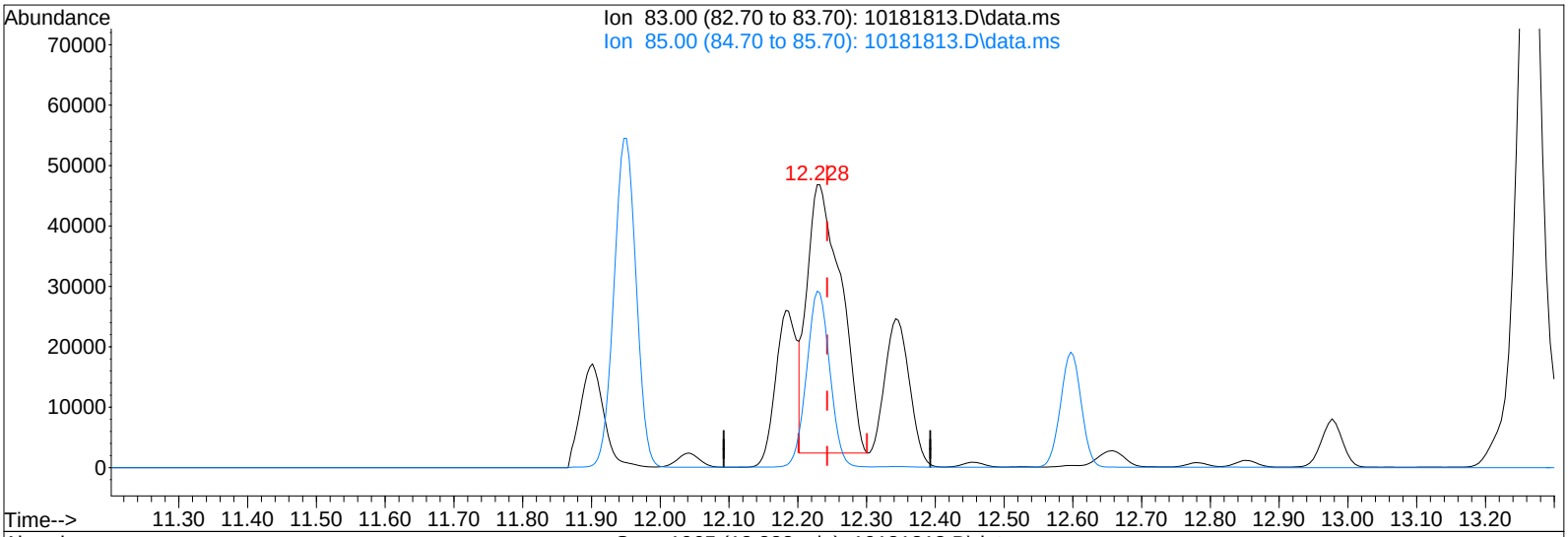
Ion	Ratio	Lower	Upper
128	100		
129	25.7	0.0	30.8

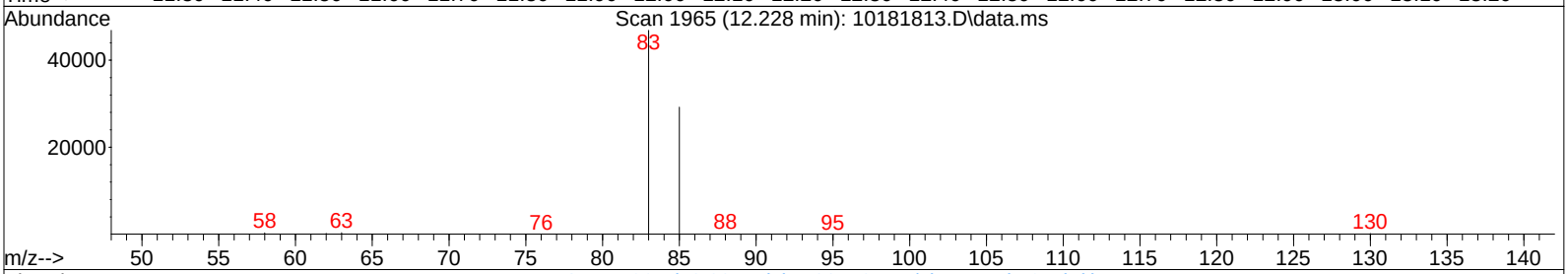


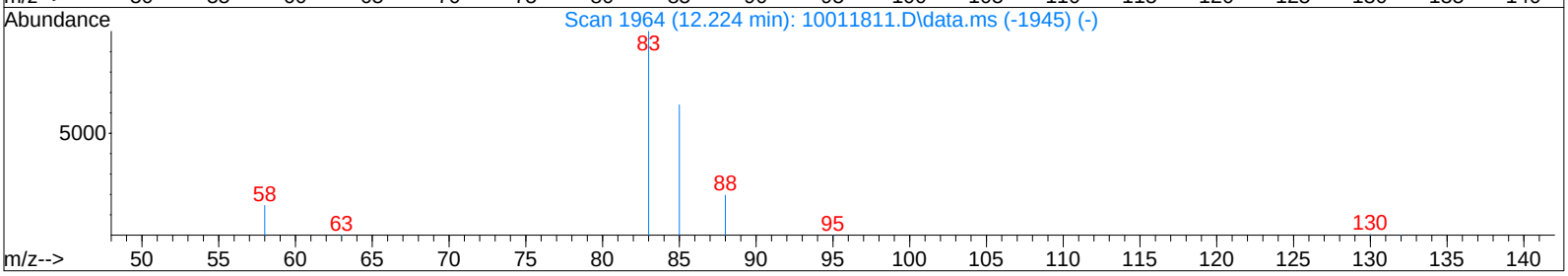
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 19 06:24:48 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10181813.D\data.ms

(27) Bromodichloromethane (T)

12.228min (-0.014) 4983.70pg

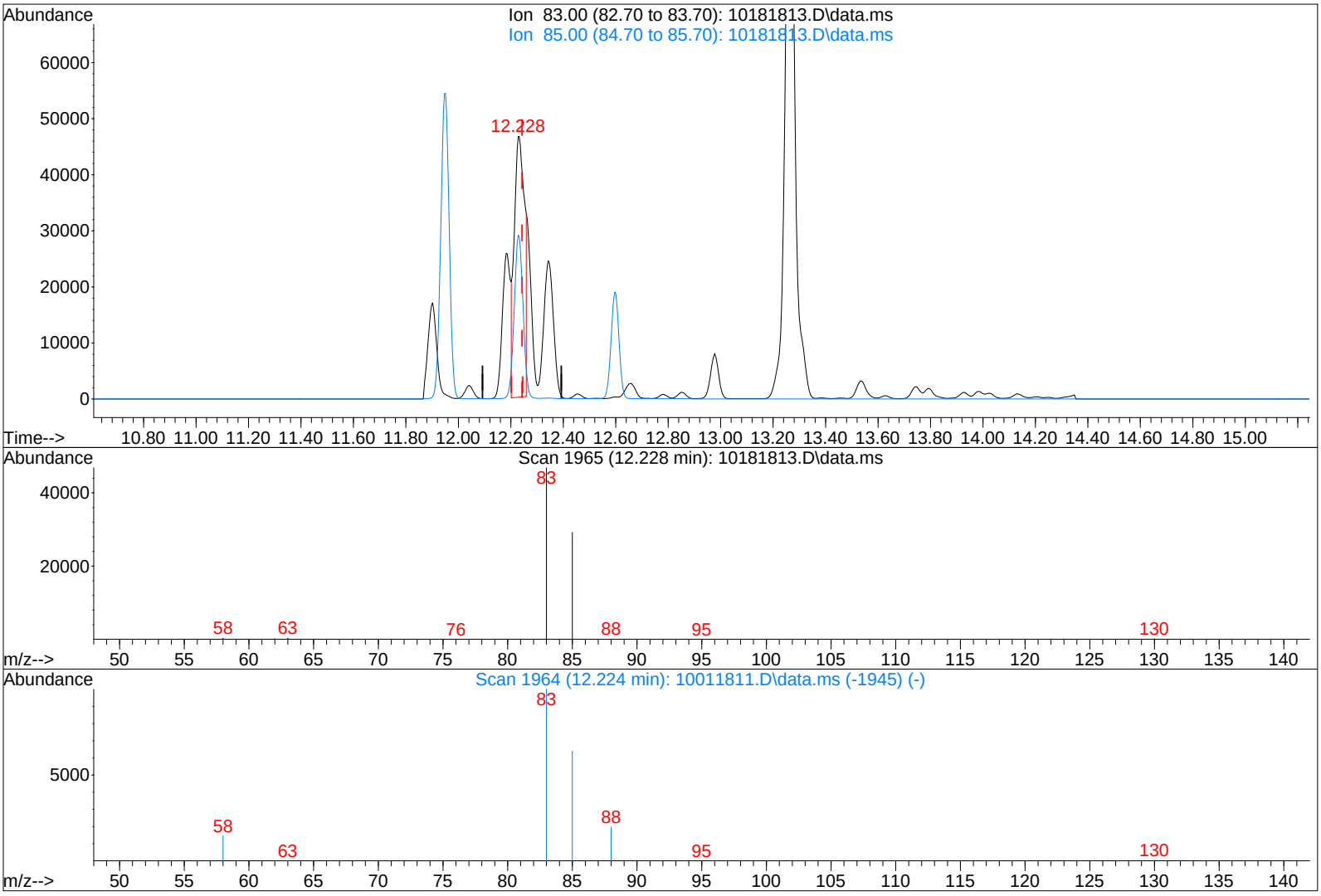
response 151835

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	45.12#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181813.D Vial: 12
Acq On : 18 Oct 2018 19:11 Operator: WA
Sample : P1805497-010dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 19 06:24:48 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181813.D\data.ms

(27) Bromodichloromethane (T)

12.228min (-0.014) 4148.88pg m

response 126401

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	54.20
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:16:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	31702	1000.000 pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	89628	1000.000 pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	15723	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.42	65	21203m	558.724 pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery =	55.87%#		NR
33) Toluene-d8 (SS2)	14.02	98	96332	1042.231 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery =	104.22%		
45) Bromofluorobenzene (SS3)	17.43	174	35624	801.832 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery =	80.18%		
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	131178	1941.963 pg		100
3) Chloromethane	4.52	52	5515	349.159 pg	#	73
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	1555	31.935 pg		100
5) Vinyl Chloride	4.83	62	822	18.740 pg		99
6) 1,3-Butadiene	0.00	54	0	N.D. d		
7) Bromomethane	5.34	94	430	13.954 pg		97
8) Chloroethane	5.58	64	5690	247.925 pg		100
9) Acrolein	6.14	56	1749	94.274 pg	#	77
10) Acetone	6.27	58	311593	13247.855 pg		98
11) Trichlorofluoromethane	6.52	101	43554	824.461 pg		100
12) 1,1-Dichloroethene	7.24	96	2200	58.848 pg	#	77
13) Methylene Chloride	7.35	84	48975	1250.592 pg		99
14) Trichlorotrifluoroethane	7.71	151	4925	133.019 pg		99
15) trans-1,2-Dichloroethene	8.41	96	460	11.827 pg		99
16) 1,1-Dichloroethane	8.61	63	1895	31.217 pg		99
17) Methyl tert-Butyl Ether	0.00	73	0	N.D. d		
18) cis-1,2-Dichloroethene	9.48	96	123	N.D.		
19) Chloroform	9.77	83	2320972	35439.899 pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D. d		
22) 1,1,1-Trichloroethane	10.80	97	6675	120.165 pg		97
23) Benzene	11.25	78	99524	604.906 pg		98
24) Carbon Tetrachloride	11.40	117	72629	1432.441 pg		100
26) 1,2-Dichloropropane	12.05	63	435	19.486 pg		84
27) Bromodichloromethane	12.24	83	367794m	12411.720 pg		
28) Trichloroethene	12.29	130	2815	100.517 pg		98
29) 1,4-Dioxane	0.00	88	0	N.D. d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D. d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d		
34) Toluene	14.12	91	7618913	74448.901 pg		97
35) Dibromochloromethane	14.53	129	122461	4466.869 pg		100
36) 1,2-Dibromoethane	14.79	107	73	N.D.		
37) Tetrachloroethene	15.27	166	39578	1314.229 pg		100
39) Chlorobenzene	15.97	112	8750	91.921 pg		88
40) Ethylbenzene	16.35	91	106959	737.880 pg		100
41) m,p-Xylene	16.52	91	311143	2807.328 pg		99
42) Styrene	0.00	104	0	N.D. d		
43) o-Xylene	16.99	106	56458	958.151 pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
46) 1,3,5-Trimethylbenzene	18.27	105	75243	607.138 pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	141966	1148.302 pg		89
48) 1,3-Dichlorobenzene	18.81	146	184	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	224232	2764.527 pg		100
50) 1,2-Dichlorobenzene	19.20	146	580	7.483 pg		95
51) 1,2-Dibromo-3-chloropr...	19.61	157	56	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D. d		
53) Naphthalene	20.94	128	13412	92.747 pg		75

NR

NR

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:16:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

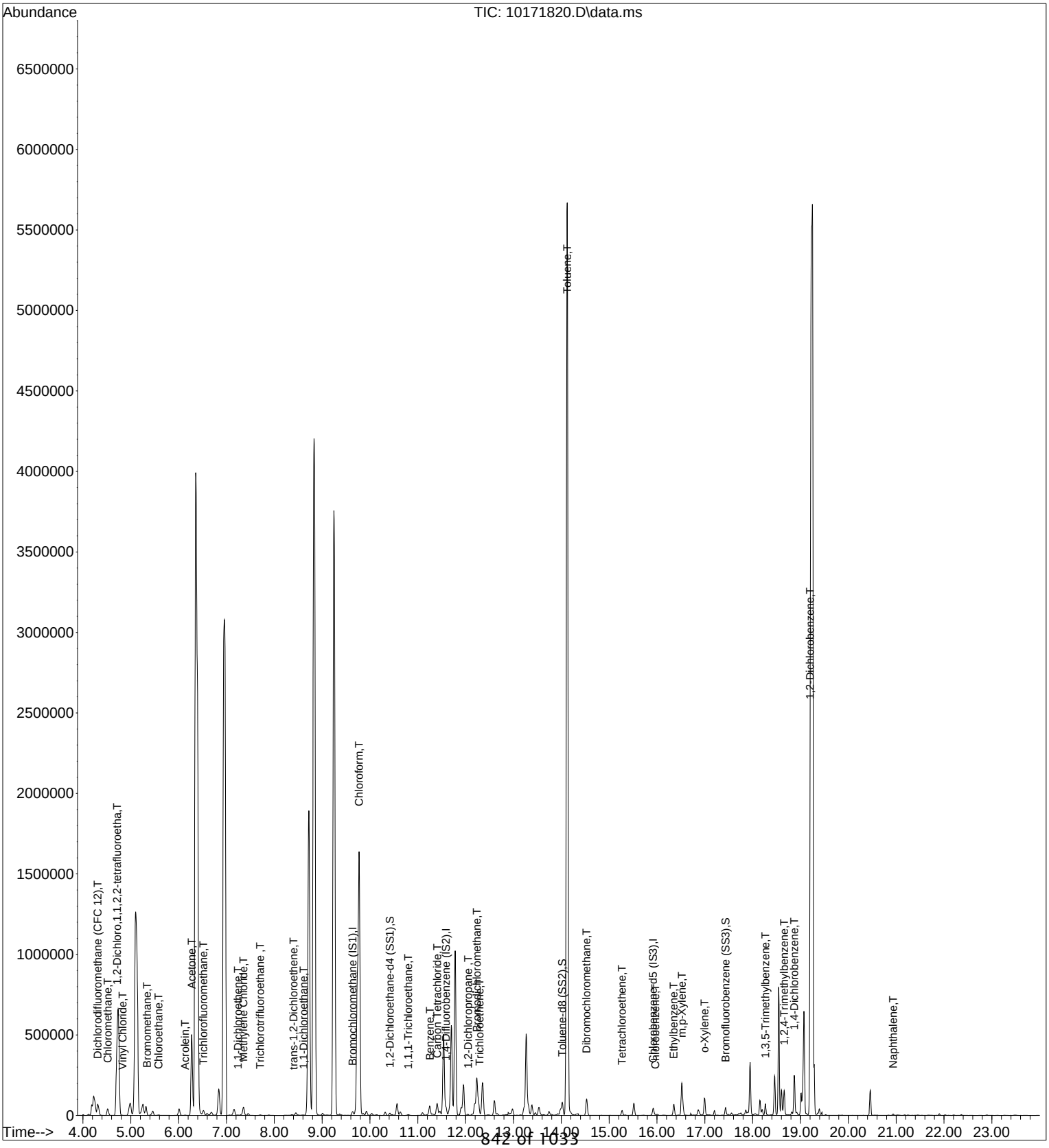
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:16:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:16:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	31702	1000.000	pg		-0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	89628	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	15723	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.42	65	21203m	558.724	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 55.87%#				
33) Toluene-d8 (SS2)	14.02	98	96332	1042.231	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.22%				
45) Bromofluorobenzene (SS3)	17.43	174	35624	801.832	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 80.18%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	131178	1941.963	pg		100
3) Chloromethane	4.52	52	5515	349.159	pg	#	73
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	1555	31.935	pg		100
5) Vinyl Chloride	4.83	62	822	18.740	pg		99
7) Bromomethane	5.34	94	430	13.954	pg		97
8) Chloroethane	5.58	64	5690	247.925	pg		100
9) Acrolein	6.14	56	1749	94.274	pg	#	77
10) Acetone	6.27	58	311593	13247.855	pg		98
11) Trichlorofluoromethane	6.52	101	43554	824.461	pg		100
12) 1,1-Dichloroethene	7.24	96	2200	58.848	pg	#	77
13) Methylene Chloride	7.35	84	48975	1250.592	pg		99
14) Trichlorotrifluoroethane	7.71	151	4925	133.019	pg		99
15) trans-1,2-Dichloroethene	8.41	96	460	11.827	pg		99
16) 1,1-Dichloroethane	8.61	63	1895	31.217	pg		99
19) Chloroform	9.77	83	2320972	35439.899	pg		99
22) 1,1,1-Trichloroethane	10.80	97	6675	120.165	pg		97
23) Benzene	11.25	78	99524	604.906	pg		98
24) Carbon Tetrachloride	11.40	117	72629	1432.441	pg		100
26) 1,2-Dichloropropane	12.05	63	435	19.486	pg		84
27) Bromodichloromethane	12.24	83	367794m	12411.720	pg		
28) Trichloroethene	12.29	130	2815	100.517	pg		98
34) Toluene	14.12	91	7618913	74448.901	pg		97
35) Dibromochloromethane	14.53	129	122461	4466.869	pg		100
37) Tetrachloroethene	15.27	166	39578	1314.229	pg		100
39) Chlorobenzene	15.97	112	8750	91.921	pg		88
40) Ethylbenzene	16.35	91	106959	737.880	pg		100
41) m,p-Xylene	16.52	91	311143	2807.328	pg		99
43) o-Xylene	16.99	106	56458	958.151	pg		99
46) 1,3,5-Trimethylbenzene	18.27	105	75243	607.138	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	141966	1148.302	pg		89
49) 1,4-Dichlorobenzene	18.87	146	224232	2764.527	pg		100
50) 1,2-Dichlorobenzene	19.20	146	580	7.483	pg		95
53) Naphthalene	20.94	128	13412	92.747	pg		75

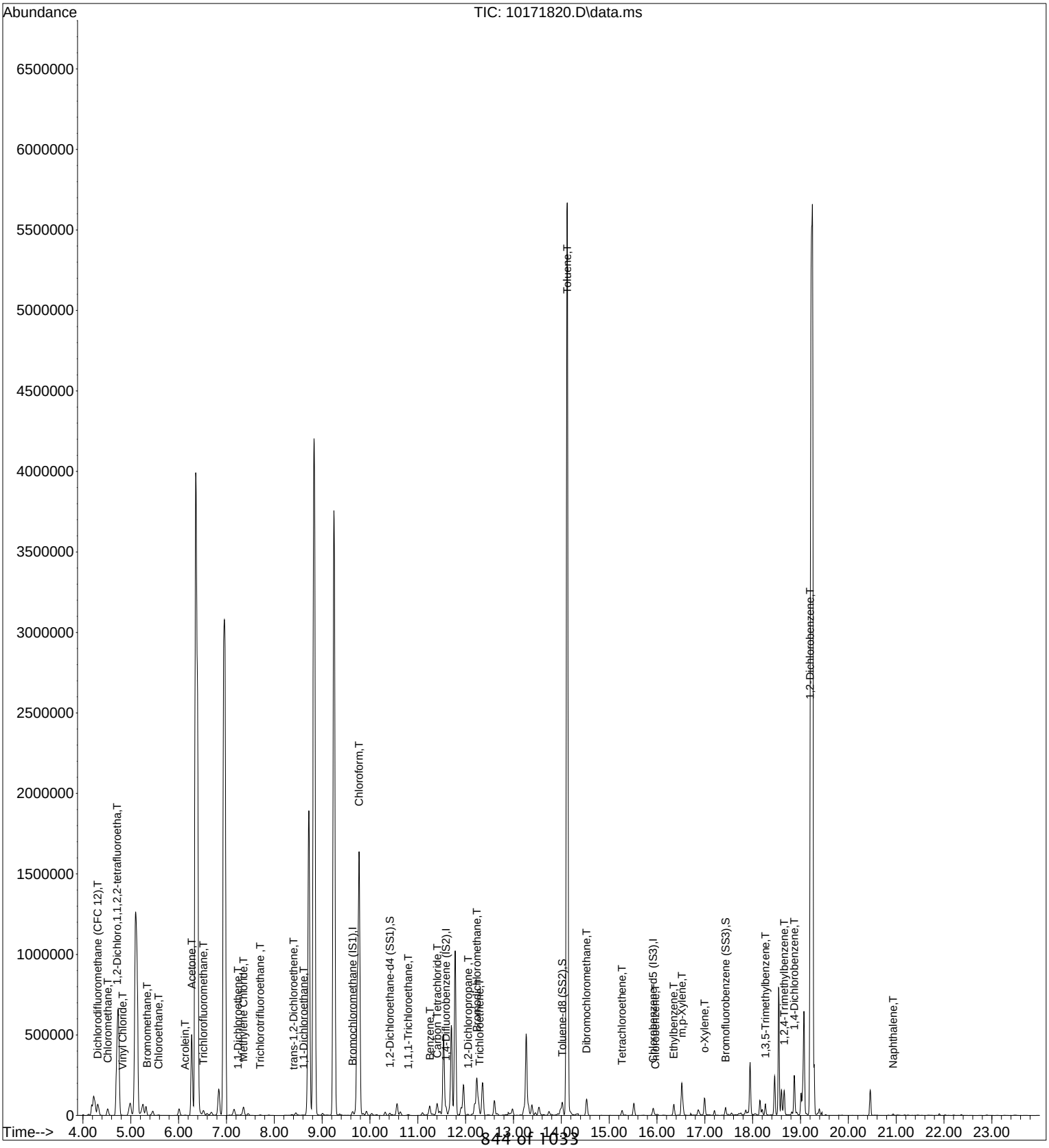
NR

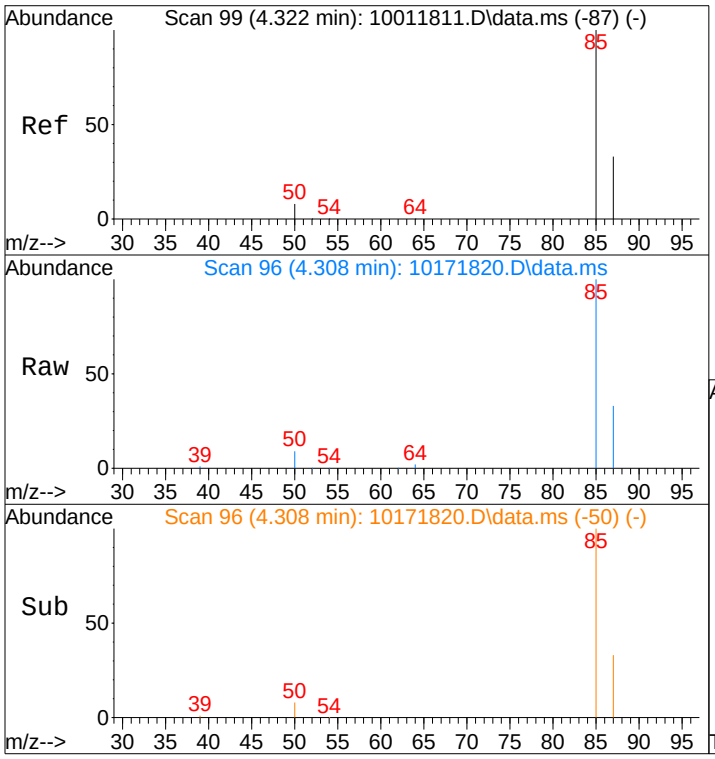
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:16:44 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

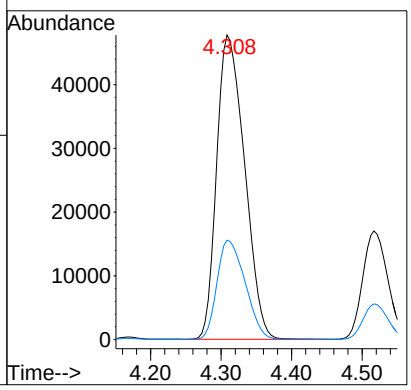


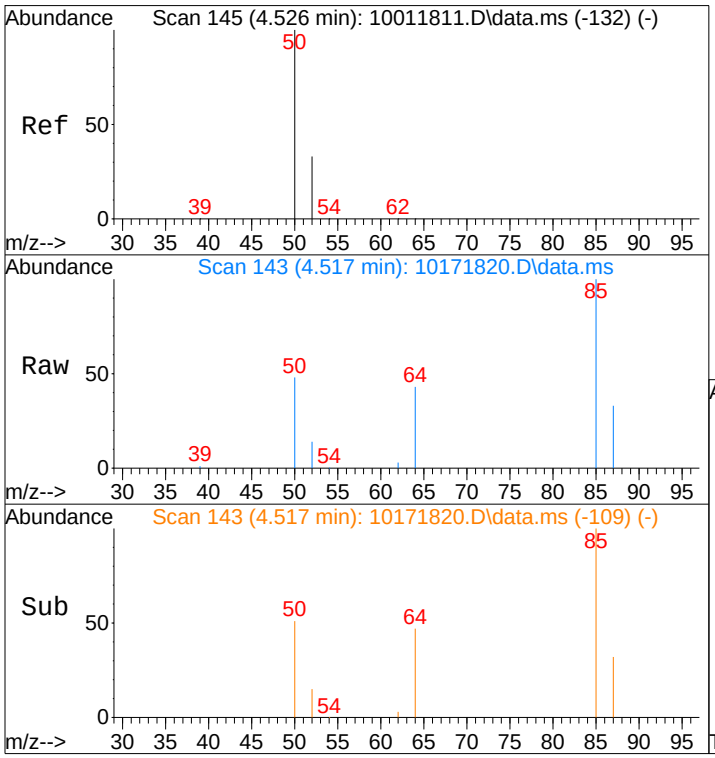


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1941.96 pg
RT: 4.31 min Scan# 96
Delta R.T. 0.004 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 85 Resp: 131178

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

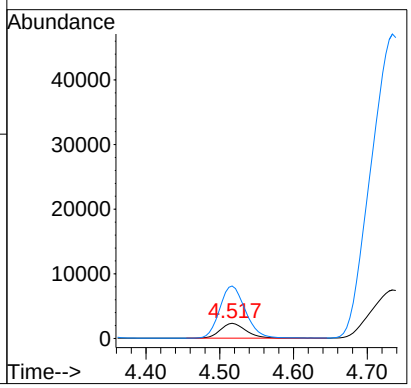


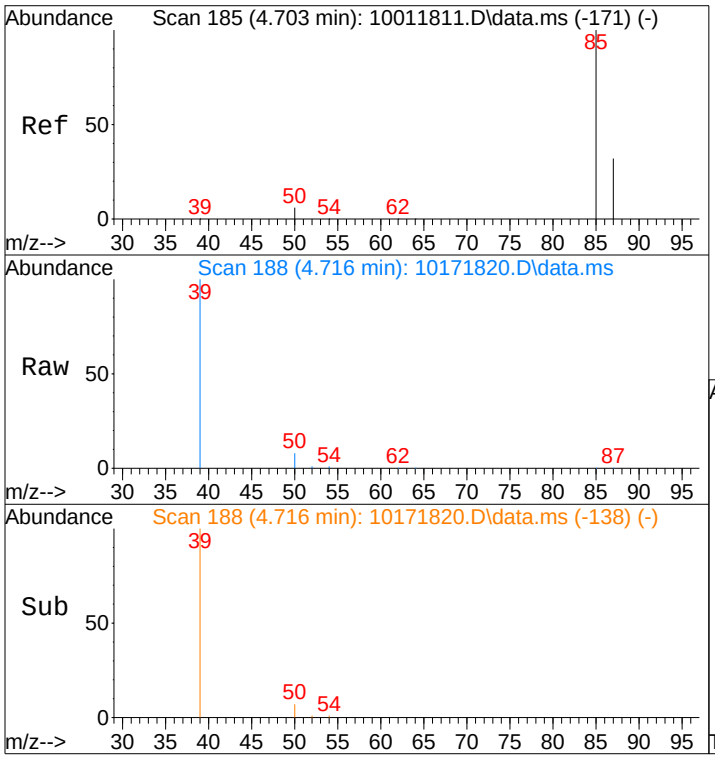


#3
Chloromethane
Concen: 349.16 pg
RT: 4.52 min Scan# 143
Delta R.T. 0.000 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 52 Resp: 5515

Ion	Ratio	Lower	Upper
52	100		
50	354.4	281.8	321.8#

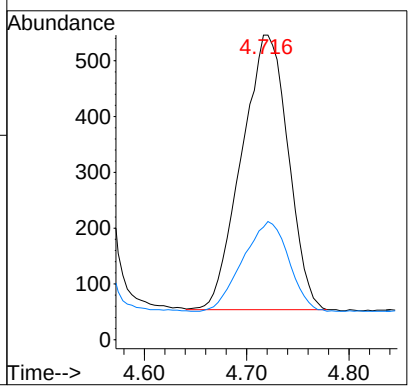


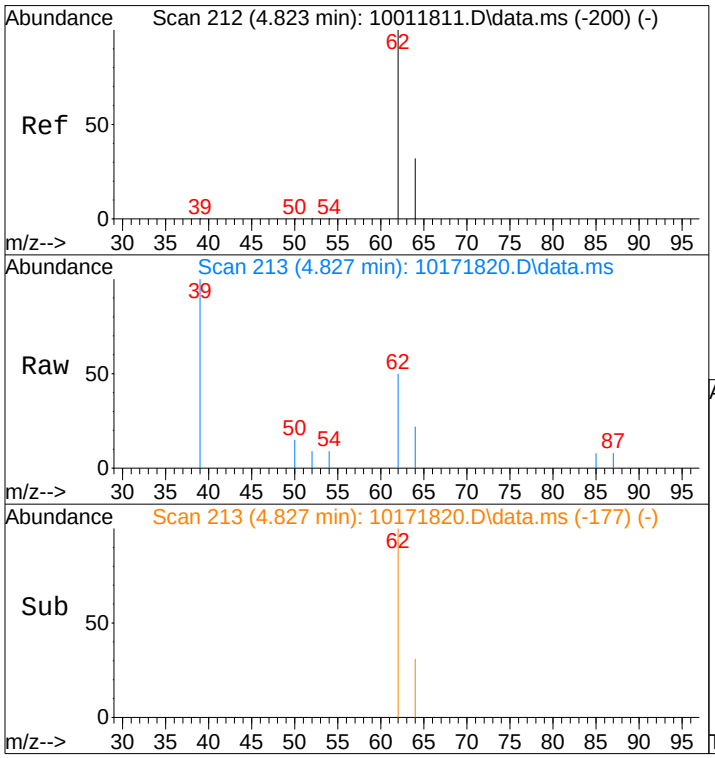


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 31.93 pg
RT: 4.72 min Scan# 188
Delta R.T. 0.022 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 85 Resp: 1555

Ion	Ratio	Lower	Upper
85	100		
87	32.4	26.0	39.0

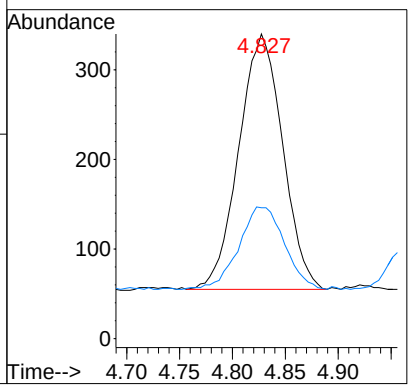


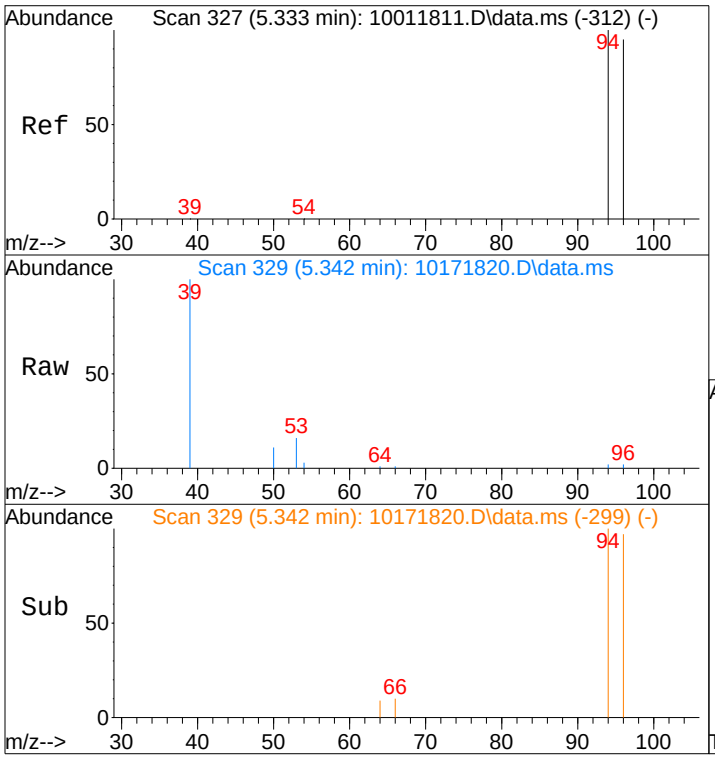


#5
Vinyl Chloride
Concen: 18.74 pg
RT: 4.83 min Scan# 213
Delta R.T. 0.009 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 62 Resp: 822

Ion	Ratio	Lower	Upper
62	100		
64	33.3	12.8	52.8

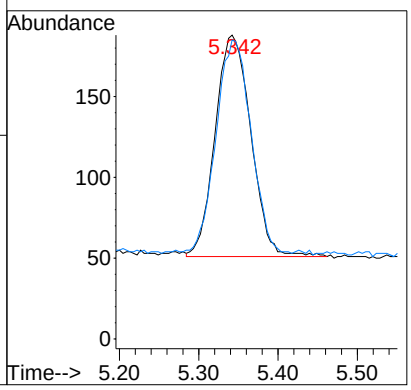


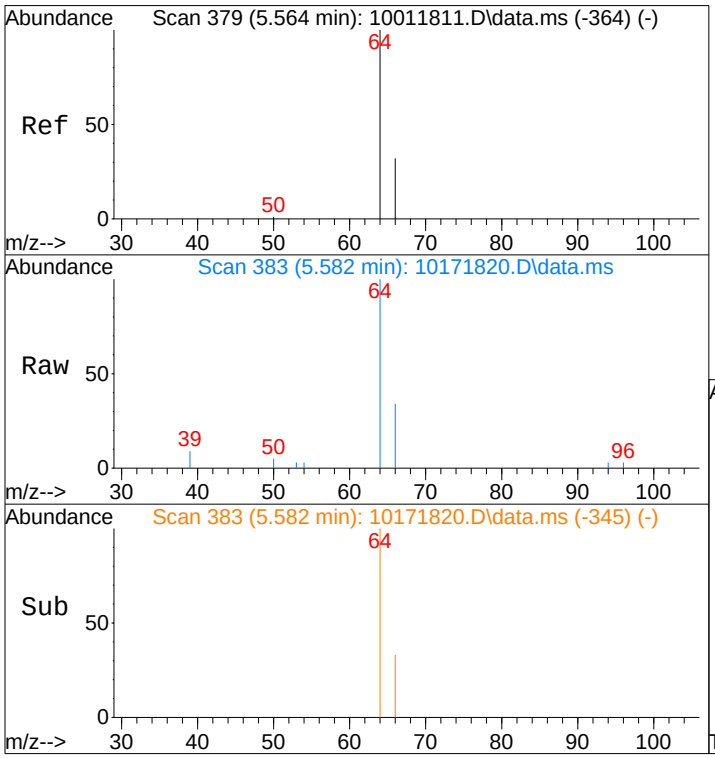


#7
Bromomethane
Concen: 13.95 pg
RT: 5.34 min Scan# 329
Delta R.T. 0.004 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 94 Resp: 430

Ion	Ratio	Lower	Upper
94	100		
96	92.1	75.7	113.5

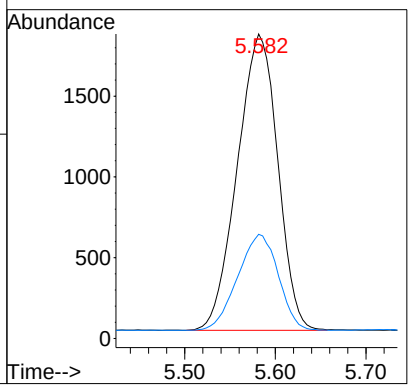


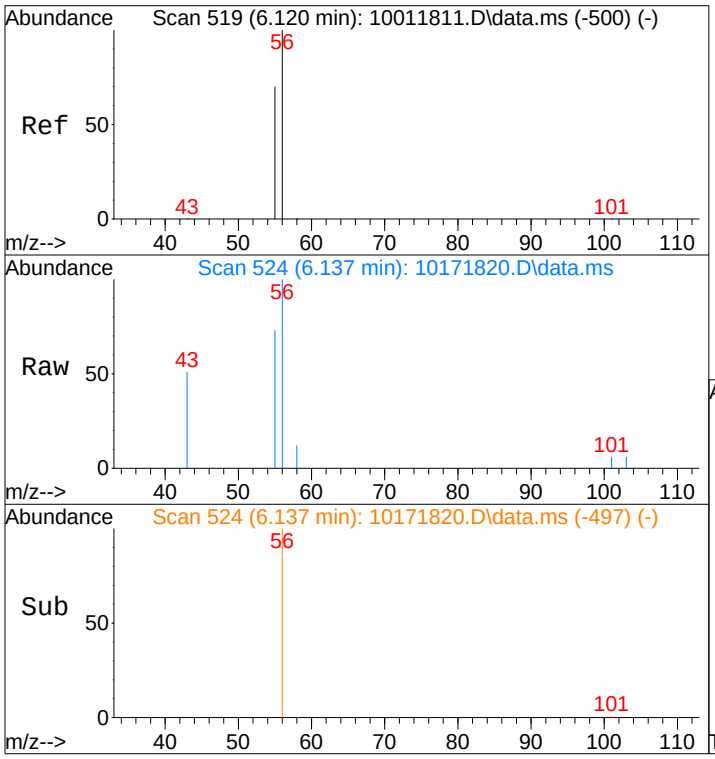


#8
Chloroethane
Concen: 247.92 pg
RT: 5.58 min Scan# 383
Delta R.T. 0.018 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 64 Resp: 5690

Ion	Ratio	Lower	Upper
64	100		
66	32.5	12.3	52.3

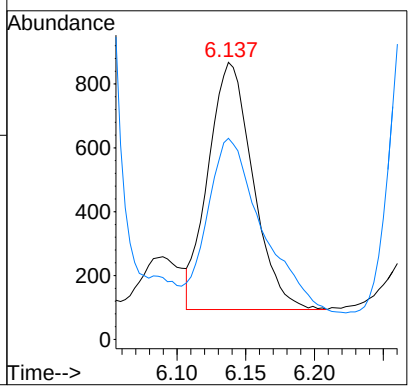


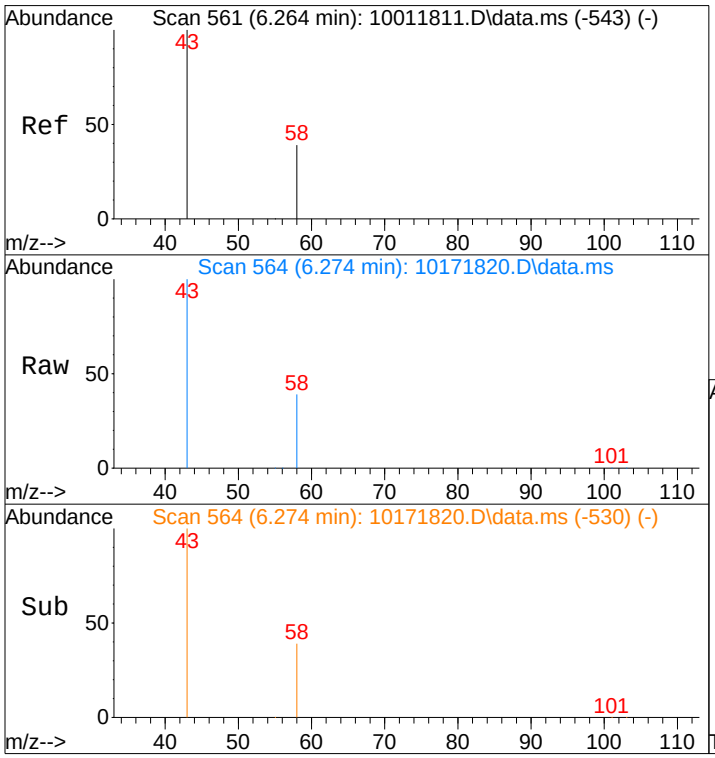


#9
Acrolein
Concen: 94.27 pg
RT: 6.14 min Scan# 524
Delta R.T. -0.017 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 56 Resp: 1749

Ion	Ratio	Lower	Upper
56	100		
55	88.1	55.3	82.9#

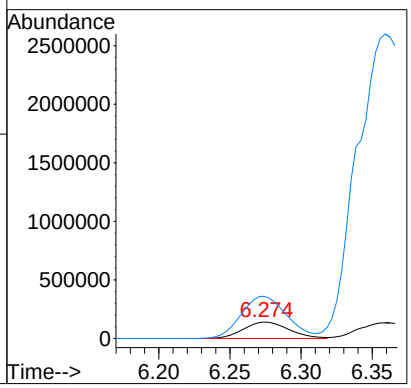


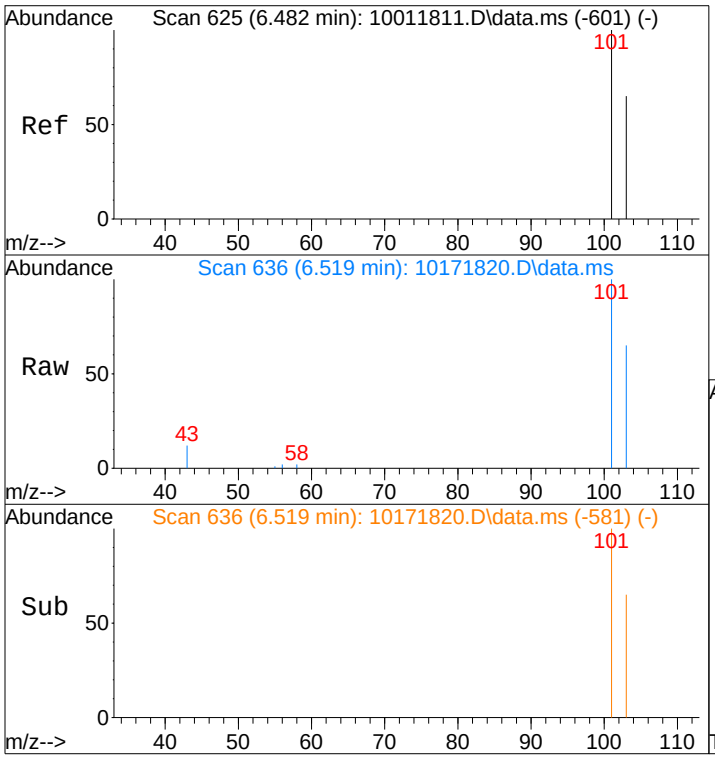


#10
Acetone
Concen: 13247.85 pg
RT: 6.27 min Scan# 564
Delta R.T. -0.034 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 58 Resp: 311593

Ion	Ratio	Lower	Upper
58	100		
43	257.7	234.7	274.7

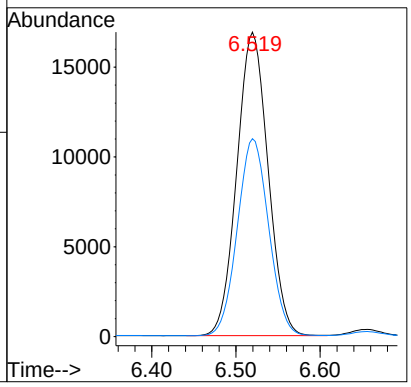


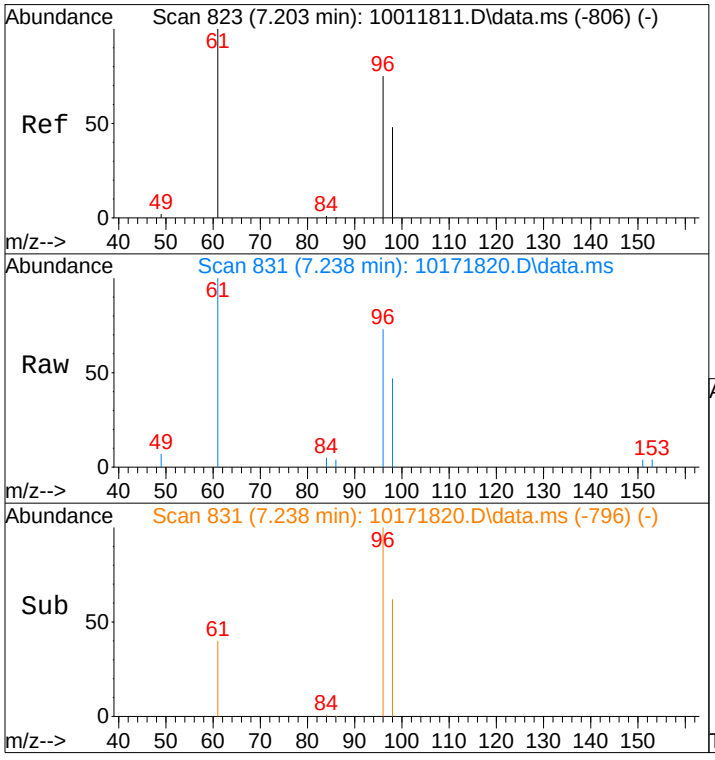


#11
Trichlorofluoromethane
Concen: 824.46 pg
RT: 6.52 min Scan# 636
Delta R.T. 0.038 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:101 Resp: 43554

Ion	Ratio	Lower	Upper
101	100		
103	65.1	52.2	78.2

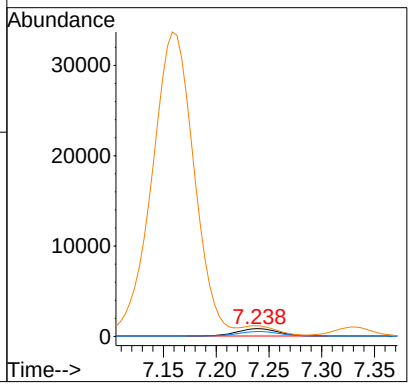


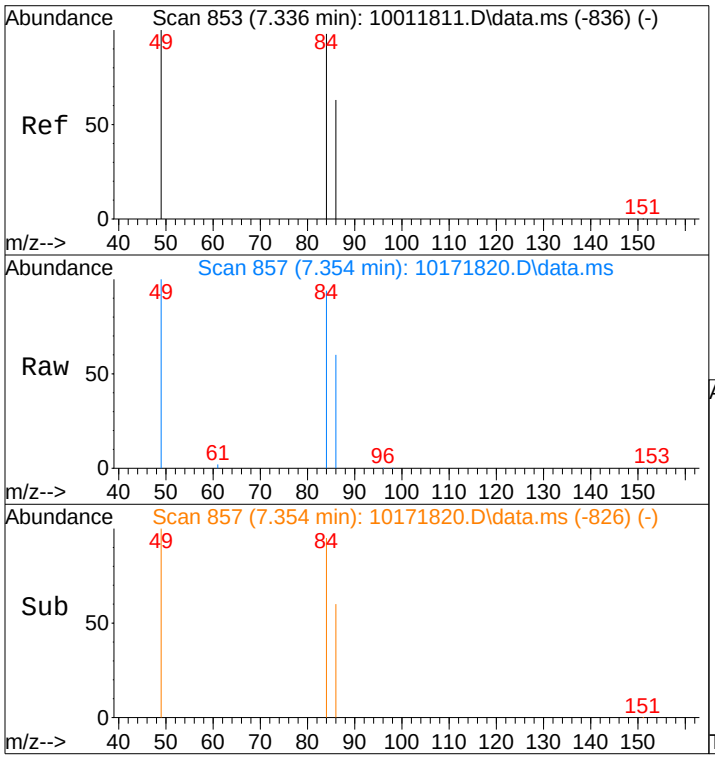


#12
1,1-Dichloroethene
Concen: 58.85 pg
RT: 7.24 min Scan# 831
Delta R.T. 0.027 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 96 Resp: 2200

Ion	Ratio	Lower	Upper
96	100		
98	61.1	44.2	84.2
61	96.1	114.1	154.1#

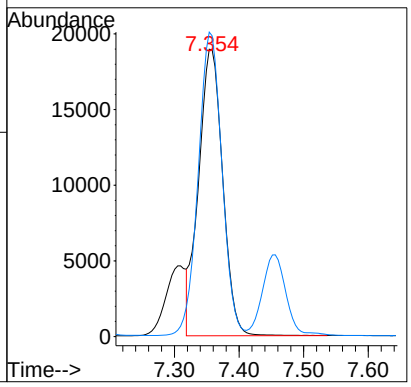


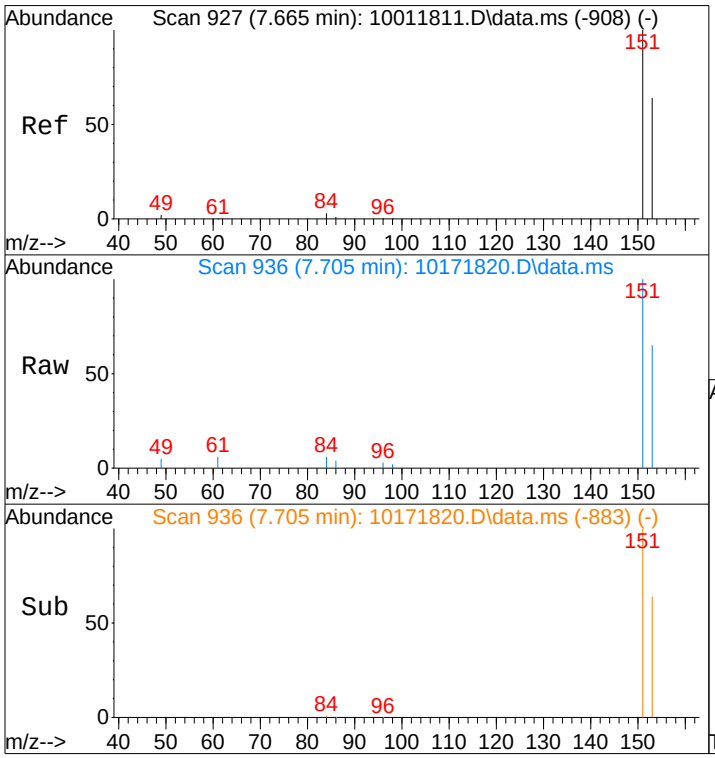


#13
Methylene Chloride
Concen: 1250.59 pg
RT: 7.35 min Scan# 857
Delta R.T. -0.022 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 84 Resp: 48975

Ion	Ratio	Lower	Upper
84	100		
49	104.4	83.3	123.3

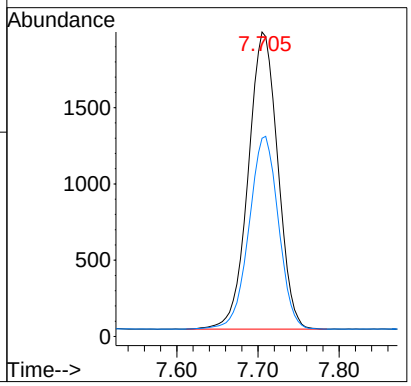


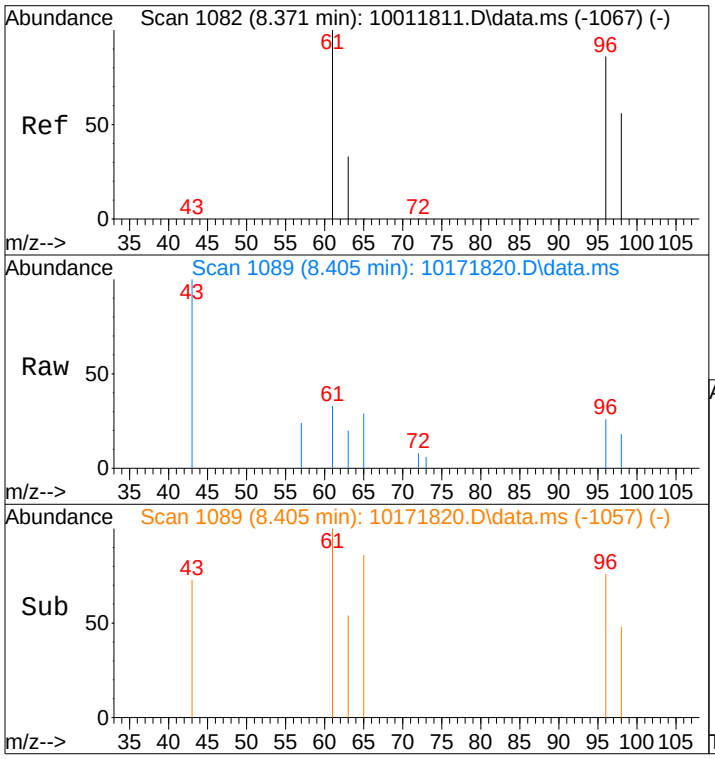


#14
Trichlorotrifluoroethane
Concen: 133.02 pg
RT: 7.71 min Scan# 936
Delta R.T. 0.036 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:151 Resp: 4925

Ion	Ratio	Lower	Upper
151	100		
153	64.7	44.3	84.3

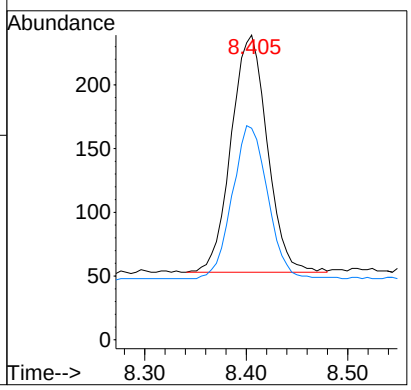


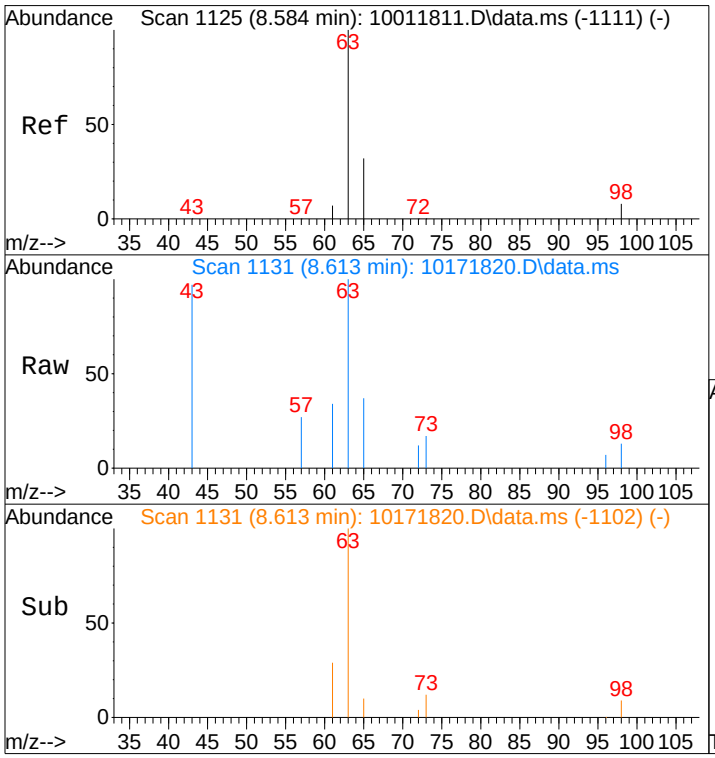


#15
trans-1,2-Dichloroethene
Concen: 11.83 pg
RT: 8.41 min Scan# 1089
Delta R.T. 0.010 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 96 Resp: 460

Ion	Ratio	Lower	Upper
96	100		
98	63.0	44.1	84.1

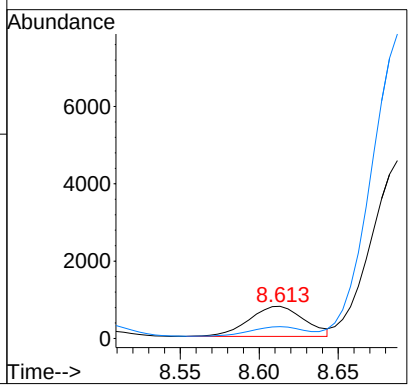


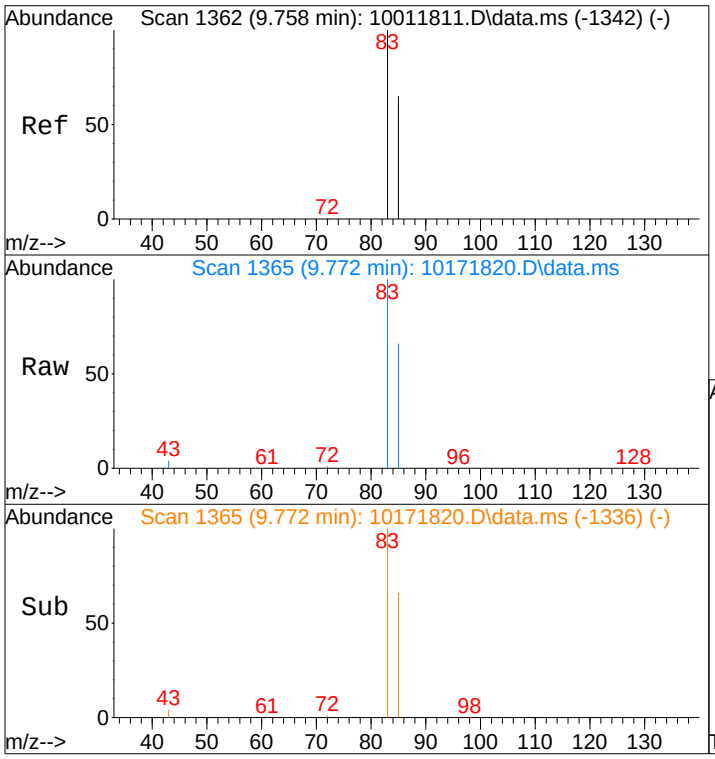


#16
1,1-Dichloroethane
Concen: 31.22 pg
RT: 8.61 min Scan# 1131
Delta R.T. -0.005 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 63 Resp: 1895

Ion	Ratio	Lower	Upper
63	100		
65	31.7	12.2	52.2

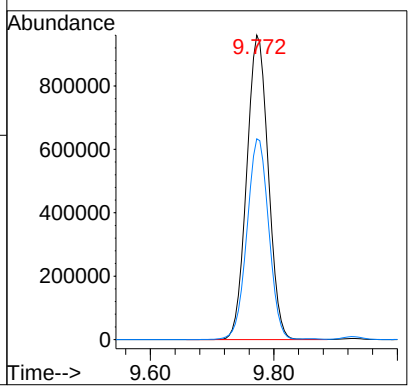


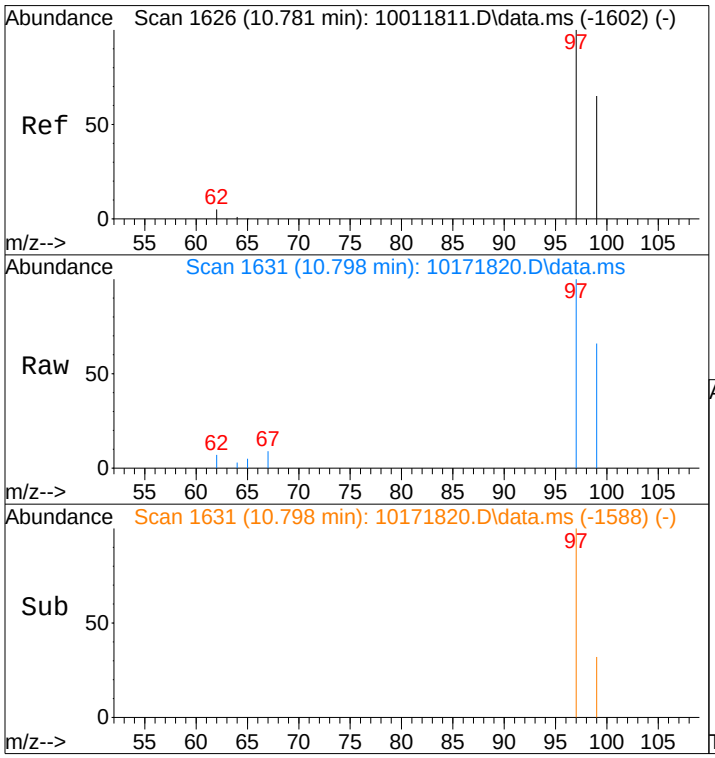


#19
Chloroform
Concen: 35439.90 pg
RT: 9.77 min Scan# 1365
Delta R.T. -0.025 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 83 Resp: 2320972

Ion	Ratio	Lower	Upper
83	100		
85	66.9	46.0	86.0

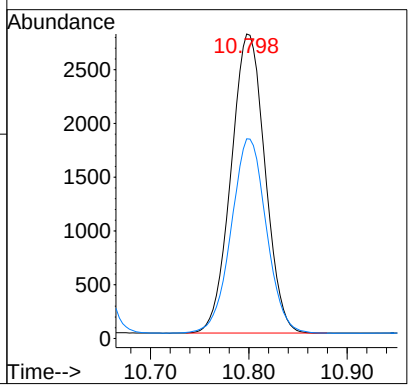


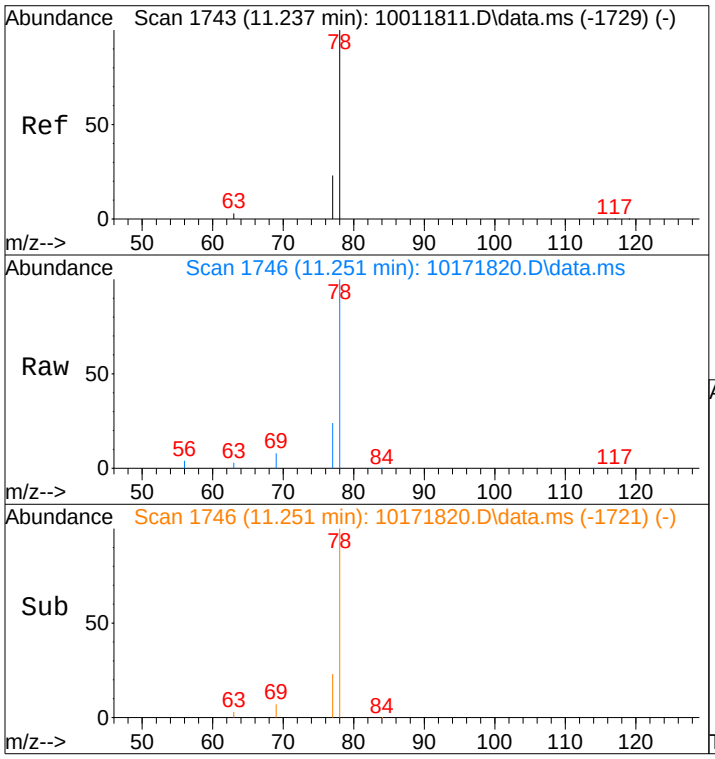


#22
1,1,1-Trichloroethane
Concen: 120.17 pg
RT: 10.80 min Scan# 1631
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 97 Resp: 6675

Ion	Ratio	Lower	Upper
97	100		
99	67.4	44.9	84.9

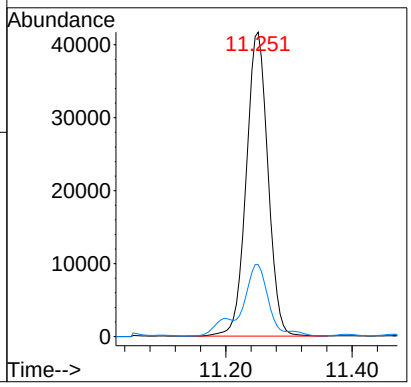


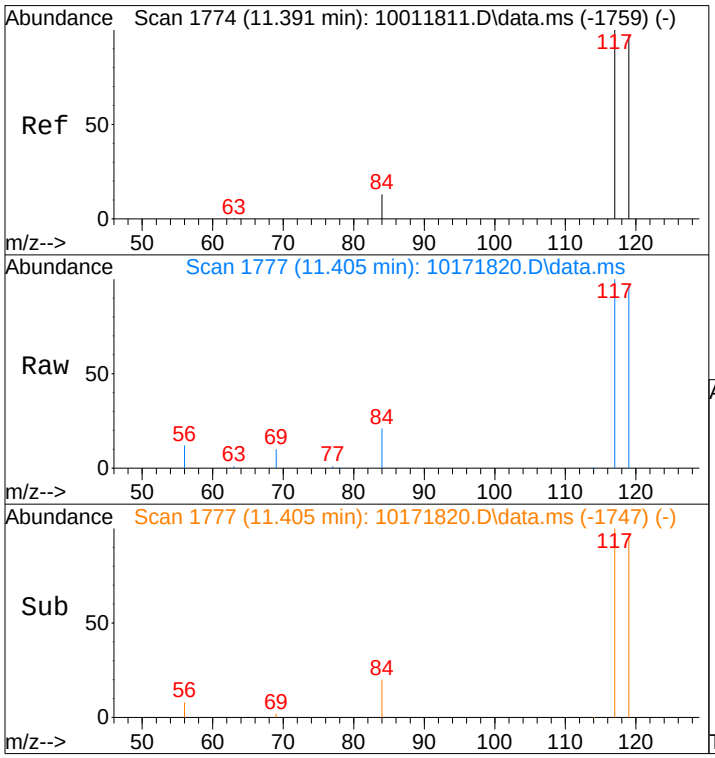


#23
Benzene
Concen: 604.91 pg
RT: 11.25 min Scan# 1746
Delta R.T. -0.005 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 78 Resp: 99524

Ion	Ratio	Lower	Upper
78	100		
77	24.1	3.3	43.3

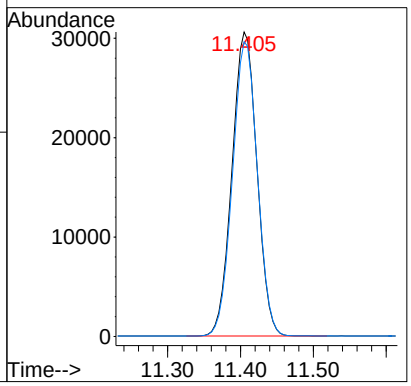


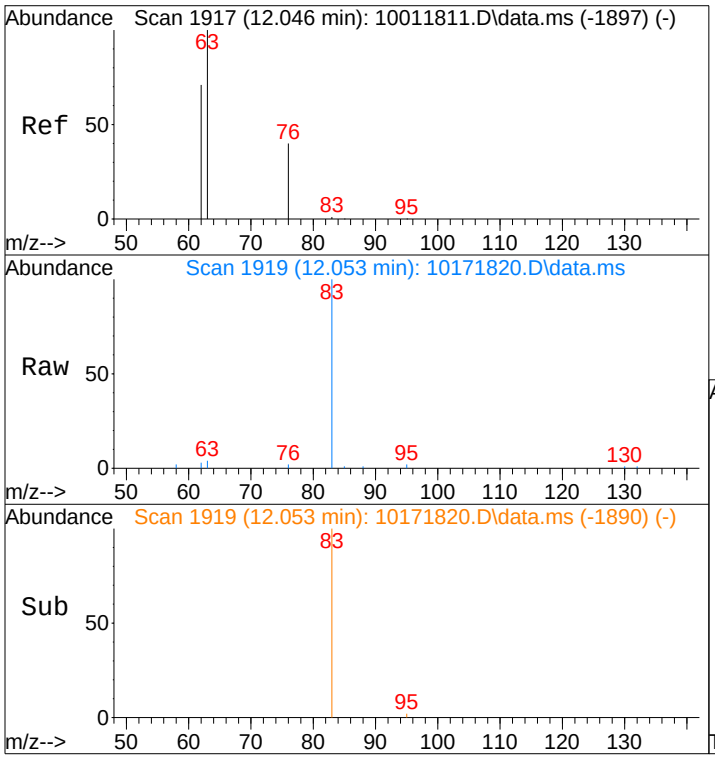


#24
Carbon Tetrachloride
Concen: 1432.44 pg
RT: 11.40 min Scan# 1777
Delta R.T. 0.000 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:117 Resp: 72629

Ion	Ratio	Lower	Upper
117	100		
119	96.7	76.7	116.7

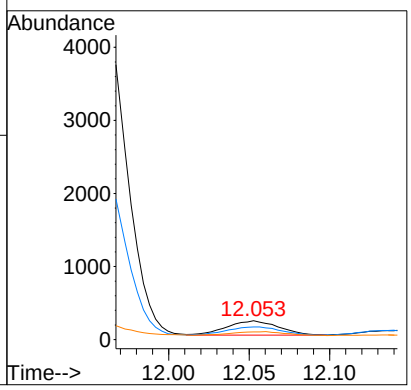


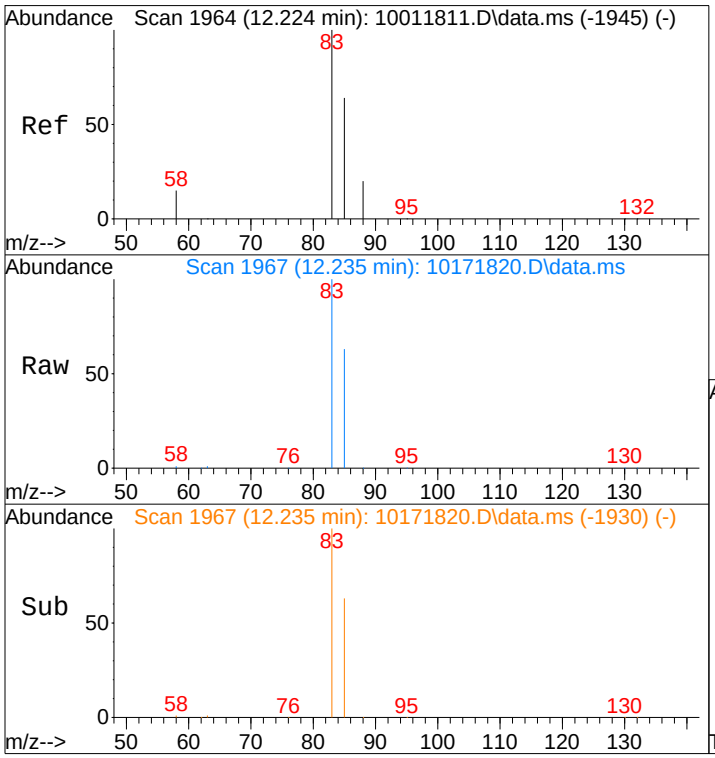


#26
1,2-Dichloropropane
Concen: 19.49 pg
RT: 12.05 min Scan# 1919
Delta R.T. -0.011 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 63 Resp: 435

Ion	Ratio	Lower	Upper
63	100		
62	58.4	50.7	90.7
76	29.4	19.6	59.6

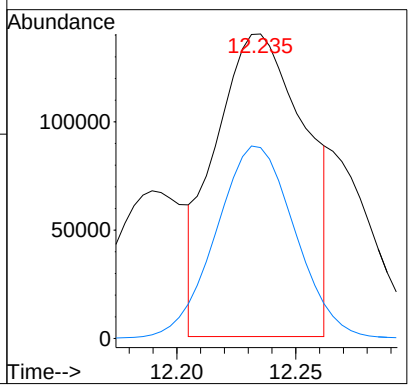


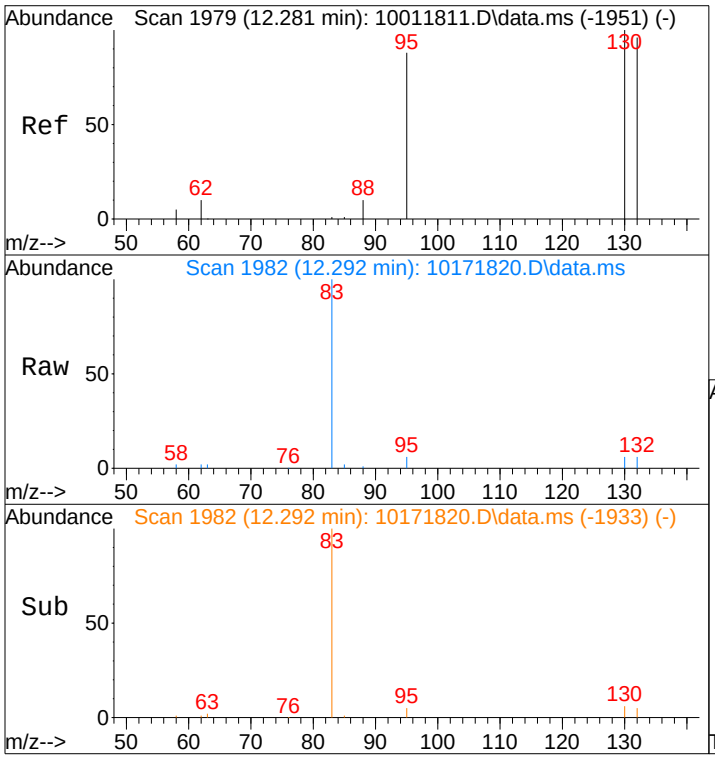


#27
Bromodichloromethane
Concen: 12411.72 pg m
RT: 12.24 min Scan# 1967
Delta R.T. -0.008 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 83 Resp: 367794

Ion	Ratio	Lower	Upper
83	100		
85	56.0	51.7	77.5

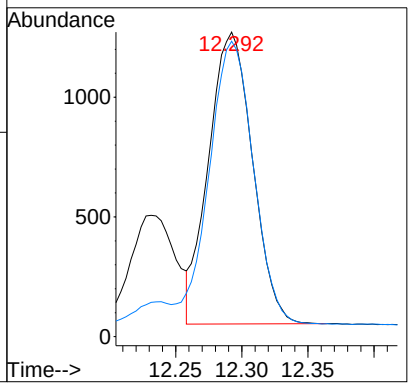


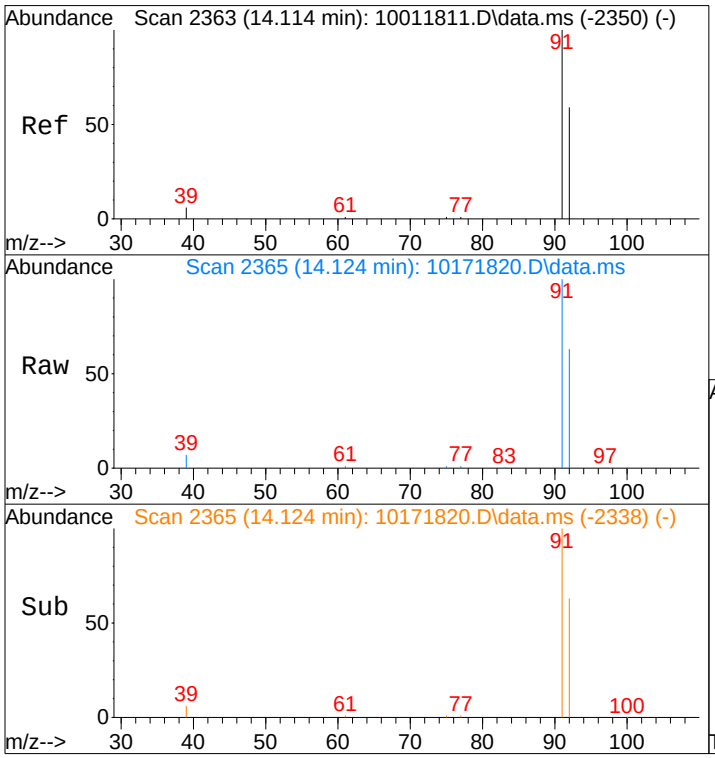


#28
Trichloroethene
Concen: 100.52 pg
RT: 12.29 min Scan# 1982
Delta R.T. -0.004 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:130 Resp: 2815

Ion	Ratio	Lower	Upper
130	100		
132	97.6	75.6	115.6

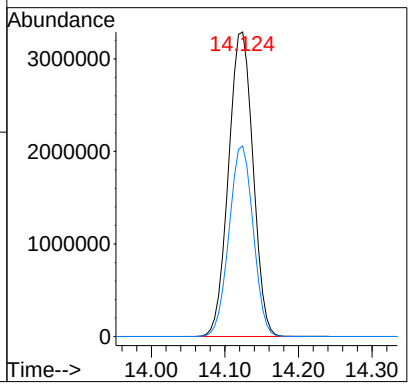


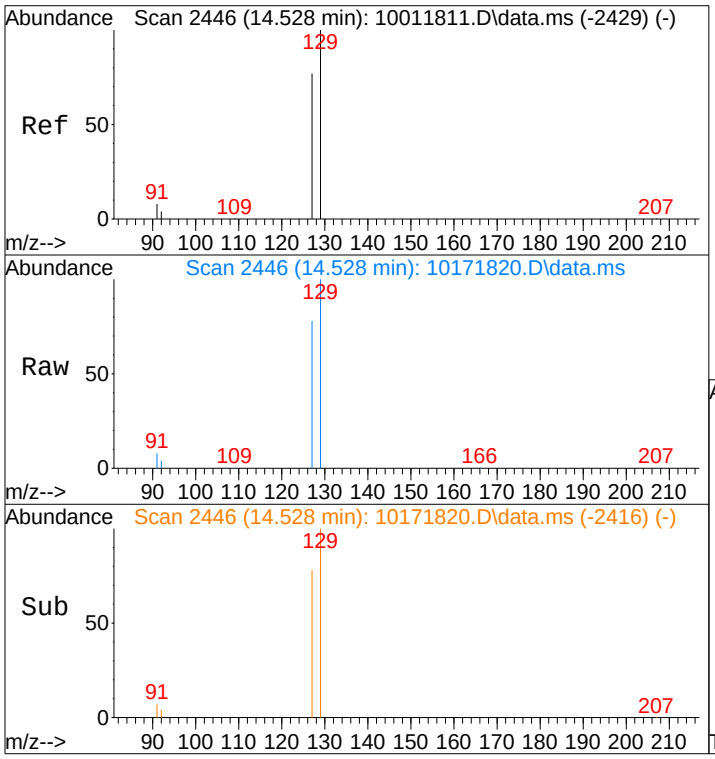


#34
Toluene
Concen: 74448.90 pg
RT: 14.12 min Scan# 2365
Delta R.T. 0.000 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 91 Resp: 7618913

Ion	Ratio	Lower	Upper
91	100		
92	61.6	39.2	79.2

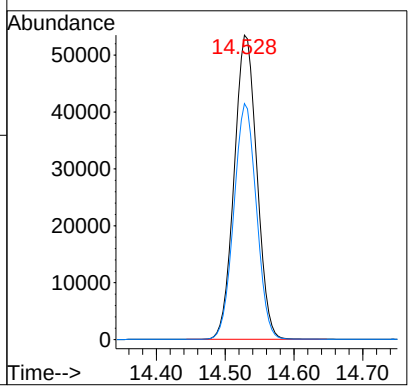


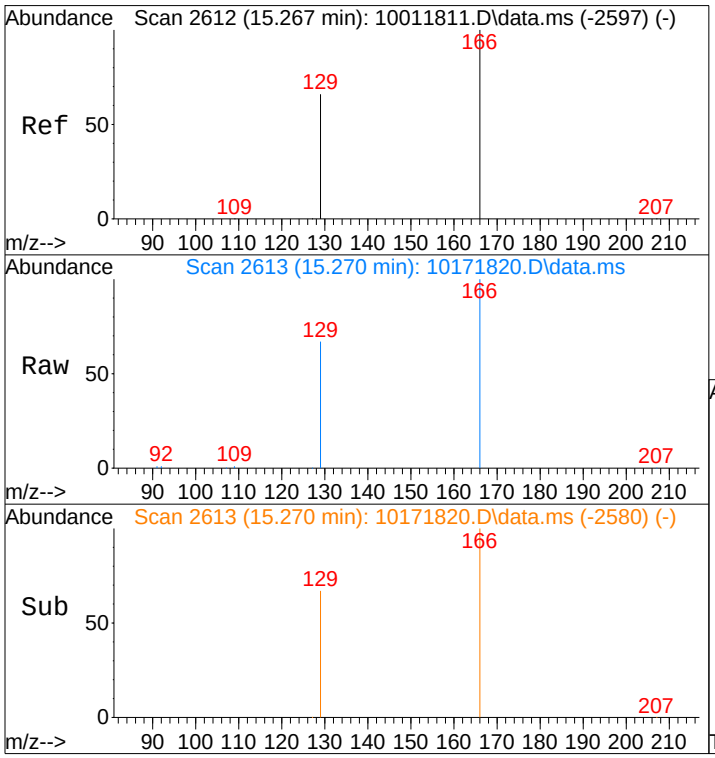


#35
Dibromochloromethane
Concen: 4466.87 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:129 Resp: 122461

Ion	Ratio	Lower	Upper
129	100		
127	77.2	61.8	92.6

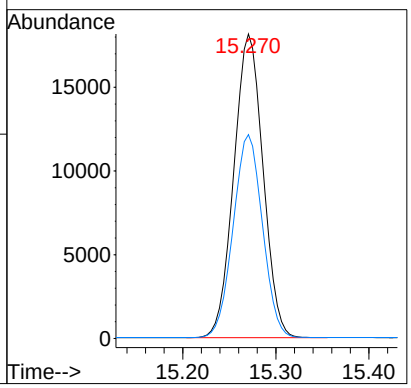


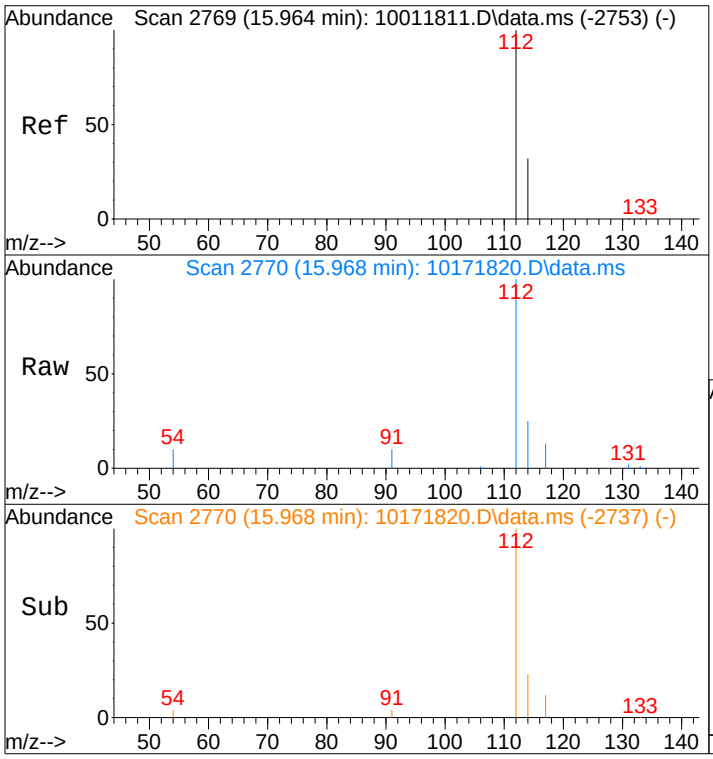


#37
Tetrachloroethene
Concen: 1314.23 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:166 Resp: 39578

Ion	Ratio	Lower	Upper
166	100		
129	67.0	46.7	86.7

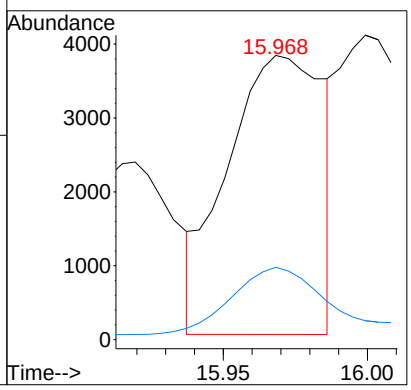


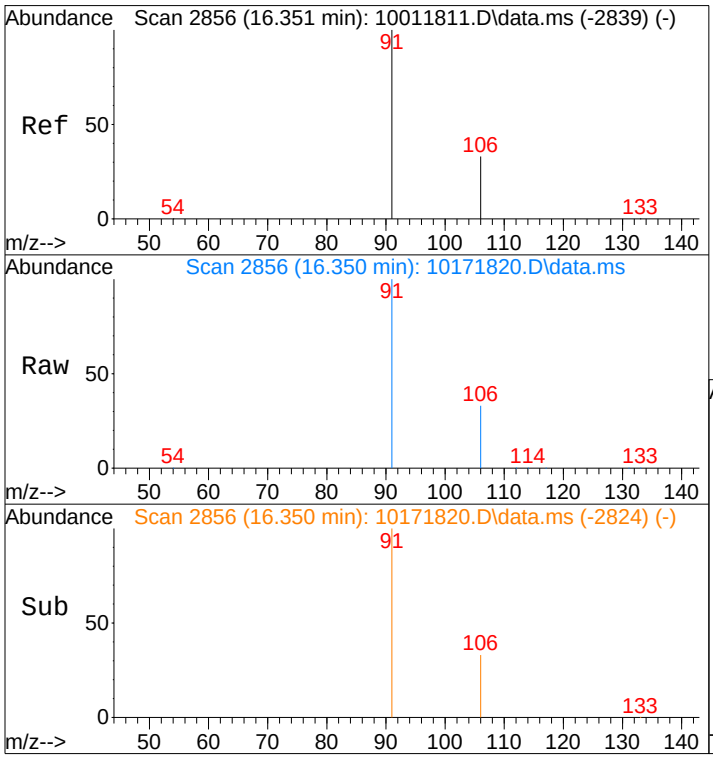


#39
Chlorobenzene
Concen: 91.92 pg
RT: 15.97 min Scan# 2770
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:112 Resp: 8750

Ion	Ratio	Lower	Upper
112	100		
114	25.3	12.2	52.2

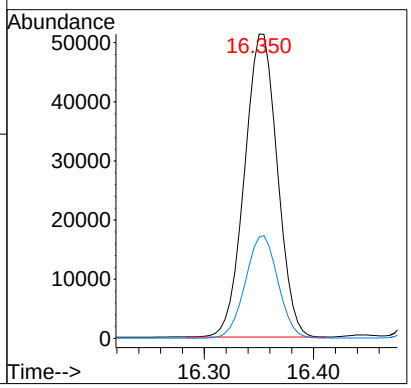


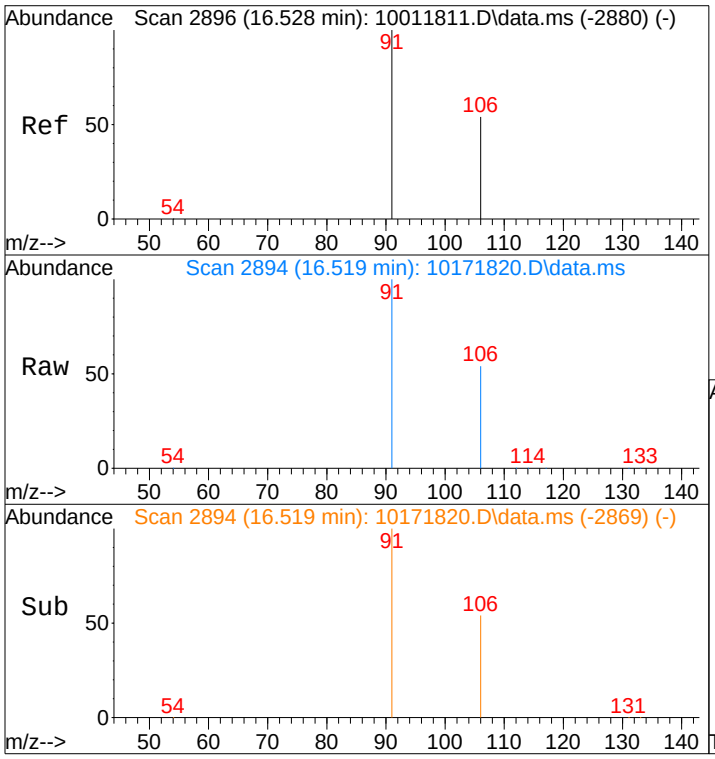


#40
Ethylbenzene
Concen: 737.88 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 91 Resp: 106959

Ion	Ratio	Lower	Upper
91	100		
106	33.5	13.7	53.7

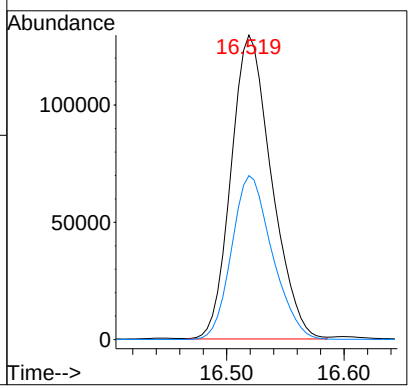


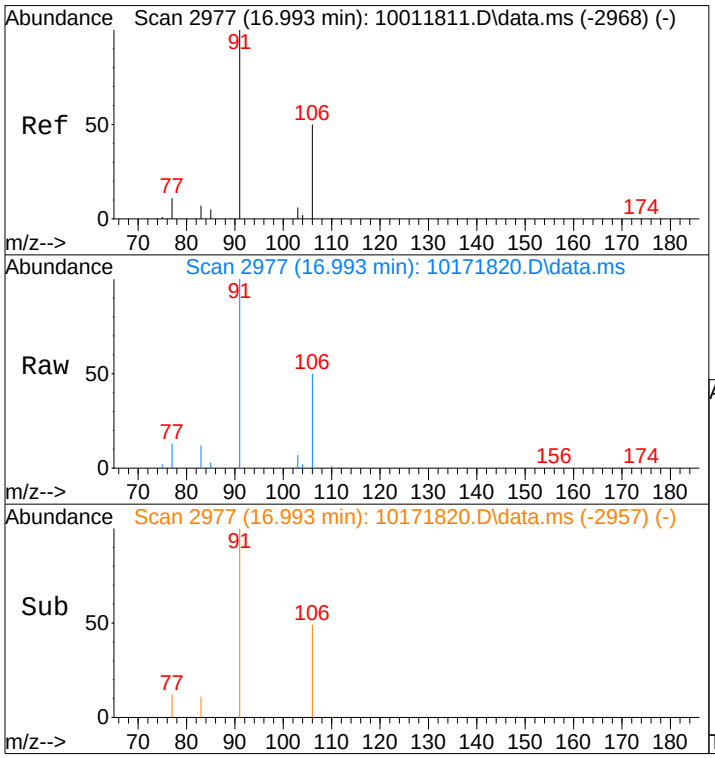


#41
m,p-Xylene
Concen: 2807.33 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion: 91 Resp: 311143

Ion	Ratio	Lower	Upper
91	100		
106	53.9	34.3	74.3

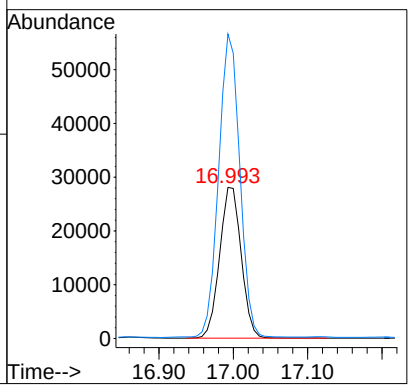


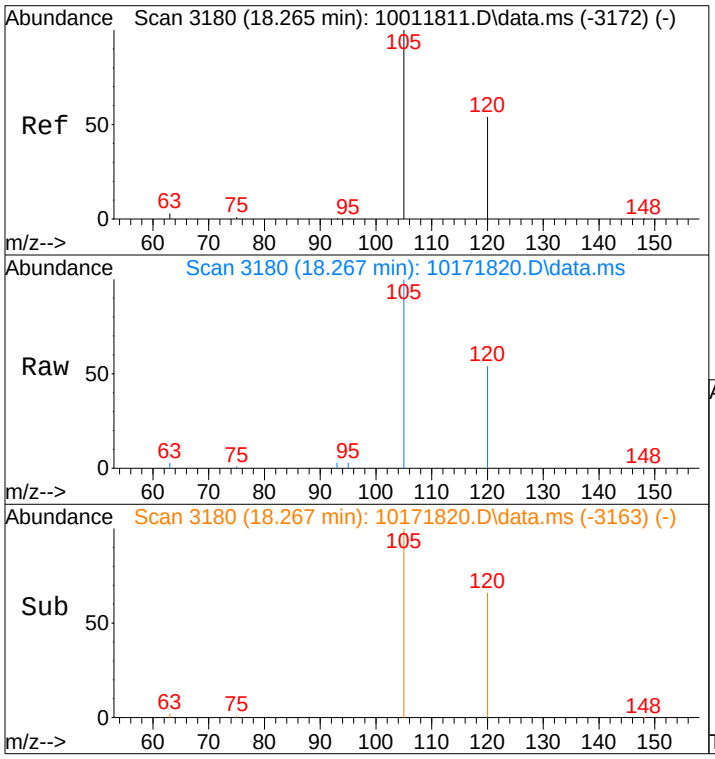


#43
o-Xylene
Concen: 958.15 pg
RT: 16.99 min Scan# 2977
Delta R.T. -0.013 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:106 Resp: 56458

Ion	Ratio	Lower	Upper
106	100		
91	197.3	175.6	215.6

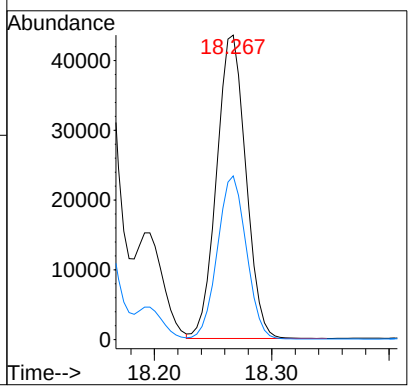


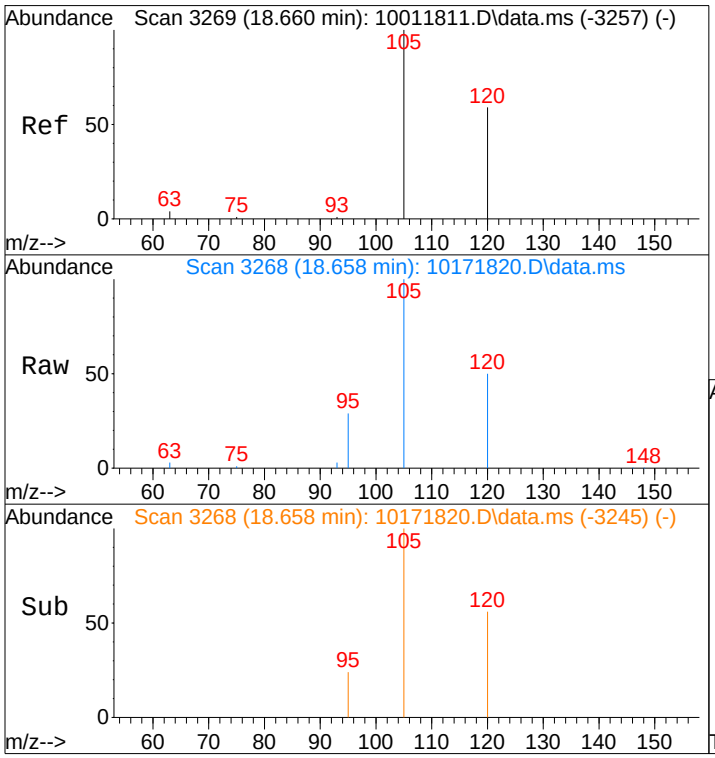


#46
1,3,5-Trimethylbenzene
Concen: 607.14 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:105 Resp: 75243

Ion	Ratio	Lower	Upper
105	100		
120	53.1	42.8	64.2

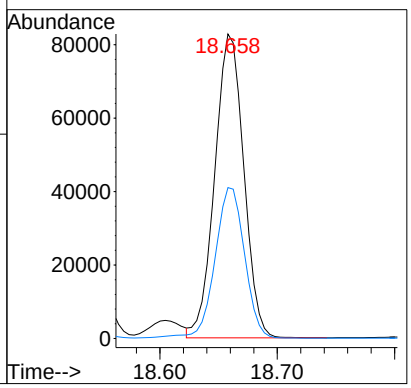


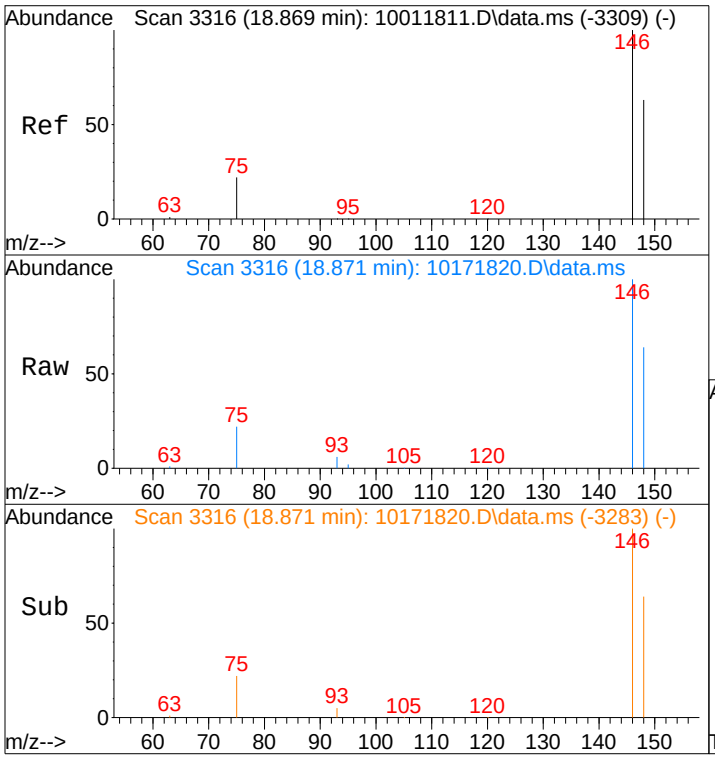


#47
1,2,4-Trimethylbenzene
Concen: 1148.30 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:105 Resp: 141966

Ion	Ratio	Lower	Upper
105	100		
120	50.7	47.1	70.7

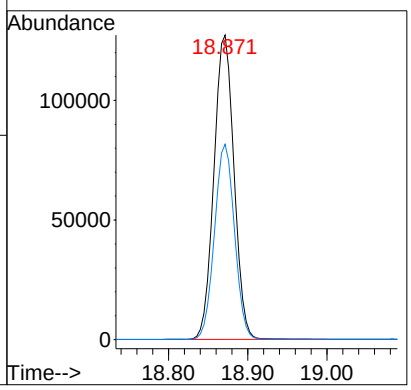


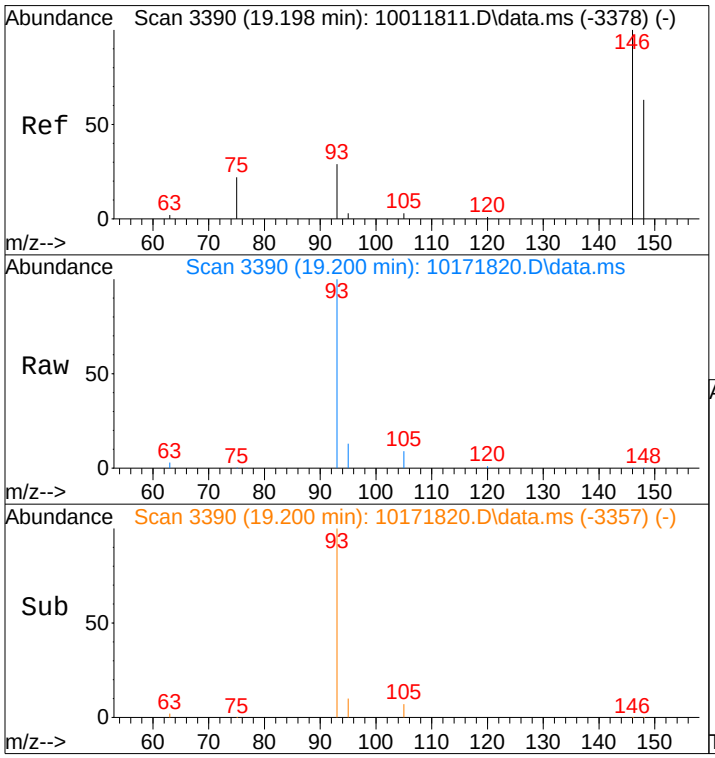


#49
1,4-Dichlorobenzene
Concen: 2764.53 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:146 Resp: 224232

Ion	Ratio	Lower	Upper
146	100		
148	64.0	43.8	83.8

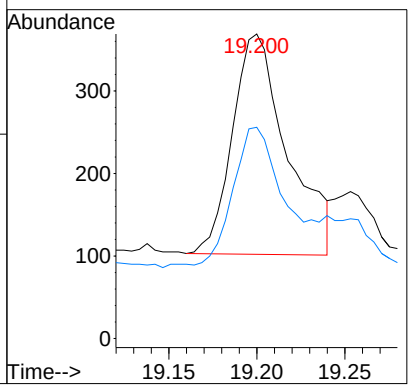


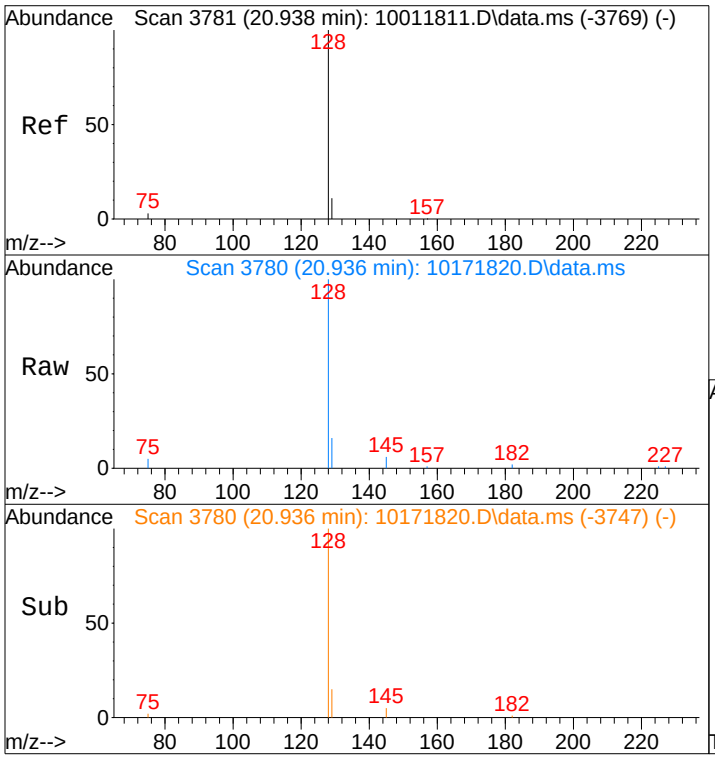


#50
1,2-Dichlorobenzene
Concen: 7.48 pg
RT: 19.20 min Scan# 3390
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:146 Resp: 580

Ion	Ratio	Lower	Upper
146	100		
148	60.0	43.7	83.7

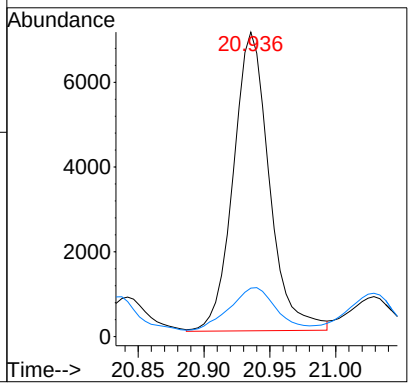




#53
Naphthalene
Concen: 92.75 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.003 min
Lab File: 10171820.D
Acq: 17 Oct 2018 22:55

Tgt Ion:128 Resp: 13412

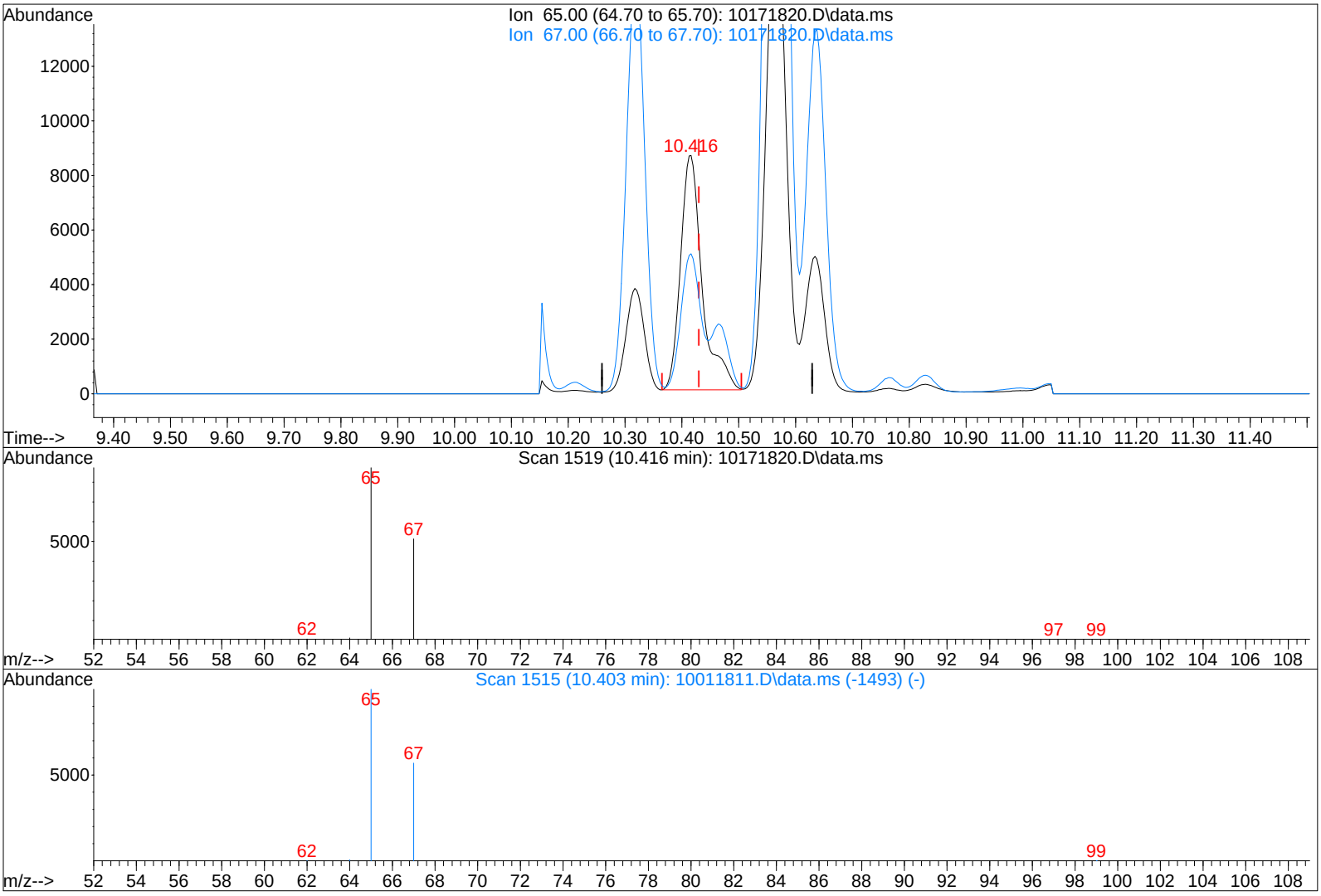
Ion	Ratio	Lower	Upper
128	100		
129	20.4	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:26 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171820.D\data.ms

(20) 1,2-Dichloroethane-d4 (SS1) (S)

10.416min (-0.014) 601.54pg

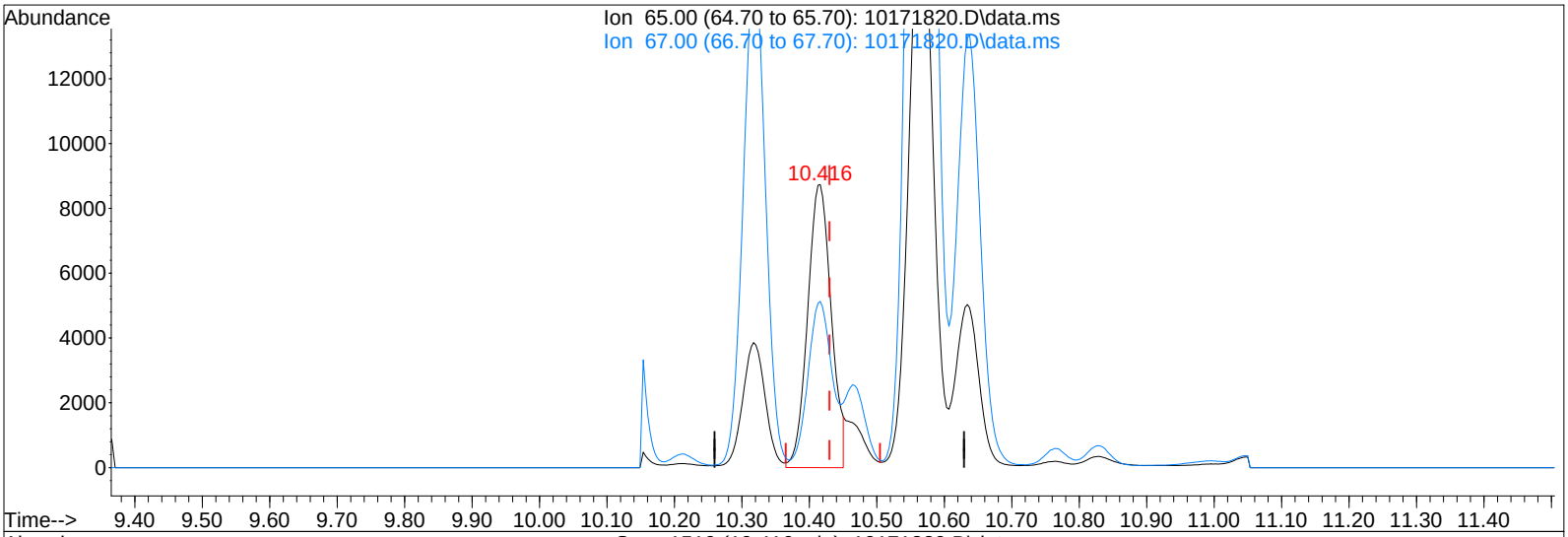
response 22828

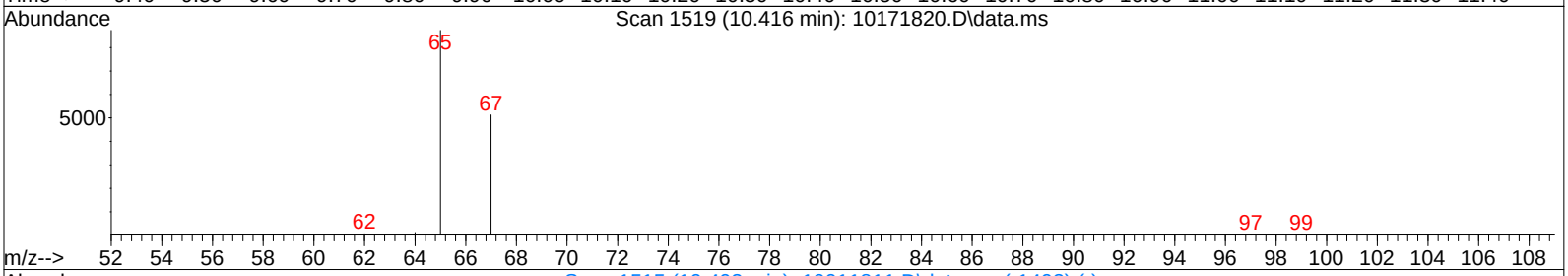
Ion	Exp%	Act%
65.00	100	100
67.00	57.10	51.60
0.00	0.00	0.00
0.00	0.00	0.00

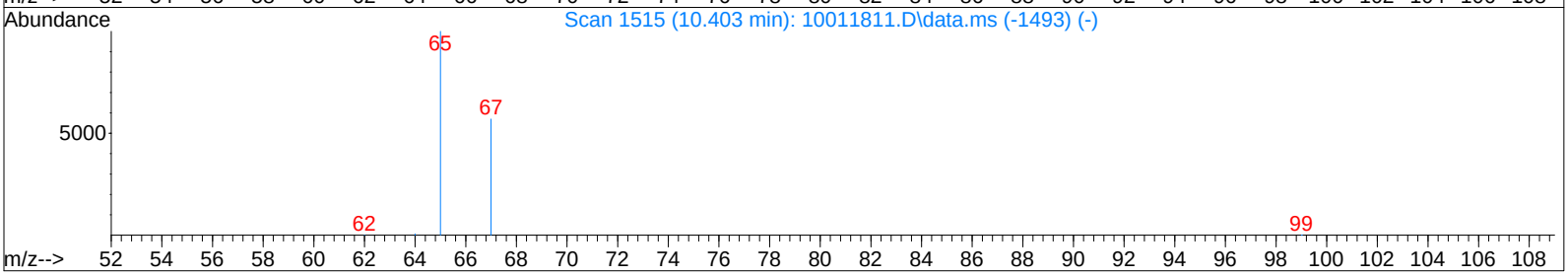
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:26 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171820.D\data.ms

(20) 1,2-Dichloroethane-d4 (SS1) (S)

10.416min (-0.014) 558.72pg m

response 21203

Ion	Exp%	Act%
65.00	100	100
67.00	57.10	55.56
0.00	0.00	0.00
0.00	0.00	0.00

IPC

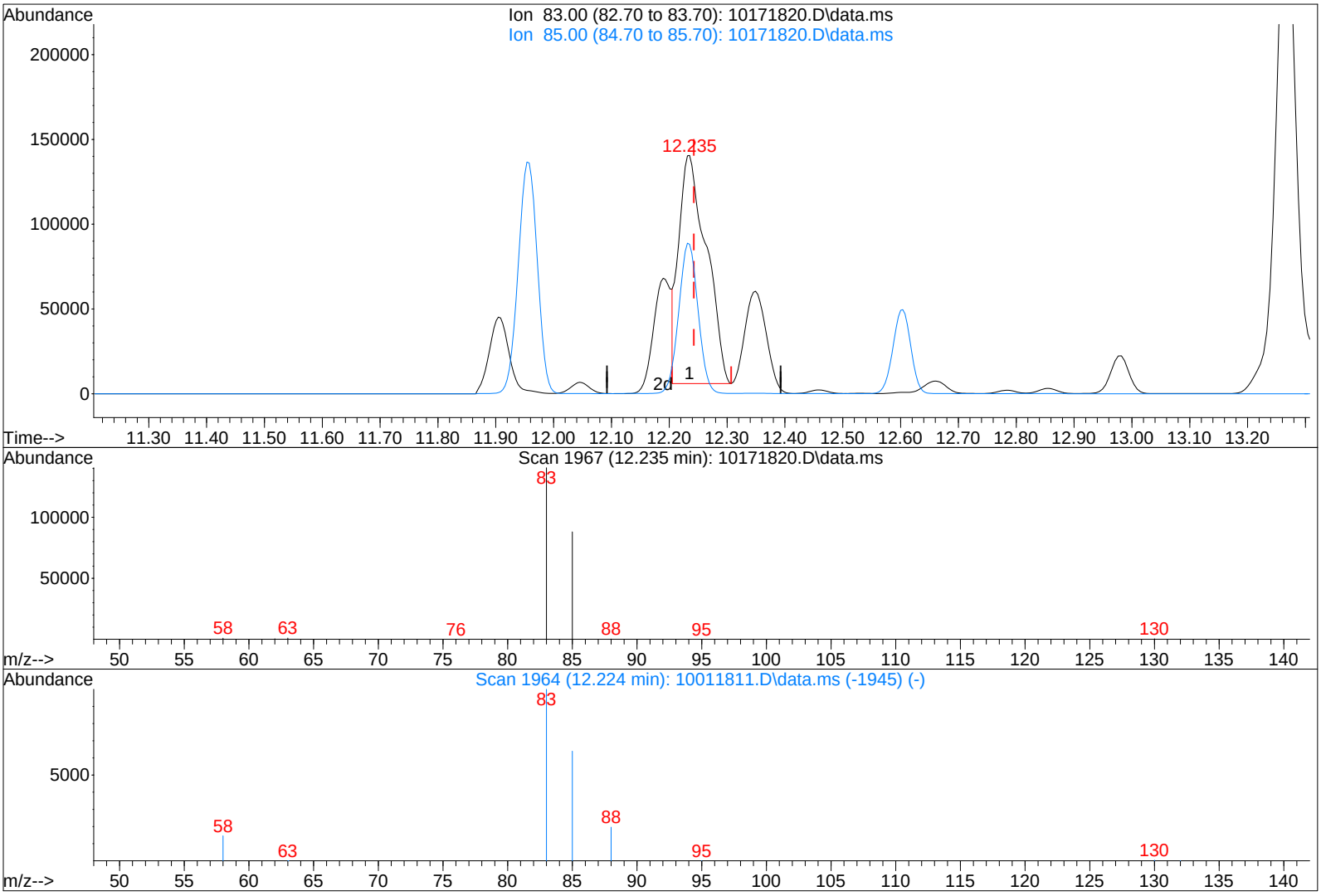
10/25/18

10/29/18

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:26 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171820.D\data.ms

(27) Bromodichloromethane (T)

12.235min (-0.008) 15037.42pg

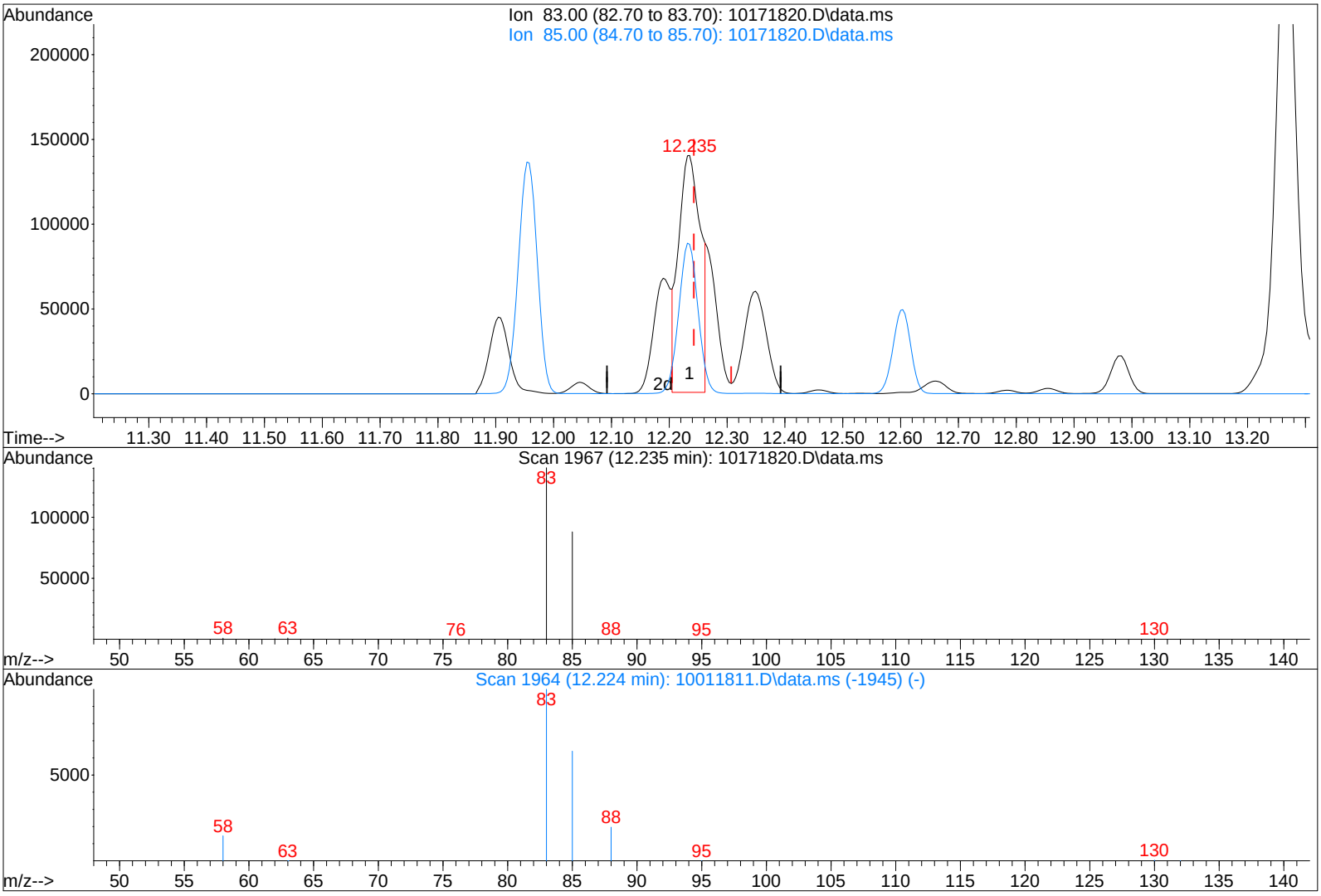
response 445601

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	46.26#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171820.D Vial: 11
Acq On : 17 Oct 2018 22:55 Operator: WA
Sample : P1805497-011 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:26 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171820.D\data.ms

(27) Bromodichloromethane (T)

12.235min (-0.008) 12411.72pg m

response 367794

Ion	Exp%	Act%
83.00	100	100
85.00	64.60	56.04
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181814.D Vial: 11
Acq On : 18 Oct 2018 19:42 Operator: WA
Sample : P1805497-011dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:23:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	24289	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	90166	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	13626	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.41	65	24534	843.811	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 84.38%				
33) Toluene-d8 (SS2)	14.02	98	97810	1051.907	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.19%				
45) Bromofluorobenzene (SS3)	17.43	174	35428	920.141	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.01%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.30	85	50977	984.988	pg		100
3) Chloromethane	4.51	52	4801	396.722	pg	#	86
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	639	17.128	pg		98
5) Vinyl Chloride	4.82	62	303	9.016	pg		97
6) 1,3-Butadiene	5.02	54	2477	97.498	pg	#	16
7) Bromomethane	5.33	94	174	7.370	pg		93
8) Chloroethane	5.57	64	2144	121.930	pg		99
9) Acrolein	6.13	56	657	46.222	pg	#	78
10) Acetone	6.26	58	120694	6697.621	pg		99
11) Trichlorofluoromethane	6.50	101	16676	412.013	pg		100
12) 1,1-Dichloroethene	7.22	96	766	26.743	pg	#	78
13) Methylene Chloride	7.34	84	18347	611.482	pg		96
14) Trichlorotrifluoroethane	7.69	151	2027	71.456	pg		100
15) trans-1,2-Dichloroethene	8.39	96	171	5.738	pg		100
16) 1,1-Dichloroethane	8.60	63	747	16.061	pg		99
17) Methyl tert-Butyl Ether	8.59	73	292	N.D.			
18) cis-1,2-Dichloroethene	9.47	96	52	N.D.			
19) Chloroform	9.77	83	975784	19447.030	pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D. d			
22) 1,1,1-Trichloroethane	10.79	97	3158	74.202	pg		97
23) Benzene	11.25	78	41286	327.522	pg		96
24) Carbon Tetrachloride	11.40	117	32467	835.768	pg		100
26) 1,2-Dichloropropane	12.05	63	165	7.347	pg	#	72
27) Bromodichloromethane	12.23	83	178060	5973.029	pg	#	77
28) Trichloroethene	12.29	130	1107	39.292	pg		98
29) 1,4-Dioxane	0.00	88	0	N.D. d			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D. d			
31) trans-1,3-Dichloropropene	13.60	75	94	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d			
34) Toluene	14.12	91	3222271	31298.840	pg		99
35) Dibromochloromethane	14.53	129	47341	1716.500	pg		100
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	15594	514.725	pg		99
39) Chlorobenzene	15.97	112	3540	42.912	pg		94
40) Ethylbenzene	16.35	91	42551	338.724	pg		99
41) m,p-Xylene	16.52	91	124115	1292.184	pg		99
42) Styrene	16.89	104	8285	108.595	pg	#	1
43) o-Xylene	17.00	106	22510	440.810	pg		99
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d			
46) 1,3,5-Trimethylbenzene	18.27	105	29870	278.114	pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	55172	514.941	pg		88
48) 1,3-Dichlorobenzene	18.81	146	106	N.D.			
49) 1,4-Dichlorobenzene	18.87	146	86691	1233.287	pg		100
50) 1,2-Dichlorobenzene	19.20	146	373	5.553	pg		95
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	144	N.D.			
53) Naphthalene	20.94	128	5415	43.209	pg		75

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181814.D Vial: 11
Acq On : 18 Oct 2018 19:42 Operator: WA
Sample : P1805497-011dil (400mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 13:23:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

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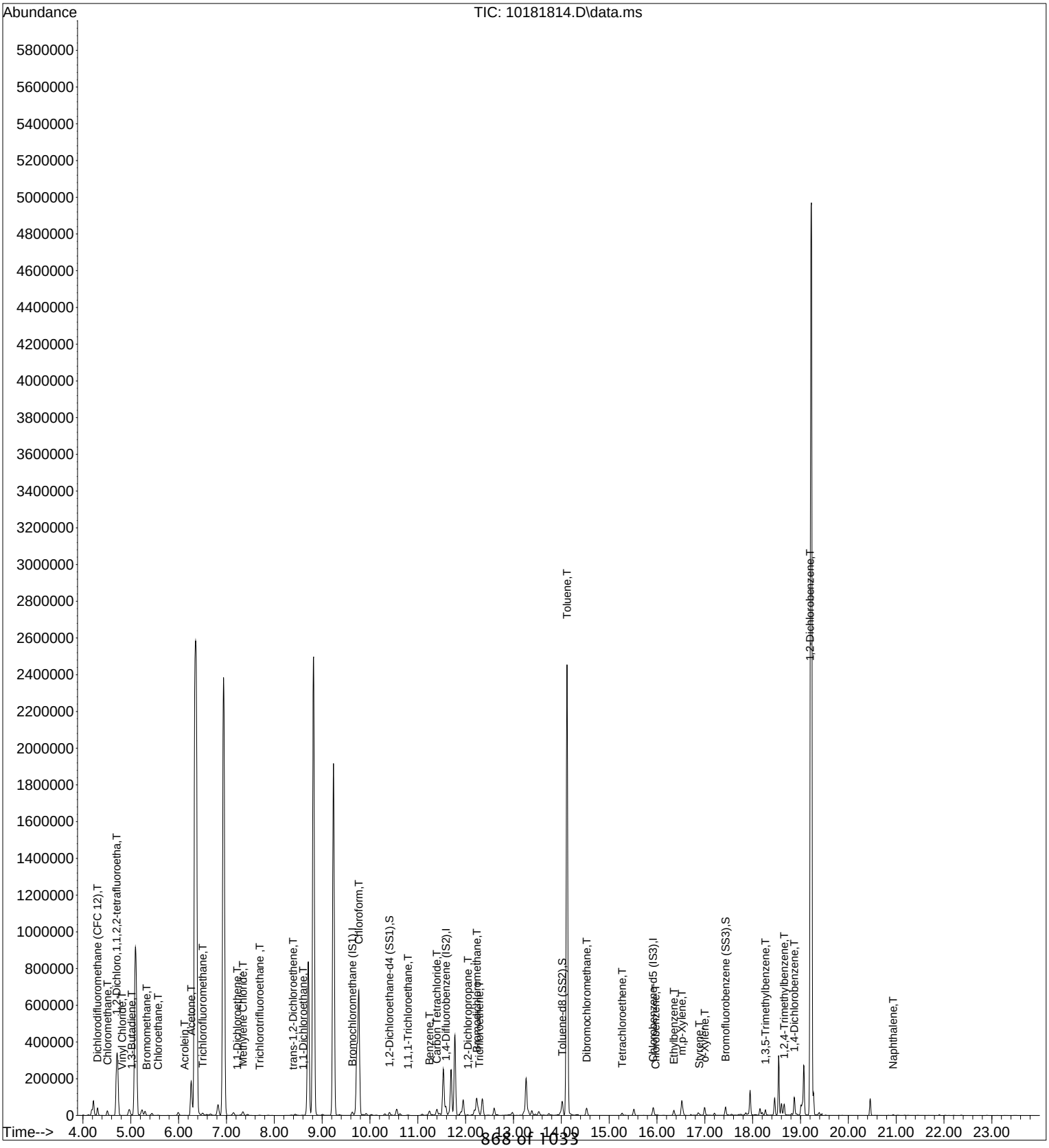
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181814.D Vial: 11
Acq On : 18 Oct 2018 19:42 Operator: WA
Sample : P1805497-011dil (400mL) Inst : MS19
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Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	24289	1000.000 pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	90166	1000.000 pg		-0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	13626	1000.000 pg		0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	24534	843.811 pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 84.38%			
33) Toluene-d8 (SS2)	14.02	98	97810	1051.907 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.19%			
45) Bromofluorobenzene (SS3)	17.43	174	35428	920.141 pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.01%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	50977	984.988 pg		100
3) Chloromethane	4.51	52	4801	396.722 pg	#	86
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	639	17.128 pg		98
5) Vinyl Chloride	4.82	62	303	9.016 pg		97
6) 1,3-Butadiene	5.02	54	2477	97.498 pg	#	16
7) Bromomethane	5.33	94	174	7.370 pg		93
8) Chloroethane	5.57	64	2144	121.930 pg		99
9) Acrolein	6.13	56	657	46.222 pg	#	78
10) Acetone	6.26	58	120694	6697.621 pg		99
11) Trichlorofluoromethane	6.50	101	16676	412.013 pg		100
12) 1,1-Dichloroethene	7.22	96	766	26.743 pg	#	78
13) Methylene Chloride	7.34	84	18347	611.482 pg		96
14) Trichlorotrifluoroethane	7.69	151	2027	71.456 pg		100
15) trans-1,2-Dichloroethene	8.39	96	171	5.738 pg		100
16) 1,1-Dichloroethane	8.60	63	747	16.061 pg		99
19) Chloroform	9.77	83	975784	19447.030 pg		99
22) 1,1,1-Trichloroethane	10.79	97	3158	74.202 pg		97
23) Benzene	11.25	78	41286	327.522 pg		96
24) Carbon Tetrachloride	11.40	117	32467	835.768 pg		100
26) 1,2-Dichloropropane	12.05	63	165	7.347 pg	#	72
27) Bromodichloromethane	12.23	83	178060	5973.029 pg	#	77
28) Trichloroethene	12.29	130	1107	39.292 pg		98
34) Toluene	14.12	91	3222271	31298.840 pg		99
35) Dibromochloromethane	14.53	129	47341	1716.500 pg		100
37) Tetrachloroethene	15.27	166	15594	514.725 pg		99
39) Chlorobenzene	15.97	112	3540	42.912 pg		94
40) Ethylbenzene	16.35	91	42551	338.724 pg		99
41) m,p-Xylene	16.52	91	124115	1292.184 pg		99
42) Styrene	16.89	104	8285	108.595 pg	#	1
43) o-Xylene	17.00	106	22510	440.810 pg		99
46) 1,3,5-Trimethylbenzene	18.27	105	29870	278.114 pg		99
47) 1,2,4-Trimethylbenzene	18.66	105	55172	514.941 pg		88
49) 1,4-Dichlorobenzene	18.87	146	86691	1233.287 pg		100
50) 1,2-Dichlorobenzene	19.20	146	373	5.553 pg		95
53) Naphthalene	20.94	128	5415	43.209 pg		75

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Quantitation Report (QT Reviewed)

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Acq On : 18 Oct 2018 19:42 Operator: WA
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Misc : S31-09241806

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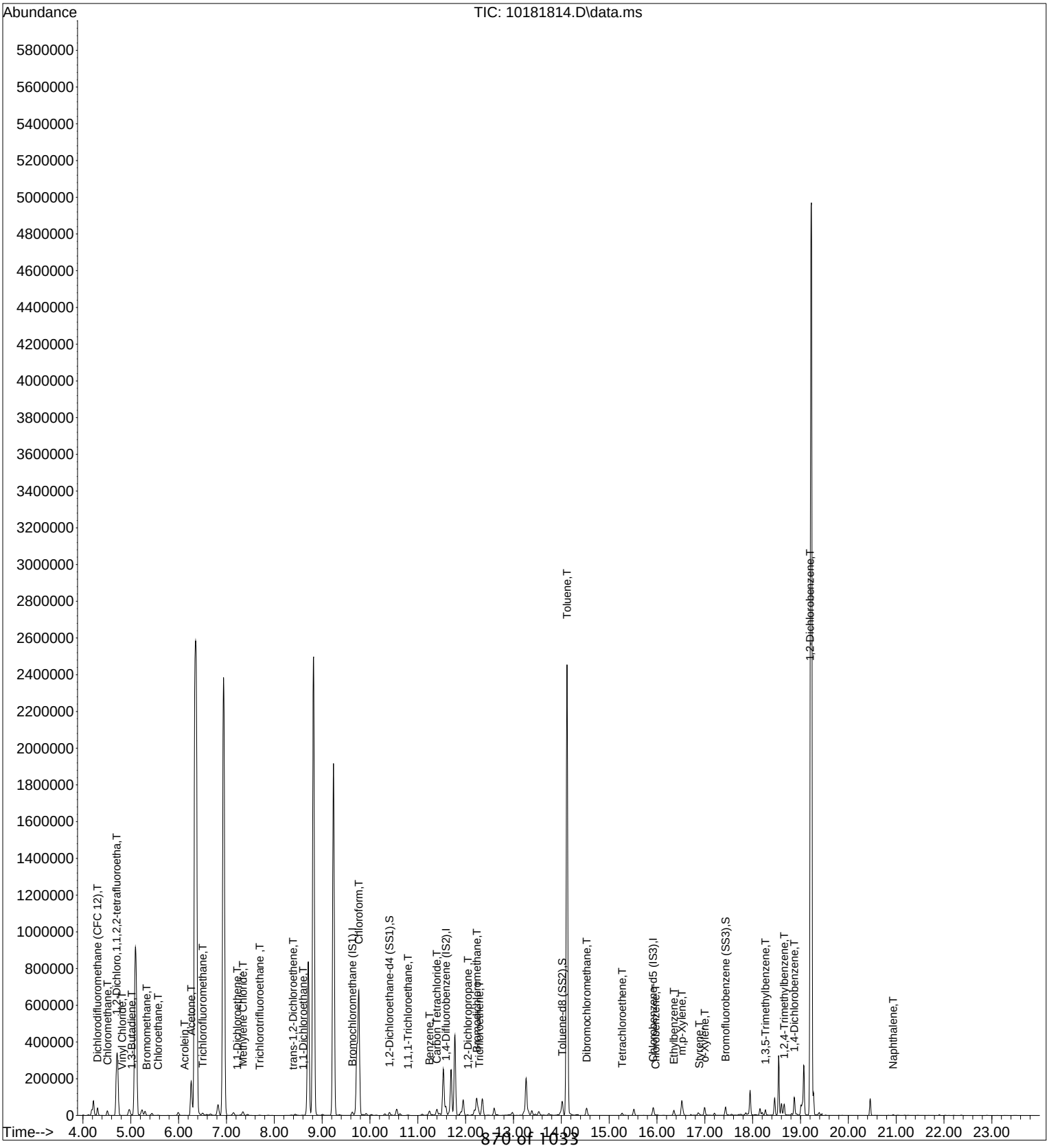
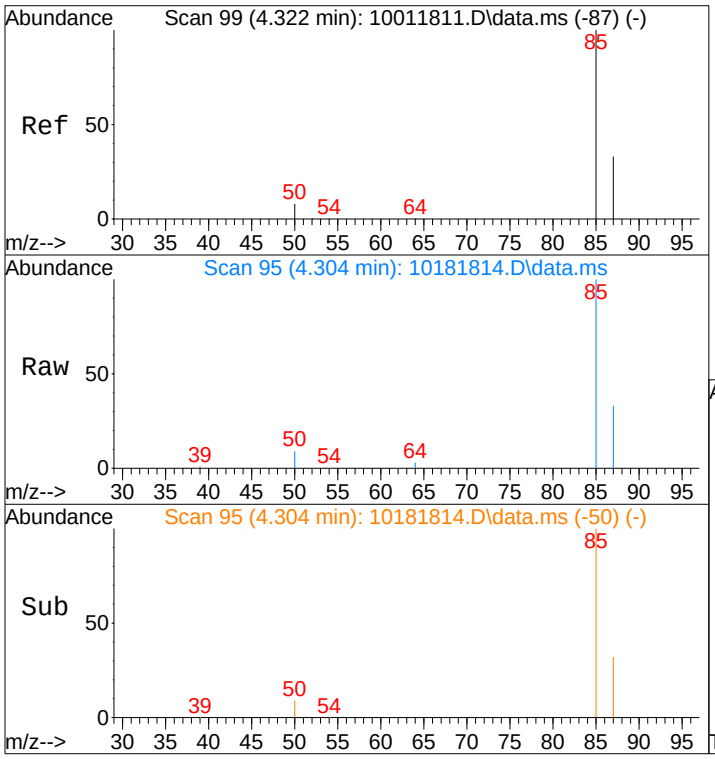
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

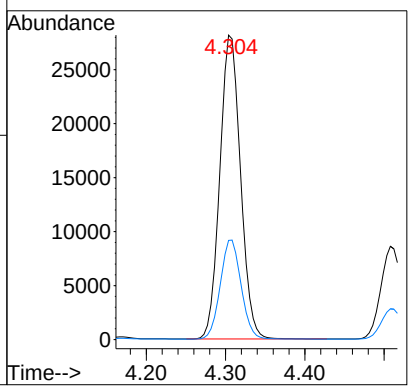


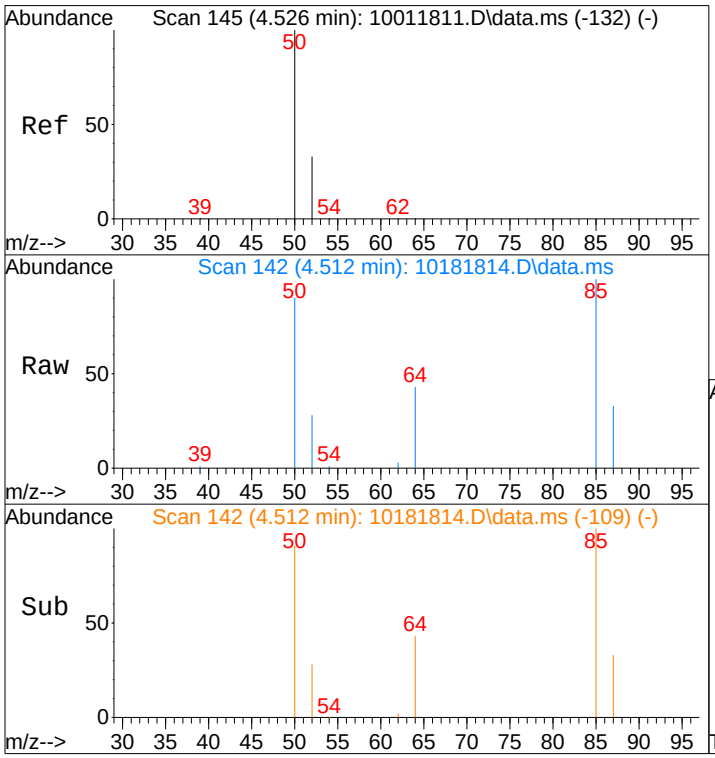


#2
Dichlorodifluoromethane (CFC 12)
Concen: 984.99 pg
RT: 4.30 min Scan# 95
Delta R.T. -0.000 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 85 Resp: 50977

Ion	Ratio	Lower	Upper
85	100		
87	32.8	12.7	52.7

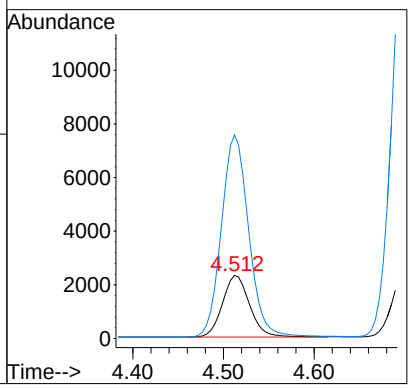


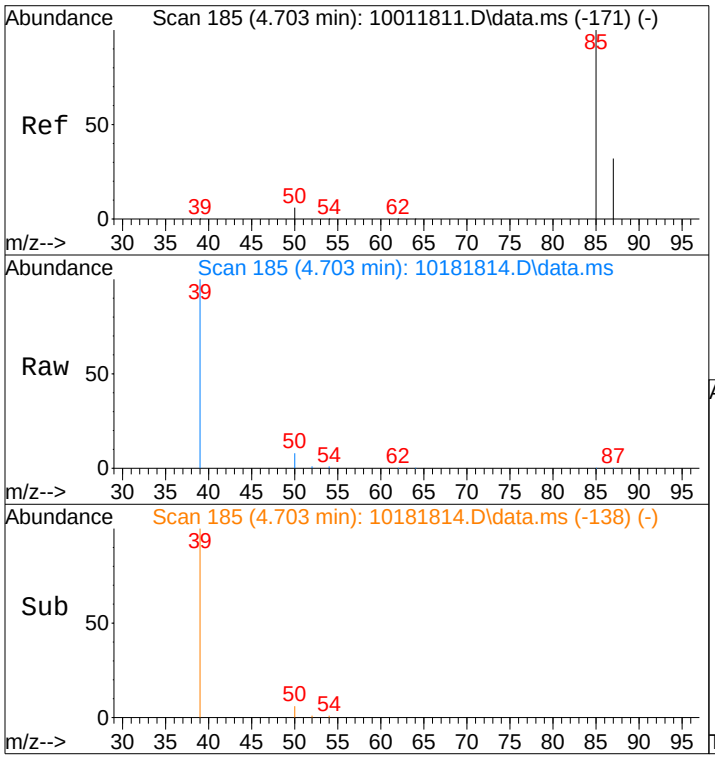


#3
Chloromethane
Concen: 396.72 pg
RT: 4.51 min Scan# 142
Delta R.T. -0.005 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 52 Resp: 4801

Ion	Ratio	Lower	Upper
52	100		
50	329.4	281.8	321.8#

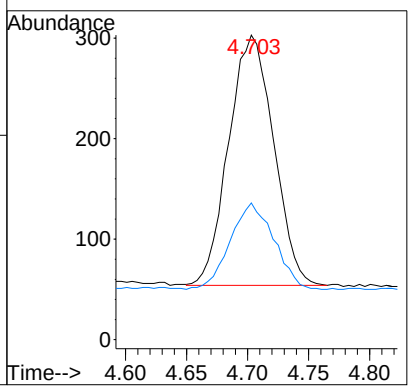


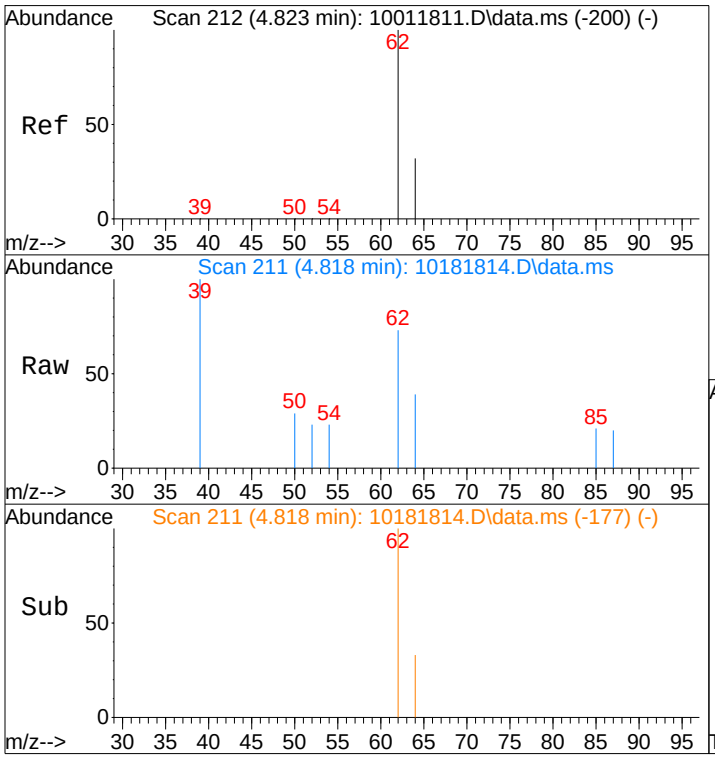


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 17.13 pg
RT: 4.70 min Scan# 185
Delta R.T. 0.009 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 85 Resp: 639

Ion	Ratio	Lower	Upper
85	100		
87	33.6	26.0	39.0

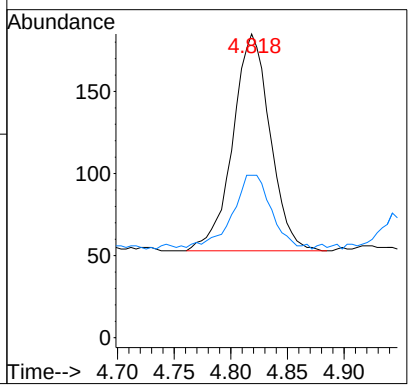


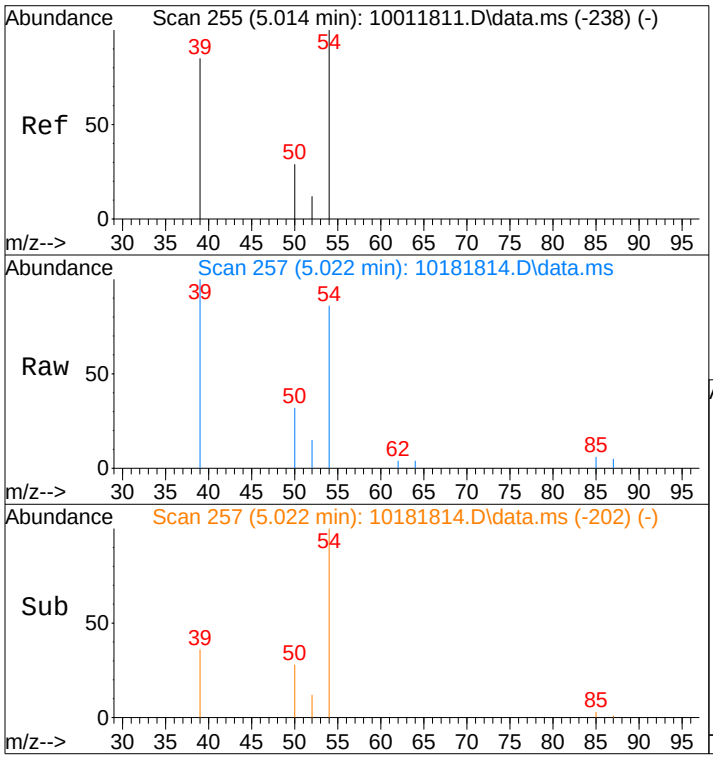


#5
Vinyl Chloride
Concen: 9.02 pg
RT: 4.82 min Scan# 211
Delta R.T. -0.000 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 62 Resp: 303

Ion	Ratio	Lower	Upper
62	100		
64	31.4	12.8	52.8

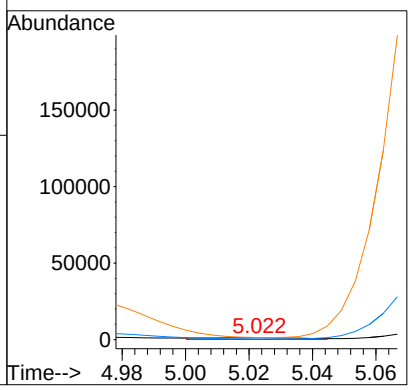


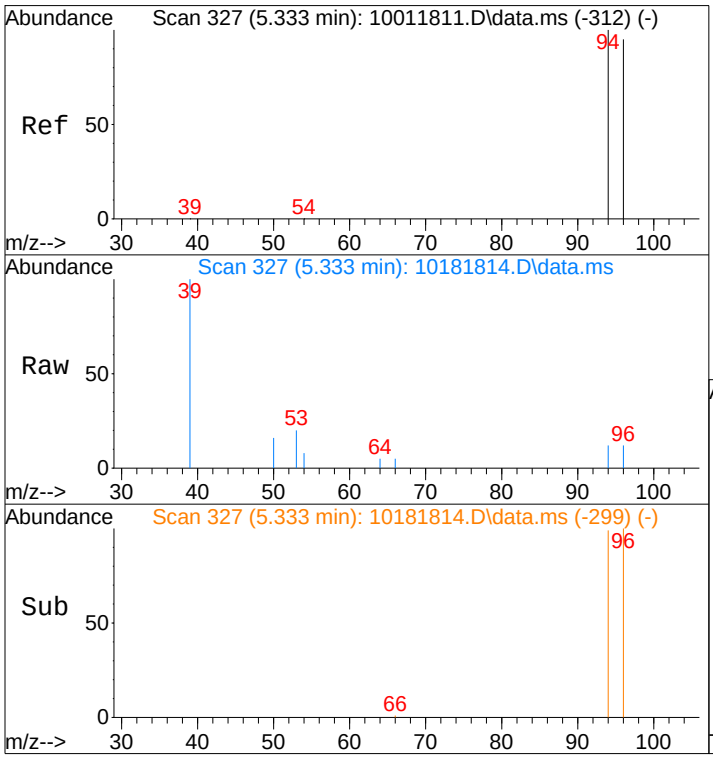


#6
1,3-Butadiene
Concen: 97.50 pg
RT: 5.02 min Scan# 257
Delta R.T. 0.013 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 54 Resp: 2477

Ion	Ratio	Lower	Upper
54	100		
50	0.0	23.6	35.4#
39	0.0	69.9	104.9#

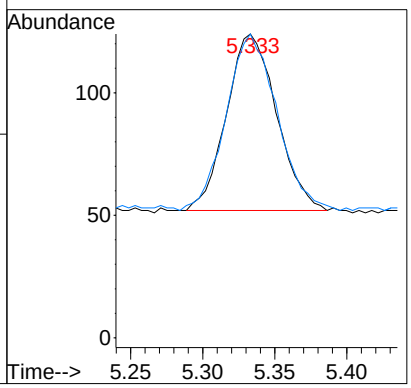


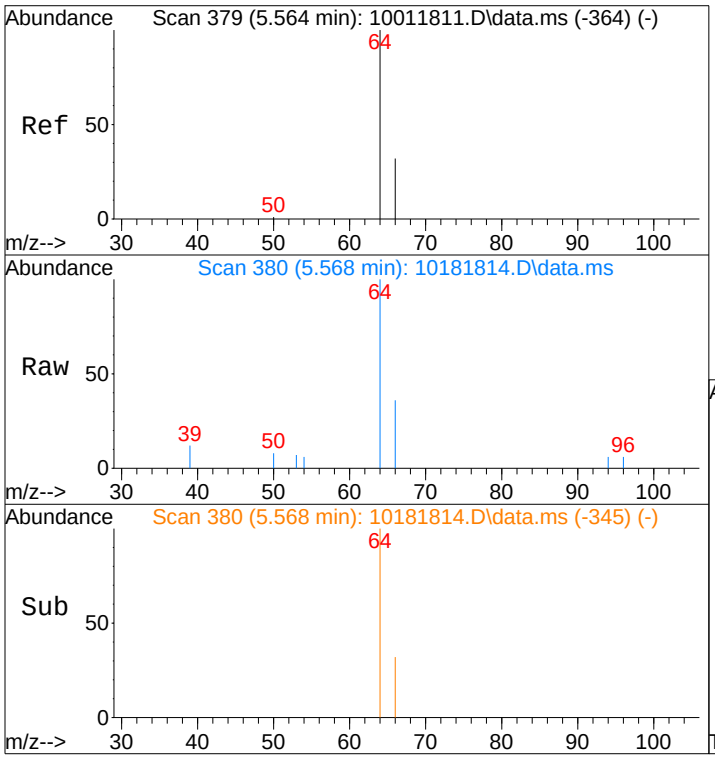


#7
Bromomethane
Concen: 7.37 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.005 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 94 Resp: 174

Ion	Ratio	Lower	Upper
94	100		
96	101.7	75.7	113.5

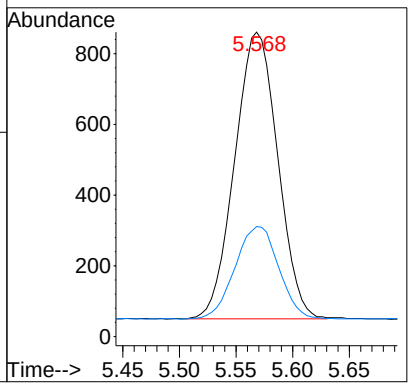


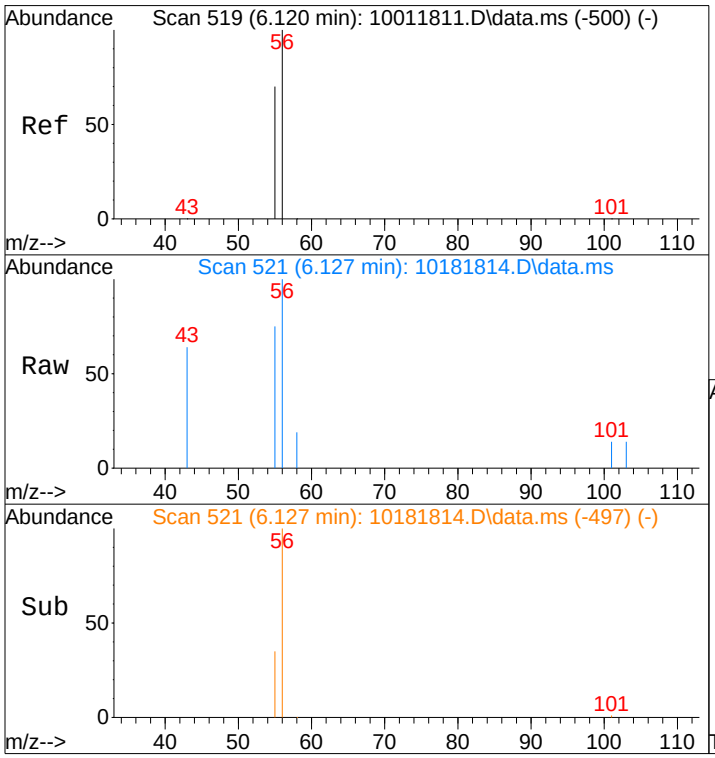


#8
Chloroethane
Concen: 121.93 pg
RT: 5.57 min Scan# 380
Delta R.T. 0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 64 Resp: 2144

Ion	Ratio	Lower	Upper
64	100		
66	33.0	12.3	52.3

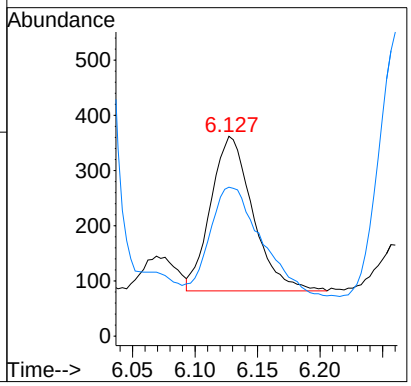


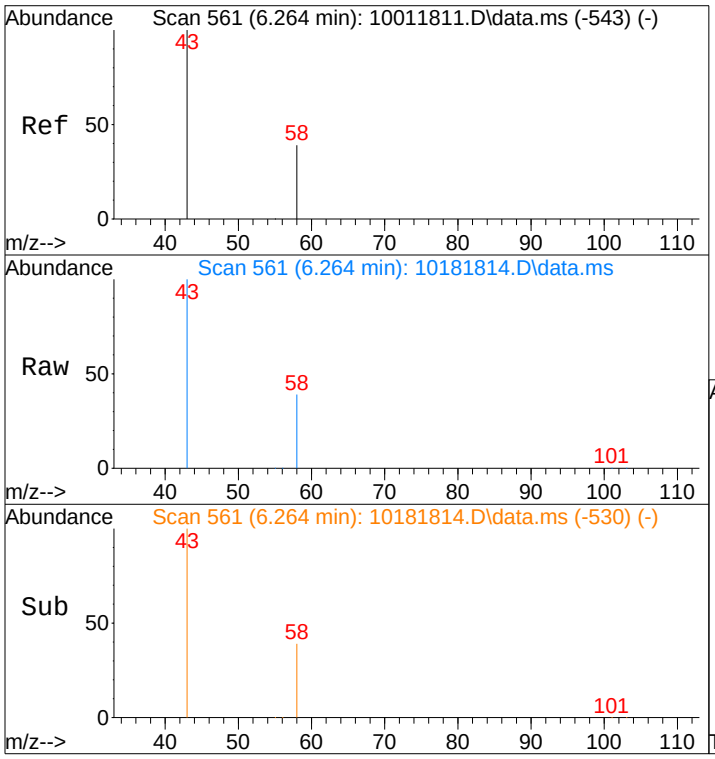


#9
Acrolein
Concen: 46.22 pg
RT: 6.13 min Scan# 521
Delta R.T. -0.027 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 56 Resp: 657

Ion	Ratio	Lower	Upper
56	100		
55	86.8	55.3	82.9#

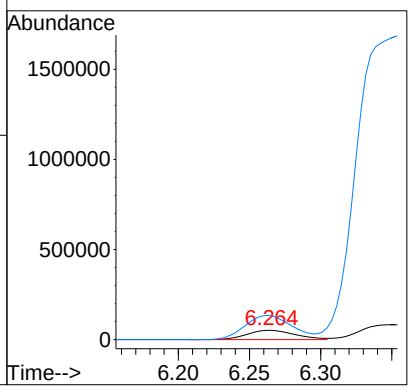


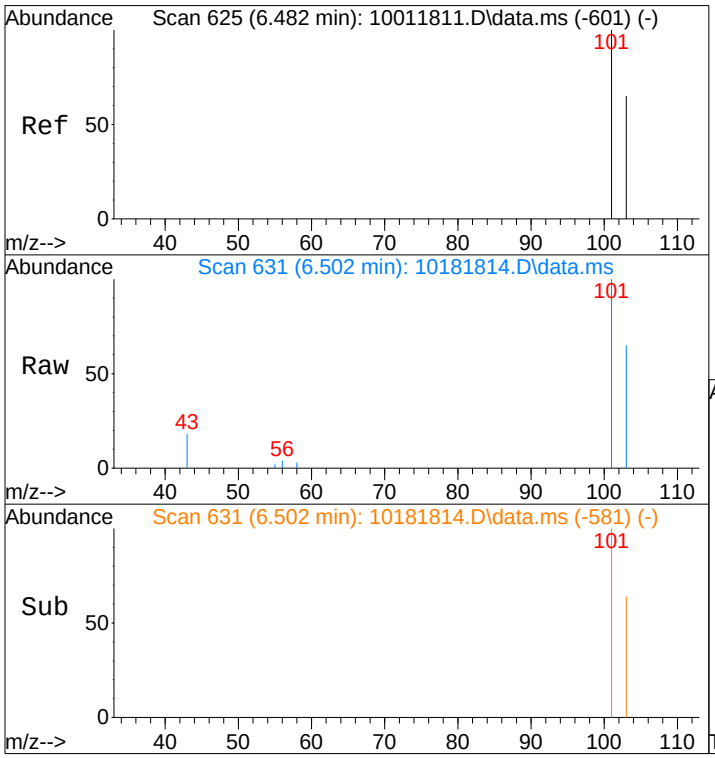


#10
Acetone
Concen: 6697.62 pg
RT: 6.26 min Scan# 561
Delta R.T. -0.044 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 58 Resp: 120694

Ion	Ratio	Lower	Upper
58	100		
43	252.8	234.7	274.7

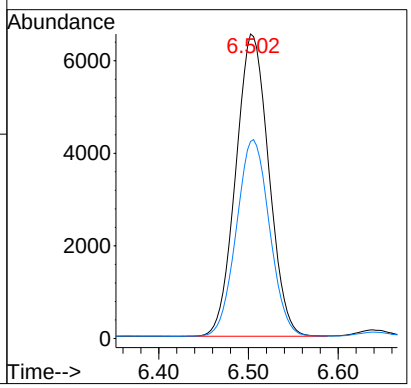


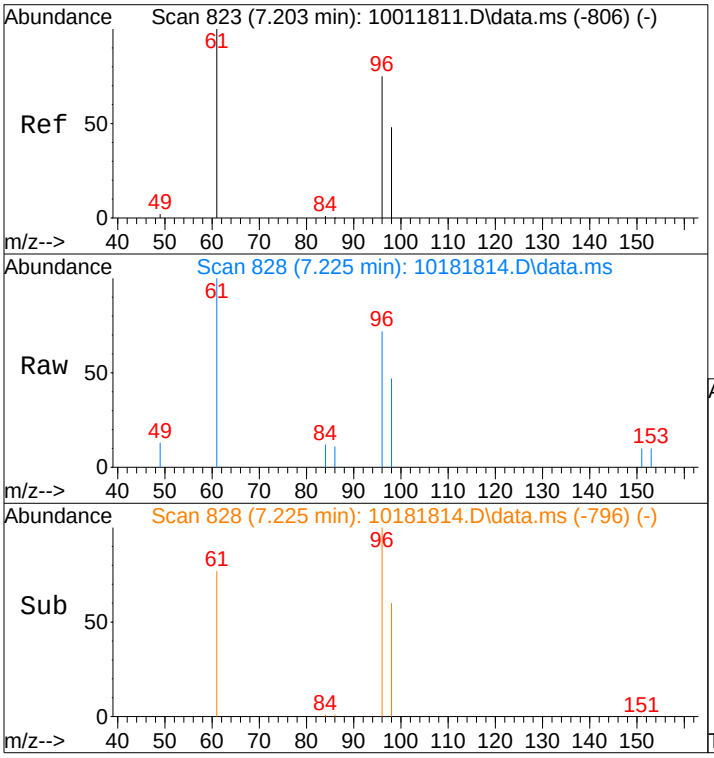


#11
Trichlorofluoromethane
Concen: 412.01 pg
RT: 6.50 min Scan# 631
Delta R.T. 0.020 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:101 Resp: 16676

Ion	Ratio	Lower	Upper
101	100		
103	65.3	52.2	78.2

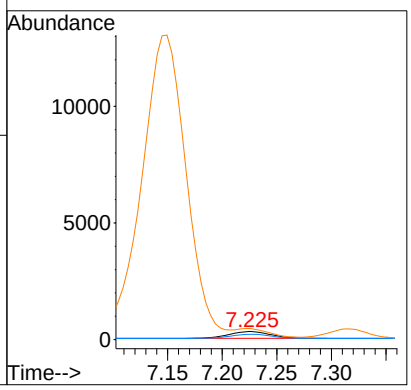


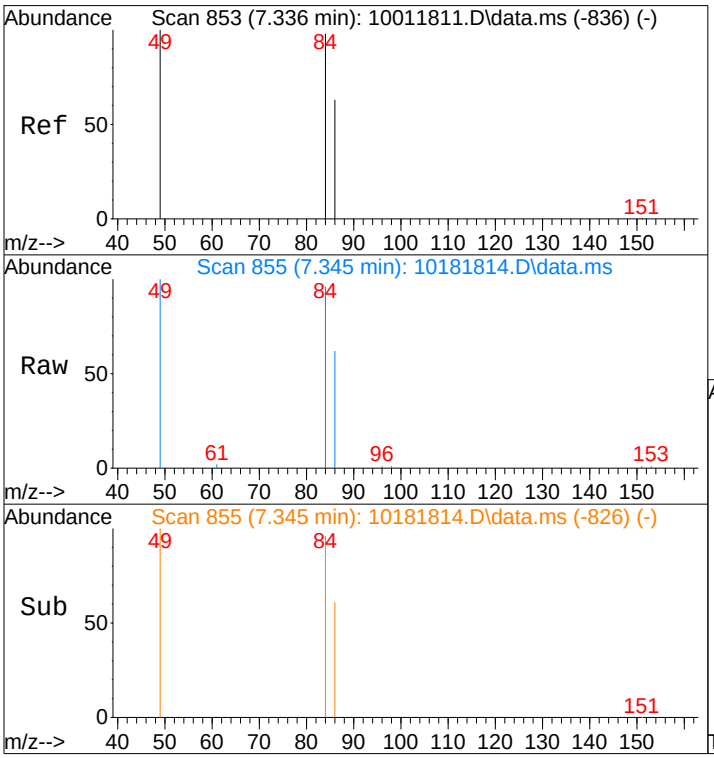


#12
1,1-Dichloroethene
Concen: 26.74 pg
RT: 7.22 min Scan# 828
Delta R.T. 0.013 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 96 Resp: 766

Ion	Ratio	Lower	Upper
96	100		
98	61.0	44.2	84.2
61	97.5	114.1	154.1#

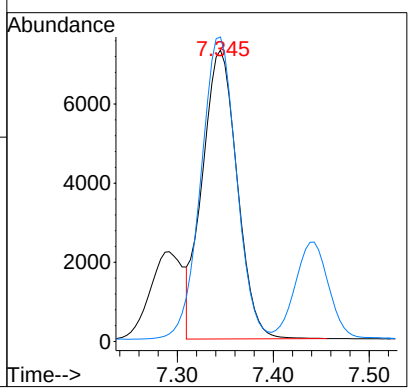


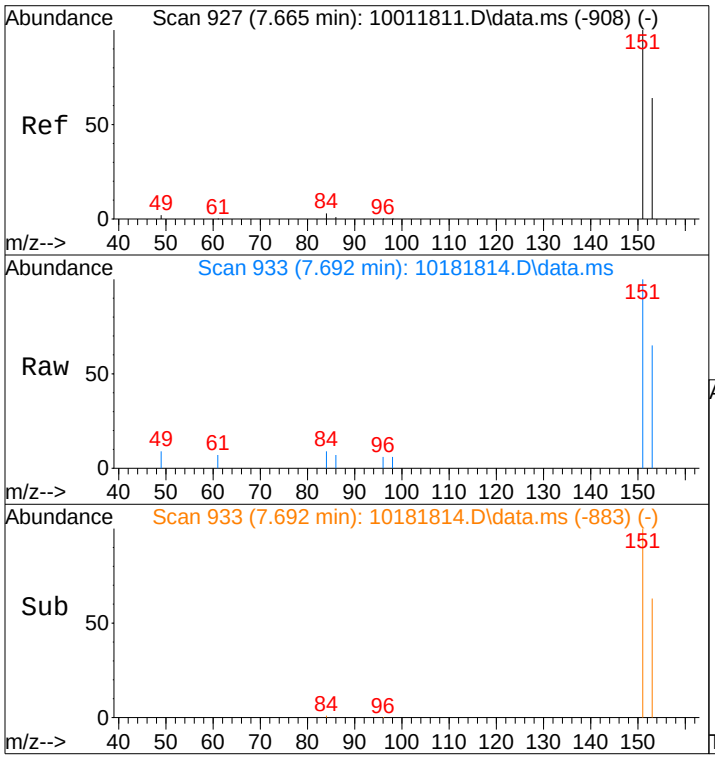


#13
Methylene Chloride
Concen: 611.48 pg
RT: 7.34 min Scan# 855
Delta R.T. -0.031 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 84 Resp: 18347

Ion	Ratio	Lower	Upper
84	100		
49	107.1	83.3	123.3

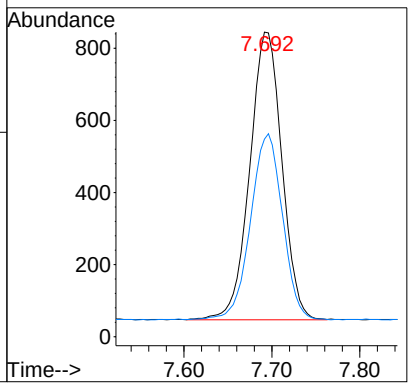


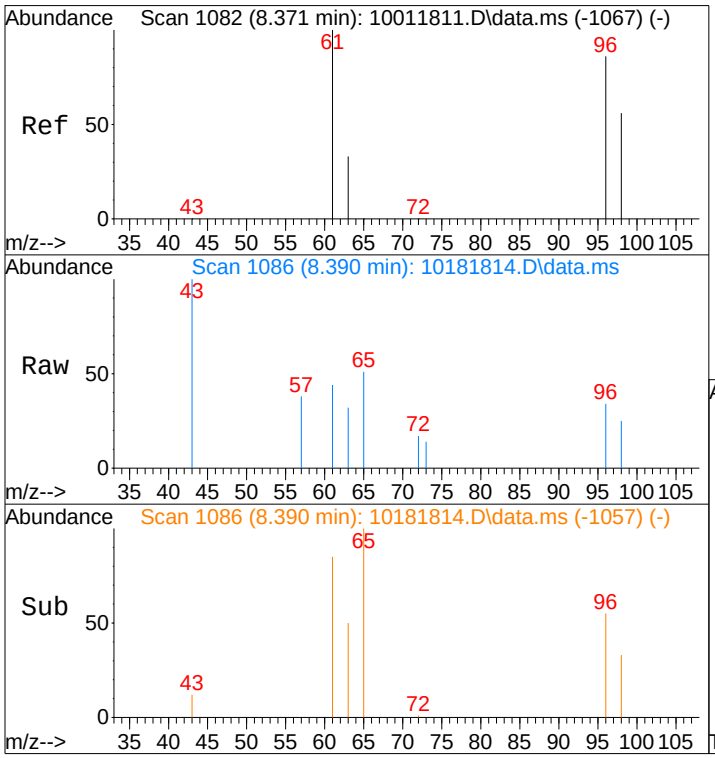


#14
Trichlorotrifluoroethane
Concen: 71.46 pg
RT: 7.69 min Scan# 933
Delta R.T. 0.022 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:151 Resp: 2027

Ion	Ratio	Lower	Upper
151	100		
153	64.3	44.3	84.3

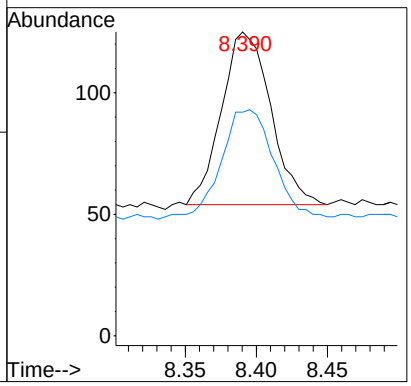


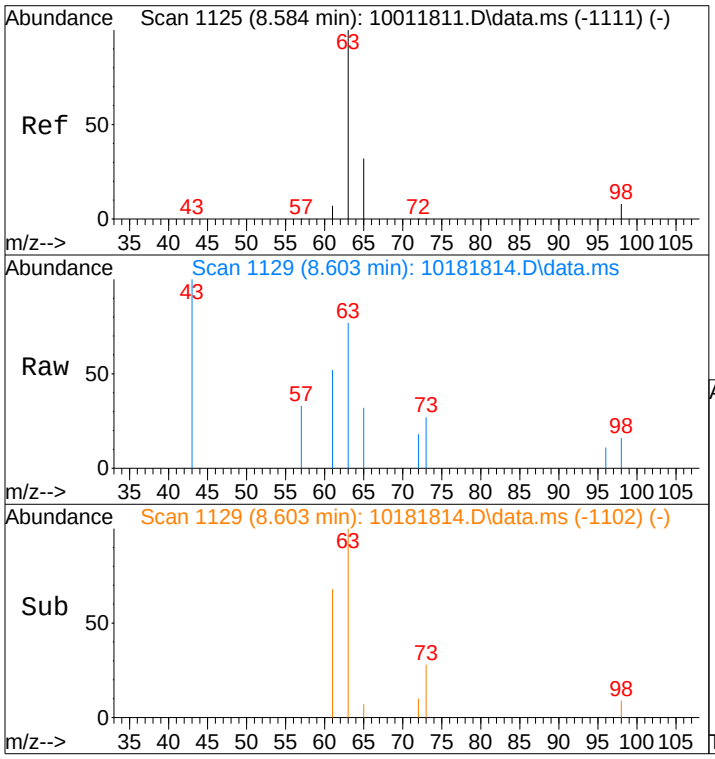


#15
trans-1,2-Dichloroethene
Concen: 5.74 pg
RT: 8.39 min Scan# 1086
Delta R.T. -0.005 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 96 Resp: 171

Ion	Ratio	Lower	Upper
96	100		
98	63.7	44.1	84.1

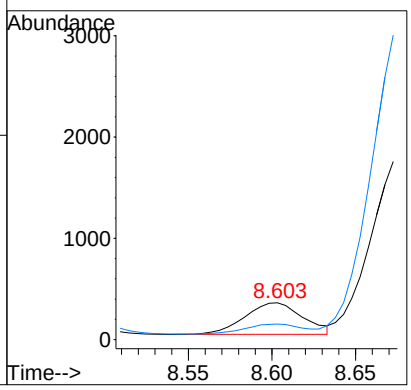


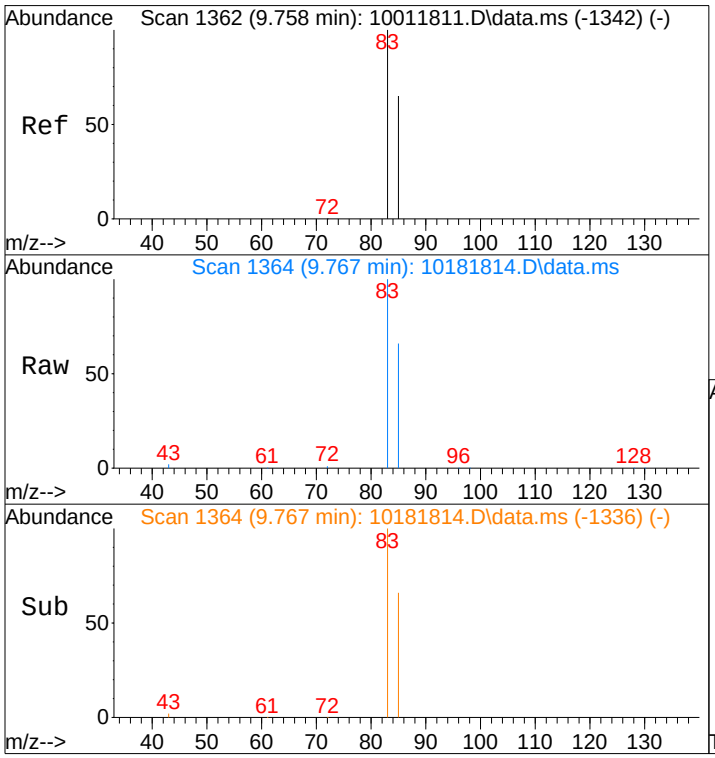


#16
1,1-Dichloroethane
Concen: 16.06 pg
RT: 8.60 min Scan# 1129
Delta R.T. -0.015 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 63 Resp: 747

Ion	Ratio	Lower	Upper
63	100		
65	32.9	12.2	52.2

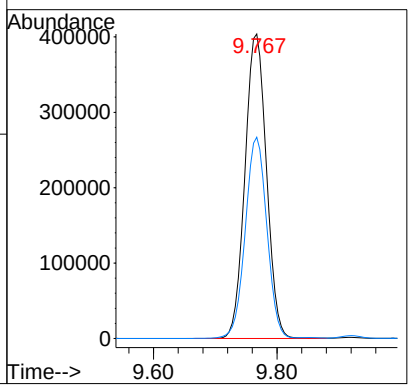


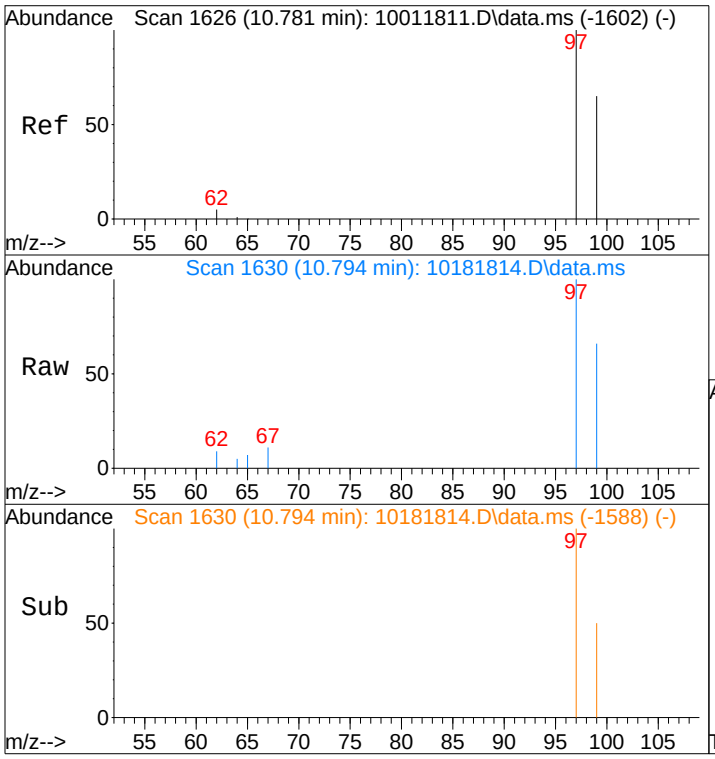


#19
Chloroform
Concen: 19447.03 pg
RT: 9.77 min Scan# 1364
Delta R.T. -0.030 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 83 Resp: 975784

Ion	Ratio	Lower	Upper
83	100		
85	66.4	46.0	86.0

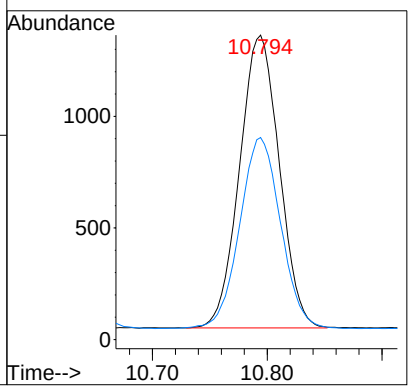


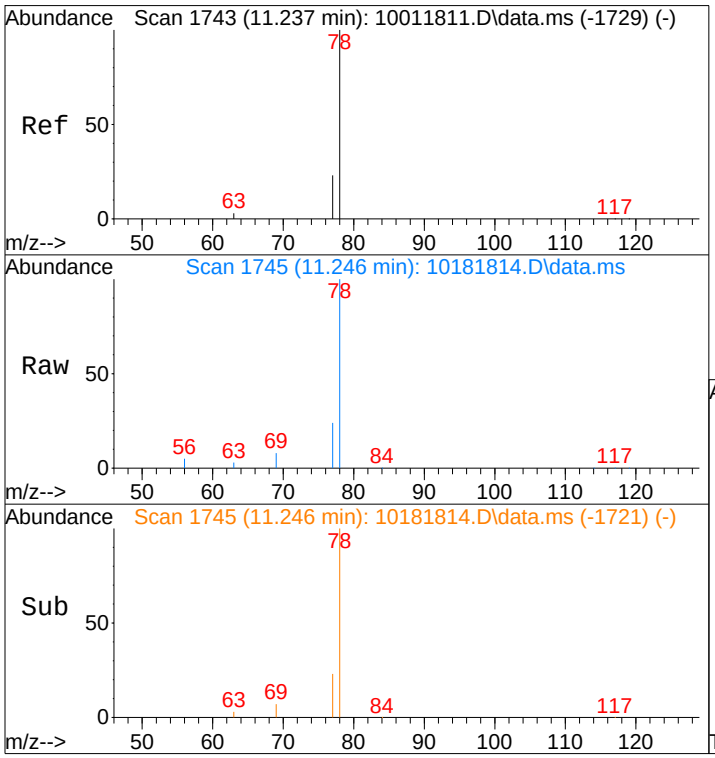


#22
1,1,1-Trichloroethane
Concen: 74.20 pg
RT: 10.79 min Scan# 1630
Delta R.T. -0.007 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 97 Resp: 3158

Ion	Ratio	Lower	Upper
97	100		
99	67.1	44.9	84.9

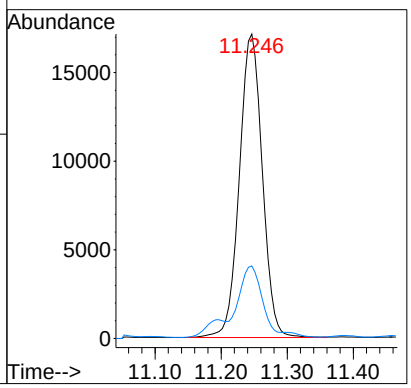


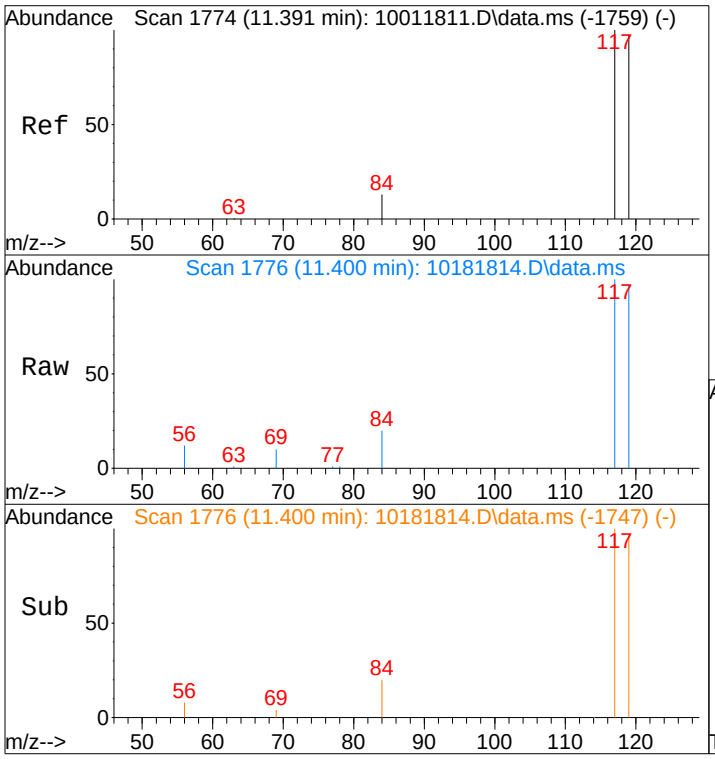


#23
Benzene
Concen: 327.52 pg
RT: 11.25 min Scan# 1745
Delta R.T. -0.010 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 78 Resp: 41286

Ion	Ratio	Lower	Upper
78	100		
77	25.1	3.3	43.3

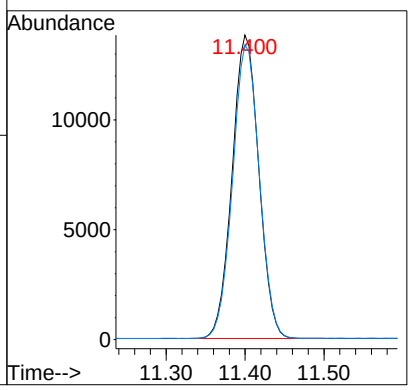


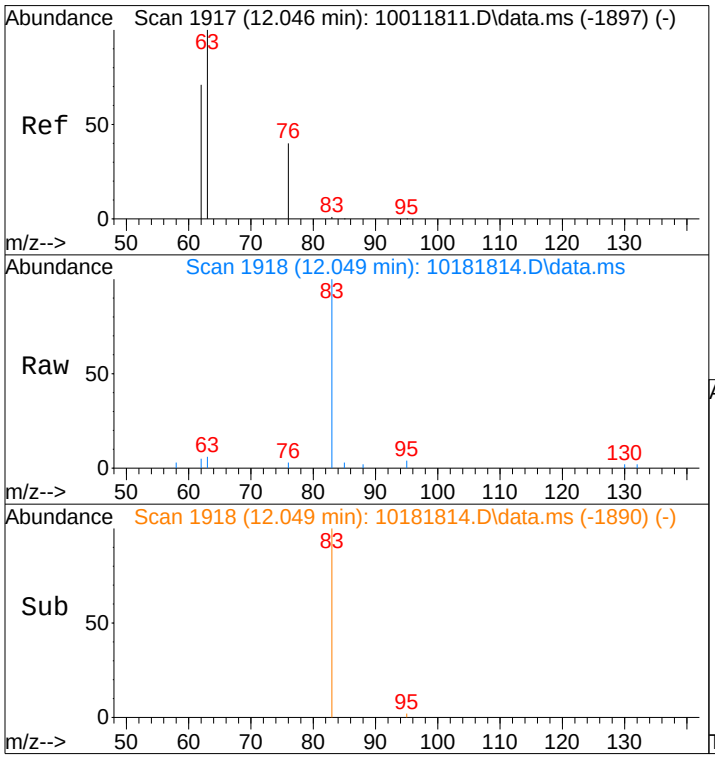


#24
Carbon Tetrachloride
Concen: 835.77 pg
RT: 11.40 min Scan# 1776
Delta R.T. -0.005 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:117 Resp: 32467

Ion	Ratio	Lower	Upper
117	100		
119	96.8	76.7	116.7

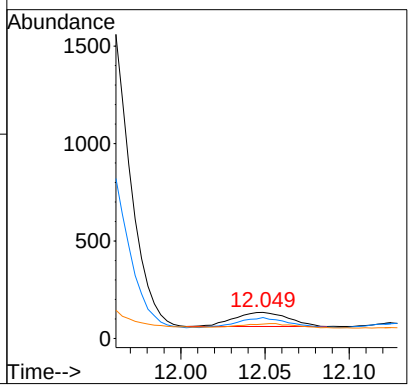


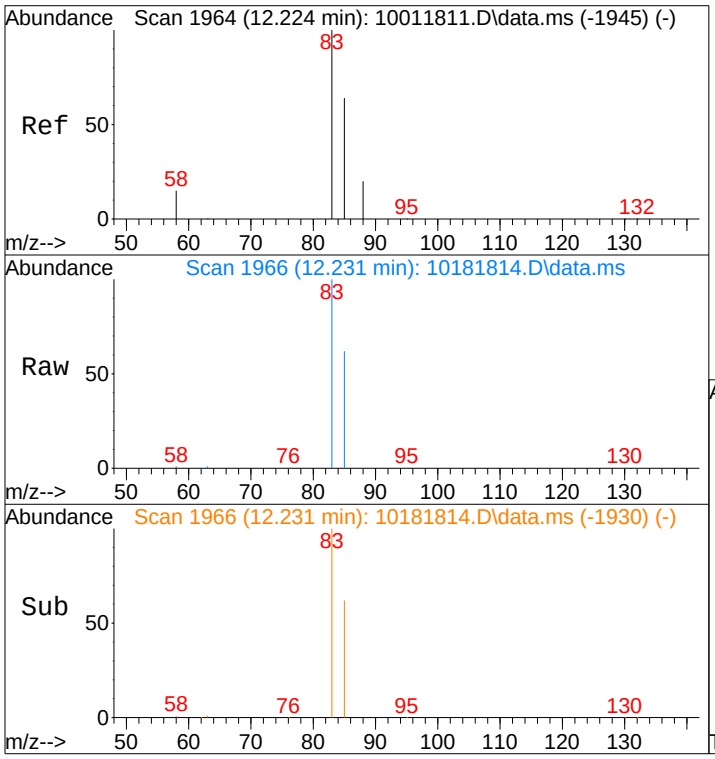


#26
1,2-Dichloropropane
Concen: 7.35 pg
RT: 12.05 min Scan# 1918
Delta R.T. -0.015 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 63 Resp: 165

Ion	Ratio	Lower	Upper
63	100		
62	64.8	50.7	90.7
76	0.0	19.6	59.6#

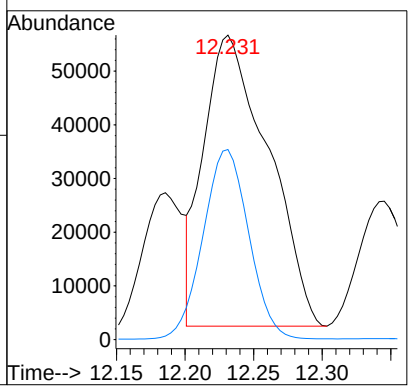


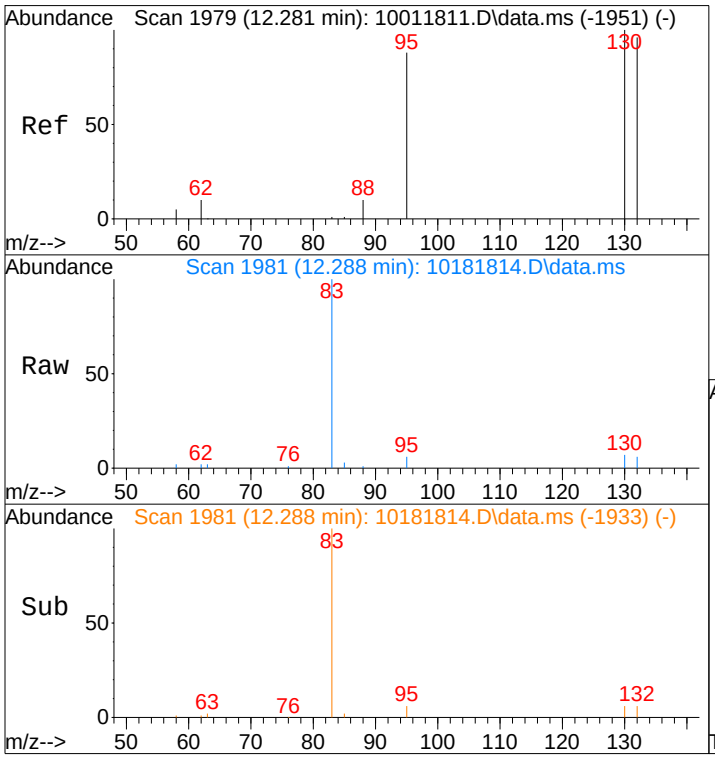


#27
Bromodichloromethane
Concen: 5973.03 pg
RT: 12.23 min Scan# 1966
Delta R.T. -0.011 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 83 Resp: 178060

Ion	Ratio	Lower	Upper
83	100		
85	46.1	51.7	77.5#

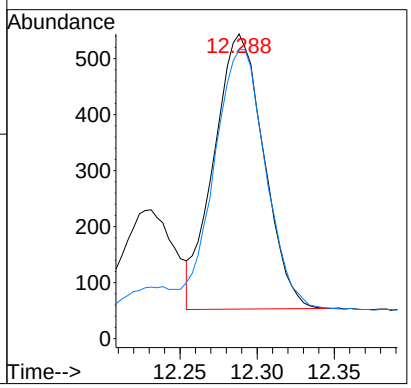


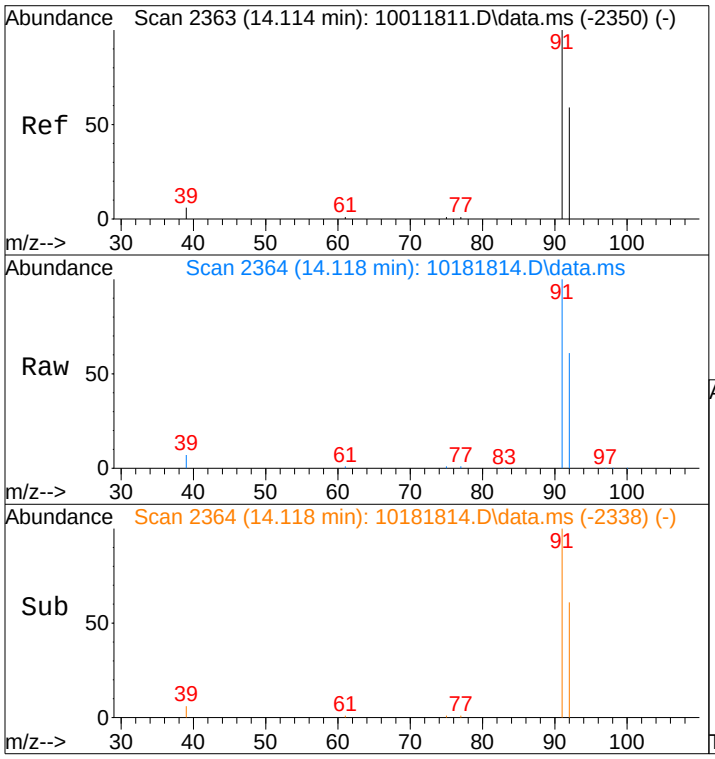


#28
Trichloroethene
Concen: 39.29 pg
RT: 12.29 min Scan# 1981
Delta R.T. -0.008 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:130 Resp: 1107

Ion	Ratio	Lower	Upper
130	100		
132	97.4	75.6	115.6

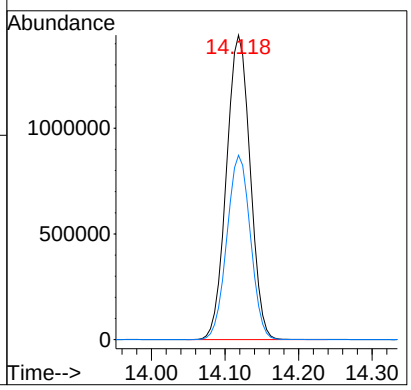


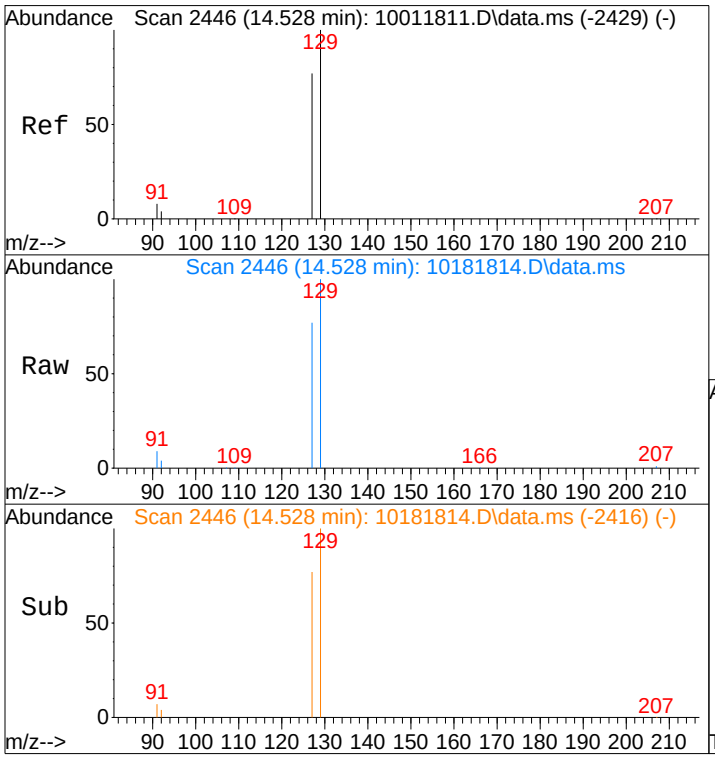


#34
Toluene
Concen: 31298.84 pg
RT: 14.12 min Scan# 2364
Delta R.T. -0.006 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 91 Resp: 3222271

Ion	Ratio	Lower	Upper
91	100		
92	60.3	39.2	79.2

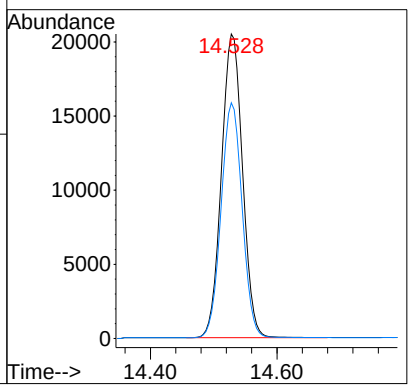


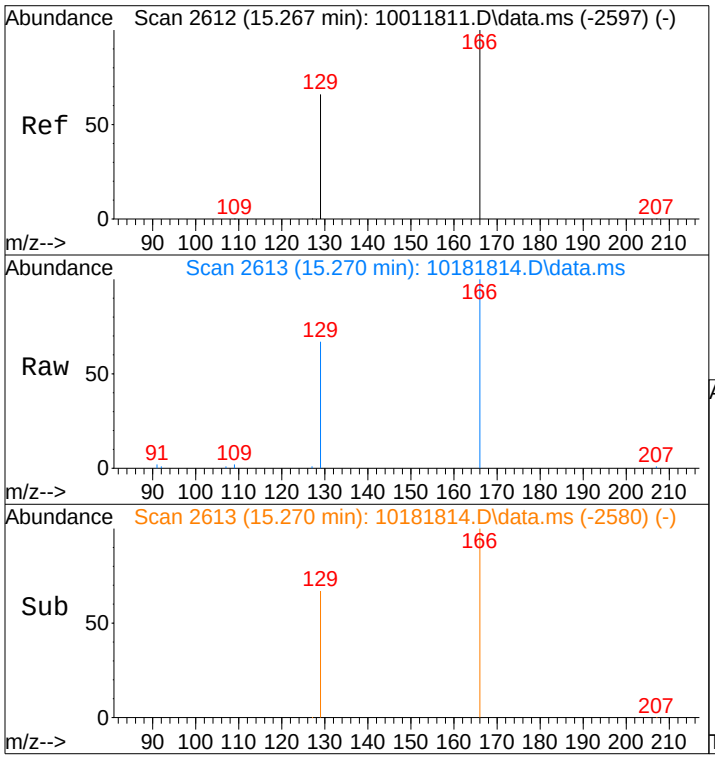


#35
Dibromochloromethane
Concen: 1716.50 pg
RT: 14.53 min Scan# 2446
Delta R.T. -0.008 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:129 Resp: 47341

Ion	Ratio	Lower	Upper
129	100		
127	77.3	61.8	92.6

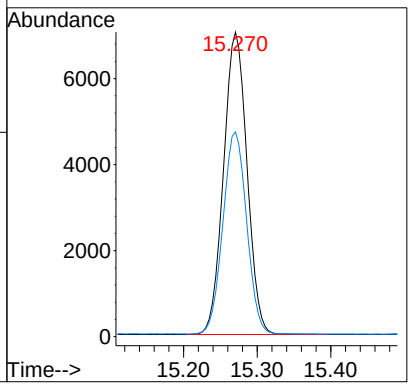


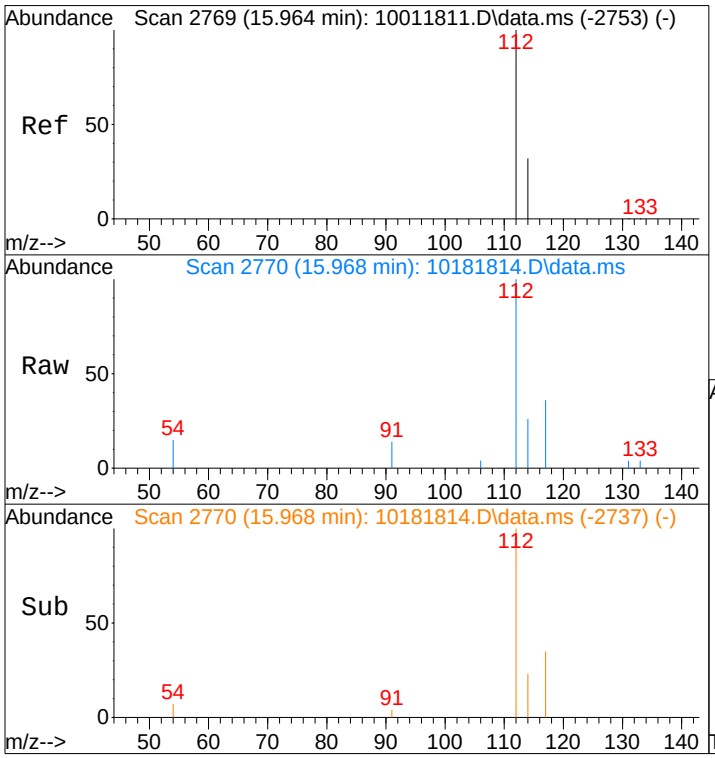


#37
Tetrachloroethene
Concen: 514.73 pg
RT: 15.27 min Scan# 2613
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:166 Resp: 15594

Ion	Ratio	Lower	Upper
166	100		
129	67.4	46.7	86.7

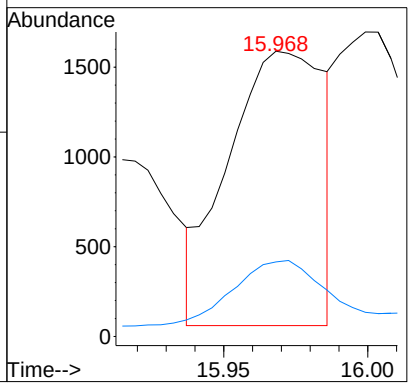


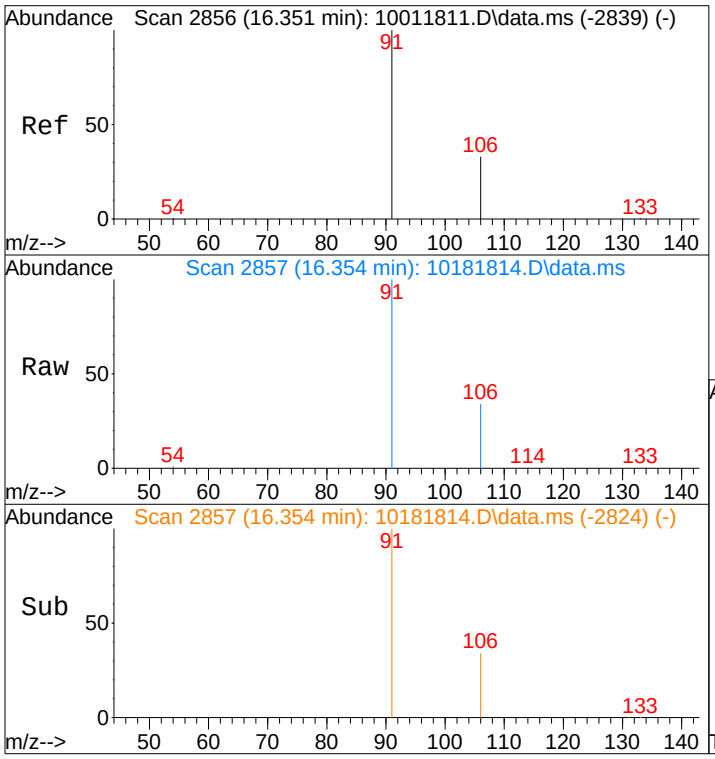


#39
Chlorobenzene
Concen: 42.91 pg
RT: 15.97 min Scan# 2770
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:112 Resp: 3540

Ion	Ratio	Lower	Upper
112	100		
114	28.8	12.2	52.2

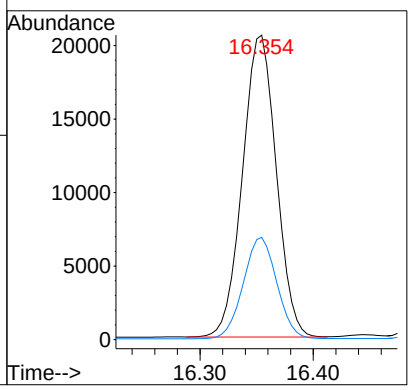


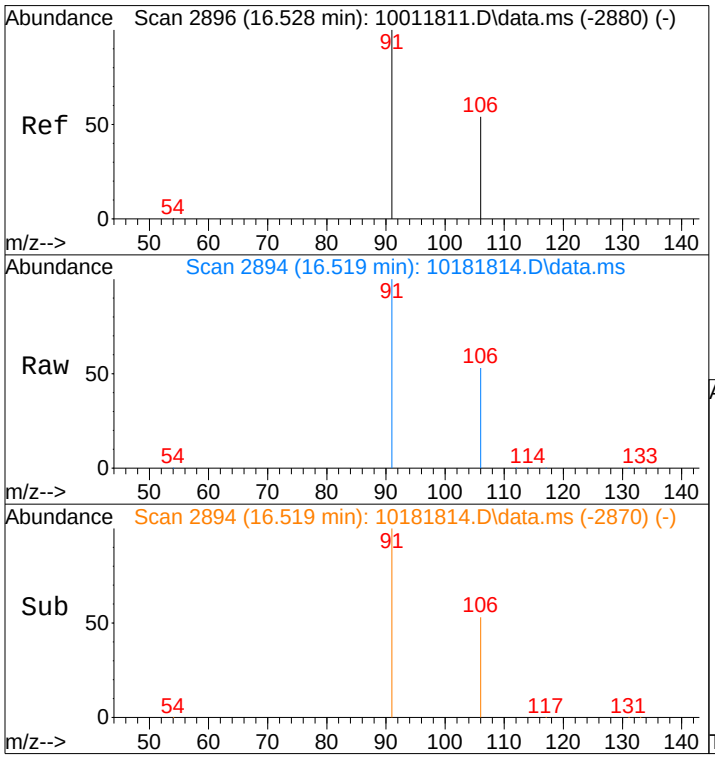


#40
Ethylbenzene
Concen: 338.72 pg
RT: 16.35 min Scan# 2857
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 91 Resp: 42551

Ion	Ratio	Lower	Upper
91	100		
106	33.4	13.7	53.7

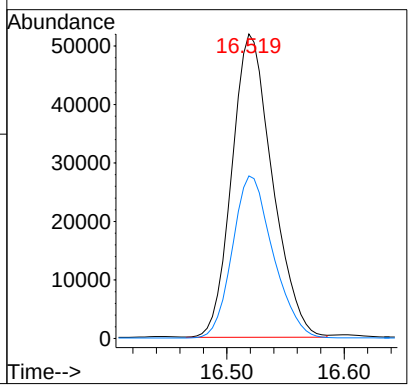


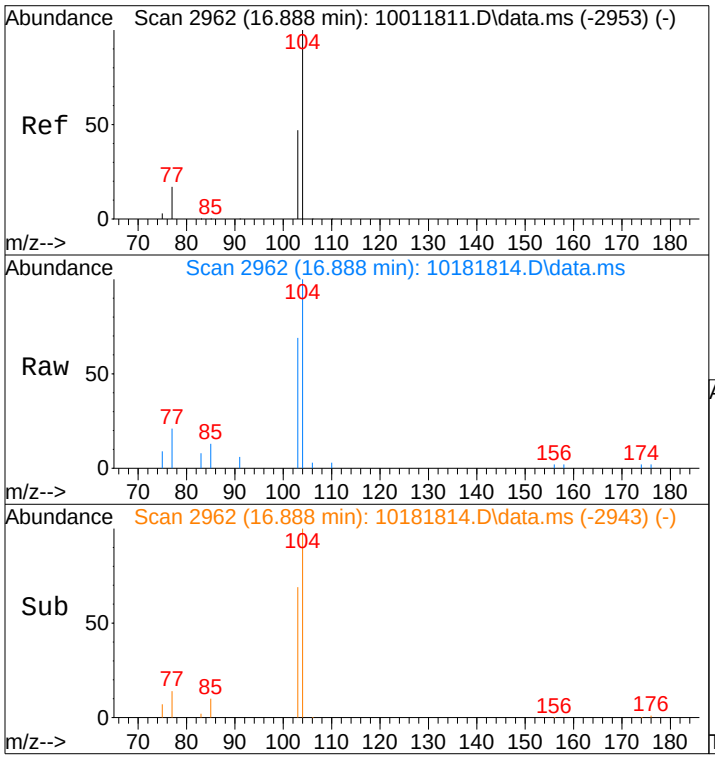


#41
m,p-Xylene
Concen: 1292.18 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion: 91 Resp: 124115

Ion	Ratio	Lower	Upper
91	100		
106	53.7	34.3	74.3

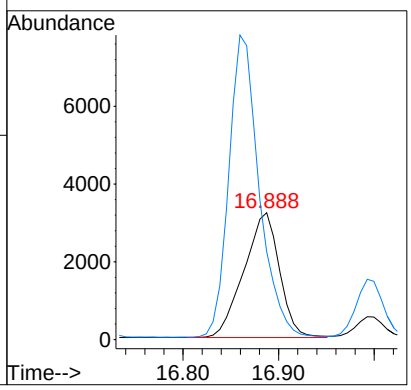


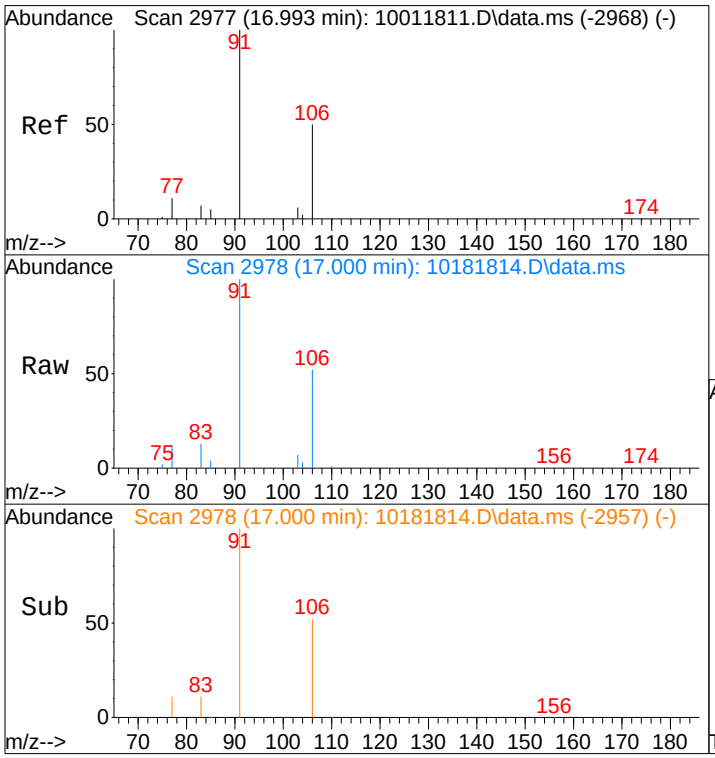


#42
Styrene
Concen: 108.60 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:104 Resp: 8285

Ion	Ratio	Lower	Upper
104	100		
103	206.5	37.7	56.5#

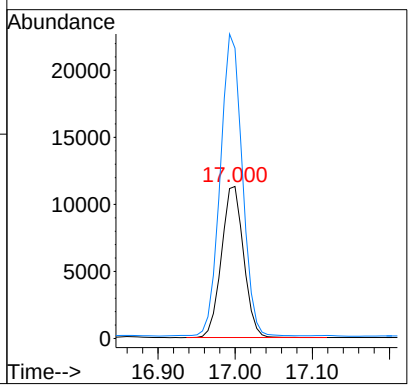


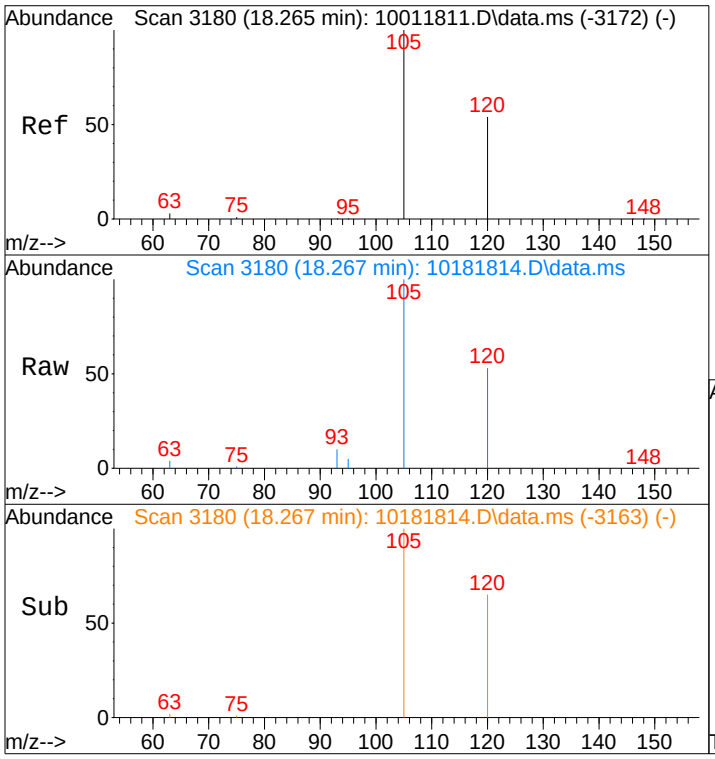


#43
o-Xylene
Concen: 440.81 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.006 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:106 Resp: 22510

Ion	Ratio	Lower	Upper
106	100		
91	197.7	175.6	215.6

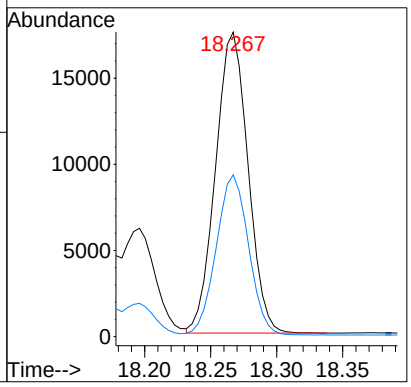


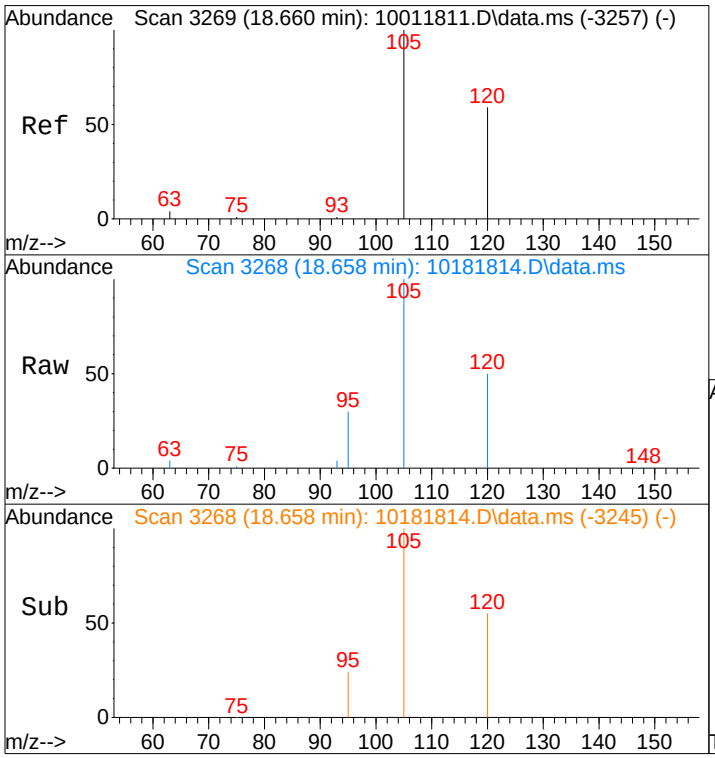


#46
1,3,5-Trimethylbenzene
Concen: 278.11 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:105 Resp: 29870

Ion	Ratio	Lower	Upper
105	100		
120	53.0	42.8	64.2

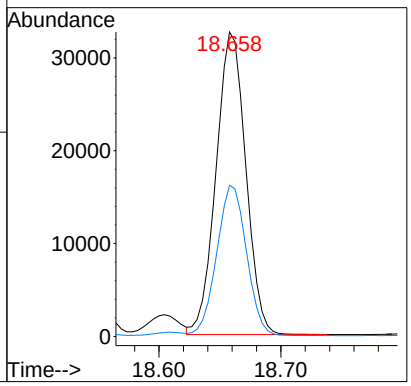


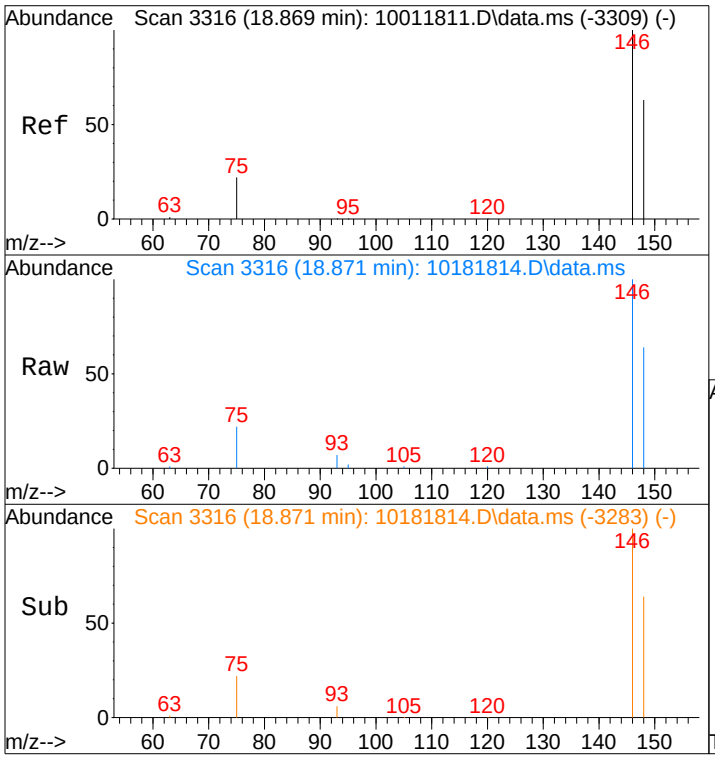


#47
1,2,4-Trimethylbenzene
Concen: 514.94 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:105 Resp: 55172

Ion	Ratio	Lower	Upper
105	100		
120	49.7	47.1	70.7

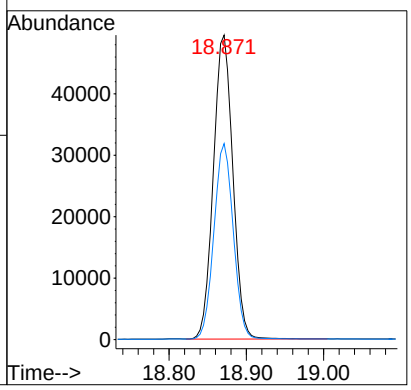


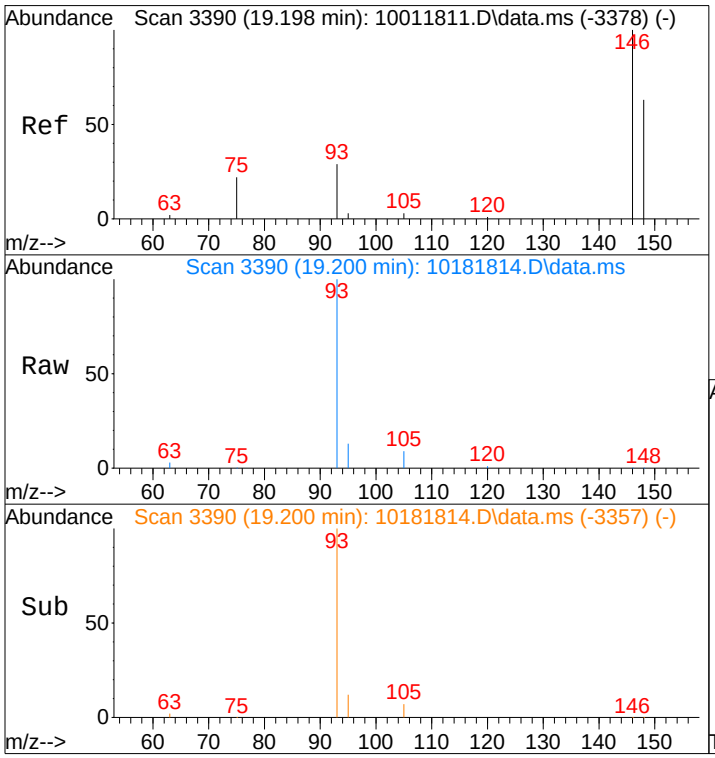


#49
1,4-Dichlorobenzene
Concen: 1233.29 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:146 Resp: 86691

Ion	Ratio	Lower	Upper
146	100		
148	63.9	43.8	83.8

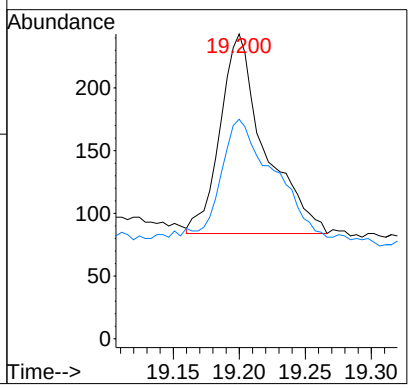


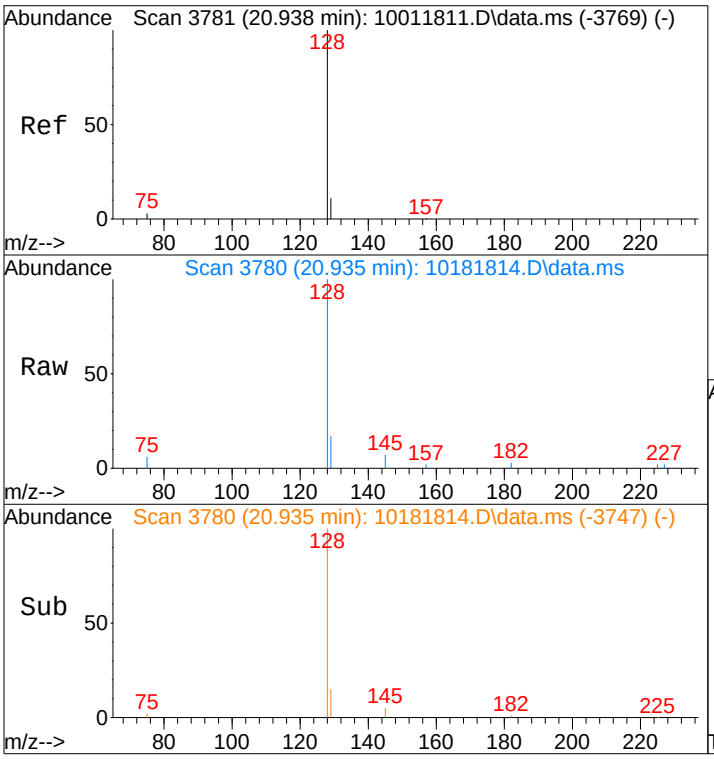


#50
1,2-Dichlorobenzene
Concen: 5.55 pg
RT: 19.20 min Scan# 3390
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:146 Resp: 373

Ion	Ratio	Lower	Upper
146	100		
148	67.6	43.7	83.7

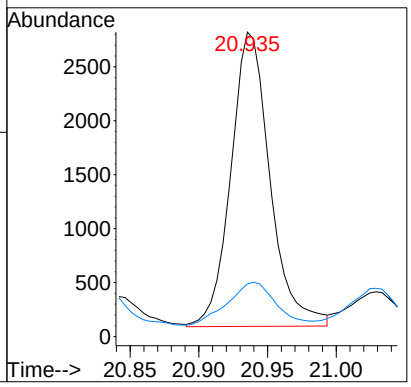




#53
Naphthalene
Concen: 43.21 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10181814.D
Acq: 18 Oct 2018 19:42

Tgt Ion:128 Resp: 5415

Ion	Ratio	Lower	Upper
128	100		
129	20.1	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:19:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	18132	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.57	114	83843	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11283	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20168	929.188	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.92%				
33) Toluene-d8 (SS2)	14.01	98	90795	1050.103	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.01%				
45) Bromofluorobenzene (SS3)	17.43	174	34385	1078.501	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	50090	1296.498	pg		100
3) Chloromethane	4.53	52	738	81.691	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1742	62.550	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.01	54	621	32.744	pg		96
7) Bromomethane	5.33	94	150	8.511	pg		95
8) Chloroethane	5.55	64	58	N.D.			
9) Acrolein	6.12	56	4060	382.623	pg		100
10) Acetone	6.27	58	34361m	2554.257	pg		
11) Trichlorofluoromethane	6.47	101	19987	661.501	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.33	84	2747	122.642	pg		96
14) Trichlorotrifluoroethane	7.67	151	4809	227.093	pg		100
15) trans-1,2-Dichloroethene	8.37	96	236	10.609	pg		97
16) 1,1-Dichloroethane	8.58	63	74	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.75	83	2823	75.366	pg		99
21) 1,2-Dichloroethane	10.51	62	639	27.581	pg		93
22) 1,1,1-Trichloroethane	10.78	97	175	5.508	pg		97
23) Benzene	11.23	78	21609	229.634	pg		99
24) Carbon Tetrachloride	11.39	117	6517	224.727	pg		100
26) 1,2-Dichloropropane	12.04	63	84	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	620	23.666	pg		100
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d		
34) Toluene	14.11	91	39612	413.779	pg		100
35) Dibromochloromethane	14.52	129	58	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.27	166	1338	47.495	pg		100
39) Chlorobenzene	16.00	112	140	N.D.			
40) Ethylbenzene	16.35	91	7478	71.889	pg		100
41) m,p-Xylene	16.52	91	20232	254.380	pg		100
42) Styrene	16.89	104	1508	23.871	pg		97
43) o-Xylene	17.00	106	6330	149.700	pg	#	71
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	3333	37.477	pg	#	80
47) 1,2,4-Trimethylbenzene	18.66	105	7914	89.203	pg		88
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d		
49) 1,4-Dichlorobenzene	18.87	146	770	13.229	pg		98
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.			
53) Naphthalene	20.94	128	3209	30.923	pg		95

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:19:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	53	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
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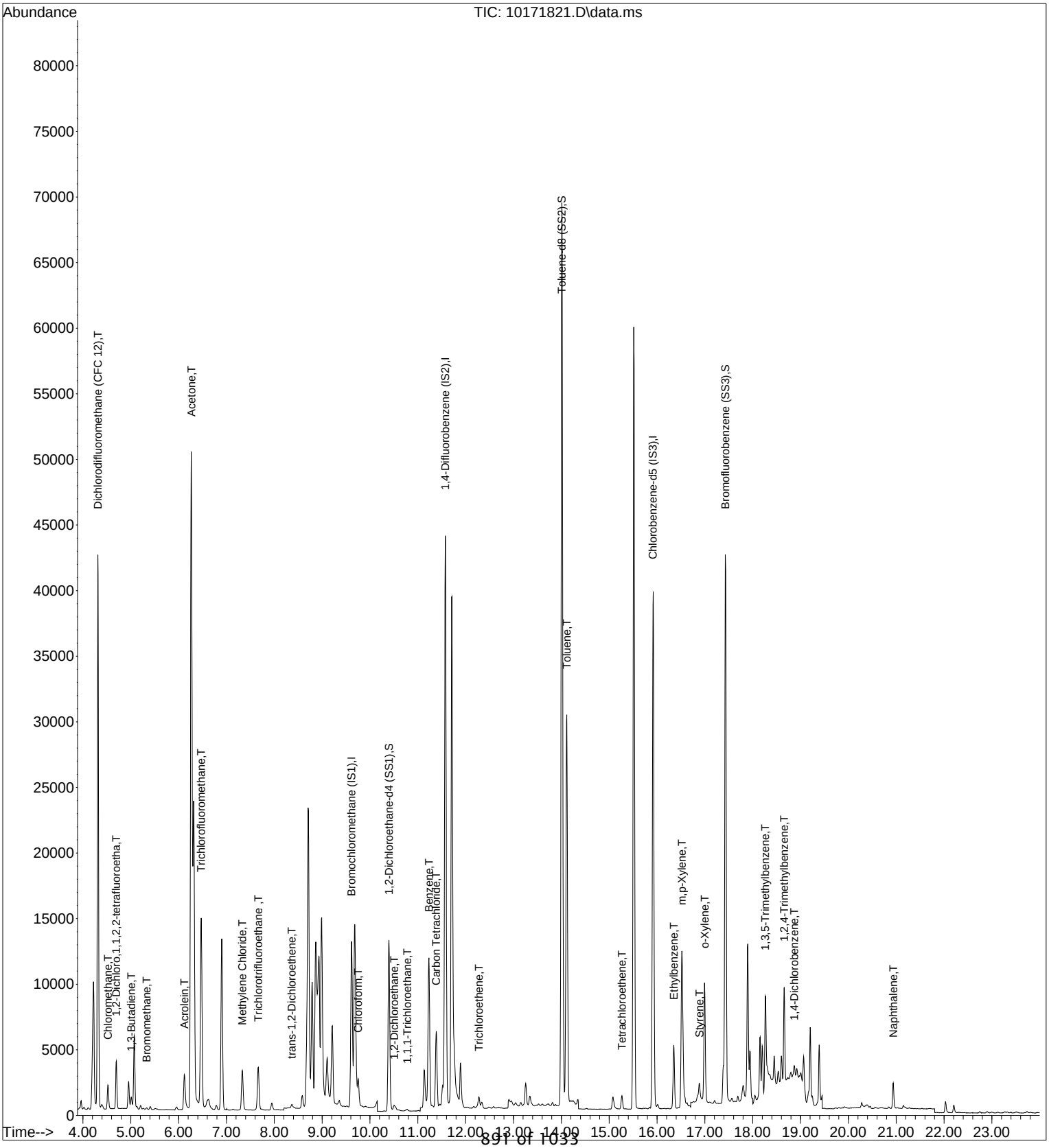
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

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Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
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Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

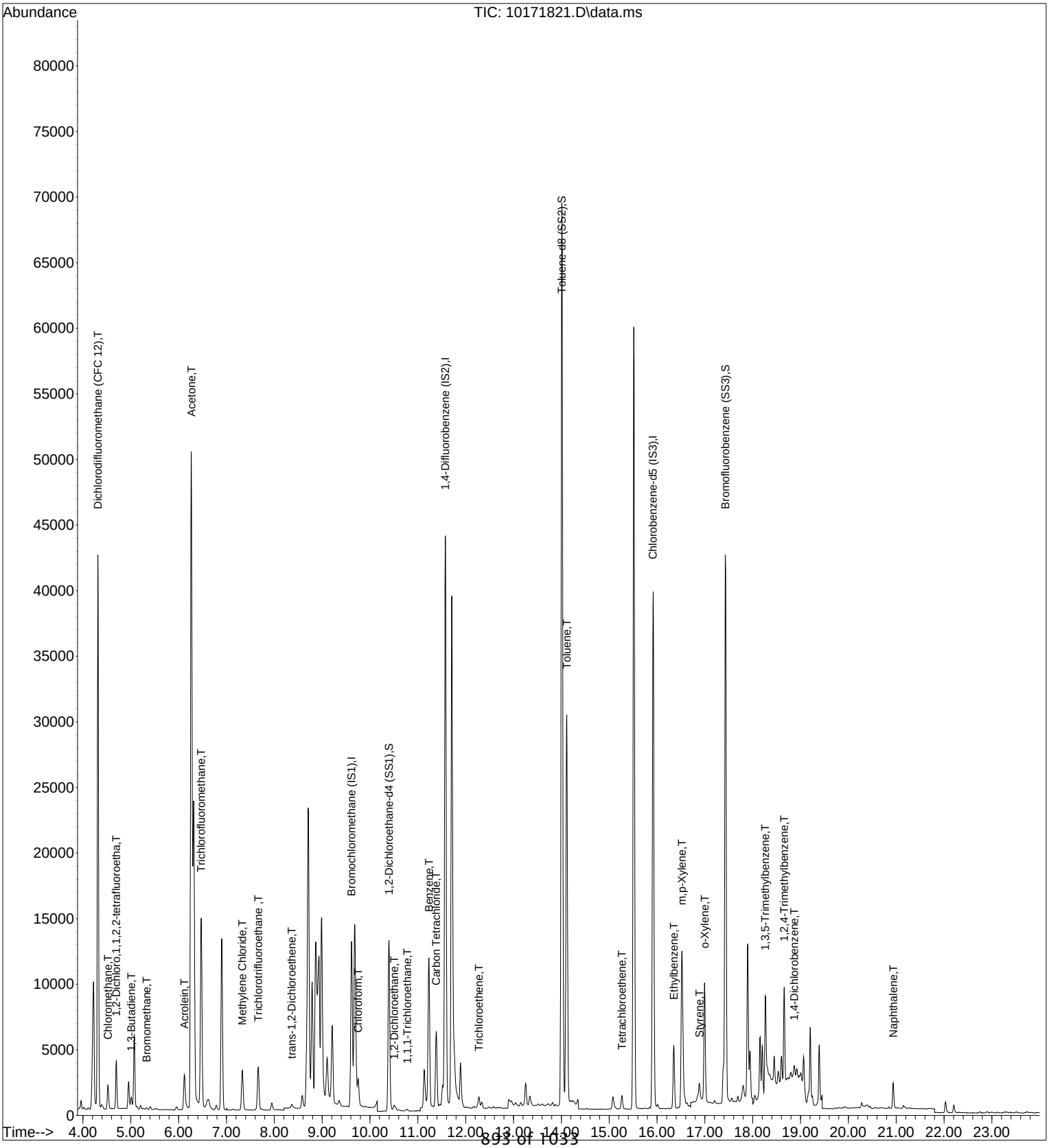
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	18132	1000.000	pg		-0.04
25) 1,4-Difluorobenzene (IS2)	11.57	114	83843	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11283	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20168	929.188	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.92%				
33) Toluene-d8 (SS2)	14.01	98	90795	1050.103	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.01%				
45) Bromofluorobenzene (SS3)	17.43	174	34385	1078.501	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	50090	1296.498	pg		100
3) Chloromethane	4.53	52	738	81.691	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1742	62.550	pg		100
6) 1,3-Butadiene	5.01	54	621	32.744	pg		96
7) Bromomethane	5.33	94	150	8.511	pg		95
9) Acrolein	6.12	56	4060	382.623	pg		100
10) Acetone	6.27	58	34361m	2554.257	pg		
11) Trichlorofluoromethane	6.47	101	19987	661.501	pg		100
13) Methylene Chloride	7.33	84	2747	122.642	pg		96
14) Trichlorotrifluoroethane	7.67	151	4809	227.093	pg		100
15) trans-1,2-Dichloroethene	8.37	96	236	10.609	pg		97
19) Chloroform	9.75	83	2823	75.366	pg		99
21) 1,2-Dichloroethane	10.51	62	639	27.581	pg		93
22) 1,1,1-Trichloroethane	10.78	97	175	5.508	pg		97
23) Benzene	11.23	78	21609	229.634	pg		99
24) Carbon Tetrachloride	11.39	117	6517	224.727	pg		100
28) Trichloroethene	12.28	130	620	23.666	pg		100
34) Toluene	14.11	91	39612	413.779	pg		100
37) Tetrachloroethene	15.27	166	1338	47.495	pg		100
40) Ethylbenzene	16.35	91	7478	71.889	pg		100
41) m,p-Xylene	16.52	91	20232	254.380	pg		100
42) Styrene	16.89	104	1508	23.871	pg		97
43) o-Xylene	17.00	106	6330	149.700	pg	#	71
46) 1,3,5-Trimethylbenzene	18.27	105	3333	37.477	pg	#	80
47) 1,2,4-Trimethylbenzene	18.66	105	7914	89.203	pg		88
49) 1,4-Dichlorobenzene	18.87	146	770	13.229	pg		98
53) Naphthalene	20.94	128	3209	30.923	pg		95

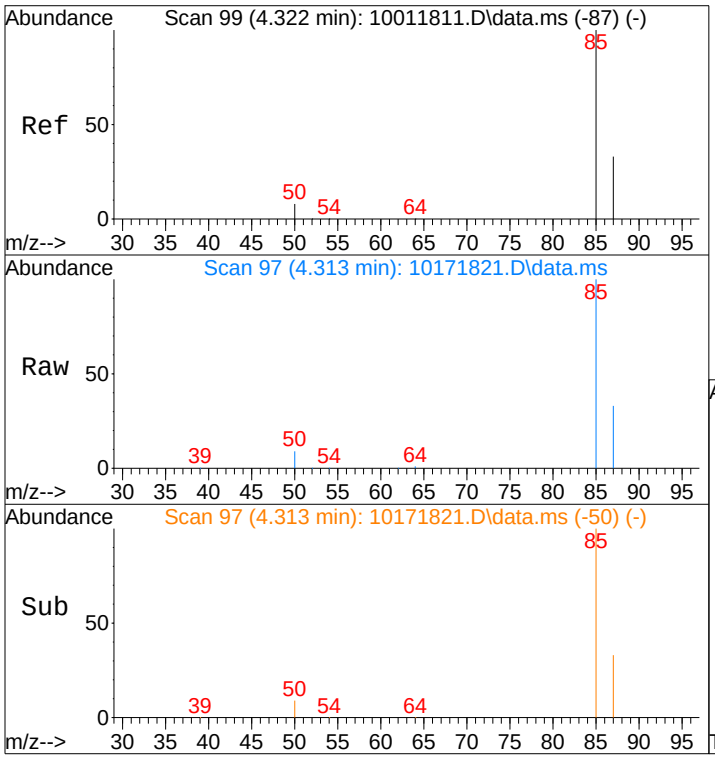
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:19:10 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

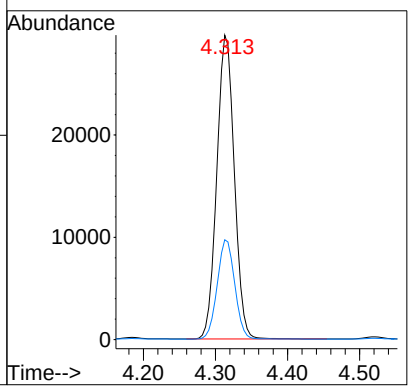


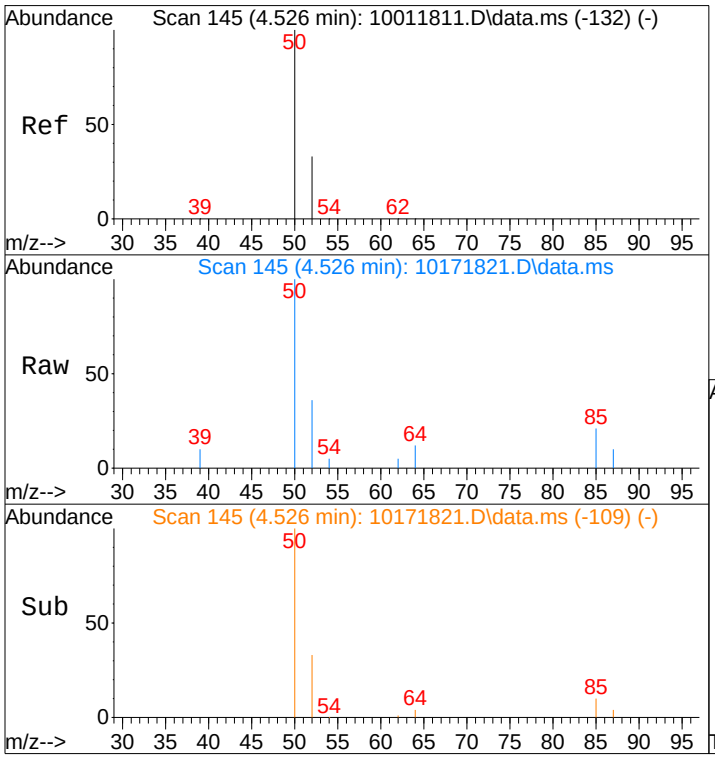


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1296.50 pg
RT: 4.31 min Scan# 97
Delta R.T. 0.009 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 85 Resp: 50090

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

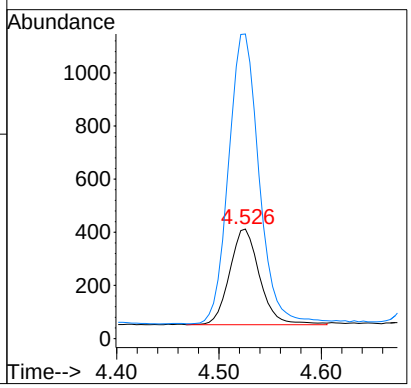


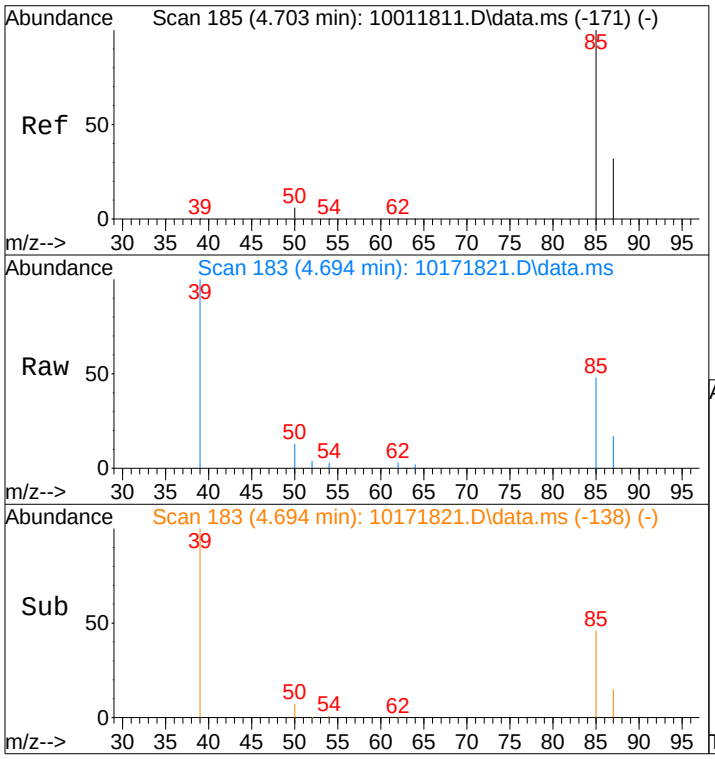


#3
Chloromethane
Concen: 81.69 pg
RT: 4.53 min Scan# 145
Delta R.T. 0.009 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 52 Resp: 738

Ion	Ratio	Lower	Upper
52	100		
50	306.0	281.8	321.8

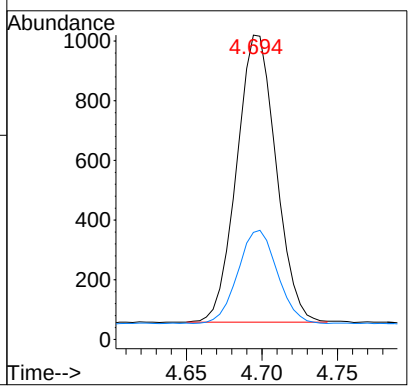


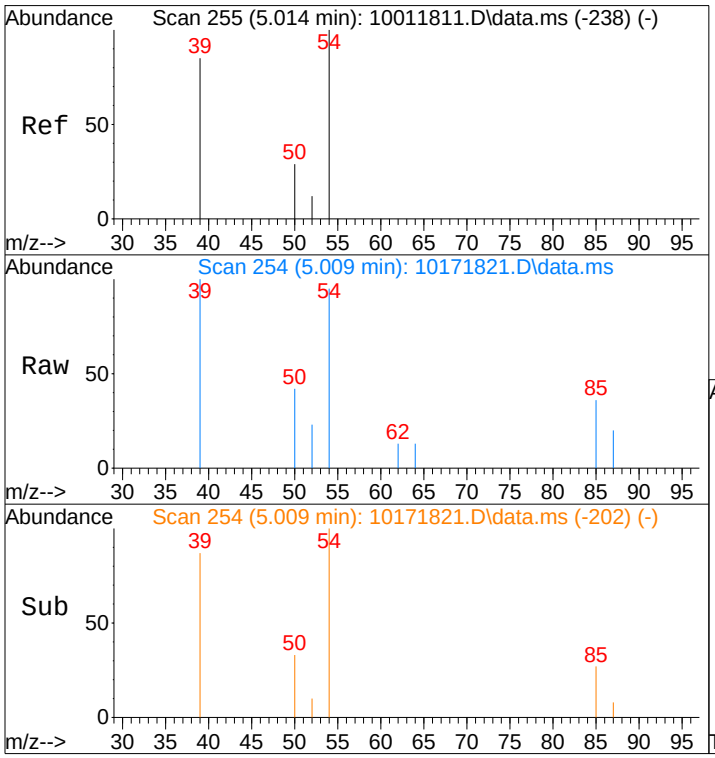


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 62.55 pg
RT: 4.69 min Scan# 183
Delta R.T. 0.000 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 85 Resp: 1742

Ion	Ratio	Lower	Upper
85	100		
87	32.4	26.0	39.0

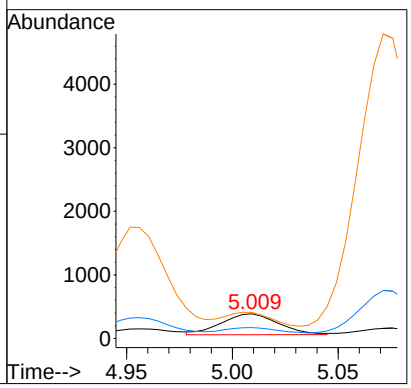


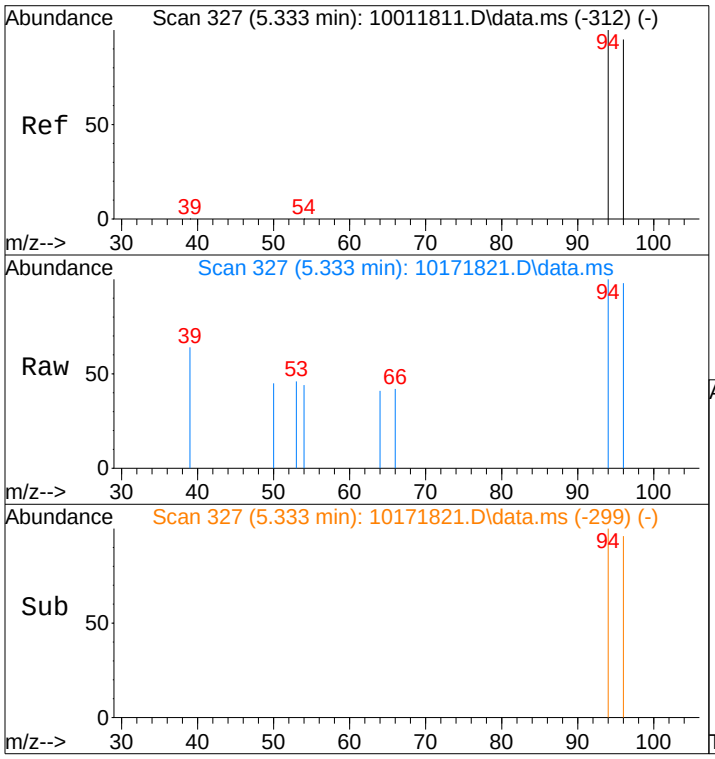


#6
1,3-Butadiene
Concen: 32.74 pg
RT: 5.01 min Scan# 254
Delta R.T. 0.000 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 54 Resp: 621

Ion	Ratio	Lower	Upper
54	100		
50	33.7	23.6	35.4
39	89.9	69.9	104.9

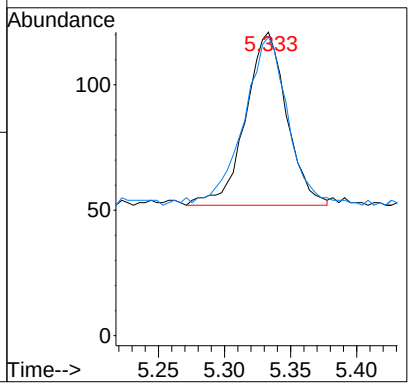


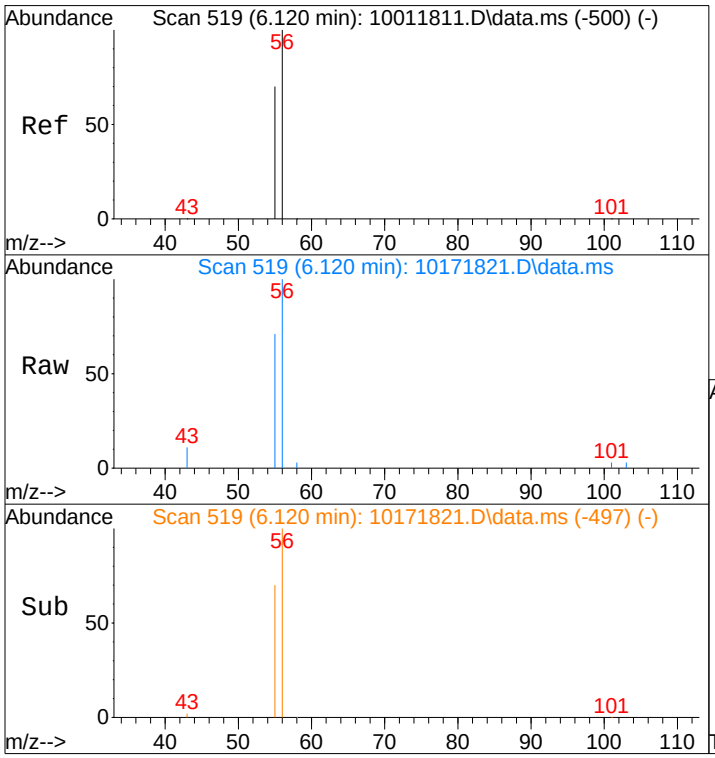


#7
Bromomethane
Concen: 8.51 pg
RT: 5.33 min Scan# 327
Delta R.T. -0.004 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 94 Resp: 150

Ion	Ratio	Lower	Upper
94	100		
96	99.3	75.7	113.5

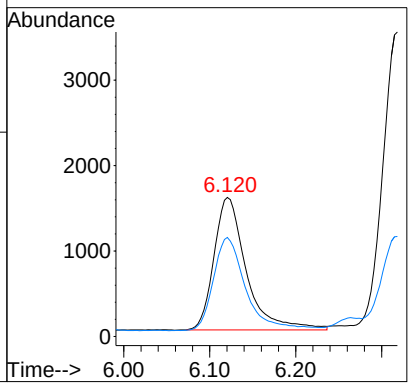


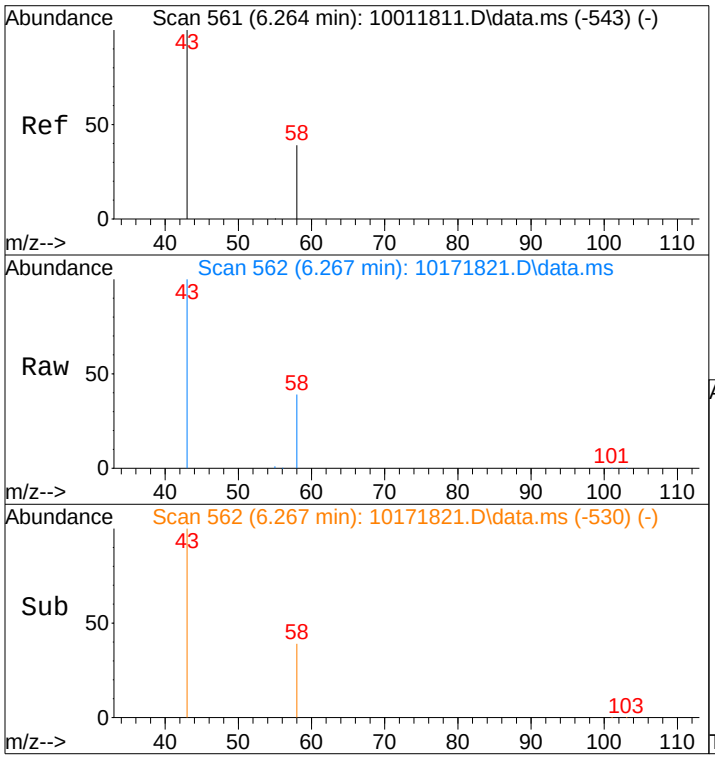


#9
Acrolein
Concen: 382.62 pg
RT: 6.12 min Scan# 519
Delta R.T. -0.034 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 56 Resp: 4060

Ion	Ratio	Lower	Upper
56	100		
55	69.0	55.3	82.9

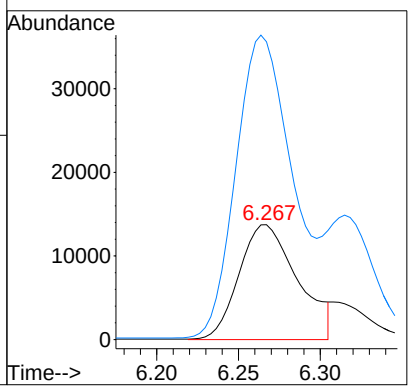


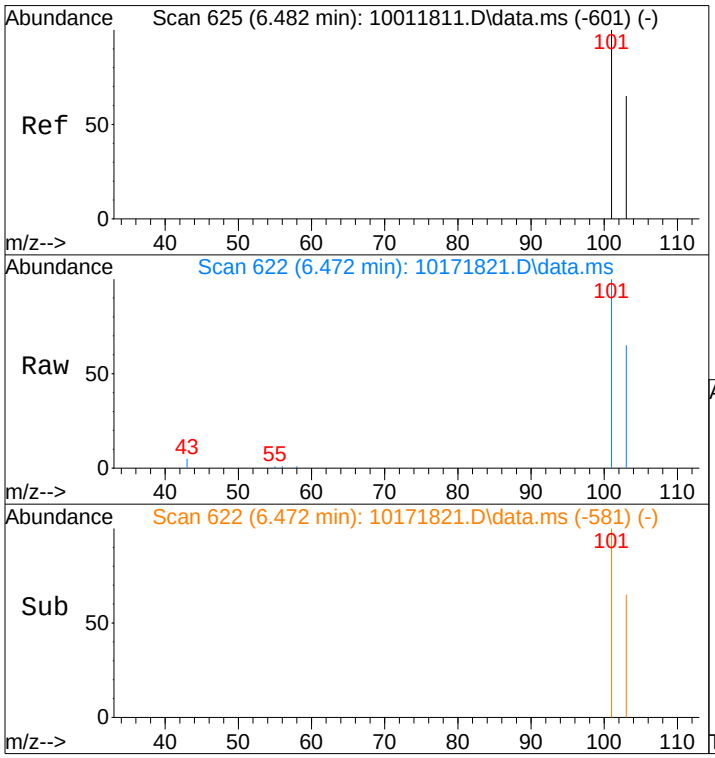


#10
Acetone
Concen: 2554.26 pg m
RT: 6.27 min Scan# 562
Delta R.T. -0.041 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 58 Resp: 34361

Ion	Ratio	Lower	Upper
58	100		
43	258.0	234.7	274.7

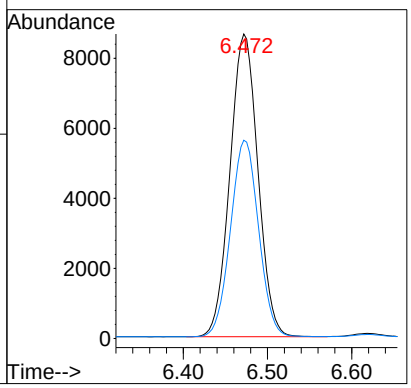


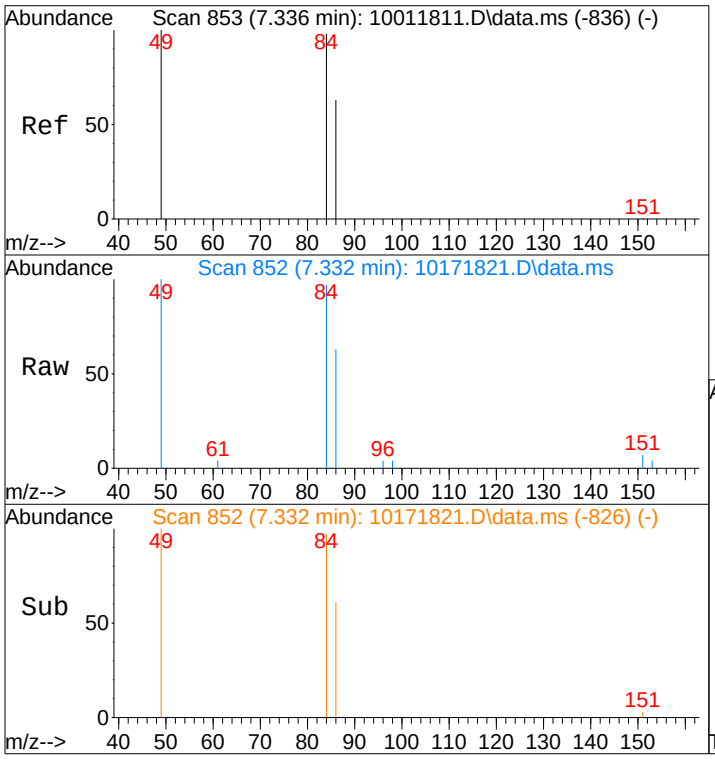


#11
Trichlorofluoromethane
Concen: 661.50 pg
RT: 6.47 min Scan# 622
Delta R.T. -0.010 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:101 Resp: 19987

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

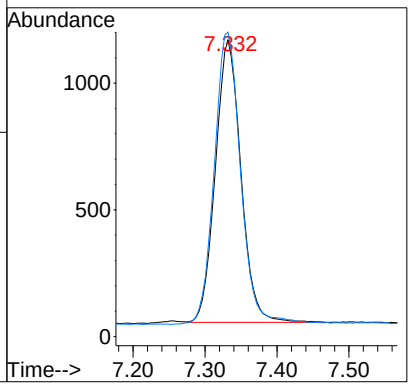


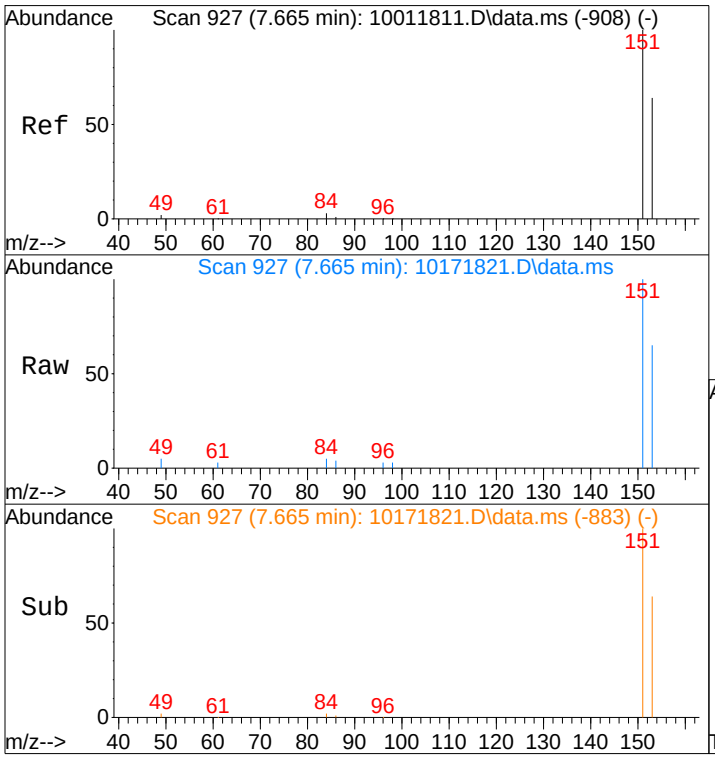


#13
Methylene Chloride
Concen: 122.64 pg
RT: 7.33 min Scan# 852
Delta R.T. -0.044 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 84 Resp: 2747

Ion	Ratio	Lower	Upper
84	100		
49	107.6	83.3	123.3

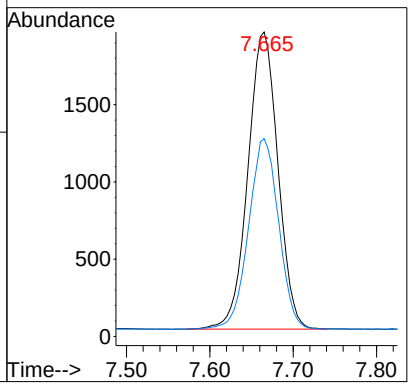


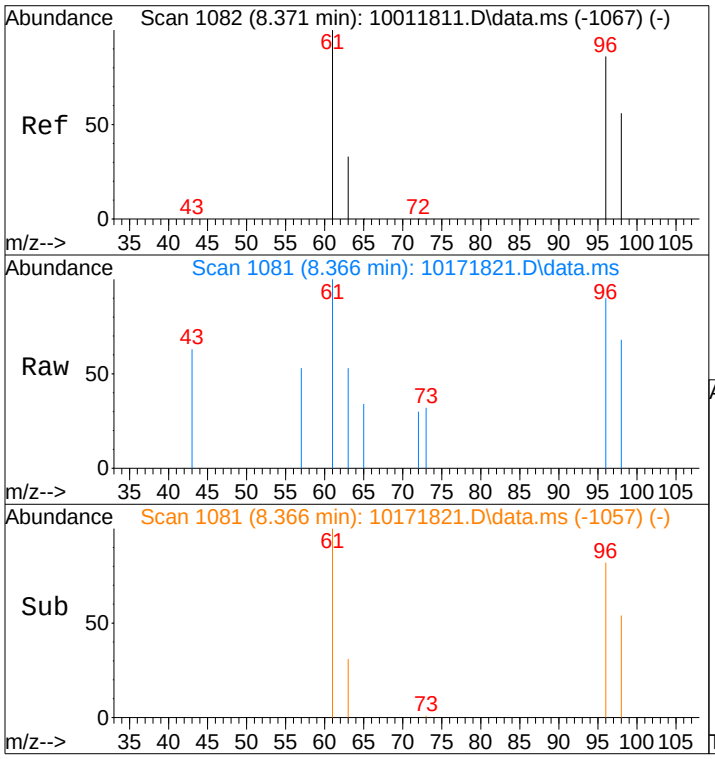


#14
Trichlorotrifluoroethane
Concen: 227.09 pg
RT: 7.67 min Scan# 927
Delta R.T. -0.004 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:151 Resp: 4809

Ion	Ratio	Lower	Upper
151	100		
153	64.2	44.3	84.3

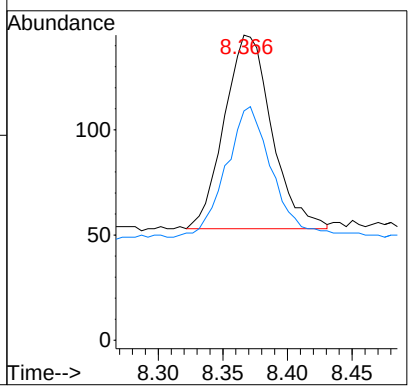


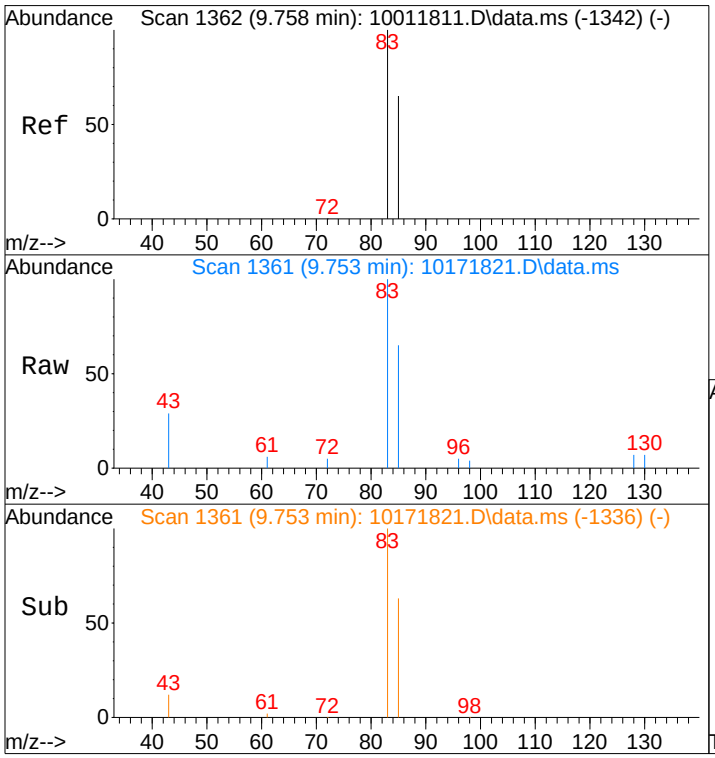


#15
trans-1,2-Dichloroethene
Concen: 10.61 pg
RT: 8.37 min Scan# 1081
Delta R.T. -0.029 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 96 Resp: 236

Ion	Ratio	Lower	Upper
96	100		
98	66.5	44.1	84.1

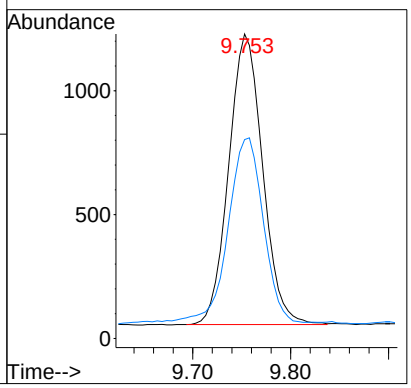


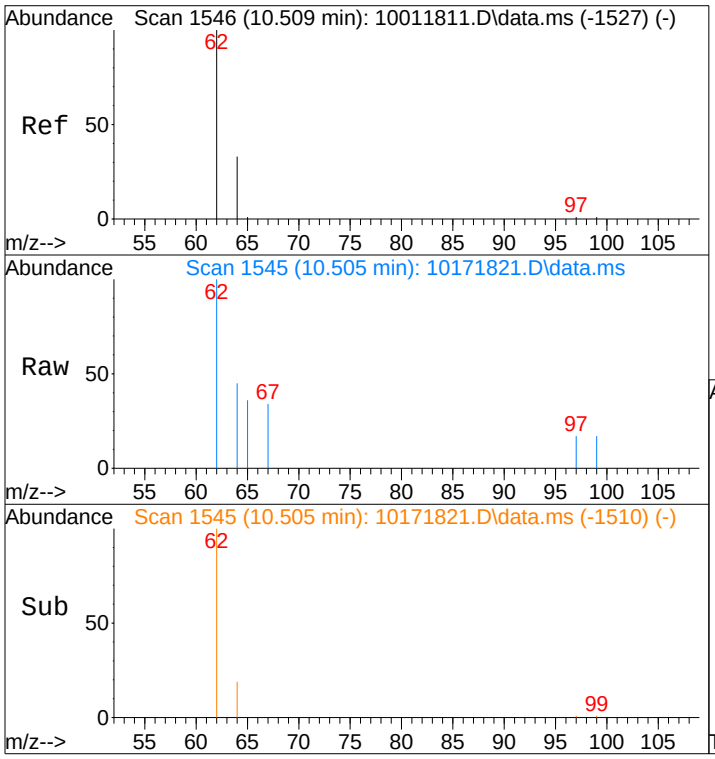


#19
Chloroform
Concen: 75.37 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 83 Resp: 2823

Ion	Ratio	Lower	Upper
83	100		
85	65.4	46.0	86.0

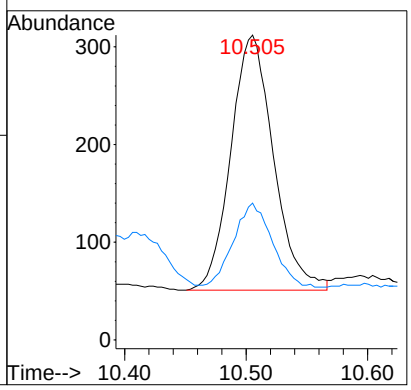


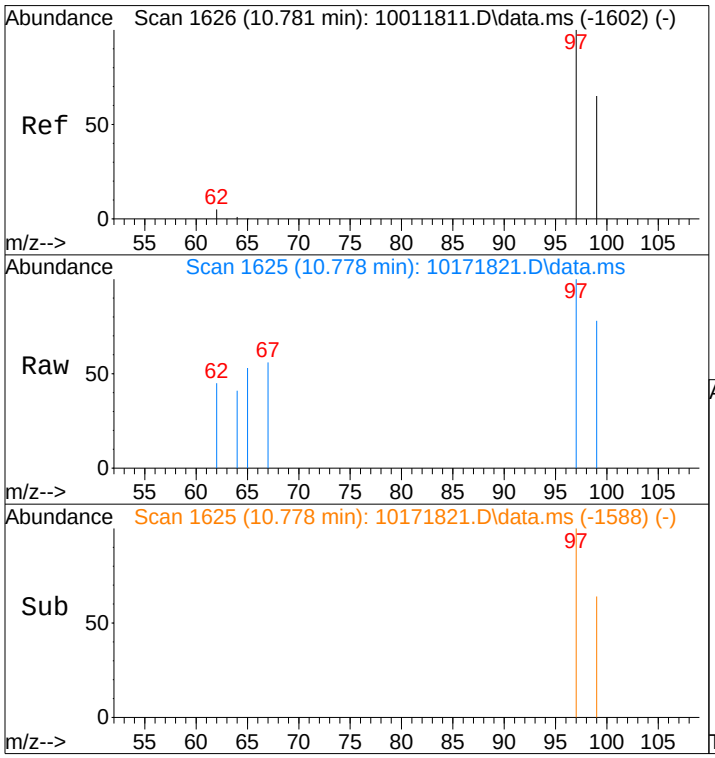


#21
1,2-Dichloroethane
Concen: 27.58 pg
RT: 10.51 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 62 Resp: 639

Ion	Ratio	Lower	Upper
62	100		
64	29.0	12.9	52.9

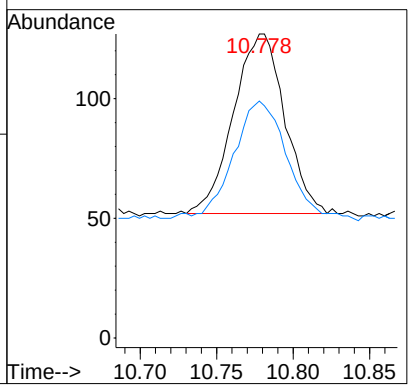


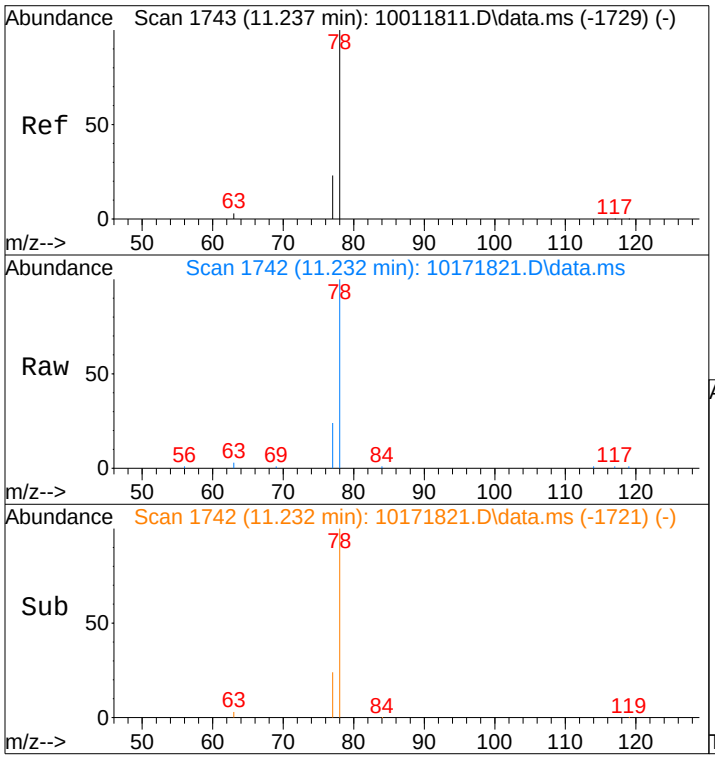


#22
1,1,1-Trichloroethane
Concen: 5.51 pg
RT: 10.78 min Scan# 1625
Delta R.T. -0.023 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 97 Resp: 175

Ion	Ratio	Lower	Upper
97	100		
99	62.9	44.9	84.9

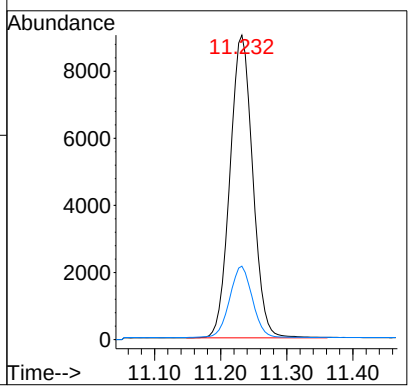


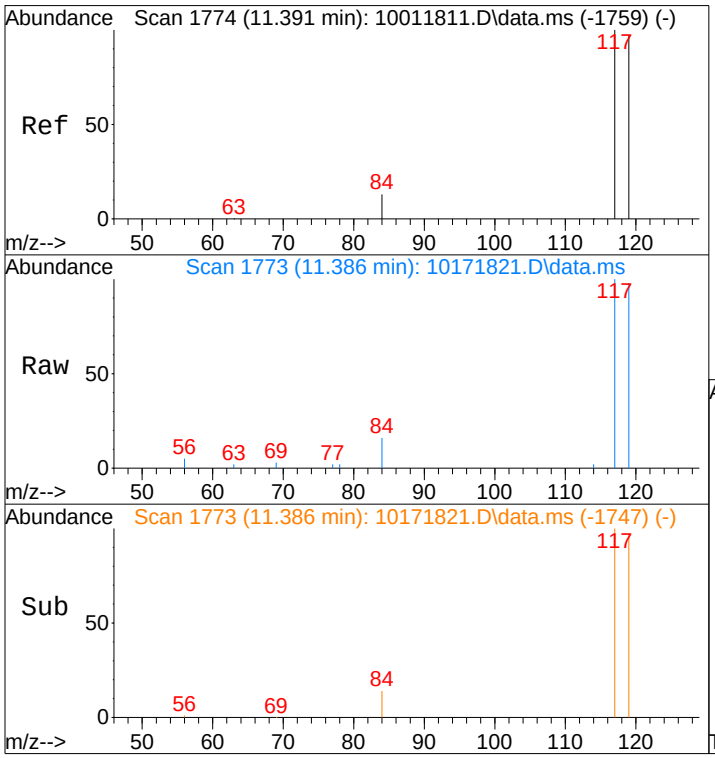


#23
Benzene
Concen: 229.63 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 78 Resp: 21609

Ion	Ratio	Lower	Upper
78	100		
77	23.7	3.3	43.3

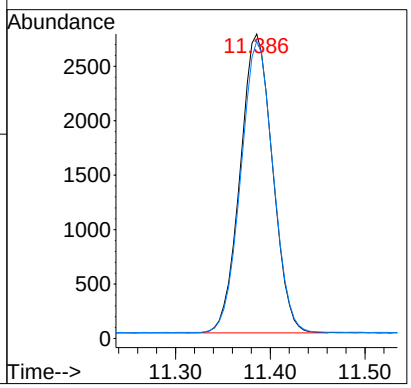


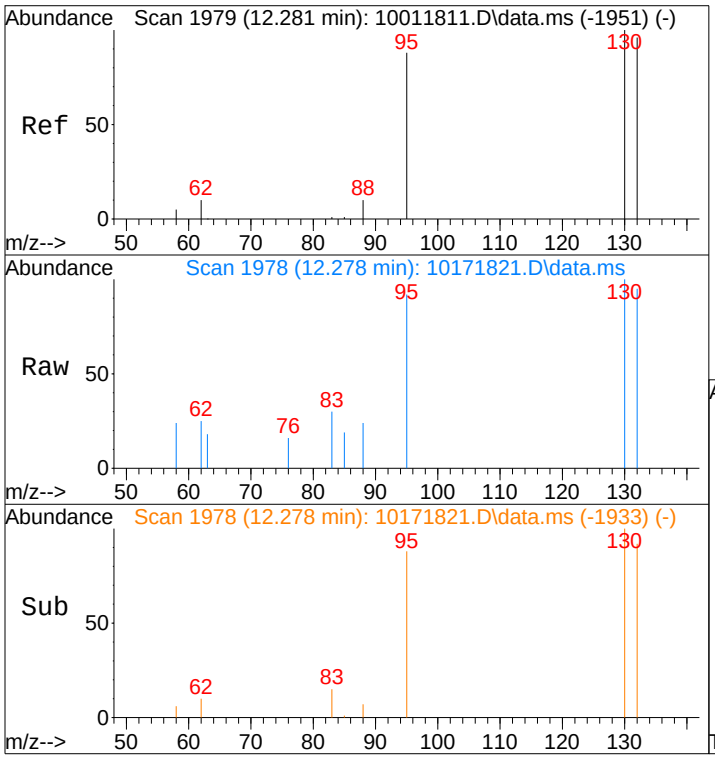


#24
Carbon Tetrachloride
Concen: 224.73 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:117 Resp: 6517

Ion	Ratio	Lower	Upper
117	100		
119	97.0	76.7	116.7

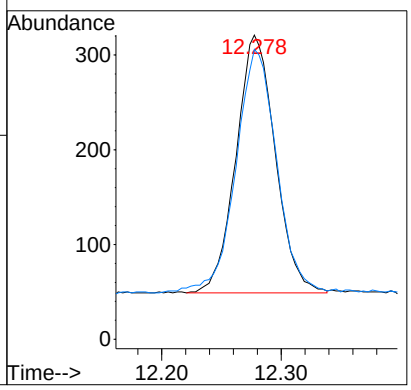


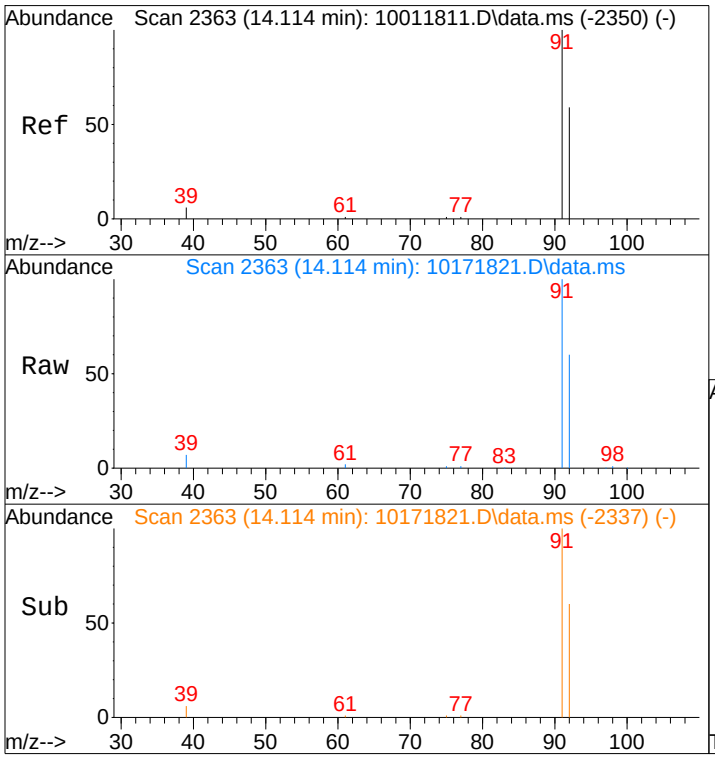


#28
Trichloroethene
Concen: 23.67 pg
RT: 12.28 min Scan# 1978
Delta R.T. -0.018 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:130 Resp: 620

Ion	Ratio	Lower	Upper
130	100		
132	95.5	75.6	115.6

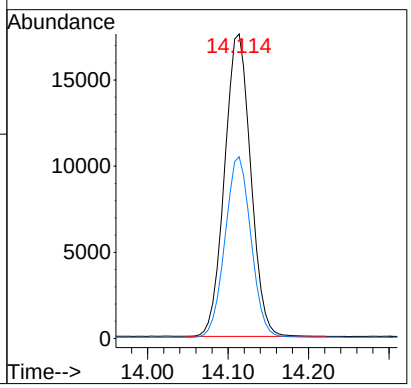


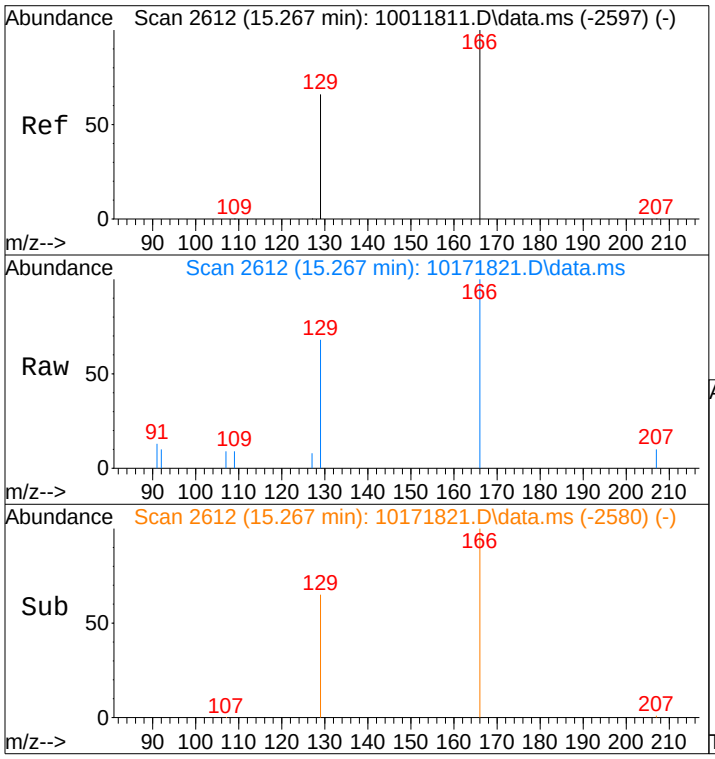


#34
Toluene
Concen: 413.78 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 91 Resp: 39612

Ion	Ratio	Lower	Upper
91	100		
92	59.5	39.2	79.2

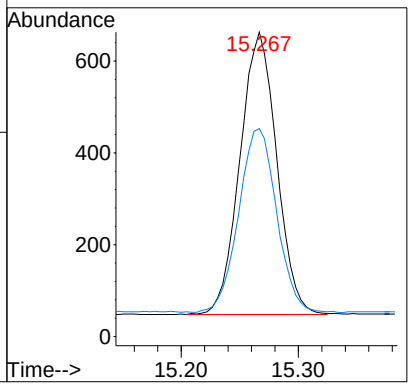


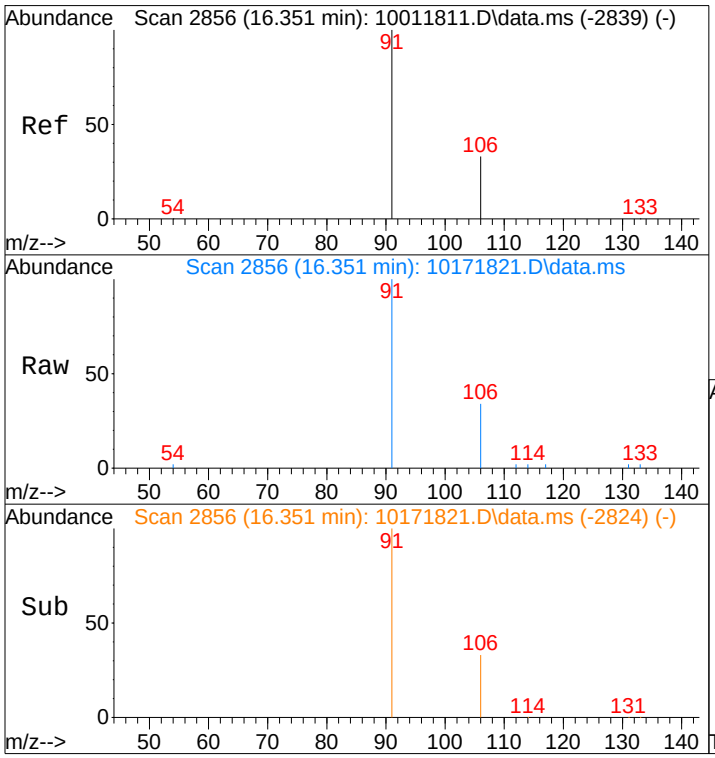


#37
Tetrachloroethene
Concen: 47.50 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.007 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:166 Resp: 1338

Ion	Ratio	Lower	Upper
166	100		
129	66.8	46.7	86.7

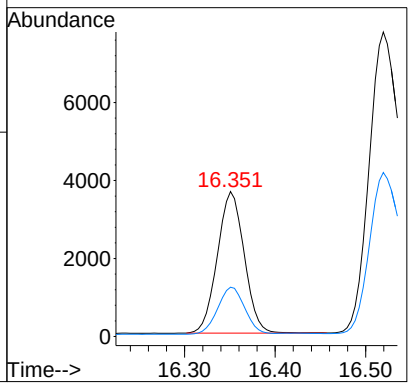


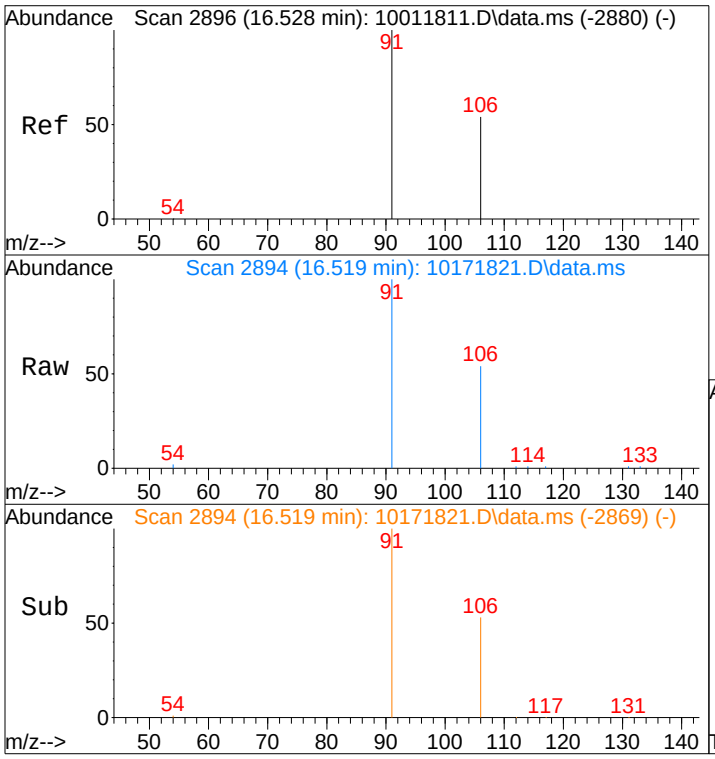


#40
Ethylbenzene
Concen: 71.89 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.007 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 91 Resp: 7478

Ion	Ratio	Lower	Upper
91	100		
106	33.5	13.7	53.7

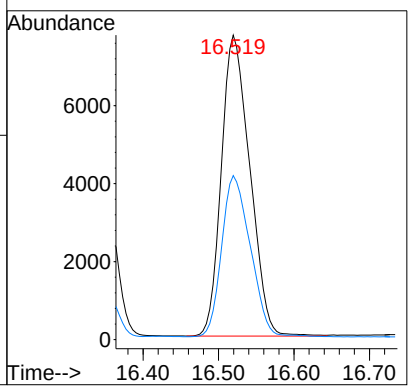


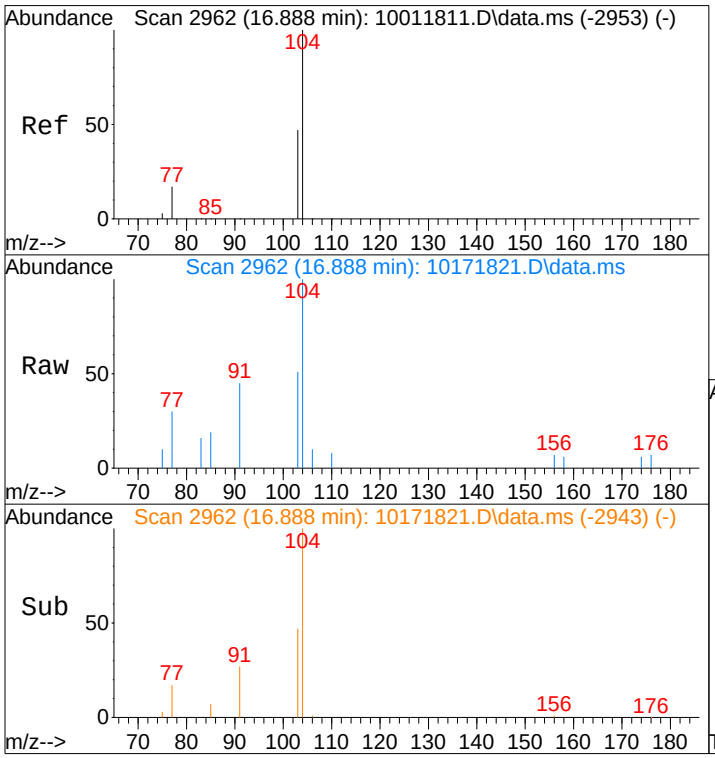


#41
m,p-Xylene
Concen: 254.38 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.021 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion: 91 Resp: 20232

Ion	Ratio	Lower	Upper
91	100		
106	53.9	34.3	74.3

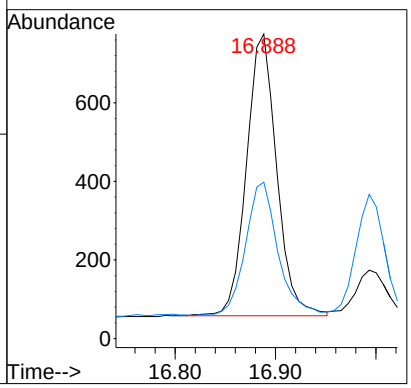


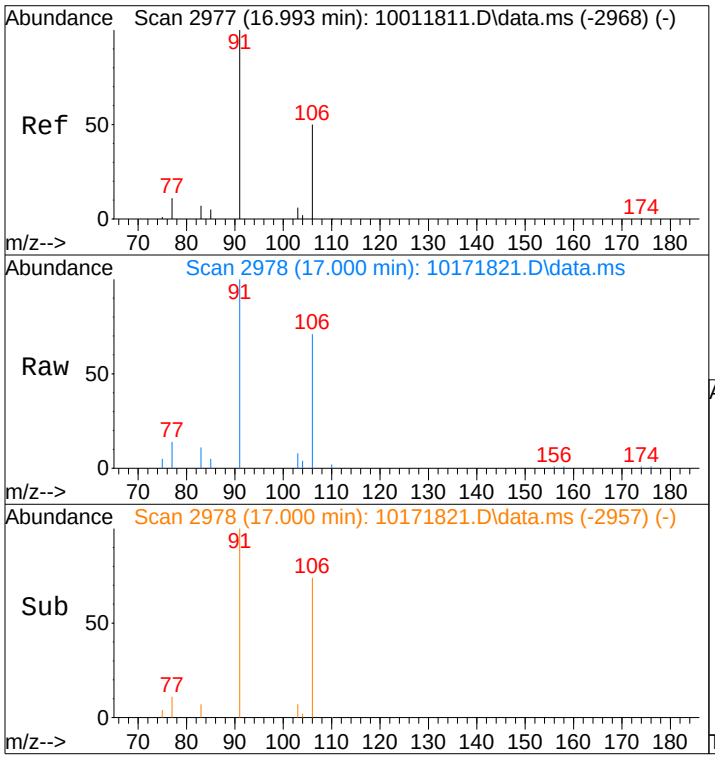


#42
Styrene
Concen: 23.87 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.005 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:104 Resp: 1508

Ion	Ratio	Lower	Upper
104	100		
103	49.1	37.7	56.5

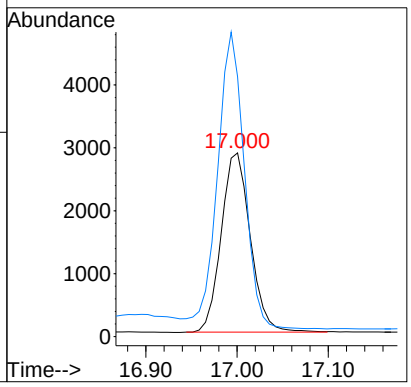


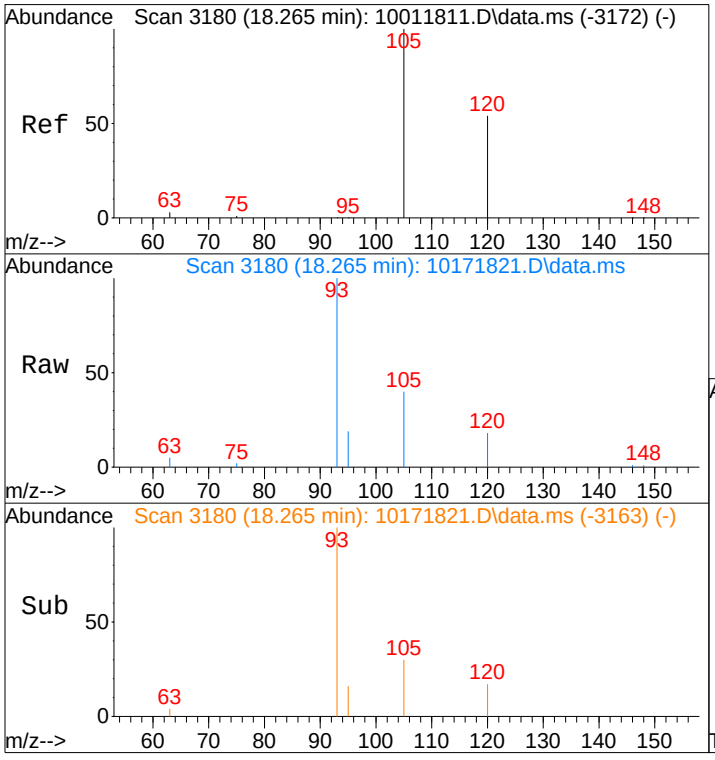


#43
o-Xylene
Concen: 149.70 pg
RT: 17.00 min Scan# 2978
Delta R.T. -0.005 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:106 Resp: 6330

Ion	Ratio	Lower	Upper
106	100		
91	152.1	175.6	215.6#

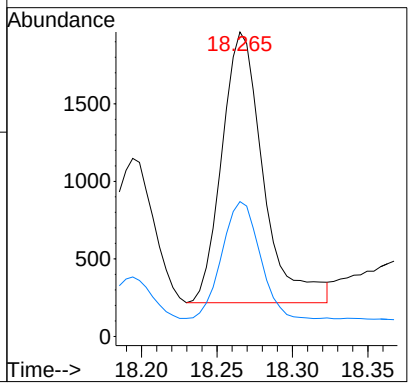


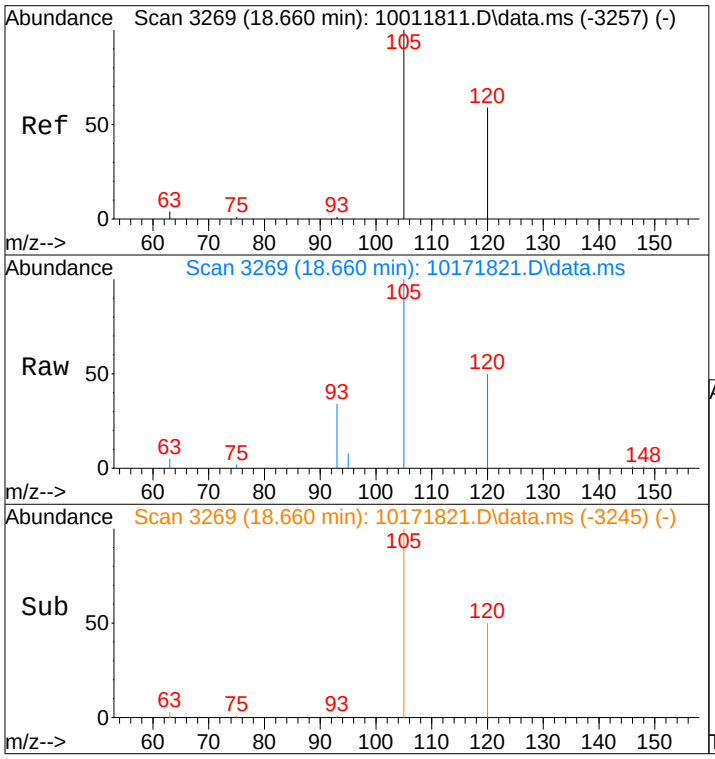


#46
1,3,5-Trimethylbenzene
Concen: 37.48 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.005 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:105 Resp: 3333

Ion	Ratio	Lower	Upper
105	100		
120	39.5	42.8	64.2#

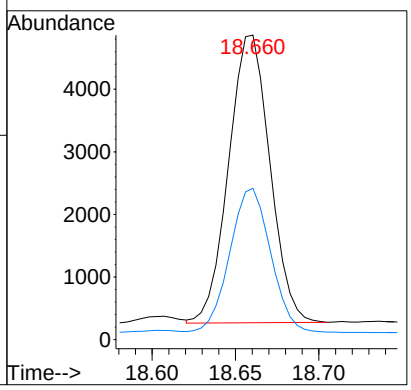


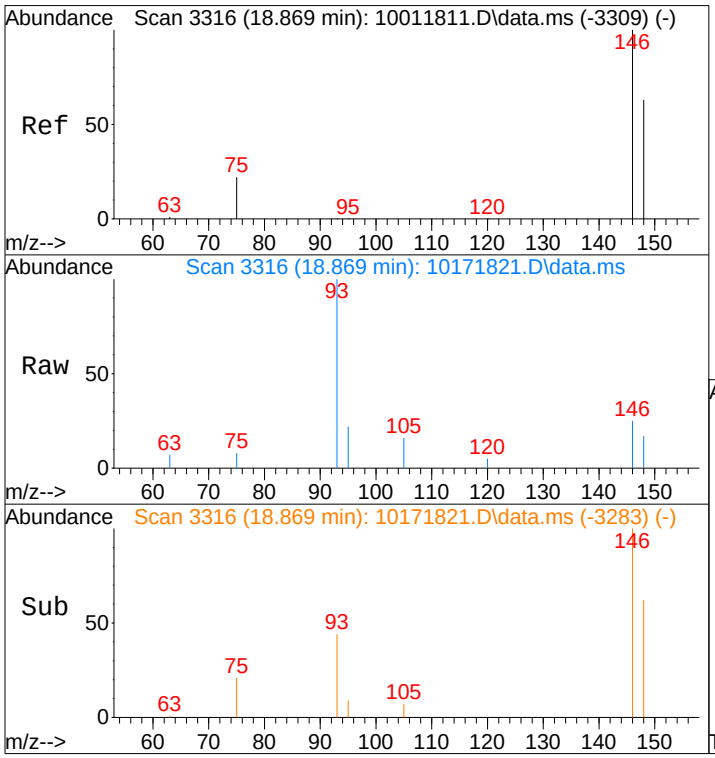


#47
1,2,4-Trimethylbenzene
Concen: 89.20 pg
RT: 18.66 min Scan# 3269
Delta R.T. -0.005 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:105 Resp: 7914

Ion	Ratio	Lower	Upper
105	100		
120	49.6	47.1	70.7

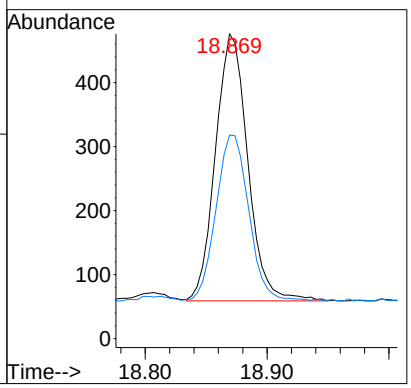


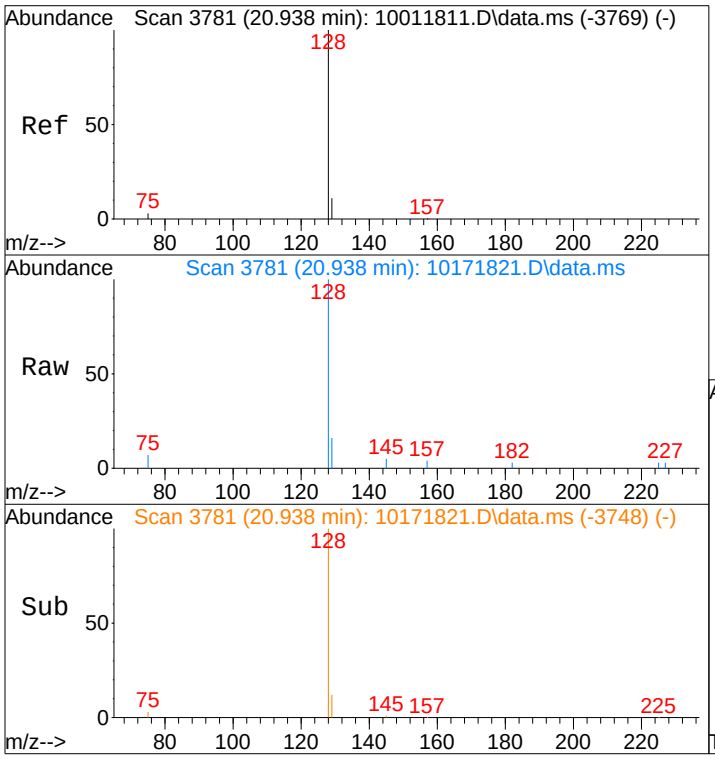


#49
1,4-Dichlorobenzene
Concen: 13.23 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.005 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:146 Resp: 770

Ion	Ratio	Lower	Upper
146	100		
148	61.9	43.8	83.8

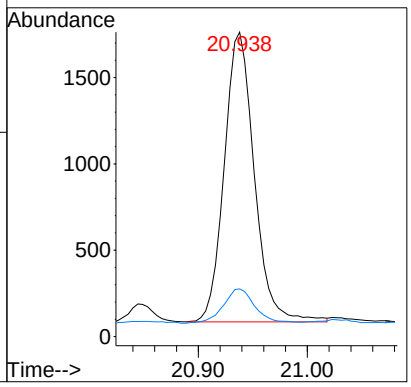




#53
Naphthalene
Concen: 30.92 pg
RT: 20.94 min Scan# 3781
Delta R.T. -0.001 min
Lab File: 10171821.D
Acq: 17 Oct 2018 23:27

Tgt Ion:128 Resp: 3209

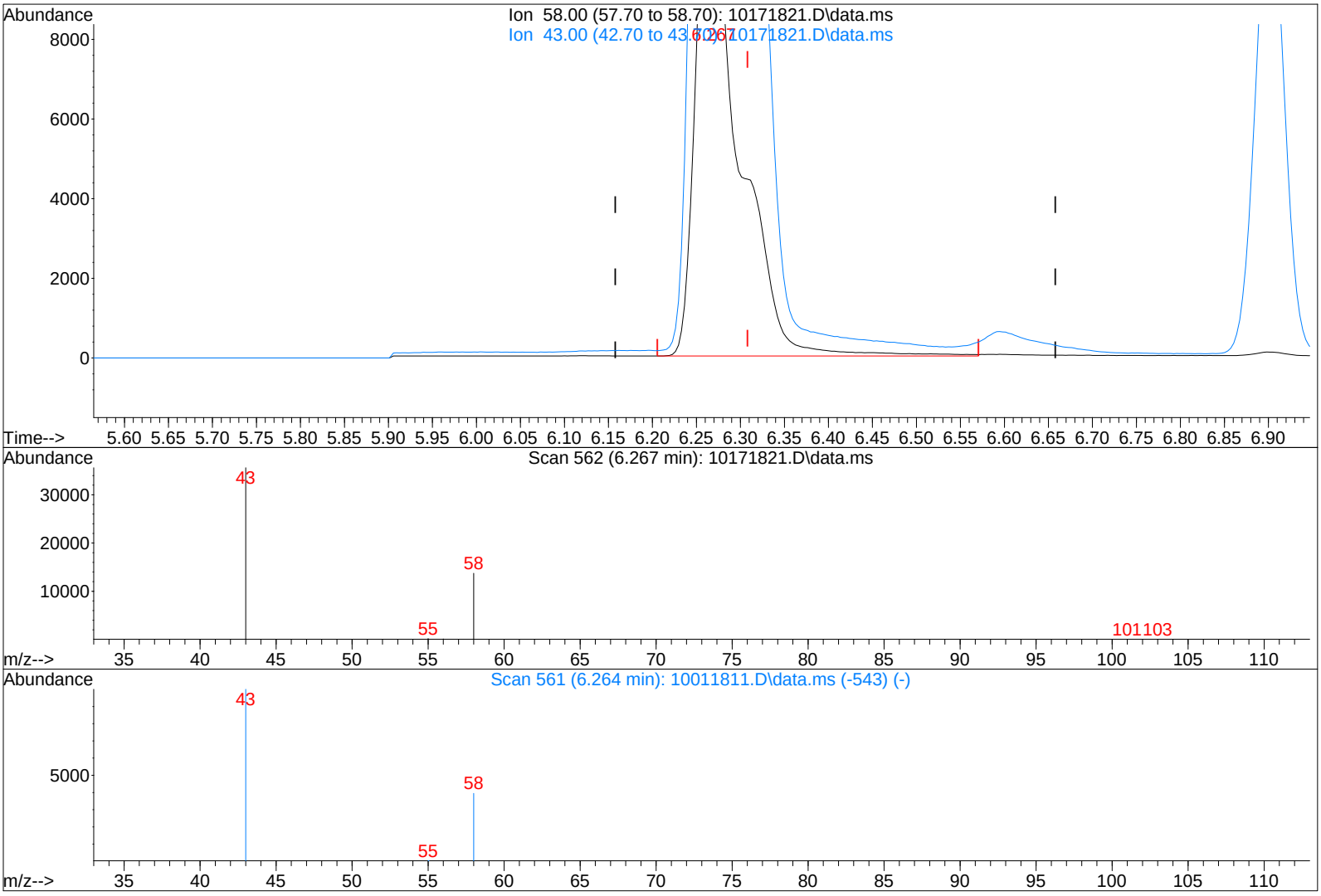
Ion	Ratio	Lower	Upper
128	100		
129	12.6	0.0	30.8



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:27 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10171821.D\data.ms

(10) Acetone (T)

6.267min (-0.041) 3151.40pg

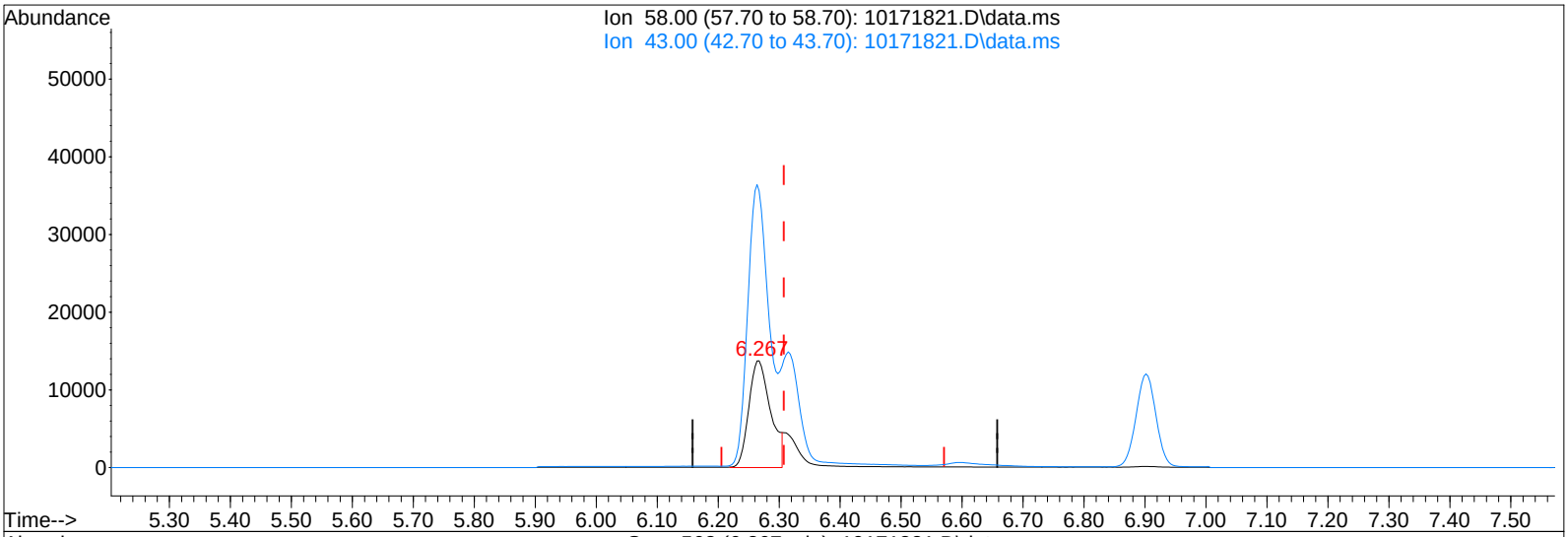
response 42394

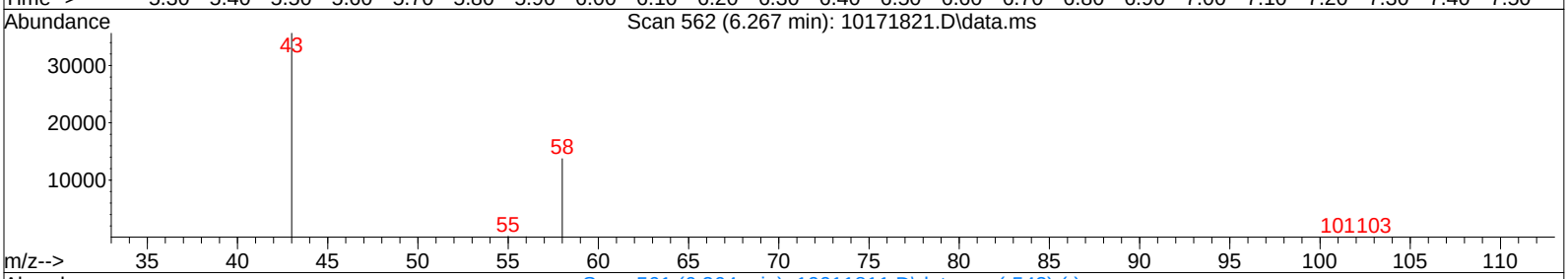
Ion	Exp%	Act%
58.00	100	100
43.00	254.70	209.09#
0.00	0.00	0.00
0.00	0.00	0.00

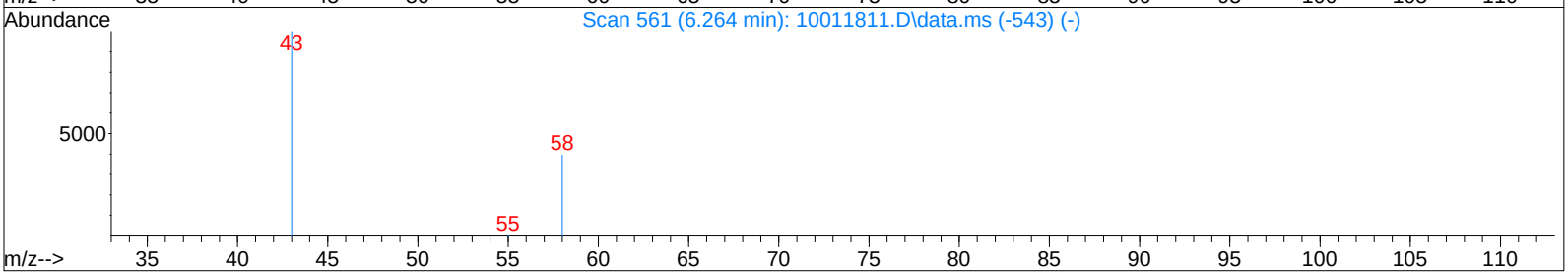
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171821.D Vial: 13
Acq On : 17 Oct 2018 23:27 Operator: WA
Sample : P1805497-012 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 18 09:38:27 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171821.D\data.ms

(10) Acetone (T)

6.267min (-0.041) 2554.26pg m

response 34361

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	257.97
0.00	0.00	0.00
0.00	0.00	0.00

IPC

10/25/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171822.D Vial: 14
Acq On : 17 Oct 2018 23:58 Operator: WA
Sample : P1805497-013 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:20:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/25/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17684	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	81249	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11314	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19598	925.801	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.58%				
33) Toluene-d8 (SS2)	14.01	98	90458	1079.607	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.96%				
45) Bromofluorobenzene (SS3)	17.43	174	33932	1061.376	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.14%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	51470	1365.967	pg		100
3) Chloromethane	4.53	52	1078	122.350	pg		92
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1738	63.987	pg		100
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	5.02	54	827	44.710	pg		94
7) Bromomethane	5.35	94	248	14.427	pg		94
8) Chloroethane	5.57	64	55	N.D.			
9) Acrolein	6.14	56	827	79.913	pg		100
10) Acetone	6.29	58	11425	870.804	pg	#	1
11) Trichlorofluoromethane	6.48	101	20055	680.567	pg		100
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	2973	136.095	pg		96
14) Trichlorotrifluoroethane	7.67	151	4794	232.120	pg		99
15) trans-1,2-Dichloroethene	8.38	96	178	8.204	pg		94
16) 1,1-Dichloroethane	8.58	63	65	N.D.			
17) Methyl tert-Butyl Ether	8.59	73	276	N.D.			
18) cis-1,2-Dichloroethene	9.46	96	88	N.D.			
19) Chloroform	9.75	83	2631	72.019	pg		100
21) 1,2-Dichloroethane	10.51	62	640	28.324	pg		96
22) 1,1,1-Trichloroethane	10.78	97	195	6.293	pg		98
23) Benzene	11.23	78	31930	347.909	pg		99
24) Carbon Tetrachloride	11.39	117	6464	228.546	pg		100
26) 1,2-Dichloropropane	12.05	63	95	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.	d		
28) Trichloroethene	12.28	130	829	32.654	pg		99
29) 1,4-Dioxane	0.00	88	0	N.D.	d		
30) cis-1,3-Dichloropropene	13.12	75	54	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d		
32) 1,1,2-Trichloroethane	13.74	83	76	N.D.			
34) Toluene	14.11	91	78252	843.503	pg		100
35) Dibromochloromethane	14.53	129	73	N.D.			
36) 1,2-Dibromoethane	14.78	107	71	N.D.			
37) Tetrachloroethene	15.27	166	2340	85.715	pg		100
39) Chlorobenzene	15.97	112	323	N.D.			
40) Ethylbenzene	16.35	91	14913	142.973	pg		100
41) m,p-Xylene	16.52	91	38356	480.934	pg		100
42) Styrene	16.89	104	2346	37.034	pg		99
43) o-Xylene	16.99	106	9009	212.473	pg		98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	3536	39.651	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	14286	160.584	pg		88
48) 1,3-Dichlorobenzene	18.81	146	332	5.712	pg		98
49) 1,4-Dichlorobenzene	18.87	146	901	15.437	pg		97
50) 1,2-Dichlorobenzene	19.20	146	208	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	135	N.D.			
53) Naphthalene	20.94	128	7264	69.808	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171822.D Vial: 14
Acq On : 17 Oct 2018 23:58 Operator: WA
Sample : P1805497-013 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:20:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

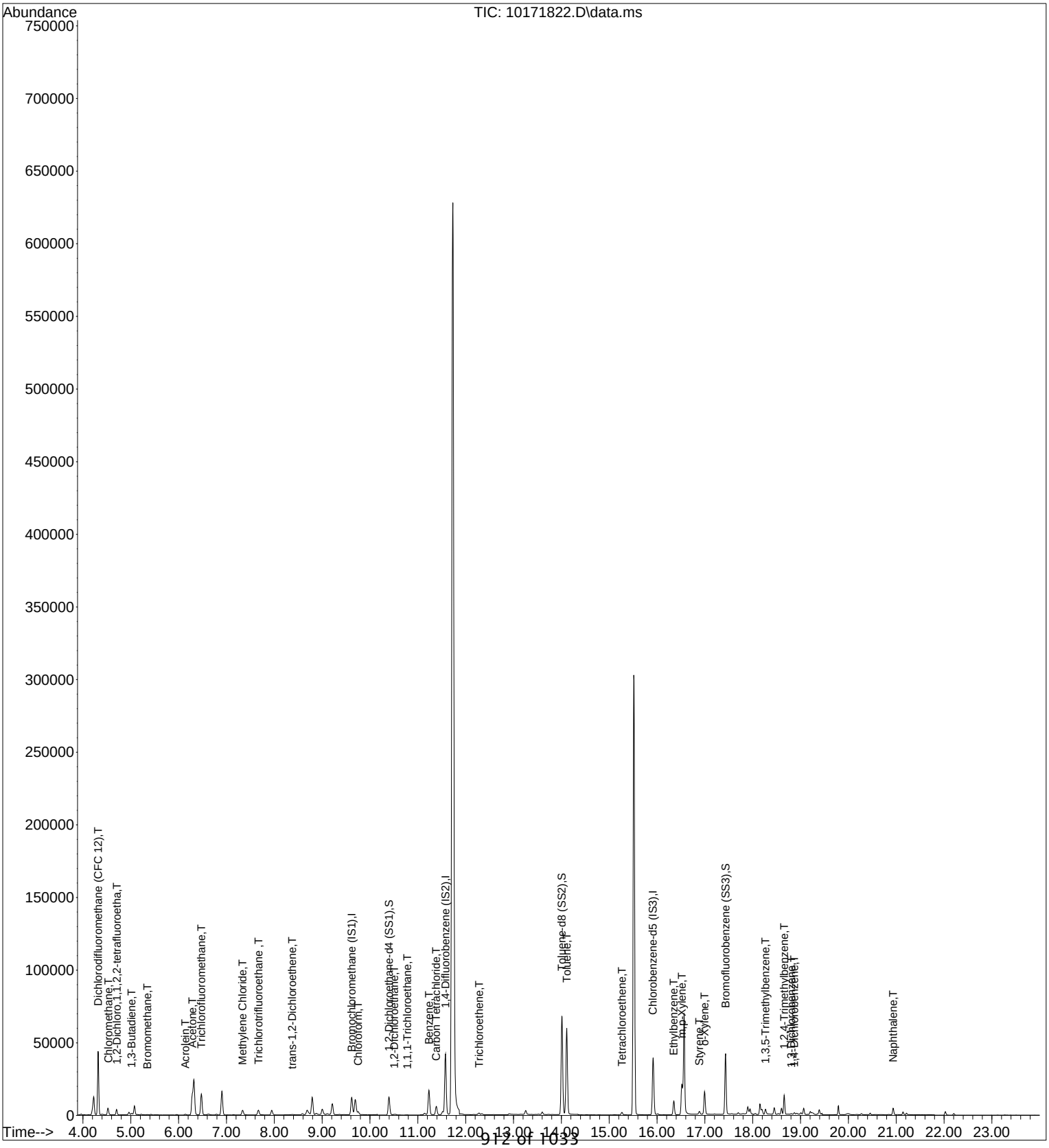
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	79	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171822.D Vial: 14
Acq On : 17 Oct 2018 23:58 Operator: WA
Sample : P1805497-013 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:20:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171822.D Vial: 14
Acq On : 17 Oct 2018 23:58 Operator: WA
Sample : P1805497-013 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:20:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 WA 10/25/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

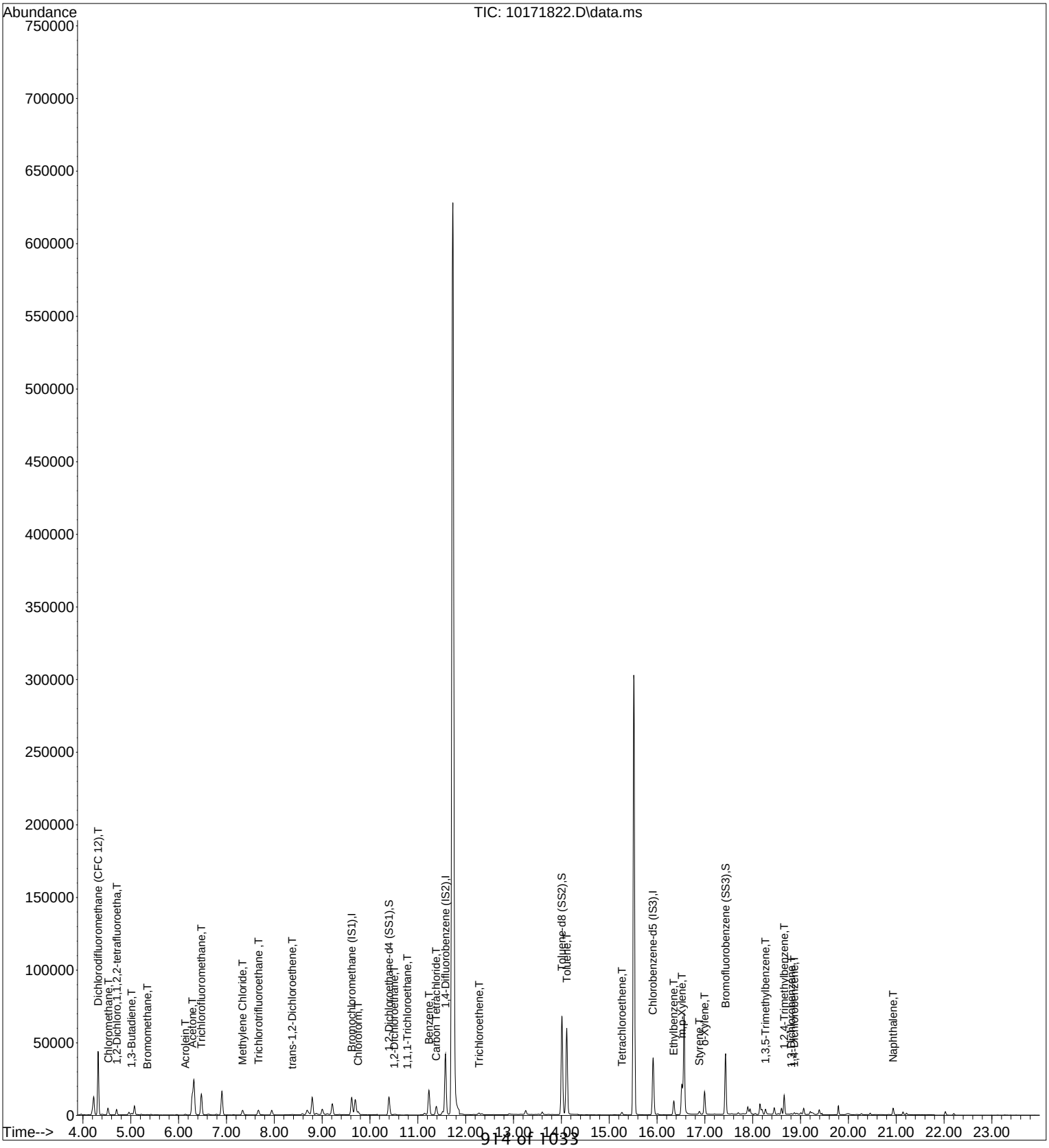
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17684	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	81249	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11314	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19598	925.801	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.58%				
33) Toluene-d8 (SS2)	14.01	98	90458	1079.607	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.96%				
45) Bromofluorobenzene (SS3)	17.43	174	33932	1061.376	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.14%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	51470	1365.967	pg		100
3) Chloromethane	4.53	52	1078	122.350	pg		92
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	1738	63.987	pg		100
6) 1,3-Butadiene	5.02	54	827	44.710	pg		94
7) Bromomethane	5.35	94	248	14.427	pg		94
9) Acrolein	6.14	56	827	79.913	pg		100
10) Acetone	6.29	58	11425	870.804	pg	#	1
11) Trichlorofluoromethane	6.48	101	20055	680.567	pg		100
13) Methylene Chloride	7.34	84	2973	136.095	pg		96
14) Trichlorotrifluoroethane	7.67	151	4794	232.120	pg		99
15) trans-1,2-Dichloroethene	8.38	96	178	8.204	pg		94
19) Chloroform	9.75	83	2631	72.019	pg		100
21) 1,2-Dichloroethane	10.51	62	640	28.324	pg		96
22) 1,1,1-Trichloroethane	10.78	97	195	6.293	pg		98
23) Benzene	11.23	78	31930	347.909	pg		99
24) Carbon Tetrachloride	11.39	117	6464	228.546	pg		100
28) Trichloroethene	12.28	130	829	32.654	pg		99
34) Toluene	14.11	91	78252	843.503	pg		100
37) Tetrachloroethene	15.27	166	2340	85.715	pg		100
40) Ethylbenzene	16.35	91	14913	142.973	pg		100
41) m,p-Xylene	16.52	91	38356	480.934	pg		100
42) Styrene	16.89	104	2346	37.034	pg		99
43) o-Xylene	16.99	106	9009	212.473	pg		98
46) 1,3,5-Trimethylbenzene	18.27	105	3536	39.651	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	14286	160.584	pg		88
48) 1,3-Dichlorobenzene	18.81	146	332	5.712	pg		98
49) 1,4-Dichlorobenzene	18.87	146	901	15.437	pg		97
53) Naphthalene	20.94	128	7264	69.808	pg		97

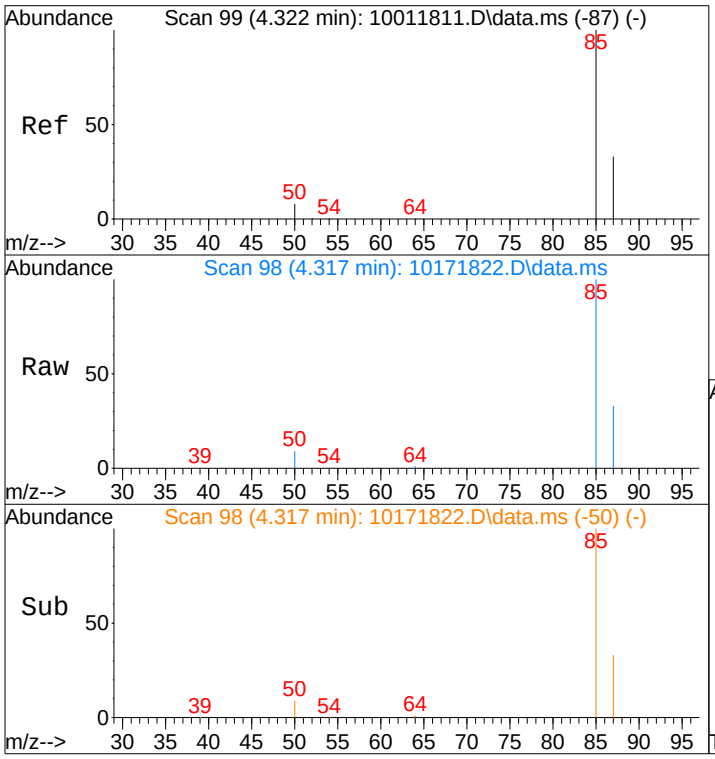
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171822.D Vial: 14
Acq On : 17 Oct 2018 23:58 Operator: WA
Sample : P1805497-013 (1000mL) Inst : MS19
Misc : S31-09241806

Quant Time: Oct 25 14:20:24 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

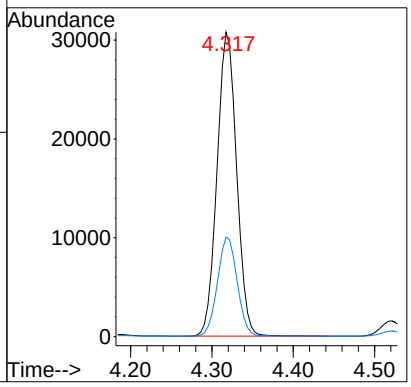


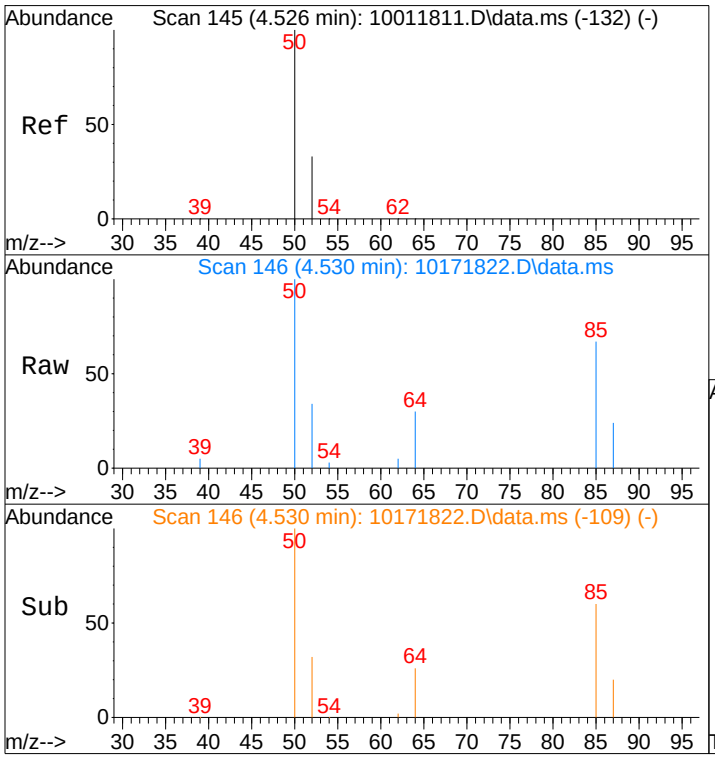


#2
Dichlorodifluoromethane (CFC 12)
Concen: 1365.97 pg
RT: 4.32 min Scan# 98
Delta R.T. 0.013 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 85 Resp: 51470

Ion	Ratio	Lower	Upper
85	100		
87	32.7	12.7	52.7

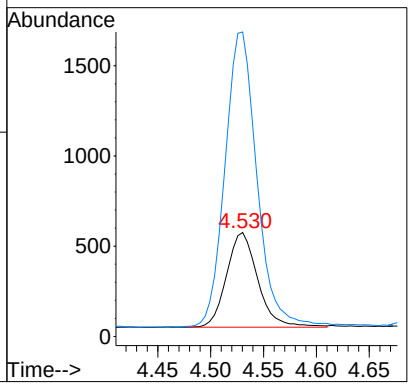


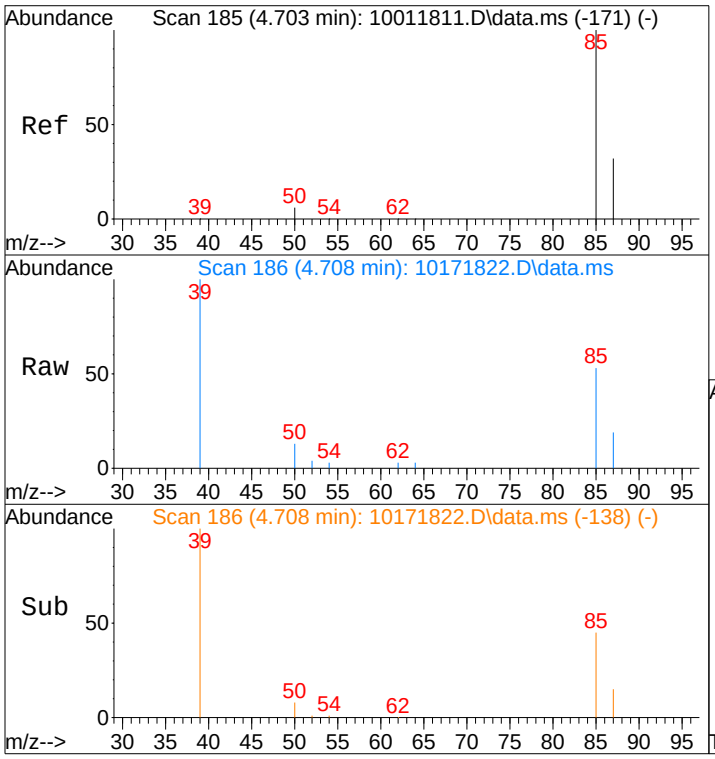


#3
Chloromethane
Concen: 122.35 pg
RT: 4.53 min Scan# 146
Delta R.T. 0.013 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 52 Resp: 1078

Ion	Ratio	Lower	Upper
52	100		
50	317.5	281.8	321.8

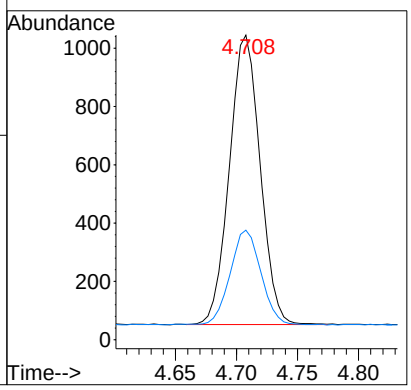


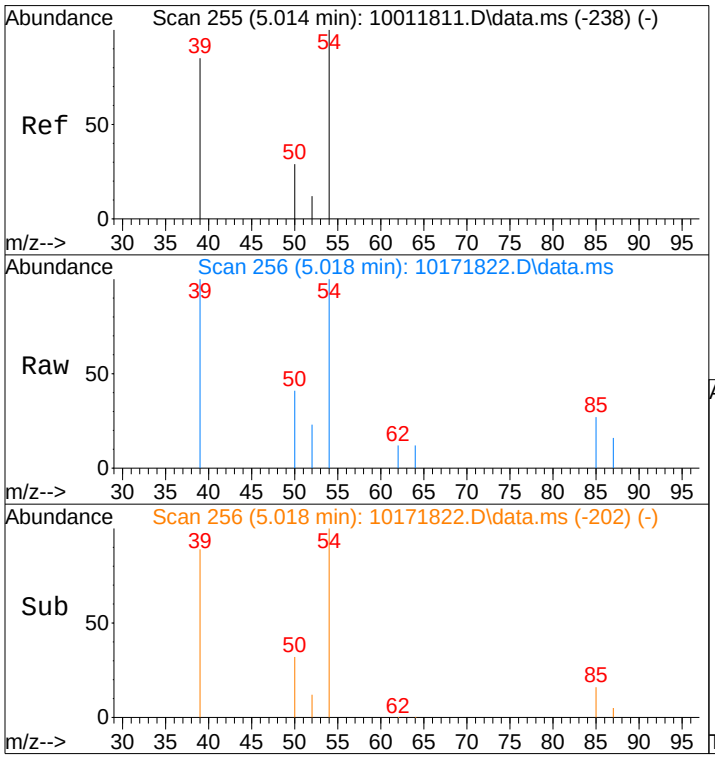


#4
1,2-Dichloro,1,1,2,2-tetrafluoroetha
Concen: 63.99 pg
RT: 4.71 min Scan# 186
Delta R.T. 0.014 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 85 Resp: 1738

Ion	Ratio	Lower	Upper
85	100		
87	32.3	26.0	39.0

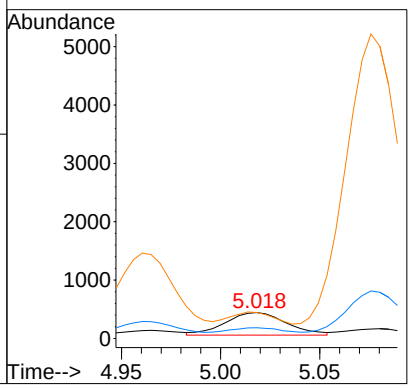


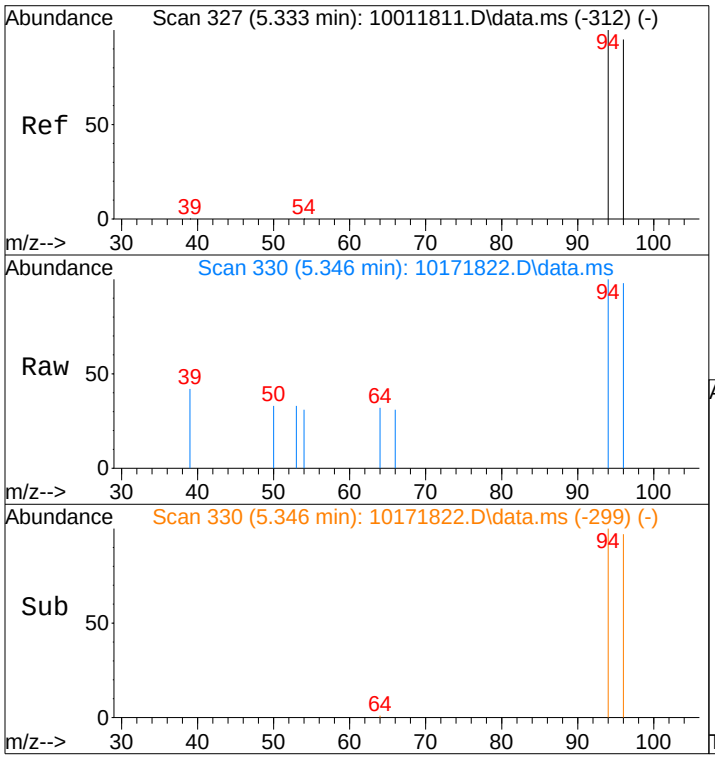


#6
1,3-Butadiene
Concen: 44.71 pg
RT: 5.02 min Scan# 256
Delta R.T. 0.009 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 54 Resp: 827

Ion	Ratio	Lower	Upper
54	100		
50	31.1	23.6	35.4
39	80.4	69.9	104.9

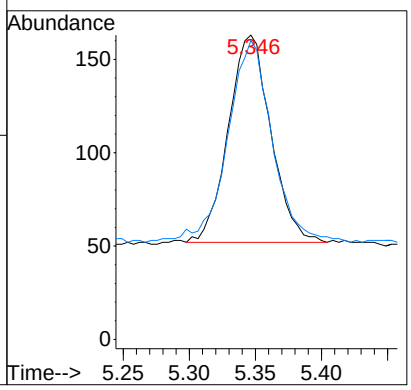


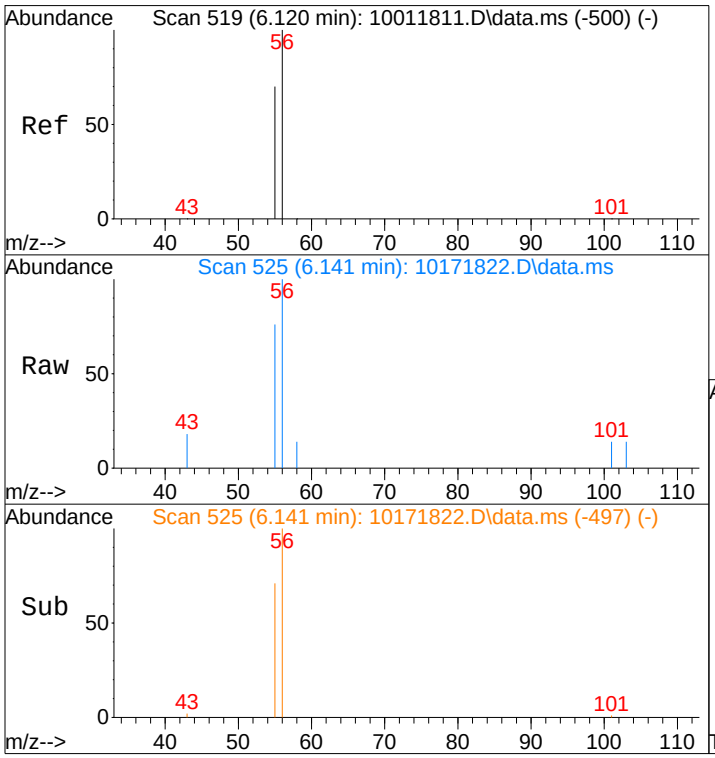


#7
Bromomethane
Concen: 14.43 pg
RT: 5.35 min Scan# 330
Delta R.T. 0.009 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 94 Resp: 248

Ion	Ratio	Lower	Upper
94	100		
96	100.0	75.7	113.5

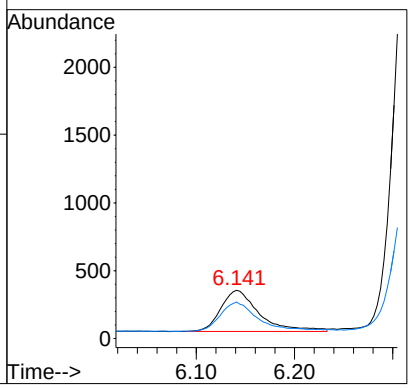


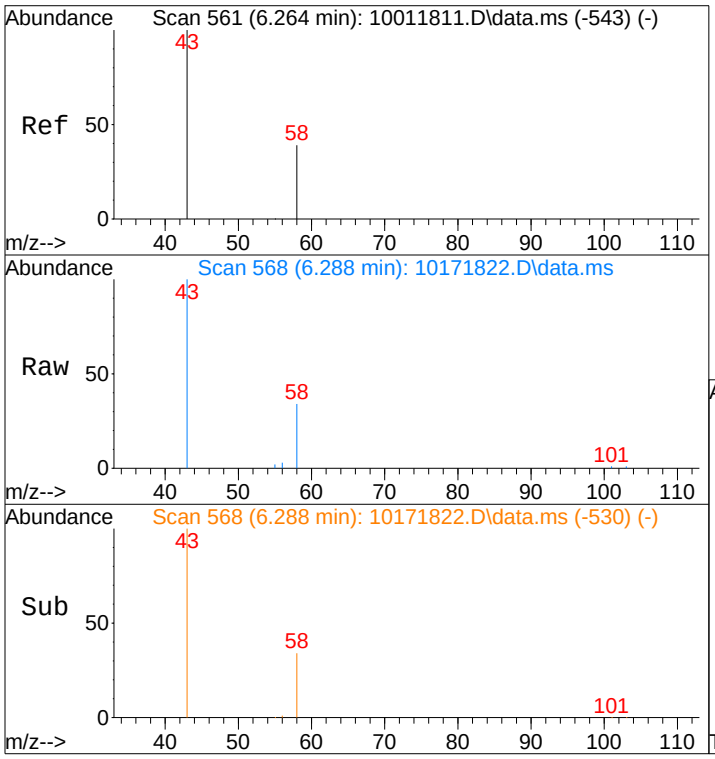


#9
Acrolein
Concen: 79.91 pg
RT: 6.14 min Scan# 525
Delta R.T. -0.014 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 56 Resp: 827

Ion	Ratio	Lower	Upper
56	100		
55	68.9	55.3	82.9

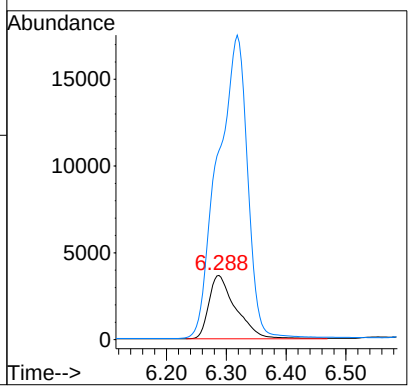


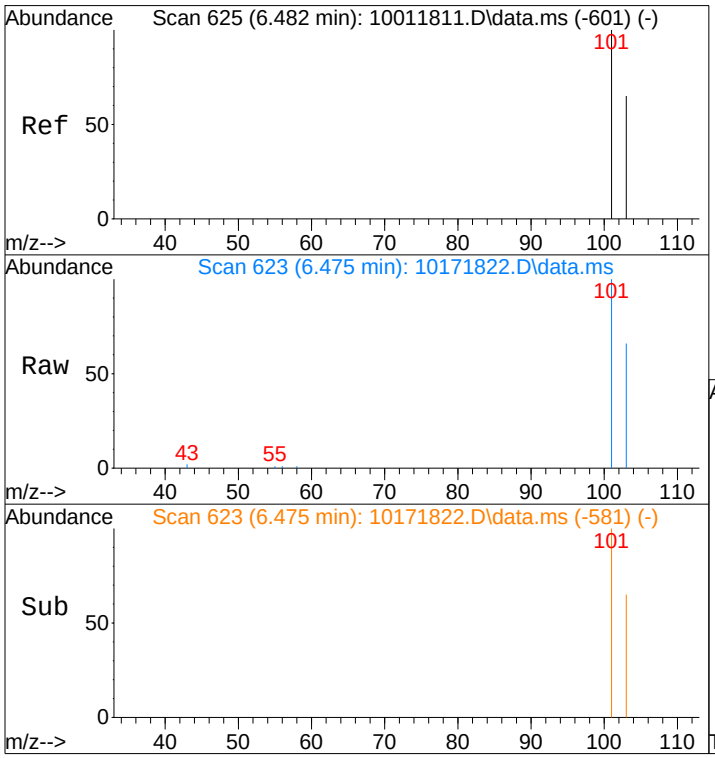


#10
Acetone
Concen: 870.80 pg
RT: 6.29 min Scan# 568
Delta R.T. -0.020 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 58 Resp: 11425

Ion	Ratio	Lower	Upper
58	100		
43	534.4	234.7	274.7#

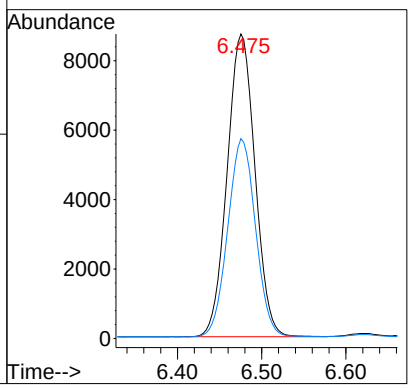


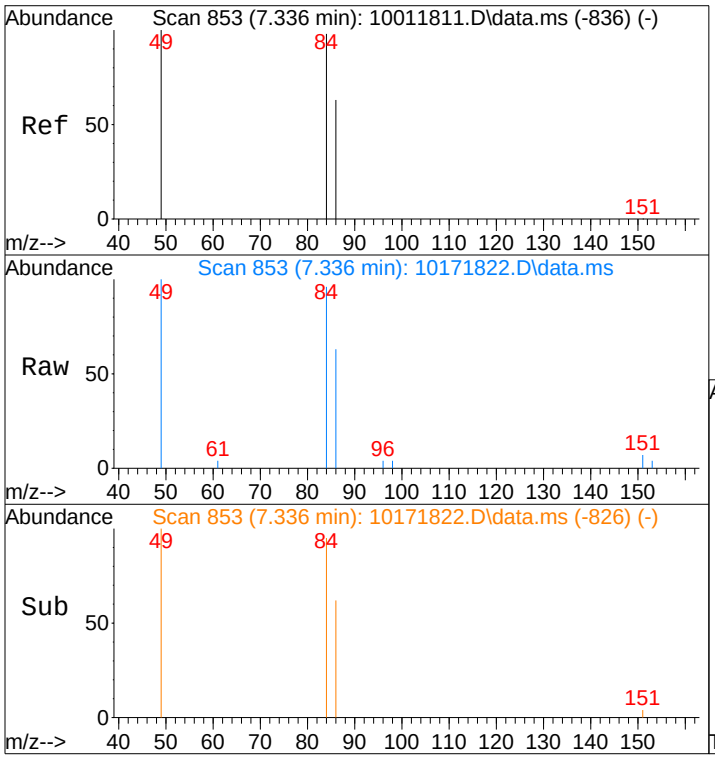


#11
Trichlorofluoromethane
Concen: 680.57 pg
RT: 6.48 min Scan# 623
Delta R.T. -0.007 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:101 Resp: 20055

Ion	Ratio	Lower	Upper
101	100		
103	65.2	52.2	78.2

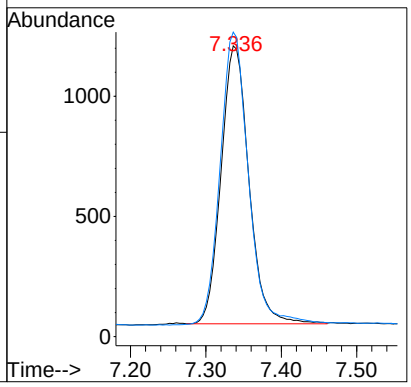


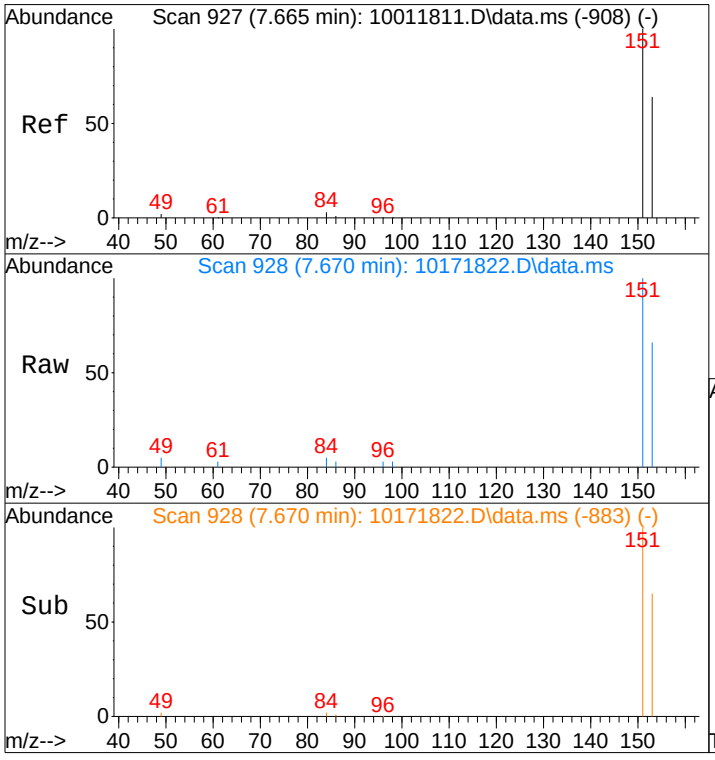


#13
Methylene Chloride
Concen: 136.10 pg
RT: 7.34 min Scan# 853
Delta R.T. -0.040 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 84 Resp: 2973

Ion	Ratio	Lower	Upper
84	100		
49	107.4	83.3	123.3

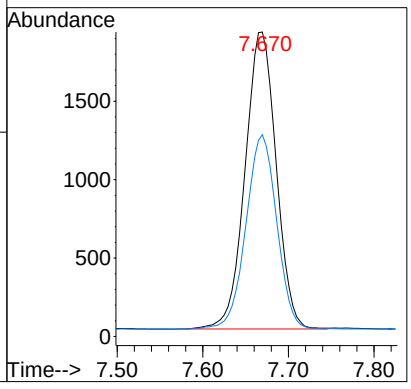


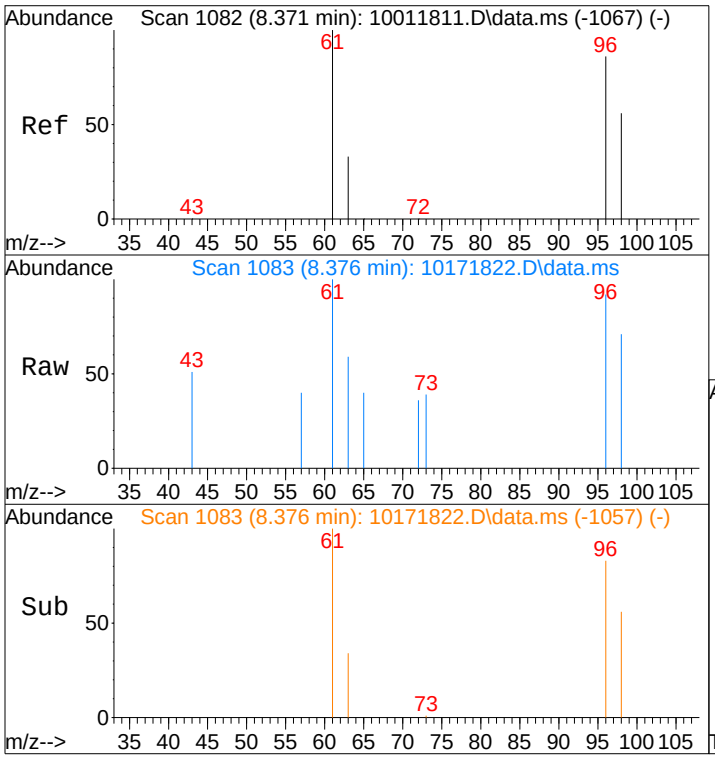


#14
Trichlorotrifluoroethane
Concen: 232.12 pg
RT: 7.67 min Scan# 928
Delta R.T. 0.000 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:151 Resp: 4794

Ion	Ratio	Lower	Upper
151	100		
153	64.7	44.3	84.3

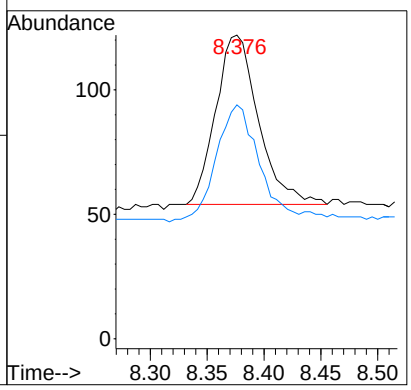


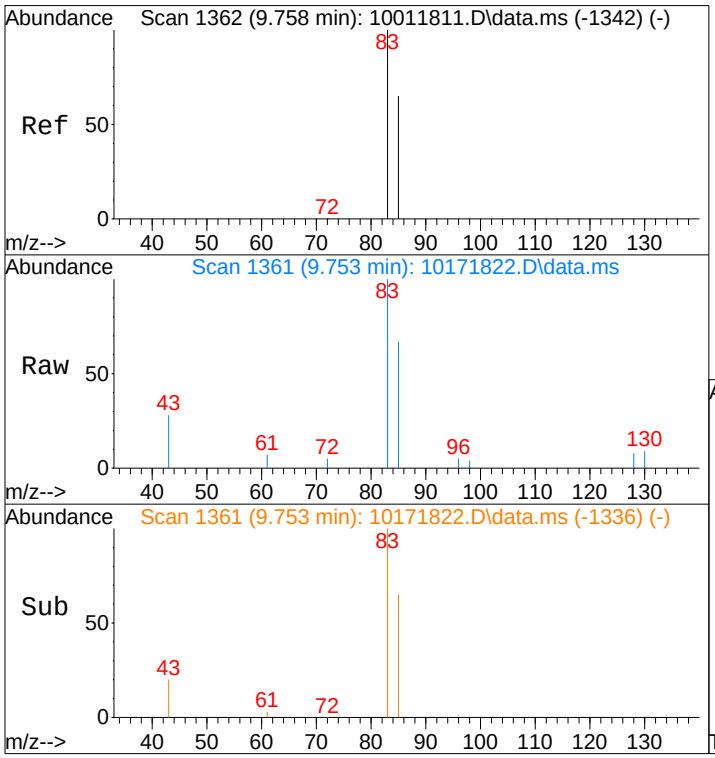


#15
trans-1,2-Dichloroethene
Concen: 8.20 pg
RT: 8.38 min Scan# 1083
Delta R.T. -0.019 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 96 Resp: 178

Ion	Ratio	Lower	Upper
96	100		
98	69.1	44.1	84.1

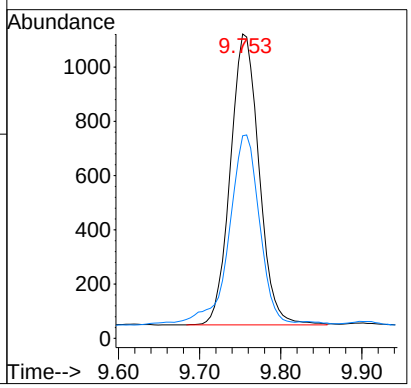


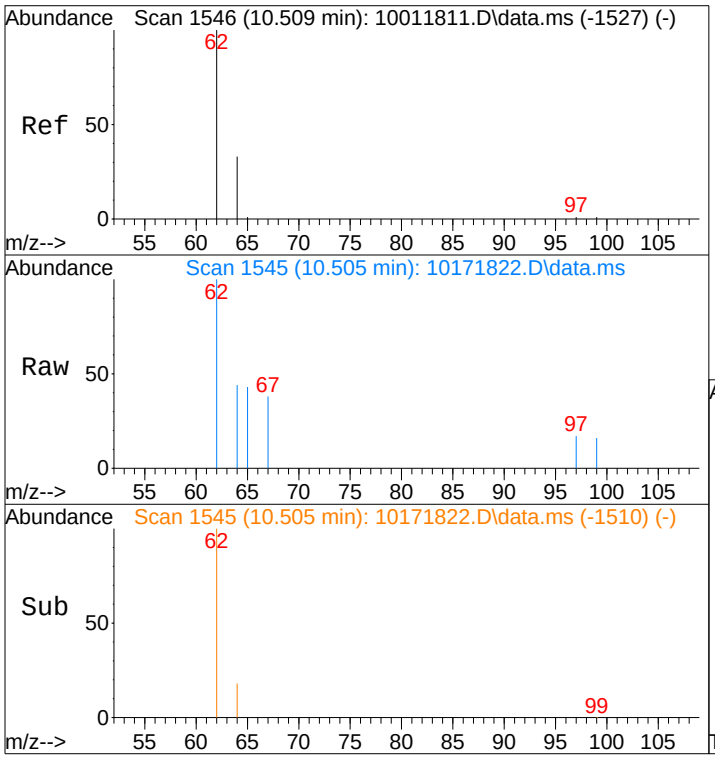


#19
Chloroform
Concen: 72.02 pg
RT: 9.75 min Scan# 1361
Delta R.T. -0.044 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 83 Resp: 2631

Ion	Ratio	Lower	Upper
83	100		
85	66.3	46.0	86.0

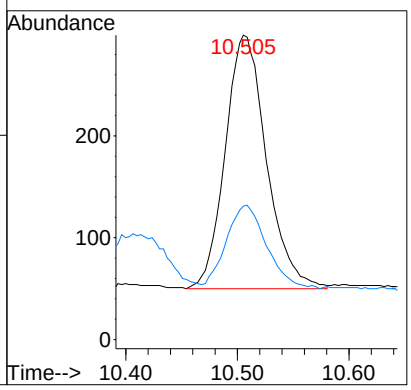


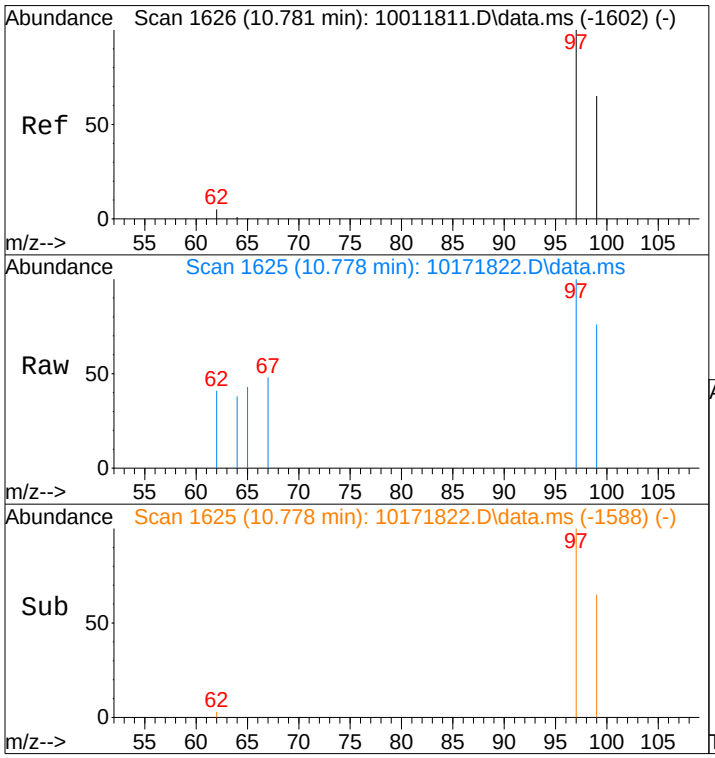


#21
1,2-Dichloroethane
Concen: 28.32 pg
RT: 10.51 min Scan# 1545
Delta R.T. -0.030 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 62 Resp: 640

Ion	Ratio	Lower	Upper
62	100		
64	30.8	12.9	52.9

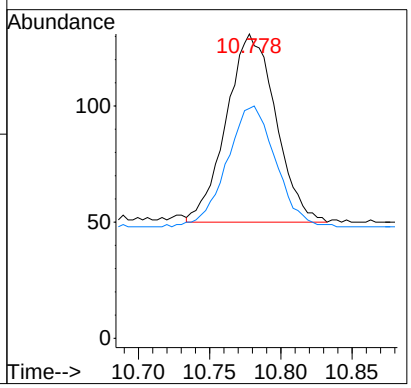


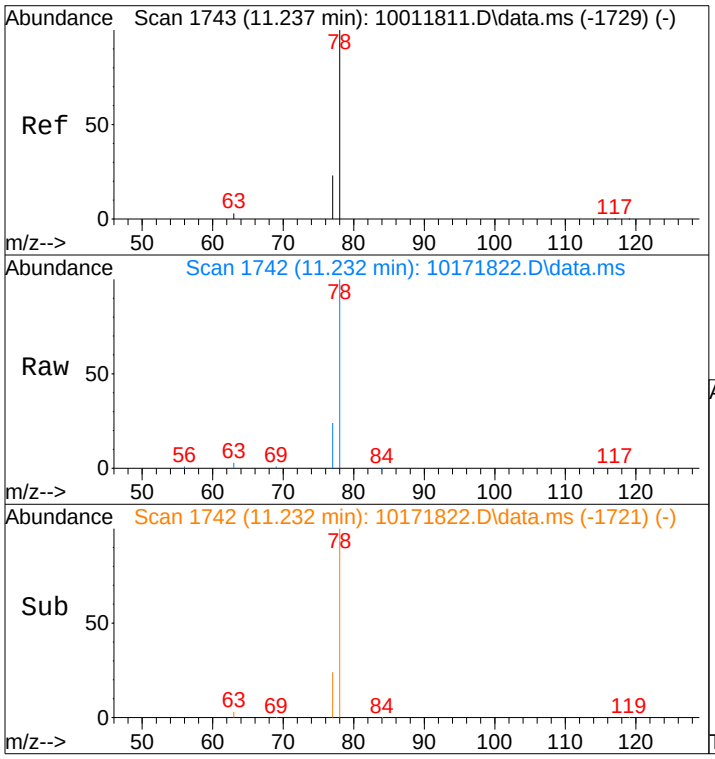


#22
1,1,1-Trichloroethane
Concen: 6.29 pg
RT: 10.78 min Scan# 1625
Delta R.T. -0.023 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 97 Resp: 195

Ion	Ratio	Lower	Upper
97	100		
99	63.1	44.9	84.9

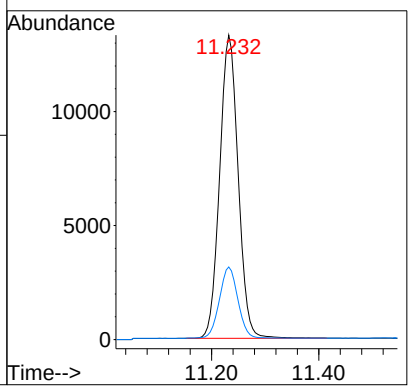


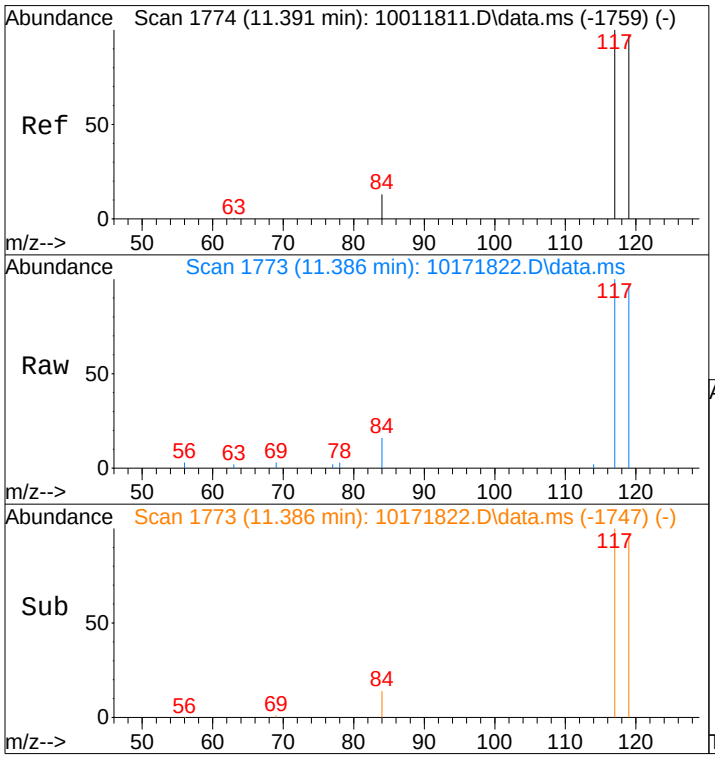


#23
Benzene
Concen: 347.91 pg
RT: 11.23 min Scan# 1742
Delta R.T. -0.024 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 78 Resp: 31930

Ion	Ratio	Lower	Upper
78	100		
77	23.6	3.3	43.3

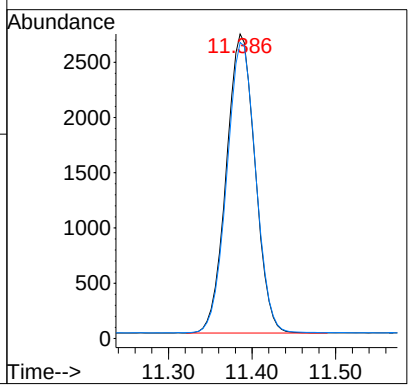


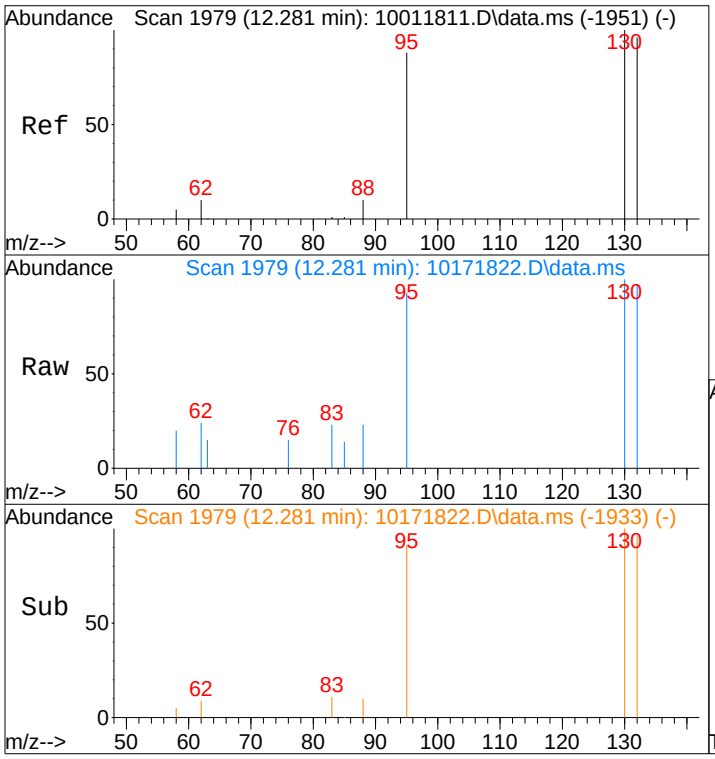


#24
Carbon Tetrachloride
Concen: 228.55 pg
RT: 11.39 min Scan# 1773
Delta R.T. -0.019 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:117 Resp: 6464

Ion	Ratio	Lower	Upper
117	100		
119	97.1	76.7	116.7

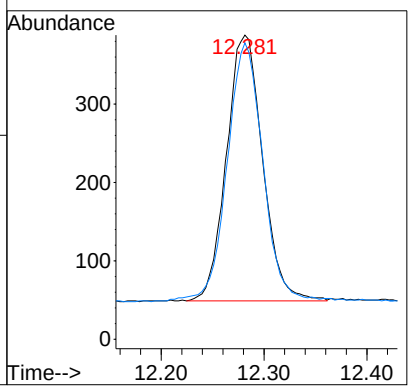


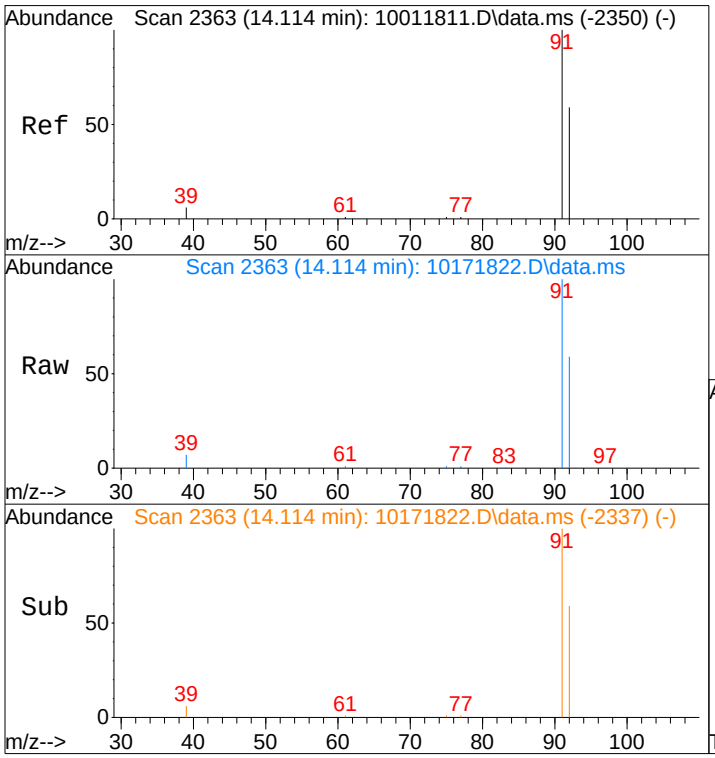


#28
Trichloroethene
Concen: 32.65 pg
RT: 12.28 min Scan# 1979
Delta R.T. -0.015 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:130 Resp: 829

Ion	Ratio	Lower	Upper
130	100		
132	94.7	75.6	115.6

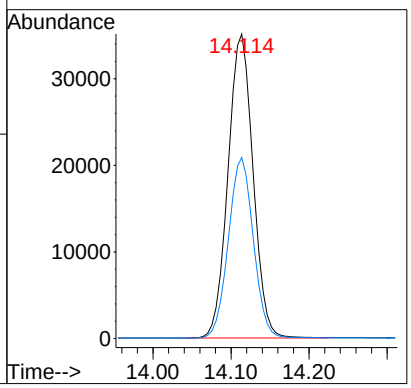


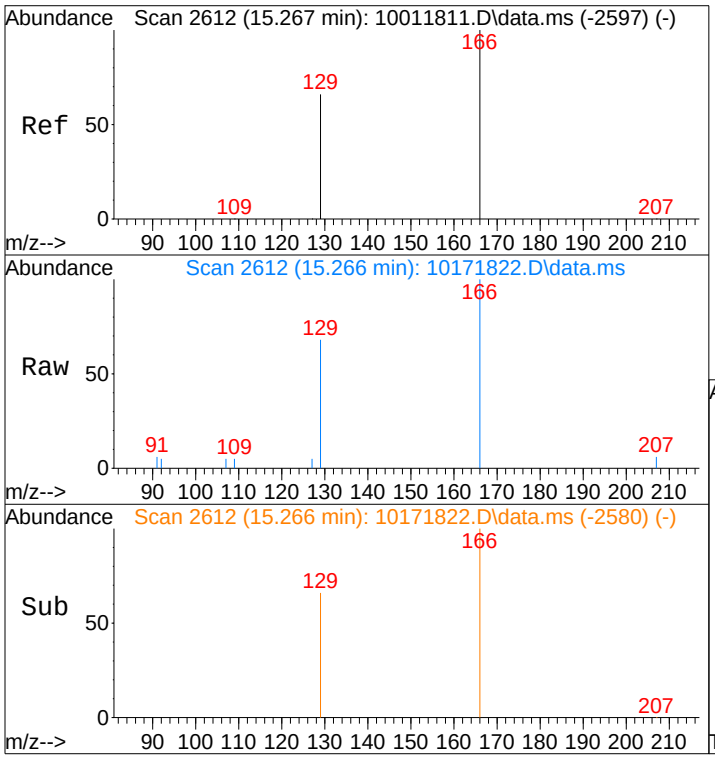


#34
Toluene
Concen: 843.50 pg
RT: 14.11 min Scan# 2363
Delta R.T. -0.010 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 91 Resp: 78252

Ion	Ratio	Lower	Upper
91	100		
92	59.2	39.2	79.2

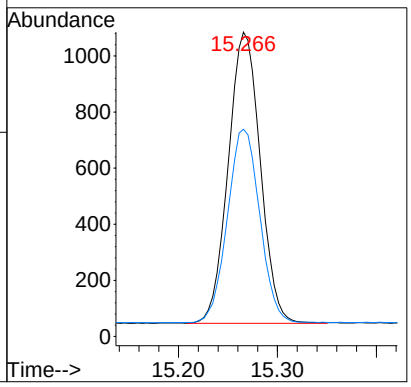


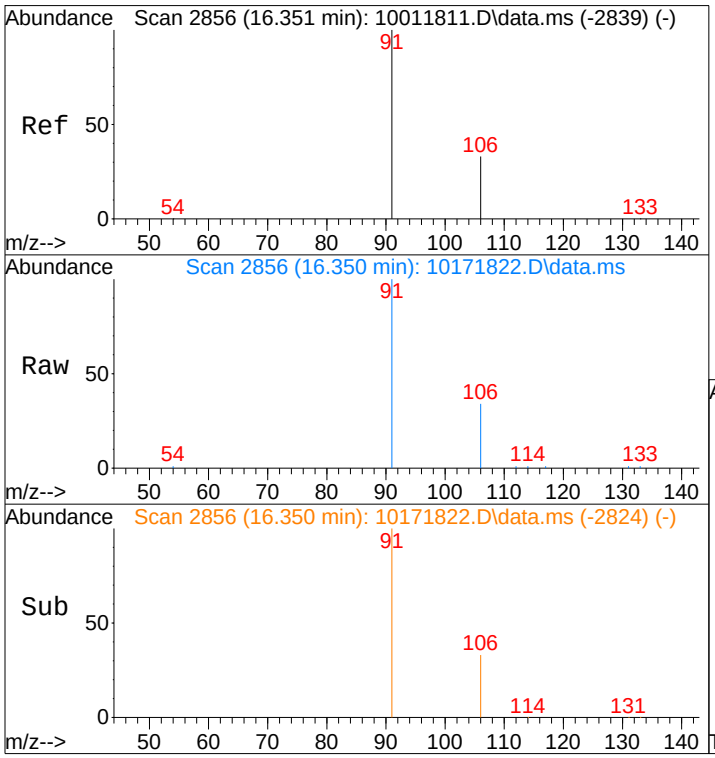


#37
Tetrachloroethene
Concen: 85.72 pg
RT: 15.27 min Scan# 2612
Delta R.T. -0.008 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:166 Resp: 2340

Ion	Ratio	Lower	Upper
166	100		
129	66.8	46.7	86.7

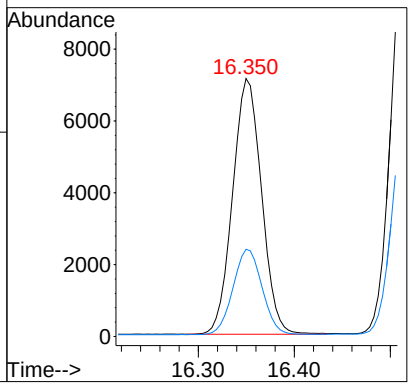


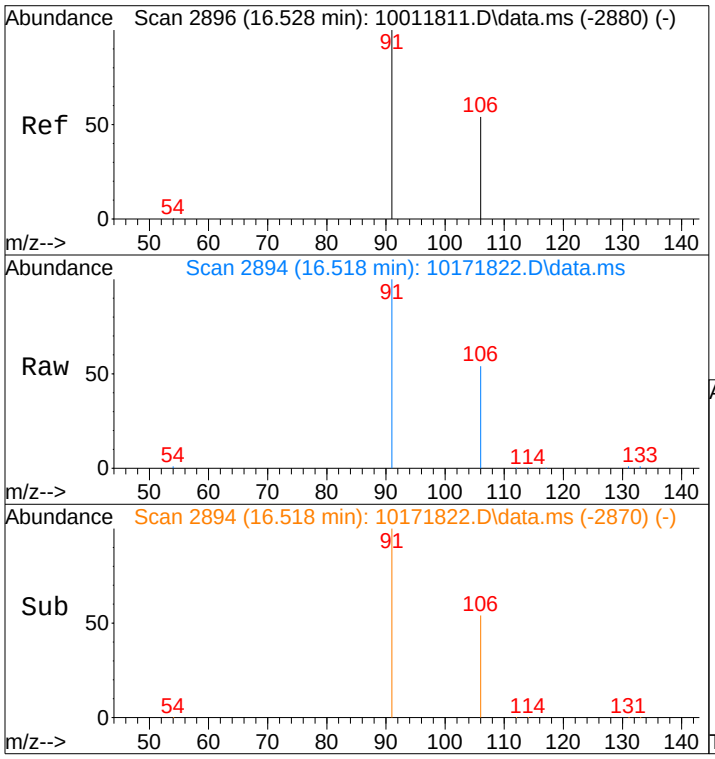


#40
Ethylbenzene
Concen: 142.97 pg
RT: 16.35 min Scan# 2856
Delta R.T. -0.008 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 91 Resp: 14913

Ion	Ratio	Lower	Upper
91	100		
106	33.5	13.7	53.7

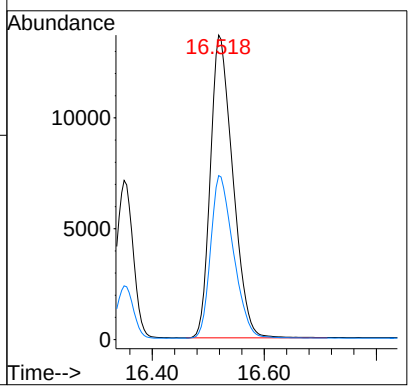


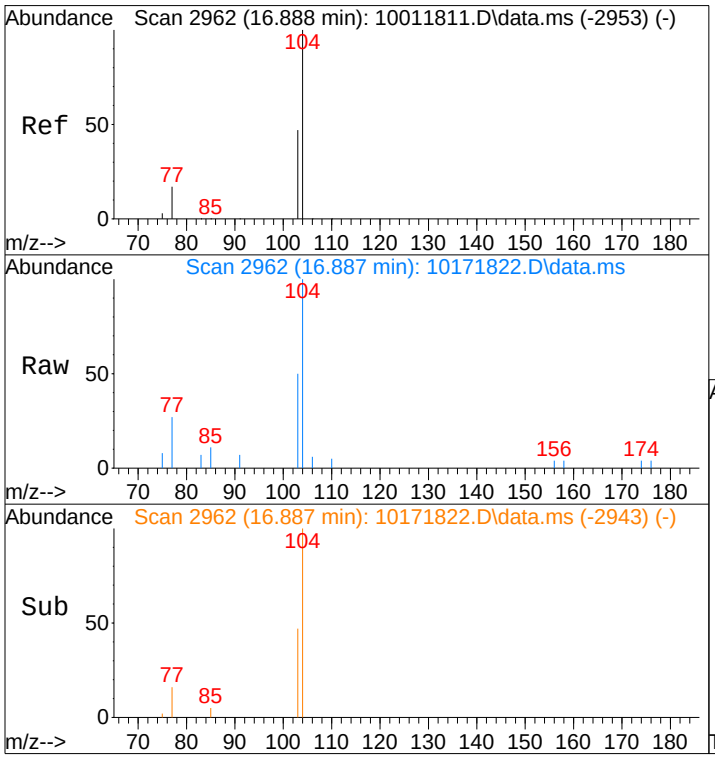


#41
m,p-Xylene
Concen: 480.93 pg
RT: 16.52 min Scan# 2894
Delta R.T. -0.022 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion: 91 Resp: 38356

Ion	Ratio	Lower	Upper
91	100		
106	54.0	34.3	74.3

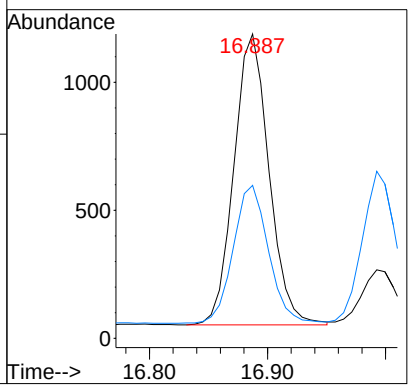


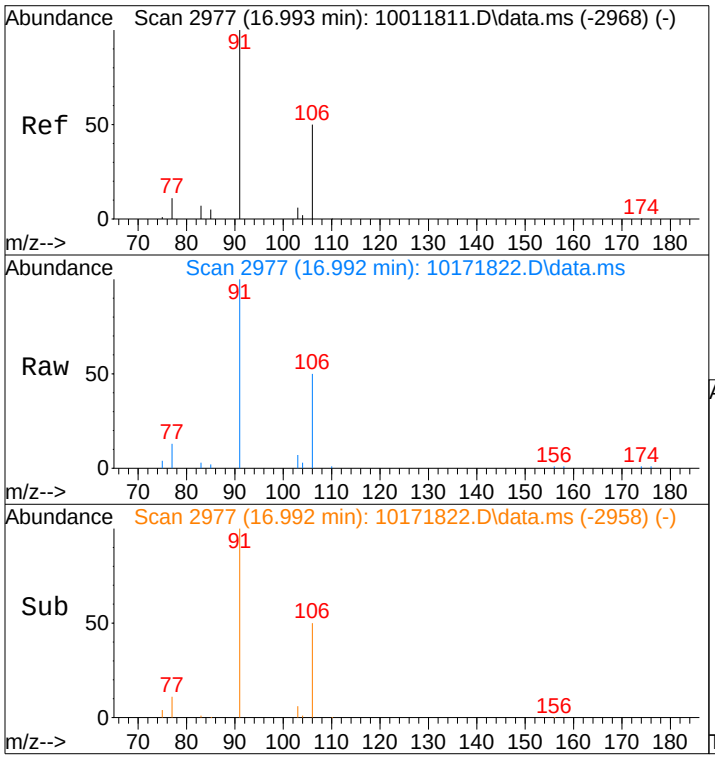


#42
Styrene
Concen: 37.03 pg
RT: 16.89 min Scan# 2962
Delta R.T. -0.006 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:104 Resp: 2346

Ion	Ratio	Lower	Upper
104	100		
103	47.5	37.7	56.5

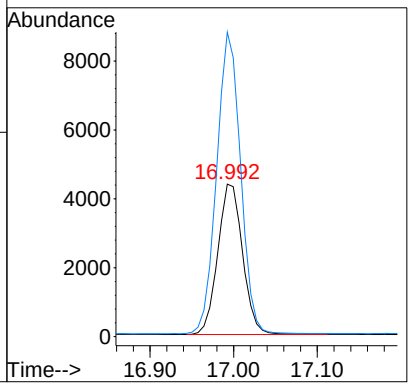


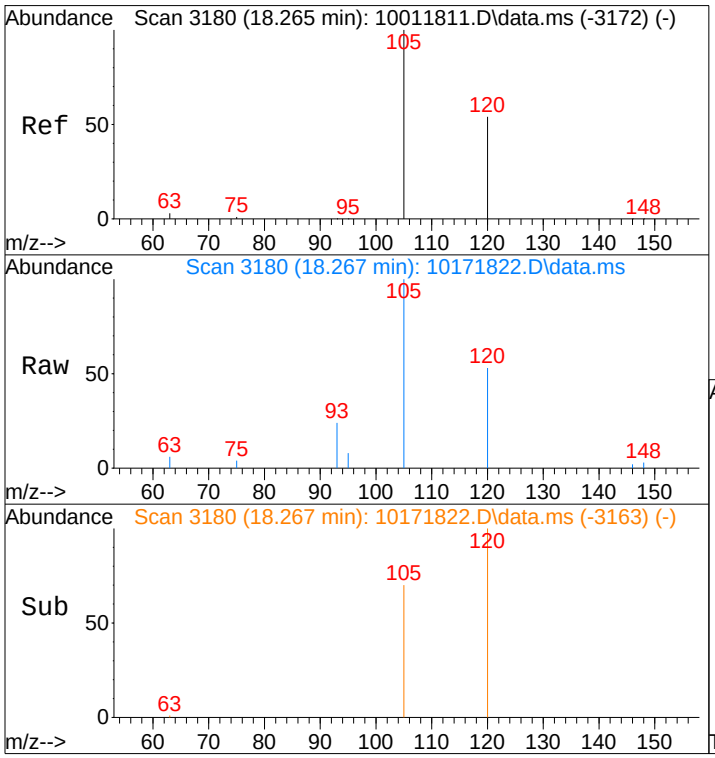


#43
o-Xylene
Concen: 212.47 pg
RT: 16.99 min Scan# 2977
Delta R.T. -0.013 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:106 Resp: 9009

Ion	Ratio	Lower	Upper
106	100		
91	192.7	175.6	215.6

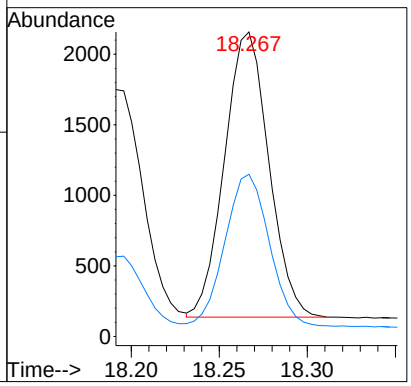


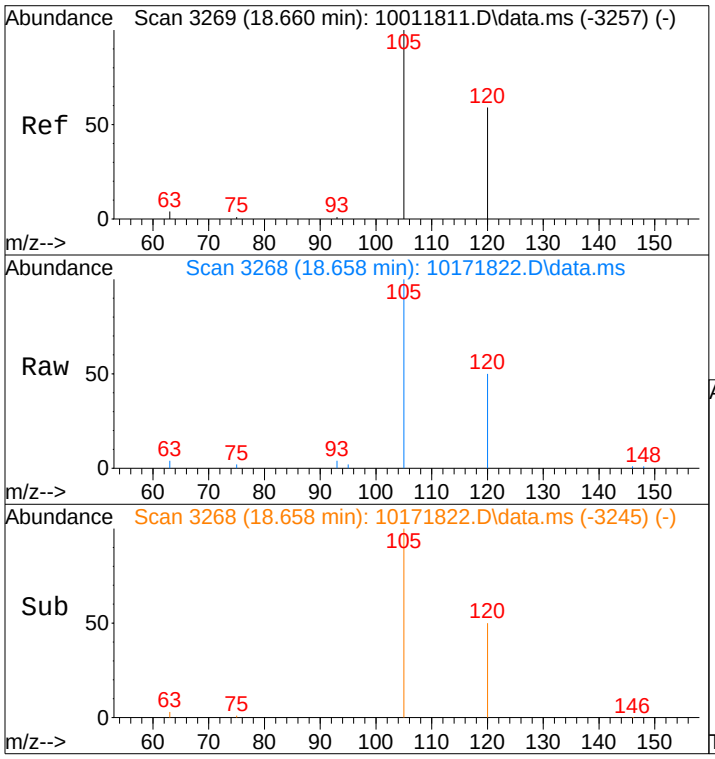


#46
1,3,5-Trimethylbenzene
Concen: 39.65 pg
RT: 18.27 min Scan# 3180
Delta R.T. -0.004 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:105 Resp: 3536

Ion	Ratio	Lower	Upper
105	100		
120	53.5	42.8	64.2

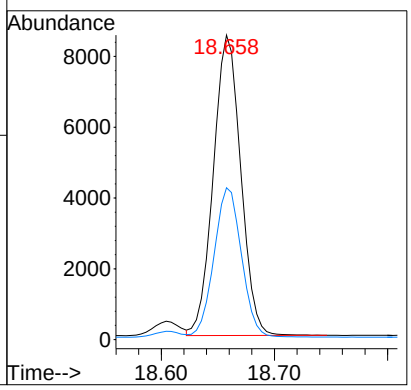


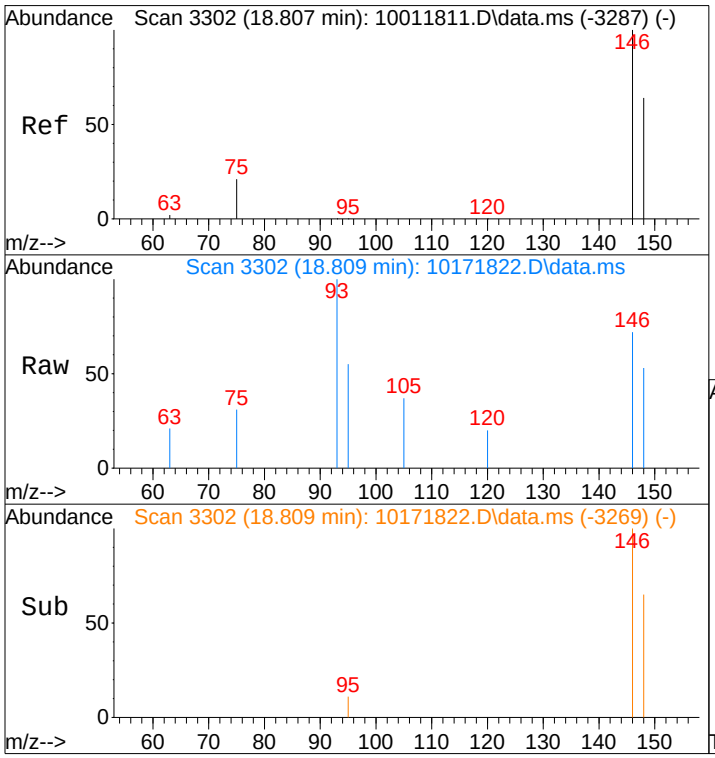


#47
1,2,4-Trimethylbenzene
Concen: 160.58 pg
RT: 18.66 min Scan# 3268
Delta R.T. -0.008 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:105 Resp: 14286

Ion	Ratio	Lower	Upper
105	100		
120	49.9	47.1	70.7

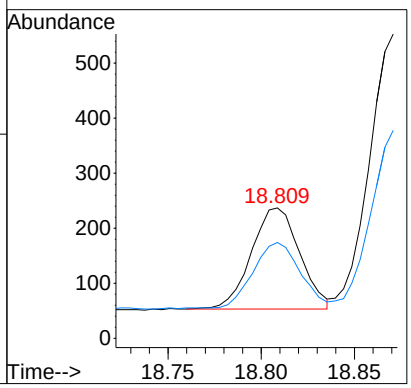


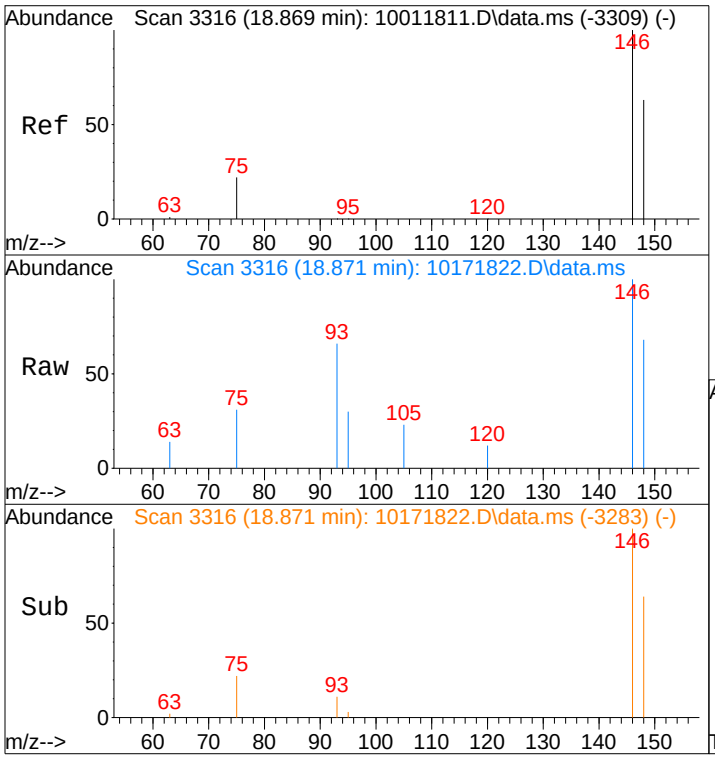


#48
1,3-Dichlorobenzene
Concen: 5.71 pg
RT: 18.81 min Scan# 3302
Delta R.T. -0.004 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:146 Resp: 332

Ion	Ratio	Lower	Upper
146	100		
148	62.7	43.9	83.9

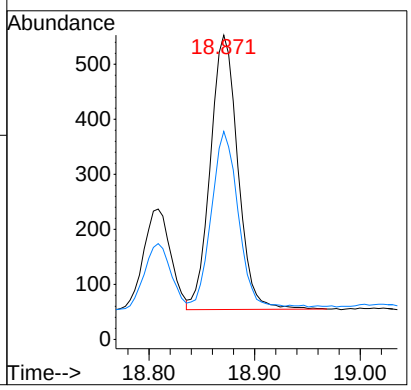


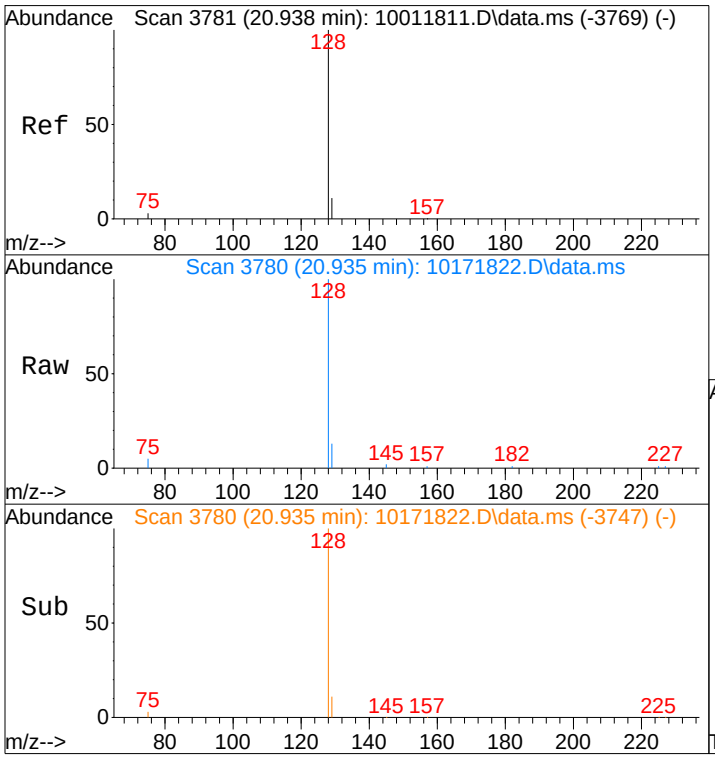


#49
1,4-Dichlorobenzene
Concen: 15.44 pg
RT: 18.87 min Scan# 3316
Delta R.T. -0.004 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:146 Resp: 901

Ion	Ratio	Lower	Upper
146	100		
148	61.8	43.8	83.8

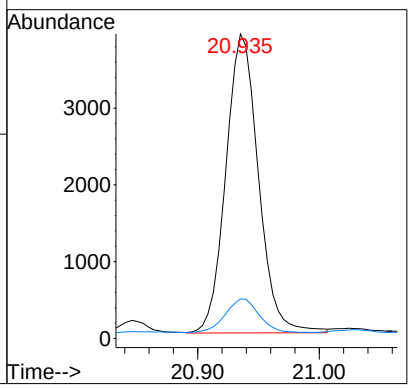




#53
Naphthalene
Concen: 69.81 pg
RT: 20.94 min Scan# 3780
Delta R.T. -0.004 min
Lab File: 10171822.D
Acq: 17 Oct 2018 23:58

Tgt Ion:128 Resp: 7264

Ion	Ratio	Lower	Upper
128	100		
129	12.1	0.0	30.8



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171804.D Vial: 2
Acq On : 17 Oct 2018 9:25 Operator: WA
Sample : MB S19101718_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 18 14:08:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WH 10/18/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17481	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	74108	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	9879	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20510	980.135	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.01%				
33) Toluene-d8 (SS2)	14.02	98	79832	1044.597	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.46%				
45) Bromofluorobenzene (SS3)	17.43	174	28678	1027.334	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.73%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.36	94	107	6.297	pg		99
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	6.15	56	257	25.122	pg	#	52
10) Acetone	6.30	58	4042	311.655	pg		99
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	54	2.501	pg		98
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	390	10.800	pg		98
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.24	78	917	10.108	pg		99
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	499	5.897	pg		96
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	115	1.263	pg	#	41
41) m,p-Xylene	16.54	91	261	3.748	pg		98
42) Styrene	16.90	104	79	1.428	pg	#	30
43) o-Xylene	0.00	106	0	N.D.			
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.			
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.			
47) 1,2,4-Trimethylbenzene	18.66	105	107	1.377	pg		87
48) 1,3-Dichlorobenzene	18.81	146	80	1.576	pg	#	18
49) 1,4-Dichlorobenzene	18.88	146	96	1.884	pg		96
50) 1,2-Dichlorobenzene	19.20	146	68	1.396	pg	#	18
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	136	4.717	pg	#	46
53) Naphthalene	20.94	128	440	4.843	pg	#	71

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171804.D Vial: 2
Acq On : 17 Oct 2018 9:25 Operator: WA
Sample : MB S19101718_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 18 14:08:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

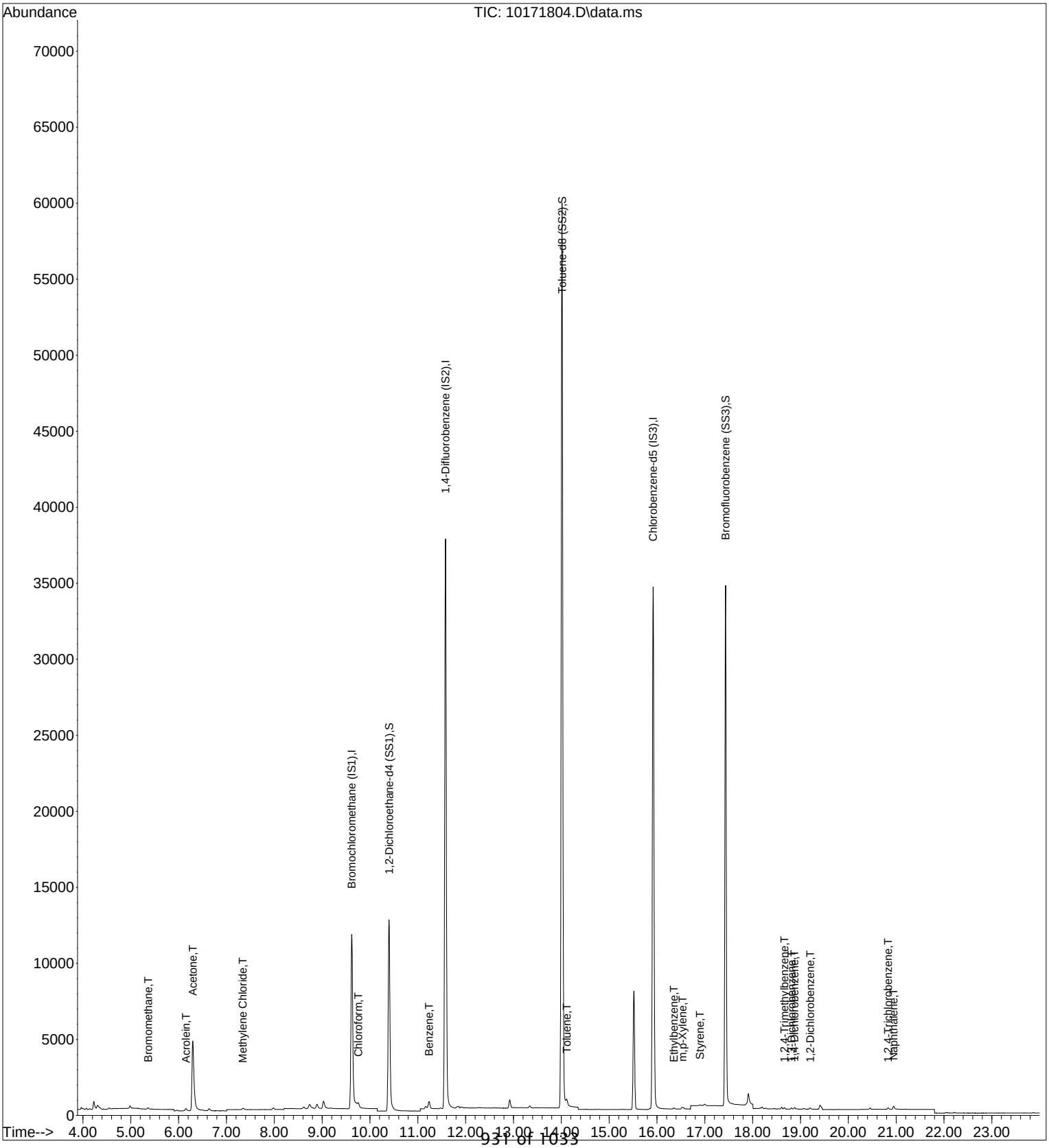
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171804.D Vial: 2
Acq On : 17 Oct 2018 9:25 Operator: WA
Sample : MB S19101718_1000mL Inst : MS19
Misc : S31-09241806_AS01329

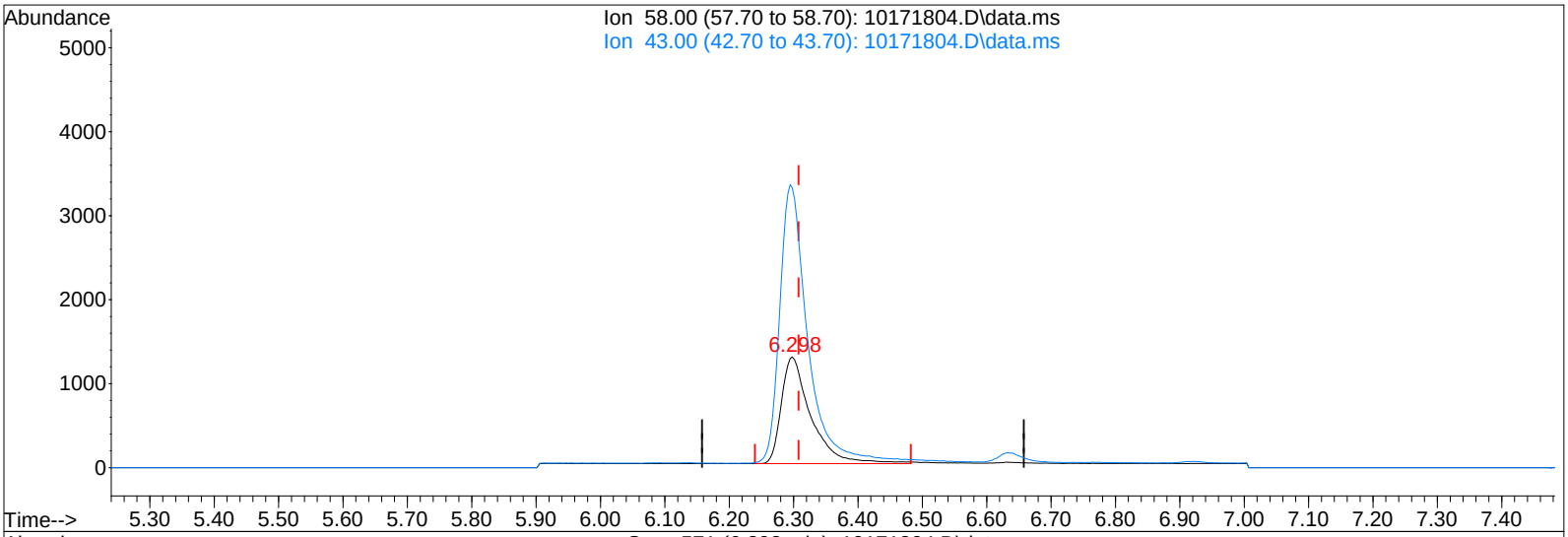
Quant Time: Oct 18 14:08:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

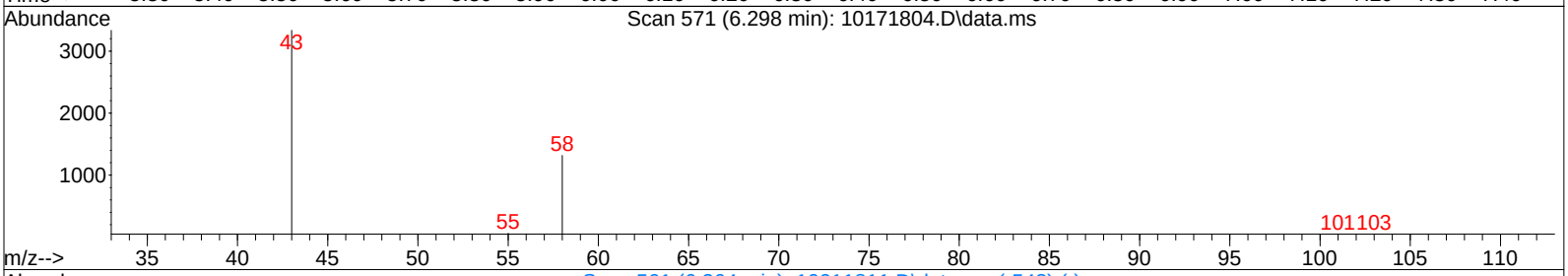


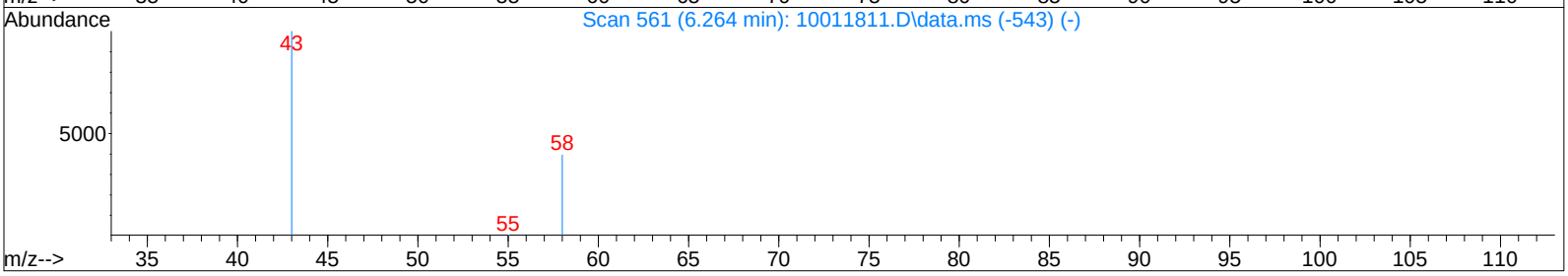
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\17\10171804.D Vial: 2
Acq On : 17 Oct 2018 9:25 Operator: WA
Sample : MB S19101718_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 17 10:20:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10171804.D\data.ms

(10) Acetone (T)

6.298min (-0.010) 311.66pg

response 4042

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	252.33
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181804.D Vial: 2
Acq On : 18 Oct 2018 1:52 Operator: WA
Sample : MB S19101818_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 18 15:16:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/18/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17687	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	78272	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10384	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21236	1003.010	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.30%				
33) Toluene-d8 (SS2)	14.02	98	84401	1045.630	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.56%				
45) Bromofluorobenzene (SS3)	17.43	174	30352	1034.424	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.44%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.36	94	120	6.980	pg		99
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	6.14	56	277	26.762	pg		97
10) Acetone	6.29	58	4413	336.298	pg		98
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	70	3.204	pg		100
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.75	83	343	9.387	pg		99
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.24	78	1161	12.648	pg		98
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	650	7.273	pg		93
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	165	1.724	pg		97
41) m,p-Xylene	16.53	91	355	4.850	pg		99
42) Styrene	16.90	104	138	2.374	pg		88
43) o-Xylene	17.00	106	63	1.619	pg	#	38
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.26	105	66	0.806	pg	#	25
47) 1,2,4-Trimethylbenzene	18.66	105	148	1.813	pg		89
48) 1,3-Dichlorobenzene	18.81	146	167	3.131	pg		96
49) 1,4-Dichlorobenzene	18.87	146	231	4.312	pg		96
50) 1,2-Dichlorobenzene	19.20	146	155	3.028	pg		99
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	244	8.052	pg		96
53) Naphthalene	20.94	128	890	9.319	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181804.D Vial: 2
Acq On : 18 Oct 2018 1:52 Operator: WA
Sample : MB S19101818_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 18 15:16:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

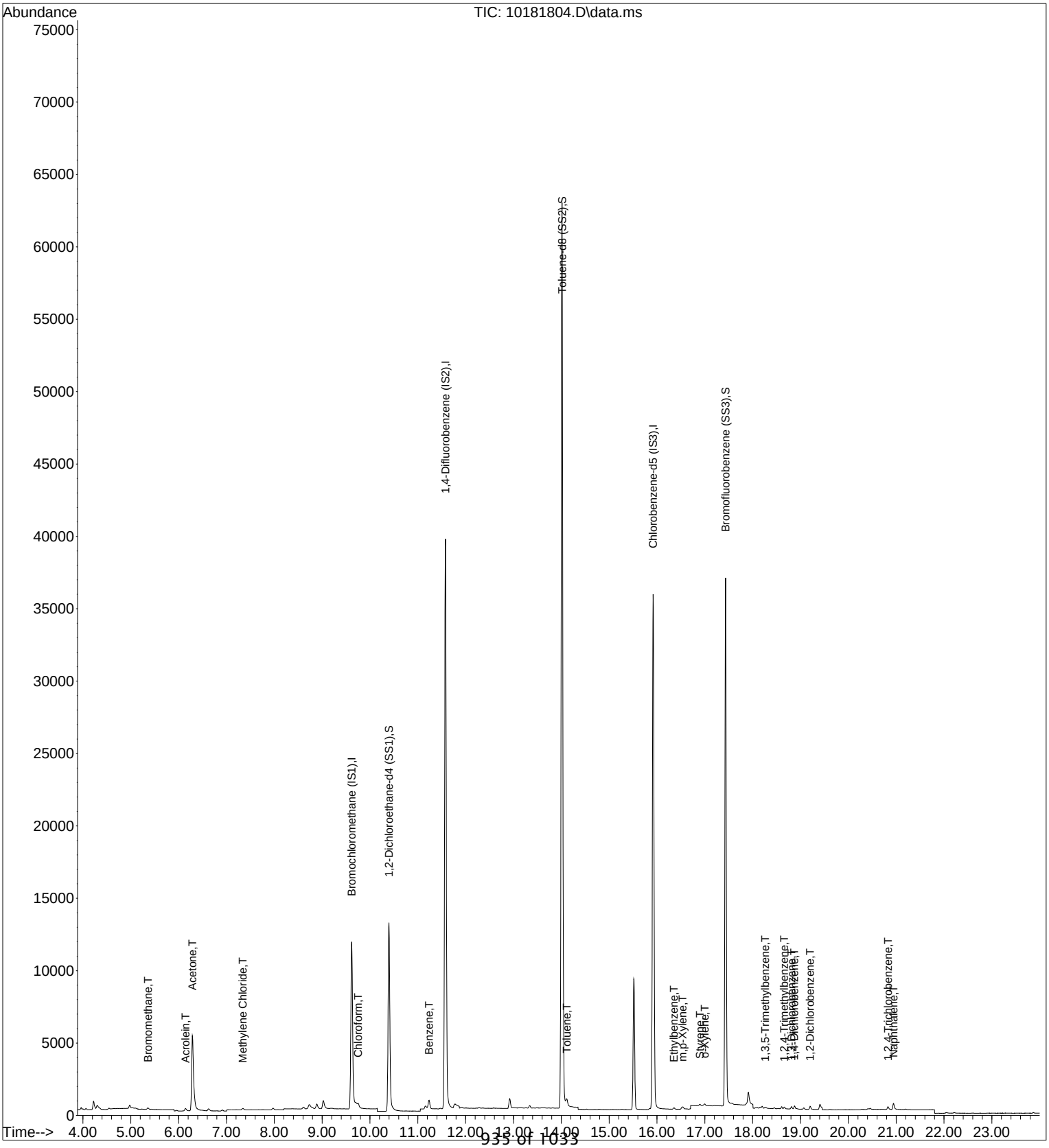
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181804.D Vial: 2
Acq On : 18 Oct 2018 1:52 Operator: WA
Sample : MB S19101818_1000mL Inst : MS19
Misc : S31-09241806_AS01329

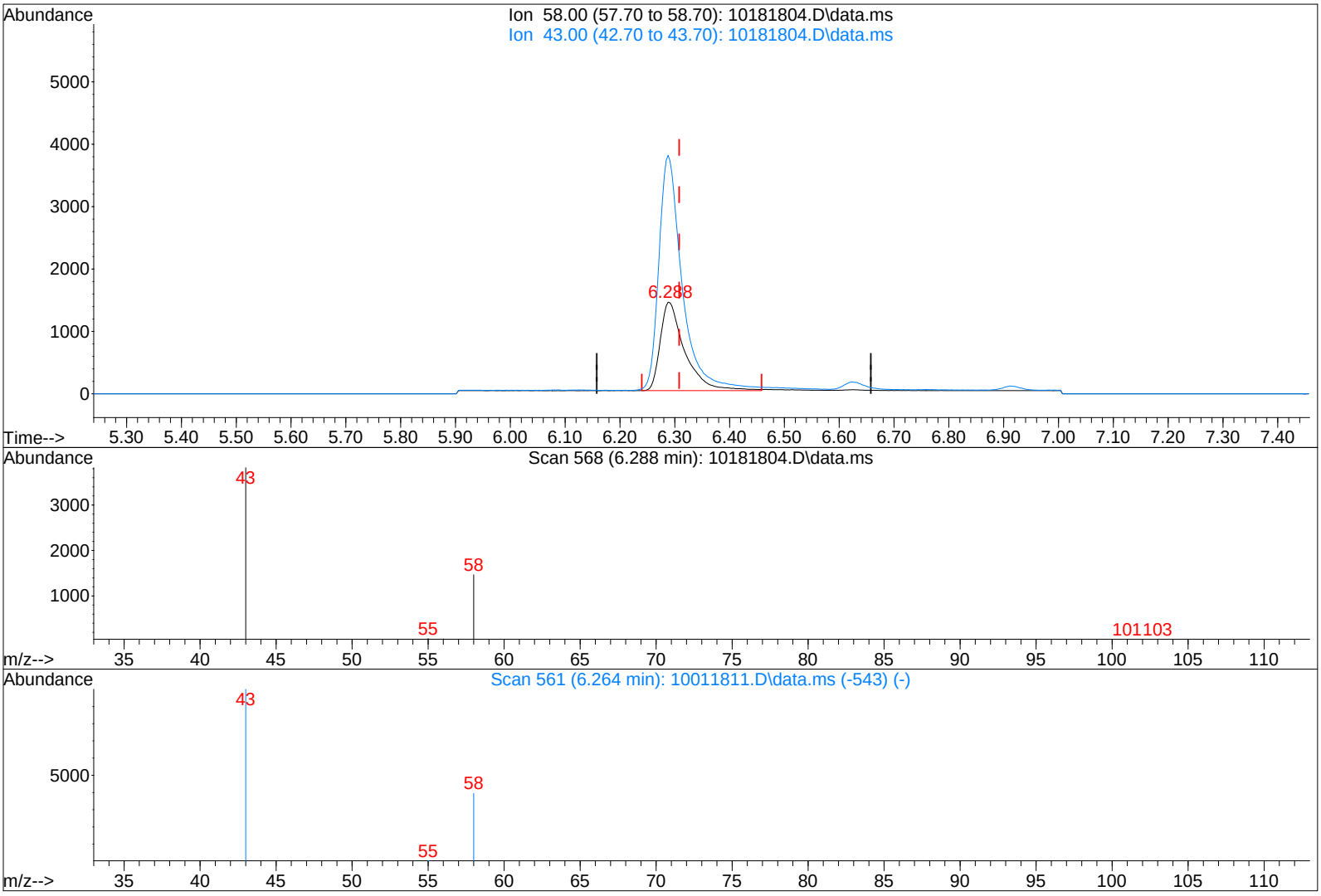
Quant Time: Oct 18 15:16:05 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\18\10181804.D Vial: 2
Acq On : 18 Oct 2018 1:52 Operator: WA
Sample : MB S19101818_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 18 09:38:31 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 10181804.D\data.ms

(10) Acetone (T)

6.288min (-0.020) 336.30pg

response 4413

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	257.87
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191804.D Vial: 2
Acq On : 19 Oct 2018 5:56 Operator: WA
Sample : MB S19101918_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 19 14:25:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/19/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17044	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	74665	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	9739	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	19787	969.829	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.98%				
33) Toluene-d8 (SS2)	14.02	98	80148	1040.908	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.09%				
45) Bromofluorobenzene (SS3)	17.43	174	28337	1029.711	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.97%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.			
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.			
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.36	94	128	7.726	pg		99
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	6.15	56	282	28.273	pg		87
10) Acetone	6.29	58	4228	334.355	pg		99
11) Trichlorofluoromethane	0.00	101	0	N.D.			
12) 1,1-Dichloroethene	0.00	96	0	N.D.			
13) Methylene Chloride	7.34	84	67	3.182	pg		94
14) Trichlorotrifluoroethane	0.00	151	0	N.D.			
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	0.00	63	0	N.D.			
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	463	13.150	pg		96
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
23) Benzene	11.24	78	1079	12.198	pg		98
24) Carbon Tetrachloride	0.00	117	0	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	0.00	83	0	N.D.			
28) Trichloroethene	0.00	130	0	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	524	6.146	pg		98
35) Dibromochloromethane	0.00	129	0	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	0.00	166	0	N.D.			
39) Chlorobenzene	0.00	112	0	N.D.	d		
40) Ethylbenzene	16.35	91	168	1.871	pg		96
41) m,p-Xylene	16.53	91	340	4.953	pg		99
42) Styrene	16.89	104	124	2.274	pg		97
43) o-Xylene	17.00	106	56	1.534	pg	#	15
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d		
46) 1,3,5-Trimethylbenzene	18.27	105	68	0.886	pg	#	25
47) 1,2,4-Trimethylbenzene	18.66	105	134	1.750	pg		89
48) 1,3-Dichlorobenzene	18.81	146	157	3.138	pg		97
49) 1,4-Dichlorobenzene	18.88	146	204	4.060	pg		99
50) 1,2-Dichlorobenzene	19.20	146	154	3.208	pg		99
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	20.83	182	253	8.902	pg		97
53) Naphthalene	20.94	128	860	9.601	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191804.D Vial: 2
Acq On : 19 Oct 2018 5:56 Operator: WA
Sample : MB S19101918_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 19 14:25:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

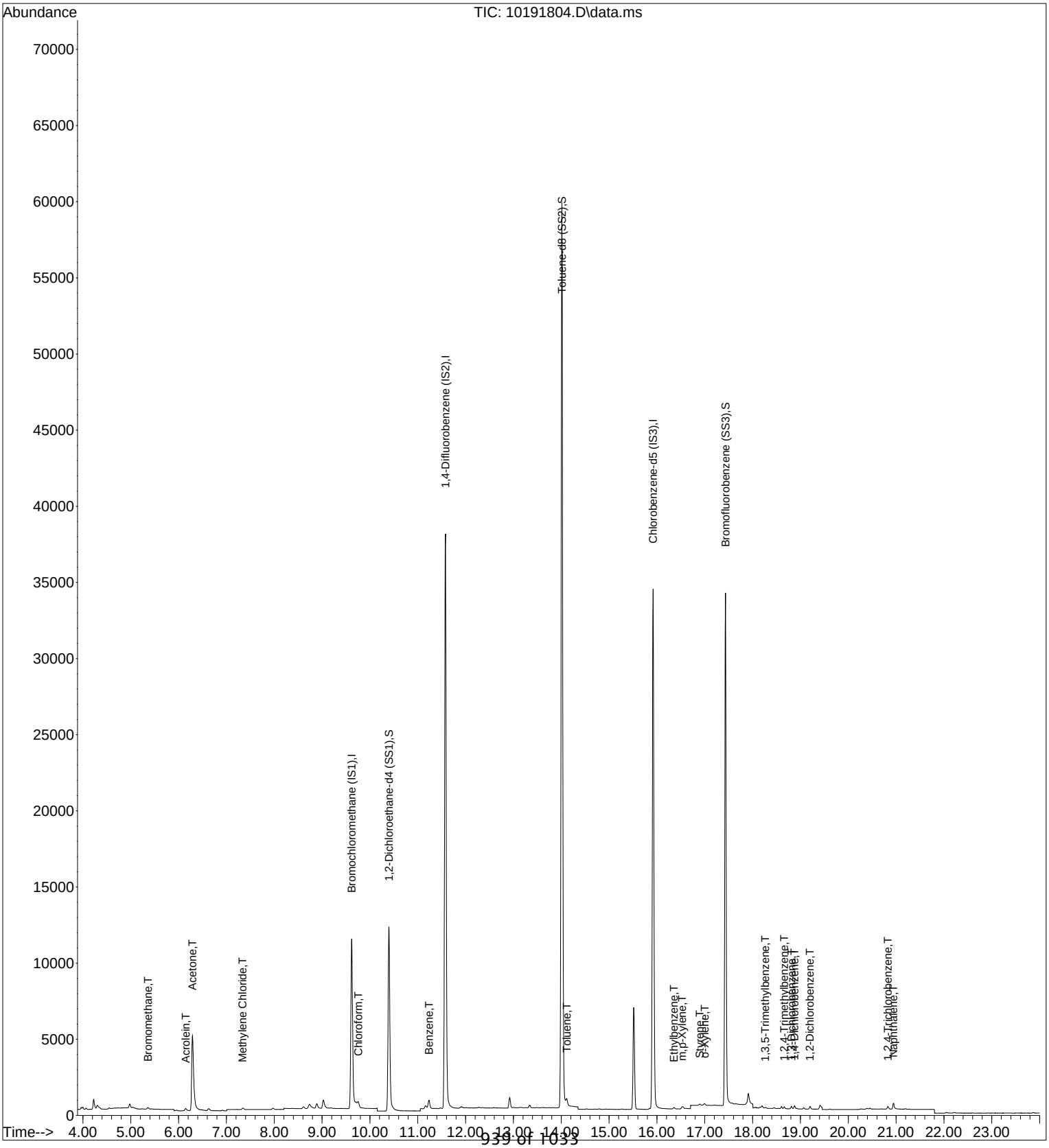
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191804.D Vial: 2
Acq On : 19 Oct 2018 5:56 Operator: WA
Sample : MB S19101918_1000mL Inst : MS19
Misc : S31-09241806_AS01329

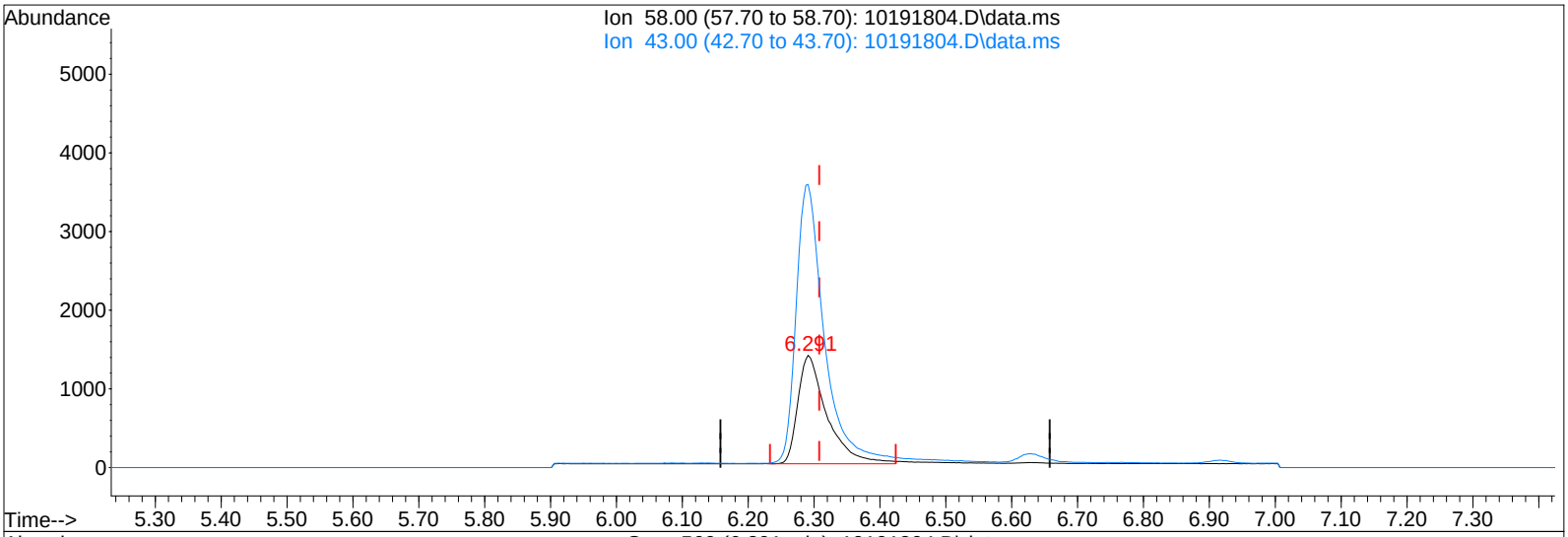
Quant Time: Oct 19 14:25:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

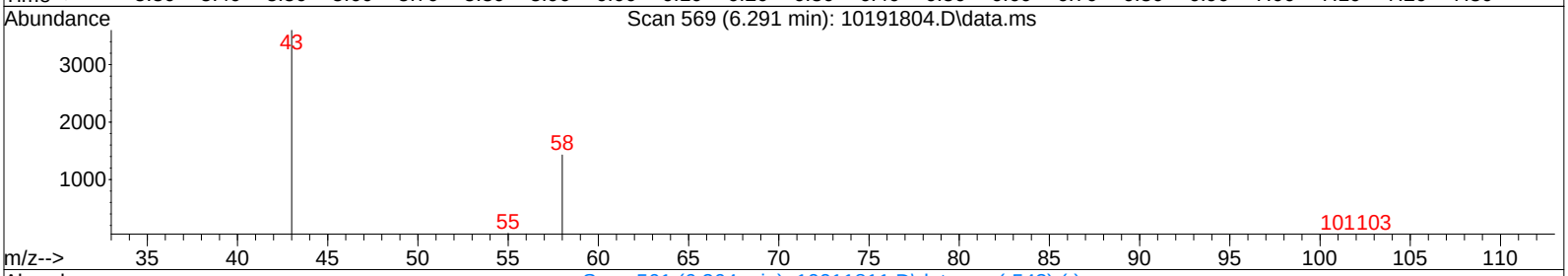


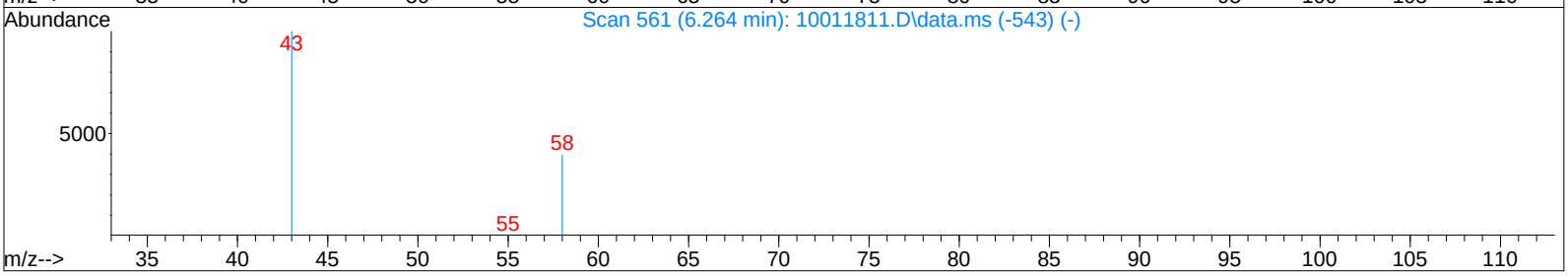
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2018_10\19\10191804.D Vial: 2
Acq On : 19 Oct 2018 5:56 Operator: WA
Sample : MB S19101918_1000mL Inst : MS19
Misc : S31-09241806_AS01329

Quant Time: Oct 19 06:24:56 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 10191804.D\data.ms

(10) Acetone (T)

6.291min (-0.017) 334.36pg

response 4228

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	256.91
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171805.D Vial: 2
Acq On : 17 Oct 2018 9:56 Operator: WA
Sample : LCS S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:50 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 VOA 10/18/18
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18742	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85457	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10747	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21822	972.669	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.27%				
33) Toluene-d8 (SS2)	14.01	98	87775	996.002	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.60%				
45) Bromofluorobenzene (SS3)	17.43	174	33358	1098.471	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.85%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.32	85	37898	949.001	pg		100
3) Chloromethane	4.52	52	8621	923.223	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	25122	872.691	pg		100
5) Vinyl Chloride	4.82	62	24656	950.799	pg		99
6) 1,3-Butadiene	5.01	54	16484	840.869	pg		98
7) Bromomethane	5.33	94	16387	899.503	pg		100
8) Chloroethane	5.56	64	12491	920.610	pg		100
9) Acrolein	6.12	56	9699	884.305	pg		100
10) Acetone	6.27	58	66282	4766.770	pg	#	86
11) Trichlorofluoromethane	6.48	101	29311	938.519	pg		100
12) 1,1-Dichloroethene	7.20	96	24194	1094.684	pg		99
13) Methylene Chloride	7.34	84	21890	945.492	pg		99
14) Trichlorotrifluoroethane	7.67	151	20351	929.748	pg		100
15) trans-1,2-Dichloroethene	8.37	96	22429	975.409	pg		100
16) 1,1-Dichloroethane	8.58	63	33821	942.394	pg		100
17) Methyl tert-Butyl Ether	8.66	73	58264	958.743	pg		100
18) cis-1,2-Dichloroethene	9.46	96	23500	960.198	pg		100
19) Chloroform	9.76	83	35532	917.726	pg		100
21) 1,2-Dichloroethane	10.51	62	22872	955.094	pg		100
22) 1,1,1-Trichloroethane	10.78	97	31345	954.481	pg		100
23) Benzene	11.23	78	92651	952.535	pg		100
24) Carbon Tetrachloride	11.39	117	28933	965.230	pg		100
26) 1,2-Dichloropropane	12.05	63	20695	972.284	pg		100
27) Bromodichloromethane	12.22	83	27618	977.497	pg		100
28) Trichloroethene	12.28	130	26779	1002.884	pg		100
29) 1,4-Dioxane	12.25	88	18462	1010.612	pg		99
30) cis-1,3-Dichloropropene	13.12	75	31965	962.037	pg		100
31) trans-1,3-Dichloropropene	13.63	75	27372	978.687	pg		100
32) 1,1,2-Trichloroethane	13.81	83	18142	977.610	pg		100
34) Toluene	14.11	91	92864	951.719	pg		100
35) Dibromochloromethane	14.53	129	25446	973.466	pg		100
36) 1,2-Dibromoethane	14.78	107	24592	982.101	pg		100
37) Tetrachloroethene	15.27	166	28089	978.249	pg		100
39) Chlorobenzene	15.96	112	64806	996.027	pg		100
40) Ethylbenzene	16.35	91	102671	1036.250	pg		100
41) m,p-Xylene	16.53	91	158009	2085.754	pg		100
42) Styrene	16.89	104	63378	1053.264	pg		100
43) o-Xylene	16.99	106	41921	1040.851	pg		99
44) 1,1,2,2-Tetrachloroethane	16.96	83	37136	960.919	pg		100
46) 1,3,5-Trimethylbenzene	18.27	105	90046	1063.002	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	90690	1073.197	pg		100
48) 1,3-Dichlorobenzene	18.80	146	56337	1020.471	pg		100
49) 1,4-Dichlorobenzene	18.87	146	54953	991.203	pg		100
50) 1,2-Dichlorobenzene	19.19	146	55021	1038.543	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19101	1045.609	pg		98
52) 1,2,4-Trichlorobenzene	20.82	182	33884	1080.380	pg		100
53) Naphthalene	20.93	128	103906	1051.226	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171805.D Vial: 2
Acq On : 17 Oct 2018 9:56 Operator: WA
Sample : LCS S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:50 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

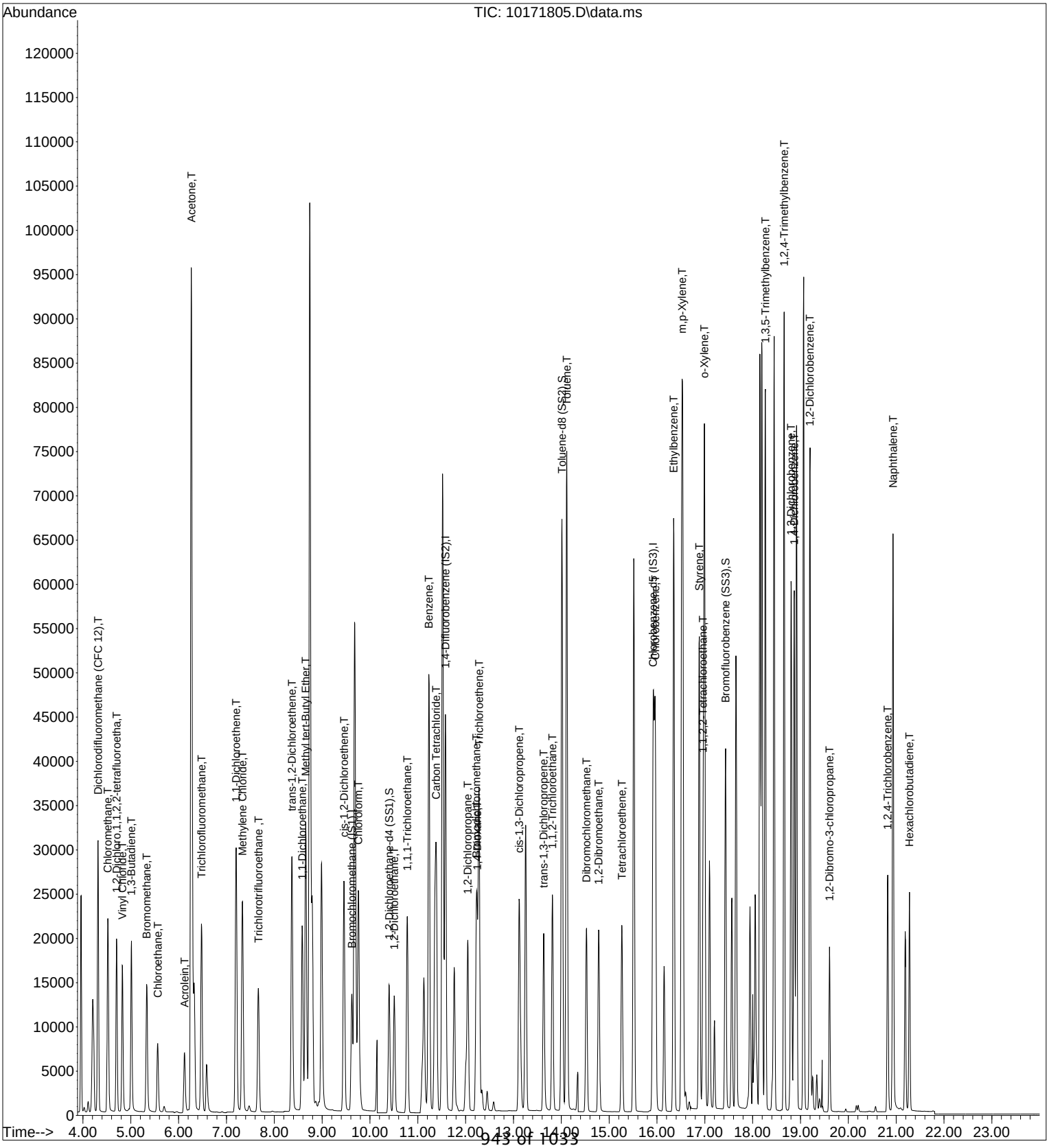
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	23600	1023.988	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171805.D Vial: 2
Acq On : 17 Oct 2018 9:56 Operator: WA
Sample : LCS S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:50 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171806.D Vial: 2
Acq On : 17 Oct 2018 10:28 Operator: WA
Sample : LCSD S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *10/18/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18906	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	86082	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10738	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21992	971.743	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.17%				
33) Toluene-d8 (SS2)	14.02	98	88094	992.364	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.24%				
45) Bromofluorobenzene (SS3)	17.43	174	33384	1100.249	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 110.02%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	38340	951.741	pg		100
3) Chloromethane	4.52	52	8726	926.361	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	25463	876.864	pg		100
5) Vinyl Chloride	4.82	62	25006	955.931	pg		100
6) 1,3-Butadiene	5.01	54	16705	844.750	pg		97
7) Bromomethane	5.33	94	16559	901.060	pg		100
8) Chloroethane	5.56	64	12663	925.191	pg		100
9) Acrolein	6.12	56	9828	888.293	pg		100
10) Acetone	6.27	58	67208	4791.438	pg	#	85
11) Trichlorofluoromethane	6.48	101	29556	938.155	pg		100
12) 1,1-Dichloroethene	7.20	96	24483	1098.150	pg		99
13) Methylene Chloride	7.34	84	22104	946.453	pg		98
14) Trichlorotrifluoroethane	7.67	151	20611	933.458	pg		100
15) trans-1,2-Dichloroethene	8.37	96	22463	968.414	pg		100
16) 1,1-Dichloroethane	8.58	63	34270	946.622	pg		100
17) Methyl tert-Butyl Ether	8.66	73	59007	962.547	pg		100
18) cis-1,2-Dichloroethene	9.46	96	23746	961.833	pg		100
19) Chloroform	9.76	83	35821	917.165	pg		100
21) 1,2-Dichloroethane	10.51	62	23138	957.820	pg		100
22) 1,1,1-Trichloroethane	10.78	97	31563	952.783	pg		100
23) Benzene	11.23	78	89995	917.203	pg		100
24) Carbon Tetrachloride	11.39	117	29075	961.554	pg		100
26) 1,2-Dichloropropane	12.05	63	20828	971.428	pg		100
27) Bromodichloromethane	12.22	83	27697	973.176	pg		100
28) Trichloroethene	12.28	130	26885	999.543	pg		100
29) 1,4-Dioxane	12.25	88	18532	1007.078	pg		100
30) cis-1,3-Dichloropropene	13.12	75	32226	962.850	pg		100
31) trans-1,3-Dichloropropene	13.63	75	27601	979.710	pg		100
32) 1,1,2-Trichloroethane	13.81	83	18209	974.096	pg		100
34) Toluene	14.11	91	93545	951.738	pg		100
35) Dibromochloromethane	14.53	129	25444	966.323	pg		100
36) 1,2-Dibromoethane	14.78	107	24643	976.992	pg		99
37) Tetrachloroethene	15.27	166	28210	975.330	pg		100
39) Chlorobenzene	15.96	112	64723	995.585	pg		100
40) Ethylbenzene	16.35	91	103020	1040.644	pg		100
41) m,p-Xylene	16.53	91	158554	2094.703	pg		100
42) Styrene	16.89	104	63102	1049.556	pg		100
43) o-Xylene	16.99	106	41913	1041.524	pg		100
44) 1,1,2,2-Tetrachloroethane	16.96	83	37470	970.374	pg		100
46) 1,3,5-Trimethylbenzene	18.26	105	90199	1065.700	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	91100	1078.952	pg		100
48) 1,3-Dichlorobenzene	18.80	146	56124	1017.465	pg		99
49) 1,4-Dichlorobenzene	18.87	146	55818	1007.649	pg		99
50) 1,2-Dichlorobenzene	19.20	146	55182	1042.455	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19217	1052.840	pg		99
52) 1,2,4-Trichlorobenzene	20.82	182	34665	1106.209	pg		100
53) Naphthalene	20.94	128	106509	1078.464	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171806.D Vial: 2
Acq On : 17 Oct 2018 10:28 Operator: WA
Sample : LCSD S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

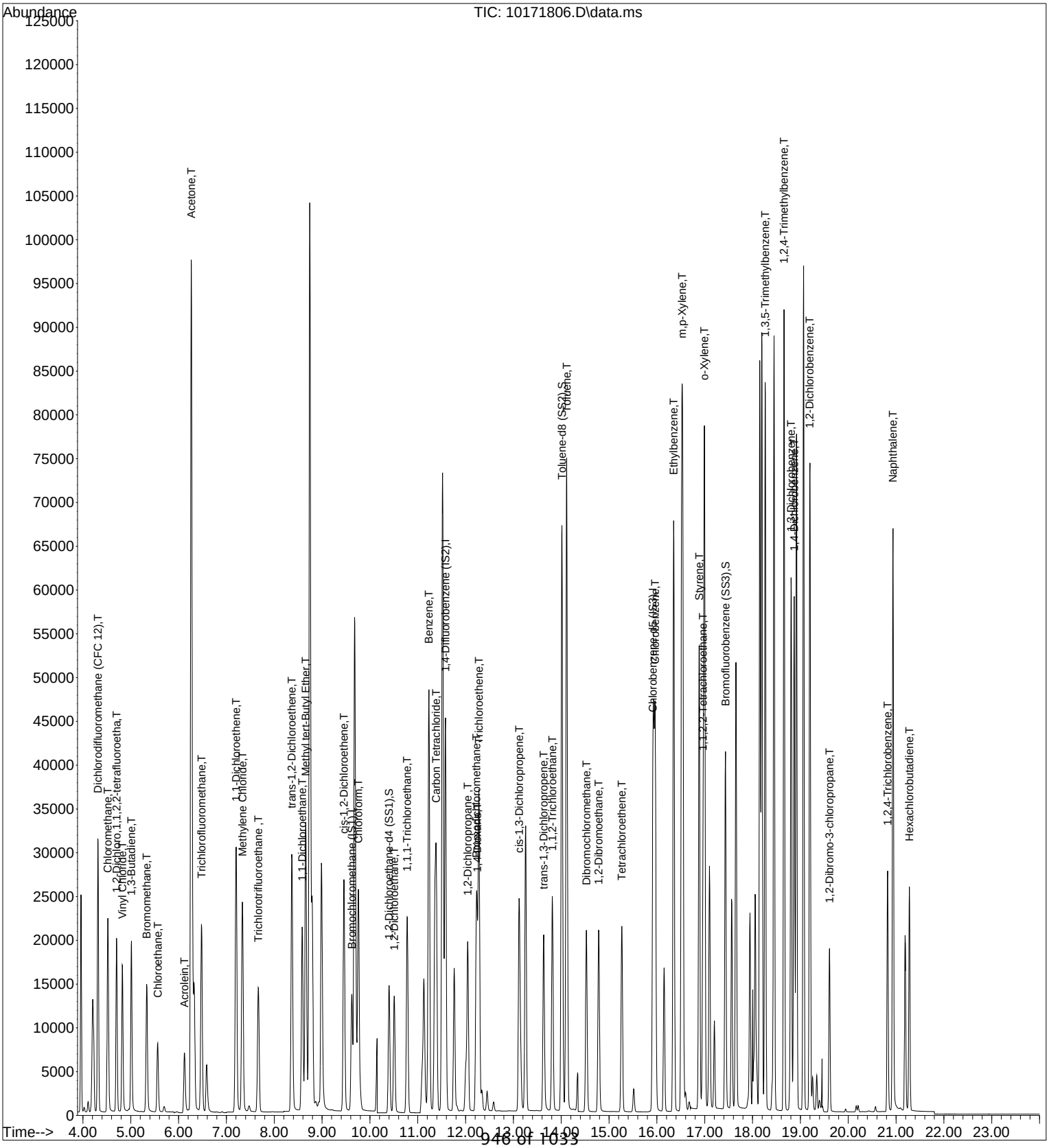
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	24230	1052.205	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171806.D Vial: 2
Acq On : 17 Oct 2018 10:28 Operator: WA
Sample : LCSD S19101718_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 17 12:11:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181805.D Vial: 2
Acq On : 18 Oct 2018 2:23 Operator: WA
Sample : LCS S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/18/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18562	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	84998	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10944	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	21826	982.281	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.23%			
33) Toluene-d8 (SS2)	14.01	98	89015	1015.527	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.55%			
45) Bromofluorobenzene (SS3)	17.43	174	33559	1085.198	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.52%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	37477	947.560	pg	100
3) Chloromethane	4.52	52	8603	930.229	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	24673	865.405	pg	100
5) Vinyl Chloride	4.82	62	25383	988.326	pg	100
6) 1,3-Butadiene	5.01	54	17879	920.873	pg	100
7) Bromomethane	5.33	94	16069	890.601	pg	100
8) Chloroethane	5.56	64	12353	919.268	pg	100
9) Acrolein	6.12	56	9773	899.692	pg	99
10) Acetone	6.26	58	66536	4831.438	pg	98
11) Trichlorofluoromethane	6.48	101	28969	936.564	pg	100
12) 1,1-Dichloroethene	7.20	96	24128	1102.284	pg	100
13) Methylene Chloride	7.33	84	21646	944.019	pg	99
14) Trichlorotrifluoroethane	7.67	151	20104	927.370	pg	100
15) trans-1,2-Dichloroethene	8.37	96	22395	983.375	pg	100
16) 1,1-Dichloroethane	8.58	63	33878	953.136	pg	100
17) Methyl tert-Butyl Ether	8.65	73	59767	993.013	pg	100
18) cis-1,2-Dichloroethene	9.45	96	23392	965.054	pg	100
19) Chloroform	9.76	83	35050	914.055	pg	100
21) 1,2-Dichloroethane	10.51	62	22734	958.537	pg	99
22) 1,1,1-Trichloroethane	10.78	97	31136	957.311	pg	100
23) Benzene	11.23	78	90942	944.032	pg	100
24) Carbon Tetrachloride	11.39	117	28361	955.323	pg	100
26) 1,2-Dichloropropane	12.04	63	20611	973.567	pg	100
27) Bromodichloromethane	12.22	83	27192	967.617	pg	100
28) Trichloroethene	12.28	130	26340	991.770	pg	100
29) 1,4-Dioxane	12.25	88	18522	1019.371	pg	100
30) cis-1,3-Dichloropropene	13.12	75	32333	978.367	pg	100
31) trans-1,3-Dichloropropene	13.63	75	27651	994.002	pg	100
32) 1,1,2-Trichloroethane	13.81	83	17900	969.778	pg	100
34) Toluene	14.11	91	92717	955.344	pg	100
35) Dibromochloromethane	14.53	129	24844	955.569	pg	100
36) 1,2-Dibromoethane	14.78	107	24287	975.158	pg	100
37) Tetrachloroethene	15.26	166	27439	960.772	pg	100
39) Chlorobenzene	15.97	112	64029	966.371	pg	100
40) Ethylbenzene	16.35	91	103002	1020.878	pg	100
41) m,p-Xylene	16.53	91	157820	2045.759	pg	100
42) Styrene	16.89	104	63315	1033.277	pg	100
43) o-Xylene	17.00	106	41632	1015.068	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	36447	926.114	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	89365	1035.972	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	90356	1049.997	pg	100
48) 1,3-Dichlorobenzene	18.81	146	55055	979.298	pg	100
49) 1,4-Dichlorobenzene	18.87	146	54264	961.157	pg	100
50) 1,2-Dichlorobenzene	19.19	146	54096	1002.703	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	18826	1012.004	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	34977	1095.155	pg	100
53) Naphthalene	20.93	128	107091	1063.946	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181805.D Vial: 2
Acq On : 18 Oct 2018 2:23 Operator: WA
Sample : LCS S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

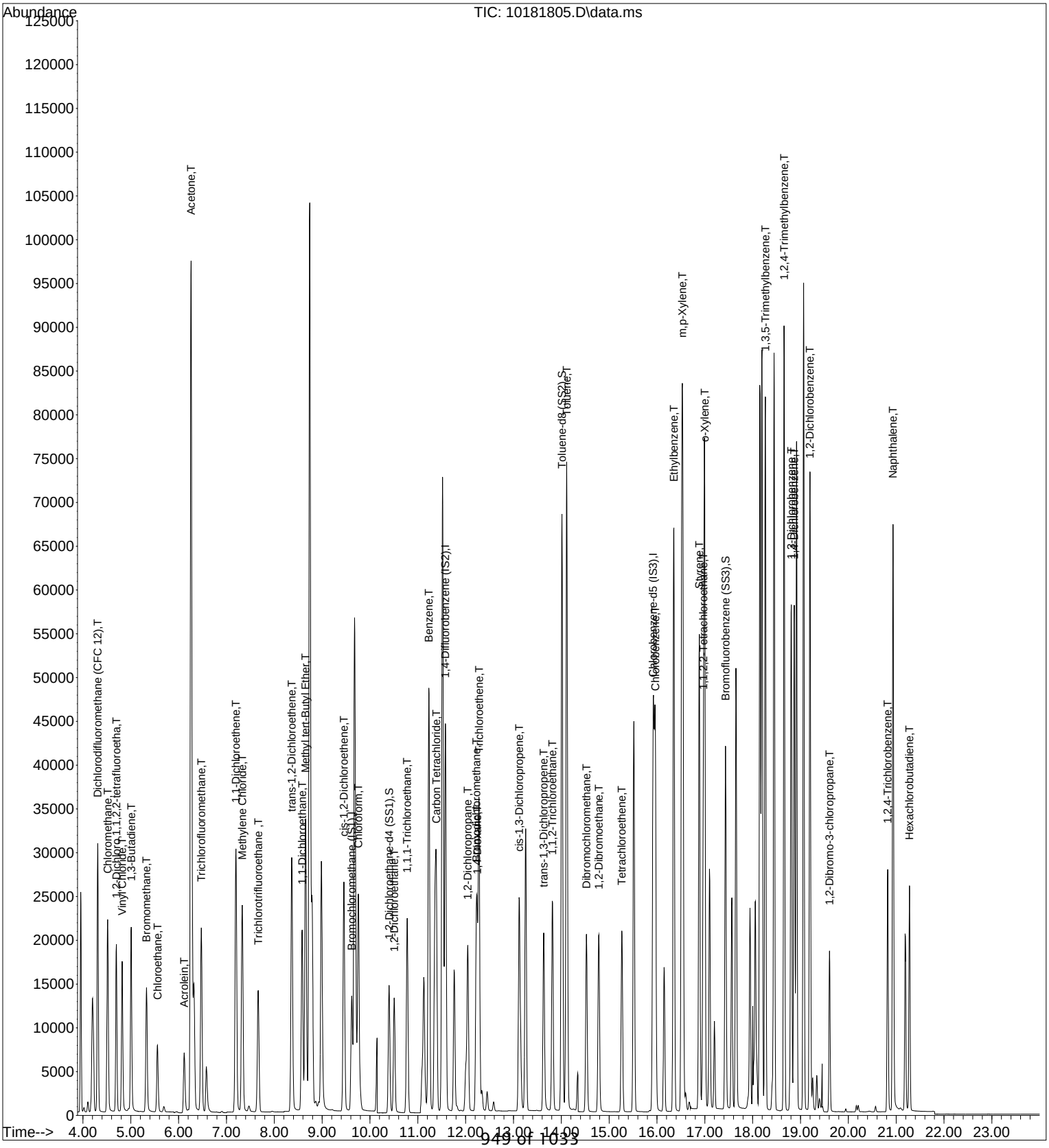
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	24678	1051.488	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181805.D Vial: 2
Acq On : 18 Oct 2018 2:23 Operator: WA
Sample : LCS S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181806.D Vial: 2
Acq On : 18 Oct 2018 2:54 Operator: WA
Sample : LCSD S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018 *WA 10/18/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18678	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85728	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10942	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	21943	981.414	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.14%				
33) Toluene-d8 (SS2)	14.01	98	89440	1011.687	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.17%				
45) Bromofluorobenzene (SS3)	17.43	174	33754	1091.703	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.17%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.30	85	37839	950.771	pg		100
3) Chloromethane	4.51	52	8674	932.081	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	24986	870.941	pg		100
5) Vinyl Chloride	4.81	62	26131	1011.131	pg		99
6) 1,3-Butadiene	5.00	54	18465	945.149	pg		99
7) Bromomethane	5.32	94	16265	895.866	pg		100
8) Chloroethane	5.55	64	12379	915.482	pg		100
9) Acrolein	6.11	56	9825	898.862	pg		100
10) Acetone	6.26	58	66552	4802.587	pg	#	83
11) Trichlorofluoromethane	6.47	101	29156	936.755	pg		100
12) 1,1-Dichloroethene	7.19	96	24360	1105.971	pg		100
13) Methylene Chloride	7.33	84	21626	937.290	pg		100
14) Trichlorotrifluoroethane	7.66	151	20137	923.123	pg		100
15) trans-1,2-Dichloroethene	8.36	96	22436	979.057	pg		99
16) 1,1-Dichloroethane	8.58	63	34132	954.318	pg		100
17) Methyl tert-Butyl Ether	8.65	73	60127	992.790	pg		100
18) cis-1,2-Dichloroethene	9.45	96	23598	967.507	pg		100
19) Chloroform	9.75	83	35213	912.603	pg		100
21) 1,2-Dichloroethane	10.50	62	22867	958.157	pg		100
22) 1,1,1-Trichloroethane	10.78	97	31272	955.521	pg		100
23) Benzene	11.23	78	89033	918.475	pg		100
24) Carbon Tetrachloride	11.39	117	28544	955.516	pg		100
26) 1,2-Dichloropropane	12.05	63	20688	968.883	pg		99
27) Bromodichloromethane	12.22	83	27291	962.870	pg		100
28) Trichloroethene	12.28	130	26406	985.788	pg		100
29) 1,4-Dioxane	12.25	88	18635	1016.857	pg		99
30) cis-1,3-Dichloropropene	13.12	75	32497	974.956	pg		99
31) trans-1,3-Dichloropropene	13.63	75	27930	995.482	pg		100
32) 1,1,2-Trichloroethane	13.81	83	17997	966.730	pg		100
34) Toluene	14.11	91	93262	952.776	pg		100
35) Dibromochloromethane	14.52	129	24806	945.983	pg		100
36) 1,2-Dibromoethane	14.78	107	24254	965.540	pg		99
37) Tetrachloroethene	15.27	166	27647	959.812	pg		100
39) Chlorobenzene	15.96	112	64090	967.468	pg		100
40) Ethylbenzene	16.35	91	103250	1023.523	pg		100
41) m,p-Xylene	16.53	91	158320	2052.616	pg		100
42) Styrene	16.88	104	63004	1028.389	pg		100
43) o-Xylene	16.99	106	41722	1017.449	pg		100
44) 1,1,2,2-Tetrachloroethane	16.96	83	36747	933.908	pg		100
46) 1,3,5-Trimethylbenzene	18.26	105	89535	1038.133	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	90259	1049.062	pg		100
48) 1,3-Dichlorobenzene	18.80	146	54773	974.460	pg		99
49) 1,4-Dichlorobenzene	18.87	146	54557	966.523	pg		100
50) 1,2-Dichlorobenzene	19.20	146	53888	999.030	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	18638	1002.081	pg		100
52) 1,2,4-Trichlorobenzene	20.82	182	33983	1064.227	pg		100
53) Naphthalene	20.94	128	103977	1033.197	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181806.D Vial: 2
Acq On : 18 Oct 2018 2:54 Operator: WA
Sample : LCSD S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

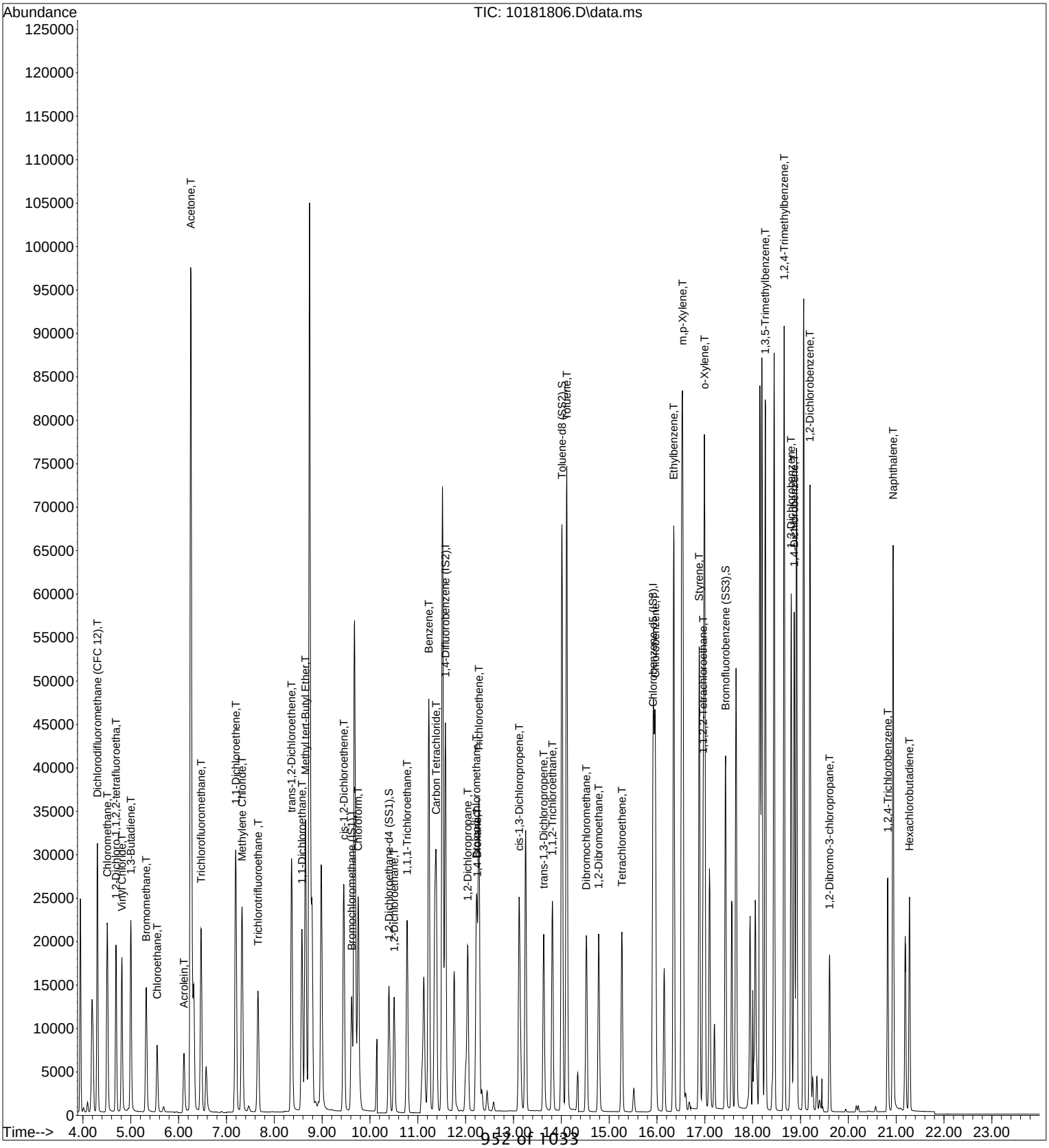
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	23472	1000.285	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181806.D Vial: 2
Acq On : 18 Oct 2018 2:54 Operator: WA
Sample : LCSD S19101818_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 18 09:38:33 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191805.D Vial: 2
Acq On : 19 Oct 2018 6:28 Operator: WA
Sample : LCS S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/19/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17711	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	81784	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10206	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20717	977.170	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.72%				
33) Toluene-d8 (SS2)	14.01	98	84627	1003.408	pg		-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.34%				
45) Bromofluorobenzene (SS3)	17.43	174	31287	1084.886	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.49%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.31	85	35239	933.785	pg		100
3) Chloromethane	4.52	52	8010	907.725	pg		96
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	24159	888.093	pg		100
5) Vinyl Chloride	4.82	62	24817	1012.717	pg		100
6) 1,3-Butadiene	5.01	54	16988	917.024	pg		99
7) Bromomethane	5.33	94	15266	886.750	pg		100
8) Chloroethane	5.55	64	11685	911.339	pg		100
9) Acrolein	6.12	56	9205	888.120	pg		99
10) Acetone	6.26	58	62096	4725.688	pg	#	85
11) Trichlorofluoromethane	6.48	101	27279	924.302	pg		100
12) 1,1-Dichloroethene	7.20	96	22698	1086.779	pg		99
13) Methylene Chloride	7.33	84	20342	929.776	pg		98
14) Trichlorotrifluoroethane	7.66	151	19001	918.605	pg		100
15) trans-1,2-Dichloroethene	8.37	96	20877	960.767	pg		100
16) 1,1-Dichloroethane	8.58	63	31821	938.280	pg		100
17) Methyl tert-Butyl Ether	8.65	73	55737	970.551	pg		100
18) cis-1,2-Dichloroethene	9.45	96	22076	954.523	pg		100
19) Chloroform	9.76	83	33103	904.760	pg		100
21) 1,2-Dichloroethane	10.50	62	21402	945.734	pg		100
22) 1,1,1-Trichloroethane	10.78	97	29278	943.438	pg		100
23) Benzene	11.23	78	85025	925.019	pg		100
24) Carbon Tetrachloride	11.39	117	26973	952.225	pg		100
26) 1,2-Dichloropropane	12.04	63	19425	953.604	pg		100
27) Bromodichloromethane	12.22	83	25707	950.723	pg		100
28) Trichloroethene	12.28	130	25057	980.538	pg		100
29) 1,4-Dioxane	12.24	88	17453	998.286	pg		99
30) cis-1,3-Dichloropropene	13.12	75	30226	950.554	pg		100
31) trans-1,3-Dichloropropene	13.63	75	25796	963.761	pg		100
32) 1,1,2-Trichloroethane	13.81	83	16866	949.668	pg		100
34) Toluene	14.11	91	87641	938.530	pg		100
35) Dibromochloromethane	14.53	129	23628	944.512	pg		100
36) 1,2-Dibromoethane	14.78	107	22904	955.769	pg		100
37) Tetrachloroethene	15.26	166	26177	952.604	pg		100
39) Chlorobenzene	15.97	112	60419	977.825	pg		100
40) Ethylbenzene	16.35	91	97011	1031.026	pg		100
41) m,p-Xylene	16.53	91	149201	2073.885	pg		100
42) Styrene	16.89	104	59674	1044.277	pg		100
43) o-Xylene	17.00	106	39396	1030.008	pg		100
44) 1,1,2,2-Tetrachloroethane	16.97	83	34338	935.618	pg		100
46) 1,3,5-Trimethylbenzene	18.27	105	88159	1095.892	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	88868	1107.381	pg		100
48) 1,3-Dichlorobenzene	18.81	146	53942	1028.882	pg		100
49) 1,4-Dichlorobenzene	18.87	146	52770	1002.282	pg		100
50) 1,2-Dichlorobenzene	19.19	146	52508	1043.646	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	18368	1058.782	pg		98
52) 1,2,4-Trichlorobenzene	20.82	182	31909	1071.339	pg		100
53) Naphthalene	20.93	128	97268	1036.232	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191805.D Vial: 2
Acq On : 19 Oct 2018 6:28 Operator: WA
Sample : LCS S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

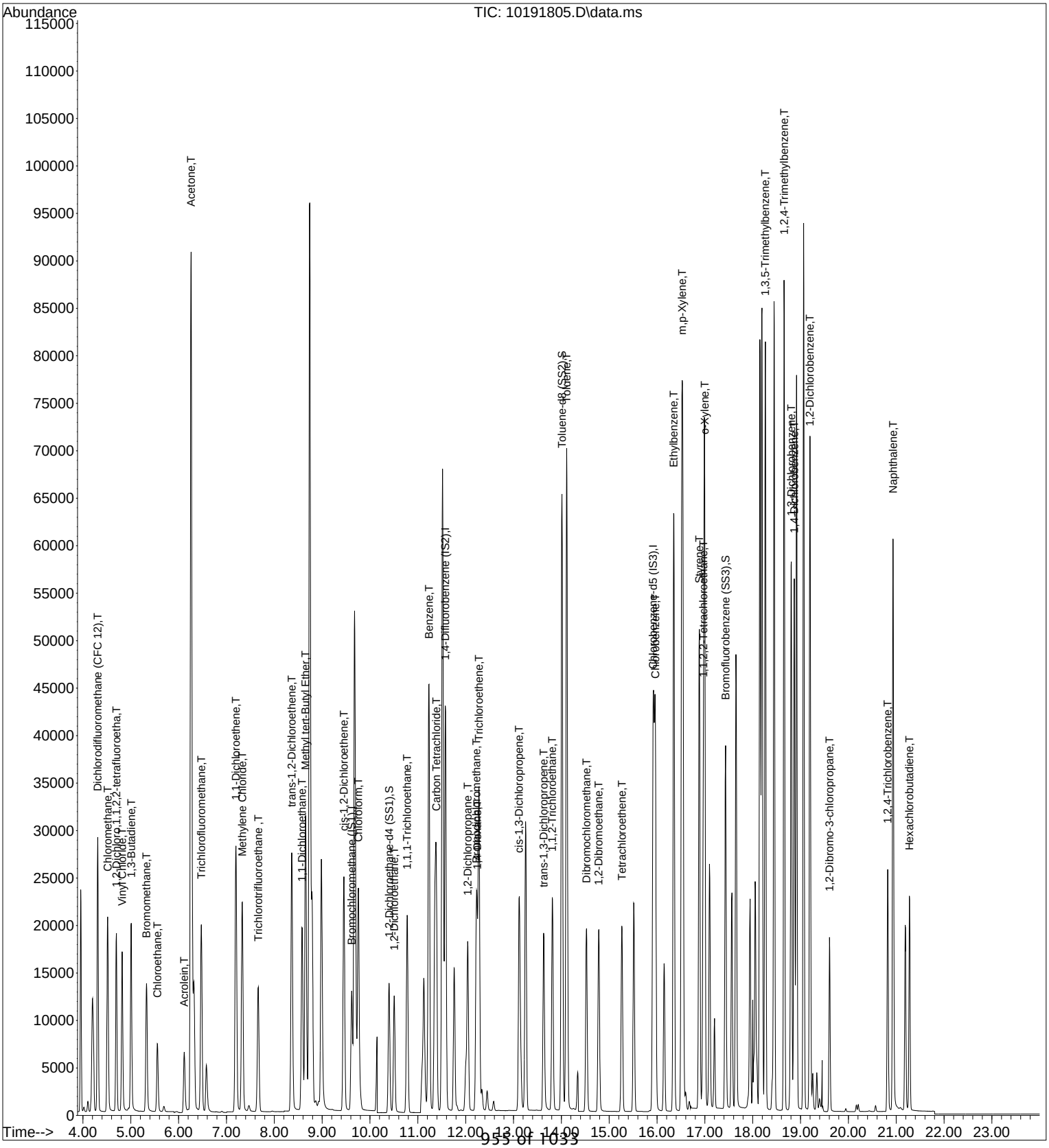
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	21708	991.824	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191805.D Vial: 2
Acq On : 19 Oct 2018 6:28 Operator: WA
Sample : LCS S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191806.D Vial: 2
Acq On : 19 Oct 2018 6:59 Operator: WA
Sample : LCSD S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:12 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/19/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18235	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	82187	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11153	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	20854	955.367	pg		-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.54%				
33) Toluene-d8 (SS2)	14.01	98	88902	1048.927	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.89%				
45) Bromofluorobenzene (SS3)	17.44	174	31833	1010.094	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.01%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.30	85	35601	916.269	pg		100
3) Chloromethane	4.51	52	8129	894.738	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	24272	866.607	pg		100
5) Vinyl Chloride	4.82	62	24946	988.729	pg		100
6) 1,3-Butadiene	5.00	54	17238	903.780	pg		99
7) Bromomethane	5.32	94	15708	886.205	pg		100
8) Chloroethane	5.56	64	11763	891.060	pg		100
9) Acrolein	6.12	56	9179	860.163	pg		100
10) Acetone	6.26	58	62373	4610.366	pg	#	85
11) Trichlorofluoromethane	6.47	101	27460	903.698	pg		100
12) 1,1-Dichloroethene	7.20	96	22825	1061.456	pg		100
13) Methylene Chloride	7.33	84	20520	910.961	pg		99
14) Trichlorotrifluoroethane	7.66	151	19079	895.870	pg		100
15) trans-1,2-Dichloroethene	8.37	96	21188	947.059	pg		100
16) 1,1-Dichloroethane	8.58	63	32270	924.177	pg		100
17) Methyl tert-Butyl Ether	8.65	73	56407	953.993	pg		100
18) cis-1,2-Dichloroethene	9.46	96	22813	958.045	pg		100
19) Chloroform	9.76	83	33808	897.476	pg		100
21) 1,2-Dichloroethane	10.51	62	21416	919.159	pg		100
22) 1,1,1-Trichloroethane	10.78	97	29345	918.425	pg		100
23) Benzene	11.23	78	83967	887.258	pg		100
24) Carbon Tetrachloride	11.39	117	26976	924.965	pg		100
26) 1,2-Dichloropropane	12.05	63	19391	947.267	pg		99
27) Bromodichloromethane	12.22	83	25775	948.564	pg		100
28) Trichloroethene	12.28	130	25004	973.666	pg		100
29) 1,4-Dioxane	12.25	88	17502	996.180	pg		99
30) cis-1,3-Dichloropropene	13.12	75	31430	983.571	pg		100
31) trans-1,3-Dichloropropene	13.63	75	27209	1011.567	pg		100
32) 1,1,2-Trichloroethane	13.81	83	17743	994.150	pg		100
34) Toluene	14.11	91	91327	973.207	pg		100
35) Dibromochloromethane	14.52	129	24388	970.113	pg		100
36) 1,2-Dibromoethane	14.78	107	24069	999.458	pg		100
37) Tetrachloroethene	15.27	166	26967	976.541	pg		100
39) Chlorobenzene	15.96	112	62796	930.001	pg		100
40) Ethylbenzene	16.35	91	101988	991.885	pg		100
41) m,p-Xylene	16.53	91	160711	2044.196	pg		99
42) Styrene	16.88	104	61064	977.867	pg		100
43) o-Xylene	16.99	106	40299	964.154	pg		99
44) 1,1,2,2-Tetrachloroethane	16.97	83	35718	890.583	pg		100
46) 1,3,5-Trimethylbenzene	18.26	105	85451	972.036	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	85776	978.096	pg		100
48) 1,3-Dichlorobenzene	18.81	146	52276	912.441	pg		99
49) 1,4-Dichlorobenzene	18.87	146	51841	901.032	pg		100
50) 1,2-Dichlorobenzene	19.20	146	51505	936.787	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	17829	940.450	pg		99
52) 1,2,4-Trichlorobenzene	20.82	182	32285	991.924	pg		100
53) Naphthalene	20.94	128	98320	958.501	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191806.D Vial: 2
Acq On : 19 Oct 2018 6:59 Operator: WA
Sample : LCSD S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:12 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

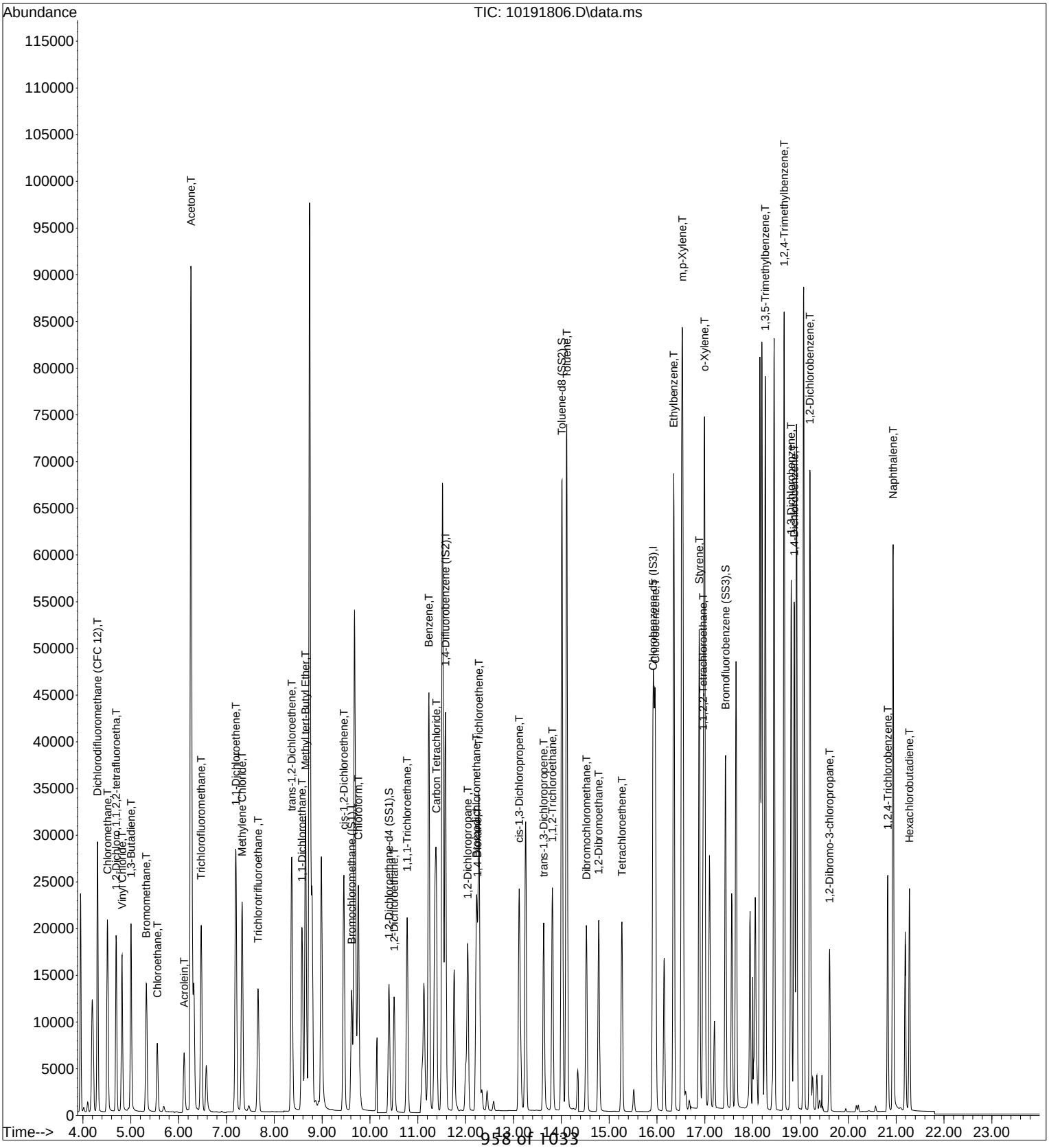
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	22758	951.509	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191806.D Vial: 2
Acq On : 19 Oct 2018 6:59 Operator: WA
Sample : LCSD S19101918_1000pg Inst : MS19
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 19 14:26:12 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018
Response Via : Initial Calibration

Calibration Files
20 =10011807.D 50 =10011808.D 100 =10011809.D 500 =10011810.D 1000=10011811.D 2000=10011812.D 5000=10011813.D
10K =10011814.D 25K =10011815.D 50K =10011816.D

		Compound	20	50	100	500	1000	2000	5000	10K	25K	50K	Avg	%RSD	
1)	I	Bromochloromethane...	----------	ISTD	----------										
2)	T	Dichlorodifluo...	2.473	2.247	2.130	2.080	2.439	2.198	1.952	1.896	2.033	1.858	2.131	9.94	
3)	T	Chloromethane	0.600	0.542	0.492	0.397	0.562	0.507	0.452	0.440	0.514	0.477	0.498	12.16	
4)	T	1,2-Dichloro,1...	1.777	1.607	1.518	1.477	1.732	1.565	1.396	1.355	1.486	1.446	1.536	8.92	
5)	T	Vinyl Chloride	1.557	1.431	1.353	1.333	1.559	1.420	1.266	1.248	1.379	1.289	1.384	7.95	
6)	T	1,3-Butadiene	1.161	0.966	0.920	0.864	1.240	1.071	0.924	0.899	1.240	1.175	1.046	14.18	
7)	T	Bromomethane	1.243	1.026	0.948	0.882	1.073	0.971	0.874	0.852	0.949	0.903	0.972	12.11	
8)	T	Chloroethane	0.828	0.740	0.705	0.688	0.809	0.735	0.663	0.653	0.728	0.689	0.724	7.99	
9)	T	Acrolein	0.784	0.634	0.563	0.570	0.609	0.572	0.520	0.511	0.558	0.531	0.585	13.57	
10)	T	Acetone			0.943	0.764	0.807	0.732	0.659	0.637	0.650		0.742	14.74	
11)	T	Trichlorofluor...	1.912	1.712	1.618	1.580	1.869	1.697	1.559	1.525	1.659	1.532	1.666	8.10	
12)	T	1,1-Dichloroet...	1.295	1.147	1.099	1.105	1.323	1.233	1.125	1.110	1.222	1.132	1.179	7.04	
13)	T	Methylene Chlo...	1.438	1.256	1.188	1.166	1.372	1.259	1.150	1.133	1.240	1.151	1.235	8.23	
14)	T	Trichlorotrifl...	1.358	1.251	1.095	0.981	1.364	1.244	1.079	1.007	1.195	1.106	1.168	11.63	
15)	T	trans-1,2-Dich...	1.316	1.183	1.150	1.153	1.373	1.273	1.176	1.170	1.283	1.191	1.227	6.37	
16)	T	1,1-Dichloroet...	2.134	1.927	1.818	1.770	2.172	1.989	1.801	1.782	1.960	1.796	1.915	7.72	
17)	T	Methyl tert-Bu...	3.208	2.921	2.818	2.989	3.716	3.469	3.234	3.222	3.560	3.288	3.243	8.77	
18)	T	cis-1,2-Dichlo...	1.367	1.246	1.206	1.230	1.479	1.372	1.271	1.255	1.369	1.263	1.306	6.60	
19)	T	Chloroform		2.744	2.130	1.901	2.238	2.051	1.862	1.830	1.998	1.838	2.066	14.06	
20)	S	1,2-Dichloroet...	1.189	1.195	1.209	1.219	1.187	1.196	1.195	1.203	1.188	1.190	1.197	0.86	
21)	T	1,2-Dichloroet...	1.355	1.255	1.218	1.231	1.455	1.342	1.226	1.205	1.299	1.192	1.278	6.57	
22)	T	1,1,1-Trichlor...	1.924	1.750	1.667	1.669	1.987	1.814	1.659	1.635	1.780	1.638	1.752	7.10	
23)	T	Benzene	7.432	5.606	4.900	4.761	5.550	5.114	4.625	4.523	4.896	4.490	5.190	16.92	
24)	T	Carbon Tetrach...	1.750	1.595	1.497	1.498	1.808	1.663	1.521	1.499	1.645	1.518	1.599	7.10	
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------										
26)	T	1,2-Dichloropr...	0.287	0.253	0.240	0.231	0.281	0.257	0.236	0.230	0.248	0.227	0.249	8.45	
27)	T	Bromodichlorom...	0.370	0.337	0.316	0.305	0.371	0.342	0.315	0.307	0.335	0.307	0.331	7.54	
28)	T	Trichloroethene	0.355	0.314	0.297	0.290	0.353	0.324	0.296	0.287	0.316	0.293	0.312	7.99	
29)	T	1,4-Dioxane	0.224	0.199	0.191	0.196	0.247	0.229	0.213	0.207	0.223	0.210	0.214	7.97	
30)	T	cis-1,3-Dichlo...	0.399	0.355	0.344	0.357	0.440	0.414	0.391	0.385	0.418	0.384	0.389	7.82	
31)	T	trans-1,3-Dich...	0.295	0.282	0.271	0.301	0.370	0.354	0.340	0.339	0.373	0.347	0.327	11.31	
32)	T	1,1,2-Trichlor...	0.242	0.221	0.209	0.203	0.246	0.226	0.206	0.200	0.218	0.201	0.217	7.70	
33)	S	Toluene-d8 (SS2)	1.055	1.042	1.035	1.031	1.020	1.019	1.025	1.029	1.027	1.030	1.031	1.03	
34)	T	Toluene	1.377	1.171	1.091	1.064	1.272	1.170	1.077	1.044	1.129	1.024	1.142	9.69	
35)	T	Dibromochlorom...	0.338	0.299	0.284	0.281	0.343	0.320	0.296	0.289	0.317	0.293	0.306	7.26	
36)	T	1,2-Dibromoethane	0.317	0.285	0.273	0.275	0.329	0.307	0.283	0.278	0.302	0.280	0.293	6.65	
37)	T	Tetrachloroethene	0.389	0.352	0.329	0.316	0.377	0.345	0.313	0.303	0.330	0.304	0.336	8.87	
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------										
39)	T	Chlorobenzene	7.143	6.485	6.096	5.893	7.105	6.497	5.856	5.507	5.484	4.475	6.054	13.33	
40)	T	Ethylbenzene	0.961	0.874	0.833	0.892	1.114	1.045	0.963	0.909	0.902	0.726	0.922	E1 11.72	
41)	T	m,p-Xylene	7.148	6.339	6.157	6.958	8.758	8.115	7.393	6.946	6.863	5.815	7.049	12.57	

10/2/18

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Method Path : I:\MS19\METHODS\
Method File : S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	4.809	4.551	4.583	5.588	6.858	6.566	6.164	5.868	6.074	4.930	5.599	14.99
43)	T	o-Xylene	3.672	3.480	3.417	3.747	4.661	4.297	3.905	3.659	3.662	2.977	3.748	12.44
44)	T	1,1,2,2-Tetrac...	4.035	3.702	3.522	3.523	4.327	3.981	3.583	3.359	3.279	2.650	3.596	12.94
45)	S	Bromofluoroben...	2.852	2.867	2.904	3.004	3.011	2.992	2.971	2.843	2.557	2.255	2.826	8.51
46)	T	1,3,5-Trimethy...	0.712	0.699	0.706	0.792	1.008	0.922	0.839	0.788	0.787	0.629	0.788	E1 14.32
47)	T	1,2,4-Trimethy...	0.694	0.691	0.704	0.800	1.015	0.937	0.847	0.791	0.776	0.608	0.786	E1 15.58
48)	T	1,3-Dichlorobe...	5.469	5.156	4.996	5.127	6.210	5.722	5.138	4.806	4.807	3.938	5.137	11.75
49)	T	1,4-Dichlorobe...	5.534	5.296	5.083	5.118	6.178	5.636	5.106	4.803	4.823	4.010	5.159	11.18
50)	T	1,2-Dichlorobe...	5.355	4.983	4.834	4.861	5.998	5.503	4.940	4.614	4.511	3.698	4.930	12.58
51)	T	1,2-Dibromo-3-...	1.549	1.547	1.549	1.680	2.055	1.980	1.829	1.731	1.674	1.406	1.700	12.06
52)	T	1,2,4-Trichlor...	2.814	2.746	2.593	2.776	3.010	3.435	3.187	3.017	3.007	2.597	2.918	9.10
53)	T	Naphthalene	0.792	0.780	0.748	0.863	0.930	1.119	1.032	0.973	1.068	0.892	0.920	E1 13.87
54)	T	Hexachlorobuta...	2.386	2.325	2.218	2.163	1.879	2.460	2.217	2.084	1.999	1.714	2.145	10.79

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

10/4/18

0.2ng/L Std. ID:
1ng/L Std. ID: S31-09271803
4ng/L Std. ID:
20ng/L Std. ID: S31-09271802
200ng/L Std. ID: S31-08171802

Dilution Factors:		5	50	250	1000	5000	Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	20	20	200	200
	Source Std.	Primary Working Standards					Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.100	0.250	0.500	0.125	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	25ng	50ng
Propene	1.031	206.2	20.62	4.124	1.031	0.2062		NA	0.02062	0.05155	0.1031	0.5155	1.031	2.062	5.155	10.31	25.775	51.55
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045	0.2090		NA	0.02090	0.05225	0.1045	0.5225	1.045	2.090	5.225	10.45	26.125	52.25
Chloromethane	1.008	201.6	20.16	4.032	1.008	0.2016		NA	0.02016	0.05040	0.1008	0.5040	1.008	2.016	5.040	10.08	25.200	50.40
Freon-114	1.028	205.6	20.56	4.112	1.028	0.2056		NA	0.02056	0.05140	0.1028	0.5140	1.028	2.056	5.140	10.28	25.700	51.40
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051	0.2102		NA	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	26.275	52.55
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049	0.2098		NA	0.02098	0.05245	0.1049	0.5245	1.049	2.098	5.245	10.49	26.225	52.45
Bromomethane	1.009	201.8	20.18	4.036	1.009	0.2018		NA	0.02018	0.05045	0.1009	0.5045	1.009	2.018	5.045	10.09	25.225	50.45
Chloroethane	1.022	204.4	20.44	4.088	1.022	0.2044		NA	0.02044	0.05110	0.1022	0.5110	1.022	2.044	5.110	10.22	25.550	51.10
Ethanol	5.140	1028.0	102.80	20.560	5.140	1.0280		NA	0.10280	0.25700	0.5140	2.5700	5.140	10.280	25.700	51.40	128.500	257.00
Acetonitrile	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
Acrolein	1.028	205.6	20.56	4.112	1.028	0.2056		NA	0.02056	0.05140	0.1028	0.5140	1.028	2.056	5.140	10.28	25.700	51.40
Acetone	5.370	1074.0	107.40	21.480	5.370	1.0740		NA	0.10740	0.26850	0.5370	2.6850	5.370	10.740	26.850	53.70	134.250	268.50
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
Isopropanol	2.063	412.6	41.26	8.252	2.063	0.4126		NA	0.04126	0.10315	0.2063	1.0315	2.063	4.126	10.315	20.63	51.575	103.15
Acrylonitrile	1.034	206.8	20.68	4.136	1.034	0.2068		NA	0.02068	0.05170	0.1034	0.5170	1.034	2.068	5.170	10.34	25.850	51.70
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
tert-Butanol	2.144	428.8	42.88	8.576	2.144	0.4288		NA	0.04288	0.10720	0.2144	1.0720	2.144	4.288	10.720	21.44	53.600	107.20
Methylene Chloride	1.070	214.0	21.40	4.280	1.070	0.2140		NA	0.02140	0.05350	0.1070	0.5350	1.070	2.140	5.350	10.70	26.750	53.50
Allyl Chloride	1.067	213.4	21.34	4.268	1.067	0.2134		NA	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	26.675	53.35
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065	0.2130		NA	0.02130	0.05325	0.1065	0.5325	1.065	2.130	5.325	10.65	26.625	53.25
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075	0.2150		NA	0.02150	0.05375	0.1075	0.5375	1.075	2.150	5.375	10.75	26.875	53.75
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030	0.2060		NA	0.02060	0.05150	0.1030	0.5150	1.030	2.060	5.150	10.30	25.750	51.50
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089	0.2178		NA	0.02178	0.05445	0.1089	0.5445	1.089	2.178	5.445	10.89	27.225	54.45
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252	1.0504		NA	0.10504	0.26260	0.5252	2.6260	5.252	10.504	26.260	52.52	131.300	262.60
2-Butanone	1.027	205.4	20.54	4.108	1.027	0.2054		NA	0.02054	0.05135	0.1027	0.5135	1.027	2.054	5.135	10.27	25.675	51.35
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054	0.2108		NA	0.02108	0.05270	0.1054	0.5270	1.054	2.108	5.270	10.54	26.350	52.70
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166	0.4332		NA	0.04332	0.10830	0.2166	1.0830	2.166	4.332	10.830	21.66	54.150	108.30
n-Hexane	1.082	216.4	21.64	4.328	1.082	0.2164		NA	0.02164	0.05410	0.1082	0.5410	1.082	2.164	5.410	10.82	27.050	54.10
Chloroform	1.077	215.4	21.54	4.308	1.077	0.2154		NA	0.02154	0.05385	0.1077	0.5385	1.077	2.154	5.385	10.77	26.925	53.85
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066	0.4132		NA	0.04132	0.10330	0.2066	1.0330	2.066	4.132	10.330	20.66	51.650	103.30
1-Butanol	2.067	413.4	41.34	8.268	2.067	0.4134		NA	0.04134	0.10335	0.2067	1.0335	2.067	4.134	10.335	20.67	51.675	103.35
Benzene	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036	0.2072		NA	0.02072	0.05180	0.1036	0.5180	1.036	2.072	5.180	10.36	25.900	51.80
Cyclohexane	2.087	417.4	41.74	8.348	2.087	0.4174		NA	0.04174	0.10435	0.2087	1.0435	2.087	4.174	10.435	20.87	52.175	104.35
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073	0.2146		NA	0.02146	0.05365	0.1073	0.5365	1.073	2.146	5.365	10.73	26.825	53.65
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
Trichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Isooctane	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135	0.4270		NA	0.04270	0.10675	0.2135	1.0675	2.135	4.270	10.675	21.35	53.375	106.75
n-Heptane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120	0.2240		NA	0.02240	0.05600	0.1120	0.5600	1.120	2.240	5.600	11.20	28.000	56.00

Date Updated: 08/22/18
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:		20ng/L Std. ID:	S31-09271802			
1ng/L Std. ID:	S31-09271803	200ng/L Std. ID:	S31-08171802			
4ng/L Std. ID:						
Dilution Factors:	5	50	250	1000	5000	

	Source Std.	Primary Working Standards					Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	20	20	200	200
							Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.100	0.250	0.500	0.125	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	2ng	5ng	10ng	25ng	50ng
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055	0.2110		NA	0.02110	0.05275	0.1055	0.5275	1.055	2.110	5.275	10.55	26.375	52.75
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Toluene	1.052	210.4	21.04	4.208	1.052	0.2104		NA	0.02104	0.05260	0.1052	0.5260	1.052	2.104	5.260	10.52	26.300	52.60
2-Hexanone	1.074	214.8	21.48	4.296	1.074	0.2148		NA	0.02148	0.05370	0.1074	0.5370	1.074	2.148	5.370	10.74	26.850	53.70
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075	0.2150		NA	0.02150	0.05375	0.1075	0.5375	1.075	2.150	5.375	10.75	26.875	53.75
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085	0.2170		NA	0.02170	0.05425	0.1085	0.5425	1.085	2.170	5.425	10.85	27.125	54.25
n-Octane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058	0.2116		NA	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	26.450	52.90
Chlorobenzene	1.066	213.2	21.32	4.264	1.066	0.2132		NA	0.02132	0.05330	0.1066	0.5330	1.066	2.132	5.330	10.66	26.650	53.30
Ethylbenzene	1.033	206.6	20.66	4.132	1.033	0.2066		NA	0.02066	0.05165	0.1033	0.5165	1.033	2.066	5.165	10.33	25.825	51.65
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123	0.4246		NA	0.04246	0.10615	0.2123	1.0615	2.123	4.246	10.615	21.23	53.075	106.15
Bromoform	1.063	212.6	21.26	4.252	1.063	0.2126		NA	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	26.575	53.15
Styrene	1.060	212.0	21.20	4.240	1.060	0.2120		NA	0.02120	0.05300	0.1060	0.5300	1.060	2.120	5.300	10.60	26.500	53.00
o-Xylene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
n-Nonane	1.071	214.2	21.42	4.284	1.071	0.2142		NA	0.02142	0.05355	0.1071	0.5355	1.071	2.142	5.355	10.71	26.775	53.55
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Cumene	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
alpha-Pinene	1.035	207.0	20.70	4.140	1.035	0.2070		NA	0.02070	0.05175	0.1035	0.5175	1.035	2.070	5.175	10.35	25.875	51.75
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062	0.2124		NA	0.02124	0.05310	0.1062	0.5310	1.062	2.124	5.310	10.62	26.550	53.10
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061	0.2122		NA	0.02122	0.05305	0.1061	0.5305	1.061	2.122	5.305	10.61	26.525	53.05
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058	0.2116		NA	0.02116	0.05290	0.1058	0.5290	1.058	2.116	5.290	10.58	26.450	52.90
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072	0.2144		NA	0.02144	0.05360	0.1072	0.5360	1.072	2.144	5.360	10.72	26.800	53.60
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068	0.2136		NA	0.02136	0.05340	0.1068	0.5340	1.068	2.136	5.340	10.68	26.700	53.40
n-Decane	1.076	215.2	21.52	4.304	1.076	0.2152		NA	0.02152	0.05380	0.1076	0.5380	1.076	2.152	5.380	10.76	26.900	53.80
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051	0.2102		NA	0.02102	0.05255	0.1051	0.5255	1.051	2.102	5.255	10.51	26.275	52.55
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080	0.2160		NA	0.02160	0.05400	0.1080	0.5400	1.080	2.160	5.400	10.80	27.000	54.00
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081	0.2162		NA	0.02162	0.05405	0.1081	0.5405	1.081	2.162	5.405	10.81	27.025	54.05
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063	0.2126		NA	0.02126	0.05315	0.1063	0.5315	1.063	2.126	5.315	10.63	26.575	53.15
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089	0.2178		NA	0.02178	0.05445	0.1089	0.5445	1.089	2.178	5.445	10.89	27.225	54.45
d-Limonene	1.010	202.0	20.20	4.040	1.010	0.2020		NA	0.02020	0.05050	0.1010	0.5050	1.010	2.020	5.050	10.10	25.250	50.50
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042	0.2084		NA	0.02084	0.05210	0.1042	0.5210	1.042	2.084	5.210	10.42	26.050	52.10
n-Undecane	1.057	211.4	21.14	4.228	1.057	0.2114		NA	0.02114	0.05285	0.1057	0.5285	1.057	2.114	5.285	10.57	26.425	52.85
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20
Naphthalene	1.025	205.0	20.50	4.100	1.025	0.2050		NA	0.02050	0.05125	0.1025	0.5125	1.025	2.050	5.125	10.25	25.625	51.25
n-Dodecane	1.031	206.2	20.62	4.124	1.031	0.2062		NA	0.02062	0.05155	0.1031	0.5155	1.031	2.062	5.155	10.31	25.775	51.55
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053	0.2106		NA	0.02106	0.05265	0.1053	0.5265	1.053	2.106	5.265	10.53	26.325	52.65
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041	0.2082		NA	0.02082	0.05205	0.1041	0.5205	1.041	2.082	5.205	10.41	26.025	52.05
Cyclohexanone	0.982	196.4	19.64	3.928	0.982	0.1964		NA	0.01964	0.04910	0.0982	0.4910	0.982	1.964	4.910	9.82	24.550	49.10
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067	0.2134		NA	0.02134	0.05335	0.1067	0.5335	1.067	2.134	5.335	10.67	26.675	53.35
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064	0.2128		NA	0.02128	0.05320	0.1064	0.5320	1.064	2.128	5.320	10.64	26.600	53.20

Calibration Status Report MS19

Method : I:\MS19\METHODS\S19100118.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
2	20	1000	1000	I:\MS19\DATA\2018_10\01\10011807.D
3	50	1000	1000	I:\MS19\DATA\2018_10\01\10011808.D
4	100	1000	1000	I:\MS19\DATA\2018_10\01\10011809.D
5	500	1000	1000	I:\MS19\DATA\2018_10\01\10011810.D
6	1000	1000	1000	I:\MS19\DATA\2018_10\01\10011811.D
7	2000	1000	1000	I:\MS19\DATA\2018_10\01\10011812.D
8	5000	1000	1000	I:\MS19\DATA\2018_10\01\10011813.D
9	10K	1000	1000	I:\MS19\DATA\2018_10\01\10011814.D
10	25K	1000	1000	I:\MS19\DATA\2018_10\01\10011815.D
11	50K	1000	1000	I:\MS19\DATA\2018_10\01\10011816.D

WH 10/2/18

#	ID	Update Time	Quant Time	Acquisition Time
2	20	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 12:11
3	50	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:09
4	100	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:44
5	500	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:21
6	1000	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:52
7	2000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 15:36
8	5000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:08
9	10K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:39
10	25K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:11
11	50K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:43

S19100118.M Tue Oct 02 09:00:05 2018

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20699	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	88774	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11242	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.40	65	24610	924.137	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.41%				
33) Toluene-d8 (SS2)	14.02	98	93636	989.835	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.98%				
45) Bromofluorobenzene (SS3)	17.43	174	32067	1038.075	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.81%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.34	85	1073	25.626	pg		100
3) Chloromethane	4.55	52	250	24.961	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	751	24.924	pg		99
5) Vinyl Chloride	4.85	62	665	23.916	pg		94
6) 1,3-Butadiene	5.04	54	509	25.518	pg	#	72
7) Bromomethane	5.36	94	511	27.857	pg		100
8) Chloroethane	5.59	64	347	24.289	pg		98
9) Acrolein	6.15	56	342	32.266	pg		98
10) Acetone	6.30	58	4028	262.547	pg		96
11) Trichlorofluoromethane	6.50	101	832	25.754	pg		98
12) 1,1-Dichloroethene	7.22	96	569	25.301	pg		98
13) Methylene Chloride	7.34	84	630	26.254	pg		98
14) Trichlorotrifluoroethane	7.67	151	592	27.300	pg		100
15) trans-1,2-Dichloroethene	8.38	96	589	25.118	pg		99
16) 1,1-Dichloroethane	8.58	63	903	23.963	pg		99
17) Methyl tert-Butyl Ether	8.69	73	1421	23.047	pg		99
18) cis-1,2-Dichloroethene	9.46	96	604	24.436	pg		98
19) Chloroform	9.76	83	1443	36.144	pg		99
21) 1,2-Dichloroethane	10.51	62	592	23.286	pg		98
22) 1,1,1-Trichloroethane	10.78	97	858	25.546	pg		100
23) Benzene	11.24	78	3252	33.579	pg		100
24) Carbon Tetrachloride	11.39	117	768	27.434	pg		100
26) 1,2-Dichloropropane	12.05	63	544	26.450	pg		98
27) Bromodichloromethane	12.23	83	701	26.064	pg		97
28) Trichloroethene	12.28	130	668	27.141	pg		99
29) 1,4-Dioxane	12.27	88	422	24.440	pg		98
30) cis-1,3-Dichloropropene	13.13	75	793	25.244	pg		99
31) trans-1,3-Dichloropropene	13.64	75	559	21.205	pg		95
32) 1,1,2-Trichloroethane	13.82	83	458	25.914	pg		97
34) Toluene	14.11	91	2576	28.067	pg		98
35) Dibromochloromethane	14.53	129	637	26.654	pg		98
36) 1,2-Dibromoethane	14.79	107	599	25.485	pg		99
37) Tetrachloroethene	15.27	166	735	27.998	pg		99
39) Chlorobenzene	15.97	112	1712	31.025	pg		99
40) Ethylbenzene	16.35	91	2274	27.046	pg		99
41) m,p-Xylene	16.53	91	3412	52.899	pg		98
42) Styrene	16.89	104	1144	24.398	pg		100
43) o-Xylene	17.00	106	871	25.815	pg		90
44) 1,1,2,2-Tetrachloroethane	16.97	83	959	29.198	pg		98
46) 1,3,5-Trimethylbenzene	18.27	105	1680	24.039	pg		100
47) 1,2,4-Trimethylbenzene	18.66	105	1639	23.610	pg		99
48) 1,3-Dichlorobenzene	18.81	146	1317	28.883	pg		100
49) 1,4-Dichlorobenzene	18.87	146	1324	28.951	pg		97
50) 1,2-Dichlorobenzene	19.20	146	1304	29.943	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	366	25.182	pg		88
52) 1,2,4-Trichlorobenzene	20.83	182	694	26.181	pg		95
53) Naphthalene	20.94	128	1881	20.946	pg		97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

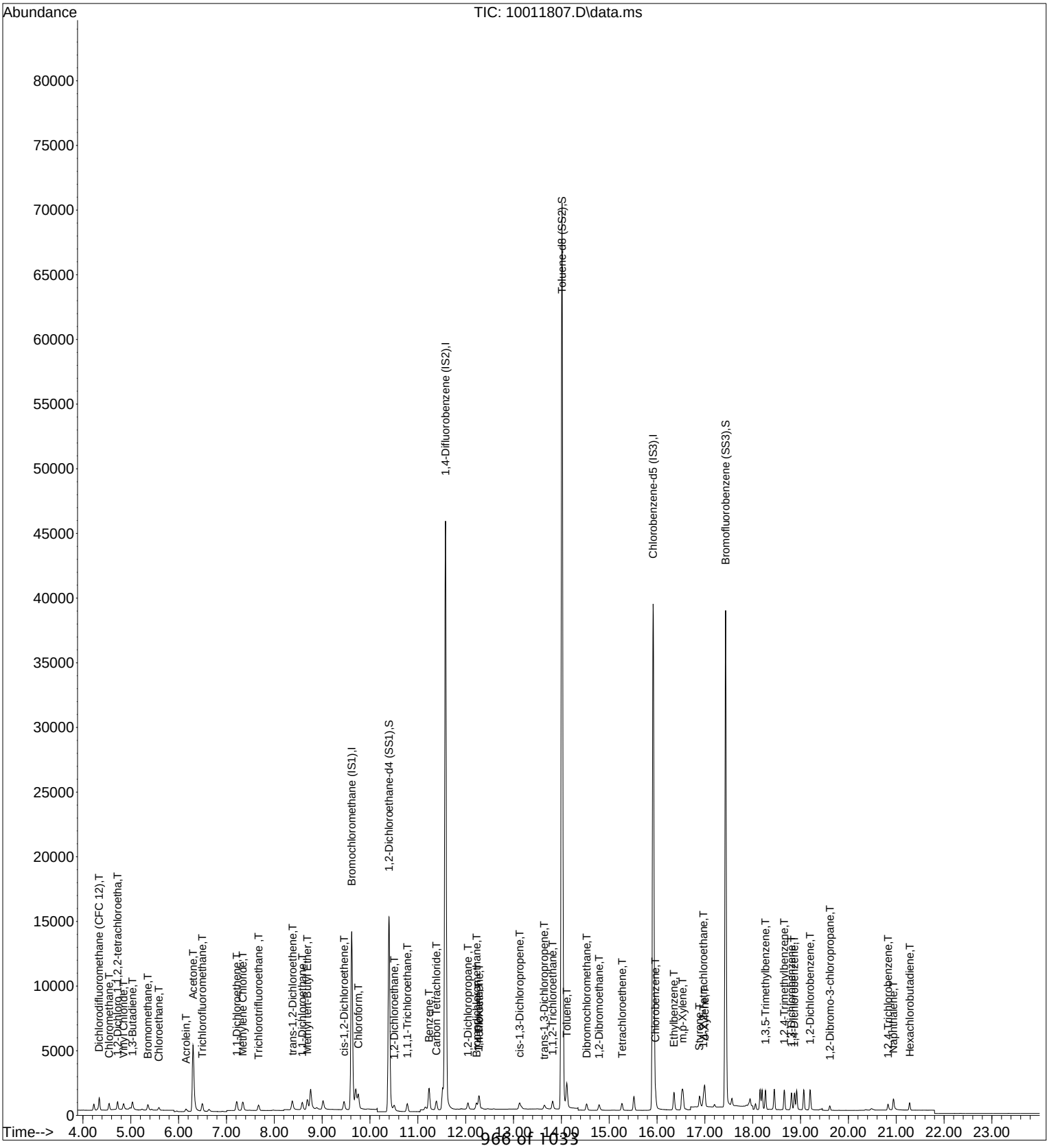
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	567	28.841	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011807.D Vial: 13
Acq On : 1 Oct 2018 12:11 Operator: WA
Sample : 20pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:06 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

VOA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20108	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	87937	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	10970	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24026	928.724	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.87%			
33) Toluene-d8 (SS2)	14.02	98	91636	977.913	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.79%			
45) Bromofluorobenzene (SS3)	17.43	174	31447	1043.246	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.33%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.34	85	2368	58.216	pg	99
3) Chloromethane	4.55	52	548	56.322	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	1650	56.370	pg	100
5) Vinyl Chloride	4.85	62	1485	54.976	pg	99
6) 1,3-Butadiene	5.04	54	1028	53.051	pg	97
7) Bromomethane	5.36	94	1024	57.464	pg	99
8) Chloroethane	5.59	64	753	54.258	pg	98
9) Acrolein	6.15	56	672	65.263	pg	97
10) Acetone	6.30	58	6468	433.978	pg	96
11) Trichlorofluoromethane	6.50	101	1809	57.642	pg	100
12) 1,1-Dichloroethene	7.22	96	1224	56.027	pg	99
13) Methylene Chloride	7.35	84	1336	57.311	pg	98
14) Trichlorotrifluoroethane	7.67	151	1324	62.851	pg	100
15) trans-1,2-Dichloroethene	8.38	96	1286	56.453	pg	99
16) 1,1-Dichloroethane	8.58	63	1980	54.088	pg	100
17) Methyl tert-Butyl Ether	8.69	73	3142	52.457	pg	99
18) cis-1,2-Dichloroethene	9.46	96	1337	55.681	pg	100
19) Chloroform	9.76	83	2927	75.470	pg	99
21) 1,2-Dichloroethane	10.51	62	1331	53.892	pg	99
22) 1,1,1-Trichloroethane	10.78	97	1895	58.079	pg	99
23) Benzene	11.24	78	5958	63.329	pg	100
24) Carbon Tetrachloride	11.39	117	1700	62.511	pg	100
26) 1,2-Dichloropropane	12.05	63	1184	58.117	pg	98
27) Bromodichloromethane	12.23	83	1582	59.381	pg	98
28) Trichloroethene	12.28	130	1465	60.089	pg	99
29) 1,4-Dioxane	12.26	88	932	54.490	pg	98
30) cis-1,3-Dichloropropene	13.12	75	1750	56.240	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1321	50.589	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1036	59.175	pg	98
34) Toluene	14.11	91	5429	59.716	pg	100
35) Dibromochloromethane	14.53	129	1394	58.885	pg	99
36) 1,2-Dibromoethane	14.79	107	1335	57.340	pg	99
37) Tetrachloroethene	15.27	166	1647	63.337	pg	99
39) Chlorobenzene	15.97	112	3792	70.423	pg	100
40) Ethylbenzene	16.35	91	5045	61.491	pg	100
41) m,p-Xylene	16.53	91	7381	117.271	pg	100
42) Styrene	16.89	104	2641	57.720	pg	100
43) o-Xylene	17.00	106	2014	61.172	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2146	66.958	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	4024	59.007	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	3986	58.842	pg	99
48) 1,3-Dichlorobenzene	18.81	146	3029	68.076	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3091	69.263	pg	98
50) 1,2-Dichlorobenzene	19.20	146	2960	69.655	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	892	62.895	pg	96
52) 1,2,4-Trichlorobenzene	20.83	182	1652	63.866	pg	98
53) Naphthalene	20.94	128	4520	51.580	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

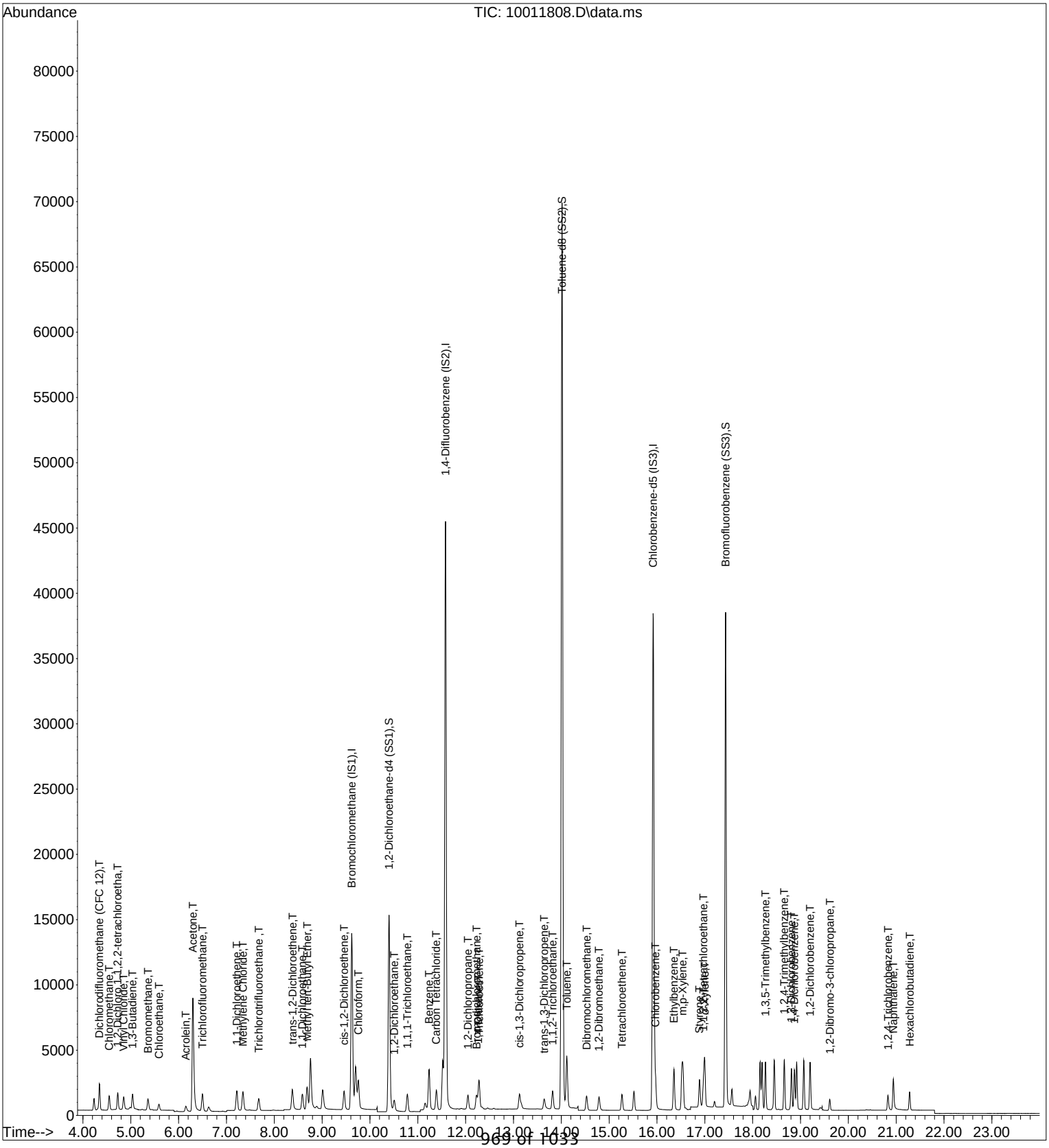
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1348	70.267	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011808.D Vial: 13
Acq On : 1 Oct 2018 13:09 Operator: WA
Sample : 50pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:09 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20065	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	89360	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11139	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24256	939.624	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.96%			
33) Toluene-d8 (SS2)	14.02	98	92480	971.204	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.12%			
45) Bromofluorobenzene (SS3)	17.43	174	32346	1056.789	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.68%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.33	85	4479	110.349	pg	100
3) Chloromethane	4.54	52	994	102.379	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	3109	106.442	pg	100
5) Vinyl Chloride	4.84	62	2802	103.955	pg	100
6) 1,3-Butadiene	5.03	54	1955	101.107	pg	95
7) Bromomethane	5.35	94	1888	106.176	pg	100
8) Chloroethane	5.58	64	1432	103.405	pg	100
9) Acrolein	6.14	56	1190	115.818	pg	98
10) Acetone	6.29	58	10075	677.442	pg	97
11) Trichlorofluoromethane	6.49	101	3413	108.985	pg	100
12) 1,1-Dichloroethene	7.21	96	2339	107.293	pg	99
13) Methylene Chloride	7.34	84	2522	108.418	pg	99
14) Trichlorotrifluoroethane	7.67	151	2313	110.035	pg	100
15) trans-1,2-Dichloroethene	8.38	96	2495	109.760	pg	100
16) 1,1-Dichloroethane	8.58	63	3728	102.057	pg	100
17) Methyl tert-Butyl Ether	8.68	73	6051	101.240	pg	100
18) cis-1,2-Dichloroethene	9.46	96	2583	107.802	pg	100
19) Chloroform	9.76	83	4534	117.155	pg	100
21) 1,2-Dichloroethane	10.51	62	2578	104.607	pg	98
22) 1,1,1-Trichloroethane	10.78	97	3602	110.632	pg	100
23) Benzene	11.23	78	10392	110.696	pg	100
24) Carbon Tetrachloride	11.39	117	3183	117.293	pg	100
26) 1,2-Dichloropropane	12.05	63	2290	110.615	pg	99
27) Bromodichloromethane	12.22	83	3016	111.404	pg	100
28) Trichloroethene	12.28	130	2813	113.542	pg	99
29) 1,4-Dioxane	12.26	88	1815	104.425	pg	99
30) cis-1,3-Dichloropropene	13.12	75	3447	109.012	pg	99
31) trans-1,3-Dichloropropene	13.64	75	2587	97.493	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1984	111.519	pg	98
34) Toluene	14.11	91	10272	111.187	pg	100
35) Dibromochloromethane	14.53	129	2690	111.821	pg	100
36) 1,2-Dibromoethane	14.79	107	2600	109.896	pg	99
37) Tetrachloroethene	15.27	166	3128	118.374	pg	100
39) Chlorobenzene	15.97	112	7239	132.398	pg	100
40) Ethylbenzene	16.35	91	9765	117.215	pg	100
41) m,p-Xylene	16.53	91	14559	227.808	pg	100
42) Styrene	16.89	104	5401	116.250	pg	100
43) o-Xylene	17.00	106	4016	120.129	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	4147	127.428	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	8246	119.084	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	8236	119.737	pg	100
48) 1,3-Dichlorobenzene	18.81	146	5960	131.918	pg	100
49) 1,4-Dichlorobenzene	18.87	146	6024	132.938	pg	100
50) 1,2-Dichlorobenzene	19.20	146	5831	135.133	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1813	125.895	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	3169	120.654	pg	100
53) Naphthalene	20.94	128	8799	98.886	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

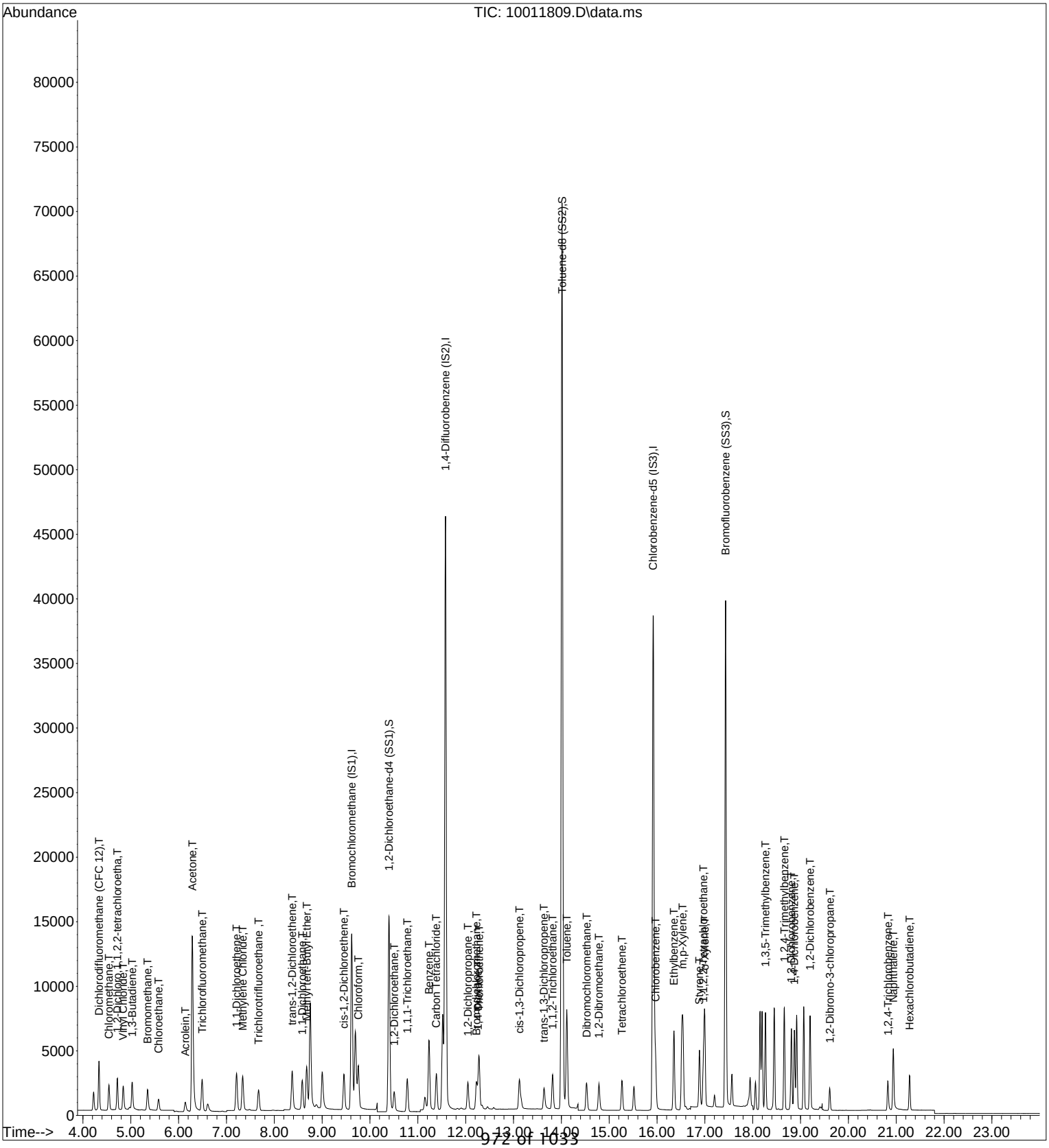
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	2611	134.039	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011809.D Vial: 13
Acq On : 1 Oct 2018 13:44 Operator: WA
Sample : 100pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:11 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19931	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	93855	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11642	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	24294	947.423	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.74%			
33) Toluene-d8 (SS2)	14.01	98	96719	967.075	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.71%			
45) Bromofluorobenzene (SS3)	17.43	174	34970	1093.156	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.32%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.33	85	21723	538.789	pg	100
3) Chloromethane	4.53	52	3976	412.271	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	15025	517.865	pg	100
5) Vinyl Chloride	4.83	62	13708	511.990	pg	99
6) 1,3-Butadiene	5.02	54	9118	474.726	pg	100
7) Bromomethane	5.34	94	8729	494.195	pg	99
8) Chloroethane	5.57	64	6937	504.288	pg	100
9) Acrolein	6.12	56	5986	586.513	pg	99
10) Acetone	6.27	58	40532	2743.691	pg	99
11) Trichlorofluoromethane	6.49	101	16551	532.066	pg	100
12) 1,1-Dichloroethene	7.20	96	11682	539.472	pg	100
13) Methylene Chloride	7.33	84	12292	531.975	pg	100
14) Trichlorotrifluoroethane	7.67	151	10290	492.813	pg	100
15) trans-1,2-Dichloroethene	8.37	96	12419	550.012	pg	100
16) 1,1-Dichloroethane	8.58	63	18032	496.958	pg	100
17) Methyl tert-Butyl Ether	8.66	73	31874	536.873	pg	100
18) cis-1,2-Dichloroethene	9.45	96	13074	549.314	pg	100
19) Chloroform	9.76	83	20096	522.758	pg	100
21) 1,2-Dichloroethane	10.50	62	12940	528.592	pg	99
22) 1,1,1-Trichloroethane	10.78	97	17911	553.819	pg	100
23) Benzene	11.23	78	50147	537.760	pg	100
24) Carbon Tetrachloride	11.39	117	15823	586.996	pg	100
26) 1,2-Dichloropropane	12.05	63	11546	531.000	pg	100
27) Bromodichloromethane	12.22	83	15278	537.307	pg	100
28) Trichloroethene	12.28	130	14464	555.855	pg	100
29) 1,4-Dioxane	12.25	88	9760	534.641	pg	99
30) cis-1,3-Dichloropropene	13.12	75	18781	565.506	pg	99
31) trans-1,3-Dichloropropene	13.63	75	15064	540.511	pg	100
32) 1,1,2-Trichloroethane	13.81	83	10121	541.649	pg	99
34) Toluene	14.11	91	52607	542.162	pg	100
35) Dibromochloromethane	14.53	129	13978	553.226	pg	100
36) 1,2-Dibromoethane	14.78	107	13734	552.700	pg	99
37) Tetrachloroethene	15.27	166	15788	568.855	pg	100
39) Chlorobenzene	15.97	112	36568	639.917	pg	100
40) Ethylbenzene	16.35	91	54645	627.594	pg	100
41) m,p-Xylene	16.53	91	85981	1287.237	pg	100
42) Styrene	16.89	104	34415	708.740	pg	100
43) o-Xylene	16.99	106	23010	658.554	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	21679	637.365	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	48377	668.446	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	48925	680.550	pg	100
48) 1,3-Dichlorobenzene	18.81	146	31963	676.897	pg	100
49) 1,4-Dichlorobenzene	18.87	146	31699	669.314	pg	100
50) 1,2-Dichlorobenzene	19.20	146	30647	679.555	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	10276	682.738	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	17728	645.799	pg	100
53) Naphthalene	20.94	128	53038	570.305	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

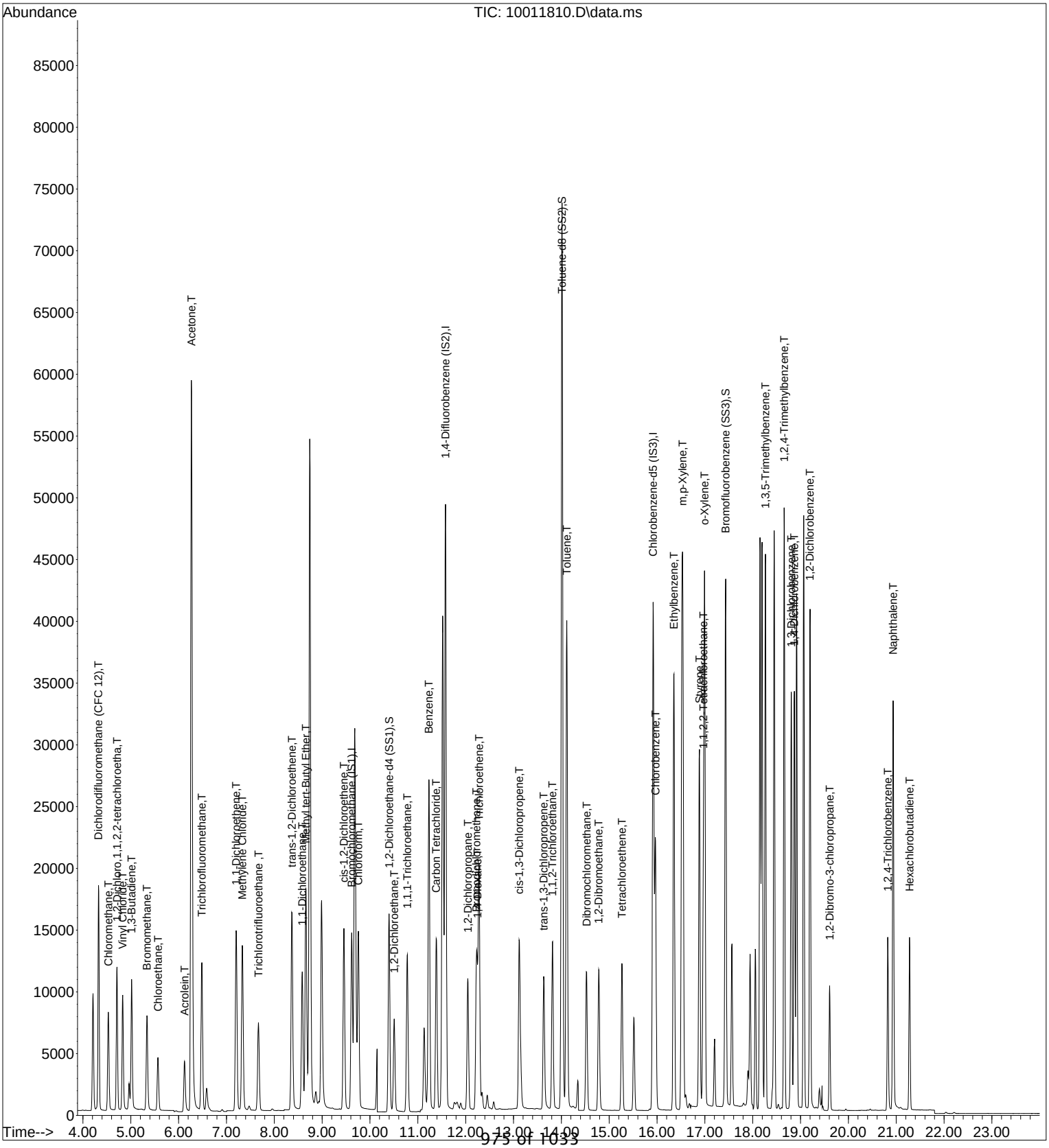
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	13306	653.567	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011810.D Vial: 13
Acq On : 1 Oct 2018 14:21 Operator: WA
Sample : 500pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271803 (10/26)

Quant Time: Oct 01 15:35:13 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21343	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98418	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12041	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	25337	922.728	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.27%			
33) Toluene-d8 (SS2)	14.02	98	100388	957.223	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.72%			
45) Bromofluorobenzene (SS3)	17.44	174	36261	1095.951	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.60%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.32	85	54556	1263.616	pg	100
3) Chloromethane	4.53	52	12060	1167.770	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	37736	1214.595	pg	100
5) Vinyl Chloride	4.82	62	34347	1197.981	pg	100
6) 1,3-Butadiene	5.01	54	28024	1362.534	pg	100
7) Bromomethane	5.33	94	22751	1202.841	pg	100
8) Chloroethane	5.56	64	17484	1186.920	pg	100
9) Acrolein	6.12	56	13705	1253.988	pg	100
10) Acetone	6.26	58	91676	5795.174	pg	100
11) Trichlorofluoromethane	6.48	101	41922	1258.511	pg	100
12) 1,1-Dichloroethene	7.20	96	29967	1292.317	pg	100
13) Methylene Chloride	7.34	84	30981	1252.095	pg	100
14) Trichlorotrifluoroethane	7.67	151	30655	1371.014	pg	100
15) trans-1,2-Dichloroethene	8.37	96	31674	1309.971	pg	100
16) 1,1-Dichloroethane	8.58	63	47368	1219.087	pg	100
17) Methyl tert-Butyl Ether	8.65	73	84859	1334.771	pg	100
18) cis-1,2-Dichloroethene	9.46	96	33680	1321.473	pg	100
19) Chloroform	9.76	83	50690	1231.365	pg	100
21) 1,2-Dichloroethane	10.51	62	32755	1249.503	pg	100
22) 1,1,1-Trichloroethane	10.78	97	45673	1318.808	pg	100
23) Benzene	11.24	78	125214	1253.920	pg	100
24) Carbon Tetrachloride	11.39	117	40898	1416.844	pg	100
26) 1,2-Dichloropropane	12.05	63	29449	1291.565	pg	100
27) Bromodichloromethane	12.22	83	38980	1307.316	pg	100
28) Trichloroethene	12.28	130	36846	1350.350	pg	100
29) 1,4-Dioxane	12.25	88	25793	1347.402	pg	100
30) cis-1,3-Dichloropropene	13.12	75	48452	1391.275	pg	100
31) trans-1,3-Dichloropropene	13.63	75	38882	1330.442	pg	100
32) 1,1,2-Trichloroethane	13.82	83	25733	1313.312	pg	100
34) Toluene	14.11	91	131899	1296.313	pg	100
35) Dibromochloromethane	14.53	129	35806	1351.439	pg	100
36) 1,2-Dibromoethane	14.78	107	34480	1323.252	pg	100
37) Tetrachloroethene	15.27	166	39481	1356.581	pg	100
39) Chlorobenzene	15.96	112	91204	1543.127	pg	100
40) Ethylbenzene	16.35	91	141081	1566.614	pg	100
41) m,p-Xylene	16.53	91	223870	3240.536	pg	100
42) Styrene	16.89	104	87370	1739.669	pg	100
43) o-Xylene	16.99	106	59205	1638.317	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	55068	1565.356	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	127264	1700.191	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	128493	1728.119	pg	100
48) 1,3-Dichlorobenzene	18.81	146	80086	1639.823	pg	100
49) 1,4-Dichlorobenzene	18.87	146	79145	1615.745	pg	100
50) 1,2-Dichlorobenzene	19.20	146	78221	1676.970	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	26006	1670.586	pg	100
52) 1,2,4-Trichlorobenzene	20.82	182	39764	1400.531	pg	100
53) Naphthalene	20.94	128	118266	1229.547	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

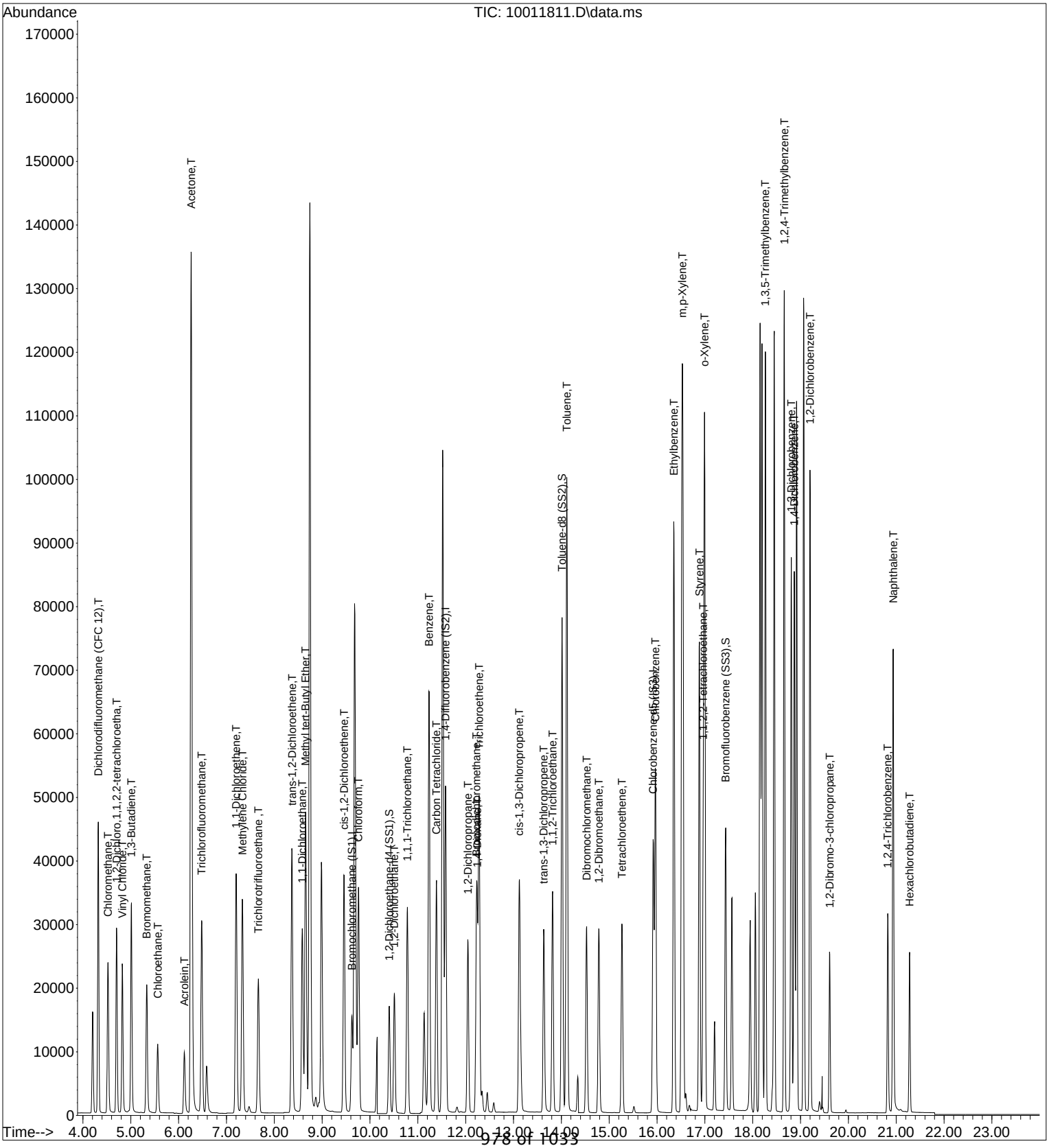
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	23913	1135.643	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011811.D Vial: 14
Acq On : 1 Oct 2018 14:52 Operator: WA
Sample : 1000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 01 15:35:15 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21158	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98346	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12046	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	25304	929.584	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.96%			
33) Toluene-d8 (SS2)	14.01	98	100255	956.655	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.67%			
45) Bromofluorobenzene (SS3)	17.43	174	36038	1088.759	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	97482	2277.603	pg	100
3) Chloromethane	4.52	52	21596	2109.425	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	67634	2195.945	pg	100
5) Vinyl Chloride	4.82	62	62023	2182.201	pg	100
6) 1,3-Butadiene	5.00	54	48011	2354.718	pg	100
7) Bromomethane	5.33	94	40799	2175.895	pg	100
8) Chloroethane	5.55	64	31468	2154.917	pg	100
9) Acrolein	6.12	56	25502	2353.799	pg	100
10) Acetone	6.26	58	164950	10518.262	pg	99
11) Trichlorofluoromethane	6.48	101	75472	2285.502	pg	100
12) 1,1-Dichloroethene	7.20	96	55361	2408.300	pg	100
13) Methylene Chloride	7.34	84	56375	2298.314	pg	100
14) Trichlorotrifluoroethane	7.66	151	55413	2499.960	pg	100
15) trans-1,2-Dichloroethene	8.37	96	58249	2430.122	pg	100
16) 1,1-Dichloroethane	8.58	63	86003	2232.771	pg	100
17) Methyl tert-Butyl Ether	8.65	73	157062	2492.074	pg	100
18) cis-1,2-Dichloroethene	9.46	96	61935	2451.337	pg	100
19) Chloroform	9.76	83	92106	2257.008	pg	100
21) 1,2-Dichloroethane	10.51	62	59913	2305.481	pg	100
22) 1,1,1-Trichloroethane	10.78	97	82673	2408.056	pg	100
23) Benzene	11.24	78	228757	2310.852	pg	100
24) Carbon Tetrachloride	11.39	117	74610	2607.341	pg	100
26) 1,2-Dichloropropane	12.05	63	53939	2367.371	pg	100
27) Bromodichloromethane	12.23	83	71772	2408.860	pg	100
28) Trichloroethene	12.28	130	67683	2482.294	pg	100
29) 1,4-Dioxane	12.25	88	47932	2505.756	pg	100
30) cis-1,3-Dichloropropene	13.12	75	91226	2621.426	pg	100
31) trans-1,3-Dichloropropene	13.63	75	74271	2543.223	pg	100
32) 1,1,2-Trichloroethane	13.82	83	47300	2415.775	pg	100
34) Toluene	14.11	91	242532	2385.367	pg	100
35) Dibromochloromethane	14.53	129	66689	2518.909	pg	100
36) 1,2-Dibromoethane	14.78	107	64147	2463.596	pg	100
37) Tetrachloroethene	15.27	166	72061	2477.854	pg	100
39) Chlorobenzene	15.97	112	166856	2821.949	pg	100
40) Ethylbenzene	16.35	91	264742	2938.571	pg	100
41) m,p-Xylene	16.53	91	415079	6005.807	pg	100
42) Styrene	16.88	104	167353	3330.868	pg	100
43) o-Xylene	17.00	106	109222	3021.130	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	101378	2880.563	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	233124	3113.142	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	237136	3187.948	pg	100
48) 1,3-Dichlorobenzene	18.81	146	147647	3021.932	pg	100
49) 1,4-Dichlorobenzene	18.87	146	144480	2948.335	pg	100
50) 1,2-Dichlorobenzene	19.20	146	143580	3076.915	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	50123	3218.489	pg	100
52) 1,2,4-Trichlorobenzene	20.83	182	90778	3195.972	pg	100
53) Naphthalene	20.94	128	284738	2959.037	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

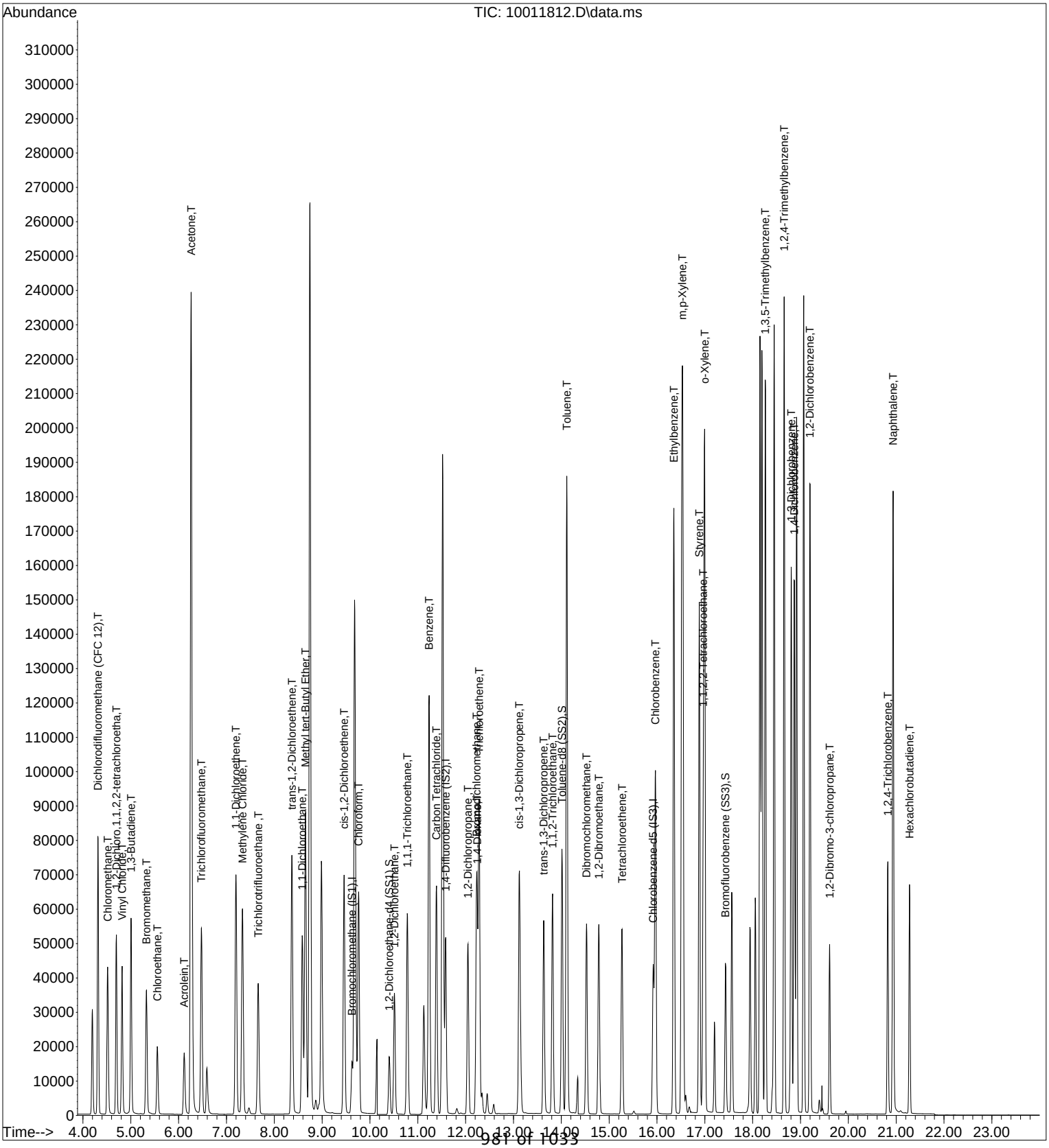
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	62652	2974.146	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011812.D Vial: 14
Acq On : 1 Oct 2018 15:36 Operator: WA
Sample : 2000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	21979	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	101793	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12673	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	26270	929.023	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.90%			
33) Toluene-d8 (SS2)	14.02	98	104343	961.947	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.20%			
45) Bromofluorobenzene (SS3)	17.43	174	37651	1081.213	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 108.12%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	224861	5057.482	pg	100
3) Chloromethane	4.50	52	49965	4698.112	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	156657	4896.355	pg	100
5) Vinyl Chloride	4.81	62	143597	4863.558	pg	99
6) 1,3-Butadiene	5.00	54	107512	5076.002	pg	98
7) Bromomethane	5.32	94	95338	4894.644	pg	100
8) Chloroethane	5.55	64	73709	4859.018	pg	100
9) Acrolein	6.12	56	60234	5351.844	pg	100
10) Acetone	6.26	58	385336	23653.636	pg	99
11) Trichlorofluoromethane	6.47	101	180051	5248.775	pg	100
12) 1,1-Dichloroethene	7.19	96	131183	5493.521	pg	99
13) Methylene Chloride	7.34	84	133745	5248.884	pg	99
14) Trichlorotrifluoroethane	7.66	151	124815	5420.693	pg	100
15) trans-1,2-Dichloroethene	8.37	96	139761	5612.965	pg	100
16) 1,1-Dichloroethane	8.59	63	202292	5055.638	pg	100
17) Methyl tert-Butyl Ether	8.65	73	380286	5808.537	pg	100
18) cis-1,2-Dichloroethene	9.47	96	149090	5680.442	pg	100
19) Chloroform	9.77	83	217099	5121.176	pg	100
21) 1,2-Dichloroethane	10.52	62	142125	5264.749	pg	100
22) 1,1,1-Trichloroethane	10.78	97	196324	5504.817	pg	100
23) Benzene	11.24	78	537276	5224.707	pg	100
24) Carbon Tetrachloride	11.39	117	177152	5959.552	pg	100
26) 1,2-Dichloropropane	12.05	63	128300	5440.375	pg	100
27) Bromodichloromethane	12.23	83	171061	5546.848	pg	100
28) Trichloroethene	12.29	130	159704	5658.851	pg	100
29) 1,4-Dioxane	12.25	88	114979	5807.251	pg	99
30) cis-1,3-Dichloropropene	13.12	75	223011	6191.332	pg	100
31) trans-1,3-Dichloropropene	13.63	75	184690	6110.085	pg	100
32) 1,1,2-Trichloroethane	13.82	83	111483	5501.015	pg	100
34) Toluene	14.11	91	577593	5488.414	pg	100
35) Dibromochloromethane	14.53	129	159683	5827.145	pg	100
36) 1,2-Dibromoethane	14.79	107	153521	5696.390	pg	100
37) Tetrachloroethene	15.27	166	169392	5627.391	pg	100
39) Chlorobenzene	15.97	112	395561	6358.933	pg	100
40) Ethylbenzene	16.35	91	641860	6772.001	pg	100
41) m,p-Xylene	16.53	91	994468	13677.127	pg	100
42) Styrene	16.89	104	413208	7817.287	pg	100
43) o-Xylene	17.00	106	261034	6863.091	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	239946	6480.531	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	558005	7082.938	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	564297	7210.825	pg	100
48) 1,3-Dichlorobenzene	18.81	146	348686	6783.565	pg	100
49) 1,4-Dichlorobenzene	18.87	146	344250	6677.386	pg	100
50) 1,2-Dichlorobenzene	19.20	146	338979	6904.907	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	121782	7432.956	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	221549	7414.051	pg	100
53) Naphthalene	20.94	128	690675	6822.477	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

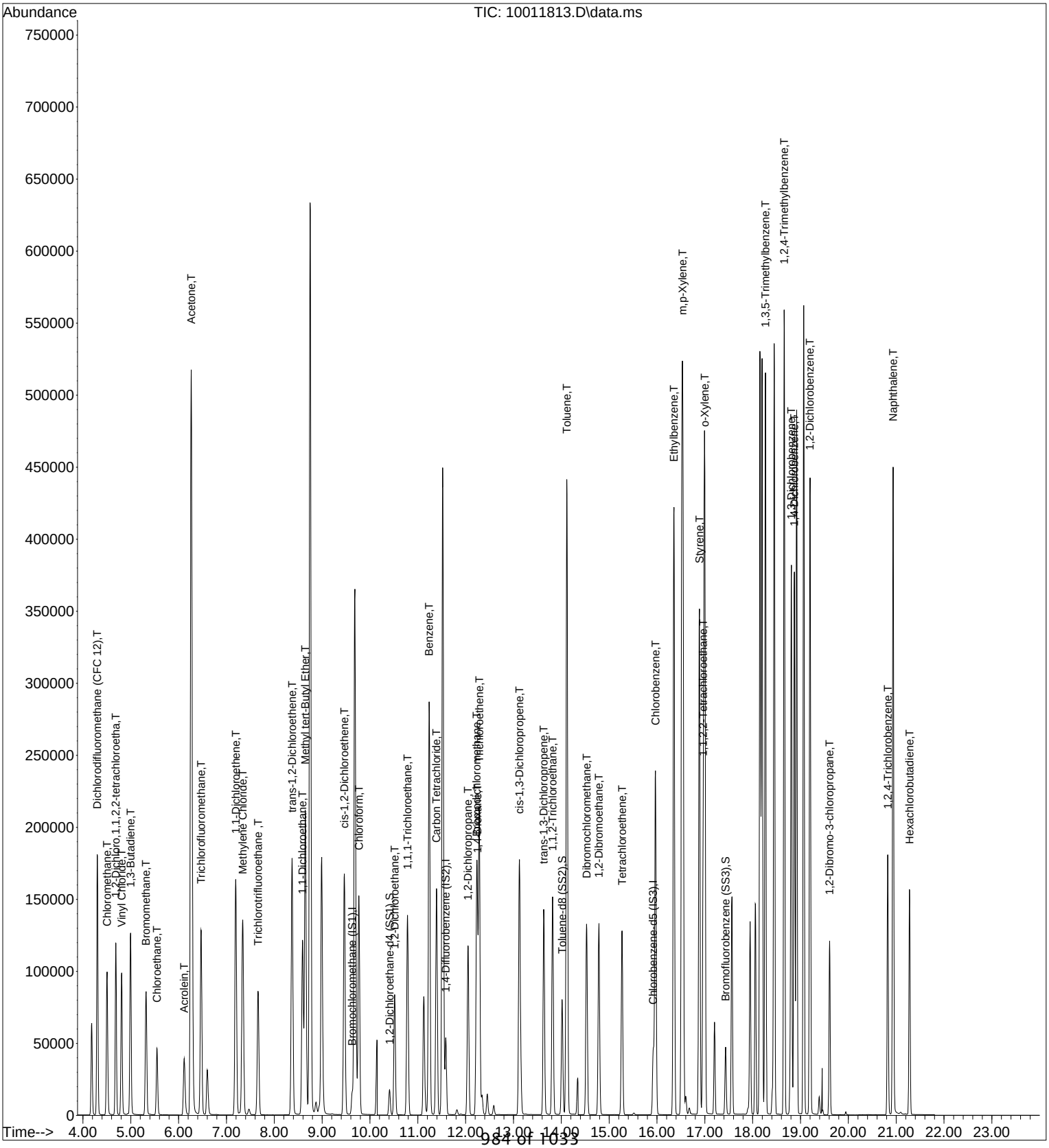
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	148497	6700.519	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011813.D Vial: 14
Acq On : 1 Oct 2018 16:08 Operator: WA
Sample : 5000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	21839	1000.000	pg	0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	102402	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	13188	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.42	65	26267	934.871	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.49%			
33) Toluene-d8 (SS2)	14.02	98	105337	965.336	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.53%			
45) Bromofluorobenzene (SS3)	17.43	174	37497	1034.741	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.47%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	433912	9821.935	pg	100
3) Chloromethane	4.51	52	96612	9142.474	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	302197	9505.794	pg	100
5) Vinyl Chloride	4.81	62	281319	9589.213	pg	99
6) 1,3-Butadiene	5.00	54	207819	9874.732	pg	98
7) Bromomethane	5.32	94	184794	9548.126	pg	100
8) Chloroethane	5.56	64	144421	9581.501	pg	100
9) Acrolein	6.13	56	117735	10527.918	pg	100
10) Acetone	6.28	58	740502	45746.698	pg	99
11) Trichlorofluoromethane	6.48	101	350111	10271.725	pg	100
12) 1,1-Dichloroethene	7.20	96	257291	10843.589	pg	99
13) Methylene Chloride	7.35	84	261754	10338.510	pg	98
14) Trichlorotrifluoroethane	7.67	151	231594	10122.563	pg	100
15) trans-1,2-Dichloroethene	8.38	96	276102	11159.663	pg	100
16) 1,1-Dichloroethane	8.60	63	397667	10002.119	pg	100
17) Methyl tert-Butyl Ether	8.65	73	752976	11574.781	pg	100
18) cis-1,2-Dichloroethene	9.47	96	292496	11215.760	pg	100
19) Chloroform	9.78	83	424086	10067.949	pg	99
21) 1,2-Dichloroethane	10.52	62	277683	10352.177	pg	100
22) 1,1,1-Trichloroethane	10.79	97	384459	10849.125	pg	100
23) Benzene	11.24	78	1044137	10218.735	pg	100
24) Carbon Tetrachloride	11.40	117	347002	11748.291	pg	100
26) 1,2-Dichloropropane	12.05	63	250769	10570.256	pg	99
27) Bromodichloromethane	12.23	83	335620	10818.140	pg	100
28) Trichloroethene	12.29	130	311721	10979.638	pg	100
29) 1,4-Dioxane	12.25	88	225390	11316.085	pg	99
30) cis-1,3-Dichloropropene	13.12	75	441642	12188.146	pg	100
31) trans-1,3-Dichloropropene	13.64	75	370381	12180.414	pg	100
32) 1,1,2-Trichloroethane	13.82	83	218143	10700.028	pg	100
34) Toluene	14.12	91	1127023	10645.528	pg	99
35) Dibromochloromethane	14.53	129	314167	11396.386	pg	100
36) 1,2-Dibromoethane	14.79	107	302923	11173.099	pg	100
37) Tetrachloroethene	15.27	166	330033	10898.859	pg	100
39) Chlorobenzene	15.97	112	774148	11959.012	pg	100
40) Ethylbenzene	16.35	91	1261319	12787.985	pg	100
41) m,p-Xylene	16.53	91	1944860	25703.538	pg	100
42) Styrene	16.89	104	818745	14884.577	pg	100
43) o-Xylene	17.00	106	509044	12861.112	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	468194	12151.318	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	1089463	13288.879	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	1096552	13465.017	pg	100
48) 1,3-Dichlorobenzene	18.81	146	678792	12689.972	pg	100
49) 1,4-Dichlorobenzene	18.87	146	673906	12561.236	pg	100
50) 1,2-Dichlorobenzene	19.20	146	659009	12899.618	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	239958	14073.891	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	436487	14036.459	pg	100
53) Naphthalene	20.94	128	1354459	12856.854	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

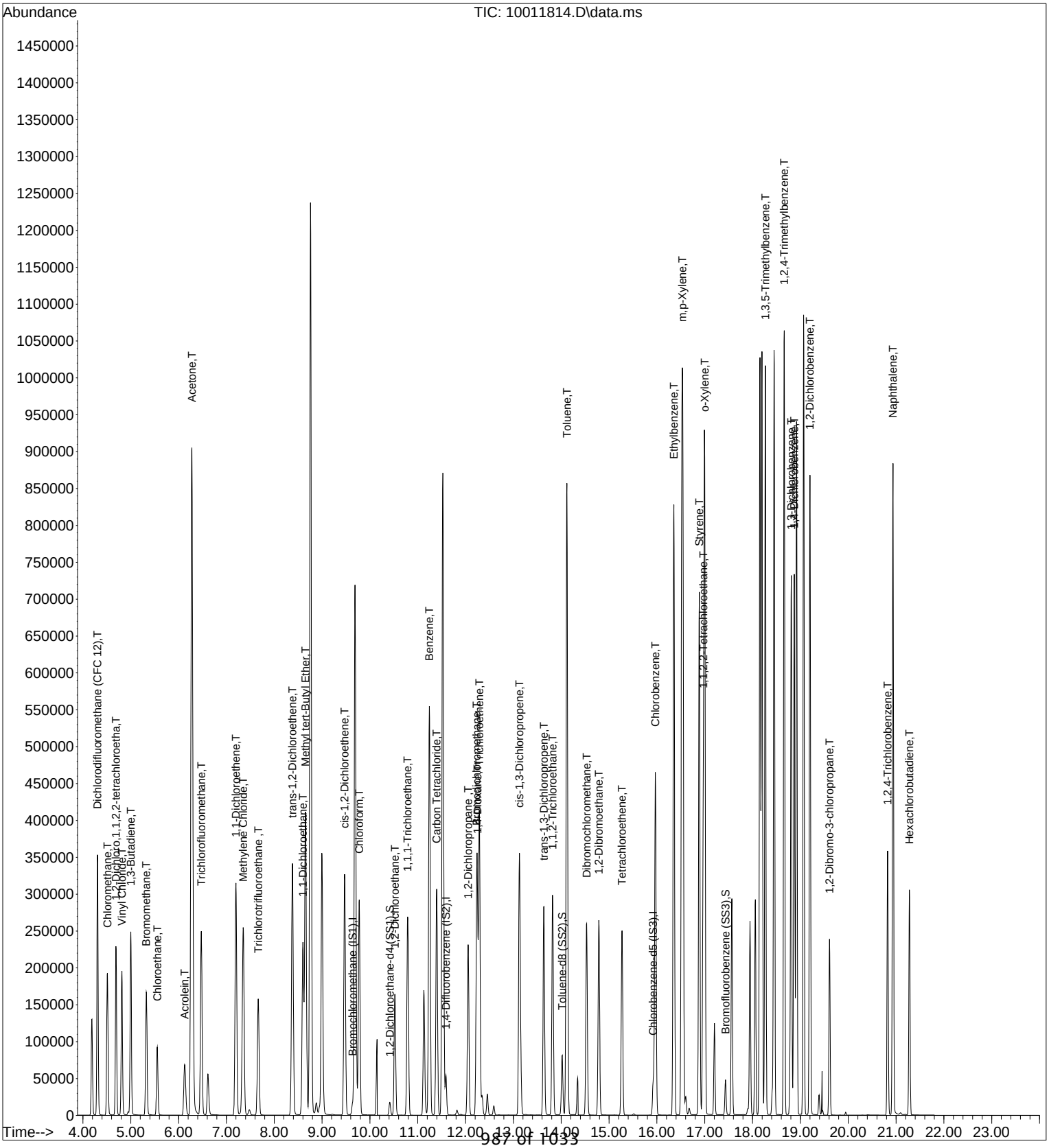
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	290485	12595.487	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011814.D Vial: 14
Acq On : 1 Oct 2018 16:39 Operator: WA
Sample : 10000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018 *WA 10/2/18*
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	22065	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	103137	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	14496	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.42	65	26208	923.218	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.32%			
33) Toluene-d8 (SS2)	14.02	98	105918	963.743	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.37%			
45) Bromofluorobenzene (SS3)	17.43	174	37072	930.705	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.07%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	1175449	26334.679	pg	100
3) Chloromethane	4.52	52	285120	26704.790	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	837060	26060.555	pg	100
5) Vinyl Chloride	4.82	62	785255	26492.529	pg	99
6) 1,3-Butadiene	5.00	54	724653	34079.952	pg	100
7) Bromomethane	5.33	94	519739	26579.353	pg	100
8) Chloroethane	5.56	64	406431	26688.172	pg	100
9) Acrolein	6.14	56	324675	28735.223	pg	100
10) Acetone	6.29	58	1908854	116717.249	pg	97
11) Trichlorofluoromethane	6.48	101	961848	27930.127	pg	100
12) 1,1-Dichloroethene	7.20	96	715370	29840.630	pg	99
13) Methylene Chloride	7.36	84	723597	28287.216	pg	99
14) Trichlorotrifluoroethane	7.66	151	694310	30036.229	pg	100
15) trans-1,2-Dichloroethene	8.39	96	765357	30617.830	pg	100
16) 1,1-Dichloroethane	8.61	63	1104862	27504.851	pg	100
17) Methyl tert-Butyl Ether	8.66	73	2101384	31971.710	pg	100
18) cis-1,2-Dichloroethene	9.48	96	805588	30573.883	pg	100
19) Chloroform	9.79	83	1169368	27476.859	pg	100
21) 1,2-Dichloroethane	10.53	62	755703	27884.467	pg	100
22) 1,1,1-Trichloroethane	10.79	97	1057295	29530.422	pg	100
23) Benzene	11.25	78	2854604	27651.222	pg	100
24) Carbon Tetrachloride	11.40	117	961856	32231.581	pg	100
26) 1,2-Dichloropropane	12.06	63	682689	28571.203	pg	99
27) Bromodichloromethane	12.24	83	921769	29499.918	pg	100
28) Trichloroethene	12.29	130	864600	30236.473	pg	100
29) 1,4-Dioxane	12.25	88	611449	30480.055	pg	99
30) cis-1,3-Dichloropropene	13.13	75	1208471	33112.919	pg	100
31) trans-1,3-Dichloropropene	13.64	75	1026925	33530.964	pg	100
32) 1,1,2-Trichloroethane	13.82	83	596957	29072.383	pg	99
34) Toluene	14.12	91	3069160	28783.785	pg	99
35) Dibromochloromethane	14.53	129	867155	31231.818	pg	100
36) 1,2-Dibromoethane	14.79	107	828968	30357.996	pg	99
37) Tetrachloroethene	15.27	166	904671	29662.536	pg	100
39) Chlorobenzene	15.97	112	2118495	29773.474	pg	99
40) Ethylbenzene	16.35	91	3438163	31712.787	pg	99
41) m,p-Xylene	16.54	91	5280531	63491.109	pg	98
42) Styrene	16.89	104	2328920	38518.836	pg	100
43) o-Xylene	17.00	106	1400023	32180.229	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	1255875	29653.416	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	2991368	33195.290	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	2955963	33022.309	pg	99
48) 1,3-Dichlorobenzene	18.81	146	1865896	31735.267	pg	99
49) 1,4-Dichlorobenzene	18.87	146	1859677	31535.616	pg	99
50) 1,2-Dichlorobenzene	19.20	146	1770377	31526.955	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	637450	34013.852	pg	97
52) 1,2,4-Trichlorobenzene	20.82	182	1195622	34979.283	pg	100
53) Naphthalene	20.93	128	4087226	35296.226	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

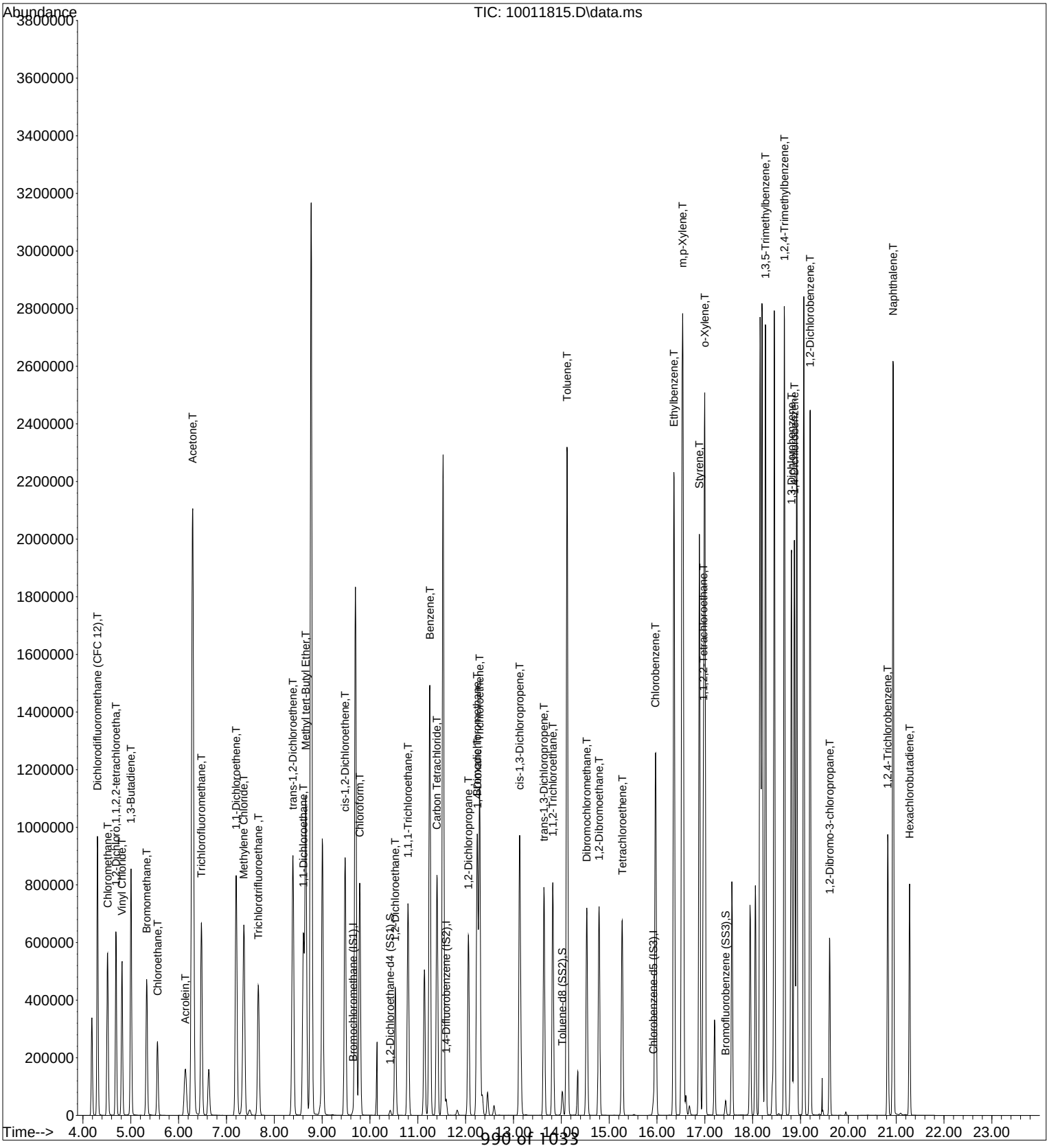
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	765922	30213.883	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011815.D Vial: 15
Acq On : 1 Oct 2018 17:11 Operator: WA
Sample : 25000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	21786	1000.000	pg	0.03
25) 1,4-Difluorobenzene (IS2)	11.60	114	102151	1000.000	pg	0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	16136	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.43	65	25928	925.051	pg	0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 92.50%			
33) Toluene-d8 (SS2)	14.03	98	105227	966.697	pg	0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.67%			
45) Bromofluorobenzene (SS3)	17.43	174	36393	820.797	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 82.08%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	2121230	48132.501	pg	99
3) Chloromethane	4.52	52	522445	49559.680	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1608435	50717.405	pg	99
5) Vinyl Chloride	4.82	62	1449049	49513.339	pg	100
6) 1,3-Butadiene	5.01	54	1355430	64561.321	pg	100
7) Bromomethane	5.34	94	976601	50582.780	pg	100
8) Chloroethane	5.56	64	760043	50547.141	pg	100
9) Acrolein	6.15	56	609177	54605.407	pg	100
10) Acetone	6.31	58	3436847	212837.898	pg	95
11) Trichlorofluoromethane	6.48	101	1753519	51570.740	pg	100
12) 1,1-Dichloroethene	7.21	96	1308137	55265.859	pg	99
13) Methylene Chloride	7.38	84	1326001	52500.536	pg	99
14) Trichlorotrifluoroethane	7.67	151	1269075	55603.959	pg	100
15) trans-1,2-Dichloroethene	8.40	96	1402081	56808.051	pg	100
16) 1,1-Dichloroethane	8.62	63	1999424	50411.845	pg	100
17) Methyl tert-Butyl Ether	8.66	73	3831900	59047.436	pg	100
18) cis-1,2-Dichloroethene	9.49	96	1467538	56409.649	pg	100
19) Chloroform	9.80	83	2124196	50551.832	pg	100
21) 1,2-Dichloroethane	10.54	62	1370000	51198.613	pg	100
22) 1,1,1-Trichloroethane	10.80	97	1921689	54360.447	pg	99
23) Benzene	11.26	78	5170027	50720.988	pg	100
24) Carbon Tetrachloride	11.40	117	1752780	59487.455	pg	100
26) 1,2-Dichloropropane	12.06	63	1235662	52212.824	pg	100
27) Bromodichloromethane	12.24	83	1673814	54085.118	pg	100
28) Trichloroethene	12.30	130	1587270	56045.220	pg	100
29) 1,4-Dioxane	12.26	88	1137524	57251.641	pg	98
30) cis-1,3-Dichloropropene	13.13	75	2195223	60731.185	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1893529	62423.935	pg	99
32) 1,1,2-Trichloroethane	13.82	83	1091659	53678.017	pg	99
34) Toluene	14.12	91	5513325	52205.209	pg	98
35) Dibromochloromethane	14.54	129	1588204	57753.550	pg	100
36) 1,2-Dibromoethane	14.79	107	1520188	56208.824	pg	99
37) Tetrachloroethene	15.27	166	1650507	54639.518	pg	99
39) Chlorobenzene	15.97	112	3848880	48594.681	pg	99
40) Ethylbenzene	16.36	91	6159455	51039.044	pg	97
41) m,p-Xylene	16.54	91	9382796	101349.097	pg	96
42) Styrene	16.89	104	4208085	62525.242	pg	100
43) o-Xylene	17.01	106	2533620	52317.591	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2260027	47939.581	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	5320337	53039.334	pg	97
47) 1,2,4-Trimethylbenzene	18.67	105	5158974	51775.474	pg	98
48) 1,3-Dichlorobenzene	18.81	146	3402479	51987.923	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3442390	52441.629	pg	99
50) 1,2-Dichlorobenzene	19.20	146	3230938	51688.888	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1191870	57133.507	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	2298722	60416.526	pg	100
53) Naphthalene	20.94	128	7596985	58937.700	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

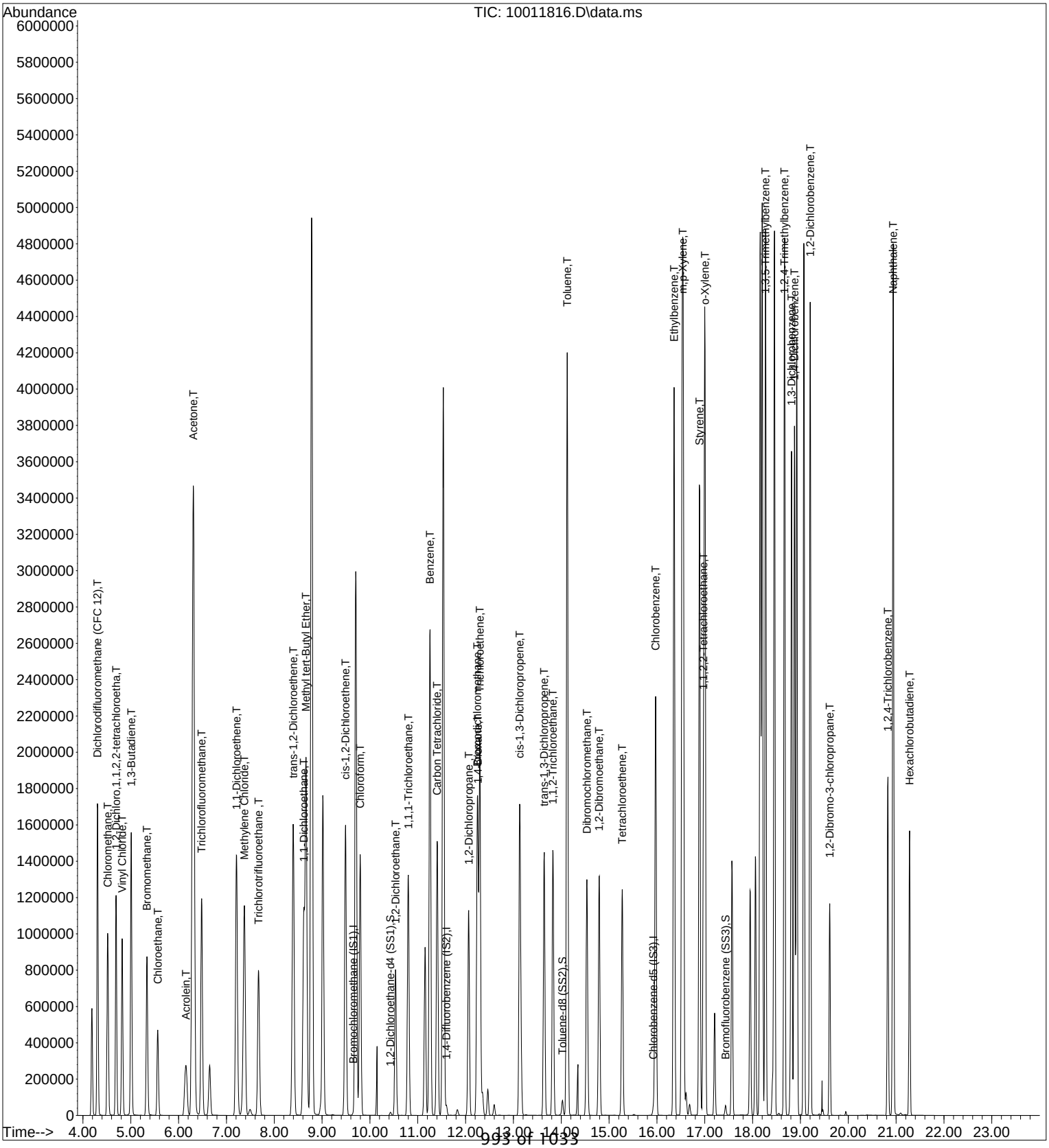
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1462036	51812.239	pg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011816.D Vial: 15
Acq On : 1 Oct 2018 17:43 Operator: WA
Sample : 50000pg S19100118 ICAL Std Inst : MS19
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Mon Oct 01 15:34:24 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19284	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	90340	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11755	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	23710	1027.119	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.71%			
33) Toluene-d8 (SS2)	14.01	98	94591	1015.329	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.53%			
45) Bromofluorobenzene (SS3)	17.43	174	33942	1021.858	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.19%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	46083	1121.528	pg	100
3) Chloromethane	4.51	52	10852	1129.477	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	30940	1044.589	pg	100
5) Vinyl Chloride	4.81	62	30208	1132.157	pg	99
6) 1,3-Butadiene	5.00	54	21243	1053.174	pg	99
7) Bromomethane	5.32	94	19977	1065.743	pg	100
8) Chloroethane	5.55	64	15635	1119.941	pg	100
9) Acrolein	6.11	56	12939	1146.554	pg	100
10) Acetone	6.26	58	88055	6154.623	pg	98
11) Trichlorofluoromethane	6.47	101	35243	1096.742	pg	100
12) 1,1-Dichloroethene	7.19	96	25399	1116.905	pg	98
13) Methylene Chloride	7.33	84	26395	1108.033	pg	97
14) Trichlorotrifluoroethane	7.66	151	23781	1055.913	pg	100
15) trans-1,2-Dichloroethene	8.37	96	27072	1144.238	pg	100
16) 1,1-Dichloroethane	8.58	63	41751	1130.659	pg	100
17) Methyl tert-Butyl Ether	8.65	73	74261	1187.632	pg	100
18) cis-1,2-Dichloroethene	9.45	96	28325	1124.817	pg	100
19) Chloroform	9.76	83	43586	1094.105	pg	100
21) 1,2-Dichloroethane	10.51	62	28072	1139.290	pg	100
22) 1,1,1-Trichloroethane	10.78	97	37540	1110.996	pg	100
23) Benzene	11.23	78	108739	1086.513	pg	100
24) Carbon Tetrachloride	11.39	117	33790	1095.581	pg	100
26) 1,2-Dichloropropane	12.05	63	25221	1120.876	pg	99
27) Bromodichloromethane	12.23	83	32895	1101.339	pg	100
28) Trichloroethene	12.28	130	30568	1082.906	pg	100
29) 1,4-Dioxane	12.24	88	21765	1127.020	pg	99
30) cis-1,3-Dichloropropene	13.12	75	39716	1130.707	pg	100
31) trans-1,3-Dichloropropene	13.63	75	34545	1168.397	pg	100
32) 1,1,2-Trichloroethane	13.82	83	21609	1101.495	pg	99
34) Toluene	14.11	91	112377	1089.448	pg	100
35) Dibromochloromethane	14.53	129	28858	1044.324	pg	100
36) 1,2-Dibromoethane	14.78	107	29006	1095.765	pg	100
37) Tetrachloroethene	15.27	166	32294	1063.904	pg	100
39) Chlorobenzene	15.97	112	76186	1070.522	pg	100
40) Ethylbenzene	16.35	91	121902	1124.844	pg	99
41) m,p-Xylene	16.53	91	189199	2283.309	pg	99
42) Styrene	16.89	104	74123	1126.202	pg	100
43) o-Xylene	17.00	106	49274	1118.508	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	44182	1045.205	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	104660	1129.574	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	105037	1136.389	pg	100
48) 1,3-Dichlorobenzene	18.81	146	62869	1041.138	pg	100
49) 1,4-Dichlorobenzene	18.87	146	62994	1038.808	pg	100
50) 1,2-Dichlorobenzene	19.20	146	60465	1043.433	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19998	1000.839	pg	98
52) 1,2,4-Trichlorobenzene	20.83	182	35513	1035.223	pg	100
53) Naphthalene	20.94	128	108646	1004.925	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

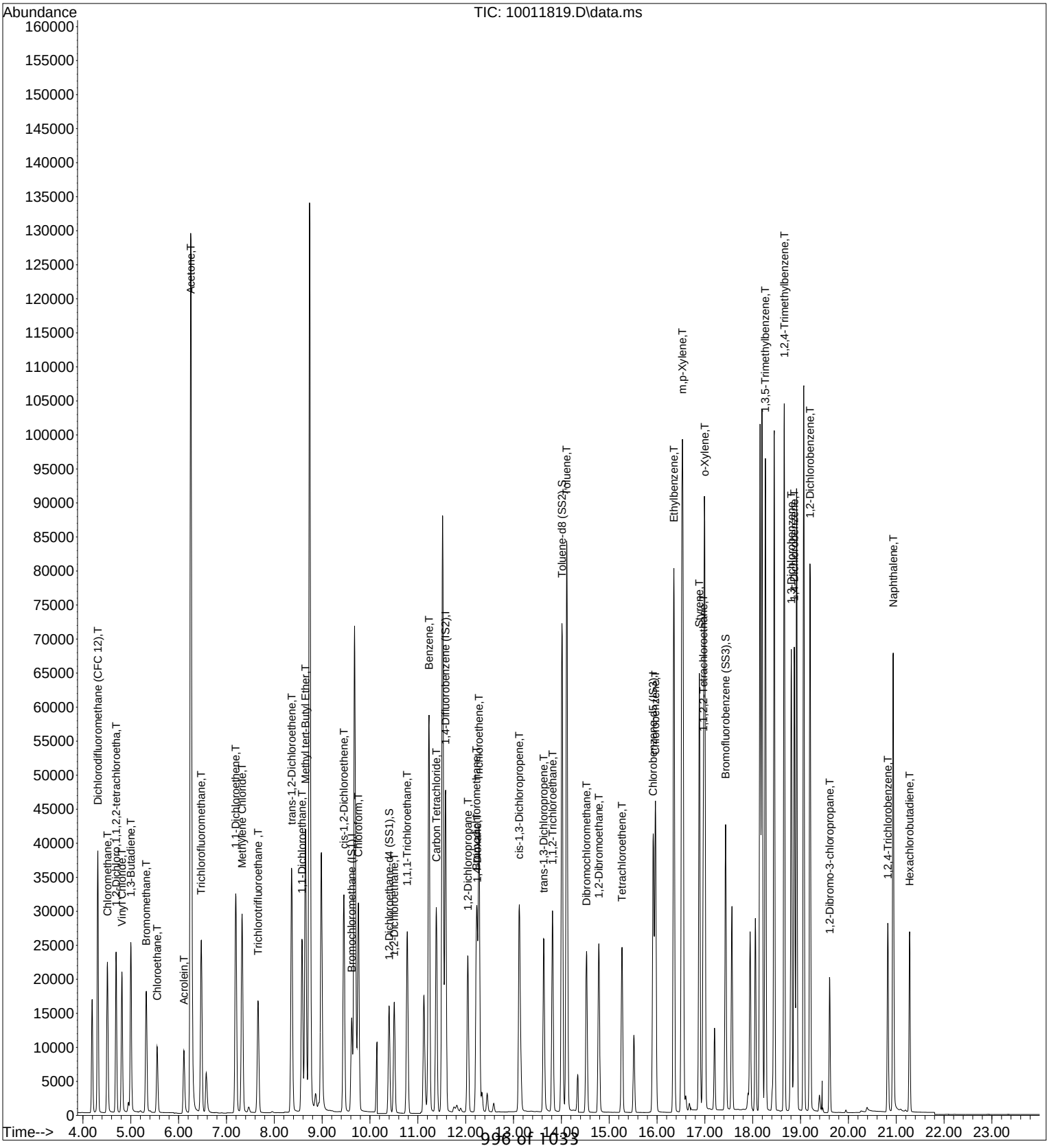
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	25301	1003.657	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\01\10011819.D Vial: 9
Acq On : 1 Oct 2018 19:18 Operator: WA
Sample : 1000pg S19100118 ICV Std Inst : MS19
Misc : S31-09241806/S31-09271801 (10/26)

Quant Time: Oct 02 06:50:02 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 10011819.D
Data File Path: I:\MS19\DATA\2018_10\01\
Operator: WA
Instrument Name: MS19
Sample Name: 1000pg S19100118 ICV Std
Misc Info: S31-09241806/S31-09271801 (10/26)
Date Acquired: 10/1/18 19:18
Acq. Method File: TO15SIM.M

10/2/18

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.31	1052.0	1121.5	107	80	130	*	*
3)	Chloromethane		4.51	1055.0	1129.5	107	54	144	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrachloroetha*	*	4.69	1055.0	1044.6	99	65	125	*	*
5)	Vinyl Chloride		4.81	1069.0	1132.2	106	65	136	*	*
6)	*1,3-Butadiene*	*	5.00	1051.0	1053.2	100	27	154	*	*
7)	Bromomethane		5.32	1059.0	1065.7	101	71	126	*	*
8)	Chloroethane		5.55	1070.0	1119.9	105	71	129	*	*
9)	*Acrolein*	*	6.11	1025.0	1146.6	112	49	117	*	*
10)	Acetone		6.26	5293.0	6154.6	116	62	158	*	*
11)	Trichlorofluoromethane		6.47	1056.0	1096.7	104	82	122	*	*
12)	1,1-Dichloroethene		7.19	1089.0	1116.9	103	76	120	*	*
13)	Methylene Chloride		7.33	1083.0	1108.0	102	76	120	*	*
14)	Trichlorotrifluoroethane		7.66	1078.0	1055.9	98	77	118	*	*
15)	trans-1,2-Dichloroethene		8.37	1069.0	1144.2	107	73	124	*	*
16)	1,1-Dichloroethane		8.58	1078.0	1130.7	105	71	126	*	*
17)	Methyl tert-Butyl Ether		8.65	1072.0	1187.6	111	69	125	*	*
18)	cis-1,2-Dichloroethene		9.45	1054.0	1124.8	107	76	121	*	*
19)	Chloroform		9.76	1083.0	1094.1	101	80	121	*	*
21)	1,2-Dichloroethane		10.51	1074.0	1139.3	106	68	126	*	*
22)	1,1,1-Trichloroethane		10.78	1076.0	1111.0	103	75	121	*	*
25)	Benzene		11.23	1055.0	1086.5	103	76	126	*	*
24)	Carbon Tetrachloride		11.39	1058.0	1095.6	104	78	117	*	*
26)	1,2-Dichloropropane		12.05	1079.0	1120.9	104	65	126	*	*
27)	Bromodichloromethane		12.23	1073.0	1101.3	103	72	119	*	*
28)	Trichloroethene		12.28	1067.0	1082.9	101	73	121	*	*
29)	1,4-Dioxane		12.24	1069.0	1127.0	105	66	119	*	*
30)	cis-1,3-Dichloropropene		13.12	1071.0	1130.7	106	60	122	*	*
31)	trans-1,3-Dichloropropene		13.63	1064.0	1168.4	110	58	122	*	*
32)	1,1,2-Trichloroethane		13.82	1074.0	1101.5	103	68	124	*	*
34)	Toluene		14.01	1060.0	1089.4	103	69	122	*	*
35)	*Dibromochloromethane*	*	14.53	1064.0	1044.3	98	71	114	*	*
36)	1,2-Dibromoethane		14.78	1081.0	1095.8	101	71	119	*	*
37)	Tetrachloroethene		15.27	1064.0	1063.9	100	72	118	*	*
39)	Chlorobenzene		15.97	1073.0	1070.5	100	76	123	*	*
40)	Ethylbenzene		16.35	1061.0	1124.8	106	76	122	*	*
41)	m,p-Xylene		16.53	2131.0	2283.3	107	73	126	*	*
42)	*Styrene*	*	16.89	1060.0	1126.2	106	53	129	*	*
43)	o-Xylene		17.00	1070.0	1118.5	105	70	129	*	*
44)	1,1,2,2-Tetrachloroethane		16.97	1072.0	1045.2	98	73	123	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.27	1069.0	1129.6	106	63	132	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.66	1076.0	1136.4	106	57	134	*	*
48)	1,3-Dichlorobenzene		18.81	1079.0	1041.1	96	59	133	*	*
49)	1,4-Dichlorobenzene		18.87	1080.0	1038.8	96	59	125	*	*
50)	1,2-Dichlorobenzene		19.20	1078.0	1043.4	97	60	127	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.61	1046.0	1000.8	96	48	132	*	*
52)	1,2,4-Trichlorobenzene		20.83	1071.0	1035.2	97	36	136	*	*
53)	Naphthalene		19.20	1015.0	1004.9	99	26	143	*	*
54)	Hexachlorobutadiene		21.28	1045.0	1003.7	96	41	144	*	*

* ***Compounds with 70 - 130 as advisory limits***

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\17\10171802.D Vial: 16
Acq On : 17 Oct 2018 8:16 Operator: WA
Sample : CCV S19101718_2000pg_T_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 17 08:42:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/17/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.03
2	T	Dichlorodifluoromethane (CF	2.131	1.751	17.8	73	0.00
3	T	Chloromethane	0.498	0.407	18.3	74	0.00
4	T	1,2-Dichloro,1,1,2,2-tetraf	1.536	1.254	18.4	73	0.00
5	T	Vinyl Chloride	1.384	1.142	17.5	74	0.00
6	T	1,3-Butadiene	1.046	0.796	23.9	68	0.00
7	T	Bromomethane	0.972	0.772	20.6	73	-0.01
8	T	Chloroethane	0.724	0.579	20.0	72	-0.01
9	T	Acrolein	0.585	0.446	23.8	71	-0.04
10	T	Acetone	0.742	0.616	17.0	77	-0.05
11	T	Trichlorofluoromethane	1.666	1.360	18.4	73	-0.01
12	T	1,1-Dichloroethene	1.179	1.024	13.1	76	-0.02
13	T	Methylene Chloride	1.235	1.014	17.9	74	-0.04
14	T	Trichlorotrifluoroethane	1.168	1.005	14.0	74	0.00
15	T	trans-1,2-Dichloroethene	1.227	1.037	15.5	75	-0.03
16	T	1,1-Dichloroethane	1.915	1.603	16.3	74	-0.03
17	T	Methyl tert-Butyl Ether	3.243	2.801	13.6	74	0.00
18	T	cis-1,2-Dichloroethene	1.306	1.124	13.9	75	-0.03
19	T	Chloroform	2.066	1.673	19.0	75	-0.04
20	S	1,2-Dichloroethane-d4 (SS1)	1.197	1.178	1.6	90	-0.03
21	T	1,2-Dichloroethane	1.278	1.087	14.9	74	-0.03
22	T	1,1,1-Trichloroethane	1.752	1.489	15.0	75	-0.02
23	T	Benzene	5.190	4.288	17.4	77	-0.02
24	T	Carbon Tetrachloride	1.599	1.365	14.6	75	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	91	-0.02
26	T	1,2-Dichloropropane	0.249	0.213	14.5	75	-0.02
27	T	Bromodichloromethane	0.331	0.283	14.5	75	-0.02
28	T	Trichloroethene	0.312	0.270	13.5	76	-0.02
29	T	1,4-Dioxane	0.214	0.183	14.5	73	-0.01
30	T	cis-1,3-Dichloropropene	0.389	0.342	12.1	75	-0.01
31	T	trans-1,3-Dichloropropene	0.327	0.292	10.7	75	-0.01
32	T	1,1,2-Trichloroethane	0.217	0.187	13.8	75	-0.01
33	S	Toluene-d8 (SS2)	1.031	1.032	-0.1	92	-0.02
34	T	Toluene	1.142	0.973	14.8	76	-0.01
35	T	Dibromochloromethane	0.306	0.266	13.1	76	-0.01
36	T	1,2-Dibromoethane	0.293	0.253	13.7	75	0.00
37	T	Tetrachloroethene	0.336	0.288	14.3	76	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	95	0.00
39	T	Chlorobenzene	6.054	5.232	13.6	76	0.00
40	T	Ethylbenzene	9.219	8.502	7.8	77	0.00
41	T	m,p-Xylene	7.049	6.486	8.0	76	-0.01
42	T	Styrene	5.599	4.705	16.0	68	-0.01
43	T	o-Xylene	3.748	3.433	8.4	76	-0.01
44	T	1,1,2,2-Tetrachloroethane	3.596	3.197	11.1	76	0.00
45	S	Bromofluorobenzene (SS3)	2.826	3.096	-9.6	98	0.00
46	T	1,3,5-Trimethylbenzene	7.882	7.220	8.4	74	0.00
47	T	1,2,4-Trimethylbenzene	7.863	7.329	6.8	74	0.00
48	T	1,3-Dichlorobenzene	5.137	4.478	12.8	74	0.00
49	T	1,4-Dichlorobenzene	5.159	4.432	14.1	74	0.00
50	T	1,2-Dichlorobenzene	4.930	4.377	11.2	75	0.00
51	T	1,2-Dibromo-3-chloropropane	1.700	1.600	5.9	77	0.00
52	T	1,2,4-Trichlorobenzene	2.918	2.707	7.2	75	0.00
53	T	Naphthalene	9.197	7.546	18.0	64	0.00
54	T	Hexachlorobutadiene	2.145	2.019	5.9	78	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\17\10171802.D Vial: 16
Acq On : 17 Oct 2018 8:16 Operator: WA
Sample : CCV S19101718_2000pg_T_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 17 08:42:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171802.D Vial: 16
Acq On : 17 Oct 2018 8:16 Operator: WA
Sample : CCV S19101718_2000pg_T_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 17 08:42:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19400	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	89510	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11405	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	22847	983.816	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.38%			
33) Toluene-d8 (SS2)	14.01	98	92342	1000.379	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.04%			
45) Bromofluorobenzene (SS3)	17.43	174	35308	1095.604	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 109.56%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	71198	1722.394	pg	100
3) Chloromethane	4.51	52	15904	1645.392	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	49681	1667.289	pg	100
5) Vinyl Chloride	4.81	62	45715	1703.095	pg	99
6) 1,3-Butadiene	5.00	54	32698	1611.391	pg	98
7) Bromomethane	5.32	94	29737	1576.938	pg	100
8) Chloroethane	5.55	64	22746	1619.563	pg	100
9) Acrolein	6.12	56	18228	1605.566	pg	100
10) Acetone	6.26	58	127131	8832.716	pg	96
11) Trichlorofluoromethane	6.47	101	55451	1715.285	pg	100
12) 1,1-Dichloroethene	7.19	96	42141	1842.044	pg	100
13) Methylene Chloride	7.33	84	41641	1737.590	pg	100
14) Trichlorotrifluoroethane	7.66	151	41065	1812.447	pg	100
15) trans-1,2-Dichloroethene	8.37	96	43505	1827.807	pg	100
16) 1,1-Dichloroethane	8.58	63	63554	1710.815	pg	100
17) Methyl tert-Butyl Ether	8.65	73	116274	1848.413	pg	100
18) cis-1,2-Dichloroethene	9.46	96	46518	1836.236	pg	100
19) Chloroform	9.76	83	68882	1718.752	pg	100
21) 1,2-Dichloroethane	10.51	62	44482	1794.488	pg	99
22) 1,1,1-Trichloroethane	10.78	97	62214	1830.213	pg	100
23) Benzene	11.23	78	175856	1746.636	pg	100
24) Carbon Tetrachloride	11.39	117	56125	1808.873	pg	100
26) 1,2-Dichloropropane	12.05	63	40625	1822.205	pg	100
27) Bromodichloromethane	12.22	83	54125	1828.931	pg	100
28) Trichloroethene	12.28	130	51280	1833.497	pg	100
29) 1,4-Dioxane	12.24	88	34884	1823.089	pg	99
30) cis-1,3-Dichloropropene	13.12	75	68625	1971.857	pg	100
31) trans-1,3-Dichloropropene	13.63	75	55733	1902.506	pg	100
32) 1,1,2-Trichloroethane	13.81	83	35587	1830.829	pg	100
34) Toluene	14.11	91	183632	1796.742	pg	100
35) Dibromochloromethane	14.52	129	50506	1844.678	pg	100
36) 1,2-Dibromoethane	14.78	107	48266	1840.262	pg	100
37) Tetrachloroethene	15.27	166	54853	1823.852	pg	100
39) Chlorobenzene	15.96	112	127227	1842.584	pg	100
40) Ethylbenzene	16.35	91	204012	1940.281	pg	100
41) m,p-Xylene	16.53	91	314095	3906.918	pg	100
42) Styrene	16.88	104	113540	1778.032	pg	100
43) o-Xylene	16.99	106	82614	1932.869	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	77072	1879.231	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	172762	1921.806	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	175699	1959.212	pg	100
48) 1,3-Dichlorobenzene	18.80	146	109387	1867.087	pg	99
49) 1,4-Dichlorobenzene	18.87	146	107559	1828.143	pg	100
50) 1,2-Dichlorobenzene	19.19	146	108131	1923.261	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	38352	1978.304	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	67729	2034.926	pg	100
53) Naphthalene	20.93	128	181763	1732.817	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171802.D Vial: 16
Acq On : 17 Oct 2018 8:16 Operator: WA
Sample : CCV S19101718_2000pg_T_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 17 08:42:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

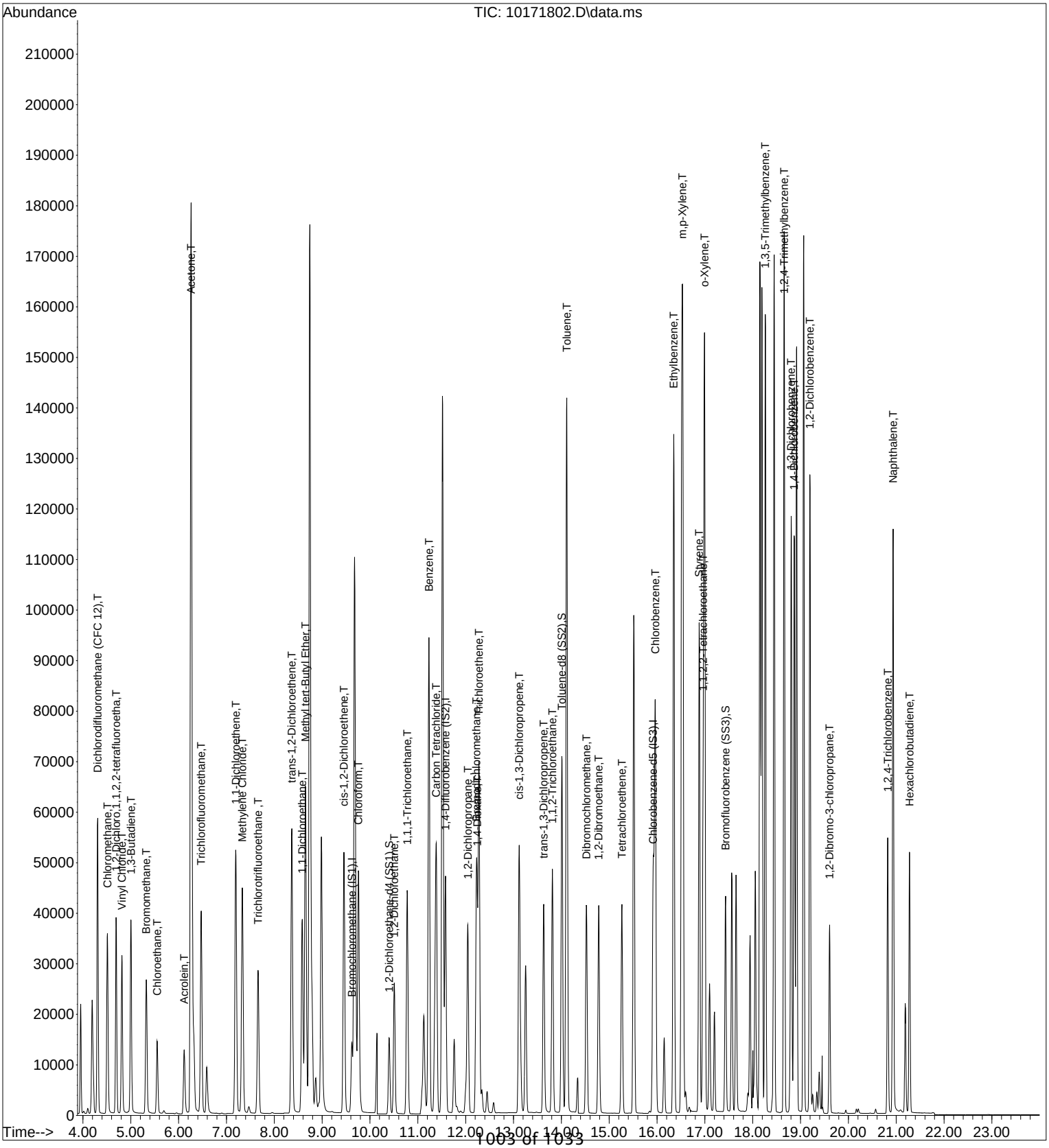
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	48689	1990.700	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\17\10171802.D Vial: 16
Acq On : 17 Oct 2018 8:16 Operator: WA
Sample : CCV S19101718_2000pg_T_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 17 08:42:16 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\18\10181802.D Vial: 16
Acq On : 18 Oct 2018 00:49 Operator: WA
Sample : CCV S19101818_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 18 09:38:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/18/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	91	-0.03
2	T	Dichlorodifluoromethane (CF	2.131	1.795	15.8	75	0.00
3	T	Chloromethane	0.498	0.442	11.2	80	0.00
4	T	1,2-Dichloro,1,1,2,2-tetraf	1.536	1.267	17.5	74	0.00
5	T	Vinyl Chloride	1.384	1.163	16.0	75	0.00
6	T	1,3-Butadiene	1.046	0.943	9.8	81	0.00
7	T	Bromomethane	0.972	0.799	17.8	75	-0.01
8	T	Chloroethane	0.724	0.612	15.5	76	-0.01
9	T	Acrolein	0.585	0.466	20.3	75	-0.04
10	T	Acetone	0.742	0.640	13.7	80	-0.05
11	T	Trichlorofluoromethane	1.666	1.393	16.4	75	-0.01
12	T	1,1-Dichloroethene	1.179	1.053	10.7	78	-0.02
13	T	Methylene Chloride	1.235	1.035	16.2	75	-0.04
14	T	Trichlorotrifluoroethane	1.168	1.012	13.4	74	0.00
15	T	trans-1,2-Dichloroethene	1.227	1.067	13.0	77	-0.03
16	T	1,1-Dichloroethane	1.915	1.641	14.3	76	-0.03
17	T	Methyl tert-Butyl Ether	3.243	2.934	9.5	77	0.00
18	T	cis-1,2-Dichloroethene	1.306	1.139	12.8	76	-0.03
19	T	Chloroform	2.066	1.679	18.7	75	-0.03
20	S	1,2-Dichloroethane-d4 (SS1)	1.197	1.196	0.1	92	-0.03
21	T	1,2-Dichloroethane	1.278	1.104	13.6	75	-0.03
22	T	1,1,1-Trichloroethane	1.752	1.503	14.2	76	-0.02
23	T	Benzene	5.190	4.264	17.8	76	-0.02
24	T	Carbon Tetrachloride	1.599	1.359	15.0	75	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	91	-0.02
26	T	1,2-Dichloropropane	0.249	0.214	14.1	76	-0.02
27	T	Bromodichloromethane	0.331	0.282	14.8	75	-0.02
28	T	Trichloroethene	0.312	0.268	14.1	75	-0.02
29	T	1,4-Dioxane	0.214	0.185	13.6	74	-0.01
30	T	cis-1,3-Dichloropropene	0.389	0.348	10.5	76	-0.01
31	T	trans-1,3-Dichloropropene	0.327	0.298	8.9	77	-0.01
32	T	1,1,2-Trichloroethane	0.217	0.187	13.8	75	-0.01
33	S	Toluene-d8 (SS2)	1.031	1.052	-2.0	94	-0.01
34	T	Toluene	1.142	0.977	14.4	76	-0.01
35	T	Dibromochloromethane	0.306	0.260	15.0	74	0.00
36	T	1,2-Dibromoethane	0.293	0.252	14.0	75	0.00
37	T	Tetrachloroethene	0.336	0.284	15.5	75	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	97	0.00
39	T	Chlorobenzene	6.054	5.063	16.4	76	0.00
40	T	Ethylbenzene	9.219	8.326	9.7	77	0.00
41	T	m,p-Xylene	7.049	6.328	10.2	76	-0.01
42	T	Styrene	5.599	4.567	18.4	67	0.00
43	T	o-Xylene	3.748	3.321	11.4	75	0.00
44	T	1,1,2,2-Tetrachloroethane	3.596	3.059	14.9	74	0.00
45	S	Bromofluorobenzene (SS3)	2.826	3.041	-7.6	99	0.00
46	T	1,3,5-Trimethylbenzene	7.882	6.975	11.5	73	0.00
47	T	1,2,4-Trimethylbenzene	7.863	7.081	9.9	73	0.00
48	T	1,3-Dichlorobenzene	5.137	4.290	16.5	73	0.00
49	T	1,4-Dichlorobenzene	5.159	4.221	18.2	73	0.00
50	T	1,2-Dichlorobenzene	4.930	4.178	15.3	74	0.00
51	T	1,2-Dibromo-3-chloropropane	1.700	1.516	10.8	74	0.00
52	T	1,2,4-Trichlorobenzene	2.918	2.622	10.1	74	0.00
53	T	Naphthalene	9.197	7.257	21.1	63	0.00
54	T	Hexachlorobutadiene	2.145	1.926	10.2	76	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\18\10181802.D Vial: 16
Acq On : 18 Oct 2018 00:49 Operator: WA
Sample : CCV S19101818_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 18 09:38:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181802.D Vial: 16
Acq On : 18 Oct 2018 00:49 Operator: WA
Sample : CCV S19101818_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 18 09:38:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/18/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19359	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	89454	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11676	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	23157	999.277	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.93%			
33) Toluene-d8 (SS2)	14.01	98	94129	1020.377	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.04%			
45) Bromofluorobenzene (SS3)	17.43	174	35507	1076.207	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 107.62%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	72844	1765.946	pg	100
3) Chloromethane	4.51	52	17234	1786.767	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	50079	1684.206	pg	100
5) Vinyl Chloride	4.81	62	46452	1734.217	pg	99
6) 1,3-Butadiene	5.00	54	38651	1908.795	pg	99
7) Bromomethane	5.32	94	30728	1632.941	pg	100
8) Chloroethane	5.55	64	23998	1712.327	pg	100
9) Acrolein	6.11	56	19012	1678.170	pg	100
10) Acetone	6.26	58	131887	9182.556	pg	95
11) Trichlorofluoromethane	6.47	101	56674	1756.829	pg	100
12) 1,1-Dichloroethene	7.19	96	43244	1894.261	pg	100
13) Methylene Chloride	7.33	84	42401	1773.051	pg	99
14) Trichlorotrifluoroethane	7.66	151	41268	1825.265	pg	100
15) trans-1,2-Dichloroethene	8.37	96	44658	1880.223	pg	100
16) 1,1-Dichloroethane	8.58	63	64952	1752.151	pg	100
17) Methyl tert-Butyl Ether	8.65	73	121561	1936.553	pg	100
18) cis-1,2-Dichloroethene	9.46	96	47044	1860.932	pg	100
19) Chloroform	9.76	83	68954	1724.193	pg	100
21) 1,2-Dichloroethane	10.51	62	45080	1822.464	pg	100
22) 1,1,1-Trichloroethane	10.78	97	62688	1848.062	pg	100
23) Benzene	11.23	78	174495	1736.789	pg	100
24) Carbon Tetrachloride	11.39	117	55778	1801.497	pg	100
26) 1,2-Dichloropropane	12.04	63	40895	1835.464	pg	99
27) Bromodichloromethane	12.22	83	53785	1818.580	pg	100
28) Trichloroethene	12.28	130	50925	1821.944	pg	100
29) 1,4-Dioxane	12.25	88	35269	1844.364	pg	100
30) cis-1,3-Dichloropropene	13.12	75	69758	2005.667	pg	100
31) trans-1,3-Dichloropropene	13.63	75	56875	1942.705	pg	100
32) 1,1,2-Trichloroethane	13.81	83	35515	1828.269	pg	99
34) Toluene	14.11	91	184199	1803.418	pg	100
35) Dibromochloromethane	14.53	129	49265	1800.478	pg	100
36) 1,2-Dibromoethane	14.78	107	48047	1833.058	pg	100
37) Tetrachloroethene	15.26	166	53987	1796.182	pg	100
39) Chlorobenzene	15.97	112	126038	1782.997	pg	100
40) Ethylbenzene	16.35	91	204549	1900.235	pg	100
41) m,p-Xylene	16.53	91	313709	3811.549	pg	99
42) Styrene	16.89	104	112838	1726.026	pg	100
43) o-Xylene	17.00	106	81821	1869.884	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	75513	1798.484	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	170855	1856.480	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	173786	1892.902	pg	100
48) 1,3-Dichlorobenzene	18.81	146	107296	1788.890	pg	100
49) 1,4-Dichlorobenzene	18.87	146	104877	1741.184	pg	100
50) 1,2-Dichlorobenzene	19.19	146	105657	1835.640	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	37198	1874.243	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	67166	1971.172	pg	100
53) Naphthalene	20.93	128	178954	1666.441	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181802.D Vial: 16
Acq On : 18 Oct 2018 00:49 Operator: WA
Sample : CCV S19101818_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 18 09:38:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

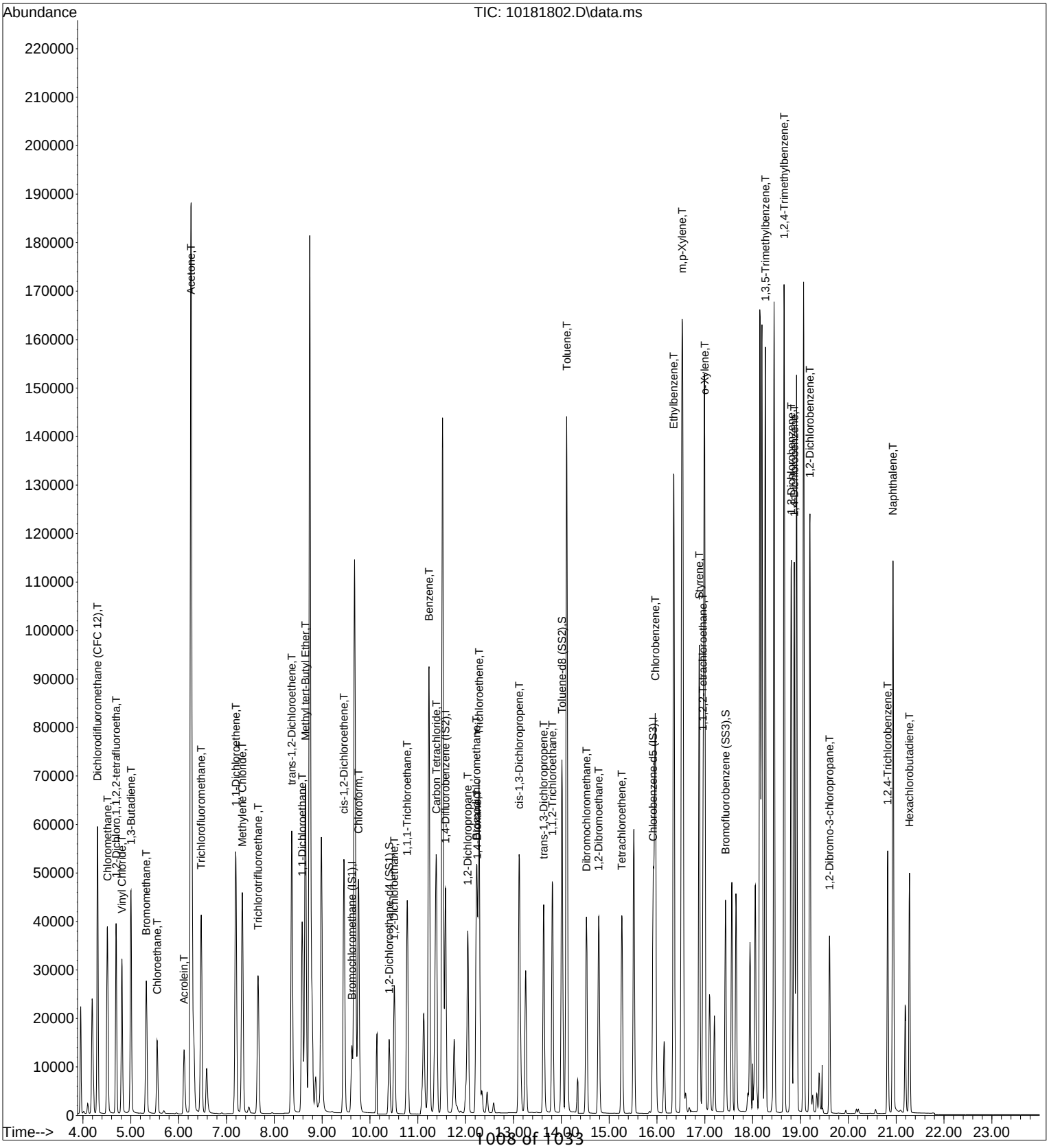
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	47528	1898.129	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\18\10181802.D Vial: 16
Acq On : 18 Oct 2018 00:49 Operator: WA
Sample : CCV S19101818_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 18 09:38:29 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\19\10191802.D Vial: 16
Acq On : 19 Oct 2018 4:53 Operator: WA
Sample : CCV S19101918_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 19 06:24:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

WA 10/19/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	87	-0.03
2	T	Dichlorodifluoromethane (CF	2.131	1.739	18.4	69	0.00
3	T	Chloromethane	0.498	0.402	19.3	69	0.00
4	T	1,2-Dichloro,1,1,2,2-tetraf	1.536	1.323	13.9	73	0.00
5	T	Vinyl Chloride	1.384	1.256	9.2	77	0.00
6	T	1,3-Butadiene	1.046	0.909	13.1	73	0.00
7	T	Bromomethane	0.972	0.764	21.4	68	-0.02
8	T	Chloroethane	0.724	0.575	20.6	68	-0.02
9	T	Acrolein	0.585	0.441	24.6	67	-0.04
10	T	Acetone	0.742	0.620	16.4	73	-0.05
11	T	Trichlorofluoromethane	1.666	1.354	18.7	69	-0.01
12	T	1,1-Dichloroethene	1.179	1.019	13.6	72	-0.02
13	T	Methylene Chloride	1.235	1.008	18.4	69	-0.05
14	T	Trichlorotrifluoroethane	1.168	0.992	15.1	69	0.00
15	T	trans-1,2-Dichloroethene	1.227	1.033	15.8	70	-0.03
16	T	1,1-Dichloroethane	1.915	1.586	17.2	69	-0.04
17	T	Methyl tert-Butyl Ether	3.243	2.813	13.3	70	-0.01
18	T	cis-1,2-Dichloroethene	1.306	1.108	15.2	70	-0.03
19	T	Chloroform	2.066	1.653	20.0	70	-0.04
20	S	1,2-Dichloroethane-d4 (SS1)	1.197	1.187	0.8	86	-0.03
21	T	1,2-Dichloroethane	1.278	1.070	16.3	69	-0.03
22	T	1,1,1-Trichloroethane	1.752	1.462	16.6	70	-0.02
23	T	Benzene	5.190	4.191	19.2	71	-0.02
24	T	Carbon Tetrachloride	1.599	1.336	16.4	70	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	87	-0.02
26	T	1,2-Dichloropropane	0.249	0.209	16.1	70	-0.02
27	T	Bromodichloromethane	0.331	0.275	16.9	70	-0.02
28	T	Trichloroethene	0.312	0.263	15.7	70	-0.02
29	T	1,4-Dioxane	0.214	0.179	16.4	68	-0.01
30	T	cis-1,3-Dichloropropene	0.389	0.334	14.1	70	-0.01
31	T	trans-1,3-Dichloropropene	0.327	0.286	12.5	70	-0.01
32	T	1,1,2-Trichloroethane	0.217	0.184	15.2	71	-0.01
33	S	Toluene-d8 (SS2)	1.031	1.070	-3.8	91	-0.02
34	T	Toluene	1.142	0.979	14.3	73	-0.01
35	T	Dibromochloromethane	0.306	0.266	13.1	72	0.00
36	T	1,2-Dibromoethane	0.293	0.260	11.3	73	0.00
37	T	Tetrachloroethene	0.336	0.289	14.0	73	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	99	0.00
39	T	Chlorobenzene	6.054	4.858	19.8	74	0.00
40	T	Ethylbenzene	9.219	8.065	12.5	76	0.00
41	T	m,p-Xylene	7.049	6.194	12.1	75	-0.01
42	T	Styrene	5.599	4.367	22.0	66	0.00
43	T	o-Xylene	3.748	3.232	13.8	74	-0.01
44	T	1,1,2,2-Tetrachloroethane	3.596	2.956	17.8	73	0.00
45	S	Bromofluorobenzene (SS3)	2.826	2.978	-5.4	98	0.00
46	T	1,3,5-Trimethylbenzene	7.882	6.678	15.3	72	0.00
47	T	1,2,4-Trimethylbenzene	7.863	6.813	13.4	72	0.00
48	T	1,3-Dichlorobenzene	5.137	4.132	19.6	71	0.00
49	T	1,4-Dichlorobenzene	5.159	4.026	22.0	71	0.00
50	T	1,2-Dichlorobenzene	4.930	4.015	18.6	72	0.00
51	T	1,2-Dibromo-3-chloropropane	1.700	1.456	14.4	73	0.00
52	T	1,2,4-Trichlorobenzene	2.918	2.505	14.2	72	0.00
53	T	Naphthalene	9.197	6.927	24.7	61	0.00
54	T	Hexachlorobutadiene	2.145	1.864	13.1	75	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2018_10\19\10191802.D Vial: 16
Acq On : 19 Oct 2018 4:53 Operator: WA
Sample : CCV S19101918_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 19 06:24:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191802.D Vial: 16
Acq On : 19 Oct 2018 4:53 Operator: WA
Sample : CCV S19101918_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 19 06:24:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

10/19/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18325	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85337	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	11901	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	21748	991.430	pg	-0.03
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.14%			
33) Toluene-d8 (SS2)	14.01	98	91295	1037.401	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.74%			
45) Bromofluorobenzene (SS3)	17.43	174	35442	1053.927	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.39%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	66805	1710.927	pg	100
3) Chloromethane	4.51	52	14806	1621.655	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	49516	1759.236	pg	100
5) Vinyl Chloride	4.81	62	47519	1874.154	pg	99
6) 1,3-Butadiene	5.00	54	35265	1839.846	pg	99
7) Bromomethane	5.32	94	27790	1560.141	pg	100
8) Chloroethane	5.55	64	21333	1608.061	pg	100
9) Acrolein	6.11	56	17043	1589.253	pg	100
10) Acetone	6.26	58	120912	8893.443	pg	97
11) Trichlorofluoromethane	6.47	101	52174	1708.593	pg	100
12) 1,1-Dichloroethene	7.19	96	39617	1833.304	pg	100
13) Methylene Chloride	7.33	84	39090	1726.830	pg	100
14) Trichlorotrifluoroethane	7.66	151	38298	1789.482	pg	100
15) trans-1,2-Dichloroethene	8.37	96	40933	1820.634	pg	100
16) 1,1-Dichloroethane	8.58	63	59421	1693.394	pg	100
17) Methyl tert-Butyl Ether	8.65	73	110297	1856.256	pg	100
18) cis-1,2-Dichloroethene	9.46	96	43329	1810.689	pg	100
19) Chloroform	9.76	83	64294	1698.383	pg	100
21) 1,2-Dichloroethane	10.51	62	41379	1767.233	pg	100
22) 1,1,1-Trichloroethane	10.78	97	57692	1796.746	pg	100
23) Benzene	11.23	78	162344	1707.022	pg	100
24) Carbon Tetrachloride	11.39	117	51906	1771.034	pg	100
26) 1,2-Dichloropropane	12.05	63	37971	1786.447	pg	99
27) Bromodichloromethane	12.22	83	49991	1771.844	pg	100
28) Trichloroethene	12.28	130	47583	1784.507	pg	100
29) 1,4-Dioxane	12.24	88	32391	1775.580	pg	99
30) cis-1,3-Dichloropropene	13.12	75	63937	1926.990	pg	100
31) trans-1,3-Dichloropropene	13.63	75	52160	1867.606	pg	100
32) 1,1,2-Trichloroethane	13.81	83	33354	1799.859	pg	100
34) Toluene	14.11	91	176086	1807.159	pg	100
35) Dibromochloromethane	14.53	129	48230	1847.689	pg	100
36) 1,2-Dibromoethane	14.78	107	47126	1884.660	pg	100
37) Tetrachloroethene	15.27	166	52364	1826.233	pg	100
39) Chlorobenzene	15.96	112	123264	1710.787	pg	100
40) Ethylbenzene	16.35	91	201944	1840.567	pg	100
41) m,p-Xylene	16.53	91	312971	3730.690	pg	99
42) Styrene	16.89	104	109966	1650.293	pg	100
43) o-Xylene	16.99	106	81151	1819.510	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	74367	1737.704	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	166733	1777.439	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	170436	1821.316	pg	100
48) 1,3-Dichlorobenzene	18.80	146	105333	1722.960	pg	100
49) 1,4-Dichlorobenzene	18.87	146	101960	1660.753	pg	100
50) 1,2-Dichlorobenzene	19.20	146	103496	1764.101	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	36432	1800.943	pg	100
52) 1,2,4-Trichlorobenzene	20.82	182	65396	1882.942	pg	100
53) Naphthalene	20.94	128	174122	1590.790	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191802.D Vial: 16
Acq On : 19 Oct 2018 4:53 Operator: WA
Sample : CCV S19101918_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 19 06:24:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

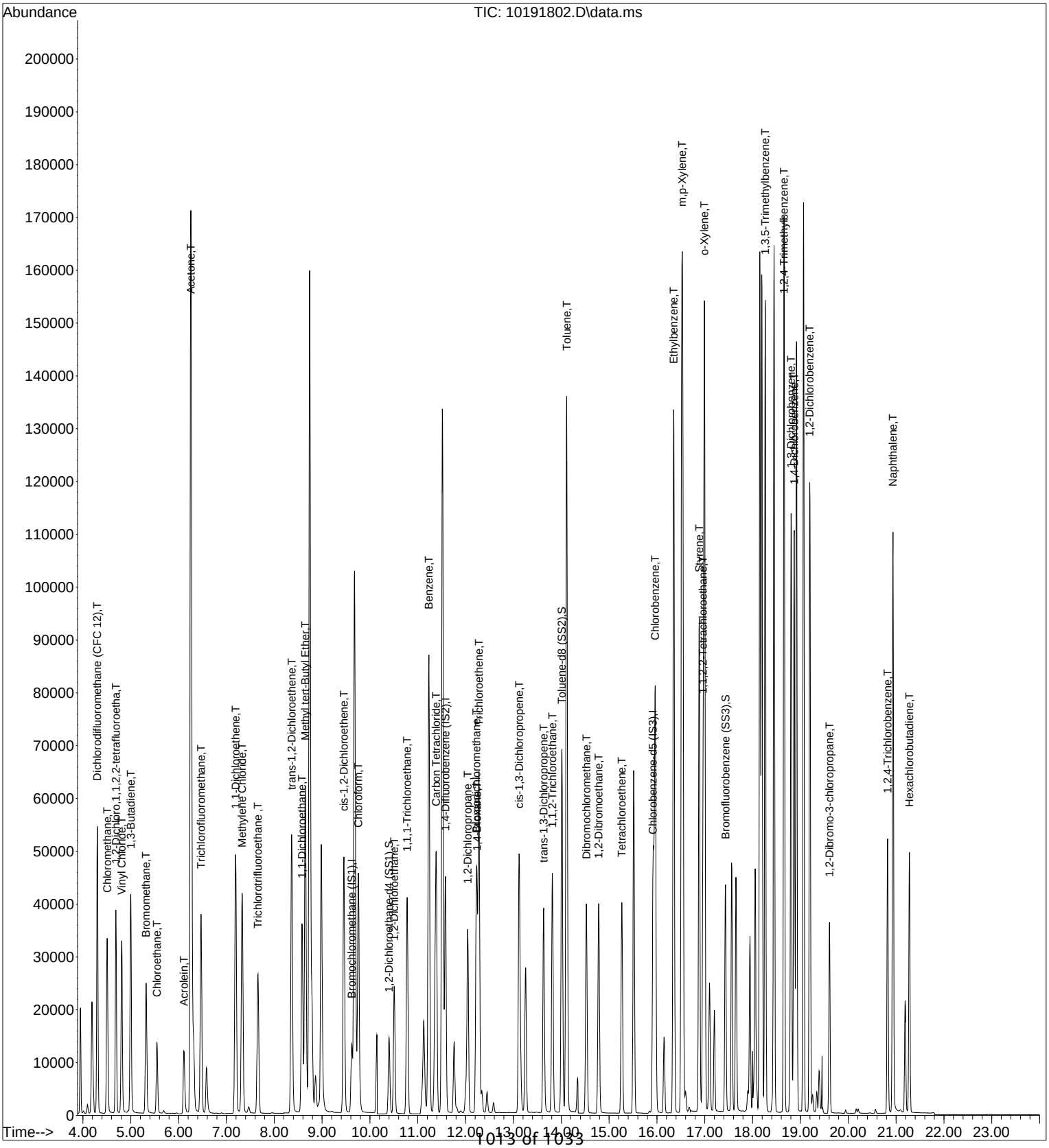
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	46900	1837.637	pg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2018_10\19\10191802.D Vial: 16
Acq On : 19 Oct 2018 4:53 Operator: WA
Sample : CCV S19101918_2000pg_1000pg Inst : MS19
Misc : S31-09241806/S31-09271802 (10/26)

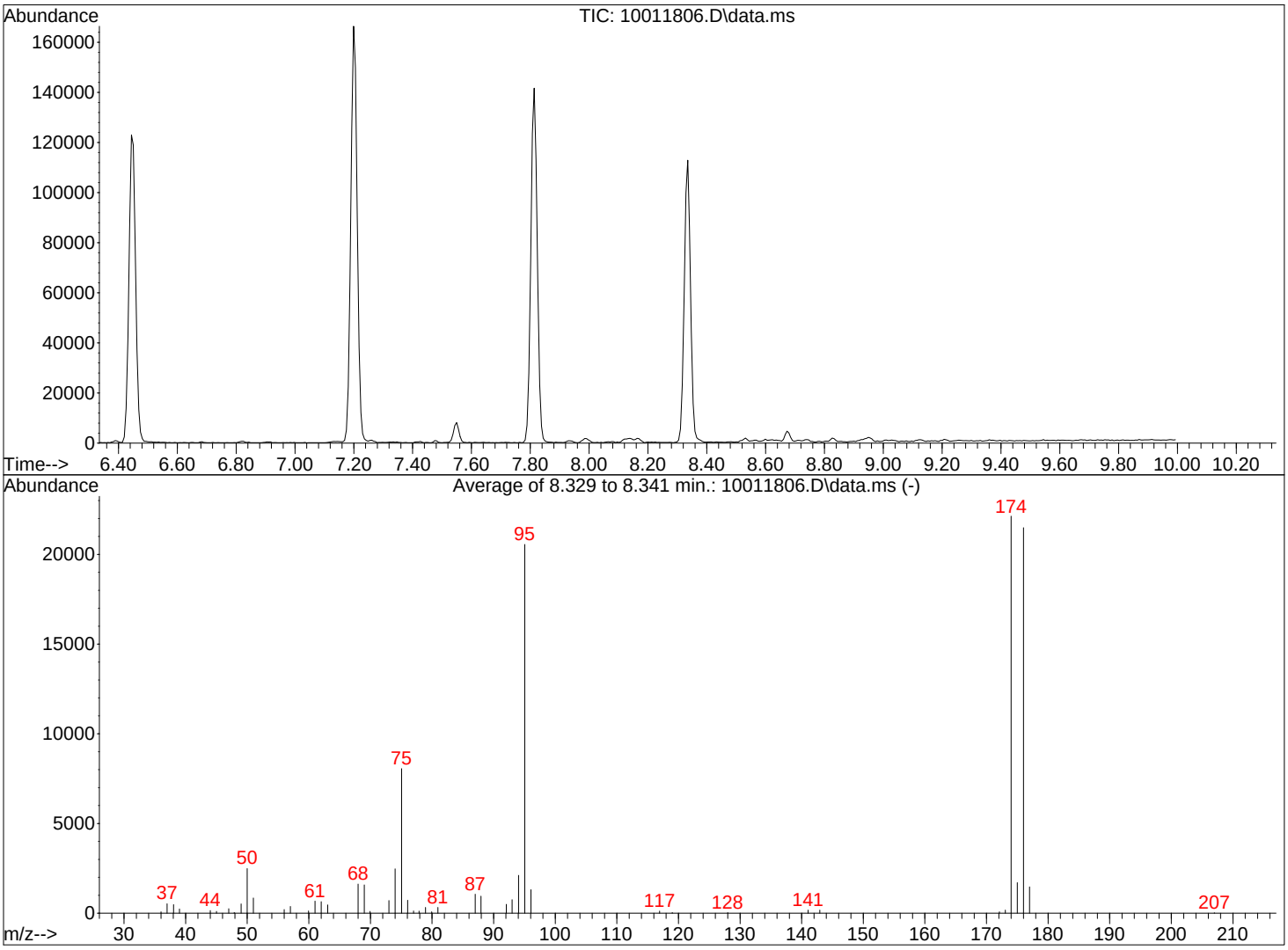
Quant Time: Oct 19 06:24:54 2018
Quant Method : I:\MS19\METHODS\S19100118.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Oct 02 06:45:50 2018
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Data Path : I:\MS19\DATA\2018_10\01\
Data File : 10011806.D
Acq On : 1 Oct 2018 11:45
Operator : WA
Sample : BFB_S19100118
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19082418A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Sep 05 06:48:06 2018



AutoFind: Scans 691, 692, 693; Background Corrected with Scan 685

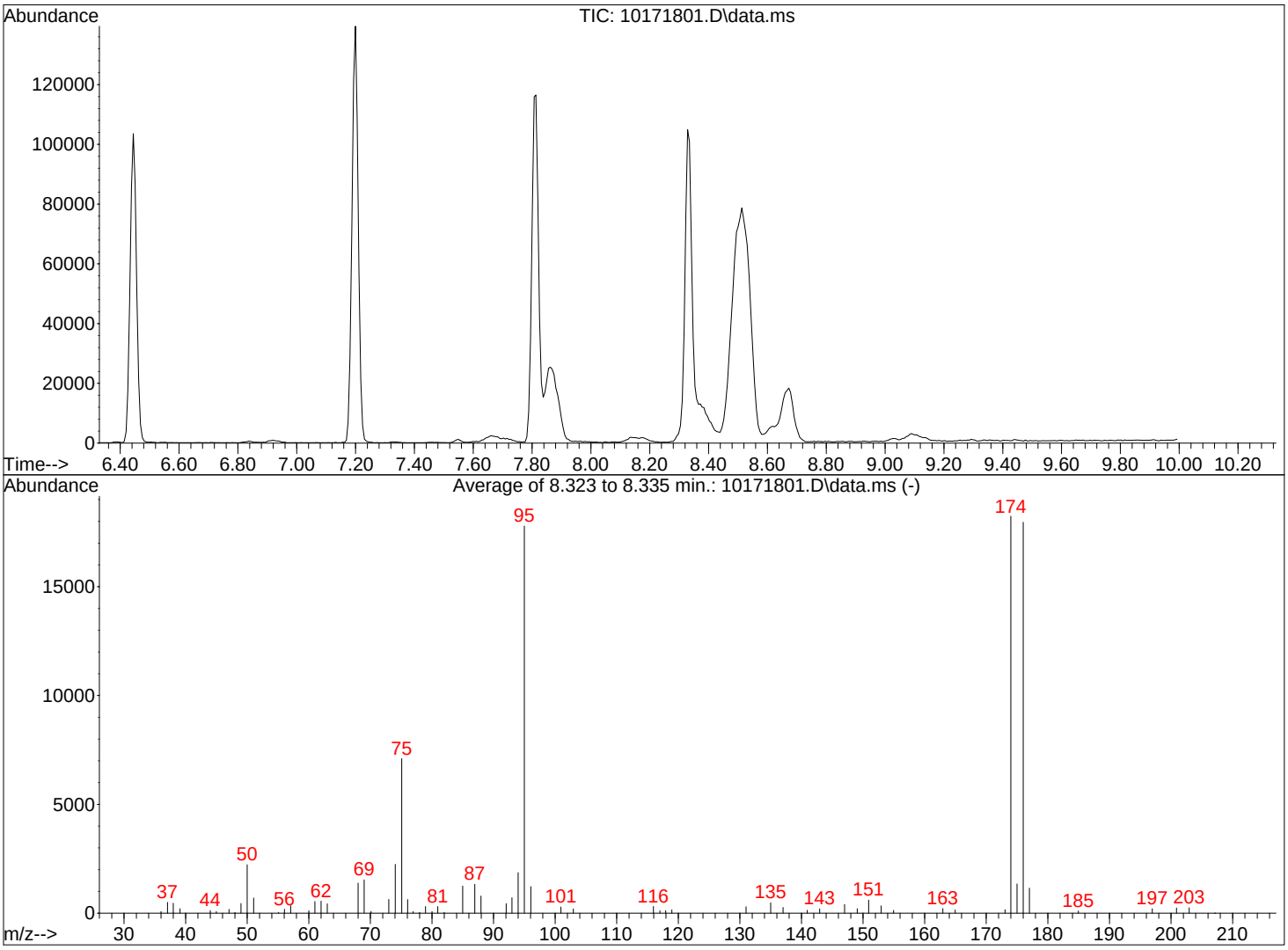
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.1	2491	PASS
75	95	30	66	39.2	8057	PASS
95	95	100	100	100.0	20557	PASS
96	95	5	9	6.4	1310	PASS
173	174	0.00	2	0.8	171	PASS
174	95	50	120	107.7	22131	PASS
175	174	4	9	7.7	1702	PASS
176	174	93	101	97.1	21488	PASS
177	176	5	9	6.8	1469	PASS

10/1/18

Data Path : I:\MS19\DATA\2018_10\17\
Data File : 10171801.D
Acq On : 17 Oct 2018 7:57
Operator : WA
Sample : BFB_S19101718
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 685

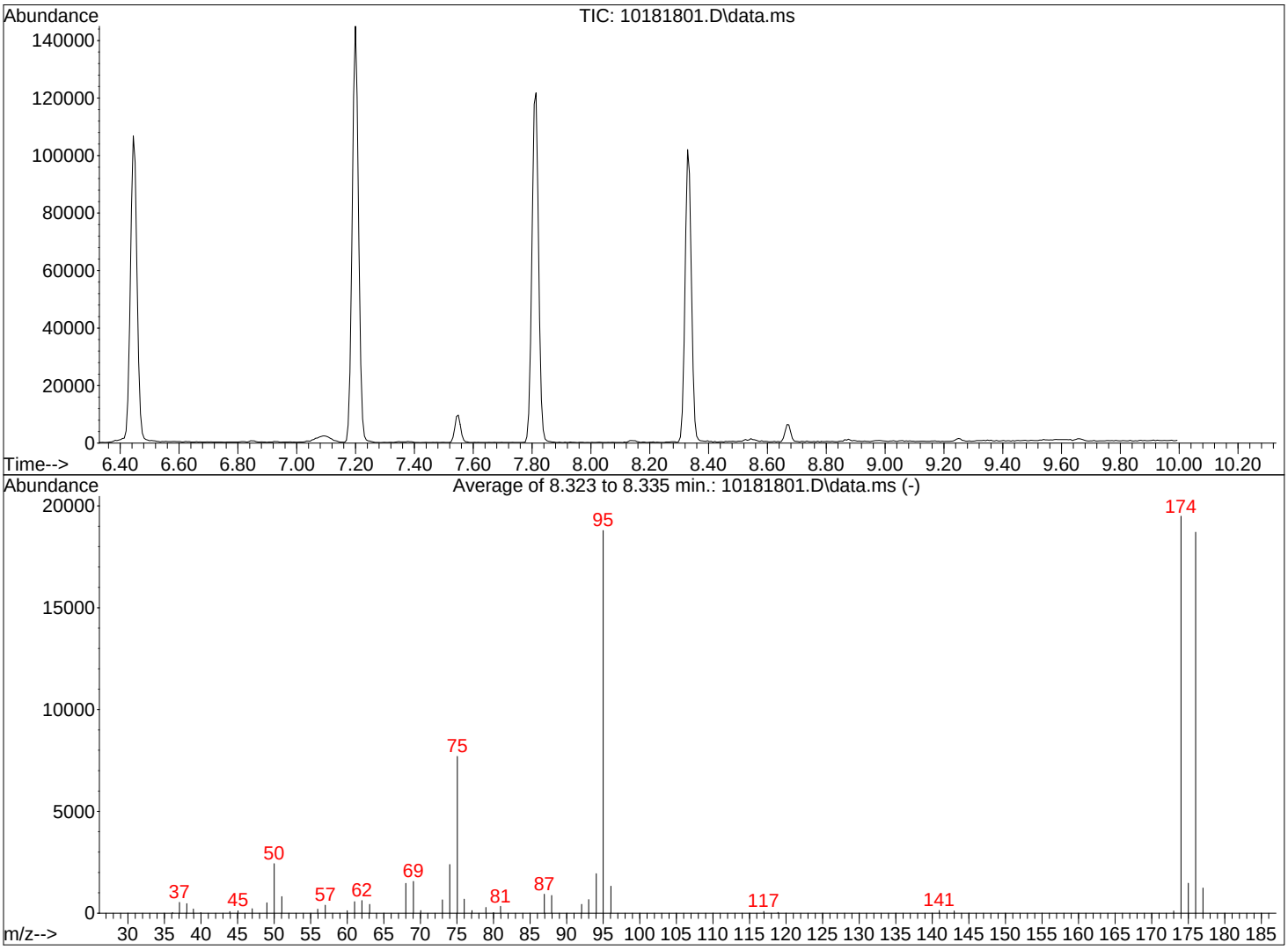
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.5	2226	PASS
75	95	30	66	39.9	7101	PASS
95	95	100	100	100.0	17783	PASS
96	95	5	9	6.9	1221	PASS
173	174	0.00	2	0.9	164	PASS
174	95	50	120	102.6	18238	PASS
175	174	4	9	7.4	1348	PASS
176	174	93	101	98.5	17962	PASS
177	176	5	9	6.4	1150	PASS

WA 10/17/18

Data Path : I:\MS19\DATA\2018_10\18\
Data File : 10181801.D
Acq On : 18 Oct 2018 00:29
Operator : WA
Sample : BFB_S19101818
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 684

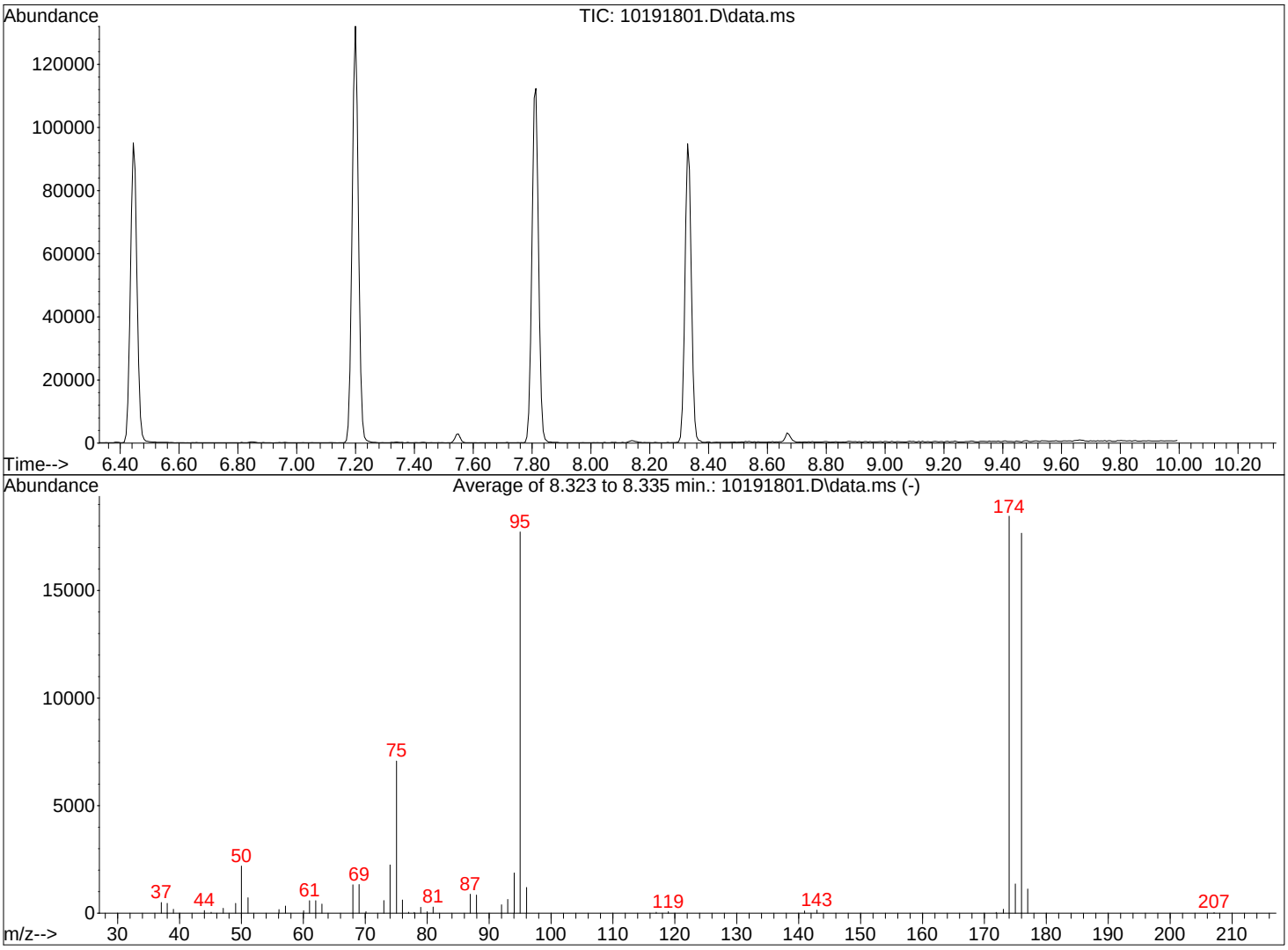
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.0	2434	PASS
75	95	30	66	41.0	7699	PASS
95	95	100	100	100.0	18790	PASS
96	95	5	9	7.1	1329	PASS
173	174	0.00	2	0.6	111	PASS
174	95	50	120	103.8	19495	PASS
175	174	4	9	7.6	1472	PASS
176	174	93	101	96.0	18708	PASS
177	176	5	9	6.6	1239	PASS

WA 10/18/18

Data Path : I:\MS19\DATA\2018_10\19\
Data File : 10191801.D
Acq On : 19 Oct 2018 4:33
Operator : WA
Sample : BFB_S19101918
Misc : S31-09241806
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 684

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.3	2189	PASS
75	95	30	66	39.9	7072	PASS
95	95	100	100	100.0	17725	PASS
96	95	5	9	6.7	1196	PASS
173	174	0.00	2	1.0	181	PASS
174	95	50	120	104.1	18457	PASS
175	174	4	9	7.4	1360	PASS
176	174	93	101	95.7	17666	PASS
177	176	5	9	6.4	1127	PASS

WA 10/19/18

Injection Log

Directory: J:\MS19\DATA\2018_10\01\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/1/18 8:15	10011801.D	Blank	S31-09241806	WA	2	
2	10/1/18 8:46	10011802.D	Blank	S31-09241806	WA	2	
3	10/1/18 9:17	10011803.D	BFB_S19100118	S31-07311807	WA	2	
4	10/1/18 9:37	10011804.D	Std check_1000pg	S31-07311807/S31-09181802 (10/16)	WA	16	
5	10/1/18 10:14	10011805.D	Std check_1000pg	S31-07311807/S31-09181808 (10/16)	WA	14	
6	10/1/18 11:45	10011806.D	BFB_S19100118	S31-09241806	WA	2	*passed*
7	10/1/18 12:11	10011807.D	20pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
8	10/1/18 13:09	10011808.D	50pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
9	10/1/18 13:44	10011809.D	100pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
10	10/1/18 14:21	10011810.D	500pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
11	10/1/18 14:52	10011811.D	1000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	*S19100118.M*
12	10/1/18 15:36	10011812.D	2000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
13	10/1/18 16:39	10011814.D	10000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
14	10/1/18 17:11	10011815.D	25000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
15	10/1/18 17:43	10011816.D	50000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
16	10/1/18 18:14	10011817.D	Blank	S31-09241806/S31-08171802	WA	2	
17	10/1/18 18:46	10011818.D	1000pg S19100118 ICV Std	S31-09241806/S31-09171808 (10/16)	WA	2	*not used*
18	10/1/18 19:18	10011819.D	1000pg S19100118 ICV Std	S31-09241806/S31-09271801 (10/26)	WA	9	*passed*
	S19100118.M: ranges from 20pg ---> 50K pg, except: Acetone 500pg --> 125K pg and chloroform : 50pg ---> 50K pg						
							10/4/18

Injection Log

Directory: I:\MS19\DATA\2018_10\17\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/17/18 7:57	10171801.D	BFB S19101718	S31-09241806	WA	2	*Pass*
2	10/17/18 8:16	10171802.D	CCV S19101718_2000pg_T_1000pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Pass*
3	10/17/18 8:53	10171803.D	Blank	S31-09241806	WA	2	
4	10/17/18 9:25	10171804.D	MB S19101718_1000mL	S31-09241806_AS01329	WA	2	*Pass*
5	10/17/18 9:56	10171805.D	LCS S19101718_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Pass*
6	10/17/18 10:28	10171806.D	LCSD S19101718_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Pass*
7	10/17/18 16:03	10171807.D	Blank	S31-09241806	WA	2	
8	10/17/18 16:34	10171808.D	P1805497-001 (1000mL)	S31-09241806	WA	1	
9	10/17/18 17:06	10171809.D	P1805497-002 (1000mL)	S31-09241806	WA	3	
10	10/17/18 17:38	10171810.D	P1805497-003 (1000mL)	S31-09241806	WA	4	*IS1_high / SS1- low*
11	10/17/18 18:10	10171811.D	P1805497-004 (1000mL)	S31-09241806	WA	5	*IS1_high / SS1- low*
12	10/17/18 18:41	10171812.D	P1805497-005 (1000mL)	S31-09241806	WA	6	
13	10/17/18 19:12	10171813.D	Blank	S31-09241806	WA	2	
14	10/17/18 19:44	10171814.D	P1805497-006 (1000mL)	S31-09241806	WA	7	*IS1_high / SS1- low*
15	10/17/18 20:16	10171815.D	P1805497-007 (1000mL)	S31-09241806	WA	8	
16	10/17/18 20:47	10171816.D	P1805497-008 (1000mL)	S31-09241806	WA	9	
17	10/17/18 21:19	10171817.D	P1805497-009 (1000mL)	S31-09241806	WA	10	
18	10/17/18 21:51	10171818.D	P1805497-010 (1000mL)	S31-09241806	WA	12	*IS1_high / SS1- low*
19	10/17/18 22:23	10171819.D	Blank	S31-09241806	WA	2	
20	10/17/18 22:55	10171820.D	P1805497-011 (1000mL)	S31-09241806	WA	11	*IS1_high / SS1- low*
21	10/17/18 23:27	10171821.D	P1805497-012 (1000mL)	S31-09241806	WA	13	
22	10/17/18 23:58	10171822.D	P1805497-013 (1000mL)	S31-09241806	WA	14	

10/18/18

Injection Log

Directory: I:\MS19\DATA\2018_10\18\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/18/18 0:29	10181801.D	BFB S19101818	S31-09241806	WA	2	*Pass*
2	10/18/18 0:49	10181802.D	CCV S19101818_2000pg_1000pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Pass*
3	10/18/18 1:20	10181803.D	CCV S19101818_1000pg_500pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Pass*
4	10/18/18 1:52	10181804.D	MB S19101818_1000mL	S31-09241806_AS01329	WA	2	*Pass*
5	10/18/18 2:23	10181805.D	LCS S19101818_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Pass*
6	10/18/18 2:54	10181806.D	LCSD S19101818_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Pass*
7	10/18/18 16:02	10181807.D	Blank	S31-09241806/S31-10021801 (11/1)	WA	2	
8	10/18/18 16:34	10181808.D	System	S31-09241806/S31-10021801 (11/1)	WA	2	
9	10/18/18 17:05	10181809.D	P1805497-003RA (400mL) Pf2	S31-09241806	WA	4	*need dil*
10	10/18/18 17:36	10181810.D	P1805497-004RA (300mL)	S31-09241806	WA	5	
11	10/18/18 18:08	10181811.D	Blank	S31-09241806	WA	2	
12	10/18/18 18:39	10181812.D	P1805497-006RA (400mL)	S31-09241806	WA	7	
13	10/18/18 19:11	10181813.D	P1805497-010RA (400mL)	S31-09241806	WA	12	
14	10/18/18 19:42	10181814.D	P1805497-011RA (400mL)	S31-09241806	WA	11	
15	10/18/18 20:14	10181815.D	Blank	S31-09241806	WA	2	
16	10/18/18 20:46	10181816.D	P1805573-001 (1000mL)	S31-09241806	WA	1	
17	10/18/18 21:17	10181817.D	P1805573-001dup (1000mL)	S31-09241806	WA	1	*Pass*
18	10/18/18 21:48	10181818.D	P1805573-001dil (100mL)	S31-09241806	WA	1	

WA 10/19/18

Injection Log

Directory: I:\MS19\DATA\2018_10\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/19/18 4:33	10191801.D	BFB S19101918	S31-09241806	WA	4	*Passed*
2	10/19/18 4:53	10191802.D	CCV S19101918_2000pg_1000pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Passed*
3	10/19/18 5:25	10191803.D	CCV T19101918_500pg	S31-09241806/S31-09271802 (10/26)	WA	16	*Passed*
4	10/19/18 5:56	10191804.D	MB S19101918_1000mL	S31-09241806_AS01329	WA	2	*Passed*
5	10/19/18 6:28	10191805.D	LCS S19101918_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Passed*
6	10/19/18 6:59	10191806.D	LCSD S19101918_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	*Passed*
7	10/19/18 8:35	10191807.D	P1805497-003dil (40mL) Pf2	S31-09241806	WA	4	
8	10/19/18 10:07	10191808.D	P1805575-001 (1000mL)	S31-09241806	WA	3	
9	10/19/18 10:39	10191809.D	P1805575-002 (1000mL)	S31-09241806	WA	4	
10	10/19/18 11:10	10191810.D	P1805575-003 (1000mL)	S31-09241806	WA	6	
11	10/19/18 11:42	10191811.D	P1805575-004 (1000mL)	S31-09241806	WA	8	
12	10/19/18 12:13	10191812.D	P1805575-005 (1000mL)	S31-09241806	WA	9	
13	10/19/18 12:44	10191813.D	P1805575-006 (1000mL)	S31-09241806	WA	10	
14	10/19/18 13:15	10191814.D	P1805575-006dup (1000mL)	S31-09241806	WA	11	*Passed*
15	10/19/18 14:26	10191815.D	P1805575-007 (1000mL)	S31-09241806	WA	13	
16	10/19/18 14:57	10191816.D	P1805575-008 (1000mL)	S31-09241806	WA	14	
17	10/19/18 15:55	10191817.D	Blank	S31-09241806	WA	2	
18	10/19/18 16:27	10191818.D	P1805590-001 (1000mL)	S31-09241806	WA	1	
19	10/19/18 16:59	10191819.D	P1805590-002 (1000mL)	S31-09241806	WA	3	
20	10/19/18 17:30	10191820.D	P1805590-003 (1000mL)	S31-09241806	WA	4	
21	10/19/18 18:01	10191821.D	P1805590-004 (1000mL)	S31-09241806	WA	5	
22	10/19/18 18:32	10191822.D	Blank	S31-09241806	WA	2	
23	10/19/18 19:04	10191823.D	P1805590-005 (1000mL)	S31-09241806	WA	6	
24	10/19/18 19:36	10191824.D	P1805590-006 (1000mL)	S31-09241806	WA	7	
25	10/19/18 20:07	10191825.D	P1805590-007 (1000mL)	S31-09241806	WA	8	
26	10/19/18 20:38	10191826.D	P1805590-008 (1000mL)	S31-09241806	WA	9	
27	10/19/18 21:10	10191827.D	Blank	S31-09241806	WA	2	
28	10/19/18 21:42	10191828.D	P1805590-009 (1000mL)	S31-09241806	WA	10	
29	10/19/18 22:14	10191829.D	P1805590-010 (1000mL)	S31-09241806	WA	11	
30	10/19/18 22:46	10191830.D	P1805590-012 (1000mL)	S31-09241806	WA	12	
31	10/19/18 23:18	10191831.D	Blank	S31-09241806	WA	2	

WA 10/22/18

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-05
Cycles: 99
Batch: 22566

Batch Started By: HAYDEN.AKERS on 9/17/18 0814
Finished Cleaning By: HAYDEN.AKERS on 9/17/18 0815

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AS01073	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS				
AS01011	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00903	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS				
AS01116	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AS00928	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS				
AC02293	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/4/18 0844	JHULETTE	
AS00603	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AC02128	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	MS21_09/19/18
AC02316	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/8/18 0828	JHULETTE	
AC01398	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	9/26/18 0151	JHULETTE	
AS01377	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/3/18 1042	JHULETTE	
AS00929	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/3/18 1042	JHULETTE	
AC01884	9/17/18	9/19/18	Pass w/ Conditions	-14.3	9/17/18 0815	HAYDEN.AKERS	-14.0	10/5/18 0258	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

*** QC Canister**

Page 122 of 133

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\19\
Data File : 09191809.D
Acq On : 19 Sep 2018 2:32 pm
Operator : RVT
Sample : 091918_AC02128_22566
Misc : LL+TICS (Sig #1); S31-09181809 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

RVT 9/19/18

Quant Time: Sep 19 15:04:08 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	24699	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	51437	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	57871	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	31971	942.837	pg		0.00
Spiked Amount 1000.000			Recovery = 94.28%				
57) Toluene-d8 (SS2)	12.62	98	60182	938.016	pg		0.00
Spiked Amount 1000.000			Recovery = 93.80%				
74) Bromofluorobenzene (SS3)	16.14	174	22550	925.456	pg		0.00
Spiked Amount 1000.000			Recovery = 92.55%				
Target Compounds							Qvalue
2) * Propene	3.54	42	620	18.207	pg	#	42
3) * Dichlorodifluoromethane	3.59	85	936	5.651	pg		100
4) * Chloromethane	3.72	50	829	10.816	pg		100
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	729	6.321	pg		99
6) * Vinyl Chloride	3.90	62	521	6.158	pg		100
7) * 1,3-Butadiene	4.01	54	365	6.112	pg		99
8) * Bromomethane	4.21	94	391	5.692	pg		98
9) * Chloroethane	4.35	64	215	5.336	pg		91
10) * Ethanol	4.44	45	2485	89.812	pg		99
11) * Acetonitrile	4.60	41	741	12.363	pg	#	1
12) * Acrolein	4.72	56	478	13.744	pg		93
13) * Acetone	4.84	58	6586	101.715	pg		81
14) * Trichlorofluoromethane	4.97	101	526	6.788	pg		99
15) * 2-Propanol (Isopropa...	5.04	45	1764	23.962	pg	#	62
16) * Acrylonitrile	5.19	53	388	8.733	pg		98
17) * 1,1-Dichloroethene	5.48	96	421	11.413	pg	#	50
18) tert-Butanol	5.56	59	716	13.510	pg	#	78
19) * Methylene Chloride	5.57	84	393	8.821	pg		96
20) * 3-Chloro-1-propene (...	5.68	41	209	5.969	pg		90
21) * Trichlorotrifluoroet...	5.81	151	244	6.635	pg		96
22) * Carbon Disulfide	5.84	76	1761	12.437	pg		97
23) * trans-1,2-Dichloroet...	6.40	96	245	6.554	pg		95
24) * 1,1-Dichloroethane	6.59	63	386	5.958	pg		98
25) * Methyl tert-Butyl Ether	6.69	73	273	4.686	pg		99
26) * Vinyl Acetate	6.70	86	422	63.603	pg	#	44
27) * 2-Butanone (MEK)	6.98	72	375	15.659	pg		74
28) * cis-1,2-Dichloroethene	7.38	96	211	5.543	pg		86
29) DIPE	7.64	45	466	5.459	pg	#	64
30) * Ethyl Acetate	7.64	61	200	21.470	pg		89
31) * n-Hexane	7.64	57	197	4.683	pg	#	56
32) * Chloroform	7.67	83	502	6.912	pg		99
36) * 1,2-Dichloroethane	8.48	62	284	6.434	pg		91
38) * 1,1,1-Trichloroethane	8.80	97	266	8.170	pg		99
39) * Benzene	9.34	78	827	9.829	pg		93
41) 1-Butanol	9.31	56	503	51.136	pg	#	70
42) * Carbon Tetrachloride	9.52	117	236	7.674	pg		91
43) * Cyclohexane	9.69	84	286	12.131	pg		99
44) TAME	10.12	87	57	6.856	pg		74
45) * 1,2-Dichloropropane	10.33	63	184	7.330	pg	#	85
46) * Bromodichloromethane	10.54	83	326	9.332	pg		93
47) * Trichloroethene	10.62	130	240	9.159	pg		96
48) * 1,4-Dioxane	10.66	88	122	8.303	pg	#	82
49) Isooctane	10.71	56	205	7.314	pg		92
50) * Methyl Methacrylate	10.89	69	195	11.732	pg	#	79
51) * n-Heptane	11.02	71	559	13.843	pg	#	88

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\19\
Data File : 09191809.D
Acq On : 19 Sep 2018 2:32 pm
Operator : RVT
Sample : 091918_AC02128_22566
Misc : LL+TICS (Sig #1); S31-09181809 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Sep 19 15:04:08 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

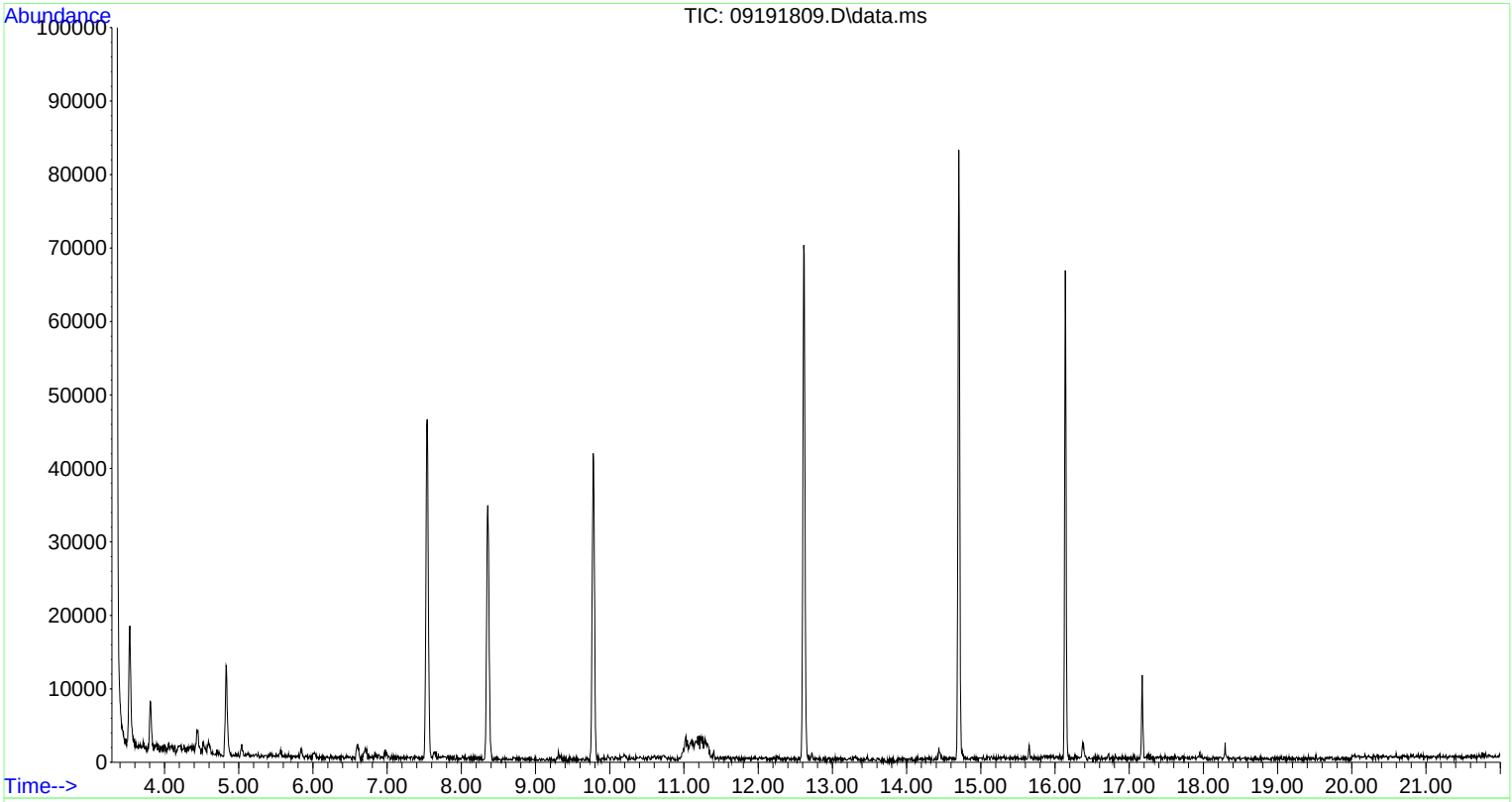
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
52) * cis-1,3-Dichloropropene	11.62	75	231	9.433	pg		93
53) * 4-Methyl-2-pentanone	11.73	58	131	10.418	pg	#	39
54) * trans-1,3-Dichloropr...	12.21	75	148	7.918	pg	#	88
55) * 1,1,2-Trichloroethane	12.40	97	236	9.121	pg		95
58) * Toluene	12.73	91	822	8.491	pg		99
59) * 2-Hexanone	13.07	58	139	13.999	pg	#	59
60) * Dibromochloromethane	13.17	129	230	8.338	pg		96
61) * 1,2-Dibromoethane	13.45	107	222	8.868	pg		98
63) * n-Octane	13.92	85	69	6.817	pg		97
64) * Tetrachloroethene	14.02	166	216	7.493	pg		92
65) * Chlorobenzene	14.75	112	576	8.608	pg		100
66) * Ethylbenzene	15.14	91	512	6.926	pg		97
67) * m- & p-Xylenes	15.31	91	733	13.335	pg		99
68) * Bromoform	15.34	173	170	9.250	pg		94
69) Cyclohexanone	15.46	98	101	13.051	pg		100
70) * Styrene	15.65	104	215	6.739	pg		95
71) * o-Xylene	15.74	91	347	6.117	pg		97
72) * n-Nonane	15.98	57	153	6.923	pg	#	73
73) * 1,1,2,2-Tetrachloroe...	15.72	83	436	8.375	pg		97
75) * Cumene	16.28	105	503	6.492	pg		97
76) * alpha-Pinene	16.61	93	195	5.675	pg		92
77) * n-Propylbenzene	16.72	91	523	6.735	pg		99
78) 3-Ethyltoluene	16.81	105	346	5.923	pg		97
79) * 4-Ethyltoluene	16.85	105	316	5.834	pg		97
80) * 1,3,5-Trimethylbenzene	16.92	105	304	5.830	pg		100
81) alpha-Methylstyrene	17.05	118	168	7.437	pg		99
82) 2-Ethyltoluene	17.07	105	347	5.497	pg		95
83) tert-Butylbenzene	17.26	134	75	6.146	pg		80
84) * 1,2,4-Trimethylbenzene	17.26	105	315	6.849	pg		99
86) * 1,3-Dichlorobenzene	17.37	146	318	10.112	pg		98
87) * 1,4-Dichlorobenzene	17.43	146	278	10.977	pg		97
88) n-Decane	17.37	85	69	8.928	pg	#	57
89) sec-Butylbenzene	17.49	105	419	5.566	pg		98
90) 1,2,3-Trimethylbenzene	17.61	105	303	6.130	pg		92
91) p-Isopropyltoluene	17.62	134	84	5.744	pg		97
92) * 1,2-Dichlorobenzene	17.72	146	307	9.297	pg		100
93) * D-Limonene	17.74	68	87	5.195	pg		91
94) n-Butylbenzene	17.97	134	57	6.184	pg	#	24
95) * 1,2-Dibromo-3-chloro...	18.09	157	94	11.425	pg		99
97) * 1,2,4-Trichlorobenzene	19.19	180	70	13.780	pg		92
98) * Naphthalene	19.28	128	196	16.798	pg	#	66
100) * Hexachlorobutadiene	19.62	225	165	9.753	pg		92

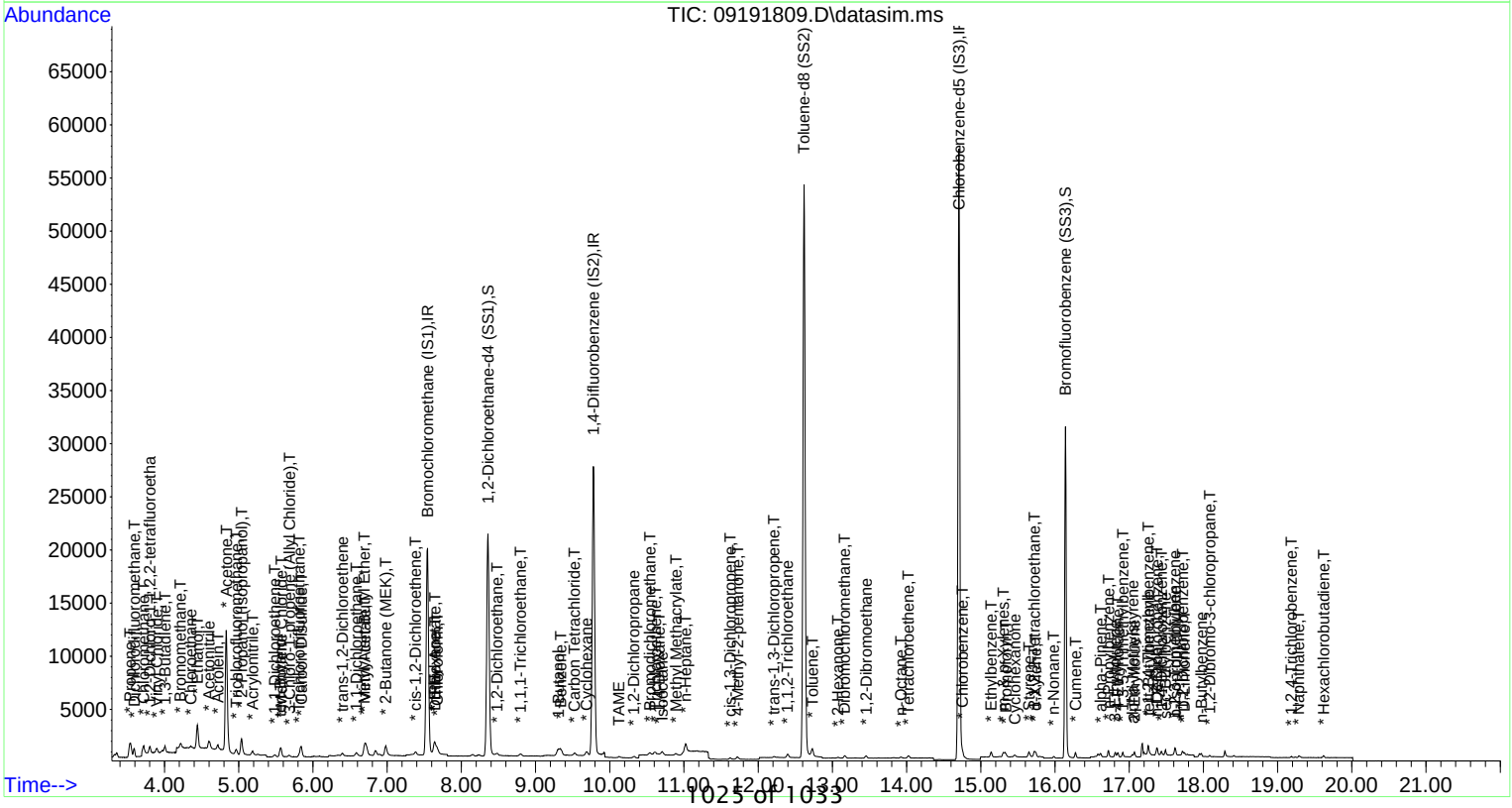
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\19\
Data File : 09191809.D
Acq On : 19 Sep 2018 2:32 pm
Operator : RVT
Sample : 091918_AC02128_22566
Misc : LL+TICS (Sig #1); S31-09181809 (Sig #2)
ALS Vial : 201 Sample Multiplier: 1

Quant Time: Sep 19 15:04:08 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-05
Cycles: 30
Batch: 22536

Batch Started By: HAYDEN.AKERS on 9/11/18 0823
Finished Cleaning By: HAYDEN.AKERS on 9/11/18 0919

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AC02192	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	MS21_09/11/18
AS01291	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	gc22_09/21/18
AC00343	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00949	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00260	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AC02191	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS01129	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AC02290	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/5/18 0817	JHULETTE	
AS00861	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS00997	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	9/28/18 1129	JHULETTE	
AS00532	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS00834	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS				
AS00503	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS				
AC02226	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	
AS01127	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	9/28/18 1129	JHULETTE	
AS01161	9/11/18	9/11/18	Pass w/ Conditions	-14.3	9/11/18 0919	HAYDEN.AKERS	-14.0	10/23/18 0925	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Page 128 of 133

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\11\
Data File : 09111837.D
Acq On : 12 Sep 2018 8:05 am
Operator : RVT
Sample : 091118_AC02192_22536
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

RVT 9/12/18

Quant Time: Sep 12 08:33:36 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

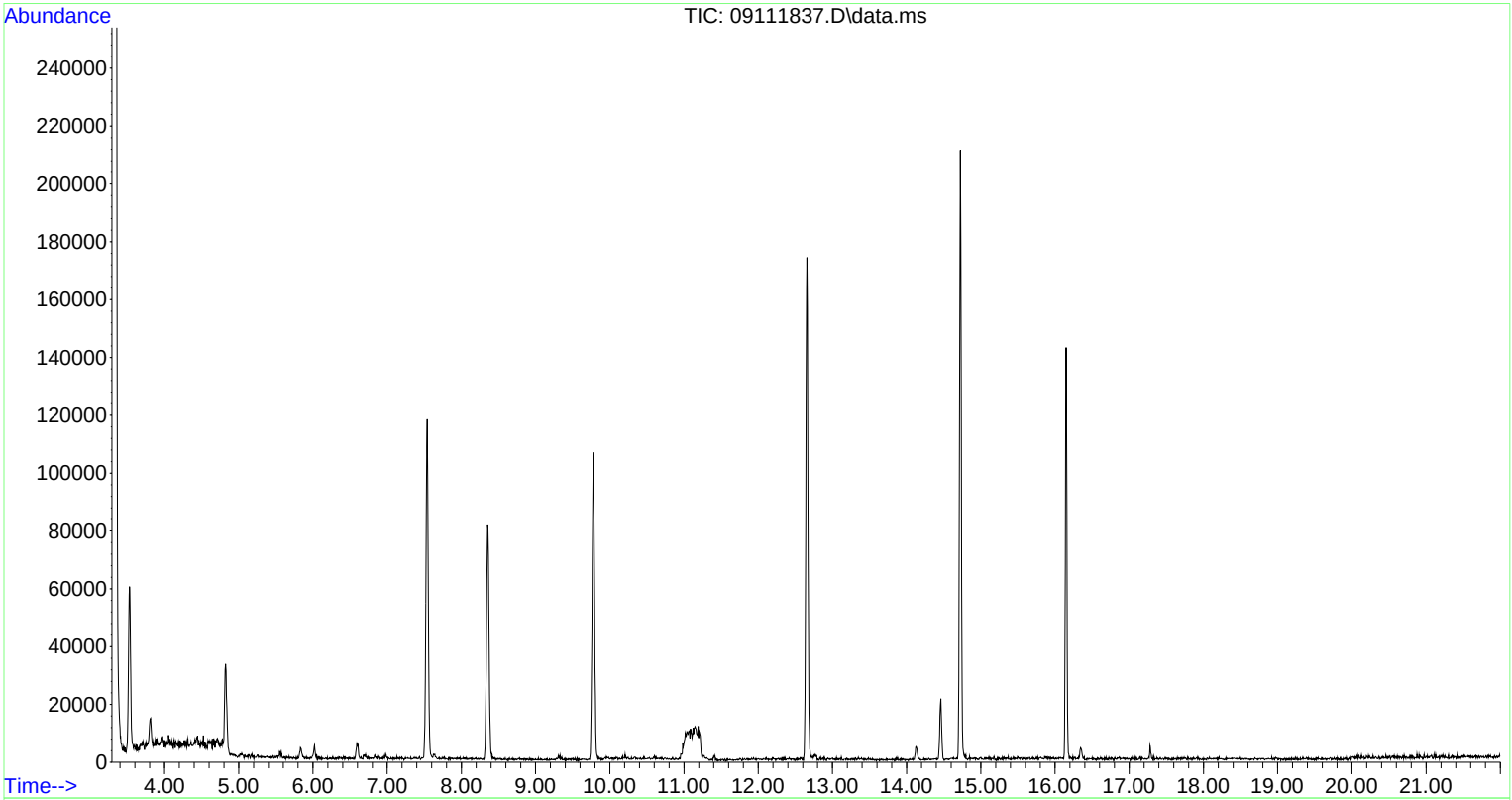
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	56906	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	126923	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.73	117	144908	1000.000	pg		0.02
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	76365	977.453	pg		0.00
Spiked Amount 1000.000			Recovery = 97.75%				
57) Toluene-d8 (SS2)	12.66	98	150228	935.111	pg		0.04
Spiked Amount 1000.000			Recovery = 93.51%				
74) Bromofluorobenzene (SS3)	16.15	174	46480	761.805	pg		0.01
Spiked Amount 1000.000			Recovery = 76.18%				
Target Compounds							Qvalue
2) * Propene	3.54	42	985	12.554	pg	#	29
3) * Dichlorodifluoromethane	3.59	85	913	2.392	pg		98
4) * Chloromethane	3.71	50	584	3.307	pg		98
5) * 1,2-Dichloro-1,1,2,2...	3.79	85	72	0.271	pg	#	42
7) * 1,3-Butadiene	4.00	54	67	0.487	pg	#	8
10) * Ethanol	4.44	45	2034	31.907	pg		93
11) * Acetonitrile	4.60	41	786	5.692	pg		93
12) * Acrolein	4.71	56	778	9.709	pg		92
13) * Acetone	4.82	58	15181	101.761	pg		74
14) * Trichlorofluoromethane	4.96	101	333	1.865	pg		98
15) * 2-Propanol (Isopropa...	5.03	45	833	4.911	pg		90
16) * Acrylonitrile	5.18	53	487	4.757	pg		98
18) tert-Butanol	5.56	59	607	4.971	pg	#	82
19) * Methylene Chloride	5.57	84	687	6.692	pg		91
21) * Trichlorotrifluoroet...	5.81	151	54	0.637	pg	#	19
22) * Carbon Disulfide	5.83	76	5892	18.061	pg		98
26) * Vinyl Acetate	6.70	86	261	17.074	pg	#	1
27) * 2-Butanone (MEK)	6.98	72	487	8.826	pg		100
29) DIPE	7.63	45	224	1.139	pg	#	43
30) * Ethyl Acetate	7.64	61	301	14.024	pg	#	80
31) * n-Hexane	7.63	57	116	1.197	pg	#	56
32) * Chloroform	7.68	83	59	0.353	pg	#	19
39) * Benzene	9.34	78	877	4.224	pg		97
41) 1-Butanol	9.30	56	459	18.910	pg	#	49
51) * n-Heptane	11.02	71	110	1.104	pg	#	23
53) * 4-Methyl-2-pentanone	11.75	58	76	2.449	pg	#	39
58) * Toluene	12.77	91	1446	5.965	pg		100
65) * Chlorobenzene	14.77	112	50	0.298	pg	#	42
66) * Ethylbenzene	15.16	91	196	1.059	pg		95
67) * m- & p-Xylenes	15.32	91	480	3.487	pg		95
71) * o-Xylene	15.75	91	153	1.077	pg		87
76) * alpha-Pinene	16.62	93	82	0.953	pg	#	19
77) * n-Propylbenzene	16.72	91	77	0.396	pg	#	55
78) 3-Ethyltoluene	16.85	105	70	0.479	pg	#	43
79) * 4-Ethyltoluene	16.85	105	70	0.516	pg	#	44
80) * 1,3,5-Trimethylbenzene	16.92	105	81	0.620	pg	#	28
83) tert-Butylbenzene	17.28	134	153	5.007	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	186	1.615	pg		97
98) * Naphthalene	19.29	128	65	2.225	pg	#	66

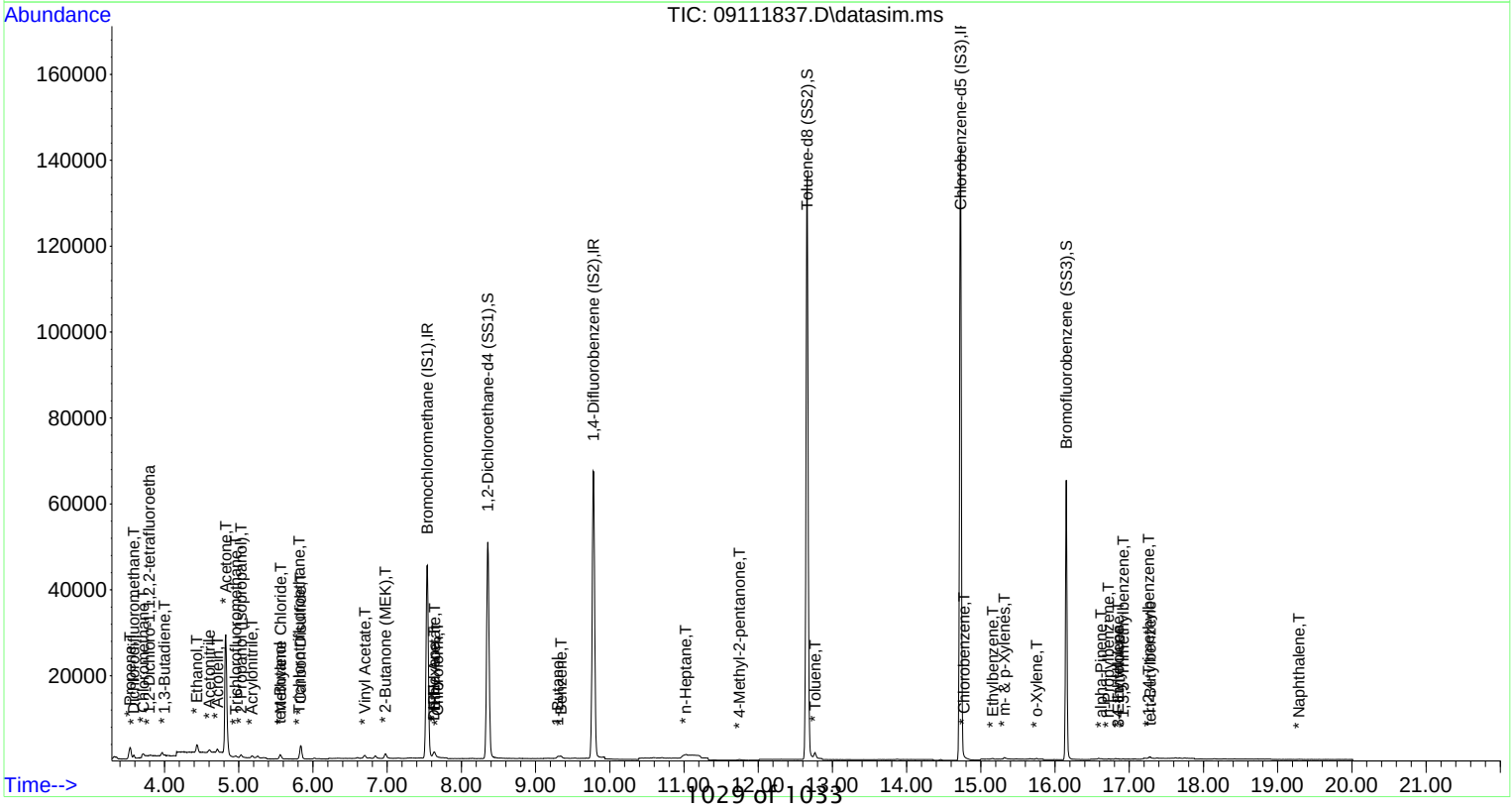
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\11\
Data File : 09111837.D
Acq On : 12 Sep 2018 8:05 am
Operator : RVT
Sample : 091118_AC02192_22536
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 12 08:33:36 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration





SIMIVALLEY QC Certification

Conditioner: P-Conditioner-05
Cycles: 30
Batch: 22522

Batch Started By: RTORRES on 9/7/18 0802
Finished Cleaning By: RTORRES on 9/7/18 0802

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
AC00389	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AS00766	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AS00629	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AS01329	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES				MS21_09/07/18
AS01336	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES				
AS00330	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC02126	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC01850	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC02335	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES				
AS01010	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES				
AS01018	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC02147	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC01848	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AC01466	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES				
AC02266	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	
AS01008	9/7/18	9/7/18	Pass w/ Conditions	-14.3	9/7/18 0802	RTORRES	-14.0	10/4/18 0816	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Page 1 of 3

Batch Comment:

*** QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\07\
Data File : 09071816.D
Acq On : 7 Sep 2018 6:14 pm
Operator : RVT
Sample : 090718_AS01329_22522
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

RVT 9/10/18

Quant Time: Sep 10 07:50:19 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration

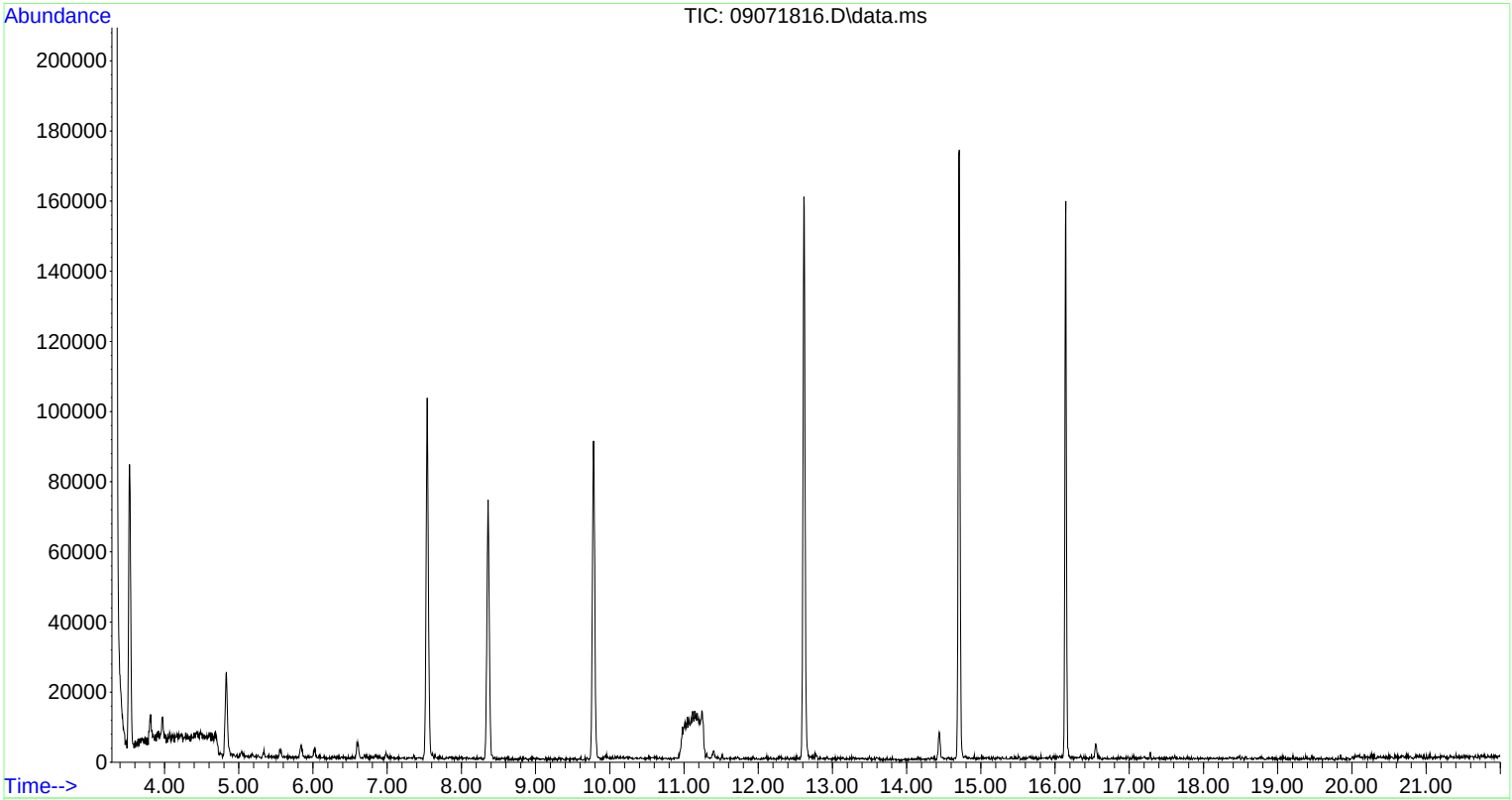
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	48569	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	112125	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	123230	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	63583	953.545	pg		0.00
Spiked Amount 1000.000			Recovery = 95.36%				
57) Toluene-d8 (SS2)	12.62	98	131146	959.938	pg		0.00
Spiked Amount 1000.000			Recovery = 95.99%				
74) Bromofluorobenzene (SS3)	16.14	174	52472	1011.303	pg		0.00
Spiked Amount 1000.000			Recovery = 101.13%				
Target Compounds							Qvalue
2) * Propene	3.54	42	783	11.693	pg	#	37
3) * Dichlorodifluoromethane	3.58	85	137	0.421	pg	#	42
4) * Chloromethane	3.71	50	413	2.740	pg	#	82
7) * 1,3-Butadiene	4.00	54	54	0.460	pg	#	8
8) * Bromomethane	4.22	94	205	1.518	pg	#	79
10) * Ethanol	4.44	45	994	18.269	pg		95
11) * Acetonitrile	4.61	41	271	2.299	pg	#	84
12) * Acrolein	4.71	56	724	10.586	pg		97
13) * Acetone	4.83	58	11180	87.806	pg		95
15) * 2-Propanol (Isopropa...	5.04	45	1014	7.005	pg	#	67
16) * Acrylonitrile	5.19	53	577	6.604	pg		98
18) tert-Butanol	5.56	59	1306	12.531	pg		89
19) * Methylene Chloride	5.57	84	188	2.146	pg	#	83
22) * Carbon Disulfide	5.84	76	6801	24.426	pg		98
26) * Vinyl Acetate	6.70	86	131	10.041	pg	#	48
27) * 2-Butanone (MEK)	6.98	72	214	4.544	pg	#	1
39) * Benzene	9.35	78	489	2.666	pg	#	82
41) 1-Butanol	9.33	56	283	13.198	pg	#	30
51) * n-Heptane	11.04	71	121	1.375	pg	#	45
53) * 4-Methyl-2-pentanone	11.73	58	160	5.837	pg		98
58) * Toluene	12.73	91	429	2.081	pg		97
65) * Chlorobenzene	14.76	112	51	0.358	pg	#	42
66) * Ethylbenzene	15.14	91	113	0.718	pg	#	44
67) * m- & p-Xylenes	15.31	91	336	2.871	pg	#	80
71) * o-Xylene	15.74	91	56	0.464	pg	#	30
77) * n-Propylbenzene	16.72	91	59	0.357	pg	#	55
81) alpha-Methylstyrene	17.05	118	63	1.310	pg	#	26
83) tert-Butylbenzene	17.29	134	74	2.848	pg	#	1
84) * 1,2,4-Trimethylbenzene	17.26	105	97	0.990	pg	#	23

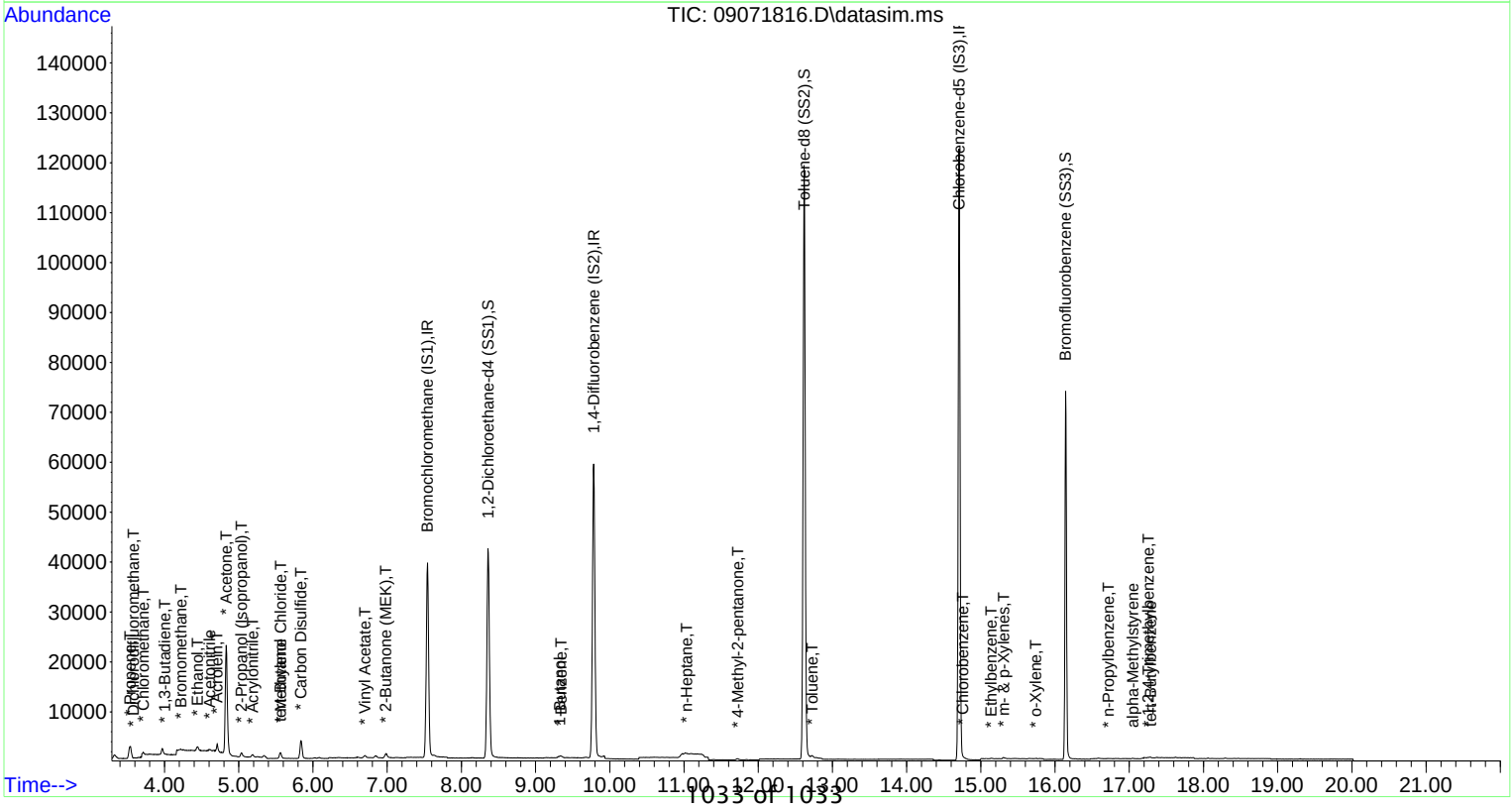
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_09\07\
Data File : 09071816.D
Acq On : 7 Sep 2018 6:14 pm
Operator : RVT
Sample : 090718_AS01329_22522
Misc : LL+TICS (Sig #1); S31-09041802 (Sig #2)
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 10 07:50:19 2018
Quant Method : I:\MS21\Methods\F21082718.M
Quant Title : EPA TO-15
QLast Update : Wed Aug 29 11:05:41 2018
Response via : Initial Calibration





2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

October 31, 2018

Rachel Grand
Jacobs
1034 South Brentwood Blvd Suite 2300
St. Louis, MO 63117

RE: PMC

Dear Rachel:

Enclosed are the results of the samples submitted to our laboratory on October 16, 2018. For your reference, these analyses have been assigned our service request number P1805559.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
By Kate Kaneko at 11:47 am, 10/31/18

Kate Kaneko
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Jacobs
Project: PMC

Service Request No: P1805559

CASE NARRATIVE

The samples were received intact under chain of custody on October 16, 2018 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. The use of Bottle Vac Glass is considered a method modification. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The recovery of the surrogate spike 1,2-dichloroethane-d4 exceeded the acceptance limits in most of the field samples due to suspected matrix interference. The associated Internal Standard (IS) was within the control limits in each sample. Furthermore, associated target analytes and the recovery for this surrogate were acceptable in associated QC samples. Therefore, the data quality has not been significantly affected. The recoveries have been flagged accordingly. No further corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1347317
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-005
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Jacobs
Project ID: PMC

Service Request: P1805559

Date Received: 10/16/2018
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
19CP01-39	P1805559-001	Air	10/11/2018	17:37	1BV12895	-0.60	5.07	X
19CP01-40	P1805559-002	Air	10/11/2018	18:13	1BV12894	-0.11	5.16	X
19CP01-41	P1805559-003	Air	10/12/2018	12:24	1BV12904	-0.09	5.00	X
19CP01-42	P1805559-004	Air	10/12/2018	13:03	1BV12898	-0.89	5.09	X
19CP01-43	P1805559-005	Air	10/12/2018	13:03	1BV12905	-0.67	5.18	X

P1805559

USEPA CLP COC (LAB COPY)
DateShipped: 10/15/2018
CarrierName: FedEx Overnight
AirbillNo:

COC - Petoskey Michigan Site (PMC)

Case #:
Cooler #:

No: 5-101518-103902-0020
Lab: ALS Laboratory Group - Simi Valley
Lab Contact: Kate Kaneko
Lab Phone: 805-526-7161

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
PMC-SVB-09-10-101118	19CP01-39	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-09-10	10/11/2018 17:37	
PMC-SVB-09-6-101118	19CP01-40	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-09-6	10/11/2018 18:13	
PMC-SVB-15-10-101218	19CP01-41	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-15-10	10/12/2018 12:24	
PMC-SVB-15-4.8-101218	19CP01-42	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-15-4.8	10/12/2018 13:03	
PMC-SVB-15-4.8-101218-FD	19CP01-43	Soil Gas/ Jacobs	Grab	TO-15(21)	A (None) (1)	SVB-15-4.8	10/12/2018 13:03	

Special Instructions:

Shipment for Case Complete? N
Samples Transferred From Chain of Custody #

Analysis Key: TO-15=VOCs - TO-15 (bottle)

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Jacobs	10/15/18 1250	ALS	10/16-18 0915	GOOD / COOLER SEAL INTACT

ALS Environmental
Sample Acceptance Check Form

Client: Jacobs Work order: P1805559

Project: PMC

Sample(s) received on: 10/16/18 Date opened: 10/16/18 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805559-001.01	1.0 L Bottle-Vac™					
P1805559-002.01	1.0 L Bottle-Vac™					
P1805559-003.01	1.0 L Bottle-Vac™					
P1805559-004.01	1.0 L Bottle-Vac™					
P1805559-005.01	1.0 L Bottle-Vac™					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-39**
Client Project ID: **PMC**

ALS Project ID: P1805559
ALS Sample ID: P1805559-001

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12895

Date Collected: 10/11/18
Date Received: 10/16/18
Date Analyzed: 10/29/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -0.60 Final Pressure (psig): 5.07

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.46	1.8	0.46	0.26	1.1	0.26	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.8	0.30	**0.49**	0.37	0.062	
74-87-3	Chloromethane	0.30	1.8	0.30	0.15	0.85	0.15	**U**
75-01-4	Vinyl Chloride	0.20	1.9	0.20	0.078	0.73	0.078	**U**
106-99-0	1,3-Butadiene	0.31	1.8	0.31	0.14	0.82	0.14	**U**
74-83-9	Bromomethane	0.26	1.8	0.26	0.067	0.45	0.067	**U**
75-00-3	Chloroethane	0.23	1.8	0.23	0.088	0.68	0.088	**U**
64-17-5	Ethanol	**3.4**	18	1.3	**1.8**	9.5	0.69	**J**
75-05-8	Acetonitrile	0.46	1.8	0.46	0.27	1.1	0.27	**U**
107-02-8	Acrolein	0.53	3.5	0.53	0.23	1.5	0.23	**U**
67-64-1	Acetone	**15**	19	4.2	**6.2**	8.0	1.8	**J**
75-69-4	Trichlorofluoromethane	**1.3**	1.9	0.28	**0.24**	0.33	0.050	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.77	7.4	0.77	0.31	3.0	0.31	**U**
107-13-1	Acrylonitrile	0.39	1.8	0.39	0.18	0.84	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.065	0.48	0.065	**U**
75-09-2	Methylene Chloride	0.53	1.9	0.53	0.15	0.54	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.43**	1.9	0.27	**0.056**	0.24	0.035	**J**
75-15-0	Carbon Disulfide	**0.77**	3.9	0.56	**0.25**	1.2	0.18	**J**
75-34-3	1,1-Dichloroethane	0.27	1.8	0.27	0.067	0.45	0.067	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-39** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-001

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12895

Initial Pressure (psig): -0.60 Final Pressure (psig): 5.07

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.22	1.9	0.22	0.061	0.52	0.061	**U**
108-05-4	Vinyl Acetate	4.2	19	4.2	1.2	5.3	1.2	**U**
78-93-3	2-Butanone (MEK)	**1.3**	3.5	0.39	**0.44**	1.2	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	0.26	1.9	0.26	0.066	0.47	0.066	**U**
110-54-3	n-Hexane	0.39	1.9	0.39	0.11	0.54	0.11	**U**
67-66-3	Chloroform	**1.5**	1.9	0.25	**0.30**	0.39	0.051	**J**
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.051	0.46	0.051	**U**
71-55-6	1,1,1-Trichloroethane	0.23	1.9	0.23	0.042	0.35	0.042	**U**
71-36-3	1-Butanol	**1.7**	3.5	0.49	**0.55**	1.2	0.16	**J, B**
71-43-2	Benzene	0.27	1.8	0.27	0.084	0.57	0.084	**U**
110-82-7	Cyclohexane	0.53	3.5	0.53	0.15	1.0	0.15	**U**
78-87-5	1,2-Dichloropropane	0.23	1.9	0.23	0.050	0.41	0.050	**U**
75-27-4	Bromodichloromethane	0.27	1.9	0.27	0.040	0.28	0.040	**U**
79-01-6	Trichloroethene	**110**	1.9	0.25	**20**	0.35	0.047	
123-91-1	1,4-Dioxane	0.22	1.9	0.22	0.061	0.51	0.061	**U**
10061-01-5	cis-1,3-Dichloropropene	0.29	2.0	0.29	0.064	0.43	0.064	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.062	0.45	0.062	**U**
10061-02-6	trans-1,3-Dichloropropene	0.39	1.9	0.39	0.085	0.41	0.085	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.035	0.35	0.035	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and the associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-39** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-001

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12895

Initial Pressure (psig): -0.60 Final Pressure (psig): 5.07

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**0.62**	1.9	0.23	**0.16**	0.49	0.060	**J**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.056	0.46	0.056	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.028	0.25	0.028	**U**
127-18-4	Tetrachloroethene	**6.7**	1.9	0.24	**0.99**	0.27	0.036	
100-41-4	Ethylbenzene	0.26	1.8	0.26	0.060	0.42	0.060	**U**
179601-23-1	m,p-Xylenes	0.49	3.9	0.49	0.11	0.89	0.11	**U**
75-25-2	Bromoform	0.39	1.9	0.39	0.037	0.18	0.037	**U**
100-42-5	Styrene	0.30	1.9	0.30	0.071	0.44	0.071	**U**
95-47-6	o-Xylene	0.27	1.9	0.27	0.062	0.43	0.062	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.9	0.26	0.038	0.27	0.038	**U**
108-67-8	1,3,5-Trimethylbenzene	0.27	1.9	0.27	0.055	0.38	0.055	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
100-44-7	Benzyl Chloride	0.42	3.9	0.42	0.081	0.74	0.081	**U**
541-73-1	1,3-Dichlorobenzene	0.28	1.9	0.28	0.047	0.31	0.047	**U**
106-46-7	1,4-Dichlorobenzene	0.29	1.9	0.29	0.048	0.31	0.048	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.8	0.26	0.052	0.37	0.052	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.046	0.31	0.046	**U**
120-82-1	1,2,4-Trichlorobenzene	0.46	1.9	0.46	0.061	0.25	0.061	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.88	1.8	0.88	0.25	0.50	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-40** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-002

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12894

Initial Pressure (psig): -0.11 Final Pressure (psig): 5.16

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.44	1.8	0.44	0.26	1.0	0.26	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.4**	1.8	0.30	**0.49**	0.36	0.060	
74-87-3	Chloromethane	0.29	1.7	0.29	0.14	0.82	0.14	**U**
75-01-4	Vinyl Chloride	0.19	1.8	0.19	0.076	0.71	0.076	**U**
106-99-0	1,3-Butadiene	0.30	1.8	0.30	0.14	0.80	0.14	**U**
74-83-9	Bromomethane	0.25	1.7	0.25	0.065	0.44	0.065	**U**
75-00-3	Chloroethane	0.22	1.7	0.22	0.085	0.66	0.085	**U**
64-17-5	Ethanol	**3.7**	17	1.3	**2.0**	9.2	0.67	**J**
75-05-8	Acetonitrile	0.44	1.8	0.44	0.26	1.1	0.26	**U**
107-02-8	Acrolein	0.51	3.4	0.51	0.22	1.5	0.22	**U**
67-64-1	Acetone	**25**	18	4.1	**11**	7.7	1.7	
75-69-4	Trichlorofluoromethane	**1.5**	1.8	0.28	**0.26**	0.32	0.049	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.75	7.1	0.75	0.30	2.9	0.30	**U**
107-13-1	Acrylonitrile	0.37	1.8	0.37	0.17	0.82	0.17	**U**
75-35-4	1,1-Dichloroethene	0.25	1.8	0.25	0.063	0.46	0.063	**U**
75-09-2	Methylene Chloride	0.51	1.8	0.51	0.15	0.53	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.44**	1.8	0.26	**0.058**	0.24	0.034	**J**
75-15-0	Carbon Disulfide	**0.94**	3.7	0.54	**0.30**	1.2	0.17	**J**
75-34-3	1,1-Dichloroethane	0.27	1.8	0.27	0.066	0.44	0.066	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-40** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-002

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12894

Initial Pressure (psig): -0.11 Final Pressure (psig): 5.16

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.21	1.8	0.21	0.059	0.51	0.059	**U**
108-05-4	Vinyl Acetate	4.1	18	4.1	1.2	5.1	1.2	**U**
78-93-3	2-Butanone (MEK)	**1.2**	3.4	0.37	**0.39**	1.2	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	0.26	1.8	0.26	0.064	0.45	0.064	**U**
110-54-3	n-Hexane	**0.66**	1.8	0.37	**0.19**	0.52	0.11	**J**
67-66-3	Chloroform	**4.5**	1.8	0.24	**0.92**	0.38	0.049	
107-06-2	1,2-Dichloroethane	0.20	1.8	0.20	0.050	0.45	0.050	**U**
71-55-6	1,1,1-Trichloroethane	0.22	1.8	0.22	0.041	0.34	0.041	**U**
71-36-3	1-Butanol	0.48	3.4	0.48	0.16	1.1	0.16	**U**
71-43-2	Benzene	**0.70**	1.8	0.26	**0.22**	0.55	0.082	**J**
110-82-7	Cyclohexane	**1.8**	3.4	0.51	**0.51**	0.99	0.15	**J**
78-87-5	1,2-Dichloropropane	0.22	1.8	0.22	0.049	0.40	0.049	**U**
75-27-4	Bromodichloromethane	0.26	1.8	0.26	0.039	0.27	0.039	**U**
79-01-6	Trichloroethene	**69**	1.8	0.24	**13**	0.34	0.046	
123-91-1	1,4-Dioxane	0.21	1.8	0.21	0.059	0.50	0.059	**U**
10061-01-5	cis-1,3-Dichloropropene	0.28	1.9	0.28	0.062	0.42	0.062	**U**
108-10-1	4-Methyl-2-pentanone	0.25	1.8	0.25	0.061	0.44	0.061	**U**
10061-02-6	trans-1,3-Dichloropropene	0.37	1.8	0.37	0.082	0.40	0.082	**U**
79-00-5	1,1,2-Trichloroethane	0.18	1.8	0.18	0.034	0.34	0.034	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-40** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-002

Test Code: EPA TO-15 Modified Date Collected: 10/11/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12894

Initial Pressure (psig): -0.11 Final Pressure (psig): 5.16

Container Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.3**	1.8	0.22	**0.34**	0.48	0.059	**J**
591-78-6	2-Hexanone	0.22	1.8	0.22	0.055	0.45	0.055	**U**
106-93-4	1,2-Dibromoethane	0.21	1.8	0.21	0.027	0.24	0.027	**U**
127-18-4	Tetrachloroethene	**5.5**	1.8	0.23	**0.82**	0.27	0.035	
100-41-4	Ethylbenzene	0.26	1.8	0.26	0.059	0.41	0.059	**U**
179601-23-1	m,p-Xylenes	0.48	3.7	0.48	0.11	0.86	0.11	**U**
75-25-2	Bromoform	0.37	1.8	0.37	0.036	0.17	0.036	**U**
100-42-5	Styrene	0.29	1.8	0.29	0.069	0.42	0.069	**U**
95-47-6	o-Xylene	**0.26**	1.8	0.26	**0.060**	0.42	0.060	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.25	1.8	0.25	0.037	0.26	0.037	**U**
108-67-8	1,3,5-Trimethylbenzene	0.26	1.8	0.26	0.053	0.37	0.053	**U**
95-63-6	1,2,4-Trimethylbenzene	0.25	1.8	0.25	0.051	0.37	0.051	**U**
100-44-7	Benzyl Chloride	0.41	3.7	0.41	0.079	0.72	0.079	**U**
541-73-1	1,3-Dichlorobenzene	0.27	1.8	0.27	0.045	0.31	0.045	**U**
106-46-7	1,4-Dichlorobenzene	0.28	1.8	0.28	0.046	0.31	0.046	**U**
526-73-8	1,2,3-Trimethylbenzene	0.25	1.8	0.25	0.051	0.36	0.051	**U**
95-50-1	1,2-Dichlorobenzene	0.27	1.8	0.27	0.045	0.31	0.045	**U**
120-82-1	1,2,4-Trichlorobenzene	0.44	1.8	0.44	0.060	0.24	0.060	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.85	1.7	0.85	0.24	0.48	0.24	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-41**
Client Project ID: **PMC**

ALS Project ID: P1805559
ALS Sample ID: P1805559-003

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12904

Date Collected: 10/12/18
Date Received: 10/16/18
Date Analyzed: 10/29/18
Volume(s) Analyzed: 0.40 Liter(s)

Initial Pressure (psig): -0.09 Final Pressure (psig): 5.00

Container Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.44	1.8	0.44	0.26	1.0	0.26	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.6**	1.8	0.29	**0.53**	0.36	0.059	
74-87-3	Chloromethane	0.29	1.7	0.29	0.14	0.82	0.14	**U**
75-01-4	Vinyl Chloride	0.19	1.8	0.19	0.075	0.70	0.075	**U**
106-99-0	1,3-Butadiene	0.30	1.8	0.30	0.13	0.79	0.13	**U**
74-83-9	Bromomethane	0.25	1.7	0.25	0.064	0.43	0.064	**U**
75-00-3	Chloroethane	0.22	1.7	0.22	0.084	0.65	0.084	**U**
64-17-5	Ethanol	**4.3**	17	1.2	**2.3**	9.1	0.66	**J**
75-05-8	Acetonitrile	0.44	1.8	0.44	0.26	1.0	0.26	**U**
107-02-8	Acrolein	0.51	3.4	0.51	0.22	1.5	0.22	**U**
67-64-1	Acetone	**18**	18	4.1	**7.6**	7.7	1.7	**J**
75-69-4	Trichlorofluoromethane	**1.6**	1.8	0.27	**0.28**	0.32	0.049	**J**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.74	7.1	0.74	0.30	2.9	0.30	**U**
107-13-1	Acrylonitrile	0.37	1.8	0.37	0.17	0.81	0.17	**U**
75-35-4	1,1-Dichloroethene	0.25	1.8	0.25	0.063	0.46	0.063	**U**
75-09-2	Methylene Chloride	0.51	1.8	0.51	0.15	0.52	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.41**	1.8	0.26	**0.053**	0.23	0.033	**J**
75-15-0	Carbon Disulfide	**0.83**	3.7	0.54	**0.27**	1.2	0.17	**J**
75-34-3	1,1-Dichloroethane	0.26	1.8	0.26	0.065	0.43	0.065	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-41** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-003

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12904

Initial Pressure (psig): -0.09 Final Pressure (psig): 5.00

Container Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.21	1.8	0.21	0.059	0.51	0.059	**U**
108-05-4	Vinyl Acetate	4.1	18	4.1	1.2	5.1	1.2	**U**
78-93-3	2-Butanone (MEK)	**0.92**	3.4	0.37	**0.31**	1.1	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	0.25	1.8	0.25	0.064	0.45	0.064	**U**
110-54-3	n-Hexane	0.37	1.8	0.37	0.11	0.52	0.11	**U**
67-66-3	Chloroform	**0.86**	1.8	0.24	**0.18**	0.37	0.049	**J**
107-06-2	1,2-Dichloroethane	0.20	1.8	0.20	0.049	0.44	0.049	**U**
71-55-6	1,1,1-Trichloroethane	**0.50**	1.8	0.22	**0.091**	0.33	0.041	**J**
71-36-3	1-Butanol	**1.6**	3.4	0.47	**0.54**	1.1	0.16	**J, B**
71-43-2	Benzene	0.26	1.8	0.26	0.081	0.55	0.081	**U**
110-82-7	Cyclohexane	0.51	3.4	0.51	0.15	0.98	0.15	**U**
78-87-5	1,2-Dichloropropane	0.22	1.8	0.22	0.048	0.39	0.048	**U**
75-27-4	Bromodichloromethane	0.26	1.8	0.26	0.039	0.27	0.039	**U**
79-01-6	Trichloroethene	**58**	1.8	0.24	**11**	0.33	0.045	
123-91-1	1,4-Dioxane	0.21	1.8	0.21	0.059	0.50	0.059	**U**
10061-01-5	cis-1,3-Dichloropropene	0.28	1.9	0.28	0.062	0.42	0.062	**U**
108-10-1	4-Methyl-2-pentanone	0.25	1.8	0.25	0.060	0.44	0.060	**U**
10061-02-6	trans-1,3-Dichloropropene	0.37	1.8	0.37	0.082	0.39	0.082	**U**
79-00-5	1,1,2-Trichloroethane	0.18	1.8	0.18	0.033	0.33	0.033	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and the associated method blank.

Client: **Jacobs**
Client Sample ID: **19CP01-41** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-003

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes:
Container ID: 1BV12904

Initial Pressure (psig): -0.09 Final Pressure (psig): 5.00

Container Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.2**	1.8	0.22	**0.33**	0.47	0.058	**J**
591-78-6	2-Hexanone	0.22	1.8	0.22	0.054	0.45	0.054	**U**
106-93-4	1,2-Dibromoethane	0.21	1.8	0.21	0.027	0.24	0.027	**U**
127-18-4	Tetrachloroethene	**110**	1.8	0.23	**17**	0.26	0.034	
100-41-4	Ethylbenzene	0.25	1.8	0.25	0.058	0.40	0.058	**U**
179601-23-1	m,p-Xylenes	0.47	3.7	0.47	0.11	0.86	0.11	**U**
75-25-2	Bromoform	0.37	1.8	0.37	0.036	0.17	0.036	**U**
100-42-5	Styrene	0.29	1.8	0.29	0.068	0.42	0.068	**U**
95-47-6	o-Xylene	0.26	1.8	0.26	0.060	0.41	0.060	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.25	1.8	0.25	0.036	0.26	0.036	**U**
108-67-8	1,3,5-Trimethylbenzene	0.26	1.8	0.26	0.053	0.36	0.053	**U**
95-63-6	1,2,4-Trimethylbenzene	0.25	1.8	0.25	0.051	0.36	0.051	**U**
100-44-7	Benzyl Chloride	0.41	3.7	0.41	0.078	0.72	0.078	**U**
541-73-1	1,3-Dichlorobenzene	0.27	1.8	0.27	0.045	0.30	0.045	**U**
106-46-7	1,4-Dichlorobenzene	0.28	1.8	0.28	0.046	0.30	0.046	**U**
526-73-8	1,2,3-Trimethylbenzene	0.25	1.8	0.25	0.050	0.36	0.050	**U**
95-50-1	1,2-Dichlorobenzene	0.27	1.8	0.27	0.044	0.30	0.044	**U**
120-82-1	1,2,4-Trichlorobenzene	0.44	1.8	0.44	0.059	0.24	0.059	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	**0.84**	1.7	0.84	**0.24**	0.48	0.24	**J, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs**
Client Sample ID: **19CP01-42**
Client Project ID: **PMC**

ALS Project ID: P1805559
ALS Sample ID: P1805559-004

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9
Analyst: Raneem Sahtah
Sample Type: 1.0 L Bottle-Vac™
Test Notes:
Container ID: 1BV12898

Date Collected: 10/12/18
Date Received: 10/16/18
Date Analyzed: 10/29 - 10/30/18
Volume(s) Analyzed: 0.40 Liter(s)
0.040 Liter(s)

Initial Pressure (psig): -0.89 Final Pressure (psig): 5.09

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.46	1.9	0.46	0.27	1.1	0.27	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.7**	1.9	0.31	**0.55**	0.38	0.063	
74-87-3	Chloromethane	0.31	1.8	0.31	0.15	0.87	0.15	**U**
75-01-4	Vinyl Chloride	0.20	1.9	0.20	0.080	0.74	0.080	**U**
106-99-0	1,3-Butadiene	0.31	1.9	0.31	0.14	0.84	0.14	**U**
74-83-9	Bromomethane	0.26	1.8	0.26	0.068	0.46	0.068	**U**
75-00-3	Chloroethane	0.24	1.8	0.24	0.089	0.69	0.089	**U**
64-17-5	Ethanol	1.3	18	1.3	0.70	9.7	0.70	**U**
75-05-8	Acetonitrile	0.46	1.9	0.46	0.28	1.1	0.28	**U**
107-02-8	Acrolein	0.54	3.6	0.54	0.23	1.6	0.23	**U**
67-64-1	Acetone	**6.8**	19	4.3	**2.9**	8.1	1.8	**J**
75-69-4	Trichlorofluoromethane	**2.3**	1.9	0.29	**0.42**	0.34	0.052	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.79	7.5	0.79	0.32	3.1	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.9	0.39	0.18	0.86	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.067	0.49	0.067	**U**
75-09-2	Methylene Chloride	0.54	1.9	0.54	0.15	0.56	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.50**	1.9	0.27	**0.065**	0.25	0.035	**J**
75-15-0	Carbon Disulfide	**1.3**	3.9	0.57	**0.41**	1.3	0.18	**J**
75-34-3	1,1-Dichloroethane	0.28	1.9	0.28	0.069	0.46	0.069	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-42** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-004

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29 - 10/30/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12898

Initial Pressure (psig): -0.89 Final Pressure (psig): 5.09

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.23	1.9	0.23	0.062	0.54	0.062	**U**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.4	1.2	**U**
78-93-3	2-Butanone (MEK)	**0.64**	3.6	0.39	**0.22**	1.2	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	**0.31**	1.9	0.27	**0.079**	0.48	0.068	**J**
110-54-3	n-Hexane	0.39	1.9	0.39	0.11	0.55	0.11	**U**
67-66-3	Chloroform	**2.4**	1.9	0.25	**0.50**	0.40	0.052	
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.052	0.47	0.052	**U**
71-55-6	1,1,1-Trichloroethane	**1.3**	1.9	0.24	**0.24**	0.35	0.043	**J**
71-36-3	1-Butanol	**2.3**	3.6	0.50	**0.77**	1.2	0.17	**J, B**
71-43-2	Benzene	**1.1**	1.9	0.28	**0.36**	0.58	0.086	**J**
110-82-7	Cyclohexane	0.54	3.6	0.54	0.16	1.0	0.16	**U**
78-87-5	1,2-Dichloropropane	0.24	1.9	0.24	0.051	0.42	0.051	**U**
75-27-4	Bromodichloromethane	0.28	1.9	0.28	0.041	0.28	0.041	**U**
79-01-6	Trichloroethene	**970**	19	2.6	**180**	3.5	0.48	**D**
123-91-1	1,4-Dioxane	0.23	1.9	0.23	0.063	0.53	0.063	**U**
10061-01-5	cis-1,3-Dichloropropene	0.30	2.0	0.30	0.065	0.44	0.065	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.064	0.46	0.064	**U**
10061-02-6	trans-1,3-Dichloropropene	0.39	1.9	0.39	0.087	0.42	0.087	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.035	0.35	0.035	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and the associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-42** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-004

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/29 - 10/30/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12898

Initial Pressure (psig): -0.89 Final Pressure (psig): 5.09

Container Dilution Factor: 1.43

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.4**	1.9	0.23	**0.37**	0.50	0.062	**J**
591-78-6	2-Hexanone	0.24	1.9	0.24	0.058	0.47	0.058	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.029	0.25	0.029	**U**
127-18-4	Tetrachloroethene	**140**	1.9	0.25	**21**	0.28	0.036	
100-41-4	Ethylbenzene	0.27	1.9	0.27	0.062	0.43	0.062	**U**
179601-23-1	m,p-Xylenes	0.50	3.9	0.50	0.12	0.91	0.12	**U**
75-25-2	Bromoform	0.39	1.9	0.39	0.038	0.18	0.038	**U**
100-42-5	Styrene	0.31	1.9	0.31	0.072	0.45	0.072	**U**
95-47-6	o-Xylene	0.28	1.9	0.28	0.063	0.44	0.063	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.9	0.26	0.039	0.28	0.039	**U**
108-67-8	1,3,5-Trimethylbenzene	0.28	1.9	0.28	0.056	0.39	0.056	**U**
95-63-6	1,2,4-Trimethylbenzene	0.26	1.9	0.26	0.054	0.39	0.054	**U**
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.083	0.76	0.083	**U**
541-73-1	1,3-Dichlorobenzene	0.29	1.9	0.29	0.048	0.32	0.048	**U**
106-46-7	1,4-Dichlorobenzene	0.29	1.9	0.29	0.049	0.32	0.049	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.9	0.26	0.053	0.38	0.053	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
120-82-1	1,2,4-Trichlorobenzene	0.46	1.9	0.46	0.063	0.26	0.063	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.89	1.8	0.89	0.25	0.51	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **19CP01-43** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-005

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/30/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12905

Initial Pressure (psig): -0.67 Final Pressure (psig): 5.18

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.46	1.8	0.46	0.27	1.1	0.27	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	**2.8**	1.8	0.31	**0.56**	0.37	0.062	
74-87-3	Chloromethane	0.31	1.8	0.31	0.15	0.86	0.15	**U**
75-01-4	Vinyl Chloride	0.20	1.9	0.20	0.079	0.74	0.079	**U**
106-99-0	1,3-Butadiene	0.31	1.8	0.31	0.14	0.83	0.14	**U**
74-83-9	Bromomethane	0.26	1.8	0.26	0.068	0.46	0.068	**U**
75-00-3	Chloroethane	0.23	1.8	0.23	0.089	0.69	0.089	**U**
64-17-5	Ethanol	1.3	18	1.3	0.70	9.6	0.70	**U**
75-05-8	Acetonitrile	0.46	1.8	0.46	0.27	1.1	0.27	**U**
107-02-8	Acrolein	0.53	3.6	0.53	0.23	1.5	0.23	**U**
67-64-1	Acetone	**4.6**	19	4.3	**2.0**	8.1	1.8	**J**
75-69-4	Trichlorofluoromethane	**2.4**	1.9	0.29	**0.42**	0.33	0.051	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.78	7.5	0.78	0.32	3.0	0.32	**U**
107-13-1	Acrylonitrile	0.39	1.8	0.39	0.18	0.85	0.18	**U**
75-35-4	1,1-Dichloroethene	0.26	1.9	0.26	0.066	0.48	0.066	**U**
75-09-2	Methylene Chloride	0.53	1.9	0.53	0.15	0.55	0.15	**U**
76-13-1	Trichlorotrifluoroethane	**0.43**	1.9	0.27	**0.056**	0.25	0.035	**J**
75-15-0	Carbon Disulfide	**1.0**	3.9	0.57	**0.33**	1.3	0.18	**J**
75-34-3	1,1-Dichloroethane	0.28	1.8	0.28	0.068	0.46	0.068	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **19CP01-43** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-005

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/30/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12905

Initial Pressure (psig): -0.67 Final Pressure (psig): 5.18

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.22	1.9	0.22	0.062	0.53	0.062	**U**
108-05-4	Vinyl Acetate	4.3	19	4.3	1.2	5.3	1.2	**U**
78-93-3	2-Butanone (MEK)	**0.55**	3.6	0.39	**0.19**	1.2	0.13	**J**
156-59-2	cis-1,2-Dichloroethene	**0.34**	1.9	0.27	**0.086**	0.47	0.067	**J**
110-54-3	n-Hexane	0.39	1.9	0.39	0.11	0.54	0.11	**U**
67-66-3	Chloroform	**2.5**	1.9	0.25	**0.52**	0.39	0.052	
107-06-2	1,2-Dichloroethane	0.21	1.9	0.21	0.052	0.47	0.052	**U**
71-55-6	1,1,1-Trichloroethane	**1.3**	1.9	0.23	**0.25**	0.35	0.043	**J**
71-36-3	1-Butanol	**1.4**	3.6	0.50	**0.48**	1.2	0.16	**J, B**
71-43-2	Benzene	**1.2**	1.8	0.27	**0.37**	0.58	0.086	**J**
110-82-7	Cyclohexane	0.53	3.6	0.53	0.15	1.0	0.15	**U**
78-87-5	1,2-Dichloropropane	0.23	1.9	0.23	0.051	0.41	0.051	**U**
75-27-4	Bromodichloromethane	0.27	1.9	0.27	0.041	0.28	0.041	**U**
79-01-6	Trichloroethene	**980**	19	2.6	**180**	3.5	0.48	**D**
123-91-1	1,4-Dioxane	0.22	1.9	0.22	0.062	0.52	0.062	**U**
10061-01-5	cis-1,3-Dichloropropene	0.29	2.0	0.29	0.065	0.44	0.065	**U**
108-10-1	4-Methyl-2-pentanone	0.26	1.9	0.26	0.063	0.46	0.063	**U**
10061-02-6	trans-1,3-Dichloropropene	0.39	1.9	0.39	0.086	0.41	0.086	**U**
79-00-5	1,1,2-Trichloroethane	0.19	1.9	0.19	0.035	0.35	0.035	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and the associated method blank.
D = The reported result is from a dilution.

Client: **Jacobs**
Client Sample ID: **19CP01-43** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P1805559-005

Test Code: EPA TO-15 Modified Date Collected: 10/12/18
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: 10/16/18
Analyst: Raneem Sahtah Date Analyzed: 10/30/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.40 Liter(s)
Test Notes: 0.040 Liter(s)
Container ID: 1BV12905

Initial Pressure (psig): -0.67 Final Pressure (psig): 5.18

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	**1.3**	1.9	0.23	**0.35**	0.50	0.061	**J**
591-78-6	2-Hexanone	0.23	1.9	0.23	0.057	0.47	0.057	**U**
106-93-4	1,2-Dibromoethane	0.22	1.9	0.22	0.029	0.25	0.029	**U**
127-18-4	Tetrachloroethene	**140**	1.9	0.24	**21**	0.28	0.036	
100-41-4	Ethylbenzene	0.27	1.8	0.27	0.061	0.43	0.061	**U**
179601-23-1	m,p-Xylenes	0.50	3.9	0.50	0.11	0.90	0.11	**U**
75-25-2	Bromoform	0.39	1.9	0.39	0.038	0.18	0.038	**U**
100-42-5	Styrene	0.31	1.9	0.31	0.072	0.44	0.072	**U**
95-47-6	o-Xylene	0.27	1.9	0.27	0.063	0.43	0.063	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.26	1.9	0.26	0.038	0.27	0.038	**U**
108-67-8	1,3,5-Trimethylbenzene	0.27	1.9	0.27	0.056	0.38	0.056	**U**
95-63-6	1,2,4-Trimethylbenzene	**0.29**	1.9	0.26	**0.059**	0.38	0.053	**J**
100-44-7	Benzyl Chloride	0.43	3.9	0.43	0.082	0.75	0.082	**U**
541-73-1	1,3-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
106-46-7	1,4-Dichlorobenzene	0.29	1.9	0.29	0.048	0.32	0.048	**U**
526-73-8	1,2,3-Trimethylbenzene	0.26	1.8	0.26	0.053	0.38	0.053	**U**
95-50-1	1,2-Dichlorobenzene	0.28	1.9	0.28	0.047	0.32	0.047	**U**
120-82-1	1,2,4-Trichlorobenzene	0.46	1.9	0.46	0.062	0.25	0.062	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.89	1.8	0.89	0.25	0.50	0.25	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
X = See case narrative.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.13	0.52	0.13	0.076	0.30	0.076	**U**
75-71-8	Dichlorodifluoromethane (CFC 12)	0.087	0.52	0.087	0.018	0.11	0.018	**U**
74-87-3	Chloromethane	0.086	0.50	0.086	0.042	0.24	0.042	**U**
75-01-4	Vinyl Chloride	0.057	0.53	0.057	0.022	0.21	0.022	**U**
106-99-0	1,3-Butadiene	0.088	0.52	0.088	0.040	0.24	0.040	**U**
74-83-9	Bromomethane	0.074	0.50	0.074	0.019	0.13	0.019	**U**
75-00-3	Chloroethane	0.066	0.51	0.066	0.025	0.19	0.025	**U**
64-17-5	Ethanol	0.37	5.1	0.37	0.20	2.7	0.20	**U**
75-05-8	Acetonitrile	0.13	0.52	0.13	0.077	0.31	0.077	**U**
107-02-8	Acrolein	0.15	1.0	0.15	0.065	0.44	0.065	**U**
67-64-1	Acetone	1.2	5.4	1.2	0.51	2.3	0.51	**U**
75-69-4	Trichlorofluoromethane	0.081	0.53	0.081	0.014	0.094	0.014	**U**
67-63-0	2-Propanol (Isopropyl Alcohol)	0.22	2.1	0.22	0.090	0.85	0.090	**U**
107-13-1	Acrylonitrile	0.11	0.52	0.11	0.051	0.24	0.051	**U**
75-35-4	1,1-Dichloroethene	0.074	0.54	0.074	0.019	0.14	0.019	**U**
75-09-2	Methylene Chloride	0.15	0.54	0.15	0.043	0.16	0.043	**U**
76-13-1	Trichlorotrifluoroethane	0.076	0.53	0.076	0.0099	0.069	0.0099	**U**
75-15-0	Carbon Disulfide	0.16	1.1	0.16	0.051	0.35	0.051	**U**
75-34-3	1,1-Dichloroethane	0.078	0.52	0.078	0.019	0.13	0.019	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	0.063	0.54	0.063	0.017	0.15	0.017	**U**
108-05-4	Vinyl Acetate	1.2	5.3	1.2	0.34	1.5	0.34	**U**
78-93-3	2-Butanone (MEK)	0.11	1.0	0.11	0.037	0.34	0.037	**U**
156-59-2	cis-1,2-Dichloroethene	0.075	0.53	0.075	0.019	0.13	0.019	**U**
110-54-3	n-Hexane	0.11	0.54	0.11	0.031	0.15	0.031	**U**
67-66-3	Chloroform	0.071	0.54	0.071	0.015	0.11	0.015	**U**
107-06-2	1,2-Dichloroethane	0.059	0.53	0.059	0.015	0.13	0.015	**U**
71-55-6	1,1,1-Trichloroethane	0.066	0.54	0.066	0.012	0.099	0.012	**U**
71-36-3	1-Butanol	**0.16**	1.0	0.14	**0.051**	0.33	0.046	**J**
71-43-2	Benzene	0.077	0.52	0.077	0.024	0.16	0.024	**U**
110-82-7	Cyclohexane	0.15	1.0	0.15	0.044	0.29	0.044	**U**
78-87-5	1,2-Dichloropropane	0.066	0.54	0.066	0.014	0.12	0.014	**U**
75-27-4	Bromodichloromethane	0.077	0.53	0.077	0.011	0.079	0.011	**U**
79-01-6	Trichloroethene	0.072	0.53	0.072	0.013	0.099	0.013	**U**
123-91-1	1,4-Dioxane	0.063	0.53	0.063	0.017	0.15	0.017	**U**
10061-01-5	cis-1,3-Dichloropropene	0.083	0.56	0.083	0.018	0.12	0.018	**U**
108-10-1	4-Methyl-2-pentanone	0.073	0.53	0.073	0.018	0.13	0.018	**U**
10061-02-6	trans-1,3-Dichloropropene	0.11	0.53	0.11	0.024	0.12	0.024	**U**
79-00-5	1,1,2-Trichloroethane	0.054	0.54	0.054	0.0099	0.099	0.0099	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **Jacobs**
Client Sample ID: **Method Blank** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-MB

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
108-88-3	Toluene	0.065	0.53	0.065	0.017	0.14	0.017	**U**
591-78-6	2-Hexanone	0.066	0.54	0.066	0.016	0.13	0.016	**U**
106-93-4	1,2-Dibromoethane	0.062	0.54	0.062	0.0081	0.070	0.0081	**U**
127-18-4	Tetrachloroethene	0.069	0.53	0.069	0.010	0.078	0.010	**U**
100-41-4	Ethylbenzene	0.075	0.52	0.075	0.017	0.12	0.017	**U**
179601-23-1	m,p-Xylenes	0.14	1.1	0.14	0.032	0.25	0.032	**U**
75-25-2	Bromoform	0.11	0.53	0.11	0.011	0.051	0.011	**U**
100-42-5	Styrene	0.086	0.53	0.086	0.020	0.12	0.020	**U**
95-47-6	o-Xylene	0.077	0.53	0.077	0.018	0.12	0.018	**U**
79-34-5	1,1,2,2-Tetrachloroethane	0.074	0.53	0.074	0.011	0.077	0.011	**U**
108-67-8	1,3,5-Trimethylbenzene	0.077	0.53	0.077	0.016	0.11	0.016	**U**
95-63-6	1,2,4-Trimethylbenzene	0.074	0.53	0.074	0.015	0.11	0.015	**U**
100-44-7	Benzyl Chloride	0.12	1.1	0.12	0.023	0.21	0.023	**U**
541-73-1	1,3-Dichlorobenzene	0.080	0.54	0.080	0.013	0.090	0.013	**U**
106-46-7	1,4-Dichlorobenzene	0.082	0.54	0.082	0.014	0.090	0.014	**U**
526-73-8	1,2,3-Trimethylbenzene	0.073	0.52	0.073	0.015	0.11	0.015	**U**
95-50-1	1,2-Dichlorobenzene	0.079	0.54	0.079	0.013	0.090	0.013	**U**
120-82-1	1,2,4-Trichlorobenzene	0.13	0.53	0.13	0.018	0.071	0.018	**U**
75-45-6	Chlorodifluoromethane (CFC 22)	0.25	0.50	0.25	0.071	0.14	0.071	**U, X**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
X = See case narrative.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Jacobs**
Client Project ID: **PMC** ALS Project ID: P1805559

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date(s) Collected: 10/11 - 10/12/18
Analyst: Wida Ang Date(s) Received: 10/16/18
Sample Type: 1.0 L Bottle-Vac™(s) Date(s) Analyzed: 10/29 - 10/30/18
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P181029-MB	**128**	**97**	**80**	70-130	
Lab Control Sample	P181029-LCS	**120**	**97**	**85**	70-130	
Duplicate Lab Control Sample	P181029-DLCS	**122**	**96**	**84**	70-130	
19CP01-39	P1805559-001	**128**	**95**	**84**	70-130	
19CP01-40	P1805559-002	**131**	**95**	**82**	70-130	**S**
19CP01-41	P1805559-003	**135**	**94**	**81**	70-130	**S**
19CP01-42	P1805559-004	**134**	**94**	**81**	70-130	**S**
19CP01-43	P1805559-005	**135**	**94**	**80**	70-130	**S**

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
115-07-1	Propene	211	214	202	**101**	**96**	54-133	5	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	200	188	**95**	**90**	64-115	5	25	
74-87-3	Chloromethane	211	211	197	**100**	**93**	47-140	7	25	
75-01-4	Vinyl Chloride	214	196	190	**92**	**89**	63-127	3	25	
106-99-0	1,3-Butadiene	210	190	186	**90**	**89**	57-149	1	25	
74-83-9	Bromomethane	212	194	199	**92**	**94**	63-132	2	25	
75-00-3	Chloroethane	214	230	220	**107**	**103**	68-129	4	25	
64-17-5	Ethanol	1,020	1150	1140	**113**	**112**	62-131	0.9	25	
75-05-8	Acetonitrile	206	238	236	**116**	**115**	56-136	0.9	25	
107-02-8	Acrolein	205	201	195	**98**	**95**	60-132	3	25	
67-64-1	Acetone	1,060	947	915	**89**	**86**	63-124	3	25	
75-69-4	Trichlorofluoromethane	211	209	199	**99**	**94**	65-113	5	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	413	485	478	**117**	**116**	62-135	0.9	25	
107-13-1	Acrylonitrile	207	229	223	**111**	**108**	68-138	3	25	
75-35-4	1,1-Dichloroethene	218	203	194	**93**	**89**	72-118	4	25	
75-09-2	Methylene Chloride	217	210	200	**97**	**92**	67-116	5	25	
76-13-1	Trichlorotrifluoroethane	216	204	194	**94**	**90**	68-113	4	25	
75-15-0	Carbon Disulfide	218	219	208	**100**	**95**	68-120	5	25	
75-34-3	1,1-Dichloroethane	216	223	216	**103**	**100**	68-118	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
1634-04-4	Methyl tert-Butyl Ether	214	226	221	**106**	**103**	60-123	3	25	
108-05-4	Vinyl Acetate	1,060	1400	1330	**132**	**125**	73-135	5	25	
78-93-3	2-Butanone (MEK)	208	213	205	**102**	**99**	70-129	3	25	
156-59-2	cis-1,2-Dichloroethene	211	224	218	**106**	**103**	69-121	3	25	
110-54-3	n-Hexane	216	255	246	**118**	**114**	61-124	3	25	
67-66-3	Chloroform	217	214	207	**99**	**95**	69-113	4	25	
107-06-2	1,2-Dichloroethane	215	233	229	**108**	**107**	62-120	0.9	25	
71-55-6	1,1,1-Trichloroethane	215	206	202	**96**	**94**	65-116	2	25	
71-36-3	1-Butanol	413	472	464	**114**	**112**	62-141	2	25	
71-43-2	Benzene	211	199	195	**94**	**92**	66-111	2	25	
110-82-7	Cyclohexane	416	411	398	**99**	**96**	69-115	3	25	
78-87-5	1,2-Dichloropropane	216	213	208	**99**	**96**	69-121	3	25	
75-27-4	Bromodichloromethane	215	216	211	**100**	**98**	69-123	2	25	
79-01-6	Trichloroethene	213	182	176	**85**	**83**	69-112	2	25	
123-91-1	1,4-Dioxane	214	210	204	**98**	**95**	74-123	3	25	
10061-01-5	cis-1,3-Dichloropropene	214	226	222	**106**	**104**	74-129	2	25	
108-10-1	4-Methyl-2-pentanone	209	244	237	**117**	**113**	66-138	3	25	
10061-02-6	trans-1,3-Dichloropropene	213	236	231	**111**	**108**	75-130	3	25	
79-00-5	1,1,2-Trichloroethane	215	203	196	**94**	**91**	73-117	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1805559
Client Project ID: **PMC** ALS Sample ID: P181029-DLCS

Test Code: EPA TO-15 Modified Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Date Received: NA
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™ Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
108-88-3	Toluene	212	186	179	**88**	**84**	66-114	5	25	
591-78-6	2-Hexanone	214	265	260	**124**	**121**	58-146	2	25	
106-93-4	1,2-Dibromoethane	216	192	184	**89**	**85**	70-127	5	25	
127-18-4	Tetrachloroethene	213	157	150	**74**	**70**	62-119	6	25	
100-41-4	Ethylbenzene	212	193	186	**91**	**88**	69-117	3	25	
179601-23-1	m,p-Xylenes	426	395	380	**93**	**89**	67-117	4	25	
75-25-2	Bromoform	213	191	182	**90**	**85**	67-135	6	25	
100-42-5	Styrene	212	197	189	**93**	**89**	70-128	4	25	
95-47-6	o-Xylene	214	206	198	**96**	**93**	67-118	3	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	215	204	**100**	**95**	70-125	5	25	
108-67-8	1,3,5-Trimethylbenzene	214	202	192	**94**	**90**	65-117	4	25	
95-63-6	1,2,4-Trimethylbenzene	215	214	203	**100**	**94**	67-124	6	25	
100-44-7	Benzyl Chloride	217	237	227	**109**	**105**	75-142	4	25	
541-73-1	1,3-Dichlorobenzene	216	184	175	**85**	**81**	70-124	5	25	
106-46-7	1,4-Dichlorobenzene	216	183	175	**85**	**81**	63-124	5	25	
526-73-8	1,2,3-Trimethylbenzene	216	217	206	**100**	**95**	66-128	5	25	
95-50-1	1,2-Dichlorobenzene	216	188	179	**87**	**83**	66-125	5	25	
120-82-1	1,2,4-Trichlorobenzene	214	178	172	**83**	**80**	70-141	4	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **Jacobs** ALS Project ID: P1805559
Client Project ID: **PMC**

Method Blank Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10291805.D
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 06:55
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P181029-LCS	10291807.D	08:44
Duplicate Lab Control Sample	P181029-DLCS	10291808.D	09:18
19CP01-39	P1805559-001	10291830.D	21:52
19CP01-40	P1805559-002	10291831.D	22:26
19CP01-41	P1805559-003	10291832.D	23:00
19CP01-42	P1805559-004	10291833.D	23:34
19CP01-42 (Dilution)	P1805559-004	10291834.D	00:08
19CP01-43	P1805559-005	10291835.D	00:42
19CP01-43 (Dilution)	P1805559-005	10291836.D	01:16

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Jacobs** ALS Project ID: P1805559
Client Project ID: **PMC**

Internal Standard Area and RT Summary

Test Code: EPA TO-15 Modified
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS9 Lab File ID: 10291802.D
Analyst: Wida Ang Date Analyzed: 10/29/18
Sample Type: 1.0 L Bottle-Vac™(s) Time Analyzed: 05:14
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	119891	9.27	640730	11.24	380543	15.57
	Upper Limit	167847	9.60	897022	11.57	532760	15.90
	Lower Limit	71935	8.94	384438	10.91	228326	15.24
	Client Sample ID						
01	Method Blank	108243	9.26	574325	11.23	355054	15.57
02	Lab Control Sample	118378	9.29	604137	11.25	369595	15.57
03	Duplicate Lab Control Sample	126548	9.29	641087	11.24	395534	15.58
04	19CP01-39	118371	9.26	609167	11.23	390618	15.57
05	19CP01-40	115621	9.26	599789	11.23	387382	15.57
06	19CP01-41	112628	9.26	585173	11.23	382364	15.57
07	19CP01-42	114280	9.27	586747	11.24	380749	15.57
08	19CP01-42 (Dilution)	115100	9.26	576057	11.23	376839	15.57
09	19CP01-43	109461	9.26	563244	11.24	366396	15.57
10	19CP01-43 (Dilution)	112808	9.26	558132	11.23	362548	15.57
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the speicified limits.

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09 RS 10/30/18
Misc : S31-10151806

Quant Time: Oct 30 08:21:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118371	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	609167	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	390618	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	328974	16.025	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 128.24%				
57) Toluene-d8 (SS2)	13.66	98	809666	11.865	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
73) Bromofluorobenzene (SS3)	17.16	174	160790	10.473	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.76%				
Target Compounds							Qvalue
2) Propene	3.98	42	3234m	0.108	ng		
3) Dichlorodifluoromethan...	4.08	85	22067	0.685	ng		100
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	283	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.47	45	15561m	0.962	ng		
11) Acetonitrile	5.69	41	2904	0.066	ng	#	1
12) Acrolein	5.84	56	1706	0.136	ng		100
13) Acetone	5.98	58	69885	4.183	ng	#	67
14) Trichlorofluoromethane	6.16	101	8754	0.379	ng		98
15) 2-Propanol (Isopropanol)	6.30	45	10769	0.207	ng		92
16) Acrylonitrile	6.49	53	633	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	7.00	84	137	N.D.			
20) 3-Chloro-1-propene (Al...	7.06	41	103	N.D.			
21) Trichlorotrifluoroethane	7.31	151	1129	0.122	ng	#	73
22) Carbon Disulfide	7.29	76	13835	0.220	ng		98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.38	86	1965	0.714	ng	#	40
27) 2-Butanone (MEK)	8.67	72	4856	0.373	ng	#	43
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.35	61	7565	1.096	ng		97
31) n-Hexane	9.35	57	405	N.D.			
32) Chloroform	9.40	83	11843	0.424	ng		98
34) Tetrahydrofuran (THF)	9.85	72	725	0.058	ng	#	38
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	813	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.81	56	9939	0.480	ng	#	78
41) Benzene	10.87	78	4533	0.061	ng		94
42) Carbon Tetrachloride	11.02	117	1127	0.063	ng		100
43) Cyclohexane	11.22	84	587	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	451916	30.945	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	104	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:21:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

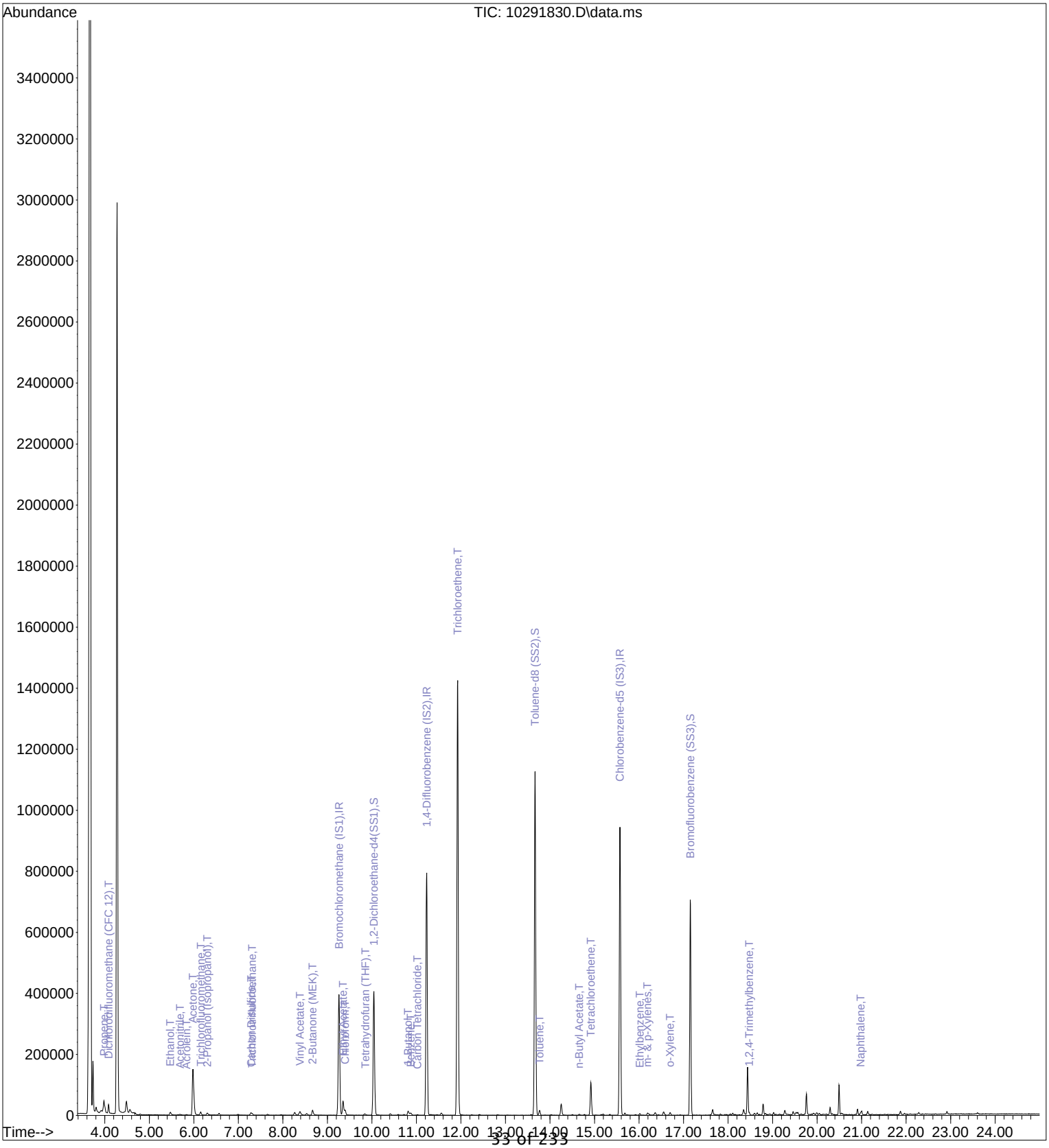
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.24	71	407	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.83	58	339	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	13530	0.177 ng	98
59) 2-Hexanone	14.02	43	2077	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.65	43	3373	0.062 ng	88
63) n-Octane	14.78	57	383	N.D.	
64) Tetrachloroethene	14.92	166	30317	1.924 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	5077	0.061 ng	91
67) m- & p-Xylenes	16.19	91	7196	0.112 ng	95
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	904	N.D.	
70) o-Xylene	16.70	91	3785	0.060 ng	88
71) n-Nonane	16.92	43	1044	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.30	105	430	N.D.	
75) alpha-Pinene	17.70	93	983	N.D.	
76) n-Propylbenzene	17.82	91	1219	N.D.	
77) 3-Ethyltoluene	17.92	105	1993	N.D.	
78) 4-Ethyltoluene	17.98	105	1276	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	1074	N.D.	
80) alpha-Methylstyrene	18.20	118	277	N.D.	
81) 2-Ethyltoluene	18.25	105	1022	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	4351	0.073 ng	82
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.61	91	859	N.D.	
85) 1,3-Dichlorobenzene	18.64	146	307	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	527	N.D.	
87) sec-Butylbenzene	18.92	105	940	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	641	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	940	N.D.	
90) 1,2-Dichlorobenzene	19.06	146	178	N.D.	
91) d-Limonene	19.08	68	644	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.91	57	2202	N.D.	
94) 1,2,4-Trichlorobenzene	20.86	180	708	N.D.	
95) Naphthalene	20.98	128	5254	0.076 ng	97
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.49	119	412	N.D.	
100) n-Butylbenzene	19.37	91	526	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:21:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 08:21:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

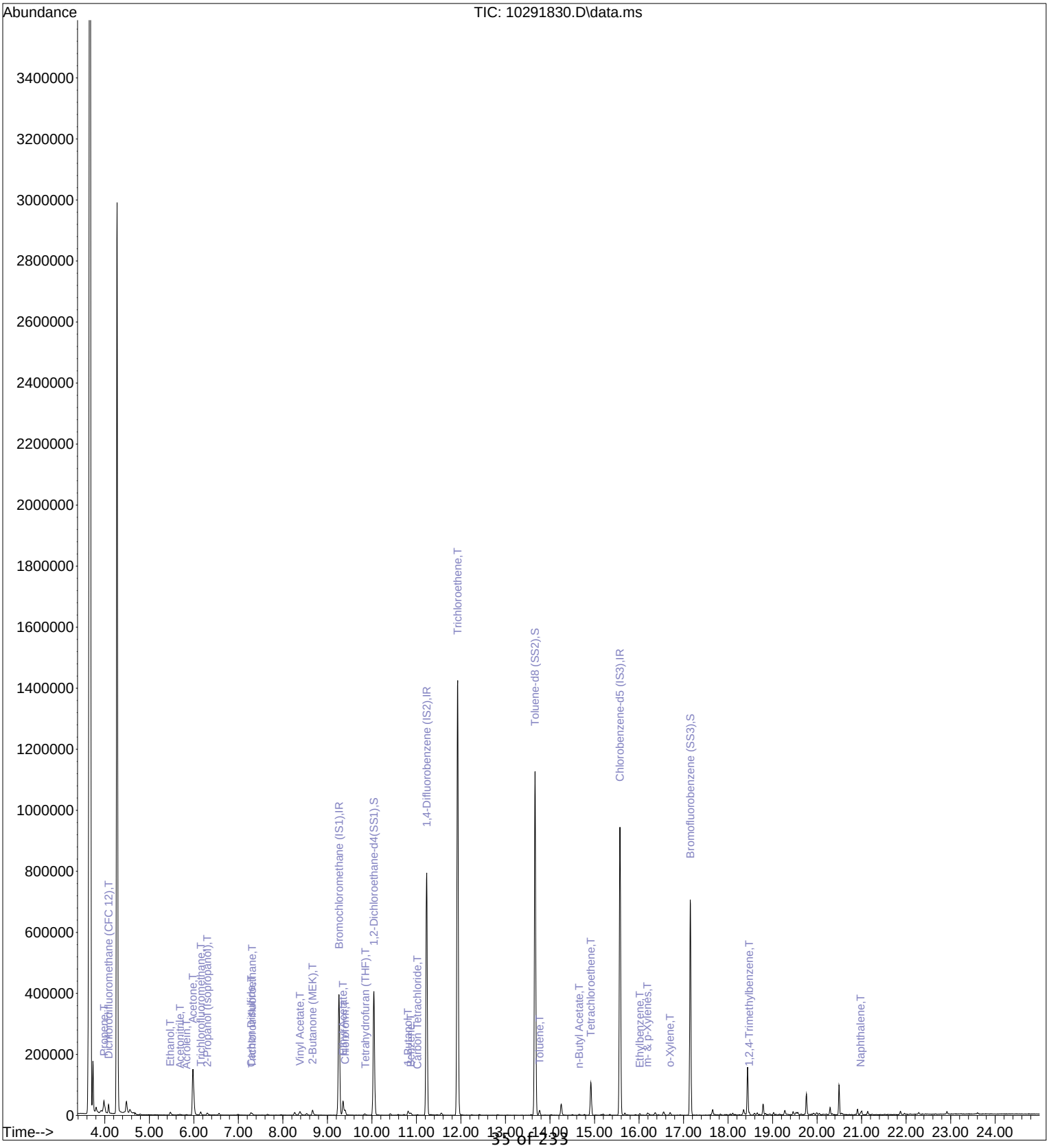
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118371	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	609167	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	390618	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	328974	16.025	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 128.24%				
57) Toluene-d8 (SS2)	13.66	98	809666	11.865	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
73) Bromofluorobenzene (SS3)	17.16	174	160790	10.473	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.76%				
Target Compounds							Qvalue
2) Propene	3.98	42	3234m	0.108	ng		
3) Dichlorodifluoromethan...	4.08	85	22067	0.685	ng		100
10) Ethanol	5.47	45	15561m	0.962	ng		
11) Acetonitrile	5.69	41	2904	0.066	ng	#	1
12) Acrolein	5.84	56	1706	0.136	ng		100
13) Acetone	5.98	58	69885	4.183	ng	#	67
14) Trichlorofluoromethane	6.16	101	8754	0.379	ng		98
15) 2-Propanol (Isopropanol)	6.30	45	10769	0.207	ng		92
21) Trichlorotrifluoroethane	7.31	151	1129	0.122	ng	#	73
22) Carbon Disulfide	7.29	76	13835	0.220	ng		98
26) Vinyl Acetate	8.38	86	1965	0.714	ng	#	40
27) 2-Butanone (MEK)	8.67	72	4856	0.373	ng	#	43
30) Ethyl Acetate	9.35	61	7565	1.096	ng		97
32) Chloroform	9.40	83	11843	0.424	ng		98
34) Tetrahydrofuran (THF)	9.85	72	725	0.058	ng	#	38
40) 1-Butanol	10.81	56	9939	0.480	ng	#	78
41) Benzene	10.87	78	4533	0.061	ng		94
42) Carbon Tetrachloride	11.02	117	1127	0.063	ng		100
47) Trichloroethene	11.93	130	451916	30.945	ng		100
58) Toluene	13.77	91	13530	0.177	ng		98
62) n-Butyl Acetate	14.65	43	3373	0.062	ng		88
64) Tetrachloroethene	14.92	166	30317	1.924	ng		99
66) Ethylbenzene	16.02	91	5077	0.061	ng		91
67) m- & p-Xylenes	16.19	91	7196	0.112	ng		95
70) o-Xylene	16.70	91	3785	0.060	ng		88
82) 1,2,4-Trimethylbenzene	18.48	105	4351	0.073	ng		82
95) Naphthalene	20.98	128	5254	0.076	ng		97

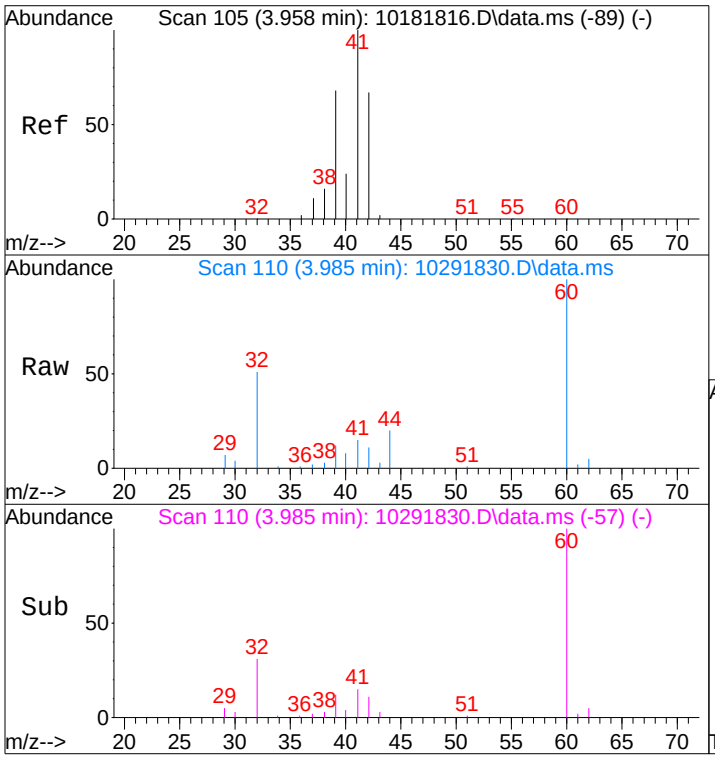
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:21:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

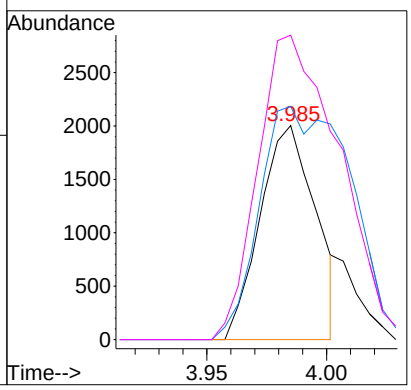


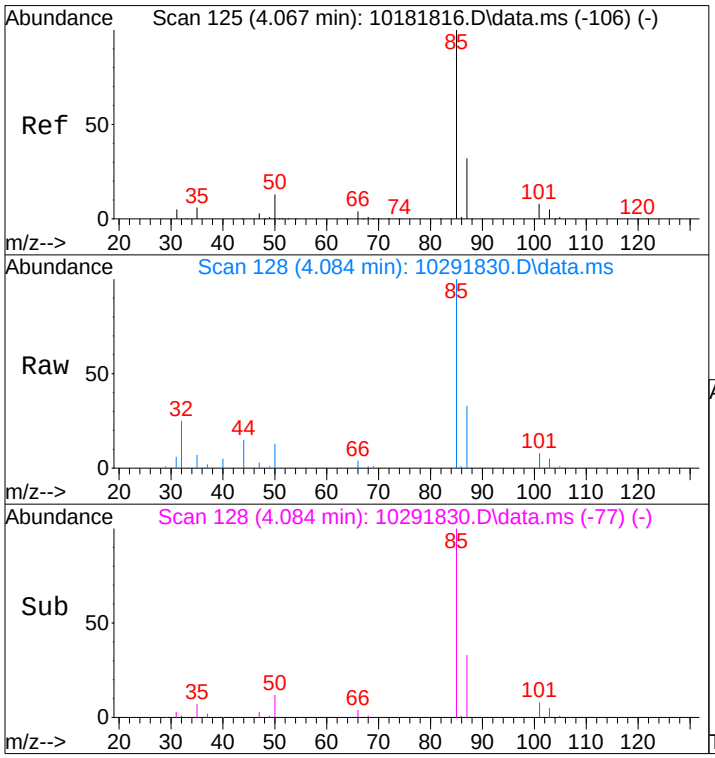


#2
Propene
Concen: 0.11 ng m
RT: 3.98 min Scan# 110
Delta R.T. 0.039 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 42 Resp: 3234

Ion	Ratio	Lower	Upper
42	100		
39	92.2	81.9	121.9
41	167.0	130.4	170.4

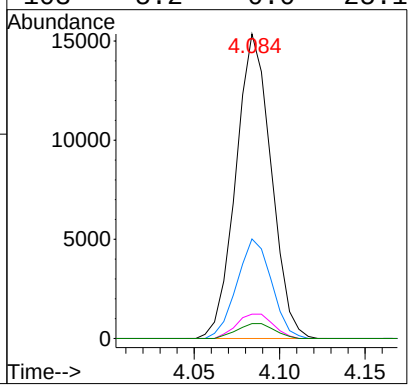


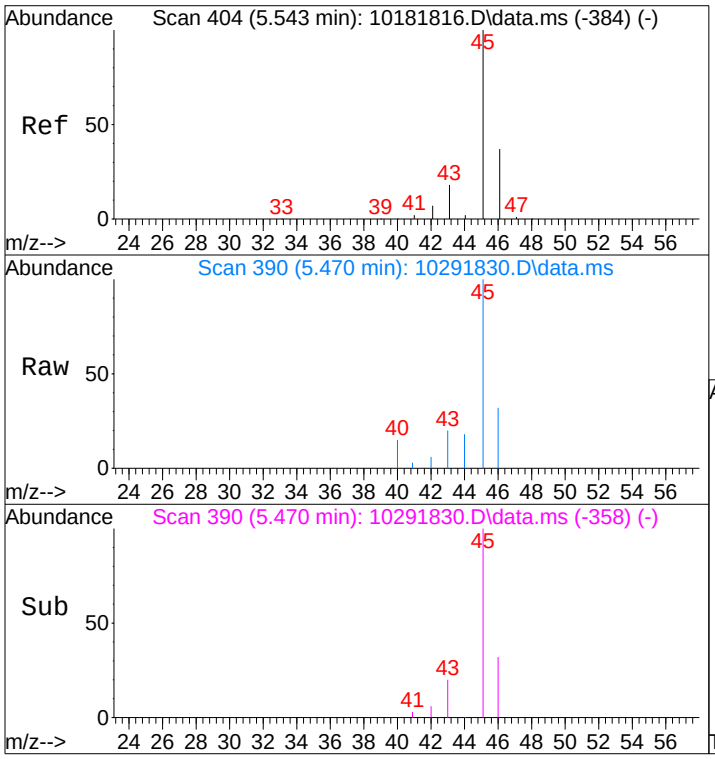


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.68 ng
RT: 4.08 min Scan# 128
Delta R.T. 0.028 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 85 Resp: 22067

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.0	52.0
101	8.3	0.0	28.0
103	5.2	0.0	25.1

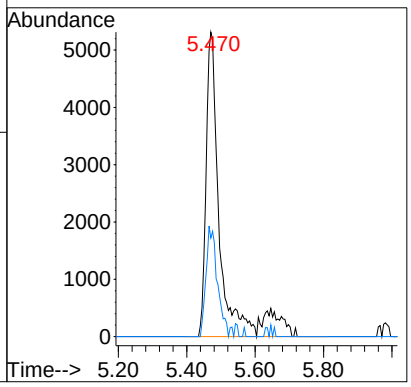


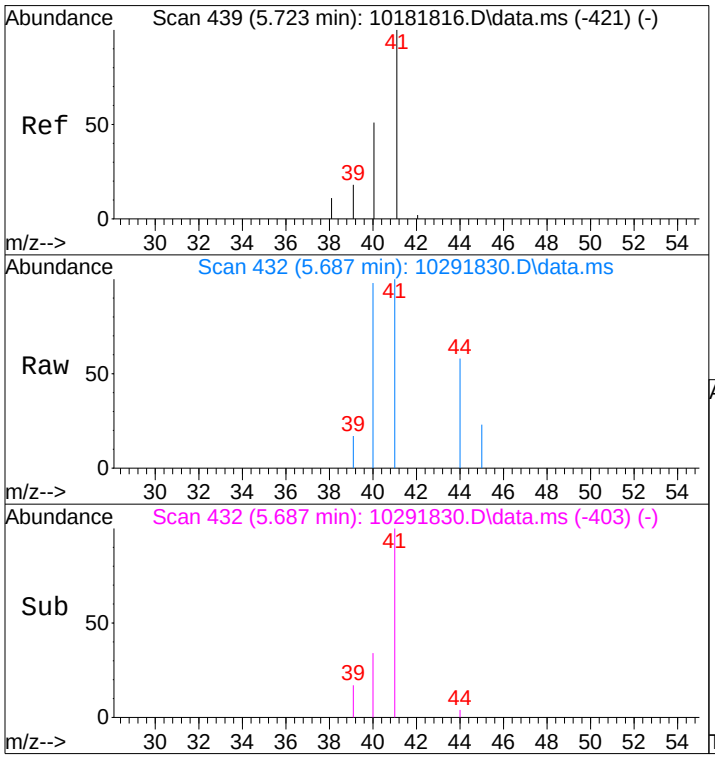


#10
Ethanol
Concen: 0.96 ng m
RT: 5.47 min Scan# 390
Delta R.T. -0.087 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 45 Resp: 15561

Ion	Ratio	Lower	Upper
45	100		
46	0.7	17.0	57.0#

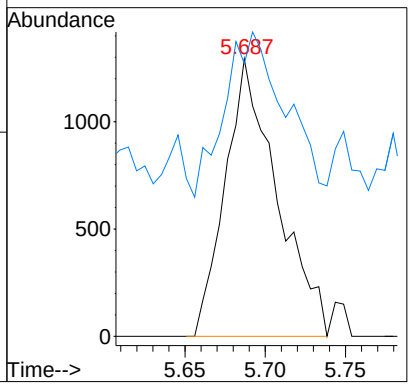


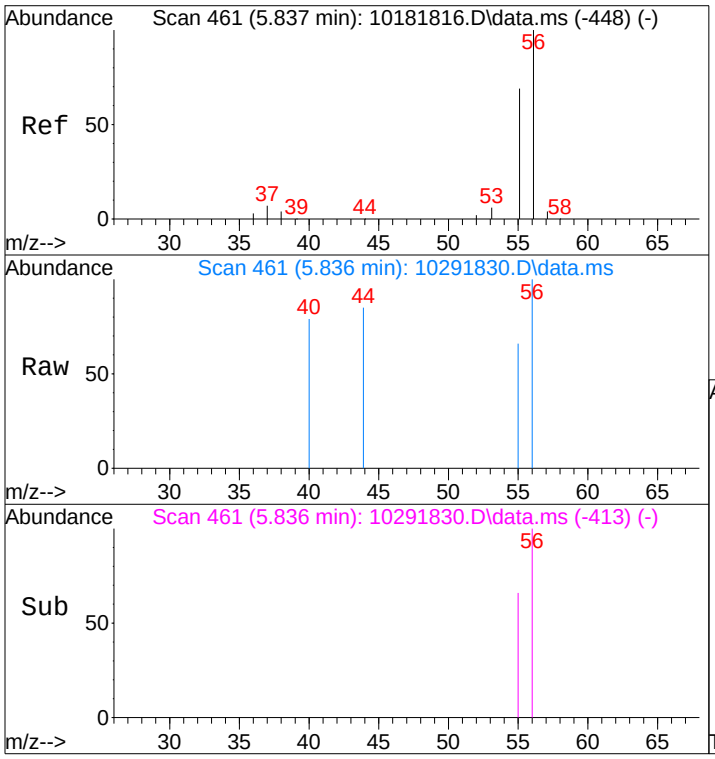


#11
Acetonitrile
Concen: 0.07 ng
RT: 5.69 min Scan# 432
Delta R.T. -0.050 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 41 Resp: 2904

Ion	Ratio	Lower	Upper
41	100		
40	134.0	31.4	71.4#

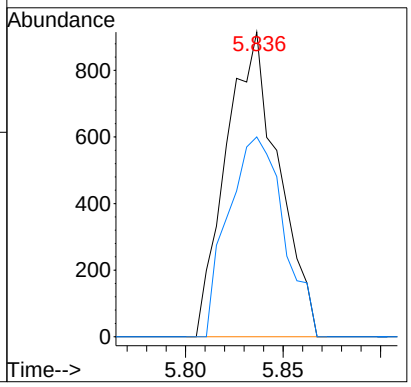


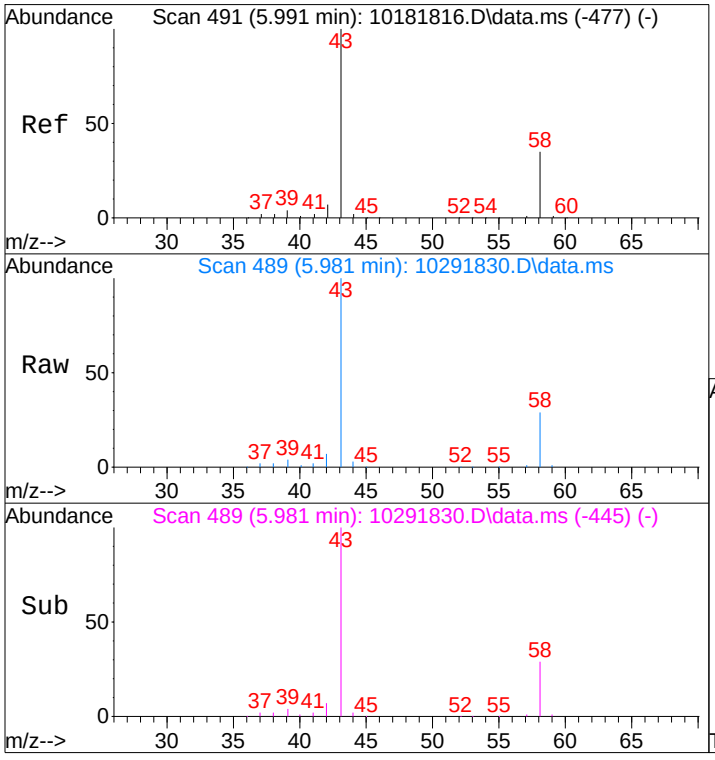


#12
Acrolein
Concen: 0.14 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 56 Resp: 1706

Ion	Ratio	Lower	Upper
56	100		
55	69.6	49.3	89.3

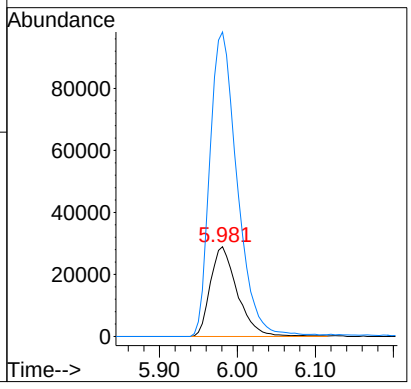


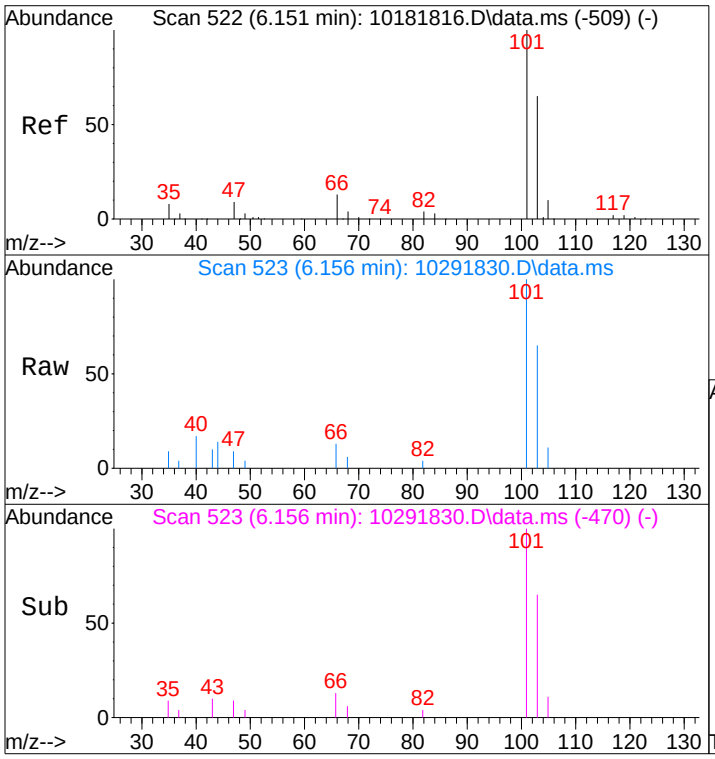


#13
Acetone
Concen: 4.18 ng
RT: 5.98 min Scan# 489
Delta R.T. -0.023 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 58 Resp: 69885

Ion	Ratio	Lower	Upper
58	100		
43	346.5	254.3	314.3#

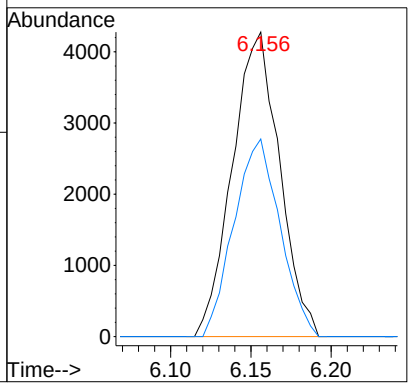


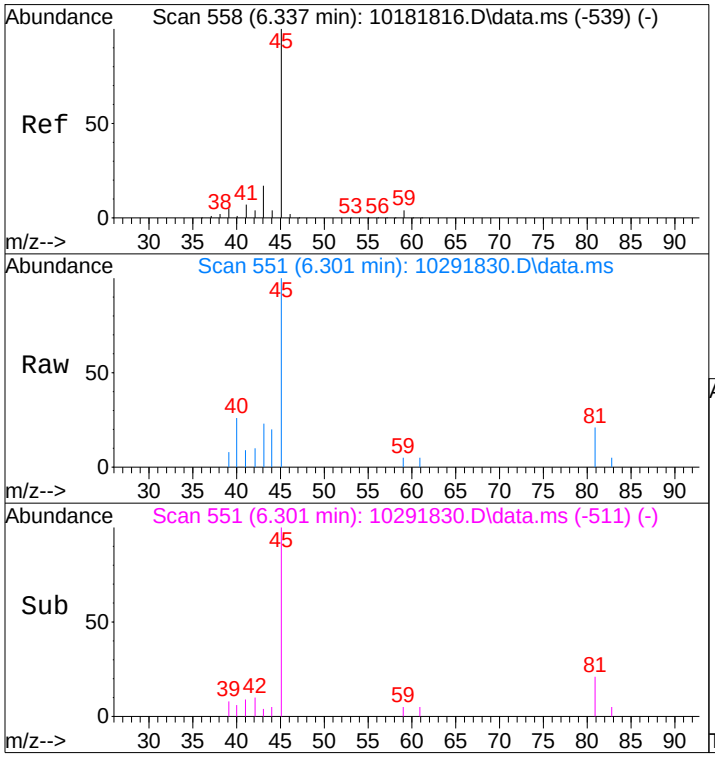


#14
Trichlorofluoromethane
Concen: 0.38 ng
RT: 6.16 min Scan# 523
Delta R.T. 0.024 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:101 Resp: 8754

Ion	Ratio	Lower	Upper
101	100		
103	63.3	44.5	84.5

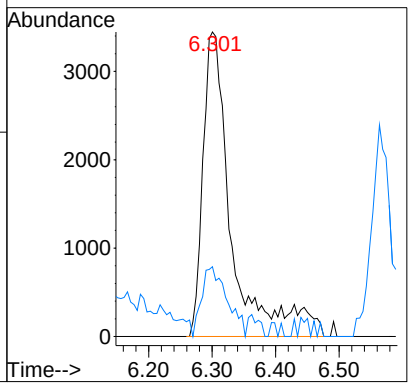


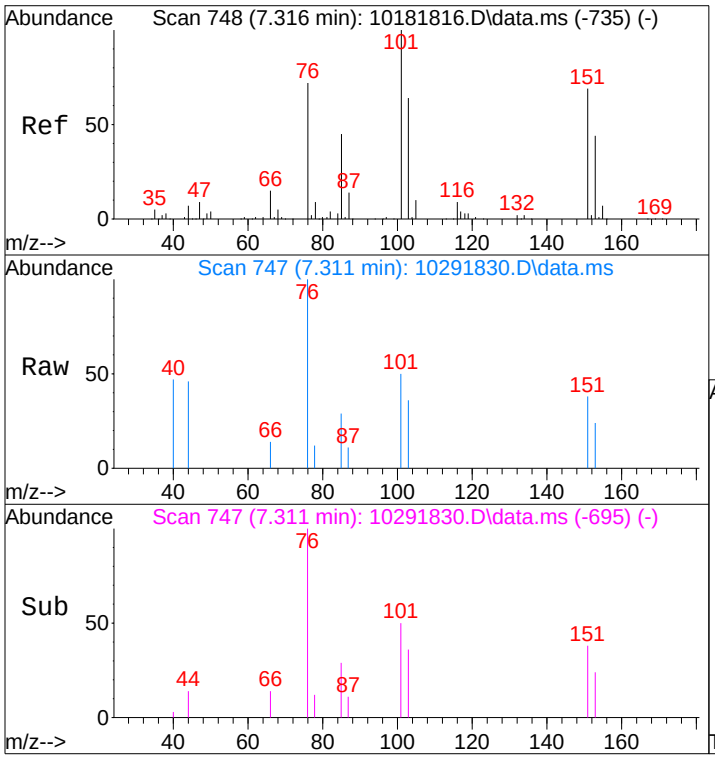


#15
2-Propanol (Isopropanol)
Concen: 0.21 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 45 Resp: 10769

Ion	Ratio	Lower	Upper
45	100		
43	20.3	0.0	36.7

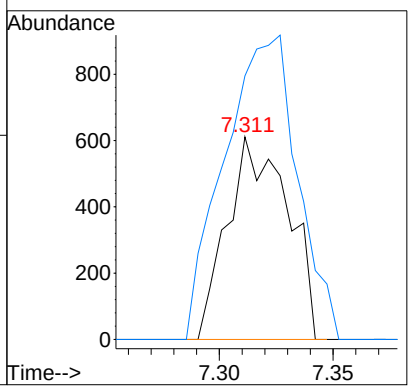


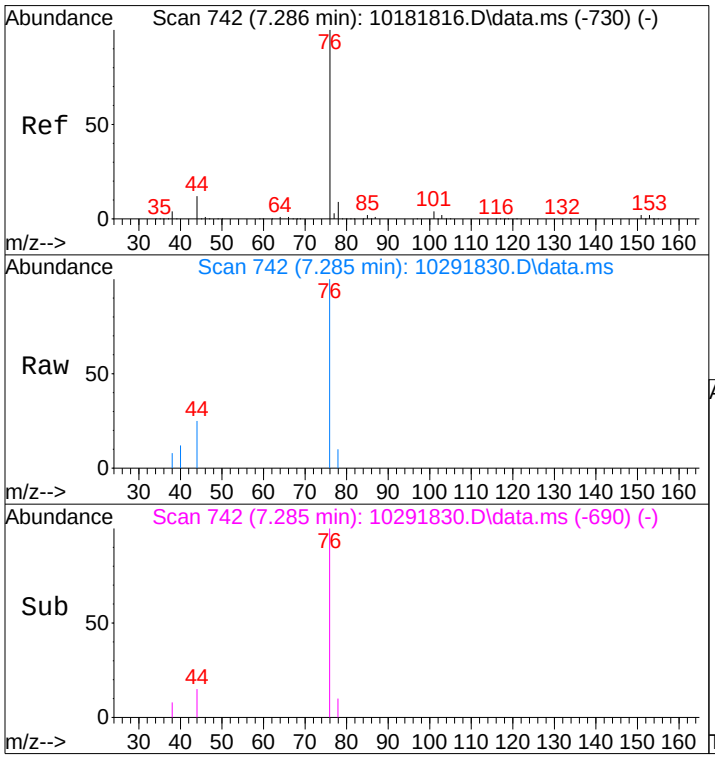


#21
Trichlorotrifluoroethane
Concen: 0.12 ng
RT: 7.31 min Scan# 747
Delta R.T. 0.020 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:151 Resp: 1129

Ion	Ratio	Lower	Upper
151	100		
101	181.8	127.5	167.5#

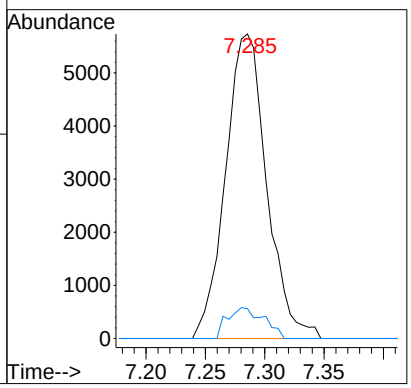


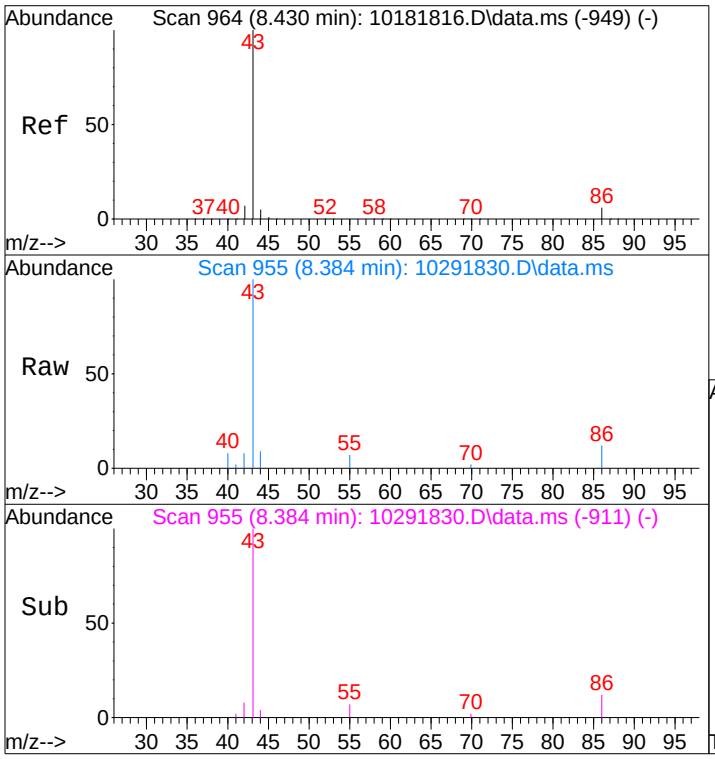


#22
Carbon Disulfide
Concen: 0.22 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 76 Resp: 13835

Ion	Ratio	Lower	Upper
76	100		
78	9.0	0.0	29.6

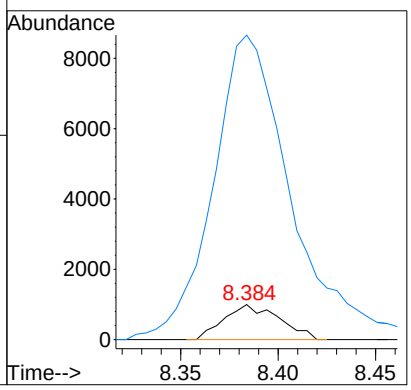


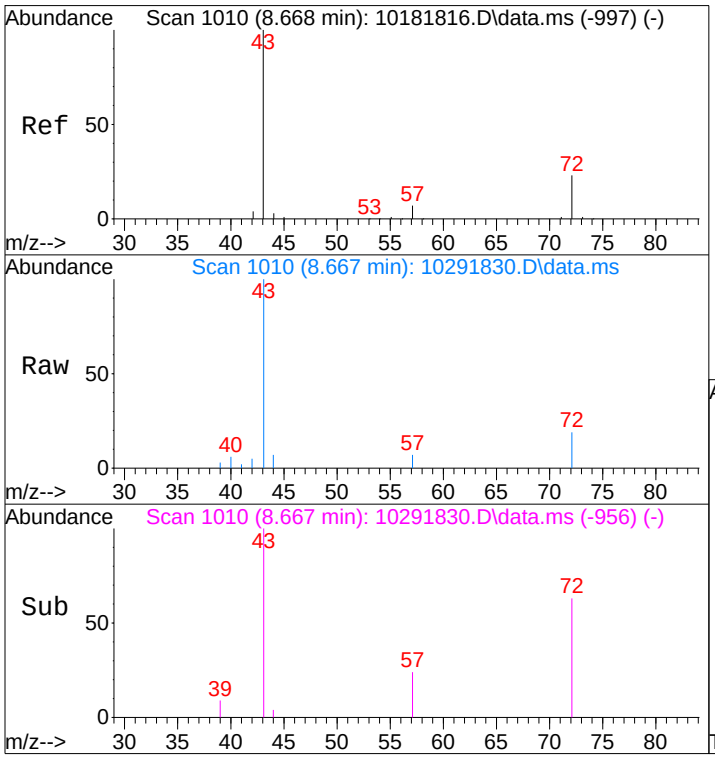


#26
Vinyl Acetate
Concen: 0.71 ng
RT: 8.38 min Scan# 955
Delta R.T. -0.025 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 86 Resp: 1965

Ion	Ratio	Lower	Upper
86	100		
43	1236.4	1596.2	1636.2#

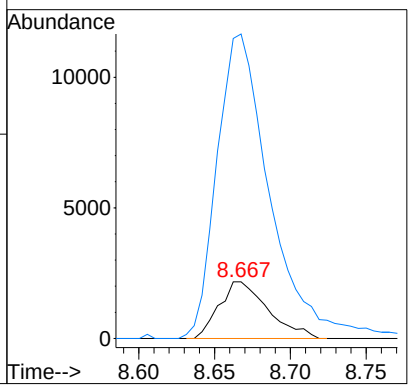


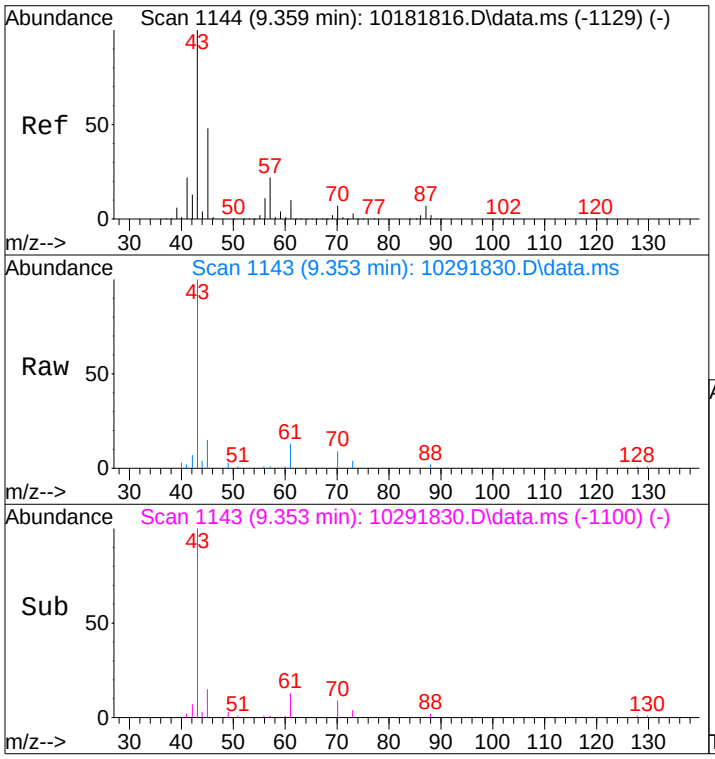


#27
2-Butanone (MEK)
Concen: 0.37 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 72 Resp: 4856

Ion	Ratio	Lower	Upper
72	100		
43	595.2	430.0	470.0#

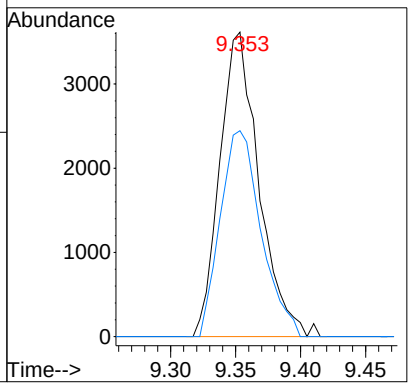


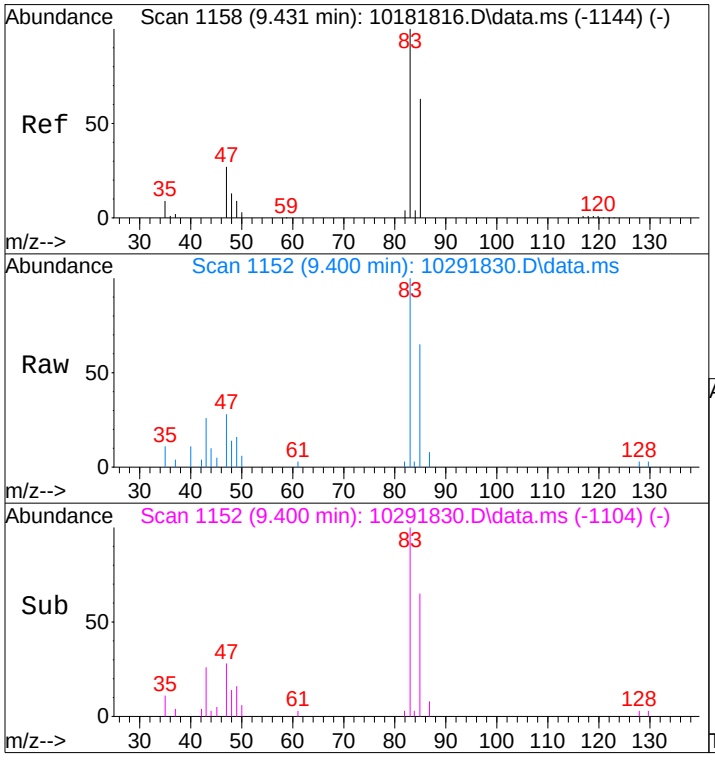


#30
Ethyl Acetate
Concen: 1.10 ng
RT: 9.35 min Scan# 1143
Delta R.T. 0.021 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 61 Resp: 7565

Ion	Ratio	Lower	Upper
61	100		
70	70.5	52.7	92.7

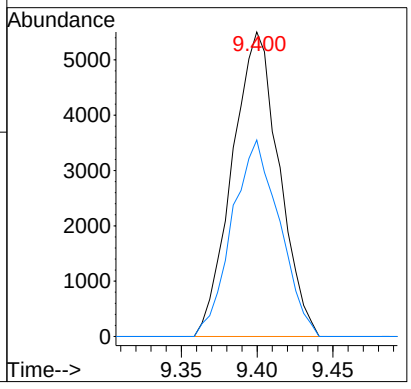


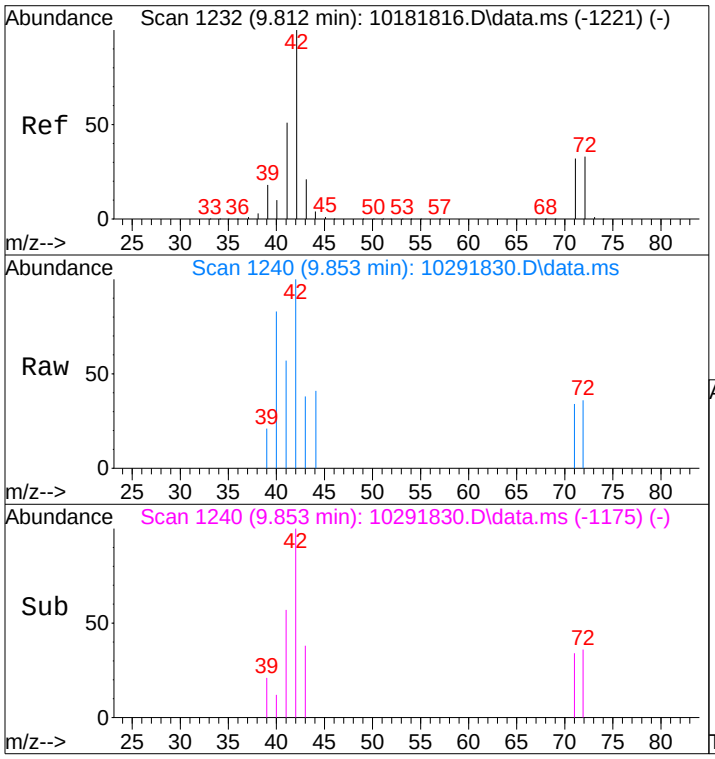


#32
Chloroform
Concen: 0.42 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 83 Resp: 11843

Ion	Ratio	Lower	Upper
83	100		
85	65.5	44.0	84.0

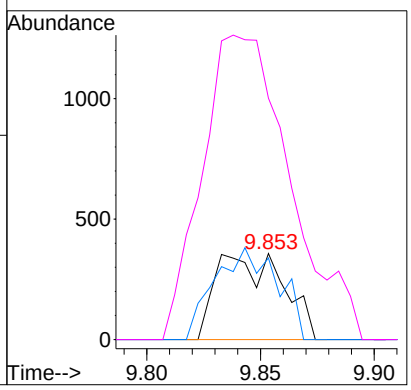


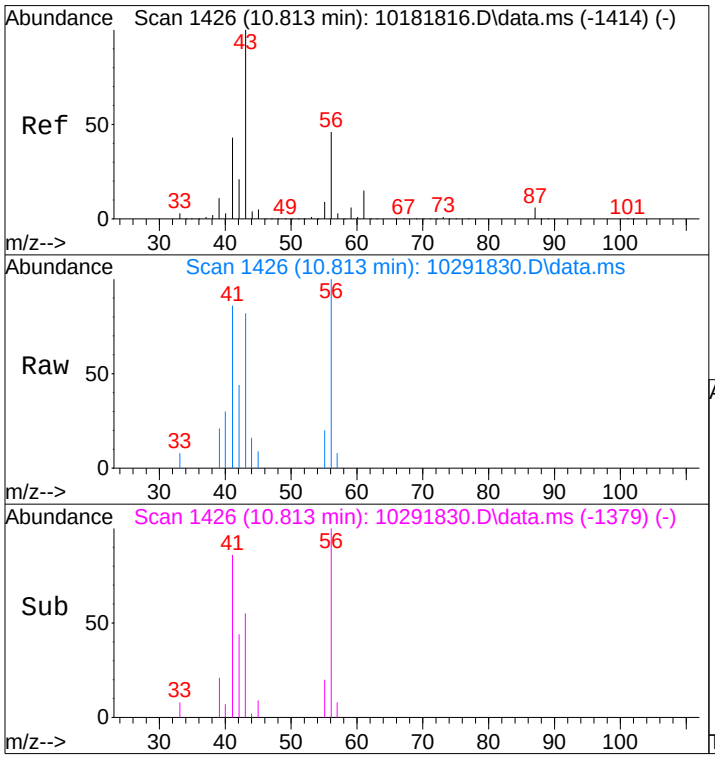


#34
Tetrahydrofuran (THF)
Concen: 0.06 ng
RT: 9.85 min Scan# 1240
Delta R.T. 0.086 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 72 Resp: 725

Ion	Ratio	Lower	Upper
72	100		
71	101.4	76.7	116.7
42	468.6	287.9	327.9#

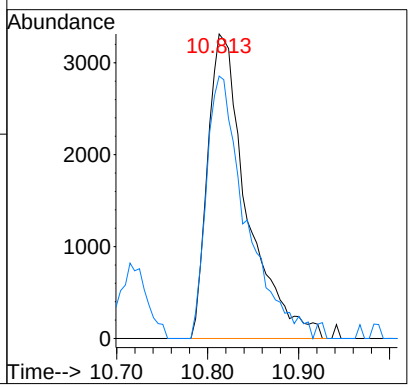


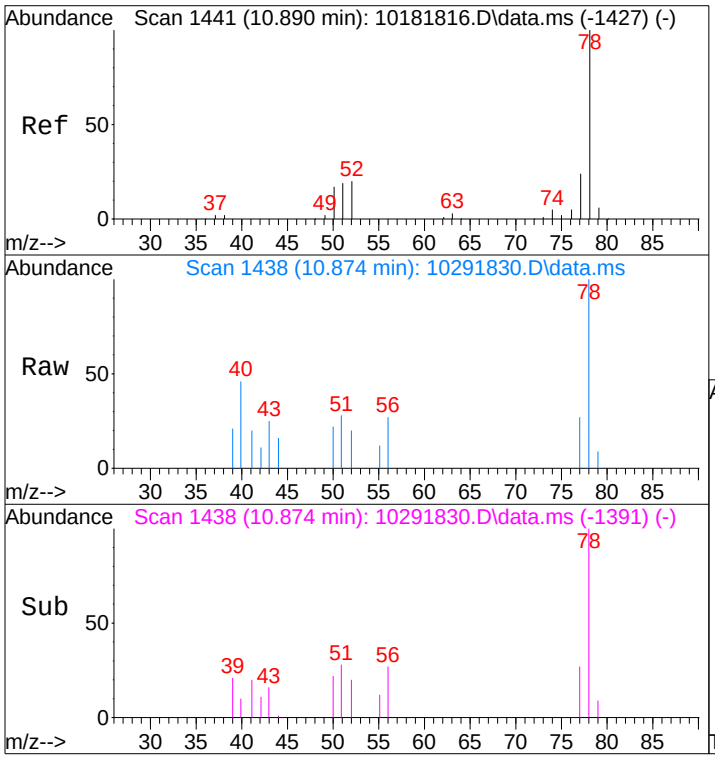


#40
1-Butanol
Concen: 0.48 ng
RT: 10.81 min Scan# 1426
Delta R.T. -0.006 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 56 Resp: 9939

Ion	Ratio	Lower	Upper
56	100		
41	87.0	90.2	130.2#

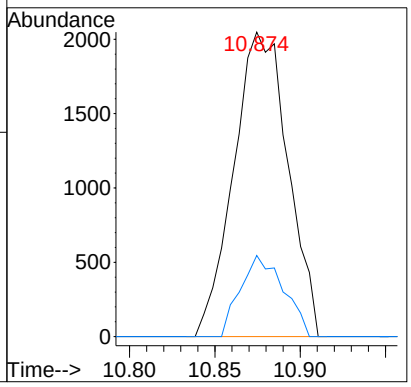


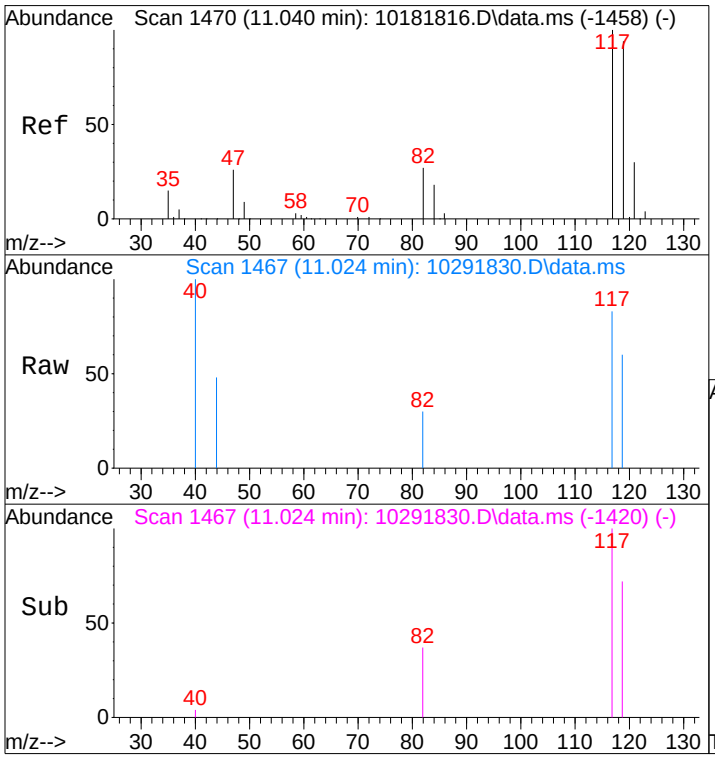


#41
Benzene
Concen: 0.06 ng
RT: 10.87 min Scan# 1438
Delta R.T. -0.006 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 78 Resp: 4533

Ion	Ratio	Lower	Upper
78	100		
77	21.2	4.1	44.1

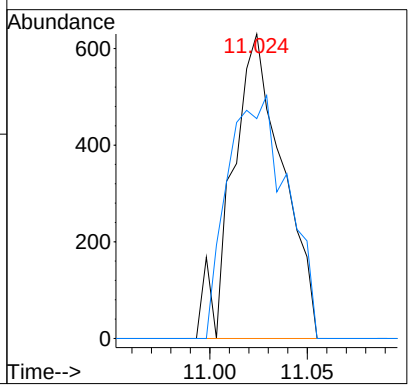


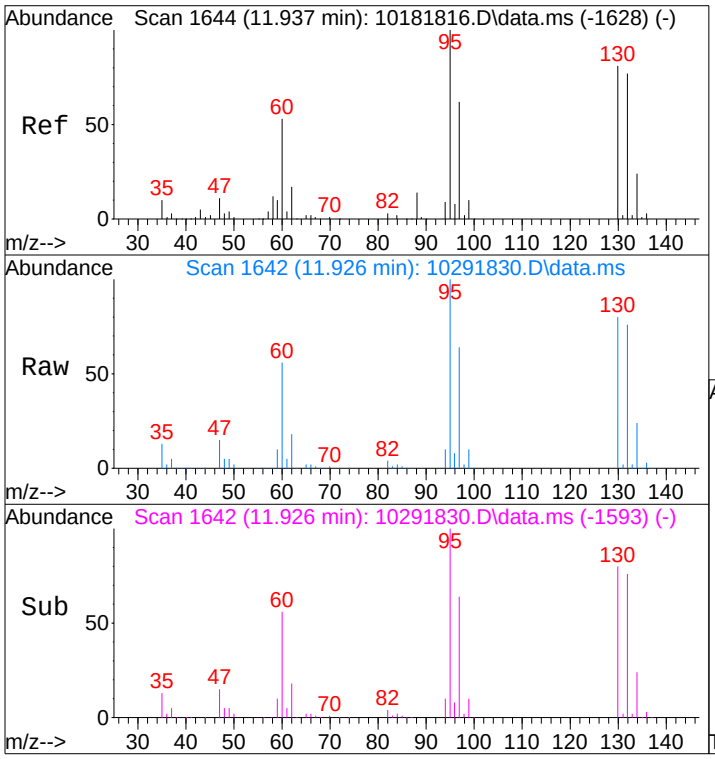


#42
Carbon Tetrachloride
Concen: 0.06 ng
RT: 11.02 min Scan# 1467
Delta R.T. -0.005 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:117 Resp: 1127

Ion	Ratio	Lower	Upper
117	100		
119	95.1	74.7	114.7

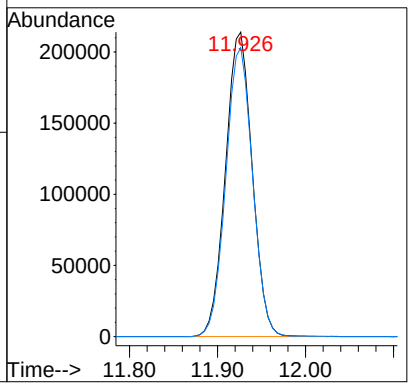


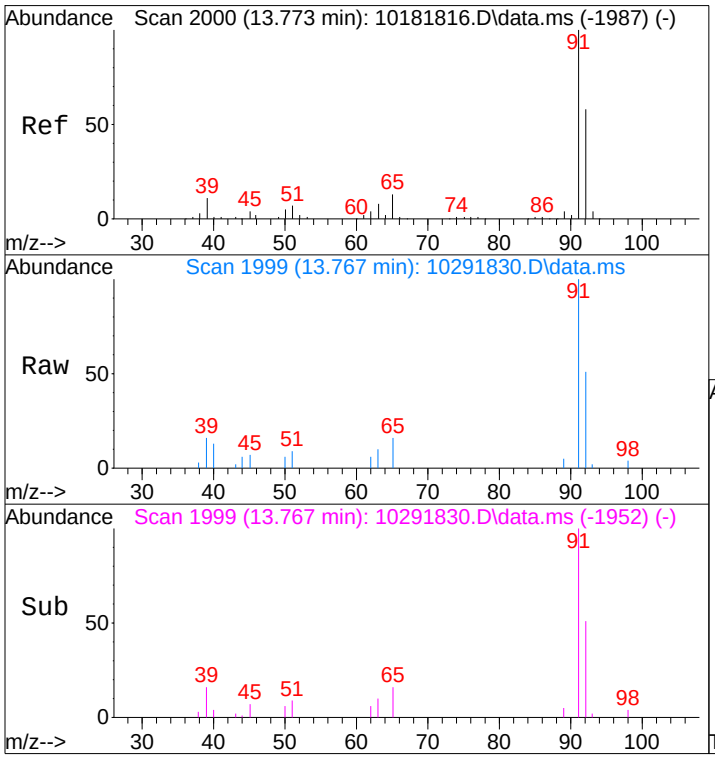


#47
Trichloroethene
Concen: 30.95 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:130 Resp: 451916

Ion	Ratio	Lower	Upper
130	100		
132	95.0	74.6	114.6

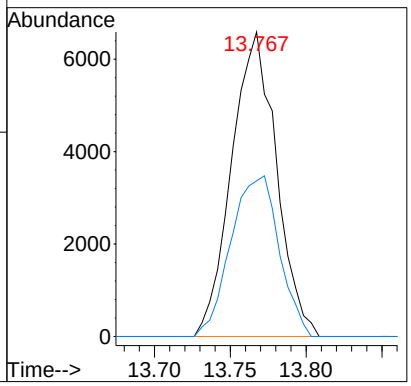


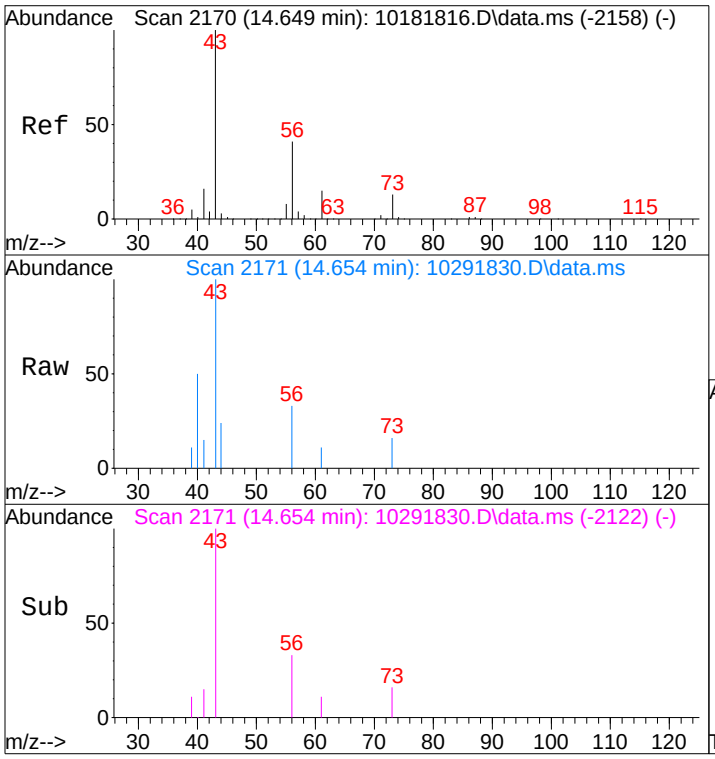


#58
Toluene
Concen: 0.18 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 91 Resp: 13530

Ion	Ratio	Lower	Upper
91	100		
92	56.9	38.1	78.1

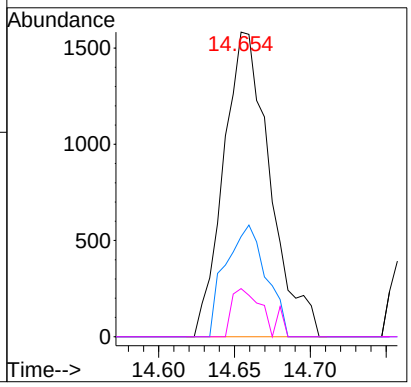


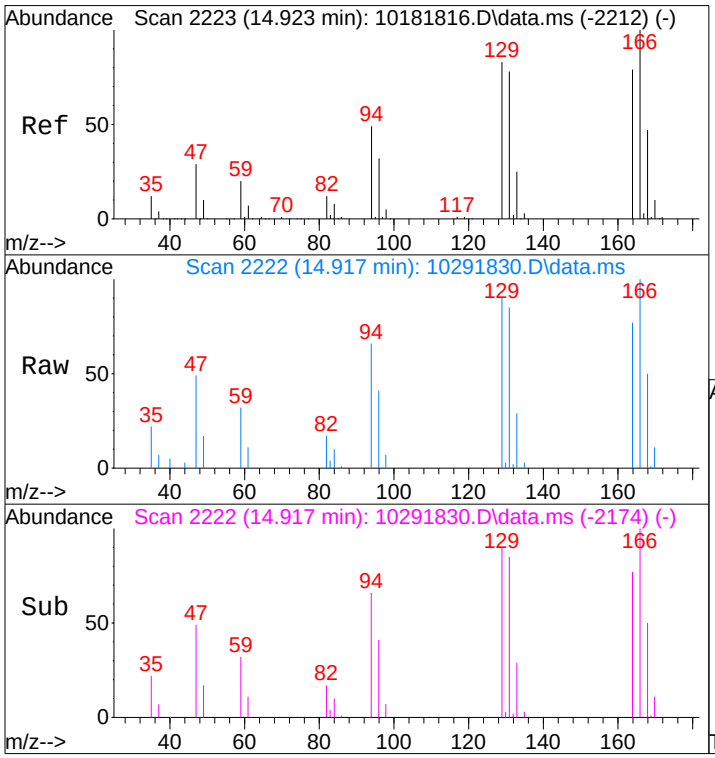


#62
n-Butyl Acetate
Concen: 0.06 ng
RT: 14.65 min Scan# 2171
Delta R.T. 0.004 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 43 Resp: 3373

Ion	Ratio	Lower	Upper
43	100		
56	32.1	20.7	60.7
73	10.9	0.0	32.8

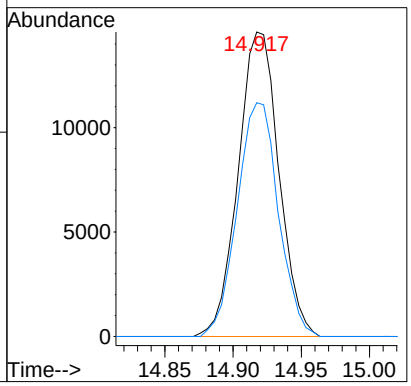


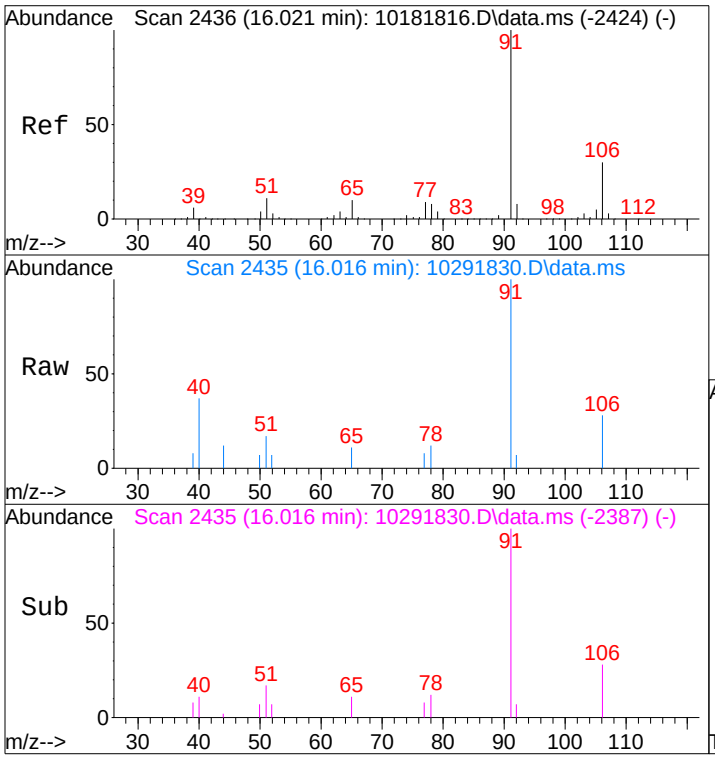


#64
Tetrachloroethene
Concen: 1.92 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:166 Resp: 30317

Ion	Ratio	Lower	Upper
166	100		
164	77.6	58.9	98.9

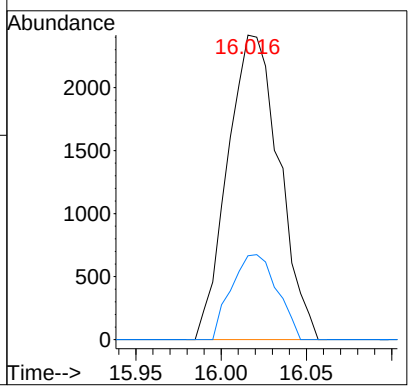


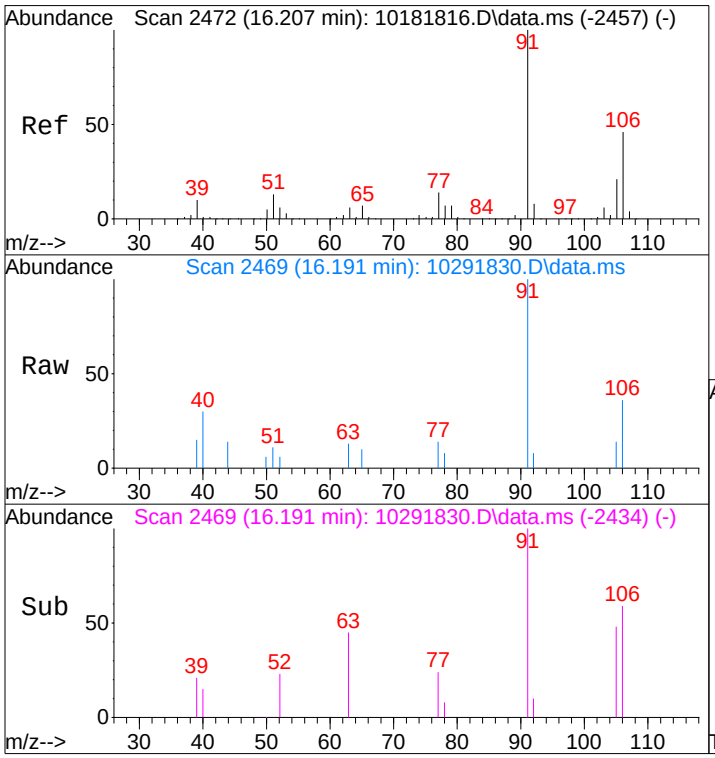


#66
Ethylbenzene
Concen: 0.06 ng
RT: 16.02 min Scan# 2435
Delta R.T. 0.000 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 91 Resp: 5077

Ion	Ratio	Lower	Upper
91	100		
106	24.8	9.9	49.9

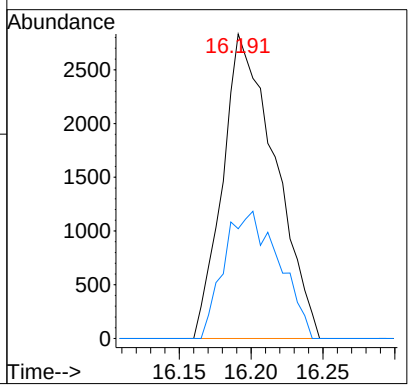


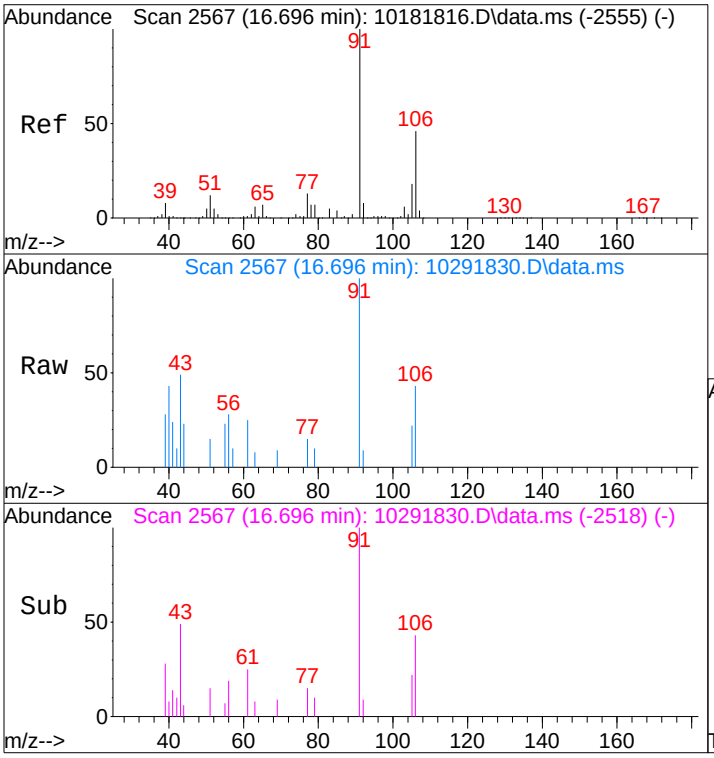


#67
m- & p-Xylenes
Concen: 0.11 ng
RT: 16.19 min Scan# 2469
Delta R.T. -0.020 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 91 Resp: 7196

Ion	Ratio	Lower	Upper
91	100		
106	43.7	26.7	66.7

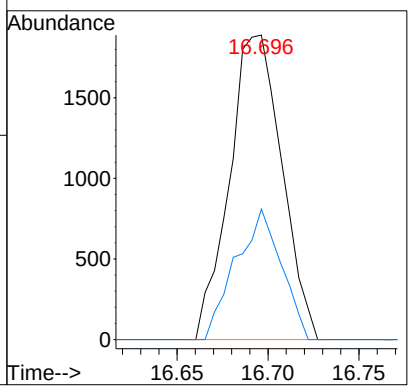


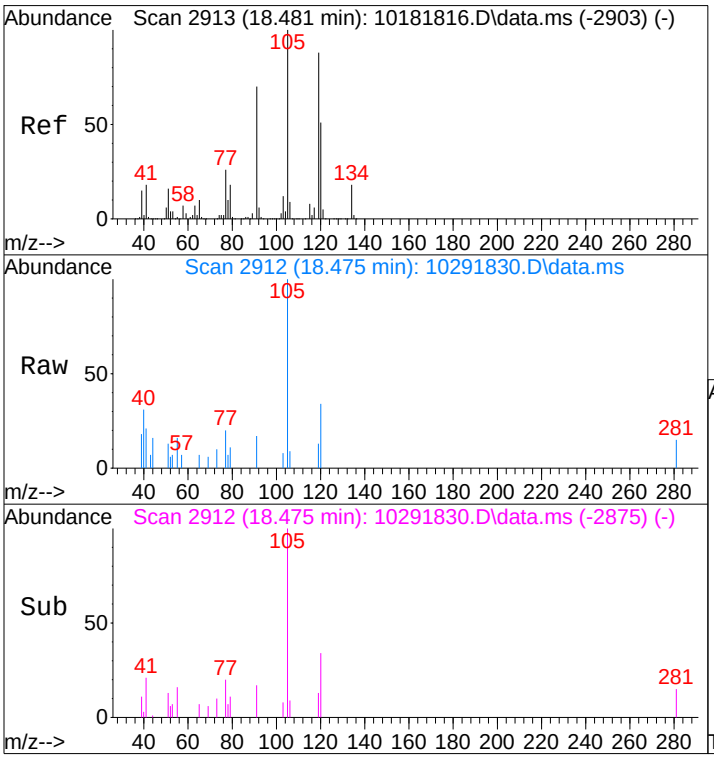


#70
o-Xylene
Concen: 0.06 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.001 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion: 91 Resp: 3785

Ion	Ratio	Lower	Upper
91	100		
106	37.1	25.2	65.2

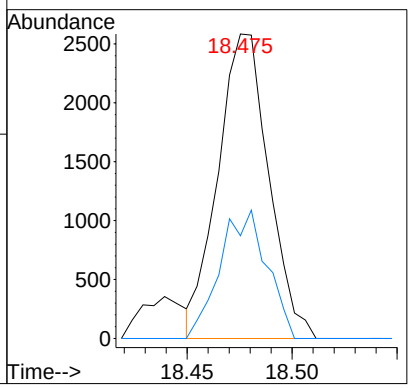


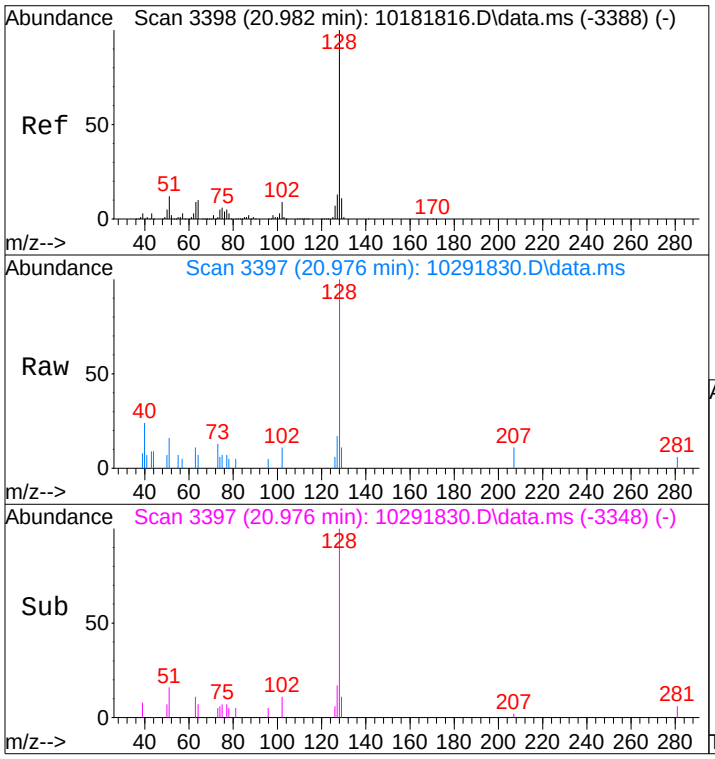


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:105 Resp: 4351

Ion	Ratio	Lower	Upper
105	100		
120	38.8	31.3	71.3

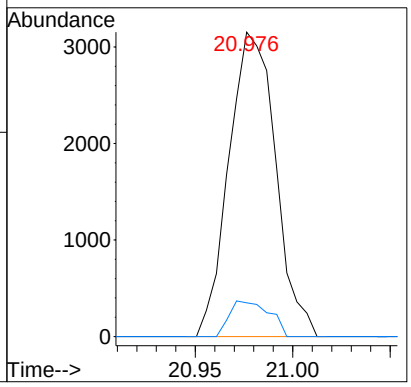




#95
Naphthalene
Concen: 0.08 ng
RT: 20.98 min Scan# 3397
Delta R.T. 0.003 min
Lab File: 10291830.D
Acq: 29 Oct 2018 21:52

Tgt Ion:128 Resp: 5254

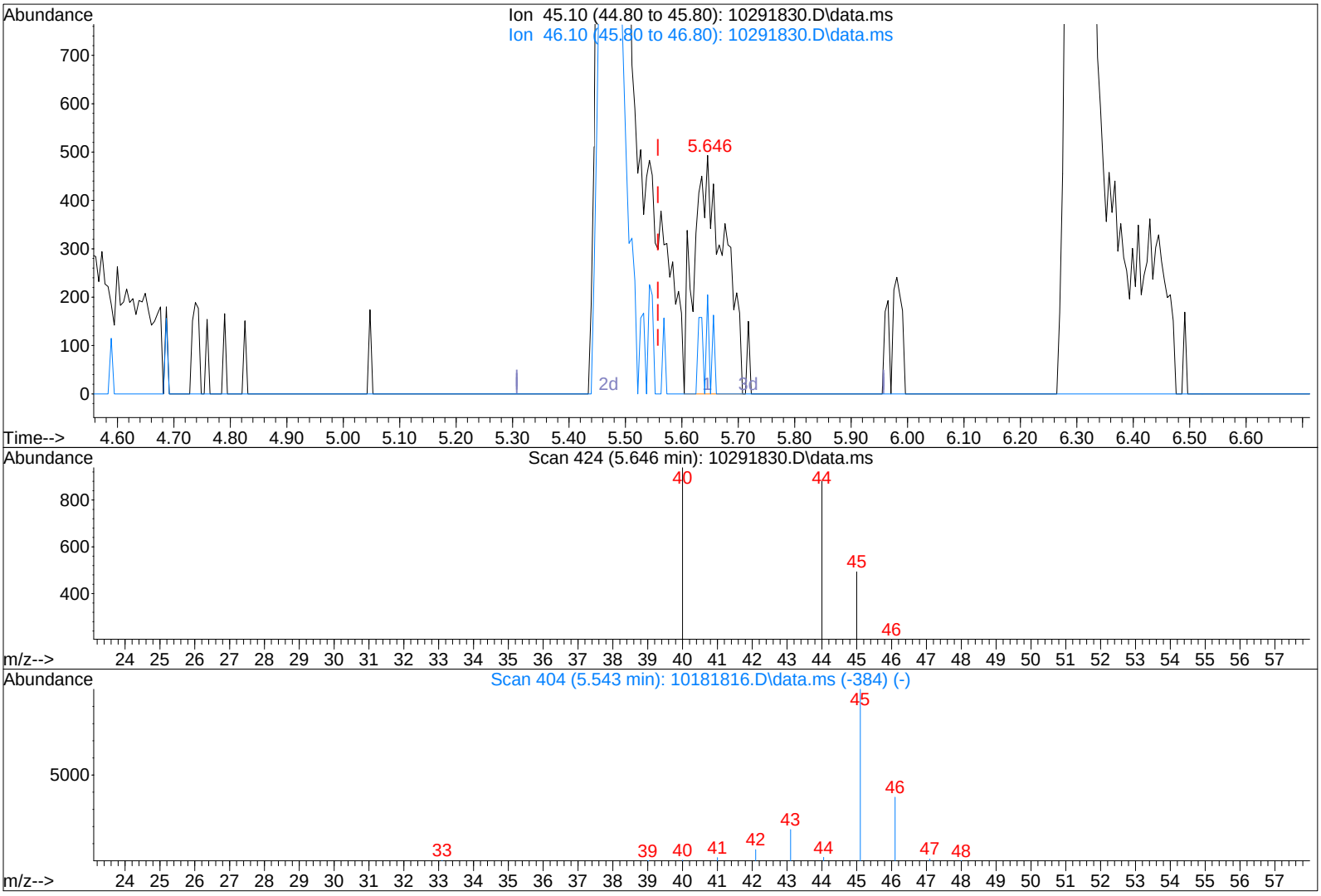
Ion	Ratio	Lower	Upper
128	100		
129	10.0	0.0	31.0



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:46:57 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291830.D\data.ms

(10) Ethanol (T)

5.646min (+0.088) 0.11ng

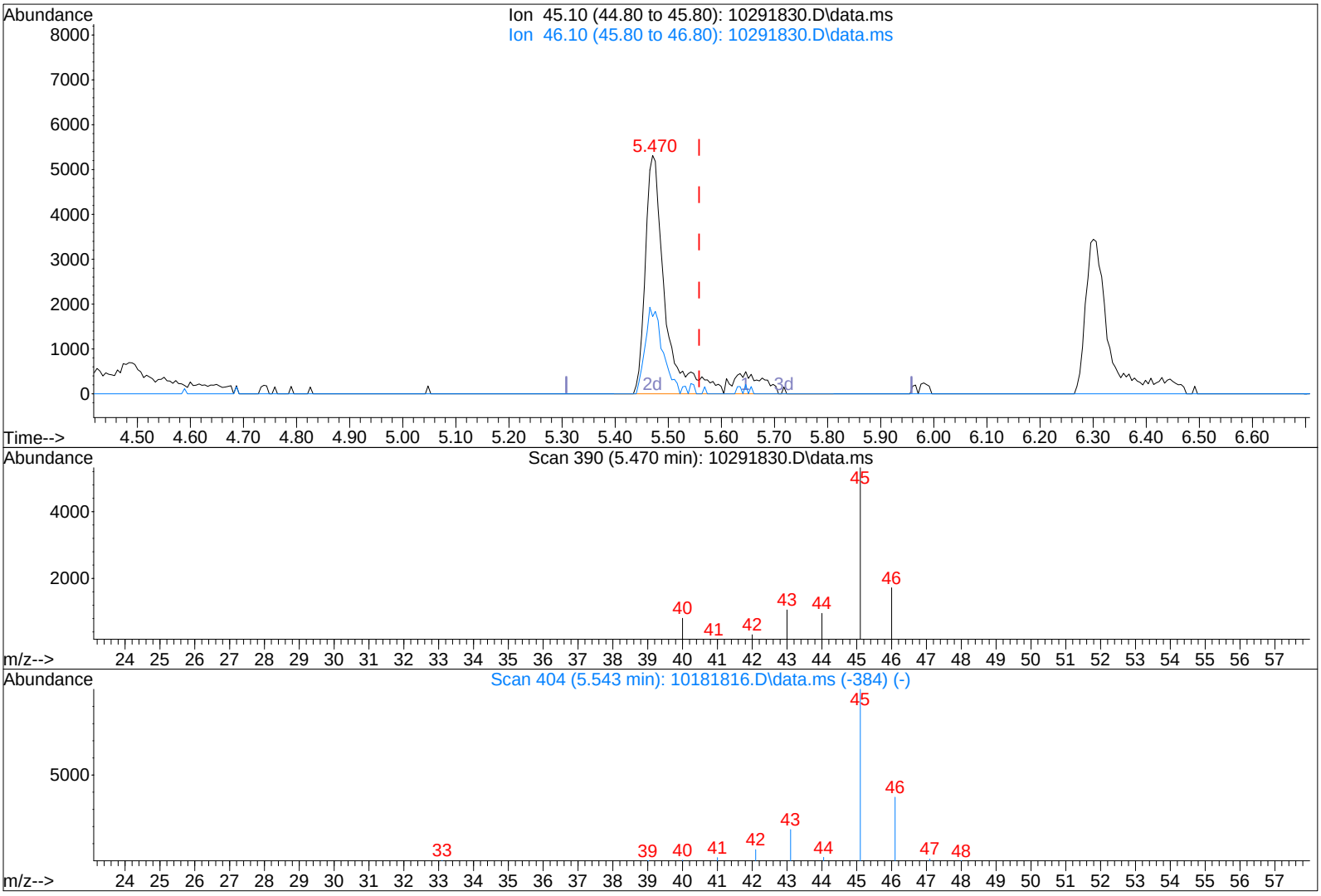
response 1841

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	6.19#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:46:57 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291830.D\data.ms

(10) Ethanol (T)

5.470min (-0.087) 0.96ng m

response 15561

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	0.73#
0.00	0.00	0.00
0.00	0.00	0.00

SP

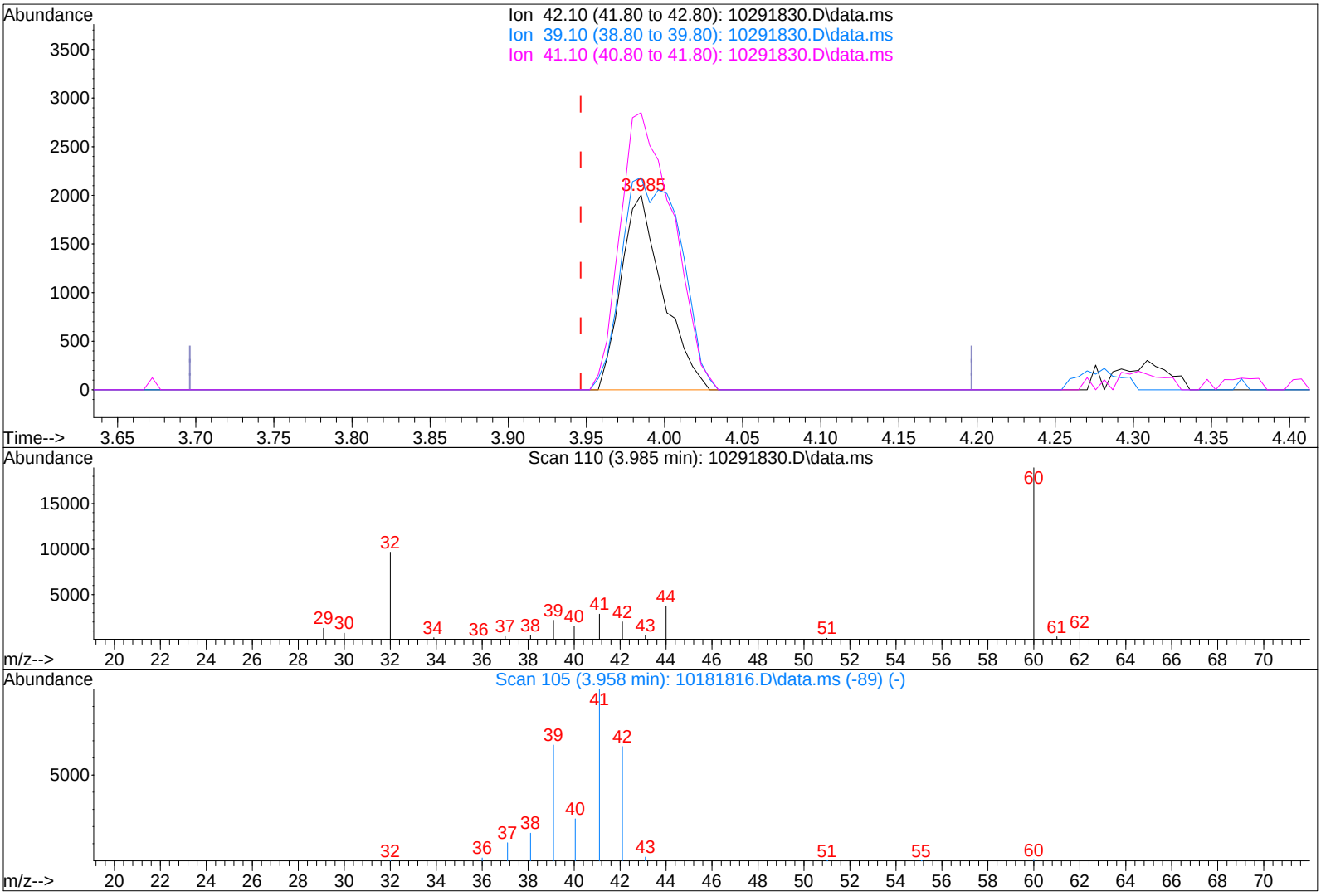
RS 10/30/18

10/30/18

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:46:57 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291830.D\data.ms

(2) Propene (T)

3.985min (+0.039) 0.12ng

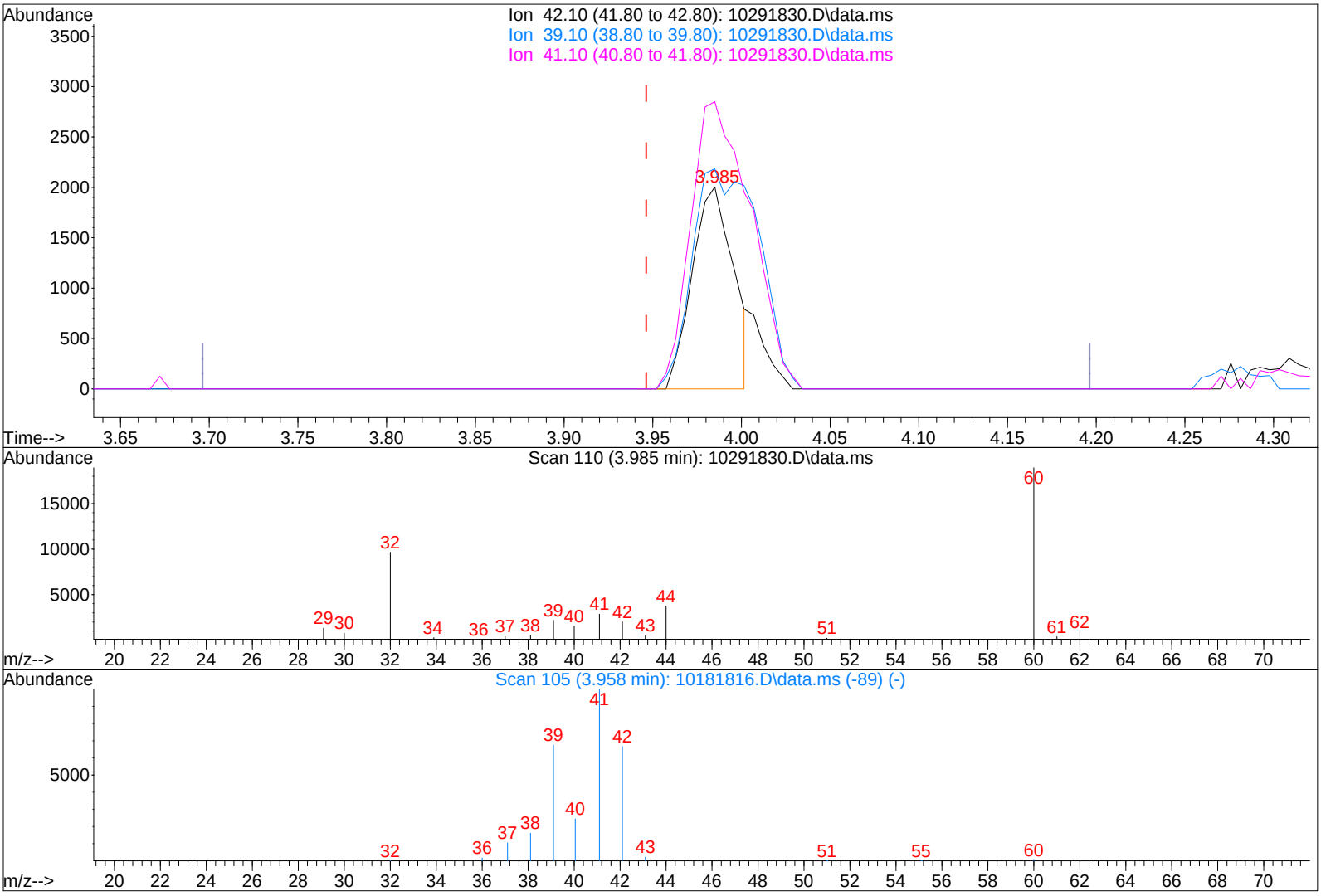
response 3735

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	154.32#
41.10	150.40	180.27#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:46:57 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291830.D\data.ms

(2) Propene (T)

3.985min (+0.039) 0.11ng m

response 3234

Ion	Exp%	Act%
42.10	100	100
39.10	101.90	92.21
41.10	150.40	166.98
0.00	0.00	0.00

IPC

RS 10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:11:11 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

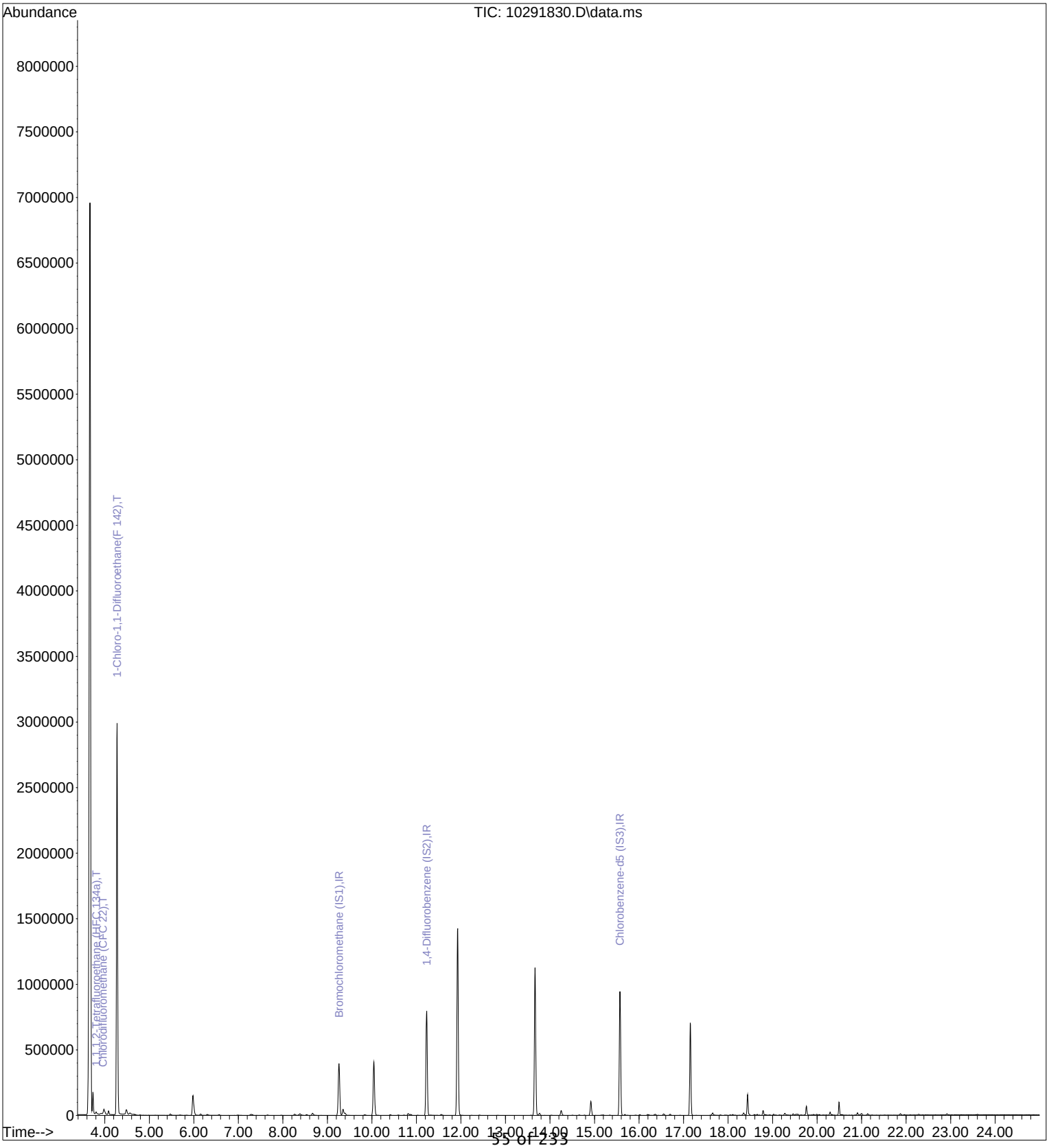
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	118371	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	609167	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	390618	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	252	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	4776	0.391	ng	#	8
4) 1,1-Difluoroethane	3.90	65	589	N.D.			
5) Chlorodifluoromethane ...	3.96	67	963	0.242	ng	#	58
6) 1-Chloro-1,1-Difluoroe...	4.28	65	2664800	100.720	ng		97
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	1374	N.D.			
12) 2-Methylpentane	0.00	71	0	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	10.86	84	165	N.D.			
17) 2,3-Dimethylpentane	0.00	56	0	N.D.			
18) Dibromomethane	11.64	174	50	N.D.			
20) Methyl Cyclohexane	0.00	55	0	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	1219	N.D.			
27) 4-Chlorotoluene	17.82	91	1219	N.D.			
28) Indane	19.13	117	132	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	57	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	109	N.D.			
32) 1,2,3,5-Tetramethylben...	20.59	119	156	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291830.D Vial: 11
Acq On : 29 Oct 2018 21:52 Operator: RS
Sample : P1805559-001 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:11:11 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 08:51:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	115621	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	599789	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	387382	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	329051	16.410	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 131.28%#				
57) Toluene-d8 (SS2)	13.66	98	804187	11.883	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.04%				
73) Bromofluorobenzene (SS3)	17.16	174	155794	10.232	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.84%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.07	85	22471	0.714	ng		100
4) Chloromethane	4.29	50	1005	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	329	N.D.			
6) Vinyl Chloride	4.64	62	117	N.D.			
7) 1,3-Butadiene	4.74	54	558	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	17400m	1.102	ng		
11) Acetonitrile	5.66	41	3217	0.075	ng		93
12) Acrolein	5.83	56	1499	0.123	ng		97
13) Acetone	5.98	58	120283	7.371	ng	#	16
14) Trichlorofluoromethane	6.15	101	9802	0.435	ng		95
15) 2-Propanol (Isopropanol)	6.30	45	9866	0.194	ng	#	28
16) Acrylonitrile	6.55	53	1079	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	6.99	84	416	N.D.			
20) 3-Chloro-1-propene (Al...	7.13	41	233	N.D.			
21) Trichlorotrifluoroethane	7.32	151	1168	0.130	ng	#	77
22) Carbon Disulfide	7.28	76	16832	0.275	ng		98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.38	86	2076	0.772	ng	#	1
27) 2-Butanone (MEK)	8.67	72	4331	0.340	ng	#	45
28) cis-1,2-Dichloroethene	9.11	61	238	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.35	61	7614	1.130	ng		98
31) n-Hexane	9.34	57	5975	0.193	ng		88
32) Chloroform	9.40	83	36102	1.323	ng		99
34) Tetrahydrofuran (THF)	9.81	72	26143	2.137	ng	#	88
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	0.00	56	0	N.D.	d		
41) Benzene	10.88	78	15053	0.206	ng		97
42) Carbon Tetrachloride	11.02	117	610	N.D.			
43) Cyclohexane	11.16	84	13402	0.516	ng		92
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	11.61	63	590	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	290842	20.227	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.98	57	1255	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:51:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

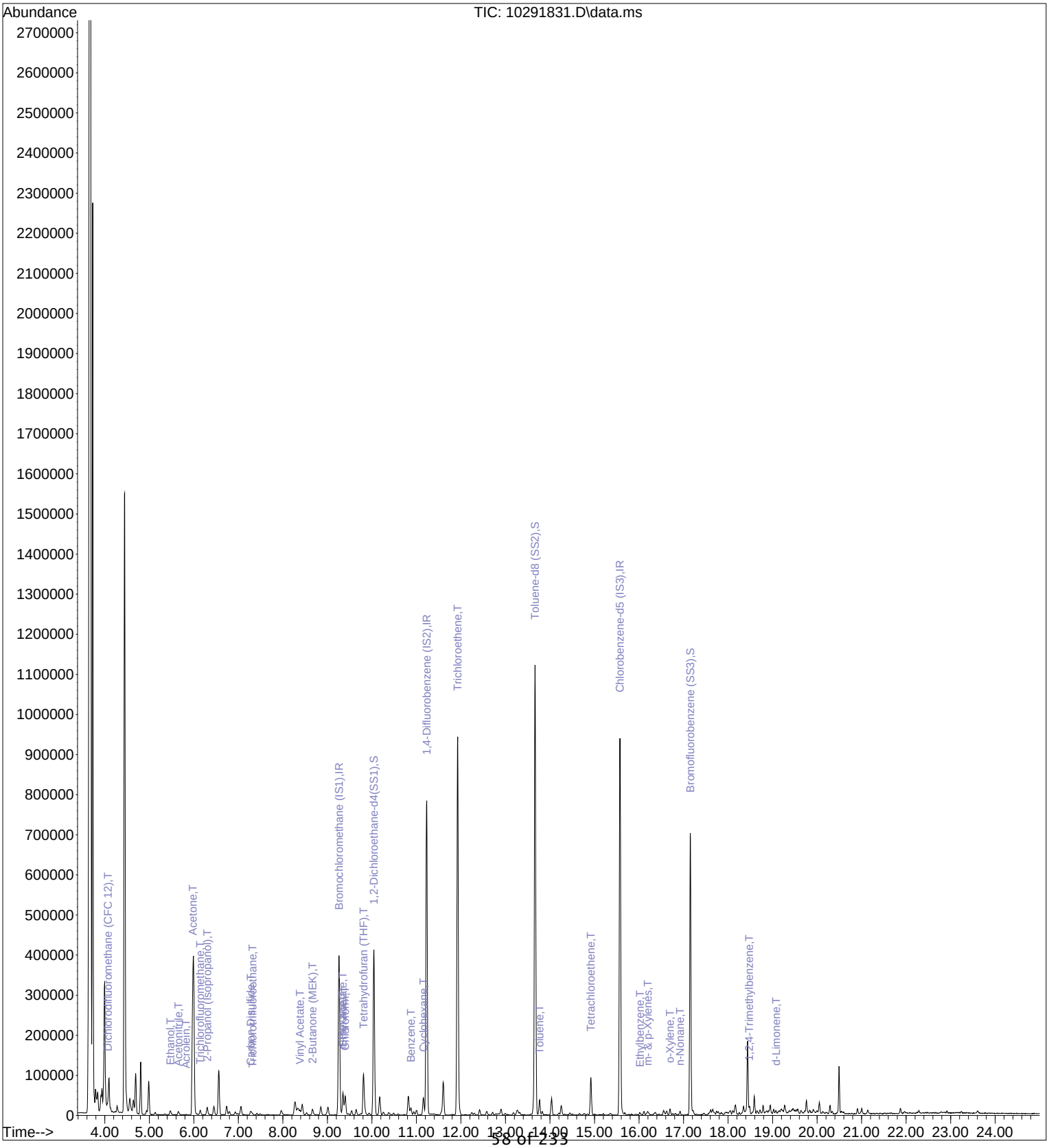
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.24	71	628	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.83	58	460	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	28852	0.381 ng	98
59) 2-Hexanone	14.03	43	1633	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.65	43	2038	N.D.	
63) n-Octane	14.78	57	619	N.D.	
64) Tetrachloroethene	14.92	166	25404	1.626 ng	98
65) Chlorobenzene	15.62	112	160	N.D.	
66) Ethylbenzene	16.02	91	5719	0.069 ng	91
67) m- & p-Xylenes	16.20	91	8153	0.128 ng	90
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1342	N.D.	
70) o-Xylene	16.70	91	4790	0.077 ng	95
71) n-Nonane	16.92	43	4919	0.113 ng	84
72) 1,1,2,2-Tetrachloroethane	16.62	83	680	N.D.	
74) Cumene	17.30	105	248	N.D.	
75) alpha-Pinene	17.71	93	888	N.D.	
76) n-Propylbenzene	17.82	91	1351	N.D.	
77) 3-Ethyltoluene	17.93	105	1861	N.D.	
78) 4-Ethyltoluene	17.98	105	977	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	892	N.D.	
80) alpha-Methylstyrene	18.21	118	257	N.D.	
81) 2-Ethyltoluene	18.25	105	1026	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3307	0.056 ng	87
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.61	91	278	N.D.	
85) 1,3-Dichlorobenzene	18.70	146	213	N.D.	
86) 1,4-Dichlorobenzene	18.70	146	213	N.D.	
87) sec-Butylbenzene	18.92	105	761	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	566	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	761	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.08	68	1527	0.050 ng	75
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	20.86	180	120	N.D.	
95) Naphthalene	20.98	128	2789	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	343	N.D.	
100) n-Butylbenzene	19.37	91	1031	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:51:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 08:51:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

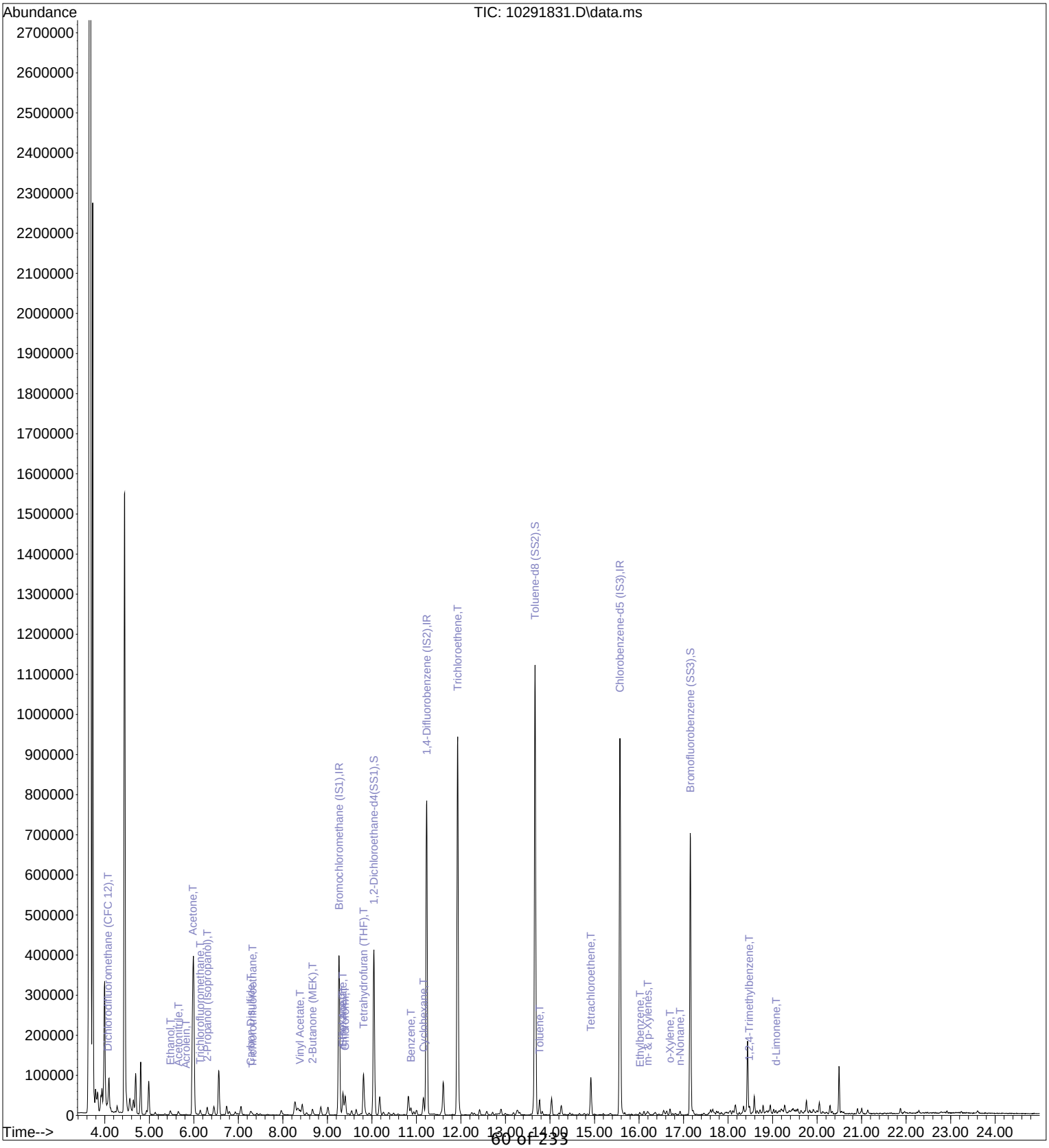
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	115621	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	599789	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	387382	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	329051	16.410	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 131.28%#				
57) Toluene-d8 (SS2)	13.66	98	804187	11.883	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.04%				
73) Bromofluorobenzene (SS3)	17.16	174	155794	10.232	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.84%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.07	85	22471	0.714	ng		100
10) Ethanol	5.48	45	17400m	1.102	ng		
11) Acetonitrile	5.66	41	3217	0.075	ng		93
12) Acrolein	5.83	56	1499	0.123	ng		97
13) Acetone	5.98	58	120283	7.371	ng	#	16
14) Trichlorofluoromethane	6.15	101	9802	0.435	ng		95
15) 2-Propanol (Isopropanol)	6.30	45	9866	0.194	ng	#	28
21) Trichlorotrifluoroethane	7.32	151	1168	0.130	ng	#	77
22) Carbon Disulfide	7.28	76	16832	0.275	ng		98
26) Vinyl Acetate	8.38	86	2076	0.772	ng	#	1
27) 2-Butanone (MEK)	8.67	72	4331	0.340	ng	#	45
30) Ethyl Acetate	9.35	61	7614	1.130	ng		98
31) n-Hexane	9.34	57	5975	0.193	ng		88
32) Chloroform	9.40	83	36102	1.323	ng		99
34) Tetrahydrofuran (THF)	9.81	72	26143	2.137	ng	#	88
41) Benzene	10.88	78	15053	0.206	ng		97
43) Cyclohexane	11.16	84	13402	0.516	ng		92
47) Trichloroethene	11.93	130	290842	20.227	ng		99
58) Toluene	13.77	91	28852	0.381	ng		98
64) Tetrachloroethene	14.92	166	25404	1.626	ng		98
66) Ethylbenzene	16.02	91	5719	0.069	ng		91
67) m- & p-Xylenes	16.20	91	8153	0.128	ng		90
70) o-Xylene	16.70	91	4790	0.077	ng		95
71) n-Nonane	16.92	43	4919	0.113	ng		84
82) 1,2,4-Trimethylbenzene	18.48	105	3307	0.056	ng		87
91) d-Limonene	19.08	68	1527	0.050	ng		75

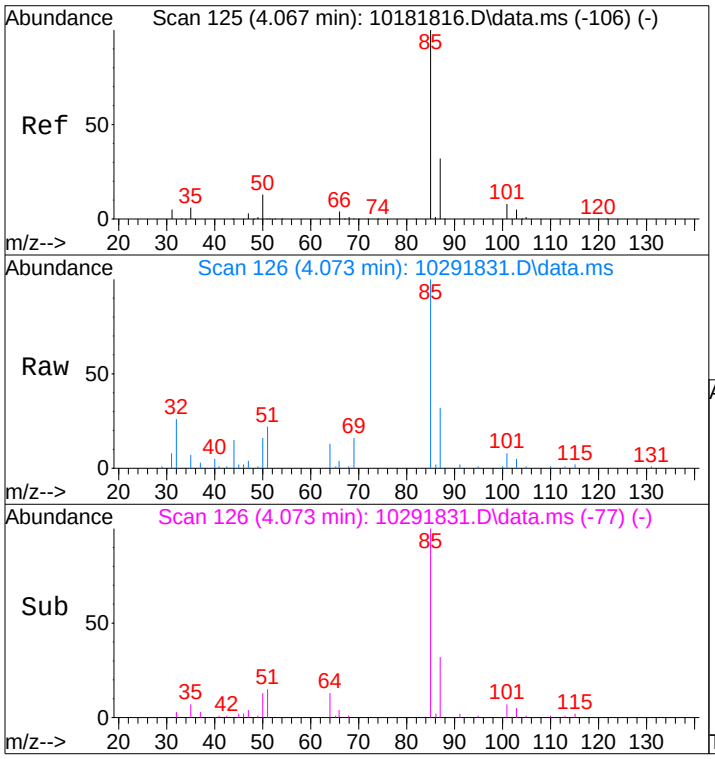
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:51:13 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

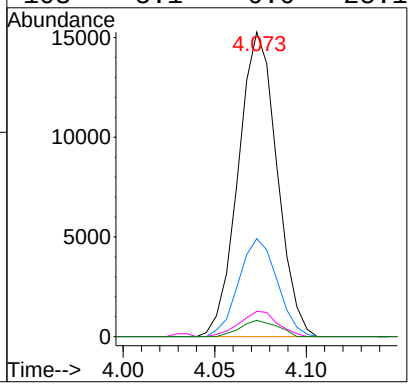


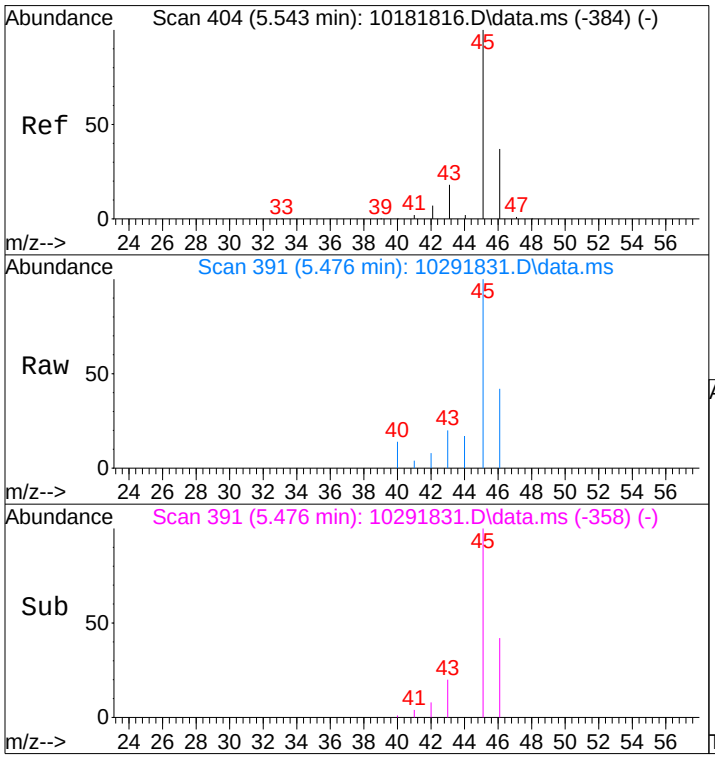


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.71 ng
RT: 4.07 min Scan# 126
Delta R.T. 0.017 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 85 Resp: 22471

Ion	Ratio	Lower	Upper
85	100		
87	32.0	12.0	52.0
101	8.2	0.0	28.0
103	5.1	0.0	25.1

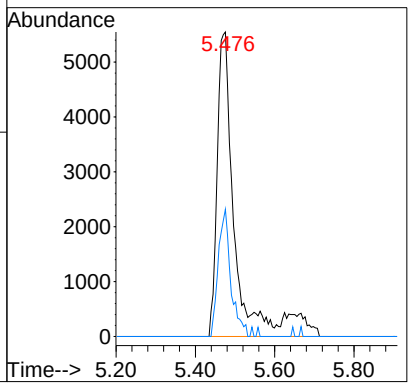


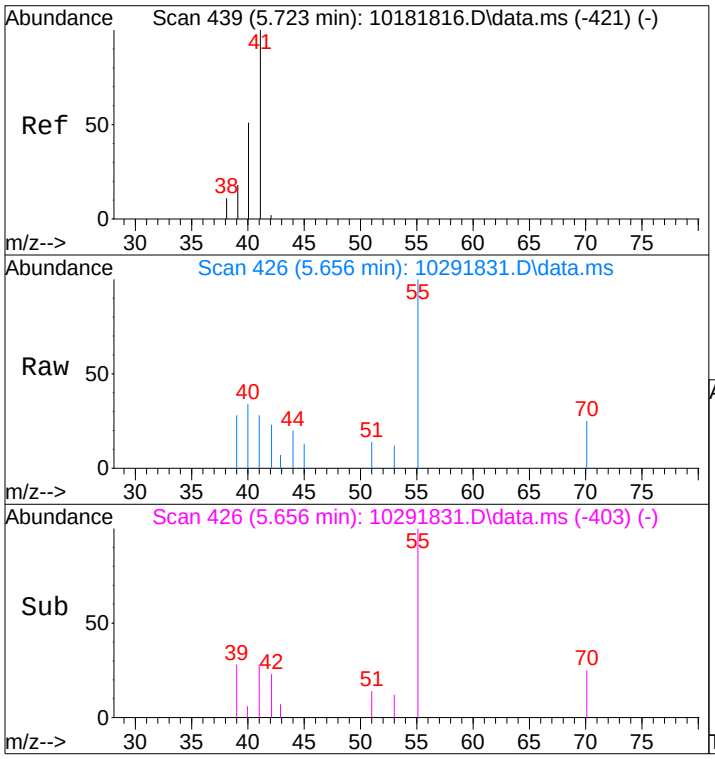


#10
Ethanol
Concen: 1.10 ng m
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 45 Resp: 17400

Ion	Ratio	Lower	Upper
45	100		
46	0.3	17.0	57.0#

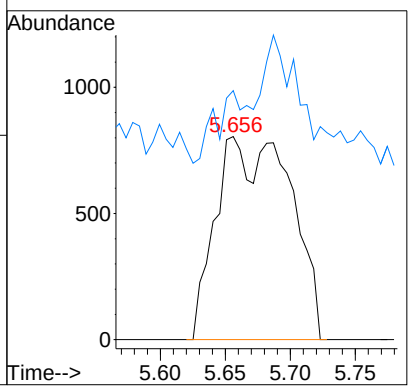


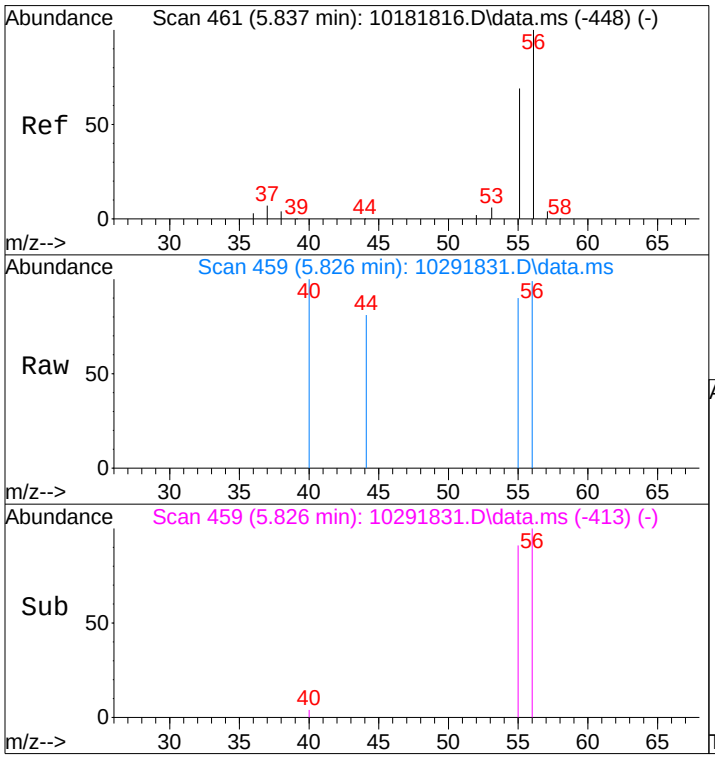


#11
Acetonitrile
Concen: 0.08 ng
RT: 5.66 min Scan# 426
Delta R.T. -0.081 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 41 Resp: 3217

Ion	Ratio	Lower	Upper
41	100		
40	56.1	31.4	71.4

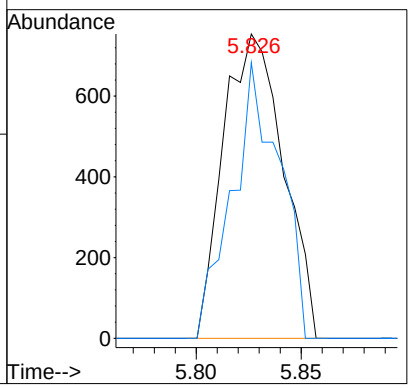


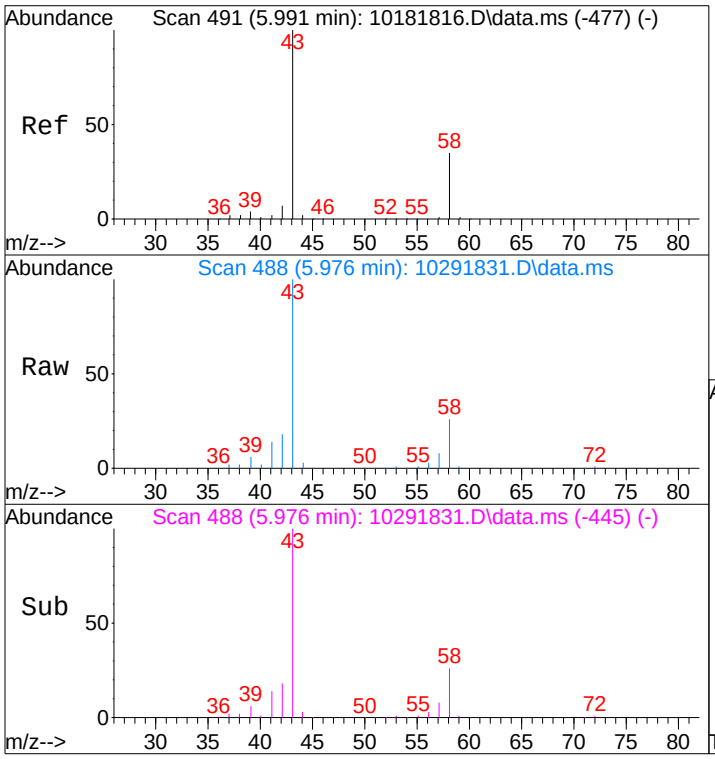


#12
Acrolein
Concen: 0.12 ng
RT: 5.83 min Scan# 459
Delta R.T. -0.013 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 56 Resp: 1499

Ion	Ratio	Lower	Upper
56	100		
55	71.9	49.3	89.3

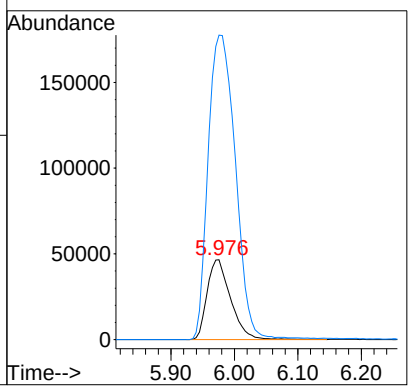


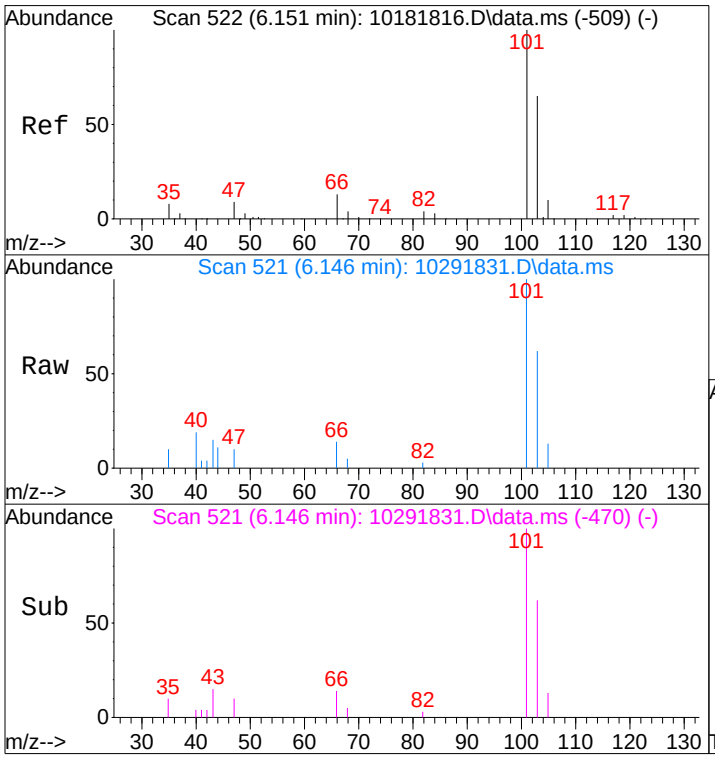


#13
Acetone
Concen: 7.37 ng
RT: 5.98 min Scan# 488
Delta R.T. -0.028 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 58 Resp: 120283

Ion	Ratio	Lower	Upper
58	100		
43	443.6	254.3	314.3#

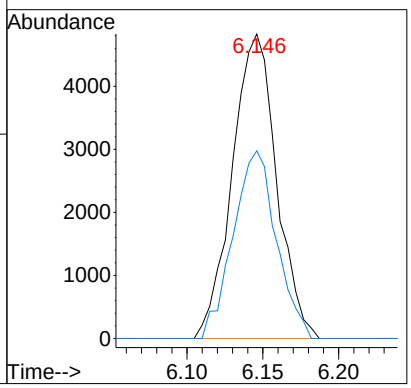


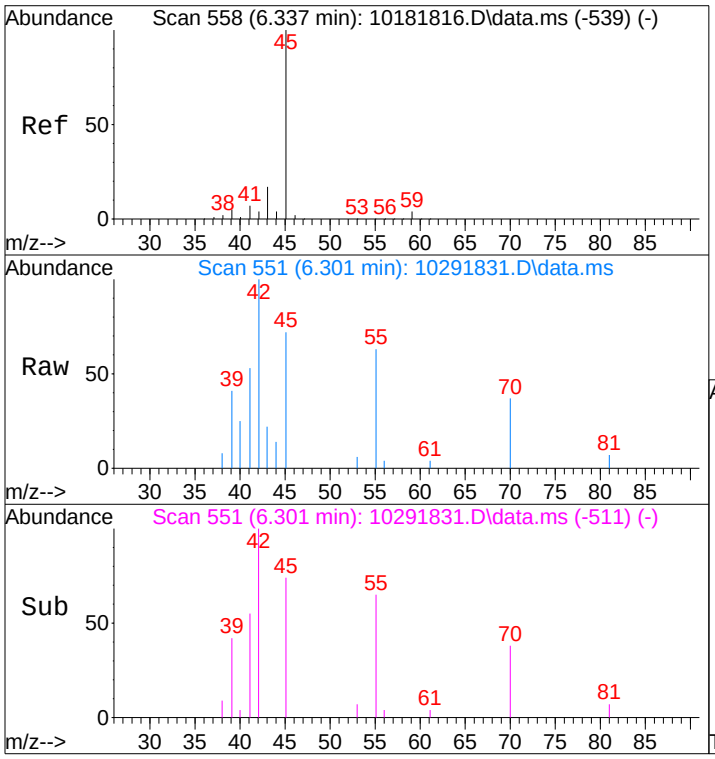


#14
Trichlorofluoromethane
Concen: 0.43 ng
RT: 6.15 min Scan# 521
Delta R.T. 0.014 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion:101 Resp: 9802

Ion	Ratio	Lower	Upper
101	100		
103	60.2	44.5	84.5

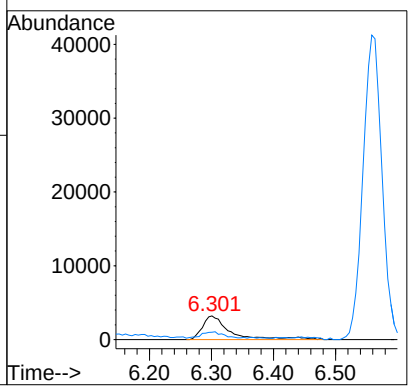


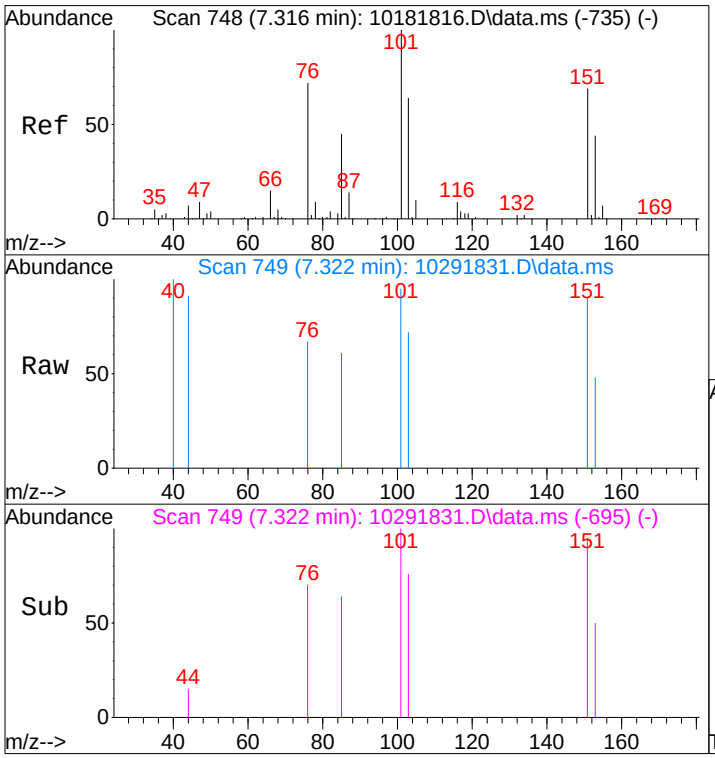


#15
2-Propanol (Isopropanol)
Concen: 0.19 ng
RT: 6.30 min Scan# 551
Delta R.T. -0.042 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 45 Resp: 9866

Ion	Ratio	Lower	Upper
45	100		
43	47.9	0.0	36.7#

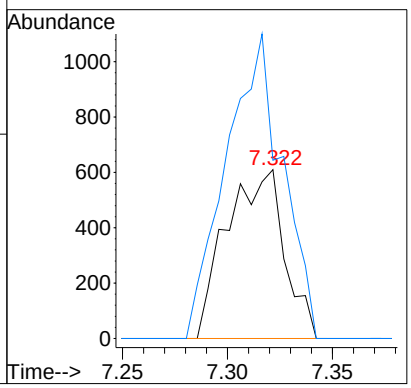


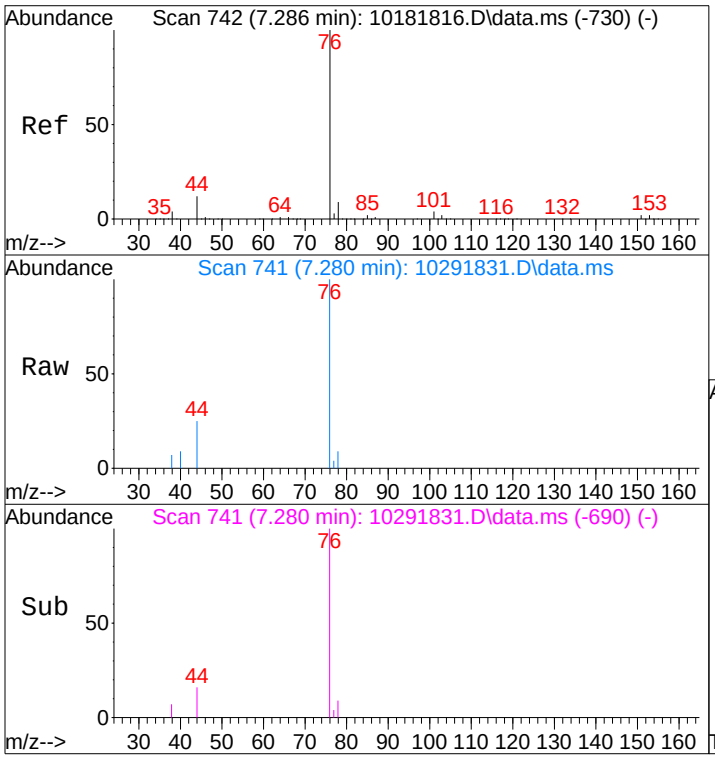


#21
Trichlorotrifluoroethane
Concen: 0.13 ng
RT: 7.32 min Scan# 749
Delta R.T. 0.031 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion:151 Resp: 1168

Ion	Ratio	Lower	Upper
151	100		
101	175.8	127.5	167.5#

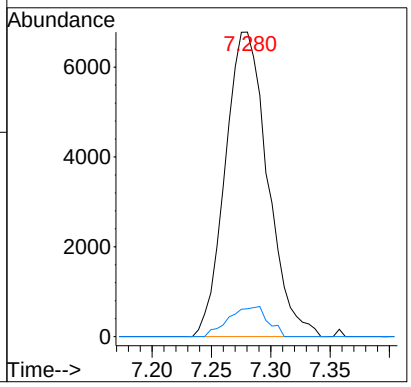


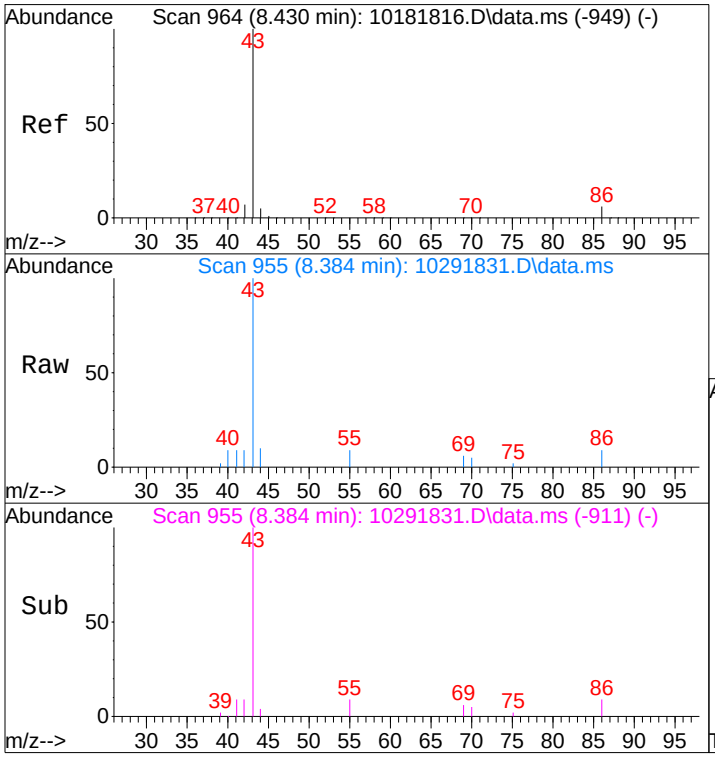


#22
Carbon Disulfide
Concen: 0.27 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 76 Resp: 16832

Ion	Ratio	Lower	Upper
76	100		
78	9.0	0.0	29.6

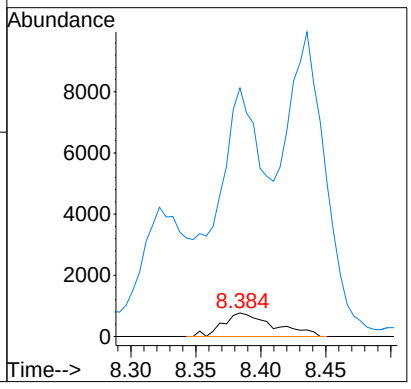


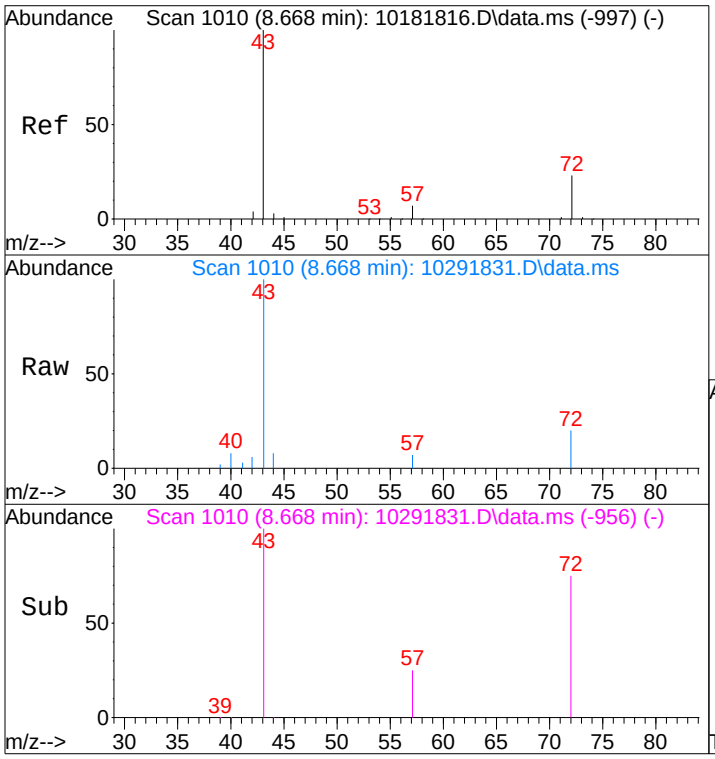


#26
Vinyl Acetate
Concen: 0.77 ng
RT: 8.38 min Scan# 955
Delta R.T. -0.025 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 86 Resp: 2076

Ion	Ratio	Lower	Upper
86	100		
43	885.4	1596.2	1636.2#

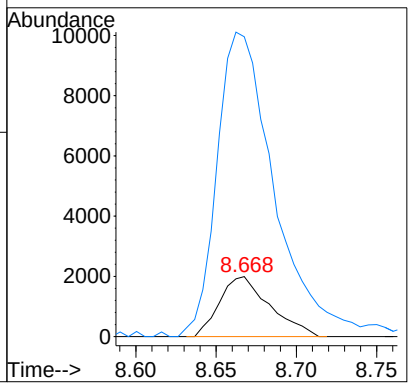


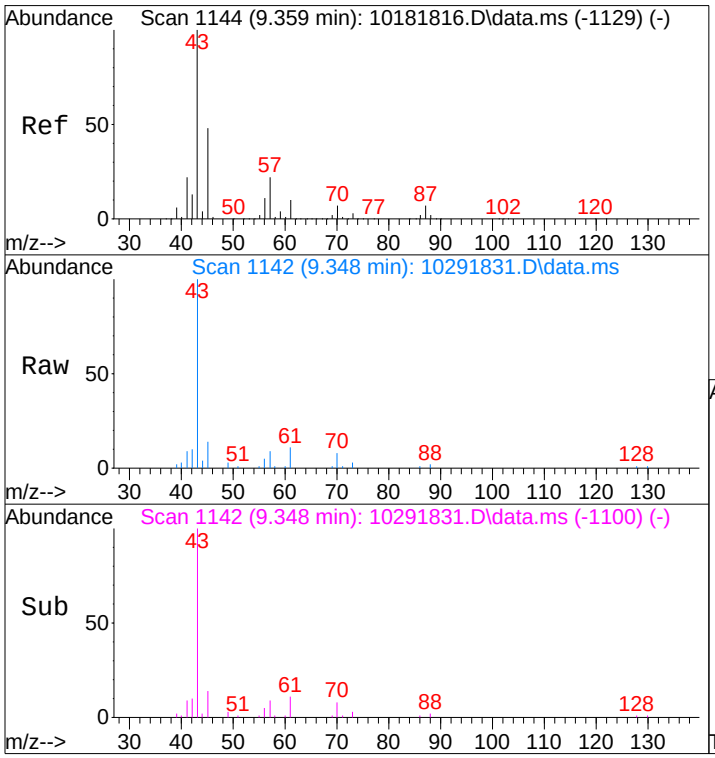


#27
2-Butanone (MEK)
Concen: 0.34 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 72 Resp: 4331

Ion	Ratio	Lower	Upper
72	100		
43	590.5	430.0	470.0#

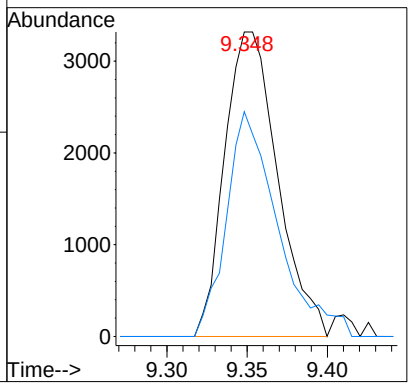


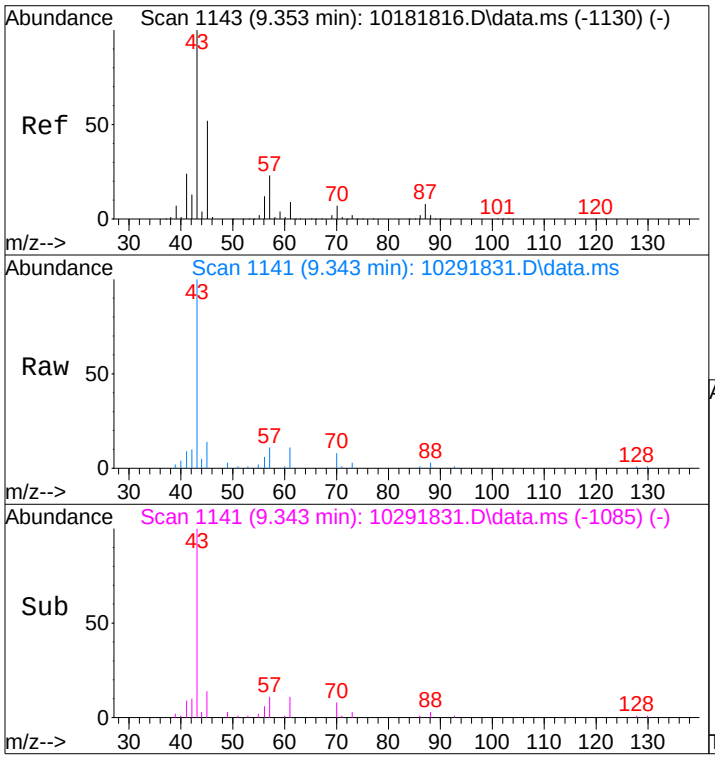


#30
Ethyl Acetate
Concen: 1.13 ng
RT: 9.35 min Scan# 1142
Delta R.T. 0.016 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 61 Resp: 7614

Ion	Ratio	Lower	Upper
61	100		
70	71.4	52.7	92.7

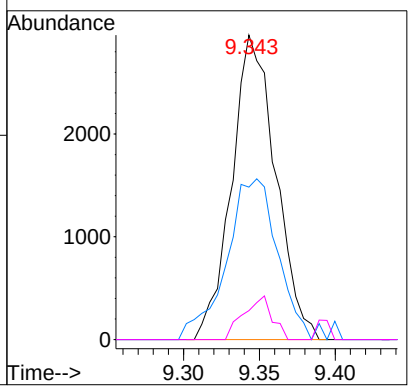


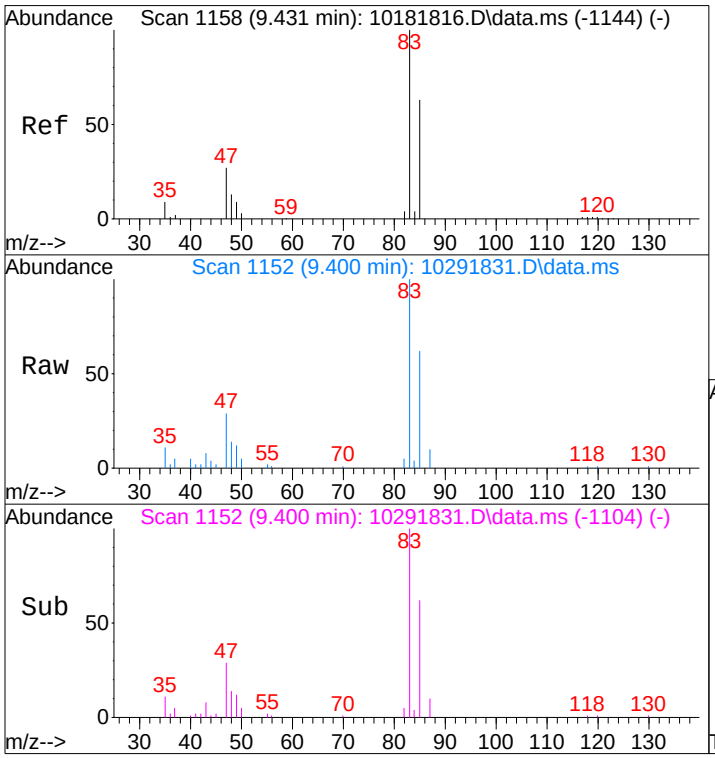


#31
n-Hexane
Concen: 0.19 ng
RT: 9.34 min Scan# 1141
Delta R.T. 0.037 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 57 Resp: 5975

Ion	Ratio	Lower	Upper
57	100		
56	61.1	41.3	61.9
86	9.3	8.6	13.0

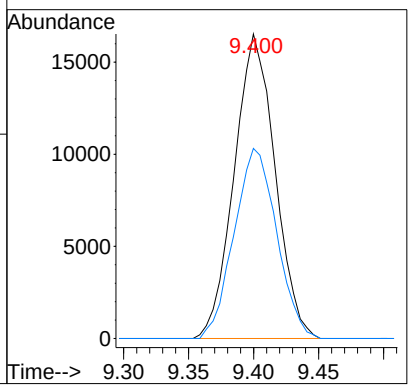


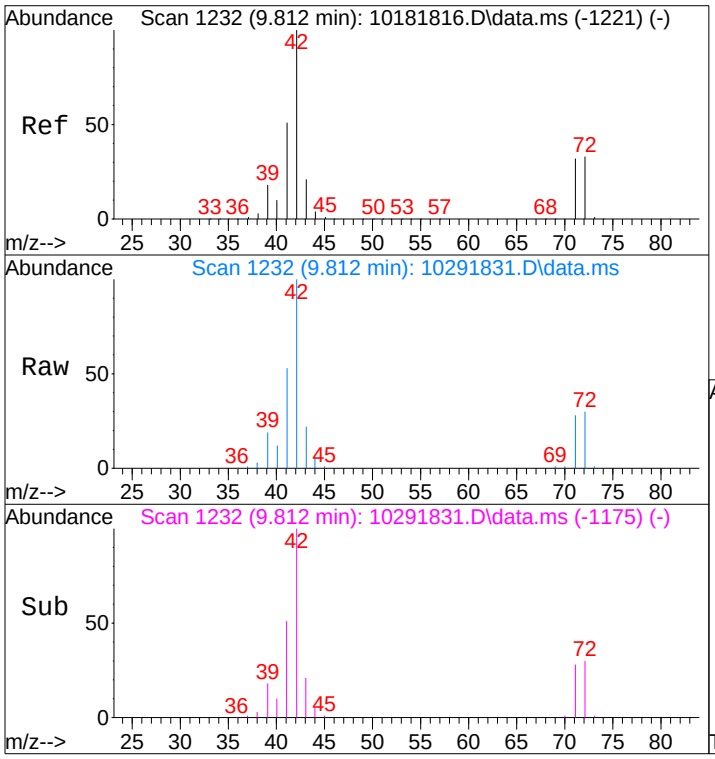


#32
Chloroform
Concen: 1.32 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 83 Resp: 36102

Ion	Ratio	Lower	Upper
83	100		
85	65.0	44.0	84.0

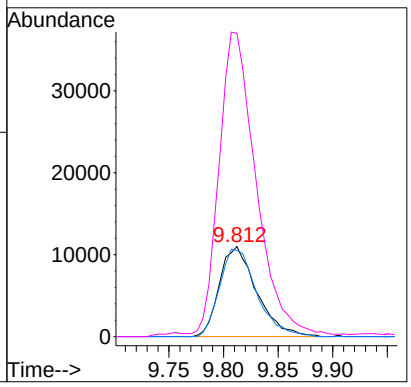


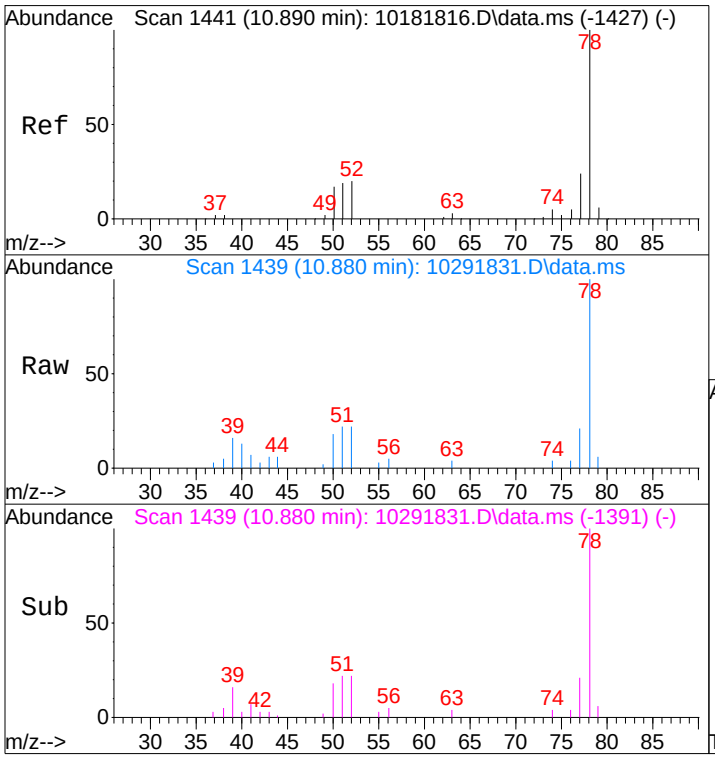


#34
Tetrahydrofuran (THF)
Concen: 2.14 ng
RT: 9.81 min Scan# 1232
Delta R.T. 0.044 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 72 Resp: 26143

Ion	Ratio	Lower	Upper
72	100		
71	97.1	76.7	116.7
42	339.1	287.9	327.9#

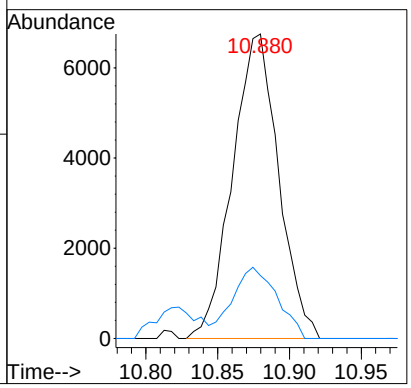


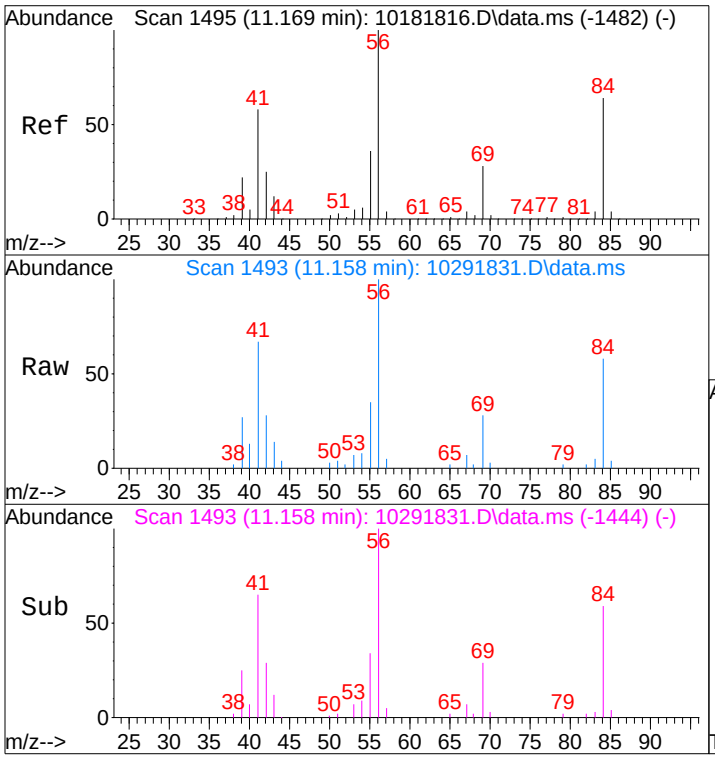


#41
Benzene
Concen: 0.21 ng
RT: 10.88 min Scan# 1439
Delta R.T. -0.001 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 78 Resp: 15053

Ion	Ratio	Lower	Upper
78	100		
77	22.7	4.1	44.1

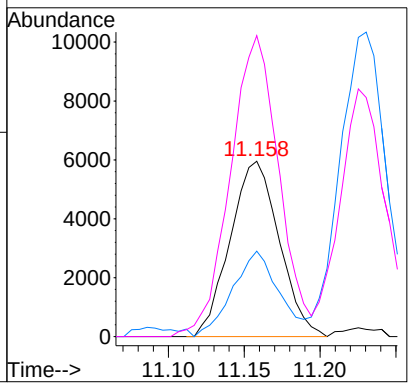


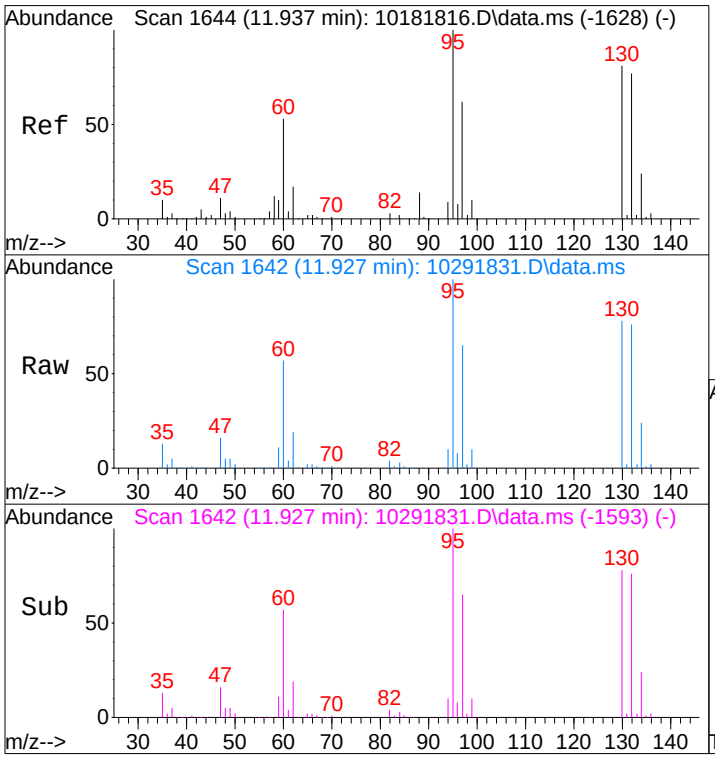


#43
Cyclohexane
Concen: 0.52 ng
RT: 11.16 min Scan# 1493
Delta R.T. 0.005 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 84 Resp: 13402

Ion	Ratio	Lower	Upper
84	100		
69	45.7	23.3	63.3
56	169.6	137.8	177.8

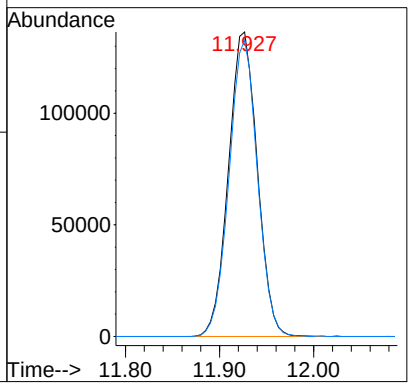


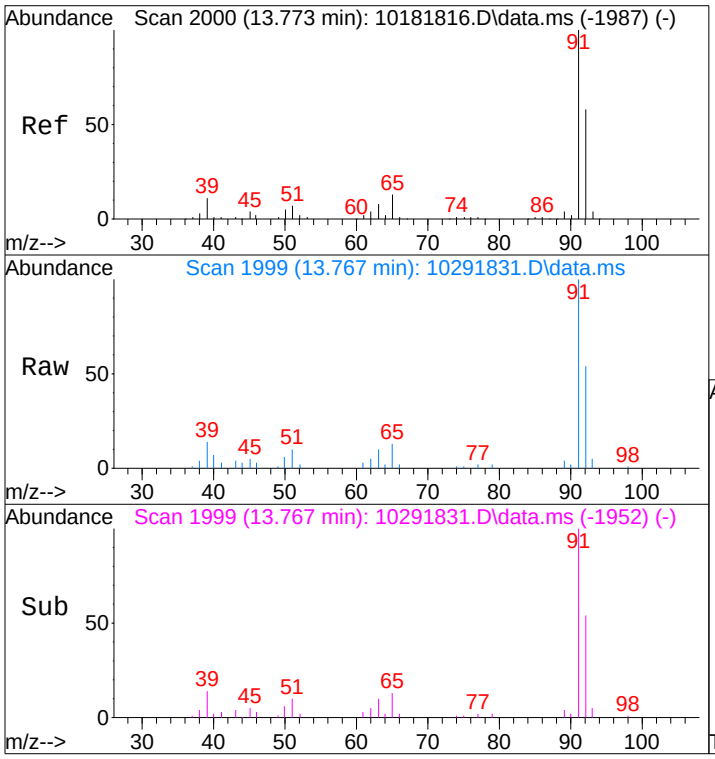


#47
Trichloroethene
Concen: 20.23 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion:130 Resp: 290842

Ion	Ratio	Lower	Upper
130	100		
132	95.5	74.6	114.6

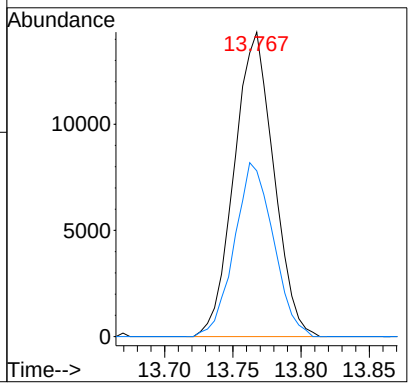


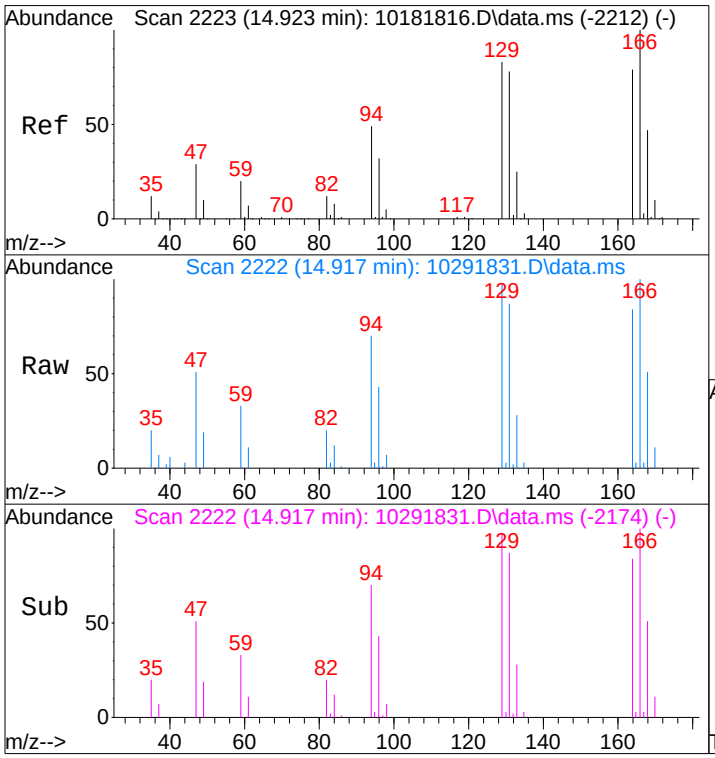


#58
Toluene
Concen: 0.38 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.006 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 91 Resp: 28852

Ion	Ratio	Lower	Upper
91	100		
92	56.5	38.1	78.1

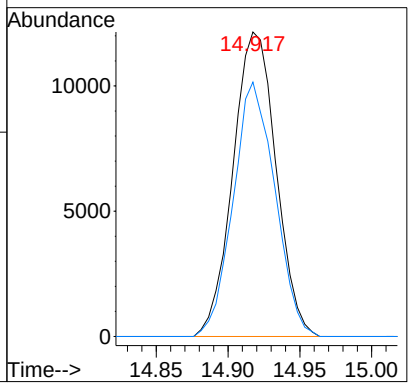


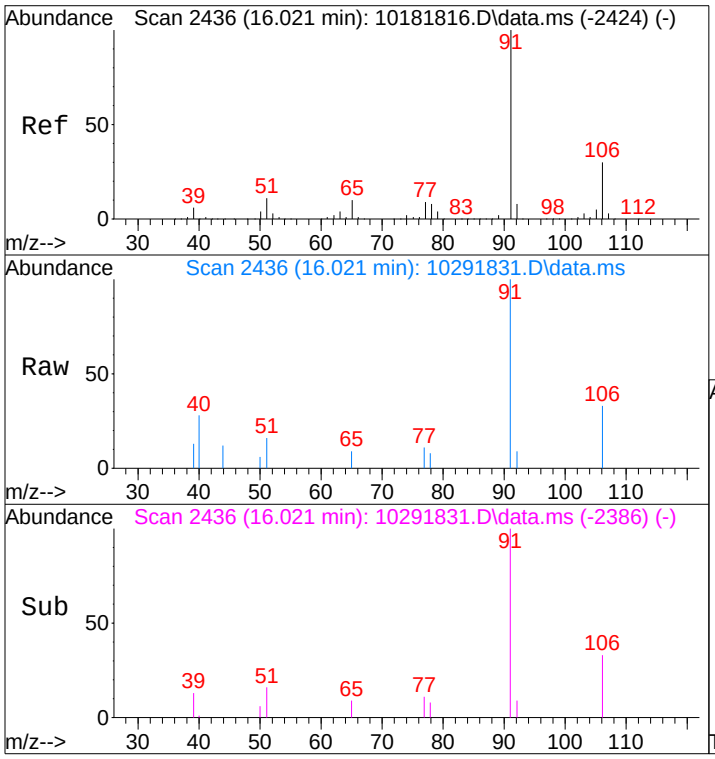


#64
Tetrachloroethene
Concen: 1.63 ng
RT: 14.92 min Scan# 2222
Delta R.T. -0.001 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion:166 Resp: 25404

Ion	Ratio	Lower	Upper
166	100		
164	81.0	58.9	98.9

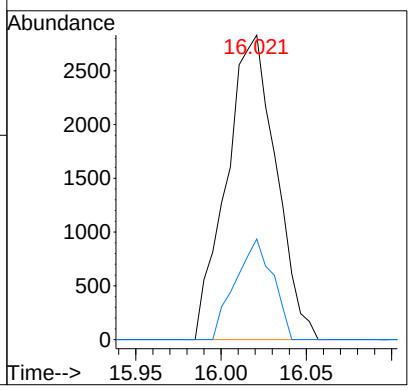


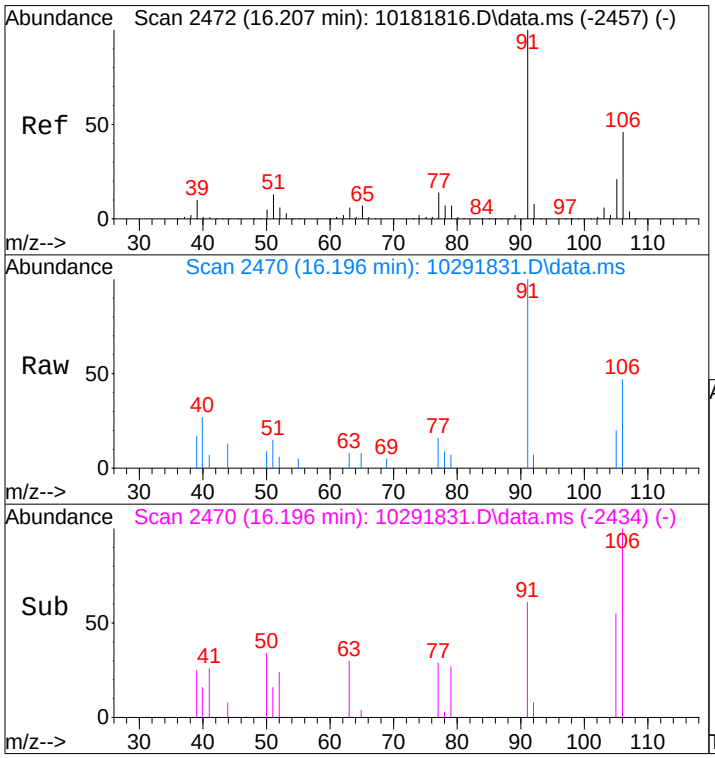


#66
Ethylbenzene
Concen: 0.07 ng
RT: 16.02 min Scan# 2436
Delta R.T. 0.005 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 91 Resp: 5719

Ion	Ratio	Lower	Upper
91	100		
106	25.1	9.9	49.9

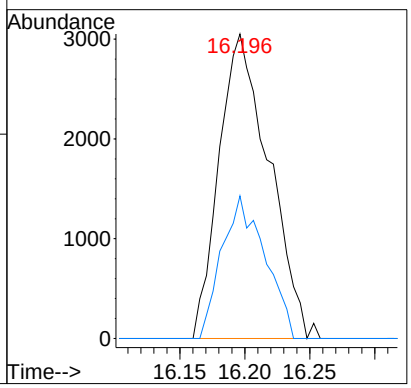


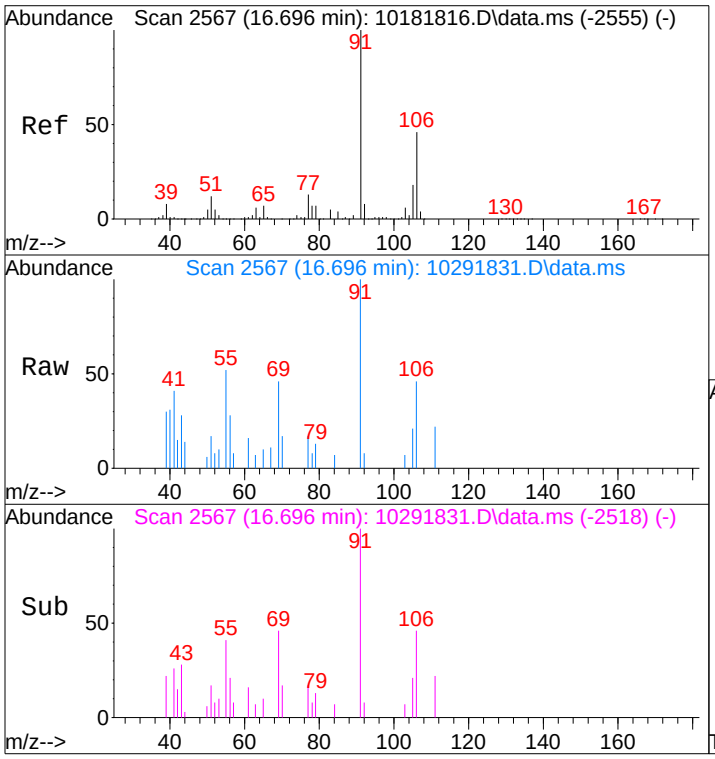


#67
m- & p-Xylenes
Concen: 0.13 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 91 Resp: 8153

Ion	Ratio	Lower	Upper
91	100		
106	40.3	26.7	66.7

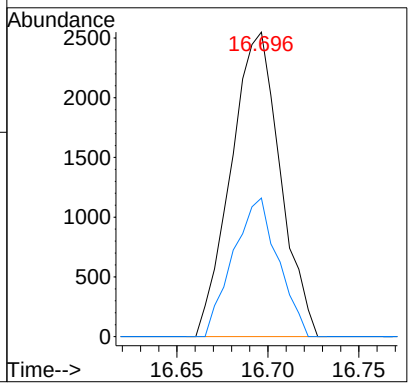


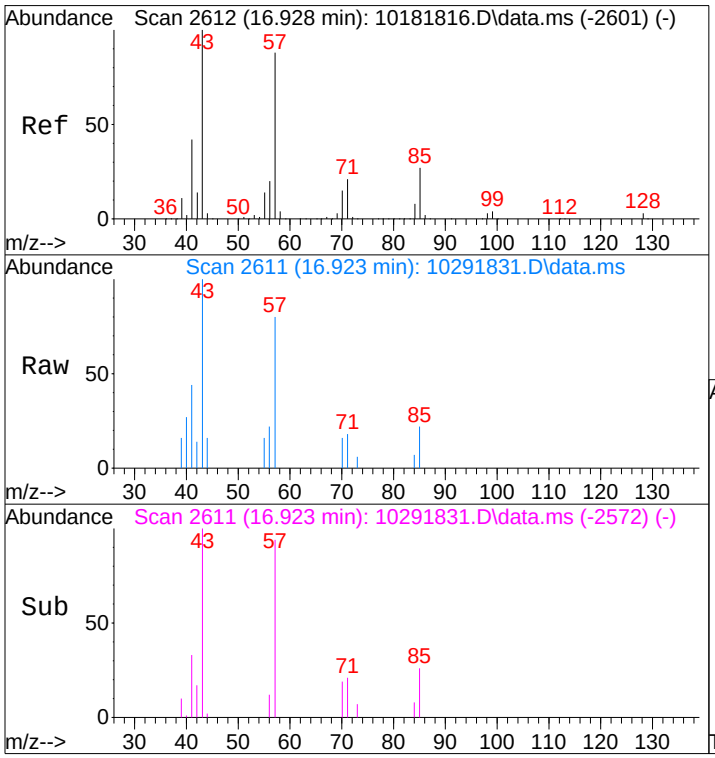


#70
o-Xylene
Concen: 0.08 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.001 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 91 Resp: 4790

Ion	Ratio	Lower	Upper
91	100		
106	41.7	25.2	65.2

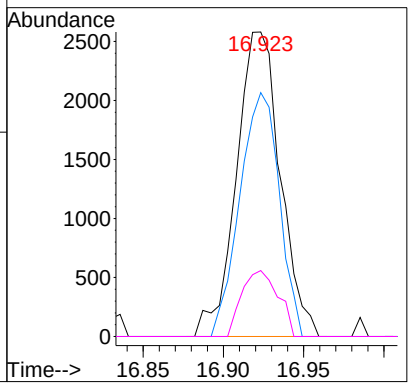


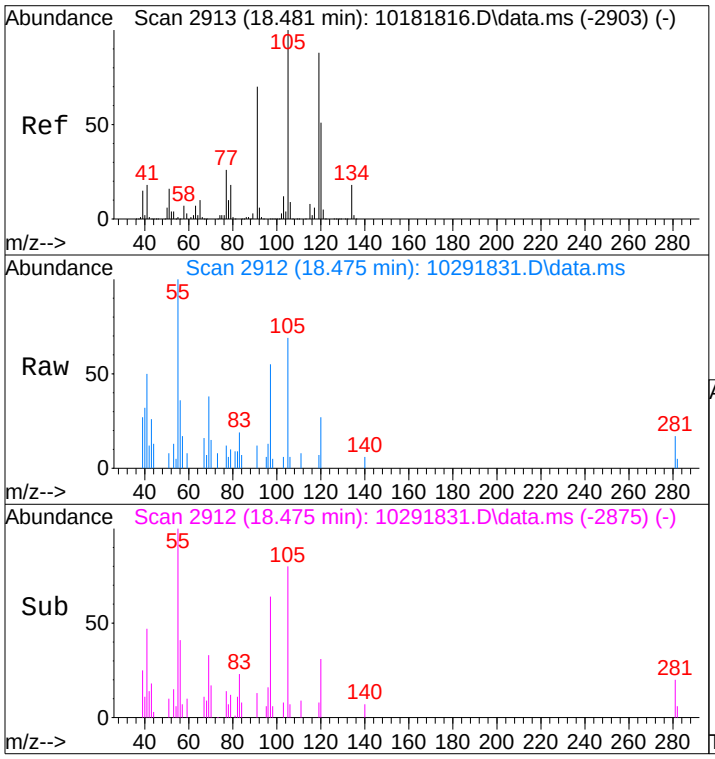


#71
n-Nonane
Concen: 0.11 ng
RT: 16.92 min Scan# 2611
Delta R.T. 0.001 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 43 Resp: 4919

Ion	Ratio	Lower	Upper
43	100		
57	71.8	66.7	106.7
85	17.9	6.7	46.7

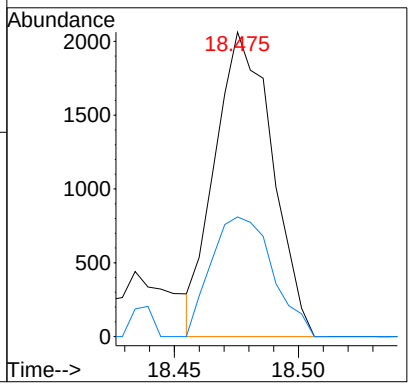


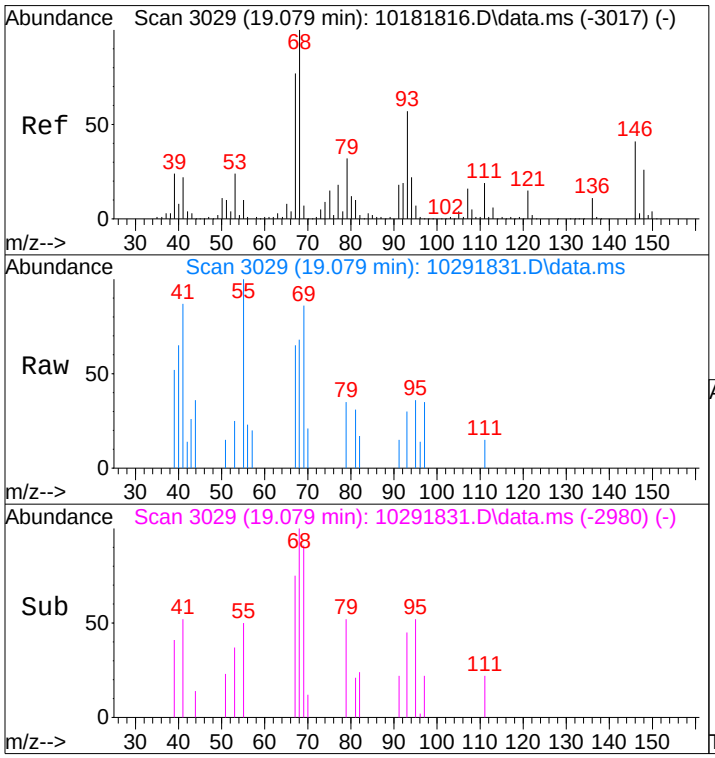


#82
1,2,4-Trimethylbenzene
Concen: 0.06 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion:105 Resp: 3307

Ion	Ratio	Lower	Upper
105	100		
120	42.5	31.3	71.3

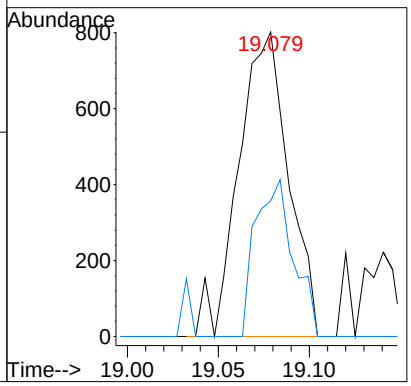




#91
d-Limonene
Concen: 0.05 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10291831.D
Acq: 29 Oct 2018 22:26

Tgt Ion: 68 Resp: 1527

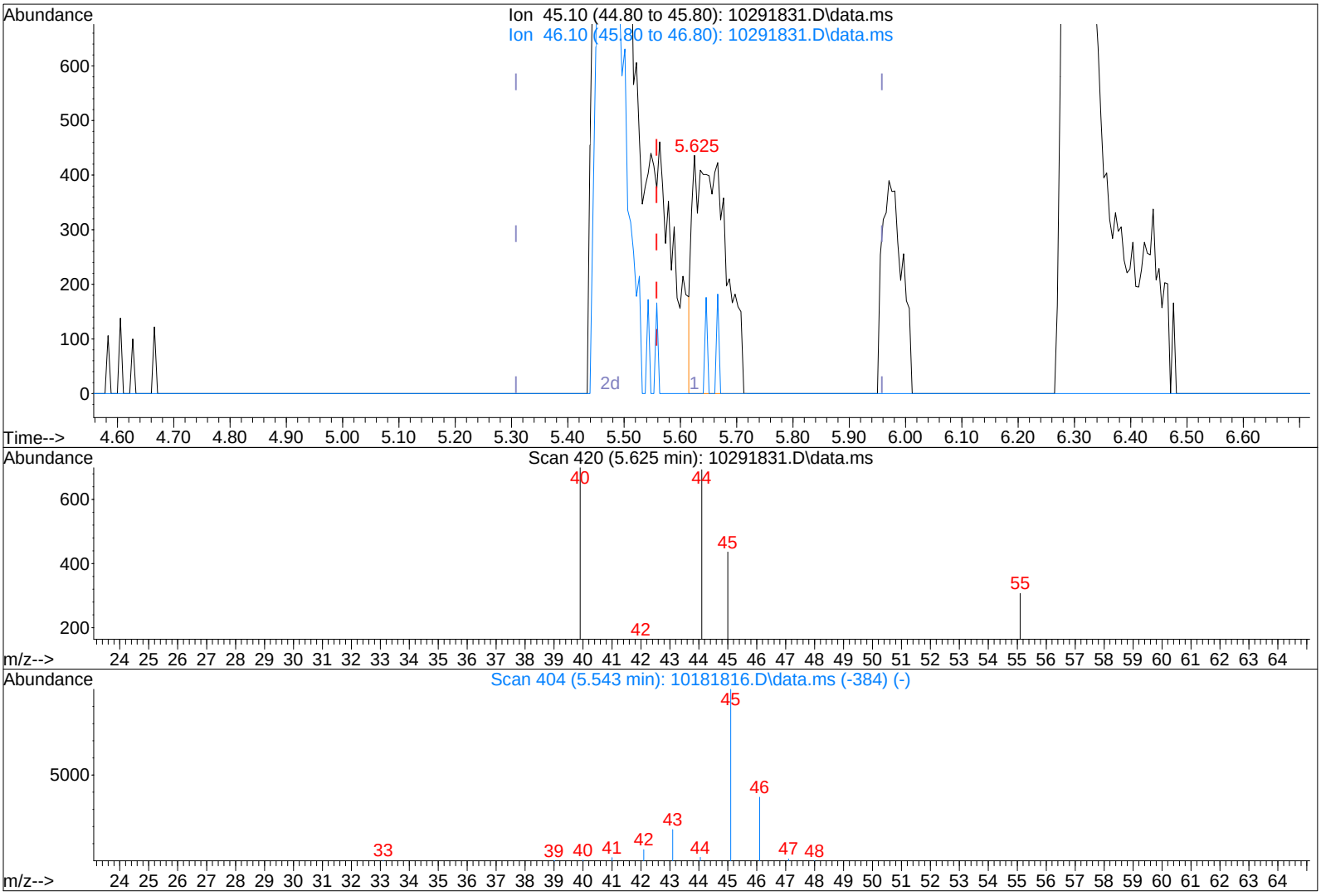
Ion	Ratio	Lower	Upper
68	100		
93	39.1	37.7	77.7



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:47:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291831.D\data.ms

(10) Ethanol (T)

5.625min (+0.067) 0.11ng

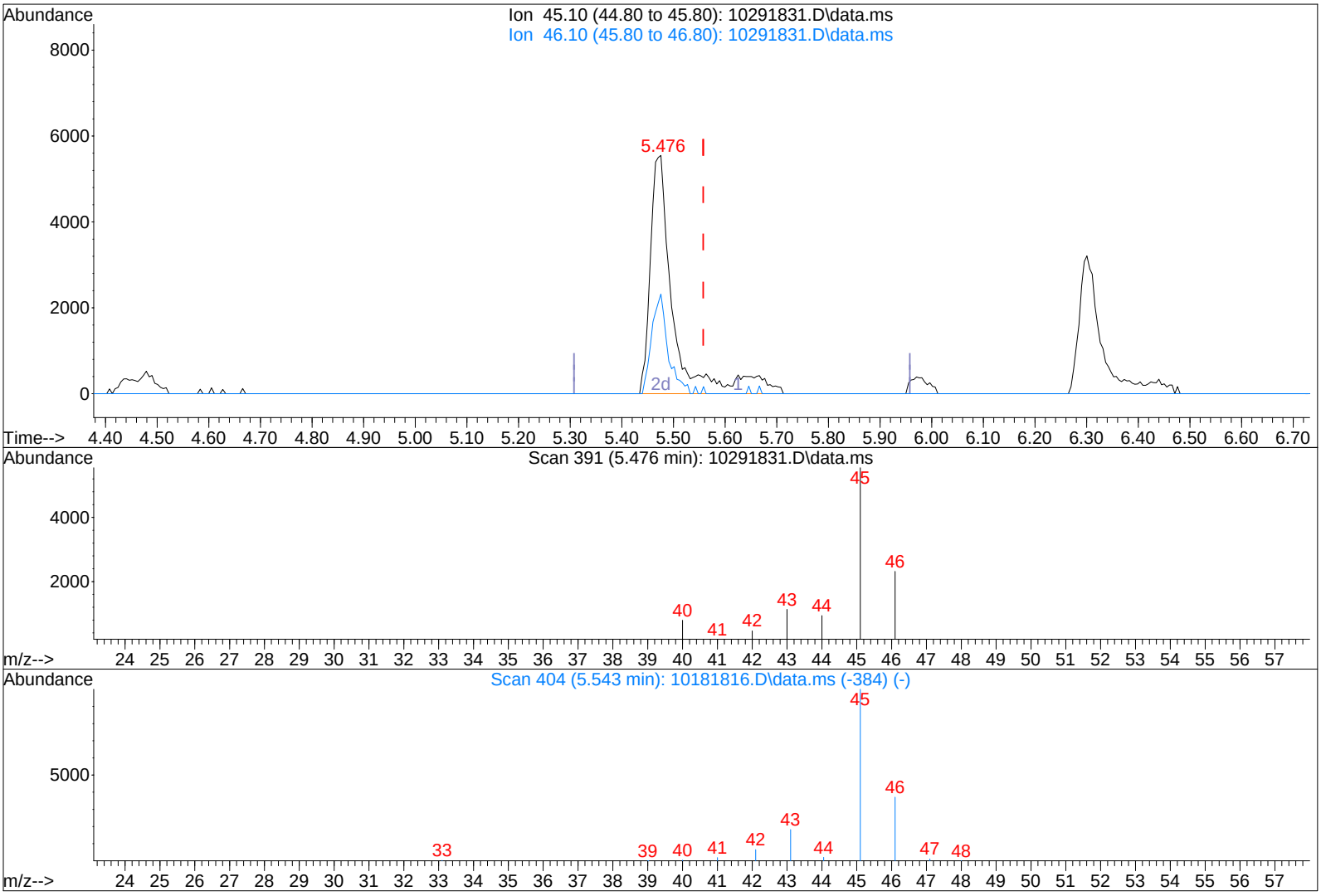
response 1746

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	3.09#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 07:47:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291831.D\data.ms

(10) Ethanol (T)

5.476min (-0.082) 1.10ng m

response 17400

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	0.31#
0.00	0.00	0.00
0.00	0.00	0.00

SP

RS 10/30/18

10/30/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:11:52 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

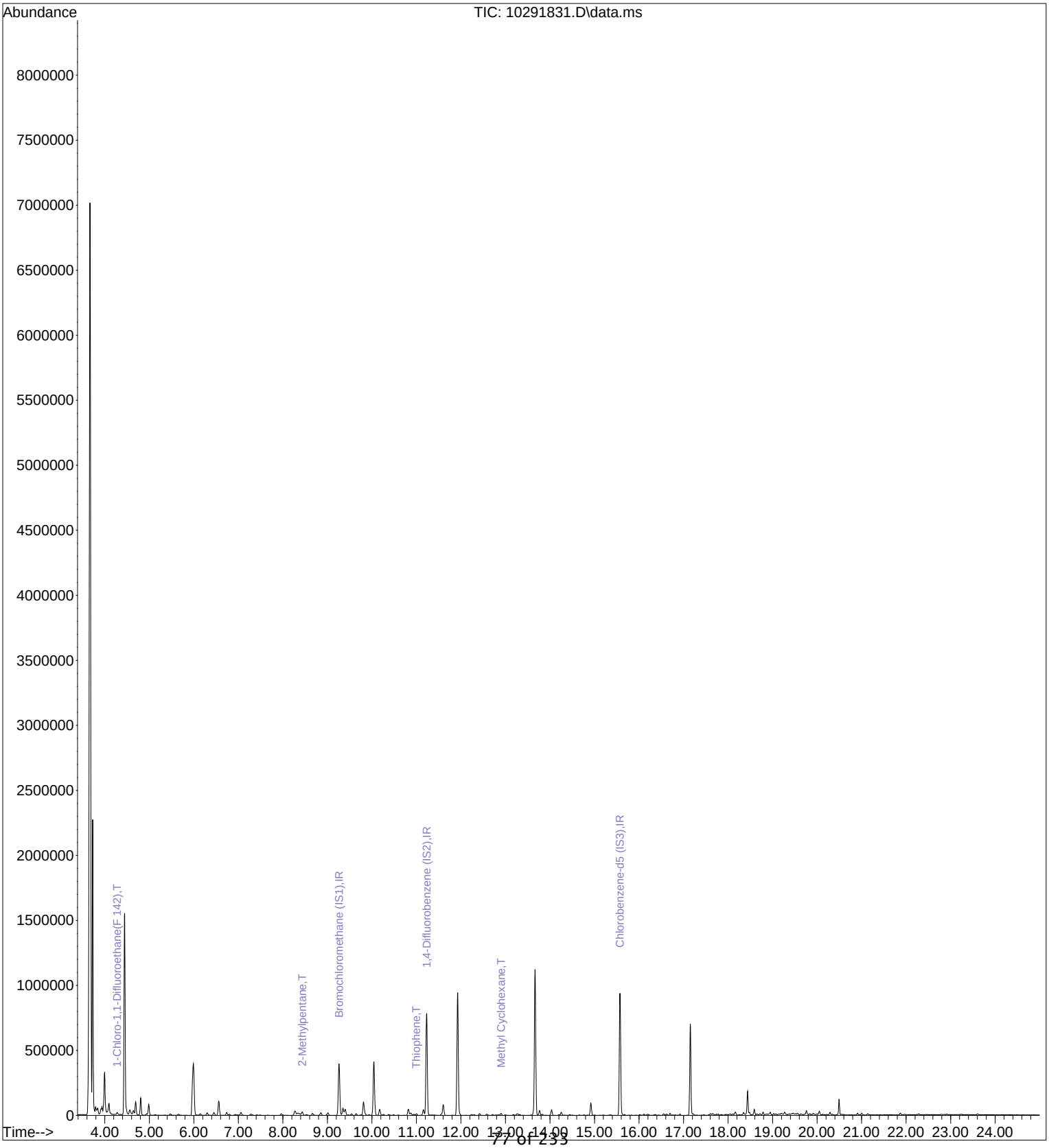
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	115621	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	599789	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	388276	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	337	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.	d		
4) 1,1-Difluoroethane	3.90	65	398	N.D.			
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d		
6) 1-Chloro-1,1-Difluoroe...	4.28	65	12981	0.502	ng		95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	6.99	43	1717	N.D.			
12) 2-Methylpentane	8.44	71	5194	0.337	ng	#	68
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.00	84	7608	0.236	ng	#	87
17) 2,3-Dimethylpentane	11.42	56	1149	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	6672	0.229	ng	#	80
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.82	91	1351	N.D.			
27) 4-Chlorotoluene	17.82	91	1351	N.D.			
28) Indane	19.14	117	270	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.20	119	161	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	161	N.D.			
32) 1,2,3,5-Tetramethylben...	20.60	119	168	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291831.D Vial: 12
Acq On : 29 Oct 2018 22:26 Operator: RS
Sample : P1805559-002 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:11:52 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:53:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/30/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	112628	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	585173	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	382364	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	328856	16.836	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 134.72%#				
57) Toluene-d8 (SS2)	13.66	98	785183	11.754	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.00%				
73) Bromofluorobenzene (SS3)	17.16	174	152424	10.142	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.12%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.09	85	23791	0.776	ng		99
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	309	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.48	45	19738	1.283	ng		90
11) Acetonitrile	5.69	41	1458	N.D.			
12) Acrolein	5.84	56	1147	0.096	ng		99
13) Acetone	5.98	58	84843	5.337	ng	#	64
14) Trichlorofluoromethane	6.16	101	10283	0.468	ng		98
15) 2-Propanol (Isopropanol)	6.31	45	9984	0.202	ng		82
16) Acrylonitrile	6.50	53	240	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	7.00	84	354	N.D.			
20) 3-Chloro-1-propene (Al...	6.98	41	586	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1051	0.120	ng	#	66
22) Carbon Disulfide	7.28	76	14766	0.247	ng		97
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.39	86	1810	0.691	ng	#	63
27) 2-Butanone (MEK)	8.67	72	3370	0.272	ng	#	33
28) cis-1,2-Dichloroethene	9.10	61	230	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.36	61	4027	0.613	ng		93
31) n-Hexane	9.35	57	942	N.D.			
32) Chloroform	9.40	83	6771	0.255	ng		96
34) Tetrahydrofuran (THF)	9.85	72	679	0.057	ng	#	38
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	3259	0.147	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.82	56	9649	0.485	ng		82
41) Benzene	10.88	78	3602	0.051	ng		98
42) Carbon Tetrachloride	11.03	117	946	0.055	ng		86
43) Cyclohexane	11.16	84	101	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	242940	17.318	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.98	57	414	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:53:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

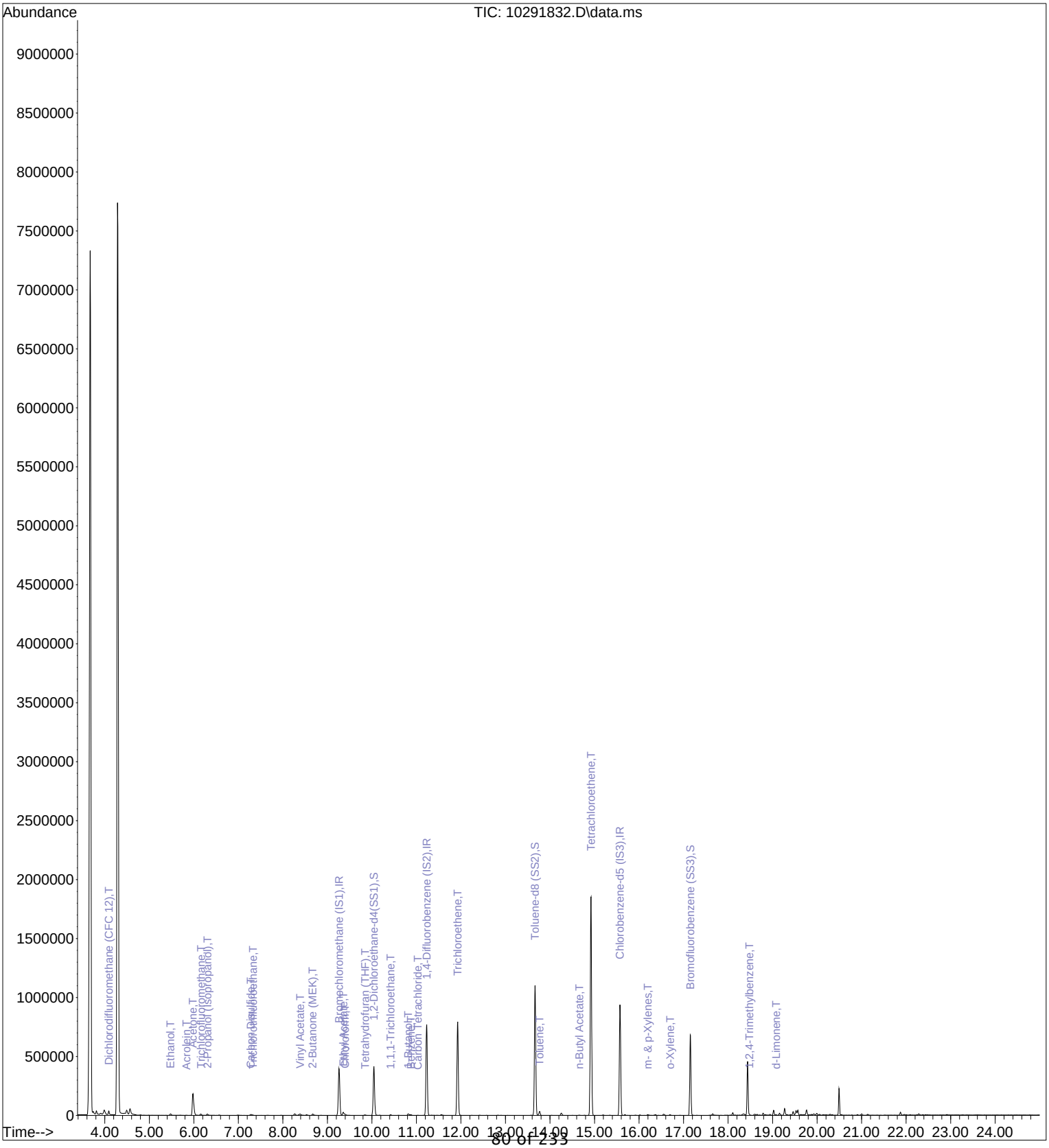
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	12.83	58	374	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.77	91	27186	0.364 ng		97
59) 2-Hexanone	14.04	43	1074	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	14.66	43	2677	0.051 ng	#	85
63) n-Octane	14.77	57	337	N.D.		
64) Tetrachloroethene	14.92	166	516900	33.517 ng		100
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	16.02	91	4071	N.D.		
67) m- & p-Xylenes	16.20	91	6272	0.100 ng		91
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	16.57	104	1012	N.D.		
70) o-Xylene	16.70	91	3217	0.052 ng		91
71) n-Nonane	16.92	43	791	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	17.31	105	228	N.D.		
75) alpha-Pinene	17.70	93	1020	N.D.		
76) n-Propylbenzene	17.83	91	1063	N.D.		
77) 3-Ethyltoluene	17.93	105	1657	N.D.		
78) 4-Ethyltoluene	17.97	105	893	N.D.		
79) 1,3,5-Trimethylbenzene	18.05	105	1012	N.D.		
80) alpha-Methylstyrene	18.21	118	832	N.D.		
81) 2-Ethyltoluene	18.25	105	831	N.D.		
82) 1,2,4-Trimethylbenzene	18.48	105	4061	0.070 ng		80
83) n-Decane	0.00	58	0	N.D. d		
84) Benzyl Chloride	18.48	91	457	N.D.		
85) 1,3-Dichlorobenzene	18.71	146	145	N.D.		
86) 1,4-Dichlorobenzene	18.71	146	145	N.D.		
87) sec-Butylbenzene	18.92	105	777	N.D.		
88) 4-Isopropyltoluene (p-...	18.92	119	553	N.D.		
89) 1,2,3-Trimethylbenzene	18.92	105	777	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	19.08	68	1528	0.051 ng		89
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	20.98	128	2674	N.D.		
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	19.38	91	103	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:53:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 08:53:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

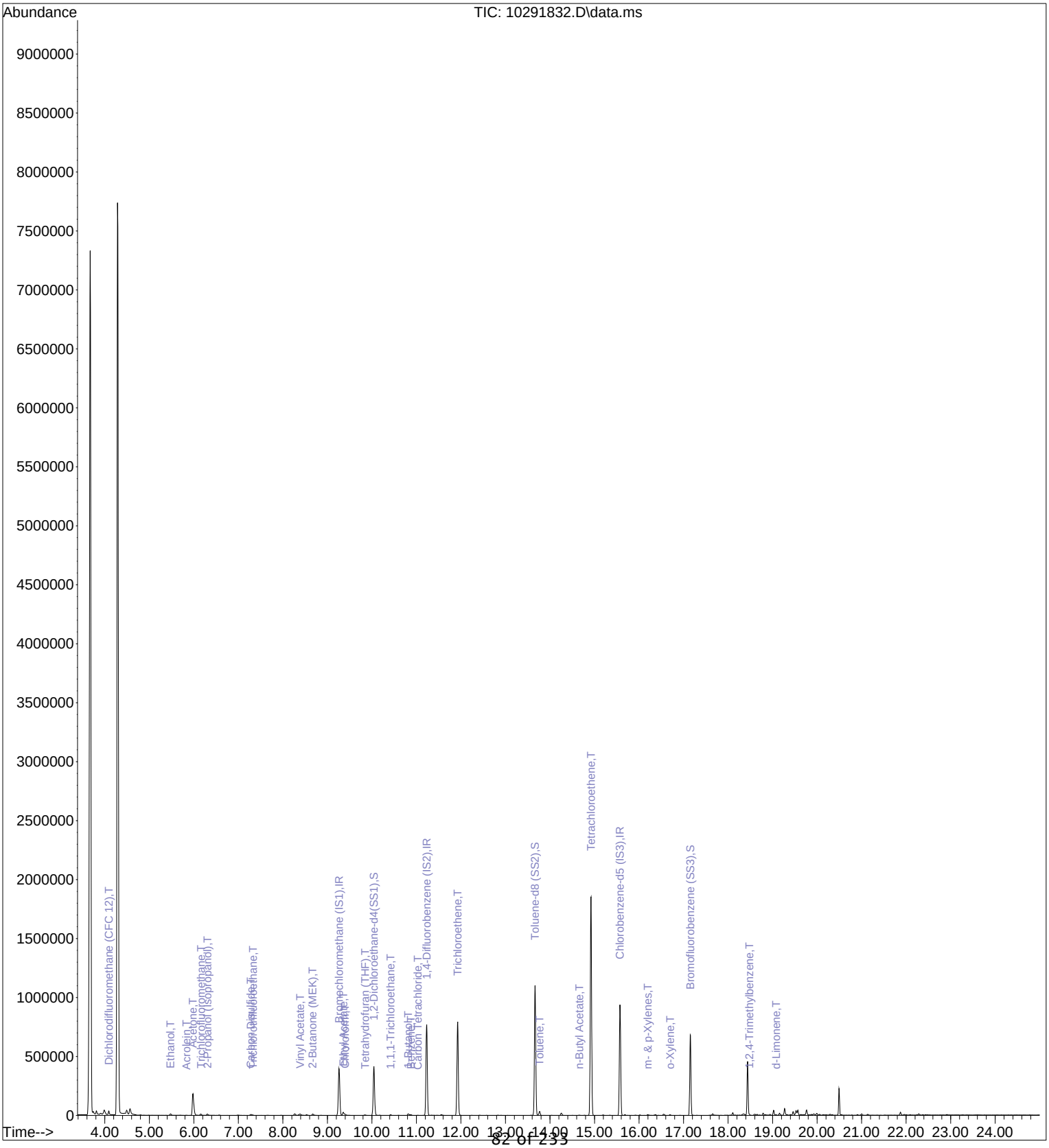
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	112628	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	585173	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	382364	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	328856	16.836	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 134.72%#				
57) Toluene-d8 (SS2)	13.66	98	785183	11.754	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.00%				
73) Bromofluorobenzene (SS3)	17.16	174	152424	10.142	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.12%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.09	85	23791	0.776	ng		99
10) Ethanol	5.48	45	19738	1.283	ng		90
12) Acrolein	5.84	56	1147	0.096	ng		99
13) Acetone	5.98	58	84843	5.337	ng	#	64
14) Trichlorofluoromethane	6.16	101	10283	0.468	ng		98
15) 2-Propanol (Isopropanol)	6.31	45	9984	0.202	ng		82
21) Trichlorotrifluoroethane	7.33	151	1051	0.120	ng	#	66
22) Carbon Disulfide	7.28	76	14766	0.247	ng		97
26) Vinyl Acetate	8.39	86	1810	0.691	ng	#	63
27) 2-Butanone (MEK)	8.67	72	3370	0.272	ng	#	33
30) Ethyl Acetate	9.36	61	4027	0.613	ng		93
32) Chloroform	9.40	83	6771	0.255	ng		96
34) Tetrahydrofuran (THF)	9.85	72	679	0.057	ng	#	38
38) 1,1,1-Trichloroethane	10.42	97	3259	0.147	ng		97
40) 1-Butanol	10.82	56	9649	0.485	ng		82
41) Benzene	10.88	78	3602	0.051	ng		98
42) Carbon Tetrachloride	11.03	117	946	0.055	ng		86
47) Trichloroethene	11.93	130	242940	17.318	ng		99
58) Toluene	13.77	91	27186	0.364	ng		97
62) n-Butyl Acetate	14.66	43	2677	0.051	ng	#	85
64) Tetrachloroethene	14.92	166	516900	33.517	ng		100
67) m- & p-Xylenes	16.20	91	6272	0.100	ng		91
70) o-Xylene	16.70	91	3217	0.052	ng		91
82) 1,2,4-Trimethylbenzene	18.48	105	4061	0.070	ng		80
91) d-Limonene	19.08	68	1528	0.051	ng		89

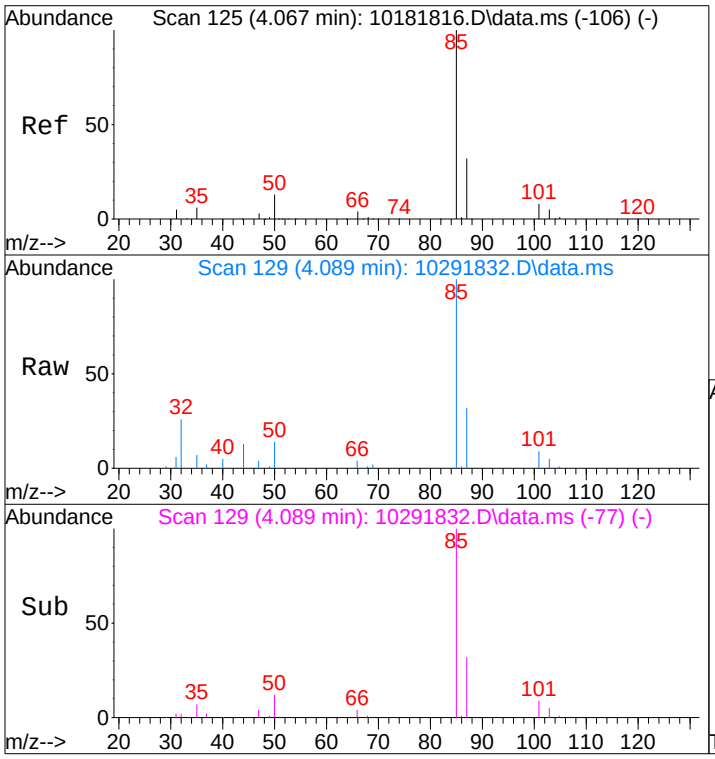
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 08:53:01 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

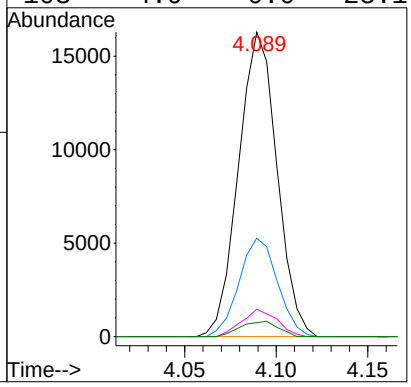


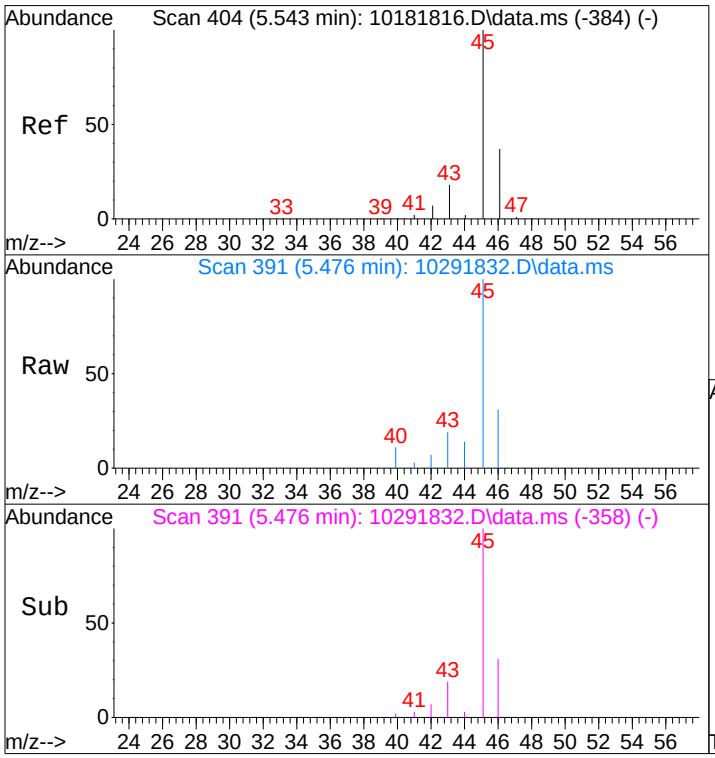


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.78 ng
RT: 4.09 min Scan# 129
Delta R.T. 0.034 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 85 Resp: 23791

Ion	Ratio	Lower	Upper
85	100		
87	32.3	12.0	52.0
101	8.3	0.0	28.0
103	4.9	0.0	25.1

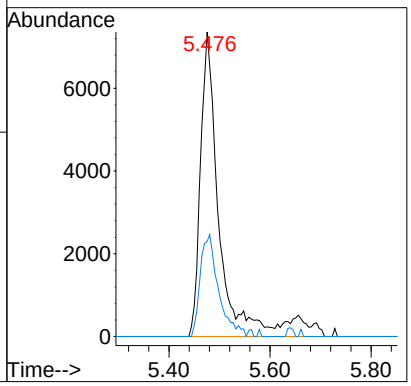


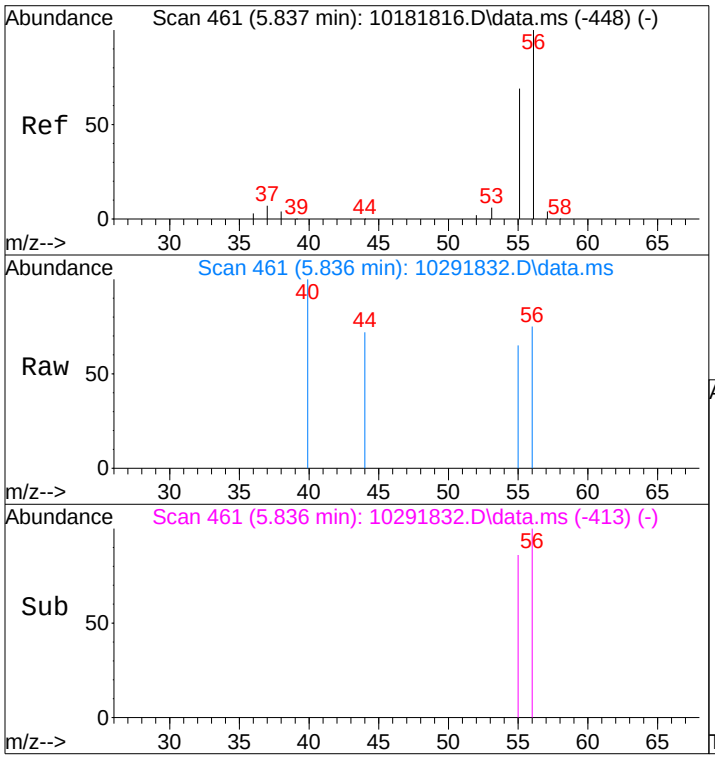


#10
Ethanol
Concen: 1.28 ng
RT: 5.48 min Scan# 391
Delta R.T. -0.082 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 45 Resp: 19738

Ion	Ratio	Lower	Upper
45	100		
46	31.2	17.0	57.0

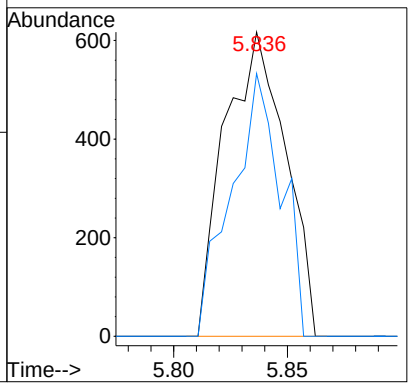


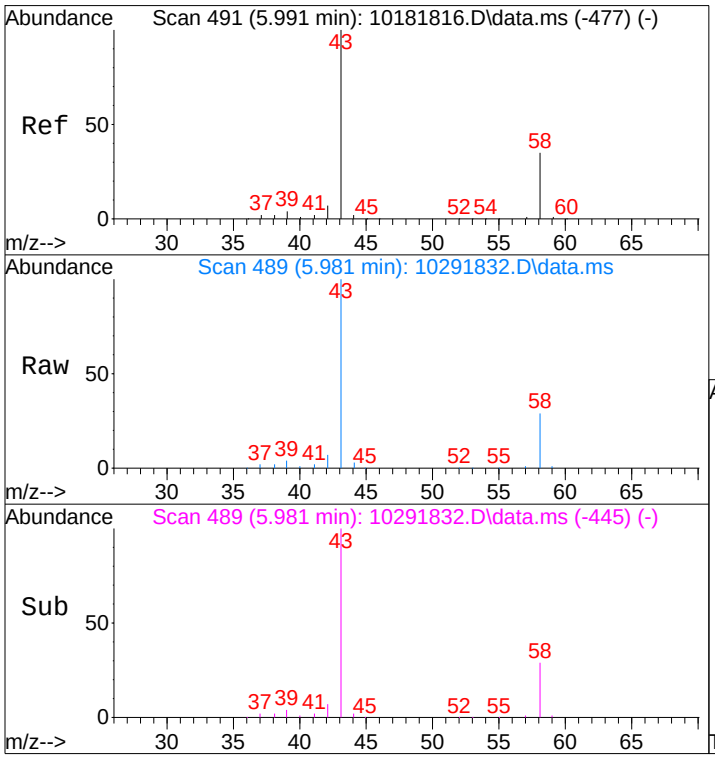


#12
Acrolein
Concen: 0.10 ng
RT: 5.84 min Scan# 461
Delta R.T. -0.003 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 56 Resp: 1147

Ion	Ratio	Lower	Upper
56	100		
55	70.2	49.3	89.3

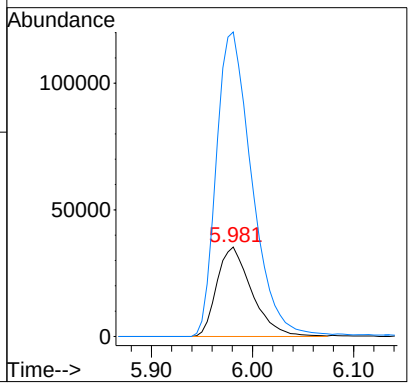


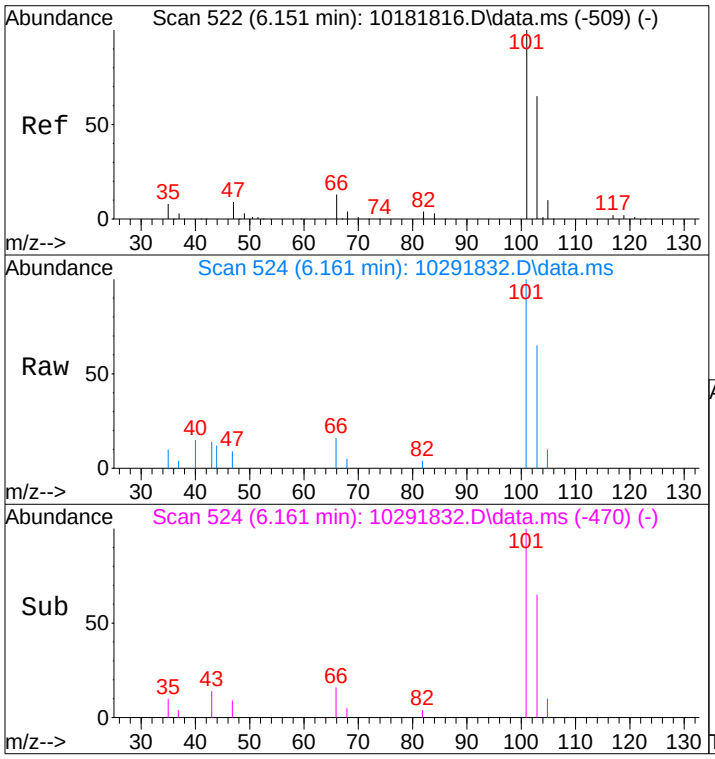


#13
Acetone
Concen: 5.34 ng
RT: 5.98 min Scan# 489
Delta R.T. -0.023 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 58 Resp: 84843

Ion	Ratio	Lower	Upper
58	100		
43	352.6	254.3	314.3#

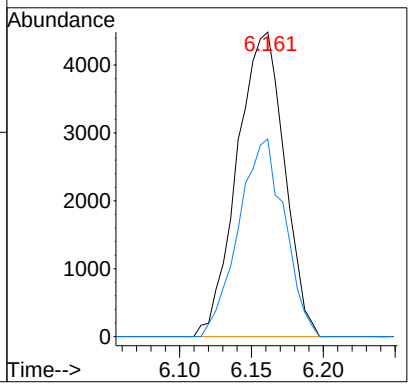


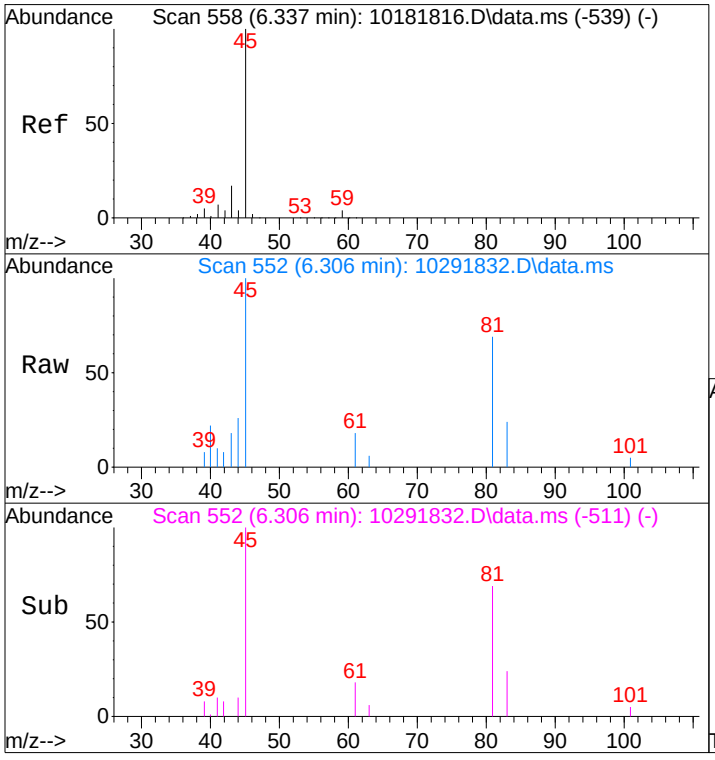


#14
Trichlorofluoromethane
Concen: 0.47 ng
RT: 6.16 min Scan# 524
Delta R.T. 0.029 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:101 Resp: 10283

Ion	Ratio	Lower	Upper
101	100		
103	63.3	44.5	84.5

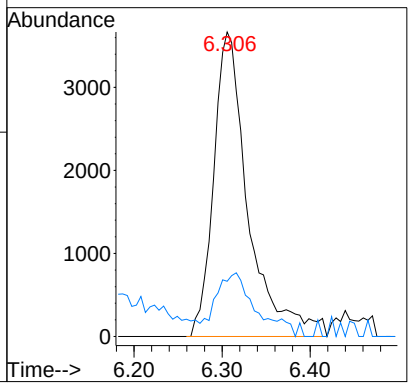


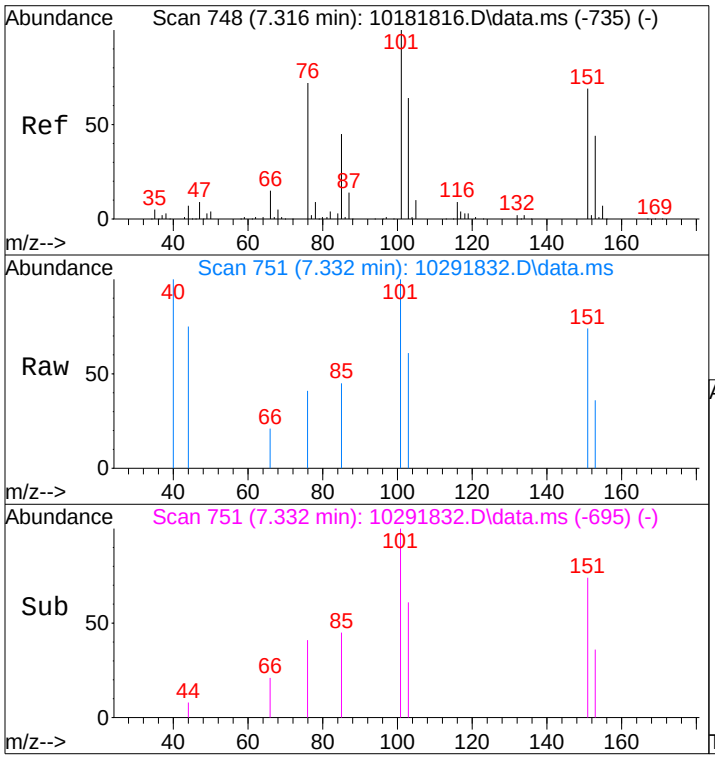


#15
2-Propanol (Isopropanol)
Concen: 0.20 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 45 Resp: 9984

Ion	Ratio	Lower	Upper
45	100		
43	24.6	0.0	36.7

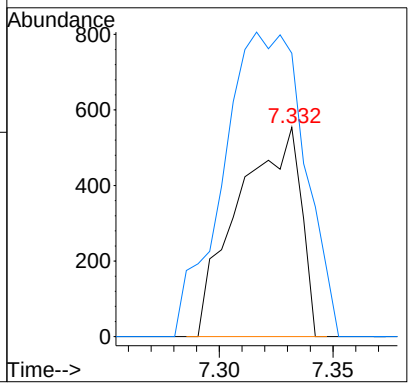


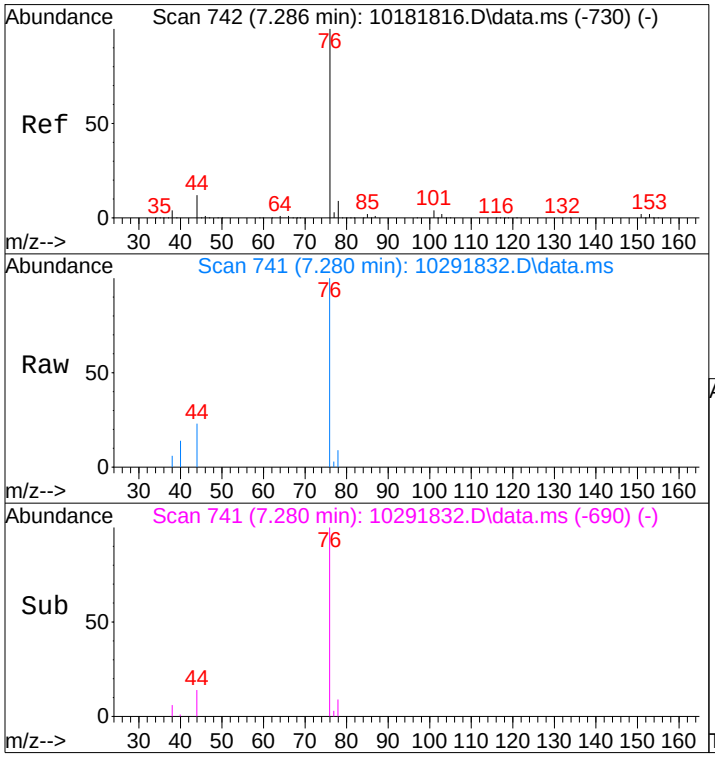


#21
Trichlorotrifluoroethane
Concen: 0.12 ng
RT: 7.33 min Scan# 751
Delta R.T. 0.041 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:151 Resp: 1051

Ion	Ratio	Lower	Upper
151	100		
101	190.4	127.5	167.5#

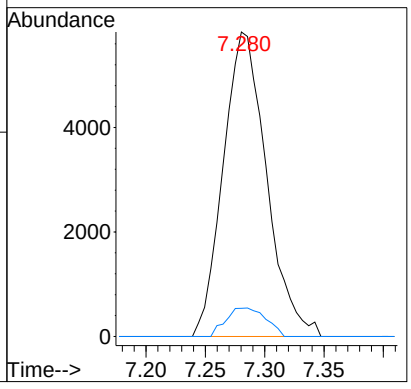


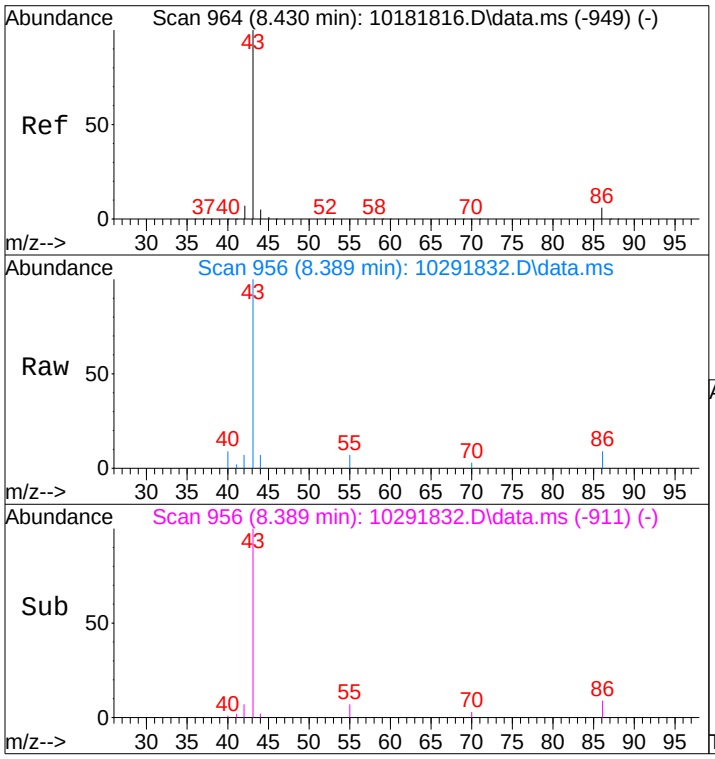


#22
Carbon Disulfide
Concen: 0.25 ng
RT: 7.28 min Scan# 741
Delta R.T. 0.015 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 76 Resp: 14766

Ion	Ratio	Lower	Upper
76	100		
78	8.6	0.0	29.6

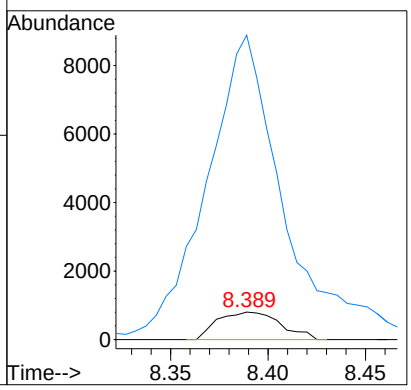


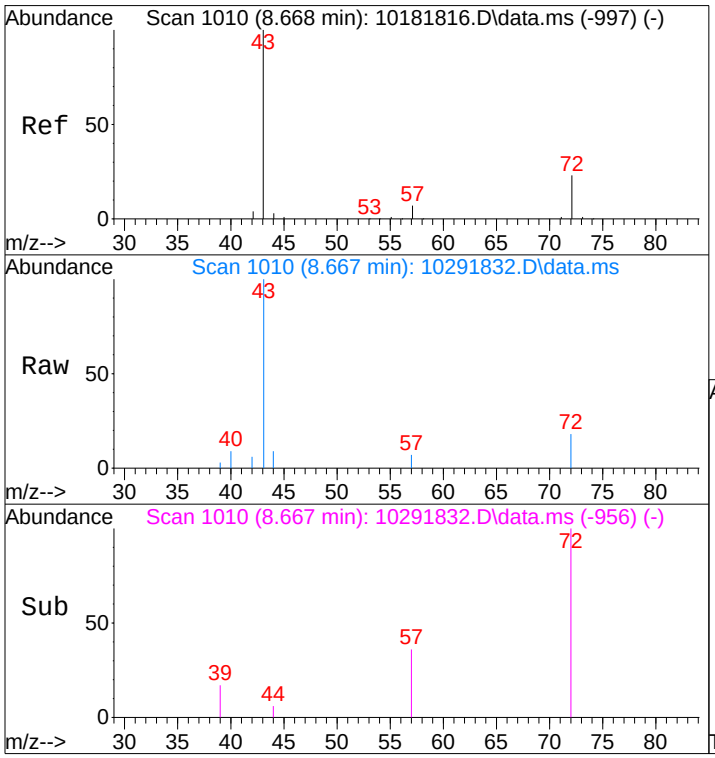


#26
Vinyl Acetate
Concen: 0.69 ng
RT: 8.39 min Scan# 956
Delta R.T. -0.020 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 86 Resp: 1810

Ion	Ratio	Lower	Upper
86	100		
43	1382.0	1596.2	1636.2#

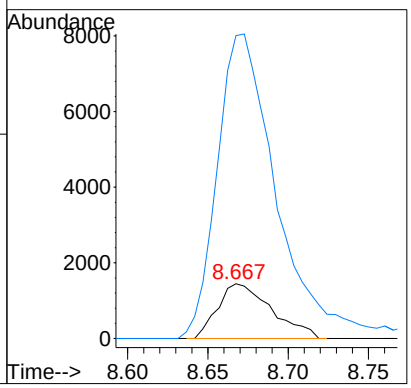


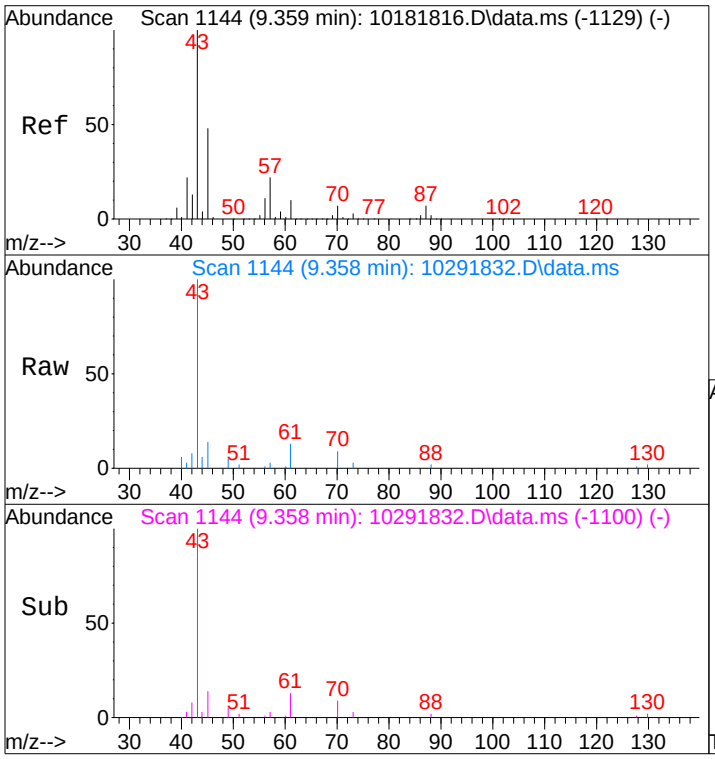


#27
2-Butanone (MEK)
Concen: 0.27 ng
RT: 8.67 min Scan# 1010
Delta R.T. 0.028 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 72 Resp: 3370

Ion	Ratio	Lower	Upper
72	100		
43	620.9	430.0	470.0#

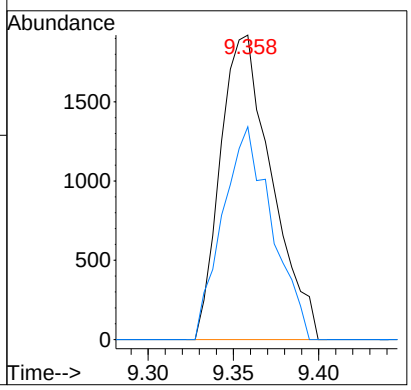


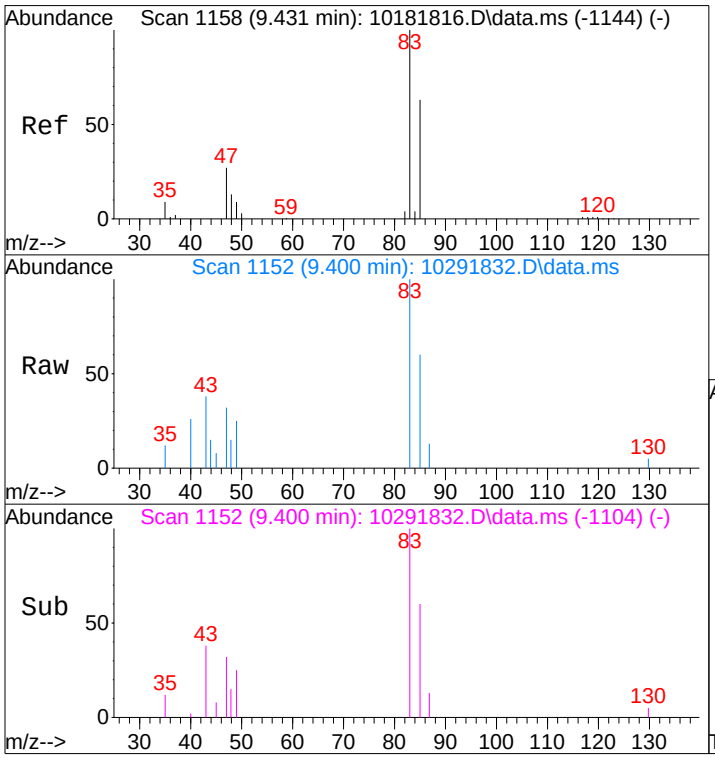


#30
Ethyl Acetate
Concen: 0.61 ng
RT: 9.36 min Scan# 1144
Delta R.T. 0.026 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 61 Resp: 4027

Ion	Ratio	Lower	Upper
61	100		
70	67.1	52.7	92.7

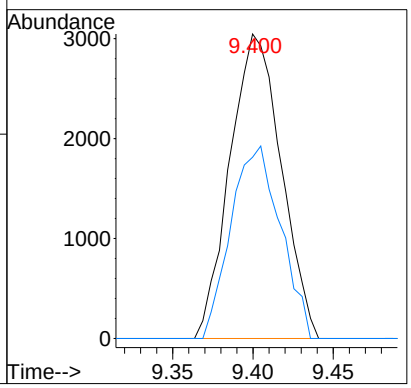


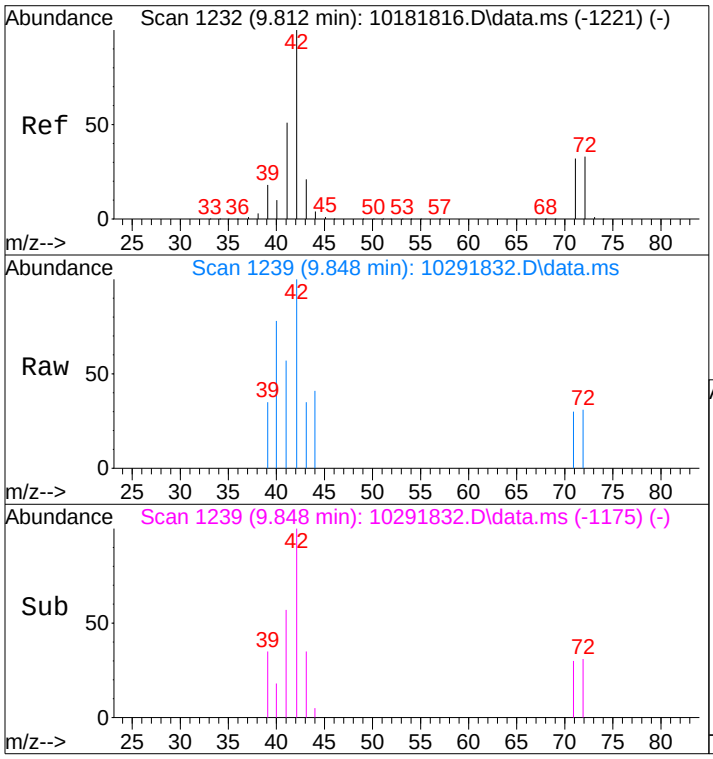


#32
Chloroform
Concen: 0.25 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 83 Resp: 6771

Ion	Ratio	Lower	Upper
83	100		
85	61.1	44.0	84.0

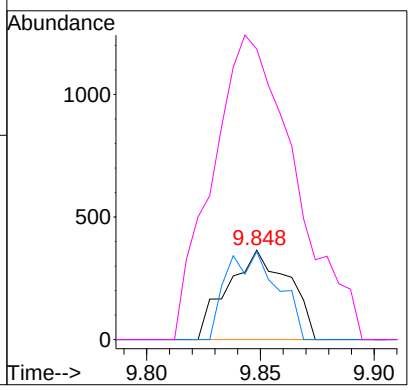


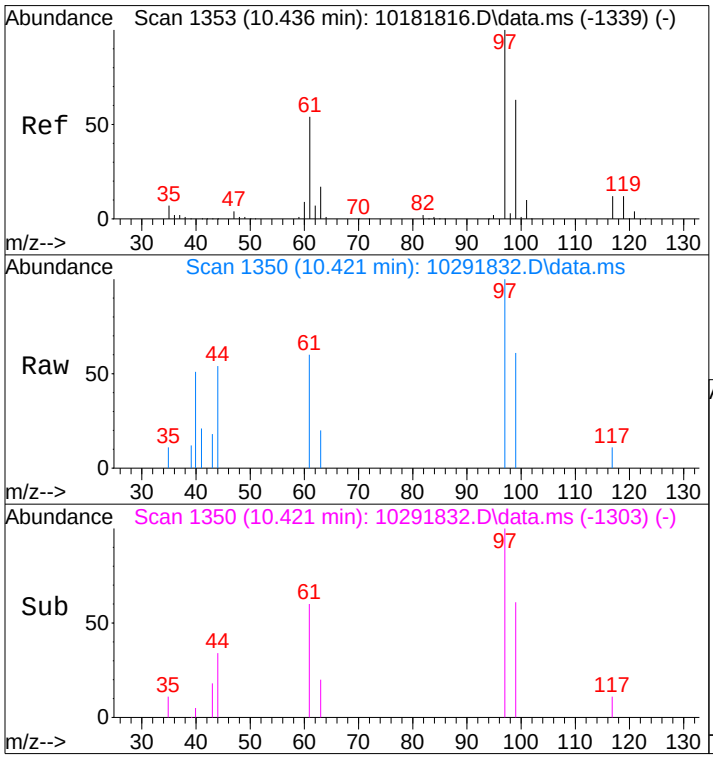


#34
Tetrahydrofuran (THF)
Concen: 0.06 ng
RT: 9.85 min Scan# 1239
Delta R.T. 0.080 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 72 Resp: 679

Ion	Ratio	Lower	Upper
72	100		
71	83.4	76.7	116.7
42	463.0	287.9	327.9#

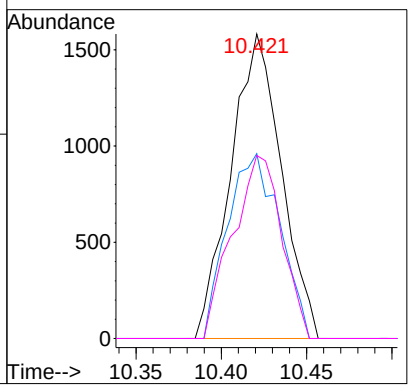


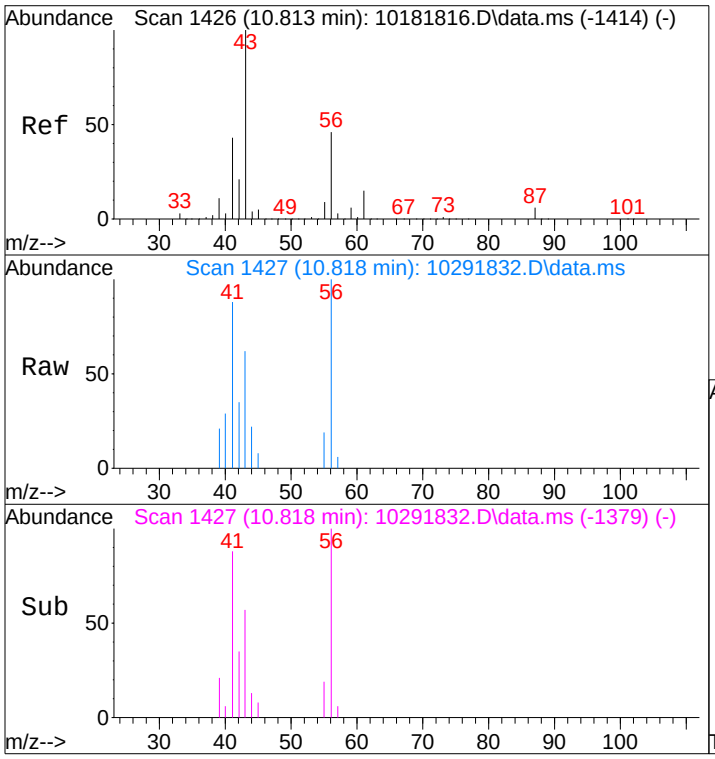


#38
1,1,1-Trichloroethane
Concen: 0.15 ng
RT: 10.42 min Scan# 1350
Delta R.T. -0.007 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 97 Resp: 3259

Ion	Ratio	Lower	Upper
97	100		
99	63.1	43.5	83.5
61	58.4	34.2	74.2

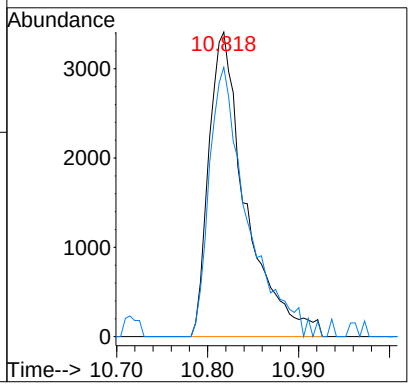


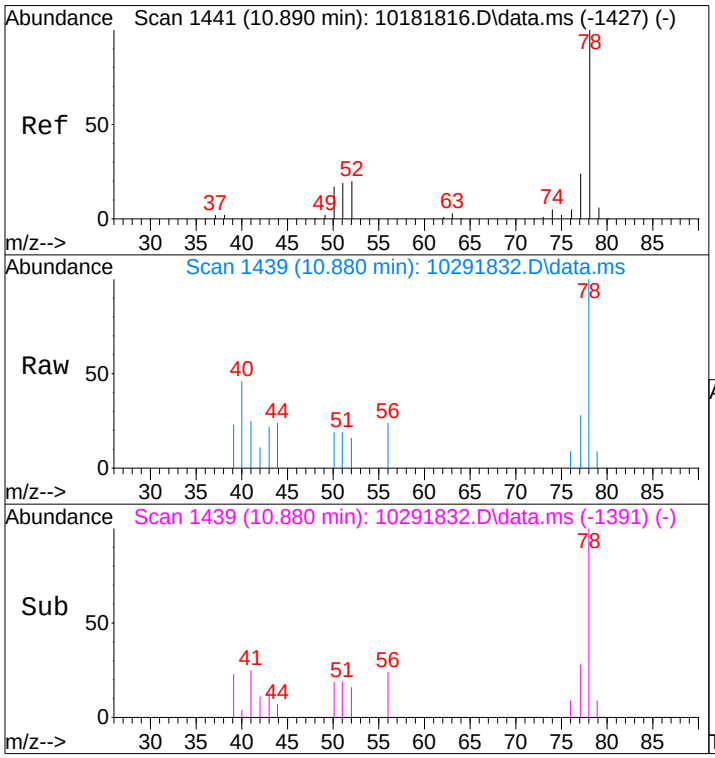


#40
1-Butanol
Concen: 0.48 ng
RT: 10.82 min Scan# 1427
Delta R.T. -0.001 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 56 Resp: 9649

Ion	Ratio	Lower	Upper
56	100		
41	91.0	90.2	130.2

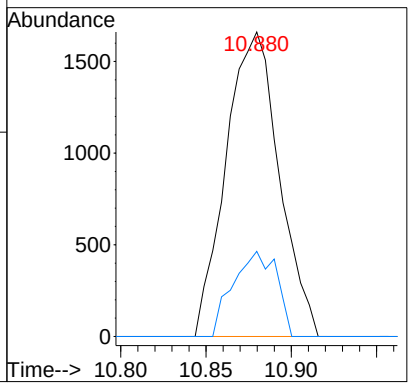


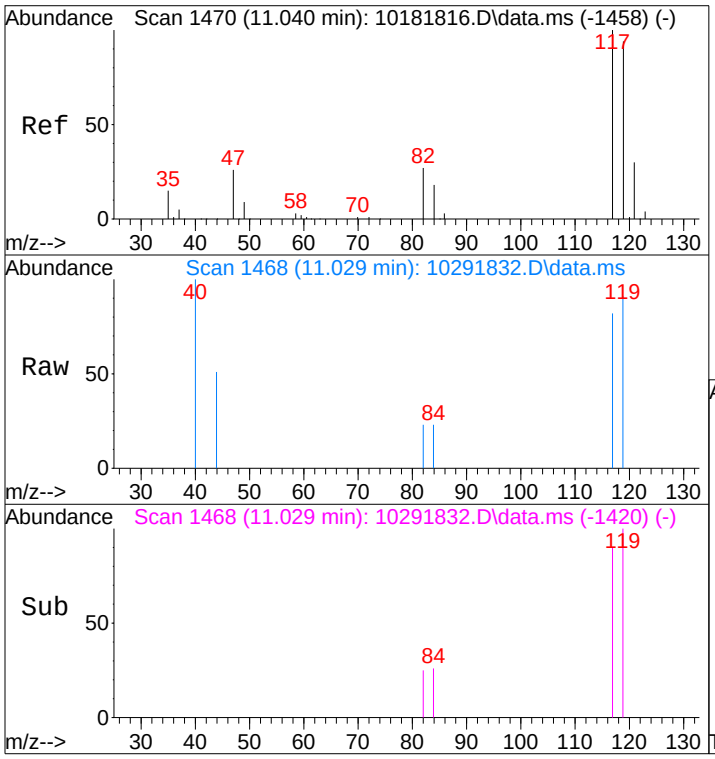


#41
Benzene
Concen: 0.05 ng
RT: 10.88 min Scan# 1439
Delta R.T. -0.001 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 78 Resp: 3602

Ion	Ratio	Lower	Upper
78	100		
77	23.0	4.1	44.1

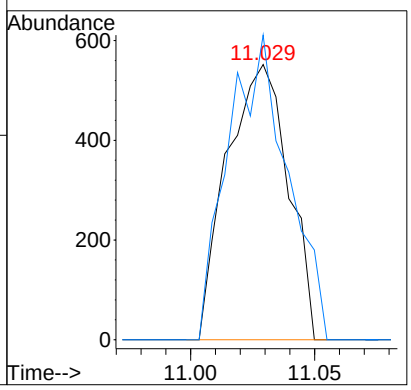


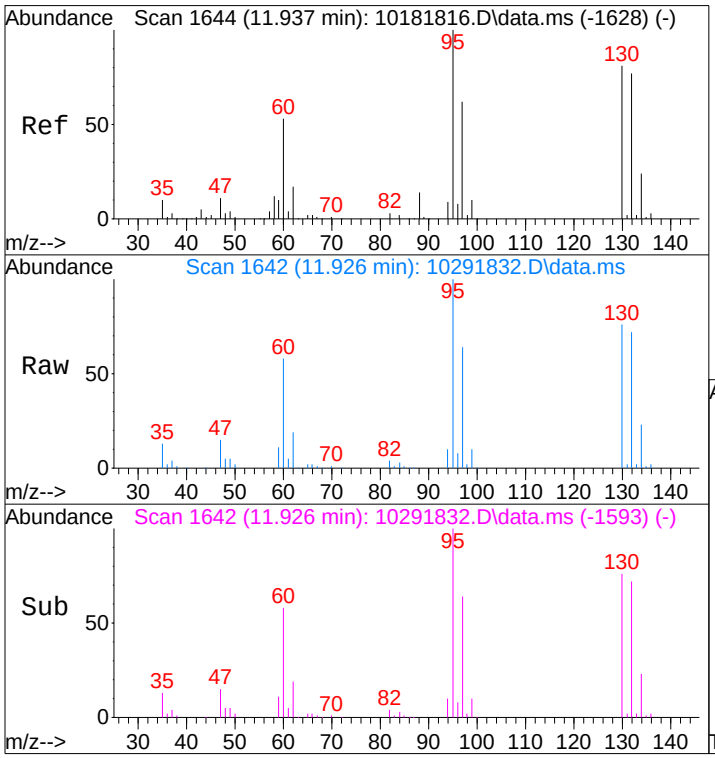


#42
Carbon Tetrachloride
Concen: 0.05 ng
RT: 11.03 min Scan# 1468
Delta R.T. -0.000 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:117 Resp: 946

Ion	Ratio	Lower	Upper
117	100		
119	107.8	74.7	114.7

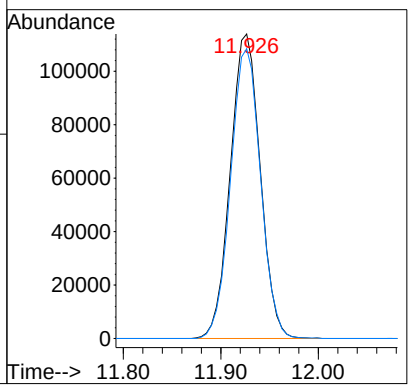


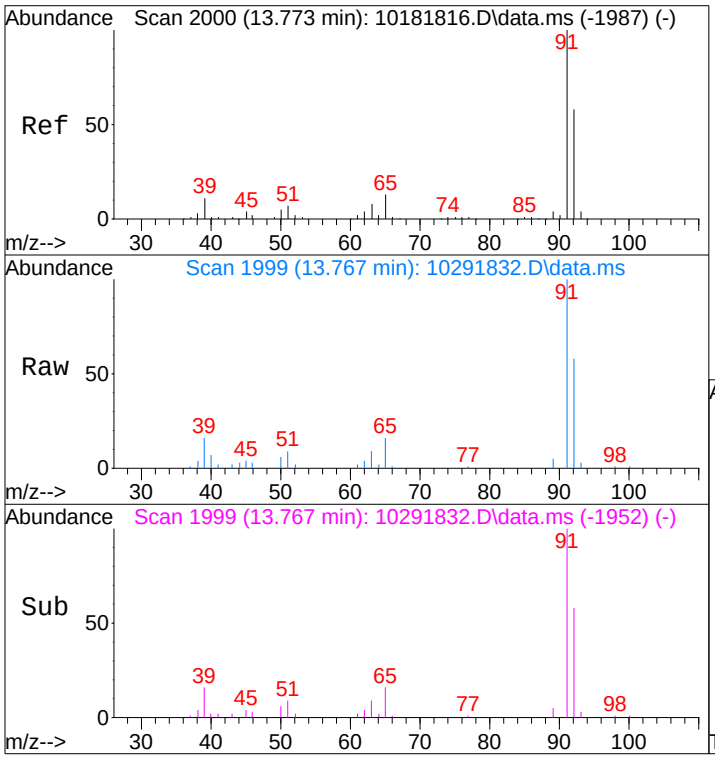


#47
Trichloroethene
Concen: 17.32 ng
RT: 11.93 min Scan# 1642
Delta R.T. 0.002 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:130 Resp: 242940

Ion	Ratio	Lower	Upper
130	100		
132	95.3	74.6	114.6

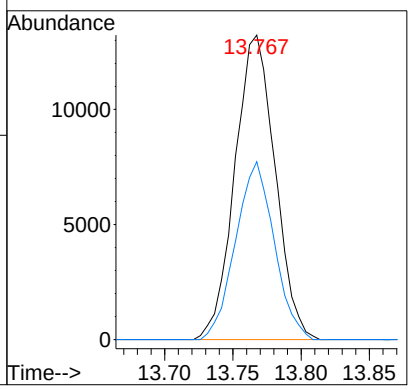


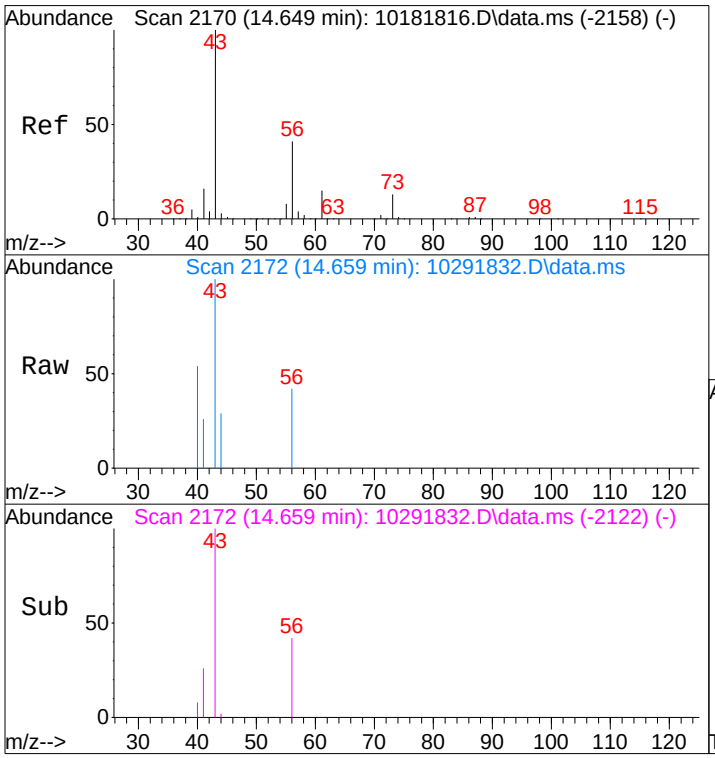


#58
Toluene
Concen: 0.36 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.006 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 91 Resp: 27186

Ion	Ratio	Lower	Upper
91	100		
92	56.1	38.1	78.1

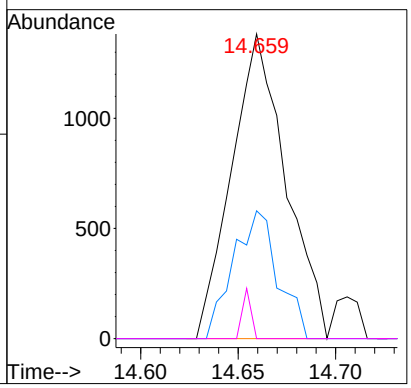


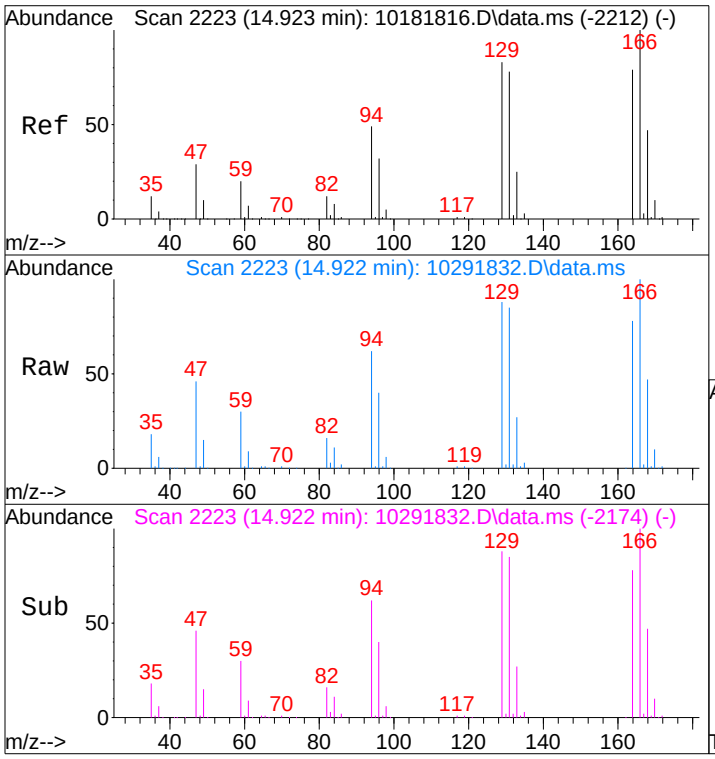


#62
n-Butyl Acetate
Concen: 0.05 ng
RT: 14.66 min Scan# 2172
Delta R.T. 0.010 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 43 Resp: 2677

Ion	Ratio	Lower	Upper
43	100		
56	34.6	20.7	60.7
73	0.0	0.0	32.8

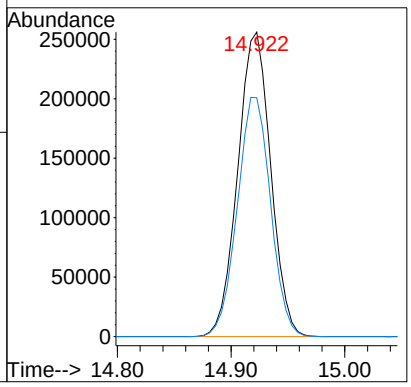


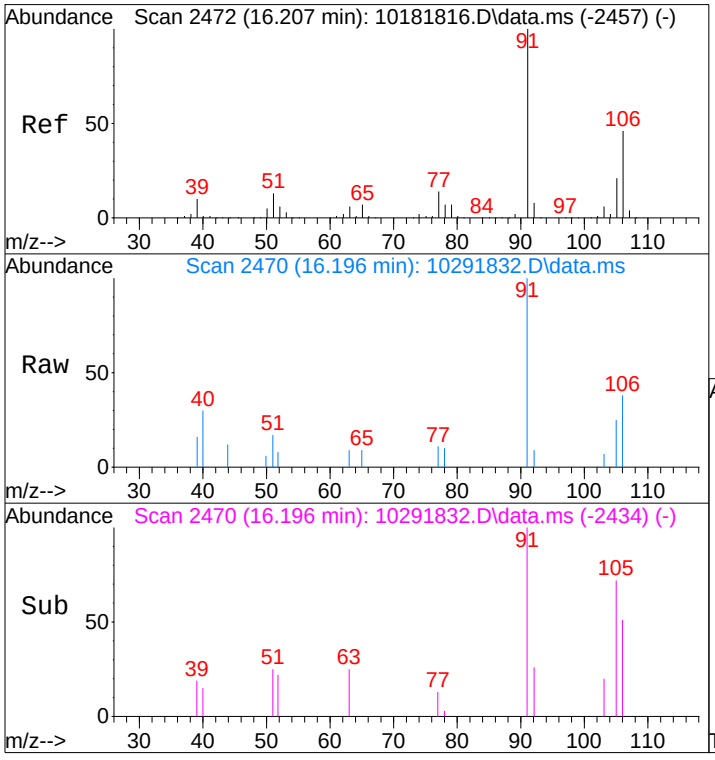


#64
Tetrachloroethene
Concen: 33.52 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.005 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:166 Resp: 516900

Ion	Ratio	Lower	Upper
166	100		
164	79.3	58.9	98.9

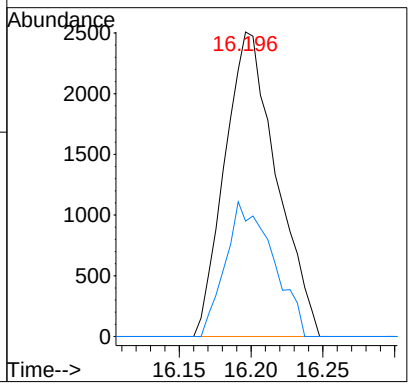


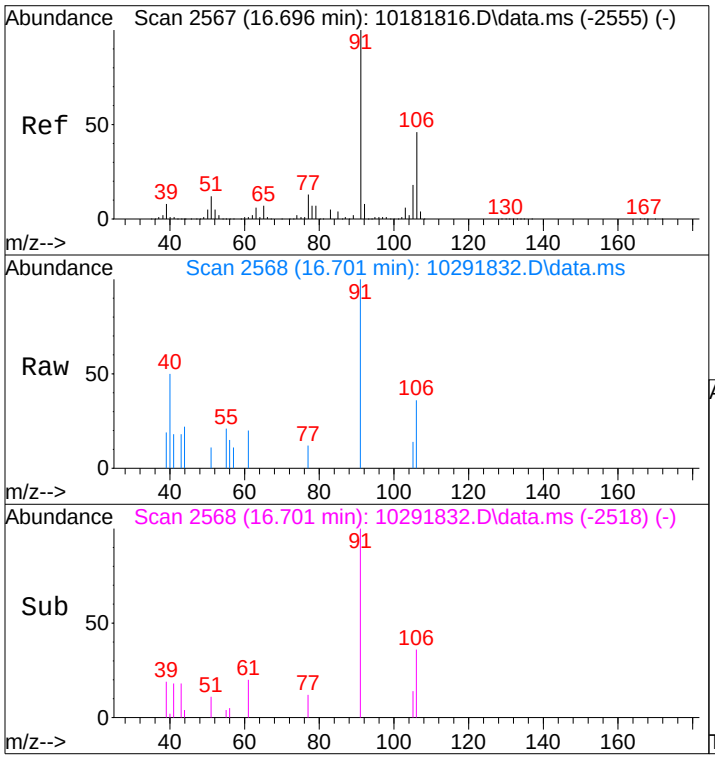


#67
m- & p-Xylenes
Concen: 0.10 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 91 Resp: 6272

Ion	Ratio	Lower	Upper
91	100		
106	40.6	26.7	66.7

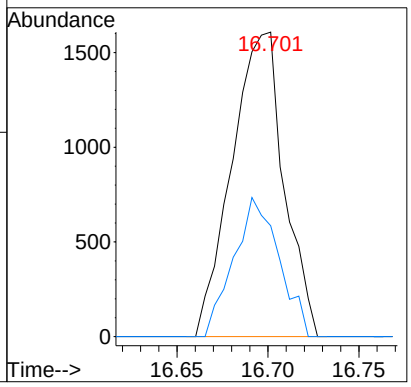


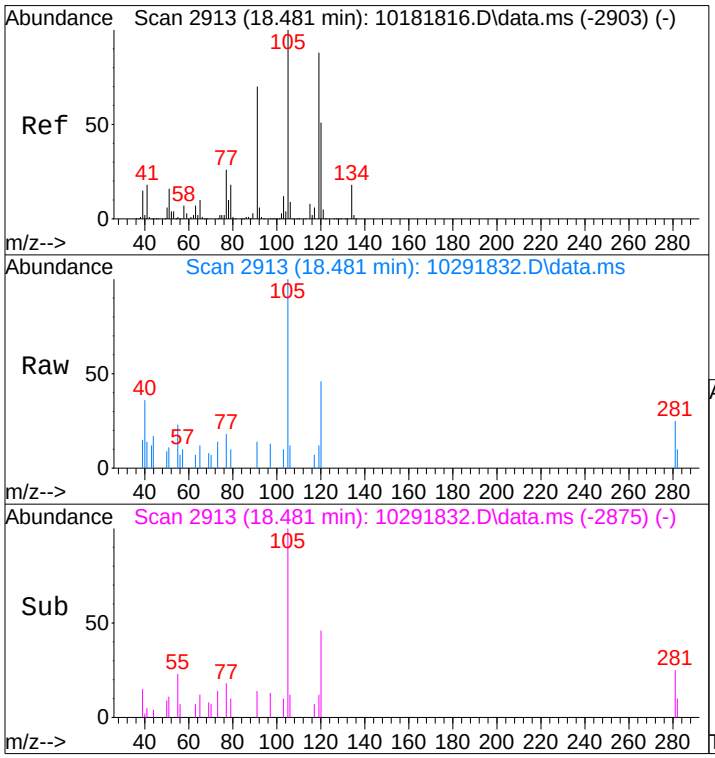


#70
o-Xylene
Concen: 0.05 ng
RT: 16.70 min Scan# 2568
Delta R.T. 0.006 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 91 Resp: 3217

Ion	Ratio	Lower	Upper
91	100		
106	39.5	25.2	65.2

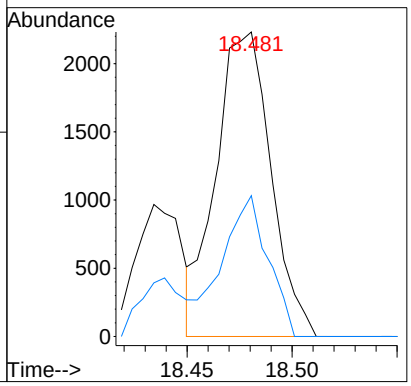


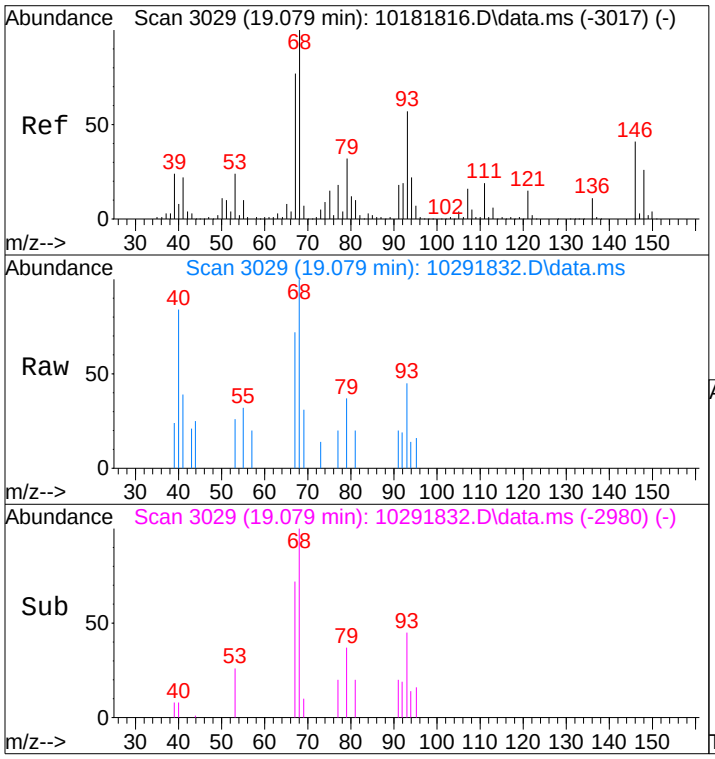


#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 18.48 min Scan# 2913
Delta R.T. -0.003 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion:105 Resp: 4061

Ion	Ratio	Lower	Upper
105	100		
120	37.4	31.3	71.3

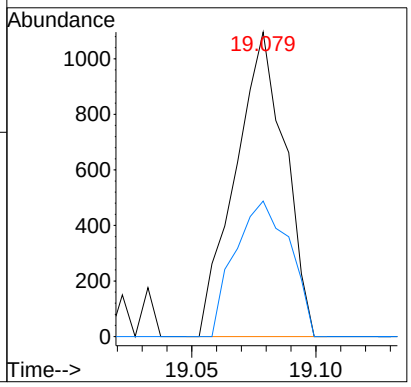




#91
d-Limonene
Concen: 0.05 ng
RT: 19.08 min Scan# 3029
Delta R.T. 0.002 min
Lab File: 10291832.D
Acq: 29 Oct 2018 23:00

Tgt Ion: 68 Resp: 1528

Ion	Ratio	Lower	Upper
68	100		
93	49.3	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:12:32 2018 RS 10/30/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

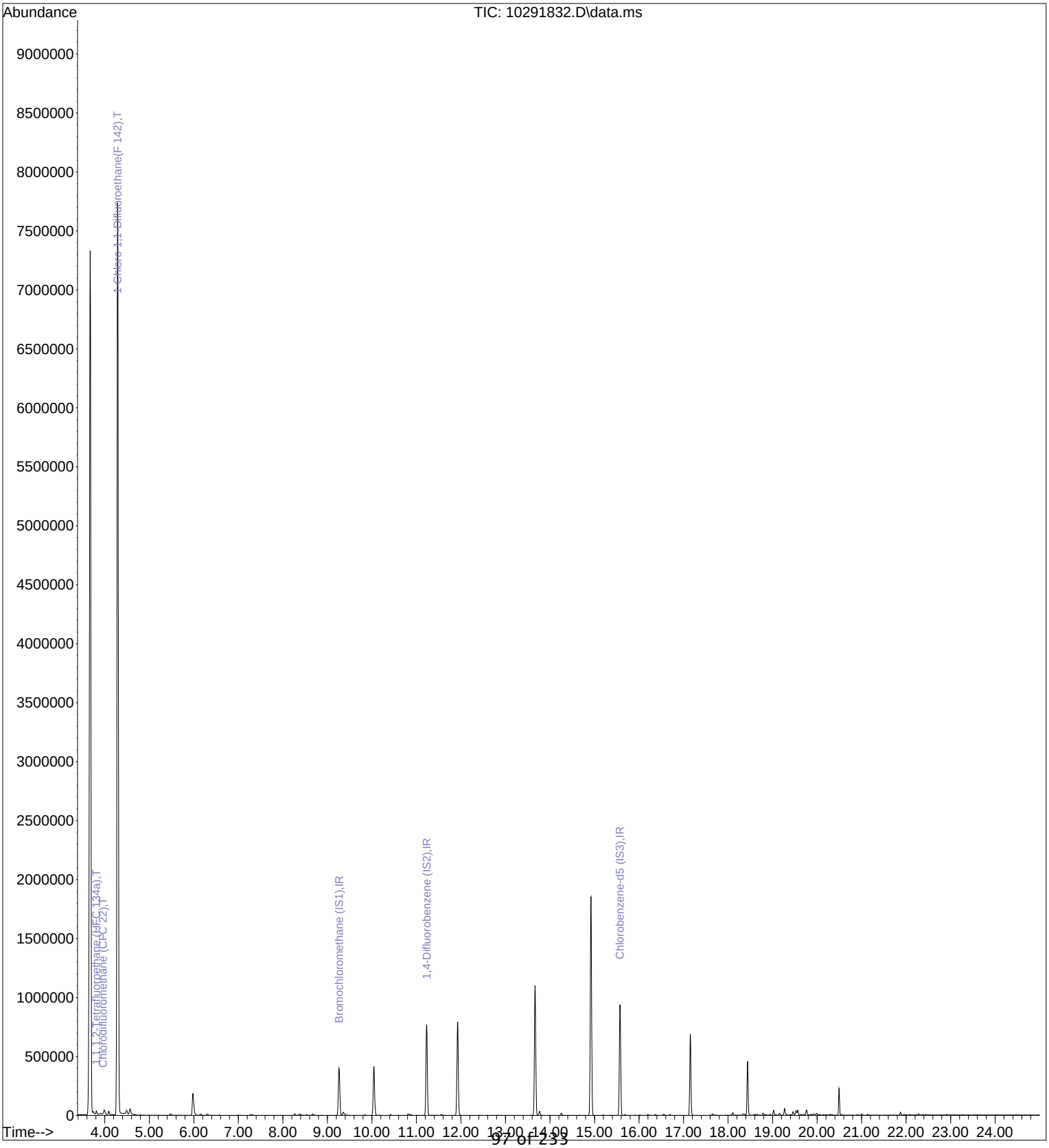
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	113185	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	585173	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	382364	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.77	85	197	N.D.			
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	8169	0.699	ng	#	58
4) 1,1-Difluoroethane	3.90	65	1279	N.D.			
5) Chlorodifluoromethane ...	3.96	67	952	0.250	ng	#	72
6) 1-Chloro-1,1-Difluoroe...	4.29	65	8167368	322.841	ng		98
7) Dichlorofluoromethane ...	0.00	67	0	N.D.			
8) Vinylbromide	0.00	108	0	N.D.			
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.			
10) 2-Methylbutane	0.00	57	0	N.D.	d		
11) Methyl Acetate	7.01	43	1214	N.D.			
12) 2-Methylpentane	8.44	71	184	N.D.			
13) 2,2-Dichloropropane	0.00	77	0	N.D.			
14) 1,1-Dichloropropene	0.00	75	0	N.D.			
15) Thiophene	11.03	84	48	N.D.			
17) 2,3-Dimethylpentane	11.41	56	46	N.D.			
18) Dibromomethane	0.00	174	0	N.D.			
20) Methyl Cyclohexane	12.90	55	520	N.D.			
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.			
23) 1-Chlorohexane	0.00	91	0	N.D.			
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.			
25) Bromobenzene	0.00	77	0	N.D.			
26) 2-Chlorotoluene	17.83	91	1063	N.D.			
27) 4-Chlorotoluene	17.83	91	1063	N.D.			
28) Indane	19.13	117	463	N.D.			
29) Indene	0.00	115	0	N.D.			
30) 1,2,4,5-Tetramethylben...	20.16	119	196	N.D.			
31) 1,2,3,4-Tetramethylben...	20.20	119	311	N.D.			
32) 1,2,3,5-Tetramethylben...	20.59	119	48	N.D.			
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.			

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

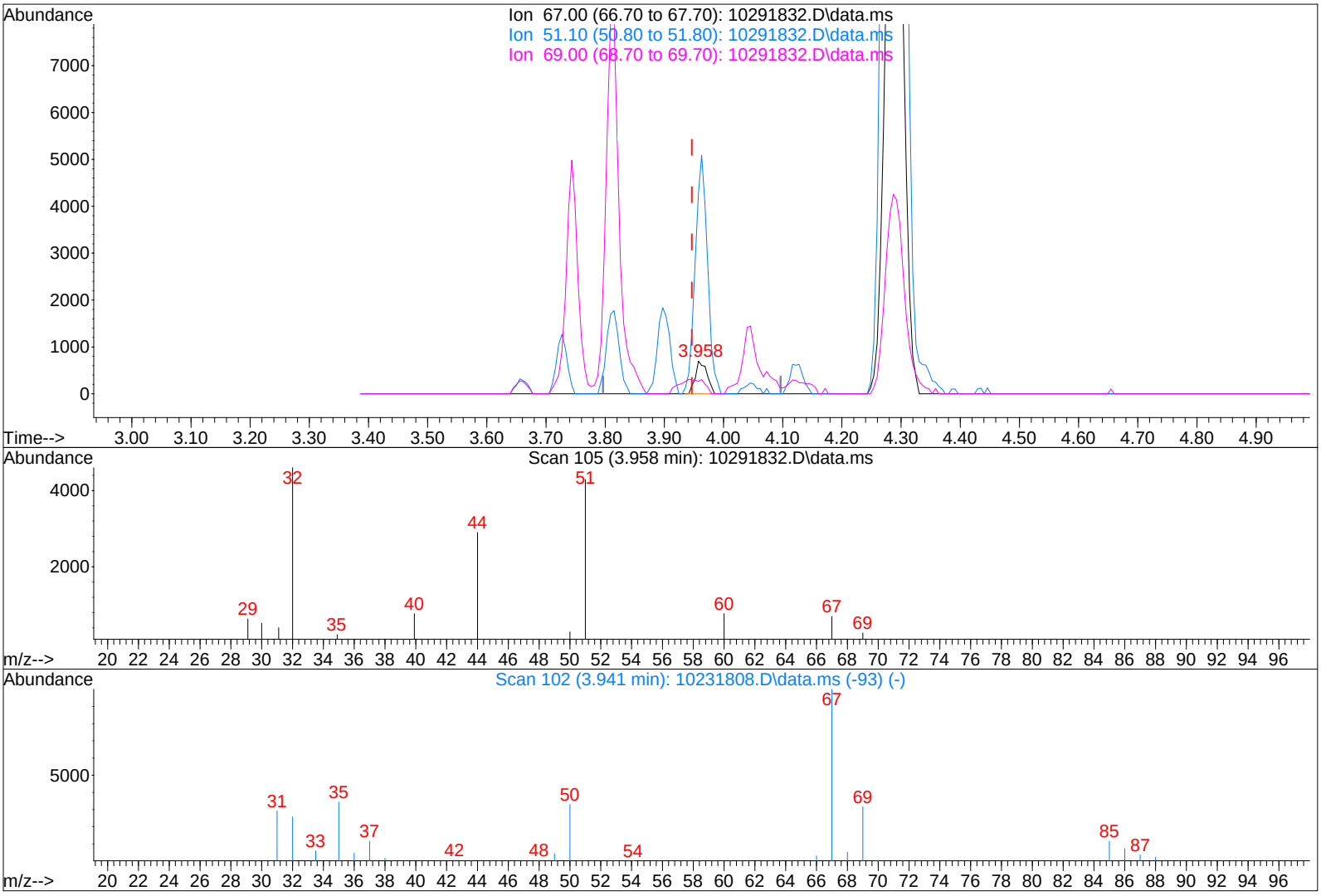
Quant Time: Oct 30 09:12:32 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291832.D Vial: 13
Acq On : 29 Oct 2018 23:00 Operator: RS
Sample : P1805559-003 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:12:04 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291832.D\data.ms

(5) Chlorodifluoromethane (CFC 22) (T)

3.958min (+0.011) 0.25ng

response 952

Ion	Exp%	Act%
67.00	100	100
51.10	683.70	775.84
69.00	32.10	0.00#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:06:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	114280	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	586747	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380749	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	331697	16.736	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 133.92%#				
57) Toluene-d8 (SS2)	13.67	98	782709	11.767	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.16%				
73) Bromofluorobenzene (SS3)	17.16	174	152085	10.163	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.28%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.08	85	23500	0.755	ng		100
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	272	N.D.			
6) Vinyl Chloride	4.46	62	480	N.D.			
7) 1,3-Butadiene	4.74	54	100	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.56	45	257	N.D.			
11) Acetonitrile	5.69	41	2213	0.052	ng		82
12) Acrolein	5.84	56	1509	0.125	ng		95
13) Acetone	6.00	58	30594	1.897	ng	#	22
14) Trichlorofluoromethane	6.17	101	14623	0.656	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	8769	0.175	ng		97
16) Acrylonitrile	6.50	53	106	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d		
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	7.06	41	1103	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1240	0.139	ng		87
22) Carbon Disulfide	7.29	76	21495	0.355	ng		97
23) trans-1,2-Dichloroethene	8.02	61	1285	N.D.			
24) 1,1-Dichloroethane	8.01	63	120	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	706	0.266	ng		98
27) 2-Butanone (MEK)	8.69	72	2239	0.178	ng	#	21
28) cis-1,2-Dichloroethene	9.10	61	2269	0.088	ng		84
29) Diisopropyl Ether	0.00	87	0	N.D.	d		
30) Ethyl Acetate	9.36	61	4826	0.724	ng		97
31) n-Hexane	9.34	57	549	N.D.			
32) Chloroform	9.40	83	18271	0.677	ng		97
34) Tetrahydrofuran (THF)	9.84	72	5688	0.470	ng	#	81
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	8114	0.366	ng		97
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.81	56	13050	0.654	ng		81
41) Benzene	10.88	78	22754	0.318	ng		100
42) Carbon Tetrachloride	11.04	117	646	N.D.			
43) Cyclohexane	11.15	84	411	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	3863079	274.635	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	250	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:06:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

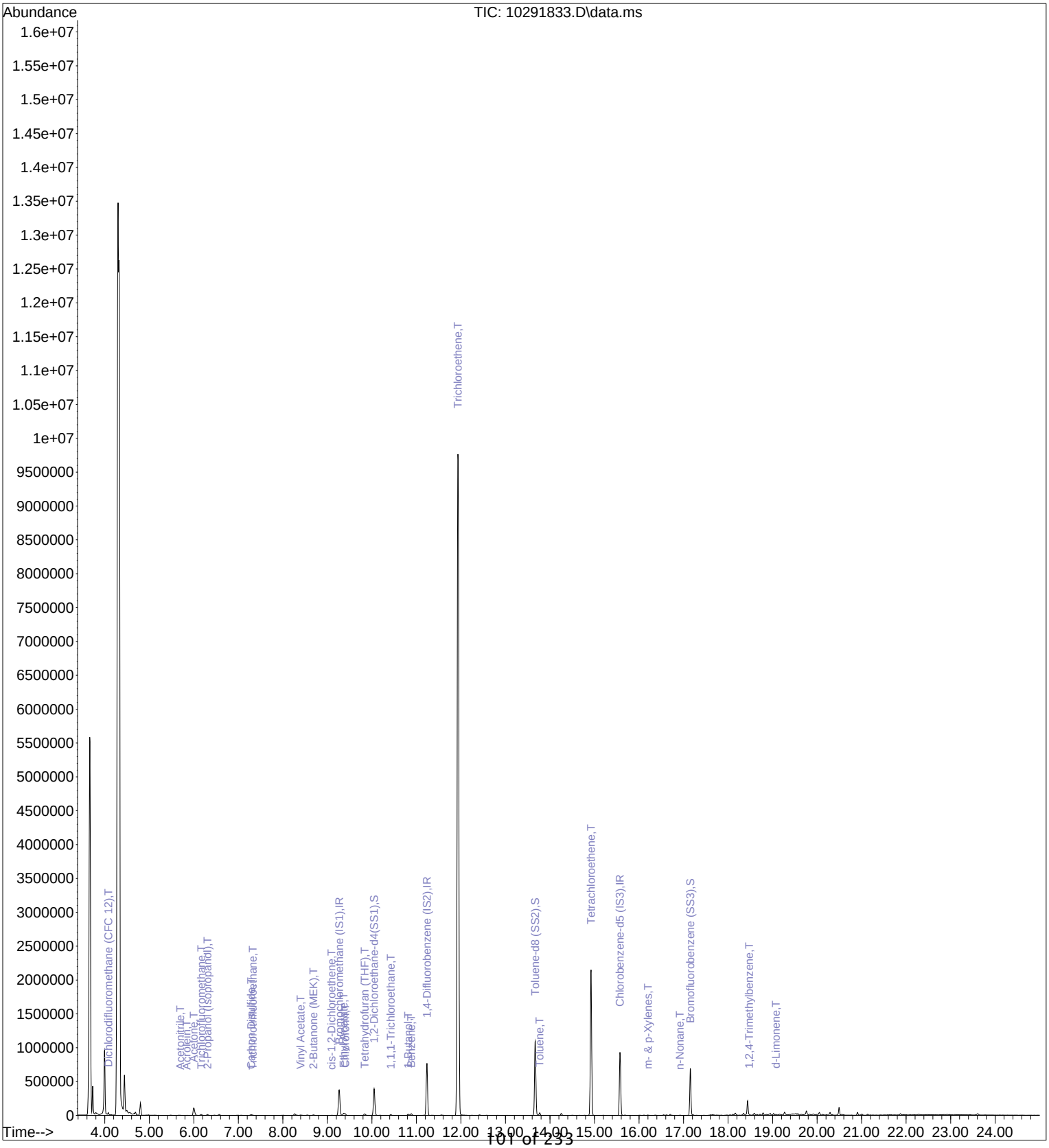
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	12.25	71	183	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	12.82	58	277	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	29300	0.394 ng	98
59) 2-Hexanone	14.05	43	948	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	2016	N.D.	
63) n-Octane	14.78	57	465	N.D.	
64) Tetrachloroethene	14.92	166	597173	38.887 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	3467	N.D.	
67) m- & p-Xylenes	16.20	91	5347	0.085 ng	89
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1040	N.D.	
70) o-Xylene	16.70	91	2747	N.D.	
71) n-Nonane	16.92	43	2286	0.053 ng	78
72) 1,1,2,2-Tetrachloroethane	16.70	83	468	N.D.	
74) Cumene	17.30	105	131	N.D.	
75) alpha-Pinene	17.70	93	818	N.D.	
76) n-Propylbenzene	17.82	91	781	N.D.	
77) 3-Ethyltoluene	17.93	105	1484	N.D.	
78) 4-Ethyltoluene	17.98	105	732	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	641	N.D.	
80) alpha-Methylstyrene	18.21	118	762	N.D.	
81) 2-Ethyltoluene	18.25	105	680	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	3377	0.058 ng	83
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.47	91	429	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	18.92	105	601	N.D.	
88) 4-Isopropyltoluene (p-...	18.92	119	463	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	601	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.07	68	1771	0.059 ng	90
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	2448	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	0.00	119	0	N.D. d	
100) n-Butylbenzene	19.34	91	1181	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:06:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:06:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

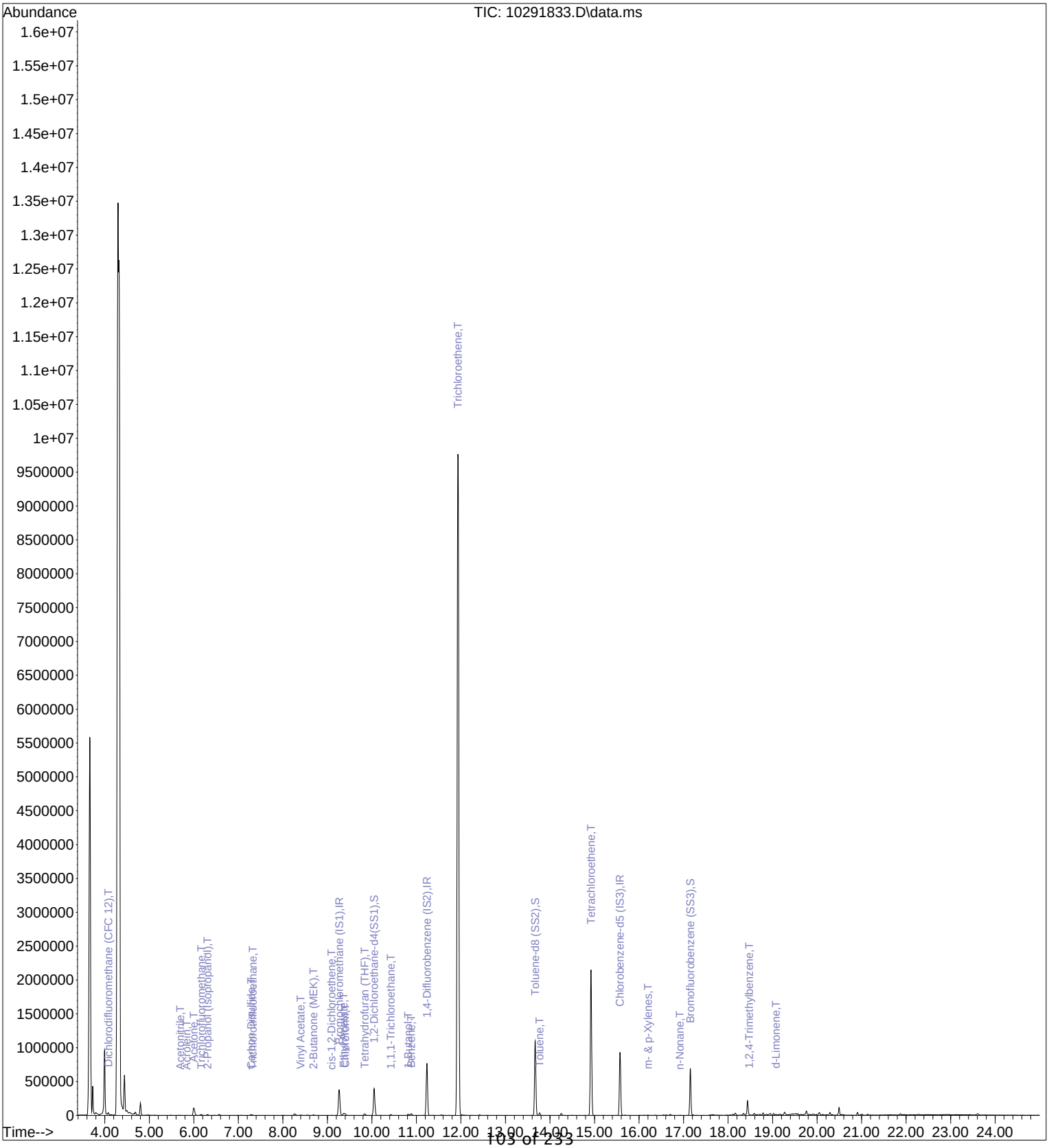
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	114280	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	586747	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380749	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	331697	16.736	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 133.92%#				
57) Toluene-d8 (SS2)	13.67	98	782709	11.767	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.16%				
73) Bromofluorobenzene (SS3)	17.16	174	152085	10.163	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 81.28%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	23500	0.755	ng		100
11) Acetonitrile	5.69	41	2213	0.052	ng		82
12) Acrolein	5.84	56	1509	0.125	ng		95
13) Acetone	6.00	58	30594	1.897	ng	#	22
14) Trichlorofluoromethane	6.17	101	14623	0.656	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	8769	0.175	ng		97
21) Trichlorotrifluoroethane	7.33	151	1240	0.139	ng		87
22) Carbon Disulfide	7.29	76	21495	0.355	ng		97
26) Vinyl Acetate	8.40	86	706	0.266	ng		98
27) 2-Butanone (MEK)	8.69	72	2239	0.178	ng	#	21
28) cis-1,2-Dichloroethene	9.10	61	2269	0.088	ng		84
30) Ethyl Acetate	9.36	61	4826	0.724	ng		97
32) Chloroform	9.40	83	18271	0.677	ng		97
34) Tetrahydrofuran (THF)	9.84	72	5688	0.470	ng	#	81
38) 1,1,1-Trichloroethane	10.43	97	8114	0.366	ng		97
40) 1-Butanol	10.81	56	13050	0.654	ng		81
41) Benzene	10.88	78	22754	0.318	ng		100
47) Trichloroethene	11.93	130	3863079	274.635	ng		100
58) Toluene	13.77	91	29300	0.394	ng		98
64) Tetrachloroethene	14.92	166	597173	38.887	ng		99
67) m- & p-Xylenes	16.20	91	5347	0.085	ng		89
71) n-Nonane	16.92	43	2286	0.053	ng		78
82) 1,2,4-Trimethylbenzene	18.48	105	3377	0.058	ng		83
91) d-Limonene	19.07	68	1771	0.059	ng		90

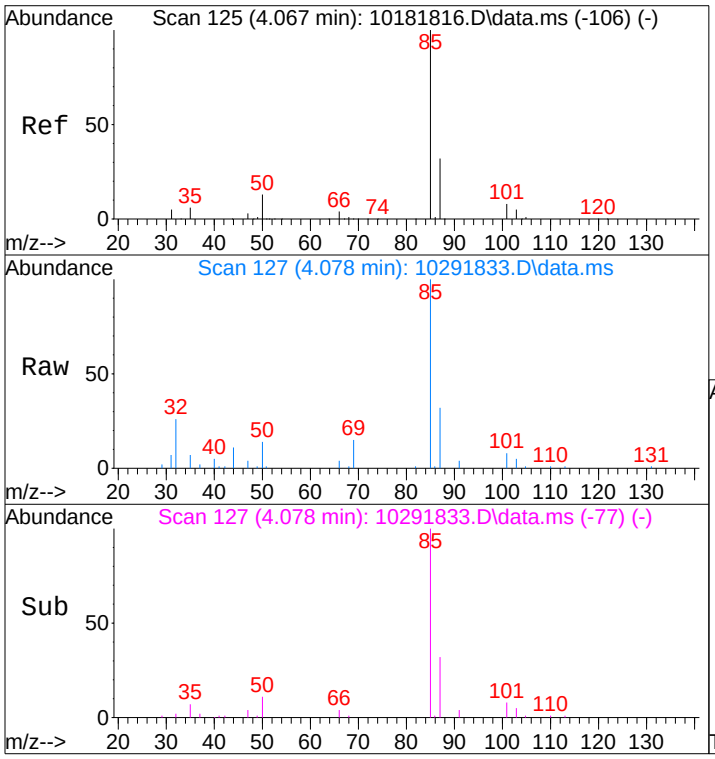
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:06:15 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

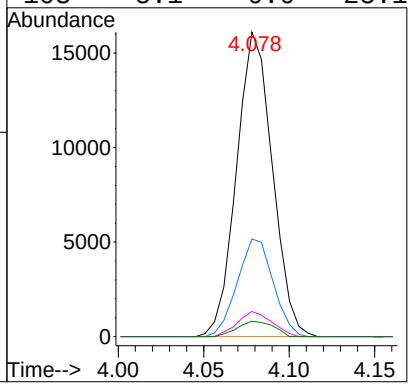


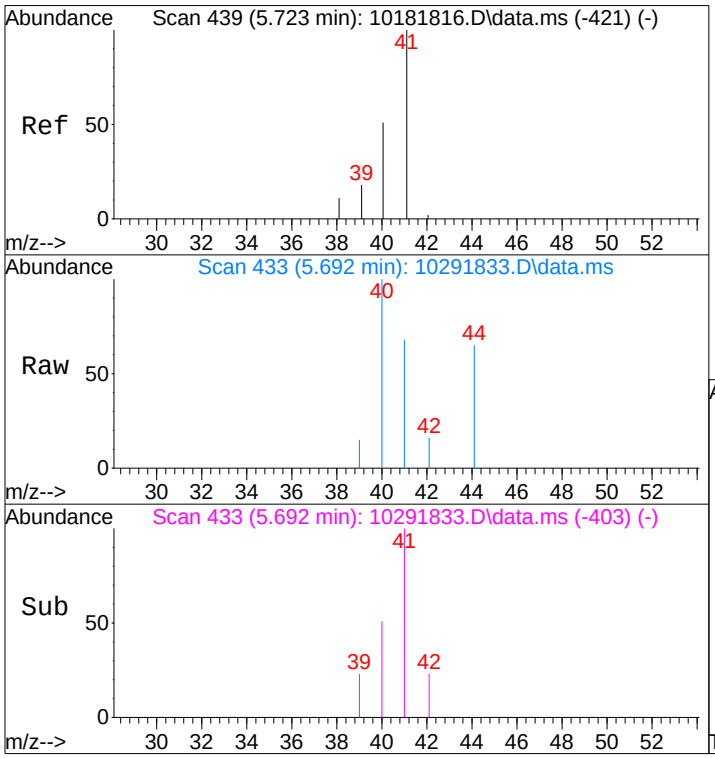


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.76 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 85 Resp: 23500

Ion	Ratio	Lower	Upper
85	100		
87	32.1	12.0	52.0
101	7.9	0.0	28.0
103	5.1	0.0	25.1

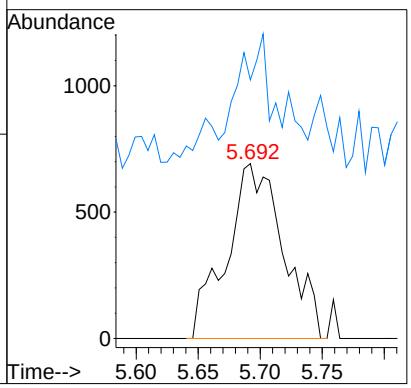


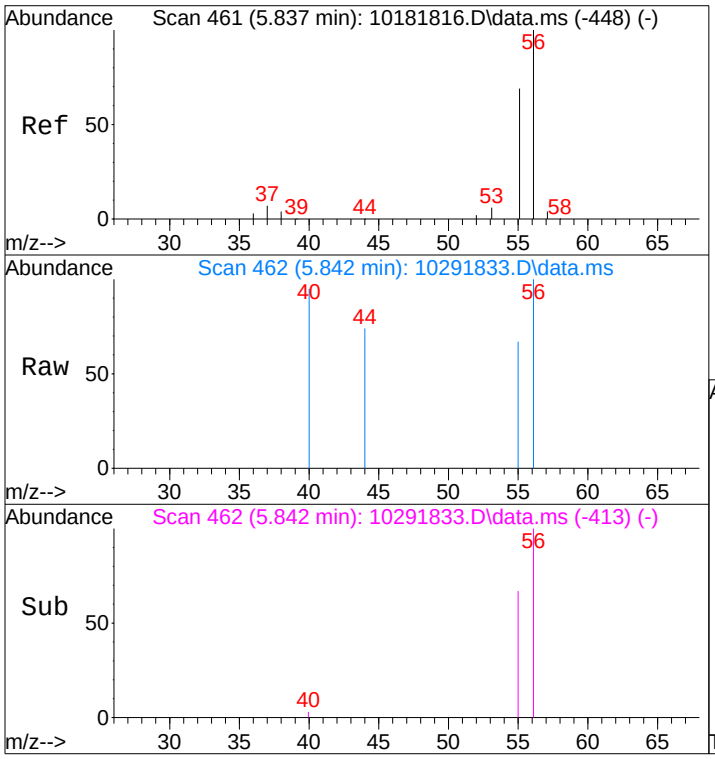


#11
Acetonitrile
Concen: 0.05 ng
RT: 5.69 min Scan# 433
Delta R.T. -0.045 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 41 Resp: 2213

Ion	Ratio	Lower	Upper
41	100		
40	64.3	31.4	71.4

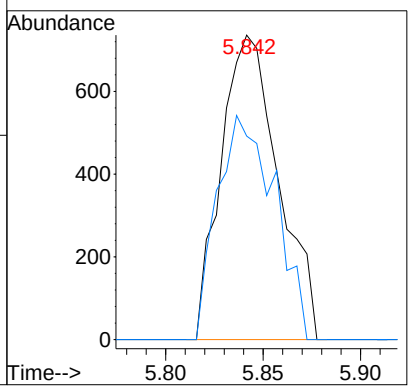


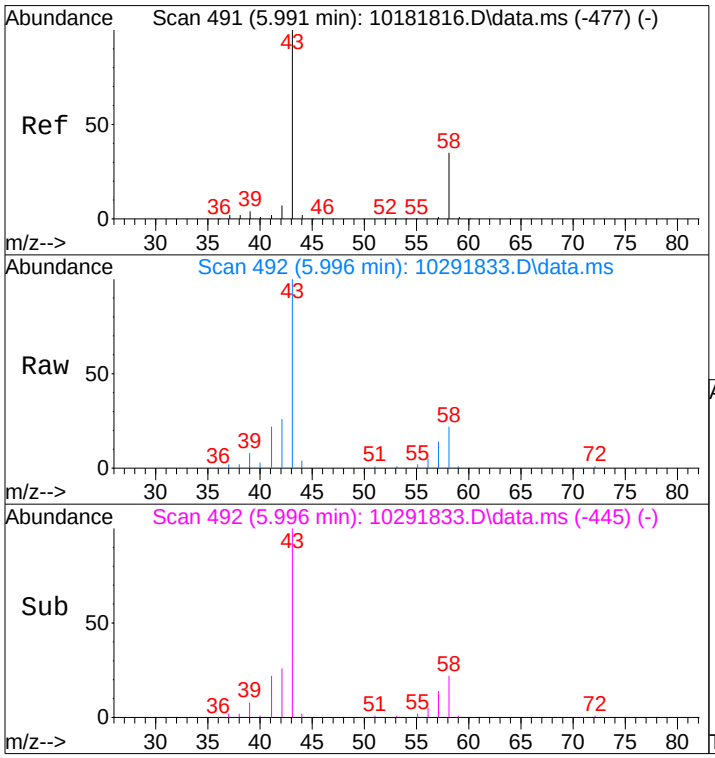


#12
Acrolein
Concen: 0.12 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 56 Resp: 1509

Ion	Ratio	Lower	Upper
56	100		
55	73.6	49.3	89.3

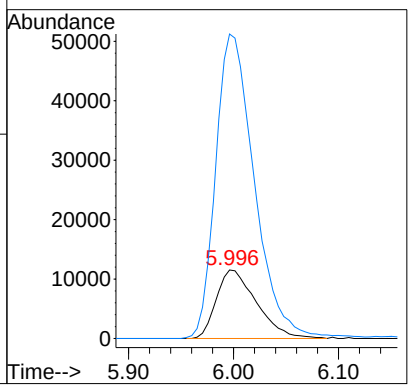


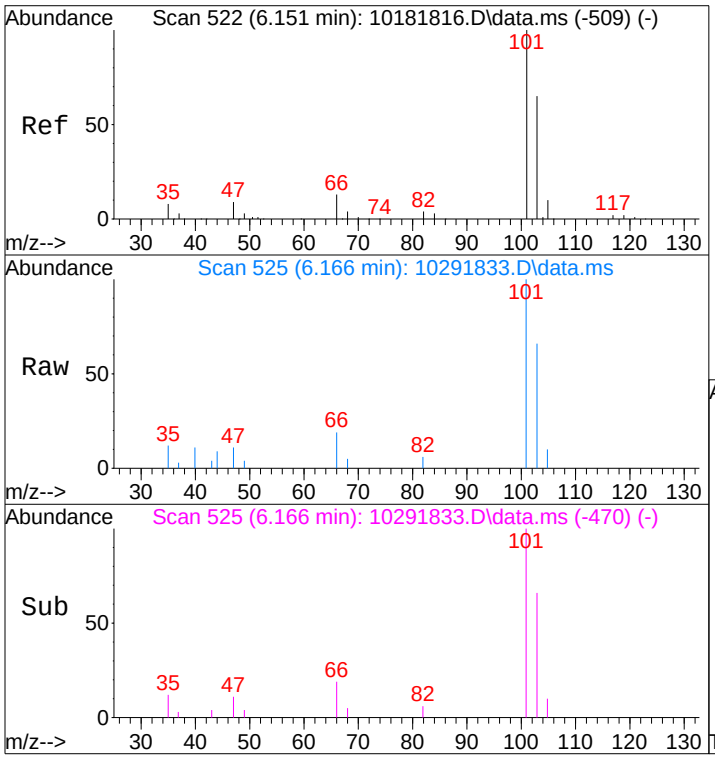


#13
Acetone
Concen: 1.90 ng
RT: 6.00 min Scan# 492
Delta R.T. -0.007 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 58 Resp: 30594

Ion	Ratio	Lower	Upper
58	100		
43	431.2	254.3	314.3#

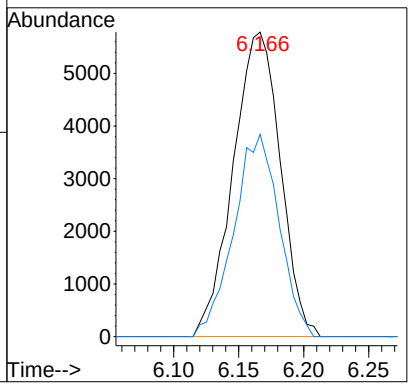


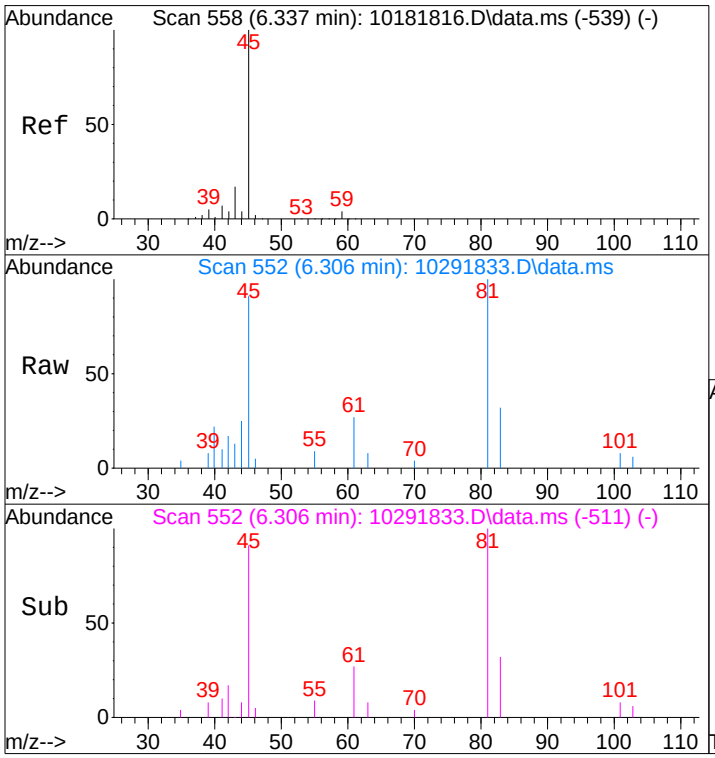


#14
Trichlorofluoromethane
Concen: 0.66 ng
RT: 6.17 min Scan# 525
Delta R.T. 0.034 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion:101 Resp: 14623

Ion	Ratio	Lower	Upper
101	100		
103	63.6	44.5	84.5

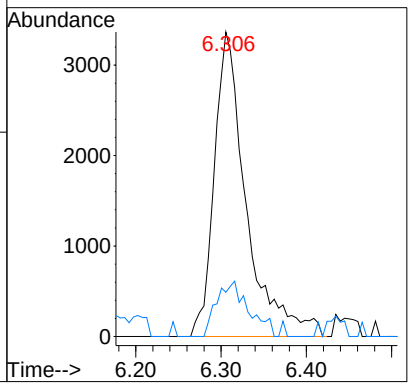


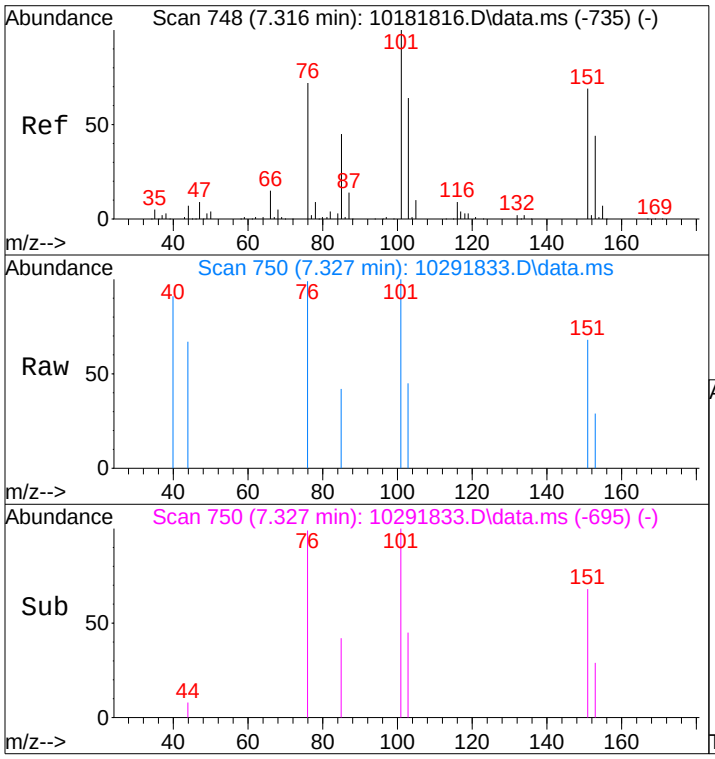


#15
2-Propanol (Isopropanol)
Concen: 0.17 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 45 Resp: 8769

Ion	Ratio	Lower	Upper
45	100		
43	18.1	0.0	36.7

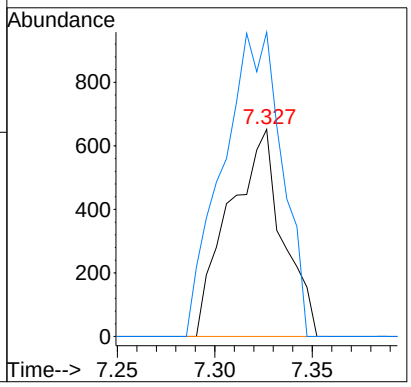


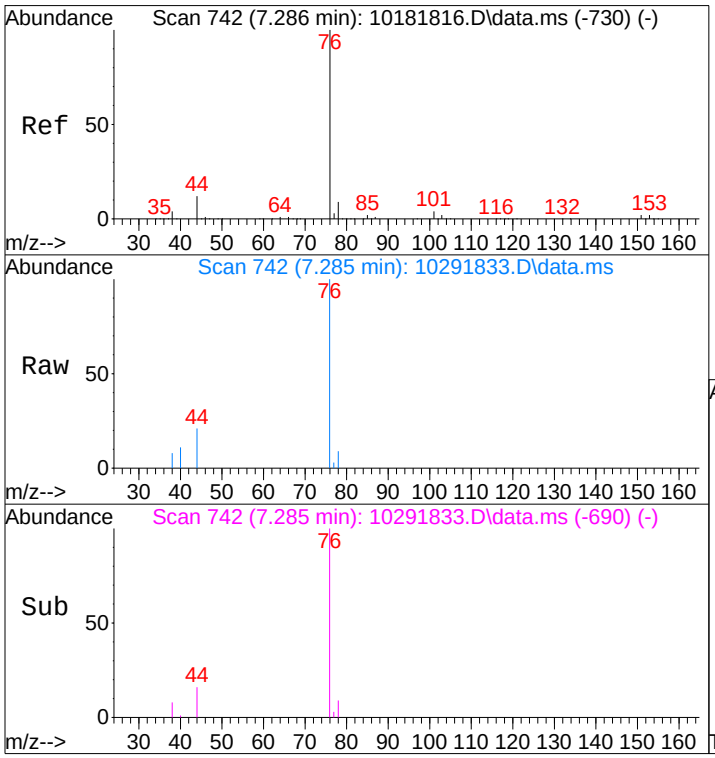


#21
Trichlorotrifluoroethane
Concen: 0.14 ng
RT: 7.33 min Scan# 750
Delta R.T. 0.036 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion:151 Resp: 1240

Ion	Ratio	Lower	Upper
151	100		
101	163.8	127.5	167.5

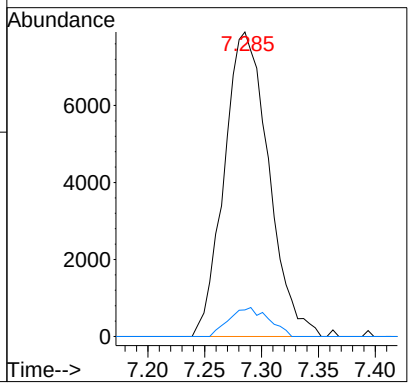


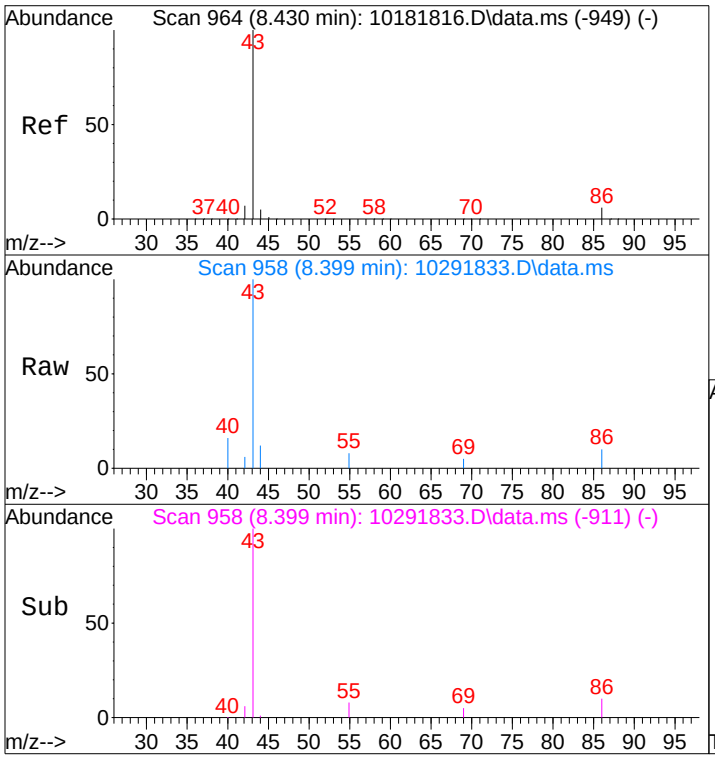


#22
Carbon Disulfide
Concen: 0.35 ng
RT: 7.29 min Scan# 742
Delta R.T. 0.020 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 76 Resp: 21495

Ion	Ratio	Lower	Upper
76	100		
78	8.5	0.0	29.6

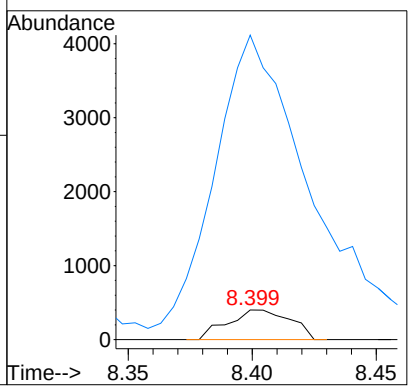


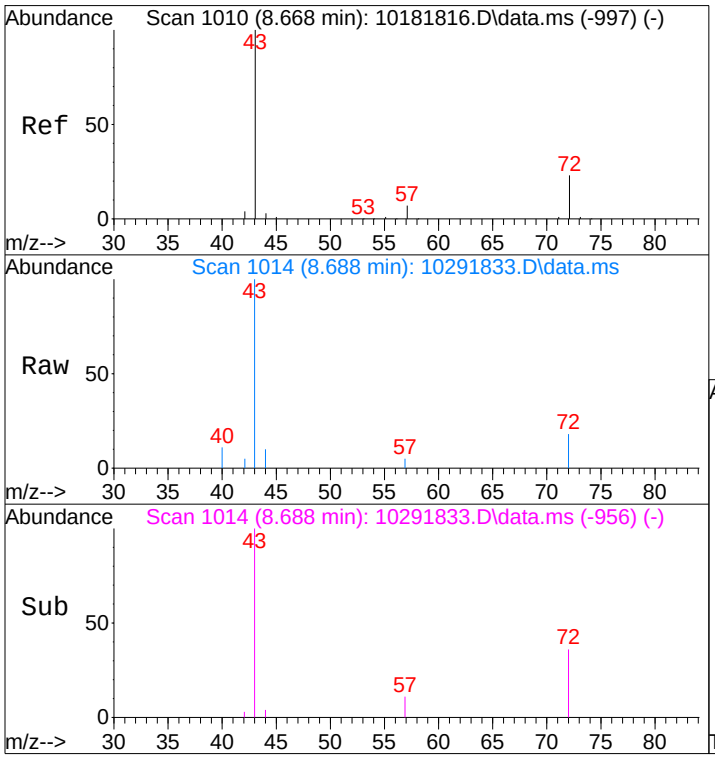


#26
Vinyl Acetate
Concen: 0.27 ng
RT: 8.40 min Scan# 958
Delta R.T. -0.010 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 86 Resp: 706

Ion	Ratio	Lower	Upper
86	100		
43	1627.1	1596.2	1636.2

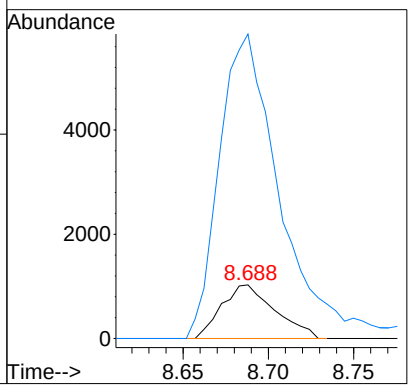


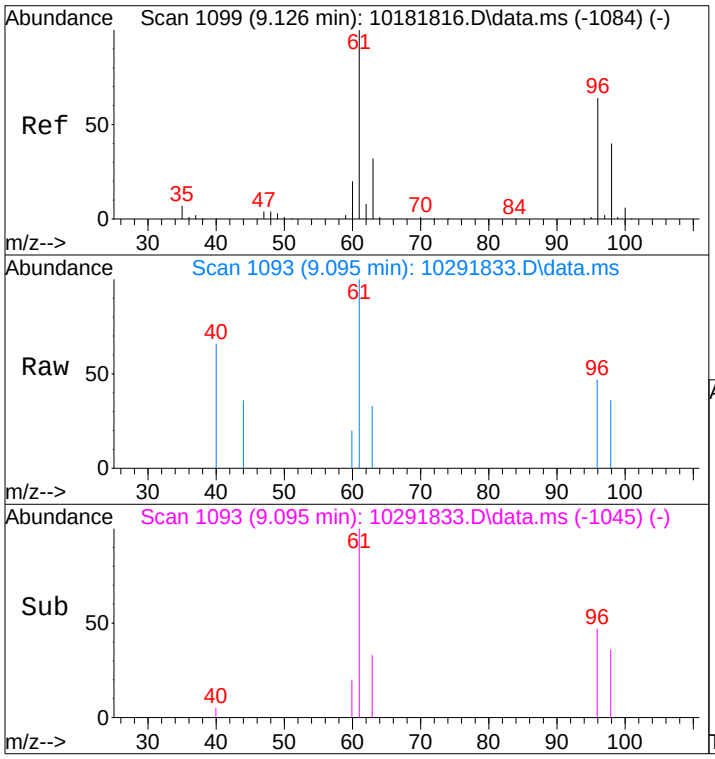


#27
2-Butanone (MEK)
Concen: 0.18 ng
RT: 8.69 min Scan# 1014
Delta R.T. 0.048 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 72 Resp: 2239

Ion	Ratio	Lower	Upper
72	100		
43	651.6	430.0	470.0#

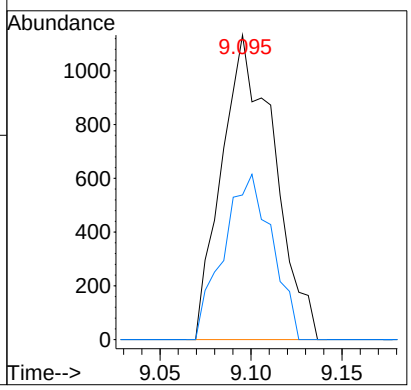


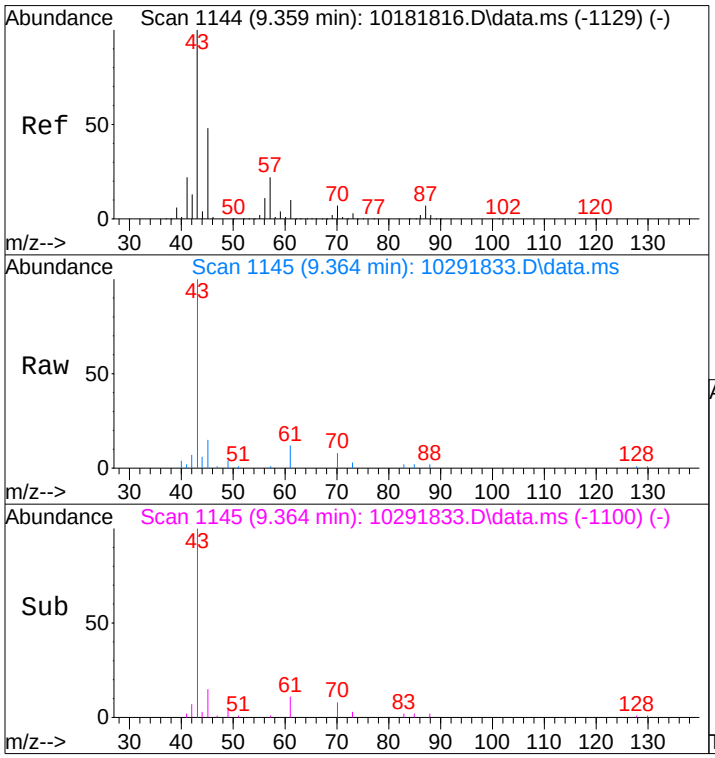


#28
cis-1,2-Dichloroethene
Concen: 0.09 ng
RT: 9.10 min Scan# 1093
Delta R.T. -0.001 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 61 Resp: 2269

Ion	Ratio	Lower	Upper
61	100		
96	50.2	42.8	82.8

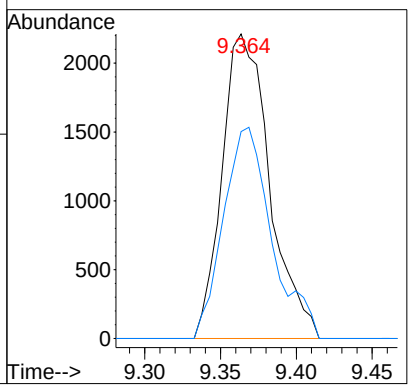


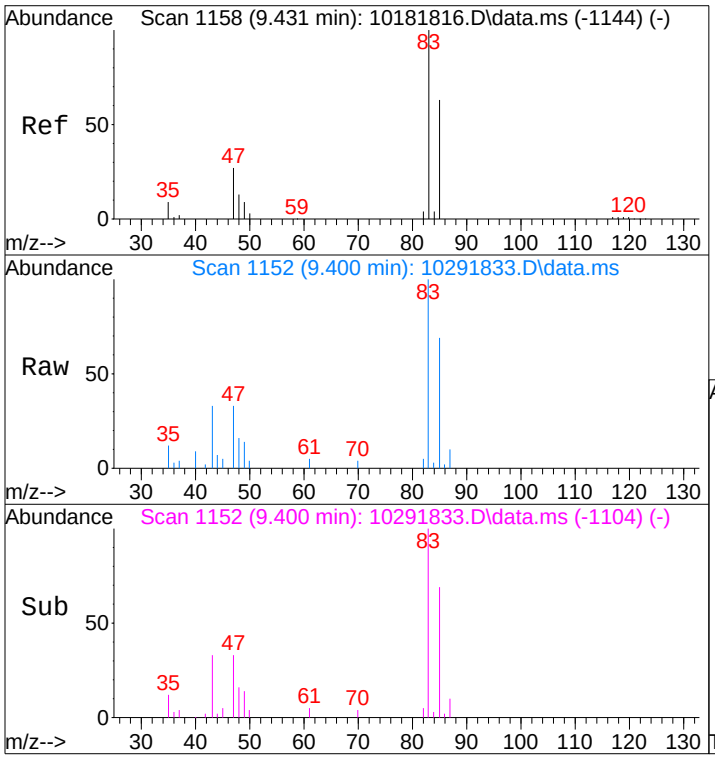


#30
Ethyl Acetate
Concen: 0.72 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.032 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 61 Resp: 4826

Ion	Ratio	Lower	Upper
61	100		
70	70.5	52.7	92.7

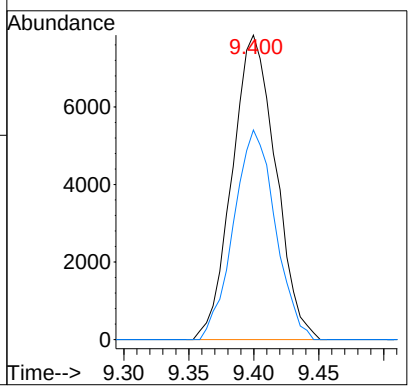


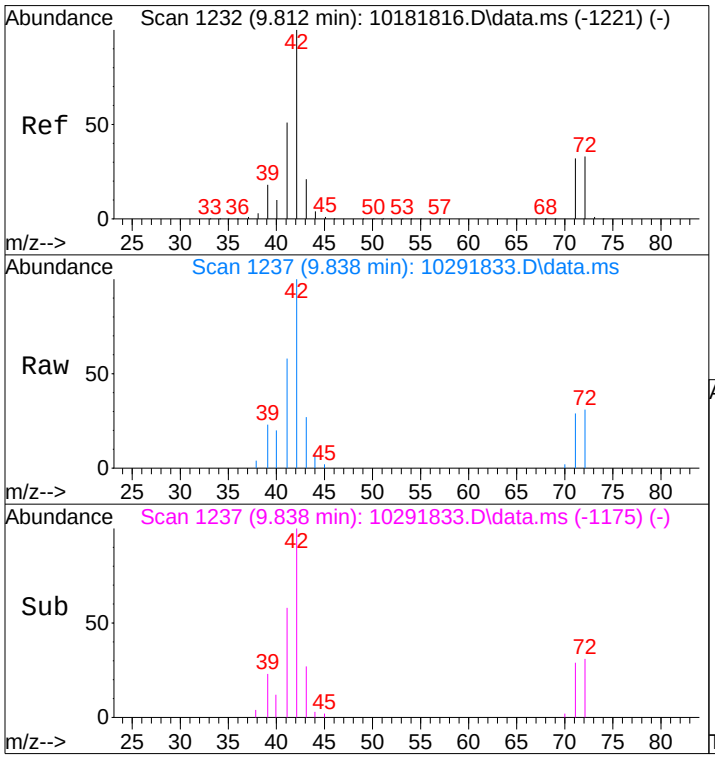


#32
Chloroform
Concen: 0.68 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 83 Resp: 18271

Ion	Ratio	Lower	Upper
83	100		
85	66.1	44.0	84.0

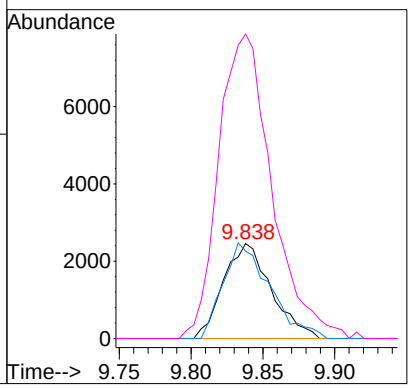


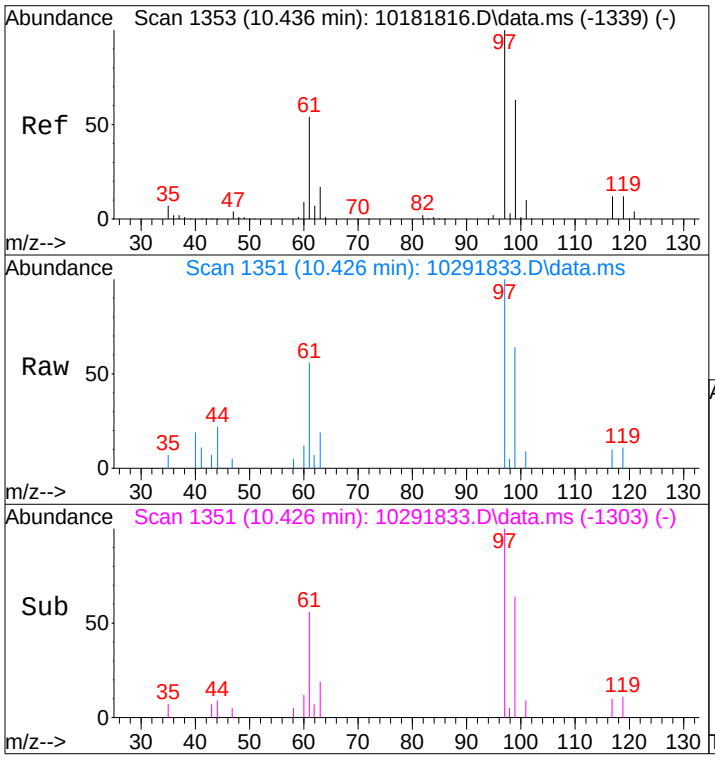


#34
Tetrahydrofuran (THF)
Concen: 0.47 ng
RT: 9.84 min Scan# 1237
Delta R.T. 0.070 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 72 Resp: 5688

Ion	Ratio	Lower	Upper
72	100		
71	98.6	76.7	116.7
42	357.1	287.9	327.9#

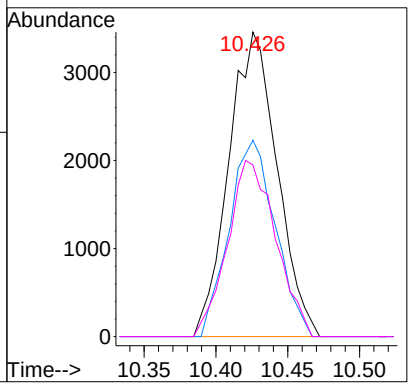


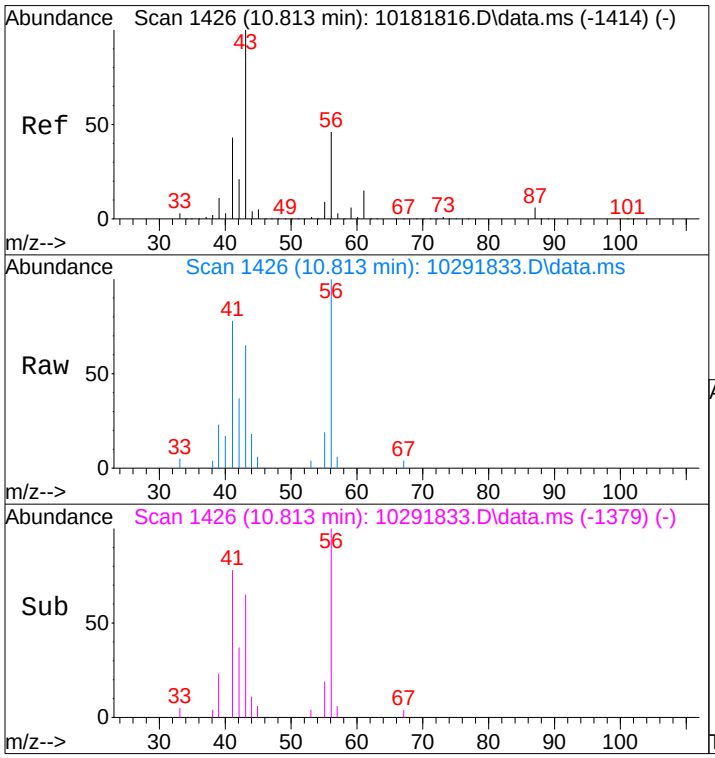


#38
1,1,1-Trichloroethane
Concen: 0.37 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 97 Resp: 8114

Ion	Ratio	Lower	Upper
97	100		
99	61.6	43.5	83.5
61	57.5	34.2	74.2

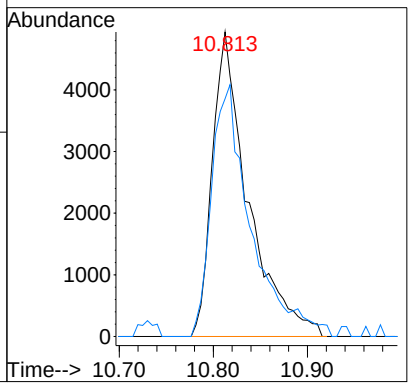


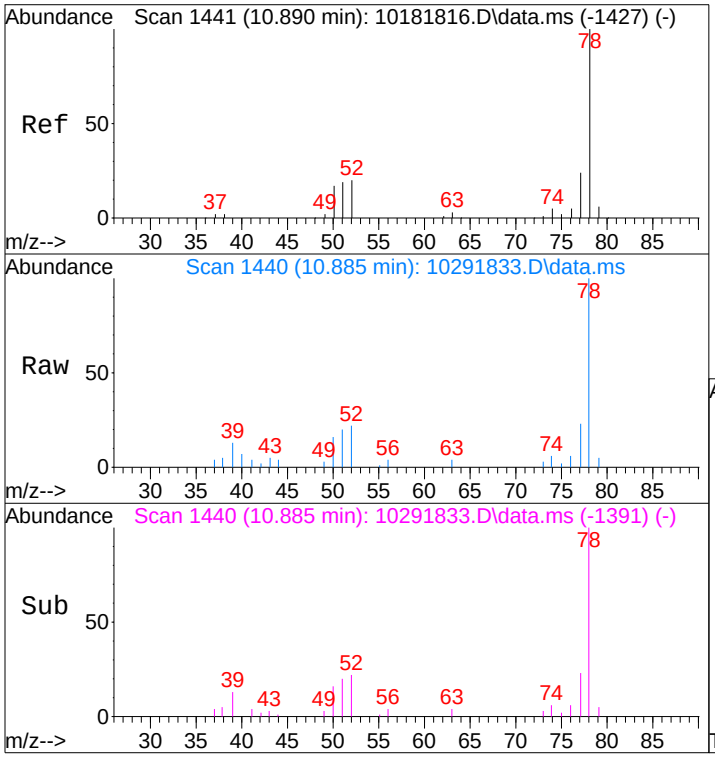


#40
1-Butanol
Concen: 0.65 ng
RT: 10.81 min Scan# 1426
Delta R.T. -0.006 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 56 Resp: 13050

Ion	Ratio	Lower	Upper
56	100		
41	90.4	90.2	130.2

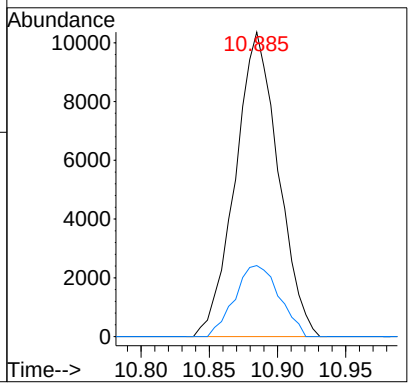


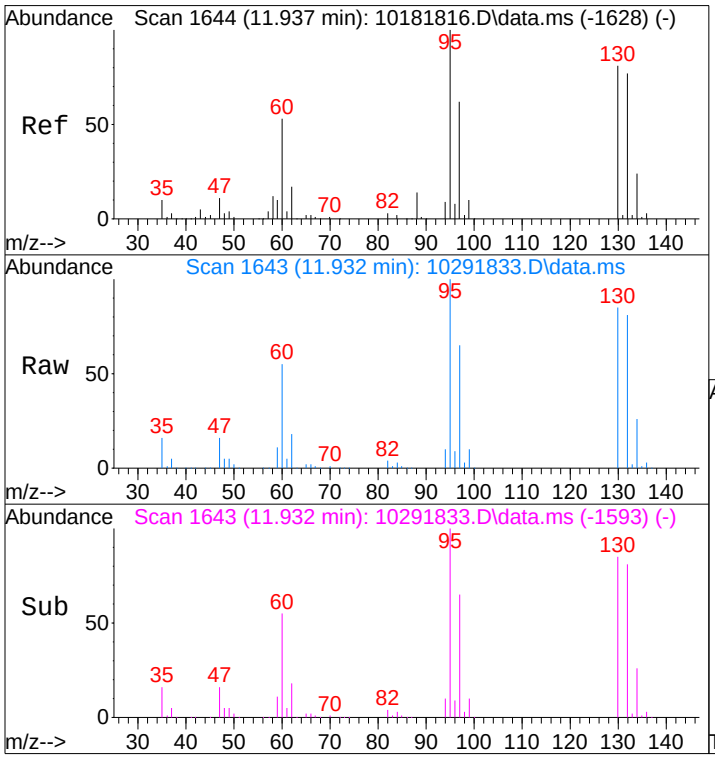


#41
Benzene
Concen: 0.32 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.004 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 78 Resp: 22754

Ion	Ratio	Lower	Upper
78	100		
77	24.2	4.1	44.1

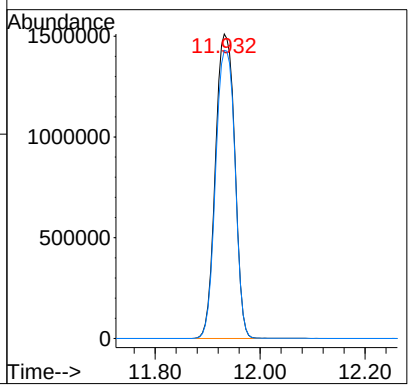


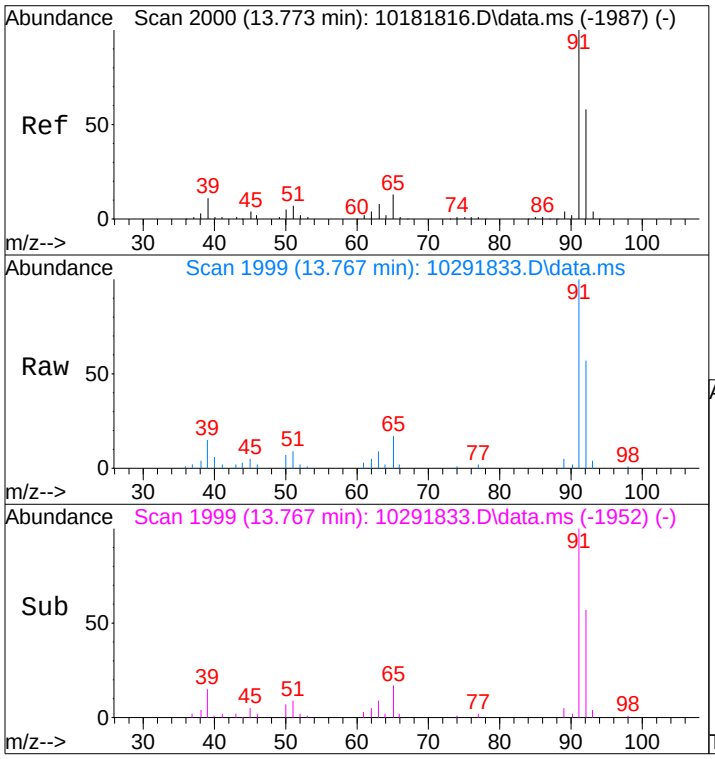


#47
Trichloroethene
Concen: 274.64 ng
RT: 11.93 min Scan# 1643
Delta R.T. 0.007 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion:130 Resp: 3863079

Ion	Ratio	Lower	Upper
130	100		
132	95.0	74.6	114.6

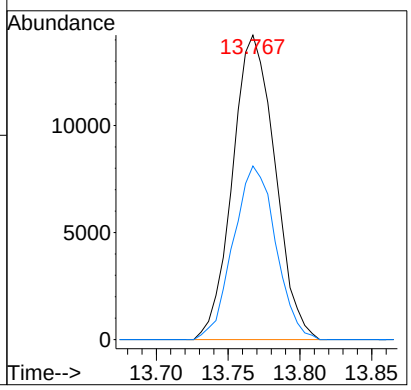


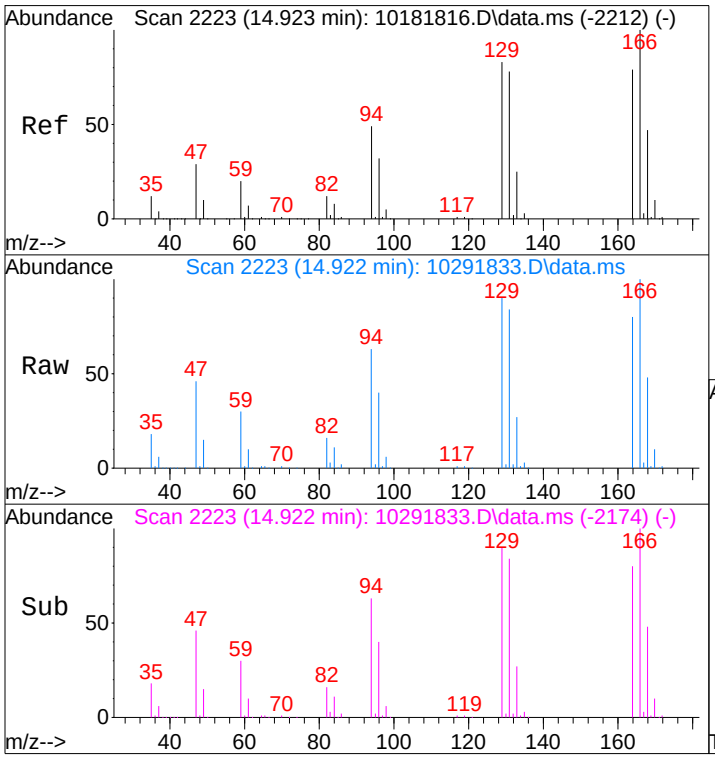


#58
Toluene
Concen: 0.39 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 91 Resp: 29300

Ion	Ratio	Lower	Upper
91	100		
92	56.9	38.1	78.1

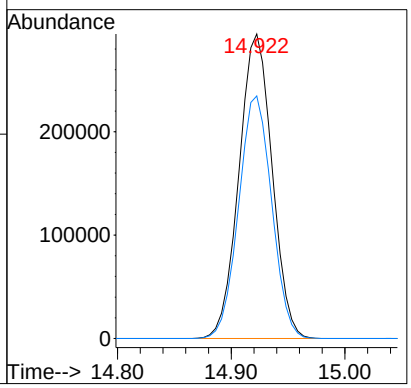


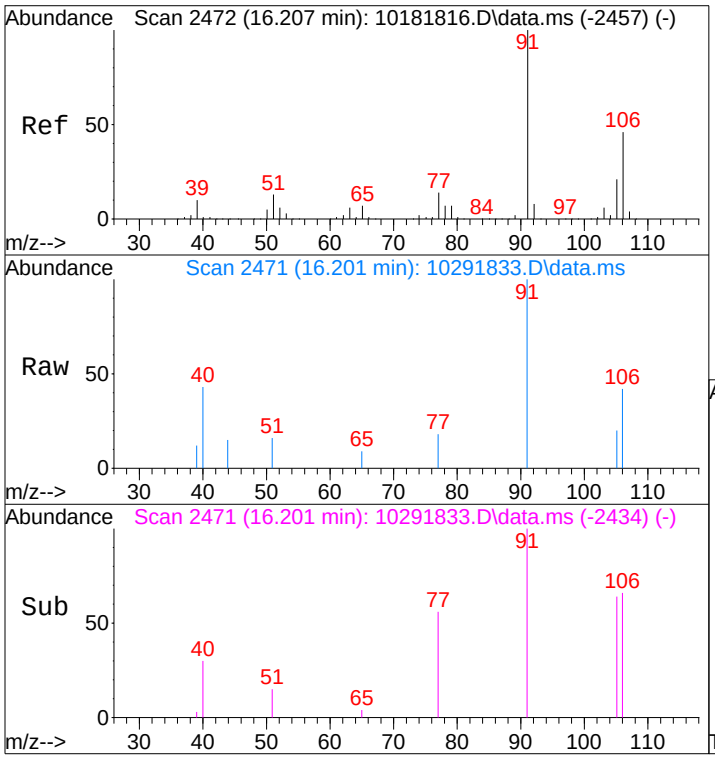


#64
Tetrachloroethene
Concen: 38.89 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.004 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion:166 Resp: 597173

Ion	Ratio	Lower	Upper
166	100		
164	79.4	58.9	98.9

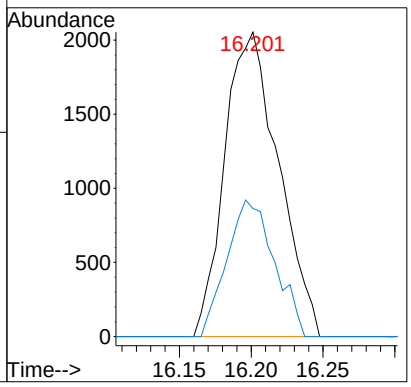


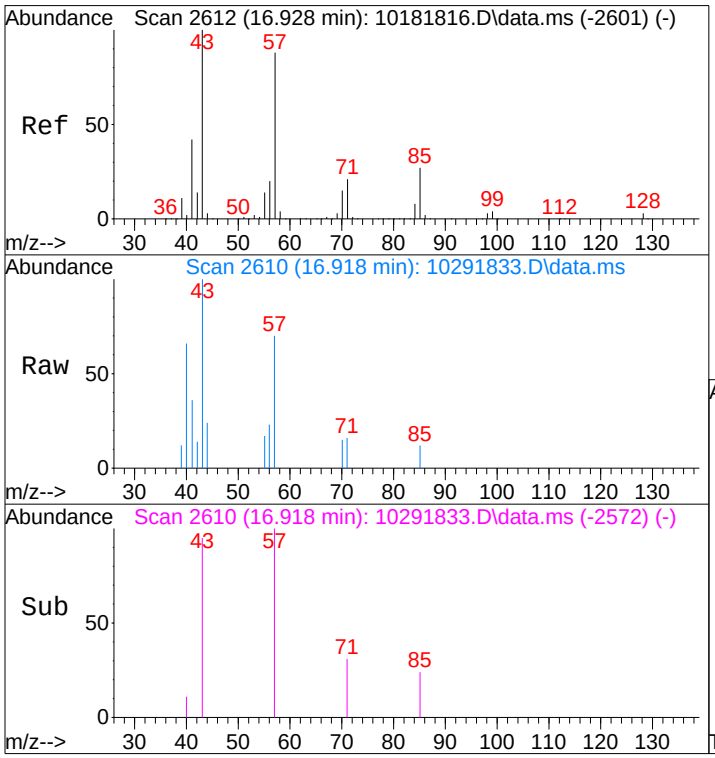


#67
m- & p-Xylenes
Concen: 0.09 ng
RT: 16.20 min Scan# 2471
Delta R.T. -0.010 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 91 Resp: 5347

Ion	Ratio	Lower	Upper
91	100		
106	39.6	26.7	66.7

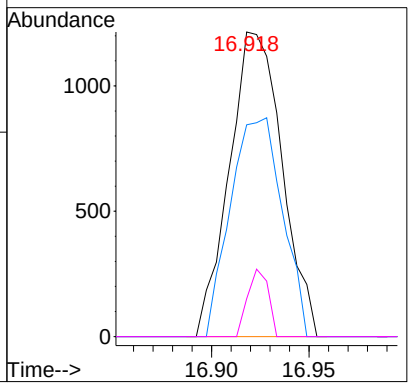


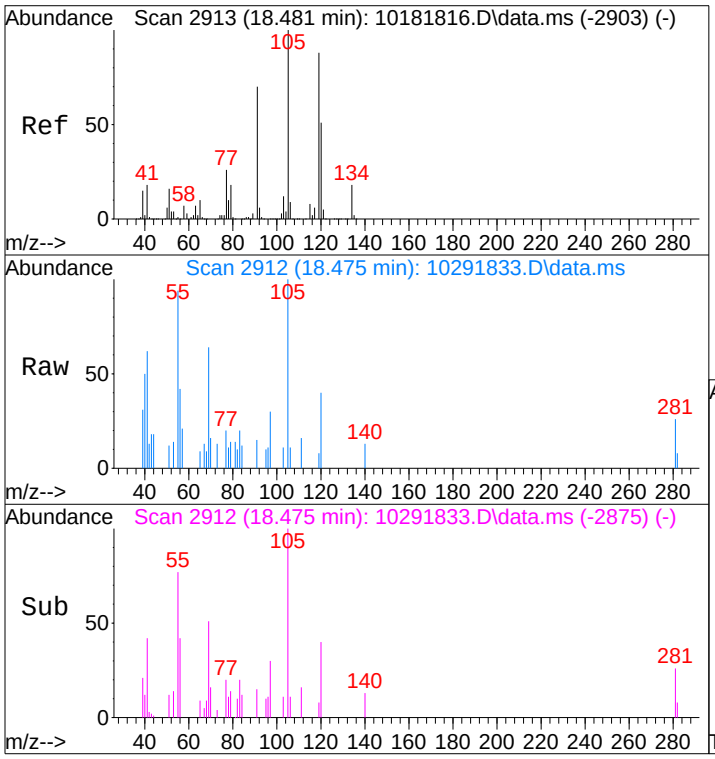


#71
n-Nonane
Concen: 0.05 ng
RT: 16.92 min Scan# 2610
Delta R.T. -0.005 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 43 Resp: 2286

Ion	Ratio	Lower	Upper
43	100		
57	70.6	66.7	106.7
85	8.7	6.7	46.7

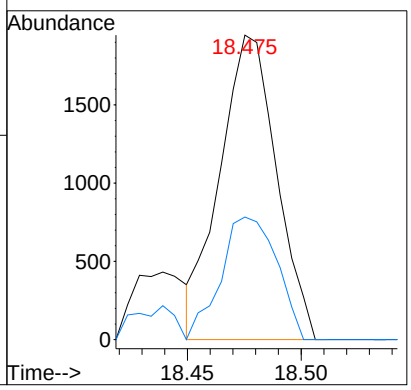


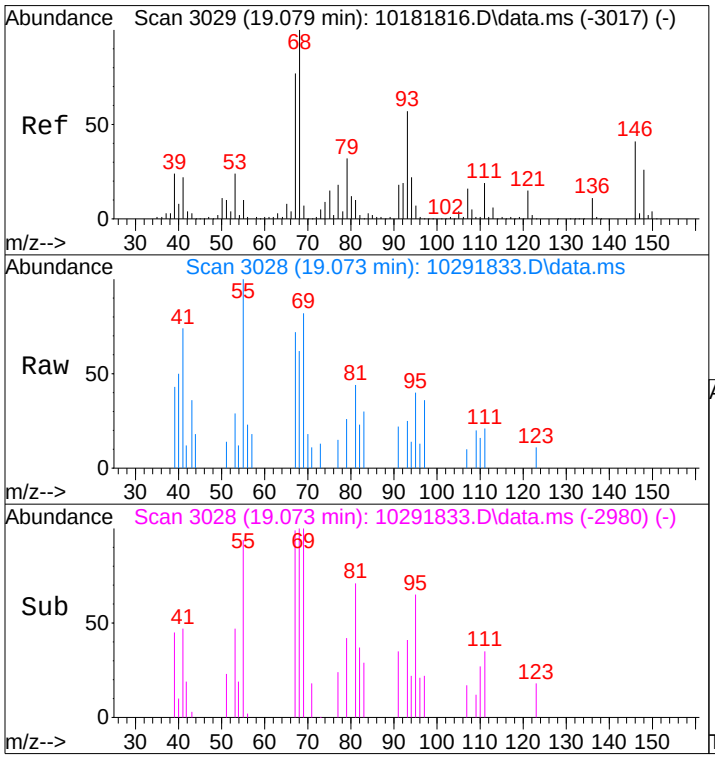


#82
1,2,4-Trimethylbenzene
Concen: 0.06 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion:105 Resp: 3377

Ion	Ratio	Lower	Upper
105	100		
120	39.8	31.3	71.3

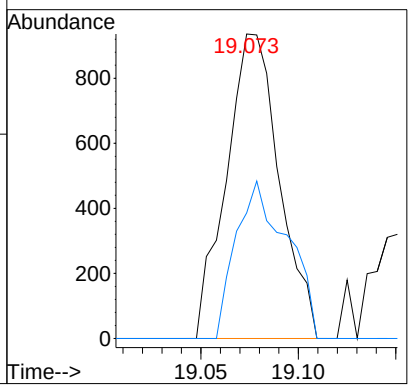




#91
d-Limonene
Concen: 0.06 ng
RT: 19.07 min Scan# 3028
Delta R.T. -0.003 min
Lab File: 10291833.D
Acq: 29 Oct 2018 23:34

Tgt Ion: 68 Resp: 1771

Ion	Ratio	Lower	Upper
68	100		
93	50.1	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:13:08 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

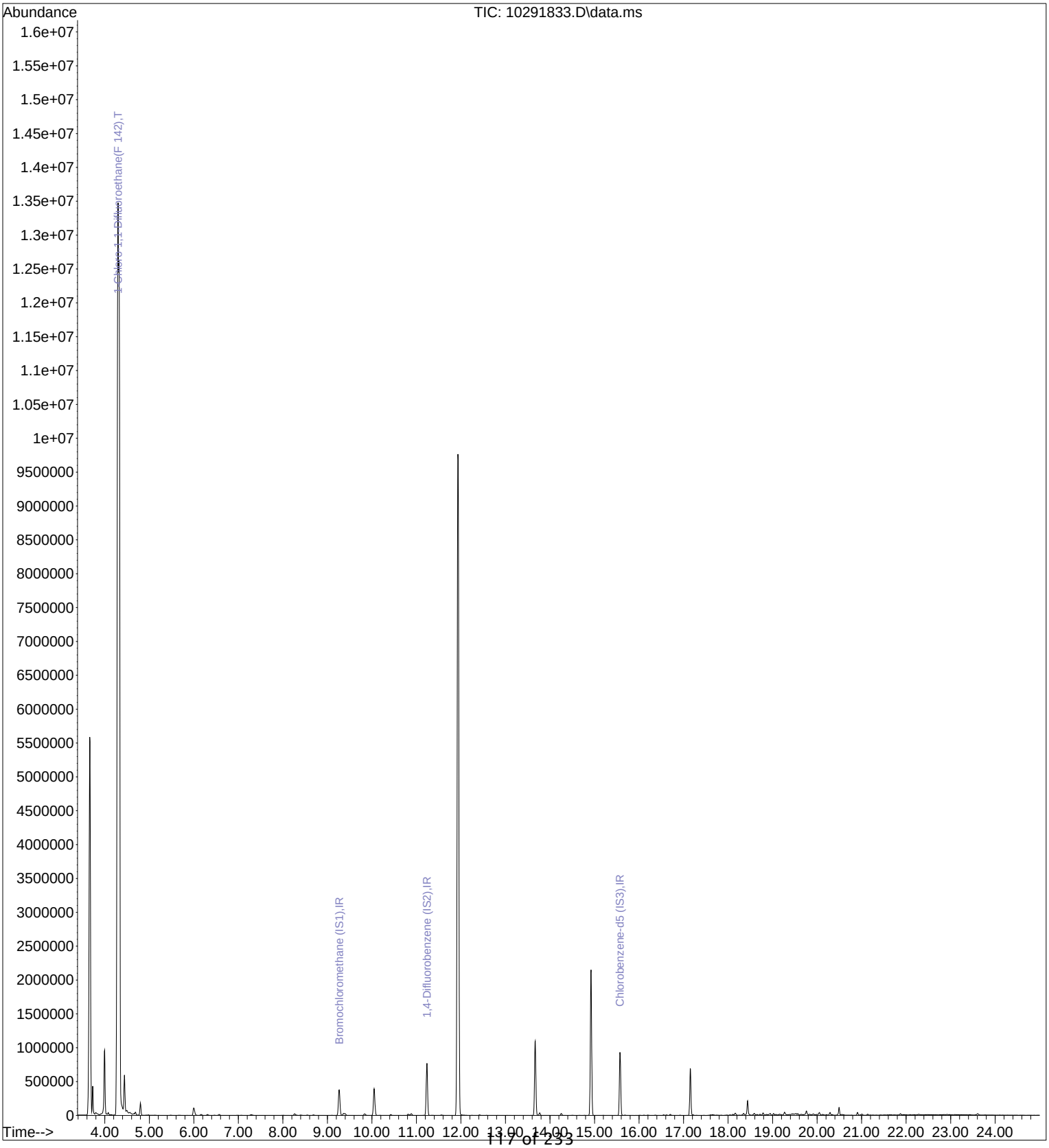
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	114280	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	586747	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	380749	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	266	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.	d	
4) 1,1-Difluoroethane	3.89	65	557	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d	
6) 1-Chloro-1,1-Difluoroe...	4.30	65	24927405	975.894	ng	95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	0.00	57	0	N.D.	d	
11) Methyl Acetate	7.02	43	1556	N.D.		
12) 2-Methylpentane	8.44	71	48	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	0.00	84	0	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.91	55	212	N.D.		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d	
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D.		
26) 2-Chlorotoluene	17.82	91	781	N.D.		
27) 4-Chlorotoluene	17.82	91	781	N.D.		
28) Indane	0.00	117	0	N.D.		
29) Indene	0.00	115	0	N.D.		
30) 1,2,4,5-Tetramethylben...	20.19	119	195	N.D.		
31) 1,2,3,4-Tetramethylben...	20.19	119	195	N.D.		
32) 1,2,3,5-Tetramethylben...	20.59	119	128	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291833.D Vial: 14
Acq On : 29 Oct 2018 23:34 Operator: RS
Sample : P1805559-004 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:13:08 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291834.D Vial: 14
Acq On : 30 Oct 2018 00:08 Operator: RS
Sample : P1805559-004dil (40mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:07:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	115100	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	576057	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	376839	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	328101	16.437	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 131.52%#				
57) Toluene-d8 (SS2)	13.66	98	773642	11.751	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.00%				
73) Bromofluorobenzene (SS3)	17.15	174	145018	9.791	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.32%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D.	d		
3) Dichlorodifluoromethan...	4.09	85	2086	0.067	ng	#	93
4) Chloromethane	0.00	50	0	N.D.	d		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.51	45	709	N.D.			
11) Acetonitrile	5.71	41	153	N.D.			
12) Acrolein	6.01	56	442	N.D.			
13) Acetone	6.01	58	6483	0.399	ng	#	48
14) Trichlorofluoromethane	6.17	101	1206	0.054	ng		98
15) 2-Propanol (Isopropanol)	6.35	45	748	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.03	59	104	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	2004	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	1639	0.060	ng		87
34) Tetrahydrofuran (THF)	9.85	72	565	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.42	97	703	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.85	56	1006	0.051	ng		87
41) Benzene	10.88	78	2133	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	11.24	84	588	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.	d		
47) Trichloroethene	11.93	130	375939	27.222	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D.	d		

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291834.D Vial: 14
Acq On : 30 Oct 2018 00:08 Operator: RS
Sample : P1805559-004dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:07:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

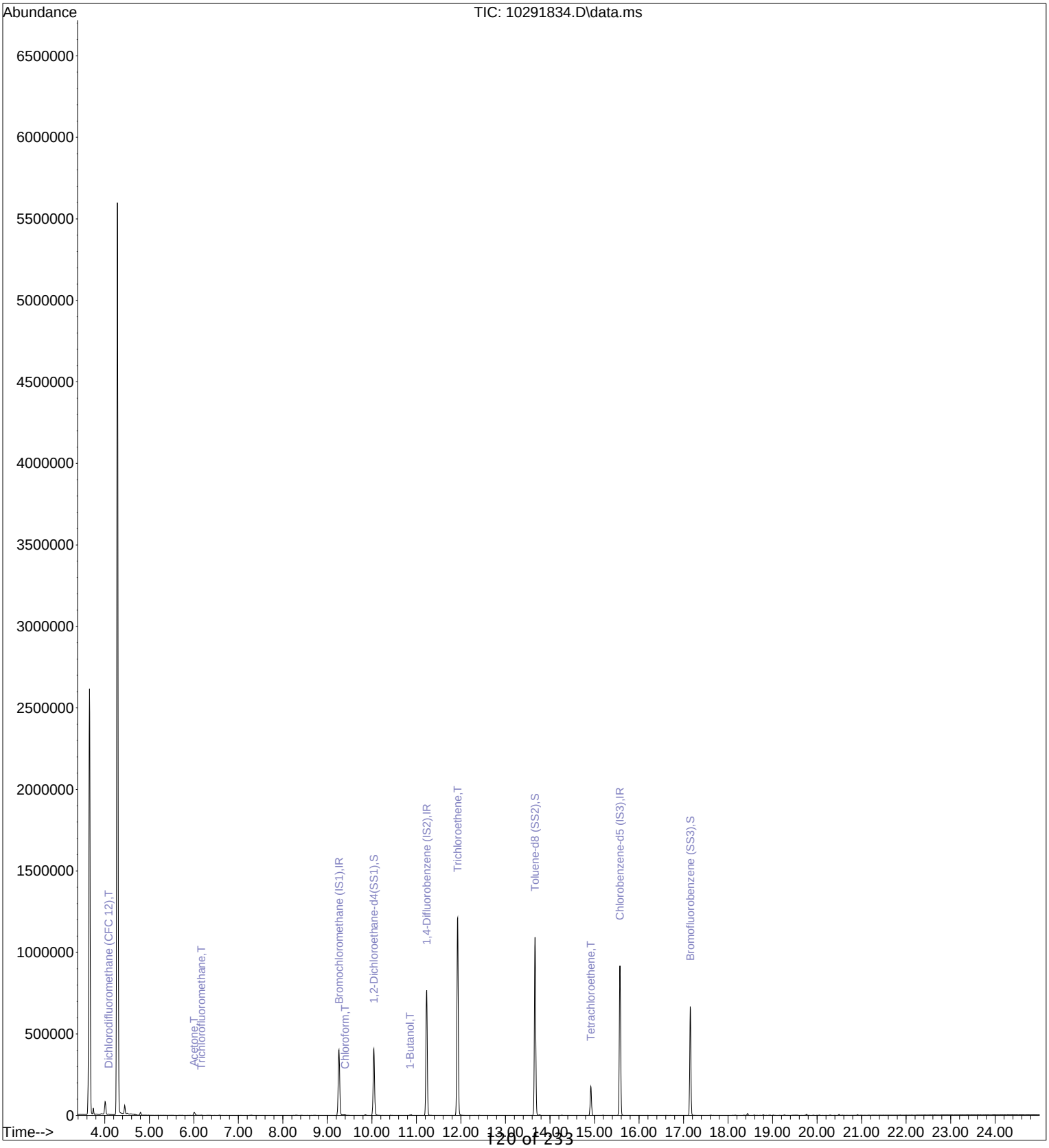
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.76	91	2921	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	48357	3.182 ng	99
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	159	N.D.	
67) m- & p-Xylenes	16.20	91	309	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.70	91	147	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	110	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	0.00	105	0	N.D.	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.91	57	318	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.99	128	426	N.D.	
96) n-Dodecane	21.01	57	248	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	16.38	55	167	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291834.D Vial: 14
Acq On : 30 Oct 2018 00:08 Operator: RS
Sample : P1805559-004dil (40mL) Inst : MS09
Misc : S31-10151806

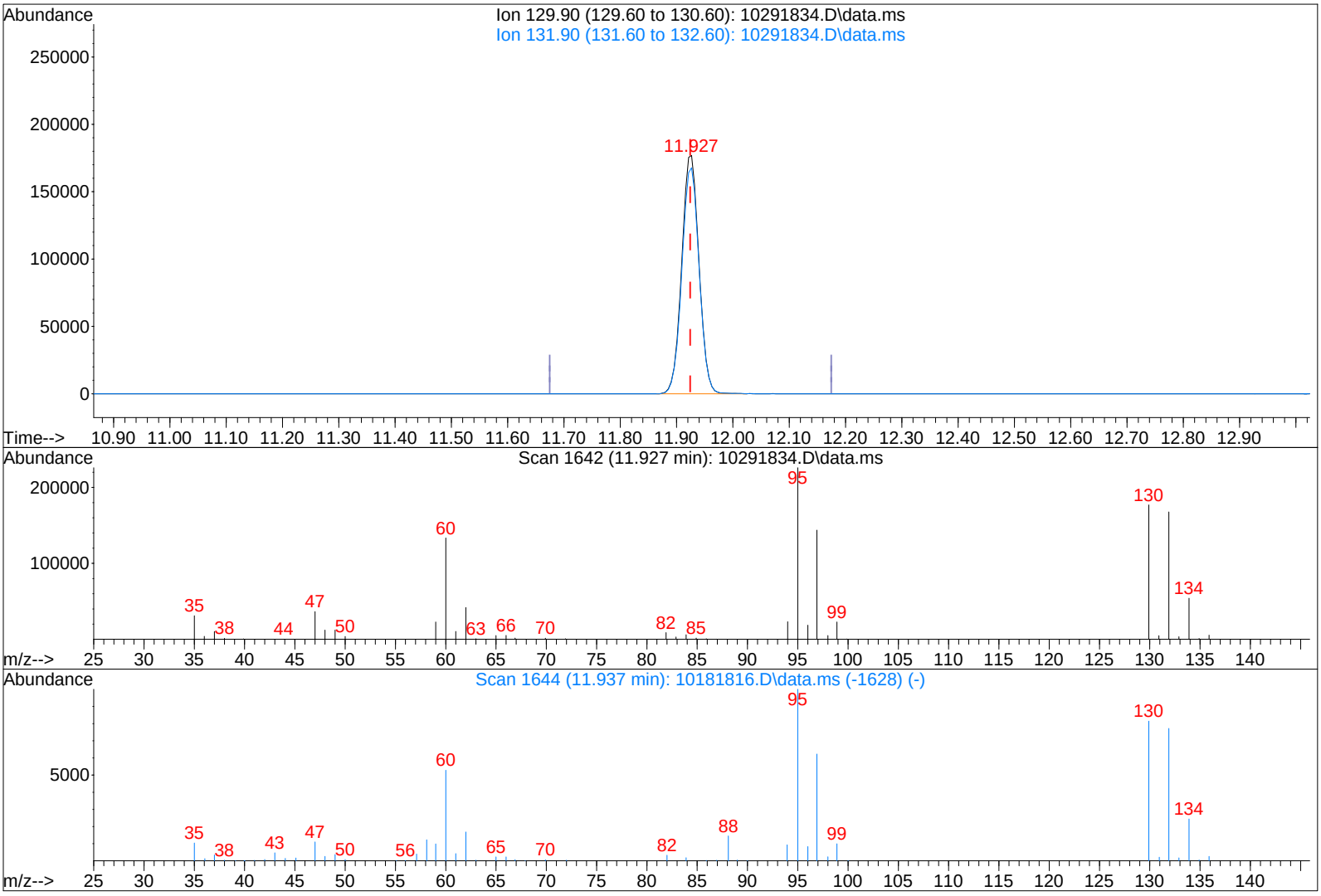
Quant Time: Oct 30 09:07:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291834.D Vial: 14
Acq On : 30 Oct 2018 00:08 Operator: RS
Sample : P1805559-004dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 06:37:14 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291834.D\data.ms

(47) Trichloroethene (T)

11.927min (+0.002) 27.22ng

response 375939

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	94.89
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:08:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109461	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	563244	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	366396	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	320460	16.881	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 135.04%#				
57) Toluene-d8 (SS2)	13.66	98	755182	11.798	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.40%				
73) Bromofluorobenzene (SS3)	17.15	174	144031	10.001	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.00%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	23217	0.779	ng		99
4) Chloromethane	0.00	50	0	N.D. d			
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	271	N.D.			
6) Vinyl Chloride	4.56	62	113	N.D.			
7) 1,3-Butadiene	4.74	54	161	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.59	45	151	N.D.			
11) Acetonitrile	5.69	41	1822	N.D.			
12) Acrolein	5.84	56	726	0.063	ng		89
13) Acetone	6.01	58	20164	1.305	ng	#	1
14) Trichlorofluoromethane	6.16	101	14311	0.670	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	6016	0.125	ng		85
16) Acrylonitrile	6.50	53	561	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d			
19) Methylene Chloride	6.99	84	222	N.D.			
20) 3-Chloro-1-propene (Al...	7.07	41	1247	N.D.			
21) Trichlorotrifluoroethane	7.33	151	1032	0.121	ng	#	67
22) Carbon Disulfide	7.29	76	16612	0.286	ng		96
23) trans-1,2-Dichloroethene	8.01	61	1345	0.052	ng	#	65
24) 1,1-Dichloroethane	8.01	63	267	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	8.40	86	352	0.138	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1877	0.156	ng	#	21
28) cis-1,2-Dichloroethene	9.10	61	2362	0.096	ng		82
29) Diisopropyl Ether	0.00	87	0	N.D. d			
30) Ethyl Acetate	9.36	61	3968	0.622	ng		100
31) n-Hexane	9.34	57	493	N.D.			
32) Chloroform	9.40	83	18472	0.715	ng		100
34) Tetrahydrofuran (THF)	9.83	72	5464	0.472	ng	#	77
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	8036	0.377	ng		95
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.81	56	7794	0.407	ng		86
41) Benzene	10.88	78	22816	0.333	ng		99
42) Carbon Tetrachloride	11.03	117	606	N.D.			
43) Cyclohexane	11.16	84	581	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	3880738	287.403	ng		99
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	11.99	57	442	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:08:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

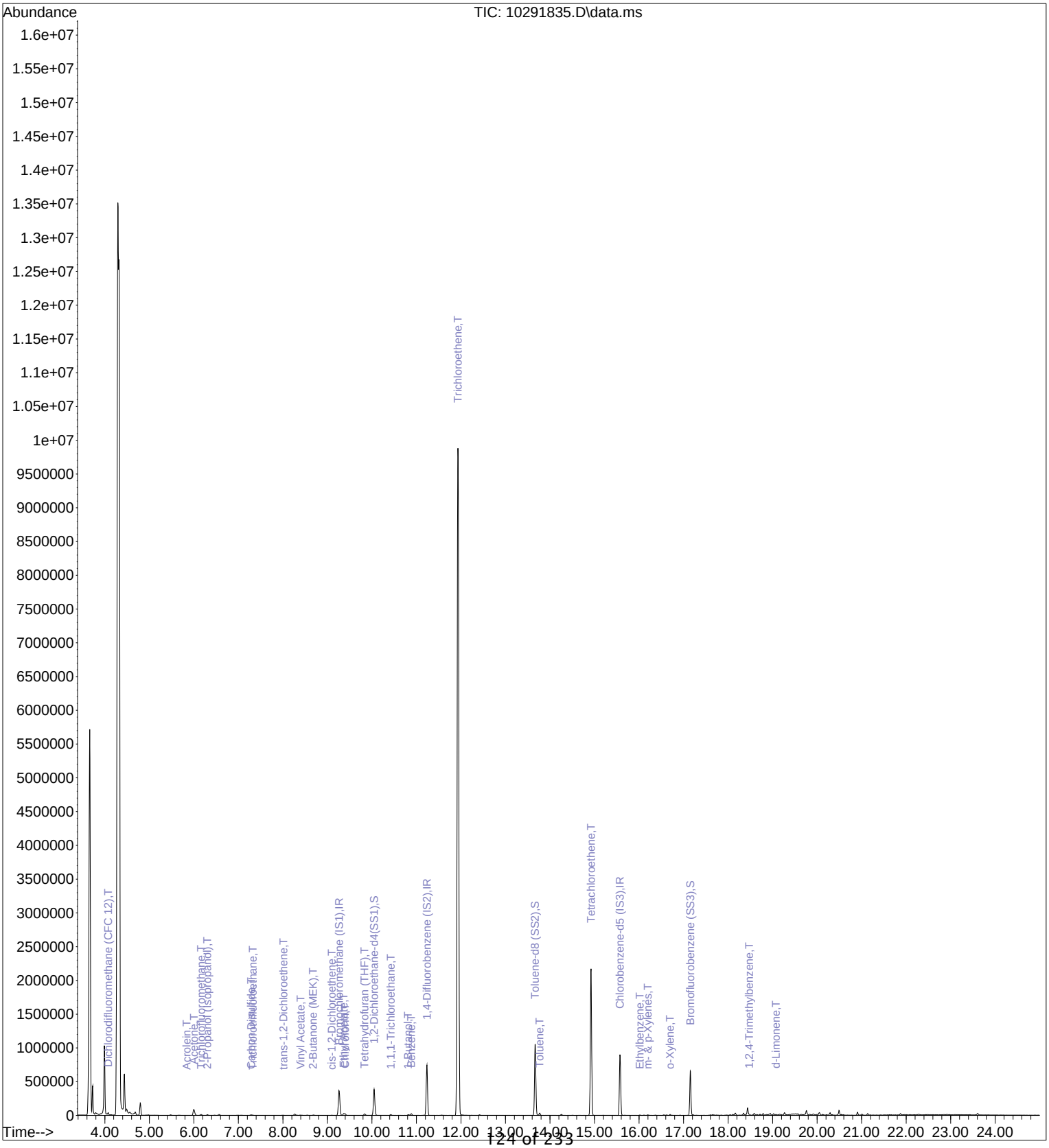
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	26817	0.375 ng	98
59) 2-Hexanone	14.04	43	1020	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	14.66	43	1349	N.D.	
63) n-Octane	14.78	57	182	N.D.	
64) Tetrachloroethene	14.92	166	587830	39.778 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.02	91	5221	0.067 ng	91
67) m- & p-Xylenes	16.20	91	7134	0.118 ng	92
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	16.58	104	1262	N.D.	
70) o-Xylene	16.70	91	3823	0.065 ng	82
71) n-Nonane	16.93	43	2046	N.D.	
72) 1,1,2,2-Tetrachloroethane	16.71	83	206	N.D.	
74) Cumene	17.30	105	204	N.D.	
75) alpha-Pinene	17.71	93	908	N.D.	
76) n-Propylbenzene	17.82	91	997	N.D.	
77) 3-Ethyltoluene	17.93	105	1782	N.D.	
78) 4-Ethyltoluene	17.98	105	1105	N.D.	
79) 1,3,5-Trimethylbenzene	18.05	105	1004	N.D.	
80) alpha-Methylstyrene	18.43	118	480	N.D.	
81) 2-Ethyltoluene	18.25	105	922	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	4526	0.081 ng	80
83) n-Decane	0.00	58	0	N.D. d	
84) Benzyl Chloride	18.48	91	597	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	18.76	105	164	N.D.	
88) 4-Isopropyltoluene (p-...	18.93	119	710	N.D.	
89) 1,2,3-Trimethylbenzene	18.92	105	868	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	19.07	68	1635	0.057 ng	96
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	0.00	57	0	N.D. d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.98	128	1585	N.D.	
96) n-Dodecane	0.00	57	0	N.D. d	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D. d	
99) tert-Butylbenzene	18.48	119	503	N.D.	
100) n-Butylbenzene	19.37	91	599	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:08:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:08:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

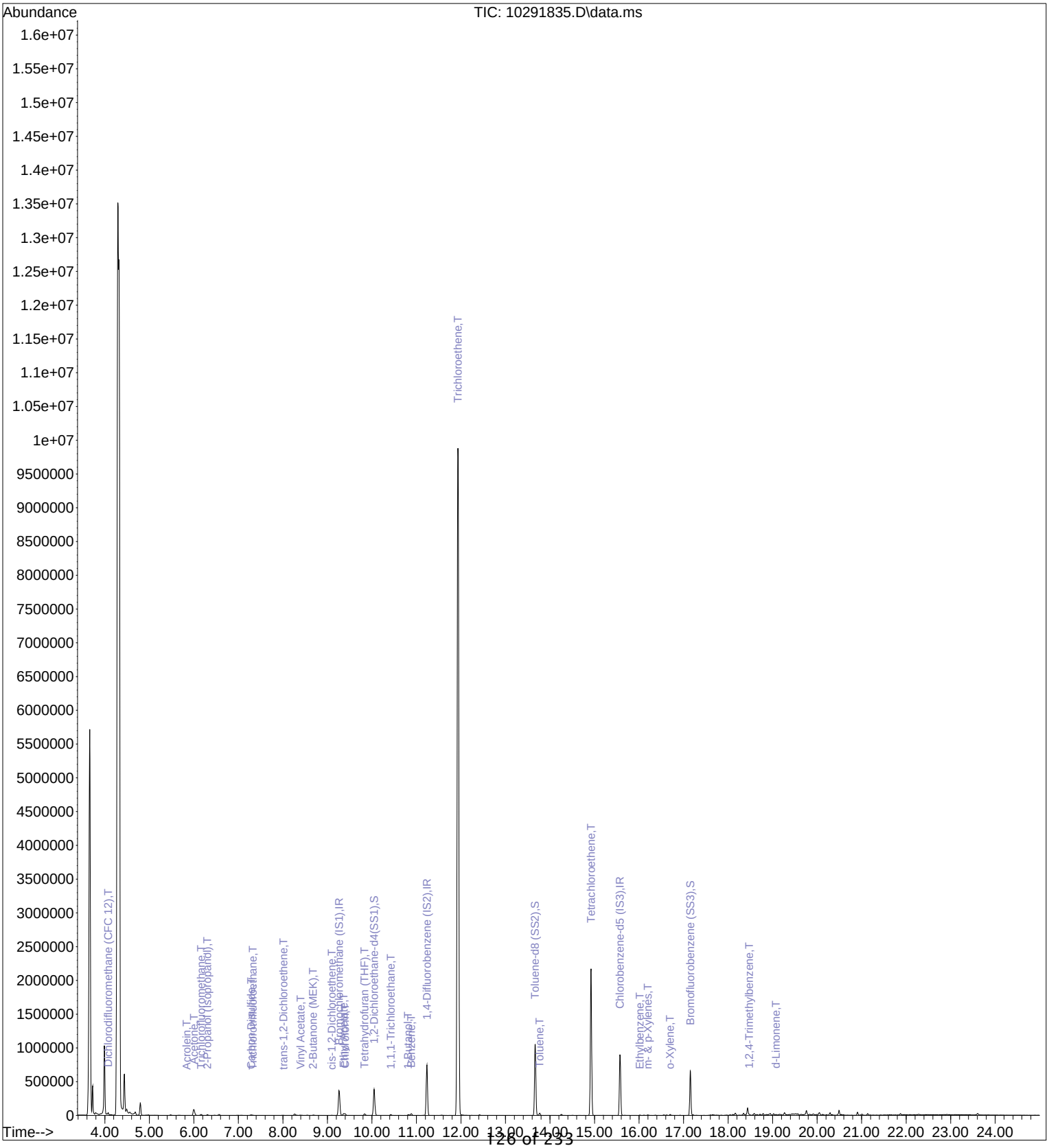
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109461	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.24	114	563244	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	366396	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	320460	16.881	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 135.04%#				
57) Toluene-d8 (SS2)	13.66	98	755182	11.798	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.40%				
73) Bromofluorobenzene (SS3)	17.15	174	144031	10.001	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.00%				
Target Compounds							Qvalue
3) Dichlorodifluoromethan...	4.08	85	23217	0.779	ng		99
12) Acrolein	5.84	56	726	0.063	ng		89
13) Acetone	6.01	58	20164	1.305	ng	#	1
14) Trichlorofluoromethane	6.16	101	14311	0.670	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	6016	0.125	ng		85
21) Trichlorotrifluoroethane	7.33	151	1032	0.121	ng	#	67
22) Carbon Disulfide	7.29	76	16612	0.286	ng		96
23) trans-1,2-Dichloroethene	8.01	61	1345	0.052	ng	#	65
26) Vinyl Acetate	8.40	86	352	0.138	ng	#	1
27) 2-Butanone (MEK)	8.68	72	1877	0.156	ng	#	21
28) cis-1,2-Dichloroethene	9.10	61	2362	0.096	ng		82
30) Ethyl Acetate	9.36	61	3968	0.622	ng		100
32) Chloroform	9.40	83	18472	0.715	ng		100
34) Tetrahydrofuran (THF)	9.83	72	5464	0.472	ng	#	77
38) 1,1,1-Trichloroethane	10.43	97	8036	0.377	ng		95
40) 1-Butanol	10.81	56	7794	0.407	ng		86
41) Benzene	10.88	78	22816	0.333	ng		99
47) Trichloroethene	11.93	130	3880738	287.403	ng		99
58) Toluene	13.77	91	26817	0.375	ng		98
64) Tetrachloroethene	14.92	166	587830	39.778	ng		100
66) Ethylbenzene	16.02	91	5221	0.067	ng		91
67) m- & p-Xylenes	16.20	91	7134	0.118	ng		92
70) o-Xylene	16.70	91	3823	0.065	ng		82
82) 1,2,4-Trimethylbenzene	18.48	105	4526	0.081	ng		80
91) d-Limonene	19.07	68	1635	0.057	ng		96

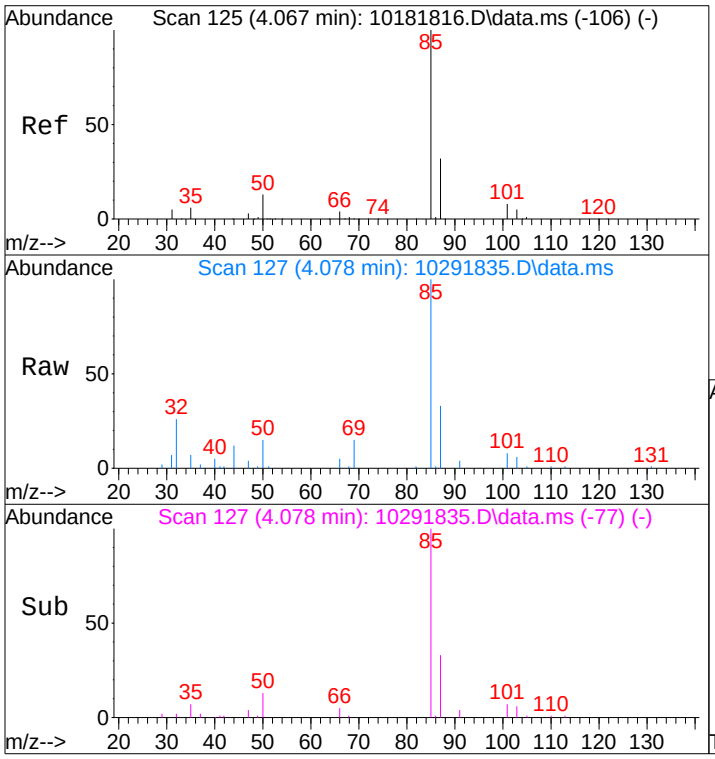
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:08:23 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

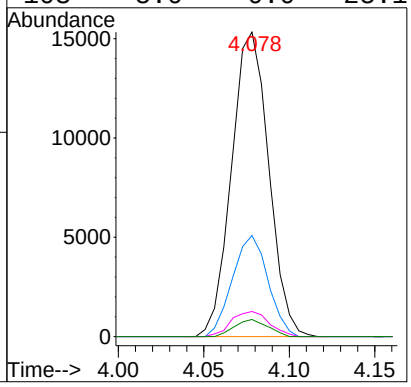


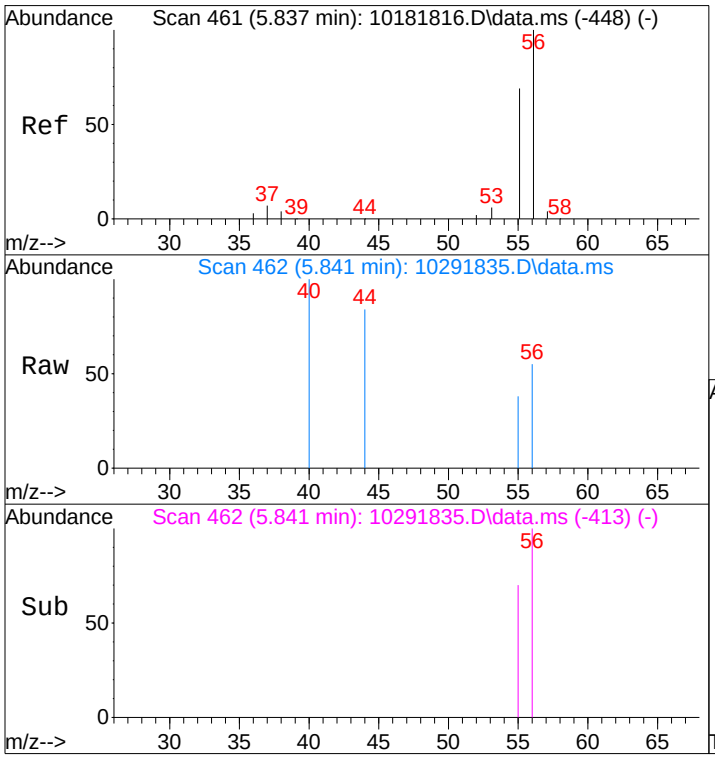


#3
Dichlorodifluoromethane (CFC 12)
Concen: 0.78 ng
RT: 4.08 min Scan# 127
Delta R.T. 0.023 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 85 Resp: 23217

Ion	Ratio	Lower	Upper
85	100		
87	31.7	12.0	52.0
101	8.4	0.0	28.0
103	5.0	0.0	25.1

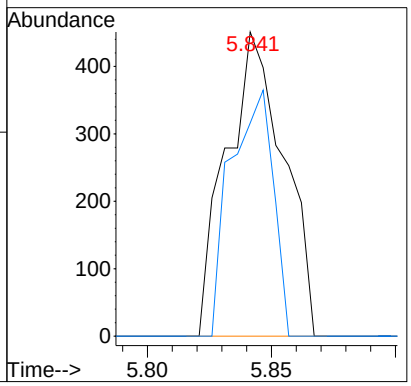


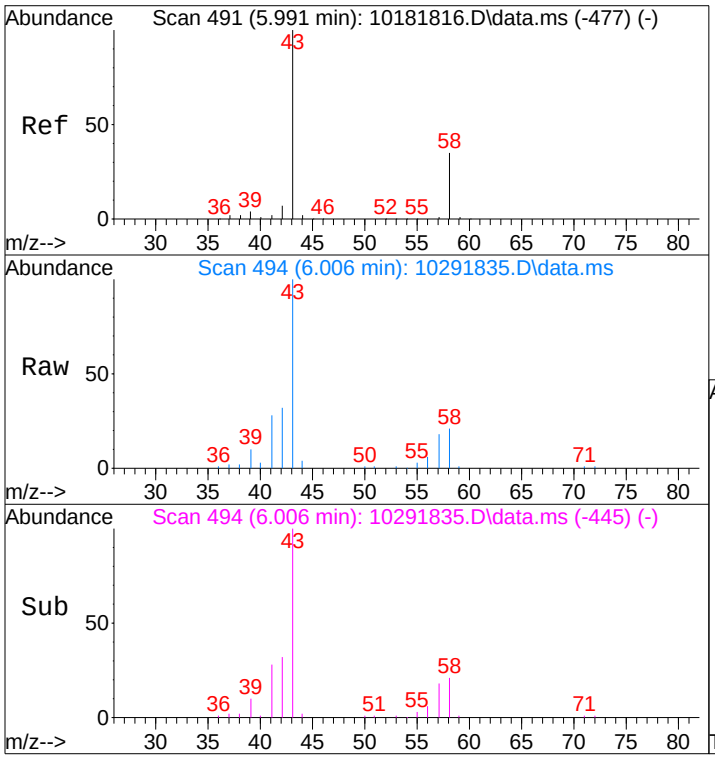


#12
Acrolein
Concen: 0.06 ng
RT: 5.84 min Scan# 462
Delta R.T. 0.002 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 56 Resp: 726

Ion	Ratio	Lower	Upper
56	100		
55	59.9	49.3	89.3

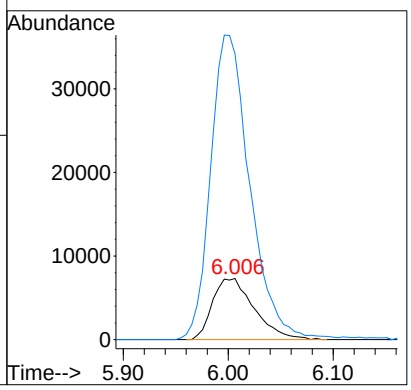


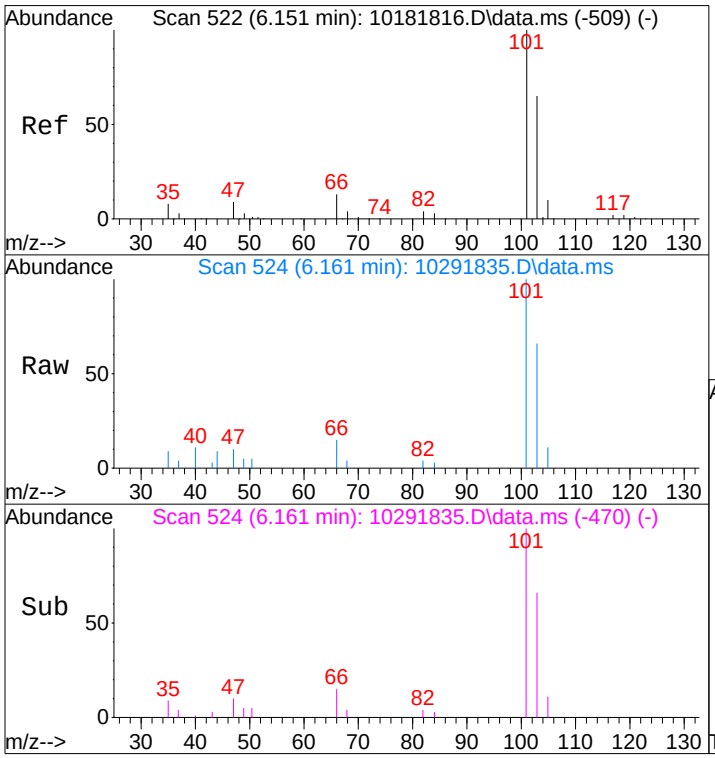


#13
Acetone
Concen: 1.31 ng
RT: 6.01 min Scan# 494
Delta R.T. 0.003 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 58 Resp: 20164

Ion	Ratio	Lower	Upper
58	100		
43	472.7	254.3	314.3#

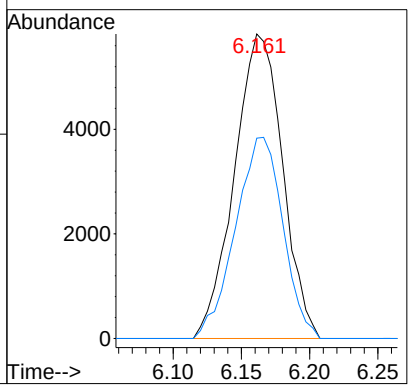


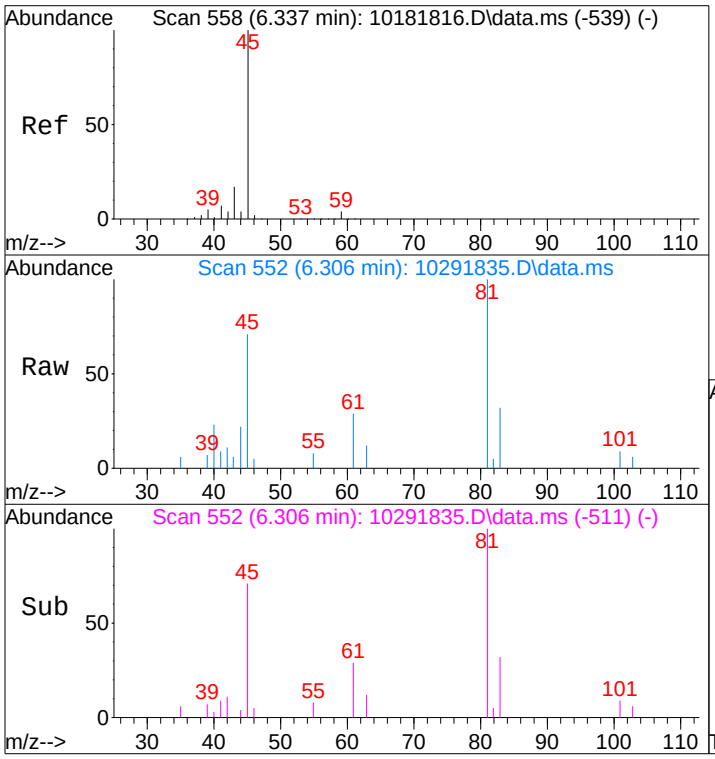


#14
Trichlorofluoromethane
Concen: 0.67 ng
RT: 6.16 min Scan# 524
Delta R.T. 0.029 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion:101 Resp: 14311

Ion	Ratio	Lower	Upper
101	100		
103	65.1	44.5	84.5

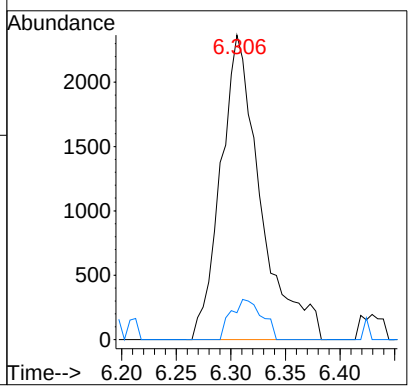


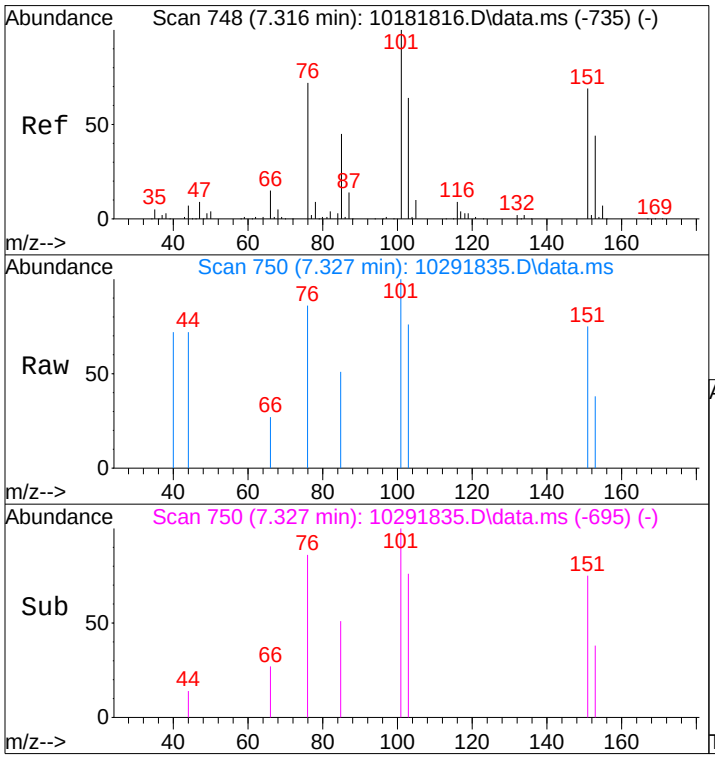


#15
2-Propanol (Isopropanol)
Concen: 0.13 ng
RT: 6.31 min Scan# 552
Delta R.T. -0.037 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 45 Resp: 6016

Ion	Ratio	Lower	Upper
45	100		
43	10.3	0.0	36.7

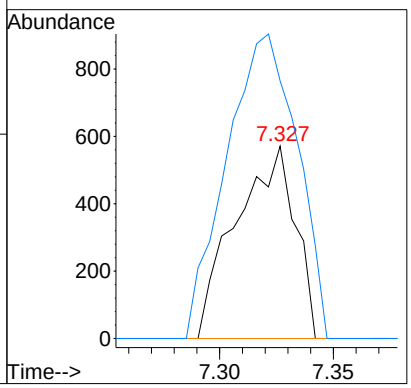


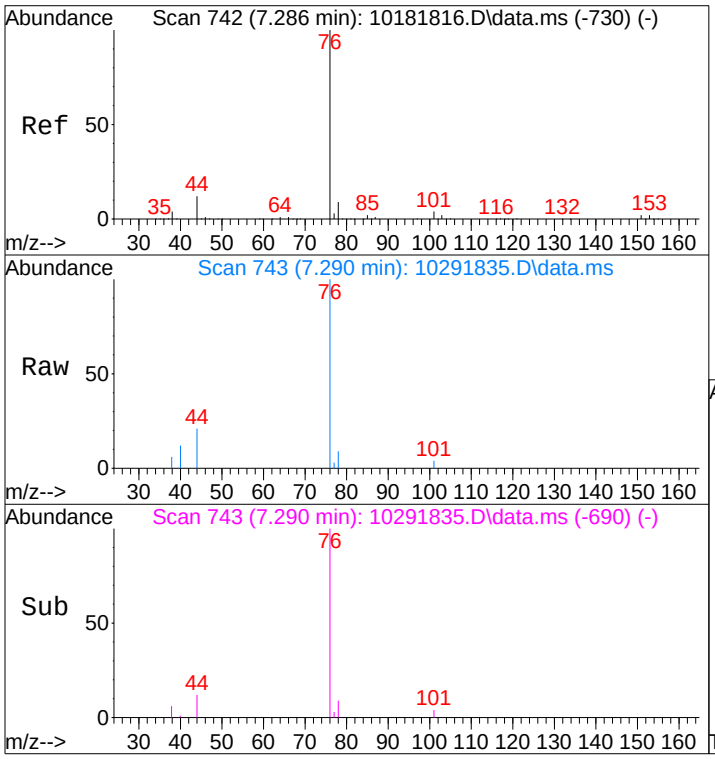


#21
Trichlorotrifluoroethane
Concen: 0.12 ng
RT: 7.33 min Scan# 750
Delta R.T. 0.036 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion:151 Resp: 1032

Ion	Ratio	Lower	Upper
151	100		
101	189.5	127.5	167.5#

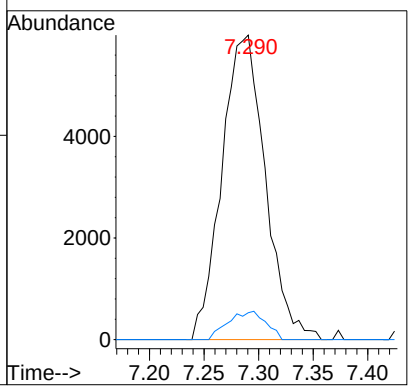


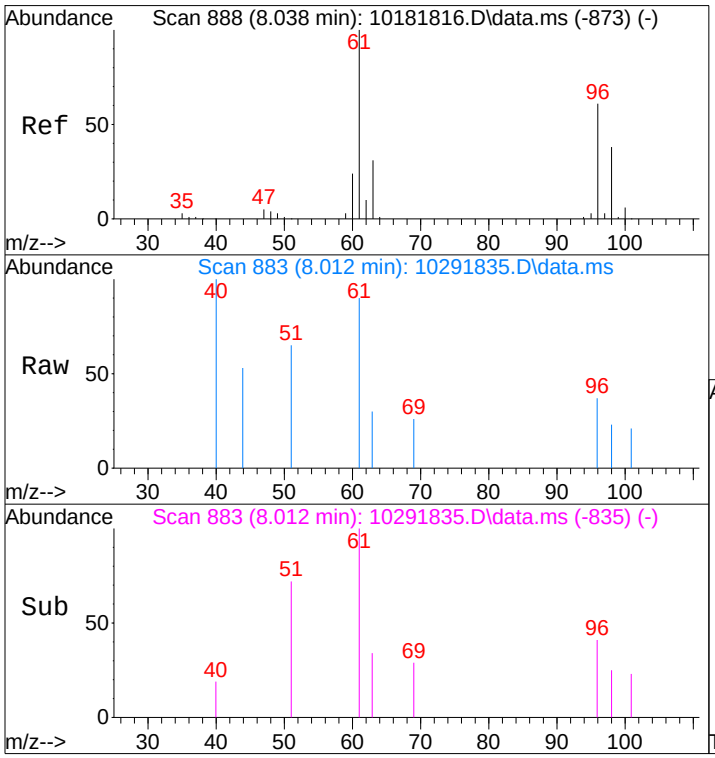


#22
Carbon Disulfide
Concen: 0.29 ng
RT: 7.29 min Scan# 743
Delta R.T. 0.025 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 76 Resp: 16612

Ion	Ratio	Lower	Upper
76	100		
78	8.1	0.0	29.6

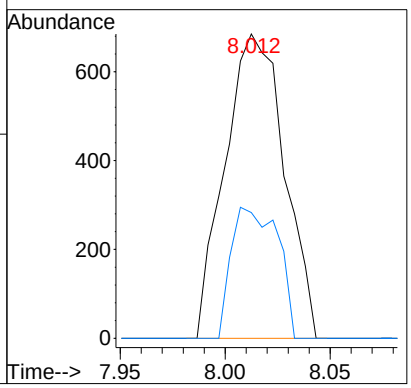


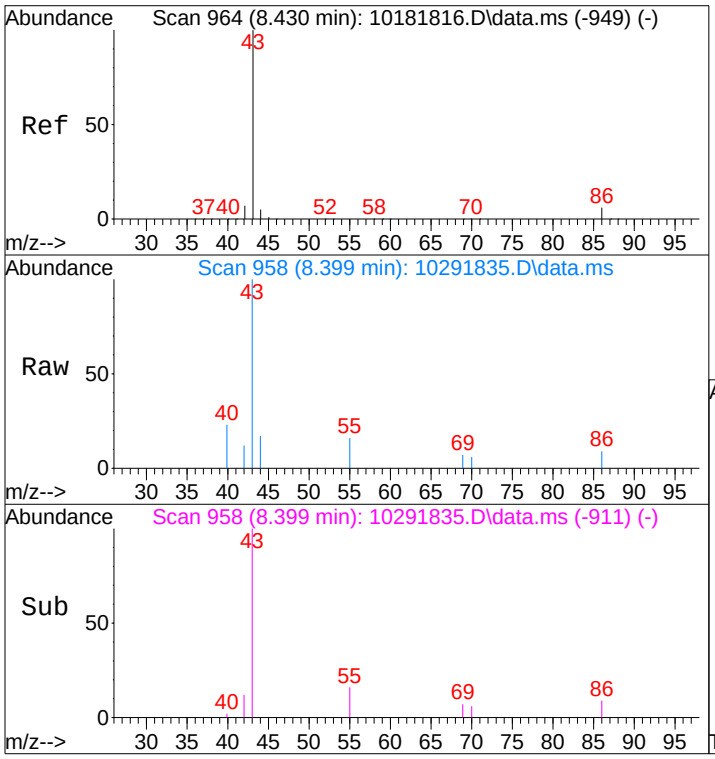


#23
trans-1,2-Dichloroethene
Concen: 0.05 ng
RT: 8.01 min Scan# 883
Delta R.T. -0.002 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 61 Resp: 1345

Ion	Ratio	Lower	Upper
61	100		
96	33.9	40.2	80.2#

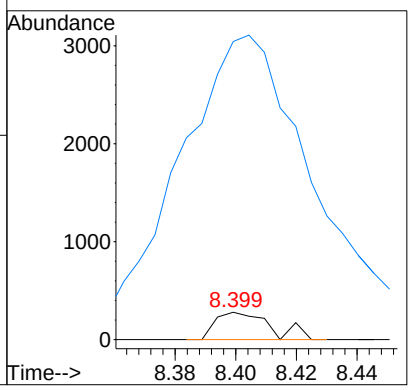


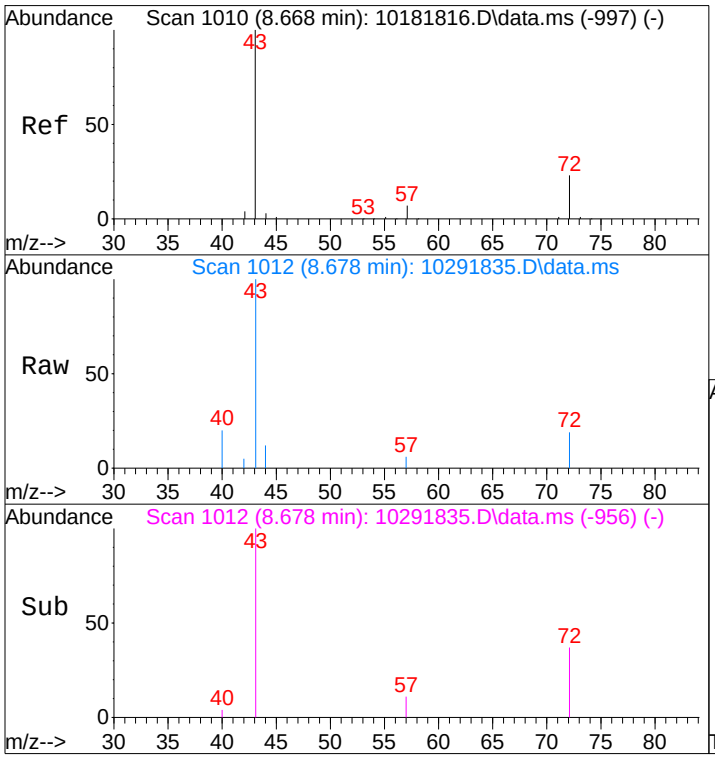


#26
Vinyl Acetate
Concen: 0.14 ng
RT: 8.40 min Scan# 958
Delta R.T. -0.010 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 86 Resp: 352

Ion	Ratio	Lower	Upper
86	100		
43	2873.9	1596.2	1636.2#

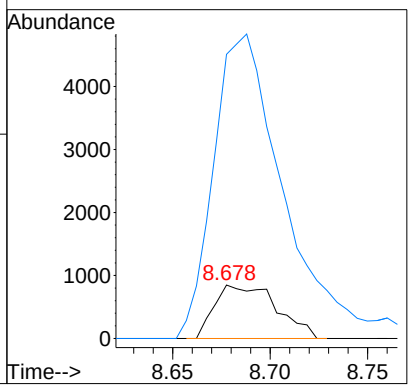


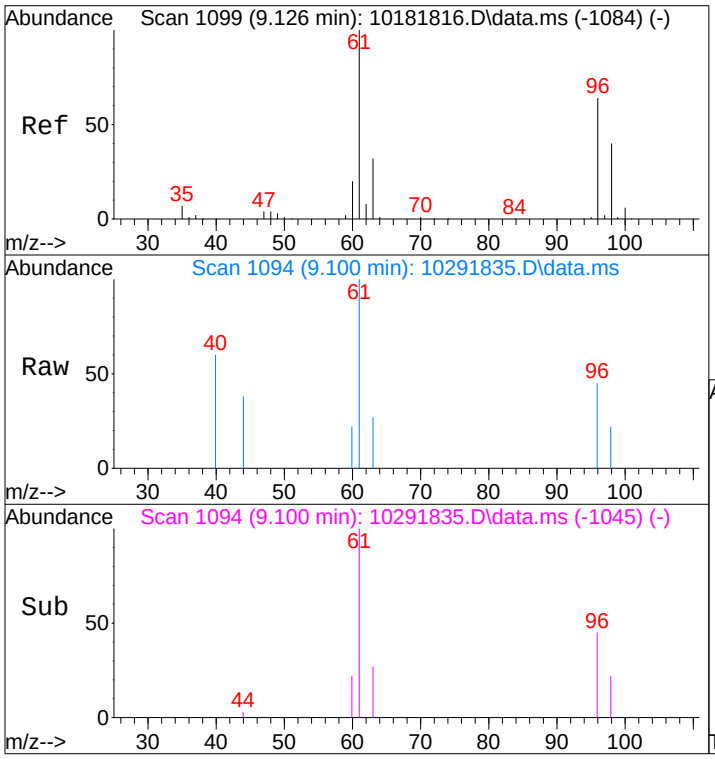


#27
2-Butanone (MEK)
Concen: 0.16 ng
RT: 8.68 min Scan# 1012
Delta R.T. 0.038 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 72 Resp: 1877

Ion	Ratio	Lower	Upper
72	100		
43	651.7	430.0	470.0#

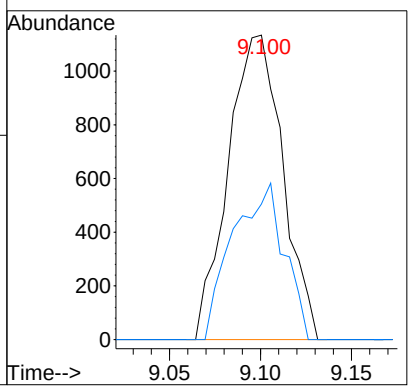


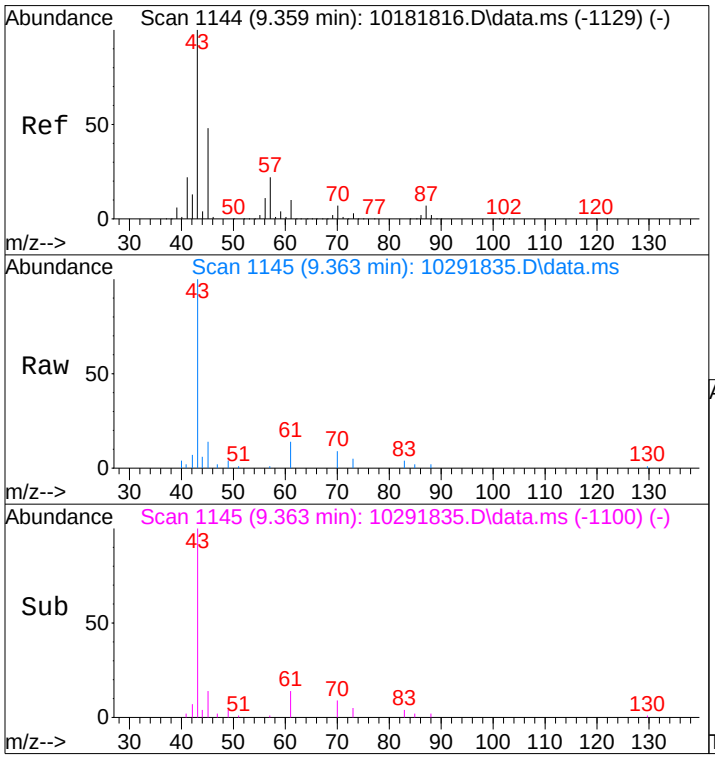


#28
cis-1,2-Dichloroethene
Concen: 0.10 ng
RT: 9.10 min Scan# 1094
Delta R.T. 0.004 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 61 Resp: 2362

Ion	Ratio	Lower	Upper
61	100		
96	48.6	42.8	82.8

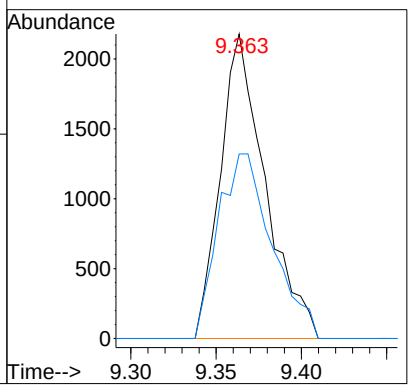


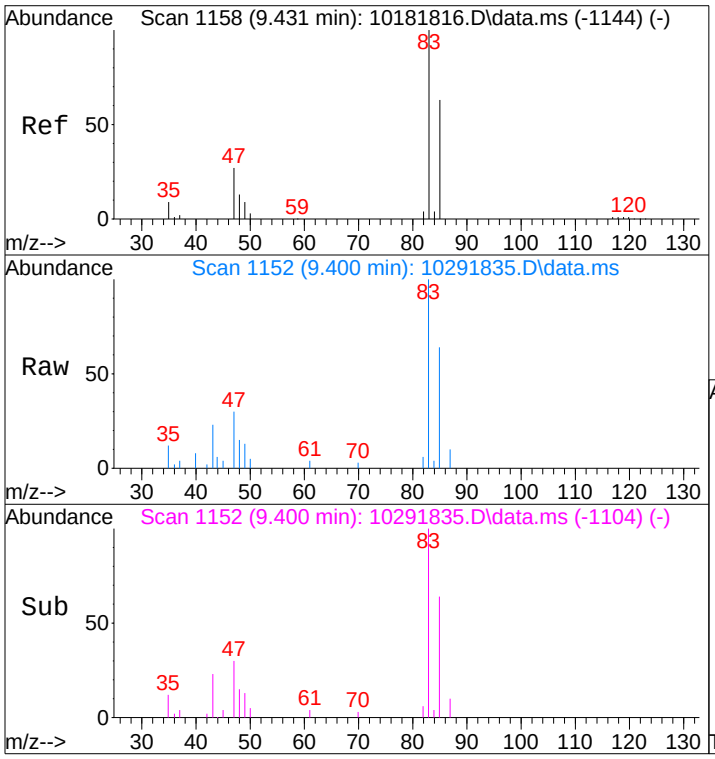


#30
Ethyl Acetate
Concen: 0.62 ng
RT: 9.36 min Scan# 1145
Delta R.T. 0.031 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 61 Resp: 3968

Ion	Ratio	Lower	Upper
61	100		
70	72.8	52.7	92.7

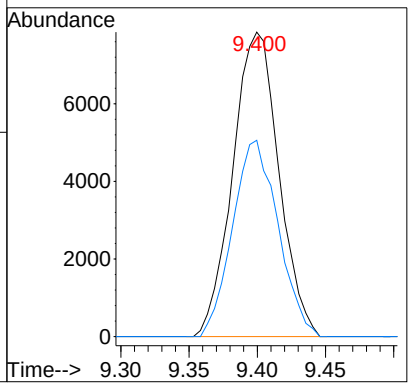


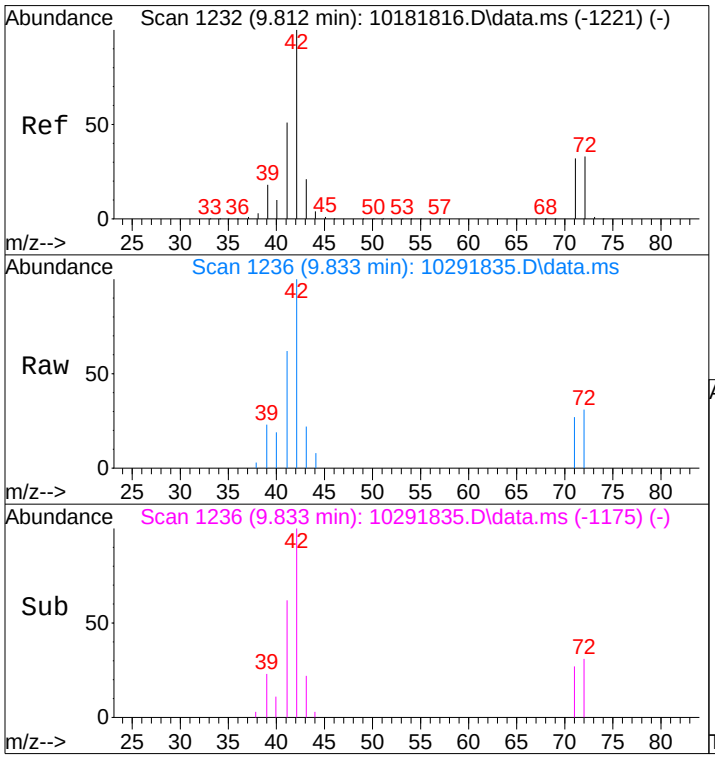


#32
Chloroform
Concen: 0.71 ng
RT: 9.40 min Scan# 1152
Delta R.T. -0.004 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 83 Resp: 18472

Ion	Ratio	Lower	Upper
83	100		
85	63.6	44.0	84.0

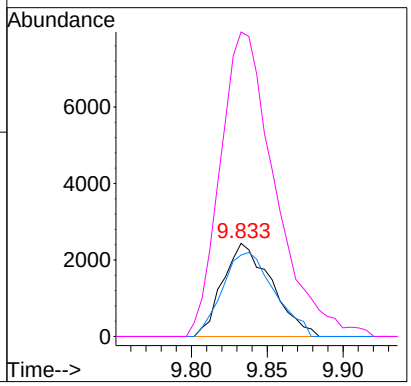


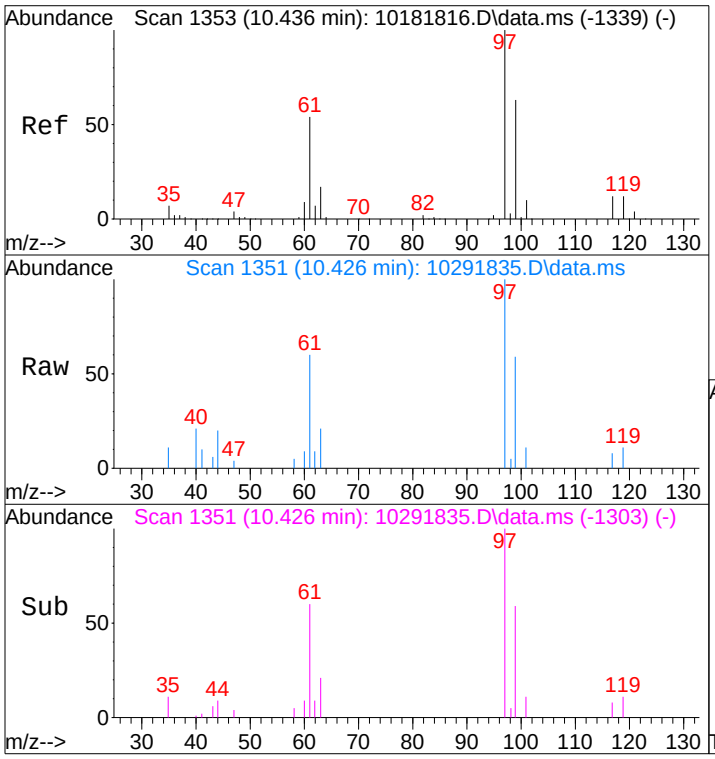


#34
Tetrahydrofuran (THF)
Concen: 0.47 ng
RT: 9.83 min Scan# 1236
Delta R.T. 0.065 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 72 Resp: 5464

Ion	Ratio	Lower	Upper
72	100		
71	95.2	76.7	116.7
42	367.1	287.9	327.9#

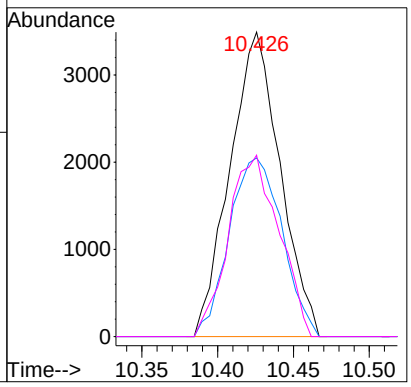


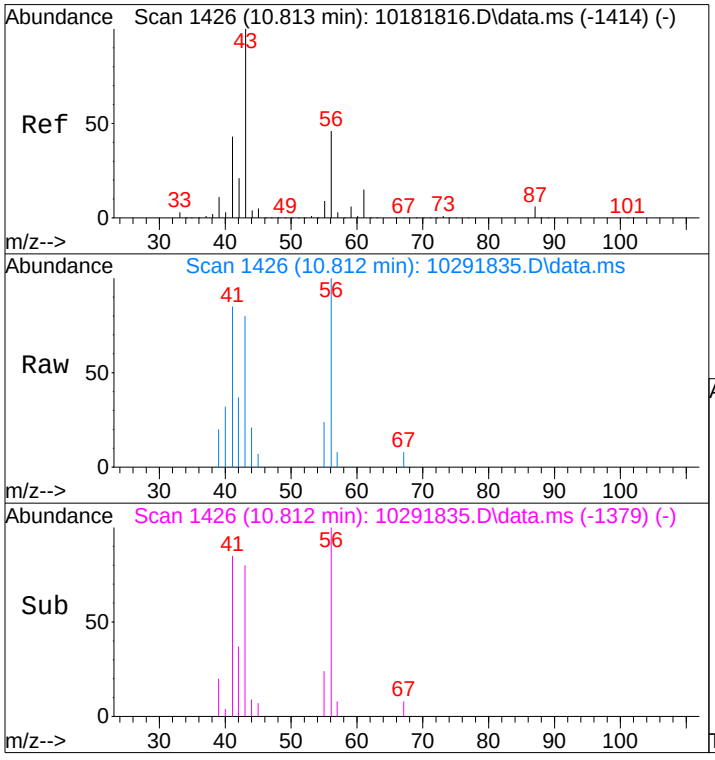


#38
1,1,1-Trichloroethane
Concen: 0.38 ng
RT: 10.43 min Scan# 1351
Delta R.T. -0.002 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 97 Resp: 8036

Ion	Ratio	Lower	Upper
97	100		
99	61.7	43.5	83.5
61	60.1	34.2	74.2

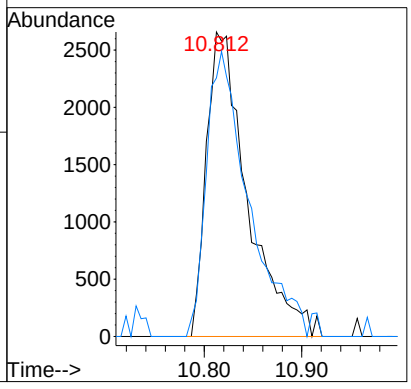


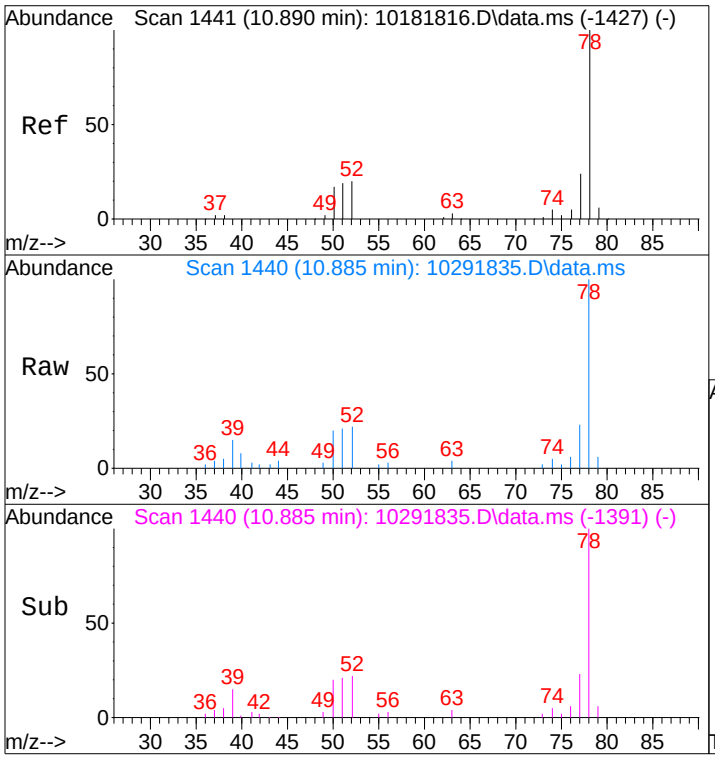


#40
1-Butanol
Concen: 0.41 ng
RT: 10.81 min Scan# 1426
Delta R.T. -0.006 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 56 Resp: 7794

Ion	Ratio	Lower	Upper
56	100		
41	95.8	90.2	130.2

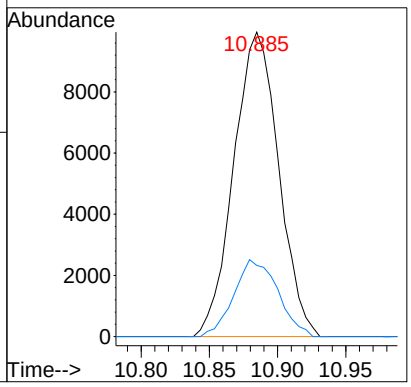


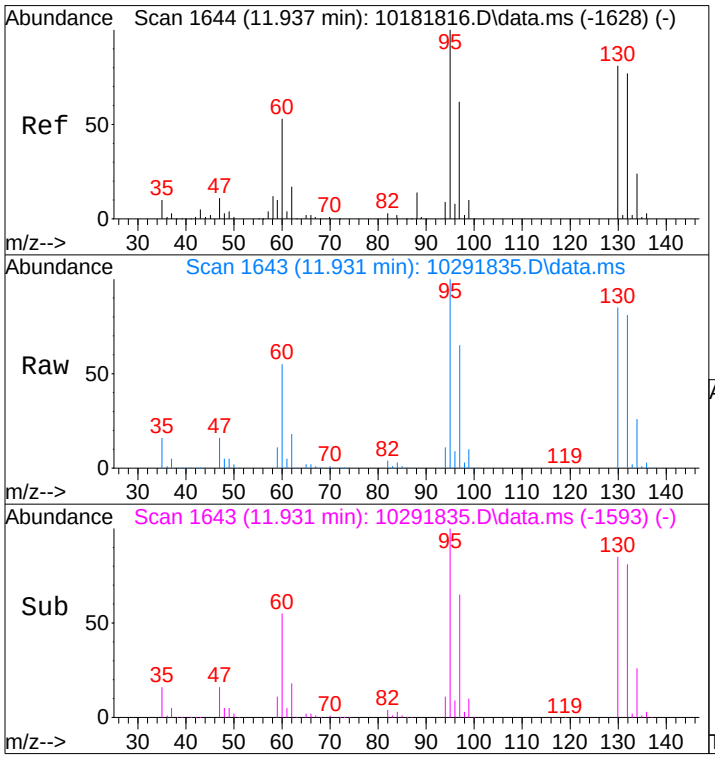


#41
Benzene
Concen: 0.33 ng
RT: 10.88 min Scan# 1440
Delta R.T. 0.004 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 78 Resp: 22816

Ion	Ratio	Lower	Upper
78	100		
77	24.7	4.1	44.1

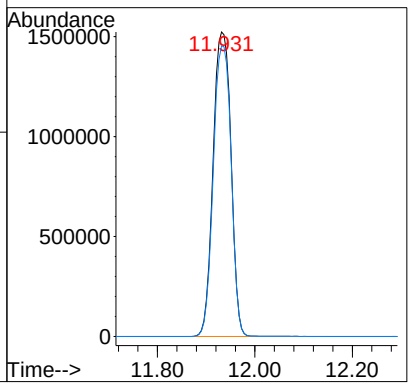


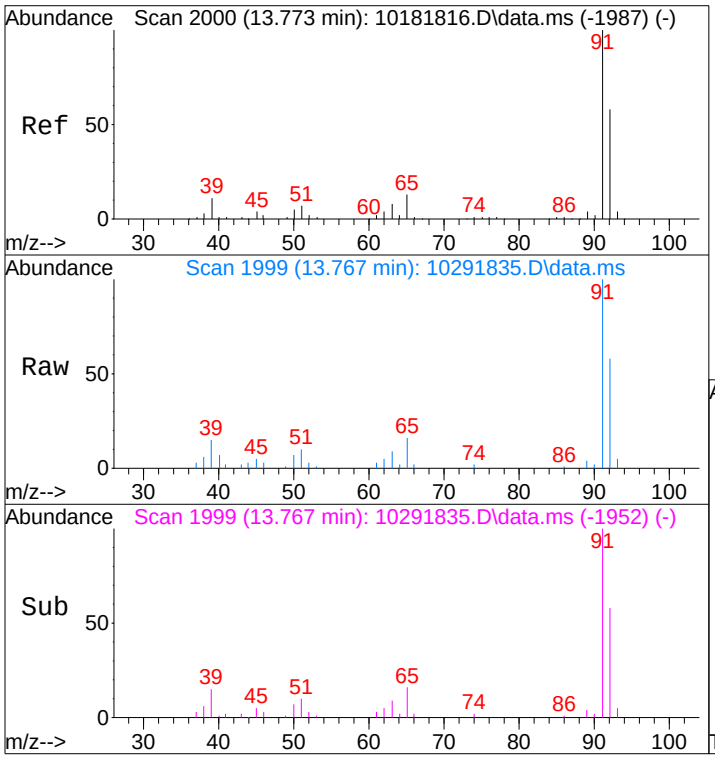


#47
Trichloroethene
Concen: 287.40 ng
RT: 11.93 min Scan# 1643
Delta R.T. 0.007 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion:130 Resp: 3880738

Ion	Ratio	Lower	Upper
130	100		
132	95.2	74.6	114.6

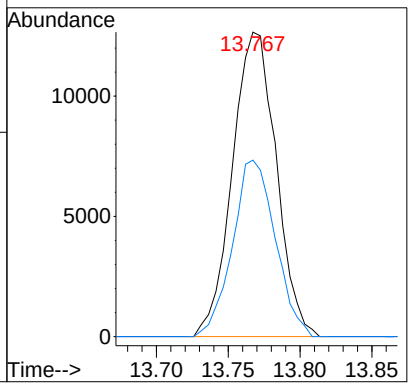


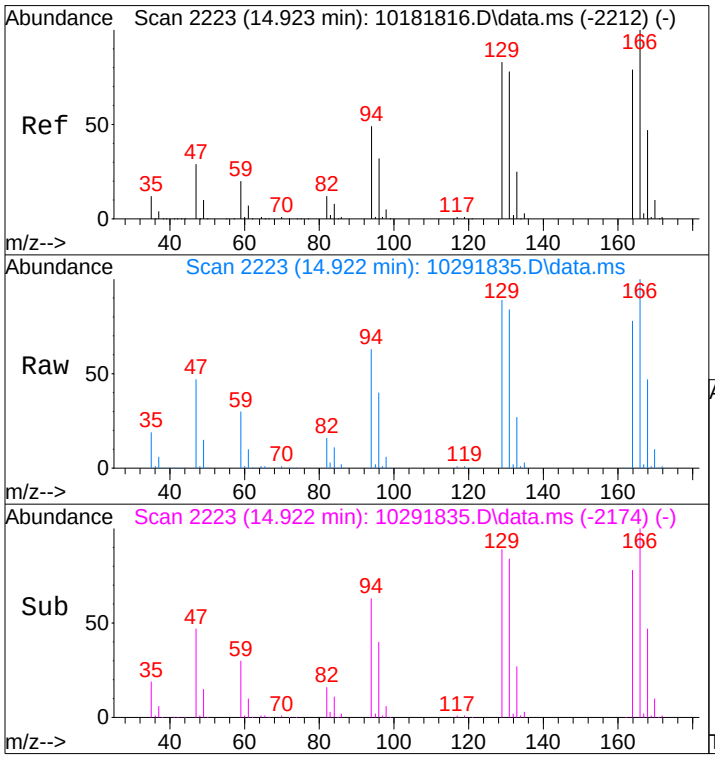


#58
Toluene
Concen: 0.37 ng
RT: 13.77 min Scan# 1999
Delta R.T. -0.007 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 91 Resp: 26817

Ion	Ratio	Lower	Upper
91	100		
92	56.7	38.1	78.1

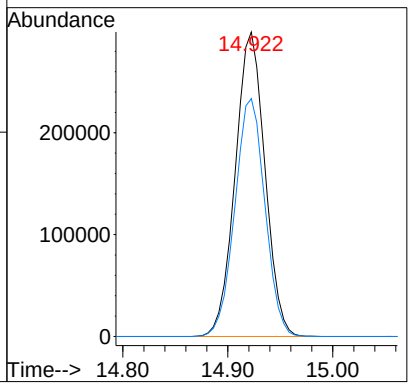


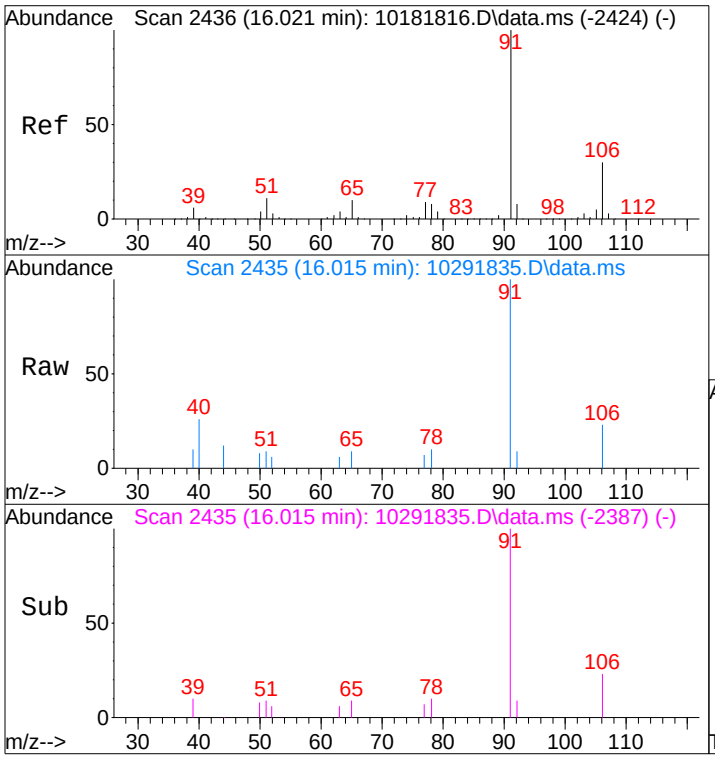


#64
Tetrachloroethene
Concen: 39.78 ng
RT: 14.92 min Scan# 2223
Delta R.T. 0.004 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion:166 Resp: 587830

Ion	Ratio	Lower	Upper
166	100		
164	79.1	58.9	98.9

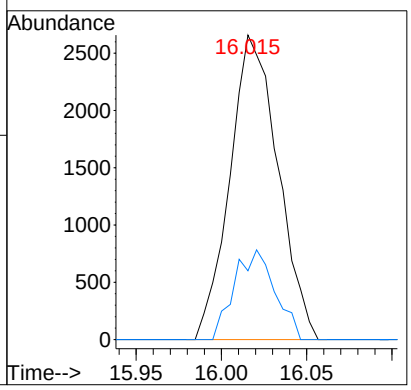


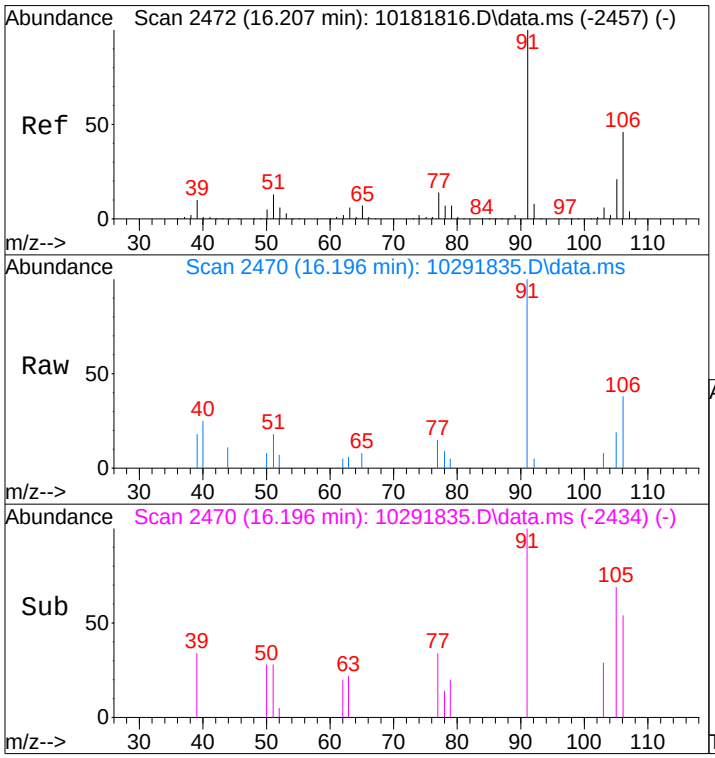


#66
Ethylbenzene
Concen: 0.07 ng
RT: 16.02 min Scan# 2435
Delta R.T. -0.000 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 91 Resp: 5221

Ion	Ratio	Lower	Upper
91	100		
106	25.0	9.9	49.9

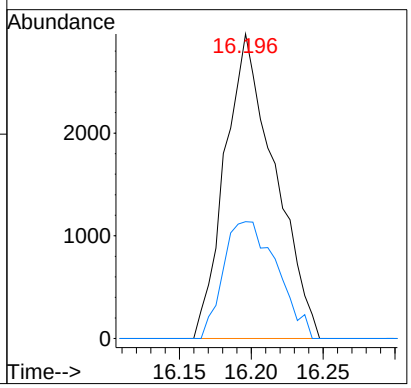


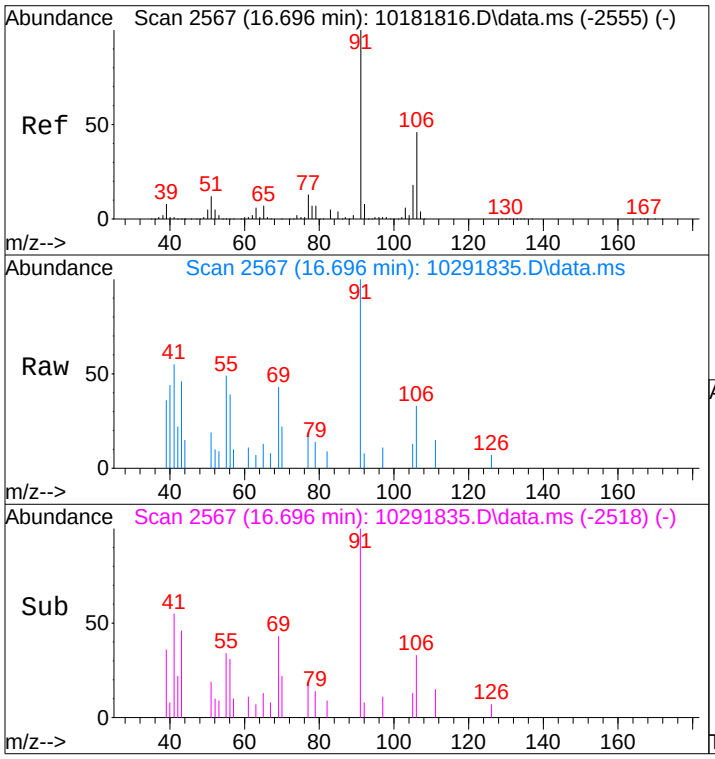


#67
m- & p-Xylenes
Concen: 0.12 ng
RT: 16.20 min Scan# 2470
Delta R.T. -0.015 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 91 Resp: 7134

Ion	Ratio	Lower	Upper
91	100		
106	41.4	26.7	66.7

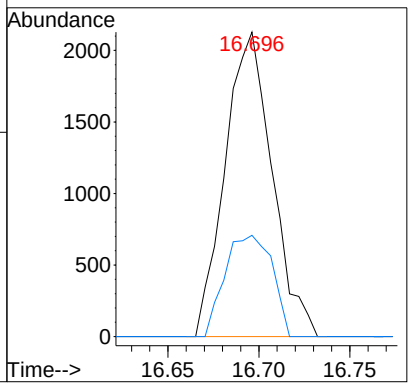


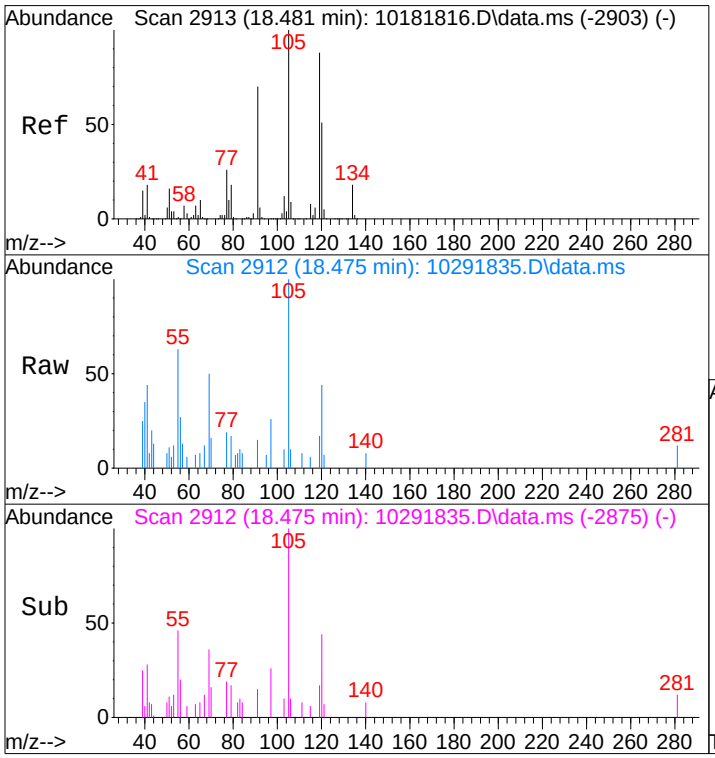


#70
o-Xylene
Concen: 0.07 ng
RT: 16.70 min Scan# 2567
Delta R.T. 0.000 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 91 Resp: 3823

Ion	Ratio	Lower	Upper
91	100		
106	33.5	25.2	65.2

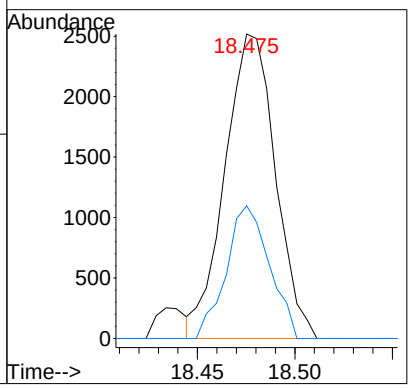


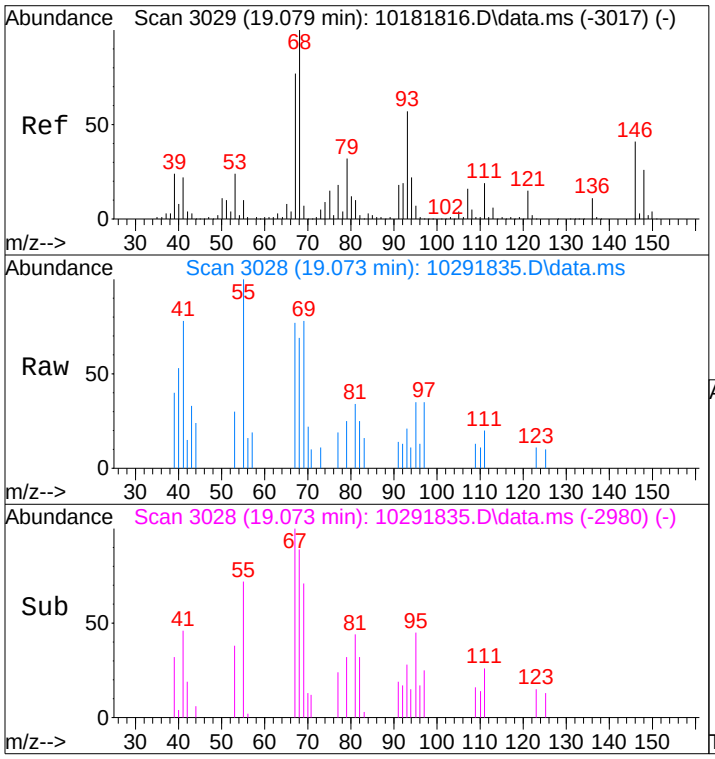


#82
1,2,4-Trimethylbenzene
Concen: 0.08 ng
RT: 18.48 min Scan# 2912
Delta R.T. -0.009 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion:105 Resp: 4526

Ion	Ratio	Lower	Upper
105	100		
120	37.3	31.3	71.3

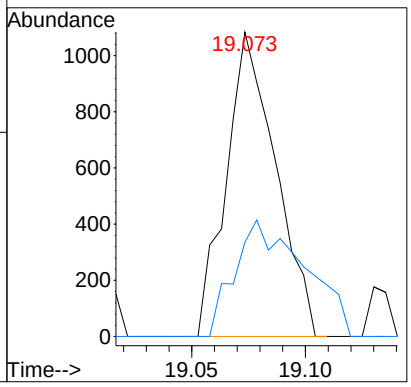




#91
d-Limonene
Concen: 0.06 ng
RT: 19.07 min Scan# 3028
Delta R.T. -0.003 min
Lab File: 10291835.D
Acq: 30 Oct 2018 00:42

Tgt Ion: 68 Resp: 1635

Ion	Ratio	Lower	Upper
68	100		
93	54.5	37.7	77.7



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:13:57 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

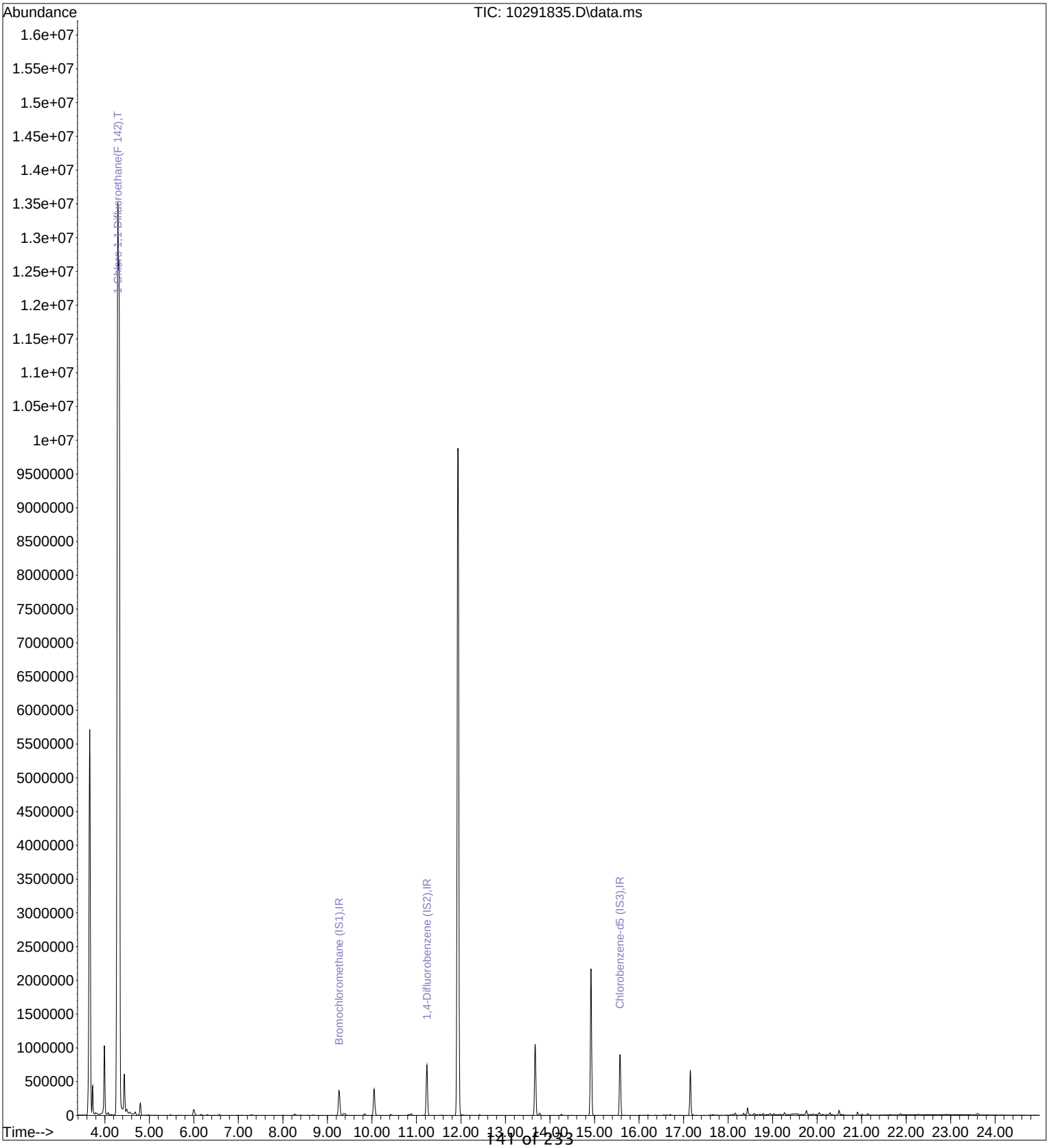
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109461	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	563244	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	366396	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	211	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	0.00	83	0	N.D.	d	
4) 1,1-Difluoroethane	3.89	65	508	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.	d	
6) 1-Chloro-1,1-Difluoroe...	4.29	65	25297932	1034.002	ng	95
7) Dichlorofluoromethane ...	0.00	67	0	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	0.00	83	0	N.D.		
10) 2-Methylbutane	0.00	57	0	N.D.	d	
11) Methyl Acetate	7.04	43	1632	N.D.		
12) 2-Methylpentane	0.00	71	0	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	0.00	75	0	N.D.		
15) Thiophene	0.00	84	0	N.D.		
17) 2,3-Dimethylpentane	0.00	56	0	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.92	55	102	N.D.		
21) 1,3-Dichloropropane	0.00	76	0	N.D.	d	
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	0.00	75	0	N.D.		
25) Bromobenzene	0.00	77	0	N.D.		
26) 2-Chlorotoluene	17.82	91	997	N.D.		
27) 4-Chlorotoluene	17.82	91	997	N.D.		
28) Indane	0.00	117	0	N.D.		
29) Indene	0.00	115	0	N.D.		
30) 1,2,4,5-Tetramethylben...	20.16	119	163	N.D.		
31) 1,2,3,4-Tetramethylben...	20.20	119	189	N.D.		
32) 1,2,3,5-Tetramethylben...	20.59	119	107	N.D.		
33) 1,2,3-Trichlorobenzene	0.00	180	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291835.D Vial: 15
Acq On : 30 Oct 2018 00:42 Operator: RS
Sample : P1805559-005 (400mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:13:57 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291836.D Vial: 15
Acq On : 30 Oct 2018 1:16 Operator: RS
Sample : P1805559-005dil (40mL) Inst : MS09
Misc : S31-10151806

RS 10/30/18

Quant Time: Oct 30 09:09:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	112808	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	558132	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	362548	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	319488	16.331	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 130.64%#				
57) Toluene-d8 (SS2)	13.66	98	746575	11.787	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.32%				
73) Bromofluorobenzene (SS3)	17.16	174	140069	9.830	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.64%				
Target Compounds							Qvalue
2) Propene	0.00	42	0	N.D. d			
3) Dichlorodifluoromethan...	4.08	85	2013	0.066	ng	#	92
4) Chloromethane	0.00	50	0	N.D. d			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.50	45	1213	0.079	ng	#	55
11) Acetonitrile	5.71	41	166	N.D.			
12) Acrolein	5.99	56	357	N.D.			
13) Acetone	6.01	58	4894	0.307	ng	#	26
14) Trichlorofluoromethane	6.16	101	1225	0.056	ng		81
15) 2-Propanol (Isopropanol)	6.35	45	132	N.D.			
16) Acrylonitrile	0.00	53	0	N.D.			
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	7.04	59	220	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	7.30	76	1546	N.D.			
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.			
27) 2-Butanone (MEK)	0.00	72	0	N.D.			
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	9.40	83	1513	0.057	ng		95
34) Tetrahydrofuran (THF)	9.85	72	495	N.D.			
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	10.43	97	595	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.85	56	560	N.D.			
41) Benzene	10.88	78	2171	N.D.			
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	11.23	84	533	N.D.			
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D. d			
47) Trichloroethene	11.93	130	370736	27.708	ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			
50) Methyl Methacrylate	0.00	100	0	N.D. d			

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291836.D Vial: 15
Acq On : 30 Oct 2018 1:16 Operator: RS
Sample : P1805559-005dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 09:09:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

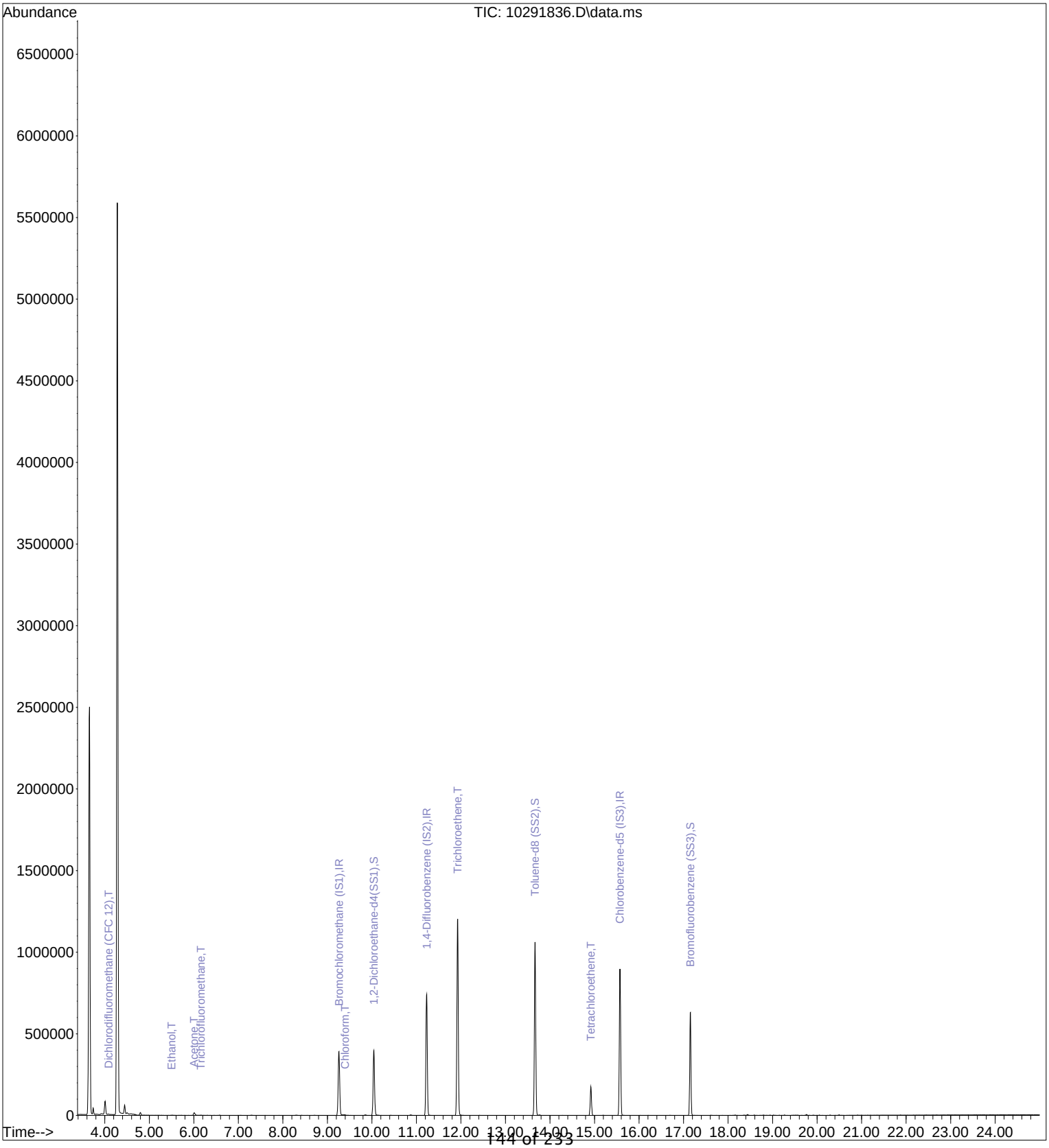
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	
58) Toluene	13.77	91	2505	N.D.	
59) 2-Hexanone	0.00	43	0	N.D.	
60) Dibromochloromethane	0.00	129	0	N.D.	
61) 1,2-Dibromoethane	0.00	107	0	N.D.	
62) n-Butyl Acetate	0.00	43	0	N.D.	
63) n-Octane	0.00	57	0	N.D.	
64) Tetrachloroethene	14.92	166	47459	3.246 ng	100
65) Chlorobenzene	0.00	112	0	N.D.	
66) Ethylbenzene	16.03	91	292	N.D.	
67) m- & p-Xylenes	16.19	91	511	N.D.	
68) Bromoform	0.00	173	0	N.D.	
69) Styrene	0.00	104	0	N.D.	
70) o-Xylene	16.70	91	204	N.D.	
71) n-Nonane	0.00	43	0	N.D.	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	
74) Cumene	17.16	105	109	N.D.	
75) alpha-Pinene	0.00	93	0	N.D.	
76) n-Propylbenzene	0.00	91	0	N.D.	
77) 3-Ethyltoluene	0.00	105	0	N.D.	
78) 4-Ethyltoluene	0.00	105	0	N.D.	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	
80) alpha-Methylstyrene	0.00	118	0	N.D.	
81) 2-Ethyltoluene	18.48	105	207	N.D.	
82) 1,2,4-Trimethylbenzene	18.48	105	207	N.D.	
83) n-Decane	0.00	58	0	N.D.	
84) Benzyl Chloride	0.00	91	0	N.D.	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	
87) sec-Butylbenzene	0.00	105	0	N.D.	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.	
91) d-Limonene	0.00	68	0	N.D.	
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.	
93) n-Undecane	19.91	57	219	N.D.	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.	
95) Naphthalene	20.99	128	368	N.D.	
96) n-Dodecane	21.00	57	216	N.D.	
97) Hexachlorobutadiene	0.00	225	0	N.D.	
98) Cyclohexanone	0.00	55	0	N.D.	
99) tert-Butylbenzene	0.00	119	0	N.D.	
100) n-Butylbenzene	0.00	91	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291836.D Vial: 15
Acq On : 30 Oct 2018 1:16 Operator: RS
Sample : P1805559-005dil (40mL) Inst : MS09
Misc : S31-10151806

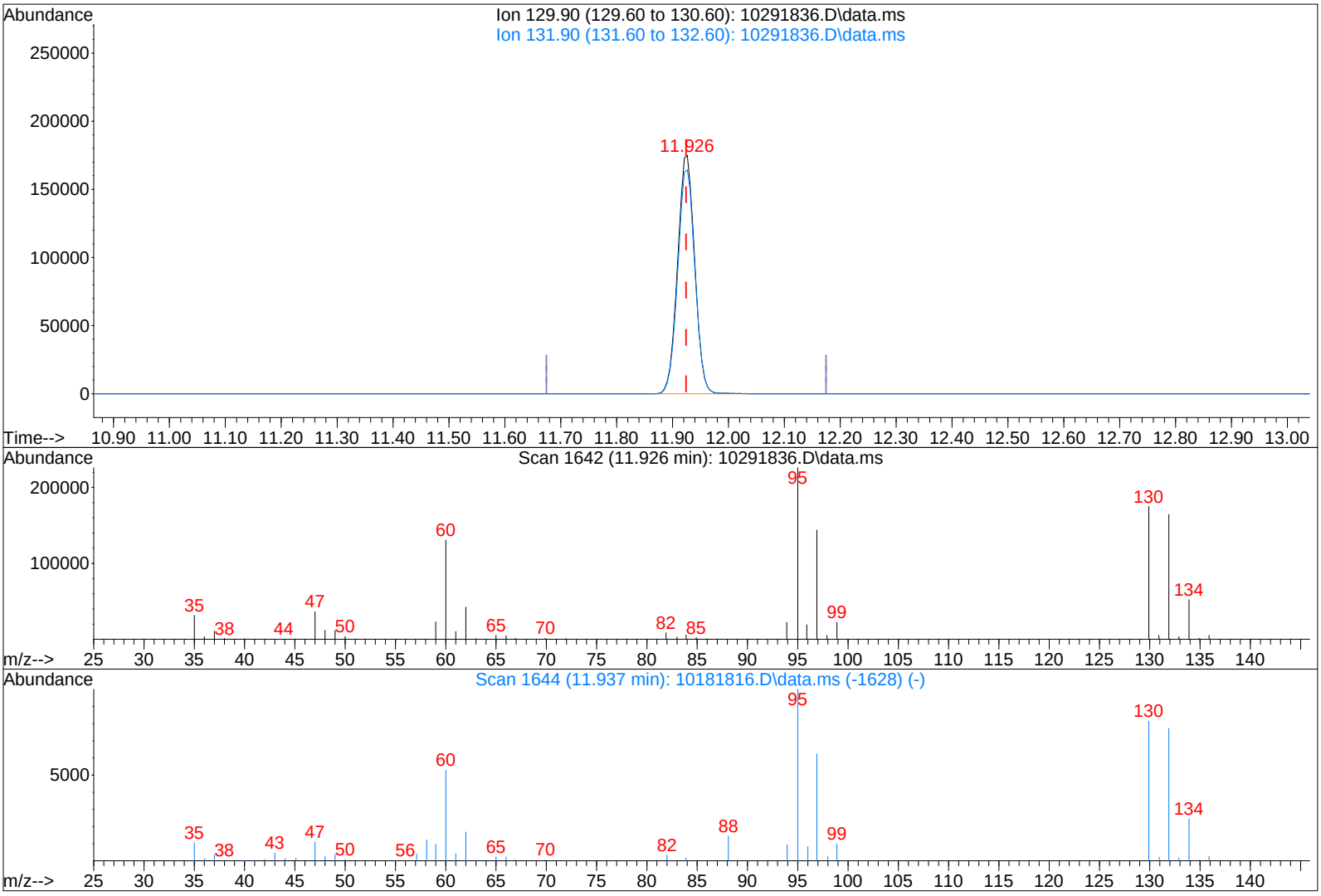
Quant Time: Oct 30 09:09:22 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (Qedit)

Data File : I:\MS09\Data\2018_10\29\10291836.D Vial: 15
Acq On : 30 Oct 2018 1:16 Operator: RS
Sample : P1805559-005dil (40mL) Inst : MS09
Misc : S31-10151806

Quant Time: Oct 30 06:37:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



TIC: 10291836.D\data.ms

(47) Trichloroethene (T)

11.926min (+0.002) 27.71ng

response 370736

Ion	Exp%	Act%
129.90	100	100
131.90	94.60	94.39
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291805.D
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 09:03:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	108243	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.23	114	574325	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	355054	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	300200	15.992	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 127.92%				
57) Toluene-d8 (SS2)	13.66	98	755245	12.176	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.44%				
73) Bromofluorobenzene (SS3)	17.15	174	139039	9.963	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 79.68%				
Target Compounds							Qvalue
2) Propene	4.01	42	958	0.035	ng	#	71
3) Dichlorodifluoromethan...	0.00	85	0	N.D.			
4) Chloromethane	0.00	50	0	N.D.			
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.			
6) Vinyl Chloride	0.00	62	0	N.D.			
7) 1,3-Butadiene	0.00	54	0	N.D.			
8) Bromomethane	0.00	94	0	N.D.			
9) Chloroethane	0.00	64	0	N.D.			
10) Ethanol	5.50	45	3076m	0.208	ng		
11) Acetonitrile	0.00	41	0	N.D.	d		
12) Acrolein	5.84	56	533	0.047	ng		98
13) Acetone	6.00	58	8472	0.555	ng	#	72
14) Trichlorofluoromethane	0.00	101	0	N.D.			
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.	d		
16) Acrylonitrile	6.50	53	497	0.019	ng		91
17) 1,1-Dichloroethene	0.00	96	0	N.D.			
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.			
19) Methylene Chloride	0.00	84	0	N.D.			
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.			
21) Trichlorotrifluoroethane	0.00	151	0	N.D.			
22) Carbon Disulfide	0.00	76	0	N.D.	d		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.			
24) 1,1-Dichloroethane	0.00	63	0	N.D.			
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.			
26) Vinyl Acetate	0.00	86	0	N.D.	d		
27) 2-Butanone (MEK)	8.69	72	486	0.041	ng	#	1
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.			
29) Diisopropyl Ether	0.00	87	0	N.D.			
30) Ethyl Acetate	0.00	61	0	N.D.			
31) n-Hexane	0.00	57	0	N.D.			
32) Chloroform	0.00	83	0	N.D.			
34) Tetrahydrofuran (THF)	9.86	72	202	0.018	ng	#	1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.			
36) 1,2-Dichloroethane	0.00	62	0	N.D.			
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.			
39) Isopropyl Acetate	0.00	61	0	N.D.			
40) 1-Butanol	10.84	56	3019	0.155	ng		87
41) Benzene	0.00	78	0	N.D.	d		
42) Carbon Tetrachloride	0.00	117	0	N.D.			
43) Cyclohexane	0.00	84	0	N.D.	d		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.			
45) 1,2-Dichloropropane	0.00	63	0	N.D.			
46) Bromodichloromethane	0.00	83	0	N.D.			
47) Trichloroethene	11.92	130	200	0.015	ng		83
48) 1,4-Dioxane	0.00	88	0	N.D.			
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.			

Data File: I:\MS09\Data\2018_10\29\10291805.D
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 09:03:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

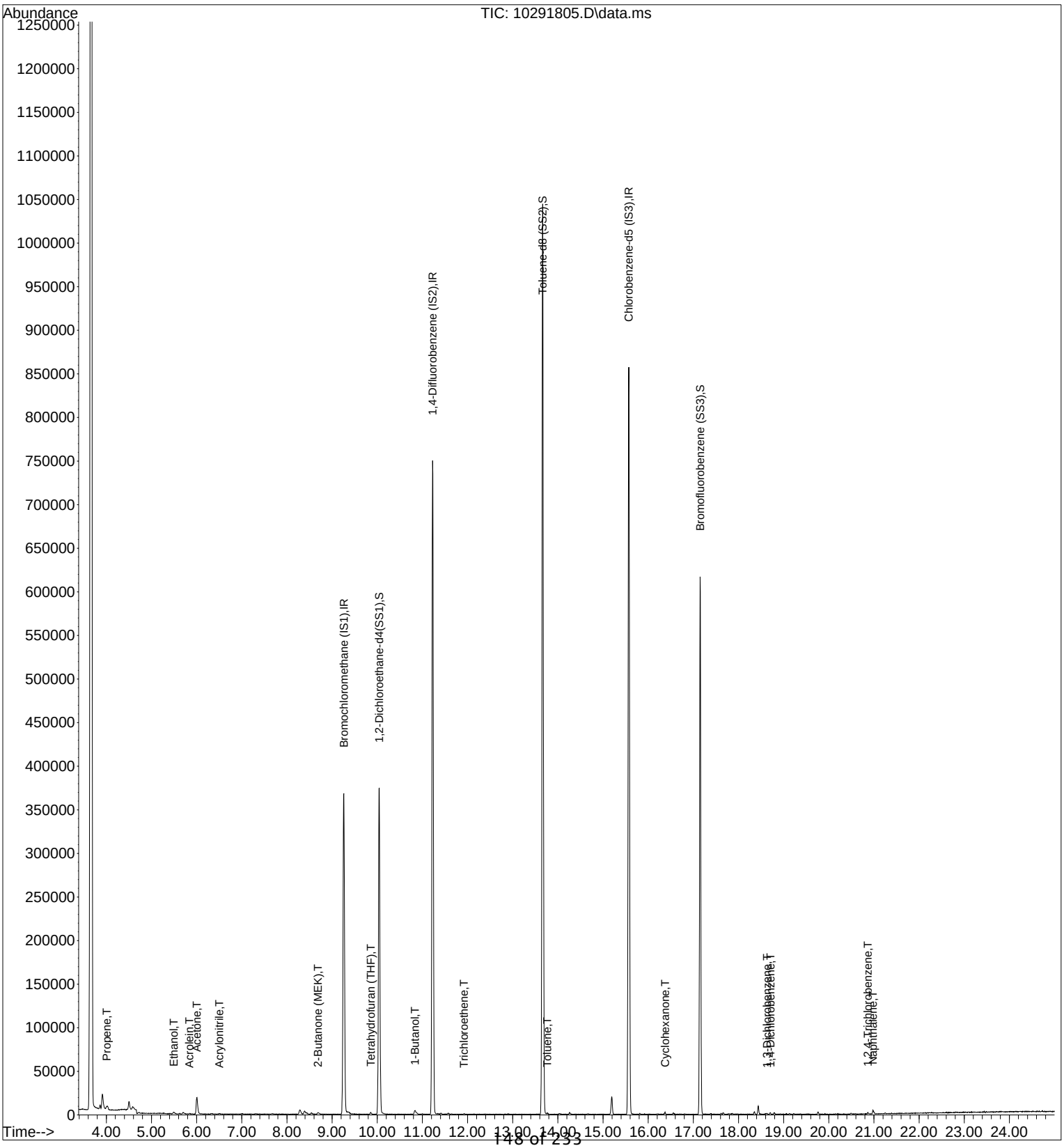
Internal Standards	R.T.	QIon	Response	Conc Units		Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	13.77	91	677	0.010 ng	#	72
59) 2-Hexanone	0.00	43	0	N.D. d		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D. d		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D. d		
66) Ethylbenzene	0.00	91	0	N.D. d		
67) m- & p-Xylenes	0.00	91	0	N.D. d		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D. d		
70) o-Xylene	0.00	91	0	N.D. d		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D. d		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D. d		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	0.00	105	0	N.D. d		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D. d		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D. d		
83) n-Decane	0.00	58	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	18.64	146	428	0.015 ng	#	73
86) 1,4-Dichlorobenzene	18.71	146	814	0.029 ng		84
87) sec-Butylbenzene	0.00	105	0	N.D. d		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D. d		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	20.86	180	552	0.033 ng	#	77
95) Naphthalene	20.98	128	3492	0.055 ng		92
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	16.38	55	1074	0.036 ng	#	79
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291805.D
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

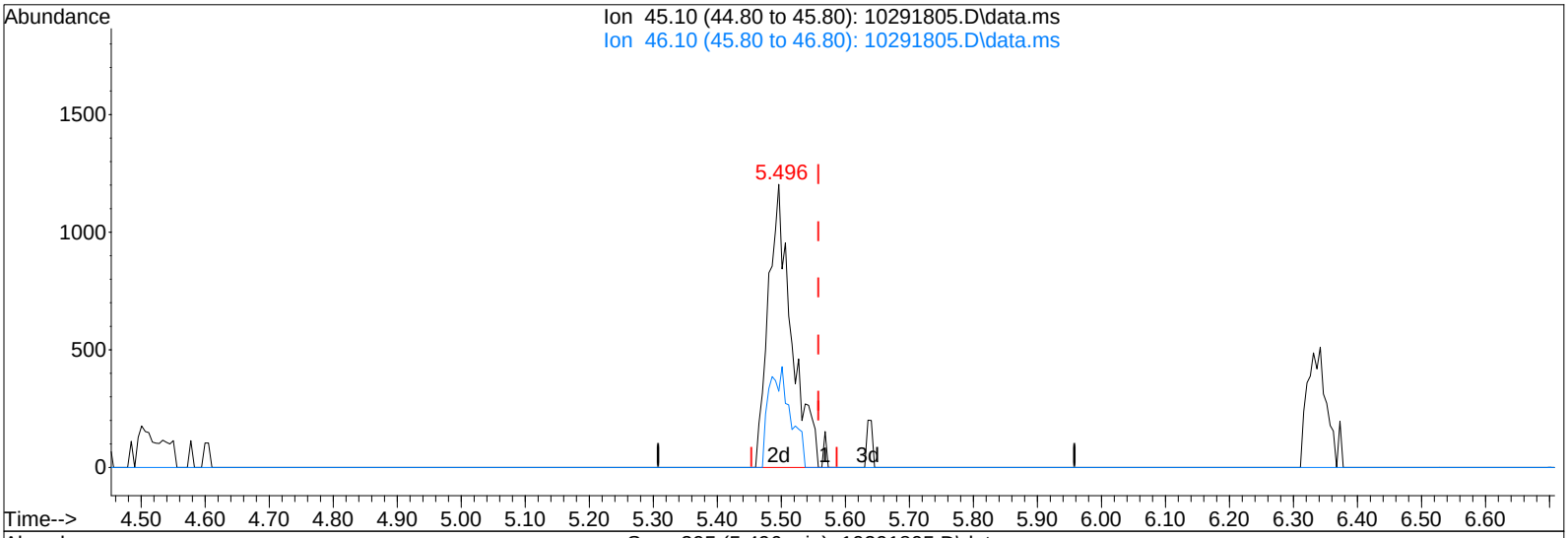
Quant Time: Oct 29 09:03:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

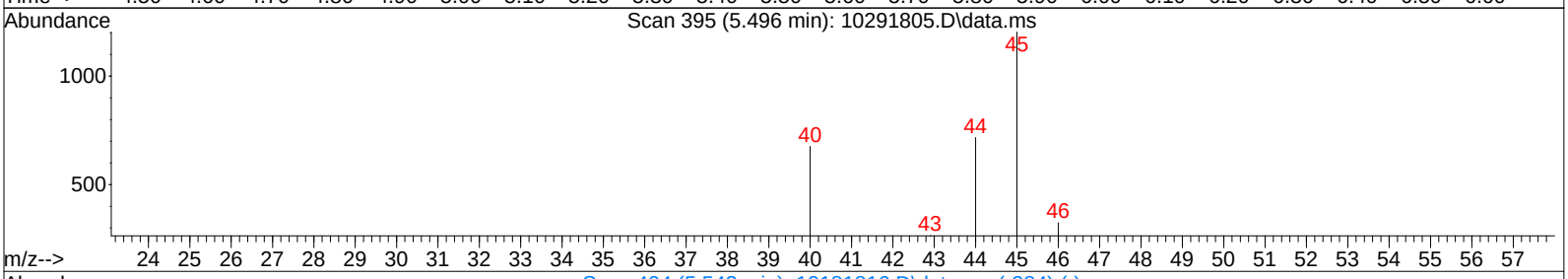


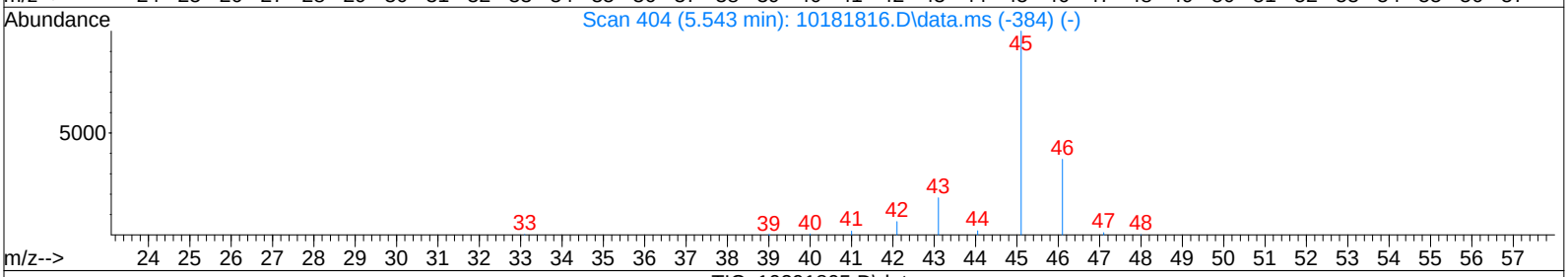
Quantitation Report (Qedit)

Data File: I:\MS09\Data\2018_10\29\10291805.D
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL
Misc : S31-10151806_AC00463
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 08:16:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M







TIC: 10291805.D\data.ms

(10) Ethanol (T)

5.496min (-0.062) 0.21ng m

response 3077

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	32.79
0.00	0.00	0.00
0.00	0.00	0.00

MP

10/29/18

10/29/18

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291805.D Vial: 2
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 31 11:07:38 2018 RS 10/31/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

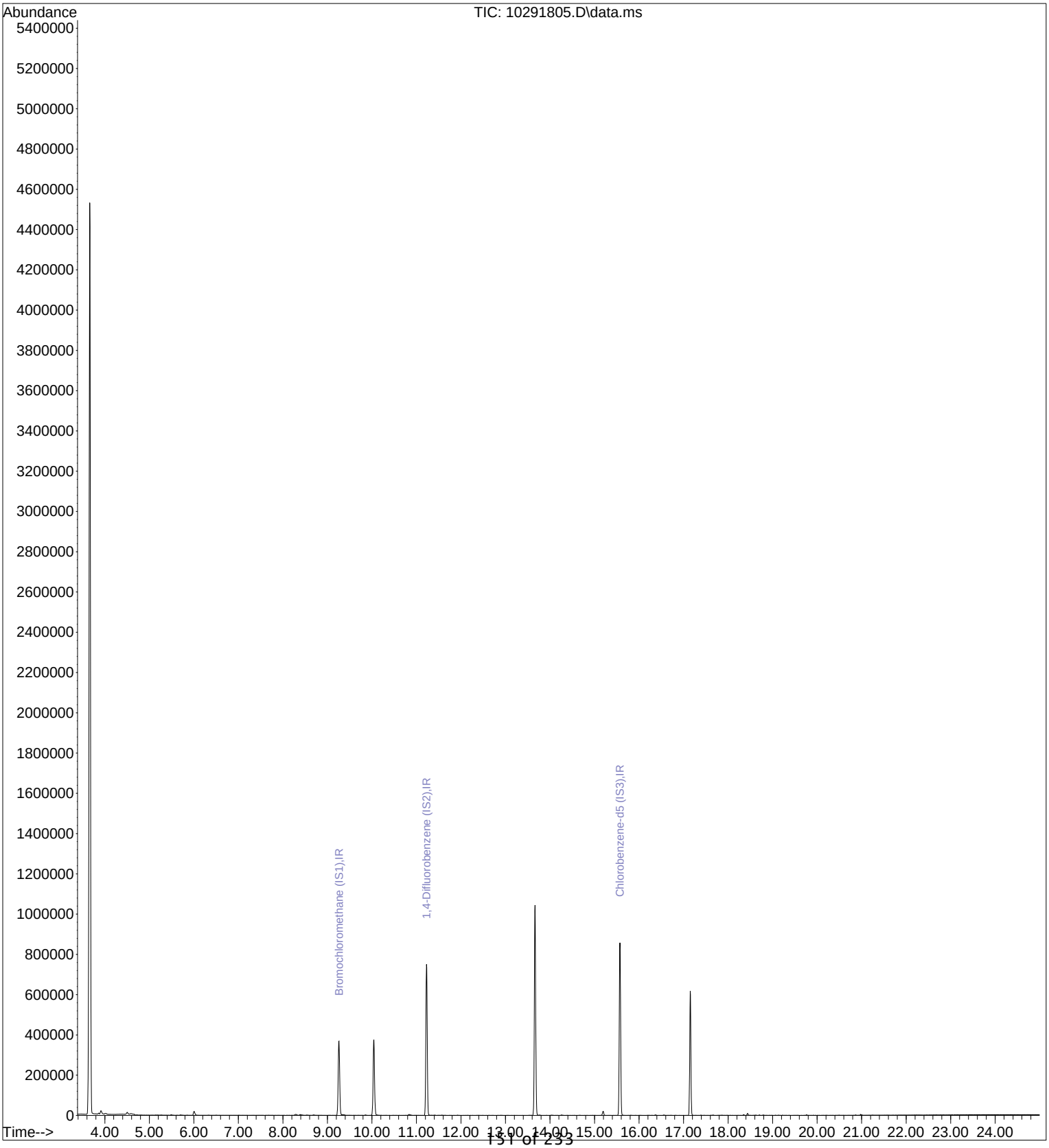
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	109592	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	574325	12.500	ng	-0.02
19) Chlorobenzene-d5 (IS3)	15.57	82	355054	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.77	85	253	N.D.		
3) 1,1,1,2-Tetrafluoroeth...	3.85	83	140	N.D.		
4) 1,1-Difluoroethane	3.92	65	174	N.D.		
5) Chlorodifluoromethane ...	0.00	67	0	N.D.		
6) 1-Chloro-1,1-Difluoroe...	4.31	65	529	N.D.		
7) Dichlorofluoromethane ...	5.42	67	530	N.D.		
8) Vinylbromide	0.00	108	0	N.D.		
9) 2,2-Dichloro-1,1,1-tri...	5.91	83	161	N.D.		
10) 2-Methylbutane	6.01	57	479	N.D.		
11) Methyl Acetate	7.02	43	782	N.D.		
12) 2-Methylpentane	8.43	71	62	N.D.		
13) 2,2-Dichloropropane	0.00	77	0	N.D.		
14) 1,1-Dichloropropene	10.74	75	51	N.D.		
15) Thiophene	11.00	84	454	N.D.		
17) 2,3-Dimethylpentane	11.41	56	616	N.D.		
18) Dibromomethane	0.00	174	0	N.D.		
20) Methyl Cyclohexane	12.90	55	191	N.D.		
21) 1,3-Dichloropropane	13.78	76	387	N.D.		
22) 1,1,1,2-Tetrachloroethane	0.00	131	0	N.D.		
23) 1-Chlorohexane	0.00	91	0	N.D.		
24) 1,2,3-Trichloropropane	16.80	75	365	N.D.		
25) Bromobenzene	17.38	77	657	N.D.		
26) 2-Chlorotoluene	17.78	91	1431	N.D.		
27) 4-Chlorotoluene	17.86	91	983	N.D.		
28) Indane	19.13	117	643	N.D.		
29) Indene	19.22	115	421	N.D.		
30) 1,2,4,5-Tetramethylben...	20.15	119	443	N.D.		
31) 1,2,3,4-Tetramethylben...	20.21	119	504	N.D.		
32) 1,2,3,5-Tetramethylben...	20.60	119	450	N.D.		
33) 1,2,3-Trichlorobenzene	21.25	180	401	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291805.D Vial: 2
Acq On : 29 Oct 2018 6:55 Operator: WA
Sample : MB R9102918_1000mL Inst : MS09
Misc : S31-10151806_AC00463

Quant Time: Oct 31 11:07:38 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291807.D
Acq On : 29 Oct 2018 8:44 Operator: WA
Sample : LCS R9102918_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 09:18:00 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	118378	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.25	114	604137	12.500	ng		0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	369595	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	309034	15.053	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 120.40%				
57) Toluene-d8 (SS2)	13.67	98	783490	12.134	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.04%				
73) Bromofluorobenzene (SS3)	17.16	174	154021	10.603	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.80%				
Target Compounds							Qvalue
2) Propene	3.97	42	801816	26.796	ng		99
3) Dichlorodifluoromethan...	4.08	85	806093	25.007	ng		100
4) Chloromethane	4.28	50	1031164	26.361	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	281874	24.856	ng		100
6) Vinyl Chloride	4.57	62	747713	24.487	ng		98
7) 1,3-Butadiene	4.75	54	481174	23.781	ng		99
8) Bromomethane	5.06	94	298529	24.214	ng		100
9) Chloroethane	5.28	64	392767	28.698	ng		100
10) Ethanol	5.55	45	2331711	144.206	ng		100
11) Acetonitrile	5.73	41	1304631	29.805	ng		99
12) Acrolein	5.84	56	315098	25.171	ng		100
13) Acetone	6.00	58	1977574	118.360	ng	#	79
14) Trichlorofluoromethane	6.16	101	602267	26.082	ng		99
15) 2-Propanol (Isopropanol)	6.34	45	3156025	60.675	ng		99
16) Acrylonitrile	6.54	53	811068	28.582	ng		99
17) 1,1-Dichloroethene	6.86	96	354221	25.327	ng	#	67
18) 2-Methyl-2-Propanol (t...	6.99	59	2795430	61.428	ng		95
19) Methylene Chloride	7.03	84	438907	26.242	ng	#	67
20) 3-Chloro-1-propene (Al...	7.15	41	998677	32.642	ng		87
21) Trichlorotrifluoroethane	7.32	151	235707	25.534	ng	#	83
22) Carbon Disulfide	7.29	76	1714185	27.314	ng		100
23) trans-1,2-Dichloroethene	8.04	61	788682	28.437	ng		85
24) 1,1-Dichloroethane	8.26	63	930734	27.820	ng		99
25) Methyl tert-Butyl Ether	8.32	73	1433567	28.246	ng		96
26) Vinyl Acetate	8.43	86	480062	174.462	ng	#	77
27) 2-Butanone (MEK)	8.67	72	346824	26.611	ng	#	68
28) cis-1,2-Dichloroethene	9.13	61	745094	27.939	ng		89
29) Diisopropyl Ether	9.35	87	343797	27.364	ng	#	88
30) Ethyl Acetate	9.36	61	425357	61.641	ng		98
31) n-Hexane	9.35	57	1010583	31.850	ng		100
32) Chloroform	9.44	83	748462	26.787	ng		99
34) Tetrahydrofuran (THF)	9.81	72	331993	26.505	ng		95
35) Ethyl tert-Butyl Ether	9.89	87	495527	26.854	ng		95
36) 1,2-Dichloroethane	10.17	62	646713	29.136	ng		100
38) 1,1,1-Trichloroethane	10.44	97	587172	25.695	ng		99
39) Isopropyl Acetate	10.80	61	713780	57.365	ng	#	94
40) 1-Butanol	10.81	56	1212645	59.034	ng		94
41) Benzene	10.89	78	1833224	24.918	ng		100
42) Carbon Tetrachloride	11.04	117	462416	25.985	ng		100
43) Cyclohexane	11.17	84	1341735	51.331	ng		96
44) tert-Amyl Methyl Ether	11.48	73	1358194	27.190	ng		97
45) 1,2-Dichloropropane	11.70	63	551684	26.621	ng		100
46) Bromodichloromethane	11.89	83	595599	27.016	ng		100
47) Trichloroethene	11.94	130	329644	22.761	ng		100
48) 1,4-Dioxane	11.91	88	346434	26.243	ng		96
49) 2,2,4-Trimethylpentane...	11.99	57	2495960	27.579	ng		98

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291807.D
Acq On : 29 Oct 2018 8:44 Operator: WA
Sample : LCS R9102918_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 09:18:00 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

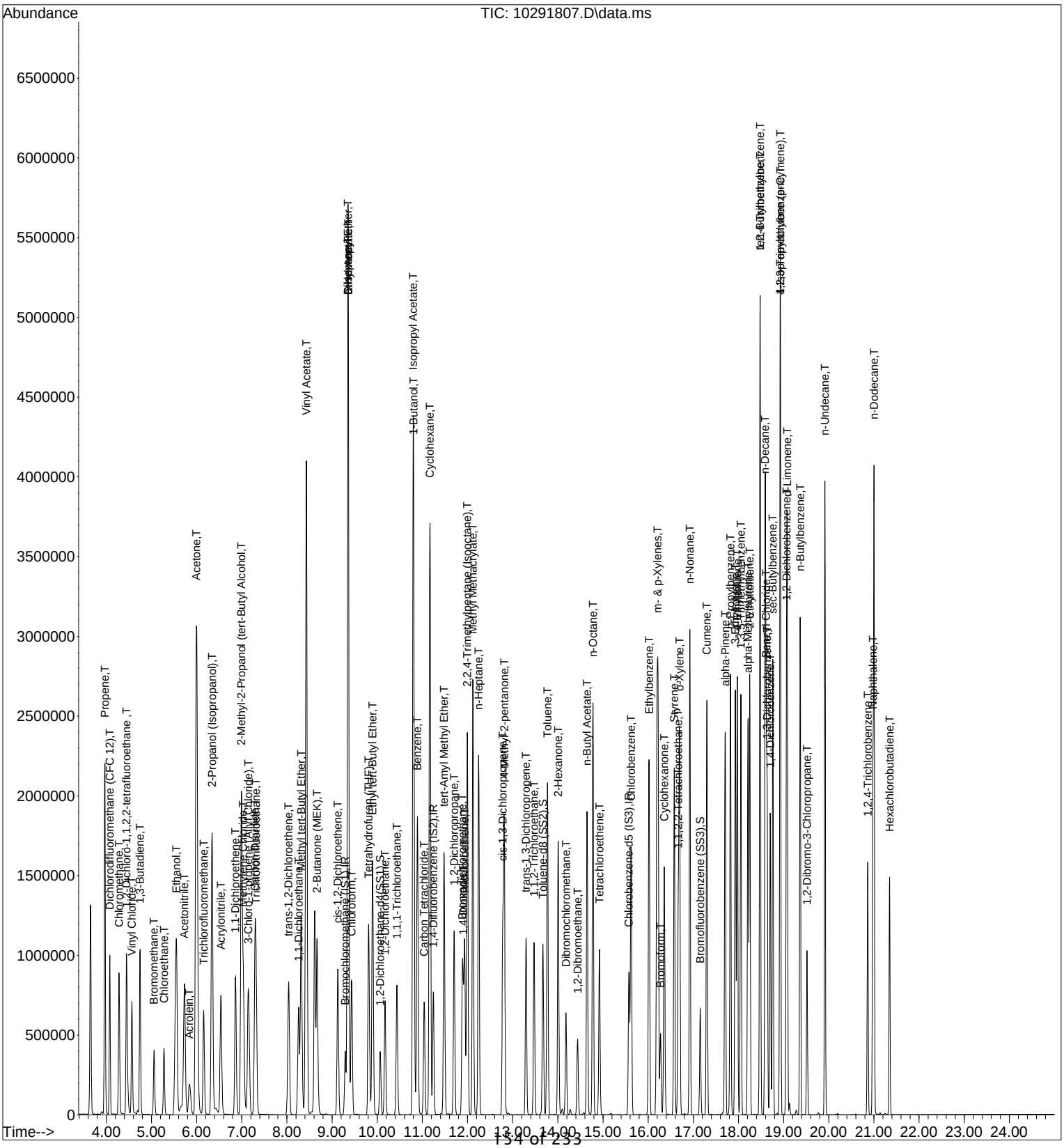
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	300217	52.922	ng		92
51) n-Heptane	12.25	71	519416	26.714	ng		97
52) cis-1,3-Dichloropropene	12.78	75	788768	28.257	ng		99
53) 4-Methyl-2-pentanone	12.81	58	558889	30.450	ng		93
54) trans-1,3-Dichloropropene	13.29	75	721206	29.462	ng		100
55) 1,1,2-Trichloroethane	13.47	97	378010	25.369	ng		97
58) Toluene	13.77	91	1675388	23.205	ng		99
59) 2-Hexanone	14.00	43	1500686	33.100	ng		93
60) Dibromochloromethane	14.18	129	374346	24.289	ng		100
61) 1,2-Dibromoethane	14.44	107	395425	23.975	ng		100
62) n-Butyl Acetate	14.64	43	1734143	33.938	ng		95
63) n-Octane	14.78	57	529613	29.536	ng		92
64) Tetrachloroethene	14.92	166	292695	19.635	ng		100
65) Chlorobenzene	15.62	112	937218	22.392	ng		100
66) Ethylbenzene	16.02	91	1909763	24.149	ng		96
67) m- & p-Xylenes	16.21	91	3003933	49.429	ng		96
68) Bromoform	16.27	173	256112	23.874	ng		100
69) Styrene	16.58	104	1057763	24.576	ng		96
70) o-Xylene	16.70	91	1528892	25.779	ng		95
71) n-Nonane	16.92	43	1431474	34.319	ng		91
72) 1,1,2,2-Tetrachloroethane	16.67	83	786055	26.898	ng		99
74) Cumene	17.30	105	1727046	24.083	ng		98
75) alpha-Pinene	17.71	93	989560	25.545	ng		93
76) n-Propylbenzene	17.82	91	2363715	26.530	ng		95
77) 3-Ethyltoluene	17.93	105	1667828	23.770	ng		99
78) 4-Ethyltoluene	17.98	105	1764828	27.063	ng		94
79) 1,3,5-Trimethylbenzene	18.05	105	1454563	25.190	ng		96
80) alpha-Methylstyrene	18.21	118	702648	24.552	ng		97
81) 2-Ethyltoluene	18.25	105	1727354	25.112	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	1502639	26.771	ng		97
83) n-Decane	18.59	58	57861	31.340	ng	#	82
84) Benzyl Chloride	18.61	91	1477578	29.644	ng		95
85) 1,3-Dichlorobenzene	18.64	146	673692	23.016	ng		100
86) 1,4-Dichlorobenzene	18.70	146	669672	22.914	ng		99
87) sec-Butylbenzene	18.76	105	1967954	25.065	ng		97
88) 4-Isopropyltoluene (p-...	18.92	119	1687988	25.579	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	1551189	27.151	ng		98
90) 1,2-Dichlorobenzene	19.06	146	643027	23.507	ng		100
91) d-Limonene	19.08	68	834242	28.708	ng		97
92) 1,2-Dibromo-3-Chloropr...	19.52	157	216430	24.646	ng		86
93) n-Undecane	19.91	57	1394092	31.255	ng		98
94) 1,2,4-Trichlorobenzene	20.86	180	387606	22.289	ng		100
95) Naphthalene	20.98	128	1458881	22.247	ng		100
96) n-Dodecane	21.00	57	1335893	32.606	ng		96
97) Hexachlorobutadiene	21.35	225	232842	21.413	ng		99
98) Cyclohexanone	16.36	55	826894	26.919	ng	#	89
99) tert-Butylbenzene	18.48	119	1306814	25.102	ng		98
100) n-Butylbenzene	19.37	91	1793128	26.468	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291807.D
Acq On : 29 Oct 2018 8:44 Operator: WA
Sample : LCS R9102918_25ng
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 29 09:18:00 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291808.D Vial: 2
Acq On : 29 Oct 2018 9:18 Operator: WA
Sample : LCSD R9102918_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 29 14:57:39 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

RS 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	126548	12.500	ng		0.03
37) 1,4-Difluorobenzene (IS2)	11.24	114	641087	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	395534	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	335336	15.280	ng		0.04
Spiked Amount 12.500	Range 70 - 130		Recovery = 122.24%				
57) Toluene-d8 (SS2)	13.67	98	831854	12.038	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 96.32%				
73) Bromofluorobenzene (SS3)	17.16	174	163181	10.496	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 84.00%				
Target Compounds							Qvalue
2) Propene	3.96	42	806060	25.199	ng		98
3) Dichlorodifluoromethan...	4.07	85	808323	23.457	ng		100
4) Chloromethane	4.27	50	1029379	24.617	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	282567	23.308	ng		100
6) Vinyl Chloride	4.56	62	776066	23.774	ng		99
7) 1,3-Butadiene	4.74	54	501637	23.192	ng		97
8) Bromomethane	5.05	94	327998	24.887	ng		99
9) Chloroethane	5.27	64	402215	27.491	ng		100
10) Ethanol	5.54	45	2467872	142.773	ng		100
11) Acetonitrile	5.72	41	1378916	29.468	ng		99
12) Acrolein	5.84	56	325981	24.359	ng		100
13) Acetone	5.99	58	2042925	114.377	ng	#	75
14) Trichlorofluoromethane	6.15	101	612961	24.831	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	3319875	59.704	ng		99
16) Acrylonitrile	6.53	53	844414	27.836	ng		99
17) 1,1-Dichloroethene	6.86	96	362124	24.221	ng	#	65
18) 2-Methyl-2-Propanol (t...	6.99	59	2946707	60.572	ng		95
19) Methylene Chloride	7.03	84	448002	25.057	ng	#	64
20) 3-Chloro-1-propene (Al...	7.14	41	1051794	32.159	ng		86
21) Trichlorotrifluoroethane	7.32	151	239916	24.312	ng	#	83
22) Carbon Disulfide	7.29	76	1743944	25.994	ng		100
23) trans-1,2-Dichloroethene	8.03	61	824141	27.797	ng		84
24) 1,1-Dichloroethane	8.25	63	965921	27.008	ng		99
25) Methyl tert-Butyl Ether	8.31	73	1501615	27.677	ng		96
26) Vinyl Acetate	8.42	86	490639	166.794	ng	#	71
27) 2-Butanone (MEK)	8.67	72	356435	25.583	ng	#	63
28) cis-1,2-Dichloroethene	9.13	61	777892	27.286	ng		88
29) Diisopropyl Ether	9.35	87	353472	26.318	ng	#	84
30) Ethyl Acetate	9.36	61	438051	59.382	ng		99
31) n-Hexane	9.35	57	1044605	30.797	ng		100
32) Chloroform	9.43	83	771587	25.832	ng		100
34) Tetrahydrofuran (THF)	9.81	72	345606	25.810	ng		94
35) Ethyl tert-Butyl Ether	9.89	87	518108	26.265	ng		94
36) 1,2-Dichloroethane	10.17	62	678526	28.595	ng		100
38) 1,1,1-Trichloroethane	10.44	97	613282	25.291	ng		99
39) Isopropyl Acetate	10.80	61	738806	55.954	ng	#	90
40) 1-Butanol	10.81	56	1263928	57.984	ng		92
41) Benzene	10.89	78	1900229	24.340	ng		100
42) Carbon Tetrachloride	11.04	117	477867	25.305	ng		100
43) Cyclohexane	11.17	84	1380488	49.769	ng		95
44) tert-Amyl Methyl Ether	11.48	73	1424517	26.874	ng		97
45) 1,2-Dichloropropane	11.70	63	571717	25.998	ng		100
46) Bromodichloromethane	11.89	83	617624	26.401	ng		100
47) Trichloroethene	11.94	130	338357	22.016	ng		100
48) 1,4-Dioxane	11.91	88	357903	25.549	ng		95
49) 2,2,4-Trimethylpentane...	11.99	57	2595957	27.031	ng		98
50) Methyl Methacrylate	12.12	100	310011	51.499	ng		91

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291808.D Vial: 2
Acq On : 29 Oct 2018 9:18 Operator: WA
Sample : LCSD R9102918_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 29 14:57:39 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

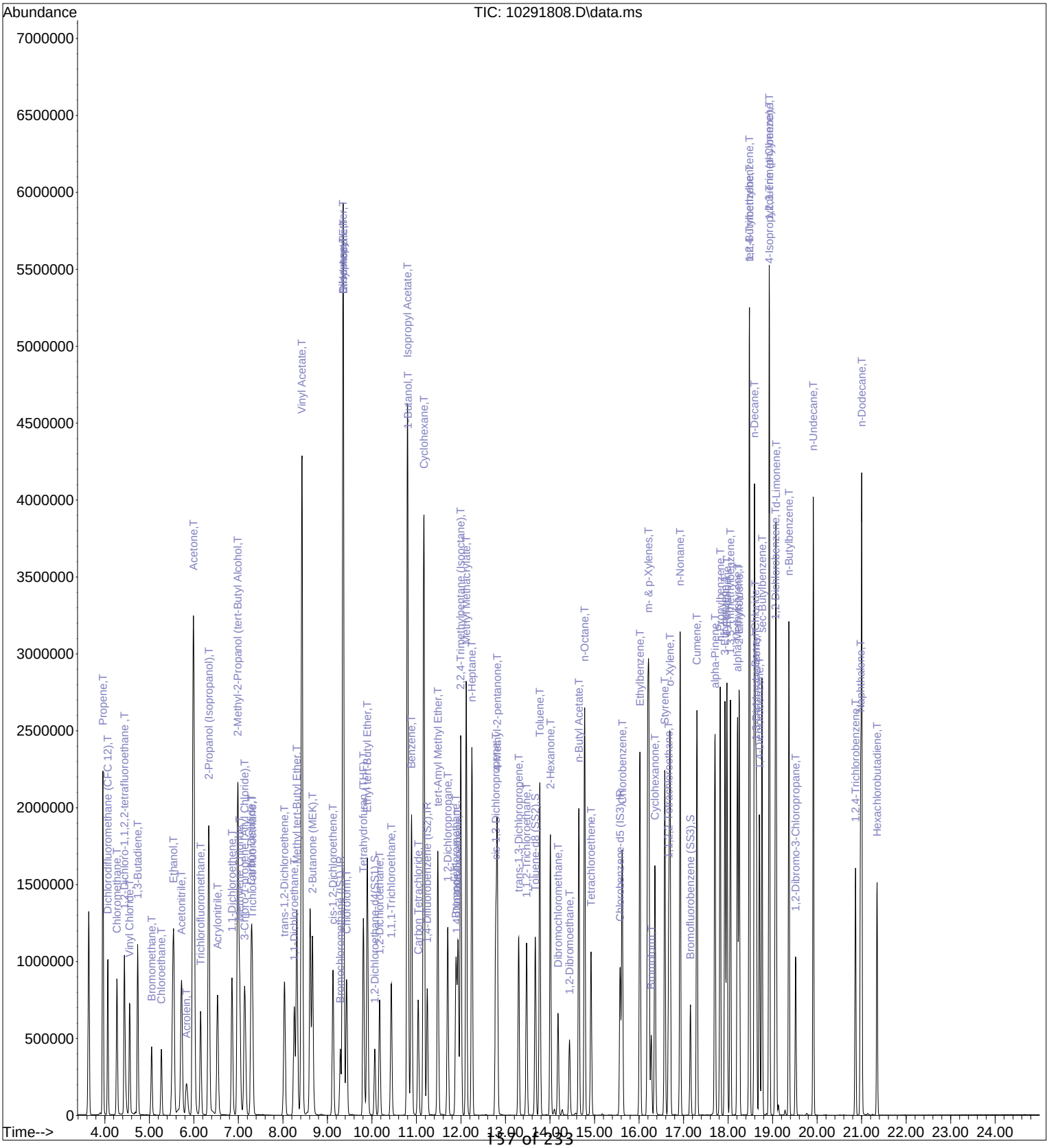
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
51) n-Heptane	12.25	71	539522	26.149	ng		97
52) cis-1,3-Dichloropropene	12.78	75	820587	27.703	ng		99
53) 4-Methyl-2-pentanone	12.81	58	577800	29.666	ng		91
54) trans-1,3-Dichloropropene	13.30	75	748494	28.815	ng		100
55) 1,1,2-Trichloroethane	13.47	97	386826	24.464	ng		96
58) Toluene	13.77	91	1731252	22.406	ng		99
59) 2-Hexanone	14.01	43	1576483	32.491	ng		92
60) Dibromochloromethane	14.18	129	385558	23.376	ng		99
61) 1,2-Dibromoethane	14.44	107	405839	22.993	ng		100
62) n-Butyl Acetate	14.65	43	1812949	33.153	ng		95
63) n-Octane	14.78	57	548041	28.559	ng		91
64) Tetrachloroethene	14.92	166	300114	18.812	ng		100
65) Chlorobenzene	15.62	112	964763	21.539	ng		99
66) Ethylbenzene	16.02	91	1966123	23.232	ng		96
67) m- & p-Xylenes	16.21	91	3088155	47.482	ng		95
68) Bromoform	16.27	173	261743	22.799	ng		100
69) Styrene	16.58	104	1086207	23.582	ng		96
70) o-Xylene	16.70	91	1572305	24.773	ng		95
71) n-Nonane	16.92	43	1470985	32.954	ng		90
72) 1,1,2,2-Tetrachloroethane	16.67	83	796909	25.481	ng		100
74) Cumene	17.30	105	1764290	22.989	ng		98
75) alpha-Pinene	17.71	93	1008380	24.324	ng		93
76) n-Propylbenzene	17.83	91	2401934	25.191	ng		95
77) 3-Ethyltoluene	17.93	105	1791392	23.857	ng		96
78) 4-Ethyltoluene	17.98	105	1709361	24.493	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	1483437	24.006	ng		95
80) alpha-Methylstyrene	18.21	118	717431	23.424	ng		97
81) 2-Ethyltoluene	18.25	105	1760003	23.908	ng		98
82) 1,2,4-Trimethylbenzene	18.48	105	1526961	25.421	ng		97
83) n-Decane	18.59	58	59219	29.972	ng	#	80
84) Benzyl Chloride	18.61	91	1515183	28.404	ng		95
85) 1,3-Dichlorobenzene	18.64	146	686576	21.918	ng		100
86) 1,4-Dichlorobenzene	18.70	146	682248	21.814	ng		100
87) sec-Butylbenzene	18.76	105	1993123	23.721	ng		97
88) 4-Isopropyltoluene (p-...	18.93	119	1701857	24.097	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	1573982	25.743	ng		98
90) 1,2-Dichlorobenzene	19.06	146	654875	22.370	ng		100
91) d-Limonene	19.08	68	847204	27.242	ng		97
92) 1,2-Dibromo-3-Chloropr...	19.52	157	221096	23.526	ng		87
93) n-Undecane	19.91	57	1413883	29.619	ng		98
94) 1,2,4-Trichlorobenzene	20.86	180	400934	21.543	ng		100
95) Naphthalene	20.98	128	1512923	21.559	ng		100
96) n-Dodecane	21.00	57	1353716	30.874	ng		96
97) Hexachlorobutadiene	21.35	225	239823	20.609	ng		100
98) Cyclohexanone	16.36	55	857245	26.077	ng	#	89
99) tert-Butylbenzene	18.48	119	1327306	23.823	ng		98
100) n-Butylbenzene	19.37	91	1821521	25.124	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File : I:\MS09\Data\2018_10\29\10291808.D Vial: 2
Acq On : 29 Oct 2018 9:18 Operator: WA
Sample : LCSD R9102918_25ng Inst : MS09
Misc : S31-10151806/S31-10151802 (11/13)

Quant Time: Oct 29 14:57:39 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Response Factor Report MS09

Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 09:11:27 2018
Response Via : Initial Calibration

10/19/18

Calibration Files
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100 =10181818.D

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------							
2)	T	Propene	4.032	3.440	3.033	3.191	2.880	2.870	2.950	2.882	3.160	12.77
3)	T	Dichlorodifluo...	4.538	3.749	3.648	3.529	3.153	3.137	2.870	2.607	3.404	17.68
4)	T	Chloromethane	5.191	4.767	4.815	4.292	3.804	3.759	3.509	2.906	4.130	18.65
5)	T	1,2-Dichloro-1...	1.565	1.286	1.277	1.214	1.103	1.115	1.013	1.006	1.197	15.34
6)	T	Vinyl Chloride	4.033	3.573	3.603	3.497	3.140	2.991	2.665	2.293	3.224	17.53
7)	T	1,3-Butadiene	2.578	2.190	2.298	2.209	2.123	2.153	1.967	1.575	2.137	13.40
8)	T	Bromomethane	1.907	1.477	1.368	1.298	1.123	1.164	1.063	1.015	1.302	22.34
9)	T	Chloroethane	1.570	1.431	1.743	1.762	1.379	1.389	1.201	1.086	1.445	16.56
10)	T	Ethanol	1.808	1.524	2.207	2.174	1.936	1.303	1.642	1.065	1.707	23.67
11)	T	Acetonitrile	4.546	3.918	5.797	5.880	5.369	3.576	4.720	3.172	4.622	21.99
12)	T	Acrolein	1.681	1.317	1.512	1.595	1.332	1.035	1.196	0.907	1.322	20.43
13)	T	Acetone		2.009	2.249	2.076	1.783	1.187	1.282		1.764	24.82
14)	T	Trichlorofluor...	3.168	2.595	2.712	2.592	2.353	2.097	2.147	1.843	2.438	17.10
15)	T	2-Propanol (Is...		5.198	6.951	7.171	6.282	4.644	5.198	3.005	5.493	26.43
16)	T	Acrylonitrile	3.275	2.650	3.351	3.424	3.217	2.477	2.920	2.659	2.996	12.25
17)	T	1,1-Dichloroet...	1.962	1.526	1.559	1.473	1.362	1.356	1.319	1.258	1.477	15.03
18)	T	2-Methyl-2-Pro...	5.783	4.554	5.327	5.797	5.341	4.301	4.620	2.720	4.805	21.10
19)	T	Methylene Chlo...	2.386	1.747	1.918	1.859	1.691	1.553	1.566	1.409	1.766	17.05
20)	T	3-Chloro-1-pro...	3.361	3.058	3.202	3.768	3.520	2.589	3.219	3.128	3.231	10.74
21)	T	Trichlorotrifl...	1.211	1.064	1.045	0.976	0.855	0.973	0.852	0.822	0.975	13.51
22)	T	Carbon Disulfide	8.524	7.060	6.786	6.983	6.445	5.788	5.951	5.479	6.627	14.49
23)	T	trans-1,2-Dich...	3.390	2.887	2.998	3.214	2.998	2.465	2.762	2.713	2.929	9.96
24)	T	1,1-Dichloroet...	4.256	3.734	3.686	3.900	3.566	2.920	3.174	3.027	3.533	13.03
25)	T	Methyl tert-Bu...	5.961	5.420	5.385	5.824	5.406	5.045	5.008	4.824	5.359	7.38
26)	T	Vinyl Acetate	0.213	0.219	0.269	0.297	0.320	0.373	0.335	0.299	0.291	19.08
27)	T	2-Butanone (MEK)	1.562	1.430	1.396	1.502	1.319	1.293	1.273	1.234	1.376	8.45
28)	T	cis-1,2-Dichlo...	3.710	2.603	2.879	3.116	2.585	2.589	2.599	2.447	2.816	14.88
29)	T	Diisopropyl Ether			1.719	1.494	1.300	1.335	1.159	0.952	1.327	19.98
30)	T	Ethyl Acetate	0.878	0.703	0.719	0.852	0.731	0.805	0.644	0.497	0.729	16.80
31)	T	n-Hexane			3.570	4.090	3.478	3.772	2.965	2.227	3.350	19.81
32)	T	Chloroform	4.076	2.887	2.994	3.122	2.627	2.881	2.602	2.415	2.950	17.28
33)	S	1,2-Dichloroet...	2.431	2.143	2.021	2.122	1.825	2.446	2.288	2.067	2.168	9.76
34)	T	Tetrahydrofura...	1.774	1.353	1.412	1.344	1.104	1.317	1.193	1.084	1.323	16.52
35)	T	Ethyl tert-But...	2.219	2.038	2.006	2.041	1.768	2.000	1.832	1.683	1.948	8.93
36)	T	1,2-Dichloroet...	3.113	2.460	2.429	2.362	1.904	2.458	2.185	1.840	2.344	16.90
37)	IR	1,4-Difluorobenzen...	----------	ISTD	----------							
38)	T	1,1,1-Trichlor...	0.613	0.539	0.481	0.468	0.448	0.439	0.414	0.380	0.473	15.60
39)	T	Isopropyl Acetate	0.312	0.281	0.254	0.271	0.247	0.273	0.235	0.186	0.257	14.49
40)	T	1-Butanol	0.502	0.442	0.396	0.432	0.399	0.480	0.415	0.334	0.425	12.36
41)	T	Benzene	2.032	1.815	1.552	1.522	1.387	1.403	1.304	1.164	1.522	18.49
42)	T	Carbon Tetrach...	0.428	0.404	0.375	0.378	0.348	0.355	0.340	0.317	0.368	9.66

Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

43)	T	Cyclohexane	0.712	0.629	0.555	0.546	0.517	0.515	0.469	0.384	0.541	18.27
44)	T	tert-Amyl Meth...	1.261	1.233	1.051	0.987	0.948	1.011	0.939	0.839	1.034	14.10
45)	T	1,2-Dichloropr...	0.568	0.529	0.460	0.411	0.358	0.404	0.370	0.331	0.429	19.60
46)	T	Bromodichlorom...	0.570	0.536	0.476	0.425	0.437	0.435	0.406	0.363	0.456	14.98
47)	T	Trichloroethene	0.376	0.330	0.343	0.307	0.292	0.257	0.251	0.241	0.300	16.16
48)	T	1,4-Dioxane	0.291	0.293	0.306	0.279	0.276	0.265	0.252	0.223	0.273	9.63
49)	T	2,2,4-Trimethy...	2.504	2.276	1.898	1.822	1.791	1.807	1.618	1.264	1.873	20.29
50)	T	Methyl Methacr...	0.124	0.116	0.126	0.123	0.121	0.115	0.110	0.104	0.117	6.37
51)	T	n-Heptane	0.504	0.473	0.433	0.384	0.365	0.382	0.351	0.326	0.402	15.39
52)	T	cis-1,3-Dichlo...	0.694	0.624	0.615	0.545	0.540	0.582	0.546	0.475	0.578	11.55
53)	T	4-Methyl-2-pen...	0.453	0.389	0.401	0.356	0.354	0.405	0.373	0.306	0.380	11.46
54)	T	trans-1,3-Dich...	0.534	0.480	0.523	0.504	0.531	0.517	0.507	0.456	0.506	5.27
55)	T	1,1,2-Trichlor...	0.373	0.322	0.330	0.321	0.302	0.283	0.272	0.263	0.308	11.69
56)	IR	Chlorobenzene-d5 (...	----------ISTD----------									
57)	S	Toluene-d8 (SS2)	2.178	2.303	2.072	2.293	2.169	2.199	2.128	2.128	2.184	3.69
58)	T	Toluene	3.172	2.888	2.502	2.605	2.318	2.171	2.009	1.869	2.442	18.09
59)	T	2-Hexanone	1.912	1.449	1.418	1.590	1.456	1.559	1.578	1.304	1.533	11.77
60)	T	Dibromochlorom...	0.543	0.605	0.538	0.555	0.523	0.495	0.464	0.447	0.521	9.84
61)	T	1,2-Dibromoethane	0.618	0.628	0.591	0.612	0.547	0.517	0.488	0.462	0.558	11.42
62)	T	n-Butyl Acetate	2.138	1.643	1.514	1.936	1.602	1.761	1.816	1.415	1.728	13.60
63)	T	n-Octane	0.783	0.648	0.603	0.650	0.571	0.591	0.567	0.438	0.606	16.04
64)	T	Tetrachloroethene	0.587	0.687	0.540	0.554	0.472	0.422	0.384	0.386	0.504	21.21
65)	T	Chlorobenzene	1.742	1.698	1.493	1.521	1.379	1.234	1.153	1.104	1.416	16.96
66)	T	Ethylbenzene	3.257	3.002	2.848	2.874	2.615	2.381	2.298	2.123	2.675	14.49
67)	T	m- & p-Xylenes	2.439	2.385	2.175	2.348	1.972	1.844	1.726	1.555	2.055	16.10
68)	T	Bromoform	0.343	0.387	0.362	0.384	0.379	0.363	0.340	0.345	0.363	5.27
69)	T	Styrene	1.577	1.559	1.508	1.574	1.498	1.408	1.312	1.210	1.456	9.25
70)	T	o-Xylene	2.340	2.279	2.094	2.235	1.996	1.828	1.751	1.524	2.006	14.29
71)	T	n-Nonane	1.733	1.507	1.396	1.473	1.377	1.424	1.368	1.007	1.411	14.25
72)	T	1,1,2,2-Tetrac...	1.092	1.102	1.006	1.092	0.992	0.924	0.910	0.789	0.988	11.12
73)	S	Bromofluoroben...	0.452	0.516	0.474	0.528	0.493	0.497	0.475	0.495	0.491	4.91
74)	T	Cumene	2.860	2.901	2.549	2.602	2.472	2.236	2.023	1.759	2.425	16.39
75)	T	alpha-Pinene	1.475	1.426	1.341	1.432	1.417	1.218	1.172	1.001	1.310	12.59
76)	T	n-Propylbenzene	3.378	3.480	3.151	3.355	3.230	2.697	2.628	2.189	3.013	15.16
77)	T	3-Ethyltoluene	2.707	2.577	2.516	2.588	2.564	2.135	2.086	1.812	2.373	13.42
78)	T	4-Ethyltoluene	2.382	2.599	2.302	2.536	2.296	2.065	1.898	1.566	2.206	15.67
79)	T	1,3,5-Trimethy...	2.117	2.241	2.055	2.139	2.043	1.801	1.714	1.513	1.953	12.78
80)	T	alpha-Methylst...	1.010	1.041	0.968	1.061	1.031	0.962	0.883	0.787	0.968	9.55
81)	T	2-Ethyltoluene	2.625	2.653	2.414	2.612	2.433	2.192	1.987	1.694	2.326	14.81
82)	T	1,2,4-Trimethy...	2.135	2.122	2.017	2.181	2.004	1.868	1.625	1.234	1.898	16.98
83)	T	n-Decane			0.062	0.090	0.062	0.059	0.057	0.044	0.062	23.85
84)	T	Benzyl Chloride				1.758	1.738	1.797	1.716	1.420	1.686	8.98
85)	T	1,3-Dichlorobe...	1.202	1.177	1.039	0.987	0.992	0.911	0.842	0.769	0.990	15.24
86)	T	1,4-Dichlorobe...	1.121	1.182	1.018	1.019	0.997	0.922	0.845	0.804	0.988	13.01
87)	T	sec-Butylbenzene	2.946	3.104	2.798	3.017	2.699	2.468	2.273	1.938	2.655	15.17
88)	T	4-Isopropyltol...	2.421	2.657	2.412	2.560	2.379	2.187	1.845	1.394	2.232	18.79
89)	T	1,2,3-Trimethy...	2.141	2.203	2.041	2.239	2.025	1.945	1.630	1.233	1.932	17.62
90)	T	1,2-Dichlorobe...	1.103	1.089	0.959	1.031	0.940	0.844	0.774	0.661	0.925	16.86
91)	T	d-Limonene	0.896	0.989	1.018	1.035	0.991	1.074	0.877		0.983	7.33
92)	T	1,2-Dibromo-3-...	0.257	0.326	0.274	0.320	0.320	0.302	0.292	0.286	0.297	8.25
93)	T	n-Undecane	1.519	1.600	1.579	1.580	1.518	1.719	1.385	1.168	1.509	11.04
94)	T	1,2,4-Trichlor...	0.667	0.657	0.543	0.616	0.593	0.560	0.545	0.524	0.588	9.21

Method Path : I:\MS09\Methods\
Method File : R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95)	T	Naphthalene	2.461	2.345	2.074	2.378	2.353	2.251	2.052	1.829	2.218	9.63
96)	T	n-Dodecane	1.417	1.513	1.225	1.505	1.432	1.671	1.251	1.071	1.386	13.86
97)	T	Hexachlorobuta...	0.420	0.425	0.360	0.401	0.369	0.339	0.322	0.305	0.368	12.22
98)	T	Cyclohexanone	1.138	1.054	1.102	1.143	0.967	0.944	1.034	0.930	1.039	8.21
99)	T	tert-Butylbenzene	2.059	2.077	1.888	1.988	1.851	1.661	1.439	1.124	1.761	19.00
100)	T	n-Butylbenzene	2.446	2.585	2.506	2.520	2.331	2.299	1.996	1.647	2.291	13.92

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

10/19/18

1ng/L Std. ID:
4ng/L Std. ID: S31-10151812
20ng/L Std. ID: S31-10151810
200ng/L Std. ID: S31-10151808

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
Propene	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045		0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008		0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049		0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009		0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022		0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140		0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028		0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370		0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063		0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034		0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144		0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070		0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065		0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030		0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252		0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027		0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054		0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166		0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082		0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077		0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066		0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067		0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7
Benzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036		0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087		0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073		0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Isooctane	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135		0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6

Q:\TO15 Std. Concentrations\MS09 Std. Conc\2018\R9101818\ICAL Conc. (Primary Source)

Date Updated: 08/22/18
Version: 0

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-10151812
20ng/L Std. ID: S31-10151810
200ng/L Std. ID: S31-10151808

Dilution Factors:		5	50	250	1000	Working STD Conc.(ng/L):	4	4	4	20	200	200	200	200
	Source Std.	Primary Working Standards				Injection (L):	0.025	0.050	0.125	0.050	0.025	0.125	0.25	0.50
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	1ng/L	ICAL Points:	0.1ng	0.2ng	0.5ng	1ng	5ng	25ng	50ng	100ng
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120		0.1120	0.2240	0.5600	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055		0.1055	0.2110	0.5275	1.055	5.275	26.375	52.75	105.5
1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052		0.1052	0.2104	0.5260	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074		0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075		0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5
1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085		0.1085	0.2170	0.5425	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066		0.1066	0.2132	0.5330	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033		0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3
m-&p-Xylene	2.123	424.6	42.46	8.492	2.123		0.2123	0.4246	1.0615	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060		0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071		0.1071	0.2142	0.5355	1.071	5.355	26.775	53.55	107.1
1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Pinene	1.035	207.0	20.70	4.140	1.035		0.1035	0.2070	0.5175	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061		0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058		0.1058	0.2116	0.5290	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072		0.1072	0.2144	0.5360	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068		0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076		0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051		0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080		0.1080	0.2160	0.5400	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081		0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063		0.1063	0.2126	0.5315	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089		0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010		0.1010	0.2020	0.5050	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042		0.1042	0.2084	0.5210	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057		0.1057	0.2114	0.5285	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025		0.1025	0.2050	0.5125	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031		0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053		0.1053	0.2106	0.5265	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041		0.1041	0.2082	0.5205	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982		0.0982	0.1964	0.4910	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067		0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064		0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4

Calibration Status Report MS09

Method : I:\MS09\Methods\R9101818.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration

10/19/18

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS09\Data\2018_10\18\10181811.D
2	0.2	0	13	I:\MS09\Data\2018_10\18\10181812.D
3	0.5	1	13	I:\MS09\Data\2018_10\18\10181813.D
4	1.0	1	13	I:\MS09\Data\2018_10\18\10181814.D
5	5.0	5	13	I:\MS09\Data\2018_10\18\10181815.D
6	25	26	13	I:\MS09\Data\2018_10\18\10181816.D
7	50	52	13	I:\MS09\Data\2018_10\18\10181817.D
8	100	103	13	I:\MS09\Data\2018_10\18\10181818.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Oct 19 09:09 2018	Oct 19 09:01 2018	18 Oct 2018 16:43
2	0.2	Oct 19 09:09 2018	Oct 19 08:59 2018	18 Oct 2018 17:17
3	0.5	Oct 19 09:10 2018	Oct 19 08:58 2018	18 Oct 2018 17:50
4	1.0	Oct 19 09:10 2018	Oct 19 08:56 2018	18 Oct 2018 18:24
5	5.0	Oct 19 09:10 2018	Oct 19 08:55 2018	18 Oct 2018 18:58
6	25	Oct 19 09:10 2018	Oct 19 08:52 2018	18 Oct 2018 19:31
7	50	Oct 19 09:11 2018	Oct 19 09:06 2018	18 Oct 2018 20:05
8	100	Oct 19 09:11 2018	Oct 19 09:07 2018	18 Oct 2018 20:39

R9101818.M Fri Oct 19 10:22:41 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	124525	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	614539	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	368714	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	302677	11.782	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.24%				
57) Toluene-d8 (SS2)	13.66	98	803202	12.610	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.88%				
73) Bromofluorobenzene (SS3)	17.16	174	166832	12.798	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 102.40%				
Target Compounds							Qvalue
2) Propene	4.00	42	4141	0.129	ng		97
3) Dichlorodifluoromethan...	4.11	85	4724	0.139	ng		96
4) Chloromethane	4.30	50	5213	0.127	ng		97
5) 1,2-Dichloro-1,1,2,2-t...	4.47	135	1603	0.144	ng		87
6) Vinyl Chloride	4.58	62	4223	0.137	ng		97
7) 1,3-Butadiene	4.76	54	2694	0.178	ng		93
8) Bromomethane	5.06	94	1917	0.172	ng		92
9) Chloroethane	5.28	64	1598	0.104	ng		87
10) Ethanol	5.48	45	9260m	0.419	ng		
11) Acetonitrile	5.69	41	4678	0.079	ng		85
12) Acrolein	5.84	56	1721	0.108	ng		99
13) Acetone	5.99	58	16191	0.896	ng		87
14) Trichlorofluoromethane	6.16	101	3345	0.146	ng		97
15) 2-Propanol (Isopropanol)	6.30	45	15621	0.212	ng		95
16) Acrylonitrile	6.50	53	3373	0.093	ng		98
17) 1,1-Dichloroethene	6.86	96	2099	0.146	ng		92
18) 2-Methyl-2-Propanol (t...	6.99	59	12351	0.199	ng		92
19) Methylene Chloride	6.99	84	2543	0.136	ng		88
20) 3-Chloro-1-propene (Al...	7.13	41	3573	0.105	ng		85
21) Trichlorotrifluoroethane	7.32	151	1285	0.130	ng		86
22) Carbon Disulfide	7.29	76	9129	0.137	ng		92
23) trans-1,2-Dichloroethene	8.01	61	3587	0.100	ng		98
24) 1,1-Dichloroethane	8.23	63	4367	0.107	ng		97
25) Methyl tert-Butyl Ether	8.35	73	6467	0.100	ng		97
26) Vinyl Acetate	8.42	86	1112	0.340	ng	#	21
27) 2-Butanone (MEK)	8.68	72	1598	0.098	ng	#	43
28) cis-1,2-Dichloroethene	9.10	61	3896	0.111	ng		94
29) Diisopropyl Ether	9.36	87	2310	0.135	ng	#	62
30) Ethyl Acetate	9.36	61	1894	0.213	ng		93
31) n-Hexane	9.35	57	5503	0.125	ng	#	97
32) Chloroform	9.39	83	4373	0.125	ng		99
34) Tetrahydrofuran (THF)	9.84	72	1887	0.117	ng	#	85
35) Ethyl tert-Butyl Ether	9.90	87	2343	0.101	ng	#	88
36) 1,2-Dichloroethane	10.16	62	3290	0.112	ng		98
38) 1,1,1-Trichloroethane	10.42	97	3259	0.139	ng		96
39) Isopropyl Acetate	10.80	61	3173	0.213	ng	#	77
40) 1-Butanol	10.82	56	5106	0.202	ng	#	80
41) Benzene	10.88	78	10318	0.126	ng		97
42) Carbon Tetrachloride	11.02	117	2178	0.125	ng		95
43) Cyclohexane	11.16	84	7309	0.254	ng		99
44) tert-Amyl Methyl Ether	11.49	73	6659	0.117	ng		96
45) 1,2-Dichloropropane	11.69	63	2997	0.128	ng		96
46) Bromodichloromethane	11.87	83	2993	0.124	ng		98
47) Trichloroethene	11.93	130	1965	0.123	ng		92
48) 1,4-Dioxane	11.93	88	1522	0.102	ng		89
49) 2,2,4-Trimethylpentane...	11.99	57	13063	0.126	ng		96

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

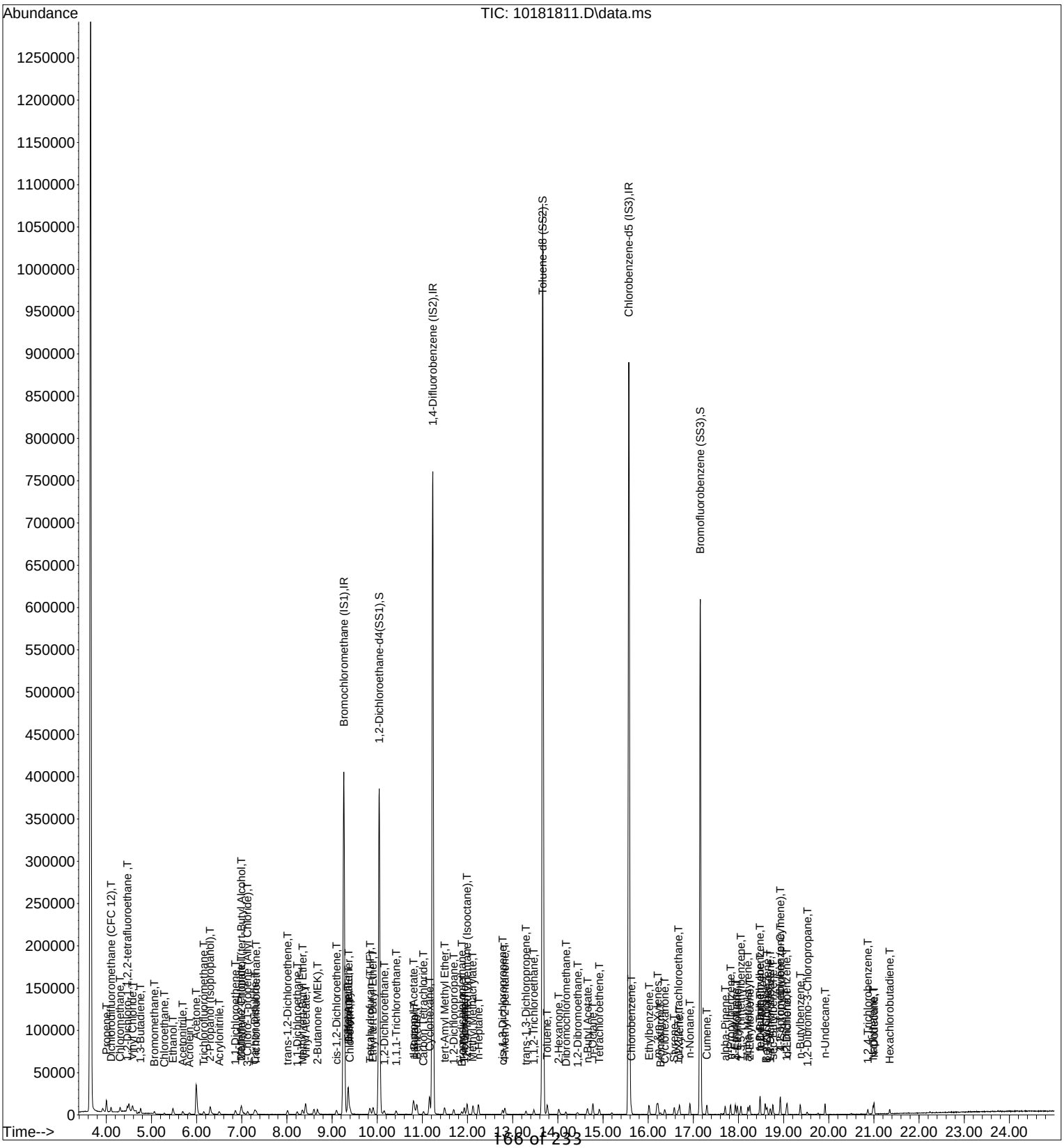
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	1299	0.198	ng	#	83
51) n-Heptane	12.25	71	2666	0.123	ng		94
52) cis-1,3-Dichloropropene	12.78	75	3824	0.120	ng		97
53) 4-Methyl-2-pentanone	12.82	58	2362	0.104	ng	#	79
54) trans-1,3-Dichloropropene	13.29	75	2770	0.100	ng		98
55) 1,1,2-Trichloroethane	13.47	97	1975	0.117	ng		99
58) Toluene	13.76	91	9843	0.139	ng		98
59) 2-Hexanone	14.02	43	6057	0.102	ng		91
60) Dibromochloromethane	14.18	129	1722	0.112	ng		97
61) 1,2-Dibromoethane	14.44	107	1961	0.114	ng		100
62) n-Butyl Acetate	14.66	43	6841	0.103	ng		97
63) n-Octane	14.77	57	2486	0.111	ng		93
64) Tetrachloroethene	14.92	166	1832	0.138	ng		93
65) Chlorobenzene	15.62	112	5476	0.125	ng		96
66) Ethylbenzene	16.02	91	9923	0.113	ng		95
67) m- & p-Xylenes	16.21	91	15275	0.228	ng		98
68) Bromoform	16.27	173	1074	0.103	ng		89
69) Styrene	16.57	104	4931	0.107	ng		97
70) o-Xylene	16.69	91	7331	0.108	ng		97
71) n-Nonane	16.92	43	5474	0.095	ng		98
72) 1,1,2,2-Tetrachloroethane	16.67	83	3427	0.108	ng		98
74) Cumene	17.30	105	8918	0.114	ng		98
75) alpha-Pinene	17.71	93	4503	0.104	ng		90
76) n-Propylbenzene	17.83	91	10720	0.104	ng		98
77) 3-Ethyltoluene	17.93	105	8481	0.111	ng		98
78) 4-Ethyltoluene	17.98	105	7456	0.102	ng		97
79) 1,3,5-Trimethylbenzene	18.05	105	6599	0.102	ng		96
80) alpha-Methylstyrene	18.21	118	3153	0.104	ng		97
81) 2-Ethyltoluene	18.25	105	8302	0.109	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	6727	0.104	ng		98
83) n-Decane	18.48	58	143	0.060	ng	#	1
84) Benzyl Chloride	18.61	91	4343	0.093	ng		97
85) 1,3-Dichlorobenzene	18.64	146	3830	0.129	ng		95
86) 1,4-Dichlorobenzene	18.70	146	3573	0.119	ng		92
87) sec-Butylbenzene	18.76	105	9238	0.107	ng		97
88) 4-Isopropyltoluene (p-...	18.93	119	7440	0.104	ng		99
89) 1,2,3-Trimethylbenzene	18.92	105	6582	0.103	ng		97
90) 1,2-Dichlorobenzene	19.06	146	3544	0.130	ng		97
91) d-Limonene	19.07	68	2670	0.080	ng		90
92) 1,2-Dibromo-3-Chloropr...	19.53	157	789	0.103	ng		95
93) n-Undecane	19.92	57	4737	0.083	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	2094	0.145	ng		96
95) Naphthalene	20.98	128	7440	0.144	ng		93
96) n-Dodecane	21.00	57	4310	0.084	ng		97
97) Hexachlorobutadiene	21.35	225	1306	0.130	ng		82
98) Cyclohexanone	16.37	55	3297	0.088	ng		96
99) tert-Butylbenzene	18.48	119	6481	0.126	ng		100
100) n-Butylbenzene	19.37	91	7676	0.101	ng		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

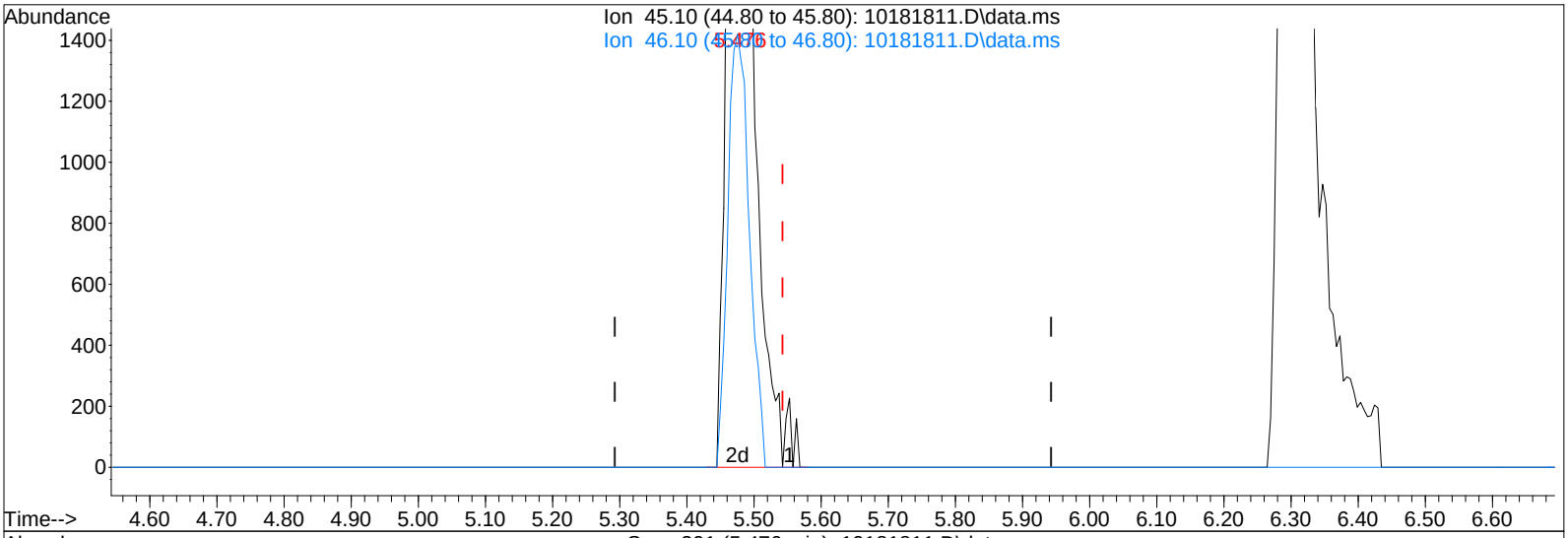
Quant Time: Oct 19 09:01:18 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

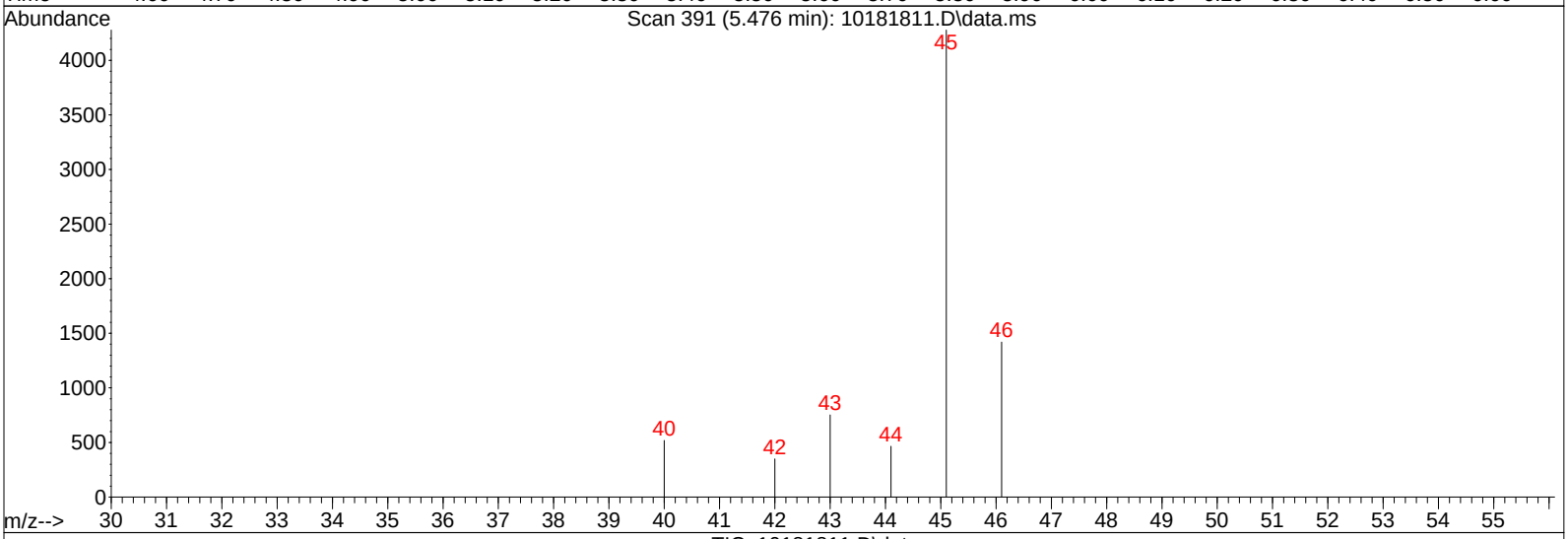


Quantitation Report (Qedit)

Data File: I:\MS09\Data\2018_10\18\10181811.D
Acq On : 18 Oct 2018 16:43 Operator: SC
Sample : 0.1ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 09:01:00 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M





TIC: 10181811.D\data.ms

(10) Ethanol (T)

5.476min (-0.067) 0.42ng m

response 9260

Ion	Exp%	Act%
45.10	100	100
46.10	37.00	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

MP

10/19/18

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	128339	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	602725	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	327999	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	275034	10.388	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 83.12%				
57) Toluene-d8 (SS2)	13.66	98	755400	13.331	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.64%				
73) Bromofluorobenzene (SS3)	17.16	174	169179	14.589	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 116.72%				
Target Compounds							Qvalue
2) Propene	3.99	42	7283	0.219	ng		98
3) Dichlorodifluoromethan...	4.09	85	8045	0.229	ng		98
4) Chloromethane	4.30	50	9867	0.233	ng		94
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	2715	0.237	ng		99
6) Vinyl Chloride	4.58	62	7711	0.243	ng		96
7) 1,3-Butadiene	4.75	54	4718	0.302	ng		97
8) Bromomethane	5.06	94	3060	0.267	ng		96
9) Chloroethane	5.28	64	3003	0.190	ng		98
10) Ethanol	5.47	45	16086	0.707	ng		96
11) Acetonitrile	5.69	41	8310	0.135	ng		92
12) Acrolein	5.83	56	2780	0.170	ng		91
13) Acetone	5.99	58	22153	1.189	ng		99
14) Trichlorofluoromethane	6.15	101	5648	0.239	ng		97
15) 2-Propanol (Isopropanol)	6.29	45	22020	0.290	ng		94
16) Acrylonitrile	6.49	53	5626	0.151	ng		94
17) 1,1-Dichloroethene	6.86	96	3365	0.227	ng		93
18) 2-Methyl-2-Propanol (t...	6.96	59	20050	0.314	ng		96
19) Methylene Chloride	6.99	84	3839	0.199	ng		95
20) 3-Chloro-1-propene (Al...	7.13	41	6701	0.191	ng		89
21) Trichlorotrifluoroethane	7.31	151	2326	0.229	ng	#	83
22) Carbon Disulfide	7.29	76	15584	0.227	ng		97
23) trans-1,2-Dichloroethene	8.01	61	6296	0.171	ng		96
24) 1,1-Dichloroethane	8.23	63	7897	0.188	ng		99
25) Methyl tert-Butyl Ether	8.34	73	12119	0.181	ng		99
26) Vinyl Acetate	8.41	86	2359	0.699	ng	#	88
27) 2-Butanone (MEK)	8.67	72	3016	0.179	ng	#	64
28) cis-1,2-Dichloroethene	9.10	61	5634	0.156	ng		93
29) Diisopropyl Ether	9.36	87	3785	0.214	ng	#	17
30) Ethyl Acetate	9.35	61	3125	0.341	ng		91
31) n-Hexane	9.35	57	7734	0.171	ng		98
32) Chloroform	9.40	83	6385	0.178	ng		97
34) Tetrahydrofuran (THF)	9.84	72	2968	0.179	ng		95
35) Ethyl tert-Butyl Ether	9.91	87	4436	0.185	ng	#	86
36) 1,2-Dichloroethane	10.15	62	5360	0.177	ng		99
38) 1,1,1-Trichloroethane	10.42	97	5621	0.245	ng		96
39) Isopropyl Acetate	10.80	61	5597	0.383	ng	#	97
40) 1-Butanol	10.82	56	8810	0.356	ng		92
41) Benzene	10.87	78	18081	0.225	ng		98
42) Carbon Tetrachloride	11.03	117	4035	0.237	ng		99
43) Cyclohexane	11.16	84	12662	0.449	ng		94
44) tert-Amyl Methyl Ether	11.49	73	12767	0.228	ng		97
45) 1,2-Dichloropropane	11.69	63	5470	0.239	ng		99
46) Bromodichloromethane	11.87	83	5522	0.234	ng		100
47) Trichloroethene	11.93	130	3379	0.215	ng		96
48) 1,4-Dioxane	11.93	88	3007	0.206	ng		97
49) 2,2,4-Trimethylpentane...	11.99	57	23287	0.228	ng		98

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

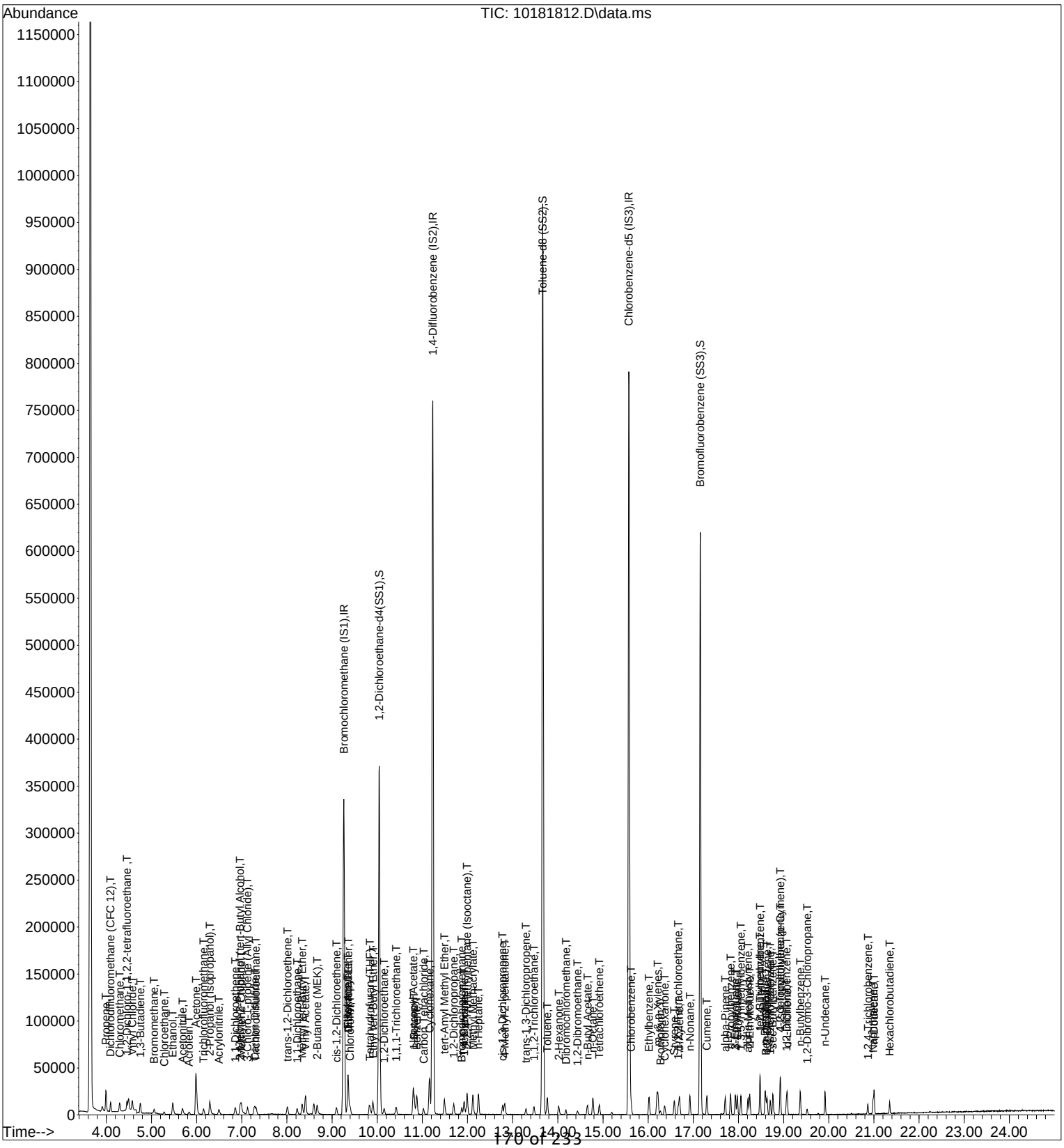
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	2384	0.371	ng	#	86
51) n-Heptane	12.24	71	4912	0.232	ng		98
52) cis-1,3-Dichloropropene	12.77	75	6737	0.216	ng		96
53) 4-Methyl-2-pentanone	12.82	58	3980	0.179	ng		98
54) trans-1,3-Dichloropropene	13.29	75	4885	0.180	ng		96
55) 1,1,2-Trichloroethane	13.47	97	3342	0.202	ng		94
58) Toluene	13.77	91	15945	0.253	ng		99
59) 2-Hexanone	14.02	43	8169	0.154	ng		99
60) Dibromochloromethane	14.18	129	3413	0.249	ng		97
61) 1,2-Dibromoethane	14.43	107	3545	0.231	ng		100
62) n-Butyl Acetate	14.66	43	9357	0.159	ng		98
63) n-Octane	14.77	57	3658	0.184	ng		97
64) Tetrachloroethene	14.92	166	3815	0.322	ng		92
65) Chlorobenzene	15.62	112	9500	0.244	ng		98
66) Ethylbenzene	16.02	91	16272	0.209	ng		99
67) m- & p-Xylenes	16.21	91	26567	0.445	ng		98
68) Bromoform	16.27	173	2158	0.233	ng		100
69) Styrene	16.58	104	8671	0.211	ng		99
70) o-Xylene	16.69	91	12702	0.211	ng		98
71) n-Nonane	16.93	43	8469	0.166	ng		98
72) 1,1,2,2-Tetrachloroethane	16.67	83	6154	0.219	ng		96
74) Cumene	17.30	105	16094	0.231	ng		99
75) alpha-Pinene	17.71	93	7743	0.202	ng		96
76) n-Propylbenzene	17.83	91	19649	0.214	ng		98
77) 3-Ethyltoluene	17.93	105	14360	0.212	ng		96
78) 4-Ethyltoluene	17.98	105	14473	0.223	ng		95
79) 1,3,5-Trimethylbenzene	18.05	105	12430	0.216	ng		100
80) alpha-Methylstyrene	18.21	118	5781	0.214	ng		100
81) 2-Ethyltoluene	18.25	105	14928	0.220	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	11891	0.207	ng		97
83) n-Decane	18.59	58	376	0.177	ng		98
84) Benzyl Chloride	18.61	91	7811	0.187	ng		98
85) 1,3-Dichlorobenzene	18.64	146	6671	0.253	ng		97
86) 1,4-Dichlorobenzene	18.70	146	6705	0.251	ng		99
87) sec-Butylbenzene	18.76	105	17318	0.225	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	14531	0.229	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	12046	0.213	ng		95
90) 1,2-Dichlorobenzene	19.06	146	6224	0.257	ng		98
91) d-Limonene	19.08	68	5240	0.176	ng		91
92) 1,2-Dibromo-3-Chloropr...	19.52	157	1781	0.261	ng	#	80
93) n-Undecane	19.92	57	8878	0.175	ng		99
94) 1,2,4-Trichlorobenzene	20.87	180	3666	0.285	ng		99
95) Naphthalene	20.98	128	12613	0.274	ng		97
96) n-Dodecane	21.00	57	8187	0.179	ng		98
97) Hexachlorobutadiene	21.35	225	2349	0.262	ng		95
98) Cyclohexanone	16.37	55	5432	0.164	ng		99
99) tert-Butylbenzene	18.48	119	11628	0.254	ng		96
100) n-Butylbenzene	19.37	91	14433	0.214	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181812.D
Acq On : 18 Oct 2018 17:17 Operator: SC
Sample : 0.2ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151812 (11/13)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 19 08:59:31 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	129192	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	615723	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	366024	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	261156	9.799	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 78.40%				
57) Toluene-d8 (SS2)	13.66	98	758245	11.991	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 95.92%				
73) Bromofluorobenzene (SS3)	17.16	174	173572	13.412	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.28%				
Target Compounds							Qvalue
2) Propene	3.99	42	16159	0.484	ng		99
3) Dichlorodifluoromethan...	4.09	85	19702	0.557	ng		100
4) Chloromethane	4.29	50	25081	0.588	ng		98
5) 1,2-Dichloro-1,1,2,2-t...	4.46	135	6785	0.588	ng		98
6) Vinyl Chloride	4.57	62	19567	0.611	ng		100
7) 1,3-Butadiene	4.75	54	12456	0.791	ng		96
8) Bromomethane	5.05	94	7132	0.618	ng		100
9) Chloroethane	5.27	64	9205	0.579	ng		99
10) Ethanol	5.47	45	58628	2.560	ng		99
11) Acetonitrile	5.69	41	30946	0.501	ng		88
12) Acrolein	5.83	56	8034	0.487	ng		97
13) Acetone	5.98	58	62414	3.327	ng	#	82
14) Trichlorofluoromethane	6.16	101	14854	0.624	ng		100
15) 2-Propanol (Isopropanol)	6.29	45	74101	0.971	ng		93
16) Acrylonitrile	6.50	53	17904	0.476	ng		97
17) 1,1-Dichloroethene	6.85	96	8651	0.578	ng	#	81
18) 2-Methyl-2-Propanol (t...	6.95	59	59019	0.917	ng		94
19) Methylene Chloride	6.99	84	10607	0.546	ng		83
20) 3-Chloro-1-propene (Al...	7.13	41	17653	0.499	ng		92
21) Trichlorotrifluoroethane	7.31	151	5750	0.563	ng		87
22) Carbon Disulfide	7.28	76	37700	0.546	ng		98
23) trans-1,2-Dichloroethene	8.01	61	16454	0.444	ng		93
24) 1,1-Dichloroethane	8.23	63	19620	0.464	ng		99
25) Methyl tert-Butyl Ether	8.33	73	30306	0.450	ng		99
26) Vinyl Acetate	8.41	86	7306	2.151	ng	#	78
27) 2-Butanone (MEK)	8.66	72	7409	0.438	ng	#	92
28) cis-1,2-Dichloroethene	9.10	61	15681	0.431	ng		99
29) Diisopropyl Ether	9.35	87	9605	0.540	ng	#	28
30) Ethyl Acetate	9.35	61	8053	0.873	ng		91
31) n-Hexane	9.35	57	19962	0.438	ng		98
32) Chloroform	9.40	83	16661	0.460	ng		97
34) Tetrahydrofuran (THF)	9.82	72	7792	0.466	ng	#	85
35) Ethyl tert-Butyl Ether	9.90	87	10987	0.454	ng	#	88
36) 1,2-Dichloroethane	10.15	62	13319	0.438	ng		99
38) 1,1,1-Trichloroethane	10.42	97	12798	0.546	ng		97
39) Isopropyl Acetate	10.79	61	12927	0.866	ng	#	79
40) 1-Butanol	10.81	56	20138	0.797	ng		98
41) Benzene	10.87	78	39478	0.480	ng		99
42) Carbon Tetrachloride	11.03	117	9572	0.550	ng		98
43) Cyclohexane	11.15	84	28516	0.990	ng		89
44) tert-Amyl Methyl Ether	11.48	73	27796	0.485	ng		95
45) 1,2-Dichloropropane	11.69	63	12156	0.519	ng		99
46) Bromodichloromethane	11.87	83	12522	0.519	ng		99
47) Trichloroethene	11.92	130	8972	0.560	ng		97
48) 1,4-Dioxane	11.92	88	8013	0.536	ng		93
49) 2,2,4-Trimethylpentane...	11.99	57	49586	0.476	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

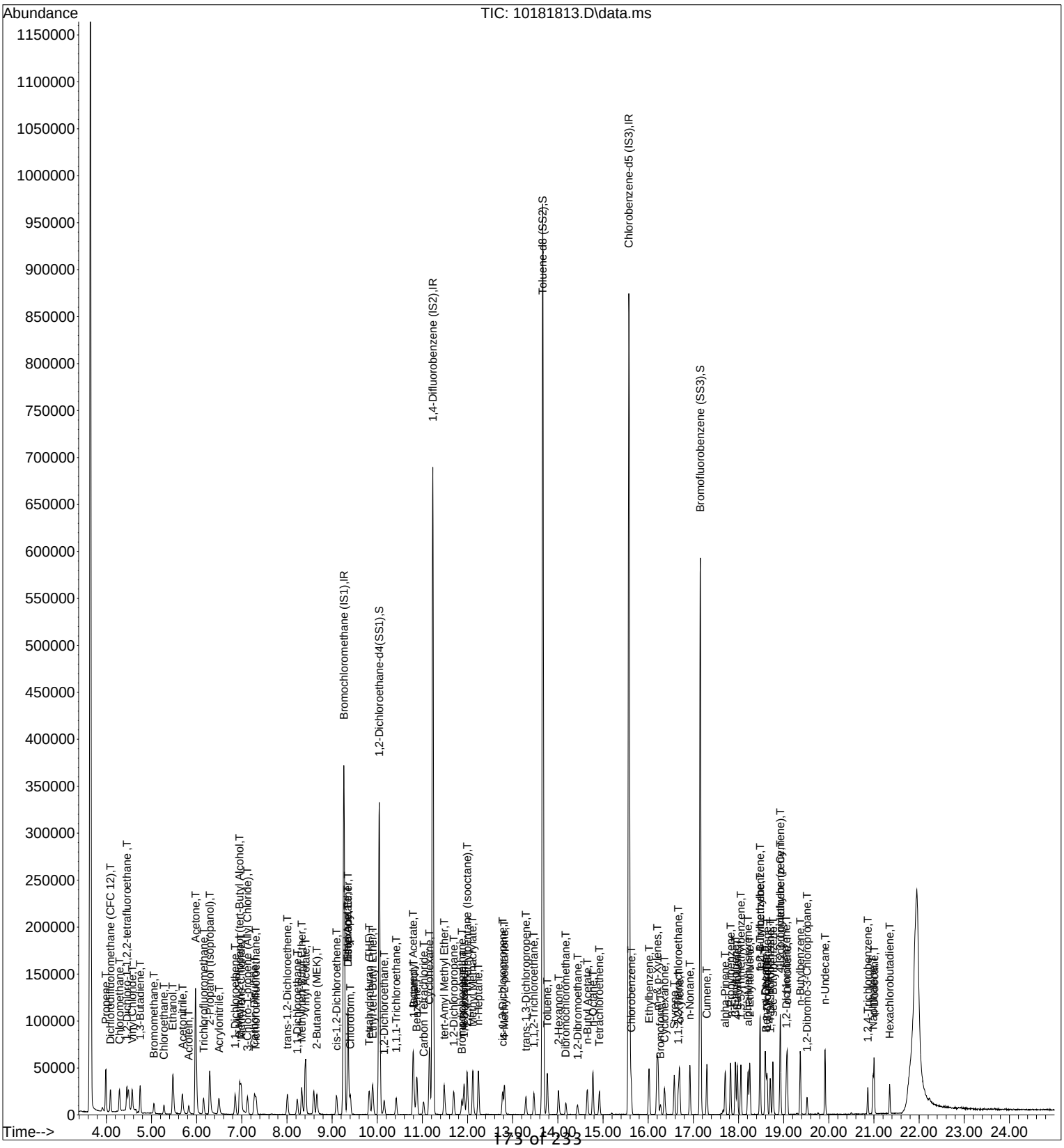
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	6638	1.012	ng		94
51) n-Heptane	12.24	71	11469	0.530	ng		96
52) cis-1,3-Dichloropropene	12.78	75	16953	0.532	ng		99
53) 4-Methyl-2-pentanone	12.81	58	10472	0.462	ng		96
54) trans-1,3-Dichloropropene	13.29	75	13589	0.489	ng		100
55) 1,1,2-Trichloroethane	13.47	97	8757	0.519	ng		95
58) Toluene	13.77	91	38538	0.548	ng		99
59) 2-Hexanone	14.01	43	22300	0.377	ng		98
60) Dibromochloromethane	14.17	129	8473	0.555	ng		98
61) 1,2-Dibromoethane	14.44	107	9314	0.544	ng		99
62) n-Butyl Acetate	14.65	43	24048	0.365	ng		97
63) n-Octane	14.78	57	9506	0.429	ng		97
64) Tetrachloroethene	14.92	166	8362	0.633	ng		98
65) Chlorobenzene	15.62	112	23309	0.537	ng		99
66) Ethylbenzene	16.02	91	43067	0.496	ng		98
67) m- & p-Xylenes	16.20	91	67612	1.015	ng		98
68) Bromoform	16.27	173	5635	0.546	ng		99
69) Styrene	16.58	104	23406	0.510	ng		97
70) o-Xylene	16.70	91	32555	0.485	ng		100
71) n-Nonane	16.92	43	21895	0.384	ng		96
72) 1,1,2,2-Tetrachloroethane	16.67	83	15666	0.499	ng		98
74) Cumene	17.30	105	39449	0.507	ng		99
75) alpha-Pinene	17.70	93	20316	0.475	ng		95
76) n-Propylbenzene	17.83	91	49640	0.486	ng		99
77) 3-Ethyltoluene	17.93	105	39119	0.517	ng		100
78) 4-Ethyltoluene	17.97	105	35758	0.494	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	31804	0.495	ng		99
80) alpha-Methylstyrene	18.21	118	14991	0.497	ng		98
81) 2-Ethyltoluene	18.25	105	37885	0.501	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	31537	0.492	ng		98
83) n-Decane	18.59	58	978	0.413	ng	#	92
84) Benzyl Chloride	18.61	91	21419	0.460	ng		98
85) 1,3-Dichlorobenzene	18.63	146	16428	0.558	ng		98
86) 1,4-Dichlorobenzene	18.70	146	16116	0.541	ng		96
87) sec-Butylbenzene	18.76	105	43548	0.507	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	36799	0.520	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	31133	0.493	ng		98
90) 1,2-Dichlorobenzene	19.06	146	15288	0.565	ng		99
91) d-Limonene	19.08	68	15059	0.453	ng		96
92) 1,2-Dibromo-3-Chloropr...	19.52	157	4183	0.549	ng		89
93) n-Undecane	19.92	57	24432	0.432	ng		99
94) 1,2,4-Trichlorobenzene	20.86	180	8461	0.589	ng		98
95) Naphthalene	20.98	128	31124	0.605	ng		100
96) n-Dodecane	21.01	57	18488	0.363	ng		96
97) Hexachlorobutadiene	21.35	225	5556	0.555	ng		95
98) Cyclohexanone	16.36	55	15843	0.428	ng		96
99) tert-Butylbenzene	18.48	119	29487	0.577	ng		100
100) n-Butylbenzene	19.37	91	39037	0.518	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181813.D
Acq On : 18 Oct 2018 17:50 Operator: SC
Sample : 0.5ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:58:11 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	126222	12.500	ng		-0.03
37) 1,4-Difluorobenzene (IS2)	11.23	114	622602	12.500	ng		-0.02
56) Chlorobenzene-d5 (IS3)	15.57	82	337236	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.04	65	267795	10.284	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 82.24%				
57) Toluene-d8 (SS2)	13.66	98	773426	13.276	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 106.24%				
73) Bromofluorobenzene (SS3)	17.16	174	178124	14.939	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 119.52%				
Target Compounds							Qvalue
2) Propene	3.98	42	33220	1.018	ng		99
3) Dichlorodifluoromethan...	4.09	85	37236	1.078	ng		100
4) Chloromethane	4.29	50	43686	1.048	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	12601	1.118	ng		100
6) Vinyl Chloride	4.57	62	37115	1.187	ng		99
7) 1,3-Butadiene	4.75	54	23394	1.521	ng		94
8) Bromomethane	5.05	94	13227	1.172	ng		98
9) Chloroethane	5.27	64	18188	1.170	ng		98
10) Ethanol	5.48	45	112819	5.042	ng		99
11) Acetonitrile	5.68	41	61333	1.015	ng		99
12) Acrolein	5.83	56	16561	1.028	ng		99
13) Acetone	5.97	58	112552	6.141	ng	#	77
14) Trichlorofluoromethane	6.15	101	27746	1.192	ng		99
15) 2-Propanol (Isopropanol)	6.29	45	149382	2.003	ng		95
16) Acrylonitrile	6.49	53	35748	0.974	ng		97
17) 1,1-Dichloroethene	6.86	96	15980	1.094	ng	#	70
18) 2-Methyl-2-Propanol (t...	6.95	59	125504	1.996	ng		94
19) Methylene Chloride	6.99	84	20084	1.058	ng	#	72
20) 3-Chloro-1-propene (Al...	7.13	41	40595	1.175	ng		87
21) Trichlorotrifluoroethane	7.31	151	10499	1.051	ng	#	83
22) Carbon Disulfide	7.28	76	75797	1.125	ng		100
23) trans-1,2-Dichloroethene	8.01	61	34469	0.952	ng		87
24) 1,1-Dichloroethane	8.23	63	40562	0.983	ng		99
25) Methyl tert-Butyl Ether	8.32	73	64047	0.972	ng		97
26) Vinyl Acetate	8.41	86	15743	4.745	ng	#	77
27) 2-Butanone (MEK)	8.66	72	15580	0.943	ng	#	79
28) cis-1,2-Dichloroethene	9.10	61	33169	0.933	ng		91
29) Diisopropyl Ether	9.35	87	16304	0.939	ng	#	95
30) Ethyl Acetate	9.35	61	18629	2.066	ng		99
31) n-Hexane	9.35	57	44690	1.003	ng		99
32) Chloroform	9.40	83	33953	0.960	ng		99
34) Tetrahydrofuran (THF)	9.82	72	14496	0.888	ng	#	89
35) Ethyl tert-Butyl Ether	9.89	87	21849	0.925	ng	#	91
36) 1,2-Dichloroethane	10.15	62	25306	0.851	ng		99
38) 1,1,1-Trichloroethane	10.42	97	25213	1.063	ng		98
39) Isopropyl Acetate	10.79	61	27892	1.848	ng	#	88
40) 1-Butanol	10.80	56	44505	1.741	ng		99
41) Benzene	10.88	78	78288	0.942	ng		98
42) Carbon Tetrachloride	11.03	117	19489	1.107	ng		99
43) Cyclohexane	11.16	84	56728	1.949	ng	#	86
44) tert-Amyl Methyl Ether	11.48	73	52805	0.912	ng		96
45) 1,2-Dichloropropane	11.69	63	21992	0.929	ng		99
46) Bromodichloromethane	11.87	83	22630	0.928	ng		99
47) Trichloroethene	11.93	130	16258	1.004	ng		96
48) 1,4-Dioxane	11.91	88	14782	0.978	ng		94
49) 2,2,4-Trimethylpentane...	11.99	57	96306	0.915	ng		98

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

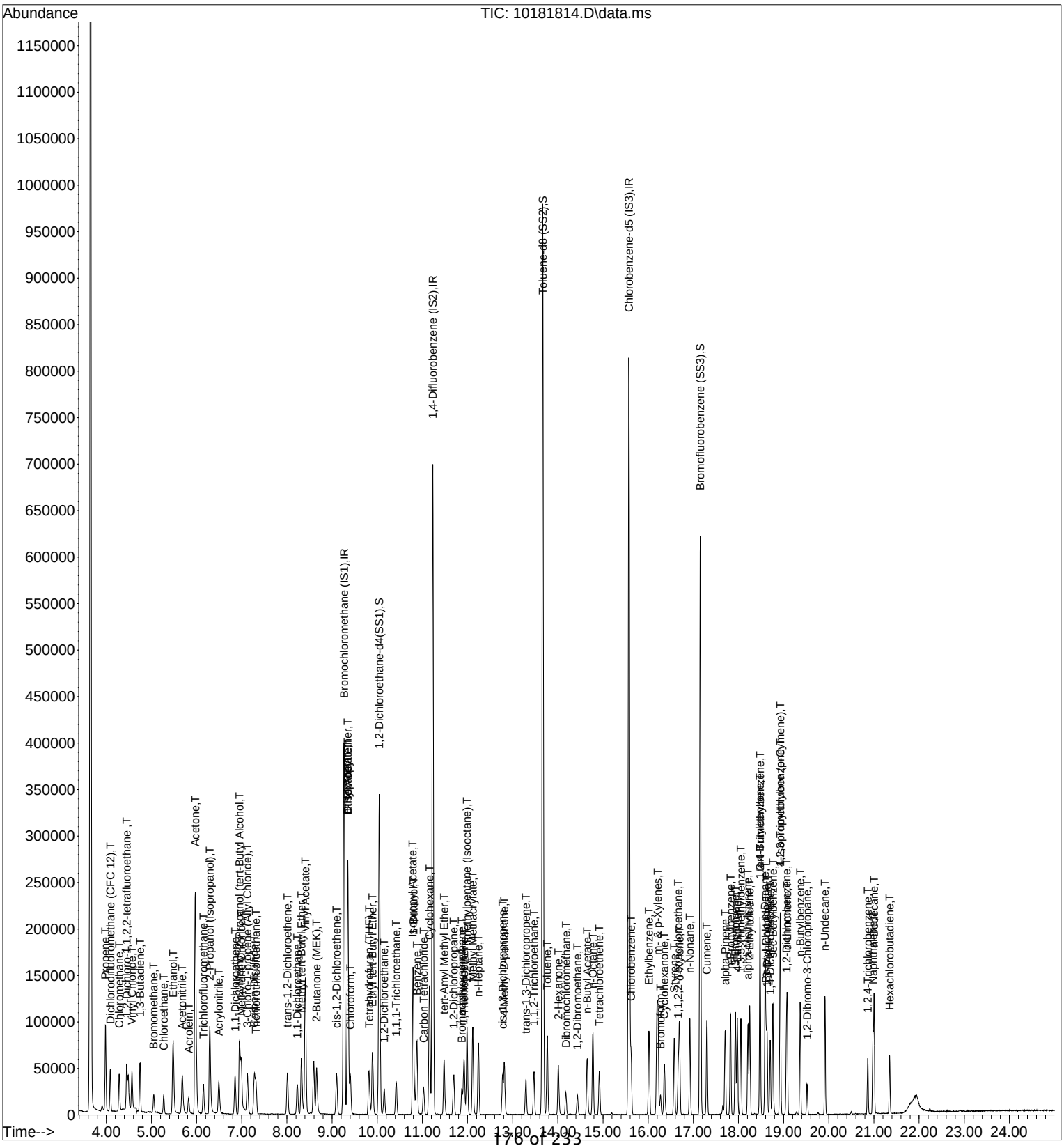
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	13027	1.965	ng	#	90
51) n-Heptane	12.24	71	20559	0.939	ng		91
52) cis-1,3-Dichloropropene	12.78	75	30378	0.943	ng		99
53) 4-Methyl-2-pentanone	12.81	58	18802	0.821	ng		91
54) trans-1,3-Dichloropropene	13.29	75	26501	0.943	ng		98
55) 1,1,2-Trichloroethane	13.47	97	17187	1.007	ng		97
58) Toluene	13.77	91	73944	1.141	ng		99
59) 2-Hexanone	14.01	43	46071	0.845	ng		100
60) Dibromochloromethane	14.18	129	16088	1.143	ng		100
61) 1,2-Dibromoethane	14.43	107	17765	1.127	ng		100
62) n-Butyl Acetate	14.65	43	56669	0.935	ng		99
63) n-Octane	14.78	57	18857	0.924	ng		96
64) Tetrachloroethene	14.92	166	15810	1.299	ng		99
65) Chlorobenzene	15.62	112	43753	1.093	ng		99
66) Ethylbenzene	16.02	91	80109	1.001	ng		99
67) m- & p-Xylenes	16.21	91	134471	2.191	ng		97
68) Bromoform	16.27	173	11016	1.159	ng		99
69) Styrene	16.58	104	44999	1.064	ng		98
70) o-Xylene	16.70	91	64028	1.035	ng		99
71) n-Nonane	16.92	43	42557	0.809	ng		97
72) 1,1,2,2-Tetrachloroethane	16.67	83	31347	1.083	ng		99
74) Cumene	17.30	105	74208	1.036	ng		99
75) alpha-Pinene	17.71	93	39982	1.014	ng		100
76) n-Propylbenzene	17.83	91	97379	1.034	ng		98
77) 3-Ethyltoluene	17.93	105	74150	1.064	ng		99
78) 4-Ethyltoluene	17.98	105	72581	1.088	ng		96
79) 1,3,5-Trimethylbenzene	18.05	105	60999	1.030	ng		98
80) alpha-Methylstyrene	18.21	118	30293	1.090	ng		98
81) 2-Ethyltoluene	18.25	105	75555	1.085	ng		100
82) 1,2,4-Trimethylbenzene	18.48	105	62833	1.064	ng		99
83) n-Decane	18.59	58	2604	1.195	ng	#	72
84) Benzyl Chloride	18.61	91	49850	1.162	ng		95
85) 1,3-Dichlorobenzene	18.64	146	28768	1.061	ng		99
86) 1,4-Dichlorobenzene	18.70	146	29718	1.083	ng		99
87) sec-Butylbenzene	18.76	105	86515	1.094	ng		98
88) 4-Isopropyltoluene (p-...	18.92	119	71977	1.104	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	62937	1.081	ng		100
90) 1,2-Dichlorobenzene	19.06	146	30283	1.215	ng		100
91) d-Limonene	19.08	68	28199	0.921	ng		95
92) 1,2-Dibromo-3-Chloropr...	19.52	157	9002	1.283	ng		82
93) n-Undecane	19.91	57	45061	0.865	ng		97
94) 1,2,4-Trichlorobenzene	20.86	180	17687	1.335	ng		98
95) Naphthalene	20.98	128	65772	1.388	ng		99
96) n-Dodecane	21.00	57	41856	0.892	ng		100
97) Hexachlorobutadiene	21.35	225	11397	1.236	ng		100
98) Cyclohexanone	16.36	55	30272	0.887	ng		97
99) tert-Butylbenzene	18.48	119	57221	1.215	ng		100
100) n-Butylbenzene	19.37	91	72339	1.041	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181814.D
Acq On : 18 Oct 2018 18:24 Operator: SC
Sample : 1.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:56:50 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	132010	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	11.24	114	628985	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	360008	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	240894	8.845	ng		-0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 70.80%				
57) Toluene-d8 (SS2)	13.67	98	780996	12.558	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.48%				
73) Bromofluorobenzene (SS3)	17.16	174	177540	13.948	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.60%				
Target Compounds							Qvalue
2) Propene	3.96	42	156803	4.592	ng		99
3) Dichlorodifluoromethan...	4.08	85	173978	4.817	ng		99
4) Chloromethane	4.28	50	202475	4.642	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	59878	5.079	ng		99
6) Vinyl Chloride	4.56	62	174235	5.327	ng		99
7) 1,3-Butadiene	4.74	54	117601	7.313	ng		98
8) Bromomethane	5.05	94	59856	5.072	ng		99
9) Chloroethane	5.26	64	74444	4.580	ng		100
10) Ethanol	5.50	45	525323	22.448	ng		100
11) Acetonitrile	5.69	41	292870	4.636	ng		100
12) Acrolein	5.82	56	72319	4.292	ng		100
13) Acetone	5.97	58	505648	26.381	ng	#	81
14) Trichlorofluoromethane	6.15	101	131676	5.411	ng		100
15) 2-Propanol (Isopropanol)	6.31	45	684294	8.774	ng		99
16) Acrylonitrile	6.51	53	175649	4.574	ng		100
17) 1,1-Dichloroethene	6.85	96	77230	5.054	ng	#	68
18) 2-Methyl-2-Propanol (t...	6.96	59	604631	9.196	ng		96
19) Methylene Chloride	7.01	84	95517	4.809	ng	#	70
20) 3-Chloro-1-propene (Al...	7.13	41	198345	5.491	ng		88
21) Trichlorotrifluoroethane	7.31	151	48105	4.606	ng	#	81
22) Carbon Disulfide	7.28	76	365829	5.190	ng		99
23) trans-1,2-Dichloroethene	8.02	61	168114	4.441	ng		87
24) 1,1-Dichloroethane	8.24	63	193924	4.492	ng		99
25) Methyl tert-Butyl Ether	8.31	73	310889	4.514	ng		99
26) Vinyl Acetate	8.41	86	88872	25.610	ng	#	90
27) 2-Butanone (MEK)	8.65	72	71524	4.138	ng		93
28) cis-1,2-Dichloroethene	9.11	61	143855	3.871	ng		99
29) Diisopropyl Ether	9.35	87	74234	4.087	ng	#	79
30) Ethyl Acetate	9.35	61	83640	8.871	ng		97
31) n-Hexane	9.35	57	198732	4.266	ng		99
32) Chloroform	9.42	83	149383	4.038	ng		99
34) Tetrahydrofuran (THF)	9.81	72	62249	3.646	ng	#	78
35) Ethyl tert-Butyl Ether	9.89	87	98977	4.007	ng	#	82
36) 1,2-Dichloroethane	10.16	62	106687	3.432	ng		99
38) 1,1,1-Trichloroethane	10.43	97	121921	5.087	ng		96
39) Isopropyl Acetate	10.79	61	128505	8.426	ng	#	81
40) 1-Butanol	10.80	56	207548	8.037	ng		95
41) Benzene	10.88	78	360371	4.294	ng		99
42) Carbon Tetrachloride	11.03	117	90820	5.104	ng		100
43) Cyclohexane	11.16	84	271256	9.223	ng	#	87
44) tert-Amyl Methyl Ether	11.48	73	256157	4.379	ng		95
45) 1,2-Dichloropropane	11.70	63	96580	4.039	ng		99
46) Bromodichloromethane	11.88	83	117509	4.771	ng		100
47) Trichloroethene	11.93	130	77927	4.762	ng		100
48) 1,4-Dioxane	11.91	88	73905	4.843	ng		90
49) 2,2,4-Trimethylpentane...	11.99	57	478012	4.494	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

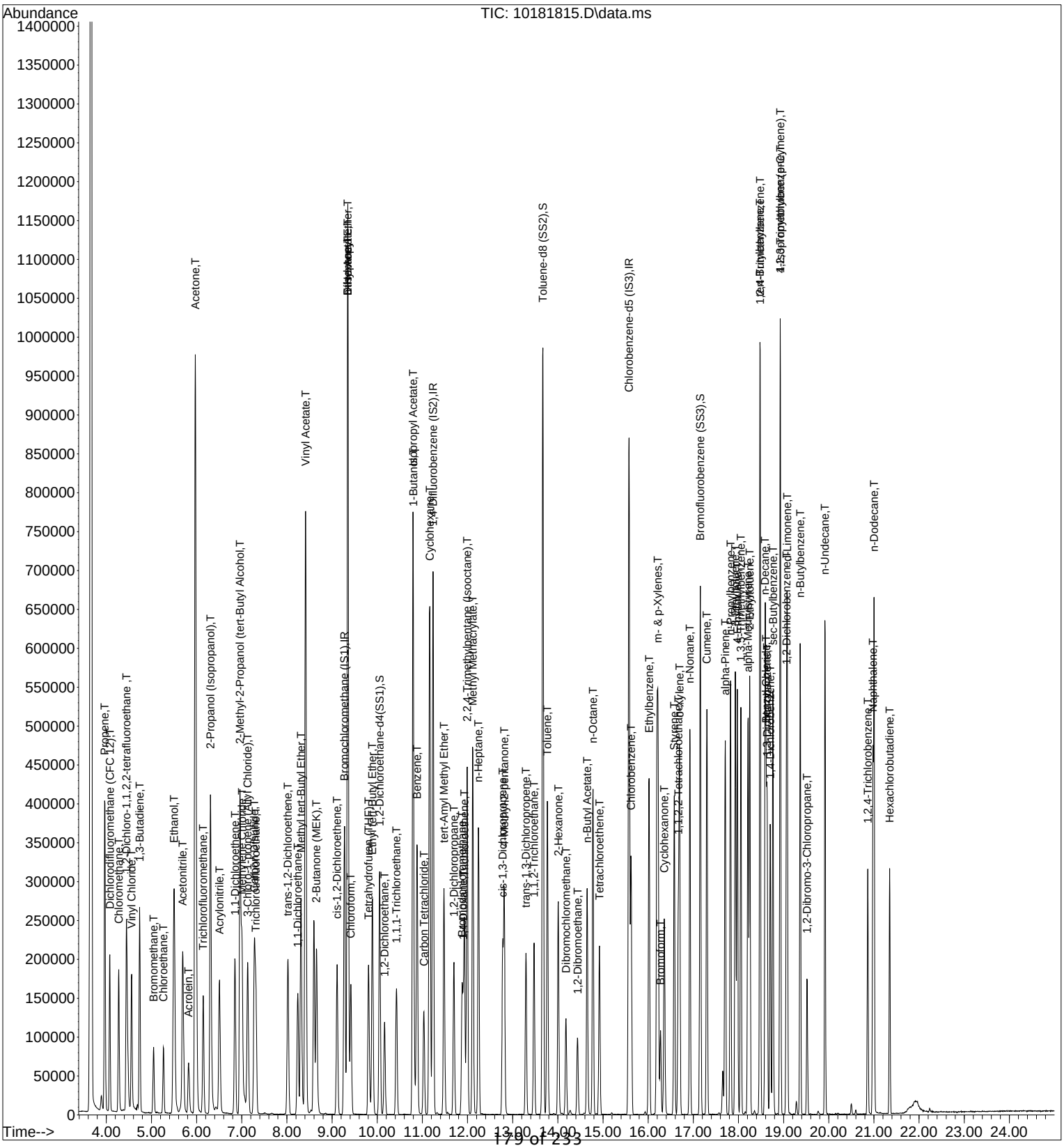
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	65001	9.704	ng	#	89
51) n-Heptane	12.24	71	98817	4.466	ng		94
52) cis-1,3-Dichloropropene	12.78	75	152228	4.677	ng		99
53) 4-Methyl-2-pentanone	12.81	58	94481	4.082	ng		90
54) trans-1,3-Dichloropropene	13.29	75	140821	4.960	ng		99
55) 1,1,2-Trichloroethane	13.47	97	81643	4.735	ng		100
58) Toluene	13.77	91	351146	5.078	ng		100
59) 2-Hexanone	14.01	43	225228	3.871	ng		97
60) Dibromochloromethane	14.18	129	81017	5.391	ng		99
61) 1,2-Dibromoethane	14.44	107	84700	5.033	ng		99
62) n-Butyl Acetate	14.65	43	250371	3.868	ng		98
63) n-Octane	14.78	57	88526	4.063	ng		95
64) Tetrachloroethene	14.92	166	71983	5.542	ng		99
65) Chlorobenzene	15.62	112	211616	4.953	ng		100
66) Ethylbenzene	16.02	91	388930	4.553	ng		100
67) m- & p-Xylenes	16.21	91	602774	9.198	ng		99
68) Bromoform	16.27	173	58086	5.724	ng		100
69) Styrene	16.58	104	228612	5.064	ng		98
70) o-Xylene	16.70	91	305252	4.622	ng		99
71) n-Nonane	16.92	43	212371	3.783	ng		97
72) 1,1,2,2-Tetrachloroethane	16.67	83	151980	4.917	ng		100
74) Cumene	17.30	105	376284	4.920	ng		99
75) alpha-Pinene	17.71	93	211145	5.014	ng		99
76) n-Propylbenzene	17.83	91	500433	4.977	ng		98
77) 3-Ethyltoluene	17.93	105	392055	5.270	ng		98
78) 4-Ethyltoluene	17.98	105	350741	4.926	ng		98
79) 1,3,5-Trimethylbenzene	18.05	105	310936	4.919	ng		99
80) alpha-Methylstyrene	18.21	118	157107	5.298	ng		100
81) 2-Ethyltoluene	18.25	105	375647	5.054	ng		99
82) 1,2,4-Trimethylbenzene	18.48	105	308203	4.890	ng		99
83) n-Decane	18.59	58	9665	4.153	ng		97
84) Benzyl Chloride	18.61	91	263070	5.743	ng		99
85) 1,3-Dichlorobenzene	18.64	146	154258	5.331	ng		99
86) 1,4-Dichlorobenzene	18.70	146	155169	5.295	ng		99
87) sec-Butylbenzene	18.76	105	413220	4.896	ng		99
88) 4-Isopropyltoluene (p-...	18.92	119	356898	5.128	ng		97
89) 1,2,3-Trimethylbenzene	18.92	105	303915	4.891	ng		97
90) 1,2-Dichlorobenzene	19.06	146	147455	5.543	ng		99
91) d-Limonene	19.08	68	144164	4.409	ng		94
92) 1,2-Dibromo-3-Chloropr...	19.52	157	48001	6.408	ng	#	79
93) n-Undecane	19.91	57	231016	4.155	ng		96
94) 1,2,4-Trichlorobenzene	20.86	180	90832	6.424	ng		100
95) Naphthalene	20.98	128	347268	6.865	ng		99
96) n-Dodecane	21.00	57	212644	4.246	ng		97
97) Hexachlorobutadiene	21.35	225	56010	5.692	ng		100
98) Cyclohexanone	16.36	55	136696	3.752	ng		99
99) tert-Butylbenzene	18.48	119	284390	5.656	ng		99
100) n-Butylbenzene	19.37	91	357230	4.817	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181815.D
Acq On : 18 Oct 2018 18:58 Operator: SC
Sample : 5.0ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151810 (11/13)
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 19 08:55:24 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	135641	12.500	ng		0.00
37) 1,4-Difluorobenzene (IS2)	11.25	114	710528	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.58	82	414087	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.06	65	331790	11.857	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 94.88%				
57) Toluene-d8 (SS2)	13.67	98	910404	12.727	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
73) Bromofluorobenzene (SS3)	17.16	174	205824	14.059	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 112.48%				
Target Compounds							Qvalue
2) Propene	3.96	42	802660	22.879	ng		100
3) Dichlorodifluoromethan...	4.07	85	889232	23.959	ng		100
4) Chloromethane	4.27	50	1027947	22.938	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	311045	25.677	ng		99
6) Vinyl Chloride	4.56	62	852848	25.378	ng		100
7) 1,3-Butadiene	4.74	54	612581	37.071	ng		99
8) Bromomethane	5.05	94	318515	26.268	ng		100
9) Chloroethane	5.27	64	385068	23.055	ng		99
10) Ethanol	5.54	45	1816729	75.554	ng		100
11) Acetonitrile	5.72	41	1002002	15.438	ng		100
12) Acrolein	5.84	56	288573	16.666	ng		99
13) Acetone	5.99	58	1729275	87.807	ng		99
14) Trichlorofluoromethane	6.15	101	603082	24.120	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	2599000	32.432	ng		100
16) Acrylonitrile	6.53	53	694929	17.613	ng		100
17) 1,1-Dichloroethene	6.86	96	394960	25.154	ng		100
18) 2-Methyl-2-Propanol (t...	6.99	59	2501803	37.032	ng		99
19) Methylene Chloride	7.02	84	450719	22.086	ng		99
20) 3-Chloro-1-propene (Al...	7.14	41	749274	20.187	ng		99
21) Trichlorotrifluoroethane	7.32	151	281130	26.197	ng		98
22) Carbon Disulfide	7.29	76	1687860	23.304	ng		99
23) trans-1,2-Dichloroethene	8.04	61	710239	18.262	ng		99
24) 1,1-Dichloroethane	8.26	63	815800	18.392	ng		100
25) Methyl tert-Butyl Ether	8.31	73	1490417	21.059	ng		100
26) Vinyl Acetate	8.43	86	532142	149.238	ng		97
27) 2-Butanone (MEK)	8.67	72	360305	20.285	ng		98
28) cis-1,2-Dichloroethene	9.13	61	740179	19.385	ng		99
29) Diisopropyl Ether	9.35	87	391585	20.981	ng	#	93
30) Ethyl Acetate	9.36	61	473232	48.849	ng		99
31) n-Hexane	9.35	57	1107222	23.133	ng		99
32) Chloroform	9.43	83	841743	22.146	ng		99
34) Tetrahydrofuran (THF)	9.81	72	381614	21.752	ng		98
35) Ethyl tert-Butyl Ether	9.90	87	575173	22.662	ng		97
36) 1,2-Dichloroethane	10.17	62	707413	22.150	ng		99
38) 1,1,1-Trichloroethane	10.44	97	674160	24.901	ng		100
39) Isopropyl Acetate	10.80	61	801032	46.493	ng	#	83
40) 1-Butanol	10.81	56	1409857	48.328	ng		83
41) Benzene	10.89	78	2059663	21.724	ng		100
42) Carbon Tetrachloride	11.04	117	523079	26.024	ng		99
43) Cyclohexane	11.17	84	1526191	45.937	ng		99
44) tert-Amyl Methyl Ether	11.48	73	1542668	23.346	ng		100
45) 1,2-Dichloropropane	11.70	63	615882	22.801	ng		99
46) Bromodichloromethane	11.89	83	660377	23.737	ng		100
47) Trichloroethene	11.94	130	387353	20.954	ng		100
48) 1,4-Dioxane	11.91	88	401122	23.267	ng		99
49) 2,2,4-Trimethylpentane...	12.00	57	2724217	22.674	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

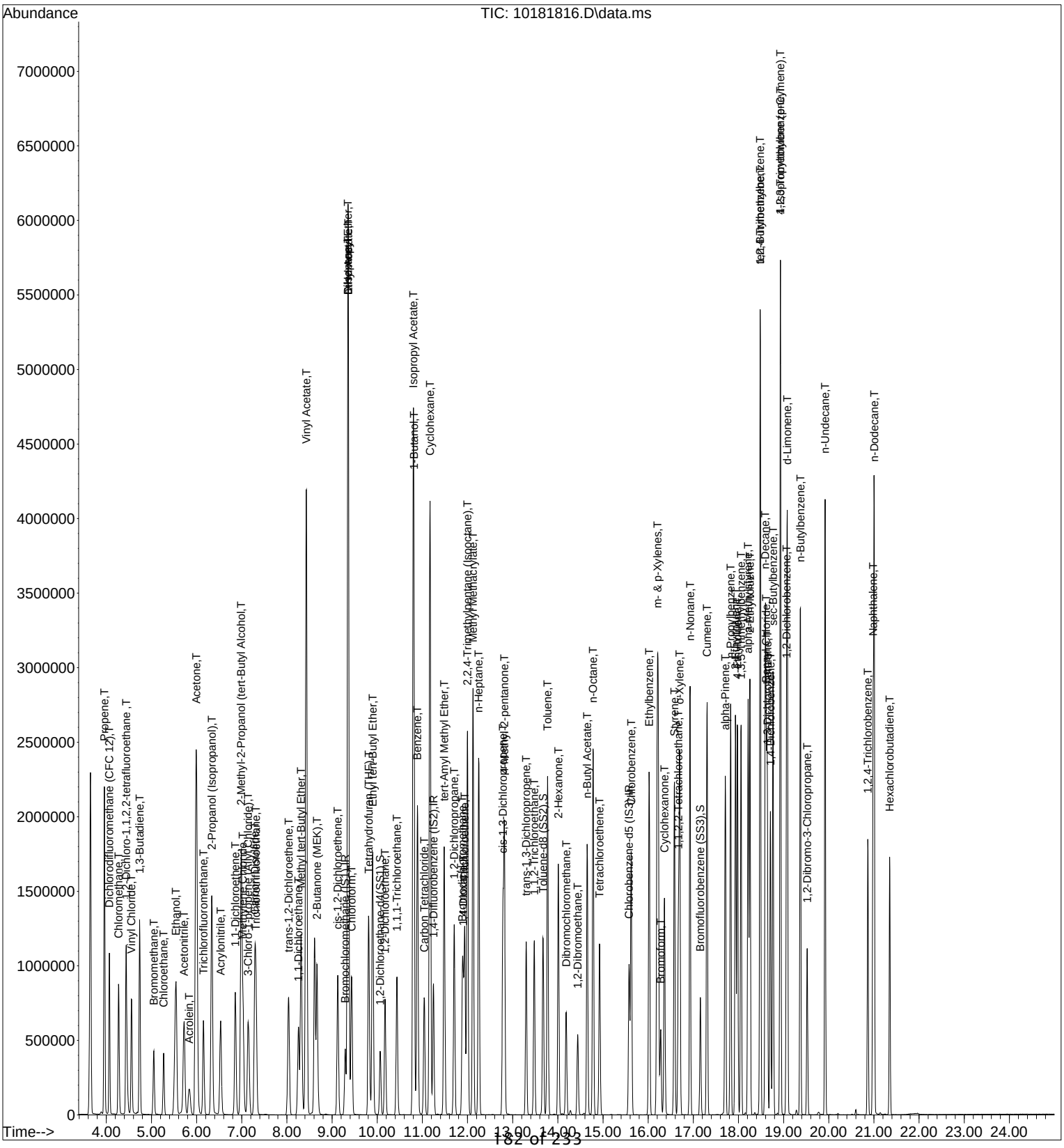
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	350028	46.256	ng		100
51) n-Heptane	12.25	71	584057	23.369	ng		99
52) cis-1,3-Dichloropropene	12.78	75	926171	25.188	ng		100
53) 4-Methyl-2-pentanone	12.81	58	609356	23.304	ng		99
54) trans-1,3-Dichloropropene	13.30	75	775057	24.164	ng		100
55) 1,1,2-Trichloroethane	13.48	97	433060	22.234	ng		99
58) Toluene	13.77	91	1891822	23.785	ng		100
59) 2-Hexanone	14.01	43	1386278	20.715	ng		100
60) Dibromochloromethane	14.19	129	440384	25.475	ng		99
61) 1,2-Dibromoethane	14.44	107	460649	23.799	ng		100
62) n-Butyl Acetate	14.65	43	1582600	21.256	ng		99
63) n-Octane	14.78	57	526915	21.027	ng		100
64) Tetrachloroethene	14.92	166	370058	24.769	ng		100
65) Chlorobenzene	15.62	112	1089532	22.172	ng		100
66) Ethylbenzene	16.02	91	2036897	20.730	ng		99
67) m- & p-Xylenes	16.21	91	3242052	43.011	ng		98
68) Bromoform	16.28	173	319139	27.344	ng		99
69) Styrene	16.58	104	1236017	23.804	ng		99
70) o-Xylene	16.70	91	1607434	21.161	ng		99
71) n-Nonane	16.93	43	1263422	19.567	ng		99
72) 1,1,2,2-Tetrachloroethane	16.67	83	814279	22.905	ng		100
74) Cumene	17.30	105	1957001	22.248	ng		100
75) alpha-Pinene	17.71	93	1043661	21.548	ng		100
76) n-Propylbenzene	17.83	91	2403150	20.777	ng		100
77) 3-Ethyltoluene	17.93	105	1877398	21.940	ng		100
78) 4-Ethyltoluene	17.98	105	1814916	22.160	ng		100
79) 1,3,5-Trimethylbenzene	18.06	105	1576642	21.684	ng		100
80) alpha-Methylstyrene	18.21	118	842663	24.703	ng		95
81) 2-Ethyltoluene	18.25	105	1945812	22.759	ng		100
82) 1,2,4-Trimethylbenzene	18.48	105	1652593	22.798	ng		100
83) n-Decane	18.59	58	52297	19.539	ng	#	97
84) Benzyl Chloride	18.61	91	1563923	29.684	ng		100
85) 1,3-Dichlorobenzene	18.64	146	815232	24.493	ng		100
86) 1,4-Dichlorobenzene	18.71	146	825501	24.492	ng		100
87) sec-Butylbenzene	18.76	105	2172559	22.379	ng		100
88) 4-Isopropyltoluene (p-...	18.93	119	1887305	23.578	ng		98
89) 1,2,3-Trimethylbenzene	18.93	105	1678734	23.486	ng		99
90) 1,2-Dichlorobenzene	19.06	146	761279	24.879	ng		100
91) d-Limonene	19.08	68	898200	23.882	ng		99
92) 1,2-Dibromo-3-Chloropr...	19.52	157	260267	30.205	ng		99
93) n-Undecane	19.92	57	1504982	23.531	ng		98
94) 1,2,4-Trichlorobenzene	20.86	180	493849	30.366	ng		99
95) Naphthalene	20.98	128	1910677	32.840	ng		100
96) n-Dodecane	21.01	57	1426865	24.772	ng		100
97) Hexachlorobutadiene	21.35	225	295793	26.135	ng		99
98) Cyclohexanone	16.36	55	768074	18.327	ng		99
99) tert-Butylbenzene	18.48	119	1468139	25.387	ng		99
100) n-Butylbenzene	19.37	91	2025640	23.749	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181816.D
Acq On : 18 Oct 2018 19:31 Operator: SC
Sample : 25ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 08:52:06 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:51:49 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.30	130	145075	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	11.25	114	737505	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.58	82	439335	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.08	65	331974	11.092	ng		0.01
Spiked Amount 12.500	Range 70 - 130		Recovery = 88.72%				
57) Toluene-d8 (SS2)	13.67	98	934920	12.318	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.56%				
73) Bromofluorobenzene (SS3)	17.16	174	208640	13.432	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 107.44%				
Target Compounds							Qvalue
2) Propene	3.96	42	1764720	47.031	ng		99
3) Dichlorodifluoromethan...	4.07	85	1740235	43.839	ng		100
4) Chloromethane	4.28	50	2052397	42.819	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	604259	46.638	ng		100
6) Vinyl Chloride	4.57	62	1625221	45.217	ng		99
7) 1,3-Butadiene	4.75	54	1197573	67.760	ng		98
8) Bromomethane	5.06	94	622298	47.984	ng		99
9) Chloroethane	5.28	64	712208	39.869	ng		99
10) Ethanol	5.56	45	4897903	190.448	ng		100
11) Acetonitrile	5.74	41	2829267	40.756	ng		99
12) Acrolein	5.85	56	713289	38.516	ng		100
13) Acetone	6.01	58	3993778	189.604	ng		86
14) Trichlorofluoromethane	6.16	101	1320734	49.387	ng		100
15) 2-Propanol (Isopropanol)	6.36	45	6222284	72.598	ng		99
16) Acrylonitrile	6.55	53	1751897	41.515	ng		100
17) 1,1-Dichloroethene	6.86	96	822194	48.959	ng	#	79
18) 2-Methyl-2-Propanol (t...	7.01	59	5747633	79.545	ng		97
19) Methylene Chloride	7.04	84	972588	44.559	ng		81
20) 3-Chloro-1-propene (Al...	7.16	41	1993372	50.213	ng		90
21) Trichlorotrifluoroethane	7.32	151	526408	45.864	ng		89
22) Carbon Disulfide	7.30	76	3712462	47.924	ng		100
23) trans-1,2-Dichloroethene	8.04	61	1702453	40.927	ng		90
24) 1,1-Dichloroethane	8.27	63	1897208	39.991	ng		100
25) Methyl tert-Butyl Ether	8.32	73	3164689	41.807	ng		98
26) Vinyl Acetate	8.44	86	1019805	267.404	ng	#	81
27) 2-Butanone (MEK)	8.68	72	758577	39.931	ng	#	88
28) cis-1,2-Dichloroethene	9.14	61	1589461	38.920	ng		95
29) Diisopropyl Ether	9.36	87	727150	36.427	ng	#	70
30) Ethyl Acetate	9.37	61	809465	78.123	ng		94
31) n-Hexane	9.36	57	1861615	36.364	ng		99
32) Chloroform	9.45	83	1626282	40.004	ng		100
34) Tetrahydrofuran (THF)	9.82	72	739603	39.416	ng		93
35) Ethyl tert-Butyl Ether	9.90	87	1126805	41.509	ng		93
36) 1,2-Dichloroethane	10.18	62	1345046	39.376	ng		99
38) 1,1,1-Trichloroethane	10.44	97	1321076	47.011	ng		99
39) Isopropyl Acetate	10.80	61	1435249	80.257	ng	#	91
40) 1-Butanol	10.83	56	2530407	83.565	ng		97
41) Benzene	10.90	78	3974121	40.383	ng		100
42) Carbon Tetrachloride	11.04	117	1039677	49.833	ng		100
43) Cyclohexane	11.17	84	2888135	83.750	ng		95
44) tert-Amyl Methyl Ether	11.49	73	2974262	43.365	ng		99
45) 1,2-Dichloropropane	11.71	63	1170445	41.746	ng		100
46) Bromodichloromethane	11.89	83	1278196	44.263	ng		99
47) Trichloroethene	11.94	130	786949	41.014	ng		100
48) 1,4-Dioxane	11.91	88	790673	44.184	ng		97
49) 2,2,4-Trimethylpentane...	12.00	57	5065341	40.617	ng		100

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

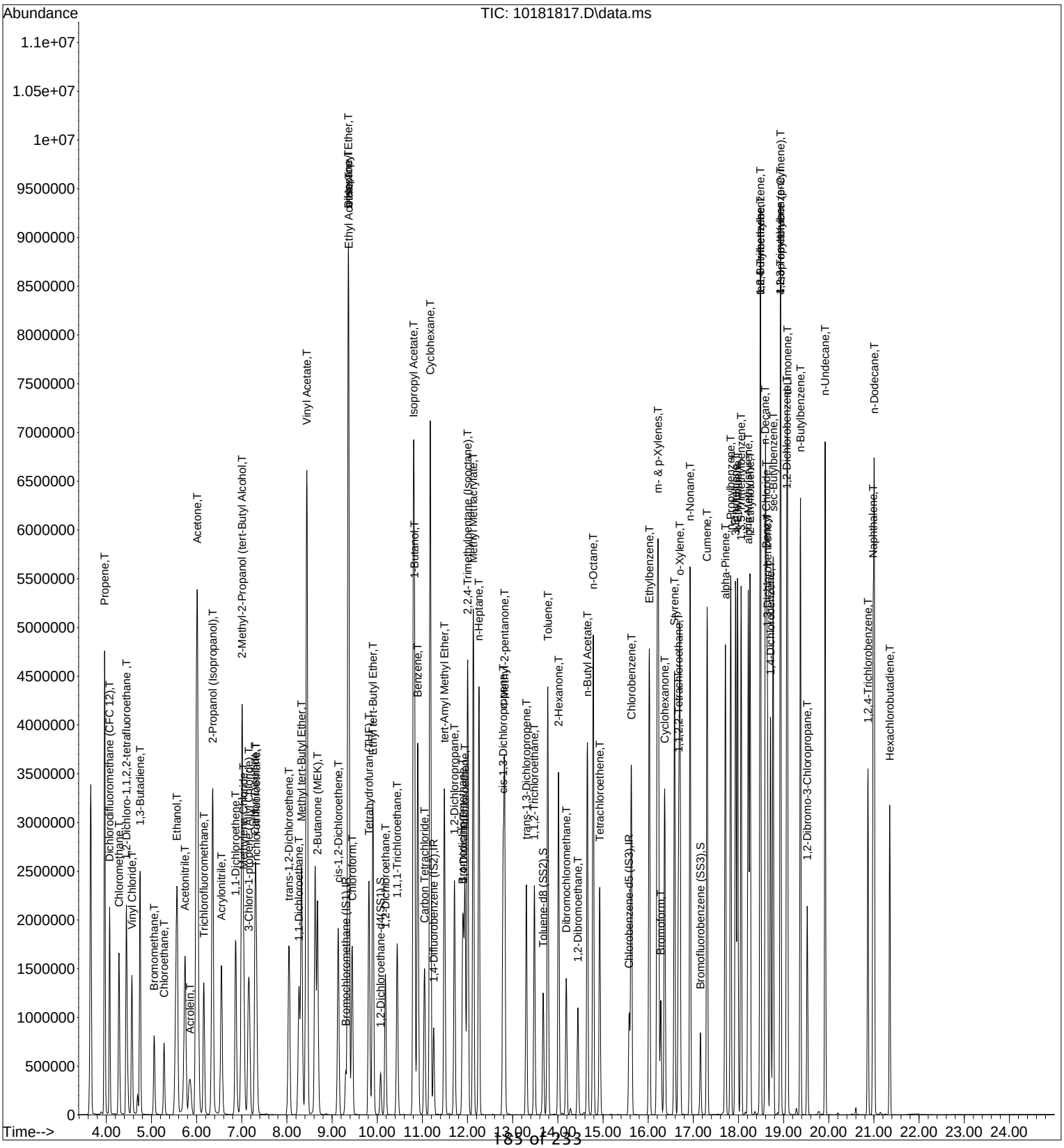
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	12.13	100	693467	88.290	ng	92
51) n-Heptane	12.25	71	1115237	42.991	ng	98
52) cis-1,3-Dichloropropene	12.79	75	1802420	47.226	ng	100
53) 4-Methyl-2-pentanone	12.82	58	1167649	43.023	ng	98
54) trans-1,3-Dichloropropene	13.30	75	1577845	47.394	ng	100
55) 1,1,2-Trichloroethane	13.48	97	863342	42.704	ng	99
58) Toluene	13.78	91	3713386	44.003	ng	100
59) 2-Hexanone	14.01	43	2979085	41.957	ng	98
60) Dibromochloromethane	14.18	129	877175	47.827	ng	100
61) 1,2-Dibromoethane	14.44	107	923386	44.964	ng	100
62) n-Butyl Acetate	14.65	43	3462823	43.836	ng	98
63) n-Octane	14.78	57	1071755	40.312	ng	98
64) Tetrachloroethene	14.93	166	714826	45.096	ng	100
65) Chlorobenzene	15.63	112	2160121	41.432	ng	100
66) Ethylbenzene	16.03	91	4170993	40.009	ng	99
67) m- & p-Xylenes	16.22	91	6438741	80.512	ng	99
68) Bromoform	16.28	173	634712	51.258	ng	100
69) Styrene	16.58	104	2444107	44.366	ng	98
70) o-Xylene	16.70	91	3267799	40.546	ng	98
71) n-Nonane	16.93	43	2574697	37.583	ng	98
72) 1,1,2,2-Tetrachloroethane	16.68	83	1701095	45.100	ng	100
74) Cumene	17.30	105	3758635	40.274	ng	99
75) alpha-Pinene	17.71	93	2132128	41.492	ng	96
76) n-Propylbenzene	17.83	91	4969224	40.494	ng	98
77) 3-Ethyltoluene	17.93	105	3893468	42.885	ng	99
78) 4-Ethyltoluene	17.98	105	3539426	40.733	ng	99
79) 1,3,5-Trimethylbenzene	18.06	105	3184580	41.282	ng	99
80) alpha-Methylstyrene	18.22	118	1641290	45.350	ng	99
81) 2-Ethyltoluene	18.26	105	3743947	41.274	ng	100
82) 1,2,4-Trimethylbenzene	18.49	105	3050775	39.668	ng	100
83) n-Decane	18.59	58	108607	38.246	ng	95
84) Benzyl Chloride	18.62	91	3168628	56.687	ng	100
85) 1,3-Dichlorobenzene	18.64	146	1598278	45.259	ng	100
86) 1,4-Dichlorobenzene	18.71	146	1605026	44.883	ng	100
87) sec-Butylbenzene	18.77	105	4245866	41.222	ng	99
88) 4-Isopropyltoluene (p-...	18.93	119	3378590	39.782	ng	99
89) 1,2,3-Trimethylbenzene	18.93	105	2985477	39.368	ng	99
90) 1,2-Dichlorobenzene	19.07	146	1481356	45.630	ng	100
91) d-Limonene	19.08	68	1555894	38.991	ng	95
92) 1,2-Dibromo-3-Chloropr...	19.52	157	534497	58.466	ng	90
93) n-Undecane	19.92	57	2571903	37.902	ng	96
94) 1,2,4-Trichlorobenzene	20.87	180	1019740	59.098	ng	100
95) Naphthalene	20.98	128	3695837	59.872	ng	100
96) n-Dodecane	21.01	57	2266615	37.089	ng	95
97) Hexachlorobutadiene	21.35	225	594947	49.546	ng	99
98) Cyclohexanone	16.37	55	1783999	40.121	ng	95
99) tert-Butylbenzene	18.49	119	2697408	43.963	ng	100
100) n-Butylbenzene	19.37	91	3732575	41.246	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181817.D
Acq On : 18 Oct 2018 20:05 Operator: SC
Sample : 50ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:06:27 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018 10/19/18
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.31	130	147167	12.500	ng		0.02
37) 1,4-Difluorobenzene (IS2)	11.26	114	742611	12.500	ng		0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	442417	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.09	65	304128	10.017	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 80.16%				
57) Toluene-d8 (SS2)	13.68	98	941459	12.318	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 98.56%				
73) Bromofluorobenzene (SS3)	17.16	174	218853	13.991	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 111.92%				
Target Compounds							Qvalue
2) Propene	3.97	42	3498527	91.912	ng		99
3) Dichlorodifluoromethan...	4.08	85	3207591	79.656	ng		99
4) Chloromethane	4.29	50	3449201	70.938	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	1217343	92.622	ng		99
6) Vinyl Chloride	4.58	62	2837536	77.824	ng		99
7) 1,3-Butadiene	4.76	54	1944923	108.482	ng		97
8) Bromomethane	5.07	94	1205267	91.614	ng		99
9) Chloroethane	5.29	64	1307156	72.134	ng		99
10) Ethanol	5.59	45	6445843	247.075	ng		100
11) Acetonitrile	5.77	41	3857172	54.774	ng		99
12) Acrolein	5.87	56	1097557	58.424	ng		94
13) Acetone	6.04	58	5649959	264.418	ng		96
14) Trichlorofluoromethane	6.17	101	2300427	84.799	ng		100
15) 2-Propanol (Isopropanol)	6.38	45	7298184	83.940	ng		99
16) Acrylonitrile	6.57	53	3236379	75.602	ng		99
17) 1,1-Dichloroethene	6.87	96	1590767	93.379	ng		96
18) 2-Methyl-2-Propanol (t...	7.02	59	6865856	93.670	ng		98
19) Methylene Chloride	7.05	84	1774873	80.160	ng		96
20) 3-Chloro-1-propene (Al...	7.17	41	3929143	97.569	ng		91
21) Trichlorotrifluoroethane	7.33	151	1030736	88.527	ng		96
22) Carbon Disulfide	7.31	76	6933969	88.237	ng		100
23) trans-1,2-Dichloroethene	8.06	61	3392017	80.385	ng		90
24) 1,1-Dichloroethane	8.28	63	3670284	76.266	ng		100
25) Methyl tert-Butyl Ether	8.33	73	6185248	80.549	ng		97
26) Vinyl Acetate	8.46	86	1846352	477.252	ng	#	64
27) 2-Butanone (MEK)	8.69	72	1492415	77.442	ng	#	92
28) cis-1,2-Dichloroethene	9.15	61	3036467	73.294	ng		97
29) Diisopropyl Ether	9.36	87	1211553	59.831	ng	#	51
30) Ethyl Acetate	9.38	61	1267473	120.587	ng		89
31) n-Hexane	9.36	57	2836361	54.617	ng		98
32) Chloroform	9.46	83	3061896	74.247	ng		100
34) Tetrahydrofuran (THF)	9.82	72	1362818	71.597	ng	#	83
35) Ethyl tert-Butyl Ether	9.91	87	2100965	76.295	ng	#	83
36) 1,2-Dichloroethane	10.19	62	2298328	66.327	ng		99
38) 1,1,1-Trichloroethane	10.45	97	2438357	86.174	ng		96
39) Isopropyl Acetate	10.81	61	2278397	126.529	ng	#	80
40) 1-Butanol	10.84	56	4098650	134.425	ng		94
41) Benzene	10.91	78	7142207	72.076	ng		100
42) Carbon Tetrachloride	11.05	117	1953492	92.989	ng		99
43) Cyclohexane	11.18	84	4765655	137.244	ng	#	86
44) tert-Amyl Methyl Ether	11.50	73	5353517	77.518	ng		97
45) 1,2-Dichloropropane	11.72	63	2107429	74.649	ng		100
46) Bromodichloromethane	11.90	83	2305405	79.285	ng		99
47) Trichloroethene	11.95	130	1521479	78.750	ng		100
48) 1,4-Dioxane	11.92	88	1410216	78.264	ng		89
49) 2,2,4-Trimethylpentane...	12.01	57	7969261	63.462	ng		97

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

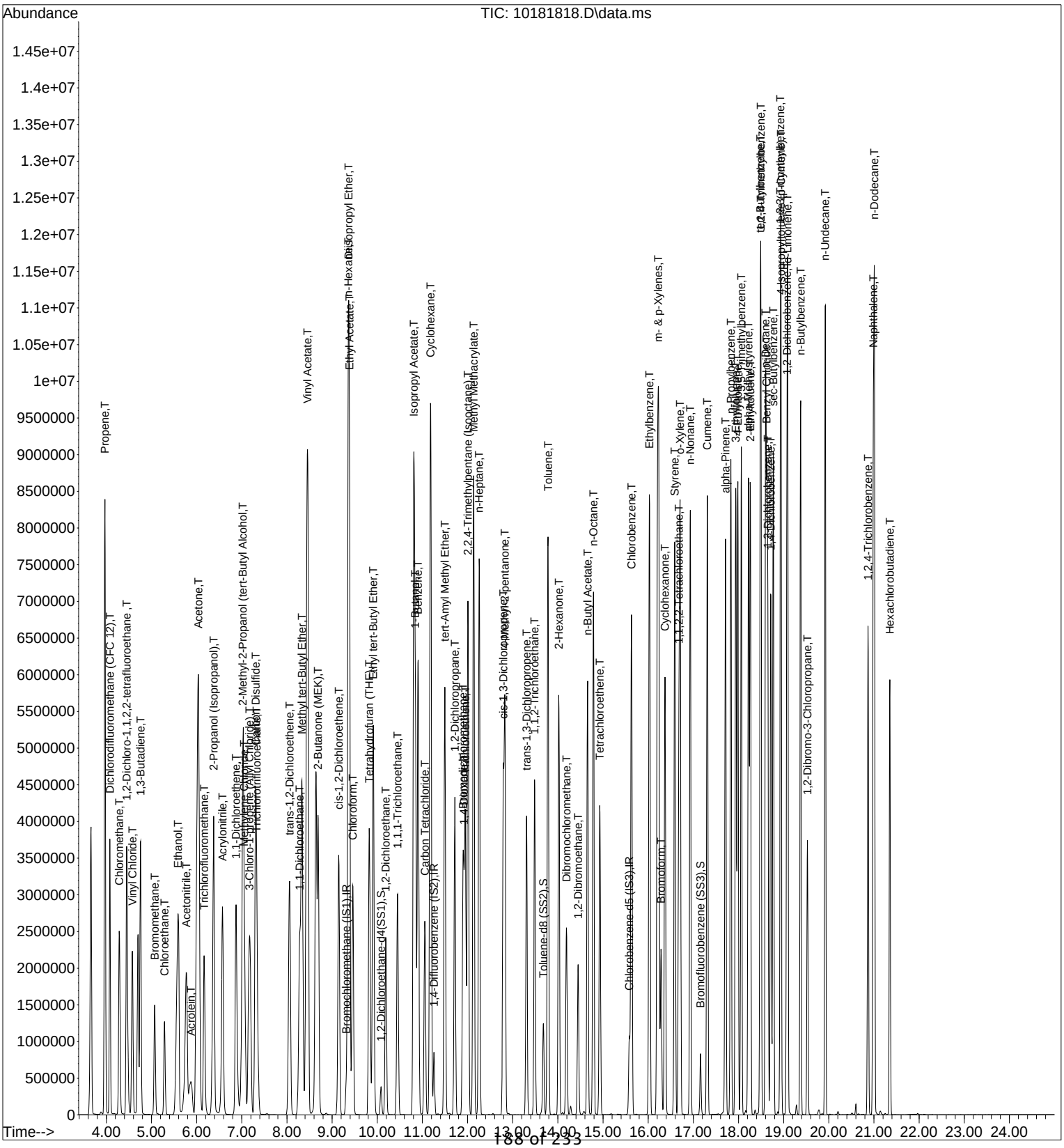
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.14	100	1321928	167.146	ng	#	85
51) n-Heptane	12.26	71	2086173	79.866	ng		96
52) cis-1,3-Dichloropropene	12.79	75	3163117	82.308	ng		99
53) 4-Methyl-2-pentanone	12.82	58	1927146	70.518	ng		89
54) trans-1,3-Dichloropropene	13.31	75	2857374	85.238	ng		99
55) 1,1,2-Trichloroethane	13.48	97	1681887	82.620	ng		100
58) Toluene	13.78	91	6960663	81.908	ng		99
59) 2-Hexanone	14.02	43	4958204	69.345	ng		99
60) Dibromochloromethane	14.19	129	1699143	91.998	ng		99
61) 1,2-Dibromoethane	14.45	107	1758548	85.035	ng		100
62) n-Butyl Acetate	14.66	43	5433825	68.307	ng		98
63) n-Octane	14.79	57	1668313	62.313	ng		93
64) Tetrachloroethene	14.93	166	1446146	90.597	ng		99
65) Chlorobenzene	15.63	112	4165845	79.347	ng		99
66) Ethylbenzene	16.03	91	7763458	73.951	ng		99
67) m- & p-Xylenes	16.22	91	11684605	145.090	ng		99
68) Bromoform	16.28	173	1298883	104.163	ng		100
69) Styrene	16.59	104	4539680	81.831	ng		99
70) o-Xylene	16.71	91	5729128	70.590	ng		99
71) n-Nonane	16.93	43	3818796	55.355	ng		95
72) 1,1,2,2-Tetrachloroethane	16.68	83	2972683	78.264	ng		100
74) Cumene	17.31	105	6580367	70.018	ng		97
75) alpha-Pinene	17.71	93	3668559	70.894	ng		98
76) n-Propylbenzene	17.83	91	8336147	67.458	ng		98
77) 3-Ethyltoluene	17.94	105	6810476	74.492	ng		98
78) 4-Ethyltoluene	17.99	105	5880082	67.198	ng		97
79) 1,3,5-Trimethylbenzene	18.06	105	5661674	72.882	ng		99
80) alpha-Methylstyrene	18.22	118	2947462	80.873	ng		100
81) 2-Ethyltoluene	18.26	105	6426074	70.348	ng		97
82) 1,2,4-Trimethylbenzene	18.50	105	4665306	60.239	ng		99
83) n-Decane	18.60	58	168954	59.083	ng	#	95
84) Benzyl Chloride	18.62	91	5283486	93.863	ng		97
85) 1,3-Dichlorobenzene	18.65	146	2938424	82.628	ng		99
86) 1,4-Dichlorobenzene	18.72	146	3075772	85.413	ng		100
87) sec-Butylbenzene	18.77	105	7289536	70.280	ng		98
88) 4-Isopropyltoluene (p-...	18.94	119	5142360	60.129	ng		99
89) 1,2,3-Trimethylbenzene	18.93	105	4547451	59.547	ng		98
90) 1,2-Dichlorobenzene	19.07	146	2547807	77.933	ng		100
91) d-Limonene	19.09	68	2364673	58.847	ng		88
92) 1,2-Dibromo-3-Chloropr...	19.53	157	1053973	114.485	ng	#	78
93) n-Undecane	19.92	57	4370374	63.956	ng		94
94) 1,2,4-Trichlorobenzene	20.87	180	1971630	113.468	ng		100
95) Naphthalene	20.99	128	6635910	106.752	ng		99
96) n-Dodecane	21.01	57	3908028	63.503	ng		93
97) Hexachlorobutadiene	21.35	225	1136400	93.978	ng		100
98) Cyclohexanone	16.37	55	3230658	72.149	ng		97
99) tert-Butylbenzene	18.49	119	4244449	68.695	ng		99
100) n-Butylbenzene	19.38	91	6202301	68.060	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181818.D
Acq On : 18 Oct 2018 20:39 Operator: SC
Sample : 100ng TO-15 ICAL STD
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 09:07:49 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 08:55:06 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.29	130	143734	12.500	ng		-0.02
37) 1,4-Difluorobenzene (IS2)	11.25	114	700961	12.500	ng		-0.01
56) Chlorobenzene-d5 (IS3)	15.58	82	413514	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.07	65	328004	13.159	ng		-0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 105.28%				
57) Toluene-d8 (SS2)	13.67	98	902920	12.498	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 100.00%				
73) Bromofluorobenzene (SS3)	17.16	174	206826	12.725	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 101.84%				
Target Compounds							Qvalue
2) Propene	3.96	42	795271	21.889	ng		99
3) Dichlorodifluoromethan...	4.07	85	900181	22.999	ng		100
4) Chloromethane	4.28	50	1011226	21.291	ng		100
5) 1,2-Dichloro-1,1,2,2-t...	4.44	135	348077	25.279	ng		100
6) Vinyl Chloride	4.56	62	767154	20.691	ng		98
7) 1,3-Butadiene	4.74	54	520473	21.185	ng		97
8) Bromomethane	5.05	94	361793	24.169	ng		99
9) Chloroethane	5.27	64	461152	27.751	ng		99
10) Ethanol	5.54	45	2670830	136.040	ng		100
11) Acetonitrile	5.72	41	1466832	27.599	ng		99
12) Acrolein	5.84	56	388008	25.528	ng		100
13) Acetone	6.00	58	2278397	112.309	ng		85
14) Trichlorofluoromethane	6.15	101	726612	25.916	ng		100
15) 2-Propanol (Isopropanol)	6.34	45	3629243	57.464	ng		100
16) Acrylonitrile	6.53	53	935794	27.160	ng		100
17) 1,1-Dichloroethene	6.86	96	449537	26.472	ng	#	81
18) 2-Methyl-2-Propanol (t...	6.99	59	3254951	58.908	ng		97
19) Methylene Chloride	7.03	84	531347	26.165	ng		81
20) 3-Chloro-1-propene (Al...	7.15	41	1122583	30.219	ng		91
21) Trichlorotrifluoroethane	7.32	151	296399	26.444	ng		90
22) Carbon Disulfide	7.29	76	2030433	26.646	ng		100
23) trans-1,2-Dichloroethene	8.04	61	917534	27.247	ng		90
24) 1,1-Dichloroethane	8.26	63	1076984	26.513	ng		100
25) Methyl tert-Butyl Ether	8.32	73	1727510	28.033	ng		98
26) Vinyl Acetate	8.43	86	563634	168.699	ng	#	92
27) 2-Butanone (MEK)	8.67	72	409964	25.907	ng	#	85
28) cis-1,2-Dichloroethene	9.13	61	854265	26.382	ng		95
29) Diisopropyl Ether	9.35	87	413267	27.091	ng	#	81
30) Ethyl Acetate	9.36	61	469607	56.048	ng		95
31) n-Hexane	9.35	57	1091964	28.344	ng		100
32) Chloroform	9.44	83	878687	25.900	ng		100
34) Tetrahydrofuran (THF)	9.81	72	400003	26.301	ng		94
35) Ethyl tert-Butyl Ether	9.90	87	614277	27.417	ng		94
36) 1,2-Dichloroethane	10.17	62	731560	27.144	ng		100
38) 1,1,1-Trichloroethane	10.44	97	704476	26.570	ng		98
39) Isopropyl Acetate	10.80	61	805789	55.814	ng	#	94
40) 1-Butanol	10.81	56	1370585	57.507	ng		100
41) Benzene	10.89	78	2188908	25.643	ng		100
42) Carbon Tetrachloride	11.04	117	559787	27.111	ng		100
43) Cyclohexane	11.17	84	1594749	52.583	ng		96
44) tert-Amyl Methyl Ether	11.48	73	1627258	28.077	ng		99
45) 1,2-Dichloropropane	11.70	63	630119	26.206	ng		100
46) Bromodichloromethane	11.89	83	698787	27.319	ng		100
47) Trichloroethene	11.94	130	425719	25.334	ng		100
48) 1,4-Dioxane	11.91	88	425761	27.797	ng		97
49) 2,2,4-Trimethylpentane...	12.00	57	2788155	26.552	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

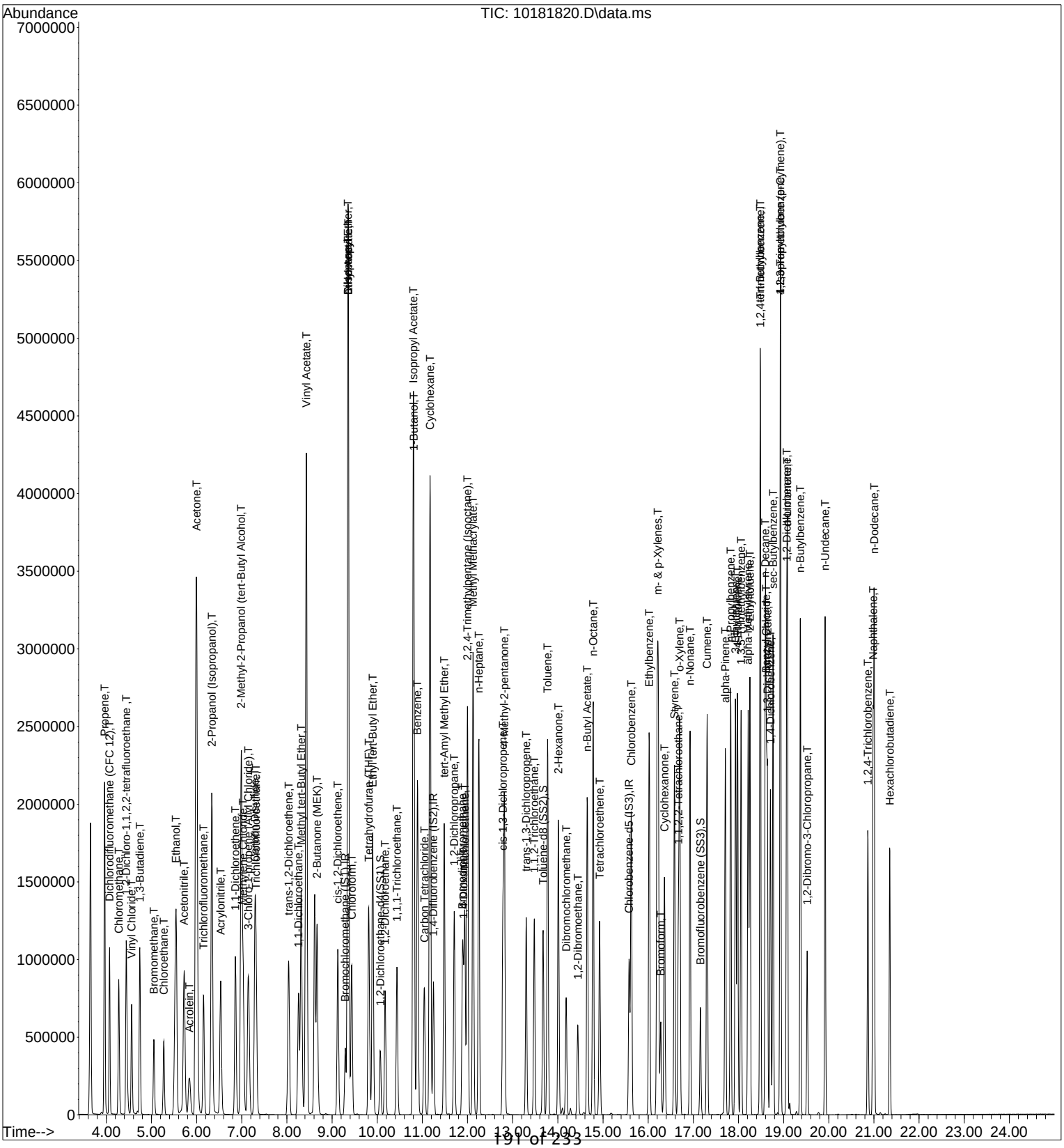
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.12	100	379897	57.718	ng		93
51) n-Heptane	12.25	71	603105	26.733	ng		99
52) cis-1,3-Dichloropropene	12.78	75	918691	28.366	ng		100
53) 4-Methyl-2-pentanone	12.81	58	627176	29.451	ng		100
54) trans-1,3-Dichloropropene	13.30	75	839537	29.559	ng		100
55) 1,1,2-Trichloroethane	13.48	97	465208	26.908	ng		100
58) Toluene	13.77	91	2024181	25.058	ng		100
59) 2-Hexanone	14.01	43	1591291	31.370	ng		97
60) Dibromochloromethane	14.19	129	470059	27.260	ng		100
61) 1,2-Dibromoethane	14.44	107	495860	26.871	ng		100
62) n-Butyl Acetate	14.65	43	1825441	31.930	ng		98
63) n-Octane	14.78	57	573131	28.568	ng		99
64) Tetrachloroethene	14.93	166	393939	23.620	ng		99
65) Chlorobenzene	15.62	112	1166378	24.908	ng		100
66) Ethylbenzene	16.02	91	2188220	24.732	ng		99
67) m- & p-Xylenes	16.21	91	3333385	49.024	ng		100
68) Bromoform	16.28	173	333098	27.753	ng		100
69) Styrene	16.58	104	1258527	26.135	ng		99
70) o-Xylene	16.70	91	1660658	25.027	ng		100
71) n-Nonane	16.93	43	1039258	22.270	ng		94
72) 1,1,2,2-Tetrachloroethane	16.67	83	822220	25.148	ng		100
74) Cumene	17.30	105	1925294	23.996	ng		98
75) alpha-Pinene	17.71	93	1063990	24.550	ng		100
76) n-Propylbenzene	17.83	91	2489985	24.979	ng		100
77) 3-Ethyltoluene	17.93	105	1876344	23.902	ng		100
78) 4-Ethyltoluene	17.98	105	1942032	26.617	ng		100
79) 1,3,5-Trimethylbenzene	18.06	105	1599779	24.763	ng		99
80) alpha-Methylstyrene	18.21	118	863232	26.959	ng		100
81) 2-Ethyltoluene	18.25	105	1914044	24.870	ng		99
82) 1,2,4-Trimethylbenzene	18.49	105	1597034	25.431	ng		99
83) n-Decane	18.59	58	50306	24.354	ng	#	94
84) Benzyl Chloride	18.61	91	1501323	26.921	ng		98
85) 1,3-Dichlorobenzene	18.64	146	845703	25.824	ng		100
86) 1,4-Dichlorobenzene	18.71	146	860422	26.314	ng		100
87) sec-Butylbenzene	18.76	105	2215607	25.222	ng		99
88) 4-Isopropyltoluene (p-...	18.93	119	1941546	26.296	ng		98
89) 1,2,3-Trimethylbenzene	18.93	105	1715499	26.838	ng		98
90) 1,2-Dichlorobenzene	19.07	146	809806	26.459	ng		99
91) d-Limonene	19.08	68	820201	25.227	ng		93
92) 1,2-Dibromo-3-Chloropr...	19.52	157	287644	29.277	ng	#	78
93) n-Undecane	19.92	57	1161824	23.281	ng		93
94) 1,2,4-Trichlorobenzene	20.86	180	550514	28.294	ng		99
95) Naphthalene	20.98	128	1937300	26.405	ng		100
96) n-Dodecane	21.01	57	1099842	23.994	ng		94
97) Hexachlorobutadiene	21.35	225	326618	26.847	ng		99
98) Cyclohexanone	16.36	55	812817	23.650	ng		99
99) tert-Butylbenzene	18.48	119	1456772	25.010	ng		99
100) n-Butylbenzene	19.37	91	1941313	25.612	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\18\10181820.D
Acq On : 18 Oct 2018 21:47 Operator: SC
Sample : 25ng TO-15 ICV STD
Misc : S31-10151806/S31-10151802 (11/13)
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 19 12:33:41 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 09:11:27 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

10/19/18

Data File Name: **10181820.D** Acq. Method File: **TO15.M**
Data File Path: **I:\MS09\Data\2018_10\18** Sample Name: **25ng TO-15 ICV STD**
Operator: **SC** Misc Info: **S31-10151806/S31-10151802 (**
Date Acquired: **10/18/18 21:47** Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	**Propene**	**3.96**	**21.9**	26.43	83	**54**	**133**	*	*
3)	**Dichlorodifluoromethane (CFC 1**	**4.07**	**23.0**	**26.30**	87	**64**	**115**	*	*
4)	**Chloromethane**	**4.28**	**21.3**	**26.38**	81	**47**	**140**	*	*
5)	**1,2-Dichloro-1,1,2,2-tetrafluoroet**	**4.44**	**25.3**	**26.38**	96	**60**	**112**	*	*
6)	**Vinyl Chloride**	**4.56**	**20.7**	**26.73**	77	**63**	**127**	*	*
7)	**1,3-Butadiene**	**4.74**	**21.2**	**26.28**	81	**57**	**149**	*	*
8)	**Bromomethane**	**5.05**	**24.2**	**26.48**	91	**63**	**132**	*	*
9)	**Chloroethane**	**5.27**	**27.8**	**26.75**	104	**68**	**129**	*	*
10)	**Ethanol**	**5.54**	**136**	**128.10**	106	**62**	**131**	*	*
11)	**Acetonitrile**	**5.72**	**27.6**	**25.73**	107	**56**	**136**	*	*
12)	**Acrolein**	**5.84**	**25.5**	**25.63**	100	**60**	**132**	*	*
13)	**Acetone**	**6.00**	**112**	**132.33**	85	**63**	**124**	*	*
14)	**Trichlorofluoromethane**	**6.15**	**25.9**	**26.40**	98	**65**	**113**	*	*
15)	**2-Propanol (Isopropanol)**	**6.34**	**57.5**	**51.60**	111	**62**	**135**	*	*
16)	**Acrylonitrile**	**6.53**	**27.2**	**25.88**	105	**68**	**138**	*	*
17)	**1,1-Dichloroethene**	**6.86**	**26.5**	**27.23**	97	**72**	**118**	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alc	6.99	58.9	54.25	109	61	128	*	*
19)	**Methylene Chloride**	**7.03**	**26.2**	**27.08**	97	**67**	**116**	*	*
20)	**3-Chloro-1-propene (Allyl Chlorid**	**7.15**	**30.2**	**27.00**	112	**61**	**143**	*	*
21)	**Trichlorotrifluoroethane**	**7.32**	**26.4**	**26.95**	98	**68**	**113**	*	*
22)	**Carbon Disulfide**	**7.29**	**26.6**	**27.20**	98	**68**	**120**	*	*
23)	**trans-1,2-Dichloroethene**	**8.04**	**27.2**	**26.73**	102	**71**	**125**	*	*
24)	**1,1-Dichloroethane**	**8.26**	**26.5**	**26.95**	98	**68**	**118**	*	*
25)	**Methyl tert-Butyl Ether**	**8.32**	**28.0**	**26.80**	104	**60**	**123**	*	*
26)	**Vinyl Acetate**	**8.43**	**169**	**133.03**	127	**73**	**135**	*	*
27)	**2-Butanone (MEK)**	**8.67**	**25.9**	**25.95**	100	**70**	**129**	*	*
28)	**cis-1,2-Dichloroethene**	**9.13**	**26.4**	**26.35**	100	**69**	**121**	*	*
29)	Diisopropyl Ether	9.35	27.1	27.18	100	65	117	*	*
30)	**Ethyl Acetate**	**9.36**	**56.0**	**54.45**	103	**66**	**140**	*	*
31)	**n-Hexane**	**9.35**	**28.3**	**26.95**	105	**61**	**124**	*	*
32)	**Chloroform**	**9.44**	**25.9**	**27.08**	96	**69**	**113**	*	*
34)	**Tetrahydrofuran (THF)**	**9.81**	**26.3**	**27.00**	97	**66**	**121**	*	*
35)	Ethyl tert-Butyl Ether	9.90	27.4	26.80	102	69	120	*	*
36)	**1,2-Dichloroethane**	**10.17**	**27.1**	**26.85**	101	**62**	**120**	*	*
38)	**1,1,1-Trichloroethane**	**10.44**	**26.6**	**26.90**	99	**65**	**116**	*	*
39)	Isopropyl Acetate	10.80	55.8	51.55	108	70	126	*	*
40)	1-Butanol	10.81	57.5	51.58	111	62	141	*	*
41)	**Benzene**	**10.89**	**25.6**	**26.38**	97	**66**	**111**	*	*
42)	**Carbon Tetrachloride**	**11.04**	**27.1**	**26.45**	102	**64**	**122**	*	*
43)	**Cyclohexane**	**11.17**	**52.6**	**52.05**	101	**69**	**115**	*	*
44)	tert-Amyl Methyl Ether	11.48	28.1	**27.08**	104	68	119	*	*
45)	**1,2-Dichloropropane**	**11.70**	**26.2**	**26.98**	97	**69**	**121**	*	*
46)	**Bromodichloromethane**	**11.89**	**27.3**	**26.83**	102	**69**	**123**	*	*
47)	**Trichloroethene**	**11.94**	**25.3**	**26.68**	95	**69**	**112**	*	*
48)	**1,4-Dioxane**	**11.91**	**27.8**	**26.73**	104	**74**	**123**	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	12.00	26.6	26.65	100	67	120	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **10181820.D** **TO15.M**
Data File Path: **I:\MS09\Data\2018_10\18** Sample Name: **25ng TO-15 ICV STD**
Operator: **SC** Misc Info: **S31-10151806/S31-10151802 (**
Date Acquired: **10/18/18** **21:47** Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	**Methyl Methacrylate**	**12.12**	**57.7**	**53.88**	107	**75**	**125**	*	*
51)	**n-Heptane**	**12.25**	**26.7**	**26.90**	99	**68**	**118**	*	*
52)	**cis-1,3-Dichloropropene**	**12.78**	**28.4**	**26.78**	106	**74**	**129**	*	*
53)	**4-Methyl-2-pentanone**	**12.81**	**29.5**	**26.15**	113	**66**	**138**	*	*
54)	**trans-1,3-Dichloropropene**	**13.30**	**29.6**	**26.60**	111	**75**	**130**	*	*
55)	**1,1,2-Trichloroethane**	**13.48**	**26.9**	**26.85**	100	**73**	**117**	*	*
58)	**Toluene**	**13.77**	**25.1**	**26.50**	95	**66**	**114**	*	*
59)	**2-Hexanone**	**14.01**	**31.4**	**26.78**	117	**58**	**146**	*	*
60)	**Dibromochloromethane**	**14.19**	**27.3**	**26.60**	103	**67**	**130**	*	*
61)	**1,2-Dibromoethane**	**14.44**	**26.9**	**27.03**	100	**70**	**127**	*	*
62)	**n-Butyl Acetate**	**14.65**	**31.9**	**27.35**	117	**62**	**140**	*	*
63)	**n-Octane**	**14.78**	**28.6**	**27.13**	105	**65**	**121**	*	*
64)	**Tetrachloroethene**	**14.93**	**23.6**	**26.60**	89	**62**	**119**	*	*
65)	**Chlorobenzene**	**15.62**	**24.9**	**26.83**	93	**66**	**115**	*	*
66)	**Ethylbenzene**	**16.02**	**24.7**	**26.53**	93	**69**	**117**	*	*
67)	**m- & p-Xylenes**	**16.21**	**49.0**	**53.28**	92	**67**	**117**	*	*
68)	**Bromoform**	**16.28**	**27.8**	**26.68**	104	**67**	**135**	*	*
69)	**Styrene**	**16.58**	**26.1**	**26.50**	98	**70**	**128**	*	*
70)	**o-Xylene**	**16.70**	**25.0**	**26.75**	93	**67**	**118**	*	*
71)	**n-Nonane**	**16.93**	**22.3**	**26.83**	83	**61**	**127**	*	*
72)	**1,1,2,2-Tetrachloroethane**	**16.67**	**25.1**	**26.80**	94	**70**	**125**	*	*
74)	**Cumene**	**17.30**	**24.0**	**26.80**	90	**68**	**116**	*	*
75)	**alpha-Pinene**	**17.71**	**24.5**	**26.40**	93	**69**	**122**	*	*
76)	**n-Propylbenzene**	**17.83**	**25.0**	**27.23**	92	**70**	**118**	*	*
77)	3-Ethyltoluene	17.93	23.9	26.83	89	68	117	*	*
78)	**4-Ethyltoluene**	**17.98**	**26.6**	**26.80**	**99**	**69**	**124**	*	*
79)	**1,3,5-Trimethylbenzene**	**18.06**	**24.8**	**26.73**	**93**	**65**	**117**	*	*
80)	alpha-Methylstyrene	18.21	27.0	26.75	**101**	71	132	*	*
81)	2-Ethyltoluene	18.25	24.9	27.08	**92**	67	119	*	*
82)	**1,2,4-Trimethylbenzene**	**18.49**	**25.4**	**26.90**	**94**	**67**	**124**	*	*
83)	n-Decane	18.59	24.4	26.88	**91**	63	129	*	*
84)	**Benzyl Chloride**	**18.61**	**26.9**	**27.08**	**99**	**75**	**142**	*	*
85)	**1,3-Dichlorobenzene**	**18.64**	**25.8**	**26.98**	**96**	**70**	**124**	*	*
86)	**1,4-Dichlorobenzene**	**18.71**	**26.3**	**27.00**	**97**	**63**	**124**	*	*
87)	sec-Butylbenzene	18.76	25.2	26.55	**95**	68	119	*	*
88)	4-Isopropyltoluene (p-Cymene)	18.93	26.3	26.95	**98**	65	122	*	*
89)	1,2,3-Trimethylbenzene	18.93	26.8	26.95	**99**	66	128	*	*
90)	**1,2-Dichlorobenzene**	**19.07**	**26.5**	**26.95**	**98**	**66**	**125**	*	*
91)	**d-Limonene**	**19.08**	**25.2**	**26.38**	**96**	**64**	**135**	*	*
92)	**1,2-Dibromo-3-Chloropropane**	**19.52**	**29.3**	**26.15**	**112**	**73**	**136**	*	*
93)	n-Undecane	19.92	23.3	27.03	**86**	67	135	*	*
94)	**1,2,4-Trichlorobenzene**	**20.86**	**28.3**	**26.78**	**106**	**70**	**141**	*	*
95)	**Naphthalene**	**20.98**	**26.4**	**25.38**	**104**	**71**	**146**	*	*
96)	n-Dodecane	21.01	24.0	25.63	**94**	69	152	*	*
97)	**Hexachlorobutadiene**	**21.35**	**26.8**	**26.13**	**103**	63	126	*	*
98)	Cyclohexanone	16.36	23.7	24.45	97	58	138	*	*
99)	tert-Butylbenzene	18.48	25.0	26.88	93	65	121	*	*
100)	n-Butylbenzene	19.37	25.6	27.00	95	71	125	*	*

Bold = 75 Compound List
*** = Pass**

Response Factor Report MS09

Method Path : I:\MS09\Methods\
Method File : C9102318.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:44:38 2018
Response Via : Initial Calibration

10/31/18

Calibration Files
0.40=10231804.D 1.0 =10231805.D 2.5 =10231806.D 5.0 =10231807.D 25 =10231808.D 50 =10231809.D 100 =10231810.D

		Compound	0.40	1.0	2.5	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethane...	----------	ISTD	----------						
2)	T	Chloropentaflu...	1.872	1.745	1.623	1.623	1.680	1.635	1.540	1.674	6.40
3)	T	1,1,1,2-Tetraf...	1.436	1.333	1.258	1.247	1.294	1.269	1.200	1.291	5.88
4)	T	1,1-Difluoroet...	1.717	1.582	1.486	1.496	1.571	1.535	1.434	1.546	5.90
5)	T	Chlorodifluoro...	0.467	0.431	0.413	0.402	0.419	0.411	0.396	0.420	5.63
6)	T	1-Chloro-1,1-D...	3.158	2.850	2.731	2.718	2.783	2.706	2.612	2.794	6.30
7)	T	Dichlorofluoro...	3.935	3.666	3.398	3.468	3.539	3.434	3.212	3.522	6.49
8)	T	Vinylbromide	1.196	1.101	1.090	1.099	1.186	1.164	1.103	1.134	4.06
9)	T	2,2-Dichloro-1...	2.370	2.126	2.032	2.048	2.140	2.109	2.014	2.120	5.68
10)	T	2-Methylbutane	2.035	1.863	1.693	1.777	1.864	1.796	1.635	1.809	7.19
11)	T	Methyl Acetate	4.698	4.412	4.211	4.321	4.399	4.281	4.010	4.333	4.86
12)	T	2-Methylpentane	1.795	1.664	1.604	1.634	1.731	1.688	1.561	1.668	4.72
13)	T	2,2-Dichloropr...	1.959	1.753	1.707	1.797	2.075	1.961	1.713	1.852	7.83
14)	T	1,1-Dichloropr...	2.466	2.259	2.189	2.235	2.376	2.322	2.185	2.290	4.53
15)	T	Thiophene	3.777	3.506	3.394	3.412	3.559	3.475	3.258	3.483	4.63
16)	IR	1,4-Difluorobenzen...	----------	ISTD	----------						
17)	T	2,3-Dimethylpe...	0.774	0.698	0.676	0.683	0.728	0.685	0.629	0.696	6.53
18)	T	Dibromomethane	0.178	0.160	0.153	0.153	0.163	0.159	0.156	0.160	5.37
19)	IR	Chlorobenzene-d5 (...	----------	ISTD	----------						
20)	T	Methyl Cyclohe...	1.049	0.994	0.943	0.950	0.974	0.884	0.760	0.936	9.89
21)	T	1,3-Dichloropr...	0.975	0.921	0.862	0.858	0.882	0.804	0.710	0.859	9.87
22)	T	1,1,1,2-Tetrac...	0.414	0.389	0.377	0.373	0.400	0.372	0.337	0.380	6.45
23)	T	1-Chlorohexane	0.797	0.758	0.729	0.749	0.781	0.719	0.632	0.738	7.34
24)	T	1,2,3-Trichlor...	0.983	0.877	0.842	0.850	0.876	0.808	0.710	0.850	9.67
25)	T	Bromobenzene	1.152	1.043	0.987	0.998	1.047	0.969	0.853	1.007	9.03
26)	T	2-Chlorotoluene	1.711	1.593	1.575	1.592	1.655	1.519	1.305	1.564	8.28
27)	T	4-Chlorotoluene	1.785	1.683	1.627	1.661	1.745	1.592	1.374	1.638	8.17
28)	T	Indane	1.702	1.628	1.662	1.709	1.806	1.647	1.397	1.650	7.63
29)	T	Indene	1.299	1.297	1.350	1.387	1.614	1.496	1.301	1.392	8.70
30)	T	1,2,4,5-Tetram...	1.497	1.547	1.613	1.685	1.959	1.767	1.523	1.656	9.91
31)	T	1,2,3,4-Tetram...	1.804	1.770	1.806	1.832	1.958	1.799	1.474	1.778	8.28
32)	T	1,2,3,5-Tetram...	1.573	1.539	1.569	1.638	1.867	1.715	1.449	1.621	8.39
33)	T	1,2,3-Trichlor...	0.497	0.452	0.458	0.459	0.558	0.538	0.494	0.494	8.41

(#) = Out of Range

Page 195 of 233

TO-15 CUSTOM COMPOUND LIST
ICAL CONCENTRATIONS

10/31/18

Std#: **Working Standards**

(1) 200 ng/L Working Std. ID: S31-10221804

(2) 20 ng/L Working Std. ID: S31-10191801

Injection Amts.(L):	0.020	0.050	0.125	0.250	0.125	0.250	0.500
Standards Used:	(2)	(2)	(2)	(2)	(1)	(1)	(1)
Compounds/ Concentrations (ng):	0.4ng	1.0ng	2.5ng	5.0ng	25ng	50ng	100ng
Vinylbromide	0.400	1.000	2.500	5.00	25.00	50.0	100
2-Methylbutane (Isopentane)	0.436	1.090	2.725	5.45	27.25	54.5	109
2-Methylpentane	0.392	0.980	2.450	4.90	24.50	49.0	98
2,2-Dichloropropane	0.360	0.900	2.250	4.50	22.50	45.0	90
1,1-Dichloropropene	0.416	1.040	2.600	5.20	26.00	52.0	104
Thiophene	0.408	1.020	2.550	5.10	25.50	51.0	102
2,3-Dimethylpentane	0.416	1.040	2.600	5.20	26.00	52.0	104
Dibromomethane	0.420	1.050	2.625	5.25	26.25	52.5	105
1,3-Dichloropropane	0.424	1.060	2.650	5.30	26.50	53.0	106
1,1,1,2-Tetrachloroethane	0.360	0.900	2.250	4.50	22.50	45.0	90
1-Chlorohexane	0.412	1.030	2.575	5.15	25.75	51.5	103
1,2,3-Trichloropropane	0.420	1.050	2.625	5.25	26.25	52.5	105
Bromobenzene	0.424	1.060	2.650	5.30	26.50	53.0	106
2-Chlorotoluene	0.440	1.100	2.750	5.50	27.50	55.0	110
4-Chlorotoluene	0.424	1.060	2.650	5.30	26.50	53.0	106
Indane	0.404	1.010	2.525	5.05	25.25	50.5	101
Indene	0.392	0.980	2.450	4.90	24.50	49.0	98
1,2,4,5-Tetramethylbenzene	0.396	0.990	2.475	4.95	24.75	49.5	99
1,2,3,4-Tetramethylbenzene	0.392	0.980	2.450	4.90	24.50	49.0	98
1,2,3,5-Tetramethylbenzene	0.388	0.970	2.425	4.85	24.25	48.5	97
1,2,3-Trichlorobenzene	0.396	0.990	2.475	4.95	24.75	49.5	99
Chloropentafluoroethane (R115)	0.436	1.090	2.725	5.45	27.25	54.5	109
2,2-Dichloro-1,1,1-trifluoroethane (R123)	0.420	1.050	2.625	5.25	26.25	52.5	105
1,1-Difluoroethane (R152a)	0.420	1.050	2.625	5.25	26.25	52.5	105
Chlorodifluoromethane (R22)	0.432	1.080	2.700	5.40	27.00	54.0	108
Dichlorofluoromethane (R21)	0.416	1.040	2.600	5.20	26.00	52.0	104
1,1,1,2-Tetrafluoroethane (R134a)	0.436	1.090	2.725	5.45	27.25	54.5	109
1-Chloro-1,1-Difluoroethane	0.420	1.050	2.625	5.25	26.25	52.5	105
Methyl Acetate	0.364	0.910	2.275	4.55	22.75	45.5	91
Methylcyclohexane	0.428	1.070	2.675	5.35	26.75	53.5	107
Chlorotrifluoroethene	0.420	1.050	2.625	5.25	26.25	52.5	105

Calibration Status Report MS09

Method : I:\MS09\Methods\C9102318.M (RTE Integrator)
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration

10/31/18

#	ID	Conc	ISTD Conc	Path\File
1	0.40	0	13	I:\MS09\Data\2018_10\23\10231804.D
2	1.0	1	13	I:\MS09\Data\2018_10\23\10231805.D
3	2.5	3	13	I:\MS09\Data\2018_10\23\10231806.D
4	5.0	6	13	I:\MS09\Data\2018_10\23\10231807.D
5	25	28	13	I:\MS09\Data\2018_10\23\10231808.D
6	50	55	13	I:\MS09\Data\2018_10\23\10231809.D
7	100	110	13	I:\MS09\Data\2018_10\23\10231810.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.40	Oct 24 09:42 2018	Oct 24 09:29 2018	23 Oct 2018 18:44
2	1.0	Oct 24 09:43 2018	Oct 24 09:28 2018	23 Oct 2018 19:18
3	2.5	Oct 24 09:43 2018	Oct 24 09:27 2018	23 Oct 2018 19:52
4	5.0	Oct 24 09:43 2018	Oct 24 09:26 2018	23 Oct 2018 20:26
5	25	Oct 24 09:44 2018	Oct 24 09:25 2018	23 Oct 2018 21:00
6	50	Oct 24 09:44 2018	Oct 24 09:30 2018	23 Oct 2018 21:34
7	100	Oct 24 09:44 2018	Oct 24 09:31 2018	23 Oct 2018 22:08

C9102318.M Wed Oct 31 11:18:10 2018

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231804.D
Acq On : 23 Oct 2018 18:44 Operator: SC
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:29:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

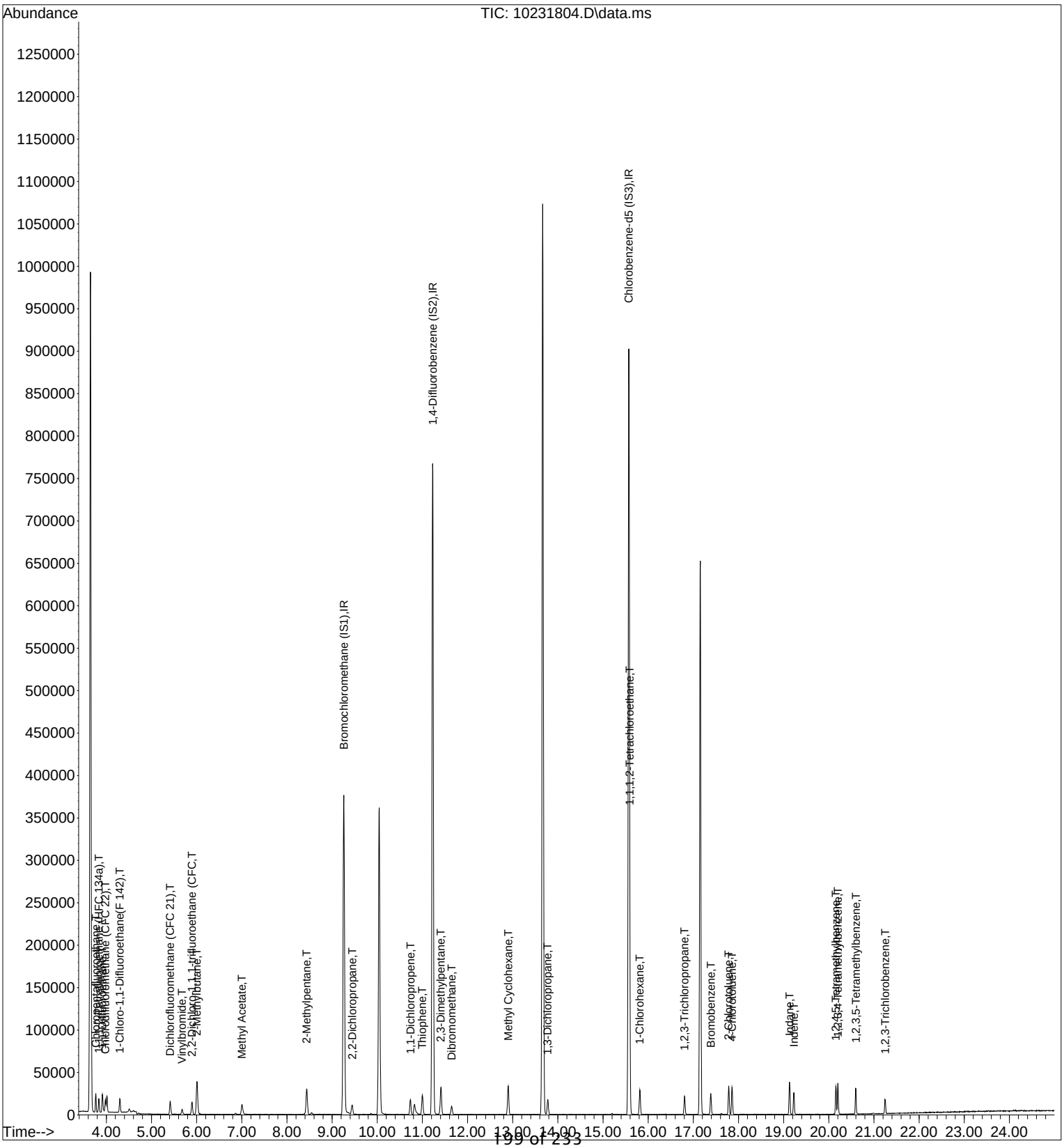
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	132679	12.500	ng	-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	650208	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	369977	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.77	85	8742	0.482	ng	98
3) 1,1,1,2-Tetrafluoroeth...	3.84	83	6098	0.477	ng	100
4) 1,1-Difluoroethane	3.91	65	7580	0.504	ng	100
5) Chlorodifluoromethane ...	3.98	67	2062	0.524	ng	88
6) 1-Chloro-1,1-Difluoroe...	4.30	65	13675	0.541	ng	98
7) Dichlorofluoromethane ...	5.41	67	16708	0.565	ng	99
8) Vinylbromide	5.68	108	5027	0.387	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	10564	0.488	ng	100
10) 2-Methylbutane	6.01	57	8725	0.526	ng	90
11) Methyl Acetate	7.00	43	20347	0.596	ng	98
12) 2-Methylpentane	8.44	71	7545	0.494	ng	92
13) 2,2-Dichloropropane	9.45	77	8318	0.383	ng	97
14) 1,1-Dichloropropene	10.74	75	10679	0.504	ng	100
15) Thiophene	11.00	84	15875	0.453	ng	98
17) 2,3-Dimethylpentane	11.41	56	16433	0.529	ng	98
18) Dibromomethane	11.65	174	3880	0.349	ng	98
20) Methyl Cyclohexane	12.90	55	13162	0.461	ng	96
21) 1,3-Dichloropropane	13.77	76	12236	0.419	ng	97
22) 1,1,1,2-Tetrachloroethane	15.59	131	4611	0.282	ng	99
23) 1-Chlorohexane	15.81	91	9626	0.346	ng	94
24) 1,2,3-Trichloropropane	16.80	75	11987	0.429	ng	98
25) Bromobenzene	17.39	77	14188	0.420	ng	99
26) 2-Chlorotoluene	17.78	91	21676	0.383	ng	99
27) 4-Chlorotoluene	17.86	91	21773	0.365	ng	98
28) Indane	19.13	117	19945	0.295	ng	96
29) Indene	19.23	115	14457	0.241	ng	99
30) 1,2,4,5-Tetramethylben...	20.16	119	17018	0.252	ng	97
31) 1,2,3,4-Tetramethylben...	20.20	119	20082	0.284	ng	97
32) 1,2,3,5-Tetramethylben...	20.60	119	17693	0.275	ng	97
33) 1,2,3-Trichlorobenzene	21.25	180	5415	0.226	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231804.D
Acq On : 23 Oct 2018 18:44 Operator: SC
Sample : 0.4ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:29:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231805.D
Acq On : 23 Oct 2018 19:18 Operator: SC
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:28:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

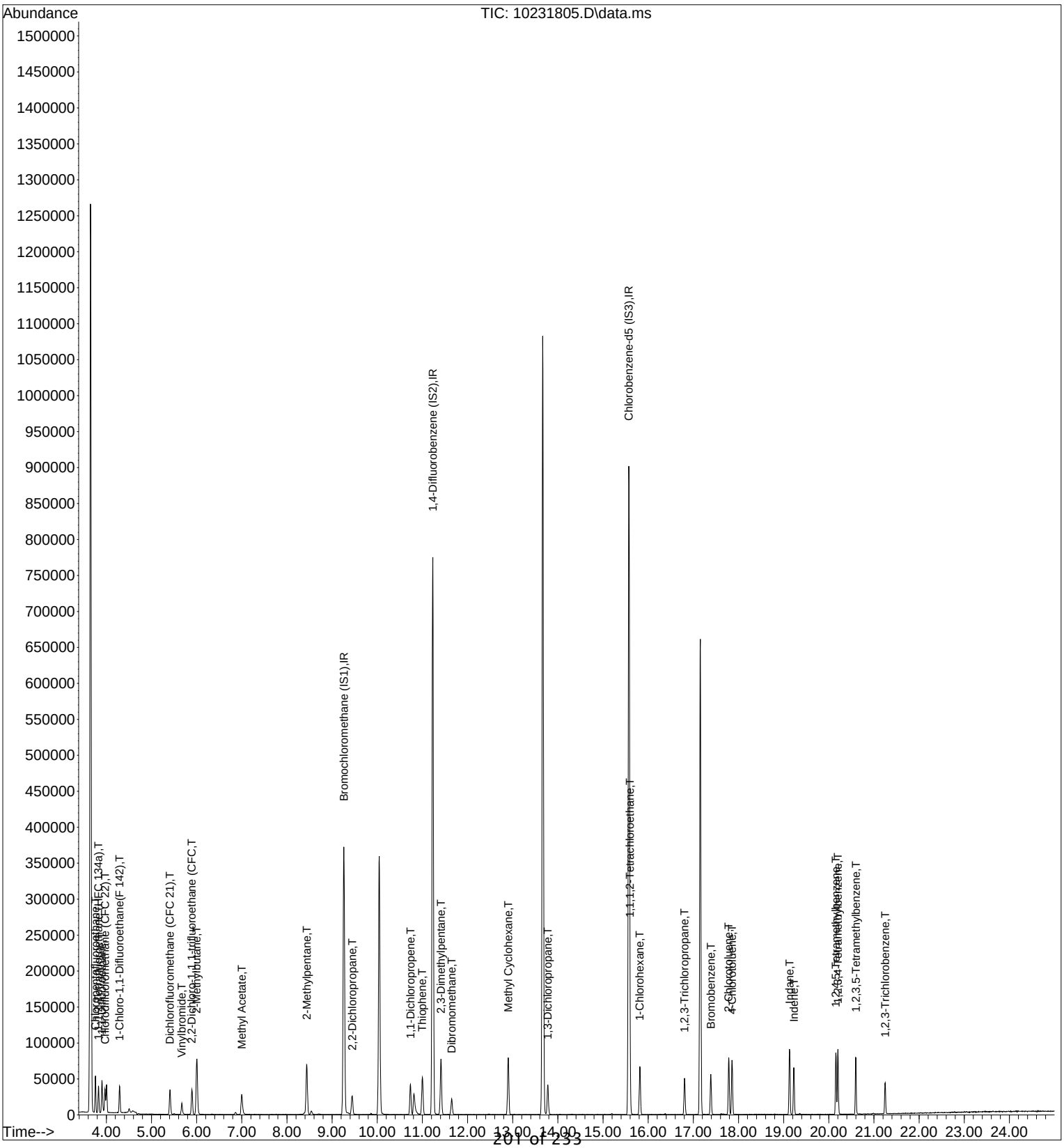
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	132281	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	655547	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	371698	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.76	85	20311	1.124	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.83	83	14107	1.108	ng		98
4) 1,1-Difluoroethane	3.90	65	17412	1.161	ng		96
5) Chlorodifluoromethane ...	3.97	67	4745	1.209	ng		91
6) 1-Chloro-1,1-Difluoroe...	4.29	65	30759	1.221	ng		99
7) Dichlorofluoromethane ...	5.41	67	38791	1.315	ng		99
8) Vinylbromide	5.67	108	11536	0.890	ng		97
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	23621	1.094	ng		99
10) 2-Methylbutane	6.00	57	19911	1.204	ng		94
11) Methyl Acetate	7.00	43	47623	1.400	ng	#	97
12) 2-Methylpentane	8.44	71	17433	1.145	ng		91
13) 2,2-Dichloropropane	9.45	77	18551	0.858	ng		99
14) 1,1-Dichloropropene	10.74	75	24389	1.154	ng		100
15) Thiophene	11.00	84	36727	1.052	ng		99
17) 2,3-Dimethylpentane	11.41	56	37348	1.192	ng		97
18) Dibromomethane	11.65	174	8795	0.785	ng		99
20) Methyl Cyclohexane	12.90	55	31343	1.093	ng		97
21) 1,3-Dichloropropane	13.78	76	29025	0.990	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	10871	0.662	ng		97
23) 1-Chlorohexane	15.81	91	22982	0.822	ng		98
24) 1,2,3-Trichloropropane	16.80	75	26861	0.957	ng		99
25) Bromobenzene	17.39	77	32263	0.950	ng		100
26) 2-Chlorotoluene	17.78	91	50670	0.891	ng		100
27) 4-Chlorotoluene	17.86	91	51534	0.859	ng		99
28) Indane	19.13	117	47921	0.706	ng		97
29) Indene	19.23	115	36258	0.601	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	44152	0.652	ng		98
31) 1,2,3,4-Tetramethylben...	20.20	119	49478	0.697	ng		99
32) 1,2,3,5-Tetramethylben...	20.60	119	43478	0.674	ng		97
33) 1,2,3-Trichlorobenzene	21.25	180	12353	0.512	ng		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231805.D
Acq On : 23 Oct 2018 19:18 Operator: SC
Sample : 1.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:28:47 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231806.D
Acq On : 23 Oct 2018 19:52 Operator: SC
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:27:18 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

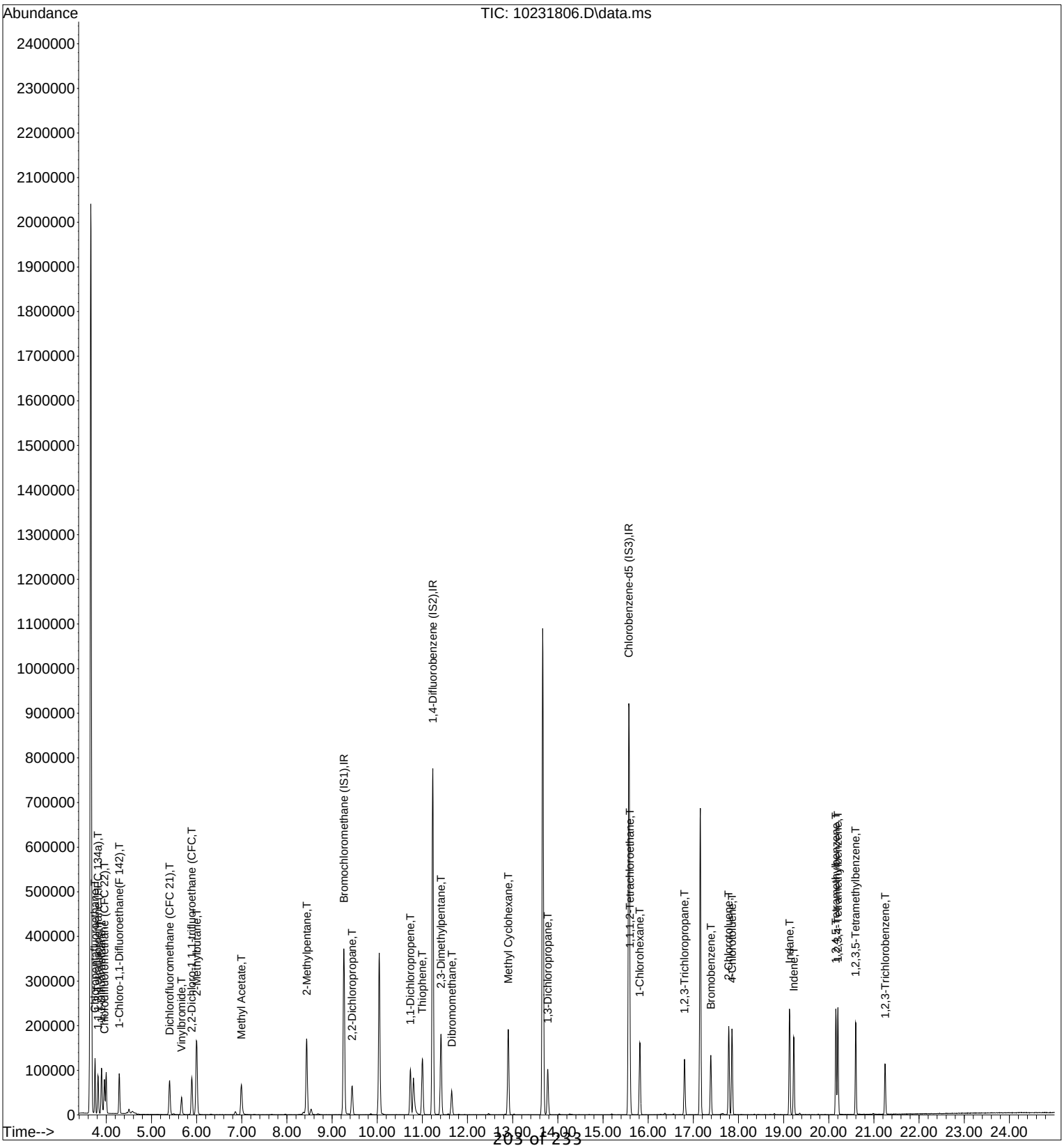
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.26	130	133331	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	658789	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	379446	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.75	85	47609	2.613	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	33557	2.615	ng		99
4) 1,1-Difluoroethane	3.89	65	41207	2.727	ng		97
5) Chlorodifluoromethane ...	3.96	67	11467	2.899	ng		96
6) 1-Chloro-1,1-Difluoroe...	4.29	65	74290	2.925	ng		99
7) Dichlorofluoromethane ...	5.40	67	90623	3.049	ng		100
8) Vinylbromide	5.67	108	28783	2.204	ng		99
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	56899	2.616	ng		100
10) 2-Methylbutane	6.00	57	45610	2.737	ng		93
11) Methyl Acetate	6.99	43	114529	3.340	ng	#	97
12) 2-Methylpentane	8.44	71	42348	2.758	ng		92
13) 2,2-Dichloropropane	9.44	77	45522	2.088	ng		99
14) 1,1-Dichloropropene	10.73	75	59552	2.797	ng		100
15) Thiophene	11.00	84	89602	2.546	ng		99
17) 2,3-Dimethylpentane	11.41	56	90802	2.884	ng		99
18) Dibromomethane	11.65	174	21116	1.876	ng		98
20) Methyl Cyclohexane	12.90	55	75895	2.591	ng		99
21) 1,3-Dichloropropane	13.78	76	69318	2.317	ng		99
22) 1,1,1,2-Tetrachloroethane	15.60	131	26860	1.603	ng		100
23) 1-Chlorohexane	15.81	91	56413	1.977	ng		99
24) 1,2,3-Trichloropropane	16.80	75	65848	2.299	ng		99
25) Bromobenzene	17.39	77	77881	2.247	ng		99
26) 2-Chlorotoluene	17.78	91	127929	2.205	ng		98
27) 4-Chlorotoluene	17.86	91	127182	2.077	ng		100
28) Indane	19.13	117	124893	1.803	ng		98
29) Indene	19.22	115	96299	1.564	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	117537	1.700	ng		100
31) 1,2,3,4-Tetramethylben...	20.20	119	128854	1.777	ng		98
32) 1,2,3,5-Tetramethylben...	20.59	119	113141	1.718	ng		98
33) 1,2,3-Trichlorobenzene	21.25	180	31953	1.298	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231806.D
Acq On : 23 Oct 2018 19:52 Operator: SC
Sample : 2.5ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:27:18 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231807.D
Acq On : 23 Oct 2018 20:26 Operator: SC
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:26:37 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

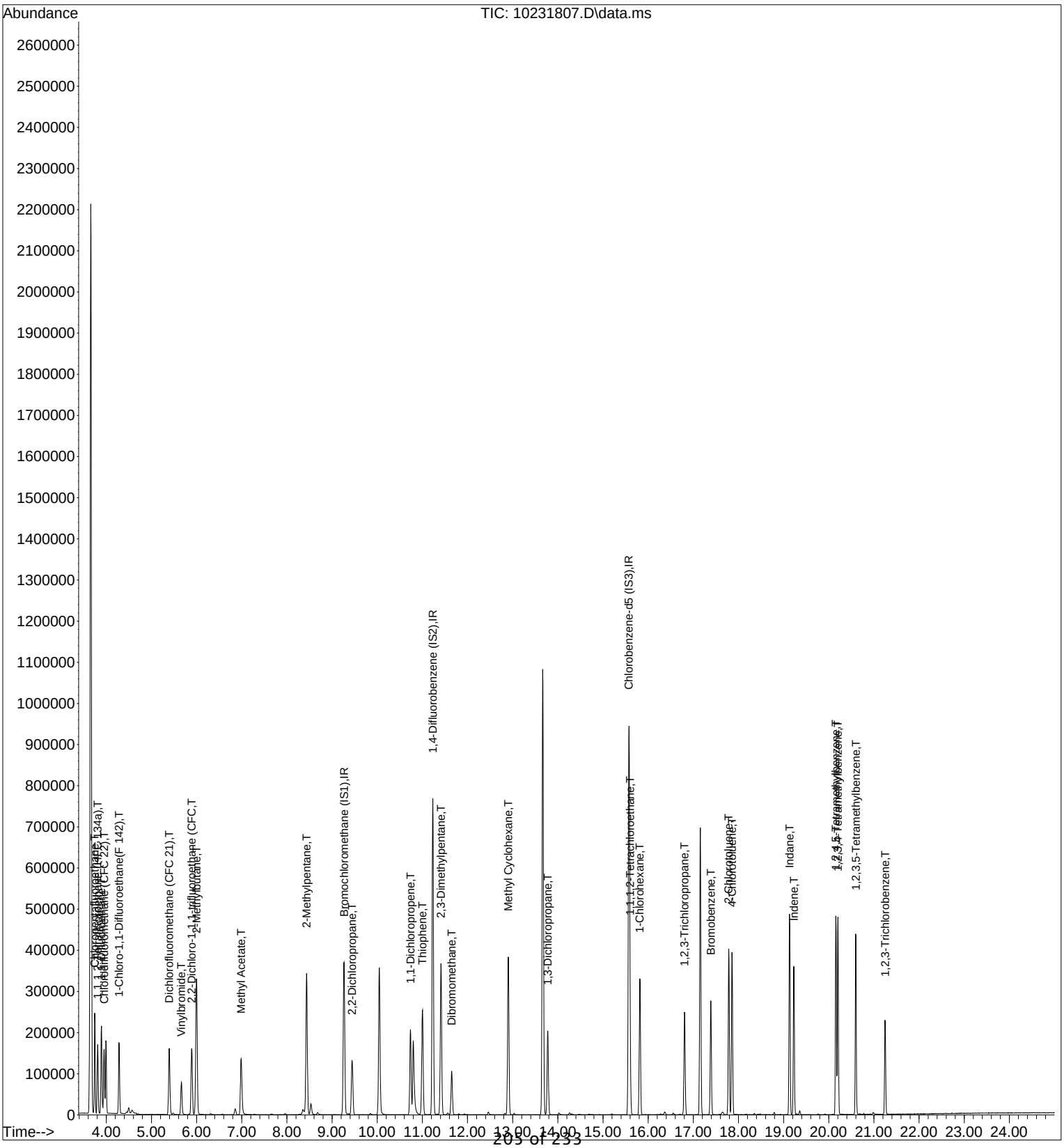
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	133127	12.500	ng		0.00
16) 1,4-Difluorobenzene (IS2)	11.23	114	652699	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.57	82	380766	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	95074	5.226	ng		100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	66399	5.181	ng		100
4) 1,1-Difluoroethane	3.89	65	82845	5.491	ng		97
5) Chlorodifluoromethane ...	3.95	67	22272	5.639	ng		89
6) 1-Chloro-1,1-Difluoroe...	4.28	65	147643	5.821	ng		100
7) Dichlorofluoromethane ...	5.39	67	184668	6.222	ng		99
8) Vinylbromide	5.66	108	57915	4.441	ng		99
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	114514	5.272	ng		99
10) 2-Methylbutane	6.00	57	95570	5.744	ng		96
11) Methyl Acetate	6.99	43	234688	6.855	ng	#	98
12) 2-Methylpentane	8.44	71	86145	5.620	ng		97
13) 2,2-Dichloropropane	9.44	77	95695	4.396	ng		100
14) 1,1-Dichloropropene	10.74	75	121381	5.709	ng		99
15) Thiophene	11.00	84	179877	5.119	ng		99
17) 2,3-Dimethylpentane	11.41	56	181837	5.829	ng		100
18) Dibromomethane	11.65	174	41901	3.757	ng		99
20) Methyl Cyclohexane	12.90	55	153335	5.217	ng		99
21) 1,3-Dichloropropane	13.78	76	138480	4.613	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	53357	3.172	ng		100
23) 1-Chlorohexane	15.81	91	116289	4.061	ng		100
24) 1,2,3-Trichloropropane	16.80	75	133417	4.642	ng		99
25) Bromobenzene	17.39	77	158120	4.547	ng		99
26) 2-Chlorotoluene	17.78	91	259417	4.455	ng		99
27) 4-Chlorotoluene	17.86	91	260570	4.242	ng		99
28) Indane	19.13	117	257643	3.707	ng		99
29) Indene	19.23	115	198584	3.213	ng		100
30) 1,2,4,5-Tetramethylben...	20.16	119	246323	3.551	ng		99
31) 1,2,3,4-Tetramethylben...	20.20	119	262276	3.604	ng		98
32) 1,2,3,5-Tetramethylben...	20.60	119	236971	3.585	ng		97
33) 1,2,3-Trichlorobenzene	21.25	180	64369	2.606	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231807.D
Acq On : 23 Oct 2018 20:26 Operator: SC
Sample : 5.0ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10191807 (11/17
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 09:26:37 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231808.D
Acq On : 23 Oct 2018 21:00 Operator: SC
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:25:30 2018 10/24/18
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 11:21:43 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

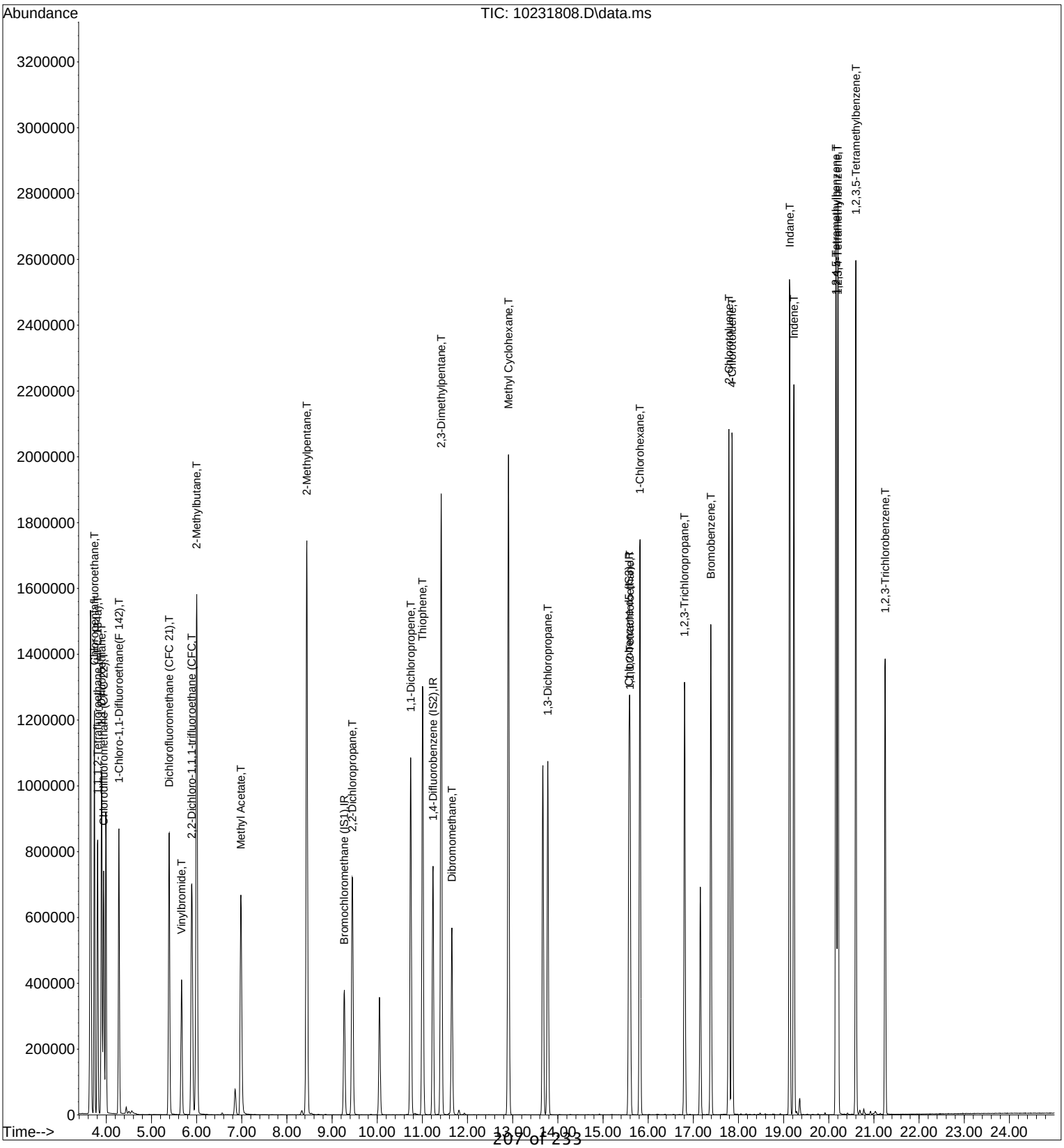
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	133401	12.500	ng		-0.02
16) 1,4-Difluorobenzene (IS2)	11.24	114	642214	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.58	82	390117	12.500	ng		-0.01
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	493116	27.050	ng		93
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	345367	26.894	ng		99
4) 1,1-Difluoroethane	3.90	65	435865	28.830	ng		83
5) Chlorodifluoromethane ...	3.94	67	116330	29.391	ng		97
6) 1-Chloro-1,1-Difluoroe...	4.28	65	757249	29.796	ng		97
7) Dichlorofluoromethane ...	5.39	67	944143	31.746	ng		100
8) Vinylbromide	5.67	108	313374	23.982	ng		98
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	599574	27.547	ng		100
10) 2-Methylbutane	6.00	57	502169	30.118	ng	#	82
11) Methyl Acetate	6.98	43	1197048	34.893	ng		93
12) 2-Methylpentane	8.44	71	457133	29.760	ng	#	67
13) 2,2-Dichloropropane	9.45	77	553568	25.379	ng		97
14) 1,1-Dichloropropene	10.74	75	646609	30.349	ng		90
15) Thiophene	11.00	84	940085	26.697	ng	#	86
17) 2,3-Dimethylpentane	11.42	56	953899	31.079	ng		92
18) Dibromomethane	11.65	174	220265	20.071	ng	#	65
20) Methyl Cyclohexane	12.91	55	805871	26.764	ng	#	83
21) 1,3-Dichloropropane	13.78	76	729148	23.707	ng		90
22) 1,1,1,2-Tetrachloroethane	15.60	131	293566	17.036	ng		99
23) 1-Chlorohexane	15.82	91	621920	21.199	ng	#	81
24) 1,2,3-Trichloropropane	16.80	75	704251	23.918	ng		92
25) Bromobenzene	17.39	77	849971	23.856	ng	#	76
26) 2-Chlorotoluene	17.79	91	1381607	23.159	ng		92
27) 4-Chlorotoluene	17.86	91	1402747	22.287	ng		91
28) Indane	19.14	117	1395187	19.594	ng		99
29) Indene	19.23	115	1184060	18.700	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	1467251	20.644	ng		95
31) 1,2,3,4-Tetramethylben...	20.20	119	1436188	19.264	ng		94
32) 1,2,3,5-Tetramethylben...	20.60	119	1384222	20.440	ng		95
33) 1,2,3-Trichlorobenzene	21.25	180	400415	15.822	ng		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231808.D
Acq On : 23 Oct 2018 21:00 Operator: SC
Sample : 25ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:25:30 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Mon Jul 09 11:21:43 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231809.D
Acq On : 23 Oct 2018 21:34 Operator: SC
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:30:36 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

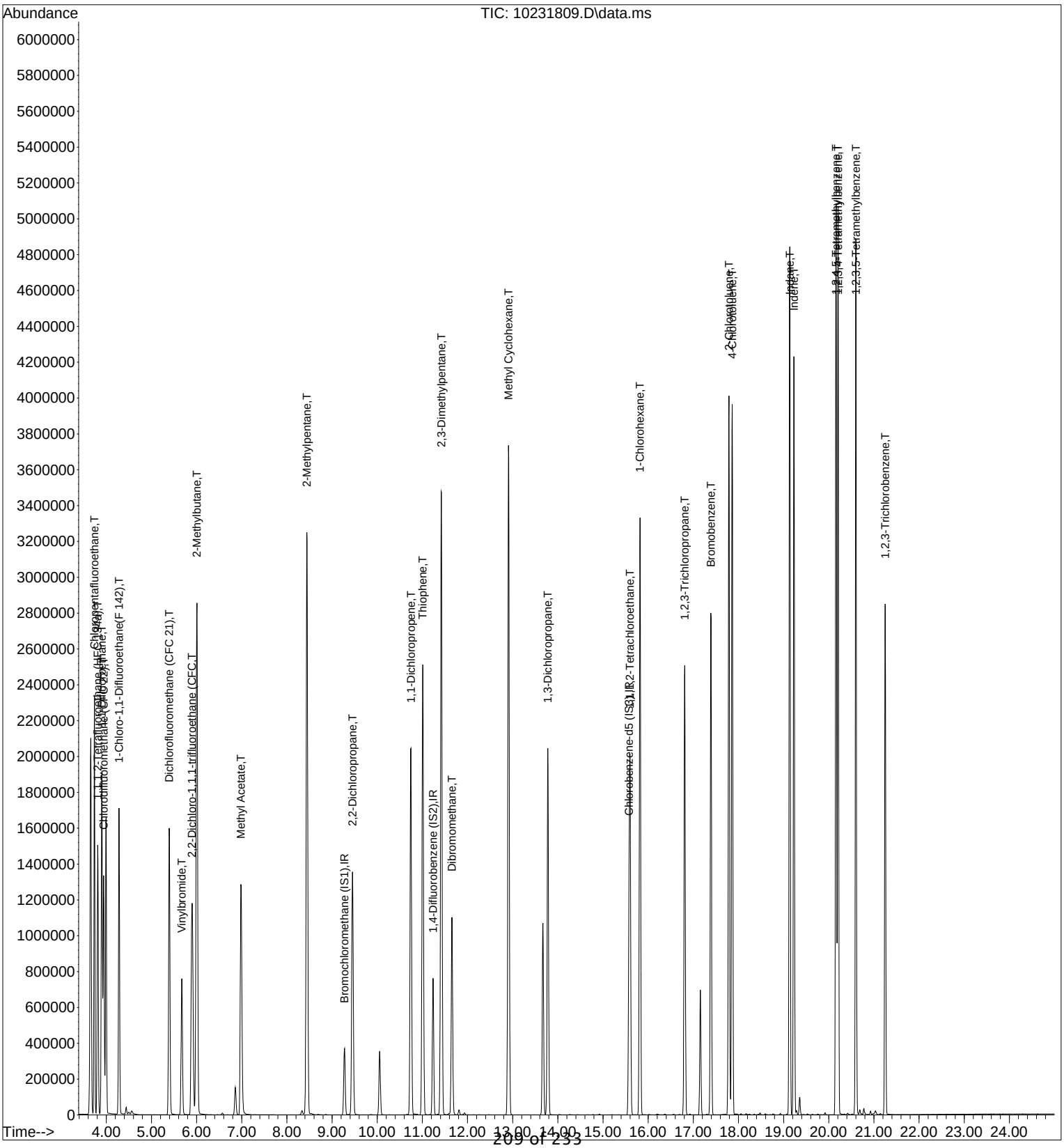
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	131508	12.500	ng	0.00
16) 1,4-Difluorobenzene (IS2)	11.24	114	644300	12.500	ng	0.00
19) Chlorobenzene-d5 (IS3)	15.58	82	407608	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.74	85	946115	52.646	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.81	83	667428	52.722	ng	100
4) 1,1-Difluoroethane	3.90	65	839679	56.340	ng	98
5) Chlorodifluoromethane ...	3.94	67	225016	57.670	ng	98
6) 1-Chloro-1,1-Difluoroe...	4.28	65	1451786	57.947	ng	100
7) Dichlorofluoromethane ...	5.39	67	1806173	61.605	ng	100
8) Vinylbromide	5.67	108	606204	47.060	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	1164697	54.281	ng	99
10) 2-Methylbutane	6.01	57	954454	58.067	ng	99
11) Methyl Acetate	6.98	43	2297173	67.925	ng	100
12) 2-Methylpentane	8.44	71	878848	58.038	ng	98
13) 2,2-Dichloropropane	9.45	77	1031452	47.970	ng	100
14) 1,1-Dichloropropene	10.75	75	1246052	59.327	ng	100
15) Thiophene	11.01	84	1809471	52.127	ng	100
17) 2,3-Dimethylpentane	11.42	56	1801749	58.513	ng	99
18) Dibromomethane	11.65	174	430390	39.091	ng	100
20) Methyl Cyclohexane	12.91	55	1527627	48.557	ng	99
21) 1,3-Dichloropropane	13.78	76	1388978	43.222	ng	100
22) 1,1,1,2-Tetrachloroethane	15.60	131	570832	31.704	ng	100
23) 1-Chlorohexane	15.82	91	1195538	39.002	ng	99
24) 1,2,3-Trichloropropane	16.81	75	1356560	44.094	ng	100
25) Bromobenzene	17.39	77	1642329	44.117	ng	100
26) 2-Chlorotoluene	17.79	91	2650086	42.516	ng	100
27) 4-Chlorotoluene	17.86	91	2673557	40.654	ng	99
28) Indane	19.14	117	2658536	35.733	ng	99
29) Indene	19.23	115	2292574	34.654	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	2766119	37.249	ng	99
31) 1,2,3,4-Tetramethylben...	20.21	119	2757337	35.398	ng	99
32) 1,2,3,5-Tetramethylben...	20.60	119	2655709	37.533	ng	100
33) 1,2,3-Trichlorobenzene	21.25	180	806974	30.518	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231809.D
Acq On : 23 Oct 2018 21:34 Operator: SC
Sample : 50ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:30:36 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231810.D
Acq On : 23 Oct 2018 22:08 Operator: SC
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:31:15 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

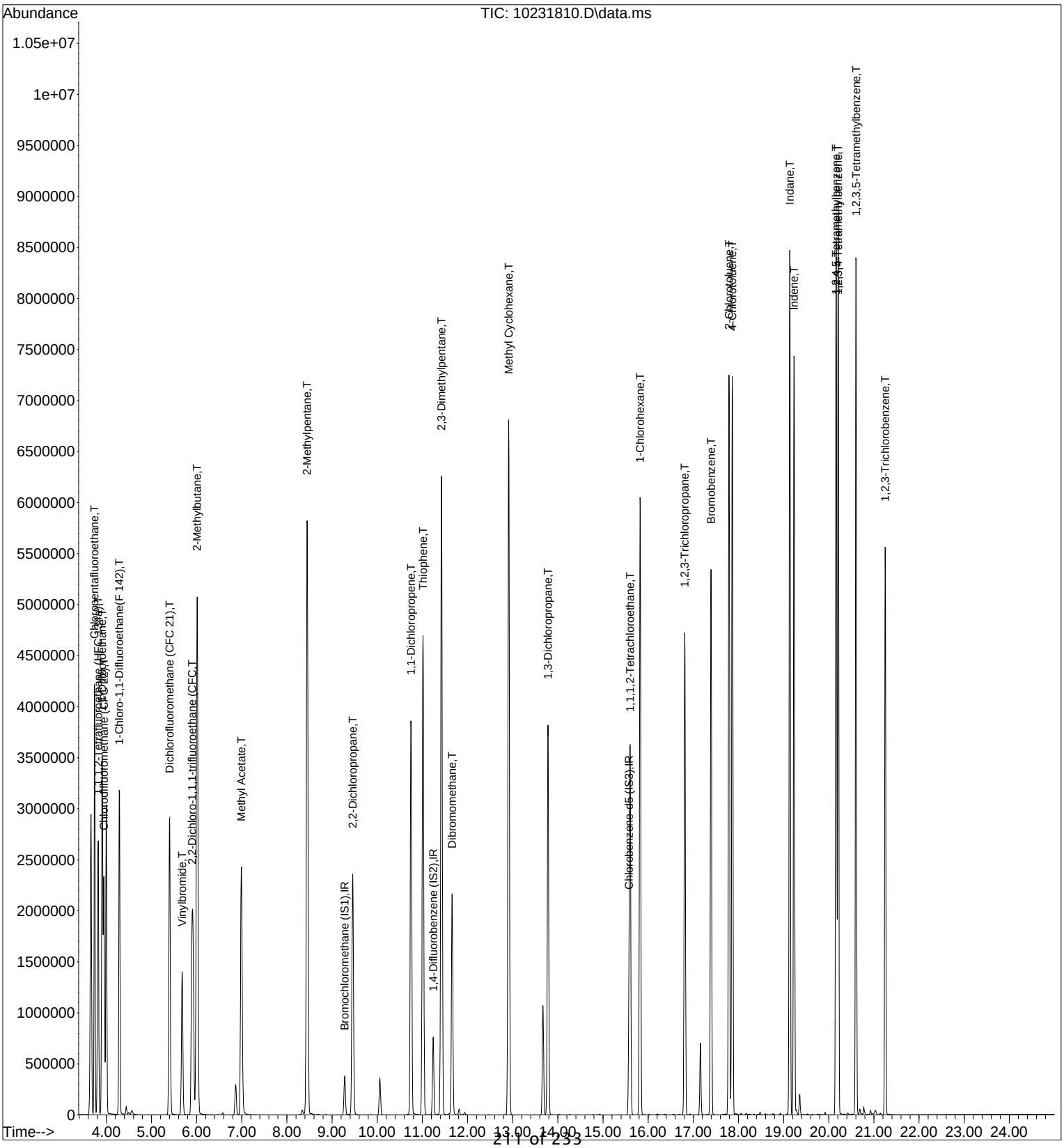
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.28	130	134325	12.500	ng		0.01
16) 1,4-Difluorobenzene (IS2)	11.24	114	650989	12.500	ng		0.00
19) Chlorobenzene-d5 (IS3)	15.58	82	439894	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.74	85	1820419	99.173	ng		99
3) 1,1,1,2-Tetrafluoroeth...	3.82	83	1289913	99.757	ng		100
4) 1,1-Difluoroethane	3.91	65	1602441	105.265	ng	#	1
5) Chlorodifluoromethane ...	3.95	67	442327	110.987	ng	#	1
6) 1-Chloro-1,1-Difluoroe...	4.29	65	2863250	111.888	ng		100
7) Dichlorofluoromethane ...	5.40	67	3451832	115.267	ng		99
8) Vinylbromide	5.68	108	1173417	89.183	ng		100
9) 2,2-Dichloro-1,1,1-tri...	5.90	83	2272428	103.686	ng		100
10) 2-Methylbutane	6.01	57	1774623	105.701	ng		94
11) Methyl Acetate	6.99	43	4395184	127.235	ng		99
12) 2-Methylpentane	8.45	71	1660308	107.346	ng		96
13) 2,2-Dichloropropane	9.46	77	1840311	83.793	ng		100
14) 1,1-Dichloropropene	10.75	75	2395086	111.642	ng		99
15) Thiophene	11.01	84	3465892	97.751	ng		100
17) 2,3-Dimethylpentane	11.42	56	3339394	107.335	ng		99
18) Dibromomethane	11.66	174	852257	76.612	ng		99
20) Methyl Cyclohexane	12.91	55	2835620	83.517	ng		98
21) 1,3-Dichloropropane	13.78	76	2647640	76.342	ng		100
22) 1,1,1,2-Tetrachloroethane	15.60	131	1115922	57.430	ng		99
23) 1-Chlorohexane	15.82	91	2268371	68.570	ng		98
24) 1,2,3-Trichloropropane	16.81	75	2574631	77.545	ng		99
25) Bromobenzene	17.39	77	3123413	77.745	ng		98
26) 2-Chlorotoluene	17.79	91	4914746	73.062	ng		98
27) 4-Chlorotoluene	17.86	91	4981814	70.194	ng		98
28) Indane	19.14	117	4868257	60.632	ng		99
29) Indene	19.23	115	4302542	60.263	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	5145828	64.209	ng		98
31) 1,2,3,4-Tetramethylben...	20.21	119	4874872	57.988	ng		97
32) 1,2,3,5-Tetramethylben...	20.61	119	4843797	63.433	ng		98
33) 1,2,3-Trichlorobenzene	21.25	180	1600569	56.087	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231810.D
Acq On : 23 Oct 2018 22:08 Operator: SC
Sample : 100ng TO-15 Custom ICAL STD
Misc : S31-10151806/S31-10221804 (11/20
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 24 09:31:15 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:26:22 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231812.D
Acq On : 23 Oct 2018 23:16 Operator: SC
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-10151806/S31-10201801 (11/18
ALS Vial : 5 Sample Multiplier: 1

10/24/18

Quant Time: Oct 24 09:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

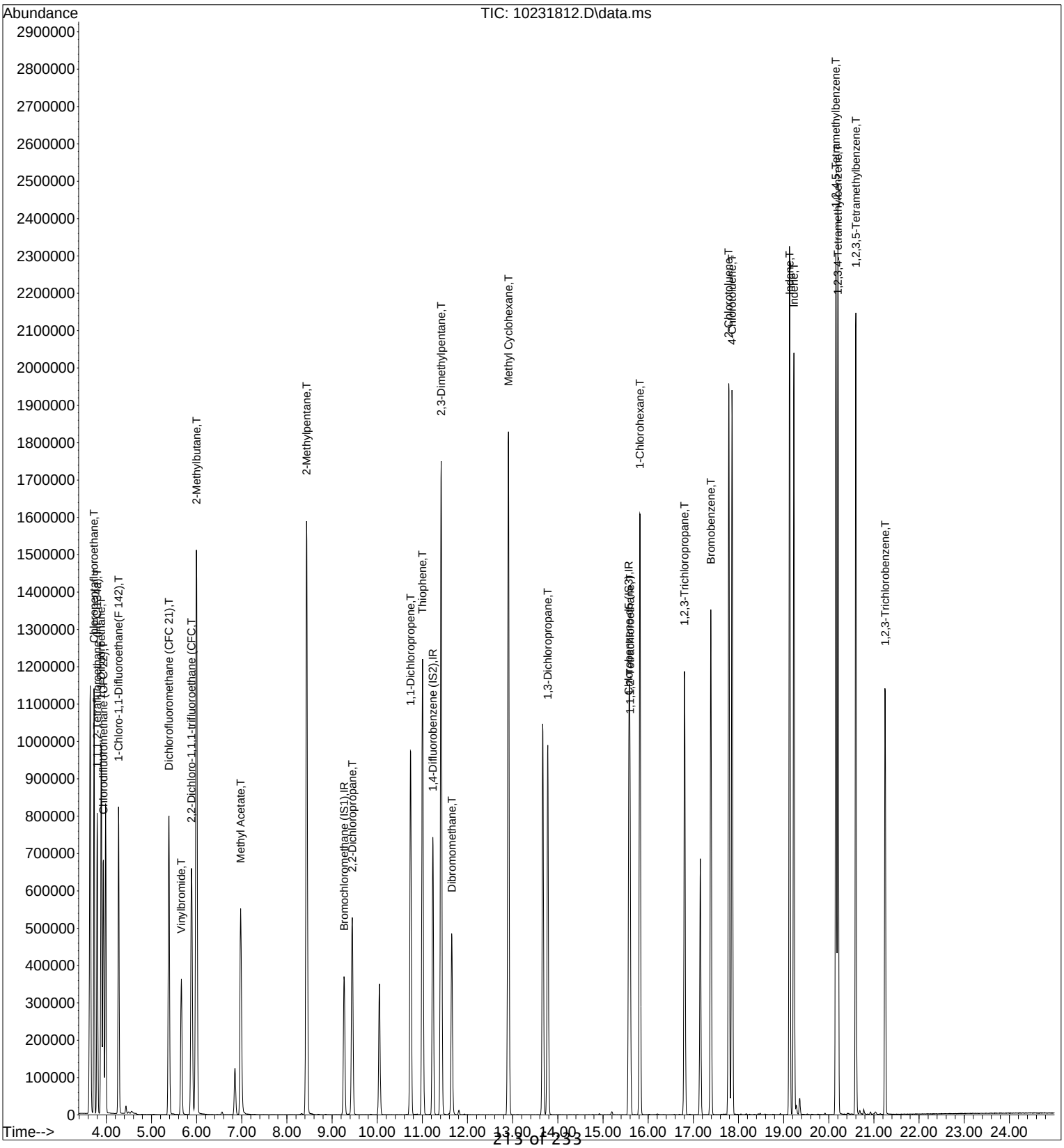
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	130005	12.500	ng	-0.02
16) 1,4-Difluorobenzene (IS2)	11.23	114	632405	12.500	ng	-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	380945	12.500	ng	0.00
Target Compounds						Qvalue
2) Chloropentafluoroethane	3.73	85	460404	26.444	ng	100
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	320439	23.862	ng	99
4) 1,1-Difluoroethane	3.89	65	403743	25.114	ng	96
5) Chlorodifluoromethane ...	3.94	67	107461	24.600	ng	92
6) 1-Chloro-1,1-Difluoroe...	4.27	65	707000	24.331	ng	100
7) Dichlorofluoromethane ...	5.39	67	882216	24.087	ng	100
8) Vinylbromide	5.66	108	280830	23.807	ng	100
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	544042	24.677	ng	100
10) 2-Methylbutane	6.00	57	472776	25.128	ng	94
11) Methyl Acetate	6.98	43	988578	21.936	ng	100
12) 2-Methylpentane	8.44	71	414514	23.894	ng	99
13) 2,2-Dichloropropane	9.45	77	399628	20.747	ng	100
14) 1,1-Dichloropropene	10.74	75	589648	24.753	ng	100
15) Thiophene	11.00	84	866617	23.924	ng	100
17) 2,3-Dimethylpentane	11.42	56	882816	25.065	ng	100
18) Dibromomethane	11.65	174	190048	23.456	ng	99
20) Methyl Cyclohexane	12.91	55	737907	25.857	ng	100
21) 1,3-Dichloropropane	13.78	76	670649	25.629	ng	99
22) 1,1,1,2-Tetrachloroethane	15.60	131	239403	20.653	ng	100
23) 1-Chlorohexane	15.82	91	574616	25.556	ng	100
24) 1,2,3-Trichloropropane	16.80	75	643386	24.848	ng	99
25) Bromobenzene	17.39	77	774782	25.243	ng	100
26) 2-Chlorotoluene	17.78	91	1296166	27.189	ng	100
27) 4-Chlorotoluene	17.86	91	1294609	25.930	ng	100
28) Indane	19.13	117	1272507	25.304	ng	100
29) Indene	19.23	115	1092697	25.757	ng	100
30) 1,2,4,5-Tetramethylben...	20.16	119	1263507	25.038	ng	100
31) 1,2,3,4-Tetramethylben...	20.20	119	1248202	23.040	ng	100
32) 1,2,3,5-Tetramethylben...	20.60	119	1168932	23.655	ng	99
33) 1,2,3-Trichlorobenzene	21.25	180	320863	21.326	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\23\10231812.D
Acq On : 23 Oct 2018 23:16 Operator: SC
Sample : 25ng TO-15 Custom ICV STD
Misc : S31-10151806/S31-10201801 (11/18
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 24 09:47:34 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



LABORATORY CONTROL SAMPLE CHECK SHEET

10/24/18

Data File Name: **10231812.D**
Data File Path: **I:\MS09\Data\2018_10\23**
Operator: **SC**
Date Acquired: **10/23/18** **23:16**

Acq. Method File: **TO15.M**
Sample Name: **25ng TO-15 Custom I**
Misc Info: **S31-10151806/S31-10**
Instrument Name: **MS09**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	AZ Check 70-130%
2)	**Chloropentafluoroethane**	3.73	26.4	27.00	98	70	130	*
3)	**1,1,1,2-Tetrafluoroethane (HFC 1**	3.80	23.9	27.00	89	70	130	*
4)	**1,1-Difluoroethane**	3.89	25.1	26.00	97	70	130	*
5)	**Chlorodifluoromethane (CFC 22)**	3.94	24.6	27.00	91	70	130	*
6)	**1-Chloro-1,1-Difluoroethane(F 14**	4.27	24.3	26.25	93	70	130	*
7)	**Dichlorofluoromethane (CFC 21)**	5.39	24.1	25.75	94	70	130	*
8)	**Vinylbromide**	5.66	23.8	24.75	96	70	130	*
9)	**2,2-Dichloro-1,1,1-trifluoroethane**	5.89	24.7	26.50	93	70	130	*
10)	**2-Methylbutane**	6.00	25.1	27.50	91	70	130	*
11)	**Methyl Acetate**	6.98	21.9	23.25	94	70	130	*
12)	**2-Methylpentane**	8.44	23.9	24.75	97	70	130	*
13)	**2,2-Dichloropropane**	9.45	20.7	22.50	92	70	130	*
14)	**1,1-Dichloropropene**	10.74	24.8	25.50	97	70	130	*
15)	**Thiophene**	11.00	23.9	25.25	95	70	130	*
17)	**2,3-Dimethylpentane**	11.42	25.1	26.00	97	70	130	*
18)	**Dibromomethane**	11.65	23.5	25.50	92	70	130	*
20)	**Methyl Cyclohexane**	12.91	25.9	27.25	95	70	130	*
21)	**1,3-Dichloropropane**	13.78	25.6	26.50	97	70	130	*
22)	**1,1,1,2-Tetrachloroethane**	15.60	20.7	22.50	92	70	130	*
23)	**1-Chlorohexane**	15.82	25.6	26.00	98	70	130	*
24)	**1,2,3-Trichloropropane**	16.80	24.8	26.50	94	70	130	*
25)	**Bromobenzene**	17.39	25.2	26.75	94	70	130	*
26)	**2-Chlorotoluene**	17.78	27.2	27.50	99	70	130	*
27)	**4-Chlorotoluene**	17.86	25.9	26.50	98	70	130	*
28)	**Indane**	19.13	25.3	25.25	100	70	130	*
29)	**Indene**	19.23	25.8	24.25	106	70	130	*
30)	**1,2,4,5-Tetramethylbenzene**	20.16	25.0	25.25	99	70	130	*
31)	**1,2,3,4-Tetramethylbenzene**	20.20	23.0	25.00	92	70	130	*
32)	**1,2,3,5-Tetramethylbenzene**	20.60	23.7	24.75	96	70	130	*
33)	**1,2,3-Trichlorobenzene**	21.25	21.3	24.50	87	70	130	*

* = Pass

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\29\10291802.D
Acq On : 29 Oct 2018 5:14 Operator: WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:16:21 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

10/29/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	91	0.01
2	T	Propene	3.160	2.870	9.2	90	0.02
3	T	Dichlorodifluoromethane (CF	3.404	3.256	4.3	94	0.02
4	T	Chloromethane	4.130	4.099	0.8	98	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.197	1.122	6.3	92	0.02
6	T	Vinyl Chloride	3.224	3.052	5.3	88	0.00
7	T	1,3-Butadiene	2.137	1.874	12.3	80	0.00
8	T	Bromomethane	1.302	1.293	0.7	105	0.00
9	T	Chloroethane	1.445	1.568	-8.5	103	0.00
10	T	Ethanol	1.707	2.106	-23.4	99	-0.06
11	T	Acetonitrile	4.622	5.546	-20.0	94	-0.04
12	T	Acrolein	1.322	1.327	-0.4	90	-0.02
13	T	Acetone	1.764	1.793	-1.6	91	-0.04
14	T	Trichlorofluoromethane	2.438	2.440	-0.1	94	0.02
15	T	2-Propanol (Isopropanol)	5.493	7.003	-27.5	101	-0.04
16	T	Acrylonitrile	2.996	3.332	-11.2	94	-0.04
17	T	1,1-Dichloroethene	1.477	1.378	6.7	92	0.02
18	T	2-Methyl-2-Propanol (tert-B	4.805	5.677	-18.1	97	-0.03
19	T	Methylene Chloride	1.766	1.703	3.6	91	-0.01
20	T	3-Chloro-1-propene (Allyl C	3.231	3.602	-11.5	93	0.00
21	T	Trichlorotrifluoroethane	0.975	0.927	4.9	98	0.02
22	T	Carbon Disulfide	6.627	6.599	0.4	93	0.01
23	T	trans-1,2-Dichloroethene	2.929	3.151	-7.6	95	0.00
24	T	1,1-Dichloroethane	3.533	3.731	-5.6	95	0.00
25	T	Methyl tert-Butyl Ether	5.359	5.618	-4.8	94	0.02
26	T	Vinyl Acetate	0.291	0.341	-17.2	97	0.00
27	T	2-Butanone (MEK)	1.376	1.405	-2.1	97	0.01
28	T	cis-1,2-Dichloroethene	2.816	3.014	-7.0	106	0.01
29	T	Diisopropyl Ether	1.327	1.371	-3.3	96	0.03
30	T	Ethyl Acetate	0.729	0.833	-14.3	103	0.02
31	T	n-Hexane	3.350	4.081	-21.8	107	0.04
32	T	Chloroform	2.950	2.973	-0.8	103	0.01
33	S	1,2-Dichloroethane-d4(SS1)	2.168	2.626	-21.1	131	0.02
34	T	Tetrahydrofuran (THF)	1.323	1.331	-0.6	109	0.04
35	T	Ethyl tert-Butyl Ether	1.948	1.990	-2.2	102	0.03
36	T	1,2-Dichloroethane	2.344	2.625	-12.0	125	0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	102	0.00
38	T	1,1,1-Trichloroethane	0.473	0.444	6.1	101	0.00
39	T	Isopropyl Acetate	0.257	0.274	-6.6	113	0.00
40	T	1-Butanol	0.425	0.477	-12.2	122	-0.02
41	T	Benzene	1.522	1.406	7.6	103	0.00
42	T	Carbon Tetrachloride	0.368	0.347	5.7	101	0.00
43	T	Cyclohexane	0.541	0.512	5.4	101	0.00
44	T	tert-Amyl Methyl Ether	1.034	0.995	3.8	107	0.00
45	T	1,2-Dichloropropane	0.429	0.408	4.9	116	0.00
46	T	Bromodichloromethane	0.456	0.429	5.9	100	0.00
47	T	Trichloroethene	0.300	0.246	18.0	86	0.00
48	T	1,4-Dioxane	0.273	0.255	6.6	94	0.01
49	T	2,2,4-Trimethylpentane (Iso	1.873	1.890	-0.9	108	0.00
50	T	Methyl Methacrylate	0.117	0.109	6.8	91	0.00
51	T	n-Heptane	0.402	0.384	4.5	107	0.01
52	T	cis-1,3-Dichloropropene	0.578	0.575	0.5	108	0.01
53	T	4-Methyl-2-pentanone	0.380	0.410	-7.9	118	0.01
54	T	trans-1,3-Dichloropropene	0.506	0.524	-3.6	101	0.02

Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\29\10291802.D
Acq On : 29 Oct 2018 5:14 Operator: WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:16:21 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55	T	1,1,2-Trichloroethane	0.308	0.276	10.4	93	0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	106	0.00
57	S	Toluene-d8 (SS2)	2.184	2.123	2.8	103	0.00
58	T	Toluene	2.442	2.153	11.8	98	0.00
59	T	2-Hexanone	1.533	1.885	-23.0	137	0.00
60	T	Dibromochloromethane	0.521	0.450	13.6	91	0.00
61	T	1,2-Dibromoethane	0.558	0.484	13.3	94	0.00
62	T	n-Butyl Acetate	1.728	2.104	-21.8	139	0.00
63	T	n-Octane	0.606	0.648	-6.9	120	0.00
64	T	Tetrachloroethene	0.504	0.359	28.8	80	0.00
65	T	Chlorobenzene	1.416	1.178	16.8	90	0.00
66	T	Ethylbenzene	2.675	2.440	8.8	99	0.00
67	T	m- & p-Xylenes	2.055	1.872	8.9	100	0.00
68	T	Bromoform	0.363	0.299	17.6	83	0.00
69	T	Styrene	1.456	1.296	11.0	91	0.00
70	T	o-Xylene	2.006	1.903	5.1	101	0.00
71	T	n-Nonane	1.411	1.751	-24.1	134	0.00
72	T	1,1,2,2-Tetrachloroethane	0.988	0.966	2.2	103	0.00
73	S	Bromofluorobenzene (SS3)	0.491	0.426	13.2	91	0.00
74	T	Cumene	2.425	2.133	12.0	91	0.00
75	T	alpha-Pinene	1.310	1.196	8.7	89	0.00
76	T	n-Propylbenzene	3.013	2.877	4.5	94	0.00
77	T	3-Ethyltoluene	2.373	2.125	10.5	88	0.00
78	T	4-Ethyltoluene	2.206	2.079	5.8	96	0.00
79	T	1,3,5-Trimethylbenzene	1.953	1.795	8.1	93	0.00
80	T	alpha-Methylstyrene	0.968	0.829	14.4	85	0.00
81	T	2-Ethyltoluene	2.326	2.111	9.2	92	0.00
82	T	1,2,4-Trimethylbenzene	1.898	1.806	4.8	95	0.00
83	T	n-Decane	0.062	0.071	-14.5	120	0.00
84	T	Benzyl Chloride	1.686	1.710	-1.4	104	0.00
85	T	1,3-Dichlorobenzene	0.990	0.793	19.9	84	0.00
86	T	1,4-Dichlorobenzene	0.988	0.792	19.8	84	0.00
87	T	sec-Butylbenzene	2.655	2.403	9.5	94	0.00
88	T	4-Isopropyltoluene (p-Cymen	2.232	2.053	8.0	91	0.00
89	T	1,2,3-Trimethylbenzene	1.932	1.838	4.9	96	0.00
90	T	1,2-Dichlorobenzene	0.925	0.752	18.7	85	0.00
91	T	d-Limonene	0.983	0.998	-1.5	106	0.00
92	T	1,2-Dibromo-3-Chloropropane	0.297	0.252	15.2	83	0.00
93	T	n-Undecane	1.509	1.712	-13.5	119	0.00
94	T	1,2,4-Trichlorobenzene	0.588	0.450	23.5	80	0.00
95	T	Naphthalene	2.218	1.894	14.6	85	0.00
96	T	n-Dodecane	1.386	1.697	-22.4	125	0.00
97	T	Hexachlorobutadiene	0.368	0.271	26.4	78	0.00
98	T	Cyclohexanone	1.039	1.145	-10.2	125	0.00
99	T	tert-Butylbenzene	1.761	1.577	10.4	90	0.00
100	T	n-Butylbenzene	2.291	2.204	3.8	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291802.D
Acq On : 29 Oct 2018 5:14 Operator: WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:16:21 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WDA 10/29/18

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	119891	12.500	ng		0.01
37) 1,4-Difluorobenzene (IS2)	11.24	114	640730	12.500	ng		0.00
56) Chlorobenzene-d5 (IS3)	15.57	82	380543	12.500	ng		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4(...	10.05	65	314860	15.143	ng		0.02
Spiked Amount 12.500	Range 70 - 130		Recovery = 121.12%				
57) Toluene-d8 (SS2)	13.66	98	807827	12.151	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 97.20%				
73) Bromofluorobenzene (SS3)	17.16	174	162288	10.850	ng		0.00
Spiked Amount 12.500	Range 70 - 130		Recovery = 86.80%				
Target Compounds							Qvalue
2) Propene	3.97	42	141905	4.682	ng		98
3) Dichlorodifluoromethan...	4.08	85	163190	4.999	ng		99
4) Chloromethane	4.28	50	198151	5.002	ng		99
5) 1,2-Dichloro-1,1,2,2-t...	4.45	135	55304	4.815	ng		99
6) Vinyl Chloride	4.56	62	153813	4.974	ng		100
7) 1,3-Butadiene	4.74	54	94250	4.599	ng		95
8) Bromomethane	5.05	94	62573	5.011	ng		99
9) Chloroethane	5.27	64	76841	5.544	ng		100
10) Ethanol	5.50	45	519025	31.694	ng		99
11) Acetonitrile	5.69	41	274725	6.197	ng		99
12) Acrolein	5.82	56	65413	5.159	ng		99
13) Acetone	5.97	58	461814	27.291	ng	#	75
14) Trichlorofluoromethane	6.15	101	124056	5.305	ng		99
15) 2-Propanol (Isopropanol)	6.31	45	692874	13.152	ng		96
16) Acrylonitrile	6.50	53	165218	5.749	ng		99
17) 1,1-Dichloroethene	6.85	96	70982	5.011	ng	#	66
18) 2-Methyl-2-Propanol (t...	6.96	59	583739	12.665	ng		94
19) Methylene Chloride	7.00	84	87398	5.160	ng	#	64
20) 3-Chloro-1-propene (Al...	7.13	41	184318	5.948	ng		86
21) Trichlorotrifluoroethane	7.31	151	47368	5.067	ng	#	84
22) Carbon Disulfide	7.28	76	340197	5.352	ng		99
23) trans-1,2-Dichloroethene	8.02	61	160465	5.713	ng		84
24) 1,1-Dichloroethane	8.24	63	184276	5.439	ng		99
25) Methyl tert-Butyl Ether	8.31	73	293383	5.708	ng		97
26) Vinyl Acetate	8.41	86	85952	30.842	ng	#	62
27) 2-Butanone (MEK)	8.65	72	69214	5.244	ng	#	63
28) cis-1,2-Dichloroethene	9.11	61	152368	5.641	ng		88
29) Diisopropyl Ether	9.34	87	71056	5.584	ng	#	80
30) Ethyl Acetate	9.35	61	86492	12.376	ng		99
31) n-Hexane	9.35	57	211782	6.590	ng		99
32) Chloroform	9.42	83	153558	5.426	ng		99
34) Tetrahydrofuran (THF)	9.81	72	68154	5.372	ng		96
35) Ethyl tert-Butyl Ether	9.89	87	101178	5.414	ng		95
36) 1,2-Dichloroethane	10.16	62	133547	5.941	ng		99
38) 1,1,1-Trichloroethane	10.43	97	122924	5.072	ng		99
39) Isopropyl Acetate	10.79	61	144943	10.983	ng	#	85
40) 1-Butanol	10.80	56	252890	11.608	ng		91
41) Benzene	10.88	78	372195	4.770	ng		99
42) Carbon Tetrachloride	11.03	117	92146	4.882	ng		99
43) Cyclohexane	11.16	84	274037	9.885	ng		96
44) tert-Amyl Methyl Ether	11.48	73	273945	5.171	ng		96
45) 1,2-Dichloropropane	11.69	63	112232	5.106	ng		100
46) Bromodichloromethane	11.87	83	117434	5.023	ng		100
47) Trichloroethene	11.93	130	66848	4.352	ng		100
48) 1,4-Dioxane	11.91	88	69565	4.969	ng		95
49) 2,2,4-Trimethylpentane...	11.99	57	513977	5.355	ng		99

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291802.D
Acq On : 29 Oct 2018 5:14 Operator: WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:16:21 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

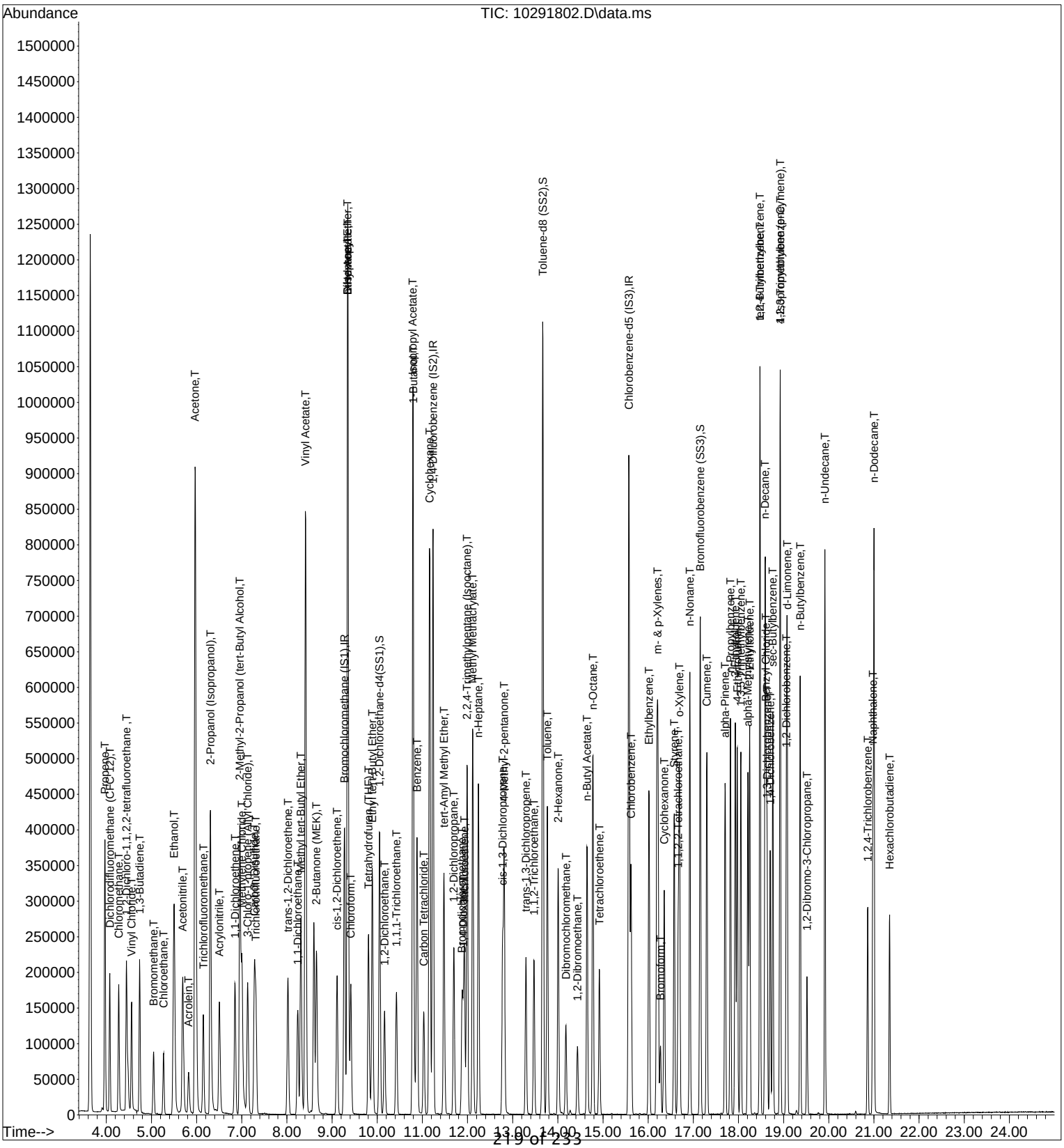
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
50) Methyl Methacrylate	12.11	100	59415	9.875	ng	#	90
51) n-Heptane	12.24	71	105960	5.138	ng		97
52) cis-1,3-Dichloropropene	12.78	75	165046	5.575	ng		98
53) 4-Methyl-2-pentanone	12.81	58	111397	5.723	ng		89
54) trans-1,3-Dichloropropene	13.29	75	141784	5.461	ng		98
55) 1,1,2-Trichloroethane	13.47	97	76235	4.824	ng		98
58) Toluene	13.77	91	344729	4.637	ng		98
59) 2-Hexanone	14.00	43	308185	6.602	ng		92
60) Dibromochloromethane	14.18	129	73681	4.643	ng		99
61) 1,2-Dibromoethane	14.43	107	79209	4.664	ng		100
62) n-Butyl Acetate	14.64	43	347462	6.604	ng		94
63) n-Octane	14.78	57	106061	5.745	ng		91
64) Tetrachloroethene	14.92	166	57825	3.767	ng		100
65) Chlorobenzene	15.62	112	191134	4.435	ng		99
66) Ethylbenzene	16.02	91	383686	4.712	ng		96
67) m- & p-Xylenes	16.21	91	604942	9.668	ng		95
68) Bromoform	16.27	173	48395	4.381	ng		98
69) Styrene	16.58	104	209058	4.718	ng		96
70) o-Xylene	16.69	91	307559	5.037	ng		93
71) n-Nonane	16.92	43	285498	6.648	ng		90
72) 1,1,2,2-Tetrachloroethane	16.67	83	156527	5.202	ng		99
74) Cumene	17.30	105	343130	4.647	ng		97
75) alpha-Pinene	17.70	93	188485	4.726	ng		93
76) n-Propylbenzene	17.82	91	471142	5.136	ng		95
77) 3-Ethyltoluene	17.93	105	343518	4.755	ng		95
78) 4-Ethyltoluene	17.98	105	335698	5.000	ng		95
79) 1,3,5-Trimethylbenzene	18.05	105	288745	4.857	ng		95
80) alpha-Methylstyrene	18.21	118	133548	4.532	ng		99
81) 2-Ethyltoluene	18.25	105	344460	4.864	ng		97
82) 1,2,4-Trimethylbenzene	18.48	105	293675	5.082	ng		96
83) n-Decane	18.59	58	11606	6.105	ng	#	76
84) Benzyl Chloride	18.61	91	273574	5.331	ng		94
85) 1,3-Dichlorobenzene	18.64	146	130314	4.324	ng		100
86) 1,4-Dichlorobenzene	18.70	146	130401	4.334	ng		99
87) sec-Butylbenzene	18.76	105	388794	4.809	ng		97
88) 4-Isopropyltoluene (p-...	18.92	119	325563	4.791	ng		98
89) 1,2,3-Trimethylbenzene	18.92	105	291457	4.955	ng		97
90) 1,2-Dichlorobenzene	19.06	146	124684	4.427	ng		99
91) d-Limonene	19.08	68	153465	5.129	ng		96
92) 1,2-Dibromo-3-Chloropr...	19.52	157	40012	4.425	ng	#	82
93) n-Undecane	19.91	57	275390	5.996	ng		97
94) 1,2,4-Trichlorobenzene	20.86	180	72820	4.067	ng		100
95) Naphthalene	20.98	128	295528	4.377	ng		99
96) n-Dodecane	21.00	57	266285	6.312	ng		95
97) Hexachlorobutadiene	21.35	225	43468	3.882	ng		98
98) Cyclohexanone	16.36	55	171163	5.412	ng	#	89
99) tert-Butylbenzene	18.48	119	256116	4.778	ng		97
100) n-Butylbenzene	19.37	91	357027	5.118	ng		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291802.D
Acq On : 29 Oct 2018 5:14 Operator: WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:16:21 2018
Quant Method : I:\MS09\Methods\R9101818.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri Oct 19 15:55:14 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M



Evaluate Continuing Calibration Report

Data File: I:\MS09\Data\2018_10\29\10291803.D
Acq On : 29 Oct 2018 5:48 Operator: WA
Sample : CCV C9102918_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:20:23 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

WA 10/29/18

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	89	-0.01
2	T	Chloropentafluoroethane	1.674	1.875	-12.0	100	0.00
3	T	1,1,1,2-Tetrafluoroethane (	1.291	1.529	-18.4	105	-0.02
4	T	1,1-Difluoroethane	1.546	1.869	-20.9	106	-0.02
5	T	Chlorodifluoromethane (CFC	0.420	0.516	-22.9	110	-0.01
6	T	1-Chloro-1,1-Difluoroethane	2.794	3.492	-25.0	112	-0.01
7	T	Dichlorofluoromethane (CFC	3.522	4.237	-20.3	107	-0.02
8	T	Vinylbromide	1.134	1.205	-6.3	91	-0.02
9	T	2,2-Dichloro-1,1,1-trifluor	2.120	2.367	-11.7	99	-0.02
10	T	2-Methylbutane	1.809	2.437	-34.7#	117	-0.01
11	T	Methyl Acetate	4.333	5.985	-38.1#	121	-0.01
12	T	2-Methylpentane	1.668	1.980	-18.7	102	0.00
13	T	2,2-Dichloropropane	1.852	2.444	-32.0#	105	-0.01
14	T	1,1-Dichloropropene	2.290	2.742	-19.7	103	0.00
15	T	Thiophene	3.483	3.875	-11.3	97	-0.01
16	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	92	-0.01
17	T	2,3-Dimethylpentane	0.696	0.866	-24.4	110	0.00
18	T	Dibromomethane	0.160	0.148	7.5	84	0.00
19	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	98	0.00
20	T	Methyl Cyclohexane	0.936	1.093	-16.8	110	0.00
21	T	1,3-Dichloropropane	0.859	0.904	-5.2	101	0.00
22	T	1,1,1,2-Tetrachloroethane	0.380	0.368	3.2	90	0.00
23	T	1-Chlorohexane	0.738	0.755	-2.3	95	-0.01
24	T	1,2,3-Trichloropropane	0.850	0.907	-6.7	101	0.00
25	T	Bromobenzene	1.007	1.054	-4.7	99	0.00
26	T	2-Chlorotoluene	1.564	1.622	-3.7	96	0.00
27	T	4-Chlorotoluene	1.638	1.698	-3.7	95	0.00
28	T	Indane	1.650	1.654	-0.2	90	0.00
29	T	Indene	1.392	1.401	-0.6	85	0.00
30	T	1,2,4,5-Tetramethylbenzene	1.656	1.752	-5.8	88	0.00
31	T	1,2,3,4-Tetramethylbenzene	1.778	1.841	-3.5	92	0.00
32	T	1,2,3,5-Tetramethylbenzene	1.621	1.705	-5.2	90	-0.01
33	T	1,2,3-Trichlorobenzene	0.494	0.465	5.9	82	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291803.D
Acq On : 29 Oct 2018 5:48 Operator: WA
Sample : CCV C9102918_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:20:23 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018 10/29/18
Response via : Initial Calibration
DataAcq Meth:TO15.M

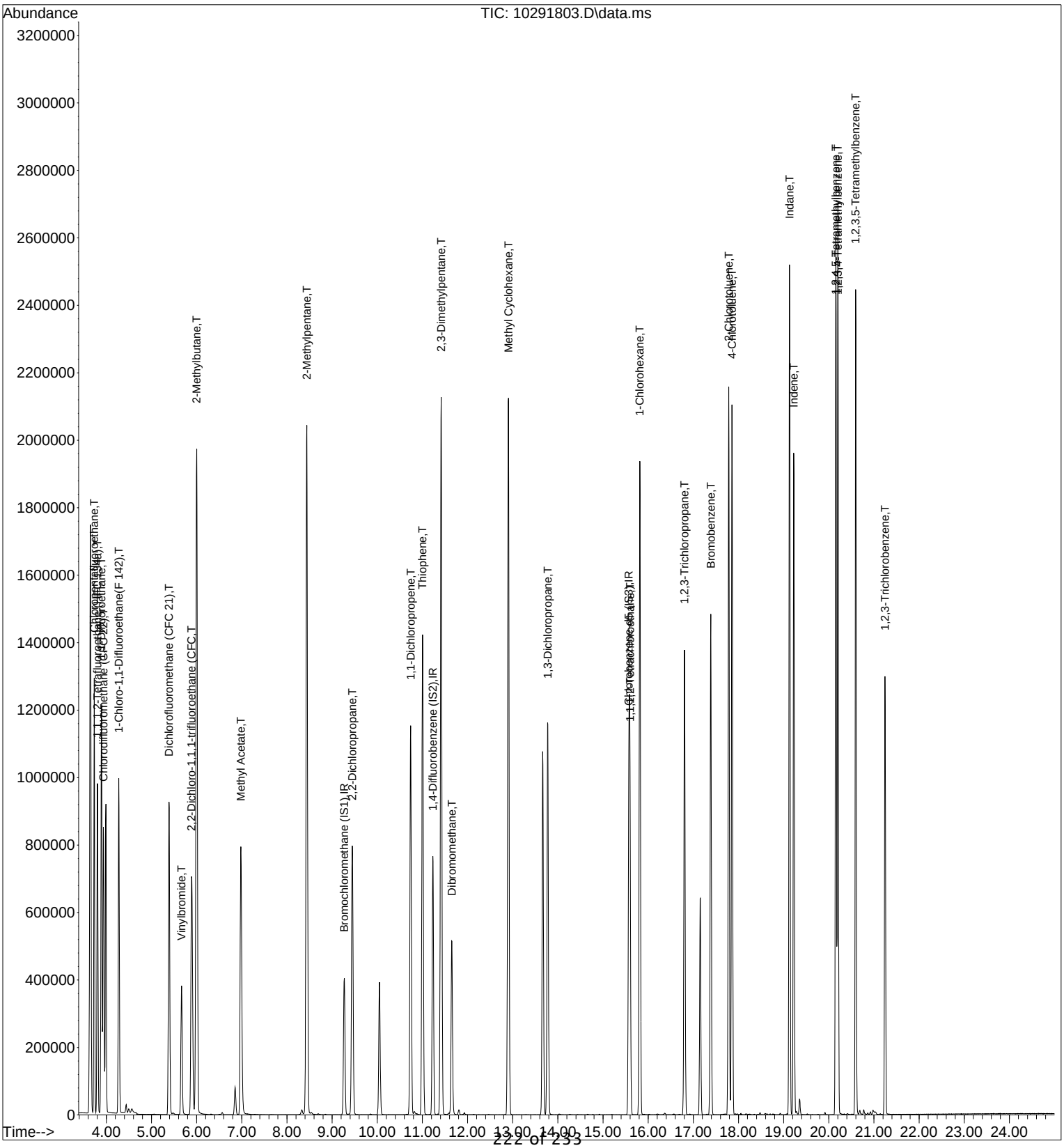
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.27	130	118960	12.500	ng		-0.01
16) 1,4-Difluorobenzene (IS2)	11.23	114	592490	12.500	ng		-0.01
19) Chlorobenzene-d5 (IS3)	15.57	82	382683	12.500	ng		0.00
Target Compounds							Qvalue
2) Chloropentafluoroethane	3.73	85	490741	30.804	ng		94
3) 1,1,1,2-Tetrafluoroeth...	3.80	83	363845	29.610	ng		100
4) 1,1-Difluoroethane	3.89	65	462549	31.444	ng		90
5) Chlorodifluoromethane ...	3.94	67	127752	31.960	ng		82
6) 1-Chloro-1,1-Difluoroe...	4.28	65	847476	31.873	ng		97
7) Dichlorofluoromethane ...	5.39	67	1008056	30.078	ng		100
8) Vinylbromide	5.67	108	283741	26.287	ng		100
9) 2,2-Dichloro-1,1,1-tri...	5.89	83	591316	29.311	ng		99
10) 2-Methylbutane	6.00	57	585618	34.016	ng		88
11) Methyl Acetate	6.98	43	1452494	35.223	ng		94
12) 2-Methylpentane	8.44	71	466369	29.379	ng	#	72
13) 2,2-Dichloropropane	9.45	77	581419	32.987	ng		98
14) 1,1-Dichloropropene	10.74	75	665407	30.527	ng		89
15) Thiophene	11.00	84	912770	27.538	ng	#	88
17) 2,3-Dimethylpentane	11.42	56	1046851	31.725	ng		93
18) Dibromomethane	11.65	174	184492	24.305	ng		84
20) Methyl Cyclohexane	12.91	55	886844	30.935	ng		88
21) 1,3-Dichloropropane	13.78	76	733770	27.914	ng		89
22) 1,1,1,2-Tetrachloroethane	15.60	131	264900	22.749	ng		100
23) 1-Chlorohexane	15.81	91	589435	26.096	ng		85
24) 1,2,3-Trichloropropane	16.80	75	714785	27.481	ng		96
25) Bromobenzene	17.39	77	839046	27.212	ng		90
26) 2-Chlorotoluene	17.78	91	1328443	27.739	ng		96
27) 4-Chlorotoluene	17.86	91	1338557	26.688	ng		96
28) Indane	19.13	117	1253484	24.812	ng		99
29) Indene	19.22	115	1008280	23.659	ng		99
30) 1,2,4,5-Tetramethylben...	20.16	119	1287336	25.394	ng		98
31) 1,2,3,4-Tetramethylben...	20.20	119	1324462	24.336	ng		98
32) 1,2,3,5-Tetramethylben...	20.59	119	1239640	24.972	ng		97
33) 1,2,3-Trichlorobenzene	21.24	180	327358	21.659	ng		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data File: I:\MS09\Data\2018_10\29\10291803.D
Acq On : 29 Oct 2018 5:48 Operator: WA
Sample : CCV C9102918_25ng
Misc : S31-10151806/S31-10201804 (11/20)
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 29 08:20:23 2018
Quant Method : I:\MS09\Methods\C9102318.M
Quant Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
QLast Update : Wed Oct 24 09:44:38 2018
Response via : Initial Calibration
DataAcq Meth:TO15.M

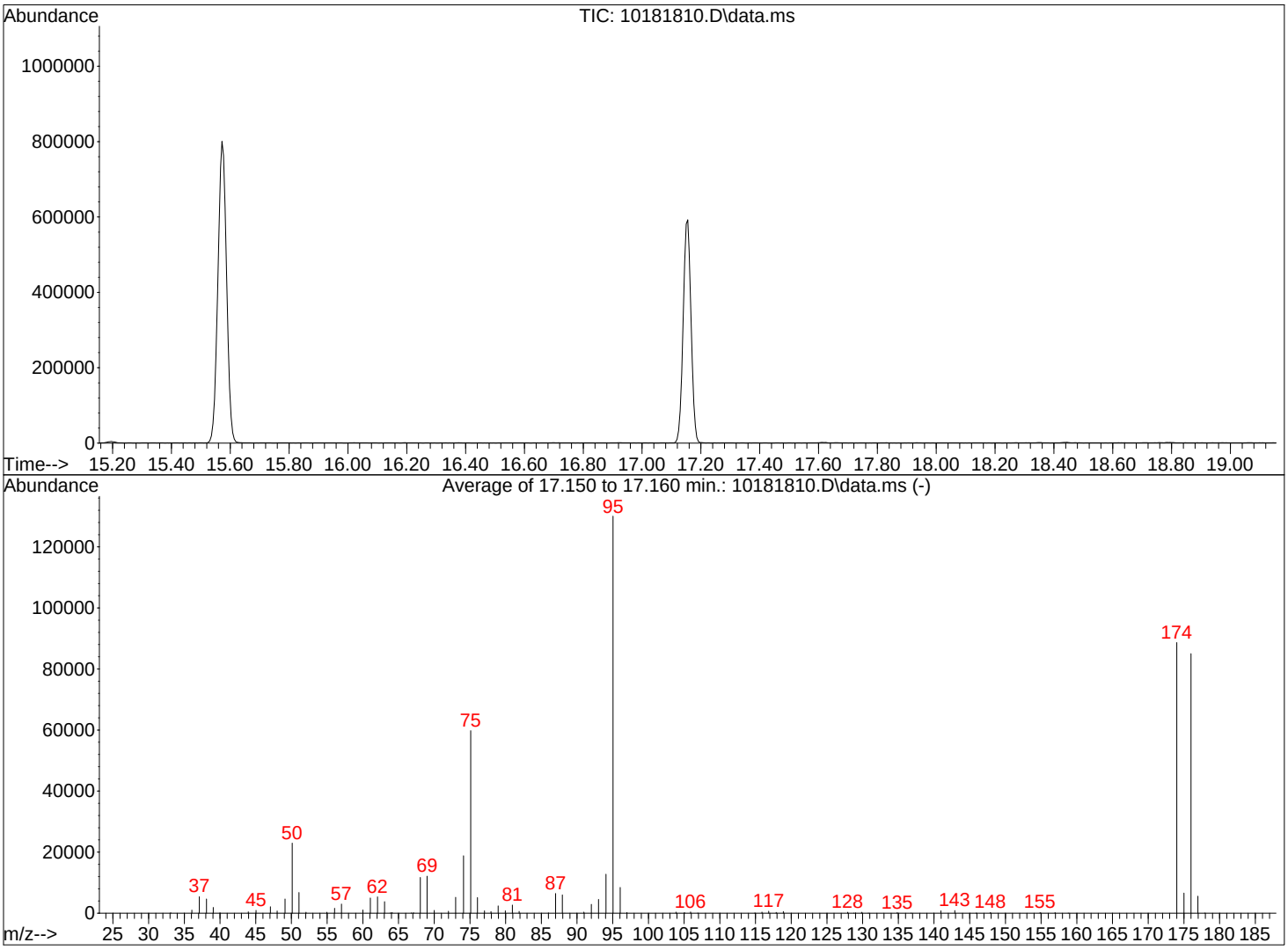


Data Path : I:\MS09\Data\2018_10\18\
Data File : 10181810.D
Acq On : 18 Oct 2018 16:09
Operator : SC
Sample : 12.5ng TO-15 BFB STD
Misc : S31-10151806
ALS Vial : 2 Sample Multiplier: 1

10/19/18

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 08:55:06 2018



AutoFind: Scans 2655, 2656, 2657; Background Corrected with Scan 2646

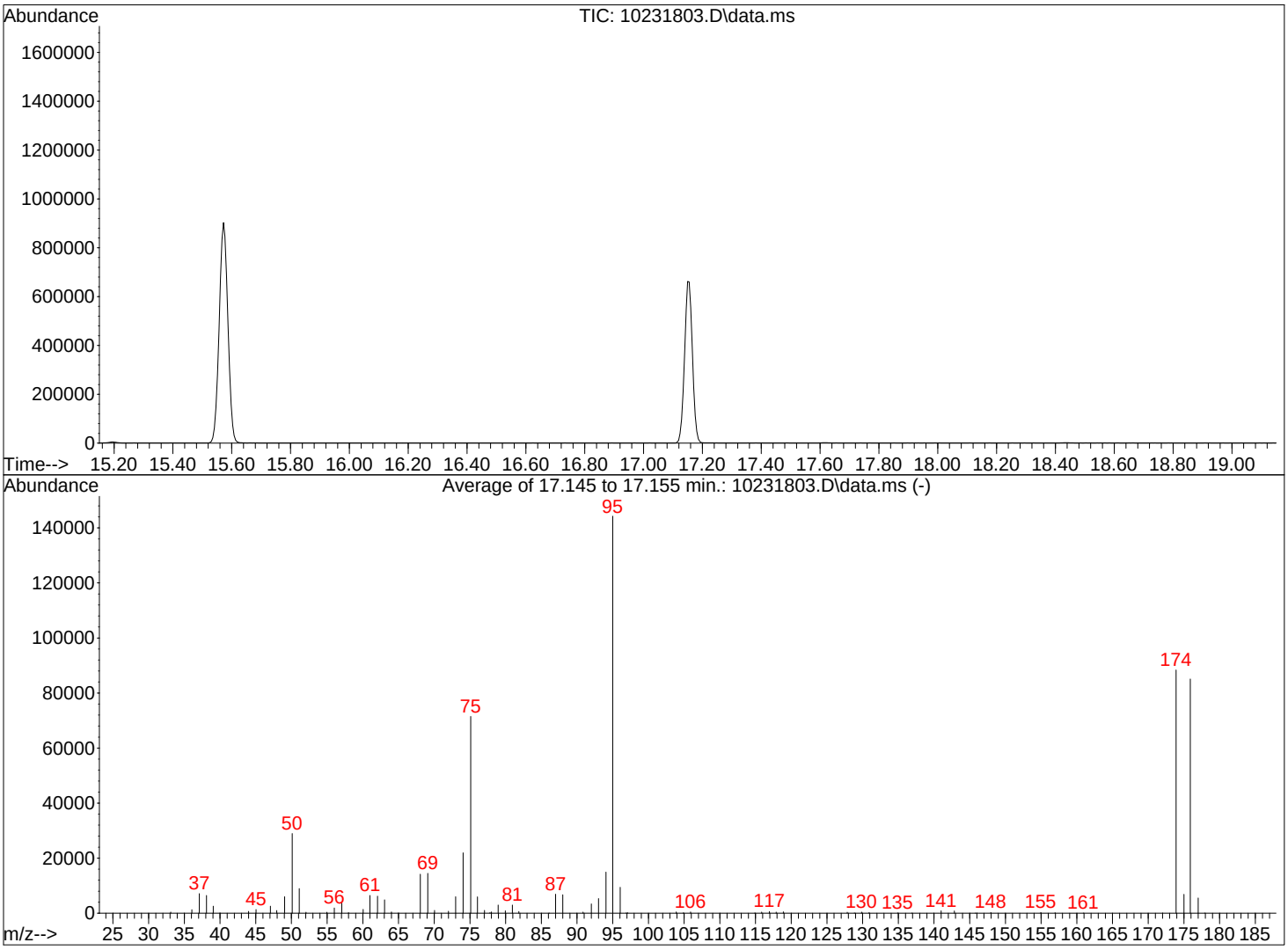
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.6	22944	PASS
75	95	30	66	46.0	59792	PASS
95	95	100	100	100.0	130067	PASS
96	95	5	9	6.5	8436	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	68.2	88683	PASS
175	174	4	9	7.4	6596	PASS
176	174	93	101	95.9	85024	PASS
177	176	5	9	6.6	5579	PASS

Data Path : I:\MS09\Data\2018_10\23\
Data File : 10231803.D
Acq On : 23 Oct 2018 18:10
Operator : SC
Sample : 12.5ng TO-15 BFB STD
Misc : S31-10151806
ALS Vial : 2 Sample Multiplier: 1

10/24/18

Integration File: RTEINTVB.P

Method : I:\MS09\Methods\C9102318.M
Title : TO-15 Tekmar AutoCan/HP 6890/HP 5975 MSD
Last Update : Wed Oct 24 09:26:22 2018



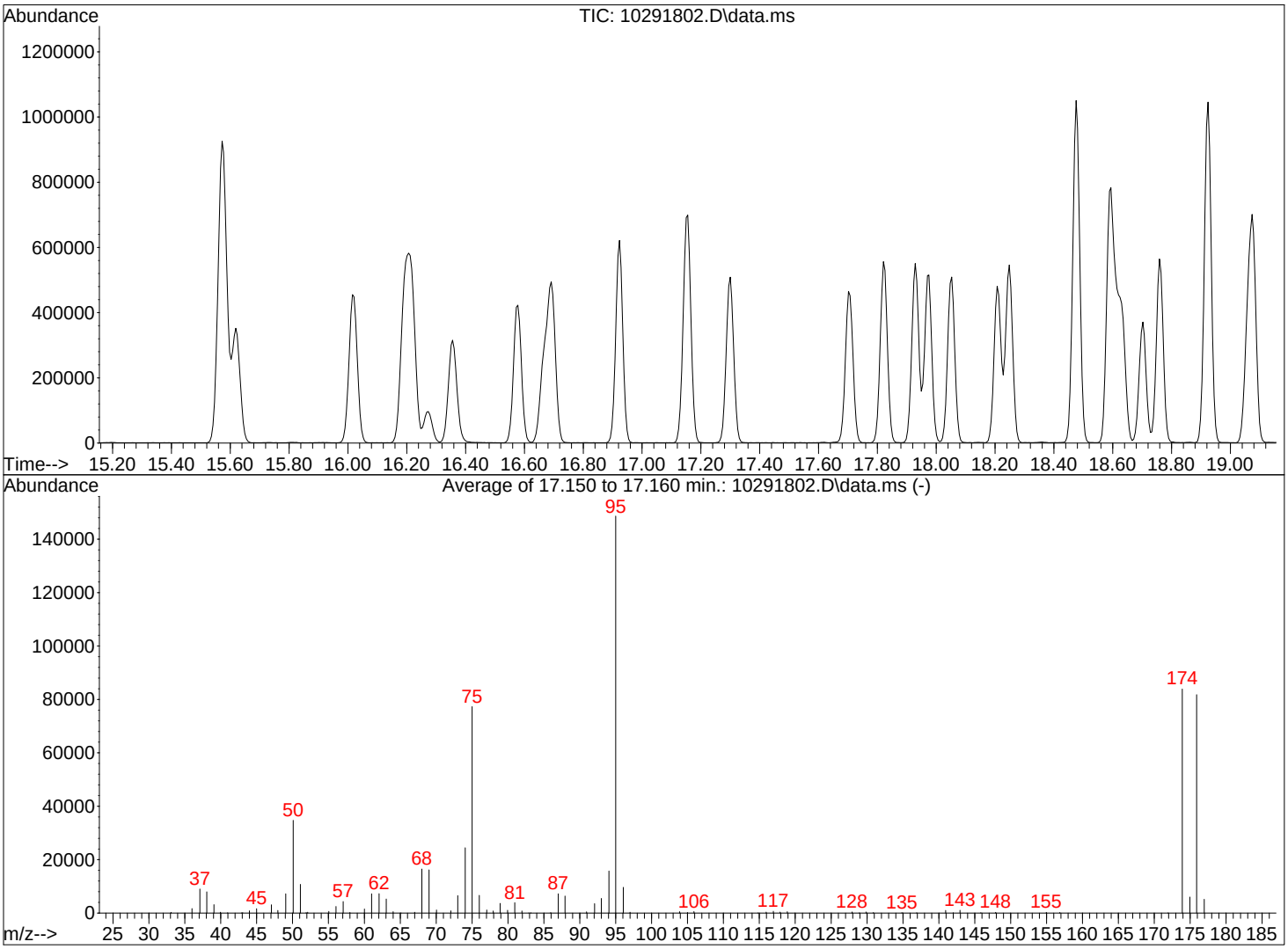
AutoFind: Scans 2654, 2655, 2656; Background Corrected with Scan 2645

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	28931	PASS
75	95	30	66	49.6	71512	PASS
95	95	100	100	100.0	144261	PASS
96	95	5	9	6.5	9430	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	61.2	88357	PASS
175	174	4	9	7.8	6864	PASS
176	174	93	101	96.3	85109	PASS
177	176	5	9	6.5	5540	PASS

Data Path : I:\MS09\Data\2018_10\29\
Data File : 10291802.D
Acq On : 29 Oct 2018 5:14
Operator : WA
Sample : CCV R9102918_5.0ng
Misc : S31-10151806/S31-10151808 (11/13)
ALS Vial : 3 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS09\Methods\R9101818.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 19 15:55:14 2018



AutoFind: Scans 2655, 2656, 2657; Background Corrected with Scan 2646

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	23.4	34741	PASS
75	95	30	66	52.0	77296	PASS
95	95	100	100	100.0	148653	PASS
96	95	5	9	6.5	9629	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	56.4	83901	PASS
175	174	4	9	7.2	6015	PASS
176	174	93	101	97.5	81808	PASS
177	176	5	9	6.3	5146	PASS

10/29/18

Injection Log

Directory: J:\MS09\Data\2018_10\18\

9	10/18/18 15:35	10181809.D	Blank (100mL)	S31-10151806	SC	2	
10	10/18/18 16:09	10181810.D	12.5ng TO-15 BFB STD	S31-10151806	SC	2	pass
11	10/18/18 16:43	10181811.D	0.1ng TO-15 ICAL STD	S31-10151806/S31-10151812 (11/13)	SC	15	
12	10/18/18 17:17	10181812.D	0.2ng TO-15 ICAL STD	S31-10151806/S31-10151812 (11/13)	SC	15	
13	10/18/18 17:50	10181813.D	0.5ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
14	10/18/18 18:24	10181814.D	1.0ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
15	10/18/18 18:58	10181815.D	5.0ng TO-15 ICAL STD	S31-10151806/S31-10151810 (11/13)	SC	16	
16	10/18/18 19:31	10181816.D	25ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
17	10/18/18 20:05	10181817.D	50ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
18	10/18/18 20:39	10181818.D	100ng TO-15 ICAL STD	S31-10151806/S31-10151808 (11/13)	SC	2	
19	10/18/18 21:13	10181819.D	Blank (100mL)	S31-10151806	SC	2	
20	10/18/18 21:47	10181820.D	25ng TO-15 ICV STD	S31-10151806/S31-10151802 (11/13)	SC	2	pass
21	10/18/18 22:21	10181821.D	25ng TO-15 ICV STD	S31-10151806/S31-10151802 (11/13)	SC	2	pass
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Injection Log

Directory: J:\MS09\Data\2018_10\23\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/23/18 16:28	10231801.D	CCV R9102318_5.0ng	S31-10151806/S31-10151808 (11/13)	SC	2	
2	10/23/18 17:37	10231802.D	Blank (100mL)	S31-10151806	SC	2	
3	10/23/18 18:10	10231803.D	12.5ng TO-15 BFB STD	S31-10151806	SC	2	pass
4	10/23/18 18:44	10231804.D	0.4ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
5	10/23/18 19:18	10231805.D	1.0ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
6	10/23/18 19:52	10231806.D	2.5ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
7	10/23/18 20:26	10231807.D	5.0ng TO-15 Custom ICAL STD	S31-10151806/S31-10191807 (11/17	SC	3	
8	10/23/18 21:00	10231808.D	25ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
9	10/23/18 21:34	10231809.D	50ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
10	10/23/18 22:08	10231810.D	100ng TO-15 Custom ICAL STD	S31-10151806/S31-10221804 (11/20	SC	4	
11	10/23/18 22:42	10231811.D	Blank (100mL)	S31-10151806	SC	2	
12	10/23/18 23:16	10231812.D	25ng TO-15 Custom ICV STD	S31-10151806/S31-10201801 (11/18	SC	5	pass
13	10/23/18 23:50	10231813.D	25ng TO-15 Custom ICV STD	S31-10151806/S31-10201801 (11/18	SC	5	pass
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Injection Log

Directory: I:\MS09\Data\2018_10\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/29/18 4:40	10291801.D	System	S31-10151806/S31-10151808 (11/13)	WA	2	
2	10/29/18 5:14	10291802.D	CCV R9102918_5.0ng	S31-10151806/S31-10151808 (11/13)	WA	3	*passed*
3	10/29/18 5:48	10291803.D	CCV C9102918_25ng	S31-10151806/S31-10201804 (11/20)	WA	3	*passed*
4	10/29/18 6:21	10291804.D	Std check	S31-10151806/S31-10151810 (11/13)	WA	16	
5	10/29/18 6:55	10291805.D	MB R9102918_1000mL	S31-10151806_AC00463	WA	2	*passed*
6	10/29/18 7:29	10291806.D	P1805537-002dil (40mL)	S31-10151806	WA	14	
7	10/29/18 8:44	10291807.D	LCS R9102918_25ng	S31-10151806/S31-10151802 (11/13)	WA	2	*passed*
8	10/29/18 9:18	10291808.D	LCSD R9102918_25ng	S31-10151806/S31-10151802 (11/13)	WA	2	*passed*
9	10/29/18 9:52	10291809.D	P1805833-001 (100mL)	S31-10151806	WA	14	
10	10/29/18 10:25	10291810.D	P1805833-006 (100mL)	S31-10151806	WA	15	
11	10/29/18 10:59	10291811.D	P1805689-001 (0.25mL)	S31-10151806	WA	1	
12	10/29/18 11:37	10291812.D	Screen5689-002 (2.5mL)	S31-10151806	RS	1	*screen*
13	10/29/18 12:10	10291813.D	P1805689-002 (0.25mL)	S31-10151806	RS	1	
14	10/29/18 12:44	10291814.D	P1805689-003 (400mL)	S31-10151806	RS	5	
15	10/29/18 13:17	10291815.D	P1805493-017 (400mL)	S31-10151806	RS	6	
16	10/29/18 13:52	10291816.D	P1805493-017 (400mL)	S31-10151806	RS	11	
17	10/29/18 14:25	10291817.D	P1805540-008 (0.2mL)	S31-10151806	RS	1	*not reported*
18	10/29/18 15:06	10291818.D	P1805540-003 (100mL)	S31-10151806	RS	5	
19	10/29/18 15:41	10291819.D	P1805540-003 (200mL)	S31-10151806	RS	5	
20	10/29/18 16:15	10291820.D	P1805540-003dup (200mL)	S31-10151806	RS	5	
21	10/29/18 16:48	10291821.D	P1805540-001 (400mL)	S31-10151806	RS	4	*not reported*
22	10/29/18 17:22	10291822.D	P1805540-002 (400mL)	S31-10151806	RS	6	*not reported*
23	10/29/18 17:56	10291823.D	P1805540-005 (100mL)	S31-10151806	RS	7	*not reported*
24	10/29/18 18:29	10291824.D	P1805540-005dil (20mL)	S31-10151806	RS	7	*not reported*
25	10/29/18 19:03	10291825.D	system	S31-10151806	RS	2	
26	10/29/18 19:37	10291826.D	P1805735-001 (400mL)	S31-10151806	RS	8	
27	10/29/18 20:11	10291827.D	P1805735-002 (400mL)	S31-10151806	RS	9	
28	10/29/18 20:45	10291828.D	P1805735-003 (400mL)	S31-10151806	RS	10	
29	10/29/18 21:19	10291829.D	system	S31-10151806	RS	2	
30	10/29/18 21:52	10291830.D	P1805559-001 (400mL)	S31-10151806	RS	11	
31	10/29/18 22:26	10291831.D	P1805559-002 (400mL)	S31-10151806	RS	12	*SS1 failed*
32	10/29/18 23:00	10291832.D	P1805559-003 (400mL)	S31-10151806	RS	13	*SS1 failed*
33	10/29/18 23:34	10291833.D	P1805559-004 (400mL)	S31-10151806	RS	14	*SS1 failed*
34	10/30/18 0:08	10291834.D	P1805559-004dil (40mL)	S31-10151806	RS	14	*SS1 failed*
35	10/30/18 0:42	10291835.D	P1805559-005 (400mL)	S31-10151806	RS	15	*SS1 failed*
36	10/30/18 1:16	10291836.D	P1805559-005dil (40mL)	S31-10151806	RS	15	*SS1 failed*
37	10/30/18 1:49	10291837.D	CCVend R9102918_5.0ng	S31-10151806/S31-10151808 (11/13)	RS	2	*failed*

RS 10/30/18

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-06
Cycles: 15
Batch: 22642

Batch Started By: HAYDEN.AKERS on 10/3/18 0335
Finished Cleaning By: HAYDEN.AKERS on 10/3/18 0336

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
1BV12917	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12907	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12911	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12908	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12912	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12913	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12914	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12903	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12898	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12899	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12896	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12895	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12894	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12902	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12900	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS	
1BV12882	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/9/18 0303	JHULETTE	MS21_10/03/18
1BV12890	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12883	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12887	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12891	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12884	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12888	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12892	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12885	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	
1BV12889	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS	

Page 2 of 23

1BV12893	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12906	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12910	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12897	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12886	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/5/18 0232	JHULETTE
1BV12916	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12915	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS
1BV12905	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12901	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12904	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0103	HAYDEN.AKERS
1BV12909	10/3/18	10/3/18	Pass w/ Conditions	-14.3	10/3/18 0336	HAYDEN.AKERS	-14.0	10/4/18 0104	HAYDEN.AKERS

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

***QC Canister**

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

RVT 10/5/18

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	45150	1000.000	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	107947	1000.000	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.71	117	107329	1000.000	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.36	65	61783	1020.323	pg		0.00
Spiked Amount 1000.000			Recovery = 102.03%				
57) Toluene-d8 (SS2)	12.62	98	123357	957.154	pg		0.00
Spiked Amount 1000.000			Recovery = 95.71%				
74) Bromofluorobenzene (SS3)	16.14	174	34999	1040.081	pg		0.00
Spiked Amount 1000.000			Recovery = 104.01%				
Target Compounds							Qvalue
2) * Propene	3.52	42	655	11.439	pg	#	52
3) * Dichlorodifluoromethane	3.58	85	865	4.980	pg		97
4) * Chloromethane	3.71	50	714	7.068	pg		88
5) * 1,2-Dichloro-1,1,2,2...	3.80	85	502	3.856	pg		92
6) * Vinyl Chloride	3.89	62	590	6.460	pg	#	88
7) * 1,3-Butadiene	4.00	54	404	7.269	pg	#	73
8) * Bromomethane	4.21	94	344	5.013	pg		85
9) * Chloroethane	4.35	64	185	4.601	pg	#	77
10) * Ethanol	4.44	45	1532	53.604	pg		100
11) * Acetonitrile	4.60	41	629	5.638	pg	#	1
12) * Acrolein	4.71	56	571	12.509	pg		100
13) * Acetone	4.83	58	4848	78.298	pg		87
14) * Trichlorofluoromethane	4.96	101	583	4.593	pg		97
15) * 2-Propanol (Isopropa...	5.04	45	1050	11.345	pg	#	82
16) * Acrylonitrile	5.19	53	890	10.887	pg		95
17) * 1,1-Dichloroethene	5.48	96	283	4.976	pg		97
18) tert-Butanol	5.56	59	1025	17.875	pg		99
19) * Methylene Chloride	5.57	84	463	6.079	pg		98
20) * 3-Chloro-1-propene (...	5.67	41	272	5.330	pg	#	84
21) * Trichlorotrifluoroet...	5.81	151	268	4.440	pg		97
22) * Carbon Disulfide	5.84	76	8323	31.657	pg		99
23) * trans-1,2-Dichloroet...	6.39	96	271	4.465	pg		86
24) * 1,1-Dichloroethane	6.58	63	477	4.632	pg		100
25) * Methyl tert-Butyl Ether	6.70	73	310	4.797	pg		98
26) * Vinyl Acetate	6.72	86	330	35.776	pg	#	54
27) * 2-Butanone (MEK)	6.99	72	384	11.536	pg		79
28) * cis-1,2-Dichloroethene	7.39	96	245	4.055	pg		91
29) DIPE	7.65	45	573	4.874	pg		91
30) * Ethyl Acetate	7.63	61	168	11.985	pg		92
31) * n-Hexane	7.63	57	271	4.243	pg		98
32) * Chloroform	7.67	83	524	4.220	pg		98
34) * Tetrahydrofuran	8.16	71	87	4.211	pg	#	67
35) ETBE	8.24	87	104	4.444	pg		76
36) * 1,2-Dichloroethane	8.48	62	337	4.612	pg	#	82
38) * 1,1,1-Trichloroethane	8.80	97	323	5.427	pg		91
39) * Benzene	9.35	78	1299	7.422	pg		98
40) Isopropyl Acetate	9.29	61	112	9.959	pg	#	19
41) 1-Butanol	9.32	56	428	16.491	pg	#	69
42) * Carbon Tetrachloride	9.53	117	160	2.621	pg	#	40
43) * Cyclohexane	9.69	84	354	7.822	pg		96
44) TAME	10.14	87	54	4.501	pg		77
45) * 1,2-Dichloropropane	10.33	63	250	4.973	pg		97
46) * Bromodichloromethane	10.54	83	328	4.698	pg		99
47) * Trichloroethene	10.62	130	262	5.177	pg		100
48) * 1,4-Dioxane	10.67	88	181	6.473	pg		94

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration

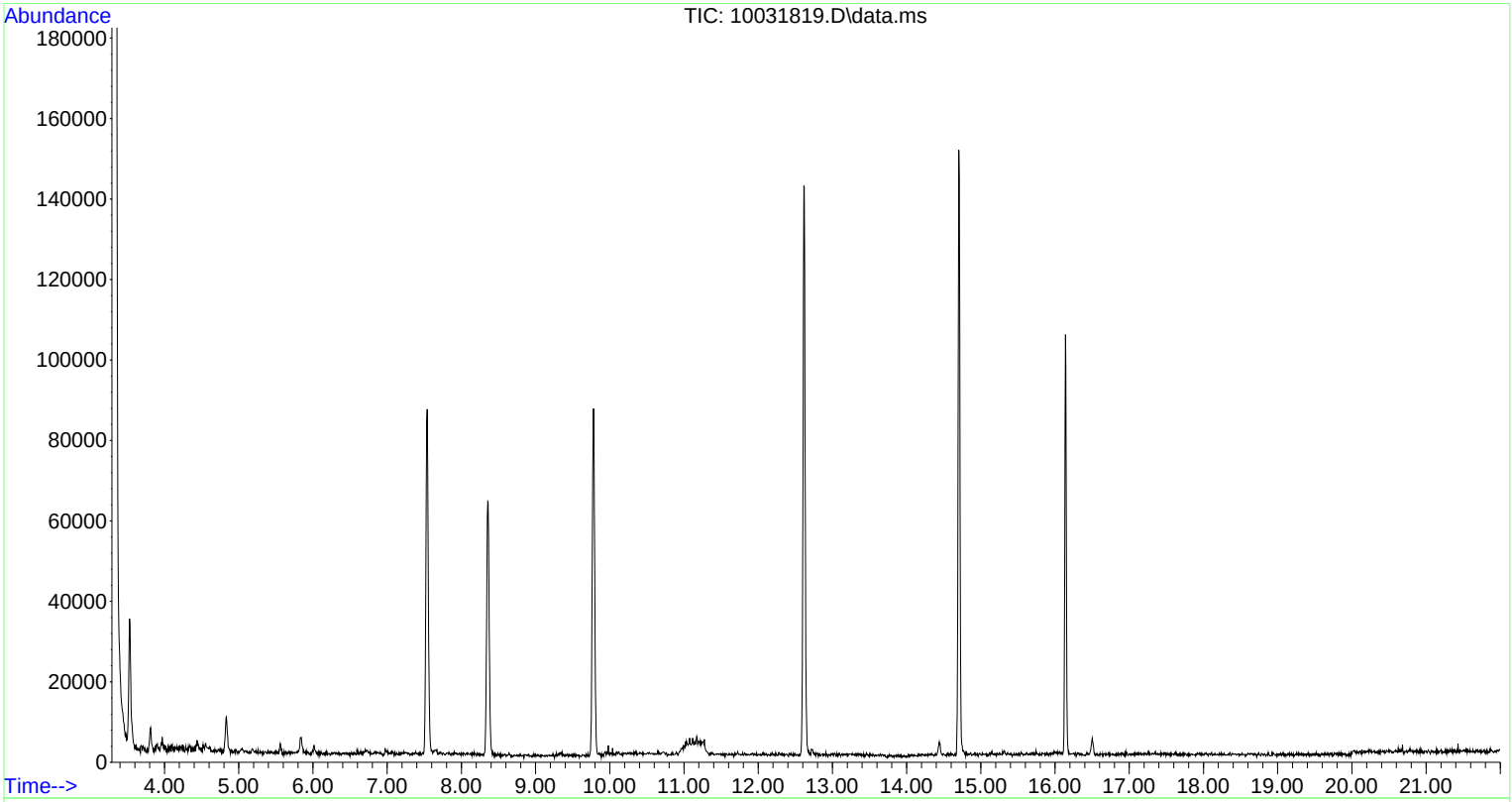
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
49) Isooctane	10.71	56	246	4.408	pg		87
50) * Methyl Methacrylate	10.89	69	330	10.655	pg		96
51) * n-Heptane	11.03	71	371	5.576	pg		89
52) * cis-1,3-Dichloropropene	11.62	75	225	5.219	pg		89
53) * 4-Methyl-2-pentanone	11.73	58	276	10.837	pg		90
54) * trans-1,3-Dichloropr...	12.22	75	138	4.659	pg	#	43
55) * 1,1,2-Trichloroethane	12.40	97	270	5.307	pg		98
58) * Toluene	12.73	91	1385	7.405	pg		100
59) * 2-Hexanone	13.09	58	60	3.436	pg	#	59
60) * Dibromochloromethane	13.17	129	235	4.292	pg		96
61) * 1,2-Dibromoethane	13.45	107	223	4.401	pg		93
63) * n-Octane	13.91	85	96	4.772	pg		91
64) * Tetrachloroethene	14.02	166	257	4.535	pg		95
65) * Chlorobenzene	14.75	112	640	5.035	pg		93
66) * Ethylbenzene	15.14	91	730	5.561	pg		90
67) * m- & p-Xylenes	15.31	91	1085	11.397	pg		97
68) * Bromoform	15.35	173	153	4.476	pg		95
69) Cyclohexanone	15.47	98	54	4.313	pg	#	59
70) * Styrene	15.64	104	222	4.375	pg		98
71) * o-Xylene	15.74	91	505	5.171	pg		99
72) * n-Nonane	15.99	57	155	4.519	pg		92
73) * 1,1,2,2-Tetrachloroe...	15.72	83	441	4.396	pg		92
75) * Cumene	16.28	105	595	4.098	pg		99
76) * alpha-Pinene	16.61	93	285	5.786	pg		92
77) * n-Propylbenzene	16.72	91	586	4.475	pg		97
78) 3-Ethyltoluene	16.85	105	359	3.714	pg		98
79) * 4-Ethyltoluene	16.85	105	359	4.609	pg		96
80) * 1,3,5-Trimethylbenzene	16.92	105	338	3.953	pg		98
81) alpha-Methylstyrene	17.05	118	195	5.434	pg		93
82) 2-Ethyltoluene	17.07	105	417	3.820	pg		96
83) tert-Butylbenzene	17.26	134	61	3.039	pg	#	63
84) * 1,2,4-Trimethylbenzene	17.26	105	389	5.672	pg		96
86) * 1,3-Dichlorobenzene	17.43	146	206	3.621	pg		98
87) * 1,4-Dichlorobenzene	17.43	146	206	4.556	pg		96
88) n-Decane	17.37	85	57	4.346	pg		91
89) sec-Butylbenzene	17.48	105	390	3.115	pg		93
90) 1,2,3-Trimethylbenzene	17.61	105	291	4.127	pg		99
91) p-Isopropyltoluene	17.62	134	74	3.539	pg		98
92) * 1,2-Dichlorobenzene	17.71	146	273	4.660	pg		92
93) * D-Limonene	17.75	68	86	4.068	pg	#	73
94) n-Butylbenzene	17.97	134	53	3.672	pg		95
95) * 1,2-Dibromo-3-chloro...	18.09	157	76	5.449	pg		85
97) * 1,2,4-Trichlorobenzene	19.19	180	81	9.136	pg		82
98) * Naphthalene	19.29	128	171	9.340	pg	#	68
100) * Hexachlorobutadiene	19.62	225	128	4.050	pg	#	43

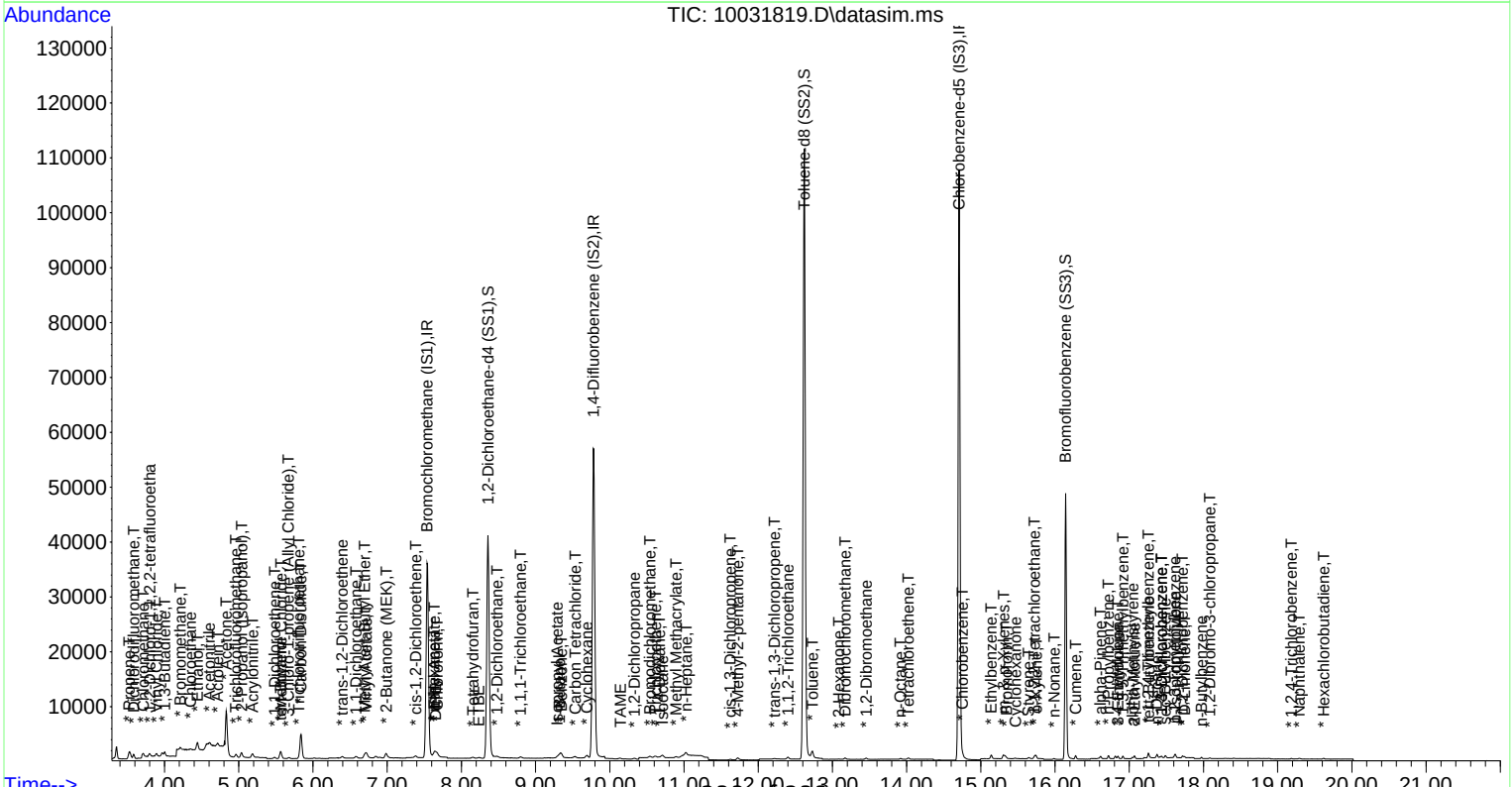
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2018_10\03\
Data File : 10031819.D
Acq On : 3 Oct 2018 9:30 pm
Operator : RVT
Sample : 100318_1BV12882_22642
Misc : LL+TICS (Sig #1); S31-10011805 (Sig #2)
ALS Vial : 204 Sample Multiplier: 1

Quant Time: Oct 04 11:41:43 2018
Quant Method : I:\MS21\Methods\F21100318.M
Quant Title : EPA TO-15
QLast Update : Thu Oct 04 10:06:27 2018
Response via : Initial Calibration





Appendix F
Data Quality Evaluations

Analytical Data Summary for Vapor Intrusion Sampling at the PMC Groundwater Superfund Site, Petoskey, Michigan, May through July 2017

PREPARED FOR:	U.S. Environmental Protection Agency (EPA)
PREPARED BY:	CH2M HILL, Inc. (CH2M)
DATE:	June 22, 2018

This memorandum presents the data quality evaluation (DQE) of indoor air (IA), outdoor air (OA), crawl space (CS), sub-slab soil gas (SS), and exterior soil gas (SG) samples collected during the field investigation conducted May through July 2017 at the PMC Groundwater Superfund Site in Petoskey, Michigan. Guidance for the DQE assessment followed the Quality Assurance Project Plan (QAPP) and QAPP Addendum (CH2M 2016, 2017), EPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2014), and individual method requirements.

CH2M personnel performed the sampling, and ALS in Simi Valley, California, analyzed the samples. The samples were reported in seven sample delivery groups (SDGs) listed as P1702543, P1702685, P1702788, P1703161, P1703248, P1703476, and P1703587. The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC), as described in the QAPP and QAPP Addendum (CH2M 2016, 2017). This technical memorandum summarizes the data issues identified during the general data quality assessment.

Analytical Data

This DQE report provides the results and validation for 1 normal SS sample, 25 normal SG samples, 45 IA samples, 6 OA samples, 6 CS samples, 2 SG field duplicates (FDs), 4 IA FDs, and 1 CS FDs collected and analyzed for site-specific volatile organic compounds by EPA Methods TO-15 and/or TO-15 SIM. Samples were shipped by an overnight carrier to the laboratory for analysis.

Stage 2B validation (Level III) was performed on 100% of the data to assess their analytical accuracy, precision, and completeness. The data assessment included a review of the following:

- Completeness
- Chain-of-custody documentation
- Holding times and sample receipt conditions
- Frequency of quality control (QC) samples
- Initial calibration and continuing calibration precision and accuracy
- Blank contamination and, if any, its impact on the analytical results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) accuracy
- Surrogate spike accuracy
- Internal standard accuracy and frequency
- Instrument tuning accuracy and frequency
- Laboratory and FD precision

The quality assurance (QA)/QC criteria implemented during validation were those listed in the site-specific QAPP and subsequent addendum (CH2M 2016, 2017). Standard data qualifiers were added as a means of classifying the data as to their conformance to QA/QC requirements. Multiple qualifiers are routinely applied to specific sample method/matrix/analyte combinations, but there is only one final qualifier. A final qualifier is applied to the data and is the most conservative of the applied validation qualifiers. The data qualifiers are defined as follows:

[U] Undetected. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

[J] Estimated. The analyte was positively identified; the concentration is an estimation due to discrepancies in meeting certain analyte-specific QC criteria or was reported between the detection limit and reporting limit.

In instances where samples had multiple laboratory analyses performed, the analytical run with the lowest reporting limits (least dilute) was used if the QC criteria were met for that analysis. If a sample was analyzed more than once due to a target parameter concentration above the calibration range, the results for all parameters were reported from the lowest dilution, except for the parameters exceeding the calibration range, which were reported from the diluted analysis. In instances where multiple analyses were performed with QC outside criteria, the analytical run with the least number of exceptions or best possible QC was chosen for reporting purposes.

The analytical results were within project control limits, except where noted in the following subsections. Qualified data are listed in Table 1.

Holding Time and Preservation

Acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods, and acceptance criteria were met.

Canister and Flow Controller Certification

Canisters and flow controllers are analyzed for contamination before the laboratory certifies them. SG, SS, and CS canisters were batch certified, and IA and OA canisters and flow controllers were individually certified. The canisters and flow controllers were free of contamination with the following exceptions:

- Several analytes were detected at concentrations greater than the method detection limit (MDL) in canisters and flow controllers. Associated results that were detected at concentrations (two times for common laboratory contaminants) less than the concentration found in the canister and/or flow controllers were qualified as nondetected results and flagged “U”. The results also were reported at the MDL.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination, with the following exceptions:

- Acetone and chloroform were detected at concentrations greater than the MDL in one method blank associated with SDG P1702543. Associated native sample results that were detected at concentrations (two times for Acetone, a common laboratory contaminant) less than the

concentration found in the method blank were qualified as nondetected results and flagged "U". The results also were reported at the MDL.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and acceptance criteria were met with the following exceptions:

- Bromoform, bromomethane, dichlorodifluoromethane, trichlorofluoromethane, and vinyl chloride were recovered greater than the upper control limit in LCS and/or LCSD in SDGs P1702543, P1702685 and P1703161, indicating a possible high bias. Detected results were qualified as estimated and flagged "J" in the associated samples. Nondetected results were not qualified under these circumstances.

Surrogate Standards

Surrogates were added to the samples, and acceptance criteria were met.

Internal Standards

Internal standards were added as required, and acceptance criteria were met.

Instrument Tunes

Instrument tunes were completed as required, and acceptance criteria were met.

Laboratory Duplicates

Laboratory duplicates were performed as required, and precision criteria were met with the following exceptions:

- The laboratory duplicates for naphthalene in sample 17CC04-05 and benzene and nonane in sample 17CC04-67 were outside the laboratory limits. The native samples were qualified "J" as estimated for those analytes.

Field Duplicates

FDs were collected and analyzed as required, and the relative percent differences (RPDs) were within established QC limits, with the following exceptions:

- Acetone was flagged estimated as "J" in samples 17CC04-85 and 17CC04-86 (FD) due to an FD precision exceedance.
- Ethyl acetate and Propene were flagged estimated as "J" in samples 17CC04-15 and 17CC04-16 (FD) due to an FD precision exceedance.
- N-hexane was flagged estimated as "J" in samples 17CC04-47 and 17CC04-48 (FD) due to an FD precision exceedance.

Dilutions

The following samples required a dilution to bring the detected concentrations within the linear range of the instrument's calibration curve. The sample dilutions were a result of high target compound concentrations:

- Ethanol for samples 17CC04-05, 17CC04-47, 17CC04-48, 17CC04-63, 17CC04-72, 17CC04-78, and 17CC04-81
- D-Limonene for samples 17CC04-72 and 17CC04-81

- Tetrachloroethene and trichloroethylene for sample 17CC04-75

Overall Assessment

The goal of this assessment is to document that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the sampling events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include LCS/LCSD, laboratory duplicate, and FD RPDs. Precision was generally acceptable with the noted exception of seven analytes being qualified as estimated detected results in eight samples due to laboratory duplicate and/or FD RPD issues. Data users should consider the impact to final results that are qualified as estimated, because it may indicate a bias that could affect the decision-making process.
- Accuracy of the data was verified by reviewing the calibration data, LCS/LCSD, surrogate, and internal standard recoveries, as well as the evaluation of the method blank, canister, and flow controller data. Accuracy was generally acceptable with the exception of two analytes being qualified as estimated detected results in two samples due to an LCSD issue. Several analytes were detected in the method blanks, canisters, and flow controllers at concentrations less than the MDL. Associated results that were detected at concentrations (two times for common laboratory contaminants) less than the concentration found in the method blank, canister, and/or flow controllers were qualified as nondetected results and flagged “U”. Nondetected results and concentrations (two times for common laboratory contaminants) greater than the concentration found in the method blank, canister, and/or flow controllers were not qualified.
- Representativeness of the data was verified through the sample’s collection, storage, and preservation procedures, and verification of holding time compliance. The laboratory did not note discrepancies with sample collection, storage, or preservation procedures. The data were reported from analyses within the EPA-recommended holding time.
- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as the data that are not rejected for project use. The data were considered valid, and the completeness goal of 90% was met for the analyte/method combinations.

References

CH2M HILL, Inc. (CH2M). 2016. F*inal Uniform Federal Policy Quality Assurance Project Plan, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan*. October.

CH2M HILL, Inc. (CH2M). 2017. *Final Uniform Federal Policy Quality Assurance Project Plan Addendum I, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan*. December.

U.S. Environmental Protection Agency (EPA). 2014. *National Functional Guidelines for Superfund Organic Methods Data Review*. January.

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-OA-02-060117	17CC04-24	Benzene	0.13	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.2
PMC-IN-09-060617	17CC04-61	Propene	0.19	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.24
PMC-IN-18-060117	17CC04-07	Carbon Disulfide	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.25
PMC-IN-33-060117	17CC04-12	Carbon Disulfide	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.26
PMC-IN-30-060117	17CC04-31	Carbon Disulfide	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.26
PMC-OA-47-072517	17CC04-91	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.26
PMC-IN-01-39-062817	17CC04-76	Carbon Disulfide	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.27
PMC-IN-20-060217	17CC04-43	Carbon Disulfide	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.28
PMC-CS-28-060117	17CC04-22	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.28
PMC-OA-08-060617	17CC04-59	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.29
PMC-IN-06-060617	17CC04-62	Carbon Disulfide	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.3
PMC-IN-21-060117	17CC04-25	Benzene	0.15	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.3
PMC-IN-29-060117	17CC04-29	2-Hexanone	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.31
PMC-IN-50-060317-FD	17CC04-48	Carbon Disulfide	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.31
PMC-CS-25-060117	17CC04-20	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.31
PMC-OA-02-060117	17CC04-24	Methylene Chloride	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.31
PMC-IN-33-060117	17CC04-12	Chloromethane	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.33
PMC-IN-12-062717-FD	17CC04-81	Carbon Disulfide	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-56-060117	17CC04-30	Carbon Disulfide	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-12-062717	17CC04-72	Carbon Disulfide	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-50-060317	17CC04-47	Carbon Disulfide	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-48-060117	17CC04-05	Methylene Chloride	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-28-060117	17CC04-27	Methylene Chloride	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-22-060117-FD	17CC04-16	Methylene Chloride	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-IN-33-060117	17CC04-12	Methylene Chloride	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-CS-25-060117-FD	17CC04-21	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34
PMC-OA-05-062817	17CC04-70	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.34

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-24-060117	17CC04-08	Methylene Chloride	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.35
PMC-IN-07-062717	17CC04-71	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.35
PMC-IN-27-060117	17CC04-32	Carbon Disulfide	0.21	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.36
PMC-IN-22-060117	17CC04-15	Methylene Chloride	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.37
PMC-IN-36-060617	17CC04-60	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.37
PMC-IN-02-39-062817	17CC04-77	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.37
PMC-OA-03-060317	17CC04-46	Propene	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.37
PMC-IN-15-060217	17CC04-42	Methylene Chloride	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.38
PMC-IN-15-060217	17CC04-42	Naphthalene	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.38
PMC-IN-17-060117	17CC04-10	Methylene Chloride	0.33	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.39
PMC-IN-21-060117	17CC04-25	Methylene Chloride	0.32	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.39
PMC-IN-25-060117	17CC04-33	Methylene Chloride	0.34	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.39
PMC-CS-22-060217	17CC04-41	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.4
PMC-IN-37-060217	17CC04-66	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.41
PMC-OA-02-060117	17CC04-24	2-Butanone	0.34	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.42
PMC-IN-15-060217	17CC04-42	4-Methyl-2-Pentanone	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.42
PMC-IN-30-060117	17CC04-31	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.42
PMC-IN-55-060117	17CC04-26	4-Methyl-2-Pentanone	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.44
PMC-IN-24-060117	17CC04-08	Carbon Disulfide	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.44
PMC-IN-20-060217	17CC04-43	Methylene Chloride	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.44
PMC-IN-22-060117-FD	17CC04-16	Carbon Disulfide	0.21	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.45
PMC-IN-47-A-072517	17CC04-89	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.46
PMC-IN-29-060117	17CC04-29	Carbon Disulfide	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.47
PMC-IN-26-060117	17CC04-28	Carbon Disulfide	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.47
PMC-IN-28-060117	17CC04-27	Benzene	0.12	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.47
PMC-IN-30-060117	17CC04-31	Chloromethane	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.47
PMC-IN-22-060117-FD	17CC04-16	Chloromethane	0.19	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.47

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-51-060617	17CC04-63	Carbon Disulfide	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.48
PMC-OA-08-060617	17CC04-59	2-Butanone	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.5
PMC-IN-03-39-062817	17CC04-78	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.5
PMC-IN-21-060117	17CC04-25	Carbon Disulfide	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.52
PMC-IN-40-060617	17CC04-57	Carbon Disulfide	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.53
PMC-IN-28-060117	17CC04-27	Carbon Disulfide	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.55
PMC-IN-47-B-072517	17CC04-90	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.58
PMC-IN-18-060117	17CC04-07	Methylene Chloride	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.62
PMC-IN-54-060117	17CC04-09	Carbon Disulfide	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.63
PMC-OA-02-060117	17CC04-24	Toluene	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.63
PMC-IN-49-072517	17CC04-88	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.64
PMC-IN-36-060617	17CC04-60	2-Butanone	0.37	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.66
PMC-CS-55-060117	17CC04-23	2-Butanone	0.34	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.67
PMC-IN-15-060217	17CC04-42	2-Hexanone	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.67
PMC-CS-16-060117	17CC04-18	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.68
PMC-IN-28-060117	17CC04-27	Xylenes, m & p	0.46	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.69
PMC-IN-16-060117	17CC04-14	2-Butanone	0.35	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.7
PMC-IN-12-062717	17CC04-72	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.74
PMC-CS-33-060117	17CC04-17	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.74
PMC-CS-28-060117	17CC04-22	Isopropyl Alcohol (Isopropanol)	0.7	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.75
PMC-IN-47-B-072517	17CC04-90	2-Butanone	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.76
PMC-CS-28-060117	17CC04-22	2-Butanone	0.35	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.76
PMC-IN-24-060117	17CC04-08	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.78
PMC-IN-34-060217	17CC04-44	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.78
PMC-CS-22-060217	17CC04-41	2-Butanone	0.37	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.82
PMC-CS-22-060217	17CC04-41	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.82
PMC-IN-16-060117	17CC04-14	Isopropyl Alcohol (Isopropanol)	0.7	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.83

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-16-060117	17CC04-14	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.88
PMC-CS-28-060117	17CC04-22	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.88
PMC-IN-12-062717-FD	17CC04-81	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.9
PMC-CS-55-060117	17CC04-23	Propene	0.22	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.9
PMC-IN-30-060117	17CC04-31	2-Butanone	0.35	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.91
PMC-IN-07-062717	17CC04-71	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.92
PMC-IN-16-060117	17CC04-14	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.93
PMC-CS-55-060117	17CC04-23	Isopropyl Alcohol (Isopropanol)	0.67	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.93
PMC-IN-30-060117	17CC04-31	Xylenes, m & p	0.48	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.94
PMC-IN-38-062717	17CC04-74	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.96
PMC-IN-17-060117	17CC04-10	2-Butanone	0.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 0.99
PMC-IN-22-060117-FD	17CC04-16	2-Butanone	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1
PMC-CS-16-060117	17CC04-18	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1
PMC-IN-19-060117	17CC04-13	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1
PMC-IN-24-060117	17CC04-08	Isopropyl Alcohol (Isopropanol)	0.76	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1
PMC-OA-08-060617	17CC04-59	Toluene	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1
PMC-IN-34-060217	17CC04-44	2-Butanone	0.37	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-IN-36-060617	17CC04-60	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-IN-28-060117	17CC04-27	Acrolein	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-CS-25-060117-FD	17CC04-21	Acetonitrile	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-IN-15-060217	17CC04-42	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-IN-37-060217	17CC04-66	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-CS-33-060117	17CC04-17	Toluene	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.1
PMC-IN-47-A-072517	17CC04-89	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-33-060117	17CC04-12	2-Butanone	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-23-060117	17CC04-11	2-Butanone	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-CS-33-060117	17CC04-17	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-18-060117	17CC04-07	2-Butanone	0.34	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-CS-33-060117	17CC04-17	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-22-060117-FD	17CC04-16	Acrolein	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-55-060117	17CC04-26	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-33-060117	17CC04-12	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-CS-25-060117	17CC04-20	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-29-060117	17CC04-29	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-55-060117	17CC04-26	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-33-060117	17CC04-12	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-01-39-062817	17CC04-76	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.2
PMC-IN-55-060117	17CC04-26	2-Butanone	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-OA-01-052517	17CC04-04	2-Butanone	0.02	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-22-060117	17CC04-15	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-22-060117	17CC04-15	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-22-060117-FD	17CC04-16	Vinyl Acetate	0.9	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-33-060117	17CC04-12	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-29-060117	17CC04-29	Propene	0.24	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.3
PMC-IN-51-060617	17CC04-63	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.4
PMC-IN-29-060117	17CC04-29	2-Butanone	0.35	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.4
PMC-IN-24-060117	17CC04-08	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.4
PMC-IN-29-060117	17CC04-29	Isopropyl Alcohol (Isopropanol)	0.71	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.4
PMC-CS-25-060117	17CC04-20	Xylenes, m & p	0.48	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.4
PMC-IN-24-060117	17CC04-08	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-IN-48-060117	17CC04-05	Acrolein	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-IN-30-060117	17CC04-31	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-IN-44-060617-FD	17CC04-65	Acrolein	0.32	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-CS-25-060117-FD	17CC04-21	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-22-060117	17CC04-15	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-CS-16-060117	17CC04-18	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-IN-23-060117	17CC04-11	Vinyl Acetate	0.97	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.5
PMC-IN-05-062817	17CC04-69	Acrolein	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.6
PMC-OA-02-060117	17CC04-24	Ethanol	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.6
PMC-CS-22-060217	17CC04-41	Isopropyl Alcohol (Isopropanol)	0.75	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.6
PMC-IN-34-060217	17CC04-44	Isopropyl Alcohol (Isopropanol)	0.73	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.6
PMC-IN-28-060117	17CC04-27	Vinyl Acetate	1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.6
PMC-CS-25-060117-FD	17CC04-21	2-Butanone	0.35	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-29-060117	17CC04-29	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-03-39-062817	17CC04-78	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-50-060317-FD	17CC04-48	Acrolein	0.32	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-CS-33-060117	17CC04-17	Ethyl acetate	0.64	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-33-060117	17CC04-12	Isopropyl Alcohol (Isopropanol)	0.71	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-20-060217	17CC04-43	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-28-060117	17CC04-27	Propene	0.22	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-52-060317	17CC04-45	Propene	0.27	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-50-060317	17CC04-47	Propene	0.26	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.7
PMC-IN-17-060117	17CC04-10	Acrolein	0.33	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.8
PMC-IN-01-39-062817	17CC04-76	Isopropyl Alcohol (Isopropanol)	0.73	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.8
PMC-IN-18-060117	17CC04-07	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.8
PMC-IN-54-060117	17CC04-09	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.8
PMC-IN-30-060117	17CC04-31	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.8
PMC-IN-23-060117	17CC04-11	Acrolein	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.9
PMC-IN-21-060117	17CC04-25	Acrolein	0.32	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.9
PMC-IN-20-060217	17CC04-43	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.9
PMC-IN-44-060617-FD	17CC04-65	Isopropyl Alcohol (Isopropanol)	0.79	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 1.9

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-55-060117	17CC04-26	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 11
PMC-CS-25-060117-FD	17CC04-21	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 13
PMC-IN-30-060117	17CC04-31	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 14
PMC-CS-33-060117	17CC04-17	Acetone	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 15
PMC-IN-37-060217	17CC04-66	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2
PMC-CS-25-060117-FD	17CC04-21	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2
PMC-IN-15-060217	17CC04-42	Ethyl acetate	0.6	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2
PMC-IN-03-062717	17CC04-67	Acrolein	0.33	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.0
PMC-IN-34-060217	17CC04-44	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.1
PMC-IN-28-060117	17CC04-27	Isopropyl Alcohol (Isopropanol)	0.66	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.1
PMC-IN-15-060217	17CC04-42	Isopropyl Alcohol (Isopropanol)	0.72	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.1
PMC-IN-12-062717-FD	17CC04-81	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.1
PMC-IN-47-B-072517	17CC04-90	Isopropyl Alcohol (Isopropanol)	0.73	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.2
PMC-IN-33-060117	17CC04-12	Ethyl acetate	0.6	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.2
PMC-IN-16-060117	17CC04-14	Ethyl acetate	0.58	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.2
PMC-IN-30-060117	17CC04-31	Isopropyl Alcohol (Isopropanol)	0.7	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.3
PMC-IN-23-060117	17CC04-11	Isopropyl Alcohol (Isopropanol)	0.63	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.3
PMC-IN-20-060217	17CC04-43	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.3
PMC-IN-30-060117	17CC04-31	Toluene	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.3
PMC-IN-26-060117	17CC04-28	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.4
PMC-IN-20-060217	17CC04-43	2-Butanone	0.37	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.4
PMC-IN-01-39-062817	17CC04-76	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.4
PMC-IN-54-060117	17CC04-09	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.4
PMC-IN-51-060617	17CC04-63	Acrolein	0.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.4
PMC-IN-50-060317	17CC04-47	Acrolein	0.32	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.6
PMC-IN-18-060117	17CC04-07	Ethyl acetate	0.57	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.7
PMC-IN-58-062817	17CC04-79	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.7

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-15-060217	17CC04-42	Acrolein	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.8
PMC-IN-18-060117	17CC04-07	Acrolein	0.28	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.8
PMC-IN-19-060117	17CC04-13	Propene	0.25	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.8
PMC-IN-18-060117	17CC04-07	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.8
PMC-OA-05-062817	17CC04-70	Ethanol	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.9
PMC-IN-51-060617	17CC04-63	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 2.9
PMC-IN-33-060117	17CC04-12	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 21
PMC-IN-29-060117	17CC04-29	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 22
PMC-IN-26-060117	17CC04-28	Acetone	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 25
PMC-IN-15-060217	17CC04-42	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 27
PMC-IN-38-062717	17CC04-74	2-Butanone	0.37	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.1
PMC-IN-26-060117	17CC04-28	Acrolein	0.31	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.1
PMC-IN-26-060117	17CC04-28	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.3
PMC-IN-15-060217	17CC04-42	2-Butanone	0.36	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.6
PMC-IN-33-060117	17CC04-12	Toluene	0.29	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.6
PMC-IN-36-060617	17CC04-60	Ethanol	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.7
PMC-CS-25-060117-FD	17CC04-21	Propene	0.23	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 3.9
PMC-IN-03-062717	17CC04-67	2-Butanone	0.41	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4
PMC-IN-30-060117	17CC04-31	Ethyl acetate	0.58	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4
PMC-OA-02-060117	17CC04-24	Acetone	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.4
PMC-CS-55-060117	17CC04-23	Acetone	1.2	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.4
PMC-CS-25-060117-FD	17CC04-21	Isopropyl Alcohol (Isopropanol)	0.7	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.4
PMC-OA-05-062817	17CC04-70	Acetone	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.6
PMC-OA-03-060317	17CC04-46	Ethanol	1.5	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.8
PMC-IN-09-060617	17CC04-61	Acetone	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.9
PMC-OA-47-072517	17CC04-91	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 4.9
PMC-IN-58-062817	17CC04-79	2-Butanone	0.38	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.0

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-48-060117	17CC04-05	Isopropyl Alcohol (Isopropanol)	0.68	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.1
PMC-OA-08-060617	17CC04-59	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.2
PMC-IN-47-B-072517	17CC04-90	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.3
PMC-IN-15-060217	17CC04-42	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.3
PMC-OA-47-072517	17CC04-91	Ethanol	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 5.9
PMC-IN-18-060117	17CC04-07	Isopropyl Alcohol (Isopropanol)	0.69	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 6.2
PMC-IN-58-062817	17CC04-79	Isopropyl Alcohol (Isopropanol)	0.76	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 6.4
PMC-CS-28-060117	17CC04-22	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 6.6
PMC-IN-36-060617	17CC04-60	Acetone	1.3	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 7.7
PMC-CS-22-060217	17CC04-41	Acetone	1.4	ug/m3	U	Can>MDL; FC>MDL; Original lab result = 8.9
PMC-IN-15-060217	17CC04-42	1,4-Dichlorobenzene	0.13	ug/m3	U	Can>MDL; Original lab result = 0.15
PMC-IN-03-062717	17CC04-67	1,4-Dichlorobenzene	0.15	ug/m3	U	Can>MDL; Original lab result = 0.19
PMC-IN-23-060117	17CC04-11	Benzene	0.12	ug/m3	U	Can>MDL; Original lab result = 0.2
PMC-OA-05-062817	17CC04-70	Benzene	0.14	ug/m3	U	Can>MDL; Original lab result = 0.2
PMC-IN-22-060117	17CC04-15	Benzene	0.14	ug/m3	U	Can>MDL; Original lab result = 0.21
PMC-IN-16-060117	17CC04-14	Benzene	0.13	ug/m3	U	Can>MDL; Original lab result = 0.21
PMC-CS-28-060117	17CC04-22	Benzene	0.13	ug/m3	U	Can>MDL; Original lab result = 0.21
PMC-CS-22-060217	17CC04-41	1,2,4-Trimethylbenzene	0.27	ug/m3	U	Can>MDL; Original lab result = 0.28
PMC-CS-28-060117	17CC04-22	Chloromethane	0.23	ug/m3	U	Can>MDL; Original lab result = 0.3
PMC-IN-44-060617	17CC04-64	Nonane	0.28	ug/m3	U	Can>MDL; Original lab result = 0.3
PMC-IN-30-060117	17CC04-31	Styrene	0.25	ug/m3	U	Can>MDL; Original lab result = 0.3
PMC-IN-44-060617-FD	17CC04-65	2-Hexanone	0.3	ug/m3	U	Can>MDL; Original lab result = 0.31
PMC-IN-55-060117	17CC04-26	Naphthalene	0.31	ug/m3	U	Can>MDL; Original lab result = 0.31
PMC-IN-44-060617-FD	17CC04-65	1,2,4-Trimethylbenzene	0.28	ug/m3	U	Can>MDL; Original lab result = 0.32
PMC-IN-19-060117	17CC04-13	Methylene Chloride	0.31	ug/m3	U	Can>MDL; Original lab result = 0.32
PMC-IN-23-060117	17CC04-11	Methylene Chloride	0.25	ug/m3	U	Can>MDL; Original lab result = 0.32
PMC-IN-44-060617	17CC04-64	2-Hexanone	0.3	ug/m3	U	Can>MDL; Original lab result = 0.34

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-37-060217	17CC04-66	2-Hexanone	0.26	ug/m3	U	Can>MDL; Original lab result = 0.34
PMC-IN-50-060317	17CC04-47	2-Hexanone	0.3	ug/m3	U	Can>MDL; Original lab result = 0.34
PMC-IN-16-060117	17CC04-14	Chloromethane	0.23	ug/m3	U	Can>MDL; Original lab result = 0.34
PMC-CS-25-060117	17CC04-20	Ethylbenzene	0.26	ug/m3	U	Can>MDL; Original lab result = 0.35
PMC-IN-44-060617-FD	17CC04-65	Styrene	0.28	ug/m3	U	Can>MDL; Original lab result = 0.35
PMC-IN-15-060217	17CC04-42	Chloromethane	0.24	ug/m3	U	Can>MDL; Original lab result = 0.35
PMC-IN-16-060117	17CC04-14	Methylene Chloride	0.28	ug/m3	U	Can>MDL; Original lab result = 0.36
PMC-CS-25-060117	17CC04-20	Xylene, o	0.25	ug/m3	U	Can>MDL; Original lab result = 0.36
PMC-IN-03-062717	17CC04-67	Naphthalene	0.35	ug/m3	U	Can>MDL; Original lab result = 0.37
PMC-OA-08-060617	17CC04-59	Nonane	0.26	ug/m3	U	Can>MDL; Original lab result = 0.37
PMC-OA-08-060617	17CC04-59	n-Hexane	0.26	ug/m3	U	Can>MDL; Original lab result = 0.38
PMC-IN-24-060117	17CC04-08	1,2,4-Trimethylbenzene	0.27	ug/m3	U	Can>MDL; Original lab result = 0.4
PMC-IN-50-060317	17CC04-47	Methylene Chloride	0.32	ug/m3	U	Can>MDL; Original lab result = 0.4
PMC-IN-44-060617	17CC04-64	N-HEPTANE	0.32	ug/m3	U	Can>MDL; Original lab result = 0.4
PMC-IN-30-060117	17CC04-31	Xylene, o	0.25	ug/m3	U	Can>MDL; Original lab result = 0.42
PMC-IN-22-060117	17CC04-15	Chloromethane	0.26	ug/m3	U	Can>MDL; Original lab result = 0.42
PMC-IN-56-060117	17CC04-30	Naphthalene	0.3	ug/m3	U	Can>MDL; Original lab result = 0.43
PMC-IN-22-060117	17CC04-15	N-HEPTANE	0.31	ug/m3	U	Can>MDL; Original lab result = 0.43
PMC-OA-08-060617	17CC04-59	Octane	0.31	ug/m3	U	Can>MDL; Original lab result = 0.43
PMC-IN-36-060617	17CC04-60	Methylene Chloride	0.3	ug/m3	U	Can>MDL; Original lab result = 0.45
PMC-OA-08-060617	17CC04-59	N-HEPTANE	0.29	ug/m3	U	Can>MDL; Original lab result = 0.45
PMC-IN-37-060217	17CC04-66	Chloromethane	0.23	ug/m3	U	Can>MDL; Original lab result = 0.45
PMC-IN-19-060117	17CC04-13	1,2,4-Trimethylbenzene	0.27	ug/m3	U	Can>MDL; Original lab result = 0.5
PMC-IN-04-052517	17CC04-03	Chloromethane	0.032	ug/m3	U	Can>MDL; Original lab result = 0.5
PMC-IN-08-060617	17CC04-58	Styrene	0.28	ug/m3	U	Can>MDL; Original lab result = 0.53
PMC-IN-12-062717-FD	17CC04-81	2-Hexanone	0.28	ug/m3	U	Can>MDL; Original lab result = 0.54
PMC-OA-05-062817	17CC04-70	Toluene	0.3	ug/m3	U	Can>MDL; Original lab result = 0.61

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-03-062717	17CC04-67	2-Hexanone	0.31	ug/m3	U	Can>MDL; Original lab result = 0.64
PMC-IN-26-060117	17CC04-28	Chloromethane	0.25	ug/m3	U	Can>MDL; Original lab result = 0.71
PMC-IN-49-072517	17CC04-88	2-Butanone	0.36	ug/m3	U	Can>MDL; Original lab result = 0.74
PMC-SG-13-05-060117	17CC04-39	Carbon Disulfide	0.62	ug/m3	U	Can>MDL; Original lab result = 0.76
PMC-IN-20-060217	17CC04-43	Ethylbenzene	0.28	ug/m3	U	Can>MDL; Original lab result = 0.76
PMC-IN-20-060217	17CC04-43	Tetrahydrofuran	0.36	ug/m3	U	Can>MDL; Original lab result = 0.76
PMC-IN-26-060117	17CC04-28	Benzene	0.14	ug/m3	U	Can>MDL; Original lab result = 0.77
PMC-IN-19-060117	17CC04-13	2-Butanone	0.38	ug/m3	U	Can>MDL; Original lab result = 0.79
PMC-IN-01-39-062817	17CC04-76	Ethyl acetate	0.61	ug/m3	U	Can>MDL; Original lab result = 0.79
PMC-IN-22-060117	17CC04-15	Xylenes, m & p	0.53	ug/m3	U	Can>MDL; Original lab result = 0.82
PMC-IN-52-060317	17CC04-45	2-Butanone	0.4	ug/m3	U	Can>MDL; Original lab result = 0.84
PMC-IN-22-060117-FD	17CC04-16	Xylenes, m & p	0.4	ug/m3	U	Can>MDL; Original lab result = 0.85
PMC-IN-20-060217	17CC04-43	Xylene, o	0.27	ug/m3	U	Can>MDL; Original lab result = 0.89
PMC-CS-16-060117	17CC04-18	2-Butanone	0.36	ug/m3	U	Can>MDL; Original lab result = 0.91
PMC-IN-47-A-072517	17CC04-89	D-Limonene	0.25	ug/m3	U	Can>MDL; Original lab result = 0.94
PMC-IN-55-060117	17CC04-26	D-Limonene	0.24	ug/m3	U	Can>MDL; Original lab result = 0.94
PMC-OA-02-060117	17CC04-24	Ethyl acetate	0.56	ug/m3	U	Can>MDL; Original lab result = 0.95
PMC-SG-13-01-060117	17CC04-34	Carbon Disulfide	0.59	ug/m3	U	Can>MDL; Original lab result = 0.98
PMC-IN-24-060117	17CC04-08	Ethyl acetate	0.64	ug/m3	U	Can>MDL; Original lab result = 0.98
PMC-IN-44-060617-FD	17CC04-65	Toluene	0.32	ug/m3	U	Can>MDL; Original lab result = 0.98
PMC-SG-04-052517	17CC04-02	Carbon Disulfide	0.62	ug/m3	U	Can>MDL; Original lab result = 0.99
PMC-IN-49-072517	17CC04-88	Xylenes, m & p	0.5	ug/m3	U	Can>MDL; Original lab result = 0.99
PMC-CS-22-060217	17CC04-41	Toluene	0.3	ug/m3	U	Can>MDL; Original lab result = 1
PMC-IN-52-060317	17CC04-45	Acrolein	0.32	ug/m3	U	Can>MDL; Original lab result = 1.1
PMC-IN-58-062817	17CC04-79	1,4-Dichlorobenzene	0.14	ug/m3	U	Can>MDL; Original lab result = 1.1
PMC-IN-19-060117	17CC04-13	n-Propylbenzene	0.29	ug/m3	U	Can>MDL; Original lab result = 1.1
PMC-IN-37-060217	17CC04-66	Xylenes, m & p	0.48	ug/m3	U	Can>MDL; Original lab result = 1.1

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-40-060617	17CC04-57	2-Butanone	0.39	ug/m3	U	Can>MDL; Original lab result = 1.2
PMC-IN-08-060617	17CC04-58	Ethyl acetate	0.65	ug/m3	U	Can>MDL; Original lab result = 1.2
PMC-IN-20-060217	17CC04-43	n-Butyl Acetate	0.28	ug/m3	U	Can>MDL; Original lab result = 1.2
PMC-IN-06-060617	17CC04-62	Acrolein	0.31	ug/m3	U	Can>MDL; Original lab result = 1.3
PMC-SG-04-052517	17CC04-02	Toluene	0.71	ug/m3	U	Can>MDL; Original lab result = 1.3
PMC-IN-08-060617	17CC04-58	Xylenes, m & p	0.54	ug/m3	U	Can>MDL; Original lab result = 1.3
PMC-IN-27-060117	17CC04-32	Methylene Chloride	0.24	ug/m3	U	Can>MDL; Original lab result = 1.4
PMC-IN-37-060217	17CC04-66	Trichlorofluoromethane	0.094	ug/m3	U	Can>MDL; Original lab result = 1.4
PMC-IN-50-060317-FD	17CC04-48	Propene	0.26	ug/m3	U	Can>MDL; Original lab result = 1.5
PMC-IN-38-062717	17CC04-74	Acrolein	0.3	ug/m3	U	Can>MDL; Original lab result = 1.6
PMC-SG-02-052517	17CC04-01	Carbon Disulfide	0.63	ug/m3	U	Can>MDL; Original lab result = 1.6
PMC-IN-38-062717	17CC04-74	Ethyl acetate	0.62	ug/m3	U	Can>MDL; Original lab result = 1.6
PMC-IN-16-060117	17CC04-14	Toluene	0.28	ug/m3	U	Can>MDL; Original lab result = 1.6
PMC-IN-06-060617	17CC04-62	2-Butanone	0.38	ug/m3	U	Can>MDL; Original lab result = 1.7
PMC-IN-01-39-062817	17CC04-76	Toluene	0.29	ug/m3	U	Can>MDL; Original lab result = 1.8
PMC-IN-01-39-062817	17CC04-76	2-Butanone	0.36	ug/m3	U	Can>MDL; Original lab result = 1.9
PMC-IN-23-060117	17CC04-11	Toluene	0.25	ug/m3	U	Can>MDL; Original lab result = 1.9
PMC-IN-16-060117	17CC04-14	Acetone	1.3	ug/m3	U	Can>MDL; Original lab result = 11
PMC-CS-16-060117	17CC04-18	Acetone	1.3	ug/m3	U	Can>MDL; Original lab result = 11
PMC-SG-48-060117	17CC04-06	Carbon Disulfide	0.61	ug/m3	U	Can>MDL; Original lab result = 14
PMC-SG-37-072017	17CC04-84	Acetone	3.3	ug/m3	U	Can>MDL; Original lab result = 16
PMC-IN-27-060117	17CC04-32	2-Butanone	0.3	ug/m3	U	Can>MDL; Original lab result = 2.1
PMC-IN-44-060617	17CC04-64	Isopropyl Alcohol (Isopropanol)	0.79	ug/m3	U	Can>MDL; Original lab result = 2.1
PMC-IN-26-060117	17CC04-28	Acetonitrile	0.33	ug/m3	U	Can>MDL; Original lab result = 2.1
PMC-IN-37-060217	17CC04-66	Dichlorodifluoromethane	0.28	ug/m3	U	Can>MDL; Original lab result = 2.1
PMC-SG-38-062617	17CC04-75	Ethanol	1.3	ug/m3	U	Can>MDL; Original lab result = 2.3
PMC-SG-03-062617	17CC04-68	Ethanol	1.4	ug/m3	U	Can>MDL; Original lab result = 2.3

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-37-060217	17CC04-66	Isopropyl Alcohol (Isopropanol)	0.69	ug/m3	U	Can>MDL; Original lab result = 2.3
PMC-IN-01-39-062817	17CC04-76	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; Original lab result = 2.3
PMC-IN-26-060117	17CC04-28	Methylene Chloride	0.31	ug/m3	U	Can>MDL; Original lab result = 2.3
PMC-IN-20-060217	17CC04-43	Xylenes, m & p	0.52	ug/m3	U	Can>MDL; Original lab result = 2.3
PMC-IN-50-060317	17CC04-47	2-Butanone	0.39	ug/m3	U	Can>MDL; Original lab result = 2.4
PMC-IN-37-060217	17CC04-66	2-Butanone	0.35	ug/m3	U	Can>MDL; Original lab result = 2.4
PMC-IN-08-060617	17CC04-58	Acrolein	0.32	ug/m3	U	Can>MDL; Original lab result = 2.4
PMC-IN-44-060617	17CC04-64	Acrolein	0.32	ug/m3	U	Can>MDL; Original lab result = 2.4
PMC-IN-23-060117	17CC04-11	Carbon Disulfide	0.22	ug/m3	U	Can>MDL; Original lab result = 2.6
PMC-IN-27-060117	17CC04-32	Vinyl Acetate	0.93	ug/m3	U	Can>MDL; Original lab result = 2.6
PMC-IN-03-062717	17CC04-67	Propene	0.27	ug/m3	U	Can>MDL; Original lab result = 2.6
PMC-IN-37-060217	17CC04-66	Toluene	0.28	ug/m3	U	Can>MDL; Original lab result = 2.7
PMC-IN-56-060117	17CC04-30	Acrolein	0.29	ug/m3	U	Can>MDL; Original lab result = 2.8
PMC-IN-22-060117	17CC04-15	Isopropyl Alcohol (Isopropanol)	0.77	ug/m3	U	Can>MDL; Original lab result = 21
PMC-IN-16-060117	17CC04-14	Ethanol	1.3	ug/m3	U	Can>MDL; Original lab result = 22
PMC-IN-37-060217	17CC04-66	Acetone	1.3	ug/m3	U	Can>MDL; Original lab result = 29
PMC-SG-58-062817	17CC04-80	Ethanol	1.3	ug/m3	U	Can>MDL; Original lab result = 3.1
PMC-IN-07-062717	17CC04-71	Benzene	0.14	ug/m3	U	Can>MDL; Original lab result = 3.1
PMC-IN-49-072517	17CC04-88	Isopropyl Alcohol (Isopropanol)	0.72	ug/m3	U	Can>MDL; Original lab result = 3.2
PMC-IN-37-060217	17CC04-66	Vinyl Acetate	1.1	ug/m3	U	Can>MDL; Original lab result = 3.2
PMC-SG-13-02-060117	17CC04-36	Acetone	3.2	ug/m3	U	Can>MDL; Original lab result = 3.4
PMC-SG-39-070317	17CC04-82	Ethanol	3.4	ug/m3	U	Can>MDL; Original lab result = 3.5
PMC-IN-12-062717-FD	17CC04-81	2-Butanone	0.37	ug/m3	U	Can>MDL; Original lab result = 3.6
PMC-SG-13-01-060117-FD	17CC04-35	Acetone	3.1	ug/m3	U	Can>MDL; Original lab result = 3.6
PMC-IN-03-062717	17CC04-67	Vinyl Acetate	1.3	ug/m3	U	Can>MDL; Original lab result = 3.6
PMC-SG-08-060617	17CC04-53	Acetone	3.2	ug/m3	U	Can>MDL; Original lab result = 3.7
PMC-SG-48-060117	17CC04-06	Acetone	3.1	ug/m3	U	Can>MDL; Original lab result = 3.8

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-SG-13-06-060117	17CC04-40	Acetone	3.3	ug/m3	U	Can>MDL; Original lab result = 3.8
PMC-SG-06-060517	17CC04-50	Ethanol	3.5	ug/m3	U	Can>MDL; Original lab result = 3.8
PMC-SG-09-060617	17CC04-54	Ethanol	3.2	ug/m3	U	Can>MDL; Original lab result = 3.8
PMC-SG-44-02-060617	17CC04-56	Ethanol	3.3	ug/m3	U	Can>MDL; Original lab result = 3.9
PMC-IN-20-060217	17CC04-43	Ethyl acetate	0.62	ug/m3	U	Can>MDL; Original lab result = 3.9
PMC-SG-09-060617	17CC04-54	Acetone	3.1	ug/m3	U	Can>MDL; Original lab result = 4
PMC-SG-47-072417	17CC04-85	Ethanol	3.1	ug/m3	U	Can>MDL; Original lab result = 4
PMC-IN-44-060617	17CC04-64	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; Original lab result = 4.1
PMC-IN-03-39-062817	17CC04-78	Isopropyl Alcohol (Isopropanol)	0.72	ug/m3	U	Can>MDL; Original lab result = 4.2
PMC-SG-51-060617	17CC04-52	Acetone	3.1	ug/m3	U	Can>MDL; Original lab result = 4.4
PMC-IN-50-060317	17CC04-47	Ethyl acetate	0.66	ug/m3	U	Can>MDL; Original lab result = 4.4
PMC-SG-44-01-060617	17CC04-55	Acetone	3.2	ug/m3	U	Can>MDL; Original lab result = 4.5
PMC-SG-44-01-060617	17CC04-55	Ethanol	3.3	ug/m3	U	Can>MDL; Original lab result = 4.5
PMC-IN-36-060617	17CC04-60	Ethyl acetate	0.61	ug/m3	U	Can>MDL; Original lab result = 4.6
PMC-OA-08-060617	17CC04-59	Ethanol	1.4	ug/m3	U	Can>MDL; Original lab result = 4.8
PMC-CS-33-060117	17CC04-17	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; Original lab result = 4.8
PMC-IN-44-060617	17CC04-64	Acetone	1.5	ug/m3	U	Can>MDL; Original lab result = 41
PMC-IN-20-060217	17CC04-43	Acetone	1.4	ug/m3	U	Can>MDL; Original lab result = 42
PMC-IN-19-060117	17CC04-13	Isopropyl Alcohol (Isopropanol)	0.76	ug/m3	U	Can>MDL; Original lab result = 5
PMC-SG-58-062817	17CC04-80	Acetone	1.3	ug/m3	U	Can>MDL; Original lab result = 5.1
PMC-IN-05-062817	17CC04-69	2-Butanone	0.44	ug/m3	U	Can>MDL; Original lab result = 5.4
PMC-IN-50-060317	17CC04-47	Isopropyl Alcohol (Isopropanol)	0.79	ug/m3	U	Can>MDL; Original lab result = 5.4
PMC-SG-44-02-060617	17CC04-56	Acetone	3.2	ug/m3	U	Can>MDL; Original lab result = 5.7
PMC-SG-13-04-060117	17CC04-38	Acetone	3	ug/m3	U	Can>MDL; Original lab result = 5.7
PMC-SG-40-060617	17CC04-51	Ethanol	3.1	ug/m3	U	Can>MDL; Original lab result = 5.9
PMC-IN-21-060117	17CC04-25	Isopropyl Alcohol (Isopropanol)	0.8	ug/m3	U	Can>MDL; Original lab result = 6
PMC-SG-47-072417-FD	17CC04-86	Ethanol	3.2	ug/m3	U	Can>MDL; Original lab result = 6.3

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-20-060217	17CC04-43	Isopropyl Alcohol (Isopropanol)	0.75	ug/m3	U	Can>MDL; Original lab result = 6.3
PMC-SG-06-060517	17CC04-50	Acetone	3.3	ug/m3	U	Can>MDL; Original lab result = 6.6
PMC-IN-03-062717	17CC04-67	Isopropyl Alcohol (Isopropanol)	0.82	ug/m3	U	Can>MDL; Original lab result = 6.7
PMC-IN-50-060317	17CC04-47	Vinyl Acetate	1.2	ug/m3	U	Can>MDL; Original lab result = 6.9
PMC-SG-40-060617	17CC04-51	Acetone	3	ug/m3	U	Can>MDL; Original lab result = 7.2
PMC-SG-49-072417	17CC04-87	Ethanol	3.1	ug/m3	U	Can>MDL; Original lab result = 7.2
PMC-IN-37-060217	17CC04-66	Ethanol	1.3	ug/m3	U	Can>MDL; Original lab result = 7.5
PMC-SG-13-05-060117	17CC04-39	Acetone	3.2	ug/m3	U	Can>MDL; Original lab result = 7.7
PMC-SG-13-03-060117	17CC04-37	Acetone	3.4	ug/m3	U	Can>MDL; Original lab result = 7.7
PMC-SS-39-070317	17CC04-83	Vinyl Acetate	2.5	ug/m3	U	Can>MDL; Original lab result = 7.7
PMC-SG-13-01-060117	17CC04-34	Acetone	3	ug/m3	U	Can>MDL; Original lab result = 7.8
PMC-IN-04-052517	17CC04-03	2-Butanone	0.018	ug/m3	U	Can>MDL; Original lab result = 8.3
PMC-SG-51-060617	17CC04-52	Ethanol	3.2	ug/m3	U	Can>MDL; Original lab result = 9.2
PMC-SG-36-060517	17CC04-49	Ethanol	3.5	ug/m3	U	Can>MDL; Original lab result = 9.5
PMC-CS-16-060117	17CC04-18	Ethanol	1.4	ug/m3	U	Can>MDL; Original lab result = 9.9
PMC-IN-48-060117	17CC04-05	Naphthalene	0.43	ug/m3	J	LabDup>RPD
PMC-OA-08-060617	17CC04-59	Benzene	0.14	ug/m3	U	FC>MDL; Original lab result = 0.18
PMC-IN-20-060217	17CC04-43	Benzene	0.14	ug/m3	U	FC>MDL; Original lab result = 0.22
PMC-CS-55-060117	17CC04-23	Benzene	0.13	ug/m3	U	FC>MDL; Original lab result = 0.22
PMC-IN-34-060217	17CC04-44	n-Hexane	0.26	ug/m3	U	FC>MDL; Original lab result = 0.28
PMC-IN-22-060117-FD	17CC04-16	Octane	0.25	ug/m3	U	FC>MDL; Original lab result = 0.28
PMC-IN-47-B-072517	17CC04-90	Methylene Chloride	0.29	ug/m3	U	FC>MDL; Original lab result = 0.29
PMC-CS-55-060117	17CC04-23	Methylene Chloride	0.27	ug/m3	U	FC>MDL; Original lab result = 0.29
PMC-IN-28-060117	17CC04-27	Acetonitrile	0.28	ug/m3	U	FC>MDL; Original lab result = 0.31
PMC-CS-33-060117	17CC04-17	Chloromethane	0.25	ug/m3	U	FC>MDL; Original lab result = 0.31
PMC-IN-07-062717	17CC04-71	Methylene Chloride	0.31	ug/m3	U	FC>MDL; Original lab result = 0.31
PMC-IN-54-060117	17CC04-09	Naphthalene	0.31	ug/m3	U	FC>MDL; Original lab result = 0.31

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-22-060117-FD	17CC04-16	Naphthalene	0.25	ug/m3	U	FC>MDL; Original lab result = 0.31
PMC-IN-34-060217	17CC04-44	Octane	0.31	ug/m3	U	FC>MDL; Original lab result = 0.33
PMC-IN-26-060117	17CC04-28	Xylene, o	0.27	ug/m3	U	FC>MDL; Original lab result = 0.36
PMC-IN-26-060117	17CC04-28	Ethylbenzene	0.29	ug/m3	U	FC>MDL; Original lab result = 0.37
PMC-IN-28-060117	17CC04-27	Chloromethane	0.22	ug/m3	U	FC>MDL; Original lab result = 0.37
PMC-OA-03-060317	17CC04-46	2-Butanone	0.39	ug/m3	U	FC>MDL; Original lab result = 0.39
PMC-IN-22-060117-FD	17CC04-16	N-HEPTANE	0.24	ug/m3	U	FC>MDL; Original lab result = 0.4
PMC-IN-34-060217	17CC04-44	Nonane	0.26	ug/m3	U	FC>MDL; Original lab result = 0.42
PMC-IN-09-060617	17CC04-61	Toluene	0.23	ug/m3	U	FC>MDL; Original lab result = 0.42
PMC-OA-01-052517	17CC04-04	Chloromethane	0.034	ug/m3	U	FC>MDL; Original lab result = 0.42
PMC-IN-54-060117	17CC04-09	Methylene Chloride	0.29	ug/m3	U	FC>MDL; Original lab result = 0.43
PMC-OA-47-072517	17CC04-91	n-Hexane	0.26	ug/m3	U	FC>MDL; Original lab result = 0.44
PMC-IN-44-060617-FD	17CC04-65	Methylene Chloride	0.32	ug/m3	U	FC>MDL; Original lab result = 0.46
PMC-IN-33-060117	17CC04-12	4-Ethyltoluene	0.27	ug/m3	U	FC>MDL; Original lab result = 0.47
PMC-IN-55-060117	17CC04-26	1,2,4-Trimethylbenzene	0.26	ug/m3	U	FC>MDL; Original lab result = 0.48
PMC-IN-12-062717	17CC04-72	2-Hexanone	0.3	ug/m3	U	FC>MDL; Original lab result = 0.48
PMC-IN-01-39-062817	17CC04-76	Benzene	0.14	ug/m3	U	FC>MDL; Original lab result = 0.51
PMC-IN-56-060117	17CC04-30	Chloromethane	0.24	ug/m3	U	FC>MDL; Original lab result = 0.51
PMC-CS-25-060117-FD	17CC04-21	Chloromethane	0.23	ug/m3	U	FC>MDL; Original lab result = 0.51
PMC-IN-27-060117	17CC04-32	Benzene	0.11	ug/m3	U	FC>MDL; Original lab result = 0.52
PMC-IN-47-A-072517	17CC04-89	Acrolein	0.31	ug/m3	U	FC>MDL; Original lab result = 0.53
PMC-IN-15-060217	17CC04-42	D-Limonene	0.24	ug/m3	U	FC>MDL; Original lab result = 0.53
PMC-IN-36-060617	17CC04-60	Xylenes, m & p	0.51	ug/m3	U	FC>MDL; Original lab result = 0.53
PMC-CS-25-060117	17CC04-20	Chloromethane	0.23	ug/m3	U	FC>MDL; Original lab result = 0.53
PMC-IN-47-A-072517	17CC04-89	Xylenes, m & p	0.53	ug/m3	U	FC>MDL; Original lab result = 0.55
PMC-CS-25-060117	17CC04-20	Benzene	0.13	ug/m3	U	FC>MDL; Original lab result = 0.56
PMC-IN-56-060117	17CC04-30	Methylene Chloride	0.29	ug/m3	U	FC>MDL; Original lab result = 0.62

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-33-060117	17CC04-12	Styrene	0.26	ug/m3	U	FC>MDL; Original lab result = 0.62
PMC-IN-33-060117	17CC04-12	Xylene, o	0.26	ug/m3	U	FC>MDL; Original lab result = 0.7
PMC-IN-03-39-062817	17CC04-78	Benzene	0.14	ug/m3	U	FC>MDL; Original lab result = 0.78
PMC-IN-15-060217	17CC04-42	Xylenes, m & p	0.5	ug/m3	U	FC>MDL; Original lab result = 0.95
PMC-IN-07-062717	17CC04-71	2-Butanone	0.38	ug/m3	U	FC>MDL; Original lab result = 0.96
PMC-IN-03-39-062817	17CC04-78	2-Butanone	0.36	ug/m3	U	FC>MDL; Original lab result = 0.98
PMC-IN-18-060117	17CC04-07	Xylenes, m & p	0.48	ug/m3	U	FC>MDL; Original lab result = 0.99
PMC-IN-54-060117	17CC04-09	1,2,4-Trimethylbenzene	0.26	ug/m3	U	FC>MDL; Original lab result = 1
PMC-IN-20-060217	17CC04-43	N-HEPTANE	0.3	ug/m3	U	FC>MDL; Original lab result = 1
PMC-IN-02-39-062817	17CC04-77	2-Butanone	0.35	ug/m3	U	FC>MDL; Original lab result = 1.0
PMC-IN-02-39-062817	17CC04-77	Acrolein	0.29	ug/m3	U	FC>MDL; Original lab result = 1.0
PMC-CS-25-060117	17CC04-20	2-Butanone	0.34	ug/m3	U	FC>MDL; Original lab result = 1.1
PMC-CS-25-060117	17CC04-20	Vinyl Acetate	1.1	ug/m3	U	FC>MDL; Original lab result = 1.1
PMC-IN-03-39-062817	17CC04-78	Toluene	0.29	ug/m3	U	FC>MDL; Original lab result = 1.1
PMC-IN-26-060117	17CC04-28	Xylenes, m & p	0.52	ug/m3	U	FC>MDL; Original lab result = 1.1
PMC-IN-21-060117	17CC04-25	Xylenes, m & p	0.55	ug/m3	U	FC>MDL; Original lab result = 1.1
PMC-CS-25-060117	17CC04-20	Acetonitrile	0.3	ug/m3	U	FC>MDL; Original lab result = 1.2
PMC-OA-03-060317	17CC04-46	Toluene	0.31	ug/m3	U	FC>MDL; Original lab result = 1.2
PMC-IN-40-060617	17CC04-57	Acrolein	0.32	ug/m3	U	FC>MDL; Original lab result = 1.3
PMC-IN-34-060217	17CC04-44	N-HEPTANE	0.3	ug/m3	U	FC>MDL; Original lab result = 1.3
PMC-IN-55-060117	17CC04-26	Toluene	0.29	ug/m3	U	FC>MDL; Original lab result = 1.3
PMC-CS-55-060117	17CC04-23	Toluene	0.27	ug/m3	U	FC>MDL; Original lab result = 1.3
PMC-IN-54-060117	17CC04-09	Xylenes, m & p	0.49	ug/m3	U	FC>MDL; Original lab result = 1.3
PMC-IN-47-A-072517	17CC04-89	Isopropyl Alcohol (Isopropanol)	0.76	ug/m3	U	FC>MDL; Original lab result = 1.4
PMC-IN-33-060117	17CC04-12	Xylenes, m & p	0.49	ug/m3	U	FC>MDL; Original lab result = 1.4
PMC-IN-54-060117	17CC04-09	2-Butanone	0.36	ug/m3	U	FC>MDL; Original lab result = 1.5
PMC-IN-28-060117	17CC04-27	2-Butanone	0.33	ug/m3	U	FC>MDL; Original lab result = 1.5

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-19-060117	17CC04-13	Vinyl Acetate	1.2	ug/m3	U	FC>MDL; Original lab result = 1.5
PMC-CS-25-060117	17CC04-20	D-Limonene	0.23	ug/m3	U	FC>MDL; Original lab result = 1.5
PMC-IN-23-060117	17CC04-11	Propene	0.21	ug/m3	U	FC>MDL; Original lab result = 1.5
PMC-IN-50-060317-FD	17CC04-48	2-Butanone	0.39	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-IN-38-062717	17CC04-74	Isopropyl Alcohol (Isopropanol)	0.75	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-IN-17-060117	17CC04-10	Vinyl Acetate	1.2	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-IN-25-060117	17CC04-33	Chloromethane	0.28	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-CS-55-060117	17CC04-23	Naphthalene	0.29	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-IN-26-060117	17CC04-28	n-Butyl Acetate	0.29	ug/m3	U	FC>MDL; Original lab result = 1.6
PMC-IN-21-060117	17CC04-25	Vinyl Acetate	1.2	ug/m3	U	FC>MDL; Original lab result = 1.7
PMC-IN-18-060117	17CC04-07	Naphthalene	0.3	ug/m3	U	FC>MDL; Original lab result = 1.7
PMC-IN-17-060117	17CC04-10	Ethyl acetate	0.67	ug/m3	U	FC>MDL; Original lab result = 1.9
PMC-IN-33-060117	17CC04-12	1,2,4-Trimethylbenzene	0.26	ug/m3	U	FC>MDL; Original lab result = 1.9
PMC-OA-03-060317	17CC04-46	Ethyl acetate	0.65	ug/m3	U	FC>MDL; Original lab result = 1.9
PMC-IN-05-062817	17CC04-69	Isopropyl Alcohol (Isopropanol)	0.88	ug/m3	U	FC>MDL; Original lab result = 10.0
PMC-IN-02-39-062817	17CC04-77	Acetone	1.3	ug/m3	U	FC>MDL; Original lab result = 10.0
PMC-CS-25-060117	17CC04-20	Acetone	1.3	ug/m3	U	FC>MDL; Original lab result = 11
PMC-IN-26-060117	17CC04-28	Isopropyl Alcohol (Isopropanol)	0.76	ug/m3	U	FC>MDL; Original lab result = 16
PMC-IN-56-060117	17CC04-30	Vinyl Acetate	1.1	ug/m3	U	FC>MDL; Original lab result = 2
PMC-CS-28-060117	17CC04-22	Ethyl acetate	0.58	ug/m3	U	FC>MDL; Original lab result = 2.1
PMC-CS-25-060117	17CC04-20	Isopropyl Alcohol (Isopropanol)	0.69	ug/m3	U	FC>MDL; Original lab result = 2.3
PMC-CS-55-060117	17CC04-23	Ethyl acetate	0.56	ug/m3	U	FC>MDL; Original lab result = 2.5
PMC-CS-25-060117	17CC04-20	Ethyl acetate	0.57	ug/m3	U	FC>MDL; Original lab result = 2.5
PMC-IN-18-060117	17CC04-07	Toluene	0.28	ug/m3	U	FC>MDL; Original lab result = 2.6
PMC-IN-23-060117	17CC04-11	Acetone	1.1	ug/m3	U	FC>MDL; Original lab result = 23
PMC-CS-25-060117	17CC04-20	Propene	0.23	ug/m3	U	FC>MDL; Original lab result = 3
PMC-IN-58-062817	17CC04-79	Acrolein	0.31	ug/m3	U	FC>MDL; Original lab result = 3.0

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-25-060117	17CC04-33	2-Butanone	0.42	ug/m3	U	FC>MDL; Original lab result = 3.2
PMC-IN-12-062717	17CC04-72	2-Butanone	0.39	ug/m3	U	FC>MDL; Original lab result = 3.3
PMC-IN-28-060117	17CC04-27	Ethyl acetate	0.55	ug/m3	U	FC>MDL; Original lab result = 3.3
PMC-CS-25-060117	17CC04-20	Toluene	0.28	ug/m3	U	FC>MDL; Original lab result = 3.3
PMC-IN-19-060117	17CC04-13	Carbon Disulfide	0.27	ug/m3	U	FC>MDL; Original lab result = 3.4
PMC-IN-33-060117	17CC04-12	Naphthalene	0.31	ug/m3	U	FC>MDL; Original lab result = 3.7
PMC-IN-56-060117	17CC04-30	Propene	0.24	ug/m3	U	FC>MDL; Original lab result = 3.8
PMC-IN-25-060117	17CC04-33	Acetone	1.5	ug/m3	U	FC>MDL; Original lab result = 35
PMC-IN-25-060117	17CC04-33	Vinyl Acetate	1.3	ug/m3	U	FC>MDL; Original lab result = 4.6
PMC-IN-50-060317-FD	17CC04-48	Isopropyl Alcohol (Isopropanol)	0.79	ug/m3	U	FC>MDL; Original lab result = 4.8
PMC-IN-26-060117	17CC04-28	D-Limonene	0.25	ug/m3	U	FC>MDL; Original lab result = 5
PMC-IN-44-060617-FD	17CC04-65	Ethyl acetate	0.66	ug/m3	U	FC>MDL; Original lab result = 5.3
PMC-IN-25-060117	17CC04-33	Acetonitrile	0.36	ug/m3	U	FC>MDL; Original lab result = 5.7
PMC-IN-22-060117-FD	17CC04-16	Acetone	1.1	ug/m3	U	FC>MDL; Original lab result = 50
PMC-IN-22-060117	17CC04-15	Acetone	1.4	ug/m3	U	FC>MDL; Original lab result = 52
PMC-CS-55-060117	17CC04-23	Ethanol	1.3	ug/m3	U	FC>MDL; Original lab result = 6.9
PMC-IN-56-060117	17CC04-30	2-Butanone	0.35	ug/m3	U	FC>MDL; Original lab result = 7.3
PMC-IN-55-060117	17CC04-26	Isopropyl Alcohol (Isopropanol)	0.71	ug/m3	U	FC>MDL; Original lab result = 9
PMC-IN-47-A-072517	17CC04-89	Acetone	1.4	ug/m3	U	FC>MDL; Original lab result = 9.1
PMC-IN-22-060117	17CC04-15	Ethyl acetate	12	ug/m3	J	FD>RPD
PMC-IN-22-060117	17CC04-15	Propene	9.8	ug/m3	J	FD>RPD
PMC-IN-22-060117-FD	17CC04-16	Ethyl acetate	7.6	ug/m3	J	FD>RPD
PMC-IN-22-060117-FD	17CC04-16	Propene	7	ug/m3	J	FD>RPD
PMC-IN-50-060317	17CC04-47	n-Hexane	1.5	ug/m3	J	FD>RPD
PMC-IN-50-060317-FD	17CC04-48	n-Hexane	1.1	ug/m3	J	FD>RPD
PMC-IN-03-062717	17CC04-67	Benzene	0.36	ug/m3	J	LabDup>RPD
PMC-IN-03-062717	17CC04-67	Nonane	1.2	ug/m3	J	LabDup>RPD

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-SG-47-072417	17CC04-85	Acetone	40	ug/m3	J	FD>RPD
PMC-SG-47-072417-FD	17CC04-86	Acetone	24	ug/m3	J	FD>RPD
PMC-IN-04-052517	17CC04-03	Dichlorodifluoromethane	2.9	ug/m3	J	LCSD>UCL
PMC-IN-04-052517	17CC04-03	Trichlorofluoromethane	3.4	ug/m3	J	LCSD>UCL
PMC-OA-01-052517	17CC04-04	Dichlorodifluoromethane	2.6	ug/m3	J	LCSD>UCL
PMC-OA-01-052517	17CC04-04	Trichlorofluoromethane	1.3	ug/m3	J	LCSD>UCL
PMC-OA-01-052517	17CC04-04	Acetone	0.1	ug/m3	U	MB>MDL; Can>MDL; FC>MDL; Original lab result = 13
PMC-IN-04-052517	17CC04-03	Acetone	0.094	ug/m3	U	MB>MDL; Can>MDL; FC>MDL; Original lab result = 40
PMC-IN-04-052517	17CC04-03	Chloroform	0.03	ug/m3	U	MB>MDL; Can>MDL; Original lab result = 0.35
PMC-OA-01-052517	17CC04-04	Chloroform	0.032	ug/m3	U	MB>MDL; Original lab result = 0.14

Validation Reasons:
Can>MDL The canister had a detection greater than the MDL.
FC>MDL The flow controller had a detection greater than the MDL.
FD>RPD The field duplicate exceeded RPD control limits.
LabDup>RPD The laboratory duplicate exceeded RPD control limits.
LCSD>UCL The laboratory control duplicate was recovered greater than control limits.
MB>MDL The method blank was detected greater than the MDL.

Analytical Data Summary for Vapor Intrusion Sampling at the PMC Groundwater Superfund Site, Petoskey, Michigan, February 2018

PREPARED FOR:	U.S. Environmental Protection Agency (EPA)
PREPARED BY:	CH2M HILL, Inc. (CH2M)
DATE:	June 22, 2018

This memorandum presents the data quality evaluation (DQE) of indoor air (IA), outdoor air (OA), crawl space (CS), subslab soil gas (SS), and exterior soil gas (SG) samples collected during the field investigation conducted February 5 through February 21, 2018, at the PMC Groundwater Superfund Site in Petoskey, Michigan. The objective of this investigation is detailed in the *Final Uniform Federal Policy Quality Assurance Project Plan (QAPP) Addendum I, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan* (CH2M 2017). Guidance for the data quality evaluation assessment followed the *Final Uniform Federal Policy Quality Assurance Project Plan, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan* (CH2M 2016); EPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2017); and individual method requirements.

CH2M personnel performed the sampling, and ALS in Simi Valley, California, analyzed the samples. The samples were reported in four sample delivery groups (SDGs) listed as P1800620, P1800633, P1800637, and P1800810. The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC), as described in the QAPP and QAPP Addendum (CH2M 2016, 2017). This technical memorandum summarizes the data issues identified during the general data quality assessment.

Analytical Data

This DQE report provides the results and validation for 5 normal SS samples, 17 normal SG samples, 23 IA samples, 3 OA samples, 7 CS samples, 1 SS field duplicates (FDs), 2 SG FDs, 3 IA FDs, 0 OA FDs, and 1 CS FDs collected and analyzed for site-specific volatile organic compounds by Methods TO-15 and/or TO-15 SIM. Samples were shipped by an overnight carrier to the laboratory for analysis.

Stage 2B validation (Level III) was performed on 100% of the data to assess their analytical accuracy, precision, and completeness. The assessment of the data included a review of the following:

- Completeness
- Chain-of-custody documentation
- Holding times and sample receipt conditions
- Frequency of quality control (QC) samples
- Initial calibration and continuing calibration precision and accuracy
- Blank contamination and, if any, its impact on the analytical results
- Laboratory control sample (LCS) accuracy
- Surrogate spike accuracy
- Internal standard accuracy and frequency
- Instrument tuning accuracy and frequency

- Laboratory and FD precision

The quality assurance (QA)/QC criteria implemented during validation were those listed in the site-specific QAPP and subsequent addendums. Standard data qualifiers were added as a means of classifying the data as to their conformance to QA/QC requirements. Multiple qualifiers are routinely applied to specific sample method/matrix/analyte combinations, but there is only one final qualifier. A final qualifier is applied to the data and is the most conservative of the applied validation qualifiers. The data qualifiers are defined as follows:

[U] Undetected. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

[J] Estimated. The analyte was positively identified; the concentration is an estimation due to discrepancies in meeting certain analyte-specific QC criteria or was reported between the detection limit and reporting limit.

In instances where multiple analyses were performed, the analytical run with the lowest reporting limits was used if the QC criteria were met for that analysis. If a sample was analyzed more than once due to a target parameter concentration above the calibration range, the results for all parameters were reported from the lowest dilution, except for the parameters exceeding the calibration range, which were reported from the diluted analysis. In instances where multiple analyses were performed with QC outside criteria, the analytical run with the least number of exceptions or best possible QC was chosen for reporting purposes.

The analytical results were within project control limits, except where noted in the following sections. Qualified data are listed in Table 1.

Holding Time and Preservation

Acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods, and acceptance criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination, with the following exception:

- Acetone was detected in all SDGs and methods except for SDG P1800810, TO-15 Scan. Acetone is a known laboratory contaminant, and all sample concentrations were well above two times the blank contaminations or nondetect; therefore, no qualifiers were applied.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and acceptance criteria were met.

Surrogate Standards

Surrogates were added to the samples, and acceptance criteria were met.

Internal Standards

Internal standards were added as required, and acceptance criteria were met.

Instrument Tunes

Instrument tunes were completed as required, and acceptance criteria were met.

Laboratory Duplicates

Laboratory duplicates were performed as required, and precision criteria were met with the following exception:

The laboratory duplicate for 1,1,1-trichloroethane in sample 18CP01-02 reported a 46% relative percent difference (RPD), which is outside the laboratory limit of 25%. The native sample was qualified "J" as estimated.

Field Duplicates

FDs were collected and analyzed as required, and the RPDs were within established QC limits.

Overall Assessment

The goal of this assessment is to document that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the sampling events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include FD and LCS/LCSD RPDs. Precision was generally acceptable, except for one analyte that was qualified as estimated in one samples due to LD RPD issues. Data users should consider the impact to results that are qualified as estimated, because it may indicate a bias that could affect the decision-making process.
- Accuracy of the data was verified by reviewing the calibration data, LCS/LCSD, surrogate, and internal standard recoveries, as well as the evaluation of the method blank data. Accuracy was generally acceptable.
- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures, and verification of holding time compliance. The laboratory did not note discrepancies with sample collection, storage, or preservation procedures. The data were reported from analyses within the EPA-recommended holding time.
- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as the data that are not rejected for project use. The data were considered valid, and the completeness goal of 90% was met for the analyte/method combinations.

References

CH2M HILL, Inc. (CH2M). 2016. *Final Uniform Federal Policy Quality Assurance Project Plan, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan.* October.

CH2M HILL, Inc. (CH2M). 2017. *Final Uniform Federal Policy Quality Assurance Project Plan Addendum I, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan.* December.

U.S. Environmental Protection Agency (EPA). 2017. *National Functional Guidelines for Superfund Organic Methods Data Review*. January.

Table 1. Data Qualification Summary

Location Identification	Scribe Sample Identification	Analytical Method	Analyte	Result	Unit	Validation Flag	Validation Reason
PMC-IN-03-020518	18CP01-02	TO-15 SIM	1,1,1-Trichloroethane	0.01	µg/m^3	J	LD>RPD

Validation Reasons:

LD>RPD	The RPD exceeded criteria in the LD pair

Analytical Data Summary for Sampling at the PMC Groundwater Superfund Site, Petoskey, Michigan, May through June 2018

PREPARED FOR:	U.S. Environmental Protection Agency (EPA)
PREPARED BY:	CH2M HILL, Inc. (CH2M)
DATE:	July 3, 2019

This memorandum presents the data quality evaluation (DQE) of groundwater (GW) and sub-slab soils samples collected during the field investigation conducted May through June 2018 at the PMC Groundwater Superfund Site in Petoskey, Michigan. Guidance for the DQE assessment followed the Quality Assurance Project Plan (QAPP) (CH2M 2018), EPA *Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review* (EPA 2017), EPA *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA 2017), and individual method requirements.

CH2M personnel performed the sampling, and ALS in Holland, Michigan, analyzed the samples for metals, site-specific volatile organic compounds (VOCs), total organic carbon (TOC), oxidant demand. ALS in Kelso, Washington, analyzed a subset of the water samples for perfluorooctanoic acid (PFOA)/perfluoroalkyl substances (PFAS). ALS in Simi Valley, California, analyzed the air samples for VOCs. The soil and groundwater samples were reported in nine sample delivery groups (SDGs) listed as 1806126, 1806842, 1807016, 18051328, 18051407, 18051560, 18051682, 18051688, and 18051778. The air samples were reported in 3 SDGs listed as P1803492, P1803494, and P1803495.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC), as described in the project QAPP (CH2M 2018). This technical memorandum summarizes the data issues identified during the general data quality assessment.

Analytical Data

This DQE report provides the results and validation for the following samples. 26 normal soil samples from 10 soil vapor boring (SVB) locations and 2 monitoring well (MW) installations were collected and analyzed for

- TAL Metals-EPA Methods SW-846 Method 6010C
- VOC (site specific)- SW-846 Method 8260C
- TOC-Walkley-Black Method
- Oxidant Demand-ASTM 4500B
- PFOA & PFAS-Method PFC 537M using a preparation method 3535A

Sample Tabulation

Thirty-eight normal groundwater samples from 2 CH2M Monitoring Well (CMW) locations, 4 COP locations, 3 MW locations, 13 PS locations and 9 SVB locations were collected and analyzed for site-specific VOCs. Seven of the groundwater samples were also analyzed for PFOA/PFAS. 9 sewer gas and 31 soil vapor samples from 15 SVB locations were also collected and analyzed for site specific VOCs by EPA Method TO-15/TO-15 SIM.

Three groundwater and 5 air field duplicates (FDs) were also collected and analyzed for the site-specific VOC target compound list. Additionally, one equipment blank (EB) was collected and analyzed by the laboratory for the PFOA/PFAS fraction. Thirteen travel blanks (TB) were collected and analyzed for VOC fraction. Samples were shipped by an overnight carrier to the laboratory for analysis.

Stage 2B validation (Level III) was performed on 100% of the data to assess their analytical accuracy, precision, and completeness. The data assessment included a review of the following:

- Completeness
- Chain-of-custody documentation
- Holding times and sample receipt conditions
- Frequency of quality control (QC) samples
- Initial calibration and continuing calibration precision and accuracy
- Blank contamination and, if any, its impact on the analytical results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) accuracy
- Surrogate spike accuracy
- Internal standard accuracy and frequency
- Instrument tuning accuracy and frequency
- Laboratory and FD precision

The quality assurance (QA)/QC criteria implemented during validation were those listed in the site -specific QAPP (CH2M 2018). Standard data qualifiers were added as a means of classifying the data as to their conformance to QA/QC requirements. Multiple qualifiers are routinely applied to specific sample method/matrix/analyte combinations, but there is only one final qualifier. A final qualifier is applied to the data and is the most conservative of the applied validation qualifiers. The data qualifiers are defined as follows:

[**U**] Undetected. The analyte was analyzed for but was not detected above the reported sample quantitation limit.

[**UJ**] The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

[**J**] Estimated. The analyte was positively identified; the concentration is an estimation due to discrepancies in meeting certain analyte-specific QC criteria or was reported between the detection limit and reporting limit.

[**R**] The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

In instances where samples had multiple laboratory analyses performed, the analytical run with the lowest reporting limits (least dilute) was used if the QC criteria were met for that analysis. If a sample was analyzed more than once due to a target parameter concentration above the calibration range, the results for all parameters were reported from the lowest dilution, except for the parameters exceeding the calibration range, which were reported from the diluted analysis. In instances where multiple analyses were performed with QC outside criteria, the analytical run with the least number of exceptions or best possible QC was chosen for reporting purposes.

The analytical results from the associated field collection event were within project specified control limits for the listed analytical methods, except where noted in the following subsections below.

Holding Time and Preservation

All acceptance criteria were met for the described sample set for this sample set.

Calibration

Initial and continuing calibration analyses were performed as required by the methods. All acceptance criteria were met with the following exceptions:

The initial calibration response was below the control limits for methyl acetate in SDGs 18051778 and 18051682. Any nondetected concentrations were qualified "UJ" and detects were qualified "J" as estimated.

The initial calibration response was below the control limits for 1,2-dichloropropane in SDG 18051682. Any nondetected concentrations were qualified "UJ" and detects were qualified "J" as estimated.

The initial calibration response was below the control limits for bromomethane and dichlorodifluoromethane in SDGs 1806126. Any nondetected concentrations were qualified "UJ" and detects were qualified "J" as estimated.

The initial and all continuing calibrations in SDG 18051778 reported a low recovery for potassium below 75%. The two associated samples were both detected and qualified "R" as unusable.

Multiple continuing calibrations in SDG 18051407 reported low recoveries for acetone, chloromethane, bromoform, 2-butanone, 1,1,2-trichloroethane, methyl acetate, 1,1,2,2-tetrachloroethane and 1,2-dibromo-3-chloropropane. Any nondetected concentrations were qualified "UJ" and detects were qualified "J" as estimated.

Multiple continuing calibrations in SDG 1807016 reported low recoveries for 1,2-dibromoethane. All associated samples were nondetect and therefore qualified "UJ".

Zinc reported a high recovery in SDG 18051778, therefore, detected concentrations in associated samples were qualified "J". Nondetects were not qualified.

Blank Sample Findings

Method blanks were analyzed at the required frequency and were free of contamination, with the following exceptions:

- Ethanol was detected at a concentration greater than the MDL in one method blank associated with SDG P1803492. Associated native sample results that were detected at concentrations less than the concentration found in the method blank were qualified as nondetected results and flagged "U". The results also were reported at the RDL.
- Ethanol, acetone and chloroform were detected at concentrations greater than the MDL in one method blank associated with SDG P1803495. Associated native sample results that were detected at concentrations (two times for Acetone, a common laboratory contaminant) less than the concentration found in the method blank were qualified as nondetected results and flagged "U". The results also were reported at the RDL.

Trip blanks were analyzed at the required frequency and were free of contamination, with the following exceptions:

- Acetone and chloroform were detected at concentrations greater than the MDL in one trip blank associated with SDG 1806126. Methylene chloride was detected at a concentration greater than the MDL in one trip blank associated with SDG 18051778. Associated native sample results that were detected at concentrations (two times for Acetone and methylene chloride, common laboratory

contaminants) less than the concentration found in the trip blank were qualified as nondetected results and flagged "U". The results also were reported at the RDL.

The equipment blank for the PFOA/PFAS fraction was analyzed at the required frequency and was free of contamination and no detects of target compounds.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and acceptance criteria were met for this sample set.

Surrogate Standards

Surrogates were added to the samples, and acceptance criteria were met for this sample set.

Internal Standards

Internal standards were added as required, and acceptance criteria were met for this sample set.

Instrument Tunes

Instrument tunes were completed as required, and acceptance criteria were met for this sample set.

Matrix and Post-Digestion Spikes

MS/MSD samples were analyzed as required and all accuracy and precision criteria were met with the following exceptions:

In SDG 18051407, sample PMC-SVB-12-SO/12.0-13.0-051818, the MS/MSD had several target compounds below the control limits: 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, and 1,2-dichlorobenzene.

In SDG 18051407, sample PMC-SVB-12-SO/1.5-2.5-051818; 1,1,2,2-tetrachloroethane, was reported below the control limit. The MS/MSD for TOC was also reported below the control limits.

In SDG 1806842, sample PMC-COP-5-R-061118, acetone and trichloroethylene were reported below the control limit.

In SDG 1807016, sample PMC-PS-CD-062818, acetone was reported below the control limit.

Any nondetected concentrations in the associated parent sample data were qualified "UJ" and detects were qualified "J" as estimated.

Laboratory Duplicates

Laboratory duplicates were performed as required, and precision criteria were met with the following exceptions:

- The laboratory duplicates for oxidant demand in samples PMC-SVB-11-SO/18.0-19.0-051818 and PMC-SVB-12-SO/8.0-9.0-051818 were outside the laboratory limits. The native samples were qualified "J" as estimated for those analytes.

Field Duplicates

FDs were collected and analyzed as required, and the relative percent differences (RPDs) were within established QC limits, with the following exceptions:

- Acetone was flagged estimated as "J" in parent samples PMC-SVB-04-06-062718, PMC-SVB-10-15.6-062618 and PMC-SVB-11-05-062618 due to FD precision exceedances.

- n-Butanol was flagged estimated as "J" in parent samples PMC-SVB-04-06-062718, PMC-SVB-10-15.6-062618 and PMC-ST-05-062918 due to FD precision exceedances.
- Isopropanol was flagged estimated as "J" in parent sample PMC-ST-05-062918 due to a FD precision exceedance.

Sample Analysis

The analysis of sample PMC-ST-06-062918, in SDG P1803495, in SIM mode had positive hits for all target analytes at concentrations above MDL. The laboratory determined that the sample was contaminated with trace levels of the standard during the analysis. Therefore, the results being reported for this sample are biased high by approximately 0.031 micrograms per cubic meter and flagged "J" as estimated.

Overall Assessment

The goal of this assessment is to document that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The majority of the sample results that were qualified during the validation process were in the VOC fraction. Additionally, there was limited flagging of Oxidant Demand. No other analytical fractions were qualified upon the review/validation of the laboratory final data.

The following summary highlights the PARCC findings for the sampling events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include LCS/LCSD, laboratory duplicate, and FD RPDs. Precision was generally acceptable with the noted exception of three analytes being qualified as estimated detected results in five samples due to laboratory duplicate and/or FD RPD issues. Data users should consider the impact to final results that are qualified as estimated, because it may indicate a bias that could affect the decision-making process.
- Accuracy of the data was verified by reviewing the calibration data, LCS/LCSD, surrogate, and internal standard recoveries, as well as the evaluation of the method blank, canister, and flow controller data. Accuracy was generally acceptable with the exception of several analytes that were detected in the method blanks at concentrations greater than the MDL. Associated results that were detected at concentrations (two times for common laboratory contaminants) less than the concentration found in the method blank, canister, and/or flow controllers were qualified as nondetected results and flagged "U". Nondetected results and concentrations (two times for common laboratory contaminants) greater than the concentration found in the method blank were not qualified.
- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures, and verification of holding time compliance. The laboratory did not note discrepancies with sample collection, storage, or preservation procedures. The data were reported from analyses within the EPA-recommended holding time.
- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as the data that are not rejected for project use. The data were considered valid with the exception of the two potassium

results flagged "R" as noted above, and the completeness goal of 90% was met for the analyte/method combinations.

References

CH2M HILL, Inc. (CH2M). 2018. F*inal Uniform Federal Policy Quality Assurance Project Plan, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan*. June.

U.S. Environmental Protection Agency (EPA). 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. January.

U.S. Environmental Protection Agency (EPA). 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. January.

Analytical Data Summary for Sampling at the PMC Groundwater Superfund Site, Petoskey, Michigan, October through November 2018

PREPARED FOR:	U.S. Environmental Protection Agency (EPA)
PREPARED BY:	CH2M HILL, Inc. (CH2M)
DATE:	July 3, 2019

This memorandum presents the data quality evaluation (DQE) of air samples collected during the field investigation conducted October through November 2018 at the PMC Groundwater Superfund Site in Petoskey, Michigan. Guidance for the DQE assessment followed the Quality Assurance Project Plan (QAPP) (CH2M 2018), EPA *Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review* (EPA 2017), and individual method requirements.

CH2M personnel performed the sampling, and ALS in Simi Valley, California, analyzed the air samples for VOCs. The air samples were reported in seven sample delivery groups (SDGs) listed as P1805476, P1805493, P1805497, P1805559, P1806319, P1806321, and P1806362. The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC), as described in the QAPP (CH2M 2018). This technical memorandum summarizes the data issues identified during the general data quality assessment.

Analytical Data

This DQE report provides the results and validation for the following samples. 48 air-media samples from nine locations, and nine soil vapor samples from five soil vapor boring (SVB) locations were collected and analyzed for site specific VOCs by EPA Method TO-15/TO-15 SIM.

One soil vapor and seven air-media field duplicates (FDs), were also collected and analyzed for site-specific VOCs. Samples were shipped by an commercial carrier to the laboratory for analysis.

Stage 2B validation (Level III) was performed on 100% of the data to assess their analytical accuracy, precision, and completeness. The data assessment included a review of the following elements:

- Completeness
- Chain-of-custody documentation
- Holding times and sample receipt conditions
- Frequency of quality control (QC) samples
- Initial calibration and continuing calibration precision and accuracy
- Blank contamination and, if any, its impact on the analytical results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) accuracy
- Surrogate spike accuracy
- Internal standard accuracy and frequency
- Field duplicate precision

The quality assurance (QA)/QC criteria implemented during validation were those listed in the site-specific QAPP (CH2M 2018). Standard data qualifiers were added as a means of classifying the data

as to their conformance to QA/QC requirements. Multiple qualifiers are routinely applied to specific sample method/matrix/analyte combinations, but there is only one final qualifier. A final qualifier is applied to the data and is the most conservative of the applied validation qualifiers. The data qualifiers are defined as follows:

[U] Undetected. The analyte was analyzed for but was not detected above the reported sample quantitation limit.

[UJ] The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

[J] Estimated. The analyte was positively identified; the concentration is an estimation due to discrepancies in meeting certain analyte-specific QC criteria or was reported between the detection limit and reporting limit.

[R] The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.

In instances where samples had multiple laboratory analyses performed, the analytical run with the lowest reporting limits (least dilute) was used if the QC criteria were met for that analysis. If a sample was analyzed more than once due to a target parameter concentration above the calibration range, the results for all parameters were reported from the lowest dilution, except for the parameters exceeding the calibration range, which were reported from the diluted analysis. In instances where multiple analyses were performed with QC outside criteria, the analytical run with the least number of exceptions or best possible QC was chosen for reporting purposes.

The analytical results were within project control limits, except where noted in the following subsections.

Holding Time and Preservation

Acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed by the laboratory as required by the analytical methods. All acceptance criteria were met.

Blanks

Method blanks were analyzed by the laboratory at the required frequency and were free of contamination, with the following exceptions:

- Acetone, dichlorodifluoromethane, and toluene were detected at concentrations greater than the MDL in method blanks associated with SDG P1806319. Associated native sample results that were detected at concentrations (two times for acetone, a common laboratory contaminant) less than the concentration found in the method blank were qualified as nondetected results and flagged “U”. The results also were reported at the laboratory’s quantitation reporting limit.
- Acetone and acetonitrile were detected at concentrations greater than the MDL in method blanks associated with SDG P1806321. Associated native sample results that were detected at concentrations (two times for acetone, a common laboratory contaminant) less than the concentration found in the method blank were qualified as nondetected results and flagged “U”. The results also were reported at the laboratory’s quantitation reporting limit.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and acceptance criteria were met with the following exceptions:

In SDG P1806319, bromomethane and chloroethane did not meet RPD criteria between the LCS and LCSD. Dichlorodifluoromethane exhibited low recoveries in the LCSD. Detected results were qualified "J" as estimated.

In SDG P1806321, dichlorodifluoromethane did not meet RPD criteria between the LCS and LCSD. Detected results were qualified "J" as estimated.

Surrogate Standards

Surrogates were added to the samples, and acceptance criteria were met with the following exceptions:

Samples PMC-IN-07-01-110618 and PMC-IN-40-110818 in SDG P1806319, exhibited high recoveries in the surrogates. Detected results were qualified "J" as estimated.

Samples PMC-03-IN01-110818 and PMC-03-IN02-110818 in SDG P1806321, exhibited high recoveries in the surrogates. Detected results were qualified "J" as estimated.

Field Duplicates

Field duplicates were collected and analyzed as required, and the relative percent differences (RPDs) were within established QC limits, with the following exceptions listed in the table below:

SDG	Sample ID	Target Analyte
P1806319	PMC-02-SS01-110818	Carbon Disulfide
P1806319	PMC-02-SS01-110818-FD	Carbon Disulfide
P1806319	PMC-IN-47-02-110818-FD	n-Butanol
P1806319	PMC-IN-47-02-110818	n-Butanol
P1806321	PMC-01-SS01-110718	Carbon Disulfide
P1806321	PMC-01-SS01-110718-FD	Carbon Disulfide
P1806321	PMC-01-SS01-110718	n-Butanol
P1806321	PMC-01-SS01-110718-FD	n-Butanol
P1806321	PMC-03-SS01-110718	Carbon Disulfide
P1806321	PMC-03-SS01-110718-FD	Carbon Disulfide
P1806321	PMC-03-SS01-110718	n-Butanol
P1806321	PMC-03-SS01-110718-FD	n-Butanol
P1806321	PMC-04-IN01-110918	Toluene
P1806321	PMC-04-IN01-110918-FD	Toluene
P1806321	PMC-05-IN01-110918	Acetone
P1806321	PMC-05-IN01-110918	Dichloromethane
P1806321	PMC-05-IN01-110918	n-Hexane
P1806321	PMC-05-IN01-110918	Toluene

SDG	Sample ID	Target Analyte
P1806321	PMC-05-IN01-110918	Xylenes, m & p
P1806321	PMC-05-IN01-110918-FD	Acetone
P1806321	PMC-05-IN01-110918-FD	Dichloromethane
P1806321	PMC-05-IN01-110918-FD	n-Hexane
P1806321	PMC-05-IN01-110918-FD	Toluene
P1806321	PMC-05-IN01-110918-FD	Xylenes, m & p
P1806321	PMC-SVB-01-5.8-110518	2-Hexanone
P1806321	PMC-SVB-01-5.8-110518-FD	2-Hexanone
P1806321	PMC-SVB-01-5.8-110518	Carbon Disulfide
P1806321	PMC-SVB-01-5.8-110518-FD	Carbon Disulfide
P1806321	PMC-SVB-01-5.8-110518	n-Butanol
P1806321	PMC-SVB-01-5.8-110518-FD	n-Butanol
P1806362	PMC-SG-50-111518	Carbon Disulfide
P1806362	PMC-SG-50-111518-FD	Carbon Disulfide

Nondetected results were qualified as “UJ” and detected results were qualified as “J” estimated.

Overall Assessment

The goal of this assessment is to document that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the sampling events:

- Precision of the data was verified by reviewing the field and laboratory data quality indicators that include LCS/LCSD, and FD RPDs. Precision was generally acceptable with the exceptions of FD RPD issues noted in this document. Data users should consider the impact to final results that are qualified as estimated, because it may indicate some degree of bias that could affect the decision-making process.
- Accuracy of the data was verified by reviewing the calibration data, LCS/LCSD, surrogate, and internal standard recoveries, as well as the evaluation of the method blank, canister, and flow controller data. Accuracy was generally acceptable with the exception of several analytes that were detected in the method blanks at concentrations greater than the MDL. Accuracy of the data was generally acceptable with noted exceptions in the LCS/LCSD, surrogate recoveries, and method blank contamination which does impact final results for those qualified due to blank contamination and flagged “U” as nondetected.
- Representativeness of the data was verified through the sample’s collection, storage, and preservation procedures, and verification of holding time compliance. The laboratory did not note any discrepancies with sample collection, storage, or preservation procedures. The data were reported from analyses within the EPA-recommended holding time.

- Comparability of the data was verified using standard EPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as the data that are not rejected for project use. The data were considered valid and the completeness goal of 90% was met for the analyte/method combinations.

References

CH2M HILL, Inc. (CH2M). 2018. F*inal Uniform Federal Policy Quality Assurance Project Plan, PMC Groundwater Superfund Site, Petoskey, Emmet County, Michigan*. June.

U.S. Environmental Protection Agency (EPA). 2017. *National Functional Guidelines for Organic Superfund Methods Data Review*. January.

U.S. Environmental Protection Agency (EPA). 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. January.

Appendix G
Mass Partitioning Technical Memorandum

APPENDIX G

Assessment of Mass Storage of Volatile Organic Compounds in Soil and Groundwater

PREPARED FOR: U.S. Environmental Protection Agency (EPA)

PREPARED BY: CH2M HILL, Inc. (CH2M)

DATE: November 2018

Introduction

This technical memorandum evaluates the mass storage volatile organic compounds (VOCs) in soil and groundwater at the Petoskey Manufacturing Company (PMC) Groundwater Superfund Site in Petoskey, Michigan (site) and presents the analytical results of this investigation. This investigation was conducted to evaluate the potential for vapor intrusion (VI) of VOCs, primarily trichloroethylene (TCE), at properties at or near the site.

Assessment of Mass Storage of Volatile Organic Compounds in Soil and Groundwater

Previous results strongly suggest that both the saturated and unsaturated zones at this site contain sufficient mass of TCE to each independently produce subslab soil gas concentrations that are elevated above VI screening levels. Using the conceptual site model developed for this site, an analysis was performed to identify the media (groundwater, soil gas, or bulk soil) and locations within those media contributing to relatively higher masses of TCE in soil gas. This analysis included graphical display of the site characterization data to evaluate vertical profiles of TCE in soil vapor at different locations, and equilibrium partitioning calculations using Henry's law equilibrium partitioning from VOCs in groundwater. Additionally, 3-phase equilibrium partitioning modeling was used to estimate potential soil vapor concentrations in onsite soils and identify potential vapor intrusion (VI) impacts. The results from this assessment will be used in the feasibility study to determine if remedial alternatives need to consider technologies for remediating both groundwater and soil to protect receptors from VI exposure pathways, and if cleanup of both media are needed to discontinue operation of VI mitigation systems.

1.1 Problem Formulation

A problem formulation consists of a conceptual model, a series of study questions and brief description of the data analysis methods used to answer those questions.

1.1.1 Conceptual Model

The conceptual site model is presented in detail in the Remedial Investigation Report. Brief excerpts are presented in this section to depict source, pathway and receptor relationships related to TCE vapor transport.

Sources: Residual VOC contaminants in soil and groundwater from prior cleanups. Residential structures overly soil and groundwater contamination. TCE concentrations in groundwater are low (<36 micrograms per liter [µg/L], from June 2018 groundwater sampling data). Groundwater plume has been stable to declining for several decades. Similarly, TCE concentrations in soil vapor are low (generally <10,000 micrograms per cubic meter [$\mu g/m^3$]). There are a few isolated locations with bulk soil sampling results >1 milligram per kilogram (mg/kg) TCE. These results seem to diverge from the groundwater and soil gas lines of evidence.

Fate and transport: Unconsolidated material in the vadose zone consists of fill (for example, topsoil) overlying heterogeneous fill consisting of sub-rounded limestone boulders and cobbles in a matrix of sand,

gravel, silt, and clay. The thickness of the unconsolidated material generally ranges from 5 to 15 feet, though the unconsolidated material thins towards the northwest of the historical source area (Water Street Condominiums). Higher total organic compound (TOC) concentrations (>1 percent) are found in shallow (<5 feet) unconsolidated material. TOC measurements at depth from the sandy material suggest there are lower concentrations of organic carbon in the coarser material, <0.3 percent. In the unconsolidated material, areas with higher TOC concentrations or finer-grained materials, such as the fill material, could be sinks for VOCs. Groundwater occurs at 12 to 16 feet.

Receptors: Inhalation exposures of individuals in overlying buildings from VI pathways from TCE in soil gas.

1.1.2 Study Questions

Determine whether TCE vapor mass is found primarily in the vadose or saturated zones. Low (<50 µg/L) concentrations TCE concentrations in shallow groundwater (at the water table) partition into overlying soil gas following Henry's law. With a Henry's law constant of approximately 0.4 (EPA 2018), the relationship with TCE is 400 µg/m^3 in soil gas per 1 µg/L in water. TCE concentrations in groundwater higher than 50 µg/L then can potentially produce soil gas concentrations at the water table that are well above its VISL in soil gas (i.e., >20,000 µg/m^3). If VOCs in groundwater are producing a vadose zone vapor source for VI, one might observe at that location a soil gas concentration vertical profile with higher concentrations at depth and the highest concentrations from samples at the water table. Comparing measured soil gas concentrations with concentrations modeled from groundwater using Henry's law identifies locations where attenuation of TCE may be greater than indicated by default attenuation factors (AFs); at these locations, the VISL may be overly stringent for identifying VI from TCE in groundwater.

Conversely a soil gas concentration profile with high concentrations in shallow soil, low concentrations at depth, indicates a potential surface release as the VOC source in soil gas. Which media (soil gas, groundwater or both) need to be treated to achieve cleanup that protects from VI pathways? In other words, are both remediation of soil and groundwater needed to discontinue operating VI mitigation systems? VOC mass storage in soil and groundwater is assessed in this analysis by converting both to soil gas concentrations at equilibrium. Measured soil gas concentration data are used directly. VOC concentrations in groundwater are transformed to equivalent soil gas concentrations at the water table using Henry's law. VOC concentrations in bulk soil samples are transformed to equivalent soil gas concentrations using a 3-phase equilibrium partitioning model. Measured and modeled soil gas concentrations are compared to determine which media – groundwater or soil – represents the largest soil gas source strength.
The distribution of TCE in groundwater and soil gas varies across the site. In assessing which media need to be treated, the site was divided into the three study areas. Soil gas and shallow groundwater samples from the June 2018 sampling event were placed in one of the three following groups:

- Water Street Condominiums (historical source area) and groundwater plume to the northwest
- Commercial property, downgradient to the west (soil vapor samples SVB-05/SVB-02)
- Along Lake Street, further west (SVB-01/SVB-03)

Bulk soil sample data are discussed separately, as these represent an uncertainty in the mass storage analysis. As is described below, with equilibrium partitioning modeling using parameters for a sand, a concentration of 1 mg/kg TCE in a bulk soil sample corresponds to 950,000 µg/m^3 in soil gas; locations with bulk soil results >1 mg/kg might indicate a strong though localized soil gas source in the vadose zone (i.e., the unconsolidated material). The bulk sampling results are discussed further in this section as related to soil characteristics and nearby soil gas sampling results.

1.2 Data Analysis

1.2.1 Water Street Condominiums

The vertical distribution of TCE in soil shows higher concentrations in the shallow intervals in some sample locations (SVB-11, SVB-12, and SVB-15). The VOC profiles at these locations suggest these are the result of releases to the ground surface stored in the shallow soils.

TCE concentrations measured in groundwater at SVB-11 and PS-4, converted to soil gas concentrations with Henry's law, provide an indication of potential vapor source strength at the water table. The vapor source strengths in the elevated locations in shallow soil and in groundwater are of comparable magnitude, as shown in Figure 1. The high TCE vapor source strength from groundwater is not apparent from the available deep soil gas sampling data. Site-specific attenuation from groundwater in this area may be greater than the default attenuation factor used for groundwater VISLs (meaning VISLs are overly conservative for assessing VI from TCE in groundwater).

It is uncertain how much attenuation of TCE from groundwater is occurring in this area. Most of the soil gas samples were collected from shallower depths and may not represent well the soil gas concentrations at the water table. In studies with toluene, Provoost et al., 2011 suggested that equilibrium soil vapor concentrations from groundwater were around one order of magnitude lower than would be expected from estimation using a laboratory-derived Henry's law constant. Results from one soil gas sampling location at the water table (SVB-10) are consistent with this literature finding. While there may be uncertainty about the magnitude of vapor transport, TCE in shallow groundwater represents a potential vapor source for VI pathways at this portion of the site.

Therefore, in this area, mass storage in both vadose zone soils and groundwater probably plays an important role since each can generate concentrations well in excess of the TCE soil gas VISL (16 µg/m^3). The shallow concentrations in these external soil gas borings also likely underestimate the concentrations directly beneath the Water Street Condominiums, before mitigation began, due to capping effects. TCE concentrations in subslab samples from the condos pre-SSD installation (in January and April 2017) ranged from 178 to 15,400 µg/m^3, with a median value of 2,900 µg/m^3. All of these concentrations are well above (>10-fold) the soil gas VISL.

1.2.2 Commercial Property west of the site

The vertical profiles of TCE in soil gas in this area suggest a groundwater source (see Figure 2). In sample locations SVB-04 and SVB-05, the highest concentrations are found in the deepest samples. Some of the soil vapor vertical profiles in this area suggest there's greater attenuation then is implied in default assumptions (i.e. VISLs in groundwater would be more conservative than a site-specific screening level would be). Though, as described in Section 1.2.1, it is uncertain how much attenuation is occurring. While there may be uncertainty about the magnitude of vapor transport, TCE in shallow groundwater represents the larger potential vapor source for VI pathways at this portion of the site, not vadose zone soil.

1.2.3 Lake Street

Assessment of where TCE vapor mass is located in this area is inconclusive. The soil gas concentrations from the available samples show very low TCE soil gas concentrations, and groundwater data are not available in this area. However, at the maximum contaminant level for TCE (5 µg/L), groundwater would provide greater vapor source strength than soil, as shown in Figure 3.

1.3 Conclusions

TCE vapor source strength is found both in the vadose zone and in groundwater at the historical source area (Water Street Condominiums), though TCE source strength appears to be greater from groundwater.

TCE vapor source strength in groundwater predominates in downgradient areas (i.e., Eagles Lodge and area to northwest of Water Street Condominiums). Identification of media (soil or groundwater) as a primary source strength is too uncertain along Lake Street.

Site-specific TCE vapor transport from groundwater appears to be more attenuated than indicated by agency default attenuation factors, though this conclusion is uncertain because of limitations with the data. It is supported by data reported in the literature. This potentially affects the development of groundwater cleanup levels protective of VI; cleanup levels derived from VISLs and their attenuation factors are likely to be overly protective for this site for a conventional vapor intrusion pathway. Correspondingly, if VISLs and the default AF of 0.001 are considered representative, TCE in groundwater is potentially an ongoing source for VI at locations with concentrations higher than 5 µg/L.

Uncertainties with this assessment include:

- The greater degree of site-specific attenuation cannot be quantified with the currently available data. Soil gas samples would ideally be collected in closer proximity to groundwater (i.e., ~2-foot vertical separation); however, this poses a risk that water level variations could submerge the points in the future. A few locations in the Water Street Condominiums area had TCE in bulk soil samples at concentrations >1 mg/kg. These do not appear to be associated with fine-grained materials or elevated total organic carbon in soil, these likely reflect “hot spots” left over from prior removal actions, and likely locally influence soil gas concentrations. While 3-phase equilibrium partitioning modeling using parameters for sand shows that 1 mg/kg = 950,000 µg/m^3 in soil gas, the existing soil gas data shows much lower vapor source strengths.

1.4 References

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Appendix G figures have been removed from this redacted version of the document to protect personally identifiable information. For questions, please contact the EPA Work Assignment Manager, Syed Quadri at (312) 886-5736.

Appendix H
Draft Human Health Risk Assessment

Human Health Risk Assessment – Operable Unit 2

PMC Groundwater Site, Petoskey, Michigan
WA No. 243-RICO-0554/Contract No. EP-S5-06-01

Prepared for

July 2019

ch2m

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Acronyms and Abbreviations

µg/L	microgram per liter
µg/m^3	microgram per cubic meter
ACH	air changes per hour
ADAF	Age Dependent Adjustment Factor
AF	Attenuation Factor
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
Cal/EPA	California Environmental Protection Agency
CH2M	CH2M HILL, Inc.
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSF	Cancer Slope Factor
DABS	dermal absorption fraction
DNA	Deoxyribonucleic Acid
EC	Exposure Concentration
ELCR	Excess Lifetime Cancer Risk
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
HRS	Hazard Ranking System
IDEM	Indiana Department of Environmental Management
IUR	Inhalation Unit Risk
MCL	Maximum Contaminant Level
mg/m^3	milligram per cubic meter
mg/kg	milligram per kilogram
mg/kg-day	milligram per kilogram per day
MLE	Multiple Lines of Evidence
MMOA	Mutagenic Mode of Action
MRL	Minimal Risk Level
PCE	Tetrachloroethene
PEF	particulate emission factor
RAGS	Risk Assessment Guidance for Superfund
RfC	Reference Concentration
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
RSL	Regional Screening Level

SL	Screening Level
TCE	Trichloroethene
UCL	upper confidence limit
VF	volatilization factor
VI	Vapor Intrusion
VISL	Vapor Intrusion Screening Level
VOC	Volatile Organic Compound

SECTION 1

Introduction

1.1 Overview

This human health risk assessment (HHRA) was prepared for indoor air, soil vapor (subslab and exterior), and subsurface soil at Operable Unit 2 (OU2) of the Petoskey Manufacturing Company (PMC) Groundwater Superfund Site (site) located in Petoskey, Emmet County, Michigan (see Figure 1-1 of the RI report). Site groundwater is being addressed separately as OU1.

The HHRA approach and assumptions presented below are consistent with the Work Plan for the PMC Groundwater Superfund Site Remedial Investigation (RI)/Feasibility Study (FS) (CH2M 2018a), unless noted otherwise.

In accordance with the U.S. Environmental Protection Agency (EPA) guidance documents, this HHRA consists of a four-step evaluation process composed of the following:

- Data collection and evaluation, including identification of chemicals of potential concern (COPCs)
- Exposure assessment
- Toxicity assessment
- Risk characterization

1.2 Scope of the Risk Assessment

The HHRA provides an evaluation of the potential current and reasonably foreseeable future risks to human health posed by detected chemicals at the site in accordance with EPA guidance for conducting HHRAs. The detailed scope and overall approach for the HHRA follows EPA's *Risk Assessment Guidance for Superfund* (RAGS), Parts A, D, E, and F (EPA 1989; EPA 2001; EPA 2004; EPA 2009a), *Human Health Evaluation Manual*, *Update of Standard Default Exposure Factors* (EPA 2014), and *OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air* (EPA 2015). In addition, other EPA guidance documents were used and are cited in the text and tables.

Condominium units and buildings with existing operational subslab depressurization (SSD) systems or other vapor intrusion mitigation systems (VIMS) were not evaluated in the HHRA. SSD systems are installed at the 200 West Lake Street (Water Street Condominiums), [redacted] and a VIMS is installed at [redacted]. Except for [redacted], these properties are currently residential. Operational SSD systems and other VIMS render the vapor intrusion (VI) pathway incomplete (and therefore no associated risk) or within EPA-acceptable risk levels. It is assumed that each SSD system and other VIMS will remain operational until the vapor source below the building has been reduced to acceptable levels. However, if the SSD system or other VIMS is shut off prior to the vapor source being reduced to acceptable levels, indoor air risks may be unacceptable.

1.3 Site Description, Site History, and Potential Receptors

The site is located at 200 West Lake Street, Petoskey, Emmet County, Michigan. The site has been redeveloped as a condominium complex (the 200 West Lake Street Condominiums), which consists of four buildings, each housing two to six condominiums, none of which have basements and most of which are three-story. The condominium complex is located approximately 500 feet south of Little Traverse Bay of Lake Michigan and is bordered to the north by another condominium complex [redacted], which consists of two buildings, including three stories with multiple condominiums, none of which have basements. Northeast and northwest of the former PMC facility,

surrounding the [redacted], are park spaces connected by a bike path. These park spaces front the Little Traverse Bay of Lake Michigan. To the east and south of the former PMC facility is a neighborhood consisting of multiple single-family residences or duplexes, most of which have stone foundations, and a crawlspace-turned-basement ("Michigan-style" basement) with or without concrete poured flooring. Three of the residences entered during this phase of investigation were found to have basement areas that appeared to be fit for occupancy. Northwest of the former PMC facility is a split-level commercial building with a finished basement and poured concrete foundation. This facility is occupied primarily during standard daytime business hours. Bear Creek, which drains into Little Traverse Bay, is located approximately 500 feet east of the PMC property. Immediately south of Lake Street (behind a row of homes) is a steep bluff running approximately parallel to the shoreline. The study area is shown in Figure 1-2 of the RI Report.

The former PMC facility was a small fabricating operation that was active from 1946 to 2000. Activities included die casting, plating, and painting small automotive trim parts. The facility used trichloroethylene (TCE) and xylene as solvents; TCE was stored in a 1,000-gallon aboveground storage tank (Environmental Consultants & Services Inc. 2001). Spills of hydraulic fluid and "standing oils" in several rooms were also reported at the former PMC facility (Malcolm Pirnie 1998). A subsequent RI showed that at the location with the highest benzene concentration, chemicals were detected that suggest a release of solvents, including petroleum-based solvents (CH2M 2018b). Tetrachloroethene (PCE) was also released to shallow soils in parts of the site (CH2M 2018b). There were likely other solvent release points at the facility. Site contamination discovery and site investigation activities are discussed in Section 1.3 of the RI Report; a brief overview is provided below.

Contamination at the site was first discovered in September 1981, when analytical data from water samples collected from a municipal water supply well (Ingalls Street Well) showed detections of TCE, cis-1,2-dichloroethene, and trihalomethanes. Soil and groundwater sampling by the Michigan Department of Environmental Quality (MDEQ)[1] indicated elevated concentrations of several volatile organic compounds (VOCs), including xylene, toluene, TCE, and ethylbenzene near the site, which were attributed to PMC. MDEQ subsequently asked PMC to determine the extent of the contaminated soil, and to remove and dispose of the impacted material. In 1982, under the direction of MDEQ, PMC completed a partial soil removal from the west side of the PMC building to a depth ranging from 2 to 5 feet. Subsequently, the site was proposed for the National Priorities List and listed in 1983. Detailed site background information and remediation efforts prior to the RI can be found in the *Quality Assurance Project Plan (QAPP), PMC Groundwater Superfund Site, Operable Unit 2* (CH2M 2016).

The former PMC facility was sold in April 2003 to a developer, and the PMC building was demolished in July 2004. Additional rounds of soil samples were collected as the slab was removed, and additional soil excavation was completed in 2004 in conjunction with construction activities. The construction of the residential condominium complex started in September 2004; by 2008, 10 of the planned residential units were completed. In fall 2009, the property was in foreclosure because the developer went bankrupt. Construction for the remaining units was completed by 2014 by a subsequent developer.

It is reported that a barrier consisting of a polyvinyl chloride membrane was placed beneath a portion of the complex in 5 of the units, which left 12 units either partially or completely without an engineered barrier; however, a final report was not issued on this work because of lack of payment. The incomplete installation likely limits the barrier's effectiveness; this barrier was not taken into consideration in the HHRA. Additional information regarding this barrier is provided in Section 1.3.3 of the RI.

Pre-RI activities began in 2016 when CH2M prepared a QAPP (CH2M 2016) for a soil, groundwater, and VI screening sampling program. In October 2016, groundwater samples were collected for analysis of

[1] Effective April 22, 2019, the Michigan Department of Environmental Quality (MDEQ) reorganized into the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Historical references to MDEQ occur throughout this document.

VOCs, general chemistry, dissolved gases, total and dissolved metals, and 1,4-dioxane from 21 monitoring wells. The general chemistry and dissolved gas analyses were used to support an evaluation of monitored natural attenuation. Metals analysis was used to evaluate whether well construction materials are contributing to elevated concentrations of metals in groundwater. 1,4-Dioxane analysis was added because of its status as an emerging contaminant and potential chemical of concern. Details of this sampling event are presented in *Long-Term Groundwater Monitoring Activities, PMC Groundwater Superfund Site* (CH2M 2017a).

In 2016, CH2M installed subslab soil vapor sample points in garages at the Water Street Condominiums (most of the living space of the condominiums directly overlies the garages) and attempted to complete the installation of multi-depth subsurface soil vapor probes. However, the subsurface lithology prevented the use of the planned drilling method (direct-push) as a result of refusal from what is interpreted as large boulders or blocks of weathered bedrock. In January 2017, samples were collected from the subslab soil vapor probes at the Water Street Condominiums for VOC analysis. Analytical results demonstrated that TCE concentrations exceeded the EPA vapor intrusion screening level (VISL). Based on these results, EPA's Removal Program initiated rapid-response activities, including additional subslab soil vapor probe installation, subslab soil vapor and indoor air sampling, and installation of SSD systems to mitigate the VI pathway in 11 of the 17 units of the Water Street Condominiums [redacted]). Results of these response activities are presented as an appendix to the *Vapor Intrusion Investigation – PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018c).

While response activities were being conducted, CH2M implemented a VI assessment at residences surrounding the Water Street Condominiums. These activities were completed in May, June, and July 2017, and February and November 2018 and included subslab and exterior soil vapor probe installation and sampling and indoor air sampling. The data collected by CH2M are presented in *Vapor Intrusion Investigation—PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018c). The data are also included in the RI report and are incorporated into the data analysis presented herein.

As indicated previously, EPA established a new VI operable unit (OU2) in 2017. The scope of investigation for OU2 is defined in *Uniform Federal Policy–Quality Assurance Project Plan, PMC Groundwater Site, Emmet County, MI* (CH2M 2018d). In May and June 2018, soil and groundwater samples were collected, and soil vapor probes and monitoring wells were installed and sampled. In October and November 2018, the soil vapor probes were sampled, and additional residential indoor air and soil vapor sampling was completed.

Based on current and reasonably foreseeable future site conditions, the following potential current and future human receptors were identified in the study area:

Current Exposure Scenarios

- **Residents**—Adults and children currently living on residential properties (apartment units, condominium units, houses) who may contact COPCs in indoor air and crawlspace air (that may be impacted by VOCs migrating from the subsurface).

  Soil exposures to residents outside the former PMC footprint were not evaluated since soil contamination investigations at the site and immediate vicinity were conducted in 1990s; a ROD was issued in 1995.

  Soil contamination was found beneath the former PMC facility after it was demolished in 2004. Exposures to soil beneath the facility were not evaluated in previous investigations; however, soil exposures by residents at the 200 West Lake Street Water Street Condominiums on the former PMC facility property are expected to be insignificant because residents will not have significant contact with soil due to the lack (or small size) of gardens in a condominium setting. Disturbance of soils at the former PMC facility property is also governed by an existing restrictive covenant agreement.

- **Industrial/Commercial Workers**—Two commercial units are present in the study area and both have SSD systems. Therefore, industrial/commercial workers were not further evaluated in the HHRA.

Reasonably Foreseeable Future Exposure Scenarios

- **Residents**—Adults and children currently living on residential properties (apartment units, condominium units, houses) who may contact COPCs in soil (via direct contact and emissions from soil) and indoor air (that may be impacted by VOCs migrating from the subsurface). Soil exposures by residents at the condominium units are expected to be insignificant because residents will not have significant contact with soil due to the lack (or small size) of gardens in a condominium setting. Disturbance of soils at the former PMC facility property is also governed by an existing restrictive covenant agreement.
- **Construction Workers**—Construction workers who may contact COPCs in soil (via direct contact and air emissions from soil) while conducting intrusive soil activities such as building construction or utility maintenance. Soil contamination was found beneath the former PMC facility after it was demolished. Exposures to soil beneath the facility were not evaluated in previous reports; therefore, soil within the footprint of the PMC facility was addressed in this HHRA.

Indoor air and crawlspace air data are used to evaluate current indoor air exposures, while subslab soil vapor or exterior soil vapor data are used to assess whether indoor air concentrations are from a subslab source (rather than an indoor source) and to evaluate potential future indoor air exposures. In cases where indoor air/crawlspace air data is not available for a dwelling, soil vapor data are used to evaluated current indoor air exposures.

A human health conceptual exposure model presents potential exposure media, exposure points, receptors (current and future), and exposure routes. The conceptual exposure model is graphically presented in Figure 1 of Appendix H-1 and included in Table 1 of Appendix H-2.

SECTION 2

Data Evaluation

2.1 Data Used in the HHRA

Indoor air, crawlspace air, subslab soil vapor, exterior soil vapor, and soil samples collected by CH2M in 2017 and 2018 were used in the HHRA. In addition, data collected in 2017 and 2018 by The Mannik & Smith Group, Inc. at the 200 West Lake Street condominiums [redacted] and [redacted] were used in the HHRA. Information regarding the Mannik & Smith data is presented in the VI investigation technical memorandum (Appendix B of the RI report). Descriptions of the data collection activities for samples used in the HHRA is provided in Section 2 of the RI report. Groundwater data was not used in the quantitative risk assessment of the VI pathway since an extensive network of soil vapor sampling locations is available for the site and is more extensive than the groundwater monitoring network. Groundwater as a source of mass storage and transport for VI is considered in the conceptual site model and in the nature and extent sections of the RI, and also in the upcoming feasibility study. For properties with no subslab data, risks were estimated using the nearest exterior soil vapor point to the property.

Appendix H-3, Table 1 summarizes the data groupings used in the HHRA. Appendix H-3, Table 2 describes samples associated with each data grouping. The following subsections discuss data groupings for each exposure medium. Sample locations are depicted in Figure 4-3 (soil) of the RI report, and in Appendix B, Figure 3 (subslab, near-slab, exterior soil vapor) and Figure 5 (subslab soil vapor and indoor air) of the RI Report.

All media samples were analyzed for VOCs. Appendix H-4 contains the analytical data for the samples used in the HHRA.

Note that indoor air/crawlspace air data was used to evaluate current indoor air exposures at a property, while subslab soil vapor data (or if not available, the nearest exterior soil vapor data within 100 feet) was used to evaluate potential future indoor air exposures at a property. For properties where indoor air/crawlspace air data were not collected, subslab soil vapor data (or exterior soil vapor data, if subslab soil vapor data are not available) were used to evaluate both current and potential future indoor air exposures.

The data from the RI were evaluated using the following procedures:

- A value reported as estimated ("J" qualified) was included in the HHRA if it was the only value provided for a sample or if it is the highest reported result from a set of reported values from dilutions and/or reanalysis.
- For sample locations where a duplicate sample was also collected, the higher of the original or duplicate sample result was used when results are detects. If one result was a detect and one was a nondetect, the detected value was used.
- "U" or "UJ" qualified results were treated as nondetected values.

A description of the data quality assurance and quality control process is provided in Section 2.13 of the RI report. Data validation of site samples collected by CH2M was conducted to assess the accuracy and precision of the data following guidelines outlined in the *QAPP, PMC Groundwater Superfund Site, Operable Unit 2* (CH2M 2016) and the *UFP–QAPP, PMC Groundwater Site, Emmet County, Michigan* (CH2M 2018d). Appendix E of the VI TM contains data quality evaluation (DQE) memorandums for the January 2017, May through July 2017, and February 2018 sampling events (CH2M 2018c). A DQE

memorandum for the remaining 2018 CH2M sampling activities is included in Appendix E of the RI report.

2.1.1 Indoor Air and Crawl Space Air Samples

Indoor air samples collected in March through July, September, and November 2017, and January, February, and November 2018 were used in the HHRA. Crawlspace air samples collected in June 2017 and February and November 2018 were used in the HHRA. Indoor air samples were collected from 27 condominium units and 22 residential properties; crawlspace air samples were collected from 7 condominium units and 2 residential properties (Appendix H-3, Table 1); indoor air and crawlspace air data sets were evaluated separately for each property.

Under current conditions, residents could be exposed to COPCs in indoor air and crawlspace air.

2.1.2 Subslab Soil Vapor

Subslab soil vapor samples collected in January, April, July, September, and November 2017, and January, February, and November 2018 were used in the HHRA. The subslab soil vapor data were collected from 6 condominium units and 8 detached residential properties (Appendix H-3, Table 1); subslab soil vapor data sets were evaluated separately for each property.

Under future exposure scenarios, residents could be exposed to COPCs in subslab soil vapor if COPCs migrate to indoor air.

2.1.3 Exterior Soil Vapor

Exterior soil vapor samples collected in May, June, and July 2017, and February and June 2018 were used in the HHRA. The closest exterior soil vapor samples collected from condominium units and residential properties where no subslab soil vapor samples were collected were used to evaluate the VI pathway. The exterior soil vapor data were used for the [redacted] and 16 residential properties (Appendix H-3, Table 1); exterior soil vapor data sets were evaluated separately for each property.

Under future exposure scenarios, residents could be exposed to COPCs in exterior soil vapor if COPCs migrate to indoor air. Exterior soil vapor data from one residential property was used to evaluate current conditions because indoor air and subslab soil vapor data were not collected at this property.

2.1.4 Soil

Soil samples collected from 1 to 10 feet below ground surface (bgs) in May 2018 were used in the HHRA to evaluate direct contact exposures to soil. The soil data were collected during the installation of 10 of 15 soil vapor probes adjacent to the 200 West Lake Street Water Street Condominium units and were grouped into one exposure unit (Appendix H-3, Table 1). Samples were not collected from all borings because excessive heating of the soil occurred while advancing some borings as a result of the rotosonic drilling method. The data limitations of the samples that were collected are discussed in Section 7.2.1 of the RI report.

Under future exposure scenarios, construction workers could be exposed to COPCs in soil (1 to 10 feet bgs) via direct contact and emissions from soil in excavations. Soil exposures by residents at the condominium units are expected to be insignificant because residents will not extensively work in gardens or have significant soil exposure in a condominium setting. Disturbance of soils at the former PMC facility property is also governed by an existing restrictive covenant agreement.

2.2 Selection of Chemicals of Potential Concern

The COPCs are those chemicals that have the greatest potential to cause adverse human health effects if receptors come in contact with site media. The maximum detected concentration of each chemical in a data grouping was compared to its respective screening level (SL). If the maximum detected concentration exceeded its SL, it was retained as a COPC for the HHRA. Chemicals that were undetected in all samples within a medium/data grouping were not selected as COPCs for that medium and data grouping. A detected chemical that has no SL was compared with an SL for a surrogate chemical based on structural or functional similarities, if such information and values were available. The SLs used for each medium are provided in the following subsections.

2.2.1 COPC Screening Levels

2.2.1.1 Indoor Air and Crawl Space Air

The SLs used for indoor air and crawlspace air are the residential air *Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites* (EPA 2019a). The RSLs were based on a target excess lifetime cancer risk (ELCR) of 1×10^{-6} and a noncarcinogenic target hazard quotient (HQ) of 0.1 to account for the potential presence of multiple chemicals affecting the same target organ. For chemicals with more than one RSL (for example, carcinogenic-based RSL and noncarcinogenic-based RSL), the lowest value was selected as the final SL for that chemical.

If the maximum detected concentration of a site-related chemical in indoor air exceeded its SL, the multiple lines of evidence (MLE) evaluation (performed to determine if the chemical is related to VI or potentially present because of background sources) was used to determine whether that chemical was a COPC on a building by building basis. The MLE evaluation is in Attachment H-6, Table 1. If a chemical detected in indoor air or crawlspace air exceeded its SL and is related to VI, it was selected as a VI COPC for that building.

Chemicals present in indoor air or crawlspace air because of background sources or unrelated to site contamination were eliminated as VI COPCs and not addressed further in the HHRA. Chemicals exceeding VISLs but unrelated to VI from the source medium include 1,2-dichloroethane, 1,3-butadiene, 1,4-dichlorobenzene, acrolein, acrylonitrile, chloroform, ethyl acetate, ethylbenzene, 1,2,4-trimethylbenzene, bromodichloromethane, carbon tetrachloride, dichlorodifluoromethane, ethyl acetate, ethylbenzene, isopropyl alcohol (isopropanol), and xylenes. Additional information on a number of these chemicals can be found in the TM "*Discussion of Non-Site Related Compound Exceedances, Petoskey Manufacturing Company Groundwater Superfund Site*" (CH2M 2017b). For chemicals not included in this TM (i.e., 1,2,4-trimethylbenzene, bromodichloromethane, carbon tetrachloride, dichlorodifluoromethane, ethyl acetate, ethylbenzene, isopropyl alcohol (isopropanol), and xylenes), an abbreviated MLE evaluation is provided in Attachment H-6, Table 1 Supplement A.

2.2.1.2 Subslab Soil Vapor and Exterior Soil Vapor

Subslab soil vapor and exterior soil vapor SLs were calculated using the EPA *Vapor Intrusion Screening Level (VISL) Calculator* (EPA 2019b); the VISL calculator output is provided in Appendix H-5, Table 1. EPA's default soil vapor-to-indoor air attenuation factor (AF) of 0.03 and the residential air RSLs were used in the VISL calculations. The soil vapor SLs were based on a target ELCR of 1×10^{-6} and a target HQ of 1.[2]

If the maximum detected concentration of a chemical in soil vapor exceeded its SL, the MLE evaluation was used to determine whether that chemical was a COPC as discussed above for indoor air on a

[2] A target HQ of 1 is used for soil vapor SLs due to the conservatism in the attenuation factor used for cross-media transfer from soil vapor to indoor air, and the lack of direct exposure to soil vapor.

building by building basis. The MLE evaluation is in Attachment H-6, Table 1. If a chemical is related to VI, it was selected as a VI COPC.

2.2.1.3 Total Soil

The SLs used for soil exposure via direct contact (ingestion and dermal absorption) and particulate and volatile emissions from soil (to ambient air) are EPA's industrial soil RSLs (EPA 2019a). The soil RSLs are based on a target ELCR of 1×10^{-6} and noncarcinogenic target HQ of 0.1 to account for the potential presence of multiple chemicals affecting the same target organ. For chemicals with more than one RSL (for example, carcinogenic-based RSL and noncarcinogenic-based RSL), the lowest value was selected as the final SL for that chemical. In cases where a chemical's saturation limit value is less than the RSL value(s), the saturation limit is used as the SL.

2.2.1.4 Screening Levels for Receptor Groups

In summary, the SLs used for each receptor group to identify COPCs are as follows:

- **Residents (Adult and Child)**—Concentrations detected in indoor air, crawlspace air, subslab soil vapor, and exterior soil vapor, where applicable, were compared to residential SLs, then identified as a COPC based on results of the MLE evaluation.
- **Construction Workers**—Concentrations detected in total soil (1 to 10 feet bgs) were compared to industrial soil RSLs (ingestion, dermal contact, and inhalation of particulate and vapor emissions exposure pathways).

2.2.2 COPC Screening Results

The analytes with maximum detected concentrations exceeding SLs were identified as COPCs. For indoor air, crawlspace air, and soil vapor COPCs, analytes must also have been determined to be related to VI based on the MLE evaluation (Attachment H-6, Table 1). The results of the COPC screening process for the receptor/media groups are presented in Tables 2.1 through 2. 8 in Appendix H-2 and are summarized as follows:

Current Exposure

- **Indoor Air ([redacted])**—TCE was identified as a COPC in indoor air at five condominium units ([redacted] (Table 2.1 of Attachment H-2).
- **Crawlspace Air [redacted])**— No COPCs were identified in crawlspace air at any of the condominium units (Table 2.2 of Attachment H-2).
- **Indoor Air (Residential Properties)**—TCE was identified as a COPC in indoor air at five residential properties ([redacted] Table 2.3 of Attachment H-2).
- **Crawlspace Air (Residential Properties)**—No COPCs were identified in crawlspace air at any of the condominium units (Table 2.4 of Attachment H-2).

Current/Future Exposure

- **Exterior Soil Vapor (Residential Properties)**—Benzene was identified as a COPC in exterior soil vapor at one residential property [redacted] where subslab soil vapor samples were not available (Table 2.5 of Attachment H-2).

Future Exposure

- **Soil Vapor (Condominiums at 200 West Lake Street)**—TCE was identified as a COPC in subslab soil vapor at all six condominium units. Naphthalene was identified as a COPC at two units [redacted]

[redacted], and 1,3-dichlorobenzene was identified as a COPC in one unit ([redacted] (Table 2.6 of Attachment H-2).

- **Exterior Soil Vapor ([redacted] [sampled common areas])**—No COPCs were identified in exterior soil vapor at the [redacted] (Table 2.6 of Attachment H-2).
- **Soil Vapor (Residential Properties)**
  - Subslab Soil Vapor—TCE was identified as a COPC in subslab soil vapor at three residential properties ([redacted]) (Table 2.7 of Attachment H-2).
  - Exterior Soil Vapor—TCE and benzene were identified as COPCs in exterior soil vapor at one residential property ([redacted] (Table 2.7 of Attachment H-2).
- **Total Soil (Construction Workers)**—No COPCs were identified in total soil at the study area for a construction worker exposure scenario (Table 2.8 of Attachment H-2). Therefore, soil exposures are not addressed further in the HHRA.

SECTION 3

Exposure Assessment

3.1 Exposure Pathways Quantified

The potential exposure pathways quantified in the HHRA for each receptor group are presented in the following subsections. Only the exposure pathways with COPCs (see Section 2.2) were quantified.

3.1.1 Current Exposure Scenarios

- **Indoor Air [redacted])**—Inhalation of COPCs in indoor air; indoor air concentrations are presented in Table 3.1.RME of Attachment H-2.
- **Indoor Air (Residential Properties)**—Inhalation of COPCs in indoor air; indoor air concentrations are presented in Table 3.2.RME of Attachment H-2.

3.1.2 Current/Future Exposure Scenarios

- Soil Vapor (Exterior)—Inhalation of COPCs in exterior soil vapor (nearest to a residence) that potentially migrates to indoor air; soil vapor concentrations are presented in Table 3.3.RME of Attachment H-2. The indoor air EPCs, modeled using EPA's VISL calculator (EPA 2018b), are presented in Table 3.3.RME Supplement of Attachment H-2.

3.1.3 Future Exposure Scenarios

- **Soil Vapor (Subslab or Exterior - [redacted])**—Inhalation of COPCs in subslab soil or exterior soil vapor (nearest to a residence) that potentially migrates to indoor air; soil vapor concentrations are presented in Table 3.4.RME of Attachment H-2. The indoor air EPCs, modeled using EPA's VISL calculator (EPA 2019b), are presented in Table 3.4.RME Supplement of Attachment H-2.
- **Soil Vapor (Subslab or Exterior—Residential Properties)**—Inhalation of COPCs in subslab or exterior soil vapor (nearest to a residence) that potentially migrates to indoor air; soil vapor concentrations are presented in Table 3.5.RME of Attachment H-2. The indoor air EPCs, modeled using EPA's VISL calculator (EPA 2019b), are presented in Table 3.5.RME Supplement of Attachment H-2.

3.2 Exposure Pathways Not Quantified in the HHRA

Ingestion, dermal contact, and inhalation exposures to potable use of groundwater were not quantified in the HHRA. Groundwater exposures have already been addressed as part of OU1 and are documented in the 1998 Record of Decision (EPA 1998).

3.3 Quantification of Exposure

To evaluate the potentially complete exposure pathways further, the magnitude, frequency, and duration of exposure were estimated and quantified. EPCs were identified and pathway-specific intakes were estimated. EPA guidance (1989) recommends selecting intake variable values for a given pathway so that the combination of all intake variable values results in an estimate of the reasonable maximum exposure (RME) for that pathway. EPA recommends using upper-bound parameter values (as opposed to average values) for exposure frequency and exposure duration. EPA guidance also recommends that the contact rate be a value representing the 95th percentile.

3.3.1 Exposure Point Concentrations

EPCs were based on measured or modeled COPC concentrations. Because no COPCs were identified in soil, soil EPCs were not identified in the HHRA. The estimated EPCs are summarized in Tables 3.1 through 3.5 in Appendix H-2.

Measured EPCs. The following is an overview of the EPCs used for each exposure medium based on measured concentrations:

- **Current Indoor Air/Crawlspace Air EPCs**—The maximum detected indoor air/crawlspace air concentrations (where available) were used as the EPCs for current exposure scenarios.
- **Modeled EPCs.** The following is an overview of the modeled indoor air EPCs used. EPA's default soil-gas-to-indoor-air AF of 0.03 was used with the VISL calculator (EPA 2019b) to model indoor air EPCs. To model indoor air EPCs, a soil-gas-to-indoor-air AF was applied to soil vapor concentrations as follows:

  EPC in indoor air (micrograms per cubic meter [µg/m^3]) = EPC in soil vapor (µg/m^3) x AF

- **Current Indoor Air EPCs**—Exterior soil vapor data were used to model indoor air EPCs for current exposure scenarios where indoor air/crawlspace air and/or subslab soil vapor data were not available. The maximum detected concentrations of COPCs in each exterior soil vapor data grouping were used in the model.
- **Future Indoor Air EPCs**—Subslab soil vapor data (where available) were used to model indoor air EPCs for future exposure scenarios; where subslab soil vapor data were not available, exterior soil vapor data were used. The maximum detected concentrations of COPCs in each subslab soil vapor or exterior soil vapor data grouping were used in the model.

3.3.2 Exposure Factors

An RME scenario was quantified for potential receptors under current and future exposure scenarios (EPA 1989). The exposure factors used in the intake calculations are presented in Tables 4.1 and 4.2 of Appendix H-2. The primary references for exposure factor values are the standard default exposure factors presented in the *Human Health Evaluation Manual, Update of Standard Default Exposure Factors* (EPA 2014a).

The exposure factor values used for EPA-specified age groups for COPCs that act through a mutagenic mode of action (MMOA) for carcinogenicity are presented in Tables 4.1 Supplement A and 4.2 Supplement A of Appendix H-2.

SECTION 4

Toxicity Assessment

The inhalation toxicity values (inhalation unit risks [IUR] and reference concentrations [RfC]) used in the HHRA were obtained from the EPA standard hierarchy of toxicity value sources (EPA 2003) as follows:

- Tier 1 Source—Integrated Risk Information System (EPA 2019b)
- Tier 2 Source—EPA Provisional Peer-Reviewed Toxicity Values
- Tier 3 Sources—Other peer-reviewed federal and state toxicity values
  - California EPA (Cal/EPA) toxicity database (Cal/EPA 2019)

Table 5.1 of Attachment H-2 presents noncancer toxicity values used in the HHRA. Table 6.1 of Attachment H-2 provides cancer toxicity values.

4.1 Noncarcinogenic Toxicity Values

Noncarcinogenic toxicity values (inhalation RfCs) were used in estimating potential adverse health effects associated with exposure to COPCs. Chronic toxicity data for potential noncarcinogenic effects of COPCs are presented in Table 5.1 of Appendix H-2.

4.2 Carcinogenic Toxicity Values

Carcinogenic toxicity values (IURs) were used in evaluating potential carcinogenic effects associated with exposure to known, probable, or possible carcinogens having an EPA weight-of-evidence classification of A, B, or C, respectively. IURs were used to estimate upper-bound lifetime statistical probabilities of a hypothetical individual developing cancer as a result of exposure to a potential carcinogen. Toxicity data for potential carcinogenic effects of COPCs are presented in Table 6.1 of Appendix H-2.

4.3 Toxicity Values for Mutagenic Chemicals

Consistent with the EPA cancer guidelines and supplemental guidance (EPA 2005a and 2005b, respectively), COPCs that act through an MMOA for carcinogenicity were evaluated using age-dependent adjustment factors (ADAFs) for receptor groups, including children and adolescents aged 16 and under. TCE (identified as a COPC in indoor air, subslab soil vapor, and exterior soil vapor) is considered to act through an MMOA. TCE does not have age-specific carcinogenic toxicity values; as such, EPA's default ADAFs were applied to the IUR of TCE when carcinogenic risk was estimated for child residents. TCE is carcinogenic by an MMOA for induction of kidney tumors (EPA 2011). Therefore, ADAFs were used to estimate carcinogenic risks only for the kidney cancer component of TCE. Modes of action have not been established for TCE-induced non-Hodgkin lymphoma and liver cancer; therefore, ADAFs were not used to estimate risks for these types of cancers.

SECTION 5

Risk Characterization

Indoor air risk estimates were calculated on a building-specific basis where COPCs were identified. Soil risk estimates were not calculated since COPCs were not identified in soil.

Potential human health risks are discussed separately for carcinogenic and noncarcinogenic effects of COPCs due to the different toxicological endpoints, relevant exposure durations, and methods used to estimate risk. EPA Superfund guidance considers an acceptable site ELCR range to be 1 to 100 in a million (1×10^{-6} to 1×10^{-4}). Generally, remedial actions are not warranted for site media with an ELCR of 1×10^{-4} or below, or a hazard index (HI) of 1 or less, although it may be warranted if a standard (e.g., MCL) is exceeded, or if other EPA policies or site-specific information suggests to EPA risk managers that action is appropriate.

5.1 Approach for Potential Noncarcinogenic Effects

The HHRA evaluated the potential for noncarcinogenic effects by comparing the ECs of each COPC with its RfC. In EPA methodology, this ratio of exposure to toxicity is referred to as an HQ. The HQ assumes that there is a level of exposure below which it is unlikely for even sensitive populations to experience adverse health effects. If the exposure level exceeds this threshold, there is the potential for noncancer health effects to occur. The HQ is calculated as follows:

$$HQ = \frac{EC}{RfC}$$

Where:

HQ = Hazard quotient
EC = Exposure concentration (milligram per cubic meter [mg/m^3])
RfC = Reference concentration (mg/m^3)

ECs and RfCs are expressed in the same units (mg/m^3). A HQ that exceeds 1 (i.e., EC exceeds the RfC) indicates that there is a potential for adverse health effects associated with exposure to that COPC.

To assess the potential for noncarcinogenic health effects posed by exposure to multiple COPCs and exposure routes, an HI approach was used (EPA 1989). This approach assumes that noncarcinogenic hazards associated with exposure to more than one COPC are additive. Synergistic or antagonistic interactions between COPCs are not quantified. The HI may exceed 1 even if all of the individual HQs are less than 1. The HI is equal to the sum of the HQs and is calculated as follows:

$$HI = \frac{EC_1}{RfC_1} + \frac{EC_2}{RfC_2} + \cdots \frac{EC_j}{RfC_j}$$

Where:

HI = Hazard index
EC = Exposure concentration (mg/m^3)
RfC = Reference concentration (mg/m^3)
EC_j = Exposure concentration for the "*j*"th constituent
$RfCj_i$ = Reference concentration for the "*j*"th constituent

5.2 Approach for Potential Carcinogenic Effects

The potential for carcinogenic effects due to exposure to site media was evaluated by estimating the ELCR. The ELCR is the incremental increase in the probability of developing cancer during one's lifetime (as a result of exposure to site media) above the probability of developing cancer from non-site exposures.

Potential ELCRs associated with exposure to individual carcinogens were calculated using IURs and ECs for inhalation exposures. The linear low-dose equation was used to estimate the incremental probability of an individual developing cancer over a lifetime as a result of exposure to potential carcinogens. Estimated ELCRs are calculated as follows:

$$ELCR = EC \times IUR$$

Where:

ELCR = Excess lifetime cancer risk
EC = Exposure concentration [microgram per cubic meter ($\mu g/m^3$)]
IUR = Inhalation unit risk $(\mu g/m^3)^{-1}$

The theoretical probability of developing cancer as a consequence of exposure to two or more COPCs was calculated by summing the risk estimates for each COPC using the following equation:

$$Total\ ELCR = (EC_1 \times IUR_1) + (EC_2 \times IUR_2) + \ldots (EC_i \times IUR_i)$$

Where:

ELCR = Excess lifetime cancer risk
EC = Exposure concentration ($\mu g/m^3$)
IUR = Inhalation unit risk $(\mu g/m^3)^{-1}$
EC_j = Exposure concentration for the 'j'th constituent
IUR_j = Inhalation unit risk for the '*j*'th constituent

5.3 Approach for Potential Mutagenic Effects

Consistent with the *Cancer Guidelines and Supplemental Guidance* (EPA 2005a and 2005b), for COPCs that act via an MMOA, ELCRs were estimated using ADAFs. One VOC, TCE, is a COPC at the site that is categorized as having a MMOA. The calculations of ELCR using ADAFs are presented in Appendix H-2, Table 7.3.RME Supplement A, Table 7.6.RME Supplement A, Table 7.12.RME Supplement A, and Table 7.15.RME Supplement A. The ELCR was calculated using ADAFs (EPA 2005a and 2005b) based on the equation provided below:

$$ELCR = \left(10 \times EC_{0-2\,yrs} + 3 \times EC_{2-6\,yrs} + 3 \times EC_{6-16\,yrs} + EC_{16-26\,yrs}\right) \times IUR$$

Where:

ELCR = Excess lifetime cancer risk

EC (i-jyrs) = Inhalation exposure concentration (mg/m^3) from i to j years
IUR = Inhalation unit risk $(mg/m^3)^{-1}$

5.4 Summary of Risk Estimates

Table H-1 provides an overview of the buildings within the study area and how they were addressed in this HHRA.

Table H-1. Summary of Building-Specific Evaluations

Location	# in Study Area Inclusion Zone	# with SSD System or Other VIMS (not addressed in the HHRA)	# Without SSD System or VIMS, but no data (not addressed in the HHRA)	# in RAGS Table 2	# in RAGS Table 7 [1]
Separate Buildings	28	1	0	27	8
[redacted]	21	0	0	21	0
[redacted]	17	11	0	6	6

Notes:

[1] If the # of buildings addressed in RAGS Table 7 is lower than the # of buildings addressed in RAGS Table 2, it is due to no VI COPCs identified in some buildings (as indicated on RAGS Table 2).

Condominium units and buildings with existing operational SSD systems or other VIMS were not evaluated in the HHRA. SSD systems are installed at the [redacted], and a VIMS is installed at [redacted]. Except for [redacted] and [redacted], these properties are currently residential. Operational SSD systems and other VIMS render the VI pathway incomplete (and therefore no associated risk) or within EPA-acceptable risk levels. It is assumed that each SSD system and other VIMS will remain operational until the vapor source below the building has been reduced to acceptable levels. However, if the SSD system or other VIMS is shut off prior to the vapor source being reduced to acceptable levels, indoor air risks may be unacceptable.

Potential risks associated with indoor air exposures to COPCs in site media were quantified for current and reasonably foreseeable future exposure scenarios.

The calculated ELCRs and HIs are as follows:

- **Current Resident (Condominiums)**—Indoor air exposures; risk estimates are presented in Tables 7.1.RME (adult), 7.2.RME (child), and 7.3.RME (adult/child aggregate), and summarized in Tables 9.1.RME, 9.2.RME, and 9.3.RME, respectively:

Table H-2. Summary of Resident Current Risk Estimates for Indoor Air Exposures at the [redacted]

Location	Adult/Child Aggregate ELCR	Adult Target-Organ-Specific HIs	Child Target-Organ-Specific HIs
[redacted]	$9x10^{-7}$	<1	<1
[redacted]	$1x10^{-6}$	<1	<1
[redacted]	$7x10^{-7}$	<1	<1
[redacted]	$7x10^{-7}$	<1	<1
[redacted]	$3x10^{-6}$	<1	<1

As indicated in Table H-2, the resident ELCRs and HIs at the condominium indoor air exposure points evaluated in the HHRA were less than or within EPA-acceptable levels.

- **Current Resident (Residential Properties)**—Indoor air exposures; risk estimates are presented in Appendix H-2, Tables 7.4.RME (adult), 7.5.RME (child), and 7.6.RME (adult/child aggregate), and summarized in Tables 9.4.RME, 9.5.RME, and 9.6.RME, respectively:

Table H-3. Summary of Resident Current Risk Estimates for Indoor Air Exposures at Residential Properties

Location	Adult/Child Aggregate ELCR	Adult Target-Organ-Specific HIs	Child Target-Organ-Specific HIs
[redacted]	$2x10^{-6}$	<1	<1
[redacted]	$2x10^{-6}$	<1	<1
[redacted]	$8x10^{-7}$	<1	<1
[redacted]	$1x10^{-6}$	<1	<1

As indicated in Table H-3, the resident ELCRs and HIs at the residential property indoor air exposure points evaluated in the HHRA were less than or within EPA-acceptable levels.

- **Current/Future Resident (Residential Properties)**— Exterior soil vapor (migration into indoor air) exposures; risk estimates are presented in Appendix H-2, Tables 7.7.RME (adult), 7.8.RME (child), and 7.9.RME (adult/child aggregate), and summarized in Tables 9.7.RME, 9.8.RME, and 9.9.RME, respectively:

Table H-4. Summary of Resident Current/Future Risk Estimates for Indoor Air Exposures at Residential Properties (From Exterior Soil Vapor)

Location	Adult/Child Aggregate ELCR	Adult Target-Organ-Specific His	Child Target-Organ-Specific His
[redacted]	$4x10^{-6}$	<1	<1

As indicated in Table H-4, the resident ELCRs and His at the residential property exterior soil vapor (migration into indoor air) exposure points evaluated in the HHRA were less than or within EPA-acceptable levels.

- **Future Resident (Condominiums)**—Subslab soil vapor (migration into indoor air) exposures; risk estimates are presented in Appendix H-2, Tables 7.10.RME (adult), 7.11.RME (child), and 7.12.RME (adult/child aggregate), and summarized in Tables 9.10.RME, 9.11.RME, and 9.12.RME, respectively**:**

Table H-5. Summary of Resident Future Risk Estimates for Indoor Air Exposures (From Subslab Soil Vapor) [redacted]

Location	Adult/Child Aggregate ELCR	Adult Target Organ-specific HIs	Child Target Organ-specific HIs
[redacted]	$2x10^{-6}$	<1	<1
[redacted]	$4x10^{-6}$	<1	<1
[redacted]	$3x10^{-5}$	developmental HI = 6, cardiovascular system HI=6, and immune system HI = 6, due to TCE	developmental HI = 6, cardiovascular system HI=6, and immune system HI = 6, due to TCE
[redacted]	$1x10^{-5}$	developmental HI = 4, cardiovascular system HI=4, and immune system HI = 4, due to TCE	developmental HI = 4, cardiovascular system HI=4, and immune system HI = 4, due to TCE
[redacted]	$5x10^{-6}$	<1	<1
[redacted]	$1x10^{-6}$	developmental HI = 2, cardiovascular system HI=2, and immune system HI = 2, due to TCE	developmental HI = 2, cardiovascular system HI=42, and immune system HI = 2, due to TCE

As indicated in Table H-5, the resident ELCRs at the condominium indoor air exposure points modeled from subslab soil vapor evaluated in the HHRA were within EPA-acceptable levels. However, target organ-specific HIs exceeded EPA's threshold HI due to TCE at three condominium units.

- **Future Resident (Residential Properties)**—Subslab soil vapor (migration into indoor air) exposures; risk estimates are presented in Appendix H-2, Tables 7.13.RME (adult), 7.14.RME (child), and 7.15.RME (adult/child aggregate), and summarized in Tables 9.13.RME, 9.14.RME, and 9.15.RME, respectively**:**

Table H-6. Summary of Resident Future Risk Estimates for Indoor Air Exposures (From Subslab Soil Vapor)

Location	Adult/Child Aggregate ELCR	Adult Target Organ-specific HIs	Child Target Organ-specific HIs
[redacted]	$1x10^{-6}$	<1	<1
[redacted]	$6x10^{-6}$	1	1
[redacted]	$2x10^{-5}$	developmental HI = 4, cardiovascular system HI=4, and immune system HI = 4, due to TCE	developmental HI = 4, cardiovascular system HI=4, and immune system HI = 4, due to TCE
[redacted]	$6x10^{-6}$	<1	<1

As indicated in Table H-6, the resident ELCRs at the residential property indoor air exposure points modeled from subslab soil vapor evaluated in the HHRA were within EPA-acceptable levels. However, target organ-specific HIs exceeded EPA's threshold HI due to TCE at one residential property.

5.5 Chemicals of Concern

Generally, remedial actions are not warranted for site media with an ELCR of 1×10^{-4} or below, or a hazard index (HI) of 1 or less, although it may be warranted if other EPA policies or site-specific information suggests to EPA risk managers that action is appropriate.

In general, chemicals of concern (COCs) are identified when the potential ELCR or HI for a receptor group exceeds EPA threshold values (a total ELCR of 1×10^{-4} or a target-organ-specific HI of 1) and concentrations are site-related. When a potential ELCR of 1×10^{-4} is exceeded for an exposure medium for a receptor group, the COPCs posing an individual ELCR greater than 1×10^{-6} in the environmental medium responsible for the unacceptable risks are identified as COCs. When a potential target-organ-specific HI exceeds 1 for an exposure medium for a receptor group, the COPCs posing an HQ greater than 0.1 for that target organ in the environmental medium responsible for the unacceptable HI are identified as COCs. Factors such as nature of contamination source, laboratory contamination, background levels, and common pesticide use (unrelated to spills, improper storage disposal or use) are typically considered when identifying COCs. COCs are summarized in Table H-7.

Indoor air risk estimates were less than or within EPA's target risk range and HI threshold for current exposures at the condominiums and residential properties that have not yet been mitigated. That is, the potential ELCRs for these exposure points were less than or within the target ELCR range of 1×10^{-6} to 1×10^{-4}, and the estimated target-organ-specific HIs did not exceed the threshold of 1.

Exterior soil vapor (migrating to indoor air) risk estimates for current/future exposures were less than or within EPA's target risk range and HI threshold at residential properties.

Subslab soil vapor (migrating to indoor air) risk estimates for potential future exposures were less than or within EPA's target risk range and HI threshold for the 200 West Lake Street condominium [redacted] and [redacted] Although risk estimates for potential future exposures

at the [redacted] and residential property 4 were within EPA's acceptable ELCR range, the noncancer HI estimates exceed the HI threshold of 1, with TCE being the risk driver for the properties. Therefore, TCE was identified as a COC for inhalation of indoor air (based on subslab soil vapor migrating to indoor air). The estimated ELCRs and HIs for this COC (i.e., TCE) for the applicable properties are presented in Tables 10.1 through 10.4 of Appendix H-2.

Table H-7. Summary of Media/Receptor COCs

Location	ELCR COCs	Adult Target-Organ-Specific HI COCs	Child Target-Organ-Specific HI COCs
Future Resident—Indoor Air Exposures (from Subslab Soil Vapor)			
[redacted]	None	TCE (HIs = 6)	TCE (HIs = 6)
[redacted]	None	TCE (HIs = 4)	TCE (HIs = 4)
[redacted]	None	TCE (HIs = 2)	TCE (HIs = 2)
[redacted]	None	TCE (HIs = 4)	TCE (HIs = 4)

5.6 Uncertainty Analysis

The assumptions used in the HHRA have inherent uncertainty. While it is theoretically possible that this leads to underestimates of potential risk, the use of numerous upper-bound assumptions most likely results in conservative estimates of potential risk. A receptor group's potential exposure and subsequent potential risk are influenced by the exposure scenario and dose/response and vary on a case-by-case basis. The key assumptions in the HHRA and their influence on the numerical risk estimates and specific uncertainties associated with the HHRA are discussed in the following subsections.

5.6.1 Data Evaluation

The purpose of data evaluation is to determine which constituents, if any, are present at the site at concentrations requiring evaluation in the HHRA. Uncertainty with respect to data evaluation can arise from many sources, such as the quality of data used to characterize the site and the process used to select data and COPCs in the HHRA.

The sampling that was conducted at the site generally focused on areas of known or suspected impact from historical site use and previous sampling information. Therefore, the uncertainty in sampling and the possibility of missing a location impacted by site constituents is expected to be minimal except for the 5 residences where access for sampling was not granted. The uncertainty associated with the data analysis is minimal, as the data were fully validated before use in the HHRA.

A limited amount of soil data is available for the site and is discussed in Section 7.2.1 of the RI report. Fifteen borings were advanced in May 2018 where permanent soil vapor probes were to be installed (Figure 2-1 of the RI report); soil samples were collected from ten of the 15 borings. Soil cores were continuously logged and screened by a CH2M geologist in accordance with the QAPP (CH2M 2018d) to provide lithologic information to support the RI CSM and to guide soil vapor probe installation depth. Historical soil data [shown in Figure 5 of the QAPP (CH2M 2018d)] suggest that TCE, and in some cases PCE, was released to shallow soils in eastern and southern parts of the site. Not all of the areas with these soil releases were excavated and most soils were reworked during condominium construction and historic soil removals; some were assumed to be capped by the foundations, and others met the standards that prevailed at the time.

Chemical surrogates were used for three chemicals in the COPC screening step because SLs were not available for these detected constituents (m&p-xylenes, trans-1,3-dichloropropene, and 1,3-

dichlorobenzene). Chemical surrogates were selected based on structural similarity, chemical activity, and mechanisms of toxicity. The RSL for 1,4-dichlorobenzene is used for 1,3-dichlorobenzene; 1,3-dichlorobenzene was identified as a COPC despite not having its own chemical-specific RSL. The other two chemicals were not identified as COPCs since maximum detected concentrations were below their surrogate RSLs. Although chemical surrogates were selected using best professional judgment and are based on structural similarities between compounds, using chemical surrogates could underestimate or overestimate the toxicity of chemicals that lack published SLs.

5.6.2 Exposure Assessment

In accordance with EPA guidance, exposure estimates were calculated for an RME scenario. An RME scenario results in upper-bound exposure estimates and likely overestimates actual site exposures. For example, residents are assumed to inhale indoor air for 24 hours per day for 350 days per year for 26 years at their property. Actual risks are likely to be less than the potential risks presented in this HHRA.

The HHRA assumed that the EPCs for site media remain constant throughout the assumed exposure period within the exposure area. This assumption results in an overestimation of risk since, because of the lack of a continuous release source, concentrations of COPCs will decrease over the exposure durations used in the HHRA. The maximum detected concentration of COPCs for the indoor air, subslab soil vapor, and exterior soil vapor data groupings were used as the EPCs. Use of the maximum detected concentration may overestimate risk.

The EPA default AF (based on the 95th percentile of a sample of residential buildings) was also used to model future indoor air concentrations from subslab soil vapor data collected in buildings existing at the site. Therefore, the indoor air EPCs estimated from the subslab soil vapor concentrations may be overestimated.

Concentrations in soil vapor and indoor air can be affected by temporal variability. For instance, changes in source strength, barometric pressure, and soil moisture are just a few factors that can affect soil vapor concentrations. Indoor air concentrations can be affected by changes in soil vapor concentrations, soil vapor entry rates, air exchange rates, indoor air sources, and other factors. Temporal variability is addressed by collecting soil vapor and indoor air samples over multiple dates. VI-related data were collected in the non-heating season and in the heating season; a detailed description of sampling events is provided in the Vapor Intrusion Investigation Technical Memorandum (see Appendix B of the RI Report).

For structures where crawlspace/indoor air and/or subslab soil vapor data were not available, EPCs were calculated from exterior soil vapor concentrations using the EPA VISL calculator. However, the VISL calculator is not intended for use in cases with exposed soil in basements or exposed bedrock in basements (which was observed at some houses that were accessed and sampled). If the structures where crawlspace or indoor air data were not available have exposed soil or bedrock in basements, the indoor air EPCs may be underestimated.

5.6.3 Toxicity Assessment

Significant uncertainties exist in estimated noncarcinogenic toxicity values. Noncarcinogenic toxicity effects are effects with a threshold. For many noncarcinogenic effects, protective mechanisms, which must be overcome before an adverse effect is manifest, are believed to exist in the human body. As a result, humans can tolerate chemical exposures ranging from zero to a certain point (threshold) without expressing adverse effects.

The chemical concentrations to which people potentially are exposed in an environmental setting are usually much lower than the levels used in the studies from which dose-response relationships are developed. Therefore, estimating potential health effects from environmental exposure requires the use of models that allow the extrapolation of health effects.

One COPC (1,3-dichlorobenzene) has no inhalation RfC and IUR, so potential exposures to this COPC were not quantified and are therefore underestimated.

The uncertainty factor for the chronic RfC for TCE ranges from 10 to 10,000 and the uncertainty factors for the chronic RfCs for benzene and naphthalene are 300 and 3,000, respectively (Attachment H-2, Tables 5.1). Due to the uncertainties associated with toxicity values for the COPCs, it is possible that the potential hazards could be underestimated or overestimated in the HHRA.

Uncertainty is also associated with the application of ADAFs for TCE (identified as a COPC in indoor air and soil vapor) which acts with an MMOA and lacks age-specific toxicity factors. Chemical-specific ADAFs are not available for TCE; therefore, using the default ADAFs in the HHRA may overestimate or underestimate the actual carcinogenic risks for TCE.

5.6.4 Risk Characterization

The potential risk of adverse health effects is characterized based on potential exposures and potential dose-response relationships. An important additional source of uncertainty is introduced in this phase of the HHRA–the combination of upper-bound intake estimates with upper-bound toxicity estimates.

Generally, the goal of a baseline risk assessment is to estimate an upper-bound, but reasonable, potential risk. Such an upper-bound estimate can be derived in several ways, depending on how conservative one wants the final estimate to be. HHRAs combine several upper-bound assumptions to estimate potential risk.

Most of the assumptions about exposure and toxicity used in this HHRA are representative of statistical upper-bounds for each parameter. The result of combining several such upper-bound assumptions is that the final estimate of potential exposure or potential risk is conservative.

SECTION 6

Technical Exceptions for Vapor Intrusion Investigations

This HHRA provides results regarding the potential occurrence and significance of VI based on reasonably obtainable sampling data and observations.

This report does not address indoor air quality problems, including mold or mildew, radon, and building air quality unrelated to subsurface contaminants or general indoor ventilation issues. In addition, it does not address landfill gas or explosive atmospheres.

The HHRA provides comparison of indoor air concentrations with EPA VISLs. These comparisons are not intended to imply the presence or absence of healthful or safe indoor air quality, and do not represent any medical opinion.

The VI results and conclusions presented in this HHRA are developed for land uses and site conditions as characterized by the available data. Any changes in land use or site conditions based on additional information may warrant reevaluation of the results and conclusions of the VI investigation.

SECTION 7

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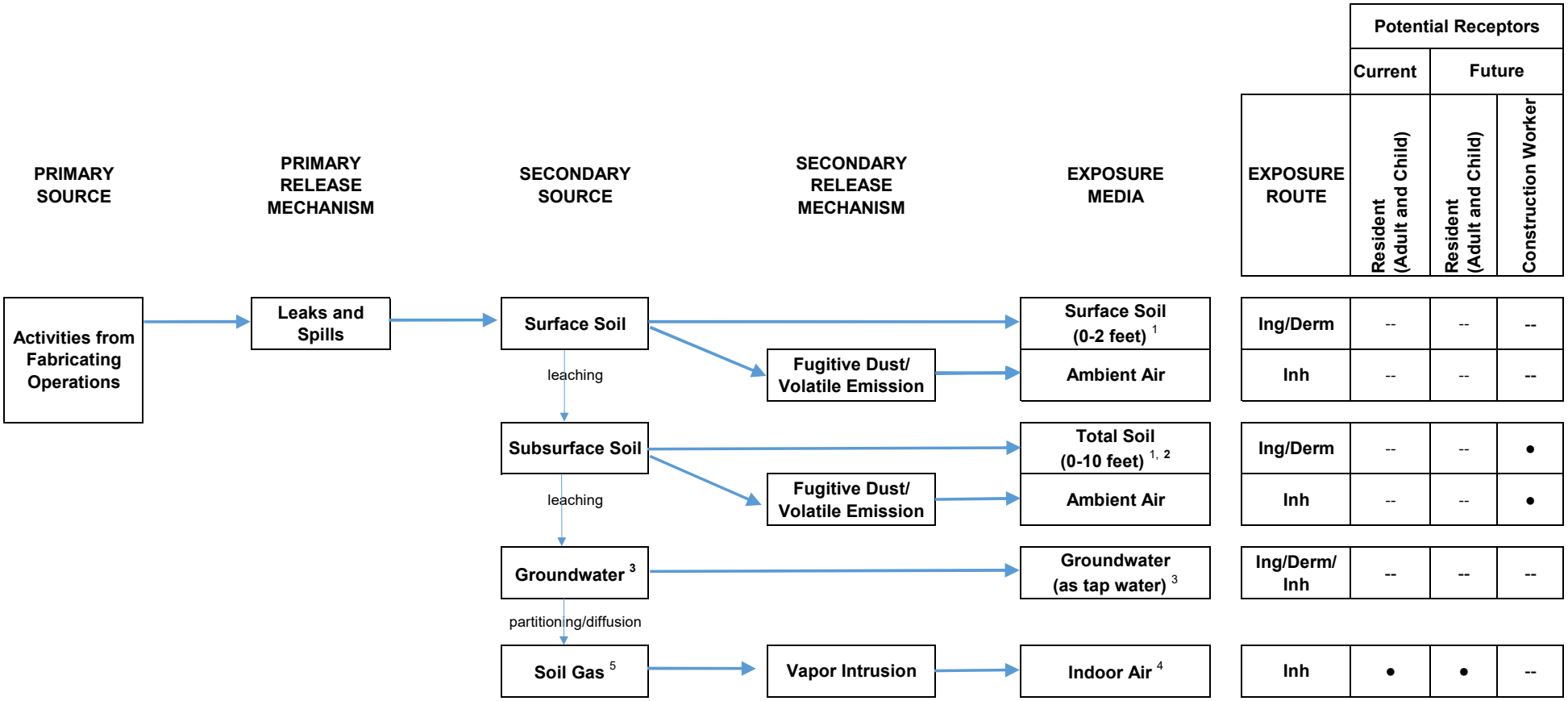
Attachment H-1
Figure



Notes:
-- Negligible or Incomplete Pathway
● Potentially Complete Pathway to be Evaluated
Ing - Ingestion, Der - Dermal, Inh - Inhalation
1) Soil exposures by residents at the condominium complex are insignificant and will not be quantified.
2) Future soil exposures are evaluated for total soil, assuming surface and subsurface soil become mixed during future development activities. Construction worker exposures to total soil will be evaluated as one exposure unit.
3) Groundwater was evaluated in a previous remedial investigation.
4) Indoor air/crawl space air data will be used to evaluate current exposure scenarios at a property. Subslab soil vapor data (or if not available, exterior soil vapor data) will be used to evaluate future exposure scenarios at a property. For properties where indoor air/crawl space air data were not collected, subslab soil vapor data (or exterior soil vapor data) will be used to evaluate both current and future indoor air exposure scenarios.
5) Buildings with subslab depressurization systems will not be evaluated in the HHRA.

FIGURE 1
HHRA Conceptual Exposure Model
PMC Superfund Site
Petoskey, Emmet County, Michigan

Attachment H-2
RAGS Part D Tables

TABLE 1

SELECTION OF EXPOSURE PATHWAYS

PMC Superfund Site

Petoskey, Emmet County, Michigan

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Onsite/ Offsite	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Indoor Air[1]	Indoor Air and Crawl Space Air	Indoor air in residences without a SSDS	Resident	Adult/Child	Inhalation	Onsite	Quant	Residents may inhale volatiles in indoor air (via migration from soil vapor and groundwater) inside buildings where a SSDS is not present.
Current/Future	Indoor Air and Soil Vapor	Indoor Air	Indoor air in commercial units/buildings without a SSDS	Commercial Worker	Adult	Inhalation	Onsite	None	Both commercial buildings [redacted] of Water Street Condominiums and [redacted] in the study area have SSDS.
	Soil vapor (Subslab and Exterior[2,3])	Indoor Air	Indoor air in residences without a SSDS	Resident	Adult/Child	Inhalation	Onsite	Quant	Adult and child residents could inhale volatile constituents in soil vapor that migrate to the indoor air in buildings where a SSDS is not present.
	Indoor Air and Soil Vapor	Indoor Air	Indoor air in residences with a SSDS	Resident	Adult/Child	Inhalation	Onsite	None	At buildings where a SSDS is present, the indoor air exposure pathway is incomplete and will not be evaluated.
	Soil	Surface Soil	Surface soil (0-2 feet bgs) around the condominium complex	Resident	Adult/Child	Ingestion, Dermal, Inhalation	Onsite	Qual	Residents in the condominium complex will likely have little, if any, direct soil exposures. Some residents may have gardens (e.g., for flowers) in a condominium setting but exposures would be minimal. Will discuss concentrations in the 0-2 foot interval in the uncertainty analysis section of the HHRA.
Future	Soil vapor (Subslab and Exterior[3])	Indoor Air	Indoor air in residences without a SSDS	Resident	Adult/Child	Inhalation	Onsite	Quant	Adult and child residents could inhale volatile constituents in soil vapor that migrate to the indoor air in buildings where a SSDS is not present.
	Soil	Total Soil	Total soil (0-10 feet bgs) around the condominium complex	Construction Worker	Adult	Ingestion, Dermal	Onsite	Quant	During potential site redevelopment, construction workers could contact soil (0 to 10 feet bgs).
				Resident	Adult/Child	Ingestion, Dermal, Inhalation	Onsite	Qual	Residents in the condominium complex will likely have little, if any, direct soil exposures. Some residents may have gardens (e.g., for flowers) in a condominium setting but exposures would be minimal. Will discuss concentrations in the 0-2 foot interval in the uncertainty analysis section of the HHRA.
		Ambient Air	Ambient air around the condominium complex	Construction Worker	Adult	Inhalation	Onsite	Quant	During potential site redevelopment, construction workers could inhale volatile emissions or fugitive dust from soil (0 to 10 feet bgs).
	Groundwater	Indoor Air	Indoor air in residences	Resident	Adult/Child	Inhalation	Onsite	None	Groundwater is being evaluated in a separate investigation.
		Bathroom Air	Bathroom air in residences	Resident	Adult/Child	Ingestion, Dermal, Inhalation	Onsite	None	Groundwater is being evaluated in a separate investigation.
		Groundwater	Groundwater in excavation trenches	Construction Worker	Adult	Dermal, Inhalation	Onsite	None	Site groundwater is being addressed separately as OU1.

Notes:

(1) All residential properties (apartment units, condominium units, houses) will be evaluated separately.

(2) At residential properties where indoor air samples were not collected, subslab soil vapor or exterior soil vapor data will be used to evaluate both current and future indoor air (i.e., vapor intrusion pathway).
exposures. Subslab and exterior soil vapor data will be evaluated separately.

(3) Subslab soil gas data will be used to assess whether indoor air concentrations are from a subslab source (rather than an indoor source). Also, subslab or exterior soil vapor samples will be used to evaluate future indoor air exposures (i.e., vapor intrusion pathway). If subslab vapor soil samples are not available, the nearest exterior soil vapor sample located within 100 feet of a property will be used to evaluate indoor air for the property in the HHRA.

bgs: below ground surface

Qual: Qualitative

Quan: Quantitative

SSDS: Subslab depressurization system

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	1.5E-01 J	1.9E+00	ug/m3	1	4 / 13	0.69 - 0.89	1.9E+00	NA	6.3E+00 n	NA	NA	NO	BSL
200 W Lake [redacted]	107-06-2	1,2-Dichloroethane	3.6E-01	1.8E+00	ug/m3	PMC-01-IN01	4 / 13	0.14 - 0.18	1.8E+00	NA	1.1E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	1.5E-02 J	1.5E-02 J	ug/m3	01-IN01, PMC-01	2 / 13	0.14 - 0.18	1.5E-02	NA	4.2E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.3E-02 J	3.7E-02 J	ug/m3	PMC-01-IN01	2 / 13	0.69 - 0.89	3.7E-02	NA	6.3E+00 n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.2E-02	3.4E-01	ug/m3	1	4 / 13	0.14 - 0.18	3.4E-01	NA	2.6E-01 c	NA	NA	NO (4)	ASL (4)
	123-91-1	1,4-Dioxane	2.4E-02 J	2.5E-02 J	ug/m3	PMC-01-IN01	2 / 13	0.69 - 0.89	2.5E-02	NA	5.6E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.1E-01 J	7.3E-01 J	ug/m3	PMC-01-IN01	2 / 13	6.9 - 8.9	7.3E-01	NA	5.2E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.2E-01 J	8.8E-01	ug/m3	1	3 / 13	0.69 - 0.89	8.8E-01	NA	3.1E+00 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	1.6E-01 J	1.1E+00	ug/m3	1	2 / 13	0.12 - 0.89	1.1E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.1E+00	7.3E+01	ug/m3	1	13 / 13	-	7.3E+01	NA	3.2E+03 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	1.5E+00	1.5E+00	ug/m3	1	1 / 13	0.21 - 0.89	1.5E+00	NA	6.3E+00 n	NA	NA	NO	BSL
	107-02-8	Acrolein	8.0E-01	5.4E+00	ug/m3	1	4 / 13	2.7 - 3.6	5.4E+00	NA	2.1E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	6.0E+00	4.7E+01	ug/m3	1	11 / 11	-	4.7E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	2.0E-01	7.5E-01	ug/m3	1	13 / 13	-	7.5E-01	NA	3.6E-01 c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	1.7E-02 J	2.1E-02 J	ug/m3	PMC-01-IN01	2 / 13	0.27 - 0.36	2.1E-02	NA	5.2E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.2E-01	4.9E-01	ug/m3	1	11 / 11	-	4.9E-01	NA	4.7E-01 c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	6.9E-01 J	7.0E-01 J	ug/m3	PMC-01-IN02	2 / 2	-	7.0E-01	NA	5.2E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.2E-02 J	1.6E-01	ug/m3	1	5 / 13	0.14 - 0.18	1.6E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.4E-01	1.0E+00	ug/m3	1	10 / 13	0.03 - 0.3	1.0E+00	NA	9.4E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.9E+00	2.6E+00	ug/m3	1	13 / 13	-	2.6E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.3E-01	1.9E+00	ug/m3	1	4 / 13	0.69 - 0.89	1.9E+00	NA	6.3E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.4E+00	1.0E+01	ug/m3	1	10 / 11	0.76 - 0.76	1.0E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.8E+01	8.3E+02 J	ug/m3	1	13 / 13	-	8.3E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.7E+00	3.2E+01	ug/m3	1	11 / 11	-	3.2E+01	NA	7.3E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	2.2E-01	2.5E+00	ug/m3	1	5 / 13	0.69 - 0.89	2.5E+00	NA	1.1E+00 c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	4.3E-01	5.2E-01	ug/m3	1	11 / 11	-	5.2E-01	NA	5.2E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.0E+00 J	8.4E+00	ug/m3	1	3 / 13	6.9 - 8.9	8.4E+00	NA	2.1E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	7.9E-01	7.9E-01	ug/m3	1	1 / 11	0.69 - 0.89	7.9E-01	NA	8.3E-02 c	NA	NA	NO (5)	ASL (5)
	71-36-3	n-Butanol	1.5E+00 J	2.3E+00	ug/m3	PMC-01-IN01	2 / 2	-	2.3E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	2.5E+00	1.0E+01	ug/m3	1	3 / 11	0.69 - 0.89	1.0E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	8.0E-01	9.3E-01	ug/m3	1	3 / 13	0.17 - 0.89	9.3E-01	NA	7.3E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	8.1E-01	3.5E+00	ug/m3	1	13 / 13	-	3.5E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	7.0E-01	5.9E+00	ug/m3	1	11 / 13	0.69 - 0.74	5.9E+00	NA	1.0E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.3E-01	8.0E-01	ug/m3	1	13 / 13	-	8.0E-01	NA	4.2E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.3E+00	2.3E+00	ug/m3	1	1 / 11	0.69 - 0.89	2.3E+00	NA	2.1E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	6.3E-01	4.6E+00	ug/m3	1	13 / 13	-	4.6E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.4E-02 J	3.5E-01	ug/m3	1	3 / 13	0.14 - 0.18	3.5E-01	NA	2.1E-01 n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.0E+00	1.4E+00	ug/m3	1	13 / 13	-	1.4E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.8E-01	3.9E-01	ug/m3	PMC-01-IN01	2 / 2	-	3.9E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.1E+01	1.1E+01	ug/m3	1	1 / 13	1.9 - 8.9	1.1E+01	NA	2.1E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.1E-01	2.2E+00	ug/m3	1	5 / 13	0.69 - 0.89	2.2E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	5.7E-01	4.8E+00	ug/m3	1	10 / 13	0.75 - 0.89	4.8E+00	NA	1.0E+01 n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	526-73-8	1,2,3-Trimethylbenzene	1.2E-01	J	2.3E-01	J	ug/m3	PMC-02-IN02	2 / 2	-	2.3E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	4.7E-01		9.5E-01		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	9.5E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.4E-01		3.7E-01		ug/m3	PMC-02-IN02	2 / 4	0.15 - 0.15	3.7E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	7.4E-02		1.8E-01		ug/m3	PMC-02-IN02	2 / 4	0.15 - 0.15	1.8E-01	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.3E-01		2.7E-01		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	2.7E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	9.5E-02		1.1E-01		ug/m3	PMC-02-IN02	2 / 4	0.3 - 0.3	1.1E-01	NA	9.4E-02	c	NA	NA	NO (4)	ASL (4)
	106-46-7	1,4-Dichlorobenzene	6.2E-01		9.7E-01		ug/m3	PMC-02-IN02	4 / 4	-	9.7E-01	NA	2.6E-01	c	NA	NA	NO (4)	ASL (4)
	123-91-1	1,4-Dioxane	3.1E-02	J	3.2E-02	J	ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	3.2E-02	NA	5.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	2.3E+00		5.3E+00		ug/m3	PMC-02-IN02	2 / 4	7.4 - 7.5	5.3E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.8E-01	J	3.1E-01	J	ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	3.1E-01	NA	3.1E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	5.7E-01		1.4E+00		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	1.4E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	1.4E+01		3.9E+01		ug/m3	PMC-02-IN02	4 / 4	-	3.9E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	4.3E-01		8.8E-01		ug/m3	PMC-02-IN02	2 / 4	3 - 3	8.8E-01	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.2E+01		1.2E+01		ug/m3	2	2 / 2	-	1.2E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	5.2E-01		1.0E+00		ug/m3	PMC-02-IN02	4 / 4	-	1.0E+00	NA	3.6E-01	c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	1.6E-02	J	3.1E-02	J	ug/m3	PMC-02-IN02	2 / 4	0.3 - 0.3	3.1E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.9E-01	J	2.9E-01	J	ug/m3	PMC-02-IN02	1 / 4	0.17 - 7.5	2.9E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.2E-01		4.4E-01		ug/m3	2	2 / 2	-	4.4E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.4E-01		5.4E-01		ug/m3	PMC-02-IN01	1 / 2	0.39 - 0.39	5.4E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.6E-01		5.9E-01		ug/m3	2	4 / 4	-	5.9E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.6E-01		3.9E-01		ug/m3	PMC-02-IN02	2 / 4	0.3 - 0.3	3.9E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.1E+00		2.6E+00		ug/m3	PMC-02-IN02	2 / 4	1.5 - 1.5	2.6E+00	NA	6.3E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.4E+00	J	2.3E+00		ug/m3	2	4 / 4	-	2.3E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.0E+00		2.0E+00		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	2.0E+00	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.6E+01		4.3E+01		ug/m3	2	2 / 2	-	4.3E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	9.2E+01		3.8E+02		ug/m3	PMC-02-IN02	4 / 4	-	3.8E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	8.8E+00		4.8E+01		ug/m3	2	2 / 2	-	4.8E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	4.4E-01		9.9E-01		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	9.9E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	4.6E-01		4.8E-01		ug/m3	2	2 / 2	-	4.8E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.6E+00		1.0E+01		ug/m3	PMC-02-IN02	2 / 4	7.4 - 7.5	1.0E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	71-36-3	n-Butanol	1.0E+00	J	2.0E+00		ug/m3	PMC-02-IN02	2 / 2	-	2.0E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	9.5E-01		9.5E-01		ug/m3	2	1 / 2	0.75 - 0.75	9.5E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	8.7E+00		1.8E+01		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	1.8E+01	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	1.9E+00		4.3E+00		ug/m3	PMC-02-IN02	4 / 4	-	4.3E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.2E+00		1.8E+00		ug/m3	2	4 / 4	-	1.8E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	7.5E-02		4.9E-01		ug/m3	2	4 / 4	-	4.9E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	7.6E-01		7.6E-01		ug/m3	2	1 / 2	0.75 - 0.75	7.6E-01	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.0E+00		4.3E+01		ug/m3	PMC-02-IN02	4 / 4	-	4.3E+01	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.2E-02		1.3E-01		ug/m3	PMC-02-IN02	2 / 4	0.15 - 0.15	1.3E-01	NA	2.1E-01	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	7.7E-01		1.2E+00		ug/m3	PMC-02-IN02	4 / 4	-	1.2E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	2.6E-01		3.7E-01		ug/m3	PMC-02-IN02	2 / 2	-	3.7E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	5.7E-01		1.1E+00		ug/m3	PMC-02-IN02	2 / 4	0.74 - 0.75	1.1E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	8.9E-01		3.1E+00		ug/m3	PMC-02-IN02	3 / 4	0.75 - 0.75	3.1E+00	NA	1.0E+01	n	NA	NA	NO	BSL

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Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	1.7E-01		2.5E-01		ug/m3	PMC-03-IN02	2 / 13	0.55 - 0.82	2.5E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	1.3E+00		1.2E+01		ug/m3	3	13 / 13	-	1.2E+01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	1.5E-02	J	2.3E-02	J	ug/m3	PMC-03-IN01	2 / 13	0.11 - 0.16	2.3E-02	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.2E-02	J	5.8E-02	J	ug/m3	PMC-03-IN02	2 / 13	0.55 - 0.82	5.8E-02	NA	6.3E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	2.3E-02	J	2.3E-02	J	ug/m3	PMC-03-IN02	1 / 13	0.022 - 0.33	2.3E-02	NA	9.4E-02	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.6E-02		2.0E-01		ug/m3	PMC-03-IN02	2 / 13	0.11 - 0.16	2.0E-01	NA	2.6E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.1E-02	J	2.2E-02	J	ug/m3	PMC-03-IN01	2 / 13	0.55 - 0.82	2.2E-02	NA	5.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.4E+00	J	3.3E+00		ug/m3	PMC-03-IN01	2 / 13	5.5 - 8.2	3.3E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	3.0E-01	J	5.3E-01	J	ug/m3	PMC-03-IN01	2 / 13	0.55 - 0.82	5.3E-01	NA	3.1E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	1.7E-01	J	1.8E+00		ug/m3	3	7 / 13	0.72 - 0.82	1.8E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	7.6E+00		4.7E+01		ug/m3	3	12 / 13	7.5 - 7.5	4.7E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	7.8E-01		3.3E+00		ug/m3	3	3 / 13	2.2 - 3.3	3.3E+00	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	107-05-1	Allyl chloride	2.0E-01		2.0E-01		ug/m3	3	1 / 11	0.11 - 0.16	2.0E-01	NA	1.0E-01	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.3E+00		4.2E+01		ug/m3	3	11 / 11	-	4.2E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	1.9E-01		1.0E+00	J	ug/m3	3	13 / 13	-	1.0E+00	NA	3.6E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.1E-02	J	2.1E-02	J	ug/m3	03-IN01, PMC-03	2 / 13	0.22 - 0.33	2.1E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.5E-01		5.5E-01		ug/m3	3	11 / 11	-	5.5E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	6.4E-01	J	7.4E-01	J	ug/m3	PMC-03-IN01	2 / 2	-	7.4E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.2E-01	J	4.6E-01		ug/m3	3	11 / 13	0.14 - 0.15	4.6E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.6E-01		7.2E-01		ug/m3	3	11 / 13	0.03 - 0.29	7.2E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.7E+00		2.6E+00		ug/m3	3	13 / 13	-	2.6E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.2E-01		1.4E+00		ug/m3	3	5 / 13	0.55 - 0.82	1.4E+00	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	7.6E-01		8.2E+00	J	ug/m3	3	10 / 11	0.8 - 0.8	8.2E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.3E+01		6.9E+02		ug/m3	3	13 / 13	-	6.9E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.3E+00		6.4E+01	J	ug/m3	3	11 / 11	-	6.4E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.4E-01	J	1.8E+00		ug/m3	3	5 / 13	0.55 - 0.82	1.8E+00	NA	1.1E+00	c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	3.6E-01		5.0E-01		ug/m3	3	11 / 11	-	5.0E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.7E+00	J	2.1E+00	J	ug/m3	PMC-03-IN01	2 / 13	5.5 - 8.2	2.1E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.1E+00		3.0E+00		ug/m3	PMC-03-IN02	2 / 2	-	3.0E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.3E+00		6.3E+00		ug/m3	3	4 / 11	0.55 - 0.82	6.3E+00	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	1.7E-01	J	1.5E+00		ug/m3	3	5 / 13	0.55 - 0.82	1.5E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	9.4E-01		9.4E-01		ug/m3	3	1 / 11	0.55 - 0.82	9.4E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	115-07-1	Propene	9.7E-01		1.2E+00		ug/m3	3	6 / 13	0.55 - 0.8	1.2E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.3E+00		9.3E+00		ug/m3	PMC-03-IN02	11 / 13	0.71 - 0.75	9.3E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.8E-02		6.7E-01		ug/m3	3	9 / 13	0.14 - 0.16	6.7E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	9.7E-01		3.3E+00		ug/m3	3	3 / 11	0.55 - 0.82	3.3E+00	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	8.6E-01		6.6E+00		ug/m3	3	13 / 13	-	6.6E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	3.9E-02	J	6.1E-01		ug/m3	3	8 / 13	0.11 - 0.16	6.1E-01	NA	2.1E-01	n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.0E+00		1.4E+00		ug/m3	3	13 / 13	-	1.4E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.9E-01		3.9E-01		ug/m3	03-IN01, PMC-03	2 / 2	-	3.9E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.0E+01		1.0E+01		ug/m3	PMC-03-IN01	1 / 13	1.7 - 8.2	1.0E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.7E-01		2.7E+00		ug/m3	3	5 / 13	0.014 - 0.82	2.7E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.7E-01		9.1E+00		ug/m3	3	9 / 13	0.72 - 0.82	9.1E+00	NA	1.0E+01	n	NA	NA	NO	BSL

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Indoor Air	79-34-5	1,1,2,2-Tetrachloroethane	1.6E-02	J	1.6E-02	J	ug/m3	PMC-04-IN02	1 / 13	0.011 - 0.16	1.6E-02	NA	4.8E-02	c	NA	NA	NO	BSL
[redacted]	75-34-3	1,1-Dichloroethane	9.7E-03	J	9.7E-03	J	ug/m3	PMC-04-IN01	1 / 13	0.0097 - 0.16	9.7E-03	NA	1.8E+00	c	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.3E-01		3.1E-01		ug/m3	PMC-04-IN01	2 / 13	0.64 - 0.81	3.1E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	3.0E-01		1.0E+01		ug/m3	4	13 / 13	-	1.0E+01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.1E-02	J	4.2E-02		ug/m3	PMC-04-IN01	2 / 13	0.13 - 0.16	4.2E-02	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	6.0E-02	J	7.3E-02	J	ug/m3	PMC-04-IN01	2 / 13	0.64 - 0.81	7.3E-02	NA	6.3E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	3.8E-02	J	3.8E-02	J	ug/m3	PMC-04-IN01	1 / 13	0.022 - 0.32	3.8E-02	NA	9.4E-02	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.9E-02		6.2E-02		ug/m3	PMC-04-IN01	2 / 13	0.13 - 0.16	6.2E-02	NA	2.6E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.1E-02	J	2.1E-02	J	ug/m3	04-IN01, PMC-04	2 / 13	0.64 - 0.81	2.1E-02	NA	5.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	6.5E-01	J	2.5E+00		ug/m3	PMC-04-IN01	2 / 13	6.4 - 8.1	2.5E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.5E-01	J	4.5E-01	J	ug/m3	PMC-04-IN01	2 / 13	0.64 - 0.81	4.5E-01	NA	3.1E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	1.5E-01	J	3.7E-01	J	ug/m3	PMC-04-IN01	2 / 13	0.64 - 0.81	3.7E-01	NA	3.1E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	9.5E+00		4.1E+01		ug/m3	4	11 / 13	7.6 - 7.6	4.1E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	6.8E-01		1.1E+00		ug/m3	PMC-04-IN01	2 / 13	2.5 - 3.2	1.1E+00	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	5.2E+00		4.7E+01		ug/m3	4	11 / 11	-	4.7E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.6E-01		6.2E-01		ug/m3	4	13 / 13	-	6.2E-01	NA	3.6E-01	c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	3.0E-02	J	4.9E-02		ug/m3	PMC-04-IN02	2 / 13	0.13 - 0.16	4.9E-02	NA	7.6E-02	c	NA	NA	NO	BSL
	74-83-9	Bromomethane	2.4E-02	J	3.4E-02	J	ug/m3	PMC-04-IN02	2 / 13	0.25 - 0.32	3.4E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.6E-01		5.0E-01		ug/m3	4	11 / 11	-	5.0E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	7.2E-01	J	7.6E-01	J	ug/m3	PMC-04-IN01	2 / 2	-	7.6E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.4E-01	J	1.8E-01		ug/m3	PMC-04-IN02	5 / 13	0.13 - 0.16	1.8E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.6E-01		9.6E-01		ug/m3	4	11 / 13	0.3 - 0.3	9.6E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	4.4E-01	J	4.4E-01	J	ug/m3	PMC-04-IN01	1 / 13	0.24 - 1.6	4.4E-01	NA	6.3E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.8E+00	J	2.8E+00		ug/m3	4	13 / 13	-	2.8E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.7E-01		1.3E+00		ug/m3	4	5 / 13	0.68 - 0.81	1.3E+00	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	7.6E-01		4.9E+00		ug/m3	4	10 / 11	0.76 - 0.76	4.9E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.1E+01		8.3E+01		ug/m3	4	13 / 13	-	8.3E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.7E+00		7.7E+00		ug/m3	4	11 / 11	-	7.7E+00	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.6E-01		9.0E-01		ug/m3	4	3 / 13	0.64 - 0.81	9.0E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.6E-01		5.4E-01		ug/m3	4	11 / 11	-	5.4E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	7.3E+00		1.4E+01		ug/m3	PMC-04-IN02	2 / 13	6.4 - 8.1	1.4E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	71-36-3	n-Butanol	1.1E+00	J	1.5E+00	J	ug/m3	PMC-04-IN01	2 / 2	-	1.5E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.4E+00		1.4E+00		ug/m3	4	1 / 11	0.64 - 0.81	1.4E+00	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	5.8E-01	J	3.3E+00		ug/m3	PMC-04-IN01	5 / 13	0.64 - 0.81	3.3E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	7.9E-01		6.1E+00		ug/m3	PMC-04-IN02	6 / 13	0.68 - 0.81	6.1E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	9.8E-01		9.8E+00		ug/m3	4	10 / 13	0.72 - 0.76	9.8E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.5E-01		7.3E-01		ug/m3	4	9 / 13	0.13 - 0.16	7.3E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.6E+00		4.8E+00		ug/m3	4	3 / 11	0.64 - 0.81	4.8E+00	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	9.4E-01		1.0E+01	J	ug/m3	PMC-04-IN01	12 / 13	0.76 - 0.76	1.0E+01	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.1E-02	J	2.7E-01		ug/m3	4	4 / 13	0.13 - 0.16	2.7E-01	NA	2.1E-01	n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.0E+00		1.4E+00		ug/m3	4	13 / 13	-	1.4E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.9E-01		3.9E-01		ug/m3	04-IN01, PMC-04	2 / 2	-	3.9E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	4.4E+00	J	4.4E+00	J	ug/m3	PMC-04-IN01	1 / 13	1.9 - 8.1	4.4E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.1E-01		1.4E+00		ug/m3	4	3 / 13	0.64 - 0.81	1.4E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	5.1E-01		4.5E+00		ug/m3	4	6 / 13	0.68 - 0.81	4.5E+00	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	8.9E-03 J	8.9E-03 J	ug/m3	PMC-05-IN01	1 / 13	0.0094 - 0.17	8.9E-03	NA	5.2E+02 n	NA	NA	NO	BSL
[redacted]	526-73-8	1,2,3-Trimethylbenzene	1.4E-01 J	1.4E-01 J	ug/m3	PMC-05-IN02	1 / 2	0.11 - 0.11	1.4E-01	NA	6.3E+00 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.4E-01	2.7E-01	ug/m3	PMC-05-IN02	2 / 13	0.63 - 0.84	2.7E-01	NA	6.3E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.2E-01	2.0E-01	ug/m3	PMC-05-IN01	2 / 13	0.13 - 0.17	2.0E-01	NA	1.1E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	3.9E-02 J	2.9E-01	ug/m3	5	3 / 13	0.13 - 0.17	2.9E-01	NA	4.2E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	7.9E-02 J	8.1E-02 J	ug/m3	PMC-05-IN02	2 / 13	0.63 - 0.84	8.1E-02	NA	6.3E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	4.7E-02 J	4.9E-02 J	ug/m3	PMC-05-IN01	2 / 13	0.25 - 0.34	4.9E-02	NA	9.4E-02 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	2.6E-02 J	5.9E-02	ug/m3	PMC-05-IN01	2 / 13	0.13 - 0.17	5.9E-02	NA	2.6E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.0E-02 J	2.5E-02 J	ug/m3	PMC-05-IN02	2 / 13	0.63 - 0.84	2.5E-02	NA	5.6E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.1E+00 J	2.3E+01	ug/m3	5	5 / 13	6.5 - 8.4	2.3E+01	NA	5.2E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	2.0E-01 J	4.6E-01 J	ug/m3	PMC-05-IN01	2 / 13	0.63 - 0.84	4.6E-01	NA	3.1E+00 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	4.4E-01 J	1.0E+00	ug/m3	5	3 / 13	0.63 - 0.84	1.0E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.0E+01	1.0E+02	ug/m3	5	13 / 13	-	1.0E+02	NA	3.2E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	7.6E-01	1.1E+00	ug/m3	PMC-05-IN01	2 / 13	2.5 - 3.4	1.1E+00	NA	2.1E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	5.9E+00	2.0E+01	ug/m3	5	11 / 11	-	2.0E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.3E-01	7.2E-01	ug/m3	5	13 / 13	-	7.2E-01	NA	3.6E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.8E-02 J	3.5E-02 J	ug/m3	PMC-05-IN02	2 / 13	0.13 - 0.17	3.5E-02	NA	7.6E-02 c	NA	NA	NO	BSL
	74-83-9	Bromomethane	2.4E-02 J	2.5E-02 J	ug/m3	PMC-05-IN01	2 / 13	0.25 - 0.34	2.5E-02	NA	5.2E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.3E-01	4.4E-01	ug/m3	5	11 / 11	-	4.4E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	6.6E-01 J	7.2E-01 J	ug/m3	PMC-05-IN01	2 / 2	-	7.2E-01	NA	5.2E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.4E-01 J	2.3E-01	ug/m3	5	3 / 13	0.13 - 0.17	2.3E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.5E-01	6.2E-01	ug/m3	5	10 / 13	0.3 - 0.33	6.2E-01	NA	9.4E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	2.6E-01 J	8.0E-01 J	ug/m3	PMC-05-IN01	2 / 13	1.3 - 1.7	8.0E-01	NA	6.3E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.8E+00 J	2.6E+00	ug/m3	5	13 / 13	-	2.6E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.9E-01	1.3E+00	ug/m3	5	6 / 13	0.63 - 0.84	1.3E+00	NA	6.3E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.1E+00	4.6E+00	ug/m3	5	11 / 11	-	4.6E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.6E+01	5.9E+02	ug/m3	PMC-05-IN02	13 / 13	-	5.9E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.6E+00	3.0E+01	ug/m3	5	11 / 11	-	3.0E+01	NA	7.3E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	2.9E-01	9.7E-01	ug/m3	5	3 / 13	0.63 - 0.84	9.7E-01	NA	1.1E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	4.2E-01	5.3E-01	ug/m3	5	11 / 11	-	5.3E-01	NA	5.2E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.1E+01	1.9E+01	ug/m3	PMC-05-IN02	2 / 13	6.3 - 8.4	1.9E+01	NA	2.1E+01 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.9E+00	3.0E+00	ug/m3	PMC-05-IN02	2 / 2	-	3.0E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	9.8E-01	3.9E+00	ug/m3	5	4 / 11	0.63 - 0.84	3.9E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	N-HEPTANE	4.3E+00	4.3E+00	ug/m3	5	1 / 11	0.63 - 0.84	4.3E+00	NA	4.2E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	8.1E-01	6.6E+00 J	ug/m3	PMC-05-IN01	7 / 13	0.65 - 0.84	6.6E+00	NA	7.3E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	9.2E-01	1.3E+00	ug/m3	5	2 / 11	0.63 - 0.84	1.3E+00	NA	2.1E+00 n	NA	NA	NO	BSL
	111-65-9	OCTANE	1.7E+00	1.7E+00	ug/m3	5	1 / 11	0.63 - 0.84	1.7E+00	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	8.3E-01	7.6E+00	ug/m3	PMC-05-IN02	7 / 13	0.63 - 0.84	7.6E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	7.0E-01	1.9E+00	ug/m3	5	10 / 13	0.65 - 0.76	1.9E+00	NA	1.0E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.1E-02	2.7E-01	ug/m3	5	5 / 13	0.13 - 0.17	2.7E-01	NA	4.2E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.5E+00	1.1E+02	ug/m3	5	7 / 11	0.65 - 0.83	1.1E+02	NA	2.1E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	7.4E-01	1.3E+01 J	ug/m3	PMC-05-IN01	13 / 13	-	1.3E+01	NA	5.2E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	7.6E-02	3.0E-01	ug/m3	5	4 / 13	0.13 - 0.17	3.0E-01	NA	2.1E-01 n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	9.7E-01	1.4E+00	ug/m3	5	13 / 13	-	1.4E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.8E-01	4.1E-01	ug/m3	PMC-05-IN01	2 / 2	-	4.1E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	6.4E+00 J	6.4E+00 J	ug/m3	PMC-05-IN01	1 / 13	1.9 - 8.4	6.4E+00	NA	2.1E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	3.2E-01	1.1E+00	ug/m3	5	3 / 13	0.63 - 0.84	1.1E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	7.0E-01	3.0E+00	ug/m3	5	7 / 13	0.65 - 0.84	3.0E+00	NA	1.0E+01 n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	1.8E-01		1.9E-01		ug/m3	PMC-06-IN01	2 / 13	0.56 - 0.88	1.9E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	1.4E+00		7.7E+00		ug/m3	6	13 / 13	-	7.7E+00	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	3.0E-02	J	3.8E-02	J	ug/m3	PMC-06-IN02	2 / 13	0.11 - 0.18	3.8E-02	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.7E-02	J	4.7E-02	J	ug/m3	06-IN01, PMC-06	2 / 13	0.56 - 0.88	4.7E-02	NA	6.3E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	4.9E-02	J	5.5E-02	J	ug/m3	PMC-06-IN02	2 / 13	0.22 - 0.35	5.5E-02	NA	9.4E-02	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	8.9E-02		9.8E-02		ug/m3	PMC-06-IN01	2 / 13	0.11 - 0.18	9.8E-02	NA	2.6E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	3.2E-02	J	3.8E-02	J	ug/m3	PMC-06-IN02	2 / 13	0.56 - 0.88	3.8E-02	NA	5.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.3E-01	J	7.3E-01	J	ug/m3	06-IN01, PMC-06	2 / 13	5.6 - 8.8	7.3E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.5E-01	J	2.2E-01	J	ug/m3	PMC-06-IN02	2 / 13	0.56 - 0.88	2.2E-01	NA	3.1E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	1.5E-01	J	1.1E+00		ug/m3	6	7 / 13	0.72 - 0.88	1.1E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	1.4E+01		6.9E+01		ug/m3	6	13 / 13	-	6.9E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.0E+00		3.5E+00		ug/m3	6	5 / 13	2.9 - 3.5	3.5E+00	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	8.7E+00		4.8E+01		ug/m3	6	11 / 11	-	4.8E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	3.0E-01		1.1E+00		ug/m3	6	13 / 13	-	1.1E+00	NA	3.6E-01	c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.9E-01		1.9E-01		ug/m3	6	2 / 13	0.011 - 0.18	1.9E-01	NA	7.6E-02	c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.2E-02	J	2.5E-02	J	ug/m3	PMC-06-IN01	2 / 13	0.22 - 0.35	2.5E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	8.3E-01	J	8.3E-01	J	ug/m3	PMC-06-IN01	1 / 13	0.27 - 8.8	8.3E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.4E-01		8.7E-01		ug/m3	6	11 / 11	-	8.7E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	6.6E-01	J	7.2E-01	J	ug/m3	PMC-06-IN02	2 / 2	-	7.2E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.6E-01	J	4.3E+00		ug/m3	6	11 / 13	0.14 - 0.15	4.3E+00	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.3E-01		7.2E-01		ug/m3	6	11 / 13	0.29 - 0.3	7.2E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.9E+00		3.0E+00		ug/m3	6	13 / 13	-	3.0E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.1E-01		2.4E+00		ug/m3	6	5 / 13	0.72 - 0.88	2.4E+00	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.5E+00		1.7E+01		ug/m3	6	10 / 11	0.74 - 0.74	1.7E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	8.0E+01		2.9E+03	D	ug/m3	6	13 / 13	-	2.9E+03	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.3E+00		1.3E+01		ug/m3	6	11 / 11	-	1.3E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.5E-01	J	1.0E+00		ug/m3	6	4 / 13	0.56 - 0.88	1.0E+00	NA	1.1E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	4.1E-01		4.8E-01		ug/m3	6	11 / 11	-	4.8E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	5.5E+00		1.8E+01		ug/m3	6	11 / 13	7.2 - 7.5	1.8E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	71-36-3	n-Butanol	3.9E+00		4.1E+00		ug/m3	PMC-06-IN02	2 / 2	-	4.1E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.4E+00		4.6E+00		ug/m3	6	5 / 11	0.72 - 0.88	4.6E+00	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.5E-01	J	1.0E+00		ug/m3	6	8 / 13	0.72 - 0.88	1.0E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	2.5E+00		4.2E+00		ug/m3	6	13 / 13	-	4.2E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.2E+00		5.7E+00		ug/m3	6	11 / 13	0.72 - 0.74	5.7E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.8E-02	J	5.0E-01		ug/m3	6	5 / 13	0.11 - 0.18	5.0E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	7.8E-01		4.5E+00		ug/m3	6	4 / 11	0.56 - 0.88	4.5E+00	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	8.7E-01		5.0E+00		ug/m3	6	13 / 13	-	5.0E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.9E-01		1.3E+00		ug/m3	6	13 / 13	-	1.3E+00	NA	2.1E-01	n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.0E+00		1.3E+00	J,+	ug/m3	6	13 / 13	-	1.3E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.8E-01		3.8E-01		ug/m3	06-IN01, PMC-06	2 / 2	-	3.8E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	5.6E+00		5.6E+00		ug/m3	6	1 / 13	2 - 8.8	5.6E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.9E-01		1.7E+00		ug/m3	6	6 / 13	0.56 - 0.88	1.7E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.4E-01		5.4E+00		ug/m3	6	9 / 13	0.72 - 0.88	5.4E+00	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	108-67-8	1,3,5-Trimethylbenzene	4.2E-01 J	4.2E-01 J	ug/m3	33	1 / 1	-	4.2E-01	NA	6.3E+00 n	NA	NA	NO	BSL
[redacted]	108-10-1	4-Methyl-2-Pentanone	2.8E-01 J	2.8E-01 J	ug/m3	33	1 / 1	-	2.8E-01	NA	3.1E+02 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	8.7E+00	8.7E+00	ug/m3	33	1 / 1	-	8.7E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.9E-01	1.9E-01	ug/m3	33	1 / 1	-	1.9E-01	NA	3.6E-01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.1E-01	4.1E-01	ug/m3	33	1 / 1	-	4.1E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.3E-01	2.3E-01	ug/m3	33	1 / 1	-	2.3E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	110-82-7	Cyclohexane	7.7E-01 J	7.7E-01 J	ug/m3	33	1 / 1	-	7.7E-01	NA	6.3E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.3E+01	1.3E+01	ug/m3	33	1 / 1	-	1.3E+01	NA	1.0E+01 n	NA	NA	NO (4)	ASL (4)
	5989-27-5	D-Limonene	6.4E+00	6.4E+00	ug/m3	33	1 / 1	-	6.4E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	8.8E+01	8.8E+01	ug/m3	33	1 / 1	-	8.8E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.7E-01 J	3.7E-01 J	ug/m3	33	1 / 1	-	3.7E-01	NA	1.1E+00 c	NA	NA	NO	BSL
	80-62-6	Methyl methacrylate	8.0E+00	8.0E+00	ug/m3	33	1 / 1	-	8.0E+00	NA	7.3E+01 n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	1.8E+00	1.8E+00	ug/m3	33	1 / 1	-	1.8E+00	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	3.2E-01 J	3.2E-01 J	ug/m3	33	1 / 1	-	3.2E-01	NA	7.3E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	3.4E-01 J	3.4E-01 J	ug/m3	33	1 / 1	-	3.4E-01	NA	2.1E+00 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.4E+01	1.4E+01	ug/m3	33	1 / 1	-	1.4E+01	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.5E-01	4.5E-01	ug/m3	33	1 / 1	-	4.5E-01	NA	NA	NA	NA	NO	NTX
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	5.0E-01 J	5.0E-01 J	ug/m3	16	1 / 1	-	5.0E-01	NA	6.3E+00 n	NA	NA	NO	BSL
[redacted]	80-56-8	alpha-Pinene	6.3E+00	6.3E+00	ug/m3	16	1 / 1	-	6.3E+00	NA	NA	NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	4.1E-01	4.1E-01	ug/m3	16	1 / 1	-	4.1E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	5.7E+00	5.7E+00	ug/m3	16	1 / 1	-	5.7E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.3E+00	2.3E+00	ug/m3	16	1 / 1	-	2.3E+00	NA	NA	NA	NA	NO	NTX
	75-69-4	Trichlorofluoromethane	7.1E+00	7.1E+00	ug/m3	16	1 / 1	-	7.1E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.8E-01	4.8E-01	ug/m3	16	1 / 1	-	4.8E-01	NA	NA	NA	NA	NO	NTX
Indoor Air	67-64-1	Acetone	2.8E+01	2.8E+01	ug/m3	19	1 / 1	-	2.8E+01	NA	3.2E+03 n	NA	NA	NO	BSL
[redacted]	80-56-8	alpha-Pinene	5.2E+00	5.2E+00	ug/m3	19	1 / 1	-	5.2E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.7E-01 J	1.7E-01 J	ug/m3	19	1 / 1	-	1.7E-01	NA	3.6E-01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.6E-01	4.6E-01	ug/m3	19	1 / 1	-	4.6E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.3E-01	2.3E-01	ug/m3	19	1 / 1	-	2.3E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.7E-01	3.7E-01	ug/m3	19	1 / 1	-	3.7E-01	NA	9.4E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	8.8E+00	8.8E+00	ug/m3	19	1 / 1	-	8.8E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.6E+02	1.6E+02	ug/m3	19	1 / 1	-	1.6E+02	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	2.9E+02	2.9E+02	ug/m3	19	1 / 1	-	2.9E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.7E+01	2.7E+01	ug/m3	19	1 / 1	-	2.7E+01	NA	7.3E+00 n	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	5.4E-01 J	5.4E-01 J	ug/m3	19	1 / 1	-	5.4E-01	NA	NA	NA	NA	NO	NTX
	108-88-3	Toluene	1.9E+00	1.9E+00	ug/m3	19	1 / 1	-	1.9E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.2E+00	9.2E+00	ug/m3	19	1 / 1	-	9.2E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.8E-01	4.8E-01	ug/m3	19	1 / 1	-	4.8E-01	NA	NA	NA	NA	NO	NTX

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.7E-02	J	1.7E-02	J	ug/m^3	22	1 / 2	0.1 - 0.1	1.7E-02	NA	5.2E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	2.7E-01		7.4E-01		ug/m^3	22	2 / 2	-	7.4E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	9.1E-02		9.1E-02		ug/m^3	22	1 / 2	0.086 - 0.086	9.1E-02	NA	1.1E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	9.1E-02		9.1E-02		ug/m^3	22	1 / 2	0.12 - 0.12	9.1E-02	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	7.8E-02	J	7.8E-02	J	ug/m^3	22	1 / 2	0.22 - 0.22	7.8E-02	NA	6.3E+00	n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	1.8E-02	J	1.8E-02	J	ug/m^3	22	1 / 2	0.11 - 0.11	1.8E-02	NA	2.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.5E+00	J	1.5E+00	J	ug/m^3	22	1 / 2	0.29 - 0.29	1.5E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	2.5E+01		2.5E+01		ug/m^3	22	1 / 2	1.1 - 1.1	2.5E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.6E-01	J	2.6E-01	J	ug/m^3	22	1 / 2	0.24 - 0.24	2.6E-01	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	9.1E+00		9.1E+00		ug/m^3	22	1 / 1	-	9.1E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.0E-01		1.2E+00		ug/m^3	22	2 / 2	-	1.2E+00	NA	3.6E-01	c	NA	NA	NO (4)	ASL (4)
	75-27-4	Bromodichloromethane	1.5E-01		1.5E-01		ug/m^3	22	1 / 2	0.009 - 0.009	1.5E-01	NA	7.6E-02	c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.6E-02	J	2.6E-02	J	ug/m^3	22	1 / 2	0.13 - 0.13	2.6E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.6E-01	J	2.6E-01	J	ug/m^3	22	1 / 2	0.21 - 0.21	2.6E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.7E-01		4.7E-01		ug/m^3	22	1 / 1	-	4.7E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	8.8E-01		8.8E-01		ug/m^3	22	1 / 1	-	8.8E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.2E-01	J	3.3E-01		ug/m^3	22	2 / 2	-	3.3E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.8E-01		3.8E-01		ug/m^3	22	1 / 2	0.19 - 0.19	3.8E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	9.2E-01	J	9.2E-01	J	ug/m^3	22	1 / 2	0.4 - 0.4	9.2E-01	NA	6.3E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.0E+00		5.4E+00		ug/m^3	22	2 / 2	-	5.4E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.0E+00		1.0E+00		ug/m^3	22	1 / 2	0.24 - 0.24	1.0E+00	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.8E+01		1.8E+01		ug/m^3	22	1 / 1	-	1.8E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.8E+01		4.9E+02		ug/m^3	22	2 / 2	-	4.9E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.2E+01	J	1.2E+01	J	ug/m^3	22	1 / 1	-	1.2E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	3.0E-01	J	5.8E-01		ug/m^3	22	2 / 2	-	5.8E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.4E-01		3.4E-01		ug/m^3	22	1 / 1	-	3.4E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.2E+00	J	1.5E+01	J	ug/m^3	22	2 / 2	-	1.5E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	1634-04-4	Methyl tert-butyl ether (MTBE)	1.4E-02	J	1.4E-02	J	ug/m^3	22	1 / 2	0.13 - 0.13	1.4E-02	NA	1.1E+01	c	NA	NA	NO	BSL
	71-36-3	n-Butanol	1.4E+00		1.4E+00		ug/m^3	22	1 / 1	-	1.4E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	5.1E+00		5.1E+00		ug/m^3	22	1 / 1	-	5.1E+00	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.2E-01	J	2.8E+00		ug/m^3	22	2 / 2	-	2.8E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	4.4E-01	J	4.4E-01	J	ug/m^3	22	1 / 1	-	4.4E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	115-07-1	Propene	1.7E+00		9.8E+00	J	ug/m^3	22	2 / 2	-	9.8E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	6.0E-01	J	1.2E+00		ug/m^3	22	2 / 2	-	1.2E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.7E-01		1.7E-01		ug/m^3	22	1 / 2	0.1 - 0.1	1.7E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.5E+00		1.5E+00		ug/m^3	22	1 / 1	-	1.5E+00	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	5.2E+00		1.1E+01		ug/m^3	22	2 / 2	-	1.1E+01	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.6E-02		6.6E-01		ug/m^3	22	2 / 2	-	6.6E-01	NA	2.1E-01	n	NA	NA	NO (4)	ASL (4)
	75-69-4	Trichlorofluoromethane	1.7E+00		6.1E+00		ug/m^3	22	2 / 2	-	6.1E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.7E-01		4.7E-01		ug/m^3	22	1 / 1	-	4.7E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	3.9E+00	J	3.9E+00	J	ug/m^3	22	1 / 2	0.9 - 0.9	3.9E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	3.1E-01	J	4.3E-01		ug/m^3	22	2 / 2	-	4.3E-01	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.5E+00		1.5E+00		ug/m^3	22	1 / 2	0.4 - 0.4	1.5E+00	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	5.4E-01	J	5.4E-01	J	ug/m3	25	1 / 1	-	5.4E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	2.0E-01		2.0E-01		ug/m3	25	1 / 1	-	2.0E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	106-99-0	1,3-Butadiene	2.6E+00		2.6E+00		ug/m3	25	1 / 1	-	2.6E+00	NA	9.4E-02	c	NA	NA	NO (4)	ASL (4)
	107-02-8	Acrolein	5.2E+00		5.2E+00		ug/m3	25	1 / 1	-	5.2E+00	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	107-13-1	Acrylonitrile	7.4E-01	J	7.4E-01	J	ug/m3	25	1 / 1	-	7.4E-01	NA	4.1E-02	c	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.0E+00		4.0E+00		ug/m3	25	1 / 1	-	4.0E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.2E+00		2.2E+00		ug/m3	25	1 / 1	-	2.2E+00	NA	3.6E-01	c	NA	NA	NO (5)	ASL (5)
	56-23-5	Carbon tetrachloride	4.3E-01		4.3E-01		ug/m3	25	1 / 1	-	4.3E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.9E-01	J	1.9E-01	J	ug/m3	25	1 / 1	-	1.9E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	8.1E+00		8.1E+00		ug/m3	25	1 / 1	-	8.1E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	4.0E+00		4.0E+00		ug/m3	25	1 / 1	-	4.0E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	7.2E+02		7.2E+02		ug/m3	25	1 / 1	-	7.2E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.4E+01		1.4E+01		ug/m3	25	1 / 1	-	1.4E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	7.4E-01	J	7.4E-01	J	ug/m3	25	1 / 1	-	7.4E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.9E+01		1.9E+01		ug/m3	25	1 / 1	-	1.9E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	3.8E+00		3.8E+00		ug/m3	25	1 / 1	-	3.8E+00	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	5.2E-01	J	5.2E-01	J	ug/m3	25	1 / 1	-	5.2E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	1.4E+01		1.4E+01		ug/m3	25	1 / 1	-	1.4E+01	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	8.4E-01	J	8.4E-01	J	ug/m3	25	1 / 1	-	8.4E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.0E-01		4.0E-01		ug/m3	25	1 / 1	-	4.0E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	8.5E+00		8.5E+00		ug/m3	25	1 / 1	-	8.5E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	6.0E+00		6.0E+00		ug/m3	25	1 / 1	-	6.0E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.8E-01		4.8E-01		ug/m3	25	1 / 1	-	4.8E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	6.1E-01	J	6.1E-01	J	ug/m3	25	1 / 1	-	6.1E-01	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.1E+00		2.1E+00		ug/m3	25	1 / 1	-	2.1E+00	NA	1.0E+01	n	NA	NA	NO	BSL
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	3.4E-01	J	3.4E-01	J	ug/m3	28	1 / 1	-	3.4E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	1.6E-01		1.6E-01		ug/m3	28	1 / 1	-	1.6E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	67-64-1	Acetone	2.1E+01		2.1E+01		ug/m3	28	1 / 1	-	2.1E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.1E+01		1.1E+01		ug/m3	28	1 / 1	-	1.1E+01	NA	NA		NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	6.2E-01		6.2E-01		ug/m3	28	1 / 1	-	6.2E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	8.7E-01		8.7E-01		ug/m3	28	1 / 1	-	8.7E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	7.4E+00		7.4E+00		ug/m3	28	1 / 1	-	7.4E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.0E+01		1.0E+01		ug/m3	28	1 / 1	-	1.0E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	5.1E+02		5.1E+02		ug/m3	28	1 / 1	-	5.1E+02	NA	NA		NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	5.2E-01	J	5.2E-01	J	ug/m3	28	1 / 1	-	5.2E-01	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	3.0E+00		3.0E+00		ug/m3	28	1 / 1	-	3.0E+00	NA	4.2E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.3E-01	J	3.3E-01	J	ug/m3	28	1 / 1	-	3.3E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	3.3E+00		3.3E+00		ug/m3	28	1 / 1	-	3.3E+00	NA	2.1E+00	n	NA	NA	NO (4)	ASL (4)
	100-42-5	Styrene	2.0E+00		2.0E+00		ug/m3	28	1 / 1	-	2.0E+00	NA	1.0E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	5.4E+00		5.4E+00		ug/m3	28	1 / 1	-	5.4E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	8.1E+00		8.1E+00		ug/m3	28	1 / 1	-	8.1E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01		4.6E-01		ug/m3	28	1 / 1	-	4.6E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	3.1E-01	J	3.1E-01	J	ug/m3	28	1 / 1	-	3.1E-01	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Minimum Concentration Qualifier	Maximum Concentration	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	80-56-8	alpha-Pinene	5.7E+00		5.7E+00		ug/m3	55	1 / 1	-	5.7E+00	NA	NA		NA	NA	NO	NTX
[redacted]	71-43-2	Benzene	2.0E-01		2.0E-01		ug/m3	55	1 / 1	-	2.0E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.0E-01		4.0E-01		ug/m3	55	1 / 1	-	4.0E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	4.0E-01		4.0E-01		ug/m3	55	1 / 1	-	4.0E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	6.7E+00		6.7E+00		ug/m3	55	1 / 1	-	6.7E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.9E-01	J	3.9E-01	J	ug/m3	55	1 / 1	-	3.9E-01	NA	6.3E+01	n	NA	NA	NO	BSL
	64-17-5	Ethanol	3.2E+01		3.2E+01		ug/m3	55	1 / 1	-	3.2E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.4E+00		3.4E+00		ug/m3	55	1 / 1	-	3.4E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	4.8E-01	J	4.8E-01	J	ug/m3	55	1 / 1	-	4.8E-01	NA	NA		NA	NA	NO	NTX
	115-07-1	Propene	4.8E+00		4.8E+00		ug/m3	55	1 / 1	-	4.8E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	7.8E+00		7.8E+00		ug/m3	55	1 / 1	-	7.8E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.7E-01		4.7E-01		ug/m3	55	1 / 1	-	4.7E-01	NA	NA		NA	NA	NO	NTX
Indoor Air	107-06-2	1,2-Dichloroethane	3.4E-01		3.4E-01		ug/m3	54	1 / 1	-	3.4E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
[redacted]	622-96-8	4-Ethyltoluene	2.8E-01	J	2.8E-01	J	ug/m3	54	1 / 1	-	2.8E-01	NA	NA		NA	NA	NO	NTX
	67-64-1	Acetone	2.9E+01		2.9E+01		ug/m3	54	1 / 1	-	2.9E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.7E+01		1.7E+01		ug/m3	54	1 / 1	-	1.7E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.4E-01		2.4E-01		ug/m3	54	1 / 1	-	2.4E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	5.0E-01		5.0E-01		ug/m3	54	1 / 1	-	5.0E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	4.2E-01		4.2E-01		ug/m3	54	1 / 1	-	4.2E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.3E-01		4.3E-01		ug/m3	54	1 / 1	-	4.3E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.5E+00		4.5E+00		ug/m3	54	1 / 1	-	4.5E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.3E+00		3.3E+00		ug/m3	54	1 / 1	-	3.3E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.7E+02		1.7E+02		ug/m3	54	1 / 1	-	1.7E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.5E+00		3.5E+00		ug/m3	54	1 / 1	-	3.5E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	4.8E-01	J	4.8E-01	J	ug/m3	54	1 / 1	-	4.8E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	8.9E+00		8.9E+00		ug/m3	54	1 / 1	-	8.9E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	80-62-6	Methyl methacrylate	1.1E+00	J	1.1E+00	J	ug/m3	54	1 / 1	-	1.1E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	9.0E-01		9.0E-01		ug/m3	54	1 / 1	-	9.0E-01	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	4.0E-01	J	4.0E-01	J	ug/m3	54	1 / 1	-	4.0E-01	NA	4.2E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.5E-01	J	3.5E-01	J	ug/m3	54	1 / 1	-	3.5E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	4.7E-01	J	4.7E-01	J	ug/m3	54	1 / 1	-	4.7E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	115-07-1	Propene	4.2E+00		4.2E+00		ug/m3	54	1 / 1	-	4.2E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	6.6E-01	J	6.6E-01	J	ug/m3	54	1 / 1	-	6.6E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	3.9E+00		3.9E+00		ug/m3	54	1 / 1	-	3.9E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	2.1E+01		2.1E+01		ug/m3	54	1 / 1	-	2.1E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.8E-01		4.8E-01		ug/m3	54	1 / 1	-	4.8E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	5.4E-01	J	5.4E-01	J	ug/m3	54	1 / 1	-	5.4E-01	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	8.7E-01	J	8.7E-01	J	ug/m3	17	1 / 1	-	8.7E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	1.9E-01	J	1.9E-01	J	ug/m3	17	1 / 1	-	1.9E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	67-64-1	Acetone	2.8E+01		2.8E+01		ug/m3	17	1 / 1	-	2.8E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.1E+01		1.1E+01		ug/m3	17	1 / 1	-	1.1E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.1E-01		2.1E-01		ug/m3	17	1 / 1	-	2.1E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	5.5E-01		5.5E-01		ug/m3	17	1 / 1	-	5.5E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	2.4E-01		2.4E-01		ug/m3	17	1 / 1	-	2.4E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.0E-01		4.0E-01		ug/m3	17	1 / 1	-	4.0E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	7.3E+00		7.3E+00		ug/m3	17	1 / 1	-	7.3E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.3E+00		2.3E+00		ug/m3	17	1 / 1	-	2.3E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	8.9E+01		8.9E+01		ug/m3	17	1 / 1	-	8.9E+01	NA	NA		NA	NA	NO	NTX
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.3E+01		1.3E+01		ug/m3	17	1 / 1	-	1.3E+01	NA	2.1E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.6E-01	J	3.6E-01	J	ug/m3	17	1 / 1	-	3.6E-01	NA	8.3E-02	c	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	3.7E-01	J	3.7E-01	J	ug/m3	17	1 / 1	-	3.7E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	5.3E-01	J	5.3E-01	J	ug/m3	17	1 / 1	-	5.3E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	6.2E+00		6.2E+00		ug/m3	17	1 / 1	-	6.2E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	3.6E-01	J	3.6E-01	J	ug/m3	17	1 / 1	-	3.6E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.8E+00		2.8E+00		ug/m3	17	1 / 1	-	2.8E+00	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	2.4E+00		2.4E+00		ug/m3	17	1 / 1	-	2.4E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.6E+01		1.6E+01		ug/m3	17	1 / 1	-	1.6E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01		4.6E-01		ug/m3	17	1 / 1	-	4.6E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	2.9E-01	J	2.9E-01	J	ug/m3	17	1 / 1	-	2.9E-01	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	6.6E-01	J	6.6E-01	J	ug/m3	17	1 / 1	-	6.6E-01	NA	1.0E+01	n	NA	NA	NO	BSL
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	4.9E-01	J	4.9E-01	J	ug/m3	20	1 / 1	-	4.9E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	4.1E-01		4.1E-01		ug/m3	20	1 / 1	-	4.1E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.2E+01		2.2E+01		ug/m3	20	1 / 1	-	2.2E+01	NA	NA		NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	4.0E-01		4.0E-01		ug/m3	20	1 / 1	-	4.0E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.7E-01	J	1.7E-01	J	ug/m3	20	1 / 1	-	1.7E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.6E-01		3.6E-01		ug/m3	20	1 / 1	-	3.6E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.9E+01		2.9E+01		ug/m3	20	1 / 1	-	2.9E+01	NA	1.0E+01	n	NA	NA	NO (4)	ASL (4)
	5989-27-5	D-Limonene	6.3E+01		6.3E+01		ug/m3	20	1 / 1	-	6.3E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.8E+02		1.8E+02		ug/m3	20	1 / 1	-	1.8E+02	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.5E+00		2.5E+00		ug/m3	20	1 / 1	-	2.5E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	3.5E-01	J	3.5E-01	J	ug/m3	20	1 / 1	-	3.5E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	111-65-9	Octane	6.2E-01	J	6.2E-01	J	ug/m3	20	1 / 1	-	6.2E-01	NA	NA		NA	NA	NO	NTX
	100-42-5	Styrene	3.8E-01	J	3.8E-01	J	ug/m3	20	1 / 1	-	3.8E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.5E+02		1.5E+02		ug/m3	20	1 / 1	-	1.5E+02	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	7.2E+00		7.2E+00		ug/m3	20	1 / 1	-	7.2E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.5E-01		4.5E-01		ug/m3	20	1 / 1	-	4.5E-01	NA	NA		NA	NA	NO	NTX

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Minimum Concentration Qualifier	Maximum Concentration	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	3.8E-02		3.8E-02		ug/m3	23	1 / 2	0.11 - 0.11	3.8E-02	NA	5.2E+02	n	NA	NA	NO	BSL
[redacted]	120-82-1	1,2,4-Trichlorobenzene	4.0E-02	J	4.0E-02	J	ug/m3	23	1 / 2	0.24 - 0.24	4.0E-02	NA	2.1E-01	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.2E-01	J	4.8E-01	J	ug/m3	23	2 / 2	-	4.8E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.6E-01		8.8E-01		ug/m3	23	2 / 2	-	8.8E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	3.0E-02	J	3.0E-02	J	ug/m3	23	1 / 2	0.12 - 0.12	3.0E-02	NA	4.2E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.6E-02	J	3.6E-02	J	ug/m3	23	1 / 2	0.24 - 0.24	3.6E-02	NA	6.3E+00	n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	1.3E-02	J	1.3E-02	J	ug/m3	23	1 / 2	0.11 - 0.11	1.3E-02	NA	2.6E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.1E-01	J	5.1E-01	J	ug/m3	23	1 / 2	0.31 - 0.31	5.1E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	1.3E+01		1.3E+01		ug/m3	23	1 / 2	1.1 - 1.1	1.3E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.2E-01	J	2.2E-01	J	ug/m3	23	1 / 2	0.25 - 0.25	2.2E-01	NA	2.1E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.7E+01		1.7E+01		ug/m3	23	1 / 1	-	1.7E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	5.0E-01		5.0E-01		ug/m3	23	1 / 2	0.12 - 0.12	5.0E-01	NA	3.6E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.7E-02	J	2.7E-02	J	ug/m3	23	1 / 2	0.14 - 0.14	2.7E-02	NA	5.2E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.5E-01	J	2.5E-01	J	ug/m3	23	1 / 2	0.22 - 0.22	2.5E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.3E-01		4.3E-01		ug/m3	23	1 / 1	-	4.3E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.8E-01		7.8E-01		ug/m3	23	1 / 1	-	7.8E-01	NA	5.2E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.2E-01	J	1.4E-01	J	ug/m3	23	2 / 2	-	1.4E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.1E-01		4.4E-01		ug/m3	23	2 / 2	-	4.4E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.5E+00		1.5E+00		ug/m3	23	1 / 2	0.43 - 0.43	1.5E+00	NA	6.3E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.9E+00		2.9E+00		ug/m3	23	2 / 2	-	2.9E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.0E-01		3.0E-01		ug/m3	23	1 / 2	0.25 - 0.25	3.0E-01	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	4.1E+00		4.1E+00		ug/m3	23	1 / 1	-	4.1E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	9.4E+00		8.7E+01		ug/m3	23	2 / 2	-	8.7E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.9E+00		2.9E+00		ug/m3	23	1 / 1	-	2.9E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	2.1E-01		5.7E-01	J	ug/m3	23	2 / 2	-	5.7E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.5E-01		3.5E-01		ug/m3	23	1 / 1	-	3.5E-01	NA	5.2E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	9.7E-01	J	9.7E-01	J	ug/m3	23	1 / 2	0.63 - 0.63	9.7E-01	NA	2.1E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.1E-01	J	3.1E-01	J	ug/m3	23	1 / 1	-	3.1E-01	NA	8.3E-02	c	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	8.2E-01		8.2E-01		ug/m3	23	1 / 1	-	8.2E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.8E-01	J	8.9E-01		ug/m3	23	2 / 2	-	8.9E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	2.7E-01	J	2.7E-01	J	ug/m3	23	1 / 1	-	2.7E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.7E-01		2.3E-01	J	ug/m3	23	2 / 2	-	2.3E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.4E-01		1.4E-01		ug/m3	23	1 / 2	0.11 - 0.11	1.4E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.3E+00		1.3E+00		ug/m3	23	1 / 2	0.25 - 0.25	1.3E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	3.6E-01		3.6E-01		ug/m3	23	1 / 2	0.012 - 0.012	3.6E-01	NA	2.1E-01	n	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	2.8E+00		1.2E+01		ug/m3	23	2 / 2	-	1.2E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01		4.6E-01		ug/m3	23	1 / 1	-	4.6E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	1.2E-01	J	3.0E-01	J	ug/m3	23	2 / 2	-	3.0E-01	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.6E-01		8.2E-01		ug/m3	23	2 / 2	-	8.2E-01	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.3E+00		1.3E+00		ug/m3	26	1 / 1	-	1.3E+00	NA	5.2E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	3.5E-01	J	3.5E-01	J	ug/m3	26	1 / 1	-	3.5E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	2.1E-01		2.1E-01		ug/m3	26	1 / 1	-	2.1E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	106-99-0	1,3-Butadiene	6.4E-01		6.4E-01		ug/m3	26	1 / 1	-	6.4E-01	NA	9.4E-02	c	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.3E+01		1.3E+01		ug/m3	26	1 / 1	-	1.3E+01	NA	NA		NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	4.4E-01		4.4E-01		ug/m3	26	1 / 1	-	4.4E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.8E-01	J	1.8E-01	J	ug/m3	26	1 / 1	-	1.8E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	4.8E+00		4.8E+00		ug/m3	26	1 / 1	-	4.8E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	64-17-5	Ethanol	3.2E+02		3.2E+02		ug/m3	26	1 / 1	-	3.2E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.5E+01		1.5E+01		ug/m3	26	1 / 1	-	1.5E+01	NA	7.3E+00	n	NA	NA	NO (4)	ASL (4)
	110-54-3	n-Hexane	4.9E-01	J	4.9E-01	J	ug/m3	26	1 / 1	-	4.9E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	9.8E+00		9.8E+00		ug/m3	26	1 / 1	-	9.8E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	3.8E-01	J	3.8E-01	J	ug/m3	26	1 / 1	-	3.8E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.6E-01	J	1.6E-01	J	ug/m3	26	1 / 1	-	1.6E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	4.7E+00		4.7E+00		ug/m3	26	1 / 1	-	4.7E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.2E+01		1.2E+01		ug/m3	26	1 / 1	-	1.2E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.7E-01		4.7E-01		ug/m3	26	1 / 1	-	4.7E-01	NA	NA		NA	NA	NO	NTX
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	2.8E-01	J	2.8E-01	J	ug/m3	29	1 / 1	-	2.8E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	5.4E-01		5.4E-01		ug/m3	29	1 / 1	-	5.4E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.0E+01		1.0E+01		ug/m3	29	1 / 1	-	1.0E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.0E-01		2.0E-01		ug/m3	29	1 / 1	-	2.0E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.1E-01		4.1E-01		ug/m3	29	1 / 1	-	4.1E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.9E-01		2.9E-01		ug/m3	29	1 / 1	-	2.9E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.7E-01		4.7E-01		ug/m3	29	1 / 1	-	4.7E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.5E+00		3.5E+00		ug/m3	29	1 / 1	-	3.5E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	6.3E-01	J	6.3E-01	J	ug/m3	29	1 / 1	-	6.3E-01	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	5.3E+00		5.3E+00		ug/m3	29	1 / 1	-	5.3E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.5E+02		1.5E+02		ug/m3	29	1 / 1	-	1.5E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	7.3E+00		7.3E+00		ug/m3	29	1 / 1	-	7.3E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	9.0E-01		9.0E-01		ug/m3	29	1 / 1	-	9.0E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.9E-01	J	2.9E-01	J	ug/m3	29	1 / 1	-	2.9E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	4.2E-01	J	4.2E-01	J	ug/m3	29	1 / 1	-	4.2E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	100-42-5	Styrene	3.1E-01	J	3.1E-01	J	ug/m3	29	1 / 1	-	3.1E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.2E+00		1.2E+00		ug/m3	29	1 / 1	-	1.2E+00	NA	4.2E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	3.5E+00		3.5E+00		ug/m3	29	1 / 1	-	3.5E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	4.5E+00		4.5E+00		ug/m3	29	1 / 1	-	4.5E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.7E-01		4.7E-01		ug/m3	29	1 / 1	-	4.7E-01	NA	NA		NA	NA	NO	NTX

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Minimum Concentration Qualifier	Maximum Concentration	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	2.9E-01	J	2.9E-01	J	ug/m3	34	1 / 1	-	2.9E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	2.7E-01		2.7E-01		ug/m3	34	1 / 1	-	2.7E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	67-64-1	Acetone	2.1E+01		2.1E+01		ug/m3	34	1 / 1	-	2.1E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	2.3E+01		2.3E+01		ug/m3	34	1 / 1	-	2.3E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	3.1E-01		3.1E-01		ug/m3	34	1 / 1	-	3.1E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.6E-01		3.6E-01		ug/m3	34	1 / 1	-	3.6E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	4.5E-01		4.5E-01		ug/m3	34	1 / 1	-	4.5E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.2E+00		4.2E+00		ug/m3	34	1 / 1	-	4.2E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	4.2E-01	J	4.2E-01	J	ug/m3	34	1 / 1	-	4.2E-01	NA	6.3E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.1E+00		3.1E+00		ug/m3	34	1 / 1	-	3.1E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	4.0E+01		4.0E+01		ug/m3	34	1 / 1	-	4.0E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	6.6E+00		6.6E+00		ug/m3	34	1 / 1	-	6.6E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.6E-01	J	3.6E-01	J	ug/m3	34	1 / 1	-	3.6E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.1E-01	J	3.1E-01	J	ug/m3	34	1 / 1	-	3.1E-01	NA	8.3E-02	c	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	8.1E-01	J	8.1E-01	J	ug/m3	34	1 / 1	-	8.1E-01	NA	NA		NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	1.3E-01	J	1.3E-01	J	ug/m3	34	1 / 1	-	1.3E-01	NA	4.2E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.8E+00		1.8E+00		ug/m3	34	1 / 1	-	1.8E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.7E+01		1.7E+01		ug/m3	34	1 / 1	-	1.7E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01		4.6E-01		ug/m3	34	1 / 1	-	4.6E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.3E+00	J	1.3E+00	J	ug/m3	34	1 / 1	-	1.3E+00	NA	2.1E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	8.4E-01	J	8.4E-01	J	ug/m3	34	1 / 1	-	8.4E-01	NA	1.0E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.6E+00		1.6E+00		ug/m3	34	1 / 1	-	1.6E+00	NA	1.0E+01	n	NA	NA	NO	BSL
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	4.3E-01	J	4.3E-01	J	ug/m3	15	1 / 1	-	4.3E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	2.8E-01		2.8E-01		ug/m3	15	1 / 1	-	2.8E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.4E+00		4.4E+00		ug/m3	15	1 / 1	-	4.4E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	3.0E-01		3.0E-01		ug/m3	15	1 / 1	-	3.0E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.9E-01		3.9E-01		ug/m3	15	1 / 1	-	3.9E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.6E+00		3.6E+00		ug/m3	15	1 / 1	-	3.6E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	64-17-5	Ethanol	5.1E+01		5.1E+01		ug/m3	15	1 / 1	-	5.1E+01	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	2.9E-01	J	2.9E-01	J	ug/m3	15	1 / 1	-	2.9E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	4.0E-01	J	4.0E-01	J	ug/m3	15	1 / 1	-	4.0E-01	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	2.0E+00		2.0E+00		ug/m3	15	1 / 1	-	2.0E+00	NA	4.2E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	2.0E+00		2.0E+00		ug/m3	15	1 / 1	-	2.0E+00	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	2.1E+00		2.1E+00		ug/m3	15	1 / 1	-	2.1E+00	NA	2.1E+00	n	NA	NA	NO	BSL
	111-65-9	Octane	1.9E+00		1.9E+00		ug/m3	15	1 / 1	-	1.9E+00	NA	NA		NA	NA	NO	NTX
	108-88-3	Toluene	2.6E+00		2.6E+00		ug/m3	15	1 / 1	-	2.6E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.1E+01		1.1E+01		ug/m3	15	1 / 1	-	1.1E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01		4.6E-01		ug/m3	15	1 / 1	-	4.6E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.3E-01	J	4.3E-01	J	ug/m3	15	1 / 1	-	4.3E-01	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	4.6E-01		4.6E-01		ug/m3	18	1 / 1	-	4.6E-01	NA	5.2E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	1.3E+00		1.3E+00		ug/m3	18	1 / 1	-	1.3E+00	NA	6.3E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.8E-01		1.8E-01		ug/m3	18	1 / 1	-	1.8E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	108-67-8	1,3,5-Trimethylbenzene	3.1E-01	J	3.1E-01	J	ug/m3	18	1 / 1	-	3.1E-01	NA	6.3E+00	n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	3.2E-01	J	3.2E-01	J	ug/m3	18	1 / 1	-	3.2E-01	NA	NA		NA	NA	NO	NTX
	67-64-1	Acetone	2.8E+01		2.8E+01		ug/m3	18	1 / 1	-	2.8E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.7E+01		1.7E+01		ug/m3	18	1 / 1	-	1.7E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.1E-01		2.1E-01		ug/m3	18	1 / 1	-	2.1E-01	NA	3.6E-01	c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.5E-01		4.5E-01		ug/m3	18	1 / 1	-	4.5E-01	NA	4.7E-01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.7E-01		1.7E-01		ug/m3	18	1 / 1	-	1.7E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.6E-01		4.6E-01		ug/m3	18	1 / 1	-	4.6E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.6E+00		4.6E+00		ug/m3	18	1 / 1	-	4.6E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.5E+00		3.5E+00		ug/m3	18	1 / 1	-	3.5E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	5.0E+01		5.0E+01		ug/m3	18	1 / 1	-	5.0E+01	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.1E-01	J	3.1E-01	J	ug/m3	18	1 / 1	-	3.1E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	2.6E-01	J	2.6E-01	J	ug/m3	18	1 / 1	-	2.6E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.1E-01	J	3.1E-01	J	ug/m3	18	1 / 1	-	3.1E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	5.5E-01	J	5.5E-01	J	ug/m3	18	1 / 1	-	5.5E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	100-42-5	Styrene	6.0E-01	J	6.0E-01	J	ug/m3	18	1 / 1	-	6.0E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	7.5E-01	J	7.5E-01	J	ug/m3	18	1 / 1	-	7.5E-01	NA	2.1E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.3E+00		9.3E+00		ug/m3	18	1 / 1	-	9.3E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.7E-01		4.7E-01		ug/m3	18	1 / 1	-	4.7E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.4E-01	J	4.4E-01	J	ug/m3	18	1 / 1	-	4.4E-01	NA	1.0E+01	n	NA	NA	NO	BSL
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	6.3E-01	J	6.3E-01	J	ug/m3	21	1 / 1	-	6.3E-01	NA	6.3E+00	n	NA	NA	NO	BSL
[redacted]	107-06-2	1,2-Dichloroethane	7.3E-01		7.3E-01		ug/m3	21	1 / 1	-	7.3E-01	NA	1.1E-01	c	NA	NA	NO (4)	ASL (4)
	78-93-3	2-Butanone	1.8E+00	J	1.8E+00	J	ug/m3	21	1 / 1	-	1.8E+00	NA	5.2E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	3.2E+01		3.2E+01		ug/m3	21	1 / 1	-	3.2E+01	NA	3.2E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.0E+01		1.0E+01		ug/m3	21	1 / 1	-	1.0E+01	NA	NA		NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	4.8E-01		4.8E-01		ug/m3	21	1 / 1	-	4.8E-01	NA	4.7E-01	c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	3.4E-01		3.4E-01		ug/m3	21	1 / 1	-	3.4E-01	NA	1.2E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.8E-01		4.8E-01		ug/m3	21	1 / 1	-	4.8E-01	NA	9.4E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.7E+00		4.7E+00		ug/m3	21	1 / 1	-	4.7E+00	NA	1.0E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	9.2E+00		9.2E+00		ug/m3	21	1 / 1	-	9.2E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	5.3E+02		5.3E+02		ug/m3	21	1 / 1	-	5.3E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	7.0E+00		7.0E+00		ug/m3	21	1 / 1	-	7.0E+00	NA	7.3E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.6E-01	J	3.6E-01	J	ug/m3	21	1 / 1	-	3.6E-01	NA	1.1E+00	c	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	1.4E+00		1.4E+00		ug/m3	21	1 / 1	-	1.4E+00	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	1.2E+00		1.2E+00		ug/m3	21	1 / 1	-	1.2E+00	NA	4.2E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	7.6E-01	J	7.6E-01	J	ug/m3	21	1 / 1	-	7.6E-01	NA	7.3E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	3.0E-01	J	3.0E-01	J	ug/m3	21	1 / 1	-	3.0E-01	NA	2.1E+00	n	NA	NA	NO	BSL
	115-07-1	Propene	3.3E+00		3.3E+00		ug/m3	21	1 / 1	-	3.3E+00	NA	3.1E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	4.4E-01	J	4.4E-01	J	ug/m3	21	1 / 1	-	4.4E-01	NA	1.0E+02	n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	3.9E-01	J	3.9E-01	J	ug/m3	21	1 / 1	-	3.9E-01	NA	2.1E+02	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.7E+01		1.7E+01		ug/m3	21	1 / 1	-	1.7E+01	NA	5.2E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	5.6E+00		5.6E+00		ug/m3	21	1 / 1	-	5.6E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.5E-01		4.5E-01		ug/m3	21	1 / 1	-	4.5E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.3E-01	J	4.3E-01	J	ug/m3	21	1 / 1	-	4.3E-01	NA	1.0E+01	n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	107-06-2	1,2-Dichloroethane	1.5E-01 J	1.5E-01 J	ug/m3	24	1 / 1	-	1.5E-01	NA	1.1E-01 c	NA	NA	NO (4)	ASL (4)
[redacted]	67-64-1	Acetone	1.3E+01	1.3E+01	ug/m3	24	1 / 1	-	1.3E+01	NA	3.2E+03 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	7.4E+00	7.4E+00	ug/m3	24	1 / 1	-	7.4E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.6E-01 J	1.6E-01 J	ug/m3	24	1 / 1	-	1.6E-01	NA	3.6E-01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.3E-01	4.3E-01	ug/m3	24	1 / 1	-	4.3E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	4.4E-01	4.4E-01	ug/m3	24	1 / 1	-	4.4E-01	NA	9.4E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.5E+00	2.5E+00	ug/m3	24	1 / 1	-	2.5E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.3E+00	2.3E+00	ug/m3	24	1 / 1	-	2.3E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	4.5E+01	4.5E+01	ug/m3	24	1 / 1	-	4.5E+01	NA	NA	NA	NA	NO	NTX
	108-88-3	Toluene	1.2E+00	1.2E+00	ug/m3	24	1 / 1	-	1.2E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	6.0E+00	6.0E+00	ug/m3	24	1 / 1	-	6.0E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01	4.6E-01	ug/m3	24	1 / 1	-	4.6E-01	NA	NA	NA	NA	NO	NTX
Indoor Air	71-55-6	1,1,1-Trichloroethane	4.8E-01	4.8E-01	ug/m3	27	1 / 1	-	4.8E-01	NA	5.2E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	3.4E-01 J	3.4E-01 J	ug/m3	27	1 / 1	-	3.4E-01	NA	6.3E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.1E-01 J	1.1E-01 J	ug/m3	27	1 / 1	-	1.1E-01	NA	1.1E-01 c	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	4.4E-01	4.4E-01	ug/m3	27	1 / 1	-	4.4E-01	NA	9.4E-02 c	NA	NA	NO (4)	ASL (4)
	591-78-6	2-Hexanone	2.9E-01 J	2.9E-01 J	ug/m3	27	1 / 1	-	2.9E-01	NA	3.1E+00 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	4.9E-01 J	4.9E-01 J	ug/m3	27	1 / 1	-	4.9E-01	NA	3.1E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	3.7E+01	3.7E+01	ug/m3	27	1 / 1	-	3.7E+01	NA	3.2E+03 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	1.2E+00	1.2E+00	ug/m3	27	1 / 1	-	1.2E+00	NA	6.3E+00 n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.6E+00	3.6E+00	ug/m3	27	1 / 1	-	3.6E+00	NA	2.1E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.6E+01	2.6E+01	ug/m3	27	1 / 1	-	2.6E+01	NA	NA	NA	NA	NO	NTX
	56-23-5	Carbon tetrachloride	4.4E-01	4.4E-01	ug/m3	27	1 / 1	-	4.4E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.1E-01	2.1E-01	ug/m3	27	1 / 1	-	2.1E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	6.2E-01	6.2E-01	ug/m3	27	1 / 1	-	6.2E-01	NA	9.4E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.6E+00	3.6E+00	ug/m3	27	1 / 1	-	3.6E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.2E+00	6.2E+00	ug/m3	27	1 / 1	-	6.2E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	2.4E+02	2.4E+02	ug/m3	27	1 / 1	-	2.4E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	6.6E+00	6.6E+00	ug/m3	27	1 / 1	-	6.6E+00	NA	7.3E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.6E-01 J	3.6E-01 J	ug/m3	27	1 / 1	-	3.6E-01	NA	1.1E+00 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	9.0E+00	9.0E+00	ug/m3	27	1 / 1	-	9.0E+00	NA	2.1E+01 n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	1.8E+00	1.8E+00	ug/m3	27	1 / 1	-	1.8E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	2.7E-01 J	2.7E-01 J	ug/m3	27	1 / 1	-	2.7E-01	NA	4.2E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.5E-01 J	3.5E-01 J	ug/m3	27	1 / 1	-	3.5E-01	NA	7.3E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	2.8E-01 J	2.8E-01 J	ug/m3	27	1 / 1	-	2.8E-01	NA	2.1E+00 n	NA	NA	NO	BSL
	115-07-1	Propene	5.5E+00	5.5E+00	ug/m3	27	1 / 1	-	5.5E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	4.2E-01 J	4.2E-01 J	ug/m3	27	1 / 1	-	4.2E-01	NA	1.0E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.7E-01	1.7E-01	ug/m3	27	1 / 1	-	1.7E-01	NA	4.2E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	3.2E+00	3.2E+00	ug/m3	27	1 / 1	-	3.2E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	2.2E+01	2.2E+01	ug/m3	27	1 / 1	-	2.2E+01	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.6E-01	4.6E-01	ug/m3	27	1 / 1	-	4.6E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	3.5E-01 J	3.5E-01 J	ug/m3	27	1 / 1	-	3.5E-01	NA	1.0E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	9.9E-01	9.9E-01	ug/m3	27	1 / 1	-	9.9E-01	NA	1.0E+01 n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	107-06-2	1,2-Dichloroethane	1.6E-01 J	1.6E-01 J	ug/m3	30	1 / 1	-	1.6E-01	NA	1.1E-01 c	NA	NA	NO (4)	ASL (4)
[redacted]	80-56-8	alpha-Pinene	9.4E+00	9.4E+00	ug/m3	30	1 / 1	-	9.4E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	2.2E-01	2.2E-01	ug/m3	30	1 / 1	-	2.2E-01	NA	3.6E-01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	6.0E-01	6.0E-01	ug/m3	30	1 / 1	-	6.0E-01	NA	4.7E-01 c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	6.5E-01	6.5E-01	ug/m3	30	1 / 1	-	6.5E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	3.3E+00	3.3E+00	ug/m3	30	1 / 1	-	3.3E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.4E+00	3.4E+00	ug/m3	30	1 / 1	-	3.4E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	6.2E+01	6.2E+01	ug/m3	30	1 / 1	-	6.2E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	2.8E-01 J	2.8E-01 J	ug/m3	30	1 / 1	-	2.8E-01	NA	1.1E+00 c	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	1.2E+00	1.2E+00	ug/m3	30	1 / 1	-	1.2E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	3.9E-01 J	3.9E-01 J	ug/m3	30	1 / 1	-	3.9E-01	NA	4.2E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.0E-01 J	3.0E-01 J	ug/m3	30	1 / 1	-	3.0E-01	NA	7.3E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	3.0E-01 J	3.0E-01 J	ug/m3	30	1 / 1	-	3.0E-01	NA	2.1E+00 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.8E-01	1.8E-01	ug/m3	30	1 / 1	-	1.8E-01	NA	4.2E+00 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	6.4E+00	6.4E+00	ug/m3	30	1 / 1	-	6.4E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.9E-01	4.9E-01	ug/m3	30	1 / 1	-	4.9E-01	NA	NA	NA	NA	NO	NTX
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.1E-02 J	1.1E-02 J	ug/m3	56	1 / 2	0.12 - 0.12	1.1E-02	NA	5.2E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	1.7E-01	9.8E-01	ug/m3	56	2 / 2	-	9.8E-01	NA	6.3E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	8.9E-02	5.9E-01	ug/m3	56	2 / 2	-	5.9E-01	NA	1.1E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.2E-02 J	2.2E-02 J	ug/m3	56	1 / 2	0.14 - 0.14	2.2E-02	NA	4.2E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	5.4E-02 J	3.2E-01 J	ug/m3	56	2 / 2	-	3.2E-01	NA	6.3E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	9.5E-02	9.5E-02	ug/m3	56	1 / 2	0.24 - 0.24	9.5E-02	NA	9.4E-02 c	NA	NA	NO (4)	ASL (4)
	106-46-7	1,4-Dichlorobenzene	1.5E-02 J	1.5E-02 J	ug/m3	56	1 / 2	0.13 - 0.13	1.5E-02	NA	2.6E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	4.5E-02 J	4.5E-02 J	ug/m3	56	1 / 2	0.27 - 0.27	4.5E-02	NA	5.6E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.4E+00 J	1.4E+00 J	ug/m3	56	1 / 2	0.35 - 0.35	1.4E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	4.6E-01 J	4.6E-01 J	ug/m3	56	1 / 2	0.24 - 0.24	4.6E-01	NA	3.1E+00 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	3.6E-01 J	3.6E-01 J	ug/m3	56	1 / 1	-	3.6E-01	NA	NA	NA	NA	NO	NTX
	108-10-1	4-Methyl-2-Pentanone	3.2E-01 J	4.7E-01 J	ug/m3	56	2 / 2	-	4.7E-01	NA	3.1E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.7E+01	4.7E+01	ug/m3	56	2 / 2	-	4.7E+01	NA	3.2E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	8.7E-01	8.7E-01	ug/m3	56	1 / 2	0.29 - 0.29	8.7E-01	NA	2.1E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.1E+01	4.1E+01	ug/m3	56	1 / 1	-	4.1E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	2.6E-01	1.1E+00	ug/m3	56	2 / 2	-	1.1E+00	NA	3.6E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.2E-01	1.2E-01	ug/m3	56	1 / 2	0.11 - 0.11	1.2E-01	NA	7.6E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.6E-02 J	2.6E-02 J	ug/m3	56	1 / 2	0.16 - 0.16	2.6E-02	NA	5.2E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.5E-01	4.5E-01	ug/m3	56	1 / 1	-	4.5E-01	NA	4.7E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	1.1E+00	1.1E+00	ug/m3	56	1 / 1	-	1.1E+00	NA	5.2E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	3.3E-01	4.4E-01	ug/m3	56	2 / 2	-	4.4E-01	NA	1.2E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.2E-01	4.2E-01	ug/m3	56	1 / 2	0.24 - 0.24	4.2E-01	NA	9.4E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	6.1E-01 J	6.1E-01 J	ug/m3	56	1 / 2	0.44 - 0.44	6.1E-01	NA	6.3E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	6.2E+00	1.6E+01	ug/m3	56	2 / 2	-	1.6E+01	NA	1.0E+01 n	NA	NA	NO (4)	ASL (4)
	75-09-2	Dichloromethane	2.5E-01	2.5E-01	ug/m3	56	1 / 2	0.29 - 0.29	2.5E-01	NA	6.3E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.9E+01	1.9E+01	ug/m3	56	1 / 1	-	1.9E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.0E+02	8.6E+02	ug/m3	56	2 / 2	-	8.6E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.1E+00	3.1E+00	ug/m3	56	1 / 1	-	3.1E+00	NA	7.3E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	2.4E-01	2.9E+00	ug/m3	56	2 / 2	-	2.9E+00	NA	1.1E+00 c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	3.4E-01	3.4E-01	ug/m3	56	1 / 1	-	3.4E-01	NA	5.2E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.9E+00 J	9.2E+00	ug/m3	56	2 / 2	-	9.2E+00	NA	2.1E+01 n	NA	NA	NO	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	71-36-3	n-Butanol	2.1E+00	2.1E+00	ug/m^3	56	1 / 1	-	2.1E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	8.2E+00	8.2E+00	ug/m^3	56	1 / 1	-	8.2E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	7.4E-01 J	7.4E-01 J	ug/m^3	56	1 / 1	-	7.4E-01	NA	4.2E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.7E-01 J	7.2E-01 J	ug/m^3	56	2 / 2	-	7.2E-01	NA	7.3E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	7.5E+00	7.5E+00	ug/m^3	56	1 / 1	-	7.5E+00	NA	2.1E+00 n	NA	NA	NO (4)	ASL (4)
	111-65-9	Octane	9.3E-01	9.3E-01	ug/m^3	56	1 / 1	-	9.3E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	1.6E+00	1.6E+00	ug/m^3	56	1 / 2	0.24 - 0.24	1.6E+00	NA	3.1E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.5E+00	1.5E+01	ug/m^3	56	2 / 2	-	1.5E+01	NA	1.0E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.2E+00	4.5E+00	ug/m^3	56	2 / 2	-	4.5E+00	NA	4.2E+00 n	NA	NA	NO (4)	ASL (4)
	108-88-3	Toluene	2.7E+00	9.3E+00	ug/m^3	56	2 / 2	-	9.3E+00	NA	5.2E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.2E-01	1.9E+00	ug/m^3	56	2 / 2	-	1.9E+00	NA	2.1E-01 n	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	7.8E+00	2.7E+01	ug/m^3	56	2 / 2	-	2.7E+01	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.8E-01	4.8E-01	ug/m^3	56	1 / 1	-	4.8E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	2.7E+00 J	2.7E+00 J	ug/m^3	56	1 / 2	1.1 - 1.1	2.7E+00	NA	2.1E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	5.5E-01	8.9E+00	ug/m^3	56	2 / 2	-	8.9E+00	NA	1.0E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	8.9E-01	1.5E+01	ug/m^3	56	2 / 2	-	1.5E+01	NA	1.0E+01 n	NA	NA	NO (4)	ASL (4)

Notes:

(1) Maximum concentration is used for screening.

(2) Regional Screening Levels for Residential Air (November 2018). Concentrations based on non-carcinogenic health effects are based on HQ=0.1.
The RSL for m-Xylene is used for m,p-Xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Although this chemical exceeded the screening value, it is not identified as a COPC. Based on the MLE evaluation (Attachment F, Table 1), this chemical is not a site-related contributor to the VI pathway or the VI pathway is not likely complete.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample
+ = biased high
D = dilution

Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available

RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion

Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.40E-02	J	1.40E-02	J	ug/m3	33	1 / 2	0.13 - 0.13	1.40E-02	NA	5.20E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	1.40E-01	J	1.60E+00		ug/m3	33	2 / 2	-	1.60E+00	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.10E-01		1.10E-01		ug/m3	33	1 / 2	0.11 - 0.11	1.10E-01	NA	1.10E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.00E-02	J	2.00E-02	J	ug/m3	33	1 / 2	0.15 - 0.15	2.00E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.60E-02	J	3.70E-01	J	ug/m3	33	2 / 2	-	3.70E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.50E-01	J	5.50E-01	J	ug/m3	33	1 / 2	0.38 - 0.38	5.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	4.50E-01	J	4.50E-01	J	ug/m3	33	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	108-10-1	4-Methyl-2-Pentanone	2.40E-01	J	2.40E-01	J	ug/m3	33	1 / 2	0.29 - 0.29	2.40E-01	NA	3.10E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	2.60E+00	J	2.60E+00	J	ug/m3	33	1 / 2	1.4 - 1.4	2.60E+00	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.60E-01	J	1.60E-01	J	ug/m3	33	1 / 2	0.31 - 0.31	1.60E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.20E+00		2.20E+00		ug/m3	33	1 / 1	-	2.20E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	4.00E-01		4.00E-01		ug/m3	33	1 / 2	0.14 - 0.14	4.00E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	1.80E-02	J	1.80E-02	J	ug/m3	33	1 / 2	0.17 - 0.17	1.80E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.00E-01		4.00E-01		ug/m3	33	1 / 1	-	4.00E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.60E-01		7.60E-01		ug/m3	33	1 / 1	-	7.60E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.70E-02	J	8.70E-02	J	ug/m3	33	1 / 2	0.16 - 0.16	8.70E-02	NA	1.20E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	3.70E-01		3.70E-01		ug/m3	33	1 / 2	0.25 - 0.25	3.70E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	7.30E-01	J	1.00E+02		ug/m3	33	2 / 2	-	1.00E+02	NA	6.30E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	5.90E+00		2.30E+01		ug/m3	33	2 / 2	-	2.30E+01	NA	1.00E+01	n	NA	NA	NO (4)	ASL (4)
	75-09-2	Dichloromethane	2.10E-01		2.10E-01		ug/m3	33	1 / 2	0.31 - 0.31	2.10E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	64-17-5	Ethanol	2.50E+00	J	1.90E+01		ug/m3	33	2 / 2	-	1.90E+01	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	5.40E-02	J	5.40E-02	J	ug/m3	33	1 / 2	0.29 - 0.29	5.40E-02	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01		3.50E-01		ug/m3	33	1 / 1	-	3.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	80-62-6	Methyl methacrylate	8.90E-01	J	8.90E-01	J	ug/m3	33	1 / 1	-	8.90E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.60E-01	J	2.50E+01		ug/m3	33	2 / 2	-	2.50E+01	NA	7.30E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	3.20E-01	J	3.20E-01	J	ug/m3	33	1 / 1	-	3.20E-01	NA	2.10E+00	n	NA	NA	NO	BSL
	100-42-5	Styrene	3.40E-02	J	3.40E-02	J	ug/m3	33	1 / 2	0.27 - 0.27	3.40E-02	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.90E-02		6.90E-02		ug/m3	33	1 / 2	0.13 - 0.13	6.90E-02	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	2.90E-01		2.90E-01		ug/m3	33	1 / 2	0.31 - 0.31	2.90E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	2.80E+00		1.10E+01		ug/m3	33	2 / 2	-	1.10E+01	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.80E-01		4.80E-01		ug/m3	33	1 / 1	-	4.80E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	6.80E-02	J	6.80E-02	J	ug/m3	33	1 / 2	0.27 - 0.27	6.80E-02	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.40E-01		1.40E-01		ug/m3	33	1 / 2	0.53 - 0.53	1.40E-01	NA	1.00E+01	n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	2.60E-02	J	2.60E-02	J	ug/m3	16	1 / 2	0.13 - 0.13	2.60E-02	NA	5.20E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	3.90E-02	J	4.90E-01	J	ug/m3	16	2 / 2	-	4.90E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.90E-02		5.90E-02		ug/m3	16	1 / 2	0.11 - 0.11	5.90E-02	NA	1.10E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.20E-02	J	2.20E-02	J	ug/m3	16	1 / 2	0.14 - 0.14	2.20E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.10E-02	J	1.10E-02	J	ug/m3	16	1 / 2	0.28 - 0.28	1.10E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.30E-01	J	5.30E-01	J	ug/m3	16	1 / 2	0.36 - 0.36	5.30E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	2.70E+00	J	2.70E+00	J	ug/m3	16	1 / 2	1.3 - 1.3	2.70E+00	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.30E-01	J	1.30E-01	J	ug/m3	16	1 / 2	0.29 - 0.29	1.30E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.60E+00		2.60E+00		ug/m3	16	1 / 1	-	2.60E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	1.50E-01	J	4.00E-01		ug/m3	16	2 / 2	-	4.00E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.40E-02	J	2.40E-02	J	ug/m3	16	1 / 2	0.16 - 0.16	2.40E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	1.20E+00	J	1.20E+00	J	ug/m3	16	1 / 2	0.26 - 0.26	1.20E+00	NA	7.30E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.70E-01		3.70E-01		ug/m3	16	1 / 1	-	3.70E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.90E-01		7.90E-01		ug/m3	16	1 / 1	-	7.90E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.20E-02	J	8.20E-02	J	ug/m3	16	1 / 2	0.15 - 0.15	8.20E-02	NA	1.20E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	2.60E-01	J	4.30E-01		ug/m3	16	2 / 2	-	4.30E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.50E+00		1.50E+00		ug/m3	16	1 / 2	0.5 - 0.5	1.50E+00	NA	6.30E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.90E+00		1.10E+01		ug/m3	16	2 / 2	-	1.10E+01	NA	1.00E+01	n	NA	NA	NO (4)	ASL (4)
	75-09-2	Dichloromethane	2.20E-01		2.20E-01		ug/m3	16	1 / 2	0.29 - 0.29	2.20E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.60E+00		1.60E+00		ug/m3	16	1 / 1	-	1.60E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.70E+00	J	1.70E+00	J	ug/m3	16	1 / 2	1.4 - 1.4	1.70E+00	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.20E+00		2.20E+00		ug/m3	16	1 / 1	-	2.20E+00	NA	7.30E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.90E-02	J	3.90E-02	J	ug/m3	16	1 / 2	0.28 - 0.28	3.90E-02	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01		3.60E-01		ug/m3	16	1 / 1	-	3.60E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	6.30E-01	J	6.30E-01	J	ug/m3	16	1 / 2	0.26 - 0.26	6.30E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.60E-01		1.60E-01		ug/m3	16	1 / 2	0.12 - 0.12	1.60E-01	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	2.40E-01		1.50E+00		ug/m3	16	2 / 2	-	1.50E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.50E+00		5.00E+00		ug/m3	16	2 / 2	-	5.00E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01		4.50E-01		ug/m3	16	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	3.70E-02	J	3.70E-02	J	ug/m3	16	1 / 2	0.26 - 0.26	3.70E-02	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	8.00E-02	J	8.00E-02	J	ug/m3	16	1 / 2	0.5 - 0.5	8.00E-02	NA	1.00E+01	n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	3.40E-02 J	3.40E-02 J	ug/m^3	19	1 / 1	-	3.40E-02	NA	5.20E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	2.70E-02 J	2.70E-02 J	ug/m^3	19	1 / 1	-	2.70E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.80E-02	5.80E-02	ug/m^3	19	1 / 1	-	5.80E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.30E-02 J	2.30E-02 J	ug/m^3	19	1 / 1	-	2.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	4.10E-01 J	4.10E-01 J	ug/m^3	19	1 / 1	-	4.10E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	3.10E+00 J	3.10E+00 J	ug/m^3	19	1 / 1	-	3.10E+00	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.40E-01 J	1.40E-01 J	ug/m^3	19	1 / 1	-	1.40E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	4.10E-01	4.10E-01	ug/m^3	19	1 / 1	-	4.10E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.50E-02 J	2.50E-02 J	ug/m^3	19	1 / 1	-	2.50E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	8.20E-01	8.20E-01	ug/m^3	19	1 / 1	-	8.20E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.40E-02 J	8.40E-02 J	ug/m^3	19	1 / 1	-	8.40E-02	NA	1.20E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	4.50E-01	4.50E-01	ug/m^3	19	1 / 1	-	4.50E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	5.70E-01 J	5.70E-01 J	ug/m^3	19	1 / 1	-	5.70E-01	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	5.80E+00	5.80E+00	ug/m^3	19	1 / 1	-	5.80E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.20E-01	2.20E-01	ug/m^3	19	1 / 1	-	2.20E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	1.80E+00 J	1.80E+00 J	ug/m^3	19	1 / 1	-	1.80E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.60E-02 J	3.60E-02 J	ug/m^3	19	1 / 1	-	3.60E-02	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01	3.60E-01	ug/m^3	19	1 / 1	-	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	4.00E-01 J	4.00E-01 J	ug/m^3	19	1 / 1	-	4.00E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.20E-02 J	1.20E-02 J	ug/m^3	19	1 / 1	-	1.20E-02	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.20E-01	2.20E-01	ug/m^3	19	1 / 1	-	2.20E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	2.50E-01	2.50E-01	ug/m^3	19	1 / 1	-	2.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.40E+00	1.40E+00	ug/m^3	19	1 / 1	-	1.40E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	3.30E-02 J	3.30E-02 J	ug/m^3	19	1 / 1	-	3.30E-02	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	7.20E-02 J	7.20E-02 J	ug/m^3	19	1 / 1	-	7.20E-02	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	2.10E-02 J	2.10E-02 J	ug/m3	22	1 / 2	0.13 - 0.13	2.10E-02	NA	5.20E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	4.30E-02 J	4.30E-02 J	ug/m3	22	1 / 2	0.27 - 0.27	4.30E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.80E-02	5.80E-02	ug/m3	22	1 / 2	0.11 - 0.11	5.80E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.30E-02 J	2.30E-02 J	ug/m3	22	1 / 2	0.15 - 0.15	2.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.40E-02 J	1.40E-02 J	ug/m3	22	1 / 2	0.28 - 0.28	1.40E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	3.10E-01 J	3.10E-01 J	ug/m3	22	1 / 2	0.37 - 0.37	3.10E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	6.20E+00	6.20E+00	ug/m3	22	1 / 2	1.4 - 1.4	6.20E+00	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	8.80E-02 J	8.80E-02 J	ug/m3	22	1 / 2	0.3 - 0.3	8.80E-02	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.90E+00	2.90E+00	ug/m3	22	1 / 1	-	2.90E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.90E-01	4.10E-01	ug/m3	22	2 / 2	-	4.10E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.50E-02 J	2.50E-02 J	ug/m3	22	1 / 2	0.17 - 0.17	2.50E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.20E-01 J	2.20E-01 J	ug/m3	22	1 / 2	0.27 - 0.27	2.20E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.30E-01	3.30E-01	ug/m3	22	1 / 1	-	3.30E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.30E-01	7.30E-01	ug/m3	22	1 / 1	-	7.30E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.40E-02 J	8.40E-02 J	ug/m3	22	1 / 2	0.16 - 0.16	8.40E-02	NA	1.20E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	3.80E-01	3.80E-01	ug/m3	22	1 / 2	0.25 - 0.25	3.80E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	5.80E+00	1.40E+01	ug/m3	22	2 / 2	-	1.40E+01	NA	1.00E+01 n	NA	NA	NO (4)	ASL (4)
	75-09-2	Dichloromethane	2.20E-01	3.50E-01 J	ug/m3	22	2 / 2	-	3.50E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.70E+00	1.70E+00	ug/m3	22	1 / 1	-	1.70E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	2.40E+00 J	1.20E+01	ug/m3	22	2 / 2	-	1.20E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	5.50E-02 J	5.50E-02 J	ug/m3	22	1 / 2	0.28 - 0.28	5.50E-02	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.40E-01	3.40E-01	ug/m3	22	1 / 1	-	3.40E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	1.20E+00 J	1.20E+00 J	ug/m3	22	1 / 1	-	1.20E+00	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	3.20E-01 J	3.20E-01 J	ug/m3	22	1 / 2	0.27 - 0.27	3.20E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	100-42-5	Styrene	5.20E-02 J	5.20E-02 J	ug/m3	22	1 / 2	0.27 - 0.27	5.20E-02	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.60E-01	1.60E-01	ug/m3	22	1 / 2	0.13 - 0.13	1.60E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	3.70E-01	3.70E-01	ug/m3	22	1 / 2	0.3 - 0.3	3.70E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.80E-01	2.80E-01	ug/m3	22	1 / 2	0.012 - 0.012	2.80E-01	NA	2.10E-01 n	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	1.50E+00	5.00E+00	ug/m3	22	2 / 2	-	5.00E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.60E-01	4.60E-01	ug/m3	22	1 / 1	-	4.60E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	4.80E-02 J	4.80E-02 J	ug/m3	22	1 / 2	0.27 - 0.27	4.80E-02	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.30E-01 J	1.30E-01 J	ug/m3	22	1 / 2	0.52 - 0.52	1.30E-01	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Minimum Concentration Qualifier	Maximum Concentration	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.10E-02	J	1.10E-02	J	ug/m3	25	1 / 2	0.12 - 0.12	1.10E-02	NA	5.20E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	1.20E-01	J	2.90E-01	J	ug/m3	25	2 / 2	-	2.90E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.90E-02		5.90E-02		ug/m3	25	1 / 2	0.1 - 0.1	5.90E-02	NA	1.10E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.40E-02	J	2.40E-02	J	ug/m3	25	1 / 2	0.14 - 0.14	2.40E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.80E-02	J	3.80E-02	J	ug/m3	25	1 / 2	0.26 - 0.26	3.80E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	2.70E-01		5.00E-01		ug/m3	25	2 / 2	-	5.00E-01	NA	9.40E-02	c	NA	NA	NO (4)	ASL (4)
	78-93-3	2-Butanone	8.90E-01	J	8.90E-01	J	ug/m3	25	1 / 2	0.34 - 0.34	8.90E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	6.00E+00		6.00E+00		ug/m3	25	1 / 2	1.3 - 1.3	6.00E+00	NA	3.20E+03	n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	1.00E+00		1.00E+00		ug/m3	25	1 / 2	0.3 - 0.3	1.00E+00	NA	6.30E+00	n	NA	NA	NO	BSL
	107-02-8	Acrolein	5.80E-01		5.80E-01		ug/m3	25	1 / 2	0.28 - 0.28	5.80E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	3.70E+00		3.70E+00		ug/m3	25	1 / 1	-	3.70E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	5.60E-01		7.30E-01		ug/m3	25	2 / 2	-	7.30E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	3.30E-02	J	3.30E-02	J	ug/m3	25	1 / 2	0.11 - 0.11	3.30E-02	NA	7.60E-02	c	NA	NA	NO	BSL
	74-83-9	Bromomethane	2.20E-02	J	2.20E-02	J	ug/m3	25	1 / 2	0.15 - 0.15	2.20E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.80E-01	J	3.80E-01	J	ug/m3	25	1 / 2	0.25 - 0.25	3.80E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.10E-01		4.10E-01		ug/m3	25	1 / 1	-	4.10E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.20E-01		7.20E-01		ug/m3	25	1 / 1	-	7.20E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.20E-01	J	1.20E-01	J	ug/m3	25	1 / 2	0.15 - 0.15	1.20E-01	NA	1.20E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	5.00E-01		5.00E-01		ug/m3	25	1 / 2	0.23 - 0.23	5.00E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.50E+00		1.00E+01		ug/m3	25	2 / 2	-	1.00E+01	NA	1.00E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.20E-01		2.20E-01		ug/m3	25	1 / 2	0.28 - 0.28	2.20E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.30E+00		1.30E+00		ug/m3	25	1 / 1	-	1.30E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.80E+02		1.90E+02		ug/m3	25	2 / 2	-	1.90E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	6.10E+00		6.10E+00		ug/m3	25	1 / 1	-	6.10E+00	NA	7.30E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.20E-01	J	1.20E-01	J	ug/m3	25	1 / 2	0.26 - 0.26	1.20E-01	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.40E-01		3.40E-01		ug/m3	25	1 / 1	-	3.40E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.30E+00	J	1.30E+00	J	ug/m3	25	1 / 2	0.69 - 0.69	1.30E+00	NA	2.10E+01	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	7.30E-01	J	7.30E-01	J	ug/m3	25	1 / 1	-	7.30E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.50E-01	J	4.80E-01	J	ug/m3	25	2 / 2	-	4.80E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	1.80E+00		1.80E+00		ug/m3	25	1 / 2	0.23 - 0.23	1.80E+00	NA	3.10E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	9.90E-02	J	9.90E-02	J	ug/m3	25	1 / 2	0.25 - 0.25	9.90E-02	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.10E-01		1.90E+00		ug/m3	25	2 / 2	-	1.90E+00	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.10E+00		3.60E+00		ug/m3	25	2 / 2	-	3.60E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	2.00E+00		5.40E+00		ug/m3	25	2 / 2	-	5.40E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.80E-01		4.80E-01		ug/m3	25	1 / 1	-	4.80E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	9.50E-01	J	9.50E-01	J	ug/m3	25	1 / 2	1.1 - 1.1	9.50E-01	NA	2.10E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.10E-01	J	1.10E-01	J	ug/m3	25	1 / 2	0.25 - 0.25	1.10E-01	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.40E-01		6.20E-01	J	ug/m3	25	2 / 2	-	6.20E-01	NA	1.00E+01	n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.20E-02 J	1.20E-02 J	ug/m3	28	1 / 2	0.12 - 0.12	1.20E-02	NA	5.20E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	1.60E-01	2.60E-01 J	ug/m3	28	2 / 2	-	2.60E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	6.20E-02	6.20E-02	ug/m3	28	1 / 2	0.1 - 0.1	6.20E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.50E-02 J	2.50E-02 J	ug/m3	28	1 / 2	0.14 - 0.14	2.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	5.30E-02 J	5.30E-02 J	ug/m3	28	1 / 2	0.27 - 0.27	5.30E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,3-Dichlorobenzene	4.40E-02	4.40E-02	ug/m3	28	1 / 2	0.12 - 0.12	4.40E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	4.50E-01 J	4.50E-01 J	ug/m3	28	1 / 2	0.35 - 0.35	4.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	2.50E+00 J	2.50E+00 J	ug/m3	28	1 / 2	1.3 - 1.3	2.50E+00	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.20E-01 J	1.20E-01 J	ug/m3	28	1 / 2	0.28 - 0.28	1.20E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.20E+00	2.20E+00	ug/m3	28	1 / 1	-	2.20E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	5.10E-01	5.10E-01	ug/m3	28	1 / 2	0.13 - 0.13	5.10E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	56-23-5	Carbon tetrachloride	3.90E-01	3.90E-01	ug/m3	28	1 / 1	-	3.90E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.80E-01 J	7.80E-01 J	ug/m3	28	1 / 1	-	7.80E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	9.70E-02 J	9.70E-02 J	ug/m3	28	1 / 2	0.15 - 0.15	9.70E-02	NA	1.20E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	4.30E-01	4.30E-01	ug/m3	28	1 / 2	0.23 - 0.23	4.30E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.30E+00	1.00E+01	ug/m3	28	2 / 2	-	1.00E+01	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.20E-01	2.20E-01	ug/m3	28	1 / 2	0.28 - 0.28	2.20E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	7.90E-01 J	7.90E-01 J	ug/m3	28	1 / 1	-	7.90E-01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	2.70E+01	2.90E+01	ug/m3	28	2 / 2	-	2.90E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.20E-01 J	1.20E-01 J	ug/m3	28	1 / 2	0.27 - 0.27	1.20E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01	3.60E-01	ug/m3	28	1 / 1	-	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	6.50E-01 J	6.50E-01 J	ug/m3	28	1 / 2	0.25 - 0.25	6.50E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	100-42-5	Styrene	2.80E-02 J	2.80E-02 J	ug/m3	28	1 / 2	0.25 - 0.25	2.80E-02	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.70E-01	2.70E-01	ug/m3	28	1 / 2	0.12 - 0.12	2.70E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	9.80E-01	3.10E+00	ug/m3	28	2 / 2	-	3.10E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.70E+00	3.80E+00	ug/m3	28	2 / 2	-	3.80E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01	4.50E-01	ug/m3	28	1 / 1	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.40E-01 J	1.40E-01 J	ug/m3	28	1 / 2	0.25 - 0.25	1.40E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.60E-01	3.60E-01	ug/m3	28	1 / 2	0.48 - 0.48	3.60E-01	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.00E-02	J	1.00E-02	J	ug/m^3	55	1 / 2	0.12 - 0.12	1.00E-02	NA	5.20E+02	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	5.80E-02	J	2.60E-01	J	ug/m^3	55	2 / 2	-	2.60E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	6.00E-02		6.00E-02		ug/m^3	55	1 / 2	0.099 - 0.099	6.00E-02	NA	1.10E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.40E-02	J	2.40E-02	J	ug/m^3	55	1 / 2	0.13 - 0.13	2.40E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.70E-02	J	1.70E-02	J	ug/m^3	55	1 / 2	0.26 - 0.26	1.70E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	106-46-7	1,3-Dichlorobenzene	4.90E-02		4.90E-02		ug/m^3	55	1 / 2	0.12 - 0.12	4.90E-02	NA	2.60E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	4.80E-01	J	4.80E-01	J	ug/m^3	55	1 / 2	0.34 - 0.34	4.80E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	2.70E+00	J	2.70E+00	J	ug/m^3	55	1 / 2	1.2 - 1.2	2.70E+00	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.60E-01	J	1.60E-01	J	ug/m^3	55	1 / 2	0.27 - 0.27	1.60E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.90E+00		1.90E+00		ug/m^3	55	1 / 1	-	1.90E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	4.20E-01		4.20E-01		ug/m^3	55	1 / 2	0.13 - 0.13	4.20E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.90E-02	J	2.90E-02	J	ug/m^3	55	1 / 2	0.15 - 0.15	2.90E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.10E-01		4.10E-01		ug/m^3	55	1 / 1	-	4.10E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	9.30E-01		9.30E-01		ug/m^3	55	1 / 1	-	9.30E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.90E-02	J	8.90E-02	J	ug/m^3	55	1 / 2	0.14 - 0.14	8.90E-02	NA	1.20E-01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	2.70E-01	J	4.50E-01		ug/m^3	55	2 / 2	-	4.50E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.40E+00		1.10E+01		ug/m^3	55	2 / 2	-	1.10E+01	NA	1.00E+01	n	NA	NA	NO (4)	ASL (4)
	75-09-2	Dichloromethane	2.20E-01		2.20E-01		ug/m^3	55	1 / 2	0.27 - 0.27	2.20E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	5.90E-01	J	5.90E-01	J	ug/m^3	55	1 / 1	-	5.90E-01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	5.70E+00	J	5.70E+00	J	ug/m^3	55	1 / 2	1.3 - 1.3	5.70E+00	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	5.30E-02	J	5.30E-02	J	ug/m^3	55	1 / 2	0.26 - 0.26	5.30E-02	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.70E-01		3.70E-01		ug/m^3	55	1 / 1	-	3.70E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	2.90E-01	J	2.90E-01	J	ug/m^3	55	1 / 1	-	2.90E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.30E-01	J	3.30E-01	J	ug/m^3	55	1 / 2	0.24 - 0.24	3.30E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.30E-02	J	1.30E-02	J	ug/m^3	55	1 / 2	0.24 - 0.24	1.30E-02	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.10E-01		1.10E-01		ug/m^3	55	1 / 2	0.12 - 0.12	1.10E-01	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	3.50E-01		3.50E-01		ug/m^3	55	1 / 2	0.27 - 0.27	3.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.90E+00		4.00E+00		ug/m^3	55	2 / 2	-	4.00E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.60E-01		4.60E-01		ug/m^3	55	1 / 1	-	4.60E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	5.50E-02	J	5.50E-02	J	ug/m^3	55	1 / 2	0.24 - 0.24	5.50E-02	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.20E-01	J	1.20E-01	J	ug/m^3	55	1 / 2	0.46 - 0.46	1.20E-01	NA	1.00E+01	n	NA	NA	NO	BSL

Notes:

(1) Maximum concentration is used for screening.

(2) Regional Screening Levels for Residential Air (November 2018). Concentrations based on non-carcinogenic health effects are based on HQ=0.1.
The RSL for m-Xylene is used for m,p-Xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Although this chemical exceeded the screening value, it is not identified as a COPC. Based on the MLE evaluation (Attachment F, Table 1), this chemical is not a site-related contributor to the VI pathway or the VI pathway is not likely complete.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample
Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available
RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion
Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air															
[redacted]	71-55-6	1,1,1-Trichloroethane	1.00E-02 J	1.00E-02 J	ug/m3	02	1 / 1	-	1.00E-02	NA	5.20E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	8.40E-02 J	8.40E-02 J	ug/m3	02	1 / 1	-	8.40E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.80E-02	5.80E-02	ug/m3	02	1 / 1	-	5.80E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.50E-02 J	2.50E-02 J	ug/m3	02	1 / 1	-	2.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	2.50E-02 J	2.50E-02 J	ug/m3	02	1 / 1	-	2.50E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	67-64-1	Acetone	5.30E+00	5.30E+00	ug/m3	02	1 / 1	-	5.30E+00	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.00E-01 J	3.00E-01 J	ug/m3	02	1 / 1	-	3.00E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	7.10E-01	7.10E-01	ug/m3	02	1 / 1	-	7.10E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	2.40E-02 J	2.40E-02 J	ug/m3	02	1 / 1	-	2.40E-02	NA	7.60E-02 c	NA	NA	NO	BSL
	74-83-9	Bromomethane	3.10E-02 J	3.10E-02 J	ug/m3	02	1 / 1	-	3.10E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	6.00E-01 J	6.00E-01 J	ug/m3	02	1 / 1	-	6.00E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.40E-01 J	1.40E-01 J	ug/m3	02	1 / 1	-	1.40E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.60E-01	4.60E-01	ug/m3	02	1 / 1	-	4.60E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.10E+00	ug/m3	02	1 / 1	-	2.10E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.10E-01	2.10E-01	ug/m3	02	1 / 1	-	2.10E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.60E-01	1.60E-01	ug/m3	02	1 / 1	-	1.60E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01	3.50E-01	ug/m3	02	1 / 1	-	3.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.70E+00 J	2.70E+00 J	ug/m3	02	1 / 1	-	2.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	9.50E-01	9.50E-01	ug/m3	02	1 / 1	-	9.50E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	6.20E-02 J	6.20E-02 J	ug/m3	02	1 / 1	-	6.20E-02	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.90E-02	3.90E-02	ug/m3	02	1 / 1	-	3.90E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	6.30E-01	6.30E-01	ug/m3	02	1 / 1	-	6.30E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.10E+00	ug/m3	02	1 / 1	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.30E-01 J	1.30E-01 J	ug/m3	02	1 / 1	-	1.30E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.40E-01	3.40E-01	ug/m3	02	1 / 1	-	3.40E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air	71-55-6	1,1,1-Trichloroethane	1.00E-02 J	1.00E-02 J	ug/m3	03	1 / 2	0.14 - 0.14	1.00E-02	NA	5.20E+02 n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	2.00E-01	9.30E-01 J	ug/m3	03	2 / 2	-	9.30E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.00E-01	2.20E+00	ug/m3	03	2 / 2	-	2.20E+00	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.80E-02 J	2.80E-02 J	ug/m3	03	1 / 2	0.16 - 0.16	2.80E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	6.30E-02 J	3.20E-01 J	ug/m3	03	2 / 2	-	3.20E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	9.70E-01 J	9.70E-01 J	ug/m3	03	1 / 2	0.41 - 0.41	9.70E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	5.30E+00	4.00E+01	ug/m3	03	2 / 2	-	4.00E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	4.60E-01 J	4.60E-01 J	ug/m3	03	1 / 2	0.28 - 0.28	4.60E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.50E-01 J	2.50E-01 J	ug/m3	03	1 / 2	0.33 - 0.33	2.50E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	3.70E+00	3.70E+00	ug/m3	03	1 / 1	-	3.70E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.50E-01	3.60E-01 J	ug/m3	03	2 / 2	-	3.60E-01	NA	3.60E-01 c	NA	NA	NO	BSL
	75-27-4	Bromodichloromethane	2.30E-02 J	2.30E-02 J	ug/m3	03	1 / 2	0.13 - 0.13	2.30E-02	NA	7.60E-02 c	NA	NA	NO	BSL
	74-83-9	Bromomethane	2.30E-02 J	2.30E-02 J	ug/m3	03	1 / 2	0.18 - 0.18	2.30E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	7.00E-01	7.00E-01	ug/m3	03	1 / 1	-	7.00E-01	NA	4.70E-01 c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	6.20E-01 J	6.20E-01 J	ug/m3	03	1 / 1	-	6.20E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.30E-01 J	3.00E-01	ug/m3	03	2 / 2	-	3.00E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.70E-01 J	3.90E-01	ug/m3	03	2 / 2	-	3.90E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	2.30E+00	ug/m3	03	2 / 2	-	2.30E+00	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	75-09-2	Dichloromethane	2.30E-01	4.20E-01 J	ug/m3	03	2 / 2	-	4.20E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.60E+00	2.60E+00	ug/m3	03	1 / 1	-	2.60E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	3.20E+02	3.70E+02	ug/m3	03	2 / 2	-	3.70E+02	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.60E-01	1.10E+00	ug/m3	03	2 / 2	-	1.10E+00	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01	3.50E-01	ug/m3	03	1 / 1	-	3.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.10E+00 J	4.10E+00 J	ug/m3	03	1 / 2	0.82 - 0.82	4.10E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	123-86-4	n_Butyl Acetate	6.70E-01 J	6.70E-01 J	ug/m3	03	1 / 1	-	6.70E-01	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	3.80E-01 J	3.80E-01 J	ug/m3	03	1 / 1	-	3.80E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	1.20E+00 J	1.20E+00 J	ug/m3	03	1 / 1	-	1.20E+00	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	4.80E-01 J	4.80E-01 J	ug/m3	03	1 / 1	-	4.80E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	1.10E+00	1.10E+00	ug/m3	03	1 / 2	0.27 - 0.27	1.10E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.20E-01 J	1.70E+00	ug/m3	03	2 / 2	-	1.70E+00	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.70E-02 J	2.70E-02 J	ug/m3	03	1 / 2	0.14 - 0.14	2.70E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.00E+00	1.00E+00	ug/m3	03	1 / 1	-	1.00E+00	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	1.10E+00	7.40E+00	ug/m3	03	2 / 2	-	7.40E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	10061-02-6	trans-1,3-Dichloropropene	8.60E-03 J	8.60E-03 J	ug/m3	03	1 / 2	0.31 - 0.31	8.60E-03	NA	7.00E-01 c	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.20E-02	1.90E-01 J	ug/m3	03	2 / 2	-	1.90E-01	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.50E+00	ug/m3	03	2 / 2	-	1.50E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.80E-01	4.80E-01	ug/m3	03	1 / 1	-	4.80E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.60E-01	5.90E-01 J	ug/m3	03	2 / 2	-	5.90E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.60E-01	1.60E+00	ug/m3	03	2 / 2	-	1.60E+00	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.50E-03 J	1.70E+01	ug/m3	04	2 / 2	-	1.70E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.00E-01	3.80E+00	ug/m3	04	2 / 2	-	3.80E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.50E+00	1.50E+00	ug/m3	04	1 / 1	-	1.50E+00	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.30E-02 J	2.30E-02 J	ug/m3	04	1 / 1	-	2.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	6.50E-02 J	6.50E-02 J	ug/m3	04	1 / 1	-	6.50E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	7.50E-02 J	7.50E-02 J	ug/m3	04	1 / 1	-	7.50E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.40E-01 J	5.40E-01 J	ug/m3	04	1 / 2	0.018 - 0.018	5.40E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.00E+01	1.00E+01	ug/m3	04	1 / 2	0.094 - 0.094	1.00E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	4.40E-01	4.40E-01	ug/m3	04	1 / 1	-	4.40E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	1.10E+00	1.10E+00	ug/m3	04	1 / 1	-	1.10E+00	NA	3.60E-01 c	NA	NA	NO (4)	ASL (4)
	75-27-4	Bromodichloromethane	8.70E-02	8.70E-02	ug/m3	04	1 / 2	0.012 - 0.012	8.70E-02	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.00E-02 J	2.00E-02 J	ug/m3	04	1 / 1	-	2.00E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.00E-01 J	7.00E-01 J	ug/m3	04	1 / 1	-	7.00E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.70E-01	2.70E-01	ug/m3	04	1 / 2	0.03 - 0.03	2.70E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.60E-01	4.60E-01	ug/m3	04	1 / 2	0.032 - 0.032	4.60E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.20E+00 J	1.20E+00 J	ug/m3	04	1 / 2	0.45 - 0.45	1.20E+00	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.90E+00 J	ug/m3	04	2 / 2	-	2.90E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.30E-01	2.30E-01	ug/m3	04	1 / 1	-	2.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	5.70E+02	5.70E+02	ug/m3	04	1 / 1	-	5.70E+02	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.70E-01	3.70E-01	ug/m3	04	1 / 1	-	3.70E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.40E-01	3.40E-01	ug/m3	04	1 / 1	-	3.40E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.70E+00 J	1.70E+00 J	ug/m3	04	1 / 1	-	1.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	2.70E-01 J	2.70E-01 J	ug/m3	04	1 / 1	-	2.70E-01	NA	7.30E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	115-07-1	Propene	1.20E+00	1.20E+00	ug/m3	04	1 / 1	-	1.20E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	3.00E-01	3.00E-01	ug/m3	04	1 / 1	-	3.00E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.00E-02	1.10E-01	ug/m3	04	2 / 2	-	1.10E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	1.20E+00	4.20E+01	ug/m3	04	2 / 2	-	4.20E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.10E-02	5.10E-02	ug/m3	04	1 / 2	0.013 - 0.013	5.10E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	3.40E+00 J	ug/m3	04	2 / 2	-	3.40E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	2.20E-01	2.20E-01	ug/m3	04	1 / 1	-	2.20E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.20E+00	2.10E+01	ug/m3	04	2 / 2	-	2.10E+01	NA	1.00E+01 n	NA	NA	NO (4)	ASL (4)
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.60E-03 J	1.00E-02 J	ug/m3	05	2 / 4	0.01 - 0.15	1.00E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	75-34-3	1,1-Dichloroethane	9.20E-03 J	1.10E-02 J	ug/m3	PMC-IN-05-01	2 / 4	0.0082 - 0.17	1.10E-02	NA	1.80E+00 c	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.10E-01	6.50E-01 J	ug/m3	05	4 / 4	-	6.50E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.80E-01	9.30E-01	ug/m3	05	4 / 4	-	9.30E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	3.00E-02 J	1.20E-01	ug/m3	05	3 / 4	0.17 - 0.17	1.20E-01	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	5.40E-02 J	1.60E-01	ug/m3	05	3 / 4	0.33 - 0.33	1.60E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	3.40E-02 J	7.90E-02	ug/m3	05	3 / 4	0.29 - 0.29	7.90E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	1.40E-02 J	1.40E-02 J	ug/m3	05	1 / 4	0.011 - 0.15	1.40E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.30E-02	5.40E-02	ug/m3	PMC-IN-05-01	2 / 4	0.01 - 0.16	5.40E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	4.10E-02 J	3.60E-01	ug/m3	05	3 / 4	0.33 - 0.33	3.60E-01	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	6.50E-01 J	4.30E+00	ug/m3	PMC-IN-05-01	3 / 4	0.44 - 0.44	4.30E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	1.40E-01 J	8.10E-01	ug/m3	05	2 / 4	0.098 - 0.33	8.10E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	5.60E+00	3.40E+01	ug/m3	05	4 / 4	-	3.40E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.60E-01 J	9.30E-01	ug/m3	PMC-IN-05-01	3 / 4	0.36 - 0.36	9.30E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.80E+00	1.80E+00	ug/m3	05	1 / 1	-	1.80E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.30E-01	2.40E+00	ug/m3	05	4 / 4	-	2.40E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	6.80E-02	2.30E-01	ug/m3	05	3 / 4	0.0092	2.30E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.20E-02 J	3.30E-02 J	ug/m3	PMC-IN-05-01	3 / 4	0.19 - 0.19	3.30E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.10E-01 J	3.50E+00 J	ug/m3	05	3 / 4	0.31 - 0.31	3.50E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	5.80E-01	5.80E-01	ug/m3	05	1 / 1	-	5.80E-01	NA	4.70E-01 c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	4.80E-01 J	8.20E-01	ug/m3	05	3 / 3	-	8.20E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.10E-02 J	1.70E-02 J	ug/m3	PMC-IN-05-01	2 / 4	0.011 - 0.18	1.70E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.60E-01	9.00E-01	ug/m3	05	4 / 4	-	9.00E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.30E-01	4.60E-01	ug/m3	05	4 / 4	-	4.60E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	4.90E-01 J	4.90E-01 J	ug/m3	05	1 / 4	0.2 - 0.61	4.90E-01	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.80E+00	2.30E+00	ug/m3	05	4 / 4	-	2.30E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.10E-01	6.30E-01	ug/m3	05	3 / 4	0.36 - 0.36	6.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.60E+00	6.60E+00	ug/m3	05	1 / 1	-	6.60E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	3.70E+00 J	4.00E+02	ug/m3	05	3 / 4	1 - 1	4.00E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	9.00E+00	9.00E+00	ug/m3	05	1 / 1	-	9.00E+00	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.90E-01	1.00E+00 J	ug/m3	05	4 / 4	-	1.00E+00	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01	3.50E-01	ug/m3	05	1 / 1	-	3.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	6.90E-01 J	9.70E+00	ug/m3	PMC-IN-05-01	3 / 4	0.88 - 0.88	9.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	1634-04-4	Methyl tert-butyl ether (MTBE)	1.80E-02 J	5.20E-02	ug/m3	PMC-IN-05-01	2 / 4	0.012 - 0.19	5.20E-02	NA	1.10E+01 c	NA	NA	NO	BSL
	71-36-3	n-Butanol	3.40E-01 J	1.80E+00	ug/m3	PMC-IN-05-01	3 / 3	-	1.80E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	4.80E+00	4.80E+00	ug/m3	05	1 / 1	-	4.80E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	142-82-5	n-Heptane	5.10E-01 J	5.10E-01 J	ug/m3	05	1 / 1	-	5.10E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	4.30E-01 J	1.50E+00	ug/m3	05	4 / 4	-	1.50E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	1.40E+00	1.40E+00	ug/m3	05	1 / 1	-	1.40E+00	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	4.70E-01 J	4.70E-01 J	ug/m3	05	1 / 1	-	4.70E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	3.60E-01 J	3.80E+00	ug/m3	05	4 / 4	-	3.80E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	9.20E-02 J	6.20E-01 J	ug/m3	05	4 / 4	-	6.20E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	9.00E-02	2.70E-01	ug/m3	05	4 / 4	-	2.70E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.80E+00	2.80E+00	ug/m3	05	1 / 1	-	2.80E+00	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	1.60E+00	2.50E+01	ug/m3	05	4 / 4	-	2.50E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.60E-02 J	8.10E-01	ug/m3	05	3 / 4	0.19 - 0.19	8.10E-01	NA	2.10E-01 n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.30E+00	ug/m3	05	4 / 4	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01	4.80E-01	ug/m3	05	3 / 3	-	4.80E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	9.40E+00	9.40E+00	ug/m3	05	1 / 4	1.4 - 2	9.40E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.00E-01	8.50E-01 J	ug/m3	05	4 / 4	-	8.50E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	5.40E-01	3.20E+00	ug/m3	05	4 / 4	-	3.20E+00	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-01	3.30E-01	ug/m3	06	2 / 2	-	3.30E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	7.00E-01	1.40E+00	ug/m3	06	2 / 2	-	1.40E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	2.20E-01	2.40E-01	ug/m3	06	2 / 2	-	2.40E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.30E-02 J	2.30E-02 J	ug/m3	06	1 / 2	0.15 - 0.15	2.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	2.10E-01	4.00E-01 J	ug/m3	06	2 / 2	-	4.00E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	9.90E-02	9.90E-02	ug/m3	06	1 / 2	0.25 - 0.25	9.90E-02	NA	9.40E-02 c	NA	NA	NO (4)	ASL (4)
	106-46-7	1,4-Dichlorobenzene	2.70E-01	2.80E+00	ug/m3	06	2 / 2	-	2.80E+00	NA	2.60E-01 c	NA	NA	NO (4)	ASL (4)
	123-91-1	1,4-Dioxane	3.90E-02 J	3.90E-02 J	ug/m3	06	1 / 2	0.29 - 0.29	3.90E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.90E-01 J	7.90E-01 J	ug/m3	06	1 / 2	0.38 - 0.38	7.90E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	4.30E-01 J	4.30E-01 J	ug/m3	06	1 / 1	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	108-10-1	4-Methyl-2-Pentanone	9.90E-01	9.90E-01	ug/m3	06	1 / 2	0.24 - 0.24	9.90E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.40E+01	6.60E+01	ug/m3	06	2 / 2	-	6.60E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	4.00E-01	4.00E-01	ug/m3	06	1 / 2	0.31 - 0.31	4.00E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	3.40E+00	3.40E+00	ug/m3	06	1 / 1	-	3.40E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.60E+00	3.00E+00	ug/m3	06	2 / 2	-	3.00E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	8.70E-02	8.70E-02	ug/m3	06	1 / 2	0.12 - 0.12	8.70E-02	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.70E-02 J	2.70E-02 J	ug/m3	06	1 / 2	0.17 - 0.17	2.70E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.10E-01	4.10E-01	ug/m3	06	1 / 1	-	4.10E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	8.30E-01	8.30E-01	ug/m3	06	1 / 1	-	8.30E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.50E-02 J	1.50E-02 J	ug/m3	06	1 / 2	0.16 - 0.16	1.50E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.90E-01	4.80E-01	ug/m3	06	2 / 2	-	4.80E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.70E-01	4.00E-01	ug/m3	06	2 / 2	-	4.00E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	8.80E-01 J	8.80E-01 J	ug/m3	06	1 / 2	0.44 - 0.44	8.80E-01	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.40E+00	4.70E+00	ug/m3	06	2 / 2	-	4.70E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.40E+00	4.70E+00	ug/m3	06	2 / 2	-	4.70E+00	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.50E+01	1.50E+01	ug/m3	06	1 / 1	-	1.50E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.60E+02	2.20E+02	ug/m3	06	2 / 2	-	2.20E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.20E+01	1.20E+01	ug/m3	06	1 / 1	-	1.20E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	5.60E-01	1.50E+00	ug/m3	06	2 / 2	-	1.50E+00	NA	1.10E+00 c	NA	NA	NO (4)	ASL (4)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	76-13-1	Freon 113	3.40E-01		3.40E-01		ug/m3	06	1 / 1	-	3.40E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	8.80E-01	J	1.40E+01		ug/m3	06	2 / 2	-	1.40E+01	NA	2.10E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	7.10E-01	J	7.10E-01	J	ug/m3	06	1 / 1	-	7.10E-01	NA	8.30E-02	c	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	2.10E+00		2.10E+00		ug/m3	06	1 / 1	-	2.10E+00	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	2.50E+00		2.50E+00		ug/m3	06	1 / 1	-	2.50E+00	NA	4.20E+01	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.80E+00		9.00E+00		ug/m3	06	2 / 2	-	9.00E+00	NA	7.30E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	6.20E-01	J	6.20E-01	J	ug/m3	06	1 / 1	-	6.20E-01	NA	2.10E+00	n	NA	NA	NO	BSL
	103-65-1	n-Propylbenzene	3.10E-01	J	3.10E-01	J	ug/m3	06	1 / 1	-	3.10E-01	NA	1.00E+02	n	NA	NA	NO	BSL
	111-65-9	Octane	6.10E-01	J	6.10E-01	J	ug/m3	06	1 / 1	-	6.10E-01	NA	NA		NA	NA	NO	NTX
	115-07-1	Propene	1.10E+00		5.30E+00		ug/m3	06	2 / 2	-	5.30E+00	NA	3.10E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	9.50E-02	J	9.50E-02	J	ug/m3	06	1 / 2	0.27 - 0.27	9.50E-02	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.70E-02		4.70E-02		ug/m3	06	1 / 2	0.13 - 0.13	4.70E-02	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	4.40E+00		1.40E+01		ug/m3	06	2 / 2	-	1.40E+01	NA	5.20E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.10E-02	J	2.10E-02	J	ug/m3	06	1 / 2	0.16 - 0.16	2.10E-02	NA	2.10E-01	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.30E+00		2.70E+00		ug/m3	06	2 / 2	-	2.70E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01		4.50E-01		ug/m3	06	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	6.30E-01		1.60E+00		ug/m3	06	2 / 2	-	1.60E+00	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.80E+00		4.50E+00		ug/m3	06	2 / 2	-	4.50E+00	NA	1.00E+01	n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.60E-03	J	9.60E-03	J	ug/m3	07	1 / 4	0.0094 - 0.13	9.60E-03	NA	5.20E+02	n	NA	NA	NO	BSL
	75-34-3	1,1-Dichloroethane	1.70E-02	J	1.70E-02	J	ug/m3	07	1 / 4	0.0098 - 0.14	1.70E-02	NA	1.80E+00	c	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	6.00E-01	J	6.00E-01	J	ug/m3	PMC-IN-07-02	1 / 3	0.14 - 0.22	6.00E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	5.10E-01		4.00E+00		ug/m3	PMC-IN-07-01	4 / 4	-	4.00E+00	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	7.00E-02		9.30E-02		ug/m3	PMC-IN-07-01	3 / 4	0.11 - 0.11	9.30E-02	NA	1.10E-01	c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	1.60E-02	J	2.10E-02	J	ug/m3	07	3 / 4	0.15 - 0.15	2.10E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.40E-01	J	8.20E-01		ug/m3	PMC-IN-07-01	4 / 4	-	8.20E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	6.40E-02	J	6.70E-02	J	ug/m3	PMC-IN-07-02	2 / 4	0.021 - 0.25	6.70E-02	NA	9.40E-02	c	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	1.70E-02	J	1.70E-02	J	ug/m3	07	1 / 4	0.014 - 0.13	1.70E-02	NA	2.60E-01	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	2.40E-02	J	5.40E-02		ug/m3	PMC-IN-07-01	2 / 4	0.012 - 0.14	5.40E-02	NA	2.60E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.90E-01	J	1.70E+00	J	ug/m3	PMC-IN-07-01	3 / 4	0.38 - 0.38	1.70E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	4.40E-01	J	4.40E-01	J	ug/m3	07	1 / 1	-	4.40E-01	NA	NA		NA	NA	NO	NTX
	67-64-1	Acetone	6.30E+00		3.30E+01		ug/m3	07	3 / 4	4 - 4	3.30E+01	NA	3.20E+03	n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	2.70E-01	J	2.70E-01	J	ug/m3	PMC-IN-07-01	1 / 4	0.21 - 0.33	2.70E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.80E-01	J	5.10E-01		ug/m3	PMC-IN-07-01	3 / 4	0.31 - 0.31	5.10E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.50E-01	J	4.50E-01	J	ug/m3	07	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	1.40E+00		3.40E+00		ug/m3	PMC-IN-07-02	3 / 4	0.14 - 0.14	3.40E+00	NA	3.60E-01	c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	1.80E-02	J	3.50E-02	J	ug/m3	PMC-IN-07-01	3 / 4	0.17 - 0.17	3.50E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	4.00E-01	J	7.40E-01	J	ug/m3	07	3 / 4	0.27 - 0.27	7.40E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.30E-01		4.30E-01		ug/m3	07	1 / 1	-	4.30E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.30E-01	J	7.10E-01	J	ug/m3	07	3 / 3	-	7.10E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.40E-02	J	4.10E-01		ug/m3	07	4 / 4	-	4.10E-01	NA	1.20E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.70E-01		4.20E-01		ug/m3	07	4 / 4	-	4.20E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	5.30E-01	J	1.60E+00	J	ug/m3	PMC-IN-07-02	4 / 4	-	1.60E+00	NA	6.30E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00		2.40E+00		ug/m3	07	4 / 4	-	2.40E+00	NA	1.00E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.90E-01		2.10E-01		ug/m3	PMC-IN-07-01	3 / 4	0.31 - 0.31	2.10E-01	NA	6.30E+01	n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	5989-27-5	D-Limonene	7.80E-01 J	7.80E-01 J	ug/m3	07	1 / 1	-	7.80E-01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.60E+01	1.60E+02	ug/m3	07	3 / 4	1.2 - 1.2	1.60E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	4.90E+00	4.90E+00	ug/m3	07	1 / 1	-	4.90E+00	NA	7.30E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	7.20E-01	3.00E+00	ug/m3	PMC-IN-07-02	4 / 4	-	3.00E+00	NA	1.10E+00 c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	3.10E-01	3.10E-01	ug/m3	07	1 / 1	-	3.10E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.20E-01 J	6.10E-01 J	ug/m3	PMC-IN-07-01	2 / 4	0.63 - 0.76	6.10E-01	NA	2.10E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	4.30E-01 J	4.30E-01 J	ug/m3	07	1 / 1	-	4.30E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	8.50E-01 J	8.50E-01 J	ug/m3	07	1 / 3	0.22 - 0.26	8.50E-01	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	4.70E-01 J	4.70E-01 J	ug/m3	07	1 / 1	-	4.70E-01	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	1.40E+00	1.40E+00	ug/m3	07	1 / 1	-	1.40E+00	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.50E+00	1.10E+01	ug/m3	PMC-IN-07-02	4 / 4	-	1.10E+01	NA	7.30E+01 n	NA	NA	NO	BSL
	103-65-1	n-Propylbenzene	3.10E-01 J	3.10E-01 J	ug/m3	07	1 / 1	-	3.10E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	111-65-9	Octane	4.30E-01 J	4.30E-01 J	ug/m3	07	1 / 1	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	5.40E-01 J	8.10E-01 J	ug/m3	PMC-IN-07-02	3 / 4	0.25 - 0.25	8.10E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	7.70E-02 J	2.30E-01	ug/m3	07	3 / 4	0.27 - 0.27	2.30E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.10E-02 J	4.00E-02 J	ug/m3	PMC-IN-07-01	3 / 4	0.13 - 0.13	4.00E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	4.20E+00	1.90E+01	ug/m3	PMC-IN-07-02	4 / 4	-	1.90E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.50E-02 J	1.50E-02 J	ug/m3	07	1 / 4	0.014 - 0.16	1.50E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.70E+00	ug/m3	-IN-07-01, PMC-	4 / 4	-	1.70E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01	5.20E-01	ug/m3	07	3 / 3	-	5.20E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	6.40E-01	4.20E+00	ug/m3	PMC-IN-07-02	4 / 4	-	4.20E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.90E+00	1.10E+01	ug/m3	PMC-IN-07-02	4 / 4	-	1.10E+01	NA	1.00E+01 n	NA	NA	NO (4)	ASL (4)
Indoor Air [redacted]	95-63-6	1,2,4-Trimethylbenzene	1.50E+00	1.50E+00	ug/m3	08	1 / 2	0.012 - 0.012	1.50E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	2.90E-01	2.90E-01	ug/m3	08	1 / 2	0.012 - 0.012	2.90E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	108-67-8	1,3,5-Trimethylbenzene	4.40E-01 J	4.40E-01 J	ug/m3	08	1 / 2	0.011 - 0.011	4.40E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.70E+01	1.70E+01	ug/m3	08	1 / 2	0.41 - 0.41	1.70E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	3.70E-01 J	3.70E-01 J	ug/m3	08	1 / 1	-	3.70E-01	NA	NA	NA	NA	NO	NTX
	67-64-1	Acetone	2.30E+00 J	3.20E+01	ug/m3	08	2 / 2	-	3.20E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	8.30E-02 J	8.30E-02 J	ug/m3	08	1 / 2	0.32 - 0.32	8.30E-02	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	5.90E+00	5.90E+00	ug/m3	08	1 / 1	-	5.90E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.90E-01	1.90E-01	ug/m3	08	1 / 2	0.03 - 0.03	1.90E-01	NA	3.60E-01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.70E-01	4.70E-01	ug/m3	08	1 / 1	-	4.70E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	6.60E-01 J	6.60E-01 J	ug/m3	08	1 / 1	-	6.60E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.30E-01	2.30E-01	ug/m3	08	1 / 2	0.027 - 0.027	2.30E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.40E-01	3.40E-01	ug/m3	08	1 / 2	0.26 - 0.26	3.40E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	4.90E+00	ug/m3	08	2 / 2	-	4.90E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.30E-01 J	1.80E+00	ug/m3	08	2 / 2	-	1.80E+00	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.00E+00	6.00E+00	ug/m3	08	1 / 1	-	6.00E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	64-17-5	Ethanol	9.70E+01	9.70E+01	ug/m3	08	1 / 2	1.6 - 1.6	9.70E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.60E-01 J	3.60E-01 J	ug/m3	08	1 / 2	0.014 - 0.014	3.60E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.60E+01	1.60E+01	ug/m3	08	1 / 2	0.83 - 0.83	1.60E+01	NA	2.10E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	4.70E-01 J	4.70E-01 J	ug/m3	08	1 / 1	-	4.70E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	9.90E-01 J	9.90E-01 J	ug/m3	08	1 / 1	-	9.90E-01	NA	NA	NA	NA	NO	NTX
	111-84-2	Nonane	7.50E-01 J	7.50E-01 J	ug/m3	08	1 / 1	-	7.50E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	115-07-1	Propene	5.20E+00	5.20E+00	ug/m3	08	1 / 2	0.28 - 0.28	5.20E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.90E-01 J	1.90E-01 J	ug/m3	08	1 / 2	0.012 - 0.012	1.90E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.00E+00	1.00E+00	ug/m3	08	1 / 1	-	1.00E+00	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	2.00E+00	2.00E+00	ug/m3	08	1 / 2	0.016 - 0.016	2.00E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	2.60E-01	1.30E+00	ug/m3	08	2 / 2	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.40E-01	4.40E-01	ug/m3	08	1 / 1	-	4.40E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.30E+00 J	1.30E+00 J	ug/m3	08	1 / 2	1.3 - 1.3	1.30E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	8.20E-01 J	8.20E-01 J	ug/m3	08	1 / 2	0.013 - 0.013	8.20E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-02 J	1.10E-02 J	ug/m3	09	1 / 2	0.1 - 0.1	1.10E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	75-35-4	1,1-Dichloroethene	2.20E-02 J	2.20E-02 J	ug/m3	09	1 / 2	0.13 - 0.13	2.20E-02	NA	2.10E+01 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.30E-01	2.30E-01	ug/m3	09	1 / 2	0.21 - 0.21	2.30E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	7.20E-02	7.20E-02	ug/m3	09	1 / 2	0.085 - 0.085	7.20E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.70E-02 J	2.70E-02 J	ug/m3	09	1 / 2	0.11 - 0.11	2.70E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	7.60E-02 J	7.60E-02 J	ug/m3	09	1 / 2	0.22 - 0.22	7.60E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	3.60E-01 J	3.60E-01 J	ug/m3	09	1 / 2	0.29 - 0.29	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	3.10E+00 J	3.10E+00 J	ug/m3	09	1 / 2	1.1 - 1.1	3.10E+00	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.30E-01 J	1.30E-01 J	ug/m3	09	1 / 2	0.23 - 0.23	1.30E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	1.60E-01	6.10E-01	ug/m3	09	2 / 2	-	6.10E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	1.70E-02 J	1.70E-02 J	ug/m3	09	1 / 2	0.13 - 0.13	1.70E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.60E-01	3.60E-01	ug/m3	09	1 / 1	-	3.60E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.40E-01	7.40E-01	ug/m3	09	1 / 1	-	7.40E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.00E-01 J	1.00E-01 J	ug/m3	09	1 / 2	0.12 - 0.12	1.00E-01	NA	1.20E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	3.50E-01	4.00E-01	ug/m3	09	2 / 2	-	4.00E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.30E+00	ug/m3	09	2 / 2	-	2.30E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.10E-01	4.80E-01 J	ug/m3	09	2 / 2	-	4.80E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	1.30E+01	2.60E+01	ug/m3	09	2 / 2	-	2.60E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.80E-01	1.80E-01	ug/m3	09	1 / 2	0.22 - 0.22	1.80E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.70E-01	3.70E-01	ug/m3	09	1 / 1	-	3.70E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.60E+00 J	2.60E+00 J	ug/m3	09	1 / 2	0.58 - 0.58	2.60E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	5.30E-01 J	5.30E-01 J	ug/m3	09	1 / 2	0.21 - 0.21	5.30E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	1.20E+00	1.20E+00	ug/m3	09	1 / 2	0.19 - 0.19	1.20E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	4.70E-02 J	4.70E-02 J	ug/m3	09	1 / 2	0.21 - 0.21	4.70E-02	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.90E-02	4.90E-02	ug/m3	09	1 / 2	0.099 - 0.099	4.90E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	4.50E+00	4.50E+00	ug/m3	09	1 / 2	0.23 - 0.23	4.50E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.30E-02 J	1.30E-02 J	ug/m3	09	1 / 2	0.12 - 0.12	1.30E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.10E+00	ug/m3	09	2 / 2	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01	4.50E-01	ug/m3	09	1 / 1	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	2.60E-01	2.60E-01	ug/m3	09	1 / 2	0.21 - 0.21	2.60E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	6.60E-01	6.60E-01	ug/m3	09	1 / 2	0.4 - 0.4	6.60E-01	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.70E-03 J	9.70E-03 J	ug/m3	12	1 / 2	0.13 - 0.13	9.70E-03	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.70E-01	7.10E-01 J	ug/m3	12	2 / 2	-	7.10E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	3.20E+00	1.10E+01	ug/m3	12	2 / 2	-	1.10E+01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.90E-02 J	2.90E-02 J	ug/m3	12	1 / 2	0.15 - 0.15	2.90E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	8.40E-02 J	8.40E-02 J	ug/m3	12	1 / 2	0.28 - 0.28	8.40E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	1.50E-01	3.10E-01 J	ug/m3	12	2 / 2	-	3.10E-01	NA	9.40E-02 c	NA	NA	NO (4)	ASL (4)
	106-46-7	1,3-Dichlorobenzene	1.10E-01	1.10E-01	ug/m3	12	1 / 2	0.13 - 0.13	1.10E-01	NA	2.60E-01 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.00E+00	9.70E+00	ug/m3	12	2 / 2	-	9.70E+00	NA	2.60E-01 c	NA	NA	NO (4)	ASL (4)
	123-91-1	1,4-Dioxane	1.70E-02 J	1.70E-02 J	ug/m3	12	1 / 2	0.28 - 0.28	1.70E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	2.60E+00 J	2.60E+00 J	ug/m3	12	1 / 2	0.37 - 0.37	2.60E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	6.60E-01 J	6.60E-01 J	ug/m3	12	1 / 2	0.24 - 0.24	6.60E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	2.40E+01	4.30E+01	ug/m3	12	2 / 2	-	4.30E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	1.20E+00	1.20E+00	ug/m3	12	1 / 2	0.28 - 0.28	1.20E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-02-8	Acrolein	6.80E-01	6.80E-01	ug/m3	12	1 / 2	0.3 - 0.3	6.80E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	9.80E+00	9.80E+00	ug/m3	12	1 / 1	-	9.80E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	9.70E-01	1.30E+00	ug/m3	12	2 / 2	-	1.30E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	3.00E-01	7.70E-01	ug/m3	12	2 / 2	-	7.70E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.70E-02 J	2.70E-02 J	ug/m3	12	1 / 2	0.16 - 0.16	2.70E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.90E-01 J	2.90E-01 J	ug/m3	12	1 / 2	0.26 - 0.26	2.90E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	7.10E-01	7.10E-01	ug/m3	12	1 / 1	-	7.10E-01	NA	4.70E-01 c	NA	NA	NO (4)	ASL (4)
	124-48-1	Chlorodibromomethane	3.40E-01	3.40E-01	ug/m3	12	1 / 1	-	3.40E-01	NA	NA	NA	NA	NO	NTX
	75-45-6	Chlorodifluoromethane	2.70E+00	2.70E+00	ug/m3	12	1 / 1	-	2.70E+00	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	2.10E-02 J	2.10E-02 J	ug/m3	12	1 / 2	0.15 - 0.15	2.10E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	7.40E-01	1.80E+00	ug/m3	12	2 / 2	-	1.80E+00	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.70E-01	5.00E-01	ug/m3	12	2 / 2	-	5.00E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.40E+00	3.70E+00	ug/m3	12	2 / 2	-	3.70E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.00E-01	3.30E-01 J	ug/m3	12	2 / 2	-	3.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	4.80E+02	4.80E+02	ug/m3	12	1 / 1	-	4.80E+02	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.90E+03	2.00E+03	ug/m3	12	2 / 2	-	2.00E+03	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	4.60E+00	4.60E+00	ug/m3	12	1 / 1	-	4.60E+00	NA	7.30E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.30E-01	8.30E-01 J	ug/m3	12	2 / 2	-	8.30E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.30E-01	3.30E-01	ug/m3	12	1 / 1	-	3.30E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.10E+01	1.00E+02	ug/m3	12	2 / 2	-	1.00E+02	NA	2.10E+01 n	NA	NA	NO (4)	ASL (4)
	91-20-3	Naphthalene	3.70E-01 J	3.70E-01 J	ug/m3	12	1 / 1	-	3.70E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	1.50E+00 J	1.50E+00 J	ug/m3	12	1 / 1	-	1.50E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	5.40E+00	5.40E+00	ug/m3	12	1 / 1	-	5.40E+00	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	7.80E-01	1.40E+00	ug/m3	12	2 / 2	-	1.40E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	9.90E-01	9.90E-01	ug/m3	12	1 / 1	-	9.90E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	1.20E+00	1.20E+00	ug/m3	12	1 / 1	-	1.20E+00	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	4.60E+00	2.70E+01	ug/m3	12	2 / 2	-	2.70E+01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	5.80E-01	2.20E+00	ug/m3	12	2 / 2	-	2.20E+00	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.30E-01	1.30E+00	ug/m3	12	2 / 2	-	1.30E+00	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	9.10E-01	9.10E-01	ug/m3	12	1 / 1	-	9.10E-01	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	3.50E+00	4.80E+00	ug/m3	12	2 / 2	-	4.80E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.10E-02	4.10E-02	ug/m3	12	1 / 2	0.16 - 0.16	4.10E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.20E+00	ug/m3	12	2 / 2	-	1.20E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	26523-64-8	Trichlorotrifuoroethane	5.00E-01		5.00E-01		ug/m3	12	1 / 1	-	5.00E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	2.10E+00	J	2.10E+00	J	ug/m3	12	1 / 2	1.1 - 1.1	2.10E+00	NA	2.10E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	3.40E-01		8.30E-01	J	ug/m3	12	2 / 2	-	8.30E-01	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	9.70E-01		2.60E+00		ug/m3	12	2 / 2	-	2.60E+00	NA	1.00E+01	n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.90E-03	J	1.00E-02	J	ug/m3	36	2 / 5	0.0097 - 0.13	1.00E-02	NA	5.20E+02	n	NA	NA	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	4.40E-02	J	4.40E-02	J	ug/m3	PMC-IN-36-01	1 / 5	0.018 - 0.28	4.40E-02	NA	2.10E-01	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	4.80E-02	J	2.10E-01		ug/m3	PMC-IN-36-02	4 / 5	0.26 - 0.26	2.10E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	6.00E-02		1.20E-01		ug/m3	PMC-IN-36-02	4 / 5	0.11 - 0.11	1.20E-01	NA	1.10E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	1.60E-02	J	4.20E-02		ug/m3	PMC-IN-36-02	4 / 5	0.15 - 0.15	4.20E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.20E-02	J	6.00E-02	J	ug/m3	PMC-IN-36-02	4 / 5	0.28 - 0.28	6.00E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	3.10E-02	J	3.10E-02	J	ug/m3	PMC-IN-36-02	1 / 5	0.019 - 0.25	3.10E-02	NA	9.40E-02	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.10E-02		4.40E-02	J	ug/m3	PMC-IN-36-01	2 / 5	0.011 - 0.13	4.40E-02	NA	2.60E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	3.90E-02	J	3.90E-02	J	ug/m3	36	1 / 5	0.012 - 0.28	3.90E-02	NA	5.60E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	2.30E-01	J	8.20E-01	J	ug/m3	PMC-IN-36-02	4 / 5	0.37 - 0.37	8.20E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.90E-01	J	1.90E-01	J	ug/m3	PMC-IN-36-01	1 / 5	0.11 - 0.28	1.90E-01	NA	3.10E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	2.10E-01	J	3.90E-01	J	ug/m3	36	2 / 5	0.13 - 0.28	3.90E-01	NA	3.10E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	2.20E+00	J	8.80E+00		ug/m3	PMC-IN-36-02	3 / 5	1.3 - 4.5	8.80E+00	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.20E-01	J	4.10E-01		ug/m3	PMC-IN-36-01	4 / 5	0.3 - 0.3	4.10E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.00E+00		1.00E+00		ug/m3	36	1 / 1	-	1.00E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.10E-01		4.70E-01		ug/m3	36	5 / 5	-	4.70E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	1.90E-02	J	2.20E-02	J	ug/m3	36, PMC-IN-36-0	4 / 5	0.16 - 0.16	2.20E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.20E-01	J	1.00E+00	J	ug/m3	36	3 / 5	0.22 - 0.26	1.00E+00	NA	7.30E+01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.70E-01		3.70E-01		ug/m3	36	1 / 1	-	3.70E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.30E-01	J	8.00E-01		ug/m3	36	4 / 4	-	8.00E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.00E-01	J	2.30E-01		ug/m3	PMC-IN-36-02	4 / 5	0.16 - 0.16	2.30E-01	NA	1.20E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.90E-01		4.40E-01		ug/m3	36	5 / 5	-	4.40E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	4.20E-01	J	4.20E-01	J	ug/m3	PMC-IN-36-02	1 / 5	0.27 - 0.51	4.20E-01	NA	6.30E+02	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00		2.20E+00		ug/m3	PMC-IN-36-02	5 / 5	-	2.20E+00	NA	1.00E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.90E-01		3.60E-01		ug/m3	PMC-IN-36-02	4 / 5	0.3 - 0.3	3.60E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.00E-01	J	3.00E-01	J	ug/m3	36	1 / 1	-	3.00E-01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	2.50E+00	J	1.50E+01		ug/m3	PMC-IN-36-02	4 / 5	1.4 - 1.4	1.50E+01	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	5.20E-02	J	4.10E-01	J	ug/m3	36	5 / 5	-	4.10E-01	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01		3.50E-01		ug/m3	36	2 / 2	-	3.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	5.60E-01	J	4.60E+00		ug/m3	PMC-IN-36-02	3 / 5	0.58 - 0.74	4.60E+00	NA	2.10E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.50E-01	J	3.50E-01	J	ug/m3	36	1 / 1	-	3.50E-01	NA	8.30E-02	c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	1.20E+00	J	1.20E+00	J	ug/m3	PMC-IN-36-02	1 / 4	0.25 - 0.7	1.20E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	3.30E-01	J	3.30E-01	J	ug/m3	36	1 / 1	-	3.30E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.30E-01	J	1.80E+00		ug/m3	PMC-IN-36-02	4 / 5	0.26 - 0.26	1.80E+00	NA	7.30E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	6.10E-01	J	1.20E+00		ug/m3	PMC-IN-36-02	2 / 5	0.19 - 0.25	1.20E+00	NA	3.10E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.70E-02	J	1.20E+00		ug/m3	36	5 / 5	-	1.20E+00	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.40E-01		6.70E-01		ug/m3	36	5 / 5	-	6.70E-01	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	3.00E-01		6.10E+00		ug/m3	PMC-IN-36-02	5 / 5	-	6.10E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.70E-02		6.80E-01		ug/m3	36	5 / 5	-	6.80E-01	NA	2.10E-01	n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.00E+00		1.20E+00		ug/m3	36	5 / 5	-	1.20E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01		4.50E-01		ug/m3	36	3 / 3	-	4.50E-01	NA	NA		NA	NA	NO	NTX

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	95-47-6	Xylene, o	5.40E-02 J	2.80E-01	ug/m3	PMC-IN-36-02	4 / 5	0.26 - 0.26	2.80E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.20E-01 J	6.80E-01	ug/m3	PMC-IN-36-02	4 / 5	0.51 - 0.51	6.80E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-02 J	1.10E-02 J	ug/m3	37	1 / 2	0.12 - 0.12	1.10E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	4.30E-01 J	1.50E+00	ug/m3	37	2 / 2	-	1.50E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.10E+00	1.10E+00	ug/m3	37	1 / 2	0.1 - 0.1	1.10E+00	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.60E-02 J	2.60E-02 J	ug/m3	37	1 / 2	0.14 - 0.14	2.60E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.10E-01	4.10E-01	ug/m3	37	1 / 2	0.26 - 0.26	4.10E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	3.90E-02 J	3.90E-02 J	ug/m3	37	1 / 2	0.23 - 0.23	3.90E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	1.20E-02 J	1.20E-02 J	ug/m3	37	1 / 2	0.13 - 0.13	1.20E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	1.40E-02 J	1.40E-02 J	ug/m3	37	1 / 2	0.26 - 0.26	1.40E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.40E+00 J	1.40E+00 J	ug/m3	37	1 / 2	0.35 - 0.35	1.40E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	9.20E-01	9.20E-01	ug/m3	37	1 / 2	0.26 - 0.26	9.20E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.70E+01	1.70E+01	ug/m3	37	1 / 2	1.3 - 1.3	1.70E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.10E+00	1.10E+00	ug/m3	37	1 / 2	0.28 - 0.28	1.10E+00	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	6.10E+01	6.10E+01	ug/m3	37	1 / 1	-	6.10E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.00E-01	8.40E-01	ug/m3	37	2 / 2	-	8.40E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.40E-01	1.40E-01	ug/m3	37	1 / 2	0.11 - 0.11	1.40E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	3.00E-02 J	3.00E-02 J	ug/m3	37	1 / 2	0.15 - 0.15	3.00E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.40E-01 J	2.40E-01 J	ug/m3	37	1 / 2	0.25 - 0.25	2.40E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.60E-01	3.60E-01	ug/m3	37	1 / 1	-	3.60E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	6.50E-01 J	6.50E-01 J	ug/m3	37	1 / 1	-	6.50E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.80E-02 J	1.80E-02 J	ug/m3	37	1 / 2	0.14 - 0.14	1.80E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	3.40E-01	3.80E+00	ug/m3	37	2 / 2	-	3.80E+00	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.30E-01	4.30E-01	ug/m3	37	1 / 2	0.23 - 0.23	4.30E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	4.40E-01 J	7.10E-01 J	ug/m3	37	2 / 2	-	7.10E-01	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	2.00E+00	ug/m3	37	1 / 2	0.28 - 0.28	2.00E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.30E-01	3.30E-01	ug/m3	37	1 / 2	0.28 - 0.28	3.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.20E+00	2.20E+00	ug/m3	37	1 / 1	-	2.20E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	5.50E+02	5.50E+02	ug/m3	37	1 / 2	1.3 - 1.3	5.50E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.50E+01	1.50E+01	ug/m3	37	1 / 1	-	1.50E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	3.20E-01 J	5.40E-01	ug/m3	37	2 / 2	-	5.40E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01	3.60E-01	ug/m3	37	1 / 1	-	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.20E+00 J	3.20E+00 J	ug/m3	37	1 / 2	0.69 - 0.69	3.20E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	4.20E+00	4.20E+00	ug/m3	37	1 / 1	-	4.20E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	4.70E-01 J	4.70E-01 J	ug/m3	37	1 / 1	-	4.70E-01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	3.80E-01 J	9.70E-01	ug/m3	37	2 / 2	-	9.70E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	1.80E+00	1.80E+00	ug/m3	37	1 / 2	0.23 - 0.23	1.80E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	2.50E-01 J	4.50E-01	ug/m3	37	2 / 2	-	4.50E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.50E-01	1.50E-01	ug/m3	37	1 / 2	0.12 - 0.12	1.50E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	4.90E-01 J	4.90E-01 J	ug/m3	37	1 / 1	-	4.90E-01	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	2.50E+00	2.50E+00	ug/m3	37	1 / 2	0.28 - 0.28	2.50E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.20E-02	3.40E-01	ug/m3	37	2 / 2	-	3.40E-01	NA	2.10E-01 n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.20E+00	1.20E+00	ug/m3	37	1 / 2	0.094 - 0.094	1.20E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.70E-01	4.70E-01	ug/m3	37	1 / 1	-	4.70E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.90E+00 J	1.90E+00 J	ug/m3	37	1 / 2	1.1 - 1.1	1.90E+00	NA	2.10E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	95-47-6	Xylene, o	5.00E-01 J	8.10E-01	ug/m3	37	2 / 2	-	8.10E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.80E+00	1.80E+00	ug/m3	37	1 / 2	0.48 - 0.48	1.80E+00	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	95-63-6	1,2,4-Trimethylbenzene	1.10E+00	2.00E+00 J,+	ug/m3	310	2 / 7	0.63 - 0.78	2.00E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	3.10E-01	3.10E-01	ug/m3	310	1 / 7	0.24 - 0.31	3.10E-01	NA	9.40E-02 c	NA	NA	NO (4)	ASL (4)
	78-93-3	2-Butanone	1.40E+01	1.40E+01	ug/m3	310	1 / 7	0.37 - 7.8	1.40E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	3.90E-01 J	3.90E-01 J	ug/m3	38	1 / 7	0.61 - 0.78	3.90E-01	NA	NA	NA	NA	NO	NTX
	108-10-1	4-Methyl-2-Pentanone	4.00E+00	4.00E+00	ug/m3	310	1 / 7	0.28 - 0.78	4.00E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.20E+01	5.00E+01	ug/m3	310	5 / 7	6.3 - 7.8	5.00E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.80E+00	3.80E+00	ug/m3	310	1 / 7	0.3 - 3.1	3.80E+00	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	7.30E-01	2.10E+01	ug/m3	310	6 / 7	0.78 - 0.78	2.10E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.10E-01	1.40E+00	ug/m3	310	7 / 7	-	1.40E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.40E-01 J	1.40E-01 J	ug/m3	38	1 / 7	0.12 - 0.16	1.40E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	56-23-5	Carbon tetrachloride	4.10E-01	5.00E-01	ug/m3	38	7 / 7	-	5.00E-01	NA	4.70E-01 c	NA	NA	NO (4)	ASL (4)
	67-66-3	Chloroform	1.40E-01	3.80E-01	ug/m3	38	5 / 7	0.12 - 0.16	3.80E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.00E-01	6.20E-01	ug/m3	310	7 / 7	-	6.20E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	4.00E+00	ug/m3	310	7 / 7	-	4.00E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.20E-01 J	7.30E-01	ug/m3	310	2 / 7	0.63 - 0.78	7.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.30E+00	2.10E+02 J,+	ug/m3	310	7 / 7	-	2.10E+02	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	5.60E+01	3.60E+02	ug/m3	310	6 / 7	7.8 - 7.8	3.60E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.00E+00	1.30E+01	ug/m3	310	5 / 7	0.62 - 1.4	1.30E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.90E+00	1.90E+00	ug/m3	310	1 / 7	0.28 - 0.78	1.90E+00	NA	1.10E+00 c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	4.20E-01	5.10E-01	ug/m3	310	6 / 6	-	5.10E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.30E+01	1.30E+01	ug/m3	310	1 / 7	0.75 - 7.8	1.30E+01	NA	2.10E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	7.90E-01	9.70E-01	ug/m3	310	2 / 7	0.32 - 0.7	9.70E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	123-86-4	N-Butyl Acetate	7.50E-01 J	3.10E+00	ug/m3	310	2 / 7	0.63 - 0.78	3.10E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	1.70E+00	1.70E+00	ug/m3	310	1 / 7	0.3 - 0.78	1.70E+00	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	7.00E+00	7.00E+00	ug/m3	310	1 / 7	0.27 - 0.78	7.00E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	4.20E-01 J	4.20E-01 J	ug/m3	38	1 / 7	0.61 - 0.78	4.20E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	7.30E-01	7.30E-01	ug/m3	310	1 / 7	0.32 - 0.78	7.30E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	9.80E-01	4.20E+00	ug/m3	310	5 / 7	0.25 - 0.78	4.20E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.80E+00	1.80E+00	ug/m3	310	1 / 7	0.27 - 0.78	1.80E+00	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.00E-01	3.10E-01	ug/m3	310	2 / 7	0.13 - 0.16	3.10E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.60E+01	1.60E+01	ug/m3	310	1 / 7	0.36 - 0.78	1.60E+01	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	7.50E-01	1.50E+01	ug/m3	310	7 / 7	-	1.50E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.80E-01	4.70E-01	ug/m3	310	4 / 7	0.12 - 0.14	4.70E-01	NA	2.10E-01 n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.50E+00	ug/m3	38	7 / 7	-	1.50E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.60E-01	4.60E-01	ug/m3	38	1 / 1	-	4.60E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	3.20E+00 J	8.60E+00 J,+	ug/m3	310	3 / 7	6.1 - 7.8	8.60E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	4.50E-01 J	2.90E+00	ug/m3	310	2 / 7	0.63 - 0.78	2.90E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	6.50E-01 J	7.10E+00	ug/m3	310	2 / 7	0.63 - 0.78	7.10E+00	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-02	J	1.10E-02	J	ug/m3	40	1 / 3	0.0089 - 0.14	1.10E-02	NA	5.20E+02	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.50E-01		3.30E-01	J	ug/m3	40	3 / 3	-	3.30E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	8.70E-02		1.30E-01	J	ug/m3	40	3 / 3	-	1.30E-01	NA	1.10E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	1.40E-02	J	2.30E-02	J	ug/m3	40	2 / 3	0.16 - 0.16	2.30E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.30E-02	J	4.60E-02	J	ug/m3	40	2 / 3	0.3 - 0.3	4.60E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	3.50E-02	J	3.50E-02	J	ug/m3	PMC-IN-40	1 / 3	0.012 - 0.14	3.50E-02	NA	2.60E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	1.30E-02	J	1.70E-02	J	ug/m3	40	2 / 3	0.3 - 0.3	1.70E-02	NA	5.60E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	3.00E-01	J	4.50E-01	J	ug/m3	40	2 / 3	0.39 - 0.39	4.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	5.40E+00		2.90E+01		ug/m3	PMC-IN-40	3 / 3	-	2.90E+01	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.30E-01	J	5.00E-01		ug/m3	PMC-IN-40	2 / 3	0.32 - 0.32	5.00E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	3.60E+00		3.60E+00		ug/m3	40	1 / 1	-	3.60E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	1.80E-01		8.20E-01		ug/m3	40	3 / 3	-	8.20E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	2.00E-02	J	2.10E-02	J	ug/m3	40	2 / 3	0.17 - 0.17	2.10E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.50E-01		4.50E-01		ug/m3	40	1 / 1	-	4.50E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.70E-01	J	6.60E-01	J	ug/m3	40	2 / 2	-	6.60E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.50E-01	J	6.10E-01		ug/m3	40	3 / 3	-	6.10E-01	NA	1.20E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.40E-01		4.20E-01		ug/m3	40	3 / 3	-	4.20E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00		2.70E+00		ug/m3	40	3 / 3	-	2.70E+00	NA	1.00E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.80E-01		8.70E-01	J	ug/m3	40	3 / 3	-	8.70E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	7.80E+00		7.80E+00		ug/m3	40	1 / 1	-	7.80E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	4.90E+01		4.80E+02		ug/m3	40	2 / 3	1.2 - 1.2	4.80E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.10E+01		1.10E+01		ug/m3	40	1 / 1	-	1.10E+01	NA	7.30E+00	n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.20E-01	J	3.30E-01	J	ug/m3	40	3 / 3	-	3.30E-01	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01		3.50E-01		ug/m3	40	1 / 1	-	3.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.00E+00	J	1.50E+01		ug/m3	40	2 / 3	0.62 - 0.62	1.50E+01	NA	2.10E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	1.30E+00		1.30E+00		ug/m3	40	1 / 1	-	1.30E+00	NA	8.30E-02	c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	7.50E-01	J	7.50E-01	J	ug/m3	PMC-IN-40	1 / 2	0.71 - 0.71	7.50E-01	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	6.70E-01	J	6.70E-01	J	ug/m3	40	1 / 1	-	6.70E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.80E-01	J	8.10E-01		ug/m3	40	2 / 3	0.28 - 0.28	8.10E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	111-84-2	Nonane	5.80E-01	J	5.80E-01	J	ug/m3	40	1 / 1	-	5.80E-01	NA	2.10E+00	n	NA	NA	NO	BSL
	111-65-9	Octane	9.20E-01	J	9.20E-01	J	ug/m3	40	1 / 1	-	9.20E-01	NA	NA		NA	NA	NO	NTX
	115-07-1	Propene	5.50E-01	J	4.40E+00		ug/m3	40	3 / 3	-	4.40E+00	NA	3.10E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	7.80E-02	J	3.20E-01	J	ug/m3	40	3 / 3	-	3.20E-01	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.80E-02	J	3.00E-01		ug/m3	40	3 / 3	-	3.00E-01	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.40E+00		3.80E+00		ug/m3	40	3 / 3	-	3.80E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.10E-02	J	4.30E-01		ug/m3	40	2 / 3	0.013 - 0.013	4.30E-01	NA	2.10E-01	n	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00		2.00E+00		ug/m3	40	3 / 3	-	2.00E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01		4.50E-01		ug/m3	40	2 / 2	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.80E+00	J	1.80E+00	J	ug/m3	40	1 / 3	0.96 - 2.1	1.80E+00	NA	2.10E+01	n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.50E-01		3.20E-01	J	ug/m3	40	3 / 3	-	3.20E-01	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.80E-01		8.80E-01	J	ug/m3	40	3 / 3	-	8.80E-01	NA	1.00E+01	n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted]	526-73-8	1,2,3-Trimethylbenzene	1.40E-01 J	1.50E-01 J	ug/m3	PMC-IN-42-02	2 / 2	-	1.50E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	5.30E-01	5.90E-01	ug/m3	PMC-IN-42-02	2 / 2	-	5.90E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.30E-02	5.70E-02	ug/m3	PMC-IN-42-02	2 / 2	-	5.70E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	1.40E-02 J	1.50E-02 J	ug/m3	PMC-IN-42-01	2 / 2	-	1.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.80E-01	2.10E-01	ug/m3	PMC-IN-42-02	2 / 2	-	2.10E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	2.90E-02 J	3.80E-02 J	ug/m3	PMC-IN-42-02	2 / 2	-	3.80E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.30E+00 J	1.40E+00 J	ug/m3	PMC-IN-42-01	2 / 2	-	1.40E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	2.70E-01 J	2.70E-01 J	ug/m3	PMC-IN-42-01	1 / 2	0.11 - 0.11	2.70E-01	NA	3.10E+00 n	NA	NA	NO	BSL
	67-64-1	Acetone	7.60E+00	1.10E+01	ug/m3	PMC-IN-42-02	2 / 2	-	1.10E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.90E-01 J	4.90E-01	ug/m3	PMC-IN-42-01	2 / 2	-	4.90E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	2.00E-01	2.40E-01	ug/m3	PMC-IN-42-02	2 / 2	-	2.40E-01	NA	3.60E-01 c	NA	NA	NO	BSL
	74-83-9	Bromomethane	1.90E-02 J	2.00E-02 J	ug/m3	PMC-IN-42-02	2 / 2	-	2.00E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.10E-01 J	5.60E-01 J	ug/m3	PMC-IN-42-02	2 / 2	-	5.60E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	9.00E-02 J	1.20E-01 J	ug/m3	PMC-IN-42-01	2 / 2	-	1.20E-01	NA	1.20E-01 c	NA	NA	NO	BSL
	74-87-3	Chloromethane	2.40E-01	2.50E-01	ug/m3	PMC-IN-42-02	2 / 2	-	2.50E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.40E+00 J	2.50E+00 J	ug/m3	PMC-IN-42-01	2 / 2	-	2.50E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	5.60E-01	5.70E-01	ug/m3	PMC-IN-42-01	2 / 2	-	5.70E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	1.90E+00 J	2.70E+00 J	ug/m3	PMC-IN-42-02	2 / 2	-	2.70E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.30E-01 J	1.70E-01	ug/m3	PMC-IN-42-02	2 / 2	-	1.70E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.90E+00	1.60E+01	ug/m3	PMC-IN-42-02	2 / 2	-	1.60E+01	NA	2.10E+01 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	6.20E-01 J	7.30E-01 J	ug/m3	PMC-IN-42-01	2 / 2	-	7.30E-01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	2.90E-01 J	4.40E-01 J	ug/m3	PMC-IN-42-02	2 / 2	-	4.40E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	9.30E-01	2.60E+00	ug/m3	PMC-IN-42-02	2 / 2	-	2.60E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	7.60E-02 J	1.10E-01 J	ug/m3	PMC-IN-42-01	2 / 2	-	1.10E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.60E-02 J	3.80E-02 J	ug/m3	PMC-IN-42-02	2 / 2	-	3.80E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	9.40E-01	1.80E+00	ug/m3	PMC-IN-42-02	2 / 2	-	1.80E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.20E+00	ug/m3	PMC-IN-42-02	2 / 2	-	1.20E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.10E-01	4.20E-01	ug/m3	PMC-IN-42-02	2 / 2	-	4.20E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	2.10E+00 J	2.10E+00 J	ug/m3	PMC-IN-42-01	1 / 2	2 - 2	2.10E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.80E-01	3.10E-01	ug/m3	PMC-IN-42-02	2 / 2	-	3.10E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.50E-01	6.30E-01	ug/m3	PMC-IN-42-02	2 / 2	-	6.30E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	8.00E-02	4.30E-01	ug/m3	58	2 / 2	-	4.30E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	75-35-4	1,1-Dichloroethene	1.50E-02 J	1.50E-02 J	ug/m3	58	1 / 2	0.17 - 0.17	1.50E-02	NA	2.10E+01 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	6.50E-01	9.60E+00	ug/m3	58	2 / 2	-	9.60E+00	NA	6.30E+00 n	NA	NA	NO (4)	ASL (4)
	107-06-2	1,2-Dichloroethane	1.50E-01	9.80E-01	ug/m3	58	2 / 2	-	9.80E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.50E-02 J	2.50E-02 J	ug/m3	58	1 / 2	0.15 - 0.15	2.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	2.50E-01	3.20E+00	ug/m3	58	2 / 2	-	3.20E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	6.90E-02	6.90E-02	ug/m3	58	1 / 2	0.14 - 0.14	6.90E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	8.20E-01 J	8.20E-01 J	ug/m3	58	1 / 2	0.38 - 0.38	8.20E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	2.40E+00	2.40E+00	ug/m3	58	1 / 1	-	2.40E+00	NA	NA	NA	NA	NO	NTX
	108-10-1	4-Methyl-2-Pentanone	5.80E-01 J	3.60E+00	ug/m3	58	2 / 2	-	3.60E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.60E+00	5.40E+01	ug/m3	58	2 / 2	-	5.40E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	2.60E-01 J	2.60E-01 J	ug/m3	58	1 / 2	0.31 - 0.31	2.60E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	6.30E+00	6.30E+00	ug/m3	58	1 / 1	-	6.30E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.60E-01	1.10E+00	ug/m3	58	2 / 2	-	1.10E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	74-83-9	Bromomethane	2.30E-02 J	2.30E-02 J	ug/m3	58	1 / 2	0.17 - 0.17	2.30E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	9.10E-01	9.10E-01	ug/m3	58	1 / 1	-	9.10E-01	NA	4.70E-01 c	NA	NA	NO (4)	ASL (4)
	75-45-6	Chlorodifluoromethane	6.30E-01 J	6.30E-01 J	ug/m3	58	1 / 1	-	6.30E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.70E-01	6.40E-01	ug/m3	58	2 / 2	-	6.40E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.30E-01	4.40E-01	ug/m3	58	2 / 2	-	4.40E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.90E+00	1.90E+00	ug/m3	58	1 / 2	0.41 - 0.41	1.90E+00	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.50E+00	4.60E+00	ug/m3	58	2 / 2	-	4.60E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.30E-01	4.50E-01 J	ug/m3	58	2 / 2	-	4.50E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.20E+00	3.20E+00	ug/m3	58	1 / 1	-	3.20E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	7.60E+01	7.60E+01	ug/m3	58	1 / 2	1.1 - 1.1	7.60E+01	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	4.50E+00	4.50E+00	ug/m3	58	1 / 1	-	4.50E+00	NA	7.30E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	5.70E-01	8.00E+00	ug/m3	58	2 / 2	-	8.00E+00	NA	1.10E+00 c	NA	NA	NO (4)	ASL (4)
	76-13-1	Freon 113	3.50E-01	3.50E-01	ug/m3	58	1 / 1	-	3.50E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	98-82-8	Isopropylbenzene	6.20E-01 J	6.20E-01 J	ug/m3	58	1 / 1	-	6.20E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	5.50E+00	5.50E+00	ug/m3	58	1 / 1	-	5.50E+00	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	123-86-4	n_Butyl Acetate	6.40E+00	6.40E+00	ug/m3	58	1 / 1	-	6.40E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	8.80E+00	8.80E+00	ug/m3	58	1 / 1	-	8.80E+00	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	6.50E-01 J	1.30E+01	ug/m3	58	2 / 2	-	1.30E+01	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	6.10E+00	6.10E+00	ug/m3	58	1 / 1	-	6.10E+00	NA	2.10E+00 n	NA	NA	NO (4)	ASL (4)
	103-65-1	n-Propylbenzene	2.00E+00	2.00E+00	ug/m3	58	1 / 1	-	2.00E+00	NA	1.00E+02 n	NA	NA	NO	BSL
	111-65-9	Octane	4.00E+00	4.00E+00	ug/m3	58	1 / 1	-	4.00E+00	NA	NA	NA	NA	NO	NTX
	100-42-5	Styrene	5.00E-02 J	4.90E-01 J	ug/m3	58	2 / 2	-	4.90E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.00E-01	7.90E-01	ug/m3	58	2 / 2	-	7.90E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	2.80E+00	2.80E+01	ug/m3	58	2 / 2	-	2.80E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	9.30E-02	9.30E-02	ug/m3	58	1 / 2	0.16 - 0.16	9.30E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.50E+00	ug/m3	58	2 / 2	-	1.50E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifluoroethane	5.10E-01	5.10E-01	ug/m3	58	1 / 1	-	5.10E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	5.90E-01	1.10E+01	ug/m3	58	2 / 2	-	1.10E+01	NA	1.00E+01 n	NA	NA	NO (4)	ASL (4)
	179601-23-1	Xylenes, m & p	1.80E+00	2.80E+01	ug/m3	58	2 / 2	-	2.80E+01	NA	1.00E+01 n	NA	NA	NO (4)	ASL (4)
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.70E-03 J	9.70E-03 J	ug/m3	44	1 / 2	0.14 - 0.14	9.70E-03	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.80E-01	3.70E-01 J	ug/m3	44	2 / 2	-	3.70E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.30E-01	1.10E+00	ug/m3	44	2 / 2	-	1.10E+00	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.30E-02 J	2.30E-02 J	ug/m3	44	1 / 2	0.16 - 0.16	2.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	5.00E-02 J	5.00E-02 J	ug/m3	44	1 / 2	0.3 - 0.3	5.00E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,3-Dichlorobenzene	8.30E-02	8.30E-02	ug/m3	44	1 / 2	0.14 - 0.14	8.30E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	3.00E+00 J	2.00E+01	ug/m3	44	2 / 2	-	2.00E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	6.80E+00	3.10E+01	ug/m3	44	2 / 2	-	3.10E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.30E-01	3.30E-01	ug/m3	44	1 / 2	0.32 - 0.32	3.30E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	2.20E+01	2.20E+01	ug/m3	44	1 / 1	-	2.20E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.80E-01 J	8.40E-01	ug/m3	44	2 / 2	-	8.40E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	74-83-9	Bromomethane	3.10E-02 J	3.10E-02 J	ug/m3	44	1 / 2	0.18 - 0.18	3.10E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.30E-01 J	2.30E-01 J	ug/m3	44	1 / 2	0.28 - 0.28	2.30E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.60E-01	3.60E-01	ug/m3	44	1 / 1	-	3.60E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	8.10E-01	8.10E-01	ug/m3	44	1 / 1	-	8.10E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	2.10E-01	2.20E-01	ug/m3	44	2 / 2	-	2.20E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	74-87-3	Chloromethane	4.10E-01	4.60E-01	ug/m3	44	2 / 2	-	4.60E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.30E+00	ug/m3	44	2 / 2	-	2.30E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.40E-01	4.60E-01 J	ug/m3	44	2 / 2	-	4.60E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.10E+01	1.10E+01	ug/m3	44	1 / 1	-	1.10E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.30E+01	4.30E+01	ug/m3	44	2 / 2	-	4.30E+01	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	5.50E+00	5.50E+00	ug/m3	44	1 / 1	-	5.50E+00	NA	7.30E+00 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.50E-01	1.50E-01	ug/m3	44	1 / 2	0.3 - 0.3	1.50E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.40E-01	3.40E-01	ug/m3	44	1 / 1	-	3.40E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.80E+00 J	1.80E+00 J	ug/m3	44	1 / 2	0.79 - 0.79	1.80E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	142-82-5	n-Heptane	3.90E-01 J	3.90E-01 J	ug/m3	44	1 / 1	-	3.90E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	4.40E-01 J	4.40E-01 J	ug/m3	44	1 / 2	0.28 - 0.28	4.40E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	2.90E-01 J	2.90E-01 J	ug/m3	44	1 / 1	-	2.90E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	115-07-1	Propene	1.60E+00	1.30E+01	ug/m3	44	2 / 2	-	1.30E+01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.30E-01 J	3.60E-01 J	ug/m3	44	2 / 2	-	3.60E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.80E-02 J	2.80E-02 J	ug/m3	44	1 / 2	0.14 - 0.14	2.80E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	1.10E+01	1.10E+01	ug/m3	44	1 / 1	-	1.10E+01	NA	2.10E+02 n	NA	NA	NO	BSL
	108-88-3	Toluene	7.90E-01	1.00E+00	ug/m3	44	2 / 2	-	1.00E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.20E+00	ug/m3	44	2 / 2	-	1.20E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01	4.50E-01	ug/m3	44	1 / 1	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.30E-01 J	1.30E-01 J	ug/m3	44	1 / 2	0.28 - 0.28	1.30E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.00E-01	3.00E-01	ug/m3	44	1 / 2	0.55 - 0.55	3.00E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.60E-03 J	9.60E-03 J	ug/m3	47	1 / 5	0.0097 - 0.13	9.60E-03	NA	5.20E+02 n	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	2.20E-01 J	4.10E-01 J	ug/m3	PMC-IN-47-01	3 / 3	-	4.10E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	3.80E-01 J	1.90E+00	ug/m3	PMC-IN-47-01	5 / 5	-	1.90E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	4.40E-02	6.40E-02	ug/m3	47	3 / 5	0.11 - 0.11	6.40E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	1.40E-02 J	2.20E-02 J	ug/m3	47	3 / 5	0.14 - 0.15	2.20E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.10E-01 J	1.10E+00	ug/m3	PMC-IN-47-01	4 / 5	0.28 - 0.28	1.10E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	9.00E-02	9.00E-02	ug/m3	47	1 / 5	0.023 - 0.25	9.00E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	5.90E-02	7.40E-02	ug/m3	PMC-IN-47-02	2 / 5	0.012 - 0.14	7.40E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	4.10E-02 J	7.30E-02 J	ug/m3	PMC-IN-47-02	2 / 5	0.014 - 0.29	7.30E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.00E-01 J	1.60E+00 J	ug/m3	PMC-IN-47-02	2 / 5	0.19 - 0.38	1.60E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.10E-01 J	1.10E-01 J	ug/m3	PMC-IN-47-02	1 / 5	0.11 - 0.29	1.10E-01	NA	3.10E+00 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.30E+01	1.30E+01	ug/m3	47	1 / 5	1.3 - 4.3	1.30E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	6.70E-02 J	4.30E-01	ug/m3	47	3 / 5	0.29 - 0.31	4.30E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.60E+00	4.70E+00	ug/m3	47	2 / 2	-	4.70E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.80E-01	1.10E+00	ug/m3	47	5 / 5	-	1.10E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	3.00E-02 J	3.00E-02 J	ug/m3	47	1 / 5	0.011 - 0.12	3.00E-02	NA	7.60E-02 c	NA	NA	NO	BSL
	74-83-9	Bromomethane	2.30E-02 J	2.50E-02 J	ug/m3	PMC-IN-47-02	2 / 5	0.016 - 0.17	2.50E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	4.10E-01 J	4.10E-01 J	ug/m3	PMC-IN-47-02	1 / 5	0.22 - 0.27	4.10E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.20E-01	3.30E-01	ug/m3	47	2 / 2	-	3.30E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	4.70E-01 J	3.20E+00	ug/m3	47	3 / 3	-	3.20E+00	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.50E-02 J	1.50E-02 J	ug/m3	47	1 / 5	0.014 - 0.16	1.50E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	8.60E-02 J	3.30E-01	ug/m3	47	4 / 5	0.15 - 0.15	3.30E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.40E-01	4.50E-01	ug/m3	47	4 / 5	0.25 - 0.25	4.50E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.10E+00 J	1.10E+00 J	ug/m3	47	1 / 5	0.25 - 0.53	1.10E+00	NA	6.30E+02 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	75-71-8	Dichlorodifluoromethane	1.90E+00	2.30E+00	ug/m3	PMC-IN-47-02	5 / 5	-	2.30E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.70E-01	2.30E-01	ug/m3	47	3 / 5	0.29 - 0.31	2.30E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.60E-01 J	2.60E-01 J	ug/m3	47	1 / 2	0.25 - 0.25	2.60E-01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.10E+00 J	2.50E+02	ug/m3	47	5 / 5	-	2.50E+02	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	2.40E-01	3.50E-01	ug/m3	PMC-IN-47-02	3 / 5	0.28 - 0.29	3.50E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01	3.60E-01	ug/m3	47	1 / 1	-	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.40E-01 J	3.70E+01	ug/m3	47	3 / 5	0.73 - 0.76	3.70E+01	NA	2.10E+01 n	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	1.10E+00 J	1.10E+00 J	ug/m3	PMC-IN-47-02	1 / 3	0.24 - 0.7	1.10E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	2.60E+01	2.60E+01	ug/m3	47	1 / 2	0.31 - 0.31	2.60E+01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	2.10E-01 J	5.90E-01 J	ug/m3	47	3 / 5	0.18 - 0.27	5.90E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	4.60E-01 J	4.60E-01 J	ug/m3	47	1 / 2	0.26 - 0.26	4.60E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	115-07-1	Propene	9.20E-01	1.10E+01	ug/m3	47	2 / 5	0.22 - 0.25	1.10E+01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	2.90E-02 J	3.70E-01 J	ug/m3	47	4 / 5	0.26 - 0.26	3.70E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	2.90E-02 J	5.70E-02	ug/m3	PMC-IN-47-01	3 / 5	0.12 - 0.13	5.70E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	5.30E-01	1.90E+00	ug/m3	47	5 / 5	-	1.90E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.70E-02 J	2.20E-01	ug/m3	47	2 / 5	0.014 - 0.16	2.20E-01	NA	2.10E-01 n	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	9.80E-01	1.10E+00	ug/m3	N-47-01, PMC-IN	5 / 5	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01	4.50E-01	ug/m3	47	4 / 4	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.60E+00 J	1.60E+00 J	ug/m3	47	1 / 5	1.1 - 2	1.60E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.80E-01	6.80E-01	ug/m3	PMC-IN-47-02	3 / 5	0.26 - 0.27	6.80E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	7.30E-01	1.90E+00	ug/m3	PMC-IN-47-02	3 / 5	0.5 - 0.53	1.90E+00	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]t [redacted]	71-55-6	1,1,1-Trichloroethane	1.00E-02 J	1.00E-02 J	ug/m3	48	1 / 2	0.12 - 0.12	1.00E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.30E-01 J	4.40E-01 J	ug/m3	48	2 / 2	-	4.40E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	6.90E-02	6.90E-02	ug/m3	48	1 / 2	0.1 - 0.1	6.90E-02	NA	1.10E-01 c	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	2.50E-02 J	2.50E-02 J	ug/m3	48	1 / 2	0.13 - 0.13	2.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.00E-02 J	4.00E-02 J	ug/m3	48	1 / 2	0.26 - 0.26	4.00E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	1.80E-02 J	1.80E-02 J	ug/m3	48	1 / 2	0.26 - 0.26	1.80E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.10E+00 J	1.80E+00 J	ug/m3	48	2 / 2	-	1.80E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	2.70E-01 J	2.70E-01 J	ug/m3	48	1 / 2	0.24 - 0.24	2.70E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.60E+01	4.80E+01	ug/m3	48	2 / 2	-	4.80E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	4.70E-01	4.70E-01	ug/m3	48	1 / 2	0.27 - 0.27	4.70E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	4.30E+01	4.30E+01	ug/m3	48	1 / 1	-	4.30E+01	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.50E-01	4.70E-01	ug/m3	48	2 / 2	-	4.70E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.10E-01	2.20E-01	ug/m3	48	2 / 2	-	2.20E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.50E-02 J	2.50E-02 J	ug/m3	48	1 / 2	0.15 - 0.15	2.50E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.30E-01 J	2.30E-01 J	ug/m3	48	1 / 2	0.24 - 0.24	2.30E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	4.30E-01	4.30E-01	ug/m3	48	1 / 1	-	4.30E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.10E-01 J	7.10E-01 J	ug/m3	48	1 / 1	-	7.10E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	3.90E-01	7.80E-01	ug/m3	48	2 / 2	-	7.80E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.30E-01	4.70E-01	ug/m3	48	2 / 2	-	4.70E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.40E+00	2.80E+00	ug/m3	48	2 / 2	-	2.80E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.00E-01	3.00E-01	ug/m3	48	1 / 2	0.27 - 0.27	3.00E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.80E+01	2.80E+01	ug/m3	48	1 / 1	-	2.80E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	5.00E+02	1.40E+03	ug/m3	48	2 / 2	-	1.40E+03	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.60E+01	1.60E+01	ug/m3	48	1 / 1	-	1.60E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	100-41-4	Ethylbenzene	1.50E-01 J	2.70E-01 J	ug/m3	48	2 / 2	-	2.70E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.80E-01	3.80E-01	ug/m3	48	1 / 1	-	3.80E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.60E+00 J	4.60E+00 J	ug/m3	48	1 / 2	0.68 - 0.68	4.60E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	4.30E-01 J	4.30E-01 J	ug/m3	48	1 / 1	-	4.30E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	1.10E+00 J	1.10E+00 J	ug/m3	48	1 / 1	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	2.30E+00	2.30E+00	ug/m3	48	1 / 1	-	2.30E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	3.20E-01 J	3.20E-01 J	ug/m3	48	1 / 1	-	3.20E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	4.90E-01 J	5.50E-01 J	ug/m3	48	2 / 2	-	5.50E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	5.20E-01 J	5.20E-01 J	ug/m3	48	1 / 1	-	5.20E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	8.10E-01	8.10E-01	ug/m3	48	1 / 1	-	8.10E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	1.80E+00	2.40E+00	ug/m3	48	2 / 2	-	2.40E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	7.10E-01 J	4.30E+00	ug/m3	48	2 / 2	-	4.30E+00	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.90E-02	3.90E-02	ug/m3	48	1 / 2	0.12 - 0.12	3.90E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	1.20E+00	1.80E+00	ug/m3	48	2 / 2	-	1.80E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.10E-02 J	2.10E-02 J	ug/m3	48	1 / 2	0.14 - 0.14	2.10E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.20E+00	1.60E+00	ug/m3	48	2 / 2	-	1.60E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.70E-01	4.70E-01	ug/m3	48	1 / 1	-	4.70E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	2.50E+00 J	2.50E+00 J	ug/m3	48	1 / 2	0.98 - 0.98	2.50E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.40E-01 J	3.20E-01 J	ug/m3	48	2 / 2	-	3.20E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.40E-01	9.20E-01	ug/m3	48	2 / 2	-	9.20E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-02 J	1.10E-02 J	ug/m3	49	1 / 2	0.13 - 0.13	1.10E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.90E-01	5.00E-01 J	ug/m3	49	2 / 2	-	5.00E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	4.00E-01	5.50E-01	ug/m3	49	2 / 2	-	5.50E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	7.30E-02	7.30E-02	ug/m3	49	1 / 2	0.14 - 0.14	7.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	6.30E-02 J	6.30E-02 J	ug/m3	49	1 / 2	0.27 - 0.27	6.30E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	6.00E-02 J	6.00E-02 J	ug/m3	49	1 / 2	0.24 - 0.24	6.00E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	1.40E-02 J	1.40E-02 J	ug/m3	49	1 / 2	0.27 - 0.27	1.40E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.00E+00 J	1.00E+00 J	ug/m3	49	1 / 2	0.36 - 0.36	1.00E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.60E+01	2.10E+01	ug/m3	49	2 / 2	-	2.10E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	5.60E-01	5.60E-01	ug/m3	49	1 / 2	0.29 - 0.29	5.60E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.70E+00	1.70E+00	ug/m3	49	1 / 1	-	1.70E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	2.10E-01	7.90E-01	ug/m3	49	2 / 2	-	7.90E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	2.20E-01	2.30E-01	ug/m3	49	2 / 2	-	2.30E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.40E-02 J	2.40E-02 J	ug/m3	49	1 / 2	0.16 - 0.16	2.40E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.40E-01	3.40E-01	ug/m3	49	1 / 1	-	3.40E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	7.90E-01	7.90E-01	ug/m3	49	1 / 1	-	7.90E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.70E-02 J	1.70E-02 J	ug/m3	49	1 / 2	0.15 - 0.15	1.70E-02	NA	1.00E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	6.30E-01	6.40E-01	ug/m3	49	2 / 2	-	6.40E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	2.90E-01 J	4.70E-01	ug/m3	49	2 / 2	-	4.70E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	2.10E+00	ug/m3	49	2 / 2	-	2.10E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	4.90E-01 J	6.90E-01	ug/m3	49	2 / 2	-	6.90E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	7.60E+00	7.60E+00	ug/m3	49	1 / 1	-	7.60E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.70E+02	3.90E+02	ug/m3	49	2 / 2	-	3.90E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.60E+01	1.60E+01	ug/m3	49	1 / 1	-	1.60E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	3.00E-01 J	6.30E-01	ug/m3	49	2 / 2	-	6.30E-01	NA	1.10E+00 c	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	76-13-1	Freon 113	3.50E-01		3.50E-01		ug/m3	49	1 / 1	-	3.50E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.50E+00	J	2.50E+00	J	ug/m3	49	1 / 2	0.72 - 0.72	2.50E+00	NA	2.10E+01	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.20E-01	J	3.20E-01	J	ug/m3	49	1 / 1	-	3.20E-01	NA	8.30E-02	c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	1.00E+00	J	1.00E+00	J	ug/m3	49	1 / 1	-	1.00E+00	NA	NA		NA	NA	NO	NTX
	123-86-4	n_Butyl Acetate	5.40E-01	J	5.40E-01	J	ug/m3	49	1 / 1	-	5.40E-01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	2.80E-01	J	5.40E-01	J	ug/m3	49	2 / 2	-	5.40E-01	NA	7.30E+01	n	NA	NA	NO	BSL
	115-07-1	Propene	1.30E+00		2.10E+01		ug/m3	49	2 / 2	-	2.10E+01	NA	3.10E+02	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.60E-01		1.60E-01		ug/m3	49	1 / 2	0.26 - 0.26	1.60E-01	NA	1.00E+02	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.20E-01		3.20E-01		ug/m3	49	1 / 2	0.12 - 0.12	3.20E-01	NA	4.20E+00	n	NA	NA	NO	BSL
	108-88-3	Toluene	1.40E+00		8.40E+00		ug/m3	49	2 / 2	-	8.40E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.50E-02		4.50E-02		ug/m3	49	1 / 2	0.15 - 0.15	4.50E-02	NA	2.10E-01	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.80E-01		1.00E+00		ug/m3	49	2 / 2	-	1.00E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01		4.50E-01		ug/m3	49	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.00E-01	J	4.90E-01		ug/m3	49	2 / 2	-	4.90E-01	NA	1.00E+01	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.20E+00		1.20E+00		ug/m3	49	1 / 2	0.5 - 0.5	1.20E+00	NA	1.00E+01	n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	9.50E-03	J	9.60E-03	J	ug/m3	50	2 / 4	0.0093 - 0.14	9.60E-03	NA	5.20E+02	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.00E-01	J	3.00E-01	J	ug/m3	50	4 / 4	-	3.00E-01	NA	6.30E+00	n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	5.00E-02		2.50E-01		ug/m3	50	4 / 4	-	2.50E-01	NA	1.10E-01	c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	1.50E-02	J	2.30E-02	J	ug/m3	50	3 / 4	0.16 - 0.16	2.30E-02	NA	4.20E-01	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.00E-02	J	5.60E-02	J	ug/m3	PMC-IN-50-01	3 / 4	0.3 - 0.3	5.60E-02	NA	6.30E+00	n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	2.60E-02	J	2.60E-02	J	ug/m3	PMC-IN-50-01	1 / 4	0.021 - 0.26	2.60E-02	NA	9.40E-02	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	5.80E-02		1.20E-01		ug/m3	PMC-IN-50-01	2 / 4	0.012 - 0.14	1.20E-01	NA	2.60E-01	c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.30E-02	J	2.30E-02	J	ug/m3	PMC-IN-50-01	1 / 4	0.013 - 0.3	2.30E-02	NA	5.60E-01	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	3.70E-01	J	1.00E+00	J	ug/m3	PMC-IN-50-01	3 / 4	0.39 - 0.39	1.00E+00	NA	5.20E+02	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	2.70E-01	J	2.70E-01	J	ug/m3	PMC-IN-50-01	1 / 4	0.1 - 0.3	2.70E-01	NA	3.10E+00	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	3.40E-01	J	3.50E-01	J	ug/m3	50	2 / 4	0.11 - 0.24	3.50E-01	NA	3.10E+02	n	NA	NA	NO	BSL
	67-64-1	Acetone	6.60E+00		4.40E+01		ug/m3	50	3 / 4	4 - 4	4.40E+01	NA	3.20E+03	n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.20E-01		9.30E-01		ug/m3	PMC-IN-50-01	3 / 4	0.32 - 0.32	9.30E-01	NA	2.10E-03	n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	7.30E+00		7.30E+00		ug/m3	50	1 / 1	-	7.30E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.10E-01		8.50E-01		ug/m3	50	4 / 4	-	8.50E-01	NA	3.60E-01	c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	5.70E-02		1.60E-01		ug/m3	PMC-IN-50-01	3 / 4	0.011 - 0.011	1.60E-01	NA	7.60E-02	c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.20E-02	J	3.20E-02	J	ug/m3	PMC-IN-50-01	3 / 4	0.17 - 0.17	3.20E-02	NA	5.20E-01	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.80E-01		3.80E-01		ug/m3	50	1 / 1	-	3.80E-01	NA	4.70E-01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	4.70E-01	J	5.50E-01	J	ug/m3	PMC-IN-50-02	2 / 3	0.38 - 0.38	5.50E-01	NA	5.20E+03	n	NA	NA	NO	BSL
	75-00-3	Chloroethane	1.80E-02	J	1.80E-02	J	ug/m3	PMC-IN-50-01	1 / 4	0.013 - 0.16	1.80E-02	NA	1.00E+03	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.10E-01	J	4.00E-01		ug/m3	PMC-IN-50-01	4 / 4	-	4.00E-01	NA	1.20E-01	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	3.50E-01		5.40E-01		ug/m3	50	4 / 4	-	5.40E-01	NA	9.40E+00	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00		2.10E+00		ug/m3	50	4 / 4	-	2.10E+00	NA	1.00E+01	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.70E-01		3.70E-01	J	ug/m3	50	4 / 4	-	3.70E-01	NA	6.30E+01	n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.00E+01		1.00E+01		ug/m3	50	1 / 1	-	1.00E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	5.50E+00	J	2.10E+03		ug/m3	50	4 / 4	-	2.10E+03	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.90E+00		3.90E+00		ug/m3	50	1 / 1	-	3.90E+00	NA	7.30E+00	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	7.00E-02	J	3.20E-01	J	ug/m3	50	4 / 4	-	3.20E-01	NA	1.10E+00	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01		3.60E-01		ug/m3	50	1 / 1	-	3.60E-01	NA	5.20E+02	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	6.90E-01	J	1.40E+00	J	ug/m3	PMC-IN-50-02	2 / 4	0.34 - 0.79	1.40E+00	NA	2.10E+01	n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	91-20-3	Naphthalene	4.80E-01 J	4.80E-01 J	ug/m3	50	1 / 1	-	4.80E-01	NA	8.30E-02 c	NA	NA	NO (4)	ASL (4)
	71-36-3	n-Butanol	6.30E-01 J	2.00E+00	ug/m3	PMC-IN-50-01	2 / 3	0.72 - 0.72	2.00E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	9.80E-01	9.80E-01	ug/m3	50	1 / 1	-	9.80E-01	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	5.60E-01 J	5.60E-01 J	ug/m3	50	1 / 1	-	5.60E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	2.10E-01 J	1.50E+00 J	ug/m3	50	4 / 4	-	1.50E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	115-07-1	Propene	4.40E-01 J	8.00E-01 J	ug/m3	PMC-IN-50-01	3 / 4	0.26 - 0.26	8.00E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	5.30E-02 J	3.30E-01 J	ug/m3	50	4 / 4	-	3.30E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.40E-02 J	4.50E-02	ug/m3	PMC-IN-50-02	3 / 4	0.13 - 0.13	4.50E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	8.00E-01	2.30E+00	ug/m3	50	4 / 4	-	2.30E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.30E-02 J	2.60E-01	ug/m3	50	4 / 4	-	2.60E-01	NA	2.10E-01 n	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	1.00E+00	1.10E+00	ug/m3	50, PMC-IN-50-0	4 / 4	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01	4.50E-01	ug/m3	50	3 / 3	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.90E+00 J	1.90E+00 J	ug/m3	PMC-IN-50-01	1 / 4	0.98 - 1.9	1.90E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.00E-01 J	3.20E-01 J	ug/m3	50	4 / 4	-	3.20E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.40E-01	8.60E-01 J	ug/m3	50	4 / 4	-	8.60E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.10E-02 J	1.10E-02 J	ug/m3	51	1 / 2	0.13 - 0.13	1.10E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	2.80E-02 J	2.80E-02 J	ug/m3	51	1 / 2	0.29 - 0.29	2.80E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.30E-01 J	3.90E-01 J	ug/m3	51	2 / 2	-	3.90E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	7.20E-02	1.70E-01 J	ug/m3	51	2 / 2	-	1.70E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	5.30E-02	5.30E-02	ug/m3	51	1 / 2	0.15 - 0.15	5.30E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	3.90E-02 J	3.90E-02 J	ug/m3	51	1 / 2	0.29 - 0.29	3.90E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	5.00E-02 J	5.00E-02 J	ug/m3	51	1 / 2	0.25 - 0.25	5.00E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	1.90E-02 J	1.90E-02 J	ug/m3	51	1 / 2	0.14 - 0.14	1.90E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	1.40E-02 J	1.40E-02 J	ug/m3	51	1 / 2	0.29 - 0.29	1.40E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.00E-01 J	5.00E-01 J	ug/m3	51	1 / 2	0.38 - 0.38	5.00E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	3.00E-01 J	3.00E-01 J	ug/m3	51	1 / 2	0.25 - 0.25	3.00E-01	NA	3.10E+00 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.80E+00	4.40E+01	ug/m3	51	2 / 2	-	4.40E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	3.60E-01	3.60E-01	ug/m3	51	1 / 2	0.3 - 0.3	3.60E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	6.70E+00	6.70E+00	ug/m3	51	1 / 1	-	6.70E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.30E-01	8.30E-01	ug/m3	51	2 / 2	-	8.30E-01	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	1.90E-01	4.60E-01	ug/m3	51	2 / 2	-	4.60E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	2.10E-02 J	2.10E-02 J	ug/m3	51	1 / 2	0.17 - 0.17	2.10E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.80E-01	3.80E-01	ug/m3	51	1 / 1	-	3.80E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	124-48-1	Chlorodibromomethane	2.00E-01	2.00E-01	ug/m3	51	1 / 1	-	2.00E-01	NA	NA	NA	NA	NO	NTX
	75-45-6	Chlorodifluoromethane	6.50E-01 J	6.50E-01 J	ug/m3	51	1 / 1	-	6.50E-01	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	4.80E-01	1.40E+00	ug/m3	51	2 / 2	-	1.40E+00	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	4.00E-01	4.20E-01	ug/m3	51	2 / 2	-	4.20E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	2.10E+00	ug/m3	51	2 / 2	-	2.10E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	2.80E-01	5.10E-01 J	ug/m3	51	2 / 2	-	5.10E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.30E+01	6.30E+01	ug/m3	51	1 / 1	-	6.30E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	1.20E+02	1.60E+03	ug/m3	51	2 / 2	-	1.60E+03	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.40E+01	3.40E+01	ug/m3	51	1 / 1	-	3.40E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.60E-01	3.90E-01 J	ug/m3	51	2 / 2	-	3.90E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.30E-01	3.30E-01	ug/m3	51	1 / 1	-	3.30E-01	NA	5.20E+02 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.60E+01	2.00E+01	ug/m3	51	2 / 2	-	2.00E+01	NA	2.10E+01 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	123-86-4	n_Butyl Acetate	1.70E+01	1.70E+01	ug/m3	51	1 / 1	-	1.70E+01	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	5.60E-01 J	5.60E-01 J	ug/m3	51	1 / 1	-	5.60E-01	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	2.90E-01 J	5.70E-01 J	ug/m3	51	2 / 2	-	5.70E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	111-65-9	Octane	3.90E-01 J	3.90E-01 J	ug/m3	51	1 / 1	-	3.90E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	4.20E+00	5.00E+00	ug/m3	51	2 / 2	-	5.00E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.00E-01 J	3.80E-01 J	ug/m3	51	2 / 2	-	3.80E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.30E-02	1.40E-01 J	ug/m3	51	2 / 2	-	1.40E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	9.30E-01	2.50E+00	ug/m3	51	2 / 2	-	2.50E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.60E-02 J	2.60E-02 J	ug/m3	51	1 / 2	0.16 - 0.16	2.60E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.10E-01	1.10E+00	ug/m3	51	2 / 2	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifluoroethane	4.50E-01	4.50E-01	ug/m3	51	1 / 1	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	2.20E+00 J	2.20E+00 J	ug/m3	51	1 / 2	1.2 - 1.2	2.20E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	1.40E-01 J	3.50E-01 J	ug/m3	51	2 / 2	-	3.50E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	3.70E-01	9.60E-01	ug/m3	51	2 / 2	-	9.60E-01	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted]	71-55-6	1,1,1-Trichloroethane	1.00E-02 J	7.40E-02	ug/m3	PMC-IN-52-02	2 / 4	0.0097 - 0.14	7.40E-02	NA	5.20E+02 n	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	2.30E-01 J	2.30E-01 J	ug/m3	PMC-IN-52-01	1 / 3	0.11 - 0.23	2.30E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.80E-01	9.00E-01	ug/m3	PMC-IN-52-01	4 / 4	-	9.00E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	95-50-1	1,2-Dichlorobenzene	1.40E-02 J	1.40E-02 J	ug/m3	PMC-IN-52-01	1 / 4	0.013 - 0.18	1.40E-02	NA	2.10E+01 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	4.40E-02	2.70E-01	ug/m3	52	4 / 4	-	2.70E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	2.10E-02 J	2.50E-02 J	ug/m3	PMC-IN-52-01	2 / 4	0.011 - 0.16	2.50E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.80E-02 J	2.40E-01	ug/m3	PMC-IN-52-01	3 / 4	0.3 - 0.3	2.40E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	5.20E-02 J	8.60E-02	ug/m3	52	2 / 4	0.022 - 0.27	8.60E-02	NA	9.40E-02 c	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	4.90E-02	4.90E-02	ug/m3	52	1 / 4	0.013 - 0.14	4.90E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	2.90E-02 J	6.20E-02	ug/m3	PMC-IN-52-01	2 / 4	0.012 - 0.14	6.20E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.10E-02 J	3.30E-02 J	ug/m3	PMC-IN-52-01	2 / 4	0.013 - 0.3	3.30E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	6.20E-01 J	1.50E+00 J	ug/m3	PMC-IN-52-01	3 / 4	0.4 - 0.4	1.50E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.20E-01 J	1.20E-01 J	ug/m3	PMC-IN-52-02	1 / 4	0.11 - 0.3	1.20E-01	NA	3.10E+00 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.00E+00	2.10E+01	ug/m3	52	3 / 4	3.9 - 3.9	2.10E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	1.10E-01 J	7.00E-01	ug/m3	52	3 / 4	0.32 - 0.32	7.00E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	80-56-8	alpha-Pinene	1.30E+00	1.30E+00	ug/m3	52	1 / 1	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	4.30E-01	1.50E+00	ug/m3	52	4 / 4	-	1.50E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-27-4	Bromodichloromethane	9.50E-02	2.90E-01	ug/m3	52	2 / 4	0.011 - 0.011	2.90E-01	NA	7.60E-02 c	NA	NA	NO (4)	ASL (4)
	74-83-9	Bromomethane	1.90E-02 J	2.00E-02 J	ug/m3	N-52-01, PMC-IN	3 / 4	0.18 - 0.18	2.00E-02	NA	5.20E-01 n	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.90E-01 J	3.90E-01 J	ug/m3	PMC-IN-52-01	1 / 4	0.23 - 0.29	3.90E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.80E-01	3.80E-01	ug/m3	52	1 / 1	-	3.80E-01	NA	4.70E-01 c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	5.90E-01 J	2.50E+00	ug/m3	52	2 / 3	0.39 - 0.39	2.50E+00	NA	5.20E+03 n	NA	NA	NO	BSL
	67-66-3	Chloroform	7.60E-02 J	5.50E-01	ug/m3	52	4 / 4	-	5.50E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	7.90E-02	4.20E-01	ug/m3	52	4 / 4	-	4.20E-01	NA	9.40E+00 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	2.60E-01 J	9.70E-01 J	ug/m3	52	3 / 4	0.44 - 0.44	9.70E-01	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.90E+00	2.10E+00	ug/m3	52	4 / 4	-	2.10E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.30E+00	3.70E+00	ug/m3	PMC-IN-52-01	4 / 4	-	3.70E+00	NA	6.30E+01 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.40E+00	6.40E+00	ug/m3	52	1 / 1	-	6.40E+00	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	3.20E+00 J	3.10E+02	ug/m3	52	4 / 4	-	3.10E+02	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.80E+01	2.80E+01	ug/m3	52	1 / 1	-	2.80E+01	NA	7.30E+00 n	NA	NA	NO (4)	ASL (4)
	100-41-4	Ethylbenzene	1.60E-01 J	7.10E-01	ug/m3	PMC-IN-52-01	4 / 4	-	7.10E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.60E-01	3.60E-01	ug/m3	52	1 / 1	-	3.60E-01	NA	5.20E+02 n	NA	NA	NO	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (INDOOR AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.40E+00 J	4.70E+00	ug/m3	PMC-IN-52-01	4 / 4	-	4.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	8.40E-01 J	1.50E+00 J	ug/m3	PMC-IN-52-01	3 / 3	-	1.50E+00	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	7.60E+00	7.60E+00	ug/m3	52	1 / 1	-	7.60E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	1.50E+00	1.50E+00	ug/m3	52	1 / 1	-	1.50E+00	NA	4.20E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.00E+00	7.50E+00	ug/m3	52	4 / 4	-	7.50E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	111-84-2	Nonane	4.00E-01 J	4.00E-01 J	ug/m3	52	1 / 1	-	4.00E-01	NA	2.10E+00 n	NA	NA	NO	BSL
	111-65-9	Octane	4.30E-01 J	4.30E-01 J	ug/m3	52	1 / 1	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	8.30E-01	1.80E+00	ug/m3	PMC-IN-52-01	3 / 4	0.27 - 0.27	1.80E+00	NA	3.10E+02 n	NA	NA	NO	BSL
	100-42-5	Styrene	2.80E-02 J	1.80E-01	ug/m3	PMC-IN-52-01	3 / 4	0.29 - 0.29	1.80E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.20E-02 J	3.20E-01	ug/m3	PMC-IN-52-02	3 / 4	0.14 - 0.14	3.20E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	2.70E+00	8.90E+00	ug/m3	PMC-IN-52-01	4 / 4	-	8.90E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.40E-02	4.40E-02	ug/m3	PMC-IN-52-02	1 / 4	0.013 - 0.17	4.40E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.00E+00	ug/m3	-IN-52-01, PMC-	4 / 4	-	1.00E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01	4.30E-01	ug/m3	52	3 / 3	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	3.30E+00 J	3.30E+00 J	ug/m3	52	1 / 4	1.2 - 2	3.30E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	2.90E-01	1.20E+00	ug/m3	PMC-IN-52-01	4 / 4	-	1.20E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	5.50E-01	2.80E+00	ug/m3	PMC-IN-52-01	4 / 4	-	2.80E+00	NA	1.00E+01 n	NA	NA	NO	BSL

Notes:

(1) Maximum concentration is used for screening.

(2) Regional Screening Levels for Residential Air (November 2018). Concentrations based on non-carcinogenic health effects are based on HQ=0.1.
The RSL for Dichloropropene is used for trans-1,3-Dichloropropene.
The RSL for m-Xylene is used for m,p-Xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Although this chemical exceeded the screening value, it is not identified as a COPC. Based on the MLE evaluation (Attachment F, Table 1), this chemical is not a site-related contributor to the VI pathway or the VI pathway is not likely complete.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample
Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available
RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion
Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (Crawl Space Air) [redacted]	526-73-8	1,2,3-Trimethylbenzene	0.34 J	0.44 J	ug/m3	2 / 2	-	6.3	4.40E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	1.5	2.3	ug/m3	2 / 2	-	6.3	2.30E+00	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	0.42	0.47	ug/m3	2 / 2	-	0.11	4.70E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	0.029 J	0.071	ug/m3	2 / 2	-	0.42	7.10E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.36	0.57	ug/m3	2 / 2	-	6.3	5.70E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	0.033 J	0.14	ug/m3	2 / 2	-	0.26	1.40E-01	NA	2.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1 J	1.8	ug/m3	2 / 2	-	520	1.80E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	0.31 J	0.31 J	ug/m3	1 / 2	0.12 - 0.12	310	3.10E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	19	22	ug/m3	2 / 2	-	3200	2.20E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	0.31 J	0.4 J	ug/m3	2 / 2	-	6.3	4.00E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-02-8	Acrolein	0.28 J	0.32 J	ug/m3	2 / 2	-	0.0021	3.20E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	2.6	3.2	ug/m3	2 / 2	-	0.36	3.20E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-15-0	Carbon Disulfide	0.26 J	0.33 J	ug/m3	2 / 2	-	73	3.30E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	67-66-3	Chloroform	0.13 J	0.13 J	ug/m3	2 / 2	-	0.12	1.30E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	110-82-7	Cyclohexane	0.68 J	1.8	ug/m3	2 / 2	-	630	1.80E+00	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.4 J	3.9 J	ug/m3	2 / 2	-	10	3.90E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	0.57	0.86	ug/m3	2 / 2	-	63	8.60E-01	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	16	29	ug/m3	2 / 2	-		2.90E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.2	2.1	ug/m3	2 / 2	-	1.1	2.10E+00	NA	1.10E+00 c	NA	NA	NO (4)	ASL (4)
	67-63-0	Isopropyl Alcohol (Isopropanol)	0.91 J	2.4 J	ug/m3	2 / 2	-	21	2.40E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	4.9	13	ug/m3	2 / 2	-	73	1.30E+01	NA	7.30E+01 n	NA	NA	NO	BSL
	100-42-5	Styrene	0.07 J	0.13 J	ug/m3	2 / 2	-	100	1.30E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	0.062	0.067	ug/m3	2 / 2	-	4.2	6.70E-02	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	9.2	25	ug/m3	2 / 2	-	520	2.50E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	0.02 J	0.045	ug/m3	2 / 2	-	0.21	4.50E-02	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.7	2	ug/m3	2 / 2	-		2.00E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	0.41	0.42	ug/m3	2 / 2	-		4.20E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.7	2.8	ug/m3	2 / 2	-	10	2.80E+00	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.5	7.5	ug/m3	2 / 2	-	10	7.50E+00	NA	1.00E+01 n	NA	NA	NO	BSL
Indoor Air [redacted] (Crawl Space Air) [redacted]	95-63-6	1,2,4-Trimethylbenzene	0.21	0.21	ug/m3	PMC-CS-36	1 / 1	-	2.10E-01	NA	6.30E+00 n	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	0.5	0.5	ug/m3	PMC-CS-36	1 / 1	-	5.00E-01	NA	1.10E-01 c	NA	NA	NO (4)	ASL (4)
	78-87-5	1,2-Dichloropropane	0.092	0.092	ug/m3	PMC-CS-36	1 / 1	-	9.20E-02	NA	4.20E-01 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.072 J	0.072 J	ug/m3	PMC-CS-36	1 / 1	-	7.20E-02	NA	6.30E+00 n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	0.074	0.074	ug/m3	PMC-CS-36	1 / 1	-	7.40E-02	NA	2.60E-01 c	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	0.054 J	0.054 J	ug/m3	PMC-CS-36	1 / 1	-	5.40E-02	NA	5.60E-01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	4.2	4.2	ug/m3	PMC-CS-36	1 / 1	-	4.20E+00	NA	5.20E+02 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	0.75 J	0.75 J	ug/m3	PMC-CS-36	1 / 1	-	7.50E-01	NA	3.10E+00 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	0.53 J	0.53 J	ug/m3	PMC-CS-36	1 / 1	-	5.30E-01	NA	3.10E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	29	29	ug/m3	PMC-CS-36	1 / 1	-	2.90E+01	NA	3.20E+03 n	NA	NA	NO	BSL
	107-02-8	Acrolein	0.53	0.53	ug/m3	PMC-CS-36	1 / 1	-	5.30E-01	NA	2.10E-03 n	NA	NA	NO (4)	ASL (4)
	71-43-2	Benzene	1.5	1.5	ug/m3	PMC-CS-36	1 / 1	-	1.50E+00	NA	3.60E-01 c	NA	NA	NO (5)	ASL (5)
	75-15-0	Carbon Disulfide	0.36 J	0.36 J	ug/m3	PMC-CS-36	1 / 1	-	3.60E-01	NA	7.30E+01 n	NA	NA	NO	BSL
	67-66-3	Chloroform	0.19	0.19	ug/m3	PMC-CS-36	1 / 1	-	1.90E-01	NA	1.20E-01 c	NA	NA	NO (4)	ASL (4)
	110-82-7	Cyclohexane	1 J	1 J	ug/m3	PMC-CS-36	1 / 1	-	1.00E+00	NA	6.30E+02 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	3.7 J	3.7 J	ug/m3	PMC-CS-36	1 / 1	-	3.70E+00	NA	1.00E+01 n	NA	NA	NO	BSL

TABLE 2.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (CRAWL SPACE AIR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Crawl Space Air
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	75-09-2	Dichloromethane	1.2	1.2	ug/m^3	PMC-CS-36	1 / 1	-	1.20E+00	NA	6.30E+01 n	NA	NA	NO	BSL
	64-17-5	Ethanol	14	14	ug/m^3	PMC-CS-36	1 / 1	-	1.40E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	0.28	0.28	ug/m^3	PMC-CS-36	1 / 1	-	2.80E-01	NA	1.10E+00 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.7	3.7	ug/m^3	PMC-CS-36	1 / 1	-	3.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	0.89 J	0.89 J	ug/m^3	PMC-CS-36	1 / 1	-	8.90E-01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	6.6	6.6	ug/m^3	PMC-CS-36	1 / 1	-	6.60E+00	NA	7.30E+01 n	NA	NA	NO	BSL
	100-42-5	Styrene	0.23	0.23	ug/m^3	PMC-CS-36	1 / 1	-	2.30E-01	NA	1.00E+02 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	0.22	0.22	ug/m^3	PMC-CS-36	1 / 1	-	2.20E-01	NA	4.20E+00 n	NA	NA	NO	BSL
	108-88-3	Toluene	18	18	ug/m^3	PMC-CS-36	1 / 1	-	1.80E+01	NA	5.20E+02 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	0.13	0.13	ug/m^3	PMC-CS-36	1 / 1	-	1.30E-01	NA	2.10E-01 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.3	1.3	ug/m^3	PMC-CS-36	1 / 1	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	0.41	0.41	ug/m^3	PMC-CS-36	1 / 1	-	4.10E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	3.7 J	3.7 J	ug/m^3	PMC-CS-36	1 / 1	-	3.70E+00	NA	2.10E+01 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	0.39	0.39	ug/m^3	PMC-CS-36	1 / 1	-	3.90E-01	NA	1.00E+01 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	0.9	0.9	ug/m^3	PMC-CS-36	1 / 1	-	9.00E-01	NA	1.00E+01 n	NA	NA	NO	BSL

Notes:

(1) Maximum concentration is used for screening.

(2) Regional Screening Levels for Residential Air (November 2018). Concentrations based on non-carcinogenic health effects are based on HQ=0.1.
The RSL for m-Xylene is used for m,p-Xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Although this chemical exceeded the screening value, it is not identified as a COPC. Based on the MLE evaluation (Attachment F, Table 1), this chemical is not a site-related contributor to the VI pathway or the VI pathway is not likely complete.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample
Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available
RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion
Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Medium: Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor) (6)	95-63-6	1,2,4-Trimethylbenzene	5.20E-01 J	5.20E-01 J	ug/m3	58	1 / 2	0.56 - 0.56	5.20E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.90E-01 J	5.90E-01 J	ug/m3	58	1 / 2	0.79 - 0.79	5.90E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.40E+00	8.50E+01	ug/m3	58	2 / 2	-	8.50E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.20E+00	1.60E+01	ug/m3	58	2 / 2	-	1.60E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	3.80E-01 J	3.80E-01 J	ug/m3	58	1 / 2	0.64 - 0.64	3.80E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	1.30E+00	ug/m3	58	2 / 2	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	5.00E-01 J	5.00E-01 J	ug/m3	58	1 / 1	-	5.00E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.50E+00 J	1.50E+00 J	ug/m3	58	1 / 2	2.4 - 2.4	1.50E+00	NA	6.95E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor) (6)	79-34-5	1,1,2,2-Tetrachloroethane	1.50E+00 J	1.50E+00 J	ug/m3	SVB-03	1 / 6	0.26 - 2.7	1.50E+00	NA	1.61E+00 c	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	1.30E+00 J	2.60E+00	ug/m3	SVB-03	2 / 6	0.25 - 2.7	2.60E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	7.30E-01 J	6.60E+00	ug/m3	SVB-03	3 / 6	0.26 - 0.28	6.60E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	6.70E-01 J	3.10E+00	ug/m3	SVB-03	2 / 6	0.27 - 2.8	3.10E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	106-99-0	1,3-Butadiene	8.00E-01 J	8.00E-01 J	ug/m3	SVB-03	1 / 6	0.3 - 3.3	8.00E-01	NA	3.12E+00 c	NA	NA	NO	BSL
	67-64-1	Acetone	9.70E+00 J	9.70E+00 J	ug/m3	SVB-03	1 / 6	4.1 - 44	9.70E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	3.00E-01 J	4.90E+01	ug/m3	SVB-03	4 / 6	0.28 - 0.29	4.90E+01	NA	1.20E+01 c	NA	NA	YES	ASL
	75-15-0	Carbon Disulfide	2.90E+00 J	3.40E+02	ug/m3	SVB-03	6 / 6	-	3.40E+02	NA	2.43E+04 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.50E+00 J	3.50E+01 J	ug/m3	SVB-03	3 / 6	0.52 - 0.56	3.50E+01	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	2.60E+00	ug/m3	SVB-03	5 / 6	3.2 - 3.2	2.60E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	2.20E+00 J	3.40E+00 J	ug/m3	SVB-03	2 / 6	1.4 - 33	3.40E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	1.90E+00 J	1.00E+01 J	ug/m3	SVB-03	3 / 6	0.26 - 0.28	1.00E+01	NA	3.74E+01 c	NA	NA	NO	BSL
	71-36-3	n-Butanol	8.90E-01 J	3.50E+01 J	ug/m3	SVB-03	5 / 6	0.52 - 0.52	3.50E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	2.30E+00 J	2.60E+01	ug/m3	SVB-03	3 / 6	0.38 - 0.41	2.60E+01	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	2.40E+00	8.10E+01	ug/m3	SVB-03	3 / 6	0.45 - 0.49	8.10E+01	NA	1.04E+05 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.90E-01 J	1.20E+01	ug/m3	SVB-03	5 / 6	2.6 - 2.6	1.20E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	8.60E-01 J	9.90E+01	ug/m3	SVB-03	6 / 6	-	9.90E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	4.10E-01 J	9.70E+00 J	ug/m3	SVB-03	5 / 6	0.29 - 0.29	9.70E+00	NA	1.59E+01 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	1.30E+00 J	ug/m3	SVB-03	5 / 6	3 - 3	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.20E-01 J	4.50E-01 J	ug/m3	SVB-03	3 / 6	0.31 - 2.8	4.50E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	3.10E-01 J	1.40E+01 J	ug/m3	SVB-03	4 / 6	0.27 - 0.29	1.40E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.40E+00 J	2.00E+01 J	ug/m3	SVB-03	3 / 6	0.48 - 0.53	2.00E+01	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor) (6)	71-55-6	1,1,1-Trichloroethane	3.80E-01 J	1.10E+00 J	ug/m3	SVB-01-14	3 / 4	0.42 - 0.42	1.10E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	8.60E-01 J	4.80E+00	ug/m3	SVB-01	2 / 4	0.28 - 0.28	4.80E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	3.20E-01 J	8.80E+00	ug/m3	SVB-01	3 / 4	0.29 - 0.29	8.80E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.90E-01 J	3.40E+00	ug/m3	SVB-01	2 / 4	0.29 - 0.3	3.40E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.10E-01 J	8.20E-01 J	ug/m3	SVB-01	3 / 4	0.7 - 0.7	8.20E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	8.70E-01 J	8.70E-01 J	ug/m3	SVB-01-5.8	1 / 4	0.26 - 0.42	8.70E-01	NA	1.04E+03 n	NA	NA	NO	BSL
	67-64-1	Acetone	5.80E+00 J	1.60E+01 J	ug/m3	SVB-01-5.8	3 / 4	7.6 - 7.6	1.60E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	3.40E-01 J	2.90E+01	ug/m3	SVB-01	3 / 4	0.3 - 0.3	2.90E+01	NA	1.20E+01 c	NA	NA	NO (5)	ASL (5)
	75-15-0	Carbon Disulfide	1.70E+01	4.20E+02	ug/m3	SVB-01	3 / 4	0.62 - 0.62	4.20E+02	NA	2.43E+04 n	NA	NA	NO	BSL
	67-66-3	Chloroform	5.20E-01 J	2.30E+00	ug/m3	SVB-01-14	4 / 4	-	2.30E+00	NA	4.07E+00 c	NA	NA	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	3.90E-01 J	4.50E-01 J	ug/m3	SVB-01	2 / 4	0.28 - 0.47	4.50E-01	NA	NA	NA	NA	NO	NTX
	110-82-7	Cyclohexane	9.90E-01 J	3.90E+01	ug/m3	SVB-01	3 / 4	0.58 - 0.58	3.90E+01	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	2.50E+00	ug/m3	SVB-01-5.8	4 / 4	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	4.20E+00 J	6.10E+00 J	ug/m3	SVB-01-5.8	2 / 4	21 - 33	6.10E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Medium: Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
	100-41-4	Ethylbenzene	3.30E-01 J	8.80E+00	ug/m^3	SVB-01	3 / 4	0.29 - 0.29	8.80E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.80E+00 J	1.80E+00 J	ug/m^3	SVB-01-14	1 / 4	0.83 - 1.4	1.80E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.20E+00 J	4.50E+01 J	ug/m^3	SVB-01-5.8	3 / 4	0.88 - 0.88	4.50E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	1.00E+00 J	3.70E+01	ug/m^3	SVB-01	2 / 4	0.42 - 0.43	3.70E+01	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	1.20E+00 J	3.60E+01	ug/m^3	SVB-01	2 / 4	0.49 - 0.5	3.60E+01	NA	1.04E+05 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.90E+01	1.20E+02	ug/m^3	SVB-01-14	4 / 4	-	1.20E+02	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.30E+00 J	7.50E+01	ug/m^3	SVB-01	4 / 4	-	7.50E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	6.20E+00	5.40E+01	ug/m^3	SVB-01-14	4 / 4	-	5.40E+01	NA	1.59E+01 c	NA	NA	NO (5)	ASL (5)
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.40E+00 J	ug/m^3	SVB-01	4 / 4	-	1.40E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01 J	3.90E-01 J	ug/m^3	SVB-01-14	2 / 4	0.3 - 0.48	3.90E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.00E+00 J	1.20E+01	ug/m^3	SVB-01	3 / 4	0.3 - 0.3	1.20E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.40E+00 J	2.10E+01	ug/m^3	SVB-01	3 / 4	0.54 - 0.54	2.10E+01	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor) (6)	67-64-1	Acetone	4.00E+00 J	4.00E+00 J	ug/m^3	50	1 / 1	-	4.00E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	67-66-3	Chloroform	3.00E+00	3.00E+00	ug/m^3	50	1 / 1	-	3.00E+00	NA	4.07E+00 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	2.20E+00	ug/m^3	50	1 / 1	-	2.20E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	5.80E-01 J	5.80E-01 J	ug/m^3	50	1 / 1	-	5.80E-01	NA	3.60E+02 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	1.00E+00 J	ug/m^3	50	1 / 1	-	1.00E+00	NA	NA	NA	NA	NO	NTX

Notes:

(1) Maximum concentration is used for screening.

(2) Vapor Intrusion Screening Levels for Residential Target Subslab and Exterior Soil Vapor (November 2018).
Concentrations for non-carcinogenic health effects are based on HQ=1.
The SL for m-xylene was used for m,p-xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Although this chemical exceeded the screening value, it is not identified as a COPC. Based on the MLE evaluation (Attachment F, Table 1), this chemical is not a site-related contributor to the VI pathway or the VI pathway is not likely complete.

(6) Access to the property was not granted. The nearest exterior soil vapor sampling location(s) will be used to evaluate the vapor intrusion pathway at this property for both current and future exposures.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample

Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available

RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion

Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	71-55-6	1,1,1-Trichloroethane	4.70E-01	1.15E+00	ug/m3	SS-01-01	2 / 9	0.26 - 1.11	1.15E+00	NA	1.74E+05	n	NA	NA	NO	BSL
[redacted]	95-63-6	1,2,4-Trimethylbenzene	6.40E-01 J	2.40E+00	ug/m3	1	5 / 9	0.68 - 1	2.40E+00	NA	2.09E+03	n	NA	NA	NO	BSL
(from Subslab Soil Vapor)	541-73-1	1,3-Dichlorobenzene	2.10E+00	2.50E+00	ug/m3	1	2 / 9	0.14 - 1.22	2.50E+00	NA	8.51E+00	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.70E-01 J	1.20E+00 J	ug/m3	PMC-01-SS01	2 / 9	0.6 - 9.1	1.20E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	4.10E-01 J	4.90E-01 J	ug/m3	PMC-01-SS02	2 / 9	0.68 - 0.91	4.90E-01	NA	1.04E+03	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	3.90E-01 J	5.30E-01 J	ug/m3	PMC-01-SS01	2 / 9	0.68 - 0.91	5.30E-01	NA	1.04E+05	n	NA	NA	NO	BSL
	67-64-1	Acetone	8.50E+00 J	1.10E+01 J	ug/m3	PMC-01-SS01	4 / 7	6.8 - 9.1	1.10E+01	NA	1.07E+06	n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	8.80E-01	8.80E-01	ug/m3	1	1 / 7	0.51 - 0.91	8.80E-01	NA	2.09E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.70E+00	1.10E+01	ug/m3	1	5 / 5	-	1.10E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	2.80E-01	9.70E-01	ug/m3	1	2 / 9	0.3 - 0.91	9.70E-01	NA	1.20E+01	c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	2.60E+01 J	2.60E+01 J	ug/m3	PMC-01-SS01	1 / 9	0.62 - 9.1	2.60E+01	NA	2.43E+04	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.20E-01	3.20E-01	ug/m3	1	1 / 5	0.79 - 0.91	3.20E-01	NA	1.56E+01	c	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	9.90E-01 J	9.90E-01 J	ug/m3	PMC-01-SS02	1 / 2	0.99 - 0.99	9.90E-01	NA	1.74E+06	n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.50E+00	1.01E+01	ug/m3	SS-01-01	7 / 9	0.79 - 0.79	1.01E+01	NA	4.07E+00	c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	5.20E-01	5.20E-01	ug/m3	SS-01-02	1 / 9	0.27 - 0.91	5.20E-01	NA	3.13E+03	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	3.24E+00 J	ug/m3	SS-01-02	9 / 9	-	3.24E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.40E+00	3.40E+00	ug/m3	1	1 / 9	0.59 - 0.91	3.40E+00	NA	3.38E+03	c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.70E+00	1.40E+02	ug/m3	1	5 / 5	-	1.40E+02	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	4.50E+00 J	2.30E+01	ug/m3	1	7 / 7	-	2.30E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.30E+00	1.50E+02	ug/m3	1	5 / 5	-	1.50E+02	NA	2.43E+03	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.20E-01 J	1.80E+00	ug/m3	1	3 / 9	0.3 - 0.88	1.80E+00	NA	3.74E+01	c	NA	NA	NO	BSL
	76-13-1	Freon 113	4.30E-01	4.30E-01	ug/m3	1	1 / 7	0.79 - 1.55	4.30E-01	NA	1.74E+05	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.70E+00 J	1.80E+00 J	ug/m3	PMC-01-SS02	2 / 7	6.8 - 9.1	1.80E+00	NA	6.95E+03	n	NA	NA	NO	BSL
	1634-04-4	Methyl tert-butyl ether (MTBE)	8.10E-01	8.10E-01	ug/m3	1	1 / 9	0.14 - 0.91	8.10E-01	NA	3.60E+02	c	NA	NA	NO	BSL
	91-20-3	Naphthalene	2.20E+00	2.60E+00	ug/m3	1	2 / 5	0.68 - 0.79	2.60E+00	NA	2.75E+00	c	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.80E+01 J	3.30E+01	ug/m3	PMC-01-SS02	2 / 2	-	3.30E+01	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.20E+00	1.40E+00	ug/m3	1	2 / 5	0.68 - 0.79	1.40E+00	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	1.20E+00	1.20E+00	ug/m3	1	1 / 5	0.68 - 0.91	1.20E+00	NA	1.39E+04	n	NA	NA	NO	BSL
	115-07-1	Propene	9.90E-01	1.70E+00	ug/m3	1	4 / 7	0.51 - 0.91	1.70E+00	NA	1.04E+05	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.40E+00	1.40E+00	ug/m3	1	2 / 9	0.34 - 0.86	1.40E+00	NA	3.48E+04	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.70E+01	1.90E+02	ug/m3	1	7 / 9	0.79 - 0.79	1.90E+02	NA	3.60E+02	c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.40E+00	9.40E+00	ug/m3	1	5 / 5	-	9.40E+00	NA	6.95E+04	n	NA	NA	NO	BSL
	108-88-3	Toluene	2.14E+00	1.10E+01	ug/m3	1	9 / 9	-	1.10E+01	NA	1.74E+05	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	3.10E+00	2.10E+01	ug/m3	1	7 / 9	0.79 - 0.79	2.10E+01	NA	1.59E+01	c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.00E+00	3.80E+00	ug/m3	1	8 / 9	1.14 - 1.14	3.80E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01 J	4.50E-01 J	ug/m3	PMC-01-SS01	2 / 2	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	5.50E-01 J	2.60E+00	ug/m3	1	4 / 9	0.68 - 0.88	2.60E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.10E+00	5.60E+00	ug/m3	1	8 / 9	1.6 - 1.6	5.60E+00	NA	3.48E+03	n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	71-55-6	1,1,1-Trichloroethane	6.60E-01	1.86E+00	ug/m3	SS-02-01	3 / 5	0.24 - 0.24	1.86E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	3.50E-01 J	1.45E+00	ug/m3	SS-02-01	4 / 5	1 - 1	1.45E+00	NA	2.09E+03	n	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	4.90E-01	4.90E-01	ug/m3	2	1 / 5	0.3 - 1.22	4.90E-01	NA	8.51E+00	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.90E-01	1.60E+00 J	ug/m3	PMC-02-SS01	2 / 5	0.4 - 8.4	1.60E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	3.80E-01 J	3.80E-01 J	ug/m3	PMC-02-SS02	1 / 5	0.24 - 0.84	3.80E-01	NA	1.04E+03	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	3.50E-01 J	3.50E-01 J	ug/m3	PMC-02-SS02	1 / 5	0.27 - 0.84	3.50E-01	NA	1.04E+05	n	NA	NA	NO	BSL
	67-64-1	Acetone	6.70E+00 J	3.10E+01	ug/m3	PMC-02-SS01	3 / 3	-	3.10E+01	NA	1.07E+06	n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	4.80E-01 J	4.80E-01 J	ug/m3	PMC-02-SS02	1 / 3	0.47 - 0.84	4.80E-01	NA	2.09E+03	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.30E+01	1.30E+01	ug/m3	2	1 / 1	-	1.30E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	3.90E-01	3.90E-01	ug/m3	2	1 / 5	0.28 - 0.65	3.90E-01	NA	1.20E+01	c	NA	NA	NO	BSL
	75-27-4	Bromodichloromethane	9.60E-01	2.21E+00 J	ug/m3	SS-02-01	3 / 5	0.28 - 1.36	2.21E+00	NA	2.53E+00	c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	5.90E+01 J	5.90E+01 J	ug/m3	PMC-02-SS01	1 / 5	0.58 - 8.4	5.90E+01	NA	2.43E+04	n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	3.80E-01	3.80E-01	ug/m3	2	1 / 1	-	3.80E-01	NA	1.56E+01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.39E+01	8.70E+01	ug/m3	PMC-02-SS02	5 / 5	-	8.70E+01	NA	4.07E+00	c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	1.98E+00 J	4.50E+00	ug/m3	2	5 / 5	-	4.50E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.70E+00 J	2.50E+00	ug/m3	2	2 / 5	0.55 - 0.7	2.50E+00	NA	3.38E+03	c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	3.50E+00	3.50E+00	ug/m3	2	1 / 1	-	3.50E+00	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	1.80E+00 J	2.20E+01	ug/m3	2	3 / 3	-	2.20E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.90E+01	2.90E+01	ug/m3	2	1 / 1	-	2.90E+01	NA	2.43E+03	n	NA	NA	NO	BSL
	76-13-1	Freon 113	3.70E-01	3.70E-01	ug/m3	2	1 / 3	1.55 - 1.55	3.70E-01	NA	1.74E+05	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	4.70E+00 J	4.70E+00 J	ug/m3	PMC-02-SS01	1 / 3	0.79 - 8.4	4.70E+00	NA	6.95E+03	n	NA	NA	NO	BSL
	115-07-1	Propene	2.20E+00	2.20E+00	ug/m3	2	1 / 3	0.47 - 0.47	2.20E+00	NA	1.04E+05	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.50E+00	1.50E+00	ug/m3	2	1 / 5	0.31 - 0.86	1.50E+00	NA	3.48E+04	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.70E+01	1.80E+02	ug/m3	PMC-02-SS02	5 / 5	-	1.80E+02	NA	3.60E+02	c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	9.70E+00	9.70E+00	ug/m3	2	1 / 1	-	9.70E+00	NA	6.95E+04	n	NA	NA	NO	BSL
	108-88-3	Toluene	2.47E+00	3.10E+00	ug/m3	2	4 / 5	1.9 - 1.9	3.10E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.90E+00	5.60E+01	ug/m3	PMC-02-SS01	5 / 5	-	5.60E+01	NA	1.59E+01	c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00 J,+	1.90E+00	ug/m3	PMC-02-SS02	4 / 5	1.14 - 1.14	1.90E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.30E-01 J	4.30E-01 J	ug/m3	PMC-02-SS02	2 / 2	-	4.30E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	3.20E-01 J	1.00E+00	ug/m3	2	3 / 5	0.88 - 0.88	1.00E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	6.50E-01 J	2.60E+00	ug/m3	2	5 / 5	-	2.60E+00	NA	3.48E+03	n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	71-55-6	1,1,1-Trichloroethane	8.20E-01	1.67E+00	ug/m3	SS-03-01	3 / 9	0.26 - 0.86	1.67E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	5.50E-01 J	2.30E+00	ug/m3	3	5 / 9	0.77 - 1	2.30E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	3.30E+00	3.50E+00	ug/m3	3	2 / 9	0.17 - 1.22	3.50E+00	NA	8.51E+00 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	9.50E-01 J	1.16E+00	ug/m3	SS-03-02	3 / 9	0.6 - 8.6	1.16E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	4.80E-01 J	4.80E-01 J	ug/m3	PMC-03-SS01	1 / 9	0.26 - 0.86	4.80E-01	NA	1.04E+03 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	5.10E-01 J	9.50E-01	ug/m3	3	2 / 9	0.29 - 0.84	9.50E-01	NA	1.04E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.70E+00	1.30E+01	ug/m3	3	5 / 7	7.7 - 8.4	1.30E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.90E+00	8.80E+00	ug/m3	3	5 / 5	-	8.80E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	3.50E-01	1.20E+00	ug/m3	3	2 / 9	0.3 - 0.86	1.20E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	75-27-4	Bromodichloromethane	1.90E-01	1.90E-01	ug/m3	3	1 / 9	0.3 - 1.36	1.90E-01	NA	2.53E+00 c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	6.40E-01	2.20E+01 J	ug/m3	PMC-03-SS01	3 / 9	0.63 - 8.6	2.20E+01	NA	2.43E+04 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	2.90E-01	2.90E-01	ug/m3	3	1 / 5	0.74 - 0.86	2.90E-01	NA	1.56E+01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	1.10E+00 J	7.90E+00	ug/m3	3	6 / 9	0.74 - 0.99	7.90E+00	NA	4.07E+00 c	NA	NA	NO (4)	ASL (4)
	74-87-3	Chloromethane	6.30E-01	6.30E-01	ug/m3	SS-03-01	1 / 9	0.33 - 0.86	6.30E-01	NA	3.13E+03 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	3.57E+01 J	ug/m3	SS-03-01	9 / 9	-	3.57E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	3.70E+00	3.70E+00	ug/m3	3	1 / 9	0.58 - 0.86	3.70E+00	NA	3.38E+03 c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.50E+00	1.60E+02	ug/m3	3	5 / 5	-	1.60E+02	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	2.70E+00 J	3.20E+01	ug/m3	3	7 / 7	-	3.20E+01	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.20E+00	1.70E+02 J	ug/m3	3	5 / 5	-	1.70E+02	NA	2.43E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.70E-01 J	1.90E+00	ug/m3	3	3 / 9	0.3 - 0.88	1.90E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	76-13-1	Freon 113	4.20E-01	4.20E-01	ug/m3	3	1 / 7	0.74 - 1.55	4.20E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.40E+00 J	4.70E+00 J	ug/m3	PMC-03-SS01	2 / 7	7.4 - 8.6	4.70E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	1634-04-4	Methyl tert-butyl ether (MTBE)	8.00E-01	8.00E-01	ug/m3	3	1 / 9	0.17 - 0.86	8.00E-01	NA	3.60E+02 c	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.50E+00	3.50E+00	ug/m3	3	1 / 5	0.74 - 0.86	3.50E+00	NA	2.75E+00 c	NA	NA	YES	ASL
	71-36-3	n-Butanol	5.20E+00	4.20E+01 J	ug/m3	PMC-03-SS01	2 / 2	-	4.20E+01	NA	NA	NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.10E+00	1.20E+00	ug/m3	3	2 / 5	0.74 - 0.83	1.20E+00	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	9.10E-01	9.10E-01	ug/m3	3	1 / 5	0.74 - 0.84	9.10E-01	NA	1.39E+04 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	8.90E-01	1.40E+00	ug/m3	3	2 / 9	0.43 - 0.84	1.40E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	111-84-2	Nonane	1.40E+00	1.40E+00	ug/m3	3	1 / 5	0.74 - 0.86	1.40E+00	NA	6.95E+02 n	NA	NA	NO	BSL
	115-07-1	Propene	7.00E-01 J	2.10E+00	ug/m3	3	6 / 7	0.51 - 0.51	2.10E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.40E+00	1.50E+00	ug/m3	3	2 / 9	0.33 - 0.86	1.50E+00	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	8.80E-01	1.80E+02	ug/m3	PMC-03-SS02	8 / 9	0.74 - 0.74	1.80E+02	NA	3.60E+02 c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	3.10E+00	2.30E+01	ug/m3	3	5 / 5	-	2.30E+01	NA	6.95E+04 n	NA	NA	NO	BSL
	108-88-3	Toluene	1.78E+00	1.10E+01 J	ug/m3	3	8 / 9	0.76 - 0.76	1.10E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	9.60E+00	3.90E+02 D	ug/m3	3	8 / 9	0.77 - 0.77	3.90E+02	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.00E+00	1.90E+00	ug/m3	3	7 / 9	1.14 - 1.14	1.90E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.40E-01 J	4.90E-01 J	ug/m3	PMC-03-SS02	2 / 2	-	4.90E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	5.20E-01 J	2.80E+00	ug/m3	3	5 / 9	0.77 - 0.88	2.80E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.20E+00 J	6.20E+00	ug/m3	3	7 / 9	0.88 - 0.88	6.20E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	71-55-6	1,1,1-Trichloroethane	1.00E+00	1.00E+00	ug/m3	4	1 / 4	0.24 - 0.87	1.00E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	4.40E-01 J	1.10E+00	ug/m3	4	2 / 4	0.85 - 0.87	1.10E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	3.70E+00	3.70E+00	ug/m3	4	1 / 4	0.16 - 0.87	3.70E+00	NA	8.51E+00 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	7.60E-01 J	7.60E-01 J	ug/m3	PMC-04-SS01	1 / 4	8.2 - 8.7	7.60E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	1.10E+00	1.10E+00	ug/m3	4	1 / 4	0.24 - 0.87	1.10E+00	NA	1.04E+03 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.10E+01	2.20E+01	ug/m3	PMC-04-SS01	3 / 4	8.7 - 8.7	2.20E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.30E+00	1.60E+00	ug/m3	4	2 / 3	0.87 - 0.87	1.60E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.10E+00	1.10E+00	ug/m3	4	1 / 4	0.28 - 0.87	1.10E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	2.40E-01	2.40E-01	ug/m3	4	1 / 3	0.85 - 0.87	2.40E-01	NA	1.56E+01 c	NA	NA	NO	BSL
	108-90-7	Chlorobenzene	7.30E-01	7.30E-01	ug/m3	4	1 / 3	0.85 - 0.87	7.30E-01	NA	1.74E+03 n	NA	NA	NO	BSL
	74-87-3	Chloromethane	1.10E+01	1.10E+01	ug/m3	4	1 / 4	0.31 - 0.87	1.10E+01	NA	3.13E+03 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	2.00E+00	2.00E+00	ug/m3	4	1 / 4	0.55 - 1.7	2.00E+00	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	4.80E+01	ug/m3	4	4 / 4	-	4.80E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.50E+00	2.40E+00	ug/m3	4	2 / 4	0.55 - 0.85	2.40E+00	NA	3.38E+03 c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	1.10E+00	1.90E+01	ug/m3	4	3 / 3	-	1.90E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	3.50E+00 J	2.80E+01	ug/m3	4	4 / 4	-	2.80E+01	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.80E+00	4.40E+01 J	ug/m3	4	3 / 3	-	4.40E+01	NA	2.43E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.50E+00	1.80E+00	ug/m3	4	2 / 4	0.27 - 0.85	1.80E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.90E-01	3.90E-01	ug/m3	4	1 / 3	0.85 - 0.87	3.90E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	123-86-4	N-Butyl Acetate	9.70E-01	9.70E-01	ug/m3	4	1 / 3	0.82 - 0.85	9.70E-01	NA	NA	NA	NA	NO	NTX
	142-82-5	n-Heptane	1.30E+00	1.30E+00	ug/m3	4	1 / 3	0.85 - 0.87	1.30E+00	NA	1.39E+04 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	3.20E+00	3.20E+00	ug/m3	4	1 / 4	0.4 - 0.87	3.20E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	111-84-2	Nonane	1.80E+00	1.80E+00	ug/m3	4	1 / 3	0.85 - 0.87	1.80E+00	NA	6.95E+02 n	NA	NA	NO	BSL
	111-65-9	Octane	5.20E+00	5.20E+00	ug/m3	4	1 / 3	0.85 - 0.87	5.20E+00	NA	NA	NA	NA	NO	NTX
	115-07-1	Propene	1.20E+00	1.20E+00	ug/m3	4	2 / 4	0.47 - 0.87	1.20E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	100-42-5	Styrene	8.90E-01	8.90E-01	ug/m3	4	1 / 4	0.31 - 0.85	8.90E-01	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.10E+00	3.00E+02 D	ug/m3	4	4 / 4	-	3.00E+02	NA	3.60E+02 c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.70E+00	2.70E+00	ug/m3	4	1 / 3	0.82 - 0.87	2.70E+00	NA	6.95E+04 n	NA	NA	NO	BSL
	108-88-3	Toluene	3.10E+00	1.10E+01	ug/m3	4	4 / 4	-	1.10E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.40E+01	1.30E+02	ug/m3	4	3 / 4	0.85 - 0.85	1.30E+02	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.80E+00	ug/m3	4	4 / 4	-	1.80E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.00E-01 J	4.00E-01 J	ug/m3	PMC-04-SS01	1 / 1	-	4.00E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	4.30E-01 J	1.70E+00	ug/m3	4	3 / 4	0.85 - 0.85	1.70E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	9.50E-01 J	4.10E+00	ug/m3	4	3 / 4	1.7 - 1.7	4.10E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	4.70E-01 J	2.40E+00 J,+	ug/m3	5	4 / 5	0.81 - 0.81	2.40E+00	NA	2.09E+03	n	NA	NA	NO	BSL
[redacted]	541-73-1	1,3-Dichlorobenzene	4.00E+00	1.30E+01	ug/m3	5	3 / 5	0.29 - 0.29	1.30E+01	NA	8.51E+00	c	NA	NA	YES	ASL
(from Subslab Soil Vapor)	78-93-3	2-Butanone	4.60E-01 J	6.30E-01 J	ug/m3	PMC-05-SS01	2 / 5	7.8 - 8.1	6.30E-01	NA	1.74E+05	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	3.30E-01 J	3.90E-01 J	ug/m3	PMC-05-SS02	2 / 5	0.78 - 0.81	3.90E-01	NA	1.04E+03	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	4.80E-01 J	7.80E-01	ug/m3	5	2 / 5	0.26 - 0.81	7.80E-01	NA	1.04E+05	n	NA	NA	NO	BSL
	67-64-1	Acetone	6.40E+00 J	6.30E+01	ug/m3	5	4 / 5	8.1 - 8.1	6.30E+01	NA	1.07E+06	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.70E+00	2.80E+00	ug/m3	5	3 / 3	-	2.80E+00	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	3.70E-01 J	1.50E+00	ug/m3	5	3 / 5	0.28 - 0.81	1.50E+00	NA	1.20E+01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.70E-01 J	2.80E-01 J	ug/m3	PMC-05-SS01	2 / 5	0.78 - 0.81	2.80E-01	NA	4.07E+00	c	NA	NA	NO	BSL
	110-82-7	Cyclohexane	2.80E+00	3.60E+00	ug/m3	5	2 / 5	0.54 - 1.6	3.60E+00	NA	2.09E+05	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	2.40E+00	ug/m3	PMC-05-SS01	5 / 5	-	2.40E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	9.30E-01 J	4.80E+01	ug/m3	5	5 / 5	-	4.80E+01	NA	3.38E+03	c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.00E+01	5.70E+01 J,+	ug/m3	5	3 / 3	-	5.70E+01	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	4.00E+00 J	6.20E+01	ug/m3	5	5 / 5	-	6.20E+01	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.10E+00	2.80E+00	ug/m3	5	3 / 3	-	2.80E+00	NA	2.43E+03	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.80E-01 J	1.70E+00	ug/m3	5	3 / 5	0.27 - 0.81	1.70E+00	NA	3.74E+01	c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	9.40E-01 J	1.10E+00 J	ug/m3	PMC-05-SS02	2 / 5	7.8 - 8.1	1.10E+00	NA	6.95E+03	n	NA	NA	NO	BSL
	91-20-3	Naphthalene	1.10E+00	1.20E+00	ug/m3	5	2 / 3	0.81 - 0.81	1.20E+00	NA	2.75E+00	c	NA	NA	NO	BSL
	142-82-5	n-Heptane	4.90E+00	5.30E+00	ug/m3	5	2 / 3	0.81 - 0.81	5.30E+00	NA	1.39E+04	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	7.50E+00	8.90E+00	ug/m3	5	2 / 5	0.4 - 0.81	8.90E+00	NA	2.43E+04	n	NA	NA	NO	BSL
	111-84-2	Nonane	1.10E+00	1.30E+00	ug/m3	5	2 / 3	0.81 - 0.81	1.30E+00	NA	6.95E+02	n	NA	NA	NO	BSL
	111-65-9	Octane	2.40E+00	2.50E+00	ug/m3	5	2 / 3	0.81 - 0.81	2.50E+00	NA	NA		NA	NA	NO	NTX
	115-07-1	Propene	1.30E+00	1.60E+00	ug/m3	5	3 / 5	0.47 - 0.47	1.60E+00	NA	1.04E+05	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	8.20E+00	2.90E+01	ug/m3	5	4 / 5	0.81 - 0.81	2.90E+01	NA	3.60E+02	c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.90E+00	8.10E+00	ug/m3	5	3 / 3	-	8.10E+00	NA	6.95E+04	n	NA	NA	NO	BSL
	108-88-3	Toluene	3.20E+00	5.80E+00	ug/m3	5	5 / 5	-	5.80E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.10E+01	6.20E+01 J,+	ug/m3	5	4 / 5	0.81 - 0.81	6.20E+01	NA	1.59E+01	c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.70E+00	ug/m3	5	5 / 5	-	1.70E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.90E-01 J	5.30E-01 J	ug/m3	PMC-05-SS01	2 / 2	-	5.30E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.10E-01 J	1.80E+00	ug/m3	5	4 / 5	0.81 - 0.81	1.80E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	9.30E-01 J	4.30E+00	ug/m3	5	4 / 5	1.6 - 1.6	4.30E+00	NA	3.48E+03	n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	71-55-6	1,1,1-Trichloroethane	7.70E-01	1.38E+00 J	ug/m3	SS-06-01	3 / 9	0.26 - 0.9	1.38E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	5.40E-01 J	2.30E+00	ug/m3	6	6 / 9	0.73 - 1	2.30E+00	NA	2.09E+03	n	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	3.60E+00	4.90E+00	ug/m3	6	2 / 9	0.15 - 1.22	4.90E+00	NA	8.51E+00	c	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	5.40E-01	5.40E-01	ug/m3	6	1 / 9	0.32 - 1.22	5.40E-01	NA	8.51E+00	c	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.60E-01 J	1.10E+01	ug/m3	6	3 / 9	0.6 - 8.3	1.10E+01	NA	1.74E+05	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	5.20E-01 J	8.40E-01	ug/m3	6	2 / 9	0.26 - 0.9	8.40E-01	NA	1.04E+03	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	4.90E-01 J	1.10E+00	ug/m3	6	3 / 9	0.29 - 0.83	1.10E+00	NA	1.04E+05	n	NA	NA	NO	BSL
	67-64-1	Acetone	7.20E+00 J	2.20E+01	ug/m3	6	6 / 7	7.3 - 7.3	2.20E+01	NA	1.07E+06	n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.80E+00	1.40E+01	ug/m3	6	5 / 5	-	1.40E+01	NA	NA		NA	NA	NO	NTX
	71-43-2	Benzene	1.70E-01	1.40E+00	ug/m3	6	4 / 9	0.3 - 0.9	1.40E+00	NA	1.20E+01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	1.00E+00	1.15E+00	ug/m3	SS-06-02	3 / 9	0.3 - 0.9	1.15E+00	NA	3.13E+03	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	1.20E+02	ug/m3	6	8 / 9	2.1 - 2.1	1.20E+02	NA	3.48E+03	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.40E+00	4.10E+00	ug/m3	6	3 / 9	0.59 - 0.83	4.10E+00	NA	3.38E+03	c	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.20E+00	1.50E+02	ug/m3	6	5 / 5	-	1.50E+02	NA	NA		NA	NA	NO	NTX
	64-17-5	Ethanol	4.30E+00 J	1.10E+02	ug/m3	6	7 / 7	-	1.10E+02	NA	NA		NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.40E+00	1.80E+02	ug/m3	6	5 / 5	-	1.80E+02	NA	2.43E+03	n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.10E-01 J	1.90E+00	ug/m3	6	3 / 9	0.3 - 0.88	1.90E+00	NA	3.74E+01	c	NA	NA	NO	BSL
	76-13-1	Freon 113	3.50E-01	3.50E-01	ug/m3	6	1 / 7	0.73 - 1.55	3.50E-01	NA	1.74E+05	n	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.10E+00 J	1.10E+00 J	ug/m3	PMC-06-SS02	1 / 7	0.87 - 9	1.10E+00	NA	6.95E+03	n	NA	NA	NO	BSL
	1634-04-4	Methyl tert-butyl ether (MTBE)	8.30E-01	8.30E-01	ug/m3	6	1 / 9	0.15 - 0.9	8.30E-01	NA	3.60E+02	c	NA	NA	NO	BSL
	91-20-3	Naphthalene	1.50E+00	2.90E+00	ug/m3	6	3 / 5	0.73 - 0.83	2.90E+00	NA	2.75E+00	c	NA	NA	YES	ASL
	71-36-3	n-Butanol	2.10E+01	3.50E+01	ug/m3	PMC-06-SS01	2 / 2	-	3.50E+01	NA	NA		NA	NA	NO	NTX
	123-86-4	N-Butyl Acetate	1.10E+00	1.40E+00	ug/m3	6	2 / 5	0.73 - 0.83	1.40E+00	NA	NA		NA	NA	NO	NTX
	142-82-5	n-Heptane	1.30E+00	1.30E+00	ug/m3	6	1 / 5	0.73 - 0.9	1.30E+00	NA	1.39E+04	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.10E+00	1.20E+00	ug/m3	6	2 / 9	0.43 - 0.9	1.20E+00	NA	2.43E+04	n	NA	NA	NO	BSL
	115-07-1	Propene	9.20E-01	2.10E+00	ug/m3	6	5 / 7	0.51 - 0.52	2.10E+00	NA	1.04E+05	n	NA	NA	NO	BSL
	100-42-5	Styrene	1.40E+00	2.30E+00	ug/m3	6	2 / 9	0.34 - 0.86	2.30E+00	NA	3.48E+04	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.70E+00 J	7.60E+01	ug/m3	6	7 / 9	0.73 - 0.83	7.60E+01	NA	3.60E+02	c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.50E+00	3.30E+01	ug/m3	6	5 / 5	-	3.30E+01	NA	6.95E+04	n	NA	NA	NO	BSL
	108-88-3	Toluene	8.10E-01	1.30E+01	ug/m3	6	9 / 9	-	1.30E+01	NA	1.74E+05	n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	3.20E+00	1.16E+02	ug/m3	SS-06-01	7 / 9	0.73 - 0.83	1.16E+02	NA	1.59E+01	c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	8.50E-01	1.69E+00	ug/m3	SS-06-01	8 / 9	1.14 - 1.14	1.69E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01 J	3.90E-01 J	ug/m3	PMC-06-SS02	2 / 2	-	3.90E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	4.30E-01 J	2.80E+00	ug/m3	6	4 / 9	0.73 - 0.88	2.80E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	9.90E-01 J	6.40E+00	ug/m3	6	7 / 9	0.88 - 1.5	6.40E+00	NA	3.48E+03	n	NA	NA	NO	BSL

TABLE 2.6
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL CONDOMINIUMS (SOIL VAPOR)
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	6.60E-01 J	6.90E-01 J	ug/m^3	13	2 / 9	0.53 - 0.75	6.90E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-87-5	1,2-Dichloropropane	1.00E+00 J	1.00E+00 J	ug/m^3	13	1 / 9	0.57 - 0.8	1.00E+00	NA	2.53E+01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.20E+00 J	1.90E+00 J	ug/m^3	13	4 / 9	0.75 - 1.1	1.90E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	3.00E+00 J	4.20E+00 J	ug/m^3	13	2 / 9	2.9 - 3.4	4.20E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	1.30E+00 J	1.30E+00 J	ug/m^3	13	1 / 9	0.6 - 0.8	1.30E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	2.00E+00 J	1.60E+01	ug/m^3	13	2 / 9	0.6 - 0.75	1.60E+01	NA	4.07E+00 c	NA	NA	NO (4)	ASL (4)
	75-71-8	Dichlorodifluoromethane	3.20E+00	3.10E+02	ug/m^3	13	9 / 9	-	3.10E+02	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	3.40E+00 J	4.60E+00 J	ug/m^3	13	3 / 9	2.8 - 3.5	4.60E+00	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.70E+00 J	6.50E+00	ug/m^3	13	2 / 6	1.4 - 1.5	6.50E+00	NA	2.43E+03 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	6.10E-01 J	6.20E-01 J	ug/m^3	13	2 / 9	0.57 - 0.75	6.20E-01	NA	2.43E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	5.30E-01 J	6.70E+01	ug/m^3	13	6 / 9	0.55 - 0.6	6.70E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	7.20E-01 J	2.60E+00	ug/m^3	13	4 / 9	0.64 - 0.85	2.60E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.20E+00 J	5.40E+00	ug/m^3	13	2 / 9	0.53 - 0.7	5.40E+00	NA	1.59E+01 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.90E-01 J	2.80E+00	ug/m^3	13	9 / 9	-	2.80E+00	NA	NA	NA	NA	NO	NTX

Notes:

(1) Maximum concentration is used for screening.

(2) Vapor Intrusion Screening Levels for Residential Target Subslab and Exterior Soil Vapor (November 2018).
Concentrations for non-carcinogenic health effects are based on HQ=1.
The RSL for 1,4-Dichlorobenzene is used for 1,3-Dichlorobenzene.
The SL for m-xylene was used for m,p-xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample

Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available

RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion

Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	8.10E-01 J	8.10E-01 J	ug/m3	02	1 / 1	-	8.10E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.40E+00 J	1.40E+00 J	ug/m3	02	1 / 1	-	1.40E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	67-66-3	Chloroform	9.60E-01 J	9.60E-01 J	ug/m3	02	1 / 1	-	9.60E-01	NA	4.07E+00 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.90E+00 J	1.90E+00 J	ug/m3	02	1 / 1	-	1.90E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	4.90E+00 J	4.90E+00 J	ug/m3	02	1 / 1	-	4.90E+00	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	3.40E+01	3.40E+01	ug/m3	02	1 / 1	-	3.40E+01	NA	2.43E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.00E+00 J	1.00E+00 J	ug/m3	02	1 / 1	-	1.00E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.10E+00 J	1.10E+00 J	ug/m3	02	1 / 1	-	1.10E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.10E+01	1.10E+01	ug/m3	02	1 / 1	-	1.10E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	3.00E+00	3.00E+00	ug/m3	02	1 / 1	-	3.00E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	9.60E-01 J	9.60E-01 J	ug/m3	02	1 / 1	-	9.60E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.20E+00 J	2.20E+00 J	ug/m3	02	1 / 1	-	2.20E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	8.70E-01	8.70E-01	ug/m3	03	1 / 2	0.69 - 0.69	8.70E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.10E+00 J	1.10E+00 J	ug/m3	03	1 / 2	0.96 - 0.96	1.10E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.40E+01	1.40E+01	ug/m3	03	1 / 2	3.5 - 3.5	1.40E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	56-23-5	Carbon tetrachloride	2.70E-01 J	2.70E-01 J	ug/m3	03	1 / 1	-	2.70E-01	NA	1.56E+01 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00 J	2.50E+00	ug/m3	03	2 / 2	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	3.50E-01 J	3.50E-01 J	ug/m3	03	1 / 1	-	3.50E-01	NA	2.75E+00 c	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.70E-01 J	3.70E-01 J	ug/m3	03	1 / 2	0.64 - 0.64	3.70E-01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	5.00E-01 J	5.00E-01 J	ug/m3	03	1 / 2	0.78 - 0.78	5.00E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	2.10E+00	ug/m3	03	2 / 2	-	2.10E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	6.00E-01 J	6.00E-01 J	ug/m3	03	1 / 1	-	6.00E-01	NA	NA	NA	NA	NO	NTX
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	9.00E-01 J	9.00E-01 J	ug/m3	04	1 / 1	-	9.00E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.10E+00 J	1.10E+00 J	ug/m3	04	1 / 1	-	1.10E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.60E+01 J	1.60E+01 J	ug/m3	04	1 / 1	-	1.60E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.50E+00	2.50E+00	ug/m3	04	1 / 1	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	9.10E-01 J	9.10E-01 J	ug/m3	04	1 / 1	-	9.10E-01	NA	3.38E+03 c	NA	NA	NO	BSL
	64-17-5	Ethanol	3.90E+01	3.90E+01	ug/m3	04	1 / 1	-	3.90E+01	NA	NA	NA	NA	NO	NTX
	67-63-0	Isopropyl Alcohol (Isopropanol)	3.00E+00 J	3.00E+00 J	ug/m3	04	1 / 1	-	3.00E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	1.80E+00 J	1.80E+00 J	ug/m3	04	1 / 1	-	1.80E+00	NA	NA	NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	1.00E+01	1.00E+01	ug/m3	04	1 / 1	-	1.00E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.50E+00 J	1.50E+00 J	ug/m3	04	1 / 1	-	1.50E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.70E+01	1.70E+01	ug/m3	04	1 / 1	-	1.70E+01	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.10E+00 J	ug/m3	04	1 / 1	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	7.90E-01 J	7.90E-01 J	ug/m3	04	1 / 1	-	7.90E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.00E+00 J	2.00E+00 J	ug/m3	04	1 / 1	-	2.00E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	7.50E-01 J	1.20E+00 J	ug/m3	05	2 / 2	-	1.20E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	123-91-1	1,4-Dioxane	2.80E-01 J	2.80E-01 J	ug/m3	PMC-SS-05	1 / 2	0.55 - 0.55	2.80E-01	NA	1.87E+01 c	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.10E+00 J	2.00E+00 J	ug/m3	05	2 / 2	-	2.00E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	5.10E-01 J	5.10E-01 J	ug/m3	PMC-SS-05	1 / 2	0.55 - 0.55	5.10E-01	NA	1.04E+03 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	8.30E-01 J	8.30E-01 J	ug/m3	PMC-SS-05	1 / 2	0.55 - 0.55	8.30E-01	NA	1.04E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.90E+01 J	4.90E+01	ug/m3	05	2 / 2	-	4.90E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	5.50E-01 J	5.50E-01 J	ug/m3	PMC-SS-05	1 / 2	0.62 - 0.62	5.50E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00	2.50E+00	ug/m3	PMC-SS-05	2 / 2	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	1.10E+00 J	1.10E+00 J	ug/m3	PMC-SS-05	1 / 2	0.58 - 0.58	1.10E+00	NA	3.38E+03 c	NA	NA	NO	BSL
	64-17-5	Ethanol	8.40E+00 J	1.30E+02	ug/m3	05	2 / 2	-	1.30E+02	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.40E-01 J	1.10E+00 J	ug/m3	05	2 / 2	-	1.10E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.30E+00 J	5.50E+00 J	ug/m3	05	2 / 2	-	5.50E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	5.30E+01	5.30E+01	ug/m3	PMC-SS-05	1 / 2	1.6 - 1.6	5.30E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	1.00E+00 J	1.00E+00 J	ug/m3	05	1 / 2	0.45 - 0.45	1.00E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	1.50E+00 J	1.50E+00 J	ug/m3	05	1 / 2	0.53 - 0.53	1.50E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.50E+01	3.10E+01	ug/m3	PMC-SS-05	2 / 2	-	3.10E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	2.90E+00	6.70E+00	ug/m3	PMC-SS-05	2 / 2	-	6.70E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.70E-01 J	1.30E+00 J	ug/m3	PMC-SS-05	2 / 2	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01 J	4.50E-01 J	ug/m3	PMC-SS-05	1 / 1	-	4.50E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	6.70E-01 J	1.20E+00 J	ug/m3	05	2 / 2	-	1.20E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.60E+00 J	3.00E+00 J	ug/m3	05	2 / 2	-	3.00E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	1.00E+00 J	1.00E+00 J	ug/m3	06	1 / 2	0.53 - 0.53	1.00E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.30E+01	7.50E+01	ug/m3	06	2 / 2	-	7.50E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	3.10E+00 J	3.10E+00 J	ug/m3	06	1 / 2	3.5 - 3.5	3.10E+00	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	1.60E+00 J	1.60E+00 J	ug/m3	06	1 / 1	-	1.60E+00	NA	2.43E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	8.70E-01 J	8.70E-01 J	ug/m3	06	1 / 2	0.56 - 0.56	8.70E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	142-82-5	n-Heptane	8.70E-01 J	8.70E-01 J	ug/m3	06	1 / 1	-	8.70E-01	NA	1.39E+04 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.20E+00 J	1.20E+00 J	ug/m3	06	1 / 2	0.53 - 0.53	1.20E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	1.80E+00 J	1.80E+00 J	ug/m3	06	1 / 2	0.49 - 0.49	1.80E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.40E+00 J	1.40E+00 J	ug/m3	06	1 / 2	0.61 - 0.61	1.40E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.80E+00 J	1.80E+00 J	ug/m3	06	1 / 2	0.6 - 0.6	1.80E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.30E+00 J	3.10E+00	ug/m3	06	2 / 2	-	3.10E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	7.70E-01 J	7.70E-01 J	ug/m3	06	1 / 2	0.53 - 0.53	7.70E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.60E+00 J	1.60E+00 J	ug/m3	06	1 / 2	1.1 - 1.1	1.60E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration	Min Qual	Maximum Concentration	Max Qual	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	7.10E-01	J	9.20E-01	J	ug/m3	PMC-SS-07	2 / 2	-	9.20E-01	NA	2.09E+03	n	NA	NA	NO	BSL
	78-93-3	2-Butanone	8.90E-01	J	8.90E-01	J	ug/m3	PMC-SS-07	1 / 2	0.8 - 0.8	8.90E-01	NA	1.74E+05	n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	4.50E-01	J	4.50E-01	J	ug/m3	PMC-SS-07	1 / 2	0.61 - 0.61	4.50E-01	NA	1.04E+03	n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	3.30E-01	J	3.30E-01	J	ug/m3	PMC-SS-07	1 / 2	0.61 - 0.61	3.30E-01	NA	1.04E+05	n	NA	NA	NO	BSL
	67-64-1	Acetone	1.00E+01	J	3.40E+01		ug/m3	07	2 / 2	-	3.40E+01	NA	1.07E+06	n	NA	NA	NO	BSL
	71-43-2	Benzene	9.90E-01	J	9.90E-01	J	ug/m3	07	1 / 2	0.3 - 0.3	9.90E-01	NA	1.20E+01	c	NA	NA	NO	BSL
	74-87-3	Chloromethane	8.70E-01	J	8.70E-01	J	ug/m3	07	1 / 2	0.34 - 0.34	8.70E-01	NA	3.13E+03	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00		2.30E+00		ug/m3	PMC-SS-07	2 / 2	-	2.30E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	7.60E-01	J	7.60E-01	J	ug/m3	07	1 / 2	0.59 - 0.59	7.60E-01	NA	3.38E+03	c	NA	NA	NO	BSL
	64-17-5	Ethanol	5.60E+00	J	3.90E+01		ug/m3	07	2 / 2	-	3.90E+01	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	4.70E-01	J	6.60E-01	J	ug/m3	07	2 / 2	-	6.60E-01	NA	3.74E+01	c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.30E+00	J	1.80E+00	J	ug/m3	07	2 / 2	-	1.80E+00	NA	6.95E+03	n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.10E+01		2.10E+01		ug/m3	PMC-SS-07	1 / 2	1.8 - 1.8	2.10E+01	NA	NA		NA	NA	NO	NTX
	110-54-3	n-Hexane	3.10E+00		3.10E+00		ug/m3	07	1 / 2	0.43 - 0.43	3.10E+00	NA	2.43E+04	n	NA	NA	NO	BSL
	100-42-5	Styrene	3.80E-01	J	3.80E-01	J	ug/m3	PMC-SS-07	1 / 2	0.57 - 0.57	3.80E-01	NA	3.48E+04	n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	8.10E-01	J	1.50E+00	J	ug/m3	07	2 / 2	-	1.50E+00	NA	3.60E+02	c	NA	NA	NO	BSL
	108-88-3	Toluene	3.20E+00		6.90E+00		ug/m3	PMC-SS-07	2 / 2	-	6.90E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	J	1.20E+00	J	ug/m3	PMC-SS-07	2 / 2	-	1.20E+00	NA	NA		NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.50E-01	J	4.50E-01	J	ug/m3	PMC-SS-07	1 / 1	-	4.50E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	8.10E-01	J	9.00E-01	J	ug/m3	PMC-SS-07	2 / 2	-	9.00E-01	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.10E+00	J	2.20E+00	J	ug/m3	07	2 / 2	-	2.20E+00	NA	3.48E+03	n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	1.60E+00	J	1.60E+00	J	ug/m3	08	1 / 2	0.52 - 0.52	1.60E+00	NA	2.09E+03	n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.10E+00	J	1.10E+00	J	ug/m3	08	1 / 2	0.56 - 0.56	1.10E+00	NA	2.09E+03	n	NA	NA	NO	BSL
	67-64-1	Acetone	3.50E+00	J	3.50E+00	J	ug/m3	08	1 / 2	3.2 - 3.2	3.50E+00	NA	1.07E+06	n	NA	NA	NO	BSL
	71-43-2	Benzene	1.40E+00	J	1.40E+00	J	ug/m3	08	1 / 2	0.56 - 0.56	1.40E+00	NA	1.20E+01	c	NA	NA	NO	BSL
	67-66-3	Chloroform	7.50E-01	J	7.50E-01	J	ug/m3	08	1 / 2	0.59 - 0.59	7.50E-01	NA	4.07E+00	c	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.50E+00	J	1.50E+00	J	ug/m3	08	1 / 2	1 - 1	1.50E+00	NA	2.09E+05	n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.80E+00	J	2.00E+00		ug/m3	08	2 / 2	-	2.00E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	64-17-5	Ethanol	2.80E+00	J	2.80E+00	J	ug/m3	08	1 / 2	3.3 - 3.3	2.80E+00	NA	NA		NA	NA	NO	NTX
	100-41-4	Ethylbenzene	2.70E+00		2.70E+00		ug/m3	08	1 / 2	0.56 - 0.56	2.70E+00	NA	3.74E+01	c	NA	NA	NO	BSL
	142-82-5	n-Heptane	1.60E+00	J	1.60E+00	J	ug/m3	08	1 / 1	-	1.60E+00	NA	1.39E+04	n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.50E+00	J	1.50E+00	J	ug/m3	08	1 / 2	0.52 - 0.52	1.50E+00	NA	2.43E+04	n	NA	NA	NO	BSL
	111-84-2	Nonane	2.00E+01		2.00E+01		ug/m3	08	1 / 1	-	2.00E+01	NA	6.95E+02	n	NA	NA	NO	BSL
	111-65-9	Octane	2.70E+00		2.70E+00		ug/m3	08	1 / 1	-	2.70E+00	NA	NA		NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	9.20E-01	J	9.20E-01	J	ug/m3	08	1 / 2	0.49 - 0.49	9.20E-01	NA	3.60E+02	c	NA	NA	NO	BSL
	108-88-3	Toluene	6.70E+00		6.70E+00		ug/m3	08	1 / 2	0.59 - 0.59	6.70E+00	NA	1.74E+05	n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.60E-01	J	9.80E-01	J	ug/m3	08	2 / 2	-	9.80E-01	NA	NA		NA	NA	NO	NTX
	95-47-6	Xylene, o	2.10E+00		2.10E+00		ug/m3	08	1 / 2	0.52 - 0.52	2.10E+00	NA	3.48E+03	n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	4.90E+00		4.90E+00		ug/m3	08	1 / 2	1 - 1	4.90E+00	NA	3.48E+03	n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	8.60E-01 J	8.60E-01 J	ug/m3	09	1 / 2	0.54 - 0.54	8.60E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	67-64-1	Acetone	6.20E+00 J	6.20E+00 J	ug/m3	09	1 / 2	3.1 - 3.1	6.20E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	1.10E+00 J	1.10E+00 J	ug/m3	09	1 / 2	0.57 - 0.57	1.10E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.50E+00	ug/m3	09	2 / 2	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	4.90E+00 J	4.90E+00 J	ug/m3	09	1 / 2	3.2 - 3.2	4.90E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	8.20E-01 J	8.20E-01 J	ug/m3	09	1 / 2	0.57 - 0.57	8.20E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	108-88-3	Toluene	2.30E+00	2.30E+00	ug/m3	09	1 / 2	0.61 - 0.61	2.30E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.20E+00 J	1.20E+00 J	ug/m3	09	2 / 2	-	1.20E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	9.20E-01 J	9.20E-01 J	ug/m3	09	1 / 2	0.54 - 0.54	9.20E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.00E+00 J	2.00E+00 J	ug/m3	09	1 / 2	1.1 - 1.1	2.00E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	1.50E+01	1.50E+01	ug/m3	12	1 / 1	-	1.50E+01	NA	2.09E+03 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	5.40E+00	5.40E+00	ug/m3	12	1 / 1	-	5.40E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	4.70E+00 J	4.70E+00 J	ug/m3	12	1 / 1	-	4.70E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	622-96-8	4-Ethyltoluene	2.50E+00 J	2.50E+00 J	ug/m3	12	1 / 1	-	2.50E+00	NA	NA	NA	NA	NO	NTX
	67-64-1	Acetone	3.50E+01	3.50E+01	ug/m3	12	1 / 1	-	3.50E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00 J	2.10E+00 J	ug/m3	12	1 / 1	-	2.10E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	1.70E+00 J	1.70E+00 J	ug/m3	12	1 / 1	-	1.70E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	142-82-5	n-Heptane	1.40E+00 J	1.40E+00 J	ug/m3	12	1 / 1	-	1.40E+00	NA	1.39E+04 n	NA	NA	NO	BSL
	111-84-2	Nonane	6.20E+01	6.20E+01	ug/m3	12	1 / 1	-	6.20E+01	NA	6.95E+02 n	NA	NA	NO	BSL
	103-65-1	n-Propylbenzene	2.50E+00 J	2.50E+00 J	ug/m3	12	1 / 1	-	2.50E+00	NA	3.48E+04 n	NA	NA	NO	BSL
	111-65-9	Octane	7.60E+01	7.60E+01	ug/m3	12	1 / 1	-	7.60E+01	NA	NA	NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	4.00E+01	4.00E+01	ug/m3	12	1 / 1	-	4.00E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	2.00E+01	2.00E+01	ug/m3	12	1 / 1	-	2.00E+01	NA	6.95E+04 n	NA	NA	NO	BSL
	108-88-3	Toluene	9.90E+00	9.90E+00	ug/m3	12	1 / 1	-	9.90E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.60E+00 J	1.60E+00 J	ug/m3	12	1 / 1	-	1.60E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	2.90E+00 J	2.90E+00 J	ug/m3	12	1 / 1	-	2.90E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	7.00E+00	7.00E+00	ug/m3	12	1 / 1	-	7.00E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	9.20E-01 J	9.20E-01 J	ug/m3	PMC-SS-36	1 / 2	0.56 - 0.56	9.20E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.70E-01 J	5.70E-01 J	ug/m3	PMC-SS-36	1 / 2	0.78 - 0.78	5.70E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	6.10E+00 J	8.00E+00 J	ug/m3	PMC-SS-36	2 / 2	-	8.00E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	3.50E-01 J	3.50E-01 J	ug/m3	PMC-SS-36	1 / 2	0.59 - 0.59	3.50E-01	NA	1.20E+01 c	NA	NA	NO	BSL
	75-27-4	Bromodichloromethane	8.50E-01 J	8.50E-01 J	ug/m3	36	1 / 2	0.31 - 0.31	8.50E-01	NA	2.53E+00 c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.00E+00 J	3.00E+00 J	ug/m3	PMC-SS-36	1 / 2	0.56 - 0.56	3.00E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	75-45-6	Chlorodifluoromethane	1.00E+00 J	1.00E+00 J	ug/m3	36	1 / 2	1 - 1	1.00E+00	NA	1.74E+06 n	NA	NA	NO	BSL
	67-66-3	Chloroform	5.00E-01 J	5.00E-01 J	ug/m3	PMC-SS-36	1 / 2	0.63 - 0.63	5.00E-01	NA	4.07E+00 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	3.60E+00	ug/m3	PMC-SS-36	2 / 2	-	3.60E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	75-09-2	Dichloromethane	7.40E-01 J	7.40E-01 J	ug/m3	36	1 / 2	0.61 - 0.61	7.40E-01	NA	3.38E+03 c	NA	NA	NO	BSL
	64-17-5	Ethanol	3.40E+00 J	2.50E+01	ug/m3	36	2 / 2	-	2.50E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	4.30E-01 J	4.30E-01 J	ug/m3	PMC-SS-36	1 / 2	0.59 - 0.59	4.30E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	2.10E+00 J	2.10E+00 J	ug/m3	PMC-SS-36	1 / 2	1.6 - 1.6	2.10E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	3.20E+00 J	3.20E+00 J	ug/m3	PMC-SS-36	1 / 2	1.8 - 1.8	3.20E+00	NA	NA	NA	NA	NO	NTX
	100-42-5	Styrene	3.60E-01 J	3.60E-01 J	ug/m3	PMC-SS-36	1 / 2	0.56 - 0.56	3.60E-01	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.70E+01	9.10E+01	ug/m3	36	2 / 2	-	9.10E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	9.10E-01 J	7.00E+00	ug/m3	PMC-SS-36	2 / 2	-	7.00E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.50E+01	8.10E+01	ug/m3	36	2 / 2	-	8.10E+01	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	9.90E-01 J	1.40E+00 J	ug/m3	PMC-SS-36	2 / 2	-	1.40E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	5.00E-01 J	5.00E-01 J	ug/m3	PMC-SS-36	1 / 1	-	5.00E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	7.90E-01 J	7.90E-01 J	ug/m3	PMC-SS-36	1 / 2	0.56 - 0.56	7.90E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.80E+00 J	1.80E+00 J	ug/m3	PMC-SS-36	1 / 2	1.1 - 1.1	1.80E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	67-64-1	Acetone	7.00E+00 J	7.00E+00 J	ug/m3	37	1 / 2	3.3 - 3.3	7.00E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	74-87-3	Chloromethane	6.60E-01 J	6.60E-01 J	ug/m3	37	1 / 2	0.64 - 0.64	6.60E-01	NA	3.13E+03 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.00E+00 J	2.30E+00	ug/m3	37	2 / 2	-	2.30E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	4.70E+00 J	4.70E+00 J	ug/m3	37	1 / 2	3.4 - 3.4	4.70E+00	NA	NA	NA	NA	NO	NTX
	71-36-3	n-Butanol	2.10E+00 J	2.10E+00 J	ug/m3	37	1 / 1	-	2.10E+00	NA	NA	NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	2.90E+00	2.90E+00	ug/m3	37	1 / 2	0.53 - 0.53	2.90E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	8.70E-01 J	8.70E-01 J	ug/m3	37	1 / 2	0.72 - 0.72	8.70E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.10E+00 J	ug/m3	37	2 / 2	-	1.10E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	8.20E-01	8.20E-01	ug/m3	310	1 / 1	-	8.20E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	541-73-1	1,3-Dichlorobenzene	7.10E+00	7.10E+00	ug/m3	310	1 / 1	-	7.10E+00	NA	8.51E+00 c	NA	NA	NO	BSL
	67-64-1	Acetone	1.40E+01	1.40E+01	ug/m3	310	1 / 1	-	1.40E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	1.70E+00	1.70E+00	ug/m3	310	1 / 1	-	1.70E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	1.30E+00	1.30E+00	ug/m3	310	1 / 1	-	1.30E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.30E+00	2.30E+00	ug/m3	310	1 / 1	-	2.30E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.20E+01	2.20E+01	ug/m3	310	1 / 1	-	2.20E+01	NA	NA	NA	NA	NO	NTX
	64-17-5	Ethanol	5.80E+01	5.80E+01	ug/m3	310	1 / 1	-	5.80E+01	NA	NA	NA	NA	NO	NTX
	141-78-6	Ethyl acetate	2.90E+00	2.90E+00	ug/m3	310	1 / 1	-	2.90E+00	NA	2.43E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	7.80E-01	7.80E-01	ug/m3	310	1 / 1	-	7.80E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	115-07-1	Propene	3.90E+00	3.90E+00	ug/m3	310	1 / 1	-	3.90E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	100-42-5	Styrene	1.00E+00	1.00E+00	ug/m3	310	1 / 1	-	1.00E+00	NA	3.48E+04 n	NA	NA	NO	BSL
	109-99-9	Tetrahydrofuran	4.40E+00	4.40E+00	ug/m3	310	1 / 1	-	4.40E+00	NA	6.95E+04 n	NA	NA	NO	BSL
	108-88-3	Toluene	6.00E+00	6.00E+00	ug/m3	310	1 / 1	-	6.00E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	5.60E+00	5.60E+00	ug/m3	310	1 / 1	-	5.60E+00	NA	1.59E+01 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00	1.10E+00	ug/m3	310	1 / 1	-	1.10E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	9.90E-01	9.90E-01	ug/m3	310	1 / 1	-	9.90E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.50E+00	2.50E+00	ug/m3	310	1 / 1	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Subslab Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	9.60E-01 J	9.60E-01 J	ug/m3	PMC-SS-40	1 / 1	-	9.60E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.10E+00 J	1.10E+00 J	ug/m3	PMC-SS-40	1 / 1	-	1.10E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	4.20E-01 J	4.20E-01 J	ug/m3	PMC-SS-40	1 / 1	-	4.20E-01	NA	1.04E+03 n	NA	NA	NO	BSL
	67-64-1	Acetone	1.80E+01 J	1.80E+01 J	ug/m3	PMC-SS-40	1 / 1	-	1.80E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	3.20E-01 J	3.20E-01 J	ug/m3	PMC-SS-40	1 / 1	-	3.20E-01	NA	1.20E+01 c	NA	NA	NO	BSL
	67-66-3	Chloroform	6.10E-01 J	6.10E-01 J	ug/m3	PMC-SS-40	1 / 1	-	6.10E-01	NA	4.07E+00 c	NA	NA	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	1.00E+00 J	1.00E+00 J	ug/m3	PMC-SS-40	1 / 1	-	1.00E+00	NA	NA	NA	NA	NO	NTX
	75-71-8	Dichlorodifluoromethane	2.50E+00	2.50E+00	ug/m3	PMC-SS-40	1 / 1	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	6.30E+00 J	6.30E+00 J	ug/m3	PMC-SS-40	1 / 1	-	6.30E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	4.70E-01 J	4.70E-01 J	ug/m3	PMC-SS-40	1 / 1	-	4.70E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.30E+00 J	1.30E+00 J	ug/m3	PMC-SS-40	1 / 1	-	1.30E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	5.10E+01	5.10E+01	ug/m3	PMC-SS-40	1 / 1	-	5.10E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	4.80E-01 J	4.80E-01 J	ug/m3	PMC-SS-40	1 / 1	-	4.80E-01	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	1.00E+00 J	1.00E+00 J	ug/m3	PMC-SS-40	1 / 1	-	1.00E+00	NA	1.04E+05 n	NA	NA	NO	BSL
	100-42-5	Styrene	4.20E-01 J	4.20E-01 J	ug/m3	PMC-SS-40	1 / 1	-	4.20E-01	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	6.30E+01	6.30E+01	ug/m3	PMC-SS-40	1 / 1	-	6.30E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	6.30E+00	6.30E+00	ug/m3	PMC-SS-40	1 / 1	-	6.30E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	3.00E+02	3.00E+02	ug/m3	PMC-SS-40	1 / 1	-	3.00E+02	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.30E+00 J	1.30E+00 J	ug/m3	PMC-SS-40	1 / 1	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.30E-01 J	4.30E-01 J	ug/m3	PMC-SS-40	1 / 1	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	9.10E-01 J	9.10E-01 J	ug/m3	PMC-SS-40	1 / 1	-	9.10E-01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.10E+00 J	2.10E+00 J	ug/m3	PMC-SS-40	1 / 1	-	2.10E+00	NA	3.48E+03 n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor) (5)	71-55-6	1,1,1-Trichloroethane	3.80E-01 J	1.10E+00 J	ug/m3	SVB-01-14	3 / 4	0.42 - 0.42	1.10E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	526-73-8	1,2,3-Trimethylbenzene	8.60E-01 J	4.80E+00	ug/m3	SVB-01	2 / 4	0.28 - 0.28	4.80E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	3.20E-01 J	8.80E+00	ug/m3	SVB-01	3 / 4	0.29 - 0.29	8.80E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	4.90E-01 J	3.40E+00	ug/m3	SVB-01	2 / 4	0.29 - 0.3	3.40E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.10E-01 J	8.20E-01 J	ug/m3	SVB-01	3 / 4	0.7 - 0.7	8.20E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	8.70E-01 J	8.70E-01 J	ug/m3	SVB-01-5.8	1 / 4	0.26 - 0.42	8.70E-01	NA	1.04E+03 n	NA	NA	NO	BSL
	67-64-1	Acetone	5.80E+00 J	1.60E+01 J	ug/m3	SVB-01-5.8	3 / 4	7.6 - 7.6	1.60E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	3.40E-01 J	2.90E+01	ug/m3	SVB-01	3 / 4	0.3 - 0.3	2.90E+01	NA	1.20E+01 c	NA	NA	YES	ASL
	75-15-0	Carbon Disulfide	1.70E+01	4.20E+02	ug/m3	SVB-01	3 / 4	0.62 - 0.62	4.20E+02	NA	2.43E+04 n	NA	NA	NO	BSL
	67-66-3	Chloroform	5.20E-01 J	2.30E+00	ug/m3	SVB-01-14	4 / 4	-	2.30E+00	NA	4.07E+00 c	NA	NA	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	3.90E-01 J	4.50E-01 J	ug/m3	SVB-01	2 / 4	0.28 - 0.47	4.50E-01	NA	NA	NA	NA	NO	NTX
	110-82-7	Cyclohexane	9.90E-01 J	3.90E+01	ug/m3	SVB-01	3 / 4	0.58 - 0.58	3.90E+01	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.20E+00	2.50E+00	ug/m3	SVB-01-5.8	4 / 4	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	4.20E+00 J	6.10E+00 J	ug/m3	SVB-01-5.8	2 / 4	21 - 33	6.10E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.30E-01 J	8.80E+00	ug/m3	SVB-01	3 / 4	0.29 - 0.29	8.80E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.80E+00 J	1.80E+00 J	ug/m3	SVB-01-14	1 / 4	0.83 - 1.4	1.80E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.20E+00 J	4.50E+01 J	ug/m3	SVB-01-5.8	3 / 4	0.88 - 0.88	4.50E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	1.00E+00 J	3.70E+01	ug/m3	SVB-01	2 / 4	0.42 - 0.43	3.70E+01	NA	2.43E+04 n	NA	NA	NO	BSL
	115-07-1	Propene	1.20E+00 J	3.60E+01	ug/m3	SVB-01	2 / 4	0.49 - 0.5	3.60E+01	NA	1.04E+05 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.90E+01	1.20E+02	ug/m3	SVB-01-14	4 / 4	-	1.20E+02	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.30E+00 J	7.50E+01	ug/m3	SVB-01	4 / 4	-	7.50E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	6.20E+00	5.40E+01	ug/m3	SVB-01-14	4 / 4	-	5.40E+01	NA	1.59E+01 c	NA	NA	YES	ASL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.40E+00 J	ug/m3	SVB-01	4 / 4	-	1.40E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	3.80E-01 J	3.90E-01 J	ug/m3	SVB-01-14	2 / 4	0.3 - 0.48	3.90E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.00E+00 J	1.20E+01	ug/m3	SVB-01	3 / 4	0.3 - 0.3	1.20E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.40E+00 J	2.10E+01	ug/m3	SVB-01	3 / 4	0.54 - 0.54	2.10E+01	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	5.20E-01 J	5.20E-01 J	ug/m3	58	1 / 2	0.56 - 0.56	5.20E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.90E-01 J	5.90E-01 J	ug/m3	58	1 / 2	0.79 - 0.79	5.90E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	4.40E+00	8.50E+01	ug/m3	58	2 / 2	-	8.50E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	4.20E+00	1.60E+01	ug/m3	58	2 / 2	-	1.60E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	3.80E-01 J	3.80E-01 J	ug/m3	58	1 / 2	0.64 - 0.64	3.80E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	1.30E+00	ug/m3	58	2 / 2	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	5.00E-01 J	5.00E-01 J	ug/m3	58	1 / 1	-	5.00E-01	NA	NA	NA	NA	NO	NTX
	108-05-4	Vinyl Acetate	1.50E+00 J	1.50E+00 J	ug/m3	58	1 / 2	2.4 - 2.4	1.50E+00	NA	6.95E+03 n	NA	NA	NO	BSL

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	7.80E+00	7.80E+00	ug/m3	44	1 / 4	0.49 - 0.63	7.80E+00	NA	2.09E+03 n	NA	NA	NO	BSL
[redacted]	108-67-8	1,3,5-Trimethylbenzene	2.20E+00	2.20E+00	ug/m3	44	1 / 4	0.52 - 0.67	2.20E+00	NA	2.09E+03 n	NA	NA	NO	BSL
[redacted]	622-96-8	4-Ethyltoluene	2.60E+00	2.60E+00	ug/m3	44	1 / 2	0.67 - 0.67	2.60E+00	NA	NA	NA	NA	NO	NTX
(from Exterior Soil Vapor)	67-64-1	Acetone	4.50E+00 J	4.50E+00 J	ug/m3	44	1 / 4	2.7 - 3.2	4.50E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	80-56-8	alpha-Pinene	3.20E+00	3.20E+00	ug/m3	44	1 / 2	0.58 - 0.58	3.20E+00	NA	NA	NA	NA	NO	NTX
	71-43-2	Benzene	8.90E-01 J	8.90E-01 J	ug/m3	44	1 / 4	0.52 - 0.67	8.90E-01	NA	1.20E+01 c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	3.50E+00 J	3.50E+00 J	ug/m3	44	1 / 4	0.49 - 0.63	3.50E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	67-66-3	Chloroform	1.50E+00 J	1.50E+00 J	ug/m3	44	1 / 4	0.56 - 0.71	1.50E+00	NA	4.07E+00 c	NA	NA	NO	BSL
	110-82-7	Cyclohexane	1.40E+01	1.40E+01	ug/m3	44	1 / 4	0.95 - 1.2	1.40E+01	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.50E+00	ug/m3	44	4 / 4	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	2.70E+00	2.70E+00	ug/m3	44	1 / 2	0.58 - 0.58	2.70E+00	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	7.10E+00	7.10E+00	ug/m3	44	1 / 4	0.52 - 0.67	7.10E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	98-82-8	Isopropylbenzene	3.30E+00	3.30E+00	ug/m3	44	1 / 2	0.63 - 0.63	3.30E+00	NA	1.39E+04 n	NA	NA	NO	BSL
	91-20-3	Naphthalene	8.20E-01 J	8.20E-01 J	ug/m3	44	1 / 2	0.75 - 0.75	8.20E-01	NA	2.75E+00 c	NA	NA	NO	BSL
	142-82-5	n-Heptane	2.20E+00	2.20E+00	ug/m3	44	1 / 2	0.71 - 0.71	2.20E+00	NA	1.39E+04 n	NA	NA	NO	BSL
	110-54-3	n-Hexane	1.60E+00 J	1.60E+00 J	ug/m3	44	1 / 4	0.49 - 0.63	1.60E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	111-84-2	Nonane	2.80E+00	2.80E+00	ug/m3	44	1 / 2	0.63 - 0.63	2.80E+00	NA	6.95E+02 n	NA	NA	NO	BSL
	103-65-1	n-Propylbenzene	3.60E+00	3.60E+00	ug/m3	44	1 / 2	0.67 - 0.67	3.60E+00	NA	3.48E+04 n	NA	NA	NO	BSL
	111-65-9	Octane	3.10E+00	3.10E+00	ug/m3	44	1 / 2	0.75 - 0.75	3.10E+00	NA	NA	NA	NA	NO	NTX
	100-42-5	Styrene	1.20E+01	1.20E+01	ug/m3	44	1 / 4	0.49 - 0.63	1.20E+01	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.00E+00 J	1.10E+00 J	ug/m3	44	2 / 4	0.46 - 0.49	1.10E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	1.30E+01	1.30E+01	ug/m3	44	1 / 4	0.56 - 0.71	1.30E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.30E+00 J	ug/m3	44	4 / 4	-	1.30E+00	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	1.20E+01	1.20E+01	ug/m3	44	1 / 4	0.49 - 0.63	1.20E+01	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	2.80E+01	2.80E+01	ug/m3	44	1 / 4	0.98 - 1.3	2.80E+01	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air	95-63-6	1,2,4-Trimethylbenzene	1.60E+00 J	1.60E+00 J	ug/m3	47	1 / 1	-	1.60E+00	NA	2.09E+03 n	NA	NA	NO	BSL
[redacted]	78-93-3	2-Butanone	1.70E+00 J	1.70E+00 J	ug/m3	47	1 / 1	-	1.70E+00	NA	1.74E+05 n	NA	NA	NO	BSL
[redacted]	67-64-1	Acetone	4.00E+01 J	4.00E+01 J	ug/m3	47	1 / 1	-	4.00E+01	NA	1.07E+06 n	NA	NA	NO	BSL
(from Exterior Soil Vapor)	56-23-5	Carbon tetrachloride	5.90E-01 J	5.90E-01 J	ug/m3	47	1 / 1	-	5.90E-01	NA	1.56E+01 c	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.90E+00 J	1.90E+00 J	ug/m3	47	1 / 1	-	1.90E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	5989-27-5	D-Limonene	6.50E-01 J	6.50E-01 J	ug/m3	47	1 / 1	-	6.50E-01	NA	NA	NA	NA	NO	NTX
	127-18-4	Tetrachloroethene	1.00E+02	1.00E+02	ug/m3	47	1 / 1	-	1.00E+02	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	8.00E-01 J	8.00E-01 J	ug/m3	47	1 / 1	-	8.00E-01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	7.00E+00	7.00E+00	ug/m3	47	1 / 1	-	7.00E+00	NA	1.59E+01 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.10E+00 J	ug/m3	47	1 / 1	-	1.10E+00	NA	NA	NA	NA	NO	NTX
Indoor Air	75-71-8	Dichlorodifluoromethane	2.30E+00	2.40E+00	ug/m3	48	2 / 2	-	2.40E+00	NA	3.48E+03 n	NA	NA	NO	BSL
[redacted]	127-18-4	Tetrachloroethene	7.20E-01 J	7.20E-01 J	ug/m3	48	1 / 2	0.57 - 0.57	7.20E-01	NA	3.60E+02 c	NA	NA	NO	BSL
[redacted]	108-88-3	Toluene	1.30E+00 J	1.30E+00 J	ug/m3	48	1 / 2	0.62 - 0.62	1.30E+00	NA	1.74E+05 n	NA	NA	NO	BSL
(from Exterior Soil Vapor)	75-69-4	Trichlorofluoromethane	9.90E-01 J	1.30E+00 J	ug/m3	48	2 / 2	-	1.30E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air [redacted] (from Exterior Soil Vapor)	95-63-6	1,2,4-Trimethylbenzene	7.80E-01 J	7.80E-01 J	ug/m3	49	1 / 1	-	7.80E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	6.00E+00 J	6.00E+00 J	ug/m3	49	1 / 1	-	6.00E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	8.40E+02	8.40E+02	ug/m3	49	1 / 1	-	8.40E+02	NA	1.07E+06 n	NA	NA	NO	BSL
	75-05-8	Acetonitrile	1.10E+00 J	1.10E+00 J	ug/m3	49	1 / 1	-	1.10E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	1.90E+00 J	1.90E+00 J	ug/m3	49	1 / 1	-	1.90E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.50E+00 J	1.50E+00 J	ug/m3	49	1 / 1	-	1.50E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.00E+00 J	1.00E+00 J	ug/m3	49	1 / 1	-	1.00E+00	NA	NA	NA	NA	NO	NTX
Indoor Air [redacted] (from Subslab Soil Vapor)	526-73-8	1,2,3-Trimethylbenzene	9.00E-01 J	9.00E-01 J	ug/m3	PMC-SS-50	1 / 1	-	9.00E-01	NA	2.09E+03 n	NA	NA	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	3.00E+00	3.00E+00	ug/m3	PMC-SS-50	1 / 1	-	3.00E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	1.10E+00 J	1.10E+00 J	ug/m3	PMC-SS-50	1 / 1	-	1.10E+00	NA	2.09E+03 n	NA	NA	NO	BSL
	78-93-3	2-Butanone	1.30E+00 J	1.30E+00 J	ug/m3	PMC-SS-50	1 / 1	-	1.30E+00	NA	1.74E+05 n	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	5.00E-01 J	5.00E-01 J	ug/m3	PMC-SS-50	1 / 1	-	5.00E-01	NA	1.04E+05 n	NA	NA	NO	BSL
	67-64-1	Acetone	2.70E+01	2.70E+01	ug/m3	PMC-SS-50	1 / 1	-	2.70E+01	NA	1.07E+06 n	NA	NA	NO	BSL
	71-43-2	Benzene	5.80E+00	5.80E+00	ug/m3	PMC-SS-50	1 / 1	-	5.80E+00	NA	1.20E+01 c	NA	NA	NO	BSL
	75-15-0	Carbon Disulfide	8.00E-01 J	8.00E-01 J	ug/m3	PMC-SS-50	1 / 1	-	8.00E-01	NA	2.43E+04 n	NA	NA	NO	BSL
	110-82-7	Cyclohexane	3.00E+00 J	3.00E+00 J	ug/m3	PMC-SS-50	1 / 1	-	3.00E+00	NA	2.09E+05 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.50E+00	2.50E+00	ug/m3	PMC-SS-50	1 / 1	-	2.50E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	64-17-5	Ethanol	3.00E+01	3.00E+01	ug/m3	PMC-SS-50	1 / 1	-	3.00E+01	NA	NA	NA	NA	NO	NTX
	100-41-4	Ethylbenzene	3.90E+00	3.90E+00	ug/m3	PMC-SS-50	1 / 1	-	3.90E+00	NA	3.74E+01 c	NA	NA	NO	BSL
	67-63-0	Isopropyl Alcohol (Isopropanol)	1.40E+00 J	1.40E+00 J	ug/m3	PMC-SS-50	1 / 1	-	1.40E+00	NA	6.95E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	5.10E+01	5.10E+01	ug/m3	PMC-SS-50	1 / 1	-	5.10E+01	NA	NA	NA	NA	NO	NTX
	110-54-3	n-Hexane	6.40E+00	6.40E+00	ug/m3	PMC-SS-50	1 / 1	-	6.40E+00	NA	2.43E+04 n	NA	NA	NO	BSL
	100-42-5	Styrene	5.50E-01 J	5.50E-01 J	ug/m3	PMC-SS-50	1 / 1	-	5.50E-01	NA	3.48E+04 n	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.50E+01	1.50E+01	ug/m3	PMC-SS-50	1 / 1	-	1.50E+01	NA	3.60E+02 c	NA	NA	NO	BSL
	108-88-3	Toluene	2.10E+01	2.10E+01	ug/m3	PMC-SS-50	1 / 1	-	2.10E+01	NA	1.74E+05 n	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	1.20E+00 J	1.20E+00 J	ug/m3	PMC-SS-50	1 / 1	-	1.20E+00	NA	1.59E+01 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.40E+00 J	1.40E+00 J	ug/m3	PMC-SS-50	1 / 1	-	1.40E+00	NA	NA	NA	NA	NO	NTX
	26523-64-8	Trichlorotrifuoroethane	4.30E-01 J	4.30E-01 J	ug/m3	PMC-SS-50	1 / 1	-	4.30E-01	NA	NA	NA	NA	NO	NTX
	95-47-6	Xylene, o	3.10E+00	3.10E+00	ug/m3	PMC-SS-50	1 / 1	-	3.10E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	7.60E+00	7.60E+00	ug/m3	PMC-SS-50	1 / 1	-	7.60E+00	NA	3.48E+03 n	NA	NA	NO	BSL
Indoor Air [redacted] (from Exterior Soil Vapor)	67-64-1	Acetone	3.00E+00 J	3.00E+00 J	ug/m3	51	1 / 2	3.1 - 3.1	3.00E+00	NA	1.07E+06 n	NA	NA	NO	BSL
	75-71-8	Dichlorodifluoromethane	2.10E+00	2.20E+00	ug/m3	51	2 / 2	-	2.20E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	8.20E-01 J	8.20E-01 J	ug/m3	51	1 / 2	0.55 - 0.55	8.20E-01	NA	3.74E+01 c	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	1.10E+00 J	1.50E+00 J	ug/m3	51	2 / 2	-	1.50E+00	NA	3.60E+02 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	1.10E+00 J	1.20E+00 J	ug/m3	51	2 / 2	-	1.20E+00	NA	NA	NA	NA	NO	NTX

TABLE 2.7
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - RESIDENTIAL PROPERTIES (SOIL VAPOR)
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Indoor Air	67-64-1	Acetone	3.90E+00 J	3.90E+00 J	ug/m3	52	1 / 1	-	3.90E+00	NA	1.07E+06 n	NA	NA	NO	BSL
[redacted]	75-71-8	Dichlorodifluoromethane	2.00E+00	2.00E+00	ug/m3	52	1 / 1	-	2.00E+00	NA	3.48E+03 n	NA	NA	NO	BSL
	71-36-3	n-Butanol	2.00E+00 J	2.00E+00 J	ug/m3	52	1 / 1	-	2.00E+00	NA	NA	NA	NA	NO	NTX
(from Exterior Soil Vapor)	127-18-4	Tetrachloroethene	6.00E-01 J	6.00E-01 J	ug/m3	52	1 / 1	-	6.00E-01	NA	3.60E+02 c	NA	NA	NO	BSL
	75-69-4	Trichlorofluoromethane	9.90E-01 J	9.90E-01 J	ug/m3	52	1 / 1	-	9.90E-01	NA	NA	NA	NA	NO	NTX

Notes:

(1) Maximum concentration is used for screening.

(2) Vapor Intrusion Screening Levels for Residential Target Subslab and Exterior Soil Vapor (November 2018).
Concentrations for non-carcinogenic health effects are based on HQ=1.
The RSL for 1,4-Dichlorobenzene is used for 1,3-Dichlorobenzene.
The SL for m-xylene was used for m,p-xylene.

(3) Rationale Codes:
Above Screening Levels (ASL)
Below Screening Level (BSL)
No Toxicity Value Available (NTX)

(4) Although this chemical exceeded the screening value, it is not identified as a COPC. Chemicals presumed to be present because of background sources and chemicals not related to site contamination were eliminated as VI COPCs. These chemicals are not included in the MLE evaluation.

(5) Subslab soil vapor samples were not collected for this property. The nearest exterior soil vapor sampling location(s) will be used to evaluate the vapor intrusion pathway at this property for future exposures.

Data Qualifiers:
J = compound was detected below the reporting limit in the sample

Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
MLE = multiple lines of evidence
NA = not available

RSL keys:
c = carcinogenic
n = noncarcinogenic
VI = vapor intrusion

Unit:
ug/m^3 = microgram per cubic meter

TABLE 2.8
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - SOIL
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Construction Worker)
Medium: Total Soil (1-10 feet bgs)
Exposure Medium: Total Soil/Ambient Air

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier	Maximum Concentration Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (3)
Subsurface Soil and Emissions from Subsurface Soil	78-93-3	2-Butanone	8.00E-03 J	8.00E-03 J	mg/kg	SVB-15	1 / 12	0.0081 - 0.37	8.00E-03	NA	1.90E+04 n	NA	NA	NO	BSL
	591-78-6	2-Hexanone	2.00E-03 J	2.00E-03 J	mg/kg	SVB-15	1 / 12	0.004 - 0.055	2.00E-03	NA	1.30E+02 n	NA	NA	NO	BSL
	67-64-1	Acetone	2.70E-02	3.30E-01	mg/kg	SVB-07	5 / 12	0.11 - 0.18	3.30E-01	NA	6.70E+04 n	NA	NA	NO	BSL
	71-43-2	Benzene	7.10E-04 J	6.00E-02	mg/kg	SVB-07	2 / 12	0.004 - 0.055	6.00E-02	NA	5.10E+00 c	NA	NA	NO	BSL
	75-09-2	Dichloromethane	4.50E-02	4.50E-02	mg/kg	SVB-08	1 / 12	0.004 - 0.055	4.50E-02	NA	3.20E+02 n	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	6.00E-04 J	7.80E-02	mg/kg	SVB-07	4 / 12	0.004 - 0.055	7.80E-02	NA	2.50E+01 c	NA	NA	NO	BSL
	98-82-8	Isopropylbenzene	1.10E-02 J	1.10E-02 J	mg/kg	SVB-07	1 / 12	0.004 - 0.055	1.10E-02	NA	2.68E+02 sat	NA	NA	NO	BSL
	79-20-9	Methyl Acetate	8.30E-02 J	3.80E-01	mg/kg	SVB-08	6 / 12	0.0081 - 0.37	3.80E-01	NA	2.90E+04 sat	NA	NA	NO	BSL
	100-42-5	Styrene	2.80E-02 J	2.80E-02 J	mg/kg	SVB-07	1 / 12	0.004 - 0.055	2.80E-02	NA	8.67E+02 sat	NA	NA	NO	BSL
	127-18-4	Tetrachloroethene	3.50E-02 J	3.50E-02 J	mg/kg	SVB-12	1 / 12	0.004 - 0.04	3.50E-02	NA	3.90E+01 n	NA	NA	NO	BSL
	108-88-3	Toluene	6.10E-04 J	1.40E-01	mg/kg	SVB-07	6 / 12	0.034 - 0.055	1.40E-01	NA	8.18E+02 sat	NA	NA	NO	BSL
	79-01-6	Trichloroethylene	2.00E-03 J	1.10E+00 J	mg/kg	SVB-12	7 / 12	0.004 - 0.037	1.10E+00	NA	1.90E+00 n	NA	NA	NO	BSL
	95-47-6	Xylene, o	4.70E-04 J	7.00E-02	mg/kg	SVB-07	4 / 12	0.002 - 0.055	7.00E-02	NA	2.80E+02 n	NA	NA	NO	BSL
	179601-23-1	Xylenes, m & p	1.40E-03 J	1.60E-01	mg/kg	SVB-07	5 / 12	0.002 - 0.11	1.60E-01	NA	2.40E+02 n	NA	NA	NO	BSL
	1330-20-7	Xylenes, Total	1.90E-03 J	2.30E-01	mg/kg	SVB-07	3 / 12	0.004 - 0.17	2.30E-01	NA	2.50E+02 n	NA	NA	NO	BSL

Notes:

(1) Maximum concentration is used for screening.

(2) Regional Screening Levels for Industrial Soil (November 2018). Concentrations based on non-carcinogenic health effects are based on HQ=0.1.
The RSL for m-Xylene is used for m,p-Xylene

Rationale Codes:
(3) Above Screening Levels (ASL)
Below Screening Level (BSL)

Data Qualifiers:
J = compound was detected below the reporting limit in the sample

Abbreviations:
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
COPC = Chemical of Potential Concern
HQ = hazard quotient
NA = not available
RSL keys:
c = carcinogenic
n = noncarcinogenic
sat = soil saturation concentration
Unit:
mg/kg = milligram per kilogram

TABLE 3.1.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Indoor Air [redacted]	Trichloroethylene	ug/m^3	1.3E-01	NA	3.50E-01	3.50E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.2E-01	NA	6.10E-01	6.10E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	1.3E-01	NA	2.70E-01	2.70E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	1.9E-01	NA	3.00E-01	3.00E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	6.5E-01	NA	1.30E+00	1.30E+00	ug/m^3	Max	1

Notes:
(1) The maximum detected concentration was used as the EPC.

ug/m^3 = micrograms per cubic meter
EPC = exposure point concentration
UCL = upper confidence limit
RME = reasonable maximum exposure

TABLE 3.2.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Medium: Air
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.8E-01	NA	8.10E-01	8.10E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.3E-01	NA	6.80E-01	6.80E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.0E-01	NA	3.40E-01	3.40E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.9E-01	NA	4.70E-01	4.70E-01	ug/m^3	Max	1
Indoor Air [redacted]	Trichloroethylene	ug/m^3	2.3E-01	NA	4.30E-01	4.30E-01	ug/m^3	Max	1

Notes:
(1) The maximum detected concentration was used as the EPC.

ug/m^3 = micrograms per cubic meter
EPC = exposure point concentration
UCL = upper confidence limit
RME = reasonable maximum exposure

TABLE 3.3.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Medium: Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Soil Vapor Concentration			
						Value	Units	Statistic	Rationale
Indoor Air [redacted] (from Exterior Soil Vapor)	Benzene	ug/m^3	1.37E+01	NA	4.90E+01	4.90E+01	ug/m^3	Max	1

Notes:
(1) The maximum detected concentration was used.

ug/m^3 = micrograms per cubic meter
Max = maximum detected concentration
NA = Not applicable
UCL = upper confidence limit

TABLE 3.4.RME SUPPLEMENT
CALCULATION OF INDOOR AIR EXPOSURE POINT CONCENTRATIONS
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Medium: Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Concentration in Soil Vapor		Exposure Point Concentration in Indoor Air	
		Value (1)	Units	Value (2)	Units
Indoor Air [redacted] (from Exterior Soil Vapor)	Benzene	4.90E+01	ug/m^3	1.47E+00	ug/m^3

Notes:
(1) Selection of soil vapor concentrations is presented on Table 3.3.
(2) The indoor air concentrations for soil vapor-to-indoor air were estimated using the EPA's VISL Calculator, November 2018 (EPA, 2018)
EPC in indoor air (ug/m^3) = Concentration in soil vapor (ug/m^3) x Attenuation Factor (0.03)

ug/m^3 = micrograms per cubic meter
AF = attenuation factor
EPC = exposure point concentration
RME = reasonable maximum exposure

TABLE 3.4.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Soil Vapor Concentration			
						Value	Units	Statistic	Rationale
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	ug/m^3	9.26E+00	NA	2.10E+01	2.10E+01	ug/m^3	Max	1
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	ug/m^3	2.72E+01	NA	5.60E+01	5.60E+01	ug/m^3	Max	1
Indoor Air [redacted] (Subslab Soil Vapor)	Naphthalene Trichloroethylene	ug/m^3 ug/m^3	NA 1.07E+02	NA NA	3.50E+00 3.90E+02 D	3.50E+00 3.90E+02	ug/m^3 ug/m^3	Max Max	1 1
Indoor Air [redacted] (Exterior Soil Vapor)	Trichloroethylene	ug/m^3	9.47E+01	NA	1.30E+02	1.30E+02	ug/m^3	Max	1
Indoor Air [redacted] (Exterior Soil Vapor)	1,3-Dichlorobenzene Trichloroethylene	ug/m^3 ug/m^3	7.30E+00 4.03E+01	NA NA	1.30E+01 6.20E+01 J,+	1.30E+01 6.20E+01	ug/m^3 ug/m^3	Max Max	1 1
Indoor Air [redacted] (Subslab Soil Vapor)	Naphthalene Trichloroethylene	ug/m^3 ug/m^3	2.23E+00 4.63E+01	NA NA	2.90E+00 1.16E+02	2.90E+00 1.16E+02	ug/m^3 ug/m^3	Max Max	1 1

TABLE 3.4.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Soil Vapor Concentration			
						Value	Units	Statistic	Rationale

Notes:
(1) The maximum detected concentration was used.

ug/m^3 = micrograms per cubic meter
Max = maximum detected concentration
NA = Not applicable
UCL = upper confidence limit
J = compound was detected below the reporting limit in the sample
+ = biased high
D = dilution

TABLE 3.4.RME SUPPLEMENT
CALCULATION OF INDOOR AIR EXPOSURE POINT CONCENTRATIONS
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Concentration in Soil Vapor		Exposure Point Concentration in Indoor Air	
		Value (1)	Units	Value (2)	Units
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	2.10E+01	ug/m^3	6.30E-01	ug/m^3
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	5.60E+01	ug/m^3	1.68E+00	ug/m^3
Indoor Air [redacted] (Subslab Soil Vapor)	Naphthalene Trichloroethylene	3.50E+00 3.90E+02	ug/m^3 ug/m^3	1.05E-01 1.17E+01	ug/m^3 ug/m^3
Indoor Air [redacted] (Exterior Soil Vapor)	Trichloroethylene	1.30E+02	ug/m^3	3.90E+00	ug/m^3
Indoor Air [redacted] (Exterior Soil Vapor)	1,3-Dichlorobenzene Trichloroethylene	1.30E+01 6.20E+01	ug/m^3 ug/m^3	3.90E-01 1.86E+00	ug/m^3 ug/m^3
Indoor Air [redacted] (Subslab Soil Vapor)	Naphthalene Trichloroethylene	2.90E+00 1.16E+02	ug/m^3 ug/m^3	8.70E-02 3.48E+00	ug/m^3 ug/m^3

Notes:

(1) Selection of soil vapor concentrations is presented on Table 3.4.

(2) The indoor air concentrations for soil vapor-to-indoor air were estimated using the EPA's VISL Calculator, November 2018 (EPA, 2018)

EPC in indoor air (ug/m^3) = Concentration in soil vapor (ug/m^3) x Attenuation Factor (0.03)

ug/m^3 = micrograms per cubic meter

AF = attenuation factor

EPC = exposure point concentration

RME = reasonable maximum exposure

TABLE 3.5.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration (Qualifier)	Soil Vapor Concentration			
						Value	Units	Statistic	Rationale
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	ug/m^3	NA	NA	1.70E+01	1.70E+01	ug/m^3	Max	1
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	ug/m^3	5.30E+01	NA	8.10E+01	8.10E+01	ug/m^3	Max	1
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	ug/m^3	NA	NA	3.00E+02	3.00E+02	ug/m^3	Max	1
Indoor Air [redacted] (Exterior Soil Vapor)	Benzene Trichloroethylene	ug/m^3 ug/m^3	1.03E+01 2.56E+01	NA NA	2.90E+01 5.40E+01	2.90E+01 5.40E+01	ug/m^3 ug/m^3	Max Max	1 1

Notes:
(1) The maximum detected concentration was used.

ug/m^3 = micrograms per cubic meter
Max = maximum detected concentration
NA = Not applicable
UCL = upper confidence limit

TABLE 3.5.RME SUPPLEMENT
CALCULATION OF INDOOR AIR EXPOSURE POINT CONCENTRATIONS
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Medium: Subslab and Exterior Soil Vapor
Exposure Medium: Indoor Air

Exposure Point	Chemical of Potential Concern	Concentration in Soil Vapor		Exposure Point Concentration in Indoor Air	
		Value (1)	Units	Value (2)	Units
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	1.70E+01	ug/m^3	5.10E-01	ug/m^3
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	8.10E+01	ug/m^3	2.43E+00	ug/m^3
Indoor Air [redacted] (Subslab Soil Vapor)	Trichloroethylene	3.00E+02	ug/m^3	9.00E+00	ug/m^3
Indoor Air [redacted] (Exterior Soil Vapor)	Benzene Trichloroethylene	2.90E+01 5.40E+01	ug/m^3 ug/m^3	8.70E-01 1.62E+00	ug/m^3 ug/m^3

Notes:

(1) Selection of soil vapor concentrations is presented on Table 3.5.

(2) The indoor air concentrations for soil vapor-to-indoor air were estimated using the EPA's VISL Calculator, November 2018 (EPA, 2018)
EPC in indoor air (ug/m^3) = Concentration in soil vapor (ug/m^3) x Attenuation Factor (0.03)

ug/m^3 = micrograms per cubic meter
AF = attenuation factor
EPC = exposure point concentration
RME = reasonable maximum exposure

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air and Crawl Space Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Indoor Air (Condominiums and Residential Properties)	CA	Chemical Concentration in Indoor Air	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) = CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	
				ED	Exposure Duration	20	years	EPA, 2014	
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-N	Averaging Time (Non-Cancer)	7,300	days	(1)	
		Child	Indoor Air (Condominiums and Residential Properties)	CA	Chemical Concentration in Indoor Air	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) = CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	
				ED	Exposure Duration	6	years	EPA, 2014	
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
		Child/Adult	Indoor Air (Condominiums and Residential Properties)	CA	Chemical Concentration in Indoor Air	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) = CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	
				ED	Exposure Duration, Resident	26	years	EPA, 2014	
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:

(1) Calculated as the product of ED (years) x 365 days/year.

(2) Calculated as the product of 70 years assumed human lifetime (EPA, 2014) x 365 days/year.

Unit:

mg/m^3 = milligram per cubic meter

hr = hour

Sources:

EPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014.

TABLE 4.1.RME Supplement A
VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)
REASONABLE MAXIMUM EXPOSURE
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air and Crawl Space Air

Exposure Route	Receptor Population	Exposure Point	Receptor Age	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Indoor Air	Young Child (0-<2 yrs)	CA ED	Chemical Concentration in Indoor Air Exposure Duration	See Table 3s.RME 2	mg/m^3 years	See Table 3s.RME --	Exposure Concentration (EC) (mg/m^3) = $CA_c \times ET_c \times EF \times ED_{0-2} \times CF \times 1/AT$
			Older Child (2-<6 yrs)	CA ED	Chemical Concentration in Indoor Air Exposure Duration	See Table 3s.RME 4	mg/m^3 years	See Table 3s.RME --	
			Adolescent (6-<16 yrs)	CA ED	Chemical Concentration in Indoor Air Exposure Duration	See Table 3s.RME 10	mg/m^3 years	See Table 3s.RME --	
			Adolescent/Adult Aggregate (16-<26 yrs)	CA ED	Chemical Concentration in Indoor Air Exposure Duration	See Table 3s.RME 10	mg/m^3 years	See Table 3s.RME --	
				ET EF AT-C	Exposure Time Exposure Frequency Averaging Time (Cancer)	24 350 25,550	hr/day days/year days	EPA, 2014 EPA, 2014 (1)	

Notes:
(1) Calculated as the product of 70 years assumed human lifetime (EPA, 2014) x 365 days/year.

Unit:
mg/m^3 = milligram per cubic meter
hr = hour

Sources:
EPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014.

TABLE 4.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current and Future
Medium: Soil Vapor (Subslab and Exterior)
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Indoor Air (Condominiums and Residential Properties)	CV	Chemical Concentration in Soil Vapor	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	CA calculated for soil vapor to indoor air using a
				ED	Exposure Duration	20	years	EPA, 2014	soil vapor-to-indoor air attenuation factor of 0.03.
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-N	Averaging Time (Non-Cancer)	7,300	days	(1)	
		Child	Indoor Air (Condominiums and Residential Properties)	CV	Chemical Concentration in Soil Vapor	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	CA calculated for soil vapor to indoor air using a
				ED	Exposure Duration	6	years	EPA, 2014	soil vapor-to-indoor air attenuation factor of 0.03.
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
		Child/Adult	Indoor Air (Condominiums and Residential Properties)	CV	Chemical Concentration in Soil Vapor	See Table 3s.RME	mg/m^3	See Table 3s.RME	EC (mg/m^3) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x ET x EF x ED x CF1 x 1/AT
				ET	Exposure Time	24	hr/day	EPA, 2014	
				EF	Exposure Frequency	350	days/year	EPA, 2014	CA calculated for soil vapor to indoor air using a
				ED	Exposure Duration, Resident	26	years	EPA, 2014	soil vapor-to-indoor air attenuation factor of 0.03.
				CF1	Conversion Factor 1	1/24	day/hour	- -	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:
(1) Calculated as the product of ED (years) x 365 days/year.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 2014) x 365 days/year.

Unit:
mg/m^3 = milligram per cubic meter
hr = hour

Sources:
EPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014.

TABLE 4.2.RME SUPPLEMENT A
VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)
REASONABLE MAXIMUM EXPOSURE
PMC Superfund Site
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current and Future
Medium: Soil Vapor (Subslab and Exterior)
Exposure Medium: Indoor Air

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Indoor Air (Condominiums and Residential Properties)	Child/Adult Aggregate	Young Child (0-<2 yrs)	CV CA ED	Chemical Concentration in Soil Vapor Chemical Concentration in Air Exposure Duration	See Table 3s.RME Calculated 2	mg/m^3 mg/m^3 years	See Table 3s.RME See Table 3s.RME --	Exposure Concentration (EC) (mg/m^3) = CA x ET x EF x ED x CF x 1/AT CA calculated for soil vapor to indoor air using a soil vapor-to-indoor air attenuation factor of 0.03.
				Older Child (2-<6 yrs)	CV CA ED	Chemical Concentration in Soil Vapor Chemical Concentration in Air Exposure Duration	See Table 3s.RME Calculated 4	mg/m^3 mg/m^3 years	See Table 3s.RME See Table 3s.RME --	
				Adolescent (6-<16 yrs)	CV CA ED	Chemical Concentration in Soil Vapor Chemical Concentration in Air Exposure Duration	See Table 3s.RME Calculated 10	mg/m^3 mg/m^3 years	See Table 3s.RME See Table 3s.RME --	
				Adolescent/Adult Aggregate (16-<26 yrs)	CV CA ED	Chemical Concentration in Soil Vapor Chemical Concentration in Air Exposure Duration	See Table 3s.RME Calculated 10	mg/m^3 mg/m^3 years	See Table 3s.RME See Table 3s.RME --	
					ET EF AT-C CF	Exposure Time Exposure Frequency Averaging Time (Cancer) Conversion Factor	24 350 25,550 0.000001	hr/day days/year days kg/mg	EPA, 2014 EPA, 2014 (1) - -	

Notes:
(1) Calculated as the product of 70 years assumed human lifetime (EPA, 2014) x 365 days/year.

Unit:
mg/m^3 = milligram per cubic meter
hr = hour

Sources:
EPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 6, 2014.

TABLE 5.1
NON-CANCER TOXICITY DATA -- INHALATION
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,3-Dichlorobenzene	Chronic	NA	NA	NA	NA	NA	NA
Benzene	Chronic	3.0E-02	mg/m^3	Immune	300	IRIS	03/07/2019
Naphthalene	Chronic	3.0E-03	mg/m^3	Nervous, Respiratory	3000	IRIS	03/07/2019
Trichloroethylene	Chronic	2.0E-03	mg/m^3	Developmental, Cardiovascular, Immune System	10-1000	IRIS	03/07/2019

Definitions:
IRIS = Integrated Risk Information System
NA = Not Available
mg/m^3 = milligram per cubic meter
NA = Not Available
RfC = Reference Concentration

TABLE 6.1
CANCER TOXICITY DATA -- INHALATION
PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Chemical of Potential Concern	Unit Risk		Weight of Evidence/ Cancer Guideline Description	Unit Risk	
	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,3-Dichlorobenzene	NA	NA	NA	NA	NA
Benzene	7.8E-06	$(\mu g/m^3)^{-1}$	Known/likely human carcinogen	IRIS	03/07/2019
Naphthalene	3.4E-05	$(\mu g/m^3)^{-1}$	Carcinogenic potential cannot be determined	Cal EPA	03/07/2019
Trichloroethylene	4.1E-06	$(ug/m^3)^{-1}$	Carcinogenic to humans	IRIS	03/07/2019
Trichloroethylene (kidney) (1)	1.0E-06	$(ug/m^3)^{-1}$	Carcinogenic to humans	IRIS	03/07/2019
Trichloroethylene (NHL + Liver)	3.1E-06	$(ug/m^3)^{-1}$	Carcinogenic to humans	IRIS	03/07/2019

Definitions: IRIS = Integrated Risk Information System
NA = Not Available
$\mu g/m^3$ = microgram per cubic meter
Cal EPA = California Environmental Protection Agency

(1) This chemical operates with a mutagenic mode of action (EPA 2005) and would exhibit a greater effect in early-life versus later-life exposure. With the exception of vinyl chloride, chemical-specific toxicity data are not available for childhood and early-life exposures; thus, EPA (2005) default age-dependent adjustment factors (ADAF) will be applied to the inhalation unit risk as follows:

AGE (years)	AGE ADAF
0-<2	10
2-<16	3
16-<26	1

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.5E-01	ug/m^3	NA	NA	NA	NA	NA	3.4E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.1E-01	ug/m^3	NA	NA	NA	NA	NA	5.8E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air Total [redacted]											NA					3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.7E-01	ug/m^3	NA	NA	NA	NA	NA	2.6E-04	mg/m^3	2.0E-03	mg/m^3	1E-01
			Exp. Route Total								NA					1E-01
		Exposure Point Total									NA					1E-01
	Exposure Medium Total										NA					1E-01
Indoor Air Total [redacted]											NA					1E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.0E-01	ug/m^3	NA	NA	NA	NA	NA	2.9E-04	mg/m^3	2.0E-03	mg/m^3	1E-01
			Exp. Route Total								NA					1E-01
		Exposure Point Total									NA					1E-01
	Exposure Medium Total										NA					1E-01
Indoor Air Total [redacted]											NA					1E-01

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.3E+00	ug/m^3	NA	NA	NA	NA	NA	1.2E-03	mg/m^3	2.0E-03	mg/m^3	6E-01
			Exp. Route Total								NA					6E-01
		Exposure Point Total									NA					6E-01
	Exposure Medium Total										NA					6E-01
Indoor Air Total [redacted]											NA					6E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.5E-01	ug/m^3	NA	NA	NA	NA	NA	3.4E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.1E-01	ug/m^3	NA	NA	NA	NA	NA	5.8E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air Total [redacted]											NA					3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.7E-01	ug/m^3	NA	NA	NA	NA	NA	2.6E-04	mg/m^3	2.0E-03	mg/m^3	1E-01
			Exp. Route Total								NA					1E-01
		Exposure Point Total									NA					1E-01
	Exposure Medium Total										NA					1E-01
Indoor Air Total [redacted]											NA					1E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.0E-01	ug/m^3	NA	NA	NA	NA	NA	2.9E-04	mg/m^3	2.0E-03	mg/m^3	1E-01
			Exp. Route Total								NA					1E-01
		Exposure Point Total									NA					1E-01
	Exposure Medium Total										NA					1E-01
Indoor Air Total [redacted]											NA					1E-01

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.3E+00	ug/m^3	NA	NA	NA	NA	NA	1.2E-03	mg/m^3	2.0E-03	mg/m^3	6E-01
			Exp. Route Total								NA					6E-01
		Exposure Point Total									NA					6E-01
	Exposure Medium Total										NA					6E-01
Indoor Air Tota[redacted]											NA					6E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.5E-01	ug/m^3	1.2E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	9.E-07	NA	NA	NA	NA	NA
			Exp. Route Total								9.E-07					NA
		Exposure Point Total									9.E-07					NA
	Exposure Medium Total										9.E-07					NA
Indoor Air Total [redacted]											9.E-07					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.1E-01	ug/m^3	2.2E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	1.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-06					NA
		Exposure Point Total									1.E-06					NA
	Exposure Medium Total										1.E-06					NA
Indoor Air Total [redacted]											1.E-06					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.7E-01	ug/m^3	9.6E-02	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	7.E-07	NA	NA	NA	NA	NA
			Exp. Route Total								7.E-07					NA
		Exposure Point Total									7.E-07					NA
	Exposure Medium Total										7.E-07					NA
Indoor Air Total [redacted]											7.E-07					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.0E-01	ug/m^3	1.1E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	7.E-07	NA	NA	NA	NA	NA
			Exp. Route Total								7.E-07					NA
		Exposure Point Total									7.E-07					NA
	Exposure Medium Total										7.E-07					NA
Indoor Air Total [redacted]											7.E-07					NA

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]6	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.3E+00	ug/m^3	4.6E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	3.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								3.E-06					NA
		Exposure Point Total									3.E-06					NA
	Exposure Medium Total										3.E-06					NA
Indoor Air Total [redacted]											3.E-06					NA

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
See Table 7.3.RME Supplement A for calculation of intake and cancer risk following MMOA method for Trichloroethylene.

TABLE 7.3.RME SUPPLEMENT A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations									
							Intake									Cancer Risk
					Value	Units	Value				Units	Value			Units	
							0-2 yrs	2-6 yrs	6-16 yrs	16-26 yrs		0-2 yrs (ADAF = 10)	2-16 yrs (ADAF = 3)	16-26 yrs (ADAF = 1)		
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	3.5E-01	ug/m^3	9.6E-06	1.9E-05	4.8E-05	4.8E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	3.5E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	6.1E-01	ug/m^3	1.7E-05	3.3E-05	8.4E-05	8.4E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	6.0E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	2.7E-01	ug/m^3	7.4E-06	1.5E-05	3.7E-05	3.7E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	2.7E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	3.0E-01	ug/m^3	8.2E-06	1.6E-05	4.1E-05	4.1E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	3.0E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	1.3E+00	ug/m^3	3.6E-05	7.1E-05	1.8E-04	1.8E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	1.3E-06

Note:

(1) Risk estimates for trichloroethene (TCE) take into account the mutagenic mode of action on the kidney and are added to the risk estimates for liver and non-Hodgkin's Lymphoma.

ADAF = age-dependent adjustment factors

CSF = Cancer slope factor

EPC = Exposure point concentration

µg/m^3= microgram per cubic meter

mg/m^3= milligram per cubic meter

TABLE 7.4.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	8.1E-01	ug/m^3	NA	NA	NA	NA	NA	7.8E-04	mg/m^3	2.0E-03	mg/m^3	4E-01
			Exp. Route Total								NA					4E-01
		Exposure Point Total									NA					4E-01
	Exposure Medium Total										NA					4E-01
Indoor Air Total [redacted]											NA					4E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.8E-01	ug/m^3	NA	NA	NA	NA	NA	6.5E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air [redacted]											NA					3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.4E-01	ug/m^3	NA	NA	NA	NA	NA	3.3E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.7E-01	ug/m^3	NA	NA	NA	NA	NA	4.5E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01

TABLE 7.4.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.3E-01	ug/m^3	NA	NA	NA	NA	NA	4.1E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	8.1E-01	ug/m^3	NA	NA	NA	NA	NA	7.8E-04	mg/m^3	2.0E-03	mg/m^3	4E-01
			Exp. Route Total								NA					4E-01
		Exposure Point Total									NA					4E-01
	Exposure Medium Total										NA					4E-01
Indoor Air Total [redacted]											NA					4E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.8E-01	ug/m^3	NA	NA	NA	NA	NA	6.5E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air Total [redacted]											NA					3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.4E-01	ug/m^3	NA	NA	NA	NA	NA	3.3E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Tota [redacted]											NA					2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.7E-01	ug/m^3	NA	NA	NA	NA	NA	4.5E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.3E-01	ug/m^3	NA	NA	NA	NA	NA	4.1E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	8.1E-01	ug/m^3	2.9E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	2.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								2.E-06					NA
		Exposure Point Total									2.E-06					NA
	Exposure Medium Total										2.E-06					NA
Indoor Air Total [redacted]											2.E-06					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.8E-01	ug/m^3	2.4E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	2.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								2.E-06					NA
		Exposure Point Total									2.E-06					NA
	Exposure Medium Total										2.E-06					NA
Indoor Air Total [redacted]											2.E-06					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.4E-01	ug/m^3	1.2E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	8.E-07	NA	NA	NA	NA	NA
			Exp. Route Total								8.E-07					NA
		Exposure Point Total									8.E-07					NA
	Exposure Medium Total										8.E-07					NA
Indoor Air Total [redacted]											8.E-07					NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.7E-01	ug/m^3	1.7E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	1.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-06					NA
		Exposure Point Total									1.E-06					NA
	Exposure Medium Total										1.E-06					NA
Indoor Air Total [redacted]											1.E-06					NA

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	4.3E-01	ug/m^3	1.5E-01	ug/m^3	4.1E-06	$(ug/m^3)^{-1}$	1.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-06					NA
		Exposure Point Total									1.E-06					NA
	Exposure Medium Total										1.E-06					NA
Indoor Air Total [redacted]											1.E-06					NA

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
$\mu g/m^3$= microgram per cubic meter
See Table 7.6.RME Supplement A for calculation of intake and cancer risk following MMOA method for Trichloroethylene.

TABLE 7.6.RME SUPPLEMENT A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations									
							Intake									
							Value				Units	Value			Units	Cancer Risk
					Value	Units	0-2 yrs	2-6 yrs	6-16 yrs	16-26 yrs		0-2 yrs (ADAF = 10)	2-16 yrs (ADAF = 3)	16-26 yrs (ADAF = 1)		
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethene (1)	8.1E-01	ug/m^3	2.2E-05	4.4E-05	1.1E-04	1.1E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	8.0E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethene (1)	6.8E-01	ug/m^3	1.9E-05	3.7E-05	9.3E-05	9.3E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	6.7E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethene (1)	3.4E-01	ug/m^3	9.3E-06	1.9E-05	4.7E-05	4.7E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	3.4E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethene (1)	4.7E-01	ug/m^3	1.3E-05	2.6E-05	6.4E-05	6.4E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	4.6E-07
Indoor Air [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethene (1)	4.3E-01	ug/m^3	1.2E-05	2.4E-05	5.9E-05	5.9E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	4.2E-07

Note:
(1) Risk estimates for trichloroethene (TCE) take into account the mutagenic mode of action on the kidney and are added to the risk estimates for liver and non-Hodgkin's Lymphoma.
ADAF = age-dependent adjustment factors
CSF = Cancer slope factor
EPC = Exposure point concentration
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	1.5E+00	ug/m^3	NA	NA	NA	NA	NA	1.4E-03	mg/m^3	3.0E-02	mg/m^3	5E-02
			Exp. Route Total								NA					5E-02
		Exposure Point Total									NA					5E-02
	Exposure Medium Total										NA					5E-02
Indoor Air [redacted]											NA					5E-02

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.8.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	1.5E+00	ug/m^3	NA	NA	NA	NA	NA	1.4E-03	mg/m^3	3.0E-02	mg/m^3	5E-02
			Exp. Route Total								NA					5E-02
		Exposure Point Total									NA					5E-02
	Exposure Medium Total										NA					5E-02
Indoor Air [redacted]											NA					5E-02

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	1.5E+00	ug/m^3	5.2E-01	ug/m^3	7.8E-06	$(ug/m^3)^{-1}$	4.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								4.E-06					NA
		Exposure Point Total									4.E-06					NA
	Exposure Medium Total										4.E-06					NA
Indoor Air [redacted]											4.E-06					NA

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
$\mu g/m^3$= microgram per cubic meter
mg/kg = milligram per kilogram
mg/kg/day = milligram per kilogram per day

TABLE 7.10.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.30E-01	ug/m^3	NA	NA	NA	NA	NA	6.0E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air Total [redacted]											NA					3E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.7E+00	ug/m^3	NA	NA	NA	NA	NA	1.6E-03	mg/m^3	2.0E-03	mg/m^3	8E-01
			Exp. Route Total								NA					8E-01
		Exposure Point Total									NA					8E-01
	Exposure Medium Total										NA					8E-01
Indoor Air Total [redacted]											NA					8E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	1.05E-01	ug/m^3	NA	NA	NA	NA	NA	1.0E-04	mg/m^3	3.0E-03	mg/m^3	3E-02
				Trichloroethylene	1.17E+01	ug/m^3	NA	NA	NA	NA	NA	1.1E-02	mg/m^3	2.0E-03	mg/m^3	6E+00
			Exp. Route Total								NA					6E+00
		Exposure Point Total									NA					6E+00
	Exposure Medium Total										NA					6E+00
Indoor Air Total [redacted]											NA					6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.90E+00	ug/m^3	NA	NA	NA	NA	NA	3.7E-03	mg/m^3	2.0E-03	mg/m^3	2E+00
			Exp. Route Total								NA					2E+00
		Exposure Point Total									NA					2E+00
	Exposure Medium Total										NA					2E+00
Indoor Air Total [redacted]											NA					2E+00

TABLE 7.10.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	1,3-Dichlorobenzene	3.9E-01	ug/m^3	NA	NA	NA	NA	NA	3.7E-04	mg/m^3	NA	NA	NA
				Trichloroethylene	1.9E+00	ug/m^3	NA	NA	NA	NA	NA	1.8E-03	mg/m^3	2.0E-03	mg/m^3	9E-01
			Exp. Route Total								NA					9E-01
		Exposure Point Total									NA					9E-01
	Exposure Medium Total										NA					9E-01
Indoor Air Total [redacted]											NA					9E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	8.7E-02	ug/m^3	NA	NA	NA	NA	NA	8.3E-05	mg/m^3	3.0E-03	mg/m^3	3E-02
				Trichloroethylene	3.5E+00	ug/m^3	NA	NA	NA	NA	NA	3.3E-03	mg/m^3	2.0E-03	mg/m^3	2E+00
			Exp. Route Total								NA					2E+00
		Exposure Point Total									NA					2E+00
	Exposure Medium Total										NA					2E+00
Indoor Air Total [redacted]											NA					2E+00

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.11.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.30E-01	ug/m^3	NA	NA	NA	NA	NA	6.0E-04	mg/m^3	2.0E-03	mg/m^3	3E-01
			Exp. Route Total								NA					3E-01
		Exposure Point Total									NA					3E-01
	Exposure Medium Total										NA					3E-01
Indoor Air Total [redacted]											NA					3E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.7E+00	ug/m^3	NA	NA	NA	NA	NA	1.6E-03	mg/m^3	2.0E-03	mg/m^3	8E-01
			Exp. Route Total								NA					8E-01
		Exposure Point Total									NA					8E-01
	Exposure Medium Total										NA					8E-01
Indoor Air Total [redacted]											NA					8E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	1.05E-01	ug/m^3	NA	NA	NA	NA	NA	1.0E-04	mg/m^3	3.0E-03	mg/m^3	3E-02
				Trichloroethylene	1.17E+01	ug/m^3	NA	NA	NA	NA	NA	1.1E-02	mg/m^3	2.0E-03	mg/m^3	6E+00
			Exp. Route Total								NA					6E+00
		Exposure Point Total									NA					6E+00
	Exposure Medium Total										NA					6E+00
Indoor Air Total [redacted]											NA					6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.90E+00	ug/m^3	NA	NA	NA	NA	NA	3.7E-03	mg/m^3	2.0E-03	mg/m^3	2E+00
			Exp. Route Total								NA					2E+00
		Exposure Point Total									NA					2E+00
	Exposure Medium Total										NA					2E+00
Indoor Air Total [redacted]											NA					2E+00

TABLE 7.11.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	1,3-Dichlorobenzene	3.9E-01	ug/m^3	NA	NA	NA	NA	NA	3.7E-04	mg/m^3	NA	NA	NA
				Trichloroethylene	1.9E+00	ug/m^3	NA	NA	NA	NA	NA	1.8E-03	mg/m^3	2.0E-03	mg/m^3	9E-01
			Exp. Route Total								NA					9E-01
		Exposure Point Total									NA					9E-01
	Exposure Medium Total										NA					9E-01
Indoor Air Total [redacted]											NA					9E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	8.7E-02	ug/m^3	NA	NA	NA	NA	NA	8.3E-05	mg/m^3	3.0E-03	mg/m^3	3E-02
				Trichloroethylene	3.5E+00	ug/m^3	NA	NA	NA	NA	NA	3.3E-03	mg/m^3	2.0E-03	mg/m^3	2E+00
			Exp. Route Total								NA					2E+00
		Exposure Point Total									NA					2E+00
	Exposure Medium Total										NA					2E+00
Indoor Air Total [redacted]											NA					2E+00

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter
mg/kg = milligram per kilogram
mg/kg/day = milligram per kilogram per day

TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	6.30E-01	ug/m^3	2.2E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	2.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								2.E-06					NA
		Exposure Point Total									2.E-06					NA
	Exposure Medium Total										2.E-06					NA
Indoor Air Total [redacted]											2.E-06					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	1.7E+00	ug/m^3	6.0E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	4.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								4.E-06					NA
		Exposure Point Total									4.E-06					NA
	Exposure Medium Total										4.E-06					NA
Indoor Air Total [redacted]											4.E-06					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	1.05E-01	ug/m^3	3.7E-02	ug/m^3	3.4E-05	(ug/m^3)$^{-1}$	1.E-06	NA	NA	NA	NA	NA
				Trichloroethylene	1.17E+01	ug/m^3	4.2E+00	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	3.E-05	NA	NA	NA	NA	NA
			Exp. Route Total								3.E-05					NA
		Exposure Point Total									3.E-05					NA
	Exposure Medium Total										3.E-05					NA
Indoor Air Total [redacted]											3.E-05					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	3.90E+00	ug/m^3	1.4E+00	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	1.E-05	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-05					NA
		Exposure Point Total									1.E-05					NA
	Exposure Medium Total										1.E-05					NA
Indoor Air Total [redacted]											1.E-05					NA

TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	1,3-Dichlorobenzene	3.9E-01	ug/m^3	1.4E-01	ug/m^3	NA	(ug/m^3)$^{-1}$	NA	NA	NA	NA	NA	NA
				Trichloroethylene	1.9E+00	ug/m^3	6.6E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	5.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								5.E-06					NA
		Exposure Point Total									5.E-06					NA
	Exposure Medium Total										5.E-06					NA
Indoor Air Total [redacted]											5.E-06					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Naphthalene	8.7E-02	ug/m^3	3.1E-02	ug/m^3	3.4E-05	(ug/m^3)$^{-1}$	1.E-06	NA	NA	NA	NA	NA
				Trichloroethylene	3.5E+00	ug/m^3	1.2E+00	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	9.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-05					NA
		Exposure Point Total									1.E-05					NA
	Exposure Medium Total										1.E-05					NA
Indoor Air Total [redacted]											1.E-05					NA

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
See Table 7.12.RME Supplement A for calculation of intake and cancer risk following MMOA method for Trichloroethylene.

TABLE 7.12.RME SUPPLEMENT A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations									
							Intake									Cancer Risk
							Value				Units	Value			Units	
					Value	Units	0-2 yrs	2-6 yrs	6-16 yrs	16-26 yrs		0-2 yrs (ADAF = 10)	2-16 yrs (ADAF = 3)	16-26 yrs (ADAF = 1)		
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	6.3E-01	ug/m^3	1.7E-05	3.5E-05	8.6E-05	8.6E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	6.2E-07
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	1.7E+00	ug/m^3	4.6E-05	9.2E-05	2.3E-04	2.3E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	1.7E-06
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	1.2E+01	ug/m^3	3.2E-04	6.4E-04	1.6E-03	1.6E-03	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	1.2E-05
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	3.9E+00	ug/m^3	1.1E-04	2.1E-04	5.3E-04	5.3E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	3.8E-06
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	1.9E+00	ug/m^3	5.1E-05	1.0E-04	2.5E-04	2.5E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	1.8E-06
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	3.5E+00	ug/m^3	9.5E-05	1.9E-04	4.8E-04	4.8E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	1/(ug/m^3)	3.4E-06

Note:
(1) Risk estimates for trichloroethylene (TCE) take into account the mutagenic mode of action on the kidney and are added to the risk estimates for liver and non-Hodgkin's Lymphoma.
ADAF = age-dependent adjustment factors
CSF = Cancer slope factor
EPC = Exposure point concentration
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	5.10E-01	ug/m^3	NA	NA	NA	NA	NA	4.9E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air [redacted]											NA					2E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.43E+00	ug/m^3	NA	NA	NA	NA	NA	2.3E-03	mg/m^3	2.0E-03	mg/m^3	1E+00
			Exp. Route Total								NA					1E+00
		Exposure Point Total									NA					1E+00
	Exposure Medium Total										NA					1E+00
Indoor Air Total [redacted]											NA					1E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	9.00E+00	ug/m^3	NA	NA	NA	NA	NA	8.6E-03	mg/m^3	2.0E-03	mg/m^3	4E+00
			Exp. Route Total								NA					4E+00
		Exposure Point Total									NA					4E+00
	Exposure Medium Total										NA					4E+00
Indoor Air Total [redacted]											NA					4E+00

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	8.70E-01	ug/m^3	NA	NA	NA	NA	NA	8.3E-04	mg/m^3	3.0E-02	mg/m^3	3E-02
				Trichloroethylene	1.62E+00	ug/m^3	NA	NA	NA	NA	NA	1.6E-03	mg/m^3	2.0E-03	mg/m^3	8E-01
			Exp. Route Total								NA					8E-01
		Exposure Point Total									NA					8E-01
	Exposure Medium Total										NA					8E-01
Indoor Air Total [redacted]											NA					8E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	5.10E-01	ug/m^3	NA	NA	NA	NA	NA	4.9E-04	mg/m^3	2.0E-03	mg/m^3	2E-01
			Exp. Route Total								NA					2E-01
		Exposure Point Total									NA					2E-01
	Exposure Medium Total										NA					2E-01
Indoor Air Total [redacted]											NA					2E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.43E+00	ug/m^3	NA	NA	NA	NA	NA	2.3E-03	mg/m^3	2.0E-03	mg/m^3	1E+00
			Exp. Route Total								NA					1E+00
		Exposure Point Total									NA					1E+00
	Exposure Medium Total										NA					1E+00
Indoor Air Total [redacted]											NA					1E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	9.00E+00	ug/m^3	NA	NA	NA	NA	NA	8.6E-03	mg/m^3	2.0E-03	mg/m^3	4E+00
			Exp. Route Total								NA					4E+00
		Exposure Point Total									NA					4E+00
	Exposure Medium Total										NA					4E+00
Indoor Air Total [redacted]											NA					4E+00

TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	8.70E-01	ug/m^3	NA	NA	NA	NA	NA	8.3E-04	mg/m^3	3.0E-02	mg/m^3	3E-02
				Trichloroethylene	1.62E+00	ug/m^3	NA	NA	NA	NA	NA	1.6E-03	mg/m^3	2.0E-03	mg/m^3	8E-01
			Exp. Route Total								NA					8E-01
		Exposure Point Total									NA					8E-01
	Exposure Medium Total										NA					8E-01
Indoor Air Total [redacted]											NA					8E-01

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 7.15.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	5.10E-01	ug/m^3	1.8E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	1.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.E-06					NA
		Exposure Point Total									1.E-06					NA
	Exposure Medium Total										1.E-06					NA
Indoor Air Total [redacted]											1.E-06					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	2.43E+00	ug/m^3	8.7E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	6.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								6.E-06					NA
		Exposure Point Total									6.E-06					NA
	Exposure Medium Total										6.E-06					NA
Indoor Air Total [redacted]											6.E-06					NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene	9.00E+00	ug/m^3	3.2E+00	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	2.E-05	NA	NA	NA	NA	NA
			Exp. Route Total								2.E-05					NA
		Exposure Point Total									2.E-05					NA
	Exposure Medium Total										2.E-05					NA
Indoor Air Total [redacted]											2.E-05					NA

TABLE 7.15.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Benzene	8.70E-01	ug/m^3	3.1E-01	ug/m^3	7.8E-06	(ug/m^3)$^{-1}$	2.E-06	NA	NA	NA	NA	NA
				Trichloroethylene	1.62E+00	ug/m^3	5.8E-01	ug/m^3	4.1E-06	(ug/m^3)$^{-1}$	4.E-06	NA	NA	NA	NA	NA
			Exp. Route Total								6.E-06					NA
		Exposure Point Total									6.E-06					NA
	Exposure Medium Total										6.E-06					NA
Indoor Air Total [redacted]											6.E-06					NA

Notes:
CSF = Cancer slope factor
EPC = Exposure point concentration
NA = Not applicable/Not available
RfC = Reference concentration
RfD = Reference dose
µg/m^3= microgram per cubic meter
See Table 7.15.RME Supplement A for calculation of intake and cancer risk following MMOA method for Trichloroethylene.

TABLE 7.15.RME SUPPLEMENT A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2

Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations									
							Intake									Cancer Risk
							Value				Units	Value			Units	
					Value	Units	0-2 yrs	2-6 yrs	6-16 yrs	16-26 yrs		0-2 yrs (ADAF = 10)	2-16 yrs (ADAF = 3)	16-26 yrs (ADAF = 1)		
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	5.1E-01	ug/m^3	1.4E-05	2.8E-05	7.0E-05	7.0E-05	mg/m^3	1.0E-05	3.0E-06	1.0E-06	$1/(ug/m^3)$	5.0E-07
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	2.4E+00	ug/m^3	6.7E-05	1.3E-04	3.3E-04	3.3E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	$1/(ug/m^3)$	2.4E-06
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	9.0E+00	ug/m^3	2.5E-04	4.9E-04	1.2E-03	1.2E-03	mg/m^3	1.0E-05	3.0E-06	1.0E-06	$1/(ug/m^3)$	8.9E-06
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Inhalation	Trichloroethylene (1)	1.6E+00	ug/m^3	4.4E-05	8.9E-05	2.2E-04	2.2E-04	mg/m^3	1.0E-05	3.0E-06	1.0E-06	$1/(ug/m^3)$	1.6E-06

Note:
(1) Risk estimates for trichloroethylene (TCE) take into account the mutagenic mode of action on the kidney and are added to the risk estimates for liver and non-Hodgkin's Lymphoma.
ADAF = age-dependent adjustment factors
CSF = Cancer slope factor
EPC = Exposure point concentration
$\mu g/m^3$= microgram per cubic meter
mg/m^3= milligram per cubic meter

TABLE 9.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E-01	NA	1E-01
		Exposure Point Total		NA	NA	NA	NA		NA	1E-01	NA	1E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E-01	NA	1E-01
		Exposure Point Total		NA	NA	NA	NA		NA	1E-01	NA	1E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E-01	NA	1E-01

TABLE 9.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E-01	NA	6E-01
		Exposure Point Total		NA	NA	NA	NA		NA	6E-01	NA	6E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	6E-01	NA	6E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E-01	NA	6E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.1
Total Cardiovascular HI Across Media =	0.1
Total Immune System HI Across Media =	0.1

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	0.6
Total Cardiovascular HI Across Media =	0.6
Total Immune System HI Across Media =	0.6

[redacted] 4

Total Developmental HI Across Media =	0.1
Total Cardiovascular HI Across Media =	0.1
Total Immune System HI Across Media =	0.1

TABLE 9.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E-01	NA	1E-01
		Exposure Point Total		NA	NA	NA	NA		NA	1E-01	NA	1E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E-01	NA	1E-01
		Exposure Point Total		NA	NA	NA	NA		NA	1E-01	NA	1E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	1E-01	NA	1E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E-01	NA	1E-01

TABLE 9.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E-01	NA	6E-01
		Exposure Point Total		NA	NA	NA	NA		NA	6E-01	NA	6E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	6E-01	NA	6E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E-01	NA	6E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.1
Total Cardiovascular HI Across Media =	0.1
Total Immune System HI Across Media =	0.1

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	0.6
Total Cardiovascular HI Across Media =	0.6
Total Immune System HI Across Media =	0.6

[redacted]

Total Developmental HI Across Media =	0.1
Total Cardiovascular HI Across Media =	0.1
Total Immune System HI Across Media =	0.1

TABLE 9.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	9E-07	NA	9E-07	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	9E-07	NA	9E-07		NA	NA	NA	NA
	Exposure Medium Total			NA	9E-07	NA	9E-07		NA	NA	NA	NA
Indoor Air [redacted]				NA	9E-07	NA	9E-07		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	1E-06	NA	1E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-06	NA	1E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-06	NA	1E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	1E-06	NA	1E-06		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	7E-07	NA	7E-07	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	7E-07	NA	7E-07		NA	NA	NA	NA
	Exposure Medium Total			NA	7E-07	NA	7E-07		NA	NA	NA	NA
Indoor Air [redacted]				NA	7E-07	NA	7E-07		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	7E-07	NA	7E-07	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	7E-07	NA	7E-07		NA	NA	NA	NA
	Exposure Medium Total			NA	7E-07	NA	7E-07		NA	NA	NA	NA

TABLE 9.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]				NA	7E-07	NA	7E-07		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	3E-06	NA	3E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	3E-06	NA	3E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	3E-06	NA	3E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	3E-06	NA	3E-06		NA	NA	NA	NA

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E-01	NA	4E-01
		Exposure Point Total		NA	NA	NA	NA		NA	4E-01	NA	4E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	4E-01	NA	4E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E-01	NA	4E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01

TABLE 9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.4
Total Cardiovascular HI Across Media =	0.4
Total Immune System HI Across Media =	0.4

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

TABLE 9.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E-01	NA	4E-01
		Exposure Point Total		NA	NA	NA	NA		NA	4E-01	NA	4E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	4E-01	NA	4E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E-01	NA	4E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01

TABLE 9.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.4
Total Cardiovascular HI Across Media =	0.4
Total Immune System HI Across Media =	0.4

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

TABLE 9.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	2E-06	NA	2E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	2E-06	NA	2E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	2E-06	NA	2E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	2E-06	NA	2E-06		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	2E-06	NA	2E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	2E-06	NA	2E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	2E-06	NA	2E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	2E-06	NA	2E-06		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	8E-07	NA	8E-07	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	8E-07	NA	8E-07		NA	NA	NA	NA
	Exposure Medium Total			NA	8E-07	NA	8E-07		NA	NA	NA	NA
Indoor Air [redacted]				NA	8E-07	NA	8E-07		NA	NA	NA	NA
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	1E-06	NA	1E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-06	NA	1E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-06	NA	1E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	1E-06	NA	1E-06		NA	NA	NA	NA

TABLE 9.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Indoor Air [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	1E-06	NA	1E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-06	NA	1E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-06	NA	1E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	1E-06	NA	1E-06		NA	NA	NA	NA

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.7.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Benzene	NA	NA	NA	NA	Immune System	NA	5E-02	NA	5E-02
		Exposure Point Total		NA	NA	NA	NA		NA	5E-02	NA	5E-02
	Exposure Medium Total			NA	NA	NA	NA		NA	5E-02	NA	5E-02
Indoor Air [redacted]				NA	NA	NA	NA		NA	5E-02	NA	5E-02

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Immune System HI Across Media = 0.05

TABLE 9.8.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Benzene	NA	NA	NA	NA	Immune System	NA	5E-02	NA	5E-02
		Exposure Point Total		NA	NA	NA	NA		NA	5E-02	NA	5E-02
	Exposure Medium Total			NA	NA	NA	NA		NA	5E-02	NA	5E-02
Indoor Air [redacted]				NA	NA	NA	NA		NA	5E-02	NA	5E-02

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Immune System HI Across Media = 0.05

TABLE 9.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Current/Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Exterior Soil Vapor [redacted]	Indoor Air	Indoor Air	Benzene	NA	4E-06	NA	4E-06	Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	4E-06	NA	4E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	4E-06	NA	4E-06		NA	NA	NA	NA
Indoor Air [redacted]				NA	4E-06	NA	4E-06		NA	NA	NA	NA

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.10.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	8E-01	NA	8E-01
		Exposure Point Total		NA	NA	NA	NA		NA	8E-01	NA	8E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	8E-01	NA	8E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	8E-01	NA	8E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Naphthalene	NA	NA	NA	NA	Neurotoxicity, Respiratory System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E+00	NA	6E+00
		Exposure Point Total		NA	NA	NA	NA		NA	6E+00	NA	6E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	6E+00	NA	6E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E+00	NA	6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

TABLE 9.10.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	9E-01	NA	9E-01
		Exposure Point Total		NA	NA	NA	NA		NA	9E-01	NA	9E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	9E-01	NA	9E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	9E-01	NA	9E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Naphthalene	NA	NA	NA	NA	Neurotoxicity, Respiratory System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

Notes:
HI = Hazard Index
NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	**2**
Total Cardiovascular HI Across Media =	**2**
Total Immune System HI Across Media =	**2**

[redacted]

Total Developmental HI Across Media =	0.8
Total Cardiovascular HI Across Media =	0.8
Total Immune System HI Across Media =	0.8

[redacted]

Total Developmental HI Across Media =	0.9
Total Cardiovascular HI Across Media =	0.9
Total Immune System HI Across Media =	0.9

[redacted]

Total Developmental HI Across Media =	**6**
Total Cardiovascular HI Across Media =	**6**
Total Immune System HI Across Media =	**6**
Total Neurotoxicity HI Across Media =	0.03
Total Respiratory System HI Across Media =	0.03

[redacted]

Total Developmental HI Across Media =	**2**
Total Cardiovascular HI Across Media =	**2**
Total Immune System HI Across Media =	**2**
Total Neurotoxicity HI Across Media =	0.03
Total Respiratory System HI Across Media =	0.03

TABLE 9.11.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	3E-01	NA	3E-01
		Exposure Point Total		NA	NA	NA	NA		NA	3E-01	NA	3E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-01	NA	3E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	3E-01	NA	3E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	8E-01	NA	8E-01
		Exposure Point Total		NA	NA	NA	NA		NA	8E-01	NA	8E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	8E-01	NA	8E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	8E-01	NA	8E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Naphthalene	NA	NA	NA	NA	Neurotoxicity, Respiratory System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E+00	NA	6E+00
		Exposure Point Total		NA	NA	NA	NA		NA	6E+00	NA	6E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	6E+00	NA	6E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E+00	NA	6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

TABLE 9.11.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	9E-01	NA	9E-01
		Exposure Point Total		NA	NA	NA	NA		NA	9E-01	NA	9E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	9E-01	NA	9E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	9E-01	NA	9E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Naphthalene	NA	NA	NA	NA	Neurotoxicity, Respiratory System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

Notes:
HI = Hazard Index
NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	0.3
Total Cardiovascular HI Across Media =	0.3
Total Immune System HI Across Media =	0.3

[redacted]

Total Developmental HI Across Media =	**2**
Total Cardiovascular HI Across Media =	**2**
Total Immune System HI Across Media =	**2**

[redacted]

Total Developmental HI Across Media =	0.8
Total Cardiovascular HI Across Media =	0.8
Total Immune System HI Across Media =	0.8

[redacted]

Total Developmental HI Across Media =	0.9
Total Cardiovascular HI Across Media =	0.9
Total Immune System HI Across Media =	0.9

[redacted]

Total Developmental HI Across Media =	**6**
Total Cardiovascular HI Across Media =	**6**
Total Immune System HI Across Media =	**6**
Total Neurotoxicity HI Across Media =	0.03
Total Respiratory System HI Across Media =	0.03

[redacted]

Total Developmental HI Across Media =	**2**
Total Cardiovascular HI Across Media =	**2**
Total Immune System HI Across Media =	**2**
Total Neurotoxicity HI Across Media =	0.03
Total Respiratory System HI Across Media =	0.03

TABLE 9.12.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted] 1	Indoor Air	Indoor Air	Trichloroethylene	NA	2E-06	NA	2E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	2E-06	NA	2E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	2E-06	NA	2E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	2E-06	NA	2E-06		NA	NA	NA	NA
Subslab Soil Vapor 200[redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	4E-06	NA	4E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	4E-06	NA	4E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	4E-06	NA	4E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	4E-06	NA	4E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted] 3	Indoor Air	Indoor Air	Naphthalene	NA	1E-06	NA	1E-06	Neurotoxicity, Respiratory System	NA	NA	NA	NA
			Trichloroethylene	NA	3E-05	NA	3E-05	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	3E-05	NA	3E-05		NA	NA	NA	NA
	Exposure Medium Total			NA	3E-05	NA	3E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	3E-05	NA	3E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	1E-05	NA	1E-05	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-05	NA	1E-05		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-05	NA	1E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	1E-05	NA	1E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Trichloroethylene	NA	5E-06	NA	5E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	5E-06	NA	5E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	5E-06	NA	5E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	5E-06	NA	5E-06		NA	NA	NA	NA

TABLE 9.12.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Naphthalene	NA	1E-06	NA	1E-06	Neurotoxicity, Respiratory System	NA	NA	NA	NA
			Trichloroethylene	NA	9E-06	NA	9E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-05	NA	1E-05		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-05	NA	1E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]				NA	1E-05	NA	1E-05		NA	NA	NA	NA

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.13.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E+00	NA	1E+00
		Exposure Point Total		NA	NA	NA	NA		NA	1E+00	NA	1E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	1E+00	NA	1E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E+00	NA	1E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E+00	NA	4E+00
		Exposure Point Total		NA	NA	NA	NA		NA	4E+00	NA	4E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	4E+00	NA	4E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E+00	NA	4E+00
Subslab Soil Vapor [redacted]t	Indoor Air	Indoor Air	Benzene	NA	NA	NA	NA	Immune System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	8E-01	NA	8E-01
		Exposure Point Total		NA	NA	NA	NA		NA	8E-01	NA	8E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	8E-01	NA	8E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	8E-01	NA	8E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.13.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.8
Total Cardiovascular HI Across Media =	0.8
Total Immune System HI Across Media =	0.8

[redacted]

Total Developmental HI Across Media =	1
Total Cardiovascular HI Across Media =	1
Total Immune System HI Across Media =	1

[redacted]

Total Developmental HI Across Media =	**4**
Total Cardiovascular HI Across Media =	**4**
Total Immune System HI Across Media =	**4**

TABLE 9.14.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E-01	NA	2E-01
		Exposure Point Total		NA	NA	NA	NA		NA	2E-01	NA	2E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	2E-01	NA	2E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E-01	NA	2E-01
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	1E+00	NA	1E+00
		Exposure Point Total		NA	NA	NA	NA		NA	1E+00	NA	1E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	1E+00	NA	1E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	1E+00	NA	1E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E+00	NA	4E+00
		Exposure Point Total		NA	NA	NA	NA		NA	4E+00	NA	4E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	4E+00	NA	4E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E+00	NA	4E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Benzene	NA	NA	NA	NA	Immune System	NA	3E-02	NA	3E-02
			Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	8E-01	NA	8E-01
		Exposure Point Total		NA	NA	NA	NA		NA	8E-01	NA	8E-01
	Exposure Medium Total			NA	NA	NA	NA		NA	8E-01	NA	8E-01
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	8E-01	NA	8E-01

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 9.14.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

[redacted]

Total Developmental HI Across Media =	0.2
Total Cardiovascular HI Across Media =	0.2
Total Immune System HI Across Media =	0.2

[redacted]

Total Developmental HI Across Media =	0.8
Total Cardiovascular HI Across Media =	0.8
Total Immune System HI Across Media =	0.8

[redacted]

Total Developmental HI Across Media =	1
Total Cardiovascular HI Across Media =	1
Total Immune System HI Across Media =	1

[redacted]

Total Developmental HI Across Media =	**4**
Total Cardiovascular HI Across Media =	**4**
Total Immune System HI Across Media =	**4**

TABLE 9.15.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	1E-06	NA	1E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	1E-06	NA	1E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-06	NA	1E-06		NA	NA	NA	NA
Indoor Air Total [redacted]				NA	1E-06	NA	1E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	6E-06	NA	6E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	6E-06	NA	6E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	6E-06	NA	6E-06		NA	NA	NA	NA
Indoor Air Total [redacted]				NA	6E-06	NA	6E-06		NA	NA	NA	NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	2E-05	NA	2E-05	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	2E-05	NA	2E-05		NA	NA	NA	NA
	Exposure Medium Total			NA	2E-05	NA	2E-05		NA	NA	NA	NA
Indoor Air Total [redacted]				NA	2E-05	NA	2E-05		NA	NA	NA	NA
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Benzene	NA	2E-06	NA	2E-06	Immune System	NA	NA	NA	NA
			Trichloroethylene	NA	4E-06	NA	4E-06	Developmental, Cardiovascular, Immune System	NA	NA	NA	NA
		Exposure Point Total		NA	6E-06	NA	6E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	6E-06	NA	6E-06		NA	NA	NA	NA
Indoor Air Total [redacted]				NA	6E-06	NA	6E-06		NA	NA	NA	NA

Notes:

HI = Hazard Index

NA = Not applicable or not available

TABLE 10.1.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E+00	NA	6E+00
		Exposure Point Total		NA	NA	NA	NA		NA	6E+00	NA	6E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	6E+00	NA	6E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E+00	NA	6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	6
Total Cardiovascular HI Across Media =	6
Total Immune System HI Across Media =	6

TABLE 10.2.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Condominiums)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	6E+00	NA	6E+00
		Exposure Point Total		NA	NA	NA	NA		NA	6E+00	NA	6E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	6E+00	NA	6E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	6E+00	NA	6E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	2E+00	NA	2E+00
		Exposure Point Total		NA	NA	NA	NA		NA	2E+00	NA	2E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	2E+00	NA	2E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	2E+00	NA	2E+00

Notes:
HI = Hazard Index
NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	6
Total Cardiovascular HI Across Media =	6
Total Immune System HI Across Media =	6

TABLE 10.3.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E+00	NA	4E+00
		Exposure Point Total		NA	NA	NA	NA		NA	4E+00	NA	4E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	4E+00	NA	4E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E+00	NA	4E+00

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	4
Total Cardiovascular HI Across Media =	4
Total Immune System HI Across Media =	4

TABLE 10.4.RME

RISK SUMMARY

REASONABLE MAXIMUM EXPOSURE

PMC Groundwater Superfund Site - Operable Unit 2
Petoskey, Emmet County, Michigan

Scenario Timeframe: Future (Residential Properties)
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subslab Soil Vapor [redacted]	Indoor Air	Indoor Air	Trichloroethylene	NA	NA	NA	NA	Developmental, Cardiovascular, Immune System	NA	4E+00	NA	4E+00
		Exposure Point Total		NA	NA	NA	NA		NA	4E+00	NA	4E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	4E+00	NA	4E+00
Indoor Air Total [redacted]				NA	NA	NA	NA		NA	4E+00	NA	4E+00

Notes:

HI = Hazard Index

NA = Not applicable or not available

[redacted]

Total Developmental HI Across Media =	4
Total Cardiovascular HI Across Media =	4
Total Immune System HI Across Media =	4

Attachment H-3
Data Groups and Sample Lists

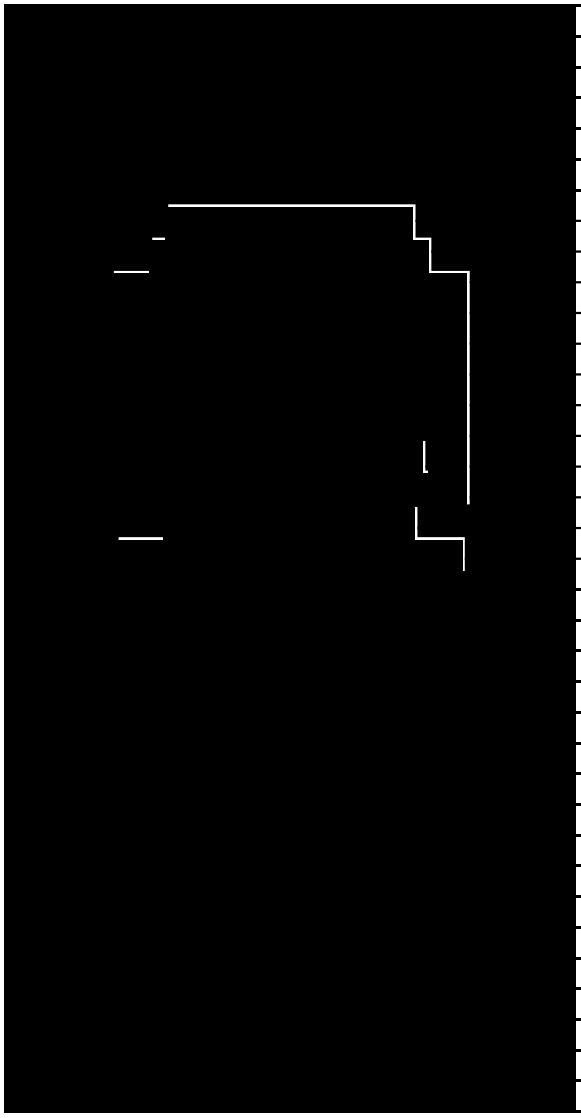
Attachment H-3, Table 1

Data Groupings and Sample Counts of the Data Sets to be used in the HHRA

PMC Superfund Site

Petoskey, Emmet County, Michigan

Area of Concern	Description	Sample Count*
[redacted]	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	5
	Indoor Air at given property/unit	14
	Indoor Air at given property/unit	4
	Indoor Air at given property/unit	14
	Indoor Air at given property/unit	15
	Indoor Air at given property/unit	14
	Indoor Air at given property/unit	15
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	4
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	3
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	3
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	1
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	5
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	7
	Indoor Air at given property/unit	3
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	3
	Indoor Air at given property/unit	6
	Indoor Air at given property/unit	3
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	5
	Indoor Air at given property/unit	2
	Indoor Air at given property/unit	4
	Crawl Space Air at given property/unit	2
	Crawl Space Air at given property/unit	2
	Crawl Space Air at given property/unit	2
	Crawl Space Air at given property/unit	1



Crawl Space Air at given property/unit	2
Crawl Space Air at given property/unit	3
Crawl Space Air at given property/unit	2
Crawl Space Air at given property/unit	3
Crawl Space Air at given property/unit	1
Subslab Soil Vapor at given property/unit	1
Subslab Soil Vapor at given property/unit	2
Subslab Soil Vapor at given property/unit	11
Subslab Soil Vapor at given property/unit	6
Subslab Soil Vapor at given property/unit	12
Subslab Soil Vapor at given property/unit	5
Subslab Soil Vapor at given property/unit	5
Subslab Soil Vapor at given property/unit	9
Subslab Soil Vapor at given property/unit	2
Subslab Soil Vapor at given property/unit	3
Subslab Soil Vapor at given property/unit	1
Subslab Soil Vapor at given property/unit	2
Subslab Soil Vapor at given property/unit	1
Exterior Soil Vapor at given property/unit	1
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	1
Exterior Soil Vapor at given property/unit	11
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	7
Exterior Soil Vapor at given property/unit	5
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	5
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	1
Exterior Soil Vapor at given property/unit	2
Exterior Soil Vapor at given property/unit	1
Subsurface soil - site wide	14

Note:

* - Sample counts include field duplicates.

Attachment H-3, Table 2
Samples to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

Data Group ID for HHRA	Matrix [1]	Station ID	Loc_Desc	Sample ID	Sample Type [2]	Upper Depth (Feet)	Lower Depth (Feet)	Date Collected
[redacted]	IA	[redacted]	[redacted]	18CP01-03	N			2/5/2018
	IA			17CC04-67	N			6/27/2017
	IA			18CP01-02	N			2/5/2018
	IA			17CC04-03	N			5/25/2017
	IA			18CP01-11	N			2/6/2018
	IA			17CC04-69	N			6/28/2017
	IA			18CP01-06	N			2/6/2018
	IA			18CP01-07	FD			2/6/2018
	IA			PMC-IN-05-02-110618	N			11/6/2018
	IA			PMC-IN-05-01-110618	N			11/6/2018
	IA			1703205_001_040517_IA-2	N			4/5/2017
	IA			1703205_001_040517_IA-1	N			4/5/2017
	IA			1703205_001_060217_IA-DUP-1	FD			6/2/2017
	IA			1703205_001_060217_IA-1	N			6/2/2017
	IA			1703205_001_060217_IA-2	N			6/2/2017
	IA			1703205_001_060217_IA-3	N			6/2/2017
	IA			1703205_001_091317_IA-3	N			9/13/2017
	IA			1703205_001_091317_IA-2	N			9/13/2017
	IA			1703205_001_091317_IA-1	N			9/13/2017
	IA			1703205_001_011918_IA-1	N			1/19/2018
	IA			1703205_001_011918_IA-3	N			1/19/2018
	IA			1703205_001_011918_IA-2	N			1/19/2018
	IA			PMC-01-IN02-110818	N			11/8/2018
	IA			PMC-01-IN01-110818	N			11/8/2018
	IA			1703205_002_032817_IA-2	N			3/28/2017
	IA			1703205_002_032817_IA-1	N			3/28/2017
	IA			PMC-02-IN01-110918	N			11/9/2018
	IA			PMC-02-IN02-110918	N			11/9/2018
	IA			1703205_003_040517_IA-2	N			4/5/2017
	IA			1703205_003_040517_IA-DUP-1	FD			4/5/2017
	IA			1703205_003_060217_IA-1	N			6/2/2017
	IA			1703205_003_060217_IA-2	N			6/2/2017
	IA			1703205_003_060217_IA-3	N			6/2/2017
	IA			1703205_003_091317_IA-3	N			9/13/2017
	IA			1703205_003_091317_IA-2	N			9/13/2017
	IA			1703205_003_091317_IA-1	N			9/13/2017
	IA			1703205_003_011918_IA-3	N			1/19/2018
	IA			1703205_003_011918_IA-2	N			1/19/2018
	IA			1703205_003_011918_IA-1	N			1/19/2018
	IA			1703205_003_011918_IA-DUP-1	FD			1/19/2018
	IA			PMC-03-IN01-110818	N			11/8/2018
	IA			PMC-03-IN02-110818	N			11/8/2018
	IA			1703205_004_040517_IA-2	N			4/5/2017
	IA			1703205_004_040517_IA-1	N			4/5/2017
	IA			1703205_004_060217_IA-1	N			6/2/2017
	IA			1703205_004_060217_IA-DUP-1	FD			6/2/2017
	IA			1703205_004_060217_IA-2	N			6/2/2017
	IA			1703205_004_060217_IA-3	N			6/2/2017
	IA			1703205_004_091317_IA-3	N			9/13/2017
	IA			1703205_004_091317_IA-2	N			9/13/2017
	IA			1703205_004_091317_IA-1	N			9/13/2017
	IA			1703205_004_011918_IA-3	N			1/19/2018
	IA			1703205_004_011918_IA-2	N			1/19/2018
	IA			1703205_004_011918_IA-1	N			1/19/2018
	IA			PMC-04-IN02-110918	N			11/9/2018
	IA			PMC-04-IN01-110918	0			11/9/2018
	IA			PMC-04-IN01-110918-FD	FD			11/9/2018
	IA			1703205_005_032817_IA-2	N			3/28/2017
	IA			1703205_005_032817_IA-1	N			3/28/2017
	IA			1703205_005_060217_IA-1	N			6/2/2017
	IA			1703205_005_060217_IA-2	N			6/2/2017
	IA			1703205_005_060217_IA-3	N			6/2/2017
	IA			1703205_005_110917_IA-3	N			11/9/2017
	IA			1703205_005_110917_IA-2	N			11/9/2017
	IA			1703205_005_110917_IA-1	N			11/9/2017
	IA			1703205_005_011918_IA-3	N			1/19/2018
	IA			1703205_005_011918_IA-2	N			1/19/2018
	IA			1703205_005_011918_IA-1	N			1/19/2018
	IA			PMC-05-IN02-110918	N			11/9/2018
	IA			PMC-05-IN01-110918	N			11/9/2018
	IA			PMC-05-IN01-110918-FD	FD			11/9/2018
	IA			1703205_006_040517_IA-DUP-1	FD			4/5/2017
	IA			1703205_006_040517_IA-2	N			4/5/2017
	IA			1703205_006_040517_IA-1	N			4/5/2017
	IA			1703205_006_060217_IA-1	N			6/2/2017
	IA			1703205_006_060217_IA-2	N			6/2/2017
	IA			1703205_006_060217_IA-3	N			6/2/2017
	IA			1703205_006_091317_IA-3	N			9/13/2017
	IA			1703205_006_091317_IA-2	N			9/13/2017

Attachment H-3, Table 2
Samples to be used in the HHRA
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[redacted]	IA	[redacted]	1703205_006_091317_IA-DUP-1	FD			9/13/2017
	IA		1703205_006_091317_IA-1	N			9/13/2017
	IA		1703205_006_011918_IA-3	N			1/19/2018
	IA		1703205_006_011918_IA-2	N			1/19/2018
	IA		1703205_006_011918_IA-1	N			1/19/2018
	IA		PMC-06-IN01-110818	N			11/8/2018
	IA		PMC-06-IN02-110818	N			11/8/2018
	IA		PMC-09-IA01-101118	N			10/11/2018
	IA		PMC-09-IA02-101118	N			10/11/2018
	IA		PMC-09-IA03-101118	N			10/11/2018
	IA		PMC-09-IA03-101118-FD	FD			10/11/2018
	IA		17CC04-62	N			6/6/2017
	IA		18CP01-37	N			2/9/2018
	IA		17CC04-71	N			6/27/2017
	IA		18CP01-09	N			2/6/2018
	IA		PMC-IN-07-02-110618	N			11/6/2018
	IA		PMC-IN-07-01-110618	N			11/6/2018
	IA		17CC04-58	N			6/6/2017
	IA		18CP01-01	N			2/5/2018
	IA		17CC04-61	N			6/6/2017
	IA		18CP01-72	N			2/20/2018
	IA		17CC04-72	N			6/27/2017
	IA		17CC04-81	FD			6/27/2017
	IA		18CP01-35	N			2/9/2018
	IA		17CC04-12	N			6/1/2017
	IA		17CC04-14	N			6/1/2017
	IA		17CC04-13	N			6/1/2017
	IA		17CC04-15	N			6/1/2017
	IA		17CC04-16	FD			6/1/2017
	IA		18CP01-34	N			2/8/2018
	IA		17CC04-33	N			6/1/2017
	IA		17CC04-27	N			6/1/2017
	IA		17CC04-26	N			6/1/2017
	IA		17CC04-09	N			6/1/2017
	IA		17CC04-10	N			6/1/2017
	IA		17CC04-43	N			6/2/2017
	IA		17CC04-11	N			6/1/2017
	IA		18CP01-25	N			2/8/2018
	IA		17CC04-28	N			6/1/2017
	IA		17CC04-29	N			6/1/2017
	IA		17CC04-44	N			6/2/2017
	IA		17CC04-42	N			6/2/2017
	IA		17CC04-07	N			6/1/2017
	IA		17CC04-25	N			6/1/2017
	IA		17CC04-08	N			6/1/2017
	IA		17CC04-32	N			6/1/2017
	IA		17CC04-31	N			6/1/2017
	IA		17CC04-30	N			6/1/2017
	IA		18CP01-36	N			2/9/2018
	IA		17CC04-60	N			6/6/2017
	IA		18CP01-24	N			2/8/2018
	IA		18CP01-26	N			2/8/2018
	IA		PMC-IN-36-02-110718	N			11/7/2018
	IA		PMC-IN-36-01-110718	N			11/7/2018
	IA		17CC04-66	N			6/2/2017
	IA		18CP01-68	N			2/20/2018
	IA		17CC04-74	N			6/27/2017
	IA		1703205_310_012518_IA-1	N			1/25/2018
	IA		1703205_310_012518_IA-2	N			1/25/2018
	IA		1703205_310_012518_IA-3	N			1/25/2018
	IA		1703205_310_110917_IA-1	N			11/9/2017
	IA		1703205_310_110917_IA-2	N			11/9/2017
	IA		1703205_310_110917_IA-3	N			11/9/2017
	IA		17CC04-76	N			6/28/2017
	IA		17CC04-77	N			6/28/2017
	IA		17CC04-78	N			6/28/2017
	IA		17CC04-57	N			6/6/2017
	IA		18CP01-08	N			2/6/2018
	IA		PMC-IN-40-110818	N			11/8/2018
	IA		PMC-IN-42-02-110718	N			11/7/2018
	IA		PMC-IN-42-01-110718	N			11/7/2018
	IA		17CC04-79	N			6/28/2017
	IA		18CP01-04	N			2/5/2018
	IA		17CC04-64	N			6/6/2017
	IA		17CC04-65	FD			6/6/2017
	IA		18CP01-42	N			2/7/2018
	IA		17CC04-89	N			7/25/2017
	IA		17CC04-90	N			7/25/2017
	IA		18CP01-40	N			2/9/2018
	IA		PMC-IN-47-01-110818	N			11/8/2018
	IA		PMC-IN-47-02-110818-FD	FD			11/8/2018
	IA		PMC-IN-47-02-110818	N			11/8/2018

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Samples to be used in the HHRA
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[redacted]	IA	[redacted]	17CC04-05	N			6/1/2017
	IA		18CP01-69	N			2/20/2018
	IA		18CP01-70	FD			2/20/2018
	IA		17CC04-88	N			7/25/2017
	IA		18CP01-05	N			2/6/2018
	IA		17CC04-47	N			6/3/2017
	IA		17CC04-48	FD			6/3/2017
	IA		18CP01-17	N			2/7/2018
	IA		PMC-IN-50-02-110818	N			11/8/2018
	IA		PMC-IN-50-01-110818	N			11/8/2018
	IA		17CC04-63	N			6/6/2017
	IA		18CP01-18	N			2/7/2018
	IA		17CC04-45	N			6/3/2017
	IA		18CP01-53	N			2/9/2018
	IA		PMC-IN-52-01-110818	N			11/8/2018
	AC		PMC-CS-07-02-110718	N			11/7/2018
	AC		PMC-CS-07-01-110718	N			11/7/2018
	AC		17CC04-17	N			6/1/2017
	AC		18CP01-28	N			2/8/2018
	AC		17CC04-18	N			6/1/2017
	AC		18CP01-29	N			2/8/2018
	AC		18CP01-30	N			2/8/2018
	AC		17CC04-41	N			6/2/2017
	AC		18CP01-31	N			2/8/2018
	AC		17CC04-20	N			6/1/2017
	AC		17CC04-21	FD			6/1/2017
	AC		18CP01-32	N			2/8/2018
	AC		17CC04-22	N			6/1/2017
	AC		18CP01-33	N			2/8/2018
	AC		17CC04-23	N			6/1/2017
	AC		18CP01-19	FD			2/8/2018
	AC		18CP01-27	N			2/8/2018
	AC		PMC-CS-36-110718	N			11/7/2018
	AS		18CP01-16	N			2/7/2018
	AS		18CP01-10	N			2/6/2018
	AS		PMC-SS-05-110618	N			11/6/2018
	AS		17CC03-04	N			1/11/2017
	AS		17CC03-03	N			1/11/2017
	AS		1703205_001_040517_SS-1	N			4/5/2017
	AS		1703205_001_040517_SS-DUP-1	FD			4/5/2017
	AS		1703205_001_091317_SS-1	N			9/13/2017
	AS		1703205_001_091317_SS-2	N			9/13/2017
	AS		1703205_001_011918_SS-2	N			1/19/2018
	AS		1703205_001_011918_SS-1	N			1/19/2018
	AS		PMC-01-SS02-110718	N			11/7/2018
	AS		PMC-01-SS01-110718	N			11/7/2018
	AS		PMC-01-SS01-110718-FD	FD			11/7/2018
	AS		17CC03-05	N			1/11/2017
	AS		17CC03-06	N			1/11/2017
	AS		1703205_002_040417_SS-1	N			4/4/2017
	AS		PMC-02-SS02-110818	N			11/8/2018
	AS		PMC-02-SS01-110818	N			11/8/2018
	AS		PMC-02-SS01-110818-FD	FD			11/8/2018
	AS		17CC03-08	N			1/12/2017
	AS		17CC03-27	FD			1/12/2017
	AS		17CC03-07	N			1/11/2017
	AS		1703205_003_040517_SS-2	N			4/5/2017
	AS		1703205_003_091317_SS-1	N			9/13/2017
	AS		1703205_003_091317_SS-2	N			9/13/2017
	AS		1703205_003_011918_SS-2	N			1/19/2018
	AS		1703205_003_011918_SS-DUP-1	FD			1/19/2018
	AS		1703205_003_011918_SS-1	N			1/19/2018
	AS		PMC-03-SS02-110718	N			11/7/2018
	AS		PMC-03-SS01-110718	N			11/7/2018
	AS		PMC-03-SS01-110718-FD	FD			11/7/2018
	AS		1703205_004_040517_SS-1	N			4/5/2017
	AS		1703205_004_091317_SS-1	N			9/13/2017
	AS		1703205_004_091317_SS-DUP-1	FD			9/13/2017
	AS		1703205_004_011918_SS-1	N			1/19/2018
	AS		PMC-04-SS01-110818	N			11/8/2018
	AS		1703205_005_110917_SS-2	N			11/9/2017
	AS		1703205_005_110917_SS-1	N			11/9/2017
	AS		1703205_005_011918_SS-1	N			1/19/2018
	AS		PMC-05-SS02-110818	N			11/8/2018
	AS		PMC-05-SS01-110818	N			11/8/2018
	AS		17CC03-09	N			1/11/2017
	AS		17CC03-10	N			1/11/2017
	AS		1703205_006_040517_SS-2	N			4/5/2017
	AS		1703205_006_091317_SS-1	N			9/13/2017
	AS		1703205_006_091317_SS-2	N			9/13/2017
	AS		1703205_006_011918_SS-2	N			1/19/2018
	AS		1703205_006_011918_SS-1	N			1/19/2018

Attachment H-3, Table 2
Samples to be used in the HHRA
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[redacted]	AS	[redacted]	PMC-06-SS02-110718	N			11/7/2018
	AS		PMC-06-SS01-110718	N			11/7/2018
	AS		18CP01-14	N			2/7/2018
	AS		PMC-SS-07-110618	N			11/6/2018
	AS		18CP01-20	FD			2/8/2018
	AS		18CP01-23	N			2/8/2018
	AS		PMC-SS-36-110618	N			11/6/2018
	AS		1703205_310_012518_SS-1	N			1/25/2018
	AS		17CC04-83	N			7/3/2017
	AS		18CP01-13	N			2/7/2018
	AS		PMC-SS-40-110718	N			11/7/2018
	GS		PMC-SG-50-111518	N			11/15/2018
	GS		PMC-SG-50-111518-FD	FD			11/15/2018
	AS		PMC-SS-50-110718	N			11/7/2018
	IA		PMC-IN-52-02-110818	N			11/8/2018
	GS		17CC04-01	N			5/25/2017
	GS		17CC04-68	N			6/26/2017
	GS		18CP01-52	N			2/10/2018
	GS		17CC04-02	N			5/25/2017
	GS		17CC04-50	N			6/5/2017
	GS		18CP01-39	N			2/9/2018
	GS		17CC04-53	N			6/6/2017
	GS		18CP01-41	N			2/9/2018
	GS		17CC04-54	N			6/6/2017
	GS		18CP01-75	N			2/21/2018
	GS		17CC04-73	N			6/26/2017
	GS		17CC04-34	N			6/1/2017
	GS		17CC04-35	FD			6/1/2017
	GS		17CC04-36	N			6/1/2017
	GS		17CC04-37	N			6/1/2017
	GS		17CC04-38	N			6/1/2017
	GS		17CC04-39	N			6/1/2017
	GS		17CC04-40	N			6/1/2017
	GS		18CP01-47	N			2/11/2018
	GS		18CP01-48	N			2/11/2018
	GS		18CP01-49	FD			2/11/2018
	GS		18CP01-50	N			2/11/2018
	GS		17CC04-84	N			7/20/2017
	GS		18CP01-71	N			2/20/2018
	GS		18CP03-17	N			6/28/2018
	GS		18CP03-18	N			6/28/2018
	GS		18CP03-19	N			6/28/2018
	GS		18CP03-20	FD			6/28/2018
	GS		18CP03-26	N			6/29/2018
	GS		18CP03-27	N			6/29/2018
	GS		17CC04-80	N			6/28/2017
	GS		18CP01-12	N			2/7/2018
	GS		17CC04-55	N			6/6/2017
	GS		17CC04-56	N			6/6/2017
	GS		18CP01-45	N			2/10/2018
	GS		18CP01-46	N			2/10/2018
	GS		18CP01-54	FD			2/10/2018
	GS		17CC04-85	N			7/24/2017
	GS		17CC04-86	FD			7/24/2017
	GS		17CC04-06	N			6/1/2017
	GS		18CP01-74	N			2/21/2018
	GS		17CC04-87	N			7/24/2017
	GS		17CC04-52	N			6/6/2017
	GS		18CP01-44	N			2/10/2018
	SO		18CP02-51	N	3.5	4	5/24/2018
	SO		18CP02-01	N	4	5	5/15/2018
	SO		18CP02-04	N	3	4	5/15/2018
	SO		18CP02-05	N	7.5	8	5/15/2018
	SO		18CP02-06	N	9	10	5/15/2018
	SO		18CP02-07	N	1	2	5/15/2018
	SO		18CP02-09	N	3	4	5/16/2018
	SO		18CP02-10	FD	3	4	5/16/2018
	SO		18CP02-26	N	4.5	5.5	5/18/2018
	SO		18CP02-31	N	1.5	2.5	5/18/2018
	SO		18CP02-32	N	8	9	5/18/2018
	SO		18CP02-15	N	9	10	5/17/2018
	SO		18CP02-18	N	4	5	5/17/2018
	SO		18CP02-13	N	8	8.8	5/16/2018

Notes:

(1) Matrix: AI - Indoor Air; AC - crawl space air; AS - subslab soil vapor; GS - exterior soil vapor; SO - soil

(2) Sample Type: N - normal sample. FD - field duplicate. Data from field duplicate samples were used when the concentrations were higher than those in associated normal sample.

NA - not applicable

Attachment H-4
Analytical Data

Attachment H-4

Analytical Data to be used in the HHRA

PMC Superfund Site

Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,1,1-Trichloroethane	0.0099	U	ug/m3	0.0099	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2,3-Trimethylbenzene	0.34	J	ug/m3	0.12	0.87
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.084
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2,4-Trimethylbenzene	1.5	=	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2-Dichloroethane	0.47	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,2-Dichloropropane	0.029	J	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,3,5-Trimethylbenzene	0.36	=	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,3-Butadiene	0.024	U	ug/m3	0.024	0.084
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,4-Dichlorobenzene	0.033	J	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	1,4-Dioxane	0.014	U	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	2-Butanone	1	J	ug/m3	0.18	1.7
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	2-Hexanone	0.11	U	ug/m3	0.11	0.91
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.89
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Acetone	19	=	ug/m3	0.094	4.2
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Acetonitrile	0.4	J	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Acrolein	0.32	J	ug/m3	0.066	0.34
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Benzene	2.6	=	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Bromodichloromethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Bromoform	0.18	U	ug/m3	0.18	0.89
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Bromomethane	0.016	U	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Carbon Disulfide	0.33	J	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	CHLORODIFLUOROMETHANE	0.42	U	ug/m3	0.42	0.84
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Chloroethane	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Chloroform	0.13	J	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Chloromethane	0.032	U	ug/m3	0.032	0.084
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Cyclohexane	0.68	J	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Dichlorodifluoromethane	3.9	J	ug/m3	0.029	0.084
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Dichloromethane	0.57	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	ETHANOL	29	=	ug/m3	0.62	8.6
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Ethylbenzene	1.2	=	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.91	J	ug/m3	0.37	3.5
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	n-Butanol	0.24	U	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	n-Hexane	4.9	=	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Propene	0.22	U	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Styrene	0.07	J	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Tetrachloroethene	0.062	=	ug/m3	0.014	0.042

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Toluene	9.2	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	trans-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Trichloroethylene	0.02	J	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Trichlorofluoromethane	2	=	ug/m3	0.025	0.084
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Trichlorotrifuoroethane	0.42	=	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Vinyl Acetate	2	U	ug/m3	2	8.9
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Xylene, o	1.7	=	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-CS-07-01-110718	AC	N	11/7/2018	Xylenes, m & p	4.5	=	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,1,1-Trichloroethane	0.0095	U	ug/m3	0.0095	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,1-Dichloroethane	0.0098	U	ug/m3	0.0098	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2,3-Trimethylbenzene	0.44	J	ug/m3	0.12	0.84
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.081
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2,4-Trimethylbenzene	2.3	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2-Dichloroethane	0.42	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,2-Dichloropropane	0.071	=	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,3,5-Trimethylbenzene	0.57	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,3-Butadiene	0.023	U	ug/m3	0.023	0.081
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,4-Dichlorobenzene	0.14	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	1,4-Dioxane	0.014	U	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	2-Butanone	1.8	=	ug/m3	0.18	1.6
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	2-Hexanone	0.11	U	ug/m3	0.11	0.87
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	4-Methyl-2-Pentanone	0.31	J	ug/m3	0.12	0.85
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Acetone	22	=	ug/m3	0.09	4
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Acetonitrile	0.31	J	ug/m3	0.21	0.84
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Acrolein	0.28	J	ug/m3	0.063	0.32
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.84
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Benzene	3.2	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.8
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Bromoform	0.18	U	ug/m3	0.18	0.85
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Bromomethane	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Carbon Disulfide	0.26	J	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	CHLORODIFLUOROMETHANE	0.4	U	ug/m3	0.4	0.81
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Chloroethane	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Chloroform	0.13	J	ug/m3	0.029	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Chloromethane	0.031	U	ug/m3	0.031	0.081
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Cyclohexane	1.8	=	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Dichlorodifluoromethane	3.4	J	ug/m3	0.027	0.081
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Dichloromethane	0.86	=	ug/m3	0.021	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	ETHANOL	16	=	ug/m3	0.6	8.2
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Ethylbenzene	2.1	=	ug/m3	0.016	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.4	J	ug/m3	0.35	3.4
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	n-Butanol	0.23	U	ug/m3	0.23	1.6
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	n-Hexane	13	=	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Propene	0.21	U	ug/m3	0.21	0.84
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Styrene	0.13	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Tetrachloroethene	0.067	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Toluene	25	=	ug/m3	0.018	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	trans-1,3-Dichloropropene	0.0089	U	ug/m3	0.0089	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Trichloroethylene	0.045	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Trichlorofluoromethane	1.7	=	ug/m3	0.024	0.081
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Trichlorotrifuoroethane	0.41	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.5
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Xylene, o	2.8	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-CS-07-02-110718	AC	N	11/7/2018	Xylenes, m & p	7.5	=	ug/m3	0.031	0.16
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.014	J	ug/m3	0.0081	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.0099	U	ug/m3	0.0099	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0084	U	ug/m3	0.0084	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.018	U	ug/m3	0.018	0.069
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.14	J	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.011	U	ug/m3	0.011	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.11	=	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.02	J	ug/m3	0.01	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.036	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,3-Butadiene	0.019	U	ug/m3	0.019	0.069
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.011	U	ug/m3	0.011	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	2-Butanone	0.55	J	ug/m3	0.29	6.9
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	2-Hexanone	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.24	J	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Acetone	2.6	J	ug/m3	0.077	3.5
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Acetonitrile	0.25	U	ug/m3	0.25	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Acrolein	0.16	J	ug/m3	0.054	0.28
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Acrylonitrile	0.23	U	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Benzene	0.4	=	ug/m3	0.028	0.1
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Benzyl chloride	0.15	U	ug/m3	0.15	1.4
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Bromodichloromethane	0.0095	U	ug/m3	0.0095	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Bromoform	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Bromomethane	0.018	J	ug/m3	0.013	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Carbon Disulfide	0.21	U	ug/m3	0.21	6.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.76	=	ug/m3	0.35	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Chloroethane	0.012	U	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Chloroform	0.087	J	ug/m3	0.025	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Chloromethane	0.37	=	ug/m3	0.026	0.069
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Cyclohexane	100	=	ug/m3	0.4	1.4
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Dichlorodifluoromethane	5.9	=	ug/m3	0.023	0.069
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Dichloromethane	0.21	=	ug/m3	0.018	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	ETHANOL	2.5	J	ug/m3	1.1	6.9
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Ethylbenzene	0.054	J	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Freon 113	0.35	=	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.58	U	ug/m3	0.58	6.9
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	n-Butanol	0.66	U	ug/m3	0.66	1.4
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	n-Hexane	25	=	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Propene	0.19	U	ug/m3	0.19	0.69
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Styrene	0.034	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Tetrachloroethene	0.069	=	ug/m3	0.011	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Toluene	0.29	=	ug/m3	0.015	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0076	U	ug/m3	0.0076	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Trichloroethylene	0.012	U	ug/m3	0.012	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Trichlorofluoromethane	2.8	=	ug/m3	0.021	0.069
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Vinyl Acetate	0.9	U	ug/m3	0.9	6.9
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Vinyl Chloride	0.01	U	ug/m3	0.01	0.035
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Xylene, o	0.068	J	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-33-020818	AC	N	2/8/2018	Xylenes, m & p	0.14	=	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2,4-Trimethylbenzene	1.6	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,3,5-Trimethylbenzene	0.37	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	2-Butanone	0.38	U	ug/m3	0.38	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	2-Hexanone	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	4-Ethyltoluene	0.45	J	ug/m3	0.29	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Acetone	1.4	U	ug/m3	1.4	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Acetonitrile	0.33	U	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Acrolein	0.31	U	ug/m3	0.31	3.6
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	alpha-Pinene	2.2	=	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Benzene	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Bromoform	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Bromomethane	0.17	U	ug/m3	0.17	0.36
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Carbon tetrachloride	0.4	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Chloroethane	0.16	U	ug/m3	0.16	0.36
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Chloroform	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Chloromethane	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Cyclohexane	0.73	J	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Dichlorodifluoromethane	23	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Dichloromethane	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	D-Limonene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	ETHANOL	19	=	ug/m3	1.5	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Ethyl acetate	0.64	U	ug/m3	0.64	1.8
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Ethylbenzene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Methyl methacrylate	0.89	J	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Naphthalene	0.33	U	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	N-Butyl Acetate	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	N-HEPTANE	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	n-Hexane	0.36	J	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Nonane	0.32	J	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	n-Propylbenzene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	OCTANE	0.33	U	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Propene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Styrene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Toluene	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.18

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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Trichlorofluoromethane	11	=	ug/m3	0.1	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Trichlorotrifuoroethane	0.48	=	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Xylene, o	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-CS-33-060117	AC	N	6/1/2017	Xylenes, m & p	0.53	U	ug/m3	0.53	0.91
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.026	J	ug/m3	0.0084	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0087	U	ug/m3	0.0087	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.018	U	ug/m3	0.018	0.071
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.039	J	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.059	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.022	J	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.011	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,3-Butadiene	0.02	U	ug/m3	0.02	0.071
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	2-Butanone	0.53	J	ug/m3	0.3	7.1
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	2-Hexanone	0.23	U	ug/m3	0.23	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Acetone	2.7	J	ug/m3	0.08	3.6
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Acetonitrile	0.26	U	ug/m3	0.26	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Acrolein	0.13	J	ug/m3	0.055	0.28
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Acrylonitrile	0.24	U	ug/m3	0.24	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Benzene	0.4	=	ug/m3	0.028	0.11
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Bromodichloromethane	0.0098	U	ug/m3	0.0098	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Bromoform	0.21	U	ug/m3	0.21	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Bromomethane	0.024	J	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Carbon Disulfide	1.2	J	ug/m3	0.21	7.1
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.79	=	ug/m3	0.36	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Chloroethane	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Chloroform	0.082	J	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Chloromethane	0.43	=	ug/m3	0.027	0.071
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0088	U	ug/m3	0.0088	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Cyclohexane	1.5	=	ug/m3	0.41	1.4
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Dichlorodifluoromethane	4.9	=	ug/m3	0.024	0.071
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.018	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	ETHANOL	1.7	J	ug/m3	1.1	7.1
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Ethylbenzene	0.039	J	ug/m3	0.014	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Freon 113	0.36	=	ug/m3	0.013	0.036

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Analytical Data to be used in the HHRA
PMC Superfund Site
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.6	U	ug/m3	0.6	7.1
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	n-Butanol	0.68	U	ug/m3	0.68	1.4
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	n-Hexane	0.63	J	ug/m3	0.21	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Propene	0.2	U	ug/m3	0.2	0.71
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Styrene	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Tetrachloroethene	0.16	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Toluene	0.24	=	ug/m3	0.016	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0078	U	ug/m3	0.0078	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Trichloroethylene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Trichlorofluoromethane	1.5	=	ug/m3	0.021	0.071
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Vinyl Acetate	0.92	U	ug/m3	0.92	7.1
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Xylene, o	0.037	J	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-CS-16-020818	AC	N	2/8/2018	Xylenes, m & p	0.08	J	ug/m3	0.027	0.14
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2,4-Trimethylbenzene	0.49	J	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,3-Butadiene	0.24	U	ug/m3	0.24	0.35
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	1,4-Dioxane	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	2-Butanone	0.36	U	ug/m3	0.36	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	2-Hexanone	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Acetone	1.3	U	ug/m3	1.3	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Acetonitrile	0.31	U	ug/m3	0.31	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Acrolein	0.29	U	ug/m3	0.29	3.5
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Acrylonitrile	0.29	U	ug/m3	0.29	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Allyl chloride	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	alpha-Pinene	2.6	=	ug/m3	0.24	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Benzene	0.15	J	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Benzyl chloride	0.19	U	ug/m3	0.19	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Bromoform	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Bromomethane	0.16	U	ug/m3	0.16	0.35

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Carbon Disulfide	0.26	U	ug/m3	0.26	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Carbon tetrachloride	0.37	=	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Chloroethane	0.15	U	ug/m3	0.15	0.35
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Chloroform	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Chloromethane	0.26	J	ug/m3	0.24	0.35
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Cyclohexane	0.5	U	ug/m3	0.5	1.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Dichlorodifluoromethane	11	=	ug/m3	0.29	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Dichloromethane	0.29	U	ug/m3	0.29	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	D-Limonene	1.6	=	ug/m3	0.24	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	ETHANOL	1.4	U	ug/m3	1.4	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Ethyl acetate	2.2	=	ug/m3	0.61	1.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Ethylbenzene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.73	U	ug/m3	0.73	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Isopropylbenzene	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Methyl methacrylate	0.54	U	ug/m3	0.54	1.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Naphthalene	0.31	U	ug/m3	0.31	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	N-HEPTANE	0.29	U	ug/m3	0.29	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	n-Hexane	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Nonane	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	n-Propylbenzene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	OCTANE	0.31	U	ug/m3	0.31	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Propene	0.24	U	ug/m3	0.24	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Styrene	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Tetrahydrofuran	0.35	U	ug/m3	0.35	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Toluene	1.5	=	ug/m3	0.29	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Trichlorofluoromethane	5	=	ug/m3	0.099	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Vinyl Acetate	1.1	U	ug/m3	1.1	8.7
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Xylene, o	0.26	U	ug/m3	0.26	0.87
[redacted]	[redacted]	PMC-CS-16-060117	AC	N	6/1/2017	Xylenes, m & p	0.5	U	ug/m3	0.5	0.87
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.034	J	ug/m3	0.0088	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0091	U	ug/m3	0.0091	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.75

Attachment H-4
Analytical Data to be used in the HHRA
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Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.075
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.027	J	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.058	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.011	U	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,3-Butadiene	0.021	U	ug/m3	0.021	0.075
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	2-Butanone	0.41	J	ug/m3	0.31	7.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	2-Hexanone	0.24	U	ug/m3	0.24	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Acetone	3.1	J	ug/m3	0.083	3.7
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Acetonitrile	0.27	U	ug/m3	0.27	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Acrolein	0.14	J	ug/m3	0.058	0.3
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Acrylonitrile	0.25	U	ug/m3	0.25	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Benzene	0.41	=	ug/m3	0.03	0.11
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Bromoform	0.22	U	ug/m3	0.22	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Bromomethane	0.025	J	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Carbon Disulfide	0.22	U	ug/m3	0.22	7.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.82	=	ug/m3	0.37	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Chloroethane	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Chloroform	0.084	J	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Chloromethane	0.45	=	ug/m3	0.028	0.075
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Cyclohexane	0.57	J	ug/m3	0.43	1.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Dichlorodifluoromethane	5.8	=	ug/m3	0.025	0.075
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.019	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	ETHANOL	1.8	J	ug/m3	1.2	7.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Ethylbenzene	0.036	J	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Freon 113	0.36	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.63	U	ug/m3	0.63	7.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	n-Butanol	0.72	U	ug/m3	0.72	1.5
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	n-Hexane	0.4	J	ug/m3	0.22	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Propene	0.21	U	ug/m3	0.21	0.75
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Styrene	0.012	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Tetrachloroethene	0.22	=	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Toluene	0.25	=	ug/m3	0.016	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0082	U	ug/m3	0.0082	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Trichloroethylene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Trichlorofluoromethane	1.4	=	ug/m3	0.022	0.075
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Vinyl Acetate	0.97	U	ug/m3	0.97	7.5

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Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Xylene, o	0.033	J	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-CS-19-020818	AC	N	2/8/2018	Xylenes, m & p	0.072	J	ug/m3	0.028	0.15
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.021	J	ug/m3	0.0084	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0087	U	ug/m3	0.0087	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.072
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.043	J	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.058	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.023	J	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.014	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,3-Butadiene	0.02	U	ug/m3	0.02	0.072
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	2-Butanone	0.31	J	ug/m3	0.3	7.2
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	2-Hexanone	0.23	U	ug/m3	0.23	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Acetone	6.2	=	ug/m3	0.08	3.6
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Acetonitrile	0.26	U	ug/m3	0.26	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Acrolein	0.088	J	ug/m3	0.056	0.29
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Acrylonitrile	0.24	U	ug/m3	0.24	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Benzene	0.41	=	ug/m3	0.029	0.11
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Bromodichloromethane	0.0099	U	ug/m3	0.0099	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Bromoform	0.21	U	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Bromomethane	0.025	J	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Carbon Disulfide	0.22	J	ug/m3	0.21	7.2
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.73	=	ug/m3	0.36	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Chloroethane	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Chloroform	0.084	J	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Chloromethane	0.38	=	ug/m3	0.027	0.072
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0089	U	ug/m3	0.0089	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Cyclohexane	0.41	U	ug/m3	0.41	1.4
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Dichlorodifluoromethane	5.8	=	ug/m3	0.024	0.072
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.019	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	ETHANOL	2.4	J	ug/m3	1.1	7.2
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Ethylbenzene	0.055	J	ug/m3	0.014	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Freon 113	0.34	=	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.6	U	ug/m3	0.6	7.2
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	n-Butanol	1.2	J	ug/m3	0.69	1.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	n-Hexane	0.32	J	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Propene	0.2	U	ug/m3	0.2	0.72
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Styrene	0.052	J	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Tetrachloroethene	0.16	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Toluene	0.37	=	ug/m3	0.016	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0079	U	ug/m3	0.0079	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Trichloroethylene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Trichlorofluoromethane	1.5	=	ug/m3	0.021	0.072
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Vinyl Acetate	0.93	U	ug/m3	0.93	7.2
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Xylene, o	0.048	J	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-CS-22-020818	AC	N	2/8/2018	Xylenes, m & p	0.13	J	ug/m3	0.027	0.14
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	1,4-Dioxane	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	2-Butanone	0.37	U	ug/m3	0.37	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	2-Hexanone	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Acetone	1.4	U	ug/m3	1.4	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Acetonitrile	0.32	U	ug/m3	0.32	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Acrolein	0.3	U	ug/m3	0.3	3.6
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Acrylonitrile	0.3	U	ug/m3	0.3	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	alpha-Pinene	2.9	=	ug/m3	0.25	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Benzene	0.19	=	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Benzyl chloride	0.2	U	ug/m3	0.2	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Bromoform	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Bromomethane	0.17	U	ug/m3	0.17	0.36
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Carbon Disulfide	0.27	U	ug/m3	0.27	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Carbon tetrachloride	0.33	=	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Chloroethane	0.15	U	ug/m3	0.15	0.36
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Chloroform	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Chloromethane	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Cyclohexane	0.52	U	ug/m3	0.52	1.8
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Dichlorodifluoromethane	14	=	ug/m3	0.3	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Dichloromethane	0.35	J	ug/m3	0.3	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	D-Limonene	1.7	=	ug/m3	0.25	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	ETHANOL	12	=	ug/m3	1.4	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Ethyl acetate	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Ethylbenzene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.75	U	ug/m3	0.75	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Isopropylbenzene	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Methyl methacrylate	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Naphthalene	0.32	U	ug/m3	0.32	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	N-HEPTANE	0.3	U	ug/m3	0.3	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	n-Hexane	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Nonane	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	n-Propylbenzene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	OCTANE	0.32	U	ug/m3	0.32	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Propene	0.25	U	ug/m3	0.25	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Styrene	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Toluene	0.3	U	ug/m3	0.3	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Trichloroethylene	0.28	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Trichlorofluoromethane	5	=	ug/m3	0.1	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Trichlorotrifuoroethane	0.46	=	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Vinyl Acetate	1.2	U	ug/m3	1.2	8.9
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Xylene, o	0.27	U	ug/m3	0.27	0.89
[redacted]	[redacted]	PMC-CS-22-060217	AC	N	6/2/2017	Xylenes, m & p	0.52	U	ug/m3	0.52	0.89
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.011	J	ug/m3	0.0084	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0087	U	ug/m3	0.0087	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.072
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.12	J	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.059	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.024	J	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.038	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,3-Butadiene	0.27	=	ug/m3	0.02	0.072
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	2-Butanone	0.89	J	ug/m3	0.3	7.2
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	2-Hexanone	0.23	U	ug/m3	0.23	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Acetone	6	=	ug/m3	0.08	3.6
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Acetonitrile	1	=	ug/m3	0.26	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Acrolein	0.58	=	ug/m3	0.056	0.29
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Acrylonitrile	0.24	U	ug/m3	0.24	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Benzene	0.73	=	ug/m3	0.029	0.11
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Bromodichloromethane	0.033	J	ug/m3	0.0099	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Bromoform	0.21	U	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Bromomethane	0.022	J	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Carbon Disulfide	0.38	J	ug/m3	0.21	7.2
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.72	=	ug/m3	0.36	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Chloroethane	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Chloroform	0.12	J	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Chloromethane	0.5	=	ug/m3	0.027	0.072
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0089	U	ug/m3	0.0089	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Cyclohexane	0.41	U	ug/m3	0.41	1.4
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Dichlorodifluoromethane	3.5	=	ug/m3	0.024	0.072
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.019	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	ETHANOL	180	=	ug/m3	1.1	7.2
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Ethylbenzene	0.12	J	ug/m3	0.014	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Freon 113	0.34	=	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.3	J	ug/m3	0.6	7.2
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	n-Butanol	0.69	U	ug/m3	0.69	1.4
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	n-Hexane	0.35	J	ug/m3	0.21	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Propene	1.8	=	ug/m3	0.2	0.72
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Styrene	0.099	J	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Tetrachloroethene	1.9	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Toluene	1.1	=	ug/m3	0.016	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0079	U	ug/m3	0.0079	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Trichloroethylene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Trichlorofluoromethane	2	=	ug/m3	0.021	0.072
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Vinyl Acetate	0.95	J	ug/m3	0.93	7.2
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Xylene, o	0.11	J	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-CS-25-020818	AC	N	2/8/2018	Xylenes, m & p	0.34	=	ug/m3	0.027	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2,4-Trichlorobenzene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2,4-Trimethylbenzene	0.29	J	ug/m3	0.25	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	U	ug/m3	0.31	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dichloroethane	0.1	U	ug/m3	0.1	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,3,5-Trimethylbenzene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,3-Butadiene	0.5	=	ug/m3	0.23	0.33
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,4-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	1,4-Dioxane	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	2-Butanone	0.34	U	ug/m3	0.34	8.2
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	2-Hexanone	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	4-Ethyltoluene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Acetone	1.3	U	ug/m3	1.3	8.4
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Acetonitrile	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Acrolein	0.28	U	ug/m3	0.28	3.3
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Acrylonitrile	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Allyl chloride	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	alpha-Pinene	3.7	=	ug/m3	0.23	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Benzene	0.56	=	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Benzyl chloride	0.18	U	ug/m3	0.18	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Bromoform	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Bromomethane	0.15	U	ug/m3	0.15	0.33
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Carbon Disulfide	0.25	U	ug/m3	0.25	8.4
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Carbon tetrachloride	0.41	=	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Chloroethane	0.14	U	ug/m3	0.14	0.33
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Chloroform	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Chloromethane	0.23	U	ug/m3	0.23	0.33
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Cyclohexane	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Dichlorodifluoromethane	10	=	ug/m3	0.28	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Dichloromethane	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	D-Limonene	1.3	=	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	ETHANOL	190	=	ug/m3	1.3	8.2
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Ethyl acetate	6.1	=	ug/m3	0.58	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Ethylbenzene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.69	U	ug/m3	0.69	8.2
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Isopropylbenzene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Methyl methacrylate	0.51	U	ug/m3	0.51	1.6
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Naphthalene	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	N-Butyl Acetate	0.73	J	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	N-HEPTANE	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	n-Hexane	0.48	J	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Nonane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	n-Propylbenzene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	OCTANE	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Propene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Styrene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Tetrachloroethene	0.31	=	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Tetrahydrofuran	0.33	U	ug/m3	0.33	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Toluene	3.6	=	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	trans-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.82
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Trichlorofluoromethane	5.4	=	ug/m3	0.093	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Trichlorotrifuoroethane	0.48	=	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Vinyl Acetate	1.1	U	ug/m3	1.1	8.4
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Xylene, o	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-CS-25-060117	AC	N	6/1/2017	Xylenes, m & p	0.62	J	ug/m3	0.48	0.84
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.012	J	ug/m3	0.0093	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0096	U	ug/m3	0.0096	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.3	U	ug/m3	0.3	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.079
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.16	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.062	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.025	J	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.053	J	ug/m3	0.011	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,3-Butadiene	0.022	U	ug/m3	0.022	0.079
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.044	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	2-Butanone	0.45	J	ug/m3	0.42	10
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	2-Hexanone	0.32	U	ug/m3	0.32	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.32	U	ug/m3	0.32	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Acetone	2.5	J	ug/m3	0.088	3.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Acetonitrile	0.36	U	ug/m3	0.36	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Acrolein	0.12	J	ug/m3	0.061	0.31
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Acrylonitrile	0.34	U	ug/m3	0.34	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Benzene	0.51	=	ug/m3	0.031	0.12
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Benzyl chloride	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Bromoform	0.3	U	ug/m3	0.3	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Bromomethane	0.015	U	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Carbon Disulfide	0.3	U	ug/m3	0.3	10
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.78	J	ug/m3	0.5	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Chloroethane	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Chloroform	0.097	J	ug/m3	0.028	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Chloromethane	0.43	=	ug/m3	0.03	0.079
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0097	U	ug/m3	0.0097	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Cyclohexane	0.58	U	ug/m3	0.58	2
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Dichlorodifluoromethane	3.3	=	ug/m3	0.027	0.079
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.02	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	ETHANOL	29	=	ug/m3	1.6	10
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Ethylbenzene	0.12	J	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Freon 113	0.36	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.84	U	ug/m3	0.84	10
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	n-Butanol	0.96	U	ug/m3	0.96	2
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	n-Hexane	0.65	J	ug/m3	0.3	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Propene	0.28	U	ug/m3	0.28	1
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Styrene	0.028	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Tetrachloroethene	0.27	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Toluene	0.98	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Trichloroethylene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Trichlorofluoromethane	1.7	=	ug/m3	0.024	0.079
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Vinyl Acetate	1.3	U	ug/m3	1.3	10
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Xylene, o	0.14	J	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-CS-28-020818	AC	N	2/8/2018	Xylenes, m & p	0.36	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2,4-Trimethylbenzene	0.26	J	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dichloroethane	0.1	U	ug/m3	0.1	0.17

Attachment H-4
Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,3-Butadiene	0.23	U	ug/m3	0.23	0.33
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	1,4-Dioxane	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	2-Butanone	0.35	U	ug/m3	0.35	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	2-Hexanone	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Acetone	1.3	U	ug/m3	1.3	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Acetonitrile	0.3	U	ug/m3	0.3	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Acrolein	0.28	U	ug/m3	0.28	3.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Acrylonitrile	0.28	U	ug/m3	0.28	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Allyl chloride	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	alpha-Pinene	2.2	=	ug/m3	0.23	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Benzene	0.13	U	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Benzyl chloride	0.18	U	ug/m3	0.18	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Bromoform	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Bromomethane	0.15	U	ug/m3	0.15	0.33
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Carbon Disulfide	0.25	U	ug/m3	0.25	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Carbon tetrachloride	0.39	=	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Chloroethane	0.14	U	ug/m3	0.14	0.33
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Chloroform	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Chloromethane	0.23	U	ug/m3	0.23	0.33
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Cyclohexane	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Dichlorodifluoromethane	10	=	ug/m3	0.28	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Dichloromethane	0.28	U	ug/m3	0.28	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	D-Limonene	0.79	J	ug/m3	0.23	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	ETHANOL	27	=	ug/m3	1.3	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Ethyl acetate	0.58	U	ug/m3	0.58	1.7
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Ethylbenzene	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.7	U	ug/m3	0.7	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Isopropylbenzene	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Methyl methacrylate	0.51	U	ug/m3	0.51	1.7
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Naphthalene	0.3	U	ug/m3	0.3	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	N-Butyl Acetate	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	N-HEPTANE	0.28	U	ug/m3	0.28	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	n-Hexane	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Nonane	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	n-Propylbenzene	0.27	U	ug/m3	0.27	0.83

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	OCTANE	0.3	U	ug/m3	0.3	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Propene	0.23	U	ug/m3	0.23	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Styrene	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Tetrahydrofuran	0.33	U	ug/m3	0.33	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Toluene	3.1	=	ug/m3	0.28	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Trichlorofluoromethane	3.8	=	ug/m3	0.095	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Trichlorotrifuoroethane	0.45	=	ug/m3	0.13	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Vinyl Acetate	1.1	U	ug/m3	1.1	8.3
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Xylene, o	0.25	U	ug/m3	0.25	0.83
[redacted]	[redacted]	PMC-CS-28-060117	AC	N	6/1/2017	Xylenes, m & p	0.48	U	ug/m3	0.48	0.83
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,1,1-Trichloroethane	0.01	J	ug/m3	0.009	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,1,2,2-Tetrachloroethane	0.0091	U	ug/m3	0.0091	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,1,2-Trichloroethane	0.01	U	ug/m3	0.01	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,1-Dichloroethane	0.0077	U	ug/m3	0.0077	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,1-Dichloroethene	0.011	U	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2,3-Trimethylbenzene	0.19	U	ug/m3	0.19	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2,4-Trichlorobenzene	0.017	U	ug/m3	0.017	0.064
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2,4-Trimethylbenzene	0.058	J	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2-Dibromoethane	0.01	U	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2-Dichlorobenzene	0.011	U	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2-Dichloroethane	0.06	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,2-Dichloropropane	0.024	J	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,3,5-Trimethylbenzene	0.017	J	ug/m3	0.0093	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,3-Butadiene	0.018	U	ug/m3	0.018	0.064
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,3-Dichlorobenzene	0.049	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,4-Dichlorobenzene	0.01	U	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	1,4-Dioxane	0.011	U	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	2-Butanone	0.48	J	ug/m3	0.27	6.4
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	2-Hexanone	0.2	U	ug/m3	0.2	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	4-Methyl-2-Pentanone	0.2	U	ug/m3	0.2	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Acetone	2.7	J	ug/m3	0.071	3.2
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Acetonitrile	0.23	U	ug/m3	0.23	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Acrolein	0.16	J	ug/m3	0.05	0.25
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Acrylonitrile	0.22	U	ug/m3	0.22	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Benzene	0.42	=	ug/m3	0.025	0.095
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Benzyl chloride	0.14	U	ug/m3	0.14	1.3
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Bromodichloromethane	0.0088	U	ug/m3	0.0088	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Bromoform	0.19	U	ug/m3	0.19	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Bromomethane	0.029	J	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Carbon Disulfide	0.19	U	ug/m3	0.19	6.4
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	CHLORODIFLUOROMETHANE	0.93	=	ug/m3	0.32	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Chloroethane	0.011	U	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Chloroform	0.089	J	ug/m3	0.027	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Chloromethane	0.45	=	ug/m3	0.029	0.076
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	cis-1,2-Dichloroethene	0.012	U	ug/m3	0.012	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	cis-1,3-Dichloropropene	0.0079	U	ug/m3	0.0079	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Cyclohexane	0.37	U	ug/m3	0.37	1.3
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Dichlorodifluoromethane	3.4	=	ug/m3	0.022	0.064
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Dichloromethane	0.22	=	ug/m3	0.02	0.15
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	ETHANOL	5.7	J	ug/m3	1	6.4
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Ethylbenzene	0.053	J	ug/m3	0.015	0.15
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Freon 113	0.37	=	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.53	U	ug/m3	0.53	6.4
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Methyl tert-butyl ether (MTBE)	0.012	U	ug/m3	0.012	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	n-Butanol	0.61	U	ug/m3	0.61	1.3
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	n-Hexane	0.33	J	ug/m3	0.19	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Propene	0.18	U	ug/m3	0.18	0.64
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Styrene	0.013	J	ug/m3	0.0094	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Tetrachloroethene	0.11	=	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Toluene	0.35	=	ug/m3	0.014	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	trans-1,3-Dichloropropene	0.007	U	ug/m3	0.007	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Trichloroethylene	0.011	U	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Trichlorofluoromethane	1.9	=	ug/m3	0.019	0.064
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Vinyl Acetate	0.83	U	ug/m3	0.83	6.4
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Vinyl Chloride	0.0097	U	ug/m3	0.0097	0.032
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Xylene, o	0.055	J	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-CS-55-020818	AC	N	2/8/2018	Xylenes, m & p	0.12	J	ug/m3	0.024	0.13
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2,4-Trichlorobenzene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2,4-Trimethylbenzene	0.26	J	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.3	U	ug/m3	0.3	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dichloroethane	0.099	U	ug/m3	0.099	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,2-Dichloropropane	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,3,5-Trimethylbenzene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,3-Butadiene	0.22	U	ug/m3	0.22	0.32
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,4-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	1,4-Dioxane	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	2-Butanone	0.34	U	ug/m3	0.34	8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	2-Hexanone	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	4-Ethyltoluene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Acetone	1.2	U	ug/m3	1.2	8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Acetonitrile	0.29	U	ug/m3	0.29	0.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Acrolein	0.27	U	ug/m3	0.27	3.2
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Acrylonitrile	0.27	U	ug/m3	0.27	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Allyl chloride	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	alpha-Pinene	1.9	=	ug/m3	0.22	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Benzene	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Benzyl chloride	0.18	U	ug/m3	0.18	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Bromodichloromethane	0.11	U	ug/m3	0.11	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Bromoform	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Bromomethane	0.15	U	ug/m3	0.15	0.32
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Carbon Disulfide	0.24	U	ug/m3	0.24	8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Carbon tetrachloride	0.41	=	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Chlorobenzene	0.13	U	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Chloroethane	0.14	U	ug/m3	0.14	0.32
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Chloroform	0.14	U	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Chloromethane	0.27	J	ug/m3	0.22	0.32
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	cis-1,3-Dichloropropene	0.22	U	ug/m3	0.22	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Cyclohexane	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Dichlorodifluoromethane	11	=	ug/m3	0.27	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Dichloromethane	0.27	U	ug/m3	0.27	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	D-Limonene	0.59	J	ug/m3	0.22	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	ETHANOL	1.3	U	ug/m3	1.3	8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Ethyl acetate	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Ethylbenzene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Hexachlorobutadiene	0.22	U	ug/m3	0.22	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.67	U	ug/m3	0.67	8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Isopropylbenzene	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Methyl methacrylate	0.5	U	ug/m3	0.5	1.6
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Naphthalene	0.29	U	ug/m3	0.29	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	N-Butyl Acetate	0.29	J	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	N-HEPTANE	0.27	U	ug/m3	0.27	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	n-Hexane	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Nonane	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	n-Propylbenzene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	OCTANE	0.29	U	ug/m3	0.29	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Propene	0.22	U	ug/m3	0.22	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Styrene	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Tetrachloroethene	0.12	U	ug/m3	0.12	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Tetrahydrofuran	0.32	U	ug/m3	0.32	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Toluene	0.27	U	ug/m3	0.27	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	trans-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Trichloroethylene	0.14	U	ug/m3	0.14	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Trichlorofluoromethane	4	=	ug/m3	0.091	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Trichlorotrifuoroethane	0.46	=	ug/m3	0.13	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Vinyl Acetate	1	U	ug/m3	1	8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.16
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Xylene, o	0.24	U	ug/m3	0.24	0.8
[redacted]	[redacted]	PMC-CS-55-060117	AC	N	6/1/2017	Xylenes, m & p	0.46	U	ug/m3	0.46	0.8
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,1,1-Trichloroethane	0.0097	U	ug/m3	0.0097	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.85
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.082
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2,4-Trimethylbenzene	0.21	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2-Dichloroethane	0.5	=	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,2-Dichloropropane	0.092	=	ug/m3	0.012	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,3,5-Trimethylbenzene	0.072	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,3-Butadiene	0.023	U	ug/m3	0.023	0.082
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,4-Dichlorobenzene	0.074	=	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	1,4-Dioxane	0.054	J	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	2-Butanone	4.2	=	ug/m3	0.18	1.6
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	2-Hexanone	0.75	J	ug/m3	0.11	0.89
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	4-Methyl-2-Pentanone	0.53	J	ug/m3	0.12	0.87
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Acetone	29	=	ug/m3	0.092	4.1
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.85
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Acrolein	0.53	=	ug/m3	0.064	0.33
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.85
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Benzene	1.5	=	ug/m3	0.033	0.12
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Bromoform	0.18	U	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Bromomethane	0.015	U	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Carbon Disulfide	0.36	J	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	CHLORODIFLUOROMETHANE	0.41	U	ug/m3	0.41	0.82
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Chloroethane	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Chloroform	0.19	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Chloromethane	0.031	U	ug/m3	0.031	0.082
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Cyclohexane	1	J	ug/m3	0.25	1.6
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Dichlorodifluoromethane	3.7	J	ug/m3	0.028	0.082
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Dichloromethane	1.2	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	ETHANOL	14	=	ug/m3	0.61	8.4
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Ethylbenzene	0.28	=	ug/m3	0.016	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.7	=	ug/m3	0.36	3.4
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	n-Butanol	0.89	J	ug/m3	0.23	1.6
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	n-Hexane	6.6	=	ug/m3	0.18	0.89

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Propene	0.21	U	ug/m3	0.21	0.85
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Styrene	0.23	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Tetrachloroethene	0.22	=	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Toluene	18	=	ug/m3	0.018	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	trans-1,3-Dichloropropene	0.009	U	ug/m3	0.009	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Trichloroethylene	0.13	=	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Trichlorofluoromethane	1.3	=	ug/m3	0.025	0.082
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Trichlorotrifuoroethane	0.41	=	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Vinyl Acetate	3.7	J	ug/m3	2	8.7
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.041
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Xylene, o	0.39	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-CS-36-110718	AC	N	11/7/2018	Xylenes, m & p	0.9	=	ug/m3	0.031	0.16
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,1,1-Trichloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,1,2,2-Tetrachloroethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,1,2-Trichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,1-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,1-Dichloroethene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2,4-Trichlorobenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2,4-Trimethylbenzene	0.81	J	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dibromoethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,2-Dichloropropane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,3,5-Trimethylbenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,3-Butadiene	0.92	U	ug/m3	0.92	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,3-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	1,4-Dioxane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	2-Butanone	1.4	J	ug/m3	0.88	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	2-Hexanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	4-Ethyltoluene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	4-Methyl-2-Pentanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Acetonitrile	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Acrolein	0.71	U	ug/m3	0.71	8.4
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Acrylonitrile	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Allyl chloride	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	alpha-Pinene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Benzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Benzyl chloride	0.46	U	ug/m3	0.46	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Bromodichloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Bromoform	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Bromomethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Carbon Disulfide	0.63	U	ug/m3	0.63	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Carbon tetrachloride	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Chlorobenzene	0.67	U	ug/m3	0.67	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Chlorodibromomethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Chloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Chloroform	0.96	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Chloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	cis-1,2-Dichloroethene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Dichlorodifluoromethane	1.9	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Dichloromethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	D-Limonene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	ETHANOL	4.9	J	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Ethyl acetate	34	=	ug/m3	1.5	4.2
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Ethylbenzene	1	J	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Isopropylbenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Methyl tert-butyl ether (MTBE)	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Naphthalene	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	N-Butyl Acetate	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	N-HEPTANE	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	n-Hexane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Nonane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	n-Propylbenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	OCTANE	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Styrene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Tetrachloroethene	1.1	J	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Tetrahydrofuran	0.84	U	ug/m3	0.84	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Toluene	11	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	trans-1,2-Dichloroethene	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	trans-1,3-Dichloropropene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Trichloroethylene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Trichlorofluoromethane	3	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Trichlorotrifuoroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Vinyl Chloride	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Xylene, o	0.96	J	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-02-052517	GS	N	5/25/2017	Xylenes, m & p	2.2	J	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,1,1-Trichloroethane	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,1,2,2-Tetrachloroethane	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,1,2-Trichloroethane	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,1-Dichloroethane	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,1-Dichloroethene	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2,3-Trimethylbenzene	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2,4-Trichlorobenzene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2,4-Trimethylbenzene	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2-Dibromoethane	0.73	U	ug/m3	0.73	2.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2-Dichlorobenzene	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2-Dichloroethane	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,2-Dichloropropane	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,3,5-Trimethylbenzene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,3-Butadiene	1	U	ug/m3	1	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,3-Dichlorobenzene	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,4-Dichlorobenzene	0.64	U	ug/m3	0.64	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	1,4-Dioxane	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	2-Butanone	0.96	U	ug/m3	0.96	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	2-Hexanone	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	4-Methyl-2-Pentanone	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Acetone	3.5	U	ug/m3	3.5	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Acetonitrile	0.82	U	ug/m3	0.82	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Acrolein	0.78	U	ug/m3	0.78	9.2
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Acrylonitrile	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Benzene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Benzyl chloride	0.5	U	ug/m3	0.5	4.6
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Bromodichloromethane	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Bromoform	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Bromomethane	0.87	U	ug/m3	0.87	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Carbon Disulfide	0.69	U	ug/m3	0.69	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	CHLORODIFLUOROMETHANE	1.1	U	ug/m3	1.1	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Chloroethane	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Chloroform	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Chloromethane	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	cis-1,2-Dichloroethene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	cis-1,3-Dichloropropene	0.64	U	ug/m3	0.64	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Cyclohexane	1.3	U	ug/m3	1.3	4.6
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Dichlorodifluoromethane	2.2	J	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Dichloromethane	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	ETHANOL	3.7	U	ug/m3	3.7	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Ethylbenzene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Freon 113	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.9	U	ug/m3	1.9	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Methyl tert-butyl ether (MTBE)	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	n-Butanol	2.2	U	ug/m3	2.2	4.6
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	n-Hexane	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Propene	0.64	U	ug/m3	0.64	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Styrene	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Tetrachloroethene	0.64	U	ug/m3	0.64	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Toluene	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	trans-1,3-Dichloropropene	0.73	U	ug/m3	0.73	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Trichloroethylene	0.64	U	ug/m3	0.64	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Trichlorofluoromethane	1	J	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Vinyl Acetate	3	U	ug/m3	3	23
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Vinyl Chloride	0.78	U	ug/m3	0.78	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Xylene, o	0.69	U	ug/m3	0.69	2.3
[redacted]	[redacted]	PMC-SG-03-021018	GS	N	2/10/2018	Xylenes, m & p	1.4	U	ug/m3	1.4	4.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,1,1-Trichloroethane	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,1,2,2-Tetrachloroethane	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,1,2-Trichloroethane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,1-Dichloroethane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,1-Dichloroethene	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2,4-Trimethylbenzene	0.87	=	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dibromoethane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dichlorobenzene	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dichloroethane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,2-Dichloropropane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,3-Butadiene	0.38	U	ug/m3	0.38	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,3-Dichlorobenzene	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,4-Dichlorobenzene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	1,4-Dioxane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	2-Butanone	1.1	J	ug/m3	0.36	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	2-Hexanone	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Acetone	14	=	ug/m3	1.3	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Acetonitrile	0.31	U	ug/m3	0.31	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Acrolein	0.29	U	ug/m3	0.29	3.4
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Acrylonitrile	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Allyl chloride	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	alpha-Pinene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Benzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Benzyl chloride	0.19	U	ug/m3	0.19	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Bromodichloromethane	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Bromoform	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Bromomethane	0.33	U	ug/m3	0.33	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Carbon Disulfide	0.26	U	ug/m3	0.26	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Carbon tetrachloride	0.27	J	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Chlorobenzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Chlorodibromomethane	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Chloroethane	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Chloroform	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Chloromethane	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	cis-1,2-Dichloroethene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Cyclohexane	0.5	U	ug/m3	0.5	1.7
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Dichlorodifluoromethane	2.5	=	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Dichloromethane	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	D-Limonene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	ETHANOL	1.4	U	ug/m3	1.4	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Ethyl acetate	0.6	U	ug/m3	0.6	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Ethylbenzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.72	U	ug/m3	0.72	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Isopropylbenzene	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Methyl methacrylate	0.53	U	ug/m3	0.53	1.7
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Methyl tert-butyl ether (MTBE)	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Naphthalene	0.35	J	ug/m3	0.31	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	N-HEPTANE	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	n-Hexane	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Nonane	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	n-Propylbenzene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	OCTANE	0.31	U	ug/m3	0.31	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Propene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Styrene	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Tetrachloroethene	0.37	J	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Toluene	0.5	J	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	trans-1,2-Dichloroethene	0.33	U	ug/m3	0.33	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Trichloroethylene	0.24	U	ug/m3	0.24	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Trichlorofluoromethane	2.1	=	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Trichlorotrifuoroethane	0.6	J	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Vinyl Acetate	1.1	U	ug/m3	1.1	8.6
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Vinyl Chloride	0.29	U	ug/m3	0.29	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Xylene, o	0.26	U	ug/m3	0.26	0.86
[redacted]	[redacted]	PMC-SG-03-062617	GS	N	6/26/2017	Xylenes, m & p	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,1,1-Trichloroethane	1.1	J	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	2-Butanone	0.4	U	ug/m3	0.4	3.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	2-Hexanone	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Acetone	4.4	U	ug/m3	4.4	20

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Acetonitrile	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Acrolein	0.55	U	ug/m3	0.55	3.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Benzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Benzyl chloride	0.44	U	ug/m3	0.44	4
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Bromoform	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Bromomethane	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Carbon Disulfide	5.2	=	ug/m3	0.58	4
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	CHLORODIFLUOROMETHANE	0.91	U	ug/m3	0.91	1.8
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Chloroethane	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Chloroform	3.3	=	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Chloromethane	0.31	U	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	cis-1,2-Dichloroethene	3.5	=	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Cyclohexane	0.55	U	ug/m3	0.55	3.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Dichlorodifluoromethane	2.6	=	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Dichloromethane	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	ETHANOL	2.1	J	ug/m3	1.4	19
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.8	U	ug/m3	0.8	7.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	n-Butanol	0.75	J	ug/m3	0.51	3.7
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	n-Hexane	0.4	U	ug/m3	0.4	2
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Propene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Styrene	0.31	U	ug/m3	0.31	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Tetrachloroethene	49	=	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Toluene	0.37	J	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Trichloroethylene	650	=	ug/m3	2.6	19
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.3	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Trichlorotrifuoroethane	0.38	J	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Vinyl Acetate	4.4	U	ug/m3	4.4	19
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Xylene, o	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-12-111518	GS	N	11/15/2018	Xylenes, m & p	0.51	U	ug/m3	0.51	4
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,1,1-Trichloroethane	0.33	J	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,1,2,2-Tetrachloroethane	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,1,2-Trichloroethane	0.27	J	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,1-Dichloroethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,1-Dichloroethene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2,4-Trichlorobenzene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2,4-Trimethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,2-Dichloropropane	0.25	U	ug/m3	0.25	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,3-Butadiene	0.33	U	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,3-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,4-Dichlorobenzene	0.31	U	ug/m3	0.31	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	1,4-Dioxane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	2-Butanone	0.41	U	ug/m3	0.41	3.8
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	2-Hexanone	0.25	U	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Acetone	4.5	U	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Acetonitrile	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Acrolein	0.56	U	ug/m3	0.56	3.8
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Acrylonitrile	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Benzene	0.29	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Benzyl chloride	0.45	U	ug/m3	0.45	4.1
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Bromodichloromethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Bromoform	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Bromomethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Carbon Disulfide	15	=	ug/m3	0.6	4.1
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	CHLORODIFLUOROMETHANE	0.94	U	ug/m3	0.94	1.9
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Chloroethane	0.25	U	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Chloroform	3.9	=	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Chloromethane	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	cis-1,2-Dichloroethene	0.37	J	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	cis-1,3-Dichloropropene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Cyclohexane	0.56	U	ug/m3	0.56	3.8
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Dichlorodifluoromethane	2.4	=	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Dichloromethane	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	ETHANOL	3	J	ug/m3	1.4	19
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Ethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.83	U	ug/m3	0.83	7.9
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Methyl tert-butyl ether (MTBE)	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	n-Butanol	0.77	J	ug/m3	0.53	3.8
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	n-Hexane	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Propene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Styrene	0.32	U	ug/m3	0.32	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Tetrachloroethene	12	=	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Toluene	0.99	J	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	trans-1,3-Dichloropropene	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Trichloroethylene	820	=	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Trichlorofluoromethane	2.1	=	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Trichlorotrifuoroethane	0.42	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Vinyl Acetate	4.5	U	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Xylene, o	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-07-5.5-111518	GS	N	11/15/2018	Xylenes, m & p	0.53	U	ug/m3	0.53	4.1
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,1,1-Trichloroethane	3.7	=	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,1,2-Trichloroethane	0.19	U	ug/m3	0.19	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,1-Dichloroethene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2,3-Trimethylbenzene	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2-Dibromoethane	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2-Dichloroethane	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,2-Dichloropropane	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	2-Butanone	0.46	J	ug/m3	0.4	3.6
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	2-Hexanone	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Acetone	4.3	U	ug/m3	4.3	19
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Acetonitrile	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Acrolein	0.54	U	ug/m3	0.54	3.6
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Benzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Benzyl chloride	0.43	U	ug/m3	0.43	4
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Bromoform	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Bromomethane	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Carbon Disulfide	0.58	U	ug/m3	0.58	4
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	CHLORODIFLUOROMETHANE	0.94	J	ug/m3	0.9	1.8
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Chloroethane	0.24	U	ug/m3	0.24	1.8
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Chloroform	0.49	J	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Chloromethane	0.31	U	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Cyclohexane	0.54	U	ug/m3	0.54	3.6
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Dichlorodifluoromethane	2.7	=	ug/m3	0.31	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Dichloromethane	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	ETHANOL	3.4	J	ug/m3	1.3	18
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.2	J	ug/m3	0.79	7.6
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	n-Butanol	1.3	J	ug/m3	0.5	3.6
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	n-Hexane	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Propene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Styrene	0.31	U	ug/m3	0.31	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Tetrachloroethene	170	=	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Toluene	1.6	J	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Trichloroethylene	1700	=	ug/m3	2.6	19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Trichlorofluoromethane	14	=	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Trichlorotrifuoroethane	0.36	J	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Vinyl Acetate	4.3	U	ug/m3	4.3	19
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Xylene, o	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-11-5-101118	GS	N	10/11/2018	Xylenes, m & p	0.5	U	ug/m3	0.5	4
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,1,1-Trichloroethane	31	=	ug/m3	3.3	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,1,2,2-Tetrachloroethane	3.7	U	ug/m3	3.7	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,1,2-Trichloroethane	2.7	U	ug/m3	2.7	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,1-Dichloroethane	4	U	ug/m3	4	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,1-Dichloroethene	3.7	U	ug/m3	3.7	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2,3-Trimethylbenzene	3.7	U	ug/m3	3.7	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2,4-Trichlorobenzene	6.6	U	ug/m3	6.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2,4-Trimethylbenzene	3.7	U	ug/m3	3.7	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2-Dibromoethane	3.1	U	ug/m3	3.1	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2-Dichlorobenzene	4	U	ug/m3	4	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2-Dichloroethane	3	U	ug/m3	3	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,2-Dichloropropane	3.3	U	ug/m3	3.3	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,3,5-Trimethylbenzene	3.9	U	ug/m3	3.9	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,3-Butadiene	4.5	U	ug/m3	4.5	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,3-Dichlorobenzene	4.1	U	ug/m3	4.1	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,4-Dichlorobenzene	4.2	U	ug/m3	4.2	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	1,4-Dioxane	3.2	U	ug/m3	3.2	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	2-Butanone	5.6	U	ug/m3	5.6	51
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	2-Hexanone	3.3	U	ug/m3	3.3	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	4-Methyl-2-Pentanone	3.7	U	ug/m3	3.7	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Acetone	61	U	ug/m3	61	270
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Acetonitrile	6.6	U	ug/m3	6.6	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Acrolein	7.6	U	ug/m3	7.6	51
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Acrylonitrile	5.6	U	ug/m3	5.6	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Benzene	3.9	U	ug/m3	3.9	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Benzyl chloride	6.1	U	ug/m3	6.1	56
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Bromodichloromethane	3.9	U	ug/m3	3.9	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Bromoform	5.6	U	ug/m3	5.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Bromomethane	3.7	U	ug/m3	3.7	25
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Carbon Disulfide	10	J	ug/m3	8.1	56
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	CHLORODIFLUOROMETHANE	13	U	ug/m3	13	25
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Chloroethane	3.3	U	ug/m3	3.3	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Chloroform	3.6	U	ug/m3	3.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Chloromethane	4.4	U	ug/m3	4.4	25
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	cis-1,2-Dichloroethene	3.8	U	ug/m3	3.8	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	cis-1,3-Dichloropropene	4.2	U	ug/m3	4.2	28
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Cyclohexane	7.6	U	ug/m3	7.6	51
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Dichlorodifluoromethane	4.4	U	ug/m3	4.4	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Dichloromethane	7.6	U	ug/m3	7.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	ETHANOL	19	U	ug/m3	19	260
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Ethylbenzene	3.8	U	ug/m3	3.8	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	11	U	ug/m3	11	110

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Methyl tert-butyl ether (MTBE)	3.2	U	ug/m3	3.2	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	n-Butanol	7.1	U	ug/m3	7.1	51
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	n-Hexane	5.6	U	ug/m3	5.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Propene	6.6	U	ug/m3	6.6	26
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Styrene	4.4	U	ug/m3	4.4	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Tetrachloroethene	100	=	ug/m3	3.5	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Toluene	3.3	U	ug/m3	3.3	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	trans-1,3-Dichloropropene	5.6	U	ug/m3	5.6	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Trichloroethylene	4800	=	ug/m3	7.3	54
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Trichlorofluoromethane	4.1	U	ug/m3	4.1	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Trichlorotrifuoroethane	3.9	U	ug/m3	3.9	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Vinyl Acetate	61	U	ug/m3	61	270
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Vinyl Chloride	2.9	U	ug/m3	2.9	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Xylene, o	3.9	U	ug/m3	3.9	27
[redacted]	[redacted]	PMC-SVB-08-07-111518	GS	N	11/15/2018	Xylenes, m & p	7.1	U	ug/m3	7.1	56
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,1,1-Trichloroethane	0.55	J	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	2-Butanone	0.89	J	ug/m3	0.4	3.7
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	2-Hexanone	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Acetone	9	J	ug/m3	4.4	20
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Acetonitrile	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Acrolein	0.55	U	ug/m3	0.55	3.7
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Benzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Benzyl chloride	0.44	U	ug/m3	0.44	4
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Bromoform	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Bromomethane	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Carbon Disulfide	18	=	ug/m3	0.58	4
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	CHLORODIFLUOROMETHANE	0.91	U	ug/m3	0.91	1.8
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Chloroethane	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Chloroform	0.43	J	ug/m3	0.26	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Chloromethane	0.31	U	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Cyclohexane	0.55	U	ug/m3	0.55	3.7
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Dichlorodifluoromethane	2.5	=	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Dichloromethane	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	ETHANOL	2.5	J	ug/m3	1.4	19
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.8	J	ug/m3	0.8	7.7
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	n-Butanol	2.5	J	ug/m3	0.51	3.7
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	n-Hexane	0.4	U	ug/m3	0.4	2
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Propene	0.47	U	ug/m3	0.47	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Styrene	0.31	U	ug/m3	0.31	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Tetrachloroethene	190	=	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Toluene	0.87	J	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Trichloroethylene	21	=	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Trichlorofluoromethane	1.2	J	ug/m3	0.3	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Trichlorotrifuoroethane	0.38	J	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Vinyl Acetate	4.4	U	ug/m3	4.4	19
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Xylene, o	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-16-09-110518	GS	N	11/5/2018	Xylenes, m & p	0.51	U	ug/m3	0.51	4
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,1,1-Trichloroethane	0.5	J	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,1,2,2-Tetrachloroethane	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,1,2-Trichloroethane	0.18	U	ug/m3	0.18	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,1-Dichloroethane	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,1-Dichloroethene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2,3-Trimethylbenzene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2,4-Trichlorobenzene	0.44	U	ug/m3	0.44	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2,4-Trimethylbenzene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2-Dibromoethane	0.21	U	ug/m3	0.21	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2-Dichlorobenzene	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2-Dichloroethane	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,2-Dichloropropane	0.22	U	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,3,5-Trimethylbenzene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,3-Butadiene	0.3	U	ug/m3	0.3	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,3-Dichlorobenzene	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,4-Dichlorobenzene	0.28	U	ug/m3	0.28	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	1,4-Dioxane	0.21	U	ug/m3	0.21	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	2-Butanone	0.92	J	ug/m3	0.37	3.4
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	2-Hexanone	0.22	U	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Acetone	18	J	ug/m3	4.1	18
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Acetonitrile	0.44	U	ug/m3	0.44	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Acrolein	0.51	U	ug/m3	0.51	3.4
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Acrylonitrile	0.37	U	ug/m3	0.37	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Benzene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Benzyl chloride	0.41	U	ug/m3	0.41	3.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Bromodichloromethane	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Bromoform	0.37	U	ug/m3	0.37	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Bromomethane	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Carbon Disulfide	0.83	J	ug/m3	0.54	3.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	CHLORODIFLUOROMETHANE	0.84	J	ug/m3	0.84	1.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Chloroethane	0.22	U	ug/m3	0.22	1.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Chloroform	0.86	J	ug/m3	0.24	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Chloromethane	0.29	U	ug/m3	0.29	1.7
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	cis-1,2-Dichloroethene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	cis-1,3-Dichloropropene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Cyclohexane	0.51	U	ug/m3	0.51	3.4
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Dichlorodifluoromethane	2.6	=	ug/m3	0.29	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Dichloromethane	0.51	U	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	ETHANOL	4.3	J	ug/m3	1.2	17
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Ethylbenzene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.74	U	ug/m3	0.74	7.1
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Methyl tert-butyl ether (MTBE)	0.21	U	ug/m3	0.21	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	n-Butanol	1.6	J	ug/m3	0.47	3.4
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	n-Hexane	0.37	U	ug/m3	0.37	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Propene	0.44	U	ug/m3	0.44	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Styrene	0.29	U	ug/m3	0.29	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Tetrachloroethene	110	=	ug/m3	0.23	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Toluene	1.2	J	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	trans-1,3-Dichloropropene	0.37	U	ug/m3	0.37	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Trichloroethylene	58	=	ug/m3	0.24	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Trichlorofluoromethane	1.6	J	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Trichlorotrifuoroethane	0.41	J	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Vinyl Acetate	4.1	U	ug/m3	4.1	18
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Vinyl Chloride	0.19	U	ug/m3	0.19	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Xylene, o	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-10-101218	GS	N	10/12/2018	Xylenes, m & p	0.47	U	ug/m3	0.47	3.7
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,1,1-Trichloroethane	1.3	J	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,1,2,2-Tetrachloroethane	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,1,2-Trichloroethane	0.19	U	ug/m3	0.19	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,1-Dichloroethene	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2,3-Trimethylbenzene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2,4-Trichlorobenzene	0.46	U	ug/m3	0.46	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2,4-Trimethylbenzene	0.29	J	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2-Dibromoethane	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2-Dichloroethane	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,2-Dichloropropane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,3-Butadiene	0.31	U	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,3-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,4-Dichlorobenzene	0.29	U	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	1,4-Dioxane	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	2-Butanone	0.64	J	ug/m3	0.39	3.6
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	2-Hexanone	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Acetone	6.8	J	ug/m3	4.3	19
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Acetonitrile	0.46	U	ug/m3	0.46	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Acrolein	0.53	U	ug/m3	0.53	3.6
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Acrylonitrile	0.39	U	ug/m3	0.39	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Benzene	1.2	J	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Benzyl chloride	0.43	U	ug/m3	0.43	3.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Bromodichloromethane	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Bromoform	0.39	U	ug/m3	0.39	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Bromomethane	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Carbon Disulfide	1.3	J	ug/m3	0.57	3.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	CHLORODIFLUOROMETHANE	0.89	U	ug/m3	0.89	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Chloroethane	0.23	U	ug/m3	0.23	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Chloroform	2.5	=	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Chloromethane	0.31	U	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	cis-1,2-Dichloroethene	0.34	J	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	cis-1,3-Dichloropropene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Cyclohexane	0.53	U	ug/m3	0.53	3.6
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Dichlorodifluoromethane	2.8	=	ug/m3	0.31	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Dichloromethane	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	ETHANOL	1.3	U	ug/m3	1.3	18
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Ethylbenzene	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.78	U	ug/m3	0.78	7.5
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Methyl tert-butyl ether (MTBE)	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	n-Butanol	2.3	J	ug/m3	0.5	3.6
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	n-Hexane	0.39	U	ug/m3	0.39	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Propene	0.46	U	ug/m3	0.46	1.8
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Styrene	0.31	U	ug/m3	0.31	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Tetrachloroethene	140	=	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Toluene	1.4	J	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	trans-1,3-Dichloropropene	0.39	U	ug/m3	0.39	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Trichloroethylene	980	=	ug/m3	2.6	19
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Trichlorofluoromethane	2.4	=	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Trichlorotrifuoroethane	0.5	J	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Vinyl Acetate	4.3	U	ug/m3	4.3	19
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Vinyl Chloride	0.2	U	ug/m3	0.2	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Xylene, o	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-15-4.8-101218	GS	N	10/12/2018	Xylenes, m & p	0.5	U	ug/m3	0.5	3.9
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,1,1-Trichloroethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,1,2,2-Tetrachloroethane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,1,2-Trichloroethane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,1-Dichloroethane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,1-Dichloroethene	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2,3-Trimethylbenzene	0.53	U	ug/m3	0.53	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2,4-Trichlorobenzene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2,4-Trimethylbenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2-Dibromoethane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2-Dichlorobenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2-Dichloroethane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,2-Dichloropropane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,3,5-Trimethylbenzene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,3-Butadiene	0.78	U	ug/m3	0.78	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,3-Dichlorobenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,4-Dichlorobenzene	0.49	U	ug/m3	0.49	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	1,4-Dioxane	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	2-Butanone	0.74	U	ug/m3	0.74	18
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	2-Hexanone	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	4-Methyl-2-Pentanone	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Acetone	2.7	U	ug/m3	2.7	18
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Acetonitrile	0.63	U	ug/m3	0.63	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Acrolein	0.6	U	ug/m3	0.6	7.1
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Acrylonitrile	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Benzene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Benzyl chloride	0.39	U	ug/m3	0.39	3.5
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Bromodichloromethane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Bromoform	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Bromomethane	0.67	U	ug/m3	0.67	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Carbon Disulfide	0.53	U	ug/m3	0.53	18
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	CHLORODIFLUOROMETHANE	0.88	U	ug/m3	0.88	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Chloroethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Chloroform	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Chloromethane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	cis-1,2-Dichloroethene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	cis-1,3-Dichloropropene	0.49	U	ug/m3	0.49	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Cyclohexane	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Dichlorodifluoromethane	23	=	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Dichloromethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	ETHANOL	3.1	J	ug/m3	2.8	18
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Ethylbenzene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Freon 113	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	18
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Methyl tert-butyl ether (MTBE)	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	n-Butanol	1.7	U	ug/m3	1.7	3.5
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	n-Hexane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Propene	0.49	U	ug/m3	0.49	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Styrene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Tetrachloroethene	1.4	J	ug/m3	0.49	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Toluene	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	trans-1,3-Dichloropropene	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Trichloroethylene	0.49	U	ug/m3	0.49	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Vinyl Acetate	2.3	U	ug/m3	2.3	18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Vinyl Chloride	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Xylene, o	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-06-020918	GS	N	2/9/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.5
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,1,1-Trichloroethane	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,1,2,2-Tetrachloroethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,1,2-Trichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,1-Dichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,1-Dichloroethene	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2,4-Trichlorobenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2,4-Trimethylbenzene	1	J	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dibromo-3-chloropropane	0.43	U	ug/m3	0.43	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dibromoethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.83	U	ug/m3	0.83	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dichlorobenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,2-Dichloropropane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,3,5-Trimethylbenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,3-Butadiene	0.96	U	ug/m3	0.96	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,3-Dichlorobenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,4-Dichlorobenzene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	1,4-Dioxane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	2-Butanone	0.91	U	ug/m3	0.91	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	2-Hexanone	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	4-Ethyltoluene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	4-Methyl-2-Pentanone	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Acetone	3.3	U	ug/m3	3.3	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Acetonitrile	0.78	U	ug/m3	0.78	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Acrolein	0.74	U	ug/m3	0.74	8.7
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Acrylonitrile	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Allyl chloride	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	alpha-Pinene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Benzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Benzyl chloride	0.48	U	ug/m3	0.48	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Bromodichloromethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Bromoform	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Bromomethane	0.83	U	ug/m3	0.83	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Carbon Disulfide	0.65	U	ug/m3	0.65	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Carbon tetrachloride	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Chlorobenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Chlorodibromomethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Chloroethane	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Chloroform	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Chloromethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	cis-1,2-Dichloroethene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	cis-1,3-Dichloropropene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Cyclohexane	1.3	U	ug/m3	1.3	4.4
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Dichlorodifluoromethane	75	=	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Dichloromethane	0.74	U	ug/m3	0.74	2.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	D-Limonene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	ETHANOL	3.5	U	ug/m3	3.5	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Ethyl acetate	1.6	J	ug/m3	1.5	4.4
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Ethylbenzene	0.87	J	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Hexachlorobutadiene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Isopropylbenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.4
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Methyl tert-butyl ether (MTBE)	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Naphthalene	0.78	U	ug/m3	0.78	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	N-Butyl Acetate	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	N-HEPTANE	0.87	J	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	n-Hexane	1.2	J	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Nonane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	n-Propylbenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	OCTANE	0.78	U	ug/m3	0.78	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Propene	1.8	J	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Styrene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Tetrachloroethene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Tetrahydrofuran	0.87	U	ug/m3	0.87	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Toluene	1.8	J	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	trans-1,2-Dichloroethene	0.83	U	ug/m3	0.83	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	trans-1,3-Dichloropropene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Trichloroethylene	0.61	U	ug/m3	0.61	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Trichlorofluoromethane	3.1	=	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Trichlorotrifuoroethane	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Vinyl Acetate	2.8	U	ug/m3	2.8	22
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Vinyl Chloride	0.74	U	ug/m3	0.74	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Xylene, o	0.77	J	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-06-060517	GS	N	6/5/2017	Xylenes, m & p	1.6	J	ug/m3	1.3	4.4
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,1,1-Trichloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,1,2,2-Tetrachloroethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,1,2-Trichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,1-Dichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,1-Dichloroethene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2,3-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2,4-Trichlorobenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2,4-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2-Dibromoethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2-Dichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,2-Dichloropropane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,3,5-Trimethylbenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,3-Butadiene	0.76	U	ug/m3	0.76	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,3-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,4-Dichlorobenzene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	1,4-Dioxane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	2-Butanone	0.73	U	ug/m3	0.73	17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	2-Hexanone	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	4-Methyl-2-Pentanone	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Acetone	3.5	J	ug/m3	2.7	17
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Acetonitrile	0.63	U	ug/m3	0.63	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Acrolein	0.59	U	ug/m3	0.59	7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Acrylonitrile	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Benzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Benzyl chloride	0.38	U	ug/m3	0.38	3.5
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Bromodichloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Bromoform	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Bromomethane	0.66	U	ug/m3	0.66	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Carbon Disulfide	0.52	U	ug/m3	0.52	17
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	CHLORODIFLUOROMETHANE	0.87	U	ug/m3	0.87	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Chloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Chloroform	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Chloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	cis-1,2-Dichloroethene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	cis-1,3-Dichloropropene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Cyclohexane	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Dichlorodifluoromethane	2	=	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Dichloromethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	ETHANOL	2.8	J	ug/m3	2.8	17
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Ethylbenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Freon 113	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	17
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Methyl tert-butyl ether (MTBE)	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	n-Butanol	1.7	U	ug/m3	1.7	3.5
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	n-Hexane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Propene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Styrene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Tetrachloroethene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Toluene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	trans-1,3-Dichloropropene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Trichloroethylene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Trichlorofluoromethane	0.96	J	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Vinyl Acetate	2.3	U	ug/m3	2.3	17
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Vinyl Chloride	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Xylene, o	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-08-020918	GS	N	2/9/2018	Xylenes, m & p	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,1,1-Trichloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,1,2-Trichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,1-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,1-Dichloroethene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2,4-Trichlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2,4-Trimethylbenzene	1.6	J	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dibromoethane	0.66	U	ug/m3	0.66	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,2-Dichloropropane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,3,5-Trimethylbenzene	1.1	J	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,3-Butadiene	0.91	U	ug/m3	0.91	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,3-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	1,4-Dioxane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	2-Butanone	0.87	U	ug/m3	0.87	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	2-Hexanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	4-Ethyltoluene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	4-Methyl-2-Pentanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Acetonitrile	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Acrolein	0.71	U	ug/m3	0.71	8.3
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Acrylonitrile	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Allyl chloride	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	alpha-Pinene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Benzene	1.4	J	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Benzyl chloride	0.46	U	ug/m3	0.46	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Bromodichloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Bromoform	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Bromomethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Carbon Disulfide	0.62	U	ug/m3	0.62	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Carbon tetrachloride	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Chlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Chlorodibromomethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Chloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Chloroform	0.75	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Chloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	cis-1,2-Dichloroethene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Cyclohexane	1.5	J	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Dichlorodifluoromethane	1.8	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Dichloromethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	D-Limonene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	ETHANOL	3.3	U	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.2
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Ethylbenzene	2.7	=	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Isopropylbenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Naphthalene	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	N-Butyl Acetate	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	N-HEPTANE	1.6	J	ug/m3	0.71	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	n-Hexane	1.5	J	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Nonane	20	=	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	n-Propylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	OCTANE	2.7	=	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Styrene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Tetrachloroethene	0.92	J	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Tetrahydrofuran	0.83	U	ug/m3	0.83	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Toluene	6.7	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	trans-1,2-Dichloroethene	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	trans-1,3-Dichloropropene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Trichloroethylene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Trichlorofluoromethane	0.98	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Trichlorotrifuoroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Vinyl Chloride	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Xylene, o	2.1	=	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-08-060617	GS	N	6/6/2017	Xylenes, m & p	4.9	=	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,1,1-Trichloroethane	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,1,2,2-Tetrachloroethane	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,1,2-Trichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,1-Dichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,1-Dichloroethene	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2,3-Trimethylbenzene	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2,4-Trichlorobenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2,4-Trimethylbenzene	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2-Dibromoethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2-Dichlorobenzene	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2-Dichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,2-Dichloropropane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,3,5-Trimethylbenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,3-Butadiene	0.79	U	ug/m3	0.79	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,3-Dichlorobenzene	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,4-Dichlorobenzene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	1,4-Dioxane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	2-Butanone	0.75	U	ug/m3	0.75	18
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	2-Hexanone	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	4-Methyl-2-Pentanone	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Acetone	6.2	J	ug/m3	2.8	18
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Acetonitrile	0.64	U	ug/m3	0.64	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Acrolein	0.61	U	ug/m3	0.61	7.2
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Acrylonitrile	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Benzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Benzyl chloride	0.39	U	ug/m3	0.39	3.6
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Bromodichloromethane	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Bromoform	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Bromomethane	0.68	U	ug/m3	0.68	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Carbon Disulfide	0.54	U	ug/m3	0.54	18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	CHLORODIFLUOROMETHANE	0.89	U	ug/m3	0.89	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Chloroethane	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Chloroform	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Chloromethane	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	cis-1,2-Dichloroethene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	cis-1,3-Dichloropropene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Cyclohexane	1	U	ug/m3	1	3.6
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Dichlorodifluoromethane	2.5	=	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Dichloromethane	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	ETHANOL	4.9	J	ug/m3	2.9	18
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Ethylbenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Freon 113	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	18
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Methyl tert-butyl ether (MTBE)	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	n-Butanol	1.7	U	ug/m3	1.7	3.6
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	n-Hexane	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Propene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Styrene	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Tetrachloroethene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Toluene	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	trans-1,3-Dichloropropene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Trichloroethylene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Trichlorofluoromethane	1.2	J	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Vinyl Acetate	2.3	U	ug/m3	2.3	18
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Vinyl Chloride	0.61	U	ug/m3	0.61	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Xylene, o	0.54	U	ug/m3	0.54	1.8
[redacted]	[redacted]	PMC-SG-09-022118	GS	N	2/21/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.6
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,1,1-Trichloroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,1,2-Trichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,1-Dichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,1-Dichloroethene	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2,4-Trichlorobenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2,4-Trimethylbenzene	0.86	J	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.4	U	ug/m3	0.4	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dibromoethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dichlorobenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,2-Dichloropropane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,3,5-Trimethylbenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,3-Butadiene	0.88	U	ug/m3	0.88	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,3-Dichlorobenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,4-Dichlorobenzene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	1,4-Dioxane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	2-Butanone	0.84	U	ug/m3	0.84	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	2-Hexanone	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	4-Ethyltoluene	0.64	U	ug/m3	0.64	2

Attachment H-4
Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	4-Methyl-2-Pentanone	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Acetone	3.1	U	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Acetonitrile	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Acrolein	0.68	U	ug/m3	0.68	8
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Acrylonitrile	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Allyl chloride	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	alpha-Pinene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Benzene	1.1	J	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Benzyl chloride	0.44	U	ug/m3	0.44	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Bromodichloromethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Bromoform	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Bromomethane	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Carbon Disulfide	0.6	U	ug/m3	0.6	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Carbon tetrachloride	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Chlorobenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Chlorodibromomethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Chloroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Chloroform	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Chloromethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	cis-1,2-Dichloroethene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	cis-1,3-Dichloropropene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Cyclohexane	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Dichlorodifluoromethane	2.1	=	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Dichloromethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	D-Limonene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	ETHANOL	3.2	U	ug/m3	3.2	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Ethyl acetate	1.4	U	ug/m3	1.4	4
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Ethylbenzene	0.82	J	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Hexachlorobutadiene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Isopropylbenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Naphthalene	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	N-Butyl Acetate	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	N-HEPTANE	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	n-Hexane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Nonane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	n-Propylbenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	OCTANE	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Propene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Styrene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Tetrachloroethene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Tetrahydrofuran	0.8	U	ug/m3	0.8	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Toluene	2.3	=	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	trans-1,2-Dichloroethene	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	trans-1,3-Dichloropropene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Trichloroethylene	0.56	U	ug/m3	0.56	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Trichlorofluoromethane	1.2	J	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Trichlorotrifuoroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Vinyl Acetate	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Vinyl Chloride	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Xylene, o	0.92	J	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-09-060617	GS	N	6/6/2017	Xylenes, m & p	2	J	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,1,1-Trichloroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,1,2,2-Tetrachloroethane	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,1,2-Trichloroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,1-Dichloroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,1-Dichloroethene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2,4-Trichlorobenzene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2,4-Trimethylbenzene	15	=	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dibromo-3-chloropropane	0.65	U	ug/m3	0.65	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dibromoethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.3	U	ug/m3	1.3	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dichlorobenzene	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dichloroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,2-Dichloropropane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,3,5-Trimethylbenzene	5.4	=	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,3-Butadiene	1.5	U	ug/m3	1.5	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,3-Dichlorobenzene	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,4-Dichlorobenzene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	1,4-Dioxane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	2-Butanone	4.7	J	ug/m3	1.4	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	2-Hexanone	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	4-Ethyltoluene	2.5	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	4-Methyl-2-Pentanone	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Acetone	35	=	ug/m3	5.1	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Acetonitrile	1.2	U	ug/m3	1.2	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Acrolein	1.1	U	ug/m3	1.1	13
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Acrylonitrile	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Allyl chloride	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	alpha-Pinene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Benzene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Benzyl chloride	0.73	U	ug/m3	0.73	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Bromodichloromethane	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Bromoform	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Bromomethane	1.3	U	ug/m3	1.3	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Carbon Disulfide	0.99	U	ug/m3	0.99	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Carbon tetrachloride	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Chlorobenzene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Chlorodibromomethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Chloroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Chloroform	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Chloromethane	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	cis-1,2-Dichloroethene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	cis-1,3-Dichloropropene	0.92	U	ug/m3	0.92	3.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Cyclohexane	1.9	U	ug/m3	1.9	6.6
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Dichlorodifluoromethane	2.1	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Dichloromethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	D-Limonene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	ETHANOL	5.3	U	ug/m3	5.3	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Ethyl acetate	2.3	U	ug/m3	2.3	6.6
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Ethylbenzene	1.7	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Hexachlorobutadiene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.8	U	ug/m3	2.8	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Isopropylbenzene	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Methyl methacrylate	2	U	ug/m3	2	6.6
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Methyl tert-butyl ether (MTBE)	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Naphthalene	1.2	U	ug/m3	1.2	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	N-Butyl Acetate	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	N-HEPTANE	1.4	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	n-Hexane	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Nonane	62	=	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	n-Propylbenzene	2.5	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	OCTANE	76	=	ug/m3	1.2	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Propene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Styrene	0.99	U	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Tetrachloroethene	40	=	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Tetrahydrofuran	20	=	ug/m3	1.3	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Toluene	9.9	=	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	trans-1,2-Dichloroethene	1.3	U	ug/m3	1.3	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	trans-1,3-Dichloropropene	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Trichloroethylene	0.92	U	ug/m3	0.92	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Trichlorofluoromethane	1.6	J	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Trichlorotrifuoroethane	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Vinyl Acetate	4.3	U	ug/m3	4.3	33
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Vinyl Chloride	1.1	U	ug/m3	1.1	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Xylene, o	2.9	J	ug/m3	0.99	3.3
[redacted]	[redacted]	PMC-SG-12-062617	GS	N	6/26/2017	Xylenes, m & p	7	=	ug/m3	2	6.6
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,1,1-Trichloroethane	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,1,2,2-Tetrachloroethane	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,1,2-Trichloroethane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,1-Dichloroethane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,1-Dichloroethene	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2,3-Trimethylbenzene	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2,4-Trichlorobenzene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2,4-Trimethylbenzene	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2-Dibromoethane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2-Dichlorobenzene	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2-Dichloroethane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,2-Dichloropropane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,3,5-Trimethylbenzene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,3-Butadiene	1.1	U	ug/m3	1.1	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,3-Dichlorobenzene	0.75	U	ug/m3	0.75	2.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,4-Dichlorobenzene	0.7	U	ug/m3	0.7	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	1,4-Dioxane	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	2-Butanone	1.1	U	ug/m3	1.1	27
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	2-Hexanone	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	4-Methyl-2-Pentanone	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Acetone	4.2	J	ug/m3	3.9	25
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Acetonitrile	0.9	U	ug/m3	0.9	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Acrolein	0.85	U	ug/m3	0.85	10
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Acrylonitrile	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Benzene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Benzyl chloride	0.55	U	ug/m3	0.55	5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Bromodichloromethane	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Bromoform	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Bromomethane	0.95	U	ug/m3	0.95	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Carbon Disulfide	0.75	U	ug/m3	0.75	25
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	CHLORODIFLUOROMETHANE	1.3	U	ug/m3	1.3	2.7
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Chloroethane	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Chloroform	2	J	ug/m3	0.91	2.7
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Chloromethane	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	cis-1,2-Dichloroethene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	cis-1,3-Dichloropropene	0.7	U	ug/m3	0.7	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Cyclohexane	1.5	U	ug/m3	1.5	5.3
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Dichlorodifluoromethane	27	=	ug/m3	0.91	2.7
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Dichloromethane	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	ETHANOL	4.6	J	ug/m3	4.3	27
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Ethylbenzene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Freon 113	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.1	U	ug/m3	2.1	25
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Methyl tert-butyl ether (MTBE)	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	n-Butanol	2.4	U	ug/m3	2.4	5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	n-Hexane	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Propene	0.7	U	ug/m3	0.7	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Styrene	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Tetrachloroethene	26	=	ug/m3	0.75	2.7
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Toluene	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	trans-1,3-Dichloropropene	0.8	U	ug/m3	0.8	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Trichloroethylene	0.7	U	ug/m3	0.7	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Trichlorofluoromethane	0.99	J	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Vinyl Acetate	3.3	U	ug/m3	3.3	25
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Vinyl Chloride	0.85	U	ug/m3	0.85	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Xylene, o	0.75	U	ug/m3	0.75	2.5
[redacted]	[redacted]	PMC-SG-13-01-021118	GS	N	2/11/2018	Xylenes, m & p	1.5	U	ug/m3	1.5	5
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.63	U	ug/m3	0.63	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.66	J	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.39	U	ug/m3	0.39	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,3-Butadiene	0.86	U	ug/m3	0.86	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	1,4-Dioxane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	2-Butanone	1.2	J	ug/m3	0.82	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	2-Hexanone	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	4-Ethyltoluene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Acetone	3	U	ug/m3	3	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Acetonitrile	0.71	U	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Acrolein	0.67	U	ug/m3	0.67	7.9
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Acrylonitrile	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Allyl chloride	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	alpha-Pinene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Benzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Benzyl chloride	0.43	U	ug/m3	0.43	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Bromodichloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Bromoform	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Bromomethane	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Carbon Disulfide	0.59	U	ug/m3	0.59	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Carbon tetrachloride	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Chlorobenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Chlorodibromomethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Chloroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Chloroform	16	=	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Chloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Cyclohexane	1.1	U	ug/m3	1.1	3.9
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Dichlorodifluoromethane	23	=	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Dichloromethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	D-Limonene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	ETHANOL	3.1	U	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Ethyl acetate	1.4	U	ug/m3	1.4	4.1
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Ethylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Isopropylbenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	3.9
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.67	U	ug/m3	0.67	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Naphthalene	0.71	U	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	N-Butyl Acetate	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	N-HEPTANE	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	n-Hexane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Nonane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	n-Propylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	OCTANE	0.71	U	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Propene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Styrene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Tetrachloroethene	1	J	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Tetrahydrofuran	0.79	U	ug/m3	0.79	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Toluene	0.72	J	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Trichloroethylene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Trichlorofluoromethane	2.3	=	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Vinyl Acetate	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Vinyl Chloride	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Xylene, o	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-01-060117	GS	N	6/1/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4.1
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,1,1-Trichloroethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,1,2,2-Tetrachloroethane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,1,2-Trichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,1-Dichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,1-Dichloroethene	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2,3-Trimethylbenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2,4-Trichlorobenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2,4-Trimethylbenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2-Dibromoethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2-Dichlorobenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2-Dichloroethane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,2-Dichloropropane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,3,5-Trimethylbenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,3-Butadiene	0.78	U	ug/m3	0.78	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,3-Dichlorobenzene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,4-Dichlorobenzene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	1,4-Dioxane	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	2-Butanone	0.75	U	ug/m3	0.75	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	2-Hexanone	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	4-Methyl-2-Pentanone	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Acetone	3	J	ug/m3	2.7	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Acetonitrile	0.64	U	ug/m3	0.64	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Acrolein	0.6	U	ug/m3	0.6	7.1
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Acrylonitrile	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Benzene	1.3	J	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Benzyl chloride	0.39	U	ug/m3	0.39	3.6
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Bromodichloromethane	0.53	U	ug/m3	0.53	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Bromoform	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Bromomethane	0.67	U	ug/m3	0.67	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Carbon Disulfide	0.53	U	ug/m3	0.53	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	CHLORODIFLUOROMETHANE	0.89	U	ug/m3	0.89	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Chloroethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Chloroform	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Chloromethane	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	cis-1,2-Dichloroethene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	cis-1,3-Dichloropropene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Cyclohexane	1	U	ug/m3	1	3.6
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Dichlorodifluoromethane	3.2	=	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Dichloromethane	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	ETHANOL	2.8	U	ug/m3	2.8	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Ethylbenzene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Freon 113	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Methyl tert-butyl ether (MTBE)	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	n-Butanol	1.7	U	ug/m3	1.7	3.6
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	n-Hexane	0.61	J	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Propene	0.5	U	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Styrene	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Tetrachloroethene	67	=	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Toluene	0.85	J	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	trans-1,3-Dichloropropene	0.57	U	ug/m3	0.57	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Trichloroethylene	1.2	J	ug/m3	0.5	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Vinyl Acetate	2.3	U	ug/m3	2.3	18
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Vinyl Chloride	0.6	U	ug/m3	0.6	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Xylene, o	0.53	U	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-SG-13-02-021118	GS	N	2/11/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.6
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.69	J	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	ug/m3	0.78	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,3-Butadiene	0.91	U	ug/m3	0.91	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	1,4-Dioxane	0.66	U	ug/m3	0.66	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	2-Butanone	0.87	U	ug/m3	0.87	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	2-Hexanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	4-Ethyltoluene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Acetonitrile	0.74	U	ug/m3	0.74	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Acrolein	0.7	U	ug/m3	0.7	8.3
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Acrylonitrile	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Allyl chloride	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	alpha-Pinene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Benzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Benzyl chloride	0.45	U	ug/m3	0.45	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Bromodichloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Bromoform	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Bromomethane	0.78	U	ug/m3	0.78	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Carbon Disulfide	0.62	U	ug/m3	0.62	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Carbon tetrachloride	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Chlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Chlorodibromomethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Chloroethane	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Chloroform	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Chloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Dichlorodifluoromethane	75	=	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Dichloromethane	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	D-Limonene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	ETHANOL	3.3	U	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Ethyl acetate	1.4	U	ug/m3	1.4	4.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Ethylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Isopropylbenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Naphthalene	0.74	U	ug/m3	0.74	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	N-Butyl Acetate	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	N-HEPTANE	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	n-Hexane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Nonane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	n-Propylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	OCTANE	0.74	U	ug/m3	0.74	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Styrene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Tetrachloroethene	1.6	J	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Tetrahydrofuran	0.83	U	ug/m3	0.83	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Toluene	0.7	U	ug/m3	0.7	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.78	U	ug/m3	0.78	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Trichloroethylene	5.4	=	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Trichlorofluoromethane	2.6	=	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Vinyl Chloride	0.7	U	ug/m3	0.7	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Xylene, o	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-02-060117	GS	N	6/1/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4.1
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.44	U	ug/m3	0.44	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.84	U	ug/m3	0.84	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,3-Butadiene	0.97	U	ug/m3	0.97	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	1,4-Dioxane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	2-Butanone	1.3	J	ug/m3	0.92	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	2-Hexanone	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	4-Ethyltoluene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Acetone	3.4	U	ug/m3	3.4	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Acetonitrile	0.79	U	ug/m3	0.79	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Acrolein	0.75	U	ug/m3	0.75	8.8
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Acrylonitrile	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Allyl chloride	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	alpha-Pinene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Benzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Benzyl chloride	0.48	U	ug/m3	0.48	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Bromodichloromethane	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Bromoform	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Bromomethane	0.84	U	ug/m3	0.84	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Carbon Disulfide	0.66	U	ug/m3	0.66	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Carbon tetrachloride	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Chlorobenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Chlorodibromomethane	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Chloroethane	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Chloroform	0.75	U	ug/m3	0.75	2.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Chloromethane	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Cyclohexane	1.3	U	ug/m3	1.3	4.4
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Dichlorodifluoromethane	220	=	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Dichloromethane	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	D-Limonene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	ETHANOL	3.5	U	ug/m3	3.5	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.4
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Ethylbenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Isopropylbenzene	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Methyl methacrylate	1.4	U	ug/m3	1.4	4.4
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Naphthalene	0.79	U	ug/m3	0.79	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	N-Butyl Acetate	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	N-HEPTANE	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	n-Hexane	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Nonane	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	n-Propylbenzene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	OCTANE	0.79	U	ug/m3	0.79	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Propene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Styrene	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Tetrachloroethene	0.9	J	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Tetrahydrofuran	0.88	U	ug/m3	0.88	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Toluene	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.84	U	ug/m3	0.84	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.7	U	ug/m3	0.7	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Trichloroethylene	0.62	U	ug/m3	0.62	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Trichlorofluoromethane	2.8	=	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Vinyl Acetate	2.9	U	ug/m3	2.9	22
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Vinyl Chloride	0.75	U	ug/m3	0.75	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Xylene, o	0.66	U	ug/m3	0.66	2.2
[redacted]	[redacted]	PMC-SG-13-03-060117	GS	N	6/1/2017	Xylenes, m & p	1.3	U	ug/m3	1.3	4.4
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.39	U	ug/m3	0.39	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	ug/m3	0.74	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.62	U	ug/m3	0.62	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,3-Butadiene	0.86	U	ug/m3	0.86	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	1,4-Dioxane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	2-Butanone	1.2	J	ug/m3	0.82	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	2-Hexanone	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	4-Ethyltoluene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Acetone	3	U	ug/m3	3	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Acetonitrile	0.7	U	ug/m3	0.7	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Acrolein	0.66	U	ug/m3	0.66	7.8
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Acrylonitrile	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Allyl chloride	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	alpha-Pinene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Benzene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Benzyl chloride	0.43	U	ug/m3	0.43	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Bromodichloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Bromoform	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Bromomethane	0.74	U	ug/m3	0.74	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Carbon Disulfide	0.59	U	ug/m3	0.59	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Carbon tetrachloride	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Chlorobenzene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Chlorodibromomethane	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Chloroethane	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Chloroform	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Chloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Cyclohexane	1.1	U	ug/m3	1.1	3.9
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Dichlorodifluoromethane	250	=	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Dichloromethane	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	D-Limonene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	ETHANOL	3.4	J	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Ethyl acetate	6.5	=	ug/m3	1.4	3.9
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Ethylbenzene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Isopropylbenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	3.9
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Naphthalene	0.7	U	ug/m3	0.7	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	N-Butyl Acetate	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	N-HEPTANE	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	n-Hexane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Nonane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	n-Propylbenzene	0.62	U	ug/m3	0.62	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	OCTANE	0.7	U	ug/m3	0.7	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Propene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Styrene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Tetrachloroethene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Tetrahydrofuran	0.78	U	ug/m3	0.78	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Toluene	1.9	J	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.74	U	ug/m3	0.74	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.62	U	ug/m3	0.62	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Trichloroethylene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Trichlorofluoromethane	2.6	=	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Vinyl Acetate	2.5	U	ug/m3	2.5	20
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Vinyl Chloride	0.66	U	ug/m3	0.66	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Xylene, o	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-13-04-060117	GS	N	6/1/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	3.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,1,1-Trichloroethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,1,2,2-Tetrachloroethane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,1,2-Trichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,1-Dichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,1-Dichloroethene	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2,3-Trimethylbenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2,4-Trichlorobenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2,4-Trimethylbenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2-Dibromoethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2-Dichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,2-Dichloropropane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,3,5-Trimethylbenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,3-Butadiene	0.83	U	ug/m3	0.83	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,3-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,4-Dichlorobenzene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	1,4-Dioxane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	2-Butanone	0.79	U	ug/m3	0.79	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	2-Hexanone	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	4-Methyl-2-Pentanone	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Acetone	2.9	U	ug/m3	2.9	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Acetonitrile	0.68	U	ug/m3	0.68	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Acrolein	0.64	U	ug/m3	0.64	7.6
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Acrylonitrile	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Benzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Benzyl chloride	0.42	U	ug/m3	0.42	3.8
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Bromodichloromethane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Bromoform	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Bromomethane	0.72	U	ug/m3	0.72	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Carbon Disulfide	0.57	U	ug/m3	0.57	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	CHLORODIFLUOROMETHANE	0.94	U	ug/m3	0.94	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Chloroethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Chloroform	0.64	U	ug/m3	0.64	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Chloromethane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	cis-1,2-Dichloroethene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	cis-1,3-Dichloropropene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Cyclohexane	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Dichlorodifluoromethane	72	=	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Dichloromethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	ETHANOL	3	U	ug/m3	3	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Ethylbenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Freon 113	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Methyl tert-butyl ether (MTBE)	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	n-Butanol	1.8	U	ug/m3	1.8	3.8
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	n-Hexane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Propene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Styrene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Tetrachloroethene	0.53	J	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Toluene	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	trans-1,3-Dichloropropene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Trichloroethylene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Vinyl Acetate	2.5	U	ug/m3	2.5	19
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Vinyl Chloride	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Xylene, o	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-13-05-021118	GS	N	2/11/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,2-Dichloropropane	1	J	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,3-Butadiene	0.91	U	ug/m3	0.91	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	1,4-Dioxane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	2-Butanone	1.9	J	ug/m3	0.87	21
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	2-Hexanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	4-Ethyltoluene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Acetonitrile	0.75	U	ug/m3	0.75	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Acrolein	0.71	U	ug/m3	0.71	8.3
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Acrylonitrile	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Allyl chloride	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	alpha-Pinene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Benzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Benzyl chloride	0.46	U	ug/m3	0.46	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Bromodichloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Bromoform	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Bromomethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Carbon Disulfide	0.62	U	ug/m3	0.62	21
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Carbon tetrachloride	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Chlorobenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Chlorodibromomethane	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Chloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Chloroform	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Chloromethane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Dichlorodifluoromethane	310	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Dichloromethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	D-Limonene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	ETHANOL	4.1	J	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Ethyl acetate	3.7	J	ug/m3	1.5	4.2
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Ethylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	21
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Isopropylbenzene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Naphthalene	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	N-Butyl Acetate	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	N-HEPTANE	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	n-Hexane	0.62	J	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Nonane	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	n-Propylbenzene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	OCTANE	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Styrene	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Tetrachloroethene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Tetrahydrofuran	0.83	U	ug/m3	0.83	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Toluene	2.6	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.66	U	ug/m3	0.66	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Trichloroethylene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Trichlorofluoromethane	1.3	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Vinyl Chloride	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Xylene, o	0.62	U	ug/m3	0.62	2.1
[redacted]	[redacted]	PMC-SG-13-05-060117	GS	N	6/1/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.43	U	ug/m3	0.43	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.82	U	ug/m3	0.82	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,3-Butadiene	0.95	U	ug/m3	0.95	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	1,4-Dioxane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	2-Butanone	0.9	U	ug/m3	0.9	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	2-Hexanone	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	4-Ethyltoluene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Acetone	3.3	U	ug/m3	3.3	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Acetonitrile	0.77	U	ug/m3	0.77	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Acrolein	0.73	U	ug/m3	0.73	8.6
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Acrylonitrile	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Allyl chloride	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	alpha-Pinene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Benzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Benzyl chloride	0.47	U	ug/m3	0.47	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Bromodichloromethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Bromoform	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Bromomethane	0.82	U	ug/m3	0.82	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Carbon Disulfide	0.65	U	ug/m3	0.65	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Carbon tetrachloride	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Chlorobenzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Chlorodibromomethane	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Chloroethane	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Chloroform	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Chloromethane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.3
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Dichlorodifluoromethane	230	=	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Dichloromethane	0.73	U	ug/m3	0.73	2.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	D-Limonene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	ETHANOL	3.4	U	ug/m3	3.4	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.3
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Ethylbenzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Isopropylbenzene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.3
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Naphthalene	0.77	U	ug/m3	0.77	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	N-Butyl Acetate	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	N-HEPTANE	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	n-Hexane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Nonane	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	n-Propylbenzene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	OCTANE	0.77	U	ug/m3	0.77	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Propene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Styrene	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Tetrachloroethene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Tetrahydrofuran	0.86	U	ug/m3	0.86	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Toluene	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.82	U	ug/m3	0.82	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.69	U	ug/m3	0.69	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Trichloroethylene	0.6	U	ug/m3	0.6	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Trichlorofluoromethane	1.7	J	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Vinyl Acetate	2.8	U	ug/m3	2.8	22
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Vinyl Chloride	0.73	U	ug/m3	0.73	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Xylene, o	0.65	U	ug/m3	0.65	2.2
[redacted]	[redacted]	PMC-SG-13-06-060117	GS	N	6/1/2017	Xylenes, m & p	1.3	U	ug/m3	1.3	4.3
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,1,1-Trichloroethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,1,2,2-Tetrachloroethane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,1,2-Trichloroethane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,1-Dichloroethane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,1-Dichloroethene	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2,3-Trimethylbenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2,4-Trichlorobenzene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2,4-Trimethylbenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2-Dibromoethane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2-Dichloroethane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,2-Dichloropropane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,3,5-Trimethylbenzene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,3-Butadiene	0.84	U	ug/m3	0.84	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,3-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,4-Dichlorobenzene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	1,4-Dioxane	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	2-Butanone	0.8	U	ug/m3	0.8	19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	2-Hexanone	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	4-Methyl-2-Pentanone	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Acetone	7	J	ug/m3	2.9	19
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Acetonitrile	0.68	U	ug/m3	0.68	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Acrolein	0.65	U	ug/m3	0.65	7.6
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Acrylonitrile	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Benzene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Benzyl chloride	0.42	U	ug/m3	0.42	3.8
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Bromodichloromethane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Bromoform	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Bromomethane	0.72	U	ug/m3	0.72	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Carbon Disulfide	0.57	U	ug/m3	0.57	19
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	CHLORODIFLUOROMETHANE	0.95	U	ug/m3	0.95	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Chloroethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Chloroform	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Chloromethane	0.66	J	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	cis-1,2-Dichloroethene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	cis-1,3-Dichloropropene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Cyclohexane	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Dichlorodifluoromethane	2.3	=	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Dichloromethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	ETHANOL	4.7	J	ug/m3	3	19
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Ethylbenzene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Freon 113	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	19
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Methyl tert-butyl ether (MTBE)	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	n-Butanol	2.1	J	ug/m3	1.8	3.8
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	n-Hexane	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Propene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Styrene	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Tetrachloroethene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Toluene	0.87	J	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	trans-1,3-Dichloropropene	0.61	U	ug/m3	0.61	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Trichloroethylene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Vinyl Acetate	2.5	U	ug/m3	2.5	19
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Vinyl Chloride	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Xylene, o	0.57	U	ug/m3	0.57	1.9
[redacted]	[redacted]	PMC-SG-37-022018	GS	N	2/20/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,1,1-Trichloroethane	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,1,2,2-Tetrachloroethane	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,1,2-Trichloroethane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,1-Dichloroethane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,1-Dichloroethene	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2,4-Trichlorobenzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2,4-Trimethylbenzene	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dibromo-3-chloropropane	0.42	U	ug/m3	0.42	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dibromoethane	0.68	U	ug/m3	0.68	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.81	U	ug/m3	0.81	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dichlorobenzene	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dichloroethane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,2-Dichloropropane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,3,5-Trimethylbenzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,3-Butadiene	0.94	U	ug/m3	0.94	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,3-Dichlorobenzene	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,4-Dichlorobenzene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	1,4-Dioxane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	2-Butanone	0.89	U	ug/m3	0.89	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	2-Hexanone	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	4-Ethyltoluene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	4-Methyl-2-Pentanone	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Acetone	3.3	U	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Acetonitrile	0.77	U	ug/m3	0.77	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Acrolein	0.72	U	ug/m3	0.72	8.5
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Acrylonitrile	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Allyl chloride	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	alpha-Pinene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Benzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Benzyl chloride	0.47	U	ug/m3	0.47	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Bromodichloromethane	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Bromoform	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Bromomethane	0.81	U	ug/m3	0.81	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Carbon Disulfide	0.64	U	ug/m3	0.64	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Carbon tetrachloride	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Chlorobenzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Chlorodibromomethane	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Chloroethane	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Chloroform	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Chloromethane	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	cis-1,2-Dichloroethene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	cis-1,3-Dichloropropene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.3
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Dichlorodifluoromethane	2	J	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Dichloromethane	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	D-Limonene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	ETHANOL	3.4	U	ug/m3	3.4	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.3
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Ethylbenzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Hexachlorobutadiene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Isopropylbenzene	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.3
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Methyl tert-butyl ether (MTBE)	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Naphthalene	0.77	U	ug/m3	0.77	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	N-Butyl Acetate	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	N-HEPTANE	0.72	U	ug/m3	0.72	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	n-Hexane	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Nonane	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	n-Propylbenzene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	OCTANE	0.77	U	ug/m3	0.77	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Propene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Styrene	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Tetrachloroethene	2.9	=	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Tetrahydrofuran	0.85	U	ug/m3	0.85	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Toluene	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	trans-1,2-Dichloroethene	0.81	U	ug/m3	0.81	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	trans-1,3-Dichloropropene	0.68	U	ug/m3	0.68	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Trichloroethylene	0.6	U	ug/m3	0.6	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Trichlorofluoromethane	1.1	J	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Trichlorotrifuoroethane	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Vinyl Acetate	2.8	U	ug/m3	2.8	21
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Vinyl Chloride	0.72	U	ug/m3	0.72	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Xylene, o	0.64	U	ug/m3	0.64	2.1
[redacted]	[redacted]	PMC-SG-37-072017	GS	N	7/20/2017	Xylenes, m & p	1.3	U	ug/m3	1.3	4.3
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,1,1-Trichloroethane	0.27	U	ug/m3	0.27	2.2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,1,2,2-Tetrachloroethane	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,1,2-Trichloroethane	0.22	U	ug/m3	0.22	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,1-Dichloroethane	0.32	U	ug/m3	0.32	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,1-Dichloroethene	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2,3-Trimethylbenzene	2.6	=	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2,4-Trichlorobenzene	0.53	U	ug/m3	0.53	2.2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2,4-Trimethylbenzene	6.6	=	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2-Dichloroethane	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,2-Dichloropropane	0.27	U	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,3,5-Trimethylbenzene	3.1	=	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,3-Butadiene	0.36	U	ug/m3	0.36	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,4-Dichlorobenzene	0.33	U	ug/m3	0.33	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	1,4-Dioxane	0.26	U	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	2-Butanone	0.45	U	ug/m3	0.45	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	2-Hexanone	0.27	U	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Acetone	9.7	J	ug/m3	4.9	21
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Acetonitrile	0.53	U	ug/m3	0.53	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Acrolein	0.61	U	ug/m3	0.61	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Acrylonitrile	0.45	U	ug/m3	0.45	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Benzene	2.8	=	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Benzyl chloride	0.49	U	ug/m3	0.49	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Bromodichloromethane	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Bromoform	0.45	U	ug/m3	0.45	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Bromomethane	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Carbon Disulfide	27	=	ug/m3	0.65	4.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	CHLORODIFLUOROMETHANE	1	U	ug/m3	1	2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Chloroethane	0.27	U	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Chloroform	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Chloromethane	0.35	U	ug/m3	0.35	2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	cis-1,3-Dichloropropene	0.34	U	ug/m3	0.34	2.3
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Cyclohexane	1.5	J	ug/m3	0.61	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Dichlorodifluoromethane	2.2	=	ug/m3	0.35	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Dichloromethane	0.61	U	ug/m3	0.61	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	ETHANOL	21	U	ug/m3	1.5	21
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Ethylbenzene	6.5	=	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.89	U	ug/m3	0.89	8.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Methyl tert-butyl ether (MTBE)	0.26	U	ug/m3	0.26	2.2
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	n-Butanol	5.9	=	ug/m3	0.57	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	n-Hexane	3.3	=	ug/m3	0.45	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Propene	2.4	=	ug/m3	0.53	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Styrene	0.35	U	ug/m3	0.35	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Tetrachloroethene	1.1	J	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Toluene	19	=	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	trans-1,3-Dichloropropene	0.45	U	ug/m3	0.45	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Trichloroethylene	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.33	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Trichlorotrifuoroethane	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Vinyl Acetate	4.9	U	ug/m3	4.9	21
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Xylene, o	5.6	=	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-062818	GS	N	6/28/2018	Xylenes, m & p	13	=	ug/m3	0.57	4.5
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,1,2,2-Tetrachloroethane	1.5	J	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,1-Dichloroethane	0.29	U	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2,4-Trichlorobenzene	0.48	U	ug/m3	0.48	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,3-Butadiene	0.33	U	ug/m3	0.33	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,3-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	1,4-Dioxane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	2-Butanone	0.41	U	ug/m3	0.41	3.7
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	2-Hexanone	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Acetone	4.4	U	ug/m3	4.4	20

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Acetonitrile	0.48	U	ug/m3	0.48	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Acrolein	0.56	U	ug/m3	0.56	3.7
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Acrylonitrile	0.41	U	ug/m3	0.41	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Benzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Benzyl chloride	0.44	U	ug/m3	0.44	4.1
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Bromodichloromethane	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Bromoform	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Bromomethane	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Carbon Disulfide	5.1	=	ug/m3	0.59	4.1
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	CHLORODIFLUOROMETHANE	0.93	U	ug/m3	0.93	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Chloroethane	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Chloroform	0.26	U	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Chloromethane	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	cis-1,2-Dichloroethene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	cis-1,3-Dichloropropene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Cyclohexane	0.56	U	ug/m3	0.56	3.7
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Dichlorodifluoromethane	2.6	=	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Dichloromethane	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	ETHANOL	1.4	U	ug/m3	1.4	19
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Ethylbenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.81	U	ug/m3	0.81	7.8
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	n-Butanol	0.52	U	ug/m3	0.52	3.7
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	n-Hexane	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Propene	0.48	U	ug/m3	0.48	1.9
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Styrene	0.32	U	ug/m3	0.32	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Tetrachloroethene	2.2	=	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Toluene	0.86	J	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	trans-1,3-Dichloropropene	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Trichloroethylene	0.65	J	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Trichlorofluoromethane	1.2	J	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Trichlorotrifuoroethane	0.32	J	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Vinyl Acetate	4.4	U	ug/m3	4.4	20
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Xylene, o	0.31	J	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-10.5-101118	GS	N	10/11/2018	Xylenes, m & p	0.52	U	ug/m3	0.52	4.1
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,1,1-Trichloroethane	0.41	U	ug/m3	0.41	3.4
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,1,2,2-Tetrachloroethane	0.46	U	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,1,2-Trichloroethane	0.34	U	ug/m3	0.34	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,1-Dichloroethane	0.49	U	ug/m3	0.49	3.2
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,1-Dichloroethene	0.46	U	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2,3-Trimethylbenzene	1.3	J	ug/m3	0.46	3.2
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2,4-Trichlorobenzene	0.82	U	ug/m3	0.82	3.5
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2,4-Trimethylbenzene	0.73	J	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2-Dibromoethane	0.39	U	ug/m3	0.39	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2-Dichlorobenzene	0.5	U	ug/m3	0.5	3.4
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2-Dichloroethane	0.37	U	ug/m3	0.37	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,2-Dichloropropane	0.41	U	ug/m3	0.41	3.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,3,5-Trimethylbenzene	0.67	J	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,3-Butadiene	0.8	J	ug/m3	0.55	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,3-Dichlorobenzene	0.5	U	ug/m3	0.5	3.4
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,4-Dichlorobenzene	0.51	U	ug/m3	0.51	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	1,4-Dioxane	0.4	U	ug/m3	0.4	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	2-Butanone	0.69	U	ug/m3	0.69	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	2-Hexanone	0.41	U	ug/m3	0.41	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	4-Methyl-2-Pentanone	0.46	U	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Acetone	7.5	U	ug/m3	7.5	33
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Acetonitrile	0.82	U	ug/m3	0.82	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Acrolein	0.94	U	ug/m3	0.94	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Acrylonitrile	0.69	U	ug/m3	0.69	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Benzene	2.7	J	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Benzyl chloride	0.75	U	ug/m3	0.75	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Bromodichloromethane	0.48	U	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Bromoform	0.69	U	ug/m3	0.69	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Bromomethane	0.46	U	ug/m3	0.46	3.1
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Carbon Disulfide	78	=	ug/m3	1	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	CHLORODIFLUOROMETHANE	1.6	U	ug/m3	1.6	3.1
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Chloroethane	0.41	U	ug/m3	0.41	3.2
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Chloroform	0.45	U	ug/m3	0.45	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Chloromethane	0.54	U	ug/m3	0.54	3.1
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	cis-1,2-Dichloroethene	0.47	U	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	cis-1,3-Dichloropropene	0.52	U	ug/m3	0.52	3.5
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Cyclohexane	3.3	J	ug/m3	0.94	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Dichlorodifluoromethane	2.2	J	ug/m3	0.55	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Dichloromethane	0.94	U	ug/m3	0.94	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	ETHANOL	33	U	ug/m3	2.3	33
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Ethylbenzene	1.9	J	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	U	ug/m3	1.4	13
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Methyl tert-butyl ether (MTBE)	0.4	U	ug/m3	0.4	3.4
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	n-Butanol	1.5	J	ug/m3	0.88	6.9
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	n-Hexane	2.3	J	ug/m3	0.69	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Propene	29	=	ug/m3	0.82	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Styrene	0.54	U	ug/m3	0.54	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Tetrachloroethene	3.2	J	ug/m3	0.43	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Toluene	7.6	=	ug/m3	0.41	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	trans-1,3-Dichloropropene	0.69	U	ug/m3	0.69	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Trichloroethylene	1.4	J	ug/m3	0.45	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Trichlorofluoromethane	1	J	ug/m3	0.51	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Trichlorotrifuoroethane	0.48	U	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Vinyl Acetate	7.5	U	ug/m3	7.5	33
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Vinyl Chloride	0.36	U	ug/m3	0.36	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Xylene, o	2.7	J	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-03-15-062818	GS	N	6/28/2018	Xylenes, m & p	2.4	J	ug/m3	0.88	6.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,1,1-Trichloroethane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,1,2,2-Tetrachloroethane	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,1,2-Trichloroethane	0.19	U	ug/m3	0.19	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,1-Dichloroethane	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,1-Dichloroethene	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2,3-Trimethylbenzene	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2,4-Trichlorobenzene	0.45	U	ug/m3	0.45	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2,4-Trimethylbenzene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2-Dibromoethane	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2-Dichlorobenzene	0.27	U	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2-Dichloroethane	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,2-Dichloropropane	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,3-Butadiene	0.3	U	ug/m3	0.3	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,3-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,4-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	1,4-Dioxane	0.22	U	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	2-Butanone	0.38	U	ug/m3	0.38	3.5
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	2-Hexanone	0.23	U	ug/m3	0.23	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Acetone	4.1	U	ug/m3	4.1	19
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Acetonitrile	0.45	U	ug/m3	0.45	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Acrolein	0.52	U	ug/m3	0.52	3.5
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Acrylonitrile	0.38	U	ug/m3	0.38	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Benzene	0.3	J	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Benzyl chloride	0.41	U	ug/m3	0.41	3.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Bromodichloromethane	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Bromoform	0.38	U	ug/m3	0.38	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Bromomethane	0.26	U	ug/m3	0.26	1.7
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Carbon Disulfide	25	=	ug/m3	0.55	3.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	CHLORODIFLUOROMETHANE	0.86	U	ug/m3	0.86	1.7
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Chloroethane	0.23	U	ug/m3	0.23	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Chloroform	0.24	U	ug/m3	0.24	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Chloromethane	0.3	U	ug/m3	0.3	1.7
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	cis-1,2-Dichloroethene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	cis-1,3-Dichloropropene	0.29	U	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Cyclohexane	0.52	U	ug/m3	0.52	3.5
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Dichlorodifluoromethane	2.6	=	ug/m3	0.3	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Dichloromethane	0.52	U	ug/m3	0.52	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	ETHANOL	2.2	J	ug/m3	1.3	18
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Ethylbenzene	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	7.2
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Methyl tert-butyl ether (MTBE)	0.22	U	ug/m3	0.22	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	n-Butanol	0.89	J	ug/m3	0.48	3.5
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	n-Hexane	0.38	U	ug/m3	0.38	1.9
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Propene	0.45	U	ug/m3	0.45	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Styrene	0.3	U	ug/m3	0.3	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Tetrachloroethene	12	=	ug/m3	0.24	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Toluene	1.2	J	ug/m3	0.22	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	trans-1,3-Dichloropropene	0.38	U	ug/m3	0.38	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Trichloroethylene	4.1	=	ug/m3	0.25	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.28	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Trichlorotrifuoroethane	0.45	J	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Vinyl Acetate	4.1	U	ug/m3	4.1	18
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Vinyl Chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Xylene, o	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-SVB-03-15-101118	GS	N	10/10/2018	Xylenes, m & p	0.48	U	ug/m3	0.48	3.8
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,1,1-Trichloroethane	2.4	U	ug/m3	2.4	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,1,2,2-Tetrachloroethane	2.7	U	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,1,2-Trichloroethane	2	U	ug/m3	2	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,1-Dichloroethane	2.9	U	ug/m3	2.9	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,1-Dichloroethene	2.7	U	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2,3-Trimethylbenzene	2.7	U	ug/m3	2.7	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2,4-Trichlorobenzene	4.8	U	ug/m3	4.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2,4-Trimethylbenzene	5.7	J	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2-Dibromoethane	2.3	U	ug/m3	2.3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2-Dichlorobenzene	2.9	U	ug/m3	2.9	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2-Dichloroethane	2.2	U	ug/m3	2.2	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,2-Dichloropropane	2.4	U	ug/m3	2.4	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,3,5-Trimethylbenzene	2.8	U	ug/m3	2.8	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,3-Butadiene	3.3	U	ug/m3	3.3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,3-Dichlorobenzene	3	U	ug/m3	3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,4-Dichlorobenzene	3	U	ug/m3	3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	1,4-Dioxane	2.3	U	ug/m3	2.3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	2-Butanone	4.1	U	ug/m3	4.1	41
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	2-Hexanone	2.4	U	ug/m3	2.4	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	4-Methyl-2-Pentanone	2.7	U	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Acetone	44	U	ug/m3	44	200
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Acetonitrile	4.8	U	ug/m3	4.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Acrolein	5.6	U	ug/m3	5.6	41
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Acrylonitrile	4.1	U	ug/m3	4.1	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Benzene	49	=	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Benzyl chloride	4.4	U	ug/m3	4.4	41
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Bromodichloromethane	2.8	U	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Bromoform	4.1	U	ug/m3	4.1	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Bromomethane	2.7	U	ug/m3	2.7	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Carbon Disulfide	340	=	ug/m3	5.9	41
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	CHLORODIFLUOROMETHANE	9.3	U	ug/m3	9.3	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Chloroethane	2.4	U	ug/m3	2.4	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Chloroform	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Chloromethane	3.2	U	ug/m3	3.2	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	cis-1,2-Dichloroethene	2.8	U	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	cis-1,3-Dichloropropene	3.1	U	ug/m3	3.1	21
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Cyclohexane	35	J	ug/m3	5.6	41
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Dichlorodifluoromethane	3.2	U	ug/m3	3.2	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Dichloromethane	5.6	U	ug/m3	5.6	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	ETHANOL	14	U	ug/m3	14	200
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Ethylbenzene	10	J	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.1	U	ug/m3	8.1	78

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Methyl tert-butyl ether (MTBE)	2.3	U	ug/m3	2.3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	n-Butanol	35	J	ug/m3	5.3	42
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	n-Hexane	26	=	ug/m3	4.1	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Propene	81	=	ug/m3	4.8	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Styrene	3.2	U	ug/m3	3.2	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Tetrachloroethene	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Toluene	99	=	ug/m3	2.4	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	trans-1,3-Dichloropropene	4.1	U	ug/m3	4.1	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Trichloroethylene	9.7	J	ug/m3	2.7	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Trichlorofluoromethane	3	U	ug/m3	3	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Trichlorotrifuoroethane	2.8	U	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Vinyl Acetate	44	U	ug/m3	44	200
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Vinyl Chloride	2.1	U	ug/m3	2.1	19
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Xylene, o	14	J	ug/m3	2.8	20
[redacted]	[redacted]	PMC-SVB-03-5.5-062818	GS	N	6/28/2018	Xylenes, m & p	20	J	ug/m3	5.2	41
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,1,1-Trichloroethane	0.25	U	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,1,2,2-Tetrachloroethane	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,1-Dichloroethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,1-Dichloroethene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2,4-Trichlorobenzene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2,4-Trimethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,2-Dichloropropane	0.25	U	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,3-Butadiene	0.33	U	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,3-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,4-Dichlorobenzene	0.31	U	ug/m3	0.31	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	1,4-Dioxane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	2-Butanone	0.41	U	ug/m3	0.41	3.8
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	2-Hexanone	0.25	U	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Acetone	4.5	U	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Acetonitrile	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Acrolein	0.56	U	ug/m3	0.56	3.8
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Acrylonitrile	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Benzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Benzyl chloride	0.45	U	ug/m3	0.45	4.1
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Bromodichloromethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Bromoform	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Bromomethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Carbon Disulfide	2.9	J	ug/m3	0.6	4.1
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	CHLORODIFLUOROMETHANE	0.94	U	ug/m3	0.94	1.9
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Chloroethane	0.25	U	ug/m3	0.25	1.9
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Chloroform	0.27	U	ug/m3	0.27	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Chloromethane	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	cis-1,2-Dichloroethene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	cis-1,3-Dichloropropene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Cyclohexane	0.56	U	ug/m3	0.56	3.8
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Dichlorodifluoromethane	2.4	=	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Dichloromethane	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	ETHANOL	3.4	J	ug/m3	1.4	19
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Ethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.83	U	ug/m3	0.83	7.9
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	n-Butanol	1.3	J	ug/m3	0.53	3.8
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	n-Hexane	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Propene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Styrene	0.32	U	ug/m3	0.32	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Tetrachloroethene	0.49	J	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Toluene	1.2	J	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	trans-1,3-Dichloropropene	0.41	U	ug/m3	0.41	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Trichloroethylene	0.41	J	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Trichlorotrifuoroethane	0.4	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Vinyl Acetate	4.5	U	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Vinyl Chloride	0.21	U	ug/m3	0.21	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Xylene, o	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-03-5.5-101118	GS	N	10/11/2018	Xylenes, m & p	0.53	U	ug/m3	0.53	4.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,1,1-Trichloroethane	0.69	J	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2,3-Trimethylbenzene	0.86	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2,4-Trichlorobenzene	0.51	U	ug/m3	0.51	2.2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2,4-Trimethylbenzene	1.6	J	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,3,5-Trimethylbenzene	0.49	J	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	2-Butanone	0.82	J	ug/m3	0.43	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	2-Hexanone	0.26	U	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Acetone	5.8	J	ug/m3	4.7	21
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Acetonitrile	0.51	U	ug/m3	0.51	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Acrolein	0.59	U	ug/m3	0.59	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Acrylonitrile	0.43	U	ug/m3	0.43	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Benzene	1.5	J	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Bromoform	0.43	U	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Bromomethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Carbon Disulfide	17	=	ug/m3	0.63	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Chloroethane	0.26	U	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Chloroform	1.8	J	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Chloromethane	0.34	U	ug/m3	0.34	2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	cis-1,2-Dichloroethene	0.45	J	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Cyclohexane	1.1	J	ug/m3	0.59	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Dichlorodifluoromethane	2.2	=	ug/m3	0.34	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Dichloromethane	0.59	U	ug/m3	0.59	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	ETHANOL	21	U	ug/m3	1.5	21
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Ethylbenzene	1.5	J	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.87	U	ug/m3	0.87	8.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	n-Butanol	2.2	J	ug/m3	0.55	4.3
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	n-Hexane	1	J	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Propene	1.2	J	ug/m3	0.51	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Styrene	0.34	U	ug/m3	0.34	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Tetrachloroethene	73	=	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Toluene	3.9	=	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Trichloroethylene	34	=	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Trichlorofluoromethane	1.3	J	ug/m3	0.32	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Trichlorotrifuoroethane	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Vinyl Acetate	4.7	U	ug/m3	4.7	21
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Xylene, o	1.2	J	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-062918	GS	N	6/29/2018	Xylenes, m & p	2.4	J	ug/m3	0.55	4.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,1,1-Trichloroethane	0.42	U	ug/m3	0.42	3.4
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,1,2,2-Tetrachloroethane	0.47	U	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,1,2-Trichloroethane	0.34	U	ug/m3	0.34	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,1-Dichloroethane	0.49	U	ug/m3	0.49	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,1-Dichloroethene	0.47	U	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2,3-Trimethylbenzene	4.8	=	ug/m3	0.46	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2,4-Trichlorobenzene	0.82	U	ug/m3	0.82	3.5
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2,4-Trimethylbenzene	8.8	=	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2-Dibromoethane	0.39	U	ug/m3	0.39	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2-Dichlorobenzene	0.5	U	ug/m3	0.5	3.4
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2-Dichloroethane	0.37	U	ug/m3	0.37	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,2-Dichloropropane	0.42	U	ug/m3	0.42	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,3,5-Trimethylbenzene	3.4	=	ug/m3	0.49	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,3-Butadiene	0.56	U	ug/m3	0.56	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,3-Dichlorobenzene	0.51	U	ug/m3	0.51	3.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,4-Dichlorobenzene	0.52	U	ug/m3	0.52	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	1,4-Dioxane	0.4	U	ug/m3	0.4	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	2-Butanone	0.7	U	ug/m3	0.7	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	2-Hexanone	0.42	U	ug/m3	0.42	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	4-Methyl-2-Pentanone	0.46	U	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Acetone	7.6	U	ug/m3	7.6	33
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Acetonitrile	0.82	U	ug/m3	0.82	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Acrolein	0.95	U	ug/m3	0.95	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Acrylonitrile	0.7	U	ug/m3	0.7	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Benzene	29	=	ug/m3	0.49	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Benzyl chloride	0.76	U	ug/m3	0.76	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Bromodichloromethane	0.49	U	ug/m3	0.49	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Bromoform	0.7	U	ug/m3	0.7	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Bromomethane	0.47	U	ug/m3	0.47	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Carbon Disulfide	420	=	ug/m3	1	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	CHLORODIFLUOROMETHANE	1.6	U	ug/m3	1.6	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Chloroethane	0.42	U	ug/m3	0.42	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Chloroform	0.84	J	ug/m3	0.45	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Chloromethane	0.54	U	ug/m3	0.54	3.2
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	cis-1,2-Dichloroethene	0.47	U	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	cis-1,3-Dichloropropene	0.52	U	ug/m3	0.52	3.5
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Cyclohexane	39	=	ug/m3	0.95	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Dichlorodifluoromethane	2.2	J	ug/m3	0.55	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Dichloromethane	0.95	U	ug/m3	0.95	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	ETHANOL	33	U	ug/m3	2.3	33
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Ethylbenzene	8.8	=	ug/m3	0.47	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	U	ug/m3	1.4	13
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Methyl tert-butyl ether (MTBE)	0.4	U	ug/m3	0.4	3.4
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	n-Butanol	0.88	U	ug/m3	0.88	7
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	n-Hexane	37	=	ug/m3	0.7	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Propene	36	=	ug/m3	0.82	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Styrene	0.54	U	ug/m3	0.54	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Tetrachloroethene	19	=	ug/m3	0.44	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Toluene	75	=	ug/m3	0.41	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	trans-1,3-Dichloropropene	0.7	U	ug/m3	0.7	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Trichloroethylene	6.2	=	ug/m3	0.46	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Trichlorofluoromethane	1.4	J	ug/m3	0.51	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Trichlorotrifuoroethane	0.48	U	ug/m3	0.48	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Vinyl Acetate	7.6	U	ug/m3	7.6	33
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Vinyl Chloride	0.36	U	ug/m3	0.36	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Xylene, o	12	=	ug/m3	0.49	3.3
[redacted]	[redacted]	PMC-SVB-01-5.8-062918	GS	N	6/29/2018	Xylenes, m & p	21	=	ug/m3	0.88	7
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,1,1-Trichloroethane	1.1	J	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,1-Dichloroethane	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2,3-Trimethylbenzene	0.28	U	ug/m3	0.28	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2,4-Trichlorobenzene	0.5	U	ug/m3	0.5	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2,4-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,3-Butadiene	0.34	U	ug/m3	0.34	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,3-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	1,4-Dioxane	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	2-Butanone	0.51	J	ug/m3	0.43	3.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	2-Hexanone	0.26	U	ug/m3	0.26	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Acetone	10	J	ug/m3	4.7	21
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Acetonitrile	0.5	U	ug/m3	0.5	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Acrolein	0.58	U	ug/m3	0.58	3.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Acrylonitrile	0.43	U	ug/m3	0.43	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Benzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Bromoform	0.43	U	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Bromomethane	0.29	U	ug/m3	0.29	1.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Carbon Disulfide	0.62	U	ug/m3	0.62	4.3
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	CHLORODIFLUOROMETHANE	0.97	U	ug/m3	0.97	1.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Chloroethane	0.26	U	ug/m3	0.26	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Chloroform	2.3	=	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Chloromethane	0.33	U	ug/m3	0.33	1.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	cis-1,2-Dichloroethene	0.39	J	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	cis-1,3-Dichloropropene	0.32	U	ug/m3	0.32	2.2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Cyclohexane	0.58	U	ug/m3	0.58	3.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Dichlorodifluoromethane	2.5	=	ug/m3	0.34	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Dichloromethane	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	ETHANOL	4.2	J	ug/m3	1.4	20
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Ethylbenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	J	ug/m3	0.85	8.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Methyl tert-butyl ether (MTBE)	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	n-Butanol	17	=	ug/m3	0.54	3.9
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	n-Hexane	0.43	U	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Propene	0.5	U	ug/m3	0.5	2
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Styrene	0.33	U	ug/m3	0.33	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Tetrachloroethene	120	=	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Toluene	1.3	J	ug/m3	0.25	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Trichloroethylene	54	=	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Trichlorofluoromethane	1.2	J	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Trichlorotrifuoroethane	0.39	J	ug/m3	0.29	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Vinyl Acetate	4.7	U	ug/m3	4.7	21

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Vinyl Chloride	0.22	U	ug/m3	0.22	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Xylene, o	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-14-110518	GS	N	11/5/2018	Xylenes, m & p	0.54	U	ug/m3	0.54	4.3
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,1,1-Trichloroethane	0.38	J	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,1,2,2-Tetrachloroethane	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,1-Dichloroethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,1-Dichloroethene	0.28	U	ug/m3	0.28	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2,3-Trimethylbenzene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2,4-Trichlorobenzene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2,4-Trimethylbenzene	0.32	J	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2-Dichlorobenzene	0.3	U	ug/m3	0.3	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2-Dichloroethane	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,2-Dichloropropane	0.25	U	ug/m3	0.25	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,3-Butadiene	0.33	U	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,3-Dichlorobenzene	0.3	U	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,4-Dichlorobenzene	0.31	U	ug/m3	0.31	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	1,4-Dioxane	0.24	U	ug/m3	0.24	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	2-Butanone	0.71	J	ug/m3	0.42	3.8
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	2-Hexanone	0.87	J	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Acetone	16	J	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Acetonitrile	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Acrolein	0.57	U	ug/m3	0.57	3.8
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Acrylonitrile	0.42	U	ug/m3	0.42	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Benzene	0.34	J	ug/m3	0.3	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Benzyl chloride	0.45	U	ug/m3	0.45	4.2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Bromodichloromethane	0.29	U	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Bromoform	0.42	U	ug/m3	0.42	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Bromomethane	0.28	U	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Carbon Disulfide	31	J	ug/m3	0.6	4.2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	CHLORODIFLUOROMETHANE	0.94	U	ug/m3	0.94	1.9
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Chloroethane	0.25	U	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Chloroform	0.52	J	ug/m3	0.27	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Chloromethane	0.32	U	ug/m3	0.32	1.9
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	cis-1,2-Dichloroethene	0.28	U	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	cis-1,3-Dichloropropene	0.31	U	ug/m3	0.31	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Cyclohexane	0.99	J	ug/m3	0.57	3.8
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Dichlorodifluoromethane	2.5	=	ug/m3	0.33	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Dichloromethane	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	ETHANOL	6.1	J	ug/m3	1.4	20
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Ethylbenzene	0.33	J	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.83	U	ug/m3	0.83	7.9
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Methyl tert-butyl ether (MTBE)	0.24	U	ug/m3	0.24	2.1
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	n-Butanol	45	J	ug/m3	0.54	3.9
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	n-Hexane	0.42	U	ug/m3	0.42	2.1

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Propene	0.49	U	ug/m3	0.49	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Styrene	0.32	U	ug/m3	0.32	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Tetrachloroethene	43	=	ug/m3	0.27	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Toluene	2.7	=	ug/m3	0.25	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	trans-1,3-Dichloropropene	0.42	U	ug/m3	0.42	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Trichloroethylene	8.3	=	ug/m3	0.28	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.31	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Trichlorotrifuoroethane	0.38	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Vinyl Acetate	4.5	U	ug/m3	4.5	20
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Vinyl Chloride	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Xylene, o	1	J	ug/m3	0.29	2
[redacted]	[redacted]	PMC-SVB-01-5.8-110518	GS	N	11/5/2018	Xylenes, m & p	3	J	ug/m3	0.53	4.2
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,1,1-Trichloroethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,1,2,2-Tetrachloroethane	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,1,2-Trichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,1-Dichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,1-Dichloroethene	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2,3-Trimethylbenzene	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2,4-Trichlorobenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2,4-Trimethylbenzene	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2-Dibromoethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2-Dichloroethane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,2-Dichloropropane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,3,5-Trimethylbenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,3-Butadiene	0.83	U	ug/m3	0.83	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,3-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,4-Dichlorobenzene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	1,4-Dioxane	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	2-Butanone	0.79	U	ug/m3	0.79	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	2-Hexanone	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	4-Methyl-2-Pentanone	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Acetone	2.9	U	ug/m3	2.9	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Acetonitrile	0.68	U	ug/m3	0.68	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Acrolein	0.64	U	ug/m3	0.64	7.5
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Acrylonitrile	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Benzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Benzyl chloride	0.41	U	ug/m3	0.41	3.8
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Bromodichloromethane	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Bromoform	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Bromomethane	0.71	U	ug/m3	0.71	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Carbon Disulfide	0.56	U	ug/m3	0.56	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	CHLORODIFLUOROMETHANE	0.94	U	ug/m3	0.94	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Chloroethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Chloroform	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Chloromethane	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	cis-1,2-Dichloroethene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	cis-1,3-Dichloropropene	0.53	U	ug/m3	0.53	1.9

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Cyclohexane	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Dichlorodifluoromethane	4.4	=	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Dichloromethane	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	ETHANOL	3	U	ug/m3	3	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Ethylbenzene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Freon 113	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Methyl tert-butyl ether (MTBE)	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	n-Butanol	1.8	U	ug/m3	1.8	3.8
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	n-Hexane	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Propene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Styrene	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Tetrachloroethene	4.2	=	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Toluene	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	trans-1,3-Dichloropropene	0.6	U	ug/m3	0.6	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Trichloroethylene	0.53	U	ug/m3	0.53	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Trichlorofluoromethane	1	J	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Vinyl Acetate	2.4	U	ug/m3	2.4	19
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Vinyl Chloride	0.64	U	ug/m3	0.64	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Xylene, o	0.56	U	ug/m3	0.56	1.9
[redacted]	[redacted]	PMC-SG-58-020718	GS	N	2/7/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.8
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,1,1-Trichloroethane	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,1,2,2-Tetrachloroethane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,1,2-Trichloroethane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,1-Dichloroethane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,1-Dichloroethene	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2,4-Trimethylbenzene	0.52	J	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dibromoethane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dichlorobenzene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dichloroethane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,2-Dichloropropane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,3-Butadiene	0.37	U	ug/m3	0.37	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,3-Dichlorobenzene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,4-Dichlorobenzene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	1,4-Dioxane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	2-Butanone	0.59	J	ug/m3	0.35	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	2-Hexanone	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Acetone	1.3	U	ug/m3	1.3	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Acetonitrile	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Acrolein	0.28	U	ug/m3	0.28	3.3
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Acrylonitrile	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Allyl chloride	0.27	U	ug/m3	0.27	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	alpha-Pinene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Benzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Benzyl chloride	0.18	U	ug/m3	0.18	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Bromodichloromethane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Bromoform	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Bromomethane	0.32	U	ug/m3	0.32	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Carbon Disulfide	0.25	U	ug/m3	0.25	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Carbon tetrachloride	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Chlorobenzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Chlorodibromomethane	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Chloroethane	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Chloroform	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Chloromethane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Cyclohexane	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Dichlorodifluoromethane	85	=	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Dichloromethane	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	D-Limonene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	ETHANOL	1.3	U	ug/m3	1.3	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Ethyl acetate	0.58	U	ug/m3	0.58	1.7
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Ethylbenzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.7	U	ug/m3	0.7	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Isopropylbenzene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Methyl methacrylate	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Methyl tert-butyl ether (MTBE)	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Naphthalene	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	N-Butyl Acetate	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	N-HEPTANE	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	n-Hexane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Nonane	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	n-Propylbenzene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	OCTANE	0.3	U	ug/m3	0.3	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Propene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Styrene	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Tetrachloroethene	16	=	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Tetrahydrofuran	0.33	U	ug/m3	0.33	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Toluene	0.38	J	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	trans-1,2-Dichloroethene	0.32	U	ug/m3	0.32	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Trichloroethylene	0.23	U	ug/m3	0.23	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Trichlorotrifuoroethane	0.5	J	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Vinyl Acetate	1.5	J	ug/m3	1.1	8.4
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Vinyl Chloride	0.28	U	ug/m3	0.28	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Xylene, o	0.25	U	ug/m3	0.25	0.84
[redacted]	[redacted]	PMC-SG-58-062817	GS	N	6/28/2017	Xylenes, m & p	0.5	U	ug/m3	0.5	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,1,1-Trichloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,1,2,2-Tetrachloroethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,1,2-Trichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,1-Dichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,1-Dichloroethene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2,3-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2,4-Trichlorobenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2,4-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2-Dibromoethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2-Dichloroethane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,2-Dichloropropane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,3,5-Trimethylbenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,3-Butadiene	0.76	U	ug/m3	0.76	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,3-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,4-Dichlorobenzene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	1,4-Dioxane	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	2-Butanone	0.73	U	ug/m3	0.73	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	2-Hexanone	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	4-Methyl-2-Pentanone	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Acetone	2.7	U	ug/m3	2.7	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Acetonitrile	0.63	U	ug/m3	0.63	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Acrolein	0.59	U	ug/m3	0.59	7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Acrylonitrile	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Benzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Benzyl chloride	0.38	U	ug/m3	0.38	3.5
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Bromodichloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Bromoform	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Bromomethane	0.66	U	ug/m3	0.66	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Carbon Disulfide	0.52	U	ug/m3	0.52	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	CHLORODIFLUOROMETHANE	0.87	U	ug/m3	0.87	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Chloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Chloroform	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Chloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	cis-1,2-Dichloroethene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	cis-1,3-Dichloropropene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Cyclohexane	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Dichlorodifluoromethane	2.2	=	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Dichloromethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	ETHANOL	2.8	U	ug/m3	2.8	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Ethylbenzene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Freon 113	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Methyl tert-butyl ether (MTBE)	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	n-Butanol	1.7	U	ug/m3	1.7	3.5
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	n-Hexane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Propene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Styrene	0.52	U	ug/m3	0.52	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Tetrachloroethene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Toluene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	trans-1,3-Dichloropropene	0.56	U	ug/m3	0.56	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Trichloroethylene	0.49	U	ug/m3	0.49	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Vinyl Acetate	2.3	U	ug/m3	2.3	17
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Vinyl Chloride	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Xylene, o	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-44-01-021018	GS	N	2/10/2018	Xylenes, m & p	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,1,1-Trichloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,1,2-Trichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,1-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,1-Dichloroethene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2,4-Trichlorobenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2,4-Trimethylbenzene	7.8	=	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dibromoethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,2-Dichloropropane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,3,5-Trimethylbenzene	2.2	=	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,3-Butadiene	0.92	U	ug/m3	0.92	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,3-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	1,4-Dioxane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	2-Butanone	0.88	U	ug/m3	0.88	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	2-Hexanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	4-Ethyltoluene	2.6	=	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	4-Methyl-2-Pentanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Acetonitrile	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Acrolein	0.71	U	ug/m3	0.71	8.4
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Acrylonitrile	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Allyl chloride	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	alpha-Pinene	3.2	=	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Benzene	0.89	J	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Benzyl chloride	0.46	U	ug/m3	0.46	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Bromodichloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Bromoform	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Bromomethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Carbon Disulfide	3.5	J	ug/m3	0.63	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Carbon tetrachloride	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Chlorobenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Chlorodibromomethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Chloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Chloroform	1.5	J	ug/m3	0.71	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Chloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	cis-1,2-Dichloroethene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Cyclohexane	14	=	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Dichlorodifluoromethane	2.1	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Dichloromethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	D-Limonene	2.7	=	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	ETHANOL	3.3	U	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.2
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Ethylbenzene	7.1	=	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Isopropylbenzene	3.3	=	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Naphthalene	0.82	J	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	N-Butyl Acetate	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	N-HEPTANE	2.2	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	n-Hexane	1.6	J	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Nonane	2.8	=	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	n-Propylbenzene	3.6	=	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	OCTANE	3.1	=	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Styrene	12	=	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Tetrachloroethene	1	J	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Tetrahydrofuran	0.84	U	ug/m3	0.84	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Toluene	13	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	trans-1,2-Dichloroethene	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	trans-1,3-Dichloropropene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Trichloroethylene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Trichlorofluoromethane	1.2	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Trichlorotrifuoroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Vinyl Chloride	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Xylene, o	12	=	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-01-060617	GS	N	6/6/2017	Xylenes, m & p	28	=	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,1,1-Trichloroethane	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,1,2,2-Tetrachloroethane	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,1,2-Trichloroethane	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,1-Dichloroethane	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,1-Dichloroethene	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2,3-Trimethylbenzene	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2,4-Trichlorobenzene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2,4-Trimethylbenzene	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2-Dibromoethane	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2-Dichlorobenzene	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2-Dichloroethane	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,2-Dichloropropane	0.52	U	ug/m3	0.52	1.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,3,5-Trimethylbenzene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,3-Butadiene	0.72	U	ug/m3	0.72	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,3-Dichlorobenzene	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,4-Dichlorobenzene	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	1,4-Dioxane	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	2-Butanone	0.69	U	ug/m3	0.69	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	2-Hexanone	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	4-Methyl-2-Pentanone	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Acetone	4.5	J	ug/m3	2.5	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Acetonitrile	0.59	U	ug/m3	0.59	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Acrolein	0.56	U	ug/m3	0.56	6.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Acrylonitrile	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Benzene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Benzyl chloride	0.36	U	ug/m3	0.36	3.3
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Bromodichloromethane	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Bromoform	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Bromomethane	0.62	U	ug/m3	0.62	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Carbon Disulfide	0.49	U	ug/m3	0.49	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	CHLORODIFLUOROMETHANE	0.82	U	ug/m3	0.82	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Chloroethane	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Chloroform	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Chloromethane	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	cis-1,2-Dichloroethene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	cis-1,3-Dichloropropene	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Cyclohexane	0.95	U	ug/m3	0.95	3.3
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Dichlorodifluoromethane	2.4	=	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Dichloromethane	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	ETHANOL	2.6	U	ug/m3	2.6	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Ethylbenzene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Freon 113	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	U	ug/m3	1.4	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Methyl tert-butyl ether (MTBE)	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	n-Butanol	1.6	U	ug/m3	1.6	3.3
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	n-Hexane	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Propene	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Styrene	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Tetrachloroethene	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Toluene	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	trans-1,3-Dichloropropene	0.52	U	ug/m3	0.52	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Trichloroethylene	0.46	U	ug/m3	0.46	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.86	2.5
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Vinyl Acetate	2.1	U	ug/m3	2.1	16
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Vinyl Chloride	0.56	U	ug/m3	0.56	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Xylene, o	0.49	U	ug/m3	0.49	1.6
[redacted]	[redacted]	PMC-SG-44-02-021018	GS	N	2/10/2018	Xylenes, m & p	0.98	U	ug/m3	0.98	3.3
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,1,1-Trichloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,1,2-Trichloroethane	0.67	U	ug/m3	0.67	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,1-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,1-Dichloroethene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2,4-Trichlorobenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2,4-Trimethylbenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.41	U	ug/m3	0.41	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dibromoethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dichloroethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,2-Dichloropropane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,3,5-Trimethylbenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,3-Butadiene	0.92	U	ug/m3	0.92	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,3-Dichlorobenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,4-Dichlorobenzene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	1,4-Dioxane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	2-Butanone	0.88	U	ug/m3	0.88	21
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	2-Hexanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	4-Ethyltoluene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	4-Methyl-2-Pentanone	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Acetone	3.2	U	ug/m3	3.2	21
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Acetonitrile	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Acrolein	0.71	U	ug/m3	0.71	8.4
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Acrylonitrile	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Allyl chloride	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	alpha-Pinene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Benzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Benzyl chloride	0.46	U	ug/m3	0.46	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Bromodichloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Bromoform	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Bromomethane	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Carbon Disulfide	0.63	U	ug/m3	0.63	21
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Carbon tetrachloride	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Chlorobenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Chlorodibromomethane	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Chloroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Chloroform	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Chloromethane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	cis-1,2-Dichloroethene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	cis-1,3-Dichloropropene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.2
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Dichlorodifluoromethane	2.5	=	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Dichloromethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	D-Limonene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	ETHANOL	3.3	U	ug/m3	3.3	21
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Ethyl acetate	1.5	U	ug/m3	1.5	4.2
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Ethylbenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Hexachlorobutadiene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	U	ug/m3	1.8	21

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Isopropylbenzene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Naphthalene	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	N-Butyl Acetate	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	N-HEPTANE	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	n-Hexane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Nonane	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	n-Propylbenzene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	OCTANE	0.75	U	ug/m3	0.75	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Propene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Styrene	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Tetrachloroethene	1.1	J	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Tetrahydrofuran	0.84	U	ug/m3	0.84	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Toluene	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	trans-1,2-Dichloroethene	0.79	U	ug/m3	0.79	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	trans-1,3-Dichloropropene	0.67	U	ug/m3	0.67	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Trichloroethylene	0.58	U	ug/m3	0.58	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Trichlorofluoromethane	1.3	J	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Trichlorotrifuoroethane	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Vinyl Acetate	2.7	U	ug/m3	2.7	21
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Vinyl Chloride	0.71	U	ug/m3	0.71	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Xylene, o	0.63	U	ug/m3	0.63	2.1
[redacted]	[redacted]	PMC-SG-44-02-060617	GS	N	6/6/2017	Xylenes, m & p	1.3	U	ug/m3	1.3	4.2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,1,1-Trichloroethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,1,2,2-Tetrachloroethane	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,1,2-Trichloroethane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,1-Dichloroethane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,1-Dichloroethene	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2,4-Trichlorobenzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2,4-Trimethylbenzene	1.6	J	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dibromo-3-chloropropane	0.38	U	ug/m3	0.38	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dibromoethane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.73	U	ug/m3	0.73	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dichlorobenzene	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dichloroethane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,2-Dichloropropane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,3,5-Trimethylbenzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,3-Butadiene	0.85	U	ug/m3	0.85	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,3-Dichlorobenzene	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,4-Dichlorobenzene	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	1,4-Dioxane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	2-Butanone	1.7	J	ug/m3	0.81	19
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	2-Hexanone	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	4-Ethyltoluene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	4-Methyl-2-Pentanone	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Acetone	40	J	ug/m3	3	19
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Acetonitrile	0.69	U	ug/m3	0.69	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Acrolein	0.65	U	ug/m3	0.65	7.7
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Acrylonitrile	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Allyl chloride	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	alpha-Pinene	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Benzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Benzyl chloride	0.42	U	ug/m3	0.42	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Bromodichloromethane	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Bromoform	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Bromomethane	0.73	U	ug/m3	0.73	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Carbon Disulfide	0.58	U	ug/m3	0.58	19
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Carbon tetrachloride	0.59	J	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Chlorobenzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Chlorodibromomethane	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Chloroethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Chloroform	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Chloromethane	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	cis-1,2-Dichloroethene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	cis-1,3-Dichloropropene	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Cyclohexane	1.1	U	ug/m3	1.1	3.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Dichlorodifluoromethane	1.9	J	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Dichloromethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	D-Limonene	0.65	J	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	ETHANOL	3.1	U	ug/m3	3.1	19
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Ethyl acetate	1.3	U	ug/m3	1.3	3.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Ethylbenzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Hexachlorobutadiene	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	19
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Isopropylbenzene	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Methyl tert-butyl ether (MTBE)	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Naphthalene	0.69	U	ug/m3	0.69	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	N-Butyl Acetate	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	N-HEPTANE	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	n-Hexane	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Nonane	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	n-Propylbenzene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	OCTANE	0.69	U	ug/m3	0.69	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Propene	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Styrene	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Tetrachloroethene	100	=	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Tetrahydrofuran	0.77	U	ug/m3	0.77	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Toluene	0.8	J	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	trans-1,2-Dichloroethene	0.73	U	ug/m3	0.73	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	trans-1,3-Dichloropropene	0.62	U	ug/m3	0.62	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Trichloroethylene	7	=	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Trichlorofluoromethane	1.1	J	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Trichlorotrifuoroethane	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Vinyl Acetate	2.5	U	ug/m3	2.5	19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Vinyl Chloride	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Xylene, o	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-SG-47-072417	GS	N	7/24/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,1,1-Trichloroethane	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,1,2,2-Tetrachloroethane	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,1,2-Trichloroethane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,1-Dichloroethane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,1-Dichloroethene	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2,3-Trimethylbenzene	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2,4-Trichlorobenzene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2,4-Trimethylbenzene	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2-Dibromoethane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2-Dichlorobenzene	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2-Dichloroethane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,2-Dichloropropane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,3,5-Trimethylbenzene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,3-Butadiene	0.81	U	ug/m3	0.81	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,3-Dichlorobenzene	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,4-Dichlorobenzene	0.51	U	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	1,4-Dioxane	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	2-Butanone	0.77	U	ug/m3	0.77	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	2-Hexanone	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	4-Methyl-2-Pentanone	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Acetone	2.8	U	ug/m3	2.8	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Acetonitrile	0.66	U	ug/m3	0.66	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Acrolein	0.62	U	ug/m3	0.62	7.4
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Acrylonitrile	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Benzene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Benzyl chloride	0.4	U	ug/m3	0.4	3.7
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Bromodichloromethane	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Bromoform	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Bromomethane	0.7	U	ug/m3	0.7	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Carbon Disulfide	0.55	U	ug/m3	0.55	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	CHLORODIFLUOROMETHANE	0.92	U	ug/m3	0.92	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Chloroethane	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Chloroform	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Chloromethane	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	cis-1,2-Dichloroethene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	cis-1,3-Dichloropropene	0.51	U	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Cyclohexane	1.1	U	ug/m3	1.1	3.7
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Dichlorodifluoromethane	2.4	=	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Dichloromethane	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	ETHANOL	2.9	U	ug/m3	2.9	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Ethylbenzene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Freon 113	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	U	ug/m3	1.5	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Methyl tert-butyl ether (MTBE)	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	n-Butanol	1.8	U	ug/m3	1.8	3.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	n-Hexane	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Propene	0.51	U	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Styrene	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Tetrachloroethene	0.72	J	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Toluene	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	trans-1,3-Dichloropropene	0.59	U	ug/m3	0.59	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Trichloroethylene	0.51	U	ug/m3	0.51	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Trichlorofluoromethane	0.99	J	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Vinyl Acetate	2.4	U	ug/m3	2.4	18
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Vinyl Chloride	0.62	U	ug/m3	0.62	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Xylene, o	0.55	U	ug/m3	0.55	1.8
[redacted]	[redacted]	PMC-SG-48-022118	GS	N	2/21/2018	Xylenes, m & p	1.1	U	ug/m3	1.1	3.7
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,1,1-Trichloroethane	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,1,2,2-Tetrachloroethane	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,1,2-Trichloroethane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,1-Dichloroethane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,1-Dichloroethene	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2,4-Trichlorobenzene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2,4-Trimethylbenzene	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dibromo-3-chloropropane	0.4	U	ug/m3	0.4	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dibromoethane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.77	U	ug/m3	0.77	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dichlorobenzene	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dichloroethane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,2-Dichloropropane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,3,5-Trimethylbenzene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,3-Butadiene	0.89	U	ug/m3	0.89	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,3-Dichlorobenzene	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,4-Dichlorobenzene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	1,4-Dioxane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	2-Butanone	0.85	U	ug/m3	0.85	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	2-Hexanone	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	4-Ethyltoluene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	4-Methyl-2-Pentanone	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Acetone	3.1	U	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Acetonitrile	0.73	U	ug/m3	0.73	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Acrolein	0.69	U	ug/m3	0.69	8.1
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Acrylonitrile	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Allyl chloride	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	alpha-Pinene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Benzene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Benzyl chloride	0.45	U	ug/m3	0.45	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Bromodichloromethane	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Bromoform	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Bromomethane	0.77	U	ug/m3	0.77	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Carbon Disulfide	0.61	U	ug/m3	0.61	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Carbon tetrachloride	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Chlorobenzene	0.65	U	ug/m3	0.65	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Chlorodibromomethane	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Chloroethane	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Chloroform	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Chloromethane	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	cis-1,2-Dichloroethene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	cis-1,3-Dichloropropene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Cyclohexane	1.2	U	ug/m3	1.2	4.1
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Dichlorodifluoromethane	2.3	=	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Dichloromethane	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	D-Limonene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	ETHANOL	3.2	U	ug/m3	3.2	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Ethyl acetate	1.4	U	ug/m3	1.4	4.1
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Ethylbenzene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Hexachlorobutadiene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Isopropylbenzene	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Methyl methacrylate	1.3	U	ug/m3	1.3	4.1
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Methyl tert-butyl ether (MTBE)	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Naphthalene	0.73	U	ug/m3	0.73	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	N-Butyl Acetate	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	N-HEPTANE	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	n-Hexane	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Nonane	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	n-Propylbenzene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	OCTANE	0.73	U	ug/m3	0.73	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Propene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Styrene	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Tetrachloroethene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Tetrahydrofuran	0.81	U	ug/m3	0.81	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Toluene	1.3	J	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	trans-1,2-Dichloroethene	0.77	U	ug/m3	0.77	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	trans-1,3-Dichloropropene	0.65	U	ug/m3	0.65	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Trichloroethylene	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Trichlorofluoromethane	1.3	J	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Trichlorotrifuoroethane	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Vinyl Acetate	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Vinyl Chloride	0.69	U	ug/m3	0.69	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Xylene, o	0.61	U	ug/m3	0.61	2
[redacted]	[redacted]	PMC-SG-48-060117	GS	N	6/1/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4.1
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,1,1-Trichloroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,1,2,2-Tetrachloroethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,1,2-Trichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,1-Dichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,1-Dichloroethene	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2,4-Trichlorobenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2,4-Trimethylbenzene	0.78	J	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dibromo-3-chloropropane	0.39	U	ug/m3	0.39	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dibromoethane	0.63	U	ug/m3	0.63	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dichloroethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,2-Dichloropropane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,3,5-Trimethylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,3-Butadiene	0.86	U	ug/m3	0.86	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,3-Dichlorobenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,4-Dichlorobenzene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	1,4-Dioxane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	2-Butanone	6	J	ug/m3	0.82	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	2-Hexanone	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	4-Ethyltoluene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	4-Methyl-2-Pentanone	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Acetone	840	=	ug/m3	3	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Acetonitrile	1.1	J	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Acrolein	0.67	U	ug/m3	0.67	7.9
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Acrylonitrile	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Allyl chloride	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	alpha-Pinene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Benzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Benzyl chloride	0.43	U	ug/m3	0.43	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Bromodichloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Bromoform	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Bromomethane	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Carbon Disulfide	0.59	U	ug/m3	0.59	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Carbon tetrachloride	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Chlorobenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Chlorodibromomethane	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Chloroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Chloroform	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Chloromethane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	cis-1,2-Dichloroethene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	cis-1,3-Dichloropropene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Cyclohexane	1.1	U	ug/m3	1.1	3.9
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Dichlorodifluoromethane	1.9	J	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Dichloromethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	D-Limonene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	ETHANOL	3.1	U	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Ethyl acetate	1.4	U	ug/m3	1.4	3.9
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Ethylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Hexachlorobutadiene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Isopropylbenzene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	3.9
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Methyl tert-butyl ether (MTBE)	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Naphthalene	0.71	U	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	N-Butyl Acetate	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	N-HEPTANE	0.67	U	ug/m3	0.67	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	n-Hexane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Nonane	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	n-Propylbenzene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	OCTANE	0.71	U	ug/m3	0.71	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Propene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Styrene	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Tetrachloroethene	1.5	J	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Tetrahydrofuran	0.79	U	ug/m3	0.79	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Toluene	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	trans-1,2-Dichloroethene	0.75	U	ug/m3	0.75	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	trans-1,3-Dichloropropene	0.63	U	ug/m3	0.63	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Trichloroethylene	0.55	U	ug/m3	0.55	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Trichlorofluoromethane	1	J	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Trichlorotrifuoroethane	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Vinyl Acetate	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Vinyl Chloride	0.67	U	ug/m3	0.67	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Xylene, o	0.59	U	ug/m3	0.59	2
[redacted]	[redacted]	PMC-SG-49-072417	GS	N	7/24/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	3.9
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,1,1-Trichloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,1,2,2-Tetrachloroethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,1,2-Trichloroethane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,1-Dichloroethane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,1-Dichloroethene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2,3-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2,4-Trichlorobenzene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2,4-Trimethylbenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2-Dibromoethane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2-Dichloroethane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,2-Dichloropropane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,3,5-Trimethylbenzene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,3-Butadiene	0.76	U	ug/m3	0.76	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,3-Dichlorobenzene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,4-Dichlorobenzene	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	1,4-Dioxane	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	2-Butanone	0.72	U	ug/m3	0.72	17
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	2-Hexanone	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	4-Methyl-2-Pentanone	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Acetone	3	J	ug/m3	2.7	17
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Acetonitrile	0.62	U	ug/m3	0.62	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Acrolein	0.59	U	ug/m3	0.59	6.9
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Acrylonitrile	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Benzene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Benzyl chloride	0.38	U	ug/m3	0.38	3.5
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Bromodichloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Bromoform	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Bromomethane	0.66	U	ug/m3	0.66	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Carbon Disulfide	0.52	U	ug/m3	0.52	17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	CHLORODIFLUOROMETHANE	0.86	U	ug/m3	0.86	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Chloroethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Chloroform	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Chloromethane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	cis-1,2-Dichloroethene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	cis-1,3-Dichloropropene	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Cyclohexane	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Dichlorodifluoromethane	2.2	=	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Dichloromethane	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	ETHANOL	2.8	U	ug/m3	2.8	17
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Ethylbenzene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Freon 113	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	U	ug/m3	1.4	17
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Methyl tert-butyl ether (MTBE)	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	n-Butanol	1.7	U	ug/m3	1.7	3.5
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	n-Hexane	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Propene	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Styrene	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Tetrachloroethene	1.1	J	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Toluene	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	trans-1,3-Dichloropropene	0.55	U	ug/m3	0.55	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Trichloroethylene	0.48	U	ug/m3	0.48	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Trichlorofluoromethane	1.1	J	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Vinyl Acetate	2.2	U	ug/m3	2.2	17
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Vinyl Chloride	0.59	U	ug/m3	0.59	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Xylene, o	0.52	U	ug/m3	0.52	1.7
[redacted]	[redacted]	PMC-SG-51-021018	GS	N	2/10/2018	Xylenes, m & p	1	U	ug/m3	1	3.5
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,1,1-Trichloroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,1,2-Trichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,1-Dichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,1-Dichloroethene	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2,4-Trichlorobenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2,4-Trimethylbenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.4	U	ug/m3	0.4	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dibromoethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dichlorobenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dichloroethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,2-Dichloropropane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,3,5-Trimethylbenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,3-Butadiene	0.89	U	ug/m3	0.89	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,3-Dichlorobenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,4-Dichlorobenzene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	1,4-Dioxane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	2-Butanone	0.85	U	ug/m3	0.85	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	2-Hexanone	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	4-Ethyltoluene	0.64	U	ug/m3	0.64	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	4-Methyl-2-Pentanone	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Acetone	3.1	U	ug/m3	3.1	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Acetonitrile	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Acrolein	0.68	U	ug/m3	0.68	8.1
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Acrylonitrile	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Allyl chloride	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	alpha-Pinene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Benzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Benzyl chloride	0.44	U	ug/m3	0.44	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Bromodichloromethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Bromoform	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Bromomethane	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Carbon Disulfide	0.6	U	ug/m3	0.6	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Carbon tetrachloride	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Chlorobenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Chlorodibromomethane	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Chloroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Chloroform	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Chloromethane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	cis-1,2-Dichloroethene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	cis-1,3-Dichloropropene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Cyclohexane	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Dichlorodifluoromethane	2.1	=	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Dichloromethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	D-Limonene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	ETHANOL	3.2	U	ug/m3	3.2	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Ethyl acetate	1.4	U	ug/m3	1.4	4
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Ethylbenzene	0.82	J	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Hexachlorobutadiene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	U	ug/m3	1.7	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Isopropylbenzene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Methyl methacrylate	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Naphthalene	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	N-Butyl Acetate	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	N-HEPTANE	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	n-Hexane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Nonane	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	n-Propylbenzene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	OCTANE	0.72	U	ug/m3	0.72	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Propene	0.56	U	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Styrene	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Tetrachloroethene	1.5	J	ug/m3	0.56	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Tetrahydrofuran	0.81	U	ug/m3	0.81	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Toluene	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	trans-1,2-Dichloroethene	0.76	U	ug/m3	0.76	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	trans-1,3-Dichloropropene	0.64	U	ug/m3	0.64	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Trichloroethylene	0.56	U	ug/m3	0.56	2

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Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Trichlorofluoromethane	1.2	J	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Trichlorotrifuoroethane	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Vinyl Acetate	2.6	U	ug/m3	2.6	20
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Vinyl Chloride	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Xylene, o	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-SG-51-060617	GS	N	6/6/2017	Xylenes, m & p	1.2	U	ug/m3	1.2	4
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,1,1-Trichloroethane	0.01	J	ug/m3	0.009	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,1-Dichloroethane	0.0093	U	ug/m3	0.0093	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.077
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2,4-Trimethylbenzene	0.084	J	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2-Dichloroethane	0.058	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,2-Dichloropropane	0.025	J	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,3,5-Trimethylbenzene	0.025	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,3-Butadiene	0.021	U	ug/m3	0.021	0.077
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	2-Butanone	0.32	U	ug/m3	0.32	7.7
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	2-Hexanone	0.24	U	ug/m3	0.24	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Acetone	5.3	=	ug/m3	0.086	3.8
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Acetonitrile	0.28	U	ug/m3	0.28	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Acrolein	0.3	J	ug/m3	0.06	0.31
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Acrylonitrile	0.26	U	ug/m3	0.26	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Benzene	0.71	=	ug/m3	0.031	0.11
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Bromodichloromethane	0.024	J	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Bromoform	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Bromomethane	0.031	J	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Carbon Disulfide	0.23	U	ug/m3	0.23	7.7
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	CHLORODIFLUOROMETHANE	0.6	J	ug/m3	0.38	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Chloroethane	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Chloroform	0.14	J	ug/m3	0.028	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Chloromethane	0.46	=	ug/m3	0.029	0.077
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	cis-1,3-Dichloropropene	0.0095	U	ug/m3	0.0095	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Cyclohexane	0.44	U	ug/m3	0.44	1.5
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Dichlorodifluoromethane	2.1	=	ug/m3	0.026	0.077
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Dichloromethane	0.21	=	ug/m3	0.02	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	ETHANOL	1.2	U	ug/m3	1.2	7.7
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Ethylbenzene	0.16	=	ug/m3	0.015	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Freon 113	0.35	=	ug/m3	0.014	0.038

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Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.7	J	ug/m3	0.64	7.7
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	n-Butanol	0.73	U	ug/m3	0.73	1.5
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	n-Hexane	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Propene	0.95	=	ug/m3	0.21	0.77
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Styrene	0.062	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Tetrachloroethene	0.039	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Toluene	0.63	=	ug/m3	0.017	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	trans-1,3-Dichloropropene	0.0084	U	ug/m3	0.0084	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Trichloroethylene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.023	0.077
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Vinyl Acetate	0.99	U	ug/m3	0.99	7.7
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Xylene, o	0.13	J	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-IN-02-020518	IA	N	2/5/2018	Xylenes, m & p	0.34	=	ug/m3	0.029	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,1,1-Trichloroethane	0.01	J	ug/m3	0.0091	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,1-Dichloroethane	0.0094	U	ug/m3	0.0094	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.077
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2,4-Trimethylbenzene	0.2	=	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2-Dichloroethane	0.5	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,2-Dichloropropane	0.028	J	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,3,5-Trimethylbenzene	0.063	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,3-Butadiene	0.022	U	ug/m3	0.022	0.077
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	2-Butanone	0.97	J	ug/m3	0.32	7.7
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	2-Hexanone	0.25	U	ug/m3	0.25	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Acetone	5.3	=	ug/m3	0.086	3.9
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Acetonitrile	0.28	U	ug/m3	0.28	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Acrolein	0.25	J	ug/m3	0.06	0.31
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Acrylonitrile	0.26	U	ug/m3	0.26	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Benzene	0.35	=	ug/m3	0.031	0.12
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Bromodichloromethane	0.023	J	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Bromoform	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Bromomethane	0.023	J	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Carbon Disulfide	0.23	U	ug/m3	0.23	7.7
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	CHLORODIFLUOROMETHANE	0.62	J	ug/m3	0.39	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Chloroethane	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Chloroform	0.13	J	ug/m3	0.028	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Chloromethane	0.39	=	ug/m3	0.029	0.077
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	cis-1,3-Dichloropropene	0.0095	U	ug/m3	0.0095	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Cyclohexane	0.45	U	ug/m3	0.45	1.5
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Dichlorodifluoromethane	2	=	ug/m3	0.026	0.077
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Dichloromethane	0.23	=	ug/m3	0.02	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	ETHANOL	320	=	ug/m3	1.2	7.7
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Ethylbenzene	0.16	=	ug/m3	0.015	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Freon 113	0.35	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.1	J	ug/m3	0.65	7.7
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	n-Butanol	0.74	U	ug/m3	0.74	1.5
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	n-Hexane	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Propene	1.1	=	ug/m3	0.22	0.77
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Styrene	0.12	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Tetrachloroethene	0.027	J	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Toluene	1.1	=	ug/m3	0.017	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	trans-1,3-Dichloropropene	0.0086	J	ug/m3	0.0085	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Trichloroethylene	0.042	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Trichlorofluoromethane	1	=	ug/m3	0.023	0.077
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Vinyl Acetate	1	U	ug/m3	1	7.7
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Xylene, o	0.16	=	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-IN-03-020518	IA	N	2/5/2018	Xylenes, m & p	0.46	=	ug/m3	0.029	0.15
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2,4-Trichlorobenzene	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2,4-Trimethylbenzene	0.93	J	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.37	U	ug/m3	0.37	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dichloroethane	2.2	=	ug/m3	0.12	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,3,5-Trimethylbenzene	0.32	J	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,3-Butadiene	0.27	U	ug/m3	0.27	0.39
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	1,4-Dioxane	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	2-Butanone	0.41	U	ug/m3	0.41	9.8
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	2-Hexanone	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	4-Ethyltoluene	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	4-Methyl-2-Pentanone	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Acetone	40	=	ug/m3	1.5	9.8
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Acetonitrile	0.46	J	ug/m3	0.35	0.98

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Acrolein	0.33	U	ug/m3	0.33	3.9
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Acrylonitrile	0.33	U	ug/m3	0.33	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	alpha-Pinene	3.7	=	ug/m3	0.27	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Benzene	0.36	J	ug/m3	0.15	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Benzyl chloride	0.21	U	ug/m3	0.21	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Bromodichloromethane	0.13	U	ug/m3	0.13	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Bromoform	0.29	U	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Bromomethane	0.18	U	ug/m3	0.18	0.39
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Carbon Disulfide	0.29	U	ug/m3	0.29	9.8
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Carbon tetrachloride	0.7	=	ug/m3	0.17	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Chloroethane	0.17	U	ug/m3	0.17	0.39
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Chloroform	0.3	=	ug/m3	0.17	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Chloromethane	0.37	J	ug/m3	0.27	0.39
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	cis-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	cis-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Cyclohexane	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Dichlorodifluoromethane	2.3	=	ug/m3	0.33	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Dichloromethane	0.42	J	ug/m3	0.33	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	D-Limonene	2.6	=	ug/m3	0.27	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	ETHANOL	370	=	ug/m3	1.6	9.8
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Ethyl acetate	0.68	U	ug/m3	0.68	2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Ethylbenzene	1.1	=	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Hexachlorobutadiene	0.27	U	ug/m3	0.27	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.82	U	ug/m3	0.82	9.8
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Isopropylbenzene	0.29	U	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Methyl methacrylate	0.6	U	ug/m3	0.6	2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Naphthalene	0.35	U	ug/m3	0.35	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	N-Butyl Acetate	0.67	J	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	N-HEPTANE	0.38	J	ug/m3	0.33	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	n-Hexane	0.29	U	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Nonane	1.2	J	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	n-Propylbenzene	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	OCTANE	0.48	J	ug/m3	0.35	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Propene	0.27	U	ug/m3	0.27	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Styrene	1.7	=	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Tetrachloroethene	0.14	U	ug/m3	0.14	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Tetrahydrofuran	1	=	ug/m3	0.39	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Toluene	7.4	=	ug/m3	0.33	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	trans-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	trans-1,3-Dichloropropene	0.31	U	ug/m3	0.31	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Trichloroethylene	0.19	J	ug/m3	0.17	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Trichlorofluoromethane	1.5	=	ug/m3	0.11	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Trichlorotrifuoroethane	0.48	=	ug/m3	0.16	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Vinyl Acetate	1.3	U	ug/m3	1.3	9.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Vinyl Chloride	0.19	U	ug/m3	0.19	0.2
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Xylene, o	0.59	J	ug/m3	0.29	0.98
[redacted]	[redacted]	PMC-IN-03-062717	IA	N	6/27/2017	Xylenes, m & p	1.6	=	ug/m3	0.57	0.98
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,1,1-Trichloroethane	0.0095	J	ug/m3	0.0092	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,1-Dichloroethane	0.0095	U	ug/m3	0.0095	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.078
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2,4-Trimethylbenzene	0.2	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2-Dichloroethane	1.5	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,3,5-Trimethylbenzene	0.065	J	ug/m3	0.011	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,3-Butadiene	0.075	J	ug/m3	0.022	0.078
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,4-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	2-Butanone	0.54	J	ug/m3	0.33	7.8
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	2-Hexanone	0.25	U	ug/m3	0.25	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Acetone	10	=	ug/m3	0.087	3.9
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Acetonitrile	0.28	U	ug/m3	0.28	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Acrolein	0.44	=	ug/m3	0.061	0.31
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Acrylonitrile	0.27	U	ug/m3	0.27	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Benzene	1.1	=	ug/m3	0.031	0.12
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Benzyl chloride	0.17	U	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Bromodichloromethane	0.087	=	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Bromoform	0.23	U	ug/m3	0.23	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Bromomethane	0.02	J	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Carbon Disulfide	0.23	U	ug/m3	0.23	7.8
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	CHLORODIFLUOROMETHANE	0.7	J	ug/m3	0.39	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Chloroethane	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Chloroform	0.27	=	ug/m3	0.028	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Chloromethane	0.46	=	ug/m3	0.03	0.078
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	cis-1,3-Dichloropropene	0.0097	U	ug/m3	0.0097	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Cyclohexane	0.45	U	ug/m3	0.45	1.6
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Dichlorodifluoromethane	2.1	=	ug/m3	0.027	0.078
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Dichloromethane	0.23	=	ug/m3	0.02	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	ETHANOL	570	=	ug/m3	1.2	7.8
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Ethylbenzene	0.37	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Freon 113	0.34	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	J	ug/m3	0.66	7.8
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	n-Butanol	0.75	U	ug/m3	0.75	1.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	n-Hexane	0.27	J	ug/m3	0.23	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Propene	1.2	=	ug/m3	0.22	0.78
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Styrene	0.3	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Tetrachloroethene	0.04	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Toluene	1.2	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	trans-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Trichloroethylene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.023	0.078
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Vinyl Acetate	1	U	ug/m3	1	7.8
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Xylene, o	0.22	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-IN-04-020618	IA	N	2/6/2018	Xylenes, m & p	1.2	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	1,1,1-Trichloroethane	17	=	ug/m3	0.0099	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	1,2,4-Trimethylbenzene	3.8	=	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	2-Butanone	0.018	U	ug/m3	0.018	1.7
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Acetone	0.094	U	ug/m3	0.094	4.2
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Bromodichloromethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Chloroform	0.03	U	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Chloromethane	0.032	U	ug/m3	0.032	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Cyclohexane	1.2	J	ug/m3	0.04	1.7
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Dichlorodifluoromethane	2.9	J	ug/m3	0.029	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Tetrachloroethene	0.11	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Toluene	42	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	trans-1,2-Dichloroethene	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Trichloroethylene	0.051	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Trichlorofluoromethane	3.4	J	ug/m3	0.025	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-IN-04-052517	IA	N	5/25/2017	Xylenes, m & p	21	=	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,1,1-Trichloroethane	0.01	J	ug/m3	0.0092	0.039
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,1,2,2-Tetrachloroethane	0.0091	U	ug/m3	0.0091	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,1,2-Trichloroethane	0.01	U	ug/m3	0.01	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,1-Dichloroethane	0.0092	J	ug/m3	0.0077	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,1-Dichloroethene	0.011	U	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2,3-Trimethylbenzene	0.19	U	ug/m3	0.19	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2,4-Trichlorobenzene	0.016	U	ug/m3	0.016	0.063
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2,4-Trimethylbenzene	0.51	=	ug/m3	0.01	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2-Dibromoethane	0.01	U	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2-Dichlorobenzene	0.01	U	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2-Dichloroethane	0.18	=	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,2-Dichloropropane	0.12	=	ug/m3	0.0092	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,3,5-Trimethylbenzene	0.16	=	ug/m3	0.0092	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,3-Butadiene	0.079	=	ug/m3	0.018	0.063
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,3-Dichlorobenzene	0.014	J	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,4-Dichlorobenzene	0.01	U	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	1,4-Dioxane	0.36	=	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	2-Butanone	2.9	J	ug/m3	0.26	6.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	2-Hexanone	0.2	U	ug/m3	0.2	0.63

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	4-Methyl-2-Pentanone	0.81	=	ug/m3	0.2	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Acetone	15	=	ug/m3	0.071	3.2
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Acetonitrile	0.23	U	ug/m3	0.23	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Acrolein	0.7	=	ug/m3	0.049	0.25
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Acrylonitrile	0.21	U	ug/m3	0.21	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Benzene	2.4	=	ug/m3	0.025	0.095
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Benzyl chloride	0.14	U	ug/m3	0.14	1.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Bromodichloromethane	0.068	=	ug/m3	0.0087	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Bromoform	0.19	U	ug/m3	0.19	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Bromomethane	0.022	J	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Carbon Disulfide	3.5	J	ug/m3	0.19	6.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	CHLORODIFLUOROMETHANE	0.82	=	ug/m3	0.32	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Chloroethane	0.011	J	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Chloroform	0.26	=	ug/m3	0.028	0.16
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Chloromethane	0.41	=	ug/m3	0.024	0.063
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	cis-1,2-Dichloroethene	0.012	U	ug/m3	0.012	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	cis-1,3-Dichloropropene	0.0078	U	ug/m3	0.0078	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Cyclohexane	0.49	J	ug/m3	0.37	1.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Dichlorodifluoromethane	2	=	ug/m3	0.027	0.078
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Dichloromethane	0.63	=	ug/m3	0.016	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	ETHANOL	1	U	ug/m3	1	6.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Ethylbenzene	0.77	=	ug/m3	0.012	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Freon 113	0.35	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.2	J	ug/m3	0.66	7.8
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Methyl tert-butyl ether (MTBE)	0.018	J	ug/m3	0.012	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	n-Butanol	1	J	ug/m3	0.6	1.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	n-Hexane	1.5	=	ug/m3	0.19	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Propene	2.6	=	ug/m3	0.18	0.63
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Styrene	0.16	=	ug/m3	0.0093	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Tetrachloroethene	0.16	=	ug/m3	0.01	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Toluene	25	=	ug/m3	0.014	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	trans-1,3-Dichloropropene	0.0069	U	ug/m3	0.0069	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Trichloroethylene	0.81	=	ug/m3	0.011	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Trichlorofluoromethane	1	=	ug/m3	0.023	0.078
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Vinyl Acetate	9.4	=	ug/m3	0.82	6.3
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Vinyl Chloride	0.0096	U	ug/m3	0.0096	0.032
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Xylene, o	0.63	=	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-IN-05-020618	IA	N	2/6/2018	Xylenes, m & p	1.9	=	ug/m3	0.024	0.13
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,1,2,2-Tetrachloroethane	0.18	U	ug/m3	0.18	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,1-Dichloroethene	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2,4-Trichlorobenzene	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2,4-Trimethylbenzene	0.65	J	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dibromo-3-chloropropane	0.21	U	ug/m3	0.21	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dibromoethane	0.18	U	ug/m3	0.18	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.4	U	ug/m3	0.4	1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dichlorobenzene	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dichloroethane	0.93	=	ug/m3	0.13	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,2-Dichloropropane	0.17	U	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,3,5-Trimethylbenzene	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,3-Butadiene	0.29	U	ug/m3	0.29	0.42
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	1,4-Dioxane	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	2-Butanone	0.44	U	ug/m3	0.44	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	2-Hexanone	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	4-Ethyltoluene	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	4-Methyl-2-Pentanone	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Acetone	34	=	ug/m3	1.6	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Acetonitrile	0.38	U	ug/m3	0.38	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Acrolein	0.36	U	ug/m3	0.36	4.2
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Acrylonitrile	0.36	U	ug/m3	0.36	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	alpha-Pinene	1.8	=	ug/m3	0.29	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Benzene	0.33	=	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Benzyl chloride	0.23	U	ug/m3	0.23	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Bromodichloromethane	0.23	=	ug/m3	0.14	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Bromoform	0.31	U	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Bromomethane	0.19	U	ug/m3	0.19	0.42
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Carbon Disulfide	0.31	U	ug/m3	0.31	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Carbon tetrachloride	0.58	=	ug/m3	0.18	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Chlorobenzene	0.17	U	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Chlorodibromomethane	0.18	U	ug/m3	0.18	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Chloroethane	0.18	U	ug/m3	0.18	0.42
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Chloroform	0.9	=	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Chloromethane	0.46	=	ug/m3	0.29	0.42
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	cis-1,2-Dichloroethene	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	cis-1,3-Dichloropropene	0.29	U	ug/m3	0.29	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Cyclohexane	0.61	U	ug/m3	0.61	2.1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Dichlorodifluoromethane	2.3	=	ug/m3	0.36	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Dichloromethane	0.36	U	ug/m3	0.36	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	D-Limonene	6.6	=	ug/m3	0.29	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	ETHANOL	400	=	ug/m3	1.7	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Ethyl acetate	9	=	ug/m3	0.73	2.1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Ethylbenzene	1	J	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Hexachlorobutadiene	0.29	U	ug/m3	0.29	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.88	U	ug/m3	0.88	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Isopropylbenzene	0.31	U	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Methyl methacrylate	0.65	U	ug/m3	0.65	2.1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Methyl tert-butyl ether (MTBE)	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Naphthalene	0.38	U	ug/m3	0.38	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	N-Butyl Acetate	4.8	=	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	N-HEPTANE	0.51	J	ug/m3	0.36	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	n-Hexane	0.54	J	ug/m3	0.31	1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Nonane	1.4	=	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	n-Propylbenzene	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	OCTANE	0.47	J	ug/m3	0.38	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Propene	3.8	=	ug/m3	0.29	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Styrene	0.62	J	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Tetrachloroethene	0.27	=	ug/m3	0.15	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Tetrahydrofuran	2.8	=	ug/m3	0.42	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Toluene	6.8	=	ug/m3	0.36	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	trans-1,2-Dichloroethene	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	trans-1,3-Dichloropropene	0.33	U	ug/m3	0.33	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Trichloroethylene	0.19	U	ug/m3	0.19	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.12	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Trichlorotrifuoroethane	0.48	=	ug/m3	0.17	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Vinyl Acetate	1.4	U	ug/m3	1.4	10
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Vinyl Chloride	0.2	U	ug/m3	0.2	0.21
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Xylene, o	0.85	J	ug/m3	0.31	1
[redacted]	[redacted]	PMC-IN-05-062817	IA	N	6/28/2017	Xylenes, m & p	3.2	=	ug/m3	0.61	1
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,1,1-Trichloroethane	0.01	U	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,1-Dichloroethane	0.011	J	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.88
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.085
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2,4-Trimethylbenzene	0.32	=	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2-Dichloroethane	0.65	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,2-Dichloropropane	0.047	=	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,3,5-Trimethylbenzene	0.087	J	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,3-Butadiene	0.048	J	ug/m3	0.024	0.085
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,4-Dichlorobenzene	0.054	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	1,4-Dioxane	0.049	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	2-Butanone	4.3	=	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	2-Hexanone	0.11	U	ug/m3	0.11	0.92
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	4-Methyl-2-Pentanone	0.14	J	ug/m3	0.12	0.9
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Acetone	25	=	ug/m3	0.095	4.3
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Acetonitrile	0.22	U	ug/m3	0.22	0.88
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Acrolein	0.93	=	ug/m3	0.066	0.34
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Acrylonitrile	0.19	U	ug/m3	0.19	0.88
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Benzene	0.4	=	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.9
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Bromodichloromethane	0.12	=	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Bromoform	0.19	U	ug/m3	0.19	0.9
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Bromomethane	0.033	J	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Carbon Disulfide	0.43	J	ug/m3	0.27	1.9
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	CHLORODIFLUOROMETHANE	0.52	J	ug/m3	0.43	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Chloroethane	0.017	J	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Chloroform	0.54	=	ug/m3	0.031	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Chloromethane	0.31	=	ug/m3	0.032	0.085
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	cis-1,3-Dichloropropene	0.011	U	ug/m3	0.011	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Cyclohexane	0.26	U	ug/m3	0.26	1.7
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Dichlorodifluoromethane	2	=	ug/m3	0.029	0.085
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Dichloromethane	0.22	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	ETHANOL	200	=	ug/m3	0.63	8.7
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Ethylbenzene	0.7	=	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	9.7	=	ug/m3	0.37	3.6
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Methyl tert-butyl ether (MTBE)	0.052	=	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	n-Butanol	1.8	=	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	n-Hexane	0.43	J	ug/m3	0.19	0.92
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Propene	2.6	=	ug/m3	0.22	0.88
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Styrene	0.4	=	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Tetrachloroethene	0.23	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Toluene	7.5	=	ug/m3	0.019	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	trans-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Trichloroethylene	0.016	J	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.026	0.085
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Trichlorotrifuoroethane	0.38	=	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Vinyl Acetate	2	U	ug/m3	2	9
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Xylene, o	0.55	=	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-IN-05-01-110618	IA	N	11/6/2018	Xylenes, m & p	2.3	=	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,1,1-Trichloroethane	0.0096	J	ug/m3	0.0079	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,1,2,2-Tetrachloroethane	0.0096	U	ug/m3	0.0096	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,1-Dichloroethane	0.0082	U	ug/m3	0.0082	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2,3-Trimethylbenzene	0.098	U	ug/m3	0.098	0.7
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2,4-Trichlorobenzene	0.017	U	ug/m3	0.017	0.067
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2,4-Trimethylbenzene	0.21	=	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2-Dichlorobenzene	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2-Dichloroethane	0.2	=	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,2-Dichloropropane	0.03	J	ug/m3	0.0098	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,3,5-Trimethylbenzene	0.054	J	ug/m3	0.0098	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,3-Butadiene	0.034	J	ug/m3	0.019	0.067
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,3-Dichlorobenzene	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,4-Dichlorobenzene	0.043	=	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	1,4-Dioxane	0.041	J	ug/m3	0.011	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	2-Butanone	0.65	J	ug/m3	0.15	1.3
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	2-Hexanone	0.088	U	ug/m3	0.088	0.72
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	4-Methyl-2-Pentanone	0.098	U	ug/m3	0.098	0.71
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Acetone	5.6	=	ug/m3	0.075	3.4
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Acetonitrile	0.17	U	ug/m3	0.17	0.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Acrolein	0.26	J	ug/m3	0.052	0.27
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Acrylonitrile	0.15	U	ug/m3	0.15	0.7
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Benzene	0.41	=	ug/m3	0.027	0.1
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Bromodichloromethane	0.0092	U	ug/m3	0.0092	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Bromoform	0.15	U	ug/m3	0.15	0.71
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Bromomethane	0.027	J	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Carbon Disulfide	0.31	J	ug/m3	0.21	1.5
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	CHLORODIFLUOROMETHANE	0.48	J	ug/m3	0.34	0.67
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Chloroethane	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Chloroform	0.29	=	ug/m3	0.024	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Chloromethane	0.23	=	ug/m3	0.025	0.067
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	cis-1,2-Dichloroethene	0.012	U	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	cis-1,3-Dichloropropene	0.0083	U	ug/m3	0.0083	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Cyclohexane	0.2	U	ug/m3	0.2	1.3
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Dichlorodifluoromethane	1.8	=	ug/m3	0.023	0.067
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Dichloromethane	0.21	=	ug/m3	0.017	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	ETHANOL	3.7	J	ug/m3	0.5	6.8
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Ethylbenzene	0.19	=	ug/m3	0.013	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.69	J	ug/m3	0.29	2.8
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Methyl tert-butyl ether (MTBE)	0.012	U	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	n-Butanol	0.34	J	ug/m3	0.19	1.3
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	n-Hexane	0.43	J	ug/m3	0.15	0.72
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Propene	0.36	J	ug/m3	0.17	0.7
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Styrene	0.092	J	ug/m3	0.0099	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Tetrachloroethene	0.09	=	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Toluene	1.6	=	ug/m3	0.015	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	trans-1,3-Dichloropropene	0.0074	U	ug/m3	0.0074	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Trichloroethylene	0.016	J	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.02	0.067
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Vinyl Acetate	1.6	U	ug/m3	1.6	7.1
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Vinyl Chloride	0.01	U	ug/m3	0.01	0.034
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Xylene, o	0.2	=	ug/m3	0.012	0.13
[redacted]	[redacted]	PMC-IN-05-02-110618	IA	N	11/6/2018	Xylenes, m & p	0.54	=	ug/m3	0.025	0.13
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	1,4-Dioxane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	2-Butanone	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	2-Hexanone	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	4-Ethyltoluene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Acetone	8.6	=	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Acetonitrile	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Acrolein	2.8	U	UG/M3	2.8	2.8
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Acrylonitrile	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	alpha-Pinene	6	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Benzene	0.61	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Benzyl chloride	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Bromoform	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Carbon Disulfide	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Carbon tetrachloride	0.38	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Chloromethane	1	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Dichlorodifluoromethane	2.5	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Dichloromethane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	D-Limonene	4.1	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	ETHANOL	18	=	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Ethyl acetate	4.6	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Ethylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Freon 113	0.52	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Hexachlorobutadiene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Isopropylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Naphthalene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	N-Butyl Acetate	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	N-HEPTANE	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	n-Hexane	0.8	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Nonane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	n-Propylbenzene	0.7	U	UG/M3	0.7	0.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	OCTANE	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Propene	0.9	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Styrene	0.7	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Tetrachloroethene	0.53	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Tetrahydrofuran	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Toluene	1.3	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Trichlorofluoromethane	1.3	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Vinyl Acetate	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Xylene, o	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-1	IA	N	1/19/2018	Xylenes, m & p	1.2	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,3-Butadiene	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	1,4-Dioxane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	2-Butanone	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	2-Hexanone	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	4-Ethyltoluene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Acetone	10	=	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Acetonitrile	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Acrolein	2.7	U	UG/M3	2.7	2.7
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Acrylonitrile	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	alpha-Pinene	6.8	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Benzene	0.75	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Benzyl chloride	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Bromoform	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Bromomethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Carbon Disulfide	6.9	U	UG/M3	6.9	6.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Carbon tetrachloride	0.39	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Chloroethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Chloromethane	0.66	=	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Dichloromethane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	D-Limonene	5.8	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	ETHANOL	24	=	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Ethyl acetate	32	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Ethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Freon 113	0.45	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Hexachlorobutadiene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Isopropylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Naphthalene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	N-Butyl Acetate	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	N-HEPTANE	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	n-Hexane	0.93	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Nonane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	n-Propylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	OCTANE	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Propene	0.94	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Styrene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Tetrachloroethene	0.61	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Tetrahydrofuran	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Toluene	3.3	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Vinyl Acetate	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Xylene, o	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-2	IA	N	1/19/2018	Xylenes, m & p	1.6	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	1,4-Dioxane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	2-Butanone	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	2-Hexanone	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	4-Ethyltoluene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Acetone	10	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Acetonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Acrylonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	alpha-Pinene	6.9	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Benzene	0.6	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Benzyl chloride	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Bromoform	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Carbon Disulfide	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Carbon tetrachloride	0.38	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Chloroform	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Chloromethane	0.63	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Dichloromethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	D-Limonene	6	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	ETHANOL	21	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Ethyl acetate	7.7	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Ethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Hexachlorobutadiene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Isopropylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Naphthalene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	N-Butyl Acetate	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	N-HEPTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	n-Hexane	0.82	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Nonane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	n-Propylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	OCTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Propene	0.81	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Styrene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Tetrachloroethene	0.54	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Tetrahydrofuran	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Toluene	1.4	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Trichloroethylene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Vinyl Acetate	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Xylene, o	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_011918_IA-3	IA	N	1/19/2018	Xylenes, m & p	1.4	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	1,4-Dioxane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	2-Butanone	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	2-Hexanone	0.88	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	4-Ethyltoluene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Acetone	18	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Acetonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Acrylonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	alpha-Pinene	7.7	=	ug/m3	0.76	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Benzene	0.41	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Benzyl chloride	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Bromoform	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Carbon Disulfide	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Carbon tetrachloride	0.44	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Dichlorodifluoromethane	2.5	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Dichloromethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	D-Limonene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	ETHANOL	53	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Ethyl acetate	22	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Ethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Freon 113	0.43	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Hexachlorobutadiene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Isopropylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Naphthalene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	N-Butyl Acetate	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	N-HEPTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	n-Hexane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Nonane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	n-Propylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	OCTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Propene	3.5	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Styrene	1.3	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Tetrachloroethene	0.8	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Tetrahydrofuran	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Toluene	1.3	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Vinyl Acetate	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Xylene, o	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-1	IA	N	4/5/2017	Xylenes, m & p	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	1,4-Dioxane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	2-Butanone	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	2-Hexanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	4-Ethyltoluene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Acetone	12	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Acetonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Acrylonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	alpha-Pinene	10	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Benzene	0.34	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Benzyl chloride	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Bromoform	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Carbon Disulfide	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Carbon tetrachloride	0.49	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Dichlorodifluoromethane	2.6	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Dichloromethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	D-Limonene	1.4	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	ETHANOL	73	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Ethyl acetate	6.8	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Ethylbenzene	0.75	U	ug/m3	0.75	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Freon 113	0.49	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Hexachlorobutadiene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Isopropylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Naphthalene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	N-Butyl Acetate	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	N-HEPTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	n-Hexane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Nonane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	n-Propylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	OCTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Propene	2.1	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Styrene	1.1	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Tetrachloroethene	0.63	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Tetrahydrofuran	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Toluene	1.1	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Trichlorofluoromethane	1.2	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Vinyl Acetate	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Xylene, o	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_040517_IA-2	IA	N	4/5/2017	Xylenes, m & p	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,3-Butadiene	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	1,4-Dioxane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	2-Butanone	7.7	U	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	2-Hexanone	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	4-Ethyltoluene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.77	U	ug/m3	0.77	0.77

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Acetone	16	=	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Acetonitrile	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Acrolein	3.1	U	ug/m3	3.1	3.1
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Acrylonitrile	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	alpha-Pinene	15	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Benzene	0.73	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Benzyl chloride	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Bromoform	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Bromomethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Carbon Disulfide	7.7	U	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Carbon tetrachloride	0.36	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Chloroethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Chloromethane	0.45	=	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Dichloromethane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	D-Limonene	1.6	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	ETHANOL	94	=	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Ethyl acetate	8.1	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Ethylbenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Freon 113	0.44	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Hexachlorobutadiene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.7	U	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Isopropylbenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Naphthalene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	N-Butyl Acetate	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	N-HEPTANE	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	n-Hexane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Nonane	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	n-Propylbenzene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	OCTANE	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Propene	1.6	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Styrene	2.6	=	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Tetrachloroethene	0.22	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Tetrahydrofuran	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Toluene	2.3	=	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Vinyl Acetate	7.7	U	ug/m3	7.7	7.7
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Xylene, o	0.77	U	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-1	IA	N	6/2/2017	Xylenes, m & p	0.77	=	ug/m3	0.77	0.77
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,3-Butadiene	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	1,4-Dioxane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	2-Butanone	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	2-Hexanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	4-Ethyltoluene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Acetone	22	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Acetonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Acrolein	3.1	U	ug/m3	3.1	3.1
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Acrylonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	alpha-Pinene	16	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Benzene	0.28	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Benzyl chloride	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Bromoform	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Bromomethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Carbon Disulfide	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Carbon tetrachloride	0.32	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Chloroethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Chloroform	0.16	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Chloromethane	0.4	=	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Dichloromethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	D-Limonene	5.2	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	ETHANOL	830	J	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Ethyl acetate	4.8	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Ethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Freon 113	0.43	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Hexachlorobutadiene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Isopropylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Naphthalene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	N-Butyl Acetate	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	N-HEPTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	n-Hexane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Nonane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	n-Propylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	OCTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Propene	1.2	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Styrene	1.9	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Tetrachloroethene	0.28	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Tetrahydrofuran	2.3	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Toluene	1.2	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Vinyl Acetate	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Xylene, o	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-2	IA	N	6/2/2017	Xylenes, m & p	0.82	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,1,1-Trichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,1,2-Trichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dibromoethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,2-Dichloropropane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,3-Butadiene	0.36	U	ug/m3	0.36	0.36
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,3-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,4-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	1,4-Dioxane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	2-Butanone	8.9	U	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	2-Hexanone	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	4-Ethyltoluene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Acetone	26	=	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Acetonitrile	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Acrolein	3.6	U	ug/m3	3.6	3.6
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Acrylonitrile	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Allyl chloride	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	alpha-Pinene	17	=	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Benzene	0.33	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Benzyl chloride	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Bromodichloromethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Bromoform	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Bromomethane	0.36	U	ug/m3	0.36	0.36
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Carbon Disulfide	8.9	U	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Carbon tetrachloride	0.36	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Chlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Chlorodibromomethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Chloroethane	0.36	U	ug/m3	0.36	0.36
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Chloroform	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Chloromethane	0.42	=	ug/m3	0.36	0.36
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Cyclohexane	1.8	U	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Dichloromethane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	D-Limonene	4.4	=	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	ETHANOL	720	=	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Ethyl acetate	8.2	=	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Ethylbenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Freon 113	0.44	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Hexachlorobutadiene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.9	U	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Isopropylbenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Methyl methacrylate	1.8	U	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Naphthalene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	N-Butyl Acetate	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	N-HEPTANE	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	n-Hexane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Nonane	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	n-Propylbenzene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	OCTANE	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Propene	1.4	=	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Styrene	1.7	=	ug/m3	0.89	0.89

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Tetrachloroethene	0.22	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Tetrahydrofuran	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Toluene	1.4	=	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Trichloroethylene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Vinyl Acetate	8.9	U	ug/m3	8.9	8.9
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Vinyl Chloride	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Xylene, o	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_060217_IA-3	IA	N	6/2/2017	Xylenes, m & p	0.89	U	ug/m3	0.89	0.89
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	1,4-Dioxane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	2-Butanone	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	2-Hexanone	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	4-Ethyltoluene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Acetone	32	=	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Acetonitrile	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Acrylonitrile	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	alpha-Pinene	36	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Benzene	0.49	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Benzyl chloride	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Bromoform	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Carbon Disulfide	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Carbon tetrachloride	0.41	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Chloroform	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Chloromethane	0.49	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Dichlorodifluoromethane	2.2	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Dichloromethane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	D-Limonene	4.5	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	ETHANOL	100	=	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Ethyl acetate	2.7	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Ethylbenzene	0.77	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Freon 113	0.44	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Hexachlorobutadiene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Isopropylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Naphthalene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	N-Butyl Acetate	2.5	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	N-HEPTANE	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	n-Hexane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Nonane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	n-Propylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	OCTANE	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Propene	1.5	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Styrene	5.9	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Tetrachloroethene	0.22	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Tetrahydrofuran	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Toluene	2.2	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Trichloroethylene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Vinyl Acetate	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Xylene, o	0.81	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-1	IA	N	9/13/2017	Xylenes, m & p	1.8	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2,4-Trimethylbenzene	1.4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.71	U	UG/M3	0.71	0.71

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dichloroethane	0.36	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,4-Dichlorobenzene	0.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	1,4-Dioxane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	2-Butanone	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	2-Hexanone	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	4-Ethyltoluene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Acetone	52	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Acetonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Acrolein	3.6	=	UG/M3	2.8	2.8
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Acrylonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	alpha-Pinene	40	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Benzene	0.55	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Benzyl chloride	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Bromoform	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Carbon Disulfide	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Carbon tetrachloride	0.37	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Chloroform	0.15	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Chloromethane	0.48	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Dichlorodifluoromethane	2.2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Dichloromethane	1.7	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	D-Limonene	10	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	ETHANOL	190	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Ethyl acetate	2.7	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Ethylbenzene	2.5	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Hexachlorobutadiene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Isopropylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Naphthalene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	N-Butyl Acetate	10	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	N-HEPTANE	0.71	U	UG/M3	0.71	0.71

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	n-Hexane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Nonane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	n-Propylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	OCTANE	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Propene	1.9	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Styrene	5.4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Tetrachloroethene	0.26	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Tetrahydrofuran	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Toluene	3.5	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Vinyl Acetate	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Xylene, o	1.8	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-2	IA	N	9/13/2017	Xylenes, m & p	4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2,4-Trimethylbenzene	1.9	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dichloroethane	0.94	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,4-Dichlorobenzene	0.34	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	1,4-Dioxane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	2-Butanone	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	2-Hexanone	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	4-Ethyltoluene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	4-Methyl-2-Pentanone	1.1	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Acetone	73	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Acetonitrile	1.5	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Acrolein	5.4	=	UG/M3	3	3
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Acrylonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	alpha-Pinene	47	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Benzene	0.69	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Benzyl chloride	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Bromoform	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Carbon Disulfide	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Carbon tetrachloride	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Chloroform	0.16	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Chloromethane	0.57	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Dichloromethane	1.9	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	D-Limonene	10	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	ETHANOL	250	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Ethyl acetate	2.9	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Ethylbenzene	2.5	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Hexachlorobutadiene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.4	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Isopropylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Naphthalene	0.79	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	N-Butyl Acetate	10	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	N-HEPTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	n-Hexane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Nonane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	n-Propylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	OCTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Propene	2.5	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Styrene	5.6	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Tetrachloroethene	0.39	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Tetrahydrofuran	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Toluene	4.6	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Trichloroethylene	0.35	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Vinyl Acetate	11	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Xylene, o	2.2	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_001_091317_IA-3	IA	N	9/13/2017	Xylenes, m & p	4.8	=	UG/M3	0.74	0.74
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0097	U	ug/m3	0.0097	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.041

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.86
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.083
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.15	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2-Dichloroethane	1.8	=	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.015	J	ug/m3	0.012	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.037	J	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,3-Butadiene	0.023	U	ug/m3	0.023	0.083
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.11	=	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	1,4-Dioxane	0.025	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	2-Butanone	0.73	J	ug/m3	0.18	1.7
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	2-Hexanone	0.15	J	ug/m3	0.11	0.89
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.16	J	ug/m3	0.12	0.87
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Acetone	8.1	=	ug/m3	0.092	4.1
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.86
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Acrolein	0.8	=	ug/m3	0.064	0.33
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.86
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Benzene	0.46	=	ug/m3	0.033	0.12
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Bromoform	0.18	U	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Bromomethane	0.021	J	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Carbon Disulfide	0.26	U	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.69	J	ug/m3	0.41	0.83
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Chloroethane	0.014	U	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Chloroform	0.083	J	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Chloromethane	0.34	=	ug/m3	0.031	0.083
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Cyclohexane	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Dichlorodifluoromethane	2	=	ug/m3	0.028	0.083
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Dichloromethane	0.33	=	ug/m3	0.021	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	ETHANOL	37	=	ug/m3	0.61	8.4
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Ethylbenzene	0.22	=	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.9	J	ug/m3	0.36	3.5
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	n-Butanol	2.3	=	ug/m3	0.23	1.7
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	n-Hexane	0.18	U	ug/m3	0.18	0.89
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Propene	1.2	=	ug/m3	0.21	0.86
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Styrene	2.3	=	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Tetrachloroethene	0.13	=	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Toluene	0.63	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Trichloroethylene	0.033	J	ug/m3	0.014	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Trichlorofluoromethane	1	=	ug/m3	0.025	0.083

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.015	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Vinyl Acetate	2	U	ug/m3	2	8.7
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.041
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Xylene, o	0.21	=	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-01-IN01-110818	IA	N	11/8/2018	Xylenes, m & p	0.57	=	ug/m3	0.031	0.17
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0093	U	ug/m3	0.0093	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.0096	U	ug/m3	0.0096	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.82
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.079
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.16	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2-Dichloroethane	1	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.015	J	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.033	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,3-Butadiene	0.022	U	ug/m3	0.022	0.079
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.042	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	1,4-Dioxane	0.024	J	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	2-Butanone	0.71	J	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	2-Hexanone	0.12	J	ug/m3	0.1	0.85
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.84
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Acetone	8.2	=	ug/m3	0.088	4
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.82
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Acrolein	0.8	=	ug/m3	0.062	0.32
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Acrylonitrile	0.17	U	ug/m3	0.17	0.82
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Benzene	0.2	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Bromoform	0.17	U	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Bromomethane	0.017	J	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.7	J	ug/m3	0.4	0.79
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Chloroethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Chloroform	0.082	J	ug/m3	0.028	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Chloromethane	0.03	U	ug/m3	0.03	0.079
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.0098	U	ug/m3	0.0098	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Cyclohexane	0.24	U	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Dichlorodifluoromethane	1.9	=	ug/m3	0.027	0.079
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Dichloromethane	0.38	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	ETHANOL	39	=	ug/m3	0.58	8.1
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Ethylbenzene	0.23	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2	J	ug/m3	0.35	3.3
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04

Attachment H-4
Analytical Data to be used in the HHRA
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Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	n-Butanol	1.5	J	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	n-Hexane	0.17	U	ug/m3	0.17	0.85
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Propene	1	=	ug/m3	0.21	0.82
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Styrene	0.94	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Tetrachloroethene	0.13	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Toluene	0.71	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Trichloroethylene	0.014	J	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Trichlorofluoromethane	1	=	ug/m3	0.024	0.079
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.38	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.4
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Xylene, o	0.22	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-01-IN02-110818	IA	N	11/8/2018	Xylenes, m & p	0.57	=	ug/m3	0.03	0.16
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2,4-Trichlorobenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2,4-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dibromo-3-chloropropane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,3,5-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,4-Dichlorobenzene	0.73	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	1,4-Dioxane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	2-Butanone	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	2-Hexanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	4-Ethyltoluene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	4-Methyl-2-Pentanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Acetone	14	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Acetonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Acrylonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	alpha-Pinene	12	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Benzene	0.52	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Benzyl chloride	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Bromoform	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Carbon Disulfide	7.5	U	ug/m3	7.5	7.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Carbon tetrachloride	0.42	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Chloroform	0.38	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	cis-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Dichlorodifluoromethane	2.3	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Dichloromethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	D-Limonene	16	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	ETHANOL	180	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Ethyl acetate	8.8	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Ethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Freon 113	0.48	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Hexachlorobutadiene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Isopropylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Naphthalene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	N-Butyl Acetate	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	N-HEPTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	n-Hexane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Nonane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	n-Propylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	OCTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Propene	2.4	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Styrene	1.8	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Tetrachloroethene	0.49	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Tetrahydrofuran	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Toluene	1	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	trans-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Vinyl Acetate	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Xylene, o	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-1	IA	N	3/28/2017	Xylenes, m & p	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2,4-Trichlorobenzene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2,4-Trimethylbenzene	0.74	U	ug/m3	0.74	0.74

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dibromo-3-chloropropane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,3,5-Trimethylbenzene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,4-Dichlorobenzene	0.8	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	1,4-Dioxane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	2-Butanone	7.4	U	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	2-Hexanone	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	4-Ethyltoluene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	4-Methyl-2-Pentanone	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Acetone	21	=	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Acetonitrile	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Acrylonitrile	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	alpha-Pinene	12	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Benzene	0.64	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Benzyl chloride	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Bromoform	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Carbon Disulfide	7.4	U	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Carbon tetrachloride	0.44	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Chloroform	0.59	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	cis-1,3-Dichloropropene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Dichlorodifluoromethane	2.3	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Dichloromethane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	D-Limonene	43	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	ETHANOL	340	=	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Ethyl acetate	48	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Ethylbenzene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Freon 113	0.46	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Hexachlorobutadiene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.4	U	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Isopropylbenzene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Naphthalene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	N-Butyl Acetate	0.95	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	N-HEPTANE	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	n-Hexane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Nonane	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	n-Propylbenzene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	OCTANE	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Propene	2.6	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Styrene	1.2	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Tetrachloroethene	0.4	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Tetrahydrofuran	0.76	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Toluene	3.7	=	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	trans-1,3-Dichloropropene	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Vinyl Acetate	7.4	U	ug/m3	7.4	7.4
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Xylene, o	0.74	U	ug/m3	0.74	0.74
[redacted]	[redacted]	1703205_002_032817_IA-2	IA	N	3/28/2017	Xylenes, m & p	0.89	=	ug/m3	0.74	0.74
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0062	U	ug/m3	0.0062	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.0076	U	ug/m3	0.0076	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.0083	U	ug/m3	0.0083	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0064	U	ug/m3	0.0064	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.009	U	ug/m3	0.009	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.12	J	ug/m3	0.077	0.55
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.014	U	ug/m3	0.014	0.053
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.47	=	ug/m3	0.0087	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.0083	U	ug/m3	0.0083	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.0087	U	ug/m3	0.0087	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.14	=	ug/m3	0.0088	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.074	=	ug/m3	0.0077	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.13	=	ug/m3	0.0077	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,3-Butadiene	0.095	=	ug/m3	0.015	0.053
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.0089	U	ug/m3	0.0089	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.62	=	ug/m3	0.0085	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	1,4-Dioxane	0.031	J	ug/m3	0.0089	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	2-Butanone	2.3	=	ug/m3	0.12	1.1
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	2-Hexanone	0.18	J	ug/m3	0.069	0.57
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	0.57	=	ug/m3	0.077	0.56
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Acetone	17	=	ug/m3	0.059	2.6
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Acetonitrile	0.55	U	ug/m3	0.14	0.55
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Acrolein	0.43	=	ug/m3	0.041	0.21
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Acrylonitrile	0.12	U	ug/m3	0.12	0.55
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Benzene	0.66	=	ug/m3	0.021	0.079
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Benzyl chloride	0.13	U	ug/m3	0.13	1.2
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Bromodichloromethane	0.0072	U	ug/m3	0.0072	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Bromoform	0.12	U	ug/m3	0.12	0.56

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Bromomethane	0.016	J	ug/m3	0.0098	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Carbon Disulfide	0.17	U	ug/m3	0.17	1.2
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.54	=	ug/m3	0.26	0.53
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Chloroethane	0.0089	U	ug/m3	0.0089	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Chloroform	0.16	=	ug/m3	0.019	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Chloromethane	0.26	=	ug/m3	0.02	0.053
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.0097	U	ug/m3	0.0097	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0065	U	ug/m3	0.0065	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Cyclohexane	1.1	=	ug/m3	0.16	1.1
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Dichlorodifluoromethane	1.4	J	ug/m3	0.018	0.053
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Dichloromethane	1	=	ug/m3	0.014	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	ETHANOL	92	=	ug/m3	0.39	5.4
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Ethylbenzene	0.44	=	ug/m3	0.01	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.6	=	ug/m3	0.23	2.2
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.0098	U	ug/m3	0.0098	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	n-Butanol	1	J	ug/m3	0.15	1.1
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	n-Hexane	8.7	=	ug/m3	0.12	0.57
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Propene	1.9	=	ug/m3	0.14	0.55
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Styrene	1.5	=	ug/m3	0.0078	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Tetrachloroethene	0.075	=	ug/m3	0.0086	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Toluene	20	=	ug/m3	0.012	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0058	U	ug/m3	0.0058	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Trichloroethylene	0.052	=	ug/m3	0.0089	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Trichlorofluoromethane	0.77	=	ug/m3	0.016	0.053
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.26	=	ug/m3	0.0093	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Vinyl Acetate	1.3	U	ug/m3	1.3	5.6
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Vinyl Chloride	0.008	U	ug/m3	0.008	0.026
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Xylene, o	0.57	=	ug/m3	0.0093	0.11
[redacted]	[redacted]	PMC-02-IN01-110918	IA	N	11/9/2018	Xylenes, m & p	1.6	=	ug/m3	0.02	0.11
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0091	U	ug/m3	0.0091	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0095	U	ug/m3	0.0095	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.23	J	ug/m3	0.11	0.81
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.078
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.95	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.37	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.18	=	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.27	=	ug/m3	0.011	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,3-Butadiene	0.11	=	ug/m3	0.022	0.078
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.97	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	1,4-Dioxane	0.032	J	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	2-Butanone	5.3	=	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	2-Hexanone	0.31	J	ug/m3	0.1	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	1.4	=	ug/m3	0.11	0.82
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Acetone	39	=	ug/m3	0.087	3.9
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Acetonitrile	0.2	U	ug/m3	0.2	0.81
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Acrolein	0.88	=	ug/m3	0.06	0.31
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Acrylonitrile	0.17	U	ug/m3	0.17	0.81
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Benzene	1	=	ug/m3	0.031	0.12
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Bromoform	0.17	U	ug/m3	0.17	0.82
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Bromomethane	0.031	J	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Carbon Disulfide	0.29	J	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.39	U	ug/m3	0.39	0.78
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Chloroethane	0.013	U	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Chloroform	0.39	=	ug/m3	0.028	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Chloromethane	0.39	=	ug/m3	0.029	0.078
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0096	U	ug/m3	0.0096	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Cyclohexane	2.6	=	ug/m3	0.23	1.6
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Dichlorodifluoromethane	2	J	ug/m3	0.026	0.078
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Dichloromethane	2	=	ug/m3	0.02	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	ETHANOL	380	=	ug/m3	0.57	7.9
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Ethylbenzene	0.99	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	10	=	ug/m3	0.34	3.3
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	n-Butanol	2	=	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	n-Hexane	18	=	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Propene	4.3	=	ug/m3	0.2	0.81
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Styrene	1.5	=	ug/m3	0.011	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Tetrachloroethene	0.11	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Toluene	43	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0085	U	ug/m3	0.0085	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Trichloroethylene	0.13	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.023	0.078
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.37	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.2
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Xylene, o	1.1	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-02-IN02-110918	IA	N	11/9/2018	Xylenes, m & p	3.1	=	ug/m3	0.029	0.16
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,1,1-Trichloroethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,1,2-Trichloroethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dibromoethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.61	U	UG/M3	0.61	0.61

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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dichloroethane	2	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,2-Dichloropropane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,3-Butadiene	0.24	U	UG/M3	0.24	0.24
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,3-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,4-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	1,4-Dioxane	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	2-Butanone	6.1	U	UG/M3	6.1	6.1
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	2-Hexanone	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	4-Ethyltoluene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	4-Methyl-2-Pentanone	1.1	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Acetone	13	=	UG/M3	6.6	6.6
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Acetonitrile	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Acrolein	2.4	U	UG/M3	2.4	2.4
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Acrylonitrile	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Allyl chloride	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	alpha-Pinene	4.3	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Benzene	1	J	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Benzyl chloride	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Bromodichloromethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Bromoform	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Bromomethane	0.24	U	UG/M3	0.24	0.24
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Carbon Disulfide	6.1	U	UG/M3	6.1	6.1
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Carbon tetrachloride	0.41	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Chlorobenzene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Chlorodibromomethane	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Chloroethane	0.24	U	UG/M3	0.24	0.24
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Chloroform	0.19	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Chloromethane	0.69	=	UG/M3	0.24	0.24
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Cyclohexane	1.2	U	UG/M3	1.2	1.2
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Dichloromethane	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	D-Limonene	8.2	J	UG/M3	0.66	0.66
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	ETHANOL	35	=	UG/M3	6.6	6.6
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Ethyl acetate	64	J	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Ethylbenzene	1.8	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Freon 113	0.49	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Hexachlorobutadiene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.1	U	UG/M3	6.1	6.1
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Isopropylbenzene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Methyl methacrylate	1.2	U	UG/M3	1.2	1.2
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Naphthalene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	N-Butyl Acetate	2.2	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	N-HEPTANE	0.61	U	UG/M3	0.61	0.61

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PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	n-Hexane	1.4	=	UG/M3	0.66	0.66
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Nonane	0.94	=	UG/M3	0.66	0.66
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	n-Propylbenzene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	OCTANE	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Propene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Styrene	1.5	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Tetrachloroethene	0.16	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Tetrahydrofuran	1.3	=	UG/M3	0.66	0.66
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Toluene	6.6	=	UG/M3	0.66	0.66
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.61	U	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Trichloroethylene	0.18	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Vinyl Acetate	6.1	U	UG/M3	6.1	6.1
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Vinyl Chloride	0.12	U	UG/M3	0.12	0.12
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Xylene, o	2.7	=	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-1	IA	N	1/19/2018	Xylenes, m & p	9	J	UG/M3	0.61	0.61
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dichloroethane	1.7	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	1,4-Dioxane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	2-Butanone	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	2-Hexanone	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	4-Ethyltoluene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Acetone	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Acetonitrile	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Acrolein	3	U	UG/M3	3	3
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Acrylonitrile	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	alpha-Pinene	6.9	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Benzene	0.6	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Benzyl chloride	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Bromoform	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Carbon Disulfide	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Carbon tetrachloride	0.42	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Chloroform	0.17	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Chloromethane	0.59	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Dichloromethane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	D-Limonene	3.4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	ETHANOL	16	=	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Ethyl acetate	12	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Ethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Hexachlorobutadiene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Isopropylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Naphthalene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	N-Butyl Acetate	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	N-HEPTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	n-Hexane	0.79	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Nonane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	n-Propylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	OCTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Propene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Styrene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Tetrachloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Tetrahydrofuran	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Toluene	1.4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Trichloroethylene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Vinyl Acetate	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Xylene, o	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-2	IA	N	1/19/2018	Xylenes, m & p	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dichloroethane	1.3	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	1,4-Dioxane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	2-Butanone	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	2-Hexanone	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	4-Ethyltoluene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	4-Methyl-2-Pentanone	1.8	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Acetone	7.6	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Acetonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Acrolein	2.8	U	UG/M3	2.8	2.8
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Acrylonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	alpha-Pinene	7.2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Benzene	0.61	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Benzyl chloride	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Bromoform	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Carbon Disulfide	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Carbon tetrachloride	0.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Chloroform	0.16	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Chloromethane	0.54	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Dichlorodifluoromethane	2.2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Dichloromethane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	D-Limonene	2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	ETHANOL	14	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Ethyl acetate	10	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Ethylbenzene	1.8	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Freon 113	0.45	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Hexachlorobutadiene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.1	U	UG/M3	7.1	7.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Isopropylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Naphthalene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	N-Butyl Acetate	6.3	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	N-HEPTANE	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	n-Hexane	1.5	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Nonane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	n-Propylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	OCTANE	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Propene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Styrene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Tetrahydrofuran	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Toluene	4.5	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Vinyl Acetate	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Xylene, o	2.7	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_011918_IA-3	IA	N	1/19/2018	Xylenes, m & p	9.1	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dichloroethane	2.7	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	1,4-Dioxane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	2-Butanone	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	2-Hexanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	4-Ethyltoluene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Acetone	8.3	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Acetonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Acrylonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	alpha-Pinene	13	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Benzene	0.34	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Benzyl chloride	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Bromoform	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Carbon Disulfide	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Carbon tetrachloride	0.52	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Chloromethane	0.72	=	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Dichlorodifluoromethane	2.6	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Dichloromethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	D-Limonene	0.89	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	ETHANOL	64	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Ethyl acetate	10	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Ethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Freon 113	0.47	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Hexachlorobutadiene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Isopropylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Naphthalene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	N-Butyl Acetate	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	N-HEPTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	n-Hexane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Nonane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	n-Propylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	OCTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Propene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Styrene	1.3	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Tetrachloroethene	0.62	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Tetrahydrofuran	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Toluene	1.6	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Trichloroethylene	0.16	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Vinyl Acetate	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Xylene, o	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-2	IA	N	4/5/2017	Xylenes, m & p	1	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,1-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dichloroethane	2.9	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,3-Butadiene	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	1,4-Dioxane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	2-Butanone	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	2-Hexanone	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	4-Ethyltoluene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Acetone	10	=	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Acetonitrile	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Acrolein	2.9	U	ug/m3	2.9	2.9
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Acrylonitrile	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	alpha-Pinene	9.9	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Benzene	0.33	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Benzyl chloride	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Bromodichloromethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Bromoform	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Bromomethane	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Carbon Disulfide	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Carbon tetrachloride	0.46	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Chlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Chloroethane	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Chloroform	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Chloromethane	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Cyclohexane	1.4	U	ug/m3	1.4	1.4
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Dichlorodifluoromethane	2.6	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Dichloromethane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	D-Limonene	0.76	=	ug/m3	0.72	0.72

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	ETHANOL	51	=	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Ethyl acetate	10	=	ug/m3	1.4	1.4
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Ethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Freon 113	0.5	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Hexachlorobutadiene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Isopropylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Methyl methacrylate	1.4	U	ug/m3	1.4	1.4
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Naphthalene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	N-Butyl Acetate	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	N-HEPTANE	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	n-Hexane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Nonane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	n-Propylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	OCTANE	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Propene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Styrene	1.9	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Tetrachloroethene	0.67	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Tetrahydrofuran	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Toluene	1.1	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Trichloroethylene	0.15	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Vinyl Acetate	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Vinyl Chloride	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Xylene, o	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_040517_IA-DUP-1	IA	N	4/5/2017	Xylenes, m & p	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dichloroethane	2.5	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	1,4-Dioxane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	2-Butanone	8	U	ug/m3	8	8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	2-Hexanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	4-Ethyltoluene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Acetone	9.9	=	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Acetonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Acrylonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	alpha-Pinene	6.1	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Benzene	0.37	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Benzyl chloride	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Bromoform	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Carbon Disulfide	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Carbon tetrachloride	0.36	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Chloroform	0.18	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Chloromethane	0.4	=	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Dichloromethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	D-Limonene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	ETHANOL	86	=	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Ethyl acetate	3.6	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Ethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Freon 113	0.42	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Hexachlorobutadiene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Isopropylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Naphthalene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	N-Butyl Acetate	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	N-HEPTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	n-Hexane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Nonane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	n-Propylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	OCTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Propene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Styrene	3.9	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Tetrachloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Tetrahydrofuran	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Toluene	1.5	=	ug/m3	0.8	0.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Trichloroethylene	0.61	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Vinyl Acetate	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Xylene, o	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-1	IA	N	6/2/2017	Xylenes, m & p	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dichloroethane	2.1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	1,4-Dioxane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	2-Butanone	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	2-Hexanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	4-Ethyltoluene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Acetone	20	=	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Acetonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Acrylonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	alpha-Pinene	13	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Benzene	0.29	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Benzyl chloride	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Bromoform	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Carbon Disulfide	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Carbon tetrachloride	0.35	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Chloroform	0.22	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Chloromethane	0.39	=	ug/m3	0.32	0.32

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Dichloromethane	1.1	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	D-Limonene	2.7	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	ETHANOL	290	=	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Ethyl acetate	3.8	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Ethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Freon 113	0.43	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Hexachlorobutadiene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Isopropylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Naphthalene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	N-Butyl Acetate	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	N-HEPTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	n-Hexane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Nonane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	n-Propylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	OCTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Propene	0.98	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Styrene	3	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Tetrachloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Tetrahydrofuran	0.97	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Toluene	1.9	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Vinyl Acetate	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Xylene, o	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-2	IA	N	6/2/2017	Xylenes, m & p	0.99	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dichloroethane	5.4	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,3-Butadiene	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	1,4-Dioxane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	2-Butanone	8.2	U	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	2-Hexanone	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	4-Ethyltoluene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Acetone	26	=	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Acetonitrile	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Acrolein	3.3	U	ug/m3	3.3	3.3
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Acrylonitrile	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	alpha-Pinene	22	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Benzene	0.29	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Benzyl chloride	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Bromoform	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Bromomethane	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Carbon Disulfide	8.2	U	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Carbon tetrachloride	0.35	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Chloroethane	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Chloroform	0.29	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Chloromethane	0.39	=	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Dichloromethane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	D-Limonene	3.5	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	ETHANOL	490	=	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Ethyl acetate	3.3	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Ethylbenzene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Freon 113	0.44	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Hexachlorobutadiene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.2	U	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Isopropylbenzene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Naphthalene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	N-Butyl Acetate	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	N-HEPTANE	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	n-Hexane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Nonane	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	n-Propylbenzene	0.82	U	ug/m3	0.82	0.82

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	OCTANE	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Propene	1	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Styrene	3.2	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Tetrachloroethene	0.23	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Tetrahydrofuran	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Toluene	1.7	=	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Vinyl Acetate	8.2	U	ug/m3	8.2	8.2
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Xylene, o	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_060217_IA-3	IA	N	6/2/2017	Xylenes, m & p	0.82	U	ug/m3	0.82	0.82
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,1,1-Trichloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,1,2-Trichloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dibromoethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dichloroethane	8.2	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,2-Dichloropropane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,3-Butadiene	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,3-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,4-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	1,4-Dioxane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	2-Butanone	5.5	U	UG/M3	5.5	5.5
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	2-Hexanone	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	4-Ethyltoluene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.85	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Acetone	18	=	UG/M3	5.5	5.5
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Acetonitrile	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Acrolein	2.2	U	UG/M3	2.2	2.2
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Acrylonitrile	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Allyl chloride	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	alpha-Pinene	15	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Benzene	0.3	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Benzyl chloride	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Bromodichloromethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Bromoform	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Bromomethane	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Carbon Disulfide	5.5	U	UG/M3	5.5	5.5

Attachment H-4
Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Carbon tetrachloride	0.35	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Chlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Chlorodibromomethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Chloroethane	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Chloroform	0.2	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Chloromethane	0.42	=	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Cyclohexane	1.1	U	UG/M3	1.1	1.1
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Dichlorodifluoromethane	1.7	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Dichloromethane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	D-Limonene	2.6	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	ETHANOL	110	=	UG/M3	5.5	5.5
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Ethyl acetate	3.7	=	UG/M3	1.1	1.1
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Ethylbenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Freon 113	0.36	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Hexachlorobutadiene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	5.5	U	UG/M3	5.5	5.5
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Isopropylbenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Methyl methacrylate	1.1	U	UG/M3	1.1	1.1
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Naphthalene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	N-Butyl Acetate	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	N-HEPTANE	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	n-Hexane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Nonane	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	n-Propylbenzene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	OCTANE	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Propene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Styrene	5.7	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Tetrachloroethene	0.12	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Tetrahydrofuran	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Toluene	2.6	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Trichloroethylene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Trichlorofluoromethane	1.1	=	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Vinyl Acetate	5.5	U	UG/M3	5.5	5.5
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Vinyl Chloride	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Xylene, o	0.55	U	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-1	IA	N	9/13/2017	Xylenes, m & p	0.85	=	UG/M3	0.55	0.55
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.71	U	UG/M3	0.71	0.71

Attachment H-4
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PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dichloroethane	6.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	1,4-Dioxane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	2-Butanone	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	2-Hexanone	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	4-Ethyltoluene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.97	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Acetone	39	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Acetonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Acrolein	2.8	U	UG/M3	2.8	2.8
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Acrylonitrile	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	alpha-Pinene	28	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Benzene	0.43	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Benzyl chloride	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Bromoform	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Carbon Disulfide	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Carbon tetrachloride	0.55	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Chloroform	0.42	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Chloromethane	0.53	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Dichloromethane	1.4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	D-Limonene	5.2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	ETHANOL	540	=	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Ethyl acetate	5.4	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Ethylbenzene	0.77	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Hexachlorobutadiene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Isopropylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Naphthalene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	N-Butyl Acetate	1.4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	N-HEPTANE	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	n-Hexane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Nonane	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	n-Propylbenzene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	OCTANE	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Propene	1.2	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Styrene	4.4	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Tetrachloroethene	0.15	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Tetrahydrofuran	3.3	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Toluene	5.9	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.71	U	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Trichloroethylene	0.39	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Vinyl Acetate	7.1	U	UG/M3	7.1	7.1
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Xylene, o	1.3	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-2	IA	N	9/13/2017	Xylenes, m & p	2.9	=	UG/M3	0.71	0.71
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dichloroethane	12	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	1,4-Dioxane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	2-Butanone	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	2-Hexanone	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	4-Ethyltoluene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.91	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Acetone	47	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Acetonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Acrolein	3.3	=	UG/M3	3	3
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Acrylonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Allyl chloride	0.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	alpha-Pinene	42	=	UG/M3	0.74	0.74

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Benzene	0.42	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Benzyl chloride	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Bromoform	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Carbon Disulfide	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Carbon tetrachloride	0.54	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Chloroform	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Chloromethane	0.53	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Dichloromethane	0.8	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	D-Limonene	7	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	ETHANOL	690	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Ethyl acetate	4.5	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Ethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Freon 113	0.47	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Hexachlorobutadiene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Isopropylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Naphthalene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	N-Butyl Acetate	1.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	N-HEPTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	n-Hexane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Nonane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	n-Propylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	OCTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Propene	1.2	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Styrene	4.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Tetrachloroethene	0.25	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Tetrahydrofuran	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Toluene	4.9	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Trichloroethylene	0.21	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Vinyl Acetate	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Xylene, o	1	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_003_091317_IA-3	IA	N	9/13/2017	Xylenes, m & p	2.2	=	UG/M3	0.74	0.74
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0094	U	ug/m3	0.0094	0.04

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.0097	U	ug/m3	0.0097	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.83
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.08
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.17	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2-Dichloroethane	2.4	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.023	J	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.042	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,3-Butadiene	0.022	U	ug/m3	0.022	0.08
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.046	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	1,4-Dioxane	0.022	J	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	2-Butanone	3.3	=	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	2-Hexanone	0.53	J	ug/m3	0.1	0.86
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.31	J	ug/m3	0.12	0.84
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Acetone	13	=	ug/m3	0.089	4
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Acrolein	1.3	=	ug/m3	0.062	0.32
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Acrylonitrile	0.17	U	ug/m3	0.17	0.83
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Benzene	0.19	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Bromoform	0.17	U	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Bromomethane	0.021	J	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.74	J	ug/m3	0.4	0.8
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Chloroethane	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Chloroform	0.12	J	ug/m3	0.029	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Chloromethane	0.03	U	ug/m3	0.03	0.08
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.0099	U	ug/m3	0.0099	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Cyclohexane	0.24	U	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Dichlorodifluoromethane	2	=	ug/m3	0.027	0.08
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Dichloromethane	0.3	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	ETHANOL	14	=	ug/m3	0.59	8.1
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Ethylbenzene	0.14	J	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.1	J	ug/m3	0.35	3.3
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	n-Butanol	2.1	=	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	n-Hexane	1.3	=	ug/m3	0.17	0.86
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Propene	1	=	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Styrene	2.8	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Tetrachloroethene	0.05	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Toluene	2.8	=	ug/m3	0.017	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Trichloroethylene	0.039	J	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Trichlorofluoromethane	1	=	ug/m3	0.024	0.08
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Vinyl Acetate	10	=	ug/m3	1.9	8.4
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Xylene, o	0.014	U	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-03-IN01-110818	IA	N	11/8/2018	Xylenes, m & p	0.47	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0085	U	ug/m3	0.0085	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.0088	U	ug/m3	0.0088	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.11	U	ug/m3	0.11	0.75
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.072
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.25	=	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2-Dichloroethane	1.7	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.015	J	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.058	J	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,3-Butadiene	0.023	J	ug/m3	0.02	0.072
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.2	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	1,4-Dioxane	0.021	J	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	2-Butanone	1.4	J	ug/m3	0.16	1.4
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	2-Hexanone	0.3	J	ug/m3	0.095	0.78
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.17	J	ug/m3	0.11	0.76
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Acetone	8	=	ug/m3	0.081	3.6
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Acetonitrile	0.19	U	ug/m3	0.19	0.75
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Acrolein	0.78	=	ug/m3	0.056	0.29
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Acrylonitrile	0.16	U	ug/m3	0.16	0.75
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Benzene	0.2	=	ug/m3	0.029	0.11
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Benzyl chloride	0.17	U	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Bromodichloromethane	0.0099	U	ug/m3	0.0099	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Bromoform	0.16	U	ug/m3	0.16	0.76
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Bromomethane	0.021	J	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Carbon Disulfide	0.23	U	ug/m3	0.23	1.6
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.64	J	ug/m3	0.36	0.72
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Chloroethane	0.012	U	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Chloroform	0.12	J	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Chloromethane	0.36	=	ug/m3	0.027	0.072
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.0089	U	ug/m3	0.0089	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Cyclohexane	0.22	U	ug/m3	0.22	1.4
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Dichlorodifluoromethane	2	=	ug/m3	0.024	0.072
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Dichloromethane	0.22	=	ug/m3	0.019	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	ETHANOL	13	=	ug/m3	0.53	7.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Ethylbenzene	0.15	=	ug/m3	0.014	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	J	ug/m3	0.32	3
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	n-Butanol	3	=	ug/m3	0.2	1.4
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	n-Hexane	0.17	J	ug/m3	0.16	0.78
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Propene	0.97	=	ug/m3	0.19	0.75
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Styrene	9.3	=	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Tetrachloroethene	0.038	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Toluene	0.86	=	ug/m3	0.016	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0079	U	ug/m3	0.0079	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Trichloroethylene	0.043	=	ug/m3	0.012	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Trichlorofluoromethane	1	=	ug/m3	0.022	0.072
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.013	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Vinyl Acetate	1.7	U	ug/m3	1.7	7.6
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Xylene, o	0.27	=	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-03-IN02-110818	IA	N	11/8/2018	Xylenes, m & p	0.53	=	ug/m3	0.027	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dichloroethane	0.32	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,3-Butadiene	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	1,4-Dioxane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	2-Butanone	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	2-Hexanone	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	4-Ethyltoluene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Acetone	9.5	=	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Acetonitrile	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Acrolein	2.7	U	UG/M3	2.7	2.7
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Acrylonitrile	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	alpha-Pinene	7.7	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Benzene	0.59	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Benzyl chloride	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Bromoform	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Bromomethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Carbon Disulfide	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Carbon tetrachloride	0.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Chloroethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Chloromethane	0.96	=	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Dichlorodifluoromethane	2.6	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Dichloromethane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	D-Limonene	4.8	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	ETHANOL	21	=	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Ethyl acetate	6.6	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Ethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Freon 113	0.54	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Hexachlorobutadiene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Isopropylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Naphthalene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	N-Butyl Acetate	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	N-HEPTANE	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	n-Hexane	0.82	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Nonane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	n-Propylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	OCTANE	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Propene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Styrene	1.3	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Tetrachloroethene	0.15	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Tetrahydrofuran	2.6	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Toluene	1.5	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Trichlorofluoromethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Vinyl Acetate	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Xylene, o	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-1	IA	N	1/19/2018	Xylenes, m & p	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dichloroethane	0.67	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	1,4-Dioxane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	2-Butanone	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	2-Hexanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	4-Ethyltoluene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Acetone	10	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Acetonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Acrylonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	alpha-Pinene	5.6	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Benzene	0.61	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Benzyl chloride	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Bromoform	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Carbon Disulfide	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Carbon tetrachloride	0.42	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Chloromethane	0.55	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Dichloromethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	D-Limonene	2.4	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	ETHANOL	35	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Ethyl acetate	5	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Ethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Freon 113	0.47	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	Hexachlorobutadiene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_011918_IA-2	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.2	U	UG/M3	7.2	7.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		1703205_004_011918_IA-2	IA	N	1/19/2018	Isopropylbenzene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
		1703205_004_011918_IA-2	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	Naphthalene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	N-Butyl Acetate	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	N-HEPTANE	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	n-Hexane	0.8	=	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Nonane	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	n-Propylbenzene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	OCTANE	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Propene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Styrene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	Tetrahydrofuran	4.8	=	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Toluene	0.99	=	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	Vinyl Acetate	7.2	U	UG/M3	7.2	7.2
		1703205_004_011918_IA-2	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
		1703205_004_011918_IA-2	IA	N	1/19/2018	Xylene, o	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-2	IA	N	1/19/2018	Xylenes, m & p	0.72	U	UG/M3	0.72	0.72
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dichloroethane	1.1	=	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
		1703205_004_011918_IA-3	IA	N	1/19/2018	1,4-Dioxane	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	2-Butanone	7.5	U	UG/M3	7.5	7.5
		1703205_004_011918_IA-3	IA	N	1/19/2018	2-Hexanone	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	4-Ethyltoluene	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	Acetone	9.8	=	UG/M3	7.5	7.5
		1703205_004_011918_IA-3	IA	N	1/19/2018	Acetonitrile	0.75	U	UG/M3	0.75	0.75
		1703205_004_011918_IA-3	IA	N	1/19/2018	Acrolein	3	U	UG/M3	3	3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Acrylonitrile	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	alpha-Pinene	5.2	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Benzene	0.62	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Benzyl chloride	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Bromoform	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Carbon Disulfide	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Carbon tetrachloride	0.44	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Chloroform	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Chloromethane	0.52	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Dichloromethane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	D-Limonene	1.5	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	ETHANOL	29	=	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Ethyl acetate	3.1	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Ethylbenzene	0.9	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Freon 113	0.47	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Hexachlorobutadiene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Isopropylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Naphthalene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	N-Butyl Acetate	1.4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	N-HEPTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	n-Hexane	0.91	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Nonane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	n-Propylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	OCTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Propene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Styrene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Tetrachloroethene	0.17	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Tetrahydrofuran	4.1	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Toluene	2.8	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Trichloroethylene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Vinyl Acetate	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Xylene, o	1.4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_011918_IA-3	IA	N	1/19/2018	Xylenes, m & p	4.5	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dichloroethane	0.83	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	1,4-Dioxane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	2-Butanone	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	2-Hexanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	4-Ethyltoluene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Acetone	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Acetonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Acrylonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	alpha-Pinene	12	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Benzene	0.36	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Benzyl chloride	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Bromoform	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Carbon Disulfide	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Carbon tetrachloride	0.47	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Dichlorodifluoromethane	2.8	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Dichloromethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	D-Limonene	0.76	U	ug/m3	0.76	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	ETHANOL	11	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Ethyl acetate	1.7	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Ethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Freon 113	0.47	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Hexachlorobutadiene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Isopropylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Naphthalene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	N-Butyl Acetate	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	N-HEPTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	n-Hexane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Nonane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	n-Propylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	OCTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Propene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Styrene	2.4	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Tetrachloroethene	0.73	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Tetrahydrofuran	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Toluene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Trichloroethylene	0.27	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Vinyl Acetate	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Xylene, o	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-1	IA	N	4/5/2017	Xylenes, m & p	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dichloroethane	0.97	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	1,4-Dioxane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	2-Butanone	7.6	U	ug/m3	7.6	7.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	2-Hexanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	4-Ethyltoluene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Acetone	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Acetonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Acrylonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	alpha-Pinene	9.4	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Benzene	0.31	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Benzyl chloride	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Bromoform	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Carbon Disulfide	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Carbon tetrachloride	0.5	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Dichlorodifluoromethane	2.8	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Dichloromethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	D-Limonene	0.76	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	ETHANOL	18	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Ethyl acetate	7.7	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Ethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Freon 113	0.44	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Hexachlorobutadiene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Isopropylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Naphthalene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	N-Butyl Acetate	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	N-HEPTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	n-Hexane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Nonane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	n-Propylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	OCTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Propene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Styrene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Tetrachloroethene	0.39	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Tetrahydrofuran	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Toluene	0.94	=	ug/m3	0.76	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Trichloroethylene	0.18	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Vinyl Acetate	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Xylene, o	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_040517_IA-2	IA	N	4/5/2017	Xylenes, m & p	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dichloroethane	1.2	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	1,4-Dioxane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	2-Butanone	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	2-Hexanone	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	4-Ethyltoluene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Acetone	23	=	ug/m3	8.6	8.6
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Acetonitrile	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Acrylonitrile	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	alpha-Pinene	24	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Benzene	0.29	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Benzyl chloride	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Bromoform	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Carbon Disulfide	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Carbon tetrachloride	0.37	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Chloroform	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Chloromethane	0.65	=	ug/m3	0.34	0.34

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.86	0.86
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Dichloromethane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	D-Limonene	1.1	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	ETHANOL	50	=	ug/m3	8.6	8.6
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Ethyl acetate	2	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Ethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Freon 113	0.44	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Hexachlorobutadiene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Isopropylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Naphthalene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	N-Butyl Acetate	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	N-HEPTANE	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	n-Hexane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Nonane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	n-Propylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	OCTANE	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Propene	0.93	=	ug/m3	0.86	0.86
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Styrene	4	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Tetrachloroethene	0.18	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Tetrahydrofuran	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Toluene	1	=	ug/m3	0.86	0.86
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Vinyl Acetate	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Xylene, o	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-1	IA	N	6/2/2017	Xylenes, m & p	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dichloroethane	1.8	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	1,4-Dioxane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	2-Butanone	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	2-Hexanone	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	4-Ethyltoluene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Acetone	15	=	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Acetonitrile	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Acrylonitrile	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	alpha-Pinene	19	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Benzene	0.26	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Benzyl chloride	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Bromoform	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Carbon Disulfide	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Carbon tetrachloride	0.39	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Chloroform	0.17	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Chloromethane	0.43	=	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Dichloromethane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	D-Limonene	1.4	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	ETHANOL	71	=	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Ethyl acetate	2.4	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Ethylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Freon 113	0.45	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Hexachlorobutadiene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Isopropylbenzene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Naphthalene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	N-Butyl Acetate	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	N-HEPTANE	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	n-Hexane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Nonane	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	n-Propylbenzene	0.81	U	ug/m3	0.81	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	OCTANE	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Propene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Styrene	1.6	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Tetrachloroethene	0.42	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Tetrahydrofuran	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Toluene	1.2	=	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Vinyl Acetate	8.1	U	ug/m3	8.1	8.1
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Xylene, o	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-2	IA	N	6/2/2017	Xylenes, m & p	0.81	U	ug/m3	0.81	0.81
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dichloroethane	3.5	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	1,4-Dioxane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	2-Butanone	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	2-Hexanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	4-Ethyltoluene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Acetone	17	=	ug/m3	8	8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Acetonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Acrylonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	alpha-Pinene	24	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Benzene	0.41	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Benzyl chloride	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Bromoform	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Carbon Disulfide	8	U	ug/m3	8	8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Carbon tetrachloride	0.38	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Chloroform	0.16	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Chloromethane	0.41	=	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Dichloromethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	D-Limonene	1.9	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	ETHANOL	81	=	ug/m3	8	8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Ethyl acetate	2	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Ethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Freon 113	0.44	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Hexachlorobutadiene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Isopropylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Naphthalene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	N-Butyl Acetate	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	N-HEPTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	n-Hexane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Nonane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	n-Propylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	OCTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Propene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Styrene	1.4	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Tetrachloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Tetrahydrofuran	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Toluene	1.2	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Vinyl Acetate	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Xylene, o	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_060217_IA-3	IA	N	6/2/2017	Xylenes, m & p	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dichloroethane	2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	1,4-Dioxane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	2-Butanone	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	2-Hexanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	4-Ethyltoluene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Acetone	31	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Acetonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Acrylonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	alpha-Pinene	47	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Benzene	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Benzyl chloride	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Bromoform	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Carbon Disulfide	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Carbon tetrachloride	0.44	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Chloromethane	0.57	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Dichloromethane	0.96	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	D-Limonene	4.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	ETHANOL	32	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Ethyl acetate	2.3	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Ethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Hexachlorobutadiene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Isopropylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Naphthalene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	N-Butyl Acetate	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	N-HEPTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	n-Hexane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Nonane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	n-Propylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	OCTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Propene	0.79	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Styrene	9.8	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Tetrachloroethene	0.18	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Tetrahydrofuran	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Toluene	2.1	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Trichlorofluoromethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Vinyl Acetate	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Xylene, o	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-1	IA	N	9/13/2017	Xylenes, m & p	1.1	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dichloroethane	2.9	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	1,4-Dioxane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	2-Butanone	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	2-Hexanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	4-Ethyltoluene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Acetone	29	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Acetonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Acrylonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	alpha-Pinene	34	=	UG/M3	0.72	0.72

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Benzene	0.44	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Benzyl chloride	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Bromoform	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Carbon Disulfide	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Carbon tetrachloride	0.48	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Chloroform	0.16	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Chloromethane	0.48	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Dichloromethane	1.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	D-Limonene	4.9	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	ETHANOL	83	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Ethyl acetate	2.5	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Ethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Hexachlorobutadiene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Isopropylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Naphthalene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	N-Butyl Acetate	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	N-HEPTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	n-Hexane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Nonane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	n-Propylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	OCTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Propene	0.8	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Styrene	3.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Tetrahydrofuran	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Toluene	2.2	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Trichlorofluoromethane	1.3	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Vinyl Acetate	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Xylene, o	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-2	IA	N	9/13/2017	Xylenes, m & p	1.1	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,1,1-Trichloroethane	0.13	U	UG/M3	0.13	0.13

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,1,2-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dibromoethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dichloroethane	10	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,2-Dichloropropane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,3-Butadiene	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,3-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,4-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	1,4-Dioxane	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	2-Butanone	6.4	U	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	2-Hexanone	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	4-Ethyltoluene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	4-Methyl-2-Pentanone	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Acetone	41	=	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Acetonitrile	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Acrolein	2.5	U	UG/M3	2.5	2.5
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Acrylonitrile	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Allyl chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	alpha-Pinene	29	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Benzene	0.48	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Benzyl chloride	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Bromodichloromethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Bromoform	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Bromomethane	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Carbon Disulfide	6.4	U	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Carbon tetrachloride	0.36	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Chlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Chlorodibromomethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Chloroethane	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Chloroform	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Chloromethane	0.36	=	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Cyclohexane	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Dichlorodifluoromethane	1.8	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Dichloromethane	0.98	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	D-Limonene	3.6	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	ETHANOL	67	=	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Ethyl acetate	2.3	=	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Ethylbenzene	0.64	U	UG/M3	0.64	0.64

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Freon 113	0.36	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Hexachlorobutadiene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.4	U	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Isopropylbenzene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Methyl methacrylate	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Naphthalene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	N-Butyl Acetate	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	N-HEPTANE	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	n-Hexane	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Nonane	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	n-Propylbenzene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	OCTANE	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Propene	1.2	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Styrene	0.98	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Tetrachloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Tetrahydrofuran	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Toluene	2.2	=	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Trichloroethylene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Trichlorofluoromethane	1	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Vinyl Acetate	6.4	U	UG/M3	6.4	6.4
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Vinyl Chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Xylene, o	0.64	U	UG/M3	0.64	0.64
[redacted]	[redacted]	1703205_004_091317_IA-3	IA	N	9/13/2017	Xylenes, m & p	0.85	=	UG/M3	0.64	0.64
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0087	U	ug/m3	0.0087	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0097	J	ug/m3	0.0096	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.11	U	ug/m3	0.11	0.77
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.074
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.31	=	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.3	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.042	=	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.073	J	ug/m3	0.011	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,3-Butadiene	0.038	J	ug/m3	0.022	0.079
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.062	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	1,4-Dioxane	0.021	J	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	2-Butanone	2.5	=	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	2-Hexanone	0.45	J	ug/m3	0.1	0.85
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	0.37	J	ug/m3	0.11	0.83
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Acetone	16	=	ug/m3	0.088	3.9
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Acetonitrile	0.2	U	ug/m3	0.2	0.82

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Acrolein	1.1	=	ug/m3	0.061	0.31
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Acrylonitrile	0.16	U	ug/m3	0.16	0.77
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Benzene	0.38	=	ug/m3	0.031	0.12
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Benzyl chloride	0.18	U	ug/m3	0.18	1.6
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Bromodichloromethane	0.03	J	ug/m3	0.011	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Bromoform	0.16	U	ug/m3	0.16	0.78
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Bromomethane	0.024	J	ug/m3	0.015	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Carbon Disulfide	0.24	U	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.76	J	ug/m3	0.39	0.79
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Chloroethane	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Chloroform	0.14	J	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Chloromethane	0.37	=	ug/m3	0.028	0.074
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Cyclohexane	0.44	J	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Dichlorodifluoromethane	1.8	J	ug/m3	0.025	0.074
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Dichloromethane	0.66	=	ug/m3	0.02	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	ETHANOL	21	=	ug/m3	0.58	8
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Ethylbenzene	0.21	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.3	=	ug/m3	0.35	3.3
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	n-Butanol	1.5	J	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	n-Hexane	3.3	=	ug/m3	0.17	0.85
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Propene	3.2	=	ug/m3	0.2	0.82
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Styrene	2.4	=	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Tetrachloroethene	0.16	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Toluene	10	J	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0081	U	ug/m3	0.0081	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Trichloroethylene	0.048	=	ug/m3	0.013	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Trichlorofluoromethane	1	=	ug/m3	0.022	0.074
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.014	0.039
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Vinyl Acetate	4.4	J	ug/m3	1.9	8.3
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Xylene, o	0.29	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-04-IN01-110918	IA	N	11/9/2018	Xylenes, m & p	0.7	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0094	U	ug/m3	0.0094	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.016	J	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0097	U	ug/m3	0.0097	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.83
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.08
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.23	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.61	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.021	J	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.06	J	ug/m3	0.012	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,3-Butadiene	0.022	U	ug/m3	0.022	0.08
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.049	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	1,4-Dioxane	0.021	J	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	2-Butanone	0.65	J	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	2-Hexanone	0.15	J	ug/m3	0.1	0.86
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	0.15	J	ug/m3	0.12	0.84
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Acetone	16	=	ug/m3	0.089	4
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Acetonitrile	0.83	U	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Acrolein	0.68	=	ug/m3	0.062	0.32
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Acrylonitrile	0.17	U	ug/m3	0.17	0.83
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Benzene	0.37	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Bromodichloromethane	0.049	=	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Bromoform	0.17	U	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Bromomethane	0.034	J	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.72	J	ug/m3	0.4	0.8
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Chloroethane	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Chloroform	0.18	=	ug/m3	0.029	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Chloromethane	0.39	=	ug/m3	0.03	0.08
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0099	U	ug/m3	0.0099	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Cyclohexane	0.24	U	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Dichlorodifluoromethane	1.8	J	ug/m3	0.027	0.08
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Dichloromethane	0.37	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	ETHANOL	67	=	ug/m3	0.59	8.1
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Ethylbenzene	0.16	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	14	=	ug/m3	0.35	3.3
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	n-Butanol	1.1	J	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	n-Hexane	0.58	J	ug/m3	0.17	0.86
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Propene	6.1	=	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Styrene	1	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Tetrachloroethene	0.2	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Toluene	2	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Trichloroethylene	0.021	J	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.024	0.08
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.4
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Xylene, o	0.21	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-04-IN02-110918	IA	N	11/9/2018	Xylenes, m & p	0.51	=	ug/m3	0.03	0.16
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,1,1-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,1,2-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethane	0.13	U	UG/M3	0.13	0.13

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dibromoethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,2-Dichloropropane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,3-Butadiene	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,3-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,4-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	1,4-Dioxane	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	2-Butanone	11	=	UG/M3	6.3	6.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	2-Hexanone	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	4-Ethyltoluene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Acetone	45	=	UG/M3	6.3	6.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Acetonitrile	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Acrolein	2.5	U	UG/M3	2.5	2.5
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Acrylonitrile	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Allyl chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	alpha-Pinene	5.9	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Benzene	0.72	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Benzyl chloride	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Bromodichloromethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Bromoform	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Bromomethane	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Carbon Disulfide	6.3	U	UG/M3	6.3	6.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Carbon tetrachloride	0.39	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Chlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Chlorodibromomethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Chloroethane	0.25	U	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Chloroform	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Chloromethane	0.58	=	UG/M3	0.25	0.25
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Cyclohexane	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Dichloromethane	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	D-Limonene	3.4	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	ETHANOL	16	=	UG/M3	6.3	6.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Ethyl acetate	23	=	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Ethylbenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Hexachlorobutadiene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.3	U	UG/M3	6.3	6.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Isopropylbenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Methyl methacrylate	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Naphthalene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	N-Butyl Acetate	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	N-HEPTANE	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	n-Hexane	0.83	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Nonane	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	n-Propylbenzene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	OCTANE	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Propene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Styrene	0.7	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Tetrachloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Tetrahydrofuran	49	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Toluene	2.1	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Trichloroethylene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Vinyl Acetate	6.3	U	UG/M3	6.3	6.3
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Vinyl Chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Xylene, o	0.63	U	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-1	IA	N	1/19/2018	Xylenes, m & p	0.7	=	UG/M3	0.63	0.63
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	1,4-Dioxane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	2-Butanone	23	=	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	2-Hexanone	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	4-Ethyltoluene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Acetone	100	=	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Acetonitrile	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Acrolein	2.8	U	UG/M3	2.8	2.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Acrylonitrile	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	alpha-Pinene	10	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Benzene	0.7	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Benzyl chloride	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Bromoform	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Carbon Disulfide	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Carbon tetrachloride	0.39	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Chloromethane	0.59	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Dichlorodifluoromethane	2.6	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Dichloromethane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	D-Limonene	4.6	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	ETHANOL	24	=	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Ethyl acetate	21	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Ethylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Freon 113	0.53	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Hexachlorobutadiene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Isopropylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Naphthalene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	N-Butyl Acetate	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	N-HEPTANE	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	n-Hexane	0.81	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Nonane	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	n-Propylbenzene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	OCTANE	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Propene	0.98	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Styrene	0.76	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Tetrahydrofuran	110	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Toluene	2.4	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Trichlorofluoromethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Vinyl Acetate	6.9	U	UG/M3	6.9	6.9
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Xylene, o	0.69	U	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-2	IA	N	1/19/2018	Xylenes, m & p	0.86	=	UG/M3	0.69	0.69
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	1,4-Dioxane	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	2-Butanone	21	=	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	2-Hexanone	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	4-Ethyltoluene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Acetone	80	=	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Acetonitrile	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Acrolein	3	U	UG/M3	3	3
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Acrylonitrile	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	alpha-Pinene	8.9	=	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Benzene	0.64	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Benzyl chloride	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Bromoform	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Carbon Disulfide	7.6	U	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Carbon tetrachloride	0.42	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Chloroform	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Chloromethane	0.61	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Dichlorodifluoromethane	2.5	=	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Dichloromethane	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	D-Limonene	3	=	UG/M3	0.76	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	ETHANOL	20	=	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Ethyl acetate	2	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Ethylbenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Freon 113	0.52	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Hexachlorobutadiene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Isopropylbenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Naphthalene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	N-Butyl Acetate	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	N-HEPTANE	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	n-Hexane	0.81	=	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Nonane	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	n-Propylbenzene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	OCTANE	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Propene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Styrene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Tetrachloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Tetrahydrofuran	100	=	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Toluene	1.2	=	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Trichloroethylene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Trichlorofluoromethane	1.3	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Vinyl Acetate	7.6	U	UG/M3	7.6	7.6
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Xylene, o	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_011918_IA-3	IA	N	1/19/2018	Xylenes, m & p	0.76	U	UG/M3	0.76	0.76
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2,4-Trichlorobenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2,4-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dibromo-3-chloropropane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,3,5-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,3-Butadiene	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	1,4-Dioxane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	2-Butanone	7.8	U	ug/m3	7.8	7.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	2-Hexanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	4-Ethyltoluene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	4-Methyl-2-Pentanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Acetone	17	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Acetonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Acrolein	3.1	U	ug/m3	3.1	3.1
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Acrylonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	alpha-Pinene	14	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Benzene	0.44	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Benzyl chloride	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Bromoform	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Bromomethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Carbon Disulfide	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Carbon tetrachloride	0.41	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Chloroethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Chloroform	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Chloromethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	cis-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Dichlorodifluoromethane	2.4	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Dichloromethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	D-Limonene	2.3	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	ETHANOL	190	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Ethyl acetate	14	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Ethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Freon 113	0.46	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Hexachlorobutadiene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Isopropylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Naphthalene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	N-Butyl Acetate	1.1	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	N-HEPTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	n-Hexane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Nonane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	n-Propylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	OCTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Propene	0.83	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Styrene	1.3	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Tetrachloroethene	0.27	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Tetrahydrofuran	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Toluene	1.5	=	ug/m3	0.78	0.78

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	trans-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Trichloroethylene	0.3	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Vinyl Acetate	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Xylene, o	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-1	IA	N	3/28/2017	Xylenes, m & p	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,1,1-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2,4-Trichlorobenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2,4-Trimethylbenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dibromo-3-chloropropane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,2-Dichloropropane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,3,5-Trimethylbenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,3-Butadiene	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,3-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,4-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	1,4-Dioxane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	2-Butanone	8.3	U	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	2-Hexanone	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	4-Ethyltoluene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	4-Methyl-2-Pentanone	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Acetone	27	=	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Acetonitrile	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Acrolein	3.3	U	ug/m3	3.3	3.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Acrylonitrile	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Allyl chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	alpha-Pinene	20	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Benzene	0.5	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Benzyl chloride	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Bromodichloromethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Bromoform	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Bromomethane	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Carbon Disulfide	8.3	U	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Carbon tetrachloride	0.42	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Chlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Chloroethane	0.33	U	ug/m3	0.33	0.33
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Chloroform	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Chloromethane	0.33	U	ug/m3	0.33	0.33

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	cis-1,3-Dichloropropene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Cyclohexane	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Dichlorodifluoromethane	2.4	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Dichloromethane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	D-Limonene	3.3	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	ETHANOL	350	=	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Ethyl acetate	30	=	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Ethylbenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Freon 113	0.47	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Hexachlorobutadiene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.3	U	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Isopropylbenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Methyl methacrylate	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Naphthalene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	N-Butyl Acetate	3.9	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	N-HEPTANE	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	n-Hexane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Nonane	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	n-Propylbenzene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	OCTANE	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Propene	1.9	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Styrene	1	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Tetrachloroethene	0.27	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Tetrahydrofuran	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Toluene	2.1	=	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	trans-1,3-Dichloropropene	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Trichloroethylene	0.3	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Vinyl Acetate	8.3	U	ug/m3	8.3	8.3
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Xylene, o	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_032817_IA-2	IA	N	3/28/2017	Xylenes, m & p	0.83	U	ug/m3	0.83	0.83
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,1,1-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,2-Dichloropropane	0.17	U	ug/m3	0.17	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,3-Butadiene	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,3-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,4-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	1,4-Dioxane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	2-Butanone	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	2-Hexanone	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	4-Ethyltoluene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Acetone	18	=	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Acetonitrile	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Acrolein	3.4	U	ug/m3	3.4	3.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Acrylonitrile	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Allyl chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	alpha-Pinene	10	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Benzene	0.34	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Benzyl chloride	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Bromodichloromethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Bromoform	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Bromomethane	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Carbon Disulfide	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Carbon tetrachloride	0.34	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Chlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Chloroethane	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Chloroform	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Chloromethane	0.35	=	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Cyclohexane	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Dichloromethane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	D-Limonene	1.5	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	ETHANOL	52	=	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Ethyl acetate	8.9	=	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Ethylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Freon 113	0.43	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Hexachlorobutadiene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Isopropylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Methyl methacrylate	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Naphthalene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	N-Butyl Acetate	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	N-HEPTANE	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	n-Hexane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Nonane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	n-Propylbenzene	0.84	U	ug/m3	0.84	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	OCTANE	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Propene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Styrene	1.9	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Tetrachloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Tetrahydrofuran	1.5	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Toluene	1.8	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Trichloroethylene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Vinyl Acetate	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Xylene, o	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-1	IA	N	6/2/2017	Xylenes, m & p	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	1,4-Dioxane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	2-Butanone	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	2-Hexanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	4-Ethyltoluene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Acetone	27	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Acetonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Acrylonitrile	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	alpha-Pinene	12	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Benzene	0.36	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Benzyl chloride	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Bromoform	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Carbon Disulfide	7.6	U	ug/m3	7.6	7.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Carbon tetrachloride	0.33	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Dichloromethane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	D-Limonene	3	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	ETHANOL	120	=	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Ethyl acetate	4.7	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Ethylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Freon 113	0.42	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Hexachlorobutadiene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Isopropylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Naphthalene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	N-Butyl Acetate	0.98	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	N-HEPTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	n-Hexane	0.94	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Nonane	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	n-Propylbenzene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	OCTANE	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Propene	1.3	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Styrene	1.4	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Tetrachloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Tetrahydrofuran	2	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Toluene	2.2	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Trichloroethylene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Trichlorofluoromethane	0.99	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Vinyl Acetate	7.6	U	ug/m3	7.6	7.6
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Xylene, o	0.76	U	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-2	IA	N	6/2/2017	Xylenes, m & p	1	=	ug/m3	0.76	0.76
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,1,1-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.84	U	ug/m3	0.84	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dichloroethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,2-Dichloropropane	0.29	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,3-Butadiene	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,3-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,4-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	1,4-Dioxane	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	2-Butanone	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	2-Hexanone	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	4-Ethyltoluene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	4-Methyl-2-Pentanone	1	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Acetone	39	=	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Acetonitrile	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Acrolein	3.4	U	ug/m3	3.4	3.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Acrylonitrile	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Allyl chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	alpha-Pinene	14	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Benzene	0.44	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Benzyl chloride	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Bromodichloromethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Bromoform	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Bromomethane	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Carbon Disulfide	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Carbon tetrachloride	0.34	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Chlorobenzene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Chloroethane	0.34	U	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Chloroform	0.23	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Chloromethane	0.39	=	ug/m3	0.34	0.34
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Cyclohexane	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Dichloromethane	1.3	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	D-Limonene	4	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	ETHANOL	170	=	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Ethyl acetate	12	=	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Ethylbenzene	0.97	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Freon 113	0.45	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Hexachlorobutadiene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Isopropylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Methyl methacrylate	1.7	U	ug/m3	1.7	1.7
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Naphthalene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	N-Butyl Acetate	2.6	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	N-HEPTANE	4.3	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	n-Hexane	1.1	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Nonane	1.3	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	n-Propylbenzene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	OCTANE	1.7	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Propene	1.9	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Styrene	1.5	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Tetrachloroethene	0.22	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Tetrahydrofuran	1.9	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Toluene	7.2	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Trichloroethylene	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Vinyl Acetate	8.4	U	ug/m3	8.4	8.4
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Xylene, o	1.1	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_060217_IA-3	IA	N	6/2/2017	Xylenes, m & p	3	=	ug/m3	0.84	0.84
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,1,1-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,1,2,2-Tetrachloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,1,2-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,1-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,1-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2,4-Trichlorobenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2,4-Trimethylbenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dibromo-3-chloropropane	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dibromoethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,2-Dichloropropane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,3,5-Trimethylbenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,3-Butadiene	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,3-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,4-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	1,4-Dioxane	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	2-Butanone	6.7	U	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	2-Hexanone	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	4-Ethyltoluene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	4-Methyl-2-Pentanone	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Acetone	10	=	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Acetonitrile	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Acrolein	2.7	U	UG/M3	2.7	2.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Acrylonitrile	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Allyl chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	alpha-Pinene	7.7	=	UG/M3	0.67	0.67

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Benzene	0.33	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Benzyl chloride	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Bromodichloromethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Bromoform	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Bromomethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Carbon Disulfide	6.7	U	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Carbon tetrachloride	0.44	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Chlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Chlorodibromomethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Chloroethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Chloroform	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Chloromethane	0.62	=	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	cis-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	cis-1,3-Dichloropropene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Cyclohexane	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Dichloromethane	0.82	=	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	D-Limonene	1.1	=	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	ETHANOL	18	=	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Ethyl acetate	1.6	=	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Ethylbenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Freon 113	0.49	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Hexachlorobutadiene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.7	U	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Isopropylbenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Methyl methacrylate	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Methyl tert-butyl ether (MTBE)	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Naphthalene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	N-Butyl Acetate	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	N-HEPTANE	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	n-Hexane	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Nonane	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	n-Propylbenzene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	OCTANE	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Propene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Styrene	0.89	=	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Tetrachloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Tetrahydrofuran	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Toluene	0.74	=	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	trans-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	trans-1,3-Dichloropropene	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Trichloroethylene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Trichlorofluoromethane	1.2	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Vinyl Acetate	6.7	U	UG/M3	6.7	6.7
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Vinyl Chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Xylene, o	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-1	IA	N	11/9/2017	Xylenes, m & p	0.67	U	UG/M3	0.67	0.67
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2,4-Trichlorobenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2,4-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dibromo-3-chloropropane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,3,5-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	1,4-Dioxane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	2-Butanone	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	2-Hexanone	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	4-Ethyltoluene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	4-Methyl-2-Pentanone	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Acetone	12	=	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Acetonitrile	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Acrolein	2.8	U	UG/M3	2.8	2.8
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Acrylonitrile	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	alpha-Pinene	8.7	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Benzene	0.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Benzyl chloride	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Bromoform	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Bromomethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Carbon Disulfide	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Carbon tetrachloride	0.44	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Chloroethane	0.28	U	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Chloroform	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Chloromethane	0.53	=	UG/M3	0.28	0.28
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	cis-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Dichloromethane	1.1	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	D-Limonene	2	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	ETHANOL	27	=	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Ethyl acetate	5.1	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Ethylbenzene	0.7	U	UG/M3	0.7	0.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Hexachlorobutadiene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Isopropylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Naphthalene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	N-Butyl Acetate	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	N-HEPTANE	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	n-Hexane	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Nonane	0.92	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	n-Propylbenzene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	OCTANE	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Propene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Styrene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Tetrahydrofuran	1.5	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Toluene	1.9	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	trans-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Vinyl Acetate	7	U	UG/M3	7	7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Xylene, o	0.7	U	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-2	IA	N	11/9/2017	Xylenes, m & p	0.76	=	UG/M3	0.7	0.7
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,1,1-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,1,2,2-Tetrachloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,1,2-Trichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,1-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,1-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2,4-Trichlorobenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2,4-Trimethylbenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dibromo-3-chloropropane	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dibromoethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dichloroethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,2-Dichloropropane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,3,5-Trimethylbenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,3-Butadiene	0.26	U	UG/M3	0.26	0.26
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,3-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,4-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	1,4-Dioxane	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	2-Butanone	6.5	U	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	2-Hexanone	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	4-Ethyltoluene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	4-Methyl-2-Pentanone	0.65	U	UG/M3	0.65	0.65

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Acetone	12	=	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Acetonitrile	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Acrolein	2.6	U	UG/M3	2.6	2.6
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Acrylonitrile	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Allyl chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	alpha-Pinene	7.5	=	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Benzene	0.39	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Benzyl chloride	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Bromodichloromethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Bromoform	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Bromomethane	0.26	U	UG/M3	0.26	0.26
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Carbon Disulfide	6.5	U	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Carbon tetrachloride	0.43	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Chlorobenzene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Chlorodibromomethane	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Chloroethane	0.26	U	UG/M3	0.26	0.26
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Chloroform	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Chloromethane	0.52	=	UG/M3	0.26	0.26
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	cis-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	cis-1,3-Dichloropropene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Cyclohexane	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Dichlorodifluoromethane	2.3	=	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Dichloromethane	0.97	=	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	D-Limonene	1.4	J+	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	ETHANOL	26	=	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Ethyl acetate	3.6	=	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Ethylbenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Freon 113	0.51	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Hexachlorobutadiene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.5	U	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Isopropylbenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Methyl methacrylate	1.3	U	UG/M3	1.3	1.3
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Methyl tert-butyl ether (MTBE)	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Naphthalene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	N-Butyl Acetate	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	N-HEPTANE	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	n-Hexane	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Nonane	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	n-Propylbenzene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	OCTANE	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Propene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Styrene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Tetrachloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Tetrahydrofuran	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Toluene	1.2	=	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	trans-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	trans-1,3-Dichloropropene	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Trichloroethylene	0.13	U	UG/M3	0.13	0.13

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Trichlorofluoromethane	1.2	=	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Vinyl Acetate	6.5	U	UG/M3	6.5	6.5
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Vinyl Chloride	0.13	U	UG/M3	0.13	0.13
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Xylene, o	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	1703205_005_110917_IA-3	IA	N	11/9/2017	Xylenes, m & p	0.65	U	UG/M3	0.65	0.65
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0089	J	ug/m3	0.0088	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0091	U	ug/m3	0.0091	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.11	U	ug/m3	0.11	0.77
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.075
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.24	=	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.2	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.07	=	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.079	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,3-Butadiene	0.049	J	ug/m3	0.021	0.075
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.059	=	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	1,4-Dioxane	0.02	J	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	2-Butanone	2.6	=	ug/m3	0.16	1.5
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	2-Hexanone	0.46	J	ug/m3	0.098	0.8
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	0.6	J	ug/m3	0.11	0.79
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Acetone	21	J	ug/m3	0.083	3.7
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.82
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Acrolein	1.1	=	ug/m3	0.058	0.3
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Acrylonitrile	0.16	U	ug/m3	0.16	0.77
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Benzene	0.48	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Benzyl chloride	0.18	U	ug/m3	0.18	1.6
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Bromodichloromethane	0.018	J	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Bromoform	0.16	U	ug/m3	0.16	0.79
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Bromomethane	0.025	J	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Carbon Disulfide	0.24	U	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.72	J	ug/m3	0.37	0.75
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Chloroethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Chloroform	0.14	J	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Chloromethane	0.41	=	ug/m3	0.028	0.075
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Cyclohexane	0.8	J	ug/m3	0.22	1.5
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Dichlorodifluoromethane	1.9	J	ug/m3	0.025	0.075
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Dichloromethane	0.77	J	ug/m3	0.019	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	ETHANOL	240	=	ug/m3	0.58	8.1
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Ethylbenzene	0.29	=	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	11	=	ug/m3	0.33	3.1
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	n-Butanol	2.9	=	ug/m3	0.21	1.5
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	n-Hexane	6.6	J	ug/m3	0.16	0.8
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Propene	4.7	=	ug/m3	0.19	0.77
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Styrene	0.86	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Tetrachloroethene	0.061	=	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Toluene	13	J	ug/m3	0.016	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0082	U	ug/m3	0.0082	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Trichloroethylene	0.1	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.022	0.075
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.41	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Vinyl Acetate	6.4	J	ug/m3	1.8	7.9
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Xylene, o	0.32	=	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-05-IN01-110918	IA	N	11/9/2018	Xylenes, m & p	0.86	J	ug/m3	0.028	0.15
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,1,1-Trichloroethane	0.0094	U	ug/m3	0.0094	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethane	0.0097	U	ug/m3	0.0097	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2,3-Trimethylbenzene	0.14	J	ug/m3	0.12	0.83
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.08
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2,4-Trimethylbenzene	0.27	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2-Dichloroethane	0.12	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,2-Dichloropropane	0.039	J	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,3,5-Trimethylbenzene	0.081	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,3-Butadiene	0.047	J	ug/m3	0.022	0.08
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,4-Dichlorobenzene	0.026	J	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	1,4-Dioxane	0.025	J	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	2-Butanone	1.1	J	ug/m3	0.17	1.6
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	2-Hexanone	0.2	J	ug/m3	0.1	0.86
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	4-Methyl-2-Pentanone	0.44	J	ug/m3	0.12	0.84
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Acetone	19	=	ug/m3	0.089	4
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Acrolein	0.76	=	ug/m3	0.062	0.32
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Acrylonitrile	0.17	U	ug/m3	0.17	0.83
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Benzene	0.43	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Bromodichloromethane	0.035	J	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Bromoform	0.17	U	ug/m3	0.17	0.84
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Bromomethane	0.024	J	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	CHLORODIFLUOROMETHANE	0.66	J	ug/m3	0.4	0.8
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Chloroethane	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Chloroform	0.22	=	ug/m3	0.029	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Chloromethane	0.41	=	ug/m3	0.03	0.08

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	cis-1,3-Dichloropropene	0.0099	U	ug/m3	0.0099	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Cyclohexane	0.26	J	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Dichlorodifluoromethane	1.8	J	ug/m3	0.027	0.08
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Dichloromethane	0.39	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	ETHANOL	590	=	ug/m3	0.59	8.1
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Ethylbenzene	0.29	=	ug/m3	0.015	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	19	=	ug/m3	0.35	3.3
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	n-Butanol	3	=	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	n-Hexane	1.4	=	ug/m3	0.17	0.86
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Propene	7.6	=	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Styrene	0.87	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Tetrachloroethene	0.078	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Toluene	7	=	ug/m3	0.017	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	trans-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Trichloroethylene	0.076	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Trichlorofluoromethane	0.97	=	ug/m3	0.024	0.08
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Trichlorotrifuoroethane	0.38	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.4
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Xylene, o	0.32	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-05-IN02-110918	IA	N	11/9/2018	Xylenes, m & p	0.82	=	ug/m3	0.03	0.16
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dichloroethane	1.8	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	1,4-Dioxane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	2-Butanone	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	2-Hexanone	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	4-Ethyltoluene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.86	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Acetone	15	=	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Acetonitrile	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Acrolein	2.9	U	UG/M3	2.9	2.9

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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Acrylonitrile	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	alpha-Pinene	11	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Benzene	0.61	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Benzyl chloride	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Bromoform	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Carbon Disulfide	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Carbon tetrachloride	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Chloroform	0.31	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Chloromethane	0.72	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Dichloromethane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	D-Limonene	2.5	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	ETHANOL	80	=	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Ethyl acetate	2.4	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Ethylbenzene	1	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Hexachlorobutadiene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	11	=	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Isopropylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Naphthalene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	N-Butyl Acetate	4.6	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	N-HEPTANE	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	n-Hexane	0.84	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Nonane	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	n-Propylbenzene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	OCTANE	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Propene	2.7	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Styrene	1.4	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Tetrachloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Tetrahydrofuran	3.4	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Toluene	2.4	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Trichloroethylene	0.19	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Vinyl Acetate	7.3	U	UG/M3	7.3	7.3
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Xylene, o	1.7	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-1	IA	N	1/19/2018	Xylenes, m & p	5.4	=	UG/M3	0.73	0.73
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dichloroethane	1.5	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	1,4-Dioxane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	2-Butanone	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	2-Hexanone	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	4-Ethyltoluene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.84	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Acetone	22	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Acetonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Acrolein	3	U	UG/M3	3	3
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Acrylonitrile	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	alpha-Pinene	8.7	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Benzene	0.58	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Benzyl chloride	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Bromodichloromethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Bromoform	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Carbon Disulfide	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Carbon tetrachloride	0.49	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Chloroform	0.41	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Chloromethane	0.61	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Cyclohexane	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Dichloromethane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	D-Limonene	0.74	U	UG/M3	0.74	0.74

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	ETHANOL	92	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Ethyl acetate	3.6	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Ethylbenzene	0.96	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Hexachlorobutadiene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	14	=	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Isopropylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Naphthalene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	N-Butyl Acetate	4	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	N-HEPTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	n-Hexane	1	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Nonane	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	n-Propylbenzene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	OCTANE	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Propene	4	J+	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Styrene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Tetrachloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Tetrahydrofuran	4.3	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Toluene	2.7	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Trichloroethylene	0.3	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Vinyl Acetate	7.4	U	UG/M3	7.4	7.4
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Xylene, o	1.6	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-2	IA	N	1/19/2018	Xylenes, m & p	4.9	=	UG/M3	0.74	0.74
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2,4-Trichlorobenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2,4-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dibromo-3-chloropropane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dichloroethane	1.4	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,3,5-Trimethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,3-Butadiene	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	1,4-Dioxane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	2-Butanone	7.2	U	UG/M3	7.2	7.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	2-Hexanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	4-Ethyltoluene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	4-Methyl-2-Pentanone	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Acetone	19	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Acetonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Acrolein	2.9	U	UG/M3	2.9	2.9
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Acrylonitrile	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	alpha-Pinene	13	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Benzene	0.59	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Benzyl chloride	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Bromoform	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Bromomethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Carbon Disulfide	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Carbon tetrachloride	0.48	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Chloroethane	0.29	U	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Chloroform	0.33	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Chloromethane	0.61	=	UG/M3	0.29	0.29
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	cis-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Dichlorodifluoromethane	2.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Dichloromethane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	D-Limonene	6.3	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	ETHANOL	89	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Ethyl acetate	2.4	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Ethylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Freon 113	0.46	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Hexachlorobutadiene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	18	=	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Isopropylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Naphthalene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	N-Butyl Acetate	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	N-HEPTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	n-Hexane	0.85	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Nonane	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	n-Propylbenzene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	OCTANE	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Propene	3.9	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Styrene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Tetrahydrofuran	4.5	=	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Toluene	1.1	=	UG/M3	0.72	0.72

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	trans-1,3-Dichloropropene	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Trichloroethylene	0.36	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Vinyl Acetate	7.2	U	UG/M3	7.2	7.2
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Xylene, o	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_011918_IA-3	IA	N	1/19/2018	Xylenes, m & p	0.72	U	UG/M3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,1-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dichloroethane	2.5	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,3-Butadiene	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	1,4-Dioxane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	2-Butanone	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	2-Hexanone	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	4-Ethyltoluene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Acetone	15	=	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Acetonitrile	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Acrolein	2.9	U	ug/m3	2.9	2.9
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Acrylonitrile	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	alpha-Pinene	17	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Benzene	0.33	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Benzyl chloride	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Bromodichloromethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Bromoform	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Bromomethane	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Carbon Disulfide	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Carbon tetrachloride	0.48	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Chlorobenzene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Chloroethane	0.29	U	ug/m3	0.29	0.29
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Chloroform	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Chloromethane	0.29	U	ug/m3	0.29	0.29

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Cyclohexane	1.4	U	ug/m3	1.4	1.4
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Dichlorodifluoromethane	3	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Dichloromethane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	D-Limonene	3.4	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	ETHANOL	210	=	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Ethyl acetate	6.9	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Ethylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Freon 113	0.48	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Hexachlorobutadiene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Isopropylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Methyl methacrylate	1.4	U	ug/m3	1.4	1.4
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Naphthalene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	N-Butyl Acetate	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	N-HEPTANE	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	n-Hexane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Nonane	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	n-Propylbenzene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	OCTANE	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Propene	2.5	=	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Styrene	2.4	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Tetrachloroethene	0.5	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Tetrahydrofuran	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Toluene	0.99	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Trichloroethylene	0.69	=	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Trichlorofluoromethane	1.3	J+	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Vinyl Acetate	7.2	U	ug/m3	7.2	7.2
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Vinyl Chloride	0.14	U	ug/m3	0.14	0.14
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Xylene, o	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-1	IA	N	4/5/2017	Xylenes, m & p	0.72	U	ug/m3	0.72	0.72
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2,4-Trichlorobenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2,4-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dibromo-3-chloropropane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dichloroethane	2.2	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,3,5-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	1,4-Dioxane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	2-Butanone	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	2-Hexanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	4-Ethyltoluene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	4-Methyl-2-Pentanone	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Acetone	15	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Acetonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Acrolein	3	U	ug/m3	3	3
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Acrylonitrile	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Allyl chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	alpha-Pinene	17	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Benzene	0.31	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Benzyl chloride	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Bromoform	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Bromomethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Carbon Disulfide	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Carbon tetrachloride	0.47	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Chloroethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Chloroform	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Chloromethane	0.3	U	ug/m3	0.3	0.3
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	cis-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Cyclohexane	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Dichlorodifluoromethane	2.9	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Dichloromethane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	D-Limonene	3.4	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	ETHANOL	210	=	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Ethyl acetate	2.3	=	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Ethylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Freon 113	0.48	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Hexachlorobutadiene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Isopropylbenzene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Naphthalene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	N-Butyl Acetate	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	N-HEPTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	n-Hexane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Nonane	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	n-Propylbenzene	0.75	U	ug/m3	0.75	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	OCTANE	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Propene	2.5	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Styrene	1.6	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Tetrachloroethene	0.36	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Tetrahydrofuran	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Toluene	0.87	=	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	trans-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Trichloroethylene	0.66	=	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Trichlorofluoromethane	1.3	J+	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Vinyl Acetate	7.5	U	ug/m3	7.5	7.5
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Xylene, o	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_040517_IA-2	IA	N	4/5/2017	Xylenes, m & p	0.75	U	ug/m3	0.75	0.75
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dichloroethane	4.8	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,3-Butadiene	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	1,4-Dioxane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	2-Butanone	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	2-Hexanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	4-Ethyltoluene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Acetone	28	=	ug/m3	8	8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Acetonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Acrolein	3.2	U	ug/m3	3.2	3.2
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Acrylonitrile	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	alpha-Pinene	32	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Benzene	0.35	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Benzyl chloride	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Bromoform	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Bromomethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Carbon Disulfide	8	U	ug/m3	8	8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Carbon tetrachloride	0.35	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Chloroethane	0.32	U	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Chloroform	0.17	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Chloromethane	0.37	=	ug/m3	0.32	0.32
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Dichloromethane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	D-Limonene	3.6	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	ETHANOL	370	=	ug/m3	8	8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Ethyl acetate	2.5	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Ethylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Freon 113	0.42	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Hexachlorobutadiene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	11	=	ug/m3	8	8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Isopropylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Naphthalene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	N-Butyl Acetate	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	N-HEPTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	n-Hexane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Nonane	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	n-Propylbenzene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	OCTANE	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Propene	3.6	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Styrene	5.4	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Tetrachloroethene	0.21	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Tetrahydrofuran	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Toluene	1.8	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Trichloroethylene	0.52	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Vinyl Acetate	8	U	ug/m3	8	8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Xylene, o	0.8	U	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-1	IA	N	6/2/2017	Xylenes, m & p	0.89	=	ug/m3	0.8	0.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,1,1-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dichloroethane	4.6	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,3-Butadiene	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	1,4-Dioxane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	2-Butanone	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	2-Hexanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	4-Ethyltoluene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Acetone	33	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Acetonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Acrolein	3.1	U	ug/m3	3.1	3.1
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Acrylonitrile	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Allyl chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	alpha-Pinene	31	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Benzene	0.32	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Benzyl chloride	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Bromoform	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Bromomethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Carbon Disulfide	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Carbon tetrachloride	0.36	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Chloroethane	0.31	U	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Chloroform	0.19	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Chloromethane	0.36	=	ug/m3	0.31	0.31
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Cyclohexane	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Dichlorodifluoromethane	2	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Dichloromethane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	D-Limonene	4.1	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	ETHANOL	490	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Ethyl acetate	3	=	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Ethylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Freon 113	0.43	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Hexachlorobutadiene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	13	=	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Isopropylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Naphthalene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	N-Butyl Acetate	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	N-HEPTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	n-Hexane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Nonane	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	n-Propylbenzene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	OCTANE	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Propene	4	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Styrene	3.3	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Tetrachloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Tetrahydrofuran	0.78	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Toluene	1.7	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Trichloroethylene	0.69	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Vinyl Acetate	7.8	U	ug/m3	7.8	7.8
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Xylene, o	0.78	U	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-2	IA	N	6/2/2017	Xylenes, m & p	0.78	=	ug/m3	0.78	0.78
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,1,1-Trichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,1,2,2-Tetrachloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,1,2-Trichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2,4-Trichlorobenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2,4-Trimethylbenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dibromo-3-chloropropane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dibromoethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dichloroethane	4.5	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,2-Dichloropropane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,3,5-Trimethylbenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,3-Butadiene	0.35	U	ug/m3	0.35	0.35
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,3-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,4-Dichlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	1,4-Dioxane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	2-Butanone	8.8	U	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	2-Hexanone	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	4-Ethyltoluene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	4-Methyl-2-Pentanone	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Acetone	32	=	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Acetonitrile	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Acrolein	3.5	U	ug/m3	3.5	3.5
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Acrylonitrile	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Allyl chloride	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	alpha-Pinene	31	=	ug/m3	0.88	0.88

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Benzene	0.33	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Benzyl chloride	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Bromodichloromethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Bromoform	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Bromomethane	0.35	U	ug/m3	0.35	0.35
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Carbon Disulfide	8.8	U	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Carbon tetrachloride	0.34	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Chlorobenzene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Chlorodibromomethane	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Chloroethane	0.35	U	ug/m3	0.35	0.35
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Chloroform	0.19	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Chloromethane	0.36	=	ug/m3	0.35	0.35
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	cis-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	cis-1,3-Dichloropropene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Cyclohexane	1.8	U	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Dichlorodifluoromethane	1.9	=	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Dichloromethane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	D-Limonene	4.3	=	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	ETHANOL	500	=	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Ethyl acetate	2.4	=	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Ethylbenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Freon 113	0.41	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Hexachlorobutadiene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	14	=	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Isopropylbenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Methyl methacrylate	1.8	U	ug/m3	1.8	1.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Naphthalene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	N-Butyl Acetate	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	N-HEPTANE	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	n-Hexane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Nonane	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	n-Propylbenzene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	OCTANE	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Propene	4.2	=	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Styrene	3.1	=	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Tetrachloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Tetrahydrofuran	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Toluene	1.8	=	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	trans-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	trans-1,3-Dichloropropene	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Trichloroethylene	0.99	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Trichlorofluoromethane	1	=	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Vinyl Acetate	8.8	U	ug/m3	8.8	8.8
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Vinyl Chloride	0.18	U	ug/m3	0.18	0.18
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Xylene, o	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_060217_IA-3	IA	N	6/2/2017	Xylenes, m & p	0.88	U	ug/m3	0.88	0.88
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,1,1-Trichloroethane	0.11	U	UG/M3	0.11	0.11

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,1,2-Trichloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,1-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dibromoethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dichloroethane	7.7	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,2-Dichloropropane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,3-Butadiene	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,3-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,4-Dichlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	1,4-Dioxane	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	2-Butanone	5.6	U	UG/M3	5.6	5.6
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	2-Hexanone	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	4-Ethyltoluene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	4-Methyl-2-Pentanone	1	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Acetone	56	=	UG/M3	7.7	7.7
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Acetonitrile	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Acrolein	2.9	=	UG/M3	2.2	2.2
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Acrylonitrile	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Allyl chloride	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	alpha-Pinene	42	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Benzene	1	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Benzyl chloride	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Bromodichloromethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Bromoform	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Bromomethane	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Carbon Disulfide	5.6	U	UG/M3	5.6	5.6
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Carbon tetrachloride	0.74	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Chlorobenzene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Chlorodibromomethane	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Chloroethane	0.22	U	UG/M3	0.22	0.22
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Chloroform	2.9	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Chloromethane	0.58	=	UG/M3	0.31	0.31
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Cyclohexane	1.1	U	UG/M3	1.1	1.1
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Dichlorodifluoromethane	2.2	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Dichloromethane	2	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	D-Limonene	8.8	J	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	ETHANOL	2100	D	UG/M3	77	77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Ethyl acetate	9.6	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Ethylbenzene	0.56	U	UG/M3	0.56	0.56

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Hexachlorobutadiene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	10	=	UG/M3	7.7	7.7
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Isopropylbenzene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Methyl methacrylate	1.1	U	UG/M3	1.1	1.1
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Naphthalene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	N-Butyl Acetate	1.4	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	N-HEPTANE	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	n-Hexane	0.6	=	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Nonane	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	n-Propylbenzene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	OCTANE	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Propene	2.7	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Styrene	5.7	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Tetrachloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Tetrahydrofuran	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Toluene	3.6	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Trichloroethylene	1.1	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Trichlorofluoromethane	1.3	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Vinyl Acetate	5.6	=	UG/M3	5.6	5.6
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Vinyl Chloride	0.11	U	UG/M3	0.11	0.11
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Xylene, o	0.56	U	UG/M3	0.56	0.56
[redacted]	[redacted]	1703205_006_091317_IA-1	IA	N	9/13/2017	Xylenes, m & p	1.7	=	UG/M3	0.77	0.77
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dichloroethane	7.6	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,3-Butadiene	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	1,4-Dioxane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	2-Butanone	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	2-Hexanone	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	4-Ethyltoluene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	4-Methyl-2-Pentanone	1.1	=	UG/M3	0.68	0.68

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Acetone	69	=	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Acetonitrile	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Acrolein	3.5	=	UG/M3	2.7	2.7
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Acrylonitrile	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Allyl chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	alpha-Pinene	47	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Benzene	1.1	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Benzyl chloride	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Bromodichloromethane	0.19	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Bromoform	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Bromomethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Carbon Disulfide	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Carbon tetrachloride	0.87	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Chloroethane	0.27	U	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Chloroform	4.3	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Chloromethane	0.55	=	UG/M3	0.27	0.27
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Cyclohexane	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Dichlorodifluoromethane	2.2	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Dichloromethane	2.3	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	D-Limonene	15	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	ETHANOL	2900	D	UG/M3	68	68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Ethyl acetate	13	=	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Ethylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Freon 113	0.45	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Hexachlorobutadiene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	13	=	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Isopropylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Naphthalene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	N-Butyl Acetate	2.1	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	N-HEPTANE	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	n-Hexane	0.82	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Nonane	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	n-Propylbenzene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	OCTANE	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Propene	3.2	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Styrene	4.1	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Tetrahydrofuran	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Toluene	5	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.68	U	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Trichloroethylene	1.1	=	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Trichlorofluoromethane	1.3	=	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Vinyl Acetate	6.8	U	UG/M3	6.8	6.8
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Xylene, o	0.78	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-2	IA	N	9/13/2017	Xylenes, m & p	2	=	UG/M3	0.68	0.68
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,1,1-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,1,2,2-Tetrachloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,1,2-Trichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,1-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2,4-Trichlorobenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2,4-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dibromo-3-chloropropane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dibromoethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dichloroethane	7.6	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,2-Dichloropropane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,3,5-Trimethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,3-Butadiene	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,3-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,4-Dichlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	1,4-Dioxane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	2-Butanone	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	2-Hexanone	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	4-Ethyltoluene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	4-Methyl-2-Pentanone	1.1	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Acetone	68	=	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Acetonitrile	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Acrolein	3.5	=	UG/M3	3	3
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Acrylonitrile	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Allyl chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	alpha-Pinene	48	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Benzene	1.1	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Benzyl chloride	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Bromodichloromethane	0.19	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Bromoform	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Bromomethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Carbon Disulfide	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Carbon tetrachloride	0.85	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Chlorobenzene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Chlorodibromomethane	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Chloroethane	0.3	U	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Chloroform	4	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Chloromethane	0.49	=	UG/M3	0.3	0.3
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	cis-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	cis-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Cyclohexane	1.5	U	UG/M3	1.5	1.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Dichlorodifluoromethane	2.2	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Dichloromethane	2.4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	D-Limonene	17	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	ETHANOL	2700	D	UG/M3	75	75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Ethyl acetate	13	=	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Ethylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Freon 113	0.46	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Hexachlorobutadiene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	13	=	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Isopropylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Methyl tert-butyl ether (MTBE)	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Naphthalene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	N-Butyl Acetate	1.9	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	N-HEPTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	n-Hexane	0.78	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Nonane	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	n-Propylbenzene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	OCTANE	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Propene	3.6	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Styrene	3.8	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Tetrachloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Tetrahydrofuran	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Toluene	4	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	trans-1,2-Dichloroethene	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	trans-1,3-Dichloropropene	0.75	U	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Trichloroethylene	1.3	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Trichlorofluoromethane	1.3	=	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Vinyl Acetate	7.5	U	UG/M3	7.5	7.5
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Vinyl Chloride	0.15	U	UG/M3	0.15	0.15
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Xylene, o	0.78	=	UG/M3	0.75	0.75
[redacted]	[redacted]	1703205_006_091317_IA-3	IA	N	9/13/2017	Xylenes, m & p	2	=	UG/M3	0.75	0.75
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0099	U	ug/m3	0.0099	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.87
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.084
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.19	=	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2-Dichloroethane	2.5	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.03	J	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.047	J	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,3-Butadiene	0.049	J	ug/m3	0.024	0.084
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.098	=	ug/m3	0.014	0.042

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	1,4-Dioxane	0.032	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	2-Butanone	0.73	J	ug/m3	0.18	1.7
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	2-Hexanone	0.15	J	ug/m3	0.11	0.91
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.15	J	ug/m3	0.12	0.89
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Acetone	14	=	ug/m3	0.094	4.2
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Acetonitrile	0.22	U	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Acrolein	1	=	ug/m3	0.066	0.34
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Benzene	0.3	=	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Bromodichloromethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Bromoform	0.18	U	ug/m3	0.18	0.89
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Bromomethane	0.025	J	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Carbon Disulfide	0.83	J	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.66	J	ug/m3	0.42	0.84
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Chloroethane	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Chloroform	0.16	J	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Chloromethane	0.33	=	ug/m3	0.032	0.084
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Cyclohexane	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Dichlorodifluoromethane	2	=	ug/m3	0.029	0.084
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Dichloromethane	0.21	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	ETHANOL	150	=	ug/m3	0.62	8.6
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Ethylbenzene	0.15	J	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	5.5	=	ug/m3	0.37	3.5
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	n-Butanol	3.9	=	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	n-Hexane	0.35	J	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Propene	2.5	=	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Styrene	3	=	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Tetrachloroethene	0.038	J	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Toluene	0.92	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Trichloroethylene	0.26	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.025	0.084
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.38	=	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Vinyl Acetate	2	U	ug/m3	2	8.9
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Xylene, o	0.19	=	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-06-IN01-110818	IA	N	11/8/2018	Xylenes, m & p	0.45	=	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,1,1-Trichloroethane	0.0098	U	ug/m3	0.0098	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.86
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.083

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2,4-Trimethylbenzene	0.18	=	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2-Dichloroethane	2.1	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,2-Dichloropropane	0.038	J	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,3,5-Trimethylbenzene	0.047	J	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,3-Butadiene	0.055	J	ug/m3	0.023	0.083
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,4-Dichlorobenzene	0.089	=	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	1,4-Dioxane	0.038	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	2-Butanone	0.73	J	ug/m3	0.18	1.7
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	2-Hexanone	0.22	J	ug/m3	0.11	0.9
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	4-Methyl-2-Pentanone	0.19	J	ug/m3	0.12	0.88
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Acetone	14	=	ug/m3	0.093	4.2
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Acetonitrile	0.22	U	ug/m3	0.22	0.86
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Acrolein	1	=	ug/m3	0.065	0.33
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.86
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Benzene	0.3	=	ug/m3	0.033	0.12
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Bromoform	0.18	U	ug/m3	0.18	0.88
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Bromomethane	0.022	J	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Carbon Disulfide	0.27	U	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	CHLORODIFLUOROMETHANE	0.72	J	ug/m3	0.42	0.83
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Chloroethane	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Chloroform	0.19	=	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Chloromethane	0.34	=	ug/m3	0.032	0.083
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Cyclohexane	0.25	U	ug/m3	0.25	1.7
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Dichlorodifluoromethane	1.9	=	ug/m3	0.028	0.083
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Dichloromethane	0.22	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	ETHANOL	170	=	ug/m3	0.61	8.5
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Ethylbenzene	0.15	J	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.7	=	ug/m3	0.37	3.5
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	n-Butanol	4.1	=	ug/m3	0.23	1.7
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	n-Hexane	0.83	J	ug/m3	0.18	0.9
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Propene	2.6	=	ug/m3	0.22	0.86
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Styrene	1.2	=	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Tetrachloroethene	0.046	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Toluene	1.8	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	trans-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Trichloroethylene	0.33	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Trichlorofluoromethane	1	=	ug/m3	0.025	0.083
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Trichlorotrifuoroethane	0.38	=	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Vinyl Acetate	2	U	ug/m3	2	8.8
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Xylene, o	0.19	=	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-06-IN02-110818	IA	N	11/8/2018	Xylenes, m & p	0.44	=	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,1,1-Trichloroethane	0.01	U	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,1,2-Trichloroethane	0.014	U	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2,3-Trimethylbenzene	0.13	U	ug/m3	0.13	0.89
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.086
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2,4-Trimethylbenzene	0.11	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2-Dibromoethane	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2-Dichloroethane	0.086	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,2-Dichloropropane	0.81	=	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,3,5-Trimethylbenzene	0.029	J	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,3-Butadiene	0.024	U	ug/m3	0.024	0.086
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,3-Dichlorobenzene	0.015	U	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,4-Dichlorobenzene	0.017	J	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	1,4-Dioxane	0.035	J	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	2-Butanone	0.84	J	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	2-Hexanone	0.17	J	ug/m3	0.11	0.93
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	4-Methyl-2-Pentanone	0.13	U	ug/m3	0.13	0.91
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Acetone	15	=	ug/m3	0.096	4.3
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Acetonitrile	0.28	J	ug/m3	0.22	0.89
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Acrolein	0.69	=	ug/m3	0.067	0.34
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Acrylonitrile	0.19	U	ug/m3	0.19	0.89
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Benzene	0.047	J	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Benzyl chloride	0.21	U	ug/m3	0.21	1.9
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Bromodichloromethane	0.012	U	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Bromoform	0.19	U	ug/m3	0.19	0.91
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Bromomethane	0.033	J	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Carbon Disulfide	1.7	J	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	CHLORODIFLUOROMETHANE	0.43	U	ug/m3	0.43	0.86
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Chloroethane	0.097	=	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Chloroform	0.091	J	ug/m3	0.031	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Chloromethane	0.33	=	ug/m3	0.033	0.086
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	cis-1,3-Dichloropropene	0.011	U	ug/m3	0.011	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Cyclohexane	0.26	U	ug/m3	0.26	1.7
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Dichlorodifluoromethane	2.3	=	ug/m3	0.029	0.086
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Dichloromethane	0.47	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	ETHANOL	54	=	ug/m3	0.64	8.8
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Ethylbenzene	0.092	J	ug/m3	0.017	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	15	=	ug/m3	0.38	3.6
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	n-Butanol	3	=	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	n-Hexane	0.19	U	ug/m3	0.19	0.93
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Propene	3.9	=	ug/m3	0.22	0.89

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Styrene	0.21	=	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Tetrachloroethene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Toluene	0.64	=	ug/m3	0.019	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	trans-1,3-Dichloropropene	0.01	J	ug/m3	0.0095	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Trichloroethylene	0.11	=	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.026	0.086
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Trichlorotrifuoroethane	0.12	=	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Vinyl Acetate	2.1	U	ug/m3	2.1	9.1
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Xylene, o	0.15	J	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-09-IA01-101118	IA	N	10/11/2018	Xylenes, m & p	0.2	=	ug/m3	0.033	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,1,1-Trichloroethane	0.0099	U	ug/m3	0.0099	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.87
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.084
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2,4-Trimethylbenzene	0.046	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2-Dichloroethane	0.11	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,2-Dichloropropane	1.2	=	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,3,5-Trimethylbenzene	0.012	U	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,3-Butadiene	0.024	U	ug/m3	0.024	0.084
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,4-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	1,4-Dioxane	0.047	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	2-Butanone	0.95	J	ug/m3	0.18	1.7
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	2-Hexanone	0.2	J	ug/m3	0.11	0.91
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.89
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Acetone	18	=	ug/m3	0.094	4.2
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Acetonitrile	0.5	J	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Acrolein	0.67	=	ug/m3	0.066	0.34
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.87
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Benzene	0.046	J	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Bromodichloromethane	0.012	U	ug/m3	0.012	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Bromoform	0.18	U	ug/m3	0.18	0.89
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Bromomethane	0.032	J	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Carbon Disulfide	2.9	=	ug/m3	0.27	1.8
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	CHLORODIFLUOROMETHANE	0.42	U	ug/m3	0.42	0.84
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Chloroethane	0.1	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Chloroform	0.09	J	ug/m3	0.03	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Chloromethane	0.34	=	ug/m3	0.032	0.084
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Cyclohexane	0.25	U	ug/m3	0.25	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Dichlorodifluoromethane	2.3	=	ug/m3	0.029	0.084
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Dichloromethane	0.47	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	ETHANOL	61	=	ug/m3	0.62	8.6
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Ethylbenzene	0.06	J	ug/m3	0.016	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	14	=	ug/m3	0.37	3.5
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	n-Butanol	2.6	=	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	n-Hexane	0.18	U	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Propene	3.3	=	ug/m3	0.22	0.87
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Styrene	0.21	=	ug/m3	0.012	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Tetrachloroethene	0.014	U	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Toluene	0.5	=	ug/m3	0.018	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	trans-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Trichloroethylene	0.22	=	ug/m3	0.014	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.025	0.084
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Trichlorotrifuoroethane	0.093	=	ug/m3	0.015	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Vinyl Acetate	2	U	ug/m3	2	8.9
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Xylene, o	0.062	J	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-09-IA02-101118	IA	N	10/11/2018	Xylenes, m & p	0.12	J	ug/m3	0.032	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,1,1-Trichloroethane	0.01	U	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,1,2,2-Tetrachloroethane	0.13	J	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.88
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.085
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2,4-Trimethylbenzene	0.17	J	ug/m3	0.014	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2-Dichloroethane	0.12	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,2-Dichloropropane	1.3	=	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,3,5-Trimethylbenzene	0.029	J	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,3-Butadiene	0.024	U	ug/m3	0.024	0.085
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,4-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	1,4-Dioxane	0.076	J	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	2-Butanone	1.7	J	ug/m3	0.19	1.7
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	2-Hexanone	0.43	J	ug/m3	0.11	0.93
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	4-Methyl-2-Pentanone	0.18	J	ug/m3	0.13	0.91
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Acetone	26	=	ug/m3	0.096	4.3
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Acetonitrile	0.33	J	ug/m3	0.22	0.89
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Acrolein	1.2	=	ug/m3	0.067	0.34
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Acrylonitrile	0.19	U	ug/m3	0.19	0.88
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Benzene	0.063	J	ug/m3	0.034	0.13
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Benzyl chloride	0.2	U	ug/m3	0.2	1.9
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Bromodichloromethane	0.012	U	ug/m3	0.012	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Bromoform	0.19	U	ug/m3	0.19	0.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Bromomethane	0.034	J	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Carbon Disulfide	2	=	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	CHLORODIFLUOROMETHANE	0.43	U	ug/m3	0.43	0.85
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Chloroethane	0.11	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Chloroform	0.1	J	ug/m3	0.031	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Chloromethane	0.36	=	ug/m3	0.033	0.086
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	cis-1,3-Dichloropropene	0.011	U	ug/m3	0.011	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Cyclohexane	0.26	U	ug/m3	0.26	1.7
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Dichlorodifluoromethane	2.3	=	ug/m3	0.029	0.085
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Dichloromethane	0.5	=	ug/m3	0.022	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	ETHANOL	59	=	ug/m3	0.64	8.8
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Ethylbenzene	0.1	J	ug/m3	0.017	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	15	=	ug/m3	0.38	3.6
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	n-Butanol	4.1	=	ug/m3	0.24	1.7
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	n-Hexane	0.24	J	ug/m3	0.19	0.93
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Propene	3.5	=	ug/m3	0.22	0.89
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Styrene	0.33	=	ug/m3	0.013	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Tetrachloroethene	0.014	U	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Toluene	0.82	=	ug/m3	0.019	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	trans-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Trichloroethylene	0.31	=	ug/m3	0.014	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Trichlorofluoromethane	1.2	=	ug/m3	0.026	0.085
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Trichlorotrifuoroethane	0.11	=	ug/m3	0.015	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Vinyl Acetate	2.3	J	ug/m3	2.1	9.1
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Vinyl Chloride	0.013	U	ug/m3	0.013	0.043
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Xylene, o	0.18	J	ug/m3	0.015	0.17
[redacted]	[redacted]	PMC-09-IA03-101118	IA	N	10/11/2018	Xylenes, m & p	0.24	=	ug/m3	0.033	0.17
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,1,1-Trichloroethane	0.11	=	ug/m3	0.0089	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,1-Dichloroethane	0.0092	U	ug/m3	0.0092	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.075
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2,4-Trimethylbenzene	0.7	=	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2-Dichloroethane	0.24	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,3,5-Trimethylbenzene	0.21	=	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,3-Butadiene	0.099	=	ug/m3	0.021	0.075
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,4-Dichlorobenzene	0.27	=	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	1,4-Dioxane	0.039	J	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	2-Butanone	0.79	J	ug/m3	0.32	7.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	2-Hexanone	0.24	U	ug/m3	0.24	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Acetone	14	=	ug/m3	0.084	3.8
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Acetonitrile	0.27	U	ug/m3	0.27	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Acrolein	0.4	=	ug/m3	0.059	0.3
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Acrylonitrile	0.26	U	ug/m3	0.26	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Benzene	1.6	=	ug/m3	0.03	0.11
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Bromodichloromethane	0.087	=	ug/m3	0.01	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Bromoform	0.23	U	ug/m3	0.23	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Bromomethane	0.027	J	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Carbon Disulfide	0.23	U	ug/m3	0.23	7.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	CHLORODIFLUOROMETHANE	0.83	=	ug/m3	0.38	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Chloroethane	0.015	J	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Chloroform	0.48	=	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Chloromethane	0.4	=	ug/m3	0.029	0.075
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	cis-1,3-Dichloropropene	0.0093	U	ug/m3	0.0093	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Cyclohexane	0.44	U	ug/m3	0.44	1.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Dichlorodifluoromethane	2.4	=	ug/m3	0.026	0.075
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Dichloromethane	1.4	=	ug/m3	0.02	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	ETHANOL	160	=	ug/m3	1.2	7.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Ethylbenzene	0.56	=	ug/m3	0.015	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Freon 113	0.34	=	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.88	J	ug/m3	0.63	7.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	n-Butanol	0.72	U	ug/m3	0.72	1.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	n-Hexane	1.8	=	ug/m3	0.23	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Propene	1.1	=	ug/m3	0.21	0.75
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Styrene	0.095	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Tetrachloroethene	0.047	=	ug/m3	0.012	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Toluene	4.4	=	ug/m3	0.017	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	trans-1,3-Dichloropropene	0.0083	U	ug/m3	0.0083	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Trichloroethylene	0.021	J	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Trichlorofluoromethane	1.3	=	ug/m3	0.023	0.075
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Vinyl Acetate	0.98	U	ug/m3	0.98	7.5
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Xylene, o	0.63	=	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-06-020918	IA	N	2/9/2018	Xylenes, m & p	1.8	=	ug/m3	0.029	0.15
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,1,1-Trichloroethane	0.33	=	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2,4-Trimethylbenzene	1.4	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dichloroethane	0.22	=	ug/m3	0.11	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,3,5-Trimethylbenzene	0.4	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,4-Dichlorobenzene	2.8	=	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	2-Butanone	0.38	U	ug/m3	0.38	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	2-Hexanone	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	4-Ethyltoluene	0.43	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	4-Methyl-2-Pentanone	0.99	=	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Acetone	66	=	ug/m3	1.4	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Acetonitrile	0.33	U	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Acrolein	0.31	U	ug/m3	0.31	3.6
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	alpha-Pinene	3.4	=	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Benzene	3	=	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Bromoform	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Bromomethane	0.17	U	ug/m3	0.17	0.36
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Carbon tetrachloride	0.41	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Chloroethane	0.16	U	ug/m3	0.16	0.36
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Chloroform	0.29	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Chloromethane	0.37	=	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Cyclohexane	0.88	J	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Dichlorodifluoromethane	4.7	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Dichloromethane	4.7	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	D-Limonene	15	=	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	ETHANOL	220	=	ug/m3	1.5	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Ethyl acetate	12	=	ug/m3	0.64	1.8
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Ethylbenzene	1.5	=	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	14	=	ug/m3	0.76	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Naphthalene	0.71	J	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	N-Butyl Acetate	2.1	=	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	N-HEPTANE	2.5	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	n-Hexane	9	=	ug/m3	0.27	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Nonane	0.62	J	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	n-Propylbenzene	0.31	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	OCTANE	0.61	J	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Propene	5.3	=	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Styrene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Toluene	14	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Trichlorofluoromethane	2.7	=	ug/m3	0.1	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Xylene, o	1.6	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-06-060617	IA	N	6/6/2017	Xylenes, m & p	4.5	=	ug/m3	0.53	0.91
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,1,1-Trichloroethane	0.0096	J	ug/m3	0.0088	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,1-Dichloroethane	0.017	J	ug/m3	0.0091	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.075
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2,4-Trimethylbenzene	0.51	=	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2-Dichloroethane	0.07	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,2-Dichloropropane	0.021	J	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,3,5-Trimethylbenzene	0.14	J	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,3-Butadiene	0.021	U	ug/m3	0.021	0.075
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,3-Dichlorobenzene	0.017	J	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	2-Butanone	0.59	J	ug/m3	0.31	7.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	2-Hexanone	0.24	U	ug/m3	0.24	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Acetone	33	=	ug/m3	0.083	3.7
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Acetonitrile	0.27	U	ug/m3	0.27	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Acrolein	0.28	J	ug/m3	0.058	0.3
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Acrylonitrile	0.25	U	ug/m3	0.25	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Benzene	1.4	=	ug/m3	0.03	0.11
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Bromoform	0.22	U	ug/m3	0.22	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Bromomethane	0.018	J	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Carbon Disulfide	0.74	J	ug/m3	0.22	7.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	CHLORODIFLUOROMETHANE	0.71	J	ug/m3	0.37	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Chloroethane	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Chloroform	0.15	J	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Chloromethane	0.42	=	ug/m3	0.028	0.075
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Cyclohexane	0.53	J	ug/m3	0.43	1.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Dichlorodifluoromethane	2	=	ug/m3	0.025	0.075
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Dichloromethane	0.2	=	ug/m3	0.019	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	ETHANOL	1.2	U	ug/m3	1.2	7.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Ethylbenzene	0.72	=	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Freon 113	0.31	=	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.63	U	ug/m3	0.63	7.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	n-Butanol	0.85	J	ug/m3	0.72	1.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	n-Hexane	3.5	=	ug/m3	0.22	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Propene	0.63	J	ug/m3	0.21	0.75
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Styrene	0.23	=	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Tetrachloroethene	0.031	J	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Toluene	4.2	=	ug/m3	0.016	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	trans-1,3-Dichloropropene	0.0082	U	ug/m3	0.0082	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Trichloroethylene	0.015	J	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.022	0.075
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Vinyl Acetate	0.97	U	ug/m3	0.97	7.5
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Xylene, o	0.64	=	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-07-020617	IA	N	2/6/2018	Xylenes, m & p	1.9	=	ug/m3	0.028	0.15
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2,4-Trimethylbenzene	1.8	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,3,5-Trimethylbenzene	0.41	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	2-Butanone	0.38	U	ug/m3	0.38	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	2-Hexanone	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	4-Ethyltoluene	0.44	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Acetone	14	=	ug/m3	1.4	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Acetonitrile	0.33	U	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Acrolein	0.31	U	ug/m3	0.31	3.6
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	alpha-Pinene	0.45	J	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Benzene	0.14	U	ug/m3	0.14	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Bromoform	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Bromomethane	0.17	U	ug/m3	0.17	0.36
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Carbon tetrachloride	0.43	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Chloroethane	0.16	U	ug/m3	0.16	0.36
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Chloroform	0.41	=	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Chloromethane	0.41	=	ug/m3	0.25	0.36
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Cyclohexane	1.1	J	ug/m3	0.53	1.8
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Dichlorodifluoromethane	2.4	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Dichloromethane	0.31	U	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	D-Limonene	0.78	J	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	ETHANOL	160	=	ug/m3	1.5	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Ethyl acetate	4.9	=	ug/m3	0.64	1.8
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Ethylbenzene	0.95	=	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Naphthalene	0.43	J	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	N-Butyl Acetate	0.47	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	N-HEPTANE	1.4	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	n-Hexane	9.7	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Nonane	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	n-Propylbenzene	0.31	J	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	OCTANE	0.43	J	ug/m3	0.33	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Propene	0.25	U	ug/m3	0.25	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Styrene	0.27	U	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Toluene	7.7	=	ug/m3	0.31	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Trichlorofluoromethane	1.7	=	ug/m3	0.1	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Trichlorotrifuoroethane	0.52	=	ug/m3	0.15	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Xylene, o	1.3	=	ug/m3	0.27	0.91
[redacted]	[redacted]	PMC-IN-07-062717	IA	N	6/27/2017	Xylenes, m & p	3.5	=	ug/m3	0.53	0.91
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,1,1-Trichloroethane	0.011	U	ug/m3	0.011	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,1,2,2-Tetrachloroethane	0.013	U	ug/m3	0.013	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,1,2-Trichloroethane	0.015	U	ug/m3	0.015	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,1-Dichloroethane	0.011	U	ug/m3	0.011	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,1-Dichloroethene	0.016	U	ug/m3	0.016	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2,3-Trimethylbenzene	0.14	U	ug/m3	0.14	0.97
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2,4-Trichlorobenzene	0.024	U	ug/m3	0.024	0.093
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2,4-Trimethylbenzene	4	=	ug/m3	0.015	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2-Dibromoethane	0.015	U	ug/m3	0.015	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2-Dichlorobenzene	0.015	U	ug/m3	0.015	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2-Dichloroethane	0.093	=	ug/m3	0.016	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,2-Dichloropropane	0.016	J	ug/m3	0.014	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,3,5-Trimethylbenzene	0.82	=	ug/m3	0.014	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,3-Butadiene	0.064	J	ug/m3	0.026	0.093
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,3-Dichlorobenzene	0.016	U	ug/m3	0.016	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,4-Dichlorobenzene	0.054	=	ug/m3	0.015	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	1,4-Dioxane	0.016	U	ug/m3	0.016	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	2-Butanone	1.7	J	ug/m3	0.2	1.9
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	2-Hexanone	0.12	U	ug/m3	0.12	1
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	4-Methyl-2-Pentanone	0.14	U	ug/m3	0.14	0.99
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Acetone	6.3	=	ug/m3	0.1	4.7
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Acetonitrile	0.27	J	ug/m3	0.24	0.97
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Acrolein	0.51	=	ug/m3	0.073	0.37
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Acrylonitrile	0.2	U	ug/m3	0.2	0.97
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Benzene	3.3	=	ug/m3	0.037	0.14
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Benzyl chloride	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Bromodichloromethane	0.013	U	ug/m3	0.013	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Bromoform	0.2	U	ug/m3	0.2	0.99
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Bromomethane	0.035	J	ug/m3	0.017	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Carbon Disulfide	0.4	J	ug/m3	0.3	2
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	CHLORODIFLUOROMETHANE	0.55	J	ug/m3	0.47	0.93
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Chloroethane	0.016	U	ug/m3	0.016	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Chloroform	0.097	J	ug/m3	0.033	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Chloromethane	0.3	=	ug/m3	0.035	0.093
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	cis-1,2-Dichloroethene	0.017	U	ug/m3	0.017	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	cis-1,3-Dichloropropene	0.012	U	ug/m3	0.012	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Cyclohexane	1.4	J	ug/m3	0.28	1.9
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Dichlorodifluoromethane	2	=	ug/m3	0.032	0.093
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Dichloromethane	0.21	=	ug/m3	0.024	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	ETHANOL	20	=	ug/m3	0.69	9.5
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Ethylbenzene	2.8	=	ug/m3	0.018	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.61	J	ug/m3	0.41	3.9
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Methyl tert-butyl ether (MTBE)	0.017	U	ug/m3	0.017	0.047

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	n-Butanol	0.26	U	ug/m3	0.26	1.9
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	n-Hexane	10	=	ug/m3	0.2	1
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Propene	0.54	J	ug/m3	0.24	0.97
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Styrene	0.096	J	ug/m3	0.014	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Tetrachloroethene	0.04	J	ug/m3	0.015	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Toluene	18	=	ug/m3	0.02	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	trans-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Trichloroethylene	0.016	U	ug/m3	0.016	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Trichlorofluoromethane	1.7	=	ug/m3	0.028	0.093
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.017	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Vinyl Acetate	2.2	U	ug/m3	2.2	9.9
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Vinyl Chloride	0.014	U	ug/m3	0.014	0.047
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Xylene, o	3.8	=	ug/m3	0.017	0.19
[redacted]	[redacted]	PMC-IN-07-01-110618	IA	N	11/6/2018	Xylenes, m & p	10	=	ug/m3	0.035	0.19
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,1,1-Trichloroethane	0.0094	U	ug/m3	0.0094	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,1-Dichloroethane	0.0098	U	ug/m3	0.0098	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2,3-Trimethylbenzene	0.6	J	ug/m3	0.12	0.83
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.08
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2,4-Trimethylbenzene	3.5	=	ug/m3	0.013	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2-Dichloroethane	0.083	=	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,2-Dichloropropane	0.016	J	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,3,5-Trimethylbenzene	0.78	=	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,3-Butadiene	0.067	J	ug/m3	0.022	0.08
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,4-Dichlorobenzene	0.024	J	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	1,4-Dioxane	0.014	U	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	2-Butanone	1.4	J	ug/m3	0.18	1.6
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	2-Hexanone	0.11	U	ug/m3	0.11	0.86
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.85
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Acetone	4	U	ug/m3	0.09	4
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Acetonitrile	0.21	U	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Acrolein	0.37	=	ug/m3	0.062	0.32
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Acrylonitrile	0.18	U	ug/m3	0.18	0.83
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Benzene	3.4	=	ug/m3	0.032	0.12
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Benzyl chloride	0.19	U	ug/m3	0.19	1.8
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Bromodichloromethane	0.011	U	ug/m3	0.011	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Bromoform	0.18	U	ug/m3	0.18	0.85
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Bromomethane	0.019	J	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Carbon Disulfide	0.42	J	ug/m3	0.26	1.8
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	CHLORODIFLUOROMETHANE	0.53	J	ug/m3	0.4	0.8
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Chloroethane	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Chloroform	0.084	J	ug/m3	0.029	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Chloromethane	0.27	=	ug/m3	0.03	0.08

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	cis-1,3-Dichloropropene	0.0099	U	ug/m3	0.0099	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Cyclohexane	1.6	J	ug/m3	0.24	1.6
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Dichlorodifluoromethane	2	=	ug/m3	0.027	0.08
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Dichloromethane	0.19	=	ug/m3	0.021	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	ETHANOL	16	=	ug/m3	0.59	8.2
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Ethylbenzene	3	=	ug/m3	0.016	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.42	J	ug/m3	0.35	3.4
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	n-Butanol	0.22	U	ug/m3	0.22	1.6
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	n-Hexane	11	=	ug/m3	0.18	0.86
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Propene	0.81	J	ug/m3	0.21	0.83
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Styrene	0.077	J	ug/m3	0.012	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Tetrachloroethene	0.036	J	ug/m3	0.013	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Toluene	19	=	ug/m3	0.018	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	trans-1,3-Dichloropropene	0.0088	U	ug/m3	0.0088	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Trichloroethylene	0.014	U	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Trichlorofluoromethane	1.7	=	ug/m3	0.024	0.08
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Trichlorotrifuoroethane	0.39	=	ug/m3	0.014	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Vinyl Acetate	1.9	U	ug/m3	1.9	8.5
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Xylene, o	4.2	=	ug/m3	0.014	0.16
[redacted]	[redacted]	PMC-IN-07-02-110618	IA	N	11/6/2018	Xylenes, m & p	11	=	ug/m3	0.03	0.16
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,1,1-Trichloroethane	0.0087	U	ug/m3	0.0087	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,1-Dichloroethane	0.009	U	ug/m3	0.009	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2,3-Trimethylbenzene	0.3	U	ug/m3	0.3	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.074
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2,4-Trimethylbenzene	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2-Dichloroethane	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,2-Dichloropropane	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,3,5-Trimethylbenzene	0.011	U	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,3-Butadiene	0.021	U	ug/m3	0.021	0.074
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	2-Butanone	0.41	U	ug/m3	0.41	9.9
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	2-Hexanone	0.32	U	ug/m3	0.32	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	4-Methyl-2-Pentanone	0.32	U	ug/m3	0.32	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Acetone	2.3	J	ug/m3	0.083	3.7
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Acetonitrile	0.35	U	ug/m3	0.35	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Acrolein	0.083	J	ug/m3	0.058	0.3
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Acrylonitrile	0.33	U	ug/m3	0.33	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Benzene	0.03	U	ug/m3	0.03	0.11

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Benzyl chloride	0.22	U	ug/m3	0.22	2
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Bromoform	0.3	U	ug/m3	0.3	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Bromomethane	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Carbon Disulfide	0.3	U	ug/m3	0.3	9.9
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	CHLORODIFLUOROMETHANE	0.66	J	ug/m3	0.49	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Chloroethane	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Chloroform	0.027	U	ug/m3	0.027	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Chloromethane	0.34	=	ug/m3	0.028	0.074
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Cyclohexane	0.57	U	ug/m3	0.57	2
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Dichlorodifluoromethane	2.2	=	ug/m3	0.025	0.074
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Dichloromethane	0.13	J	ug/m3	0.019	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	ETHANOL	1.6	U	ug/m3	1.6	9.9
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Ethylbenzene	0.014	U	ug/m3	0.014	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Freon 113	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.83	U	ug/m3	0.83	9.9
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	n-Butanol	0.99	J	ug/m3	0.95	2
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	n-Hexane	0.3	U	ug/m3	0.3	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Propene	0.28	U	ug/m3	0.28	0.99
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Styrene	0.011	U	ug/m3	0.011	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Tetrachloroethene	0.012	U	ug/m3	0.012	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Toluene	0.016	U	ug/m3	0.016	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	trans-1,3-Dichloropropene	0.0081	U	ug/m3	0.0081	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Trichloroethylene	0.013	U	ug/m3	0.013	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Trichlorofluoromethane	0.26	=	ug/m3	0.022	0.074
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Vinyl Acetate	1.3	U	ug/m3	1.3	9.9
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Xylene, o	0.013	U	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-08-020518	IA	N	2/5/2018	Xylenes, m & p	0.028	U	ug/m3	0.028	0.15
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2,4-Trimethylbenzene	1.5	=	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dichloroethane	0.29	=	ug/m3	0.12	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,3,5-Trimethylbenzene	0.44	J	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,3-Butadiene	0.26	U	ug/m3	0.26	0.37
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	1,4-Dioxane	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	2-Butanone	17	=	ug/m3	0.39	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	2-Hexanone	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	4-Ethyltoluene	0.37	J	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Acetone	32	=	ug/m3	1.4	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Acetonitrile	0.34	U	ug/m3	0.34	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Acrolein	0.32	U	ug/m3	0.32	3.7
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Acrylonitrile	0.32	U	ug/m3	0.32	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Allyl chloride	0.14	U	ug/m3	0.14	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	alpha-Pinene	5.9	=	ug/m3	0.26	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Benzene	0.19	=	ug/m3	0.15	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Benzyl chloride	0.21	U	ug/m3	0.21	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Bromodichloromethane	0.13	U	ug/m3	0.13	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Bromoform	0.28	U	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Bromomethane	0.17	U	ug/m3	0.17	0.37
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Carbon Disulfide	0.28	U	ug/m3	0.28	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Carbon tetrachloride	0.47	=	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Chloroethane	0.16	U	ug/m3	0.16	0.37
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Chloroform	0.23	=	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Chloromethane	0.26	U	ug/m3	0.26	0.37
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	cis-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Cyclohexane	0.54	U	ug/m3	0.54	1.9
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Dichlorodifluoromethane	4.9	=	ug/m3	0.32	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Dichloromethane	1.8	=	ug/m3	0.32	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	D-Limonene	6	=	ug/m3	0.26	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	ETHANOL	97	=	ug/m3	1.5	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Ethyl acetate	0.65	U	ug/m3	0.65	1.9
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Ethylbenzene	0.36	J	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Hexachlorobutadiene	0.26	U	ug/m3	0.26	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	16	=	ug/m3	0.79	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Isopropylbenzene	0.28	U	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Methyl methacrylate	0.58	U	ug/m3	0.58	1.9
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Naphthalene	0.47	J	ug/m3	0.34	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	N-Butyl Acetate	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	N-HEPTANE	0.32	U	ug/m3	0.32	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	n-Hexane	0.28	U	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Nonane	0.75	J	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	n-Propylbenzene	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	OCTANE	0.34	U	ug/m3	0.34	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Propene	5.2	=	ug/m3	0.26	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Styrene	0.28	U	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Tetrachloroethene	0.19	J	ug/m3	0.13	0.19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Tetrahydrofuran	1	=	ug/m3	0.37	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Toluene	2	=	ug/m3	0.32	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Trichloroethylene	0.17	U	ug/m3	0.17	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Trichlorofluoromethane	1.3	=	ug/m3	0.11	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Trichlorotrifuoroethane	0.44	=	ug/m3	0.15	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Vinyl Acetate	1.3	J	ug/m3	1.2	9.4
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Xylene, o	0.82	J	ug/m3	0.28	0.94
[redacted]	[redacted]	PMC-IN-08-060617	IA	N	6/6/2017	Xylenes, m & p	0.54	U	ug/m3	0.54	0.94
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,1,1-Trichloroethane	0.011	J	ug/m3	0.008	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,1,2,2-Tetrachloroethane	0.0098	U	ug/m3	0.0098	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,1-Dichloroethane	0.0083	U	ug/m3	0.0083	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,1-Dichloroethene	0.022	J	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2,3-Trimethylbenzene	0.2	U	ug/m3	0.2	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2,4-Trichlorobenzene	0.018	U	ug/m3	0.018	0.068
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2,4-Trimethylbenzene	0.23	=	ug/m3	0.011	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2-Dichlorobenzene	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2-Dichloroethane	0.072	=	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,2-Dichloropropane	0.027	J	ug/m3	0.0099	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,3,5-Trimethylbenzene	0.076	J	ug/m3	0.0099	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,3-Butadiene	0.019	U	ug/m3	0.019	0.068
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,4-Dichlorobenzene	0.011	U	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	2-Butanone	0.36	J	ug/m3	0.29	6.8
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	2-Hexanone	0.22	U	ug/m3	0.22	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	4-Methyl-2-Pentanone	0.22	U	ug/m3	0.22	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Acetone	3.1	J	ug/m3	0.076	3.4
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Acetonitrile	0.24	U	ug/m3	0.24	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Acrolein	0.13	J	ug/m3	0.053	0.27
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Acrylonitrile	0.23	U	ug/m3	0.23	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Benzene	0.61	=	ug/m3	0.027	0.1
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Benzyl chloride	0.15	U	ug/m3	0.15	1.4
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Bromodichloromethane	0.0094	U	ug/m3	0.0094	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Bromoform	0.2	U	ug/m3	0.2	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Bromomethane	0.017	J	ug/m3	0.013	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Carbon Disulfide	0.2	U	ug/m3	0.2	6.8
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	CHLORODIFLUOROMETHANE	0.74	=	ug/m3	0.34	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Chloroethane	0.012	U	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Chloroform	0.1	J	ug/m3	0.024	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Chloromethane	0.4	=	ug/m3	0.026	0.068
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	cis-1,3-Dichloropropene	0.0084	U	ug/m3	0.0084	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Cyclohexane	0.39	U	ug/m3	0.39	1.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Dichlorodifluoromethane	2.3	=	ug/m3	0.023	0.068
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Dichloromethane	0.31	=	ug/m3	0.018	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	ETHANOL	13	=	ug/m3	1.1	6.8
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Ethylbenzene	0.18	=	ug/m3	0.013	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Freon 113	0.37	=	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.6	J	ug/m3	0.57	6.8
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	n-Butanol	0.65	U	ug/m3	0.65	1.4
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	n-Hexane	0.53	J	ug/m3	0.2	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Propene	1.2	=	ug/m3	0.19	0.68
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Styrene	0.047	J	ug/m3	0.01	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Tetrachloroethene	0.049	=	ug/m3	0.011	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Toluene	4.5	=	ug/m3	0.015	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	trans-1,3-Dichloropropene	0.0075	U	ug/m3	0.0075	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Trichloroethylene	0.013	J	ug/m3	0.012	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Trichlorofluoromethane	1.1	=	ug/m3	0.02	0.068
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Vinyl Acetate	0.88	U	ug/m3	0.88	6.8
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Vinyl Chloride	0.01	U	ug/m3	0.01	0.034
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Xylene, o	0.26	=	ug/m3	0.012	0.14
[redacted]	[redacted]	PMC-IN-09-022018	IA	N	2/20/2018	Xylenes, m & p	0.66	=	ug/m3	0.026	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,1,1-Trichloroethane	0.1	U	ug/m3	0.1	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,1,2,2-Tetrachloroethane	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,1,2-Trichloroethane	0.11	U	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,1-Dichloroethane	0.11	U	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,1-Dichloroethene	0.13	U	ug/m3	0.13	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2,4-Trichlorobenzene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2,4-Trimethylbenzene	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dibromo-3-chloropropane	0.14	U	ug/m3	0.14	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dibromoethane	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.26	U	ug/m3	0.26	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dichlorobenzene	0.13	U	ug/m3	0.13	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dichloroethane	0.085	U	ug/m3	0.085	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,2-Dichloropropane	0.11	U	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,3,5-Trimethylbenzene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,3-Butadiene	0.19	U	ug/m3	0.19	0.27
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,3-Dichlorobenzene	0.1	U	ug/m3	0.1	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,4-Dichlorobenzene	0.1	U	ug/m3	0.1	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	1,4-Dioxane	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	2-Butanone	0.29	U	ug/m3	0.29	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	2-Hexanone	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	4-Ethyltoluene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	4-Methyl-2-Pentanone	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Acetone	1.1	U	ug/m3	1.1	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Acetonitrile	0.25	U	ug/m3	0.25	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Acrolein	0.23	U	ug/m3	0.23	2.7
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Acrylonitrile	0.23	U	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Allyl chloride	0.1	U	ug/m3	0.1	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	alpha-Pinene	0.19	U	ug/m3	0.19	0.69

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Benzene	0.16	=	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Benzyl chloride	0.15	U	ug/m3	0.15	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Bromodichloromethane	0.093	U	ug/m3	0.093	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Bromoform	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Bromomethane	0.13	U	ug/m3	0.13	0.27
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Carbon Disulfide	0.21	U	ug/m3	0.21	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Carbon tetrachloride	0.36	=	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Chlorobenzene	0.11	U	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Chlorodibromomethane	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Chloroethane	0.12	U	ug/m3	0.12	0.27
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Chloroform	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Chloromethane	0.35	=	ug/m3	0.19	0.27
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	cis-1,2-Dichloroethene	0.13	U	ug/m3	0.13	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	cis-1,3-Dichloropropene	0.19	U	ug/m3	0.19	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Cyclohexane	0.4	U	ug/m3	0.4	1.4
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Dichlorodifluoromethane	2.1	=	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Dichloromethane	0.48	J	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	D-Limonene	0.19	U	ug/m3	0.19	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	ETHANOL	26	=	ug/m3	1.1	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Ethyl acetate	0.48	U	ug/m3	0.48	1.4
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Ethylbenzene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Hexachlorobutadiene	0.19	U	ug/m3	0.19	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.58	U	ug/m3	0.58	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Isopropylbenzene	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Methyl methacrylate	0.42	U	ug/m3	0.42	1.4
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Methyl tert-butyl ether (MTBE)	0.13	U	ug/m3	0.13	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Naphthalene	0.25	U	ug/m3	0.25	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	N-Butyl Acetate	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	N-HEPTANE	0.23	U	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	n-Hexane	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Nonane	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	n-Propylbenzene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	OCTANE	0.25	U	ug/m3	0.25	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Propene	0.19	U	ug/m3	0.19	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Styrene	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Tetrachloroethene	0.099	U	ug/m3	0.099	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Tetrahydrofuran	0.27	U	ug/m3	0.27	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Toluene	0.23	U	ug/m3	0.23	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	trans-1,2-Dichloroethene	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	trans-1,3-Dichloropropene	0.22	U	ug/m3	0.22	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Trichloroethylene	0.12	U	ug/m3	0.12	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Trichlorofluoromethane	1.1	=	ug/m3	0.078	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Trichlorotrifuoroethane	0.45	=	ug/m3	0.11	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Vinyl Acetate	0.89	U	ug/m3	0.89	6.9
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Vinyl Chloride	0.13	U	ug/m3	0.13	0.14
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Xylene, o	0.21	U	ug/m3	0.21	0.69
[redacted]	[redacted]	PMC-IN-09-060617	IA	N	6/6/2017	Xylenes, m & p	0.4	U	ug/m3	0.4	0.69
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,1,1-Trichloroethane	0.0097	J	ug/m3	0.009	0.038

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,1-Dichloroethane	0.0093	U	ug/m3	0.0093	0.038
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.77
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.077
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,2,4-Trimethylbenzene	0.27	=	ug/m3	0.013	0.15
[redacted]	[redacted]	PMC-IN-12-020918	IA	N	2/9/2018	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
[redacted]		PMC-IN-12-020918	IA	N	43140.4292	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-12-020918	IA	N	43140.4292	1,2-Dichloroethane	3.2	=	ug/m3	0.013	0.038
		PMC-IN-12-020918	IA	N	43140.4292	1,2-Dichloropropane	0.029	J	ug/m3	0.011	0.038
		PMC-IN-12-020918	IA	N	43140.4292	1,3,5-Trimethylbenzene	0.084	J	ug/m3	0.011	0.15
		PMC-IN-12-020918	IA	N	43140.4292	1,3-Butadiene	0.15	=	ug/m3	0.021	0.077
		PMC-IN-12-020918	IA	N	43140.4292	1,3-Dichlorobenzene	0.11	=	ug/m3	0.013	0.038
		PMC-IN-12-020918	IA	N	43140.4292	1,4-Dichlorobenzene	4	=	ug/m3	0.012	0.038
		PMC-IN-12-020918	IA	N	43140.4292	1,4-Dioxane	0.017	J	ug/m3	0.013	0.15
		PMC-IN-12-020918	IA	N	43140.4292	2-Butanone	2.6	J	ug/m3	0.32	7.7
		PMC-IN-12-020918	IA	N	43140.4292	2-Hexanone	0.24	U	ug/m3	0.24	0.77
		PMC-IN-12-020918	IA	N	43140.4292	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Acetone	24	=	ug/m3	0.086	3.8
		PMC-IN-12-020918	IA	N	43140.4292	Acetonitrile	0.28	U	ug/m3	0.28	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Acrolein	0.68	=	ug/m3	0.06	0.31
		PMC-IN-12-020918	IA	N	43140.4292	Acrylonitrile	0.26	U	ug/m3	0.26	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Benzene	1.3	=	ug/m3	0.031	0.11
		PMC-IN-12-020918	IA	N	43140.4292	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-12-020918	IA	N	43140.4292	Bromodichloromethane	0.3	=	ug/m3	0.011	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Bromoform	0.23	U	ug/m3	0.23	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Bromomethane	0.027	J	ug/m3	0.014	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Carbon Disulfide	0.29	J	ug/m3	0.23	7.7
		PMC-IN-12-020918	IA	N	43140.4292	CHLORODIFLUOROMETHANE	2.7	=	ug/m3	0.38	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Chloroethane	0.021	J	ug/m3	0.013	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Chloroform	0.74	=	ug/m3	0.028	0.15
		PMC-IN-12-020918	IA	N	43140.4292	Chloromethane	0.27	=	ug/m3	0.029	0.077
		PMC-IN-12-020918	IA	N	43140.4292	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-12-020918	IA	N	43140.4292	cis-1,3-Dichloropropene	0.0095	U	ug/m3	0.0095	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Cyclohexane	0.44	U	ug/m3	0.44	1.5
		PMC-IN-12-020918	IA	N	43140.4292	Dichlorodifluoromethane	2.4	=	ug/m3	0.026	0.077
		PMC-IN-12-020918	IA	N	43140.4292	Dichloromethane	0.2	=	ug/m3	0.02	0.15
		PMC-IN-12-020918	IA	N	43140.4292	ETHANOL	2000	=	ug/m3	12	77
		PMC-IN-12-020918	IA	N	43140.4292	Ethylbenzene	0.33	=	ug/m3	0.015	0.15
		PMC-IN-12-020918	IA	N	43140.4292	Freon 113	0.33	=	ug/m3	0.014	0.038
		PMC-IN-12-020918	IA	N	43140.4292	ISOPROPYL ALCOHOL (ISOPROPANOL)	100	=	ug/m3	0.64	7.7
		PMC-IN-12-020918	IA	N	43140.4292	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-12-020918	IA	N	43140.4292	n-Butanol	1.5	J	ug/m3	0.73	1.5
		PMC-IN-12-020918	IA	N	43140.4292	n-Hexane	0.78	=	ug/m3	0.23	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Propene	27	=	ug/m3	0.21	0.77
		PMC-IN-12-020918	IA	N	43140.4292	Styrene	0.58	=	ug/m3	0.011	0.15
		PMC-IN-12-020918	IA	N	43140.4292	Tetrachloroethene	0.63	=	ug/m3	0.013	0.038

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-12-020918	IA	N	43140.4292	Toluene	3.5	=	ug/m3	0.017	0.15
		PMC-IN-12-020918	IA	N	43140.4292	trans-1,3-Dichloropropene	0.0084	U	ug/m3	0.0084	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Trichloroethylene	0.041	=	ug/m3	0.013	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Trichlorofluoromethane	1	=	ug/m3	0.023	0.077
		PMC-IN-12-020918	IA	N	43140.4292	Vinyl Acetate	2.1	J	ug/m3	0.99	7.7
		PMC-IN-12-020918	IA	N	43140.4292	Vinyl Chloride	0.012	U	ug/m3	0.012	0.038
		PMC-IN-12-020918	IA	N	43140.4292	Xylene, o	0.34	=	ug/m3	0.014	0.15
		PMC-IN-12-020918	IA	N	43140.4292	Xylenes, m & p	0.97	=	ug/m3	0.029	0.15
		PMC-IN-12-062717	IA	N	42913.6563	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	1,2,4-Trimethylbenzene	0.71	J	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.88
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.88
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dichloroethane	11	=	ug/m3	0.11	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	1,3-Butadiene	0.31	J	ug/m3	0.25	0.35
		PMC-IN-12-062717	IA	N	42913.6563	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,4-Dichlorobenzene	9.7	=	ug/m3	0.13	0.18
		PMC-IN-12-062717	IA	N	42913.6563	1,4-Dioxane	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	2-Butanone	0.37	U	ug/m3	0.37	8.8
		PMC-IN-12-062717	IA	N	42913.6563	2-Hexanone	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	4-Methyl-2-Pentanone	0.66	J	ug/m3	0.3	0.93
		PMC-IN-12-062717	IA	N	42913.6563	Acetone	43	=	ug/m3	1.4	8.8
		PMC-IN-12-062717	IA	N	42913.6563	Acetonitrile	1.2	=	ug/m3	0.32	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Acrolein	0.3	U	ug/m3	0.3	3.5
		PMC-IN-12-062717	IA	N	42913.6563	Acrylonitrile	0.3	U	ug/m3	0.3	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Allyl chloride	0.13	U	ug/m3	0.13	0.18
		PMC-IN-12-062717	IA	N	42913.6563	alpha-Pinene	9.8	=	ug/m3	0.25	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Benzene	0.97	=	ug/m3	0.15	0.19
		PMC-IN-12-062717	IA	N	42913.6563	Benzyl chloride	0.19	U	ug/m3	0.19	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Bromodichloromethane	0.77	=	ug/m3	0.13	0.19
		PMC-IN-12-062717	IA	N	42913.6563	Bromoform	0.26	U	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Bromomethane	0.16	U	ug/m3	0.16	0.35
		PMC-IN-12-062717	IA	N	42913.6563	Carbon Disulfide	0.26	U	ug/m3	0.26	8.8
		PMC-IN-12-062717	IA	N	42913.6563	Carbon tetrachloride	0.71	=	ug/m3	0.16	0.19
		PMC-IN-12-062717	IA	N	42913.6563	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Chlorodibromomethane	0.34	=	ug/m3	0.15	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Chloroethane	0.15	U	ug/m3	0.15	0.35
		PMC-IN-12-062717	IA	N	42913.6563	Chloroform	1.8	=	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Chloromethane	0.5	=	ug/m3	0.26	0.37

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-12-062717	IA	N	42913.6563	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Cyclohexane	0.51	U	ug/m3	0.51	1.8
		PMC-IN-12-062717	IA	N	42913.6563	Dichlorodifluoromethane	3.7	=	ug/m3	0.3	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Dichloromethane	0.33	J	ug/m3	0.31	0.93
		PMC-IN-12-062717	IA	N	42913.6563	D-Limonene	480	=	ug/m3	2.6	9.3
		PMC-IN-12-062717	IA	N	42913.6563	ETHANOL	1900	=	ug/m3	14	88
		PMC-IN-12-062717	IA	N	42913.6563	Ethyl acetate	4.6	=	ug/m3	0.62	1.8
		PMC-IN-12-062717	IA	N	42913.6563	Ethylbenzene	0.83	J	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.88
		PMC-IN-12-062717	IA	N	42913.6563	ISOPROPYL ALCOHOL (ISOPROPANOL)	11	=	ug/m3	0.74	8.8
		PMC-IN-12-062717	IA	N	42913.6563	Isopropylbenzene	0.26	U	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Methyl methacrylate	0.55	U	ug/m3	0.55	1.8
		PMC-IN-12-062717	IA	N	42913.6563	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Naphthalene	0.37	J	ug/m3	0.32	0.88
		PMC-IN-12-062717	IA	N	42913.6563	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	N-HEPTANE	5.4	=	ug/m3	0.3	0.88
		PMC-IN-12-062717	IA	N	42913.6563	n-Hexane	1.4	=	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Nonane	0.99	=	ug/m3	0.28	0.93
		PMC-IN-12-062717	IA	N	42913.6563	n-Propylbenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	OCTANE	1.2	=	ug/m3	0.32	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Propene	4.6	=	ug/m3	0.25	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Styrene	2.2	=	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Tetrachloroethene	1.3	=	ug/m3	0.13	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Tetrahydrofuran	0.91	=	ug/m3	0.35	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Toluene	4.8	=	ug/m3	0.3	0.88
		PMC-IN-12-062717	IA	N	42913.6563	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Trichlorofluoromethane	1.2	=	ug/m3	0.1	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Trichlorotrifuoroethane	0.5	=	ug/m3	0.14	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Vinyl Acetate	1.1	U	ug/m3	1.1	8.8
		PMC-IN-12-062717	IA	N	42913.6563	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-12-062717	IA	N	42913.6563	Xylene, o	0.83	J	ug/m3	0.26	0.88
		PMC-IN-12-062717	IA	N	42913.6563	Xylenes, m & p	2.6	=	ug/m3	0.51	0.88
		PMC-IN-33-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-33-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.85
		PMC-IN-33-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.85
		PMC-IN-33-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-33-060117	IA	N	42887	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-33-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-33-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.42	J	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-33-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	2-Butanone	0.36	U	ug/m3	0.36	8.5
		PMC-IN-33-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	4-Methyl-2-Pentanone	0.28	J	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	Acetone	1.3	U	ug/m3	1.3	8.5
		PMC-IN-33-060117	IA	N	42887	Acetonitrile	0.31	U	ug/m3	0.31	0.85
		PMC-IN-33-060117	IA	N	42887	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-33-060117	IA	N	42887	Acrylonitrile	0.29	U	ug/m3	0.29	0.85
		PMC-IN-33-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	alpha-Pinene	8.7	=	ug/m3	0.24	0.85
		PMC-IN-33-060117	IA	N	42887	Benzene	0.19	=	ug/m3	0.13	0.17
		PMC-IN-33-060117	IA	N	42887	Benzyl chloride	0.19	U	ug/m3	0.19	0.85
		PMC-IN-33-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-33-060117	IA	N	42887	Bromoform	0.26	U	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-33-060117	IA	N	42887	Carbon Disulfide	0.26	U	ug/m3	0.26	8.5
		PMC-IN-33-060117	IA	N	42887	Carbon tetrachloride	0.41	=	ug/m3	0.15	0.17
		PMC-IN-33-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-33-060117	IA	N	42887	Chloroform	0.23	=	ug/m3	0.15	0.17
		PMC-IN-33-060117	IA	N	42887	Chloromethane	0.24	U	ug/m3	0.24	0.34
		PMC-IN-33-060117	IA	N	42887	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-33-060117	IA	N	42887	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-33-060117	IA	N	42887	Cyclohexane	0.77	J	ug/m3	0.49	1.7
		PMC-IN-33-060117	IA	N	42887	Dichlorodifluoromethane	13	=	ug/m3	0.29	0.85
		PMC-IN-33-060117	IA	N	42887	Dichloromethane	0.29	U	ug/m3	0.29	0.85
		PMC-IN-33-060117	IA	N	42887	D-Limonene	6.4	=	ug/m3	0.24	0.85
		PMC-IN-33-060117	IA	N	42887	ETHANOL	88	=	ug/m3	1.4	8.5
		PMC-IN-33-060117	IA	N	42887	Ethyl acetate	0.6	U	ug/m3	0.6	1.7
		PMC-IN-33-060117	IA	N	42887	Ethylbenzene	0.37	J	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-33-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.71	U	ug/m3	0.71	8.5
		PMC-IN-33-060117	IA	N	42887	Isopropylbenzene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	Methyl methacrylate	8	=	ug/m3	0.53	1.7
		PMC-IN-33-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-33-060117	IA	N	42887	Naphthalene	0.31	U	ug/m3	0.31	0.85
		PMC-IN-33-060117	IA	N	42887	N-Butyl Acetate	1.8	=	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	N-HEPTANE	0.29	U	ug/m3	0.29	0.85
		PMC-IN-33-060117	IA	N	42887	n-Hexane	0.32	J	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	Nonane	0.34	J	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	OCTANE	0.31	U	ug/m3	0.31	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-33-060117	IA	N	42887	Propene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-33-060117	IA	N	42887	Styrene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-33-060117	IA	N	42887	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.85
		PMC-IN-33-060117	IA	N	42887	Toluene	0.29	U	ug/m3	0.29	0.85
		PMC-IN-33-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-33-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-33-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-33-060117	IA	N	42887	Trichlorofluoromethane	14	=	ug/m3	0.097	0.17
		PMC-IN-33-060117	IA	N	42887	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.17
		PMC-IN-33-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.5
		PMC-IN-33-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-33-060117	IA	N	42887	Xylene, o	0.26	U	ug/m3	0.26	0.85
		PMC-IN-33-060117	IA	N	42887	Xylenes, m & p	0.49	U	ug/m3	0.49	0.85
		PMC-IN-16-060117	IA	N	42887	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-16-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-16-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.5	J	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.84
		PMC-IN-16-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.84
		PMC-IN-16-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-16-060117	IA	N	42887	1,2-Dichloroethane	0.1	U	ug/m3	0.1	0.17
		PMC-IN-16-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	1,3-Butadiene	0.23	U	ug/m3	0.23	0.33
		PMC-IN-16-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-16-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	2-Butanone	0.35	U	ug/m3	0.35	8.4
		PMC-IN-16-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	Acetone	1.3	U	ug/m3	1.3	8.4
		PMC-IN-16-060117	IA	N	42887	Acetonitrile	0.3	U	ug/m3	0.3	0.84
		PMC-IN-16-060117	IA	N	42887	Acrolein	0.28	U	ug/m3	0.28	3.3
		PMC-IN-16-060117	IA	N	42887	Acrylonitrile	0.28	U	ug/m3	0.28	0.84
		PMC-IN-16-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	alpha-Pinene	6.3	=	ug/m3	0.23	0.84
		PMC-IN-16-060117	IA	N	42887	Benzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	Benzyl chloride	0.18	U	ug/m3	0.18	0.84
		PMC-IN-16-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-16-060117	IA	N	42887	Bromoform	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.33
		PMC-IN-16-060117	IA	N	42887	Carbon Disulfide	0.25	U	ug/m3	0.25	8.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-16-060117	IA	N	42887	Carbon tetrachloride	0.41	=	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-16-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.33
		PMC-IN-16-060117	IA	N	42887	Chloroform	0.15	U	ug/m3	0.15	0.17
		PMC-IN-16-060117	IA	N	42887	Chloromethane	0.23	U	ug/m3	0.23	0.33
		PMC-IN-16-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-16-060117	IA	N	42887	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.84
		PMC-IN-16-060117	IA	N	42887	Cyclohexane	0.48	U	ug/m3	0.48	1.7
		PMC-IN-16-060117	IA	N	42887	Dichlorodifluoromethane	5.7	=	ug/m3	0.28	0.84
		PMC-IN-16-060117	IA	N	42887	Dichloromethane	0.28	U	ug/m3	0.28	0.84
		PMC-IN-16-060117	IA	N	42887	D-Limonene	2.3	=	ug/m3	0.23	0.84
		PMC-IN-16-060117	IA	N	42887	ETHANOL	1.3	U	ug/m3	1.3	8.4
		PMC-IN-16-060117	IA	N	42887	Ethyl acetate	0.58	U	ug/m3	0.58	1.7
		PMC-IN-16-060117	IA	N	42887	Ethylbenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.84
		PMC-IN-16-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.7	U	ug/m3	0.7	8.4
		PMC-IN-16-060117	IA	N	42887	Isopropylbenzene	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	Methyl methacrylate	0.52	U	ug/m3	0.52	1.7
		PMC-IN-16-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-16-060117	IA	N	42887	Naphthalene	0.3	U	ug/m3	0.3	0.84
		PMC-IN-16-060117	IA	N	42887	N-Butyl Acetate	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	N-HEPTANE	0.28	U	ug/m3	0.28	0.84
		PMC-IN-16-060117	IA	N	42887	n-Hexane	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	Nonane	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	OCTANE	0.3	U	ug/m3	0.3	0.84
		PMC-IN-16-060117	IA	N	42887	Propene	0.23	U	ug/m3	0.23	0.84
		PMC-IN-16-060117	IA	N	42887	Styrene	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-16-060117	IA	N	42887	Tetrahydrofuran	0.33	U	ug/m3	0.33	0.84
		PMC-IN-16-060117	IA	N	42887	Toluene	0.28	U	ug/m3	0.28	0.84
		PMC-IN-16-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-16-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-16-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-16-060117	IA	N	42887	Trichlorofluoromethane	7.1	=	ug/m3	0.095	0.17
		PMC-IN-16-060117	IA	N	42887	Trichlorotrifuoroethane	0.48	=	ug/m3	0.13	0.17
		PMC-IN-16-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.4
		PMC-IN-16-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-16-060117	IA	N	42887	Xylene, o	0.25	U	ug/m3	0.25	0.84
		PMC-IN-16-060117	IA	N	42887	Xylenes, m & p	0.48	U	ug/m3	0.48	0.84
		PMC-IN-19-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-19-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-19-060117	IA	N	42887	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-19-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
		PMC-IN-19-060117	IA	N	42887	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91
		PMC-IN-19-060117	IA	N	42887	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
		PMC-IN-19-060117	IA	N	42887	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-19-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-19-060117	IA	N	42887	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-19-060117	IA	N	42887	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	2-Butanone	0.38	U	ug/m3	0.38	9.1
		PMC-IN-19-060117	IA	N	42887	2-Hexanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	4-Ethyltoluene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	Acetone	28	=	ug/m3	1.4	9.1
		PMC-IN-19-060117	IA	N	42887	Acetonitrile	0.33	U	ug/m3	0.33	0.91
		PMC-IN-19-060117	IA	N	42887	Acrolein	0.31	U	ug/m3	0.31	3.6
		PMC-IN-19-060117	IA	N	42887	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
		PMC-IN-19-060117	IA	N	42887	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-19-060117	IA	N	42887	alpha-Pinene	5.2	=	ug/m3	0.25	0.91
		PMC-IN-19-060117	IA	N	42887	Benzene	0.17	J	ug/m3	0.14	0.18
		PMC-IN-19-060117	IA	N	42887	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
		PMC-IN-19-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-19-060117	IA	N	42887	Bromoform	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-19-060117	IA	N	42887	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
		PMC-IN-19-060117	IA	N	42887	Carbon tetrachloride	0.46	=	ug/m3	0.16	0.18
		PMC-IN-19-060117	IA	N	42887	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-19-060117	IA	N	42887	Chloroform	0.23	=	ug/m3	0.16	0.18
		PMC-IN-19-060117	IA	N	42887	Chloromethane	0.37	=	ug/m3	0.25	0.36
		PMC-IN-19-060117	IA	N	42887	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-19-060117	IA	N	42887	Cyclohexane	0.53	U	ug/m3	0.53	1.8
		PMC-IN-19-060117	IA	N	42887	Dichlorodifluoromethane	8.8	=	ug/m3	0.31	0.91
		PMC-IN-19-060117	IA	N	42887	Dichloromethane	0.31	U	ug/m3	0.31	0.91
		PMC-IN-19-060117	IA	N	42887	D-Limonene	160	=	ug/m3	0.25	0.91
		PMC-IN-19-060117	IA	N	42887	ETHANOL	290	=	ug/m3	1.5	9.1
		PMC-IN-19-060117	IA	N	42887	Ethyl acetate	27	=	ug/m3	0.64	1.8
		PMC-IN-19-060117	IA	N	42887	Ethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-19-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
		PMC-IN-19-060117	IA	N	42887	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
		PMC-IN-19-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	Naphthalene	0.33	U	ug/m3	0.33	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-19-060117	IA	N	42887	N-Butyl Acetate	0.54	J	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	N-HEPTANE	0.31	U	ug/m3	0.31	0.91
		PMC-IN-19-060117	IA	N	42887	n-Hexane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	Nonane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	n-Propylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	OCTANE	0.33	U	ug/m3	0.33	0.91
		PMC-IN-19-060117	IA	N	42887	Propene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-19-060117	IA	N	42887	Styrene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-19-060117	IA	N	42887	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
		PMC-IN-19-060117	IA	N	42887	Toluene	1.9	=	ug/m3	0.31	0.91
		PMC-IN-19-060117	IA	N	42887	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-19-060117	IA	N	42887	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-19-060117	IA	N	42887	Trichlorofluoromethane	9.2	=	ug/m3	0.1	0.18
		PMC-IN-19-060117	IA	N	42887	Trichlorotrifuoroethane	0.48	=	ug/m3	0.15	0.18
		PMC-IN-19-060117	IA	N	42887	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
		PMC-IN-19-060117	IA	N	42887	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-19-060117	IA	N	42887	Xylene, o	0.27	U	ug/m3	0.27	0.91
		PMC-IN-19-060117	IA	N	42887	Xylenes, m & p	0.53	U	ug/m3	0.53	0.91
		PMC-IN-22-020818	IA	N	43139.5896	1,1,1-Trichloroethane	0.017	J	ug/m3	0.0077	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,1,2,2-Tetrachloroethane	0.0094	U	ug/m3	0.0094	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,1,2-Trichloroethane	0.01	U	ug/m3	0.01	0.13
		PMC-IN-22-020818	IA	N	43139.5896	1,1-Dichloroethane	0.008	U	ug/m3	0.008	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,1-Dichloroethene	0.011	U	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,2,3-Trimethylbenzene	0.2	U	ug/m3	0.2	0.66
		PMC-IN-22-020818	IA	N	43139.5896	1,2,4-Trichlorobenzene	0.017	U	ug/m3	0.017	0.066
		PMC-IN-22-020818	IA	N	43139.5896	1,2,4-Trimethylbenzene	0.27	=	ug/m3	0.011	0.13
		PMC-IN-22-020818	IA	N	43139.5896	1,2-Dibromoethane	0.01	U	ug/m3	0.01	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,2-Dichlorobenzene	0.011	U	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,2-Dichloroethane	0.091	=	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,2-Dichloropropane	0.091	=	ug/m3	0.0096	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,3,5-Trimethylbenzene	0.078	J	ug/m3	0.0096	0.13
		PMC-IN-22-020818	IA	N	43139.5896	1,3-Butadiene	0.018	U	ug/m3	0.018	0.066
		PMC-IN-22-020818	IA	N	43139.5896	1,3-Dichlorobenzene	0.011	U	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,4-Dichlorobenzene	0.018	J	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	1,4-Dioxane	0.011	U	ug/m3	0.011	0.13
		PMC-IN-22-020818	IA	N	43139.5896	2-Butanone	1.5	J	ug/m3	0.28	6.6
		PMC-IN-22-020818	IA	N	43139.5896	2-Hexanone	0.21	U	ug/m3	0.21	0.66
		PMC-IN-22-020818	IA	N	43139.5896	4-Methyl-2-Pentanone	0.21	U	ug/m3	0.21	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Acetone	25	=	ug/m3	0.073	3.3
		PMC-IN-22-020818	IA	N	43139.5896	Acetonitrile	0.24	U	ug/m3	0.24	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Acrolein	0.26	J	ug/m3	0.051	0.26
		PMC-IN-22-020818	IA	N	43139.5896	Acrylonitrile	0.22	U	ug/m3	0.22	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Benzene	1.2	=	ug/m3	0.026	0.098
		PMC-IN-22-020818	IA	N	43139.5896	Benzyl chloride	0.14	U	ug/m3	0.14	1.3
		PMC-IN-22-020818	IA	N	43139.5896	Bromodichloromethane	0.009	U	ug/m3	0.009	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Bromoform	0.2	U	ug/m3	0.2	0.66

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-22-020818	IA	N	43139.5896	Bromomethane	0.026	J	ug/m3	0.012	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Carbon Disulfide	0.26	J	ug/m3	0.2	6.6
		PMC-IN-22-020818	IA	N	43139.5896	CHLORODIFLUOROMETHANE	0.88	=	ug/m3	0.33	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Chloroethane	0.011	U	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Chloroform	0.12	J	ug/m3	0.024	0.13
		PMC-IN-22-020818	IA	N	43139.5896	Chloromethane	0.38	=	ug/m3	0.025	0.066
		PMC-IN-22-020818	IA	N	43139.5896	cis-1,2-Dichloroethene	0.012	U	ug/m3	0.012	0.033
		PMC-IN-22-020818	IA	N	43139.5896	cis-1,3-Dichloropropene	0.0081	U	ug/m3	0.0081	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Cyclohexane	0.92	J	ug/m3	0.38	1.3
		PMC-IN-22-020818	IA	N	43139.5896	Dichlorodifluoromethane	4	=	ug/m3	0.022	0.066
		PMC-IN-22-020818	IA	N	43139.5896	Dichloromethane	1	=	ug/m3	0.017	0.13
		PMC-IN-22-020818	IA	N	43139.5896	ETHANOL	18	=	ug/m3	1	6.6
		PMC-IN-22-020818	IA	N	43139.5896	Ethylbenzene	0.58	=	ug/m3	0.013	0.13
		PMC-IN-22-020818	IA	N	43139.5896	Freon 113	0.34	=	ug/m3	0.012	0.033
		PMC-IN-22-020818	IA	N	43139.5896	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.2	J	ug/m3	0.55	6.6
		PMC-IN-22-020818	IA	N	43139.5896	Methyl tert-butyl ether (MTBE)	0.014	J	ug/m3	0.012	0.033
		PMC-IN-22-020818	IA	N	43139.5896	n-Butanol	1.4	=	ug/m3	0.63	1.3
		PMC-IN-22-020818	IA	N	43139.5896	n-Hexane	2.8	=	ug/m3	0.2	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Propene	1.7	=	ug/m3	0.18	0.66
		PMC-IN-22-020818	IA	N	43139.5896	Styrene	1.2	=	ug/m3	0.0097	0.13
		PMC-IN-22-020818	IA	N	43139.5896	Tetrachloroethene	0.17	=	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Toluene	11	=	ug/m3	0.014	0.13
		PMC-IN-22-020818	IA	N	43139.5896	trans-1,3-Dichloropropene	0.0072	U	ug/m3	0.0072	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Trichloroethylene	0.046	=	ug/m3	0.011	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Trichlorofluoromethane	1.7	=	ug/m3	0.02	0.066
		PMC-IN-22-020818	IA	N	43139.5896	Vinyl Acetate	3.9	J	ug/m3	0.85	6.6
		PMC-IN-22-020818	IA	N	43139.5896	Vinyl Chloride	0.01	U	ug/m3	0.01	0.033
		PMC-IN-22-020818	IA	N	43139.5896	Xylene, o	0.43	=	ug/m3	0.012	0.13
		PMC-IN-22-020818	IA	N	43139.5896	Xylenes, m & p	1.5	=	ug/m3	0.025	0.13
		PMC-IN-22-060117	IA	N	42887	1,1,1-Trichloroethane	0.1	U	ug/m3	0.1	0.14
		PMC-IN-22-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-22-060117	IA	N	42887	1,1,2-Trichloroethane	0.11	U	ug/m3	0.11	0.14
		PMC-IN-22-060117	IA	N	42887	1,1-Dichloroethane	0.11	U	ug/m3	0.11	0.14
		PMC-IN-22-060117	IA	N	42887	1,1-Dichloroethene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-22-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.74	=	ug/m3	0.21	0.7
		PMC-IN-22-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.14	U	ug/m3	0.14	0.7
		PMC-IN-22-060117	IA	N	42887	1,2-Dibromoethane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-22-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.26	U	ug/m3	0.26	0.7
		PMC-IN-22-060117	IA	N	42887	1,2-Dichlorobenzene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-22-060117	IA	N	42887	1,2-Dichloroethane	0.086	U	ug/m3	0.086	0.14
		PMC-IN-22-060117	IA	N	42887	1,2-Dichloropropane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-22-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	1,3-Butadiene	0.19	U	ug/m3	0.19	0.28
		PMC-IN-22-060117	IA	N	42887	1,3-Dichlorobenzene	0.1	U	ug/m3	0.1	0.14
		PMC-IN-22-060117	IA	N	42887	1,4-Dichlorobenzene	0.11	U	ug/m3	0.11	0.14
		PMC-IN-22-060117	IA	N	42887	1,4-Dioxane	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	2-Butanone	0.29	U	ug/m3	0.29	7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-22-060117	IA	N	42887	2-Hexanone	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	4-Ethyltoluene	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	4-Methyl-2-Pentanone	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	Acetone	1.1	U	ug/m3	1.1	7
		PMC-IN-22-060117	IA	N	42887	Acetonitrile	0.25	U	ug/m3	0.25	0.7
		PMC-IN-22-060117	IA	N	42887	Acrolein	0.24	U	ug/m3	0.24	2.8
		PMC-IN-22-060117	IA	N	42887	Acrylonitrile	0.24	U	ug/m3	0.24	0.7
		PMC-IN-22-060117	IA	N	42887	Allyl chloride	0.11	U	ug/m3	0.11	0.14
		PMC-IN-22-060117	IA	N	42887	alpha-Pinene	9.1	=	ug/m3	0.26	0.92
		PMC-IN-22-060117	IA	N	42887	Benzene	0.2	=	ug/m3	0.11	0.14
		PMC-IN-22-060117	IA	N	42887	Benzyl chloride	0.15	U	ug/m3	0.15	0.7
		PMC-IN-22-060117	IA	N	42887	Bromodichloromethane	0.15	=	ug/m3	0.095	0.14
		PMC-IN-22-060117	IA	N	42887	Bromoform	0.21	U	ug/m3	0.21	0.7
		PMC-IN-22-060117	IA	N	42887	Bromomethane	0.13	U	ug/m3	0.13	0.28
		PMC-IN-22-060117	IA	N	42887	Carbon Disulfide	0.21	U	ug/m3	0.21	7
		PMC-IN-22-060117	IA	N	42887	Carbon tetrachloride	0.47	=	ug/m3	0.16	0.18
		PMC-IN-22-060117	IA	N	42887	Chlorobenzene	0.12	U	ug/m3	0.12	0.14
		PMC-IN-22-060117	IA	N	42887	Chlorodibromomethane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-22-060117	IA	N	42887	Chloroethane	0.12	U	ug/m3	0.12	0.28
		PMC-IN-22-060117	IA	N	42887	Chloroform	0.33	=	ug/m3	0.16	0.18
		PMC-IN-22-060117	IA	N	42887	Chloromethane	0.19	U	ug/m3	0.19	0.28
		PMC-IN-22-060117	IA	N	42887	cis-1,2-Dichloroethene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-22-060117	IA	N	42887	cis-1,3-Dichloropropene	0.19	U	ug/m3	0.19	0.7
		PMC-IN-22-060117	IA	N	42887	Cyclohexane	0.4	U	ug/m3	0.4	1.4
		PMC-IN-22-060117	IA	N	42887	Dichlorodifluoromethane	5.4	=	ug/m3	0.31	0.92
		PMC-IN-22-060117	IA	N	42887	Dichloromethane	0.24	U	ug/m3	0.24	0.7
		PMC-IN-22-060117	IA	N	42887	D-Limonene	18	=	ug/m3	0.26	0.92
		PMC-IN-22-060117	IA	N	42887	ETHANOL	490	=	ug/m3	1.5	9.2
		PMC-IN-22-060117	IA	N	42887	Ethyl acetate	12	J	ug/m3	0.64	1.8
		PMC-IN-22-060117	IA	N	42887	Ethylbenzene	0.3	J	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	Hexachlorobutadiene	0.19	U	ug/m3	0.19	0.7
		PMC-IN-22-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	15	J	ug/m3	0.58	7
		PMC-IN-22-060117	IA	N	42887	Isopropylbenzene	0.21	U	ug/m3	0.21	0.7
		PMC-IN-22-060117	IA	N	42887	Methyl methacrylate	0.43	U	ug/m3	0.43	1.4
		PMC-IN-22-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.13	U	ug/m3	0.13	0.14
		PMC-IN-22-060117	IA	N	42887	Naphthalene	0.25	U	ug/m3	0.25	0.7
		PMC-IN-22-060117	IA	N	42887	N-Butyl Acetate	5.1	=	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	N-HEPTANE	0.24	U	ug/m3	0.24	0.7
		PMC-IN-22-060117	IA	N	42887	n-Hexane	0.32	J	ug/m3	0.27	0.92
		PMC-IN-22-060117	IA	N	42887	Nonane	0.44	J	ug/m3	0.27	0.92
		PMC-IN-22-060117	IA	N	42887	n-Propylbenzene	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	OCTANE	0.25	U	ug/m3	0.25	0.7
		PMC-IN-22-060117	IA	N	42887	Propene	9.8	J	ug/m3	0.26	0.92
		PMC-IN-22-060117	IA	N	42887	Styrene	0.6	J	ug/m3	0.21	0.7
		PMC-IN-22-060117	IA	N	42887	Tetrachloroethene	0.1	U	ug/m3	0.1	0.14
		PMC-IN-22-060117	IA	N	42887	Tetrahydrofuran	1.5	=	ug/m3	0.28	0.7
		PMC-IN-22-060117	IA	N	42887	Toluene	5.2	=	ug/m3	0.31	0.92
		PMC-IN-22-060117	IA	N	42887	trans-1,2-Dichloroethene	0.13	U	ug/m3	0.13	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-22-060117	IA	N	42887	trans-1,3-Dichloropropene	0.22	U	ug/m3	0.22	0.7
		PMC-IN-22-060117	IA	N	42887	Trichloroethylene	0.66	=	ug/m3	0.16	0.18
		PMC-IN-22-060117	IA	N	42887	Trichlorofluoromethane	6.1	=	ug/m3	0.1	0.18
		PMC-IN-22-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.15	0.18
		PMC-IN-22-060117	IA	N	42887	Vinyl Acetate	0.9	U	ug/m3	0.9	7
		PMC-IN-22-060117	IA	N	42887	Vinyl Chloride	0.13	U	ug/m3	0.13	0.14
		PMC-IN-22-060117	IA	N	42887	Xylene, o	0.31	J	ug/m3	0.21	0.7
		PMC-IN-22-060117	IA	N	42887	Xylenes, m & p	0.4	U	ug/m3	0.4	0.7
		PMC-IN-25-060117	IA	N	42887	1,1,1-Trichloroethane	0.15	U	ug/m3	0.15	0.2
		PMC-IN-25-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.2
		PMC-IN-25-060117	IA	N	42887	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.54	J	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.2	U	ug/m3	0.2	0.99
		PMC-IN-25-060117	IA	N	42887	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.2
		PMC-IN-25-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.38	U	ug/m3	0.38	0.99
		PMC-IN-25-060117	IA	N	42887	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	1,2-Dichloroethane	0.2	=	ug/m3	0.12	0.2
		PMC-IN-25-060117	IA	N	42887	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	1,3-Butadiene	2.6	=	ug/m3	0.28	0.4
		PMC-IN-25-060117	IA	N	42887	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.2
		PMC-IN-25-060117	IA	N	42887	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.2
		PMC-IN-25-060117	IA	N	42887	1,4-Dioxane	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	2-Butanone	0.42	U	ug/m3	0.42	9.9
		PMC-IN-25-060117	IA	N	42887	2-Hexanone	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	4-Ethyltoluene	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	4-Methyl-2-Pentanone	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	Acetone	1.5	U	ug/m3	1.5	9.9
		PMC-IN-25-060117	IA	N	42887	Acetonitrile	0.36	U	ug/m3	0.36	0.99
		PMC-IN-25-060117	IA	N	42887	Acrolein	5.2	=	ug/m3	0.34	4
		PMC-IN-25-060117	IA	N	42887	Acrylonitrile	0.74	J	ug/m3	0.34	0.99
		PMC-IN-25-060117	IA	N	42887	Allyl chloride	0.15	U	ug/m3	0.15	0.2
		PMC-IN-25-060117	IA	N	42887	alpha-Pinene	4	=	ug/m3	0.28	0.99
		PMC-IN-25-060117	IA	N	42887	Benzene	2.2	=	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	Benzyl chloride	0.22	U	ug/m3	0.22	0.99
		PMC-IN-25-060117	IA	N	42887	Bromodichloromethane	0.13	U	ug/m3	0.13	0.2
		PMC-IN-25-060117	IA	N	42887	Bromoform	0.3	U	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	Bromomethane	0.18	U	ug/m3	0.18	0.4
		PMC-IN-25-060117	IA	N	42887	Carbon Disulfide	0.3	U	ug/m3	0.3	9.9
		PMC-IN-25-060117	IA	N	42887	Carbon tetrachloride	0.43	=	ug/m3	0.17	0.2
		PMC-IN-25-060117	IA	N	42887	Chlorobenzene	0.16	U	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.2
		PMC-IN-25-060117	IA	N	42887	Chloroethane	0.17	U	ug/m3	0.17	0.4
		PMC-IN-25-060117	IA	N	42887	Chloroform	0.19	J	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	Chloromethane	0.28	U	ug/m3	0.28	0.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-25-060117	IA	N	42887	cis-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	cis-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.99
		PMC-IN-25-060117	IA	N	42887	Cyclohexane	0.57	U	ug/m3	0.57	2
		PMC-IN-25-060117	IA	N	42887	Dichlorodifluoromethane	8.1	=	ug/m3	0.34	0.99
		PMC-IN-25-060117	IA	N	42887	Dichloromethane	0.34	U	ug/m3	0.34	0.99
		PMC-IN-25-060117	IA	N	42887	D-Limonene	4	=	ug/m3	0.28	0.99
		PMC-IN-25-060117	IA	N	42887	ETHANOL	720	=	ug/m3	1.6	9.9
		PMC-IN-25-060117	IA	N	42887	Ethyl acetate	14	=	ug/m3	0.69	2
		PMC-IN-25-060117	IA	N	42887	Ethylbenzene	0.74	J	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	Hexachlorobutadiene	0.28	U	ug/m3	0.28	0.99
		PMC-IN-25-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	19	=	ug/m3	0.83	9.9
		PMC-IN-25-060117	IA	N	42887	Isopropylbenzene	0.3	U	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	Methyl methacrylate	0.61	U	ug/m3	0.61	2
		PMC-IN-25-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	Naphthalene	0.36	U	ug/m3	0.36	0.99
		PMC-IN-25-060117	IA	N	42887	N-Butyl Acetate	3.8	=	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	N-HEPTANE	0.34	U	ug/m3	0.34	0.99
		PMC-IN-25-060117	IA	N	42887	n-Hexane	0.52	J	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	Nonane	0.3	U	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	n-Propylbenzene	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	OCTANE	0.36	U	ug/m3	0.36	0.99
		PMC-IN-25-060117	IA	N	42887	Propene	14	=	ug/m3	0.28	0.99
		PMC-IN-25-060117	IA	N	42887	Styrene	0.84	J	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	Tetrachloroethene	0.4	=	ug/m3	0.14	0.2
		PMC-IN-25-060117	IA	N	42887	Tetrahydrofuran	0.4	U	ug/m3	0.4	0.99
		PMC-IN-25-060117	IA	N	42887	Toluene	8.5	=	ug/m3	0.34	0.99
		PMC-IN-25-060117	IA	N	42887	trans-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	trans-1,3-Dichloropropene	0.32	U	ug/m3	0.32	0.99
		PMC-IN-25-060117	IA	N	42887	Trichloroethylene	0.18	U	ug/m3	0.18	0.2
		PMC-IN-25-060117	IA	N	42887	Trichlorofluoromethane	6	=	ug/m3	0.11	0.2
		PMC-IN-25-060117	IA	N	42887	Trichlorotrifuoroethane	0.48	=	ug/m3	0.16	0.2
		PMC-IN-25-060117	IA	N	42887	Vinyl Acetate	1.3	U	ug/m3	1.3	9.9
		PMC-IN-25-060117	IA	N	42887	Vinyl Chloride	0.19	U	ug/m3	0.19	0.2
		PMC-IN-25-060117	IA	N	42887	Xylene, o	0.61	J	ug/m3	0.3	0.99
		PMC-IN-25-060117	IA	N	42887	Xylenes, m & p	2.1	=	ug/m3	0.57	0.99
		PMC-IN-28-060117	IA	N	42887	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	1,1-Dichloroethane	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-28-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.34	J	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.79
		PMC-IN-28-060117	IA	N	42887	1,2-Dibromoethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.3	U	ug/m3	0.3	0.79
		PMC-IN-28-060117	IA	N	42887	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-28-060117	IA	N	42887	1,2-Dichloroethane	0.16	=	ug/m3	0.098	0.16
		PMC-IN-28-060117	IA	N	42887	1,2-Dichloropropane	0.13	U	ug/m3	0.13	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-28-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	1,3-Butadiene	0.22	U	ug/m3	0.22	0.32
		PMC-IN-28-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	1,4-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	1,4-Dioxane	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	2-Butanone	0.33	U	ug/m3	0.33	7.9
		PMC-IN-28-060117	IA	N	42887	2-Hexanone	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	4-Ethyltoluene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	Acetone	21	=	ug/m3	1.2	7.9
		PMC-IN-28-060117	IA	N	42887	Acetonitrile	0.28	U	ug/m3	0.28	0.79
		PMC-IN-28-060117	IA	N	42887	Acrolein	0.27	U	ug/m3	0.27	3.2
		PMC-IN-28-060117	IA	N	42887	Acrylonitrile	0.27	U	ug/m3	0.27	0.79
		PMC-IN-28-060117	IA	N	42887	Allyl chloride	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	alpha-Pinene	11	=	ug/m3	0.22	0.79
		PMC-IN-28-060117	IA	N	42887	Benzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-28-060117	IA	N	42887	Benzyl chloride	0.17	U	ug/m3	0.17	0.79
		PMC-IN-28-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.16
		PMC-IN-28-060117	IA	N	42887	Bromoform	0.24	U	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	Bromomethane	0.15	U	ug/m3	0.15	0.32
		PMC-IN-28-060117	IA	N	42887	Carbon Disulfide	0.24	U	ug/m3	0.24	7.9
		PMC-IN-28-060117	IA	N	42887	Carbon tetrachloride	0.62	=	ug/m3	0.14	0.16
		PMC-IN-28-060117	IA	N	42887	Chlorobenzene	0.13	U	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	Chlorodibromomethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	Chloroethane	0.14	U	ug/m3	0.14	0.32
		PMC-IN-28-060117	IA	N	42887	Chloroform	0.87	=	ug/m3	0.14	0.16
		PMC-IN-28-060117	IA	N	42887	Chloromethane	0.22	U	ug/m3	0.22	0.32
		PMC-IN-28-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-28-060117	IA	N	42887	cis-1,3-Dichloropropene	0.22	U	ug/m3	0.22	0.79
		PMC-IN-28-060117	IA	N	42887	Cyclohexane	0.46	U	ug/m3	0.46	1.6
		PMC-IN-28-060117	IA	N	42887	Dichlorodifluoromethane	7.4	=	ug/m3	0.27	0.79
		PMC-IN-28-060117	IA	N	42887	Dichloromethane	0.27	U	ug/m3	0.27	0.79
		PMC-IN-28-060117	IA	N	42887	D-Limonene	10	=	ug/m3	0.22	0.79
		PMC-IN-28-060117	IA	N	42887	ETHANOL	510	=	ug/m3	1.3	7.9
		PMC-IN-28-060117	IA	N	42887	Ethyl acetate	0.55	U	ug/m3	0.55	1.6
		PMC-IN-28-060117	IA	N	42887	Ethylbenzene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	Hexachlorobutadiene	0.22	U	ug/m3	0.22	0.79
		PMC-IN-28-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.66	U	ug/m3	0.66	7.9
		PMC-IN-28-060117	IA	N	42887	Isopropylbenzene	0.24	U	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	Methyl methacrylate	0.49	U	ug/m3	0.49	1.6
		PMC-IN-28-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.16
		PMC-IN-28-060117	IA	N	42887	Naphthalene	0.28	U	ug/m3	0.28	0.79
		PMC-IN-28-060117	IA	N	42887	N-Butyl Acetate	0.52	J	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	N-HEPTANE	3	=	ug/m3	0.27	0.79
		PMC-IN-28-060117	IA	N	42887	n-Hexane	0.33	J	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	Nonane	3.3	=	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	n-Propylbenzene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	OCTANE	0.28	U	ug/m3	0.28	0.79

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-28-060117	IA	N	42887	Propene	0.22	U	ug/m3	0.22	0.79
		PMC-IN-28-060117	IA	N	42887	Styrene	2	=	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	Tetrachloroethene	0.11	U	ug/m3	0.11	0.16
		PMC-IN-28-060117	IA	N	42887	Tetrahydrofuran	0.32	U	ug/m3	0.32	0.79
		PMC-IN-28-060117	IA	N	42887	Toluene	5.4	=	ug/m3	0.27	0.79
		PMC-IN-28-060117	IA	N	42887	trans-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.16
		PMC-IN-28-060117	IA	N	42887	trans-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.79
		PMC-IN-28-060117	IA	N	42887	Trichloroethylene	0.14	U	ug/m3	0.14	0.16
		PMC-IN-28-060117	IA	N	42887	Trichlorofluoromethane	8.1	=	ug/m3	0.09	0.16
		PMC-IN-28-060117	IA	N	42887	Trichlorotrifuoroethane	0.46	=	ug/m3	0.13	0.16
		PMC-IN-28-060117	IA	N	42887	Vinyl Acetate	1	U	ug/m3	1	7.9
		PMC-IN-28-060117	IA	N	42887	Vinyl Chloride	0.15	U	ug/m3	0.15	0.16
		PMC-IN-28-060117	IA	N	42887	Xylene, o	0.31	J	ug/m3	0.24	0.79
		PMC-IN-28-060117	IA	N	42887	Xylenes, m & p	0.46	U	ug/m3	0.46	0.79
		PMC-IN-55-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-55-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.85
		PMC-IN-55-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.85
		PMC-IN-55-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-55-060117	IA	N	42887	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-55-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-55-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	2-Butanone	0.36	U	ug/m3	0.36	8.5
		PMC-IN-55-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	Acetone	1.3	U	ug/m3	1.3	8.5
		PMC-IN-55-060117	IA	N	42887	Acetonitrile	0.31	U	ug/m3	0.31	0.85
		PMC-IN-55-060117	IA	N	42887	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-55-060117	IA	N	42887	Acrylonitrile	0.29	U	ug/m3	0.29	0.85
		PMC-IN-55-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	alpha-Pinene	5.7	=	ug/m3	0.24	0.85
		PMC-IN-55-060117	IA	N	42887	Benzene	0.2	=	ug/m3	0.13	0.17
		PMC-IN-55-060117	IA	N	42887	Benzyl chloride	0.19	U	ug/m3	0.19	0.85
		PMC-IN-55-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-55-060117	IA	N	42887	Bromoform	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-55-060117	IA	N	42887	Carbon Disulfide	0.26	U	ug/m3	0.26	8.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-55-060117	IA	N	42887	Carbon tetrachloride	0.4	=	ug/m3	0.15	0.17
		PMC-IN-55-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-55-060117	IA	N	42887	Chloroform	0.15	U	ug/m3	0.15	0.17
		PMC-IN-55-060117	IA	N	42887	Chloromethane	0.4	=	ug/m3	0.24	0.34
		PMC-IN-55-060117	IA	N	42887	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-55-060117	IA	N	42887	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-55-060117	IA	N	42887	Cyclohexane	0.49	U	ug/m3	0.49	1.7
		PMC-IN-55-060117	IA	N	42887	Dichlorodifluoromethane	6.7	=	ug/m3	0.29	0.85
		PMC-IN-55-060117	IA	N	42887	Dichloromethane	0.39	J	ug/m3	0.29	0.85
		PMC-IN-55-060117	IA	N	42887	D-Limonene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-55-060117	IA	N	42887	ETHANOL	32	=	ug/m3	1.4	8.5
		PMC-IN-55-060117	IA	N	42887	Ethyl acetate	3.4	=	ug/m3	0.6	1.7
		PMC-IN-55-060117	IA	N	42887	Ethylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-55-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.71	U	ug/m3	0.71	8.5
		PMC-IN-55-060117	IA	N	42887	Isopropylbenzene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	Methyl methacrylate	0.53	U	ug/m3	0.53	1.7
		PMC-IN-55-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-55-060117	IA	N	42887	Naphthalene	0.31	U	ug/m3	0.31	0.85
		PMC-IN-55-060117	IA	N	42887	N-Butyl Acetate	0.48	J	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	N-HEPTANE	0.29	U	ug/m3	0.29	0.85
		PMC-IN-55-060117	IA	N	42887	n-Hexane	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	Nonane	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	OCTANE	0.31	U	ug/m3	0.31	0.85
		PMC-IN-55-060117	IA	N	42887	Propene	4.8	=	ug/m3	0.24	0.85
		PMC-IN-55-060117	IA	N	42887	Styrene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-55-060117	IA	N	42887	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.85
		PMC-IN-55-060117	IA	N	42887	Toluene	0.29	U	ug/m3	0.29	0.85
		PMC-IN-55-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-55-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-55-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-55-060117	IA	N	42887	Trichlorofluoromethane	7.8	=	ug/m3	0.097	0.17
		PMC-IN-55-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.14	0.17
		PMC-IN-55-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.5
		PMC-IN-55-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-55-060117	IA	N	42887	Xylene, o	0.26	U	ug/m3	0.26	0.85
		PMC-IN-55-060117	IA	N	42887	Xylenes, m & p	0.49	U	ug/m3	0.49	0.85
		PMC-IN-54-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-54-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.26	U	ug/m3	0.26	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-54-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.85
		PMC-IN-54-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.85
		PMC-IN-54-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-54-060117	IA	N	42887	1,2-Dichloroethane	0.34	=	ug/m3	0.11	0.17
		PMC-IN-54-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-54-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	2-Butanone	0.36	U	ug/m3	0.36	8.5
		PMC-IN-54-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	4-Ethyltoluene	0.28	J	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	Acetone	29	=	ug/m3	1.3	8.5
		PMC-IN-54-060117	IA	N	42887	Acetonitrile	0.31	U	ug/m3	0.31	0.85
		PMC-IN-54-060117	IA	N	42887	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-54-060117	IA	N	42887	Acrylonitrile	0.29	U	ug/m3	0.29	0.85
		PMC-IN-54-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	alpha-Pinene	17	=	ug/m3	0.24	0.85
		PMC-IN-54-060117	IA	N	42887	Benzene	0.24	=	ug/m3	0.13	0.17
		PMC-IN-54-060117	IA	N	42887	Benzyl chloride	0.19	U	ug/m3	0.19	0.85
		PMC-IN-54-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-54-060117	IA	N	42887	Bromoform	0.26	U	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-54-060117	IA	N	42887	Carbon Disulfide	0.26	U	ug/m3	0.26	8.5
		PMC-IN-54-060117	IA	N	42887	Carbon tetrachloride	0.5	=	ug/m3	0.15	0.17
		PMC-IN-54-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-54-060117	IA	N	42887	Chloroform	0.42	=	ug/m3	0.15	0.17
		PMC-IN-54-060117	IA	N	42887	Chloromethane	0.43	=	ug/m3	0.24	0.34
		PMC-IN-54-060117	IA	N	42887	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-54-060117	IA	N	42887	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-54-060117	IA	N	42887	Cyclohexane	0.49	U	ug/m3	0.49	1.7
		PMC-IN-54-060117	IA	N	42887	Dichlorodifluoromethane	4.5	=	ug/m3	0.29	0.85
		PMC-IN-54-060117	IA	N	42887	Dichloromethane	0.29	U	ug/m3	0.29	0.85
		PMC-IN-54-060117	IA	N	42887	D-Limonene	3.3	=	ug/m3	0.24	0.85
		PMC-IN-54-060117	IA	N	42887	ETHANOL	170	=	ug/m3	1.4	8.5
		PMC-IN-54-060117	IA	N	42887	Ethyl acetate	3.5	=	ug/m3	0.6	1.7
		PMC-IN-54-060117	IA	N	42887	Ethylbenzene	0.48	J	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-54-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.9	=	ug/m3	0.71	8.5
		PMC-IN-54-060117	IA	N	42887	Isopropylbenzene	0.26	U	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	Methyl methacrylate	1.1	J	ug/m3	0.53	1.7
		PMC-IN-54-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-54-060117	IA	N	42887	Naphthalene	0.31	U	ug/m3	0.31	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-54-060117	IA	N	42887	N-Butyl Acetate	0.9	=	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	N-HEPTANE	0.4	J	ug/m3	0.29	0.85
		PMC-IN-54-060117	IA	N	42887	n-Hexane	0.35	J	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	Nonane	0.47	J	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	OCTANE	0.31	U	ug/m3	0.31	0.85
		PMC-IN-54-060117	IA	N	42887	Propene	4.2	=	ug/m3	0.24	0.85
		PMC-IN-54-060117	IA	N	42887	Styrene	0.66	J	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-54-060117	IA	N	42887	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.85
		PMC-IN-54-060117	IA	N	42887	Toluene	3.9	=	ug/m3	0.29	0.85
		PMC-IN-54-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-54-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-54-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-54-060117	IA	N	42887	Trichlorofluoromethane	21	=	ug/m3	0.097	0.17
		PMC-IN-54-060117	IA	N	42887	Trichlorotrifuoroethane	0.48	=	ug/m3	0.14	0.17
		PMC-IN-54-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.5
		PMC-IN-54-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-54-060117	IA	N	42887	Xylene, o	0.54	J	ug/m3	0.26	0.85
		PMC-IN-54-060117	IA	N	42887	Xylenes, m & p	0.49	U	ug/m3	0.49	0.85
		PMC-IN-17-060117	IA	N	42887	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-17-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-17-060117	IA	N	42887	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-17-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.87	J	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.96
		PMC-IN-17-060117	IA	N	42887	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-17-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.96
		PMC-IN-17-060117	IA	N	42887	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-17-060117	IA	N	42887	1,2-Dichloroethane	0.19	J	ug/m3	0.12	0.19
		PMC-IN-17-060117	IA	N	42887	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-17-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	1,3-Butadiene	0.27	U	ug/m3	0.27	0.38
		PMC-IN-17-060117	IA	N	42887	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-17-060117	IA	N	42887	1,4-Dichlorobenzene	0.15	U	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	1,4-Dioxane	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	2-Butanone	0.4	U	ug/m3	0.4	9.6
		PMC-IN-17-060117	IA	N	42887	2-Hexanone	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	4-Ethyltoluene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	4-Methyl-2-Pentanone	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	Acetone	28	=	ug/m3	1.5	9.6
		PMC-IN-17-060117	IA	N	42887	Acetonitrile	0.35	U	ug/m3	0.35	0.96
		PMC-IN-17-060117	IA	N	42887	Acrolein	0.33	U	ug/m3	0.33	3.8
		PMC-IN-17-060117	IA	N	42887	Acrylonitrile	0.33	U	ug/m3	0.33	0.96
		PMC-IN-17-060117	IA	N	42887	Allyl chloride	0.15	U	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	alpha-Pinene	11	=	ug/m3	0.27	0.96

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-17-060117	IA	N	42887	Benzene	0.21	=	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	Benzyl chloride	0.21	U	ug/m3	0.21	0.96
		PMC-IN-17-060117	IA	N	42887	Bromodichloromethane	0.13	U	ug/m3	0.13	0.19
		PMC-IN-17-060117	IA	N	42887	Bromoform	0.29	U	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	Bromomethane	0.18	U	ug/m3	0.18	0.38
		PMC-IN-17-060117	IA	N	42887	Carbon Disulfide	0.29	U	ug/m3	0.29	9.6
		PMC-IN-17-060117	IA	N	42887	Carbon tetrachloride	0.55	=	ug/m3	0.17	0.19
		PMC-IN-17-060117	IA	N	42887	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-17-060117	IA	N	42887	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-17-060117	IA	N	42887	Chloroethane	0.17	U	ug/m3	0.17	0.38
		PMC-IN-17-060117	IA	N	42887	Chloroform	0.24	=	ug/m3	0.17	0.19
		PMC-IN-17-060117	IA	N	42887	Chloromethane	0.4	=	ug/m3	0.27	0.38
		PMC-IN-17-060117	IA	N	42887	cis-1,2-Dichloroethene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-17-060117	IA	N	42887	cis-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.96
		PMC-IN-17-060117	IA	N	42887	Cyclohexane	0.56	U	ug/m3	0.56	1.9
		PMC-IN-17-060117	IA	N	42887	Dichlorodifluoromethane	7.3	=	ug/m3	0.33	0.96
		PMC-IN-17-060117	IA	N	42887	Dichloromethane	0.33	U	ug/m3	0.33	0.96
		PMC-IN-17-060117	IA	N	42887	D-Limonene	2.3	=	ug/m3	0.27	0.96
		PMC-IN-17-060117	IA	N	42887	ETHANOL	89	=	ug/m3	1.5	9.6
		PMC-IN-17-060117	IA	N	42887	Ethyl acetate	0.67	U	ug/m3	0.67	1.9
		PMC-IN-17-060117	IA	N	42887	Ethylbenzene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	Hexachlorobutadiene	0.27	U	ug/m3	0.27	0.96
		PMC-IN-17-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	13	=	ug/m3	0.81	9.6
		PMC-IN-17-060117	IA	N	42887	Isopropylbenzene	0.29	U	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	Methyl methacrylate	0.6	U	ug/m3	0.6	1.9
		PMC-IN-17-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.19
		PMC-IN-17-060117	IA	N	42887	Naphthalene	0.36	J	ug/m3	0.35	0.96
		PMC-IN-17-060117	IA	N	42887	N-Butyl Acetate	0.37	J	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	N-HEPTANE	0.33	U	ug/m3	0.33	0.96
		PMC-IN-17-060117	IA	N	42887	n-Hexane	0.53	J	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	Nonane	0.29	U	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	n-Propylbenzene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	OCTANE	0.35	U	ug/m3	0.35	0.96
		PMC-IN-17-060117	IA	N	42887	Propene	6.2	=	ug/m3	0.27	0.96
		PMC-IN-17-060117	IA	N	42887	Styrene	0.36	J	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	Tetrachloroethene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-17-060117	IA	N	42887	Tetrahydrofuran	2.8	=	ug/m3	0.38	0.96
		PMC-IN-17-060117	IA	N	42887	Toluene	2.4	=	ug/m3	0.33	0.96
		PMC-IN-17-060117	IA	N	42887	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-17-060117	IA	N	42887	trans-1,3-Dichloropropene	0.31	U	ug/m3	0.31	0.96
		PMC-IN-17-060117	IA	N	42887	Trichloroethylene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-17-060117	IA	N	42887	Trichlorofluoromethane	16	=	ug/m3	0.11	0.19
		PMC-IN-17-060117	IA	N	42887	Trichlorotrifuoroethane	0.46	=	ug/m3	0.15	0.19
		PMC-IN-17-060117	IA	N	42887	Vinyl Acetate	1.2	U	ug/m3	1.2	9.6
		PMC-IN-17-060117	IA	N	42887	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-17-060117	IA	N	42887	Xylene, o	0.29	J	ug/m3	0.29	0.96
		PMC-IN-17-060117	IA	N	42887	Xylenes, m & p	0.66	J	ug/m3	0.56	0.96
		PMC-IN-20-060217	IA	N	42888	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-20-060217	IA	N	42888	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-20-060217	IA	N	42888	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	1,2,4-Trimethylbenzene	0.49	J	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.89
		PMC-IN-20-060217	IA	N	42888	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.89
		PMC-IN-20-060217	IA	N	42888	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-20-060217	IA	N	42888	1,2-Dichloroethane	0.41	=	ug/m3	0.11	0.18
		PMC-IN-20-060217	IA	N	42888	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-20-060217	IA	N	42888	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-20-060217	IA	N	42888	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	1,4-Dioxane	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	2-Butanone	0.37	U	ug/m3	0.37	8.9
		PMC-IN-20-060217	IA	N	42888	2-Hexanone	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	Acetone	1.4	U	ug/m3	1.4	8.9
		PMC-IN-20-060217	IA	N	42888	Acetonitrile	0.32	U	ug/m3	0.32	0.89
		PMC-IN-20-060217	IA	N	42888	Acrolein	0.3	U	ug/m3	0.3	3.6
		PMC-IN-20-060217	IA	N	42888	Acrylonitrile	0.3	U	ug/m3	0.3	0.89
		PMC-IN-20-060217	IA	N	42888	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	alpha-Pinene	22	=	ug/m3	0.25	0.89
		PMC-IN-20-060217	IA	N	42888	Benzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	Benzyl chloride	0.2	U	ug/m3	0.2	0.89
		PMC-IN-20-060217	IA	N	42888	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-20-060217	IA	N	42888	Bromoform	0.27	U	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-20-060217	IA	N	42888	Carbon Disulfide	0.27	U	ug/m3	0.27	8.9
		PMC-IN-20-060217	IA	N	42888	Carbon tetrachloride	0.4	=	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-20-060217	IA	N	42888	Chloroethane	0.15	U	ug/m3	0.15	0.36
		PMC-IN-20-060217	IA	N	42888	Chloroform	0.17	J	ug/m3	0.16	0.18
		PMC-IN-20-060217	IA	N	42888	Chloromethane	0.36	=	ug/m3	0.25	0.36
		PMC-IN-20-060217	IA	N	42888	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-20-060217	IA	N	42888	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-20-060217	IA	N	42888	Cyclohexane	0.52	U	ug/m3	0.52	1.8
		PMC-IN-20-060217	IA	N	42888	Dichlorodifluoromethane	29	=	ug/m3	0.3	0.89
		PMC-IN-20-060217	IA	N	42888	Dichloromethane	0.3	U	ug/m3	0.3	0.89
		PMC-IN-20-060217	IA	N	42888	D-Limonene	63	=	ug/m3	0.25	0.89
		PMC-IN-20-060217	IA	N	42888	ETHANOL	180	=	ug/m3	1.4	8.9
		PMC-IN-20-060217	IA	N	42888	Ethyl acetate	0.62	U	ug/m3	0.62	1.8
		PMC-IN-20-060217	IA	N	42888	Ethylbenzene	0.28	U	ug/m3	0.28	0.89

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-20-060217	IA	N	42888	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-20-060217	IA	N	42888	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.75	U	ug/m3	0.75	8.9
		PMC-IN-20-060217	IA	N	42888	Isopropylbenzene	0.27	U	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	Methyl methacrylate	0.55	U	ug/m3	0.55	1.8
		PMC-IN-20-060217	IA	N	42888	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-20-060217	IA	N	42888	Naphthalene	0.32	U	ug/m3	0.32	0.89
		PMC-IN-20-060217	IA	N	42888	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	N-HEPTANE	0.3	U	ug/m3	0.3	0.89
		PMC-IN-20-060217	IA	N	42888	n-Hexane	2.5	=	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	Nonane	0.35	J	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	n-Propylbenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	OCTANE	0.62	J	ug/m3	0.32	0.89
		PMC-IN-20-060217	IA	N	42888	Propene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-20-060217	IA	N	42888	Styrene	0.38	J	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-20-060217	IA	N	42888	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.89
		PMC-IN-20-060217	IA	N	42888	Toluene	150	=	ug/m3	0.3	0.89
		PMC-IN-20-060217	IA	N	42888	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-20-060217	IA	N	42888	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-20-060217	IA	N	42888	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-20-060217	IA	N	42888	Trichlorofluoromethane	7.2	=	ug/m3	0.1	0.18
		PMC-IN-20-060217	IA	N	42888	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.18
		PMC-IN-20-060217	IA	N	42888	Vinyl Acetate	1.2	U	ug/m3	1.2	8.9
		PMC-IN-20-060217	IA	N	42888	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-20-060217	IA	N	42888	Xylene, o	0.27	U	ug/m3	0.27	0.89
		PMC-IN-20-060217	IA	N	42888	Xylenes, m & p	0.52	U	ug/m3	0.52	0.89
		PMC-IN-23-020818	IA	N	43139.5972	1,1,1-Trichloroethane	0.038	=	ug/m3	0.0083	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
		PMC-IN-23-020818	IA	N	43139.5972	1,1-Dichloroethane	0.0086	U	ug/m3	0.0086	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.71
		PMC-IN-23-020818	IA	N	43139.5972	1,2,4-Trichlorobenzene	0.04	J	ug/m3	0.018	0.071
		PMC-IN-23-020818	IA	N	43139.5972	1,2,4-Trimethylbenzene	0.12	J	ug/m3	0.012	0.14
		PMC-IN-23-020818	IA	N	43139.5972	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,2-Dichloroethane	0.16	=	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,2-Dichloropropane	0.03	J	ug/m3	0.01	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,3,5-Trimethylbenzene	0.036	J	ug/m3	0.01	0.14
		PMC-IN-23-020818	IA	N	43139.5972	1,3-Butadiene	0.02	U	ug/m3	0.02	0.071
		PMC-IN-23-020818	IA	N	43139.5972	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,4-Dichlorobenzene	0.013	J	ug/m3	0.011	0.035
		PMC-IN-23-020818	IA	N	43139.5972	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
		PMC-IN-23-020818	IA	N	43139.5972	2-Butanone	0.51	J	ug/m3	0.3	7.1
		PMC-IN-23-020818	IA	N	43139.5972	2-Hexanone	0.23	U	ug/m3	0.23	0.71
		PMC-IN-23-020818	IA	N	43139.5972	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Acetone	13	=	ug/m3	0.079	3.5
		PMC-IN-23-020818	IA	N	43139.5972	Acetonitrile	0.25	U	ug/m3	0.25	0.71

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-23-020818	IA	N	43139.5972	Acrolein	0.22	J	ug/m3	0.055	0.28
		PMC-IN-23-020818	IA	N	43139.5972	Acrylonitrile	0.24	U	ug/m3	0.24	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Benzene	0.5	=	ug/m3	0.028	0.11
		PMC-IN-23-020818	IA	N	43139.5972	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
		PMC-IN-23-020818	IA	N	43139.5972	Bromodichloromethane	0.0097	U	ug/m3	0.0097	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Bromoform	0.21	U	ug/m3	0.21	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Bromomethane	0.027	J	ug/m3	0.013	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Carbon Disulfide	0.25	J	ug/m3	0.21	7.1
		PMC-IN-23-020818	IA	N	43139.5972	CHLORODIFLUOROMETHANE	0.78	=	ug/m3	0.35	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Chloroethane	0.012	U	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Chloroform	0.12	J	ug/m3	0.025	0.14
		PMC-IN-23-020818	IA	N	43139.5972	Chloromethane	0.44	=	ug/m3	0.027	0.071
		PMC-IN-23-020818	IA	N	43139.5972	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.035
		PMC-IN-23-020818	IA	N	43139.5972	cis-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Cyclohexane	1.5	=	ug/m3	0.41	1.4
		PMC-IN-23-020818	IA	N	43139.5972	Dichlorodifluoromethane	2.9	=	ug/m3	0.024	0.071
		PMC-IN-23-020818	IA	N	43139.5972	Dichloromethane	0.3	=	ug/m3	0.018	0.14
		PMC-IN-23-020818	IA	N	43139.5972	ETHANOL	9.4	=	ug/m3	1.1	7.1
		PMC-IN-23-020818	IA	N	43139.5972	Ethylbenzene	0.21	=	ug/m3	0.014	0.14
		PMC-IN-23-020818	IA	N	43139.5972	Freon 113	0.35	=	ug/m3	0.013	0.035
		PMC-IN-23-020818	IA	N	43139.5972	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.97	J	ug/m3	0.59	7.1
		PMC-IN-23-020818	IA	N	43139.5972	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.035
		PMC-IN-23-020818	IA	N	43139.5972	n-Butanol	0.68	U	ug/m3	0.68	1.4
		PMC-IN-23-020818	IA	N	43139.5972	n-Hexane	0.89	=	ug/m3	0.21	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Propene	0.2	U	ug/m3	0.2	0.71
		PMC-IN-23-020818	IA	N	43139.5972	Styrene	0.17	=	ug/m3	0.01	0.14
		PMC-IN-23-020818	IA	N	43139.5972	Tetrachloroethene	0.14	=	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Toluene	1.3	=	ug/m3	0.016	0.14
		PMC-IN-23-020818	IA	N	43139.5972	trans-1,3-Dichloropropene	0.0078	U	ug/m3	0.0078	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Trichloroethylene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Trichlorofluoromethane	2.8	=	ug/m3	0.021	0.071
		PMC-IN-23-020818	IA	N	43139.5972	Vinyl Acetate	0.92	U	ug/m3	0.92	7.1
		PMC-IN-23-020818	IA	N	43139.5972	Vinyl Chloride	0.011	U	ug/m3	0.011	0.035
		PMC-IN-23-020818	IA	N	43139.5972	Xylene, o	0.12	J	ug/m3	0.013	0.14
		PMC-IN-23-020818	IA	N	43139.5972	Xylenes, m & p	0.36	=	ug/m3	0.027	0.14
		PMC-IN-23-060117	IA	N	42887	1,1,1-Trichloroethane	0.11	U	ug/m3	0.11	0.15
		PMC-IN-23-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.13	U	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	1,1,2-Trichloroethane	0.12	U	ug/m3	0.12	0.15
		PMC-IN-23-060117	IA	N	42887	1,1-Dichloroethane	0.12	U	ug/m3	0.12	0.15
		PMC-IN-23-060117	IA	N	42887	1,1-Dichloroethene	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.48	J	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.15	U	ug/m3	0.15	0.75
		PMC-IN-23-060117	IA	N	42887	1,2-Dibromoethane	0.13	U	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.28	U	ug/m3	0.28	0.75
		PMC-IN-23-060117	IA	N	42887	1,2-Dichlorobenzene	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	1,2-Dichloroethane	0.88	=	ug/m3	0.092	0.15
		PMC-IN-23-060117	IA	N	42887	1,2-Dichloropropane	0.12	U	ug/m3	0.12	0.15

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-23-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	1,3-Butadiene	0.21	U	ug/m3	0.21	0.3
		PMC-IN-23-060117	IA	N	42887	1,3-Dichlorobenzene	0.11	U	ug/m3	0.11	0.15
		PMC-IN-23-060117	IA	N	42887	1,4-Dichlorobenzene	0.11	U	ug/m3	0.11	0.15
		PMC-IN-23-060117	IA	N	42887	1,4-Dioxane	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	2-Butanone	0.31	U	ug/m3	0.31	7.5
		PMC-IN-23-060117	IA	N	42887	2-Hexanone	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	4-Ethyltoluene	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	Acetone	1.1	U	ug/m3	1.1	7.5
		PMC-IN-23-060117	IA	N	42887	Acetonitrile	0.27	U	ug/m3	0.27	0.75
		PMC-IN-23-060117	IA	N	42887	Acrolein	0.25	U	ug/m3	0.25	3
		PMC-IN-23-060117	IA	N	42887	Acrylonitrile	0.25	U	ug/m3	0.25	0.75
		PMC-IN-23-060117	IA	N	42887	Allyl chloride	0.11	U	ug/m3	0.11	0.15
		PMC-IN-23-060117	IA	N	42887	alpha-Pinene	17	=	ug/m3	0.21	0.75
		PMC-IN-23-060117	IA	N	42887	Benzene	0.12	U	ug/m3	0.12	0.15
		PMC-IN-23-060117	IA	N	42887	Benzyl chloride	0.16	U	ug/m3	0.16	0.75
		PMC-IN-23-060117	IA	N	42887	Bromodichloromethane	0.1	U	ug/m3	0.1	0.15
		PMC-IN-23-060117	IA	N	42887	Bromoform	0.22	U	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	Bromomethane	0.14	U	ug/m3	0.14	0.3
		PMC-IN-23-060117	IA	N	42887	Carbon Disulfide	0.22	U	ug/m3	0.22	7.5
		PMC-IN-23-060117	IA	N	42887	Carbon tetrachloride	0.43	=	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	Chlorobenzene	0.12	U	ug/m3	0.12	0.15
		PMC-IN-23-060117	IA	N	42887	Chlorodibromomethane	0.13	U	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	Chloroethane	0.13	U	ug/m3	0.13	0.3
		PMC-IN-23-060117	IA	N	42887	Chloroform	0.14	J	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	Chloromethane	0.41	=	ug/m3	0.21	0.3
		PMC-IN-23-060117	IA	N	42887	cis-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	cis-1,3-Dichloropropene	0.21	U	ug/m3	0.21	0.75
		PMC-IN-23-060117	IA	N	42887	Cyclohexane	0.43	U	ug/m3	0.43	1.5
		PMC-IN-23-060117	IA	N	42887	Dichlorodifluoromethane	2.9	=	ug/m3	0.25	0.75
		PMC-IN-23-060117	IA	N	42887	Dichloromethane	0.25	U	ug/m3	0.25	0.75
		PMC-IN-23-060117	IA	N	42887	D-Limonene	4.1	=	ug/m3	0.21	0.75
		PMC-IN-23-060117	IA	N	42887	ETHANOL	87	=	ug/m3	1.2	7.5
		PMC-IN-23-060117	IA	N	42887	Ethyl acetate	2.9	=	ug/m3	0.52	1.5
		PMC-IN-23-060117	IA	N	42887	Ethylbenzene	0.57	J	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	Hexachlorobutadiene	0.21	U	ug/m3	0.21	0.75
		PMC-IN-23-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.63	U	ug/m3	0.63	7.5
		PMC-IN-23-060117	IA	N	42887	Isopropylbenzene	0.22	U	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	Methyl methacrylate	0.46	U	ug/m3	0.46	1.5
		PMC-IN-23-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	Naphthalene	0.31	J	ug/m3	0.27	0.75
		PMC-IN-23-060117	IA	N	42887	N-Butyl Acetate	0.82	=	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	N-HEPTANE	0.25	U	ug/m3	0.25	0.75
		PMC-IN-23-060117	IA	N	42887	n-Hexane	0.28	J	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	Nonane	0.27	J	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	n-Propylbenzene	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	OCTANE	0.27	U	ug/m3	0.27	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-23-060117	IA	N	42887	Propene	0.21	U	ug/m3	0.21	0.75
		PMC-IN-23-060117	IA	N	42887	Styrene	0.23	J	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	Tetrachloroethene	0.11	U	ug/m3	0.11	0.15
		PMC-IN-23-060117	IA	N	42887	Tetrahydrofuran	0.3	U	ug/m3	0.3	0.75
		PMC-IN-23-060117	IA	N	42887	Toluene	0.25	U	ug/m3	0.25	0.75
		PMC-IN-23-060117	IA	N	42887	trans-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	trans-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.75
		PMC-IN-23-060117	IA	N	42887	Trichloroethylene	0.36	=	ug/m3	0.13	0.15
		PMC-IN-23-060117	IA	N	42887	Trichlorofluoromethane	12	=	ug/m3	0.085	0.15
		PMC-IN-23-060117	IA	N	42887	Trichlorotrifuoroethane	0.46	=	ug/m3	0.12	0.15
		PMC-IN-23-060117	IA	N	42887	Vinyl Acetate	0.97	U	ug/m3	0.97	7.5
		PMC-IN-23-060117	IA	N	42887	Vinyl Chloride	0.14	U	ug/m3	0.14	0.15
		PMC-IN-23-060117	IA	N	42887	Xylene, o	0.3	J	ug/m3	0.22	0.75
		PMC-IN-23-060117	IA	N	42887	Xylenes, m & p	0.82	=	ug/m3	0.43	0.75
		PMC-IN-26-060117	IA	N	42887	1,1,1-Trichloroethane	1.3	=	ug/m3	0.13	0.18
		PMC-IN-26-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-26-060117	IA	N	42887	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-26-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.35	J	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
		PMC-IN-26-060117	IA	N	42887	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-26-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.91
		PMC-IN-26-060117	IA	N	42887	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-26-060117	IA	N	42887	1,2-Dichloroethane	0.21	=	ug/m3	0.11	0.18
		PMC-IN-26-060117	IA	N	42887	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-26-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	1,3-Butadiene	0.64	=	ug/m3	0.25	0.36
		PMC-IN-26-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-26-060117	IA	N	42887	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	2-Butanone	0.38	U	ug/m3	0.38	9.1
		PMC-IN-26-060117	IA	N	42887	2-Hexanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	4-Ethyltoluene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	Acetone	1.4	U	ug/m3	1.4	9.1
		PMC-IN-26-060117	IA	N	42887	Acetonitrile	0.33	U	ug/m3	0.33	0.91
		PMC-IN-26-060117	IA	N	42887	Acrolein	0.31	U	ug/m3	0.31	3.6
		PMC-IN-26-060117	IA	N	42887	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
		PMC-IN-26-060117	IA	N	42887	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	alpha-Pinene	13	=	ug/m3	0.25	0.91
		PMC-IN-26-060117	IA	N	42887	Benzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
		PMC-IN-26-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-26-060117	IA	N	42887	Bromoform	0.27	U	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-26-060117	IA	N	42887	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-26-060117	IA	N	42887	Carbon tetrachloride	0.44	=	ug/m3	0.16	0.18
		PMC-IN-26-060117	IA	N	42887	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-26-060117	IA	N	42887	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-26-060117	IA	N	42887	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-26-060117	IA	N	42887	Chloroform	0.18	J	ug/m3	0.16	0.18
		PMC-IN-26-060117	IA	N	42887	Chloromethane	0.25	U	ug/m3	0.25	0.36
		PMC-IN-26-060117	IA	N	42887	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-26-060117	IA	N	42887	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-26-060117	IA	N	42887	Cyclohexane	0.52	U	ug/m3	0.52	1.8
		PMC-IN-26-060117	IA	N	42887	Dichlorodifluoromethane	4.8	=	ug/m3	0.31	0.91
		PMC-IN-26-060117	IA	N	42887	Dichloromethane	0.31	U	ug/m3	0.31	0.91
		PMC-IN-26-060117	IA	N	42887	D-Limonene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-26-060117	IA	N	42887	ETHANOL	320	=	ug/m3	1.4	9.1
		PMC-IN-26-060117	IA	N	42887	Ethyl acetate	15	=	ug/m3	0.63	1.8
		PMC-IN-26-060117	IA	N	42887	Ethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-26-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
		PMC-IN-26-060117	IA	N	42887	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
		PMC-IN-26-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-26-060117	IA	N	42887	Naphthalene	0.33	U	ug/m3	0.33	0.91
		PMC-IN-26-060117	IA	N	42887	N-Butyl Acetate	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	N-HEPTANE	0.31	U	ug/m3	0.31	0.91
		PMC-IN-26-060117	IA	N	42887	n-Hexane	0.49	J	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	Nonane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	n-Propylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	OCTANE	0.33	U	ug/m3	0.33	0.91
		PMC-IN-26-060117	IA	N	42887	Propene	9.8	=	ug/m3	0.25	0.91
		PMC-IN-26-060117	IA	N	42887	Styrene	0.38	J	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	Tetrachloroethene	0.16	J	ug/m3	0.13	0.18
		PMC-IN-26-060117	IA	N	42887	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
		PMC-IN-26-060117	IA	N	42887	Toluene	4.7	=	ug/m3	0.31	0.91
		PMC-IN-26-060117	IA	N	42887	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-26-060117	IA	N	42887	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-26-060117	IA	N	42887	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-26-060117	IA	N	42887	Trichlorofluoromethane	12	=	ug/m3	0.1	0.18
		PMC-IN-26-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.14	0.18
		PMC-IN-26-060117	IA	N	42887	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
		PMC-IN-26-060117	IA	N	42887	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-26-060117	IA	N	42887	Xylene, o	0.27	U	ug/m3	0.27	0.91
		PMC-IN-26-060117	IA	N	42887	Xylenes, m & p	0.52	U	ug/m3	0.52	0.91
		PMC-IN-29-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-29-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.28	J	ug/m3	0.25	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-29-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.85
		PMC-IN-29-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.85
		PMC-IN-29-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-29-060117	IA	N	42887	1,2-Dichloroethane	0.54	=	ug/m3	0.1	0.17
		PMC-IN-29-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-29-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	2-Butanone	0.35	U	ug/m3	0.35	8.5
		PMC-IN-29-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	Acetone	1.3	U	ug/m3	1.3	8.5
		PMC-IN-29-060117	IA	N	42887	Acetonitrile	0.3	U	ug/m3	0.3	0.85
		PMC-IN-29-060117	IA	N	42887	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-29-060117	IA	N	42887	Acrylonitrile	0.29	U	ug/m3	0.29	0.85
		PMC-IN-29-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	alpha-Pinene	10	=	ug/m3	0.24	0.85
		PMC-IN-29-060117	IA	N	42887	Benzene	0.2	=	ug/m3	0.13	0.17
		PMC-IN-29-060117	IA	N	42887	Benzyl chloride	0.19	U	ug/m3	0.19	0.85
		PMC-IN-29-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-29-060117	IA	N	42887	Bromoform	0.25	U	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-29-060117	IA	N	42887	Carbon Disulfide	0.25	U	ug/m3	0.25	8.5
		PMC-IN-29-060117	IA	N	42887	Carbon tetrachloride	0.41	=	ug/m3	0.15	0.17
		PMC-IN-29-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-29-060117	IA	N	42887	Chloroform	0.29	=	ug/m3	0.15	0.17
		PMC-IN-29-060117	IA	N	42887	Chloromethane	0.47	=	ug/m3	0.24	0.34
		PMC-IN-29-060117	IA	N	42887	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-29-060117	IA	N	42887	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-29-060117	IA	N	42887	Cyclohexane	0.49	U	ug/m3	0.49	1.7
		PMC-IN-29-060117	IA	N	42887	Dichlorodifluoromethane	3.5	=	ug/m3	0.29	0.85
		PMC-IN-29-060117	IA	N	42887	Dichloromethane	0.63	J	ug/m3	0.29	0.85
		PMC-IN-29-060117	IA	N	42887	D-Limonene	5.3	=	ug/m3	0.24	0.85
		PMC-IN-29-060117	IA	N	42887	ETHANOL	150	=	ug/m3	1.4	8.5
		PMC-IN-29-060117	IA	N	42887	Ethyl acetate	7.3	=	ug/m3	0.59	1.7
		PMC-IN-29-060117	IA	N	42887	Ethylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-29-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.71	U	ug/m3	0.71	8.5
		PMC-IN-29-060117	IA	N	42887	Isopropylbenzene	0.25	U	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	Methyl methacrylate	0.52	U	ug/m3	0.52	1.7
		PMC-IN-29-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-29-060117	IA	N	42887	Naphthalene	0.3	U	ug/m3	0.3	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-29-060117	IA	N	42887	N-Butyl Acetate	0.9	=	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	N-HEPTANE	0.29	U	ug/m3	0.29	0.85
		PMC-IN-29-060117	IA	N	42887	n-Hexane	0.29	J	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	Nonane	0.42	J	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	OCTANE	0.3	U	ug/m3	0.3	0.85
		PMC-IN-29-060117	IA	N	42887	Propene	0.24	U	ug/m3	0.24	0.85
		PMC-IN-29-060117	IA	N	42887	Styrene	0.31	J	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	Tetrachloroethene	1.2	=	ug/m3	0.12	0.17
		PMC-IN-29-060117	IA	N	42887	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.85
		PMC-IN-29-060117	IA	N	42887	Toluene	3.5	=	ug/m3	0.29	0.85
		PMC-IN-29-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-29-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.85
		PMC-IN-29-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-29-060117	IA	N	42887	Trichlorofluoromethane	4.5	=	ug/m3	0.096	0.17
		PMC-IN-29-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.14	0.17
		PMC-IN-29-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.5
		PMC-IN-29-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-29-060117	IA	N	42887	Xylene, o	0.25	U	ug/m3	0.25	0.85
		PMC-IN-29-060117	IA	N	42887	Xylenes, m & p	0.49	U	ug/m3	0.49	0.85
		PMC-IN-34-060217	IA	N	42888	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-34-060217	IA	N	42888	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-34-060217	IA	N	42888	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	1,2,4-Trimethylbenzene	0.29	J	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.87
		PMC-IN-34-060217	IA	N	42888	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.87
		PMC-IN-34-060217	IA	N	42888	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-34-060217	IA	N	42888	1,2-Dichloroethane	0.27	=	ug/m3	0.11	0.17
		PMC-IN-34-060217	IA	N	42888	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	1,3-Butadiene	0.24	U	ug/m3	0.24	0.35
		PMC-IN-34-060217	IA	N	42888	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-34-060217	IA	N	42888	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-34-060217	IA	N	42888	1,4-Dioxane	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	2-Butanone	0.37	U	ug/m3	0.37	8.7
		PMC-IN-34-060217	IA	N	42888	2-Hexanone	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	Acetone	21	=	ug/m3	1.3	8.7
		PMC-IN-34-060217	IA	N	42888	Acetonitrile	0.31	U	ug/m3	0.31	0.87
		PMC-IN-34-060217	IA	N	42888	Acrolein	0.3	U	ug/m3	0.3	3.5
		PMC-IN-34-060217	IA	N	42888	Acrylonitrile	0.3	U	ug/m3	0.3	0.87
		PMC-IN-34-060217	IA	N	42888	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-34-060217	IA	N	42888	alpha-Pinene	23	=	ug/m3	0.24	0.87

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-34-060217	IA	N	42888	Benzene	0.31	=	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	Benzyl chloride	0.19	U	ug/m3	0.19	0.87
		PMC-IN-34-060217	IA	N	42888	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-34-060217	IA	N	42888	Bromoform	0.26	U	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	Bromomethane	0.16	U	ug/m3	0.16	0.35
		PMC-IN-34-060217	IA	N	42888	Carbon Disulfide	0.26	U	ug/m3	0.26	8.7
		PMC-IN-34-060217	IA	N	42888	Carbon tetrachloride	0.36	=	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	Chloroethane	0.15	U	ug/m3	0.15	0.35
		PMC-IN-34-060217	IA	N	42888	Chloroform	0.15	U	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	Chloromethane	0.45	=	ug/m3	0.24	0.35
		PMC-IN-34-060217	IA	N	42888	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-34-060217	IA	N	42888	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-34-060217	IA	N	42888	Cyclohexane	0.5	U	ug/m3	0.5	1.7
		PMC-IN-34-060217	IA	N	42888	Dichlorodifluoromethane	4.2	=	ug/m3	0.3	0.87
		PMC-IN-34-060217	IA	N	42888	Dichloromethane	0.42	J	ug/m3	0.3	0.87
		PMC-IN-34-060217	IA	N	42888	D-Limonene	3.1	=	ug/m3	0.24	0.87
		PMC-IN-34-060217	IA	N	42888	ETHANOL	40	=	ug/m3	1.4	8.7
		PMC-IN-34-060217	IA	N	42888	Ethyl acetate	6.6	=	ug/m3	0.61	1.7
		PMC-IN-34-060217	IA	N	42888	Ethylbenzene	0.36	J	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-34-060217	IA	N	42888	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.73	U	ug/m3	0.73	8.7
		PMC-IN-34-060217	IA	N	42888	Isopropylbenzene	0.26	U	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	Methyl methacrylate	0.54	U	ug/m3	0.54	1.7
		PMC-IN-34-060217	IA	N	42888	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-34-060217	IA	N	42888	Naphthalene	0.31	J	ug/m3	0.31	0.87
		PMC-IN-34-060217	IA	N	42888	N-Butyl Acetate	0.81	J	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	N-HEPTANE	0.3	U	ug/m3	0.3	0.87
		PMC-IN-34-060217	IA	N	42888	n-Hexane	0.26	U	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	Nonane	0.26	U	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	n-Propylbenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	OCTANE	0.31	U	ug/m3	0.31	0.87
		PMC-IN-34-060217	IA	N	42888	Propene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-34-060217	IA	N	42888	Styrene	0.26	U	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	Tetrachloroethene	0.13	J	ug/m3	0.13	0.17
		PMC-IN-34-060217	IA	N	42888	Tetrahydrofuran	0.35	U	ug/m3	0.35	0.87
		PMC-IN-34-060217	IA	N	42888	Toluene	1.8	=	ug/m3	0.3	0.87
		PMC-IN-34-060217	IA	N	42888	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-34-060217	IA	N	42888	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-34-060217	IA	N	42888	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-34-060217	IA	N	42888	Trichlorofluoromethane	17	=	ug/m3	0.099	0.17
		PMC-IN-34-060217	IA	N	42888	Trichlorotrifuoroethane	0.46	=	ug/m3	0.14	0.17
		PMC-IN-34-060217	IA	N	42888	Vinyl Acetate	1.3	J	ug/m3	1.1	8.7
		PMC-IN-34-060217	IA	N	42888	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
		PMC-IN-34-060217	IA	N	42888	Xylene, o	0.84	J	ug/m3	0.26	0.87
		PMC-IN-34-060217	IA	N	42888	Xylenes, m & p	1.6	=	ug/m3	0.5	0.87
		PMC-IN-15-060217	IA	N	42888	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-15-060217	IA	N	42888	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	1,2,4-Trimethylbenzene	0.43	J	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.86
		PMC-IN-15-060217	IA	N	42888	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-15-060217	IA	N	42888	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.86
		PMC-IN-15-060217	IA	N	42888	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	1,2-Dichloroethane	0.28	=	ug/m3	0.11	0.17
		PMC-IN-15-060217	IA	N	42888	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-15-060217	IA	N	42888	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-15-060217	IA	N	42888	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-15-060217	IA	N	42888	1,4-Dioxane	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	2-Butanone	0.36	U	ug/m3	0.36	8.6
		PMC-IN-15-060217	IA	N	42888	2-Hexanone	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	Acetone	1.3	U	ug/m3	1.3	8.6
		PMC-IN-15-060217	IA	N	42888	Acetonitrile	0.31	U	ug/m3	0.31	0.86
		PMC-IN-15-060217	IA	N	42888	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-15-060217	IA	N	42888	Acrylonitrile	0.29	U	ug/m3	0.29	0.86
		PMC-IN-15-060217	IA	N	42888	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-15-060217	IA	N	42888	alpha-Pinene	4.4	=	ug/m3	0.24	0.86
		PMC-IN-15-060217	IA	N	42888	Benzene	0.3	=	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	Benzyl chloride	0.19	U	ug/m3	0.19	0.86
		PMC-IN-15-060217	IA	N	42888	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-15-060217	IA	N	42888	Bromoform	0.26	U	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-15-060217	IA	N	42888	Carbon Disulfide	0.26	U	ug/m3	0.26	8.6
		PMC-IN-15-060217	IA	N	42888	Carbon tetrachloride	0.39	=	ug/m3	0.15	0.17
		PMC-IN-15-060217	IA	N	42888	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-15-060217	IA	N	42888	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-15-060217	IA	N	42888	Chloroform	0.15	U	ug/m3	0.15	0.17
		PMC-IN-15-060217	IA	N	42888	Chloromethane	0.24	U	ug/m3	0.24	0.34
		PMC-IN-15-060217	IA	N	42888	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-15-060217	IA	N	42888	Cyclohexane	0.5	U	ug/m3	0.5	1.7
		PMC-IN-15-060217	IA	N	42888	Dichlorodifluoromethane	3.6	=	ug/m3	0.29	0.86
		PMC-IN-15-060217	IA	N	42888	Dichloromethane	0.29	U	ug/m3	0.29	0.86
		PMC-IN-15-060217	IA	N	42888	D-Limonene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-15-060217	IA	N	42888	ETHANOL	51	=	ug/m3	1.4	8.6
		PMC-IN-15-060217	IA	N	42888	Ethyl acetate	0.6	U	ug/m3	0.6	1.7
		PMC-IN-15-060217	IA	N	42888	Ethylbenzene	0.29	J	ug/m3	0.28	0.86

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-15-060217	IA	N	42888	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-15-060217	IA	N	42888	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.72	U	ug/m3	0.72	8.6
		PMC-IN-15-060217	IA	N	42888	Isopropylbenzene	0.26	U	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	Methyl methacrylate	0.53	U	ug/m3	0.53	1.7
		PMC-IN-15-060217	IA	N	42888	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	Naphthalene	0.31	U	ug/m3	0.31	0.86
		PMC-IN-15-060217	IA	N	42888	N-Butyl Acetate	0.4	J	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	N-HEPTANE	2	=	ug/m3	0.29	0.86
		PMC-IN-15-060217	IA	N	42888	n-Hexane	2	=	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	Nonane	2.1	=	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	n-Propylbenzene	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	OCTANE	1.9	=	ug/m3	0.31	0.86
		PMC-IN-15-060217	IA	N	42888	Propene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-15-060217	IA	N	42888	Styrene	0.26	U	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-15-060217	IA	N	42888	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.86
		PMC-IN-15-060217	IA	N	42888	Toluene	2.6	=	ug/m3	0.29	0.86
		PMC-IN-15-060217	IA	N	42888	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.86
		PMC-IN-15-060217	IA	N	42888	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-15-060217	IA	N	42888	Trichlorofluoromethane	11	=	ug/m3	0.098	0.17
		PMC-IN-15-060217	IA	N	42888	Trichlorotrifuoroethane	0.46	=	ug/m3	0.14	0.17
		PMC-IN-15-060217	IA	N	42888	Vinyl Acetate	1.1	U	ug/m3	1.1	8.6
		PMC-IN-15-060217	IA	N	42888	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-15-060217	IA	N	42888	Xylene, o	0.43	J	ug/m3	0.26	0.86
		PMC-IN-15-060217	IA	N	42888	Xylenes, m & p	0.5	U	ug/m3	0.5	0.86
		PMC-IN-18-060117	IA	N	42887	1,1,1-Trichloroethane	0.46	=	ug/m3	0.12	0.16
		PMC-IN-18-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-18-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-18-060117	IA	N	42887	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.26	U	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	1,2,4-Trimethylbenzene	1.3	=	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.82
		PMC-IN-18-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	U	ug/m3	0.31	0.82
		PMC-IN-18-060117	IA	N	42887	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	1,2-Dichloroethane	0.18	=	ug/m3	0.1	0.16
		PMC-IN-18-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.31	J	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	1,3-Butadiene	0.23	U	ug/m3	0.23	0.33
		PMC-IN-18-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-18-060117	IA	N	42887	1,4-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-18-060117	IA	N	42887	1,4-Dioxane	0.26	U	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	2-Butanone	0.34	U	ug/m3	0.34	8.2
		PMC-IN-18-060117	IA	N	42887	2-Hexanone	0.26	U	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	4-Ethyltoluene	0.32	J	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	0.82

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-18-060117	IA	N	42887	Acetone	28	=	ug/m3	1.3	8.2
		PMC-IN-18-060117	IA	N	42887	Acetonitrile	0.3	U	ug/m3	0.3	0.82
		PMC-IN-18-060117	IA	N	42887	Acrolein	0.28	U	ug/m3	0.28	3.3
		PMC-IN-18-060117	IA	N	42887	Acrylonitrile	0.28	U	ug/m3	0.28	0.82
		PMC-IN-18-060117	IA	N	42887	Allyl chloride	0.12	U	ug/m3	0.12	0.16
		PMC-IN-18-060117	IA	N	42887	alpha-Pinene	17	=	ug/m3	0.23	0.82
		PMC-IN-18-060117	IA	N	42887	Benzene	0.21	=	ug/m3	0.13	0.16
		PMC-IN-18-060117	IA	N	42887	Benzyl chloride	0.18	U	ug/m3	0.18	0.82
		PMC-IN-18-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.16
		PMC-IN-18-060117	IA	N	42887	Bromoform	0.25	U	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	Bromomethane	0.15	U	ug/m3	0.15	0.33
		PMC-IN-18-060117	IA	N	42887	Carbon Disulfide	0.25	U	ug/m3	0.25	8.2
		PMC-IN-18-060117	IA	N	42887	Carbon tetrachloride	0.45	=	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-18-060117	IA	N	42887	Chloroethane	0.14	U	ug/m3	0.14	0.33
		PMC-IN-18-060117	IA	N	42887	Chloroform	0.17	=	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	Chloromethane	0.46	=	ug/m3	0.23	0.33
		PMC-IN-18-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.82
		PMC-IN-18-060117	IA	N	42887	Cyclohexane	0.48	U	ug/m3	0.48	1.6
		PMC-IN-18-060117	IA	N	42887	Dichlorodifluoromethane	4.6	=	ug/m3	0.28	0.82
		PMC-IN-18-060117	IA	N	42887	Dichloromethane	0.28	U	ug/m3	0.28	0.82
		PMC-IN-18-060117	IA	N	42887	D-Limonene	3.5	=	ug/m3	0.23	0.82
		PMC-IN-18-060117	IA	N	42887	ETHANOL	50	=	ug/m3	1.3	8.2
		PMC-IN-18-060117	IA	N	42887	Ethyl acetate	0.57	U	ug/m3	0.57	1.6
		PMC-IN-18-060117	IA	N	42887	Ethylbenzene	0.31	J	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.82
		PMC-IN-18-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.69	U	ug/m3	0.69	8.2
		PMC-IN-18-060117	IA	N	42887	Isopropylbenzene	0.25	U	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	Methyl methacrylate	0.51	U	ug/m3	0.51	1.6
		PMC-IN-18-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	Naphthalene	0.3	U	ug/m3	0.3	0.82
		PMC-IN-18-060117	IA	N	42887	N-Butyl Acetate	0.26	J	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	N-HEPTANE	0.28	U	ug/m3	0.28	0.82
		PMC-IN-18-060117	IA	N	42887	n-Hexane	0.31	J	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	Nonane	0.55	J	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	n-Propylbenzene	0.26	U	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	OCTANE	0.3	U	ug/m3	0.3	0.82
		PMC-IN-18-060117	IA	N	42887	Propene	0.23	U	ug/m3	0.23	0.82
		PMC-IN-18-060117	IA	N	42887	Styrene	0.6	J	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-18-060117	IA	N	42887	Tetrahydrofuran	0.75	J	ug/m3	0.33	0.82
		PMC-IN-18-060117	IA	N	42887	Toluene	0.28	U	ug/m3	0.28	0.82
		PMC-IN-18-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	trans-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.82
		PMC-IN-18-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-18-060117	IA	N	42887	Trichlorofluoromethane	9.3	=	ug/m3	0.093	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-18-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.13	0.16
		PMC-IN-18-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.2
		PMC-IN-18-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
		PMC-IN-18-060117	IA	N	42887	Xylene, o	0.44	J	ug/m3	0.25	0.82
		PMC-IN-18-060117	IA	N	42887	Xylenes, m & p	0.48	U	ug/m3	0.48	0.82
		PMC-IN-21-060117	IA	N	42887	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-21-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-21-060117	IA	N	42887	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-21-060117	IA	N	42887	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-21-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.63	J	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.95
		PMC-IN-21-060117	IA	N	42887	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.95
		PMC-IN-21-060117	IA	N	42887	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-21-060117	IA	N	42887	1,2-Dichloroethane	0.73	=	ug/m3	0.12	0.19
		PMC-IN-21-060117	IA	N	42887	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	1,3-Butadiene	0.27	U	ug/m3	0.27	0.38
		PMC-IN-21-060117	IA	N	42887	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-21-060117	IA	N	42887	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-21-060117	IA	N	42887	1,4-Dioxane	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	2-Butanone	1.8	J	ug/m3	0.4	9.5
		PMC-IN-21-060117	IA	N	42887	2-Hexanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	4-Ethyltoluene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	Acetone	32	=	ug/m3	1.5	9.5
		PMC-IN-21-060117	IA	N	42887	Acetonitrile	0.34	U	ug/m3	0.34	0.95
		PMC-IN-21-060117	IA	N	42887	Acrolein	0.32	U	ug/m3	0.32	3.8
		PMC-IN-21-060117	IA	N	42887	Acrylonitrile	0.32	U	ug/m3	0.32	0.95
		PMC-IN-21-060117	IA	N	42887	Allyl chloride	0.14	U	ug/m3	0.14	0.19
		PMC-IN-21-060117	IA	N	42887	alpha-Pinene	10	=	ug/m3	0.27	0.95
		PMC-IN-21-060117	IA	N	42887	Benzene	0.15	U	ug/m3	0.15	0.19
		PMC-IN-21-060117	IA	N	42887	Benzyl chloride	0.21	U	ug/m3	0.21	0.95
		PMC-IN-21-060117	IA	N	42887	Bromodichloromethane	0.13	U	ug/m3	0.13	0.19
		PMC-IN-21-060117	IA	N	42887	Bromoform	0.29	U	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	Bromomethane	0.18	U	ug/m3	0.18	0.38
		PMC-IN-21-060117	IA	N	42887	Carbon Disulfide	0.29	U	ug/m3	0.29	9.5
		PMC-IN-21-060117	IA	N	42887	Carbon tetrachloride	0.48	=	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-21-060117	IA	N	42887	Chloroethane	0.17	U	ug/m3	0.17	0.38
		PMC-IN-21-060117	IA	N	42887	Chloroform	0.34	=	ug/m3	0.17	0.19
		PMC-IN-21-060117	IA	N	42887	Chloromethane	0.48	=	ug/m3	0.27	0.38
		PMC-IN-21-060117	IA	N	42887	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-21-060117	IA	N	42887	cis-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.95
		PMC-IN-21-060117	IA	N	42887	Cyclohexane	0.55	U	ug/m3	0.55	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-21-060117	IA	N	42887	Dichlorodifluoromethane	4.7	=	ug/m3	0.32	0.95
		PMC-IN-21-060117	IA	N	42887	Dichloromethane	0.32	U	ug/m3	0.32	0.95
		PMC-IN-21-060117	IA	N	42887	D-Limonene	9.2	=	ug/m3	0.27	0.95
		PMC-IN-21-060117	IA	N	42887	ETHANOL	530	=	ug/m3	1.5	9.5
		PMC-IN-21-060117	IA	N	42887	Ethyl acetate	7	=	ug/m3	0.67	1.9
		PMC-IN-21-060117	IA	N	42887	Ethylbenzene	0.36	J	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	Hexachlorobutadiene	0.27	U	ug/m3	0.27	0.95
		PMC-IN-21-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.8	U	ug/m3	0.8	9.5
		PMC-IN-21-060117	IA	N	42887	Isopropylbenzene	0.29	U	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	Methyl methacrylate	0.59	U	ug/m3	0.59	1.9
		PMC-IN-21-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.19
		PMC-IN-21-060117	IA	N	42887	Naphthalene	0.34	U	ug/m3	0.34	0.95
		PMC-IN-21-060117	IA	N	42887	N-Butyl Acetate	1.4	=	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	N-HEPTANE	1.2	=	ug/m3	0.32	0.95
		PMC-IN-21-060117	IA	N	42887	n-Hexane	0.76	J	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	Nonane	0.3	J	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	n-Propylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	OCTANE	0.34	U	ug/m3	0.34	0.95
		PMC-IN-21-060117	IA	N	42887	Propene	3.3	=	ug/m3	0.27	0.95
		PMC-IN-21-060117	IA	N	42887	Styrene	0.44	J	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	Tetrachloroethene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-21-060117	IA	N	42887	Tetrahydrofuran	0.39	J	ug/m3	0.38	0.95
		PMC-IN-21-060117	IA	N	42887	Toluene	17	=	ug/m3	0.32	0.95
		PMC-IN-21-060117	IA	N	42887	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-21-060117	IA	N	42887	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-21-060117	IA	N	42887	Trichloroethylene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-21-060117	IA	N	42887	Trichlorofluoromethane	5.6	=	ug/m3	0.11	0.19
		PMC-IN-21-060117	IA	N	42887	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.19
		PMC-IN-21-060117	IA	N	42887	Vinyl Acetate	1.2	U	ug/m3	1.2	9.5
		PMC-IN-21-060117	IA	N	42887	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-21-060117	IA	N	42887	Xylene, o	0.43	J	ug/m3	0.29	0.95
		PMC-IN-21-060117	IA	N	42887	Xylenes, m & p	0.55	U	ug/m3	0.55	0.95
		PMC-IN-24-060117	IA	N	42887	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-24-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-24-060117	IA	N	42887	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
		PMC-IN-24-060117	IA	N	42887	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91
		PMC-IN-24-060117	IA	N	42887	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	1,2-Dichloroethane	0.15	J	ug/m3	0.11	0.18
		PMC-IN-24-060117	IA	N	42887	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-24-060117	IA	N	42887	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-24-060117	IA	N	42887	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-24-060117	IA	N	42887	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	2-Butanone	0.38	U	ug/m3	0.38	9.1
		PMC-IN-24-060117	IA	N	42887	2-Hexanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	4-Ethyltoluene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	Acetone	13	=	ug/m3	1.4	9.1
		PMC-IN-24-060117	IA	N	42887	Acetonitrile	0.33	U	ug/m3	0.33	0.91
		PMC-IN-24-060117	IA	N	42887	Acrolein	0.31	U	ug/m3	0.31	3.6
		PMC-IN-24-060117	IA	N	42887	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
		PMC-IN-24-060117	IA	N	42887	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-24-060117	IA	N	42887	alpha-Pinene	7.4	=	ug/m3	0.25	0.91
		PMC-IN-24-060117	IA	N	42887	Benzene	0.16	J	ug/m3	0.14	0.18
		PMC-IN-24-060117	IA	N	42887	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
		PMC-IN-24-060117	IA	N	42887	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-24-060117	IA	N	42887	Bromoform	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-24-060117	IA	N	42887	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
		PMC-IN-24-060117	IA	N	42887	Carbon tetrachloride	0.43	=	ug/m3	0.16	0.18
		PMC-IN-24-060117	IA	N	42887	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-24-060117	IA	N	42887	Chloroform	0.16	U	ug/m3	0.16	0.18
		PMC-IN-24-060117	IA	N	42887	Chloromethane	0.44	=	ug/m3	0.25	0.36
		PMC-IN-24-060117	IA	N	42887	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-24-060117	IA	N	42887	Cyclohexane	0.53	U	ug/m3	0.53	1.8
		PMC-IN-24-060117	IA	N	42887	Dichlorodifluoromethane	2.5	=	ug/m3	0.31	0.91
		PMC-IN-24-060117	IA	N	42887	Dichloromethane	0.31	U	ug/m3	0.31	0.91
		PMC-IN-24-060117	IA	N	42887	D-Limonene	2.3	=	ug/m3	0.25	0.91
		PMC-IN-24-060117	IA	N	42887	ETHANOL	45	=	ug/m3	1.5	9.1
		PMC-IN-24-060117	IA	N	42887	Ethyl acetate	0.64	U	ug/m3	0.64	1.8
		PMC-IN-24-060117	IA	N	42887	Ethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-24-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
		PMC-IN-24-060117	IA	N	42887	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
		PMC-IN-24-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	Naphthalene	0.33	U	ug/m3	0.33	0.91
		PMC-IN-24-060117	IA	N	42887	N-Butyl Acetate	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	N-HEPTANE	0.31	U	ug/m3	0.31	0.91
		PMC-IN-24-060117	IA	N	42887	n-Hexane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	Nonane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	n-Propylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	OCTANE	0.33	U	ug/m3	0.33	0.91
		PMC-IN-24-060117	IA	N	42887	Propene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-24-060117	IA	N	42887	Styrene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-24-060117	IA	N	42887	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
		PMC-IN-24-060117	IA	N	42887	Toluene	1.2	=	ug/m3	0.31	0.91
		PMC-IN-24-060117	IA	N	42887	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-24-060117	IA	N	42887	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-24-060117	IA	N	42887	Trichlorofluoromethane	6	=	ug/m3	0.1	0.18
		PMC-IN-24-060117	IA	N	42887	Trichlorotrifuoroethane	0.46	=	ug/m3	0.15	0.18
		PMC-IN-24-060117	IA	N	42887	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
		PMC-IN-24-060117	IA	N	42887	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-24-060117	IA	N	42887	Xylene, o	0.27	U	ug/m3	0.27	0.91
		PMC-IN-24-060117	IA	N	42887	Xylenes, m & p	0.53	U	ug/m3	0.53	0.91
		PMC-IN-27-060117	IA	N	42887	1,1,1-Trichloroethane	0.48	=	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-27-060117	IA	N	42887	1,1,2-Trichloroethane	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	1,1-Dichloroethane	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	1,1-Dichloroethene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.34	J	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.14	U	ug/m3	0.14	0.72
		PMC-IN-27-060117	IA	N	42887	1,2-Dibromoethane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-27-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.27	U	ug/m3	0.27	0.72
		PMC-IN-27-060117	IA	N	42887	1,2-Dichlorobenzene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	1,2-Dichloroethane	0.11	J	ug/m3	0.089	0.14
		PMC-IN-27-060117	IA	N	42887	1,2-Dichloropropane	0.12	U	ug/m3	0.12	0.14
		PMC-IN-27-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	1,3-Butadiene	0.44	=	ug/m3	0.2	0.29
		PMC-IN-27-060117	IA	N	42887	1,3-Dichlorobenzene	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	1,4-Dichlorobenzene	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	1,4-Dioxane	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	2-Butanone	0.3	U	ug/m3	0.3	7.2
		PMC-IN-27-060117	IA	N	42887	2-Hexanone	0.29	J	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	4-Ethyltoluene	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	4-Methyl-2-Pentanone	0.49	J	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	Acetone	37	=	ug/m3	1.1	7.2
		PMC-IN-27-060117	IA	N	42887	Acetonitrile	1.2	=	ug/m3	0.26	0.72
		PMC-IN-27-060117	IA	N	42887	Acrolein	3.6	=	ug/m3	0.24	2.9
		PMC-IN-27-060117	IA	N	42887	Acrylonitrile	0.24	U	ug/m3	0.24	0.72
		PMC-IN-27-060117	IA	N	42887	Allyl chloride	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	alpha-Pinene	26	=	ug/m3	0.2	0.72
		PMC-IN-27-060117	IA	N	42887	Benzene	0.11	U	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	Benzyl chloride	0.16	U	ug/m3	0.16	0.72
		PMC-IN-27-060117	IA	N	42887	Bromodichloromethane	0.097	U	ug/m3	0.097	0.14
		PMC-IN-27-060117	IA	N	42887	Bromoform	0.21	U	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	Bromomethane	0.13	U	ug/m3	0.13	0.29
		PMC-IN-27-060117	IA	N	42887	Carbon Disulfide	0.21	U	ug/m3	0.21	7.2
		PMC-IN-27-060117	IA	N	42887	Carbon tetrachloride	0.44	=	ug/m3	0.12	0.14
		PMC-IN-27-060117	IA	N	42887	Chlorobenzene	0.12	U	ug/m3	0.12	0.14
		PMC-IN-27-060117	IA	N	42887	Chlorodibromomethane	0.12	U	ug/m3	0.12	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-27-060117	IA	N	42887	Chloroethane	0.12	U	ug/m3	0.12	0.29
		PMC-IN-27-060117	IA	N	42887	Chloroform	0.21	=	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	Chloromethane	0.62	=	ug/m3	0.2	0.29
		PMC-IN-27-060117	IA	N	42887	cis-1,2-Dichloroethene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	cis-1,3-Dichloropropene	0.2	U	ug/m3	0.2	0.72
		PMC-IN-27-060117	IA	N	42887	Cyclohexane	0.41	U	ug/m3	0.41	1.4
		PMC-IN-27-060117	IA	N	42887	Dichlorodifluoromethane	3.6	=	ug/m3	0.24	0.72
		PMC-IN-27-060117	IA	N	42887	Dichloromethane	0.24	U	ug/m3	0.24	0.72
		PMC-IN-27-060117	IA	N	42887	D-Limonene	6.2	=	ug/m3	0.2	0.72
		PMC-IN-27-060117	IA	N	42887	ETHANOL	240	=	ug/m3	1.1	7.2
		PMC-IN-27-060117	IA	N	42887	Ethyl acetate	6.6	=	ug/m3	0.5	1.4
		PMC-IN-27-060117	IA	N	42887	Ethylbenzene	0.36	J	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	Hexachlorobutadiene	0.2	U	ug/m3	0.2	0.72
		PMC-IN-27-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	9	=	ug/m3	0.6	7.2
		PMC-IN-27-060117	IA	N	42887	Isopropylbenzene	0.21	U	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	Methyl methacrylate	0.44	U	ug/m3	0.44	1.4
		PMC-IN-27-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	Naphthalene	0.26	U	ug/m3	0.26	0.72
		PMC-IN-27-060117	IA	N	42887	N-Butyl Acetate	1.8	=	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	N-HEPTANE	0.27	J	ug/m3	0.24	0.72
		PMC-IN-27-060117	IA	N	42887	n-Hexane	0.35	J	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	Nonane	0.28	J	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	n-Propylbenzene	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	OCTANE	0.26	U	ug/m3	0.26	0.72
		PMC-IN-27-060117	IA	N	42887	Propene	5.5	=	ug/m3	0.2	0.72
		PMC-IN-27-060117	IA	N	42887	Styrene	0.42	J	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	Tetrachloroethene	0.17	=	ug/m3	0.1	0.14
		PMC-IN-27-060117	IA	N	42887	Tetrahydrofuran	0.29	U	ug/m3	0.29	0.72
		PMC-IN-27-060117	IA	N	42887	Toluene	3.2	=	ug/m3	0.24	0.72
		PMC-IN-27-060117	IA	N	42887	trans-1,2-Dichloroethene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	trans-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.72
		PMC-IN-27-060117	IA	N	42887	Trichloroethylene	0.13	U	ug/m3	0.13	0.14
		PMC-IN-27-060117	IA	N	42887	Trichlorofluoromethane	22	=	ug/m3	0.082	0.14
		PMC-IN-27-060117	IA	N	42887	Trichlorotrifuoroethane	0.46	=	ug/m3	0.11	0.14
		PMC-IN-27-060117	IA	N	42887	Vinyl Acetate	0.93	U	ug/m3	0.93	7.2
		PMC-IN-27-060117	IA	N	42887	Vinyl Chloride	0.14	U	ug/m3	0.14	0.14
		PMC-IN-27-060117	IA	N	42887	Xylene, o	0.35	J	ug/m3	0.21	0.72
		PMC-IN-27-060117	IA	N	42887	Xylenes, m & p	0.99	=	ug/m3	0.41	0.72
		PMC-IN-30-060117	IA	N	42887	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-30-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.25	U	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.83
		PMC-IN-30-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.83

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-30-060117	IA	N	42887	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	1,2-Dichloroethane	0.16	J	ug/m3	0.1	0.17
		PMC-IN-30-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	1,3-Butadiene	0.23	U	ug/m3	0.23	0.33
		PMC-IN-30-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-30-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	2-Butanone	0.35	U	ug/m3	0.35	8.3
		PMC-IN-30-060117	IA	N	42887	2-Hexanone	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	Acetone	1.3	U	ug/m3	1.3	8.3
		PMC-IN-30-060117	IA	N	42887	Acetonitrile	0.3	U	ug/m3	0.3	0.83
		PMC-IN-30-060117	IA	N	42887	Acrolein	0.28	U	ug/m3	0.28	3.3
		PMC-IN-30-060117	IA	N	42887	Acrylonitrile	0.28	U	ug/m3	0.28	0.83
		PMC-IN-30-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	alpha-Pinene	9.4	=	ug/m3	0.23	0.83
		PMC-IN-30-060117	IA	N	42887	Benzene	0.22	=	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	Benzyl chloride	0.18	U	ug/m3	0.18	0.83
		PMC-IN-30-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-30-060117	IA	N	42887	Bromoform	0.25	U	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	Bromomethane	0.15	U	ug/m3	0.15	0.33
		PMC-IN-30-060117	IA	N	42887	Carbon Disulfide	0.25	U	ug/m3	0.25	8.3
		PMC-IN-30-060117	IA	N	42887	Carbon tetrachloride	0.6	=	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-30-060117	IA	N	42887	Chloroethane	0.14	U	ug/m3	0.14	0.33
		PMC-IN-30-060117	IA	N	42887	Chloroform	0.65	=	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	Chloromethane	0.23	U	ug/m3	0.23	0.33
		PMC-IN-30-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-30-060117	IA	N	42887	Cyclohexane	0.48	U	ug/m3	0.48	1.7
		PMC-IN-30-060117	IA	N	42887	Dichlorodifluoromethane	3.3	=	ug/m3	0.28	0.83
		PMC-IN-30-060117	IA	N	42887	Dichloromethane	0.28	U	ug/m3	0.28	0.83
		PMC-IN-30-060117	IA	N	42887	D-Limonene	3.4	=	ug/m3	0.23	0.83
		PMC-IN-30-060117	IA	N	42887	ETHANOL	62	=	ug/m3	1.3	8.3
		PMC-IN-30-060117	IA	N	42887	Ethyl acetate	0.58	U	ug/m3	0.58	1.7
		PMC-IN-30-060117	IA	N	42887	Ethylbenzene	0.28	J	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-30-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.7	U	ug/m3	0.7	8.3
		PMC-IN-30-060117	IA	N	42887	Isopropylbenzene	0.25	U	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	Methyl methacrylate	0.51	U	ug/m3	0.51	1.7
		PMC-IN-30-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	Naphthalene	0.3	U	ug/m3	0.3	0.83
		PMC-IN-30-060117	IA	N	42887	N-Butyl Acetate	1.2	=	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	N-HEPTANE	0.39	J	ug/m3	0.28	0.83
		PMC-IN-30-060117	IA	N	42887	n-Hexane	0.3	J	ug/m3	0.25	0.83

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-30-060117	IA	N	42887	Nonane	0.3	J	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	OCTANE	0.3	U	ug/m3	0.3	0.83
		PMC-IN-30-060117	IA	N	42887	Propene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-30-060117	IA	N	42887	Styrene	0.25	U	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	Tetrachloroethene	0.18	=	ug/m3	0.12	0.17
		PMC-IN-30-060117	IA	N	42887	Tetrahydrofuran	0.33	U	ug/m3	0.33	0.83
		PMC-IN-30-060117	IA	N	42887	Toluene	0.28	U	ug/m3	0.28	0.83
		PMC-IN-30-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.83
		PMC-IN-30-060117	IA	N	42887	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-30-060117	IA	N	42887	Trichlorofluoromethane	6.4	=	ug/m3	0.095	0.17
		PMC-IN-30-060117	IA	N	42887	Trichlorotrifuoroethane	0.49	=	ug/m3	0.13	0.17
		PMC-IN-30-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.3
		PMC-IN-30-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-30-060117	IA	N	42887	Xylene, o	0.25	U	ug/m3	0.25	0.83
		PMC-IN-30-060117	IA	N	42887	Xylenes, m & p	0.48	U	ug/m3	0.48	0.83
		PMC-IN-56-020918	IA	N	43140.3819	1,1,1-Trichloroethane	0.011	J	ug/m3	0.009	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-56-020918	IA	N	43140.3819	1,1-Dichloroethane	0.0093	U	ug/m3	0.0093	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.76
		PMC-IN-56-020918	IA	N	43140.3819	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.076
		PMC-IN-56-020918	IA	N	43140.3819	1,2,4-Trimethylbenzene	0.17	=	ug/m3	0.013	0.15
		PMC-IN-56-020918	IA	N	43140.3819	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,2-Dichloroethane	0.089	=	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,2-Dichloropropane	0.022	J	ug/m3	0.011	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,3,5-Trimethylbenzene	0.054	J	ug/m3	0.011	0.15
		PMC-IN-56-020918	IA	N	43140.3819	1,3-Butadiene	0.095	=	ug/m3	0.021	0.076
		PMC-IN-56-020918	IA	N	43140.3819	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,4-Dichlorobenzene	0.015	J	ug/m3	0.012	0.038
		PMC-IN-56-020918	IA	N	43140.3819	1,4-Dioxane	0.045	J	ug/m3	0.013	0.15
		PMC-IN-56-020918	IA	N	43140.3819	2-Butanone	1.4	J	ug/m3	0.32	7.6
		PMC-IN-56-020918	IA	N	43140.3819	2-Hexanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-56-020918	IA	N	43140.3819	4-Methyl-2-Pentanone	0.47	J	ug/m3	0.24	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Acetone	17	=	ug/m3	0.085	3.8
		PMC-IN-56-020918	IA	N	43140.3819	Acetonitrile	0.27	U	ug/m3	0.27	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Acrolein	0.87	=	ug/m3	0.059	0.3
		PMC-IN-56-020918	IA	N	43140.3819	Acrylonitrile	0.26	U	ug/m3	0.26	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Benzene	1.1	=	ug/m3	0.03	0.11
		PMC-IN-56-020918	IA	N	43140.3819	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-56-020918	IA	N	43140.3819	Bromodichloromethane	0.12	=	ug/m3	0.01	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Bromoform	0.23	U	ug/m3	0.23	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Bromomethane	0.026	J	ug/m3	0.014	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Carbon Disulfide	0.23	U	ug/m3	0.23	7.6
		PMC-IN-56-020918	IA	N	43140.3819	CHLORODIFLUOROMETHANE	1.1	=	ug/m3	0.38	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-56-020918	IA	N	43140.3819	Chloroethane	0.013	U	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Chloroform	0.44	=	ug/m3	0.027	0.15
		PMC-IN-56-020918	IA	N	43140.3819	Chloromethane	0.42	=	ug/m3	0.029	0.076
		PMC-IN-56-020918	IA	N	43140.3819	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-56-020918	IA	N	43140.3819	cis-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Cyclohexane	0.44	U	ug/m3	0.44	1.5
		PMC-IN-56-020918	IA	N	43140.3819	Dichlorodifluoromethane	6.2	=	ug/m3	0.026	0.076
		PMC-IN-56-020918	IA	N	43140.3819	Dichloromethane	0.25	=	ug/m3	0.02	0.15
		PMC-IN-56-020918	IA	N	43140.3819	ETHANOL	860	=	ug/m3	12	76
		PMC-IN-56-020918	IA	N	43140.3819	Ethylbenzene	0.24	=	ug/m3	0.015	0.15
		PMC-IN-56-020918	IA	N	43140.3819	Freon 113	0.34	=	ug/m3	0.014	0.038
		PMC-IN-56-020918	IA	N	43140.3819	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.9	J	ug/m3	0.64	7.6
		PMC-IN-56-020918	IA	N	43140.3819	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-56-020918	IA	N	43140.3819	n-Butanol	2.1	=	ug/m3	0.73	1.5
		PMC-IN-56-020918	IA	N	43140.3819	n-Hexane	0.37	J	ug/m3	0.23	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Propene	1.6	=	ug/m3	0.21	0.76
		PMC-IN-56-020918	IA	N	43140.3819	Styrene	1.5	=	ug/m3	0.011	0.15
		PMC-IN-56-020918	IA	N	43140.3819	Tetrachloroethene	1.2	=	ug/m3	0.012	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Toluene	2.7	=	ug/m3	0.017	0.15
		PMC-IN-56-020918	IA	N	43140.3819	trans-1,3-Dichloropropene	0.0084	U	ug/m3	0.0084	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Trichloroethylene	0.12	=	ug/m3	0.013	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Trichlorofluoromethane	7.8	=	ug/m3	0.023	0.076
		PMC-IN-56-020918	IA	N	43140.3819	Vinyl Acetate	2.7	J	ug/m3	0.99	7.6
		PMC-IN-56-020918	IA	N	43140.3819	Vinyl Chloride	0.012	U	ug/m3	0.012	0.038
		PMC-IN-56-020918	IA	N	43140.3819	Xylene, o	0.55	=	ug/m3	0.014	0.15
		PMC-IN-56-020918	IA	N	43140.3819	Xylenes, m & p	0.89	=	ug/m3	0.029	0.15
		PMC-IN-56-060117	IA	N	42887	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-56-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-56-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.98	=	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.84
		PMC-IN-56-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.84
		PMC-IN-56-060117	IA	N	42887	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-56-060117	IA	N	42887	1,2-Dichloroethane	0.59	=	ug/m3	0.1	0.17
		PMC-IN-56-060117	IA	N	42887	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.32	J	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-56-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-56-060117	IA	N	42887	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	1,4-Dioxane	0.27	U	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	2-Butanone	0.35	U	ug/m3	0.35	8.4
		PMC-IN-56-060117	IA	N	42887	2-Hexanone	0.46	J	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	4-Ethyltoluene	0.36	J	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	4-Methyl-2-Pentanone	0.32	J	ug/m3	0.27	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-56-060117	IA	N	42887	Acetone	47	=	ug/m3	1.3	8.4
		PMC-IN-56-060117	IA	N	42887	Acetonitrile	0.3	U	ug/m3	0.3	0.84
		PMC-IN-56-060117	IA	N	42887	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-56-060117	IA	N	42887	Acrylonitrile	0.29	U	ug/m3	0.29	0.84
		PMC-IN-56-060117	IA	N	42887	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	alpha-Pinene	41	=	ug/m3	0.24	0.84
		PMC-IN-56-060117	IA	N	42887	Benzene	0.26	=	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	Benzyl chloride	0.18	U	ug/m3	0.18	0.84
		PMC-IN-56-060117	IA	N	42887	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-56-060117	IA	N	42887	Bromoform	0.25	U	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-56-060117	IA	N	42887	Carbon Disulfide	0.25	U	ug/m3	0.25	8.4
		PMC-IN-56-060117	IA	N	42887	Carbon tetrachloride	0.45	=	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-56-060117	IA	N	42887	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-56-060117	IA	N	42887	Chloroform	0.33	=	ug/m3	0.15	0.17
		PMC-IN-56-060117	IA	N	42887	Chloromethane	0.24	U	ug/m3	0.24	0.34
		PMC-IN-56-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-56-060117	IA	N	42887	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.84
		PMC-IN-56-060117	IA	N	42887	Cyclohexane	0.61	J	ug/m3	0.49	1.7
		PMC-IN-56-060117	IA	N	42887	Dichlorodifluoromethane	16	=	ug/m3	0.29	0.84
		PMC-IN-56-060117	IA	N	42887	Dichloromethane	0.29	U	ug/m3	0.29	0.84
		PMC-IN-56-060117	IA	N	42887	D-Limonene	19	=	ug/m3	0.24	0.84
		PMC-IN-56-060117	IA	N	42887	ETHANOL	100	=	ug/m3	1.3	8.4
		PMC-IN-56-060117	IA	N	42887	Ethyl acetate	3.1	=	ug/m3	0.59	1.7
		PMC-IN-56-060117	IA	N	42887	Ethylbenzene	2.9	=	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.84
		PMC-IN-56-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	9.2	=	ug/m3	0.71	8.4
		PMC-IN-56-060117	IA	N	42887	Isopropylbenzene	0.25	U	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	Methyl methacrylate	0.52	U	ug/m3	0.52	1.7
		PMC-IN-56-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-56-060117	IA	N	42887	Naphthalene	0.3	U	ug/m3	0.3	0.84
		PMC-IN-56-060117	IA	N	42887	N-Butyl Acetate	8.2	=	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	N-HEPTANE	0.74	J	ug/m3	0.29	0.84
		PMC-IN-56-060117	IA	N	42887	n-Hexane	0.72	J	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	Nonane	7.5	=	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	n-Propylbenzene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	OCTANE	0.93	=	ug/m3	0.3	0.84
		PMC-IN-56-060117	IA	N	42887	Propene	0.24	U	ug/m3	0.24	0.84
		PMC-IN-56-060117	IA	N	42887	Styrene	15	=	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	Tetrachloroethene	4.5	=	ug/m3	0.12	0.17
		PMC-IN-56-060117	IA	N	42887	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.84
		PMC-IN-56-060117	IA	N	42887	Toluene	9.3	=	ug/m3	0.29	0.84
		PMC-IN-56-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-56-060117	IA	N	42887	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.84
		PMC-IN-56-060117	IA	N	42887	Trichloroethylene	1.9	=	ug/m3	0.15	0.17
		PMC-IN-56-060117	IA	N	42887	Trichlorofluoromethane	27	=	ug/m3	0.096	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-56-060117	IA	N	42887	Trichlorotrifuoroethane	0.48	=	ug/m3	0.13	0.17
		PMC-IN-56-060117	IA	N	42887	Vinyl Acetate	1.1	U	ug/m3	1.1	8.4
		PMC-IN-56-060117	IA	N	42887	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-56-060117	IA	N	42887	Xylene, o	8.9	=	ug/m3	0.25	0.84
		PMC-IN-56-060117	IA	N	42887	Xylenes, m & p	15	=	ug/m3	0.49	0.84
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,1,1-Trichloroethane	0.01	J	ug/m3	0.0086	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,1-Dichloroethane	0.0089	U	ug/m3	0.0089	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.073
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2,4-Trimethylbenzene	0.057	J	ug/m3	0.012	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2-Dichloroethane	0.06	=	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,2-Dichloropropane	0.024	J	ug/m3	0.011	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,3,5-Trimethylbenzene	0.014	J	ug/m3	0.011	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,3-Butadiene	0.02	U	ug/m3	0.02	0.073
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	1,4-Dioxane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	2-Butanone	0.46	J	ug/m3	0.31	7.3
		PMC-IN-36-020817-FD	IA	N	43139.4965	2-Hexanone	0.23	U	ug/m3	0.23	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	4-Methyl-2-Pentanone	0.39	J	ug/m3	0.23	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Acetone	2.3	J	ug/m3	0.082	3.7
		PMC-IN-36-020817-FD	IA	N	43139.4965	Acetonitrile	0.26	U	ug/m3	0.26	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Acrolein	0.14	J	ug/m3	0.057	0.29
		PMC-IN-36-020817-FD	IA	N	43139.4965	Acrylonitrile	0.25	U	ug/m3	0.25	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Benzene	0.43	=	ug/m3	0.029	0.11
		PMC-IN-36-020817-FD	IA	N	43139.4965	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
		PMC-IN-36-020817-FD	IA	N	43139.4965	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Bromoform	0.22	U	ug/m3	0.22	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Bromomethane	0.022	J	ug/m3	0.014	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Carbon Disulfide	0.22	U	ug/m3	0.22	7.3
		PMC-IN-36-020817-FD	IA	N	43139.4965	CHLORODIFLUOROMETHANE	0.8	=	ug/m3	0.37	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Chloroethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Chloroform	0.12	J	ug/m3	0.026	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	Chloromethane	0.44	=	ug/m3	0.028	0.073
		PMC-IN-36-020817-FD	IA	N	43139.4965	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	cis-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Cyclohexane	0.42	U	ug/m3	0.42	1.5
		PMC-IN-36-020817-FD	IA	N	43139.4965	Dichlorodifluoromethane	2.1	=	ug/m3	0.025	0.073
		PMC-IN-36-020817-FD	IA	N	43139.4965	Dichloromethane	0.22	=	ug/m3	0.019	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	ETHANOL	2.9	J	ug/m3	1.2	7.3
		PMC-IN-36-020817-FD	IA	N	43139.4965	Ethylbenzene	0.054	J	ug/m3	0.014	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	Freon 113	0.35	=	ug/m3	0.013	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.74	J	ug/m3	0.61	7.3

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-36-020817-FD	IA	N	43139.4965	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	n-Butanol	0.7	U	ug/m3	0.7	1.5
		PMC-IN-36-020817-FD	IA	N	43139.4965	n-Hexane	0.31	J	ug/m3	0.22	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Propene	0.2	U	ug/m3	0.2	0.73
		PMC-IN-36-020817-FD	IA	N	43139.4965	Styrene	0.033	J	ug/m3	0.011	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	Tetrachloroethene	0.27	=	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Toluene	0.38	=	ug/m3	0.016	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	trans-1,3-Dichloropropene	0.008	U	ug/m3	0.008	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Trichloroethylene	0.18	=	ug/m3	0.012	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Trichlorofluoromethane	1	=	ug/m3	0.022	0.073
		PMC-IN-36-020817-FD	IA	N	43139.4965	Vinyl Acetate	0.95	U	ug/m3	0.95	7.3
		PMC-IN-36-020817-FD	IA	N	43139.4965	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
		PMC-IN-36-020817-FD	IA	N	43139.4965	Xylene, o	0.06	J	ug/m3	0.013	0.15
		PMC-IN-36-020817-FD	IA	N	43139.4965	Xylenes, m & p	0.13	J	ug/m3	0.028	0.15
		PMC-IN-36-020818	IA	N	43139.4965	1,1,1-Trichloroethane	0.0099	J	ug/m3	0.0082	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
		PMC-IN-36-020818	IA	N	43139.4965	1,1-Dichloroethane	0.0085	U	ug/m3	0.0085	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.7
		PMC-IN-36-020818	IA	N	43139.4965	1,2,4-Trichlorobenzene	0.018	U	ug/m3	0.018	0.07
		PMC-IN-36-020818	IA	N	43139.4965	1,2,4-Trimethylbenzene	0.048	J	ug/m3	0.012	0.14
		PMC-IN-36-020818	IA	N	43139.4965	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,2-Dichloroethane	0.061	=	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,2-Dichloropropane	0.024	J	ug/m3	0.01	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,3,5-Trimethylbenzene	0.012	J	ug/m3	0.01	0.14
		PMC-IN-36-020818	IA	N	43139.4965	1,3-Butadiene	0.019	U	ug/m3	0.019	0.07
		PMC-IN-36-020818	IA	N	43139.4965	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,4-Dichlorobenzene	0.011	U	ug/m3	0.011	0.035
		PMC-IN-36-020818	IA	N	43139.4965	1,4-Dioxane	0.039	J	ug/m3	0.012	0.14
		PMC-IN-36-020818	IA	N	43139.4965	2-Butanone	0.68	J	ug/m3	0.29	7
		PMC-IN-36-020818	IA	N	43139.4965	2-Hexanone	0.22	U	ug/m3	0.22	0.7
		PMC-IN-36-020818	IA	N	43139.4965	4-Methyl-2-Pentanone	0.22	U	ug/m3	0.22	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Acetone	2.2	J	ug/m3	0.078	3.5
		PMC-IN-36-020818	IA	N	43139.4965	Acetonitrile	0.25	U	ug/m3	0.25	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Acrolein	0.12	J	ug/m3	0.054	0.28
		PMC-IN-36-020818	IA	N	43139.4965	Acrylonitrile	0.24	U	ug/m3	0.24	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Benzene	0.47	=	ug/m3	0.028	0.1
		PMC-IN-36-020818	IA	N	43139.4965	Benzyl chloride	0.15	U	ug/m3	0.15	1.4
		PMC-IN-36-020818	IA	N	43139.4965	Bromodichloromethane	0.0096	U	ug/m3	0.0096	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Bromoform	0.21	U	ug/m3	0.21	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Bromomethane	0.022	J	ug/m3	0.013	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Carbon Disulfide	1	J	ug/m3	0.21	7
		PMC-IN-36-020818	IA	N	43139.4965	CHLORODIFLUOROMETHANE	0.74	=	ug/m3	0.35	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Chloroethane	0.012	U	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Chloroform	0.12	J	ug/m3	0.025	0.14
		PMC-IN-36-020818	IA	N	43139.4965	Chloromethane	0.42	=	ug/m3	0.026	0.07

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-36-020818	IA	N	43139.4965	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.035
		PMC-IN-36-020818	IA	N	43139.4965	cis-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Cyclohexane	0.4	U	ug/m3	0.4	1.4
		PMC-IN-36-020818	IA	N	43139.4965	Dichlorodifluoromethane	2.1	=	ug/m3	0.024	0.07
		PMC-IN-36-020818	IA	N	43139.4965	Dichloromethane	0.22	=	ug/m3	0.018	0.14
		PMC-IN-36-020818	IA	N	43139.4965	ETHANOL	2.5	J	ug/m3	1.1	7
		PMC-IN-36-020818	IA	N	43139.4965	Ethylbenzene	0.052	J	ug/m3	0.013	0.14
		PMC-IN-36-020818	IA	N	43139.4965	Freon 113	0.35	=	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.58	U	ug/m3	0.58	7
		PMC-IN-36-020818	IA	N	43139.4965	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.035
		PMC-IN-36-020818	IA	N	43139.4965	n-Butanol	0.67	U	ug/m3	0.67	1.4
		PMC-IN-36-020818	IA	N	43139.4965	n-Hexane	0.3	J	ug/m3	0.21	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Propene	0.19	U	ug/m3	0.19	0.7
		PMC-IN-36-020818	IA	N	43139.4965	Styrene	0.017	J	ug/m3	0.01	0.14
		PMC-IN-36-020818	IA	N	43139.4965	Tetrachloroethene	0.28	=	ug/m3	0.011	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Toluene	0.3	=	ug/m3	0.015	0.14
		PMC-IN-36-020818	IA	N	43139.4965	trans-1,3-Dichloropropene	0.0076	U	ug/m3	0.0076	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Trichloroethylene	0.18	=	ug/m3	0.012	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Trichlorofluoromethane	1	=	ug/m3	0.021	0.07
		PMC-IN-36-020818	IA	N	43139.4965	Vinyl Acetate	0.9	U	ug/m3	0.9	7
		PMC-IN-36-020818	IA	N	43139.4965	Vinyl Chloride	0.011	U	ug/m3	0.011	0.035
		PMC-IN-36-020818	IA	N	43139.4965	Xylene, o	0.054	J	ug/m3	0.012	0.14
		PMC-IN-36-020818	IA	N	43139.4965	Xylenes, m & p	0.12	J	ug/m3	0.026	0.14
		PMC-IN-36-060617	IA	N	42892	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-36-060617	IA	N	42892	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-36-060617	IA	N	42892	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-36-060617	IA	N	42892	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	1,2,4-Trimethylbenzene	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.88
		PMC-IN-36-060617	IA	N	42892	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.88
		PMC-IN-36-060617	IA	N	42892	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
		PMC-IN-36-060617	IA	N	42892	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	1,3-Butadiene	0.25	U	ug/m3	0.25	0.35
		PMC-IN-36-060617	IA	N	42892	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-36-060617	IA	N	42892	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-36-060617	IA	N	42892	1,4-Dioxane	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	2-Butanone	0.37	U	ug/m3	0.37	8.8
		PMC-IN-36-060617	IA	N	42892	2-Hexanone	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	Acetone	1.3	U	ug/m3	1.3	8.8
		PMC-IN-36-060617	IA	N	42892	Acetonitrile	0.32	U	ug/m3	0.32	0.88
		PMC-IN-36-060617	IA	N	42892	Acrolein	0.3	U	ug/m3	0.3	3.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-36-060617	IA	N	42892	Acrylonitrile	0.3	U	ug/m3	0.3	0.88
		PMC-IN-36-060617	IA	N	42892	Allyl chloride	0.13	U	ug/m3	0.13	0.18
		PMC-IN-36-060617	IA	N	42892	alpha-Pinene	1	=	ug/m3	0.25	0.88
		PMC-IN-36-060617	IA	N	42892	Benzene	0.21	=	ug/m3	0.14	0.18
		PMC-IN-36-060617	IA	N	42892	Benzyl chloride	0.19	U	ug/m3	0.19	0.88
		PMC-IN-36-060617	IA	N	42892	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-36-060617	IA	N	42892	Bromoform	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	Bromomethane	0.16	U	ug/m3	0.16	0.35
		PMC-IN-36-060617	IA	N	42892	Carbon Disulfide	0.26	U	ug/m3	0.26	8.8
		PMC-IN-36-060617	IA	N	42892	Carbon tetrachloride	0.37	=	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-36-060617	IA	N	42892	Chloroethane	0.15	U	ug/m3	0.15	0.35
		PMC-IN-36-060617	IA	N	42892	Chloroform	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	Chloromethane	0.32	J	ug/m3	0.25	0.35
		PMC-IN-36-060617	IA	N	42892	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.88
		PMC-IN-36-060617	IA	N	42892	Cyclohexane	0.51	U	ug/m3	0.51	1.8
		PMC-IN-36-060617	IA	N	42892	Dichlorodifluoromethane	2.1	=	ug/m3	0.3	0.88
		PMC-IN-36-060617	IA	N	42892	Dichloromethane	0.3	U	ug/m3	0.3	0.88
		PMC-IN-36-060617	IA	N	42892	D-Limonene	0.3	J	ug/m3	0.25	0.88
		PMC-IN-36-060617	IA	N	42892	ETHANOL	1.4	U	ug/m3	1.4	8.8
		PMC-IN-36-060617	IA	N	42892	Ethyl acetate	0.61	U	ug/m3	0.61	1.8
		PMC-IN-36-060617	IA	N	42892	Ethylbenzene	0.41	J	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.88
		PMC-IN-36-060617	IA	N	42892	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.74	U	ug/m3	0.74	8.8
		PMC-IN-36-060617	IA	N	42892	Isopropylbenzene	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	Methyl methacrylate	0.54	U	ug/m3	0.54	1.8
		PMC-IN-36-060617	IA	N	42892	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	Naphthalene	0.35	J	ug/m3	0.32	0.88
		PMC-IN-36-060617	IA	N	42892	N-Butyl Acetate	0.33	J	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	N-HEPTANE	0.3	U	ug/m3	0.3	0.88
		PMC-IN-36-060617	IA	N	42892	n-Hexane	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	Nonane	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	n-Propylbenzene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	OCTANE	0.32	U	ug/m3	0.32	0.88
		PMC-IN-36-060617	IA	N	42892	Propene	0.25	U	ug/m3	0.25	0.88
		PMC-IN-36-060617	IA	N	42892	Styrene	1.2	=	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	Tetrachloroethene	0.67	=	ug/m3	0.13	0.18
		PMC-IN-36-060617	IA	N	42892	Tetrahydrofuran	0.35	U	ug/m3	0.35	0.88
		PMC-IN-36-060617	IA	N	42892	Toluene	0.92	=	ug/m3	0.3	0.88
		PMC-IN-36-060617	IA	N	42892	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.88
		PMC-IN-36-060617	IA	N	42892	Trichloroethylene	0.68	=	ug/m3	0.16	0.18
		PMC-IN-36-060617	IA	N	42892	Trichlorofluoromethane	1.2	=	ug/m3	0.1	0.18
		PMC-IN-36-060617	IA	N	42892	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.18
		PMC-IN-36-060617	IA	N	42892	Vinyl Acetate	1.1	U	ug/m3	1.1	8.8
		PMC-IN-36-060617	IA	N	42892	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-36-060617	IA	N	42892	Xylene, o	0.26	U	ug/m3	0.26	0.88
		PMC-IN-36-060617	IA	N	42892	Xylenes, m & p	0.51	U	ug/m3	0.51	0.88
		PMC-IN-36-01-110718	IA	N	43411.5778	1,1,1-Trichloroethane	0.011	U	ug/m3	0.011	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,1,2,2-Tetrachloroethane	0.013	U	ug/m3	0.013	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,1,2-Trichloroethane	0.014	U	ug/m3	0.014	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	1,1-Dichloroethane	0.011	U	ug/m3	0.011	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2,3-Trimethylbenzene	0.13	U	ug/m3	0.13	0.93
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2,4-Trichlorobenzene	0.044	J	ug/m3	0.023	0.09
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2,4-Trimethylbenzene	0.1	J	ug/m3	0.015	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2-Dibromoethane	0.014	U	ug/m3	0.014	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2-Dichlorobenzene	0.015	U	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2-Dichloroethane	0.072	=	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,2-Dichloropropane	0.016	J	ug/m3	0.013	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,3,5-Trimethylbenzene	0.027	J	ug/m3	0.013	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	1,3-Butadiene	0.025	U	ug/m3	0.025	0.09
		PMC-IN-36-01-110718	IA	N	43411.5778	1,3-Dichlorobenzene	0.015	U	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,4-Dichlorobenzene	0.044	J	ug/m3	0.014	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	1,4-Dioxane	0.015	U	ug/m3	0.015	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	2-Butanone	0.23	J	ug/m3	0.2	1.8
		PMC-IN-36-01-110718	IA	N	43411.5778	2-Hexanone	0.19	J	ug/m3	0.12	0.97
		PMC-IN-36-01-110718	IA	N	43411.5778	4-Methyl-2-Pentanone	0.13	U	ug/m3	0.13	0.95
		PMC-IN-36-01-110718	IA	N	43411.5778	Acetone	4.5	U	ug/m3	0.1	4.5
		PMC-IN-36-01-110718	IA	N	43411.5778	Acetonitrile	0.23	U	ug/m3	0.23	0.93
		PMC-IN-36-01-110718	IA	N	43411.5778	Acrolein	0.41	=	ug/m3	0.07	0.36
		PMC-IN-36-01-110718	IA	N	43411.5778	Acrylonitrile	0.2	U	ug/m3	0.2	0.93
		PMC-IN-36-01-110718	IA	N	43411.5778	Benzene	0.26	=	ug/m3	0.036	0.13
		PMC-IN-36-01-110718	IA	N	43411.5778	Benzyl chloride	0.21	U	ug/m3	0.21	2
		PMC-IN-36-01-110718	IA	N	43411.5778	Bromodichloromethane	0.012	U	ug/m3	0.012	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Bromoform	0.2	U	ug/m3	0.2	0.95
		PMC-IN-36-01-110718	IA	N	43411.5778	Bromomethane	0.022	J	ug/m3	0.017	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Carbon Disulfide	0.32	J	ug/m3	0.29	2
		PMC-IN-36-01-110718	IA	N	43411.5778	CHLORODIFLUOROMETHANE	0.53	J	ug/m3	0.45	0.9
		PMC-IN-36-01-110718	IA	N	43411.5778	Chloroethane	0.015	U	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Chloroform	0.1	J	ug/m3	0.032	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	Chloromethane	0.29	=	ug/m3	0.034	0.09
		PMC-IN-36-01-110718	IA	N	43411.5778	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	cis-1,3-Dichloropropene	0.011	U	ug/m3	0.011	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Cyclohexane	0.27	U	ug/m3	0.27	1.8
		PMC-IN-36-01-110718	IA	N	43411.5778	Dichlorodifluoromethane	2	=	ug/m3	0.03	0.09
		PMC-IN-36-01-110718	IA	N	43411.5778	Dichloromethane	0.19	=	ug/m3	0.023	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	ETHANOL	2.7	J	ug/m3	0.66	9.1
		PMC-IN-36-01-110718	IA	N	43411.5778	Ethylbenzene	0.096	J	ug/m3	0.017	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.56	J	ug/m3	0.39	3.8
		PMC-IN-36-01-110718	IA	N	43411.5778	Methyl tert-butyl ether (MTBE)	0.017	U	ug/m3	0.017	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	n-Butanol	0.25	U	ug/m3	0.25	1.8
		PMC-IN-36-01-110718	IA	N	43411.5778	n-Hexane	0.23	J	ug/m3	0.2	0.97
		PMC-IN-36-01-110718	IA	N	43411.5778	Propene	0.61	J	ug/m3	0.23	0.93

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-36-01-110718	IA	N	43411.5778	Styrene	0.21	=	ug/m3	0.013	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	Tetrachloroethene	0.14	=	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Toluene	0.67	=	ug/m3	0.02	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	trans-1,3-Dichloropropene	0.0098	U	ug/m3	0.0098	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Trichloroethylene	0.057	=	ug/m3	0.015	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Trichlorofluoromethane	1.1	=	ug/m3	0.027	0.09
		PMC-IN-36-01-110718	IA	N	43411.5778	Trichlorotrifuoroethane	0.4	=	ug/m3	0.016	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Vinyl Acetate	2.1	U	ug/m3	2.1	9.5
		PMC-IN-36-01-110718	IA	N	43411.5778	Vinyl Chloride	0.014	U	ug/m3	0.014	0.045
		PMC-IN-36-01-110718	IA	N	43411.5778	Xylene, o	0.11	J	ug/m3	0.016	0.18
		PMC-IN-36-01-110718	IA	N	43411.5778	Xylenes, m & p	0.26	=	ug/m3	0.034	0.18
		PMC-IN-36-02-110718	IA	N	43411.5785	1,1,1-Trichloroethane	0.0097	U	ug/m3	0.0097	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.85
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.082
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2,4-Trimethylbenzene	0.21	=	ug/m3	0.014	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2-Dichloroethane	0.12	=	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,2-Dichloropropane	0.042	=	ug/m3	0.012	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,3,5-Trimethylbenzene	0.06	J	ug/m3	0.012	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	1,3-Butadiene	0.031	J	ug/m3	0.023	0.082
		PMC-IN-36-02-110718	IA	N	43411.5785	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,4-Dichlorobenzene	0.041	=	ug/m3	0.013	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	1,4-Dioxane	0.014	U	ug/m3	0.014	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	2-Butanone	0.82	J	ug/m3	0.18	1.6
		PMC-IN-36-02-110718	IA	N	43411.5785	2-Hexanone	0.11	U	ug/m3	0.11	0.89
		PMC-IN-36-02-110718	IA	N	43411.5785	4-Methyl-2-Pentanone	0.21	J	ug/m3	0.12	0.87
		PMC-IN-36-02-110718	IA	N	43411.5785	Acetone	8.8	=	ug/m3	0.092	4.1
		PMC-IN-36-02-110718	IA	N	43411.5785	Acetonitrile	0.21	U	ug/m3	0.21	0.85
		PMC-IN-36-02-110718	IA	N	43411.5785	Acrolein	0.34	=	ug/m3	0.064	0.33
		PMC-IN-36-02-110718	IA	N	43411.5785	Acrylonitrile	0.18	U	ug/m3	0.18	0.85
		PMC-IN-36-02-110718	IA	N	43411.5785	Benzene	0.4	=	ug/m3	0.033	0.12
		PMC-IN-36-02-110718	IA	N	43411.5785	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
		PMC-IN-36-02-110718	IA	N	43411.5785	Bromodichloromethane	0.011	U	ug/m3	0.011	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Bromoform	0.18	U	ug/m3	0.18	0.87
		PMC-IN-36-02-110718	IA	N	43411.5785	Bromomethane	0.019	J	ug/m3	0.015	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Carbon Disulfide	0.36	J	ug/m3	0.26	1.8
		PMC-IN-36-02-110718	IA	N	43411.5785	CHLORODIFLUOROMETHANE	0.55	J	ug/m3	0.41	0.82
		PMC-IN-36-02-110718	IA	N	43411.5785	Chloroethane	0.014	U	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Chloroform	0.23	=	ug/m3	0.03	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	Chloromethane	0.32	=	ug/m3	0.031	0.082
		PMC-IN-36-02-110718	IA	N	43411.5785	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Cyclohexane	0.42	J	ug/m3	0.25	1.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		PMC-IN-36-02-110718	IA	N	43411.5785	Dichlorodifluoromethane	2.2	=	ug/m3	0.028	0.082
		PMC-IN-36-02-110718	IA	N	43411.5785	Dichloromethane	0.36	=	ug/m3	0.021	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	ETHANOL	15	=	ug/m3	0.61	8.4
		PMC-IN-36-02-110718	IA	N	43411.5785	Ethylbenzene	0.23	=	ug/m3	0.016	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.6	=	ug/m3	0.36	3.4
		PMC-IN-36-02-110718	IA	N	43411.5785	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	n-Butanol	1.2	J	ug/m3	0.23	1.6
		PMC-IN-36-02-110718	IA	N	43411.5785	n-Hexane	1.8	=	ug/m3	0.18	0.89
		PMC-IN-36-02-110718	IA	N	43411.5785	Propene	1.2	=	ug/m3	0.21	0.85
		PMC-IN-36-02-110718	IA	N	43411.5785	Styrene	0.4	=	ug/m3	0.012	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	Tetrachloroethene	0.23	=	ug/m3	0.013	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Toluene	6.1	=	ug/m3	0.018	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	trans-1,3-Dichloropropene	0.009	U	ug/m3	0.009	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Trichloroethylene	0.069	=	ug/m3	0.014	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Trichlorofluoromethane	1.1	=	ug/m3	0.025	0.082
		PMC-IN-36-02-110718	IA	N	43411.5785	Trichlorotrifuoroethane	0.39	=	ug/m3	0.015	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Vinyl Acetate	2	U	ug/m3	2	8.7
		PMC-IN-36-02-110718	IA	N	43411.5785	Vinyl Chloride	0.012	U	ug/m3	0.012	0.041
		PMC-IN-36-02-110718	IA	N	43411.5785	Xylene, o	0.28	=	ug/m3	0.015	0.16
		PMC-IN-36-02-110718	IA	N	43411.5785	Xylenes, m & p	0.68	=	ug/m3	0.031	0.16
		PMC-IN-37-022018	IA	N	43151.675	1,1,1-Trichloroethane	0.011	J	ug/m3	0.0088	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-37-022018	IA	N	43151.675	1,1-Dichloroethane	0.0091	U	ug/m3	0.0091	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.75
		PMC-IN-37-022018	IA	N	43151.675	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.075
		PMC-IN-37-022018	IA	N	43151.675	1,2,4-Trimethylbenzene	1.5	=	ug/m3	0.012	0.15
		PMC-IN-37-022018	IA	N	43151.675	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,2-Dichloroethane	1.1	=	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,2-Dichloropropane	0.026	J	ug/m3	0.011	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,3,5-Trimethylbenzene	0.41	=	ug/m3	0.011	0.15
		PMC-IN-37-022018	IA	N	43151.675	1,3-Butadiene	0.039	J	ug/m3	0.021	0.075
		PMC-IN-37-022018	IA	N	43151.675	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,4-Dichlorobenzene	0.012	J	ug/m3	0.012	0.037
		PMC-IN-37-022018	IA	N	43151.675	1,4-Dioxane	0.014	J	ug/m3	0.013	0.15
		PMC-IN-37-022018	IA	N	43151.675	2-Butanone	1.4	J	ug/m3	0.31	7.5
		PMC-IN-37-022018	IA	N	43151.675	2-Hexanone	0.24	U	ug/m3	0.24	0.75
		PMC-IN-37-022018	IA	N	43151.675	4-Methyl-2-Pentanone	0.92	=	ug/m3	0.24	0.75
		PMC-IN-37-022018	IA	N	43151.675	Acetone	17	=	ug/m3	0.083	3.7
		PMC-IN-37-022018	IA	N	43151.675	Acetonitrile	0.27	U	ug/m3	0.27	0.75
		PMC-IN-37-022018	IA	N	43151.675	Acrolein	1.1	=	ug/m3	0.058	0.3
		PMC-IN-37-022018	IA	N	43151.675	Acrylonitrile	0.25	U	ug/m3	0.25	0.75
		PMC-IN-37-022018	IA	N	43151.675	Benzene	0.84	=	ug/m3	0.03	0.11
		PMC-IN-37-022018	IA	N	43151.675	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
		PMC-IN-37-022018	IA	N	43151.675	Bromodichloromethane	0.14	=	ug/m3	0.01	0.037
		PMC-IN-37-022018	IA	N	43151.675	Bromoform	0.22	U	ug/m3	0.22	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-37-022018	IA	N	43151.675	Bromomethane	0.03	J	ug/m3	0.014	0.037
		PMC-IN-37-022018	IA	N	43151.675	Carbon Disulfide	0.24	J	ug/m3	0.22	7.5
		PMC-IN-37-022018	IA	N	43151.675	CHLORODIFLUOROMETHANE	0.65	J	ug/m3	0.37	0.75
		PMC-IN-37-022018	IA	N	43151.675	Chloroethane	0.018	J	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	Chloroform	3.8	=	ug/m3	0.027	0.15
		PMC-IN-37-022018	IA	N	43151.675	Chloromethane	0.43	=	ug/m3	0.028	0.075
		PMC-IN-37-022018	IA	N	43151.675	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
		PMC-IN-37-022018	IA	N	43151.675	cis-1,3-Dichloropropene	0.0092	U	ug/m3	0.0092	0.037
		PMC-IN-37-022018	IA	N	43151.675	Cyclohexane	0.44	J	ug/m3	0.43	1.5
		PMC-IN-37-022018	IA	N	43151.675	Dichlorodifluoromethane	2	=	ug/m3	0.025	0.075
		PMC-IN-37-022018	IA	N	43151.675	Dichloromethane	0.33	=	ug/m3	0.019	0.15
		PMC-IN-37-022018	IA	N	43151.675	ETHANOL	550	=	ug/m3	1.2	7.5
		PMC-IN-37-022018	IA	N	43151.675	Ethylbenzene	0.54	=	ug/m3	0.014	0.15
		PMC-IN-37-022018	IA	N	43151.675	Freon 113	0.36	=	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.2	J	ug/m3	0.63	7.5
		PMC-IN-37-022018	IA	N	43151.675	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
		PMC-IN-37-022018	IA	N	43151.675	n-Butanol	4.2	=	ug/m3	0.72	1.5
		PMC-IN-37-022018	IA	N	43151.675	n-Hexane	0.97	=	ug/m3	0.22	0.75
		PMC-IN-37-022018	IA	N	43151.675	Propene	1.8	=	ug/m3	0.21	0.75
		PMC-IN-37-022018	IA	N	43151.675	Styrene	0.45	=	ug/m3	0.011	0.15
		PMC-IN-37-022018	IA	N	43151.675	Tetrachloroethene	0.15	=	ug/m3	0.012	0.037
		PMC-IN-37-022018	IA	N	43151.675	Toluene	2.5	=	ug/m3	0.016	0.15
		PMC-IN-37-022018	IA	N	43151.675	trans-1,3-Dichloropropene	0.0082	U	ug/m3	0.0082	0.037
		PMC-IN-37-022018	IA	N	43151.675	Trichloroethylene	0.052	=	ug/m3	0.013	0.037
		PMC-IN-37-022018	IA	N	43151.675	Trichlorofluoromethane	1.2	=	ug/m3	0.022	0.075
		PMC-IN-37-022018	IA	N	43151.675	Vinyl Acetate	1.9	J	ug/m3	0.97	7.5
		PMC-IN-37-022018	IA	N	43151.675	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
		PMC-IN-37-022018	IA	N	43151.675	Xylene, o	0.81	=	ug/m3	0.013	0.15
		PMC-IN-37-022018	IA	N	43151.675	Xylenes, m & p	1.8	=	ug/m3	0.028	0.15
		PMC-IN-37-060217	IA	N	42888	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-37-060217	IA	N	42888	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	1,2,4-Trichlorobenzene	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	1,2,4-Trimethylbenzene	0.43	J	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.83
		PMC-IN-37-060217	IA	N	42888	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	U	ug/m3	0.31	0.83
		PMC-IN-37-060217	IA	N	42888	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	1,2-Dichloroethane	0.1	U	ug/m3	0.1	0.17
		PMC-IN-37-060217	IA	N	42888	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	1,3,5-Trimethylbenzene	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	1,3-Butadiene	0.23	U	ug/m3	0.23	0.33
		PMC-IN-37-060217	IA	N	42888	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-37-060217	IA	N	42888	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	1,4-Dioxane	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	2-Butanone	0.35	U	ug/m3	0.35	8.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-37-060217	IA	N	42888	2-Hexanone	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	4-Ethyltoluene	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	Acetone	1.3	U	ug/m3	1.3	8.3
		PMC-IN-37-060217	IA	N	42888	Acetonitrile	0.3	U	ug/m3	0.3	0.83
		PMC-IN-37-060217	IA	N	42888	Acrolein	0.28	U	ug/m3	0.28	3.3
		PMC-IN-37-060217	IA	N	42888	Acrylonitrile	0.28	U	ug/m3	0.28	0.83
		PMC-IN-37-060217	IA	N	42888	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	alpha-Pinene	61	=	ug/m3	0.23	0.83
		PMC-IN-37-060217	IA	N	42888	Benzene	0.3	=	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	Benzyl chloride	0.18	U	ug/m3	0.18	0.83
		PMC-IN-37-060217	IA	N	42888	Bromodichloromethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-37-060217	IA	N	42888	Bromoform	0.25	U	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	Bromomethane	0.15	U	ug/m3	0.15	0.33
		PMC-IN-37-060217	IA	N	42888	Carbon Disulfide	0.25	U	ug/m3	0.25	8.3
		PMC-IN-37-060217	IA	N	42888	Carbon tetrachloride	0.36	=	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-37-060217	IA	N	42888	Chloroethane	0.14	U	ug/m3	0.14	0.33
		PMC-IN-37-060217	IA	N	42888	Chloroform	0.34	=	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	Chloromethane	0.23	U	ug/m3	0.23	0.33
		PMC-IN-37-060217	IA	N	42888	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-37-060217	IA	N	42888	Cyclohexane	0.71	J	ug/m3	0.48	1.7
		PMC-IN-37-060217	IA	N	42888	Dichlorodifluoromethane	0.28	U	ug/m3	0.28	0.83
		PMC-IN-37-060217	IA	N	42888	Dichloromethane	0.28	U	ug/m3	0.28	0.83
		PMC-IN-37-060217	IA	N	42888	D-Limonene	2.2	=	ug/m3	0.23	0.83
		PMC-IN-37-060217	IA	N	42888	ETHANOL	1.3	U	ug/m3	1.3	8.3
		PMC-IN-37-060217	IA	N	42888	Ethyl acetate	15	=	ug/m3	0.58	1.7
		PMC-IN-37-060217	IA	N	42888	Ethylbenzene	0.32	J	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-37-060217	IA	N	42888	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.69	U	ug/m3	0.69	8.3
		PMC-IN-37-060217	IA	N	42888	Isopropylbenzene	0.25	U	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	Methyl methacrylate	0.51	U	ug/m3	0.51	1.7
		PMC-IN-37-060217	IA	N	42888	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	Naphthalene	0.3	U	ug/m3	0.3	0.83
		PMC-IN-37-060217	IA	N	42888	N-Butyl Acetate	0.47	J	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	N-HEPTANE	0.28	U	ug/m3	0.28	0.83
		PMC-IN-37-060217	IA	N	42888	n-Hexane	0.38	J	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	Nonane	0.25	U	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	n-Propylbenzene	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	OCTANE	0.3	U	ug/m3	0.3	0.83
		PMC-IN-37-060217	IA	N	42888	Propene	0.23	U	ug/m3	0.23	0.83
		PMC-IN-37-060217	IA	N	42888	Styrene	0.25	J	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-37-060217	IA	N	42888	Tetrahydrofuran	0.49	J	ug/m3	0.33	0.83
		PMC-IN-37-060217	IA	N	42888	Toluene	0.28	U	ug/m3	0.28	0.83
		PMC-IN-37-060217	IA	N	42888	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-37-060217	IA	N	42888	trans-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.83
		PMC-IN-37-060217	IA	N	42888	Trichloroethylene	0.34	=	ug/m3	0.15	0.17
		PMC-IN-37-060217	IA	N	42888	Trichlorofluoromethane	0.094	U	ug/m3	0.094	0.17
		PMC-IN-37-060217	IA	N	42888	Trichlorotrifuoroethane	0.47	=	ug/m3	0.13	0.17
		PMC-IN-37-060217	IA	N	42888	Vinyl Acetate	1.1	U	ug/m3	1.1	8.3
		PMC-IN-37-060217	IA	N	42888	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-37-060217	IA	N	42888	Xylene, o	0.5	J	ug/m3	0.25	0.83
		PMC-IN-37-060217	IA	N	42888	Xylenes, m & p	0.48	U	ug/m3	0.48	0.83
		1703205_310_012518_IA-1	IA	N	43125.3681	1,1,1-Trichloroethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,1,2,2-Tetrachloroethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,1,2-Trichloroethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,1-Dichloroethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,1-Dichloroethene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2,4-Trichlorobenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2,4-Trimethylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dibromo-3-chloropropane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dibromoethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dichlorobenzene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dichloroethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,2-Dichloropropane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,3,5-Trimethylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	1,3-Butadiene	0.31	U	UG/M3	0.31	0.31
		1703205_310_012518_IA-1	IA	N	43125.3681	1,3-Dichlorobenzene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,4-Dichlorobenzene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	1,4-Dioxane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	2-Butanone	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	2-Hexanone	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	4-Ethyltoluene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	4-Methyl-2-Pentanone	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Acetone	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	Acetonitrile	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Acrolein	3.1	U	UG/M3	3.1	3.1
		1703205_310_012518_IA-1	IA	N	43125.3681	Acrylonitrile	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Allyl chloride	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	alpha-Pinene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Benzene	0.565	=	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Benzyl chloride	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Bromodichloromethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Bromoform	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Bromomethane	0.31	U	UG/M3	0.31	0.31
		1703205_310_012518_IA-1	IA	N	43125.3681	Carbon Disulfide	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	Carbon tetrachloride	0.424	=	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Chlorobenzene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Chlorodibromomethane	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Chloroethane	0.31	U	UG/M3	0.31	0.31
		1703205_310_012518_IA-1	IA	N	43125.3681	Chloroform	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Chloromethane	0.48	=	UG/M3	0.31	0.31

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_IA-1	IA	N	43125.3681	cis-1,2-Dichloroethene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	cis-1,3-Dichloropropene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Cyclohexane	1.6	U	UG/M3	1.6	1.6
		1703205_310_012518_IA-1	IA	N	43125.3681	Dichlorodifluoromethane	2.16	=	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Dichloromethane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	D-Limonene	1.3	=	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	ETHANOL	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	Ethyl acetate	4	=	UG/M3	1.6	1.6
		1703205_310_012518_IA-1	IA	N	43125.3681	Ethylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Freon 113	0.431	=	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Hexachlorobutadiene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	Isopropylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_310_012518_IA-1	IA	N	43125.3681	Methyl tert-butyl ether (MTBE)	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Naphthalene	0.79	=	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	N-Butyl Acetate	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	N-HEPTANE	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	n-Hexane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Nonane	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	n-Propylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	OCTANE	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Propene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Styrene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Tetrachloroethene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Tetrahydrofuran	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Toluene	0.84	=	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	trans-1,2-Dichloroethene	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	trans-1,3-Dichloropropene	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Trichloroethylene	0.47	=	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Trichlorofluoromethane	1.1	=	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Vinyl Acetate	7.8	U	UG/M3	7.8	7.8
		1703205_310_012518_IA-1	IA	N	43125.3681	Vinyl Chloride	0.16	U	UG/M3	0.16	0.16
		1703205_310_012518_IA-1	IA	N	43125.3681	Xylene, o	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-1	IA	N	43125.3681	Xylenes, m & p	0.78	U	UG/M3	0.78	0.78
		1703205_310_012518_IA-2	IA	N	43125.3681	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2,4-Trichlorobenzene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2,4-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dibromo-3-chloropropane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_IA-2	IA	N	43125.3681	1,3,5-Trimethylbenzene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
		1703205_310_012518_IA-2	IA	N	43125.3681	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	1,4-Dioxane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	2-Butanone	6.9	U	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	2-Hexanone	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	4-Ethyltoluene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	4-Methyl-2-Pentanone	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Acetone	13	=	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	Acetonitrile	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Acrolein	2.8	U	UG/M3	2.8	2.8
		1703205_310_012518_IA-2	IA	N	43125.3681	Acrylonitrile	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Allyl chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	alpha-Pinene	0.73	=	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Benzene	0.85	=	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Benzyl chloride	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Bromoform	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Bromomethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_012518_IA-2	IA	N	43125.3681	Carbon Disulfide	6.9	U	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	Carbon tetrachloride	0.43	=	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Chloroethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_012518_IA-2	IA	N	43125.3681	Chloroform	0.2	=	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Chloromethane	0.57	=	UG/M3	0.28	0.28
		1703205_310_012518_IA-2	IA	N	43125.3681	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	cis-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Cyclohexane	1.4	U	UG/M3	1.4	1.4
		1703205_310_012518_IA-2	IA	N	43125.3681	Dichlorodifluoromethane	2.1	=	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Dichloromethane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	D-Limonene	1.3	=	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	ETHANOL	75	=	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	Ethyl acetate	1.4	U	UG/M3	1.4	1.4
		1703205_310_012518_IA-2	IA	N	43125.3681	Ethylbenzene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Freon 113	0.42	=	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Hexachlorobutadiene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.9	U	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	Isopropylbenzene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
		1703205_310_012518_IA-2	IA	N	43125.3681	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Naphthalene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	N-Butyl Acetate	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	N-HEPTANE	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	n-Hexane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Nonane	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	n-Propylbenzene	0.69	U	UG/M3	0.69	0.69

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_IA-2	IA	N	43125.3681	OCTANE	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Propene	0.98	=	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Styrene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Tetrahydrofuran	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Toluene	0.75	=	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	trans-1,3-Dichloropropene	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Trichloroethylene	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Trichlorofluoromethane	1.1	=	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Vinyl Acetate	8.2	J+	UG/M3	6.9	6.9
		1703205_310_012518_IA-2	IA	N	43125.3681	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_012518_IA-2	IA	N	43125.3681	Xylene, o	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-2	IA	N	43125.3681	Xylenes, m & p	0.69	U	UG/M3	0.69	0.69
		1703205_310_012518_IA-3	IA	N	43125.3681	1,1,1-Trichloroethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,1,2,2-Tetrachloroethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,1,2-Trichloroethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,1-Dichloroethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,1-Dichloroethene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2,4-Trichlorobenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2,4-Trimethylbenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dibromo-3-chloropropane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dibromoethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dichloroethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,2-Dichloropropane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,3,5-Trimethylbenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	1,3-Butadiene	0.31	=	UG/M3	0.25	0.25
		1703205_310_012518_IA-3	IA	N	43125.3681	1,3-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,4-Dichlorobenzene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	1,4-Dioxane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	2-Butanone	6.3	U	UG/M3	6.3	6.3
		1703205_310_012518_IA-3	IA	N	43125.3681	2-Hexanone	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	4-Ethyltoluene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	4-Methyl-2-Pentanone	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Acetone	6.3	U	UG/M3	6.3	6.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Acetonitrile	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Acrolein	2.5	U	UG/M3	2.5	2.5
		1703205_310_012518_IA-3	IA	N	43125.3681	Acrylonitrile	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Allyl chloride	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	alpha-Pinene	0.99	=	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Benzene	1	=	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Benzyl chloride	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Bromodichloromethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Bromoform	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Bromomethane	0.25	U	UG/M3	0.25	0.25
		1703205_310_012518_IA-3	IA	N	43125.3681	Carbon Disulfide	6.3	U	UG/M3	6.3	6.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_IA-3	IA	N	43125.3681	Carbon tetrachloride	0.46	=	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Chlorobenzene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Chlorodibromomethane	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Chloroethane	0.25	U	UG/M3	0.25	0.25
		1703205_310_012518_IA-3	IA	N	43125.3681	Chloroform	0.22	=	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Chloromethane	0.62	=	UG/M3	0.25	0.25
		1703205_310_012518_IA-3	IA	N	43125.3681	cis-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	cis-1,3-Dichloropropene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Cyclohexane	1.3	U	UG/M3	1.3	1.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Dichlorodifluoromethane	2.3	=	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Dichloromethane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	D-Limonene	5.1	=	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	ETHANOL	82	=	UG/M3	6.3	6.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Ethyl acetate	3.4	=	UG/M3	1.3	1.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Ethylbenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Freon 113	0.45	=	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Hexachlorobutadiene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.3	U	UG/M3	6.3	6.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Isopropylbenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Methyl methacrylate	1.3	U	UG/M3	1.3	1.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Methyl tert-butyl ether (MTBE)	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Naphthalene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	N-Butyl Acetate	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	N-HEPTANE	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	n-Hexane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Nonane	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	n-Propylbenzene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	OCTANE	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Propene	1.3	=	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Styrene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Tetrachloroethene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Tetrahydrofuran	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Toluene	1.2	=	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	trans-1,2-Dichloroethene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	trans-1,3-Dichloropropene	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Trichloroethylene	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Trichlorofluoromethane	1.2	=	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Vinyl Acetate	8.6	J+	UG/M3	6.3	6.3
		1703205_310_012518_IA-3	IA	N	43125.3681	Vinyl Chloride	0.13	U	UG/M3	0.13	0.13
		1703205_310_012518_IA-3	IA	N	43125.3681	Xylene, o	0.63	U	UG/M3	0.63	0.63
		1703205_310_012518_IA-3	IA	N	43125.3681	Xylenes, m & p	0.63	U	UG/M3	0.63	0.63
		1703205_310_110917_IA-1	IA	N	43048.4028	1,1,1-Trichloroethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,1,2,2-Tetrachloroethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,1,2-Trichloroethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,1-Dichloroethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,1-Dichloroethene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2,4-Trichlorobenzene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2,4-Trimethylbenzene	2	J+	UG/M3	0.61	0.61

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dibromo-3-chloropropane	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dibromoethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dichloroethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,2-Dichloropropane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,3,5-Trimethylbenzene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	1,3-Butadiene	0.24	U	UG/M3	0.24	0.24
		1703205_310_110917_IA-1	IA	N	43048.4028	1,3-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,4-Dichlorobenzene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	1,4-Dioxane	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	2-Butanone	14	=	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	2-Hexanone	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	4-Ethyltoluene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	4-Methyl-2-Pentanone	4	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Acetone	50	=	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	Acetonitrile	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Acrolein	3.8	=	UG/M3	2.4	2.4
		1703205_310_110917_IA-1	IA	N	43048.4028	Acrylonitrile	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Allyl chloride	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	alpha-Pinene	21	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Benzene	1.4	=	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Benzyl chloride	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Bromodichloromethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Bromoform	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Bromomethane	0.24	U	UG/M3	0.24	0.24
		1703205_310_110917_IA-1	IA	N	43048.4028	Carbon Disulfide	6.1	U	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	Carbon tetrachloride	0.41	=	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Chlorobenzene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Chlorodibromomethane	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Chloroethane	0.24	U	UG/M3	0.24	0.24
		1703205_310_110917_IA-1	IA	N	43048.4028	Chloroform	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Chloromethane	0.49	=	UG/M3	0.24	0.24
		1703205_310_110917_IA-1	IA	N	43048.4028	cis-1,2-Dichloroethene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	cis-1,3-Dichloropropene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Cyclohexane	1.2	U	UG/M3	1.2	1.2
		1703205_310_110917_IA-1	IA	N	43048.4028	Dichlorodifluoromethane	4	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Dichloromethane	0.73	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	D-Limonene	210	J+	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	ETHANOL	360	=	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	Ethyl acetate	13	=	UG/M3	1.2	1.2
		1703205_310_110917_IA-1	IA	N	43048.4028	Ethylbenzene	1.9	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Freon 113	0.51	=	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Hexachlorobutadiene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	ISOPROPYL ALCOHOL (ISOPROPANOL)	13	=	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	Isopropylbenzene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Methyl methacrylate	1.2	U	UG/M3	1.2	1.2
		1703205_310_110917_IA-1	IA	N	43048.4028	Methyl tert-butyl ether (MTBE)	0.12	U	UG/M3	0.12	0.12

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_110917_IA-1	IA	N	43048.4028	Naphthalene	0.97	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	N-Butyl Acetate	3.1	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	N-HEPTANE	1.7	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	n-Hexane	7	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Nonane	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	n-Propylbenzene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	OCTANE	0.73	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Propene	4.2	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Styrene	1.8	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Tetrachloroethene	0.31	=	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Tetrahydrofuran	16	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Toluene	15	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	trans-1,2-Dichloroethene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	trans-1,3-Dichloropropene	0.61	U	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Trichloroethylene	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Trichlorofluoromethane	1.4	=	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Vinyl Acetate	6.1	U	UG/M3	6.1	6.1
		1703205_310_110917_IA-1	IA	N	43048.4028	Vinyl Chloride	0.12	U	UG/M3	0.12	0.12
		1703205_310_110917_IA-1	IA	N	43048.4028	Xylene, o	2.9	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-1	IA	N	43048.4028	Xylenes, m & p	7.1	=	UG/M3	0.61	0.61
		1703205_310_110917_IA-2	IA	N	43048.4028	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2,4-Trichlorobenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2,4-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dibromo-3-chloropropane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,3,5-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-2	IA	N	43048.4028	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	1,4-Dioxane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	2-Butanone	7	U	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	2-Hexanone	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	4-Ethyltoluene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	4-Methyl-2-Pentanone	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Acetone	12	=	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	Acetonitrile	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Acrolein	2.8	U	UG/M3	2.8	2.8
		1703205_310_110917_IA-2	IA	N	43048.4028	Acrylonitrile	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Allyl chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	alpha-Pinene	1.2	=	UG/M3	0.7	0.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_110917_IA-2	IA	N	43048.4028	Benzene	0.5	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Benzyl chloride	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Bromoform	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Bromomethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-2	IA	N	43048.4028	Carbon Disulfide	7	U	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	Carbon tetrachloride	0.44	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Chloroethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-2	IA	N	43048.4028	Chloroform	0.14	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Chloromethane	0.45	=	UG/M3	0.28	0.28
		1703205_310_110917_IA-2	IA	N	43048.4028	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	cis-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Cyclohexane	1.4	U	UG/M3	1.4	1.4
		1703205_310_110917_IA-2	IA	N	43048.4028	Dichlorodifluoromethane	2.3	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Dichloromethane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	D-Limonene	2.9	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	ETHANOL	56	=	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	Ethyl acetate	2.7	=	UG/M3	1.4	1.4
		1703205_310_110917_IA-2	IA	N	43048.4028	Ethylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Freon 113	0.48	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Hexachlorobutadiene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	ISOPROPYL ALCOHOL (ISOPROPANOL)	7	U	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	Isopropylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
		1703205_310_110917_IA-2	IA	N	43048.4028	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Naphthalene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	N-Butyl Acetate	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	N-HEPTANE	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	n-Hexane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Nonane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	n-Propylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	OCTANE	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Propene	2.2	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Styrene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Tetrahydrofuran	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Toluene	0.89	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	trans-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Trichloroethylene	0.19	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Trichlorofluoromethane	1.2	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Vinyl Acetate	7	U	UG/M3	7	7
		1703205_310_110917_IA-2	IA	N	43048.4028	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-2	IA	N	43048.4028	Xylene, o	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-2	IA	N	43048.4028	Xylenes, m & p	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,1,1-Trichloroethane	0.14	U	UG/M3	0.14	0.14

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_110917_IA-3	IA	N	43048.4028	1,1,2,2-Tetrachloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,1,2-Trichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,1-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,1-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2,4-Trichlorobenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2,4-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dibromo-3-chloropropane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dibromoethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dichloroethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,2-Dichloropropane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,3,5-Trimethylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	1,3-Butadiene	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-3	IA	N	43048.4028	1,3-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,4-Dichlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	1,4-Dioxane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	2-Butanone	7	U	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	2-Hexanone	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	4-Ethyltoluene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	4-Methyl-2-Pentanone	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Acetone	12	=	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	Acetonitrile	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Acrolein	2.8	U	UG/M3	2.8	2.8
		1703205_310_110917_IA-3	IA	N	43048.4028	Acrylonitrile	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Allyl chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	alpha-Pinene	1.5	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Benzene	0.64	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Benzyl chloride	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Bromodichloromethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Bromoform	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Bromomethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-3	IA	N	43048.4028	Carbon Disulfide	7	U	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	Carbon tetrachloride	0.42	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Chlorobenzene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Chlorodibromomethane	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Chloroethane	0.28	U	UG/M3	0.28	0.28
		1703205_310_110917_IA-3	IA	N	43048.4028	Chloroform	0.15	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Chloromethane	0.46	=	UG/M3	0.28	0.28
		1703205_310_110917_IA-3	IA	N	43048.4028	cis-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	cis-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Cyclohexane	1.4	U	UG/M3	1.4	1.4
		1703205_310_110917_IA-3	IA	N	43048.4028	Dichlorodifluoromethane	2.3	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Dichloromethane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	D-Limonene	4.8	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	ETHANOL	59	=	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	Ethyl acetate	2	=	UG/M3	1.4	1.4
		1703205_310_110917_IA-3	IA	N	43048.4028	Ethylbenzene	0.7	U	UG/M3	0.7	0.7

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_110917_IA-3	IA	N	43048.4028	Freon 113	0.48	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Hexachlorobutadiene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	ISOPROPYL ALCOHOL (ISOPROPANOL)	7	U	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	Isopropylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Methyl methacrylate	1.4	U	UG/M3	1.4	1.4
		1703205_310_110917_IA-3	IA	N	43048.4028	Methyl tert-butyl ether (MTBE)	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Naphthalene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	N-Butyl Acetate	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	N-HEPTANE	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	n-Hexane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Nonane	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	n-Propylbenzene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	OCTANE	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Propene	1.9	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Styrene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Tetrachloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Tetrahydrofuran	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Toluene	0.9	=	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	trans-1,2-Dichloroethene	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	trans-1,3-Dichloropropene	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Trichloroethylene	0.18	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Trichlorofluoromethane	1.3	=	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Vinyl Acetate	7	U	UG/M3	7	7
		1703205_310_110917_IA-3	IA	N	43048.4028	Vinyl Chloride	0.14	U	UG/M3	0.14	0.14
		1703205_310_110917_IA-3	IA	N	43048.4028	Xylene, o	0.7	U	UG/M3	0.7	0.7
		1703205_310_110917_IA-3	IA	N	43048.4028	Xylenes, m & p	0.7	U	UG/M3	0.7	0.7
		PMC-IN-38-062717	IA	N	42913.4583	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	1,2,4-Trimethylbenzene	1.1	=	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.89
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.89
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-38-062717	IA	N	42913.4583	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	1,4-Dioxane	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	2-Butanone	0.37	U	ug/m3	0.37	8.9
		PMC-IN-38-062717	IA	N	42913.4583	2-Hexanone	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	4-Ethyltoluene	0.39	J	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.89

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-38-062717	IA	N	42913.4583	Acetone	23	=	ug/m3	1.4	8.9
		PMC-IN-38-062717	IA	N	42913.4583	Acetonitrile	0.32	U	ug/m3	0.32	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Acrolein	0.3	U	ug/m3	0.3	3.6
		PMC-IN-38-062717	IA	N	42913.4583	Acrylonitrile	0.3	U	ug/m3	0.3	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	alpha-Pinene	2.4	=	ug/m3	0.25	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Benzene	0.31	=	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Benzyl chloride	0.2	U	ug/m3	0.2	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Bromodichloromethane	0.14	J	ug/m3	0.12	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Bromoform	0.27	U	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-38-062717	IA	N	42913.4583	Carbon Disulfide	0.27	U	ug/m3	0.27	8.9
		PMC-IN-38-062717	IA	N	42913.4583	Carbon tetrachloride	0.5	=	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Chloroethane	0.15	U	ug/m3	0.15	0.36
		PMC-IN-38-062717	IA	N	42913.4583	Chloroform	0.38	=	ug/m3	0.16	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Chloromethane	0.4	=	ug/m3	0.25	0.36
		PMC-IN-38-062717	IA	N	42913.4583	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-38-062717	IA	N	42913.4583	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Cyclohexane	0.52	U	ug/m3	0.52	1.8
		PMC-IN-38-062717	IA	N	42913.4583	Dichlorodifluoromethane	2.3	=	ug/m3	0.3	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Dichloromethane	0.32	J	ug/m3	0.3	0.89
		PMC-IN-38-062717	IA	N	42913.4583	D-Limonene	4.6	=	ug/m3	0.25	0.89
		PMC-IN-38-062717	IA	N	42913.4583	ETHANOL	190	=	ug/m3	1.4	8.9
		PMC-IN-38-062717	IA	N	42913.4583	Ethyl acetate	0.62	U	ug/m3	0.62	1.8
		PMC-IN-38-062717	IA	N	42913.4583	Ethylbenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-38-062717	IA	N	42913.4583	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.75	U	ug/m3	0.75	8.9
		PMC-IN-38-062717	IA	N	42913.4583	Isopropylbenzene	0.27	U	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Methyl methacrylate	0.55	U	ug/m3	0.55	1.8
		PMC-IN-38-062717	IA	N	42913.4583	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Naphthalene	0.32	U	ug/m3	0.32	0.89
		PMC-IN-38-062717	IA	N	42913.4583	N-Butyl Acetate	0.75	J	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	N-HEPTANE	0.3	U	ug/m3	0.3	0.89
		PMC-IN-38-062717	IA	N	42913.4583	n-Hexane	0.27	U	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Nonane	0.42	J	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	n-Propylbenzene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	OCTANE	0.32	U	ug/m3	0.32	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Propene	0.25	U	ug/m3	0.25	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Styrene	0.27	U	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Tetrachloroethene	0.2	=	ug/m3	0.13	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Toluene	1.1	=	ug/m3	0.3	0.89
		PMC-IN-38-062717	IA	N	42913.4583	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-38-062717	IA	N	42913.4583	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Trichloroethylene	0.33	=	ug/m3	0.16	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Trichlorofluoromethane	1.5	=	ug/m3	0.1	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-38-062717	IA	N	42913.4583	Trichlorotrifuoroethane	0.46	=	ug/m3	0.14	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Vinyl Acetate	3.2	J	ug/m3	1.2	8.9
		PMC-IN-38-062717	IA	N	42913.4583	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-38-062717	IA	N	42913.4583	Xylene, o	0.45	J	ug/m3	0.27	0.89
		PMC-IN-38-062717	IA	N	42913.4583	Xylenes, m & p	0.65	J	ug/m3	0.52	0.89
		PMC-IN-40-020618	IA	N	43137.6688	1,1,1-Trichloroethane	0.011	J	ug/m3	0.0087	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-40-020618	IA	N	43137.6688	1,1-Dichloroethane	0.009	U	ug/m3	0.009	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.74
		PMC-IN-40-020618	IA	N	43137.6688	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.074
		PMC-IN-40-020618	IA	N	43137.6688	1,2,4-Trimethylbenzene	0.15	=	ug/m3	0.012	0.15
		PMC-IN-40-020618	IA	N	43137.6688	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,2-Dichloroethane	0.087	=	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,3,5-Trimethylbenzene	0.046	J	ug/m3	0.011	0.15
		PMC-IN-40-020618	IA	N	43137.6688	1,3-Butadiene	0.021	U	ug/m3	0.021	0.074
		PMC-IN-40-020618	IA	N	43137.6688	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	1,4-Dioxane	0.017	J	ug/m3	0.012	0.15
		PMC-IN-40-020618	IA	N	43137.6688	2-Butanone	0.45	J	ug/m3	0.31	7.4
		PMC-IN-40-020618	IA	N	43137.6688	2-Hexanone	0.24	U	ug/m3	0.24	0.74
		PMC-IN-40-020618	IA	N	43137.6688	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Acetone	5.4	=	ug/m3	0.082	3.7
		PMC-IN-40-020618	IA	N	43137.6688	Acetonitrile	0.26	U	ug/m3	0.26	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Acrolein	0.23	J	ug/m3	0.057	0.29
		PMC-IN-40-020618	IA	N	43137.6688	Acrylonitrile	0.25	U	ug/m3	0.25	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Benzene	0.82	=	ug/m3	0.029	0.11
		PMC-IN-40-020618	IA	N	43137.6688	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
		PMC-IN-40-020618	IA	N	43137.6688	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Bromoform	0.22	U	ug/m3	0.22	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Bromomethane	0.021	J	ug/m3	0.014	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Carbon Disulfide	0.22	U	ug/m3	0.22	7.4
		PMC-IN-40-020618	IA	N	43137.6688	CHLORODIFLUOROMETHANE	0.66	J	ug/m3	0.37	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Chloroethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Chloroform	0.61	=	ug/m3	0.026	0.15
		PMC-IN-40-020618	IA	N	43137.6688	Chloromethane	0.42	=	ug/m3	0.028	0.074
		PMC-IN-40-020618	IA	N	43137.6688	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.037
		PMC-IN-40-020618	IA	N	43137.6688	cis-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Cyclohexane	0.43	U	ug/m3	0.43	1.5
		PMC-IN-40-020618	IA	N	43137.6688	Dichlorodifluoromethane	2.2	=	ug/m3	0.025	0.074
		PMC-IN-40-020618	IA	N	43137.6688	Dichloromethane	0.22	=	ug/m3	0.019	0.15
		PMC-IN-40-020618	IA	N	43137.6688	ETHANOL	1.2	U	ug/m3	1.2	7.4
		PMC-IN-40-020618	IA	N	43137.6688	Ethylbenzene	0.22	=	ug/m3	0.014	0.15
		PMC-IN-40-020618	IA	N	43137.6688	Freon 113	0.35	=	ug/m3	0.013	0.037
		PMC-IN-40-020618	IA	N	43137.6688	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.62	U	ug/m3	0.62	7.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-40-020618	IA	N	43137.6688	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
		PMC-IN-40-020618	IA	N	43137.6688	n-Butanol	0.71	U	ug/m3	0.71	1.5
		PMC-IN-40-020618	IA	N	43137.6688	n-Hexane	0.81	=	ug/m3	0.22	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Propene	0.55	J	ug/m3	0.21	0.74
		PMC-IN-40-020618	IA	N	43137.6688	Styrene	0.078	J	ug/m3	0.011	0.15
		PMC-IN-40-020618	IA	N	43137.6688	Tetrachloroethene	0.04	=	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Toluene	3.1	=	ug/m3	0.016	0.15
		PMC-IN-40-020618	IA	N	43137.6688	trans-1,3-Dichloropropene	0.0081	U	ug/m3	0.0081	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Trichloroethylene	0.021	J	ug/m3	0.012	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Trichlorofluoromethane	1.1	=	ug/m3	0.022	0.074
		PMC-IN-40-020618	IA	N	43137.6688	Vinyl Acetate	0.96	U	ug/m3	0.96	7.4
		PMC-IN-40-020618	IA	N	43137.6688	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
		PMC-IN-40-020618	IA	N	43137.6688	Xylene, o	0.23	=	ug/m3	0.013	0.15
		PMC-IN-40-020618	IA	N	43137.6688	Xylenes, m & p	0.65	=	ug/m3	0.028	0.15
		PMC-IN-40-060617	IA	N	42892	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-40-060617	IA	N	42892	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-40-060617	IA	N	42892	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-40-060617	IA	N	42892	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	1,2,4-Trimethylbenzene	0.33	J	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.94
		PMC-IN-40-060617	IA	N	42892	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.94
		PMC-IN-40-060617	IA	N	42892	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	1,2-Dichloroethane	0.13	J	ug/m3	0.12	0.19
		PMC-IN-40-060617	IA	N	42892	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	1,3-Butadiene	0.26	U	ug/m3	0.26	0.37
		PMC-IN-40-060617	IA	N	42892	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-40-060617	IA	N	42892	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-40-060617	IA	N	42892	1,4-Dioxane	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	2-Butanone	0.39	U	ug/m3	0.39	9.4
		PMC-IN-40-060617	IA	N	42892	2-Hexanone	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	4-Ethyltoluene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	Acetone	28	=	ug/m3	1.4	9.4
		PMC-IN-40-060617	IA	N	42892	Acetonitrile	0.34	U	ug/m3	0.34	0.94
		PMC-IN-40-060617	IA	N	42892	Acrolein	0.32	U	ug/m3	0.32	3.7
		PMC-IN-40-060617	IA	N	42892	Acrylonitrile	0.32	U	ug/m3	0.32	0.94
		PMC-IN-40-060617	IA	N	42892	Allyl chloride	0.14	U	ug/m3	0.14	0.19
		PMC-IN-40-060617	IA	N	42892	alpha-Pinene	3.6	=	ug/m3	0.26	0.94
		PMC-IN-40-060617	IA	N	42892	Benzene	0.2	=	ug/m3	0.15	0.19
		PMC-IN-40-060617	IA	N	42892	Benzyl chloride	0.21	U	ug/m3	0.21	0.94
		PMC-IN-40-060617	IA	N	42892	Bromodichloromethane	0.13	U	ug/m3	0.13	0.19
		PMC-IN-40-060617	IA	N	42892	Bromoform	0.28	U	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	Bromomethane	0.17	U	ug/m3	0.17	0.37
		PMC-IN-40-060617	IA	N	42892	Carbon Disulfide	0.28	U	ug/m3	0.28	9.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-40-060617	IA	N	42892	Carbon tetrachloride	0.45	=	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-40-060617	IA	N	42892	Chloroethane	0.16	U	ug/m3	0.16	0.37
		PMC-IN-40-060617	IA	N	42892	Chloroform	0.2	=	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	Chloromethane	0.37	J	ug/m3	0.26	0.37
		PMC-IN-40-060617	IA	N	42892	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	cis-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.94
		PMC-IN-40-060617	IA	N	42892	Cyclohexane	0.54	U	ug/m3	0.54	1.9
		PMC-IN-40-060617	IA	N	42892	Dichlorodifluoromethane	2.7	=	ug/m3	0.32	0.94
		PMC-IN-40-060617	IA	N	42892	Dichloromethane	0.87	J	ug/m3	0.32	0.94
		PMC-IN-40-060617	IA	N	42892	D-Limonene	7.8	=	ug/m3	0.26	0.94
		PMC-IN-40-060617	IA	N	42892	ETHANOL	480	=	ug/m3	1.5	9.4
		PMC-IN-40-060617	IA	N	42892	Ethyl acetate	11	=	ug/m3	0.65	1.9
		PMC-IN-40-060617	IA	N	42892	Ethylbenzene	0.33	J	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	Hexachlorobutadiene	0.26	U	ug/m3	0.26	0.94
		PMC-IN-40-060617	IA	N	42892	ISOPROPYL ALCOHOL (ISOPROPANOL)	15	=	ug/m3	0.79	9.4
		PMC-IN-40-060617	IA	N	42892	Isopropylbenzene	0.28	U	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	Methyl methacrylate	0.58	U	ug/m3	0.58	1.9
		PMC-IN-40-060617	IA	N	42892	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	Naphthalene	1.3	=	ug/m3	0.34	0.94
		PMC-IN-40-060617	IA	N	42892	N-Butyl Acetate	0.67	J	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	N-HEPTANE	0.32	U	ug/m3	0.32	0.94
		PMC-IN-40-060617	IA	N	42892	n-Hexane	0.28	U	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	Nonane	0.58	J	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	n-Propylbenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	OCTANE	0.92	J	ug/m3	0.34	0.94
		PMC-IN-40-060617	IA	N	42892	Propene	4.4	=	ug/m3	0.26	0.94
		PMC-IN-40-060617	IA	N	42892	Styrene	0.32	J	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	Tetrachloroethene	0.3	=	ug/m3	0.13	0.19
		PMC-IN-40-060617	IA	N	42892	Tetrahydrofuran	0.37	U	ug/m3	0.37	0.94
		PMC-IN-40-060617	IA	N	42892	Toluene	3.8	=	ug/m3	0.32	0.94
		PMC-IN-40-060617	IA	N	42892	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-40-060617	IA	N	42892	Trichloroethylene	0.43	=	ug/m3	0.17	0.19
		PMC-IN-40-060617	IA	N	42892	Trichlorofluoromethane	2	=	ug/m3	0.11	0.19
		PMC-IN-40-060617	IA	N	42892	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.19
		PMC-IN-40-060617	IA	N	42892	Vinyl Acetate	1.8	J	ug/m3	1.2	9.4
		PMC-IN-40-060617	IA	N	42892	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-40-060617	IA	N	42892	Xylene, o	0.32	J	ug/m3	0.28	0.94
		PMC-IN-40-060617	IA	N	42892	Xylenes, m & p	0.88	J	ug/m3	0.54	0.94
		PMC-IN-40-110818	IA	N	43412.5208	1,1,1-Trichloroethane	0.0089	U	ug/m3	0.0089	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-40-110818	IA	N	43412.5208	1,1-Dichloroethane	0.0092	U	ug/m3	0.0092	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.89
		PMC-IN-40-110818	IA	N	43412.5208	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.076

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-40-110818	IA	N	43412.5208	1,2,4-Trimethylbenzene	0.16	=	ug/m3	0.013	0.15
		PMC-IN-40-110818	IA	N	43412.5208	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,2-Dichloroethane	0.091	=	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,2-Dichloropropane	0.014	J	ug/m3	0.011	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,3,5-Trimethylbenzene	0.043	J	ug/m3	0.011	0.15
		PMC-IN-40-110818	IA	N	43412.5208	1,3-Butadiene	0.021	U	ug/m3	0.021	0.076
		PMC-IN-40-110818	IA	N	43412.5208	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,4-Dichlorobenzene	0.035	J	ug/m3	0.012	0.038
		PMC-IN-40-110818	IA	N	43412.5208	1,4-Dioxane	0.013	J	ug/m3	0.013	0.15
		PMC-IN-40-110818	IA	N	43412.5208	2-Butanone	0.3	J	ug/m3	0.19	1.7
		PMC-IN-40-110818	IA	N	43412.5208	2-Hexanone	0.11	U	ug/m3	0.11	0.92
		PMC-IN-40-110818	IA	N	43412.5208	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.91
		PMC-IN-40-110818	IA	N	43412.5208	Acetone	29	=	ug/m3	0.085	3.8
		PMC-IN-40-110818	IA	N	43412.5208	Acetonitrile	0.22	U	ug/m3	0.22	0.89
		PMC-IN-40-110818	IA	N	43412.5208	Acrolein	0.5	=	ug/m3	0.059	0.3
		PMC-IN-40-110818	IA	N	43412.5208	Acrylonitrile	0.19	U	ug/m3	0.19	0.89
		PMC-IN-40-110818	IA	N	43412.5208	Benzene	0.18	=	ug/m3	0.03	0.11
		PMC-IN-40-110818	IA	N	43412.5208	Benzyl chloride	0.21	U	ug/m3	0.21	1.9
		PMC-IN-40-110818	IA	N	43412.5208	Bromodichloromethane	0.01	U	ug/m3	0.01	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Bromoform	0.19	U	ug/m3	0.19	0.91
		PMC-IN-40-110818	IA	N	43412.5208	Bromomethane	0.02	J	ug/m3	0.014	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Carbon Disulfide	0.27	U	ug/m3	0.27	1.9
		PMC-IN-40-110818	IA	N	43412.5208	CHLORODIFLUOROMETHANE	0.57	J	ug/m3	0.43	0.86
		PMC-IN-40-110818	IA	N	43412.5208	Chloroethane	0.013	U	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Chloroform	0.15	J	ug/m3	0.027	0.15
		PMC-IN-40-110818	IA	N	43412.5208	Chloromethane	0.34	=	ug/m3	0.029	0.076
		PMC-IN-40-110818	IA	N	43412.5208	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-40-110818	IA	N	43412.5208	cis-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Cyclohexane	0.26	U	ug/m3	0.26	1.7
		PMC-IN-40-110818	IA	N	43412.5208	Dichlorodifluoromethane	2.2	=	ug/m3	0.026	0.076
		PMC-IN-40-110818	IA	N	43412.5208	Dichloromethane	0.18	=	ug/m3	0.02	0.15
		PMC-IN-40-110818	IA	N	43412.5208	ETHANOL	49	=	ug/m3	0.63	8.7
		PMC-IN-40-110818	IA	N	43412.5208	Ethylbenzene	0.12	J	ug/m3	0.015	0.15
		PMC-IN-40-110818	IA	N	43412.5208	ISOPROPYL ALCOHOL (ISOPROPANOL)	2	J	ug/m3	0.38	3.6
		PMC-IN-40-110818	IA	N	43412.5208	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-40-110818	IA	N	43412.5208	n-Butanol	0.75	J	ug/m3	0.24	1.7
		PMC-IN-40-110818	IA	N	43412.5208	n-Hexane	0.28	J	ug/m3	0.19	0.92
		PMC-IN-40-110818	IA	N	43412.5208	Propene	0.61	J	ug/m3	0.22	0.89
		PMC-IN-40-110818	IA	N	43412.5208	Styrene	0.093	J	ug/m3	0.011	0.15
		PMC-IN-40-110818	IA	N	43412.5208	Tetrachloroethene	0.018	J	ug/m3	0.012	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Toluene	1.4	=	ug/m3	0.017	0.15
		PMC-IN-40-110818	IA	N	43412.5208	trans-1,3-Dichloropropene	0.0083	U	ug/m3	0.0083	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Trichloroethylene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Trichlorofluoromethane	1.2	=	ug/m3	0.023	0.076
		PMC-IN-40-110818	IA	N	43412.5208	Trichlorotrifuoroethane	0.39	=	ug/m3	0.013	0.038
		PMC-IN-40-110818	IA	N	43412.5208	Vinyl Acetate	2.1	U	ug/m3	2.1	9.1
		PMC-IN-40-110818	IA	N	43412.5208	Vinyl Chloride	0.011	U	ug/m3	0.011	0.038

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-40-110818	IA	N	43412.5208	Xylene, o	0.15	=	ug/m3	0.013	0.15
		PMC-IN-40-110818	IA	N	43412.5208	Xylenes, m & p	0.38	=	ug/m3	0.029	0.15
		PMC-IN-42-01-110718	IA	N	43411.5694	1,1,1-Trichloroethane	0.0098	U	ug/m3	0.0098	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2,3-Trimethylbenzene	0.14	J	ug/m3	0.12	0.86
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.083
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2,4-Trimethylbenzene	0.53	=	ug/m3	0.014	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2-Dichloroethane	0.053	=	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,2-Dichloropropane	0.015	J	ug/m3	0.012	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,3,5-Trimethylbenzene	0.18	=	ug/m3	0.012	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	1,3-Butadiene	0.023	U	ug/m3	0.023	0.083
		PMC-IN-42-01-110718	IA	N	43411.5694	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,4-Dichlorobenzene	0.029	J	ug/m3	0.013	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	1,4-Dioxane	0.014	U	ug/m3	0.014	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	2-Butanone	1.4	J	ug/m3	0.18	1.7
		PMC-IN-42-01-110718	IA	N	43411.5694	2-Hexanone	0.27	J	ug/m3	0.11	0.9
		PMC-IN-42-01-110718	IA	N	43411.5694	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.88
		PMC-IN-42-01-110718	IA	N	43411.5694	Acetone	7.6	=	ug/m3	0.093	4.2
		PMC-IN-42-01-110718	IA	N	43411.5694	Acetonitrile	0.22	U	ug/m3	0.22	0.86
		PMC-IN-42-01-110718	IA	N	43411.5694	Acrolein	0.49	=	ug/m3	0.065	0.33
		PMC-IN-42-01-110718	IA	N	43411.5694	Acrylonitrile	0.18	U	ug/m3	0.18	0.86
		PMC-IN-42-01-110718	IA	N	43411.5694	Benzene	0.2	=	ug/m3	0.033	0.12
		PMC-IN-42-01-110718	IA	N	43411.5694	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
		PMC-IN-42-01-110718	IA	N	43411.5694	Bromodichloromethane	0.011	U	ug/m3	0.011	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Bromoform	0.18	U	ug/m3	0.18	0.88
		PMC-IN-42-01-110718	IA	N	43411.5694	Bromomethane	0.019	J	ug/m3	0.015	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Carbon Disulfide	0.27	U	ug/m3	0.27	1.8
		PMC-IN-42-01-110718	IA	N	43411.5694	CHLORODIFLUOROMETHANE	0.51	J	ug/m3	0.42	0.83
		PMC-IN-42-01-110718	IA	N	43411.5694	Chloroethane	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Chloroform	0.12	J	ug/m3	0.03	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	Chloromethane	0.24	=	ug/m3	0.032	0.083
		PMC-IN-42-01-110718	IA	N	43411.5694	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Cyclohexane	0.25	U	ug/m3	0.25	1.7
		PMC-IN-42-01-110718	IA	N	43411.5694	Dichlorodifluoromethane	2.5	J	ug/m3	0.028	0.083
		PMC-IN-42-01-110718	IA	N	43411.5694	Dichloromethane	0.57	=	ug/m3	0.022	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	ETHANOL	1.9	J	ug/m3	0.61	8.5
		PMC-IN-42-01-110718	IA	N	43411.5694	Ethylbenzene	0.13	J	ug/m3	0.016	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.9	=	ug/m3	0.37	3.5
		PMC-IN-42-01-110718	IA	N	43411.5694	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	n-Butanol	0.73	J	ug/m3	0.23	1.7
		PMC-IN-42-01-110718	IA	N	43411.5694	n-Hexane	0.29	J	ug/m3	0.18	0.9
		PMC-IN-42-01-110718	IA	N	43411.5694	Propene	0.93	=	ug/m3	0.22	0.86

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-42-01-110718	IA	N	43411.5694	Styrene	0.11	J	ug/m3	0.012	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	Tetrachloroethene	0.036	J	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Toluene	0.94	=	ug/m3	0.018	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	trans-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Trichloroethylene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Trichlorofluoromethane	1.1	=	ug/m3	0.025	0.083
		PMC-IN-42-01-110718	IA	N	43411.5694	Trichlorotrifuoroethane	0.41	=	ug/m3	0.015	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Vinyl Acetate	2.1	J	ug/m3	2	8.8
		PMC-IN-42-01-110718	IA	N	43411.5694	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
		PMC-IN-42-01-110718	IA	N	43411.5694	Xylene, o	0.28	=	ug/m3	0.015	0.17
		PMC-IN-42-01-110718	IA	N	43411.5694	Xylenes, m & p	0.45	=	ug/m3	0.032	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	1,1,1-Trichloroethane	0.01	U	ug/m3	0.01	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2,3-Trimethylbenzene	0.15	J	ug/m3	0.12	0.88
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.085
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2,4-Trimethylbenzene	0.59	=	ug/m3	0.014	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2-Dichloroethane	0.057	=	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,2-Dichloropropane	0.014	J	ug/m3	0.012	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,3,5-Trimethylbenzene	0.21	=	ug/m3	0.012	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	1,3-Butadiene	0.024	U	ug/m3	0.024	0.085
		PMC-IN-42-02-110718	IA	N	43411.5701	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,4-Dichlorobenzene	0.038	J	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	1,4-Dioxane	0.014	U	ug/m3	0.014	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	2-Butanone	1.3	J	ug/m3	0.19	1.7
		PMC-IN-42-02-110718	IA	N	43411.5701	2-Hexanone	0.11	U	ug/m3	0.11	0.91
		PMC-IN-42-02-110718	IA	N	43411.5701	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.9
		PMC-IN-42-02-110718	IA	N	43411.5701	Acetone	11	=	ug/m3	0.095	4.2
		PMC-IN-42-02-110718	IA	N	43411.5701	Acetonitrile	0.22	U	ug/m3	0.22	0.88
		PMC-IN-42-02-110718	IA	N	43411.5701	Acrolein	0.19	J	ug/m3	0.066	0.34
		PMC-IN-42-02-110718	IA	N	43411.5701	Acrylonitrile	0.19	U	ug/m3	0.19	0.88
		PMC-IN-42-02-110718	IA	N	43411.5701	Benzene	0.24	=	ug/m3	0.034	0.13
		PMC-IN-42-02-110718	IA	N	43411.5701	Benzyl chloride	0.2	U	ug/m3	0.2	1.9
		PMC-IN-42-02-110718	IA	N	43411.5701	Bromodichloromethane	0.012	U	ug/m3	0.012	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Bromoform	0.19	U	ug/m3	0.19	0.9
		PMC-IN-42-02-110718	IA	N	43411.5701	Bromomethane	0.02	J	ug/m3	0.016	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Carbon Disulfide	0.27	U	ug/m3	0.27	1.9
		PMC-IN-42-02-110718	IA	N	43411.5701	CHLORODIFLUOROMETHANE	0.56	J	ug/m3	0.42	0.85
		PMC-IN-42-02-110718	IA	N	43411.5701	Chloroethane	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Chloroform	0.09	J	ug/m3	0.03	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	Chloromethane	0.25	=	ug/m3	0.032	0.085
		PMC-IN-42-02-110718	IA	N	43411.5701	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Cyclohexane	0.25	U	ug/m3	0.25	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		PMC-IN-42-02-110718	IA	N	43411.5701	Dichlorodifluoromethane	2.4	J	ug/m3	0.029	0.085
		PMC-IN-42-02-110718	IA	N	43411.5701	Dichloromethane	0.56	=	ug/m3	0.022	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	ETHANOL	2.7	J	ug/m3	0.63	8.6
		PMC-IN-42-02-110718	IA	N	43411.5701	Ethylbenzene	0.17	=	ug/m3	0.016	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	ISOPROPYL ALCOHOL (ISOPROPANOL)	16	=	ug/m3	0.37	3.5
		PMC-IN-42-02-110718	IA	N	43411.5701	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	n-Butanol	0.62	J	ug/m3	0.24	1.7
		PMC-IN-42-02-110718	IA	N	43411.5701	n-Hexane	0.44	J	ug/m3	0.19	0.91
		PMC-IN-42-02-110718	IA	N	43411.5701	Propene	2.6	=	ug/m3	0.22	0.88
		PMC-IN-42-02-110718	IA	N	43411.5701	Styrene	0.076	J	ug/m3	0.013	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	Tetrachloroethene	0.038	J	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Toluene	1.8	=	ug/m3	0.019	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	trans-1,3-Dichloropropene	0.0093	U	ug/m3	0.0093	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Trichloroethylene	0.014	U	ug/m3	0.014	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Trichlorofluoromethane	1.2	=	ug/m3	0.025	0.085
		PMC-IN-42-02-110718	IA	N	43411.5701	Trichlorotrifuoroethane	0.42	=	ug/m3	0.015	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Vinyl Acetate	2	U	ug/m3	2	9
		PMC-IN-42-02-110718	IA	N	43411.5701	Vinyl Chloride	0.013	U	ug/m3	0.013	0.042
		PMC-IN-42-02-110718	IA	N	43411.5701	Xylene, o	0.31	=	ug/m3	0.015	0.17
		PMC-IN-42-02-110718	IA	N	43411.5701	Xylenes, m & p	0.63	=	ug/m3	0.032	0.17
		PMC-IN-58-020518	IA	N	43136.5521	1,1,1-Trichloroethane	0.08	=	ug/m3	0.0084	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
		PMC-IN-58-020518	IA	N	43136.5521	1,1-Dichloroethane	0.0087	U	ug/m3	0.0087	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,1-Dichloroethene	0.015	J	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.71
		PMC-IN-58-020518	IA	N	43136.5521	1,2,4-Trichlorobenzene	0.018	U	ug/m3	0.018	0.071
		PMC-IN-58-020518	IA	N	43136.5521	1,2,4-Trimethylbenzene	0.65	=	ug/m3	0.012	0.14
		PMC-IN-58-020518	IA	N	43136.5521	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,2-Dichloroethane	0.15	=	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,2-Dichloropropane	0.025	J	ug/m3	0.01	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,3,5-Trimethylbenzene	0.25	=	ug/m3	0.01	0.14
		PMC-IN-58-020518	IA	N	43136.5521	1,3-Butadiene	0.02	U	ug/m3	0.02	0.071
		PMC-IN-58-020518	IA	N	43136.5521	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,4-Dichlorobenzene	0.069	=	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	1,4-Dioxane	0.012	U	ug/m3	0.012	0.14
		PMC-IN-58-020518	IA	N	43136.5521	2-Butanone	0.82	J	ug/m3	0.3	7.1
		PMC-IN-58-020518	IA	N	43136.5521	2-Hexanone	0.23	U	ug/m3	0.23	0.71
		PMC-IN-58-020518	IA	N	43136.5521	4-Methyl-2-Pentanone	0.58	J	ug/m3	0.23	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Acetone	8.6	=	ug/m3	0.08	3.6
		PMC-IN-58-020518	IA	N	43136.5521	Acetonitrile	0.26	U	ug/m3	0.26	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Acrolein	0.26	J	ug/m3	0.055	0.28
		PMC-IN-58-020518	IA	N	43136.5521	Acrylonitrile	0.24	U	ug/m3	0.24	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Benzene	0.36	=	ug/m3	0.028	0.11
		PMC-IN-58-020518	IA	N	43136.5521	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
		PMC-IN-58-020518	IA	N	43136.5521	Bromodichloromethane	0.0098	U	ug/m3	0.0098	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Bromoform	0.21	U	ug/m3	0.21	0.71

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-58-020518	IA	N	43136.5521	Bromomethane	0.023	J	ug/m3	0.013	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Carbon Disulfide	0.21	U	ug/m3	0.21	7.1
		PMC-IN-58-020518	IA	N	43136.5521	CHLORODIFLUOROMETHANE	0.63	J	ug/m3	0.36	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Chloroethane	0.012	U	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Chloroform	0.64	=	ug/m3	0.026	0.14
		PMC-IN-58-020518	IA	N	43136.5521	Chloromethane	0.43	=	ug/m3	0.027	0.071
		PMC-IN-58-020518	IA	N	43136.5521	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
		PMC-IN-58-020518	IA	N	43136.5521	cis-1,3-Dichloropropene	0.0088	U	ug/m3	0.0088	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Cyclohexane	0.41	U	ug/m3	0.41	1.4
		PMC-IN-58-020518	IA	N	43136.5521	Dichlorodifluoromethane	2.5	=	ug/m3	0.024	0.071
		PMC-IN-58-020518	IA	N	43136.5521	Dichloromethane	0.23	=	ug/m3	0.018	0.14
		PMC-IN-58-020518	IA	N	43136.5521	ETHANOL	1.1	U	ug/m3	1.1	7.1
		PMC-IN-58-020518	IA	N	43136.5521	Ethylbenzene	0.57	=	ug/m3	0.014	0.14
		PMC-IN-58-020518	IA	N	43136.5521	Freon 113	0.35	=	ug/m3	0.013	0.036
		PMC-IN-58-020518	IA	N	43136.5521	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.6	U	ug/m3	0.6	7.1
		PMC-IN-58-020518	IA	N	43136.5521	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
		PMC-IN-58-020518	IA	N	43136.5521	n-Butanol	0.68	U	ug/m3	0.68	1.4
		PMC-IN-58-020518	IA	N	43136.5521	n-Hexane	0.65	J	ug/m3	0.21	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Propene	0.2	U	ug/m3	0.2	0.71
		PMC-IN-58-020518	IA	N	43136.5521	Styrene	0.05	J	ug/m3	0.011	0.14
		PMC-IN-58-020518	IA	N	43136.5521	Tetrachloroethene	0.3	=	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Toluene	2.8	=	ug/m3	0.016	0.14
		PMC-IN-58-020518	IA	N	43136.5521	trans-1,3-Dichloropropene	0.0078	U	ug/m3	0.0078	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Trichloroethylene	0.093	=	ug/m3	0.012	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Trichlorofluoromethane	1.1	=	ug/m3	0.021	0.071
		PMC-IN-58-020518	IA	N	43136.5521	Vinyl Acetate	0.92	U	ug/m3	0.92	7.1
		PMC-IN-58-020518	IA	N	43136.5521	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
		PMC-IN-58-020518	IA	N	43136.5521	Xylene, o	0.59	=	ug/m3	0.013	0.14
		PMC-IN-58-020518	IA	N	43136.5521	Xylenes, m & p	1.8	=	ug/m3	0.027	0.14
		PMC-IN-58-062817	IA	N	42914.6236	1,1,1-Trichloroethane	0.43	=	ug/m3	0.13	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	1,2,4-Trimethylbenzene	9.6	=	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.91
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dichloroethane	0.98	=	ug/m3	0.11	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,3,5-Trimethylbenzene	3.2	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-58-062817	IA	N	42914.6236	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	2-Butanone	0.38	U	ug/m3	0.38	9.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-58-062817	IA	N	42914.6236	2-Hexanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	4-Ethyltoluene	2.4	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	4-Methyl-2-Pentanone	3.6	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Acetone	54	=	ug/m3	1.4	9.1
		PMC-IN-58-062817	IA	N	42914.6236	Acetonitrile	0.33	U	ug/m3	0.33	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Acrolein	0.31	U	ug/m3	0.31	3.6
		PMC-IN-58-062817	IA	N	42914.6236	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	alpha-Pinene	6.3	=	ug/m3	0.25	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Benzene	1.1	=	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Bromoform	0.27	U	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-58-062817	IA	N	42914.6236	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
		PMC-IN-58-062817	IA	N	42914.6236	Carbon tetrachloride	0.91	=	ug/m3	0.16	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-58-062817	IA	N	42914.6236	Chloroform	0.27	=	ug/m3	0.16	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Chloromethane	0.44	=	ug/m3	0.25	0.36
		PMC-IN-58-062817	IA	N	42914.6236	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-58-062817	IA	N	42914.6236	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Cyclohexane	1.9	=	ug/m3	0.52	1.8
		PMC-IN-58-062817	IA	N	42914.6236	Dichlorodifluoromethane	4.6	=	ug/m3	0.31	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Dichloromethane	0.45	J	ug/m3	0.31	0.91
		PMC-IN-58-062817	IA	N	42914.6236	D-Limonene	3.2	=	ug/m3	0.25	0.91
		PMC-IN-58-062817	IA	N	42914.6236	ETHANOL	76	=	ug/m3	1.4	9.1
		PMC-IN-58-062817	IA	N	42914.6236	Ethyl acetate	4.5	=	ug/m3	0.63	1.8
		PMC-IN-58-062817	IA	N	42914.6236	Ethylbenzene	8	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-58-062817	IA	N	42914.6236	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
		PMC-IN-58-062817	IA	N	42914.6236	Isopropylbenzene	0.62	J	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
		PMC-IN-58-062817	IA	N	42914.6236	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Naphthalene	5.5	=	ug/m3	0.33	0.91
		PMC-IN-58-062817	IA	N	42914.6236	N-Butyl Acetate	6.4	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	N-HEPTANE	8.8	=	ug/m3	0.31	0.91
		PMC-IN-58-062817	IA	N	42914.6236	n-Hexane	13	=	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Nonane	6.1	=	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	n-Propylbenzene	2	=	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	OCTANE	4	=	ug/m3	0.33	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Propene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Styrene	0.49	J	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Tetrachloroethene	0.79	=	ug/m3	0.13	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Toluene	28	=	ug/m3	0.31	0.91
		PMC-IN-58-062817	IA	N	42914.6236	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-58-062817	IA	N	42914.6236	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Trichlorofluoromethane	1.5	=	ug/m3	0.1	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Trichlorotrifuoroethane	0.51	=	ug/m3	0.14	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
		PMC-IN-58-062817	IA	N	42914.6236	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-58-062817	IA	N	42914.6236	Xylene, o	11	=	ug/m3	0.27	0.91
		PMC-IN-58-062817	IA	N	42914.6236	Xylenes, m & p	28	=	ug/m3	0.52	0.91
		PMC-IN-44-020718	IA	N	43138.7604	1,1,1-Trichloroethane	0.0097	J	ug/m3	0.0086	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-44-020718	IA	N	43138.7604	1,1-Dichloroethane	0.0089	U	ug/m3	0.0089	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,2,3-Trimethylbenzene	0.22	U	ug/m3	0.22	0.73
		PMC-IN-44-020718	IA	N	43138.7604	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.073
		PMC-IN-44-020718	IA	N	43138.7604	1,2,4-Trimethylbenzene	0.18	=	ug/m3	0.012	0.15
		PMC-IN-44-020718	IA	N	43138.7604	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,2-Dichloroethane	0.13	=	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,3,5-Trimethylbenzene	0.05	J	ug/m3	0.011	0.15
		PMC-IN-44-020718	IA	N	43138.7604	1,3-Butadiene	0.02	U	ug/m3	0.02	0.073
		PMC-IN-44-020718	IA	N	43138.7604	1,3-Dichlorobenzene	0.083	=	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	1,4-Dioxane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-44-020718	IA	N	43138.7604	2-Butanone	3	J	ug/m3	0.31	7.3
		PMC-IN-44-020718	IA	N	43138.7604	2-Hexanone	0.23	U	ug/m3	0.23	0.73
		PMC-IN-44-020718	IA	N	43138.7604	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Acetone	6.8	=	ug/m3	0.082	3.7
		PMC-IN-44-020718	IA	N	43138.7604	Acetonitrile	0.26	U	ug/m3	0.26	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Acrolein	0.33	=	ug/m3	0.057	0.29
		PMC-IN-44-020718	IA	N	43138.7604	Acrylonitrile	0.25	U	ug/m3	0.25	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Benzene	0.84	=	ug/m3	0.029	0.11
		PMC-IN-44-020718	IA	N	43138.7604	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
		PMC-IN-44-020718	IA	N	43138.7604	Bromodichloromethane	0.01	U	ug/m3	0.01	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Bromoform	0.22	U	ug/m3	0.22	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Bromomethane	0.031	J	ug/m3	0.014	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Carbon Disulfide	0.23	J	ug/m3	0.22	7.3
		PMC-IN-44-020718	IA	N	43138.7604	CHLORODIFLUOROMETHANE	0.81	=	ug/m3	0.37	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Chloroethane	0.012	U	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Chloroform	0.21	=	ug/m3	0.026	0.15
		PMC-IN-44-020718	IA	N	43138.7604	Chloromethane	0.46	=	ug/m3	0.028	0.073
		PMC-IN-44-020718	IA	N	43138.7604	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.037
		PMC-IN-44-020718	IA	N	43138.7604	cis-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Cyclohexane	0.42	U	ug/m3	0.42	1.5
		PMC-IN-44-020718	IA	N	43138.7604	Dichlorodifluoromethane	2.1	=	ug/m3	0.025	0.073
		PMC-IN-44-020718	IA	N	43138.7604	Dichloromethane	0.24	=	ug/m3	0.019	0.15
		PMC-IN-44-020718	IA	N	43138.7604	ETHANOL	13	=	ug/m3	1.2	7.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-44-020718	IA	N	43138.7604	Ethylbenzene	0.15	=	ug/m3	0.014	0.15
		PMC-IN-44-020718	IA	N	43138.7604	Freon 113	0.34	=	ug/m3	0.013	0.037
		PMC-IN-44-020718	IA	N	43138.7604	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	J	ug/m3	0.61	7.3
		PMC-IN-44-020718	IA	N	43138.7604	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.037
		PMC-IN-44-020718	IA	N	43138.7604	n-Butanol	0.7	U	ug/m3	0.7	1.5
		PMC-IN-44-020718	IA	N	43138.7604	n-Hexane	0.44	J	ug/m3	0.22	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Propene	1.6	=	ug/m3	0.2	0.73
		PMC-IN-44-020718	IA	N	43138.7604	Styrene	0.13	J	ug/m3	0.011	0.15
		PMC-IN-44-020718	IA	N	43138.7604	Tetrachloroethene	0.028	J	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Toluene	0.79	=	ug/m3	0.016	0.15
		PMC-IN-44-020718	IA	N	43138.7604	trans-1,3-Dichloropropene	0.008	U	ug/m3	0.008	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Trichloroethylene	0.012	U	ug/m3	0.012	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Trichlorofluoromethane	1	=	ug/m3	0.022	0.073
		PMC-IN-44-020718	IA	N	43138.7604	Vinyl Acetate	0.95	U	ug/m3	0.95	7.3
		PMC-IN-44-020718	IA	N	43138.7604	Vinyl Chloride	0.011	U	ug/m3	0.011	0.037
		PMC-IN-44-020718	IA	N	43138.7604	Xylene, o	0.13	J	ug/m3	0.013	0.15
		PMC-IN-44-020718	IA	N	43138.7604	Xylenes, m & p	0.3	=	ug/m3	0.028	0.15
		PMC-IN-44-060617	IA	N	42892	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-44-060617	IA	N	42892	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-44-060617	IA	N	42892	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-44-060617	IA	N	42892	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-44-060617	IA	N	42892	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	1,2,4-Trimethylbenzene	0.37	J	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.95
		PMC-IN-44-060617	IA	N	42892	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.95
		PMC-IN-44-060617	IA	N	42892	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-44-060617	IA	N	42892	1,2-Dichloroethane	1.1	=	ug/m3	0.12	0.19
		PMC-IN-44-060617	IA	N	42892	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	1,3-Butadiene	0.26	U	ug/m3	0.26	0.38
		PMC-IN-44-060617	IA	N	42892	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-44-060617	IA	N	42892	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-44-060617	IA	N	42892	1,4-Dioxane	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	2-Butanone	20	=	ug/m3	0.4	9.5
		PMC-IN-44-060617	IA	N	42892	2-Hexanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	4-Ethyltoluene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	Acetone	31	=	ug/m3	1.5	9.5
		PMC-IN-44-060617	IA	N	42892	Acetonitrile	0.34	U	ug/m3	0.34	0.95
		PMC-IN-44-060617	IA	N	42892	Acrolein	0.32	U	ug/m3	0.32	3.8
		PMC-IN-44-060617	IA	N	42892	Acrylonitrile	0.32	U	ug/m3	0.32	0.95
		PMC-IN-44-060617	IA	N	42892	Allyl chloride	0.14	U	ug/m3	0.14	0.19
		PMC-IN-44-060617	IA	N	42892	alpha-Pinene	22	=	ug/m3	0.26	0.95
		PMC-IN-44-060617	IA	N	42892	Benzene	0.18	J	ug/m3	0.15	0.19
		PMC-IN-44-060617	IA	N	42892	Benzyl chloride	0.21	U	ug/m3	0.21	0.95
		PMC-IN-44-060617	IA	N	42892	Bromodichloromethane	0.13	U	ug/m3	0.13	0.19

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-44-060617	IA	N	42892	Bromoform	0.28	U	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	Bromomethane	0.18	U	ug/m3	0.18	0.38
		PMC-IN-44-060617	IA	N	42892	Carbon Disulfide	0.28	U	ug/m3	0.28	9.5
		PMC-IN-44-060617	IA	N	42892	Carbon tetrachloride	0.36	=	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-44-060617	IA	N	42892	Chloroethane	0.16	U	ug/m3	0.16	0.38
		PMC-IN-44-060617	IA	N	42892	Chloroform	0.22	=	ug/m3	0.17	0.19
		PMC-IN-44-060617	IA	N	42892	Chloromethane	0.41	=	ug/m3	0.26	0.38
		PMC-IN-44-060617	IA	N	42892	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-44-060617	IA	N	42892	cis-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.95
		PMC-IN-44-060617	IA	N	42892	Cyclohexane	0.55	U	ug/m3	0.55	1.9
		PMC-IN-44-060617	IA	N	42892	Dichlorodifluoromethane	2.3	=	ug/m3	0.32	0.95
		PMC-IN-44-060617	IA	N	42892	Dichloromethane	0.46	J	ug/m3	0.32	0.95
		PMC-IN-44-060617	IA	N	42892	D-Limonene	11	=	ug/m3	0.26	0.95
		PMC-IN-44-060617	IA	N	42892	ETHANOL	43	=	ug/m3	1.5	9.5
		PMC-IN-44-060617	IA	N	42892	Ethyl acetate	5.5	=	ug/m3	0.66	1.9
		PMC-IN-44-060617	IA	N	42892	Ethylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	Hexachlorobutadiene	0.26	U	ug/m3	0.26	0.95
		PMC-IN-44-060617	IA	N	42892	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.79	U	ug/m3	0.79	9.5
		PMC-IN-44-060617	IA	N	42892	Isopropylbenzene	0.28	U	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	Methyl methacrylate	0.59	U	ug/m3	0.59	1.9
		PMC-IN-44-060617	IA	N	42892	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.19
		PMC-IN-44-060617	IA	N	42892	Naphthalene	0.34	U	ug/m3	0.34	0.95
		PMC-IN-44-060617	IA	N	42892	N-Butyl Acetate	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	N-HEPTANE	0.39	J	ug/m3	0.32	0.95
		PMC-IN-44-060617	IA	N	42892	n-Hexane	0.28	U	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	Nonane	0.29	J	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	n-Propylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	OCTANE	0.34	U	ug/m3	0.34	0.95
		PMC-IN-44-060617	IA	N	42892	Propene	13	=	ug/m3	0.26	0.95
		PMC-IN-44-060617	IA	N	42892	Styrene	0.36	J	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	Tetrachloroethene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-44-060617	IA	N	42892	Tetrahydrofuran	11	=	ug/m3	0.38	0.95
		PMC-IN-44-060617	IA	N	42892	Toluene	1	=	ug/m3	0.32	0.95
		PMC-IN-44-060617	IA	N	42892	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-44-060617	IA	N	42892	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-44-060617	IA	N	42892	Trichloroethylene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-44-060617	IA	N	42892	Trichlorofluoromethane	1.2	=	ug/m3	0.11	0.19
		PMC-IN-44-060617	IA	N	42892	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.19
		PMC-IN-44-060617	IA	N	42892	Vinyl Acetate	1.2	U	ug/m3	1.2	9.5
		PMC-IN-44-060617	IA	N	42892	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-44-060617	IA	N	42892	Xylene, o	0.28	U	ug/m3	0.28	0.95
		PMC-IN-44-060617	IA	N	42892	Xylenes, m & p	0.55	U	ug/m3	0.55	0.95
		PMC-IN-47-020918	IA	N	43140.4736	1,1,1-Trichloroethane	0.0096	J	ug/m3	0.0086	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.15
		PMC-IN-47-020918	IA	N	43140.4736	1,1-Dichloroethane	0.0088	U	ug/m3	0.0088	0.036

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-47-020918	IA	N	43140.4736	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,2,3-Trimethylbenzene	0.22	J	ug/m3	0.22	0.73
		PMC-IN-47-020918	IA	N	43140.4736	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.073
		PMC-IN-47-020918	IA	N	43140.4736	1,2,4-Trimethylbenzene	0.95	=	ug/m3	0.012	0.15
		PMC-IN-47-020918	IA	N	43140.4736	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,2-Dichloroethane	0.064	=	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,2-Dichloropropane	0.022	J	ug/m3	0.011	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,3,5-Trimethylbenzene	0.53	=	ug/m3	0.011	0.15
		PMC-IN-47-020918	IA	N	43140.4736	1,3-Butadiene	0.09	=	ug/m3	0.02	0.073
		PMC-IN-47-020918	IA	N	43140.4736	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	1,4-Dioxane	0.041	J	ug/m3	0.012	0.15
		PMC-IN-47-020918	IA	N	43140.4736	2-Butanone	0.7	J	ug/m3	0.3	7.3
		PMC-IN-47-020918	IA	N	43140.4736	2-Hexanone	0.23	U	ug/m3	0.23	0.73
		PMC-IN-47-020918	IA	N	43140.4736	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Acetone	13	=	ug/m3	0.081	3.6
		PMC-IN-47-020918	IA	N	43140.4736	Acetonitrile	0.26	U	ug/m3	0.26	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Acrolein	0.43	=	ug/m3	0.057	0.29
		PMC-IN-47-020918	IA	N	43140.4736	Acrylonitrile	0.25	U	ug/m3	0.25	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Benzene	1.1	=	ug/m3	0.029	0.11
		PMC-IN-47-020918	IA	N	43140.4736	Benzyl chloride	0.16	U	ug/m3	0.16	1.5
		PMC-IN-47-020918	IA	N	43140.4736	Bromodichloromethane	0.03	J	ug/m3	0.01	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Bromoform	0.22	U	ug/m3	0.22	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Bromomethane	0.023	J	ug/m3	0.013	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Carbon Disulfide	0.22	U	ug/m3	0.22	7.3
		PMC-IN-47-020918	IA	N	43140.4736	CHLORODIFLUOROMETHANE	3.2	=	ug/m3	0.36	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Chloroethane	0.015	J	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Chloroform	0.13	J	ug/m3	0.026	0.15
		PMC-IN-47-020918	IA	N	43140.4736	Chloromethane	0.45	=	ug/m3	0.028	0.073
		PMC-IN-47-020918	IA	N	43140.4736	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
		PMC-IN-47-020918	IA	N	43140.4736	cis-1,3-Dichloropropene	0.009	U	ug/m3	0.009	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Cyclohexane	0.42	U	ug/m3	0.42	1.5
		PMC-IN-47-020918	IA	N	43140.4736	Dichlorodifluoromethane	2.1	=	ug/m3	0.025	0.073
		PMC-IN-47-020918	IA	N	43140.4736	Dichloromethane	0.23	=	ug/m3	0.019	0.15
		PMC-IN-47-020918	IA	N	43140.4736	ETHANOL	250	=	ug/m3	1.2	7.3
		PMC-IN-47-020918	IA	N	43140.4736	Ethylbenzene	0.24	=	ug/m3	0.014	0.15
		PMC-IN-47-020918	IA	N	43140.4736	Freon 113	0.36	=	ug/m3	0.013	0.036
		PMC-IN-47-020918	IA	N	43140.4736	ISOPROPYL ALCOHOL (ISOPROPANOL)	37	=	ug/m3	0.61	7.3
		PMC-IN-47-020918	IA	N	43140.4736	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
		PMC-IN-47-020918	IA	N	43140.4736	n-Butanol	0.7	U	ug/m3	0.7	1.5
		PMC-IN-47-020918	IA	N	43140.4736	n-Hexane	0.39	J	ug/m3	0.22	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Propene	11	=	ug/m3	0.2	0.73
		PMC-IN-47-020918	IA	N	43140.4736	Styrene	0.095	J	ug/m3	0.011	0.15
		PMC-IN-47-020918	IA	N	43140.4736	Tetrachloroethene	0.045	=	ug/m3	0.012	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Toluene	1.5	=	ug/m3	0.016	0.15
		PMC-IN-47-020918	IA	N	43140.4736	trans-1,3-Dichloropropene	0.008	U	ug/m3	0.008	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Trichloroethylene	0.22	=	ug/m3	0.012	0.036

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-47-020918	IA	N	43140.4736	Trichlorofluoromethane	1	=	ug/m3	0.022	0.073
		PMC-IN-47-020918	IA	N	43140.4736	Vinyl Acetate	1.6	J	ug/m3	0.94	7.3
		PMC-IN-47-020918	IA	N	43140.4736	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
		PMC-IN-47-020918	IA	N	43140.4736	Xylene, o	0.28	=	ug/m3	0.013	0.15
		PMC-IN-47-020918	IA	N	43140.4736	Xylenes, m & p	0.73	=	ug/m3	0.028	0.15
		PMC-IN-47-A-072517	IA	N	42941.4583	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2,4-Trimethylbenzene	0.73	J	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.35	U	ug/m3	0.35	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,3,5-Trimethylbenzene	0.41	J	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-47-A-072517	IA	N	42941.4583	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	1,4-Dioxane	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	2-Butanone	0.38	U	ug/m3	0.38	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	2-Hexanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	4-Ethyltoluene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Acetone	1.4	U	ug/m3	1.4	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	Acetonitrile	0.33	U	ug/m3	0.33	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Acrolein	0.31	U	ug/m3	0.31	3.6
		PMC-IN-47-A-072517	IA	N	42941.4583	Acrylonitrile	0.31	U	ug/m3	0.31	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	alpha-Pinene	4.7	=	ug/m3	0.25	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Benzene	0.21	=	ug/m3	0.14	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Benzyl chloride	0.2	U	ug/m3	0.2	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Bromodichloromethane	0.12	U	ug/m3	0.12	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Bromoform	0.27	U	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-47-A-072517	IA	N	42941.4583	Carbon Disulfide	0.27	U	ug/m3	0.27	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	Carbon tetrachloride	0.33	=	ug/m3	0.16	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-47-A-072517	IA	N	42941.4583	Chloroform	0.33	=	ug/m3	0.16	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Chloromethane	0.25	U	ug/m3	0.25	0.36
		PMC-IN-47-A-072517	IA	N	42941.4583	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Cyclohexane	0.53	U	ug/m3	0.53	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-47-A-072517	IA	N	42941.4583	Dichlorodifluoromethane	1.9	=	ug/m3	0.31	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Dichloromethane	0.31	U	ug/m3	0.31	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	D-Limonene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	ETHANOL	67	=	ug/m3	1.5	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	Ethyl acetate	0.64	U	ug/m3	0.64	1.8
		PMC-IN-47-A-072517	IA	N	42941.4583	Ethylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.76	U	ug/m3	0.76	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	Isopropylbenzene	0.27	U	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Methyl methacrylate	0.56	U	ug/m3	0.56	1.8
		PMC-IN-47-A-072517	IA	N	42941.4583	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Naphthalene	0.33	U	ug/m3	0.33	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	N-Butyl Acetate	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	N-HEPTANE	0.31	U	ug/m3	0.31	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	n-Hexane	0.27	U	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Nonane	0.46	J	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	n-Propylbenzene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	OCTANE	0.33	U	ug/m3	0.33	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Propene	0.25	U	ug/m3	0.25	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Styrene	0.37	J	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Tetrachloroethene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Toluene	0.74	J	ug/m3	0.31	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Trichlorofluoromethane	0.98	=	ug/m3	0.1	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Vinyl Acetate	1.2	U	ug/m3	1.2	9.1
		PMC-IN-47-A-072517	IA	N	42941.4583	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-47-A-072517	IA	N	42941.4583	Xylene, o	0.27	U	ug/m3	0.27	0.91
		PMC-IN-47-A-072517	IA	N	42941.4583	Xylenes, m & p	0.53	U	ug/m3	0.53	0.91
		PMC-IN-47-B-072517	IA	N	42941.4583	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2,4-Trichlorobenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2,4-Trimethylbenzene	0.38	J	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.33	U	ug/m3	0.33	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dichloroethane	0.11	U	ug/m3	0.11	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	1,3-Butadiene	0.24	U	ug/m3	0.24	0.35
		PMC-IN-47-B-072517	IA	N	42941.4583	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-47-B-072517	IA	N	42941.4583	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	1,4-Dioxane	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	2-Butanone	0.36	U	ug/m3	0.36	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	2-Hexanone	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	4-Ethyltoluene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	4-Methyl-2-Pentanone	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Acetone	1.3	U	ug/m3	1.3	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Acetonitrile	0.31	U	ug/m3	0.31	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Acrolein	0.29	U	ug/m3	0.29	3.5
		PMC-IN-47-B-072517	IA	N	42941.4583	Acrylonitrile	0.29	U	ug/m3	0.29	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	alpha-Pinene	1.6	=	ug/m3	0.24	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Benzene	0.2	=	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Benzyl chloride	0.19	U	ug/m3	0.19	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Bromodichloromethane	0.12	U	ug/m3	0.12	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Bromoform	0.26	U	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Bromomethane	0.16	U	ug/m3	0.16	0.35
		PMC-IN-47-B-072517	IA	N	42941.4583	Carbon Disulfide	0.26	U	ug/m3	0.26	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Carbon tetrachloride	0.32	=	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Chloroethane	0.15	U	ug/m3	0.15	0.35
		PMC-IN-47-B-072517	IA	N	42941.4583	Chloroform	0.15	U	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Chloromethane	0.25	J	ug/m3	0.24	0.35
		PMC-IN-47-B-072517	IA	N	42941.4583	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Cyclohexane	1.1	J	ug/m3	0.5	1.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Dichlorodifluoromethane	1.9	=	ug/m3	0.29	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Dichloromethane	0.29	U	ug/m3	0.29	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	D-Limonene	0.26	J	ug/m3	0.24	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	ETHANOL	100	=	ug/m3	1.4	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Ethyl acetate	0.61	U	ug/m3	0.61	1.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Ethylbenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.73	U	ug/m3	0.73	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Isopropylbenzene	0.26	U	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Methyl methacrylate	0.54	U	ug/m3	0.54	1.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Naphthalene	0.31	U	ug/m3	0.31	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	N-Butyl Acetate	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	N-HEPTANE	26	=	ug/m3	0.29	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	n-Hexane	0.59	J	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Nonane	0.26	U	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	n-Propylbenzene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	OCTANE	0.31	U	ug/m3	0.31	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Propene	0.24	U	ug/m3	0.24	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Styrene	0.26	U	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		PMC-IN-47-B-072517	IA	N	42941.4583	Tetrahydrofuran	0.35	U	ug/m3	0.35	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Toluene	1.9	=	ug/m3	0.29	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	trans-1,3-Dichloropropene	0.28	U	ug/m3	0.28	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Trichlorofluoromethane	0.98	=	ug/m3	0.099	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Vinyl Acetate	1.1	U	ug/m3	1.1	8.7
		PMC-IN-47-B-072517	IA	N	42941.4583	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-47-B-072517	IA	N	42941.4583	Xylene, o	0.26	U	ug/m3	0.26	0.87
		PMC-IN-47-B-072517	IA	N	42941.4583	Xylenes, m & p	0.5	U	ug/m3	0.5	0.87
		PMC-IN-47-01-110818	IA	N	43412.5292	1,1,1-Trichloroethane	0.01	U	ug/m3	0.01	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,1-Dichloroethene	0.015	U	ug/m3	0.015	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2,3-Trimethylbenzene	0.41	J	ug/m3	0.12	0.88
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2,4-Trichlorobenzene	0.022	U	ug/m3	0.022	0.085
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2,4-Trimethylbenzene	1.9	=	ug/m3	0.014	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2-Dichloroethane	0.044	=	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,2-Dichloropropane	0.014	J	ug/m3	0.012	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,3,5-Trimethylbenzene	1.1	=	ug/m3	0.012	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	1,3-Butadiene	0.024	U	ug/m3	0.024	0.085
		PMC-IN-47-01-110818	IA	N	43412.5292	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,4-Dichlorobenzene	0.059	=	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	1,4-Dioxane	0.014	U	ug/m3	0.014	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	2-Butanone	0.19	U	ug/m3	0.19	1.7
		PMC-IN-47-01-110818	IA	N	43412.5292	2-Hexanone	0.11	U	ug/m3	0.11	0.92
		PMC-IN-47-01-110818	IA	N	43412.5292	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.9
		PMC-IN-47-01-110818	IA	N	43412.5292	Acetone	4.3	U	ug/m3	0.095	4.3
		PMC-IN-47-01-110818	IA	N	43412.5292	Acetonitrile	0.22	U	ug/m3	0.22	0.88
		PMC-IN-47-01-110818	IA	N	43412.5292	Acrolein	0.067	J	ug/m3	0.066	0.34
		PMC-IN-47-01-110818	IA	N	43412.5292	Acrylonitrile	0.19	U	ug/m3	0.19	0.88
		PMC-IN-47-01-110818	IA	N	43412.5292	Benzene	0.25	=	ug/m3	0.034	0.13
		PMC-IN-47-01-110818	IA	N	43412.5292	Benzyl chloride	0.2	U	ug/m3	0.2	1.9
		PMC-IN-47-01-110818	IA	N	43412.5292	Bromodichloromethane	0.012	U	ug/m3	0.012	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Bromoform	0.19	U	ug/m3	0.19	0.9
		PMC-IN-47-01-110818	IA	N	43412.5292	Bromomethane	0.016	U	ug/m3	0.016	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Carbon Disulfide	0.27	U	ug/m3	0.27	1.9
		PMC-IN-47-01-110818	IA	N	43412.5292	CHLORODIFLUOROMETHANE	0.5	J	ug/m3	0.43	0.85
		PMC-IN-47-01-110818	IA	N	43412.5292	Chloroethane	0.014	U	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Chloroform	0.086	J	ug/m3	0.031	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	Chloromethane	0.24	=	ug/m3	0.032	0.085
		PMC-IN-47-01-110818	IA	N	43412.5292	cis-1,2-Dichloroethene	0.016	U	ug/m3	0.016	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	cis-1,3-Dichloropropene	0.011	U	ug/m3	0.011	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Cyclohexane	0.26	U	ug/m3	0.26	1.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-IN-47-01-110818	IA	N	43412.5292	Dichlorodifluoromethane	2.1	=	ug/m3	0.029	0.085
		PMC-IN-47-01-110818	IA	N	43412.5292	Dichloromethane	0.17	=	ug/m3	0.022	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	ETHANOL	1.1	J	ug/m3	0.63	8.7
		PMC-IN-47-01-110818	IA	N	43412.5292	Ethylbenzene	0.28	=	ug/m3	0.016	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.44	J	ug/m3	0.37	3.6
		PMC-IN-47-01-110818	IA	N	43412.5292	Methyl tert-butyl ether (MTBE)	0.016	U	ug/m3	0.016	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	n-Butanol	0.24	U	ug/m3	0.24	1.7
		PMC-IN-47-01-110818	IA	N	43412.5292	n-Hexane	0.21	J	ug/m3	0.19	0.92
		PMC-IN-47-01-110818	IA	N	43412.5292	Propene	0.22	U	ug/m3	0.22	0.88
		PMC-IN-47-01-110818	IA	N	43412.5292	Styrene	0.029	J	ug/m3	0.013	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	Tetrachloroethene	0.057	=	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Toluene	0.86	=	ug/m3	0.019	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	trans-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Trichloroethylene	0.014	U	ug/m3	0.014	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Trichlorofluoromethane	1.1	=	ug/m3	0.026	0.085
		PMC-IN-47-01-110818	IA	N	43412.5292	Trichlorotrifuoroethane	0.41	=	ug/m3	0.015	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Vinyl Acetate	2	U	ug/m3	2	9
		PMC-IN-47-01-110818	IA	N	43412.5292	Vinyl Chloride	0.013	U	ug/m3	0.013	0.043
		PMC-IN-47-01-110818	IA	N	43412.5292	Xylene, o	0.52	=	ug/m3	0.015	0.17
		PMC-IN-47-01-110818	IA	N	43412.5292	Xylenes, m & p	1.5	=	ug/m3	0.032	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	1,1,1-Trichloroethane	0.0097	U	ug/m3	0.0097	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.043
		PMC-IN-47-02-110818	IA	N	43412.5292	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.043
		PMC-IN-47-02-110818	IA	N	43412.5292	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2,3-Trimethylbenzene	0.22	J	ug/m3	0.13	0.89
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.083
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2,4-Trimethylbenzene	1	=	ug/m3	0.014	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2-Dichlorobenzene	0.014	U	ug/m3	0.014	0.043
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2-Dichloroethane	0.051	=	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,2-Dichloropropane	0.016	J	ug/m3	0.012	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,3,5-Trimethylbenzene	0.52	=	ug/m3	0.013	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	1,3-Butadiene	0.023	U	ug/m3	0.023	0.083
		PMC-IN-47-02-110818	IA	N	43412.5292	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	1,4-Dichlorobenzene	0.074	=	ug/m3	0.014	0.043
		PMC-IN-47-02-110818	IA	N	43412.5292	1,4-Dioxane	0.073	J	ug/m3	0.014	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	2-Butanone	1.6	J	ug/m3	0.18	1.7
		PMC-IN-47-02-110818	IA	N	43412.5292	2-Hexanone	0.11	J	ug/m3	0.11	0.89
		PMC-IN-47-02-110818	IA	N	43412.5292	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.87
		PMC-IN-47-02-110818	IA	N	43412.5292	Acetone	4.1	U	ug/m3	0.092	4.1
		PMC-IN-47-02-110818	IA	N	43412.5292	Acetonitrile	0.21	U	ug/m3	0.21	0.86
		PMC-IN-47-02-110818	IA	N	43412.5292	Acrolein	0.22	J	ug/m3	0.067	0.34
		PMC-IN-47-02-110818	IA	N	43412.5292	Acrylonitrile	0.18	U	ug/m3	0.18	0.86
		PMC-IN-47-02-110818	IA	N	43412.5292	Benzene	0.18	=	ug/m3	0.033	0.12
		PMC-IN-47-02-110818	IA	N	43412.5292	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
		PMC-IN-47-02-110818	IA	N	43412.5292	Bromodichloromethane	0.011	U	ug/m3	0.011	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Bromoform	0.18	U	ug/m3	0.18	0.87

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-47-02-110818	IA	N	43412.5292	Bromomethane	0.025	J	ug/m3	0.015	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Carbon Disulfide	0.41	J	ug/m3	0.28	1.9
		PMC-IN-47-02-110818	IA	N	43412.5292	CHLORODIFLUOROMETHANE	0.47	J	ug/m3	0.43	0.86
		PMC-IN-47-02-110818	IA	N	43412.5292	Chloroethane	0.014	U	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Chloroform	0.095	J	ug/m3	0.03	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	Chloromethane	0.32	=	ug/m3	0.033	0.086
		PMC-IN-47-02-110818	IA	N	43412.5292	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Cyclohexane	0.25	U	ug/m3	0.25	1.7
		PMC-IN-47-02-110818	IA	N	43412.5292	Dichlorodifluoromethane	2.3	=	ug/m3	0.029	0.086
		PMC-IN-47-02-110818	IA	N	43412.5292	Dichloromethane	0.18	=	ug/m3	0.021	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	ETHANOL	14	=	ug/m3	0.61	8.4
		PMC-IN-47-02-110818	IA	N	43412.5292	Ethylbenzene	0.35	=	ug/m3	0.017	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	ISOPROPYL ALCOHOL (ISOPROPANOL)	3.8	=	ug/m3	0.36	3.5
		PMC-IN-47-02-110818	IA	N	43412.5292	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	n-Butanol	1.1	J	ug/m3	0.23	1.7
		PMC-IN-47-02-110818	IA	N	43412.5292	n-Hexane	0.18	U	ug/m3	0.18	0.89
		PMC-IN-47-02-110818	IA	N	43412.5292	Propene	0.92	=	ug/m3	0.21	0.86
		PMC-IN-47-02-110818	IA	N	43412.5292	Styrene	0.14	J	ug/m3	0.012	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	Tetrachloroethene	0.029	J	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Toluene	0.53	=	ug/m3	0.018	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	trans-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Trichloroethylene	0.017	J	ug/m3	0.014	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Trichlorofluoromethane	1.1	=	ug/m3	0.026	0.086
		PMC-IN-47-02-110818	IA	N	43412.5292	Trichlorotrifuoroethane	0.39	=	ug/m3	0.015	0.041
		PMC-IN-47-02-110818	IA	N	43412.5292	Vinyl Acetate	2	U	ug/m3	2	8.7
		PMC-IN-47-02-110818	IA	N	43412.5292	Vinyl Chloride	0.013	U	ug/m3	0.013	0.043
		PMC-IN-47-02-110818	IA	N	43412.5292	Xylene, o	0.68	=	ug/m3	0.015	0.17
		PMC-IN-47-02-110818	IA	N	43412.5292	Xylenes, m & p	1.9	=	ug/m3	0.033	0.17
		PMC-IN-48-022018	IA	N	43151.7049	1,1,1-Trichloroethane	0.01	J	ug/m3	0.0089	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-48-022018	IA	N	43151.7049	1,1-Dichloroethane	0.0092	U	ug/m3	0.0092	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.76
		PMC-IN-48-022018	IA	N	43151.7049	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.076
		PMC-IN-48-022018	IA	N	43151.7049	1,2,4-Trimethylbenzene	0.13	J	ug/m3	0.013	0.15
		PMC-IN-48-022018	IA	N	43151.7049	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,2-Dichloroethane	0.069	=	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,2-Dichloropropane	0.025	J	ug/m3	0.011	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,3,5-Trimethylbenzene	0.04	J	ug/m3	0.011	0.15
		PMC-IN-48-022018	IA	N	43151.7049	1,3-Butadiene	0.021	U	ug/m3	0.021	0.076
		PMC-IN-48-022018	IA	N	43151.7049	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.038
		PMC-IN-48-022018	IA	N	43151.7049	1,4-Dioxane	0.018	J	ug/m3	0.013	0.15
		PMC-IN-48-022018	IA	N	43151.7049	2-Butanone	1.1	J	ug/m3	0.32	7.6
		PMC-IN-48-022018	IA	N	43151.7049	2-Hexanone	0.24	U	ug/m3	0.24	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-48-022018	IA	N	43151.7049	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Acetone	16	=	ug/m3	0.085	3.8
		PMC-IN-48-022018	IA	N	43151.7049	Acetonitrile	0.27	U	ug/m3	0.27	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Acrolein	0.47	=	ug/m3	0.059	0.3
		PMC-IN-48-022018	IA	N	43151.7049	Acrylonitrile	0.26	U	ug/m3	0.26	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Benzene	0.47	=	ug/m3	0.03	0.11
		PMC-IN-48-022018	IA	N	43151.7049	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-48-022018	IA	N	43151.7049	Bromodichloromethane	0.11	=	ug/m3	0.01	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Bromoform	0.23	U	ug/m3	0.23	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Bromomethane	0.025	J	ug/m3	0.014	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Carbon Disulfide	0.23	J	ug/m3	0.23	7.6
		PMC-IN-48-022018	IA	N	43151.7049	CHLORODIFLUOROMETHANE	0.71	J	ug/m3	0.38	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Chloroethane	0.013	U	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Chloroform	0.39	=	ug/m3	0.027	0.15
		PMC-IN-48-022018	IA	N	43151.7049	Chloromethane	0.47	=	ug/m3	0.029	0.076
		PMC-IN-48-022018	IA	N	43151.7049	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-48-022018	IA	N	43151.7049	cis-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Cyclohexane	0.44	U	ug/m3	0.44	1.5
		PMC-IN-48-022018	IA	N	43151.7049	Dichlorodifluoromethane	2.4	=	ug/m3	0.026	0.076
		PMC-IN-48-022018	IA	N	43151.7049	Dichloromethane	0.3	=	ug/m3	0.02	0.15
		PMC-IN-48-022018	IA	N	43151.7049	ETHANOL	500	=	ug/m3	1.2	7.6
		PMC-IN-48-022018	IA	N	43151.7049	Ethylbenzene	0.15	J	ug/m3	0.015	0.15
		PMC-IN-48-022018	IA	N	43151.7049	Freon 113	0.38	=	ug/m3	0.014	0.038
		PMC-IN-48-022018	IA	N	43151.7049	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.6	J	ug/m3	0.64	7.6
		PMC-IN-48-022018	IA	N	43151.7049	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-48-022018	IA	N	43151.7049	n-Butanol	1.1	J	ug/m3	0.73	1.5
		PMC-IN-48-022018	IA	N	43151.7049	n-Hexane	0.49	J	ug/m3	0.23	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Propene	1.8	=	ug/m3	0.21	0.76
		PMC-IN-48-022018	IA	N	43151.7049	Styrene	4.3	=	ug/m3	0.011	0.15
		PMC-IN-48-022018	IA	N	43151.7049	Tetrachloroethene	0.039	=	ug/m3	0.012	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Toluene	1.2	=	ug/m3	0.017	0.15
		PMC-IN-48-022018	IA	N	43151.7049	trans-1,3-Dichloropropene	0.0083	U	ug/m3	0.0083	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Trichloroethylene	0.021	J	ug/m3	0.013	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Trichlorofluoromethane	1.2	=	ug/m3	0.023	0.076
		PMC-IN-48-022018	IA	N	43151.7049	Vinyl Acetate	0.98	U	ug/m3	0.98	7.6
		PMC-IN-48-022018	IA	N	43151.7049	Vinyl Chloride	0.011	U	ug/m3	0.011	0.038
		PMC-IN-48-022018	IA	N	43151.7049	Xylene, o	0.14	J	ug/m3	0.014	0.15
		PMC-IN-48-022018	IA	N	43151.7049	Xylenes, m & p	0.44	=	ug/m3	0.029	0.15
		PMC-IN-48-060117	IA	N	42887	1,1,1-Trichloroethane	0.12	U	ug/m3	0.12	0.16
		PMC-IN-48-060117	IA	N	42887	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	1,1,2-Trichloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	1,1-Dichloroethane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	1,2,4-Trichlorobenzene	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	1,2,4-Trimethylbenzene	0.44	J	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	1,2-Dibromo-3-chloropropane	0.16	U	ug/m3	0.16	0.81
		PMC-IN-48-060117	IA	N	42887	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	U	ug/m3	0.31	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-48-060117	IA	N	42887	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	1,2-Dichloroethane	0.1	U	ug/m3	0.1	0.16
		PMC-IN-48-060117	IA	N	42887	1,2-Dichloropropane	0.13	U	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	1,3,5-Trimethylbenzene	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	1,3-Butadiene	0.23	U	ug/m3	0.23	0.32
		PMC-IN-48-060117	IA	N	42887	1,3-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-48-060117	IA	N	42887	1,4-Dichlorobenzene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-48-060117	IA	N	42887	1,4-Dioxane	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	2-Butanone	1.8	J	ug/m3	0.34	8.1
		PMC-IN-48-060117	IA	N	42887	2-Hexanone	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	4-Ethyltoluene	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	4-Methyl-2-Pentanone	0.27	J	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	Acetone	48	=	ug/m3	1.2	8.1
		PMC-IN-48-060117	IA	N	42887	Acetonitrile	0.29	U	ug/m3	0.29	0.81
		PMC-IN-48-060117	IA	N	42887	Acrolein	0.27	U	ug/m3	0.27	3.2
		PMC-IN-48-060117	IA	N	42887	Acrylonitrile	0.27	U	ug/m3	0.27	0.81
		PMC-IN-48-060117	IA	N	42887	Allyl chloride	0.12	U	ug/m3	0.12	0.16
		PMC-IN-48-060117	IA	N	42887	alpha-Pinene	43	=	ug/m3	0.23	0.81
		PMC-IN-48-060117	IA	N	42887	Benzene	0.35	=	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	Benzyl chloride	0.18	U	ug/m3	0.18	0.81
		PMC-IN-48-060117	IA	N	42887	Bromodichloromethane	0.22	=	ug/m3	0.11	0.16
		PMC-IN-48-060117	IA	N	42887	Bromoform	0.24	U	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	Bromomethane	0.15	U	ug/m3	0.15	0.32
		PMC-IN-48-060117	IA	N	42887	Carbon Disulfide	0.24	U	ug/m3	0.24	8.1
		PMC-IN-48-060117	IA	N	42887	Carbon tetrachloride	0.43	=	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	Chlorobenzene	0.13	U	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	Chloroethane	0.14	U	ug/m3	0.14	0.32
		PMC-IN-48-060117	IA	N	42887	Chloroform	0.78	=	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	Chloromethane	0.43	=	ug/m3	0.23	0.32
		PMC-IN-48-060117	IA	N	42887	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	cis-1,3-Dichloropropene	0.23	U	ug/m3	0.23	0.81
		PMC-IN-48-060117	IA	N	42887	Cyclohexane	0.47	U	ug/m3	0.47	1.6
		PMC-IN-48-060117	IA	N	42887	Dichlorodifluoromethane	2.8	=	ug/m3	0.27	0.81
		PMC-IN-48-060117	IA	N	42887	Dichloromethane	0.27	U	ug/m3	0.27	0.81
		PMC-IN-48-060117	IA	N	42887	D-Limonene	28	=	ug/m3	0.23	0.81
		PMC-IN-48-060117	IA	N	42887	ETHANOL	1400	=	ug/m3	13	81
		PMC-IN-48-060117	IA	N	42887	Ethyl acetate	16	=	ug/m3	0.56	1.6
		PMC-IN-48-060117	IA	N	42887	Ethylbenzene	0.27	J	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	Hexachlorobutadiene	0.23	U	ug/m3	0.23	0.81
		PMC-IN-48-060117	IA	N	42887	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.68	U	ug/m3	0.68	8.1
		PMC-IN-48-060117	IA	N	42887	Isopropylbenzene	0.24	U	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	Methyl methacrylate	0.5	U	ug/m3	0.5	1.6
		PMC-IN-48-060117	IA	N	42887	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	Naphthalene	0.43	J	ug/m3	0.29	0.81
		PMC-IN-48-060117	IA	N	42887	N-Butyl Acetate	2.3	=	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	N-HEPTANE	0.32	J	ug/m3	0.27	0.81
		PMC-IN-48-060117	IA	N	42887	n-Hexane	0.55	J	ug/m3	0.24	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-48-060117	IA	N	42887	Nonane	0.52	J	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	n-Propylbenzene	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	OCTANE	0.81	=	ug/m3	0.29	0.81
		PMC-IN-48-060117	IA	N	42887	Propene	2.4	=	ug/m3	0.23	0.81
		PMC-IN-48-060117	IA	N	42887	Styrene	0.71	J	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	Tetrachloroethene	0.12	U	ug/m3	0.12	0.16
		PMC-IN-48-060117	IA	N	42887	Tetrahydrofuran	0.32	U	ug/m3	0.32	0.81
		PMC-IN-48-060117	IA	N	42887	Toluene	1.8	=	ug/m3	0.27	0.81
		PMC-IN-48-060117	IA	N	42887	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	trans-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.81
		PMC-IN-48-060117	IA	N	42887	Trichloroethylene	0.14	U	ug/m3	0.14	0.16
		PMC-IN-48-060117	IA	N	42887	Trichlorofluoromethane	1.6	=	ug/m3	0.092	0.16
		PMC-IN-48-060117	IA	N	42887	Trichlorotrifuoroethane	0.47	=	ug/m3	0.13	0.16
		PMC-IN-48-060117	IA	N	42887	Vinyl Acetate	2.5	J	ug/m3	1	8.1
		PMC-IN-48-060117	IA	N	42887	Vinyl Chloride	0.15	U	ug/m3	0.15	0.16
		PMC-IN-48-060117	IA	N	42887	Xylene, o	0.32	J	ug/m3	0.24	0.81
		PMC-IN-48-060117	IA	N	42887	Xylenes, m & p	0.92	=	ug/m3	0.47	0.81
		PMC-IN-49-020618	IA	N	43137.4271	1,1,1-Trichloroethane	0.011	J	ug/m3	0.0084	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,1,2,2-Tetrachloroethane	0.01	U	ug/m3	0.01	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,1,2-Trichloroethane	0.011	U	ug/m3	0.011	0.14
		PMC-IN-49-020618	IA	N	43137.4271	1,1-Dichloroethane	0.0087	U	ug/m3	0.0087	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,1-Dichloroethene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,2,3-Trimethylbenzene	0.21	U	ug/m3	0.21	0.72
		PMC-IN-49-020618	IA	N	43137.4271	1,2,4-Trichlorobenzene	0.019	U	ug/m3	0.019	0.072
		PMC-IN-49-020618	IA	N	43137.4271	1,2,4-Trimethylbenzene	0.19	=	ug/m3	0.012	0.14
		PMC-IN-49-020618	IA	N	43137.4271	1,2-Dibromoethane	0.011	U	ug/m3	0.011	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,2-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,2-Dichloroethane	0.55	=	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,2-Dichloropropane	0.073	=	ug/m3	0.01	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,3,5-Trimethylbenzene	0.063	J	ug/m3	0.01	0.14
		PMC-IN-49-020618	IA	N	43137.4271	1,3-Butadiene	0.06	J	ug/m3	0.02	0.072
		PMC-IN-49-020618	IA	N	43137.4271	1,3-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	1,4-Dioxane	0.014	J	ug/m3	0.012	0.14
		PMC-IN-49-020618	IA	N	43137.4271	2-Butanone	1	J	ug/m3	0.3	7.2
		PMC-IN-49-020618	IA	N	43137.4271	2-Hexanone	0.23	U	ug/m3	0.23	0.72
		PMC-IN-49-020618	IA	N	43137.4271	4-Methyl-2-Pentanone	0.23	U	ug/m3	0.23	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Acetone	16	=	ug/m3	0.08	3.6
		PMC-IN-49-020618	IA	N	43137.4271	Acetonitrile	0.26	U	ug/m3	0.26	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Acrolein	0.56	=	ug/m3	0.056	0.29
		PMC-IN-49-020618	IA	N	43137.4271	Acrylonitrile	0.24	U	ug/m3	0.24	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Benzene	0.79	=	ug/m3	0.029	0.11
		PMC-IN-49-020618	IA	N	43137.4271	Benzyl chloride	0.16	U	ug/m3	0.16	1.4
		PMC-IN-49-020618	IA	N	43137.4271	Bromodichloromethane	0.23	=	ug/m3	0.0099	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Bromoform	0.21	U	ug/m3	0.21	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Bromomethane	0.024	J	ug/m3	0.013	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Carbon Disulfide	0.21	U	ug/m3	0.21	7.2
		PMC-IN-49-020618	IA	N	43137.4271	CHLORODIFLUOROMETHANE	0.79	=	ug/m3	0.36	0.72

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-49-020618	IA	N	43137.4271	Chloroethane	0.017	J	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Chloroform	0.64	=	ug/m3	0.026	0.14
		PMC-IN-49-020618	IA	N	43137.4271	Chloromethane	0.47	=	ug/m3	0.027	0.072
		PMC-IN-49-020618	IA	N	43137.4271	cis-1,2-Dichloroethene	0.013	U	ug/m3	0.013	0.036
		PMC-IN-49-020618	IA	N	43137.4271	cis-1,3-Dichloropropene	0.0089	U	ug/m3	0.0089	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Cyclohexane	0.41	U	ug/m3	0.41	1.4
		PMC-IN-49-020618	IA	N	43137.4271	Dichlorodifluoromethane	2.1	=	ug/m3	0.024	0.072
		PMC-IN-49-020618	IA	N	43137.4271	Dichloromethane	0.69	=	ug/m3	0.019	0.14
		PMC-IN-49-020618	IA	N	43137.4271	ETHANOL	390	=	ug/m3	1.1	7.2
		PMC-IN-49-020618	IA	N	43137.4271	Ethylbenzene	0.63	=	ug/m3	0.014	0.14
		PMC-IN-49-020618	IA	N	43137.4271	Freon 113	0.35	=	ug/m3	0.013	0.036
		PMC-IN-49-020618	IA	N	43137.4271	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.5	J	ug/m3	0.6	7.2
		PMC-IN-49-020618	IA	N	43137.4271	Methyl tert-butyl ether (MTBE)	0.013	U	ug/m3	0.013	0.036
		PMC-IN-49-020618	IA	N	43137.4271	n-Butanol	1	J	ug/m3	0.69	1.4
		PMC-IN-49-020618	IA	N	43137.4271	n-Hexane	0.54	J	ug/m3	0.21	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Propene	1.3	=	ug/m3	0.2	0.72
		PMC-IN-49-020618	IA	N	43137.4271	Styrene	0.16	=	ug/m3	0.011	0.14
		PMC-IN-49-020618	IA	N	43137.4271	Tetrachloroethene	0.32	=	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Toluene	8.4	=	ug/m3	0.016	0.14
		PMC-IN-49-020618	IA	N	43137.4271	trans-1,3-Dichloropropene	0.0079	U	ug/m3	0.0079	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Trichloroethylene	0.045	=	ug/m3	0.012	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Trichlorofluoromethane	1	=	ug/m3	0.021	0.072
		PMC-IN-49-020618	IA	N	43137.4271	Vinyl Acetate	0.93	U	ug/m3	0.93	7.2
		PMC-IN-49-020618	IA	N	43137.4271	Vinyl Chloride	0.011	U	ug/m3	0.011	0.036
		PMC-IN-49-020618	IA	N	43137.4271	Xylene, o	0.49	=	ug/m3	0.013	0.14
		PMC-IN-49-020618	IA	N	43137.4271	Xylenes, m & p	1.2	=	ug/m3	0.027	0.14
		PMC-IN-49-072517	IA	N	42941.4201	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,2,4-Trichlorobenzene	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	1,2,4-Trimethylbenzene	0.5	J	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dibromo-3-chloropropane	0.17	U	ug/m3	0.17	0.86
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.32	U	ug/m3	0.32	0.86
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dichloroethane	0.4	=	ug/m3	0.11	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,3,5-Trimethylbenzene	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	1,3-Butadiene	0.24	U	ug/m3	0.24	0.34
		PMC-IN-49-072517	IA	N	42941.4201	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,4-Dichlorobenzene	0.13	U	ug/m3	0.13	0.17
		PMC-IN-49-072517	IA	N	42941.4201	1,4-Dioxane	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	2-Butanone	0.36	U	ug/m3	0.36	8.6
		PMC-IN-49-072517	IA	N	42941.4201	2-Hexanone	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	4-Ethyltoluene	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	0.86

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-49-072517	IA	N	42941.4201	Acetone	21	=	ug/m3	1.3	8.6
		PMC-IN-49-072517	IA	N	42941.4201	Acetonitrile	0.31	U	ug/m3	0.31	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Acrolein	0.29	U	ug/m3	0.29	3.4
		PMC-IN-49-072517	IA	N	42941.4201	Acrylonitrile	0.29	U	ug/m3	0.29	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Allyl chloride	0.13	U	ug/m3	0.13	0.17
		PMC-IN-49-072517	IA	N	42941.4201	alpha-Pinene	1.7	=	ug/m3	0.24	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Benzene	0.21	=	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Benzyl chloride	0.19	U	ug/m3	0.19	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Bromodichloromethane	0.22	=	ug/m3	0.12	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Bromoform	0.26	U	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Bromomethane	0.16	U	ug/m3	0.16	0.34
		PMC-IN-49-072517	IA	N	42941.4201	Carbon Disulfide	0.26	U	ug/m3	0.26	8.6
		PMC-IN-49-072517	IA	N	42941.4201	Carbon tetrachloride	0.34	=	ug/m3	0.15	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Chlorobenzene	0.14	U	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Chloroethane	0.15	U	ug/m3	0.15	0.34
		PMC-IN-49-072517	IA	N	42941.4201	Chloroform	0.63	=	ug/m3	0.15	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Chloromethane	0.29	J	ug/m3	0.24	0.34
		PMC-IN-49-072517	IA	N	42941.4201	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	cis-1,3-Dichloropropene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Cyclohexane	0.5	U	ug/m3	0.5	1.7
		PMC-IN-49-072517	IA	N	42941.4201	Dichlorodifluoromethane	2	=	ug/m3	0.29	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Dichloromethane	0.49	J	ug/m3	0.29	0.86
		PMC-IN-49-072517	IA	N	42941.4201	D-Limonene	7.6	=	ug/m3	0.24	0.86
		PMC-IN-49-072517	IA	N	42941.4201	ETHANOL	170	=	ug/m3	1.4	8.6
		PMC-IN-49-072517	IA	N	42941.4201	Ethyl acetate	16	=	ug/m3	0.6	1.7
		PMC-IN-49-072517	IA	N	42941.4201	Ethylbenzene	0.3	J	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Hexachlorobutadiene	0.24	U	ug/m3	0.24	0.86
		PMC-IN-49-072517	IA	N	42941.4201	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.72	U	ug/m3	0.72	8.6
		PMC-IN-49-072517	IA	N	42941.4201	Isopropylbenzene	0.26	U	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Methyl methacrylate	0.53	U	ug/m3	0.53	1.7
		PMC-IN-49-072517	IA	N	42941.4201	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Naphthalene	0.32	J	ug/m3	0.31	0.86
		PMC-IN-49-072517	IA	N	42941.4201	N-Butyl Acetate	0.54	J	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	N-HEPTANE	0.29	U	ug/m3	0.29	0.86
		PMC-IN-49-072517	IA	N	42941.4201	n-Hexane	0.28	J	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Nonane	0.26	U	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	n-Propylbenzene	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	OCTANE	0.31	U	ug/m3	0.31	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Propene	21	=	ug/m3	0.24	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Styrene	0.26	U	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Tetrachloroethene	0.12	U	ug/m3	0.12	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Tetrahydrofuran	0.34	U	ug/m3	0.34	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Toluene	1.4	=	ug/m3	0.29	0.86
		PMC-IN-49-072517	IA	N	42941.4201	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	trans-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Trichloroethylene	0.15	U	ug/m3	0.15	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Trichlorofluoromethane	0.98	=	ug/m3	0.097	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-49-072517	IA	N	42941.4201	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Vinyl Acetate	1.1	U	ug/m3	1.1	8.6
		PMC-IN-49-072517	IA	N	42941.4201	Vinyl Chloride	0.16	U	ug/m3	0.16	0.17
		PMC-IN-49-072517	IA	N	42941.4201	Xylene, o	0.4	J	ug/m3	0.26	0.86
		PMC-IN-49-072517	IA	N	42941.4201	Xylenes, m & p	0.5	U	ug/m3	0.5	0.86
		PMC-IN-50-020718	IA	N	43138.3931	1,1,1-Trichloroethane	0.0096	J	ug/m3	0.0089	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-50-020718	IA	N	43138.3931	1,1-Dichloroethane	0.0092	U	ug/m3	0.0092	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.76
		PMC-IN-50-020718	IA	N	43138.3931	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.076
		PMC-IN-50-020718	IA	N	43138.3931	1,2,4-Trimethylbenzene	0.1	J	ug/m3	0.013	0.15
		PMC-IN-50-020718	IA	N	43138.3931	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,2-Dichloroethane	0.07	=	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,2-Dichloropropane	0.023	J	ug/m3	0.011	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,3,5-Trimethylbenzene	0.033	J	ug/m3	0.011	0.15
		PMC-IN-50-020718	IA	N	43138.3931	1,3-Butadiene	0.021	U	ug/m3	0.021	0.076
		PMC-IN-50-020718	IA	N	43138.3931	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.038
		PMC-IN-50-020718	IA	N	43138.3931	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
		PMC-IN-50-020718	IA	N	43138.3931	2-Butanone	0.43	J	ug/m3	0.32	7.6
		PMC-IN-50-020718	IA	N	43138.3931	2-Hexanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-50-020718	IA	N	43138.3931	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Acetone	6.6	=	ug/m3	0.085	3.8
		PMC-IN-50-020718	IA	N	43138.3931	Acetonitrile	0.27	U	ug/m3	0.27	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Acrolein	0.32	=	ug/m3	0.059	0.3
		PMC-IN-50-020718	IA	N	43138.3931	Acrylonitrile	0.26	U	ug/m3	0.26	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Benzene	0.85	=	ug/m3	0.03	0.11
		PMC-IN-50-020718	IA	N	43138.3931	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-50-020718	IA	N	43138.3931	Bromodichloromethane	0.057	=	ug/m3	0.01	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Bromoform	0.23	U	ug/m3	0.23	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Bromomethane	0.022	J	ug/m3	0.014	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Carbon Disulfide	0.23	U	ug/m3	0.23	7.6
		PMC-IN-50-020718	IA	N	43138.3931	CHLORODIFLUOROMETHANE	0.38	U	ug/m3	0.38	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Chloroethane	0.013	U	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Chloroform	0.19	=	ug/m3	0.027	0.15
		PMC-IN-50-020718	IA	N	43138.3931	Chloromethane	0.42	=	ug/m3	0.029	0.076
		PMC-IN-50-020718	IA	N	43138.3931	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-50-020718	IA	N	43138.3931	cis-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Cyclohexane	0.44	U	ug/m3	0.44	1.5
		PMC-IN-50-020718	IA	N	43138.3931	Dichlorodifluoromethane	2	=	ug/m3	0.026	0.076
		PMC-IN-50-020718	IA	N	43138.3931	Dichloromethane	0.22	=	ug/m3	0.02	0.15
		PMC-IN-50-020718	IA	N	43138.3931	ETHANOL	620	=	ug/m3	1.2	7.6
		PMC-IN-50-020718	IA	N	43138.3931	Ethylbenzene	0.14	J	ug/m3	0.015	0.15
		PMC-IN-50-020718	IA	N	43138.3931	Freon 113	0.36	=	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.69	J	ug/m3	0.63	7.6

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-50-020718	IA	N	43138.3931	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-50-020718	IA	N	43138.3931	n-Butanol	0.72	U	ug/m3	0.72	1.5
		PMC-IN-50-020718	IA	N	43138.3931	n-Hexane	0.25	J	ug/m3	0.23	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Propene	0.49	J	ug/m3	0.21	0.76
		PMC-IN-50-020718	IA	N	43138.3931	Styrene	0.057	J	ug/m3	0.011	0.15
		PMC-IN-50-020718	IA	N	43138.3931	Tetrachloroethene	0.036	J	ug/m3	0.012	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Toluene	0.8	=	ug/m3	0.017	0.15
		PMC-IN-50-020718	IA	N	43138.3931	trans-1,3-Dichloropropene	0.0083	U	ug/m3	0.0083	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Trichloroethylene	0.013	J	ug/m3	0.013	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Trichlorofluoromethane	1	=	ug/m3	0.023	0.076
		PMC-IN-50-020718	IA	N	43138.3931	Vinyl Acetate	0.98	U	ug/m3	0.98	7.6
		PMC-IN-50-020718	IA	N	43138.3931	Vinyl Chloride	0.011	U	ug/m3	0.011	0.038
		PMC-IN-50-020718	IA	N	43138.3931	Xylene, o	0.15	J	ug/m3	0.013	0.15
		PMC-IN-50-020718	IA	N	43138.3931	Xylenes, m & p	0.4	=	ug/m3	0.029	0.15
		PMC-IN-50-060317	IA	N	42889	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-50-060317	IA	N	42889	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-50-060317	IA	N	42889	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-50-060317	IA	N	42889	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	1,2,4-Trimethylbenzene	0.3	J	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.94
		PMC-IN-50-060317	IA	N	42889	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.94
		PMC-IN-50-060317	IA	N	42889	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	1,2-Dichloroethane	0.25	=	ug/m3	0.12	0.19
		PMC-IN-50-060317	IA	N	42889	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	1,3-Butadiene	0.26	U	ug/m3	0.26	0.37
		PMC-IN-50-060317	IA	N	42889	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-50-060317	IA	N	42889	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-50-060317	IA	N	42889	1,4-Dioxane	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	2-Butanone	0.39	U	ug/m3	0.39	9.4
		PMC-IN-50-060317	IA	N	42889	2-Hexanone	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	4-Ethyltoluene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	4-Methyl-2-Pentanone	0.35	J	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	Acetone	44	=	ug/m3	1.4	9.4
		PMC-IN-50-060317	IA	N	42889	Acetonitrile	0.34	U	ug/m3	0.34	0.94
		PMC-IN-50-060317	IA	N	42889	Acrolein	0.32	U	ug/m3	0.32	3.7
		PMC-IN-50-060317	IA	N	42889	Acrylonitrile	0.32	U	ug/m3	0.32	0.94
		PMC-IN-50-060317	IA	N	42889	Allyl chloride	0.14	U	ug/m3	0.14	0.19
		PMC-IN-50-060317	IA	N	42889	alpha-Pinene	7.3	=	ug/m3	0.26	0.94
		PMC-IN-50-060317	IA	N	42889	Benzene	0.65	=	ug/m3	0.15	0.19
		PMC-IN-50-060317	IA	N	42889	Benzyl chloride	0.21	U	ug/m3	0.21	0.94
		PMC-IN-50-060317	IA	N	42889	Bromodichloromethane	0.15	J	ug/m3	0.13	0.19
		PMC-IN-50-060317	IA	N	42889	Bromoform	0.28	U	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	Bromomethane	0.17	U	ug/m3	0.17	0.37
		PMC-IN-50-060317	IA	N	42889	Carbon Disulfide	0.28	U	ug/m3	0.28	9.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-50-060317	IA	N	42889	Carbon tetrachloride	0.38	=	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-50-060317	IA	N	42889	Chloroethane	0.16	U	ug/m3	0.16	0.37
		PMC-IN-50-060317	IA	N	42889	Chloroform	0.32	=	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	Chloromethane	0.54	=	ug/m3	0.26	0.38
		PMC-IN-50-060317	IA	N	42889	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	cis-1,3-Dichloropropene	0.26	U	ug/m3	0.26	0.94
		PMC-IN-50-060317	IA	N	42889	Cyclohexane	0.54	U	ug/m3	0.54	1.9
		PMC-IN-50-060317	IA	N	42889	Dichlorodifluoromethane	2.1	=	ug/m3	0.32	0.94
		PMC-IN-50-060317	IA	N	42889	Dichloromethane	0.37	J	ug/m3	0.32	0.94
		PMC-IN-50-060317	IA	N	42889	D-Limonene	10	=	ug/m3	0.26	0.94
		PMC-IN-50-060317	IA	N	42889	ETHANOL	2100	=	ug/m3	15	94
		PMC-IN-50-060317	IA	N	42889	Ethyl acetate	3.9	=	ug/m3	0.65	1.9
		PMC-IN-50-060317	IA	N	42889	Ethylbenzene	0.32	J	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	Hexachlorobutadiene	0.26	U	ug/m3	0.26	0.94
		PMC-IN-50-060317	IA	N	42889	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.79	U	ug/m3	0.79	9.4
		PMC-IN-50-060317	IA	N	42889	Isopropylbenzene	0.28	U	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	Methyl methacrylate	0.58	U	ug/m3	0.58	1.9
		PMC-IN-50-060317	IA	N	42889	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	Naphthalene	0.48	J	ug/m3	0.34	0.94
		PMC-IN-50-060317	IA	N	42889	N-Butyl Acetate	0.98	=	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	N-HEPTANE	0.56	J	ug/m3	0.32	0.94
		PMC-IN-50-060317	IA	N	42889	n-Hexane	1.5	J	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	Nonane	0.28	U	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	n-Propylbenzene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	OCTANE	0.34	U	ug/m3	0.34	0.94
		PMC-IN-50-060317	IA	N	42889	Propene	0.26	U	ug/m3	0.26	0.94
		PMC-IN-50-060317	IA	N	42889	Styrene	0.33	J	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	Tetrachloroethene	0.13	U	ug/m3	0.13	0.19
		PMC-IN-50-060317	IA	N	42889	Tetrahydrofuran	0.37	U	ug/m3	0.37	0.94
		PMC-IN-50-060317	IA	N	42889	Toluene	2.3	=	ug/m3	0.32	0.94
		PMC-IN-50-060317	IA	N	42889	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.94
		PMC-IN-50-060317	IA	N	42889	Trichloroethylene	0.26	=	ug/m3	0.17	0.19
		PMC-IN-50-060317	IA	N	42889	Trichlorofluoromethane	1.1	=	ug/m3	0.11	0.19
		PMC-IN-50-060317	IA	N	42889	Trichlorotrifuoroethane	0.45	=	ug/m3	0.15	0.19
		PMC-IN-50-060317	IA	N	42889	Vinyl Acetate	1.2	U	ug/m3	1.2	9.4
		PMC-IN-50-060317	IA	N	42889	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-50-060317	IA	N	42889	Xylene, o	0.32	J	ug/m3	0.28	0.94
		PMC-IN-50-060317	IA	N	42889	Xylenes, m & p	0.86	J	ug/m3	0.55	0.94
		PMC-IN-50-01-110818	IA	N	43412.5243	1,1,1-Trichloroethane	0.0095	J	ug/m3	0.0092	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	1,1-Dichloroethane	0.0095	U	ug/m3	0.0095	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2,3-Trimethylbenzene	0.11	U	ug/m3	0.11	0.81
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.078

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-50-01-110818	IA	N	43412.5243	1,2,4-Trimethylbenzene	0.21	=	ug/m3	0.013	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2-Dichloroethane	0.15	=	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,2-Dichloropropane	0.016	J	ug/m3	0.011	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,3,5-Trimethylbenzene	0.056	J	ug/m3	0.011	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	1,3-Butadiene	0.026	J	ug/m3	0.022	0.078
		PMC-IN-50-01-110818	IA	N	43412.5243	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,4-Dichlorobenzene	0.12	=	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	1,4-Dioxane	0.023	J	ug/m3	0.013	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	2-Butanone	1	J	ug/m3	0.17	1.6
		PMC-IN-50-01-110818	IA	N	43412.5243	2-Hexanone	0.27	J	ug/m3	0.1	0.84
		PMC-IN-50-01-110818	IA	N	43412.5243	4-Methyl-2-Pentanone	0.11	U	ug/m3	0.11	0.83
		PMC-IN-50-01-110818	IA	N	43412.5243	Acetone	8.9	=	ug/m3	0.087	3.9
		PMC-IN-50-01-110818	IA	N	43412.5243	Acetonitrile	0.2	U	ug/m3	0.2	0.81
		PMC-IN-50-01-110818	IA	N	43412.5243	Acrolein	0.93	=	ug/m3	0.061	0.31
		PMC-IN-50-01-110818	IA	N	43412.5243	Acrylonitrile	0.17	U	ug/m3	0.17	0.81
		PMC-IN-50-01-110818	IA	N	43412.5243	Benzene	0.25	=	ug/m3	0.031	0.12
		PMC-IN-50-01-110818	IA	N	43412.5243	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
		PMC-IN-50-01-110818	IA	N	43412.5243	Bromodichloromethane	0.16	=	ug/m3	0.011	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Bromoform	0.17	U	ug/m3	0.17	0.83
		PMC-IN-50-01-110818	IA	N	43412.5243	Bromomethane	0.032	J	ug/m3	0.015	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
		PMC-IN-50-01-110818	IA	N	43412.5243	CHLORODIFLUOROMETHANE	0.47	J	ug/m3	0.39	0.78
		PMC-IN-50-01-110818	IA	N	43412.5243	Chloroethane	0.018	J	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Chloroform	0.4	=	ug/m3	0.028	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	Chloromethane	0.37	=	ug/m3	0.03	0.078
		PMC-IN-50-01-110818	IA	N	43412.5243	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	cis-1,3-Dichloropropene	0.0097	U	ug/m3	0.0097	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Cyclohexane	0.23	U	ug/m3	0.23	1.6
		PMC-IN-50-01-110818	IA	N	43412.5243	Dichlorodifluoromethane	2	=	ug/m3	0.027	0.078
		PMC-IN-50-01-110818	IA	N	43412.5243	Dichloromethane	0.17	=	ug/m3	0.02	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	ETHANOL	240	=	ug/m3	0.58	8
		PMC-IN-50-01-110818	IA	N	43412.5243	Ethylbenzene	0.13	J	ug/m3	0.015	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.34	U	ug/m3	0.34	3.3
		PMC-IN-50-01-110818	IA	N	43412.5243	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	n-Butanol	2	=	ug/m3	0.22	1.6
		PMC-IN-50-01-110818	IA	N	43412.5243	n-Hexane	0.21	J	ug/m3	0.17	0.84
		PMC-IN-50-01-110818	IA	N	43412.5243	Propene	0.8	J	ug/m3	0.2	0.81
		PMC-IN-50-01-110818	IA	N	43412.5243	Styrene	0.23	=	ug/m3	0.012	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	Tetrachloroethene	0.034	J	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Toluene	1.8	=	ug/m3	0.017	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	trans-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Trichloroethylene	0.026	J	ug/m3	0.013	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Trichlorofluoromethane	1.1	=	ug/m3	0.023	0.078
		PMC-IN-50-01-110818	IA	N	43412.5243	Trichlorotrifuoroethane	0.38	=	ug/m3	0.014	0.039
		PMC-IN-50-01-110818	IA	N	43412.5243	Vinyl Acetate	1.9	J	ug/m3	1.9	8.3
		PMC-IN-50-01-110818	IA	N	43412.5243	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-50-01-110818	IA	N	43412.5243	Xylene, o	0.18	=	ug/m3	0.014	0.16
		PMC-IN-50-01-110818	IA	N	43412.5243	Xylenes, m & p	0.36	=	ug/m3	0.03	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	1,1,1-Trichloroethane	0.0093	U	ug/m3	0.0093	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	1,1-Dichloroethane	0.0096	U	ug/m3	0.0096	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,2,3-Trimethylbenzene	0.12	U	ug/m3	0.12	0.82
		PMC-IN-50-02-110818	IA	N	43412.525	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.079
		PMC-IN-50-02-110818	IA	N	43412.525	1,2,4-Trimethylbenzene	0.11	J	ug/m3	0.013	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,2-Dichloroethane	0.05	=	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,2-Dichloropropane	0.015	J	ug/m3	0.012	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,3,5-Trimethylbenzene	0.03	J	ug/m3	0.012	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	1,3-Butadiene	0.022	U	ug/m3	0.022	0.079
		PMC-IN-50-02-110818	IA	N	43412.525	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,4-Dichlorobenzene	0.058	=	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	1,4-Dioxane	0.013	U	ug/m3	0.013	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	2-Butanone	0.37	J	ug/m3	0.17	1.6
		PMC-IN-50-02-110818	IA	N	43412.525	2-Hexanone	0.1	U	ug/m3	0.1	0.85
		PMC-IN-50-02-110818	IA	N	43412.525	4-Methyl-2-Pentanone	0.34	J	ug/m3	0.12	0.84
		PMC-IN-50-02-110818	IA	N	43412.525	Acetone	4	U	ug/m3	0.088	4
		PMC-IN-50-02-110818	IA	N	43412.525	Acetonitrile	0.21	U	ug/m3	0.21	0.82
		PMC-IN-50-02-110818	IA	N	43412.525	Acrolein	0.42	=	ug/m3	0.062	0.32
		PMC-IN-50-02-110818	IA	N	43412.525	Acrylonitrile	0.17	U	ug/m3	0.17	0.82
		PMC-IN-50-02-110818	IA	N	43412.525	Benzene	0.21	=	ug/m3	0.032	0.12
		PMC-IN-50-02-110818	IA	N	43412.525	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
		PMC-IN-50-02-110818	IA	N	43412.525	Bromodichloromethane	0.011	U	ug/m3	0.011	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Bromoform	0.17	U	ug/m3	0.17	0.84
		PMC-IN-50-02-110818	IA	N	43412.525	Bromomethane	0.026	J	ug/m3	0.015	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
		PMC-IN-50-02-110818	IA	N	43412.525	CHLORODIFLUOROMETHANE	0.55	J	ug/m3	0.4	0.79
		PMC-IN-50-02-110818	IA	N	43412.525	Chloroethane	0.013	U	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Chloroform	0.11	J	ug/m3	0.028	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	Chloromethane	0.35	=	ug/m3	0.03	0.079
		PMC-IN-50-02-110818	IA	N	43412.525	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	cis-1,3-Dichloropropene	0.0098	U	ug/m3	0.0098	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Cyclohexane	0.24	U	ug/m3	0.24	1.6
		PMC-IN-50-02-110818	IA	N	43412.525	Dichlorodifluoromethane	2	=	ug/m3	0.027	0.079
		PMC-IN-50-02-110818	IA	N	43412.525	Dichloromethane	0.18	=	ug/m3	0.021	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	ETHANOL	5.5	J	ug/m3	0.58	8.1
		PMC-IN-50-02-110818	IA	N	43412.525	Ethylbenzene	0.07	J	ug/m3	0.015	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	J	ug/m3	0.35	3.3
		PMC-IN-50-02-110818	IA	N	43412.525	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	n-Butanol	0.63	J	ug/m3	0.22	1.6
		PMC-IN-50-02-110818	IA	N	43412.525	n-Hexane	0.43	J	ug/m3	0.17	0.85
		PMC-IN-50-02-110818	IA	N	43412.525	Propene	0.44	J	ug/m3	0.21	0.82

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		PMC-IN-50-02-110818	IA	N	43412.525	Styrene	0.053	J	ug/m3	0.012	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	Tetrachloroethene	0.045	=	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Toluene	1.5	=	ug/m3	0.017	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	trans-1,3-Dichloropropene	0.0087	U	ug/m3	0.0087	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Trichloroethylene	0.016	J	ug/m3	0.013	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Trichlorofluoromethane	1	=	ug/m3	0.024	0.079
		PMC-IN-50-02-110818	IA	N	43412.525	Trichlorotrifuoroethane	0.4	=	ug/m3	0.014	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Vinyl Acetate	1.9	U	ug/m3	1.9	8.4
		PMC-IN-50-02-110818	IA	N	43412.525	Vinyl Chloride	0.012	U	ug/m3	0.012	0.04
		PMC-IN-50-02-110818	IA	N	43412.525	Xylene, o	0.1	J	ug/m3	0.014	0.16
		PMC-IN-50-02-110818	IA	N	43412.525	Xylenes, m & p	0.24	=	ug/m3	0.03	0.16
		PMC-IN-51-020718	IA	N	43138.6854	1,1,1-Trichloroethane	0.011	J	ug/m3	0.0091	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-51-020718	IA	N	43138.6854	1,1-Dichloroethane	0.0094	U	ug/m3	0.0094	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.77
		PMC-IN-51-020718	IA	N	43138.6854	1,2,4-Trichlorobenzene	0.028	J	ug/m3	0.02	0.077
		PMC-IN-51-020718	IA	N	43138.6854	1,2,4-Trimethylbenzene	0.13	J	ug/m3	0.013	0.15
		PMC-IN-51-020718	IA	N	43138.6854	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,2-Dichloroethane	0.072	=	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,2-Dichloropropane	0.053	=	ug/m3	0.011	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,3,5-Trimethylbenzene	0.039	J	ug/m3	0.011	0.15
		PMC-IN-51-020718	IA	N	43138.6854	1,3-Butadiene	0.05	J	ug/m3	0.022	0.077
		PMC-IN-51-020718	IA	N	43138.6854	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,4-Dichlorobenzene	0.019	J	ug/m3	0.012	0.039
		PMC-IN-51-020718	IA	N	43138.6854	1,4-Dioxane	0.014	J	ug/m3	0.013	0.15
		PMC-IN-51-020718	IA	N	43138.6854	2-Butanone	0.5	J	ug/m3	0.32	7.7
		PMC-IN-51-020718	IA	N	43138.6854	2-Hexanone	0.25	U	ug/m3	0.25	0.77
		PMC-IN-51-020718	IA	N	43138.6854	4-Methyl-2-Pentanone	0.25	U	ug/m3	0.25	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Acetone	8.8	=	ug/m3	0.086	3.9
		PMC-IN-51-020718	IA	N	43138.6854	Acetonitrile	0.28	U	ug/m3	0.28	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Acrolein	0.36	=	ug/m3	0.06	0.31
		PMC-IN-51-020718	IA	N	43138.6854	Acrylonitrile	0.26	U	ug/m3	0.26	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Benzene	0.83	=	ug/m3	0.031	0.12
		PMC-IN-51-020718	IA	N	43138.6854	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-51-020718	IA	N	43138.6854	Bromodichloromethane	0.19	=	ug/m3	0.011	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Bromoform	0.23	U	ug/m3	0.23	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Bromomethane	0.021	J	ug/m3	0.014	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Carbon Disulfide	0.23	U	ug/m3	0.23	7.7
		PMC-IN-51-020718	IA	N	43138.6854	CHLORODIFLUOROMETHANE	0.65	J	ug/m3	0.39	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Chloroethane	0.013	U	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Chloroform	0.48	=	ug/m3	0.028	0.15
		PMC-IN-51-020718	IA	N	43138.6854	Chloromethane	0.42	=	ug/m3	0.029	0.077
		PMC-IN-51-020718	IA	N	43138.6854	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
		PMC-IN-51-020718	IA	N	43138.6854	cis-1,3-Dichloropropene	0.0095	U	ug/m3	0.0095	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Cyclohexane	0.45	U	ug/m3	0.45	1.5

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-51-020718	IA	N	43138.6854	Dichlorodifluoromethane	2	=	ug/m3	0.026	0.077
		PMC-IN-51-020718	IA	N	43138.6854	Dichloromethane	0.28	=	ug/m3	0.02	0.15
		PMC-IN-51-020718	IA	N	43138.6854	ETHANOL	120	=	ug/m3	1.2	7.7
		PMC-IN-51-020718	IA	N	43138.6854	Ethylbenzene	0.16	=	ug/m3	0.015	0.15
		PMC-IN-51-020718	IA	N	43138.6854	Freon 113	0.33	=	ug/m3	0.014	0.039
		PMC-IN-51-020718	IA	N	43138.6854	ISOPROPYL ALCOHOL (ISOPROPANOL)	20	=	ug/m3	0.65	7.7
		PMC-IN-51-020718	IA	N	43138.6854	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.039
		PMC-IN-51-020718	IA	N	43138.6854	n-Butanol	0.74	U	ug/m3	0.74	1.5
		PMC-IN-51-020718	IA	N	43138.6854	n-Hexane	0.29	J	ug/m3	0.23	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Propene	5	=	ug/m3	0.22	0.77
		PMC-IN-51-020718	IA	N	43138.6854	Styrene	0.1	J	ug/m3	0.011	0.15
		PMC-IN-51-020718	IA	N	43138.6854	Tetrachloroethene	0.063	=	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Toluene	0.93	=	ug/m3	0.017	0.15
		PMC-IN-51-020718	IA	N	43138.6854	trans-1,3-Dichloropropene	0.0085	U	ug/m3	0.0085	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Trichloroethylene	0.026	J	ug/m3	0.013	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Trichlorofluoromethane	0.91	=	ug/m3	0.023	0.077
		PMC-IN-51-020718	IA	N	43138.6854	Vinyl Acetate	2.2	J	ug/m3	1	7.7
		PMC-IN-51-020718	IA	N	43138.6854	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
		PMC-IN-51-020718	IA	N	43138.6854	Xylene, o	0.14	J	ug/m3	0.014	0.15
		PMC-IN-51-020718	IA	N	43138.6854	Xylenes, m & p	0.37	=	ug/m3	0.029	0.15
		PMC-IN-51-060617	IA	N	42892	1,1,1-Trichloroethane	0.13	U	ug/m3	0.13	0.18
		PMC-IN-51-060617	IA	N	42892	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-51-060617	IA	N	42892	1,2,4-Trichlorobenzene	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	1,2,4-Trimethylbenzene	0.39	J	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	1,2-Dibromo-3-chloropropane	0.18	U	ug/m3	0.18	0.9
		PMC-IN-51-060617	IA	N	42892	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.34	U	ug/m3	0.34	0.9
		PMC-IN-51-060617	IA	N	42892	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.18
		PMC-IN-51-060617	IA	N	42892	1,2-Dichloroethane	0.17	J	ug/m3	0.11	0.18
		PMC-IN-51-060617	IA	N	42892	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	1,3,5-Trimethylbenzene	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	1,3-Butadiene	0.25	U	ug/m3	0.25	0.36
		PMC-IN-51-060617	IA	N	42892	1,3-Dichlorobenzene	0.13	U	ug/m3	0.13	0.18
		PMC-IN-51-060617	IA	N	42892	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	1,4-Dioxane	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	2-Butanone	0.38	U	ug/m3	0.38	9
		PMC-IN-51-060617	IA	N	42892	2-Hexanone	0.3	J	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	4-Ethyltoluene	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	Acetone	44	=	ug/m3	1.4	9
		PMC-IN-51-060617	IA	N	42892	Acetonitrile	0.32	U	ug/m3	0.32	0.9
		PMC-IN-51-060617	IA	N	42892	Acrolein	0.3	U	ug/m3	0.3	3.6
		PMC-IN-51-060617	IA	N	42892	Acrylonitrile	0.3	U	ug/m3	0.3	0.9
		PMC-IN-51-060617	IA	N	42892	Allyl chloride	0.14	U	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	alpha-Pinene	6.7	=	ug/m3	0.25	0.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-51-060617	IA	N	42892	Benzene	0.33	=	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	Benzyl chloride	0.2	U	ug/m3	0.2	0.9
		PMC-IN-51-060617	IA	N	42892	Bromodichloromethane	0.46	=	ug/m3	0.12	0.18
		PMC-IN-51-060617	IA	N	42892	Bromoform	0.27	U	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	Bromomethane	0.17	U	ug/m3	0.17	0.36
		PMC-IN-51-060617	IA	N	42892	Carbon Disulfide	0.27	U	ug/m3	0.27	9
		PMC-IN-51-060617	IA	N	42892	Carbon tetrachloride	0.38	=	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	Chlorobenzene	0.15	U	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	Chlorodibromomethane	0.2	=	ug/m3	0.15	0.18
		PMC-IN-51-060617	IA	N	42892	Chloroethane	0.16	U	ug/m3	0.16	0.36
		PMC-IN-51-060617	IA	N	42892	Chloroform	1.4	=	ug/m3	0.16	0.18
		PMC-IN-51-060617	IA	N	42892	Chloromethane	0.4	=	ug/m3	0.25	0.36
		PMC-IN-51-060617	IA	N	42892	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-51-060617	IA	N	42892	cis-1,3-Dichloropropene	0.25	U	ug/m3	0.25	0.9
		PMC-IN-51-060617	IA	N	42892	Cyclohexane	0.52	U	ug/m3	0.52	1.8
		PMC-IN-51-060617	IA	N	42892	Dichlorodifluoromethane	2.1	=	ug/m3	0.3	0.9
		PMC-IN-51-060617	IA	N	42892	Dichloromethane	0.51	J	ug/m3	0.3	0.9
		PMC-IN-51-060617	IA	N	42892	D-Limonene	63	=	ug/m3	0.25	0.9
		PMC-IN-51-060617	IA	N	42892	ETHANOL	1600	=	ug/m3	14	90
		PMC-IN-51-060617	IA	N	42892	Ethyl acetate	34	=	ug/m3	0.63	1.8
		PMC-IN-51-060617	IA	N	42892	Ethylbenzene	0.39	J	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	Hexachlorobutadiene	0.25	U	ug/m3	0.25	0.9
		PMC-IN-51-060617	IA	N	42892	ISOPROPYL ALCOHOL (ISOPROPANOL)	16	=	ug/m3	0.75	9
		PMC-IN-51-060617	IA	N	42892	Isopropylbenzene	0.27	U	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	Methyl methacrylate	0.55	U	ug/m3	0.55	1.8
		PMC-IN-51-060617	IA	N	42892	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.18
		PMC-IN-51-060617	IA	N	42892	Naphthalene	0.32	U	ug/m3	0.32	0.9
		PMC-IN-51-060617	IA	N	42892	N-Butyl Acetate	17	=	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	N-HEPTANE	0.56	J	ug/m3	0.3	0.9
		PMC-IN-51-060617	IA	N	42892	n-Hexane	0.57	J	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	Nonane	0.27	U	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	n-Propylbenzene	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	OCTANE	0.39	J	ug/m3	0.32	0.9
		PMC-IN-51-060617	IA	N	42892	Propene	4.2	=	ug/m3	0.25	0.9
		PMC-IN-51-060617	IA	N	42892	Styrene	0.38	J	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	Tetrachloroethene	0.14	J	ug/m3	0.13	0.18
		PMC-IN-51-060617	IA	N	42892	Tetrahydrofuran	0.36	U	ug/m3	0.36	0.9
		PMC-IN-51-060617	IA	N	42892	Toluene	2.5	=	ug/m3	0.3	0.9
		PMC-IN-51-060617	IA	N	42892	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-51-060617	IA	N	42892	trans-1,3-Dichloropropene	0.29	U	ug/m3	0.29	0.9
		PMC-IN-51-060617	IA	N	42892	Trichloroethylene	0.16	U	ug/m3	0.16	0.18
		PMC-IN-51-060617	IA	N	42892	Trichlorofluoromethane	1.1	=	ug/m3	0.1	0.18
		PMC-IN-51-060617	IA	N	42892	Trichlorotrifuoroethane	0.45	=	ug/m3	0.14	0.18
		PMC-IN-51-060617	IA	N	42892	Vinyl Acetate	1.2	U	ug/m3	1.2	9
		PMC-IN-51-060617	IA	N	42892	Vinyl Chloride	0.17	U	ug/m3	0.17	0.18
		PMC-IN-51-060617	IA	N	42892	Xylene, o	0.35	J	ug/m3	0.27	0.9
		PMC-IN-51-060617	IA	N	42892	Xylenes, m & p	0.96	=	ug/m3	0.52	0.9
		PMC-IN-52-020918	IA	N	43140.4063	1,1,1-Trichloroethane	0.01	J	ug/m3	0.009	0.038

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-52-020918	IA	N	43140.4063	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.15
		PMC-IN-52-020918	IA	N	43140.4063	1,1-Dichloroethane	0.0093	U	ug/m3	0.0093	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,2,3-Trimethylbenzene	0.23	U	ug/m3	0.23	0.76
		PMC-IN-52-020918	IA	N	43140.4063	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.076
		PMC-IN-52-020918	IA	N	43140.4063	1,2,4-Trimethylbenzene	0.3	=	ug/m3	0.013	0.15
		PMC-IN-52-020918	IA	N	43140.4063	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,2-Dichloroethane	0.1	=	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,2-Dichloropropane	0.021	J	ug/m3	0.011	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,3,5-Trimethylbenzene	0.09	J	ug/m3	0.011	0.15
		PMC-IN-52-020918	IA	N	43140.4063	1,3-Butadiene	0.086	=	ug/m3	0.021	0.076
		PMC-IN-52-020918	IA	N	43140.4063	1,3-Dichlorobenzene	0.049	=	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,4-Dichlorobenzene	0.012	U	ug/m3	0.012	0.038
		PMC-IN-52-020918	IA	N	43140.4063	1,4-Dioxane	0.013	U	ug/m3	0.013	0.15
		PMC-IN-52-020918	IA	N	43140.4063	2-Butanone	0.62	J	ug/m3	0.32	7.6
		PMC-IN-52-020918	IA	N	43140.4063	2-Hexanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-52-020918	IA	N	43140.4063	4-Methyl-2-Pentanone	0.24	U	ug/m3	0.24	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Acetone	8	=	ug/m3	0.085	3.8
		PMC-IN-52-020918	IA	N	43140.4063	Acetonitrile	0.27	U	ug/m3	0.27	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Acrolein	0.7	=	ug/m3	0.059	0.3
		PMC-IN-52-020918	IA	N	43140.4063	Acrylonitrile	0.26	U	ug/m3	0.26	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Benzene	1.1	=	ug/m3	0.03	0.11
		PMC-IN-52-020918	IA	N	43140.4063	Benzyl chloride	0.17	U	ug/m3	0.17	1.5
		PMC-IN-52-020918	IA	N	43140.4063	Bromodichloromethane	0.095	=	ug/m3	0.01	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Bromoform	0.23	U	ug/m3	0.23	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Bromomethane	0.019	J	ug/m3	0.014	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Carbon Disulfide	0.23	U	ug/m3	0.23	7.6
		PMC-IN-52-020918	IA	N	43140.4063	CHLORODIFLUOROMETHANE	2.5	=	ug/m3	0.38	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Chloroethane	0.013	U	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Chloroform	0.24	=	ug/m3	0.027	0.15
		PMC-IN-52-020918	IA	N	43140.4063	Chloromethane	0.42	=	ug/m3	0.029	0.076
		PMC-IN-52-020918	IA	N	43140.4063	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.038
		PMC-IN-52-020918	IA	N	43140.4063	cis-1,3-Dichloropropene	0.0094	U	ug/m3	0.0094	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Cyclohexane	0.44	U	ug/m3	0.44	1.5
		PMC-IN-52-020918	IA	N	43140.4063	Dichlorodifluoromethane	2.1	=	ug/m3	0.026	0.076
		PMC-IN-52-020918	IA	N	43140.4063	Dichloromethane	1.3	=	ug/m3	0.02	0.15
		PMC-IN-52-020918	IA	N	43140.4063	ETHANOL	92	=	ug/m3	1.2	7.6
		PMC-IN-52-020918	IA	N	43140.4063	Ethylbenzene	0.25	=	ug/m3	0.015	0.15
		PMC-IN-52-020918	IA	N	43140.4063	Freon 113	0.36	=	ug/m3	0.014	0.038
		PMC-IN-52-020918	IA	N	43140.4063	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	J	ug/m3	0.64	7.6
		PMC-IN-52-020918	IA	N	43140.4063	Methyl tert-butyl ether (MTBE)	0.014	U	ug/m3	0.014	0.038
		PMC-IN-52-020918	IA	N	43140.4063	n-Butanol	0.86	J	ug/m3	0.73	1.5
		PMC-IN-52-020918	IA	N	43140.4063	n-Hexane	1	=	ug/m3	0.23	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Propene	1.1	=	ug/m3	0.21	0.76
		PMC-IN-52-020918	IA	N	43140.4063	Styrene	0.064	J	ug/m3	0.011	0.15
		PMC-IN-52-020918	IA	N	43140.4063	Tetrachloroethene	0.032	J	ug/m3	0.012	0.038

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-52-020918	IA	N	43140.4063	Toluene	2.7	=	ug/m3	0.017	0.15
		PMC-IN-52-020918	IA	N	43140.4063	trans-1,3-Dichloropropene	0.0084	U	ug/m3	0.0084	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Trichloroethylene	0.013	U	ug/m3	0.013	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Trichlorofluoromethane	1	=	ug/m3	0.023	0.076
		PMC-IN-52-020918	IA	N	43140.4063	Vinyl Acetate	3.3	J	ug/m3	0.99	7.6
		PMC-IN-52-020918	IA	N	43140.4063	Vinyl Chloride	0.012	U	ug/m3	0.012	0.038
		PMC-IN-52-020918	IA	N	43140.4063	Xylene, o	0.29	=	ug/m3	0.014	0.15
		PMC-IN-52-020918	IA	N	43140.4063	Xylenes, m & p	0.75	=	ug/m3	0.029	0.15
		PMC-IN-52-060317	IA	N	42889	1,1,1-Trichloroethane	0.14	U	ug/m3	0.14	0.19
		PMC-IN-52-060317	IA	N	42889	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-52-060317	IA	N	42889	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.19
		PMC-IN-52-060317	IA	N	42889	1,1-Dichloroethene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-52-060317	IA	N	42889	1,2,4-Trichlorobenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	1,2,4-Trimethylbenzene	0.81	J	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	1,2-Dibromo-3-chloropropane	0.19	U	ug/m3	0.19	0.95
		PMC-IN-52-060317	IA	N	42889	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.36	U	ug/m3	0.36	0.95
		PMC-IN-52-060317	IA	N	42889	1,2-Dichlorobenzene	0.18	U	ug/m3	0.18	0.19
		PMC-IN-52-060317	IA	N	42889	1,2-Dichloroethane	0.27	=	ug/m3	0.12	0.19
		PMC-IN-52-060317	IA	N	42889	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	1,3-Butadiene	0.27	U	ug/m3	0.27	0.38
		PMC-IN-52-060317	IA	N	42889	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-52-060317	IA	N	42889	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-52-060317	IA	N	42889	1,4-Dioxane	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	2-Butanone	0.4	U	ug/m3	0.4	9.5
		PMC-IN-52-060317	IA	N	42889	2-Hexanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	4-Ethyltoluene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	Acetone	21	=	ug/m3	1.5	9.5
		PMC-IN-52-060317	IA	N	42889	Acetonitrile	0.34	U	ug/m3	0.34	0.95
		PMC-IN-52-060317	IA	N	42889	Acrolein	0.32	U	ug/m3	0.32	3.8
		PMC-IN-52-060317	IA	N	42889	Acrylonitrile	0.32	U	ug/m3	0.32	0.95
		PMC-IN-52-060317	IA	N	42889	Allyl chloride	0.14	U	ug/m3	0.14	0.19
		PMC-IN-52-060317	IA	N	42889	alpha-Pinene	1.3	=	ug/m3	0.27	0.95
		PMC-IN-52-060317	IA	N	42889	Benzene	1.5	=	ug/m3	0.15	0.19
		PMC-IN-52-060317	IA	N	42889	Benzyl chloride	0.21	U	ug/m3	0.21	0.95
		PMC-IN-52-060317	IA	N	42889	Bromodichloromethane	0.29	=	ug/m3	0.13	0.19
		PMC-IN-52-060317	IA	N	42889	Bromoform	0.29	U	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	Bromomethane	0.18	U	ug/m3	0.18	0.38
		PMC-IN-52-060317	IA	N	42889	Carbon Disulfide	0.29	U	ug/m3	0.29	9.5
		PMC-IN-52-060317	IA	N	42889	Carbon tetrachloride	0.38	=	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	Chlorobenzene	0.16	U	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.19
		PMC-IN-52-060317	IA	N	42889	Chloroethane	0.17	U	ug/m3	0.17	0.38
		PMC-IN-52-060317	IA	N	42889	Chloroform	0.55	=	ug/m3	0.17	0.19
		PMC-IN-52-060317	IA	N	42889	Chloromethane	0.37	J	ug/m3	0.27	0.38

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-52-060317	IA	N	42889	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-52-060317	IA	N	42889	cis-1,3-Dichloropropene	0.27	U	ug/m3	0.27	0.95
		PMC-IN-52-060317	IA	N	42889	Cyclohexane	0.97	J	ug/m3	0.55	1.9
		PMC-IN-52-060317	IA	N	42889	Dichlorodifluoromethane	2.1	=	ug/m3	0.32	0.95
		PMC-IN-52-060317	IA	N	42889	Dichloromethane	2.5	=	ug/m3	0.32	0.95
		PMC-IN-52-060317	IA	N	42889	D-Limonene	6.4	=	ug/m3	0.27	0.95
		PMC-IN-52-060317	IA	N	42889	ETHANOL	310	=	ug/m3	1.5	9.5
		PMC-IN-52-060317	IA	N	42889	Ethyl acetate	28	=	ug/m3	0.67	1.9
		PMC-IN-52-060317	IA	N	42889	Ethylbenzene	0.7	J	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	Hexachlorobutadiene	0.27	U	ug/m3	0.27	0.95
		PMC-IN-52-060317	IA	N	42889	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.6	J	ug/m3	0.8	9.5
		PMC-IN-52-060317	IA	N	42889	Isopropylbenzene	0.29	U	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	Methyl methacrylate	0.59	U	ug/m3	0.59	1.9
		PMC-IN-52-060317	IA	N	42889	Methyl tert-butyl ether (MTBE)	0.18	U	ug/m3	0.18	0.19
		PMC-IN-52-060317	IA	N	42889	Naphthalene	0.34	U	ug/m3	0.34	0.95
		PMC-IN-52-060317	IA	N	42889	N-Butyl Acetate	7.6	=	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	N-HEPTANE	1.5	=	ug/m3	0.32	0.95
		PMC-IN-52-060317	IA	N	42889	n-Hexane	7.5	=	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	Nonane	0.4	J	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	n-Propylbenzene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	OCTANE	0.43	J	ug/m3	0.34	0.95
		PMC-IN-52-060317	IA	N	42889	Propene	0.27	U	ug/m3	0.27	0.95
		PMC-IN-52-060317	IA	N	42889	Styrene	0.29	U	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	Tetrachloroethene	0.14	U	ug/m3	0.14	0.19
		PMC-IN-52-060317	IA	N	42889	Tetrahydrofuran	0.38	U	ug/m3	0.38	0.95
		PMC-IN-52-060317	IA	N	42889	Toluene	7.6	=	ug/m3	0.32	0.95
		PMC-IN-52-060317	IA	N	42889	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-52-060317	IA	N	42889	trans-1,3-Dichloropropene	0.3	U	ug/m3	0.3	0.95
		PMC-IN-52-060317	IA	N	42889	Trichloroethylene	0.17	U	ug/m3	0.17	0.19
		PMC-IN-52-060317	IA	N	42889	Trichlorofluoromethane	1	=	ug/m3	0.11	0.19
		PMC-IN-52-060317	IA	N	42889	Trichlorotrifuoroethane	0.43	=	ug/m3	0.15	0.19
		PMC-IN-52-060317	IA	N	42889	Vinyl Acetate	1.2	U	ug/m3	1.2	9.5
		PMC-IN-52-060317	IA	N	42889	Vinyl Chloride	0.18	U	ug/m3	0.18	0.19
		PMC-IN-52-060317	IA	N	42889	Xylene, o	0.89	J	ug/m3	0.29	0.95
		PMC-IN-52-060317	IA	N	42889	Xylenes, m & p	2.3	=	ug/m3	0.55	0.95
		PMC-IN-52-01-110818	IA	N	43412.7535	1,1,1-Trichloroethane	0.0097	U	ug/m3	0.0097	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,1,2,2-Tetrachloroethane	0.012	U	ug/m3	0.012	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,1,2-Trichloroethane	0.013	U	ug/m3	0.013	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	1,1-Dichloroethane	0.01	U	ug/m3	0.01	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,1-Dichloroethene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2,3-Trimethylbenzene	0.23	J	ug/m3	0.12	0.86
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2,4-Trichlorobenzene	0.021	U	ug/m3	0.021	0.083
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2,4-Trimethylbenzene	0.9	=	ug/m3	0.014	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2-Dibromoethane	0.013	U	ug/m3	0.013	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2-Dichlorobenzene	0.014	J	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2-Dichloroethane	0.21	=	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,2-Dichloropropane	0.025	J	ug/m3	0.012	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,3,5-Trimethylbenzene	0.24	=	ug/m3	0.012	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-52-01-110818	IA	N	43412.7535	1,3-Butadiene	0.052	J	ug/m3	0.023	0.083
		PMC-IN-52-01-110818	IA	N	43412.7535	1,3-Dichlorobenzene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,4-Dichlorobenzene	0.062	=	ug/m3	0.013	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	1,4-Dioxane	0.033	J	ug/m3	0.014	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	2-Butanone	1.5	J	ug/m3	0.18	1.7
		PMC-IN-52-01-110818	IA	N	43412.7535	2-Hexanone	0.11	U	ug/m3	0.11	0.89
		PMC-IN-52-01-110818	IA	N	43412.7535	4-Methyl-2-Pentanone	0.12	U	ug/m3	0.12	0.87
		PMC-IN-52-01-110818	IA	N	43412.7535	Acetone	12	=	ug/m3	0.092	4.1
		PMC-IN-52-01-110818	IA	N	43412.7535	Acetonitrile	0.21	U	ug/m3	0.21	0.86
		PMC-IN-52-01-110818	IA	N	43412.7535	Acrolein	0.58	=	ug/m3	0.064	0.33
		PMC-IN-52-01-110818	IA	N	43412.7535	Acrylonitrile	0.18	U	ug/m3	0.18	0.86
		PMC-IN-52-01-110818	IA	N	43412.7535	Benzene	1.3	=	ug/m3	0.033	0.12
		PMC-IN-52-01-110818	IA	N	43412.7535	Benzyl chloride	0.2	U	ug/m3	0.2	1.8
		PMC-IN-52-01-110818	IA	N	43412.7535	Bromodichloromethane	0.011	U	ug/m3	0.011	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Bromoform	0.18	U	ug/m3	0.18	0.87
		PMC-IN-52-01-110818	IA	N	43412.7535	Bromomethane	0.02	J	ug/m3	0.015	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Carbon Disulfide	0.39	J	ug/m3	0.26	1.8
		PMC-IN-52-01-110818	IA	N	43412.7535	CHLORODIFLUOROMETHANE	0.59	J	ug/m3	0.41	0.83
		PMC-IN-52-01-110818	IA	N	43412.7535	Chloroethane	0.014	U	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Chloroform	0.27	=	ug/m3	0.03	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	Chloromethane	0.34	=	ug/m3	0.031	0.083
		PMC-IN-52-01-110818	IA	N	43412.7535	cis-1,2-Dichloroethene	0.015	U	ug/m3	0.015	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	cis-1,3-Dichloropropene	0.01	U	ug/m3	0.01	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Cyclohexane	0.82	J	ug/m3	0.25	1.7
		PMC-IN-52-01-110818	IA	N	43412.7535	Dichlorodifluoromethane	2	=	ug/m3	0.028	0.083
		PMC-IN-52-01-110818	IA	N	43412.7535	Dichloromethane	3.7	=	ug/m3	0.021	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	ETHANOL	150	=	ug/m3	0.61	8.4
		PMC-IN-52-01-110818	IA	N	43412.7535	Ethylbenzene	0.71	=	ug/m3	0.016	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.7	=	ug/m3	0.36	3.5
		PMC-IN-52-01-110818	IA	N	43412.7535	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	n-Butanol	1.5	J	ug/m3	0.23	1.7
		PMC-IN-52-01-110818	IA	N	43412.7535	n-Hexane	4.5	=	ug/m3	0.18	0.89
		PMC-IN-52-01-110818	IA	N	43412.7535	Propene	1.8	=	ug/m3	0.21	0.86
		PMC-IN-52-01-110818	IA	N	43412.7535	Styrene	0.18	=	ug/m3	0.012	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	Tetrachloroethene	0.046	=	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Toluene	8.9	=	ug/m3	0.018	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	trans-1,3-Dichloropropene	0.0091	U	ug/m3	0.0091	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Trichloroethylene	0.014	U	ug/m3	0.014	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Trichlorofluoromethane	1	=	ug/m3	0.025	0.083
		PMC-IN-52-01-110818	IA	N	43412.7535	Trichlorotrifuoroethane	0.38	=	ug/m3	0.015	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Vinyl Acetate	2	U	ug/m3	2	8.7
		PMC-IN-52-01-110818	IA	N	43412.7535	Vinyl Chloride	0.013	U	ug/m3	0.013	0.041
		PMC-IN-52-01-110818	IA	N	43412.7535	Xylene, o	1.2	=	ug/m3	0.015	0.17
		PMC-IN-52-01-110818	IA	N	43412.7535	Xylenes, m & p	2.8	=	ug/m3	0.031	0.17
		PMC-SS-04-020718	AS	N	43138.4292	1,1,1-Trichloroethane	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,1,2,2-Tetrachloroethane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,1,2-Trichloroethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,1-Dichloroethane	0.59	U	ug/m3	0.59	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-04-020718	AS	N	43138.4292	1,1-Dichloroethene	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2,3-Trimethylbenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2,4-Trichlorobenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2,4-Trimethylbenzene	0.9	J	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2-Dibromoethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2-Dichloroethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,2-Dichloropropane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,3,5-Trimethylbenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,3-Butadiene	0.81	U	ug/m3	0.81	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,3-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,4-Dichlorobenzene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-04-020718	AS	N	43138.4292	1,4-Dioxane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	2-Butanone	1.1	J	ug/m3	0.78	19
		PMC-SS-04-020718	AS	N	43138.4292	2-Hexanone	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	4-Methyl-2-Pentanone	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Acetone	16	J	ug/m3	2.8	19
		PMC-SS-04-020718	AS	N	43138.4292	Acetonitrile	0.67	U	ug/m3	0.67	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Acrolein	0.63	U	ug/m3	0.63	7.4
		PMC-SS-04-020718	AS	N	43138.4292	Acrylonitrile	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Benzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Benzyl chloride	0.41	U	ug/m3	0.41	3.7
		PMC-SS-04-020718	AS	N	43138.4292	Bromodichloromethane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Bromoform	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Bromomethane	0.7	U	ug/m3	0.7	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Carbon Disulfide	0.56	U	ug/m3	0.56	19
		PMC-SS-04-020718	AS	N	43138.4292	CHLORODIFLUOROMETHANE	0.93	U	ug/m3	0.93	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Chloroethane	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Chloroform	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Chloromethane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	cis-1,2-Dichloroethene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	cis-1,3-Dichloropropene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Cyclohexane	1.1	U	ug/m3	1.1	3.7
		PMC-SS-04-020718	AS	N	43138.4292	Dichlorodifluoromethane	2.5	=	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Dichloromethane	0.91	J	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	ETHANOL	39	=	ug/m3	3	19
		PMC-SS-04-020718	AS	N	43138.4292	Ethylbenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Freon 113	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	ISOPROPYL ALCOHOL (ISOPROPANOL)	3	J	ug/m3	1.6	19
		PMC-SS-04-020718	AS	N	43138.4292	Methyl tert-butyl ether (MTBE)	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	n-Butanol	1.8	J	ug/m3	1.8	3.7
		PMC-SS-04-020718	AS	N	43138.4292	n-Hexane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Propene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Styrene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Tetrachloroethene	10	=	ug/m3	0.52	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Toluene	1.5	J	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	trans-1,3-Dichloropropene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Trichloroethylene	17	=	ug/m3	0.52	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-04-020718	AS	N	43138.4292	Trichlorofluoromethane	1.1	J	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Vinyl Acetate	2.4	U	ug/m3	2.4	19
		PMC-SS-04-020718	AS	N	43138.4292	Vinyl Chloride	0.63	U	ug/m3	0.63	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Xylene, o	0.79	J	ug/m3	0.56	1.9
		PMC-SS-04-020718	AS	N	43138.4292	Xylenes, m & p	2	J	ug/m3	1.1	3.7
		PMC-SS-05-020618	AS	N	43137.4743	1,1,1-Trichloroethane	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,1,2,2-Tetrachloroethane	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,1,2-Trichloroethane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,1-Dichloroethane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,1-Dichloroethene	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2,3-Trimethylbenzene	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2,4-Trichlorobenzene	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2,4-Trimethylbenzene	1.2	J	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2-Dibromoethane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2-Dichlorobenzene	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2-Dichloroethane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,2-Dichloropropane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,3,5-Trimethylbenzene	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,3-Butadiene	0.75	U	ug/m3	0.75	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,3-Dichlorobenzene	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,4-Dichlorobenzene	0.48	U	ug/m3	0.48	1.7
		PMC-SS-05-020618	AS	N	43137.4743	1,4-Dioxane	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	2-Butanone	2	J	ug/m3	0.72	17
		PMC-SS-05-020618	AS	N	43137.4743	2-Hexanone	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	4-Methyl-2-Pentanone	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Acetone	49	=	ug/m3	2.6	17
		PMC-SS-05-020618	AS	N	43137.4743	Acetonitrile	0.62	U	ug/m3	0.62	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Acrolein	0.58	U	ug/m3	0.58	6.9
		PMC-SS-05-020618	AS	N	43137.4743	Acrylonitrile	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Benzene	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Benzyl chloride	0.38	U	ug/m3	0.38	3.4
		PMC-SS-05-020618	AS	N	43137.4743	Bromodichloromethane	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Bromoform	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Bromomethane	0.65	U	ug/m3	0.65	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Carbon Disulfide	0.51	U	ug/m3	0.51	17
		PMC-SS-05-020618	AS	N	43137.4743	CHLORODIFLUOROMETHANE	0.86	U	ug/m3	0.86	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Chloroethane	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Chloroform	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Chloromethane	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	cis-1,2-Dichloroethene	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	cis-1,3-Dichloropropene	0.48	U	ug/m3	0.48	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Cyclohexane	0.99	U	ug/m3	0.99	3.4
		PMC-SS-05-020618	AS	N	43137.4743	Dichlorodifluoromethane	2	=	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Dichloromethane	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	ETHANOL	130	=	ug/m3	2.7	17
		PMC-SS-05-020618	AS	N	43137.4743	Ethylbenzene	1.1	J	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Freon 113	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	ISOPROPYL ALCOHOL (ISOPROPANOL)	5.5	J	ug/m3	1.4	17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-05-020618	AS	N	43137.4743	Methyl tert-butyl ether (MTBE)	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	n-Butanol	1.6	U	ug/m3	1.6	3.4
		PMC-SS-05-020618	AS	N	43137.4743	n-Hexane	1	J	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Propene	1.5	J	ug/m3	0.48	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Styrene	0.51	U	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Tetrachloroethene	15	=	ug/m3	0.48	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Toluene	2.9	=	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	trans-1,3-Dichloropropene	0.55	U	ug/m3	0.55	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Trichloroethylene	0.48	U	ug/m3	0.48	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Trichlorofluoromethane	0.97	J	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Vinyl Acetate	2.2	U	ug/m3	2.2	17
		PMC-SS-05-020618	AS	N	43137.4743	Vinyl Chloride	0.58	U	ug/m3	0.58	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Xylene, o	1.2	J	ug/m3	0.51	1.7
		PMC-SS-05-020618	AS	N	43137.4743	Xylenes, m & p	3	J	ug/m3	1	3.4
		PMC-SS-05-110618	AS	N	43410.4403	1,1,1-Trichloroethane	0.27	U	ug/m3	0.27	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,1,2,2-Tetrachloroethane	0.3	U	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,1,2-Trichloroethane	0.22	U	ug/m3	0.22	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,1-Dichloroethane	0.32	U	ug/m3	0.32	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,1-Dichloroethene	0.3	U	ug/m3	0.3	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,2,3-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,2,4-Trichlorobenzene	0.53	U	ug/m3	0.53	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,2,4-Trimethylbenzene	0.75	J	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,2-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,2-Dichloroethane	0.24	U	ug/m3	0.24	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,2-Dichloropropane	0.27	U	ug/m3	0.27	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,3,5-Trimethylbenzene	0.31	U	ug/m3	0.31	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,3-Butadiene	0.36	U	ug/m3	0.36	2.1
		PMC-SS-05-110618	AS	N	43410.4403	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,4-Dichlorobenzene	0.33	U	ug/m3	0.33	2.2
		PMC-SS-05-110618	AS	N	43410.4403	1,4-Dioxane	0.28	J	ug/m3	0.26	2.1
		PMC-SS-05-110618	AS	N	43410.4403	2-Butanone	1.1	J	ug/m3	0.45	4.1
		PMC-SS-05-110618	AS	N	43410.4403	2-Hexanone	0.51	J	ug/m3	0.27	2.2
		PMC-SS-05-110618	AS	N	43410.4403	4-Methyl-2-Pentanone	0.83	J	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Acetone	19	J	ug/m3	4.9	22
		PMC-SS-05-110618	AS	N	43410.4403	Acetonitrile	0.55	J	ug/m3	0.53	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Acrolein	0.61	U	ug/m3	0.61	4.1
		PMC-SS-05-110618	AS	N	43410.4403	Acrylonitrile	0.45	U	ug/m3	0.45	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Benzene	0.31	U	ug/m3	0.31	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Benzyl chloride	0.49	U	ug/m3	0.49	4.5
		PMC-SS-05-110618	AS	N	43410.4403	Bromodichloromethane	0.31	U	ug/m3	0.31	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Bromoform	0.45	U	ug/m3	0.45	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Bromomethane	0.3	U	ug/m3	0.3	2
		PMC-SS-05-110618	AS	N	43410.4403	Carbon Disulfide	0.65	U	ug/m3	0.65	4.5
		PMC-SS-05-110618	AS	N	43410.4403	CHLORODIFLUOROMETHANE	1	U	ug/m3	1	2
		PMC-SS-05-110618	AS	N	43410.4403	Chloroethane	0.27	U	ug/m3	0.27	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Chloroform	0.29	U	ug/m3	0.29	2.2
		PMC-SS-05-110618	AS	N	43410.4403	Chloromethane	0.35	U	ug/m3	0.35	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-05-110618	AS	N	43410.4403	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	cis-1,3-Dichloropropene	0.34	U	ug/m3	0.34	2.3
		PMC-SS-05-110618	AS	N	43410.4403	Cyclohexane	0.61	U	ug/m3	0.61	4.1
		PMC-SS-05-110618	AS	N	43410.4403	Dichlorodifluoromethane	2.5	=	ug/m3	0.35	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Dichloromethane	1.1	J	ug/m3	0.61	2.2
		PMC-SS-05-110618	AS	N	43410.4403	ETHANOL	8.4	J	ug/m3	1.5	21
		PMC-SS-05-110618	AS	N	43410.4403	Ethylbenzene	0.34	J	ug/m3	0.3	2.1
		PMC-SS-05-110618	AS	N	43410.4403	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.3	J	ug/m3	0.89	8.5
		PMC-SS-05-110618	AS	N	43410.4403	Methyl tert-butyl ether (MTBE)	0.26	U	ug/m3	0.26	2.2
		PMC-SS-05-110618	AS	N	43410.4403	n-Butanol	53	=	ug/m3	0.57	4.1
		PMC-SS-05-110618	AS	N	43410.4403	n-Hexane	0.45	U	ug/m3	0.45	2.2
		PMC-SS-05-110618	AS	N	43410.4403	Propene	0.53	U	ug/m3	0.53	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Styrene	0.35	U	ug/m3	0.35	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Tetrachloroethene	31	=	ug/m3	0.28	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Toluene	6.7	=	ug/m3	0.26	2.1
		PMC-SS-05-110618	AS	N	43410.4403	trans-1,3-Dichloropropene	0.45	U	ug/m3	0.45	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Trichloroethylene	0.29	U	ug/m3	0.29	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Trichlorofluoromethane	1.3	J	ug/m3	0.33	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Trichlorotrifuoroethane	0.45	J	ug/m3	0.31	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Vinyl Acetate	4.9	U	ug/m3	4.9	21
		PMC-SS-05-110618	AS	N	43410.4403	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Xylene, o	0.67	J	ug/m3	0.31	2.1
		PMC-SS-05-110618	AS	N	43410.4403	Xylenes, m & p	1.6	J	ug/m3	0.57	4.5
		1703205_001_011918_SS-1	AS	N	43119.3778	1,1,1-Trichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,1,2,2-Tetrachloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,1,2-Trichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,1-Dichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,1-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2,4-Trichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2,4-Trimethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dibromo-3-chloropropane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dibromoethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,2-Dichloropropane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,3,5-Trimethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,3-Butadiene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,3-Dichlorobenzene	2.1	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,4-Dichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	1,4-Dioxane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	2-Butanone	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	2-Hexanone	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	4-Ethyltoluene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	4-Methyl-2-Pentanone	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Acetone	9	=	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	Acetonitrile	0.88	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Acrolein	3.2	U	UG/M3	3.2	3.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_011918_SS-1	AS	N	43119.3778	Acrylonitrile	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Allyl chloride	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	alpha-Pinene	2.1	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Benzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Benzyl chloride	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-1	AS	N	43119.3778	Bromodichloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Bromoform	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Bromomethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Carbon Disulfide	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	Carbon tetrachloride	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Chlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Chlorodibromomethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Chloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Chloroform	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Chloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	cis-1,2-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	cis-1,3-Dichloropropene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Cyclohexane	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-1	AS	N	43119.3778	Dichlorodifluoromethane	2.3	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Dichloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	D-Limonene	22	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	ETHANOL	22	=	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	Ethyl acetate	2.9	=	UG/M3	1.6	1.6
		1703205_001_011918_SS-1	AS	N	43119.3778	Ethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Freon 113	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Hexachlorobutadiene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	Isopropylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-1	AS	N	43119.3778	Methyl tert-butyl ether (MTBE)	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Naphthalene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	N-Butyl Acetate	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	N-HEPTANE	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	n-Hexane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Nonane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	n-Propylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	OCTANE	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Propene	1.5	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Styrene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Tetrachloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Tetrahydrofuran	3.2	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Toluene	4.2	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	trans-1,2-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	trans-1,3-Dichloropropene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Trichloroethylene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Trichlorofluoromethane	1.5	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Vinyl Acetate	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-1	AS	N	43119.3778	Vinyl Chloride	0.79	U	UG/M3	0.79	0.79

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_011918_SS-1	AS	N	43119.3778	Xylene, o	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-1	AS	N	43119.3778	Xylenes, m & p	1.8	=	UG/M3	1.6	1.6
		1703205_001_011918_SS-2	AS	N	43119.3757	1,1,1-Trichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,1,2,2-Tetrachloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,1,2-Trichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,1-Dichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,1-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2,4-Trichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2,4-Trimethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dibromo-3-chloropropane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dibromoethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dichloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,2-Dichloropropane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,3,5-Trimethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,3-Butadiene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,3-Dichlorobenzene	2.5	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,4-Dichlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	1,4-Dioxane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	2-Butanone	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	2-Hexanone	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	4-Ethyltoluene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	4-Methyl-2-Pentanone	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Acetone	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	Acetonitrile	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Acrolein	3.2	U	UG/M3	3.2	3.2
		1703205_001_011918_SS-2	AS	N	43119.3757	Acrylonitrile	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Allyl chloride	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	alpha-Pinene	1.7	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Benzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Benzyl chloride	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-2	AS	N	43119.3757	Bromodichloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Bromoform	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Bromomethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Carbon Disulfide	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	Carbon tetrachloride	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Chlorobenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Chlorodibromomethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Chloroethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Chloroform	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Chloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	cis-1,2-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	cis-1,3-Dichloropropene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Cyclohexane	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-2	AS	N	43119.3757	Dichlorodifluoromethane	2	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Dichloromethane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	D-Limonene	18	=	UG/M3	0.79	0.79

Attachment H-4
Analytical Data to be used in the HHRA
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Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_011918_SS-2	AS	N	43119.3757	ETHANOL	23	=	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	Ethyl acetate	2.3	=	UG/M3	1.6	1.6
		1703205_001_011918_SS-2	AS	N	43119.3757	Ethylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Freon 113	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Hexachlorobutadiene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	Isopropylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_001_011918_SS-2	AS	N	43119.3757	Methyl tert-butyl ether (MTBE)	0.81	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Naphthalene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	N-Butyl Acetate	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	N-HEPTANE	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	n-Hexane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Nonane	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	n-Propylbenzene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	OCTANE	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Propene	1.6	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Styrene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Tetrachloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Tetrahydrofuran	2.5	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Toluene	3.3	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	trans-1,2-Dichloroethene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	trans-1,3-Dichloropropene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Trichloroethylene	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Trichlorofluoromethane	1	=	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Vinyl Acetate	7.9	U	UG/M3	7.9	7.9
		1703205_001_011918_SS-2	AS	N	43119.3757	Vinyl Chloride	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Xylene, o	0.79	U	UG/M3	0.79	0.79
		1703205_001_011918_SS-2	AS	N	43119.3757	Xylenes, m & p	1.6	U	UG/M3	1.6	1.6
		1703205_001_040517_SS-1	AS	N	42830.3681	1,1,1-Trichloroethane	0.47	=	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,1,2,2-Tetrachloroethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,1,2-Trichloroethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,1-Dichloroethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,1-Dichloroethene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2,4-Trichlorobenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2,4-Trimethylbenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dibromo-3-chloropropane	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dibromoethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dichloroethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,2-Dichloropropane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,3,5-Trimethylbenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	1,3-Butadiene	0.27	U	ug/m3	0.27	0.27
		1703205_001_040517_SS-1	AS	N	42830.3681	1,3-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,4-Dichlorobenzene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	1,4-Dioxane	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	2-Butanone	6.8	U	ug/m3	6.8	6.8

Attachment H-4
Analytical Data to be used in the HHRA
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Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_040517_SS-1	AS	N	42830.3681	2-Hexanone	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	4-Ethyltoluene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	4-Methyl-2-Pentanone	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Acetone	6.8	U	ug/m3	6.8	6.8
		1703205_001_040517_SS-1	AS	N	42830.3681	Acetonitrile	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Acrolein	2.7	U	ug/m3	2.7	2.7
		1703205_001_040517_SS-1	AS	N	42830.3681	Acrylonitrile	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Allyl chloride	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	alpha-Pinene	1.7	=	ug/m3	0.81	0.81
		1703205_001_040517_SS-1	AS	N	42830.3681	Benzene	0.28	=	ug/m3	0.16	0.16
		1703205_001_040517_SS-1	AS	N	42830.3681	Benzyl chloride	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Bromodichloromethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Bromoform	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Bromomethane	0.27	U	ug/m3	0.27	0.27
		1703205_001_040517_SS-1	AS	N	42830.3681	Carbon Disulfide	6.8	U	ug/m3	6.8	6.8
		1703205_001_040517_SS-1	AS	N	42830.3681	Carbon tetrachloride	0.32	=	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Chlorobenzene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Chlorodibromomethane	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Chloroethane	0.27	U	ug/m3	0.27	0.27
		1703205_001_040517_SS-1	AS	N	42830.3681	Chloroform	1.5	=	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Chloromethane	0.27	U	ug/m3	0.27	0.27
		1703205_001_040517_SS-1	AS	N	42830.3681	cis-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	cis-1,3-Dichloropropene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Cyclohexane	1.4	U	ug/m3	1.4	1.4
		1703205_001_040517_SS-1	AS	N	42830.3681	Dichlorodifluoromethane	3	=	ug/m3	0.81	0.81
		1703205_001_040517_SS-1	AS	N	42830.3681	Dichloromethane	3.4	=	ug/m3	0.81	0.81
		1703205_001_040517_SS-1	AS	N	42830.3681	D-Limonene	2.7	=	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	ETHANOL	11	=	ug/m3	8.1	8.1
		1703205_001_040517_SS-1	AS	N	42830.3681	Ethyl acetate	29	=	ug/m3	1.6	1.6
		1703205_001_040517_SS-1	AS	N	42830.3681	Ethylbenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Freon 113	0.43	=	ug/m3	0.16	0.16
		1703205_001_040517_SS-1	AS	N	42830.3681	Hexachlorobutadiene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	ISOPROPYL ALCOHOL (ISOPROPANOL)	6.8	U	ug/m3	6.8	6.8
		1703205_001_040517_SS-1	AS	N	42830.3681	Isopropylbenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Methyl methacrylate	1.4	U	ug/m3	1.4	1.4
		1703205_001_040517_SS-1	AS	N	42830.3681	Methyl tert-butyl ether (MTBE)	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Naphthalene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	N-Butyl Acetate	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	N-HEPTANE	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	n-Hexane	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Nonane	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	n-Propylbenzene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	OCTANE	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Propene	0.99	=	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Styrene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Tetrachloroethene	190	=	ug/m3	0.34	0.34
		1703205_001_040517_SS-1	AS	N	42830.3681	Tetrahydrofuran	2.4	=	ug/m3	0.81	0.81
		1703205_001_040517_SS-1	AS	N	42830.3681	Toluene	2.4	=	ug/m3	0.81	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_040517_SS-1	AS	N	42830.3681	trans-1,2-Dichloroethene	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	trans-1,3-Dichloropropene	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Trichloroethylene	3.1	=	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Trichlorofluoromethane	1.5	J+	ug/m3	0.16	0.16
		1703205_001_040517_SS-1	AS	N	42830.3681	Vinyl Acetate	6.8	U	ug/m3	6.8	6.8
		1703205_001_040517_SS-1	AS	N	42830.3681	Vinyl Chloride	0.14	U	ug/m3	0.14	0.14
		1703205_001_040517_SS-1	AS	N	42830.3681	Xylene, o	0.68	U	ug/m3	0.68	0.68
		1703205_001_040517_SS-1	AS	N	42830.3681	Xylenes, m & p	1.1	=	ug/m3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,1,1-Trichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,1,2,2-Tetrachloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,1,2-Trichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,1-Dichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,1-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2,4-Trichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2,4-Trimethylbenzene	2.4	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dibromo-3-chloropropane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dibromoethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,2-Dichloropropane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,3,5-Trimethylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,3-Butadiene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,3-Dichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,4-Dichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	1,4-Dioxane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	2-Butanone	8.1	U	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	2-Hexanone	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	4-Ethyltoluene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	4-Methyl-2-Pentanone	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Acetone	8.7	=	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	Acetonitrile	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Acrolein	3.2	U	UG/M3	3.2	3.2
		1703205_001_091317_SS-1	AS	N	42991.3507	Acrylonitrile	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Allyl chloride	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	alpha-Pinene	9.2	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Benzene	0.97	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Benzyl chloride	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Bromodichloromethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Bromoform	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Bromomethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Carbon Disulfide	8.1	U	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	Carbon tetrachloride	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Chlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Chlorodibromomethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Chloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Chloroform	10	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Chloromethane	0.81	U	UG/M3	0.81	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_091317_SS-1	AS	N	42991.3507	cis-1,2-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	cis-1,3-Dichloropropene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Cyclohexane	1.6	U	UG/M3	1.6	1.6
		1703205_001_091317_SS-1	AS	N	42991.3507	Dichlorodifluoromethane	2.1	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Dichloromethane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	D-Limonene	140	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	ETHANOL	18	=	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	Ethyl acetate	150	=	UG/M3	1.6	1.6
		1703205_001_091317_SS-1	AS	N	42991.3507	Ethylbenzene	1.8	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Freon 113	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Hexachlorobutadiene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.1	U	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	Isopropylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_001_091317_SS-1	AS	N	42991.3507	Methyl tert-butyl ether (MTBE)	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Naphthalene	2.6	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	N-Butyl Acetate	1.4	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	N-HEPTANE	1.2	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	n-Hexane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Nonane	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	n-Propylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	OCTANE	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Propene	1.7	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Styrene	1.4	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Tetrachloroethene	110	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Tetrahydrofuran	9.4	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Toluene	11	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	trans-1,2-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	trans-1,3-Dichloropropene	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Trichloroethylene	21	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Trichlorofluoromethane	1.7	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Vinyl Acetate	8.1	U	UG/M3	8.1	8.1
		1703205_001_091317_SS-1	AS	N	42991.3507	Vinyl Chloride	0.81	U	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Xylene, o	2.6	=	UG/M3	0.81	0.81
		1703205_001_091317_SS-1	AS	N	42991.3507	Xylenes, m & p	5.6	=	UG/M3	1.6	1.6
		1703205_001_091317_SS-2	AS	N	42991.3514	1,1,1-Trichloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,1,2,2-Tetrachloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,1,2-Trichloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,1-Dichloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,1-Dichloroethene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2,4-Trichlorobenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2,4-Trimethylbenzene	0.91	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dibromo-3-chloropropane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dibromoethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dichlorobenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dichloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,2-Dichloropropane	0.91	U	UG/M3	0.91	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_091317_SS-2	AS	N	42991.3514	1,3,5-Trimethylbenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,3-Butadiene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,3-Dichlorobenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,4-Dichlorobenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	1,4-Dioxane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	2-Butanone	9.1	U	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	2-Hexanone	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	4-Ethyltoluene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	4-Methyl-2-Pentanone	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Acetone	9.1	U	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	Acetonitrile	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Acrolein	3.6	U	UG/M3	3.6	3.6
		1703205_001_091317_SS-2	AS	N	42991.3514	Acrylonitrile	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Allyl chloride	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	alpha-Pinene	11	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Benzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Benzyl chloride	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Bromodichloromethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Bromoform	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Bromomethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Carbon Disulfide	9.1	U	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	Carbon tetrachloride	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Chlorobenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Chlorodibromomethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Chloroethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Chloroform	3.2	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Chloromethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	cis-1,2-Dichloroethene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	cis-1,3-Dichloropropene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Cyclohexane	1.8	U	UG/M3	1.8	1.8
		1703205_001_091317_SS-2	AS	N	42991.3514	Dichlorodifluoromethane	2.2	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Dichloromethane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	D-Limonene	41	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	ETHANOL	18	=	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	Ethyl acetate	32	=	UG/M3	1.8	1.8
		1703205_001_091317_SS-2	AS	N	42991.3514	Ethylbenzene	1	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Freon 113	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Hexachlorobutadiene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	ISOPROPYL ALCOHOL (ISOPROPANOL)	9.1	U	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	Isopropylbenzene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Methyl methacrylate	1.8	U	UG/M3	1.8	1.8
		1703205_001_091317_SS-2	AS	N	42991.3514	Methyl tert-butyl ether (MTBE)	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Naphthalene	2.2	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	N-Butyl Acetate	1.2	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	N-HEPTANE	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	n-Hexane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Nonane	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	n-Propylbenzene	0.91	U	UG/M3	0.91	0.91

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_001_091317_SS-2	AS	N	42991.3514	OCTANE	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Propene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Styrene	1.4	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Tetrachloroethene	96	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Tetrahydrofuran	8.5	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Toluene	4.2	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	trans-1,2-Dichloroethene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	trans-1,3-Dichloropropene	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Trichloroethylene	4	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Trichlorofluoromethane	3.8	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Vinyl Acetate	9.1	U	UG/M3	9.1	9.1
		1703205_001_091317_SS-2	AS	N	42991.3514	Vinyl Chloride	0.91	U	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Xylene, o	1.5	=	UG/M3	0.91	0.91
		1703205_001_091317_SS-2	AS	N	42991.3514	Xylenes, m & p	3.2	=	UG/M3	1.8	1.8
		PMC-01-SS01-110718	AS	N	43411.6653	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2,3-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2,4-Trichlorobenzene	0.52	U	ug/m3	0.52	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2,4-Trimethylbenzene	0.64	J	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,3,5-Trimethylbenzene	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,4-Dichlorobenzene	0.33	U	ug/m3	0.33	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	2-Butanone	1.2	J	ug/m3	0.44	4
		PMC-01-SS01-110718	AS	N	43411.6653	2-Hexanone	0.41	J	ug/m3	0.26	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	4-Methyl-2-Pentanone	0.53	J	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Acetone	11	J	ug/m3	4.8	21
		PMC-01-SS01-110718	AS	N	43411.6653	Acetonitrile	0.52	U	ug/m3	0.52	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Acrolein	0.6	U	ug/m3	0.6	4
		PMC-01-SS01-110718	AS	N	43411.6653	Acrylonitrile	0.44	U	ug/m3	0.44	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Benzene	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Benzyl chloride	0.48	U	ug/m3	0.48	4.4
		PMC-01-SS01-110718	AS	N	43411.6653	Bromodichloromethane	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Bromoform	0.44	U	ug/m3	0.44	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-01-SS01-110718	AS	N	43411.6653	Carbon Disulfide	26	J	ug/m3	0.64	4.4
		PMC-01-SS01-110718	AS	N	43411.6653	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
		PMC-01-SS01-110718	AS	N	43411.6653	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-01-SS01-110718	AS	N	43411.6653	Chloroform	7.1	=	ug/m3	0.28	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Chloromethane	0.34	U	ug/m3	0.34	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-01-SS01-110718	AS	N	43411.6653	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
		PMC-01-SS01-110718	AS	N	43411.6653	Cyclohexane	0.6	U	ug/m3	0.6	4
		PMC-01-SS01-110718	AS	N	43411.6653	Dichlorodifluoromethane	2.5	=	ug/m3	0.35	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Dichloromethane	0.6	U	ug/m3	0.6	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	ETHANOL	4.5	J	ug/m3	1.5	20
		PMC-01-SS01-110718	AS	N	43411.6653	Ethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.7	J	ug/m3	0.87	8.3
		PMC-01-SS01-110718	AS	N	43411.6653	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	n-Butanol	28	J	ug/m3	0.56	4
		PMC-01-SS01-110718	AS	N	43411.6653	n-Hexane	0.44	U	ug/m3	0.44	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Propene	0.52	U	ug/m3	0.52	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Styrene	0.34	U	ug/m3	0.34	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Tetrachloroethene	67	=	ug/m3	0.27	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Toluene	4.4	=	ug/m3	0.26	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	trans-1,3-Dichloropropene	0.44	U	ug/m3	0.44	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Trichloroethylene	13	=	ug/m3	0.29	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Trichlorofluoromethane	1.6	J	ug/m3	0.32	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Trichlorotrifuoroethane	0.45	J	ug/m3	0.3	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Vinyl Acetate	4.8	U	ug/m3	4.8	21
		PMC-01-SS01-110718	AS	N	43411.6653	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Xylene, o	0.55	J	ug/m3	0.31	2.1
		PMC-01-SS01-110718	AS	N	43411.6653	Xylenes, m & p	1.4	J	ug/m3	0.56	4.4
		PMC-01-SS02-110718	AS	N	43411.6799	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,1-Dichloroethane	0.3	U	ug/m3	0.3	2
		PMC-01-SS02-110718	AS	N	43411.6799	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2,3-Trimethylbenzene	0.28	U	ug/m3	0.28	2
		PMC-01-SS02-110718	AS	N	43411.6799	1,2,4-Trichlorobenzene	0.51	U	ug/m3	0.51	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2,4-Trimethylbenzene	0.67	J	ug/m3	0.29	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,3-Butadiene	0.34	U	ug/m3	0.34	2
		PMC-01-SS02-110718	AS	N	43411.6799	1,3-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	2-Butanone	0.77	J	ug/m3	0.43	3.9
		PMC-01-SS02-110718	AS	N	43411.6799	2-Hexanone	0.49	J	ug/m3	0.26	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	4-Methyl-2-Pentanone	0.39	J	ug/m3	0.28	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Acetone	8.5	J	ug/m3	4.7	21
		PMC-01-SS02-110718	AS	N	43411.6799	Acetonitrile	0.51	U	ug/m3	0.51	2
		PMC-01-SS02-110718	AS	N	43411.6799	Acrolein	0.59	U	ug/m3	0.59	3.9
		PMC-01-SS02-110718	AS	N	43411.6799	Acrylonitrile	0.43	U	ug/m3	0.43	2
		PMC-01-SS02-110718	AS	N	43411.6799	Benzene	0.3	U	ug/m3	0.3	2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-01-SS02-110718	AS	N	43411.6799	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
		PMC-01-SS02-110718	AS	N	43411.6799	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Bromoform	0.43	U	ug/m3	0.43	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-01-SS02-110718	AS	N	43411.6799	Carbon Disulfide	0.62	U	ug/m3	0.62	4.3
		PMC-01-SS02-110718	AS	N	43411.6799	CHLORODIFLUOROMETHANE	0.99	J	ug/m3	0.98	2
		PMC-01-SS02-110718	AS	N	43411.6799	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-01-SS02-110718	AS	N	43411.6799	Chloroform	3.8	=	ug/m3	0.28	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Chloromethane	0.34	U	ug/m3	0.34	2
		PMC-01-SS02-110718	AS	N	43411.6799	cis-1,2-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	cis-1,3-Dichloropropene	0.32	U	ug/m3	0.32	2.2
		PMC-01-SS02-110718	AS	N	43411.6799	Cyclohexane	0.59	U	ug/m3	0.59	3.9
		PMC-01-SS02-110718	AS	N	43411.6799	Dichlorodifluoromethane	2.4	=	ug/m3	0.34	2
		PMC-01-SS02-110718	AS	N	43411.6799	Dichloromethane	0.59	U	ug/m3	0.59	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	ETHANOL	7.8	J	ug/m3	1.4	20
		PMC-01-SS02-110718	AS	N	43411.6799	Ethylbenzene	0.32	J	ug/m3	0.29	2
		PMC-01-SS02-110718	AS	N	43411.6799	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	J	ug/m3	0.86	8.2
		PMC-01-SS02-110718	AS	N	43411.6799	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	n-Butanol	33	=	ug/m3	0.55	3.9
		PMC-01-SS02-110718	AS	N	43411.6799	n-Hexane	0.43	U	ug/m3	0.43	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Propene	0.51	U	ug/m3	0.51	2
		PMC-01-SS02-110718	AS	N	43411.6799	Styrene	0.34	U	ug/m3	0.34	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Tetrachloroethene	140	=	ug/m3	0.27	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Toluene	5.1	=	ug/m3	0.25	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Trichloroethylene	4.2	=	ug/m3	0.28	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Trichlorofluoromethane	3.2	=	ug/m3	0.32	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Trichlorotrifuoroethane	0.39	J	ug/m3	0.3	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Vinyl Acetate	4.7	U	ug/m3	4.7	21
		PMC-01-SS02-110718	AS	N	43411.6799	Vinyl Chloride	0.22	U	ug/m3	0.22	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Xylene, o	0.66	J	ug/m3	0.3	2.1
		PMC-01-SS02-110718	AS	N	43411.6799	Xylenes, m & p	1.5	J	ug/m3	0.55	4.3
		PMC-SS-01-01-011117	AS	N	42746.359	1,1,1-Trichloroethane	1.15	=	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2,4-Trimethylbenzene	1.36	=	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	1,4-Dioxane	0.73	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-01-01-011117	AS	N	42746.359	2-Butanone	0.6	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Acrolein	0.47	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Benzene	0.65	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Bromoform	2.1	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Bromomethane	0.79	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Chloroethane	0.54	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Chloroform	10.1	=	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Chloromethane	0.42	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Dichlorodifluoromethane	2.03	J	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Freon 113	1.55	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Styrene	0.86	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Tetrachloroethene	149	J	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Toluene	2.37	=	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Trichloroethylene	15.7	=	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Trichlorofluoromethane	1.14	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Xylene, o	0.88	U	ug/m3		
		PMC-SS-01-01-011117	AS	N	42746.359	Xylenes, m & p	1.8	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,1,1-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2,4-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	1,4-Dioxane	0.73	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-01-02-011117	AS	N	42746.4972	2-Butanone	0.6	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Acrolein	0.47	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Benzene	0.65	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Bromoform	2.1	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Bromomethane	0.79	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Chloroethane	0.54	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Chloroform	2.75	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Chloromethane	0.52	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Dichlorodifluoromethane	3.24	J	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Freon 113	1.55	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Styrene	0.86	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Tetrachloroethene	135	J	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Toluene	2.14	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Trichloroethylene	3.82	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Trichlorofluoromethane	1.15	=	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Xylene, o	0.88	U	ug/m3		
		PMC-SS-01-02-011117	AS	N	42746.4972	Xylenes, m & p	1.3	=	ug/m3		
		1703205_002_040417_SS-1	AS	N	42829.5333	1,1,1-Trichloroethane	0.66	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2,4-Trichlorobenzene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2,4-Trimethylbenzene	0.95	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dibromo-3-chloropropane	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,2-Dichloropropane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,3,5-Trimethylbenzene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	1,3-Butadiene	0.34	U	ug/m3	0.34	0.34
		1703205_002_040417_SS-1	AS	N	42829.5333	1,3-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_002_040417_SS-1	AS	N	42829.5333	1,4-Dichlorobenzene	0.49	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	1,4-Dioxane	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	2-Butanone	8.4	U	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	2-Hexanone	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	4-Ethyltoluene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	4-Methyl-2-Pentanone	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Acetone	12	=	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Acetonitrile	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Acrolein	3.4	U	ug/m3	3.4	3.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Acrylonitrile	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Allyl chloride	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	alpha-Pinene	13	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Benzene	0.39	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Benzyl chloride	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Bromodichloromethane	0.96	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Bromoform	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Bromomethane	0.34	U	ug/m3	0.34	0.34
		1703205_002_040417_SS-1	AS	N	42829.5333	Carbon Disulfide	8.4	U	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Carbon tetrachloride	0.38	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Chlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Chloroethane	0.34	U	ug/m3	0.34	0.34
		1703205_002_040417_SS-1	AS	N	42829.5333	Chloroform	77	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Chloromethane	0.34	U	ug/m3	0.34	0.34
		1703205_002_040417_SS-1	AS	N	42829.5333	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	cis-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Cyclohexane	1.7	U	ug/m3	1.7	1.7
		1703205_002_040417_SS-1	AS	N	42829.5333	Dichlorodifluoromethane	4.5	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Dichloromethane	2.5	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	D-Limonene	3.5	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	ETHANOL	22	=	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Ethyl acetate	29	=	ug/m3	1.7	1.7
		1703205_002_040417_SS-1	AS	N	42829.5333	Ethylbenzene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Freon 113	0.37	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Hexachlorobutadiene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.4	U	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Isopropylbenzene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Methyl methacrylate	1.7	U	ug/m3	1.7	1.7
		1703205_002_040417_SS-1	AS	N	42829.5333	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Naphthalene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	N-Butyl Acetate	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	N-HEPTANE	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	n-Hexane	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Nonane	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	n-Propylbenzene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	OCTANE	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Propene	2.2	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Styrene	1.5	=	ug/m3	0.84	0.84

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_002_040417_SS-1	AS	N	42829.5333	Tetrachloroethene	67	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Tetrahydrofuran	9.7	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Toluene	3.1	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	trans-1,3-Dichloropropene	0.84	U	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Trichloroethylene	5.9	=	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Trichlorofluoromethane	1.1	J+	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Vinyl Acetate	8.4	U	ug/m3	8.4	8.4
		1703205_002_040417_SS-1	AS	N	42829.5333	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
		1703205_002_040417_SS-1	AS	N	42829.5333	Xylene, o	1	=	ug/m3	0.84	0.84
		1703205_002_040417_SS-1	AS	N	42829.5333	Xylenes, m & p	2.6	=	ug/m3	0.84	0.84
		PMC-02-SS01-110818	AS	N	43412.4049	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	1,2,4-Trimethylbenzene	0.35	J	ug/m3	0.27	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,2-Dichloroethane	0.22	U	ug/m3	0.22	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
		PMC-02-SS01-110818	AS	N	43412.4049	1,4-Dioxane	0.23	U	ug/m3	0.23	2
		PMC-02-SS01-110818	AS	N	43412.4049	2-Butanone	1.6	J	ug/m3	0.41	3.7
		PMC-02-SS01-110818	AS	N	43412.4049	2-Hexanone	0.24	U	ug/m3	0.24	2
		PMC-02-SS01-110818	AS	N	43412.4049	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	2
		PMC-02-SS01-110818	AS	N	43412.4049	Acetone	31	=	ug/m3	4.4	20
		PMC-02-SS01-110818	AS	N	43412.4049	Acetonitrile	0.47	U	ug/m3	0.47	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Acrolein	0.55	U	ug/m3	0.55	3.7
		PMC-02-SS01-110818	AS	N	43412.4049	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Benzene	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Benzyl chloride	0.44	U	ug/m3	0.44	4.1
		PMC-02-SS01-110818	AS	N	43412.4049	Bromodichloromethane	0.28	U	ug/m3	0.28	2
		PMC-02-SS01-110818	AS	N	43412.4049	Bromoform	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Bromomethane	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Carbon Disulfide	59	J	ug/m3	0.59	4.1
		PMC-02-SS01-110818	AS	N	43412.4049	CHLORODIFLUOROMETHANE	0.91	U	ug/m3	0.91	1.8
		PMC-02-SS01-110818	AS	N	43412.4049	Chloroethane	0.24	U	ug/m3	0.24	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Chloroform	15	=	ug/m3	0.26	2
		PMC-02-SS01-110818	AS	N	43412.4049	Chloromethane	0.31	U	ug/m3	0.31	1.8
		PMC-02-SS01-110818	AS	N	43412.4049	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
		PMC-02-SS01-110818	AS	N	43412.4049	Cyclohexane	0.55	U	ug/m3	0.55	3.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-02-SS01-110818	AS	N	43412.4049	Dichlorodifluoromethane	2.3	=	ug/m3	0.32	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Dichloromethane	0.55	U	ug/m3	0.55	2
		PMC-02-SS01-110818	AS	N	43412.4049	ETHANOL	2.2	J	ug/m3	1.4	19
		PMC-02-SS01-110818	AS	N	43412.4049	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.7	J	ug/m3	0.8	7.7
		PMC-02-SS01-110818	AS	N	43412.4049	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
		PMC-02-SS01-110818	AS	N	43412.4049	n-Butanol	0.51	U	ug/m3	0.51	3.7
		PMC-02-SS01-110818	AS	N	43412.4049	n-Hexane	0.4	U	ug/m3	0.4	2
		PMC-02-SS01-110818	AS	N	43412.4049	Propene	0.47	U	ug/m3	0.47	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Styrene	0.31	U	ug/m3	0.31	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Tetrachloroethene	100	=	ug/m3	0.26	2
		PMC-02-SS01-110818	AS	N	43412.4049	Toluene	1.9	U	ug/m3	0.24	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Trichloroethylene	56	=	ug/m3	0.27	2
		PMC-02-SS01-110818	AS	N	43412.4049	Trichlorofluoromethane	1.7	J	ug/m3	0.3	1.9
		PMC-02-SS01-110818	AS	N	43412.4049	Trichlorotrifuoroethane	0.43	J	ug/m3	0.28	2
		PMC-02-SS01-110818	AS	N	43412.4049	Vinyl Acetate	4.4	U	ug/m3	4.4	20
		PMC-02-SS01-110818	AS	N	43412.4049	Vinyl Chloride	0.21	U	ug/m3	0.21	2
		PMC-02-SS01-110818	AS	N	43412.4049	Xylene, o	0.32	J	ug/m3	0.28	2
		PMC-02-SS01-110818	AS	N	43412.4049	Xylenes, m & p	0.65	J	ug/m3	0.52	4.1
		PMC-02-SS02-110818	AS	N	43412.4194	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,1,2-Trichloroethane	0.19	U	ug/m3	0.19	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,1-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2,3-Trimethylbenzene	0.26	U	ug/m3	0.26	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2,4-Trimethylbenzene	0.36	J	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2-Dibromoethane	0.22	U	ug/m3	0.22	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2-Dichloroethane	0.21	U	ug/m3	0.21	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,2-Dichloropropane	0.24	U	ug/m3	0.24	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	2-Butanone	0.4	U	ug/m3	0.4	3.6
		PMC-02-SS02-110818	AS	N	43412.4194	2-Hexanone	0.38	J	ug/m3	0.24	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	4-Methyl-2-Pentanone	0.35	J	ug/m3	0.26	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Acetone	6.7	J	ug/m3	4.3	19
		PMC-02-SS02-110818	AS	N	43412.4194	Acetonitrile	0.48	J	ug/m3	0.47	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Acrolein	0.54	U	ug/m3	0.54	3.6
		PMC-02-SS02-110818	AS	N	43412.4194	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Benzene	0.28	U	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Benzyl chloride	0.43	U	ug/m3	0.43	4
		PMC-02-SS02-110818	AS	N	43412.4194	Bromodichloromethane	1.2	J	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Bromoform	0.4	U	ug/m3	0.4	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-02-SS02-110818	AS	N	43412.4194	Bromomethane	0.27	U	ug/m3	0.27	1.8
		PMC-02-SS02-110818	AS	N	43412.4194	Carbon Disulfide	0.58	U	ug/m3	0.58	4
		PMC-02-SS02-110818	AS	N	43412.4194	CHLORODIFLUOROMETHANE	0.9	U	ug/m3	0.9	1.8
		PMC-02-SS02-110818	AS	N	43412.4194	Chloroethane	0.24	U	ug/m3	0.24	1.8
		PMC-02-SS02-110818	AS	N	43412.4194	Chloroform	87	=	ug/m3	0.26	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Chloromethane	0.31	U	ug/m3	0.31	1.8
		PMC-02-SS02-110818	AS	N	43412.4194	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
		PMC-02-SS02-110818	AS	N	43412.4194	Cyclohexane	0.54	U	ug/m3	0.54	3.6
		PMC-02-SS02-110818	AS	N	43412.4194	Dichlorodifluoromethane	2.2	=	ug/m3	0.31	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Dichloromethane	1.7	J	ug/m3	0.54	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	ETHANOL	1.8	J	ug/m3	1.3	18
		PMC-02-SS02-110818	AS	N	43412.4194	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.79	U	ug/m3	0.79	7.6
		PMC-02-SS02-110818	AS	N	43412.4194	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	n-Butanol	0.5	U	ug/m3	0.5	3.6
		PMC-02-SS02-110818	AS	N	43412.4194	n-Hexane	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Propene	0.47	U	ug/m3	0.47	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Styrene	0.31	U	ug/m3	0.31	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Tetrachloroethene	180	=	ug/m3	0.25	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Toluene	2.9	=	ug/m3	0.23	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Trichloroethylene	8.6	=	ug/m3	0.26	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Trichlorofluoromethane	1.9	=	ug/m3	0.29	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Trichlorotrifuoroethane	0.43	J	ug/m3	0.27	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Vinyl Acetate	4.3	U	ug/m3	4.3	19
		PMC-02-SS02-110818	AS	N	43412.4194	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Xylene, o	0.32	J	ug/m3	0.28	1.9
		PMC-02-SS02-110818	AS	N	43412.4194	Xylenes, m & p	0.75	J	ug/m3	0.5	4
		PMC-SS-02-01-011117	AS	N	42746.4917	1,1,1-Trichloroethane	1.86	=	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2,4-Trimethylbenzene	1.45	=	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	2-Butanone	0.6	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	4-Methyl-2-Pentanone	0.83	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-02-01-011117	AS	N	42746.4917	Acrolein	0.47	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Benzene	0.65	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Bromodichloromethane	2.21	J	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Bromoform	2.1	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Bromomethane	0.79	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Chloroethane	0.54	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Chloroform	64.2	=	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Chloromethane	0.42	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Dichlorodifluoromethane	1.98	J	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Freon 113	1.55	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Styrene	0.86	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Tetrachloroethene	151	J	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Toluene	2.47	=	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Trichloroethylene	12.4	=	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Trichlorofluoromethane	1.14	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Xylene, o	0.88	U	ug/m3		
		PMC-SS-02-01-011117	AS	N	42746.4917	Xylenes, m & p	1.22	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,1,1-Trichloroethane	1.56	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2,4-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	2-Butanone	0.79	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	4-Methyl-2-Pentanone	0.83	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-02-02-011117	AS	N	42746.4875	Acrolein	0.47	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Benzene	0.65	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Bromoform	2.1	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Bromomethane	0.79	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Chloroethane	0.54	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Chloroform	13.9	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Chloromethane	0.42	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Dichlorodifluoromethane	3.85	J	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Freon 113	1.55	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Styrene	0.86	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Tetrachloroethene	127	J	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Toluene	2.84	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Trichloroethylene	52.9	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Trichlorofluoromethane	1.15	=	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Xylene, o	0.88	U	ug/m3		
		PMC-SS-02-02-011117	AS	N	42746.4875	Xylenes, m & p	1.16	=	ug/m3		
		1703205_003_011918_SS-1	AS	N	43119.3951	1,1,1-Trichloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,1,2,2-Tetrachloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,1,2-Trichloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,1-Dichloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,1-Dichloroethene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2,4-Trichlorobenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2,4-Trimethylbenzene	0.83	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dibromo-3-chloropropane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dibromoethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dichlorobenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dichloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,2-Dichloropropane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,3,5-Trimethylbenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,3-Butadiene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,3-Dichlorobenzene	3.3	=	UG/M3	0.83	0.83
		1703205_003_011918_SS-1	AS	N	43119.3951	1,4-Dichlorobenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	1,4-Dioxane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	2-Butanone	7.4	U	UG/M3	7.4	7.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_011918_SS-1	AS	N	43119.3951	2-Hexanone	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	4-Ethyltoluene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	4-Methyl-2-Pentanone	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Acetone	13	=	UG/M3	7.4	7.4
		1703205_003_011918_SS-1	AS	N	43119.3951	Acetonitrile	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Acrolein	2.9	U	UG/M3	2.9	2.9
		1703205_003_011918_SS-1	AS	N	43119.3951	Acrylonitrile	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Allyl chloride	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	alpha-Pinene	2.2	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Benzene	1.2	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Benzyl chloride	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-1	AS	N	43119.3951	Bromodichloromethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Bromoform	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Bromomethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Carbon Disulfide	7.4	U	UG/M3	7.4	7.4
		1703205_003_011918_SS-1	AS	N	43119.3951	Carbon tetrachloride	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Chlorobenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Chlorodibromomethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Chloroethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Chloroform	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Chloromethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	cis-1,2-Dichloroethene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	cis-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Cyclohexane	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-1	AS	N	43119.3951	Dichlorodifluoromethane	2.4	=	UG/M3	0.83	0.83
		1703205_003_011918_SS-1	AS	N	43119.3951	Dichloromethane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	D-Limonene	30	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	ETHANOL	32	=	UG/M3	7.4	7.4
		1703205_003_011918_SS-1	AS	N	43119.3951	Ethyl acetate	170	J	UG/M3	1.5	1.5
		1703205_003_011918_SS-1	AS	N	43119.3951	Ethylbenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Freon 113	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Hexachlorobutadiene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.4	U	UG/M3	7.4	7.4
		1703205_003_011918_SS-1	AS	N	43119.3951	Isopropylbenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-1	AS	N	43119.3951	Methyl tert-butyl ether (MTBE)	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Naphthalene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	N-Butyl Acetate	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	N-HEPTANE	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	n-Hexane	1.4	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Nonane	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	n-Propylbenzene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	OCTANE	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Propene	1.5	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Styrene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Tetrachloroethene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Tetrahydrofuran	3.7	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Toluene	11	J	UG/M3	0.74	0.74

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_011918_SS-1	AS	N	43119.3951	trans-1,2-Dichloroethene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	trans-1,3-Dichloropropene	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Trichloroethylene	9.6	=	UG/M3	0.83	0.83
		1703205_003_011918_SS-1	AS	N	43119.3951	Trichlorofluoromethane	1.1	=	UG/M3	0.83	0.83
		1703205_003_011918_SS-1	AS	N	43119.3951	Vinyl Acetate	7.4	U	UG/M3	7.4	7.4
		1703205_003_011918_SS-1	AS	N	43119.3951	Vinyl Chloride	0.74	U	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Xylene, o	0.93	=	UG/M3	0.74	0.74
		1703205_003_011918_SS-1	AS	N	43119.3951	Xylenes, m & p	2.6	=	UG/M3	1.5	1.5
		1703205_003_011918_SS-2	AS	N	43119.3896	1,1,1-Trichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,1,2,2-Tetrachloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,1,2-Trichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,1-Dichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,1-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2,4-Trichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2,4-Trimethylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dibromo-3-chloropropane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dibromoethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,2-Dichloropropane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,3,5-Trimethylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,3-Butadiene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,3-Dichlorobenzene	3.5	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,4-Dichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	1,4-Dioxane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	2-Butanone	7.7	U	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	2-Hexanone	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	4-Ethyltoluene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	4-Methyl-2-Pentanone	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Acetone	7.7	U	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	Acetonitrile	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Acrolein	3.1	U	UG/M3	3.1	3.1
		1703205_003_011918_SS-2	AS	N	43119.3896	Acrylonitrile	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Allyl chloride	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	alpha-Pinene	1.9	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Benzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Benzyl chloride	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-2	AS	N	43119.3896	Bromodichloromethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Bromoform	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Bromomethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Carbon Disulfide	7.7	U	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	Carbon tetrachloride	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Chlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Chlorodibromomethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Chloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Chloroform	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Chloromethane	0.77	U	UG/M3	0.77	0.77

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_011918_SS-2	AS	N	43119.3896	cis-1,2-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	cis-1,3-Dichloropropene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Cyclohexane	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-2	AS	N	43119.3896	Dichlorodifluoromethane	2.2	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Dichloromethane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	D-Limonene	23	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	ETHANOL	23	=	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	Ethyl acetate	3.2	=	UG/M3	1.5	1.5
		1703205_003_011918_SS-2	AS	N	43119.3896	Ethylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Freon 113	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Hexachlorobutadiene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.7	U	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	Isopropylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
		1703205_003_011918_SS-2	AS	N	43119.3896	Methyl tert-butyl ether (MTBE)	0.8	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Naphthalene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	N-Butyl Acetate	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	N-HEPTANE	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	n-Hexane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Nonane	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	n-Propylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	OCTANE	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Propene	2.1	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Styrene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Tetrachloroethene	0.88	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Tetrahydrofuran	3.1	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Toluene	3.7	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	trans-1,2-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	trans-1,3-Dichloropropene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Trichloroethylene	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Trichlorofluoromethane	1	=	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Vinyl Acetate	7.7	U	UG/M3	7.7	7.7
		1703205_003_011918_SS-2	AS	N	43119.3896	Vinyl Chloride	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Xylene, o	0.77	U	UG/M3	0.77	0.77
		1703205_003_011918_SS-2	AS	N	43119.3896	Xylenes, m & p	1.7	=	UG/M3	1.5	1.5
		1703205_003_040517_SS-2	AS	N	42830.3674	1,1,1-Trichloroethane	0.82	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,1,2,2-Tetrachloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,1,2-Trichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,1-Dichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,1-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2,4-Trichlorobenzene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2,4-Trimethylbenzene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dibromo-3-chloropropane	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dibromoethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dichloroethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,2-Dichloropropane	0.17	U	ug/m3	0.17	0.17

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_040517_SS-2	AS	N	42830.3674	1,3,5-Trimethylbenzene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	1,3-Butadiene	0.33	U	ug/m3	0.33	0.33
		1703205_003_040517_SS-2	AS	N	42830.3674	1,3-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,4-Dichlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	1,4-Dioxane	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	2-Butanone	8.3	U	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	2-Hexanone	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	4-Ethyltoluene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	4-Methyl-2-Pentanone	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Acetone	8.7	=	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Acetonitrile	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Acrolein	3.3	U	ug/m3	3.3	3.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Acrylonitrile	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Allyl chloride	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	alpha-Pinene	2.2	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Benzene	0.35	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Benzyl chloride	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Bromodichloromethane	0.19	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Bromoform	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Bromomethane	0.33	U	ug/m3	0.33	0.33
		1703205_003_040517_SS-2	AS	N	42830.3674	Carbon Disulfide	8.3	U	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Carbon tetrachloride	0.29	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Chlorobenzene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Chlorodibromomethane	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Chloroethane	0.33	U	ug/m3	0.33	0.33
		1703205_003_040517_SS-2	AS	N	42830.3674	Chloroform	4.4	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Chloromethane	0.33	U	ug/m3	0.33	0.33
		1703205_003_040517_SS-2	AS	N	42830.3674	cis-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	cis-1,3-Dichloropropene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Cyclohexane	1.7	U	ug/m3	1.7	1.7
		1703205_003_040517_SS-2	AS	N	42830.3674	Dichlorodifluoromethane	13	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Dichloromethane	3.7	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	D-Limonene	2.5	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	ETHANOL	21	=	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Ethyl acetate	37	=	ug/m3	1.7	1.7
		1703205_003_040517_SS-2	AS	N	42830.3674	Ethylbenzene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Freon 113	0.42	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Hexachlorobutadiene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.3	U	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Isopropylbenzene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Methyl methacrylate	1.7	U	ug/m3	1.7	1.7
		1703205_003_040517_SS-2	AS	N	42830.3674	Methyl tert-butyl ether (MTBE)	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Naphthalene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	N-Butyl Acetate	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	N-HEPTANE	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	n-Hexane	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Nonane	1.4	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	n-Propylbenzene	0.83	U	ug/m3	0.83	0.83

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_040517_SS-2	AS	N	42830.3674	OCTANE	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Propene	1.5	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Styrene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Tetrachloroethene	110	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Tetrahydrofuran	4.6	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Toluene	3.2	=	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	trans-1,2-Dichloroethene	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	trans-1,3-Dichloropropene	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Trichloroethylene	32	=	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Trichlorofluoromethane	1.2	J+	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Vinyl Acetate	8.3	U	ug/m3	8.3	8.3
		1703205_003_040517_SS-2	AS	N	42830.3674	Vinyl Chloride	0.17	U	ug/m3	0.17	0.17
		1703205_003_040517_SS-2	AS	N	42830.3674	Xylene, o	0.83	U	ug/m3	0.83	0.83
		1703205_003_040517_SS-2	AS	N	42830.3674	Xylenes, m & p	1.5	=	ug/m3	0.83	0.83
		1703205_003_091317_SS-1	AS	N	42991.3632	1,1,1-Trichloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,1,2,2-Tetrachloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,1,2-Trichloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,1-Dichloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,1-Dichloroethene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2,4-Trichlorobenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2,4-Trimethylbenzene	2.3	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dibromo-3-chloropropane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dibromoethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dichlorobenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dichloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,2-Dichloropropane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,3,5-Trimethylbenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,3-Butadiene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,3-Dichlorobenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,4-Dichlorobenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	1,4-Dioxane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	2-Butanone	8.4	U	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	2-Hexanone	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	4-Ethyltoluene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	4-Methyl-2-Pentanone	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Acetone	8.4	U	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Acetonitrile	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Acrolein	3.4	U	UG/M3	3.4	3.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Acrylonitrile	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Allyl chloride	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	alpha-Pinene	6.3	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Benzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Benzyl chloride	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Bromodichloromethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Bromoform	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Bromomethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Carbon Disulfide	8.4	U	UG/M3	8.4	8.4

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_091317_SS-1	AS	N	42991.3632	Carbon tetrachloride	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Chlorobenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Chlorodibromomethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Chloroethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Chloroform	2.4	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Chloromethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	cis-1,2-Dichloroethene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	cis-1,3-Dichloropropene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Cyclohexane	1.7	U	UG/M3	1.7	1.7
		1703205_003_091317_SS-1	AS	N	42991.3632	Dichlorodifluoromethane	2.2	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Dichloromethane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	D-Limonene	160	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	ETHANOL	14	=	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Ethyl acetate	24	=	UG/M3	1.7	1.7
		1703205_003_091317_SS-1	AS	N	42991.3632	Ethylbenzene	1.5	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Freon 113	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Hexachlorobutadiene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.4	U	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Isopropylbenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Methyl methacrylate	1.7	U	UG/M3	1.7	1.7
		1703205_003_091317_SS-1	AS	N	42991.3632	Methyl tert-butyl ether (MTBE)	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Naphthalene	3.5	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	N-Butyl Acetate	1.1	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	N-HEPTANE	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	n-Hexane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Nonane	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	n-Propylbenzene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	OCTANE	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Propene	1.3	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Styrene	1.4	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Tetrachloroethene	170	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Tetrahydrofuran	10	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Toluene	5.2	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	trans-1,2-Dichloroethene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	trans-1,3-Dichloropropene	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Trichloroethylene	390	D	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Trichlorofluoromethane	1.9	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Vinyl Acetate	8.4	U	UG/M3	8.4	8.4
		1703205_003_091317_SS-1	AS	N	42991.3632	Vinyl Chloride	0.84	U	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Xylene, o	2.4	=	UG/M3	0.84	0.84
		1703205_003_091317_SS-1	AS	N	42991.3632	Xylenes, m & p	5.2	=	UG/M3	1.7	1.7
		1703205_003_091317_SS-2	AS	N	42991.3639	1,1,1-Trichloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,1,2,2-Tetrachloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,1,2-Trichloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,1-Dichloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,1-Dichloroethene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2,4-Trichlorobenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2,4-Trimethylbenzene	1.8	=	UG/M3	0.86	0.86

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dibromo-3-chloropropane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dibromoethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dichlorobenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dichloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,2-Dichloropropane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,3,5-Trimethylbenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,3-Butadiene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,3-Dichlorobenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,4-Dichlorobenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	1,4-Dioxane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	2-Butanone	8.6	U	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	2-Hexanone	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	4-Ethyltoluene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	4-Methyl-2-Pentanone	0.95	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Acetone	11	=	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	Acetonitrile	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Acrolein	3.4	U	UG/M3	3.4	3.4
		1703205_003_091317_SS-2	AS	N	42991.3639	Acrylonitrile	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Allyl chloride	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	alpha-Pinene	8.8	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Benzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Benzyl chloride	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Bromodichloromethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Bromoform	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Bromomethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Carbon Disulfide	8.6	U	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	Carbon tetrachloride	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Chlorobenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Chlorodibromomethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Chloroethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Chloroform	7.9	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Chloromethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	cis-1,2-Dichloroethene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	cis-1,3-Dichloropropene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Cyclohexane	1.7	U	UG/M3	1.7	1.7
		1703205_003_091317_SS-2	AS	N	42991.3639	Dichlorodifluoromethane	2.3	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Dichloromethane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	D-Limonene	130	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	ETHANOL	28	=	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	Ethyl acetate	50	=	UG/M3	1.7	1.7
		1703205_003_091317_SS-2	AS	N	42991.3639	Ethylbenzene	1.9	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Freon 113	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Hexachlorobutadiene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.6	U	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	Isopropylbenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Methyl methacrylate	1.7	U	UG/M3	1.7	1.7
		1703205_003_091317_SS-2	AS	N	42991.3639	Methyl tert-butyl ether (MTBE)	0.86	U	UG/M3	0.86	0.86

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_003_091317_SS-2	AS	N	42991.3639	Naphthalene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	N-Butyl Acetate	1.2	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	N-HEPTANE	0.91	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	n-Hexane	0.89	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Nonane	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	n-Propylbenzene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	OCTANE	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Propene	1.1	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Styrene	1.5	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Tetrachloroethene	90	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Tetrahydrofuran	23	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Toluene	7.1	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	trans-1,2-Dichloroethene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	trans-1,3-Dichloropropene	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Trichloroethylene	35	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Trichlorofluoromethane	1.9	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Vinyl Acetate	8.6	U	UG/M3	8.6	8.6
		1703205_003_091317_SS-2	AS	N	42991.3639	Vinyl Chloride	0.86	U	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Xylene, o	2.8	=	UG/M3	0.86	0.86
		1703205_003_091317_SS-2	AS	N	42991.3639	Xylenes, m & p	6.2	=	UG/M3	1.7	1.7
		PMC-03-SS01-110718	AS	N	43411.6257	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,1-Dichloroethane	0.3	U	ug/m3	0.3	2
		PMC-03-SS01-110718	AS	N	43411.6257	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2,3-Trimethylbenzene	0.28	U	ug/m3	0.28	2
		PMC-03-SS01-110718	AS	N	43411.6257	1,2,4-Trichlorobenzene	0.5	U	ug/m3	0.5	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2,4-Trimethylbenzene	0.79	J	ug/m3	0.29	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,3-Butadiene	0.34	U	ug/m3	0.34	2
		PMC-03-SS01-110718	AS	N	43411.6257	1,3-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	1,4-Dioxane	0.24	U	ug/m3	0.24	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	2-Butanone	0.95	J	ug/m3	0.43	3.9
		PMC-03-SS01-110718	AS	N	43411.6257	2-Hexanone	0.48	J	ug/m3	0.26	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	4-Methyl-2-Pentanone	0.51	J	ug/m3	0.28	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Acetone	9.8	J	ug/m3	4.7	21
		PMC-03-SS01-110718	AS	N	43411.6257	Acetonitrile	0.5	U	ug/m3	0.5	2
		PMC-03-SS01-110718	AS	N	43411.6257	Acrolein	0.58	U	ug/m3	0.58	3.9
		PMC-03-SS01-110718	AS	N	43411.6257	Acrylonitrile	0.43	U	ug/m3	0.43	2
		PMC-03-SS01-110718	AS	N	43411.6257	Benzene	0.3	U	ug/m3	0.3	2
		PMC-03-SS01-110718	AS	N	43411.6257	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
		PMC-03-SS01-110718	AS	N	43411.6257	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Bromoform	0.43	U	ug/m3	0.43	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-03-SS01-110718	AS	N	43411.6257	Bromomethane	0.29	U	ug/m3	0.29	1.9
		PMC-03-SS01-110718	AS	N	43411.6257	Carbon Disulfide	22	J	ug/m3	0.62	4.3
		PMC-03-SS01-110718	AS	N	43411.6257	CHLORODIFLUOROMETHANE	0.97	U	ug/m3	0.97	1.9
		PMC-03-SS01-110718	AS	N	43411.6257	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-03-SS01-110718	AS	N	43411.6257	Chloroform	1.1	J	ug/m3	0.28	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Chloromethane	0.33	U	ug/m3	0.33	1.9
		PMC-03-SS01-110718	AS	N	43411.6257	cis-1,2-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	cis-1,3-Dichloropropene	0.32	U	ug/m3	0.32	2.2
		PMC-03-SS01-110718	AS	N	43411.6257	Cyclohexane	0.58	U	ug/m3	0.58	3.9
		PMC-03-SS01-110718	AS	N	43411.6257	Dichlorodifluoromethane	2.4	=	ug/m3	0.34	2
		PMC-03-SS01-110718	AS	N	43411.6257	Dichloromethane	0.58	U	ug/m3	0.58	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	ETHANOL	5.1	J	ug/m3	1.4	20
		PMC-03-SS01-110718	AS	N	43411.6257	Ethylbenzene	0.37	J	ug/m3	0.29	2
		PMC-03-SS01-110718	AS	N	43411.6257	ISOPROPYL ALCOHOL (ISOPROPANOL)	4.7	J	ug/m3	0.85	8.1
		PMC-03-SS01-110718	AS	N	43411.6257	Methyl tert-butyl ether (MTBE)	0.24	U	ug/m3	0.24	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	n-Butanol	42	J	ug/m3	0.55	3.9
		PMC-03-SS01-110718	AS	N	43411.6257	n-Hexane	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Propene	0.7	J	ug/m3	0.51	2
		PMC-03-SS01-110718	AS	N	43411.6257	Styrene	0.33	U	ug/m3	0.33	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Tetrachloroethene	84	=	ug/m3	0.27	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Toluene	5.6	=	ug/m3	0.25	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Trichloroethylene	140	=	ug/m3	0.28	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Trichlorofluoromethane	1.4	J	ug/m3	0.32	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Trichlorotrifuoroethane	0.44	J	ug/m3	0.29	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Vinyl Acetate	4.7	U	ug/m3	4.7	21
		PMC-03-SS01-110718	AS	N	43411.6257	Vinyl Chloride	0.22	U	ug/m3	0.22	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Xylene, o	0.71	J	ug/m3	0.3	2.1
		PMC-03-SS01-110718	AS	N	43411.6257	Xylenes, m & p	1.7	J	ug/m3	0.55	4.3
		PMC-03-SS02-110718	AS	N	43411.6417	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2,3-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2,4-Trichlorobenzene	0.51	U	ug/m3	0.51	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2,4-Trimethylbenzene	0.55	J	ug/m3	0.29	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	2-Butanone	0.96	J	ug/m3	0.43	4
		PMC-03-SS02-110718	AS	N	43411.6417	2-Hexanone	0.26	U	ug/m3	0.26	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-03-SS02-110718	AS	N	43411.6417	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Acetone	9.2	J	ug/m3	4.7	21
		PMC-03-SS02-110718	AS	N	43411.6417	Acetonitrile	0.51	U	ug/m3	0.51	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Acrolein	0.59	U	ug/m3	0.59	4
		PMC-03-SS02-110718	AS	N	43411.6417	Acrylonitrile	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Benzene	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
		PMC-03-SS02-110718	AS	N	43411.6417	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Bromoform	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-03-SS02-110718	AS	N	43411.6417	Carbon Disulfide	20	=	ug/m3	0.63	4.3
		PMC-03-SS02-110718	AS	N	43411.6417	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
		PMC-03-SS02-110718	AS	N	43411.6417	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-03-SS02-110718	AS	N	43411.6417	Chloroform	5.3	=	ug/m3	0.28	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Chloromethane	0.34	U	ug/m3	0.34	2
		PMC-03-SS02-110718	AS	N	43411.6417	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
		PMC-03-SS02-110718	AS	N	43411.6417	Cyclohexane	0.59	U	ug/m3	0.59	4
		PMC-03-SS02-110718	AS	N	43411.6417	Dichlorodifluoromethane	2.4	=	ug/m3	0.34	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Dichloromethane	0.59	U	ug/m3	0.59	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	ETHANOL	2.7	J	ug/m3	1.5	20
		PMC-03-SS02-110718	AS	N	43411.6417	Ethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.4	J	ug/m3	0.87	8.3
		PMC-03-SS02-110718	AS	N	43411.6417	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	n-Butanol	5.2	=	ug/m3	0.55	4
		PMC-03-SS02-110718	AS	N	43411.6417	n-Hexane	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Propene	0.51	U	ug/m3	0.51	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Styrene	0.34	U	ug/m3	0.34	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Tetrachloroethene	180	=	ug/m3	0.27	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Toluene	3.7	=	ug/m3	0.26	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Trichloroethylene	35	=	ug/m3	0.28	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Trichlorofluoromethane	1.5	J	ug/m3	0.32	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Trichlorotrifuoroethane	0.49	J	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Vinyl Acetate	4.7	U	ug/m3	4.7	21
		PMC-03-SS02-110718	AS	N	43411.6417	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Xylene, o	0.52	J	ug/m3	0.3	2.1
		PMC-03-SS02-110718	AS	N	43411.6417	Xylenes, m & p	1.2	J	ug/m3	0.55	4.3
		PMC-SS-03-01-011217	AS	N	42747.5243	1,1,1-Trichloroethane	1.67	=	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,2,4-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,2-Dichloroethane	0.82	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-03-01-011217	AS	N	42747.5243	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	2-Butanone	0.6	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Acrolein	0.47	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Benzene	0.65	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Bromoform	2.1	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Bromomethane	0.79	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Carbon Disulfide	0.64	=	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Chloroethane	0.54	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Chloroform	0.99	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Chloromethane	0.63	=	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Dichlorodifluoromethane	35.7	J	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Freon 113	1.55	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Styrene	0.86	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Tetrachloroethene	130	J	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Toluene	0.76	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Trichloroethylene	174	=	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Trichlorofluoromethane	1.14	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Xylene, o	0.88	U	ug/m3		
		PMC-SS-03-01-011217	AS	N	42747.5243	Xylenes, m & p	0.88	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,1,1-Trichloroethane	1.44	=	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,1-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,2,4-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,2-Dichloroethane	0.82	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-03-02-011117	AS	N	42746.475	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	2-Butanone	1.16	=	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Acrolein	0.47	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Benzene	0.65	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Bromoform	2.1	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Bromomethane	0.79	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Chloroethane	0.54	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Chloroform	5.99	=	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Chloromethane	0.42	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Dichlorodifluoromethane	25.2	J	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Freon 113	1.55	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Styrene	0.86	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Tetrachloroethene	93.6	J	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Toluene	1.78	=	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Trichloroethylene	36.6	=	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Trichlorofluoromethane	1.14	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Xylene, o	0.88	U	ug/m3		
		PMC-SS-03-02-011117	AS	N	42746.475	Xylenes, m & p	0.88	U	ug/m3		
		1703205_004_011918_SS-1	AS	N	43119.4076	1,1,1-Trichloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,1,2,2-Tetrachloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,1,2-Trichloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,1-Dichloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,1-Dichloroethene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2,4-Trichlorobenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2,4-Trimethylbenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dibromo-3-chloropropane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dibromoethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.85	U	UG/M3	0.85	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dichlorobenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dichloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,2-Dichloropropane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,3,5-Trimethylbenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,3-Butadiene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,3-Dichlorobenzene	3.7	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,4-Dichlorobenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	1,4-Dioxane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	2-Butanone	8.5	U	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	2-Hexanone	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	4-Ethyltoluene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	4-Methyl-2-Pentanone	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Acetone	12	=	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	Acetonitrile	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Acrolein	3.4	U	UG/M3	3.4	3.4
		1703205_004_011918_SS-1	AS	N	43119.4076	Acrylonitrile	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Allyl chloride	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	alpha-Pinene	1.6	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Benzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Benzyl chloride	1.7	U	UG/M3	1.7	1.7
		1703205_004_011918_SS-1	AS	N	43119.4076	Bromodichloromethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Bromoform	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Bromomethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Carbon Disulfide	8.5	U	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	Carbon tetrachloride	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Chlorobenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Chlorodibromomethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Chloroethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Chloroform	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Chloromethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	cis-1,2-Dichloroethene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	cis-1,3-Dichloropropene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Cyclohexane	1.7	U	UG/M3	1.7	1.7
		1703205_004_011918_SS-1	AS	N	43119.4076	Dichlorodifluoromethane	2.7	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Dichloromethane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	D-Limonene	19	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	ETHANOL	28	=	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	Ethyl acetate	2.8	=	UG/M3	1.7	1.7
		1703205_004_011918_SS-1	AS	N	43119.4076	Ethylbenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Freon 113	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Hexachlorobutadiene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.5	U	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	Isopropylbenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Methyl methacrylate	1.7	U	UG/M3	1.7	1.7
		1703205_004_011918_SS-1	AS	N	43119.4076	Methyl tert-butyl ether (MTBE)	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Naphthalene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	N-Butyl Acetate	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	N-HEPTANE	0.85	U	UG/M3	0.85	0.85

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_004_011918_SS-1	AS	N	43119.4076	n-Hexane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Nonane	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	n-Propylbenzene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	OCTANE	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Propene	1.2	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Styrene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Tetrachloroethene	4.1	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Tetrahydrofuran	2.7	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Toluene	3.5	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	trans-1,2-Dichloroethene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	trans-1,3-Dichloropropene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Trichloroethylene	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Trichlorofluoromethane	1.1	=	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Vinyl Acetate	8.5	U	UG/M3	8.5	8.5
		1703205_004_011918_SS-1	AS	N	43119.4076	Vinyl Chloride	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Xylene, o	0.85	U	UG/M3	0.85	0.85
		1703205_004_011918_SS-1	AS	N	43119.4076	Xylenes, m & p	1.7	U	UG/M3	1.7	1.7
		1703205_004_040517_SS-1	AS	N	42830.3847	1,1,1-Trichloroethane	1	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,1,2,2-Tetrachloroethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,1,2-Trichloroethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,1-Dichloroethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,1-Dichloroethene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2,4-Trichlorobenzene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2,4-Trimethylbenzene	1.1	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dibromo-3-chloropropane	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dibromoethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dichloroethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,2-Dichloropropane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,3,5-Trimethylbenzene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	1,3-Butadiene	0.33	U	ug/m3	0.33	0.33
		1703205_004_040517_SS-1	AS	N	42830.3847	1,3-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,4-Dichlorobenzene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	1,4-Dioxane	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	2-Butanone	8.2	U	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	2-Hexanone	1.1	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	4-Ethyltoluene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	4-Methyl-2-Pentanone	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Acetone	11	=	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	Acetonitrile	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Acrolein	3.3	U	ug/m3	3.3	3.3
		1703205_004_040517_SS-1	AS	N	42830.3847	Acrylonitrile	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Allyl chloride	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	alpha-Pinene	1.3	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Benzene	1.1	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Benzyl chloride	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Bromodichloromethane	0.16	U	ug/m3	0.16	0.16

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_004_040517_SS-1	AS	N	42830.3847	Bromoform	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Bromomethane	0.33	U	ug/m3	0.33	0.33
		1703205_004_040517_SS-1	AS	N	42830.3847	Carbon Disulfide	8.2	U	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	Carbon tetrachloride	0.24	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Chlorobenzene	0.73	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Chlorodibromomethane	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Chloroethane	0.33	U	ug/m3	0.33	0.33
		1703205_004_040517_SS-1	AS	N	42830.3847	Chloroform	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Chloromethane	11	=	ug/m3	0.33	0.33
		1703205_004_040517_SS-1	AS	N	42830.3847	cis-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	cis-1,3-Dichloropropene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Cyclohexane	2	=	ug/m3	1.6	1.6
		1703205_004_040517_SS-1	AS	N	42830.3847	Dichlorodifluoromethane	48	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Dichloromethane	2.4	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	D-Limonene	1.1	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	ETHANOL	10	=	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	Ethyl acetate	20	=	ug/m3	1.6	1.6
		1703205_004_040517_SS-1	AS	N	42830.3847	Ethylbenzene	1.8	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Freon 113	0.39	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Hexachlorobutadiene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.2	U	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	Isopropylbenzene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Methyl methacrylate	1.6	U	ug/m3	1.6	1.6
		1703205_004_040517_SS-1	AS	N	42830.3847	Methyl tert-butyl ether (MTBE)	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Naphthalene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	N-Butyl Acetate	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	N-HEPTANE	1.3	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	n-Hexane	3.2	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Nonane	1.8	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	n-Propylbenzene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	OCTANE	5.2	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Propene	1.2	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Styrene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Tetrachloroethene	220	=	ug/m3	0.41	0.41
		1703205_004_040517_SS-1	AS	N	42830.3847	Tetrahydrofuran	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Toluene	11	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	trans-1,2-Dichloroethene	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	trans-1,3-Dichloropropene	0.82	U	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Trichloroethylene	100	=	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Trichlorofluoromethane	1.1	J+	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Vinyl Acetate	8.2	U	ug/m3	8.2	8.2
		1703205_004_040517_SS-1	AS	N	42830.3847	Vinyl Chloride	0.16	U	ug/m3	0.16	0.16
		1703205_004_040517_SS-1	AS	N	42830.3847	Xylene, o	1.1	=	ug/m3	0.82	0.82
		1703205_004_040517_SS-1	AS	N	42830.3847	Xylenes, m & p	2.7	=	ug/m3	0.82	0.82
		1703205_004_091317_SS-1	AS	N	42991.3868	1,1,1-Trichloroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,1,2,2-Tetrachloroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,1,2-Trichloroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,1-Dichloroethane	0.87	U	UG/M3	0.87	0.87

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_004_091317_SS-1	AS	N	42991.3868	1,1-Dichloroethene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2,4-Trichlorobenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2,4-Trimethylbenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dibromo-3-chloropropane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dibromoethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dichlorobenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dichloroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,2-Dichloropropane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,3,5-Trimethylbenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,3-Butadiene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,3-Dichlorobenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,4-Dichlorobenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	1,4-Dioxane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	2-Butanone	8.7	U	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	2-Hexanone	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	4-Ethyltoluene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	4-Methyl-2-Pentanone	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Acetone	8.7	U	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Acetonitrile	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Acrolein	3.5	U	UG/M3	3.5	3.5
		1703205_004_091317_SS-1	AS	N	42991.3868	Acrylonitrile	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Allyl chloride	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	alpha-Pinene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Benzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Benzyl chloride	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Bromodichloromethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Bromoform	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Bromomethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Carbon Disulfide	8.7	U	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Carbon tetrachloride	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Chlorobenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Chlorodibromomethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Chloroethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Chloroform	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Chloromethane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	cis-1,2-Dichloroethene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	cis-1,3-Dichloropropene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Cyclohexane	1.7	U	UG/M3	1.7	1.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Dichlorodifluoromethane	2.3	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Dichloromethane	1.5	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	D-Limonene	5.2	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	ETHANOL	11	=	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Ethyl acetate	44	J	UG/M3	1.7	1.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Ethylbenzene	1.5	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Freon 113	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Hexachlorobutadiene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.7	U	UG/M3	8.7	8.7

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		1703205_004_091317_SS-1	AS	N	42991.3868	Isopropylbenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Methyl methacrylate	1.7	U	UG/M3	1.7	1.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Methyl tert-butyl ether (MTBE)	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Naphthalene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	N-Butyl Acetate	0.97	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	N-HEPTANE	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	n-Hexane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Nonane	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	n-Propylbenzene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	OCTANE	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Propene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Styrene	0.89	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Tetrachloroethene	300	D	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Tetrahydrofuran	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Toluene	5.9	J	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	trans-1,2-Dichloroethene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	trans-1,3-Dichloropropene	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Trichloroethylene	130	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Trichlorofluoromethane	1.8	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Vinyl Acetate	8.7	U	UG/M3	8.7	8.7
		1703205_004_091317_SS-1	AS	N	42991.3868	Vinyl Chloride	0.87	U	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Xylene, o	1.7	=	UG/M3	0.87	0.87
		1703205_004_091317_SS-1	AS	N	42991.3868	Xylenes, m & p	4.1	=	UG/M3	1.7	1.7
		PMC-04-SS01-110818	AS	N	43412.3576	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,2,4-Trimethylbenzene	0.44	J	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,2-Dichloroethane	0.22	U	ug/m3	0.22	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
		PMC-04-SS01-110818	AS	N	43412.3576	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	2-Butanone	0.76	J	ug/m3	0.4	3.7
		PMC-04-SS01-110818	AS	N	43412.3576	2-Hexanone	0.24	U	ug/m3	0.24	2
		PMC-04-SS01-110818	AS	N	43412.3576	4-Methyl-2-Pentanone	0.27	U	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Acetone	22	=	ug/m3	4.4	20
		PMC-04-SS01-110818	AS	N	43412.3576	Acetonitrile	0.47	U	ug/m3	0.47	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Acrolein	0.55	U	ug/m3	0.55	3.7
		PMC-04-SS01-110818	AS	N	43412.3576	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Benzene	0.28	U	ug/m3	0.28	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-04-SS01-110818	AS	N	43412.3576	Benzyl chloride	0.44	U	ug/m3	0.44	4
		PMC-04-SS01-110818	AS	N	43412.3576	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Bromoform	0.4	U	ug/m3	0.4	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Bromomethane	0.27	U	ug/m3	0.27	1.8
		PMC-04-SS01-110818	AS	N	43412.3576	Carbon Disulfide	0.58	U	ug/m3	0.58	4
		PMC-04-SS01-110818	AS	N	43412.3576	CHLORODIFLUOROMETHANE	0.91	U	ug/m3	0.91	1.8
		PMC-04-SS01-110818	AS	N	43412.3576	Chloroethane	0.24	U	ug/m3	0.24	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Chloroform	0.26	U	ug/m3	0.26	2
		PMC-04-SS01-110818	AS	N	43412.3576	Chloromethane	0.31	U	ug/m3	0.31	1.8
		PMC-04-SS01-110818	AS	N	43412.3576	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
		PMC-04-SS01-110818	AS	N	43412.3576	Cyclohexane	0.55	U	ug/m3	0.55	3.7
		PMC-04-SS01-110818	AS	N	43412.3576	Dichlorodifluoromethane	2.2	=	ug/m3	0.32	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Dichloromethane	0.55	U	ug/m3	0.55	2
		PMC-04-SS01-110818	AS	N	43412.3576	ETHANOL	3.5	J	ug/m3	1.4	19
		PMC-04-SS01-110818	AS	N	43412.3576	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.8	U	ug/m3	0.8	7.7
		PMC-04-SS01-110818	AS	N	43412.3576	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
		PMC-04-SS01-110818	AS	N	43412.3576	n-Butanol	0.51	U	ug/m3	0.51	3.7
		PMC-04-SS01-110818	AS	N	43412.3576	n-Hexane	0.4	U	ug/m3	0.4	2
		PMC-04-SS01-110818	AS	N	43412.3576	Propene	0.47	U	ug/m3	0.47	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Styrene	0.31	U	ug/m3	0.31	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Tetrachloroethene	120	=	ug/m3	0.25	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Toluene	3.1	=	ug/m3	0.24	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Trichloroethylene	54	=	ug/m3	0.26	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Trichlorofluoromethane	1.7	J	ug/m3	0.3	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Trichlorotrifuoroethane	0.4	J	ug/m3	0.28	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Vinyl Acetate	4.4	U	ug/m3	4.4	19
		PMC-04-SS01-110818	AS	N	43412.3576	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Xylene, o	0.43	J	ug/m3	0.28	1.9
		PMC-04-SS01-110818	AS	N	43412.3576	Xylenes, m & p	0.95	J	ug/m3	0.51	4
		1703205_005_011918_SS-1	AS	N	43119.4208	1,1,1-Trichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,1,2,2-Tetrachloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,1,2-Trichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,1-Dichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,1-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2,4-Trichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2,4-Trimethylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dibromo-3-chloropropane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dibromoethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dichloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,2-Dichloropropane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,3,5-Trimethylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,3-Butadiene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,3-Dichlorobenzene	4	=	UG/M3	0.81	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_005_011918_SS-1	AS	N	43119.4208	1,4-Dichlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	1,4-Dioxane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	2-Butanone	8.1	U	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	2-Hexanone	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	4-Ethyltoluene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	4-Methyl-2-Pentanone	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Acetone	8.1	U	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	Acetonitrile	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Acrolein	3.2	U	UG/M3	3.2	3.2
		1703205_005_011918_SS-1	AS	N	43119.4208	Acrylonitrile	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Allyl chloride	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	alpha-Pinene	1.7	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Benzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Benzyl chloride	1.6	U	UG/M3	1.6	1.6
		1703205_005_011918_SS-1	AS	N	43119.4208	Bromodichloromethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Bromoform	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Bromomethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Carbon Disulfide	8.1	U	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	Carbon tetrachloride	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Chlorobenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Chlorodibromomethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Chloroethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Chloroform	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Chloromethane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	cis-1,2-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	cis-1,3-Dichloropropene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Cyclohexane	1.6	U	UG/M3	1.6	1.6
		1703205_005_011918_SS-1	AS	N	43119.4208	Dichlorodifluoromethane	2.2	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Dichloromethane	1.8	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	D-Limonene	20	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	ETHANOL	27	=	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	Ethyl acetate	2.3	=	UG/M3	1.6	1.6
		1703205_005_011918_SS-1	AS	N	43119.4208	Ethylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Freon 113	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Hexachlorobutadiene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.1	U	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	Isopropylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_005_011918_SS-1	AS	N	43119.4208	Methyl tert-butyl ether (MTBE)	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Naphthalene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	N-Butyl Acetate	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	N-HEPTANE	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	n-Hexane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Nonane	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	n-Propylbenzene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	OCTANE	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Propene	1.6	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Styrene	0.81	U	UG/M3	0.81	0.81

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_005_011918_SS-1	AS	N	43119.4208	Tetrachloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Tetrahydrofuran	2.9	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Toluene	3.4	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	trans-1,2-Dichloroethene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	trans-1,3-Dichloropropene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Trichloroethylene	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Trichlorofluoromethane	1.1	=	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Vinyl Acetate	8.1	U	UG/M3	8.1	8.1
		1703205_005_011918_SS-1	AS	N	43119.4208	Vinyl Chloride	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Xylene, o	0.81	U	UG/M3	0.81	0.81
		1703205_005_011918_SS-1	AS	N	43119.4208	Xylenes, m & p	1.6	U	UG/M3	1.6	1.6
		1703205_005_110917_SS-1	AS	N	43048.4493	1,1,1-Trichloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,1,2,2-Tetrachloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,1,2-Trichloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,1-Dichloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,1-Dichloroethene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2,4-Trichlorobenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2,4-Trimethylbenzene	2.4	J+	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dibromo-3-chloropropane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dibromoethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dichlorobenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dichloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,2-Dichloropropane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,3,5-Trimethylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,3-Butadiene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,3-Dichlorobenzene	4.9	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,4-Dichlorobenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	1,4-Dioxane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	2-Butanone	7.8	U	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	2-Hexanone	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	4-Ethyltoluene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	4-Methyl-2-Pentanone	0.78	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Acetone	63	=	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	Acetonitrile	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Acrolein	3.1	U	UG/M3	3.1	3.1
		1703205_005_110917_SS-1	AS	N	43048.4493	Acrylonitrile	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Allyl chloride	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	alpha-Pinene	2.4	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Benzene	1.3	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Benzyl chloride	1.6	U	UG/M3	1.6	1.6
		1703205_005_110917_SS-1	AS	N	43048.4493	Bromodichloromethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Bromoform	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Bromomethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Carbon Disulfide	7.8	U	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	Carbon tetrachloride	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Chlorobenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Chlorodibromomethane	0.78	U	UG/M3	0.78	0.78

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_005_110917_SS-1	AS	N	43048.4493	Chloroethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Chloroform	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Chloromethane	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	cis-1,2-Dichloroethene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	cis-1,3-Dichloropropene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Cyclohexane	2.8	=	UG/M3	1.6	1.6
		1703205_005_110917_SS-1	AS	N	43048.4493	Dichlorodifluoromethane	2.2	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Dichloromethane	48	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	D-Limonene	27	J+	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	ETHANOL	52	=	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	Ethyl acetate	2.1	=	UG/M3	1.6	1.6
		1703205_005_110917_SS-1	AS	N	43048.4493	Ethylbenzene	1.6	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Freon 113	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Hexachlorobutadiene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.8	U	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	Isopropylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_005_110917_SS-1	AS	N	43048.4493	Methyl tert-butyl ether (MTBE)	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Naphthalene	1.1	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	N-Butyl Acetate	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	N-HEPTANE	5.3	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	n-Hexane	7.5	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Nonane	1.1	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	n-Propylbenzene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	OCTANE	2.4	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Propene	1.3	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Styrene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Tetrachloroethene	29	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Tetrahydrofuran	8.1	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Toluene	5.6	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	trans-1,2-Dichloroethene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	trans-1,3-Dichloropropene	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Trichloroethylene	54	J+	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Trichlorofluoromethane	1.7	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Vinyl Acetate	7.8	U	UG/M3	7.8	7.8
		1703205_005_110917_SS-1	AS	N	43048.4493	Vinyl Chloride	0.78	U	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Xylene, o	1.8	=	UG/M3	0.78	0.78
		1703205_005_110917_SS-1	AS	N	43048.4493	Xylenes, m & p	4.3	=	UG/M3	1.6	1.6
		1703205_005_110917_SS-2	AS	N	43048.4431	1,1,1-Trichloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,1,2,2-Tetrachloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,1,2-Trichloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,1-Dichloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,1-Dichloroethene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2,4-Trichlorobenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2,4-Trimethylbenzene	2.3	J+	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dibromo-3-chloropropane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dibromoethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.8	U	UG/M3	0.8	0.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dichlorobenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dichloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,2-Dichloropropane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,3,5-Trimethylbenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,3-Butadiene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,3-Dichlorobenzene	13	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,4-Dichlorobenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	1,4-Dioxane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	2-Butanone	8	U	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	2-Hexanone	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	4-Ethyltoluene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	4-Methyl-2-Pentanone	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Acetone	60	=	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	Acetonitrile	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Acrolein	3.2	U	UG/M3	3.2	3.2
		1703205_005_110917_SS-2	AS	N	43048.4431	Acrylonitrile	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Allyl chloride	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	alpha-Pinene	2.8	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Benzene	1.5	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Benzyl chloride	1.6	U	UG/M3	1.6	1.6
		1703205_005_110917_SS-2	AS	N	43048.4431	Bromodichloromethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Bromoform	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Bromomethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Carbon Disulfide	8	U	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	Carbon tetrachloride	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Chlorobenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Chlorodibromomethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Chloroethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Chloroform	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Chloromethane	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	cis-1,2-Dichloroethene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	cis-1,3-Dichloropropene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Cyclohexane	3.6	=	UG/M3	1.6	1.6
		1703205_005_110917_SS-2	AS	N	43048.4431	Dichlorodifluoromethane	2.3	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Dichloromethane	40	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	D-Limonene	57	J+	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	ETHANOL	62	=	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	Ethyl acetate	2.8	=	UG/M3	1.6	1.6
		1703205_005_110917_SS-2	AS	N	43048.4431	Ethylbenzene	1.7	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Freon 113	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Hexachlorobutadiene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	ISOPROPYL ALCOHOL (ISOPROPANOL)	8	U	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	Isopropylbenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Methyl methacrylate	1.6	U	UG/M3	1.6	1.6
		1703205_005_110917_SS-2	AS	N	43048.4431	Methyl tert-butyl ether (MTBE)	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Naphthalene	1.2	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	N-Butyl Acetate	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	N-HEPTANE	4.9	=	UG/M3	0.8	0.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
		1703205_005_110917_SS-2	AS	N	43048.4431	n-Hexane	8.9	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Nonane	1.3	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	n-Propylbenzene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	OCTANE	2.5	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Propene	1.4	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Styrene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Tetrachloroethene	15	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Tetrahydrofuran	8.1	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Toluene	5.8	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	trans-1,2-Dichloroethene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	trans-1,3-Dichloropropene	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Trichloroethylene	62	J+	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Trichlorofluoromethane	1.2	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Vinyl Acetate	8	U	UG/M3	8	8
		1703205_005_110917_SS-2	AS	N	43048.4431	Vinyl Chloride	0.8	U	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Xylene, o	1.7	=	UG/M3	0.8	0.8
		1703205_005_110917_SS-2	AS	N	43048.4431	Xylenes, m & p	4.2	=	UG/M3	1.6	1.6
		PMC-05-SS01-110818	AS	N	43412.3729	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,1,2-Trichloroethane	0.19	U	ug/m3	0.19	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,1-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2,3-Trimethylbenzene	0.26	U	ug/m3	0.26	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2,4-Trimethylbenzene	0.67	J	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2-Dibromoethane	0.22	U	ug/m3	0.22	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2-Dichlorobenzene	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2-Dichloroethane	0.21	U	ug/m3	0.21	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,2-Dichloropropane	0.24	U	ug/m3	0.24	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	2-Butanone	0.63	J	ug/m3	0.4	3.6
		PMC-05-SS01-110818	AS	N	43412.3729	2-Hexanone	0.33	J	ug/m3	0.24	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	4-Methyl-2-Pentanone	0.26	U	ug/m3	0.26	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Acetone	14	J	ug/m3	4.3	19
		PMC-05-SS01-110818	AS	N	43412.3729	Acetonitrile	0.47	U	ug/m3	0.47	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Acrolein	0.54	U	ug/m3	0.54	3.6
		PMC-05-SS01-110818	AS	N	43412.3729	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Benzene	0.37	J	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Benzyl chloride	0.43	U	ug/m3	0.43	4
		PMC-05-SS01-110818	AS	N	43412.3729	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Bromoform	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Bromomethane	0.27	U	ug/m3	0.27	1.8
		PMC-05-SS01-110818	AS	N	43412.3729	Carbon Disulfide	0.58	U	ug/m3	0.58	4
		PMC-05-SS01-110818	AS	N	43412.3729	CHLORODIFLUOROMETHANE	0.9	U	ug/m3	0.9	1.8

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-05-SS01-110818	AS	N	43412.3729	Chloroethane	0.24	U	ug/m3	0.24	1.8
		PMC-05-SS01-110818	AS	N	43412.3729	Chloroform	0.28	J	ug/m3	0.26	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Chloromethane	0.31	U	ug/m3	0.31	1.8
		PMC-05-SS01-110818	AS	N	43412.3729	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
		PMC-05-SS01-110818	AS	N	43412.3729	Cyclohexane	0.54	U	ug/m3	0.54	3.6
		PMC-05-SS01-110818	AS	N	43412.3729	Dichlorodifluoromethane	2.4	=	ug/m3	0.31	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Dichloromethane	0.93	J	ug/m3	0.54	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	ETHANOL	4	J	ug/m3	1.3	18
		PMC-05-SS01-110818	AS	N	43412.3729	Ethylbenzene	0.38	J	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.94	J	ug/m3	0.79	7.6
		PMC-05-SS01-110818	AS	N	43412.3729	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	n-Butanol	0.5	U	ug/m3	0.5	3.6
		PMC-05-SS01-110818	AS	N	43412.3729	n-Hexane	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Propene	0.47	U	ug/m3	0.47	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Styrene	0.31	U	ug/m3	0.31	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Tetrachloroethene	8.2	=	ug/m3	0.25	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Toluene	4.6	=	ug/m3	0.23	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Trichloroethylene	21	=	ug/m3	0.26	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Trichlorofluoromethane	1.3	J	ug/m3	0.29	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Trichlorotrifuoroethane	0.53	J	ug/m3	0.27	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Vinyl Acetate	4.3	U	ug/m3	4.3	19
		PMC-05-SS01-110818	AS	N	43412.3729	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Xylene, o	0.66	J	ug/m3	0.28	1.9
		PMC-05-SS01-110818	AS	N	43412.3729	Xylenes, m & p	1.5	J	ug/m3	0.5	4
		PMC-05-SS02-110818	AS	N	43412.3861	1,1,1-Trichloroethane	0.24	U	ug/m3	0.24	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,1,2,2-Tetrachloroethane	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,1,2-Trichloroethane	0.2	U	ug/m3	0.2	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,1-Dichloroethane	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,1-Dichloroethene	0.27	U	ug/m3	0.27	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,2,3-Trimethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,2,4-Trichlorobenzene	0.47	U	ug/m3	0.47	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,2,4-Trimethylbenzene	0.47	J	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,2-Dibromoethane	0.23	U	ug/m3	0.23	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,2-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,2-Dichloroethane	0.22	U	ug/m3	0.22	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,2-Dichloropropane	0.24	U	ug/m3	0.24	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,3,5-Trimethylbenzene	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,3-Butadiene	0.32	U	ug/m3	0.32	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	1,3-Dichlorobenzene	0.29	U	ug/m3	0.29	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,4-Dichlorobenzene	0.3	U	ug/m3	0.3	2
		PMC-05-SS02-110818	AS	N	43412.3861	1,4-Dioxane	0.23	U	ug/m3	0.23	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	2-Butanone	0.46	J	ug/m3	0.4	3.7
		PMC-05-SS02-110818	AS	N	43412.3861	2-Hexanone	0.39	J	ug/m3	0.24	2
		PMC-05-SS02-110818	AS	N	43412.3861	4-Methyl-2-Pentanone	0.48	J	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Acetone	6.4	J	ug/m3	4.4	20
		PMC-05-SS02-110818	AS	N	43412.3861	Acetonitrile	0.47	U	ug/m3	0.47	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-05-SS02-110818	AS	N	43412.3861	Acrolein	0.55	U	ug/m3	0.55	3.7
		PMC-05-SS02-110818	AS	N	43412.3861	Acrylonitrile	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Benzene	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Benzyl chloride	0.44	U	ug/m3	0.44	4
		PMC-05-SS02-110818	AS	N	43412.3861	Bromodichloromethane	0.28	U	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Bromoform	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Bromomethane	0.27	U	ug/m3	0.27	1.8
		PMC-05-SS02-110818	AS	N	43412.3861	Carbon Disulfide	0.58	U	ug/m3	0.58	4
		PMC-05-SS02-110818	AS	N	43412.3861	CHLORODIFLUOROMETHANE	0.91	U	ug/m3	0.91	1.8
		PMC-05-SS02-110818	AS	N	43412.3861	Chloroethane	0.24	U	ug/m3	0.24	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Chloroform	0.27	J	ug/m3	0.26	2
		PMC-05-SS02-110818	AS	N	43412.3861	Chloromethane	0.31	U	ug/m3	0.31	1.8
		PMC-05-SS02-110818	AS	N	43412.3861	cis-1,2-Dichloroethene	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	cis-1,3-Dichloropropene	0.3	U	ug/m3	0.3	2
		PMC-05-SS02-110818	AS	N	43412.3861	Cyclohexane	0.55	U	ug/m3	0.55	3.7
		PMC-05-SS02-110818	AS	N	43412.3861	Dichlorodifluoromethane	2.2	=	ug/m3	0.32	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Dichloromethane	2	J	ug/m3	0.55	2
		PMC-05-SS02-110818	AS	N	43412.3861	ETHANOL	4.2	J	ug/m3	1.4	19
		PMC-05-SS02-110818	AS	N	43412.3861	Ethylbenzene	0.27	U	ug/m3	0.27	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.1	J	ug/m3	0.8	7.7
		PMC-05-SS02-110818	AS	N	43412.3861	Methyl tert-butyl ether (MTBE)	0.23	U	ug/m3	0.23	2
		PMC-05-SS02-110818	AS	N	43412.3861	n-Butanol	0.51	U	ug/m3	0.51	3.7
		PMC-05-SS02-110818	AS	N	43412.3861	n-Hexane	0.4	U	ug/m3	0.4	2
		PMC-05-SS02-110818	AS	N	43412.3861	Propene	0.47	U	ug/m3	0.47	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Styrene	0.31	U	ug/m3	0.31	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Tetrachloroethene	25	=	ug/m3	0.25	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Toluene	3.2	=	ug/m3	0.24	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	trans-1,3-Dichloropropene	0.4	U	ug/m3	0.4	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Trichloroethylene	24	=	ug/m3	0.26	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Trichlorofluoromethane	1.3	J	ug/m3	0.3	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Trichlorotrifuoroethane	0.39	J	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Vinyl Acetate	4.4	U	ug/m3	4.4	19
		PMC-05-SS02-110818	AS	N	43412.3861	Vinyl Chloride	0.21	U	ug/m3	0.21	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Xylene, o	0.41	J	ug/m3	0.28	1.9
		PMC-05-SS02-110818	AS	N	43412.3861	Xylenes, m & p	0.93	J	ug/m3	0.51	4
		1703205_006_011918_SS-1	AS	N	43119.4375	1,1,1-Trichloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,1,2,2-Tetrachloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,1,2-Trichloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,1-Dichloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,1-Dichloroethene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2,4-Trichlorobenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2,4-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dibromo-3-chloropropane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dibromoethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dichlorobenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dichloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,2-Dichloropropane	0.73	U	UG/M3	0.73	0.73

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_011918_SS-1	AS	N	43119.4375	1,3,5-Trimethylbenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,3-Butadiene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,3-Dichlorobenzene	3.6	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,4-Dichlorobenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	1,4-Dioxane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	2-Butanone	7.3	U	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	2-Hexanone	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	4-Ethyltoluene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	4-Methyl-2-Pentanone	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Acetone	7.3	U	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	Acetonitrile	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Acrolein	2.9	U	UG/M3	2.9	2.9
		1703205_006_011918_SS-1	AS	N	43119.4375	Acrylonitrile	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Allyl chloride	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	alpha-Pinene	1.8	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Benzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Benzyl chloride	1.5	U	UG/M3	1.5	1.5
		1703205_006_011918_SS-1	AS	N	43119.4375	Bromodichloromethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Bromoform	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Bromomethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Carbon Disulfide	7.3	U	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	Carbon tetrachloride	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Chlorobenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Chlorodibromomethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Chloroethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Chloroform	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Chloromethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	cis-1,2-Dichloroethene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	cis-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Cyclohexane	1.5	U	UG/M3	1.5	1.5
		1703205_006_011918_SS-1	AS	N	43119.4375	Dichlorodifluoromethane	2	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Dichloromethane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	D-Limonene	17	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	ETHANOL	30	=	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	Ethyl acetate	3.4	=	UG/M3	1.5	1.5
		1703205_006_011918_SS-1	AS	N	43119.4375	Ethylbenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Freon 113	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Hexachlorobutadiene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.3	U	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	Isopropylbenzene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
		1703205_006_011918_SS-1	AS	N	43119.4375	Methyl tert-butyl ether (MTBE)	0.83	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Naphthalene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	N-Butyl Acetate	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	N-HEPTANE	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	n-Hexane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Nonane	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	n-Propylbenzene	0.73	U	UG/M3	0.73	0.73

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_011918_SS-1	AS	N	43119.4375	OCTANE	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Propene	1.7	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Styrene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Tetrachloroethene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Tetrahydrofuran	2.5	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Toluene	2.9	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	trans-1,2-Dichloroethene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	trans-1,3-Dichloropropene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Trichloroethylene	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Trichlorofluoromethane	0.85	=	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Vinyl Acetate	7.3	U	UG/M3	7.3	7.3
		1703205_006_011918_SS-1	AS	N	43119.4375	Vinyl Chloride	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Xylene, o	0.73	U	UG/M3	0.73	0.73
		1703205_006_011918_SS-1	AS	N	43119.4375	Xylenes, m & p	1.5	U	UG/M3	1.5	1.5
		1703205_006_011918_SS-2	AS	N	43119.4361	1,1,1-Trichloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,1,2,2-Tetrachloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,1,2-Trichloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,1-Dichloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,1-Dichloroethene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2,4-Trichlorobenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2,4-Trimethylbenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dibromo-3-chloropropane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dibromoethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dichlorobenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dichloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,2-Dichloropropane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,3,5-Trimethylbenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,3-Butadiene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,3-Dichlorobenzene	4.9	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,4-Dichlorobenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	1,4-Dioxane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	2-Butanone	8.3	U	UG/M3	8.3	8.3
		1703205_006_011918_SS-2	AS	N	43119.4361	2-Hexanone	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	4-Ethyltoluene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	4-Methyl-2-Pentanone	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Acetone	9.3	=	UG/M3	8.3	8.3
		1703205_006_011918_SS-2	AS	N	43119.4361	Acetonitrile	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Acrolein	3.3	U	UG/M3	3.3	3.3
		1703205_006_011918_SS-2	AS	N	43119.4361	Acrylonitrile	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Allyl chloride	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	alpha-Pinene	2.6	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Benzene	0.91	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Benzyl chloride	1.7	U	UG/M3	1.7	1.7
		1703205_006_011918_SS-2	AS	N	43119.4361	Bromodichloromethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Bromoform	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Bromomethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Carbon Disulfide	8.3	U	UG/M3	8.3	8.3

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_011918_SS-2	AS	N	43119.4361	Carbon tetrachloride	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Chlorobenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Chlorodibromomethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Chloroethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Chloroform	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Chloromethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	cis-1,2-Dichloroethene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	cis-1,3-Dichloropropene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Cyclohexane	1.7	U	UG/M3	1.7	1.7
		1703205_006_011918_SS-2	AS	N	43119.4361	Dichlorodifluoromethane	2.8	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Dichloromethane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	D-Limonene	23	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	ETHANOL	53	=	UG/M3	8.3	8.3
		1703205_006_011918_SS-2	AS	N	43119.4361	Ethyl acetate	61	=	UG/M3	1.7	1.7
		1703205_006_011918_SS-2	AS	N	43119.4361	Ethylbenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Freon 113	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Hexachlorobutadiene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	ISOPROPYL ALCOHOL (ISOPROPANOL)	8.3	U	UG/M3	8.3	8.3
		1703205_006_011918_SS-2	AS	N	43119.4361	Isopropylbenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Methyl methacrylate	1.7	U	UG/M3	1.7	1.7
		1703205_006_011918_SS-2	AS	N	43119.4361	Methyl tert-butyl ether (MTBE)	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Naphthalene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	N-Butyl Acetate	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	N-HEPTANE	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	n-Hexane	1.1	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Nonane	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	n-Propylbenzene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	OCTANE	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Propene	2.1	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Styrene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Tetrachloroethene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Tetrahydrofuran	3.6	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Toluene	6.4	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	trans-1,2-Dichloroethene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	trans-1,3-Dichloropropene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Trichloroethylene	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Trichlorofluoromethane	1.2	=	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Vinyl Acetate	8.3	U	UG/M3	8.3	8.3
		1703205_006_011918_SS-2	AS	N	43119.4361	Vinyl Chloride	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Xylene, o	0.83	U	UG/M3	0.83	0.83
		1703205_006_011918_SS-2	AS	N	43119.4361	Xylenes, m & p	2	=	UG/M3	1.7	1.7
		1703205_006_040517_SS-2	AS	N	42830.4097	1,1,1-Trichloroethane	0.77	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,1,2,2-Tetrachloroethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,1,2-Trichloroethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,1-Dichloroethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,1-Dichloroethene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2,4-Trichlorobenzene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2,4-Trimethylbenzene	0.94	=	ug/m3	0.75	0.75

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dibromo-3-chloropropane	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dibromoethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dichloroethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,2-Dichloropropane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,3,5-Trimethylbenzene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	1,3-Butadiene	0.3	U	ug/m3	0.3	0.3
		1703205_006_040517_SS-2	AS	N	42830.4097	1,3-Dichlorobenzene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,4-Dichlorobenzene	0.54	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	1,4-Dioxane	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	2-Butanone	7.5	U	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	2-Hexanone	0.84	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	4-Ethyltoluene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	4-Methyl-2-Pentanone	1	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Acetone	19	=	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Acetonitrile	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Acrolein	3	U	ug/m3	3	3
		1703205_006_040517_SS-2	AS	N	42830.4097	Acrylonitrile	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Allyl chloride	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	alpha-Pinene	2	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Benzene	0.17	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Benzyl chloride	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Bromodichloromethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Bromoform	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Bromomethane	0.3	U	ug/m3	0.3	0.3
		1703205_006_040517_SS-2	AS	N	42830.4097	Carbon Disulfide	7.5	U	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Carbon tetrachloride	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Chlorobenzene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Chlorodibromomethane	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Chloroethane	0.3	U	ug/m3	0.3	0.3
		1703205_006_040517_SS-2	AS	N	42830.4097	Chloroform	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Chloromethane	0.3	U	ug/m3	0.3	0.3
		1703205_006_040517_SS-2	AS	N	42830.4097	cis-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	cis-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Cyclohexane	1.5	U	ug/m3	1.5	1.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Dichlorodifluoromethane	120	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Dichloromethane	4.1	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	D-Limonene	2.2	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	ETHANOL	24	=	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Ethyl acetate	8.6	=	ug/m3	1.5	1.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Ethylbenzene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Freon 113	0.35	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Hexachlorobutadiene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.5	U	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Isopropylbenzene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Methyl methacrylate	1.5	U	ug/m3	1.5	1.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Methyl tert-butyl ether (MTBE)	0.15	U	ug/m3	0.15	0.15

Attachment H-4
Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_040517_SS-2	AS	N	42830.4097	Naphthalene	1.5	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	N-Butyl Acetate	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	N-HEPTANE	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	n-Hexane	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Nonane	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	n-Propylbenzene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	OCTANE	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Propene	1.2	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Styrene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Tetrachloroethene	76	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Tetrahydrofuran	3	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Toluene	1	=	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	trans-1,2-Dichloroethene	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	trans-1,3-Dichloropropene	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Trichloroethylene	88	=	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Trichlorofluoromethane	1.1	J+	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Vinyl Acetate	7.5	U	ug/m3	7.5	7.5
		1703205_006_040517_SS-2	AS	N	42830.4097	Vinyl Chloride	0.15	U	ug/m3	0.15	0.15
		1703205_006_040517_SS-2	AS	N	42830.4097	Xylene, o	0.75	U	ug/m3	0.75	0.75
		1703205_006_040517_SS-2	AS	N	42830.4097	Xylenes, m & p	1.2	=	ug/m3	0.75	0.75
		1703205_006_091317_SS-1	AS	N	42991.4	1,1,1-Trichloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,1,2,2-Tetrachloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,1,2-Trichloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,1-Dichloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,1-Dichloroethene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2,4-Trichlorobenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2,4-Trimethylbenzene	2.3	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dibromo-3-chloropropane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dibromoethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dichlorobenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dichloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,2-Dichloropropane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,3,5-Trimethylbenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,3-Butadiene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,3-Dichlorobenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,4-Dichlorobenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	1,4-Dioxane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	2-Butanone	11	=	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	2-Hexanone	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	4-Ethyltoluene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	4-Methyl-2-Pentanone	1.1	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Acetone	14	=	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	Acetonitrile	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Acrolein	3.6	U	UG/M3	3.6	3.6
		1703205_006_091317_SS-1	AS	N	42991.4	Acrylonitrile	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Allyl chloride	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	alpha-Pinene	14	=	UG/M3	0.9	0.9

Attachment H-4
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Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_091317_SS-1	AS	N	42991.4	Benzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Benzyl chloride	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Bromodichloromethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Bromoform	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Bromomethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Carbon Disulfide	9	U	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	Carbon tetrachloride	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Chlorobenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Chlorodibromomethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Chloroethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Chloroform	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Chloromethane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	cis-1,2-Dichloroethene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	cis-1,3-Dichloropropene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Cyclohexane	1.8	U	UG/M3	1.8	1.8
		1703205_006_091317_SS-1	AS	N	42991.4	Dichlorodifluoromethane	2.3	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Dichloromethane	1.9	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	D-Limonene	150	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	ETHANOL	110	=	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	Ethyl acetate	20	=	UG/M3	1.8	1.8
		1703205_006_091317_SS-1	AS	N	42991.4	Ethylbenzene	1.8	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Freon 113	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Hexachlorobutadiene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	ISOPROPYL ALCOHOL (ISOPROPANOL)	9	U	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	Isopropylbenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Methyl methacrylate	1.8	U	UG/M3	1.8	1.8
		1703205_006_091317_SS-1	AS	N	42991.4	Methyl tert-butyl ether (MTBE)	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Naphthalene	2.9	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	N-Butyl Acetate	1.1	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	N-HEPTANE	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	n-Hexane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Nonane	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	n-Propylbenzene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	OCTANE	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Propene	0.92	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Styrene	1.4	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Tetrachloroethene	4	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Tetrahydrofuran	33	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Toluene	9.1	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	trans-1,2-Dichloroethene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	trans-1,3-Dichloropropene	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Trichloroethylene	16	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Trichlorofluoromethane	1.6	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Vinyl Acetate	9	U	UG/M3	9	9
		1703205_006_091317_SS-1	AS	N	42991.4	Vinyl Chloride	0.9	U	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Xylene, o	2.7	=	UG/M3	0.9	0.9
		1703205_006_091317_SS-1	AS	N	42991.4	Xylenes, m & p	5.9	=	UG/M3	1.8	1.8
		1703205_006_091317_SS-2	AS	N	42991.4035	1,1,1-Trichloroethane	0.76	U	UG/M3	0.76	0.76

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Analytical Data to be used in the HHRA
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AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_091317_SS-2	AS	N	42991.4035	1,1,2,2-Tetrachloroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,1,2-Trichloroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,1-Dichloroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,1-Dichloroethene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2,4-Trichlorobenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2,4-Trimethylbenzene	2	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dibromo-3-chloropropane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dibromoethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dichlorobenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dichloroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,2-Dichloropropane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,3,5-Trimethylbenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,3-Butadiene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,3-Dichlorobenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,4-Dichlorobenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	1,4-Dioxane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	2-Butanone	7.6	U	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	2-Hexanone	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	4-Ethyltoluene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	4-Methyl-2-Pentanone	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Acetone	22	=	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	Acetonitrile	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Acrolein	3	U	UG/M3	3	3
		1703205_006_091317_SS-2	AS	N	42991.4035	Acrylonitrile	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Allyl chloride	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	alpha-Pinene	9.2	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Benzene	1.4	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Benzyl chloride	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Bromodichloromethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Bromoform	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Bromomethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Carbon Disulfide	7.6	U	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	Carbon tetrachloride	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Chlorobenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Chlorodibromomethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Chloroethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Chloroform	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Chloromethane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	cis-1,2-Dichloroethene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	cis-1,3-Dichloropropene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Cyclohexane	1.5	U	UG/M3	1.5	1.5
		1703205_006_091317_SS-2	AS	N	42991.4035	Dichlorodifluoromethane	2.4	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Dichloromethane	1.4	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	D-Limonene	110	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	ETHANOL	57	=	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	Ethyl acetate	180	=	UG/M3	1.5	1.5
		1703205_006_091317_SS-2	AS	N	42991.4035	Ethylbenzene	1.9	=	UG/M3	0.76	0.76

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_006_091317_SS-2	AS	N	42991.4035	Freon 113	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Hexachlorobutadiene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.6	U	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	Isopropylbenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
		1703205_006_091317_SS-2	AS	N	42991.4035	Methyl tert-butyl ether (MTBE)	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Naphthalene	2.3	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	N-Butyl Acetate	1.4	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	N-HEPTANE	1.3	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	n-Hexane	1.2	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Nonane	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	n-Propylbenzene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	OCTANE	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Propene	1.5	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Styrene	2.3	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Tetrachloroethene	18	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Tetrahydrofuran	11	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Toluene	13	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	trans-1,2-Dichloroethene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	trans-1,3-Dichloropropene	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Trichloroethylene	18	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Trichlorofluoromethane	1.5	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Vinyl Acetate	7.6	U	UG/M3	7.6	7.6
		1703205_006_091317_SS-2	AS	N	42991.4035	Vinyl Chloride	0.76	U	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Xylene, o	2.8	=	UG/M3	0.76	0.76
		1703205_006_091317_SS-2	AS	N	42991.4035	Xylenes, m & p	6.4	=	UG/M3	1.5	1.5
		PMC-06-SS01-110718	AS	N	43411.5813	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2,3-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2,4-Trichlorobenzene	0.52	U	ug/m3	0.52	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2,4-Trimethylbenzene	0.54	J	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,3,5-Trimethylbenzene	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,4-Dichlorobenzene	0.33	U	ug/m3	0.33	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	2-Butanone	0.71	J	ug/m3	0.44	4
		PMC-06-SS01-110718	AS	N	43411.5813	2-Hexanone	0.52	J	ug/m3	0.26	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	4-Methyl-2-Pentanone	0.49	J	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Acetone	13	J	ug/m3	4.8	21
		PMC-06-SS01-110718	AS	N	43411.5813	Acetonitrile	0.52	U	ug/m3	0.52	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-06-SS01-110718	AS	N	43411.5813	Acrolein	0.6	U	ug/m3	0.6	4
		PMC-06-SS01-110718	AS	N	43411.5813	Acrylonitrile	0.44	U	ug/m3	0.44	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Benzene	0.34	J	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Benzyl chloride	0.48	U	ug/m3	0.48	4.4
		PMC-06-SS01-110718	AS	N	43411.5813	Bromodichloromethane	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Bromoform	0.44	U	ug/m3	0.44	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-06-SS01-110718	AS	N	43411.5813	Carbon Disulfide	0.64	U	ug/m3	0.64	4.4
		PMC-06-SS01-110718	AS	N	43411.5813	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
		PMC-06-SS01-110718	AS	N	43411.5813	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-06-SS01-110718	AS	N	43411.5813	Chloroform	0.28	U	ug/m3	0.28	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Chloromethane	1.1	J	ug/m3	0.34	2
		PMC-06-SS01-110718	AS	N	43411.5813	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
		PMC-06-SS01-110718	AS	N	43411.5813	Cyclohexane	0.6	U	ug/m3	0.6	4
		PMC-06-SS01-110718	AS	N	43411.5813	Dichlorodifluoromethane	2.1	U	ug/m3	0.35	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Dichloromethane	0.6	U	ug/m3	0.6	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	ETHANOL	4.3	J	ug/m3	1.5	20
		PMC-06-SS01-110718	AS	N	43411.5813	Ethylbenzene	0.31	J	ug/m3	0.3	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	ISOPROPYL ALCOHOL (ISOPROPANOL)	0.87	U	ug/m3	0.87	8.3
		PMC-06-SS01-110718	AS	N	43411.5813	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	n-Butanol	35	=	ug/m3	0.56	4
		PMC-06-SS01-110718	AS	N	43411.5813	n-Hexane	0.44	U	ug/m3	0.44	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Propene	0.52	U	ug/m3	0.52	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Styrene	0.34	U	ug/m3	0.34	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Tetrachloroethene	1.7	J	ug/m3	0.27	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Toluene	4.1	=	ug/m3	0.26	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	trans-1,3-Dichloropropene	0.44	U	ug/m3	0.44	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Trichloroethylene	3.2	=	ug/m3	0.29	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Trichlorofluoromethane	1.1	J	ug/m3	0.32	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Trichlorotrifuoroethane	0.38	J	ug/m3	0.3	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Vinyl Acetate	4.8	U	ug/m3	4.8	21
		PMC-06-SS01-110718	AS	N	43411.5813	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Xylene, o	0.54	J	ug/m3	0.31	2.1
		PMC-06-SS01-110718	AS	N	43411.5813	Xylenes, m & p	1.3	J	ug/m3	0.56	4.4
		PMC-06-SS02-110718	AS	N	43411.5944	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2,3-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2,4-Trichlorobenzene	0.51	U	ug/m3	0.51	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2,4-Trimethylbenzene	0.56	J	ug/m3	0.29	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-06-SS02-110718	AS	N	43411.5944	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	2-Butanone	0.56	J	ug/m3	0.43	4
		PMC-06-SS02-110718	AS	N	43411.5944	2-Hexanone	0.26	U	ug/m3	0.26	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	4-Methyl-2-Pentanone	0.29	U	ug/m3	0.29	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Acetone	7.2	J	ug/m3	4.7	21
		PMC-06-SS02-110718	AS	N	43411.5944	Acetonitrile	0.51	U	ug/m3	0.51	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Acrolein	0.59	U	ug/m3	0.59	4
		PMC-06-SS02-110718	AS	N	43411.5944	Acrylonitrile	0.43	U	ug/m3	0.43	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Benzene	0.3	U	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
		PMC-06-SS02-110718	AS	N	43411.5944	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Bromoform	0.43	U	ug/m3	0.43	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-06-SS02-110718	AS	N	43411.5944	Carbon Disulfide	0.63	U	ug/m3	0.63	4.3
		PMC-06-SS02-110718	AS	N	43411.5944	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
		PMC-06-SS02-110718	AS	N	43411.5944	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-06-SS02-110718	AS	N	43411.5944	Chloroform	0.28	U	ug/m3	0.28	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Chloromethane	0.34	U	ug/m3	0.34	2
		PMC-06-SS02-110718	AS	N	43411.5944	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
		PMC-06-SS02-110718	AS	N	43411.5944	Cyclohexane	0.59	U	ug/m3	0.59	4
		PMC-06-SS02-110718	AS	N	43411.5944	Dichlorodifluoromethane	2.1	=	ug/m3	0.34	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Dichloromethane	0.59	U	ug/m3	0.59	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	ETHANOL	14	J	ug/m3	1.5	20
		PMC-06-SS02-110718	AS	N	43411.5944	Ethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.1	J	ug/m3	0.87	8.3
		PMC-06-SS02-110718	AS	N	43411.5944	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	n-Butanol	21	=	ug/m3	0.55	4
		PMC-06-SS02-110718	AS	N	43411.5944	n-Hexane	0.43	U	ug/m3	0.43	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Propene	0.51	U	ug/m3	0.51	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Styrene	0.34	U	ug/m3	0.34	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Tetrachloroethene	5.1	=	ug/m3	0.27	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Toluene	3.7	=	ug/m3	0.26	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Trichloroethylene	6.9	=	ug/m3	0.28	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Trichlorofluoromethane	1.1	J	ug/m3	0.32	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Trichlorotrifuoroethane	0.39	J	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Vinyl Acetate	4.7	U	ug/m3	4.7	21
		PMC-06-SS02-110718	AS	N	43411.5944	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Xylene, o	0.43	J	ug/m3	0.3	2.1
		PMC-06-SS02-110718	AS	N	43411.5944	Xylenes, m & p	0.99	J	ug/m3	0.55	4.3
		PMC-SS-06-01-011217	AS	N	42746.5194	1,1,1-Trichloroethane	1.38	J	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,1,2,2-Tetrachloroethane	1.39	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,1-Dichloroethane	0.82	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-06-01-011217	AS	N	42746.5194	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2,4-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,3-Butadiene	0.45	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	2-Butanone	0.6	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Acrolein	0.47	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Benzene	0.65	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Bromodichloromethane	1.36	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Bromoform	2.1	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Bromomethane	0.79	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Chloroethane	0.54	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Chloroform	0.99	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Chloromethane	1	=	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Dichlorodifluoromethane	25.2	J	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Freon 113	1.55	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	n-Hexane	0.71	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Styrene	0.86	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Tetrachloroethene	47.8	J	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Toluene	0.81	=	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Trichloroethylene	116	=	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Trichlorofluoromethane	1.69	=	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Xylene, o	0.88	U	ug/m3		
		PMC-SS-06-01-011217	AS	N	42746.5194	Xylenes, m & p	0.88	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,1,1-Trichloroethane	1.16	=	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,1,2,2-Tetrachloroethane	1.39	UJ	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,1,2-Trichloroethane	1.11	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,1-Dichloroethane	0.82	U	ug/m3		

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-06-02	AS	N	42746.6833	1,1-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2,4-Trichlorobenzene	1.51	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2,4-Trimethylbenzene	1.14	=	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2-Dibromoethane	0.62	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2-Dichloroethane	0.82	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,2-Dichloropropane	0.94	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,3,5-Trimethylbenzene	1	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,3-Butadiene	0.45	UJ	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,3-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,4-Dichlorobenzene	1.22	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	1,4-Dioxane	0.73	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	2-Butanone	0.6	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	2-Hexanone	0.83	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	4-Methyl-2-Pentanone	0.83	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Acrolein	0.47	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Benzene	0.65	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Benzyl chloride	1.05	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Bromodichloromethane	1.36	UJ	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Bromoform	2.1	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Bromomethane	0.79	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Carbon Disulfide	0.63	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Chloroethane	0.54	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Chloroform	0.99	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Chloromethane	1.15	=	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	cis-1,2-Dichloroethene	0.8	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	cis-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Cyclohexane	1.4	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Dichlorodifluoromethane	49.8	J	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Dichloromethane	0.7	UJ	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Dichlorotetrafluoroethane	1.42	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Ethylbenzene	0.88	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Freon 113	1.55	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Methyl tert-butyl ether (MTBE)	0.73	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	n-Hexane	0.71	UJ	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Styrene	0.86	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Tetrachloroethene	54	J	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Toluene	2.44	=	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	trans-1,3-Dichloropropene	0.92	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Trichloroethylene	76.1	=	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Trichlorofluoromethane	1.14	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Vinyl Chloride	0.52	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Xylene, o	0.88	U	ug/m3		
		PMC-SS-06-02	AS	N	42746.6833	Xylenes, m & p	1.08	=	ug/m3		
		PMC-SS-07-020617	AS	N	43138.6299	1,1,1-Trichloroethane	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,1,2,2-Tetrachloroethane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,1,2-Trichloroethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,1-Dichloroethane	0.61	U	ug/m3	0.61	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-07-020617	AS	N	43138.6299	1,1-Dichloroethene	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2,3-Trimethylbenzene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2,4-Trichlorobenzene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2,4-Trimethylbenzene	0.71	J	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2-Dibromoethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2-Dichloroethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,2-Dichloropropane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,3,5-Trimethylbenzene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,3-Butadiene	0.84	U	ug/m3	0.84	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,3-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,4-Dichlorobenzene	0.53	U	ug/m3	0.53	1.9
		PMC-SS-07-020617	AS	N	43138.6299	1,4-Dioxane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	2-Butanone	0.8	U	ug/m3	0.8	19
		PMC-SS-07-020617	AS	N	43138.6299	2-Hexanone	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	4-Methyl-2-Pentanone	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Acetone	34	=	ug/m3	2.9	19
		PMC-SS-07-020617	AS	N	43138.6299	Acetonitrile	0.68	U	ug/m3	0.68	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Acrolein	0.65	U	ug/m3	0.65	7.6
		PMC-SS-07-020617	AS	N	43138.6299	Acrylonitrile	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Benzene	0.99	J	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Benzyl chloride	0.42	U	ug/m3	0.42	3.8
		PMC-SS-07-020617	AS	N	43138.6299	Bromodichloromethane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Bromoform	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Bromomethane	0.72	U	ug/m3	0.72	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Carbon Disulfide	0.57	U	ug/m3	0.57	19
		PMC-SS-07-020617	AS	N	43138.6299	CHLORODIFLUOROMETHANE	0.95	U	ug/m3	0.95	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Chloroethane	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Chloroform	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Chloromethane	0.87	J	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	cis-1,2-Dichloroethene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	cis-1,3-Dichloropropene	0.53	U	ug/m3	0.53	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Cyclohexane	1.1	U	ug/m3	1.1	3.8
		PMC-SS-07-020617	AS	N	43138.6299	Dichlorodifluoromethane	2.1	=	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Dichloromethane	0.76	J	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	ETHANOL	39	=	ug/m3	3	19
		PMC-SS-07-020617	AS	N	43138.6299	Ethylbenzene	0.66	J	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Freon 113	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.8	J	ug/m3	1.6	19
		PMC-SS-07-020617	AS	N	43138.6299	Methyl tert-butyl ether (MTBE)	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	n-Butanol	1.8	U	ug/m3	1.8	3.8
		PMC-SS-07-020617	AS	N	43138.6299	n-Hexane	3.1	=	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Propene	0.53	U	ug/m3	0.53	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Styrene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Tetrachloroethene	1.5	J	ug/m3	0.53	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Toluene	3.2	=	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	trans-1,3-Dichloropropene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Trichloroethylene	0.53	U	ug/m3	0.53	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-07-020617	AS	N	43138.6299	Trichlorofluoromethane	1.1	J	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Vinyl Acetate	2.5	U	ug/m3	2.5	19
		PMC-SS-07-020617	AS	N	43138.6299	Vinyl Chloride	0.65	U	ug/m3	0.65	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Xylene, o	0.81	J	ug/m3	0.57	1.9
		PMC-SS-07-020617	AS	N	43138.6299	Xylenes, m & p	2.2	J	ug/m3	1.1	3.8
		PMC-SS-07-110618	AS	N	43410.4701	1,1,1-Trichloroethane	0.26	U	ug/m3	0.26	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,1,2,2-Tetrachloroethane	0.29	U	ug/m3	0.29	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,1,2-Trichloroethane	0.21	U	ug/m3	0.21	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,1-Dichloroethane	0.31	U	ug/m3	0.31	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,1-Dichloroethene	0.29	U	ug/m3	0.29	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2,3-Trimethylbenzene	0.29	U	ug/m3	0.29	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2,4-Trichlorobenzene	0.51	U	ug/m3	0.51	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2,4-Trimethylbenzene	0.92	J	ug/m3	0.29	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2-Dibromoethane	0.24	U	ug/m3	0.24	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2-Dichlorobenzene	0.31	U	ug/m3	0.31	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2-Dichloroethane	0.23	U	ug/m3	0.23	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,2-Dichloropropane	0.26	U	ug/m3	0.26	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,3,5-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,3-Butadiene	0.35	U	ug/m3	0.35	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,4-Dichlorobenzene	0.32	U	ug/m3	0.32	2.1
		PMC-SS-07-110618	AS	N	43410.4701	1,4-Dioxane	0.25	U	ug/m3	0.25	2.1
		PMC-SS-07-110618	AS	N	43410.4701	2-Butanone	0.89	J	ug/m3	0.43	4
		PMC-SS-07-110618	AS	N	43410.4701	2-Hexanone	0.45	J	ug/m3	0.26	2.1
		PMC-SS-07-110618	AS	N	43410.4701	4-Methyl-2-Pentanone	0.33	J	ug/m3	0.29	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Acetone	10	J	ug/m3	4.7	21
		PMC-SS-07-110618	AS	N	43410.4701	Acetonitrile	0.51	U	ug/m3	0.51	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Acrolein	0.59	U	ug/m3	0.59	4
		PMC-SS-07-110618	AS	N	43410.4701	Acrylonitrile	0.43	U	ug/m3	0.43	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Benzene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Benzyl chloride	0.47	U	ug/m3	0.47	4.3
		PMC-SS-07-110618	AS	N	43410.4701	Bromodichloromethane	0.3	U	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Bromoform	0.43	U	ug/m3	0.43	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Bromomethane	0.29	U	ug/m3	0.29	2
		PMC-SS-07-110618	AS	N	43410.4701	Carbon Disulfide	0.63	U	ug/m3	0.63	4.3
		PMC-SS-07-110618	AS	N	43410.4701	CHLORODIFLUOROMETHANE	0.99	U	ug/m3	0.99	2
		PMC-SS-07-110618	AS	N	43410.4701	Chloroethane	0.26	U	ug/m3	0.26	2
		PMC-SS-07-110618	AS	N	43410.4701	Chloroform	0.28	U	ug/m3	0.28	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Chloromethane	0.34	U	ug/m3	0.34	2
		PMC-SS-07-110618	AS	N	43410.4701	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	cis-1,3-Dichloropropene	0.33	U	ug/m3	0.33	2.2
		PMC-SS-07-110618	AS	N	43410.4701	Cyclohexane	0.59	U	ug/m3	0.59	4
		PMC-SS-07-110618	AS	N	43410.4701	Dichlorodifluoromethane	2.3	=	ug/m3	0.34	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Dichloromethane	0.59	U	ug/m3	0.59	2.1
		PMC-SS-07-110618	AS	N	43410.4701	ETHANOL	5.6	J	ug/m3	1.5	20
		PMC-SS-07-110618	AS	N	43410.4701	Ethylbenzene	0.47	J	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.3	J	ug/m3	0.87	8.3
		PMC-SS-07-110618	AS	N	43410.4701	Methyl tert-butyl ether (MTBE)	0.25	U	ug/m3	0.25	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-07-110618	AS	N	43410.4701	n-Butanol	21	=	ug/m3	0.55	4
		PMC-SS-07-110618	AS	N	43410.4701	n-Hexane	0.43	U	ug/m3	0.43	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Propene	0.51	U	ug/m3	0.51	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Styrene	0.38	J	ug/m3	0.34	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Tetrachloroethene	0.81	J	ug/m3	0.27	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Toluene	6.9	=	ug/m3	0.26	2.1
		PMC-SS-07-110618	AS	N	43410.4701	trans-1,3-Dichloropropene	0.43	U	ug/m3	0.43	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Trichloroethylene	0.28	U	ug/m3	0.28	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Trichlorofluoromethane	1.2	J	ug/m3	0.32	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Trichlorotrifuoroethane	0.45	J	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Vinyl Acetate	4.7	U	ug/m3	4.7	21
		PMC-SS-07-110618	AS	N	43410.4701	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Xylene, o	0.9	J	ug/m3	0.3	2.1
		PMC-SS-07-110618	AS	N	43410.4701	Xylenes, m & p	2.1	J	ug/m3	0.55	4.3
		PMC-SS-36-020818	AS	N	43139.5229	1,1,1-Trichloroethane	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,1,2,2-Tetrachloroethane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,1,2-Trichloroethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,1-Dichloroethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,1-Dichloroethene	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2,3-Trimethylbenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2,4-Trichlorobenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2,4-Trimethylbenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2-Dibromoethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2-Dichloroethane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,2-Dichloropropane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,3,5-Trimethylbenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,3-Butadiene	0.81	U	ug/m3	0.81	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,3-Dichlorobenzene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,4-Dichlorobenzene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-36-020818	AS	N	43139.5229	1,4-Dioxane	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	2-Butanone	0.78	U	ug/m3	0.78	19
		PMC-SS-36-020818	AS	N	43139.5229	2-Hexanone	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	4-Methyl-2-Pentanone	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Acetone	6.1	J	ug/m3	2.8	19
		PMC-SS-36-020818	AS	N	43139.5229	Acetonitrile	0.67	U	ug/m3	0.67	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Acrolein	0.63	U	ug/m3	0.63	7.4
		PMC-SS-36-020818	AS	N	43139.5229	Acrylonitrile	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Benzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Benzyl chloride	0.41	U	ug/m3	0.41	3.7
		PMC-SS-36-020818	AS	N	43139.5229	Bromodichloromethane	0.85	J	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Bromoform	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Bromomethane	0.7	U	ug/m3	0.7	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Carbon Disulfide	0.56	U	ug/m3	0.56	19
		PMC-SS-36-020818	AS	N	43139.5229	CHLORODIFLUOROMETHANE	1	J	ug/m3	0.93	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Chloroethane	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Chloroform	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Chloromethane	0.56	U	ug/m3	0.56	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-36-020818	AS	N	43139.5229	cis-1,2-Dichloroethene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	cis-1,3-Dichloropropene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Cyclohexane	1.1	U	ug/m3	1.1	3.7
		PMC-SS-36-020818	AS	N	43139.5229	Dichlorodifluoromethane	2.1	=	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Dichloromethane	0.74	J	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	ETHANOL	25	=	ug/m3	3	19
		PMC-SS-36-020818	AS	N	43139.5229	Ethylbenzene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Freon 113	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.6	U	ug/m3	1.6	19
		PMC-SS-36-020818	AS	N	43139.5229	Methyl tert-butyl ether (MTBE)	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	n-Butanol	1.8	U	ug/m3	1.8	3.7
		PMC-SS-36-020818	AS	N	43139.5229	n-Hexane	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Propene	0.52	U	ug/m3	0.52	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Styrene	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Tetrachloroethene	91	=	ug/m3	0.52	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Toluene	0.91	J	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	trans-1,3-Dichloropropene	0.59	U	ug/m3	0.59	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Trichloroethylene	81	=	ug/m3	0.52	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Trichlorofluoromethane	0.99	J	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Vinyl Acetate	2.4	U	ug/m3	2.4	19
		PMC-SS-36-020818	AS	N	43139.5229	Vinyl Chloride	0.63	U	ug/m3	0.63	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Xylene, o	0.56	U	ug/m3	0.56	1.9
		PMC-SS-36-020818	AS	N	43139.5229	Xylenes, m & p	1.1	U	ug/m3	1.1	3.7
		PMC-SS-36-110618	AS	N	43410.6285	1,1,1-Trichloroethane	0.27	U	ug/m3	0.27	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,1,2,2-Tetrachloroethane	0.3	U	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,1,2-Trichloroethane	0.22	U	ug/m3	0.22	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,1-Dichloroethane	0.32	U	ug/m3	0.32	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,1-Dichloroethene	0.3	U	ug/m3	0.3	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,2,3-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,2,4-Trichlorobenzene	0.53	U	ug/m3	0.53	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,2,4-Trimethylbenzene	0.92	J	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,2-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,2-Dichloroethane	0.24	U	ug/m3	0.24	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,2-Dichloropropane	0.27	U	ug/m3	0.27	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,3,5-Trimethylbenzene	0.31	U	ug/m3	0.31	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,3-Butadiene	0.36	U	ug/m3	0.36	2.1
		PMC-SS-36-110618	AS	N	43410.6285	1,3-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,4-Dichlorobenzene	0.33	U	ug/m3	0.33	2.2
		PMC-SS-36-110618	AS	N	43410.6285	1,4-Dioxane	0.26	U	ug/m3	0.26	2.1
		PMC-SS-36-110618	AS	N	43410.6285	2-Butanone	0.57	J	ug/m3	0.45	4.1
		PMC-SS-36-110618	AS	N	43410.6285	2-Hexanone	0.27	U	ug/m3	0.27	2.2
		PMC-SS-36-110618	AS	N	43410.6285	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Acetone	8	J	ug/m3	4.9	22
		PMC-SS-36-110618	AS	N	43410.6285	Acetonitrile	0.53	U	ug/m3	0.53	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Acrolein	0.61	U	ug/m3	0.61	4.1
		PMC-SS-36-110618	AS	N	43410.6285	Acrylonitrile	0.45	U	ug/m3	0.45	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Benzene	0.35	J	ug/m3	0.31	2.1

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-36-110618	AS	N	43410.6285	Benzyl chloride	0.49	U	ug/m3	0.49	4.5
		PMC-SS-36-110618	AS	N	43410.6285	Bromodichloromethane	0.31	U	ug/m3	0.31	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Bromoform	0.45	U	ug/m3	0.45	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Bromomethane	0.3	U	ug/m3	0.3	2
		PMC-SS-36-110618	AS	N	43410.6285	Carbon Disulfide	3	J	ug/m3	0.65	4.5
		PMC-SS-36-110618	AS	N	43410.6285	CHLORODIFLUOROMETHANE	1	U	ug/m3	1	2
		PMC-SS-36-110618	AS	N	43410.6285	Chloroethane	0.27	U	ug/m3	0.27	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Chloroform	0.5	J	ug/m3	0.29	2.2
		PMC-SS-36-110618	AS	N	43410.6285	Chloromethane	0.35	U	ug/m3	0.35	2
		PMC-SS-36-110618	AS	N	43410.6285	cis-1,2-Dichloroethene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	cis-1,3-Dichloropropene	0.34	U	ug/m3	0.34	2.3
		PMC-SS-36-110618	AS	N	43410.6285	Cyclohexane	0.61	U	ug/m3	0.61	4.1
		PMC-SS-36-110618	AS	N	43410.6285	Dichlorodifluoromethane	3.6	=	ug/m3	0.35	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Dichloromethane	0.61	U	ug/m3	0.61	2.2
		PMC-SS-36-110618	AS	N	43410.6285	ETHANOL	3.4	J	ug/m3	1.5	21
		PMC-SS-36-110618	AS	N	43410.6285	Ethylbenzene	0.43	J	ug/m3	0.3	2.1
		PMC-SS-36-110618	AS	N	43410.6285	ISOPROPYL ALCOHOL (ISOPROPANOL)	2.1	J	ug/m3	0.89	8.5
		PMC-SS-36-110618	AS	N	43410.6285	Methyl tert-butyl ether (MTBE)	0.26	U	ug/m3	0.26	2.2
		PMC-SS-36-110618	AS	N	43410.6285	n-Butanol	3.2	J	ug/m3	0.57	4.1
		PMC-SS-36-110618	AS	N	43410.6285	n-Hexane	0.45	U	ug/m3	0.45	2.2
		PMC-SS-36-110618	AS	N	43410.6285	Propene	0.53	U	ug/m3	0.53	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Styrene	0.36	J	ug/m3	0.35	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Tetrachloroethene	37	=	ug/m3	0.28	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Toluene	7	=	ug/m3	0.26	2.1
		PMC-SS-36-110618	AS	N	43410.6285	trans-1,3-Dichloropropene	0.45	U	ug/m3	0.45	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Trichloroethylene	25	=	ug/m3	0.29	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Trichlorofluoromethane	1.4	J	ug/m3	0.33	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Trichlorotrifuoroethane	0.5	J	ug/m3	0.31	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Vinyl Acetate	4.9	U	ug/m3	4.9	21
		PMC-SS-36-110618	AS	N	43410.6285	Vinyl Chloride	0.23	U	ug/m3	0.23	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Xylene, o	0.79	J	ug/m3	0.31	2.1
		PMC-SS-36-110618	AS	N	43410.6285	Xylenes, m & p	1.8	J	ug/m3	0.57	4.5
		1703205_310_012518_SS-1	AS	N	43125.3688	1,1,1-Trichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,1,2,2-Tetrachloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,1,2-Trichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,1-Dichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,1-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2,4-Trichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2,4-Trimethylbenzene	0.82	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dibromo-3-chloropropane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dibromoethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dichloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,2-Dichloropropane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,3,5-Trimethylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,3-Butadiene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,3-Dichlorobenzene	7.1	=	UG/M3	0.77	0.77

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_SS-1	AS	N	43125.3688	1,4-Dichlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	1,4-Dioxane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	2-Butanone	7.7	U	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	2-Hexanone	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	4-Ethyltoluene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	4-Methyl-2-Pentanone	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Acetone	14	=	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	Acetonitrile	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Acrolein	3.1	U	UG/M3	3.1	3.1
		1703205_310_012518_SS-1	AS	N	43125.3688	Acrylonitrile	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Allyl chloride	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	alpha-Pinene	1.7	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Benzene	1.3	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Benzyl chloride	1.5	U	UG/M3	1.5	1.5
		1703205_310_012518_SS-1	AS	N	43125.3688	Bromodichloromethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Bromoform	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Bromomethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Carbon Disulfide	7.7	U	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	Carbon tetrachloride	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Chlorobenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Chlorodibromomethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Chloroethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Chloroform	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Chloromethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	cis-1,2-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	cis-1,3-Dichloropropene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Cyclohexane	1.5	U	UG/M3	1.5	1.5
		1703205_310_012518_SS-1	AS	N	43125.3688	Dichlorodifluoromethane	2.3	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Dichloromethane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	D-Limonene	22	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	ETHANOL	58	=	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	Ethyl acetate	2.9	=	UG/M3	1.5	1.5
		1703205_310_012518_SS-1	AS	N	43125.3688	Ethylbenzene	0.78	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Freon 113	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Hexachlorobutadiene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	ISOPROPYL ALCOHOL (ISOPROPANOL)	7.7	U	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	Isopropylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Methyl methacrylate	1.5	U	UG/M3	1.5	1.5
		1703205_310_012518_SS-1	AS	N	43125.3688	Methyl tert-butyl ether (MTBE)	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Naphthalene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	N-Butyl Acetate	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	N-HEPTANE	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	n-Hexane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Nonane	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	n-Propylbenzene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	OCTANE	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Propene	3.9	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Styrene	1	=	UG/M3	0.77	0.77

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		1703205_310_012518_SS-1	AS	N	43125.3688	Tetrachloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Tetrahydrofuran	4.4	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Toluene	6	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	trans-1,2-Dichloroethene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	trans-1,3-Dichloropropene	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Trichloroethylene	5.6	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Trichlorofluoromethane	1.1	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Vinyl Acetate	7.7	U	UG/M3	7.7	7.7
		1703205_310_012518_SS-1	AS	N	43125.3688	Vinyl Chloride	0.77	U	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Xylene, o	0.99	=	UG/M3	0.77	0.77
		1703205_310_012518_SS-1	AS	N	43125.3688	Xylenes, m & p	2.5	=	UG/M3	1.5	1.5
		PMC-SS-39-070317	AS	N	42919.5521	1,1,1-Trichloroethane	0.69	J	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,1,2,2-Tetrachloroethane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,1,2-Trichloroethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,1-Dichloroethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,1-Dichloroethene	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2,4-Trichlorobenzene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2,4-Trimethylbenzene	3.1	=	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dibromo-3-chloropropane	0.38	U	ug/m3	0.38	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dibromoethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.73	U	ug/m3	0.73	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dichloroethane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,2-Dichloropropane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,3,5-Trimethylbenzene	0.83	J	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,3-Butadiene	0.84	U	ug/m3	0.84	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,3-Dichlorobenzene	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,4-Dichlorobenzene	0.54	U	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	1,4-Dioxane	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	2-Butanone	20	=	ug/m3	0.8	19
		PMC-SS-39-070317	AS	N	42919.5521	2-Hexanone	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	4-Ethyltoluene	1	J	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	4-Methyl-2-Pentanone	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Acetone	440	=	ug/m3	2.9	19
		PMC-SS-39-070317	AS	N	42919.5521	Acetonitrile	0.69	U	ug/m3	0.69	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Acrolein	0.65	U	ug/m3	0.65	7.7
		PMC-SS-39-070317	AS	N	42919.5521	Acrylonitrile	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Allyl chloride	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	alpha-Pinene	0.91	J	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Benzene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Benzyl chloride	0.42	U	ug/m3	0.42	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Bromodichloromethane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Bromoform	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Bromomethane	0.73	U	ug/m3	0.73	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Carbon Disulfide	0.57	U	ug/m3	0.57	19
		PMC-SS-39-070317	AS	N	42919.5521	Carbon tetrachloride	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Chlorobenzene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Chlorodibromomethane	0.61	U	ug/m3	0.61	1.9

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-39-070317	AS	N	42919.5521	Chloroethane	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Chloroform	26	=	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Chloromethane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	cis-1,2-Dichloroethene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	cis-1,3-Dichloropropene	0.54	U	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Cyclohexane	1.1	U	ug/m3	1.1	3.8
		PMC-SS-39-070317	AS	N	42919.5521	Dichlorodifluoromethane	2.2	=	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Dichloromethane	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	D-Limonene	1.3	J	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	ETHANOL	3.1	U	ug/m3	3.1	19
		PMC-SS-39-070317	AS	N	42919.5521	Ethyl acetate	1.3	U	ug/m3	1.3	3.8
		PMC-SS-39-070317	AS	N	42919.5521	Ethylbenzene	0.81	J	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Hexachlorobutadiene	0.54	U	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	ISOPROPYL ALCOHOL (ISOPROPANOL)	2	J	ug/m3	1.6	19
		PMC-SS-39-070317	AS	N	42919.5521	Isopropylbenzene	0.72	J	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Methyl methacrylate	1.2	U	ug/m3	1.2	3.8
		PMC-SS-39-070317	AS	N	42919.5521	Methyl tert-butyl ether (MTBE)	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Naphthalene	0.69	U	ug/m3	0.69	1.9
		PMC-SS-39-070317	AS	N	42919.5521	N-Butyl Acetate	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	N-HEPTANE	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	n-Hexane	0.57	U	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Nonane	0.6	J	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	n-Propylbenzene	1	J	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	OCTANE	0.69	U	ug/m3	0.69	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Propene	0.54	U	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Styrene	1.2	J	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Tetrachloroethene	46	=	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Tetrahydrofuran	0.77	U	ug/m3	0.77	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Toluene	1.7	J	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	trans-1,2-Dichloroethene	0.73	U	ug/m3	0.73	1.9
		PMC-SS-39-070317	AS	N	42919.5521	trans-1,3-Dichloropropene	0.61	U	ug/m3	0.61	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Trichloroethylene	200	=	ug/m3	0.54	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Trichlorofluoromethane	1.3	J	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Trichlorotrifuoroethane	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Vinyl Acetate	2.5	U	ug/m3	2.5	19
		PMC-SS-39-070317	AS	N	42919.5521	Vinyl Chloride	0.65	U	ug/m3	0.65	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Xylene, o	2	=	ug/m3	0.57	1.9
		PMC-SS-39-070317	AS	N	42919.5521	Xylenes, m & p	3.5	J	ug/m3	1.1	3.8
		PMC-IN-52-02-110818	IA	N	43412.7556	1,1,1-Trichloroethane	0.074	=	ug/m3	0.0092	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,1,2,2-Tetrachloroethane	0.011	U	ug/m3	0.011	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,1,2-Trichloroethane	0.012	U	ug/m3	0.012	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	1,1-Dichloroethane	0.0095	U	ug/m3	0.0095	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,1-Dichloroethene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2,3-Trimethylbenzene	0.11	U	ug/m3	0.11	0.81
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2,4-Trichlorobenzene	0.02	U	ug/m3	0.02	0.078
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2,4-Trimethylbenzene	0.18	=	ug/m3	0.013	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2-Dibromoethane	0.012	U	ug/m3	0.012	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-IN-52-02-110818	IA	N	43412.7556	1,2-Dichloroethane	0.044	=	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,2-Dichloropropane	0.011	U	ug/m3	0.011	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,3,5-Trimethylbenzene	0.048	J	ug/m3	0.011	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	1,3-Butadiene	0.022	U	ug/m3	0.022	0.078
		PMC-IN-52-02-110818	IA	N	43412.7556	1,3-Dichlorobenzene	0.013	U	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,4-Dichlorobenzene	0.029	J	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	1,4-Dioxane	0.021	J	ug/m3	0.013	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	2-Butanone	0.63	J	ug/m3	0.17	1.6
		PMC-IN-52-02-110818	IA	N	43412.7556	2-Hexanone	0.12	J	ug/m3	0.1	0.84
		PMC-IN-52-02-110818	IA	N	43412.7556	4-Methyl-2-Pentanone	0.11	U	ug/m3	0.11	0.83
		PMC-IN-52-02-110818	IA	N	43412.7556	Acetone	3.9	U	ug/m3	0.087	3.9
		PMC-IN-52-02-110818	IA	N	43412.7556	Acetonitrile	0.2	U	ug/m3	0.2	0.81
		PMC-IN-52-02-110818	IA	N	43412.7556	Acrolein	0.11	J	ug/m3	0.061	0.31
		PMC-IN-52-02-110818	IA	N	43412.7556	Acrylonitrile	0.17	U	ug/m3	0.17	0.81
		PMC-IN-52-02-110818	IA	N	43412.7556	Benzene	0.43	=	ug/m3	0.031	0.12
		PMC-IN-52-02-110818	IA	N	43412.7556	Benzyl chloride	0.19	U	ug/m3	0.19	1.7
		PMC-IN-52-02-110818	IA	N	43412.7556	Bromodichloromethane	0.011	U	ug/m3	0.011	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Bromoform	0.17	U	ug/m3	0.17	0.83
		PMC-IN-52-02-110818	IA	N	43412.7556	Bromomethane	0.02	J	ug/m3	0.015	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Carbon Disulfide	0.25	U	ug/m3	0.25	1.7
		PMC-IN-52-02-110818	IA	N	43412.7556	CHLORODIFLUOROMETHANE	0.39	U	ug/m3	0.39	0.78
		PMC-IN-52-02-110818	IA	N	43412.7556	Chloroethane	0.013	U	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Chloroform	0.076	J	ug/m3	0.028	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	Chloromethane	0.079	=	ug/m3	0.03	0.078
		PMC-IN-52-02-110818	IA	N	43412.7556	cis-1,2-Dichloroethene	0.014	U	ug/m3	0.014	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	cis-1,3-Dichloropropene	0.0097	U	ug/m3	0.0097	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Cyclohexane	0.26	J	ug/m3	0.23	1.6
		PMC-IN-52-02-110818	IA	N	43412.7556	Dichlorodifluoromethane	1.9	=	ug/m3	0.027	0.078
		PMC-IN-52-02-110818	IA	N	43412.7556	Dichloromethane	1.9	=	ug/m3	0.02	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	ETHANOL	3.2	J	ug/m3	0.58	8
		PMC-IN-52-02-110818	IA	N	43412.7556	Ethylbenzene	0.16	J	ug/m3	0.015	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.5	J	ug/m3	0.34	3.3
		PMC-IN-52-02-110818	IA	N	43412.7556	Methyl tert-butyl ether (MTBE)	0.015	U	ug/m3	0.015	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	n-Butanol	0.84	J	ug/m3	0.22	1.6
		PMC-IN-52-02-110818	IA	N	43412.7556	n-Hexane	1	=	ug/m3	0.17	0.84
		PMC-IN-52-02-110818	IA	N	43412.7556	Propene	0.83	=	ug/m3	0.2	0.81
		PMC-IN-52-02-110818	IA	N	43412.7556	Styrene	0.028	J	ug/m3	0.012	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	Tetrachloroethene	0.32	=	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Toluene	2.7	=	ug/m3	0.017	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	trans-1,3-Dichloropropene	0.0086	U	ug/m3	0.0086	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Trichloroethylene	0.044	=	ug/m3	0.013	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Trichlorofluoromethane	1	=	ug/m3	0.023	0.078
		PMC-IN-52-02-110818	IA	N	43412.7556	Trichlorotrifuoroethane	0.38	=	ug/m3	0.014	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Vinyl Acetate	1.9	U	ug/m3	1.9	8.3
		PMC-IN-52-02-110818	IA	N	43412.7556	Vinyl Chloride	0.012	U	ug/m3	0.012	0.039
		PMC-IN-52-02-110818	IA	N	43412.7556	Xylene, o	0.3	=	ug/m3	0.014	0.16
		PMC-IN-52-02-110818	IA	N	43412.7556	Xylenes, m & p	0.55	=	ug/m3	0.03	0.16
		PMC-SS-40-110718	AS	N	43411.5493	1,1,1-Trichloroethane	0.27	U	ug/m3	0.27	2.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-40-110718	AS	N	43411.5493	1,1,2,2-Tetrachloroethane	0.3	U	ug/m3	0.3	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,1,2-Trichloroethane	0.22	U	ug/m3	0.22	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,1-Dichloroethane	0.32	U	ug/m3	0.32	2.1
		PMC-SS-40-110718	AS	N	43411.5493	1,1-Dichloroethene	0.3	U	ug/m3	0.3	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2,3-Trimethylbenzene	0.3	U	ug/m3	0.3	2.1
		PMC-SS-40-110718	AS	N	43411.5493	1,2,4-Trichlorobenzene	0.53	U	ug/m3	0.53	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2,4-Trimethylbenzene	0.96	J	ug/m3	0.3	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2-Dibromoethane	0.25	U	ug/m3	0.25	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2-Dichlorobenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2-Dichloroethane	0.24	U	ug/m3	0.24	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,2-Dichloropropane	0.27	U	ug/m3	0.27	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,3,5-Trimethylbenzene	0.32	U	ug/m3	0.32	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,3-Butadiene	0.36	U	ug/m3	0.36	2.1
		PMC-SS-40-110718	AS	N	43411.5493	1,3-Dichlorobenzene	0.33	U	ug/m3	0.33	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,4-Dichlorobenzene	0.34	U	ug/m3	0.34	2.2
		PMC-SS-40-110718	AS	N	43411.5493	1,4-Dioxane	0.26	U	ug/m3	0.26	2.2
		PMC-SS-40-110718	AS	N	43411.5493	2-Butanone	1.1	J	ug/m3	0.45	4.1
		PMC-SS-40-110718	AS	N	43411.5493	2-Hexanone	0.42	J	ug/m3	0.27	2.2
		PMC-SS-40-110718	AS	N	43411.5493	4-Methyl-2-Pentanone	0.3	U	ug/m3	0.3	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Acetone	18	J	ug/m3	4.9	22
		PMC-SS-40-110718	AS	N	43411.5493	Acetonitrile	0.53	U	ug/m3	0.53	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Acrolein	0.62	U	ug/m3	0.62	4.1
		PMC-SS-40-110718	AS	N	43411.5493	Acrylonitrile	0.45	U	ug/m3	0.45	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Benzene	0.32	J	ug/m3	0.32	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Benzyl chloride	0.49	U	ug/m3	0.49	4.5
		PMC-SS-40-110718	AS	N	43411.5493	Bromodichloromethane	0.32	U	ug/m3	0.32	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Bromoform	0.45	U	ug/m3	0.45	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Bromomethane	0.3	U	ug/m3	0.3	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Carbon Disulfide	0.66	U	ug/m3	0.66	4.5
		PMC-SS-40-110718	AS	N	43411.5493	CHLORODIFLUOROMETHANE	1	U	ug/m3	1	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Chloroethane	0.27	U	ug/m3	0.27	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Chloroform	0.61	J	ug/m3	0.29	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Chloromethane	0.35	U	ug/m3	0.35	2.1
		PMC-SS-40-110718	AS	N	43411.5493	cis-1,2-Dichloroethene	1	J	ug/m3	0.31	2.2
		PMC-SS-40-110718	AS	N	43411.5493	cis-1,3-Dichloropropene	0.34	U	ug/m3	0.34	2.3
		PMC-SS-40-110718	AS	N	43411.5493	Cyclohexane	0.62	U	ug/m3	0.62	4.1
		PMC-SS-40-110718	AS	N	43411.5493	Dichlorodifluoromethane	2.5	=	ug/m3	0.36	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Dichloromethane	0.62	U	ug/m3	0.62	2.2
		PMC-SS-40-110718	AS	N	43411.5493	ETHANOL	6.3	J	ug/m3	1.5	21
		PMC-SS-40-110718	AS	N	43411.5493	Ethylbenzene	0.47	J	ug/m3	0.31	2.1
		PMC-SS-40-110718	AS	N	43411.5493	ISOPROPYL ALCOHOL (ISOPROPANOL)	1.3	J	ug/m3	0.9	8.6
		PMC-SS-40-110718	AS	N	43411.5493	Methyl tert-butyl ether (MTBE)	0.26	U	ug/m3	0.26	2.2
		PMC-SS-40-110718	AS	N	43411.5493	n-Butanol	51	=	ug/m3	0.57	4.1
		PMC-SS-40-110718	AS	N	43411.5493	n-Hexane	0.48	J	ug/m3	0.45	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Propene	1	J	ug/m3	0.53	2.1
		PMC-SS-40-110718	AS	N	43411.5493	Styrene	0.42	J	ug/m3	0.35	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Tetrachloroethene	63	=	ug/m3	0.28	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Toluene	6.3	=	ug/m3	0.27	2.2

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]		PMC-SS-40-110718	AS	N	43411.5493	trans-1,3-Dichloropropene	0.45	U	ug/m3	0.45	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Trichloroethylene	300	=	ug/m3	0.3	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Trichlorofluoromethane	1.3	J	ug/m3	0.33	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Trichlorotrifuoroethane	0.43	J	ug/m3	0.31	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Vinyl Acetate	4.9	U	ug/m3	4.9	22
		PMC-SS-40-110718	AS	N	43411.5493	Vinyl Chloride	0.23	U	ug/m3	0.23	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Xylene, o	0.91	J	ug/m3	0.32	2.2
		PMC-SS-40-110718	AS	N	43411.5493	Xylenes, m & p	2.1	J	ug/m3	0.57	4.5
[redacted]		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,1,1-Trichloroethane	0.0053	U	mg/kg	0.00079	0.00084
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,1,2,2-Tetrachloroethane	0.0053	U	mg/kg	0.00027	0.00029
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,1,2-Trichloroethane	0.0053	U	mg/kg	0.00039	0.00042
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,1-Dichloroethane	0.0053	U	mg/kg	0.0021	0.0022
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,1-Dichloroethene	0.0053	U	mg/kg	0.00098	0.001
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2,3-Trichlorobenzene	0.0053	U	mg/kg	0.00062	0.00066
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2,4-Trichlorobenzene	0.0053	U	mg/kg	0.00073	0.00078
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2-Dibromo-3-chloropropane	0.0053	U	mg/kg	0.0014	0.0015
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2-Dibromoethane	0.0053	U	mg/kg	0.00036	0.00038
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2-Dichlorobenzene	0.0053	U	mg/kg	0.00063	0.00067
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2-Dichloroethane	0.0053	U	mg/kg	0.00036	0.00038
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,2-Dichloropropane	0.0053	U	mg/kg	0.00044	0.00047
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,3-Dichlorobenzene	0.0053	U	mg/kg	0.00052	0.00056
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	1,4-Dichlorobenzene	0.0053	U	mg/kg	0.00036	0.00038
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	2-Butanone	0.011	U	mg/kg	0.0019	0.002
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	2-Hexanone	0.0053	U	mg/kg	0.00098	0.001
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	4-Methyl-2-Pentanone	0.0053	U	mg/kg	0.00081	0.00087
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Acetone	0.12	U	mg/kg	0.031	0.039
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Benzene	0.0053	U	mg/kg	0.00052	0.00056
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Bromochloromethane	0.0053	U	mg/kg	0.00049	0.00052
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Bromodichloromethane	0.0053	U	mg/kg	0.00032	0.00034
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Bromoform	0.0053	U	mg/kg	0.00031	0.00033
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Bromomethane	0.011	U	mg/kg	0.00072	0.00077
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Carbon Disulfide	0.0053	U	mg/kg	0.00056	0.0006
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Carbon tetrachloride	0.0053	U	mg/kg	0.00083	0.00089
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Chlorobenzene	0.0053	U	mg/kg	0.00032	0.00034
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Chlorodibromomethane	0.0053	U	mg/kg	0.00047	0.0005
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Chloroethane	0.0053	U	mg/kg	0.00063	0.00067
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Chloroform	0.0053	U	mg/kg	0.0003	0.00032
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Chloromethane	0.011	U	mg/kg	0.00046	0.00049
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	cis-1,2-Dichloroethene	0.0053	U	mg/kg	0.00048	0.00051
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	cis-1,3-Dichloropropene	0.0053	U	mg/kg	0.00026	0.00028
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Cyclohexane	0.011	UJ	mg/kg	0.003	0.0033
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Dichlorodifluoromethane	0.011	U	mg/kg	0.0011	0.0012
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Dichloromethane	0.0053	U	mg/kg	0.00086	0.00092
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Ethylbenzene	0.0053	U	mg/kg	0.0006	0.00064
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Freon 113	0.0053	U	mg/kg	0.0011	0.0012
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Isopropylbenzene	0.0053	U	mg/kg	0.00064	0.00068
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	METHYL ACETATE	0.011	UJ	mg/kg	0.0012	0.0013
		PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Methyl tert-butyl ether (MTBE)	0.0053	U	mg/kg	0.00023	0.00025

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	METHYLCYCLOHEXANE	0.011	UJ	mg/kg	0.0015	0.0016
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Styrene	0.0053	U	mg/kg	0.0004	0.00043
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Tetrachloroethene	0.0053	U	mg/kg	0.00089	0.00095
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Toluene	0.001	J	mg/kg	0.00056	0.0006
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	trans-1,2-Dichloroethene	0.0053	U	mg/kg	0.0004	0.00043
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	trans-1,3-Dichloropropene	0.0053	U	mg/kg	0.00029	0.00031
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Trichloroethylene	0.0034	J	mg/kg	0.00072	0.00077
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Trichlorofluoromethane	0.0053	U	mg/kg	0.00071	0.00076
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Vinyl Chloride	0.0053	U	mg/kg	0.0007	0.00075
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Xylene, o	0.0027	U	mg/kg	0.00047	0.0005
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Xylenes, m & p	0.0027	U	mg/kg	0.0012	0.0013
[redacted]	[redacted]	PMC-SVB-05-SO/3.5-4.0-052418	SO	N	5/24/2018	Xylenes, Total	0.0053	U	mg/kg	0.0017	0.0018
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,1,1-Trichloroethane	0.034	U	mg/kg	0.014	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,1,2,2-Tetrachloroethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,1,2-Trichloroethane	0.034	U	mg/kg	0.013	0.014
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,1-Dichloroethane	0.034	U	mg/kg	0.011	0.012
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,1-Dichloroethene	0.034	U	mg/kg	0.0097	0.011
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2,3-Trichlorobenzene	0.034	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2,4-Trichlorobenzene	0.034	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2-Dibromo-3-chloropropane	0.11	U	mg/kg	0.028	0.031
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2-Dibromoethane	0.034	U	mg/kg	0.0084	0.0096
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2-Dichlorobenzene	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2-Dichloroethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,2-Dichloropropane	0.034	U	mg/kg	0.0052	0.006
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,3-Dichlorobenzene	0.034	U	mg/kg	0.01	0.011
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	1,4-Dichlorobenzene	0.034	U	mg/kg	0.0072	0.0082
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	2-Butanone	0.23	U	mg/kg	0.025	0.028
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	2-Hexanone	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	4-Methyl-2-Pentanone	0.034	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Acetone	0.33	=	mg/kg	0.031	0.035
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Benzene	0.06	=	mg/kg	0.0051	0.0058
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Bromochloromethane	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Bromodichloromethane	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Bromoform	0.034	U	mg/kg	0.013	0.014
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Bromomethane	0.11	U	mg/kg	0.057	0.065
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Carbon Disulfide	0.034	U	mg/kg	0.016	0.018
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Carbon tetrachloride	0.034	U	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Chlorobenzene	0.034	U	mg/kg	0.01	0.011
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Chlorodibromomethane	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Chloroethane	0.11	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Chloroform	0.034	U	mg/kg	0.011	0.012
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Chloromethane	0.11	U	mg/kg	0.025	0.028
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	cis-1,2-Dichloroethene	0.034	U	mg/kg	0.0094	0.011
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	cis-1,3-Dichloropropene	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Cyclohexane	0.034	U	mg/kg	0.0098	0.011
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Dichlorodifluoromethane	0.034	U	mg/kg	0.0063	0.0071
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Dichloromethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Ethylbenzene	0.078	=	mg/kg	0.0063	0.0072

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Freon 113	0.034	U	mg/kg	0.019	0.022
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Isopropylbenzene	0.011	J	mg/kg	0.0092	0.01
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	METHYL ACETATE	0.083	J	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Methyl tert-butyl ether (MTBE)	0.034	U	mg/kg	0.0086	0.0098
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	METHYLCYCLOHEXANE	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Styrene	0.028	J	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Tetrachloroethene	0.034	U	mg/kg	0.0087	0.0099
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Toluene	0.14	=	mg/kg	0.0082	0.0093
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	trans-1,2-Dichloroethene	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	trans-1,3-Dichloropropene	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Trichloroethylene	0.11	=	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Trichlorofluoromethane	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Vinyl Chloride	0.034	U	mg/kg	0.0064	0.0073
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Xylene, o	0.07	=	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Xylenes, m & p	0.16	=	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-07-SO/4.0-5.0-051518	SO	N	5/15/2018	Xylenes, Total	0.23	=	mg/kg	0.026	0.029
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,1,1-Trichloroethane	0.04	U	mg/kg	0.014	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,1,2,2-Tetrachloroethane	0.04	U	mg/kg	0.013	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,1,2-Trichloroethane	0.04	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,1-Dichloroethane	0.04	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,1-Dichloroethene	0.04	U	mg/kg	0.0097	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2,3-Trichlorobenzene	0.04	U	mg/kg	0.014	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2,4-Trichlorobenzene	0.04	U	mg/kg	0.01	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2-Dibromo-3-chloropropane	0.13	U	mg/kg	0.028	0.037
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2-Dibromoethane	0.04	U	mg/kg	0.0084	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2-Dichlorobenzene	0.04	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2-Dichloroethane	0.04	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,2-Dichloropropane	0.04	U	mg/kg	0.0052	0.007
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,3-Dichlorobenzene	0.04	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	1,4-Dichlorobenzene	0.04	U	mg/kg	0.0072	0.0096
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	2-Butanone	0.27	U	mg/kg	0.025	0.033
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	2-Hexanone	0.04	U	mg/kg	0.015	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	4-Methyl-2-Pentanone	0.04	U	mg/kg	0.014	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Acetone	0.22	=	mg/kg	0.031	0.041
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Benzene	0.04	U	mg/kg	0.0051	0.0068
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Bromochloromethane	0.04	U	mg/kg	0.015	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Bromodichloromethane	0.04	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Bromoform	0.04	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Bromomethane	0.13	U	mg/kg	0.057	0.076
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Carbon Disulfide	0.04	U	mg/kg	0.016	0.021
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Carbon tetrachloride	0.04	U	mg/kg	0.012	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Chlorobenzene	0.04	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Chlorodibromomethane	0.04	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Chloroethane	0.13	U	mg/kg	0.01	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Chloroform	0.04	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Chloromethane	0.13	U	mg/kg	0.025	0.033
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	cis-1,2-Dichloroethene	0.04	U	mg/kg	0.0094	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	cis-1,3-Dichloropropene	0.04	U	mg/kg	0.011	0.015

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Cyclohexane	0.04	U	mg/kg	0.0098	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Dichlorodifluoromethane	0.04	U	mg/kg	0.0063	0.0083
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Dichloromethane	0.045	=	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Ethylbenzene	0.04	U	mg/kg	0.0063	0.0084
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Freon 113	0.04	U	mg/kg	0.019	0.025
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Isopropylbenzene	0.04	U	mg/kg	0.0092	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	METHYL ACETATE	0.38	=	mg/kg	0.013	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Methyl tert-butyl ether (MTBE)	0.04	U	mg/kg	0.0086	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	METHYLCYCLOHEXANE	0.04	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Styrene	0.04	U	mg/kg	0.012	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Tetrachloroethene	0.04	U	mg/kg	0.0087	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Toluene	0.04	U	mg/kg	0.0082	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	trans-1,2-Dichloroethene	0.04	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	trans-1,3-Dichloropropene	0.04	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Trichloroethylene	0.27	=	mg/kg	0.013	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Trichlorofluoromethane	0.04	U	mg/kg	0.015	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Vinyl Chloride	0.04	U	mg/kg	0.0064	0.0085
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Xylene, o	0.04	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Xylenes, m & p	0.08	U	mg/kg	0.014	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/3.0-4.0-051518	SO	N	5/15/2018	Xylenes, Total	0.12	U	mg/kg	0.026	0.034
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,1,1-Trichloroethane	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,1,2,2-Tetrachloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,1,2-Trichloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,1-Dichloroethane	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,1-Dichloroethene	0.037	U	mg/kg	0.0097	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2,3-Trichlorobenzene	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2,4-Trichlorobenzene	0.037	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2-Dibromo-3-chloropropane	0.12	U	mg/kg	0.028	0.034
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2-Dibromoethane	0.037	U	mg/kg	0.0084	0.01
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2-Dichlorobenzene	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2-Dichloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,2-Dichloropropane	0.037	U	mg/kg	0.0052	0.0064
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,3-Dichlorobenzene	0.037	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	1,4-Dichlorobenzene	0.037	U	mg/kg	0.0072	0.0088
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	2-Butanone	0.24	U	mg/kg	0.025	0.03
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	2-Hexanone	0.037	U	mg/kg	0.015	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	4-Methyl-2-Pentanone	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Acetone	0.12	U	mg/kg	0.031	0.038
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Benzene	0.037	U	mg/kg	0.0051	0.0063
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Bromochloromethane	0.037	U	mg/kg	0.015	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Bromodichloromethane	0.037	U	mg/kg	0.017	0.021
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Bromoform	0.037	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Bromomethane	0.12	U	mg/kg	0.057	0.07
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Carbon Disulfide	0.037	U	mg/kg	0.016	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Carbon tetrachloride	0.037	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Chlorobenzene	0.037	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Chlorodibromomethane	0.037	U	mg/kg	0.017	0.021
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Chloroethane	0.12	U	mg/kg	0.01	0.013

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Chloroform	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Chloromethane	0.12	U	mg/kg	0.025	0.031
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	cis-1,2-Dichloroethene	0.037	U	mg/kg	0.0094	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	cis-1,3-Dichloropropene	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Cyclohexane	0.037	U	mg/kg	0.0098	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Dichlorodifluoromethane	0.037	U	mg/kg	0.0063	0.0077
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Dichloromethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Ethylbenzene	0.037	U	mg/kg	0.0063	0.0077
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Freon 113	0.037	U	mg/kg	0.019	0.023
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Isopropylbenzene	0.037	U	mg/kg	0.0092	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	METHYL ACETATE	0.084	J	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Methyl tert-butyl ether (MTBE)	0.037	U	mg/kg	0.0086	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	METHYLCYCLOHEXANE	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Styrene	0.037	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Tetrachloroethene	0.037	U	mg/kg	0.0087	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Toluene	0.037	U	mg/kg	0.0082	0.01
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	trans-1,2-Dichloroethene	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	trans-1,3-Dichloropropene	0.037	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Trichloroethylene	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Trichlorofluoromethane	0.037	U	mg/kg	0.015	0.019
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Vinyl Chloride	0.037	U	mg/kg	0.0064	0.0079
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Xylene, o	0.037	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Xylenes, m & p	0.073	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/7.5-8.0-051518	SO	N	5/15/2018	Xylenes, Total	0.11	U	mg/kg	0.026	0.032
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,1,1-Trichloroethane	0.036	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,1,2,2-Tetrachloroethane	0.036	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,1,2-Trichloroethane	0.036	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,1-Dichloroethane	0.036	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,1-Dichloroethene	0.036	U	mg/kg	0.0097	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2,3-Trichlorobenzene	0.036	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2,4-Trichlorobenzene	0.036	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2-Dibromo-3-chloropropane	0.12	U	mg/kg	0.028	0.033
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2-Dibromoethane	0.036	U	mg/kg	0.0084	0.01
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2-Dichlorobenzene	0.036	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2-Dichloroethane	0.036	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,2-Dichloropropane	0.036	U	mg/kg	0.0052	0.0062
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,3-Dichlorobenzene	0.036	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	1,4-Dichlorobenzene	0.036	U	mg/kg	0.0072	0.0086
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	2-Butanone	0.24	U	mg/kg	0.025	0.029
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	2-Hexanone	0.036	U	mg/kg	0.015	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	4-Methyl-2-Pentanone	0.036	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Acetone	0.12	U	mg/kg	0.031	0.037
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Benzene	0.036	U	mg/kg	0.0051	0.0061
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Bromochloromethane	0.036	U	mg/kg	0.015	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Bromodichloromethane	0.036	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Bromoform	0.036	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Bromomethane	0.12	U	mg/kg	0.057	0.068
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Carbon Disulfide	0.036	U	mg/kg	0.016	0.018

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Carbon tetrachloride	0.036	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Chlorobenzene	0.036	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Chlorodibromomethane	0.036	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Chloroethane	0.12	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Chloroform	0.036	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Chloromethane	0.12	U	mg/kg	0.025	0.03
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	cis-1,2-Dichloroethene	0.036	U	mg/kg	0.0094	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	cis-1,3-Dichloropropene	0.036	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Cyclohexane	0.036	U	mg/kg	0.0098	0.012
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Dichlorodifluoromethane	0.036	U	mg/kg	0.0063	0.0074
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Dichloromethane	0.036	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Ethylbenzene	0.036	U	mg/kg	0.0063	0.0075
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Freon 113	0.036	U	mg/kg	0.019	0.023
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Isopropylbenzene	0.036	U	mg/kg	0.0092	0.011
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	METHYL ACETATE	0.13	J	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Methyl tert-butyl ether (MTBE)	0.036	U	mg/kg	0.0086	0.01
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	METHYLCYCLOHEXANE	0.036	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Styrene	0.036	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Tetrachloroethene	0.036	U	mg/kg	0.0087	0.01
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Toluene	0.018	J	mg/kg	0.0082	0.0097
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	trans-1,2-Dichloroethene	0.036	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	trans-1,3-Dichloropropene	0.036	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Trichloroethylene	0.036	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Trichlorofluoromethane	0.036	U	mg/kg	0.015	0.018
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Vinyl Chloride	0.036	U	mg/kg	0.0064	0.0076
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Xylene, o	0.036	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Xylenes, m & p	0.023	J	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Xylenes, Total	0.11	U	mg/kg	0.026	0.031
[redacted]	[redacted]	PMC-SVB-08-SO/9.0-10.0-051518	SO	N	5/15/2018	Oxidant Demand (KMnO4)	24300	=	mg/kg	0	0
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,1,1-Trichloroethane	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,1,2,2-Tetrachloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,1,2-Trichloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,1-Dichloroethane	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,1-Dichloroethene	0.037	U	mg/kg	0.0097	0.012
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2,3-Trichlorobenzene	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2,4-Trichlorobenzene	0.037	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2-Dibromo-3-chloropropane	0.12	U	mg/kg	0.028	0.034
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2-Dibromoethane	0.037	U	mg/kg	0.0084	0.01
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2-Dichlorobenzene	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2-Dichloroethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,2-Dichloropropane	0.037	U	mg/kg	0.0052	0.0064
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,3-Dichlorobenzene	0.037	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	1,4-Dichlorobenzene	0.037	U	mg/kg	0.0072	0.0088
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	2-Butanone	0.24	U	mg/kg	0.025	0.03
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	2-Hexanone	0.037	U	mg/kg	0.015	0.018
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	4-Methyl-2-Pentanone	0.037	U	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Acetone	0.12	U	mg/kg	0.031	0.038
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Benzene	0.037	U	mg/kg	0.0051	0.0063

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Bromochloromethane	0.037	U	mg/kg	0.015	0.019
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Bromodichloromethane	0.037	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Bromoform	0.037	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Bromomethane	0.12	U	mg/kg	0.057	0.07
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Carbon Disulfide	0.037	U	mg/kg	0.016	0.019
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Carbon tetrachloride	0.037	U	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Chlorobenzene	0.037	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Chlorodibromomethane	0.037	U	mg/kg	0.017	0.021
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Chloroethane	0.12	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Chloroform	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Chloromethane	0.12	U	mg/kg	0.025	0.03
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	cis-1,2-Dichloroethene	0.037	U	mg/kg	0.0094	0.011
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	cis-1,3-Dichloropropene	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Cyclohexane	0.037	U	mg/kg	0.0098	0.012
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Dichlorodifluoromethane	0.037	U	mg/kg	0.0063	0.0076
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Dichloromethane	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Ethylbenzene	0.023	J	mg/kg	0.0063	0.0077
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Freon 113	0.037	U	mg/kg	0.019	0.023
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Isopropylbenzene	0.037	U	mg/kg	0.0092	0.011
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	METHYL ACETATE	0.12	J	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Methyl tert-butyl ether (MTBE)	0.037	U	mg/kg	0.0086	0.011
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	METHYLCYCLOHEXANE	0.037	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Styrene	0.037	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Tetrachloroethene	0.037	U	mg/kg	0.0087	0.011
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Toluene	0.037	U	mg/kg	0.0082	0.01
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	trans-1,2-Dichloroethene	0.037	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	trans-1,3-Dichloropropene	0.037	U	mg/kg	0.017	0.02
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Trichloroethylene	0.037	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Trichlorofluoromethane	0.037	U	mg/kg	0.015	0.019
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Vinyl Chloride	0.037	U	mg/kg	0.0064	0.0079
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Xylene, o	0.063	=	mg/kg	0.012	0.014
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Xylenes, m & p	0.04	J	mg/kg	0.014	0.017
[redacted]	[redacted]	PMC-SVB-09-SO/1.0-2.0-051518	SO	N	5/15/2018	Xylenes, Total	0.1	J	mg/kg	0.026	0.032
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,1,1-Trichloroethane	0.039	U	mg/kg	0.014	0.018
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,1,2,2-Tetrachloroethane	0.039	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,1,2-Trichloroethane	0.039	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,1-Dichloroethane	0.039	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,1-Dichloroethene	0.039	U	mg/kg	0.0097	0.013
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2,3-Trichlorobenzene	0.039	U	mg/kg	0.014	0.018
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2,4-Trichlorobenzene	0.039	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2-Dibromo-3-chloropropane	0.13	U	mg/kg	0.028	0.037
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2-Dibromoethane	0.039	U	mg/kg	0.0084	0.011
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2-Dichlorobenzene	0.039	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2-Dichloroethane	0.039	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,2-Dichloropropane	0.039	U	mg/kg	0.0052	0.0068
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,3-Dichlorobenzene	0.039	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	1,4-Dichlorobenzene	0.039	U	mg/kg	0.0072	0.0093
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	2-Butanone	0.26	U	mg/kg	0.025	0.032

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	2-Hexanone	0.039	U	mg/kg	0.015	0.019
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	4-Methyl-2-Pentanone	0.039	U	mg/kg	0.014	0.018
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Acetone	0.13	U	mg/kg	0.031	0.041
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Benzene	0.039	U	mg/kg	0.0051	0.0066
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Bromochloromethane	0.039	U	mg/kg	0.015	0.02
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Bromodichloromethane	0.039	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Bromoform	0.039	U	mg/kg	0.013	0.016
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Bromomethane	0.13	U	mg/kg	0.057	0.076
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Carbon Disulfide	0.039	U	mg/kg	0.016	0.02
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Carbon tetrachloride	0.039	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Chlorobenzene	0.039	U	mg/kg	0.01	0.013
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Chlorodibromomethane	0.039	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Chloroethane	0.13	U	mg/kg	0.01	0.014
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Chloroform	0.039	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Chloromethane	0.13	U	mg/kg	0.025	0.033
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	cis-1,2-Dichloroethene	0.039	U	mg/kg	0.0094	0.012
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	cis-1,3-Dichloropropene	0.039	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Cyclohexane	0.039	U	mg/kg	0.0098	0.013
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Dichlorodifluoromethane	0.039	U	mg/kg	0.0063	0.0081
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Dichloromethane	0.039	U	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Ethylbenzene	0.039	U	mg/kg	0.0063	0.0081
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Freon 113	0.039	U	mg/kg	0.019	0.024
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Isopropylbenzene	0.039	U	mg/kg	0.0092	0.012
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	METHYL ACETATE	0.22	J	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Methyl tert-butyl ether (MTBE)	0.039	U	mg/kg	0.0086	0.011
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	METHYLCYCLOHEXANE	0.039	U	mg/kg	0.011	0.015
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Styrene	0.039	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Tetrachloroethene	0.039	U	mg/kg	0.0087	0.011
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Toluene	0.039	U	mg/kg	0.0082	0.011
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	trans-1,2-Dichloroethene	0.039	U	mg/kg	0.011	0.014
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	trans-1,3-Dichloropropene	0.039	U	mg/kg	0.017	0.022
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Trichloroethylene	0.2	=	mg/kg	0.013	0.017
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Trichlorofluoromethane	0.039	U	mg/kg	0.015	0.02
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Vinyl Chloride	0.039	U	mg/kg	0.0064	0.0083
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Xylene, o	0.039	U	mg/kg	0.012	0.015
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Xylenes, m & p	0.028	J	mg/kg	0.014	0.018
[redacted]	[redacted]	PMC-SVB-10-SO/3.0-4.0-051618	SO	N	5/16/2018	Xylenes, Total	0.12	U	mg/kg	0.026	0.034
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,1,1-Trichloroethane	0.0042	U	mg/kg	0.00079	0.00066
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,1,2,2-Tetrachloroethane	0.0042	UJ	mg/kg	0.00027	0.00023
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,1,2-Trichloroethane	0.0042	UJ	mg/kg	0.00039	0.00033
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,1-Dichloroethane	0.0042	U	mg/kg	0.0021	0.0017
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,1-Dichloroethene	0.0042	U	mg/kg	0.00098	0.00082
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2,3-Trichlorobenzene	0.0042	U	mg/kg	0.00062	0.00052
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2,4-Trichlorobenzene	0.0042	U	mg/kg	0.00073	0.00061
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2-Dibromo-3-chloropropane	0.0042	UJ	mg/kg	0.0014	0.0012
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2-Dibromoethane	0.0042	U	mg/kg	0.00036	0.0003
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2-Dichlorobenzene	0.0042	U	mg/kg	0.00063	0.00053
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2-Dichloroethane	0.0042	U	mg/kg	0.00036	0.0003

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,2-Dichloropropane	0.0042	U	mg/kg	0.00044	0.00037
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,3-Dichlorobenzene	0.0042	U	mg/kg	0.00052	0.00044
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	1,4-Dichlorobenzene	0.0042	U	mg/kg	0.00036	0.0003
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	2-Butanone	0.0084	U	mg/kg	0.0019	0.0016
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	2-Hexanone	0.0042	U	mg/kg	0.00098	0.00082
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	4-Methyl-2-Pentanone	0.0042	U	mg/kg	0.00081	0.00068
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Acetone	0.029	=	mg/kg	0.0021	0.0018
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Benzene	0.0042	U	mg/kg	0.00052	0.00044
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Bromochloromethane	0.0042	U	mg/kg	0.00049	0.00041
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Bromodichloromethane	0.0042	U	mg/kg	0.00032	0.00027
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Bromoform	0.0042	UJ	mg/kg	0.00031	0.00026
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Bromomethane	0.0084	U	mg/kg	0.00072	0.0006
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Carbon Disulfide	0.0042	U	mg/kg	0.00056	0.00047
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Carbon tetrachloride	0.0042	U	mg/kg	0.00083	0.0007
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Chlorobenzene	0.0042	U	mg/kg	0.00032	0.00027
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Chlorodibromomethane	0.0042	U	mg/kg	0.00047	0.00039
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Chloroethane	0.0042	U	mg/kg	0.00063	0.00053
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Chloroform	0.0042	U	mg/kg	0.0003	0.00025
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Chloromethane	0.0084	U	mg/kg	0.00046	0.00039
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	cis-1,2-Dichloroethene	0.0042	U	mg/kg	0.00048	0.0004
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	cis-1,3-Dichloropropene	0.0042	U	mg/kg	0.00026	0.00022
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Cyclohexane	0.0084	U	mg/kg	0.003	0.0026
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Dichlorodifluoromethane	0.0084	U	mg/kg	0.0011	0.00091
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Dichloromethane	0.0042	U	mg/kg	0.00086	0.00072
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Ethylbenzene	0.00066	J	mg/kg	0.0006	0.0005
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Freon 113	0.0042	U	mg/kg	0.0011	0.00092
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Isopropylbenzene	0.0042	U	mg/kg	0.00064	0.00054
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	METHYL ACETATE	0.0084	U	mg/kg	0.0012	0.001
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Methyl tert-butyl ether (MTBE)	0.0042	U	mg/kg	0.00023	0.00019
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	METHYLCYCLOHEXANE	0.0084	U	mg/kg	0.0015	0.0013
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Styrene	0.0042	U	mg/kg	0.0004	0.00034
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Tetrachloroethene	0.0042	U	mg/kg	0.00089	0.00075
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Toluene	0.0018	J	mg/kg	0.00056	0.00047
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	trans-1,2-Dichloroethene	0.0042	U	mg/kg	0.0004	0.00034
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	trans-1,3-Dichloropropene	0.0042	U	mg/kg	0.00029	0.00024
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Trichloroethylene	0.002	J	mg/kg	0.00072	0.0006
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Trichlorofluoromethane	0.0042	U	mg/kg	0.00071	0.0006
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Vinyl Chloride	0.0042	U	mg/kg	0.0007	0.00059
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Xylene, o	0.00055	J	mg/kg	0.00047	0.00039
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Xylenes, m & p	0.0014	J	mg/kg	0.0012	0.001
[redacted]	[redacted]	PMC-SVB-11-SO/4.5-5.5-051818	SO	N	5/18/2018	Xylenes, Total	0.0019	J	mg/kg	0.0017	0.0014
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,1,1-Trichloroethane	0.0044	U	mg/kg	0.00079	0.00069
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,1,2,2-Tetrachloroethane	0.0044	UJ	mg/kg	0.00027	0.00024
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,1,2-Trichloroethane	0.0044	UJ	mg/kg	0.00039	0.00034
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,1-Dichloroethane	0.0044	U	mg/kg	0.0021	0.0018
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,1-Dichloroethene	0.0044	U	mg/kg	0.00098	0.00086
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2,3-Trichlorobenzene	0.0044	U	mg/kg	0.00062	0.00054
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2,4-Trichlorobenzene	0.0044	U	mg/kg	0.00073	0.00064

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2-Dibromo-3-chloropropane	0.0044	UJ	mg/kg	0.0014	0.0012
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2-Dibromoethane	0.0044	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2-Dichlorobenzene	0.0044	U	mg/kg	0.00063	0.00055
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2-Dichloroethane	0.0044	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,2-Dichloropropane	0.0044	U	mg/kg	0.00044	0.00039
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,3-Dichlorobenzene	0.0044	U	mg/kg	0.00052	0.00046
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	1,4-Dichlorobenzene	0.0044	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	2-Butanone	0.0088	U	mg/kg	0.0019	0.0017
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	2-Hexanone	0.0044	U	mg/kg	0.00098	0.00086
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	4-Methyl-2-Pentanone	0.0044	U	mg/kg	0.00081	0.00071
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Acetone	0.034	=	mg/kg	0.0021	0.0018
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Benzene	0.0016	J	mg/kg	0.00052	0.00046
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Bromochloromethane	0.0044	U	mg/kg	0.00049	0.00043
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Bromodichloromethane	0.0044	U	mg/kg	0.00032	0.00028
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Bromoform	0.0044	UJ	mg/kg	0.00031	0.00027
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Bromomethane	0.0088	U	mg/kg	0.00072	0.00063
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Carbon Disulfide	0.0044	U	mg/kg	0.00056	0.00049
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Carbon tetrachloride	0.0044	U	mg/kg	0.00083	0.00073
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Chlorobenzene	0.0044	U	mg/kg	0.00032	0.00028
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Chlorodibromomethane	0.0044	U	mg/kg	0.00047	0.00041
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Chloroethane	0.0044	U	mg/kg	0.00063	0.00055
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Chloroform	0.0044	U	mg/kg	0.0003	0.00026
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Chloromethane	0.0088	U	mg/kg	0.00046	0.0004
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	cis-1,2-Dichloroethene	0.0044	U	mg/kg	0.00048	0.00042
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	cis-1,3-Dichloropropene	0.0044	U	mg/kg	0.00026	0.00023
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Cyclohexane	0.0088	U	mg/kg	0.003	0.0027
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Dichlorodifluoromethane	0.0088	U	mg/kg	0.0011	0.00095
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Dichloromethane	0.0044	U	mg/kg	0.00086	0.00075
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Ethylbenzene	0.0015	J	mg/kg	0.0006	0.00053
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Freon 113	0.0044	U	mg/kg	0.0011	0.00097
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Isopropylbenzene	0.0044	U	mg/kg	0.00064	0.00056
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	METHYL ACETATE	0.0088	U	mg/kg	0.0012	0.0011
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Methyl tert-butyl ether (MTBE)	0.0044	U	mg/kg	0.00023	0.0002
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	METHYLCYCLOHEXANE	0.0014	J	mg/kg	0.0015	0.0013
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Styrene	0.0044	U	mg/kg	0.0004	0.00035
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Tetrachloroethene	0.0015	J	mg/kg	0.00089	0.00078
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Toluene	0.0058	=	mg/kg	0.00056	0.00049
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	trans-1,2-Dichloroethene	0.0044	U	mg/kg	0.0004	0.00035
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	trans-1,3-Dichloropropene	0.0044	U	mg/kg	0.00029	0.00025
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Trichloroethylene	0.012	=	mg/kg	0.00072	0.00063
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Trichlorofluoromethane	0.0044	U	mg/kg	0.00071	0.00062
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Vinyl Chloride	0.0044	U	mg/kg	0.0007	0.00061
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Xylene, o	0.0016	J	mg/kg	0.00047	0.00041
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Xylenes, m & p	0.004	=	mg/kg	0.0012	0.0011
[redacted]	[redacted]	PMC-SVB-11-SO/13.0-14.0-051818	SO	N	5/18/2018	Xylenes, Total	0.0055	=	mg/kg	0.0017	0.0015
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,1,1-Trichloroethane	0.0052	U	mg/kg	0.00079	0.00083
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,1,2,2-Tetrachloroethane	0.0052	UJ	mg/kg	0.00027	0.00028
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,1,2-Trichloroethane	0.0052	UJ	mg/kg	0.00039	0.00041

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,1-Dichloroethane	0.0052	U	mg/kg	0.0021	0.0022
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,1-Dichloroethene	0.0052	U	mg/kg	0.00098	0.001
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2,3-Trichlorobenzene	0.0052	U	mg/kg	0.00062	0.00065
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2,4-Trichlorobenzene	0.0052	U	mg/kg	0.00073	0.00077
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2-Dibromo-3-chloropropane	0.0052	UJ	mg/kg	0.0014	0.0014
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2-Dibromoethane	0.0052	U	mg/kg	0.00036	0.00038
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2-Dichlorobenzene	0.0052	U	mg/kg	0.00063	0.00066
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2-Dichloroethane	0.0052	U	mg/kg	0.00036	0.00038
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,2-Dichloropropane	0.0052	U	mg/kg	0.00044	0.00046
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,3-Dichlorobenzene	0.0052	U	mg/kg	0.00052	0.00055
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	1,4-Dichlorobenzene	0.0052	U	mg/kg	0.00036	0.00038
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	2-Butanone	0.01	U	mg/kg	0.0019	0.002
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	2-Hexanone	0.0052	U	mg/kg	0.00098	0.001
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	4-Methyl-2-Pentanone	0.0052	U	mg/kg	0.00081	0.00085
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Acetone	0.01	U	mg/kg	0.0021	0.0022
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Benzene	0.0052	U	mg/kg	0.00052	0.00055
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Bromochloromethane	0.0052	U	mg/kg	0.00049	0.00051
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Bromodichloromethane	0.0052	U	mg/kg	0.00032	0.00034
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Bromoform	0.0052	UJ	mg/kg	0.00031	0.00033
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Bromomethane	0.01	U	mg/kg	0.00072	0.00076
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Carbon Disulfide	0.0052	U	mg/kg	0.00056	0.00059
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Carbon tetrachloride	0.0052	U	mg/kg	0.00083	0.00087
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Chlorobenzene	0.0052	U	mg/kg	0.00032	0.00034
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Chlorodibromomethane	0.0052	U	mg/kg	0.00047	0.00049
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Chloroethane	0.0052	U	mg/kg	0.00063	0.00066
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Chloroform	0.0052	U	mg/kg	0.0003	0.00031
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Chloromethane	0.01	U	mg/kg	0.00046	0.00048
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	cis-1,2-Dichloroethene	0.0052	U	mg/kg	0.00048	0.0005
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	cis-1,3-Dichloropropene	0.0052	U	mg/kg	0.00026	0.00027
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Cyclohexane	0.01	U	mg/kg	0.003	0.0032
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Dichlorodifluoromethane	0.01	U	mg/kg	0.0011	0.0011
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Dichloromethane	0.0052	U	mg/kg	0.00086	0.0009
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Ethylbenzene	0.0052	U	mg/kg	0.0006	0.00063
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Freon 113	0.0052	U	mg/kg	0.0011	0.0012
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Isopropylbenzene	0.0052	U	mg/kg	0.00064	0.00067
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	METHYL ACETATE	0.01	U	mg/kg	0.0012	0.0013
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Methyl tert-butyl ether (MTBE)	0.0052	U	mg/kg	0.00023	0.00024
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	METHYLCYCLOHEXANE	0.01	U	mg/kg	0.0015	0.0016
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Styrene	0.0052	U	mg/kg	0.0004	0.00042
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Tetrachloroethene	0.0013	J	mg/kg	0.00089	0.00093
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Toluene	0.0052	U	mg/kg	0.00056	0.00059
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	trans-1,2-Dichloroethene	0.0052	U	mg/kg	0.0004	0.00042
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	trans-1,3-Dichloropropene	0.0052	U	mg/kg	0.00029	0.0003
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Trichloroethylene	0.0052	U	mg/kg	0.00072	0.00076
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Trichlorofluoromethane	0.0052	U	mg/kg	0.00071	0.00075
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Vinyl Chloride	0.0052	U	mg/kg	0.0007	0.00073
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Xylene, o	0.0026	U	mg/kg	0.00047	0.00049
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Xylenes, m & p	0.0026	U	mg/kg	0.0012	0.0013

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Xylenes, Total	0.0052	U	mg/kg	0.0017	0.0018
[redacted]	[redacted]	PMC-SVB-11-SO/18.0-19.0-051818	SO	N	5/18/2018	Oxidant Demand (KMnO4)	4980	J	mg/kg	0	0
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,1,1-Trichloroethane	0.055	UJ	mg/kg	0.014	0.025
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,1,2,2-Tetrachloroethane	0.055	UJ	mg/kg	0.013	0.024
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,1,2-Trichloroethane	0.055	U	mg/kg	0.013	0.023
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,1-Dichloroethane	0.055	UJ	mg/kg	0.011	0.02
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,1-Dichloroethene	0.055	U	mg/kg	0.0097	0.018
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2,3-Trichlorobenzene	0.055	U	mg/kg	0.014	0.026
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2,4-Trichlorobenzene	0.055	U	mg/kg	0.01	0.019
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2-Dibromo-3-chloropropane	0.18	U	mg/kg	0.028	0.051
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2-Dibromoethane	0.055	U	mg/kg	0.0084	0.015
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2-Dichlorobenzene	0.055	U	mg/kg	0.011	0.021
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2-Dichloroethane	0.055	U	mg/kg	0.013	0.024
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,2-Dichloropropane	0.055	U	mg/kg	0.0052	0.0096
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,3-Dichlorobenzene	0.055	U	mg/kg	0.01	0.018
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	1,4-Dichlorobenzene	0.055	U	mg/kg	0.0072	0.013
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	2-Butanone	0.37	U	mg/kg	0.025	0.045
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	2-Hexanone	0.055	UJ	mg/kg	0.015	0.027
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	4-Methyl-2-Pentanone	0.055	UJ	mg/kg	0.014	0.026
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Acetone	0.18	UJ	mg/kg	0.031	0.057
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Benzene	0.055	U	mg/kg	0.0051	0.0094
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Bromochloromethane	0.055	U	mg/kg	0.015	0.028
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Bromodichloromethane	0.055	U	mg/kg	0.017	0.031
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Bromoform	0.055	U	mg/kg	0.013	0.023
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Bromomethane	0.18	UJ	mg/kg	0.057	0.11
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Carbon Disulfide	0.055	UJ	mg/kg	0.016	0.028
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Carbon tetrachloride	0.055	UJ	mg/kg	0.012	0.022
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Chlorobenzene	0.055	U	mg/kg	0.01	0.018
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Chlorodibromomethane	0.055	U	mg/kg	0.017	0.031
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Chloroethane	0.18	UJ	mg/kg	0.01	0.019
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Chloroform	0.055	U	mg/kg	0.011	0.02
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Chloromethane	0.18	UJ	mg/kg	0.025	0.046
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	cis-1,2-Dichloroethene	0.055	U	mg/kg	0.0094	0.017
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	cis-1,3-Dichloropropene	0.055	U	mg/kg	0.011	0.021
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Cyclohexane	0.055	UJ	mg/kg	0.0098	0.018
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Dichlorodifluoromethane	0.055	UJ	mg/kg	0.0063	0.011
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Dichloromethane	0.055	U	mg/kg	0.013	0.024
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Ethylbenzene	0.055	U	mg/kg	0.0063	0.012
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Freon 113	0.055	U	mg/kg	0.019	0.035
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Isopropylbenzene	0.055	UJ	mg/kg	0.0092	0.017
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	METHYL ACETATE	0.37	UJ	mg/kg	0.013	0.025
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Methyl tert-butyl ether (MTBE)	0.055	U	mg/kg	0.0086	0.016
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	METHYLCYCLOHEXANE	0.055	UJ	mg/kg	0.011	0.021
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Styrene	0.055	U	mg/kg	0.012	0.022
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Tetrachloroethene	0.035	J	mg/kg	0.0087	0.016
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Toluene	0.055	U	mg/kg	0.0082	0.015
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	trans-1,2-Dichloroethene	0.055	U	mg/kg	0.011	0.02
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	trans-1,3-Dichloropropene	0.055	U	mg/kg	0.017	0.031

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Trichloroethylene	1.1	J	mg/kg	0.013	0.025
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Trichlorofluoromethane	0.055	UJ	mg/kg	0.015	0.028
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Vinyl Chloride	0.055	U	mg/kg	0.0064	0.012
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Xylene, o	0.055	U	mg/kg	0.012	0.021
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Xylenes, m & p	0.11	U	mg/kg	0.014	0.026
[redacted]	[redacted]	PMC-SVB-12-SO/1.5-2.5-051818	SO	N	5/18/2018	Xylenes, Total	0.17	U	mg/kg	0.026	0.047
[redacted]	[redacted]	PMC-SVB-12-SO/8.0-9.0-051818	SO	N	5/18/2018	Oxidant Demand (KMnO4)	5450	J	mg/kg	0	0
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,1,1-Trichloroethane	0.004	U	mg/kg	0.00079	0.00064
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,1,2,2-Tetrachloroethane	0.004	U	mg/kg	0.00027	0.00022
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,1,2-Trichloroethane	0.004	U	mg/kg	0.00039	0.00032
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,1-Dichloroethane	0.004	U	mg/kg	0.0021	0.0017
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,1-Dichloroethene	0.004	U	mg/kg	0.00098	0.00079
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2,3-Trichlorobenzene	0.004	U	mg/kg	0.00062	0.0005
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2,4-Trichlorobenzene	0.004	U	mg/kg	0.00073	0.00059
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2-Dibromo-3-chloropropane	0.004	U	mg/kg	0.0014	0.0011
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2-Dibromoethane	0.004	U	mg/kg	0.00036	0.00029
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2-Dichlorobenzene	0.004	U	mg/kg	0.00063	0.00051
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2-Dichloroethane	0.004	U	mg/kg	0.00036	0.00029
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,2-Dichloropropane	0.004	U	mg/kg	0.00044	0.00036
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,3-Dichlorobenzene	0.004	U	mg/kg	0.00052	0.00042
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	1,4-Dichlorobenzene	0.004	U	mg/kg	0.00036	0.00029
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	2-Butanone	0.0081	U	mg/kg	0.0019	0.0015
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	2-Hexanone	0.004	U	mg/kg	0.00098	0.00079
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	4-Methyl-2-Pentanone	0.004	U	mg/kg	0.00081	0.00066
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Acetone	0.027	=	mg/kg	0.0021	0.0017
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Benzene	0.004	U	mg/kg	0.00052	0.00042
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Bromochloromethane	0.004	U	mg/kg	0.00049	0.0004
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Bromodichloromethane	0.004	U	mg/kg	0.00032	0.00026
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Bromoform	0.004	U	mg/kg	0.00031	0.00025
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Bromomethane	0.0081	U	mg/kg	0.00072	0.00058
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Carbon Disulfide	0.004	U	mg/kg	0.00056	0.00045
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Carbon tetrachloride	0.004	U	mg/kg	0.00083	0.00067
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Chlorobenzene	0.004	U	mg/kg	0.00032	0.00026
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Chlorodibromomethane	0.004	U	mg/kg	0.00047	0.00038
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Chloroethane	0.004	U	mg/kg	0.00063	0.00051
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Chloroform	0.004	U	mg/kg	0.0003	0.00024
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Chloromethane	0.0081	U	mg/kg	0.00046	0.00037
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	cis-1,2-Dichloroethene	0.004	U	mg/kg	0.00048	0.00039
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	cis-1,3-Dichloropropene	0.004	U	mg/kg	0.00026	0.00021
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Cyclohexane	0.0081	U	mg/kg	0.003	0.0025
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Dichlorodifluoromethane	0.0081	U	mg/kg	0.0011	0.00087
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Dichloromethane	0.004	U	mg/kg	0.00086	0.0007
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Ethylbenzene	0.004	U	mg/kg	0.0006	0.00049
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Freon 113	0.004	U	mg/kg	0.0011	0.00089
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Isopropylbenzene	0.004	U	mg/kg	0.00064	0.00052
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	METHYL ACETATE	0.0081	U	mg/kg	0.0012	0.00098
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Methyl tert-butyl ether (MTBE)	0.004	U	mg/kg	0.00023	0.00019
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	METHYLCYCLOHEXANE	0.0081	U	mg/kg	0.0015	0.0012

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Styrene	0.004	U	mg/kg	0.0004	0.00032
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Tetrachloroethene	0.004	U	mg/kg	0.00089	0.00072
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Toluene	0.00061	J	mg/kg	0.00056	0.00045
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	trans-1,2-Dichloroethene	0.004	U	mg/kg	0.0004	0.00032
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	trans-1,3-Dichloropropene	0.004	U	mg/kg	0.00029	0.00023
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Trichloroethylene	0.004	U	mg/kg	0.00072	0.00058
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Trichlorofluoromethane	0.004	U	mg/kg	0.00071	0.00057
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Vinyl Chloride	0.004	U	mg/kg	0.0007	0.00057
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Xylene, o	0.002	U	mg/kg	0.00047	0.00038
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Xylenes, m & p	0.002	U	mg/kg	0.0012	0.001
[redacted]	[redacted]	PMC-SVB-14-SO/9.0-10.0-051718	SO	N	5/17/2018	Xylenes, Total	0.004	U	mg/kg	0.0017	0.0014
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,1,1-Trichloroethane	0.0045	U	mg/kg	0.00079	0.00071
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,1,2,2-Tetrachloroethane	0.0045	U	mg/kg	0.00027	0.00024
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,1,2-Trichloroethane	0.0045	U	mg/kg	0.00039	0.00035
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,1-Dichloroethane	0.0045	U	mg/kg	0.0021	0.0019
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,1-Dichloroethene	0.0045	U	mg/kg	0.00098	0.00088
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2,3-Trichlorobenzene	0.0045	U	mg/kg	0.00062	0.00056
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2,4-Trichlorobenzene	0.0045	U	mg/kg	0.00073	0.00066
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2-Dibromo-3-chloropropane	0.0045	U	mg/kg	0.0014	0.0012
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2-Dibromoethane	0.0045	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2-Dichlorobenzene	0.0045	U	mg/kg	0.00063	0.00057
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2-Dichloroethane	0.0045	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,2-Dichloropropane	0.0045	U	mg/kg	0.00044	0.0004
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,3-Dichlorobenzene	0.0045	U	mg/kg	0.00052	0.00047
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	1,4-Dichlorobenzene	0.0045	U	mg/kg	0.00036	0.00032
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	2-Butanone	0.008	J	mg/kg	0.0019	0.0017
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	2-Hexanone	0.002	J	mg/kg	0.00098	0.00088
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	4-Methyl-2-Pentanone	0.0045	U	mg/kg	0.00081	0.00073
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Acetone	0.059	=	mg/kg	0.0021	0.0019
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Benzene	0.00071	J	mg/kg	0.00052	0.00047
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Bromochloromethane	0.0045	U	mg/kg	0.00049	0.00044
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Bromodichloromethane	0.0045	U	mg/kg	0.00032	0.00029
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Bromoform	0.0045	U	mg/kg	0.00031	0.00028
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Bromomethane	0.009	U	mg/kg	0.00072	0.00065
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Carbon Disulfide	0.0045	U	mg/kg	0.00056	0.0005
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Carbon tetrachloride	0.0045	U	mg/kg	0.00083	0.00075
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Chlorobenzene	0.0045	U	mg/kg	0.00032	0.00029
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Chlorodibromomethane	0.0045	U	mg/kg	0.00047	0.00042
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Chloroethane	0.0045	U	mg/kg	0.00063	0.00057
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Chloroform	0.0045	U	mg/kg	0.0003	0.00027
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Chloromethane	0.009	U	mg/kg	0.00046	0.00041
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	cis-1,2-Dichloroethene	0.0045	U	mg/kg	0.00048	0.00043
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	cis-1,3-Dichloropropene	0.0045	U	mg/kg	0.00026	0.00023
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Cyclohexane	0.009	U	mg/kg	0.003	0.0027
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Dichlorodifluoromethane	0.009	U	mg/kg	0.0011	0.00097
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Dichloromethane	0.0045	U	mg/kg	0.00086	0.00077
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Ethylbenzene	0.0006	J	mg/kg	0.0006	0.00054
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Freon 113	0.0045	U	mg/kg	0.0011	0.00099

Attachment H-4
Analytical Data to be used in the HHRA
PMC Superfund Site
Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Isopropylbenzene	0.0045	U	mg/kg	0.00064	0.00058
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	METHYL ACETATE	0.009	U	mg/kg	0.0012	0.0011
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Methyl tert-butyl ether (MTBE)	0.0045	U	mg/kg	0.00023	0.00021
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	METHYLCYCLOHEXANE	0.009	U	mg/kg	0.0015	0.0013
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Styrene	0.0045	U	mg/kg	0.0004	0.00036
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Tetrachloroethene	0.0045	U	mg/kg	0.00089	0.0008
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Toluene	0.0021	J	mg/kg	0.00056	0.0005
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	trans-1,2-Dichloroethene	0.0045	U	mg/kg	0.0004	0.00036
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	trans-1,3-Dichloropropene	0.0045	U	mg/kg	0.00029	0.00026
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Trichloroethylene	0.002	J	mg/kg	0.00072	0.00065
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Trichlorofluoromethane	0.0045	U	mg/kg	0.00071	0.00064
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Vinyl Chloride	0.0045	U	mg/kg	0.0007	0.00063
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Xylene, o	0.00047	J	mg/kg	0.00047	0.00042
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Xylenes, m & p	0.0023	U	mg/kg	0.0012	0.0011
[redacted]	[redacted]	PMC-SVB-15-SO/4.0-5.0-051718	SO	N	5/17/2018	Xylenes, Total	0.0045	U	mg/kg	0.0017	0.0015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,1,1-Trichloroethane	0.034	U	mg/kg	0.014	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,1,2,2-Tetrachloroethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,1,2-Trichloroethane	0.034	U	mg/kg	0.013	0.014
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,1-Dichloroethane	0.034	U	mg/kg	0.011	0.012
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,1-Dichloroethene	0.034	U	mg/kg	0.0097	0.011
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2,3-Trichlorobenzene	0.034	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2,4-Trichlorobenzene	0.034	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2-Dibromo-3-chloropropane	0.11	U	mg/kg	0.028	0.031
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2-Dibromoethane	0.034	U	mg/kg	0.0084	0.0095
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2-Dichlorobenzene	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2-Dichloroethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,2-Dichloropropane	0.034	U	mg/kg	0.0052	0.0059
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,3-Dichlorobenzene	0.034	U	mg/kg	0.01	0.011
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	1,4-Dichlorobenzene	0.034	U	mg/kg	0.0072	0.0082
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	2-Butanone	0.23	U	mg/kg	0.025	0.028
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	2-Hexanone	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	4-Methyl-2-Pentanone	0.034	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Acetone	0.11	U	mg/kg	0.031	0.035
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Benzene	0.034	U	mg/kg	0.0051	0.0058
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Bromochloromethane	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Bromodichloromethane	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Bromoform	0.034	U	mg/kg	0.013	0.014
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Bromomethane	0.11	U	mg/kg	0.057	0.065
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Carbon Disulfide	0.034	U	mg/kg	0.016	0.018
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Carbon tetrachloride	0.034	U	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Chlorobenzene	0.034	U	mg/kg	0.01	0.011
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Chlorodibromomethane	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Chloroethane	0.11	U	mg/kg	0.01	0.012
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Chloroform	0.034	U	mg/kg	0.011	0.012
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Chloromethane	0.11	U	mg/kg	0.025	0.028
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	cis-1,2-Dichloroethene	0.034	U	mg/kg	0.0094	0.011
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	cis-1,3-Dichloropropene	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Cyclohexane	0.034	U	mg/kg	0.0098	0.011

Attachment H-4

Analytical Data to be used in the HHRA

PMC Superfund Site

Petoskey, Emmet County, Michigan

AOC ID	Station ID	Sample ID	Matrix	Sample Type	Date Collected	Parameter Name	Result	Qualifier	Units	Detection Limit	Reporting Limit
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Dichlorodifluoromethane	0.034	U	mg/kg	0.0063	0.0071
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Dichloromethane	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Ethylbenzene	0.034	U	mg/kg	0.0063	0.0072
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Freon 113	0.034	U	mg/kg	0.019	0.022
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Isopropylbenzene	0.034	U	mg/kg	0.0092	0.01
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	METHYL ACETATE	0.23	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Methyl tert-butyl ether (MTBE)	0.034	U	mg/kg	0.0086	0.0098
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	METHYLCYCLOHEXANE	0.034	U	mg/kg	0.011	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Styrene	0.034	U	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Tetrachloroethene	0.034	U	mg/kg	0.0087	0.0099
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Toluene	0.034	U	mg/kg	0.0082	0.0093
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	trans-1,2-Dichloroethene	0.034	U	mg/kg	0.011	0.012
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	trans-1,3-Dichloropropene	0.034	U	mg/kg	0.017	0.019
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Trichloroethylene	0.034	U	mg/kg	0.013	0.015
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Trichlorofluoromethane	0.034	U	mg/kg	0.015	0.017
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Vinyl Chloride	0.034	U	mg/kg	0.0064	0.0073
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Xylene, o	0.034	U	mg/kg	0.012	0.013
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Xylenes, m & p	0.068	U	mg/kg	0.014	0.016
[redacted]	[redacted]	PMC-SVB-16-SO/8.0-8.8-051618	SO	N	5/16/2018	Xylenes, Total	0.1	U	mg/kg	0.026	0.029

Attachment H-5
Soil Vapor VISLs

Attachment H-5, Table 1

Vapor Intrusion Screening Levels (VISLs)

PMC Superfund Site

Petoskey, Emmet County, Michigan

Default VISL Results

Resident Vapor Intrusion Screening Levels (VISL) for Soil Vapor

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); U = User-provided

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? ($C_{vp} > C_{i,a}$,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? ($C_{hc} > C_{i,a}$,Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN($C_{ia,c}$,$C_{ia,nc}$) ($\mu g/m^3$)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C_{sg},Target ($\mu g/m^3$)	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C_{gw},Target ($\mu g/L$)	Is Target Groundwater Concentration < MCL? (C_{gw} < MCL?)	Pure Phase Vapor Concentration C_{vp} (25 ℃) ($\mu g/m^3$)	Maximum Groundwater Vapor Concentration C_{hc} ($\mu g/m^3$)	Temperature for Maximum Groundwater Vapor Concentration (℃)	Lower Explosive Limit LEL (% by volume)	LEL Ref	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	IUR Ref	RfC (mg/m^3)	RfC Ref	Mutagenic Indicator
Acetone	67-64-1	Yes	Yes	Yes	Yes	32200	n	1070000	22500000	--	723000000	1430000000	25	2.50	CRC89	-		31	A	No
Acetonitrile	75-05-8	Yes	Yes	Yes	Yes	63	n	2090	44400	--	196000000	1410000000	25	3.00	CRC89	-		0	I	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	0	c	12	2	Yes (5)	398000000	406000000	25	1.20	CRC89	0	I	0	I	No
Bromodichloromethane	75-27-4	Yes	Yes	Yes	Yes	0	c	3	1	Yes (80)	441000000	263000000	25	-		0	C	-		No
Butadiene, 1,3-	106-99-0	Yes	Yes	Yes	Yes	0	c	3	0	--	6130000000	2210000000	25	2.00	CRC89	0	I	0	I	No
Carbon Disulfide	75-15-0	Yes	Yes	Yes	Yes	730	n	24300	1240	--	1470000000	1270000000	25	1.30	CRC89	-		1	I	No
Carbon Tetrachloride	56-23-5	Yes	Yes	Yes	Yes	0	c	16	0	Yes (5)	951000000	895000000	25	-		0	I	0	I	No
Chlorodifluoromethane	75-45-6	Yes	Yes	Yes	Yes	52100	n	1740000	31400	--	3370000000	4600000000	25	-		-		50	I	No
Chloroform	67-66-3	Yes	Yes	Yes	Yes	0	c	4	1	Yes (80)	1260000000	1190000000	25	-		0	I	0	A	No
Chloromethane	74-87-3	Yes	Yes	Yes	Yes	94	n	3130	260	--	11700000000	1920000000	25	8.10	CRC89	-		0	I	No
Cumene	98-82-8	Yes	Yes	Yes	Yes	417	n	13900	887	--	29100000	28800000	25	0.90	CRC89	-		0	I	No
Cyclohexane	110-82-7	Yes	Yes	Yes	Yes	6260	n	209000	1020	--	438000000	337000000	25	1.30	CRC89	-		6	I	No
Dichlorobenzene, 1,4-	106-46-7	Yes	Yes	Yes	Yes	0	c	9	3	Yes (75)	13800000	8010000	25	1.80	YAWS	0	C	1	I	No
Dichlorodifluoromethane	75-71-8	Yes	Yes	Yes	Yes	104	n	3480	7	--	31500000000	3930000000	25	-		-		0	X	No
Dichloropropane, 1,2-	78-87-5	Yes	Yes	Yes	Yes	1	c	25	7	No (5)	324000000	323000000	25	3.40	YAWS	0	P	0	I	No
Ethyl Acetate	141-78-6	Yes	Yes	Yes	Yes	73	n	2430	13300	--	442000000	438000000	25	2.00	CRC89	-		0	P	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	1	c	37	3	Yes (700)	54800000	54400000	25	0.80	CRC89	0	C	1	I	No
Heptane, N-	142-82-5	Yes	Yes	Yes	Yes	417	n	13900	5	--	248000000	278000000	25	1.05	CRC89	-		0	P	No
Hexane, N-	110-54-3	Yes	Yes	Yes	Yes	730	n	24300	10	--	701000000	699000000	25	1.10	CRC89	-		1	I	No
Hexanone, 2-	591-78-6	Yes	Yes	Yes	Yes	31	n	1040	8210	--	62500000	65500000	25	1.00	CRC89	-		0	I	No
Isopropanol	67-63-0	Yes	Yes	Yes	Yes	209	n	6950	630000	--	147000000	331000000	25	2.00	CRC89	-		0	P	No
Methyl Ethyl Ketone (2-Butanone)	78-93-3	Yes	Yes	Yes	Yes	5210	n	174000	2240000	--	351000000	519000000	25	1.40	CRC89	-		5	I	No
Methylene Chloride	75-09-2	Yes	Yes	Yes	Yes	101	c	3380	763	No (5)	1990000000	1730000000	25	13.00	CRC89	0	I	1	I	Mut
Naphthalene	91-20-3	Yes	Yes	Yes	Yes	0	c	3	5	--	586000	558000	25	0.90	CRC89	0	C	0	I	No
Nonane, n-	111-84-2	Yes	Yes	Yes	Yes	21	n	695	0	--	30700000	30600000	25	0.80	CRC89	-		0	P	No
Propyl benzene	103-65-1	Yes	Yes	Yes	Yes	1040	n	34800	2430	--	22100000	22400000	25	0.80	CRC89	-		1	X	No
Propylene	115-07-1	Yes	Yes	Yes	Yes	3130	n	104000	390	--	19700000000	1600000000	25	2.00	CRC89	-		3	C	No
Styrene	100-42-5	Yes	Yes	Yes	Yes	1040	n	34800	9280	No (100)	35800000	34900000	25	0.90	CRC89	-		1	I	No
Tetrachloroethylene	127-18-4	Yes	Yes	Yes	Yes	11	c	360	15	No (5)	165000000	149000000	25	-		0	I	0	I	No
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	2090	n	69500	724000	--	629000000	2880000000	25	2.00	CRC89	-		2	I	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	5210	n	174000	19200	No (1000)	141000000	143000000	25	1.10	CRC89	-		5	I	No
Trichloroethane, 1,1,1-	71-55-6	Yes	Yes	Yes	Yes	5210	n	174000	7420	No (200)	890000000	907000000	25	8.00	CRC89	-		5	I	No
Trichloroethylene	79-01-6	Yes	Yes	Yes	Yes	0	c	16	1	Yes (5)	488000000	515000000	25	8.00	CRC89	0	I	0	I	Mut
Trichlorofluoromethane	75-69-4	Yes	No	Info	Info	-		-	-		5930000000	4360000000	25	-		-		-		No

Attachment H-5, Table 1

Vapor Intrusion Screening Levels (VISLs)

PMC Superfund Site

Petoskey, Emmet County, Michigan

Default VISL Results

Resident Vapor Intrusion Screening Levels (VISL) for Soil Vapor

Key: I = IRIS; P = PPRTV; D = DWSHA; O = OPP; A = ATSDR; C = Cal EPA; X = APPENDIX PPRTV SCREEN (See FAQ #29); H = HEAST; F = See FAQ; E = see user guide Section 2.3.5; W = see user guide Section 2.3.6; L = see user guide on lead; M = mutagen; S = see user guide Section 5; V = volatile; R = RBA applied (See User Guide for Arsenic notice) ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); U = User-provided

Chemical	CAS Number	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1)	Does the chemical have inhalation toxicity data? (IUR and/or RfC)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Soil Source? ($C_{vp} > C_{i,a}$,Target?)	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? ($C_{hc} > C_{i,a}$,Target?)	Target Indoor Air Concentration (TCR=1E-06 or THQ=1) MIN($C_{ia,c}$,$C_{ia,nc}$) (µg/m^3)	Toxicity Basis	Target Sub-Slab and Near-source Soil Gas Concentration (TCR=1E-06 or THQ=1) C_{sg},Target (µg/m^3)	Target Groundwater Concentration (TCR=1E-06 or THQ=1) C_{gw},Target (µg/L)	Is Target Groundwater Concentration < MCL? (C_{gw} < MCL?)	Pure Phase Vapor Concentration C_{vp} (25 ºC) (µg/m^3)	Maximum Groundwater Vapor Concentration C_{hc} (µg/m^3)	Temperature for Maximum Groundwater Vapor Concentration (ºC)	Lower Explosive Limit LEL (% by volume)	LEL Ref	Inhalation Unit Risk (ug/m^3)$^{-1}$	IUR Ref	RfC (mg/m^3)	RfC Ref	Mutagenic Indicator
Trimethylbenzene, 1,2,3-	526-73-8	Yes	Yes	Yes	Yes	63	n	2090	351	--	10900000	13400000	25	0.80	CRC89	-		0	I	No
Trimethylbenzene, 1,2,4-	95-63-6	Yes	Yes	Yes	Yes	63	n	2090	248	--	13600000	14400000	25	0.90	CRC89	-		0	I	No
Trimethylbenzene, 1,3,5-	108-67-8	Yes	Yes	Yes	Yes	63	n	2090	175	--	16000000	17300000	25	1.00	CRC89	-		0	I	No
Vinyl Acetate	108-05-4	Yes	Yes	Yes	Yes	209	n	6950	9980	--	417000000	418000000	25	2.60	CRC89	-		0	I	No
Xylene, m-	108-38-3	Yes	Yes	Yes	Yes	104	n	3480	355	--	47300000	47300000	25	1.10	CRC89	-		0	S	No
Xylene, o-	95-47-6	Yes	Yes	Yes	Yes	104	n	3480	492	--	37700000	37700000	25	0.90	CRC89	-		0	S	No
Xylenes	1330-20-7	Yes	Yes	Yes	Yes	104	n	3480	385	Yes (10000)	45600000	28700000	25	-		-		0	I	No

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Attachment H-6
MLE Evaluation

Table 1: Summary of Vapor Intrusion Multiple Lines of Evidence Evaluation

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Property Address	[redacted]						[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Description of Property	Four separate buildings on the property. Easternmost structure houses [redacted] The condos have a ground level garage and den space with two stories of living space above.						Three-story condominium complex located north of the former PMC building and adjacent to Little Traverse Bay. The complex consists of two buildings (Building 1 and Building 2). Building 1 houses 12 condominium units, and Building 2 houses 9 units. Each building features a common enclosed area where the main access entrance is located. Buildings are equipped with man-way cuts to allow for passage under the entire building. The common crawl space is partitioned similar to the corresponding floor plan. All the individual condominium unit entrances are located within the enclosed common area. For each building, the second and third floor units are accessed by a set of staircases, or an elevator.	Single family, two-story residential, approximately 100 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 120 years old, with crawl space and unfinished basement	Two family, two-story residential property, divided into first floor and second floor apartments. Approximately 120 years old, with partial crawl space and unfinished basement
Sampling Performed by CH2M Hill (now Jacobs)	**Oct 2016 (Round 1)** - Install SS01 and SS02 in garage. **Jan 2017 (Round 1)** - SS sampling, and sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling. **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Oct 2016 (Round 1)** - Install SS01 and SS02 in garage. **Jan 2017 (Round 1)** - SS sampling, and sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling. **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Oct 2016 (Round 1)** - Install SS01 and SS02 in garage. **Jan 2017 (Round 1)** - SS sampling, and sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling. **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Oct 2016 - Jan 2017 (Round 1)** - Access not granted. Sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Oct 2016 - Jan 2017 (Round 1)** - Access not granted. Sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Oct 2016 (Round 1)** - Install SS01 and SS02 in garage. **Jan 2017 (Round 1)** - SS sampling, and sewer gas sampling. **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling. **Nov 2018 (Round 5)** - SS and IA sampling. Exterior SV and sewer gas sampling.	**Jun 2017** - Concurrent IA (one in each unit) and CS [redacted] sampling, and near-slab SV (3 around building) **Feb 2018** - Concurrent IA [redacted] and CS sampling [redacted], and near-slab SV (1 location)	**Jun 2017** - Concurrent IA (one in each unit) and CS [redacted] sampling, and near-slab SV (3 around building) **Feb 2018** - Concurrent IA [redacted] and CS sampling [redacted] and near-slab SV (2 locations)	**May-July 2017 (Round 2)** - near-slab SV sampling (access for IA sampling not granted) **Feb 2018 (Round 3)** - IA sampling	**May/July 2017 (Round 2)** - IA, near-slab SV sampling **Feb 2018 (Round 3)** - IA, near-slab SV sampling	**May/July 2017 (Round 2)** - IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and SS sampling **Jun 2018 (Round 4)** - sewer gas sampling **Oct/Nov 2018 (Round 5)** - sewer gas sampling
Sampling Performed by Mannik-Smith	**Apr 2017** - SS and IA sampling **Jun 2017** - IA sampling **Sep 2017** - SS and IA sampling **Jan 2018** - SS and IA sampling	**Mar/Apr 2017** - SS and IA sampling (Owners denied access afterwards)	**Apr 2017** - SS and IA sampling **Jun 2017** - IA sampling **Sep 2017** - SS and IA sampling **Jan 2018** - SS and IA sampling	**Apr 2017** - SS and IA sampling **Jun 2017** - IA sampling **Sep 2017** - SS and IA sampling **Jan 2018** - SS and IA sampling	**Mar 2017** - IA sampling **Jun 2017** - IA sampling **Nov 2017** - SS and IA sampling **Jan 2018** - SS and IA sampling	**Apr 2017** - SS and IA sampling **Jun 2017** - IA sampling **Sep 2017** - SS and IA sampling **Jan 2018** - SS and IA sampling	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Lines of Evidence											
Comparison to Screening Levels											
Shallow GW VOC concentrations > VISL within 100 feet of building?	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	**SVB11-GW-7.8-12.8 (May 2018) - TCE > VISL** **SVB12-GW-8.5-13.5 (May 2018) - TCE > VISL** **SVB15-GW-8.6-13.6 (May 2018) - TCE > VISL** **CMW-01 (June 2018) - TCE > VISL** **CMW-02 (June 2018) - TCE > VISL**	Non-detect	Non-detect	No	No	No
Sewer gas VOC concentrations > VISL within 100 feet of building?	SA-01 (Jan 2017) < VISLs **SA-01 (Oct 2018) - TCE > VISL** ST-06 (June and Oct 2018) < VISLs	SA-01 (Jan 2017) < VISL **SA-01 (Oct 2018) - TCE > VISL** ST-06 (June and Oct 2018) < VISL	SA-01 (Jan 2017) < VISL **SA-01 (Oct 2018) - TCE > VISL** SA-05 (Jun and Oct 2018) < VISL ST-06 (June and Oct 2018) < VISL **SA-07 (Jun and Oct 2018) - TCE > VISL**	SA-01 (Jan 2017) < VISL **SA-01 (Oct 2018) - TCE > VISL** SA-05 (Jun and Oct 2018) < VISL ST-06 (June and Oct 2018) < VISL **SA-07 (Jun and Oct 2018) - TCE > VISL**	SA-01 (Jan 2017) < VISL **SA-01 (Oct 2018) - TCE > VISL** SA-05 (Jun and Oct 2018) < VISL ST-06 (June and Oct 2018) < VISL **SA-07 (Jun and Oct 2018) - TCE > VISL**	SA-01 (Jan 2017) < VISL **SA-01 (Oct 2018) - TCE > VISL** SA-05 (Jun and Oct 2018) < VISL ST-06 (June and Oct 2018) < VISL **SA-07 (Jun and Oct 2018) - TCE > VISL**	Not applicable	Not applicable	Not applicable	Not applicable	ST-06 (June 2018) < VISL ST-06 (October 2018) < VISL
Site-wide SV (installed in 2018) VOC concentrations > VISL within 100 feet of the building?	**SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL** **SVB16-09 (Jun and Nov 2018) - TCE > VISL**	**SVB12-05 (Jun and Oct 2018) - Benzene and TCE > VISL** **SVB12-12 (Jun and Oct 2018) - TCE > VISL** **SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL** **SVB16-09 (Jun and Nov 2018) - TCE > VISL**	**SVB12-05 (Jun and Oct 2018) - Benzene and TCE > VISL** **SVB12-12 (Jun and Oct 2018) - TCE > VISL** **SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL** **SVB16-09 (Jun and Nov 2018) - TCE > VISL**	**SVB12-05 (Jun and Oct 2018) - Benzene and TCE > VISL** **SVB12-12 (Jun and Oct 2018) - TCE > VISL** **SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL** **SVB16-09 (Jun and Nov 2018) - TCE > VISL**	**SVB11-05 (Jun and Oct 2018) - TCE > VISL** **SVB11-10 (Jun 2018) - TCE > VISL** **SVB12-05 (Jun and Oct 2018) - Benzene and TCE > VISL** **SVB12-12 (Jun and Oct 2018) - TCE > VISL** **SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL**	**SVB11-05 (Jun and Oct 2018) - TCE > VISL** **SVB11-10 (Jun 2018) - TCE > VISL** **SVB12-05 (Jun and Oct 2018) - Benzene and TCE > VISL** **SVB12-12 (Jun and Oct 2018) - TCE > VISL** **SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Oct 2018) < VISLs SVB14 (9.5 and 12.5, June and Oct 2018) < VISLs **SVB15-4.8 (Jun 2018) - Benzene, TCE > VISLs** **SVB15-4.8 (Oct 2018) - TCE > VISL** **SVB15-10 (Jun and Oct 2018) - TCE > VISL**	SVB06-5.5 (Jun and Oct 2018) < VISLs (SVB-06 is greater than 100 feet from the building, but it is between the PMC site and the building)	SVB06-5.5 (Jun and Oct 2018) < VISLs (SVB-06 is greater than 100 feet from the building, but it is between the PMC site and the building)	Not applicable	Not applicable	Not applicable
Near-slab SV (installed in 2017) VOC concentrations > VISL?	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	SG13-04 to -06 (Jun 2017) < VISLs SG13-05 (Feb 2018) < VISLs	SG13-01 to -03 (Jun 2017) < VISLs SG13-01 and -02 (Feb 2018) < VISLs	SG02 (May 2017) < VISL	SG03 (Jun 2017, Feb 2018) < VISL	SG04 (May 2017) < VISL
SS VOC concentrations > VISL?	SS01 and SS02 (Jan 2017 and Nov 2018) < VISL **Mannik-Smith SS01 (Sep 2017) - TCE > VISL** Mannik-Smith SS02 (Sep 2017) < VISLs Mannik-Smith (SS01 in Apr 2017, SS01 and SS02 in Jan 2018) < VISLs	SS01 (Jan 2017) < VISLs **SS02 (Jan 2017) - TCE > VISL** **SS01 (Nov 2018) - TCE > VISL** SS02 (Nov 2018) < VISLs Mannik-Smith SS01 (Apr 2017) < VISLs	**SS01 and SS02 (Jan 2017 and Nov 2018) - TCE > VISL** **Mannik-Smith (SS2 in Apr 2017; SS1 and SS2 in Sep 2017) - TCE > VISL** **Mannik-Smith (SS1 in Sep 2017) - Naphthalene > VISL** Mannik-Smith (SS1 and SS2 in Jan 2018) < VISLs	**SS01 (Nov 2018) - TCE > VISL** **Mannik-Smith (SS01 in Apr and Sep 2017) - TCE > VISL** Mannik-Smith (SS01 in Jan 2018) < VISLs	**SS01 and SS02 (Nov 2018) - TCE > VISL** **Mannik-Smith (SS01 and SS02 in Nov 2017) - TCE > VISL** **Mannik-Smith (SS2 in Sep 2017) - 1,3-Dichlorobezene > VISL** Mannik-Smith (SS01 in Jan 2018) < VISLs	**SS01 and SS02 (Jan 2017) - TCE > VISL** SS01 and SS02 (Nov 2018) < VISL **Mannik-Smith (SS2 in Apr 2017; SS1 and SS2 in Sep 2017) - TCE > VISL** **Mannik-Smith (SS1 in Sep 2017) - Naphthalene > VISL** Mannik-Smith (SS1 and SS2 in Jan 2018) < VISLs	Not sampled	Not sampled	**SS04 (Feb 2018) - TCE > VISL (adjacent property)**	Not sampled	**SS04 (Feb 2018) - TCE > VISL**
CS VOC concentrations > VISL?	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	CS from [redacted] (Jun 2017) < VISLs **CS from [redacted] (Jun 2017) - TCE > VISL** **CS from [redacted] 4 (Feb 2018) - Benzene > VISL** (Benzene in CS lower than some IA detections and benzene was only detected in 1 of 6 near-slab SV probes indicating an indoor source.)	CS from [redacted] (Jun 2017) < VISLs **CS from [redacted] (Feb 2018) - Benzene > VISL** (Benzene in CS lower than some IA detections and benzene was only detected in 1 of 6 near-slab SV probes indicating an indoor source.)	Not applicable	Not applicable	Not applicable
IA VOC concentrations > VISL?	**IN01 (Nov 2018) - Benzene > VISL** IN02 (Nov 2018) < VISLs **Mannik-Smith (IA1 in Apr 2017; IA1, IA2, and IA3 in Sep 2017 and Jan 2018) - Benzene > VISL** **Mannik-Smith (IA3 in Sep 2017) - TCE and naphthalene > VISL** Mannik-Smith (IA2 in Apr 2017; IA1, IA2, and IA3 in Jun 2017) < VISLs (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	**IN01 and IN02 (Nov 2018) - Benzene > VISL** **Mannik-Smith (IA1 and IA2 Mar 2017) - Benzene > VISL** (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	IN01 and IN02 (Nov 2018) < VISLs **Mannik-Smith (IA1 in Jun 2017; IA2 and IA3 in Sep 2017; IA1, IA2, and IA3 in Jan 2018) - Benzene > VISL** **Mannik-Smith (IA1 in Jun 2017; and IA2 and IA3 in Sep 2017) - TCE > VISL** Mannik-Smith (IA2 in Apr 2017; IA2 and IA3 in Jun 2017; IA1 in Sep 2017) < VISLs (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	**IN01 and IN02 (Nov 2018) - Benzene > VISLs** **Mannik-Smith (IA1 in Apr 2017; IA3 in Jun 2017; IA1, IA2, and IA3 in Sep 2017 and Jan 2018) - Benzene > VISL** **Mannik-Smith (IA1 in Apr 2017) - TCE > VISL** Mannik-Smith (IA2 in Apr 2017; IA1 and IA2 in Jun 2017) < VISLs (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	**IN01 and IN02 (Nov 2018) - Benzene > VISLs** **Mannik-Smith (IA1 and IA2 in Mar 2017; IA2 and IA3 in Jun and Nov 2017; IA1, IA2, and IA3 in Jan 2018) - Benzene > VISL** **Mannik-Smith (IA1 and IA2 in Mar 2017) - TCE > VISL** Mannik-Smith (IA1 in Jun and Nov 2017) < VISLs (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	**IN01 and IN02 (Nov 2018) - TCE > VISL** **Mannik-Smith (IA1 and IA2 in Apr 2017; IA1, IA2, and IA3 in Jun and Sep 2017; and IA2 and IA3 in Jan 2018) - TCE > VISL** **Mannik-Smith (IA1, IA2, and IA3 in Sep 2017 and Jan 2018) - Benzene > VISL** (Benzene in SS was ND or similar to IA detections so likely due to indoor source)	**IA from [redacted] (Jun 2017) - TCE > VISL** IA from other units (Jun 2017) < VISLs **IA from [redacted] 04 (Feb 2018) - Benzene > VISL** IA from other units (Feb 2018) < VISLs	**IA from [redacted] (Jun 2017) - Benzene > VISL** **IA from [redacted] (Jun 2017) - TCE > VISL** IA from other units (Jun 2017) < VISLs **IA from [redacted] (Feb 2018) - Benzene > VISL** IA from other units (Feb 2018) < VISLs	**IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - Benzene = VISL** IA (Feb 2018) < VISLs	**IA (May 2017) < VISLs (Benzene NR)** **IA (Feb 2018) - Benzene > VISL**

Table 1: Summary of Vapor Intrusion Multiple Lines of Evidence Evaluation

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	**RP-002**	**RP-003**	**RP-004**
Property Address	[redacted]						[redacted]		[redacted]	[redacted]	[redacted]
Lines of Evidence Used to Evaluate IA Data											
OA (site-wide) similar or greater than IA concentrations, indicating background VOCs?	No	No	No	No	No	No	No	No	No	No	No
Potential indoor VOC sources identified during building survey?	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey. Although scented plugins were not giving elevated ppbRae readings, they were removed during sampling of indoor air In Nov 2018.	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey	Yes. Potential indoor VOC sources removed by Condo Property Management company prior to Oct/Nov 2018 building survey	May and June 2017 - various items removed from [redacted] including drain cleaner, WD-40, spray paint, spot cleaners, air fresheners, aerosol cleaners, wood polish and oil, degreaser, pesticides and bug sprays, hobby glue, glue remover, wood polish, aerosol deodorant, oven cleaner, wallpaper remover, nail polish remover, lighter fluid, sfabric protector, leather protector, hair color foam/dye, adhesive remover, PB blaster silicon spray	May and June 2017 - various items removed from [redacted] including spot cleaners, furniture cleaner/polish, cook top cleaner, aerosol lubricants, nail polish remover, aerosol cleaners, pesticides and bug sprays, drain cleaner, aerosol air freshener, WD-40, adhesive, lubricants, metal polish/cleaner, adhesive remover, metal polish, automotive wax	Feb 2018 - Observed general household/potential indoor VOC sources observed. Based on building survey, no items removed prior to sampling	May/July 2017 and Feb 2018 - General household/potential indoor VOC sources observed. None removed prior to sampling. New carpeting installed prior to May/July 2017 sampling event	No chemicals observed during May/July 2017 and Feb 2018 sampling events. None removed prior to sampling. Remodeling compeleted prior to May/July 2017 sampling event.
Building construction/conditions that could increase or decrease liklihood of VI?	Condominium unit, slab on grade with the majority of the first level as a garage, one shared wall with [redacted] n good condition, new construction (<10 years old).	Condominium unit, slab on grade with the majority of the first level as a garage, two shared walls with [redacted] in good condition, new construction (<10 years old).	Condominium unit, slab on grade with the majority of the first level as a garage, two shared walls with [redacted] in good condition, new construction (<10 years old).	Condominium unit, slab on grade with the majority of the first level as a garage, two shared walls with [redacted] 5, in good condition, new construction (<10 years old).	Condominium unit, slab on grade with the majority of the first level as a garage, two shared walls with [redacted] in good condition, new construction (<10 years old).	Condominium unit, slab on grade with the majority of the first level as a garage, one shared wall with [redacted] in good condition, new construction (<10 years old).	Building construction is wood frame with a concrete and block foundation. The ground-level units in each building have accessible partitioned, common crawlspace areas with fine sand, cobbles, and a fair amount of crushed concrete.	Building construction is wood frame with a concrete and block foundation. The ground-level units in each building have accessible partitioned, common crawlspace areas with fine sand, cobbles, and a fair amount of crushed concrete.	Poured concrete basement with stone walls	"Michigan Basement" with partially exposed dirt floor	"Michigan Basement" with partially exposed dirt floor
IA ≥ CS, near-slab SV, or SS concentration?	Yes, benzene in IA similar to SS	Yes, benzene in IA similar to SS	Yes, benzene in IA similar to SS	Yes, benzene in IA similar to SS	Yes, benzene in IA similar to SS	Yes, benzene in IA similar to SS	Yes - Benzene and TCE (IA ≥ CS, near-slab SV)	Yes - Benzene and TCE (IA ≥ CS, near-slab SV)	**Yes - Benzene (ND in SS04 and near-slab SV)**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene (ND in SS and near-slab SV)**
Mismatched ratios between SS, near-slab SV, CS and IA concentrations for different VOCs?	Yes, comparing TCE and PCE to benzene and naphthalene indicates indoor sources of benzene and naphthalene.	Yes, comparing TCE and benzene indicates indoor source of benzene	Yes, comparing TCE and benzene indicates indoor source of benzene	Yes, comparing TCE and benzene indicates indoor source of benzene	Yes, comparing TCE and benzene indicates indoor source of benzene	Yes, comparing TCE and benzene indicates indoor source of benzene	Yes - indicating indoor sources of benzene and TCE	Yes - indicating indoor sources of benzene and TCE	No, but apparent indoor air source of benzene	No, but apparent indoor air source of benzene	Yes, comparing TCE and benzene ratios indicates indoor source of benzene
Is VI Currently Occuring and Significant (causing IA > VISLs)?	**Possibly - TCE > VISL in Mannik-Smith Sep 2017 IA3. However, Manik-Smith Jan 2018 IA and Nov 2018 IA TCE < VISL.**	No	**Possibly - TCE > VISL in Mannik-Smith Jun 2017 IA1 and Sep 2017 IA2 and IA3. However, Manik-Smith Jan 2018 IA and Nov 2018 IA TCE < VISL.**	**Possibly - TCE > VISL in Mannik-Smith Apr 2017 IA1. However, Manik-Smith Sep 2017 and Jan 2018 IA and Nov 2018 IA TCE < VISL.**	**Possibly - TCE > VISL in Mannik-Smith Mar 2017 IA1 and IA2. However, Manik-Smith Jun and Nov 2017 and Jan 2018 IA and Nov 2018 IA TCE < VISL.**	**Yes - TCE > VISL in Mannik-Smith IA samples in Apr, Jun, and Sep 2017, and Jan 2018, and Nov 2018 IA.**	No	No	No	No	No
Potential for Future Significant VI?	**Possibly - exterior SV probes and GW wells have VOCs > VISLs. Mannik-Smith data indicates TCE in SS exceeded the VISL in Sep 2017; however, more recent (Jan and Nov 2018) SS sampling indicates TCE < VISL.**	**Yes - TCE > VISL in Jan 2017 and Nov 2018 SS. Exterior SV probes and GW wells have VOCs > VISLs.**	**Yes - TCE > VISL in SS in multiple events including most recent in Nov 2018. Naphthalene > VISL in SS in Sep 2017. Exterior SV probes and GW wells have VOCs > VISLs**	**Yes - TCE > VISL in SS in multiple events including most recent in Nov 2018. Exterior SV probes and GW wells have VOCs > VISLs**	**Yes - TCE > VISL in SS in multiple events including most recent in Nov 2018. 1,3-Dichlorobenzene > VISL in SS in Nov 2017. Exterior SV probes and GW wells have VOCs > VISLs**	**Possibly - exterior SV probes and GW wells have VOCs > VISLs. TCE > VISL in SS in Jan, Apr, and Sep 2017; however, more recent (Jan and Nov 2018) SS sampling indicates TCE < VISL. Naphthalene > VISL in Sep 2017 but ND in Jan 2018.**	**Unlikely - near-slab SV VOCs < VISLs for 2 rounds, and VOCs not detected in nearby GW wells.**	**Unlikely - near-slab SV VOCs < VISLs for 2 rounds, and VOCs not detected in nearby GW wells.**	**Yes - SS04 TCE > VISL (adjacent property)**	**Unlikely - near-slab SV VOCs < VISLs**	**Yes - SS TCE > VISL**
Reccomended Further Action											
VI CSM Category											
Property likely currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future			x			x					
Property possibly currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future	x			x	x						
Property unlikely currently has complete VI pathway that is causing IA and/or CS > VISLs, but has potential for this in the future		x			x	x			x		x
Property unlikely currently has complete VI pathway causing IA and/or CS > VISLs, and unlikely has potential for this in the future							x	x		x	
Current Scenario: Site-related COPCs	**TCE**	**None**	**TCE**	**TCE**	**TCE**	**TCE**	**None**	**None**	**None**	**None**	**None**
Future Scenario: Site-related COPCs	**Benzene and TCE**	**Benzene and TCE**	**Benzene, naphthalene, and TCE**	**Benzene and TCE**	**Benzene, 1,3-dichlorobenzene, and TCE**	**Benzene, naphthalene, and TCE**	**None**	**None**	**TCE**	**None**	**TCE**

Notes:

Data was not included from times that a mitigation system supplied by EPA such as subslab depressurization or air purifiers were being operated in a particular building. However data is included when mitigation systems were only operating in the general area, not in the specific building

VISL - Vapor Intrusion Screening Level, based on a cancer risk of $1x10^{-6}$ for carcinogens

Grey shading indicates a summary of an exceedance in sample media

Table 1: Summary of Vapor Intrusion Multiple Lin

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	RP-005	RP-006	RP-007	RP-008	RP-009	RP-012	RP-036	RP-037	RP-038	RP-040
Property Address	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Description of Property	Single family, two-story residential, approximately 100 years old, with crawl space and unfinished basement	Single family, two-story residential, approximately 100 years old, with partial crawl space and semi-finished basement	Two-story residential, divided into two apartments (first and second floor), approximately 100 years old, with partial crawl space and finished basement	Single family, two-story residential, approximately 50 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 100 years old, with crawl space and finished basement	Single family, one-story residential, approximately 60 years old, with crawl space and no basement	Single family, two-story residential, unknown construction date, with crawl space and unfinished basement	Split-level, two-story, wood-frame single-family residential with a finished basement and block foundation. The basement has a poured concrete floor and is separated into two halves (one living space, other garage).	Single family, two-story residential, approximately 100 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 100 years old, with unfinished basement and crawl space
Sampling Performed by CH2M Hill (now Jacobs)	**May-July 2017 (Round 2)** - IA sampling **Feb 2018 (Round 3) -** IA and SS sampling **Jun 2018 (Round 4)** - Sewer gas sampling **Oct/Nov 2018 (Round 5)** - IA and SS sampling, and sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4)** - Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May-July 2017 (Round 2)** - IA sampling **Feb 2018 (Round 3) -** IA and SS sampling **Oct/Nov 2018 (Round 5)** - IA, CS and SS sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3) -** IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3) -** IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA sampling	**May/July 2017 (Round 2) -** IA, SS, and near-slab SV sampling **Feb 2018 (Round 3)** - IA, SS, and near-slab SV sampling **Jun 2018 (Round 4)** - Sewer gas sampling **Oct/Nov 2018 (Round 5)** - IA, CS, and SS sampling, and sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4)** - Exterior SV and sewer gas sampling **Oct/Nov 2018 (Round 5)** - Exterior SV and sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling	**May/July 2017 (Round 2) -** IA, SS, and near-slab SV sampling **Feb 2018 (Round 3)** - IA, SS, and near-slab SV sampling **Oct/Nov 2018 (Round 5)** - IA and SS sampling
Sampling Performed by Mannik-Smith	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	**Nov 2017** - IA sampling **Jan 2018** - SS and IA sampling	Not applicable
Lines of Evidence										
Comparison to Screening Levels										
Shallow GW VOC concentrations > VISL within 100 feet of building?	No	No	No	No	No	No	No	No	**MW-402S (June 2018) - TCE > VISL**	No
Sewer gas VOC concentrations > VISL within 100 feet of building?	ST-06 (June 2018) < VISL ST-06 (October 2018) < VISL	SA-06 (June 2018) < VISLs SA-06 (October 2018) < VISLs	ST-05 (June 2018) < VISLs ST-05 (October 2018) < VISLs **SA-07 (June 2018) - TCE > VISL** **SA-07 (October 2018) - TCE > VISL**	SA-06 (June 2018) < VISLs SA-06 (October 2018) < VISLs	SA-01 (Jan 2017) < VISLs **SA-01 (October 2018) - TCE > VISL** ST-06 (June 2018) < VISLs ST-06 (October 2018) < VISLs	Not applicable	SA-03 (June 2018) < VISLs SA-03 (October 2018) < VISLs ST-03 (June 2018) < VISLs ST-03 (October 2018) < VISLs	SA-03 (June 2018) < VISLs SA-03 (October 2018) < VISLs ST-03 (June 2018) < VISLs ST-03 (October 2018) < VISLs	Not applicable	Not applicable
Site-wide SV (installed in 2018) VOC concentrations > VISL within 100 feet of the building?	Not applicable	Not applicable	Not applicable	Not applicable	**SVB14-4.8 (Jun 2018) - TCE > VISL** SVB14-4.8 (Nov 2018) < VISLs SVB14-9.5 (Jun 2018) < VISLs SVB14-9.5 (Nov 2018) < VISLs SVB14-12.5 (Jun 2018) < VISLs SVB14-12.5 (Nov 2018) < VISLs	**SVB10-06 (Jun 2018) - TCE, Benzene > VISL** **SVB10-06 (Oct 2018) - TCE > VISL** **SVB10-10 (Jun 2018) - TCE > VISL** **SVB10-10 (Oct 2018) - TCE > VISL** **SVB10-15.6 (Jun 2018) - TCE > VISL** **SVB10-15.6 (Oct 2018) - TCE > VISL**	**SVB03-5.5 (Jun 2018) - Benzene > VISL** SVB03-5.5 (Oct 2018) < VISLs SVB03-10.5 (Jun 2018) < VISLs SVB03-10.5 (Oct 2018) < VISLs SVB03-15 (Jun 2018) < VISLs SVB03-15 (Oct 2018) < VISLs **SVB04-06 (Jun 2018) - TCE > VISL** SVB04-06 (Oct 2018) < VISLs **SVB04-09 (Jun 2018) - TCE, benzene > VISL** **SVB04-09 (Oct 2018) - TCE > VISL** **SVB04-12.5 (Jun 2018) - TCE > VISL** **SVB04-12.5 (Oct 2018) - TCE > VISL**	**SVB03-5.5 (Jun 2018) - Benzene > VISL** SVB03-5.5 (Oct 2018) < VISLs SVB03-10.5 (Jun 2018) < VISLs SVB03-10.5 (Oct 2018) < VISLs SVB03-15 (Jun 2018) < VISLs SVB03-15 (Oct 2018) < VISLs **SVB04-06 (Jun 2018) - TCE > VISL** SVB04-06 (Oct 2018) < VISLs **SVB04-09 (Jun 2018) - TCE, benzene > VISL** **SVB04-09 (Oct 2018) - TCE > VISL** **SVB04-12.5 (Jun 2018) - TCE > VISL** **SVB04-12.5 (Oct 2018) - TCE > VISL**	**SVB02-06 (Jun 2018) - Benzene > VISL** SVB02-06 (Oct 2018) < VISLs SVB02-11 (Jun 2018) < VISLs SVB02-11 (Oct 2018) < VISLs **SVB04-06 (Jun 2018) - TCE > VISL** SVB04-06 (Oct 2018) < VISLs **SVB04-09 (Jun 2018) - TCE, benzene > VISL** **SVB04-09 (Oct 2018) - TCE > VISL** **SVB04-12.5 (Jun 2018) - TCE > VISL** **SVB04-12.5 (Oct 2018) - TCE > VISL**	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL** **SVB02-06 (Jun 2018) - Benzene > VISL** SVB02-06 (Oct 2018) < VISLs SVB02-11 (Jun 2018) < VISLs SVB02-11 (Oct 2018) < VISLs
Near-slab SV (installed in 2017) VOC concentrations > VISL?	Nearby SG03 (Jun 2017, Feb 2018) < VISL (located near property line at adjacent property 126 W Lake St)	SG06 (Jun 2017, Feb 2018) < VISLs	Not applicable	SG08 (Jun 2017, Feb 2018) < VISLs	SG09 (Jun 2017, Feb 2018) < VISLs	SG12 (Jun 2017) < VISLs	SG36 (Jun 2017, Feb 2018) < VISLs	SG37 (Jul 2017, Feb 2018) < VISLs	**SG38 (Jun 2017) - TCE > VISL**	SG40 (Jun 2017, Feb 2018) < VISLs
SS VOC concentrations > VISL?	SS05 (Feb 2018, Nov 2018) < VISL	Not sampled	SS07 (Feb 2018, Nov 2018) < VISL	Not sampled	Not sampled	Not sampled	**SS36 (Feb 2018) - TCE > VISL** **SS36 (Nov 2018) - TCE > VISL**	Not sampled	Mannik-Smith (SS1 in Nov 2017 and Jan 2018) < VISLs	**SS40 (Feb 2018) - TCE > VISL** **SS40 (Nov 2018) - TCE > VISL**
CS VOC concentrations > VISL?	Not applicable	Not applicable	**CS07-01 and -02 (Nov 2018) - Benzene > VISL**	Not applicable	Not applicable	Not applicable	**CS36 (Nov 2018) - Benzene > VISL**	Not applicable	Not applicable	Not applicable
IA VOC concentrations > VISL?	**IA (June 2017) < VISLs** **IA (Feb 2018) - TCE, Benzene > VISL** **IA (Nov 2018) - Benzene > VISL**	**IA (Jun 2017) - Benzene > VISL** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL** **IA (Nov 2018) - Benzene > VISL**	IA (Jun 2017) < VISLs IA (Feb 2018) < VISLs	**IA (Jun 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - Benzene > VISL** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - TCE > VISL** **IA (Feb 2018) - Benzene > VISL** **IA (Nov 2018) - Benzene > VISL (1 of 2 samples)**	**IA (Jun 2017) - TCE > VISL** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - TCE > VISL** **Mannik-Smith (IA1, IA2, and IA3 Nov 2017 and Jan 2018) - Benzene > VISL** **Mannik-Smith (IA1 Jan 2018) - TCE > VISL**	**IA (Jun 2017) - TCE > VISL** **IA (Feb 2018) - Benzene > VISL** IA (Nov 2018) < VISLs

Table 1: Summary of Vapor Intrusion Multiple Lin

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	RP-005	RP-006	RP-007	RP-008	RP-009	RP-012	RP-036	RP-037	RP-038	RP-040
Property Address	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Lines of Evidence Used to Evaluate IA Data										
OA (site-wide) similar or greater than IA concentrations, indicating background VOCs?	No	No	No	No	No	No	No	No	No	No
Potential indoor VOC sources identified during building survey?	May/July 2017, Feb 2018, and Oct/Nov 2018 - General household/potential indoor VOC sources observed. None removed prior to each sampling	May/July 2017 and Feb 2018 - General household/potential indoor VOC sources observed. Paints, spray paints/stains from basement, air fresheners throughout, spot cleaners, brass cleaner removed prior to sampling both events.	May/July 2017 - Removed wood polish/cleaner, WD-40	May/July 2017 - Heavy duty oven cleaner, insect repellant, Scotch Guard, scented candles and room spray, cleaning supplies, furniture polish, PVC cement, lubricants and corrosion inhibitor, paints, metal polish, spray paints, sealants, degreasers, WD-40, silicone spray. No products removed during Feb 2018 event due to freezing conditions outside.	May/July 2017 - General cleaning supplies, mineral spirits, insect repellant removed. Nothing removed during Feb 2018 event.	May/July 2017 - Gun cleaner, WD-40, spray paints. Owner smokes in the doorway of the home. Bathroom renovation ongoing at the time of the sampling event. Feb 2018 - Removed gun cleaner	None observed or removed during the Jan 2017, May/July 2017, Feb 2018, or Oct/Nov 2018 sampling events. New paint throughout the house prior to Jan 2017 sampling event	Building survey could not be located to confirm this activity	May/July 2017 - General households/potential indoor VOC sources observed. None removed prior to sampling. Occupants smoke on balcony of home and had replaced carpets within two months prior to May/July 2017 sampling event	General households/potential indoor VOC sources observed. None removed prior to each sampling event (Jan 2017, May/July 2017, Feb 2018, Oct/Nov 2018).
Building construction/conditions that could increase or decrease liklihood of VI?	Poured concrete basement with stone walls. Crawl space has exposed dirt floor	"Michigan Basement" with partially exposed dirt floor	Poured concrete basement slab with stone walls	Poured concrete basement slab with stone walls	Poured concrete basement slab with stone walls	"Michigan Basement" with partially exposed dirt floor	"Michigan Basement" with partially exposed dirt floor	Poured concrete basement with concrete block foundation, and living space in the basement.	Poured concrete basement slab with stone walls	"Michigan Basement" with partially exposed dirt floor
IA ≥ CS, near-slab SV, or SS concentration?	**Yes - Benzene and TCE (ND in SS)**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene (IA > SS in Feb 2018, ND in SS in Nov 2018, and IA > CS in Nov 2018)**	No	**Yes - Benzene (ND in near-slab SV in Feb 2018)**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene - IA exceeds SS (Nov 2018) or SS is ND (Feb 2018) Benzene is ND is near-slab SV**	**Yes - Benzene and TCE (ND in near-slab SV); however, TCE > VISL in SS at adjacent property**	**Yes - Benzene in Mannik-Smith SS1 in Jan 2018 similar to IA3**	**Yes - Benzene (ND in near-slab SV) For Feb and Nov 2018, benzene detected in SS > IA**
Mismatched ratios between SS, near-slab SV, CS and IA concentrations for different VOCs?	Yes, comparing PCE, TCE, and benzene ratios indicates indoor source of benzene and possibly TCE	No, but apparent indoor air source of benzene	No, but apparent indoor air source of benzene	No	No, but apparent indoor air source of benzene	Yes, comparing PCE and benzene ratios (Jun 2017) indicates indoor source of benzene	Yes, comparing TCE and benzene ratios (IA/SS in Feb and Nov 2018) indicates indoor source of benzene	No, but apparent indoor air source of benzene	No	Yes, comparing TCE and benzene ratios (IA/SS in Feb and Nov 2018) indicates indoor source of benzene
Is VI Currently Occuring and Significant (causing IA > VISLs)?	Possible based on TCE in IA (Feb 2018)	No	No	No	No	No	**Possibly - IA TCE > VISL Jun 2017. However, Feb and Nov 2018 IA TCE < VISL.**	**Possibly - based on TCE in IA (Jun 2017) and nearby SVB**	**Yes**	**Possibly - based on TCE in IA (Jun 2017) and SS**
Potential for Future Significant VI?	**Unlikely - SS below VISL; however, property is adjacent to former PMC site**	**Unlikely - near-slab SV < VISLs**	**Possible - sewer gas within 100 ft has TCE > VISL; however, SS below VISLs**	**Unlikely - near-slab SV < VISLs**	**Possible - exterior SV and sewer gas within 100 ft has TCE > VISL; however, near-slab SV below VISLs**	**Possibly - as benzene and TCE exceeded VISL in nearby SVB.**	**Yes - as TCE exceeded VISL in SS.**	**Possibly - based on TCE in IA and nearby SVB**	**Yes - TCE > VISL in near-slab SV, and TCE > VISL in GW**	**Yes - as TCE exceeded VISL in SS**
Reccomended Further Action										
VI CSM Category										
Property likely currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future									x	
Property possibly currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future	x						x	x		x
Property unlikely currently has complete VI pathway that is causing IA and/or CS > VISLs, but has potential for this in the future			x		x	x				
Property unlikely currently has complete VI pathway causing IA and/or CS > VISLs, and unlikely has potential for this in the future		x		x						
Current Scenario: Site-related COPCs	**TCE**	**None**	**None**	**None**	**None**	**None**	**TCE**	**TCE**	**TCE**	**TCE**
Future Scenario: Site-related COPCs	**TCE**	**None**	**TCE**	**None**	**TCE**	**Benzene, TCE**	**Benzene, TCE**	**Benzene, TCE**	**Benzene, TCE**	**Benzene, TCE**

Notes:

Data was not included from times that a mitigation system supplied by EPA such as subslab depressurization or air purifiers were being operated in a particular building. However data is included when mitigation systems were only operating in the general area, not in the specific building

VISL - Vapor Intrusion Screening Level, based on a cancer risk of $1x10^{-6}$ for carcinogens

Grey shading indicates a summary of an exceedance in sample media

Table 1: Summary of Vapor Intrusion Multiple Lin

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	RP-042	RP-044	RP-047	RP-048	RP-049	RP-050	RP-051	RP-052	RP-058	RP-059	RP-060	RP-064
Property Address	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Description of Property	Single family, one-story residential, uknown construction date. Unfinished basement with limited clearance, accessed via floor-door in extra bedroom	Single family, one-story residential, approximately 60 to 70 years old, with finished basement and no crawl space	Two story residential building, divided into two apartments (first and second floor). Approximately 100 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 100 years old, with finished basement and partial crawl space	Single family, one-story residential, approximately 100 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 100 years old, with crawl space and finished basement	Single family, two-story residential, approximately 100 years old, with unfinished basement and no crawl space	Single family, two-story residential, approximately 100 years old, with finished basement and no crawl space	Single family, two-story residential, approximately 150 years old, with unfinished basement and inaccesible crawl space	Residential property. Detailed building survey has not yet been performed as access by owners has not been granted.	Residential property. Detailed building survey has not yet been performed as access by owners has not been granted.	Residential property. Detailed building survey has not yet been performed as access by owners has not been granted.
Sampling Performed by CH2M Hill (now Jacobs)	**Jun 2018 (Round 4)** - Exterior SV sampling **Oct/Nov 2018 (Round 5) -** IA and basement-IA sampling, and exterior SV sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA sampling **Oct/Nov 2018 (Round 5)** - IA and Basement-IA sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May/July 2017 (Round 2) -** IA sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - IA, near-slab SV sampling, and exterior SV and sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - Sewer gas sampling	**May/July 2017 (Round 2) -** IA sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling **Jun 2018 (Round 4) -** Sewer gas sampling **Oct/Nov 2018 (Round 5)** - IA and basement-IA sampling, and sewer gas sampling	**May/July 2017 (Round 2) -** IA and near-slab SV sampling **Feb 2018 (Round 3)** - IA and near-slab SV sampling	Access to property was not permitted. No sampling has been performed as of the time of drafting this table.	Access to property was not permitted. No sampling has been performed as of the time of drafting this table.	Access to property was not permitted. No sampling has been performed as of the time of drafting this table.
Sampling Performed by Mannik-Smith	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Lines of Evidence												
Comparison to Screening Levels												
Shallow GW VOC concentrations > VISL within 100 feet of building?	No	No	No	MW-401S (June 2018) < VISL	No	No	No	No	No	No	No	No
Sewer gas VOC concentrations > VISL within 100 feet of building?	Not applicable	Not applicable	SA-05 (June 2018) < VISLs SA-05 (October 2018) < VISLs	SA-06 (June 2018) < VISLs SA-06 (October 2018) < VISLs	SA-05 (June 2018) < VISLs SA-05 (October 2018) < VISLs	SA-05 (June 2018) < VISLs SA-05 (October 2018) < VISLs	SA-05 (June 2018) < VISLs SA-05 (October 2018) < VISLs	SA-05 (June 2018) < VISLs SA-05 (October 2018) < VISLs	Not applicable	Not applicable	Not applicable	Not applicable
Site-wide SV (installed in 2018) VOC concentrations > VISL within 100 feet of the building?	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL** **SVB02-06 (Jun 2018) - Benzene > VISL** SVB02-06 (Oct 2018) < VISLs SVB02-11 (Jun 2018) < VISLs SVB02-11 (Oct 2018) < VISLs	**SVB03-5.5 (Jun 2018) - Benzene > VISL** SVB03-5.5 (Oct 2018) < VISLs SVB03-10.5 (Jun 2018) < VISLs SVB03-10.5 (Oct 2018) < VISLs SVB03-15 (Jun 2018) < VISLs SVB03-15 (Oct 2018) < VISLs **SVB04-06 (Jun 2018) - TCE > VISL** SVB04-06 (Oct 2018) < VISLs **SVB04-09 (Jun 2018) - TCE, benzene > VISL** **SVB04-09 (Oct 2018) - TCE > VISL** **SVB04-12.5 (Jun 2018) - TCE > VISL** **SVB04-12.5 (Oct 2018) - TCE > VISL**	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL** **SVB02-06 (Jun 2018) - Benzene > VISL** **SVB02-06 (Oct 2018) < VISLs** **SVB02-11 (Jun 2018) < VISLs** **SVB02-11 (Oct 2018) < VISLs**	Not applicable	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL**	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL**	Not applicable	Not applicable	Not applicable	**SVB10-06 (Jun 2018) - TCE, Benzene > VISL** **SVB10-06 (Oct 2018) - TCE > VISL** **SVB10-10 (Jun 2018) - TCE > VISL** **SVB10-10 (Oct 2018) - TCE > VISL** **SVB10-15.6 (Jun 2018) - TCE > VISL** **SVB10-15.6 (Oct 2018) - TCE > VISL**	**SVB10-06 (Jun 2018) - TCE, Benzene > VISL** **SVB10-06 (Oct 2018) - TCE > VISL** **SVB10-10 (Jun 2018) - TCE > VISL** **SVB10-10 (Oct 2018) - TCE > VISL** **SVB10-15.6 (Jun 2018) - TCE > VISL** **SVB10-15.6 (Oct 2018) - TCE > VISL**	**SVB01-5.8 (Jun 2018) - Benzene > VISL** SVB01-5.8 (Nov 2018) < VISLs **SVB01 -14 (Jun 2018) - TCE > VISL** **SVB01 -14 (Nov 2018) - TCE > VISL**
Near-slab SV (installed in 2017) VOC concentrations > VISL?	Not applicable	SG44 (Jun 2017, Feb 2018) < VISLs	SG47 (Jul 2017) < VISLs	SG48 (Jun 2017, Feb 2018) < VISLs	SG49 (Jul 2017) < VISLs	SG50 (Feb 2018) < VISLs SG50 (Nov 2018) < VISLs	SG51 (Jun 2017, Feb 2018) < VISLs	SG52 (Feb 2018) < VISLs	SG58 (Jun 2017, Feb 2018) < VISLs	SG09 (Jun 2017, Feb 2018) < VISLs SG12 (Jun 2017) < VISLs SG58 (Jun 2017, Feb 2018) < VISLs	SG12 (Jun 2017) < VISLs SG58 (Jun 2017, Feb 2018) < VISLs	SG47 (Jul 2017) < VISLs SG49 (Jul 2017) < VISLs SG40 (Jun 2017, Feb 2018) < VISLs
SS VOC concentrations > VISL?	Not sampled	Not sampled	Not sampled	Not sampled	Not sampled	SS50 (November 2018) < VISLs	Not sampled	Not sampled	Not sampled	Not applicable	Not applicable	Not applicable
CS VOC concentrations > VISL?	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IA VOC concentrations > VISL?	IA (Nov 2018) < VISLs	**IA (June 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL**	**IA (July 2017) < VISLs** **IA (Feb 2018) - TCE, Benzene > VISL** **IA (Nov 2018) < VISLs**	**IA (Jun 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL**	**IA (Jul 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - TCE, Benzene > VISL** **IA (Feb 2018) - Benzene > VISL** **IA (Nov 2018) < VISLs**	**IA (Jun 2017) < VISLs** **IA (Feb 2018) - Benzene > VISL**	**IA (Jun 2017) - Benzene > VISL** **IA (Feb 2018) - Benzene > VISL** **IA (Nov 2018) - Benzene > VISL**	**IA (Jun 2017) - Benzene > VISL** **IA (Feb 2018) - Benzene = VISL**	Not applicable	Not applicable	Not applicable

Table 1: Summary of Vapor Intrusion Multiple Lin

PMC Groundwater Superfund Site

Petoskey, Michigan

Property Information and Summary of VI Sampling Performed	RP-042	RP-044	RP-047	RP-048	RP-049	RP-050	RP-051	RP-052	RP-058	RP-059	RP-060	RP-064
Property Address	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Lines of Evidence Used to Evaluate IA Data												
OA (site-wide) similar or greater than IA concentrations, indicating background VOCs?	No	No	No	No	No	No	No	No	No	Not applicable	Not applicable	Not applicable
Potential indoor VOC sources identified during building survey?	General households/potential indoor VOC sources observed during Oct/Nov 2018 building survey. None removed prior to sampling.	General households/potential indoor VOC sources observed during May/July 2017 and Feb 2018 building surveys. None removed prior to sampling. Remodeling/painting had been performed in basement within two months prior to May/July 2017 sampling event	May/July 2017 and Feb 2018 events were conducted around the time recent maintenance activities had taken place. Mothballs removed during Oct/Nov 2018 event	General households/potential indoor VOC sources observed during May/July 2017 and Feb 2018 building surveys. None removed prior to sampling.	May/July 2017 and Feb 2018 - Spray paint, nail polish remover, WD-40 removed prior to sampling. Carpet cleaning had been performed within 3 months prior to May/July 2017 sampling event	May/July 2017 and Feb 2018 - Aerosol cleaners, spot cleaners (laundry/carpet), spray paint, adhesive remover, nail polish remover were removed prior to sampling. Baseboards had been painted within 6 months prior to May/July 2017 sampling event	May/July 2017 - Spray paint, WD-40 removed. Feb 2018 - no elevated ppbRae readings recorded	May/July 2017, Feb 2018, and Oct/Nov 2018 - General households/potential indoor VOC sources observed. None removed prior to sampling.	May/July 2017 and Feb 2018 - General households/potential indoor VOC sources observed. None removed prior to sampling.	Not applicable	Not applicable	Not applicable
Building construction/conditions that could increase or decrease liklihood of VI?	"Michigan Basement" with partially exposed dirt floor	None	"Michigan Basement" with partially exposed dirt floor	Exposed dirt crawl space	"Michigan Basement" with partially exposed dirt floor	"Michigan Basement" with partially exposed dirt floor	None	"Michigan Basement" with partially exposed dirt floor	Exposed dirt crawl space	Not applicable, property has not granted access	Not applicable, property has not granted access	Not applicable, property has not granted access
IA ≥ CS, near-slab SV, or SS concentration?	No	**Yes - Benzene in Feb 2018 (ND in near-slab SV) For Jun 2017, benzene detected in near-slab SV similar to IA**	**Yes - Benzene (ND in near-slab SV) No - TCE in near-slab SV > IA**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene (ND in near-slab SV)**	**Yes, but only for near-slab SV where benzene and TCE are ND (Feb and Nov 2018) For Nov 2018, benzene and TCE detected in IA and sub-slab (Nov 2018) with IA < SS**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene (ND in near-slab SV)**	**Yes - Benzene (ND in near-slab SV)**	Not applicable	Not applicable	Not applicable
Mismatched ratios between SS, near-slab SV, CS and IA concentrations for different VOCs?	No	No, but possible indoor air source of benzene	Yes, comparing PCE, TCE, and benzene ratios indicates possible indoor source of benzene and TCE	No, but apparent indoor air source of benzene	No, but apparent indoor air source of benzene	Yes, comparing PCE, TCE, and benzene ratios (IA/SS in Nov 2018) indicates indoor source of benzene and TCE	No, but apparent indoor air source of benzene	No, but apparent indoor air source of benzene	Yes, comparing PCE and benzene ratios indicates indoor source of benzene	Not applicable	Not applicable	Not applicable
Is VI Currently Occuring and Significant (causing IA > VISLs)?	No	No	**Unlikely, MLE indicates indoor source(s) of TCE and benzene**	No	No	**Unlikely, MLE indicates indoor source(s) of TCE and benzene**	No	No	No	**Although no indoor air samples have been collected for comparison, it is unlikely that VI is currently occurring at this property, with consideration given to nearby exterior SV results and the current assessment at [redacted]**	**Although no indoor air samples have been collected for comparison, it is unlikely that VI is currently occurring at this property, with consideration given to nearby exterior SV results and the current assessment at nearby [redacted]**	**Although no indoor air samples have been collected for comparison, it is unlikely that VI is currently occurring at this property, with consideration given to nearby exterior SV results and the current assessment at nearby [redacted]**
Potential for Future Significant VI?	**Possibly - as benzene and TCE exceeded VISL in nearby SVBs. In addition, nearby SS results at RP-040 have TCE exceedance of VISL.**	**Possibly - as benzene and TCE exceeded VISL in nearby SVBs.**	**Possibly - as benzene and TCE exceeded VISL in nearby SVBs.**	**Unlikely - near-slab SV < VISLs**	**Possibly - as benzene and TCE exceeded VISL in nearby SVB.**	**Possibly - as benzene and TCE exceeded VISL in nearby SVB.**	**Unlikely - near-slab SV < VISLs**	**Unlikely - near-slab SV < VISLs**	**Unlikely - near-slab SV < VISLs**	**Possibly - nearby SVB exceed benzene and TCE VISLs**	**Possibly - nearby SVB exceed benzene and TCE VISLs**	**Possibly - nearby SVB exceed benzene and TCE VISLs**
Reccomended Further Action												
VI CSM Category												
Property likely currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future												
Property possibly currently has complete VI pathway that is causing IA and/or CS > VISLs, and has potential for this in the future												
Property unlikely currently has complete VI pathway that is causing IA and/or CS > VISLs, but has potential for this in the future	x	x	x		x	x				x	x	x
Property unlikely currently has complete VI pathway causing IA and/or CS > VISLs, and unlikely has potential for this in the future				x			x	x	x			
Current Scenario: Site-related COPCs	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
Future Scenario: Site-related COPCs	**Benzene, TCE**	**Benzene, TCE**	**Benzene, TCE**	**None**	**Benzene, TCE**	**Benzene, TCE**	**None**	**None**	**None**	**Benzene, TCE**	**Benzene, TCE**	**Benzene, TCE**

Notes:

Data was not included from times that a mitigation system supplied by EPA such as subslab depressurization or air purifiers were being operated in a particular building. However data is included when mitigation systems were only operating in the general area, not in the specific building

VISL - Vapor Intrusion Screening Level, based on a cancer risk of $1x10^{-6}$ for carcinogens

Grey shading indicates a summary of an exceedance in sample media

Table 1, Supplement A: Non-site Related or Non-Vapor Intrusion Related Chemicals

PMC Groundwater Superfund Site

Petoskey, Michigan

	1,2,4-Trimethylbenzene	Bromodichloromethane	Carbon Tetrachloride	Dichlorodifluoromethane	Ethyl Acetate	Ethylbenzene	Isopropyl Alcohol (Isopropanol)	Xylenes[1]
Historical Use At Site	No documented use at site.	No documented use at site.	No documented use at site.	No documented use at site.	No documented use at site.	Historically present at the site; stored in above ground storage tanks (Eder, 1993).	No documented use at site.	Historically present at the site; stored in above ground storage tanks (Eder, 1993).
Media Detected In and Comparison to Screening Levels								
Outdoor Air	- Outdoor Air FOD: 10/14	- Outdoor Air FOD: 0/14	- Outdoor Air FOD: 5/5	- Outdoor Air FOD: 14/14	- Outdoor Air FOD: 2/5	- Outdoor Air FOD: 8/13	- Outdoor Air FOD: 5/5	- Outdoor Air FOD: 9/9
Indoor Air and/or Crawl Space Air	- Crawl Space FOD: 15/16 - Indoor Air FOD: 86/155 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 2/16 - Indoor Air FOD: 31/155 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 6/6 - Indoor Air FOD: 104/104 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 16/16 - Indoor Air FOD: 154/155 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 6/6 - Indoor Air FOD: 87/104 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 10/16 - Indoor Air FOD: 87/154 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 4/4 - Indoor Air FOD: 67/154 - No VISL exceedances in crawl space air - VISL exceedances in indoor air	- Crawl Space FOD: 21/32 - Indoor Air FOD: 190/309 - No VISL exceedances in crawl space air - VISL exceedances in indoor air
Subslab Soil Vapor or Exterior Soil Vapor	- Subslab SV FOD: 37/54 - Exterior SV FOD: 18/43 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 5/54 - Exterior SV FOD: 0/43 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 4/24 - Exterior SV FOD: 2/20 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 53/54 - Exterior SV FOD: 42/43 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 23/24 - Exterior SV FOD: 4/20 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 24/54 - Exterior SV FOD: 2/20 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 18/46 - Exterior SV FOD: 1/43 -No VISL exceedances in subslab or exterior soil vapor	- Subslab SV FOD: 79/108 - Exterior SV FOD: 25/86 -No VISL exceedances in subslab or exterior soil vapor
Groundwater	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Detected in 1992 and 1993. Not detected in 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.	Not detected in 1992, 1993, 1995, or 2018 groundwater samples.
Soil	NA	Not detected in 2018 soil samples.	Not detected in 2018 soil samples.	Not detected in 2018 soil samples.	NA	- FOD: 5/14	NA	- FOD: 11/28
Conclusion								
VI Chemical of Potential Concern	No - There is no strong subsurface source. Presence indicates indoor source.	No - There is no strong subsurface source. Presence indicates indoor source.	No - There is no strong subsurface source. Presence indicates indoor source.	No - There is no strong subsurface source. Presence indicates indoor source.	No - There is no strong subsurface source. Presence indicates indoor source.	No - Concentrations in subslab SV were below VISLs and below the peak concentrations detected in indoor air, suggesting an indoor source.	No - There is no strong subsurface source. Presence indicates indoor source.	No - Concentrations in subslab SV were below VISLs and below the peak concentrations detected in indoor air, suggesting an indoor source.

Notes:

[1] Includes o-xylenes, and m&p-xylenes.

Frequency of detections (FODs) includes only those samples evaluated as part of the risk assessment.

SV - soil vapor

NA - not analyzed

Eder Associates Consulting Engineers (Eder). 1993. Phase I Remedial Investigation, Petoskey Manufacturing Company, Petoskey, Michigan. December.